OTAY MESA RECYCLED WATER SYSTEM

CAPITAL IMPROVEMENT PROGRAM R2087, R2077, R2058 PROJECT FINAL EIR

PREPARED FOR:

Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2096

PREPARED BY:

ICF International
9775 Businesspark Avenue, Suite 200
San Diego, California 92131

May 2010

ICF International. 2010. Capital Improvement Program
R2087, R2077, R2058 Project Final EIR. May. (ICF 277.09.) San Diego, CA.
Prepared for Otay Water District, Spring Valley, CA.

Contents

Page

Chapter 1 **List of Persons, Organizations, and Public Agencies that Have Commented or Given Recommendations on the Draft EIR 1-1**

1.1 Introduction 1-1

1.2 Agencies and Organizations Comments 1-2

1.3 Responses to Comments Index 1-3

Chapter 2 **Comments and Responses 2-1**

2.1 Letter 1: California Department of Transportation—District 11 2-3

2.2 Letter 2: California Department of Fish and Game 2-7

2.3 Letter 3: State Water Resources Control Board 2-19

2.4 Letter 4: Governor's Office of Planning and Research—State Clearinghouse and Planning Unit—April 13, 2010 2-25

2.5 Letter 5: Governor's Office of Planning and Research—State Clearinghouse and Planning Unit—April 13, 2010 2-31

2.6 Letter 6: Metropolitan Water District of Southern California 2-41

2.7 Letter 7: Otay Mesa Property Owners Association 2-43

2.8 Letter 8: East Otay Mesa Property Owners Association 2-45

2.9 Letter 9: San Diego County Archaeological Society 2-47

Chapter 3 **Changes Made to the Draft EIR 3-1**

3.1 Introduction 3-1

Chapter 4 **Statement of Location and Custodian of Documents 4-1**

Acronyms and Abbreviations

Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
draft EIR	Draft Environmental Impact Report
District	Otay Water District
final EIR	Final Environmental Impact Report
HMA	Habitat Management Area
I	Interstate
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation Monitoring and Reporting Program
OME	Otay Mesa East
POE	Port of Entry
SR	State Route
USACE	United States Army Corps of Engineers

Chapter 1

List of Persons, Organizations, and Public Agencies that Have Commented or Given Recommendations on the Draft EIR

1.1 Introduction

A draft version of this Environmental Impact Report (Draft EIR) was circulated for public review from February 26, 2010, to April 12, 2010. This chapter provides the names and addresses of persons, organizations, and public agencies that commented during this public review period.

In accordance with the California Environmental Quality Act (CEQA) Guidelines the Otay Water District (District) has evaluated the comments on environmental issues received from those agencies/parties and has prepared written responses to each pertinent comment relating to the adequacy of the environmental analysis contained within the Draft EIR. These responses are contained in Chapter 2, "Comments and Responses."

The agencies, organizations, and interested persons listed on the Responses to Comments Index (below) submitted comments on the Draft EIR during the public review period. Each comment submitted in writing is included, along with a written response where determined necessary. The individual comments were given reference numbers, which appear in the left margin next to the bracketed comment. For example, Letter 2 has comment numbers 2-1, 2-2, 2-3, etc.

In addition to the written responses contained in Chapter 2, and in response to comments received, certain revisions have been made to the Draft EIR. These revisions are presented in strikeout/underline format in Chapter 3. "Changes Made to the Draft EIR," and consist of changes to text that clarify information; only the pages that require revision are included therein. These changes do not constitute significant additional information that changes the outcome of the environmental analysis or necessitates recirculation of the document (CEQA Guidelines Section 15088.5). All such changes are presented in Chapter 3 and noted in the responses to comments.

1.2 Agencies and Organizations Comments

State Agencies	Address
California Department of Fish and Game	4949 Viewridge Avenue, San Diego, California 92123
California Department of Transportation	4050 Taylor Street, MS 240, San Diego, California 92110
State Water Resources Control Board	1001 I Street, Sacramento, California 95814
California State Clearinghouse, Office of Planning and Research	1400 10th St, P.O. Box 3044, Sacramento, California 95812
County, City, and Other Local Agencies	**Address**
Metropolitan Water District of Southern California	No address provided.
Organizations	**Address**
Otay Mesa Property Owners Association (OMPOA)	3132 Camino del Rio North, Suite 150, San Diego, California 92108
East Otay Mesa Property Owners Association (EOMPOA)	3132 Camino del Rio North, Suite 150, San Diego, California 92108
San Diego County Archaeological Society	P.O. Box 81106, San Diego, California 92138

1.3 Responses to Comments Index

Commenter	Letter Reference	Comment Numbers
California Department of Transportation	1	1-1 through 1-4
California Department of Fish and Game	2	2-1 through 2-12
State Water Resources Control Board	3	3-1 through 3-3
California State Clearinghouse, OPR	4	4-1
California State Clearinghouse, OPR	5	5-1
Metropolitan Water District of Southern California	6	6-1
Otay Mesa Property Owners Association (OMPOA)	7	7-1
East Otay Mesa Property Owners Association (EOMPOA)	8	8-1
San Diego County Archaeological Society	9	9-1 through 9-5

This page left intentionally blank.

Chapter 2

Comments and Responses

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 11
4050 TAYLOR STREET, MS 240
SAN DIEGO, CA 92110-2714
PHONE (619) 688-6960
FAX (619) 688-4299
TTY (619) 688-6670

Flex your power!
Be energy efficient!

April 6, 2010

11-SD-905
PM 11.15
Otay Mesa Recycled Water System Capital
Improvement Program
DEIR

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, CA 91978-2004

Dear Ms. Coburn-Boyd:

The California Department of Transportation (Caltrans) appreciates the opportunity to have reviewed the Draft Environmental Impact Report (DEIR) for the Otay Mesa Recycled Water System Capital Improvement Program (R2087, R2077, R2058) project draft Environmental Impact Report. The three-pipeline proposed project is within the South District area, which is comprised of the Central Area and Otay Mesa Systems and includes the following pipelines; Wueste Road Pipeline (CIP No. R2087), Alta Road Pipeline (CIP No. R2077), and Airway/La Media Road Pipeline (CIP No. R2058). We have the following comments:

1-1 • Page 225 Section 4.8-1 last paragraph first, sentence reads, "within the jurisdiction of the _____"? Whose jurisdiction is the DEIR mentioning?

1-2 • Caltrans recommends construction of pipelines R2058 and R2077 not begin until Caltrans has completed construction of State Route 905 (SR-905) Phase 1A. SR-905 Phase 1A is anticipated to be completed December 2010.

1-3 • Page 226 Section 4.8.1.1 Please describe what will be constructed as part of the SR-905 project on La Media and Airway, for example number of lanes, width, etc.

1-4 • Caltrans is in the preliminary engineering phase of State Route-11 (SR-11)/Otay Mesa East (OME) Port of Entry (POE). This area may be impacted differently than the proposal in the Phase I Program Environmental document per SR-11/OME POE. The Tier II Environmental Impact Report/ Environmental Impact Statement regarding the SR-11/OME POE is underway with completion expected 2010. The proposed alignment of SR-11 crosses Sanyo Road in the same location as the proposed pipeline. Prior to construction Caltrans recommends coordination of the installation of pipelines R2058 and R2077 with the Otay Water District.

"Caltrans improves mobility across California"

2.1 Letter 1: California Department of Transportation—District 11

1-1 Sanyo Avenue is within the jurisdiction of the County of San Diego. The revision to the text requested in the comment is included in Chapter 3, "Changes Made to the Draft EIR," below.

1-2 Comment noted. As discussed in Section 3.4.5 of the draft EIR, construction of the first pipeline is anticipated to start in summer of 2010. The District is applying for an encroachment permit with Caltrans for work proposed within the right-of-way for State Route (SR) 905. In association with obtaining the encroachment permit, the District will continue to coordinate with the California Department of Transportation (Caltrans) regarding the timing for construction of the proposed pipelines within Airway and Alta Roads in conjunction with ongoing Caltrans work on SR-905.

1-3 As discussed in Section 2.3.1.2 of the draft EIR, Caltrans proposes to construct SR-905 as a six-lane (mixed-flow) freeway or tollway with controlled access, to connect the Otay Mesa Point of Entry and Interstate (I) 805 in San Diego County, California. This Caltrans Project includes the following improvements:

- construction of six-lanes, from just east of I-805 to Siempre Viva Road;
- construction of interchanges at Caliente Avenue, Britannia Boulevard, and La Media Road;
- improvements to Sanyo Avenue, Otay Mesa Road, and Harvest Road; and
- improvements to Airway Road, including construction of the underpass at the future SR-905.

1-4 Although the comment does not include a specific date when construction of the SR-11/Otay Mesa East (OME) Port of Entry (POE) would start, if construction would not start until 2011 it is anticipated that construction of the three pipelines could be complete prior to start of construction for the SR-11/OME/POE. As discussed in Section 3.4.5 of the draft EIR, it is anticipated that the duration for construction for all three pipelines would be a total of approximately 420 days. Assuming approximately 500 feet of trench are open at any time, trenching operations would take 3 to 4 days to pass a given point at the planned rate of 120 to 160 feet per day. Construction of the first pipeline is anticipated to start in July 2010.

Ms. Lisa Coburn-Boyd
April 6, 2010
Page 2

If you have any questions on the comments Caltrans has provided, please contact Anthony Aguirre of the Development Review Branch at (619) 688-3161.

Sincerely,

JACOB ARMSTRONG, Chief
Development Review Branch

"Caltrans improves mobility across California"

California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
South Coast Region
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201
http://www.dfg.ca.gov

ARNOLD SCHWARZENEGGER, Governor
JOHN MCCAMMAN, Director

OTAY WATER DISTRICT
RECEIVED
2010 APR 12 AM 11: 12

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2004

Subject: Comments on the Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project Draft Environmental Impact Report, San Diego County, California (SCH# 2009101031)

Dear Ms. Coburn-Boyd:

The California Department of Fish and Game (Department) has reviewed the above-referenced Draft Environmental Impact Report (DEIR), dated February 2010. The Department previously commented on the Notice of Preparation for the DEIR on October 30, 2009. The comments provided herein are based on information provided in the DEIR and associated documents (including the Biological Assessment for the Otay Water District's Transmission Pipelines, prepared by ICF International, dated February 2010), our knowledge of sensitive and declining vegetation communities, and our participation in regional conservation planning.

The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project (CEQA Guidelines Section 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines Section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code Section 2050 et seq.) and Fish and Game Code Section 1600 et seq. The Department also administers the Natural Community Conservation Planning (NCCP) Program.

The Otay Water District (District) proposes to construct three recycled water system transmission pipelines under the District's Capital Improvement Program (CIP). The projects would be located with the South District service area (comprised of the Central Area and Otay Mesa Systems) where it maintains and operates a recycled water system. The recycled water pipelines include the following: Wueste Road Pipeline (CIP No. R2087/13,300 linear feet of 24-inch-diameter steel pipeline) which would extend along Wueste Road within unincorporated County of San Diego and City of Chula Vista; Alta Road Pipeline (CIP No. R2077/11,989 linear feet of 24-inch-diameter polyvinyl chloride pipeline) which would extend along Alta Road within the City of San Diego; and Airway/La Media Road Pipeline (CIP No. R2058/ 12,440 linear feet of 16-inch-diameter polyvinyl chloride pipeline) that would be located along Airway/La Media Road with the limits of City of San Diego. Cut and cover trenching techniques would be used for pipeline installation, with approximately 500 feet of trench open at any time. A portion of the Wueste Road pipeline that crosses underground utilities would require jack-and-bore construction techniques. The DEIR acknowledges that the District intends to limit construction activities to the paved portions of the designated roadways (located within existing utility rights-of-way); however, construction activity for the Wueste Road Pipeline would extend approximately 10 feet east from paved portion of Wueste Road. The width of the construction corridor for that portion of pipeline that extends outside of the roadway would be approximately 50-70 feet. Construction staging areas would be located on existing developed areas or disturbed road edges that do not support vegetation. Also, the Wueste Road Pipeline phase

Conserving California's Wildlife Since 1870

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 2 of 7

includes the construction of a below-grade pressure reducing station (PRS). Access for the PRS would be provided via a north/south trending dirt road, which connects to a paved driveway that merges with Alta Road.

The vegetation communities and land types identified within the biological assessment included: maritime succulent scrub, Diegan coastal sage scrub, non-native grassland, mule fat scrub, southern willow scrub, tamarisk scrub, eucalyptus woodland, disturbed habitat, and urban/developed areas. One vernal pool and several road ruts were mapped during biological surveys. A portion of the Wueste Road Pipeline segment extends into the Multi-Habitat Planning Area (MHPA) of the City of San Diego's Multiple Species Conservation Program (MSCP) Subarea Plan. The impact area to the City of San Diego's MHPA would be limited to a 0.34 acre area, consisting primarily of pipeline extension within the roadway and disturbance of an adjacent trail. This segment of the Pipeline would also extend into the City of Chula Vista's MSCP (100% Conservation Area - Preserve), resulting in 2.04 acres of impact to native habitat.

No Federal or State listed plants were observed within the project alignment (i.e. impact area) during rare plant surveys; however, eight special-status plant species were detected in the survey area with only Palmer's grappling hook (*Harpagonella palmeri*; CNPS List 4) and San Diego sunflower (*Viguiera laciniata*; CNPS List 4) present within the impact footprint. Six pairs of coastal California gnatcatcher (*Polioptila californica*; gnatcatcher) were observed during focused surveys associated with the Wueste Road Pipeline alignment. A habitat assessment and focused survey for Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) was conducted in 2009, yielding negative results. A portion of the PRS impact area is within critical habitat for Quino. The biological assessment acknowledged that only dry season sampling for the federally listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) was completed, with wet season sampling scheduled for the 2009/2010 season. Surveys for burrowing owl (*Athene cunicularia*; State Species of Special Concern) were conducted along road shoulders and adjacent areas along the Alta Road and Airway/La Media Road Pipeline alignment which resulted in one owl observed outside of the pipeline alignment.

We offer the following comments and recommendations to assist the District in avoiding, minimizing, and adequately mitigating project-related impacts to biological resources, and to ensure that the project is consistent with ongoing regional habitat conservation planning efforts.

2-1 1. The Biological Assessment (Appendix C) reported that one burrowing owl was observed due east (approx. 3,000 feet) of the Airway/La Media Road project segment and that the potential exists for burrowing owl to occur in the habitat surrounding the Alta Road Pipeline impact area. However the assessment concluded that the non-native grassland surrounding Alta Road was too dense for the species. We would highlight that Department staff has observed burrowing owl several times along the edge of the roadway (within the earthen berm) on the west side of La Media Road even though the vegetative growth in these areas currently happens to be dense and is not typical of habitat normally associated with supporting this species. We have additional reports of owls occupying roadside areas in less than suitable habitat conditions. We treat such occurrences as occupancy and emphasize that appropriate avoid/minimization measures should be implemented as part of this project.

2-2 Furthermore, the biological resource discussion provided in the DEIR does not adequately define the survey methodology used for burrowing owl. The level of detail (e.g., survey timing/duration and applicable methodology) that was provided for describing survey activities for federally listed species, likewise should be provided for the burrowing owl. It is

2.2 Letter 2: California Department of Fish and Game

2-1 The Project has been designed to avoid impacts on sensitive biological resources, including burrowing owl. The impact areas for the Alta Road Pipeline and Airway/La Media Road Pipeline consist primarily of existing paved roadways. Impacts on undeveloped areas resulting from construction of these pipelines would be limited to a total of three heavily disturbed areas located immediately adjacent to the existing paved roadway and consisting of disturbed road shoulders. The first is located along the south side of Otay Mesa Road near the intersection of Alta and Otay Mesa Roads; the second is located on the south side of Airway Road near the intersection of Airway and La Media Roads; and the third is located along the east side of La Media Road near the intersection of Airway Road and La Media Road. No burrowing owls or owl sign (burrows, scat, feathers, etc.) were observed within or immediately adjacent to the Project footprint.

As noted in the draft EIR, vegetation communities located outside of the Project footprint, while primarily dense and therefore not typical habitat for burrowing owl, still provide potentially suitable habitat for this species. One burrowing owl was observed approximately 3,000 feet due east of the Airway Road/La Media Road Project segment. In addition, as noted in the comment, California Department of Fish and Game (CDFG) staff have observed burrowing owls along the west side of La Media Road. However, all areas with potential to or known to support this species are located outside of the Project footprint. Therefore, the Project would not result in impacts on burrowing owl.

2-2 As discussed in Section 2.3.3 of the Biological Assessment (Appendix C to the draft EIR), a burrowing owl habitat assessment/burrow survey was conducted by walking through suitable habitat within the Project footprint for the Alta Road and Airway/La Media Road Pipeline alignments looking for burrowing owls and large burrows suitable for use by the burrowing owl. Areas with dense or tall vegetation cover (located outside of the Project footprint) were not thoroughly surveyed for burrows but were scanned from a distance for birds. All encountered burrows were checked for the presence of feathers, scat, pellets, tracks, or other indications of use by burrowing owls. The survey area consisted of the entire Project footprint for the Alta Road and Airway/La Media Road Pipelines. Because the areas located adjacent to the Project footprint consist primarily of private properties, a 500-foot buffer was not included in the pedestrian survey. However, a visual survey was conducted within a variable buffer along the Project footprint. As discussed above in the response to comment 2-1, only one burrowing owl was observed outside of the Project footprint during the habitat assessment/burrow survey, and no burrowing owls or owl sign were observed within the Project footprint. The burrowing owl habitat assessment/burrow survey was conducted on November 10, 2009, between 8 a.m. and 12 p.m. A discussion of the methodology, survey area, and results of the habitat assessment/burrow survey is provided in the Biological Assessment (Appendix C to the draft EIR), and a separate report is not necessary to document the negative results within the Project impact areas.

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 3 of 7

2-2 cont

unclear from the discussion whether a complete pedestrian survey was performed that adequately covered the entire project footprint and for areas within 500 feet of the project impact zone. The Burrowing Owl Survey Protocol and Mitigation Guidelines (The California Burrowing Owl Consortium, April 1993) suggest nesting season surveys be conducted during the peak of the breeding season, between April 15 and July 15 and that a resource summary report (with a map) should be prepared if burrows or burrowing owls are recorded on the site. Due to the significance of burrowing owl presence in Otay Mesa, we believe that a separate written report should accompany the analysis for the DEIR.

2-3

From the regional conservation perspective, there has been a dramatic reduction in resident/breeding, as well as wintering burrowing owls in all counties in southern California. Otay Mesa is one of the few remaining areas of the County where a breeding burrowing owl population remains (i.e., 20 to 30 recorded pairs). The Department has been working closely with Multiple Species Conservation Program (MSCP) participants (City and County of San Diego) on developing a conservation strategy for burrowing owls on Otay Mesa. The City of San Diego's MSCP Subarea Plan (Table 3-5) acknowledges that "If burrowing owls are detected, the following mitigation measures must be implemented: within the Multiple Habitat Planning Area (MHPA), impacts must be avoided; outside the MHPA, impacts to the species must be avoided to the maximum extent practicable; any impacted individuals must be relocated out of the impact area using passive or active methodologies approved by the Department; mitigation for impacts to occupied habitat (at the Subarea Plan specified ratio) must be met through the conservation of occupied burrowing owl habitat or conservation of lands appropriate for restoration, management and enhancement of burrowing owl nesting and foraging requirements."

2-4

To address the aforementioned concerns we strongly recommend the following measures be included into the *Mitigation/Performance Measures* of the final EIR:

1. Prior to proceeding with any grubbing, clearing or grading activity a qualified biologist shall assess the presence of burrowing owl habitat on the project site including a 500–foot buffer zone around the project boundary, where feasible. If the biologist determines that there is evidence that the site supports burrowing owl then the biologist shall proceed with conducting a minimum of four protocol surveys in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (The California Burrowing Owl Consortium, April 1993) to determine the presence or absence of occupied burrows within the project site and a 500 feet buffer area adjacent to the development that could be impacted.

2. Written results of the habitat assessment and survey results shall be submitted to the District and Department. If active nests of sensitive species are detected, the report shall include mitigation to the satisfaction of the Department as described below (measure No. 4).

3. An inspection of all stored building materials (e.g., culverts, pipes and debris piles) shall be conducted to determine the presence of burrowing owl. To reduce the opportunity for stockpiled materials to serve as artificial nesting areas, a qualified biologist shall inspect building materials prior to being moved, buried, or capped. All pipes shall be either completely capped or adequately covered to prevent the opportunity for shelter or nesting by burrowing owl.

2-3 The Project has been designed to avoid impacts on burrowing owls and, therefore, is consistent with the conservation strategies for this species associated with the City and County of San Diego MSCP Subarea Plans. See responses to comments 2-1 and 2-2 above.

2-4 The District disagrees that the measures (1–12) outlined in the comment need to be included within the mitigation/performance measures of the final EIR in order to avoid impacts on the burrowing owl. The Project has been designed to avoid impacts on this species by limiting the Project footprint to primarily existing paved roadways. The three small areas within the Project impact areas that are located outside of existing paved roadways consist of heavily disturbed road shoulders. These areas were included in the burrowing owl habitat assessment/burrow survey. No burrowing owls or burrow sign (scat, feathers, etc.) were identified within the Project impact areas. It is not expected that these areas would support the burrowing owl in the future because they are currently heavy disturbed and experience continued vehicular and other disturbances.

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 4 of 7

4. Prior to 30 days of any ground disturbing activities, a qualified biologist shall conduct a pre-grading survey of the development area and buffer area (500 feet), in conjunction with mitigation measure No. 1 above.

   A. If ground disturbing activities are delayed or suspended for more than 30 days after the pre-grading survey, the site shall be resurveyed for burrowing owl.

5. If active bird burrows/nests are identified during the pre-grading survey, or are otherwise noted during the week grading is to commence (see mitigation measure No. 8 below), and project construction has the potential to impact the burrows/nests, the biologist shall consult with the District and Department to determine an appropriate mitigation program (i.e., translocation, eviction, buffer, or other strategy).

   A. Impacts to the species must be avoided to the maximum extent practicable.

   B. Occupied burrows should not be disturbed during the nesting season (February 1 through August 31, unless a qualified biologist in consultation with the District and Department verifies through non-invasive methods that either:

      a. The birds have not begun egg-laying and incubation; or

      b. Juveniles from the occupied burrows are foraging independently and are capable of independent survival.

2-4 cont

   C. If burrows/nests are required to be protected rather than translocated, weekly biological monitoring of these burrows/nests shall be conducted by the project biologist during construction with written or electronic submission results submitted to the District and Department.

      a. No disturbance shall occur within 160 feet of occupied burrows during the non-breeding season of September 1 through January 31 or within 250 feet during the breeding season of February 1 through August 31. Avoidance should include management and enhancement of burrowing owl nesting and foraging requirements at a ratio of no less than a 1:1 for the territory of the burrowing owl.

      b. If buffer areas are used, they must be identified on a biological resources map and flagged in the field so no grading or construction activity can occur in these areas.

   D. These restrictions shall be noted on all grading and construction plans.

6. If no nests are discovered on or adjacent to the project site/development area, no further mitigation is required.

7. If burrows/nests are discovered during construction activities, the project biologist shall notify the District and Department.

8. The project biologist shall stop work within the vicinity (minimum of 160 feet) of the burrows/nests. The Project biologist shall mark all holes, shrubs or those areas

This page intentionally left blank.

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 5 of 7

that could serve as artificial burrows/nesting areas and delineate the appropriate "no construction" around any nest sites and any buffer area in consultation with the District and Department.

9. The project biologist, in consultation with the District and Department shall determine an appropriate mitigation program (i.e., translocation, buffer, or other strategy) as described in mitigation measure No. 5 above.

2-4 cont

10. The biologist shall be responsible for ensuring that all field notes and reports have been completed, all outstanding items of concern have been resolved or noted for follow up, and that surveys are completed, as appropriate.

11. Within three months following the completion of monitoring, two copies of the Final Biological Monitoring Report (even if negative) and/or evaluation report, if applicable, which describes the results, analysis, and conclusions of the Biological Monitoring Program (with appropriate graphics) shall be submitted to the District and Department.

12. If the mitigation program included long-term management and monitoring of lands to mitigate the loss of foraging and burrowing habitat; the plan should include success criteria and remedial measures. The report shall be submitted annually and approved to the satisfaction of the District. Supplemental copies of the mitigation proposal shall be provided to the Department.

2-5

2. The biological resources discussion mentioned that several orange-throated whiptails (*Aspidoscelis hyperythra*) were observed along the road edge during gnatcatcher surveys. Based on this documentation, we believe that there is a potential for species-specific impacts from construction actions associated with trenching/grading, stockpiling of fill, refilling trenches, and moving vehicles along the corridor during construction and inspections and that a more thorough mitigation strategy should be evaluated and adopted to address potential impacts to orange-throated whiptail. Appropriate mitigation to address impacts to this species (along with other reptiles and small mammals) should include biological monitoring during construction activities and ensuring that all steep-walled trenches or excavations used during construction are covered at all times except when being actively utilized. If trenches or excavations cannot be covered, exclusion fencing (i.e., silt fencing should be installed around trenching or excavations, or it should be covered to prevent entrapment of wildlife (i.e., reptiles and small mammals). Open trenches, or other excavations that could entrap wildlife should be inspected by a qualified biologist at a minimum of three times per day and immediately before backfilling. An inspection under all vehicles and equipment should be conducted for the presence of wildlife prior to moving. If wildlife is observed, no vehicles or equipment should be moved until the animal has left voluntarily or is relocated by a biologist with the appropriate qualifications and permit authority.

2-6

3. The DEIR's executive summary and Section 3.4.2 states, "The construction corridor for the portion of the Project that would extend outside of Wueste Road would be approximately 50-70 feet", whereas Section 4.2.3 refers to the impact area consisting of an 80-to 90-foot-wide corridor. Please provide further guidance on the ultimate width of the corridor for this segment of pipeline and which corridor width was used for determining impact acreage.

2-5 Although orange-throated whiptails and other reptiles were observed during the biological surveys, the draft EIR determined that potential impacts on these species during construction would be less than significant. The Project has been designed to focus impacts in existing disturbed or developed areas, such as the paved Wueste Road. Adjacent undisturbed vegetation communities provide ample habitat for common and special-status species, and they would be expected to remain in or disperse to these areas during Project construction.

2-6 As discussed in Section 1.1.2 of the Biological Assessment (Appendix C to the draft EIR), the impact area for the Wueste Road pipeline varies along the alignment and consists of the following:

1. From the northernmost portion of the Wueste Road Pipeline to where the pipeline heads west off the paved Wueste Road: the impact area is limited to the extent of the paved portion of Wueste Road and a 10-foot area east of the proposed pipeline alignment (which includes some vegetated areas along the east side of Wueste Road).
2. The 175-foot-long portion that heads west off of Wueste Road: the impact area consists of a 20-foot-wide corridor centered on the proposed alignment for the 50-foot-long portion that is being constructed via open trench (125 feet of pipe in this area is being installed via jack-and-bore) and the two jacking pits (eastern pit: 20 feet by 10 feet; western pit: 40 feet by 20 feet).
3. The remainder of the pipeline alignment that heads south to an existing structure at the southwestern edge of the OWTP: the impact area consists of an 80 to 90-foot-wide corridor.

The final EIR (errata; see Chapter 3) has been revised to clarify that the above was used to determine impacts associated with the Wueste Road Pipeline.

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 6 of 7

2-7 4. It is unclear why the majority of the mapped areas occupied by San Diego sunflower or Palmer's grappling hook cannot be avoided for the Wueste Road Pipeline segment. Three polygons of San Diego sunflower were mapped within the southern end of the alignment, whereas a portion of one polygon for Palmer's grappling hook falls within the alignments impact area. However, Figure 4d depicts the majority of the pipeline alignment occurs on the east side of a dirt road, while the mapped polygons are distributed along the west side of the road (accept for one polygon of San Diego sunflower). An estimate of the individual number of plants associated with each polygon should be provided. We recommend identifying those polygons that would be affected and whether options exist to confine the alignment/trenching entirely to the east side of the dirt road, in an effort to further reduce direct impacts to special-status plants. The feasibility for this option is partially addressed within the Reduced Impact Alternative analysis through either reducing the width of the impact corridor or locating the pipeline on disturbed lands associated with the Otay Water Treatment Plant.

2-8 5. The *Mitigation/Performance Measures* provided in the final EIR should include a condition to install protective fencing around the balance of special-status plant populations that would be avoided during construction activities. Consideration should be given to fencing any other areas that support the other six special status plant species that were mapped in close proximity to pipeline alignment or service roads. A qualified biological monitor should implement and monitor this avoidance/minimization measure. Additionally, a conceptual restoration plan for addressing impacts to Palmer's grappling hook should be provided to the Department for review. The broader criteria associated with restoration goals and objectives and the maintenance/biological monitoring needs for any restoration proposal should be outlined with the Biological Resources Mitigation/Performance Measure.

2-9 6. The Project Design Features/Standard Construction Practices (Section 4.1.3.2) states, "Hydroseed, landscape, or develop disturbed areas as quickly as possible and as directed by the District to reduce dust generation." We recommend that this standard be revised for the final EIR to include a condition that only hydroseed containing native plant species that are endemic to the area be applied. Non-invasive non-native species to temporarily protect against erosion may also be included in the hydroseed mix. Furthermore, design measure HYD-2 (Section 4.6, Hydrology/Water Quality) is limited to acknowledging under the Soil Stabilization heading that, "Preservation of Property/Preservation of Existing Vegetation" is required. Due to our concerns for the control of invasive non-native species within preserve areas, we recommend that the native hydroseed requirements also be included as a Biological Resources Mitigation/Performance Measure.

2-10 7. It is unclear to the Department as to those subsequent measures that the District will implement in order to ensure control of invasive non-native plants within the pipeline corridor (particularly for segments extending into MHPA/Preserve areas). The DEIR mentions that the remainder of the area east of the roadway (i.e., Wueste Road) within the impact area would be undisturbed in association with District maintenance activities and that native habitat would reestablish in areas disturbed in association with Project construction.

Additional discussion should be provided in the final EIR, detailing the District's follow-up measure for conformance with invasive non-native plant control requirements, as specified under each MSCP Subarea Plan. Although the District is not signatory to the respective MSCP Subarea Plan, routine work activities conducted by the District within preserve areas can have implications for affecting the biological integrity of those lands. Additionally, an accurate account of habitat impacts to the respective MSCP lands should be provided to

2-7 The Wueste Road Pipeline must connect to an existing pipeline at Olympic Parkway as well as an existing pipeline near the Otay Water Treatment Plant. In addition, several existing utilities (e.g., gas lines, water lines) occur in the vicinity of the Wueste Road Pipeline, which must be avoided. The proposed alignment for the Wueste Road Pipeline avoids all existing utilities and minimizes impacts on sensitive biological resources by focusing impacts in existing developed areas (paved roadway). Figure 4d in the Biological Assessment (Appendix C to the draft EIR) depicts the areas within the survey area that were found to be occupied by San Diego sunflower and Palmer's grapplinghook; the overall populations of these species extend outside the Project footprint into the adjacent habitat. The estimated number of individuals of San Diego sunflower within the survey area is 1,000, and this species is estimated to comprise 5–10% of the cover of the maritime succulent scrub and 10–15% of the cover of the coastal sage scrub within the survey area. Approximately 600 individuals of Palmer's grapplinghook were observed within the large polygon west of the Otay Water Treatment Plant (Figure 4d of the Biological Assessment provided as Appendix C to the draft EIR). As depicted in Figure 4d (hatched "impact area"), the majority of these mapped areas are avoided by the proposed Project. The identified impact area consists of a realistic area necessary to construct the proposed Project. As indicated in the comment, the draft EIR analyzes alternatives that would reduce impacts on sensitive biological resources.

2-8 It is standard practice for construction projects to fence, flag, or otherwise clearly identify the limits of the impact areas prior to construction. Prior to construction of the proposed Project, the limits of the identified impact areas will be clearly identified to ensure impacts do not occur outside of the identified impact corridor. As such, it is not necessary to include fencing or flagging as a mitigation/performance measure in the final EIR. Additionally, it is not necessary to include a biological monitor because significant impacts on special-status plant species have been identified and will be fully mitigated at the District's San Miguel Habitat Management Area (HMA). A conceptual restoration plan will be prepared for the proposed creation of maritime succulent scrub (which will include planting of Palmer's grapplinghook, a California Native Plant Society [CNPS] List 4 species) within the HMA. This plan will be prepared prior to creation of this habitat within the HMA and will be provided to CDFG for review.

2-9 The final EIR has been revised to state that only hydroseed containing native plant species will be applied. The Project design features/standard construction practices listed in Section 4.6, "Hydrology/Water Quality" (including native hydroseed requirements) are included in the Mitigation Monitoring and Reporting Program (MMRP) and, therefore, will be required to be implemented as part of the Project. As such, it is not necessary to also include the native hydroseed requirement as a biological resources mitigation/performance measure.

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 7 of 7

2-10 cont each affected jurisdiction (i.e., City's of San Diego and Chula Vista), for purposes of including within their annual MSCP program monitoring reports.

2-11 8. The project includes horizontal directional drilling for the installation of the Airway/La Media Road Pipeline segment that crosses an existing culvert that extends under La Media Road. The drilling could inadvertently release drilling fluids and force them to the surface (i.e., frac-out), which could result in fluids entering the drainage channel and affect downstream water quality. Because there is potential for the drilling activity to cause a frac-out, the District should consider notifying the Department, per Fish and Game Code Section 1602, before beginning an activity that could result in the release of material into the drainage channel. The Department recommends that if the District is not certain whether the proposed activity requires notification, then the District should contact the Department. The Department recommends that the biological mitigation measures be revised to include the following condition:

> Prior to the District's commencement of any activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake the project applicant shall submit a complete Lake or Streambed Alteration Program notification package and fee to the California Department of Fish and Game.

2-12 9. Section 6.3.1 of the DEIR states that "Alternative pipeline routes through undeveloped areas north and south of the Otay River Valley of the District's planning area are not considered feasible because they would disturb cultural and biological sensitive areas including the City of Chula Vista's 100% Preserve, which would not be disturbed under the proposed alignment. Conversely, the impact analysis that was provided for the Wueste Road Pipeline states, "a total of 2.04 acres of native habitat (coastal sage scrub and maritime succulent scrub) and 0.51 acre of developed areas within the 100% Preserve area would be impacted during construction of the proposed Project." Please provide clarification to these conflicting statements.

We appreciate the opportunity to comment on the DEIR for this project and to assist the City in further minimizing and mitigation project impacts to biological resources. If you have questions or comments regarding this letter, please contact Paul Schlitt at (858) 637-5510.

Sincerely,

Theresa A. Stewart

for Edmund Pert
Regional Manager
South Coast Region

cc: State Clearinghouse, Sacramento
Doreen Stadtlander, Susan Wynn, U.S. Fish and Wildlife Service, Carlsbad
Paul Schlitt, San Diego

2-10 Following construction of the proposed Wueste Road Pipeline, the existing dirt road within the identified Project impact corridor would continue to be used by the District for periodic maintenance and emergency access; but the remainder of the impacted area would be undisturbed, and native habitat would reestablish in these areas. Implementation of the Wueste Road Pipeline would not conflict with the intent of the City of Chula Vista or City of San Diego MSCP Subarea Plans because pipelines and associated access roads are compatible uses. In addition, as noted in the response to comment 2-9 above, the final EIR has been revised to state that only hydroseed containing native plant species will be applied. The Otay Water District is not proposing any maintenance or management of the Project impact areas because impacts on vegetation communities are being fully mitigated off site at the HMA through habitat-based mitigation; no onsite mitigation is proposed or required.

2-11 The District understands that any activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of a river, stream, or lake will require the submittal of a complete Lake or Streambed Alteration Program notification package and associated fees to the CDFG. Although the Project has been designed to avoid impacts on resources under the jurisdiction of the CDFG, the District will comply with all applicable state, federal, and local laws and regulations, including the provisions of Fish and Game Code Section 1602. It is not necessary to include compliance with applicable laws and regulations, including provisions of the Fish and Game Code Section 1602, as a mitigation measure in the draft EIR.

2-12 The two statements referenced in the comment are not conflicting. As noted in the draft EIR, the proposed Project would result in impacts on a total of 2.04 acres of native habitat and 0.51 acre of developed areas within the City of Chula Vista's 100% Preserve. The statement referenced in the comment related to the feasibility of alternatives through undeveloped areas north and south of the Otay River Valley of the Otay Water District's planning area. This is meant to indicate that additional areas within the 100% Preserve not located within the Project footprint would be impacted by alternatives that involve routes through undeveloped areas north and south of the Otay River Valley. For example, shifting the alignment of the proposed pipeline to the west would result in additional impacts on areas within the City of Chula Vista's 100% Preserve, and shifting the alignment to the east would result in additional impacts on areas within the City of San Diego's MHPA that are not proposed to be impacted under the proposed Project.

State Water Resources Control Board

Linda S. Adams
Secretary for
Environmental Protection

Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.waterboards.ca.gov

Arnold Schwarzenegger
Governor

APR 1 2 2010

OTAY WATER DISTRICT
RECEIVED
2010 APR 15 AM 11: 49

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, CA 91978

Dear Ms. Coburn-Boyd:

ENVIRONMENTAL IMPACT REPORT (EIR) FOR OTAY WATER DISTRICT (DISTRICT); OTAY MESA RECYCLED WATER SYSTEM CAPITAL IMPROVEMENTS PROGRAM R2087, R2077 AND R2058 (PROJECT); SAN DIEGO COUNTY; STATE CLEARINGHOUSE NO. 2009101031

Thank you for the opportunity to review the above document. We understand the District is not currently pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing comments on the California Environmental Quality Act (CEQA) document prepared for the Project.

The District may want to consider the CWSRF Program to provide funding for future construction. The State Water Board, Division of Financial Assistance, is responsible for administering CWSRF financing. The primary purpose for the CWSRF Program is to implement the Clean Water Act and various state laws by providing financial assistance for wastewater treatment facilities necessary to prevent water pollution, recycle water, correct nonpoint source and storm drainage pollution problems, and provide for estuary enhancement, thereby protecting and promoting health, safety and welfare of state inhabitants. The CWSRF Program provides low-interest funding equal to one-half the most recent State General Obligation Bond Rates with a 20-year term. Applications are accepted and processed continuously. Please refer to the State Water Board's CWSRF website at: www.waterboards.ca.gov/waterissues/programs/grantsloans/srf/index.shtml. 3-1

The CWSRF Program is partially funded by the United States Environmental Protection Agency (USEPA) and requires additional "CEQA-Plus" environmental documentation and review. Four information sheets are included that further explain the environmental review process and additional federal requirements in the CWSRF Program. In addition, an environmental evaluation form is included for the District to submit should it pursue State Water Board funding. The State Water Board can consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF financing commitment. For further information on the CWSRF Program environmental compliance please contact Ms. Michelle Lobo at (916) 341-6983.

It is important to note that prior to a CWSRF financing commitment, projects are subject to the provisions of the Federal Endangered Species Act and must obtain approval from the United States Fish and Wildlife Service (USFWS), and/or National Marine Fisheries Service (NMFS) for any potential effects to special status species.

California Environmental Protection Agency

Recycled Paper

2.3 Letter 3: State Water Resources Control Board

3-1 Comment noted. The District is not pursing Clean Water State Revolving Fund financing for the Project.

Ms. Lisa Coburn-Boyd - 2 - APR 1 2 2010

Please be advised that the State Water Board can consult with the USFWS, and/or NMFS on behalf of the District regarding all federal special status species the Project has the potential to impact if the Project is to be funded under the CWSRF Program.

3-1 cont In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act. The State Water Board has been delegated responsibility for carrying out the requirements of Section 106 under a Nationwide Programmatic Agreement executed for the CWSRF Program by the USEPA, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.

As stated above, the State Water Board has responsibility for ensuring compliance with Section 106 and the State Water Board Cultural Resources Officer (CRO) consults directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant for projects having potential impacts to cultural resources. Please contact the State Water Board CRO Ms. Cookie Hirn at 916-341-5690, to find out more about the requirements and questions on how to begin the Section 106 compliance process. Note that the District will need to identify the Area of Potential Effects (APE), including construction areas, staging areas, and depth of any excavation.

3-2 If the District pursues State Water Board funding, provide the CRO with a copy of a current Records Search for the Project area, including maps that show all recorded sites and surveys in relation to the APE for the Project. The APE is three-dimensional and includes all areas that may be affected by the Project. The APE includes the surface area and extends below ground to the depth of any Project excavations. The Records Search request should be made for an area larger than the APE. The appropriate area varies for different projects but should be drawn large enough to provide information on what types of sites may exist in the vicinity. Specifically, please send copies of the Records Search maps with all sites and surveys mapped in relation to the pipeline routes, and copies of Native American consultation including documentation of follow-up phone calls. Additionally, the Project archeologist will need to provide the CRO with a map delineating the areas deemed sensitive for buried resources, and a rationale for the designations.

Native American and Interested Party Consultation is required for Section 106 compliance:

- A Project description and map should be sent to the Native American Heritage Commission (NAHC). The NAHC will provide a list of Native American tribes and individuals that are culturally affiliated with your Project area and recommend that they all be contacted
- A Project description and map should be sent to everyone on the list provided by the NAHC, asking for information on the Project area
- Similar letters should be sent to local historical organizations
- Follow-up contact should be made by phone, if possible, and a phone log should be included

California Environmental Protection Agency

Recycled Paper

3-2 As discussed in Section 4.3, "Cultural Resources," of the draft EIR, construction of the proposed Project would not result in any impacts on historical resources. As a result, the Project would not impact any resources that are covered under Section 106. In addition as discussed in Section 4.2, "Biological Resources," of the draft EIR, construction of the proposed Project would not result in any impacts on wetlands or jurisdictional waters of the U.S. As a result, the District does not need to obtain permits from the United States Army Corps of Engineers (USACE) that would involve consultation regarding Section 106 compliance.

Ms. Lisa Coburn-Boyd - 3 - APR 1 2 2010

3-2 cont Comments from the NAHC, local tribes, and historical organizations affiliated with the Project area, as well as the District's response to these comments should be included in the submittal to the CRO.

The NAHC can be contacted at:

915 Capitol Mall, Room 364
Sacramento, CA 95814
(916) 653-4082

3-3 Another federal requirement pertinent to the Project under the CWSRF Program is compliance with the Migratory Bird Treaty Act. List any birds protected under this act that may be impacted by the Project and identify conservation measures to minimize impacts.

The State Water Board has no further comments on the draft EIR at this time. Thank you once again for the opportunity to review the District's environmental document. If you have any questions or concerns, please feel free to contact me at (916) 327-9401, or contact Ms. Justine Herrig at (916) 327-9117.

Sincerely,

Lisa Lee
Environmental Scientist

Enclosures (5)

cc: State Clearinghouse w/o enclosures
(Re: SCH# 2009101031)
P. O. Box 3044
Sacramento, CA 95812-3044

California Environmental Protection Agency

Recycled Paper

3-3 The District intends to comply with the Migratory Bird Treaty Act (MBTA). As discussed in Section 4.2, "Biological Resources," of the draft EIR, Mitigation Measure MM BIO-7a requires that the District conduct preconstruction surveys to determine if any birds protected by the MBTA could be impacted during Project construction. If birds and/or nests are identified during these surveys, the District will take appropriate measures to avoid impacts.

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

April 13, 2010

Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, CA 91978-2004

Subject: Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project
SCH#: 2009101031

Dear Lisa Coburn-Boyd:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on April 12, 2010, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

4-1 "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Acting Director, State Clearinghouse

Enclosures
cc: Resources Agency

OTAY WATER DISTRICT
RECEIVED
2010 APR 23 PM 4: 20

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

2.4 Letter 4: Governor's Office of Planning and Research—State Clearinghouse and Planning Unit—April 13, 2010

4-1 Comment noted. Responses to the State Water Resources Control Board letter are provided in the Final EIR as responses to Letter 3 above.

Document Details Report
State Clearinghouse Data Base

SCH# 2009101031
Project Title Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project
Lead Agency Otay Water District

Type EIR Draft EIR

Description The primary goals and objectives of the Project include the following actions:

Construct facilities to meet existing recycled water demand in the Otay Mesa Service Area; Implement the Recycled Water System of the Water Resources Master Plan. The WRMP established phased CIPs that will be needed to provide an adequate, reliable, flexible, and cost-effective water system; Implement Recycled Water Policies of the State of CA, local land use jurisdictions, local and regional water supply agencies, the District, and the federal government.

Lead Agency Contact

Name Lisa Coburn-Boyd
Agency Otay Water District
Phone 619-670-2219 **Fax**
email
Address 2554 Sweetwater Springs Boulevard
City Spring Valley **State** CA **Zip** 91978-2004

Project Location

County San Diego
City Chula Vista
Region
Lat / Long
Cross Streets Wueste Road, Airway Road, Alta Rd, La Media Rd
Parcel No. multiple
Township **Range** **Section** mult **Base**

Proximity to:

Highways SR-125, SR 905
Airports Brown Field
Railways
Waterways Otay River
Schools Pacific McGeorge Law
Land Use Multiple land use designations

Project Issues Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Growth Inducing; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Game, Region 5; Department of Parks and Recreation; Department of Water Resources; Caltrans, District 11; Department of Health Services; State Water Resources Control Board, Divison of Financial Assistance; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Board, Region 9; Native American Heritage Commission; State Lands Commission

Date Received 02/26/2010 **Start of Review** 02/26/2010 **End of Review** 04/12/2010

Note: Blanks in data fields result from insufficient information provided by lead agency.

State Water Resources Control Board

Linda S. Adams
Secretary for
Environmental Protection

Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.swrcb.ca.gov

Arnold Schwarzenegger
Governor

APR 1 2 2010

RECEIVED
APR 1 2 2010
STATE CLEARING HOUSE

clw
4-12-10
e

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, CA 91978

Dear Ms. Coburn-Boyd:

ENVIRONMENTAL IMPACT REPORT (EIR) FOR OTAY WATER DISTRICT (DISTRICT); OTAY MESA RECYCLED WATER SYSTEM CAPITAL IMPROVEMENTS PROGRAM R2087, R2077 AND R2058 (PROJECT); SAN DIEGO COUNTY; STATE CLEARINGHOUSE NO. 2009101031

Thank you for the opportunity to review the above document. We understand the District is not currently pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing comments on the California Environmental Quality Act (CEQA) document prepared for the Project.

The District may want to consider the CWSRF Program to provide funding for future construction. The State Water Board, Division of Financial Assistance, is responsible for administering CWSRF financing. The primary purpose for the CWSRF Program is to implement the Clean Water Act and various state laws by providing financial assistance for wastewater treatment facilities necessary to prevent water pollution, recycle water, correct nonpoint source and storm drainage pollution problems, and provide for estuary enhancement, thereby protecting and promoting health, safety and welfare of state inhabitants. The CWSRF Program provides low-interest funding equal to one-half the most recent State General Obligation Bond Rates with a 20-year term. Applications are accepted and processed continuously. Please refer to the State Water Board's CWSRF website at: www.waterboards.ca.gov/waterissues/programs/grantloans/srf/index.shtml.

The CWSRF Program is partially funded by the United States Environmental Protection Agency (USEPA) and requires additional "CEQA-Plus" environmental documentation and review. Four information sheets are included that further explain the environmental review process and additional federal requirements in the CWSRF Program. In addition, an environmental evaluation form is included for the District to submit should it pursue State Water Board funding. The State Water Board can consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF financing commitment. For further information on the CWSRF Program environmental compliance please contact Ms. Michelle Lobo at (916) 341-6983.

It is important to note that prior to a CWSRF financing commitment, projects are subject to the provisions of the Federal Endangered Species Act and must obtain approval from the United States Fish and Wildlife Service (USFWS), and/or National Marine Fisheries Service (NMFS) for any potential effects to special status species.

California Environmental Protection Agency

Ms. Lisa Coburn-Boyd - 3 - APR 1 2 2010

Comments from the NAHC, local tribes, and historical organizations affiliated with the Project area, as well as the District's response to these comments should be included in the submittal to the CRO.

The NAHC can be contacted at:

915 Capitol Mall, Room 364
Sacramento, CA 95814
(916) 653-4082

Another federal requirement pertinent to the Project under the CWSRF Program is compliance with the Migratory Bird Treaty Act. List any birds protected under this act that may be impacted by the Project and identify conservation measures to minimize impacts.

The State Water Board has no further comments on the draft EIR at this time. Thank you once again for the opportunity to review the District's environmental document. If you have any questions or concerns, please feel free to contact me at (916) 327-9401, or contact Ms. Justine Herrig at (916) 327-9117.

Sincerely,

Lisa Lee
Environmental Scientist

Enclosures (5)

cc: State Clearinghouse w/o enclosures
(Re: SCH# 2009101031)
P. O. Box 3044
Sacramento, CA 95812-3044

California Environmental Protection Agency

Recycled Paper

This page left intentionally blank.

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

April 13, 2010

Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, CA 91978-2004

Subject: Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project
SCH#: 2009101031

Dear Lisa Coburn-Boyd:

The enclosed comment (s) on your Draft EIR was (were) received by the State Clearinghouse after the end of the state review period, which closed on April 12, 2010. We are forwarding these comments to you because they provide information or raise issues that should be addressed in your final environmental document.

5-1 The California Environmental Quality Act does not require Lead Agencies to respond to late comments. However, we encourage you to incorporate these additional comments into your final environmental document and to consider them prior to taking final action on the proposed project.

Please contact the State Clearinghouse at (916) 445-0613 if you have any questions concerning the environmental review process. If you have a question regarding the above-named project, please refer to the ten-digit State Clearinghouse number (2009101031) when contacting this office.

Sincerely,

Scott Morgan
Acting Director, State Clearinghouse

Enclosures
cc: Resources Agency

OTAY WATER DISTRICT
RECEIVED
2010 APR 23 PM 4: 20

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

2.5 Letter 5: Governor's Office of Planning and Research—State Clearinghouse and Planning Unit—April 13, 2010

5-1 Comment noted. Responses to the California Department of Fish and Game letter are provided in the final EIR as responses to Letter 2 above.

California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
South Coast Region
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201
http://www.dfg.ca.gov

ARNOLD SCHWARZENEGGER, Governor
JOHN MCCAMMAN, Director

Clear
4-12-10
late
c

RECEIVED
APR 13 2010
STATE CLEARING HOUSE

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2004

Subject: Comments on the Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project Draft Environmental Impact Report, San Diego County, California (SCH# 2009101031)

Dear Ms. Coburn-Boyd:

The California Department of Fish and Game (Department) has reviewed the above-referenced Draft Environmental Impact Report (DEIR), dated February 2010. The Department previously commented on the Notice of Preparation for the DEIR on October 30, 2009. The comments provided herein are based on information provided in the DEIR and associated documents (including the Biological Assessment for the Otay Water District's Transmission Pipelines, prepared by ICF International, dated February 2010), our knowledge of sensitive and declining vegetation communities, and our participation in regional conservation planning.

The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project (CEQA Guidelines Section 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines Section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code Section 2050 et seq.) and Fish and Game Code Section 1600 et seq. The Department also administers the Natural Community Conservation Planning (NCCP) Program.

The Otay Water District (District) proposes to construct three recycled water system transmission pipelines under the District's Capital Improvement Program (CIP). The projects would be located with the South District service area (comprised of the Central Area and Otay Mesa Systems) where it maintains and operates a recycled water system. The recycled water pipelines include the following: Wueste Road Pipeline (CIP No. R2087/13,300 linear feet of 24-inch-diameter steel pipeline) which would extend along Wueste Road within unincorporated County of San Diego and City of Chula Vista; Alta Road Pipeline (CIP No. R2077/11,989 linear feet of 24-inch-diameter polyvinyl chloride pipeline) which would extend along Alta Road within the City of San Diego; and Airway/La Media Road Pipeline (CIP No. R2058/ 12,440 linear feet of 16-inch-diameter polyvinyl chloride pipeline) that would be located along Airway/La Media Road with the limits of City of San Diego. Cut and cover trenching techniques would be used for pipeline installation, with approximately 500 feet of trench open at any time. A portion of the Wueste Road pipeline that crosses underground utilities would require jack-and-bore construction techniques. The DEIR acknowledges that the District intends to limit construction activities to the paved portions of the designated roadways (located within existing utility rights-of-way); however, construction activity for the Wueste Road Pipeline would extend approximately 10 feet east from paved portion of Wueste Road. The width of the construction corridor for that portion of pipeline that extends outside of the roadway would be approximately 50-70 feet. Construction staging areas would be located on existing developed areas or disturbed road edges that do not support vegetation. Also, the Wueste Road Pipeline phase

Conserving California's Wildlife Since 1870

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 2 of 7

includes the construction of a below-grade pressure reducing station (PRS). Access for the PRS would be provided via a north/south trending dirt road, which connects to a paved driveway that merges with Alta Road.

The vegetation communities and land types identified within the biological assessment included: maritime succulent scrub, Diegan coastal sage scrub, non-native grassland, mule fat scrub, southern willow scrub, tamarisk scrub, eucalyptus woodland, disturbed habitat, and urban/developed areas. One vernal pool and several road ruts were mapped during biological surveys. A portion of the Wueste Road Pipeline segment extends into the Multi-Habitat Planning Area (MHPA) of the City of San Diego's Multiple Species Conservation Program (MSCP) Subarea Plan. The impact area to the City of San Diego's MHPA would be limited to a 0.34 acre area, consisting primarily of pipeline extension within the roadway and disturbance of an adjacent trail. This segment of the Pipeline would also extend into the City of Chula Vista's MSCP (100% Conservation Area - Preserve), resulting in 2.04 acres of impact to native habitat.

No Federal or State listed plants were observed within the project alignment (i.e. impact area) during rare plant surveys; however, eight special-status plant species were detected in the survey area with only Palmer's grappling hook (*Harpagonella palmeri*; CNPS List 4) and San Diego sunflower (*Viguiera laciniata*; CNPS List 4) present within the impact footprint. Six pairs of coastal California gnatcatcher (*Polioptila californica*; gnatcatcher) were observed during focused surveys associated with the Wueste Road Pipeline alignment. A habitat assessment and focused survey for Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) was conducted in 2009, yielding negative results. A portion of the PRS impact area is within critical habitat for Quino. The biological assessment acknowledged that only dry season sampling for the federally listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) was completed, with wet season sampling scheduled for the 2009/2010 season. Surveys for burrowing owl (*Athene cunicularia*; State Species of Special Concern) were conducted along road shoulders and adjacent areas along the Alta Road and Airway/La Media Road Pipeline alignment which resulted in one owl observed outside of the pipeline alignment.

We offer the following comments and recommendations to assist the District in avoiding, minimizing, and adequately mitigating project-related impacts to biological resources, and to ensure that the project is consistent with ongoing regional habitat conservation planning efforts.

1. The Biological Assessment (Appendix C) reported that one burrowing owl was observed due east (approx. 3,000 feet) of the Airway/La Media Road project segment and that the potential exists for burrowing owl to occur in the habitat surrounding the Alta Road Pipeline impact area. However the assessment concluded that the non-native grassland surrounding Alta Road was too dense for the species. We would highlight that Department staff has observed burrowing owl several times along the edge of the roadway (within the earthen berm) on the west side of La Media Road even though the vegetative growth in these areas currently happens to be dense and is not typical of habitat normally associated with supporting this species. We have additional reports of owls occupying roadside areas in less than suitable habitat conditions. We treat such occurrences as occupancy and emphasize that appropriate avoid/minimization measures should be implemented as part of this project.

   Furthermore, the biological resource discussion provided in the DEIR does not adequately define the survey methodology used for burrowing owl. The level of detail (e.g., survey timing/duration and applicable methodology) that was provided for describing survey activities for federally listed species, likewise should be provided for the burrowing owl. It is

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 3 of 7

unclear from the discussion whether a complete pedestrian survey was performed that adequately covered the entire project footprint and for areas within 500 feet of the project impact zone. The Burrowing Owl Survey Protocol and Mitigation Guidelines (The California Burrowing Owl Consortium, April 1993) suggest nesting season surveys be conducted during the peak of the breeding season, between April 15 and July 15 and that a resource summary report (with a map) should be prepared if burrows or burrowing owls are recorded on the site. Due to the significance of burrowing owl presence in Otay Mesa, we believe that a separate written report should accompany the analysis for the DEIR.

From the regional conservation perspective, there has been a dramatic reduction in resident/breeding, as well as wintering burrowing owls in all counties in southern California. Otay Mesa is one of the few remaining areas of the County where a breeding burrowing owl population remains (i.e., 20 to 30 recorded pairs). The Department has been working closely with Multiple Species Conservation Program (MSCP) participants (City and County of San Diego) on developing a conservation strategy for burrowing owls on Otay Mesa. The City of San Diego's MSCP Subarea Plan (Table 3-5) acknowledges that "If burrowing owls are detected, the following mitigation measures must be implemented: within the Multiple Habitat Planning Area (MHPA), impacts must be avoided; outside the MHPA, impacts to the species must be avoided to the maximum extent practicable; any impacted individuals must be relocated out of the impact area using passive or active methodologies approved by the Department; mitigation for impacts to occupied habitat (at the Subarea Plan specified ratio) must be met through the conservation of occupied burrowing owl habitat or conservation of lands appropriate for restoration, management and enhancement of burrowing owl nesting and foraging requirements."

To address the aforementioned concerns we strongly recommend the following measures be included into the *Mitigation/Performance Measures* of the final EIR:

1. Prior to proceeding with any grubbing, clearing or grading activity a qualified biologist shall assess the presence of burrowing owl habitat on the project site including a 500–foot buffer zone around the project boundary, where feasible. If the biologist determines that there is evidence that the site supports burrowing owl then the biologist shall proceed with conducting a minimum of four protocol surveys in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (The California Burrowing Owl Consortium, April 1993) to determine the presence or absence of occupied burrows within the project site and a 500 feet buffer area adjacent to the development that could be impacted.

2. Written results of the habitat assessment and survey results shall be submitted to the District and Department. If active nests of sensitive species are detected, the report shall include mitigation to the satisfaction of the Department as described below (measure No. 4).

3. An inspection of all stored building materials (e.g., culverts, pipes and debris piles) shall be conducted to determine the presence of burrowing owl. To reduce the opportunity for stockpiled materials to serve as artificial nesting areas, a qualified biologist shall inspect building materials prior to being moved, buried, or capped. All pipes shall be either completely capped or adequately covered to prevent the opportunity for shelter or nesting by burrowing owl.

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 4 of 7

4. Prior to 30 days of any ground disturbing activities, a qualified biologist shall conduct a pre-grading survey of the development area and buffer area (500 feet), in conjunction with mitigation measure No. 1 above.

   A. If ground disturbing activities are delayed or suspended for more than 30 days after the pre-grading survey, the site shall be resurveyed for burrowing owl.

5. If active bird burrows/nests are identified during the pre-grading survey, or are otherwise noted during the week grading is to commence (see mitigation measure No. 8 below), and project construction has the potential to impact the burrows/nests, the biologist shall consult with the District and Department to determine an appropriate mitigation program (i.e., translocation, eviction. buffer, or other strategy).

   A. Impacts to the species must be avoided to the maximum extent practicable.

   B. Occupied burrows should not be disturbed during the nesting season (February 1 through August 31, unless a qualified biologist in consultation with the District and Department verifies through non-invasive methods that either:

      a. The birds have not begun egg-laying and incubation; or

      b. Juveniles from the occupied burrows are foraging independently and are capable of independent survival.

   C. If burrows/nests are required to be protected rather than translocated, weekly biological monitoring of these burrows/nests shall be conducted by the project biologist during construction with written or electronic submission results submitted to the District and Department.

      a. No disturbance shall occur within 160 feet of occupied burrows during the non-breeding season of September 1 through January 31 or within 250 feet during the breeding season of February 1 through August 31. Avoidance should include management and enhancement of burrowing owl nesting and foraging requirements at a ratio of no less than a 1:1 for the territory of the burrowing owl.

      b. If buffer areas are used, they must be identified on a biological resources map and flagged in the field so no grading or construction activity can occur in these areas.

   D. These restrictions shall be noted on all grading and construction plans.

6. If no nests are discovered on or adjacent to the project site/development area, no further mitigation is required.

7. If burrows/nests are discovered during construction activities, the project biologist shall notify the District and Department.

8. The project biologist shall stop work within the vicinity (minimum of 160 feet) of the burrows/nests. The Project biologist shall mark all holes, shrubs or those areas

that could serve as artificial burrows/nesting areas and delineate the appropriate "no construction" around any nest sites and any buffer area in consultation with the District and Department.

9. The project biologist, in consultation with the District and Department shall determine an appropriate mitigation program (i.e., translocation, buffer, or other strategy) as described in mitigation measure No. 5 above.

10. The biologist shall be responsible for ensuring that all field notes and reports have been completed, all outstanding items of concern have been resolved or noted for follow up, and that surveys are completed, as appropriate.

11. Within three months following the completion of monitoring, two copies of the Final Biological Monitoring Report (even if negative) and/or evaluation report, if applicable, which describes the results, analysis, and conclusions of the Biological Monitoring Program (with appropriate graphics) shall be submitted to the District and Department.

12. If the mitigation program included long-term management and monitoring of lands to mitigate the loss of foraging and burrowing habitat; the plan should include success criteria and remedial measures. The report shall be submitted annually and approved to the satisfaction of the District. Supplemental copies of the mitigation proposal shall be provided to the Department.

2. The biological resources discussion mentioned that several orange-throated whiptails (*Aspidoscelis hyperythra*) were observed along the road edge during gnatcatcher surveys. Based on this documentation, we believe that there is a potential for species-specific impacts from construction actions associated with trenching/grading, stockpiling of fill, refilling trenches, and moving vehicles along the corridor during construction and inspections and that a more thorough mitigation strategy should be evaluated and adopted to address potential impacts to orange-throated whiptail. Appropriate mitigation to address impacts to this species (along with other reptiles and small mammals) should include biological monitoring during construction activities and ensuring that all steep-walled trenches or excavations used during construction are covered at all times except when being actively utilized. If trenches or excavations cannot be covered, exclusion fencing (i.e., silt fencing should be installed around trenching or excavations, or it should be covered to prevent entrapment of wildlife (i.e., reptiles and small mammals). Open trenches, or other excavations that could entrap wildlife should be inspected by a qualified biologist at a minimum of three times per day and immediately before backfilling. An inspection under all vehicles and equipment should be conducted for the presence of wildlife prior to moving. If wildlife is observed, no vehicles or equipment should be moved until the animal has left voluntarily or is relocated by a biologist with the appropriate qualifications and permit authority.

3. The DEIR's executive summary and Section 3.4.2 states, "The construction corridor for the portion of the Project that would extend outside of Wueste Road would be approximately 50-70 feet", whereas Section 4.2.3 refers to the impact area consisting of an 80-to 90-foot-wide corridor. Please provide further guidance on the ultimate width of the corridor for this segment of pipeline and which corridor width was used for determining impact acreage.

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 6 of 7

4. It is unclear why the majority of the mapped areas occupied by San Diego sunflower or Palmer's grappling hook cannot be avoided for the Wueste Road Pipeline segment. Three polygons of San Diego sunflower were mapped within the southern end of the alignment, whereas a portion of one polygon for Palmer's grappling hook falls within the alignments impact area. However, Figure 4d depicts the majority of the pipeline alignment occurs on the east side of a dirt road, while the mapped polygons are distributed along the west side of the road (accept for one polygon of San Diego sunflower). An estimate of the individual number of plants associated with each polygon should be provided. We recommend identifying those polygons that would be affected and whether options exist to confine the alignment/trenching entirely to the east side of the dirt road, in an effort to further reduce direct impacts to special-status plants. The feasibility for this option is partially addressed within the Reduced Impact Alternative analysis through either reducing the width of the impact corridor or locating the pipeline on disturbed lands associated with the Otay Water Treatment Plant.

5. The *Mitigation/Performance Measures* provided in the final EIR should include a condition to install protective fencing around the balance of special-status plant populations that would be avoided during construction activities. Consideration should be given to fencing any other areas that support the other six special status plant species that were mapped in close proximity to pipeline alignment or service roads. A qualified biological monitor should implement and monitor this avoidance/minimization measure. Additionally, a conceptual restoration plan for addressing impacts to Palmer's grappling hook should be provided to the Department for review. The broader criteria associated with restoration goals and objectives and the maintenance/biological monitoring needs for any restoration proposal should be outlined with the Biological Resources Mitigation/Performance Measure.

6. The Project Design Features/Standard Construction Practices (Section 4.1.3.2) states, "Hydroseed, landscape, or develop disturbed areas as quickly as possible and as directed by the District to reduce dust generation." We recommend that this standard be revised for the final EIR to include a condition that only hydroseed containing native plant species that are endemic to the area be applied. Non-invasive non-native species to temporarily protect against erosion may also be included in the hydroseed mix. Furthermore, design measure HYD-2 (Section 4.6, Hydrology/Water Quality) is limited to acknowledging under the Soil Stabilization heading that, "Preservation of Property/Preservation of Existing Vegetation" is required. Due to our concerns for the control of invasive non-native species within preserve areas, we recommend that the native hydroseed requirements also be included as a Biological Resources Mitigation/Performance Measure.

7. It is unclear to the Department as to those subsequent measures that the District will implement in order to ensure control of invasive non-native plants within the pipeline corridor (particularly for segments extending into MHPA/Preserve areas). The DEIR mentions that the remainder of the area east of the roadway (i.e., Wueste Road) within the impact area would be undisturbed in association with District maintenance activities and that native habitat would reestablish in areas disturbed in association with Project construction.

   Additional discussion should be provided in the final EIR, detailing the District's follow-up measure for conformance with invasive non-native plant control requirements, as specified under each MSCP Subarea Plan. Although the District is not signatory to the respective MSCP Subarea Plan, routine work activities conducted by the District within preserve areas can have implications for affecting the biological integrity of those lands. Additionally, an accurate account of habitat impacts to the respective MSCP lands should be provided to

Ms. Lisa Coburn-Boyd
April 8, 2010
Page 7 of 7

each affected jurisdiction (i.e., City's of San Diego and Chula Vista), for purposes of including within their annual MSCP program monitoring reports.

8. The project includes horizontal directional drilling for the installation of the Airway/La Media Road Pipeline segment that crosses an existing culvert that extends under La Media Road. The drilling could inadvertently release drilling fluids and force them to the surface (i.e., frac-out), which could result in fluids entering the drainage channel and affect downstream water quality. Because there is potential for the drilling activity to cause a frac-out, the District should consider notifying the Department, per Fish and Game Code Section 1602, before beginning an activity that could result in the release of material into the drainage channel. The Department recommends that if the District is not certain whether the proposed activity requires notification, then the District should contact the Department. The Department recommends that the biological mitigation measures be revised to include the following condition:

   Prior to the District's commencement of any activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake the project applicant shall submit a complete Lake or Streambed Alteration Program notification package and fee to the California Department of Fish and Game.

9. Section 6.3.1 of the DEIR states that "Alternative pipeline routes through undeveloped areas north and south of the Otay River Valley of the District's planning area are not considered feasible because they would disturb cultural and biological sensitive areas including the City of Chula Vista's 100% Preserve, which would not be disturbed under the proposed alignment. Conversely, the impact analysis that was provided for the Wueste Road Pipeline states, "a total of 2.04 acres of native habitat (coastal sage scrub and maritime succulent scrub) and 0.51 acre of developed areas within the 100% Preserve area would be impacted during construction of the proposed Project." Please provide clarification to these conflicting statements.

We appreciate the opportunity to comment on the DEIR for this project and to assist the City in further minimizing and mitigation project impacts to biological resources. If you have questions or comments regarding this letter, please contact Paul Schlitt at (858) 637-5510.

Sincerely,

Theresa A. Stewart

for Edmund Pert
Regional Manager
South Coast Region

cc: State Clearinghouse, Sacramento
Doreen Stadtlander, Susan Wynn, U.S. Fish and Wildlife Service, Carlsbad
Paul Schlitt, San Diego

This page left intentionally blank.

6-1

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA HAS NO EXISTING FACILITIES OR RIGHTS OF WAY WITHIN THE LIMITS OF THE PROJECT.
3.23.2010
JOB NO.: 10032204

NOTICE OF AVAILABILITY OF A DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT OTAY WATER DISTRICT OTAY MESA RECYCLED WATER SYSTEM CAPITAL IMPROVEMENT PROGRAM R2087, R2077, R2058 PROJECT

NOTICE IS HEREBY GIVEN: that on February 26, 2010 the Otay Water District (OWD) issued a draft Environmental Impact Report (EIR) for Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project (Project) for review and public comment. In accordance with the California Environmental Quality Act (CEQA) and State CEQA Guidelines CCR Title 14, §15087 the draft EIR assesses the environmental effects associated with implementation of the Project.

In compliance with the State CEQA Guidelines, the OWD has established a 45-day public review period, beginning on February 26, 2010, to solicit comments and input on the EIR. All written comments should be forwarded to Ms. Lisa Coburn-Boyd, Otay Water District, 2554 Sweetwater Springs Boulevard, Spring Valley, CA 91978-2004, Phone: (619) 670-2219, Fax: (619) 670-8920, E-mail: lisa.coburn-boyd@otaywater.gov by no later than April 12, 2010.

Following close of the public comment period, responses to comments received on the draft EIR will be prepared, and, together with any corresponding revisions to the draft EIR, will constitute a Final EIR. The Final EIR will be considered and acted upon by the OWD Board of Directors at a noticed public hearing.

The draft EIR and appendices are available for review and downloading from the OWD Internet web page at the following address www.otaywater.gov. Copies of the draft EIR and all documents referenced in the draft EIR are available for public review by appointment at the OWD office location listed above. Please contact Ms. Lisa Coburn-Boyd at the email address listed above to set up an appointment. Copies of the draft EIR and appendices are also available for public review at the following public libraries: City of Chula Vista Public Library Civic Center, South Chula Vista, and Eastlake Branches

The notice is required to be filed with the County Clerk's office for a period of not less than (30) thirty days.

2.6 Letter 6: Metropolitan Water District of Southern California

6-1 Comment noted.

APR-07-2010 06:02 AM DODER 6054461933 P.01

OMPOA

Otay Mesa Property Owners Association

April 6, 2010

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, CA 91978-2004

Re: Comments on Notice of Availability for Draft Program EIR for Otay Mesa Recycled Water System Capital Improvement Program, Projects R2087, R2077, R2058

Dear Ms. Coburn-Boyd:

On behalf of the Otay Mesa Property Owners Association (OMPOA), we appreciate the opportunity to comment on the Notice of Availability of the Draft Program EIR for three recycled water system projects, Wueste Road Pipeline (R2087), Alta Road Pipeline (R2077), and Airway/La Media Road Pipeline (R2058).

7-1 The OMPOA received a briefing in February of 2009 from David Charles, Otay Water District, about plans for reclaimed water in Otay Mesa. Property owners were given an opportunity to see where reclaimed water pipes had been installed in Otay Mesa already and where pipes would be installed in the future. This was very helpful for the property owners to understand the benefits of recycled water in Otay Mesa and how it would affect their individual development projects.

The OMPOA is supportive of OWD's efforts to bring recycled water to Otay Mesa and requests that to the extent necessary, there is coordination between Caltrans and OWD on construction of their respective projects. The OMPOA looks forward to continuing to participate in the environmental review process for this project.

Sincerely,

Peter Doder, President
Otay Mesa Property Owners Association

3131 Camino del Rio North, Ste. 150
San Diego, CA 92108

2.7 Letter 7: Otay Mesa Property Owners Association

7-1 Comment noted.

EOMPOA

East Otay Mesa Property Owners Association

April 8, 2010

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, CA 91978-2004

Re: Comments on Notice of Availability for Draft Program EIR for Otay Mesa Recycled Water System Capital Improvement Program, Projects R2087, R2077, R2058

Dear Ms. Coburn-Boyd:

8-1 On behalf of the East Otay Mesa Property Owners Association (EOMPOA), we appreciate the opportunity to comment on the Notice of Availability of the Draft Program EIR for three recycled water system projects, Wueste Road Pipeline (R2087), Alta Road Pipeline (R2077), and Airway/La Media Road Pipeline (R2058).

The EOMPOA is supportive of OWD's efforts to bring recycled water to Otay Mesa and requests that to the extent necessary, there is coordination between Caltrans and OWD on construction of their respective projects. The EOMPOA looks forward to continuing to participate in the environmental review process for this project.

Sincerely,

Tom Story, Chairman
East Otay Mesa Property Owners Association

3131 Camino del Rio North, Ste. 150
San Diego, CA 92108
619.682.3841

2.8 Letter 8: East Otay Mesa Property Owners Association

8-1 Comment noted.

San Diego County Archaeological Society, Inc.

Environmental Review Committee

9 April 2010

To: Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2004

OTAY WATER DISTRICT
RECEIVED
2010 APR 12 AM 11:13

Subject: Draft Program Environmental Impact Report
Otay Mesa Recycled Water System Capital Improvement Program
R2087, R2077, R2058 Project

Dear Ms. Coburn-Boyd:

I have reviewed the cultural resources aspects of the subject DOEIR on behalf of this committee of the San Diego County Archaeological Society.

Based on the information contained in the DEIR and its cultural resources appendix, we have the following comments on the mitigation measures in Section 4.3 of the DPEIR:

9-1 1. The Cultural Resources Issue 2 Summary (p. 4.3-9), and on page 4.3-13, states that the significance after mitigation is "less than significant". This is only true if the project is redesigned to avoid impacts to any significant resources encountered during the monitoring program. As paragraph D.2 on page 4.3-12 correctly notes, in such cases the impact is "significant and unavoidable", though the usual term is "significant and non-mitigable".

9-2 2. MM CUL-1a, on page 4.3-10, seems to imply that there is no possibility of encountering cultural resources in way of roadways. That is not necessarily the case.

9-3 3. MM CUL-1b (p. 4.3-10), does not specify that a Native American monitor is to be present along with the archaeological monitor. This appears to have been an editorial oversight as paragraph D.1 on page 4.3-12 refers to "the Native American representative".

9-4 4. In paragraph D.3 on page 4.3-12, it is necessary to replace "and/or San Diego Museum of Man" with "and San Diego Museum of Man", as all these persons or organizations are part of the consultation that takes places when human remains are encountered.

9-5 5. In paragraph D.4 on page 4.3-12, the correct name of the organization that maintains the archaeological site records is the "South Coastal Information Center", not the "San Diego Information Center".

P.O. Box 81106 • San Diego, CA 92138-1106 • (858) 538-0935

2.9 Letter 9: San Diego County Archaeological Society

9-1 Significant and unavoidable resources have not been identified as a part of the records search or the surveys completed for the proposed Project. Therefore, it is reasonable to anticipate, as concluded in Section 4.3.3.2 of the draft EIR, that mitigation measures identified in the draft EIR to address the potential for encountering subsurface resources during construction would be adequate to mitigate potential impacts. As discussed in Section 4.3.3.2 of the draft EIR, the pedestrian surveys conducted for the proposed Project did not identify any cultural resources in the area of potential effect for the Project. In addition the area of potential affect for the proposed Project is characterized by modern disturbances associated with construction of the roadways and structures that could have destroyed any resources on the surface that may have been present. However, the potential for subsurface deposits cannot be categorically excluded, and therefore monitoring of construction activities has been required. As discussed in Mitigation Measure MM CUL-1c, if a resource is encountered during construction, mitigation options will include data recovery and redesign if necessary to avoid a resource. A resource would only be considered significant and unavoidable if data recovery is not sufficient and redesign is not possible. In addition, no resources were identified as a part of the cultural resources report and survey for which impacts would not be mitigated through data recovery or redesign. As a result, it is not reasonable to assume that impacts on cultural resources associated with the Project are significant and non-mitigable as suggested in the comment.

If the unexpected situation occurs where a resource is encountered during construction that requires additional analysis to determine what type of mitigation is required or is feasible the District would conduct additional review in accordance with CEQA.

9-2 Based on the work completed for the cultural resources report, which included a pedestrian survey and records search, it was concluded that potential affect for the proposed Project is characterized by modern disturbances associated with construction of the roadways and structures that could have destroyed any resources on the surface that may have been present. In addition it is anticipated that fill located beneath roadways would not contain cultural resources. As a result, the monitoring program focuses on areas where construction would disturb native soils outside of existing roadways.

9-3 A Native American representative is not required to be present during all construction monitoring activities. The mitigation program included in the draft EIR (see page 4.3-12, MM-CUL-1c (*D: Site Collection,* sub-items 3 and 4) requires that in accordance with standard procedure a native American representative must be consulted if human remains are encountered.

9-4 The District concurs with the comment. The revision to the text requested in the comment is included in Chapter 3, “Changes Made to the Draft EIR,” below.

9-5 The District concurs with the comment. The revision to the text requested in the comment is included in Chapter 3, “Changes Made to the Draft EIR,” below.

Thank you for providing SDCAS with this opportunity to review and comment upon this projects environmental documents. Please also include us in the distribution of the environmental documents for the individual projects under this program EIR.

Sincerely,

James W. Royle, Jr., Chairperson
Environmental Review Committee

cc: ICF International
SDCAS President
File

P.O. Box 81106 • San Diego, CA 92138-1106 • (858) 538-0935

Chapter 3
Changes Made to the Draft EIR

3.1 Introduction

In response to comments received, certain revisions have been made to the Draft EIR. The following revisions are presented in strikeout/underline format and consist of changes to text that clarify information; only pages that require revisions are included herein. These changes do not constitute significant additional information that changes the outcome of the environmental analysis or necessitates recirculation of the document in accordance with state CEQA guidelines § 15088.5. All changes to the Draft EIR presented below are noted in the response to comments in Chapter 2 of the final EIR.

This page left intentionally blank.

water system. The RWCWRF can produce approximately 1.3 mgd of recycled water daily. Recycled water is pumped southward to storage ponds in the District's Use Area, and is distributed throughout the Central Area System to a number of major developments. Current recycled water customers include residential developments, golf courses, schools, street and freeway landscaping, office parks, and a Sharp Health Center. Future recycled water markets are developments that require landscape irrigation, including parks, street and highway landscapes, freeways, schools, office parks, commercial and industrial areas, government facilities, healthcare centers, multi-family residential housing, and other common areas. Presently, the District distributes recycled wastewater treated at the RWCWRF that meets California Title 22 requirements for reuse.

The District's Recycled Water CIP program is being implemented in three phases. The three-pipeline proposed Project would be implemented as a part of Phase II, which provides for 12 projects in the Central Area System. The Phase II facilities would be constructed from 2009 to 2016.

Project Description

Goals and Objectives

The primary goals and objectives of the Project include the following actions:

- Construct facilities to meet existing recycled water demand in the Otay Mesa Service Area.
- Implement the Recycled Water System of the Water Resources Master Plan. The WRMP established phased CIPs that will be needed to provide an adequate, reliable, flexible, and cost-effective water system.
- Implement Recycled Water Policies of the State of California, local land use jurisdictions, local and regional water supply agencies, the District, and the federal government

Wueste Road Pipeline (R2087)

This portion of the Project would consist of a 24-inch-diameter 13,300-foot-long steel pipeline segment. The pipeline would be constructed within a segment of Wueste Road within the Central Area System. The pipeline would start at Olympic Parkway where it would be connected to an existing 16-inch-diameter RecPL. The pipeline would then extend south within Wueste Road along the western border of the City of San Diego Otay Water Treatment Plant and connect to an existing 30-inch-diameter RecPL just south of the plant.

The construction corridor within Wueste Road would extend approximately 10 feet to the east of the paved portion of Wueste Road. The construction corridor for the portion of the Project that would extend outside of Wueste Road would be ~~approximately 50–70 feet.~~ as follows:

- From the northernmost portion of the Wueste Road Pipeline to where the pipeline heads west off the paved Wueste Road: the impact area is limited to the extent of the paved portion of Wueste Road and a 10-foot area east of the proposed pipeline alignment (which includes some vegetated areas along the east side of Wueste Road).
- The 175-foot-long portion that heads west off of Wueste Road: the impact area consists of a 20-foot-wide corridor centered on the proposed alignment for the 50-foot-long portion that is being

constructed via open trench (125 feet of pipe in this area is being installed via jack-and-bore) and the two jacking pits (eastern pit = 20 by10 feet, western pit = 40 by 20 feet).

- The remainder of the pipeline alignment that heads south to an existing structure at the southwestern edge of the OWTP; the impact area consists of a 80- to 90-foot-wide corridor. As part of the Wueste Road Pipeline, a PRS would be constructed immediately northeast of the District's 860-1 Reservoir located near the George Bailey Detention Facility.

As part of the Wueste Road Pipeline (R2087), a pressure-reducing station (PRS) would be constructed. The proposed PRS would be located approximately 0.5 mile northeast of Donovan State Prison along the northwestern portion of Alta Road, near the Otay Mountain Truck Trail. Access would be provided via a north/south trending dirt road, located directly south of the proposed PRS, which connects to a paved driveway that merges with Alta Road. Modifications to existing pipelines necessary to accommodate the PRS would include removal of existing butterfly valves, blowoff valves, and 30-inch steel pipelines. In addition to the proposed PRS, two 20-foot sections of pipelines, 20 and 24 inches in diameter, respectively, would be installed for future use.

Alta Road Pipeline (R2077)

This portion of the Project would consist of a 24-inch-diameter, 14,692-foot-long, polyvinyl chloride (PVC) RecPL segment. The pipeline would be constructed along a segment of Alta Road within the Otay Mesa System, beginning at the intersection of Calzada de la Fuente Road where it would be connected to an existing 24-inch-diameter RecPL. The pipeline would extend south within Alta Road, continue west along Otay Mesa Road, and then extend south within Sanyo Avenue where it would connect to the 16-inch-diameter RecPL proposed within Airway Road.

The pipeline would be constructed within existing paved roads. The construction corridor for the pipeline within Alta Road would total 40 feet, occupying 20 feet on either side of the centerline. The construction corridor within Sanyo Road would extend 10 feet west of the centerline. The construction corridor within Otay Mesa Road would extend 10 feet south of the center line.

Airway/La Media Road Pipeline (R2058)

This portion of the Project would consist of a 16-inch-diameter, 15,987-foot-long PVC RecPL segment. The pipeline would utilize 5,137 feet of existing pipeline, and 10,850 feet of new pipeline would be constructed as a part of the Project. The pipeline would be constructed along segments of Airway and La Media Roads within the Otay Mesa System. Airway/La Media Road Pipeline (R2058) would be divided into nine sections—four that are proposed to be constructed under this Project and five that were previously constructed by developers. The pipeline would start at the intersection of La Media and Windsock Roads and then extend south within La Media Road to Airway Road. The pipeline would continue east along Airway Road and end east of the Sanyo Road/Airway road intersection where it would be connected with the existing16-inch-diameter PVC main water pipeline. The pipeline would be constructed within existing paved roads, and its construction corridor would be 40 feet, extending 20 feet on either side of the centerline. Near the intersection of Airway and La Media Roads the pipeline would be extended underneath a culvert using a bore and jack construction method.

housing, and other common areas. Presently, the District distributes recycled wastewater treated at the RWCWRF that meets California Title 22 requirements for reuse.

The District's Recycled Water CIP program is being implemented in three phases. The three-pipeline proposed Project would be implemented as a part of Phase II, which provides for 12 projects in the Central Area System. The Phase II facilities would be constructed from 2009 to 2016.

The District has prepared CEQA and National Environmental Policy Act (NEPA) documents to address the WRMP and the Recycled Water Program. In 2005, a Programmatic Environmental Assessment (EA) for the District's Phase II and Phase III Recycled Water CIP projects was prepared. In 2009, a Program EIR was prepared to address proposed near-term Phase II and subsequent long-term Phase III activities associated with implementation of the 2009 WRMP update. The EIR and EA evaluated potential impacts of the CIP Projects at a programmatic level, including the proposed Wueste Road, Alta Road, and Airway/La Media Road Pipelines.

3.4 Project Description

3.4.1 Goals and Objectives

The primary goals and objectives of the Project include the following actions:

- Construct facilities to meet existing recycled water demand in the Otay Mesa Service Area.
- Implement the Recycled Water System of the Water Resources Master Plan. The WRMP established phased CIPs that will be needed to provide an adequate, reliable, flexible, and cost-effective water system.
- Implement Recycled Water Policies of the State of California, local land use jurisdictions, local and regional water supply agencies, the District, and the federal government.

3.4.2 Wueste Road Pipeline (R2087)

The Wueste Road Pipeline is illustrated in Figure 2-2. This portion of the Project would consist of a 24-inch-diameter 13,300-foot-long steel pipeline segment. The pipeline would be constructed within a segment of Wueste Road within the Central Area System. The pipeline would start at Olympic Parkway where it would be connected to an existing 16-inch-diameter RecPL. The pipeline would then extend south within Wueste Road along the western border of the City of San Diego Otay Water Treatment Plant and connect to an existing 30-inch-diameter RecPl. just south of the plant.

The construction corridor within Wueste Road would extend approximately 10 feet to the east of the paved portion of Wueste Road. The construction corridor for the portion of the Project that would extend outside of Wueste Road would be ~~approximately 50–70 feet~~as follows:

- From the northernmost portion of the Wueste Road Pipeline to where the pipeline heads west off the paved Wueste Road: the impact area is limited to the extent of the paved portion of Wueste Road and a 10-foot area east of the proposed pipeline alignment (which includes some vegetated areas along the east side of Wueste Road).
- The 175-foot-long portion that heads west off of Wueste Road: the impact area consists of a 20-foot-wide corridor centered on the proposed alignment for the 50-foot-long portion that is being

constructed via open trench (125 feet of pipe in this area is being installed via jack-and-bore) and the two jacking pits (eastern pit = 20 by10 feet, western pit = 40 by 20 feet).

- The remainder of the pipeline alignment that heads south to an existing structure at the southwestern edge of the OWTP; the impact area consists of a 80- to 90-foot-wide corridor. As part of the Wueste Road Pipeline, a PRS would be constructed immediately northeast of the District's 860-1 Reservoir located near the George Bailey Detention Facility.

As part of the Wueste Road Pipeline (R2087), a pressure-reducing station (PRS) would be constructed. The proposed PRS would be located approximately 0.5 mile northeast of Donovan State Prison along the northwestern portion of Alta Road, near the Otay Mountain Truck Trail (see Figure 2-2). Access would be provided via a north/south trending dirt road, located directly south of the proposed PRS, which connects to a paved driveway that merges with Alta Road. Modifications to existing pipelines necessary to accommodate the PRS would include removal of existing butterfly valves, blowoff valves, and 30-inch steel pipelines. In addition to the proposed PRS, two 20-foot sections of pipelines, 20 and 24 inches in diameter, respectively, would be installed for future use.

3.4.3 Alta Road Pipeline (R2077)

The Alta Road Pipeline is illustrated in Figure 2-2. This portion of the Project would consist of a 24-inch-diameter, 14,692-foot-long, polyvinyl chloride (PVC) RecPL segment. The pipeline would be constructed along a segment of Alta Road within the Otay Mesa System, beginning at the intersection of Calzada de la Fuente Road where it would be connected to an existing 24-inch-diameter RecPL. The pipeline would extend south within Alta Road, continue west along Otay Mesa Road, and then extend south within Sanyo Avenue where it would connect to the 16-inch-diameter RecPL proposed within Airway Road.

The pipeline would be constructed within existing paved roads. The construction corridor for the pipeline within Alta Road would total 40 feet, occupying 20 feet on either side of the centerline. The construction corridor within Sanyo Road would extend 10 feet west of the centerline. The construction corridor within Otay Mesa Road would extend 10 feet south of the center line.

3.4.4 Airway/La Media Road Pipeline (R2058)

The Airway/La Media Road Pipeline is illustrated in Figure 2-2. This portion of the Project would consist of a 16-inch-diameter, 15,987-foot-long PVC RecPL segment. The pipeline would utilize 5,137 feet of existing pipeline, and 10,850 feet of new pipeline would be constructed as part of the Project. The pipeline would be constructed along segments of Airway and La Media Roads within the Otay Mesa System. Airway/La Media Road Pipeline (R2058) would be divided into nine sections—four that are proposed to be constructed under this Project and five that were previously constructed by developers. The pipeline would start at the intersection of La Media and Windsock Roads and then extend south within La Media Road to Airway Road. The pipeline would continue east along Airway Road and end east of the Sanyo Road/Airway road intersection where it would be connected with the existing 16-inch-diameter PVC main water pipeline. The pipeline would be constructed within existing paved roads, and its construction corridor would be 40 feet, extending 20 feet on either side of the centerline. Near the intersection of Airway and La Media Roads, the pipeline would be extended underneath a culvert using a bore and jack construction method.

C. *Determination of Significance*

- The Archaeologist shall evaluate the significance of the resource and shall immediately notify the District's CM by phone to discuss significance determination and shall also submit a letter to the District indicating whether additional mitigation is required.
- If the resource is determined to be significant, the Archeologist shall prepare a scope and cost to recover and process the discovery. Written approval must be obtained from the District before work can proceed. Impacts on significant resources must be mitigated before ground-disturbing activities in the area of discovery are allowed to resume.
- If the resource is not significant, the Archaeologist shall submit a letter to the District indicating that artifacts will be collected, curated, and documented in the Final Monitoring Report. The letter shall also indicate that no further work is required.

D *Site Collection*

- If development cannot avoid ground disturbance within the archaeological site boundaries, then the District shall implement the measures listed below. The District shall be notified by the Archaeologist when the discovered resources have been collected and removed from the site for evaluation, at which time the District's CM shall direct work to continue in the location of the discovery.
  1. A research design and archaeological data recovery plan shall be prepared that will capture those categories of data for which the site is significant, and the data recovery plan will be implemented. The significance of the discovered resources shall be determined in consultation with the Native American representative, as appropriate.
  2. If, in the opinion of the Archaeologist and in light of the data available, the significance of the site is such that data recovery cannot capture the values that qualify the site for inclusion in the CRHR, then the District shall reconsider Project plans in light of the high value of the resource, and implement more substantial Project modifications that would allow the site to be preserved intact, such as redesign, placement of fill, or relocation or abandonment. If no such measures are feasible, then the impact shall be considered significant and unavoidable.
  3. If the site contains human remains, as part of the data recovery plan, appropriate parties shall be consulted, such as the Medical Examiner, NAHC, MLD, and the ~~for~~ San Diego Museum of Man. Such consultation may include a pre-excavation agreement with the MLD.
  4. Appropriate technical analyses shall be performed, and a report shall be prepared and filed with the ~~San Diego~~South Coastal Information Center, with provision for the permanent curation of recovered resources, as follows:
     - The Archaeologist shall, in consultation with the Native American Representative, ensure that all significant cultural resources

This page left intentionally blank.

Project Design Features/Standard Construction Practices

Project design features/standard construction practices to minimize impacts related to water quality standards or requirements are provided below:

- HYD 1—If a discharge was to occur from a breached pipeline, the District will immediately contact the SDRWQCB, City of San Diego, and the CDPH with the scope of the discharge. In addition the following measures will be incorporated into the design of the pipeline:
  - All potential impertinences such as blowoff valves and air vacs will be located below grade.
- HYD 2—In accordance with the Water Agencies' Standards (WAS), the construction contractor is required to implement a Safety Plan at each construction site that will involve the transport, storage, use, and disposal of hazardous materials. Such plans will also specify stormwater Best Management Practices (BMPs) to minimize downstream water quality degradation from runoff pollution associated with pipeline construction activities. Construction BMPs identified in the Safety Plan that could be included in the Project's SWPPP include but are not limited to the following:
  - Soil Stabilization (Erosion Control)
    - Preservation of Property/Preservation of Existing Vegetation
    - Temporary Soil Stabilizer; The soil stabilizing materials would include a hydroseed mix consisting of the appropriate native species for hydroseeding in coastal sage scrub and maritime succulent scrub vegetation communities.
  - Sediment Control
    - Temporary Silt Fence
    - Temporary Check Dam
    - Temporary Gravel Bag Berm
    - Street Sweeping
    - Temporary Sandbags
    - Temporary Drain Inlet Projection
  - Tracking Control
    - Street Sweeping
    - Temporary Entrance/Outlet Tire Wash
  - Wind Erosion Control
    - Wind Erosion Control
    - Temporary Construction Entrance
  - Construction Site Management
    - Water Control and Conservation
    - Dewatering

This page left intentionally blank.

4.8 Traffic

This section describes the existing traffic conditions within the Project vicinity; summarizes the applicable regulations that govern traffic; evaluates the physical environmental effects (direct, indirect, and/or cumulative) that may occur with implementation of the proposed Project; and provides Project design features, standard construction practices, and mitigation performance measures proposed to reduce or avoid any identified impacts. Any significant and unavoidable adverse impacts are also identified and explained.

The analysis discussed in this section is based on the Traffic Impact Analysis prepared by Linscott, Law & Greenspan (LLG) in August 2009 (Appendix H to this draft EIR).

4.8.1 Environmental Setting

4.8.1.1 Existing Street Network

The principal roadways in the project study area are described below. Figure 4.8-1 diagrams the existing conditions in the vicinity of the Wueste Road Pipeline alignment; Figure 4.8-2 diagrams the existing conditions in the vicinity of the Alta Road and Airway/La Media Road Pipelines. The classifications for the roadways are further defined in the Traffic Impact Analysis included in Appendix H.

Wueste Road

Wueste Road is designated as an unclassified roadway in the City of Chula Vista General Plan Circulation Element. It is a two-lane, undivided roadway with no bike lanes or curbside parking. The posted speed limit is 35 miles per hour (mph).

Otay Mesa Road (State Route 905)

Otay Mesa Road is classified as a Major Arterial on the City of San Diego Otay Mesa Community Plan from Caliente Avenue to State Route (SR) 125. This portion of Otay Mesa Road is a six-lane, divided roadway to just east of La Media Road. From that point to SR-125, Otay Mesa Road is a four-lane, divided roadway.

East of SR 125 to Sanyo Avenue, Otay Mesa Road is a four-lane divided roadway classified as a Collector 1; then, from Sanyo Avenue, Otay Mesa Road becomes a two-lane undivided roadway classified as a Collector 2 with no bike lanes or bus stops, and with parking generally prohibited near the Project site. The speed limit in the Project vicinity is posted at a cautionary 40 mph.

From approximately 550 feet east of Sanyo Avenue, Otay Mesa Road falls within the jurisdiction of the County of San Diego. This portion of the roadway and on to Alta Road is a two-lane undivided roadway classified as a Prime Arterial in the County's General Plan, with no bike lanes or bus stops, and with parking generally prohibited. The posted speed limit is 55 mph.

This page left intentionally blank.

Chapter 4

Statement of Location and Custodian of Documents

This page left intentionally blank.

STATEMENT OF LOCATION AND CUSTODIAN OF DOCUMENTS OR OTHER MATERIALS THAT CONSTITUTE A RECORD OF PROCEEDINGS

May 2010

Project Name: Otay Mesa Recycled Water System

Reference Case Numbers: SCH# 2009101031

CEQA [Section 21081.6(a)(2)] requires that the lead agency (in this case the Otay Water District) specify the location and custodian of the documents or other material that constitute the record of proceedings upon which it decision is based. It is the purpose of this statement to satisfy this requirement.

Location of Documents and Other Materials that Constitute the Record of Proceedings:

Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2096

Custodian:

Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2096

This page left intentionally blank.

Otay Mesa Recycled Water System
Capital Improvement Program
R2087, R2077, R2058 Project
Draft EIR

SCH # 2009101031

Appendices

PREPARED BY:
ICF International
9775 Businesspark Avenue, Suite 200
San Diego, California 92131

PREPARED FOR:
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2096

Appendix A
Notice of Preparation and Responses

NOTICE OF PREPARATION

ENVIRONMENTAL IMPACT REPORT FOR THE OTAY MESA RECYCLED WATER SYSTEM CAPITAL IMPROVEMENT PROGRAM R2087, R2077, R2058 PROJECT

DATE:	October 8, 2009
TO:	State Clearinghouse, Trustees, Agencies, Organizations, and Interested Persons
LEAD AGENCY:	OTAY WATER DISTRICT 2554 Sweetwater Springs Boulevard Spring Valley, California 91978-2004
SUBJECT:	Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the

This is to inform you that the Otay Water District (District) will be the lead agency for the preparation of an Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) and State CEQA Guidelines. The EIR will address the potential environmental effects of the construction and operation of three Recycled Water System Transmission Pipelines (RecPL) within the South District Area.

Agencies and Trustees: The District requests the views of your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed Project. Agencies may need to use the EIR prepared by our agency when considering permits or other approvals for the Project.

Organizations and Interested Parties: The District requests your comments and concerns regarding the environmental issues associated with the Project.

Project Title: Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project.

Project Location: The Project includes three separate locations in the South District Area within the corporate limits of the Cities of Chula Vista and San Diego as well as the unincorporated County of San Diego (Figure 1: Project Vicinity). The three-pipeline proposed Project would extend along Wueste Road within the County of San Diego and the City of Chula Vista, along Alta Road in the City of San Diego, and along Airway/La Media Road in the City of San Diego (Figure 2: Project Location).

Project Description: As part of its adopted Capital Budget for Fiscal Years 2009–2014, the District is scheduled to implement Capital Facility Projects in accordance with the Capital Improvement Program (CIP). Many of these projects consist of the construction and operation of RecPL. The three-pipeline proposed Project is within the South District area, which is comprised of the Central Area and Otay Mesa Systems, and includes the following pipelines: Wueste Road Pipeline (CIP No. R2087), Alta Road Pipeline (CIP No. R2077), and Airway/La Media Road Pipeline (CIP No. R2058).

The Project would include the improvements shown on Figure 2. Each pipeline is described below:

- **Wueste Road Pipeline (R2087)**—This portion of the Project would consist of a 24-inch-diameter 13,300-foot-long steel pipeline segment. The pipeline would be constructed within a segment of Wueste Road within the Central Area System. The pipeline would start at Olympic Parkway where it would be connected to an existing 16-inch-diameter RecPL. The pipeline would then extend south within Wueste Road along the western border of the City of San Diego Otay Water Treatment Plant and connect to an existing 30-inch-diameter RecPL just south of the plant. The construction corridor within Wueste Road would extend approximately 10 feet to the east of the paved portion of Wueste Road. The construction corridor for the portion of the project that would extend outside of Wueste Road would be approximately 50–70 feet.

  As part of the Wueste Road Pipeline (R2087), a pressure-reducing station (PRS) would be constructed. The proposed PRS would be located approximately 0.5 mile northeast of Donovan State Prison along the northwestern portion of Alta Road, near the Otay Mountain Truck Trail (see Figure 2). Modifications to existing pipelines necessary to accommodate the PRS would include removal of existing butterfly valves, blowoff valves, and 30-inch steel pipelines. Additionally, two 20-foot sections of pipelines, 20 inches and 24 inches in diameter, respectively, would be installed for future use in addition to the proposed PRS.

- **Alta Road Pipeline (R2077)**—This portion of the Project would consist of a 24-inch-diameter, 11,989-foot-long PVC RecPL segment. The pipeline would be constructed along a segment of Alta Road within the Otay Mesa System, beginning at the intersection

of Calzada de la Fuente Road where it would be connected to an existing 24-inch-diameter RecPL. The pipeline would extend south within Alta Road, continue west along Otay Mesa Road, and then extend south within Sanyo Avenue where it would connect to the 16-inch-diameter RecPL proposed within Airway Road. The pipeline would be constructed within existing paved roads. The construction corridor for R2077 within Alta Road would total 40 feet, occupying 20 feet on either side of the centerline. The construction corridor within Sanyo Road would extend 10 feet west of the centerline. The construction corridor within Otay Mesa Road would extend 10 feet south of the center line.

- **Airway/La Media Road Pipeline (R2058)**—This portion of the Project would consist of a 16-inch-diameter, 12,440-foot-long PVC RecPL segment. The pipeline would utilize 2,586 feet of existing pipeline and 9,853 feet of new pipeline would be constructed as a part of the Project. The pipeline would be constructed along segments of Airway and La Media Roads within the Otay Mesa System. Airway/La Media Road Pipeline (R2058) would be divided into nine sections—four that are proposed to be constructed under this Project and five that were previously constructed by developers. The pipeline would start at the intersection of La Media and Windsock Roads and then extend south within La Media Road to Airway Road. The pipeline would continue east along Airway Road and end approximately 80 feet to the west of the Paseo de Las Americas/Airway Road intersection where it would be connected with the existing16-inch-diameter PVC main water pipeline. The pipeline would be constructed within existing paved roads, and its construction corridor would 40 feet, extending 20 feet on either side of the centerline.

The District intends to limit construction activities to paved portions of the roads within the existing utility rights-of-way, where feasible; and construction staging areas are anticipated to be sited in existing developed areas. However, some sections of construction would extend beyond the paved areas of the road and may involve disturbance of areas adjacent to the roadway. The construction corridor for the Wueste Road Pipeline (R2087) would extend approximately 10 feet to the east of the paved portion of Wueste Road. A section of R2087 near the City of San Diego Otay Water Treatment Plant would extend outside of the roadway. In addition, the construction corridors would include a trench depth of approximately 6.5 feet. Construction would be completed using cut and cover trenching. No aboveground structures or pump stations are proposed as a part of the three-pipeline Project.

The Project schedule is based on completion of environmental review prior to sending out the construction contract for bid. The District intends to complete the environmental documentation and have the construction contract go out for bid in 2010.

Project Overview

District policy (Otay Water District Code of Ordinances, Section 12, Water Reclamation Plan and Implementing Procedures) authorizes the use of recycled water wherever it is financially and technically feasible, and when it is consistent with legal requirements; preservation of public health, safety, and welfare; and the environment. Implementation of this policy enables the District to plan, fund, and construct facilities to meet recycled water demand. The District provides recycled water to portions of its service area in fulfillment of a mandate from the State of California for water districts to develop and provide alternative water sources. Municipalities in the District's service area have required land developers to provide separate recycled water delivery systems within their subdivisions for irrigation of specific areas. The production and distribution of recycled water is encouraged by the policies of the State of California, local land use jurisdictions, local and regional water supply agencies, the District, and the federal government. The three-pipeline proposed Project is part of the District's long-range plans to develop recycled water use in order to fulfill these policies.

The Otay Water District, which is comprised of five water service areas, is responsible for delivering potable and recycled water to customers within its jurisdictional area of approximately 80,320 acres (125.2 square miles). The District is located in southwestern San Diego County, inland from the cities of San Diego, Chula Vista, and National City. The District is a member agency of the San Diego County Water Authority (SDCWA), which is a member of the Metropolitan Water District (MWD) of Southern California. The District receives imported potable water from the aqueduct systems owned and operated by the SDCWA and MWD of southern California.

Currently the District supplies an average of 22.4 million gallons per day (mgd) of water to approximately 143,000 individuals through five operating systems: La Presa, Hillsdale, Regulatory, Central Area, and Otay Mesa. In addition to supplying potable water throughout its service area, the District maintains and operates a recycled water system. Distribution of recycled water is restricted to the South District, which consists of the Central Area and Otay Mesa Systems.

In order to facilitate better use of existing water supplies, the District has been actively pursuing water recycling to maximize the use of local water. The Water Resources Master Plan (WRMP) predicts future water demands and identifies the necessary capital facilities needed to meet those demands. The WRMP established phased CIPs that will be needed to provide an adequate, reliable, flexible, and cost-effective water system.

The 2009 WRMP Update revises the District's 2002 WRMP to meet projected water market demands within the District service area and adjacent areas of influence (collectively referred to as the "WRMP planning area"). To do this, the 2009 WRMP Update identifies the necessary

potable and recycled water CIP facilities (e.g., pump stations, storage reservoirs, transmission mains, groundwater wells) and associated probable cost estimates, and develops a phased approach to implement the CIP projects during the following time frames: 2009–2016 (Phase II) and 2017–Ultimate (Phase III). The CIP projects identified in the 2009 WRMP Update will ensure an adequate, reliable, flexible, and cost-effective potable and recycled water delivery system commensurate with growth within the WRMP planning area, consistent with the San Diego Association of Government (SANDAG) forecasts through 2030.

Recycled Water System

The following is a description of the Recycled Water System identified in the WRMP. The purpose of the District's recycled water program is to reduce the demand for imported water, maximize the use of local water supplies, substitute recycled water for potable water, and provide a continuous and dependable source of supplemental water for the area. The Cooperative Agreement will assist the District with implementation of the recycled water program. The proposed Project would ultimately provide for the annual use of an estimated 9,219 acre-feet of recycled water This Project is needed because dependable water supplies in southern California are becoming more difficult to develop and maintain as imported water sources become less reliable.

Two treatment facilities would be used to provide recycled water to the three-pipeline proposed Project: the Ralph W. Chapman Water Recycling Facility (RWCWRF), operated by the District, and the South Bay Water Reclamation Plant, operated by the City of San Diego. Both supply water for users within the District service area. The RWCWRF is owned and operated by the District, and supplies the District's recycled water system. The RWCWRF can produce approximately 1.3 mgd of recycled water daily. Recycled water is pumped southward to storage ponds in the District's Use Area, and is distributed throughout the Central Area System to a number of major developments. Current recycled water customers include residential developments and golf courses. Future recycled water markets are developments that require landscape irrigation, including parks, golf courses, street and highway landscapes, freeways, schools, office parks, commercial and industrial areas, government facilities, health care centers, multi-family residential housing, and other common areas. Presently, the District distributes recycled wastewater treated at the RWCWRF that meets California Title 22 requirements for reuse.

The District's Recycled Water CIP program is being implemented in three phases. The three-pipeline proposed Project would be implemented as a part of Phase II. Phase II provides for 12 projects in the Central Area System. The Phase II facilities would be constructed from 2009 to 2016.

The District has prepared CEQA and NEPA documents to address the WRMP and the Recycled Water Program. In 2005, a Programmatic Environmental Assessment (EA) for the District's Phase II and Phase III Recycled Water CIP projects was prepared. In 2009, a Program EIR was prepared to address proposed near-term Phase II and subsequent long-term Phase III activities associated with implementation of the 2009 WRMP update. The EIR and EA evaluated potential impacts of the CIP Projects at a programmatic level, including the proposed Wueste Road, Alta Road, and the Airway/La Media Road Pipelines (proposed Project).

Potential Environmental Effects: The District has decided that it will prepare an EIR to analyze the Project because, in light of the whole record, there is substantial evidence that some aspects of the Project individually or cumulatively may cause a significant adverse or beneficial effect on the environment. In accordance with CEQA, the District will "consider any direct physical changes...and reasonably foreseeable indirect physical changes in the environment which may be caused by the project." It will evaluate whether any such changes that it identifies are individually or cumulatively significant.

The draft EIR will evaluate the potential impacts of the proposed Project on the environment, present feasible mitigation, and analyze potential project alternatives. In addition, the draft EIR will analyze potential cumulative and growth-inducing impacts, and provide the additional mandatory sections required by CEQA. The final EIR will include a mitigation monitoring and reporting program.

Based on the preliminary scope of the proposed Project, it appears that potentially significant impacts in several categories may occur during construction and operation of the three-pipeline proposed Project; therefore, the following technical studies will be conducted/prepared for the proposed Project: Cultural Resources Report, Biological Resources Report/Biological Assessment, Geotechnical Report, Water Quality Evaluation, Noise/Vibration Study, Traffic Impact Assessment, and Air Quality/Climate Change Analysis. The EIR will address all possible environmental effects including the following: Aesthetics, Agriculture Resources, Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Mineral Resources, Paleontological Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Noise, Population and Housing, Public Services, Recreation, Transportation/Traffic, and Utilities.

Public Review Period: The District has issued this Notice of Preparation (NOP) for public review and comment pursuant to California Code of Regulations, Title 14, §15082(a). The comment period for the NOP begins on Thursday, October 8, 2009, and ends on Friday, November 6, 2009. Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice (Cal. Code Reg., Title 14, § 15103). A copy of the NOP is available on the District website: www.otaywater.gov.

Public Scoping Meeting: A public scoping meeting regarding the proposed EIR will be held from 6:30 p.m. to 8:00 p.m., Monday, October 19, 2009 at the District Training Room at 2554 Sweetwater Springs Boulevard.

Responses and Comments: At this time, the District is soliciting comments on the NOP for this project. All comments must be postmarked by Friday, November 6, 2009. Comments may be submitted by mail, email, or fax. All comments should indicate a contact person for your agency or organization, if applicable. Please send your responses to:

Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, California 91978-2004
Attention: Lisa Coburn-Boyd
FAX: 619-670-8920
Lisa.coburn-boyd@otaywater.gov

Signature:

Lisa Coburn-Boyd

Name: Lisa Coburn-Boyd
Date: October 8, 2009

ICF Jones & Stokes

Figure 1
Project Vicinity

ICF Jones & Stokes

Figure 2
Project Location

California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
South Coast Region
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201
http://www.dfg.ca.gov

ARNOLD SCHWARZENEGGER, Governor
DONALD KOCH, Director

October 30, 2009

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2004

Subject: Comments on the Notice of Preparation for the Otay Mesa Recycled Water System Capital Improvement Project R2087, R2077, R2058, San Diego County, California (SCH# 2009101031)

Dear Ms. Coburn-Boyd:

The California Department of Fish and Game (Department) has reviewed the above-referenced Notice of Preparation (NOP) for the Otay Mesa Recycled Water System Capital Improvement Program Draft Environmental Impact Report (DEIR). The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act [CEQA] Guidelines Section 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines Section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code Section 2050 et seq.) and Fish and Game Code Section 1600 et seq. The Department also administers the Natural Community Conservation Planning Program (NCCP). The proposed project is wholly and/or partially located within the jurisdictional planning areas associated with the County of San Diego, City of San Diego, and City of Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plans (SAP).

The Otay Water District (District) is proposing to construct three recycled water system transmission pipelines under the District's Capital Improvement Program (CIP). All of the projects would be located with the District's South District Area. The three recycled water pipelines were outlined in the NOP as follows: Wueste Road pipeline (13,300 linear feet of 24-inch-diameter steel pipeline - CIP No. R2087), which would extend along Wueste Road within the County of San Diego and the City of Chula Vista; Alta Road pipeline (11,989 linear feet of 24-inch-diameter PVC pipeline - CIP No. R2077), which extends along Alta Road in the City of San Diego; and Airway/La Media Road pipeline (12,440 linear feet of 16-inch-diameter PVC pipeline - CIP NO. R2058), extending along Airway/La Media Road in the City of San Diego. Construction would be completed using cut and cover trenching. The NOP acknowledges that where feasible, the District intends to limit construction activities to the paved portions of the designated roadways, however it is also mentioned that the construction activity associated with R2087 would extend approximately 10 feet east from paved portion of Wueste Road). The construction of a below-grade pressure reducing station would be associated with the Wueste Road pipeline phase.

The Department offers the following comments and recommendations to assist the District in avoiding or minimizing potential project impacts on biological resources.

Specific Comments

1. Based on project scope the Department believes that County of San Diego, City of San

Diego, and City of Chula Vista MSCP SAPs could be adversely affected by those portions of a particular CIP project that extends though a given jurisdiction's SAP. The DEIR should evaluate the potential, direct, indirect, and cumulative impacts each CIP project could have on sensitive vegetation communities, covered species, biological resource core areas, wetland buffers, or wildlife corridors and linkages identified under each MSCP SAP. The Department recommends that each CIP project meet or exceed the mitigation ratio, guidelines, and standards required by each SAP to maintain the project's consistency to the onsite and adjacent areas that are described in the SAP. For example, for portions of a project that lie within a planning area, consideration should be given to the CIP project's conformance with the Land Use Adjacency Guidelines associated with the SAP (e.g., Section 1.4.3 of the City of San Diego's MSCP SAP) in terms of drainage, toxic substances in runoff, invasive plants species, brush management requirements, lighting, noise, and land use for all portions of the proposed development within or adjacent to the preserve boundaries (e.g., City of San Diego's Multi-Habitat Planning Area (MHPA), County of San Diego's Biological Core Resource Areas, etc.). The detailed discussion and analysis should be provided in the *Land Use* and *Biological Resources* section of the DEIR to address these concerns.

2. One of the purposes of CEQA is to "prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible" (CEQA Guideline, Section 15002 (a)(3); emphasis added). Because of the potential for projects to occur within environmentally sensitive areas the CEQA alternatives analysis for this project is extremely important. The Department is particularly interested in the DEIR describing a "range of reasonable alternative to the project (particularly options to minimize grading impacts to preserve lands), or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives," as required by Section 15126.6(a) of the CEQA Guideline. The alternatives are to include "alternative that would impede to some degree the attainment of the project objectives, or would be more costly" (Section 15126.6[b] of the CEQA Guidelines). "The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making" (Section 15126.6[f] of the CEQA Guidelines). The Department will consider the alternatives analyzed in the context of their relative impacts on biological resources on both a local and regional level. Furthermore, for the Department to utilize the CEQA document as a Responsible Agency, the alternatives must include those which avoid or otherwise minimize impacts to sensitive biological resources that are regulated by the Fish and Game Code.

3. Portions of the proposed projects extend through non-native grassland habitat which is known to support nesting/foraging activities for burrowing owl (*Athene cunicularia*; State Species of Special Concern) within this locale of Otay Mesa. The DEIR should evaluate the potential effects that each CIP project could have on burrowing owl and associated habitat. Based on the results of the preliminary assessment for potential occupancy of burrowing owl within the project area, surveys (using appropriate protocols) would need to be conducted in suitable habitat to determine if the species is present and the location of active burrows. If burrowing owls are detected, the following mitigation measures must be implemented: within the MHPA, impacts must be avoided; outside the MHPA, impacts to the species must be avoided to the maximum extent practicable; any impacted individuals must be relocated out of the impact area using passive or active methodologies approved by the Department; mitigation for impacts to occupied habitat (at the SAP specified ratio) must be met through

the conservation of occupied burrowing owl habitat or conservation of lands appropriate for restoration, management and enhancement of burrowing owl nesting and foraging requirements.

4. The Department has responsibility for wetland and riparian habitats. It is the policy of the Department to strongly discourage development in wetlands or conversion of wetlands to uplands. We oppose any development or conversion which would result in a reduction of wetland acreage or wetland habitat values, unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. Development and conversion include but are not limited to conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether intermittent or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations. Mitigation measures to compensate for impacts to mature riparian corridors must be included in the DEIR and must compensate for the loss of function and value of a wildlife corridor.

   a) The project area supports aquatic, riparian, and wetland habitats; therefore, a jurisdictional delineation of the creeks and their associated riparian habitats should be included in the DEIR. The delineation should be conducted pursuant to the U. S. Fish and Wildlife Service wetland definition adopted by the Department.[1]. Please note that some wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers.

   b) Unless the proposed project avoids (*e.g.*, spans the riparian corridor), it will require a Streambed Alteration Agreement (SAA), pursuant to Section 1600 et seq. of the Fish and Game Code, prior to the commencement of any activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or use material from a streambed. The Department's issuance of a SAA for a project that is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department as a responsible agency under CEQA may consider the local jurisdiction's (lead agency) Negative Declaration or EIR for the project. To minimize additional requirements by the Department pursuant to Section 1600 et seq. and/or under CEQA, the document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the SAA.[2]

5. Take authorization pursuant to the California Endangered Species Act (CESA) and the Federal Endangered Species Act must be obtained if the project has the potential to result in "take" of state and/or federally listed species of plants or animals (e.g., San Diego fairy shrimp), either during construction or over the life of the project. Permits authorizing take are issued to conserve, protect, enhance, and restore listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to a

---

[1] Cowardin, Lewis M., et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

[2] A notification package for a SAA may be obtained by writing to: Department of Fish and Game, 4949 Viewridge Avenue, San Diego, CA 92123, by calling (858) 636-3160, or by accessing the Department's web site at www.dfg.ca.gov/1600 .

project and mitigation measures may be required in order to obtain take authorization. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of a CESA permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of CESA. In the event take authorization is required for the proposed project the following items would be required:

a) Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA permit.

b) Department-approved Mitigation Agreement and Mitigation Plans are required for plants listed as rare under the Native Plant Protection Act.

General Comments

1. To enable the Department to adequately review and comment on the proposed project from the standpoint of the protection of plants, fish and wildlife, we recommend the following information be included in the DEIR.

   a) The document should contain a complete discussion of the purpose and need for, and description of, the proposed project, including all staging areas and access routes to the construction and staging areas. All construction and post-construction best management practices (BMPs) should be located within the development footprint (i.e., included in the impact analysis as loss of habitat). The DEIR should include a figure depicting the location of BMPs in relation the development footprint.

   b) A range of feasible alternatives should be included to ensure that alternatives to the proposed project are fully considered and evaluated; the alternatives should avoid or otherwise minimize impacts to sensitive biological resources. Specific alternative locations should be evaluated in areas with lower resource sensitivity where appropriate.

<u>Biological Resources within the Project's Area of Potential Effect</u>

2. The document should provide a complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, sensitive, and locally unique species and sensitive habitats. This should include a complete floral and faunal species compendium of the entire project site, undertaken at the appropriate time of year. The DEIR should include the following information.

   a) CEQA Guidelines, §15125(c), direct that knowledge of the regional setting is critical to an assessment of environmental impacts, and that special emphasis should be placed on resources that are rare or unique to the region.

   b) A thorough assessment of rare plants and rare natural communities, following the Department's Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (Attachment 1, December 1983, revised May 2000).

   c) A current inventory of the biological resources associated with each habitat type on site and within the area of potential effect. The Department's California Natural Diversity

Database in Sacramento should be contacted at (916) 322-2493 or www.dfg.ca.gov/biogeodata/cnddb/ to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

d) An inventory of rare, threatened, and endangered, and other sensitive species on site and within the area of potential effect. Species to be addressed should include all those which meet the CEQA definition (see CEQA Guidelines, Section 15380). This should include sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

Analyses of the Potential Project-Related Impacts on the Biological Resources

3. The DEIR should provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts. This discussion should focus on maximizing avoidance, and minimizing impacts.

   a) A discussion of impacts associated with increased lighting, noise, human activity, changes in drainage patterns, changes in water volume, velocity, and quality, soil erosion, and /or sedimentation in streams and water courses on or near the project site, with mitigation measures proposed to alleviate such impacts should be included.

   b) Project impacts should be analyzed relative to their indirect impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands (*e.g.*, preserve lands associated with a Natural Community Conservation Plan). Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated and provided. A discussion of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address: project-related changes on drainage patterns on and downstream of the project site; the volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site. The discussions should also address the proximity of the extraction activities to the water table, whether dewatering would be necessary, and the potential resulting impacts on the habitat, if any, supported by the groundwater.

   c) The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document.

   d) A cumulative effects analysis should be developed as described under CEQA Guidelines, §15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Mitigation for the Project-related Biological Impacts

4. The DEIR should include measures to fully avoid and otherwise protect Rare Natural Communities (Attachment 2) from project-related impacts. The Department considers these communities as threatened habitats having both regional and local significance.

5. The DEIR should include mitigation measures for adverse project-related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

6. For proposed preservation and/or restoration, the DEIR should include measures to perpetually protect the targeted habitat values from direct and indirect negative impacts. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

7. In order to avoid impacts to nesting birds, the DEIR should require that clearing of vegetation, and when biologically warranted construction, occur outside of the peak avian breeding season which generally runs from February 1 through September 1 (as early as January for some raptors). If project construction is necessary during the bird breeding season, a qualified biologist should conduct a survey for nesting birds, within three days prior to the work in the area, and ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), shall be delineated by temporary fencing, and shall remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project.

8. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Studies have shown that these efforts are experimental in nature and largely unsuccessful.

9. Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

We appreciate the opportunity to comment on the referenced NOP. Questions regarding this letter and further coordination on these issues should be directed to Paul Schlitt at (858) 637-5510.

Sincerely,

Edmund Pert
Regional Manager
South Coast Region

Attachment(s) 2

- Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities
- Sensitivity of Top Priority Rare Natural Communities in Southern California

cc: State Clearinghouse, Sacramento
Felicia Sirchia, U.S. Fish and Wildlife Service, Carlsbad
Paul Schlitt, San Diego

Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities

State of California
THE RESOURCES AGENCY
Department of Fish and Game
December 9, 1983
Revised May 8, 2000

The following recommendations are intended to help those who prepare and review environmental documents determine **when** a botanical survey is needed, **who** should be considered qualified to conduct such surveys, **how** field surveys should be conducted, and **what** information should be contained in the survey report. The Department may recommend that lead agencies not accept the results of surveys that are not conducted according to these guidelines.

1. Botanical surveys are conducted in order to determine the environmental effects of proposed projects on all rare, threatened, and endangered plants and plant communities. Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare, threatened, and/or endangered under the following definitions:

   A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

   Rare natural communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities may be used as a guide to the names and status of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or to the extent that, rare, threatened, or endangered plants will be affected by a proposed project when:

   a. Natural vegetation occurs on the site, it is unknown if rare, threatened, or endangered plants or habitats occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
   b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking.

3. Botanical consultants should possess the following qualifications:

   a. Experience conducting floristic field surveys;
   b. Knowledge of plant taxonomy and plant community ecology;
   c. Familiarity with the plants of the area, including rare, threatened, and endangered species;
   d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
   e. Experience with analyzing impacts of development on native plant species and communities.

4. Field surveys should be conducted in a manner that will locate any rare, threatened, or endangered species that may be present. Specifically, rare, threatened, or endangered plant surveys should be:

   a. Conducted in the field at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Usually, this is when the plants are flowering.

When rare, threatened, or endangered plants are known to occur in the type(s) of habitat present in the project area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey.

b. Floristic in nature. A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. In addition, a sufficient number of visits spaced throughout the growing season are necessary to accurately determine what plants exist on the site. In order to properly characterize the site and document the completeness of the survey, a complete list of plants observed on the site should be included in every botanical survey report.

c. Conducted in a manner that is consistent with conservation ethics. Collections (voucher specimens) of rare, threatened, or endangered species, or suspected rare, threatened, or endangered species should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit requirements. A collecting permit from the Habitat Conservation Planning Branch of DFG is required for collection of state-listed plant species. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.

d. Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas.

e. Well documented. When a rare, threatened, or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5 minute topographic map with the occurrence mapped, should be completed and submitted to the Natural Diversity Database. Locations may be best documented using global positioning systems (GPS) and presented in map and digital forms as these tools become more accessible.

5. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations and mitigated negative declarations, Timber Harvesting Plans (THPs), EIR's, and EIS's, and should contain the following information:

a. Project description, including a detailed map of the project location and study area.
b. A written description of biological setting referencing the community nomenclature used and a vegetation map.
c. Detailed description of survey methodology.
d. Dates of field surveys and total person-hours spent on field surveys.
e. Results of field survey including detailed maps and specific location data for each plant population found. Investigators are encouraged to provide GPS data and maps documenting population boundaries.
f. An assessment of potential impacts. This should include a map showing the distribution of plants in relation to proposed activities.
g. Discussion of the significance of rare, threatened, or endangered plant populations in the project area considering nearby populations and total species distribution.
h. Recommended measures to avoid impacts.
i. A list of all plants observed on the project area. Plants should be identified to the taxonomic level necessary to determine whether or not they are rare, threatened or endangered.
j. Description of reference site(s) visited and phenological development of rare, threatened, or endangered plant(s).
k. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.
l. Name of field investigator(s).
j. References cited, persons contacted, herbaria visited, and the location of voucher specimens.

Sensitivity of Top Priority Rare Natural Communities in Southern California

Sensitivity rankings are determined by the Department of Fish and Game, California Natural Diversity Data Base and based on either number of known occurrences (locations) and/or amount of habitat remaining (acreage). The three rankings used for these top priority rare natural communities are as follows:

S1.# Fewer than 6 known locations and/or on fewer than 2,000 acres of habitat remaining.

S2.# Occurs in 6-20 known locations and/or 2,000-10,000 acres of habitat remaining.

S3.# Occurs in 21-100-known locations and/or 10,000-50,000 acres of habitat remaining.

The number to the right of the decimal point after the ranking refers to the degree of threat posed to that natural community regardless of the ranking. For example:

S1.1 = very threatened
S2.2 = threatened
S3.3 = no current threats known

Sensitivity Rankings (February 1992)

Rank	Community Name
S1.1	Mojave Riparian Forest
	Sonoran Cottonwood Willow Riparian
	Mesquite Bosque
	Elephant Tree Woodland
	Crucifixion Thorn Woodland
	Allthorn Woodland
	Arizonan Woodland
	Southern California Walnut Forest
	Mainland Cherry Forest
	Southern Bishop Pine Forest
	Torrey Pine Forest
	Desert Mountain White Fir Forest
	Southern Dune Scrub
	Southern Coastal Bluff Scrub
	Maritime Succulent Scrub
	Riversidean Alluvial Fan Sage Scrub
	Southern Maritime Chaparral
	Valley Needlegrass Grassland
	Great Basin Grassland
	Mojave Desert Grassland
	Pebble Plains
	Southern Sedge Bog
	Cismontane Alkali Marsh

S1.2	Southern Foredunes Mono Pumice Flat Southern Interior Basalt Flow Vernal Pool
S2.1	Venturan Coastal Sage Scrub Diegan Coastal Sage Scrub Riversidean Upland Coastal Sage Scrub Riversidean Desert Sage Scrub Sagebrush Steppe Desert Sink Scrub Mafic Southern Mixed Chaparral San Diego Mesa Hardpan Vernal Pool San Diego Mesa Claypan Vernal Pool Alkali Meadow Southern Coastal Salt Marsh Coastal Brackish Marsh Transmontane Alkali Marsh Coastal and Valley Freshwater Marsh Southern Arroyo Willow Riparian Forest Southern Willow Scrub Modoc-Great Basin Cottonwood Willow Riparian Modoc-Great Basin Riparian Scrub Mojave Desert Wash Scrub Engelmann Oak Woodland Open Engelmann Oak Woodland Closed Engelmann Oak Woodland Island Oak Woodland California Walnut Woodland Island Ironwood Forest Island Cherry Forest Southern Interior Cypress Forest Bigcone Spruce-Canyon Oak Forest
S2.2	Active Coastal Dunes Active Desert Dunes Stabilized and Partially Stabilized Desert Dunes Stabilized and Partially Stabilized Desert Sandfield Mojave Mixed Steppe Transmontane Freshwater Marsh Coulter Pine Forest Southern California Fellfield White Mountains Fellfield
S2.3	Bristlecone Pine Forest Limber Pine Forest

OTAY WATER DISTRICT
RECEIVED
2009 NOV 10 AM 10: 11

County of San Diego

DEPARTMENT OF PUBLIC WORKS

JOHN L. SNYDER
DIRECTOR

5555 OVERLAND AVE, SUITE 2188
SAN DIEGO, CALIFORNIA 92123-1295

(858) 694-2212 FAX: (858) 268-0461
Web Site: www.sdcounty.ca.gov

November 6, 2009

Otay Water District
Attention: Lisa Coburn-Boyd
2554 Sweetwater Springs Blvd.
Spring Valley, California 91978-2004

RE: NOTICE OF PREPARATION FOR THE OTAY MESA RECYCLED WATER SYSTEM

The County of San Diego Departments of Public Works and Parks and Recreation appreciate the opportunity to review the Notice of Preparation for the Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, and R2058 Project.

The Department of Public Works has completed its review and has no comments on the Notice of Preparation.

The Department of Parks and Recreation (DPR) staff has completed its review of the Notice of Preparation of an Environmental Impact Report (EIR) for the proposed Otay Mesa Recycled Water System Capital Improvement Program and provides the following comments:

1. From the project location and description provided, it appears as though the proposed project is directly adjacent to and partially within several County-owned and/or managed properties including Otay Valley Regional Park (OVRP), Otay Lakes County Park, and Otay Ranch Preserve. The EIR should fully disclose and analyze all potential impacts of the project and project alternatives to these properties.

2. The OVRP is run cooperatively through a Joint Exercise of Powers Agreement among the County of San Diego and the cities of San Diego and Chula Vista. It is recommended that the Otay Water District coordinate with the OVRP Citizen Advisory Committee and Policy Committee for input on and/or approval of the project. Please contact the following OVRP joint staff to arrange for a presentation of the proposed project:

   County of San Diego: Chuck Tucker (858-966-1352, chuck.tucker@sdcounty.ca.gov)
   City of San Diego: Laura Ball (619-533-6727, lball@sandiego.gov),
   City of Chula Vista: Lynnette Lopez (619-409-5465, ltessitore-lopez@ci.chula-vista.ca.us).

3. The County of San Diego and the City of Chula Vista are joint Preserve Owner Managers (POM) for the Otay Ranch Preserve. The County and City manage the Salt Creek property located west of the proposed Wueste Road pipe extension (APN 644-080-11). Any potential impacts to this parcel should be discussed and coordinated with the following POM staff:

   County of San Diego: Cheryl Goddard (858-966-1374, cheryl.goddard@sdcounty.ca.gov)
   City of Chula Vista: Marisa Lundstedt (619-409-5922, mlundstedt@ci.chula-vista.ca.us)

4. The County Department of Parks and Recreation oversees the County Trails Program and the Community Trails Master Plan (CTMP). The County Trails Program is developing a system of interconnected regional and community trails and pathways. The County Trails Program involves both trail development and management on public, semi-public, and private lands. There are several existing trails as well as proposed trails tied to development projects which are currently being constructed within the vicinity of the project. In addition, the Otay Valley Regional Park (OVRP) Concept Plan and the 2007 East Otay Mesa Specific Plan Amendment identify proposed trails within this area. It is recommended that the EIR evaluate any potential effects on the recreational use of these existing and proposed trails. For additional information regarding trail locations or to discuss any potential impacts, please contact the County Trails Program Coordinator, Maryanne Vancio at 858-966-1372, maryanne.vancio@sdcounty.ca.gov.

If you have any questions or comments regarding DPR comments, please contact Megan Hamilton, Group Program Manager at (858) 966-1377 or e-mail Megan.Hamilton@sdcounty.ca.gov.

Again, we appreciate the opportunity to participate in the review process for this project and look forward to receiving future environmental documents related to this project or providing additional assistance at your request.

Sincerely,

Lorne Brach

for JULIA M. QUINN, Environmental Planning Manager
DPW Environmental Services Unit

JMQ:lb

cc: Megan Hamilton, DPR Group Program Manager; M.S. O-29

State Water Resources Control Board

Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.waterboards.ca.gov

Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

OCT 30 2009

OTAY WATER DISTRICT
RECEIVED
9:55

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, CA 91978-2004

Dear Ms. Coburn-Boyd:

NOTICE OF PREPARATION (NOP) FOR OTAY WATER DISTRICT (DISTRICT); OTAY MESA RECYCLED WATER SYSTEM CAPITAL IMPROVEMENT PROGRAM PROJECT (PROJECT); SAN DIEGO COUNTY; STATE CLEARINGHOUSE (SCH NO. 2009101031)

Thank you for the opportunity to review the above document. We understand that the District is not currently pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing comments on the California Environmental Quality Act (CEQA) document prepared for the Project.

The District may want to consider the CWSRF Program to provide funding for future construction. The State Water Board, Division of Financial Assistance, is responsible for administering CWSRF funds. The primary purpose for the CWSRF Program is to implement the Clean Water Act and various state laws by providing financial assistance for wastewater treatment facilities necessary to prevent water pollution, recycle water, correct nonpoint source and storm drainage pollution problems, and provide for estuary enhancement, thereby protecting and promoting health, safety and welfare of state inhabitants. The CWSRF Program provides low-interest funding equal to one-half the most recent State General Obligation Bond Rates with a 20-year term. Applications are accepted and processed continuously. Please refer to the State Water Board's CWSRF website at: www.waterboards.ca.gov/waterissues/programs/grantsloans/srf/index.shtml.

The CWSRF Program is partially funded by the U.S. Environmental Protection Agency (USEPA) and requires additional "CEQA-Plus" environmental documentation and review. Three information sheets are included that further explain the environmental review process and additional federal requirements in the CWSRF Program. In addition, an environmental form is included for the District to submit should it pursue State Water Board funding. The State Water Board can consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF funding commitment. For further information on the CWSRF Program please contact Ms. Michelle L. Lobo at (916) 341-6983.

It is important to note that prior to a CWSRF funding commitment, projects are subject to provisions of the Federal Endangered Species Act and must obtain approval from the U.S. Fish and Wildlife Service (USFWS), and/or National Marine Fisheries Service (NMFS) for any potential effects to special status species. Please be advised that the State Water Board can consult with USFWS, and/or NMFS on behalf of the District regarding all federal special status species the Project has the potential to impact if the Project is to be funded under the CWSRF Program.

In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act. The State Water Board has been delegated responsibility for carrying out the requirements of Section 106 under a Nationwide Programmatic Agreement executed for the CWSRF Program by the USEPA, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.

As stated above, the State Water Board has responsibility for ensuring compliance with Section 106 and the State Water Board Cultural Resources Officer (CRO) consults directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant for projects having potential impacts to cultural resources. Please contact the State Water Board CRO Ms. Cookie Hirn at 916-341-5690, to find out more about the requirements, and any questions on how to begin the Section 106 compliance process. Note that the District will need to identify the Area of Potential Effects (APE), including construction, staging areas, and depth of any excavation.

If the District pursues State Water Board funding, provide the CRO with a copy of a current records search for the Project area, including maps that show all recorded sites and surveys in relation to the APE for the Project. The APE is three-dimensional and includes all areas that may be affected by the Project. The APE includes the surface area and extends below ground to the depth of any Project excavations. The records search request should be made for an area larger than the APE. The appropriate area varies for different projects but should be drawn large enough to provide information on what types of sites may exist in the vicinity. Specifically, please send copies of the records search maps with all sites and surveys mapped in relation to the pipeline routes, and copies of Native American consultation including documentation of follow-up phone calls. Additionally, the Project archeologist will need to provide the CRO with a map delineating the areas deemed sensitive for buried resources, and a rationale for the designations.

Native American and Interested Party Consultation is required for Section 106 compliance:

- A Project description and map should be sent to the Native American Heritage Commission (NAHC). The NAHC will provide a list of Native American tribes and individuals that are culturally affiliated with your Project area and recommend that they all be contacted
- A Project description and map should be sent to everyone on the list provided by the NAHC, asking for information on the Project area
- Similar letters should be sent to local historical organizations
- Follow-up contact should be made by phone, if possible, and a phone log should be included

OCT 30 2009

Comments from the NAHC, local tribes, and historical organizations affiliated with the Project area, as well as the City's response to these comments should be included in the submittal to the CRO.

The NAHC can be contacted at:

915 Capitol Mall, Room 364
Sacramento, CA 95814
(916) 653-4082

Additional federal requirements pertinent to the Project under the CWSRF Program include the following:

1. Compliance with the federal Clean Air Act: (a) Provide air quality studies that may have been done for the Project; and (b) if the Project is in a nonattainment area or attainment area subject to a maintenance plan; (i) provide a summary of the estimated emissions (in tons per year) that are expected from both the construction and operation of the Project for each federal criteria pollutant in a nonattainment or maintenance area, and indicate if the nonattainment designation is moderate, serious, or severe (if applicable); (ii) if emissions are above the federal de minimis levels, but the Project is sized to meet only the needs of current population projections that are used in the approved State Implementation Plan for air quality, quantitatively indicate how the proposed capacity increase was calculated using population projections.
2. Protection of Wetlands: Identify any portion of the proposed Project area that may contain areas that should be evaluated for wetlands or U.S. waters delineation by the U.S. Army Corps of Engineers (USACE), or require a permit from the USACE, and identify the status of coordination with the USACE.
3. Compliance with the Farmland Protection Policy Act: Identify whether the Project will result in the conversion of farmland. State the status of farmland (Prime, Unique, or Local Statewide Importance) in the Project area and determine if this area is under a Williamson Act Contract.
4. Compliance with the Migratory Bird Treaty Act (Act): List any birds protected under this Act that may be impacted by the Project and identify conservation measures to minimize impacts.
5. Compliance with the Flood Plain Management Act: Identify whether or not the Project is in a Flood Management Zone and forward a copy of the Federal Emergency Management Agency flood zone map for the area.
6. Compliance with the Wild and Scenic Rivers Act: Identify whether or not any Wild and Scenic Rivers would be potentially impacted by the Project, and include conservation measures to minimize such impacts.

Following are specific comments on the NOP:

1. The State Water Board's web page has information on Low Impact Development (LID) that may be applicable to this Project. Identify any Project features (e.g., roads, parking lots, and other hard surfaces) that could benefit from LID practices. LID information can be located at: www.waterboards.ca.gov/water_issues/programs/low_impact_development/.

2. When identifying mitigation for the Project, please be aware that all mitigation should include specific, feasible actions that will improve adverse environmental conditions, be measurable to allowing monitoring, and must be enforceable. Compliance with laws, statutes, and regulations is not considered mitigation.

3. The Project is located within the San Diego Regional Water Quality Control Board jurisdiction and is subject to the San Diego Water Quality Control Plan (Basin Plan). Please be aware that the Project must comply with the Basin Plan's water quality objectives and protect the designated beneficial uses identified in the Basin Plan.

The State Water Board has no further comments on the NOP at this time. Thank you once again for the opportunity to review the District's environmental document. If you have any questions or concerns, please feel free to contact me at (916) 327-9401, or contact Ms. Justine Herrig at (916) 327-9117.

Sincerely,

Lisa Lee
Environmental Scientist

Enclosures (4)

cc: State Clearinghouse w/o enclosures
(Re: SCH# 2009101031)
P. O. Box 3044
Sacramento, CA 95812-3044

CITY OF
CHULA VISTA
PLANNING AND BUILDING DEPARTMENT

Ms. Lisa Coburn-Boyd
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, CA 91978-2004

November 3, 2009

Subject: Comments on the NOP for the Environmental Impact Report For the Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project

Dear Ms. Coburn-Boyd:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for the Environmental Impact Report for the Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project. The City of Chula Vista received the NOP for the proposed project on October 13, 2009. As we understand it the project includes the construction and operation of three Recycled Water System Transmission Pipelines (RecPL) within the South District Area. Chula Vista's comments on the NOP are specific to the proposed Wueste Road Pipeline (CIP No. R2087), which is located within the City of Chula Vista.

The project description for the proposed Wueste Road Pipeline states that the following is proposed: a 24-inch diameter 13,3000-foot-long steel pipeline segment. The pipeline would start at Olympic Parkway where it would be connected to an existing 16 inch-diameter RecPL and then would extend south within Wueste Road along the western border of the City of San Diego Otay Water Treatment Plant and connect to an existing 30-inch-diameter RecPL just south of the plant. The construction corridor within Wueste Road would extend approximately 10 feet to the east of the paved portion of Wueste Road. The construction corridor for the portion of the project that would extend outside of Wueste Road would be approximately 50-70 feet.

The Draft Environmental Impact Report should analyze all impacts associated with the proposed project within Chula Vista, and identify feasible mitigation. In order to ensure that that DEIR is thorough and adequate the following considerations should be addressed. The City of Chula Vista has made every effort to provide a comprehensive review during the NOP process and looks forward to reviewing the Draft Environmental Impact Report.

Project Description

A complete project description must be included in the DEIR. All proposed easements for this project must be identified in the DEIR. It is our understanding that a permanent easement is proposed along both the east and west sides of Wueste, however this permanent easement is not included in the NOP project description.

Biological Resources

Given the information provided in the NOP, implementation of the proposed project may result in impacts to sensitive biological resources protected under the City of Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan. Furthermore, the proposed Wueste pipeline extension described in the NOP may result in encroachment into the City's designated 100% Preserve area. OWD will need to demonstrate the project complies with applicable policies and guidelines of the City's MSCP Subarea Plan. In addition, unless determined to be exempt, all development is subject to compliance with the City's Habitat Loss and Incidental Take (HLIT) Ordinance for areas covered within the City's MSCP Subarea Plan boundary. Therefore, the EIR will need to include a complete impact evaluation of biological resources covered under the City's MSCP Subarea Plan and list the City's HLIT permit as a potential discretionary permit within the City of Chula Vista.

Otay Valley Regional Park

The Wueste Road Pipeline CIP No. R2087, is within and on the boundary of the Otay Valley Regional Park (OVRP), which is managed cooperatively through a Joint Exercise of Powers Agreement among the County of San Diego, the City of Chula Vista and the City of San Diego.

The EIR should fully consider all potential impacts of the project and project alternatives to the OVRP. In addition, coordination with the OVRP Citizen Advisory Committee and Policy Committee is strongly advised to allow input on the project. Please contact City of Chula Vista staff for the OVRP, Lynnette Tessitore- Lopez (619-409-5465), ltessitore-lopez@ci.chula-vista.ca.us), to coordinate the Citizen's Advisory Committee review of this project.

Hydrology and Water Quality

Due to the proximity of the project to the Otay Reservoir the DEIR should analyze potential impacts to water levels associated with project construction and/or operation. In addition, the DEIR should analyze any potential impacts to water quality that may occur as a result of this project.

Construction Impacts

All potential construction related impacts should be analyzed such aspotential impacts to air quality/dust as a result of construction activities, disruption of existing improvements including landscaping and ground cover and impacts to traffic circulation issues associated with construction;

Transportation and Traffic

The DEIR must analyze impacts to the City of Chula Vista's circulation network as a result of project construction. The DEIR traffic analysis should address impacts to other modes of transportation as well, such as non-motorize, pedestrian, and bicycle modes.

Utilities and Service Systems
Impacts, including potential interruption of utilities and services systems within Chula Vista should be analyzed and properly mitigated. As a public safety matter, impacts to water pressure levels should be addressed and mitigated as necessary.

We look forward to receiving a copy of the DEIR for review. In addition, please provide notification prior of public meetings, hearings, and workshops related to the proposed project. Notices may be sent to my attention. If you have any questions regarding the above comments, please contact me at (619) 585-5707.

Sincerely,

Marilyn R.F. Ponseggi
Principal Planner

Cc: Rick Ryals; Real Property Manager

THE CITY OF SAN DIEGO

November 6, 2009

Otay Water District
Attn: Lisa Coburn-Boyd
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978-2004

Dear Ms. Coburn-Boyd:

Subject: **CITY OF SAN DIEGO COMMENTS ON THE NOTICE OF PREPARATION (NOP) FOR THE ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE OTAY MESA RECYCLED WATER SYSTEM CAPITAL IMPROVEMENT PROGRAM R2087, R2077, R2058**

The City of San Diego ("City") has received and reviewed the above referenced project and appreciates this opportunity to provide comments to the Otay Water District. In response to the Request for Review and Comment, the City has identified potential environmental issues that may have a significant environmental impact.

Staff from the Open Space Division of the Park and Recreation Department has reviewed the Request for Comment on the NOP and has the following comments regarding the content of the DEIR in the form of a City Memo which is attached to this document. The City respectfully requests that you please address the comments in the EIR.

Sincerely,

Cecilia Gallardo, AICP
Assistant Deputy Director
Development Services Department

CG: ALM/rh

Attachment: Letter and Attachment from Laura Ball, Senior Planner, Park and Recreation Department - Open Space Division, dated October 27, 2009

cc: Anna L. McPherson, AICP, Senior Planner, Development Services Department
Laura Ball, Senior Planner, Park and Recreation Department

Development Services
1222 First Avenue, MS 501 • San Diego, CA 92101-4155
Tel (619) 446-5460

CITY OF SAN DIEGO
MEMORANDUM

DATE: October 27, 2009

TO: Anna McPhearson, Senior Planner, Land Development Code, Development Services Department

FROM: Laura Ball, Senior Planner, Park and Recreation Department, Open Space Division

SUBJECT: NOP for Environmental Impact Report for the Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058

The Open Space Division of the Park and Recreation Department has reviewed the Notice of Preparation for the Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project. Please include the following with the City's response to the NOP:

> The proposed project is partially within and directly adjacent to the Otay Valley Regional Park (OVRP). The northernmost reclaimed water pipeline in particular, CIP No. R2087, appears to be partially within and on the boundary of the OVRP, which is run cooperatively through a Joint Exercise of Powers Agreement among the County of San Diego and the Cities of Chula Vista and San Diego. A map with the approximate pipeline alignments and the OVRP boundary is attached.
>
> The EIR should fully consider all potential impacts of the project and project alternatives to the OVRP. In addition, coordination with the OVRP Citizen Advisory Committee and Policy Committee is strongly advised to allow input and/or approval on the project. Please contact me at 619-533-6727 or lball@sandiego.gov to arrange a presentation of the proposed project.

If you have any questions please call or email me at 619-533-6727 or lball@sandiego.gov.

Thanks,

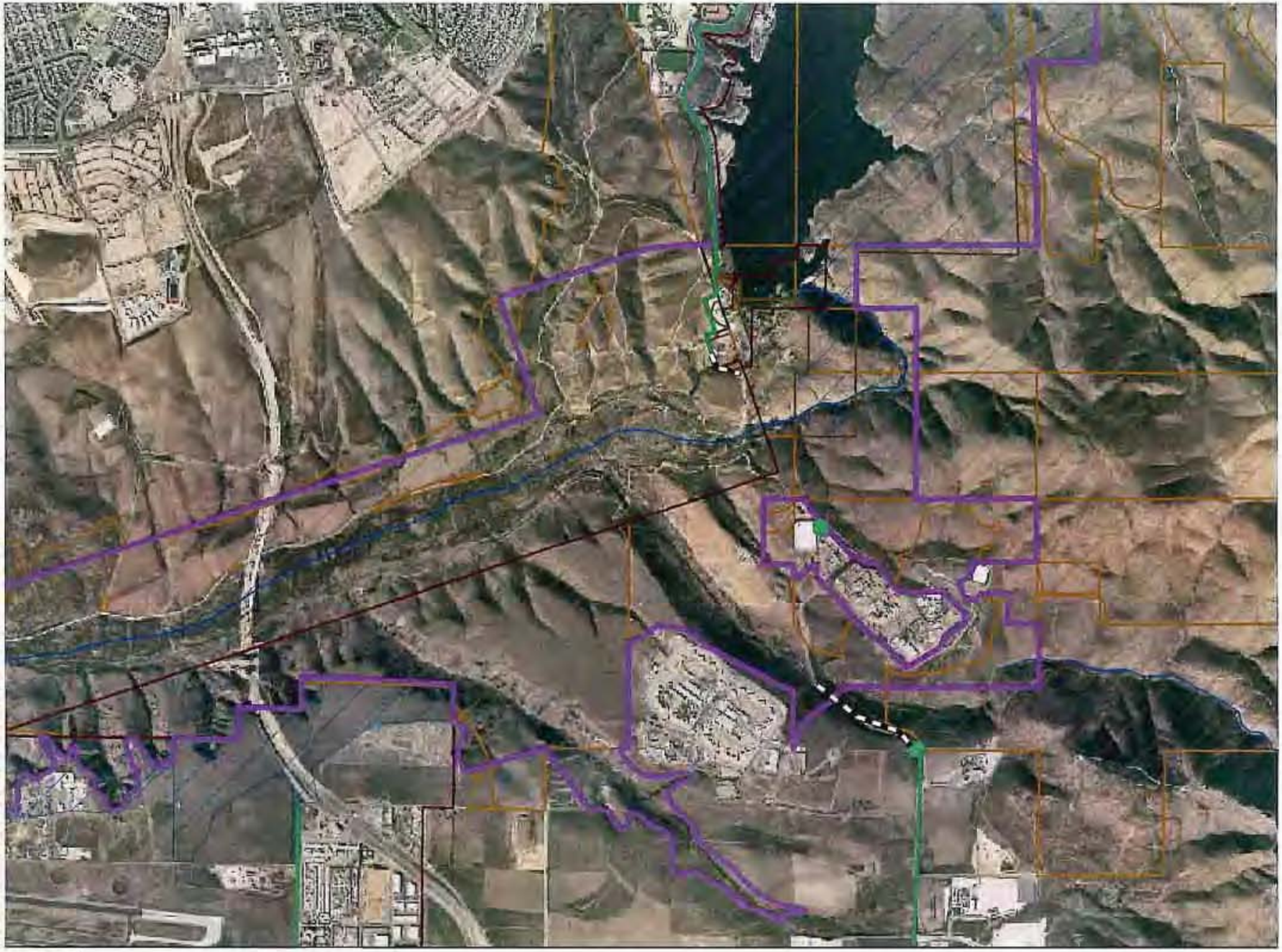
Laura Ball

Laura Ball
Senior Planner

LB/lb

cc: Chris Zirkle, P&R, OS

Attachment: Map of Otay Mesa Reclaimed Pipes & OVRP



SANGIS.HYD_RIVERS

Appendix B
Air Quality Assessment

Air Quality Assessment for the Otay Water District's Transmission Pipelines

Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project

Prepared for:

Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, California 91978-2096
Contact: Lisa Coburn-Boyd

Prepared by:

ICF International
9775 Businesspark Ave Suite
San Diego, California 92131
Contact: James Harry

February 2010

ICF International. 2010. Air Quality Assessment for the Otay Water District's Transmission Pipelines – Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project. Draft. February. Prepared for Otay Water District.

Contents

Page

Summary **1**

Chapter 1 **Introduction** **2**

Project Site Location 2

Development Description 2

Chapter 2 **Air Quality Assessment** **4**

Regulatory Setting 4

Authority for Current Air Quality Planning 4

Description of Relevant Air Pollutants 16

Existing Conditions 21

Regional Setting 21

Local Area Conditions 22

Existing Pollutant Levels at Nearby Monitoring Stations 22

Regional TAC Background Levels 23

Sensitive Land Uses 24

Background Greenhouse Gas Emissions 25

Climate Change Impacts 27

Significance Thresholds 28

Supplemental Criteria for Project Emissions 29

Thresholds for Criteria Pollutant Impacts 29

Supplemental Criteria for Sensitive Receptors 30

Supplemental Criteria for GHG Emissions 30

Methodology 31

Construction 31

Toxic Air Contaminants Impacts 33

Climate Change/Greenhouse Gas Emissions 33

Chapter 3 **Impact Analysis** **34**

Consistency with the Air Quality Plan 34

Violate Air Quality Standard or Exceed Threshold 34

Expose Sensitive Receptors 36

Objectionable Odors 37

Cumulative Impacts 37

Conflict with Applicable Air Quality Plans 37

Violate Air Quality Standards/Increase Criteria Pollutants 38
Expose Sensitive Receptors to Pollutants 38
Create Objectionable Odors 38
Climate Change/Greenhouse Gases 38
Chapter 4 **References 43**

Appendices

1. URBEMIS2007 Modeling Output Sheets
2. Greenhouse Gas Calculation Worksheet

Tables

Table		Page
1	Federal and State Ambient Air Quality Standards	6
2	Federal and State Attainment Status for San Diego Air Basin	7
3	Summary of RAQS/SIP for San Diego County	14
4	Global Warming Potential Factors for Greenhouse Gases	20
5	Ambient Background Concentrations from the Otay Mesa – Paseo International and Chula Vista – East J Street Monitoring Stations	24
6	SDAPCD Screening Level Thresholds	30
7	Construction Emission Estimates	36
8	Estimate of Construction Greenhouse Gas Emissions	41

Figures

		Follows Page
1	Regional Location	2
2	Project Vicinity	2

Acronyms and Abbreviations

$\mu g/m^3$	micrograms per cubic meters
AB	Assembly Bill
APCD	air pollution control district
AQIA	Air Quality Impact Analysis
BACMs	best available control measures
BAU	business as usual
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	corporate average fuel economy
CalEPA	California Environmental Protection Agency
CAP	Clean Air Program
CAPCOA	California Air Pollution Control Officers Association
ARB	California Air Resources Board
CAT	Climate Action Team
CCAA	California Clean Air Act
CIP	Capital Improvement Program
CCAs	community choice aggregators
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2e	carbon dioxide equivalents
CPUC	California Public Utilities Commission
DIY	do-it-yourself
DPM	diesel particulate matter
EPA	U.S. Environmental Protection Agency
ESPs	energy service
GHG	greenhouse gas
GVWR	gross vehicle weight rating

GWP	global warming potential
HC	hydrocarbons
HDV	Heavy Duty Vehicle
HFCs	hydrofluorocarbons
IOUs	investor-owned utilities
ITPR	independent transit planning review
kWh	kilowatt-hours
LCFS	Low Carbon Fuel Standard
LEDs	light emitting diodes
LOS	level of service
MEI	maximum exposed individual
MMT	million metric tons
mpg	miles per gallon
MPO	Metropolitan Planning Organization
MSW	municipal solid waste
MVAC	motor vehicle air conditioning
MWh	megawatt-hours
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO_X	oxides of nitrogen
O_3	ozone
OAL	Office of Administrative Law
Pb	Lead
PFC	perfluorocompound
PM2.5	fine particulate matter
ppm	parts per million
PVC	polyvinyl chloride
RAQS	Regional Air Quality Strategy Plan
ROG	reactive organic gas
RPS	Renewable Portfolio Standard

RTP	Regional Transportation Plan
SANDAG	San Diego Association of Governments
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SLTs	screening level thresholds
SSAB	Salton Sea Air Basin
TACs	toxic air contaminants
TRUs	Transport Refrigeration Units
VMT	vehicle miles traveled

Summary

The proposed Otay Mesa Recycled Water Systems Capital Improvement Program R2087, R2077, R2058 Project (Project or proposed Project) involves the construction of three recycled water system transmission pipelines. The three pipelines are within the Otay Water District's (District's) South District area, and consist of the Wueste Road Pipeline (Capital Improvement Program [CIP] R2087), the Alta Road Pipeline (CIP R2077), and the Airway/La Media Road Pipeline (CIP R2058). The three-pipeline proposed Project would extend along Wueste Road within the County of San Diego and the City of Chula Vista, along Alta Road in the City of San Diego, and along Airway/La Media Road in the City of San Diego.

This air quality technical report provides an analysis of potential air quality impacts related to the proposed project. All analyses have been conducted to comply with the Otay Water District (District) County of San Diego, City of Chula Vista, City of San Diego, California Air Resources Board (ARB), and San Diego Air Pollution Control District (SDAPCD) requirements for air quality assessments to satisfy California Environmental Quality Act (CEQA) requirements. The analyses findings are as follows.

- The proposed project would be consistent with air quality policies set forth by the SDAPCD and the San Diego County Association of Governments (SANDAG) as presented in the region's most recent applicable Regional Air Quality Strategy Plan (RAQS) and State Implementation Plan (SIP).
- The proposed project would generate emissions during construction that would not exceed SDAPCD mass emission thresholds.
- The proposed project construction would not pose a significant health risk to nearby sensitive receptor locations.
- The proposed project odor emissions would not result in a significant impact.
- The proposed project would not contribute to a significant cumulative impact.
- The proposed project would not conflict with or obstruct the goals of AB32.

Chapter 1
Introduction

The Otay Water District's (District) Otay Mesa Recycled Water Systems Capital Improvement Program R2087, R2077, R2058 Project (Project or proposed Project) involves the construction and operation of three recycled water system transmission pipelines. The three pipelines are within the District's South District area, which comprises the Central Area and the Otay Mesa Systems, and includes the Wueste Road Pipeline (Capital Improvement Program [CIP] R2087), the Alta Road Pipeline (CIP R2077), and the Airway/La Media Road Pipeline (CIP R2058) .

The specific project schedule will be determined following completion of the environmental document. It is anticipated that the duration for construction of all three pipelines would be a total of approximately 420 days. Assuming approximately 500 feet of trench are open at any time, trenching operations would take three to four days to pass a given point at the planned rate of 120 to 160 feet per day. Construction of the first pipeline is anticipated to start in July 2010.

The Project affects three separate locations in the South District area within the corporate limits of the Cities of Chula Vista and San Diego as well as the unincorporated County of San Diego. The three-pipeline proposed Project would extend along Wueste Road within the County of San Diego and the City of Chula Vista, along Alta Road in the City of San Diego, and along Airway/La Media Road in the City of San Diego.

ICF International was retained by the District to evaluate the potential air quality and climate change impacts that may occur due to the construction of the proposed Project.

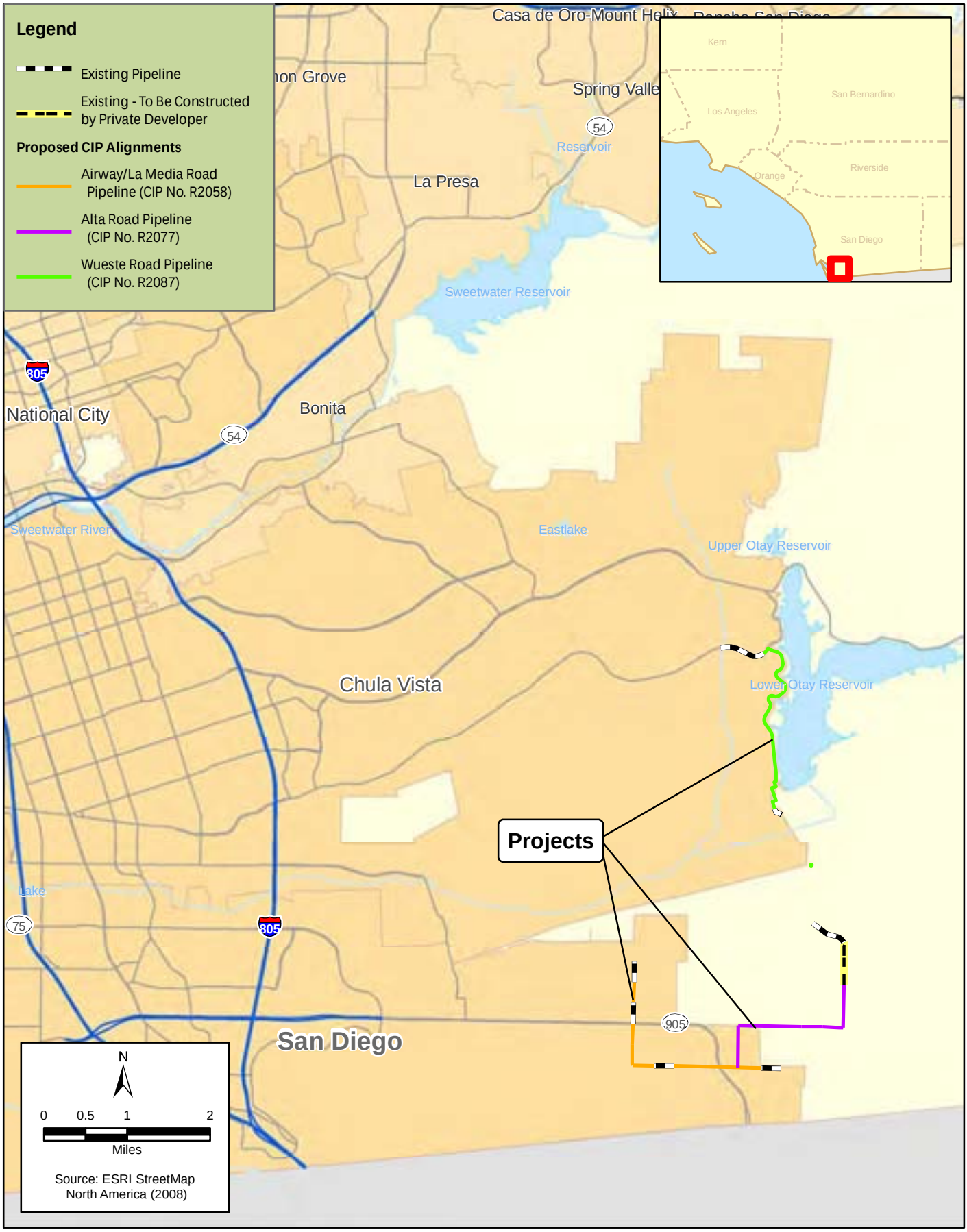
Project Site Location

The Project includes three separate locations in the South District Area within the corporate limits of the Cities of Chula Vista and San Diego as well as the unincorporated County of San Diego (Figure 1). The three-pipeline proposed Project would extend along Wueste Road within the County of San Diego and the City of Chula Vista, along Alta Road in the City of San Diego, and along Airway/La Media Road in the City of San Diego (Figure 2).

Development Description

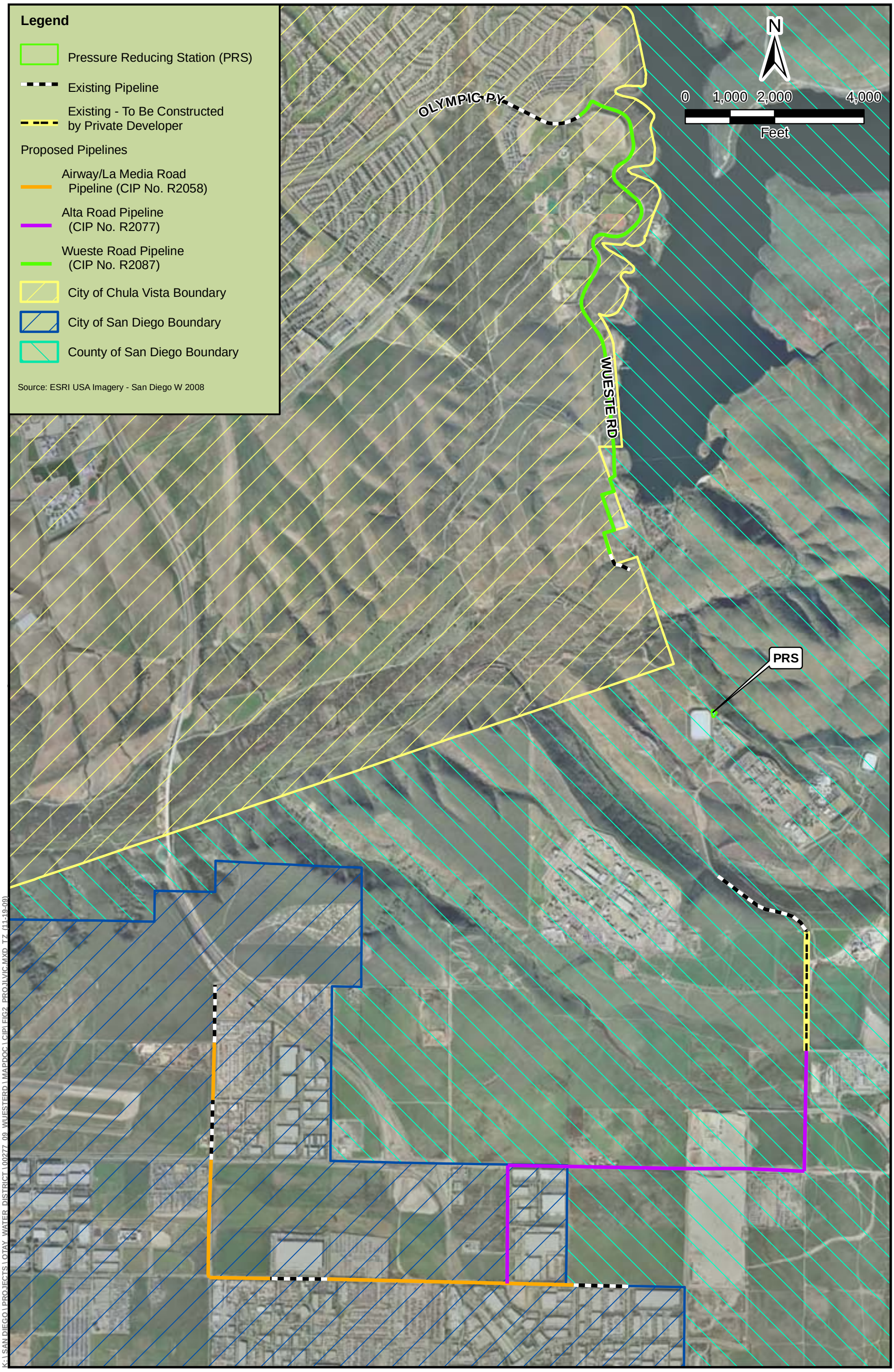
The Proposed Project involves the construction of three separate pipelines part of the District's Recycled Water Capital Improvement Program (CIP). The three separate pipeline segments include the:

- Wueste Road Pipeline, which would consist of a 24-inch-diameter 13,300-foot-long steel pipeline segment. The pipeline would start at Olympic Parkway where it would be connected to an existing 16-inch-diameter RecPL. The pipeline would then extend south within Wueste Road along the western border of the City of San Diego Otay Water Treatment Plant and connect to an existing 30-inch-diameter Recycled Water System Transmission Pipelines (RecP)L just south of the plant;
- Alta Road Pipeline, which would consist of a 24-inch-diameter, 11,989-foot-long PVC RecPL segment. The pipeline would be constructed along a segment of Alta Road within the Otay Mesa



K: \ SAN DIEGO \ PROJECTS \ OTAY_WATER_DISTRICT \ 00277_09_WUESTERD \ MAPDOC \ CIP \ FIG1_REGLOC.MXD TZ (02-16-10)

Figure 1
Regional Location
Otay Mesa Recycled Water CIP



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG2 PROJLVIC.MXD TZ (11-19-09)

ICF Jones & Stokes

Figure 2
Project Vicinity
Otay Mesa Recycled Water CIP

System, beginning at the intersection of Calzada de la Fuente Road where it would be connected to an existing 24-inch-diameter RecPL. The pipeline would extend south within Alta Road, continue west along Otay Mesa Road, and then extend south within Sanyo Avenue where it would connect to the 16-inch-diameter RecPL proposed within Airway Road; and

- Airway/La Media Road, which would consist of a 16-inch-diameter, 12,440-foot-long PVC RecPL segment. The pipeline would utilize 2,586 feet of existing pipeline and 9,853 feet of new pipeline would be constructed as a part of the Project. The pipeline would be constructed along segments of Airway and La Media Roads within the Otay Mesa System. Airway/La Media Road Pipeline (R2058) would be divided into nine sections—four that are proposed to be constructed under this Project and five that were previously constructed by developers. The pipeline would start at the intersection of La Media and Windsock Roads and then extend south within La Media Road to Airway Road. The pipeline would continue east along Airway Road and end approximately 80 feet to the west of the Paseo de Las Americas/Airway Road intersection where it would be connected with the existing16-inch-diameter PVC main water pipeline.

Chapter 2
Air Quality Assessment

This air quality analysis includes a discussion of applicable significance criteria and analysis methodologies outlined in San Diego County's "Guidelines for Determining Significance—Air Quality" document. Based on this guidance document, this assessment evaluates the short-term construction-period and long-term operational period impacts to localized and regional air quality that would result with development of the proposed project. All analyses have been conducted to comply with the Otay Water District (District) County of San Diego, City of Chula Vista, City of San Diego, California Air Resources Board (ARB), and San Diego Air Pollution Control District (SDAPCD) requirements for air quality assessments to satisfy California Environmental Quality Act (CEQA) requirements.

In addition, the proposed project was evaluated to determine consistency with the state goal of reducing greenhouse gas (GHG) emissions in California to 1990 levels by 2020, as set forth by the timetable established in Assembly Bill 32, California Global Warming Solutions Act of 2006 (AB 32).

Based on these above-referenced guidance documents, this report evaluates the short-term construction-period and long-term operational period impacts to air quality that would result with development of the proposed project.

Regulatory Setting

The air quality in the United States is governed by the federal Clean Air Act (CAA). In addition to being subject to requirements of the CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). At the federal level, the CAA is administered by the United States Environmental Protection Agency (EPA). In California, the CCAA is administered by the California Air Resources Board (ARB) at the state level and by the San Diego County Air Pollution Control District (SDAPCD) at regional and local levels.

Authority for Current Air Quality Planning

A number of plans and policies have been adopted by various agencies that address air quality concerns. Those plans and policies that are relevant to the proposed project are discussed below.

Federal Clean Air Act

The CAA was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS), and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met. The project area is within the San Diego Air Basin (SDAB) and, as such, is in an area designated a nonattainment area for certain pollutants that are regulated under the CAA.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA that would most substantially affect the development of the proposed project include Title I (Nonattainment Provisions) and Title II (Mobile-Source Provisions).

Title I provisions were established with the goal of attaining the NAAQS for criteria pollutants. Table 1 shows the NAAQS currently in effect for each criteria pollutant. The NAAQS were amended in July 1997 to include an 8-hour standard for ozone (O_3) and adopt a NAAQS for fine particulate matter (PM2.5). The SDAB fails to meet national standards for O_3 and therefore is considered a federal nonattainment area for that pollutant. Table 2 lists each criteria pollutant and their related federal attainment status.

Federal Climate Change Policy

There is currently no federal overarching law or policy related to climate change or regulation of GHGs. However, recent activity suggests that regulation may be forthcoming, with the United States Environmental Protection Agency (USEPA) serving in a leadership role to implement such a program. However, USEPA regulation may be pre-empted by congressional action should a cap and trade bill be passed prior to adoption of USEPA regulation.

The following section summarizes recent legal cases, legislation, and policies related to climate change and GHG regulation.

Massachusetts v. EPA (2007)

Twelve US states and cities including California, in conjunction with several environmental organizations, sued the US EPA in an effort to force the Agency to regulate GHGs as a pollutant pursuant to the Clean Air Act (CAA) in Massachusetts et al. v. Environmental Protection Agency. On April 2, 2007, the U.S. Supreme Court held that US EPA has the authority to regulate GHG emissions as a pollutant pursuant to the Clean Air Act (CAA). However, at the time of ruling in Massachusetts vs. EPA the court did not decide whether US EPA is required to regulate GHG emissions, or may exercise discretion to not regulate at that time.

EPA Advance Notice of Proposed Rulemaking (2008)

In June of 2008, the EPA issued an Advance Notice of Proposed Rulemaking (ANPR) inviting comments on options and questions regarding regulation of GHGs under the Clean Air Act (CAA) but has not yet proposed or adopted regulations in response to the Massachusetts case decision.

Update to Corporate Average Fuel Economy (CAFE) Standards (2009)

On May 19, 2009, President Obama issued a requirement to automakers to increase fuel efficiency of cars manufactured in the United States to 35.5 miles per gallon (mpg) by 2016, four years ahead of the schedule set by the Energy Independence and Security Act of 2007. The new CAFE standards

Table 1. Federal and State Ambient Air Quality Standards

Pollutant	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
		CA	U.S.	CA	U.S.	CA	U.S.
Ozone (O_3)	1 hour	0.09	NA	180	NA	If exceeded	If exceeded on more than 3 days in 3 years
	8 hours	0.07	0.075	137	147	NA	If exceeds 4th highest 8-hour concentration in a year, averaged over 3 years
Respirable Particulate Matter (PM10)	Annual mean	NA	NA	20	NA	If exceeded	If exceeded
	24 hours	NA	NA	50	150	If exceeded	If average 1% over 3 years is exceeded
Fine Particulate Matter (PM2.5)	Annual mean	NA	NA	12	15	If exceeded	If exceeded
	24 hours	NA	NA	NA	35	NA	If average 2% over 3 years is exceeded
Carbon Monoxide (CO)	8 hours	9.0	9	10	10,000	If exceeded	If exceeded on more than 1 day/year
	1 hour	20	35	23	40,000	If exceeded	If exceeded on more than 1 day/year
	8 hour (Lake Tahoe)	6	NA	7	NA	NA	NA
Nitrogen Dioxide (NO_2)	Annual average	0.030	0.053	57	100	NA	If exceeded
	1 hour	0.18	NA	339	NA	If exceeded	If exceeded
Sulfur Dioxide (SO_2)	Annual average	NA	0.03	NA	80	NA	If exceeded
	24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day/ year
	3 hour	NA	0.5	NA	1300	NA	If exceeded no more than 1 day/year
	1 hour	0.25	NA	655	NA	NA	NA
Lead (Pb)	30 days	NA	NA	1.5	NA	If equaled or exceeded	NA
	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day/year
	Rolling 3-month average	NA	NA	NA	0.15	NA	If exceeded
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent.				If exceeded	NA
Sulfate particles (SO_4)	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Hydrogen sulfide (H_2S)	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride (C_2H_3Cl)	24 hours	0.010	NA	26	NA	If equaled or exceeded	NA

Notes:
All standards are based on measurements at 25ºC and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
NA = not applicable.
Source: ARB 2008a.

Table 2. Federal and State Attainment Status for San Diego Air Basin

Criteria Pollutant	Federal Designation	State Designation
O_3 (1-hour)	Attainment *	Nonattainment
O_3 (8-hour)	Nonattainment	Nonattainment
CO	Attainment	Attainment
PM10	Unclassifiable **	Nonattainment
PM2.5	Attainment	Nonattainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen Sulfide	(No federal standard)	Unclassified
Visibility	(No federal standard)	Unclassified

*The federal 1-hour standard of 12 pphm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in the State Implementation Plans.

**At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Source: SDAPCD 2008

incorporate stricter fuel economy standards promulgated by the State of California, which are discussed below, into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent. Rule-making to adopt these new standards is still in process and thus these standards are not yet in effect. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with State requirements.

EPA Rule: Mandatory Reporting of GHGs (2009)

On September 22, 2009, the EPA Administrator signed a rule requiring mandatory reporting of emissions of GHGs from large sources within the United States. The rule was published in the federal registrar on October 30, 2009 and goes into effect December 29, 2010. The rule includes emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3), hydrofluorinated ethers (HFE), and select other fluorinated compounds. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to report annual emissions to the EPA. The first annual reports for the largest emitting facilities, covering calendar year 2010, will be submitted to the EPA in 2011. The Mandatory Reporting Rule does not limit GHG emissions but establishes a standard framework for emissions reporting and tracking of large emitters by the U.S. EPA.

EPA Finding of Endangerment (2009)

The EPA administrator signed two distinct findings regarding GHGs under the CAA on December 7, 2009:

1. Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)--in the atmosphere threaten the public health and welfare of current and future generations.
2. Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

Although the Endangerment Finding in itself does not place requirements on industry, it is an important step in the EPA's process to develop regulation. This action is a prerequisite to finalizing the EPA's proposed greenhouse gas emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.

California Clean Air Act

In California, the ARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for meeting the state requirements of the Federal CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The ARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. The ARB established passenger vehicle fuel specifications, which became effective in March 1996. The ARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county levels.

The California Clean Air Act was signed into law on September 30, 1988, and became effective on January 1, 1989. The Act requires that local air districts implement regulations to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures. The California Clean Air Act required the SDAB to achieve a five percent annual reduction in ozone precursor emissions from 1987 until the standards are attained. If this reduction cannot be achieved, all feasible control measures must be implemented. Furthermore, the California Clean Air Act required local air districts to implement a Best Available Control Technology rule and to require emission offsets for nonattainment pollutants.

The California Clean Air Act of 1988, as amended in 1992 (CCAA), outlines a program to attain the CAAQS by the earliest practical date. Because the CAAQS are more stringent than the NAAQS, attainment of the CAAQS will require more emissions reductions than what would be required to show attainment of the NAAQS. Consequently, the main focus of attainment planning in California has shifted from the federal to state requirements. Similar to the federal system, the state requirements and compliance dates are based on the severity of the ambient air quality standard violation within a region.

California's Toxic Air Contaminants Regulations

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588).

The Tanner Act sets forth a formal procedure for the ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before the ARB designates a substance as a TAC. To date, the ARB has identified 21 TACs, and has also adopted EPA's list of HAPs as TACs. Since August 1998, Diesel Particulate Matter (DPM) was added to the ARB list of TACs (ARB 1998).

The Hot Spots Act requires that existing facilities that emit toxic substances above specified levels: (1) prepare a toxic emission inventory; (2) prepare a risk assessment if emissions are significant (i.e. 10 tons per year or on District's HRA list); (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

In Se**p**tember 2000, the ARB approved the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Diesel Risk Reduction Plan) (ARB 2000). The Diesel Risk Reduction Plan outlines a comprehensive and ambitious program that includes the development of numerous new control measures over the next several years aimed at substantially reducing emissions from new and existing on-road vehicles (e.g., heavy-duty trucks and buses), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps), and stationary engines (e.g., stand-by power generators).

The ARB has adopted several regulations that will reduce diesel emissions from in-use vehicles and engines throughout California (ARB 2009a). In some cases, the particulate matter reduction strategies also reduce smog-forming emissions such as NO_X.

As an ongoing process, the ARB reviews air contaminants and identifies those that are classified as TACs. The ARB also continues to establish new programs and regulations for the control of TACs, including diesel particulate matter, as appropriate.

California Climate Change Regulations

California has adopted numerous pieces of legislation and regulatory-agency–enacted policies addressing various aspects of climate change and emissions mitigation. These policies and programs form the larger infrastructure of the state's long-term GHG mitigation and climate change adaptation program that includes research, energy conservation and infrastructure, transportation, emissions reporting protocols, the role of local governments, and adaptation plans. Additionally, Governor Arnold Schwarzenegger issued several executive orders related to the state's evolving climate change policy. These are discussed below.

Assembly Bill 1493— Greenhouse Gas Emission Standards for Automobiles

In 2002, the California State Assembly adopted AB 1493 (AB 1493), which required the ARB to develop and adopt the nation's first GHG emission standards for automobiles. The legislature declared in AB 1493 that global warming was a matter of increasing concern for public health and environment in the state. It cited several risks that California faces from climate change, including reduction in the state's water supply; increased air pollution creation by higher temperatures; harm to agriculture, and increased frequency and duration of wildfires; damage to the coastline; and economic losses caused by higher food; water energy; and insurance prices. Further the legislature

stated that technological solutions to reduce GHG emissions would stimulate California economy and provide jobs.

In 2004, the State of California submitted a request for a waiver from federal clean air regulations (as the State is authorized to do under the CAA) to allow the state to require reduced tailpipe emissions of CO_2. In late 2007, the EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the state brought suit against EPA related to this denial. On June 30, 2009, the EPA granted the waiver request to enforce GHG emission standards for model year 2009 and later.

In January 2009, President Obama instructed the EPA to reconsider the Bush administration's denial of California's request and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the EPA granted California's waiver request, enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

A recent ARB study showed that in calendar year 2016, AB 1493 (also referred to as the *Pavley standard* or the *Pavley rules*) would reduce California's GHG annual emissions by 16.4 million metric tons (MMT) of carbon dioxide equivalents (CO_2e) (ARB 2008b). This is almost 50% more than the 11.1-MMT reduction produced by currently proposed federal fleet average standards for model years 2011–2015.

Furthermore, by 2020, California is committed to implement revised, more stringent GHG emission limits (the Pavley Phase 2 rules see discussion of scoping plan below). California's requirements would reduce California GHG emissions by 31.7 $MMTCO_2e$ in calendar year 2020, 45% more than the 21.9 MMTs reductions under the proposed federal rules in that year. Since the California rules are significantly more effective at reducing GHGs than the federal CAFE program, they also result in better fuel efficiency—roughly 43 mpg in 2020 for the California vehicle fleet as compared to the new CAFE standard of 35 mpg.

SB 1078/SB 107—Renewable Portfolio Standard

Established in 2002 under Senate Bill 1078 (SB 1078) and accelerated in 2006 under Senate Bill 107 (SB 107), California's Renewable Portfolio Standard (RPS) obligates investor-owned utilities (IOUs), energy service providers (ESPs), and community choice aggregators (CCAs) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The California Public Utilities Commission (CPUC) and California Energy Commission (CEC) are jointly responsible for implementing the program.

Executive Order S-3-05—Greenhouse Gas Emission Reduction Targets

In 2005, Governor Schwarzenegger issued California Executive Order S-3-05 establishing the following GHG emission reduction targets for California:

- reduce GHG emissions to 2000 levels by 2010;
- reduce GHG emissions to 1990 levels by 2020; and
- reduce GHG emissions to 80% below 1990 levels by 2050.

Executive Orders are binding only on state agencies. Accordingly, S-3-05 will guide state agencies' efforts to control and regulate GHG emissions, but have no direct binding effect on local efforts.

Global Warming Solutions Act of 2006 (AB 32)

California's AB 32, the Global Warming Solutions Act of 2006 (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), codified the State's GHG emissions target by requiring the State's global warming emissions to be reduced to 1990 levels by 2020. In the short term, it directs CARB to enforce the State-wide GHG cap that would begin phasing in 2012. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, CPUC, and Building Standards Commission have been developing regulations that will help meet the goals of AB 32 and Executive Order S-03-05.

The Act defines GHG emissions as all of the following gases: CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). AB32 represents the first enforceable state-wide program in the US to cap all GHG emissions from major industries that includes penalties for noncompliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the State that serve California residents and businesses.

AB32 includes a number of specific requirements, many of which have already been met: 1) Identify the level of GHG emissions in California in 1990, thus establishing the 2020 GHG emissions target 2) Prepare a Scoping Plan outlining how the emissions reductions targets will be met by 2020 3) Adopt regulation requiring mandatory reporting of certain emitters 4) Identify and adopt regulations for early action items including the Low Carbon fuel Standard (discussed below). On December 6, 2007, CARB staff resolved an amount of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) as the total statewide GHG 1990 emissions level and 2020 emissions limit.

Passage of AB32 set in motion a host of legal and regulatory activity aimed at reaching this statewide goal. Current and future actions will impact the GHG emissions within the City of La Cañada-Flintridge. While national and state level action will greatly reduce GHG emissions, the California Plan relies in part on the actions of local governments. Associated actions of the City to reduce GHGs or address local climate change impacts should be pursued in the context of the state's actions and in compliance with subsequent regulations that may apply.

AB 32 Scoping Plan

A Scoping Plan for AB 32 (ARB 2008c) was adopted by CARB in December 2008 and identifies measures to reduce GHG emissions to 1990 levels, which is approximately 30 percent below business-as-usual emission levels projected for 2020, or about 15 percent below today's (2008) levels. The Scoping Plan includes GHG reduction strategies in the following focus areas: a cap and trade program with other Western States, vehicle fuel economy, building energy efficiency, renewable power sources, carbon intensity of transport fuels, agriculture, forestry, mass transit, industrial sources, water, waste and recycling. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It requires CARB and other State agencies to develop and enforce regulations and other initiatives reducing GHGs by 2012. The complete AB 32 Scoping Plan as well as additional information about individual programs can be found through the AB 32 Scoping Plan website (ARB 2008c).

Senate Bill 1368

On August 31, 2006, the California Senate passed SB 1368 (signed into law on September 29, 2006), which limits the long-term investments in base-load generation by the State's utilities to power plants that meet an emission performance standard established by the CEC and CPUC. In consultation with CARB and CPUC, the CEC is currently establishing a GHGs emission performance standard for local, public-owned electric utilities (pursuant to Senate Bill No. 1368). This standard will limit the rate of GHGs emissions to a level that is no higher than the rate of emissions of GHGs for combined-cycle natural gas base load generation.

Senate Bill 97 Chapter 185, Statutes of 2007

SB 97 of 2007 requires that Office of Planning and Research (OPR) to prepare guidelines to submit to the California Resources Agency regarding feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by CEQA. The Natural Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments will become effective on March 18, 2010.

The Guidelines will apply retroactively to any incomplete environmental impact report, negative declaration, mitigated negative declaration, or other related document. OPR released proposed changes (Proposed Amendments) in the CEQA Guidelines on April 13, 2009, requiring inclusion of GHG analyses in CEQA documents, quantification of emissions, determination of a threshold, and if significant emissions would occur, adoption of mitigation to address significant emissions.

The Amendments do not prescribe a particular threshold of significance or method for determining significance of GHG emissions in CEQA documents, although individual air districts are considering quantitative thresholds. Rather, the Amendments confirm the discretion of lead agencies to determine appropriate significance thresholds. The Amendments also require that "an EIR shall analyze greenhouse gas emissions resulting from a proposed project when the incremental contribution of those emissions may be cumulatively considerable" (Office of Planning and Research 2009). In its transmittal of the proposed GHG CEQA Guidelines to the Secretary for Natural Resources, OPR further emphasizes that: "A new subdivision [of CEQA] is proposed to emphasize that the effects of greenhouse gas emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis" (Office of Planning and Research 2009.).

Executive Order S-01-07

Executive Order S-01-07 was enacted by Governor Schwarzenegger on January 18, 2007. Essentially, the order mandates the following: 1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California.

Senate Bill 375

SB 375 provides for a new planning process to coordinate land use planning and regional transportation plans and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans, developed by metropolitan planning organizations (MPOs) relevant to the project site, including SANDAG, to incorporate a

"sustainable communities strategy" (SCS) in their Regional Transportation Plans (RTPs) that will achieve GHG emission reduction targets for automobiles and light trucks to be set by the ARB. The regional targets are scheduled to be released by the ARB in September 2010. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. However, those provisions will not become effective until an SCS is adopted.

SB 375 will be implemented over the next several years. SANDAG has not yet developed an SCS and is not expected to adopt an RTP incorporating an SCS until the next RTP update in 2011.

Local

San Diego Air Pollution Control District

The local air pollution control district (APCD) has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The San Diego Air Pollution Control District (SDAPCD) is the local agency responsible for the administration and enforcement of air quality regulations in San Diego County.

Regional Air Quality Strategy (RAQS) and State Implementation Plan (SIP)

All areas designated as nonattainment under the CCAA are required to prepare plans showing how the area would meet the state and federal air quality standards by its attainment dates. The San Diego Regional Air Quality Strategy (RAQS) and State Implementation Plans (SIPs) provide the region's documentation for improving air quality in the area. They address the CAA and CCAA requirements and demonstrate attainment with ambient air quality standards.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The RAQS was initially adopted in 1991, and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004, and most recently in 2009. The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for 1-hour O_3. The RAQS does not address the state air quality standards for PM10 or PM2.5. The SDAPCD has also developed the air basin's input to the SIP, which is required under the Federal Clean Air Act for areas that are out of attainment of air quality standards. The SIP includes the SDAPCD's plans and control measures for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis. For the 8-hour O_3 standard, the SDAPCD submitted their 8-hour Ozone Attainment Plan 2007 in May of 2007, calling for more reductions in VOC and NO_X emissions.

The current status of the RAQS and SIPs that apply to San Diego County are identified in Table 3.

Table 3. Summary of RAQS/SIP for San Diego County

Pollutant	Document Title	Status	Comments
Ozone	2007 Ozone SIP (8-hour federal)	Dated May 2007: prepared by the ARB, SDAPCD, SANDAG, and others for the entire southern California area	Calls for reductions in VOCs and NO_X with attainment achieved in 2012
	2002 Ozone (1-hour Federal) Redesignation Request and Maintenance Plan	Dated December 2002: the current "approved" SIP for this pollutant	Calls for reductions in VOCs and NO_X with attainments achieved in 2006
	2009 RAQS (1- and 8-hour state)	Dated April 2009; update to 2004 strategy	Includes an expeditious schedule for adopting feasible emission control measures to reduce ozone precursor emissions
CO	1995/96 Maintenance Plan	Approved in 1998 for the period 1998 to 2008	The 2008 to 2018 plan was submitted to EPA in 2006
PM10	2005 Measures to Reduce PM10	Dated December 2005: current plan for PM10	Calls for reduction in PM10 and PM2.5
PM2.5	N/A	Under development by SDAPCD	--
Source: SDAPCD 2009a			

The proposed project may be subject to the following SDAPCD rules (as well as others):

Rule 50—Visible Emissions: establishes limits to the opacity of emissions within the SDAPCD. The proposed facility is subject to Rule 50 (d) (1) and (6) and should not exceed the visible emission limitation.

Rule 51—Nuisance: prohibits emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause injury or damage to business or property.

Rule 52—Particulate Matter: establishes limits to the discharge of any particulate matter from non-stationary sources.

Rule 54—Dust and Fumes: establishes limits to the amount of dust or fume discharge into the atmosphere in any one hour.

Rule 55— Fugitive Dust Control: sets restrictions on visible fugitive dust from construction and demolition projects (SDAPCD 2009b).

As shown above, the project would be required to abide by SDAPCD rules which forbid dust and fumes that may cause a nuisance to nearby receptors. While the SDAPCD does not prescribe specific dust control measures, typical mitigation measures for fugitive dust control that could be implemented during project construction include, but are not limited to, the following:

- Water the grading areas a minimum of twice daily to minimize fugitive dust.
- Stabilize graded areas as quickly as possible to minimize fugitive dust.

- Apply temporary shaker plates on construction areas outside of paved roads.
- Provide sufficient erosion control to prevent washout of silty material onto public roads.
- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling.
- Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 mph.
- Enforce a 15 mph speed limit on unpaved surfaces.
- Periodically sweep up dirt and debris spilled onto paved surfaces to reduce re-suspension of particulate matter caused by vehicle movement. Clean approach routes to construction sites of construction-related dirt.
- Hydroseed, landscape, or develop disturbed areas as quickly as possible and as directed by the District to reduce dust generation.
- Limit the daily grading volumes and/or area.

City of Chula Vista

The City of Chula Vista has developed a number of strategies and plans aimed at improving air quality locally. The City is a part of the Cities for Climate Protection Program headed by the International Council of Local Environmental Initiatives (ICLEI). In November 2002, Chula Vista adopted the Carbon Dioxide (CO_2) Reduction Plan in order to lower the community's major GHG emissions, strengthen the local economy, and improve the global environment. The CO_2 Reduction Plan focuses on reducing fossil fuel consumption and decreasing reliance on power generated by fossil fuels, which would have a corollary effect in the reduction of air pollutant emissions into the atmosphere. In order to achieve the CO_2 Reduction Plan goal, measures including green power, municipal clean fuel vehicle purchases, telecommuting and telecenters, municipal building upgrades and trip reduction, to name a few, have been identified.

In addition, as a part of its Growth Management Ordinance and Growth Management Program, the City of Chula Vista requires that an Air Quality Improvement Plan (AQIP) be prepared for all major development projects with air quality impacts equivalent to that of a residential project of 50 or more dwelling units. The purpose of the AQIP is to provide for air quality improvements and energy conservation through improved project design and construction of structures that exceed mandated energy code requirements. The AQIP Guidelines establish a process for AQIP compliance.

The AQIP must provide an analysis of air pollution impacts resulting from the project and demonstrate the best available design to reduce vehicle trips, maintain or improve traffic flow, including implementation of appropriate traffic control measures and other means of reducing emissions from the project. The AQIP must also address the action measures contained in the Chula Vista CO_2 Reduction Plan. In order to meet the AQIP requirements developers can either participate in the Chula Vista Green Star Building Efficiency Program or evaluate the project using the Chula Vista CO_2 INDEX model, including any necessary site plan modifications.

Local Greenhouse Gas and Climate Change Regulations

There are no current state mandates for local governments concerning GHG emissions. As discussed above, the California Air Resources Board has released a *Local Government Operations Protocol* that provides guidance on the preparation of GHG inventories for municipal operations (the ARB 2008d). The protocol does not contain recommendations for GHG reductions by local

No local, state, or regional agency has promulgated binding regulations for the treatment of GHG analysis or mitigation in CEQA documents. However, various California air districts have developed draft thresholds of significance, and their formalization is expected in 2010. The Attorney General's Office and the OPR have issued interim guidance for the assessment of GHGs within the CEQA process, and both suggest as quantitative approach as is practicable. The SDAPCD has not adopted rules, regulations, or guidance for the treatment of GHGs in CEQA documents nor thresholds of significance for GHG emissions at the project level. The City of Chula Vista has adopted a Climate Action Plan, which aims to reduce citywide GHG emissions by 20% below 1990 levels. However, since the City of Chula Vista is not the lead agency for this project, this threshold is not used for the analysis presented below.

Regional Transportation Planning

SANDAG has adopted the 2030 Regional Transportation Plan (RTP), *Pathways for the Future*. The RTP emphasizes the coordination of land use and transportation planning, stating "transportation infrastructure and services must be coordinated with land use planning if we are to avoid increased traffic congestion, reduced mobility, and a deteriorating quality of life." SANDAG developed a Smart Growth Concept Map where smart growth areas exist or could exist within the county. SANDAG also established an independent transit planning review (ITPR) to provide expert guidance and assistance to coordinate smart growth and transit initiatives.

Description of Relevant Air Pollutants

Ozone

Ozone (O_3), a colorless toxic gas, is the chief component of urban smog. O_3 enters the bloodstream and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. O_3 also damages vegetation by inhibiting its growth. Although O_3 is not directly emitted, it forms in the atmosphere through a chemical reaction between reactive organic gas (ROG) and NO_X under sunlight. O_3 is present in relatively high concentrations within the SDAB, and the damaging effects of photochemical smog generally are related to the concentration of O_3. Meteorology and terrain play major roles in O_3 formation. Ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Ozone is considered a regional pollutant; high levels often occur downwind of the emission source because of the length of time between when the ROG form and when they react with light to change to ozone.

Inhalable Particulate Matter

Particulates can damage human health and impede plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials. PM10 is generated by both rural and urban sources, including agricultural burning, discing of agricultural fields, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere. The federal and state ambient air quality standard for particulate matter applies to two classes of particulates: particulate matter 2.5 microns or less in diameter (PM2.5), also known as fine particulate matter, and particulate matter 10 microns or less in diameter (PM10).

Carbon Monoxide

Carbon monoxide (CO), a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. In urban areas, motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains emit CO. Automobile exhaust releases most of the CO in urban areas. CO is a nonreactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor-vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. Since motor vehicles are the dominant source of CO emissions; CO hotspots are normally located near roads and freeways with high traffic volume. The highest CO concentrations measured in the SDAB typically are recorded during the winter.

Nitrogen Dioxide

Nitrogen Dioxide (NO_2), a brownish gas, irritates the lungs. It can cause breathing difficulties at high concentrations. Like O_3, NO_2 is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_X) and are major contributors to ozone formation. NO_2 also contributes to the formation of PM10 (see the discussion of PM10 below). At atmospheric concentration, NO_2 is only potentially irritating. In high concentrations, the result is a brownish-red cast to the atmosphere and reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (2 and 3 years old) also has been observed at concentrations below 0.3 parts per million (ppm).

Sulfur Dioxide

Sulfur Dioxide (SO_2) is a product of high-sulfur fuel combustion. Main sources of SO_2 are coal and oil used in power stations, in industries, and for domestic heating. Industrial chemical manufacturing is another source of SO_2. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 also can cause plant leaves to turn yellow and can erode iron and steel. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary-source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 concentrations have been reduced to levels well below the state and national standards, but further reductions in emissions are needed to attain compliance with standards for sulfates and PM10, of which SO_2 is a contributor.

Lead

Lead (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used several decades ago to increase the octane rating in automotive fuel. Since gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and the use of leaded fuel has been mostly phased out, the ambient concentrations of lead have dropped dramatically.

Short-term exposure to high levels of lead can cause vomiting, diarrhea, convulsions, coma, or even death. However, even small amounts of lead can be harmful, especially to infants, young children, and pregnant women. Symptoms of long-term exposure to lower lead levels may be less noticeable but are still serious. Anemia is common, and damage to the nervous system may cause impaired mental function. Other symptoms are appetite loss, abdominal pain, constipation, fatigue, sleeplessness, irritability, and headache. Continued excessive exposure, as in an industrial setting, can affect the kidneys.

Lead exposure is most serious for young children because they absorb lead more easily than adults and are more susceptible to its harmful effects. Even low-level exposure may harm the intellectual development, behavior, size, and hearing of infants. During pregnancy, especially in the last trimester, lead can cross the placenta and affect the fetus. Female workers exposed to high levels of lead have more miscarriages and stillbirths.

Toxic Air Contaminants

Although Ambient Air Quality Standards (AAQS) exist for criteria pollutants, no ambient standards exist for toxic air contaminants (TACs). Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, the ARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another.

For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a Hazard Index, is used to evaluate risk. In the early 1980s, the ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, the ARB identified particulate emissions from diesel-fueled engines as TACs. In September 2000, the ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel PM10 emissions and the associated health risk by 75% in 2010 and by 85% by 2020. The plan identifies 14 measures that the ARB will implement over the next several years. Since the ARB measures are enacted before any phase of construction, the proposed Project would be required to comply with applicable diesel control measures.

Greenhouse Gases

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs). GHGs are both naturally occurring and artificial. Examples of GHGs that are produced both by natural processes and industry include carbon monoxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons [HFCs] and perfluorocarbons [PFCs]) and sulfur hexafluoride (SF_6).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the earth's surface would be about 61°F cooler. However, emissions from fossil fuel

combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. According to the Intergovernmental Panel on Climate Change (IPCC), the atmospheric concentration of CO_2 in 2005 was 379 ppm compared to the pre-industrial levels of 280 ppm. In addition, the Fourth U.S. Climate Action Report concluded, in assessing current trends, that CO_2 emissions increased by 20% from 1990 to 2004, while methane and nitrous oxide emissions decreased by 10 and 2%, respectively (United States Department of State 2007).

There appears to be a close relationship between the increased concentration of GHGs in the atmosphere and global temperatures. Scientific evidence indicates a trend of increasing global temperatures near the earth's surface over the past century due to increased human-induced levels of GHGs.

GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is the increase and/or change in global temperatures, which in turn has numerous indirect effects on the environment and humans. For example, some observed changes include shrinking glaciers, thawing permafrost, later freezing and earlier break-up of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, and earlier flowering of trees. Other, longer-term, environmental impacts of global warming may include sea level rise, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack (for example, estimates include a 30 to 90% reduction in snow pack in the Sierra Nevada mountain range). Current data suggest that in the next 25 years, in every season of the year, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods.

Greenhouse gas is any gas that absorbs infrared radiation in the atmosphere. Major greenhouse gases include water vapor, CO_2, CH_4, N_2O, HCFCs, O_3, PFCs, and HFCs. Greenhouse gases are not considered "pollutants" under the federal Clean Air Act by the U.S. Environmental Protection Agency (EPA). However, on April 24, 2009, the EPA issued an endangerment finding for CO_2, which is the first step in regulating CO_2 under the federal Clean Air Act. In addition, GHGs are not considered pollutants under the CCAA and are not subject to ambient air quality standards unless the GHG pollutants fall into one of the EPA-regulated pollutant categories (i.e., ozone, PFC, and HFC). Greenhouse gases are regulated by the ARB under legislative direction and the governor's executive orders, as discussed below.

Emissions of each gas are generally reported separately and in units of CO_2 equivalents (CO_2e). The CO_2e units reflect normalization based on the ability of each gas to trap heat in the atmosphere, along with consideration of the pollutant's atmospheric lifetime, allowing each of the GHGs to be compared on a common basis. Non-CO_2 gases are converted to CO_2e units based on global warming potential (GWP) factors developed by the IPCC to represent the heat-trapping ability of each GHG relative to that of CO_2. For example, the GWP of methane is 21 because one metric ton of CH_4 has 21 times more ability to trap heat in the atmosphere than one metric ton of CO_2. A list of GWPs for the six GHGs is presented in Table 4 and described below.

Table 4. Global Warming Potential Factors for Greenhouse Gases

Species	Chemical formula or Abbreviation	GWP_{100}
Carbon dioxide	CO_2	1
Methane	CH_4	21
Nitrogen dioxide	N_2O	310
Sulfur hexafluoride	SF_6	23,900
Hydrofluorocarbons	HFCs	12 to 11,700
Perfluorocarbons	PFCs	6,500 to 9,200

Source: CCAR (2009), which uses the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report published in 1995, unless no value was assigned in the document, in which case the GWP values are from the IPCC Third Assessment Report published in 2001. GWP values are based on 100 year atmospheric lifetimes and are consistent with international practices.

Carbon Dioxide (CO_2)

CO_2 is the greenhouse gas whose concentration is most directly affected by human activities. CO_2 also serves as a reference in comparing all other greenhouse gases (CO_2 equivalents). The major source of CO_2 emissions is fossil fuel combustion. CO_2 emissions are also a product of forest clearing, biomass burning, and non-energy production processes such as cement production.

Increasing concentrations of CO_2 in the atmosphere are largely due to emissions from the burning of fossil fuels, gas flaring, cement production, and land-use changes. Approximately 75% of anthropogenic CO_2 emissions are the result of fossil fuel burning (and to a very small extent, cement production), and approximately 25% of emissions are the result of land-use change (Intergovernmental Panel on Climate Change 2007a.

Anthropogenic emissions of CO_2 have increased concentrations in the atmosphere most notably since the Industrial Revolution; the concentration of CO_2 has increased from about 280 to 379 ppm over the last 250 years (IPCC 2007b). IPCC estimates that the present atmospheric concentration of CO_2 has not been exceeded in the last 650,000 years and is likely to be the highest ambient concentration in the last 20 million years (IPCC 2007a).

Methane (CH_4)

CH_4 is a hydrocarbon that is a greenhouse gas with a global warming potential recently estimated at 21. CH_4 is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and oil, coal production, and incomplete fossil fuel combustion.

Anthropogenic emissions of CH_4 are the result of growing rice, raising cattle, combusting natural gas, and mining coal (National Oceanic and Atmospheric Administration 2005). Atmospheric CH_4 has increased from a preindustrial concentration of 715 to 1,775 parts per billion in 2005 (Intergovernmental Panel on Climate Change 2007b); however, it is unclear why atmospheric concentrations of CH_4 have not risen as quickly as anticipated (National Oceanic and Atmospheric Administration 2005).

Nitrous Dioxide (N_2O)

N_2O is a powerful greenhouse gas with a global warming potential of 310. Major sources of N_2O include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning (Association of Environmental Professionals 2007). N_2O concentrations in the atmosphere have increased from preindustrial levels of 270 parts per billion (ppb) to 319 ppb in 2005 (Intergovernmental Panel on Climate Change 2007b).

Sulfur Hexafluoride (SF_6)

SF_6, another human-made chemical, is used as an electrical insulating fluid for power distribution equipment, in the magnesium industry, and in semiconductor manufacturing; and also as a trace chemical for study of oceanic and atmospheric processes (Association of Environmental Professionals 2007). SF_6 is the most powerful of all GHGs listed in IPCC studies, with a GWP of 23,900.

Hydrofluorocarbons (HFCs)

HFCs (along with PFCs) were introduced as alternatives to ozone-depleting substances that served many industrial, commercial, and personal needs. HFCs are emitted as byproducts of industrial processes and are used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are powerful greenhouse gases with global warming potentials ranging from 140 (HFC-152a) to 12,100 (HFC-23). Concentrations of HFCs have risen from zero to current levels. Because these chemicals are human-made, they do not exist naturally in ambient conditions.

Perfluorocarbons (PFCs)

PFCs are a group of human-made chemicals composed of carbon and fluorine: CF_4 and C_2F_6. These chemicals, specifically CF_4 and C_2F_6 (along with hydrofluorocarbons), were introduced as alternatives to ozone-depleting substances. In addition, they are emitted as byproducts of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they are powerful greenhouse gases. CF_4 has a global warming potential of 6,300, and C_2F_6 has a global warming potential of 12,500.

Existing Conditions

Regional Setting

The proposed Project is located within the San Diego Air Basin (SDAB), which covers all of San Diego County. The SDAB is bordered by the Pacific Ocean to the west, the South Coast Air Basin (SCAB) to the north, the Salton Sea Air Basin (SSAB) to the east, and the U.S.–Mexico border to the south.

The climate in southern California, including the SDAB, is controlled largely by the strength and position of a subtropical high-pressure cell over the Pacific Ocean. Areas within 15 miles of the coast, including the Project site, experience moderate temperatures and comfortable humidity. Precipitation is mostly limited to a few storms during the winter season. Winds in the vicinity of the Project site usually are driven by the dominant land/sea breeze circulation system. During the day,

regional wind patterns are dominated by onshore sea breezes. At night, wind generally slows and reverses direction, traveling toward the sea.

The atmospheric conditions of the SDAB contribute to the region's air quality problems. Because of its climate, the SDAB experiences frequent temperature inversions. Typically, temperature decreases with height. However, under inversion conditions, temperature increases as altitude increases. Temperature inversions prevent the air close to the ground from mixing with the air higher up. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created by the interaction between the ocean surface and the lower layer of the atmosphere, creating a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons (HC) and NO_X react under strong sunlight, creating smog. Light and daytime winds, primarily from the northwest, further aggravate this condition by driving the air pollutants inland, toward the foothills. During the fall and winter, air quality problems are created because of CO and NO_X emissions. High NO_X levels usually occur during fall or winter, on days with summer-like conditions.

High air pollution levels in coastal communities of San Diego often occur when polluted air from the SCAB, particularly from Los Angeles, travels southwest over the ocean at night and is then brought on shore into San Diego by the sea breeze during the day. Smog transported from the SCAB is a key factor on more than 50% of the days San Diego exceeds clean air standards. Ozone and its precursor emissions (HC and NO_X) are transported to San Diego during relatively mild Santa Ana weather conditions. However, during strong Santa Ana weather conditions, pollutants are pushed far out to sea and miss San Diego. When smog is blown in from the SCAB at ground level, the highest O_3 concentrations are measured at coastal and near-coastal monitoring stations. When the transported smog is elevated, coastal sites may be passed over, and the transported ozone is measured further inland and on the mountain slopes.

Local Area Conditions

Local Climate

The annual average temperature in the vicinity of the Project area is approximately 61°F. The average project vicinity summer (August) high and low temperatures are 74.2°F and 64.2°F, respectively, while the average winter (January) high and low temperatures are 64.0°F and 43.7°F, respectively. Total annual precipitation in the vicinity of the Project averages approximately 9.68 inches. Precipitation occurs mostly during the winter and relatively infrequently during the summer.

Wind-monitoring data recorded at the Brown Field climate monitoring station indicate that the predominant wind direction in the Project vicinity is from the west. Average wind speed is approximately 5.7 miles per hour (2.6 meters per second).

Existing Pollutant Levels at Nearby Monitoring Stations

The SDAPCD maintains and operates a network of ambient air monitoring stations throughout the County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The ambient monitoring station closest to the project is the Otay Mesa – Paseo International Monitoring Station (ARB 80139).

The closest monitoring site that monitors particulate matter less than 2.5 microns in diameter (PM2.5) is the Chula Vista – East J Street Monitoring Station (ARB 80114).

Concentrations of pollutants from the two stations over the last three years are presented in Table 5. Concentrations of 1-hour ozone (O_3) did not exceed NAAQS or CAAQS for 2006 or 2007, but did exceed CAAQS for 2008. Concentrations of 8-hour O_3 exceeded CAAQS in both 2007 and 2008 and exceeded NAAQS in 2008. Concentrations of particulate matter less than 10 microns in diameter (PM10) exceeded the 24-hour NAAQS standard in both 2007 and 2008 and the annual CAAQS standard for all three years. The 24-hour PM2.5 concentrations exceeded NAAQS in 2007**.** However, the standards do not violate the NAAQS because the 24-hour PM2.5 monitored data are averaged out over a 3-year period. The 24-hour PM2.5 standard is attained because at least 98% of the daily monitoring data is below the daily and annual attainment NAAQS. Neither the 8-hour and 1-hour CO concentrations were exceeded over any of the years.

If a pollutant concentration is lower than the state or federal standard, the area is classified as being in *attainment* for that pollutant. If a pollutant violates the standard, the area is considered a *nonattainment* area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated *unclassified.* The California Clean Air Act (CCAA) requires the ARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment.

As mentioned earlier, San Diego County is classified as a nonattainment area for the state 1-hour ozone standard, the federal and state 8-hour ozone standards, and the state PM10 and PM2.5 standards. The county is in attainment for state and federal CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb) standards, as well as the state sulfates standard.

Regional TAC Background Levels

Ambient levels of selected TACs are measured by the ARB at several locations in southern California. The closest TAC monitoring stations to the project site are Chula Vista and El Cajon, located approximately 6 miles and 11 miles northwest and north of the proposed project site, respectively. Both of these stations may potentially contain higher, as well as different, TAC concentrations than those near the proposed project because of the distance from the project site and the myriad of land uses in those areas. Because DPM is not collected at the two monitoring stations, background concentrations for this TAC were obtained from the 2009 California Almanac of Emissions and Air Quality (ARB 2009b). The annual average concentration for DPM in the SDAB is 1.4 micrograms per cubic meter ($\mu g/m^3$) with an estimated cancer risk of 420 chances in one million.

For perspective, one out of three Americans will eventually develop cancer, and 1 out of four will die from cancer. Therefore, the national average background cancer incidence is equivalent to 333,000 chances in one million.

Table 5. Ambient Background Concentrations from the Otay Mesa – Paseo International and Chula Vista – East J Street Monitoring Stations

Monitoring Data			
Pollutant Standards	**2006**	**2007**	**2008**
Ozone (O_3)			
Maximum 1-hour concentration (ppm)	0.087	0.092	0.099
Maximum 8-hour concentration (ppm)	0.069	0.072	0.089
Number of Days Standard Exceeded			
CAAQS (1-hour) > 0.09 ppm	0	0	2
NAAQS (8-hour) > 0.075 ppm	0	0	2
CAAQS (8-hour) > 0.07 ppm	0	1	3
Particulate Matter (PM10)			
Federal Maximum 24-hour concentration (μg/m³)	133.0	394.0	158.0
State Maximum 24-hour concentration (μg/m³)	134.0	392.0	158.0
Annual average concentration (μg/m³)	54.1	58.5	56.2
Number of Days Standard Exceeded			
NAAQS (24-hour) > 150 μg/m³	0	1	1
CAAQS (24-hour) > 50 μg/m³	27	27	30
CAAQS (annual) > 20 μg/m³ exceeded?	Yes	Yes	Yes
Particulate Matter (PM2.5)*			
Maximum 24-hour concentration (μg/m³)	30.2	77.8	32.9
Annual average concentration (μg/m³)	11.2	12.6	12.3
Number of Days Standard Exceeded			
NAAQS (24-hour) > 35 μg/m³	0	3	0
NAAQS (annual) > 15 μg/m³ exceeded?	No	No	No
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	3.36	3.39	3.51
Maximum 1-hour concentration (ppm)	5.1	5.7	4.3
Number of Days Standard Exceeded			
NAAQS (8-hour) ≥ 9.0 ppm	0	0	0
NAAQS (1-hour) ≥ 35 ppm	0	0	0
CAAQS (8-hour) ≥ 9.0 ppm	0	0	0
CAAQS (1-hour) ≥ 20 ppm	0	0	0

* There is no PM2.5 monitoring at the Otay Mesa Monitoring Station. PM2.5 data taken from the Chula Vista – East J Street Monitoring Station.

ppm= parts per million, μg/m³ = micrograms per cubic meter, mg/m³ = milligrams per cubic meter, > = greater than, ≥ = greater than or equal to

Source: ARB 2009c. http://www.arb.ca.gov/adam/welcome.html (Top 4 Summary, all pollutants except 1-hour CO)
EPA 2009a. www.epa.gov/air/data/monvals.html (Monitor Values Report – Criteria Air Pollutants, 1-hour CO)

Sensitive Land Uses

The impact of air emissions on sensitive members of the population is a special concern. Sensitive land uses are defined as locations where pollutant-sensitive members of the population may reside or where the presence of air pollutant emissions could adversely affect use of the land. Sensitive members of the population include those who may be more negatively affected by poor air quality

than other members of the population, such as children, the elderly, or the infirmed. The ARB has identified the following people as the most likely to be affected by air pollution: children younger than 14, the elderly older than 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder-care facilities, elementary schools, and parks.

Residential land uses are located within the vicinity of the northern and southern ends of the Wueste Road segment of the proposed Project. Also, Otay Lake is located adjacent to Wueste Road. None of the other segments are within the Project vicinity contain sensitive land uses.

Background Greenhouse Gas Emissions

In the 2007 IPCC Synthesis Report, global anthropogenic GHG emissions were estimated to be 49,000 million metric tons of CO_2e in 2004, which is 24% greater than 1990 emissions levels. CO_2 contributed to 76.7% of total emissions; CH_4 accounted for 14.3%; N_2O contributed 7.9% of total emissions and fluorinated gases (HFCs, PFCs, and SF_6) contributed to the remaining 1.1% of global emissions in 2004. Energy supply was the sector responsible for the greatest amount of GHG emissions (25.9%), followed by industry (19.4%), forestry (17.4%), agriculture (13.5%), and transport (13.1%) (Intergovernmental Panel on Climate Change 2007b).

The U.S. Environmental Protection Agency (EPA) estimates that total U.S. GHG emissions for 2007 amounted to 7,150.1 million metric tons of CO_2e, which is 17% greater than 1990 levels. U.S. GHG emissions were responsible for 14.4% of global GHG emissions in 2004 (Intergovernmental Panel on Climate Change 2007b; EPA 2009b). The largest contributors to U.S. GHG emissions in 2007 were electricity generation (34.2%), transportation (27.9%), and the industrial sector (19.4%) (EPA 2009b).

In December 2006, the CEC published the *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004.* This report indicates that California is the second largest emitter of greenhouse gasses in the United States next to Texas. This is largely a result of the number of people living in a large state, as opposed to a small state such as Rhode Island. California generates about half as many CO_2 emissions as Texas. Worldwide, California is the 12th to 16th largest emitter of CO_2 (CEC 2006), and is responsible for approximately 2% of the world's CO_2 emissions (CEC 2006). When considering fossil fuel emissions at the individual person level, California is second lowest in the nation in per capita CO_2 emissions, with only the District of Columbia lower. Between 1990 and 2000, California's population grew by 4.1 million people, and during the 1990 to 2003 period, California's gross state product grew by 83% (in dollars, not adjusted for inflation). However, California's greenhouse gas emissions grew by only 12% between 1990 and 2003. The report concludes that California's ability to slow the rate of growth of greenhouse gas emissions is largely due to the success of its energy efficiency, renewable energy programs, and commitment to clean air and clean energy. In fact, the state's programs and commitments lowered its greenhouse gas emissions rate of growth by more than half of what it would have been otherwise. (CEC 2006)

Transportation is responsible for 41% of the state's GHG emissions, followed by the industrial sector (21%), electricity generation (22%), agriculture and forestry (8%), and other sources (8%) (CEC 2006). Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion and other sources. Methane, a highly potent GHG, results from off-gassing associated with agricultural practices and

landfills, among other sources. Sinks of CO_2 include uptake by vegetation and dissolution into the ocean. California GHG emissions in 2004 totaled approximately 492.1 MMT CO_2e.

In addition, water-related energy use consumes 19 percent of the state's electricity, 30 percent of its natural gas, and 88 billion gallons of diesel fuel per year. Southern California accounts for two-thirds of the state's population but only receives one-third of the state's precipitation. Since there are so few options to make new water in the state and region, the increased use of recycled water is a major strategy in the state's water plan (CEC 2005).

City of Chula Vista

The City of Chula Vista has developed a number of strategies and plans aimed at improving air quality locally. The City is a part of the Cities for Climate Protection Program headed by the International Council of Local Environmental Initiatives (ICLEI). In November 2002, Chula Vista adopted their CO_2 Reduction Plan in order to lower the community's major GHG emissions, strengthen the local economy, and improve the global environment. The CO_2 Reduction Plan focuses on reducing fossil fuel consumption and decreasing reliance on power generated by fossil fuels, which would have a corollary effect in the reduction of air pollutant emissions into the atmosphere. In order to achieve the CO_2 Reduction Plan goal, measures including green power, municipal clean fuel vehicle purchases, telecommuting and telecenters, municipal building upgrades and trip reduction, to name a few, have been identified.

In addition, as a part of its Growth Management Ordinance and Growth Management Program, the City of Chula Vista requires that an Air Quality Improvement Plan (AQIP) be prepared for all major development projects with air quality impacts equivalent to that of a residential project of 50 or more dwelling units. The purpose of the AQIP is to provide for air quality improvements and energy conservation through improved project design and construction of structures that exceed mandated energy code requirements. The AQIP guidelines establish a process for AQIP compliance (City of Chula Vista 2003).

The AQIP must provide an analysis of air pollution impacts resulting from a project and demonstrate the best available design to reduce vehicle trips, and maintain or improve traffic flow, including implementation of appropriate traffic control measures and other means of reducing emissions from the project. The AQIP must also address the action measures contained in the Chula Vista CO_2 Reduction Plan. In order to meet the AQIP requirements developers can either participate in the Chula Vista Green Star Building Efficiency Program or evaluate their projects using the Chula Vista CO_2 INDEX model, including any necessary site plan modifications (City of Chula Vista 2003).

City of San Diego

The City of San Diego is taking a leadership position in the pursuit against climate change. In 2002, the City of San Diego approved the Sustainable Community Program, which includes actions to:

- participate in the Cities for Climate Protection (CCP) program initiated through the International Council of Local Environmental Initiatives (ICLEI);
- establish a 15% GHG reduction goal by 2010; and
- improve the GHG Emission Reduction Action Plan within the City organization and to identify additional community actions.

The City of San Diego is responsible for about 15.5 million tons of greenhouse gas emissions per year, based on 1990 emissions levels. Of this, only 0.2 million tons is the result of the City government's operations. The majority is generated from the community as a whole. By taking no action to curb these current emissions levels, these were to increase to 22.5 million tons per year by 2010. By adopting a goal of 15% reduction of baseline (1990) levels, the City hoped to reduce emissions to 13.2 million tons per year by 2010.

The City has identified actions to achieve a 15% reduction goal. These actions include transportation, energy efficiency and renewable energy, waste reduction and recycling, urban heat island policy, and environmentally preferable purchasing for City purchases. The Climate Protection Action Plan also directs the City to collaborate with other City's through ICLEI, increase outreach and education, and document and report progress to decision makers and the public (City of San Diego 2005).

County of San Diego

The Energy Policy Initiatives Center at University of San Diego School of Law has developed a GHG emission inventory for San Diego County. In 2006, San Diego County emitted 34 MMT CO_2e, an increase of 5 MMT CO_2e (18%) over 1990 level emissions. Greenhouse gas emissions in San Diego County are primarily the result of transportation (46%), electricity (25%), natural gas (9%), and other sources. In total, 91% of County GHG emissions are associated with fuel use (Anders et al. 2008).

Local Greenhouse Gas and Climate Change Regulations

There are no current state mandates for local governments concerning GHG emissions. However, the ARB has released a Local Government Operations Protocol that provides guidance on the preparation of GHG inventories for municipal operations (ARB 2008d). The protocol does not contain recommendations for GHG reductions by local governments.

No local, state, or regional agency has promulgated binding regulations for the treatment of GHG analysis or mitigation in CEQA documents. However, various California air districts have developed draft thresholds of significance, and their formalization is expected in 2010. The Attorney General's Office and the OPR have issued interim guidance for the assessment of GHGs within the CEQA process, and both suggest as quantitative approach as is practicable. The SDAPCD has not adopted rules, regulations, or guidance for the treatment of GHGs in CEQA documents nor thresholds of significance for GHG emissions at the project level. The City of Chula Vista has adopted a Climate Action Plan, which aims to reduce citywide GHG emissions by 20% below 1990 levels. However, since the City of Chula Vista is not the lead agency for this Project, this threshold is not used for the analysis of impacts presented below.

Climate Change Impacts

Increases in the globally averaged atmospheric concentration of GHGs will cause the lower atmosphere to warm, in turn inducing a myriad of changes to the global climate system. These large scale changes will have unique and potentially severe impacts to the western United States, California and the region surrounding the City of La Canada-Flintridge. Research efforts coordinated through the CARB, CEC, CALEPA, UC system and others are examining the specific changes to California's climate that will occur as the Earth's surface warms.

Climate change could impact the natural environment in California in the following ways, among others:

- Rising sea levels along the California coastline, particularly in San Francisco and the San Joaquin Delta due to ocean expansion;
- Extreme-heat conditions, such as heat waves and very high temperatures, which could last longer and become more frequent;
- An increase in heat-related human deaths, infection diseases and a higher risk of respiratory problems caused by deteriorating air quality;
- Reduced snow pack and stream flow in the Sierra Nevada mountains, affecting winter recreation and water supplies;
- Potential increase in the severity of winter storms, affecting peak stream flows and flooding;
- Changes in growing season conditions that could affect California agriculture, causing variations in crop quality and yield;
- Changes in distribution of plant and wildlife species due to changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects.

These changes in California's climate and ecosystems are occurring at a time when California's population is expected to increase from 34 million to 59 million by the year 2040 (California Energy Commission [CEC] 2006). As such, the number of people potentially affected by climate change, as well as the amount of anthropogenic GHG emissions is expected to significantly increase. Similar changes as those noted above for California also would occur in other parts of the world, with regional variations in vulnerabilities and affected resources.

As a consequence of worldwide GHG emissions altering the global climate, the District may be subject to reduced availability of water supplies.

Significance Thresholds

The following significance criteria are based on Appendix G of the State CEQA Guidelines and provide the basis for determining significance of impacts associated with air quality resulting from the Proposed Project.

Impacts are considered significant if the Project would result in any of the following:

- conflict with or obstruct implementation of the applicable air quality management plan;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
    - emissions that exceed 250 pounds per day of NO_X, or 75 pounds per day of VOCs;
    - emissions of CO that when totaled with the ambient concentrations exceed a 1-hour concentration of 20 ppm or an 8-hour average of 9 ppm;
    - emissions of PM2.5 that exceed 55 pounds per day;

  - emissions of PM10 that exceed 100 pounds per day and increase the ambient PM10 concentration by 5 $\mu g/m^3$;

- a cumulatively considerable net increase of PM10 or exceed quantitative thresholds for O_3 precursors, NO_X and VOCs;
- a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment status under an applicable federal or state ambient air quality standard (including the release of emissions that exceed quantitative thresholds for ozone precursors);
- expose sensitive receptors to substantial pollutant concentrations; or
- create objectionable odors affecting a substantial number of people.

Supplemental Criteria for Project Emissions

The District has not adopted specific emission thresholds by which to evaluate the significance of air quality impacts of projects within its jurisdiction. However, the County of San Diego has adopted the significance thresholds set forth by the SDAPCD and the SCAQMD. These thresholds provide a conservative means of evaluating the potential for a significant impact. The following Guidelines for Determining Significance will be used for determining the cumulatively considerable net increases during the construction phase:

- A project that has a significant direct impact on air quality with regard to emissions of PM10, PM2.5, and NO_X and/or VOCs, would also have a significant cumulatively considerable net increase.
- In the event direct impacts from a proposed project are less than significant, a construction project may still have a cumulatively considerable impact on air quality if the emissions from the proposed project, in combination with the emissions from other proposed construction projects or reasonably foreseeable future projects within a 1/4-mile radius, would be in excess of thresholds.

The project does not include any net increase in operations, as the project is solely a construction project. The project would not result in increased motor vehicle trips nor would it increase population or employment within the region. Therefore, emissions as a result of project operations are considered to be zero and are not analyzed in this analysis.

Thresholds for Criteria Pollutant Impacts

In lieu of any set quantitative air quality significance thresholds, the SDAPCD's Regulation II, Rule 20.2, Table 20-2-1, "Air Quality Impact Analysis (AQIA) Trigger Levels" are used as a screening criterion for potential significance of air quality impacts. The SDAPCD emission thresholds are shown in Table 7. Therefore, an increase above the SDAPCD's emission thresholds would be expected to have an adverse impact on air quality because any emission increase would contribute to the air quality problems in the SDAB. In addition, if a proposed project's emissions exceed the 100 pounds per day of PM10, relying on the definition of "significant impact" in SDAPCD Rule 20.1, the project would create a significant impact if the actual ambient 24-hour concentration is increased by 5.0 $\mu g/m^3$ in a Class II area (1.0 $\mu g/m^3$ in a Class I area).

Any project would be considered to have a potential significance air quality impact if the emission levels from the proposed project were to exceed any of the criteria presented in Table 6.

Table 6. SDAPCD Screening Level Thresholds

Air Contaminant	Emission Rate		
	(lb/hr)	(lb/day)	(tons/yr)
Particulate Matter less than 10 microns (PM10)	---	100	15
Particulate Matter less than 2.5 microns (PM2.5)[1]	---	55	10
Oxides of Nitrogen (NO_X)	25	250	40
Oxides of Sulfur (SO_X)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds (Pb)	---	3.2	0.6
Volatile Organic Compounds (VOC)[2]	---	75	13.7

[1] EPA's "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards," published September 8, 2005. Also used by the SCAQMD (SCAQMD 2006).

[2] City of San Diego CEQA Significance Determination Threshold for VOC threshold based on South Coast Air Quality Management District (SCAQMD) levels and the Monterey Bay APCD which has similar federal and state attainment status as San Diego.

Source: SDAPCD Regulation II, Rule 20.2.

Supplemental Criteria for Sensitive Receptors

The following criteria were used to determine whether the project would expose sensitive receptors to substantial pollutant concentrations:

- The project would place sensitive receptors near CO "hotspots" or creates CO "hotspots" near sensitive receptors.
- The project would result in exposure to TACs resulting in a maximum incremental cancer risk greater than 1 in 1 million without application of Toxics-Best Available Control Technology, or a health hazard index greater than 1, and thus be deemed as having a potentially significant impact.
- Create objectionable odors affecting a substantial number of people. The project is not an agricultural, commercial, or an industrial activity, and consequently is not subject to SDAPCD standards.

Supplemental Criteria for GHG Emissions

No federal or state agency provides specific emission thresholds by which to evaluate the significance of impacts from GHG emissions. The Legislature recently enacted SB 97, which requires OPR to adopt CEQA Guidelines concerning the effects and mitigation of GHG emissions (Public Resources Code [PRC] Section 21083.05). The Natural Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments will become effective on March 18, 2010.

The final Amendments to the CEQA Guidelines do not propose specific thresholds of significance with regards to greenhouse gases and climate change. In fact, the Amendments defer to the lead

agency discretion in adopting identifiable thresholds or using thresholds adopted or recommended by other public agencies or recommended by experts. The District has not adopted or recommended identifiable thresholds of significance with regards to greenhouse gases. Therefore, in the absence of formally adopted thresholds, the following significance thresholds are adapted from Appendix G of the final CEQA Guidelines for GHG emissions. The Project would result in a significant impact if:

- the proposed project would conflict with or obstruct the goals or strategies of the California Global Warming Solutions Act of 2006 (AB 32) or related Executive Orders; or
- the proposed project would result in substantially increased exposure to the potential adverse effects of global warming identified in the California Global Warming Solutions Act of 2006.

Methodology

Construction

The SDAPCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related impacts. However, the SDAPCD does specify air quality impact analysis (AQIA) trigger levels for new or modified stationary sources (APCD Rules 20.2 and 20.3). If these incremental levels for stationary sources are exceeded, an AQIA must be performed for the proposed new or modified source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may be used to evaluate the increased emissions that would be discharged to the SDAB from proposed land development projects.

Rule 20.2 outlines the screening level thresholds (SLTs), which are based on the AQIA trigger levels. These SLTs states that any project "which results in an emissions increase equal to or greater than any of these levels, must:

> …demonstrate through an AQIA... that the project will not (A) cause a violation of a State or national ambient air quality standard anywhere that does not already exceed such standard, nor (B) cause additional violations of a national ambient air quality standard anywhere the standard is already being exceeded, nor (C) cause additional violations of a State ambient air quality standard anywhere the standard is already being exceeded, nor (D) prevent or interfere with the attainment or maintenance of any State or national ambient air quality standard.

For projects whose stationary source emissions are below these criteria, no AQIA is typically required, and project-level emissions are presumed to be less than significant.

For CEQA purposes, these SLTs can be used to demonstrate that a project's total emissions (e.g., stationary and fugitive emissions, as well as emissions from mobile sources) would not result in a significant impact to air quality. When project emissions have the potential to approach or exceed the SLTs, additional air quality modeling my need to be prepared to demonstrate that ground-level concentrations resulting from project emissions (with background levels) would be below federal and state ambient air quality standards listed in Table 7.

APCD Rules 20.2 and 20.3 do not have AQIA thresholds for emissions of VOCs and PM2.5. The use of the screening level for VOCs specified by the SCAQMD, which generally has stricter emissions thresholds than the SDAPCD, is recommended for evaluating projects within San Diego County.

In the event that project emissions exceed these SLTs, specific modeling would be required for NO_2, SO_2, CO, and lead to demonstrate that the project's ground-level concentrations, including appropriate background levels, do not exceed the NAAQS and CAAQS. For ozone precursors, PM10 and PM2.5, exceedance of the SLTs results in a significant impact. The reason for this is that the SDAB is currently not in attainment for PM10 and PM2.5, and ground-level ozone. Therefore, unless a project includes design considerations or mitigation measures that would reduce the daily emissions to below the applicable screening levels, the impact for these pollutants (ozone precursors, PM10 and PM2.5) would be significant, as discussed below.

Ozone Precursors

- Would the project result in emissions that exceed 250 pounds per day of NO_X, or 75 pounds per day of VOCs?

Carbon Monoxide

- Would the project result in emissions that exceed 550 pounds per day of CO?

Particulate Matter

- Would the project result in emissions of PM2.5 that exceed 55 pounds per day?
- Would the project result in emissions of PM10 that exceed 100 pounds per day and increase the ambient PM10 concentration by 5 .0μg/m^3 or greater at any sensitive receptor locations (or maximum exposed individual (MEI), a term commonly used by the ARB for sensitive receptors)?

The ambient air quality standards reflect actual concentrations for each criteria pollutant. However, it is not economically feasible for individual land use projects to model actual concentrations for ozone based on emissions of its precursors due to the complex regional nature of ozone formation in the atmosphere. Therefore, exceedance of the SLTs for NO_X and VOCs would result in a significant impact unless mitigation is incorporated that would reduce the emissions of these pollutants below the level of the screening thresholds.

In June 2002, the ARB adopted new, stricter standards for particulate matter that would affect both the coarse and fine particulate fraction. the ARB delayed action on the proposed 24-hour PM2.5 standard in light of the findings related to statistical issues in several key short-term exposure health effects studies. The USEPA, however, has finalized its NAAQS for PM2.5, published on October 17, 2006, which quantifies significant emissions as 10 tons per year, which is the equivalent of 55 pounds per day. As previously stated, the PM10 SLT of 100 pounds per day comes from SDAPCD Rule 20.2. If a proposed project's emissions exceed the 100 pounds per day of PM10, relying on the definition of "significant impact" in SDAPCD Rule 20.1, the project would create a significant impact if the actual ambient 24-hour concentration is increased by 5.0 μg/m^3 in a Class II area (1.0 μg/m^3 in a Class I area).

Mass daily combustion emissions, fugitive PM10 and PM2.5, and off-gassing emissions were compiled using the URBEMIS 2007 (version 9.2.4) model, which is an emissions estimation/evaluation model developed by the ARB (ARB 2007). Construction of the proposed project would occur over three separate roadway segments. Emissions were estimated for each segment individually.

The URBEMIS 2007 model separates the construction process into multiple phases depending of the specifics of the project. For each pipeline segment, construction was separated in five separate

phases. The first phase includes the demolition of the roadway. Emissions would result from demolition dust, debris haul truck trips exhaust, construction equipment exhaust, and worker commute exhaust. The second phase of construction is pipeline trenching with emissions resulting from fugitive dust, soil haul truck trips, equipment exhaust, and worker commute exhaust. The third phase involves laying the pipeline. Emissions would result from equipment exhaust and worker commute exhaust. The fourth phase includes backfilling of trench, with emissions resulting from fugitive dust, soil haul truck trips, equipment exhaust, exhaust from backfill material deliveries, and worker commute exhaust. The final phase involves paving and site restoration. Emissions would result from construction equipment exhaust, worker commute exhaust, and ROG off-gassing emissions from paving.

Dust estimates assume that the project will include use of a water truck. In addition, the project would be required to comply with SDAPCD Rule 51, which forbids activities that create a nuisance to nearby receptors, and Rule 55, which requires the suppression of fugitive dust from construction and demolition sites. The County of San Diego "Guidelines for Determining Significance—Air Quality" document lists some examples of typical air quality design considerations that may be incorporated into projects to avoid impacts or mitigation measures that may be required for construction phase air quality impacts. The project design/mitigation measures suggested in this section are examples of the types of design measures/mitigation that could be applied to a project to reduce identified air quality impacts. If mitigation is required, the actual mitigation recommended for a project may vary depending on the project itself, the specific impact, and other issues that may arise on a case-by-case basis. Therefore, a project may require mitigation that is not specifically identified in this document.

Toxic Air Contaminants Impacts

Potential TAC impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis (i.e., dispersion modeling) if necessary. The screening-level analysis consists of reviewing the proposed project's description and site plan to identify any new or modified TAC emissions sources. If it is determined that the proposed project would introduce a new source, or modify an existing TAC emissions source, then downwind sensitive-receptor locations are identified, and site-specific dispersion modeling is conducted to determine proposed project impacts.

Climate Change/Greenhouse Gas Emissions

Proposed project-related impacts relative to GHG emissions during construction are provided below. As described below, the relative amounts of construction GHG emissions associated with this project are negligible. The proposed project's amount of emissions, without considering other cumulative global emissions, would be insufficient to cause substantial climate change directly. Thus, project emissions, in isolation, are considered less than significant. However, climate change is a global cumulative impact, and the proper context for analysis of this issue is not a project's emissions in isolation, but rather as a contribution to cumulative GHG emissions.

Project-related GHG emissions were estimated using the following methodology and presented in metric tons per year. Construction-related CO_2 emissions were calculated using the URBEMIS 2007 model, while construction-related CH_4 and N_2O emissions were compiled using the calculation formulas provided in the *California Climate Action Registry, General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, version 3.1* (California Climate Action Registry 2009).

Consistency with the Air Quality Plan

The SDAPCD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the Basin is in nonattainment. Strategies to achieve these emissions reductions are developed in the RAQS and SIP, prepared by the SDAPCD for the region. Both the RAQS and SIP are based on SANDAG population projections, as well as land use designations and population projections included in general plans for those communities located within the County of San Diego, including the cities of Chula Vista and San Diego. Population growth is typically associated with the construction of residential units or large employment centers.

A project would be inconsistent with the RAQS/SIP if it results in population and/or employment growth that exceed growth estimates for the area. The emissions associated with the proposed Project would only be associated with construction of the project, and there would be no long-term operational emissions associated with underground pipelines. As a result, the proposed Project would not result in population growth and would not cause an increase in currently established population projections. The proposed Project does not include residential development or large local or regional employment centers and, thus, would not result in significant population or employment growth. Because the proposed pipeline Project does not involve long-term energy use or vehicle generation, the Project would not conflict with the City of Chula Vista's AQIP, which requires large development projects to reduce air quality impacts related to motor vehicle trips and energy use. Because the pipeline Project does not generate population growth the Project would not conflict with any population projections and would therefore be consistent with the City of Chula Vista General Plan and the County of San Diego General Plan. In addition, the District would comply with all existing and new rules and regulations as they are implemented by the City of Chula Vista, SDAPCD, ARB, and/or EPA related to emissions generated during construction. Therefore, the proposed Project would not conflict with the applicable air quality attainment plan, and impacts would be less than significant.

Violate Air Quality Standard or Exceed Threshold

The Project would not result in increased motor vehicle trips nor would it increase population or employment within the region. Therefore, emissions as a result of Project operations are considered to be zero, and operation of the Project would not result in any impacts related to violation of air quality standards.

Construction of the proposed Project has the potential to create air quality impacts through the use of heavy-duty construction equipment, construction worker vehicle trips, and haul truck trips generated from construction activities. In addition, fugitive dust emissions would result from demolition of roadways, trenching, and paved and unpaved road travel. Mobile-source emissions, primarily NO_X, would result from the use of construction equipment, and paving operations would release ROGs from off-gassing. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources. Fugitive PM10 and PM2.5 emissions estimates take into account compliance with Rule 55

requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

The Project will utilize open-trench construction. In general, this process consists of trench excavation, pipe installation, trench backfilling, and site restoration (i.e., paving). The existing pavement along the pipeline alignment is cut or broken and removed. A trench is excavated along the pipeline alignment, with the excavated soil either temporarily stored adjacent to the trenches or hauled off site. The pipe is laid into the trench and welded together, and then the trench is backfilled and the surface restored and repaved. This process is expected to move at a rate of 120 to 160 feet per day.

Construction data, including project length, spoils hauling, and type and numbers of equipment were provided by the client. Fugitive dust emissions associated with the site grading were estimated by assuming that a maximum of 25% of the total acreage would be disturbed on a single day for each pipeline segment. The total amount of construction, the duration of construction, and the intensity of construction activity could have a substantial effect upon the amount of construction emissions, the concentrations, and the resulting impacts occurring at any one time. For example, it was assumed that all construction equipment would operate for 8 hours per day. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on an expected construction scenario where a relatively large amount of construction occurs in a relatively intensive manner.

As shown in Table 7, all criteria pollutant emissions would be below their respective thresholds. The worst-case daily emissions are presented as the sum of the worst-case daily emissions for each pipeline segment, which assumes that the maximum daily emissions from each pipeline segment will occur on the same day. Even using this conservative approach, all criteria pollutant emissions would be below their respective thresholds. In addition the SDAPCD dust control measures identified in design feature in Chapter 1 of this report would be implemented during construction. As a result, the construction activities would not result in emissions that would violate air quality standards and therefore would be considered a less-than-significant impact on air quality. URBEMIS 2007 model output sheets that detail the equipment mix and duration for each construction stage are provided in the Appendix of this report.

Toxic Air Contaminants

The greatest potential for TAC emissions would be related to diesel particulate emissions associated with heavy equipment operations during site grading activities. The SDAPCD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the proposed Project would be sporadic, transitory, and short-term in nature (approximately 14 months). The assessment of cancer risk is typically based on a 70-year exposure period. Because exposure to diesel exhaust would be well below the 70-year exposure period, construction of the proposed Project is not anticipated to result in an elevated cancer risk to exposed persons. As such, Project-related toxic emission impacts during construction would not be significant.

Table 7. Construction Emission Estimates

	Maximum Daily Emissions (pounds)								
	ROG	NO_X	CO	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Pipeline Segment									
Wueste Road	7.75	73.33	33.87	0.01	5.64	3.36	9.00	1.18	3.09
Alta Road	7.75	73.30	33.87	0.01	3.44	3.36	6.80	0.73	3.09
Airway Road	7.30	68.56	32.14	0.01	6.25	3.07	9.31	1.31	2.82
*Worst-case emissions**	*22.80*	*215.19*	*99.88*	*0.03*	*15.33*	*9.79*	*25.11*	*3.22*	*9.00*
SDAPCD Threshold	*75*	*250*	*550*	-	-	*100*	-	-	*55*
Significant?	*No*	*No*	*No*	-	-	*No*	-	-	*No*

* Worst-case emissions assume that the maximum daily emissions from each pipeline segment will occur on the same day. URBEMIS 2007 output sheets are presented in Appendix 1 of this report.

Carbon Monoxide Impacts at Local Intersections

The Traffic Impact Analysis for the Project (see Appendix H of the draft EIR) indicates that the Project is not expected to create more congestion or cause degradation of levels of service at nearby intersections during Project construction or operation. Therefore, the Project is not anticipated to result in an increase in CO near intersections, and impacts would be less than significant.

Expose Sensitive Receptors

Construction activities are sporadic, transitory, and short-term in nature, and once construction activities have ceased, so too have emissions from construction activities. It is estimated that construction activities for the Project would occur over approximately 14 months. Construction would be transitory and the geographic source of emissions would change every few weeks, as Project construction would move from one area to another along the same roadway segment. Although there are residential receptors in the vicinity of the Wueste Road Pipeline segment, the duration of exposure to diesel exhaust during the temporary construction activity would be much shorter than the assumed 70-year exposure period used to estimate lifetime cancer risks. In addition, because construction would not be limited at to a specific parcel the relative distance from nearby receptors to the construction activities would change often. While the closest residences are within 400 feet of the northernmost extent of the Wueste Road Pipeline, construction activities would likely occur within this distance for only a short period of time. Therefore, construction of the proposed Project is not anticipated to result in an elevated health risk to exposed persons given the short-term and transitory nature of construction-related diesel exposure.

The Project may create a nuisance for visitors to nearby parks during hours of construction, but this impact is considered minimal because of the short-term and transitory nature of the construction period. Consequently, the human health impact of diesel risks associated with construction activities is considered to be less than significant. No mitigation is required.

As indicated above and in the Traffic Impact Analysis (Appendix H of the draft EIR), the Project is not expected to create more congestion or cause degradation of levels of service at nearby intersections during Project construction or operation. Therefore, the Project is not anticipated to place sensitive receptors near CO "hotspots" or create CO "hotspots" near sensitive receptors. Consequently, sensitive receptors would not be subject to significant health risks from exposure to CO emissions associated with Project operations.

Objectionable Odors

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and air districts. Any project with the potential to frequently expose the public to objectionable odors would be deemed as one having a significant impact. Odor impacts on residential areas and other sensitive receptors, such as hospitals, daycare centers, schools, etc., warrant the closest scrutiny; but consideration should also be given to other land uses where people may congregate, such as recreational facilities, work sites, and commercial areas.

The Project consists of extension of underground pipelines. Therefore, operation of the pipeline would not involve any long-term impact related to the creation of odors. The Project would generate temporary, localized odors during construction phases, similar to any other construction project. However, odor impacts would be temporary and limited to the area adjacent to the construction site, and impacts would be less than significant. No mitigation is required.

Cumulative Impacts

CEQA and the State CEQA Guidelines require the disclosure of the significant cumulative environmental effects, whether the Project will make a cumulatively considerable contribution to any such effects, and, if so, mitigation measures intended to reduce the Project's contribution (Section 15130 of the State CEQA Guidelines). A cumulative effect is one that results from past, present, and probable future projects. A project that has a less-than-significant direct effect on the environment may nonetheless make a considerable contribution to a cumulative effect. The decision in *Communities for a Better Environment, et al v. California Resources Agency* (2002) 103 Cal.App.4th 98 put the approach to evaluating a project's contribution to a cumulative impact succinctly: "In the end, the greater the existing environmental problems are, the lower the threshold should be for treating a project's contribution to cumulative impacts as significant."

Conflict with Applicable Air Quality Plans

In addition to particulates, construction and operation of the proposed Project would result in ROG and NO_X emissions; however, these emissions would be below the significance thresholds. According to the County of San Diego significance threshold described above, a project that conforms to the applicable General Plan and does not have emissions exceeding the significance thresholds will not create a cumulatively considerable net increase with respect to ozone since these emissions were accounted for in the RAQS. As discussed above, the proposed Project was deemed consistent with the RAQS and would not result in a direct impact on air quality. Therefore, there is no significant cumulative impact for ozone, and the Project's contribution is not cumulatively considerable.

Violate Air Quality Standards/Increase Criteria Pollutants

The SDAB is currently in nonattainment for NAAQS ozone as well as for CAAQS ozone, PM10, and PM2.5. Therefore, the emissions of concern within the SDAB are ozone precursors (ROG and NO_X), PM10, and PM2.5.

The nearest cumulative project is the construction of SR 905 from I-805 to the Otay Mesa Point of Entry. Phase 1b of construction, which runs near the proposed Airway/La Media Road Pipeline segment, is expected to be completed by the time project construction begins. Therefore, Project construction is not expected to overlap, and the cumulative emissions would not be expected to exceed SDAPCD thresholds. Consequently, the Project's cumulative contribution would be less than significant.

Expose Sensitive Receptors to Pollutants

The nearest cumulative project is the construction of SR 905 from I-805 to the Otay Mesa Point of Entry. Phase 1b of construction, which runs near the proposed Airway/La Media Road Pipeline segment, is expected to be completed by the time project construction begins. Therefore, Project construction is not expected to overlap, and the cumulative emissions would not be expected to exceed SDAPCD thresholds. As a result, Project construction would not contribute to a cumulative impact on sensitive receptors in conjunction with ongoing construction in the area.

Create Objectionable Odors

The Project consists of extension of underground pipelines and would not contribute to any long-term operational cumulative impacts from odors. In addition, Project construction would not overlap with SR 905 improvements, which are expected to be completed before the Airway/La Media Road Pipeline construction begins. The Project would generate temporary, localized odors during construction phases, similar to any other construction project, but these emissions would not combine with other construction projects nearby. Therefore, construction of the pipeline would not contribute to a cumulative impact from odors.

Climate Change/Greenhouse Gases

AB 32 states, in part, that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." Because global warming is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is considered to be a significant cumulative impact. However, the global increase in GHG emissions that has occurred and will occur in the future are the result of the actions and choices of individuals, businesses, local governments, states, and nations. Thus, the analysis below should be understood as an analysis of cumulative contributions to the significant global impact associated with climate change.

Given the overwhelming scope of global climate change, it is not anticipated that a single development project would have an individually discernable effect on global climate change (i.e., that any increase in global temperature or sea level could be attributed to the emissions resulting from a single project). Rather, it is more appropriate to conclude the substantial proposed Project GHG emissions will combine with emissions across California, the U.S., and the globe to cumulatively contribute to global climate change. According to a recent white paper by the Association of

Environmental Professionals, "an individual project does not generate enough GHG emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions" (AEP 2007). Therefore, there are no direct or non-cumulative GHG impacts from a climate change perspective (CAPCOA 2008). Emissions associated with the project would be limited to those from construction activities. The proposed Project's amount of emissions, without considering other cumulative global emissions, would be insufficient to cause substantial climate change directly. Thus, Project emissions, in isolation, are considered less than significant. However, climate change is a global cumulative impact, and the proper context for analysis of this issue is not a project's emissions in isolation, but rather as a contribution to cumulative GHG emissions.

SB 97 directed the OPR to adopt CEQA Guidelines concerning the effects and mitigation of GHG emissions by January 1, 2010 (CEQA Guidelines 21083.05). The Natural Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments will become effective on March 18, 2010. These new CEQA Guidelines provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents.

The final Amendments to the CEQA Guidelines do not propose specific thresholds of significance with regards to greenhouse gases and climate change. In fact, the Amendments defer to the lead agency discretion in adopting identifiable thresholds or using thresholds adopted or recommended by other public agencies or recommended by experts. The District has not adopted or recommended identifiable thresholds of significance with regards to greenhouse gases. Therefore, in the absence of formally adopted thresholds, the following significance thresholds are adapted from Appendix G of the final CEQA Guidelines for GHG emissions. The Project would result in a significant impact if:

- the proposed Project would conflict with or obstruct the goals or strategies of the California Global Warming Solutions Act of 2006 (AB 32) or related Executive Orders; or
- the proposed Project would result in substantially increased exposure to the potential adverse effects of global warming identified in the California Global Warming Solutions Act of 2006

While no air district, including the SDAPCD, has adopted thresholds for cumulative GHG impacts under CEQA, the Bay Area Air Quality Management District (BAAQMD 2009), San Joaquin Valley Air Pollution Control District (SJVAPCD 2009) and SCAQMD (SCAQMD 2008) have proposed separate GHG thresholds for the operation of both industrial and residential/commercial projects. The most stringent threshold for the operation of Industrial projects has been proposed by the SJVAPCD, which is proposed to be 7,000 metric ton per year. SCAQMD's proposed GHG thresholds for industrial and commercial/residential projects are 10,000 and 3,000 metric tons of CO_2e annually, respectively. Additionally, the SCAQMD proposed thresholds state that construction-related GHG emissions can be amortized (averaged) out over a 30-year period, with the amortized value compared to the appropriate GHG threshold. In addition, the County of San Diego has released an interim approach to addressing climate change in CEQA documents, in which the County adopted 900 metric tons as the screening criteria for determining which projects require further analysis and mitigation with regard to climate change. While none of these thresholds have been adopted by the District or required under CEQA, the GHG emissions associated with the proposed project can be compared to these thresholds for purposes of demonstrating how relatively low the emissions from

the Proposed Project construction compared with what other lead agencies are requiring for project emissions to be considered a significant impact.

OPR has released a technical advisory, entitled *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review* (OPR 2008). OPR offers informal guidance regarding the steps lead agencies should take to address climate change in their CEQA documents. This guidance was developed in cooperation with the Resources Agency, the California Environmental Protection Agency (Cal/EPA), and the ARB. The technical advisory provides the following guidance regarding significance determination:

> When assessing a project's GHG emissions, lead agencies must describe the existing environmental conditions or setting, without the project, which normally constitutes the baseline physical conditions for determining whether a project's impacts are significant.
>
> As with any environmental impact, lead agencies must determine what constitutes a significant impact. In the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a "significant impact," individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice.
>
> The potential effects of a project may be individually limited but cumulatively considerable. Lead agencies should not dismiss a proposed project's direct and/or indirect climate change impacts without careful consideration, supported by substantial evidence. Documentation of available information and analysis should be provided for any project that may significantly contribute new GHG emissions, either individually or cumulatively, directly or indirectly (e.g., transportation impacts).
>
> Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment. CEQA authorizes reliance on previously approved plans and mitigation programs that have adequately analyzed and mitigated GHG emissions to a less than significant level as a means to avoid or substantially reduce the cumulative impact of a project.

Scientific studies (as best represented by the IPCC's periodic reports) demonstrate that climate change is already occurring due to past GHG emissions. Forecasting of future growth and related GHG emissions BAU conditions indicates large increases in those GHG emissions accompanied by an increasing severity of changes in global climate. Thus, the best scientific evidence concludes that global emissions must be reduced below current levels.

On a state level, AB 32 identified that an acceptable level of GHG emissions in California in 2020 is 427 MMT CO_2e, which is the same as 1990 GHG emissions level, is about 12% less than current (480 MMT CO_2e in 2004) GHG emissions, and is about 28% less than 2020 BAU conditions (596 MMT CO_2e).

On the countywide level, an acceptable level of GHG emissions in San Diego County in 2020 is 29 MMT CO_2e, which is the same as 1990 GHG emissions level, is about 18% less than current (34 MMT CO_2e in 2006) GHG emissions, and is about 33% less than 2020 BAU conditions (43 MMT CO_2e) (Anders et al. 2008). Thus, on a countywide level, if San Diego County can achieve these reductions, it will as a whole not contribute considerably to global GHG emissions. San Diego County's emissions in 2020 will still make a cumulative contribution to global GHG emissions, but relative to current baseline emissions they will be substantively reduced.

In order to achieve these GHG reductions, there will have to be widespread reductions of GHG emissions across the California economy, including the Otay Water District. Some of those reductions will need to come from the existing economy in the form of changes in vehicle emissions

and mileage, changes in the sources of electricity, and increases in energy efficiency by existing facilities as well as other measures. In addition, GHG reductions can be achieved by increasing recycled water use for residential and commercial end uses. In terms of determining whether GHG emissions within the District will be cumulatively considerable, one has to evaluate whether the District is doing its part to ensure that San Diego County and California, as a whole, meets the AB 32 target.

Project Impacts Related to Climate Change and Greenhouse Gases

The principal source of GHG associated with the proposed Project would be associated with Project construction. GHG emissions are anticipated to occur during construction of the proposed Project largely from fuel combustion from construction equipment, worker commute travel, and hauling truck trips. Construction-related GHG emissions result from CO_2, CH_4, and N_2O that is released during the combustion of gasoline or diesel fuel in on- and off-road vehicles and equipment. As discussed previously, increased emissions of GHGs would contribute to global warming and the adverse global environmental effects thereof. Increased GHG emissions could also potentially conflict with the requirement of AB32 to reduce statewide GHG emissions to 1990 levels by 2020.

Table 8 presents the GHG emissions generated as a result of Project construction. Construction-generated GHG emissions, expressed in metric tons of CO_2e, are presented for each segment of Project construction. As shown in Table 8, 962 metric tons of CO_2e would be emitted over the 14-month construction period. Assuming this amount is an annual amount, construction-generated GHG emissions represent approximately 0.0001% of the 2004 annual statewide GHG emissions, approximately 0.0009% of the 2008 annual San Diego County GHG emissions, approximately 0.0021% of 1990 annual City of San Diego GHG emissions, and approximately 0.04% of the 2008 annual Chula Vista GHG emissions.

Table 8. Estimate of Construction Greenhouse Gas Emissions

Construction GHG Emissions	CO_2e (metric tons)
Wueste Road	318.4
Alta Road	320.2
Media Road	322.8
Total Construction GHG Emissions	*961.5*
[a] URBEMIS 2007 outputs and the GHG emissions calculation worksheet are provided in Appendix 1 and 2, respectively.	

As shown in Table 8, approximately 962 metric tons of CO_2e would be emitted over the 14-month construction period. The sum of project-related construction GHG emissions (962 metric tons) can be amortized over a 30-year period. This results in an annual GHG emission rate of approximately 32 metric tons of CO_2e. The amortized 30-year average GHG emission rate is considerably lower than the significance threshold of 7,000 metric tons per year proposed by the SJVAPCD and the 10,000 metric tons per year proposed by the BAAQMD and SCAQMD. In addition, the amortized 30-year average GHG emission rate is considerably lower than the interim 900 metric ton per year threshold used by the County of San Diego. Therefore, based on these preliminary emission calculations, the GHG impacts caused by emissions from the project construction are considered to be less than significant and the cumulative contribution of the Project to climate change would be less than significant.

An indirect benefit of recycled water use could be that it reduces the need to import raw water supplies from other parts of the region or state. Recycled water is the least energy-intensive source in the state's water supply. While incremental energy is typically required for creation of recycled water incremental energy is offset in part or in whole by displacing higher energy intensity water supplies, as well as reducing potable water treatment and distribution. For example, southern California imports approximately 50% of its water supplies from the Colorado River and the State Water Project (i.e., northern and central California). Each of these sources requires energy to convey, treat, and distribute water to the end user. The CEC estimates that it takes approximately 9,000 kilowatt-hours (kWh) of electricity to convey and treat 1 million gallons of water in southern California. Conversely, it takes approximately 400 to 1,200 kWh of electricity to treat and distribute 1 million gallons of recycled water (CEC 2005). A benefit of reducing the energy required to supply potable water is that it would also reduce GHG emissions that result from energy fuel combustion. The extent to which energy would be reduced by implementing recycled water varies by region and jurisdiction, and is dependent upon how much water supply that particular region or jurisdiction imports and how much is obtained locally. Therefore, the net reduction in energy and the associated reduction in GHG emissions generated by the proposed Project compared with that required to import potable water cannot be quantified.

Impacts of Climate Change on Proposed Project

In addition, the project would not result in substantially increased exposure to the potential adverse effects of global warming as identified in the California Global Warming Solutions Act of 2006. As noted earlier, climate change impacts in California include, but are not limited to: sea level rise; extreme heat events; increase in infectious diseases and respiratory illnesses, and; reduced snowpack and water supplies. The project is an underground recycled water pipeline that would not be exposed to climate change impacts. Therefore, the Project would not result in substantially increased exposure to the potential adverse effects of global warming, and the cumulative contribution of the Project would be less than significant.

Chapter 4
References

Anders, S., D. De Haan, N. Silva-Send, S. Tanaka, and L. Tyner. 2008. San Diego County Greenhouse Gas Inventory: An Inventory of Regional Emissions and Strategies to Achieve AB32 Targets. September 2008. Available: <http://www.sandiego.edu/epic/ghginventory>. Accessed: September 2008.

Association of Environmental Professionals (AEP). 2007. Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents. Final, Approved June 29, 2007. Available: < http://www.califaep.org/userdocuments/File/AEP_Global_Climate_Change_June_29_Final.pdf>. Accessed: July 2008.

Bay Area Air Quality Management District (BAAQMD). 2009. California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance. December. Available : <http://baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx >.

California Air Pollution Control Officers Association (CAPCOA). 2008. CEQA and Climate Change. Available: <http://www.capcoa.org/>. January.

California Air Resources Board (ARB/CARB). 1998. Scientific Review Panel Findings on the report: "Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant" as adopted at the Panel's April 22, 1998 meeting. Available: <http://www.arb.ca.gov/toxics/dieseltac/combined.pdf>.

———. 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October. Sacramento, CA.

———. 2007. URBEMIS2007 model. Available: < http://www.urbemis.com/>.

———. 2008a. Ambient Air Quality Standards. Available: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. November.

———. 2008b. Comparison of Greenhouse Gas Reductions for the United States and Canada Under ARB GHG Regulations and Proposed Federal 2011-2015 Model Year Fuel Economy Standards. Available: <http://www.arb.ca.gov/cc/ccms/ccms.htm>. May.

———. 2008c. Climate Change Proposed Scoping Plan. Available: <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>. October.

———. 2008d. *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories, Version 1.0.* Developed in partnership by California Air Resources Board, California Climate Action Registry, ICLEI – Local Governments for Sustainability, The Climate Registry, September 2008. Available: <http://www.arb.ca.gov/cc/protocols/localgov/pubs/final_lgo_protocol_2008-09-25.pdf>. Accessed: November 2009.

———. 2009a. Summary of ARB Regulations on Diesel Activities. Available: <http://www.arb.ca.gov/diesel/mobile.htm>. Accessed: November 2009.

———. 2009b. The California Almanac of Emissions and Air Quality, 2009 Edition. Available: <http://http://www.arb.ca.gov/Aqd/almanac/ almanac.htm>. March.

———. 2009c. Top 4 Measurements and Days Above the Standard. Available: <http:// http://www.arb.ca.gov/adam/welcome.html>. Accessed: November 2009.

California Climate Action Registry (CCAR). 2009. General Reporting Protocol, Version 3.1. Reporting Entity-Wide Greenhouse Gas Emissions. January.

California Energy Commission (CEC). 2005. *California's Water – Energy Relationship.* (CEC-700-2005-011-SF). November. Available :< http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF>.

———. 2006. *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*. (CEC-600-2006-013-SF.) December. Available: <http://www.energy.ca.gov/2006publicastions/ CEC-600-2006-013/CEC-600-2006-013-SF.PDF>.

City of Chula Vista. 2003. Air Quality Improvement Plan (AQIP) Guidelines. June. Available :< http://www.chulavistaca.gov/city_services/development_services/Planning_Building/documents/AQIPguidelines.pdf>.

City of San Diego. 2005. City of San Diego Climate Protection Action Plan. July. Available: <http://www.sandiego.gov/environmental-services/sustainable/pdf/action_plan_07_05.pdf>.

Intergovernmental Panel on Climate Change. 2007a. Changes in Atmospheric Constituents and in Radiative Forcing. In: Climate Change 2007: The Physical Science Basis (Working Group 1 Fourth Assessment Report.) February. Available: http://www.ipcc.ch/ SPM2feb07.pdf. Accessed: November 2009.

———. 2007b. In: *Climate Change 2007: The Physical Science Basis.* Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning (eds.)].

Linscott, Law and Greenspan (LLG). 2009. Traffic Impact Analysis: Otay Water District Pipeline Project. Ref. no. 3-09-1909. San Diego, CA. November 2.

National Oceanic and Atmospheric Administration. 2005. *Greenhouse Gases: Frequently Asked Questions.* Available: http://lwf.ncdc.noaa.gov/oa/ climate/gases.html. Accessed: September, 2009.

Office of Planning and Research (OPR). 2009. Adopted CEQA Guideline Amendments for Greenhouse Gas Emissions. Available: <http://www.opr.ca.gov/index.php?a=ceqa/index.html>. Accessed: January 2010.

———. 2008. CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review – Technical Advisory. Available: <http://opr.ca.gov/index.php?a=ceqa/index.html>. Accessed: January 2009.

San Diego Air Pollution Control District (SDAPCD). 2008. Fact Sheet: Attainment Status. Available: <http://www.sdapcd.org/info/facts/attain.pdf>. Accessed: November 2009.

———. 2009a. Air Quality Planning. Available:<http://www.sdapcd.org/planning/plan.html>. Accessed: November 2009.

———. 2009b. Rules & Regulations. Available: http://www.sdapcd.org/rules/rules/randr.html. Accessed: November 2009.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2009. Final Staff Report: Addressing Greenhouse Gas Emissions Impacts under the California Environmental Quality Act. December. Available: <http://www.valleyair.org/Programs/CCAP/CCAP_idx.htm#Other%20Districts>.

South Coast Air Quality Management District (SCAQMD). 2008.

———. 2006. SCAQMD Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM205 Significance Thresholds. Available : <http://www.aqmd.gov/CEQA/handbook/PM2_5/PM2_5.html>. October.

United States Department of State. 2007. Fourth Climate Action Report (CAR) – Final. Available: <http://www.state.gov/g/oes/rls/rpts/car/>.

United States Environmental Protection Agency (EPA/USEPA). 2009a. Monitor Values Report. Available: www.epa.gov/air/data/monvals.html. Accessed: November 2009.

———. 2009b Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007. Available: <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>. Accessed: November 2009.

———. 2005. "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards," 70 Federal Register 210 (1 November 2005), pp. 65984–66067.

Western Regional Climate Center (WRCC). 2009. Monthly Climate Summary for San Diego – Lindbergh Field. Available: <www.wrcc.dri.edu>. Accessed: February 2009.

Appendix 1

URBEMIS 2007 Modeling Output Sheets

2/11/2010 2:54:52 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: G:\San Diego\10_Staff\Air Quality Staff\OWD pipeline\urbemis\ALTA rd.urb924

Project Name: OWD Pipeline - Alta Rd

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	7.75	73.33	33.87	0.01	3.44	3.36	6.80	0.73	3.09	3.81	7,776.91
2011 TOTALS (lbs/day unmitigated)	7.29	68.42	32.09	0.01	3.44	3.06	6.50	0.73	2.81	3.54	7,776.85

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2/11/2010 2:54:52 PM

Time Slice 11/24/2010-12/2/2010 Active Days: 7	4.05	41.14	16.55	0.00	0.04	1.73	1.77	0.01	1.59	1.60	4,593.11
Demolition 11/24/2010-12/02/2010	1.44	10.74	6.41	0.00	0.04	0.59	0.63	0.01	0.54	0.55	1,272.86
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	1.40	10.64	5.09	0.00	0.00	0.58	0.58	0.00	0.54	0.54	1,113.08
Demo On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.28
Demo Worker Trips	0.04	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.49
Mass Grading 11/24/2010-04/19/2011	2.61	30.40	10.14	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,320.25
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.60	30.37	9.61	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.20
Time Slice 12/3/2010-12/31/2010 Active Days: 21	7.75	73.33	33.87	**0.01**	**3.44**	3.36	6.80	**0.73**	3.09	3.81	7,776.91
Mass Grading 11/24/2010-04/19/2011	2.61	30.40	10.14	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,320.25
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.60	30.37	9.61	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.20
Mass Grading 12/03/2010-02/02/2011	5.14	42.94	23.73	0.01	3.44	2.22	5.66	0.72	2.04	2.77	4,456.66
Mass Grading Dust	0.00	0.00	0.00	0.00	3.40	0.00	3.40	0.71	0.00	0.71	0.00
Mass Grading Off Road Diesel	4.55	35.84	19.21	0.00	0.00	1.93	1.93	0.00	1.77	1.77	3,288.70
Mass Grading On Road Diesel	0.54	6.98	2.68	0.01	0.03	0.29	0.32	0.01	0.26	0.27	950.27
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

2/11/2010 2:54:52 PM

Time Slice 1/3/2011-2/2/2011 Active Days: 23	7.29	68.42	32.09	**0.01**	**3.44**	3.06	6.50	**0.73**	2.81	3.54	7,776.85
Mass Grading 11/24/2010-04/19/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18
Mass Grading 12/03/2010-02/02/2011	4.85	40.12	22.65	0.01	3.44	2.07	5.52	0.72	1.91	2.63	4,456.61
Mass Grading Dust	0.00	0.00	0.00	0.00	3.40	0.00	3.40	0.71	0.00	0.71	0.00
Mass Grading Off Road Diesel	4.30	33.73	18.52	0.00	0.00	1.82	1.82	0.00	1.67	1.67	3,288.70
Mass Grading On Road Diesel	0.49	6.28	2.42	0.01	0.03	0.25	0.28	0.01	0.23	0.24	950.27
Mass Grading Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64
Time Slice 2/3/2011-3/18/2011 Active Days: 32	5.23	52.00	19.44	0.00	0.00	2.05	2.05	0.00	1.88	1.89	6,139.34
Building 02/03/2011-03/19/2011	2.79	23.70	10.00	0.00	0.00	1.06	1.06	0.00	0.98	0.98	2,819.09
Building Off Road Diesel	2.79	23.70	10.00	0.00	0.00	1.06	1.06	0.00	0.98	0.98	2,819.09
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 11/24/2010-04/19/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18

2/11/2010 2:54:52 PM

Time Slice 3/21/2011-4/4/2011 Active Days: 11	6.04	57.27	26.58	0.00	3.41	2.41	5.82	0.71	2.22	2.93	6,359.15
Mass Grading 03/20/2011-04/04/2011	3.60	28.97	17.14	0.00	3.41	1.43	4.84	0.71	1.31	2.03	3,038.90
Mass Grading Dust	0.00	0.00	0.00	0.00	3.40	0.00	3.40	0.71	0.00	0.71	0.00
Mass Grading Off Road Diesel	3.55	28.88	15.68	0.00	0.00	1.42	1.42	0.00	1.31	1.31	2,852.35
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.46	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.55
Mass Grading 11/24/2010-04/19/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18
Time Slice 4/5/2011-4/19/2011 Active Days: 11	5.53	46.35	21.72	0.00	0.01	2.49	2.51	0.01	2.29	2.30	5,098.71
Asphalt 04/05/2011-04/19/2011	3.09	18.05	12.28	0.00	0.01	1.51	1.52	0.00	1.38	1.39	1,778.47
Paving Off-Gas	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.83	17.34	10.58	0.00	0.00	1.48	1.48	0.00	1.36	1.36	1,496.48
Paving On Road Diesel	0.05	0.63	0.24	0.00	0.00	0.03	0.03	0.00	0.02	0.02	95.44
Paving Worker Trips	0.05	0.08	1.46	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.55
Mass Grading 11/24/2010-04/19/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18

2/11/2010 2:54:52 PM

Phase Assumptions

Phase: Demolition 11/24/2010 - 12/2/2010 - Demo road

Building Volume Total (cubic feet): 1106.7

Building Volume Daily (cubic feet): 72.75

On Road Truck Travel (VMT): 1.01

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 11/24/2010 - 4/19/2011 - ancillary equipment

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

Phase: Mass Grading 12/3/2010 - 2/2/2011 - Trenching

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0.17

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 224.2

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

2/11/2010 2:54:52 PM

1 Pumps (53 hp) operating at a 0.74 load factor for 12 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 3/20/2011 - 4/4/2011 - Backfilling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0.17

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 4/5/2011 - 4/19/2011 - Pave road and site restoration

Acres to be Paved: 0.69

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 2/3/2011 - 3/19/2011 - Pipeline install

Off-Road Equipment:

2/11/2010 2:54:52 PM

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

2/11/2010 4:51:18 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\San Diego\10_Staff\Air Quality Staff\OWD pipeline\urbemis\ALTA rd.urb924

Project Name: OWD Pipeline - Alta Rd

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.10	0.91	0.41	0.00	0.04	0.04	0.08	0.01	0.04	0.05	97.73
2011 TOTALS (tons/year unmitigated)	0.23	2.19	0.95	0.00	0.06	0.09	0.15	0.01	0.09	0.10	250.68

2/11/2010 2:57:52 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: G:\San Diego\10_Staff\Air Quality Staff\OWD pipeline\urbemis\Airway Media rd.urb924

Project Name: OWD Pipeline - Media Rd

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	7.30	68.56	32.14	0.01	6.25	3.07	9.31	1.31	2.82	4.13	7,798.95

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2/11/2010 2:57:52 PM

Time Slice 4/20/2011-4/28/2011 Active Days: 7	3.79	38.38	15.68	0.00	0.07	1.53	1.60	0.02	1.41	1.43	4,596.57
Demolition 04/20/2011-04/28/2011	1.35	10.08	6.24	0.00	0.06	0.55	0.61	0.01	0.50	0.52	1,276.33
Fugitive Dust	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00
Demo Off Road Diesel	1.31	9.96	5.00	0.00	0.00	0.54	0.54	0.00	0.50	0.50	1,113.08
Demo On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.79
Demo Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.46
Mass Grading 04/20/2011-09/13/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18
Time Slice 4/29/2011-6/28/2011 Active Days: 43	**7.30**	**68.56**	**32.14**	**0.01**	**6.25**	**3.07**	**9.31**	**1.31**	**2.82**	**4.13**	**7,798.95**
Mass Grading 04/20/2011-09/13/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18
Mass Grading 04/29/2011-06/28/2011	4.86	40.26	22.70	0.01	6.24	2.08	8.32	1.31	1.91	3.22	4,478.71
Mass Grading Dust	0.00	0.00	0.00	0.00	6.20	0.00	6.20	1.29	0.00	1.29	0.00
Mass Grading Off Road Diesel	4.30	33.73	18.52	0.00	0.00	1.82	1.82	0.00	1.67	1.67	3,288.70
Mass Grading On Road Diesel	0.50	6.43	2.47	0.01	0.03	0.26	0.29	0.01	0.24	0.25	972.37
Mass Grading Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64

2/11/2010 2:57:52 PM

Time Slice 6/29/2011-8/12/2011 Active Days: 33	5.23	52.00	19.44	0.00	0.00	2.05	2.05	0.00	1.88	1.89	6,139.34
Building 06/29/2011-08/13/2011	2.79	23.70	10.00	0.00	0.00	1.06	1.06	0.00	0.98	0.98	2,819.09
Building Off Road Diesel	2.79	23.70	10.00	0.00	0.00	1.06	1.06	0.00	0.98	0.98	2,819.09
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 04/20/2011-09/13/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18
Time Slice 8/15/2011-8/26/2011 Active Days: 10	6.91	63.94	30.70	0.00	3.41	2.81	6.22	0.71	2.58	3.30	7,039.18
Mass Grading 04/20/2011-09/13/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18
Mass Grading 08/14/2011-08/28/2011	4.47	35.64	21.26	0.00	3.41	1.82	5.23	0.71	1.67	2.39	3,718.94
Mass Grading Dust	0.00	0.00	0.00	0.00	3.40	0.00	3.40	0.71	0.00	0.71	0.00
Mass Grading Off Road Diesel	4.41	35.54	19.55	0.00	0.00	1.81	1.81	0.00	1.67	1.67	3,501.29
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64

2/11/2010 2:57:52 PM

Time Slice 8/29/2011-9/13/2011 Active Days: 12	5.67	46.76	21.88	0.00	0.02	2.51	2.53	0.01	2.31	2.31	5,160.49
Asphalt 08/29/2011-09/13/2011	3.23	18.46	12.44	0.00	0.01	1.52	1.54	0.00	1.40	1.40	1,840.25
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.83	17.34	10.58	0.00	0.00	1.48	1.48	0.00	1.36	1.36	1,496.48
Paving On Road Diesel	0.08	1.04	0.40	0.00	0.01	0.04	0.05	0.00	0.04	0.04	157.22
Paving Worker Trips	0.05	0.08	1.46	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.55
Mass Grading 04/20/2011-09/13/2011	2.44	28.30	9.44	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,320.24
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.43	28.27	8.95	0.00	0.00	0.98	0.98	0.00	0.91	0.91	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18

Phase Assumptions

Phase: Demolition 4/20/2011 - 4/28/2011 - Demo road

Building Volume Total (cubic feet): 2002.77

Building Volume Daily (cubic feet): 132.3

On Road Truck Travel (VMT): 1.84

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 4/20/2011 - 9/13/2011 - ancillary equipment

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

2/11/2010 2:57:52 PM

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

Phase: Mass Grading 4/29/2011 - 6/28/2011 - Trenching

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0.31

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 229.42

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Pumps (53 hp) operating at a 0.74 load factor for 12 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 8/14/2011 - 8/28/2011 - Backfilling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0.17

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2/11/2010 2:57:52 PM

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 8/29/2011 - 9/13/2011 - Pave road and site restoration

Acres to be Paved: 1.24

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 6/29/2011 - 8/13/2011 - Pipeline install

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

2/11/2010 4:50:42 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\San Diego\10_Staff\Air Quality Staff\OWD pipeline\urbemis\Airway Media rd.urb924

Project Name: OWD Pipeline - Media Rd

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.33	3.07	1.35	0.00	0.15	0.13	0.29	0.03	0.12	0.16	351.22

2/11/2010 2:56:20 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: G:\San Diego\10_Staff\Air Quality Staff\OWD pipeline\urbemis\wueste rd.urb924

Project Name: OWD Pipeline - Wueste Rd

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	7.75	73.33	33.87	0.01	5.64	3.36	9.00	1.18	3.09	4.27	7,776.91

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2/11/2010 2:56:20 PM

Time Slice 7/1/2010-7/8/2010 Active Days: 6	4.05	41.14	16.54	0.00	0.04	1.73	1.76	0.01	1.59	1.60	4,592.36
Demolition 07/01/2010-07/08/2010	1.44	10.74	6.41	0.00	0.03	0.59	0.62	0.01	0.54	0.55	1,272.11
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	1.40	10.64	5.09	0.00	0.00	0.58	0.58	0.00	0.54	0.54	1,113.08
Demo On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.53
Demo Worker Trips	0.04	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.49
Mass Grading 07/01/2010-11/23/2010	2.61	30.40	10.14	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,320.25
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.60	30.37	9.61	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.20
Time Slice 7/9/2010-9/8/2010 Active Days: 44	**7.75**	**73.33**	**33.87**	**0.01**	**5.64**	**3.36**	**9.00**	**1.18**	**3.09**	**4.27**	**7,776.91**
Mass Grading 07/01/2010-11/23/2010	2.61	30.40	10.14	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,320.25
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.60	30.37	9.61	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.20
Mass Grading 07/09/2010-09/08/2010	5.14	42.94	23.73	0.01	5.64	2.22	7.86	1.18	2.04	3.22	4,456.66
Mass Grading Dust	0.00	0.00	0.00	0.00	5.60	0.00	5.60	1.17	0.00	1.17	0.00
Mass Grading Off Road Diesel	4.55	35.84	19.21	0.00	0.00	1.93	1.93	0.00	1.77	1.77	3,288.70
Mass Grading On Road Diesel	0.54	6.98	2.68	0.01	0.03	0.29	0.32	0.01	0.26	0.27	950.27
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

2/11/2010 2:56:20 PM

Time Slice 9/9/2010-10/22/2010 Active Days: 32	5.61	55.96	20.66	0.00	0.00	2.27	2.27	0.00	2.09	2.09	6,139.35
Building 09/09/2010-10/23/2010	3.00	25.56	10.52	0.00	0.00	1.13	1.13	0.00	1.04	1.04	2,819.09
Building Off Road Diesel	3.00	25.56	10.52	0.00	0.00	1.13	1.13	0.00	1.04	1.04	2,819.09
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 07/01/2010-11/23/2010	2.61	30.40	10.14	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,320.25
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.60	30.37	9.61	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.20
Time Slice 10/25/2010-11/8/2010 Active Days: 11	6.41	61.21	28.05	0.00	0.01	2.66	2.67	0.00	2.44	2.45	6,359.20
Mass Grading 07/01/2010-11/23/2010	2.61	30.40	10.14	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,320.25
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.60	30.37	9.61	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.20
Mass Grading 10/24/2010-11/08/2010	3.80	30.82	17.91	0.00	0.01	1.52	1.53	0.00	1.40	1.40	3,038.95
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	3.75	30.72	16.34	0.00	0.00	1.51	1.51	0.00	1.39	1.39	2,852.35
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59

2/11/2010 2:56:20 PM

Time Slice 11/9/2010-11/23/2010 Active Days: 11	6.02	49.84	22.83	0.00	0.02	2.73	2.74	0.01	2.51	2.51	5,158.24
Asphalt 11/09/2010-11/23/2010	3.41	19.44	12.70	0.00	0.01	1.59	1.60	0.00	1.46	1.46	1,837.98
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.00	18.21	10.69	0.00	0.00	1.54	1.54	0.00	1.41	1.41	1,496.48
Paving On Road Diesel	0.09	1.14	0.44	0.00	0.01	0.05	0.05	0.00	0.04	0.04	154.91
Paving Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59
Mass Grading 07/01/2010-11/23/2010	2.61	30.40	10.14	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,320.25
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	2.60	30.37	9.61	0.00	0.00	1.14	1.14	0.00	1.05	1.05	3,258.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.03	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.20

Phase Assumptions

Phase: Demolition 7/1/2010 - 7/8/2010 - demo road

Building Volume Total (cubic feet): 1803.6

Building Volume Daily (cubic feet): 60

On Road Truck Travel (VMT): 0.83

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 7/1/2010 - 11/23/2010 - ancillary equip

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

2/11/2010 2:56:20 PM

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

Phase: Mass Grading 7/9/2010 - 9/8/2010 - trenching

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0.28

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 224.2

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Pumps (53 hp) operating at a 0.74 load factor for 12 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 10/24/2010 - 11/8/2010 - backfilling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2/11/2010 2:56:20 PM

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/9/2010 - 11/23/2010 - pave road and site restoration

Acres to be Paved: 1.12

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 9/9/2010 - 10/23/2010 - pipe install

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

2 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

2/11/2010 4:52:42 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\San Diego\10_Staff\Air Quality Staff\OWD pipeline\urbemis\wueste rd.urb924

Project Name: OWD Pipeline - Wueste Rd

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.34	3.24	1.41	0.00	0.12	0.14	0.27	0.03	0.13	0.16	346.44

Appendix 2

Greenhouse Gas Calculation Worksheet

Construction GHG Calculations

Total estimated GHG emissions from construction

961.5 MT of GHG over construction period *0.90718474*

Segment	CO2 lbs total (tons from URBEMIS)		CO2 converted to MT/yr	
	Off Road Emissions	on-road emissions	Off Road Emissions	on-road emissions
Wueste Rd	314.1	32.3	285.0	29.3
Alta Rd	316.1	32.3	286.8	29.3
Airway/Media Rd	318.9	32.3	289.3	29.3
total	*949.1*	*97.0*	*861.0*	*88.0*

Input Emissions

Segment	Off Road Emissions			On road Emissions and Worker Trips		CO2e (metric tons/yr)
	CO2 (metric tons/yr)	**CH4 (metric tons/yr)**	**N2O (metric tons/yr)**	**CO2 (metric tons/yr)**	**Other (metric tons/yr)**	
Wueste Rd	285.0	0.016284	0.007300	29.3	1.543169	318.4
Alta Rd	286.8	0.016386	0.007345	29.3	1.543169	320.2
Airway/Media Rd	289.3	0.016531	0.007411	29.3	1.543169	322.8
Total Construction Emissions	**861.0**	**0.05**	**0.02**	**88.0**	**4.6**	**961.5**
Sources: URBEMIS 2007; CCAR 2009.						*32.0* *MT/yr amortized*

Diesel Fuel	**CO2**	**CH4**	**N2O**
kg CO2/gal diesel	10.15	0.00058	0.00026
g/gal diesel construction equip		0.58	0.26
ratio	1	5.71429E-05	2.56158E-05
Source: CH4 and N2O from Construction, Table C.6, GRP			

tons/metric ton	Percent other GHGs (on road)
0.90718474	5.00%

GAS	CH4	N2O
GWP	21	310

Gasoline Fuel	**CO2**	**CH4**	**N2O**
kg CO2/gal diesel	8.81	0.0014	0.0001
ratio	1	0.00015891	1.13507E-05
Source: CH4 and N2O from Construction, Table C.9, GRP			

MT = metric tons

Project in relation to local, regional and statewide GHG emissions (MT/yr)

project	CA	Sdcounty	Chula Vista	City of SD (1990)	City of SD (2010 bau)
320.4929056388	500,000,000.0	34000000	951447	15547000	22517000
1,000,000.0	0.0001%	0.0009%	0.0337%	0.0021%	0.0014%

Appendix C
Biological Assessment

Biological Assessment for the Otay Water District's Transmission Pipelines

Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project

Prepared for:

Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, California 91978-2096
Contact: Lisa Coburn-Boyd

Prepared by:

ICF International
9775 Businesspark Avenue, Suite 200
San Diego, California 92131
Contact: Erin Schorr

February 2010

ICF International. 2010. Biological Assessment for the Otay Water District's Transmission Pipelines – Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project. Draft. February. Prepared for Otay Water District.

Contents

Page

Summary **1**

Chapter 1 Introduction **3**

1.1 Wueste Road Pipeline (R2087) 3

1.1.1 Project Location 3

1.1.2 Project Description 3

1.1.3 Environmental Setting 4

1.2 Alta Road Pipeline (R2077) 5

1.2.1 Project Location 5

1.2.2 Project Description 5

1.2.3 Environmental Setting 6

1.3 Airway/La Media Road Pipeline (R2058) 6

1.3.1 Project Location 6

1.3.2 Project Description 6

1.3.3 Environmental Setting 7

1.4 Regulatory Setting 7

1.4.1 Federal Environmental Requirements 7

1.4.2 State Environmental Requirements 8

1.4.3 Local Environmental Requirements 10

Chapter 2 Survey Methodology **12**

2.1 Plants 13

2.1.1 Vegetation Communities/ Land Cover Types 13

2.1.2 Rare Plants 13

2.2 Vernal Pools/Road Ruts 14

2.3 Wildlife 15

2.3.1 Quino Checkerspot Butterfly 15

2.3.2 Coastal California Gnatcatcher 16

2.3.3 Burrowing Owl 17

2.3.4 San Diego Fairy Shrimp 17

2.4 Jurisdictional Resources 18

Chapter 3 Survey Results **19**

3.1 Wueste Road Pipeline (R2087) 19

3.1.1 Plants 19

3.1.2 Vernal Pools/Road Ruts 23

3.1.3 Wildlife 24
3.1.4 Jurisdictional Resources 26
3.2 Alta Road Pipeline (R2077) 27
3.2.1 Plants 27
3.2.2 Vernal Pools/Road Ruts 28
3.2.3 Wildlife 28
3.2.4 Jurisdictional Resources 29
3.3 Airway /La Media Road Pipeline (R2058) 29
3.3.1 Plants 29
3.3.2 Vernal Pools/Road Ruts 30
3.3.3 Wildlife 30
3.3.4 Jurisdictional Resources 31
Chapter 4 Impacts and Mitigation Measures 32
4.1 Wueste Road Pipeline (R2087) 32
4.1.1 City of Chula Vista Preserve Impacts 32
4.1.2 City of San Diego MHPA Impacts 32
4.1.3 Vegetation Communities/Land Cover Types 33
4.1.4 Vernal Pools/Road Ruts 33
4.1.5 Special-Status Species 34
4.1.6 Jurisdictional Resources 37
4.2 Alta Road Pipeline (R2077) 38
4.2.1 Vegetation Communities/Land Cover Types 38
4.2.2 Vernal Pools/Road Ruts 38
4.2.3 Special-Status Species 38
4.2.4 Jurisdictional Resources 39
4.3 Airway/La Media Road Pipeline (R2058) 39
4.3.1 Vegetation Communities/Land Cover Types 39
4.3.2 Vernal Pools 39
4.3.3 Special-Status Species 39
4.3.4 Jurisdictional Resources 40
4.4 Summary of Impacts and Mitigation 40
Chapter 5 References 42

Appendices

A. Special-Status Plant Species Potential to Occur
B. Vascular Plant Species Detected
C. Special-Status Wildlife Species Potential to Occur
D. Wildlife Species Detected
E. Quino Checkerspot Butterfly Survey Report
F. California Gnatcatcher Survey Report
G. Photo Book

Tables

Table		On Page
1	Survey Dates and Conditions for Rare Plant Surveys	14
2	Survey Dates and Conditions for Quino Surveys	16
3	Survey Dates and Conditions for California Gnatcatcher Surveys	17
4	Results of Soil Sampling	25
5	Vegetation Communities within the Alta Road Pipeline	27
6	Vegetation Communities within the Airway/La Media Road Pipeline	29
7	Summary of Impacts and Mitigation	41

Figures

Figure		Follows Page
1	Regional Location	4
2	Project Vicinity	4
3a-e	Wueste Road Pipeline - Vegetation Impacts	20
4a-d	Wueste Road Pipeline Sensitive Species Results	22
5a	Alta Road Pipeline - Biological Impacts	28
5b	Airway/La Media Pipeline - Biological Impacts	30
6	Proposed Mitigation Site	34

Summary

The Otay Water District's (District) Otay Mesa Recycled Water Systems Capital Improvement Program R2087, R2077, R2058 Project (Project) involves the construction and operation of three recycled water system transmission pipelines (RecPL) within the South District Area. The South District Area is comprised of the Central Area System and the Otay Mesa System. The three pipelines are the Wueste Road Pipeline (Capital Improvement Program [CIP] R2087), the Alta Road Pipeline (CIP R2077), and the Airway/La Media Road Pipeline (CIP R2058). This Biological Assessment (BA) has been prepared to meet federal requirements for the proposed project under Section 7 of the Endangered Species Act. In addition, the Project may be eligible for Bureau of Reclamation (BLM) funding and a portion of the project may utilize such funds. This BA addresses all potential impacts to sensitive biological resources resulting from the proposed project.

The proposed pipelines will be constructed via open trenching, except for a portion of the Wueste Road Pipeline that crosses existing underground utilities and, therefore, will be constructed via jack-and-bore techniques.

The Wueste Road Pipeline is located west of Lower Otay Reservoir. The pipeline will head east within Olympic Parkway from just west of the intersection of Wueste Road and Olympic Parkway and then will follow Olympic Parkway south to the entrances of City of San Diego's Otay Water Treatment Plant (OWTP) and the County of San Diego's Otay Lakes County Park. Here, the pipeline will turn west (where it will be installed via jack-and-bore to avoid impacts to existing underground utilities) and then south (within or adjacent to existing dirt roads/trails) to its terminus at an existing structure at the southwestern edge of the OWTP. In addition, a pressure-reducing station will be constructed immediately northeast of the District's 860-1 Reservoir located near the George Bailey Detention Facility off of Alta Road. Vegetation communities located within the survey area consist of maritime succulent scrub, Diegan coastal sage scrub, non-native grassland, mule fat scrub, southern willow scrub, tamarisk scrub, eucalyptus woodland, disturbed habitat, and urban/developed; one vernal pool and several road ruts are also located within the survey area.

Eight special-status plant species were detected within the Wueste Road Pipeline survey area with only two of these, Palmer's grapplinghook (*Harpagonella palmeri*) and San Diego sunflower (*Viguiera laciniata*), occurring in the impact area. Focused surveys for the following special-status species have been conducted within the Weuste Road Pipeline survey area: Quino checkerspot butterfly (*Euphydryas editha quino*), listed fairy shrimp (dry season sampling), and coastal California gnatcatcher (*Polioptila californica californica*); wet season sampling for fairy shrimp is being conducted during the 2009/2010 wet season. No Quino checkerspot butterflies were detected during focused surveys and fairy shrimp cysts were not detected during dry season sampling; to date, hatched fairy shrimp have not been detected during the wet season sampling and evidence suggests that the road ruts in the impact areas do not pond long enough to support listed fairy shrimp. Six pairs of coastal California gnatcatcher were detected adjacent to the proposed pipeline alignment.

The Alta Road Pipeline starts at the intersection of Calzada de la Fuente Road and Alta Road. The pipeline then extends south within Alta Road, west along Otay Mesa Road, and south along Sanyo Avenue where it connects to the Airway/La Media Road Pipeline. Vegetation communities located within the survey area consist of non-native grassland, disturbed habitat, and urban/developed;

road ruts are also located within the survey area. No special-status species were detected adjacent to the pipeline. Wet season sampling for listed fairy shrimp is being conducted during the 2009/2010 rainy season; to date, hatched fairy shrimp have not been detected, and evidence suggests that the road ruts in the impact areas do not pond long enough to support listed fairy shrimp. Dry season sampling of ruts within the impact areas will be conducted in 2010 after the ruts have dried.

The Airway/La Media Road Pipeline is divided into seven sections—three that are proposed to be constructed under this Project and four that were previously constructed by developers. The pipeline starts at the intersection of La Media and Windsock Roads and extends south within La Media Road to Airway Road to its terminus near Paseo de las Americas. Vegetation communities located within the survey area consist of non-native grassland, disturbed wetland, freshwater marsh, and urban/developed; no impacts would occur to disturbed wetland or freshwater marsh vegetation communities. No special-status species were detected within the impact area or within 30.5 meters (100-feet) of the pipeline. One burrowing owl (*Athene cunicularia*) was observed outside the survey area for the pipeline. Wet season sampling for listed fairy shrimp is being conducted during the 2009/2010 rainy season; to date, hatched fairy shrimp have not been detected, and evidence suggests that the road ruts in the impact areas do not pond long enough to support listed fairy shrimp. Dry season sampling of ruts within the impact areas will be conducted in 2010 after the ruts have dried.

Based on field investigation and review of existing information, the proposed action is expected to affect the following federally listed endangered species through loss of occupied habitat for the species:

- Coastal California gnatcatcher (Polioptila californica californica)

The impact area for the Alta Road and Airway/La Media Road Pipelines are limited to existing paved roadways and adjacent disturbed road shoulders. Two road ruts with potential to support listed fairy shrimp occur within the one off-road impact area associated with the Alta Road Pipeline and a total of three road ruts with potential to support listed fairy shrimp occur within the two off-road impact areas associated with the Airway/La Media Road Pipeline. Wet season sampling for listed fairy shrimp is being conducted during the 2009/2010 rainy season; to date, hatched fairy shrimp have not been detected, and evidence suggests that the road ruts in the impact areas do not pond long enough to support listed fairy shrimp. Dry season sampling of ruts within the impact areas will be conducted in 2010 after the ruts have dried.

Impacts to sensitive biological resources would only occur as a result of the construction of the Wueste Road Pipeline. All impacts to habitat, sensitive plants, the City of San Diego's Multi-Habitat Planning Area (MHPA), and the City of Chula Vista's 100% Preserve will be offset through either the use of available credits within the District's existing, agency-approved San Miguel Habitat Management Area (HMA) or through proposed creation/revegetation within the HMA. Impacts to the coastal California gnatcatcher will be offset with the habitat-based mitigation and minimized through prohibiting vegetation clearing during the breeding season for this species.

Chapter 1
Introduction

The Otay Water District's (District) Otay Mesa Recycled Water Systems Capital Improvement Program R2087, R2077, R2058 Project (Project) involves the construction and operation of three recycled water system transmission pipelines (RecPL), within the South District Area. The South District Area is comprised of the Central Area System and the Otay Mesa System. The three pipelines are the Wueste Road Pipeline (Capital Improvement Program [CIP] R2087), the Alta Road Pipeline (CIP R2077), and the Airway/La Media Road Pipeline (CIP R2058) (Figures 1 and 2). Construction of the proposed Project may be eligible for Bureau of Reclamation (BLM) funding and a portion of the project may utilize such funds. The Project is anticipated to take 14 months to complete.

The Project includes three separate locations in the South District Area within the corporate limits of the Cities of Chula Vista and San Diego as well as the unincorporated County of San Diego (Figure 1). The proposed Project would extend along Wueste Road within the County of San Diego and the City of Chula Vista, along Alta Road in the City of San Diego, and along Airway/La Media Road in the City of San Diego (Figure 2).

1.1 Wueste Road Pipeline (R2087)

1.1.1 Project Location

The Wueste Road Pipeline is located west of Lower Otay Reservoir. The pipeline will follow Wueste Road from the intersection of Wueste Road and Olympic Parkway south to the entrances of City of San Diego's Otay Water Treatment Plant (OWTP) and the County of San Diego's Otay Lakes County Park. Here, the pipeline will turn west and then south to its terminus at an existing structure at the southwestern edge of the OWTP (Figure 2). In addition, a pressure-reducing station (PRS) would be constructed immediately northeast of the District's 860-1 Reservoir located near the George Bailey Detention Facility off of Alta Road (Figure 2).

1.1.2 Project Description

The Wueste Road Pipeline consists of a 61-centimeter (cm) (24-inch [in])-diameter 4,054-meter (m) (13,300-foot [ft])-long steel pipeline segment. The pipeline would be constructed within a segment of Wueste Road within the Central Area System. The pipeline would start at Olympic Parkway where it would be connected to an existing 16-inch-diameter RecPL. The pipeline would then extend south within Wueste Road along the western border of the OWTP and connect to an existing 76-cm (30-in)-diameter RecPL just south of the plant.

Construction would be completed primarily using cut and cover trenching, except for one location along the Wueste Road Pipeline where tunneling is required to avoid impacts to existing underground utilities. No aboveground structures or pump stations are proposed as a part of the Project.

The District intends to limit construction activities to paved portions of the roads within the existing utility rights-of-way, where feasible; and construction staging areas are anticipated to be sited in existing developed areas. However, some sections of construction would extend beyond the paved areas of the road and may involve disturbance of areas adjacent to the roadway.

The impact area for the Wueste Road pipeline varies along the alignment and consists of the following:

1. From the northernmost portion of the Wueste Road Pipeline to where the pipeline heads west off the paved Wueste Road: the impact area is limited to the extent of the paved portion of Wueste Road and a 10-foot-area east of the proposed pipeline alignment (which includes some vegetated areas along the east side of Wueste Road);
2. The 175-ft-long portion that heads west off of Wueste Road: the impact area consists of a 20-ft-wide corridor centered on the proposed alignment for the 50-ft-long portion that is being constructed via open trench (125 ft of pipe in this area is being installed via jack-and-bore) and the two jacking pits (eastern pit – 20 ft x 10 ft, western pit – 40 ft x 20 ft).
3. The remainder of the pipeline alignment that heads south to an existing structure at the southwestern edge of the OWTP: the impact area consists of an 80-90-ft-wide corridor.

As part of the Wueste Road Pipeline (R2087), a PRS will be constructed immediately northeast of the District's 860-1 Reservoir located near the George Bailey Detention Facility (Figure 2). Modifications to existing pipelines necessary to accommodate the PRS would include removal of existing butterfly valves, blow-off valves, and 30-inch steel pipelines. Additionally, two 6 m (20-ft) sections of pipelines, 51 cm (20 in) and 61 cm (24 in) in diameter, respectively, would be installed for future use in addition to the proposed PRS.

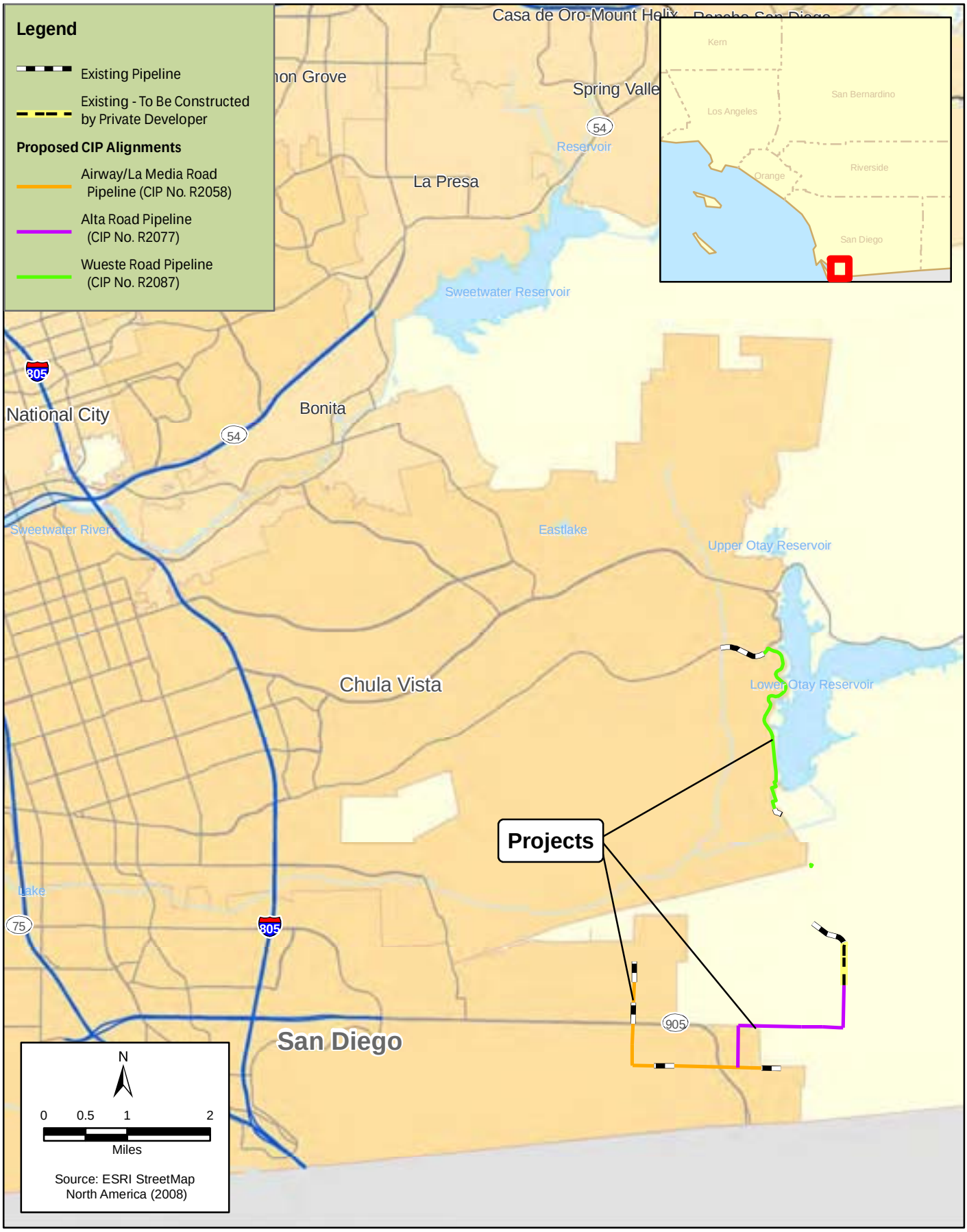
1.1.3 Environmental Setting

The Wueste Road Pipeline is located along the western shore of the Lower Otay Reservoir. The pipeline ranges approximately 26 m (85 ft) to 427 m (1,400 ft) from the edge of the reservoir for the portion along Wueste Road. Elevation ranges from 159 m (521 ft) above mean sea level (AMSL) at the intersection of Olympic Parkway and Wueste Road to 98 m (322 ft) AMSL at the terminus at the southwestern edge of the OWTP. Elevation at the PRS is 176 m (557 ft) AMSL. The pipeline is located on the U.S. Geological Survey 7.5-minute Jamul Mountains and Otay Mesa quadrangles.

The area surrounding Wueste Road is fairly undeveloped. Surrounding land uses include residential development, undeveloped areas, the U.S. Olympic Training Center, the boat launch for the Lower Otay Reservoir, the OWTP, and Otay Lakes County Park. The pipeline traverses the edge of the City of San Diego Multi-Habitat Planning Area (MHPA) and also passes through the City of Chula Vista's 100% Preserve. The area surrounding the PRS consists of the District's 860-1 Reservoir, a firing range, well-maintained dirt road, and adjacent undeveloped areas supporting native and naturalized vegetation.

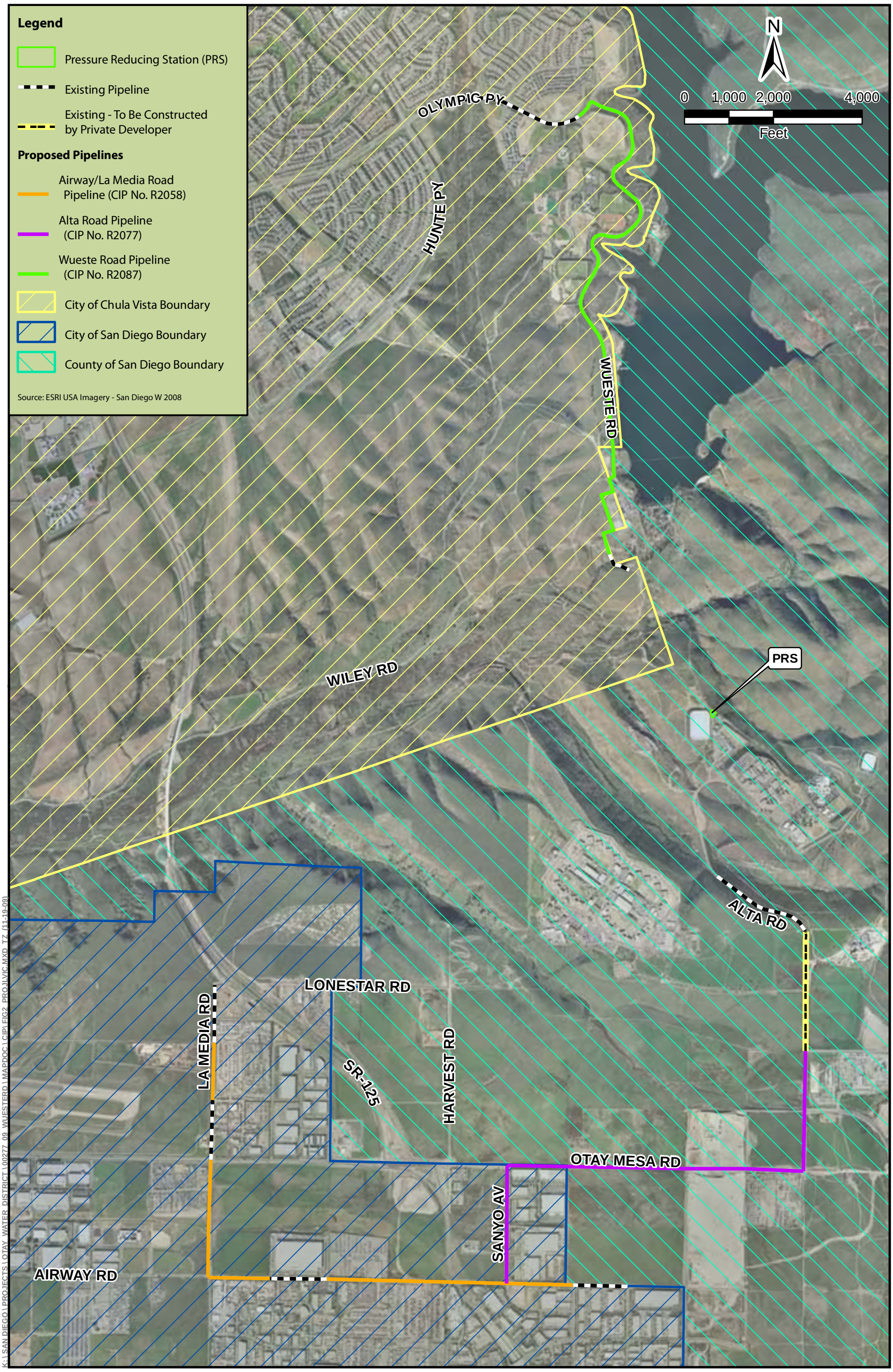
Soils

Soils mapped on the Wueste Road Pipeline survey area are predominantly Olivenhain cobbly loam, with smaller areas mapped as Huerhuero loam, Diablo clay and terrace escarpments. Olivenhain soils consist of well-drained, moderately deep to deep cobbly loams formed in old gravelly and



K: \ SAN DIEGO \ PROJECTS \ OTAY_WATER_DISTRICT \ 00277_09_WUESTERD \ MAPDOC \ CIP \ FIG1_REGLOC.MXD TZ (02-16-10)

Figure 1
Regional Location
Otay Mesa Recycled Water CIP



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG2 PROJLVIC.MXD TZ (11-19-09)

ICF INTERNATIONAL

Figure 2
Project Vicinity
Otay Mesa Recycled Water CIP

cobbly alluvium. The A Horizon of Olivenhain cobbly loam soils range from brown or reddish brown to yellowish brown in color and are cobbly loam to cobbly sandy loam in texture (Bowman 1973). Huerhuero soils developed in sandy marine sediments and consist of moderately well-drained loams that have a clay subsoil (Bowman 1973). Huerheuro loam soils have a pale brown or strong brown to yellow brown or grayish brown A horizon layer that is sandy loam to loam in texture (Bowman 1973). Although Diablo clay soils are mapped on site, they occur on portions of the site that are almost completely developed. Terrace escarpments are steep to very steep escarpments that occur on the even fronts of terraces or alluvial fans. This soil is usually found between narrow floodplains and the adjacent uplands and steep sides of drainage ways.

Soils at the PRS site are Huerhuero loam, 15 to 30 percent slopes, eroded on the southern end and Stockpen gravelly clay loam, 2 to 5 % slopes, on the northern end of the site. Stockpen gravelly clay loam consists of moderately well drained, moderately deep gravelly clay loams on marine terraces (Bowman 1973).

1.2 Alta Road Pipeline (R2077)

1.2.1 Project Location

The Alta Road Pipeline starts at the intersection of Calzada de la Fuente Road and Alta Road (Figure 2). The pipeline then extends south within Alta Road, west along Otay Mesa Road, and south along Sanyo Avenue where connects to the proposed Airway/La Media Road Pipeline.

1.2.2 Project Description

The Alta Road Pipeline consists of a 61-cm (24-in)-diameter, 4,478-m (14,692-ft)-long PVC RecPL segment. The pipeline would be constructed along a segment of Alta Road within the Otay Mesa System, beginning at the intersection of Calzada de la Fuente Road where it would be connected to an existing 61-cm (24-in)-diameter RecPL. The pipeline would extend south within Alta Road, continue west along Otay Mesa Road, and then extend south within Sanyo Avenue where it would connect to the 41-cm (16-in)-diameter RecPL proposed along Airway Road.

The pipeline and associated impact footprint will occur entirely within existing paved roads within the existing utility rights-of-way except for an area at the intersection of Otay Mesa Road and Alta Road. In this area, the project footprint extends into the adjacent disturbed road edge. Construction staging areas are anticipated to be sited in existing developed areas. The construction corridor for R2077 within Alta Road would total 12 m (40 ft), occupying 6 m (20 ft) on either side of the centerline. The construction corridor within Otay Mesa Road would extend 3 m (10 ft) south of the center line. The construction corridor within Sanyo Road would extend 3 m (10 ft) west of the centerline. The construction corridors would include a trench depth of approximately 2 m (6.5 ft). Construction would be completed using cut and cover trenching. No aboveground structures or pump stations are proposed as a part of the Project.

1.2.3 Environmental Setting

The Alta Road Pipeline is located east and south of Donovan State Prison. Elevation ranges from 189 m (613 ft) AMSL at the intersection of Calzada de la Fuente Road and Alta Road to 173 m (568 ft) AMSL at the terminus at the intersection of Sanyo Avenue and Airway Road. The pipeline is located on the U.S. Geological Survey 7.5-minute Otay Mesa quadrangle. This pipeline alignment is completely within existing paved roads or along the compacted unvegetated road shoulder thus soils and other environmental setting conditions are not pertinent. The project footprint for this alignment consists of developed areas or bare ground that has little to no potential to support sensitive species. Road ruts were identified within the one off-road impact area near the intersection of Alta Road and Otay Mesa Road. These ruts have potential to support listed fairy shrimp; however, to date, no fairy shrimp have been detected and surveys have indicated that these areas likely do not pond long enough to support fairy shrimp.

1.3 Airway/La Media Road Pipeline (R2058)

1.3.1 Project Location

The Airway/La Media Road Pipeline is divided into nine sections—four that are proposed to be constructed under this Project and five that were previously constructed by developers (Figure 2). The pipeline starts at the intersection of La Media and Windsock Roads and extends south within La Media Road to Airway Road to its terminus near Paseo de las Americas.

1.3.2 Project Description

The Airway/La Media Road Pipeline consists of a 41-cm (16-in)-diameter, 4,873-m (15,987-ft)-long PVC RecPL segment. The pipeline would utilize 1,566 m (5,137 ft) of existing pipeline and 3,307 m (10,850 ft) of new pipeline would be constructed as a part of the Project. The pipeline would be constructed along segments of Airway and La Media Roads within the Otay Mesa System. The pipeline would start at the northern terminus of La Media Road and then extend south within La Media Road to Airway Road. The pipeline would continue east along Airway Road and end at the intersection of Paseo de las Americas and Airway Road where it would be connected with the existing 41- cm (16-in)-diameter PVC main water pipeline.

The pipeline and associated impact footprint will occur entirely within existing paved roads except for two areas near the intersection of Airway Road and La Media Road. In these areas, the project footprint extends into the adjacent disturbed road edge along the south side of Airway Road just east of its intersection with La Media Road and along the east side of La Media Road just north of its intersection with Airway Road. The construction corridor within Airway Road and La Media Road would be 12 m (40 ft), extending 6 m (20 ft) on either side of the centerline, within the existing utility rights-of-way. Construction staging areas are anticipated to be sited in existing developed areas or disturbed road edges that do not support vegetation. The construction corridors would include a trench depth of approximately 2 m (6.5 ft). Construction would be mostly completed using cut and cover trenching. The culvert that occurs at near the intersection of La Media and Airway Roads will be avoided by tunneling under the channel. No aboveground structures or pump stations are proposed as a part of the Project.

1.3.3 Environmental Setting

The Airway/La Media Road Pipeline is located along Airway and La Media Roads. Elevation ranges from 157 m (515 ft) AMSL at the northern terminus of La Media Road to 146 m (480 ft) AMSL at the intersection of La Media Road and Airway Road to 177 m (582 ft) AMSL at the southern terminus near Paseo de las Americas. The pipeline is located on the U.S. Geological Survey 7.5-minute Otay Mesa quadrangle. As this pipeline is completely within existing paved roads, soils and other environmental setting conditions are not pertinent. The area is already completely developed or disturbed and has little to no potential to support sensitive species. Road ruts were identified within the one off-road impact areas near the intersection of Airway Road and La Media Road. These ruts have potential to support listed fairy shrimp; however, to date, no fairy shrimp have been detected and surveys have indicated that these areas likely do not pond long enough to support fairy shrimp.

1.4 Regulatory Setting

The Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. Section 1531 et seq.), directs federal agencies to conserve threatened and endangered species and their habitats. Federal agencies are required to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any endangered, threatened, or proposed (for listing as threatened or endangered) species or its critical habitat.

The USFWS is responsible for assuring that the proposed Project is in compliance with federal resource conservation laws and regulations including the ESA. Because the proposed Project is to be funded by BLM, a BA must be prepared to address potential impacts to federally listed or proposed threatened and endangered species. This BA has been prepared under the 1973 ESA Section 7 regulations, and in accordance with procedures set forth by the USFWS. Typically a BA only focuses on federally listed threatened and endangered plant and wildlife species. However, this BA is also intended to meet the requirements of CEQA and addresses all potential impacts to sensitive biological resources resulting from the proposed Project, including impacts to the City of San Diego MHPA and the City of Chula Vista 100% Preserve.

1.4.1 Federal Environmental Requirements

Federal Endangered Species Act

The Federal ESA and its subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 9 of the Act lists all activities that are prohibited by ESA. The “take” of any listed species is prohibited by the Act. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Section 7 of the Act requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. For non-marine environments, USFWS is responsible for administering the Act. Regulations governing interagency cooperation under Section 7 are found in 50 CFR Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing take that may occur incidental to an otherwise legal activity.

Clean Water Act

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) regulating the discharge of dredged or fill material into waters of the United States (including wetlands). Implementation regulations by USACE are found at 33 CFR Parts 320-330. Guidelines for implementation are referred to as Section 404 (b)(1) Guidelines and were developed by the Environmental Protection Agency (EPA) in conjunction with USACE (40 CFR Parts 230). The Guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term wildlife includes both animals and plants. Provisions of this Act are implemented through the Section 404 permit process.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is a treaty with Canada, Mexico, and Japan that makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests occupied by migratory birds during the breeding season. Migratory birds as defined under this Act are most native birds in North America except galliformes (a group of birds containing turkeys, grouse, chickens, quails, and pheasants) and a few others (e.g., wrentit). Permitted activities are allowed under USFWS regulations for hunting and for actions to prevent or minimize risks to human safety.

1.4.2 State Environmental Requirements

California Fish and Game Code

California Endangered Species Act

The California Endangered Species Act (CESA) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. It prohibits the “take” of any species that the California Fish and Game Commission determines to be a threatened or endangered species and is administered by the California Department of Fish and Game (CDFG). CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under CESA. For projects that affect both a state and federal listed species, compliance with the federal ESA will satisfy CESA if the CDFG determines that the federal incidental take authorization is "consistent" with CESA under Fish & Game Code Section 2080.1.

Sections 3511, 4700, 5050, 5515 - Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of CESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, mammals, amphibians and reptiles, and birds. Most fully protected species have since been listed as threatened or endangered under CESA and/or FESA. The Fully Protected Species statutes provide that fully protected species may not be taken or possessed at any time. Furthermore, these statutes prohibit any state agency from issuing incidental take permits for fully protected species except for necessary scientific research.

Sections 3503, 3503.5, 3505, 3800, 3801.6 – Native Birds

These CDFG Code sections protect all native birds, birds of prey, and all nongame birds, including eggs and nests, that are not already listed as fully protected and which occur naturally within the State. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs.

Section 1600-1616 - Wetlands

The Fish and Game Code of California mandates that "it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity." The CDFG jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. Furthermore, CDFG jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function hydrologically as part of the riparian system. Historic court cases have further extended CDFG jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFG definition, a watercourse need not exhibit evidence of an ordinary high water mark to be claimed as jurisdiction.

Water features such as vernal pools and other seasonal swales, where the defined bed and bank are absent and the feature is not contiguous or closely adjacent to other jurisdictional features, are generally not asserted to fall within State jurisdiction. The State generally does not assert jurisdiction over human-made water bodies unless they are located where such natural features were previously located or (importantly) where they are contiguous with existing or prior natural jurisdictional areas.

Under recently revised Fish and Game Code Sections 1600–1616, the CDFG has authority to regulate work that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. The CDFG also has authority to regulate work that will deposit or dispose of debris, waster, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all nonfederal projects.

Porter-Cologne Water Quality Control Act

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine Regional Water Quality Control Boards (RWQCBs). Each of the nine RWQCBs must prepare and periodically update a basin plan for water quality control in accordance with the Porter-Cologne Water Quality Control Act. Each basin plan establishes water quality standards for surface water and groundwater and specifies actions to control nonpoint and point sources of pollution. These actions are intended to achieve and maintain the basin plan's water quality standards.

Basin plans represent an opportunity to protect wetlands by establishing water quality objectives. Under the Porter-Cologne Water Quality Control Act, wetlands and drainages that are considered waters of the United States by USACE are also often classified as waters of the state. More recently, the appropriate RWQCB has also generally taken jurisdiction over "waters of the state" that are not subject to USACE jurisdiction under the federal CWA, in cases where USACE has determined that certain features do not fall under its jurisdiction. Mitigation typically must require no net loss of wetlands functions and values of waters of the state pursuant to Executive Order W-59-93, "State Wetland Conservation Policy."

Native Plant Protection Act

Provisions of the Native Plant Protection Act (NPPA) prohibit the taking of special-status plants from the wild and require notification of CDFG at least ten days in advance of any change in land use. This allows CDFG to salvage listed plant species that would otherwise be destroyed.

1.4.3 Local Environmental Requirements

City of San Diego MSCP

The City of San Diego's Multiple Species Conservation Plan (MSCP) Subarea Plan is a comprehensive, long-term habitat conservation plan designed to preserve habitat for multiple species. This plan has been prepared to meet the requirements of the California Natural Communities Conservation Planning (NCCP) Act of 1992 (City 1997a). The City of San Diego's MSCP Subarea Plan identifies areas referred to as the MHPA, where development is limited and preservation in perpetuity is encouraged. The majority of the Wueste Road Pipeline is adjacent to the MHPA and a small portion of the proposed impact area lies within the MHPA. While the District is not required to comply with the City's MSCP, this report addresses impacts within the City's MHPA and proposes habitat-based mitigation ratios consistent with those outlined in the City's MSCP and associated Biology Guidelines. According to the City's MSCP, water facilities and other essential public facilities are "compatible with the biological objectives of the MSCP and thus will be allowed within the City's MHPA…" The MSCP also acknowledges that maintenance of existing roads and utility lines within the MHPA will occur.

City of Chula Vista MSCP Subarea Plan

The City of Chula Vista's Subarea Plan has the following five goals:

> *"1) To conserve covered species and their habitats through the conservation of interconnected significant habitat cores and linkages; 2) To delineate and assemble a Preserve using a variety of techniques including public acquisition, on- and off-site mitigation, and land use regulations; 3) To provide a Preserve management program that, together with Federal and State management activities, will be carried out over the long-term, further ensuring the conservation of covered species; 4) To provide necessary funding for a Preserve management program and biological monitoring of the Preserve; and 5) To reduce or eliminate redundant Federal, State and local natural resource regulatory and environmental review of individual projects by obtaining Federal and State Take Authorizations for 86 species."*

Habitat conservation land or Preserves within the City's plan are designated as 100% or 75-100%. The 100% Preserve is defined as lands for which hard-line Preserve boundaries have been established and where the conserved portions biological resources will be managed. The 75-100% Preserve is defined as lands for which hard-line Preserve boundaries have not yet been established and where development or impact is limited to 25% or less of the mapped area. The Preserve will total between 75% and 100% of the mapped area and the conserved portions biological resources will be managed. The Preserve was designed to include large, interconnected blocks of habitat, which follow natural topography and include areas with varying biodiversity. In addition, these lands are considered to have "High" and "Very High" biological values and designated as biological "core" or "linkage" lands in the City of San Diego MSCP.

Chapter 2
Survey Methodology

The following section provides information regarding the methods used during general biological surveys and focused surveys for sensitive species (e.g., federal and state threatened and endangered species) known to occur in the project vicinity or those determined to have potential to occur within the project area. The following surveys were conducted along all three proposed pipelines: general biological surveys to map vegetation communities, a wetland reconnaissance survey, and a habitat assessment for rare plants and special-status wildlife species.

Focused surveys for the Quino checkerspot butterfly (*Euphydryas editha quino*, Quino) were conducted during the 2009 flight season and prior to the following minor changes to the proposed project:

1. Wueste Road Pipeline CIP– the construction of a PRS within an existing vault was added as a component of the Wueste Road Pipeline CIP;
2. Alta Road Pipeline – this alignment was modified to its current proposed alignment. The previous alignment continued south from the intersection of Alta Road and Otay Mesa Road down an existing dirt road and then headed west to connect to the existing pipeline in Airway Road. This previous alignment proposed impacts to undeveloped and vegetated areas; and
3. Airway/La Media Road Pipeline – this alignment was modified to its current proposed alignment. The previous alignment stopped at the intersection of La Media Road and Otay Mesa Road, whereas the current alignment continues north to the northern terminus of La Media Road.

As a result of the modifications discussed above, focused surveys for Quino were conducted in areas that have been removed from the project. In addition, focused surveys (including a habitat assessment) did not occur within the impact area for the proposed PRS or along portions of Otay Mesa Road and La Media Road. The non-surveyed portions along Otay Mesa Road and La Media Road consist of frequently disturbed road shoulders and do not represent suitable habitat for this species. A portion of the PRS impact area (0.03 acre) is within Quino critical habitat. However, the impact area does not contain primary constituent elements of Quino critical habitat and provides limited to no potential for Quino (i.e., it lacks larval host plants and nectar sources and consists of an existing concrete vault and adjacent well-maintained and frequently used dirt road).

As the impact footprint for the Wueste Road pipeline extends beyond existing paved roadways, it was determined that the following additional focused surveys would be required along the proposed alignment: protocol surveys for the coastal California gnatcatcher (*Polioptila californica californica*), rare plant surveys, and focused vernal pool/road rut/fairy shrimp surveys.

As the project footprint for the Alta Road Pipeline (R2077) and the Airway/La Media Pipelines (R2058) are limited to existing paved roadways and adjacent disturbed road shoulders, additional biological surveys conducted for these pipelines were limited to: a burrowing owl burrow survey and a focused survey for vernal pools/road ruts/fairy shrimp surveys.

Searches of available literature and databases were conducted to determine sensitive species previously observed, detected, or with potential to occur within the project area as well as the

physical characteristics of the sites and surrounding areas. Available data that were reviewed included: the California Natural Diversity Database (CNDDB) database (Jamul Mountains, Otay Mesa, Otay Mountain, Dulzura, National City, and Imperial Beach quadrangles) (CNDDB 2009); California Native Plant Society (CNPS) Online Plant Inventory (CNPS 2009); the U.S. Department of Agriculture (USDA) soil survey of the area (Bowman 1973); and U.S. Geological Survey (USGS) topographic maps to identify notable topographic features. For the purpose of this project, special-status plant species includes all species listed or proposed for listing by the USFWS and CDFG, any species listed as 1B through 4 by the California Native Plant Society (CNPS), and City of San Diego narrow endemic species as outlined in the MSCP Subarea Plan. Special-status wildlife species includes all species listed or proposed for listing by the USFWS and CDFG.

2.1 Plants

Surveys were conducted along the Wueste, Alta, and Airway /La Media Road Pipelines to categorize and map the vegetation communities and land cover types that occur. Focused surveys for special-status plants and surveys to document all flora observed were only conducted along the Wueste Road Pipeline. The survey area consisted of the potential impact area and a 30.5 m (100-ft) buffer.

2.1.1 Vegetation Communities/ Land Cover Types

Vegetation was mapped to correspond with the County of San Diego Guidelines for Determining Significance, Table 4: Vegetation Communities in San Diego County (County of San Diego 2009). The vegetation map was digitized using ArcMap 9.3 Geographic Information System (GIS) software and verified by senior ICF staff (Figures 3a-3e, Figures 4a-4d, and Figures 5a-5b).

2.1.2 Rare Plants

The CNDDB database was reviewed to create a list of plants with potential to occur on site and was used as a tool for the rare plant surveys (CNDDB 2009). The potential for each of these species to occur within the impact area or in the immediate vicinity is addressed in Appendix A. In evaluating the potential for occurrence, a pool of references and resources was utilized for information on species distribution, habitat requirements, disturbance tolerance, threats and causes of declines, and other features of their conservation biology.

Special-status plant surveys were conducted during the spring and summer of 2009 by qualified ICF staff (Table 1). Andrew Borcher, Kailash Mozumder, Erika Alfaro, and Korey Klutz conducted spring special-status plant surveys concurrently with surveys for Quino checkerspot butterfly throughout the Wueste Road survey area. Makela Mangrich surveyed for Otay tarplant (*Deinandra conjugens*) throughout the entire Wueste Road Pipeline survey area on July 10, 2009 and at the PRS site and access road located near Donovan State Prison on July 28, 2009. Although no spring or early summer rare plant surveys were conducted at the PRS site, this area is very disturbed; provides little suitable habitat for special-status plant species; and only a small area is proposed to be impacted by the Project. All plant species were recorded (Appendix B) and botanical nomenclature follows the Checklist of the Vascular Plants of San Diego County, 4th Edition (Rebman and Simpson 2006).

Table 1. Survey Dates and Conditions for Rare Plant Surveys

Date	Start–End Time	Temperature (Start/Stop)	% Cloud Cover	Surveyor	Survey Area
3/04/09	0930–1500	66/66°F	0–10	A. Borcher, K. Mozumder	Wueste Road
3/10/09	1330–1630	65/68°F	0	K. Klutz, K. Mozumder	Wueste Road
3/17/09	1030–1500	78/75°F	0	D. Allen, K. Mozumder	Wueste Road
3/26/09	1200–1530	68/68°F	0	A. Borcher, E. Alfaro	Wueste Road
4/01/09	1000–1500	60/65°F	0–25	K. Klutz, A. Borcher	Wueste Road
6/4/09	1000-1200	62/66°F	Mostly cloudy	K. Klutz	Wueste Road
7/10/09	0800-1500	78/86°F	0	M. Mangrich	Wueste Road
7/28/09	1200-1400	79/85°F	0	M. Mangrich	PRS Site

Global Positioning System (GPS) data were taken to record the locations of special-status plant species observed. These data were transferred to GIS shapefiles using Trimble Pathfinder Pro and ArcMap software. Both point data and polygon data were recorded; some data also documented the total numbers of individuals observed within each occurrence. However, many of the species were fairly abundant in numbers and as such difficult to obtain an accurate count. Estimates were made if the occurrence was within the potential impact area. If the occurrence was located outside of the potential impact area but within the 30.5-m (100-ft) buffer a complete count of individuals was not conducted.

2.2 Vernal Pools/Road Ruts

The survey area for vernal pools/road ruts consisted of the potential impact areas along the Wueste Road Pipeline as well as three areas located adjacent to paved roadways along the Alta Road and/or Airway Road/La Media Pipeline Alignments. The three areas consist of the following:

1. A small section of the disturbed road shoulder along the southern side of Otay Mesa Road near the intersection of Otay Mesa Road and Alta Road (Figure 5a);
2. A small section of the disturbed road shoulder along the southern side of Airway Road near the intersection of Airway Road and La Media Road (Figure 5b); and
3. A small section of the disturbed road shoulder along the eastern side of La Media Road near the intersection of La Media Road and Airway Road (Figure 5b).

Focused surveys for listed fairy shrimp are discussed in Section 2.3.4.

2.3 Wildlife

Surveys were conducted to document the wildlife species currently using project areas and assess the potential for special-status wildlife species not detected during the surveys. The survey area for Quino consisted of suitable habitat within the potential impact area and a 30.5-m (100-ft) buffer. The survey area for California gnatcatcher consisted of suitable habitat within the potential impact area and a 61-m (200-ft) buffer. The survey area for burrowing owl consisted of road shoulders and adjacent areas along the Alta Road and Airway/La Media Road Pipeline alignments. The survey area for fairy shrimp consisted of basins within the impact areas with the potential to support ponded water.

The CNDDB database was reviewed to create a list of wildlife with potential to occur on site (CNDDB 2009). Using a checklist of all species in the region with special status, species were added to the list based on personal knowledge, experience with prior projects in the area, ICF internal databases, and published and unpublished references. The potential for each of these species to occur within the impact area or in the immediate vicinity is addressed in Appendix C. In evaluating the potential for occurrence, a pool of references and resources was utilized for information on species distribution, habitat requirements, disturbance tolerance, threats and causes of declines, and other features of their conservation biology. All wildlife species observed during all surveys were recorded (Appendix D).

2.3.1 Quino Checkerspot Butterfly

The protocol survey for Quino followed the USFWS protocol (USFWS 2002a), which requires weekly site visits for a minimum of five weeks conducted during acceptable weather conditions as defined by USFWS. Conditions when surveys were not performed included fog, drizzle, or rain; sustained winds greater than 24 km (15 mi) per hour measured 1.2 to 1.8 m (4 to 6 ft) above ground level; temperature in the shade at ground level less than 15.5^{o}C (60°F) on a clear, sunny day, or less than 21°C (70°F) on an overcast day. The USFWS website was monitored for notification of the onset of the Quino flight survey season.

Doug Allen (Permit No. TE-038109), Kailash Mozumder (Permit No. TE-168926-0), Andrew Borcher (Permit No. TE-092162-1), Erika Alfaro (Permit No. TE-051236-1), and Korey Klutz (Permit No. TE-036065-0) of ICF conducted surveys between March 4 and April 1, 2009 (Table 2). As described above, the alignments for all three pipelines were altered after the Quino habitat assessment and focused surveys were conducted. Some areas were added to the alignment and some were removed.

Each survey involved slowly walking transects throughout non-excluded portions of the survey area. The surveys were conducted at an average rate of 10 acres per hour. The surveyor stopped periodically to scan adjacent areas for moving butterflies. All butterfly species observed were identified and recorded. In addition, surveys were conducted at reference populations to determine the status of known populations. The focused Quino report is attached as Appendix E and contains additional information regarding the reference population surveys.

Table 2. Survey Dates and Conditions for Quino Surveys

Date	Survey Number	Start–End Time	Temperature (Start/Stop)	Wind Speed (mph)	% Cloud Cover	Surveyor
3/04/09	1	0930–1500	66/66°F	0–3	0–10	A. Borcher, K. Mozumder
3/10/09	2	1330–1630	65/68°F	0–3	0	K. Klutz, K. Mozumder
3/17/09	3	1030–1500	78/75°F	0–6	0	D Allen, K. Mozumder
3/26/09	4	1200–1530	68/68°F	0–8	0	A. Borcher, E. Alfaro
4/01/09	5	1000–1500	60/65°F	0–4	0–25	K. Klutz, A. Borcher

2.3.2 Coastal California Gnatcatcher

Protocol surveys for the coastal California gnatcatcher within a Natural Community Conservation Plan (NCCP) entail three surveys, at least one week apart. All surveys are to be conducted in accordance with U.S. Fish and Wildlife Service protocol requirements (USFWS 1997a). For this project, the surveys consisted of careful, thorough coverage of potential habitat within the potential impact area and a 61 m (200-ft) buffer. Surveys were not conducted at the PRS site as no impacts to coastal sage scrub would occur at this location and as construction would occur outside of the breeding season for this species. No more than 20 acres was surveyed in a morning.

Attention was given to relevant plant and animal species identifiable either directly or indirectly by sign. Pre-recorded audiotape playback was used when appropriate. All visits were performed during morning hours prior to 1200, when gnatcatchers are most active, and were not conducted during inclement weather such as extreme hot or cold temperatures, fog, high winds, or rain.

Coastal California gnatcatcher surveys were conducted by Kylie Fischer (USFWS permit TE-039321; CDFG SCP-6068), with support from Doug Allen (USFWS permit TE-039321) and Andrew Borcher (USFWS permit TE-092162). Survey dates, personnel, and survey conditions are listed in Table 3. The focused California gnatcatcher report is attached as Appendix F.

Table 3. Survey Dates and Conditions for California Gnatcatcher Surveys

Date	Start–End Time	Temperature (Start/Stop)	% Cloud Cover	Wind Speed (mph)	Surveyor
7/26/09	0730-1120	68/82°F	100-0	1-3	K. Fischer, D. Allen
8/3/09	0715-1030	50/90°F	50-90	0	K. Fischer, D. Allen
8/11/09	0650-1020	68/78°F	100-0	0	K. Fischer, A. Borcher

2.3.3 Burrowing Owl

Burrowing owls (*Athena cunicularia*) are found in prairies, grasslands, lowland scrub, agricultural lands, coastal dunes, desert floors, and some artificial open areas (Unitt 2004). This species requires large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. The burrowing owl uses rodent or other burrows for roosting and nesting cover and also is known to use pipes, culverts, and nest boxes where burrows are scarce. This species typically prefers open areas with low vegetative cover, even in grasslands (Haug et al. 1993).

A burrowing owl habitat assessment/burrow survey was conducted by walking the alignment in areas with potentially suitable habitat looking for large burrows suitable for use by this species. Areas with dense or tall vegetative cover were not thoroughly surveyed for burrows but were scanned from a distance for birds. All encountered burrows were checked for the presence of feathers, scat, pellets, tracks, or other indications of use by burrowing owls.

2.3.4 San Diego Fairy Shrimp

The survey area for listed fairy shrimp consisted of the potential impact areas along the Wueste Road Pipeline as well as three areas located adjacent to paved roadways along the Alta Road and/or Airway Road/La Media Pipeline Alignments. The three areas consist of the following:

1. A small section of the disturbed road shoulder along the southern side of Otay Mesa Road near the intersection of Otay Mesa Road and Alta Road (Figure 5a);
2. A small section of the disturbed road shoulder along the southern side of Airway Road near the intersection of Airway Road and La Media Road (Figure 5b); and
3. A small section of the disturbed road shoulder along the eastern side of La Media Road near the intersection of La Media Road and Airway Road (Figure 5b).

Soil samples were collected from three basins within the Wueste Road survey area in July 2009 when the basins with potential to support fairy shrimp (i.e., road ruts/depressions) were dry; all other basins identified along the Wueste Road alignment are located outside of the proposed impact areas and would not be directly or indirectly affected by the proposed project and therefore were not sampled. A hand trowel or similar instrument was used to collect an approximately one liter

volume sample per basin consisting of the top 1-3 cm (0.4-1.2 in) of sediment. Whenever possible, soil samples were collected in chunks and the trowel was used to pry up intact chunks of sediment. Loosening the soil by raking or shoveling was avoided as such methods can damage cysts.

Less than ten soil samples were collected from each of the basins due to their small size. Samples were collected in the following manner when possible: from the edge, from equidistant points along the longest transect, from equidistant points along the widest transect and from the deepest part. Each soil sample was labeled, stored, and analyzed individually. Each label included information necessary to identify the basin from which it was collected. The soil samples were placed in separate bags and stored samples were kept out of direct sunlight in order to avoid excessive heating.

The samples were sieved to find fairy shrimp cysts. The soil samples were not ground, crushed, or otherwise manipulated in order to expedite the sieving process. These samples were hydrated for approximately 2 hours in tap water then washed through a set of sieves. Material passing through a Number 45 (.0139") USA Standard Testing Sieve, A.S.T.M.E.-11 specification and caught on a Number 70 (.0083") Sieve was rinsed into a container with approximately 50 milliliters of a saturated brine solution that would float organic material, including fairy shrimp cysts. The material floating on the brine was decanted onto a paper filter on a filter funnel, and water was removed through the filter paper by vacuum suction. The material left on the paper was examined under a 6.3-570x power Olympus SZX9 Zoom Stereo Microscope. Distinctive fairy shrimp cysts, if present, were counted and any ostracod shells encountered were noted.

Wet season sampling for fairy shrimp is being conducted in winter 2009/2010 in basins (road ruts) found within the potential impact areas along the Wueste Road Pipeline as well as the three impact areas located outside of the paved roadways along the Alta Road and/or Airway Road/La Media Pipeline Alignments (listed above).

2.4 Jurisdictional Resources

A general wetland reconnaissance survey was conducted to identify the presence of any jurisdictional wetlands or waters within the proposed project impact areas, which would require a formal wetland delineation to be conducted. The wetland survey consisted of visual observations of vegetation types and hydrology to locate areas for evaluation. Then, at each evaluation area it was determined if there was potential for impact from the proposed alignment. If there was no potential for impact, then the resource was identified and discussed in the results but no formal delineation was conducted.

Chapter 3
Survey Results

3.1 Wueste Road Pipeline (R2087)

The general surveys of the Wueste Road Pipeline determined that there are sensitive biological resources within the proposed impact area for the pipeline and in the immediate vicinity.

3.1.1 Plants

Vegetation Communities/Land Cover Types

Twelve vegetation communities were mapped within the survey area (Figures 3a-e). Vegetation classification conforms to Holland (1986) with subsequent modifications by Oberbauer (2005), as described in the County of San Diego's Guidelines for Determining Significance (County of San Diego 2009).

Disturbed Habitat (11300)

Disturbed habitat is included within the non-native vegetation general habitat type and for this project this community was used to map ornamental vegetation. There are two areas mapped as disturbed - a large area of ornamental vegetation adjacent to the U.S. Olympic Training Facility in the central portion of the Wueste Road study area, and a smaller area of ornamental vegetation at the intersection of Wueste Road and Olympic Parkway.

Urban/Developed (12000)

Urban/developed areas include paved and gravel/dirt roads throughout the survey area, as well as areas that are regularly graded and devoid of vegetation. Areas mapped as urban/developed include Wueste Road, the OWTP, and access roads.

Maritime Succulent Scrub (32400)

Maritime succulent scrub is a low growing open scrub habitat that is typically found within a few miles of the coast and is dominated by succulents (Holland 1986). Areas within the survey area mapped as maritime succulent scrub include as co-dominants California buckwheat (*Eriogonum fasciculatum*) and jojoba (*Simmodsia chinensis*) at roughly 10% absolute cover each. Interspersed within these shrubs are various cactus species, including San Diego barrel cactus, snake cholla, and fish-hook cactus (*Mammillaria dioica*) at relatively low absolute percent cover (less than 5% each). San Diego sunflower (*Viguiera laciniata*) also occurs within the maritime succulent scrub located within the survey area, at approximately 5%-10% cover.

Diegan Coastal Sage Scrub (32510)

Diegan coastal sage scrub is composed of a variety of soft, low, aromatic shrubs characteristically dominated by drought-deciduous species such as California sagebrush, California buckwheat, Coyote brush (*Baccharis pilularis*), and sages (*Salvia* spp.), with scattered evergreen shrubs including

lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*) (Holland 1986). It typically develops on south-facing slopes and other xeric situations (Holland 1986). The Diegan coastal sage scrub within the survey area is consistent with Holland's description, except that it contains San Diego sunflower as an important component (comprising 10-15% cover in some places).

Some areas of Diegan coastal sage scrub, especially adjacent to the OWTP, were considered disturbed due to the high cover of invasive, exotic species and the comparatively lower cover of native perennial sub-shrubs. A large area of Diegan coastal sage scrub at the northern end of Wueste Road was designated as revegetated coastal sage scrub due to the area being planted following construction of a slope. Irrigation equipment is still visible and likely functioning to assist in establishing coastal sage scrub in this area.

Non-Native Grassland (44220)

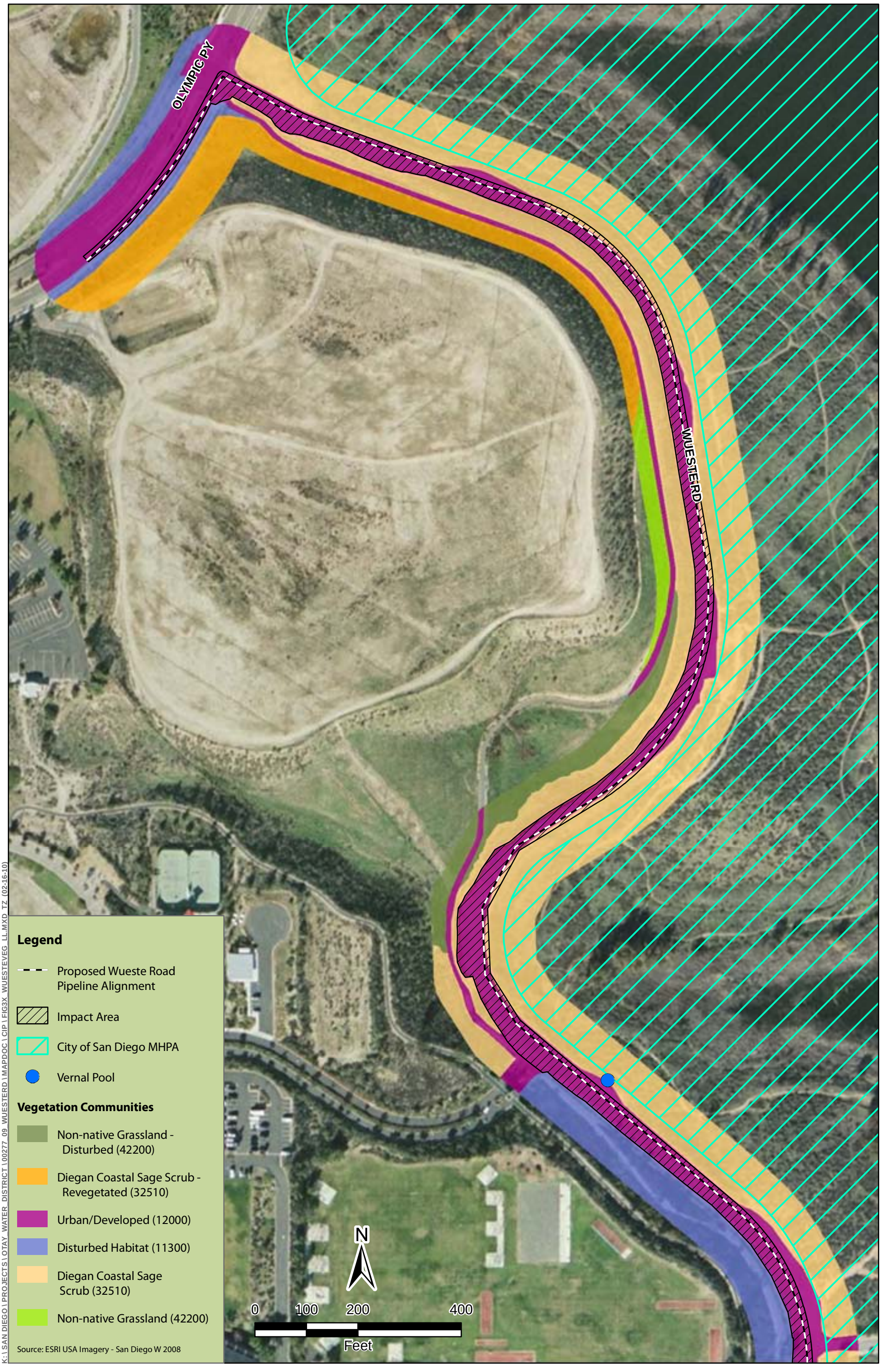
Non-native grassland is characterized by a dense to sparse cover of annual grasses reaching up to 1 m (3 ft), which may include numerous native wildflowers, particularly in years of high rainfall (Holland 1986). These annuals germinate with the onset of the rainy season and set seeds in the late spring or summer. Non-native grasslands, in many circumstances, have replaced native grasslands as a result of disturbance (directly manmade [e.g., mechanical disturbance, grazing] or natural [i.e., altered fire cycles]). In the survey area, non-native grasslands were mapped where the shrub cover declined to less than 10% absolute cover and slender wild oat (*Avena barbata*), ripgut grass (*Bromus diandrus*), and fascicled tarweed (*Deinandra fasciculata*) were the dominant plant species.

Mule Fat Scrub (63310)

Mule fat scrub is described as a depauperate, tall, herbaceous riparian scrub dominated by mule fat (*Baccharis salicifolia*) (Holland 1986). Mule fat scrub is usually found in intermittent stream channels with fairly coarse substrate and moderate depth to the water table and requires frequent flooding (Holland 1986). If frequent flooding does not occur, mule fat scrub commonly succeeds to cottonwood or sycamore dominated riparian forests or woodlands (Holland 1986). The distribution of mule fat scrub is widely scattered throughout the state, usually along intermittent streams and near larger rivers, usually below 609 m (2,000 ft) elevation (Holland 1986). Mule fat scrub occurs in one small patch south of the Olympic Training Center, immediately adjacent to Lower Otay Reservoir. It also occurs adjacent the access road for the PRS. In the PRS survey area, irrigation from the adjacent shooting range has created an area of wetland vegetation on a slope that would typically not normally support this community.

Southern Willow Scrub (63320)

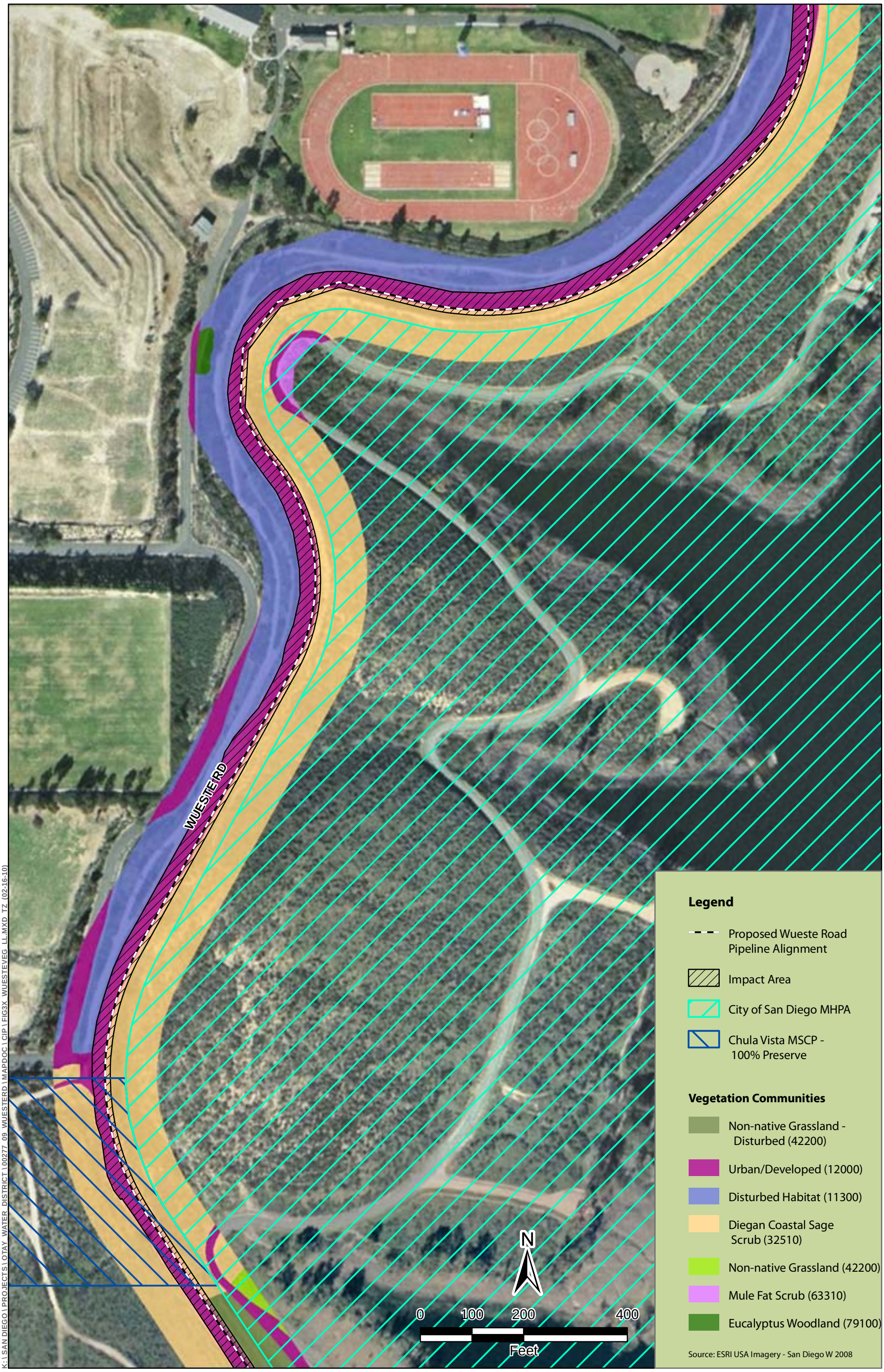
Southern willow scrub is described as dense, broad-leafed, winter-deciduous riparian thickets dominated by several willow species (Holland 1986). Most stands are too dense to allow much understory development. This early seral community requires repeated flooding to prevent succession to southern cottonwood-sycamore riparian forest (Holland 1986). It is usually found in loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows (Holland 1986). Within the survey area, southern willow scrub only occurs near the PRS site. There is one small patch adjacent to the access road and there is a large patch to the north of the proposed impact area.



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG3X WUESTEVEG LL.MXD TZ (02-16-10)

ICF INTERNATIONAL

Figure 3 a
Wueste Road Pipeline - Vegetation Impacts
Otay Mesa Recycled Water CIP



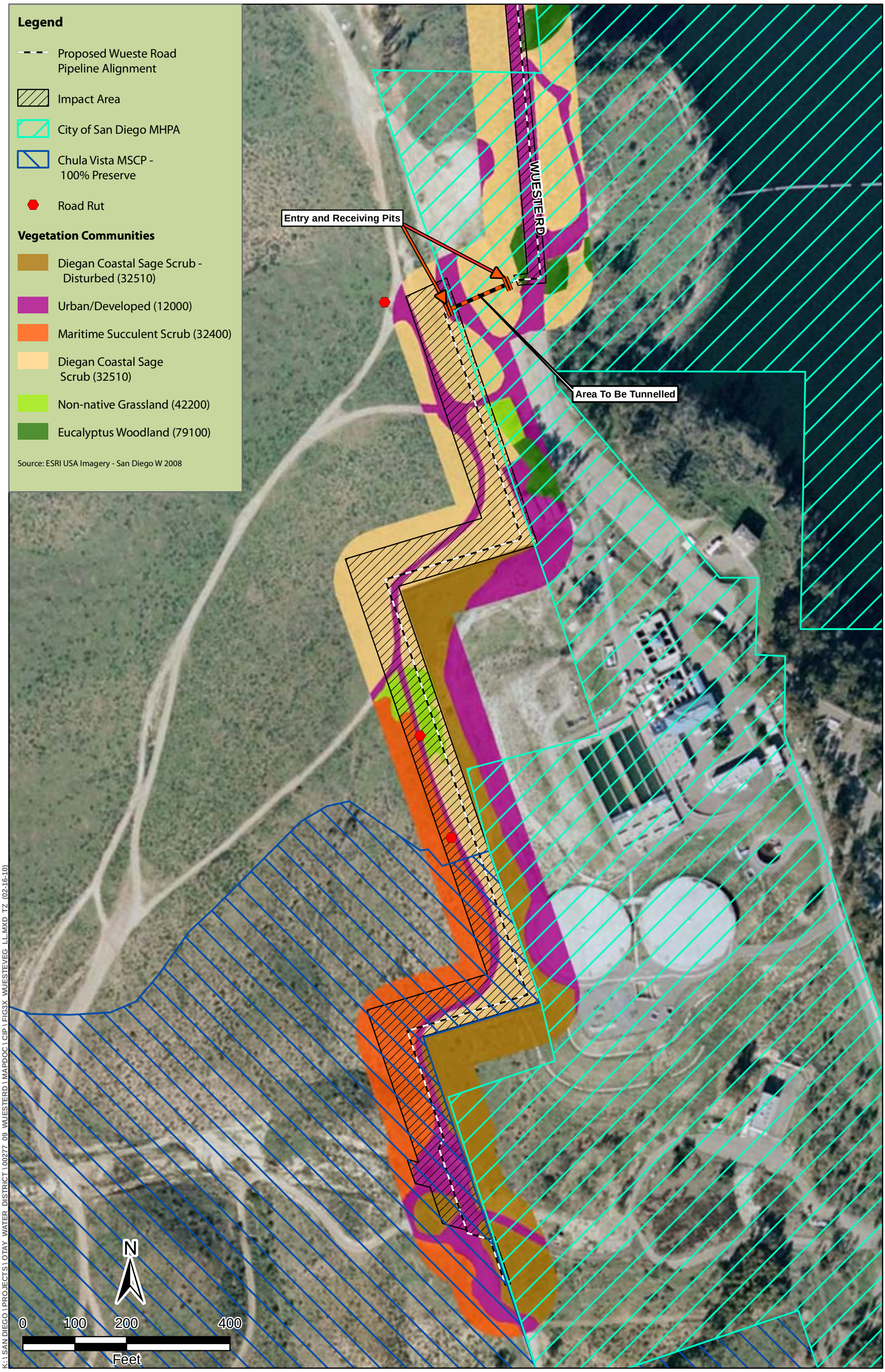
K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG3X WUESTEVEG LL.MXD TZ (02-16-10)

ICF INTERNATIONAL

Figure 3b
Wueste Road Pipeline - Vegetation Impacts
Otay Mesa Recycled Water CIP

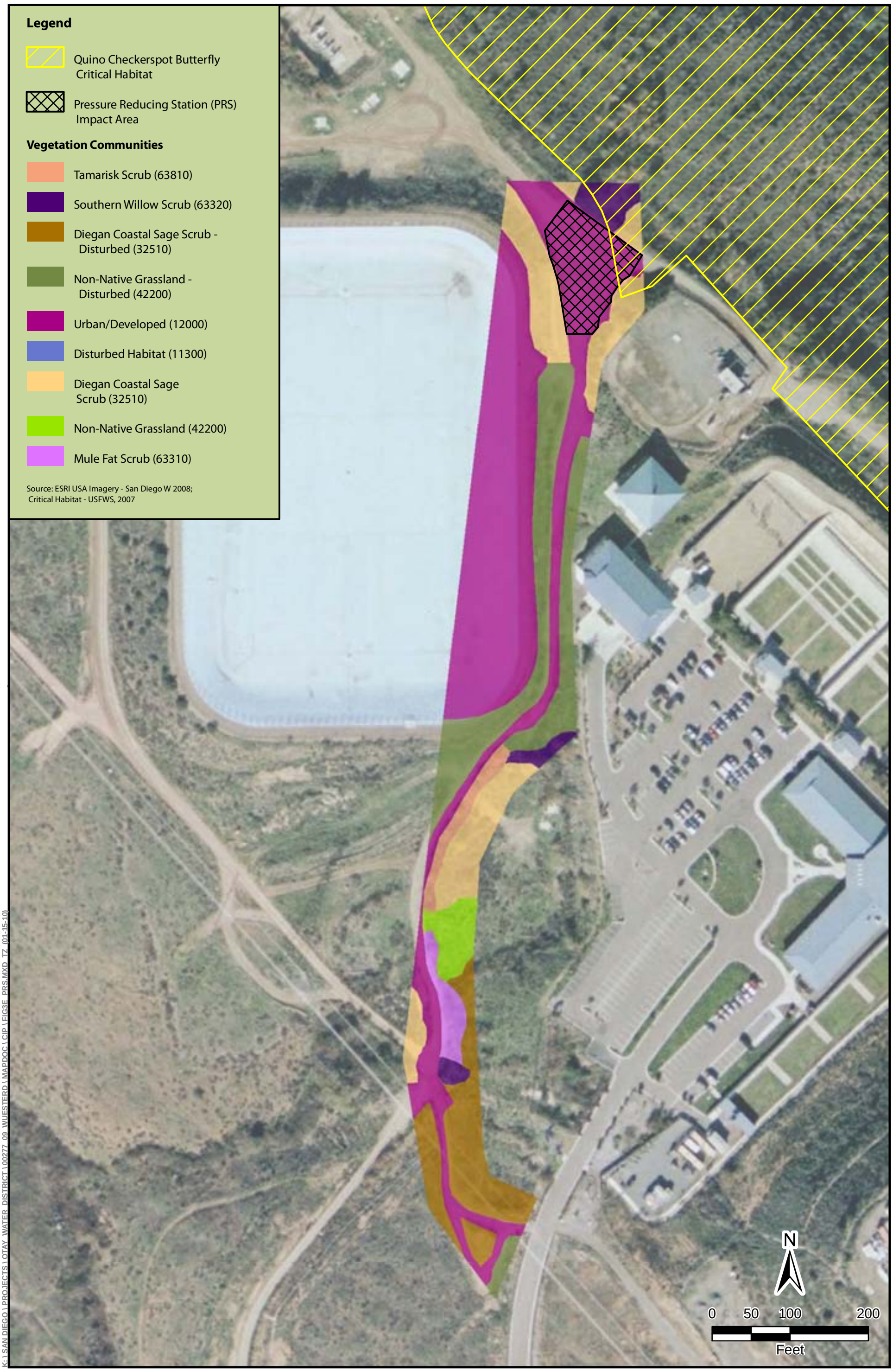
K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG3X WUESTEVEG LL.MXD TZ (02-16-10)

Figure 3 c
Wueste Road Pipeline - Vegetation Impacts
Otay Mesa Recycled Water CIP



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG3X WUESTEVEG LL.MXD TZ (02-16-10)

Figure 3d
Wueste Road Pipeline - Vegetation Impacts
Otay Mesa Recycled Water CIP



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG3E PRS.MXD TZ (01-15-10)

Figure 3e
Wueste Road Pipeline - Vegetation Impacts
Otay Mesa Recycled Water CIP

Tamarisk Scrub (63810)

Tamarisk scrub is, as the name implies, dominated by several tamarisk species (*Tamarix* sp.). The community is typically a monoculture, usually supplanting native vegetation that occurs after a major disturbance (Holland 1986). It is widely distributed and increasing in its range, throughout California, Nevada, and Arizona and beyond (Holland 1986). Within the survey area, tamarisk scrub was only mapped near a drainage feature adjacent the access road for the PRS. Irrigation from the adjacent shooting range has created an area of wetland vegetation on a slope that would typically not normally support this community.

Eucalyptus Woodland (79100)

Eucalyptus woodland is not described by Holland, but was an addition by Thomas Oberbauer (from February 1996) to Holland's original categories (County of San Diego 2009). It is dominated by a variety of eucalyptus species (*Eucalyptus* spp.), usually with non-native grasslands or ornamental species in the understory. On the project site, eucalyptus woodland occurs in several patches along Wueste Road.

Rare Plants

As mentioned previously, ICF biologists created a list of potentially-occurring special-status plants. Appendix A provides the complete list of species that could potentially occur and a determination of the likelihood that the species could occur on the project site. In total, 105 plants species were detected during the surveys, 41 of these species are non-native and 8 are special-status plants (Appendix B, Figure 4a-d). The 8 special-status plant species observed or determined to have potential to occur within the project area are discussed below. None of the special-status species are listed as threatened or endangered by USFWS or CDFG.

Graceful Tarplant (Holocarpha virgata ssp. elongata)

CNPS List 4

Graceful tarplant is found in San Diego, Orange and Riverside counties (CNPS 2009; Reiser 1994). It occurs within chaparral, cismontane woodland, coastal sage scrub, and valley and foothill grasslands from 60 to 1,100 m (197 to 3,609 ft) AMSL (CNPS 2009). It blooms from May to November (CNPS 2009). The species has been observed in mildly disturbed and overgrazed grassland, where non-native and exotic species are well-established. It is generally abundant where it is found, often numbering in the thousands (Reiser 1994). However, because its habitat is usually situated on fairly level, sparsely vegetated terrain, Reiser (1994) presumed it to be declining due to urban development in San Diego County and western Riverside County.

In the survey area, graceful tarplant was observed in low densities throughout the Diegan coastal sage scrub on both sides of Wueste Road from approximately one-third mile north of the OWTP to the northern terminus of the Wueste Road study area. No individuals were observed within the impact area. It was also observed adjacent to the road leading to the PRS site, but not within the PRS impact area. Approximately 500 to 1,000 individuals of graceful tarplant were observed throughout the Wueste Road survey area, and 20 individuals were observed adjacent to the road leading to the PRS site.

San Diego Sunflower (*Viguiera laciniata*)

CNPS List 4

San Diego sunflower is documented from southern San Diego County, where it typically is a co-dominant with California sagebrush within Diegan coastal sage scrub communities (Reiser 1994; CNPS 2009). The Diegan coastal sage scrub in which San Diego sunflower occurs is typically drier and more open than the more mesic sage scrub communities found along the coast (Reiser 1994). The species occurs on a variety of soil types; at Lower Otay Reservoir it is typically found on Olivenhain cobbly loam (Reiser 1994). It blooms February through June, although occasionally it has been known to bloom in August (CNPS 2009).

San Diego sunflower was observed at a landscape-level throughout the Diegan coastal sage scrub on the Wueste Road portion of the survey area. Populations are estimated to be between one and five thousand individuals. Consistent with Reiser's (1994) observations, the species typically occurs with California sagebrush in the survey area. Three polygons of San Diego sunflower pass into the impact area west of the OWTP.

Palmer's Grapplinghook (*Harpagonella palmeri)*

CNPS List 4

Palmer's grapplinghook populations in San Diego County are generally scattered along the coast, although a large population has been documented from Table Mountain near Jacumba (Reiser 1994). It is also documented from Los Angeles County, Orange County, Riverside County, Santa Catalina Island, Arizona and Baja California, Mexico (Reiser 1994). An inconspicuous annual, Palmer's grapplinghook is typically found on clay vertisols within open grassy slopes or open Diegan coastal sage scrub (Reiser 1994). It blooms from March to May (CNPS 2009).

Palmer's grapplinghook was observed within the impact area west of the OWTP. Approximately 600 individuals were observed within the large polygon west of the OWTP.

Snake Cholla (Cylindropuntia californica var. californica)

CNPS List 1B

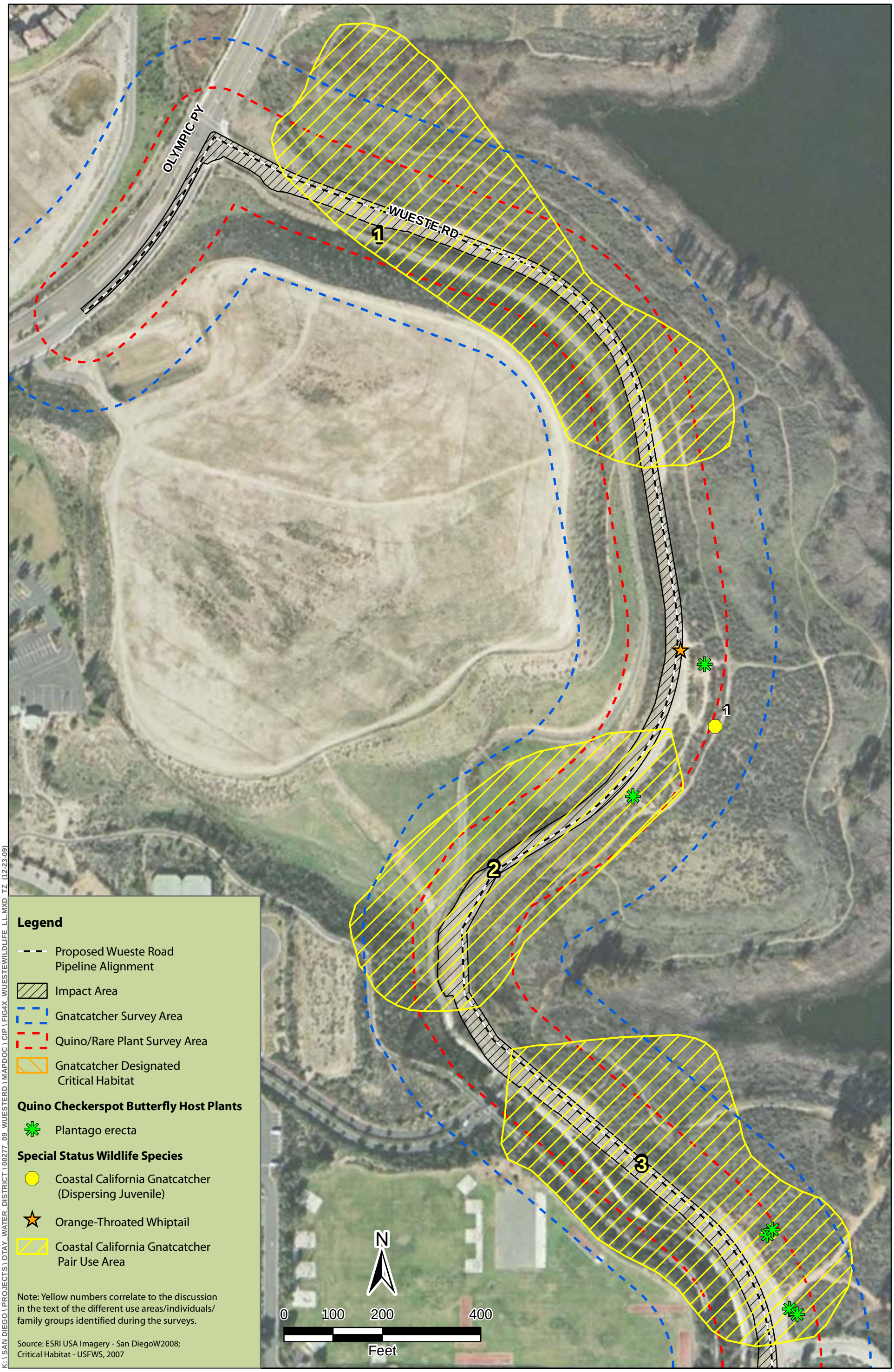
Snake cholla is limited in distribution to the Jamul Mountains, Otay Mesa, National City, Point Loma, Imperial Beach, and Del Mar USGS quadrangles (CNPS 2009) between 30 and 150 m (98 and 492 ft) AMSL. It is found within chaparral and Diegan coastal sage scrub habitats and blooms from April to May (CNPS 2009).

Within the survey area, snake cholla was observed at the southern end of Wueste Road, over 100-feet from the proposed impact area.

San Diego Barrel Cactus (Ferocactus viridescens var. viridescens)

CNPS List 2

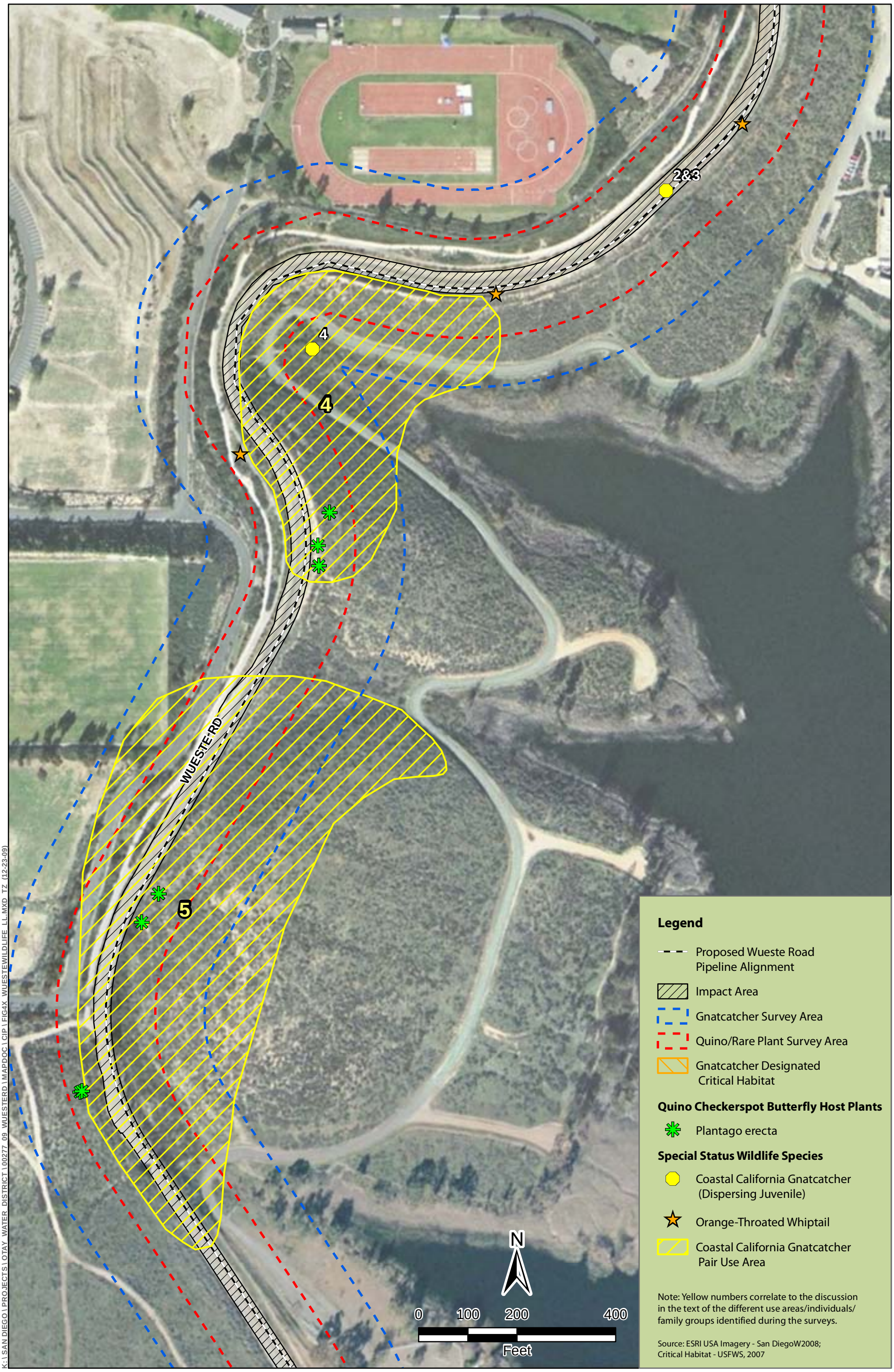
San Diego barrel cactus is usually found on the slopes of Diegan coastal sage scrub, and often at the crest of hills within cobbly soil. It is widely distributed through San Diego County, but its highest densities occur in the Otay Mesa area, although small to medium-sized populations of the species have been declining due to urban development in the area (Reiser 1994). San Diego barrel cactus



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG4X WUESTEWILDLIFE LL.MXD TZ (12-23-09)

ICF INTERNATIONAL

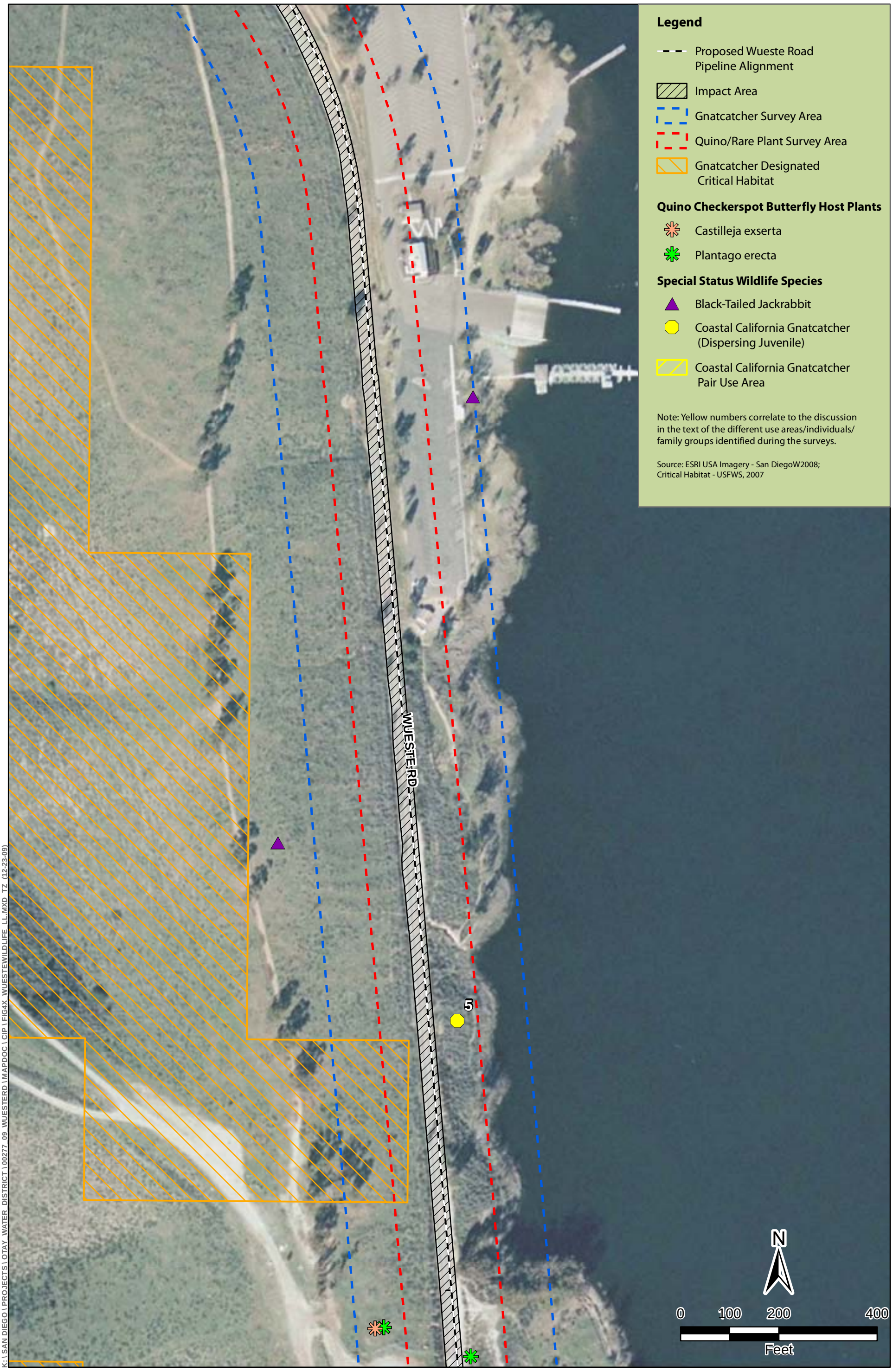
Figure 4a
Wueste Road Pipeline Sensitive Species Results
Otay Mesa Recycled Water CIP



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG4X WUESTEWILDLIFE LL.MXD TZ (12-23-09)

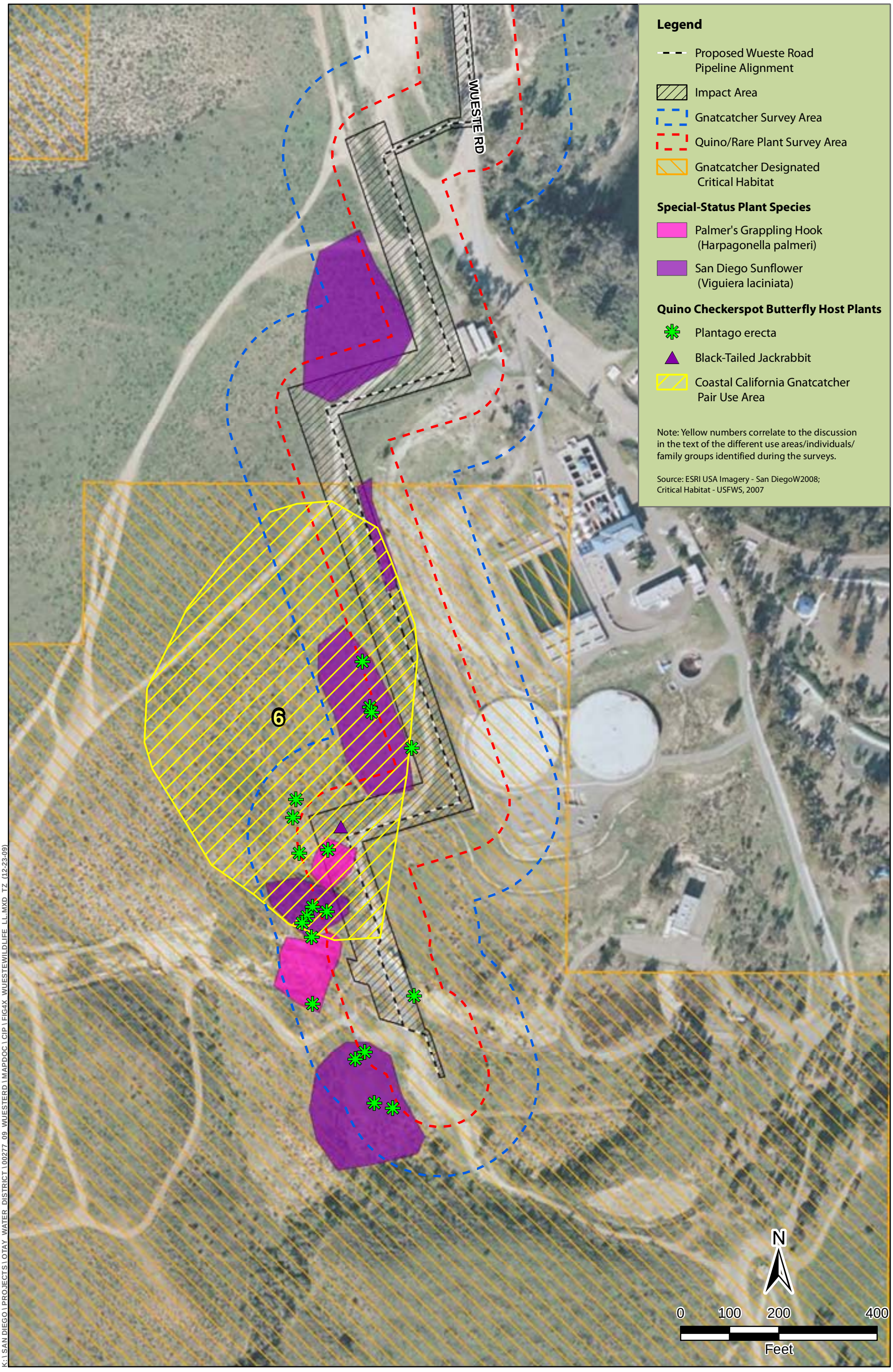
ICF INTERNATIONAL

Figure 4b
Wueste Road Pipeline Sensitive Species Results
Otay Mesa Recycled Water CIP



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG4X WUESTEWILDLIFE LL.MXD TZ (12-23-09)

Figure 4 c
Wueste Road Pipeline Sensitive Species Results
Otay Mesa Recycled Water CIP



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG4X WUESTEWILDLIFE LL.MXD TZ (12-23-09)

Figure 4d
Wueste Road Pipeline Sensitive Species Results
Otay Mesa Recycled Water CIP

blooms from May to June, although it is visible throughout the year since it is a perennial succulent (CNPS 2009). This species typically occurs from 3 to 450 m (10 to 1,476 ft) AMSL.

Within the survey area, San Diego barrel cactus was observed in small numbers along the southern portion of Wueste Road, from north of the OWTP to the southern terminus of the study area. No individuals were observed within the impact area.

Munz's Sage (*Salvia munzii*)

CNPS List 2

Munz's sage is found in Diegan coastal sage scrub and chaparral. It is often a dominant species where it occurs, including along the northern side of the eastern arm of Lower Otay Reservoir (Reiser 1994). Near Lower Otay Reservoir, this species utilizes Olivenhain cobbly loam (Reiser 1994). Munz's sage blooms from February through April and occurs at elevations between 120 and 1,065 m (394 and 3,494 ft) AMSL (CNPS 2009). Munz's sage was observed in the central portion of the study area east of the U.S. Olympic Training facility on northeast- and north-facing slopes; none were observed within the project impact areas.

San Diego Gumplant (*Grindelia hirsutula* var. *hallii*)

CNPS List 1B

A small population of gumplant (approximately 15 individuals) was observed on the northern end of the Wueste Road study area; none were observed within the project impact areas. After consultation with Dr. John Rebman of the San Diego Natural History Museum, it was determined that the population contains individuals of both the San Diego gumplant (currently a CNPS List 1B species) and the common rayless gumplant (*Grindelia camporum*). According to the best available science, the special-status variety is no longer a valid taxon (Rebman, pers. com).

Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)

CNPS List 4

This large, bushy rush is common throughout San Diego County in marsh and other wet habitats (Resier 1994). It is threatened by urbanization and flood control activities (CNPS 2009). Suitable habitats for southwestern spiny rush include mesic coastal dunes, alkaline seeps and meadows, and coastal salt marshes and swamps, from 3 to 900 m (10 to 2,953 ft) AMSL (CNPS 2009). It can occur within a variety of mapped soils (Reiser 1994). According to Reiser (1994), southwestern spiny rush populations in San Diego County are now stable despite several decades of losses associated with widespread regional reductions in wetlands.

Three occurrences with at least five individuals of southwestern spiny rush were mapped in one small area directly west of the OWTP. No individuals were observed within the impact area.

3.1.2 Vernal Pools/Road Ruts

The three southernmost basins along the proposed Wueste Road alignment were sampled during the dry season. These basins were devoid of vegetation, including special-status vernal pool plant species. Due to the lack of indicator vernal pool plant species, these areas were considered road ruts not vernal pools. One vernal pool complex was observed during the initial field surveys (Figure 3a).

This complex is located outside of the project impact area and would not be negatively affected by project activities (including indirect impacts) as it is located east of an existing turnout and adjacent berm that buffers the complex from the impact area. Therefore, this vernal pool complex is not discussed further in this report.

3.1.3 Wildlife

In total, 13 butterfly species, 3 reptile species, 46 bird species and 6 mammal species were detected during the surveys (Appendix C). Five special-status wildlife species were detected with only one of these, the California gnatcatcher, listed as threatened by USFWS (Appendix D). Special-status wildlife species observed or determined to have potential to occur in the study area are discussed below.

Quino Checkerspot Butterfly

No Quino individuals were observed during the 2009 protocol surveys. Approximately 30 patches of Quino's primary host plant, dot-seed plantain (*Plantago erecta*), and 1 patch of the secondary host plant, owl's clover (*Castilleja exserta*), were observed along the Wueste Road Pipeline (Figures 4a-d). The highest quality habitat was concentrated near the OWTP at the terminus of Wueste Road Pipeline. Potential nectar sources present and in bloom during the surveys included San Diego sunflower, deerweed (*Lotus scoparius*), short-pod mustard (*Hirschfeldia incana*), blue dicks (*Dichelostemma capitatum* ssp. *capitatum*), wishbone plant (*Mirabilis laevis*), and red-stem filaree (*Erodium cicutarium*). Host plants and nectar sources were mostly found in larger openings of coastal sage scrub and on some of the small hilltop areas.

Coastal California Gnatcatcher

In total, six coastal California gnatcatcher pairs, at least three fledglings, three unknown status and five dispersing juveniles were detected during the surveys of the Wueste Road Pipeline (Figures 4a-d). The focused California gnatcatcher report is attached as Appendix F and contains additional discussion on the results of these surveys. The vegetation within the survey area is obviously very important to this species. As the surveys were conducted in late July and early August, the coastal sage scrub was already dry so most gnatcatcher activity was focused in areas with irrigation or some type of a riparian influence. There was a long stretch of habitat within the survey area that was not utilized by this avian species. The habitat west of Wueste Road between the boat launch and the OWTP is very open and no gnatcatchers were observed using this habitat. Focused surveys were not conducted adjacent to the PRS site as impacts to coastal sage scrub in this area are not proposed and construction would occur outside the breeding season for the gnatcatcher. The species was detected in 2008 within 0.5 miles of the PRS site (BIOS 2009).

Burrowing Owl

No burrowing owls or suitable burrows were detected along the Wueste Road pipeline.

San Diego Fairy Shrimp

Areas supporting ponded water (i.e., road ruts) were observed in the impact area along the Wueste Road pipeline. These basins (the three southernmost road ruts; Figure 3d) have the potential to

support San Diego fairy shrimp (*Branchinecta sandiegonensis*). Wet season sampling of these areas is being conducted in winter 2009/2010 to determine presence/absence of fairy shrimp.

No distinctive fairy shrimp cysts were found in any of the dirt samples collected during dry season sampling (Table 4). No ostracod shells or other potential aquatic invertebrate remnants or reproductive structures were noted implying that these pools do not support any aquatic life when water is present. As discussed previously, wet-season sampling for fairy shrimp is being conducted in winter 2009/2010 along the Wueste Road alignment. Initial results indicate that these basins do not hold ponded water long enough for fairy shrimp to develop.

Table 4. Results of Soil Sampling

	Sample	Cysts/Sample	Ostracod shells/sample
Basin 1*	1	0	0
	2	0	0
	3	0	0
	4	0	0
	5	0	0
	6	0	0
	7	0	0
Basin 2	1	0	0
	2	0	0
	3	0	0
	4	0	0
Basin 3	1	0	0

* Basins 1-3 are the southernmost mapped ruts along the Wueste Road alignment, with 3 being the southernmost of the three and 1 being the northernmost of the three.

Special-Status Wildlife Species

Three additional special-status species were detected during the surveys (Figure 4a-d). Appendix D addresses the potential for special-status species to occur. In addition, the potential for least Bell's vireo (*Vireo belli pusillus*) to occur adjacent to the PRS site is addressed in this section.

Orange-throated Whiptail (*Cnemidophorus hyperythrus*)

State Species of Special Concern

The orange-throated whiptail is a medium-sized lizard that ranges from Southern California (specifically Corona del Mar in Orange County and Colton in San Bernardino County) southward to the tip of Baja California, Mexico. Historically, most populations of the orange-throated whiptail were found on floodplains or terraces along streams in brushy areas with loose soil and rocks (McGurty 1980). Habitat types they are known to use include chaparral, non-native grassland, coastal sage scrub, juniper woodland, and oak woodland. California buckwheat is an important indicator of appropriate habitat for orange-throated whiptails (Dudek 2000). This plant species is a colonizer of disturbed, sandy soils and usually indicates open shrub spacing that is required for foraging and thermoregulatory behavior. Orange-throated whiptails appear to be dietary specialists

with most (> 85%) of its prey being comprised of termites (Dudek 2000). The decline of orange-throated whiptails is likely due to loss of habitat to agriculture and urban development. Several orange-throated whiptails were observed along the road edge during California gnatcatcher surveys.

Northern Harrier (*Circus cyaneus*)

State Species of Special Concern

The northern harrier is associated with open grassland and marshes. This species typically forages in open, undisturbed habitat and nests on the ground in areas of dense low-growing vegetation to help conceal the nest (Unitt 2004). Nesting northern harriers are now considered rare and the known breeding population in San Diego County is estimated at 25 to 75 pairs (Unitt 2004). As with other ground nesting grassland birds, the northern harrier population is on the decline due to urban sprawl (Unitt 2004). A northern harrier was observed foraging over the survey area on 29 July during a California gnatcatcher survey.

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

State Species of Special Concern

The San Diego black-tailed jackrabbit is a large, long legged hare, with distinctive long ears and a blackish tail (Whitaker 1996). The black-tailed jackrabbit inhabits a wide range of habitats, including deserts, irrigated croplands, high mountains to 2,500 m (8,202 ft) AMSL, and is commonly found in the western United States to Mexico and Baja California. The San Diego population is found mostly on the coastal side of local mountains in open habitats, usually avoiding dense stands of chaparral or woodlands (Stephenson and Calcarone 1999). This species has been declining due to urban development, habitat loss, and fragmentation leading to population isolation (Dudek 2000). At least two San Diego black-tailed jackrabbits were observed during surveys: one near the southern terminus of the proposed Wueste Road pipeline alignment and the other near the boat launch/dock.

Least Bell's Vireo (*Vireo belli pusillus*)

Federally Endangered, State Endangered

The least Bell's vireo is a small, migratory insectivore that prefers dense riparian vegetation for foraging and nesting. Historically, the least Bell's vireo was a common to locally abundant species found in lowland riparian habitats from northern California to coastal southern California. Loss of riparian habitats and the effects of brown-headed cowbird parasitism have resulted in a large decline in the population. The population was estimated at 300 pairs in 1986 when listed by the USFWS. Currently, the population is limited to mid- to southern California. The majority of the population is found in San Diego County. Since listing, least Bell's vireo numbers have increased six-fold. In 1998, the population was estimated at 2000 pairs (Kus 2002). Nests are typically placed within 1 m of the ground in dense shrubby riparian habitat. Least Bell's vireo has moderate to low potential to occur in the southern willow scrub north of the PRS impact area. The species was detected in 2001 in habitat along the Otay River within one mile of the PRS impact area (BIOS 2009).

3.1.4 Jurisdictional Resources

No jurisdictional resources were observed within the impact areas for the Wueste Road pipeline. The areas near the proposed PRS that support wetland vegetation such as mule fat scrub, southern

willow scrub and tamarisk scrub are present due to artificial circumstances (i.e., irrigation from the adjacent shooting range and potential leak from the reservoir) and are located adjacent to existing frequently traveled dirt roadways that would only be used for project access.

3.2 Alta Road Pipeline (R2077)

The general survey of the Alta Road Pipeline determined that there were no sensitive biological resources within the majority of the impact area for the pipeline, which is primarily limited to existing paved roadways. The impact area for the Alta Road pipeline alignment extends beyond existing roadways in one location: near the intersection of Otay Mesa Road and Alta Road. Along the southern side of Otay Mesa Road near the intersection of Otay Mesa and Alta Roads, the impact area will encroach upon compacted bare ground between the road and the adjacent development. While this area is disturbed and supports no vegetation, it has some potential to support listed fairy shrimp.

3.2.1 Plants

Vegetation Communities/Land Cover Types

Three vegetation communities were mapped within the survey area (Table 5, Figure 5a). Vegetation classification conforms to Holland (1986) with subsequent modifications by Oberbauer (2005), as described in the County of San Diego's Guidelines for Determining Significance (County of San Diego 2009).

Table 5. Vegetation Communities within the Alta Road Pipeline Survey Area

Code	Vegetation Community
12000	Urban/Developed
42200	Non-Native Grassland
42200	Disturbed Non-Native Grassland
Total	

Urban/Developed (12000)

Urban/developed areas include paved roads throughout the survey area and areas that support industrial developments.

Non-Native Grassland (44220)

The non-native grassland within this pipeline route is best described as a dense cover of non-native bromes (*Bromus* sp.) and wild oat (*Avena* sp.). There were few open areas. Areas classified as disturbed non-native grassland includes areas that are dominated by tumbleweed (*Salsola tragus*), areas that were recently disced and support little to no vegetation, dirt parking lots and other areas with signs of recent mechanical disturbance.

3.2.2 Vernal Pools/Road Ruts

Vernal pools were not observed within the impact areas and areas that could potentially support vernal pool species (such as fairy shrimp) were not observed within the majority of the impact areas. However, areas that show signs of ponded water (i.e., road ruts) were observed in the off-road impact area along the southern side of Otay Mesa Road near the intersection of Otay Mesa Road and Alta Road. These basins were not observed to support vernal pool plant indicator species and; therefore, have been classified as road ruts not vernal pools.

3.2.3 Wildlife

Quino Checkerspot Butterfly

A habitat assessment for Quino was conducted in March 2009 and no host plant species were observed within the survey area. The survey area included a segment that is no longer within the project footprint. A section was added to the alignment after the surveys and was not surveyed for Quino. The segment no longer within the footprint extends south from the intersection of Alta Road and Otay Mesa Road down an existing dirt road and then west on Airway Road. The area added to the alignment extends west from the intersection of Alta Road and Otay Mesa Road down the existing paved road and then south down Sanyo Road to its terminus at Airway Road. All impact areas added that occur outside of the 2009 Quino survey area consist of existing paved roads; the off-road impact along the road shoulder near the intersection of Alta Road and Otay Mesa Road was included in the 2009 survey area. The impact area along the Alta Road Pipeline is considered to have no potential to support Quino.

Coastal California Gnatcatcher

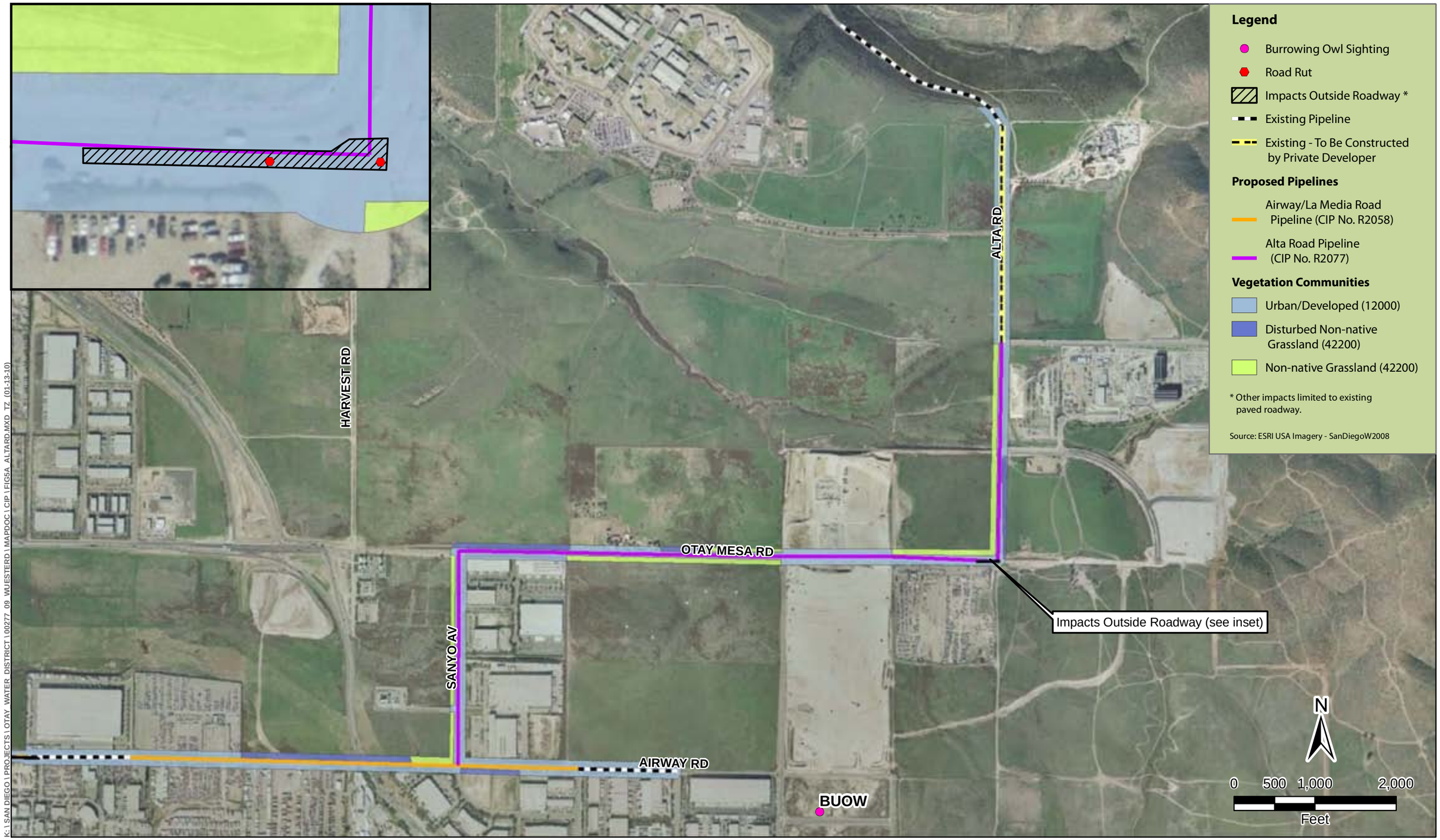
No habitat suitable for coastal California gnatcatchers was observed along the Alta Road Pipeline; therefore, focused surveys were not necessary.

Burrowing Owl

There is potential for burrowing owl to occur in the habitat surrounding the Alta Road Pipeline impact area. However, the majority of the non-native grassland is too dense for this species as there was 100% ground cover. This species typically prefers some open, unvegetated area near the burrow. In areas mapped as disturbed non-native grassland, no individuals were observed and no suitable burrows were observed during the general burrowing owl/burrow survey or during any of the general biological surveys.

San Diego Fairy Shrimp

Areas supporting ponded water (i.e., road ruts) were observed in the off-road impact area along the southern side of Otay Mesa Road near the intersection of Otay Mesa Road and Alta Road. These basins have the potential to support fairy shrimp. Wet season sampling of this area is being conducted in winter 2009/2010 to determine presence/absence of fairy shrimp within the impact area for the Alta Road Pipeline alignment. Initial results of the wet season surveys indicate that these areas do not hold water long enough for fairy shrimp to develop. Dry sampling will occur once the ruts have dried out.



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG5A ALTARD.MXD TZ (01-13-10)

ICF INTERNATIONAL

Figure 5a
Alta Road Pipeline - Biological Impacts
Otay Mesa Recycled Water CIP

Special-Status Wildlife Species

No additional special-status species were observed along the Alta Road Pipeline.

3.2.4 Jurisdictional Resources

No jurisdictional resources were observed within or immediately adjacent to the impact areas for the project.

3.3 Airway /La Media Road Pipeline (R2058)

The general survey of the Airway/La Media Road Pipeline alignment determined that there were no sensitive biological resources within the majority of the impact area for the pipeline, which is primarily limited to existing paved roadways. The impact area for the Airway/La Media Road Pipeline alignment extends beyond the existing roadways in two locations: along the south side of Airway Road and along the east side of La Media Road near the intersection of Airway and La Media Roads. While these areas are disturbed and support no vegetation, they have some potential to support listed fairy shrimp and wetland species due to the presence of basins found to support ponded water (i.e., road ruts) as well as the presence of disturbed wetlands immediately adjacent to the proposed impact area east of La Media Road.

3.3.1 Plants

Vegetation Communities/Land Cover Types

Five vegetation communities were mapped within the survey area (Table 6, Figure 5b). Vegetation classification conforms to Holland (1986) with subsequent modifications by Oberbauer (2005), as described in the County of San Diego's Guidelines for Determining Significance (County of San Diego 2009). The three vegetation communities within the impact areas are discussed below.

Table 6. Vegetation Communities within the Airway /La Media Road Pipeline Survey Areas

Code	Vegetation Community
11200	Disturbed Wetland
12000	Urban/Developed
42200	Non-Native Grassland
42200	Disturbed Non-Native Grassland
52400	Freshwater Marsh
Total	

Urban/Developed (12000)

Urban/developed areas include paved roads throughout the survey area and areas that support industrial developments.

Non-Native Grassland (44220)

The non-native grassland within this pipeline route is best described as a dense cover of non-native bromes (*Bromus* sp.) and wild oat (*Avena* sp.). There were few open areas. The areas classified as disturbed non-native grassland include areas dominated by tumbleweed, areas that were recently disced and support no vegetation, dirt parking lots and other areas with signs of recent mechanical disturbance.

3.3.2 Vernal Pools/Road Ruts

Vernal pools were not observed within the impact areas and areas that could potentially support vernal pool species (such as fairy shrimp) were not observed within the majority of the impact areas. However, areas supporting ponded water (i.e., road ruts) were observed in the off-road impact areas along the southern side of Airway Road and along the eastern side of La Media Road near the intersection of Airway Road and La Media Road. These basins were not observed to support vernal pool plant indicator species and; therefore, have been classified as road ruts not vernal pools.

3.3.3 Wildlife

Quino Checkerspot Butterfly

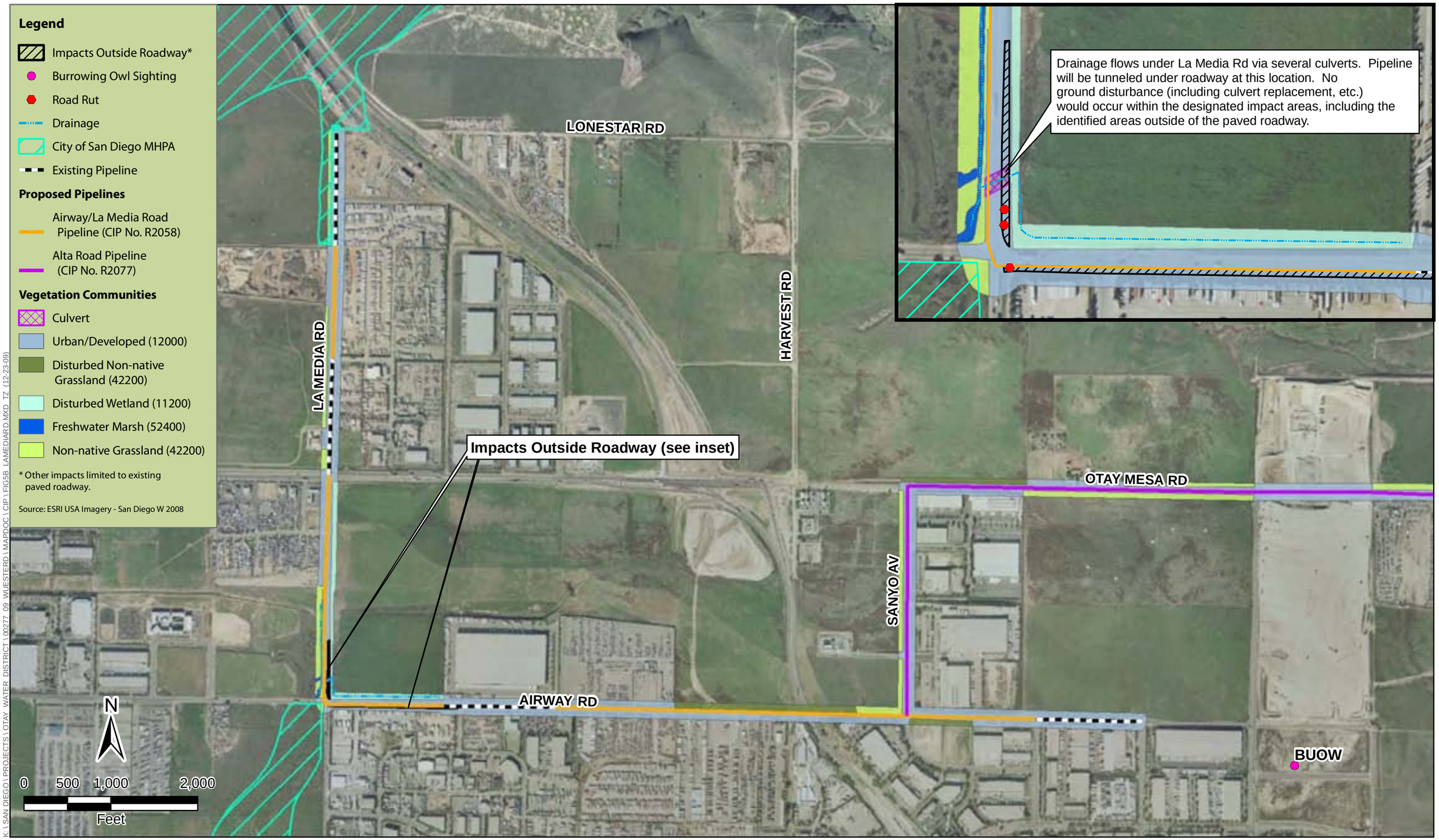
A habitat assessment for Quino was conducted in March 2009 and no host plant species were observed within the survey area. All areas surveyed are within the current alignment. A segment that extends from the intersection of La Media and Otay Mesa Road to the northern terminus of La Media Road was added after the Quino surveys were conducted. All impacts in this new segment are proposed within existing paved roads, except for two areas near the intersection of La Media Road and Airway Road. Two staging areas were added along the road shoulders after Quino surveys were conducted: one along the eastern shoulder of La Media Road just northeast of its intersection with Airway Road and one along the southern shoulder of Airway Road just southeast of its intersection with La Media Road. These areas occur along road edges that are frequently disturbed (and currently being disturbed as part of an adjacent development project), consist of bare ground, and provide no nectar or host plants for Quino. Nectar sources in other areas were limited to non-native species such as short pod mustard. For these reasons the impact area along the Airway/La Media Road Pipeline is considered to have no potential to support Quino.

Coastal California Gnatcatcher

No habitat suitable for coastal California gnatcatchers was observed along the Airway/La Media Road Pipeline; therefore, focused surveys were not necessary.

Burrowing Owl

One burrowing owl was observed approximately 914 m (3,000 ft) away from the end of the pipeline, specifically approximately 260 m (853 ft) southeast of the intersection of Airway Road and Enrico Fermi Drive (Figure 5a-b). This owl was observed perched on a metal culvert structure.



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG5B_LAMEDIARD.MXD TZ (12-23-09)

ICF INTERNATIONAL

Figure 5b
Airway/La Media Pipeline - Biological Impacts
Otay Mesa Recycled Water CIP

San Diego Fairy Shrimp

Areas supporting ponded water (i.e., road ruts) were observed in the off-road impact area along the southern side of Airway Road and along the eastern side of La Media Road near the intersection of Airway Road and La Media Road. These basins have the potential to support fairy shrimp. Wet season sampling of this area is being conducted in winter 2009/2010 to determine presence/absence of fairy shrimp within the impact area for the Alta Road Pipeline alignment. Initial results of the wet season surveys indicate that these areas do not hold water long enough for fairy shrimp to develop. Dry sampling will occur once the ruts have dried out.

Special-Status Wildlife Species

No additional special-status species were observed along the Alta Road Pipeline.

3.3.4 Jurisdictional Resources

A drainage channel runs along the western side of Le Media Road north of the intersection of Airway Road and La Media Road, crosses under La Media Road just north of this intersection, and then connects to a drainage channel that runs north to south along the eastern side of La Media Road. The proposed Airway/La Media Pipeline would tunnel under this culvert for the pipeline; therefore, removal/replacement of the culverts under the roadway is not proposed or required. Proposed impacts in this area are limited to a staging area along the east side of La Media Road north of the intersection with Airway Road. The impact area would not extend beyond the existing dirt road shoulder and would not result in impacts to the culvert outlet or adjacent disturbed wetland.

Chapter 4
Impacts and Mitigation Measures

The following sections discuss impacts to biological resources associated with the construction and operation of the Wueste Road Pipeline, the Alta Road Pipeline, and the Airway/La Media Road Pipeline, as well as the associated mitigation measures. The resources are discussed separately for each of the three pipelines and a summary of impacts and mitigation is found at the end of this chapter.

4.1 Wueste Road Pipeline (R2087)

The impact area for the Wueste Road pipeline varies along the alignment and consists of the following:

1. From the northernmost portion of the Wueste Road Pipeline to where the pipeline heads west off of the paved Wueste Road: the impact area is limited to the extent of the paved portion of Wueste Road and a 10-ft-area east of the proposed pipeline alignment (which includes some vegetated areas along the east side of Wueste Road);
2. The 175-ft-long portion that heads west off of Wueste Road: the impact area consists of a 20-ft-wide corridor centered on the proposed alignment for the 50-ft-long portion that is being constructed via open trench (125 ft of pipe in this area is being installed via jack-and-bore) and the two jacking pits (eastern pit - 20 ft x 10 ft, western pit - 40 ft x 20 ft).
3. The remainder of the pipeline alignment that heads south to an existing structure at the southwestern edge of the OWTP: the impact area consists of an 80-90-foot-wide corridor.

4.1.1 City of Chula Vista Preserve Impacts

A portion of the proposed impact area (a total of 2.04 acres of native habitat and 0.51 acres of developed areas) for the Wueste Road Pipeline alignment lies within a designated "100% Preserve Area" of the City of Chula Vista's MSCP (Figures 3a-e). Implementation of the proposed Wueste Road pipeline would not conflict with the intent of the City of Chula Vista MSCP. Pipelines and roadways are conditionally compatible uses within the 100% Preserve. In addition, following construction the existing road would continue to be used by the District for periodic maintenance and emergency access but the remainder of the impacted area would be undisturbed and native habitat would reestablish in these areas. Due to the presence of federally listed species (i.e., coastal California gnatcatcher) within the project impact area, the project will require an incidental take permit from the USFWS and; therefore, would not require a Habitat Loss and Incidental Take (HLIT) permit from the City of Chula Vista.

4.1.2 City of San Diego MHPA Impacts

The majority of the proposed impact areas for the Wueste Road Pipeline alignment lie either immediately adjacent or within to the City of San Diego's MHPA (Figures 3a-e). The proposed project has been designed to minimize impacts to the MHPA (a total of 0.33 acre) by focusing impacts in the least environmentally sensitive areas (i.e., existing paved and dirt roadways and

trails). Native vegetation impacted as a result of the proposed project would be limited to those areas occurring along existing roadways and trails. Proposed mitigation ratios for impacts to native vegetation communities within the City of San Diego's MHPA are consistent with those outlined in Table 3. Upland Mitigation Ratios of the City's Biology Guidelines. In addition, implementation of the proposed Wueste Road pipeline would not conflict with the intent of the City of San Diego Multiple Species Conservation Program. Pipelines are considered conditionally compatible uses within the City MHPA.

4.1.3 Vegetation Communities/Land Cover Types

The construction of the Wueste Road Pipeline would result in direct impacts to 7.24 acres of vegetation communities/land cover types (Figures 4a-d). No mitigation is required for impacts to 0.13 acres of eucalyptus woodland or 2.67 acres of urban/developed areas and these two communities are not discussed any further in this section. Impacts to the remaining vegetation communities and associated mitigation measures are discussed below.

Maritime Succulent Scrub

In total, direct impacts will occur to 0.84 acres of maritime succulent scrub, including 0.70 acres occurring within the City of Chula Vista's Preserve. Mitigation for impacts to maritime succulent scrub will be completed at a 3:1 ratio through creation of 2.52 acres of maritime succulent scrub within the District's San Miguel Habitat Management Area (HMA). The District is in the first year of a 1-acre maritime succulent scrub revegetation project within the HMA, which is progressing very well. The HMA (see Figure 6) supports suitable soils for the creation of this habitat type and existing disturbed areas occur within the HMA that would provide suitable locations for the establishment of additional areas of maritime succulent scrub.

Diegan Coastal Sage Scrub

In total, direct impacts will occur to 3.29 acres of Diegan coastal sage scrub (2.13 to undisturbed and 0.16 to disturbed), including 0.07 acre located within the City of San Diego's MHPA and 1.34 acres located within the City of Chula Vista's Preserve. Mitigation for impacts to Diegan coastal sage scrub will be completed at a 2:1 ratio through the use of available coastal sage scrub credits within the District's existing HMA, which is an agency-approved mitigation bank (Figure 6).

Non-Native Grassland

In total, direct impacts will occur to 0.31 acres of non-native grassland (0.22 to undisturbed and 0.09 to disturbed), including 0.01 acre located within the City's MHPA. Mitigation for impacts to non-native grassland will be completed at a 0.5:1 ratio for impacts occurring outside the City of San Diego's MHPA and a 1.5:1 ratio for impacts occurring within the MHPA through the use of available grassland credits within the District's existing HMA.

4.1.4 Vernal Pools/Road Ruts

Three road ruts occur within the proposed impact areas for the Wueste Road Pipeline. These basins are devoid of vegetation, including listed vernal pool plant species. Impacts to road ruts that do not support listed plant or wildlife species are not considered significant and do not require mitigation. See below for a discussion of the potential for these areas to support listed fairy shrimp species.

Several road ruts and a vernal pool complex occur outside of the proposed impact areas for the Wueste Road Pipeline. These basins/this complex, which provide potentially suitable habitat for listed vernal pool plant species (e.g., San Diego fairy shrimp), would not be impacted (directly or indirect) by the proposed project as they are located either a significant distance from the proposed impact areas or they are topographically separated from the proposed impact area such that indirect impacts would not occur (i.e., the vernal pool complex occurs east of an existing berm that is located along the eastern side of Wueste Road and separates and protects the road ruts from the impact areas).

4.1.5 Special-Status Species

The following section includes a discussion of each federally or state listed species for which focused surveys were conducted, designated critical habitat for listed species, potential impacts to each species resulting from the proposed project, determination of significance, and proposed mitigation measures. In addition, federally protected resources, such as nesting birds, are also discussed below.

Plants

No federally or state listed plant species were detected during the surveys of the Wueste Road Pipeline. Several species listed by CNPS were observed within the survey area and two of these, discussed below, occur within the impact area.

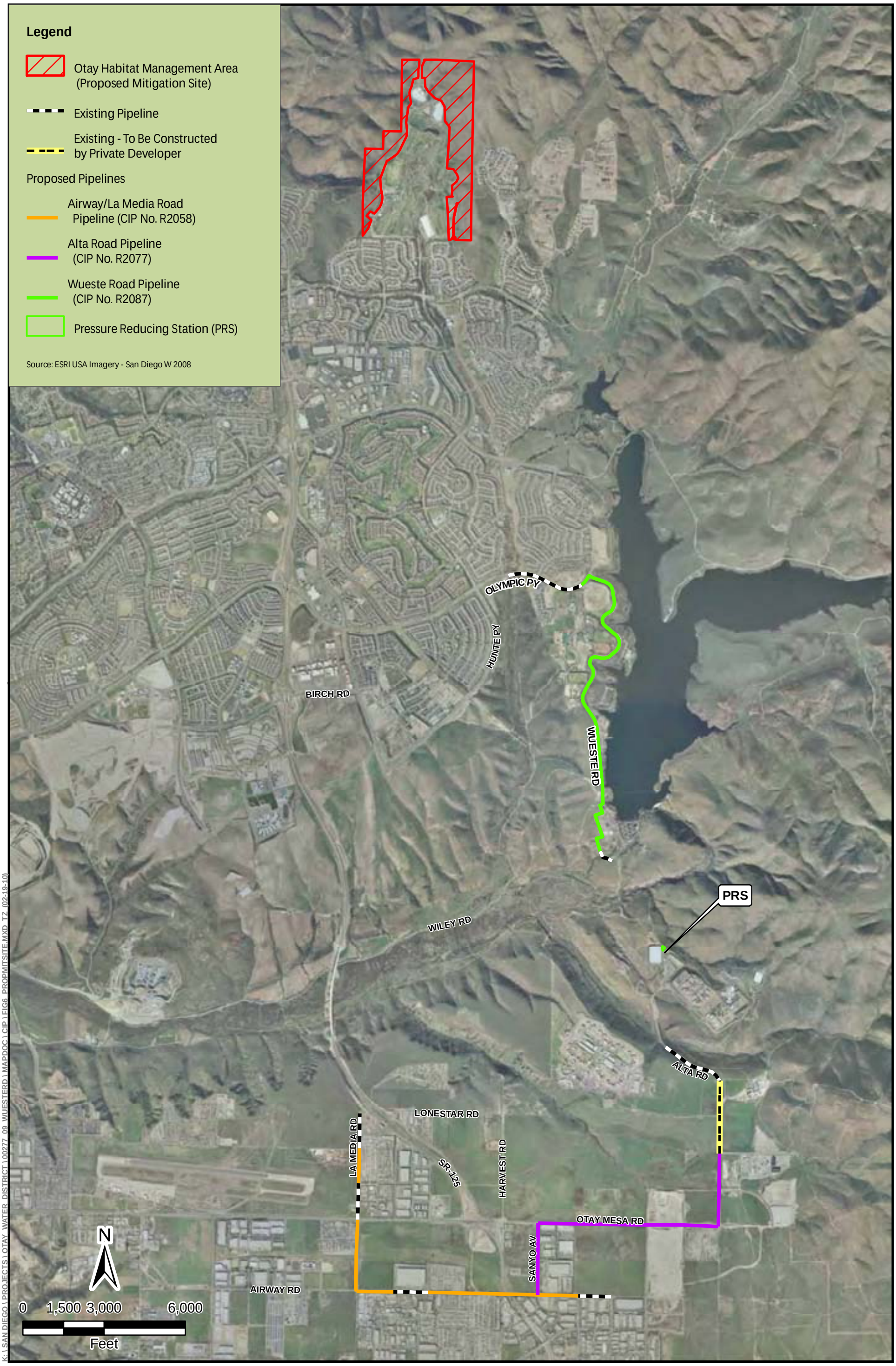
San Diego Sunflower

San Diego sunflower is a CNPS List 4 species that is commonly found in Diegan coastal sage scrub. San Diego sunflower was observed at a landscape-level throughout the Diegan coastal sage scrub and maritime succulent scrub on the Wueste Road portion of the survey area. A total of 3.29 acres of coastal sage scrub and 0.84 acres of maritime succulent scrub supporting this species would be impacted by the Wueste Road Pipeline. Impacts to this CNPS List 4 species are not considered to be significant as (1) this species is found throughout the Diegan coastal sage scrub and maritime succulent scrub located within and immediately adjacent to the survey area and (2) the loss of a total of 4.13 acres supporting this species does not represent the loss of a significant percentage of the population of this species in the area. Therefore, no mitigation for impacts to San Diego sunflower is proposed.

Palmer's Grapplinghook

Palmer's grapplinghook is a CNPS List 4 species that is found in Diegan coastal sage scrub and maritime succulent scrub. A total of approximately 600 individuals of Palmer's grapplinghook occur within the impact area west of the OWTP. Impacts to this CNPS List 4 species are considered to be significant as this species is not found throughout the coastal sage scrub and maritime succulent scrub in and surrounding the project area and; therefore, the loss of 600 individuals would represent the loss of a significant percentage of the population in the project area.

Impacts to 600 individuals of Palmer's grapplinghook is proposed to be mitigated through on-site seed collection and planting of this species in the proposed 2.52-acre maritime succulent scrub revegetation site within the District's HMA.



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG6 PROPMITSITE.MXD TZ (02-19-10)

ICF INTERNATIONAL

Figure 6
Proposed Mitigation Site
Otay Mesa Recycled Water CIP

Wildlife

Focused surveys were conducted for Quino, listed fairy shrimp, and California gnatcatcher within the Wueste Road Pipeline. Each of these species is discussed below. In addition, potential impacts to the nests of birds protected by the MBTA are discussed below.

Quino Checkerspot Butterfly

The Quino checkerspot butterfly, a federally threatened species, is known to occur in San Diego County and is closely associated with the open habitats found within the survey area along Wueste Road. Focused surveys to determine presence/absence of this species were conducted in March and April 2009 along the Wueste Road Pipeline alignment except for the PRS site. The PRS site was added to the project after Quino surveys had been completed. Approximately 0.03 acre of Quino critical habitat occurs within the impact area for the PRS site (Figure 3e). However, the impact area does not support primary constituent elements of Quino critical habitat and provides limited to no potential to support this species (i.e., it lacks larval host plants and nectar sources and consists of an existing concrete vault and adjacent well-maintained and frequently used dirt road).

Impacts of Proposed Project

The impact areas for the proposed Wueste Road Pipeline alignment were identified to support suitable habitat for this species. However, focused surveys conducted during the 2009 flight season identified no Quino within the survey area (consisting of the proposed impact area and a 200-foot-buffer). Identification of the PRS site near the District's 860-1 Reservoir as a project component occurred after the 2009 Quino survey season; therefore, focused surveys were not conducted in this area. The PRS impact area does occur within Quino critical habitat; however, the primary constituent elements for Quino are not present as there are no host plants or nectar species within the impact area. This species is not expected to occur within the PRS impact area. Therefore, the project would not result in impacts to Quino.

Mitigation Measures

As the project is not anticipated to result in impacts to this species, which has not been identified within the survey area, no mitigation measures are proposed.

Determination of Effect

While suitable habitat for Quino occurs within the project area, this species was not identified to occur during focused surveys conducted in 2009. Therefore, the project would not result in an adverse effect on this federally listed species.

San Diego Fairy Shrimp

The San Diego fairy shrimp is a federally endangered species endemic to San Diego County mesas and associated with vernal pool habitats. This species is also known to occur in road ruts within the Otay Mesa area. Surveys were conducted to identify areas within the project footprint that provide potentially suitable habitat for the San Diego fairy shrimp (i.e., ponded areas). Three basins were identified within the project impact areas of the Wueste Road Pipeline. These three basins were sampled when dry to determine if they support listed fairy shrimp species. No cysts of any fairy shrimp species were found in the soil samples. Wet season sampling of these basins are currently

being conducted (during the 2009/2010 rainy season) to detect whether hatched fairy shrimp occur.

Impacts of Proposed Project

The proposed project is not anticipated to result in direct or indirect impacts to San Diego fairy shrimp as this species (or other listed fairy shrimp) have not been detected within the project impact areas.

Mitigation Measures

As the project is not anticipated to result in impacts to this species, which has not been identified within the project impact areas, no mitigation measures are proposed.

Determination of Effect

While suitable habitat for the San Diego fairy shrimp occurs within the project area, this species has not been identified within the impact areas to date. Therefore, the project would not result in an adverse effect on this federally listed species.

Coastal California Gnatcatcher

The coastal California gnatcatcher, a federally threatened species, is known to occur in San Diego County and is closely associated with coastal sage scrub habitats. Focused surveys to determine presence/absence of this species were conducted in July and August 2009 along the proposed Wueste Road Pipeline alignment; focused surveys were not conducted in the vegetation surrounding the impact area for the proposed PRS as impacts to suitable habitat would not occur. Critical habitat is located at the southern terminus of the Wueste Road Pipeline near the OWTP and the proposed Project will impact 2.53 acres of designated critical habitat for this species (Figure 4d).

Impacts of Proposed Project

Six pairs of coastal California gnatcatchers were detected within the survey area and may be affected by direct and indirect impacts. Direct impacts consist of the loss of 4.13 acres of habitat suitable for the species (0.84 acres of maritime succulent scrub and 3.29 acres of Diegan coastal sage scrub). Indirect impacts can occur from increased noise and dust during construction activities.

Mitigation Measures

To avoid, minimize, and then offset impacts from project implementation, the following measures will be implemented:

- A total of 6.58 acres of Diegan coastal sage scrub credits shall be deducted from the District's HMA, including 2.53 acres located within designated critical habitat for the coastal California gnatcatcher.
- A total of 2.52 acres of maritime succulent scrub shall be created within the District's HMA.
- Direct impacts (i.e., vegetation clearing) to occupied/suitable habitat for the coastal California gnatcatcher shall occur outside of the breeding season (February 15 – August 31) and a qualified biological monitor shall be present during vegetation removal.

- All construction activities associated with the construction of the PRS shall be conducted outside of the breeding season (February 15 – August 31) to avoid potential indirect impacts to the coastal California gnatcatcher.
- Indirect impacts from dust will be managed through the use of water trucks and other reasonable methods of dust control during project activities.

Determination of Effect

Coastal California gnatcatcher occupied habitat occurs within the project area. The proposed project will result in "take" of up to 6 pairs of this species as a result of impacts to 4.13 acres of suitable habitat. Implementation of the mitigation measures outlined above would reduce potential impacts to this species. Potential impacts to the coastal California gnatcatcher resulting from the proposed project would not jeopardize the continued existence of this species.

Nesting Birds

Impacts to nesting birds protected by the MBTA and similar provisions of the Fish and Game Code can occur if work is conducted during the breeding season (January through September). There is potential for raptors and other early nesting species such as hummingbirds to initiate nests as early as January. In general, the peak nesting season is March through August. All vegetation, native or non-native, provides habitat that may be used for nesting.

Mitigation Measures

To avoid direct impacts to nesting birds and raptors, the following measures will be implemented:

- Pre-construction Survey: If vegetation removal is to be conducted during the breeding season (January through September), pre-construction surveys must be conducted to determine if any birds protected by the MBTA and similar provisions of the Fish and Game Code are nesting within or immediately adjacent to any vegetation that will be removed within the impact area. If a nest is found, methods need to be implemented to avoid impacts. This will consist of a no-work buffer zone placed around the nest until the adults are no longer using it or the young have fledged. The specific buffer width will be determined by a qualified biologist at the time of discovery. These will vary based on site conditions and type of work to be conducted.
- Monitoring: A qualified biologist will monitor vegetation removal if conducted during the breeding season. Impacts will be kept to a minimum and direct impacts to habitat will only occur within the final approved impact area.

4.1.6 Jurisdictional Resources

Jurisdictional resources do not occur within the proposed impact areas. Therefore, impacts to jurisdictional resources would not occur as a result of the proposed project. Standard BMPs will be employed during project construction to protect biological resources surrounding the project impact area from runoff.

4.2 Alta Road Pipeline (R2077)

The anticipated impact area for the Alta Road Pipeline is limited to the existing limits of the paved Alta Road as well as a 4,646 square foot area within the disturbed road shoulder south of Otay Mesa Road near the intersection of Otay Mesa Road and Alta Road (Figure 5a).

4.2.1 Vegetation Communities/Land Cover Types

The construction of the Alta Road Pipeline would result in impacts to 4.54 acres of urban/developed areas. The only impact area that extends outside of the paved road (but still within habitat mapped as urban/developed) consist of a small portion of the road shoulder south of Otay Mesa Road near the intersection of Otay Mesa Road and Alta Road (Appendix G, Photo 6; Figure 5a). This area is devoid of vegetation. Impacts to urban/developed areas are not significant and would not require mitigation.

4.2.2 Vernal Pools/Road Ruts

Vernal pools were not observed within the impact areas and areas that could potentially support vernal pool species (such as fairy shrimp) were not observed within the majority of the impact areas. However, areas supporting ponded water (i.e., road ruts) were observed in the off-road impact area along the southern side of Otay Mesa Road near the intersection of Otay Mesa Road and Alta Road. These basins were not observed to support vernal pool plant indicator species and; therefore, have been classified as road ruts not vernal pools. Impacts to road ruts, lacking listed vernal pool species, are not considered significant and would not require mitigation.

4.2.3 Special-Status Species

The following section includes a discussion of each federally or state listed threatened or endangered species for which focused surveys were conducted, designated critical habitat for listed species, potential impacts to each species resulting from the proposed project, determination of significance, and proposed mitigation measures.

Plants

No special-status plant species, including federally or state listed plant species, will be impacted by the Alta Road Pipeline as the impact areas are limited to existing paved roadways and a small portion of the disturbed road shoulder south of Otay Mesa Road near its intersection with Alta Road. Therefore, mitigation measures are not required.

Wildlife

No special-status wildlife species, including federally or state listed wildlife species, will be directly impacted by the Alta Road Pipeline as the majority of the work will occur within the existing road. There is a small area of bare ground along the edge of Otay Mesa Road that will be impacted. This area does not support burrows that may be used by burrowing owls and does not support host or nectar plant species for Quino so there will be no direct impacts to these species from installation of this pipeline. No vegetation will be removed as a result of installation of this pipeline so there will be no impacts to nesting birds.

No federally or state listed wildlife species will be indirectly impacted by the Alta Road Pipeline for the same reasons stated above. There is some potential for burrowing owl to occur in the surrounding habitat and if they occurred, there is potential for indirect impacts from noise or dust. There are no regulations on noise levels in occupied burrowing owl habitat during the breeding season, thus, no noise abatement measures are required for work conducted during the breeding season. There is potential for dust to impact the surrounding vegetation. Dust will be managed through the use of water trucks and other reasonable methods of dust control.

In addition, wet season sampling is being conducted in winter 2009/2010 within basins occurring within the one area of impact associated with the Alta Road Pipeline alignment. This area occurs within existing disturbed road shoulders (but outside of existing paved areas). Dry season sampling of these off-pavement impact areas will be conducted subsequent to the 2009/2010 wet season sampling. To date, no fairy shrimp cysts or hatched fairy shrimp have been found within any of the sampled basins.

4.2.4 Jurisdictional Resources

Jurisdictional resources do not occur within or immediately adjacent to the proposed impact areas. Therefore, impacts to jurisdictional resources would not occur as a result of the proposed project. Standard BMPs will be employed during project construction to protect biological resources surrounding the project impact area from runoff.

4.3 Airway/La Media Road Pipeline (R2058)

4.3.1 Vegetation Communities/Land Cover Types

The construction of the Airway/La Media Road Pipeline would result in impacts to 7.97 acres of urban/developed. A staging area is located outside of the paved road (but still within habitat mapped as urban/developed) and is already devoid of vegetation and occurs along the road edge (Appendix G, Photo 7). There will be no impacts to any sensitive vegetation communities. Impacts to disturbed habitat do not require mitigation.

4.3.2 Vernal Pools

The construction of the Airway/ La Media Road Pipeline would not result in impacts to special-status vernal pool plant species or listed fairy shrimp as neither biological resource is present in the road ruts that occur in the impact area outside of the paved road. No mitigation measures regarding vernal pools are required.

4.3.3 Special-Status Species

The following section discusses each federally or state listed threatened or endangered species for which focused surveys were conducted, potential impacts to each species and its designated critical habitat resulting from the proposed project, determination of significance, and proposed conservation measures.

Plants

No federally or state listed plant species will be impacted by the Airway/La Media Road Pipeline as all work will occur within the existing road. No mitigation measures regarding special-status plant species are required.

Wildlife

No federally or state listed wildlife species will be directly impacted by the Alta Road Pipeline as the majority of the work will occur within the existing road. There is a small area of bare ground along the edge of La Media Road that will be used as a staging area. This area does not support burrows that may be used by burrowing owls and does not support host or nectar plant species for Quino so there will be no direct impacts to these species from installation of this pipeline. No vegetation will be removed as a result of installation of this pipeline so there will be no impacts to nesting birds.

No federally or state listed wildlife species will be indirectly impacted by the Alta Road Pipeline for the same reasons stated above. Burrowing owls do occur in the surrounding habitat and there is potential for indirect impacts from noise or dust. There are no regulations on noise levels in occupied burrowing owl habitat during the breeding season, thus, no noise abatement measures are required for work conducted during the breeding season. There is potential for dust to impact the surrounding vegetation. Dust will be managed through the use of water trucks and other reasonable methods of dust control.

In addition, wet season sampling is also currently being conducted within basins occurring within the two areas of impact associated with the Airway/La Media Road Pipeline alignment. These areas occur within existing disturbed road shoulders (but outside of existing paved areas). Dry season sampling of these off-pavement impact areas will be conducted subsequent to the 2009/2010 wet season sampling. To date, no fairy shrimp cysts or hatched fairy shrimp have been found within any of the sampled basins.

4.3.4 Jurisdictional Resources

Jurisdictional resources do not occur within the proposed impact areas. Therefore, impacts to jurisdictional resources would not occur as a result of the proposed project. Standard BMPs will be employed during project construction to protect biological resources surrounding the project impact area from runoff.

4.4 Summary of Impacts and Mitigation

In total, 19.65 acres will be impacted by the proposed Project (Table 7). Mitigation is only required for impacts along the Wueste Road Pipeline. All impacts to habitat, sensitive plants, MHPA lands and City of Chula Vista Preserve lands will be offset through the deduction of available credits at the District's HMA (6.58 acres of Diegan coastal sage scrub and 0.16 acres of non-native grassland) and the creation of 2.52 acres of maritime succulent scrub within the District's HMA. Impacts to sensitive plant species (Palmer's grapplinghook) will be mitigated through on-site seed collection and planting of this species in the proposed 2.52-acre maritime succulent scrub revegetation site within the District's HMA. Impacts to sensitive wildlife species will be offset with the habitat-based

mitigation (deduction of credits and creation) and avoidance of the breeding/flight season for the focal species (i.e., gnatcatcher and birds/raptors protected under the MBTA).

Table 7. Summary of Impacts and Mitigation

Habitat Type	Total Acreage within Impact Area	Acreage within MHPA	Acreage within Chula Vista Preserve	Mitigation Ratio	Mitigation Acreage
Wueste Road Pipeline					
Maritime succulent scrub	0.84	0.00	0.70	3:1	2.52
Diegan Coastal Sage Scrub (all types)	3.29	0.07	1.34	2:1	6.58
Non-native Grassland	0.31	0.01	0.00	0.5:1 (outside MHPA) 1.5:1 (inside MHPA)	0.17
Eucalyptus Woodland	0.13	0.01	0.00	N/A	N/A
Urban/Developed	2.67	0.25	0.51	N/A	N/A
Alta Road Pipeline					
Urban/Developed	4.54	0.00	0.00	N/A	N/A
Airway/La Media Road					
Urban/Developed	7.97	0.00	0.00	N/A	N/A

Chapter 5
References

Abrams, L. 1923. *Illustrated Flora of the Pacific States,* Volumes I–III. Stanford University Press, Stanford, California.

Abrams, L. 1944. *Illustrated Flora of the Pacific States*. Volume 2. Polygonaceae to Krameriaceae. Stanford University Press, Stanford, California.

Abrams, L. and R. S. Ferris. 1960. *Illustrated Flora of the Pacific States,* Volume IV. Stanford University Press, Stanford, California.

American Ornithologists' Union (AOU). 1998. Check-list of North American Birds, 7th ed. Washington, DC: American Ornithologists' Union.

———. 2000. Forty-second Supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 117: 847–858.

———. 2002. Forty-third Supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 119:897–906.

———. 2003. Forty-fourth Supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 120:923–931.

———. 2004. Forty-fifth Supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 121:985–995.

———. 2005. Forty-sixth Supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 122:1026–1031.

———. 2006. Forty-seventh Supplement to the American Ornithologists' Union Checklist of North American Birds. Auk 123:926–936.

Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Dragoo, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Reid, D. W. Rice, and C. Jones. 2003. Revised Checklist of North American Mammals North of Mexico, 2003. Lubbock, TX: Occasional Papers, Museum of Texas Tech University, Number 229.

Beauchamp, R. M. 1986. *A Flora of San Diego County, California.* Sweetwater River Press.

BIOS. 2009. Special Status Species – USFWS Carlsbad, Accessed on November 17, 2009 via the CDFG website using the BIOS mapping system.

Bowman, R. H. 1973. *Soil Survey of the San Diego Area, California.* United States Department of Agriculture.

California Department of Fish and Game (CDFG). 2005. California Wildlife Habitat Relationships System (CWHR), version 8.1 personal computer program. Sacramento, CA: California Department of Fish and Game.

CDFGa. 2009. Special Plants. Natural Diversity Data Base. January.

CDFGb. 2009. Special Animals. Natural Diversity Data Base. July.

California Natural Diversity Data Base (CNDDB). 2009. RareFind 3 Report.

California Native Plant Society (CNPS). 2009. Electronic Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society, Sacramento

City of Chula Vista. 2005. General Plan. Adopted December 13, 2005.

City of San Diego. 1997. Multiple Species Conservation Plan. City of San Diego MSCP Subarea Plan.

Collins, J. T., and T. W. Taggart. 2002. S*tandard Common and Current Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians,* 5th ed. Lawrence, KS: Center for North American Herpetology.

County of San Diego. 2009. Guidelines for Determining Significance and Report Format and Content Requirements. Biological Resources. Land Use and Environmental Group. Third Revision. June 30, 2009.

Dudek and Associates (Dudek). 2000. Sensitive Species Accounts for the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP).

Haug, E. A., B. A. Millsap and M. S. Martell. 1993. Burrowing Owl (*Athene cunicularia*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/061

Hickman, J. C. (ed.). 1993. *The Jepson Manual; Higher Plants of California.* University of California Press, Berkeley.

Holland, R. F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Sacramento, CA: Nongame-Heritage Program, CDFG. 156 pp.

Kus, B. 2002. Least Bell's Vireo (*Vireo bellii pusillus*). *In* The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. Available:< http://www.prbo.org/calpif/htmldocs/riparian_v-2.html>.

Lightner, J. 2006. *San Diego County Native Plants.* San Diego Flora

McAuley, M. 1996. Wildflowers of the Santa Monica Mountains. Canyon Publishing Company.

McGurty, B. M. 1980. Preliminary review of the status of the San Diego horned lizard, Phrynosoma coronatum blainvellei and the orange-throated whiptail, Cnemidophorus hyperythrus beldingi. Inland Fisheries Endangered Species Program Special Publication, California Department of Fish and Game.

Munz, P. A. 1974. A Flora of Southern California. University of California Press, Berkeley, California.

Oberbauer, T. 2005. Terrestrial Vegetation Communities in San Diego County Based on Holland's Descriptions. 1996, revised 2005. Accessed via the San Diego County Website http://www.co.san-diego.ca.us/dplu/docs/Biological_Guidelines.pdf

Rebman, J.P. 2009. Personal communication via email. 8/10/09.

Rebman, J. P., and M. G. Simpson. 2006. *Checklist of the Vascular Plants of San Diego County*, 4th edition. San Diego, CA: San Diego Natural History Museum and San Diego State University.

Reiser, C. H. 1994. *Rare Plants of San Diego County*. Aquafir Press, Imperial Beach, CA.

Roberts, N. C. 1989. *Baja California Plant Field Guide.* Natural History Publ. Co. U.S.A.

Shuford, W. D and T. Gardali (eds). 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct population of birds of immediate conservation concern in California. *Studies of Western Birds 1.* Western Field Ornithologists, Camarillo, California and California Department of Fish and Game, Sacramento.

Skinner, M. W. and B. M. Pavlik. 1994. *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California.* Special Publications No. 1. Fifth Edition. February.

Stephenson, J. R. and G. M. Calcarone. 1999. Southern California mountains and foothills assessment: Habitat and species conservation issues. General Technical Report GTR-PSW-175. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture.

U.S. Fish and Wildlife Service (USFWS). 1997a. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines. Report from Carlsbad, California Field Office dated 28 July 1997. 4 pp.

USFWS. 1997b. Endangered and threatened wildlife and plants: determination of endangered status for the Laguna Mountain Skipper and Quino checkerspot butterfly. Federal Register 62 (11):2313-2322.

USFWS. 2002a. Quino Checkerspot Butterfly (*Euphydryas editha quino*) Year 2002 Survey Protocol.

USFWS. 2002b. Species Profile for San Diego fairy shrimp (*Branchinecta sandiegoensis*). http://ecos.fws.gov/docs/life_histories/K049.html

USFWS. 2002c. Species Profile for Riverside fairy shrimp (*Streptocephalus woottoni*). http://ecos.fws.gov/docs/life_histories/K03F.html

Unitt, P. 2004. San Diego County Bird Atlas. Proceedings of the San Diego Society of Natural History 39: i–vii, 1–639.

Whitaker, J.O. 1996. The Audubon Society Field Guide to North American Mammals. Revised and expanded. A.A. Knopf. New York.

Appendix A
Special-Status Plant Species Potential to Occur

Sensitive Plant Species and Their Potential to Occur

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
San Diego thornmint (*Acanthomintha ilicifolia*)	FT SE CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Jun Grassy openings in chaparral and coastal sage scrub, valley and foothill grassland, and vernal pools. Prefers friable or broken clay soils. 33 to 3150 ft.	No	Low	According to Reiser (1994), grassy openings in the chaparral or sage scrub with friable or broken clay soils are the preferred habitat of this species. Although clay soils and occasional openings in scrub occur on site, this species would have been observed, if present.
California adolphia (*Adolphia californica*)	CNPS List 2	Growth Form: perennial deciduous shrub Blooming Period: Dec-May Chaparral, coastal scrub, valley and foothill grassland. 148 to 2428 ft.	No	Moderate to high potential to occur prior to survey; low potential after survey.	Species has been documented from near Lower Otay Lakes and is usually associated with *Eriogonum fasciculatum* and *Artemisia californica* in xeric locales where shrub canopy reaches 4 or 5 ft in height (Reiser 1994). Suitable conditions do occur at on site, however, this species is a large, readily-apparent shrub and would have been observed if present.
Shaw's agave (*Agave shawii*)	CNPS List 2	Growth Form: perennial leaf succulent Blooming Period: Sep-May Coastal sage scrub and maritime succulent scrub. 33 to 246 ft	No	None	Plant typically occurs at lower elevations than occur on the project site. Species would be detectable if present on site.
San Diego bur-sage (*Ambrosia chenopofifolia*)	CNPS List 2	Growth Form: perennial shrub Blooming period: Apr-Jun Low growing, fairly open sage scrub. 180 to 509 ft.	No	Moderate to high potential to occur prior to survey; low potential after survey.	Moderate potential prior to surveys; low potential after surveys. According to Reiser (1994), the species occurs typically on arid expressions of coastal sage scrub, which does exist on site. However, this species would have been observed on site, if present.
Singlewort burrobush (*Ambrosia monogyra*)	CNPS List 2	Growth Form: perennial shrub Blooming Period: Aug-Nov Sandy areas in chaparral. Below 1640 ft.	No	None	Plant typically occurs within habitat that was not observed on the project site.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
San Diego ambrosia (*Ambrosia pumila*)	FE CNPS List 1B	Growth Form: perennial rhizomatous herb Blooming Period: Apr-Oct Chaparral, coastal sage scrub, valley and foothill grassland, vernal pools, often in disturbed areas. Can occur in creek beds, seasonally dry drainages, and floodplains. 66 to 1362 ft.	No	Low	Some of the Wueste Road Pipeline may qualify as potentially suitable habitat for this species due to its proximity to the Lower Otay Reservoir; however this species is fairly characteristic and would have been documented if present.
Aphanisma (*Aphanisma blitoides*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Mar-Jun Coastal bluffs and beach dunes. 3 to 1001 ft	No	None	No coastal bluffs or sand dunes occur on site. This species is restricted to beach habitats and is thought to be extirpated from San Diego County (Reiser 1994).
Del Mar manzanita (*Arctostaphylos glandulosa ssp. crassifolia*)	CNPS List 1B	Growth Form: perennial evergreen shrub Blooming Period: Dec-Jun Low- growing chaparral with eroding sandstone as substrate. 0 to 1198 ft.	No	None	Plant typically occurs within habitat that was not observed on the project site
Otay manzanita (*Arctostaphylos otayensis*)	CNPS List 1B	Growth Period: perennial evergreen shrub Blooming Period: Jan-Apr Chaparral or woodlands on volcanic rock outcrops. 902 to 5577 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitats not observed on site.
Dean's milkvetch (*Astragalus deanei*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: Mar-Oct Open shrubby slopes typically associated with coastal sage scrub, chaparral, and sandy washes. 246 to 2198 ft.	No	Low	Species is considered very rare (Reiser 1994) and is typically found on sandy soils, which were not observed within the survey area. Surveys conducted during appropriate blooming period within potential habitats. Species not observed.
San Diego milk-vetch (*Astragalus oocarpus*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: May-Aug Openings in chaparral and cismontane woodland. 1001 to 5000 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitat that was not observed on the project site.

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Coulter's saltbush (*Atriplex coulteri*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: Mar-Oct Coastal bluffs, coastal scrub, and valley and foothill grassland on alkaline or clay soils. 10 to 1509 ft.	No	Low	No coastal bluffs or sand dunes occur on site. Alkaline areas not present on site.
South Coast saltscale (*Atriplex pacifica*)	CNPS List 1B	Growth Period: annual herb Blooming Period: Mar-Oct Occurs in xeric, often disturbed coastal bluff scrub, coastal sage scrub, coastal dunes, coastal sage scrub and playas. Below 459 ft.	No	Low	One Otay Mesa record is from 1903; the other is from Reiser (1994) and needs field work to verify (CDFG 2009).
San Diego sagewort (*Artemisia palmeri*)	CNPS List 4	Growth Form: perennial deciduous shrub Blooming Period: (Feb) May-Sep Chaparral, coastal sage scrub, riparian forest, riparian scrub, and riparian woodland in sandy, mesic areas. Most often seen in perennial drainages. 49 to 3001 ft.	No	Low	Although adjacent to the Lower Otay Reservoir, the project site does not include any perennial stream drainages.
Goldenspined cereus (*Bergerocactus emoryi*)	CNPS List 2	Growth Form: perennial stem succulent Blooming Period: May-Jun Maritime succulent scrub. 10 to 1296 ft.	No	Low	Although the species typically occurs in maritime succulent scrub, a community observed at the project site, this readily discernible species was not observed. Reiser (1994) mentions that populations of this species often range "well inland from the coast" but most extant populations appear to be more coastal than the project site.
Encinitas baccharis (*Baccharis vanessae*)	FT SE CNPS List 1B	Growth Form: perennial deciduous shrub Blooming Period: Aug-Nov Maritime chaparral and cismontane woodland on sandstone. 197 to 2362 ft.	No	None	Plant typically occurs within habitat that was not observed on the project site

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
San Diego goldenstar (*Bloomeria* (=*Muilla) clevelandii*)	CNPS List 1B	Growth Form: Perennial bulbiferous herb Blooming Period: Apr-May Chaparral, coastal sage scrub, valley and foothill grasslands, near vernal pools on clay soils. 164 to 1526 ft.	No	Moderate potential prior to surveys; low potential after surveys.	This species, although a spring annual and not overly conspicuous, would have been observed if present on site. Botanists surveying this site are familiar with this species from multi-year surveys conducted on the nearby Otay Water District's Habitat Management Area, where this species occurs in large numbers.
Orcutt's brodiaea (*Brodiaea orcuttii*)	CNPS List 1B	Growth Form: perennial bulbiferous herb Blooming Period: May-Jul Moist grasslands, near streams and the periphery of vernal pools. 0-5249 ft.	No	Low	Low potential to occur on the project site due to lack of suitable habitat conditions.
Round-leaved filaree (*California macrophylla*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Mar-May Cismontane woodland, valley and foothill grassland on clay soils. 49 to 3937 ft.	No	Low	Species is restricted to clay lenses, which were not observed on the project site.
Tecate cypress (*Callitropsis (= Cupressus) forbesii*)	CNPS List 1B	Growth Form: perennial evergreen tree Coniferous forest and southern mixed chaparral. Tends to follow moist canyons and drainages downslope to relatively low elevations. 836 to 4921 ft.	No	None	Project area outside the known range of this species. Species would be detectable if present on site.
Dunn's mariposa lily (*Calochortus dunnii*)	SR CNPS List 1B	Growth Form: perennial bulbiferous herb Blooming Period: Apr-Jun Rocky openings in chaparral or grassland/chaparral ecotone. Seems to be restricted to metavolcanic and gabbroic soils. 1247 to 6004 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.
Lewis' evening primrose (*Camissonia lewisii*)	CNPS List 3	Growth Form: annual herb Blooming Period: Mar-May(Jun) Sandy substrates near the beach, typically on beach bluffs. 0 to 984 ft.	No	Low	The project site does not support very sandy soils and is further inland than where this species typically occurs.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
San Luis Obispo sedge (*Carex obispoensis*)	CNPS List 1B	Growth Form: perennial rhizomatous herb Blooming Period: Apr-Jun Closed-cone coniferous forest, chaparral, coastal prairie, coastal sage scrub, and valley and foothill grassland. Often in serpentinite seeps and on clay soils. Sometimes gabbro soils. 33 to 2592 ft.	No	None	Only known from Sycuan and McGinty Peaks in San Diego County (SDNHM 2009). Specific microhabitat conditions not observed on the project site.
Lakeside ceanothus (*Ceanothus cyaneus*)	CNPS List 1B	Growth Form : perennial evergreen shrub Blooming Period: Apr-Jun Closed-cone coniferous forest, dense chaparral. 771 to 2477 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.
Otay Mountain ceanothus (*Ceanothus otayensis*)	CNPS List 1B	Growth Form: perennial evergreen shrub Blooming Period: Jan-Apr Xeric chamise chaparral. 1969 to 3609 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitat that was not observed on the project site.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	CNPS List 2	Growth Form: perennial evergreen shrub Blooming Period: Dec-May Chaparral. 3 to 1247 ft.	No	None	Plant typically occurs within habitat that was not observed on the project site.
Smooth tarplant (*Centromadia pungens ssp. laevis*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Sep Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland. Below 2100 ft.	No	Low	Valley and foothill grasslands, particularly near alkaline locales, are the preferred habitat for this species (Reiser 1994). Alkaline habitats not documented on the project site.
Orcutt's pincushion (*Chaenactis glabriuscula var. orcuttiana*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Jan-Aug Coastal bluff scrub and coastal dunes. 10 to 328 ft.	No	None	No coastal bluffs or sand dunes occur on site. Plant typically occurs at lower elevations than occur on the project site within habitats not observed on site.

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Long spined-spine flower (*Chorizanthe polygonoides* var. *longispina*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Jul Clay lenses, largely devoid of shrubs. Occasionally seen on the periphery of vernal pool habitat and the periphery of montane meadows near vernal seeps. Below 4593 ft.	No	Low	Suitable micro-habitat conditions were not observed on the project site. Therefore, this species has low potential to occur.
Delicate clarkia (*Clarkia delicata*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Jun Oak woodlands and chaparral often on grabbroic soils. 770-3280ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitats not observed on site.
Summer holly (*Comarostaphylis diversifolia* var. *diversifolia*)	CNPS List 1B	Growth Form: perennial evergreen shrub Blooming Period: Apr-Jun Southern mixed chaparral, usually on mesic north-facing slopes. Almost the entire population occurs west of Interstate 15. 98-1804 ft.	No	None	Plant typically occurs within habitat that was not observed on the project site.
Salt marsh birds-beak (*Cordylanthus maritimus ssp. maritimus*)	FE SE CNPS List 1B	Growth Form: annual herb hemiparasitic Blooming Period: May-Oct Salt marsh. 0 to 98 ft.	No	None	Plant typically occurs at lower elevations than occur on the project site.
Orcutt's birds-beak (*Cordylanthus orcuttianus*)	CNPS List 2	Growth Form: annual herb hemiparasitic Blooming Period: (Mar)Apr-Jul(Sep) Seasonally dry drainages and uplands adjacent to riparian habitats. 33 to 1148 ft.	No	High potential prior to surveys; moderate potential after surveys.	Species is documented between two known populations that are in close proximity to the survey area. Species documented from 1.5 miles east of Lower Otay Reservoir along the Otay River, east of the project site, and from just west of the 805 along the Otay River west of the project site (Reiser 1994).Potentially suitable habitat is present on the southern portion of the Wueste Road Pipeline.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
Small-flowered bird's-beak (*Cordylanthus parviflorus*)	CNPS List 2	Growth Form: annual herb hemiparasitic Blooming Period: Aug-Oct Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. 2297 to 7218 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.
Sea dahlia (*Coreopsis maritima*)	CNPS List 2	Growth Form: perennial herb Blooming Period: Mar-May Sandstone cliffs near the ocean. 16 to 492 ft.	No	None	No sandstone cliffs occur on site.
San Diego sand aster (*Corethrogyne filaginifolia var. incana*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: Jun-Sep Coastal sandy areas. 10 to 377 ft,	No	Low	Species more typical of coastal bluff scrub with sandy substrate, conditions not present on project site.
Snake cholla (*Cylindropuntia (=Opuntia) californica var. californica*)	CNPS List 1B	Growth Form: perennial stem succulent Blooming Period: Apr-May Open coastal sage scrub on xeric hillsides. 98 to 492 ft.	Yes	Observed	Observed just outside of the 100-foot buffer at the southern end of the Wueste Road Pipeline.
Otay tarplant (*Deinandra conjugens*)	FT SE CNPS List 1B	Growth Form: annual herb Blooming Period: May-Jun Fractured clay soils or lightly vegetated coastal sage scrub. 82 to 984 ft.	No	High potential prior to surveys; low potential after surveys.	Focused surveys conducted for this species in the summer of 2009 were negative.
Tecate tarplant (*Deinandra floribunda*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Aug-Oct Chaparral and coastal sage scrub typically in sandy washes in the high desert. 230 to 4003 ft.	No	Low	Low potential to occur. According to Reiser (1994), this species typically occurs in sandy washes in the high desert. No sandy washes exist on the project site. Species would have been observed, if present on site, during the July 2009 special-status plant survey.
Orcutt's dudleya (*Dudleya attenuata ssp. orcuttii*)	CNPS List 2	Growth Form: perennial herb Blooming Period: May-Jul Dry gravelly or rock places on coastal bluffs. 10 to 164 ft.	No	None	Plant typically occurs at lower elevations than occur on the project site. Suitable habitat does not occur on site. Generally restricted to the coast.

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Blochman's dudleya (*Dudleya blochmaniae ssp. blochmaniae*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: Apr-Jun Openings in coastal sage scrub near the coast. 16 to 1,476 ft.	No	None	Suitable habitat does not occur on site. Generally restricted to coastal habitats or areas with strong coastal influence (Reiser 1994).
Variegated dudleya (*Dudleya variegata*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: Apr-Jun Openings in chaparral, cismontane woodland, and coastal sage scrub, isolated rocky substrates in open grasslands, and vernal pools and mima mounds. 10 to 1903 ft.	No	Moderate potential prior to surveys; low potential after surveys.	Botanists conducting surveys on the project site were familiar with this species from multi-year surveys on an adjacent site where this species is present.
Palmer's goldenbush (*Ericameria palmeri ssp. palmeri*)	CNPS List 2	Growth Form: perennial evergreen shrub Blooming Period: (Jul)Sep-Nov Coastal drainages, in mesic chaparral sites, or rarely in coastal sage scrub. Below 1969 ft.	No	None	This species would have been detectable during the field surveys.
Vanishing wild buckwheat (*Eriogonum evanidum*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Jul-Oct Chaparral, cismontane woodland, lower montane coniferous forest, and pinyon and juniper woodland in sandy areas. 3609 to 7300 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitats not observed on site.
Cliff spurge (*Euphorbia misera*)	CNPS List 2	Growth Form: perennial shrub Blooming Period: Dec-Aug Low growing maritime sage scrub near the beach with a high incidence of cactus is suitable habitat. 33 to 1640 ft.	No	Moderate potential to occur prior to survey; low potential after survey.	These conditions were observed in the southern portion of the Wueste Road Pipeline. However, this species is a large shrub that would have been readily observed, if present on the project site.
San Diego barrel cactus (*Ferocactus viridescens*)	CNPS List 2	Growth Form: perennial stem succulent Blooming Period: May-Jun Sandy to rocky areas in coastal sage scrub or grasslands. 10 to 1,476 ft.	Yes	Observed	Observed in small numbers on the southern portion of the Wueste Road Pipeline, from north of the OWTP to the southern terminus of the survey area.
Palmer's frankenia (*Frankenia palmeri*)	CNPS List 2	Growth Form: perennial herb Blooming Period: May-Jul Periphery of salt marsh. 0 to 33 ft.	No	None	Plant typically occurs at lower elevations than occur on the project site.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
Chaparral ash (*Fraxinus parryi*)	CNPS 2	Growth Form: perennial shrub Blooming Period: Mar-May Chaparral. 699 to 2034 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitat that was not observed on the project site.
Mexican flannelbush (*Fremontodendron mexicanum*)	FE SR CNPS List 1B	Growth Form: perennial evergreen shrub Blooming Period: Mar-Jun Closed cone coniferous forest and southern mixed chaparral. 33 to 2349 ft.	No	None	A limited population of mature shrubs grows along Cedar Creek on Otay Mountain; entire known population is now restricted to Otay Mountain (Resier 1994). Not expected to occur on the project site and it would have been readily observed during surveys.
Desert bedstraw (*Galium proliferum*)	CNPS List 2	Growth Form: annual herb Blooming Period: Mar-Jun Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland on rocky, carbonate. 3904 to 5151 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.
Mission canyon cup (*Githopsis diffusa* ssp. *filicaulis*)	CNPS List 3	Growth Form: annual herb Blooming Period: Apr-Jun Sandy openings in chaparral. 1476 to 2297 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitat that was not observed on the project site.
San Diego gumplant (*Grindelia hirsutula* var. *hallii*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: Jul-Oct Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland. 607 to 5725 ft.	Yes	Observed	Approximately 15 individuals were observed within the Wueste Road Pipeline. Taxonomic change is pending.
Palmer's grapplinghook (*Harpagonella palmeri*)	CNPS List 4	Growth Form: annual herb Blooming Period: Mar-May Chaparral, coastal sage scrub and valley and foothill grassland. 66 to 3133 ft.	Yes	Observed	Observed within the study area on the southern end of the Wueste Road Pipeline.
Beach goldenaster (*Heterotheca sessiliflora ssp. sessiliflora*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: Mar-Dec Coastal Chaparral, coastal dunes, and coastal sage scrub. 0 to 4019 ft.	No	None	This species is restricted to beach or maritime habitats and is thought to be extirpated from San Diego County (Reiser 1994).

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Graceful tarplant (*Holocarpha virgata* ssp. *elongata*)	CNPS List 4	Growth Form: annual herb Blooming Period: May-Nov Chaparral, cismontane woodland, coastal sage scrub and valley and foothill grassland. Most frequently found in annual and perennial grasslands. 197 to 3609 ft.	Yes	Observed	Approximately 500 to 1000 individuals of graceful tarplant were observed throughout the Wueste Road survey area, and 20 individuals were observed adjacent to the road leading to the PRS site.
Ramona horkelia (*Horkelia truncata*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: May-Jun Open chamise chaparral.1312 to 4265 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitats not observed on site.
Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)	CNPS 1B	Growth Form: perennial shrub Blooming Period: Apr-Nov Chaparral and coastal scrub within sandy areas, often in disturbed areas. 33 to 443 ft.	No	Moderate potential to occur prior to survey; low potential after survey.	Species is readily discernible perennial shrub, not observed during surveys.
San Diego marsh-elder (*Iva hayesiana*)	CNPS List 2	Growth Form: perennial herb Blooming Period: Apr-Oct Marshes and swamps, playas, creeks or intermittent streambeds. 33 to 1640 ft.	No	None	Plants typically occur within habitats not observed on site. Although adjacent to Lower Otay Reservoir, the project site does not include support any marsh, swamp, or lake margin habitats.
Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)	CNPS List 4	Growth Form: rhizomatous herb Blooming Period: May-Jun Mesic coastal dunes, alkaline seeps and meadows, and coastal salt marshes and swamps .10 to 2953 ft.	Yes	Observed	Three occurrences with at least five were mapped in one small area directly west of the OWTP.
Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Sep Tidal marsh areas or the periphery of vernal pools. 3 to 4003 ft.	No	Low	The impact area supports seasonally ponded areas, but no vernal pool plant species were observed in any of them.
Gander's pitcher sage (*Lepechina ganderi*)	CNPS List 1B	Growth Form: perennial shrub Blooming Period: Jun-Jul Metavolcanic soils in chaparral. 1001 to 3297 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Jan-Jul Openings in chaparral and sage scrub, generally well away from the coast in Southern California in the foothill elevations. Typically on sites that are dry, exposed locales, rather than beneath a shrub canopy or along creeks. Below 1640 ft.	No	Moderate potential prior to surveys; low potential after surveys.	Suitable habitat occurs on site but the species would have been observed if present on site.
Otay Mountain lotus (*Lotus crassifolius* var. *otayensis*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: May-Aug Chaparral on metavolcanic soils, often in disturbed areas. 3002 to 3297 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitat that was not observed on the project site.
Nuttall's lotus (*Lotus nuttallianus*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Mar-Jun Sandy soils on coastal dunes and in coastal scrubs. 0 to 33 ft.	No	None	Plant typically occurs at lower elevations than occur on the project site.
Felt-leaved monardella (*Monardella hypoleuca* var. *lanata*)	CNPS List 1B	Growth Form: perennial rhizomatous herb Blooming Period: Jun-Aug Chaparral understory. 984-5167 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.
Jennifer's monardella (*Monardella stoneana*)	CNPS List 1B	Growth Form: perennial herb Blooming Period: Jun-Sep Closed coniferous forest, chaparral and coastal scrub also in riparian scrub, usually rocky intermittent streambeds. 32 to 2592 ft.	No	Moderate potential prior to surveys; low potential after surveys.	Documented from just southeast of Lower Otay Lakes, however, species typically occurs in riverine drainages, usually in rocky streambeds. This microhabitat condition is not present on the project site. In addition, the species would have been observed if present as the surveys were conducted during its blooming period.
Willowy monardella (*Monardella viminea*)	FE SE CNPS List 1B	Growth Form: perennial herb Blooming Period: Jun-Aug Riparian scrub, usually at sandy locales in seasonally dry washes.164 to 738 ft.	No	Low	Suitable habitat does not occur on site. Would have been observed if present on site.

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Little mousetail (*Myosurus minimus ssp. apus*)	CNPS List 3	Growth Form: annual herb Blooming Period: Mar-Jun Vernal pools. 66 to 2100 ft.	No	Low	The impact area supports seasonally ponded areas, but no vernal pool plant species were observed in any of them.
Mud nama (*Nama stenocarpum*)	CNPS List 2	Growth Form: annual/perennial herb Blooming Period: Jan-Jul Muddy embankments of ponds and lakes. 16 to 1640 ft.	No	None	Plants typically occur within habitats not observed on site. Although adjacent to Lower Otay Reservoir, the project site does not include any marsh, swamp, or lake margin habitats.
Spreading navarretia (*Navarretia fossalis*)	FT CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Jun Vernal pools. 98 to 4265 ft.	No	None	The impact area supports seasonally ponded areas, but no vernal pool plant species were observed in any of them.
Prostrate navarretia (*Navarretia prostrata*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Jul Vernal pools, coastal scrub, meadows and seeps, valley and foothill grassland. 49 to 2297 ft.	No	Low	The impact area supports seasonally ponded areas, but no vernal pool plant species were observed in any of them.
Coast woolly-heads (*Nemacaulis denudata var. denudata*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Sep Coastal sand dunes. 0 to 328 ft.	No	None	No coastal bluffs or sand dunes occur on site.
Slender woolly-heads (*Nemacaulis denudata var. gracilis*)	CNPS List 2	Growth Form: annual herb Blooming Period: (Mar)Apr-May Well-developed sand dunes. 164-1312 ft.	No	None	No sand dunes occur on site.
Dehesa nolina (*Nolina interrata*)	SE CNPS List 1B	Growth Form: perennial herb Blooming Period: Jun-Jul Open southern mixed chaparral and chamise chaparral on gabbroic, metavolcanic, or serpentinite soils. 607 to 2805 ft.	No	None	Plant typically occurs within habitat that was not observed on the project site
California Orcutt grass (*Orcuttia californica*)	FE SE CNPS List 1B	Growth Form: annual herb Blooming Period: Apr-Aug Vernal pools. 49 to 2165 ft.	No	None	The impact area supports seasonally ponded areas, but no vernal pool plant species were observed in any of them.

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Baja California birdbush (*Ornithostaphylos oppositifolia*)	SE CNPS List 2	Growth Form: perennial evergreen shrub Blooming Period: Jan-Apr Coast chaparral with mission manzanita and chamise present. 180 to 2625 ft	No	None	Chaparral does not occur on site.
Short-lobed broomrape (*Orobanche parishii* ssp. brachyloba)	CNPS List 4	Growth Form: perennial herb (parasitic) Blooming Period: Apr-Oct In sandy locations in coastal bluff scrub, coastal dunes, Coastal sage scrub. 10 to 1,001 ft.	No	None	Plant typically occurs on coastal bluff scrub and coastal dunes (Reiser 1994), which are not present on the project site.
Gander's ragwort (*Packera ganderi*)	SR CNPS 1B	Growth Form: perennial herb Blooming Period: Apr-Jun Chaparral understory often below chamise. 1312 to 3937 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitat that was not observed on the project site.
Brand's phacelia (*Phacelia stellaris*)	CNPS 1B	Growth Form: annual herb Blooming Period: Mar-Jun Sandy openings in coastal sage scrub. 3 to 1312 ft	No	None	This species is restricted to beach or maritime habitats and is thought to be almost extirpated from San Diego County (Reiser 1994).
San Diego mesa mint (*Pogogyne abramsii*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Mar-Jul Vernal pools. 295 to 656 ft.	No	None	The impact area supports seasonally ponded areas, but no vernal pool plant species were observed in any of them.
Otay mesa mint (*Pogogyne nudiuscula*)	FE SE CNPS List 1B	Growth Form: annual herb Blooming Period: May-Jul Vernal pools. 295 to 820 ft.	No	None	The impact area supports seasonally ponded areas, but no vernal pool plant species were observed in any of them.
Nuttall's scrub oak (*Quercus dumosa*)	CNPS 1B	Growth Form: perennial evergreen shrub Blooming Period: Feb-Apr Closed-cone coniferous forest, chaparral, and coastal scrub on sandy and clay loam soils. 49 to 1312 ft.	No	Low	Species is a readily discernible shrub that would have been observed if present on the project site.

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Cedros Island scrub oak (*Quercus cedrosensis*)	CNPS List 2	Growth Form: perennial evergreen tree Booming Period: Apr-May Closed-cone coniferous forest, Chaparral, Coastal scrub. 837 to 1608 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.
Moreno currant (*Ribes canthariforme*)	CNPS List 1B	Growth Form: perennial deciduous shrub Blooming Period: Feb-Apr Chaparral and riparian scrub. 1115 to 3937 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.
Santa Catalina Island currant (*Ribes viburnifolium*)	CNPS List 1B	Growth Form: perennial evergreen shrub Blooming Period: Feb-Apr Sage scub and low-growing chaparral exposed to ocean breezes. 98 to 1001 ft.	No	None	Suitable habitat does not occur on site.
Small-leaved rose (*Rosa minutifolia*)	SE CNPS List 2	Growth Form: perennial deciduous shrub Blooming Period: Jan-Jun Mesas, hiilsides and arroyos near the coast. 492 to 525 ft.	No	None	The only known U.S. occurrence is on northwestern Otay Mesa, north of Dillon Road (Reiser 1994).
Munz' sage (*Salvia munzii*)	CNPS List 2	Growth Form: perennial evergreen shrub Blooming Period: Feb-Apr Chaparral and Diegan coastal sage scrub. Typically found on metavolcanic soils in the southern portion of San Diego County. 394 to 3494 ft.	Yes	Observed	Observed in the central portion east of the US Olympic Training facility on northeast- and north-facing slopes.
San Miguel savory (*Satureja chandleri*)	CNPS List 1B	Growth Form: perennial shrub Blooming Period: Mar-Jul Rocky slopes with chamise chaparral, and in oak woodlands. May be restricted to gabbroic or metavolcanic derived soils. 394 to 3527 ft.	No	Low	Suitable conditions were not present on the project site.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
Rayless ragwort (*Senecio aphanactis*)	CNPS List 2	Growth Form: annual herb Blooming Period: Jan-Apr Dry alkaline flats in chaparral, cismontane woodlands and coastal sage scrub. 49 to 2625 ft.	No	Moderate potential to occur prior to survey; low potential after survey.	Species has been documented from the north side of Mount San Miguel, which is approximately 4.5 miles north of the project site. However, species was not observed during surveys during its bloom period.
Hammitt's clay-cress (*Sibaropsis hammittii*)	CNPS 1B	Growth Form: annual herb Blooming Period: Mar-Apr Openings in chaparral and valley and foothill grassland on clay soils. 2362 to 3494 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site.
Purple stemodia (*Stemodia durantifolia*)	CNPS List 2	Growth Form: perennial herb Blooming Period: Jan-Dec Sandy dry canyon bottoms or drainages. 591 to 984 ft.	No	None	Plant typically occurs within habitat that was not observed on the project site.
Laguna Mountains jewel-flower (*Streptanthus bernardinus*)	CNPS List 4	Growth Form: perennial herb Blooming Period: May-Aug Chaparral, Lower montane coniferous forest. 2,198 to 8,202 ft.	No	None	Plant typically occurs at higher elevations than occur on the project site and within habitats not observed on site.
Oil neststraw (*Stylocine citroleum*)	CNPS List 1B	Growth Form: annual herb Blooming Period: Mar-Apr Coastal scrub and clay soils in the vicinity of oilfields. 164 to 1312 ft.	No	None	Not expected to occur on site due to the lack of suitable soils. Known from Kern Co, with only one collection since 1935. According to Reiser (1994), the specimen identified from San Diego County may represent a variant of *S. gnaphalalioides* which shares similarities with the *S. citroleum*.
Estuary seablite (*Suaeda esteroa*)	CNPS 1B	Growth Form: perennial herb Blooming Period: May-Oct(Jan) Coastal marshes and swamps. 0 to 16 ft.	No	None	Plant typically occurs at lower elevations than occur on the project site.
Parry's tetracoccus (*Tetracoccus dioicus*)	CNPS List 1B	Growth Form: perennial deciduous shrub Blooming Period: Apr-May Typically in low-growing chamise chaparral, with moderately dense canopy cover. Below 3280 ft.	No	None	This species is a conspicuous shrub and would have been observed during surveys. In addition there is no suitable habitat on site.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
San Diego Sunflower (*Viguiera laciniata*)	CNPS List 4	Growth Form: perennial deciduous shrub Blooming Period: Feb-Jun (Aug) Diegan coastal sage scrub. 197-2461 ft.	Yes	Observed	Observed at a landscape-level throughout the Diegan coastal sage scrub on the Wueste Road Pipeline. Populations are estimated to be between one and five thousand individuals.

Legend:

Status:

Federal

FE - listed as endangered under the federal Endangered Species Act.

FT - listed as threatened under the federal Endangered Species Act.

State

SE - listed as endangered under the California Endangered Species Act.

ST – listed as threatened under California Endangered Species Act.

SR – listed as rare under California Endangered Species Act.

CNPS List – California Native Plant Society

1B – Rare, threatened or endangered in California and elsewhere

2 – Rare, threatened or endangered in California but more common elsewhere

3 – May be rare but more research needed to determine true status

4 – Limited distribution and are uncommon but not presently rare or endangered

References

Special Status information from CDFG 2009. Nomenclature and plant descriptions from Abrams 1923 and 1944, Abrams and Ferris 1960, Beauchamp 1986, CNPS 2009, Hickman 1993, McAuley 1996, Munz 1974, Reiser 1994, Roberts 1989, Skinner and Pavlik 1994.

Appendix B
Vascular Plant Species Detected

Scientific Name	Common Name	Special Status
LYCOPHYTES		
Selaginellaceae — Spike-Moss Family		
Selaginella cinerascens	Mesa Spike-Moss	
ANGIOSPERMS: MONOCOTS		
Agavaceae — Agave Family		
Hesperoyucca whipplei	Chaparral Candle	
Alliaceae — Onion Family		
Allium praecox	Early Onion	
Arecaceae — Palm Family		
**Phoenix canariensis*	Canary Island Date Palm	
**Washingtonia sp.*	Fan Palm	
Hyacinthaceae — Hyacinth Family		
Chlorogalum pomeridianum	Wavy-leaf Soap-Plant/Amole	
Iridaceae — Iris Family		
Sisyrinchium bellum	Blue-eyed Grass	
Juncaceae — Rush Family		
Juncus acutus ssp. leopoldii	Southwestern Spiny Rush	CNPS 4
Poaceae — Grass Family		
**Avena barbata*	Slender Wild Oat	
**Bromus diandrus*	Ripgut Grass	
**Bromus hordeaceus*	Soft Chess	
**Bromus madritensis*	Compact Brome	
**Gastridium ventricosum*	Nit Grass	
**Hordeum murinum*	Glaucous Barley	
**Lolium multiflorum*	Italian Ryegrass	
Nassella pulchra	Purple Needlegrass	
**Pennisetum setaceum*	African Fountain Grass	
**Phalaris sp.*	Canary Grass	
**Polypogon monspeliensis*	Annual Beard Grass	
**Vulpia myuros*	Rat-tail Fescue	
Themidaceae — Brodiaea Family		
Dichelostemma capitatum	Blue Dicks	

Scientific Name	Common Name	Special Status
ANGIOSPERMS: EUDICOTS		
Adoxaceae — Adoxa Family		
Sambucus mexicana	Blue Elderberry	
Aizoaceae — Fig-Marigold Family		
**Mesembryanthemum nodiflorum*	Slender-leaf Iceplant	
Amaramthaceae - Amaranth Family		
**Atriplex semibaccata*	Australian Saltbush	
**Salsola tragus*	Prickly Russian-Thistle, Tumbleweed	
Anacardiaceae - Sumac or Cashew Family		
Malosma laurina	Laurel Sumac	
Rhus integrifolia	Lemonadeberry	
Apiaceae — Carrot Family		
**Daucus carota*	Carrot, Queen Anne's Lace	
Asteraceae — Sunflower Family		
Ambrosia psilostachya	Western Ragweed	
Artemisia californica	Coastal Sagebrush	
Baccharis pilularis	Chaparral Broom, Coyote Brush	
Baccharis salicifolia	Mule-Fat, Seep-Willow	
Baccharis sarothroides	Broom Baccharis	
**Centaurea melitensis*	Tocalote	
**Cirsium sp.*	Bull Thistle	
Corethrogyne filaginifolia	San Diego Sand Aster	
**Cynara cardunculus*	Artichoke Thistle, Cardoon	
Deinandra fasciculata	Fascicled Tarweed	
Encelia californica	California Encelia	
**Filago gallica*	Narrow-leaf Filago	
Gnaphalium leucocephalum	White-head Cudweed	
Grindelia hirsutula var. hallii	San Diego Gumplant	CNPS 1B
Gutierrezia californica	California Matchweed	
Holocarpha virgata	Graceful Tarplant	CNPS 4
**Hypochaeris glabra*	Smooth Cat's Ear	
Isocoma menziesii	Spreading Goldenbush	
Lasthenia calfornica	Common Goldfields	
Osmadenia tenella	Osmadenia	

Scientific Name	Common Name	Special Status
**Picris echioides*	Bristly Ox-Tongue	
Psilocarphus brevissimus	Dwarf Woolly-Heads, Woolly Marbles	
**Sonchus oleraceus*	Common Sow-Thistle	
Uropappus lindleyi	Silver Puffs	
Viguiera laciniata	San Diego Sunflower	CNPS 4
Boraginaceae — Borage Family		
Amsinckia menziesii	Rancher's Fiddleneck	
Cryptantha affinis	Common Cryptantha	
Cryptantha intermedia	Nievitas Cryptantha	
Harpagonella palmeri	Palmer's Grappling-Hook	CNPS 4
Pectocarya heterocarpa	Chuckwalla Pectocarya	
Plagiobothrys arizonicus	Arizona Popcornflower	
Brassicaceae — Mustard Family		
**Brassica nigra*	Black Mustard	
**Hirschfeldia incana*	Short-pod Mustard	
**Raphanus sativus*	Wild Radish	
**Sisymbrium sp.*	Tumble/Jim Hill Mustard	
Cactaceae — Cactus Family		
Cylindropuntia californica var. californica	Snake Cholla	CNPS 1B
Cylindropuntia prolifera	Coast Cholla	
Ferocactus viridescens var. viridescens	San Diego Barrel Cactus	CNPS 2
Mammillaria dioica	Fish-hook Cactus	
Opuntia littoralis	Coast Prickly-Pear	
Caryophyllaceae — Pink Family		
**Cerastium sp.*	Chickweed	
**Silene gallica*	Common Catchfly	
Spergularia sp.	Sand-Spurry	
Convolvulaceae — Morning-Glory Family		
Calystegia macrostegia	Morning-Glory	
Crassulaceae — Stonecrop Family		
Crassula connata	Pygmyweed	
Dudleya pulverulenta	Chalk Dudleya	
Fabaceae - Legume Family		
**Acacia cyclops*	Cyclops Acacia	

Scientific Name	Common Name	Special Status
Lotus scoparius var. scoparius	Coastal Deerweed	
Lotus strigosus	Bishop's/Strigose Lotus	
Lupinus bicolor	Miniature Lupine	
**Medicago polymorpha*	California Burclover	
**Melilotus indicus*	Indian Sweetclover	
Fagaceae — Oak Family		
Quercus agrifolia	Coast Live Oak, Encina	
Geraniaceae — Geranium Family		
**Erodium botrys*	Long-Beak Filaree/Storksbill	
**Erodium cicutarium*	Red-Stem Filaree/Storksbill	
Lamiaceae — Mint Family		
**Marrubium vulgare*	Horehound	
Salvia apiana	White Sage	
Salvia mellifera	Black Sage	
Salvia munzii	Munz's Sage	CNPS 2
Trichostema lanatum	Woolly Bluecurls	
Lythraceae — Loosestrife Family		
**Lythrum sp.*	Grass Poly	
Myrtaceae — Myrtle Family		
**Eucalyptus sp.*	Gum	
Nyctaginaceae — Four O'clock Family		
Mirabilis laevis	Wishbone Plant	
Orobanchaceae — Broom-Rape Family		
Castilleja exserta	Purple Owl's-Clover	
Plantaginaceae — Plantain Family		
Plantago erecta	Dot-Seed Plantain	
Polemoniaceae — Phlox Family		
Linanthus dianthiflorus	Farinose Ground Pink	
Navarretia hamata	Hooked Pincushion Plant	
Polygonaceae — Buckwheat Family		
Eriogonum fasciculatum	California Buckwheat	
**Rumex crispus*	Curly Dock	
Portulacaceae — Purslane Family		
Calandrinia ciliata	Red Maids	

Scientific Name	Common Name	Special Status
Primulaceae — Primrose Family		
**Anagallis arvensis*	Scarlet Pimpernel, Poor Man's Weatherglass	
Dodecatheon clevelandii	Padre's Shooting Star	
Rosaceae — Rose Family		
Adenostoma fasciculatum	Chamise	
Salicaceae — Willow Family		
Salix lasiolepis	Arroyo Willow	
Simmondsiaceae — Jojoba Family		
Simmondsia chinensis	Jojoba, Goatnut	
Tamaricaceae — Tamarisk Family		
**Tamarix ramosissima*	Tamarisk/Salt-Cedar	
Violaceae — Violet Family		
Viola pedunculata	Johnny Jump-Up	

Legend

*=Non-native species

Special Status:

CNPS List – California Native Plant Society
1B – Rare, threatened or endangered in California and elsewhere
2 – Rare, threatened or endangered in California but more common elsewhere
3 – May be rare but more research needed to determine true status
4 – Limited distribution and are uncommon but not presently rare or endangered

Appendix C
Special-Status Wildlife Species Potential to Occur

Sensitive Wildlife Species and their Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat |Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
INVERTEBRATES					
San Diego fairy shrimp (*Branchinecta sandiegoensis*)	FE	Vernal pools. All known localities are below 701m (2,300 ft) and are within 64km (40 miles) of the Pacific Ocean.	No	High	Focused fairy shrimp surveys are being conducted in winter 2009/2010. So far the basins do not appear to hold water long enough to support the development of fairy shrimp.
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE	Inhabits openings on clay soils within or in the vicinity of shrublands, grasslands, meadows, vernal pools, and lake margins. Closely tied to its larval host plant, dwarf plantain *(Plantago erecta)* or owl's clover (*Orthocarpus purpurescens).*	No	High to moderate	Not detected during focused surveys for the species; however, suitable habitat exists and populations occur nearby.
Riverside fairy shrimp (*Streptocephalus woottoni*)	FE	Vernal pools. It occurs from Los Angeles County to Baja California. In San Diego County, all populations are within 15 kilometers of the coast.	No	High	Focused fairy shrimp surveys are being conducted in winter 2009/2010. So far the basins do not appear to hold water long enough to support the development of fairy shrimp.
AMPHIBIANS					
Arroyo toad (*Bufo microscaphus californicus*)	FE CSC	Exposed shallow pools with a sand or gravel base are used for breeding. Breeding pools must occur in the vicinity (ca. 10-100 m) of a braided sandy channel with shorelines or central bars made of stable, sandy terraces.	No	None	No suitable habitat found within the survey area.
Western spadefoot (*Scaphiopus hammondii*)	CSC	Temporary rainpools with water temperatures between 9°C and < 30°C that last at least 3 weeks.	No	Low	May occur in road ruts.
REPTILES					
Southwestern pond turtle (*Emys (=Clemmys) marmorata pallida*)	CSC	Slack- or slow-water aquatic habitat with basking sites.	No	None	No suitable habitat within the survey area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat |Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
Silvery legless lizard (*Anniella pulchra pulchra*)	CSC	Primarily found in areas with sandy or loose loamy soils under the sparse vegetation of beaches, chaparral, or pine-oak woodland, and open, well-shaded terraces in mature riparian natural communities. Leaf litter is commonly present.	No	Low	Minimal suitable habitat occurs within the survey area.
Orange-throated whiptail (*Cnemidophorus hyperythrus*)	CSC	The habitat characteristics are poorly understood, however historically it was found in floodplains or terraces along streams. Closely tied to coastal sage scrub plants and some chaparral plants.	Yes	Observed	Observed several times at edge of Wueste Road and within the adjacent coastal sage scrub. No suitable habitat along Alta, La Media or Airway Roads.
Coronado skink (*Eumeces skiltonianus interparietalis*)	CSC	Found in a variety of habitats but is most common in early successional stages or open areas. Heavy brush and densely forested areas are generally avoided. Usually found in areas with leaf litter.	No	Low	Minimal suitable habitat within the survey area. No woodlands but there are open grassy areas.
San Diego horned lizard (*Phrynosoma coronatum blainvillii*)	CSC	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.	No	High	Suitable habitat is present within the survey area.
Red diamond rattlesnake (*Crotalus ruber ruber*)	CSC	Occurs from sea level to 914m (3000ft) in chaparral, woodland, and arid desert habitats with rocky areas and dense vegetation.	No	High	Suitable habitat is present within the survey area along Wueste Road.
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	CSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	No	Moderate	Suitable habitat is present within the survey area.
Two-striped garter snake (*Thamnophis hammondii*)	CSC	Inhabits perennial and intermittent streams with rocky beds and bordered by willow thickets or other dense vegetation.	No	None	No suitable habitat exists within the survey area.
BIRDS					
Black rail (*Laterallus jamaicensis*)	ST	Coastal wetlands. The species has been extirpated from San Diego County since 1983 (Unitt 2004).	No	None	Extirpated from the County. No suitable habitat exists within the survey area.
Light-footed clapper rail (*Rallus longirostris levipes*)	FE SE	Coastal salt marshes.	No	None	No suitable habitat within the survey area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat |Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
Western snowy plover (*Charadrius alexandrines nivosus*)	FT (Nesting) CSC	Nest on beaches dunes and salt flats. Forage on sandy beaches with kelp washed ashore and in areas with little or no human activity and avoid areas of high human use.	No	None	No suitable habitat within the survey area.
California least tern (*Sternula antillarum browni)*	FE (nesting colony) SE (nesting colony)	Nests in colonies on sandy beaches with sparse vegetation. Forages in shallow ocean water, generally less than 60 feet deep and within one mile of shore, and in wetlands near nesting locales.	No	None	No suitable habitat within the survey area.
White-tailed kite (*Elanus caeruleus*)	FPS (nesting)	Open grasslands, agricultural areas, wetlands, and oak woodlands. Their primary source of food is the California vole. It typically forages in open undisturbed habitats and nests in the top of a dense oak, willow or other large tree.	No	Breeding – Low Foraging - High	This species may be able to nest in the large trees near the survey area; however, no large nests were observed in the trees. Suitable foraging habitat exists.
Bald eagle (*Haliaeetus leucocephalus*)	FT SE	Found near bodies of water. Predominantly a winter visitor to San Diego County (Unitt 2004).	No	Breeding – None Migration/Wintering – Low	Closest observation of the species was at Sweetwater Reservoir in 2000 (Unitt 2004). May potentially forage in the adjacent Lower Otay Reservoir.
Northern harrier (*Circus cyaneus*)	CSC (nesting)	Grasslands and marshes. Nests are on the ground and typically concealed within a marsh or other dense vegetation.	Yes	Breeding – None Foraging – Observed	There is no suitable nesting habitat along any of the pipelines. An individual was observed foraging over the survey area at Wueste Road.
Golden eagle (*Aquila chrysaetos*)	CSC	Nest on cliff ledges or trees on steep slopes. Forage in grasslands, sage scrub or broken chaparral.	No	Breeding – None Foraging - Moderate	Breeding is confirmed at least 5 miles north of the survey area (Unitt 2004); however, no suitable breeding habitat is present on site. Suitable foraging habitat does occur on site.
California yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	SE	Inhabits relatively broad, well-shaded riparian forests. Only a few small populations still exist.	No	None	No mature and extensive riparian habitat located within the survey or adjacent to it.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat |Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
Burrowing owl (*Athene cunicularia*)	CSC	Prairies, grasslands, lowland scrub, agricultural lands, coastal dunes, desert floors, and some artificial, open areas. They require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. They use rodent or other burrows for roosting and nesting cover and also known to use pipes, culverts, and nest boxes where burrows are scarce.	Yes	Breeding – High Migration/Wintering - Observed	This species was detected adjacent to Airway Road. There is some suitable habitat along the edge of Alta and La Media Roads; however, suitable burrows were not observed during a burrow survey. This species was not detected along Wueste Road.
Southwestern willow flycatcher (*Empidonax trailii extimus*)	FE SE	Breeds in riparian woodlands along rivers, streams, or other wetlands. They usually nest within close proximity of water or very saturated soil.	No	None	Historically did occur along the eastern shore of the Lower Otay Reservoir; however, none have been detected there since before 1997 (Unitt 2004). No suitable habitat occurs within the survey area.
Loggerhead shrike (*Lanius ludovicianus*)	CSC	Found near grassland, open sage scrub and chaparral, and desert scrub. They nest in dense vegetation adjacent to their open foraging habitats.	No	Breeding - Low Foraging - High	Suitable foraging habitat exists within the survey area and individuals have been detected breeding in the vicinity (Unitt 2004). The site does not provide habitat dense enough for breeding.
Least Bell's vireo (*Vireo bellii pusillus*)	FE SE	Riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons.	No	Moderate	Have been detected breeding in the vicinity (Unitt 2004, BIOS 2009). Some suitable habitat occurs adjacent to the PRS site. There is minimal suitable habitat adjacent to the survey area at the intersection of Wueste Rod and Olympic Parkway.
San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	CSC	Cactus thickets	No	None	There are no suitable cactus thickets within in or adjacent to the survey area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat |Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
Coastal California gnatcatcher (*Polioptila californica californica*)	FT CSC	Prefer open scrubby habitats such as coastal sage scrub and some forms of chaparral.	Yes	Observed	Six pairs were detected along Wueste Road during focused surveys.
Yellow warbler (*Dendroica petechia brewsteri*)	CSC	Mature riparian woodlands.	No	Low	Have been detected breeding in the vicinity (Unitt 2004). No suitable habitat occurs within the survey area. There is minimal suitable habitat adjacent to the survey area at the intersection of Wueste Rod and Olympic Parkway.
Yellow-breasted chat (*Ictera virens*)	CSC	Dense riparian woodland.	No	Low	Have been detected breeding in the vicinity (Unitt 2004). No suitable habitat occurs within the survey area. There is minimal suitable habitat adjacent to the survey area at the intersection of Wueste Rod and Olympic Parkway.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	SE	Salt marsh dominated by pickleweed (*Salicornia europeae*).	No	None	No suitable habitat occurs on site or near the site.
Grasshopper sparrow (*Ammodramus savannarum*)	CSC	Structurally diverse grassland usually with native grasses.	No	Moderate	Species has been detected breeding in the vicinity (Unitt 2004). There is minimal suitable grassland within the survey area along Wueste Road. Alta, La Media and Airway Roads support suitable habitat for this species.
Tricolored blackbird (*Agelaius tricolor*)	CSC (nesting colony)	Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Feeds in grassland and cropland habitats.	No	Breeding – Low Foraging - Moderate	Species has been detected breeding in the vicinity (Unitt 2004); however, there is minimal suitable breeding habitat within the survey area. If nearby may use grasslands for foraging.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat |Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale
MAMMALS					
California leaf-nosed bat (*Macrotis californicus*)	CSC	Roosts in deep tunnels or caves, occasionally in buildings or bridges. It was formerly found throughout southern California, but is apparently now restricted to the deserts.	No	Roosting – None Foraging – None	Populations have disappeared from the coastal basins, now found in the desert (CDFG 2005). No suitable habitat onsite.
Mexican long-tongued bat (*Choeronycteris mexicana*)	CSC	Likes desert canyons, arid mountain ranges. Roosts by day in caves, mines or buildings.	No	Roosting – None Foraging – Very low	Records indicate only a summer resident in San Diego County (CDFG 2005).
Western red bat (*Lasiurus blossevillii*)	CSC	Usually among dense foliage, in forests and wooded areas, making long migrations from the northern latitudes to warmer climes for winter, sometimes hibernates in tree hollows or woodpecker holes.	No	Roosting – None Foraging - Low	Suitable foraging habitat present on site.
Spotted bat (*Euderma maculatum*)	CSC	Mostly in foothills, mtns., & desert regions of So. Cal.; desert, grasslands, mixed conifer forest; Roosts – rock crevices, caves, cliffs.	No	Roosting – None Foraging - Low	Suitable foraging habitat present on site.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSC	Throughout Cal. in all but sub-alpine & alpine habitats yearlong; most abundant in mesic habitats; Roosts – caves, mines, tunnels, buildings, or other man-made structures.	No	Roosting – None Foraging - Low	Suitable foraging habitat present on site.
Pallid bat (*Antrozous pallidus*)	CSC	Throughout So. Cal. from coast to mixed conifer forest; grasslands, shrublands, woodlands, & forest; most common in open, dry habitats w/ rocky areas for roosting; yearlong resident in most of range. Roosts in rock crevices, caves, mine shafts, under bridges, in buildings and tree hollows.	No	Roosting – None Foraging - Low	Suitable foraging habitat present on site.
Western mastiff bat (*Eumops perotis californicus*)	CSC	Primarily a cliff-dwelling species for breeding. Found foraging in a variety of habitats, from dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas.	No	Roosting – None Foraging - Low	Suitable foraging habitat present on site.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	CSC	Lives in deserts and sage scrub, roosts in rocky crevices.	No	Roosting – None Foraging - Low	Suitable foraging habitat present on site.

Common Name (*Scientific Name*)	**Sensitivity Code & Status**	**Habitat |Preference/Requirements**	**Verified On-site (Yes/No)**	**Potential to Occur**	**Rationale**
Big free-tailed bat (*Nyctinomops macrotis*)	CSC	Inhabits arid, rocky areas; roosts in crevices in cliffs. Has been recorded in urban locations in San Diego County (CDFG 2005).	No	Roosting – None Foraging – Very low	Suitable foraging habitat present on site; however, species is rare in California (CDFG 2005).
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	CSC	Mostly found on the coastal side of our local mountains in open habitats, usually avoiding dense stands of chaparral or woodlands.	Yes	Observed	At least two individuals were seen in the coastal sage scrub along Wueste Road.
Pacific little pocket mouse (*Perognathus longimembris pacificus*)	FE CSC	It is an obligate resident of fine-grained sandy soils of coastal strand, coastal dunes, river and marine alluvium, and coastal sage scrub in close proximity to the ocean, and has never been collected more than 2 miles (about 3 kilometers) from the coast or above 600 feet (about 180 meters) elevation.	No	None	Survey area approximately 12 miles from the coast. No suitable sandy soils within the survey area.
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	CSC	Coastal and montane regions on grassland, sage scrub, and chaparral slopes.	No	Low	Suitable habitat present on site.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	CSC	Coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities.	No	Moderate	Suitable habitat present on site.
San Diego desert woodrat (*Neotoma lepida intermedia*)	CSC	Variety of shrub and desert habitats, primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth.	No	Low	No middens observed within the survey area.
Southern grasshopper mouse (*Onychomys torridus ramona*)	CSC	Grasslands and sparse coastal sage scrub habitats.	No	Moderate	Suitable habitat exists and the survey area is located within the range of the species.
American badger (*Taxidea taxus*)	CSC	Inhabit a diversity of habitats with principal requirements of sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, and mountain meadows near timberline are preferred.	No	None	Too much disturbance for this species to occur. No suitable habitat within the survey area.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat |Preference/Requirements	Verified On-site (Yes/No)	Potential to Occur	Rationale

LEGEND:

STATUS:

Federal

FE - listed as endangered under the federal Endangered Species Act.

FT - listed as threatened under the federal Endangered Species Act.

State

SE - listed as endangered under the California Endangered Species Act.

FPS – fully protected species in California.

CSC - species of special concern in California.

References

Special Status information from CDFG 2009b. Nomenclature and invertebrate descriptions from USFWS 1997b, 2002b, 2002c. Nomenclature and vertebrate descriptions from AOU 1998 and supplements (AOU 2000, 2002, 2003, 2004, 2005, 2006), CDFG 2005, Collins and Taggart 2002, Shuford and Gardali 2008, Stephenson and Calcarone 1999, Baker *et al.* 2003, and Unitt 2004.

Appendix D
Wildlife Species Detected

Scientific Name	Common Name	Special Status
INVERTEBRATES		
Moths, Skippers and Butterflies		
Pontia protodice	Checkered White	
Pontia sisymbrii	Spring White	
Anthocharis sara	Pacific (Sara's) Orangetip	
Strymon melinus	Gray Hairstreak	
Brephidium exile	Western Pygmy-Blue	
Glaucopsyche lygdamus	Silvery Blue	
Icaricia acmon	Acmon Blue	
Apodemia virgulti	Behr’s Metalmark	
Vanessa cardui	Painted Lady	
Vanessa annabella	West Coast Lady	
Junonia coenia	Common Buckeye	
Erynnis funeralis	Funereal Duskywing	
Pyrgus albescens	White Checkered-Skipper	
VERTEBRATES		
Reptiles		
Sceloporus occidentalis	Western Fence Lizard	
Uta stansburiana	Side-blotched Lizard	
Cnemidophorus hyperythrus	Orangethroat Whiptail	CSC
Birds		
Callipepla californica	California Quail	
Aechmophorus occidentalis	Western Grebe	
Phalacrocorax auritus	Double-crested Cormorant	
Cathartes aura	Turkey Vulture	
Pandion haliaetus	Osprey	
Circus cyaneus	Northern Harrier	CSC
Accipiter cooperii	Cooper's Hawk	
Buteo jamaicensis	Red-tailed Hawk	
Falco sparverius	American Kestrel	
Charadrius vociferus	Killdeer	
Hydroprogne caspia	Caspian Tern	
Zenaida macroura	Mourning Dove	

Scientific Name	Common Name	Special Status
Geococcyx californianus	Greater Roadrunner	
Athene cunicularia	Burrowing Owl	CSC
Calypte anna	Anna's Hummingbird	
Calypte costae	Costa's Hummingbird	
Picoides nuttallii	Nuttall's Woodpecker	
Sayornis nigricans	Black Phoebe	
Sayornis saya	Say's Phoebe	
Tyrannus vociferans	Cassin's Kingbird	
Tyrannus verticalis	Western Kingbird	
Aphelocoma californica	Western Scrub-Jay	
Corvus brachyrhynchos	American Crow	
Corvus corax	Common Raven	
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
Petrochelidon pyrrhonota	Cliff Swallow	
Psaltriparus minimus	Bushtit	
Salpinctes obsoletus	Rock Wren	
Thryomanes bewickii	Bewick's Wren	
Troglodytes aedon	House Wren	
Polioptila californica californica	Coastal California Gnatcatcher	FT, CSC
Chamaea fasciata	Wrentit	
Mimus polyglottos	Northern Mockingbird	
Toxostoma redivivum	California Thrasher	
**Sturnus vulgaris*	European Starling	
Dendroica coronata	Yellow-rumped Warbler	
Geothlypis trichas	Common Yellowthroat	
Pipilo maculatus	Spotted Towhee	
Pipilo crissalis	California Towhee	
Aimophila ruficeps canescens	Southern California Rufous-crowned Sparrow	
Chondestes grammacus	Lark Sparrow	
Melospiza melodia	Song Sparrow	
Zonotrichia leucophrys	White-crowned Sparrow	
Passerina caerulea	Blue Grosbeak	
Quiscalus mexicanus	Great-tailed Grackle	

Scientific Name	Common Name	Special Status
Icterus cucullatus	Hooded Oriole	
Carpodacus mexicanus	House Finch	
Carduelis psaltria	Lesser Goldfinch	
Mammals		
Sylvilagus audubonii	Desert Cottontail	
Lepus californicus bennettii	San Diego Black-tailed Jackrabbit	CSC
Spermophilus beecheyi	California Ground Squirrel	
Thomomys bottae	Botta's Pocket Gopher	
Canis latrans	Coyote	
Procyon lotor	Northern Raccoon	

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
CSC = Species of Special Concern
FPS = California Fully Protected Species

Appendix E
Quino Checkerspot Butterfly Survey Report

Quino Checkerspot Butterfly Survey Report

for the

Otay Water District

CIPs R2087, R2077, and R2058:

Otay Mesa Recycled Water System Project

San Diego County, California

Prepared for:

Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, California 91978-2096

Prepared by:

ICF Jones & Stokes
9775 Businesspark Avenue, Suite 200
San Diego, CA 92131

July 2009

TABLE OF CONTENTS

Section **Page**

I. SUMMARY 1

II. INTRODUCTION 2

III. METHODS 9

IV. RESULTS 13

V. CERTIFICATION 14

VI. REFERENCES 15

ATTACHMENTS

1 Field Notes

LIST OF FIGURES

Figure **Page**

Figure 1 Regional Location 4
Figure 2 Project Vicinity 5
Figure 3a Habitat Assessment and Host Plant Map 6
Figure 3b Habitat Assessment and Host Plant Map 7
Figure 3c Habitat Assessment and Host Plant Map 8

LIST OF TABLES

Table **Page**

Table 1. Survey Dates and Conditions 9
Table 2. Butterflies Observed Within the Survey Site 10
Table 3. Reference Site Dates, Conditions, and Observations 11

I. SUMMARY

Protocol surveys for the Quino checkerspot butterfly (Quino) were conducted on the proposed site of the Otay Water District CIPs R2087, R2077, and R2058: Otay Mesa Recycled Water System Project, located in the City of Chula Vista in southern San Diego County, California. The survey area included a 100-foot buffer area extending from the center of the proposed pipeline alignment. While the majority of the project footprint supports only disturbed and developed areas, coastal sage scrub and/or disturbed coastal sage scrub occur within and/or immediately adjacent to some portions of the project.

Five weekly surveys were conducted over the course of the flight season (March 4–April 1). Quino was not detected during any of these focused surveys. Approximately 30 patches of Quino's primary host plant, dot-seed plantain (*Plantago erecta*), and 1 patch of the secondary host plant, owl's clover (*Castilleja exserta*), were observed along the portion of the proposed pipeline alignment near Wueste Road. A total of 13 butterfly species were observed during the surveys, including Sara's orangetip, Behr's metalmark, western pygmy-blue, funereal duskywing, southern blue, common buckeye, acmon blue, checkered white, spring white, white checkered skipper, west coast lady, painted lady, and gray hairstreak.

II. INTRODUCTION

This report summarizes protocol surveys conducted by ICF Jones & Stokes to determine presence/absence of the Quino checkerspot butterfly (*Euphydryas editha quino*) (Quino) for the Otay Water District (OWD) CIPs R2087, R2077, and R2058: Otay Mesa Recycled Water System Project (Project). The survey areas were broken into three pipeline segments: Wueste Road Pipeline (13,154 feet); Alta Road Pipeline (8,071 feet); and Airway/La Media Road Pipeline (14,610 feet) in southern San Diego County, California (Figures 1 and 2). Five weekly surveys were conducted between March 4 and April 1, 2009, in accordance with the U.S. Fish and Wildlife Service (USFWS) Year 2002 Protocol (USFWS 2002).

A habitat assessment was conducted by ICF Jones & Stokes biologists A. Borcher and K. Mozumder on March 4, 2009. At this time it was determined that 84 acres of non-excluded areas, as defined by the USFWS (2002), occurred within the 173-acre survey area. Excluded areas, which are not recommended for Quino surveys, are defined as:

- orchards, developed areas, or in-fill parcels largely dominated by nonnative vegetation;
- active/in-use agricultural fields without natural or remnant inclusions of native vegetation; or
- closed-canopy forest or riparian area, dense chaparral and small openings completely enclosed within a closed-canopy or dense chaparral area.

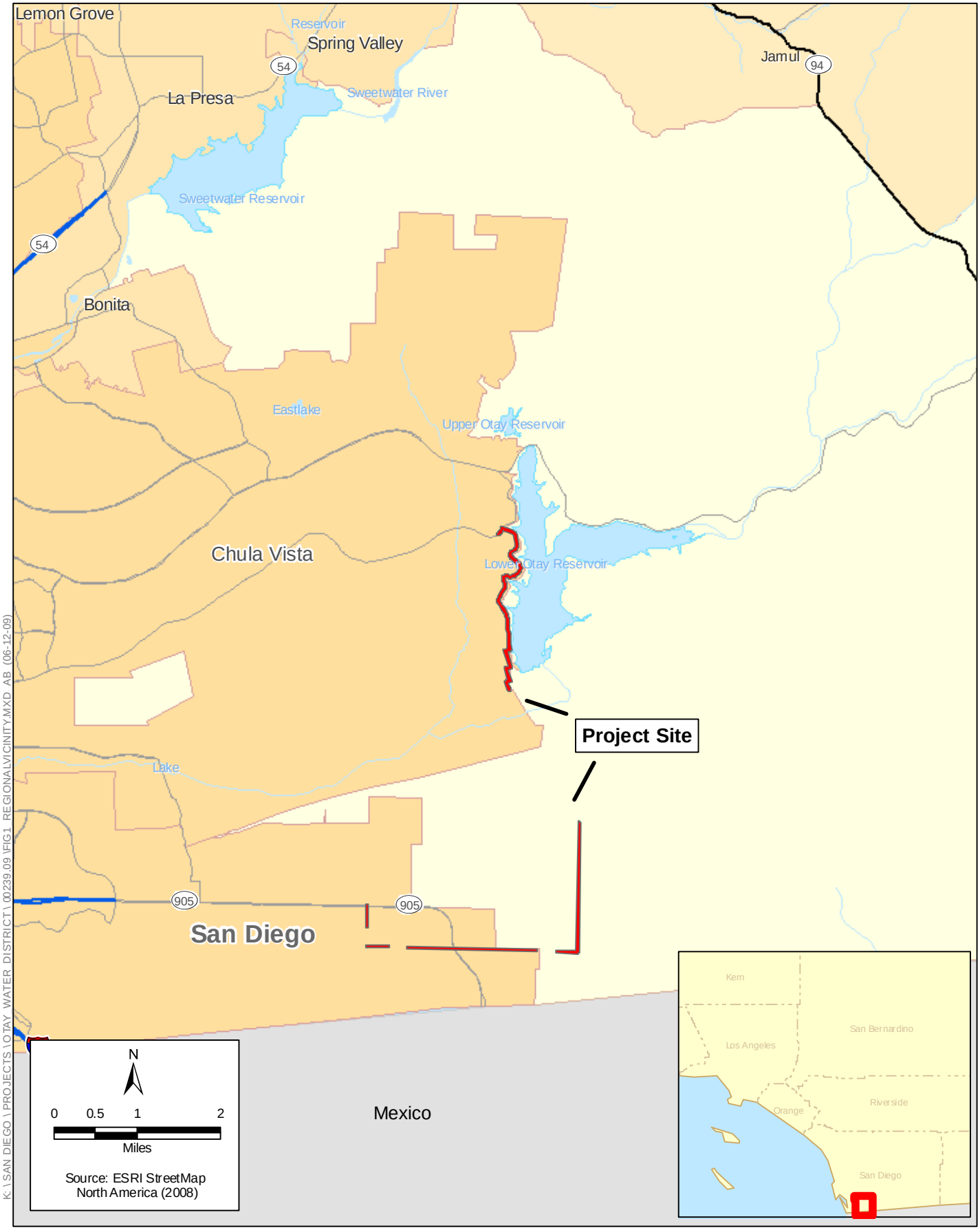
The survey area is comprised mainly of disturbed and developed areas; however, coastal sage scrub and disturbed coastal sage scrub occur adjacent to portions of the project footprint and within the survey area. While developed and dense ornamental areas were excluded from the surveys, disturbed areas with potential to support Quino host plants that were located adjacent to disturbed coastal sage scrub were included in the survey area (Figures 3a, 3b, and 3c). This report documents the results of the 2009 focused surveys conducted within the 84 acres of non-excluded areas.

Physical Characteristics

The northern portion of the Project site located along Weuste Road is bounded by the Lower Otay Reservoir to the east and a mix of developed and undeveloped land to the west. The undeveloped areas support both native and naturalized habitat. The southern portion of the Project along Alta, Airway, and La Media Roads is bordered by disturbed land dominated by nonnative vegetation and commercial/industrial complexes. The non-excluded sections within the southern survey area consist of undeveloped areas supporting nonnative vegetation.

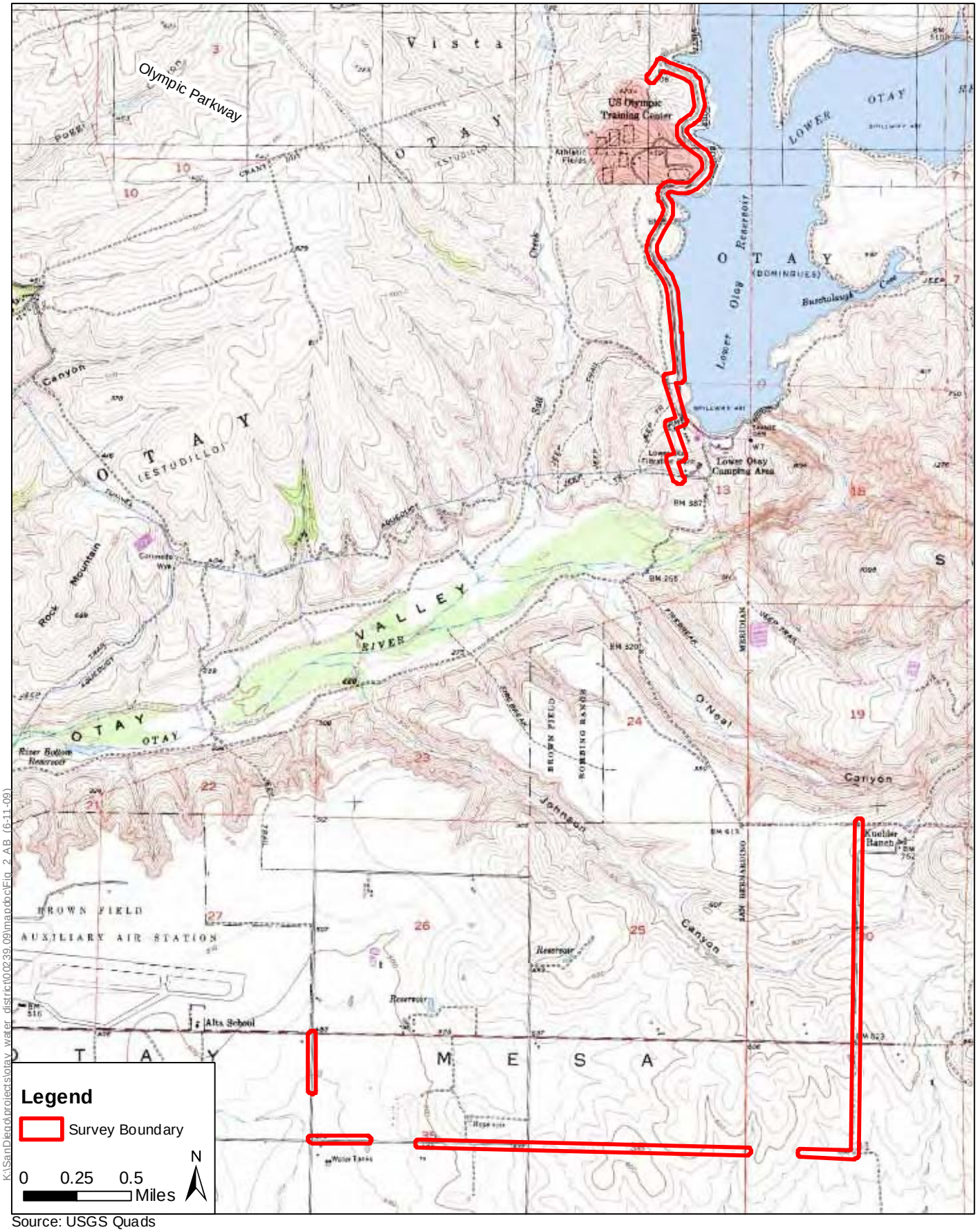
The Project site ranges in elevation from 375 feet at the southern end of Wueste Road to 705 feet at the northern end of Alta Road. Soils within the survey area include Olivenhain cobbly loam (2–9% and 9–30% slopes), Huerhuero loam (2–9%, 9–15%, and 15–30% slopes), Diablo clay (2–9% and 9–15% slopes), Salinas clay (0–2% slopes), and Stockpen gravelly clay loam (0–2% and 2–5% slopes) (Bowman 1973). The Olivenhain cobbly loams are derived from old gravelly and cobbly alluvium and consist of

well-drained, moderately deep to deep cobbly loams that have a very cobbly clay subsoil. The Huerhuero loams are derived from sandy marine sediments and consist of moderately well drained loams that have a clay subsoil. The Diablo clays consist of well-drained moderately deep to deep clays derived from soft, calcareous sandstone and shale. The Salinas clays consist of well drained and moderately well drained clay loams formed in sediments washed from Diablo, Linne, Las Flores, Huerhuero, and Olivenhain soils. The Stockpen loams are derived from marine terraces and consist of moderately well drained, moderately deep gravelly clay loams.



ICF Jones & Stokes
an ICF International Company

Figure 1
Regional Location
Otay Mesa Recycled Water System CIPs R2087, R2077, and R2058

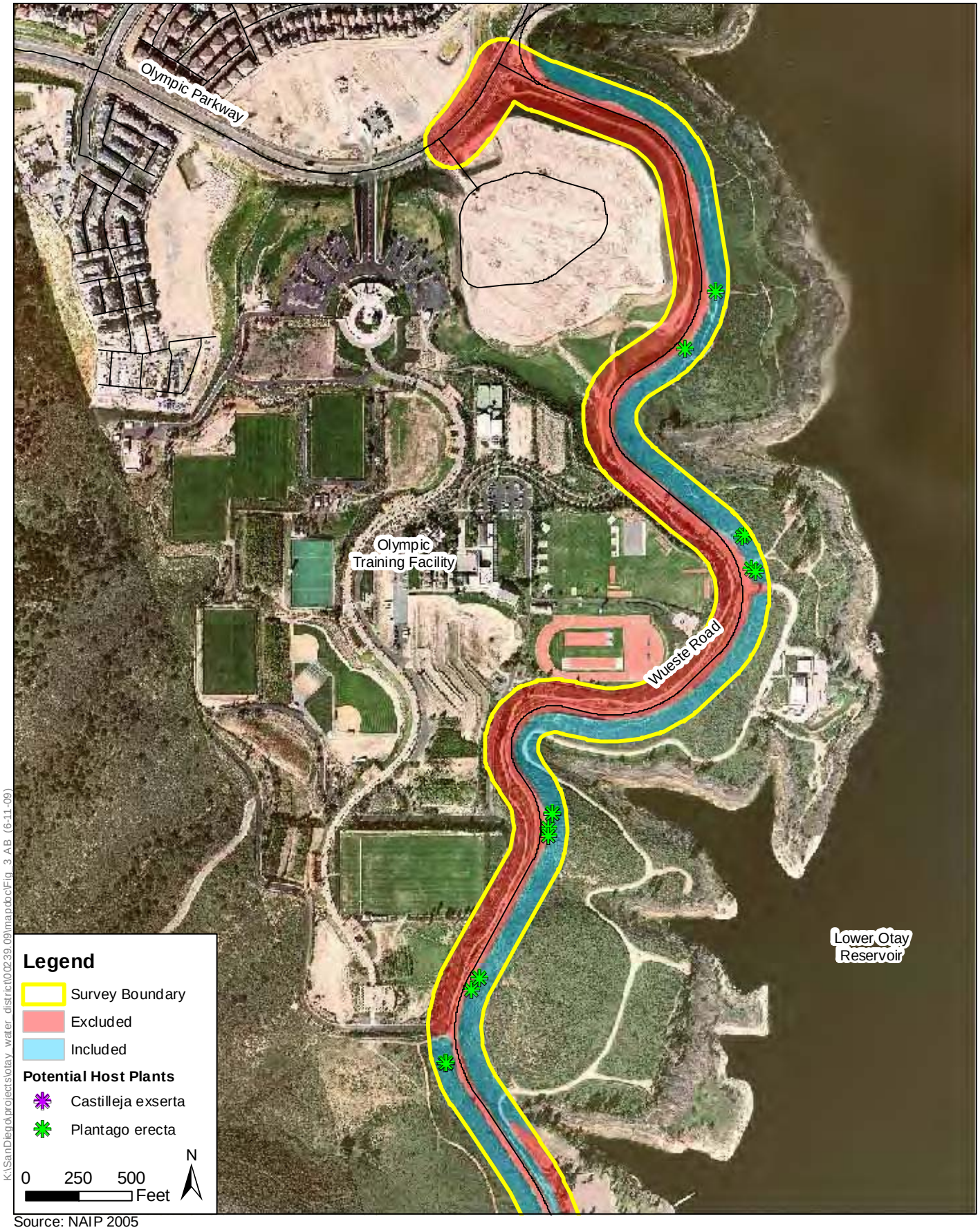


Source: USGS Quads

K:\SanDiego\projects\otay_water_district\00239.09\mapdoc\Fig_2_AB_(6-11-09)

ICF Jones & Stokes
an ICF International Company

Figure 2
Project Vicinity
Otay Mesa Recycled Water System CIPs R2087, R2077, and R2058

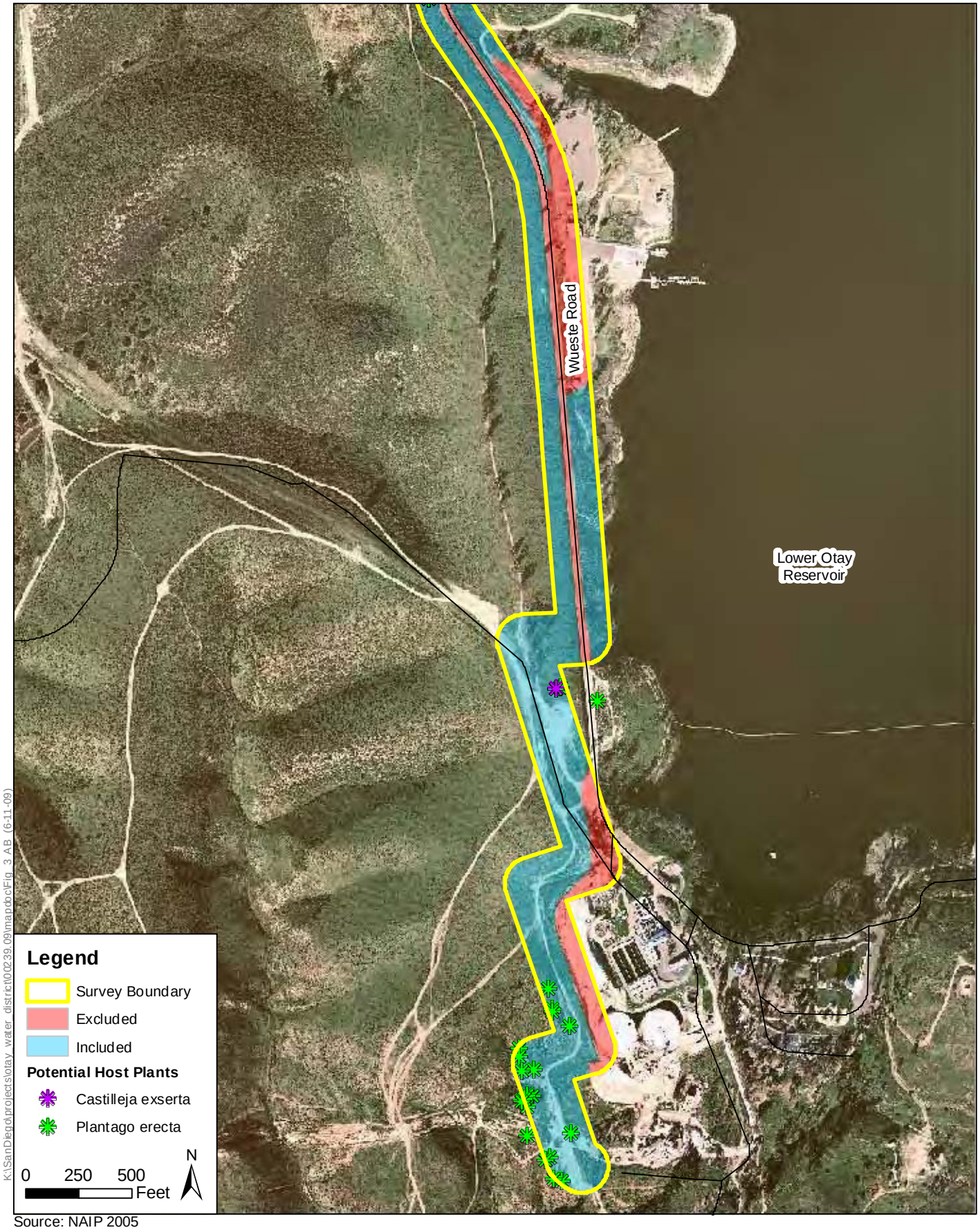


Source: NAIP 2005

K:\SanDiego\projects\otay_water_district\00239.09\map\doc\Fig_3_AB_(6-11-09)

ICF Jones & Stokes
an ICF International Company

Figure 3a
Habitat Assessment and Host Plant Map
Otay Mesa Recycled Water System CIPs R2087, R2077, and R2058



Source: NAIP 2005

K:\SanDiego\projects\otay_water_district\00239.09\mapdoc\Fig_3_AB_(6-11-09)

ICF Jones & Stokes
an ICF International Company

Figure 3b
Habitat Assessmentand Host Plant Map
Otay Mesa Recycled Water System CIPs R2087, R2077, and R2058

Source: USGS Quads

Figure 3c
Habitat Assessment and Host Plant Map
Otay Mesa Recycled Water System CIPs R2087, R2077, and R2058

III. METHODS

D. Allen (Permit No. TE-038109), K. Mozumder (Permit No. TE-168926-0), A. Borcher (Permit No. TE-092162-1), E. Alfaro (Permit No. TE-051236-1), and K. Klutz (Permit No. TE-036065-0) of ICF Jones & Stokes conducted surveys for adult Quino between March 4 and April 1, 2009. These surveys were conducted on a roughly weekly basis under acceptable weather conditions as defined in the USFWS protocol (Table 1) (USFWS 2002). Each survey involved slowly walking transects throughout all non-excluded portions of the survey area. The surveys were conducted at an average rate of 10 acres per hour. The surveyor stopped periodically to scan adjacent areas for moving butterflies. All butterfly species observed were identified and recorded (Table 2). Copies of daily field notes are provided as an attachment to this report (Attachment 1).

Table 1. Survey Dates and Conditions

Date	Survey Number	Start–End Time	Temperature (Start/Stop, °F)	Wind Speed (mph)	% Cloud Cover	Surveyor
3/04/09	1	0930–1500	66/66°F	0–3	0–10	A. Borcher, K. Mozumder
3/10/09	2	1330–1630	65/68°F	0–3	0	K. Klutz, K. Mozumder
3/17/09	3	1030–1500	78/75°F	0–6	0	D Allen, K. Mozumder
3/26/09	4	1200–1530	68/68°F	0–8	0	A. Borcher, E. Alfaro
4/01/09	5	1000–1500	60/65°F	0–4	0–25	K. Klutz, A. Borcher

Table 2. Butterflies Observed Within the Survey Site

Scientific Name	Common Name
Anthocharis sara	Sara's orangetip
Apodemia virgulti	Behr's metalmark
Brephidium exile	Western pygmy-blue
Erynnis funeralis	Funereal duskywing
Glaucopsyche lygdamuss australis	Southern blue
Junonia coenia	Common buckeye
Plebejus acmon	Acmon blue
Pontia protodice	Checkered white
Pontia sisymbrii	Spring white
Pyrgus communis	White checkered skipper
Vanessa annabella	West coast lady
Vanessa cardui	Painted lady
Strymon melinus	Gray hairstreak

Reference Site Information

Quino reference information was obtained from the 2009 USFWS monitoring information web page and by visiting two known populations within proximity of the project site. ICF Jones & Stokes biologists visited the USFWS Rancho Jamul Quino reference site in Jamul and the Mother Miguel reference site within the San Diego National Wildlife Refuge south of Sweetwater Reservoir on several occasions during the 2009 flight season. Site visits documented weather conditions, all flying adult Quino observed, and general host plant and nectar source conditions. All information collected during the 2009 season from both reference sites is presented in this report and was provided to USFWS throughout the season to assist in determining the adult flight season.

The Rancho Jamul reference site is located approximately 8 miles northeast of the project site, and 2.5 miles east of State Route 94 between Jamul and Dulzura in southern San Diego County. The site was burned during the Otay Fire of October 2003 and again in the Harris Fire of October 2007. The hill-top habitat currently supports coastal sage scrub traversed by a dirt road and trails. The reference site was visited on several occasions from January 13 through April 2, 2009 (Table 3).

The Mother Miguel reference site is located approximately 3 miles north of the project site, and 1.5 miles southeast of Sweetwater Reservoir within the San Diego National Wildlife Refuge in southern San Diego

County. The reference site was burned during the Harris Fire of October 2007. The hill-top habitat currently supports coastal sage scrub traversed by dirt trails. The reference site was visited on several occasions from March 6 through April 2, 2009 (Table 3).

The majority of the surveys at the reference sites were conducted under acceptable weather conditions as defined in the USFWS protocol (USFWS 2002). Each visit involved slowly walking transects throughout the site. Surveyors stopped periodically to scan adjacent areas for moving butterflies. Adult and/or immature Quino were identified and recorded.

Table 3. Reference Site Dates, Conditions, and Observations

Date	Location	Start–End Time	Temperature (Start/Stop, °F)	Wind Speed (mph)	% Cloud Cover	Name of Surveyor	Quino Observations
1/13/09	Rancho Jamul	1130–1230	78°F	0–2	0	A. Borcher, K. Mozumder, K. Klutz	4 larvae
2/19/09	Rancho Jamul	1300–1430	70°F	2–8	0	A. Borcher, K. Mozumder, K. Klutz, D. Allen	None
2/28/09	Rancho Jamul	1300–1430	52/61°F	0–3	0	A. Borcher, K. Mozumder	4 adults
3/16/09	Mother Miguel	1130–1200	64°F	0–5	0	K. Mozumder, E. Alfaro, C. Dunn	1 adult
3/19/09	Mother Miguel	1130–1200	68°F	0–1	30	K. Mozumder, D. Allen	1 adult
3/24/09	Mother Miguel	1230–1300	64°F	1–4	0	K. Mozumder, E. Alfaro	None
4/02/09	Mother Miguel	1100–1130	60°F	2–5	25	K. Mozumder, A. Borcher, C. Dunn	None
4/02/09	Rancho Jamul	1430–1530	56°F	2–6	100	K. Mozumder, A. Borcher, C. Dunn	2 adults

Quino larvae were first observed in mid January at the Rancho Jamul reference site, but long periods of cool weather in January and February likely prolonged development until the observation of flying adults at the end of February. Subsequently, adult Quino were observed flying in March at the Mother Miguel Reference Site and assumed flying throughout March at the Rancho Jamul Site. Quino were no longer observed at the Mother Miguel reference site after March 19th. Two worn Quino adults were observed at the Rancho Jamul reference site on April 2, 2009. The results of the surveys are consistent

with other reference sites in the area reported on the USFWS Quino monitoring website (USFWS 2009). Based on all information available, Quino began emerging at the end of February, and the flight season was over by the end of the first week of April, with the peak in abundance near the middle of March.

Although no Quino were observed during the surveys for the Otay Mesa Recycled Water System Project the reference site visits confirm that Quino were actively flying during the survey dates.

IV. RESULTS

A total of 13 butterfly species were observed during the five protocol surveys: Sara's orangetip, Behr's metalmark, western pygmy-blue, funereal duskywing, southern blue, common buckeye, acmon blue, checkered white, spring white, white checkered skipper, west coast lady, painted lady, and gray hairstreak (Table 2). Approximately 30 patches of Quino's primary host plant, dot-seed plantain, and 1 patch of the secondary host plant, owl's clover, were observed along the northern portion of the proposed pipeline alignment bordering Wueste Road. Potential nectar sources present and in bloom during the surveys included San Diego sunflower (*Viguiera laciniata*), deerweed (*Lotus scoparius*), short-pod mustard (*Hirschfeldia incana*), blue dicks (*Dichelostemma capitatum* ssp. *capitatum*), wishbone plant (*Mirabilis laevis*), and red-stem filaree (*Erodium cicutarium*).

Quino was not observed during the 2009 protocol surveys. Within the southern portion of the survey area host plants were absent, and nectar sources were limited to nonnative species such as short pod mustard. For these reasons the southern portion of the survey area along Alta, Airway, and La Media Roads is considered to have low potential to support Quino.

Along the northern portion of the survey area (bordering Wueste Road) host plants and nectar sources were mostly found in larger openings of coastal sage scrub and on some of the small hilltop areas. The highest quality habitat is concentrated near the water treatment facility at the end of Wueste Road. The California Natural Diversity Database (CNDDB) has two historic records (2001) for Quino less than ½ mile from the southern end of Wueste Road. Based on the historic presence and the quality of the habitat the southern portion of the northern survey area has a high potential to support Quino. The remainder of the northern survey area has a moderate to low potential to support Quino due to the smaller size of the host and nectar plant populations. These areas may serve an important role in allowing the movement of Quino between populations, but would have a low chance of supporting a small population by itself.

V. CERTIFICATION

We certify that all relevant data have been accurately incorporated into the above document.

Erika Alfaro (Permit No. TE-051236-1)
Biologist
Field Surveys

Kailash Mozumder (Permit No. TE-168926-0)
Biologist
Author and Field Surveys

Andrew Borcher (Permit No. TE-092162-1)
Biologist
Author, Primary Reviewer, and Field Surveys

Doug Allen (Permit No. TE 038109)
Biologist
Field Surveys

Korey Klutz (Permit No. TE036065)
Biologist
field surveys

VI. REFERENCES

Bowman, R. H. 1973. *Soil Survey of the San Diego Area, California.* United States Department of Agriculture.

Glassberg, J. 2001. *Butterflies through Binoculars: The West.* Oxford University Press.

U.S. Fish and Wildlife Service (USFWS). 2002. Quino Checkerspot Butterfly (*Euphydryas editha quino*) Year 2002 Survey Protocol.

———. 2009. Carlsbad Fish & Wildlife Service Quino Checkerspot Butterfly Reference Information 2009. Available: http://www.fws.gov/carlsbad/TEspecies/Documents/QuinoDocuments/2009MonRef/Quino_2009_Ref_Info.html.

ATTACHMENT 1

FIELD NOTES

Quino Checkerspot Butterfly Survey Form

Project/Location: DTTY PIPELINE Survey Segment: ALL

Surveyor: AB, KM Date: 3/4/09 Survey #: 1

Additional Surveyors: KM

	Time	% Cloud	Sky Condition			Wind (mph)	Temperature
Start	9:30	5	clear	patchy	cloudy	0-1 mph	66°
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	3:00	10	clear	patchy	cloudy	0-3 mph	66°

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, ~~NNG~~, DH, MSS

Host Plants(circle): Plantago, Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments:

Nectar Plants:

Chryptantha, Dic cap, Htyp gla, Mir lac, Lea dra, Lot sco, Viz lac, Las cal
Eri cal

Quino Observed (location, comments, coordinates, photo #):

Butterflies Observed					
Name	Tally	Total	Name	Tally	Total
Acmon Blue			Orange sulfur		
Anise swallowtail			Painted lady	II	2
Behr's metalmark			Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue	III	3
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip	I	1
Cerranus blue			Southern blue	III	3
Checkered white			Southern dogface		
Common buckeye			Spring white		
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing	III	3	West coast lady		
Gabb's checkerspot			Western tailed blue		
Gray hairstreak			Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue		
Lorquin's admiral			Unknown lady		
Monarch					
Mourning cloak					
Northern white skip					

Quino Checkerspot Butterfly Survey Form

Project/Location: Otay Pipeline Survey Segment:

Surveyor: KM, [illegible] Date: 3/4/09 Survey #: 1

Additional Surveyors: AB

Time		% Cloud	Sky Condition			Wind (mph)	Temperature
Start	9:30	0-5	clear	patchy	cloudy	0-1	66
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	3:00	10	clear	patchy	cloudy	0-3	66

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, NNG, DH, MSS

Host Plants(circle): Plantago, Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments:

Nectar Plants:

Vio ped, Ero bot, Dic cup, Hyp glab, Cryp int, Mar vul, Vig lac, Lin dis, Pla ere, Lot sco, Dod cle, Las cal, Sal mel

Quino Observed (location, comments, coordinates, photo #):

Butterflies Observed

Name	Tally	Total	Name	Tally	Total
Acmon Blue			Orange sulfur		
Anise swallowtail			Painted lady		
Behr's metalmark	II	2	Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue	IIII	4
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip	II	2
Cerranus blue			Southern blue		
Checkered white			Southern dogface		
Common buckeye			Spring white		
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing	II	2	West coast lady		
Gabb's checkerspot			Western tailed blue		
Gray hairstreak			Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue		
Lorquin's admiral			Unknown lady	II	2
Monarch					
Mourning cloak					
Northern white skip					

Quino Checkerspot Butterfly Survey Form

Project/Location: Otay Pipeline Survey Segment:

Surveyor: KM Date: 3/10/09 Survey #: 2

Additional Surveyors: KK

	Time	% Cloud	Sky Condition			Wind (mph)	Temperature
Start	1:30	0	clear	patchy	cloudy	0-2	65°F
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	4:30	0	clear	patchy	cloudy	1-3	68°F

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, NNG, DH, MSS

Host Plants(circle): Plantago, Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments: in flower

Nectar Plants: Vig lac, Ero bot, Las gl

Quino Observed (location, comments, coordinates, photo #):

Butterflies Observed

Name	Tally	Total	Name	Tally	Total
Acmon Blue			Orange sulfur		
Anise swallowtail			Painted lady		
Behr's metalmark	|	1	Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue	|	1
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip		
Cerranus blue			Southern blue	||	2
Checkered white			Southern dogface		
Common buckeye	|	1	Spring white	|	1
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing			West coast lady		
Gabb's checkerspot			Western tailed blue		
Gray hairstreak	|	1	Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue		
Lorquin's admiral			Unknown lady		
Monarch					
Mourning cloak					
Northern white skip					

Quino Checkerspot Butterfly Survey Form

Project/Location: OWD Pipeline Survey Segment: Reservoir

Surveyor: KK, ~~KM~~ Date: 2-10-09 Survey #: 2

Additional Surveyors: KM

	Time	% Cloud	Sky Condition			Wind (mph)	Temperature
Start	1:30	0	clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	4:00		clear	patchy	cloudy		

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, NNG, DH, MSS

Host Plants(circle): Plantago, Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments: Plantago, abundant in flower

Nectar Plants: Las col, vis lac, Lin dix, cry int, Funeral

Quino Observed (location, comments, coordinates, photo #): NA

Butterflies Observed					
Name	Tally	Total	Name	Tally	Total
Acmon Blue			Orange sulfur		
Anise swallowtail			Painted lady		
Behr's metalmark			Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue		
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip		
Cerranus blue			Southern blue		
Checkered white			Southern dogface		
Common buckeye	/		Spring white	/	
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing	/		West coast lady		
Gabb's checkerspot			Western tailed blue		
Gray hairstreak			Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue	/	
Lorquin's admiral			Unknown lady	/	
Monarch					
Mourning cloak					
Northern white skip					

Quino Checkerspot Butterfly Survey Form

Project/Location: OTAY Pipeline Survey Segment: _____

Surveyor: D. Allen Date: 3/17/09 Survey #: _____

Additional Surveyors: K Mozumder

	Time	% Cloud	Sky Condition			Wind (mph)	Temperature
Start	1030	Ø	(clear)	patchy	cloudy	0 - [	28°C
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop			clear	patchy	cloudy		

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, NNG, DH, MSS

Host Plants(circle): (Plantago) Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments: Flowering - Some ~~[illegible]~~ Areas STARTing to dry

Nectar Plants: Amsinkia, Lasthenia, Cryptantha, Plagiobothrys, Linaithus, Eriogonum fasciculatum, Lotus scoparius, Goldfields

Quino Observed (location, comments, coordinates, photo #):

Ø

Butterflies Observed

Name	Tally	Total	Name	Tally	Total
Acmon Blue	III	3	Orange sulfur		
Anise swallowtail			Painted lady	III	3
Behr's metalmark	~~IIII~~ ~~IIII~~ III	13	Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue	II	2
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip	~~IIII~~ ~~IIII~~	10
Cerranus blue			Southern blue		
Checkered white			Southern dogface		
Common buckeye	I	1	Spring white		
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing	III	3	West coast lady		
Gabb's checkerspot			Western tailed blue		
Gray hairstreak			Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue		
Lorquin's admiral			Unknown lady		
Monarch					
Mourning cloak					
Northern white skip					
	Sub T	20		Sub	15
				Sub	20
				TOTA	35

942-294-3997

Quino Checkerspot Butterfly Survey Form

Project/Location: O'Neill Ranch Survey Segment: _____

Surveyor: KM Date: 3/17/09 Survey #: 3

Additional Surveyors: DA

Time		% Cloud	Sky Condition			Wind (mph)	Temperature
Start	1030	0	clear	patchy	cloudy	0-1	78°F
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	3:00	0	clear	patchy	cloudy	2-6	75°F

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, NNG, DH, MSS

Host Plants(circle): Plantago, Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments: Starting to dry in exposed areas

Nectar Plants: Lasthenia, Linanthus, Fiddleneck, Viguiera, Dichelostemma

Quino Observed (location, comments, coordinates, photo #):

Butterflies Observed

Name	Tally	Total	Name	Tally	Total
Acmon Blue			Orange sulfur		
Anise swallowtail			Painted lady	I	1
Behr's metalmark	II	2	Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue	IIII	4
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip	II	2
Cerranus blue			Southern blue	III	3
Checkered white			Southern dogface		
Common buckeye			Spring white	I	1
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing	I	1	West coast lady	II	2
Gabb's checkerspot			Western tailed blue		
Gray hairstreak	I	1	Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue		
Lorquin's admiral			Unknown lady	I	1
Monarch					
Mourning cloak					
Northern white skip					

Quino Checkerspot Butterfly Survey Form

Project/Location: OTAY PIPELINE Survey Segment: _____

Surveyor: ANDREW BORCHER Date: 3/26 Survey #: 4

Additional Surveyors: ETA

	Time	% Cloud	Sky Condition			Wind (mph)	Temperature
Start	12:00	0	clear	patchy	cloudy	1-4	68
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	3:30	0	clear	patchy	cloudy	2-6	68

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, NNG, DH, MSS

Host Plants(circle): Plantago, Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments: Flowering

Nectar Plants: Las cat, Lin dra, Cot sco, Sal mon Z, Ams men

Quino Observed (location, comments, coordinates, photo #):

Butterflies Observed					
Name	Tally	Total	Name	Tally	Total
Acmon Blue	I	1	Orange sulfur		
Anise swallowtail			Painted lady	卌	5
Behr's metalmark	卌 I	6	Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue		
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip	IIII	4
Cerranus blue			Southern blue		
Checkered white	IIII	4	Southern dogface		
Common buckeye	卌 IIII	9	Spring white		
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing	卌	5	West coast lady	卌	5
Gabb's checkerspot			Western tailed blue		
Gray hairstreak			Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue		
Lorquin's admiral			Unknown lady		
Monarch			Unk Fritillary	I	1
Mourning cloak					
Northern white skip					

Quino Checkerspot Butterfly Survey Form

Project/Location: Otay Pipeline Survey Segment: northern

Surveyor: EA Date: 3-26-07 Survey #: 1

Additional Surveyors: AB

	Time	% Cloud	Sky Condition			Wind (mph)	Temperature
Start	12:00	0%	clear	patchy	cloudy	0-2	68
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	3:30	0%	clear	patchy	cloudy	5-8	68

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, NNG, DH, MSS

Host Plants(circle): Plantago, Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments: WP PE 84-55 87-89 PE all over PE drying up knoll on Sprutier (SW of water tanks)

Nectar Plants: Dic cop, Cal mac, Lin dia, Lot sco, Vig lac, Mir loc

Quino Observed (location, comments, coordinates, photo #):

Butterflies Observed

Name	Tally	Total	Name	Tally	Total
Acmon Blue			Orange sulfur		
Anise swallowtail			Painted lady	~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~	
Behr's metalmark	~~IIII~~		Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue		
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip	III	
Cerranus blue			Southern blue	I	
Checkered white	~~IIII~~ I		Southern dogface		
Common buckeye	~~IIII~~ II		Spring white		
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing	~~IIII~~		West coast lady	~~IIII~~ II	
Gabb's checkerspot			Western tailed blue		
Gray hairstreak			Western tiger swallowt		
Harford's sulphur			White checkered skipp	I	
Hermes copper			Unknown blue	I	
Lorquin's admiral			Unknown lady		
Monarch					
Mourning cloak	~~IIII~~				
Northern white skip					

Quino Checkerspot Butterfly Survey Form

Project/Location: OTAY MESA PIPELINE Survey Segment:

Surveyor: ANDREW BOECHER Date: 4/1/09 Survey #: 5

Additional Surveyors: KOREY KLUTZ

	Time	% Cloud	Sky Condition			Wind (mph)	Temperature
Start	10:00	25	clear	(patchy)	cloudy	0-3mph	60°
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	3:00	0	(clear)	patchy	cloudy	1-4mph	65°

Habitat Onsite (circle): hilltop, (veg openings), (bare ground), flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): ~~CSS, SMC~~, CSCS, ~~NNG~~, DH, MSS

Host Plants(circle): (Plantago), Castilleja, Cordylanthus, Collinsia, Antirrhinum

Condition/Comments: dry

Nectar Plants: Chylomatha, Lotus scoparius, Dendromecon fasciculata

Quino Observed (location, comments, coordinates, photo #):

Butterflies Observed

Name	Tally	Total	Name	Tally	Total
Acmon Blue	II		Orange sulfur		
Anise swallowtail			Painted lady	IIII I	
Behr's metalmark	III		Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue	I	
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip	II	
Cerranus blue			Southern blue		
Checkered white	II		Southern dogface		
Common buckeye	IIII		Spring white		
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing	II		West coast lady	III	
Gabb's checkerspot			Western tailed blue		
Gray hairstreak			Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue		
Lorquin's admiral			Unknown lady		
Monarch					
Mourning cloak					
Northern white skip					

Quino Checkerspot Butterfly Survey Form

Project/Location: OTAY MESA PIPELINE Survey Segment: _____

Surveyor: KORLY KLUTZ Date: 4/1/09 Survey #: 5

Additional Surveyors: ANDREW BOTCHER

	Time	% Cloud	Sky Condition			Wind (mph)	Temperature
Start	10:00	25	clear	(patchy)	cloudy	0-3mph	60°
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
			clear	patchy	cloudy		
Stop	3:00	0	(clear)	patchy	cloudy	0-4	65

Habitat Onsite (circle): hilltop, veg openings, bare ground, flat land, steep slope, plateau, ridgeline, rock outcrop, other

Veg Type Surveyed (circle): CSS, SMC, CSCS, NNG, DH, MSS

Host Plants(circle): (Plantago), (Castilleja), Cordylanthus, Collinsia, Antirrhinum

Condition/Comments:

Nectar Plants: Lotus scoparius, dicelp, dry int

Quino Observed (location, comments, coordinates, photo #):

Butterflies Observed					
Name	Tally	Total	Name	Tally	Total
Acmon Blue			Orange sulfur		
Anise swallowtail			Painted lady	///	3
Behr's metalmark			Pale swallowtail		
Brown elfin			Perplexing hairstreak		
Cabbage white			Pygmy blue		
California patch			Quino checkerspot		
California ringlet			Red admiral		
California sister			Sara's orangetip		
Cerranus blue			Southern blue		
Checkered white	//	2	Southern dogface		
Common buckeye	//	2	Spring white		
Dainty sulfur			Striated queen		
Desert orange-tip			Variable checkerspot		
Funereal duskywing			West coast lady		
Gabb's checkerspot			Western tailed blue		
Gray hairstreak			Western tiger swallowt		
Harford's sulphur			White checkered skipp		
Hermes copper			Unknown blue		
Lorquin's admiral			Unknown lady		
Monarch					
Mourning cloak					
Northern white skip					

Appendix F
California Gnatcatcher Survey Report

Report

Results of Coastal California Gnatcatcher Surveys

Otay Water District's transmission pipelines: Otay Mesa Recycled Water system capital improvement program R2087, R2077, R2058 Project

Prepared for:

Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, California 91978-2096
Contact: Lisa Coburn-Boyd

Prepared by:

ICF Jones & Stokes
9775 Businesspark Avenue, Suite 200
San Diego, California 92131
Contact: Kylie Fischer

December 2009

ICF Jones & Stokes. 2009. Results of Coastal California Gnatcatcher Surveys, Otay Water District's Transmission Pipelines: Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project. December. (ICF J&S 00277.09.) San Diego, California. Prepared for Otay Water District.

Contents

Sections

Page

1. Introduction **1**

Project Area 1

Coastal California Gnatcatcher 1

2. Methods **3**

3 Results **4**

4. Certification **8**

5. References **9**

Tables

On Page

1. Survey Conditions 3
2. Vertebrate Species Detected 6

Figures

Follows Page

1. Regional Location 1
2. Project Vicinity 1
3. Results 4

Chapter 1
Introduction

The Otay Water District's (District) Otay Mesa Recycled Water Systems Capital Improvement Program R2087, R2077, R2058 Project (Project) involves the construction and operation of three recycled water system transmission pipelines (RecPL). The three pipelines are the Wueste Road Pipeline (Capital Improvement Program [CIP] R2087), the Alta Road Pipeline (CIP R2077), and the Airway/La Media Road Pipeline (CIP R2058). The proposed alignment for the Alta Road Pipeline and the Airway/La Media Road Pipeline occur entirely within existing paved roadways. However, the Wueste Road Pipeline alignment occurs within or immediately adjacent to coastal sage scrub. Therefore, Otay Water District (OWD) retained ICF Jones & Stokes to conduct a protocol survey for the coastal California gnatcatcher (*Polioptila californica californica*) in all suitable habitat potentially impacted by the Wueste Road pipeline.

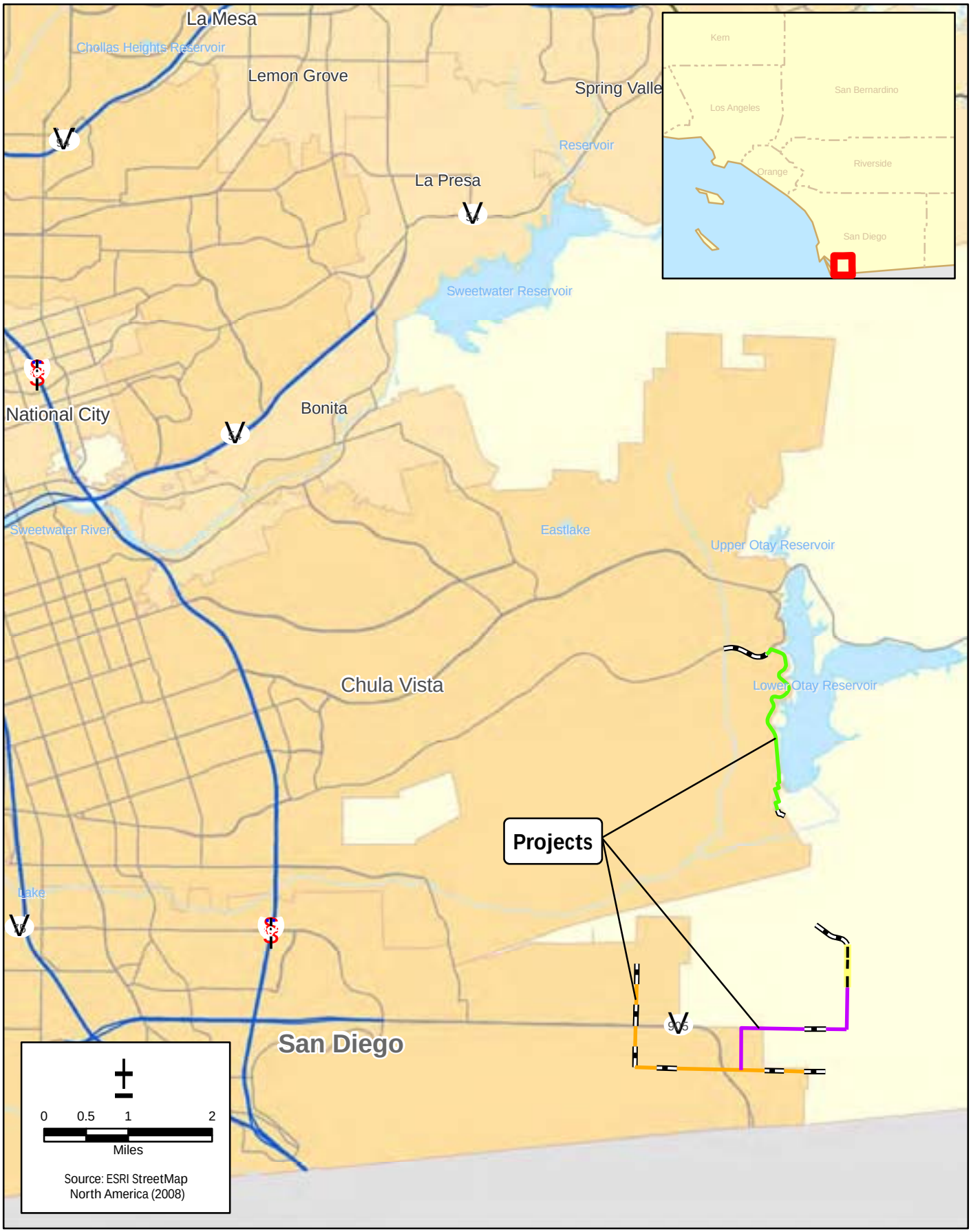
Project Area

The Wueste Road Pipeline (R2087) is a 20-inch-diameter 13,154-foot-long steel pipeline segment that will be constructed along a segment of Wueste Road (Figures 1 and 2). Wueste Road is located in Otay Mesa immediately adjacent to the Lower Otay Reservoir. The pipeline will start at Olympic Parkway where it will connect to an existing 16-inch-diameter recycled water pipeline. The pipeline will then proceed south along Wueste Road past the City of San Diego Otay Water Treatment Plant and connect to an existing 30-inch-diameter recycled water pipeline just south of the plant. The construction corridor will range from 20-60 feet, with a trench depth of approximately 6.5 feet. No above ground structures or pump stations are proposed. The specific survey area for the coastal California gnatcatcher surveys included coastal sage scrub and disturbed coastal sage scrub along the entire alignment.

In addition, as part of CIP R2087, a pressure-reducing station will be constructed immediately northeast of the District's 860-1 Reservoir located near the George Bailey Detention Facility off of Alta Road. The impact area for this project feature is restricted to existing disturbed or developed areas. As the surrounding disturbed coastal sage scrub would not be impacted and as construction activities would occur outside of the gnatcatcher breeding season, focused surveys were not conducted in the sage scrub adjacent to the pressure-reducing station.

Coastal California Gnatcatcher

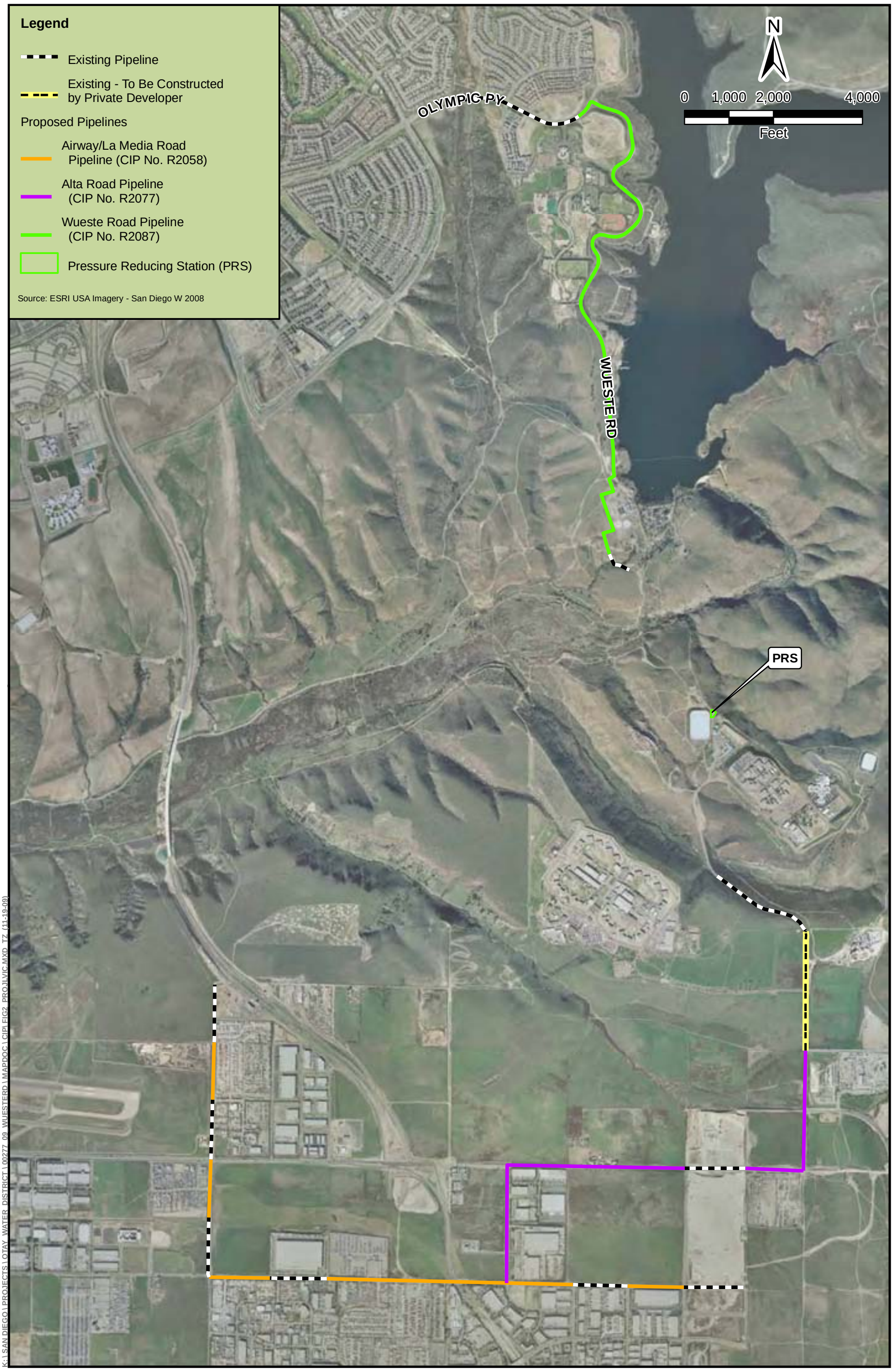
The coastal California gnatcatcher is a small resident insectivorous species that's occurrence is strongly associated with sage scrub habitats found throughout southern California into northern Baja California, Mexico. The USFWS listed this species as threatened in 1993. It is considered a California Department of Fish and Game Species of Special Concern.



K:\SAN DIEGO\PROJECTS\OTAY_WATER_DISTRICT\00277_09_WUESTERD\MAPDOC\CIP\FIG1_REGLOC.MXD TZ (11-19-09)

ICF Jones & Stokes
an ICF International Company

Figure 1
Regional Location
Otay Mesa Recycled Water CIP



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\CIP\FIG2 PROJLVIC.MXD TZ (11-19-09)

ICF Jones & Stokes

Figure 2
Project Vicinity
Otay Mesa Recycled Water CIP

Historically, California gnatcatchers range extended from southern Ventura County southward through Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties, and into Baja California, Mexico, to approximately 30 degrees north latitude near El Rosario (Atwood 1990). Habitat destruction, fragmentation and modification have led to this species' decline (USFWS 1993). Loss to agriculture and urban development were leading causes until 2003 when the Cedar Fire destroyed almost 28% of the remaining habitat that the U.S. Fish and Wildlife Service believed to be suitable for the coastal California gnatcatcher (Bond and Bradley 2003).

Although California gnatcatchers have a close association with sage scrub, this species has also been documented using coastal sage-chaparral scrub, chamise chaparral and other habitat types (Campbell et al. 1998, Bontrager 1991, K. Fischer pers. obs.). The breeding season extends from mid February through mid-August.

Chapter 2
Methods

Protocol surveys for the coastal California gnatcatcher within a Natural Community Conservation Plan (NCCP) entail three surveys, at least one week apart. All surveys are to be conducted in accordance with U.S. Fish and Wildlife Service protocol requirements (USFWS 1997). For this project, the surveys consisted of careful, thorough coverage of potential habitat within the proposed work areas and a 200-foot buffer. No more than 20 acres was surveyed in a morning.

Attention was given to relevant plant and animal species identifiable either directly or indirectly by sign. Pre-recorded audiotape playback was used when appropriate. All visits were performed during morning hours prior to 1200, when gnatcatchers are most active, and were not conducted during inclement weather such as extreme hot or cold temperatures, fog, high winds or rain.

Coastal California gnatcatcher surveys were conducted by Kylie Fischer (USFWS permit TE-039321; CDFG SCP-6068), with support from Doug Allen (USFWS permit TE-039321) and Andrew Borcher (USFWS permit TE-092162). Survey dates, personnel and survey conditions are listed in Table 1.

Table 1. Survey Conditions

Date - 2009	26 July	3 August	11 August
Start Time	0730	0715	0650
End Time	1120	1030	1020
Temperature	68-82°F	70-90°F, humid	68-78°F
Wind Speed	1-3 mph	0 mph	0 mph
Sky Condition	100-0%	50-90% cover	100-0% cover
Survey By	K. Fischer D. Allen	K. Fischer D. Allen	K. Fischer A. Borcher

Chapter 3
Results

In total, six coastal California gnatcatcher pairs, at least three fledglings, three unknown status and five dispersing juveniles were detected during the surveys (Figure 3). The observations are discussed from south to north.

Pair 1 – this pair is located just west of the Otay Water Treatment Facility. During these surveys all detections of this pair were outside of the survey area; however, ICF Jones & Stokes biologist Kylie Fischer has conducted numerous surveys in this area in support of a project for the Otay Water Treatment Plant and this pair has historically been documented using the habitat within the survey area. On July 26, a family group with at least three fledglings was heard outside of the survey area. On August 3, the pair was heard on the opposite slope west of the survey area. The pair was not detected on August 11.

Dispersing juvenile 1 – This bird was observed on July 26 along the eastern edge of Wueste Road within coastal sage scrub along the bank of Lower Otay Reservoir. It was not present during subsequent surveys.

Pair 2 – On July 26, a pair was detected foraging along the eastern side of Wueste Road. During the return pass through, the pair was on the western side of Wueste Road. On August 3, mews were heard near the previous observation. On August 11, the pair was not detected during the initial pass through the area but on the return trip, mews were heard on the eastern side of Wueste Road.

Pair 3 – On July 26, a pair was observed chasing out dispersing juvenile 2. This pair was observed in the mulefat scrub east of Wueste Road. On August 8, the pair was foraging on the eastern side of Wueste Road. On August 11, no gnatcatchers were detected within the same area as the earlier observation; however, mews were heard from within the fence line of the Olympic Training Center on the west side of Wueste Road. As the habitat could not be accessed due to existing fencing, the status of these birds (i.e., adult or juvenile) could not be ascertained.

Dispersing juveniles 3&4 – On August 11, two juvenile gnatcatchers were detected east of Wueste Road in area where no gnatcatchers had been detected before.

Pair 4 – On July 26, five gnatcatchers were observed in a conflict within the fence line of the Olympic Training Center in the *Eucalyptus* and *Acacia* trees on the western side of Wueste Road. As the area could not be accessed due to the presence of a fence, the biologists were unable to ascertain the status of all the birds. On August 8, a male gnatcatcher was observed in the same area. On August 11, a pair was foraging on eastern side of Wueste Road along the bank of Lower Otay Reservoir.

Pair 5 – On July 26, two gnatcatchers were heard on the western side of Wueste Road within the fence line of the Olympic Training Center. On August 8, the pair was detected on the eastern side of Wueste Road. On August 11, this pair was not detected.

Dispersing juvenile 5 - On July 26, a dispersing juvenile was detected in the coastal sage scrub along the bank of Lower Otay Reservoir. It was not present during subsequent surveys.

K:\ SAN DIEGO\ PROJECTS\ OTAY WATER DISTRICT\ 00277 09 WUESTERD\ MAPDOC\ CAGN\ FIG3 CAGN RESULTS.MXD TZ (01-25-10)

ICF Jones & Stokes

Figure 3
Coastal California Gnatcatcher Results

Pair 6 – On July 26, two gnatcatchers were heard on the eastern side of Wueste Road outside of the survey area near a patch of tamarisk (*Tamarix sp.*). On August 3 the pair was heard in the same approximate area. On August 11, the pair was detected further south and the female crossed over to the western side of Wueste Road. The male stayed on the eastern side.

The vegetation within the survey area is obviously very important to this species. As the surveys were conducted in late July and early August, the coastal sage scrub was already dry so most gnatcatcher activity was focused in areas with irrigation or some type of a riparian influence. There was a long stretch of habitat within the survey area that was not utilized by this avian species. The habitat west of Wueste Road between the boat launch and Otay Water Treatment Plant is very open and no gnatcatchers were observed using this habitat.

In total, three reptile species, 43 bird species and six mammal species were detected during the surveys (Table 2). Three additional special-status species were detected during the surveys (Figure 3).

Orangethroat Whiptail (*Cnemidophorus hyperythrus*)
State Species of Special Concern
Several orangethroat whiptails were observed within the survey area during the surveys.

Northern Harrier *(Circus cyaneus*)
State Species of Special Concern
One individual was observed foraging over the survey area on 29 July.

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)
State Species of Special Concern
At least two individuals were observed during the surveys: one near the southern terminus of the proposed pipeline alignment and the other near the boat launch/dock.

Table 2. Wildlife Species Detected

Scientific Name	Common Name	Special Status
VERTEBRATES		
Reptiles		
Sceloporus occidentalis	Western Fence Lizard	
Uta stansburiana	Side-blotched Lizard	
Cnemidophorus hyperythrus	Orangethroat Whiptail	CSC
Birds		
Callipepla californica	California Quail	
Aechmophorus occidentalis	Western Grebe	
Phalacrocorax auritus	Double-crested Cormorant	
Pandion haliaetus	Osprey	
Circus cyaneus	Northern Harrier	CSC
Accipiter cooperii	Cooper's Hawk	
Buteo jamaicensis	Red-tailed Hawk	
Falco sparverius	American Kestrel	
Charadrius vociferus	Killdeer	
Hydroprogne caspia	Caspian Tern	
Zenaida macroura	Mourning Dove	
Geococcyx californianus	Greater Roadrunner	
Calypte anna	Anna's Hummingbird	
Calypte costae	Costa's Hummingbird	
Picoides nuttallii	Nuttall's Woodpecker	
Sayornis nigricans	Black Phoebe	
Sayornis saya	Say's Phoebe	
Tyrannus vociferans	Cassin's Kingbird	
Aphelocoma californica	Western Scrub-Jay	
Corvus brachyrhynchos	American Crow	
Corvus corax	Common Raven	
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
Petrochelidon pyrrhonota	Cliff Swallow	
Psaltriparus minimus	Bushtit	
Salpinctes obsoletus	Rock Wren	
Thryomanes bewickii	Bewick's Wren	

Scientific Name	Common Name	Special Status
Troglodytes aedon	House Wren	
Polioptila californica californica	Coastal California Gnatcatcher	FT, CSC
Chamaea fasciata	Wrentit	
Mimus polyglottos	Northern Mockingbird	
Toxostoma redivivum	California Thrasher	
**Sturnus vulgaris*	European Starling	
Geothlypis trichas	Common Yellowthroat	
Pipilo maculatus	Spotted Towhee	
Pipilo crissalis	California Towhee	
Aimophila ruficeps canescens	Southern California Rufous-crowned Sparrow	
Chondestes grammacus	Lark Sparrow	
Melospiza melodia	Song Sparrow	
Passerina caerulea	Blue Grosbeak	
Quiscalus mexicanus	Great-tailed Grackle	
Icterus cucullatus	Hooded Oriole	
Carpodacus mexicanus	House Finch	
Carduelis psaltria	Lesser Goldfinch	
Mammals		
Sylvilagus audubonii	Desert Cottontail	
Lepus californicus bennettii	San Diego Black-tailed Jackrabbit	CSC
Spermophilus beecheyi	California Ground Squirrel	
Thomomys bottae	Botta's Pocket Gopher	
Canis latrans	Coyote	
Procyon lotor	Northern Raccoon	

Legend

*= Non-native or invasive species

Special Status:

Federal:
FT = Threatened

State:
CSC = Species of Special Concern

Chapter 4
Certification

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

_____ December 10, 2009

Kylie Fischer Date

Wildlife Biologist

Chapter 5
References

Atwood, J.L. 1990. Status review of the California Gnatcatcher (*Polioptila californica*). Unpublished technical report, Manomet Bird Observatory, Manomet, MA. 79 pp.

Bond, M. and C. Bradley. 2003. Impacts of the 2003 Southern California Wildfires on Four Species Listed as Threatened or Endangered Under the Federal Endangered Species Act*:* Quino checkerspot butterfly, Mountain yellow-legged frog, Coastal California gnatcatcher, Least Bell's vireo. Unpublished report prepared by the Center for Biological Diversity.

Bontrager, D.R. 1991. Habitat requirements, home range requirements, and breeding biology of the California Gnatcatcher (*Polioptila californica*) in south Orange County, California. Prepared for Santa Margarita Company, Ranch Santa Margarita, CA. April.

Campbell, K.F., R.A. Erickson, W.E. Haas, and M.A. Patten. 1998. California Gnatcatcher use of habitats other than coastal sage scrub: conservation and management implications. Western Birds 29: 421-433.

U.S. Fish and Wildlife Service (USFWS) 1993. Endangered and threatened wildlife and plants: Special rule concerning take of the threatened coastal California Gnatcatcher. Final Rule. Federal Register 58: 65088-65096.

USFWS. 1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines. Report from Carlsbad, California Field Office dated 28 July 1997. 4pp.

Appendix G
Photo Book

	Photo 1 Subject: Wueste Road coastal sage scrub Date: March 2009 Photographer: Andrew Borcher Orientation: Northeast
	Photo 2 Subject: Wueste Road open coastal sage scrub Date: July 2009 Photographer: Makela Mangrich Orientation: North

	Photo 3 Subject: Wueste Road Pipeline PRS location Date: July 2009 Photographer: Doug Allen Orientation: North
	Photo 4 Subject: Basin 1 Date: July 2009 Photographer: Kylie Fischer Orientation: Southeast

	Photo 5 Subject: Basin 2 Date: July 2009 Photographer: Kylie Fischer Orientation: North
	Photo 6 Subject: Basin 3 Date: July 2009 Photographer: Kylie Fischer Orientation: North

	Photo 6 Subject: Impact area at the intersection of Otay Mesa Road and Alta Road Date: November 2009 Photographer: Kylie Fischer Orientation: West
	Photo 7 Subject: Staging area near drainage at intersection of Airway and La Media Roads Date: November 2009 Photographer: Kylie Fischer Orientation: North

Photo 8
Subject: Wetland that will be avoided during construction
Date: November 2009
Photographer: Kylie Fischer
Orientation: North

Appendix D
Cultural Resources Survey Report

February 16, 2010

Ms. Lisa Coburn-Boyd

Otay Water District

2554 Sweetwater Springs Blvd.

Spring Valley, CA 91978-2096

SUBJECT: Cultural Resources Review of the Engineering Change to the Airway/La Media Road Pipeline Alignment

Dear Ms. Coburn-Boyd:

I have been notified that the District has made a relatively minor engineering change to a segment of the Airway/La Media Pipeline Project (CIP No. R2058) since my submission of the *Cultural Resources Survey Report for Three Segments of the Otay Water District Recycled Water Pipeline Project (R2087; R2077; R2058), Southwestern San Diego County, California* to you on December 31, 2009. I have examined the proposed engineering change and determined that it has no new impact on cultural resources. The findings and recommendations of the original report remain unchanged.

If you have any questions or need additional information, please contact me at your earliest convenience. Thank you for your time on this matter.

Respectfully submitted,

Robert P. Case, M.A., RPA

Senior Archaeologist | 858.578.8964 | rcase@icfi.com | icfi.com

ICF INTERNATIONAL | 9775 Businesspark Avenue, Suite 200

San Diego, CA 92131 | 858.603.9148 (m)

Cultural Resources Survey Report for the Otay Water District's Transmission Pipelines

Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project

Prepared for:

Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, California 91978-2096
Contact: Lisa Coburn-Boyd

Prepared by:

ICF International
9775 Businesspark Ave Suite
San Diego, California 92131
Contact: Robert P. Case

February 2010

ICF International. 2010. Cultural Resources Survey Report for the Otay Water District's Transmission Pipelines – Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project. Draft. February. Prepared for Otay Water District.

National Archaeological Database Information

Authors:	Robert P. Case, RPA
Consulting Firm:	ICF International, 9775 Businesspark Avenue, Suite 200, San Diego, California 92131, (858) 578-8964
Report Date:	December 2009
Report Title:	Cultural Resources Survey Report for Three Segments of the Otay Water District Recycled Water Pipeline Project (R2087;R2077;R2058), Southwestern San Diego County, California
Submitted by:	ICF International, 9775 Businesspark Avenue, Suite 200, San Diego, California 92131
Submitted to:	Lisa Coburn-Boyd, Otay Water District, 2554 Sweetwater Springs Road, Spring Valley, California 91978-1120
Contract No.:	00277.09
USGS Quadrangle:	Jamul Mountains and Otay Mesa 7.5'
Acreage:	Approximately 5,275 lineal feet
Keywords:	Pipeline project; site records and literature search; Phase I pedestrian survey; no cultural resources observed; archaeological mitigation monitoring during trenching recommended

Contents

Page

Chapter 1 Project Description / Introduction **1**

Chapter 2 Natural Environment **2**

Chapter 3 Prehistory/Ethnography/History **3**

Chapter 4 Study Area **6**

Study Methods 6

Chapter 5 Results **7**

Evaluation 7

Chapter 6 Recommendations **13**

Chapter 7 References **14**

Attachments

1. Resume
2. South Coastal Information Center, Record Search Verification Letters

Tables

Table **Page**

Table 1. Cultural Resource Studies within a 0.25-Mile Radius of the Project 8
Table 2. Cultural Resources Located within a 0.25-Mile Radius of the Project 11

Figures

Follows Page

Figure 1Regional Location 2
Figure 2 Project Vicinity 2
Figure 3 Existing Survey Conditions 10

Acronyms and Abbreviations

AMSL	above mean sea level
APEs	areas of potential effect
CEQA	California Environmental Quality Act
mya	million years ago
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
SCIC	South Coastal Information Center

Chapter 1
Project Description / Introduction

The Project site is located in the southwestern portion of San Diego County, California (Figure 1). The Otay Water District proposes to construct a series of pipelines to convey recycled water to the Lower Otay Reservoir (Figure 2). The pipeline is composed of three segments:

- Wueste Road (R2087) – a 20-inch diameter steel pipeline starting at Olympic Parkway and connecting to an existing 30-inch recycled water pipeline adjacent to the City of San Diego Otay Water Treatment Plant;
- Alta Road (R2077) – a 24-inch diameter steel pipeline starting at Alta Gate, proceeding south to Otay Mesa Road, west to Sanyo Road, then south on Sanyo Road to Airway Road where it will connect to the Airway/La Media Road pipeline; and
- Airway/La Media Road (R2058) – a 16-inch diameter PVC pipeline starting a Sanyo Road and proceeding west on Airway Road to La Media Road and then north approximately 600 feet.

The proposed pipeline would be installed primarily within the paved portion of the roadways in trenches measuring 4 feet wide by approximately 5 feet deep. Some portions, however, must go off pavement and therefore have the potential to encounter undisturbed cultural resources. The Project is regulated by the California Environmental Quality Act (CEQA) with the Otay Water District acting as the Lead Agency. Additionally the U.S. Bureau of Reclamation is providing funding for the Project and therefore the requirements of both the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA) must be satisfied.

ICF requested the staff of South Coastal Information Center (SCIC) to perform a site records and literature search to determine if any studies had been conducted and sites recorded within a 0.25 mile of the three Project sites of potential effect (APEs). Pedestrian survey of the APEs was completed on December 9, 2009. ICF Senior Archaeologist Robert P. Case, RPA, served as Principal Investigator, field surveyor, and report author. Mr. Case's resume is provided as Attachment 1.

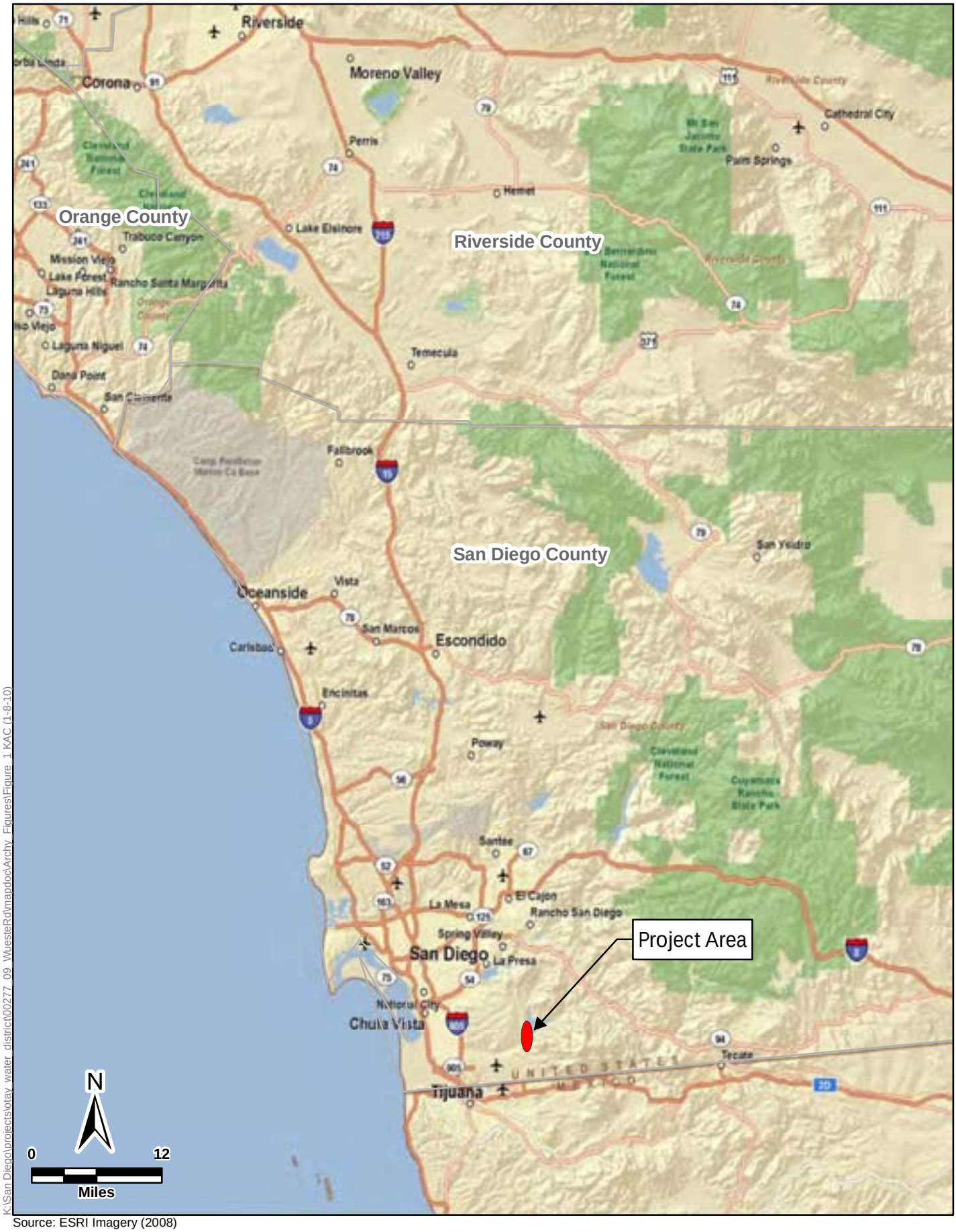
Chapter 2
Natural Environment

The Project site is located in the southwestern portion of San Diego County at elevations ranging between approximately 420 and 600 feet above mean sea level (AMSL). The landform on which the Project site is situated is geographically designated the Linda Vista Terrace within the Coastal Geomorphic Province. Rising between 300 feet and 600 feet AMSL, the Linda Vista Terrace is marine in origin (McArthur 2004:20-21).

From a geological perspective, each Project site is characterized by a different formation. The Wueste Road segment is composed of unnamed fanglomerate deposits that lie unconformably upon low-grade metamorphic rocks of the basement complex. The fanglomerate clasts are fresh and angular and are identical to the metamorphic and granitic rocks exposed locally. The clasts are in a matrix of medium- and coarse-grained, light-brown sandstone and waxy, light-brown bentonite (Kennedy and Tan 1977). It is overlain unconformably by the Miocene/Pliocene Otay Formation dating to roughly 28-30 million years ago (mya). The Otay Formation is characterized by light-gray and light-brown, moderately well-sorted, poorly indurated, massive sandstone and claystone (Kennedy and Tan 1977). Unconformably overlying the Otay Formation is the Lindavista Formation. Dating to between 0.5 and 1.5 mya, the Lindavista Formation typically consists of rust-red, coarse-grained, pebbly sandstones and pebbly conglomerates. These deposits were formed on a flat, wave-cut platform during a period of falling sea levels (Deméré and Walsh 1993:7).

Soils of the Diablo, Olivenhain, and Stockpen series are present in the vicinity of the Project APEs. Diablo clay is found at Alta Road and Otay Mesa Road and is characterized by well-drained, moderately deep to deep clays derived from soft calcareous sandstone and shale (Bowman 1973:42-43). Stockpen gravelly clay loams are present at Airway Road and La Media Road; typically these are moderately well drained, moderately deep gravelly clay loams formed on nearly level marine terraces (Bowman 1973:78). Olivenhain cobbly loam occurs along Wueste Road and is characterized by well-drained, moderately deep to deep cobbly loams that have a very cobbly subsoil that formed in old gravelly and cobbly alluvium (Bowman 1973:67).

Prior to the arrival of the Spanish, the natural setting would have been characterized by the coastal sagebrush scrub plant community including California sagebrush, flat top buckwheat, laurel sumac, and white and black sages (Pryde 2004:40). Subsequently in the early twentieth century, commercial agricultural activities replaced the coastal sagebrush scrub, only to be converted to large tracts of single family residential developments in the last quarter of the twentieth century.

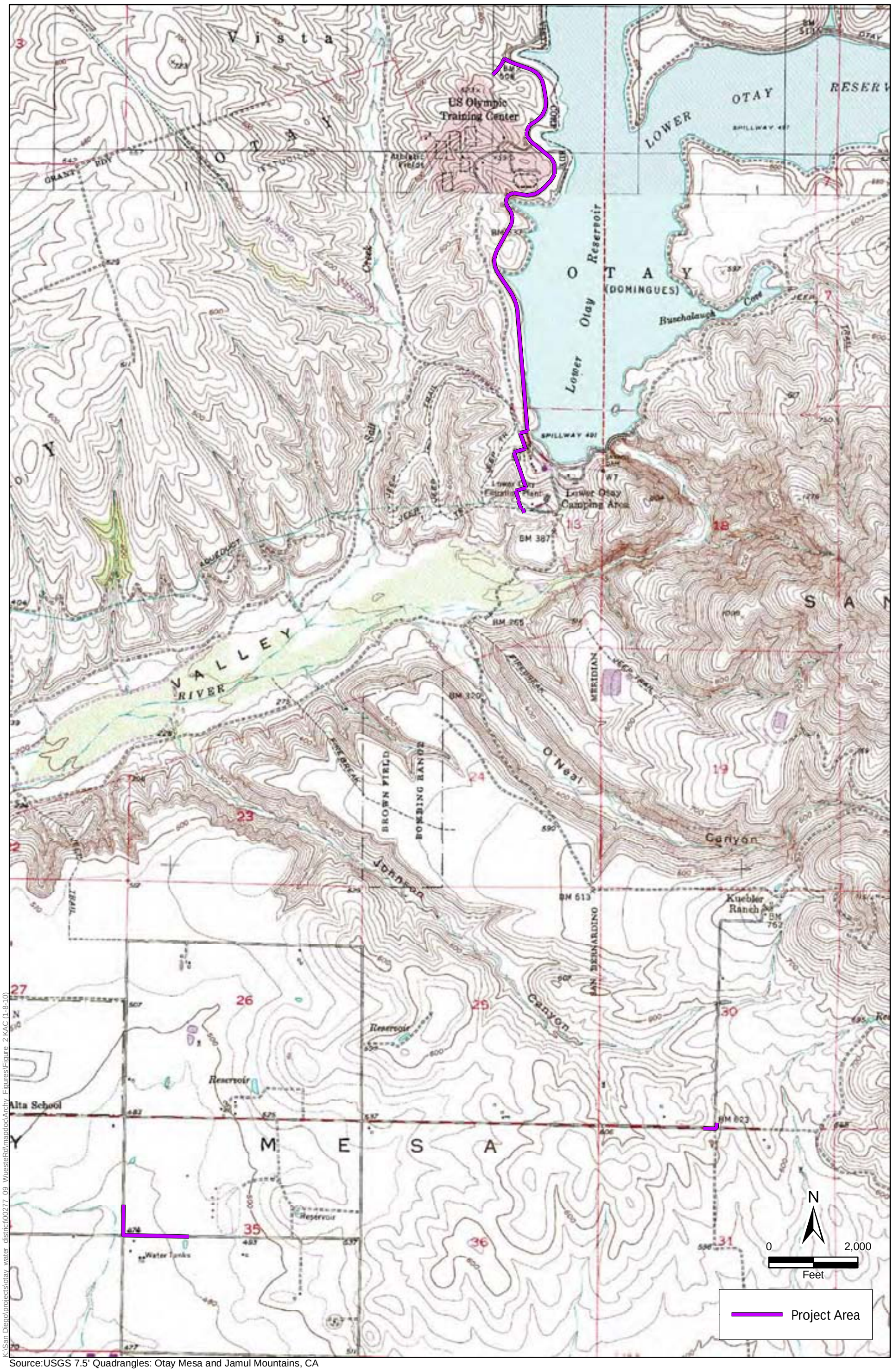


K:\San Diego\projects\otay_water_district\00277_09_WuesteRd\mapdoc\Archy_Figures\Figure_1_KAC (1-8-10)

Source: ESRI Imagery (2008)

ICF INTERNATIONAL

Figure 1
Regional Location
Otay Mesa Recycled Water CIP



Source:USGS 7.5' Quadrangles: Otay Mesa and Jamul Mountains, CA

K:\San Diego\projects\otay_water_district\00277_09_WuesteRd\mapdoc\Archy_Figures\Figure_2 KAC (1-8-10)

Figure 2
Project Vicinity
Otay Mesa Recycled Water CIP

Chapter 3
Prehistory/Ethnography/History

When Juan Rodriguez Cabrillo landed in San Diego Bay in 1542, he was met by native peoples who had lived in the area for centuries and perhaps for millennia. The earliest documented occupation of the San Diego County region is the Paleoindian culture of the San Dieguito Complex (ca. 8500 - 6000 BC). The artifactual repertoire of this complex suggests a nomadic hunting culture as evidenced by the variety of scrapers, choppers, bifaces, large projectile points, and crescentics found. The San Dieguito culture evolved into, or was replaced by, a new cultural pattern in which the emphasis seems to shift to the collection of plant resources with less dependence on hunting game. In coastal areas this is referred to as the La Jolla Complex (ca. 6000 - 1 BC) and is characterized by grinding tools for processing food, extensive utilization of littoral resources, simple cobble-based lithic technology, with the treatment of the dead being in flexed human burials. A coeval inland Pauma Complex has been defined based on similar ground stone technology, the presence of Elko Series projectile points, and the absence of artifacts associated with later cultures. The artifacts that distinguish the later Cuyamaca Complex (ca. AD 1 - 1769) from the La Jolla and Pauma complexes include smaller projectile points associated with bow-and-arrow technology, the addition of bedrock milling technology, a shift from inhumation to cremation mortuary practices, and, sometime after roughly AD 800, the addition of ceramic technology. The Cuyamaca Complex is the material manifestation of the Kumeyaay culture that persists today, although in a highly modified form (Case 2005:8-10).

The Kumeyaay people appear to have been little affected by Cabrillo's visit, nor Vizcaino's in 1602. However, the subsequent Spanish colonization of Alta California, beginning in 1769, resulted in massive native population displacement and decline. The Spanish sphere of control spread outward from the Royal Presidio and the Mission San Diego de Alcalá along the Camino Real as well as inland up the major river valleys. By the early 1820s the threat of native resistence along the coast was nonexistent and the Presidio commandant had granted small house and garden plots to both retired and active duty soldiers, forming the settlement now known as Old Town. Upon Mexico gaining her independence in 1822, foreign policy was changed to allow trade with other countries. The principal exports were cowhides and tallow that in turn fueled a demand by local citizens for land grants upon which to raise cattle. Secularization of mission lands in 1835 made tracts available for redistribution as land grants while new grants were made from inland territories still occupied by the Kumeyaay, forcing them to acculturate or move away. Typically the holders of the grants maintained a residence in the settlement below the Presidio, and these increased in number and elaboration as the rancho system generated wealth and power. Conversely, the Presidio declined throughout the 1820s and was abandoned by the mid-1830s. In 1835 the Mexican government granted Pueblo status to the settlement of San Diego that included a large grant of land, some of which is still owned by the modern municipality.

Rancho del Rey (The King's Ranch) was another large grant that was established during the Spanish period and was intended to provide grazing lands for sheep and cattle that would support the military establishment at the Presidio. Following Mexican independence it was renamed Rancho de la Nacíon (National Ranch) and for a short period continued to support the Presidio garrison. With the dissolution of the local military in the late 1830s, Rancho de la Nacíon eventually passed into private hands.

The Hispanic era of San Diego ended with the Mexican-American War of 1846-1848. The transfer to American control under the Treaty of Guadaloupe-Hidalgo had little immediate effect on San Diego. However, in 1869 Alonzo Horton began his New Town development by the bay, with the expectation that a railroad would soon connect San Diego to the rest of the nation. By 1871 the municipal offices were relocated to Horton's New Town, signaling the beginning of the decline of Old Town.

Simultaneously, Frank Kimball and his brothers purchased Rancho de la Nacíon after the title had been cleared by the U.S. Land Claims Commission. The Project site is located in the southeastern corner of this land grant. Tireless efforts by Frank Kimball finally brought the first transcontinental train to the National City depot in November of 1885 (Fickeworth 1992:25). This fueled a land boom that saw rapid growth of urban, suburban, and rural areas of the South Bay region. Within a few years the Sweetwater Dam was completed, delivering water to newly subdivided communities in the Sweetwater Valley and Chula Vista as well as National City. The National City & Otay Railroad provided both passenger and freight service to South Bay residents that stimulated citrus and dry farming in the region.

Concurrently a dam was begun in the Otay River valley that was finally completed in the 1890s. Built by a group of investors led by E.S. Babcock, one of the original Hotel del Coronado developers, the Lower Otay Dam held up to 42,000 acre feet of water. In January of 1916 a series of heavy storms ostensibly magnified by Charles Hatfield, the self-proclaimed "Rainmaker," caused the water level of the reservoir to rise 27 feet in just 10 days. By January 27, water spilled over the top of the dam and began eroding the earth and rock structure. Catastrophic failure occurred shortly after 6 P.M. and the reservoir was drained of 13 billion gallons of water in approximately 2½ hours. More than a dozen people lost their lives as the flood swept away 23 homesteads as well as roads, railroads, and communication lines (Pourade 1965:210-12).

On the other hand, historic settlement in Otay Mesa began in the 1870s with the arrival of German immigrants who acquired land through the Homestead Act of 1862 and also through direct purchase by the government or private individuals. Others acquired land through the timber-culture bill that became law in 1873. Through the Homestead Act individuals were able to acquire up to 160 acres of land via five years of active cultivation and residence. The timber-culture bill provided for title to 160 acre plots by the planting of 40 acres of trees. The earliest settlement consisted of a small rural farming community, as was common throughout San Diego County at this time. During this period the mesa became home to 140 families sharing a common schoolhouse and church that were the primary centers for social activities. In 1886 the residents formed the Alta School District and constructed the first schoolhouse, which additionally served as the community church until the German Lutheran community built its first church in 1889 (Van Wormer 1993).

The peak population of the early community reached a total of approximately 30 families by the early 1900s. By this time, through the cooperative efforts of local families, a store, post office, and blacksmith existed in addition to the church and schoolhouse previously mentioned (Van Wormer 1993). In 1890, the Otay Watch Company opened a three-story brick factory in Otay Valley, which unfortunately closed less than a year after opening. The building was dismantled in 1934 after serving a variety of uses.

Up until the 1920s, agriculture was the primary economy of the mesa. However, dry farming was the only means of agriculture available because of the lack of irrigable permanent water sources in the immediate vicinity. Most residents hand dug cisterns to catch rainfall, dug windmill pumped wells, or used other means of runoff collection and diversion. Prior to the twentieth century numerous

plans to bring water to the mesa never came to fruition. Early crops included wheat, barley, corn and later, peaches, apricots, grapes, beans, potatoes, and peas. By 1900, farming began to decline as periodic droughts took their toll and by 1930 only four or five of the original pioneer families still resided on the mesa (Van Wormer 1993).

Aviation has had a long association with Otay Mesa. In 1883, John Joseph Montgomery made the first flight in a heavier-than-air craft 20 years before the Wright brothers at Kitty Hawk, North Carolina. Montgomery made several glider flights before later moving to Santa Clara, California after accepting a professorship at the local college.

With the ascension of the United States onto the global stage after World War I, the Navy expanded its air power. This impacted the mesa with the development of Brown Field in 1918. The airfield was named after Commander Melville S. Brown who was killed in an air crash near Descanso. The airfield eventually had three runways and over one hundred buildings (Pourade 1977).

World War II brought an influx of new residents into the Chula Vista area as San Diego became a hub of military activity and aircraft production. Nearby residents had been sending their children to Sweetwater Union High School, but as the population exploded due to the war effort the high school could no longer meet the needs of the area's children. As a result of this, Chula Vista High School was set up at Brown Field from 1947 until construction of the permanent high school in the City of Chula Vista was finished in 1950.

Brown Field continued to be used for military purposes until 1962. Since then, Brown Field has been operated as a civilian airport and port-of-entry for private aircraft coming into the United States from Mexico. Most recently Brown Field has been suggested as a site for an international airport or heavy cargo airport to meet the needs of the burgeoning population of the San Diego area. However, both proposals appear unlikely to happen due to the resistance of the local community.

The last two decades have seen major land use changes on Otay Mesa created by the development of the second international border crossing. With access provided by State Routes 905 and 125, growth on the mesa has exploded with housing, offices, a high school, warehouses, storage lots, and factories replacing the agricultural fields.

Chapter 4
Study Area

The Project vicinity includes the western side of Lower Otay Lake and much of the eastern portion of Otay Mesa. The Project involves construction of a main pipeline trench measuring approximately 4 feet wide and 5 feet deep in which 24-, 20-, or 16-inch pipes will be installed to convey recycled water. The majority of the pipeline alignment will be within existing roadways in disturbed soils and is not the subject of this study. Some portions, however, will be off-pavement but still within the public right-of-way. These sections include the area immediately west of the water treatment plant on Wueste Road, a portion of Otay Mesa Road heading west from Alta Road, and portions of Airway Road and La Media Road.

Study Methods

Archival research in the form of a site records and literature search was conducted to assess the likelihood of cultural resources being present in the Project site. Senior Archaeologist Robert P. Case, RPA, then conducted a pedestrian survey to document current conditions and assess the potential for subsurface archaeological deposits in the APEs.

Chapter 5
Results

The site records and literature search of the California Historical Resource Information System database was performed in two phases, the first on July 21, 2009, and the second on December 3, 2009 (Attachment 2). Review of the historic maps provided by the South Coastal Information Center (SCIC) was not particularly revealing. Elements of the road system are depicted as early as 1903 (125,000 Cuyamaca Quad), as are a few widely scattered farmsteads or ranches. The results of the literature search indicate that at least 54 studies have been performed within 0.25 mile of the three APEs (Table 1). Similarly the site records search listed 28 prehistoric and/or historic sites and 10 prehistoric isolated artifacts within 0.25 mile of the three APE segments (Table 2). However, none are recorded within any of the segments.

Pedestrian survey of the Project alignments was conducted on August 14 and December 9, 2009. As seen in Figure 3, the Project APEs have all been highly disturbed by modern development. Survey conditions within the three right-of-ways were very good with excellent ground visibility. The Wueste Road segment consists of a dirt maintenance road running parallel to the western fence of the water treatment plant. Although several historic trash scatters have been recorded within 0.25-mile of this APE, no prehistoric or historic artifacts were observed, only modern trash.

The Alta/Otay Mesa Road and the Airway/La Media Road APEs are parallel to the paved roads but within the public right-of-ways. Prehistoric sites have been recorded within 0.25-mile of both APEs. Generally these can be characterized as sparse, diffused lithic scatters that the San Diego archaeological literature refers to as the “Otay smear.” (Gallegos et al. 1998:vi). This portion of Otay Mesa has an abundance of Eocene cobbles that prehistoric populations found desirable for flaked tool production. Many cobbles were sampled by striking off one or more flakes, only to be immediately discarded as unsuitable. As a result, much of the mesa can be considered an unspecialized quarry site. Both APEs on the mesa, however, have been disturbed by road construction and maintenance activities and again no cultural resources were observed during the survey of these segments, only modern trash.

Evaluation

As discussed above, the results of the pedestrian surveys were negative despite the fact that cultural resources had been recorded on or near all three APE segments. All three APEs are characterized by modern disturbances that could have destroyed any resources that may have been present. Nevertheless, the potential for subsurface archaeological deposits cannot be categorically excluded and therefore all three APE segments are considered to be moderately sensitive for cultural resources.

Table 1. Cultural Resource Studies within a 0.25-Mile Radius of the Project

NADB#	Year	Author	Report Title
Airway Segment			
1124407	1986	Mooney-Levine & Assoc.	Archaeological Survey and Significance Evaluation of the Empire Centre Parcel
1121867	1987	Hector, S.	Archaeological Investigations on Alta Road, County of San Diego
1121364	1990	Rosen, M. D.	Archaeological Survey Report for Proposed Route 125 from State Route 905 (near the Second Border Crossing) to State Route 54 (near the Sweetwater Reservoir), San Diego County, California
1127172	1994	Wade, S.	Otay Mesa Truck Route Archaeological Monitoring Report of Findings
1129402	1996	Kyle, C., et al.	Cultural Resources Survey and Testing Report for the Otay Mesa Road Widening Project
1126369	1999	Gallegos, D.	Historic Property Survey Report for the State Route 905
1124927	1999	Wade, S.	Sunroad Otay Truck Park
1131826	2008	Robbins-Wade, M.	Archaeological Resources Analysis for the Master Stormwater System Maintenance Program, San Diego, California, Project No. 42891
Alta Segment			
1120414	1974	Carrico, R.	Archaeological Survey of the Proposed Otay Mesa International Border Crossing.
1120150	1975	Berryman, S. R.	Biological and Archaeological Survey, Tentative Parcel Map 12400, Otay Mesa.
1123051	1985	Smith, B. & J. Moriarty	An Archaeological Reconnaissance of the Proposed San Diego Motor Racing Park, Otay Mesa, San Diego County
1122142	1985	Graves Engineering	Environmental Impact Report, San Diego International Raceway, Otay Mesa, San Diego County EAD Log#84-19-13
1124649	1986	WESTEC & EDAW	Otay Mesa OHV Park Environmental Impact Report
1122115	1988	Xinos Enterprises	Extended Environmental Initial Study for Bradley Auto Storage Auction Pool P88-020 Log# 88-19-14
1123695	1990	Robbins-Wade, M. & T. Gross	Historic Properties Inventory for the Southeast Otay Mesa Sludge Processing Facilities and Pipeline (Southern Sludge Processing Facility to Southeast Otay Mesa Sludge Processing Facility), San Diego, California
1124840	1992	Robbins-Wade, M.	Confidential Appendix to the Cultural Resources Survey for the SDG&E Project Vecinos Gas Pipeline, Otay Mesa, San Diego, CA
1122522	1992	Mooney, B.	Evaluation of a Prehistoric Resource Processing Site CA-SDI-10,452, Historic Bird Ranch CA-SDI-11,386H, and Water Conveyance System CA-SDI-11,383H for the Otay Valley Water Reclamation Plant

NADB#	Year	Author	Report Title
1128669	1993	Ogden Environ. / Gallegos & Associates	East Otay Mesa Specific Plan Cultural Resources Technical Report (GPA 94-02; Log No. 93-19-6)
1130470	1999	Cooley, T. G.	Site Significance Evaluation of Two Prehistoric Archaeological Sites Located on Otay Mesa, San Diego County, California
1127677	2000	Smith, B.	An Archaeological Survey and Evaluation of Cultural Resources for the East Otay Auto Storage Project on Otay Mesa, County of San Diego
1126180	2000	Nighabhlain, S.	Cultural Resource Survey Report for the Valle de Oro Property, Otay Mesa
1125063	2001	Kyle, C.	Cultural Resource Survey and Extended Phase I Testing Program for the Future State Route 11 and East Otay Mesa Port of Entry Project, San Diego, California
1129556	2003	Gallegos, D. & M. Guerrero	Cultural Resources Survey and Test Report for the Lonestar Parcel, Otay Mesa, San Diego County, California
1129093	2004	Gallegos, D., M. Guerrero, & T. Stropes	Cultural Resources Survey and Test Program for the Lonestar Project, Otay Mesa, San Diego County, California
1132032	2006	Noah, A. C., L. Tift & D. R. Gallegos	Cultural Resource Survey and Test for the Corrections Corporation of America Project, Otay Mesa, San Diego County, California
1132036	2007	Guerrero, M. & D. R. Gallegos	Cultural Resource Monitoring Report for the Border Patrol Station Project, Otay Mesa, California
1131461	2007	Case, R.	Cultural Resource Monitoring Report for the Otay Mesa Development Project (MUP No. P03-001), San Diego, California
1131632	2008	Rosen, M.	Historic Property Survey Report for the State Route 11 and East Otay Meas Port of Entry
1131781	2009	Robbins-Wade, M.	Archaeological Resources Evaluation, Otay Crossing Commerce Park, Otay Mesa, San Diego County, California
Wueste Segment			
1121619	1979	WESTEC Services	Proponents Environmental Assessment Miguel to Tijuana Interconnection Project 230KV Transmission Line
1120132	1980	Archaeological Planning Collaborative	An Archaeological Records Search and Field Survey of the Janal Ranch Property, San Diego County
1121758	1981	McCorkle Apple, R.	Archaeological Survey Reports for a Proposed Realignment Project at 11-SD-94 P.M. 29.9-30.3, 11359-193361, Caltrans
1121861	1982	Hector, S. & S. Van Wormer	Results of an Archaeological Test Program Conducted at SDI-10862, Lower Otay County Park, County of San Diego

NADB#	Year	Author	Report Title
1124853	1983	Cult. Systems Research	Cultural Resource Data Recovery Program of the Proposed Miguel-Tijuana 230KV International Interconnection Project, San Diego County
1126805	1987	Berryman, S.	Archaeological Overview and Planning Document for the Proposed Rancho Otay Project
1125379	1988	Gallegos, D. & A. Pigniolo	Cultural Resource Inventory No. 2 for Twenty-seven Drill Sites within the AMIR Indian Rose Area Lease
1121989	1989	Cooley, T. G.	Cultural Resources Testing of a Portion of the Janal/Fenton Ranch Parcel #1 for KELCO, Division of Merck & Company
1121793	1989	Schaefer, J.	The Lower Otay Filtration Plant (CA-SDI-11,355H): An Historical Survey and Assessment
1120847	1990	Kyle, C. & D. Gallegos	Cultural Resources Survey for the Lower Otay Lake Boat Launching Facility, San Diego, California (DEP. No. 90-0269)
1124260	1991	Brian F. Mooney Assoc.	Cultural Resource Survey for San Diego County Water Authority Pipeline 4EII
1122456	1991	Pigniolo, A.	Cultural Resources Testing and Evaluation of CA-SDI-11601 and CA-SDI-11602 for the Olympic Training Center Boathouse
1124657	1992	Ogden Environ. & Energy Services	Draft Program Environmental Impact Report, Otay Ranch
1122690	1993	Carrico, R.	Final Cultural Resources Evaluation of the 23,088 Acre Otay Ranch, San Diego County
1122945	1994	Kyle, C. & D. Gallegos	Cultural Resources Survey and Test of Five Sites for the Otay Water District Central Area and Otay Mesa Interconnection Pipeline Alignments
1124816	1996	Clevenger, J. & K. Crawford	Historical Property Survey Report (11-SD-94)
1123156	1996	Smith, Brian F.	Results of an Archaeological Survey at the Otay Valley Parcel of the Otay Ranch
1128068	2000	Gallegos, D. & J. Flenniken	Cultural Resources Test Results for the Otay Mesa Generating Project
1123823	2000	Kyle, C.	Cultural Resource Constraint Study for the Otay Water Treatment Plant Improvements, City of San Diego, California
1124134	2000	Kyle, C.	Cultural Resource Survey for the Otay Water Treatment Plant Upgrade, City of San Diego, California
1125408	2001	Raap, Allison	Draft Mitigation Negative Declaration Otay Water Treatment Plant Upgrade
1128421	2003	Pierson, Larry	Archaeological Monitoring for Salt Creek Gravity Sewer Interceptor Phase IV Project
1129658	2005	Kyle, C.	Cultural Resource Monitoring for the Otay Water Treatment Plant Upgrade Project, City of San Diego, California
1130251	2006	Bonner, W. & S. Williams	Cultural Resource Records Search and Site Visit Results for Sprint Nextel Telecommunications Facility Candidate CA7456A (Johnson Canyon), 2270 Wueste Road, Chula Vista, San Diego County, California
1131909	2008	Bonner, W. & M. Aislin-Kay	Cultural Resource Records Search and Site Visit Results for AT&T Wireless Facility Candidate SD-576 (Olympic Training Center), Located at 1750 Wueste Road, Chula Vista, San Diego County, California

a. Southern end of Wueste Road, view south

b. West edge of Treatment Plant, view south

c. Airway Road and La Media Road, view west

d. Otay Mesa Road at Alta Road, view west

Figure 3
Existing Survey Conditions
Otay Mesa Recycled Water CIP

Table 2. Cultural Resources Located within a 0.25-Mile Radius of the Project

Primary (P-37-)	Trinomial (CA-SDI-)	Resource Description	Age *
Airway Segment			
-	7208	Extensively dispersed lithic scatter (Archiac?)	P
-	10245	Lithic scatter	P
-	12337	Extensive lithic scatter (Archiac)	P
Alta Segment			
-	7215	Large lithic scatter (Archiac)	P
-	10299	Lithic scatter (Archiac)	P
-	11802H	Beckley homestead debris (early 20th cent.)	H
Wueste Segment			
-	4735	Lithic scatter (Archiac)	P
-	4736	Lithic scatter (Archiac)	P
-	4737	Lithic scatter (Archiac) and historic debris	B
-	10862H	homestead structure foundations, reservoir and trash dump	H
-	11335H	Lower Otay filtration plant structures (circa 1913-1915)	H
-	11370H	Trash scatter	H
-	11371H	Metal debris scatter (possibly associated with dam)	H
-	11380	Lithic scatter	P
-	11381	Lithic scatter	P
-	11382H	Trash scatter (possibly associated with filtration plant or dam)	H
-	11601	Lithic scatter	P
-	11602	Lithic scatter	P
-	13453	Lithic scatter	P
-	13454	Lithic scatter	P
-	13457	Lithic scatter	P
-	13458H	Trash scatter (1920s-1930s)	H
-	13459H	Trash scatter	H
-	13460H	Trash scatter (primarily metal items)	H
-	13461	Lithic scatter	P
014579	14212	Lithic scatter	P
014580	14213	Lithic scatter	P
014595	14228	Lithic scatter	P
014538	-	isolate flaked scraper	P
014951	-	isolate volcanic flake (collected)	P
014952	-	isolate domed scraper (collected)	P
015375	-	isolate volcanic flake	P
015376	-	isolate volcanic flakes (2)	P
015377	-	isolate volcanic flakes (2)	P

Primary (P-37-)	Trinomial (CA-SDI-)	Resource Description	Age *
015378	-	isolate volcanic flakes (2)	P
015379	-	isolate volcanic flakes (2)	P
015387	-	isolate volcanic flake	P
019182	-	isolate volcanic biface fragment & flake	P

*P = prehistoric; H = historic; B = both

Chapter 6
Recommendations

Based on the above evaluation, there is a possibility of encountering buried cultural resources during trenching operations. Archaeological monitoring during trenching activities within the three APEs is recommended. Adoption of this mitigation measure will ensure that any unexpected archaeological discoveries will be processed in accordance with the requirements of CEQA and NHPA. This mitigation measure will be satisfied when the last of the trenching in native soils has been completed and a monitoring report submitted to the District. Compliance with NHPA and CEQA requirements will be achieved upon District review and approval of this technical report.

Chapter 7
References

Bowman, Roy H.

1973 *Soil Survey*, *San Diego Area*, *California*. U.S. Department of Agriculture, Washington D.C.

Case, Robert P.

2005 *Cultural Resources Survey of the Proposed Otay Mesa Southview Subdivision, City of San Diego, California.* Mooney & Associates, San Diego, California.

Deméré, Thomas A., and Stephen L. Walsh

1993 *Paleontological Resources, County of San Diego, California.* Department of Paleontology, San Diego Natural History Museum, San Diego, California.

Fickewirth, Alvin A.

1992 *California Railroads.* Golden West Books, San Marino, California.

Gallegos, Dennis R., Carolyn Kyle, Adella Schroth, and Patricia Mitchell

1998 *Management Plan for Otay Mesa Prehistoric Resources*, *San Diego*, *California*. Gallegos & Associates, Carlsbad, California.

Kennedy, Michael P., and Siang S. Tan

1977 *Geology of National City, Imperial Beach, and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California*. California Division of Mines and Geology, Sacramento.

McArthur, David S.

2004 Geomorphology of San Diego County. In *San Diego: An Introduction to the Region* edited by P.R. Pryde, pp. 15-30. Pearson Custom Publishing, Boston, Massachusetts.

Pourade, Richard F.

1965 *The History of San Diego, Volume Five: Gold in the Sun.* The Union-Tribune Publishing Company, San Diego.

Pryde, Philip R.

2004 Climate, Soils, Vegetation, and Wildlife. In *San Diego: An Introduction to the Region* edited by P.R. Pryde, pp. 31-49. Pearson Custom Publishing, Boston, Massachusetts.

Van Wormer, Stephen

1993 The Piper Family of Otay Mesa. In *Chula Vista – The Early Years. Volume Two.* pp. 55-70, The Chula Vista Historical Society, Chula Vista, California.

Attachment 1

Resume

Robert P. Case, M.A., RPA

Education

M.A. Anthropology, San Diego State University, 1982

B.S. Computer Science, Coleman College, 1983

B.A. Anthropology, San Diego State University, 1975

Professional Memberships

Register of Professional Archaeologists (RPA)

Society for American Archaeology

Society for Historical Archaeology

Society for California Archaeology

Special Training

40-hour HAZWOPER Training

10-hour OSHA Construction Safety Training

Robert Case has more than 25 years of experience in prehistoric and historic archaeology in southern California and Mesoamerica. He currently serves as Principal Investigator/Senior Archaeologist for cultural resource reconnaissance, resource assessments, and excavation projects throughout San Diego, Orange, Riverside, and Imperial Counties. He has supervised all phases of fieldwork including resource assessments, Phase I pedestrian surveys, Phase II site evaluation, and Phase III data recovery. Robert is also the Manager of Mitigation Monitoring Services that includes paleontological as well as archaeological monitoring capabilities. Additionally, he has authored, co-authored or contributed to numerous technical reports.

Attachment 2

South Coastal Information Center Record Search Verification Letters

This page intentionally left blank.

South Coastal Information Center
4283 El Cajon Blvd., Suite 250
San Diego, CA 92105
Office: (619) 594-5682
Fax: (619) 594-4483
scic@mail.sdsu.edu
scic_gis@mail.sdsu.edu

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: ICF Jones & Stokes

Company Representative: Karolina A. Chmiel, M.A.

Date Processed: 7/21/2009

Project Identification: Otay Mesa Water District Project #00277.09

Search Radius: 1/4 mile

Historical Resources: ND

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: ND

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: ND

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: ND

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements	
Address-Mapped GIS Shapes:	no
GIS Shapes:	69
Searchable Pages:	30
Other Pages:	145
Aerial Photos:	0
Quads:	2
Hours:	2
RUSH:	no

This is not an invoice. Please pay from the monthly billing statement

South Coastal Information Center
4283 El Cajon Blvd., Suite 250
San Diego, CA 92105
Office: 619 594-5682
Fax: 619 594-4483
scic@mail.sdsu.edu
scic_gis@mail.sdsu.edu

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: ICF Jones & Stokes

Company Representative: Karolina A. Chmiel

Date Processed: 12/3/2009

Project Identification: Otay Mesa Water District #00277.09

Search Radius: 1/4 mile

Historical Resources: ND

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: ND

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: ND

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: ND

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements	
Address-Mapped	no
GIS Shapes:	0
GIS Shapes:	41
Searchable Pages:	38
Other Pages:	77
Aerial Photos:	0
Quads:	1
Hours:	1
RUSH:	no

This is not an invoice. Please pay from the monthly billing statement

Appendix E-1
Revised Geology and Soils Evaluation
Ninyo and Moore

REVISED GEOLOGY AND SOILS EVALUATION
OTAY WATER DISTRICT
TRANSMISSION PIPELINE
SAN DIEGO COUNTY, CALIFORNIA
J & S PROJECT NO. 00277.09

PREPARED FOR:
ICF Jones & Stokes
9775 Businesspark Avenue, Suite 200
San Diego, California 92131

PREPARED BY:
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants
5710 Ruffin Road
San Diego, California 92123

January 15, 2010
Project No. 106664001

January 15, 2010
Project No. 106664001

Mr. Jim Harry
ICF Jones & Stokes
9775 Businesspark Avenue, Suite 200
San Diego, California 92131

Subject: Revised Geology and Soils Evaluation
Otay Water District Transmission Pipeline
San Diego County, California
J & S Project No. 00277.09

Dear Mr. Harry:

In accordance with your request and authorization, we have performed a revised geology and soils evaluation for the proposed Otay Water District Transmission Pipeline in San Diego County, California. A previous draft geology and soils evaluation was issued on September 18, 2009. This revised geology and soils evaluation addresses changes made to the pipeline alignment since the issuance of our earlier report. The attached report presents our methodology, findings, opinions, and recommendations regarding the geology and soils conditions at the site.

We appreciate the opportunity to be of service on this project.

Respectfully submitted,
NINYO & MOORE

Christina Tretinjak, P.G.
Project Geologist

PROFESSIONAL GEOLOGIST
CHRISTINA A. TRETINJAK
No. 0478
Exp. 11-30-11
STATE OF CALIFORNIA

Gregory T. Farrand, C.E.G. 1087
Principal Geologist

REGISTERED GEOLOGIST
GREGORY T. FARRAND
No. 1087
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

CAT/GTF/gg

Distribution: (3) Addressee

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY 1

1. INTRODUCTION 3

2. SCOPE OF SERVICES 3

3. REGULATORY FRAMEWORK 4

4. SITE AND PROJECT DESCRIPTION 4
   - 4.1. Airway and La Media Road Pipeline – CIP R2058 5
   - 4.2. Alta Road Pipeline – CIP R2077 5
   - 4.3. Wueste Road Pipeline – CIP R2087 6

5. GEOLOGY 6
   - 5.1. Regional Geologic Setting 6
   - 5.2. Site Geology 7
   - 5.3. Groundwater 8
   - 5.4. Faulting and Seismicity 8
     - 5.4.1. Strong Ground Motion 9
     - 5.4.2. Ground Surface Rupture 10
     - 5.4.3. Liquefaction and Seismically Induced Settlement 10
   - 5.5. Tsunamis 10
   - 5.6. Landsliding 11
   - 5.7. Flood Hazards 11
   - 5.8. Expansive Soils 11
   - 5.9. Corrosive Soils 12
   - 5.10. Agricultural Soils 12
   - 5.11. Mineral Resources 13

6. CONCLUSIONS 13

7. RECOMMENDATIONS 14

8. IMPACT ANALYSIS 16
   - 8.1. Significance Thresholds 16
   - 8.2. Project Impacts and Significance 16

9. LIMITATIONS 17

10. REFERENCES 19

Tables

Table 1 – Principal Active Faults 9
Table 2 – Soil Series Characteristics 12

Figures

Figure 1 – Site Location Map
Figure 2 – Site and Vicinity Map
Figure 3 – Geologic Map
Figure 4 – Fault Location Map
Figure 5 – Geologic Hazards Map

EXECUTIVE SUMMARY

The proposed transmission pipeline project is located in southern San Diego County. Specifically, the project is in the southernmost portion of the City of Chula Vista, the Otay Mesa area of the City of San Diego, and unincorporated areas of San Diego County, California. The project consists of three separate capital improvement projects, two of which are contiguous. The project can generally be separated into northern and southern components, the locations of which are discussed below.

- The northern component of the project area is generally located along Wueste Road from Olympic Parkway to the City of San Diego Otay Water Treatment Plant and includes a new Pressure Reducing Station (PRS) at the existing reservoir along the northwestern portion of Alta Road, near the Otay Mountain Truck Trail.

- The southern component of the project area is generally located along La Media Road from Windsock to Airway Roads, along Airway Road from La Media Road to Paseo de Las Americas, along Sanyo Avenue from Airway to Otay Mesa Roads, along Otay Mesa Road from Sanyo Avenue to Alta Road, and along Alta Road from Otay Mesa Road to Otay Mountain Truck Trail.

The proposed pipelines are located along paved roadways within the City of Chula Vista and City/County of San Diego rights-of-way. The areas surrounding the proposed alignments are mostly undeveloped. Residential development and the Olympic Training Center are located near the northern end of the project area, and commercial developments are present along the southern portion of the project area along Airway Road. At the northern component of the project elevations range from approximately 560 feet above mean sea level (MSL) on the western side of the Lower Otay Reservoir and at the existing reservoir near the George Bailey Detention Facility to approximately 300 feet MSL at the south end of the reservoir. At the southern component of the project elevations range from approximately 600 feet MSL at the northern end of Alta Road to approximately 620 feet MSL near the intersection of Otay Mesa and Alta Roads to approximately 470 feet MSL near the intersection of Airway and La Media Roads.

Geologic and geotechnical constraints evaluated for the project include:

- Surface and near-surface soils at the project are mapped as Young Alluvial Deposits, Alluvial Deposits, and units of the Otay Formation. Fill materials associated with the construction of the existing paved roadways are also anticipated at the project. Geotechnical constraints related to soils at the project are:

    - *Hydrocollapse* – The alluvial soils in active alluvial channels (low areas) of the project may be subject to hydrocollapse.

    - *Soft Ground* – Areas with soft ground or loose soils can be found in active alluvial channels (low areas) of the project.

- *Expansive Soils* – The project soils are expected to have a moderate to high potential for expansion.
- *Fill Soils* – Fill soils placed without engineering supervision may be loosely or inadequately compacted, may contain oversize materials unsuitable for reuse in engineered fills, and may contain unsuitable organic or expansive materials and debris that may preclude their use in engineered fills.

- The closest known major active fault is the Rose Canyon Fault, which is located approximately 11 miles west of the project. Geotechnical constraints related to faulting and seismic events at the project are:
  - *Ground Shaking* – The project has a moderate potential for strong ground motions due to earthquakes on nearby active faults.
  - *Liquefaction* – The alluvial soils near the southern end of the Lower Otay Reservoir may be subject to static settlement or liquefaction during a nearby seismic event.
- Shallow groundwater may be expected to occur beneath those portions of the project which are in the alluvial valleys. This is presumably the case in the areas south of the Lower Otay Reservoir.
- Based on the City of San Diego geologic hazards map (2008), mapped portions of the project area have a low to moderate risk for landsliding. According to Tan (1995) the project is in areas with the designations 2 and 3-1, which are classified as being marginally and generally susceptible to landsliding.
- Due to the elevation of the project and its proximity to the Otay River and Lower Otay Reservoir, dam inundation and significant flooding of portions of the project may occur.
- Based on previous work in the project area, the soils at the project site may have a moderate to high potential for expansion.
- Based on previous work in the project area, the soils at the project site may be corrosive.

1. INTRODUCTION

In accordance with your request on behalf of ICF Jones & Stokes (the client), Ninyo & Moore has completed a revised evaluation of geologic and soil conditions for the proposed Otay Water District Transmission Pipeline project (the project) is located in southern San Diego County. Specifically, the project is in the southernmost portion of the City of Chula Vista, the Otay Mesa area of the City of San Diego, and unincorporated areas of San Diego County, California (Figure 1). The project consists of three separate capital improvement projects, two of which are contiguous. The project can generally be separated into northern and southern components, as described below.

- The northern component of the project area is generally located along Wueste Road from Olympic Parkway to the City of San Diego Otay Water Treatment Plant and includes a new Pressure Reducing Station (PRS) at the existing reservoir along the northwestern portion of Alta Road, near the Otay Mountain Truck Trail.

- The southern component of the project area is generally located along La Media Road from Windsock to Airway Roads, along Airway Road from La Media Road to Paseo de Las Americas, along Sanyo Avenue from Airway to Otay Mesa Roads, along Otay Mesa Road from Sanyo Avenue to Alta Road, and along Alta Road from Otay Mesa Road to Otay Mountain Truck Trail.

Our evaluation is based on geologic reconnaissance, published and non-published reports, aerial photographs, in-house data, and the assessment of the potential geologic hazards in the project area. The purpose of this survey was to estimate the potential for existing environmental impacts to the area from geologic or soils conditions on or in proximity to the area, and to discuss measures that can be implemented to reduce or mitigate the potential impacts with respect to the design and construction of the proposed project.

2. SCOPE OF SERVICES

Ninyo & Moore's scope of services for this geologic and soils evaluation included the activities listed below:

- Review of readily available regional, local, and site-specific geologic and geotechnical reports.

- Review of readily available background information including topographic, soils, mineral resources, geologic, and seismic and geologic hazard maps, and stereoscopic aerial photographs.
- Performance of a geologic reconnaissance of the site vicinity.
- Compilation and analysis of the data obtained from our background reviews and site reconnaissance.
- Preparation of this report documenting findings and providing opinions and recommendations regarding possible geologic and soil impacts at the site. The findings were evaluated with respect to questions A through H listed in Section 6, "Geology and Soils" within Appendix G, "Environmental Checklist Form" of the "Guidelines for Implementation of the California Environmental Quality Act (CEQA)."

3. REGULATORY FRAMEWORK

Geologic resources and geotechnical hazards within the proposed project area are governed by the City San Diego. The City's Building Division plans contain conservation and safety elements for the protection of geologic features and avoidance of geologic hazards. The procedures for construction related earthwork and excavation are established by these local grading ordinances developed by the City of San Diego Engineering Department. The site is also governed by the regulations of the California Code of Regulations (CCR), 2007 California Building Code (CBC).

The CBC is promulgated under CCR, Title 24, Parts 1 through 12, also known as the California Building Standards Code, and is administered by the California Building Standards Commission (CBSC). The CBSC is responsible for administering California's building codes.

4. SITE AND PROJECT DESCRIPTION

The proposed transmission pipeline project is located in southern San Diego County. Specifically, the project is in the southernmost portion of the City of Chula Vista, the Otay Mesa area of the City of San Diego, and unincorporated areas of San Diego County, California. The project consists of three separate capital improvement projects, two of which are contiguous. As noted, the project area can generally be separated into northern and southern components.

The proposed pipelines are located along paved roadways within the City of Chula Vista and City/County of San Diego rights-of-way. As shown on Figure 2, much of the area surrounding the proposed project is undeveloped. However, residential development and the Olympic Training Center are located near the northern end of the project area, and commercial developments are present along the southern portion of the project area along Airway Road.

At the northern component of the project elevations range from approximately 560 feet above mean sea level (MSL) on the western side of the Lower Otay Reservoir to approximately 300 feet MSL at the south end of the reservoir. At the existing reservoir near the George Bailey Detention Facility the elevation is approximately 560 feet MSL. At the southern component of the project elevations range from approximately 600 feet MSL at the northern end of Alta Road to approximately 620 feet MSL near the intersection of Otay Mesa and Alta Roads to approximately 470 feet MSL near the intersection of Airway and La Media Roads.

As noted, the proposed pipeline project consists of three separate capital improvement projects (CIPs): the Airway and La Media Road Pipeline (CIP R2058), the Alta Road Pipeline (CIP R2077), and the Wueste Road Pipeline (CIP R2087). Specifics of each CIP are presented below.

4.1. Airway and La Media Road Pipeline – CIP R2058

CIP R2058 consists of the installation of approximately 12,000 feet of 16-inch recycled water PVC pipeline to be connected to existing pipelines. The proposed and existing pipelines are located along La Media Road from Windsock to Airway Roads, and on Airway Road from La Media Road to Paseo de Las Americas.

4.2. Alta Road Pipeline – CIP R2077

CIP R2077 consists of the installation of approximately 12,000 feet of 24-inch recycled water PVC pipeline to be connected to existing 16- and 30-inch PVC pipelines. The proposed PVC pipeline is located along Sanyo Avenue from Airway to Otay Mesa Roads, along Otay Mesa Road from Sanyo Avenue to Alta Road, and along Alta Road from Otay Mesa Road to Otay Mountain Truck Trail.

4.3. Wueste Road Pipeline – CIP R2087

CIP R2087 consists of the installation of approximately 13,000 feet of 24-inch recycled water steel pipeline to be connected to existing pipelines. The proposed steel pipeline is located along Wueste Road from Olympic Parkway to an area south of the City of San Diego Otay Water Treatment Plant. The Wueste Road Pipeline also includes the construction of a new PRS at the existing reservoir along the northwest portion of Alta Road, near the Otay Mountain Truck Trail.

The proposed pipelines are generally located on paved roadways. Portions of the southern end of the proposed Wueste Road Pipeline near the City of San Diego Otay Water Treatment Plant are located on unpaved roads.

5. GEOLOGY

The following sections present our findings relative to regional and site geology, geologic hazards (e.g., landslides or expansive soils), groundwater, faulting and seismicity, and agricultural soils.

5.1. Regional Geologic Setting

The project site is situated in the coastal foothill section of the Peninsular Ranges Geomorphic Province. The province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California (Norris and Webb, 1990; Harden, 1998). The province varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by Jurassic metavolcanic and metasedimentary rocks, and Cretaceous igneous rocks of the southern California batholith.

The Peninsular Ranges Province is traversed by a group of sub-parallel faults and fault zones trending roughly northwest (Jennings, 1994). Several of these faults are considered active. The Elsinore, San Jacinto and San Andreas faults are active fault systems located northeast of the project area and the Rose Canyon, Coronado Bank, San Diego Trough, and San Clemente faults are active faults located west of the project site. Major tectonic activity

associated with these and other faults within the regional tectonic framework consists primarily of right-lateral, strike-slip movement. Specifics of faulting are discussed in following sections of this report.

5.2. Site Geology

Recently published geologic maps for this area include the El Cajon 30' x 60' Quadrangle (Todd, 2004) and Jamul Mountains and Otay Mesa 7.5' Quadrangles (Tan, 2002; Tan and Kennedy, 2002). For purposes of this report we reference the geology as mapped on the higher resolution 7.5' Quadrangles.

As shown on Figure 3, geologic mapping indicates that the near-surface geology at the project includes the following formational units (Tan, 2002; Tan and Kennedy, 2002):

- Qya: Holocene alluvial deposits (Holocene) – Mostly poorly consolidated clay, silt, sand, and gravel. Includes modern active sediments along small drainage channels.
- Qoa: Alluvial deposits (late to middle Pleistocene) – Moderately consolidated, poorly sorted flood plain deposits consisting of gravelly sandy silt and clay.
- Qvoa: Alluvial deposits (middle to early Pleistocene) – Well consolidated, poorly sorted flood plain deposits consisting of gravel, sand, silt, and clay. These materials are also commonly referred to as the Quaternary-aged Lindavista Formation (Todd, 2004).
- To: Otay Formation (Oligocene to Miocene) – Poorly indurated, massive, light-colored sandstone, siltstone, and claystone interbedded with bentonite lenses.
- Tof: Otay Formation-Fanglomerate Facies (Oligocene to Miocene) – Poorly cemented bouldery conglomerate and coarse-grained sandstone. Interfingered with overlying Otay Formation.

However as noted, the proposed pipeline project is in roadways. Fill materials associated with the grading of the roadways are anticipated. The nature and depth of these fill materials is not known.

5.3. Groundwater

Sources provided by the California Department of Water Resources (DWR) and the California State Water Resources Control Board (SWRCB) were reviewed for information pertaining to groundwater quality and occurrence in the vicinity of the project. According to the SWRCB Water Quality Control Plan for the San Diego Basin, the northern portions of the project located near the Lower Otay Reservoir are located within the Savage Hydrologic Subarea of the Dulzura Hydrologic Area within the Otay Hydrologic Unit. Portions of the project near the northern end of Alta Road are located within the Water Tanks Hydrologic Subarea of the Tijuana Valley Hydrologic Area within the Tijuana Hydrologic Unit. The southernmost portions of the project along Airway Road and La Media Road are located within the Otay Valley Hydrologic Area in the Otay Hydrologic Unit.

No DWR wells are located along the project or its adjacent properties (DWR, 2009). We researched information on the SWRCB GeoTracker website reported for properties with wells located in proximity to the project; however, information relevant to the depth and flow direction of groundwater in the project area was not available (SWRCB, 2009). Based on the topography of the site and proximity to the Otay River, groundwater beneath the project is presumed to flow generally in a westerly direction (groundwater flow typically follows surface topography). Depths to groundwater in the Otay Hydrologic Unit are generally 25 feet or less (DWR, 1967). Depth to groundwater may be shallower at the northeastern portions of the project in valleys and south of the Lower Otay Reservoir.

There are no existing beneficial uses of groundwater in these hydrologic areas; however, potential beneficial uses have been designated for municipal, agricultural, and industrial supply purposes.

5.4. Faulting and Seismicity

As shown on Figure 4, there are several active faults in the region of the project and therefore, the project area is considered to be seismically active. As shown on Figure 5, according to the City of San Diego Seismic Safety Study (2008), no known faults cross the project area. The closest known major active fault is the Rose Canyon Fault, which is capable of

generating an earthquake magnitude of 7.2 (California Geological Survey [CGS], 2003). The Rose Canyon Fault is located approximately 11 miles west of the site (Figure 4).

In general, hazards associated with seismic activity include strong ground motion, ground surface rupture, liquefaction, and tsunamis. These hazards are discussed in the following sections.

5.4.1. Strong Ground Motion

The 2007 California Building Code (CBC) recommends that the design of structures be based on the peak horizontal ground acceleration (PGA) having a 2 percent probability of exceedance in 50 years which is defined as the Maximum Considered Earthquake (MCE). Based on a Probabilistic Earthquake Hazard Analysis computer program by Blake (Blake, 2001), the calculated peak ground acceleration for the Maximum Considered Earthquake (PGA_{MCE}) at the site, defined as having a 2 percent probability of exceedance in 50 years, with a statistical return period of approximately 2,475 years, is 0.38g (20 percent of the acceleration of gravity). The calculated peak ground acceleration for the Design Earthquake (PGA_{DE}), defined as two-thirds of PGA_{MCE} is 0.28g. The requirements of the governing jurisdictions and applicable building codes should be considered in the design of structures.

As noted, the nearest active known fault is the Rose Canyon Fault, located approximately 11 miles west of the project site. Table 1 below lists principal known active faults that may affect the subject site, the maximum moment magnitude (M_{max}) and the fault types as published for the CGS by Cao et al. (2003). The approximate fault to site distance was calculated by the computer program FRISKSP (Blake, 2001).

Table 1 – Principal Active Faults

Fault	Approximate Distance miles (km)[1]	Maximum Moment Magnitude (M_{max})[1]	Fault Type[2]
Rose Canyon	11 (17)	7.2	B
Coronado Bank	18 (29)	7.6	B
Elsinore (Julian Segment)	43 (69)	7.1	A

Table 1 – Principal Active Faults

Fault	Approximate Distance miles (km)[1]	Maximum Moment Magnitude (M_{max})[1]	Fault Type[2]
Elsinore (Coyote Mountain Segment)	44 (72)	6.8	A
Earthquake Valley	46 (74)	6.5	B
Newport-Inglewood (Offshore)	49 (79)	7.3	B
Elsinore (Temecula Segment)	56 (90)	6.8	A

Notes:
[1] Cao, et al., 2003.
[2] California Building Code (CBC), 2001; Cao, et al., 2003.

5.4.2. Ground Surface Rupture

Ground surface rupture due to active faulting is not considered likely in the project area due to the absence of any known active faults underlying the site. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

5.4.3. Liquefaction and Seismically Induced Settlement

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose granular soils and non-plastic silts that are saturated by a relatively shallow groundwater table are susceptible to liquefaction. Based on the generally dense nature of the subsurface materials and the absence of groundwater, it is our opinion that the potential for liquefaction at most of the project area is not a design consideration. However, alluvial soils near the southern end of the Lower Otay Reservoir may be subject to liquefaction or static settlement during a nearby seismic event.

5.5. Tsunamis

Tsunamis are long wavelength seismic sea waves (long compared to the ocean depth) generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity. Based on the inland location and elevation of the project, the potential for a tsunami is considered low.

5.6. Landsliding

Based on our review of published geologic literature, aerial photographs, site reconnaissance, and our subsurface evaluations, no landslides or related features underlie or are adjacent the project and the potential for landslides is considered low.

According to the Landslide Hazards Map (Tan, 1995) the project site is in areas with the designations 2 and 3-1. Areas with the designation 2 are classified as being marginally susceptible to landsliding. Areas with the designation 3-1 are classified as being generally susceptible to landsliding. The majority of the project is in areas with the designation 3-1. The portions of the project on La Media Road and the westernmost portion of Airway Road fall within an area with the designation 2.

According to the City of San Diego Seismic Safety Study (Figure 5), portions of the project site along Airway and La Media Roads are located in areas designated as category 53. Category 53 is defined as having a low to moderate risk for landsliding. Other portions of the project are in unmapped areas.

5.7. Flood Hazards

Based on review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), posted on the County of San Diego, San Diego Geographic Information Source (SanGIS) website (2004), the northern portions of the site located along the Lower Otay Reservoir are within the 500-year floodplain. Based on review of maps and aerial photographs, portions of the site is along Wueste Road are located approximately adjacent to the Otay Reservoir and the reservoir spillway. Based on this review and our reconnaissance, the potential for dam inundation and significant flooding exists.

5.8. Expansive Soils

Expansive soils generally result from specific clay minerals that have the capacity to shrink or swell in response to changes in moisture content. Shrinking or swelling of foundation soils can lead to damage to foundations and engineered structures, including tilting and

cracking. Review of regional geologic maps, geologic reconnaissance, and site-specific subsurface exploration at the project, indicates that the near surface soils consist predominately of clay, silt, sand, and gravel. The Otay Formation is known to contain lenses of bentonite clay, which are known to be expansive. The soils at the project may be expected to have a moderate to high potential for expansion.

5.9. Corrosive Soils

Caltrans corrosion (2003) criteria define as soils with more than 500 parts per million (ppm) chlorides, more than 0.2 percent sulfates, or a pH less than 5.5. Soil corrosivity testing was not performed for the proposed project in preparation for this specific project. Based on laboratory testing performed on soil samples during previous Ninyo & Moore projects elsewhere in the project area, and Caltrans corrosion (2003) criteria, those soils were classified as corrosive to ferrous metals. The potential for similar soils to occur at the project exists.

5.10. Agricultural Soils

Based on the Soil Survey for the San Diego Area (Bowman, 1973), 12 different soil series have been noted on the project. These soils types include: Diablo clay, Huerhuero loam, Olivenhain cobbly loam, Salinas clay, Stockpen gravelly clay loam and Terrace escarpments. The soil types and their characteristics are summarized in Table 2. The potential for loss of agricultural soils due to further development of the study area is considered low since the project is paved roadways and soils along the roadways are not in their natural state.

Table 2 – Soil Series Characteristics

Soil Series and Map Symbol	Use	Erosion Potential
Diablo clay (DaC)	Tomatoes, dryfarmed barley, housing developments	Slight to moderate
Diablo clay (DaD)	Tomatoes, dryfarmed grain, range, housing developments	Slight to moderate
Diablo clay (DaE)	Tomatoes, housing developments, pasture, range	Moderate to high
Huerhuero loam (HrC)	Range, irrigated truck crops, tomatoes, flowers, housing developments	Low to moderate
Huerhuero loam (HrD)	Tomatoes, flowers, range, housing developments	Moderate
Huerhuero loam (HrD2)	Tomatoes, flowers, range, housing developments	Moderate
Huerhuero loam (HrE2)	Range	Moderate to high

Table 2 – Soil Series Characteristics

Soil Series and Map Symbol	Use	Erosion Potential
Diablo clay (DaC)	Tomatoes, dryfarmed barley, housing developments	Slight to moderate
Diablo clay (DaD)	Tomatoes, dryfarmed grain, range, housing developments	Slight to moderate
Diablo clay (DaE)	Tomatoes, housing developments, pasture, range	Moderate to high
Olivenhain cobbly loam (OhC)	Range, watershed, citrus	Slight to moderate
Olivenhain cobbly loam (OhE)	Range, watershed, small housing developments, citrus	Moderate to high
Salinas clay (ScA)	Tomatoes, pasture	Slight
Stockpen gravelly clay Loam (SuB)	Truck crops, tomatoes, flowers	Slight
Terrace escarpments (TeF)	Watershed	Moderate to high

5.11. Mineral Resources

According to the California Geological Survey Open File Report 96-04 the project area is located in Mineral Resource Zone 3 (MRZ-3). MRZ-3 areas are locations in San Diego County that have been identified as areas that contain known mineral deposits that may qualify as a mineral resource.

6. CONCLUSIONS

Based on our review of the referenced background data and our geologic field reconnaissance it is our opinion that geologic and geotechnical considerations at the project site include the following:

- Surface and near-surface soils at the project are mapped as Young Alluvial Deposits, Alluvial Deposits, and units of the Otay Formation. Fill materials associated with the construction of the existing paved roadways are also anticipated at the project. Geotechnical constraints related to soils at the project are:
    - *Hydrocollapse* – The alluvial soils in active alluvial channels (low areas) of the project may be subject to hydrocollapse.
    - *Soft Ground* – Areas with soft ground or loose soils can be found in active alluvial channels (low areas) of the project.

- *Expansive Soils* – The project soils are expected to have a moderate to high potential for expansion.
- *Fill Soils* – Fill soils placed without engineering supervision may be loosely or inadequately compacted, may contain oversize materials unsuitable for reuse in engineered fills, and may contain unsuitable organic or expansive materials and debris that may preclude their use in engineered fills.

- The closest known major active fault is the Rose Canyon Fault, which is located approximately 11 miles west of the project. Geotechnical constraints related to faulting and seismic events at the project are:
  - *Ground Shaking* – The project has a moderate potential for strong ground motions due to earthquakes on nearby active faults.
  - *Liquefaction* – The alluvial soils near the southern end of the Lower Otay Reservoir may be subject to dynamic settlement or liquefaction during a nearby seismic event.
- Shallow groundwater may be expected to occur beneath those portions of the project which are in the alluvial valleys. This is presumably the case in the areas south of the Lower Otay Reservoir.
- Based on the City of San Diego geologic hazards map (2008), mapped portions of the project area have a low to moderate risk for landsliding. According to Tan (1995) the project is in areas with the designations 2 and 3-1, which are classified as being marginally and generally susceptible to landsliding.
- Due to the elevation of the project and its proximity to the Otay River and Lower Otay Reservoir, dam inundation and significant flooding of portions of the project may occur.
- Based on previous work in the project area, the soils at the project site may have a moderate to high potential for expansion.
- Based on previous work in the project area, the soils at the project site may be corrosive.

7. RECOMMENDATIONS

Based on the geologic and geotechnical considerations at the project site presented in the previous section, our general recommendations are presented below. These recommendations assume that a geotechnical evaluation will be conducted and specific recommendations provided at that time.

- Hydrocollapse – Although soils near active alluvial channels (low areas) of the project may be subject to hydrocollapse, this would not preclude the development of the proposed construction. The following recommendations may be implemented during construction to mitigate this condition: removal and replacement of soils susceptible to hydrocollapse; densification of these soils; or lowering of the groundwater table.

- Soft Ground – Soils in areas with soft ground or loose soils in the area of the proposed project may be subject to settlement. A recommendation to mitigate this condition could typically include removal and/or replacement of soils as engineered compacted fill. The extent of removals cannot be determined without further investigation.

- Expansive Soils – Expansive soils may lead to damage to foundations and engineered structures. If expansive soils exist on site, the following recommendations may be implemented during construction to address this condition: the soils could be removed from distress sensitive areas and placed in deeper fill areas; the soils could be excavated and removed from the site; or they could be treated to mitigate their potential for expansion.

- Ground Shaking – P roposed structures should be designed appropriately to mitigate strong ground shaking in the event of an earthquake on a nearby fault.

- Liquefaction – Although alluvial soils near the southern end of the Lower Otay Reservoir may be subject to static settlement or liquefaction during a nearby seismic event, this would not preclude the development of the proposed structures. The following recommendations may be implemented during construction to mitigate this condition: removal and replacement of soils susceptible to static settlement or liquefaction; densification of these soils; or lowering of the groundwater table.

- Shallow groundwater – Shoring and dewatering may be required for the construction of the proposed structures where shallow groundwater is present.

- Landsliding – The majority of the project is in areas classified as being generally susceptible to landsliding. If encountered the following recommendations may be implemented during construction to mitigate this condition: removal of the slide masses and their replacement with engineered fill; the placement of buttress fills; or a combination of these recommendations.

- Flooding – Although portions of the project site are in a flood hazard area, potential flooding of the site would not preclude the development of the proposed structures.

- Corrosive Soils – If corrosive soils exist on the site, a corrosion engineer may be required to assist in the design of improvements in contact with the soil.

8. IMPACT ANALYSIS

Based upon the results of our Geology and Soils Evaluation, our opinions, and recommendations are provided in the following sections.

8.1. Significance Thresholds

In evaluating the significance of potential environmental concerns in a particular study area, the criteria to consider, as they relate to geologic and soil conditions, are presented in the CEQA Guidelines. In accordance with the scope of work, the findings of this study were evaluated with respect to Questions A through E of Section 6 "Geology and Soils" with in Appendix G of the CEQA Guidelines (2009).

8.2. Project Impacts and Significance

Based on the above criteria and the results of the evaluation, the potential impact by geologic and soil conditions at the project have been identified, and are discussed below.

A. Would the project 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 known fault?

Ground surface rupture due to active faulting is not considered likely in the project area due to the absence of any known active faults underlying the site. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

ii. Strong seismic ground shaking?

The project has a moderate potential for strong ground motions due to earthquakes on nearby active faults.

iii. Seismic related ground failure, including liquefaction?

Based on the generally dense nature of the subsurface materials and the absence of groundwater, it is our opinion that the potential for liquefaction at the project is not a design consideration. However, alluvial soils near the southern end of the Lower Otay Reservoir may be subject to static settlement or liquefaction during a nearby seismic event.

iv. Landslides?

No landslides have been observed in and around the project, therefore the potential for landslides is considered low. However, portions of the project are mapped as being susceptible to landslides.

B. Would the project result in substantial soil erosion or the loss of topsoil?

The potential for substantial soil erosion or loss of topsoil due to the proposed project improvements is considered low since the proposed pipeline improvements are along paved roadways and any existing soil and/or topsoil would have been removed during grading associated the with construction of the roadways.

C. Would the project be located on 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?

The alluvial soils near the southern end of the Lower Otay Reservoir may be subject to static settlement or liquefaction during a nearby seismic event.

D. Would the project 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?

The project soils are expected to have a moderate to high potential for expansion.

9. LIMITATIONS

The field evaluation and geotechnical analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be encountered. Our preliminary conclusions and recommendations area based on an analysis of the observed conditions and the referenced background information.

The purpose of this study was to evaluate geologic and geotechnical conditions within the project site and to provide a geotechnical reconnaissance report to assist in the preparation of environmental impact documents for the project. A comprehensive geotechnical evaluation, including

subsurface exploration and laboratory testing, should be performed prior to design and construction of structural improvements.

10. REFERENCES

Blake, T.F., 2001, FRISKSP (Version 4.00) A Computer Program for the Probabilistic Estimation of Peak Acceleration and Uniform Hazard Spectra Using 3-D Faults as Earthquake Sources.

Boore, D.M., Joyner, W.B., and Fumal, T.E., 1997, Equations for Estimating Horizontal Response Spectra and Peak Acceleration from Western North American Earthquakes: A Summary of Recent Work, Seismological Research Letters, Vol. 68, No. 1, pp. 128-153.

Bowman, R.H. 1973. Soil Survey of San Diego Area, California. United States Department of Agriculture. Soil Conservation Service, Washington, DC.

California Building Standards Commission, 2007, California Building Code, Title 24, Part 2, Volumes 1 and 2.

California Department of Transportation (Caltrans), 2003, Corrosion Guidelines (Version 1.0), Division of Engineering and Testing Services, Corrosion Technology Branch: dated September.

California Department of Water Resources, 1967, Groundwater Occurrence and Quality: San Diego Region, California, Bulletin 106-2.

California Department of Water Resources, 2009, Water Data Library Website: wdl.water.ca.gov/gw/map/index.cfm: accessed in August.

California Environmental Quality Act (CEQA), 2009, Title 14. California Code of Regulations http://ceres.ca.gov/topic/env_law/ceqa/guidelines/.

California Geological Survey, 1963, Geology and Mineral Resources of San Diego County, California.

California Geological Survey, 1996, Open File Report 96-04, Update of Mineral Land Classification: Aggregate Materials in the Western San Diego County Production - Consumption Region.

California Geological Survey, 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada: dated February.

California Geological Survey, 1999, Seismic Shaking Hazard Maps of California: Map Sheet 48.

California State Water Resources Control Board, 2009, GeoTracker Website: www.geotracker.swrcb.ca.gov: accessed in August.

Cao, T., Bryant, W.A., Rowshandel, B., Branum, D., and Willis, C.J., 2003, The Revised 2002 California Probablistic Seismic Hazards Maps: California Geological Survey: dated June.

City of San Diego, 2008, Seismic Safety Study, Sheets 3, 4, 7, and 8, dated April 3.

County of San Diego, 2004, San Diego Geographic Information Source (SanGIS) website: http://www.sangis.org/SangisInteractive/viewer/viewer.asp.

Environmental Systems Research Institute, Inc. (ESRI), 2009, ESRI ArcGIS Online Services website: http://www.esri.com/.

Harden, D.R., 1998, California Geology: Prentice Hall, Inc.

Jennings, C.W., 1994, Fault Activity Map of California and Adjacent Areas: California Geological Survey, California Geologic Data Map Series, Map No. 6, Scale 1:750,000.

Kennedy, M.P. and Tan, S.S., 1977, Geology of National City, Imperial Beach, and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California: California Department of Conservation, Division of Mines and Geology, Map Sheet 29, Scale 1:24,000.

Kennedy, M.P. and Tan S.S., 2005, Geologic Map of the San Diego 30' X 60' Quadrangle, California, Scale 1:100,000.

Microsoft Bing Maps, 2009, http://www.bing.com/maps/.

Ninyo & Moore, In-house proprietary information.

Norris, R. M. and Webb, R. W., 1990, Geology of California, Second Edition: John Wiley & Sons, Inc.

Otay Water District, 2009, Notice of Preparation, Environmental Impact Report for the Otay Mesa Recycled Water System Capital Improvement Program, R2087, R2077, R2058 Project: dated October 8.

PBS&J, 2009, Otay Water District, Water Resources Master Plan EIR: dated July 20.

Recon Environmental, Inc., 2005, Programmatic Environmental Assessment for Otay Water District, Phase II and III Recycled Water CIP Projects, San Diego, California: dated June.

State Water Resources Control Board (SWRCB), 1994, Water Quality Control Plan for the San Diego Basin (9), with amemdments effective prior to April 25, 2007: dated September 8.

Tan, S.S., 2002, Geologic Map of the Jamul Mountains 7.5' Quadrangle, San Diego County, California, Scale 1:24,000.

Tan, S.S. and Kennedy, M.P., 2002, Geologic Map of the Otay Mesa Mountains 7.5' Quadrangle, San Diego County, California, Scale 1:24,000.

Tan, S.S., 2002, Landslide Hazards in the Southern Part of the San Diego Metropolitan Area, San Diego County, California.

Todd, V.R. 2004, Preliminary Geologic Map of the El Cajon 30' x 60' Quadrangle, Southern California, Scale 1:100,000.

United States Federal Emergency Management Agency (FEMA), 1997, Flood Insurance Rate Map (FIRM), Map Number 06073C1945 F: effective date June 19.

United States Federal Emergency Management Agency (FEMA), 1997, Flood Insurance Rate Map (FIRM), Map Number 06073C2179 F: effective date June 19.

United States Federal Emergency Management Agency (FEMA), 1997, Flood Insurance Rate Map (FIRM), Map Number 06073C2181 F: effective date June 19.

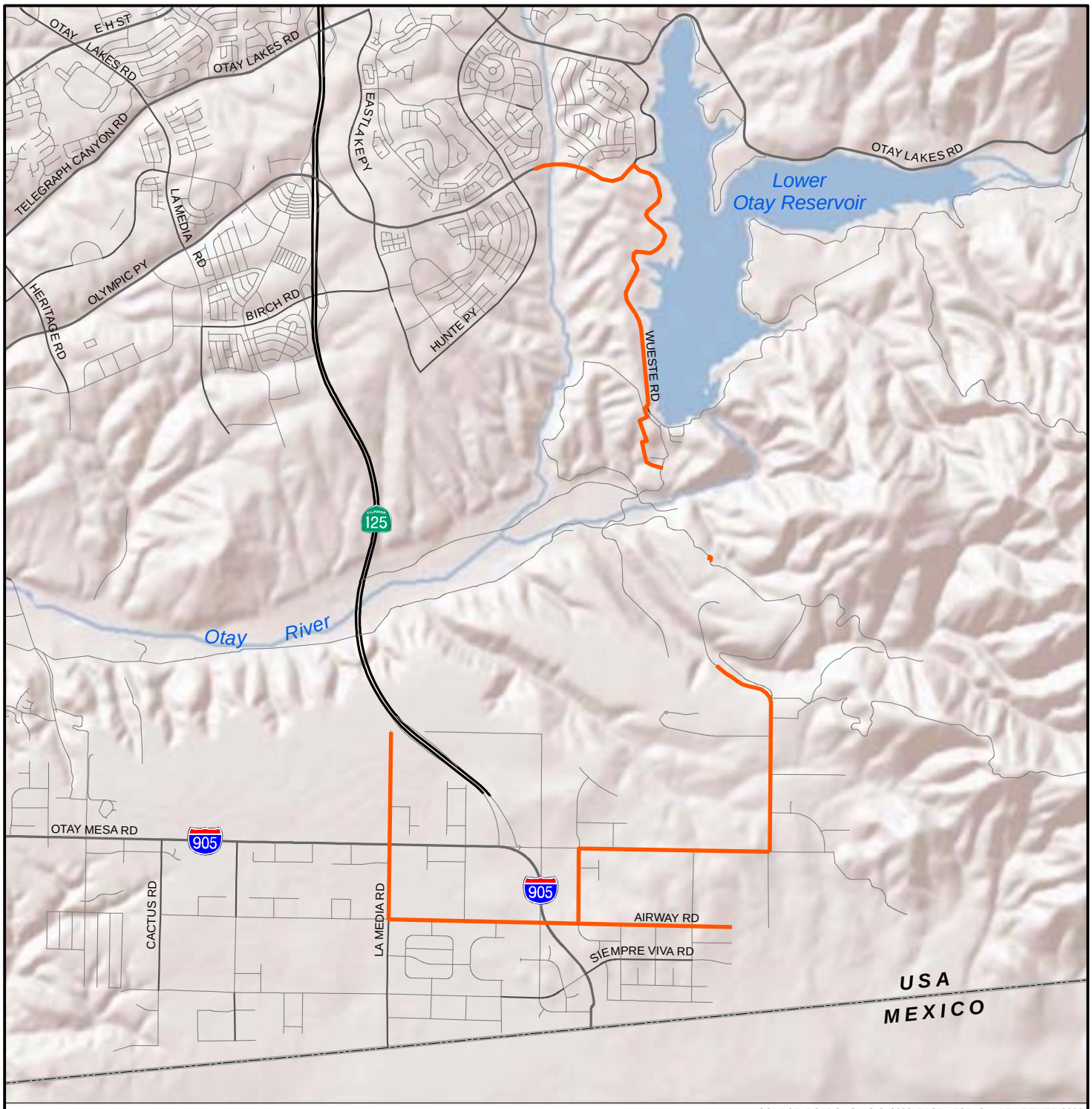
United States Federal Emergency Management Agency (FEMA), 1997, Flood Insurance Rate Map (FIRM), Map Number 06073C2183 F: effective date June 19.

United States Geological Survey, 1994, Jamul Mountains Quadrangle, California, San Diego County, 7.5-Minute Series (Topographic): Scale 1:24,000.

United States Geological Survey, 1996, Otay Mesa Quadrangle, California, San Diego County, 7.5-Minute Series (Topographic): Scale 1:24,000.

AERIAL PHOTOGRAPHS

Source	Date	Flight	Numbers	Scale
USDA	1928	78A	1, 3, 8, and 9	1:12,000
USDA	March 31, 1953	AXN-3M	25 and 26	1:24,000
USDA	May 2, 1953	AXN-14M	110	1:12,000
USDA	October 26, 1966	GS-VBOI	1-22	1:24,000
USDA	November 28, 1973	N/A	14-1, 14-2, 15-2, 15-3 and 16-2	1:12,000
USDA	November 29, 1978	210	10, 12 and 34	1:12,000
USDA	November 19, 1983	83059	133 and 202	1:24,000
USDA	March 30, 1989	WAC-89CA	1-114	1:32,000
USDA	May 3, 1989	WAC-89CA	18-45	1:32,000



SOURCE: ROADS - SanGIS, 2008; BASE - ESRI SHADED RELIEF, 2009

LEGEND

TRANSMISSION PIPELINE ROUTE

N

APPROXIMATE SCALE

0 1 2 MILES

NOTE: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		SITE LOCATION MAP	FIGURE
PROJECT NO.	DATE	OTAY WATER DISTRICT TRANSMISSION PIPELINE SAN DIEGO COUNTY, CALIFORNIA	1
106664001	1/10		

Friday, January 8, 2010 10:54:34 AM \106664_IFC_Pipeline\001\mxds\106664001_slm.mxd JDL

SOURCE: AERIAL IMAGERY - MICROSOFT BING MAPS, 2009

LEGEND

TRANSMISSION PIPELINE ROUTE

N

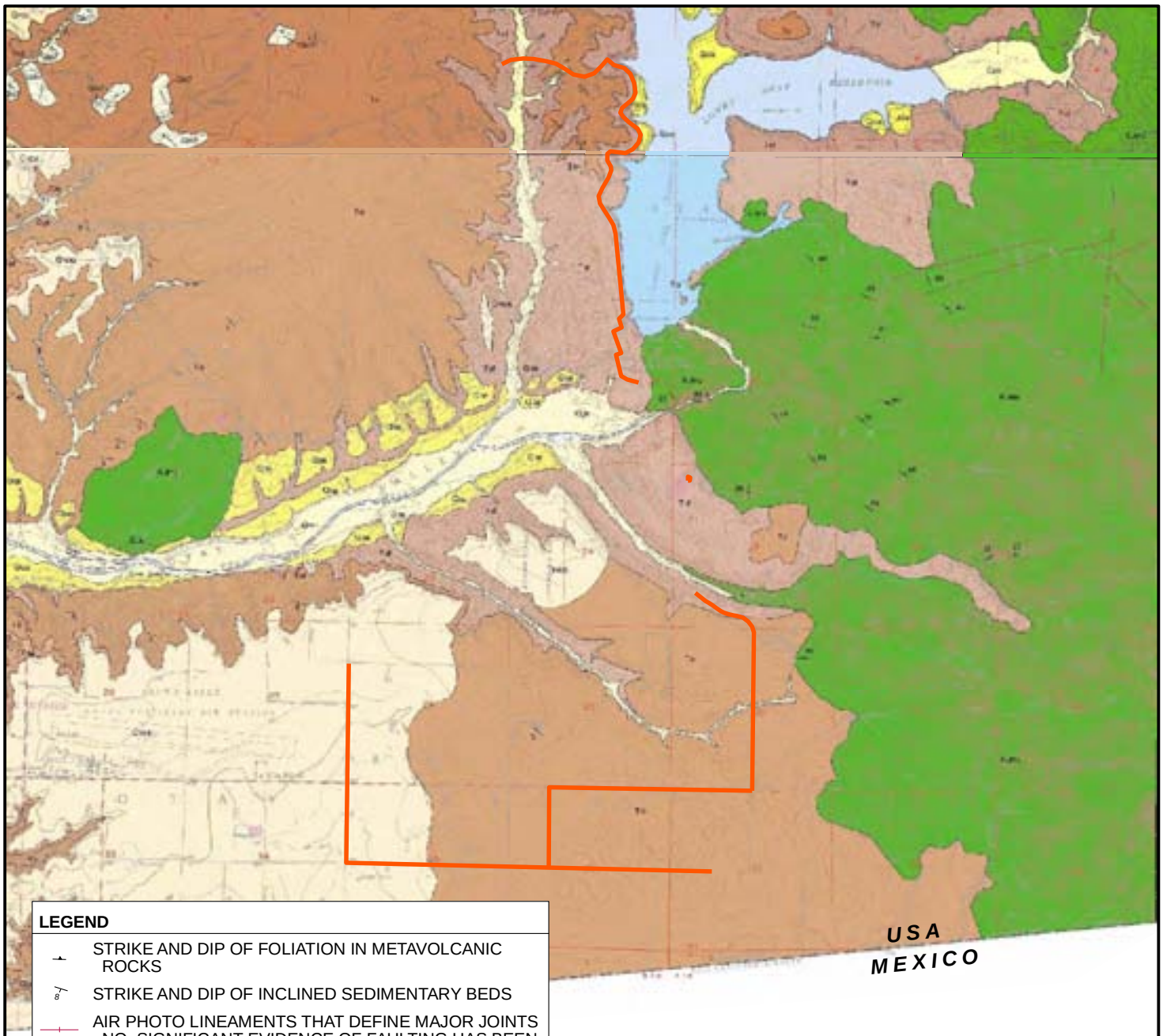
APPROXIMATE SCALE

0 0.8 1.6 MILES

NOTE: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		SITE AND VICINITY MAP	FIGURE
PROJECT NO.	DATE	OTAY WATER DISTRICT TRANSMISSION PIPELINE SAN DIEGO COUNTY, CALIFORNIA	2
106664001	1/10		

Friday, January 8, 2010 10:54:18 AM \106664_IFC_Pipeline\001\mxds\106664001_svm.mxd JDL



LEGEND

- STRIKE AND DIP OF FOLIATION IN METAVOLCANIC ROCKS
- STRIKE AND DIP OF INCLINED SEDIMENTARY BEDS
- AIR PHOTO LINEAMENTS THAT DEFINE MAJOR JOINTS NO SIGNIFICANT EVIDENCE OF FAULTING HAS BEEN OBSERVED ALONG THESE FEATURES
- TRANSMISSION PIPELINE ROUTE
- Qw — LATE HOLOCENE ACTIVE CHANNEL AND WASH DEPOSITS
- Qya — HOLOCENE ALLUVIAL DEPOSITS
- Qls — LANDSLIDE DEPOSITS
- Qoa — LATE PLEISTOCENE ALLUVIAL DEPOSITS
- Qvoa — MIDDLE PLEISTOCENE ALLUVIAL DEPOSITS
- Tsd — SAN DIEGO FORMATION
- To — OTAY FORMATION
- Tof — OTAY FORMATION - FANGLOMERATE FACIES
- KJmv — METAVOLCANIC ROCKS

SOURCE: Tan, S.S., 2002, Geologic Map of the Jamul Mountains 7.5' Quadrangle, San Diego County, California
Tan, S.S. and Kennedy, M.P., 2002, Geologic Map of the Otay Mesa 7.5' Quadrangle, San Diego County, California

N

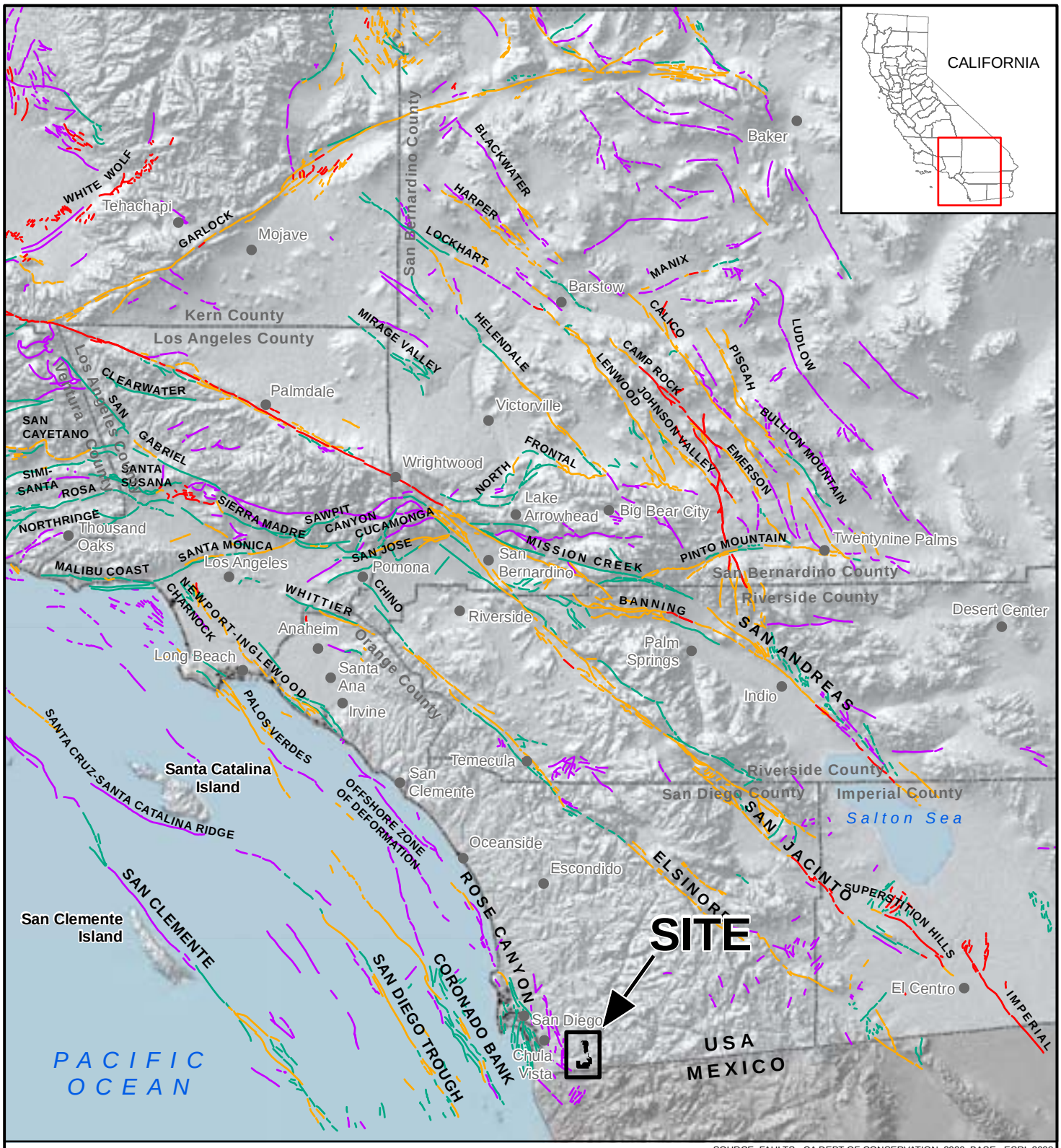
APPROXIMATE SCALE

0 5,000 10,000 FEET

NOTES: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		GEOLOGIC MAP	FIGURE
PROJECT NO.	DATE	OTAY WATER DISTRICT TRANSMISSION PIPELINE SAN DIEGO COUNTY, CALIFORNIA	3
106664001	1/10		

Thursday, January 14, 2010 9:30:59 AM \106664_IFC_Pipeline\001\mxds\106664001_geol.mxd JDL



SOURCE: FAULTS - CA DEPT OF CONSERVATION, 2000; BASE - ESRI, 2008

LEGEND

CALIFORNIA FAULT ACTIVITY

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- LATE QUATERNARY (POTENTIALLY ACTIVE)
- QUATERNARY (POTENTIALLY ACTIVE)
- STATE/COUNTY BOUNDARY

N

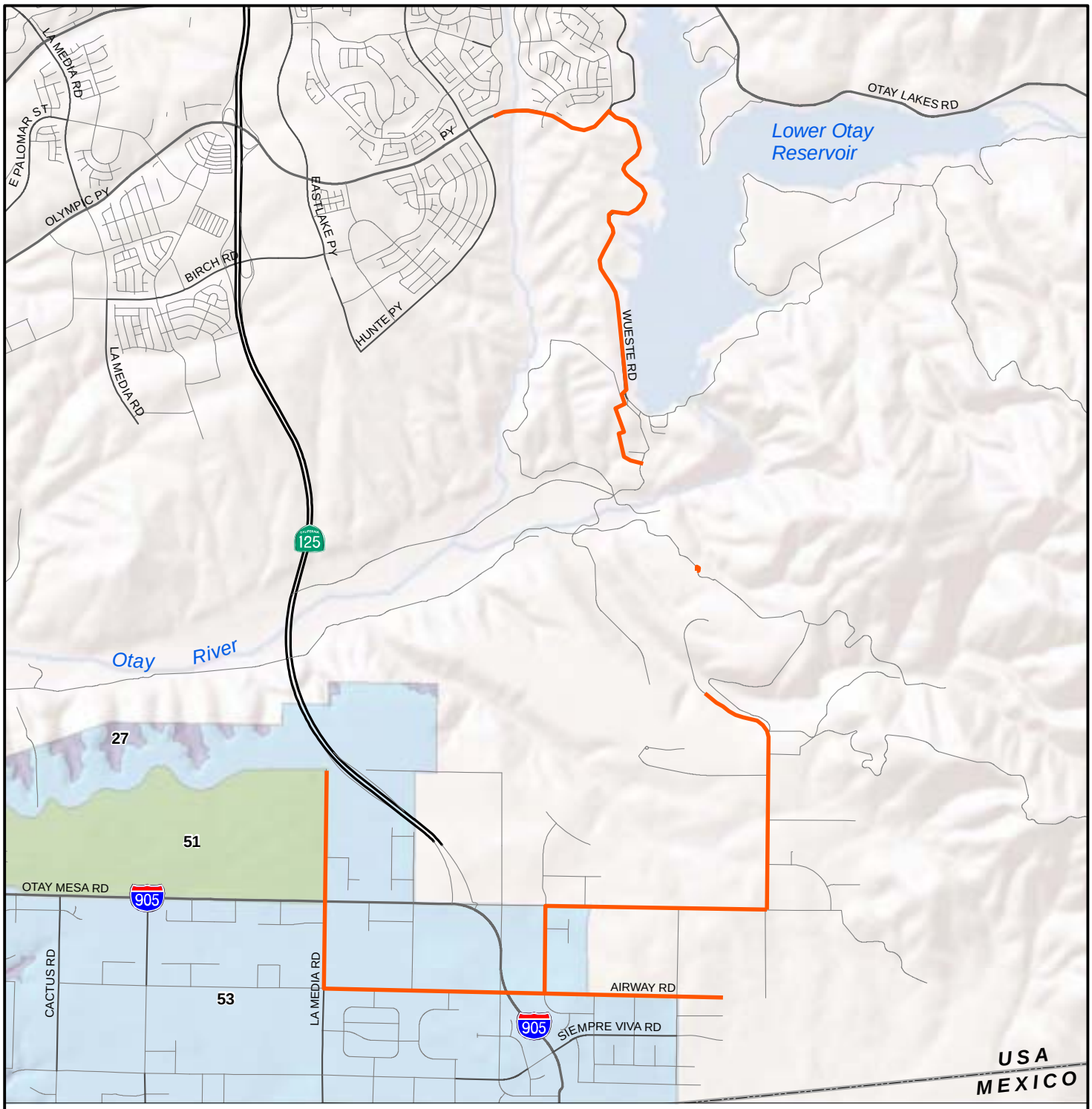
APPROXIMATE SCALE

0 25 50 MILES

NOTES: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore	FAULT LOCATION MAP	FIGURE
PROJECT NO. / DATE	OTAY WATER DISTRICT TRANSMISSION PIPELINE SAN DIEGO COUNTY, CALIFORNIA	4
106664001 / 1/10		

Friday, January 8, 2010 11:04:52 AM \106664_IFC_Pipeline\001\mxds\106664001_fault_loc.mxd JDL



SOURCES: GEOLOGIC HAZARDS - SanGIS, 2006, City of San Diego, 2008, Seismic Safety Study, dated April 3. PARCELS/ROADS - SanGIS, 2009

LEGEND

TRANSMISSION PIPELINE ROUTE

GEOLOGIC HAZARDS

- 27 — SLIDE-PRONE FORMATIONS: OTAY, SWEETWATER, AND OTHER
- 51 — LEVEL MESAS-UNDERLAIN BY TERRACE DEPOSITS AND BEDROCK, NOMINAL RISK
- 53 — LEVEL OR SLOPING TERRAIN, UNFAVORABLE GEOLOGIC STRUCTURE, LOW TO MODERATE RISK
- AREA WITH NO HAZARD CODE DESIGNATION

NOTE: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

N

APPROXIMATE SCALE

0 0.8 1.6 MILES

Ninyo & Moore

GEOLOGIC HAZARDS MAP

FIGURE 5

PROJECT NO.	DATE
106664001	1/10

OTAY WATER DISTRICT TRANSMISSION PIPELINE
SAN DIEGO COUNTY, CALIFORNIA

Thursday, January 14, 2010 9:41:26 AM \106664_IFC_Pipeline\001\mxds\106664001_geol_haz_A.mxd JDL

Appendix E-2
Geotechnical Report
Soil Conservation and Testing Service

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

SCST

San Diego Office
PHONE (619) 280-4321
TOLL FREE (877) 215-4321
FAX (619) 280-4717
P.O. Box 600627
San Diego, CA 92160-0627
6280 Riverdale Street
San Diego, CA 92120
www.scst.com

Indio Office
PHONE (760) 775-5983
TOLL FREE (877) 215-4321
FAX (760) 775-8362
83-740 Citrus Avenue
Suite G
Indio, CA 92201-3438
www.scst.com

February 3, 2010

SCS&T No. 0911159P
Report No. 1

Mr. Bob Kennedy
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, California 91978

Subject: GEOTECHNICAL REPORT
OTAY MESA RECYCLED WATER SUPPLY LINK
CIP – R2058, R2077, AND R2087
OTAY MESA, CALIFORNIA

Dear Mr. Kennedy:

This letter transmits Southern California Soil & Testing, Inc.'s geotechnical report for the subject project. This investigation was performed in general conformance with the scope of work presented in SCS&T's proposal, 09S240, dated October 7, 2009.

If you have questions concerning this report, please call us at (619) 280-4321.

Respectfully Submitted,
SOUTHERN CALIFORNIA SOIL & TESTING, INC.

REGISTERED GEOTECHNICAL ENGINEER JAMES J. STONE No. GE000808 EXP. 12-31-11 STATE OF CALIFORNIA

PROFESSIONAL GEOLOGIST ANDREW K. NEUHAUS No. 8398 Exp. 9-30-11 STATE OF CALIFORNIA

James J. Stone, PGE 000808
Principal Geotechnical Engineer

Andrew K. Neuhaus, PG 8398
Staff Geologist

JJS:AKN:aw

(4) Addressee

TABLE OF CONTENTS

SECTION PAGE

EXECUTIVE SUMMARY i

1. INTRODUCTION 1

1.1 GENERAL 1
1.2 SCOPE OF WORK 1

2. DATA ACQUISITION 2

2.1 FIELD EXPLORATION 2
2.2 LABORATORY TESTING 2
2.3 RESISTIVITY TESTING 2

3. FINDINGS 2

3.1 ALIGNMENT DESCRIPTION 2
3.2 SUBSURFACE CONDITIONS 2

4. CONCLUSIONS 4

5. RECOMMENDATIONS 5

5.1 TRENCHING AND SHORING 5
5.2 DEWATERING 5
5.3 PIPELINE RECOMMENDATIONS 6
5.3.1 Bearing Capacity for Pipeline 6
5.3.2 Pipe Bedding 6
5.3.3 Pipeline Design 6
5.3.4 Thrust Blocks 6
5.3.5 Trench Backfill 6
5.3.6 Flexible Pavement Structural Section 7

6. GEOTECHNICAL ENGINEERING DURING CONSTRUCTION 7

7. LIMITATIONS 8

ATTACHMENTS

Figure 1a ..... Alignment Map (Otay Mesa)
Figure 1b ..... Alignment Map (Wueste Road)
Figure 2a ..... Boring & Resistivity Test Location Map (Otay Mesa)
Figure 2b ..... Boring & Resistivity Test Location Map (Wueste Road)
Figure 3a ..... Cross Section A-A'
Figure 3b ..... Cross Section B-B'
Figures 4-5 ..... Field Resistivity Test Results
Figure 6 ..... Lateral Pressure Diagram

APPENDICES

Appendix I ..... Field Investigation
Appendix II ..... Laboratory Test Results

EXECUTIVE SUMMARY

This report presents the results of the geotechnical investigation performed by Southern California Soil and Testing, Inc. (SCS&T) for the Otay Mesa Recycled Water Supply Link line planned for Airway Road and La Media Road CIP# R2058, Sanyo Avenue, Otay Mesa Road and Alta Road CIP# R2077, and Wueste Road CIP# R2087, in Otay Mesa, California.

The portion of the alignment along La Media Road is comprised of Quaternary age very old paralic deposits. Up to approximately three feet of fill cover the very old paralic deposits at some locations.

The portion of the alignment along Airway Road is comprised of the Tertiary age Otay Formation, Quaternary age very old paralic deposits, residual soil, and fill. Fill thicknesses range from 4 to 11 feet. Residual soil is up to 4 feet thick. In boring B-7, a contact between the Otay Formation and very old paralic deposits was encountered at approximately 8 feet below the pavement.

The portion of the alignment along Sanyo Avenue is comprised of up to approximately 21 feet of fill over the Tertiary age Otay Formation.

The portion of the alignment along Otay Mesa Road is comprised of the Tertiary age Otay Formation. Up to approximately 23 feet of artificial fill overlie the Otay Formation in the western portion.

The portion of the alignment along Alta Road is underlain by the Tertiary age Otay Formation. Up to approximately eight feet of fill or approximately five feet of alluvium overlie the Otay Formation.

The portion of the alignment along Wueste Road, on the west side of the Lower Otay Reservoir extends from Olympic Parkway to the dam. The alignment crosses several natural drainages that flow into the reservoir that have been filled in by colluvium and fill. Colluvium was encountered in two of the borings and fill was encountered in six borings. Tertiary age unnamed fanglomerate deposits underlie the colluvium or fill.

The area where the proposed pressure reducing station is to be located, Area 1, is situated along the northeast corner of Roll Reservoir. Materials underlying the area are comprised of relatively minor amounts of fill (approximately 1 foot thick) over unnamed fanglomerate deposits.

No groundwater or seepage was encountered in the borings. In general, the Otay Formation, unnamed fanglomerate deposits, very old paralic deposits, residual soil, colluvium, and alluvium will provide adequate support for the pipeline. Existing fill and alluvium might need to be over excavated, replaced, and compacted beneath pipes. Most of the existing materials can be used for trench backfill. They are not expected to be suitable for pipe bedding. Portions of the Otay Formation are highly expansive and will not be suitable for use near subgrade levels for streets and roads, or near structures.

SC
ST

1. INTRODUCTION

1.1 GENERAL

This report presents the results of the geotechnical investigation performed by Southern California Soil & Testing, Inc. (SCS&T) for the Otay Mesa Recycled Water Supply Link line planned for Airway Road and La Media Road CIP# R2058, Sanyo Avenue, Otay Mesa Road and Alta Road CIP# R2077, Wueste Road CIP# R2087, and the pressure reducing station near Roll Reservoir (Area 1), in Otay Mesa, California. The project areas are shown on Figures 1a and 1b. The purpose of this study was to evaluate subsurface conditions along the alignment and develop conclusions and recommendations regarding excavation conditions, pipeline design and support, and trench backfill.

1.2 SCOPE OF WORK

The scope of the geotechnical investigation work consisted of:

- Obtaining necessary permits;
- Contacting Underground Service Alert to mark existing utility lines;
- Drilling 32 exploratory borings 10 to 30 feet deep;
- Logging the materials encountered in the exploratory borings and obtaining samples for examination and laboratory testing;
- Performing laboratory tests to evaluate material classifications, strength, compressibility, expansion potential, corrosivity potential and pavement support characteristics;
- Presenting our professional opinions in a report that will include a plot plan, exploration logs, and a summary of the field exploration findings. Four copies of the report will be submitted. The report will include conclusions and recommendations regarding:
    - Subsurface conditions along the recycled water supply link alignment;
    - Excavation conditions and the potential for difficult excavation conditions;
    - Groundwater levels and the necessity for dewatering;
    - Allowable temporary excavation side slopes and the necessity for shoring;
    - Lateral loads on shoring, if required;
    - Subsurface conditions at the jack and bore locations;
    - Lateral bearing for thrust blocks and jacking pits;
    - Support for the pipeline;
    - Potential pipeline settlements;
    - Suitability of excavated materials for use as bedding and backfill;
    - Appropriate types of bedding and backfill materials as well as placement and compaction procedures;
    - Soil modulus E' for pipeline design;
    - Subgrade compaction beneath pavements;
    - Existing pavement sections at exploratory test boring locations;

- New flexible pavement structural sections; and,
- Corrosivity of earth materials along the alignment.

2. DATA ACQUISITION

2.1 FIELD EXPLORATION

In accordance with the plots and plans provided by Otay Water District, three borings were drilled in the shoulder of La Media Road, six in Airway Road, two in Sanyo Avenue, three in Otay Mesa Road, five in Alta Road, eight in Wueste Road, and four south and west of Wueste Road in the areas where the jacking pits are to be located, and one near the Rolf Reservoir where the pressure reducing station is to be located. Boring locations are shown on Figures 2a and 2b. Boring B-4 was not drilled due to inaccessibility at the time of our investigation.

The boring logs are presented in Appendix I. Soils are classified according to the Unified Soil Classification System, which is explained in Appendix I. Rock is described according to its physical characteristics.

2.2 LABORATORY TESTING

Samples from the borings were obtained for laboratory testing. Brief descriptions of the laboratory test procedures and the test results are presented in Appendix II.

2.3 RESISTIVITY TESTING

Our engineering and geology staff performed resistivity testing along the proposed pipe alignment. Schiff Associates selected the number and locations of the field resistivity tests. California Test 643 was used as the test procedure. Probes were inserted between 6 and 12 inches into the ground at the locations and spacing indicated on Figures 2a and 2b. The probes were removed and distilled, de-ionized water was added to the holes before re-inserting the probes to record the readings. The results are presented on Figures 4 and 5.

3. FINDINGS

3.1 ALIGNMENT DESCRIPTION

The new pipeline alignment lies along existing paved city and county roads Most of the borings are located within the shoulders of the roads off of the paved areas. Pavement component thicknesses, where encountered, are noted on the boring logs in Appendix I.

3.2 SUBSURFACE CONDITIONS

The portion of the alignment along La Media Road is comprised of very old paralic deposits in the northern portion (borings B-1 and 2) and approximately three feet of artificial fill over very old paralic

deposits in the southern portion (boring B-3). The fill consists light brown, very loose to loose, silty sand. The very old Paralic deposits consist of dark brown, stiff to very stiff, sandy claystone and medium reddish brown, dense to very dense, clayey sandstone. No groundwater or seepage was encountered in any of the borings (B-1, 2, and 3).

The portion of the alignment along Airway Road is comprised of the Tertiary age Otay Formation, Quaternary age very old paralic deposits, residual soil, and fill. The Otay Formation was encountered predominantly within the eastern portion of the alignment while very old Paralic deposits were encountered in the western portion. Fill thicknesses vary but are up to 4 and 11 feet thick (borings B-6 and B-9 respectively). Residual soil was encountered in borings B-7 and B-8 and is up to 4 feet thick. In boring B-7, a contact between the Otay Formation and very old paralic deposits was encountered at approximately 8 feet below the pavement.

The Otay Formation is comprised of medium gray, dense to very dense, silty sandstone and in areas clayey sandstone. The very old paralic deposits consist of light to medium brown and dark brown, stiff, sandy clay and light orange-brown, very dense, clayey sandstone. The residual soil is comprised of medium to dark brown, stiff, sandy clay and the artificial fill is comprised of tan, loose, silty sand and medium brown, loose, clayey sand in the western portion and medium gray, medium dense, silty sand and medium gray and grayish brown, very stiff, sandy clay in the eastern portion of the alignment (borings B-6 and B-9 respectively). Groundwater was not encountered in any of the borings.

The alignment along Sanyo Avenue is comprised of approximately 21 feet of fill over the Otay Formation in the central portion (boring B-11) and approximately 13 feet of fill over the Otay Formation in the northern portion (boring B-12). The fill consists of medium gray, medium dense, silty sand within the approximate upper six feet and medium gray, stiff to very stiff, sandy clay below that. The Otay Formation consists of medium gray and brown, medium dense to dense, silty sandstone. No groundwater was encountered in either boring (B-11 and 12).

The alignment along Otay Mesa Road is comprised of approximately 11 feet of artificial fill over Otay Formation in the western portion (boring B-13), Otay Formation in the central portion (boring B-14), and approximately 23 feet of fill over Otay Formation in the eastern portion (boring B-15). The fill in the western portion consists of medium and dark gray, very stiff, sandy clay with gravel within the approximate upper six feet and medium gray, medium dense, silty sand with gravel below that. The Otay Formation consists of medium gray, medium dense to dense, silty sandstone. No groundwater or seepage was encountered in any of the borings (B-13, 14, and 15).

The alignment along Alta Road is comprised of the Otay Formation in the southern and northern portions (borings B-16, 18, and 20), and approximately eight feet of fill over the Otay Formation and

approximately five feet of alluvium over the Otay Formation in the south-central and north-central portions, respectively (borings B-19 and 17). The fill consists of medium brownish gray, very stiff, sandy clay with gravel. The alluvium consists of dark gray, stiff to very stiff, sandy clay. The Otay formation consists of medium gray, dense to very dense, silty sandstone with an occasional layer of light grayish brown, very stiff, sandy claystone (boring B-18). This layer is approximately 1½-foot thick. No groundwater or seepage was encountered in any of the borings (B-16, 17, 18, 19, and 20).

The alignment along Wueste Road is located on the west side of the Lower Otay Reservoir and extends from Olympic Parkway to the dam. As such, the alignment crosses several natural drainages that flow into the reservoir and have been filled in by colluvium and subsequently by artificial fill for the road alignment. Colluvium was encountered in two of the borings (B-21 and 23) and fill was encountered in six borings (B-22, 23, 24, 25, 27, and 28). Tertiary age unnamed fanglomerate deposits underlie the colluvium and/or fill and was encountered in all of the borings (B-21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32).

The fill is composed of medium grayish brown, moist, medium dense, clayey sand with gravel (borings B-22, 23, 24, 27, and 28) and medium grayish brown and light brown, moist, stiff to very stiff, sandy clay with gravel (boring B-25). The maximum thickness of the artificial fill encountered is approximately nine feet. The colluvium is composed of dark brown and gray, stiff to very stiff, sandy clay (borings B-21 and 23). The unnamed fanglomerate deposits consist of light brown, dense to very dense, clayey sand with gravel (borings B-21, 25, 26, 27, and 28), light brown, very dense, silty sand with gravel (borings B-22 and 23), and light orangish brown, very stiff to hard, sandy clay with gravel (borings B-24 and 25).

The area where the proposed pressure reducing station is to be located is situated along the northeast corner of Roll Reservoir. Materials underlying the area are comprised of relatively minor amounts of fill (approximately 1 foot thick) over unnamed fanglomerate deposits (boring B-33). The fill is composed of medium brown, very stiff to hard, sandy clay with gravel. The unnamed fanglomerate deposits are composed of light orange-brown, hard, sandy clay with gravel. No groundwater or seepage was encountered in this boring.

4. CONCLUSIONS

In general, the Otay Formation, unnamed fanglomerate deposits, very old paralic deposits, colluvium, alluvium, and fill will provide adequate support for the pipeline. Existing fill and alluvium might need to be over excavated, replaced, and compacted beneath pipes. Most of the existing materials can be used for trench backfill. They are not expected to be suitable for pipe bedding. Portions of the Otay Formation are highly expansive and will not be suitable for use near subgrade levels for street and roads, or near structures.

The materials encountered in the air rotary borings B-30 and 32 are described as soft in regards to excavation characteristics. Typical tunnel boring equipment can be used for the excavation of the pipeline in these areas.

5. RECOMMENDATIONS

5.1 TRENCHING AND SHORING

Temporary slopes in fill, alluvium, colluvium, residual soil, and unnamed fanglomerate deposits should not be steeper than 1:1 (horizontal:vertical). Temporary slopes in the Otay Formation should not be steeper than ½:1. The faces of temporary slopes should be inspected daily by the contractor's Competent Person before personnel are allowed to enter the excavation. Any zones of potential instability, sloughing or raveling should be brought to the attention of the Engineer and corrective action implemented before personnel begin working in the trench.

Slopes steeper than those described above will require shoring. Soldier piles and lagging, sheet piles, internally braced shoring, trench boxes, or anchor tieback walls could be used. If trench boxes are used, the soil immediately adjacent to the trench box is not directly supported. Ground surface deformations immediately adjacent to the trench could be greater where trench boxes are used compared to other methods of shoring.

Recommended earth pressure values for cantilever shoring (soldier piles and lagging and sheet piles without tie-back anchors) and for shoring with multiple levels of bracing (internally braced or tie-back) are shown on Figure 6. The surcharge loads on shoring from traffic and construction equipment working adjacent to the trench can be modeled by assuming an additional two feet of soil behind the wall. Excavated materials should not be stockpiled behind temporary shoring within a distance equal to the depth of the excavation. SCS&T should be notified if other surcharge loads are anticipated so that lateral load criteria can be developed for the specific situation.

The existing fill, alluvium, colluvium, residual soil, and unnamed fanglomerate should be classified as Type C soil in accordance with CalOSHA guidelines. The Otay Formation can be considered Type B.

5.2 DEWATERING

No groundwater or seepage was encountered in the borings at the time of our field investigation. It should be noted that excessive landscaping irrigation and/or rain could raise the groundwater table along portions of the alignment. Areas previously free of water could contain free water at the time of excavation for the proposed pipeline. If free water is present, dewatering can most effectively be accomplished by sloping the excavation bottom to a sump and pumping from the sump. A layer of

gravel about 6 inches thick placed in the bottom of the excavation will facilitate groundwater flow and can be used as a working platform. If the gravel is kept clean, it likely also can be used for bedding.

5.3 PIPELINE RECOMMENDATIONS

5.3.1 Bearing Capacity for Pipeline

Where unsuitable materials, as determined during construction by the engineer, are encountered near trench bottom levels, they should be excavated to competent material as determined by the engineer, and replaced with compacted pipe bedding material as described below. Unsuitable materials should be removed from the full width of the trench. The bottoms of the excavations should be approved by the engineer prior to placement of pipe bedding. Pipeline settlements are expected to be small.

5.3.2 Pipe Bedding

Bedding material should consist of clean sand meeting the gradation listed in the Standard Specifications for Public Works Construction (SSPWC) Table 200-1.5.5(A). Alternative materials meeting the intent of the bedding specifications also will be acceptable. Samples of materials proposed for use as bedding should be provided to the engineer for inspection and testing before the material is imported for use on the project. Existing materials along the alignment are not expected to be suitable for use as bedding.

The pipe bedding material should be placed over the full width of the trench. After placement of the pipe, the bedding should be brought up uniformly on both sides of the pipe to reduce the potential for unbalanced loads. No voids or uncompacted areas should be left beneath the pipe haunches. Ponding or jetting the pipe bedding should not be allowed.

5.3.3 Pipeline Design

The modulus of soil reaction (E') used to characterize the stiffness of soil backfill placed at the sides of buried flexible pipelines can be taken as 1,800 pounds per square inch for uniformly bedded pipe.

5.3.4 Thrust Blocks

Thrust blocks used to resist lateral loads can be designed using a lateral bearing pressure of 350 pounds per square foot per foot of depth below final grade, a coefficient of friction of 0.35 can be used.

5.3.5 Trench Backfill

Existing soils free of organic debris and rocks greater than 4 inches in maximum dimension generally are expected to be suitable for use as trench backfill. Portions of the Otay Formation

are highly expansive and should not be placed within 3 feet of the subgrade for pavements and hardscape. Rocks larger than 4 inches in maximum dimension should be disposed of off-site. Imported material should not contain rocks or lumps greater than 4 inches in maximum dimension or organic debris. Imported materials should have an expansion index of 50 or less. SCS&T should inspect and, if appropriate, test proposed imported materials before they are brought to the site.

Backfill should be placed in lifts 8 inches or less in loose thickness, moisture conditioned to optimum moisture content or slightly above, and compacted to at least 90% relative compaction based on the ASTM D 1557 laboratory test procedure. All references to optimum moisture content and relative compaction in this report are based on this test method. The upper 12 inches of soil beneath subgrade for pavements should be compacted to at least 95 % relative compaction.

5.3.6 Flexible Pavement Structural Section

Laboratory R-value test results ranged from less than 5 to approximately 37. An R-value of 5 was assumed for purposes of flexible pavement design, representing both the lower bound value and the most common test result (Appendix II). Traffic is expected to range from light to heavy.

Preliminary flexible pavement structural sections where new pavements will be required are listed below. Final pavement sections should be based on the results of R-value test performed on the materials present when final subgrade elevations are reached.

Traffic	Traffic Index	AC[1] (inches)	AB[2] (inches)
Occasional Automobiles and Light Trucks	5	2-½	11
Frequent Automobiles and Light Trucks	7	3	18
Occasional Heavy Truck Traffic	9	4	23
Frequent Heavy Truck Traffic	11	5	28

6. GEOTECHNICAL ENGINEERING DURING CONSTRUCTION

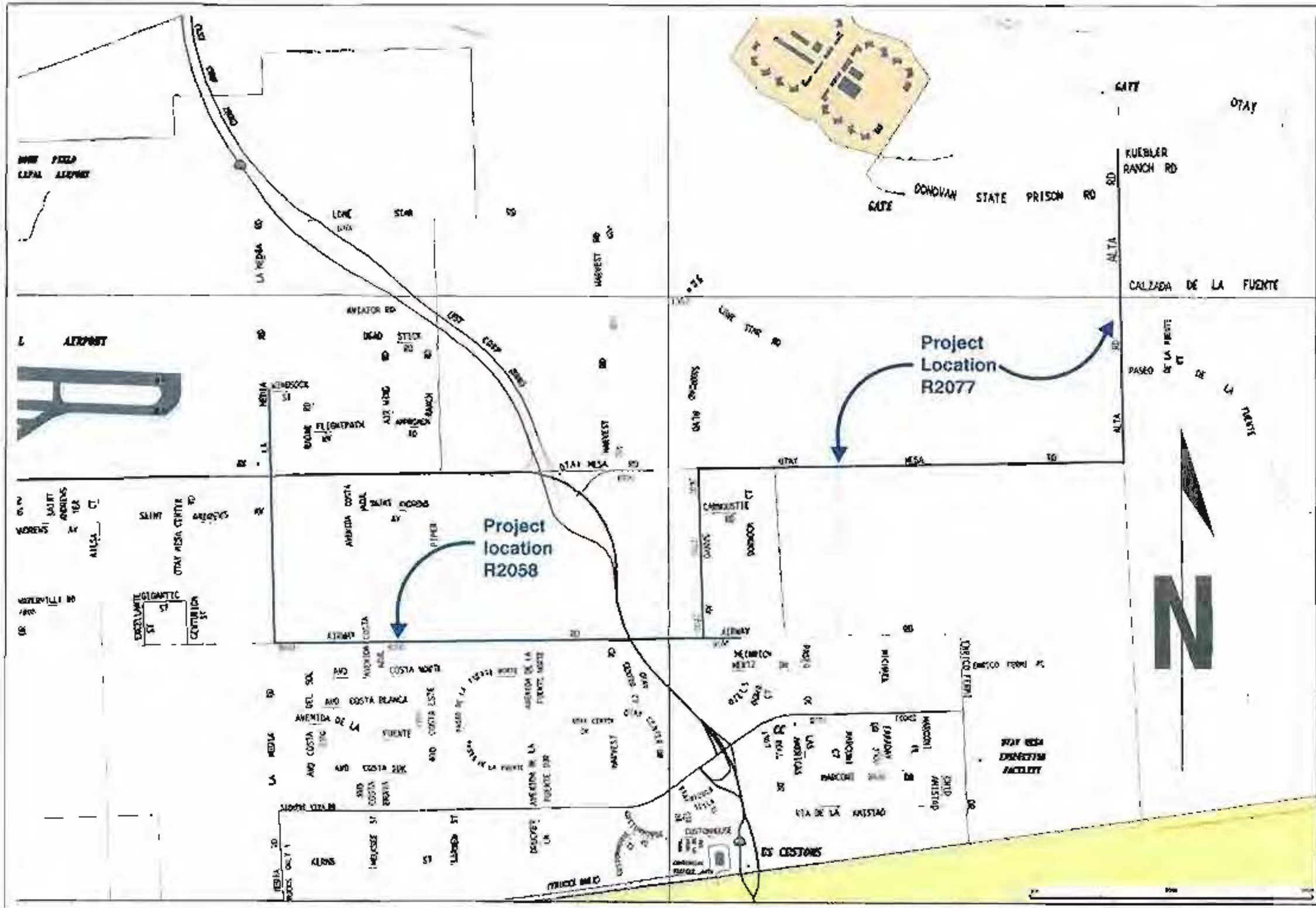
The geotechnical engineer should review project plans and specifications prior to construction to check that the intent of the recommendations in this report has been incorporated. Observations and tests should be performed during construction. If the conditions encountered during construction differ from those anticipated based on the subsurface exploration program, the presence of the geotechnical engineer during construction will enable an evaluation of the exposed

conditions and modifications of the recommendations in this report or development of additional recommendations in a timely manner.

7. LIMITATIONS

The findings in this report are valid as of the date of this report. Changes in the condition of the alignment can occur with the passage of time. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report could be invalidated by changes beyond our control. This report should not be relied upon after a period of two years without a review by us verifying the continued suitability of the conclusions and recommendations to alignment conditions at that time.

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. Subsurface conditions can vary from those encountered at the boring locations, and our data, interpretations, and recommendations are based solely on the information obtained by us. We will be responsible for those data, interpretations, and recommendations, but will not be responsible for interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

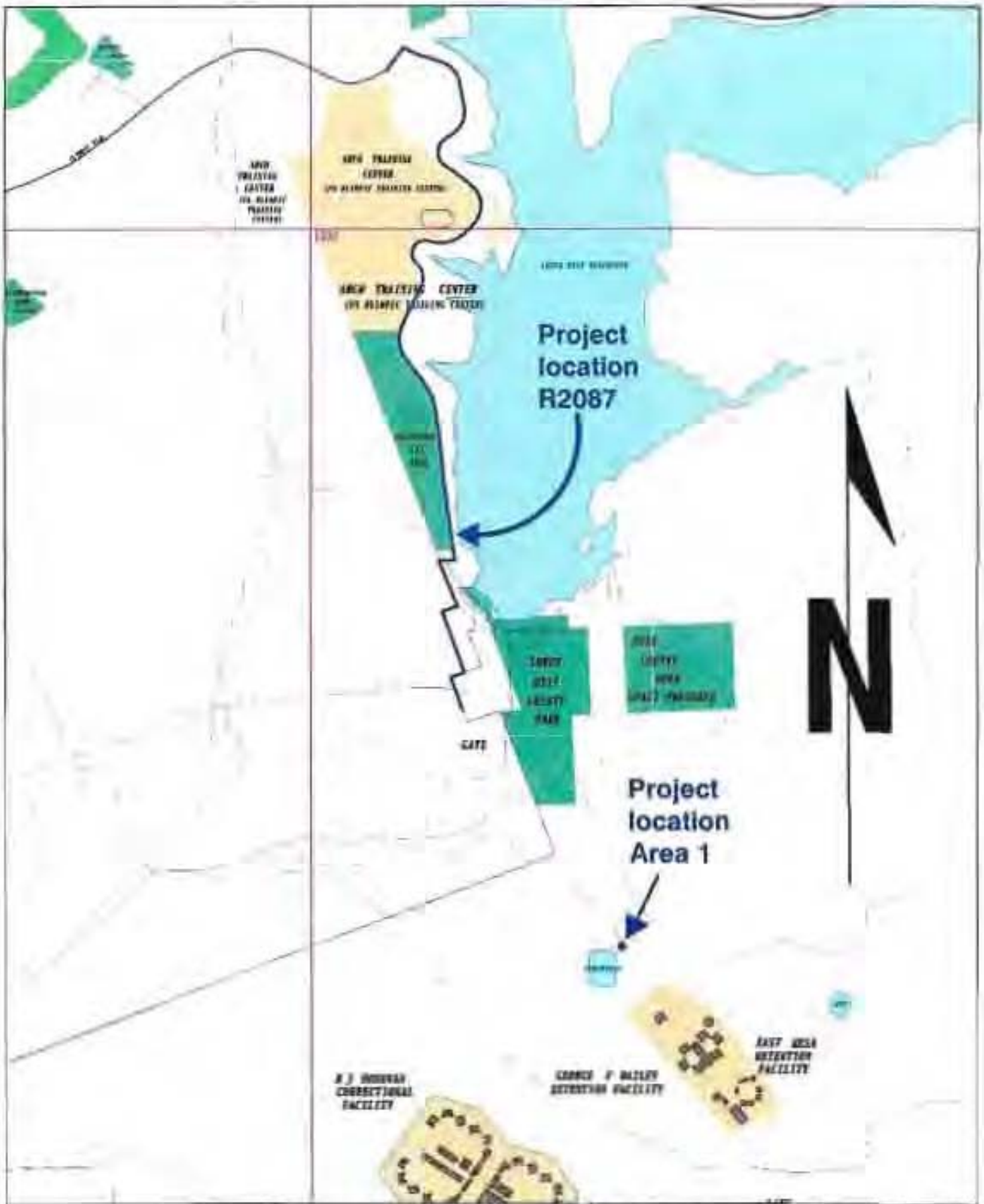


Date	1/15/2010
By:	AKN
Job No	0911159P-1
Scale:	NOTTOSCALE

SITE VICINITY
OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

SOUTHERN CALIFORNIA SOIL & TESTING, INC

Figure:
1a



SOUTHERN CALIFORNIA SOIL & TESTING, INC.	SITE VICINITY OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1	Date 1/18/2010 By AKN Job No. 0911159P-1 Scale NTS	Figure: 1b

SCS&T LEGEND

B-20 Approximate Test Boring Location

I_{RT-4} Approximate Resistivity Test Location

BORING LOCATION MAP
OTAY MESA RECYCLED WATER
SUPPLY LINK - TASK 1

SOUTHERN CALIFORNIA SOIL & TESTING, INC

Date	7/18/2010
By:	RB/AKN
Job No.:	0911159P-1
Scale:	Not To Scale

Figure.
2a

SCS&T LEGEND

B-33 Approximate Test Boring Location

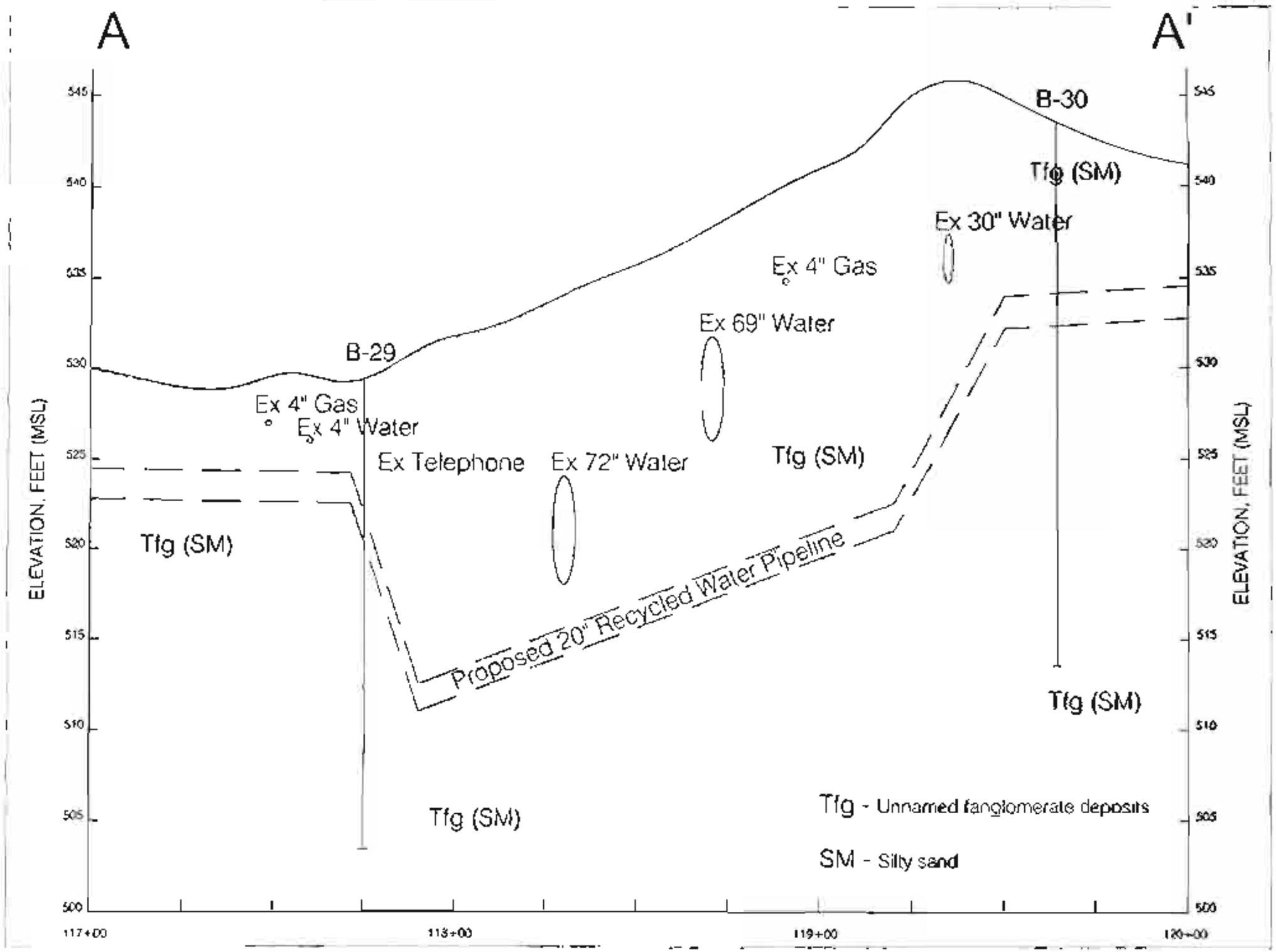
RT-14 Approximate Resistivity Test Location

BORING LOCATION MAP
OTAY MESA RECYCLED WATER
SUPPLY LINK - TASK 1

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

Date:	1/18/2010
By:	RB/AKR
Job No.:	0911159P-1
Scale:	Not To Scale

Figure:
2b

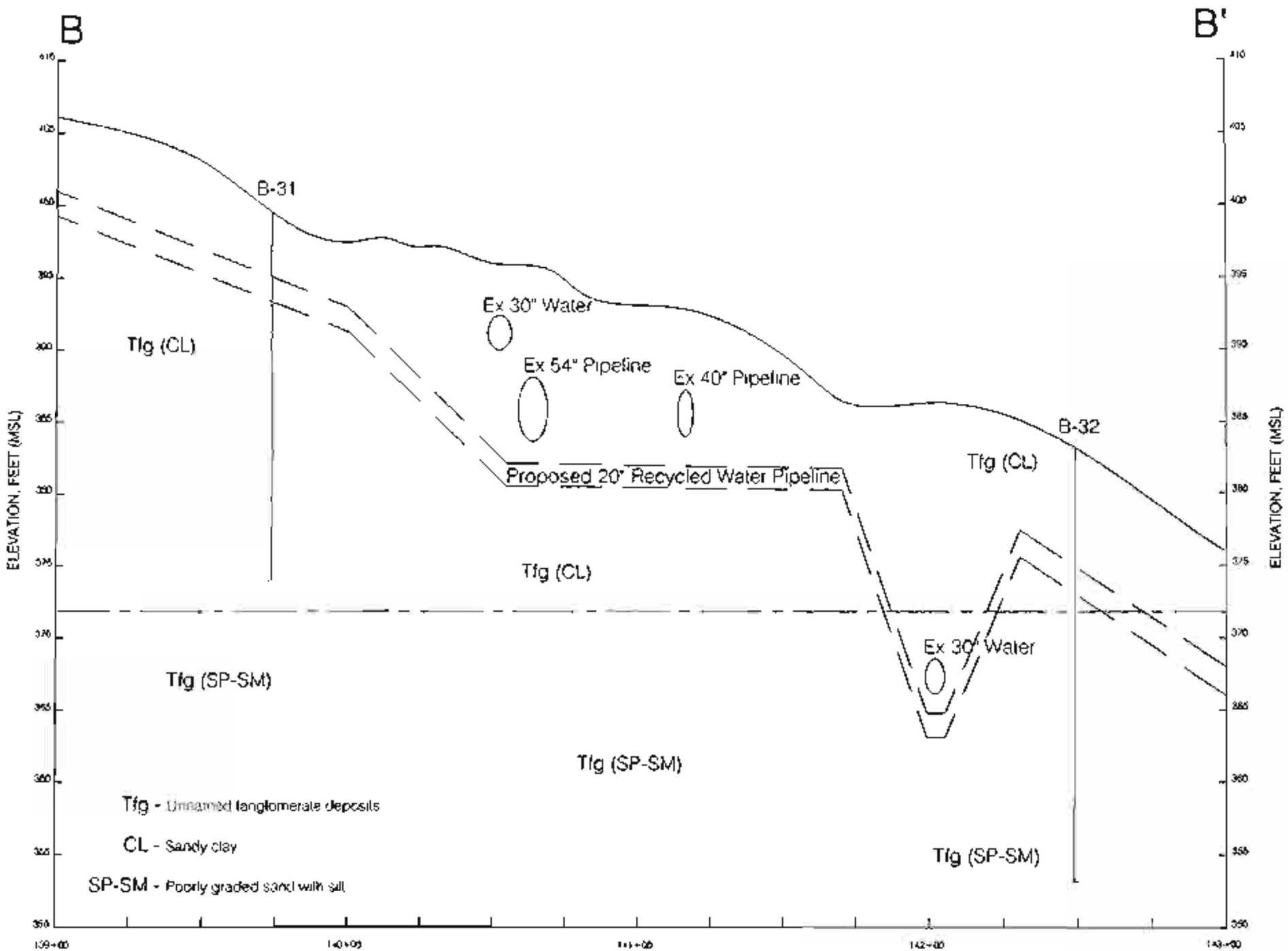


Date: 1/29/2010
By: AKN
Job No.: 0911159P-1
Scale: NOTTOSCALE

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK I

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

Figure 3a



Date: 1/29/2010
By: AKN
Job No.: 0911159P-
Scale: NOTTOSCALE

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

Figure: 3b

FIELD RESISTIVITY TEST RESULTS

METHOD ASTM G 57

RESISTIVITY TEST NUMBER	APPROXIMATE LOCATION (STATION NUMBER)	PIN SEPARATION (FEET)	MEASURED RESISTIVITY (Ω-CM)	AVERAGE RESISTIVITY (Ω-CM)
RT-1	Alta Road (104 + 00)	2.5	3878	3227
		5.0	3064	
		7.5	2873	
		10.0	2873	
		15.0	3447	
RT-2	Alta Road (89 + 00)	2.5	910	1320
		5.0	1628	
		7.5	1724	
		10.0	2107	
		15.0	230	
RT-3	Alta Road (74 + 00)	2.5	2250	2777
		5.0	2489	
		7.5	2729	
		10.0	2681	
		15.0	3734	
RT-4	Alta Road (59 + 00)	2.5	2920	2950
		5.0	2873	
		7.5	2442	
		10.0	3064	
		15.0	3447	
RT-5	Wueste Road (16 + 00)	2.5	2011	2578
		5.0	2298	
		7.5	2442	
		10.0	2681	
		15.0	3447	
RT-6	Wueste Rd (32 + 00)	2.5	2873	2729
		5.0	2968	
		7.5	2729	
		10.0	2490	
		15.0	2585	
RT-7	Wueste Rd (47 + 00)	2.5	4500	4127
		5.0	2490	
		7.5	2154	
		10.0	5745	
		15.0	5745	

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: DAS	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	4

FIELD RESISTIVITY TEST RESULTS

METHOD ASTM G 57

RESISTIVITY TEST NUMBER	APPROXIMATE LOCATION (STATION NUMBER)	PIN SEPARATION (FEET)	MEASURED RESISTIVITY (Ω-CM)	AVERAGE RESISTIVITY (Ω-CM)
RT-8	Wueste Road (61 + 00)	2.5	1580	2748
		5.0	2011	
		7.5	2585	
		10.0	3256	
		15.0	4309	
RT-9	Wueste Road (76 + 00)	2.5	5268	5189
		5.0	3734	
		7.5	2585	
		10.0	5745	
		15.0	8617	
RT-10	Wueste Rd (90 + 00)	2.5	43088	18000
		5.0	20108	
		7.5	11490	
		10.0	9575	
		15.0	5745	
RT-11	Wueste Road (105 + 00)	2.5	38300	16373
		5.0	17235	
		7.5	12926	
		10.0	7660	
		15.0	5745	
RT-12	Wueste Road (113 + 00)	2.5	8618	5554
		5.0	3830	
		7.5	2873	
		10.0	3830	
		15.0	8618	
RT-13	Wueste Rd (119 + 00)	2.5	4261	8015
		5.0	3256	
		7.5	8618	
		10.0	9575	
		15.0	14363	

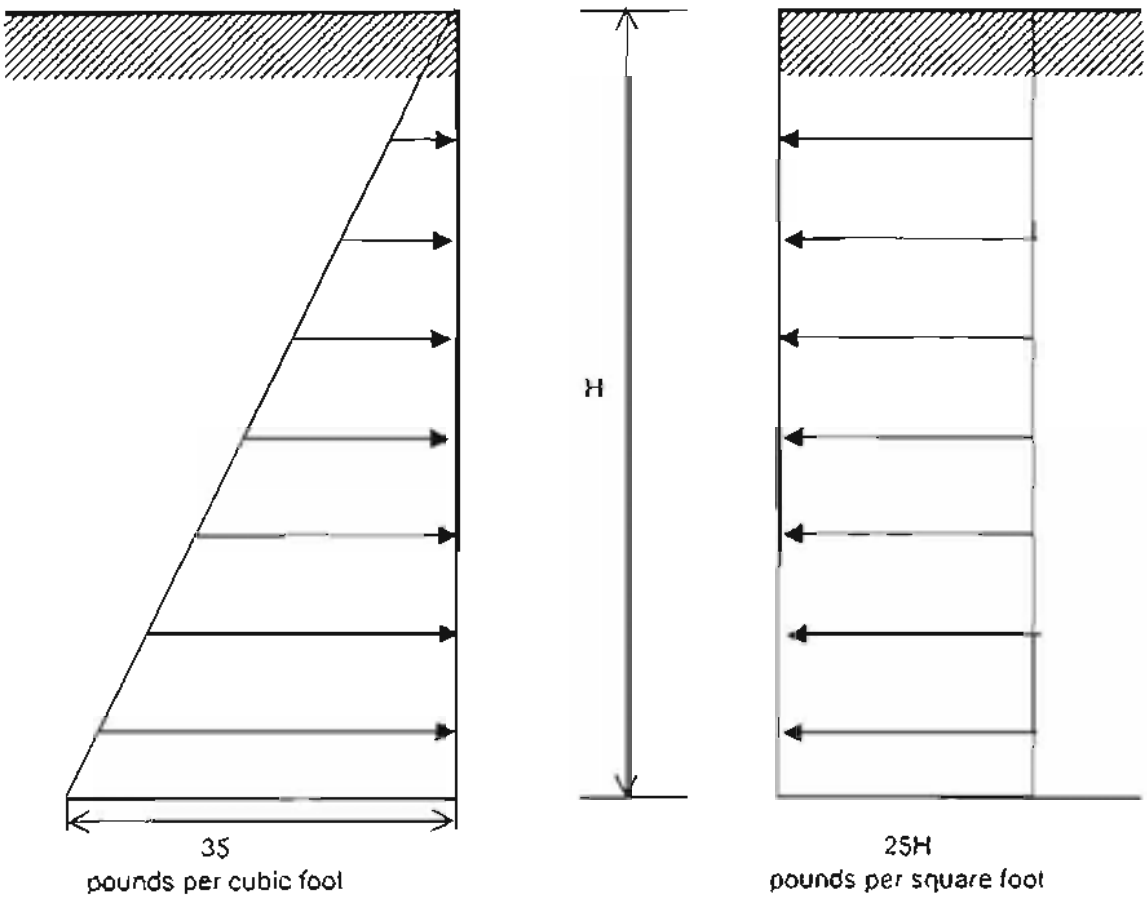
SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	DAS	Date:	1/18/2010
Job Number:	09111598-1	Figure:	5

CANTILEVER SHORING OR
1 LEVEL OF BRACING

MULTIPLE LEVELS OF BRACING



SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JJS	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	6

APPENDIX I
FIELD INVESTIGATION

Twenty exploratory test borings were drilled at the locations indicated on Figure 2a. Thirteen exploratory test borings were drilled at the locations indicated on Figure 2b. The fieldwork was performed under the observation of our geology personnel, who also logged the borings and obtained samples of the materials encountered. Relatively undisturbed samples were obtained with a 2.5-inch inner diameter sampler driven with a 140-pound weight falling 30 inches. Disturbed samples were obtained from drill cuttings. The number of blows required to drive the sampler the final 12 inches of an 18-inch drive are noted on the borings logs as "PENETRATION (blows/ft. of drive)."

The boring logs are presented on Figures I-2 through I-31. Soils are described in accordance with the Unified Soil Classification System illustrated on Figure I-1. Rock is described in accordance with its physical characteristics. An assessment of rock hardness based on resistance to air-track drilling is shown on Figures I-32 through I-37.

SUBSURFACE EXPLORATION LEGEND

UNIFIED SOIL CLASSIFICATION CHART

SOIL DESCRIPTION		GROUP SYMBOL	TYPICAL NAMES
I. COARSE GRAINED, more than 50% of material is larger than No. 200 sieve size.			
GRAVELS More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".	CLEAN GRAVELS	GW	Well graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels, gravel sand mixtures, little or no fines.
	GRAVELS WITH FINES (Appreciable amount of fines)	GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
		GC	Clayey gravels, poorly graded gravel-sand-clay mixtures.
SANDS More than half of coarse fraction is smaller than No. 4 sieve size.	CLEAN SANDS	SW	Well graded sand, gravelly sands, little or no fines.
		SP	Poorly graded sands, gravelly sands, little or no fines.
	SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, poorly graded sand and silty mixtures.
		SC	Clayey sands, poorly graded sand and clay mixtures.
II. FINE GRAINED, more than 50% of material is smaller than No. 200 sieve size.			
	SILTS AND CLAYS (Liquid Limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, sandy silt or clayey-silt-sand mixtures with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid Limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.
		OH	Organic clays of medium to high plasticity.
III. HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

FIELD SAMPLE SYMBOLS

- ☒ - Bulk Sample
- CAL - Modified California penetration test sampler
- CK - Undisturbed chunk sample
- MS - Maximum Size of Particle
- ⌇⌇ - Water seepage at time of excavation or as indicated
- SPT - Standard penetration test sampler
- ST - Shelby Tube
- ▽ - Water level at time of excavation or as indicated

LABORATORY TEST SYMBOLS

- AL - Atterberg Limits
- CON - Consolidation
- COR - Corrosivity Test
  - Sulfate
  - Chloride
  - pH and Resistivity
- DS - Direct Shear
- EI - Expansion Index
- MAX - Maximum Density
- RV - R Value
- SA - Sieve Analysis
- UC - Unconfined Compression

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1			
	By:	AKN	Date:	1/18/2010
	Job Number:	0911159P-1	Figure:	I-1

LOG OF EXPLORATORY BORING NUMBER B-1

Date Excavated: 11/27/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 495.0

Logged by: EL
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	VERY OLD PARALIC DEPOSITS (Qvop) - Dark brown, moist, stiff, SANDY CLAY. Disturbed, with GRAVEL in upper 1 foot.						MAX RV
2								
4								
			CAL		50/3"	10.1	100.1	DS
6		Medium orangish brown, moist, very dense, CLAYEY SANDSTONE with GRAVEL.						COR
8		COBBLE layer at 7 feet.						
10			CAL		50/4"			CON
								SA
12		COBBLE layer from 13 feet to 15 feet						
14								
			CAL		50/1"			
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-2

LOG OF EXPLORATORY BORING NUMBER B-2

Date Excavated: 11/27/2009 | Logged by: EL
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 489.5 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	VERY OLD PARALIC DEPOSITS (Qvop) - Dark brown, moist, medium stiff to stiff, SANDY CLAY. Disturbed in upper 6 inches.						
2								SA COR
4			CAL		37	12.4	110.6	
6		Medium orangish brown, moist, very dense, CLAYEY SANDSTONE with layers of COBBLE conglomerate.						
8		COBBLE layer at 7 feet.						
10		Becomes medium reddish brown below 10 feet.	CAL		50/5"			
12		COBBLE layer from 13 feet to 15 feet.						
14			CAL		50/1"			
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date: 1/26/2010	
	Job Number: 0911159P-1	Figure: I-3	

LOG OF EXPLORATORY BORING NUMBER B-3

Date Excavated: 11/27/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 486.5

Logged by: EL
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	**ARTIFICIAL FILL (Qaf)** - Light brown, moist, loose, SILTY SAND.						
2								
		VERY OLD PARALIC DEPOSITS (Qvop) - Dark brown, moist, stiff to very stiff, SANDY CLAYSTONE.						
4								
6			CAL		27			EI SA
8								
10		Becomes hard below 10 feet.	CAL		50/6"	26.3	95.9	COR
12								
14		COBBLE layer from 13 feet to 15 feet.	CAL		50/1"			
16		**BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.**						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date: 1/26/2010	
	Job Number: 0911159P-1	Figure: I-4	

LOG OF EXPLORATORY BORING NUMBER B-4

Date Excavated: N/A
Equipment: N/A
Surface Elevation (ft): N/A

Logged by: N/A
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		Boring location not drilled due to inaccessibility.						
2								
4								
6								
8								
10								
12								
14								
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1			
	By:	RB	Date:	1/26/2010
	Job Number:	0911159-1	Figure:	I-5

LOG OF EXPLORATORY BORING NUMBER B-5

Date Excavated: 11/27/2009 | Logged by: EL
Equipment: 6" hollow stem auger | Project Manager: GF
Surface Elevation (ft): 478.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		VERY OLD PARALIC DEPOSITS (Qvop) - Dark brown, moist, stiff, SANDY CLAYSTONE.						SA MAX COR
2								
4								
		Becomes light orangish brown, humid, very dense, poorly to moderately indurated, CLAYEY SANDSTONE with layers of cobble conglomerate.	CAL		50/5"			
6								
8								
10		Becomes medium reddish brown with scattered COBBLE from 10 feet to 15 feet.	CAL		50/5"			
12								
14			CAL		50/2"			
		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date:	1/26/2010
	Job Number: 0911159-1	Figure:	I-6

LOG OF EXPLORATORY BORING NUMBER B-6

Date Excavated: 11/27/2009 | Logged by: EL
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 482.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	ARTIFICIAL FILL (Qaf) - Tan, moist, loose, SILTY SAND.						
	SC	Medium brown, moist, loose, CLAYEY SAND.						
2								
		Becomes medium reddish brown with gravel at 3 feet.						
4		VERY OLD PARALIC DEPOSITS (Qvop) - Light orangish brown, moist, very dense, CLAYEY SANDSTONE.	CAL		50			DS
6								COR
8								
10			CAL		57	7.3	107.8	
12								
14			CAL		75/11"			
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	RB	Date:	1/26/2010
Job Number:	0911159P-1	Figure:	I-7

LOG OF EXPLORATORY BORING NUMBER B-7

Date Excavated: 12/3/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 496.5

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		8" OF ASPHALT CONCRETE OVER 12" OF BASE						
2	CL	RESIDUAL SOIL - Medium brown, moist, stiff, SANDY CLAY.		X				SA RV
4		VERY OLD PARALIC DEPOSITS (Qvop) - Light and medium brown, moist, stiff, SANDY CLAYSTONE, highly porous at 4 feet.	CAL	X	20			MAX
6				X				
8		OTAY FORMATION (To) - Medium gray, moist, very dense, very fine to fine-grained, CLAYEY SANDSTONE.		X				COR
10			CAL	X	66	28.4	92.9	
12				X				
14				X				
			CAL		39			
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-8

LOG OF EXPLORATORY BORING NUMBER B-8

Date Excavated: 11/27/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 521.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	RESIDUAL SOIL - Dark brown, moist, stiff, SANDY CLAY.						
2				X				MAX COR
4		OTAY FORMATION (To) - Medium gray, moist, very dense, CLAYEY SANDSTONE.	CAL	X	70			
6				X				
8				X				
10			CAL	X	55			DS
12								
14								
			CAL		50/5"	17.5	106.5	
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	RB	Date:	1/26/2010
Job Number:	0911159P-1	Figure:	I-9

LOG OF EXPLORATORY BORING NUMBER B-8a

Date Excavated: 12/3/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 547.0

Logged by: AKN
Project Manager: GF
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		OTAY FORMATION (To) - Medium gray, moist, very dense, very fine to fine grained, CLAYEY SANDSTONE.						COR
2								
4			CAL		50/6"			
6								
8								
10			CAL		50/6"			
12								
14			CAL		50/1"			
16		BORING TERMINATED AT 14½ FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-10

LOG OF EXPLORATORY BORING NUMBER B-9

Date Excavated: 12/3/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 561.5

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	ARTIFICIAL FILL (Qaf) - Medium gray, moist, medium dense, SILTY SAND.		X				SA COR
2								
4			CAL		20			
6	CL	Medium gray and grayish brown, very stiff, SANDY CLAY.		X				
8								
10			CAL		41			CON
		OTAY FORMATION (To) - Gray, moist, medium dense to dense, fine- to medium-grained, SILTY SANDSTONE.						
12								
14			CAL		65			
		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-11

LOG OF EXPLORATORY BORING NUMBER B-10

Date Excavated: 12/3/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: GF
Surface Elevation (ft): 580.5 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		OTAY FORMATION (To) - Medium gray, moist, dense to very dense, fine to medium-grained, SILTY SANDSTONE.						COR
2								
4			CAL		63			
6								
8								
10			CAL		50/3"	15.0	99.9	
12								
14			CAL		50/6"			
16		BORING TERMINATED AT 14½ FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	RB	Date:	1/26/2010
Job Number:	0911159P-1	Figure:	1-12

LOG OF EXPLORATORY BORING NUMBER B-11 (0-20')

Date Excavated: 12/3/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 556.5

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	ARTIFICIAL FILL (Qaf) - Medium gray, moist, medium dense, SILTY SAND.						EI SA AL
2								
4			CAL		41			
6	CL	Medium gray, moist, very stiff, SANDY CLAY.						SA COR
8								
10			CAL		43			
12								
14								
		Becomes dark gray, moist, and stiff with moderate amounts of scattered organic debris below 15 feet.	CAL		22			CON
16								
18								
20			CAL		22			

BORING LOG CONTINUED ON FIGURE I-13

LOG OF EXPLORATORY BORING NUMBER B-11 (20-25')

Date Excavated: 12/3/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 556.5

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	**ARTIFICIAL FILL (Qaf)** - Dark gray, moist, stiff, SANDY CLAY with moderate amounts of scattered organic debris.						
2		**OTAY FORMATION (To)** - Medium gray, moist, medium dense to dense, fine-grained, SILTY SANDSTONE.						
4			CAL		48			
6		BORING TERMINATED AT 25 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
8								
10								
12								
14								
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-14

LOG OF EXPLORATORY BORING NUMBER B-12

Date Excavated: 12/3/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 553.5

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	ARTIFICIAL FILL (Qaf) - Medium gray, moist, medium dense, SILTY SAND.						
2								
4			CAL		38			CON COR
6	CL	Medium gray, moist, stiff to very stiff, SANDY CLAY.						
8								
10			CAL		34			
12								
14		OTAY FORMATION (To) - Medium gray and brown, moist, medium dense to dense, fine-grained, SILTY SANDSTONE.	CAL		43			
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	AKN	Date:	1/26/2010
Job Number:	0911159P-1	Figure:	I-15

LOG OF EXPLORATORY BORING NUMBER B-13

Date Excavated: 12/3/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 584.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	**ARTIFICIAL FILL (Qaf)** - Medium and dark gray, moist, very stiff, SANDY CLAY.						SA COR
2								
4			CAL		37			DS
6	SM	Medium gray, moist, medium dense, SILTY SAND with GRAVEL.						
8								
10			CAL		30			
		OTAY FORMATION (To) - Medium gray and brown, moist, medium dense to dense, fine- to medium-grained, SILTY SANDSTONE.						
12								
14			CAL		50			
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	AKN	Date:	1/29/2010
Job Number:	0911159P-1	Figure:	I-16

LOG OF EXPLORATORY BORING NUMBER B-14

Date Excavated: 12/4/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 614.5

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES UNDISTURBED	SAMPLES BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		OTAY FORMATION (To) - Medium gray, moist, dense, fine-grained, SILTY SANDSTONE.		X				MAX COR
2								
4								
			CAL		73	16.3	105.7	
6								
8								
10			CAL		50/5"			
12								
14								
			CAL		50/5"			
16		**BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.**						
18								
20								

SC ST SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-17

LOG OF EXPLORATORY BORING NUMBER B-15 (0-20')

Date Excavated: 12/4/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 605.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		7" OF ASPHALT CONCRETE OVER 12" OF BASE.						
2	SM	ARTIFICIAL FILL (Qaf) - Medium gray, moist, medium dense to dense, SITLY SAND. Trace amounts of GRAVEL up to ½ in diameter.		X				RV
4			CAL		46			
6	SC	Medium gray, moist, medium dense to dense, CLAYEY SAND. Some scattered asphaltic concrete debris.		X				COR
8								
10			CAL		35	18.0	101.0	
12								
14	CL	Dark and medium gray, moist, very stiff, SANDY CLAY. Trace amounts of GRAVEL up to ½-inch in diameter. Minor amounts of scattered organic debris with a slight organic scent.		X				SA
			CAL		32			
16								
18								
20			CAL		30			DS

BORING LOG CONTINUED ON FIGURE I-18

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date: 1/26/2010	
	Job Number: 0911159P-1	Figure: I-18	

LOG OF EXPLORATORY BORING NUMBER B-15 (20-25')

Date Excavated: 12/4/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 605.0

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	ARTIFICIAL FILL (Qaf) - Dark and medium gray, moist, very stiff, SANDY CLAY. Trace amounts of GRAVEL up to ¼-inch in diameter. Minor amounts of organic debris and a slight organic scent.						
22								
		OTAY FORMATION (To) - Medium gray, moist, dense to very dense, fine- to medium-grained, SILTY SANDSTONE.						
24			CAL		50/4"			
		BORING TERMINATED AT 25 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
26								
28								
30								
32								
34								
36								
38								
40								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-19

LOG OF EXPLORATORY BORING NUMBER B-16

Date Excavated: 12/4/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 625.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		OTAY FORMATION (To) - Medium gray, moist, very dense, fine- to medium-grained, SILTY SANDSTONE.		X				COR
2				X				
4				X				
			CAL		73			
6								
8								
10			CAL		50/4"			
12								
14								
			CAL		50/4"	15.7	108.0	
16		BORING TERMINATED AT 14½ FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-20

LOG OF EXPLORATORY BORING NUMBER B-17

Date Excavated: 12/4/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 628.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	ALLUVIUM (Qal) - Dark gray, moist, stiff to very stiff, SANDY CLAY. Disturbed upper 12 inches with GRAVEL up to 4 inches in diameter.		X				EI
2								
4								
		OTAY FORMATION (To) - Medium gray, moist, very stiff, SANDY CLAYSTONE.	CAL	X	35			SA COR
6								
8								
		Medium gray, moist, medium dense to dense, fine- to medium grained, CLAYEY SANDSTONE.	CAL		51	28.5	92.6	
10								
12								
14								
		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.	CAL		45			
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911158P-1	Figure:	I-21

LOG OF EXPLORATORY BORING NUMBER B-18

Date Excavated: 12/4/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): N/A | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES UNDISTURBED	SAMPLES BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		OTAY FORMATION (To) - Medium gray, moist, medium dense to dense, fine- to medium-grained, SILTY SANDSTONE.						
2								
		Light grayish brown, moist, very stiff, SANDY CLAYSTONE with scattered gypsum deposits. (contact at 4½ feet)						
4			CAL		73			
		Medium gray, moist, medium dense to dense, fine- to medium-grained, SILTY SANDSTONE.						
6								
8		Becomes very dense below 8 feet.						
10			CAL		50/2"			DS
12								
14			CAL		50/5"			
		BORING TERMINATED AT 14½ FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
16								
18								
20								

SC ST SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-22

LOG OF EXPLORATORY BORING NUMBER B-19

Date Excavated: 12/4/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): N/A | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ft of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
2, 4, 6	CL	ARTIFICIAL FILL (Qaf) - Medium brownish gray, moist, very stiff, SANDY CLAY with GRAVEL up to 3 inches in diameter.	CAL		39			SA RV COR
8, 10, 12, 14		OTAY FORMATON (To) - Medium gray, medium dense, fine- to medium-grained, SILTY SANDSTONE. Becomes dense below 11 feet.	CAL		26	25.3	86.7	MAX
16, 18, 20		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.	CAL		88			OS

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-23

LOG OF EXPLORATORY BORING NUMBER B-20

Date Excavated: 12/4/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: GF
Surface Elevation (ft): N/A | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	OTAY FORMATION (To) - Medium gray, moist, medium dense to dense, fine- to medium-grained, SILTY SANDSTONE.		X				COR
2				X				
4				X				
			CAL		38			
6								
8		Becomes dense to very dense below 8 feet.						
10			CAL		73			
12								
14			CAL		75			
16		BORING TERMINATED AT 14½ FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1			
	By:	AKN	Date:	1/26/2010
	Job Number:	0911159P-1	Figure:	I-24

LOG OF EXPLORATORY BORING NUMBER B-21

Date Excavated: 12/8/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 508.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	COLLUVIUM (Qcol) - Dark brown and gray, moist, stiff to very stiff, SANDY CLAY with GRAVEL. Disturbed upper 12 inches.		X				AL RV
2								
	SC	UNNAMED FANGLOMERATE (Tfg) - Light brown, moist, very dense, coarse-grained, CLAYEY SAND with GRAVEL.		X				COR
4								
			CAL	X	50/5"	10.1	111.6	
6								
8								
10			CAL		50/4"			
12								
14			CAL		50/5"			
		BORING TERMINATED AT 14 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-25

LOG OF EXPLORATORY BORING NUMBER B-22

Date Excavated: 12/8/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 515.0

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SC	ARTIFICIAL FILL (Qaf) - Medium grayish brown, moist to very moist, medium dense, CLAYEY SAND with GRAVEL. (Contact at 1½ feet)						
2	SM	UNNAMED FANGLOMERATE (Tfg) - Light brown, moist, very dense, coarse-grained, SILTY SAND with GRAVEL.						COR
4			CAL		50/3"			
6								
8								
		Abundant COBBLE from 9 to 10 feet.						
10								
12		Abundant COBBLE from 12 to 13 feet.						
14			CAL		50/5"	9.7	99.7	
		BORING TERMINATED AT 14½ FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	AKN	Date:	1/26/2010
Job Number:	0911159P-1	Figure:	I-26

LOG OF EXPLORATORY BORING NUMBER B-23

Date Excavated: 12/8/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 510.5 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SC	ARTIFICIAL FILL (Qaf) - Medium grayish brown, moist to very moist, loose to medium dense, CLAYEY SAND with GRAVEL.						SA COR
2								
4			CAL		50/3"			
6	CL	COLUVIUM (Qcol) - Dark brown and gray, moist, stiff to very stiff, SANDY CLAY. Trace amounts of scattered GRAVEL up to 3 inches in diameter.						
8								
10		(Contact at 10½ feet)						
12	SM	UNNAMED FANGLOMERATE (Tfg) - Light brown, moist, very dense, coarse-grained, SILTY SAND with GRAVEL.						
14			CAL		75			DS
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-27

LOG OF EXPLORATORY BORING NUMBER B-24

Date Excavated: 12/8/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft). 518.0

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SC	ARTIFICIAL FILL (Qaf) - Medium grayish brown, very moist, loose to medium dense, CLAYEY SAND with GRAVEL. (Contact at 1½ feet)						
2	CL	UNNAMED FANGLOMERATE (Tfg) - Light orangish brown, moist, very stiff to hard, SANDY CLAY with GRAVEL.						COR
4			CAL		40			
6								
8								
10			CAL		54			
12								
14		BORING TERMINATED AT 14½ FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-28

LOG OF EXPLORATORY BORING NUMBER B-25

Date Excavated: 12/8/2009
Equipment: 6" hollow stem auger
Surface Elevation (ft): 511.0

Logged by: AKN
Project Manager: JS
Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES UNDISTURBED	SAMPLES BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	ARTIFICIAL FILL (Qaf) - Medium grayish brown and light brown, very moist, stiff, SANDY CLAY with GRAVEL.		X				
2		Becomes moist below 2 feet.						
4			CAL		19			
6								
8								
	CL	UNNAMED FANGLOMERATE (Tfg) - Light orangish brown, moist, very stiff to hard, SANDY CLAY with GRAVEL.		X				COR CON
10			CAL		19			
12	SC	Light brown, moist, dense to very dense, coarse-grained, CLAYEY SAND with GRAVEL.						
14			CAL		73			
16		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-29

LOG OF EXPLORATORY BORING NUMBER B-26

Date Excavated: 12/8/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 507.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SC	UNNAMED FANGLOMERATE (Tfg) - Light brown, moist, dense, coarse-grained, CLAYEY SAND. Disturbed upper 12 to 18 inches.		X				SA COR
2								
		Becomes very dense below 3 feet.						
4			CAL		50/4"			
6								
8								
			CAL		50/6"			
10		BORING TERMINATED AT 9.5 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
12								
14								
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-30

LOG OF EXPLORATORY BORING NUMBER B-27

Date Excavated: 12/8/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 507.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SC	ARTIFICIAL FILL (Qaf) - Medium grayish brown, very moist to moist, medium dense to dense, CLAYEY SAND with GRAVEL .						
2	SC	UNNAMED FANGLOMERATE (Tfg) - Light brown, moist, very dense, coarse-grained, CLAYEY SAND with GRAVEL.						COR
4			CAL	X	50/4"			
6				X				
8			CAL	X	50/1"			
9		PRACTICAL REFUSAL AT 9 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
10								
12								
14								
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: AKN	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-31

LOG OF EXPLORATORY BORING NUMBER B-28

Date Excavated: 12/8/2009 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 513.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SC	ARTIFICIAL FILL (Qaf) - Medium grayish brown, moist, medium dense, CLAYEY SAND with GRAVEL .		X				RV COR
2								
4		Cobbles form 4 to 5 feet.						
	SC	UNNAMED FANGLOMERATE (Tfg) - Light brown, moist, very dense, coarse-grained, CLAYEY SAND with GRAVEL.	CAL		50/3"			
6								
8								
10			CAL		50/5"			DS
		COBBLE from 11 to 13 feet.						
12								
14			CAL		50/5"			
		BORING TERMINATED AT 15 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED.						
16								
18								
20								

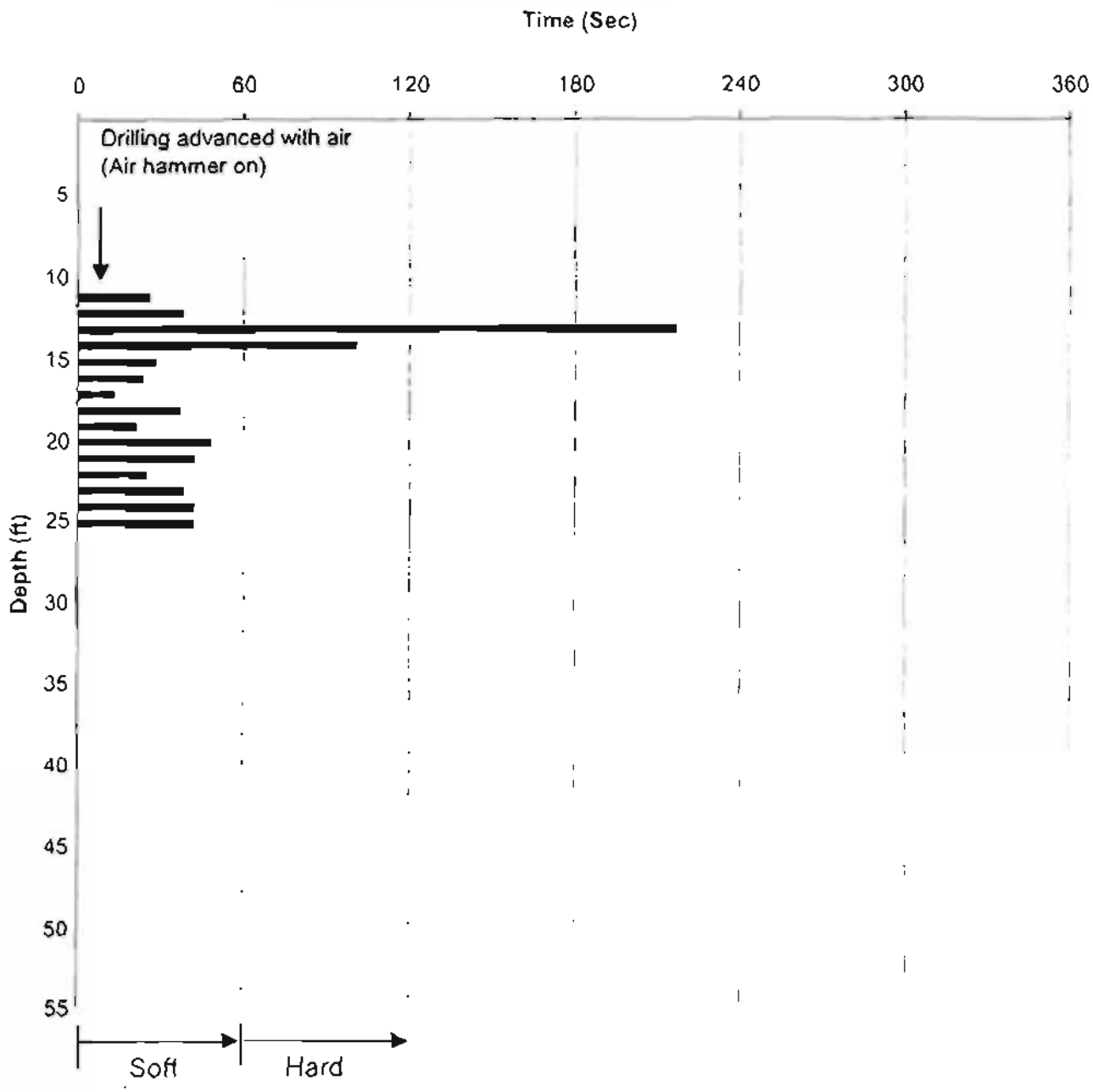
SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	AKN	Date:	1/26/2010
Job Number:	0911159P-1	Figure:	1-32

LOG OF BORING NUMBER B-29

Date Excavated:	12/9/2009	Logged by:	AKN
Equipment:	Limited access air rotary	Project Manager:	JS
Surface Elevation (ft):	536.5	Depth to Water (ft):	N/A

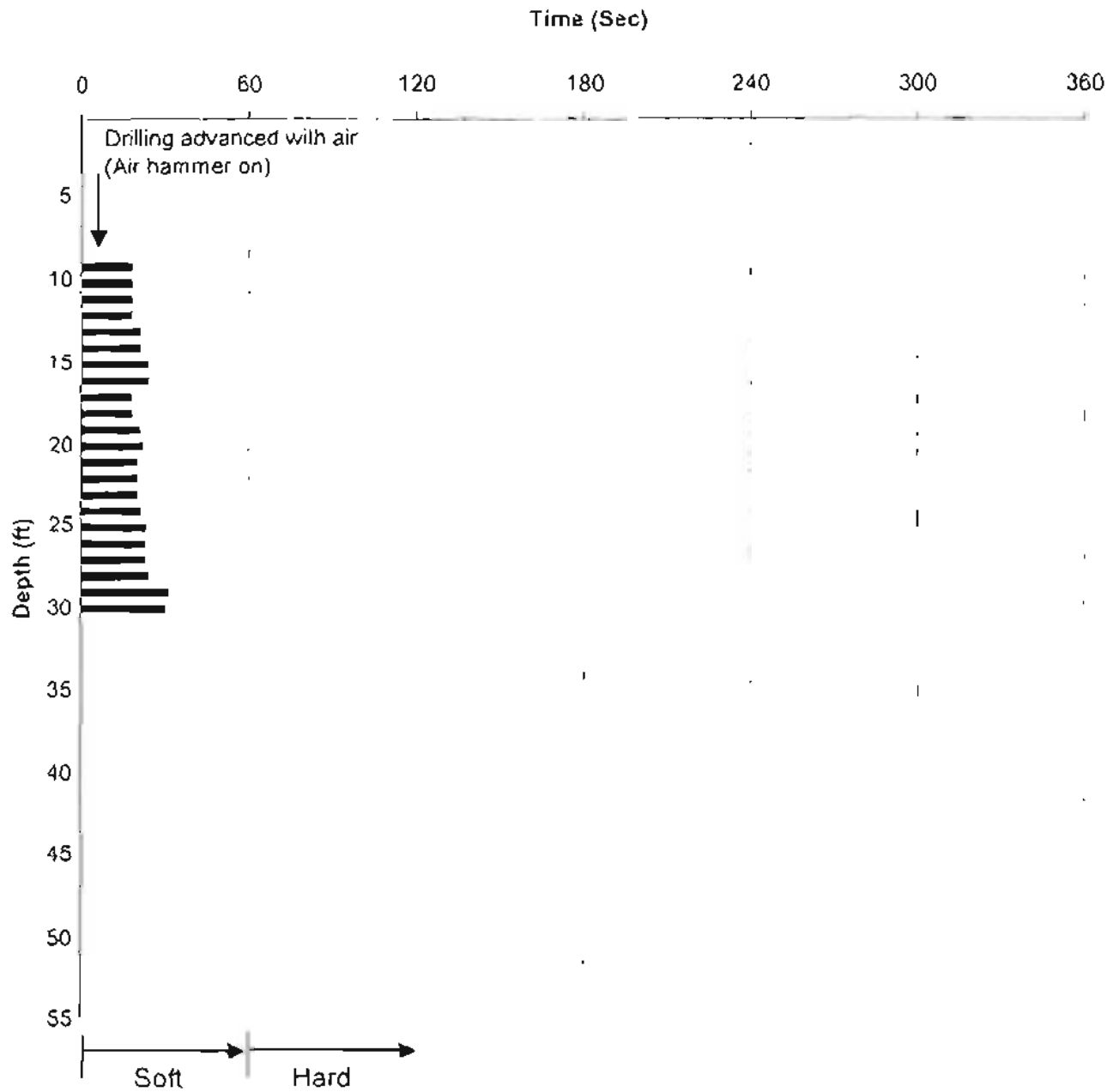


BORING TERMINATED AT 25 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-33

LOG OF BORING NUMBER B-30

Date Excavated:	12/9/2009	Logged by:	AKN
Equipment:	Limited access air rotary	Project Manager:	JS
Surface Elevation (ft):	545.5	Depth to Water (ft):	N/A

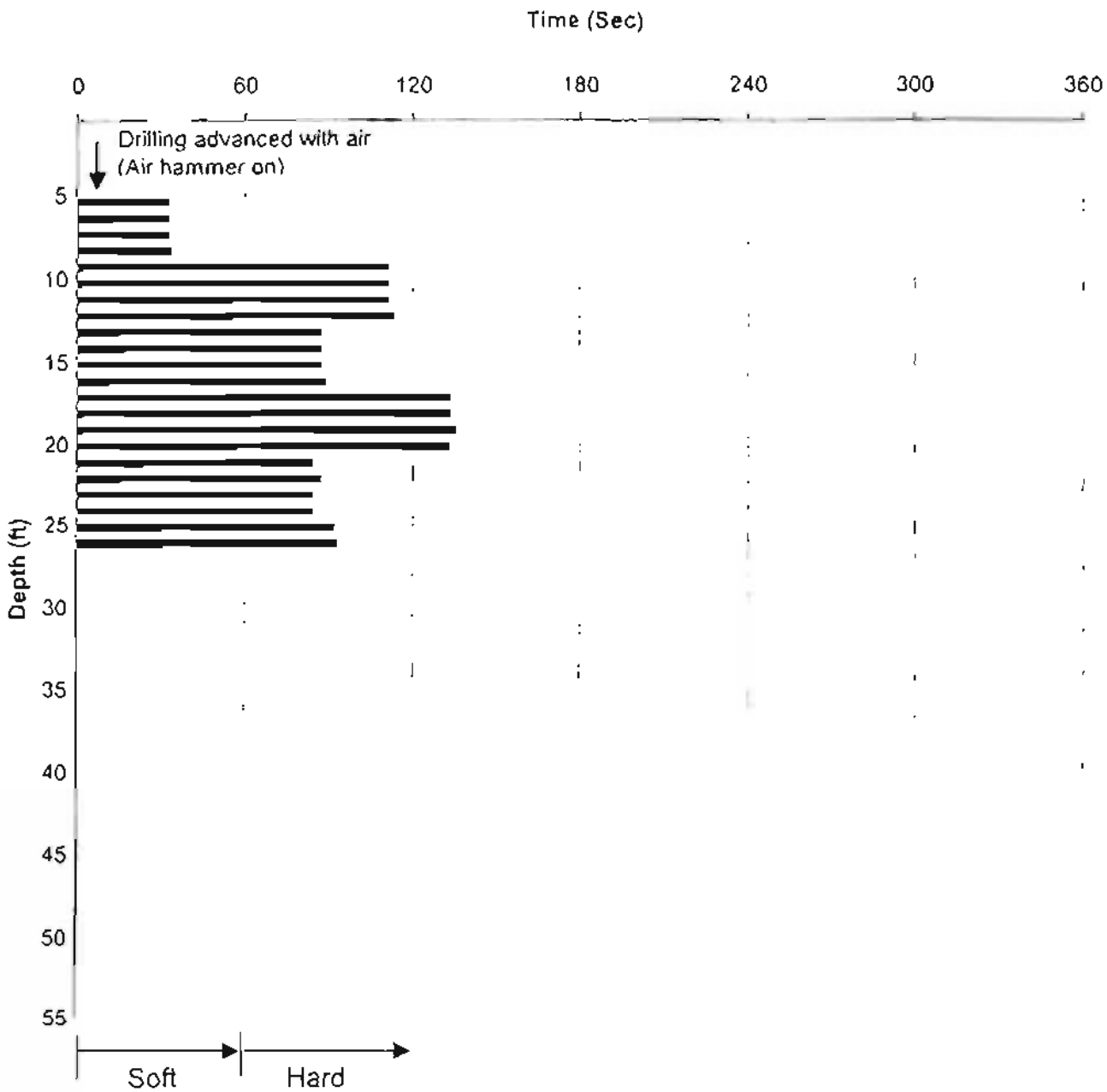


BORING TERMINATED AT 25 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED

SC ST SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: R8	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-34

LOG OF BORING NUMBER B-31

Date Excavated:	12/9/2009	Logged by:	AKN
Equipment:	Limited access air rotary	Project Manager:	JS
Surface Elevation (ft):	399.0	Depth to Water (ft):	N/A

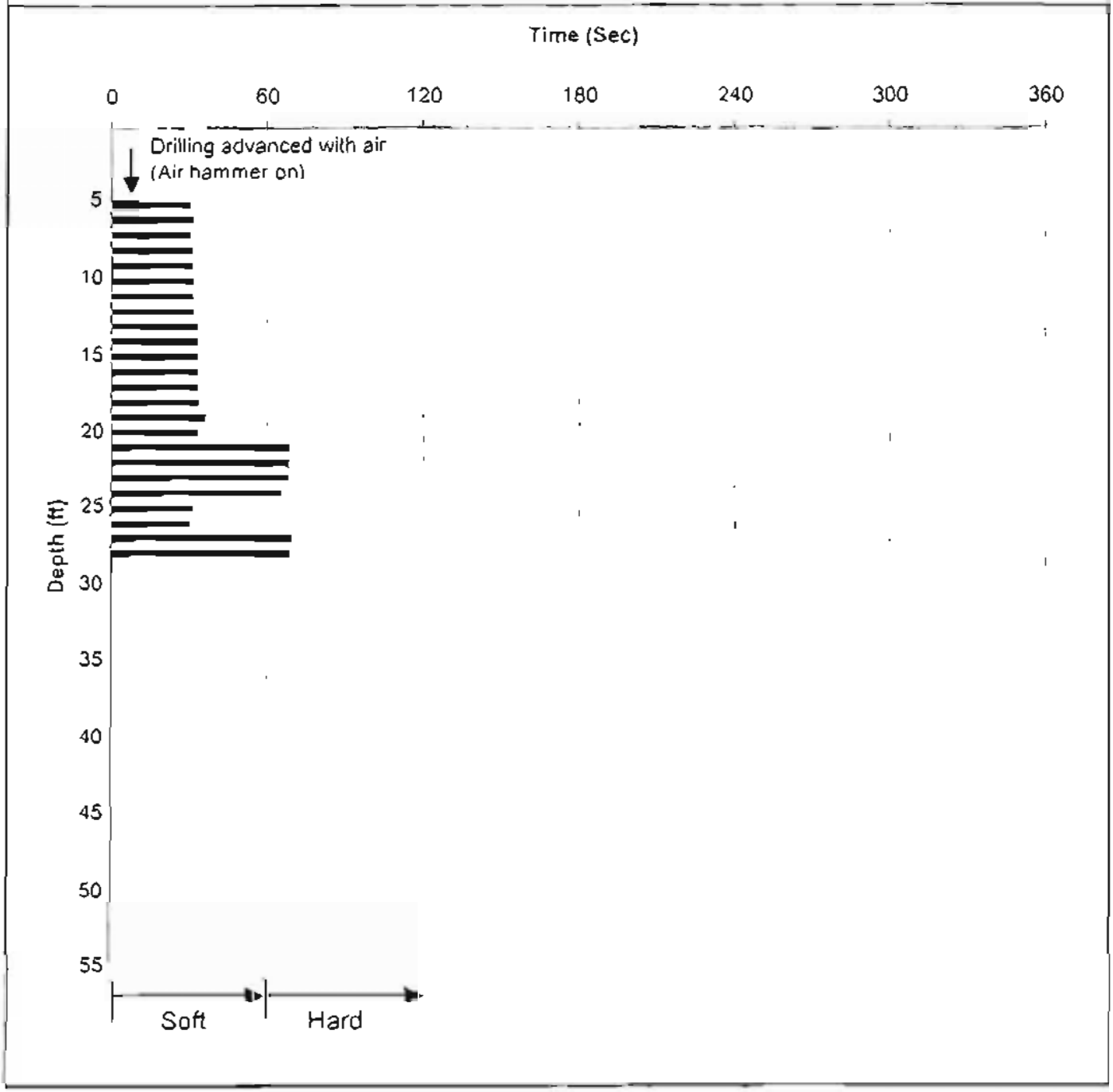


BORING TERMINATED AT 25 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-35

LOG OF BORING NUMBER B-32

Date Excavated:	12/9/2009	Logged by:	AKN
Equipment:	Limited access air rotary	Project Manager:	JS
Surface Elevation (ft):	383.0	Depth to Water (ft):	N/A



BORING TERMINATED AT 25 FEET. NO GROUNDWATER OR SEEPAGE ENCOUNTERED

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: RB	Date:	1/26/2010
	Job Number: 0911159P-1	Figure:	I-36

LOG OF EXPLORATORY BORING NUMBER B-33

Date Excavated: 1/13/2010 | Logged by: AKN
Equipment: 6" hollow stem auger | Project Manager: JS
Surface Elevation (ft): 560.0 | Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: UNDISTURBED	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	CL	**ARTIFICIAL FILL (Qaf)** - Medium brown, moist, very stiff to hard, SANDY CLAY with GRAVEL .						
	CL							SA
2		**UNNAMED FANGLOMERATE (Tfg)** - Light orange-brown, moist, hard, SANDY CLAY with GRAVEL up to 3 inches in diameter.						
4			CAL		58			
6								
8								
10		Abundant gypsum deposits at 10 feet.	SPT		52			
12								
14		Abundant COBBLE up to 8 inches on diameter from 13½ to 15 feet.						
16								
18		Abundant COBBLE from 17 to 18 feet.						
20			SPT		50/2"			

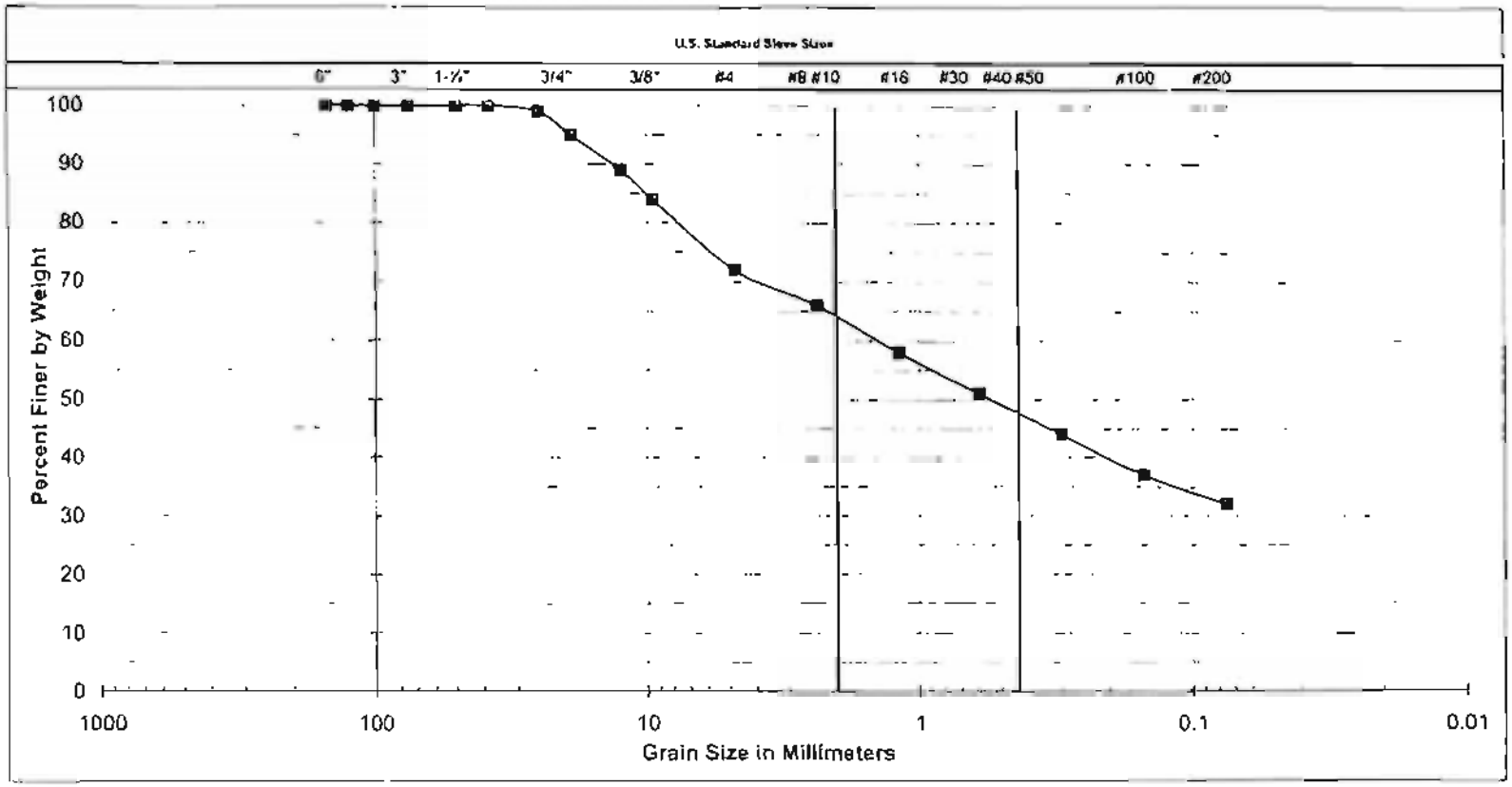
BORING TERMINATED AT 20 FEET, NO GROUNDWATER OR SEEPAGE ENCOUNTERED.

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1			
	By:	AKN	Date:	1/26/2010
	Job Number:	0911159P-1	Figure:	I-37

LABORATORY TESTING

Laboratory tests were performed to provide geotechnical parameters for engineering analyses. The following tests were conducted:

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.
- **GRAIN SIZE DISTRIBUTION:** The grain size distributions were determined for 16 samples in accordance with ASTM D 422. The results of the tests are presented on Figures II-1 through II-17.
- **EXPANSION INDEX:** Expansion Index tests were performed on 3 samples in accordance with ASTM D 4829. Results are summarized on Figure II-18.
- **MAXIMUM DENSITY AND OPTIMUM MOISTURE:** The maximum density and optimum moisture content were determined for 7 samples in accordance with ASTM D 1557. The results are presented on Figure II-18.
- **R-VALUE:** R-value tests were performed on 6 samples in accordance with California Test 301 procedures. The test results are presented Figure II-18.
- **PLASTICICITY INDEX:** Plasticity index tests were performed on 2 samples in accordance with ASTM D 4318. The results are presented on Figures II-12 and II-18.
- **CONSOLIDATION:** Consolidation tests were performed on 5 relatively undisturbed samples in accordance with ASTM 2435. Results are summarized on Figures II-19 through II-23.
- **DIRECT SHEAR:** Direct shear tests were performed on 8 samples in accordance with ASTM D 3080. The shear stress was applied at a constant rate of strain of approximately 0.003 inch per minute. The results are presented on Figures II-24 through II-31.
- **CORROSIVITY:** Corrosivity tests were performed on 31 samples. The pH and minimum resistivity were determined in general accordance with California Test 643. Soluble sulfate content was determined in accordance with California Test 417. Total chloride ion content was determined in accordance with California Test 422. Results are presented on Figure II-32.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B1@10-15'

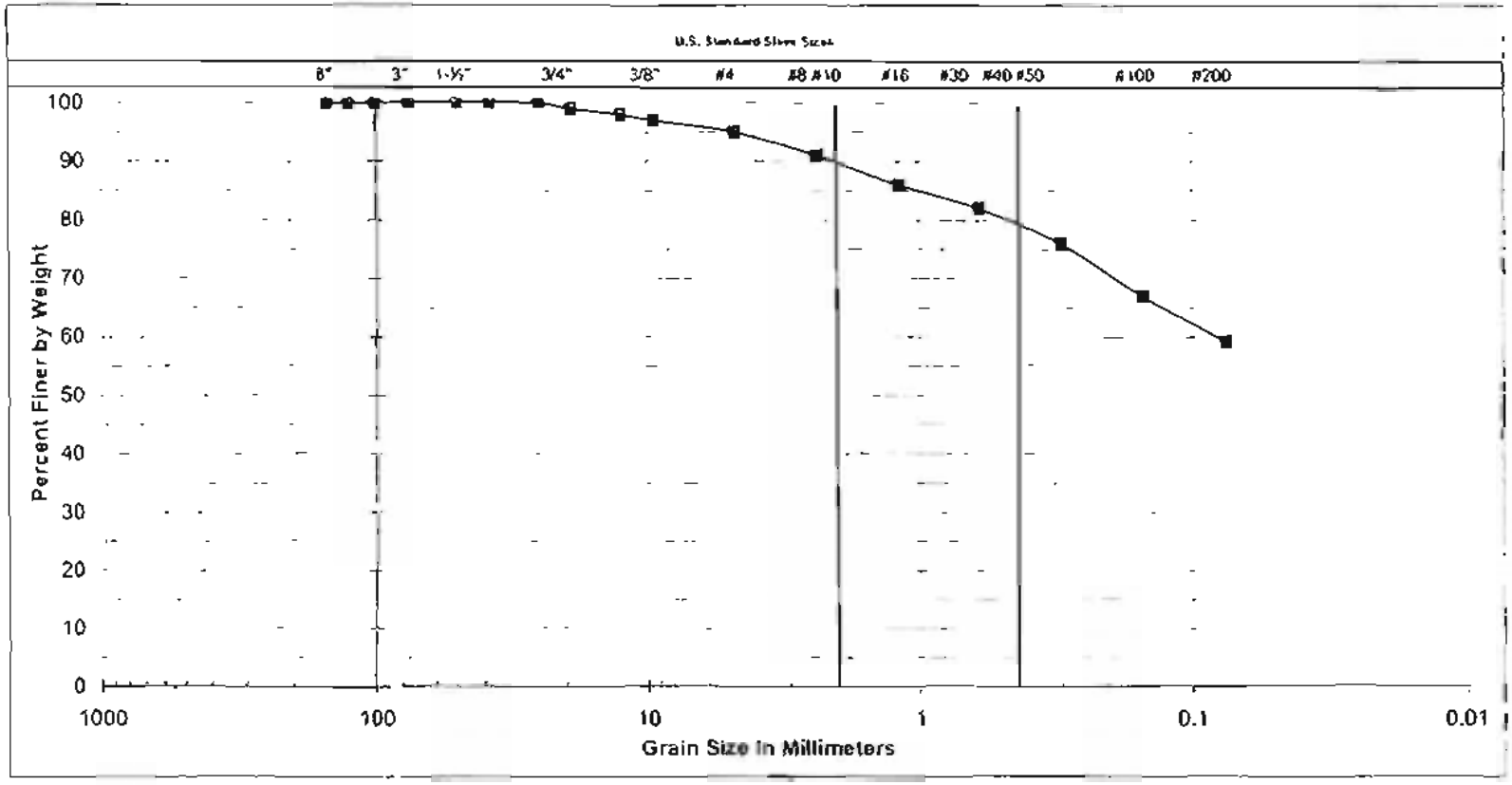
UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B2@2-5'

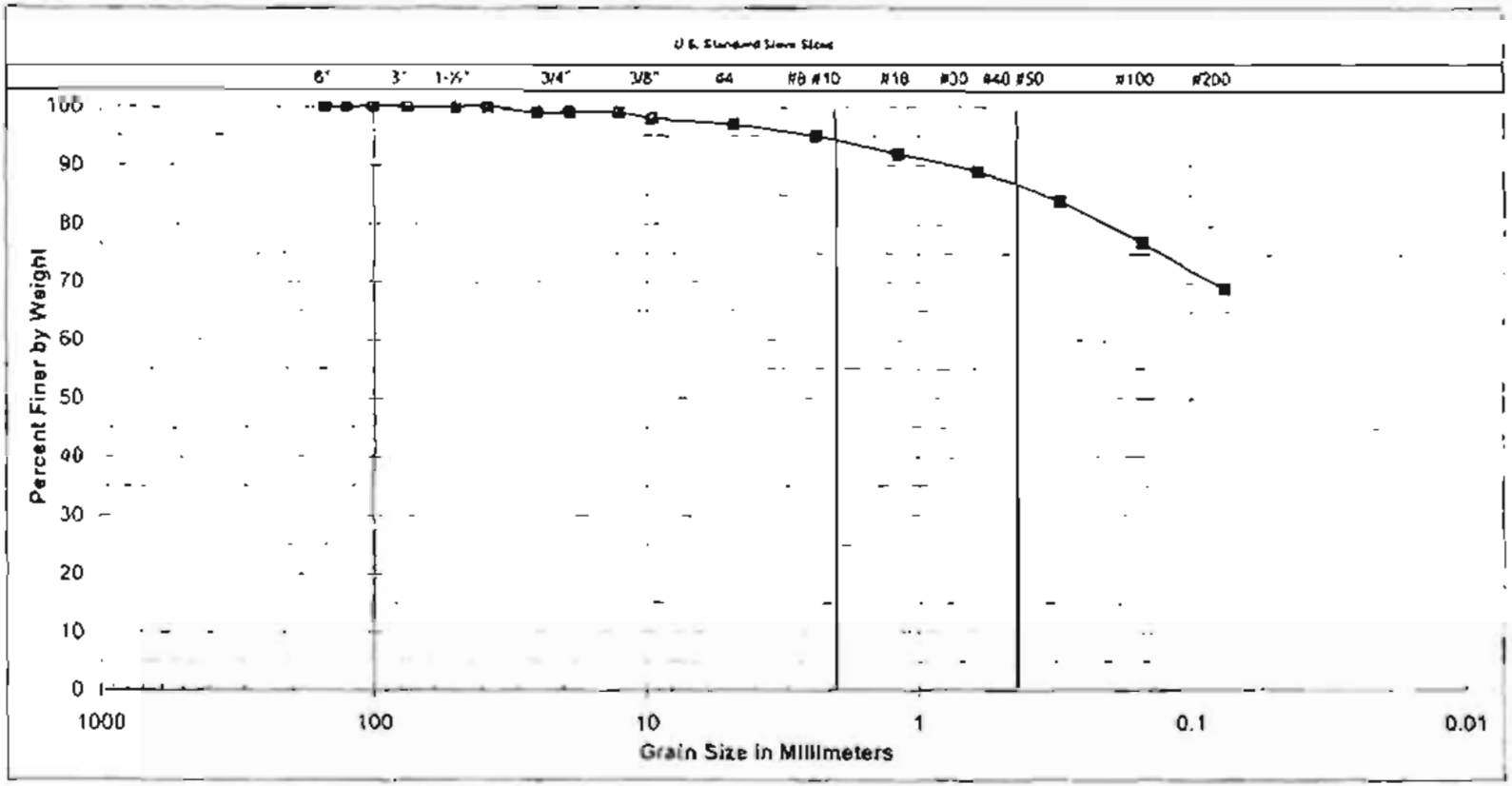
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	GF/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-2



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B3@5-10'

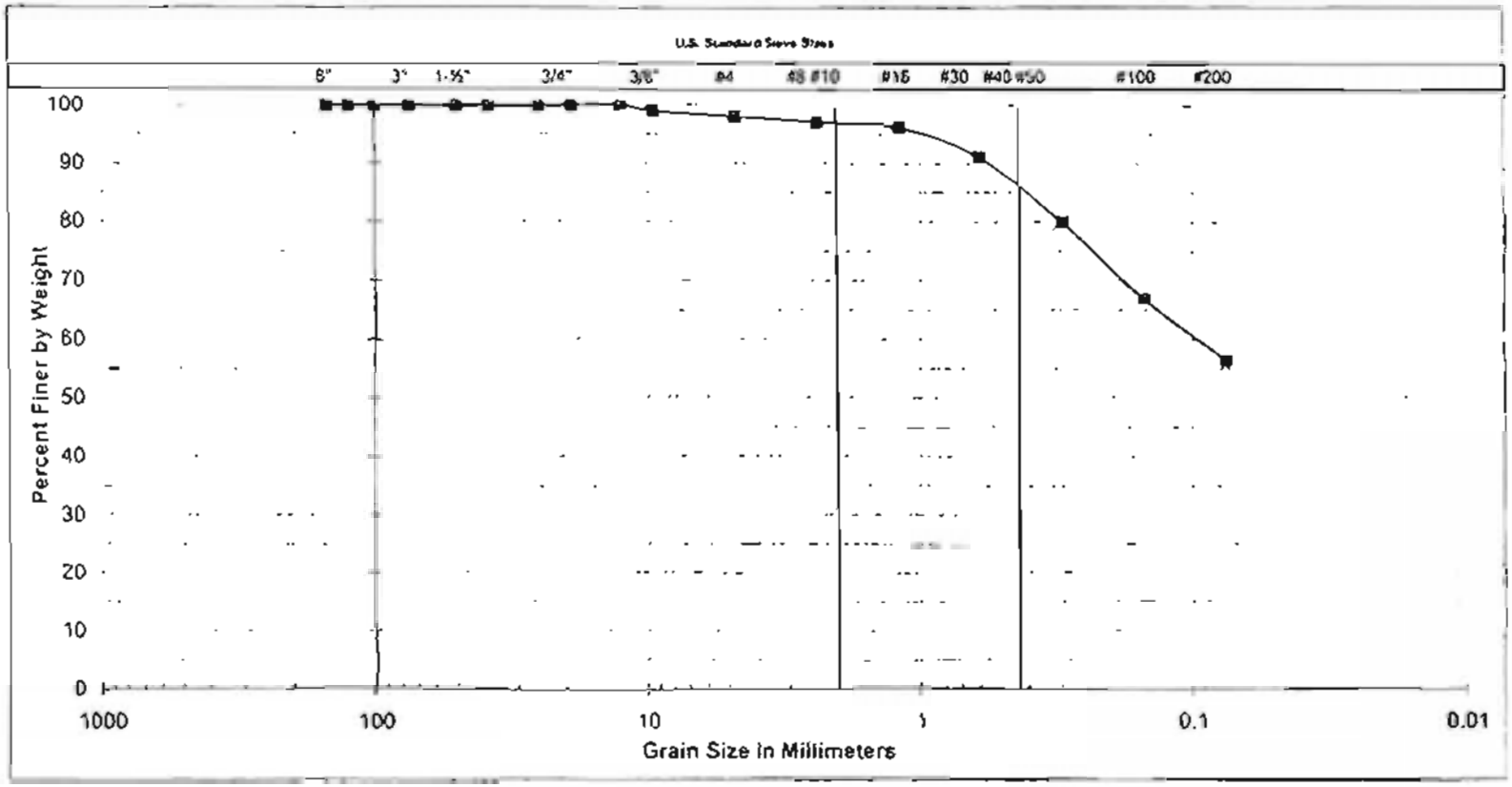
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0811159P-1	Figure:	II-3



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B6@1-5'

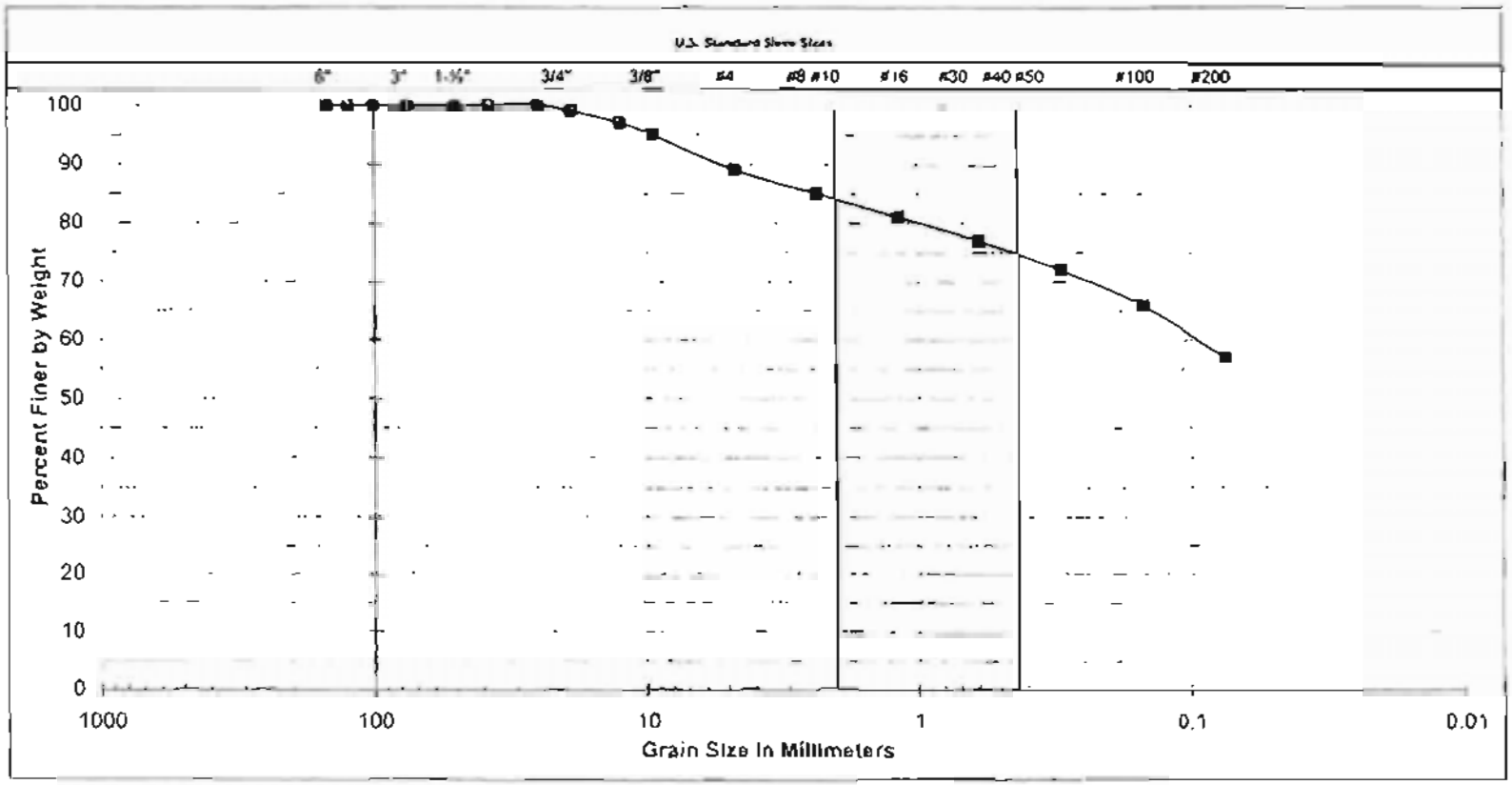
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-4



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B7@1.5-4'

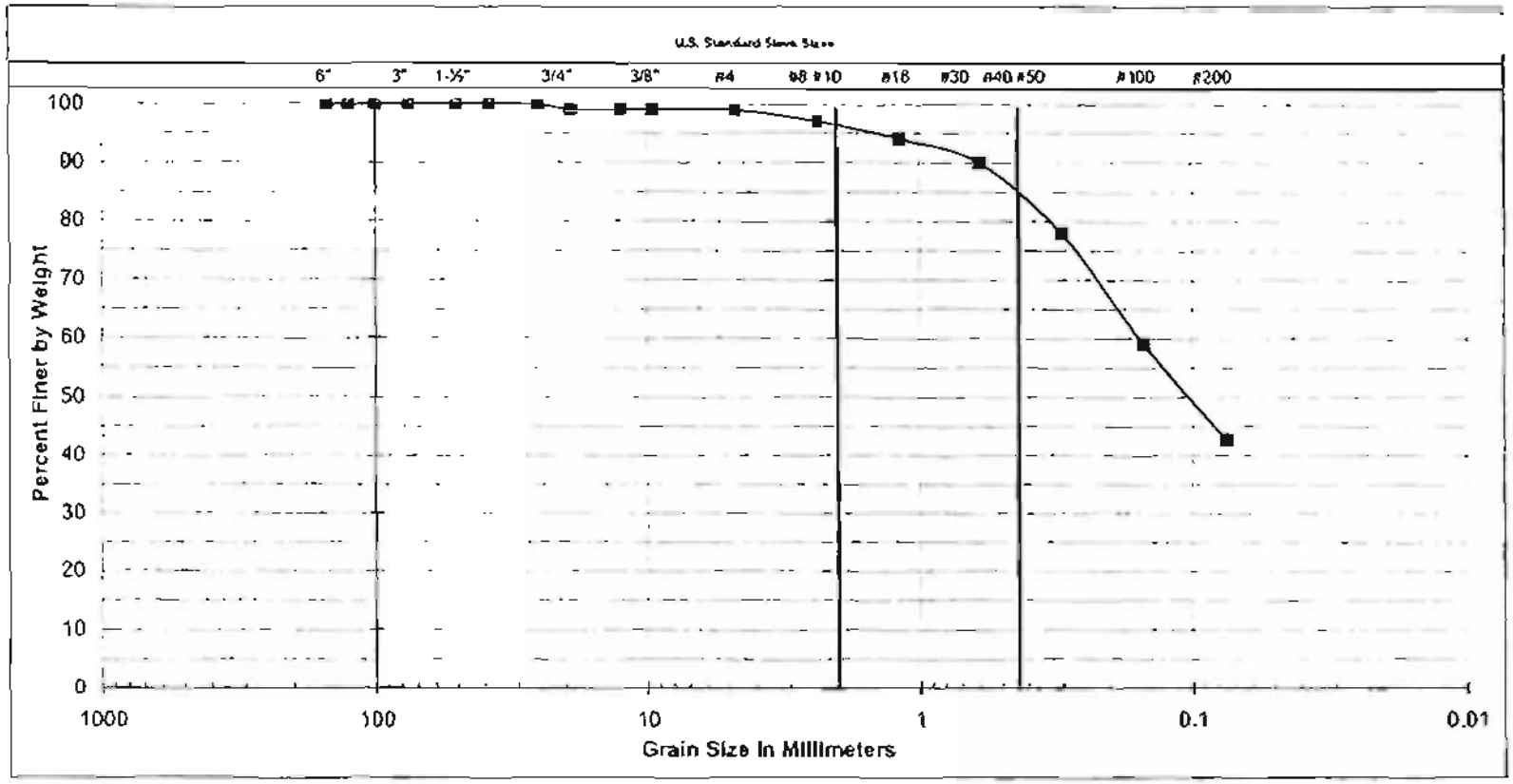
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	GF/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-5



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B9@0-4'

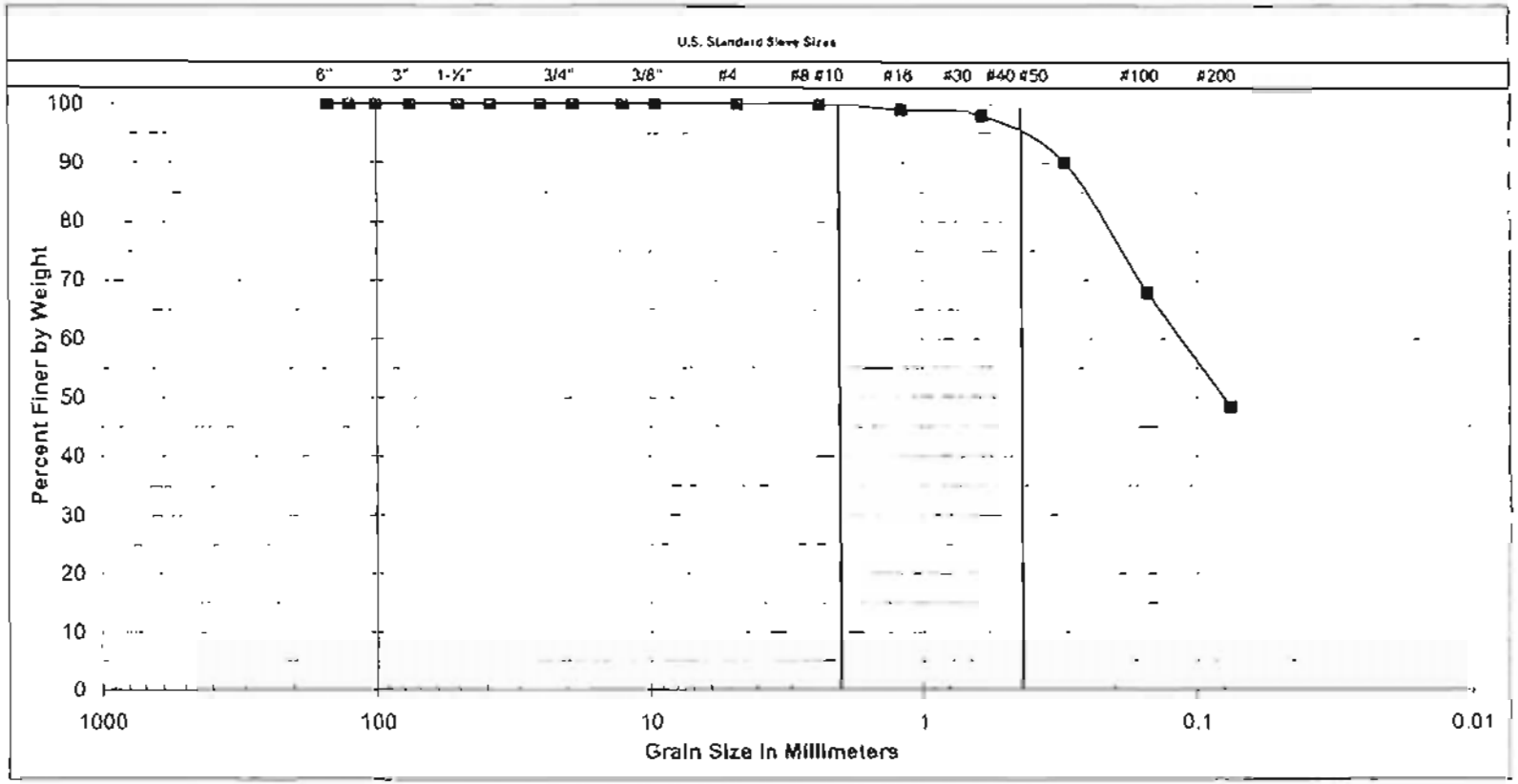
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-6



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B11@0-4'

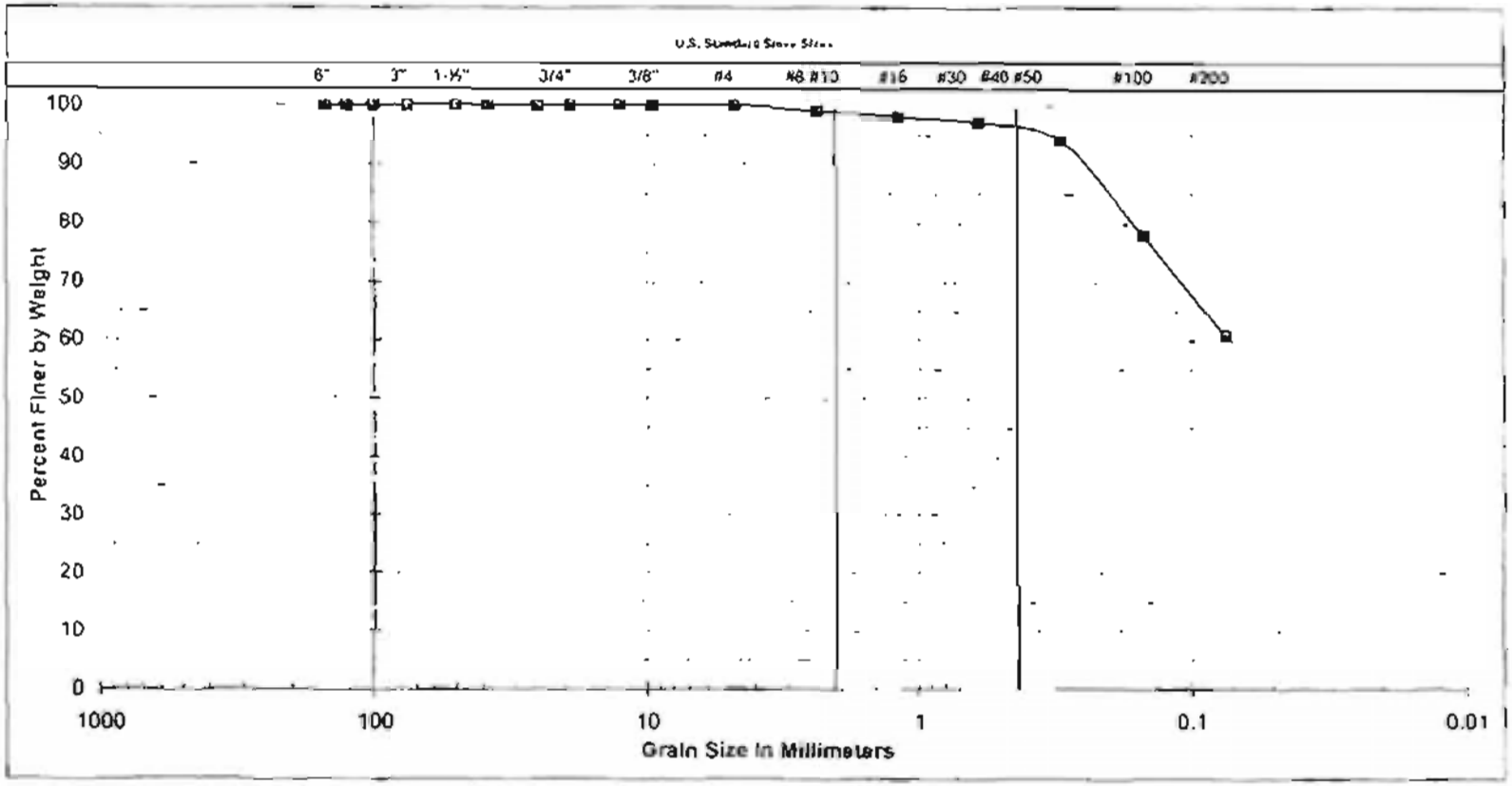
UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	47.32
PLASTIC LIMIT	21.76
PLASTICITY INDEX	25.56

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number	0911159P-1	Figure:	II-7



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B11@6-14'

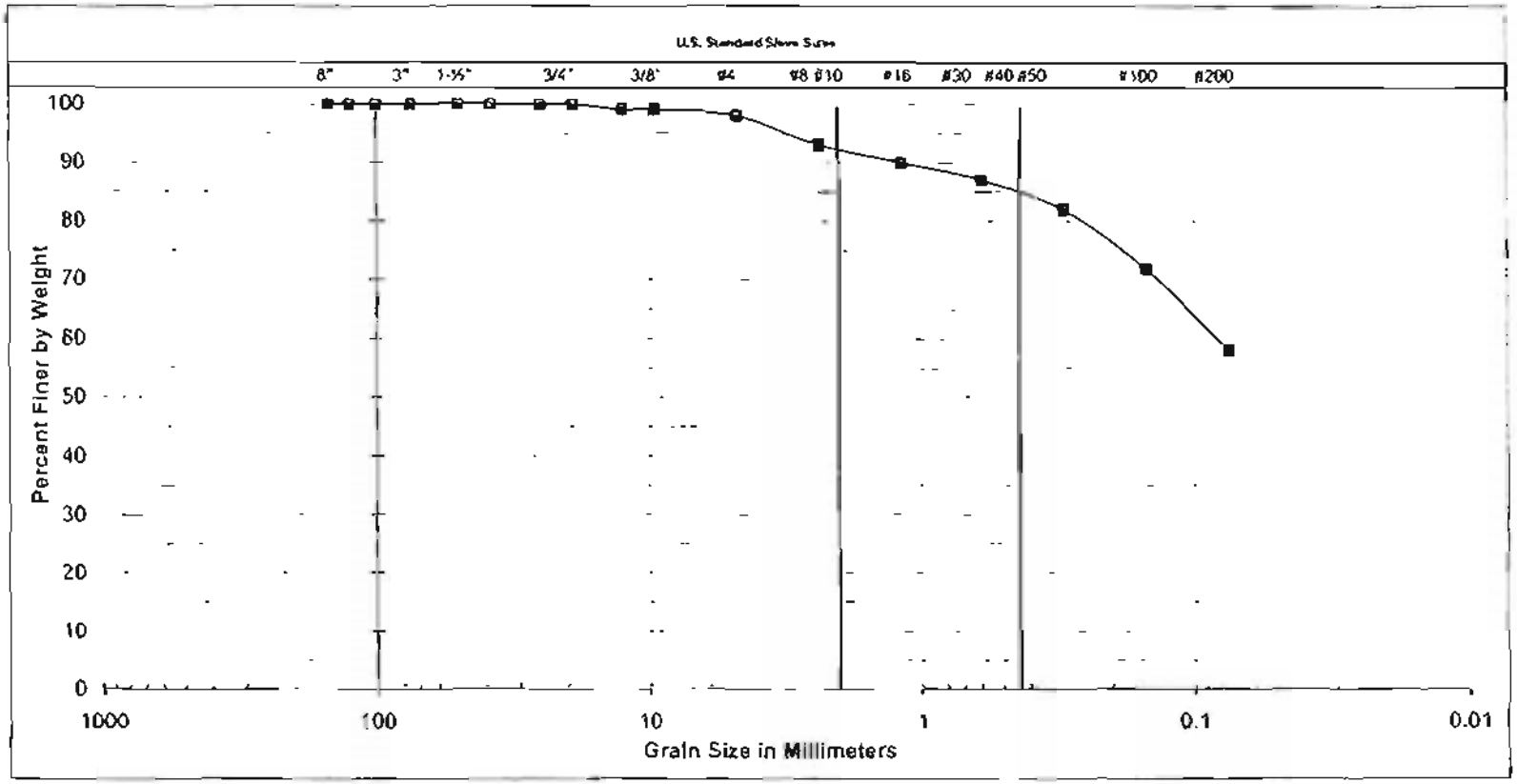
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P	Figure:	II-8



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B13@0-6'

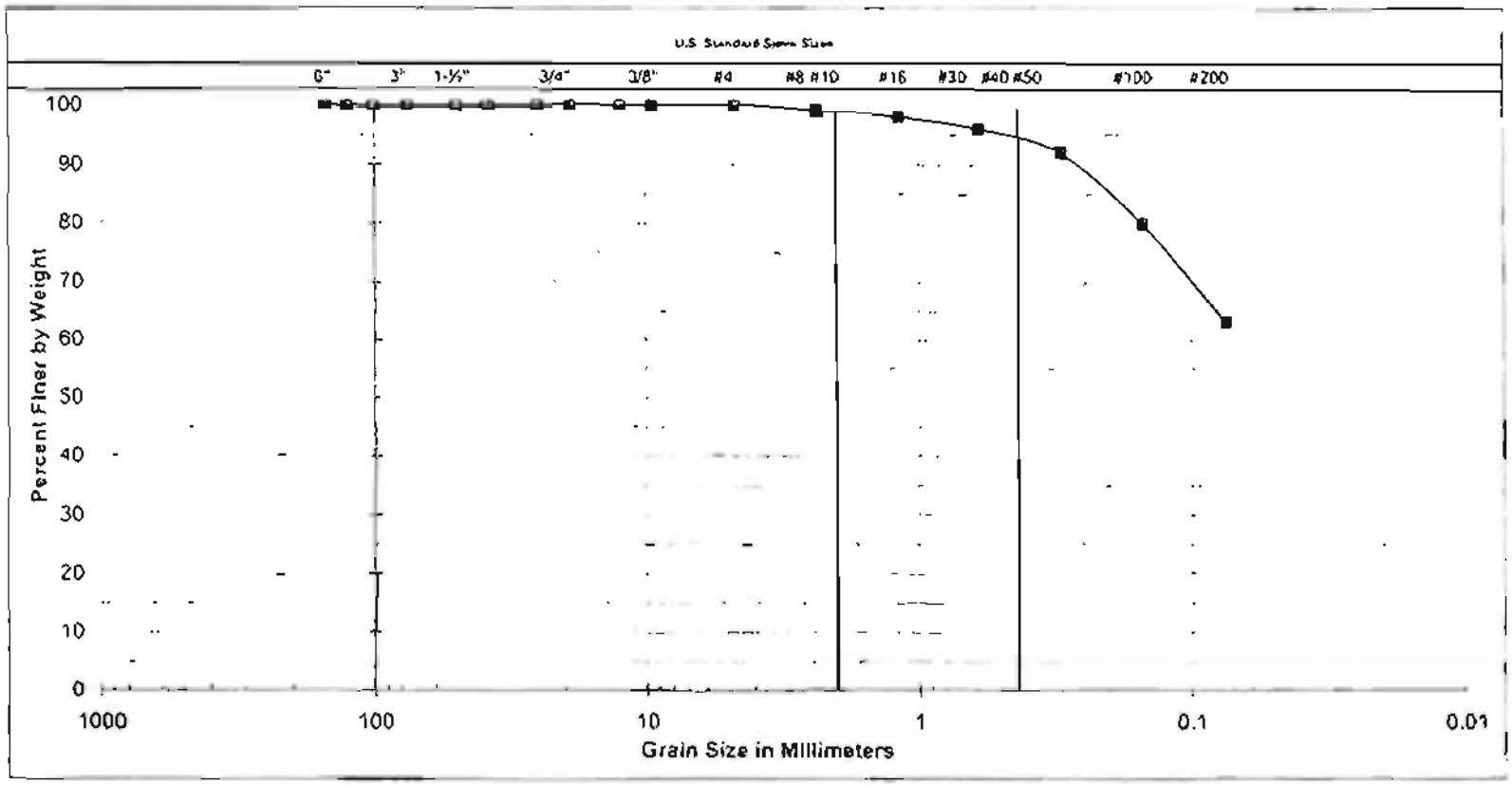
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-9



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B15@13-19'

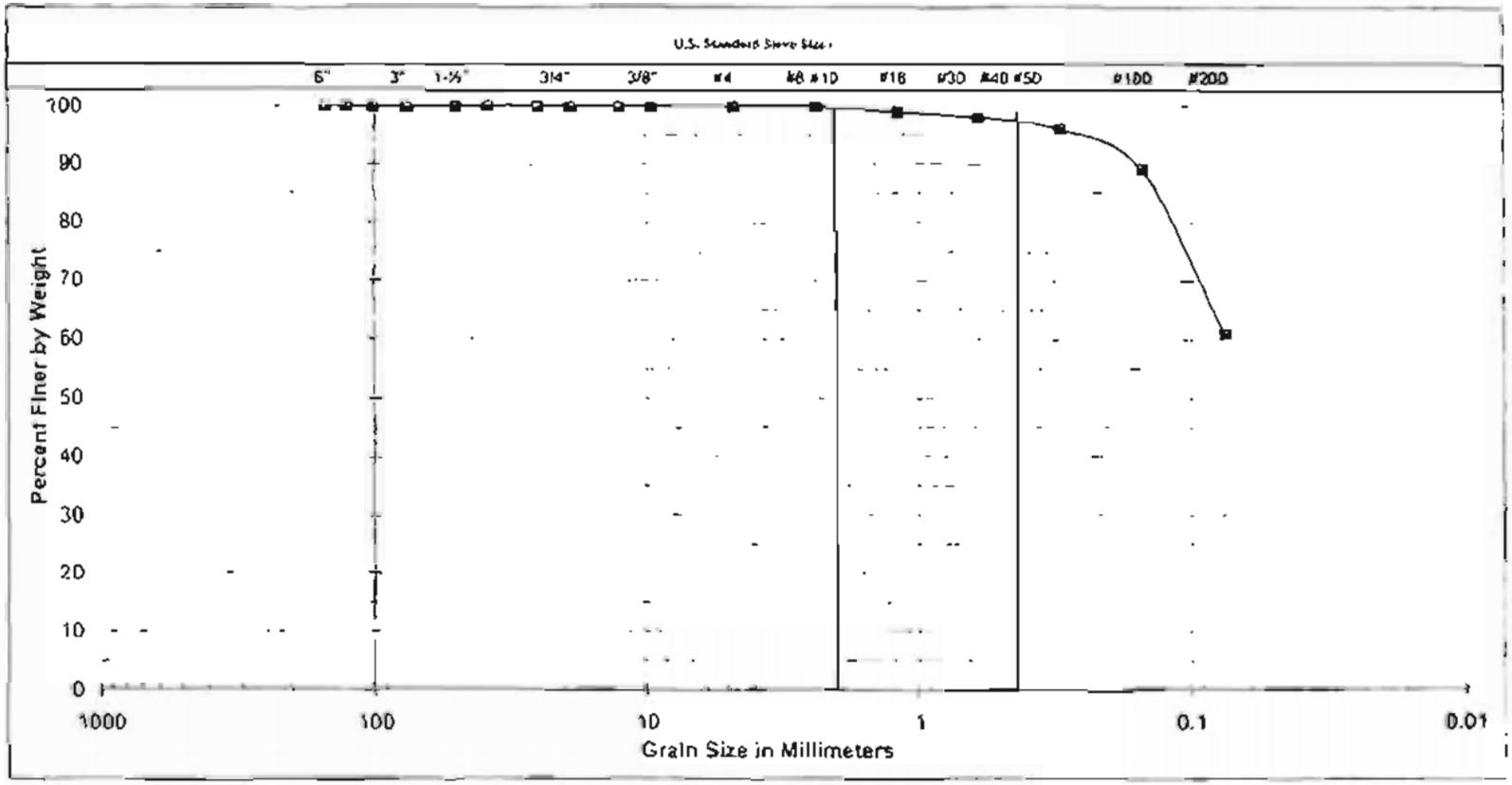
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	D911159P-1	Figure:	II-10



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B17@5-9'

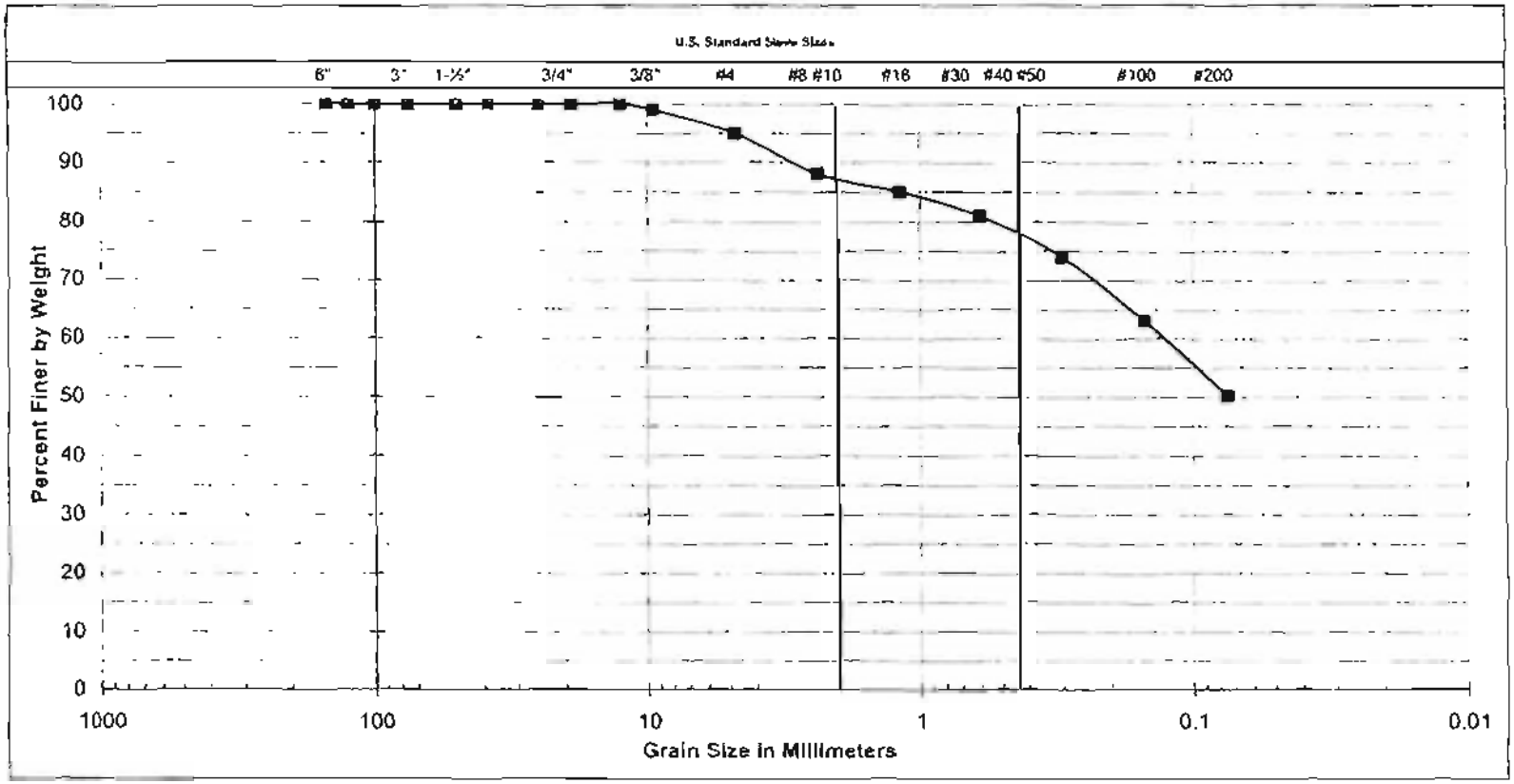
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-11



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B1@0-4'

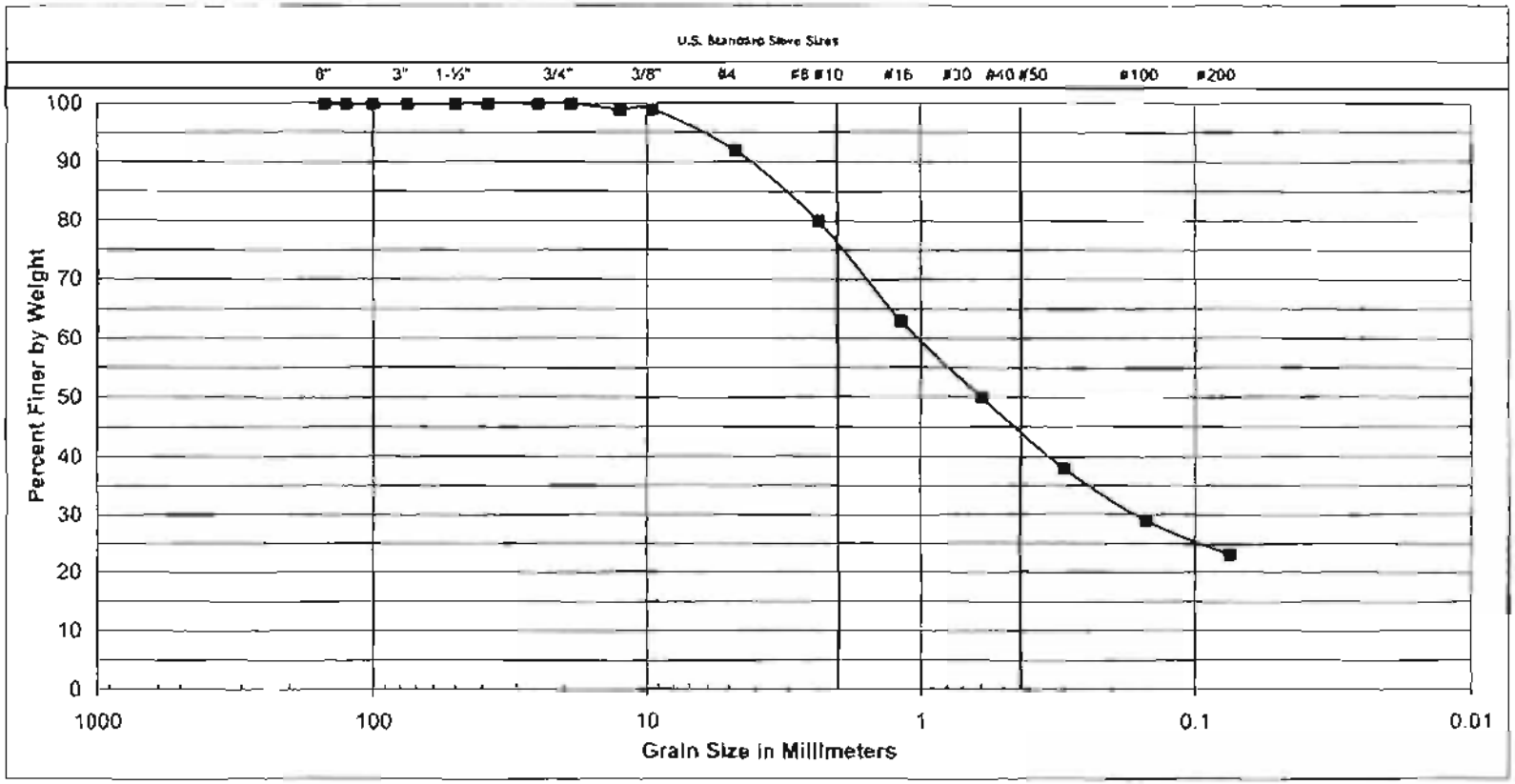
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-12



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B23@0-5

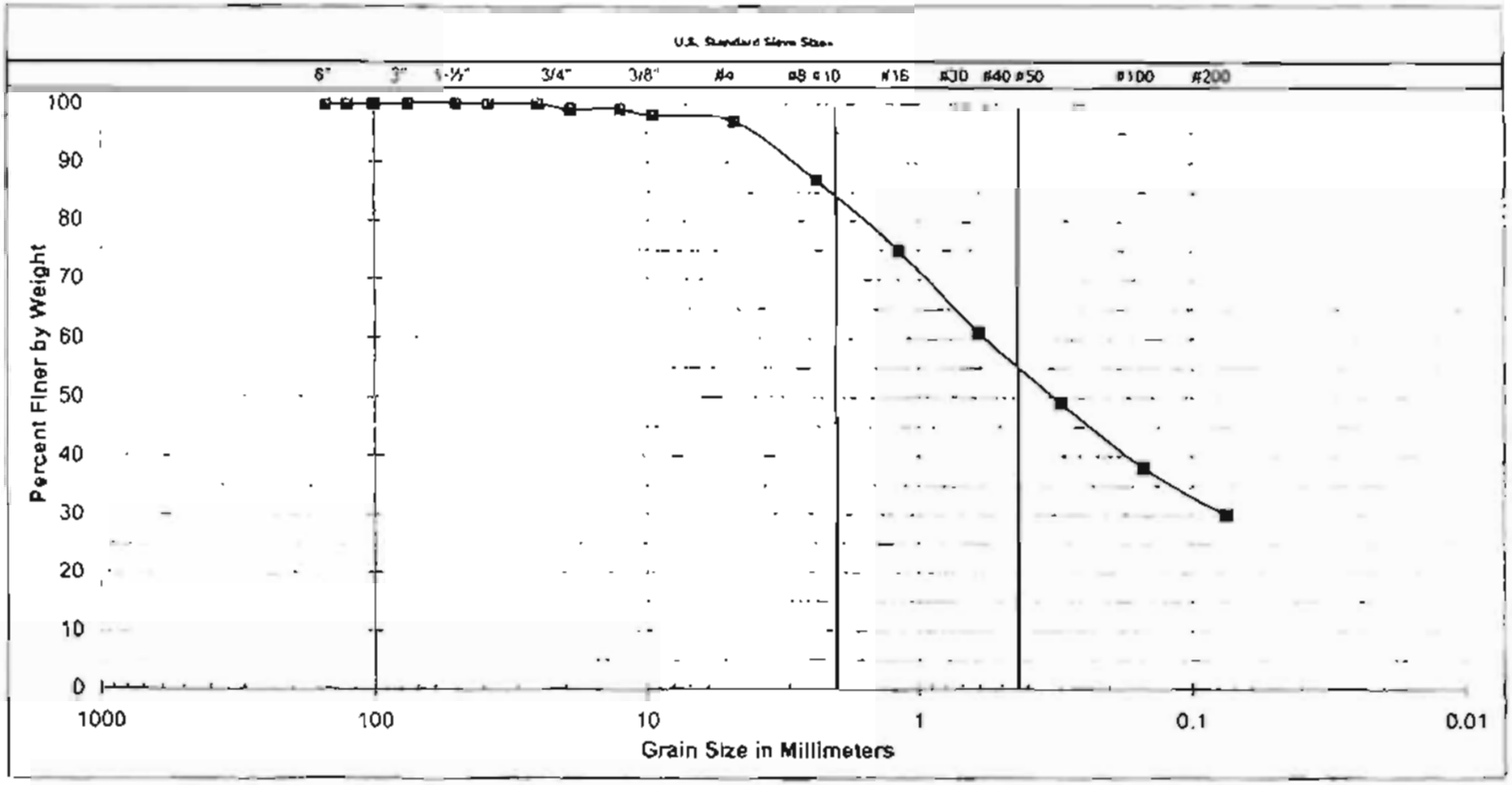
UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	2/2/2010
Job Number:	0911159P-1	Figure:	II-13



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
[illegible]

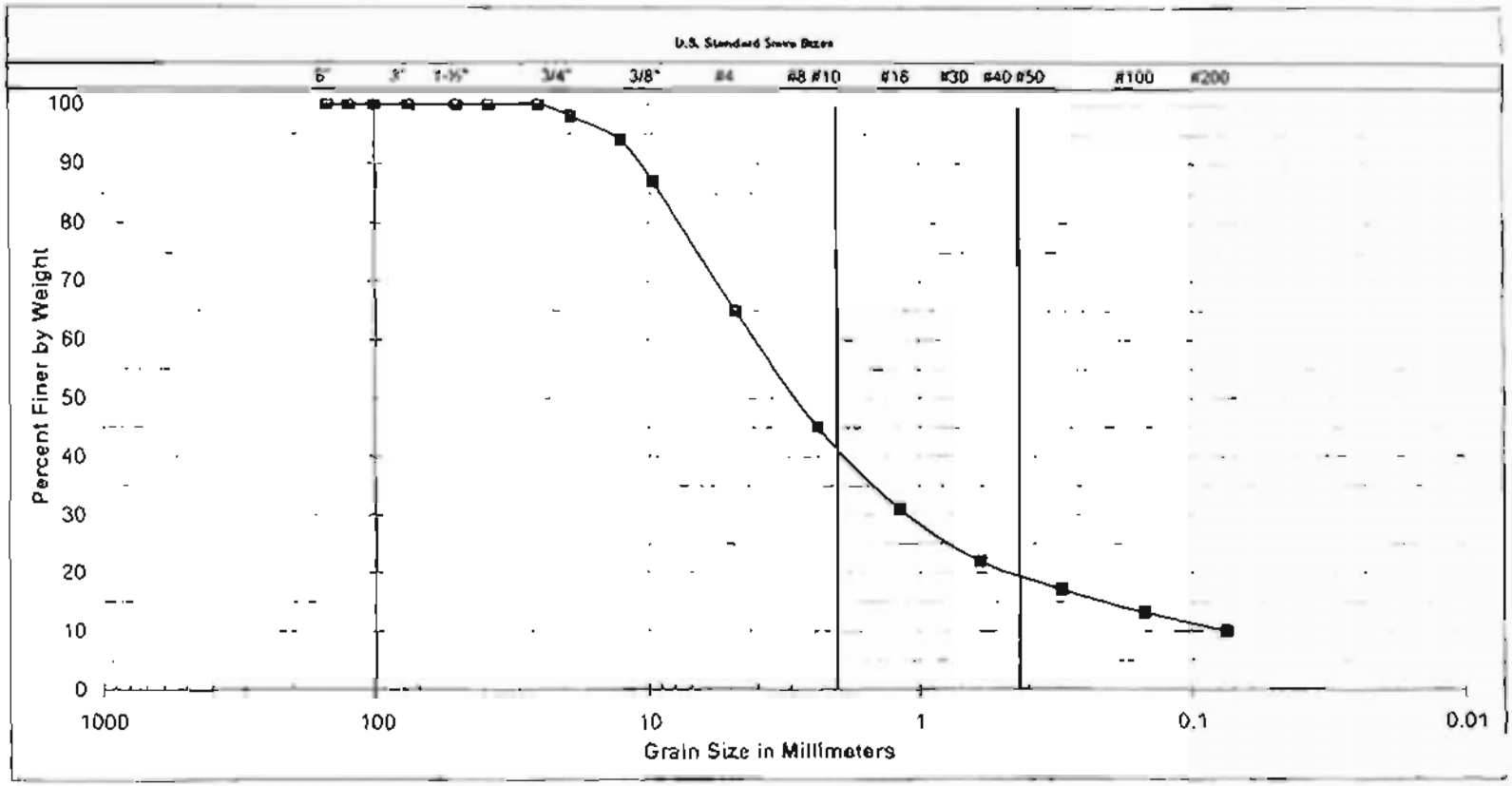
UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-14



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B30@2-30'

UNIFIED SOIL CLASSIFICATION:	SP-SM
DESCRIPTION	POORLY GRADED SAND with SILT and GRAVEL

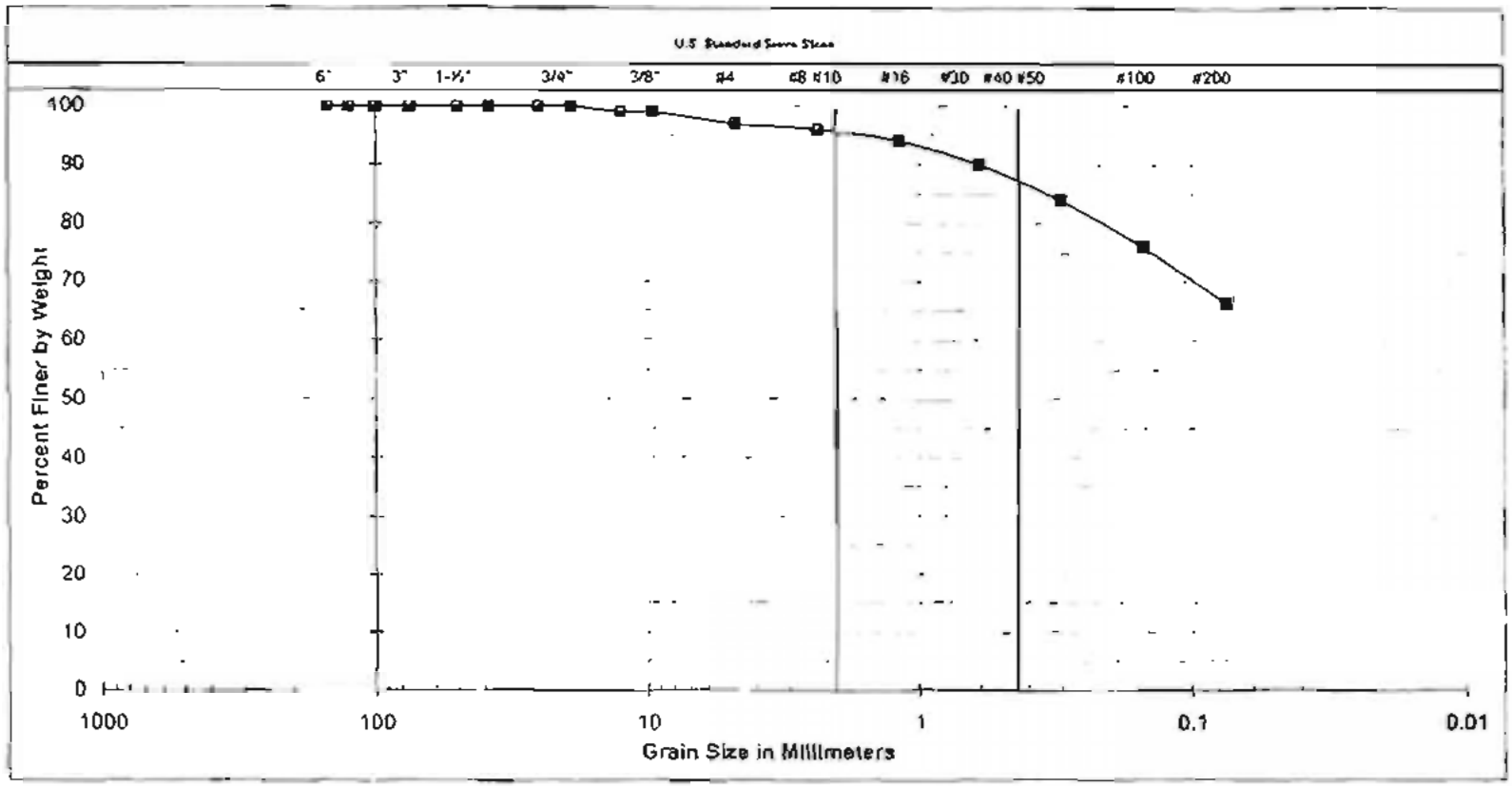
ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SC ST

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	D911159P-1	Figure:	II-15



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B31@0-25'

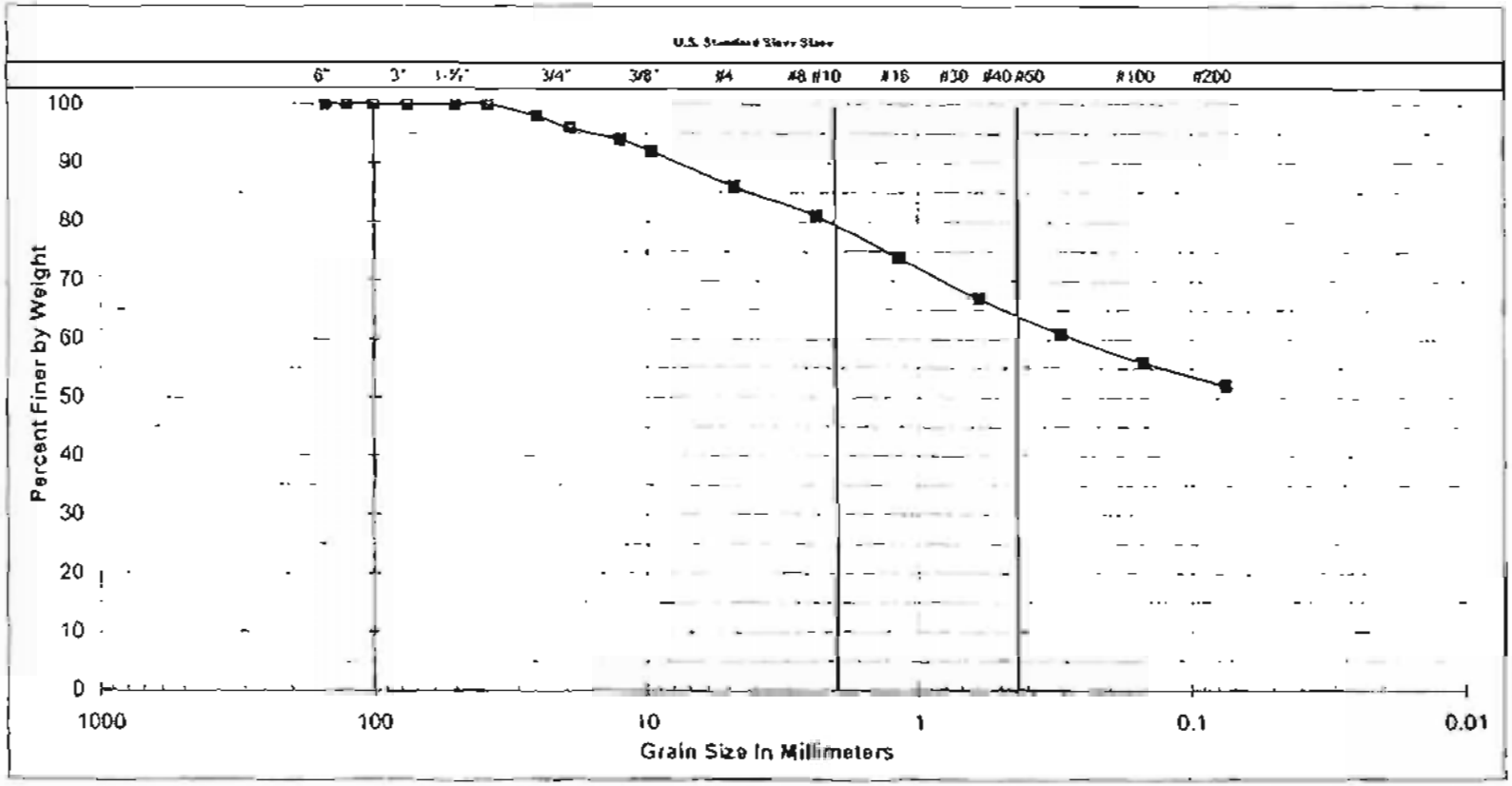
UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-16



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-30@1-5'

UNIFIED SOIL CLASSIFICATION:	CL
DESCRIPTION	SANDY CLAY

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date	1/18/2010
Job Number:	0911159P-1	Figure:	II-17

EXPANSION INDEX

ASTM D 4829

SAMPLE	DESCRIPTION	EXPANSION INDEX	EXPANSION POTENTIAL INDEX
B-3 @ 5-10 ft	SANDY CLAY (CL)	171	Very High
B-11 @ 0-4 ft	CLAYEY SAND (SC)	91	High
B-17 @ 0-4 ft	SANDY CLAY (CL)	186	Very High

MAXIMUM DENSITY & OPTIMUM MOISTURE CONTENT

ASTM D 1557

SAMPLE	DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)
B-5 @ 1-5 ft	SANDY CLAY (CL)	116.6	10.7
B-7 @ 4-8 ft	SANDY CLAY (CL)	112.8	12.2
B-8 @ 1-4 ft	SANDY CLAY (CL)	110.3	14.5
B-14 @ 0-4 ft	SILTY SAND (SM)	111.9	12.8
B-19 @ 8-14 ft	SILTY SAND (SM)	110.0	15.2
B-29 @ 0-25 ft	SILTY SAND with GRAVEL (SM)	130.0	7.5
B-32 @ 11-30 ft	POORLY GRADED SAND with SILT and GRAVEL (SP-SM)	130.1	8.7

R-Value

CAL-TEST 301

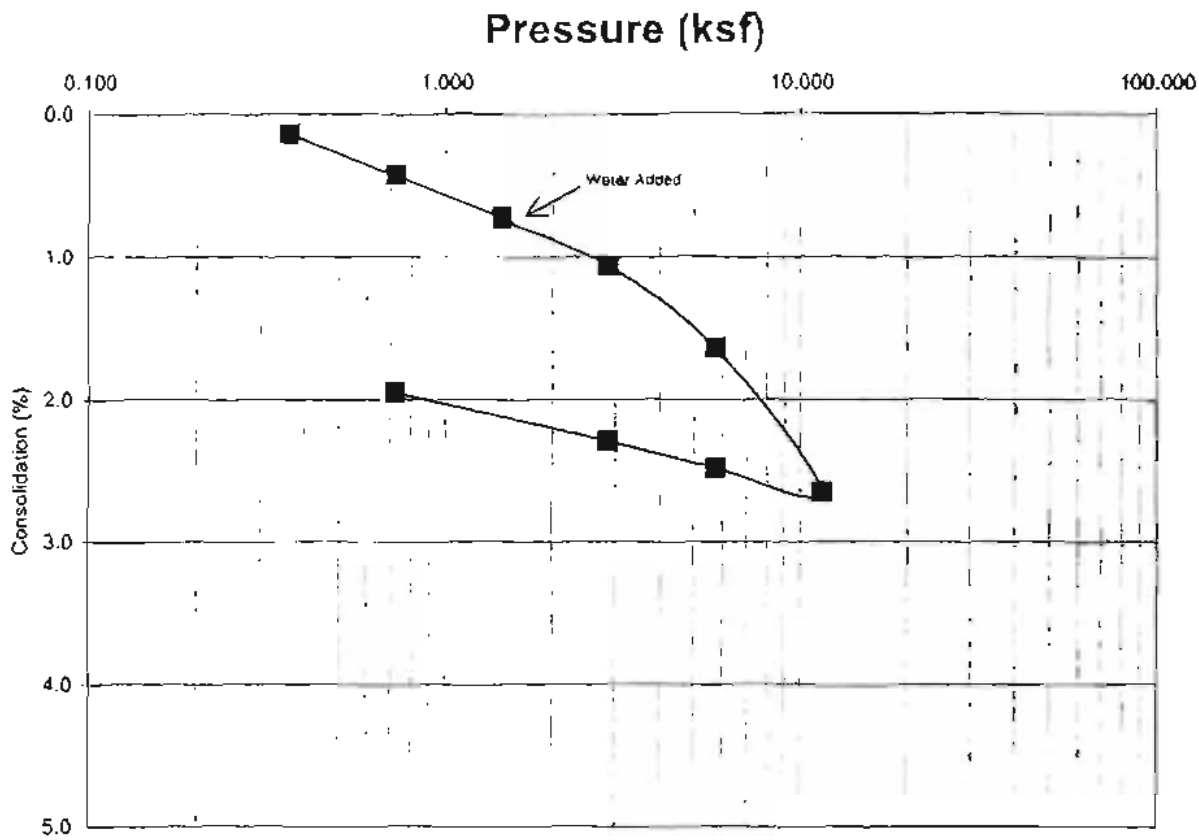
SAMPLE	"R" VALUE
B-1 @ 2-5 ft	Less than 5
B-7 @ 1½-4 ft	15
B-15 @ 1½-4 ft	37
B-19 @ 0-4 ft	Less than 5
B-21 @ 0-3 ft	Less than 5
B-28 @ 0-5 ft	Less than 5

PLASTICITY INDEX

ASTM D 4318

SAMPLE	DESCRIPTION	ATTERBERG LIMITS	
B-21 @ 0-3 ft	SANDY CLAY with GRAVEL (CL)	LIQUID LIMIT	47.84
		PLASTIC LIMIT	24.14
		PLASTICITY INDEX	23.70

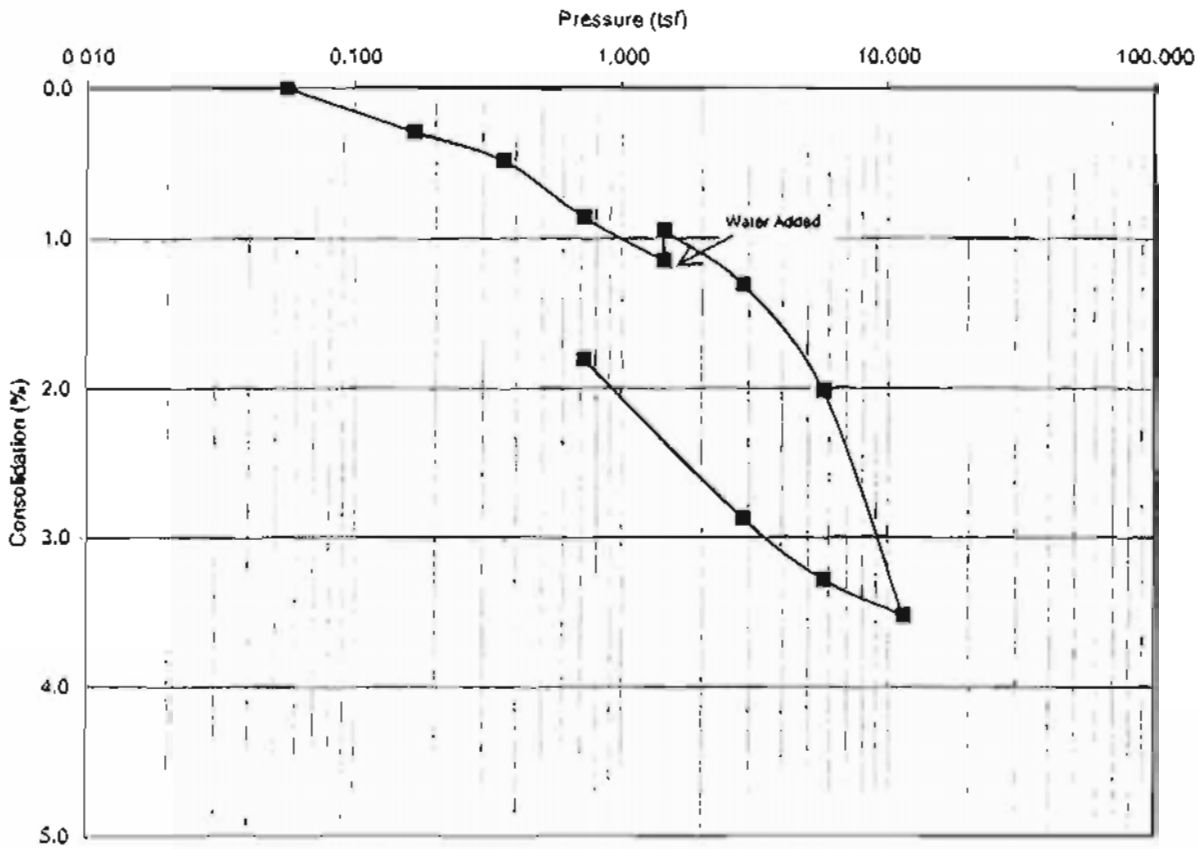
Consolidation Test Results



Sample: B-1 @ 10 ft

SCST SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number 0911159P-1	Figure:	II-19

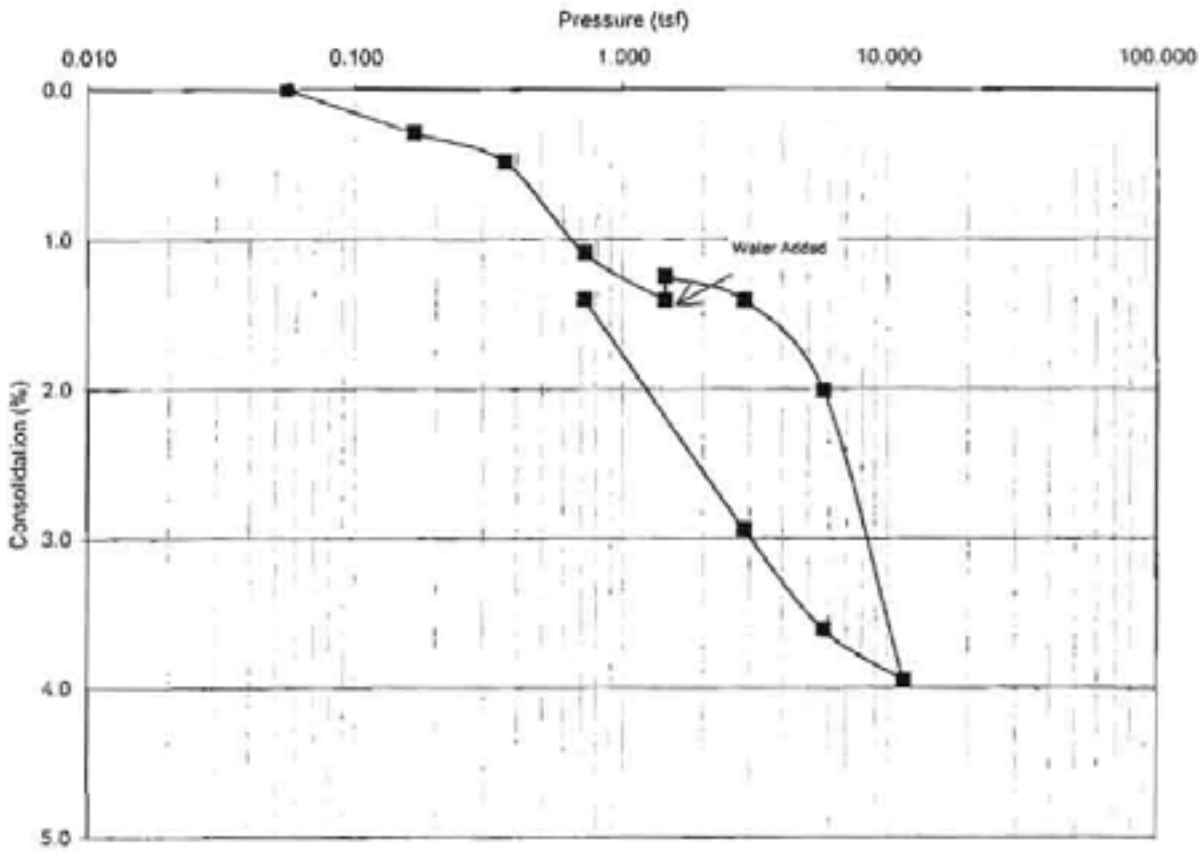
Consolidation Test Results



Sample: B-9 @ 10 ft

SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-20

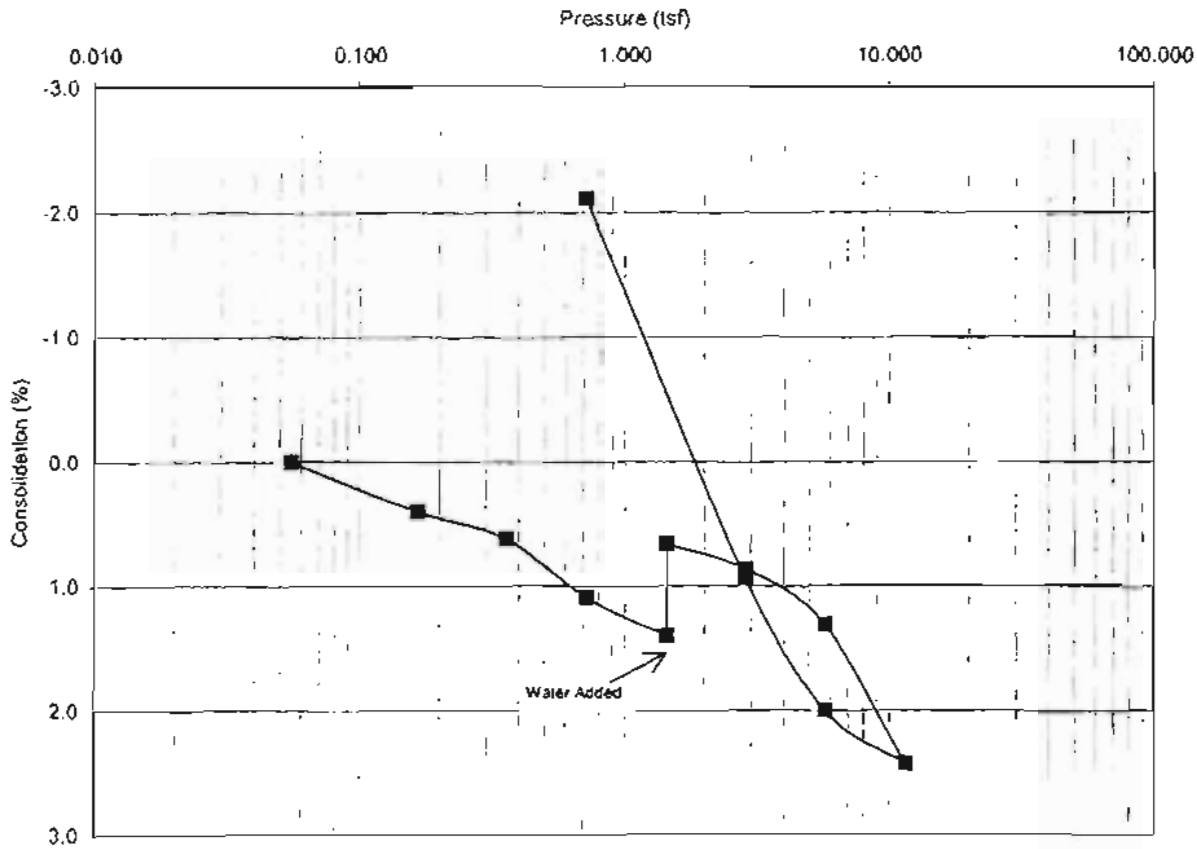
Consolidation Test Results



Sample: **B-11 @ 15 ft**

SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-21

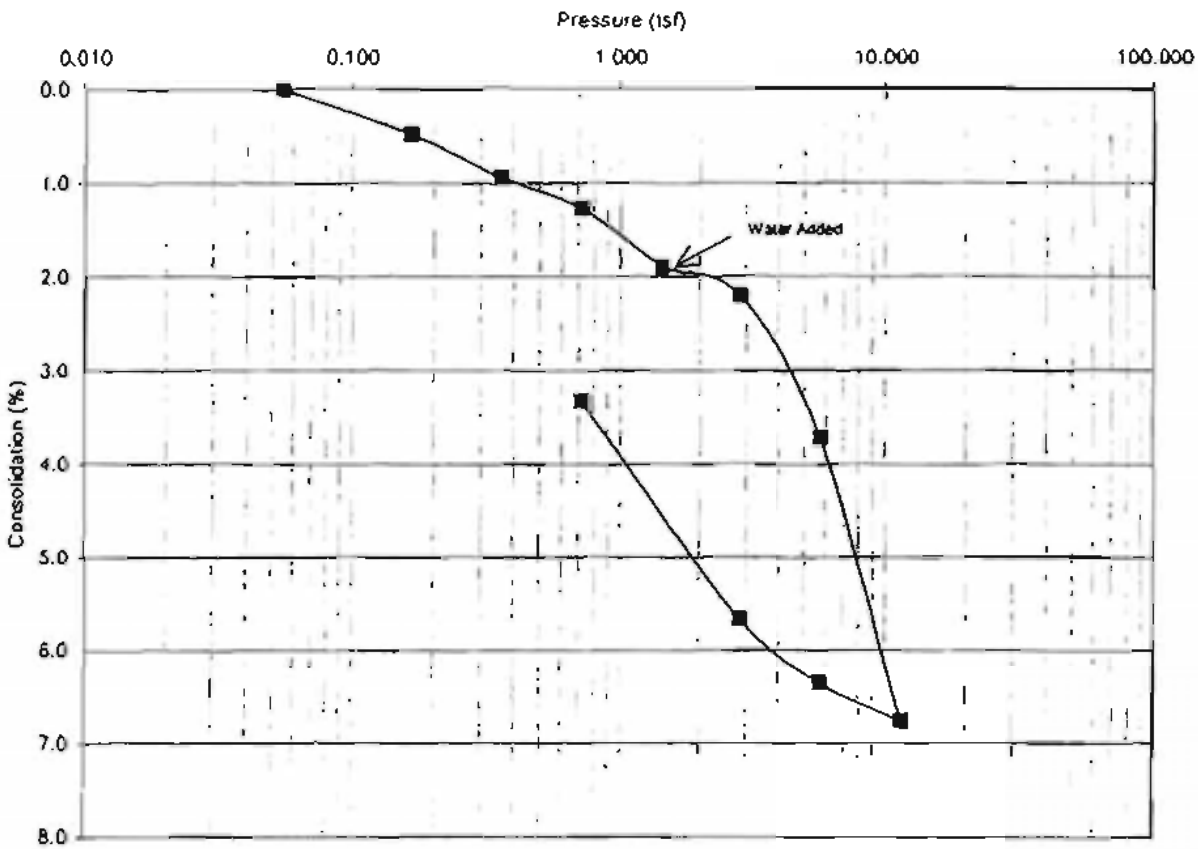
Consolidation Test Results



Sample: B-12 @ 5 ft

SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-22

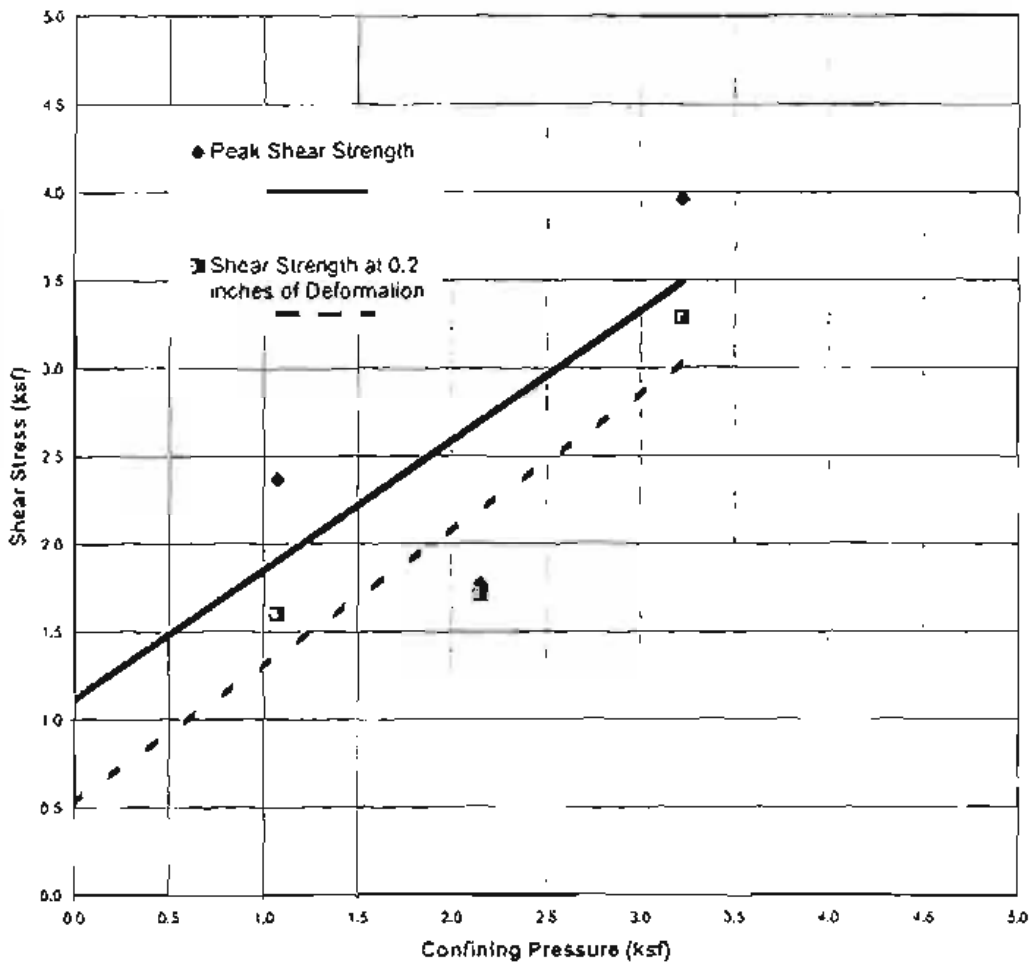
Consolidation Test Results



Sample: B-25 @ 10 ft

SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-23

Direct Shear Test Results



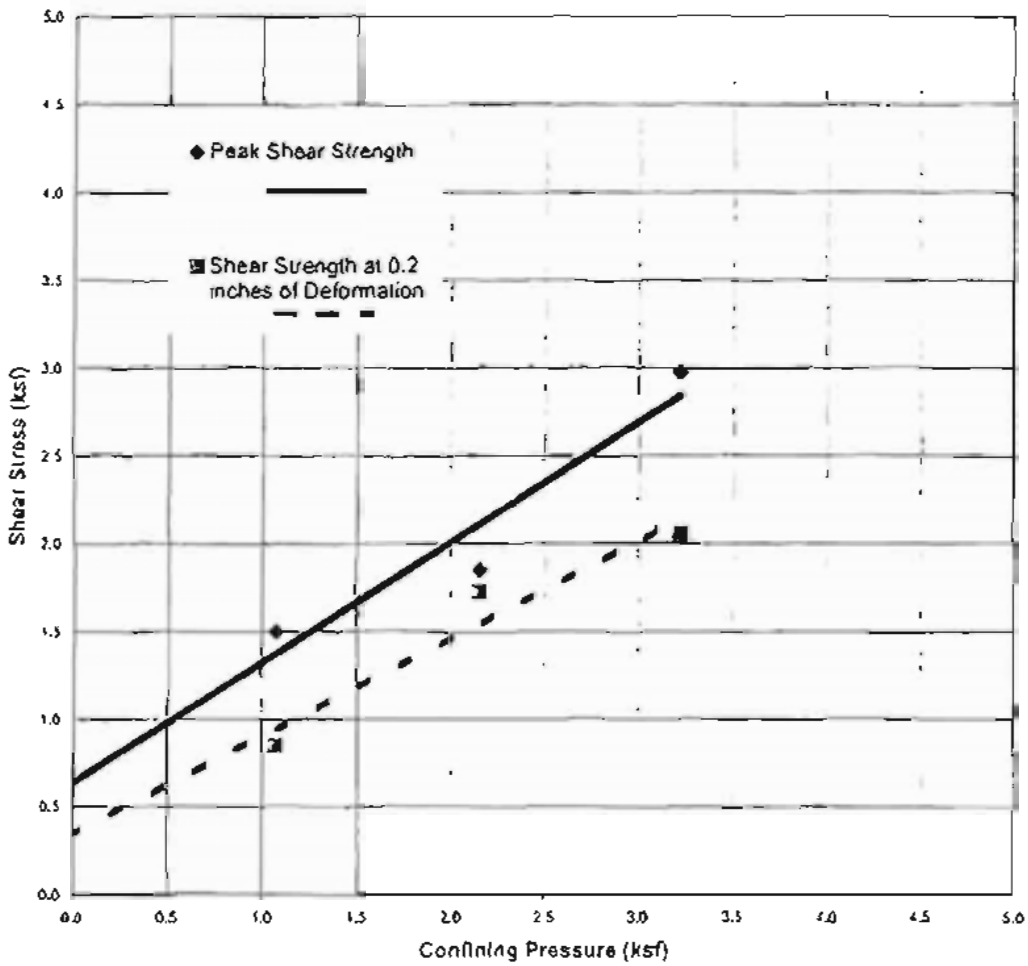
SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B6@5	BROWN CLAYEY SILTY SAND		
Peak		36	1114
Shear Strength at 0.2 Inches of Deformation		38	522

SOUTHERN CALIFORNIA SOIL & TESTING

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-24

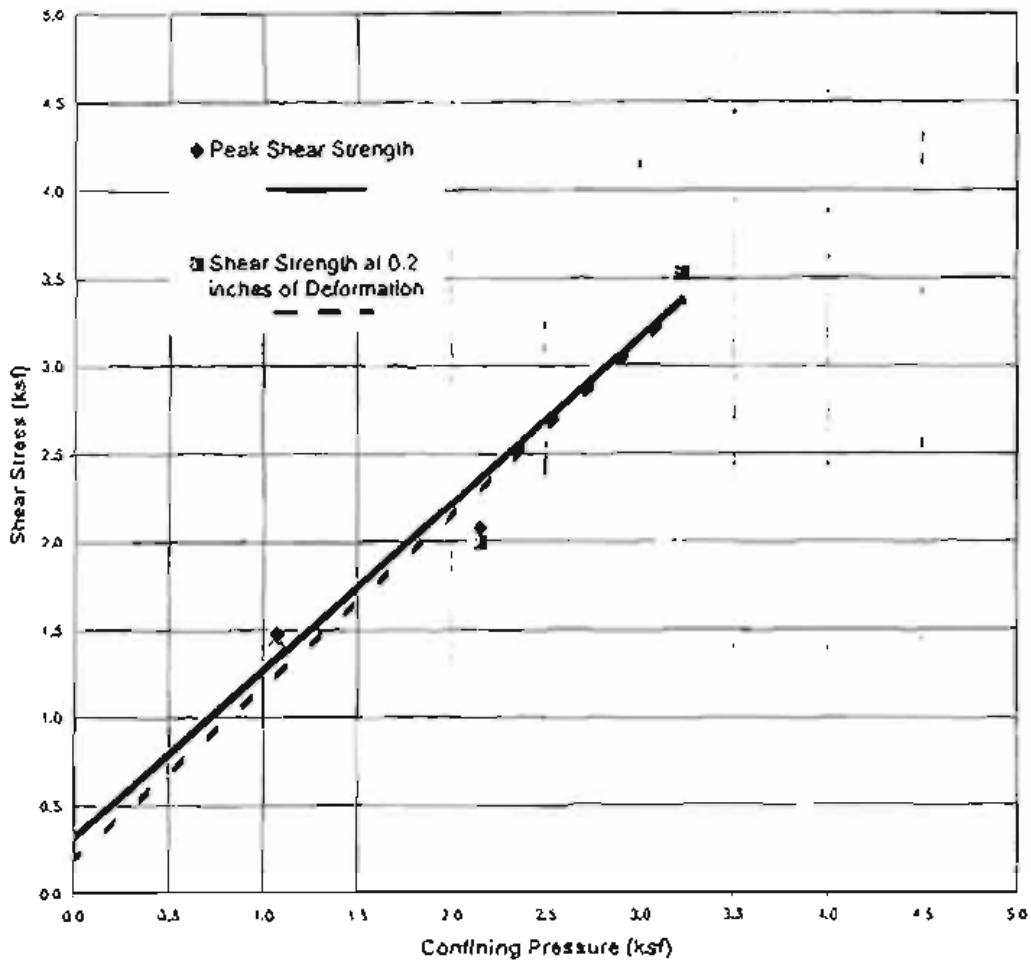
Direct Shear Test Results



SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B8@10	BWN SILTY SAND		
Peak		34	637
Shear Strength at		29	336
0.2 inches of Deformation			

SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-25

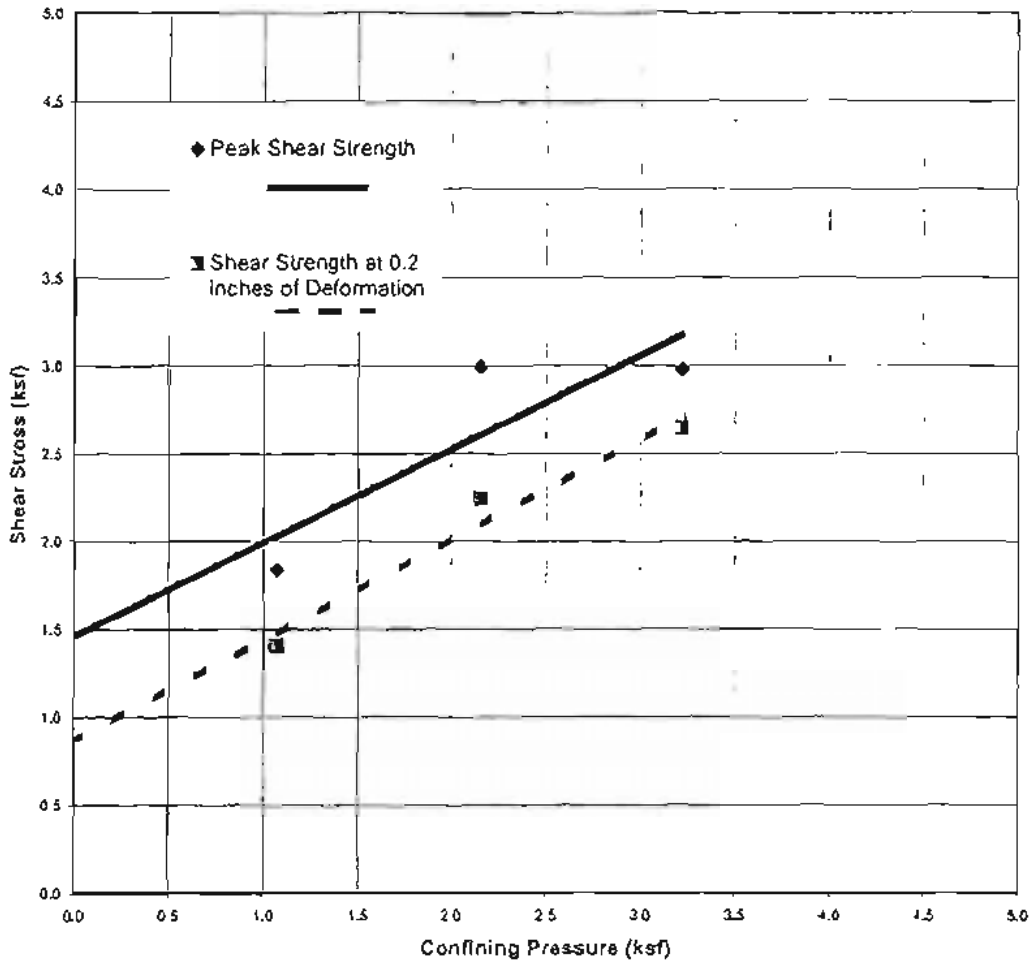
Direct Shear Test Results



SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B13@5	BRN CLAY		
Peak		44	317
Shear Strength at		45	176
0.2 Inches of Deformation			

SCST SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-26

Direct Shear Test Results



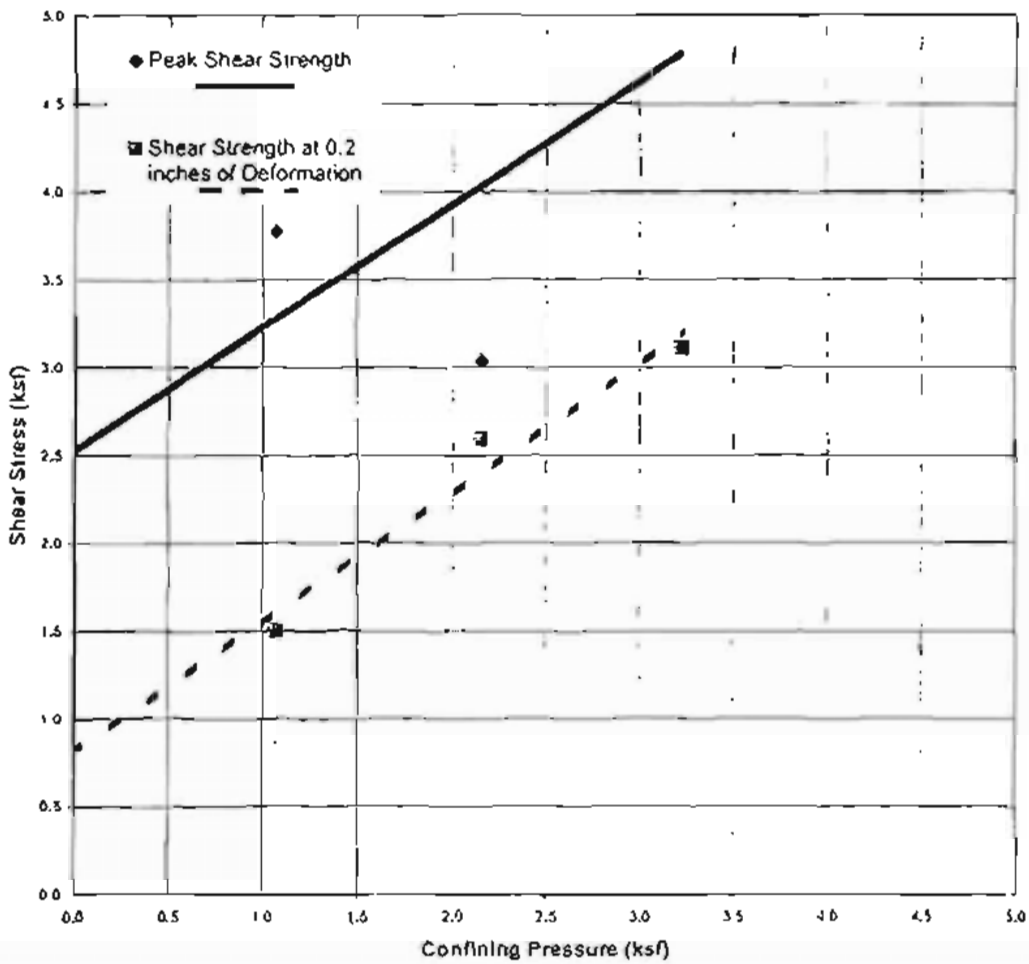
SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B15@20	BRN CLAY		
Peak		28	1464
Shear Strength at 0.2 Inches of Deformation		30	862

SOUTHERN CALIFORNIA SOIL & TESTING

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-27

Direct Shear Test Results

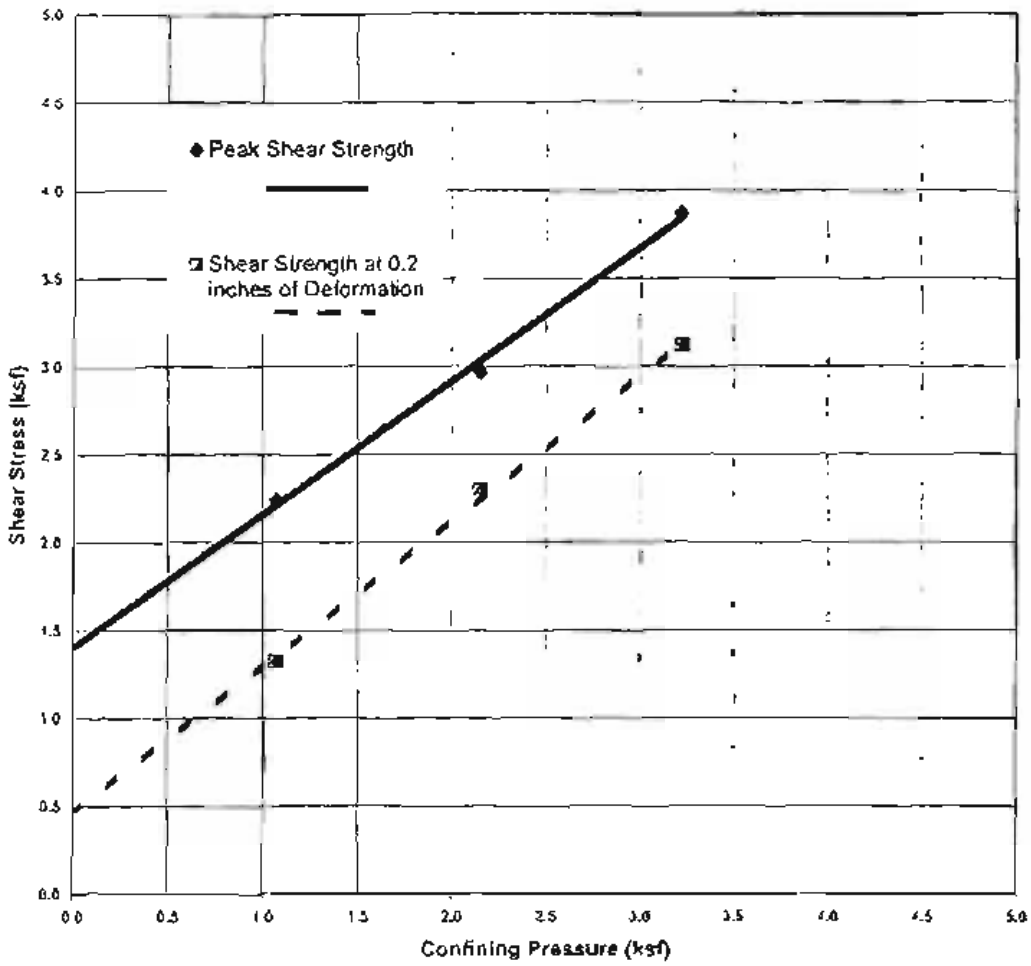


SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B18@9.5	IN CLAYEY SAND W/CEMENTITIOUS FORMATIONS		
Peak		35	2531
Shear Strength at 0.2 inches of Deformation		37	802

SOUTHERN CALIFORNIA SOIL & TESTING

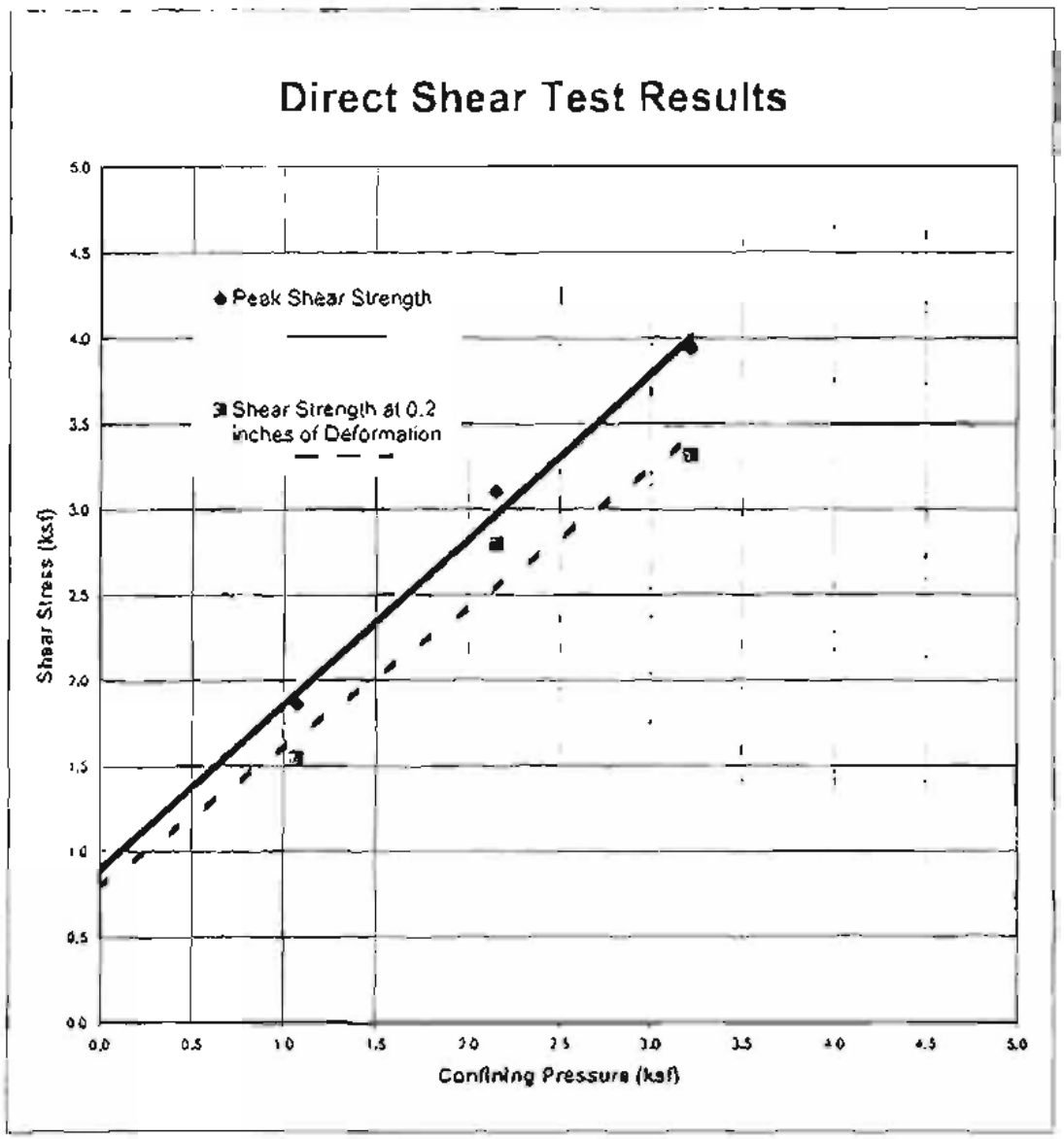
OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1			
By:	JS/AKN	Date:	1/26/2010
Job Number:	0911159P-1	Figure:	II-28

Direct Shear Test Results



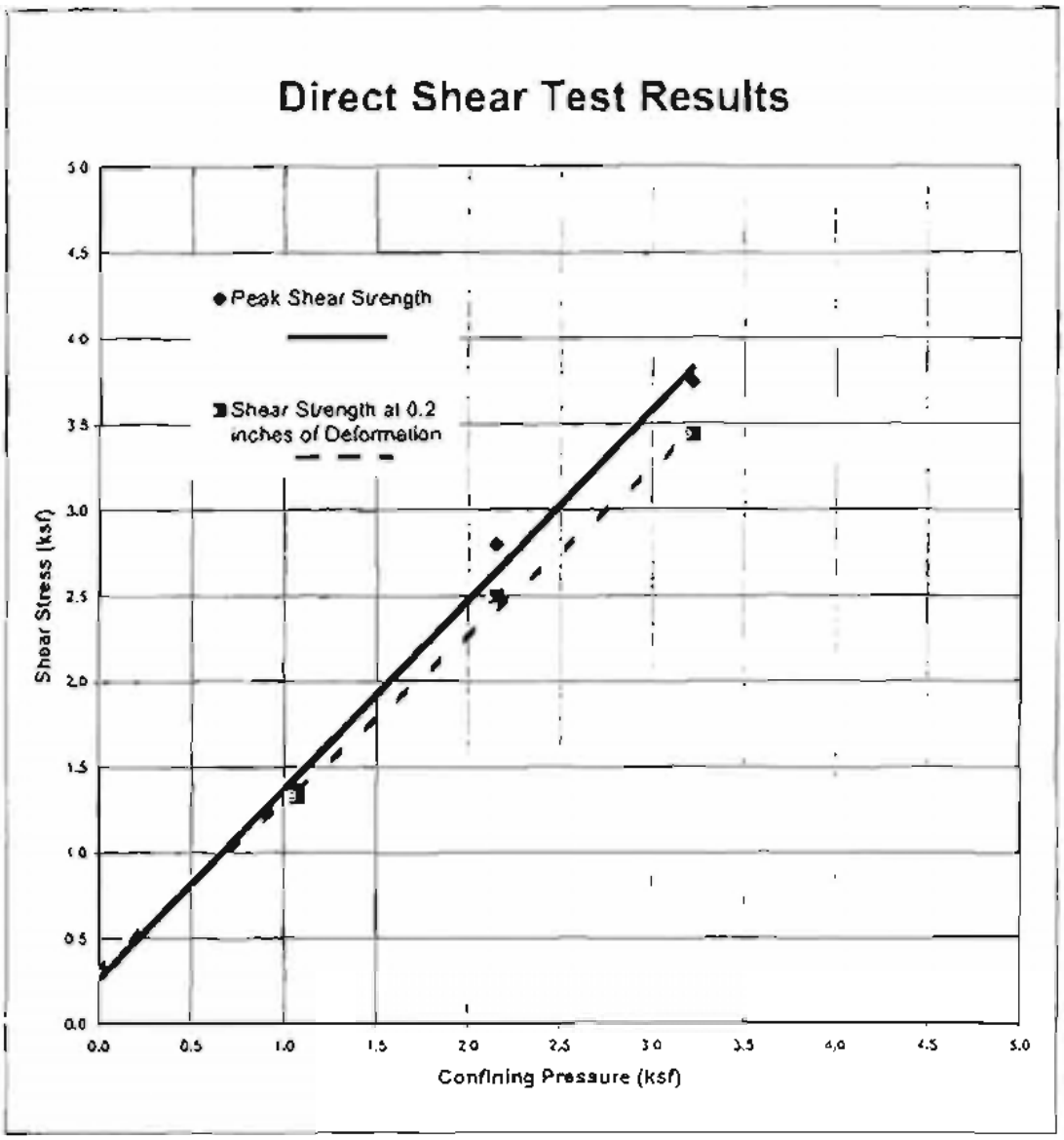
SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B19@15	GRAY CLAYEY SAND		
Peak		37	1402
Shear Strength at 0.2 inches of Deformation		40	452

SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-29



SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B23@14.5	BRN SILTY SAND		
Peak		44	895
Shear Strength at 0.2 inches of Deformation		39	784

SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-30



SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B28@9.5	LIGHT BRN SILTY SAND		
Peak		48	260
Shear Strength at 0.2 Inches of Deformation		45	305

SOUTHERN CALIFORNIA SOIL & TESTING	OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1		
	By: JS/AKN	Date:	1/18/2010
	Job Number: 0911159P-1	Figure:	II-31

SAMPLE IDENTIFICATION	RESISTIVITY (Ω - cm)	pH	SOLUBLE SULFATE (%)	CHLORIDE (%)
B-1 @ 5-10 ft	220	6.8	0.033	0.198
B-2 @ 2-5 ft	230	7.3	0.076	0.139
B-3 @ 10-15 ft	210	7.4	0.038	0.160
B-5 @ 1-5 ft	420	7.6	0.046	0.012
B-6 @ 5-10 ft	310	8.2	0.009	0.004
B-7 @ 8-14 ft	400	7.9	0.080	0.053
B-8 @ 1-4 ft	310	7.5	0.070	0.058
B-8a @ 0-9 ft	890	8.5	0.020	0.006
B-9 @ 0-4 ft	880	8.6	0.002	0.004
B-10 @ 0-9 ft	310	7.2	0.027	0.053
B-11 @ 6-14 ft	360	7.2	0.024	0.100
B-12 @ 5 ft	480	8.3	0.038	0.053
B-13 @ 0-6 ft	650	8.0	0.027	0.012
B-14 @ 0-4 ft	320	8.3	0.040	0.085
B-15 @ 6-13 ft	400	9.0	0.033	0.053
B-16 @ 0-4 ft	1600	8.9	0.004	0.001
B-17 @ 5-9 ft	240	7.3	0.033	0.128
B-19 @ 0-4 ft	290	7.6	0.340	0.091
B-20 @ 0-4 ft	670	7.9	0.014	0.007
B-21 @ 3-9 ft	630	8.9	0.010	0.005
B-22 @ 1.5-9 ft	630	8.4	0.002	0.029
B-23 @ 0-6 ft	1200	8.2	0.006	0.006
B-24 @ 1.5-9 ft	570	5.2	0.183	0.014
B-25 @ 9-12 ft	850	8.6	0.006	0.006
B-26 @ 0-4 ft	620	6.7	0.006	0.012
B-27 @ 2-9 ft	770	6.2	0.007	0.018
B-28 @ 0-5 ft	780	5.6	0.006	0.015
B-29 @ 0-25 ft	700	5.9	0.005	0.017
B-30 @ 2-30 ft	1000	6.5	0.005	0.012
B-31 @ 0-26 ft	190	6.4	0.099	0.171
B-32 @ 11-30 ft	500	7.2	0.034	0.101

ACI 318-05 Building Code Requirements for Structural Concrete - Table 19-A-4 Table 4.3.1 Requirements for Concrete Exposed to Sulfate-Containing Solutions

Sulfate Exposure	Water-Soluble Sulfate in Soil Percentage by Weight	Cement Type	Maximum Water-Cementitious Materials Ratio, By Weight, Normal Weight Aggregate Concrete(1)	Minimum f'c, Normal-Weight and Lightweight Aggregate Concrete, psi
Negligible	0.00-0.10	-	-	
Moderate	0.10-0.20	II,IP(MS),IS(MS), P(MS),I(PM)(MS) ,I(SM)(MS)	0.50	4,000
Severe	0.20-2.00	V	0.45	4,500
Very Severe	Over 2.00	V plus pozzolan	0.45	4,500

Caltrans Corrosion Criteria

Corrosive Environment*	RESISTIVITY	pH	SOLUBLE SULFATE	CHLORIDE
	<1000**	<5.5	>0.2	>0.05

* Corrosive enivronment as determined by the California Department of Transportation Division of Engineering Services, Materials Engineering and Testing Services Corrosion Technology Branch, 2003

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

OTAY MESA RECYCLED WATER SUPPLY LINK - TASK 1

By:	JS/AKN	Date:	1/18/2010
Job Number:	0911159P-1	Figure:	II-32

Appendix F
Hazardous Materials Site Database Search

California Department of Toxic Substances Control

DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List)

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. Government Code section 65962.5 requires the California Environmental Protection Agency to develop at least annually an updated Cortese List. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

DTSC's Site Mitigation and Brownfields Reuse Program EnviroStor database provides DTSC's component of Cortese List data by identifying Annual Workplan (now referred to State Response and/or Federal Superfund), and Backlog sites listed under Health and Safety Code section 25356. In addition, DTSC's Cortese List includes Certified with Operation and Maintenance sites.

What follows is the DTSC Site Mitigation and Brownfields Reuse Program information that is required to be included in DTSC's component of the Cortese List. This information is sorted by site name, and by clicking on the site name you will be linked to the profile report for that particular site."

Get Report

Conditions of Use | Privacy Policy
Copyright © 2007 State of California

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
ENVIROSTOR

PROJECT SEARCH RESULTS

CLEANUP STATUS: All Statuses GO

SEARCH CRITERIA: 91915, SAN DIEGO

4 RECORDS FOUND

EXPORT TO EXCEL

PAGE 1 OF 1

		SITE / FACILITY NAME	SITE / FACILITY TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY
[REPORT]	[MAP]	EAST OF HUNTE PARKWAY MIDDLE SCHOOL	SCHOOL EVALUATION	NO ACTION REQUIRED	EAST OF HUNTE PARKWAY	CHULA VISTA	91915	SAN DIEGO
[REPORT]	[MAP]	MIDDLE SCHOOL NO 12/HIGH SCHOOL NO 14	SCHOOL EVALUATION	NO FURTHER ACTION	EASTLAKE PKWY & HUNTE PKWY	CHULA VISTA	91915	SAN DIEGO
[REPORT]	[MAP]	OTAY RANCH VILLAGE 11 S-1	SCHOOL EVALUATION	NO FURTHER ACTION	WINDINGWALK STREET/OLYMPIC PARKWAY/DISCOVERY FALLS D	CHULA VISTA	91915	SAN DIEGO
[REPORT]	[MAP]	OTAY RANCH VILLAGE 11; S-1 SCHOOL SITE	SCHOOL CLEANUP	NO FURTHER ACTION	1650 EXPLORATION FALLS DRIVE	CHULA VISTA	91915	SAN DIEGO

Conditions of Use | Privacy Policy

Copyright © 2007 Department of Toxic Substances Control

0.03125 seconds

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
ENVIROSTOR

PROJECT SEARCH RESULTS

CLEANUP STATUS: All Statuses GO

SEARCH CRITERIA: 92154, SAN DIEGO

6 RECORDS FOUND

EXPORT TO EXCEL

PAGE 1 OF 1

		SITE / FACILITY NAME	SITE / FACILITY TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY
[REPORT]	[MAP]	BORDER FIELD STATE PARK	MILITARY EVALUATION	ACTIVE	1/2 MILE NORTH OF U.S. & MEXICO BORDER	IMPERIAL BEACH	92154	SAN DIEGO
[REPORT]	[MAP]	BRITANNIA BOULEVARD PROPERTY	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	SE CORNER BRITANNIA BLVD & AIRWAY ROAD	OTAY MESA	92154	SAN DIEGO
[REPORT]	[MAP]	BROWN FIELD BOMBING RANGE	MILITARY EVALUATION	ACTIVE	2 MILES NORTHEAST OF OTEY MESA, SAN DIEGO	SAN DIEGO	92154	SAN DIEGO
[REPORT]	[MAP]	OCEAN VIEW HILLS MID SCH/INTERIM HOUSING	SCHOOL EVALUATION	NO ACTION REQUIRED	4919 DEL SOL BOULEVARD	SAN DIEGO	92154	SAN DIEGO
[REPORT]	[MAP]	PROPOSED ELEMENTARY SCHOOL NO. 8	SCHOOL EVALUATION	NO ACTION REQUIRED	DEL SOL BOULEVARD	SAN YSIDRO	92154	SAN DIEGO
[REPORT]	[MAP]	SWEETWATER HIGH SCHOOL NO. 12	SCHOOL EVALUATION	NO FURTHER ACTION	SOUTH INTERSTATE 905/OTAY MESA ROAD	SAN DIEGO	92154	SAN DIEGO

Conditions of Use | Privacy Policy

Copyright © 2007 Department of Toxic Substances Control

0.03125 seconds

LINK TO THIS MAP

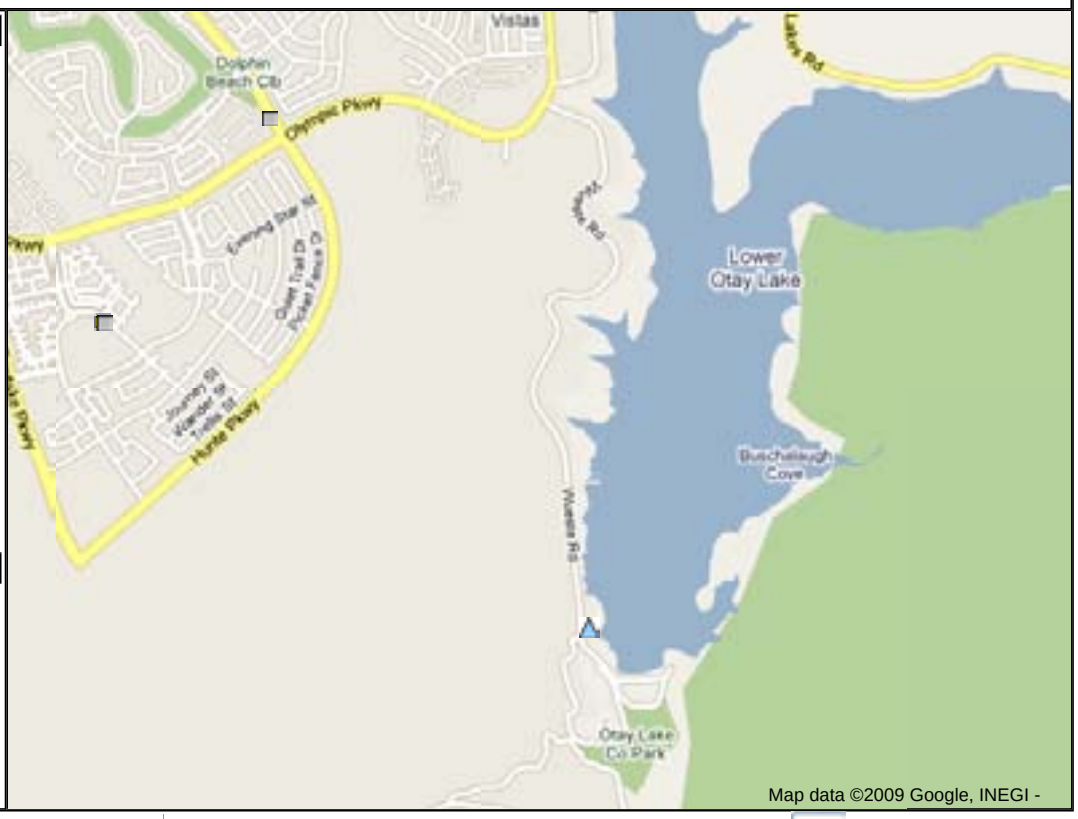
ENVIROSTOR

LAYERS

- Federal Superfund
- State Response
- Voluntary Cleanup
- School Cleanup
- Evaluation
- School Investigation
- Military Evaluation
- Corrective Action
- Haz Waste Permit
- GeoTracker LUFT
- GeoTracker SLIC

MAP SIZE

640x480



MAP AN ADDRESS: Go!

LINK TO THIS MAP

ENVIROSTOR

LAYERS

- Federal Superfund
- State Response
- Voluntary Cleanup
- School Cleanup
- Evaluation
- School Investigation
- Military Evaluation
- Corrective Action
- Haz Waste Permit
- GeoTracker LUFT
- GeoTracker SLIC

MAP SIZE

640x480

MAP AN ADDRESS: Go!

LINK TO THIS MAP

GEOTRACKER

LAYERS

- Leaking Underground Tank (LUST) Cleanup Sites
- Other Cleanup Sites
- Land Disposal Sites
- Military Sites
- Permitted Underground Storage Tank (UST) Facilities
- Monitoring Wells
- DTSC Cleanup Sites
- DTSC Haz Waste Permit

MAP SIZE

640x480

OPTIONS

Site List - EXPORT TO EXCEL

4 Sites

SHOW SITES WITHIN 1000 FEET OF THE FOLLOWING ADDRESS: 92154 Go

SITE LIST

SITE NAME	GLOBAL ID	CLEANUP STATUS	ADDRESS	CITY
EAST OF HUNTE PARKWAY MIDDLE SCHOOL	37010038	NO ACTION REQUIRED	EAST OF HUNTE PARKWAY	CHULA VISTA
LOWER LAKE FILTRATION PLANT	T06019785157	COMPLETED - CASE CLOSED	2200 WUESTE RD	SAN DIEGO
OTAY RANCH VILLAGE 11 S-1	60000102	NO FURTHER ACTION	WINDINGWALK STREET/OLYMPIC PARKWAY/DISCOVERY FALLS D	CHULA VISTA
OTAY RANCH VILLAGE 11; S-1 SCHOOL SITE	60000797	NO FURTHER ACTION	1650 EXPLORATION FALLS DRIVE	CHULA VISTA

MAP AN ADDRESS: Go!

LINK TO THIS MAP

GEOTRACKER

LAYERS

- Leaking Underground Tank (LUST) Cleanup Sites
- Other Cleanup Sites
- Land Disposal Sites
- Military Sites
- Permitted Underground Storage Tank (UST) Facilities
- Monitoring Wells
- DTSC Cleanup Sites
- DTSC Haz Waste Permit

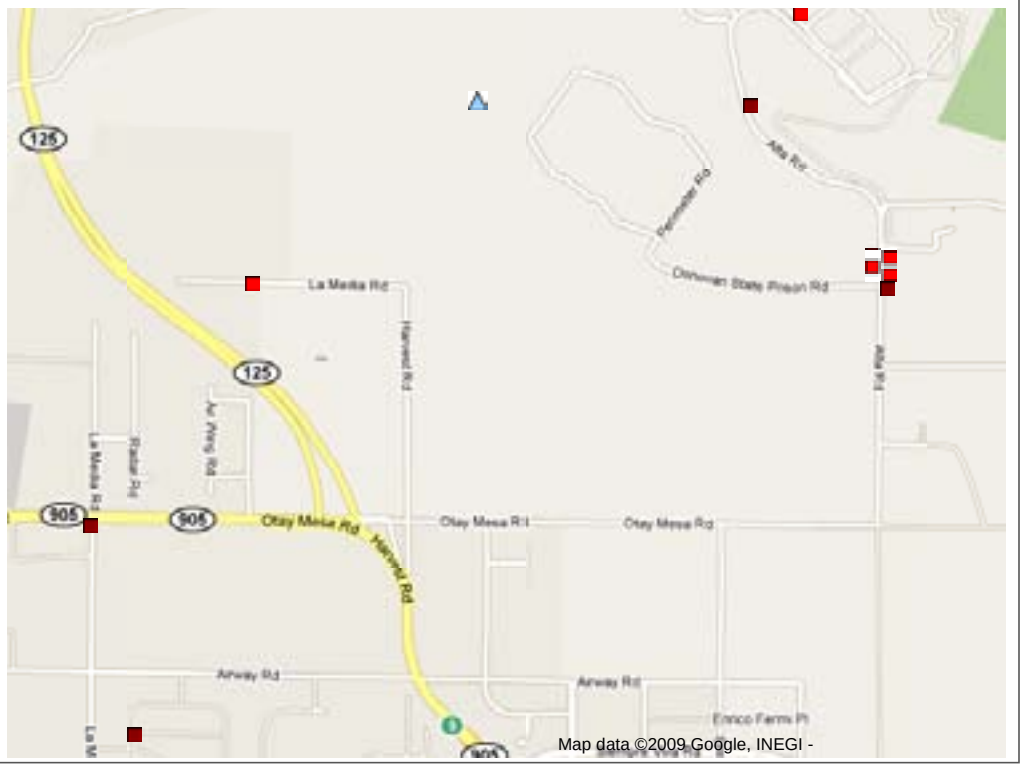
MAP SIZE

640x480

OPTIONS

Site List - EXPORT TO EXCEL

10 Sites



SHOW SITES WITHIN 1000 FEET OF THE FOLLOWING ADDRESS: 92154 Go

SITE LIST

SITE NAME	GLOBAL ID	CLEANUP STATUS	ADDRESS	CITY
7-ELEVEN #32290	19710		8395 OTAY MESA RD	SAN DIEGO
BROWN FIELD BOMBING RANGE	80000890	ACTIVE	2 MILES NORTHEAST OF OTEY MESA, SAN DIEGO	SAN DIEGO
CAL DEPT OF CORRECTIONS NT0508	19319		480 ALTA RD	SAN DIEGO
CAL DEPT OF CORRECTIONS NT0508	T0607302380	COMPLETED - CASE CLOSED	480 ALTA RD	SAN DIEGO
CAL DEPT OF CORRECTIONS NT0508	T06019734315	COMPLETED - CASE CLOSED	480 ALTA RD	SAN DIEGO
CAL DEPT OF CORRECTIONS NT0508	T06019780616	COMPLETED - CASE CLOSED	480 ALTA RD	SAN DIEGO
EAST MESA DETENTION CENTER	19459		430 ALTA RD	SAN DIEGO
EAST MESA DETENTION CENTER	T06019760128	COMPLETED - CASE CLOSED	446 ALTA RD	SAN YSIDRO
OPERATIONS CENTER PHASE II	T0619763854	OPEN - SITE ASSESSMENT	8651 LONESTAR RD.	SAN DIEGO
OTAY TRUCK STOP	19638		2248 AVENIDA COSTA DEL SOL	SAN DIEGO

MAP AN ADDRESS: Go!

SAM Case Listing - 9/23/2009

Header Key Link

Address	City	Zip Code	Case	Business Name	Agency	Funding	Type	Status	Date	Began
2706 OTAY LAKES DR	CHULA VISTA	91915	H32346-001	H.G. FENTON CO.	DEH/SAM	V	S	9	16-Apr-01	14-Aug-00
2706 OTAY LAKES DR	CHULA VISTA	91915	H32346-002	H.G. FENTON CO.	DEH/SAM	V	S	9	10-Apr-01	14-Aug-00
2380 BRITANNIA	SAN DIEGO	92154	H39739-001	2380 BRITANNIA BLVD., SAN DIEGO	DEH/SAM	V	S	9	16-May-09	
2160 CACTUS RD	SAN DIEGO	92154	H99064-001	MARTINEZ RANCH	DEH/SAM	XV	S	3	02-Nov-04	05-Nov-04
2200 CORONADO AV	SAN DIEGO	92154	H39713-001	S. BAY DRIVE-IN/CORONADO PALMS HOMES	DEH/SAM	V	AX	9	16-Oct-07	
2710 IRIS AV	SAN DIEGO	92154	122791-001	SOUTHWEST MIDDLE SCHOOL	DEH/SAM	F	S	9	19-Dec-06	22-Jul-05
2000 LEON AV	SAN DIEGO	92154	121342-001	SOUTH BAY SCHOOL DISTRICT	DEH/SAM	S	O	3	29-Aug-07	26-Jul-07
8651 LONESTAR RD.	SAN DIEGO	92154	207903-001	OPERATIONS CENTER PHASE II	DEH/SAM	S	S	3	24-Apr-07	20-Apr-07
MONUMENT RD	SAN DIEGO	92154	H33531-001	HOFER PROPERTY	DEH/SAM	N	S	1	17-May-93	17-Dec-91
200 N MONUMENT&DAIRY MART	SAN DIEGO	92154	H32112-001	GTE INC	DEH/SAM	V	S	9	24-Dec-98	26-Sep-91
2510 OTAY CENTER DR	SAN DIEGO	92154	H29556-001	ARCO	DEH/SAM	F	S	9	27-Oct-05	03-Mar-03
980 OTAY VALLEY RD	SAN DIEGO	92154	H30802-001	AUTO RECYCLING	DEH/SAM	V	S	9	23-May-07	
1714 PALM AV	SAN DIEGO	92154	H11745-001	RESCO	DEH/SAM	V	A	9	19-Mar-04	03-Jan-02
1835 PALM AV	SAN DIEGO	92154	H04280-001	TAYLOR AUTO SHOP	DEH/SAM	V	S	9	06-Oct-05	
3388 PALM AV	SAN DIEGO	92154	H11129-001	SPEEDY CLEAN SPECIALISTS, INC.	DEH/SAM	V	S	3	21-Nov-06	
655 SATURN BL	SAN DIEGO	92154	H19023-001	SATURN CLEANERS	DEH/SAM	V	S	9	27-Jan-04	13-Jun-03
1550 SUNSET AV	SAN DIEGO	92154	H02730-001	TRIPLE S HORSE RANCH	DEH/SAM	XV	S	3	18-Jan-02	18-Jan-02
9955 VIA DE LA AMISTAD DR	SAN DIEGO	92154	125243-001	AIR LIQUIDE INDUSTRIAL US LP	DEH/SAM	F	S	9	28-Apr-06	01-Oct-04

Appendix G
Noise and Vibration Assessment

Noise and Vibration Assessment for the Otay Water District's Transmission Pipelines

Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project

Prepared for:

Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, California 91978-2096
Contact: Lisa Coburn-Boyd

Prepared by:

ICF International
1 Ada, Suite 100
Irvine, California 92618
Contact: Mike Greene

February 2010

ICF International. 2010. Noise and Vibration Assessment for the Otay Water District's Transmission Pipelines – Otay Mesa Recycled Water System Capital Improvement Program R2087, R2077, R2058 Project. Draft. February. Prepared for Otay Water District.

Contents

Page

Summary **1**

Chapter 1 Introduction **2**

Project History 2

Fundamentals of Environmental Noise and Vibration 2

Wueste Road Pipeline (R2087) 6

Project Location 6

Project Description 6

Environmental Setting 7

Alta Road Pipeline (R2077) 9

Project Location 9

Project Description 9

Environmental Setting 9

Airway/La Media Road Pipeline (R2058) 9

Project Location 9

Project Description 9

Environmental Setting 10

Regulatory Setting 10

Federal 10

State 10

Local 11

Chapter 2 Impacts and Mitigation Measures **15**

Operational Noise and Vibration 15

Wueste Road Pipeline (R2087) 15

Construction Noise 15

Construction Vibration 18

Alta Road Pipeline (R2077) 18

Airway/La Media Road Pipeline (R2058) 19

Chapter 3 References **20**

Appendices

A. Field Photographs

B. List of Field Instrumentation

C. Field Data Sheets

D. RCNM Input/Output Files

Tables

Table		Page
1	Short-Term Sound Level Measurement Results	8
2	Reaction of People and Damage to Buildings at Various Continuous Vibration Levels	11
3	County of San Diego Exterior Noise Standards	11
4	City of San Diego Exterior Noise Standards	13
5	City of Chula Vista Noise Compatibility Guidelines	14
6	Construction Phase Noise	17

Figures

		Follows Page
1	Regional Location	2
2	Project Vicinity	2
3	Sound Levels of Typical Noise Sources and Noise Environments (dBA)	On Page 4
4	Typical Levels of Groundborne Vibration	On Page 6
5	Noise Measurement and Modeling Locations	8

Acronyms and Abbreviations

ADT	Average Daily Traffic
AMSL	above mean sea level
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
cm	centimeter
CNEL	Community Noise Equivalent Level
dB	decibels
dBA	A-weighted sound level
District	Otay Water District's
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
FR	Federal Register
ft	foot
FTA	Federal Transit Administration
Hz	hertz
in	inch
IPS	inches per second
L_{dn}	Day-Night Average Sound Level
L_{eq}	equivalent sound level
L_{max}	root-mean-square maximum obtainable noise level
L_{min}	root-mean-square minimum obtainable noise level
m	meter
NSLU	noise-sensitive land uses

OWTP	Otay Water Treatment Plant
PCE	passenger car equivalents
PPV	peak particle velocity
Project	Otay Mesa Recycled Water Systems Capital Improvement Program R2087, R2077, R2058 Project
PRS	pressure-reducing station
RCNM	Roadway Construction Noise Model
RMS	root-mean square
SLM	Sound Level Meter
SR	State Route
USC	U.S. Government Code
VdB	velocity decibel

Summary

The proposed Otay Mesa Recycled Water Systems Capital Improvement Program R2087, R2077, R2058 Project (Project or proposed Project) involves the construction and operation of three recycled water system transmission pipelines. The three pipelines are within the Otay Water District's (District's) South District area, and consist of the Wueste Road Pipeline (Capital Improvement Program [CIP] R2087), the Alta Road Pipeline (CIP R2077), and the Airway/La Media Road Pipeline (CIP R2058). The three-pipeline proposed Project would extend along Wueste Road within the County of San Diego and the City of Chula Vista, along Alta Road in the City of San Diego, and along Airway/La Media Road in the City of San Diego.

A noise study was conducted as part of the proposed Project's Environmental Impact Report (EIR), in order to assess the potential effects from construction and operation of the three water transmission pipelines. Baseline noise measurements were conducted at representative noise-sensitive land uses, the regulatory conditions were investigated, and future construction noise and vibration levels were estimated using predictive modeling methods.

The results of the analysis indicate that noise from construction-related activities may exceed City of Chula Vista noise standards and thus rise to a level of significance if nighttime pumping (for de-watering) is deemed necessary in the northern portion of the proposed Wueste Road Pipeline alignment, where residences exist. With the implementation of recommended mitigation measures, the noise levels from pumping noise could be lowered to meet the applicable noise standard and thus be reduced to a level below significance. Noise impacts from construction in the southern portion of the Wueste Road Pipeline alignment would be less than significant. Similarly, noise impacts from construction of the Alta Road Pipeline and Airway/La Media Road Pipeline would be less than significant.

Vibration levels during construction would be low at the nearest sensitive land uses, because of the relatively large distances from the pipeline alignments to the sensitive land uses. Therefore, effects from vibration during construction would be less than significant for all three pipeline alignments.

After installation, the pipelines would not require the use of pumps, motors, or other noise- or vibration-generating machinery. Therefore, operation of these facilities would not result in permanent increases in the ambient noise or vibration levels that could affect surrounding sensitive land uses. Therefore, operational noise and vibration impacts would be less than significant.

Chapter 1
Introduction

The Otay Water District's (District) Otay Mesa Recycled Water Systems Capital Improvement Program R2087, R2077, R2058 Project (Project or proposed Project) involves the construction and operation of three recycled water system transmission pipelines. The three pipelines are within the District's South District area, which comprises the Central Area and the Otay Mesa Systems, and includes the Wueste Road Pipeline (Capital Improvement Program [CIP] R2087), the Alta Road Pipeline (CIP R2077), and the Airway/La Media Road Pipeline (CIP R2058) (Figures 1 and 2). Construction of the proposed Project is funded by the Bureau of Reclamation and is anticipated to take 8–12 months to complete.

The Project affects three separate locations in the South District area within the corporate limits of the Cities of Chula Vista and San Diego as well as the unincorporated County of San Diego (Figure 1). The three-pipeline proposed Project would extend along Wueste Road within the County of San Diego and the City of Chula Vista, along Alta Road in the City of San Diego, and along Airway/La Media Road in the City of San Diego (Figure 2).

Project History

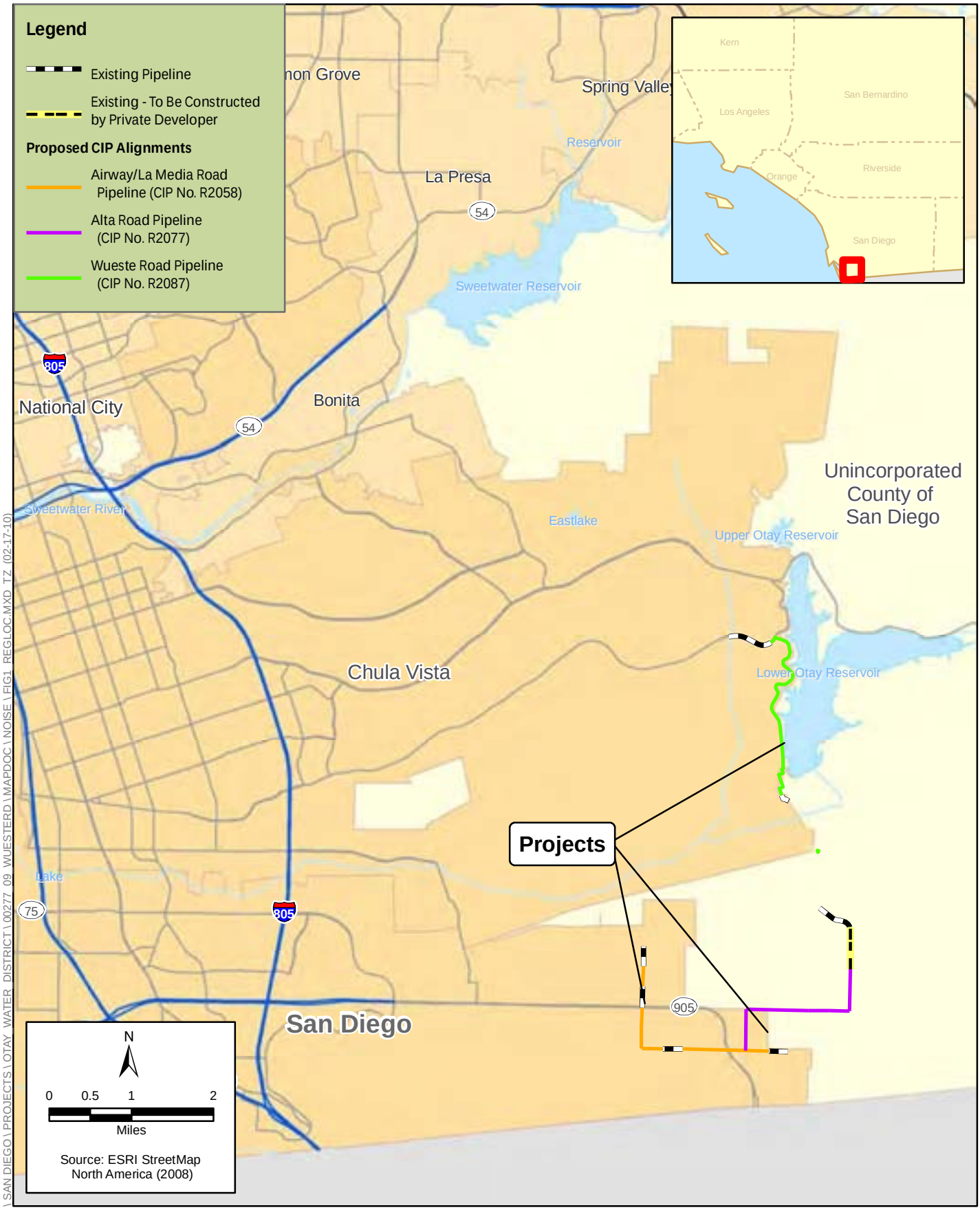
In June 2004, the District prepared a Final Program Environmental Impact Report (EIR) for the District's Water Resources Master Plan. In 2005, a Programmatic Environmental Assessment (EA) for the District's Phase II and Phase III Recycled Water CIP Projects was prepared. The EIR and EA took a program-level look at the potential impacts associated with a number of CIP projects, including the Alta Road and Airway/La Media Road Pipelines, referenced in the EIR as R058 and R077, respectively. Potential impacts of the Wueste Road Pipeline were not addressed in either the Master Plan EIR or the Programmatic EA. In 2009, the District prepared an EIR for the proposed Project, which included a National Environmental Policy Act (NEPA)–level analysis to address components of the Project that were not addressed in the previous EA (i.e., the Wueste Road Pipeline).

Fundamentals of Environmental Noise and Vibration

The phenomena commonly known as "noise" and "vibration" are both caused by vibrations; as used here, "noise" is a result of vibration through the air (i.e., airborne vibration), and "vibration" is a result of vibration through the ground or other structures (groundborne vibration).

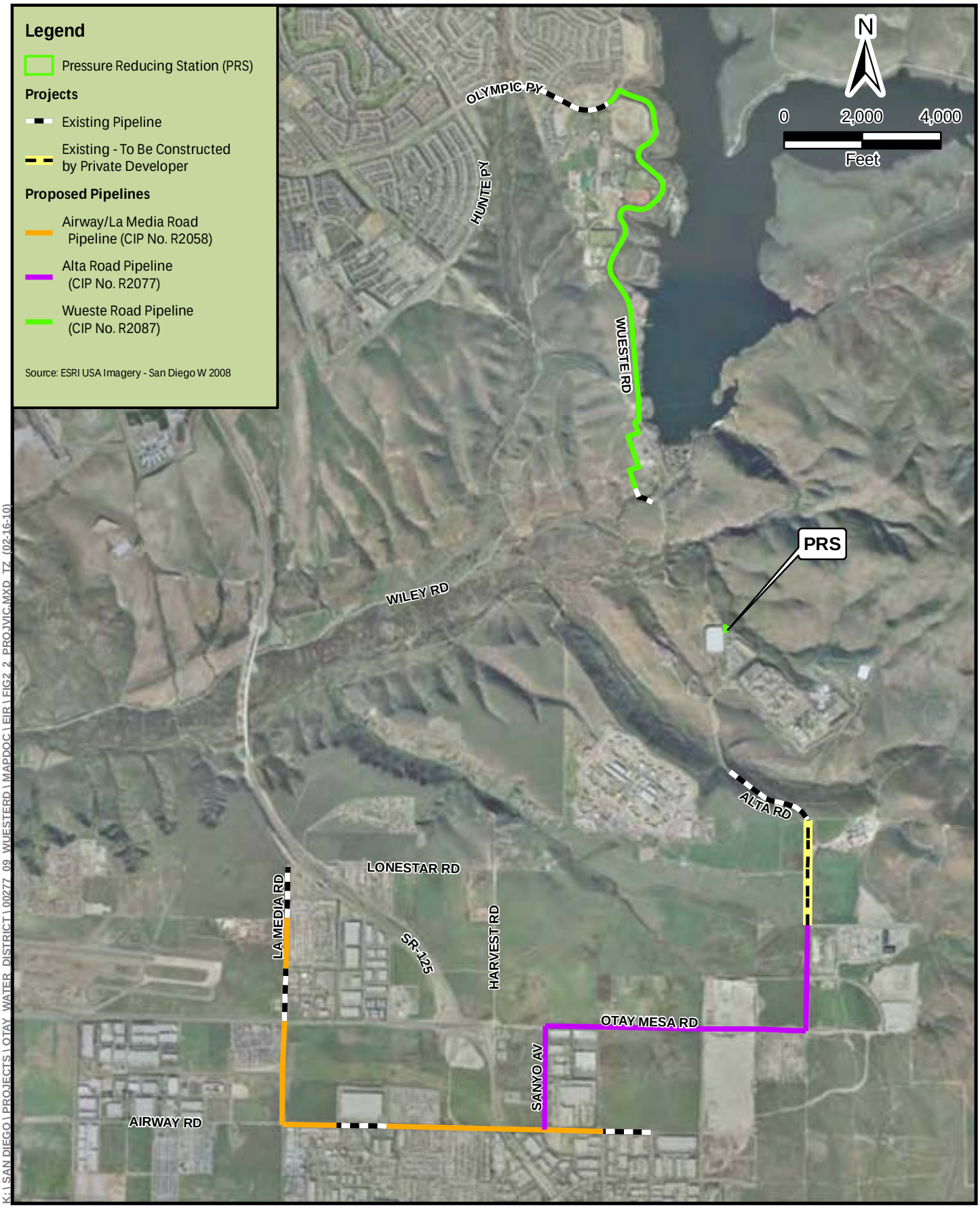
Noise Terminology

Noise is generally defined as *unwanted sound*. It may be loud, unpleasant, unexpected, or undesired sound typically associated with human activity that interferes with or disrupts normal noise-sensitive ongoing activities of others. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance and suitability of the noise in a particular setting, the time of day and type of



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\NOISE\FIG1 REGLOC.MXD TZ (02-17-10)

Figure 1
Regional Location



K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\EIR\FIG2_2 PROJVIC.MXD TZ (02-16-10)

ICF INTERNATIONAL

Figure 2
Project Vicinity

activity during which the noise occurs, and the sensitivity of the individual. The response to vibration is similar: first, the vibration needs to be of sufficient magnitude to be perceived, and, second, it typically would have to interfere with a desirable activity to cause annoyance.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium such as air that are sensed by the human ear. Sound is generally characterized by frequency and intensity. Frequency describes the sound's pitch and is measured in hertz (Hz); intensity describes the sound's level, volume, or loudness and is measured in decibels (dB). Sound frequency is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates at a certain number of times per second. Vibration of the drum skin at a rate of 100 times (or cycles) per second generates a sound pressure wave that is said to be oscillating at 100 Hz, and this pressure oscillation is perceived as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the best human ear.

Sound from a tuning fork contains a single frequency and may therefore be referred to as a *pure tone*. However, most sounds heard in the environment do not consist of a single frequency but rather a broad band of frequencies differing in individual sound levels. The method commonly used to quantify environmental sounds consists of evaluating all the frequencies of a sound according to a weighting system that reflects the fact that human hearing is less sensitive at low and extremely high frequencies than at mid-range frequencies. This frequency-dependent modification is called A-weighting, and the decibel level measured is called the A-weighted sound level (dBA). In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve.

For informational purposes, typical community sound levels are presented in Figure 3. A sound level of 0 dBA is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort and eventually pain at still higher levels.

In a community environment, a change in the sound level of 3 dBA is considered barely perceptible. Changes of 5 dBA are more readily perceived. A change in sound level of 10 dBA is usually perceived by the average person as a doubling (or halving) of the sound's loudness; this relation holds true for loud sounds and for quiet sounds. Because of the logarithmic scale of the decibel unit, sound levels cannot be added or subtracted arithmetically and are somewhat cumbersome to handle mathematically. However, a simple rule of thumb is useful in dealing with sound levels: if a sound's physical intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. For example, 60 dB plus 60 dB equals 63 dB, and 80 dB plus 80 dB equals 83 dB. As mentioned earlier, however, a perception of doubling of sound level requires about a 10-dB increase.

Noise Level dBA	Extremes	Home Appliances	Speech at 3 Feet	Motor Vehicles at 50 Feet	General Type of Community Environment
120	Jet aircraft at 500 feet				
110					
100		Chain saw			
90		Power lawn mower		Diesel truck (not muffled)	
80		Shop tools	Shout	Diesel truck (muffled)	
70		Blender	Loud voice	Automobile at 70 mph	Major metropolis
60		Dishwasher	Normal voice	Automobile at 40 mph	Urban (daytime)
50		Air conditioner	Normal voice (back to listener)	Automobile at 120 mph	Suburban (daytime)
40		Refrigerator			Rural (daytime)
30					
20					
10	Threshold of hearing				

Source: Harris Miller Miller & Hanson, Inc. 2003.

Figure 3. Sound Levels of Typical Noise Sources and Noise Environments (dBA)

Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a mixture of noise from distant sources that create a relatively steady background noise in which no particular source is identifiable. A single descriptor called the "equivalent sound level" (L_{eq}) is used to describe the average acoustical energy in a time-varying sound. L_{eq} is the energy-mean A-weighted sound level present or predicted to occur during a specified interval. It is the "equivalent" constant sound level that a given source would need to produce to equal the fluctuating level of measured sound. It is often desirable to also know the range of acoustic levels of the noise source being measured. This is accomplished through the L_{max} and L_{min} noise descriptors. They represent the root-mean-square maximum and minimum obtainable noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location represents the quietest moment occurring during the measurement period and is often called the *acoustic floor* for that location. Likewise, the loudest momentary sound during the measurement is represented by L_{max}.

To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10}, L_{50}, and L_{90} (or other percentile values) may be used. They are the noise levels equaled or exceeded 10, 50, and 90% of the time, respectively, during the measured interval. The percentile descriptors are most commonly found in nuisance noise ordinances to allow for different noise levels for various portions of an hour. For example, the L_{50} value would represent 30 minutes of an hour period, the L_{25} would be associated with 15 minutes of an hour, and so on. Of particular interest in this analysis are other descriptors of noise that are commonly used to help determine noise/land use compatibility and to predict an average community reaction to adverse effects of environmental noise, including traffic-generated and industrial noise.

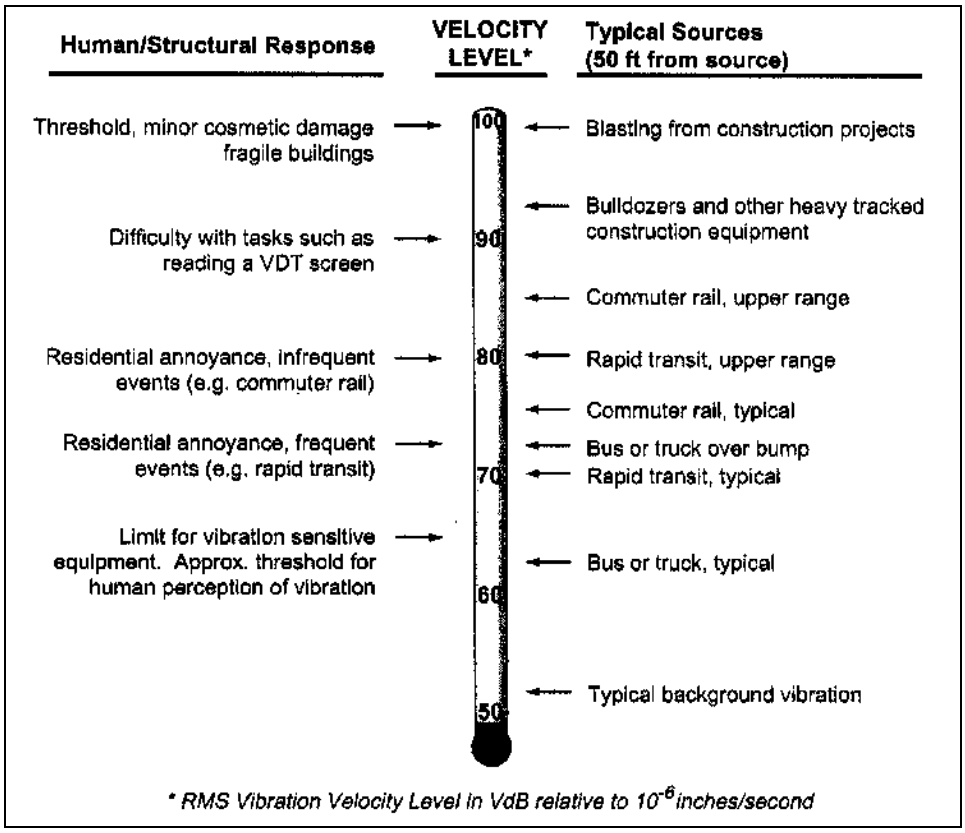
One of the most universal descriptors is the day-night average sound level (DNL or L_{dn}). As recommended by the state health department and state planning law, planning agencies use this descriptor. The L_{dn} noise metric represents a 24-hour period and applies a time-weighted factor designed to penalize noise events that occur during nighttime hours, when relaxation and sleep disturbance is of more concern than during daytime hours. Noise occurring between 7:00 a.m. and 10:00 p.m. receives no penalty. Noise occurring between 10:00 p.m. and 7:00 a.m. is penalized by adding 10 dB to the measured level. In California, the use of the Community Noise Equivalent Level (CNEL) descriptor is permitted (and is used by the City of Chula Vista). CNEL is identical to L_{dn} except CNEL adds a 5 dB penalty for noise occurring between 7:00 p.m. and 10:00 p.m.

Vibration Terminology

Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground. The strength of groundborne vibration diminishes (or “attenuates”) fairly rapidly over distance. Some soil types transmit vibration quite efficiently; other types (primarily “sandy” soils) do not. There are several basic measurement units commonly used to describe the intensity of ground vibration. The descriptors used by the Federal Transit Administration (FTA), one of the agencies which has thoroughly examined and set forth criteria and methodologies for community vibration analysis, are peak particle velocity, abbreviated PPV, in units of inches per second (IPS)and the velocity decibel, abbreviated VdB. The velocity parameter (rather than acceleration or displacement) best correlates with human perception of vibration. Thus, the response of humans, buildings, and sensitive equipment to vibration is described in this section in terms of the root-mean square (RMS) velocity level in VdB units relative to 1 micro-inch per second. As a point of reference, the average person can just barely perceive vibration velocity levels below 70 VdB (typically in the vertical direction).

A comparison of common groundborne vibration levels is shown in Figure 4. Typical background vibration levels are between 50 and 60 VdB, whereas the levels for minor cosmetic damage to fragile buildings or blasting are generally 100 VdB.

Figure 4. Typical Levels of Groundborne Vibration



Source: FTA 2006.

Wueste Road Pipeline (R2087)

Project Location

The Wueste Road Pipeline is located east of Lower Otay Reservoir. The pipeline will follow Wueste Road from the intersection of Wueste Road and Olympic Parkway south to the entrances of City of San Diego's Otay Water Treatment Plant (OWTP) and the County of San Diego's Otay Lakes County Park. Here, the pipeline will turn west and then south along dirt access roads to its terminus at an existing structure at the southwestern edge of the OWTP. In addition, a pressure-reducing station (PRS) would be constructed approximately 0.5 mile northeast of Donovan State Prison along the northwestern portion of Alta Road, near the Otay Mountain Truck Trail.

Project Description

The Wueste Road Pipeline consists of a 24-inch [in])–diameter, 13,300-foot [ft])–long steel pipeline segment. The pipeline would be constructed within a segment of Wueste Road within the Central Area System. The pipeline would start at Olympic Parkway where it would be connected to an existing 16-inch-diameter RecPL. The pipeline would then extend south within Wueste Road along

the western border of the OWTP and connect to an existing 30-in–diameter RecPL just south of the plant.

The District intends to limit construction activities to paved portions of the roads within the existing utility rights-of-way, where feasible, and construction staging areas are anticipated to be sited in existing developed areas. However, some sections of construction would extend beyond the paved areas of the road and may involve disturbance of areas adjacent to the roadway. The construction corridor within Wueste Road would extend approximately 10 ft) to the east of the paved portion of Wueste Road. The construction corridor for the portion of the Project that would extend outside of Wueste Road would be approximately 50–70 ft.

As part of the Wueste Road Pipeline (R2087), a PRS will be constructed near Donovan State Prison. Modifications to existing pipelines necessary to accommodate the PRS would include removal of existing butterfly valves, blowoff valves, and 30-inch steel pipelines. Additionally, two 20-ft sections of pipelines, 20 in and 24 in in diameter, respectively, would be installed for future use in addition to the proposed PRS.

The construction corridors would include a trench depth of approximately 6.5 ft. Construction would be completed using cut and cover trenching. No aboveground structures or pump stations are proposed as a part of the Project.

Environmental Setting

The Wueste Road Pipeline is located east of Lower Otay Reservoir, along the western shore of the reservoir. The pipeline ranges approximately 13 to 1,312 ft from the edge of the reservoir for the portion along Wueste Road. Elevation ranges from 521 ft above mean sea level (AMSL) at the intersection of Olympic Parkway and Wueste Road to 322 ft AMSL at the terminus at the southwestern edge of the OWTP. Elevation at the PRS is 557 ft. The pipeline is located on the U.S. Geological Survey 7.5-minute Jamul Mountains and Otay Mesa quadrangles.

The area surrounding Wueste Road is fairly undeveloped. Surrounding land uses include open space, the U.S. Olympic Training Center, the boat launch for the Lower Otay Reservoir, the OWTP, and Otay Lakes County Park. Residences also exist to the north, several hundred feet from the northern terminus of the Wueste Road Pipeline alignment.

Noise Measurement Survey. A measurement survey was conducted on August 6, 2009, to evaluate existing sound levels and assess potential Project noise impacts on the surrounding area. Short-term sound levels were measured on site and at existing noise-sensitive receptors near the Project vicinity, as shown in Figure 5.

Short-term attended sound level measurements were conducted with a Larson Davis Type 812 Sound Level Meter (SLM). This instrument is categorized as a Type 1 (Precision Grade) device. Noise was measured at four representative locations along the Wueste Road Pipeline alignment. A short-term noise measurement (ST-1) was taken on the walking trail near the northern terminus of the pipeline alignment; another measurement (ST-2) was taken at the residences to the north; the third (ST-3) was taken at the Olympic Training Facility; and the fourth (ST-4) was taken at Otay Lakes County Park. Site photographs are included in Appendix A.

The sound measuring instruments used for the survey were set to the slow time response and the dBA scale for all of the noise measurements. To ensure accuracy, the laboratory calibration of the

instruments was field checked before and after each measurement period. The accuracy of the acoustical calibrator is maintained through a program established through the manufacturer and traceable to the National Institute of Standards and Technology. The sound measurement instruments meet the requirements of the American National Standard S 1.4-1983 and the International Electrotechnical Commission Publications 804 and 651. In all cases, the microphone height was 5 feet above the ground and the microphone was equipped with a windscreen. A list of field instrumentation is included in Appendix B.

During the field measurements, physical observations of the predominant noise sources were noted. The field noise measurement data sheets are included in Appendix C. The noise sources in the Project vicinity typically included traffic noise from nearby arterial roads, distant aircraft, and birds. The results of the attended short-term sound level measurements are summarized in Table 1. As shown in Table 1, measured noise levels during daytime hours in and around the Project site ranged from 47 dBA L_{eq} (at ST-2) to 57 dBA L_{eq} (at ST-4).

Table 1. Short-Term Sound Level Measurement Results

		Measurement Period				Measurement Results (dBA)					
Site ID	**Measurement Location**	**Date**	**Start Time**	**Duration (mm:ss)**	**Noise Sources**	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
ST-1	On walking trail at intersection of Wueste Road and Olympic Parkway	8-9-09	10:30	15:00	Traffic, distant aircraft	48.8	65.1	34	38.4	44.3	52.1
ST-2	2829 Weeping Willow Road	8-9-09	11:07	15:00	Traffic, distant aircraft, birds, distant chimes, air conditioners	47.1	59.7	37.5	40.8	45.7	50.2
ST-3	U.S. Olympic Training Facility	8-9-09	11:46	15:00	Distant aircraft, rustling leaves, distant landscaping activities	50.5	65.3	35.5	40.2	43.6	50.8
ST-4	Otay Lakes County Park	8-9-09	12;31	15:00	Pump noise at water treatment facility, distant aircraft, birds, distant construction noise	57.2	71.5	44.8	47.6	53.7	60.1

K:\SAN DIEGO\PROJECTS\OTAY WATER DISTRICT\00277 09 WUESTERD\MAPDOC\NOISE\FIG5 NOISE.MXD TZ (02-17-10)

ICF INTERNATIONAL

Figure 5
Noise Measurement and Modeling Locations

Alta Road Pipeline (R2077)

Project Location

The Alta Road Pipeline is located south of Donovan State Prison and starts at the intersection of Calzada de la Fuente Road and Alta Road. The pipeline then extends south within Alta Road, west along Otay Mesa Road, and south along Sanyo Avenue where it connects to the Airway/La Media Road Pipeline.

Project Description

The Alta Road Pipeline consists of a 24-in–diameter, 11,989-ft–long PVC RecPL segment. The pipeline would be constructed along a segment of Alta Road within the Otay Mesa System, beginning at the intersection of Calzada de la Fuente Road where it would be connected to an existing 24-in–diameter RecPL. The pipeline would extend south within Alta Road, continue west along Otay Mesa Road, and then extend south within Sanyo Avenue where it would connect to the 16-in–diameter RecPL proposed along Airway Road.

The entire pipeline would be constructed within existing paved roads within the existing utility rights-of-way. Construction staging areas are anticipated to be sited in existing developed areas. The construction corridor for R2077 within Alta Road would total 40 ft, occupying 20 ft on either side of the centerline. The construction corridor within Sanyo Road would extend 10 ft west of the centerline. The construction corridor within Otay Mesa Road would extend 10 ft south of the center line. The construction corridors would include a trench depth of approximately 6.5 ft. Construction would be completed using cut and cover trenching. No aboveground structures or pump stations are proposed as a part of the Project.

Environmental Setting

The Alta Road Pipeline is located south of Donovan State Prison. Elevation ranges from 613 ft AMSL at the intersection of Calzada de la Fuente Road and Alta Road to 568 ft AMSL at the terminus at the intersection of Sanyo Avenue and Airway Road. No noise-sensitive land uses (NSLU) exist within 1,000 feet of the Project alignment. Donavon State Prison land uses are located more than 1,200 feet from the Project alignment. Because no NSLU are nearby, noise measurements were not conducted along this alignment.

Airway/La Media Road Pipeline (R2058)

Project Location

The Airway/La Media Road Pipeline starts at the intersection of La Media and Windsock Roads and extends south within La Media Road to Airway Road to its terminus near Enrico Fermi Drive.

Project Description

The Airway/La Media Road Pipeline consists of a 16-in–diameter, 12,440-ft–long PVC RecPL segment. The pipeline would utilize 2,586 ft of existing pipeline; and9,853 ft of new pipeline would

be constructed as a part of the Project. The pipeline would be constructed along segments of Airway and La Media Roads within the Otay Mesa System. The Airway/La Media Road Pipeline (R2058) would be divided into nine sections—four that are proposed to be constructed under this Project and five that were previously constructed by developers. The pipeline would start at the intersection of La Media and Windsock Roads and then extend south within La Media Road to Airway Road. The pipeline would continue east along Airway Road and end approximately 80 feet to the west of the Paseo de Las Americas/Airway Road intersection where it would be connected with the existing 16-in)–diameter PVC main water pipeline.

The entire pipeline would be constructed within existing paved roads, and its construction corridor would be 40 ft extending 20 ft on either side of the centerline, within the existing utility rights-of-way. Construction staging areas are anticipated to be sited in existing developed areas. The construction corridors would include a trench depth of approximately 6.5 ft. Construction would be completed using cut and cover trenching. No aboveground structures or pump stations are proposed as a part of the Project.

Environmental Setting

The Alta Road Pipeline is located along Airway and La Media Roads. Elevation ranges from 515 ft AMSL at the start of La Media Road near State Route (SR) 480 ft AMSL at the intersection of La Media and Airway Roads to 582 ft) at the terminus near Enrico Fermi Drive. No NSLU exist within the vicinity; therefore, noise measurements were not conducted along this alignment.

Regulatory Setting

Federal

There are a number of laws and guidelines at the federal level relevant to the assessment of noise and vibration impacts. These include:

- Noise Control Act of 1972 (U.S. Government Code [USC], title42, section 4910),
- HUD Environmental Standards (Code of Federal Regulations [CFR], title 24, part 51), and
- OSHA Occupational Noise Exposure; Hearing Conversation Amendment (Federal Register [FR], volume 48 (46), pages 9738–9785 (1983).

Also relevant to this Project are standards and methodologies promulgated by the FTA. Although the FTA standards were intended for federally funded proposed mass transit projects, the impact assessment procedures and criteria contained in the FTA's *Transit Noise and Vibration Impact Assessment* (May 2006) manual are often used for projects proposed by local jurisdictions, particularly in the absence of other thresholds.

State

At the State level, the California Environmental Quality Act (CEQA) requires that an environmental study and an analysis of environmental impacts be performed for every development project that requires discretionary approval from a government agency and that may cause either a direct physical change or a reasonably foreseeable indirect change in the environment.

California Department of Transportation (Caltrans)

Because neither the District nor the local municipalities maintain regulatory standards for vibration sources, potential structural damage and human annoyance associated with vibration from construction activities were evaluated based on Caltrans vibration limits (see Table 2). A vibration level of 0.10 PPV IPS was used to evaluate impacts on nearby receptors, since this level represents the boundary between barely perceptible and distinctly perceptible vibration.

Table 2. Reaction of People and Damage to Buildings at Various Continuous Vibration Levels

Vibration Level (PPV IPS)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibration)	Threshold at which there is a risk of "architectural" damage to normal dwelling-houses with plastered walls and ceilings; special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Caltrans 2004

Local

The Project vicinity is within three major jurisdictional areas: the County of San Diego, the City of San Diego, and the City of Chula Vista. The following describes the noise regulations for each of these jurisdictions.

County of San Diego Noise Ordinance

The County of San Diego Noise Ordinance establishes prohibitions for disturbing, excessive, or offensive noise, and establishes noise standards. Table 3 presents the exterior noise standards and corresponding times of day for each zoning designation. Where two adjacent properties have different zones, the sound level limit at a location on a boundary between two properties is the arithmetic mean of the respective limits for the two zones, except for extractive industries.

The County of San Diego does not have a quantified standard or threshold for vibration that is applicable to the construction or operations phase of this Project.

Table 3. County of San Diego Exterior Noise Standards

Zone[a]	Limit 1-Hour dBA[b]	Time Period
(1) R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-90, S-92, R-V, and R-U Use Regulations with a density of less than 11 dwelling units per acre	50	7:00 a.m.–10:00 p.m.
	45	10:00 p.m.–7:00 a.m.
(2) R-RO, R-C, R-M, S-86, RV, AND R-U Use Regulations with a density of 11 or more dwelling units per acre	55	7:00 a.m.–10:00 p.m.
	50	10:00 p.m.–7:00 a.m.
(3) S-94, V4, and all commercial zones	60	7:00 a.m.–10:00 p.m.
	55	10:00 p.m.–7:00 a.m.
(4) V1, V2	60	7:00 a.m.–7:00 p.m.
	55	7:00 p.m.–10:00 p.m.
V1	55	10:00 p.m.–7:00 a.m.
V2	50	10:00 p.m.–7:00 a.m.
V3	70	7:00 a.m.–10:00 p.m.
	65	10:00 p.m.–7:00 a.m.
(5) M-50, M-52, M-54	70	Anytime
(6) S-82, M-56, and M-58	75	Anytime
(7) S-88[c]	See below	

[a]Refer to the San Diego County Zoning Ordinance for a list of zones represented by the abbreviations in this table. Available:www.sdcounty.ca.gov/dplu/zoning/index.html.

[b]If the measured ambient noise level exceeds the applicable limit, the allowable 1-hour average sound level shall be the 1-hour average ambient noise level, plus 3 dB. The ambient noise level shall be measured when the alleged noise violation source is not operating.

[c]S-88 zones are Specific Planning Areas which allow different uses. The sound level limits that apply in an S-88 zone depend on the use being made of the property. The limits in subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52, or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

Source: San Diego County Municipal Code, January 2009.

Sections 36.408 through 36.411 of the Noise Ordinance establish noise limitations for construction activities (San Diego County Code of Regulatory Ordinances, Title 3, Division 6, Chapter 4, Section 36.401 through 36.435). Except for emergency work, it is unlawful for any person to operate or cause to be operated, construction equipment between the hours of 7:00 p.m. and 7:00 a.m. or that exceeds an average sound level of 75 dB for more than 8 hours, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

The County noise ordinance also includes standards for other sources of temporary and nuisance noise. Section 36.410, Sound Level Limitations on Impulsive Noise, states that except for emergency work, no person shall produce or cause to be produced an impulsive noise that exceeds 82 dBA at an

occupied residential, village zoning, or civic use; or 85 dBA at an occupied agricultural, commercial, or industrial use when measured at the boundary line of or on any occupied property for 25% of the minutes in the measurement period (L_{25}).

City of San Diego Noise Ordinance

The City of San Diego has adopted exterior noise level standards in its municipal code (Chapter 5, Public Safety, Morals and Welfare, of the San Diego Municipal Code) for various land uses (Table 4). The City's Noise Ordinance (Municipal Code Ordinance No. 59.5.0404) limits the hours of allowable construction activities and establishes performance standards for construction noise at any residentially zoned property. Construction activity is required to remain below 75 dB from 7:00 a.m. to 7:00 p.m. at or beyond the property lines of any property zoned residential. Additionally, the ordinance prohibits construction from 7:00 p.m. to 7:00 a.m. and on Sundays and holidays, with the exception of Columbus Day and Washington's Birthday, unless a permit has been granted by the City.

Table 4. City of San Diego Exterior Noise Standards

Land Use	Limit 1-Hour dBA[a]	Time Period
Single Family Residential	50	7:00 a.m.–7:00 p.m.
	45	7:00 p.m.–10:00 p.m.
	40	10:00 p.m.–7:00 a.m.
Multi-Family Residential (up to a maximum density of 1/2000)	55	7:00 a.m.–7:00 p.m.
	50	7:00 p.m.–10:00 p.m.
	45	10:00 p.m.–7:00 a.m.
All other Residential	60	7:00 a.m.–7:00 p.m.
	55	7:00 p.m.–10:00 p.m.
	50	10:00 p.m.–7:00 a.m.
Commercial	65	7:00 a.m.–7:00 p.m.
	60	7:00 p.m.–10:00 p.m.
	60	10:00 p.m.–7:00 a.m.
Industrial or Agricultural	75	Anytime

[a]If the measured ambient level exceeds the applicable limit, the allowable one-hour average sound level shall be the ambient noise level.

Source: San Diego Municipal Code, No. 59.5.0404.

The City of San Diego does not have a quantified standard or threshold for vibration that is applicable to the construction or operations phase of this Project.

City of Chula Vista Noise Regulations

Noise standards are addressed in Chapter 9, Section 3.5 (Noise) of the City's General Plan (City of Chula Vista 2005). The Noise Element sets forth goals and policies to ensure land use compatibility with respect to noise. Among these is the goal that excessive noise levels do not significantly affect citizens and other NSLU within the City. The Noise Element identifies noise compatibility for various land uses. As shown in Table 9-2 of the General Plan (reproduced below as Table 5), noise levels at

residential land uses, schools, libraries, outdoor use areas, and other NSLU are considered to be compatible if noise levels are 65 dBA CNEL or lower. Noise levels at office and professional land uses are considered to be compatible if noise levels are 70 dBA CNEL or lower.

Table 5. City of Chula Vista Exterior Land Use/Noise Compatibility Guidelines

Land Use	Annual CNEL in dB					
	50	55	60	65	70	75
Residential						
Schools, Libraries, Daycare Facilities, Convalescent Homes, Outdoor Use Areas, other Similar Uses Considered Noise Sensitive						
Neighborhood Parks, Playgrounds						
Community Parks, Athletic Fields						
Offices and Professional						
Places of Worship (excluding outdoor use areas)						
Golf Courses						
Retail and Whole Commercial, Restaurants, Movie Theaters						
Industrial, Manufacturing						

Source: City of Chula Vista 2005.

The City's Municipal Code (Title 19.68, City of Chula Vista) also contains noise standards that are used to limit noises from sources within its control (traffic noise, for example, is regulated by federal and state law and is thus preempted from regulation by local noise ordinance). Residential land uses are limited to an exterior noise level of 55 dBA L_{eq} during daytime hours (7 a.m. to 10 p.m. weekdays and 8 a.m. to 10 p.m. weekends), and 45 dBA L_{eq} during nighttime hours (10 p.m. to 7 a.m. weekdays and 10 p.m. to 8 a.m. weekends). Multiple dwelling residential land uses are limited to an exterior noise level of 60 dBA L_{eq} during daytime hours and 50 dBA L_{eq} during nighttime hours.

Noise from construction activities is regulated by the City's Municipal Code. Section 17.24.050 (Loud, Unusual or Continued Noises—Designated and Described) restricts construction noise by placing limits on the hours of construction operations. If construction creates a noise disturbance in residential zones, construction activities are not permitted between the hours of 10 p.m. and 7 a.m. Monday through Friday and between 10 p.m. and 8 a.m. on Saturday and Sunday, except for emergency work.

The City of Chula Vista does not have a quantified standard or threshold for vibration that is applicable to the construction or operations phase of this Project.

Chapter 2
Impacts and Mitigation Measures

The following sections discuss potential noise and vibration impacts on noise- /vibration-sensitive land uses from construction and operation of the Wueste Road Pipeline, the Airway/La Media Road Pipeline, and the Alta Road Pipeline, as well as the associated mitigation measures.

Operational Noise and Vibration

All three pipelines projects would be constructed under pre-existing roadways or concurrently with proposed roadways. After installation, the pipelines would not require the use of pumps, motors, or other noise- or vibration-generating machinery. Therefore, operation of these facilities would not result in permanent increases in ambient noise or vibration levels that could affect surrounding NSLU. Operational noise and vibration impacts would be less than significant.

The potential noise and vibration effects from construction are discussed separately for each of the three pipelines.

Wueste Road Pipeline (R2087)

Construction Noise

Construction of the proposed Project has the potential to create noise impacts through construction equipment usage and vehicle trips generated from construction workers and supply trucks traveling to and from the Project site. The specific project schedule will be determined following completion of the environmental document. It is anticipated that the duration for construction of all three pipelines would be a total of approximately 420 days. Assuming approximately 500 feet of trench are open at any time, trenching operations would take three to four days to pass a given point at the planned rate of 120 to 160 feet per day. Construction of the first pipeline is anticipated to start in July 2010.

Offsite Traffic Noise from Project Vehicles

Based upon the traffic analysis conducted for this Project by Lindscott, Law and Greenspan, up to 10 construction worker vehicle trips and 10 to 15 truck trips per day would be added to local arterial roadways as a result of the Project. In terms of passenger car equivalents (PCE, a metric used in traffic engineering to assess traffic flow), this equates to 105 PCE. Because the amount of Project-related vehicular traffic would be low in relation to the existing and near-term volumes, the increase in traffic noise from Project vehicles would be low. For example, near-term Average Daily Traffic (ADT) volumes on Wueste Road are estimated to be 950 vehicles per day. The following equation for estimating increases (or decreases) in noise levels was used:

$$\text{Change (dB)} = 10*\text{Log}(V_{with}/V_{without})$$

where V_{with} is the traffic volume with the additional Project-related traffic, and $V_{without}$ is the traffic volume without the additional Project-related traffic.

The addition of the Project-related construction worker and truck trips would increase the traffic noise levels by approximately 0.5 dB. Because a change in traffic noise of this magnitude would not be an audible change, the impact from offsite Project-related traffic noise would be less than significant.

Onsite Construction Noise

The noise emissions from Project construction activities were estimated using the Federal Highway Administration's *Roadway Construction Noise Model* (RCNM). The RCNM is a national model based on noise calculations and extensive construction noise data compiled from research by the U.S. Environmental Protection Agency (EPA) and others. RCNM allows for selection from an extensive database of construction equipment, with use of either default or user-selected utilization rates. The RCNM input/output files for Project-related noise measurements are provided as Appendix D.

Using receptor locations (R-1through R-4) at or near those chosen for noise measurements representing the nearest noise-sensitive land uses, the typical "worst-case" source-receptor distances were measured and used as input for the RCNM. Using construction activity information provided by the Project sponsor, the construction equipment list for each of six construction scenarios or "cases" was developed. The six construction cases are as follows:

- Typical Daily Construction
- Pavement Cutting (2 days per week)
- Pavement Repair
- Daily Construction with Pump (potentially)
- Pump Use during Nighttime (potentially)
- Blasting

The resultant-predicted L_{eq} and L_{max} levels for R-1 through R-4 are presented in Table 6. As Table 6 shows, modeled L_{max} would range from approximately 57 dBA at R-1 (Otay Lakes County Park) during the nighttime pump use scenario to approximately 76 dBA at R-2 (Olympic Training Facility, at the running track) during pavement cutting. L_{eq} would range from approximately 54 dBA at R-1 during blasting to approximately 70 dBA at R-2 during pavement cutting. Noise during nighttime pumping (if determined to be necessary based upon groundwater conditions) is predicted to be 59 dBA L_{eq} at R-3 and R-4, representative of the nearest residential land uses.

The Wueste Road Pipeline alignment is located within the City of Chula Vista. The City of Chula Vista's Municipal Code exempts construction noise from the noise limits, providing that construction takes place between the hours of 7 a.m. and 10 p.m. Monday through Friday and between 8 a.m. and 10 p.m. on Saturday and Sunday. Because Project construction is planned to take place between the hours of 7 a.m. and 7 p.m. Monday through Friday, the noise from Project construction would not exceed applicable noise standards, with the exception of nighttime pump noise. Construction noise levels during daytime hours would be clearly audible because of the relatively low ambient noise levels in the area, but would generally not be loud enough to interrupt normal outdoor conversations or otherwise cause disturbance. Therefore, daytime construction noise would be a less-than-significant impact.

If nighttime pumping is found to be necessary along the northern portion of the pipeline alignment, the resultant noise level would exceed the City's Municipal Code noise standard for single-family residences of 45 dBA L_{eq}. Because the pump noise associated with the construction of the Project would exceed City of Chula Vista nighttime noise standards, would be clearly audible, and could cause annoyance at nearby noise-sensitive uses, noise from pipeline construction would be a significant impact. Mitigation measures (as listed below) are recommended to reduce construction-associated noise levels to a level below significance.

Table 6. Construction Phase Noise

Receiver	Noise Metric	Typical Daily Construction	Pavement Cutting	Pavement Repair	Daily Construction with Pump (potentially)	Pump noise (nighttime potentially)	Blasting (potentially)
R-1	L_{max}	62	66	62	62	57	71
	L_{eq}	61	63	61	62	57	54
R-2	L_{max}	63	76	63	63	59	72
	L_{eq}	62	70	62	64	59	55
R-3	L_{max}	63	73	63	63	59	72
	L_{eq}	62	67	63	64	59	55
R-4	L_{max}	63	68	63	63	59	72
	L_{eq}	62	65	63	64	59	55

Source: ICF, from information provided by Otay Water District 2009.

Mitigation Measures

If conducted within approximately 1 mile of residences, noise from nighttime pumping could exceed City of Chula Vista noise standards unless mitigated. The following measures should be incorporated into the Project contract specifications to minimize construction noise effects:

1. Pumps and associated equipment (i.e., portable generators etc.) used during nighttime hours (10 p.m. to 7 a.m.) shall be shielded from sensitive uses using local temporary noise barriers or enclosures, or shall otherwise be designed or configured so as to comply with the City of Chula Vista's municipal code nighttime noise standard of 45 dBA at residences.
2. Construction operations (excluding pumping operations should these be found to be necessary) shall not occur between 7:00 p.m. and 7:00 a.m. Monday through Friday. The hours of construction, including noisy maintenance activities and all spoils and material transport, shall be restricted to the periods and days permitted by the local noise or other applicable ordinance.
3. All noise-producing Project equipment and vehicles using internal combustion engines shall be equipped with mufflers; air-inlet silencers where appropriate; and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

4. All mobile or fixed noise-producing equipment used on the Project that are regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of Project activity.
5. Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.
6. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
7. Construction site and access road speed limits shall be established and enforced during the construction period.
8. The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.
9. No Project-related public address or music system shall be audible at any adjacent receptor.

Construction Vibration

Groundborne vibration from heavy equipment operations during Project construction were evaluated and compared with relevant vibration impact criteria. Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground. Groundborne vibration diminishes (or "attenuates") fairly rapidly over distance. Some soil types transmit vibration quite efficiently; other types (primarily "sandy" soils) do not. The FTA's *Transit Noise and Vibration Impact Assessment Manual* (2006) provides vibration impact criteria and recommended methodologies and guidance for assessment of vibration effects.

Vibration resulting from activities during Project construction was analyzed using the methodology contained in Section 12.2 of the FTA Manual. Vibration source levels for a variety of typical construction equipment types are supplied in Table 12-2 of the Manual in terms of PPV in IPS at a reference distance of 25 feet from the source. The reference source vibration level is then adjusted for the actual distance of interest using the equation:

$$\mathrm{PPV}_{\mathrm{equip}} = \mathrm{PPV}_{\mathrm{ref}} \left(\frac{25}{\mathrm{D}} \right)^{1.5}$$

where $\mathrm{PPV}_{\mathrm{equip}}$ is the predicted vibration level at the receptor, $\mathrm{PPV}_{\mathrm{ref}}$ is the reference source level, and D is the distance from the construction activity to the receptor. At a distance of approximately 350 feet, the distance to the nearest residences, the vibration levels from heavy construction machinery (such as a large bulldozer) would be 0.0017 IPS, or 0.004 IPS from a vibratory roller. Vibration levels of this magnitude would be well below the threshold of perception of 0.10 IPS or the damage threshold for fragile structures (0.20 IPS). Therefore, the vibration levels from construction activities would be less than significant.

Alta Road Pipeline (R2077)

The nearest noise- or vibration-sensitive land use adjacent to the Alta Road Pipeline is Donovan State Prison, located more than 1,200 feet from the alignment. Noise levels at the prison that result from Project construction would be approximately 59 dBA or lower, neglecting additional noise

reduction that would take place because of topographical shielding and atmospheric absorption. Noise levels would be below the City of San Diego's threshold for construction noise of 75 dBA L_{eq}. Vibration from construction would similarly be low (0.0006 IPS or less), and thus would be well below relevant thresholds for vibration. Therefore, noise and vibration levels would be less than significant.

Airway/La Media Road Pipeline (R2058)

No noise- or vibration-sensitive land uses exist in the vicinity of the Airway/La Media Road Pipeline alignment. The land uses in the area consist of industrial/commercial. Therefore, noise and vibration levels would be less than significant.

Chapter 3
References

Beranek, L. L. (ed). 1971. *Noise and Vibration Control*. New York: McGraw-Hill, Inc.

California Department of Transportation. 2004. *Transportation- and Construction-Induced Vibration Guidance Manual*. Sacramento, CA.

Chula Vista, City of. 2005. Chula Vista General Plan Update. Available: http://www.ci.chula-vista.ca.us/city_services/development_services/planning_building/General_Plan/default.asp.

Cowan, J. P. 1994. *Handbook of Environmental Acoustics*. Wiley.

Harris, C. M. (ed). 1979. *Handbook of Noise Control*. 2nd edition. New York: McGraw-Hill, Inc.

Harris Miller Miller & Hanson, Inc. 2003. Noise and Vibration Impact Assessment for the San Francisco Bay Area Rapid Transit District (BART) Warm Springs Extension Project. Draft report. February. (HMMH Report No. 298760-01.) Burlington, MA. Prepared for Jones & Stokes.

Linscott, Law & Greenspan, Engineers (LLG). 2009. Traffic Impact Analysis, Otay Water District Pipelines Project. November 2. San Diego, CA.

Otay Water District. 2009. Otay Water District Recycled Water Pipeline EIR, Air Quality Data Request (Memorandum). July 29. Spring Valley, CA.

San Diego, City of. 2000. Chapter 5, Article 9.5: Noise Abatement and Control. *San Diego Municipal Code*. June. San Diego, CA.

———. 2005. Noise Element. The City of San Diego General Plan. Draft, July. City of San Diego Planning Department. San Diego, CA.

San Diego, City of, Development Services Department, Land Development Review Division. 2007. Significance Determination Thresholds: California Environmental Quality Act (CEQA). February 2007.

San Diego County. 2009. Noise Ordinance, Chapter 4, Noise Abatement and Control. (Ordinance Update No. 9962). Department of Planning and Land Use. San Diego, CA. Revised, January 7.

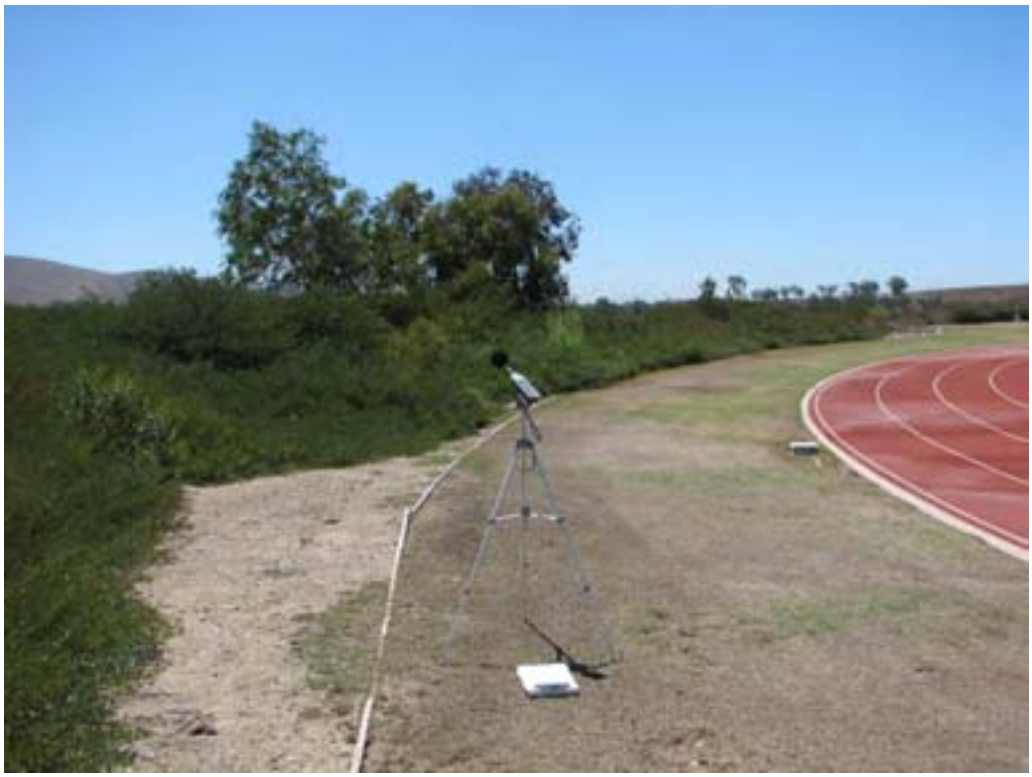
U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA). 2006. FHWA Roadway Construction Noise Model, Version 1.0. Office of Natural and Human Environment. Washington, DC.

U.S. Department of Transportation (USDOT), Federal Transit Administration (FTA), Office of Planning and Environment. 2006. *Transit Noise and Vibration Impact Assessment*. May. FTA-VA-90-1003-06. (Prepared under contract by Harris, Miller, Miller and Hanson). Burlington, MA.

APPENDIX A. FIELD PHOTOGRAPHS

ST-1 looking north

ST-2 looking south



ST-3 looking south

ST-4 looking west

APPENDIX B. LIST OF FIELD INSTRUMENTATION

- **Sound Level Meter** (for short-term noise measurements)
  - Larson Davis Model 812 Type 1 Integrating Sound Level Meter, Serial Number 0432
- **Acoustical Calibrators**
  - Larson Davis Model Cal 200 (114 dB SPL @ 1000 Hz), Serial Number 6644
- **Meteorology Instrumentation**
  - Kestrel Model K3000 Digital Hygrometer/Thermometer/Anemometer, Serial Number 475332
- **Other Equipment**
  - Handheld Traffic Tally Counters

APPENDIX C. FIELD DATA SHEETS

FIELD NOISE MEASUREMENT DATA

Jones & Stokes

PROJECT: **Otay Water District Recycled Water Pipelines** PROJ. # **00277.09**

SITE IDENTIFICATION: 1-1 OBSERVER(S): Peter Hardie
ADDRESS: WALKING TRAIL AT JUST OF WOODSIDE & OLYMPIC PKWY
START DATE / TIME: 8-6-09 10:30 END DATE / TIME:

METEROLOGICAL CONDITIONS:
TEMP: 79 °F HUMIDITY: 54 %R.H. WIND: CALM (LIGHT) MODERATE VARIABLE
WINDSPEED: 3-6 MPH DIR: (N) NE E SE S SW W NW STEADY GUSTY
SKY: (SUNNY) (CLEAR) OVRCST PRTLY CLOUDY FOG RAIN OTHER:

ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD 812 TYPE: (1) 2 SERIAL #: 0432
CALIBRATOR: LDL 200 SERIAL #: 6414
CALIBRATION CHECK: PRE-TEST 94 dBA SPL POST-TEST 94.1 dBA SPL WINDSCREEN ✓

SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER:

REC #	START	END	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	OTHER:	(TYPE?)
ST-1	10:30	10:45	48.8	65.1	34.0	38.4	44.3	52.1		

COMMENTS: METER UPGRADE ~ 20' ABOVE RD, AS THE STREET CONTINUED WEST THE GRADE DROPPED TO EQUAL GRADE

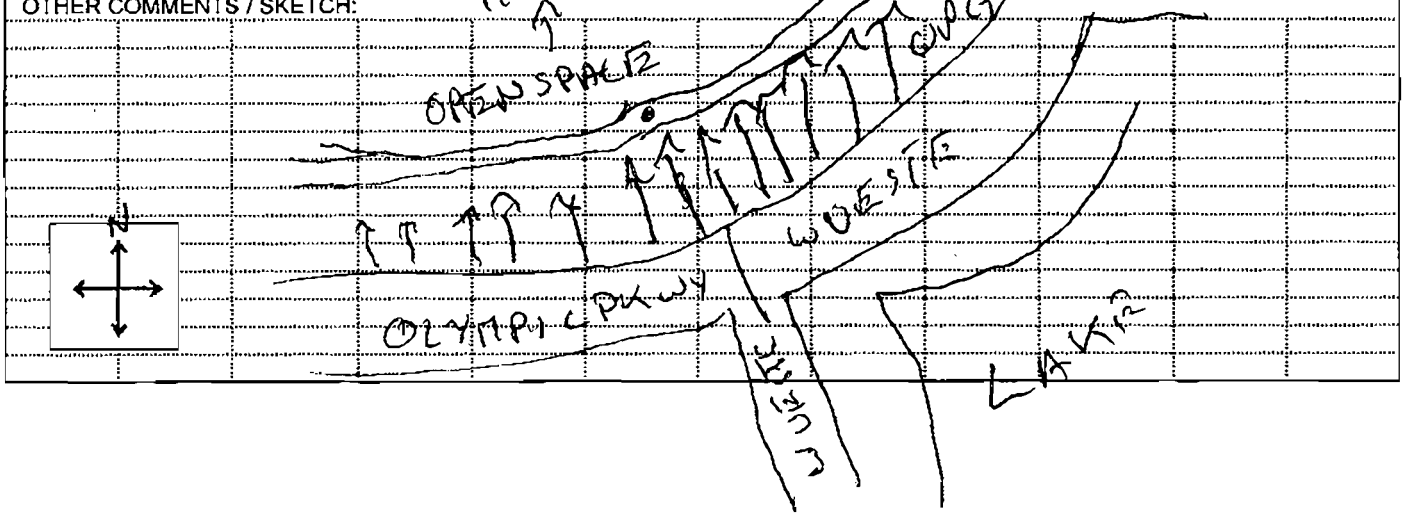
SOURCE INFO AND TRAFFIC COUNTS:
PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL (AMBIENT) OTHER:
ROADWAY TYPE:
TRAFFIC COUNT DURATION: ____-MIN

	SPEED NB / EB	SPEED SB / WB	#2 COUNT NB / EB	#2 COUNT SB / WB	SPEED NB / EB	SPEED SB / WB
AUTOS:						
MED. TRUCKS:						
HVY TRUCKS:						
BUSES:						
MOTORCYCLES:						

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER SOURCES: (DIST. AIRCRAFT) / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:
TERRAIN: (HARD) SOFT MIXED FLAT OTHER: 1234 NE SW
PHOTOS:
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

Jones & Stokes

PROJECT: **Otay Water District Recycled Water Pipelines** PROJ. # **00277.09**

SITE IDENTIFICATION: ST-2 OBSERVER(S): Peter Hardie
ADDRESS: 2825 WIRE PINK WILLOW RD
START DATE / TIME: 8-7-09 11:07 END DATE / TIME:

METEROLOGICAL CONDITIONS:
TEMP: °F HUMIDITY: %R.H. WIND: **CALM LIGHT MODERATE VARIABLE**
WINDSPEED: MPH DIR: **N NE E SE S SW W NW STEADY GUSTY**
SKY: **SUNNY CLEAR OVRCST PRTLY CLOUDY FOG RAIN OTHER:**

ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD 812 TYPE: 1 2 SERIAL #: 0478
CALIBRATOR: CAL 200 SERIAL #: 6664
CALIBRATION CHECK: PRE-TEST 94.1 dBA SPL POST-TEST 94.3 dBA SPL WINDSCREEN ✓

SETTINGS: **A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:**

REC #	START	END	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	OTHER:	(TYPE?)
ST-2	11:07	11:22	47.1	59.7	37.5	40.4	45.7	50.2		

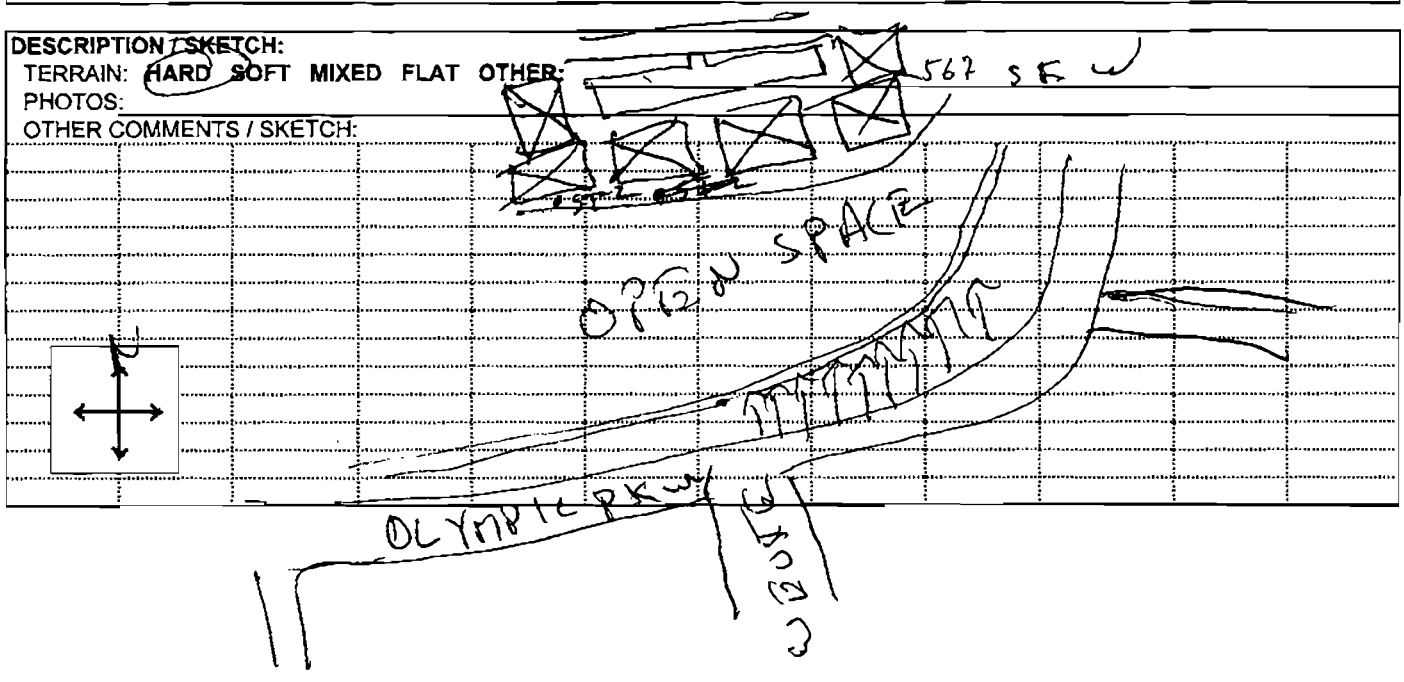
COMMENTS:

SOURCE INFO AND TRAFFIC COUNTS:
PRIMARY NOISE SOURCE: **TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:**
ROADWAY TYPE:
TRAFFIC COUNT DURATION: -MIN SPEED #2 COUNT SPEED

	NB / EB	SB / WB	NB / EB	SB / WB	NB / EB	SB / WB	NB / EB	SB / WB
AUTOS:								
MED. TRUCKS:								
HVY TRUCKS:								
BUSES:								
MOTORCYCLES:								

SPEED ESTIMATED BY: **RADAR / DRIVING / OBSERVER**
OTHER SOURCES: **DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:** WIND CHIMES AIR CONDITIONING

DESCRIPTION / SKETCH:
TERRAIN: **HARD SOFT MIXED FLAT OTHER:** 567 SF
PHOTOS:
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

Jones & Stokes

PROJECT: **Otay Water District Recycled Water Pipelines** PROJ. # **00277.09**

SITE IDENTIFICATION: ST-3 OBSERVER(S): Peter Hardie
ADDRESS: USOC TRAINING FACILITY TRACK
START DATE / TIME: 8-6-09 11:46 END DATE / TIME:

METEROLOGICAL CONDITIONS:
TEMP: 78 °F HUMIDITY: 53.5 %R.H. WIND: **CALM LIGHT MODERATE VARIABLE**
WINDSPEED: 2-5 MPH DIR: **N NE E SE S SW W NW STEADY GUSTY**
SKY: **SUNNY CLEAR OVRCST PRTLY CLOUDY FOG RAIN OTHER:**

ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD 812 TYPE: 1 2 SERIAL #: 0432
CALIBRATOR: CAL 200 SERIAL #: 6644
CALIBRATION CHECK: PRE-TEST 94.3 dBA SPL POST-TEST 94.1 dBA SPL WINDSCREEN ✓
SETTINGS: **A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:**

REC #	START	END	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	OTHER:	(TYPE?)
ST-3	11:46	12:01	50.5	65.5	35.5	49.2	43.2	50.8		

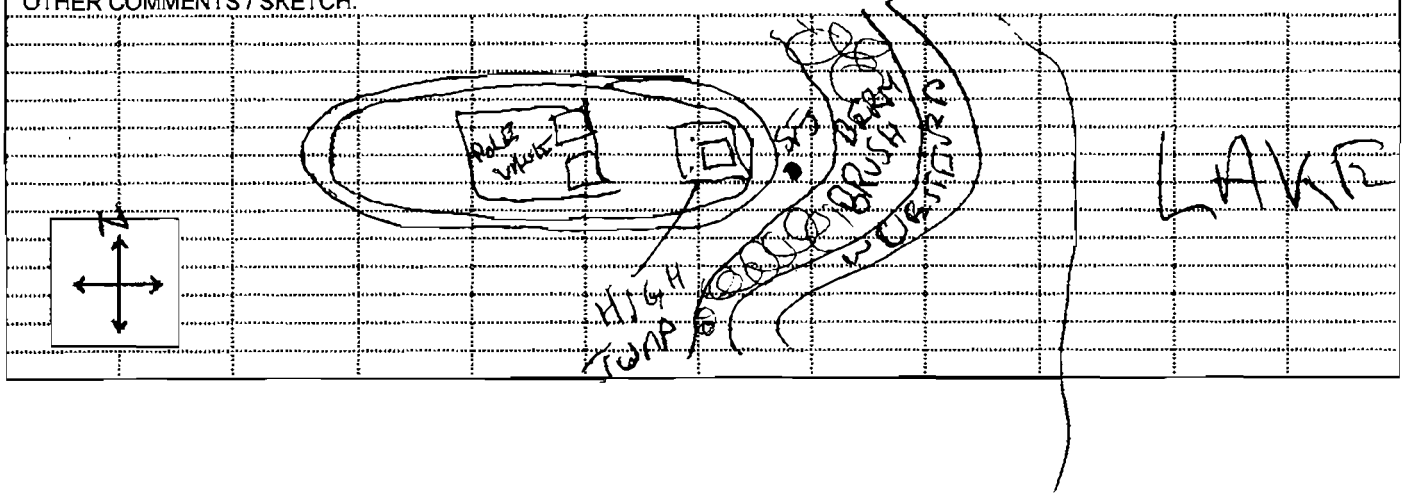
COMMENTS: TRAFFIC ON WESTERN RD ~~[illegible]~~ NOT AUDIBLE
FAIRLY LARGE BERM SEPERATES RD + TRACK

SOURCE INFO AND TRAFFIC COUNTS:
PRIMARY NOISE SOURCE: **TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:**
ROADWAY TYPE:
TRAFFIC COUNT DURATION: ____-MIN

	SPEED NB / EB	SPEED SB / WB	#2 COUNT NB / EB	#2 COUNT SB / WB	SPEED NB / EB	SPEED SB / WB
AUTOS:						
MED. TRUCKS:						
HVY TRUCKS:						
BUSES:						
MOTORCYCLES:						

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER
OTHER SOURCES: **DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:**

DESCRIPTION / SKETCH:
TERRAIN: **HARD SOFT MIXED FLAT OTHER:**
PHOTOS: 8910 11 NE SW
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

Jones & Stokes

PROJECT: **Otay Water District Recycled Water Pipelines** PROJ. # **00277.09**

SITE IDENTIFICATION: ST-4 OBSERVER(S): Peter Hardie
ADDRESS: OTAY LAKES REC PARK
START DATE / TIME: 8-6-09 12:31 END DATE / TIME:

METEROLOGICAL CONDITIONS:
TEMP: 83 °F HUMIDITY: 41 %R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 3-4 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: SUNNY CLEAR OVRCST PRTLY CLOUDY FOG RAIN OTHER:

ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD 812 TYPE: 1 2 SERIAL #: 0432
CALIBRATOR: CAL200 SERIAL #: 2644
CALIBRATION CHECK: PRE-TEST 94.1 dBA SPL POST-TEST dBA SPL WINDSCREEN ✓

SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

REC #	START	END	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	OTHER:	(TYPE?)
ST-4	12:31	12:46	57.2	71.5	44.8	47.6	53.7	6[illegible]		

COMMENTS: METER IS @ CLOSEST PARK BENCH W/ AWNING ABOVE
SOME CONSTRUCTION @ WTP IS EVIDENT BUT NOT OVERLY LOUD
CRANE STARTED UP RIGHT AT END OF MEASUREMENT

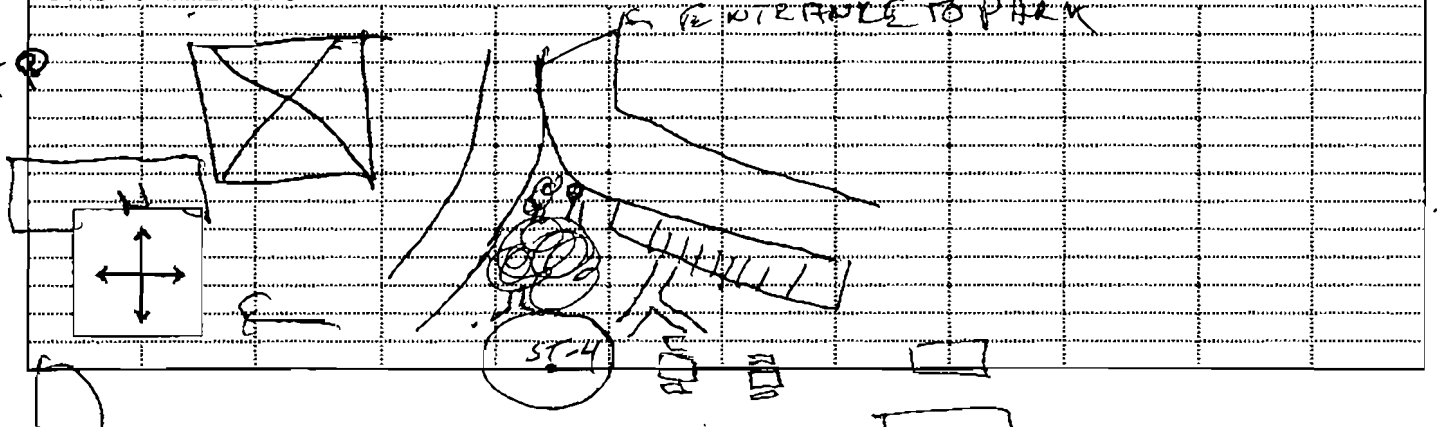
SOURCE INFO AND TRAFFIC COUNTS:
PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: SOME FOR MOT-PUMP @ THE WATER TREAT-MENT PLANT
ROADWAY TYPE:
TRAFFIC COUNT DURATION: ____-MIN

	SPEED NB / EB	SPEED SB / WB	#2 COUNT NB / EB	#2 COUNT SB / WB	SPEED NB / EB	SPEED SB / WB
AUTOS:						
MED. TRUCKS:						
HVY TRUCKS:						
BUSES:						
MOTORCYCLES:						

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER: WTP CONST

DESCRIPTION / SKETCH:
TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: 1-13 1415 NE SW
OTHER COMMENTS / SKETCH:



APPENDIX D. RCNM INPUT/OUTPUT FILES

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/12/2009
Case Description: Case 5 - Pump noise as for nighttime

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Otay Lakes County Park	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Pumps	No	50		80.9	750.0	0.0
Generator	No	50		80.6	750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Pumps	57.4	54.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	57.4	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Olympic Training Center	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Pumps	No	50		80.9	250.0	8.0
Generator	No	50		80.6	250.0	8.0

Results

Noise Limits (dBA) Noise Limit Exceedance (dBA)

	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Pumps	59.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.7	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59.0	58.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy Nearest	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Pumps	No	50		80.9	350.0	5.0
Generator	No	50		80.6	350.0	5.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Pumps	59.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.7	55.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59.0	58.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy no Topo	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Pumps	No	50		80.9	600.0	0.0
Generator	No	50		80.6	600.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Pumps	59.4	56.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	59.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59.4	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/12/2009
Case Description: Case 4 - Daily Construction with Pump

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Otay Lakes County Park	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	750.0	0.0
Crane	No	16		80.6	750.0	0.0
Flat Bed Truck	No	40		74.3	750.0	0.0
Welder / Torch	No	40		74.0	750.0	0.0
Dump Truck	No	40		76.5	750.0	0.0
Pickup Truck	No	40		75.0	750.0	0.0
All Other Equipment > 5 HP	No	50	85.0		750.0	0.0
Pumps	No	50		80.9	750.0	0.0
Generator	No	50		80.6	750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	54.0	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	57.0	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	50.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	52.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	61.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	57.4	54.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.5	62.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Olympic Training Center	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	250.0	8.0
Crane	No	16		80.6	250.0	8.0
Flat Bed Truck	No	40		74.3	250.0	8.0
Welder / Torch	No	40		74.0	250.0	8.0
Dump Truck	No	40		76.5	250.0	8.0
Pickup Truck	No	40		75.0	250.0	8.0
All Other Equipment > 5 HP	No	50	85.0		250.0	8.0
Pumps	No	50		80.9	250.0	8.0
Generator	No	50		80.6	250.0	8.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	55.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.6	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.3	48.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.0	48.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.0	49.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.0	60.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	59.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.7	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.0	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy Nearest	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	350.0	5.0
Crane	No	16		80.6	350.0	5.0
Flat Bed Truck	No	40		74.3	350.0	5.0
Welder / Torch	No	40		74.0	350.0	5.0
Dump Truck	No	40		76.5	350.0	5.0
Pickup Truck	No	40		75.0	350.0	5.0
All Other Equipment > 5 HP	No	50	85.0		350.0	5.0

Pumps	No	50	80.9	350.0	5.0
Generator	No	50	80.6	350.0	5.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	55.7	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.6	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.3	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.1	48.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.5	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.1	60.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	59.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.7	55.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.1	63.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy no Topo	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	600.0	0.0
Crane	No	16		80.6	600.0	0.0
Flat Bed Truck	No	40		74.3	600.0	0.0
Welder / Torch	No	40		74.0	600.0	0.0
Dump Truck	No	40		76.5	600.0	0.0
Pickup Truck	No	40		75.0	600.0	0.0
All Other Equipment > 5 HP	No	50	85.0		600.0	0.0
Pumps	No	50		80.9	600.0	0.0
Generator	No	50		80.6	600.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	56.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	59.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Flat Bed Truck	52.7	48.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Welder / Torch	52.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dump Truck	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Pickup Truck	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
All Other Equipment > 5 HP	63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	59.4	56.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Generator	59.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Total	63.4	64.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/12/2009
Case Description: Case 3 - 1 -2 days per week Pavement Repair etc

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Otay Lakes County Park	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	750.0	0.0
Crane	No	16		80.6	750.0	0.0
Flat Bed Truck	No	40		74.3	750.0	0.0
Welder / Torch	No	40		74.0	750.0	0.0
Dump Truck	No	40		76.5	750.0	0.0
Pickup Truck	No	40		75.0	750.0	0.0
All Other Equipment > 5 HP	No	50	85.0		750.0	0.0
Paver	No	50		77.2	750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	54.0	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	57.0	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	50.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	52.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	61.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	53.7	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.5	60.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Olympic Training Center	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	250.0	8.0
Crane	No	16		80.6	250.0	8.0
Flat Bed Truck	No	40		74.3	250.0	8.0
Welder / Torch	No	40		74.0	250.0	8.0
Dump Truck	No	40		76.5	250.0	8.0
Pickup Truck	No	40		75.0	250.0	8.0
All Other Equipment > 5 HP	No	50		85.0	250.0	8.0
Paver	No	50		77.2	250.0	8.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	55.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.6	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.3	48.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.0	48.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.0	49.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.0	60.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	55.2	52.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.0	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy Nearest	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	350.0	5.0
Crane	No	16		80.6	350.0	5.0
Flat Bed Truck	No	40		74.3	350.0	5.0
Welder / Torch	No	40		74.0	350.0	5.0
Dump Truck	No	40		76.5	350.0	5.0
Pickup Truck	No	40		75.0	350.0	5.0
All Other Equipment > 5 HP	No	50		85.0	350.0	5.0
Paver	No	50		77.2	350.0	5.0

Results

			Noise Limits (dBA)				Noise Limit Exceedance (dBA)			
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	55.7	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.6	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.3	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.1	48.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.5	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.1	60.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	55.3	52.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.1	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Resi n of Olympic Pkwy no Topo	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	600.0	0.0
Crane	No	16		80.6	600.0	0.0
Flat Bed Truck	No	40		74.3	600.0	0.0
Welder / Torch	No	40		74.0	600.0	0.0
Dump Truck	No	40		76.5	600.0	0.0
Pickup Truck	No	40		75.0	600.0	0.0
All Other Equipment > 5 HP	No	50	85.0		600.0	0.0
Paver	No	50		77.2	600.0	0.0

Results

			Noise Limits (dBA)				Noise Limit Exceedance (dBA)			
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	56.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	59.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.7	48.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	55.6	52.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.4	62.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/12/2009
Case Description: Case 2 - 2 days per week Pavement Cutting

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Otay Lakes County Park	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	750.0	0.0
Crane	No	16		80.6	750.0	0.0
Flat Bed Truck	No	40		74.3	750.0	0.0
Welder / Torch	No	40		74.0	750.0	0.0
Dump Truck	No	40		76.5	750.0	0.0
Pickup Truck	No	40		75.0	750.0	0.0
All Other Equipment > 5 HP	No	50		85.0	750.0	0.0
Concrete Saw	No	20		89.6	750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	54.0	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	57.0	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	50.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	52.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	61.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	66.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.1	62.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Olympic Training Center	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	250.0	8.0
Crane	No	16		80.6	250.0	8.0
Flat Bed Truck	No	40		74.3	250.0	8.0
Welder / Torch	No	40		74.0	250.0	8.0
Dump Truck	No	40		76.5	250.0	8.0
Pickup Truck	No	40		75.0	250.0	8.0
All Other Equipment > 5 HP	No	50	85.0		250.0	8.0
Concrete Saw	No	20		89.6	250.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	55.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.6	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.3	48.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.0	48.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.0	49.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.0	60.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	75.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	75.6	69.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy Nearest	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	350.0	5.0
Crane	No	16		80.6	350.0	5.0
Flat Bed Truck	No	40		74.3	350.0	5.0
Welder / Torch	No	40		74.0	350.0	5.0
Dump Truck	No	40		76.5	350.0	5.0
Pickup Truck	No	40		75.0	350.0	5.0
All Other Equipment > 5 HP	No	50	85.0		350.0	5.0
Concrete Saw	No	20		89.6	350.0	0.0

Results

			Noise Limits (dBA)				Noise Limit Exceedance (dBA)			
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	55.7	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.6	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.3	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.1	48.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.5	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.1	60.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	72.7	65.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.7	67.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Baselines (dBA) Land Use	Daytime	Evening	Night
Resi n of Olympic Pkwy no Topo	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	600.0	0.0
Crane	No	16		80.6	600.0	0.0
Flat Bed Truck	No	40		74.3	600.0	0.0
Welder / Torch	No	40		74.0	600.0	0.0
Dump Truck	No	40		76.5	600.0	0.0
Pickup Truck	No	40		75.0	600.0	0.0
All Other Equipment > 5 HP	No	50		85.0	600.0	0.0
Concrete Saw	No	20		89.6	600.0	0.0

Results

			Noise Limits (dBA)				Noise Limit Exceedance (dBA)			
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	56.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	59.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.7	48.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	68.0	61.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.0	64.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/12/2009
Case Description: Case 1 - Daily Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Otay Lakes County Park	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	750.0	0.0
Crane	No	16		80.6	750.0	0.0
Flat Bed Truck	No	40		74.3	750.0	0.0
Welder / Torch	No	40		74.0	750.0	0.0
Dump Truck	No	40		76.5	750.0	0.0
Pickup Truck	No	40		75.0	750.0	0.0
All Other Equipment > 5 HP	No	50	85.0		750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	54.0	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	57.0	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	50.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.5	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	52.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	61.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.5	60.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Olympic Training Center	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Description	Device	(%)	(dBA)	(dBA)	(feet)	(dBA)
Backhoe	No	40	77.6	250.0	8.0	
Crane	No	16	80.6	250.0	8.0	
Flat Bed Truck	No	40	74.3	250.0	8.0	
Welder / Torch	No	40	74.0	250.0	8.0	
Dump Truck	No	40	76.5	250.0	8.0	
Pickup Truck	No	40	75.0	250.0	8.0	
All Other Equipment > 5 HP	No	50	85.0	250.0	8.0	

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	55.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.6	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.3	48.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.0	48.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.0	49.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.0	60.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.0	62.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy Nearest	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	77.6	350.0	5.0	
Crane	No	16	80.6	350.0	5.0	
Flat Bed Truck	No	40	74.3	350.0	5.0	
Welder / Torch	No	40	74.0	350.0	5.0	
Dump Truck	No	40	76.5	350.0	5.0	
Pickup Truck	No	40	75.0	350.0	5.0	
All Other Equipment > 5 HP	No	50	85.0	350.0	5.0	

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq

Backhoe	55.7	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.6	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.3	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.1	48.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.5	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.1	60.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.1	62.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy no Topo	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	600.0	0.0
Crane	No	16		80.6	600.0	0.0
Flat Bed Truck	No	40		74.3	600.0	0.0
Welder / Torch	No	40		74.0	600.0	0.0
Dump Truck	No	40		76.5	600.0	0.0
Pickup Truck	No	40		75.0	600.0	0.0
All Other Equipment > 5 HP	No	50		85.0	600.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	56.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	59.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.7	48.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	52.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	53.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/12/2009
Case Description: Case 6 - Blasting noise (potentially)

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Otay Lakes County Park	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Rock Drill	No	20		81.0	750.0	0.0
Blasting	Yes	1	94.0		750.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Rock Drill	57.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blasting	70.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.5	53.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Olympic Training Center	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Rock Drill	No	20		81.0	250.0	8.0
Blasting	Yes	1	94.0		250.0	8.0

Results

Noise Limits (dBA) Noise Limit Exceedance (dBA)

	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Rock Drill	59.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blasting	72.0	52.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.0	55.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy Nearest	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Rock Drill	No	20		81.0	350.0	5.0
Blasting	Yes	1	94.0		350.0	5.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Rock Drill	59.1	52.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blasting	72.1	52.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.1	55.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resi n of Olympic Pkwy no Topo	Residential	50.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Rock Drill	No	20		81.0	600.0	0.0
Blasting	Yes	1	94.0		600.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Rock Drill	59.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blasting	72.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.4	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix H
Traffic Impact Analysis

LINSCOTT
LAW &
GREENSPAN
engineers

TRAFFIC IMPACT ANALYSIS

OTAY WATER DISTRICT PIPELINE PROJECT

San Diego, California
February 17, 2010

Prepared for:

ICF Jones & Stokes
9775 Businesspark Avenue, Suite 200
San Diego, California 92131

LLG Ref. 3-09-1909

Prepared by:

Cara Leone
Transportation Planner II

Under the Supervision of:

John Boarman, P.E.
Principal

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

TABLE OF CONTENTS

SECTION PAGE

1.0 Introduction 1

2.0 Project Description 2

3.0 Existing Conditions 4
- 3.1 Existing Street Network 4
- 3.2 Existing Traffic Volumes 5

4.0 Methodology 7
- 4.1 Street Segments 7

5.0 Significance Criteria 8
- 5.1 City of San Diego 8
- 5.2 County of San Diego 9
- 5.3 City of Chula Vista 11

6.0 Analysis of Existing Scenario 13
- 6.1 Existing 13

7.0 Trip Generation/Distribution/Assignment 15
- 7.1 Trip Generation 15
- 7.2 Trip Distribution & Assignment 15

8.0 Near-Term Conditions 17
- 8.1 Near-Term Street Network 17
- 8.2 Near-Term Traffic Volumes 17

9.0 Analysis of Near-Term Scenarios 18
- 9.1 Near-Term Without Project 18
- 9.2 Near-Term With Project 18

10.0 Pipeline Construction Conclusions 20

11.0 Significance of Impacts and Mitigation Measures 22

12.0 Recommendations 23

13.0 References 24

APPENDICES

APPENDIX	
A.	Segment Manual Count Sheets
B.	City of San Diego Roadway Classification Table, County of San Diego Average Daily Vehicle Trips Table, and City of Chula Vista's Roadway Capacity Standards Table
C.	Highway Capacity Manual (HCM) 2000 Exhibit 21-8, Passenger Car Equivalents

LIST OF FIGURES

SECTION—FIGURE #		FOLLOWING PAGE
Figure 1–1	Vicinity Map	1
Figure 1–2	Project Location Map	1
Figure 2–1	Proposed Pipelines Location Map	2
Figure 3–1a	Wueste Road Pipeline (R2087) Existing Conditions Diagram	6
Figure 3–1b	Alta Road Pipeline (R2077) & Airway/La Media Road Pipeline (R2058) Existing Conditions Diagram	6
Figure 3–2a	Wueste Road Pipeline (R2087) Existing Traffic Volumes	6
Figure 3–2b	Alta Road Pipeline (R2077) & Airway/La Media Road Pipeline (R2058) Existing Traffic Volumes	6
Figure 9–1a	Wueste Road Pipeline (R2087) Near-Term Without Project Traffic Volumes	19
Figure 9–1b	Alta Road Pipeline (R2077) & Airway/La Media Road Pipeline (R2058) Near-Term Without Project Traffic Volumes	19
Figure 9–2a	Wueste Road Pipeline (R2087) Near-Term With Project Traffic Volumes	19
Figure 9–2b	Alta Road Pipeline (R2077) & Airway/La Media Road Pipeline (R2058) Near-Term With Project Traffic Volumes	19

LIST OF TABLES

SECTION—TABLE #		PAGE
Table 3–1	Existing Traffic Volumes	6
Table 6–1	Existing Street Segment Operations	14
Table 7–1	Project Trip Generation	16
Table 9–1	Near-Term Street Segment Operations	19

TRAFFIC IMPACT ANALYSIS

OTAY WATER DISTRICT PIPELINE PROJECT

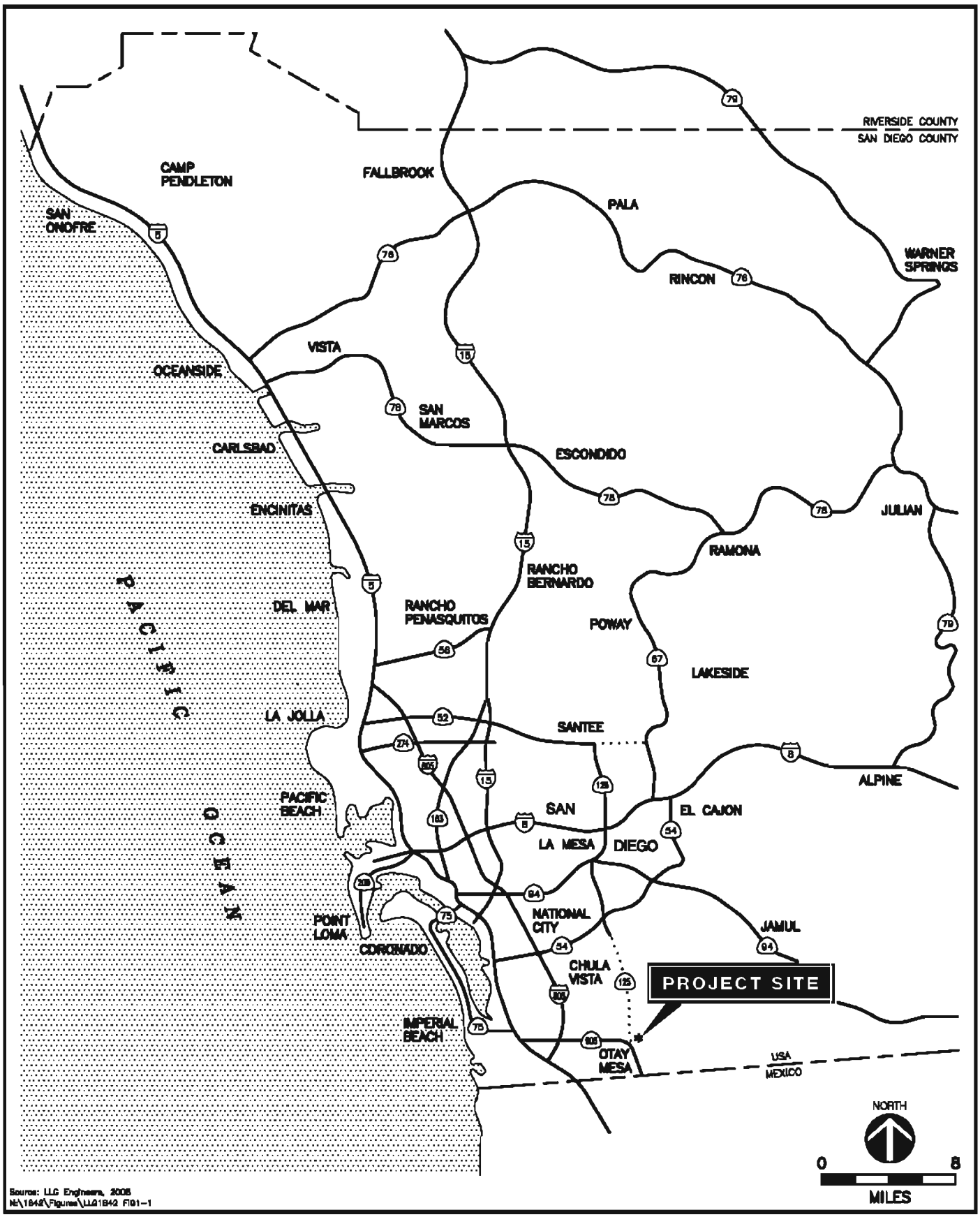
San Diego, California
February 17, 2010

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has been retained to determine and evaluate the potential traffic impacts to the street system within the Otay Lakes and Otay Mesa area due to the subject pipeline project. ***Figure 1–1*** depicts the vicinity map. ***Figure 1–2*** depicts the project location map.

The traffic analysis presented in this report includes the following:

- Project Description
- Existing Conditions Description
- Analysis Approach and Methodology
- Significance Criteria
- Analysis of Existing Conditions
- Trip Generation/Distribution/Assignment
- Near-Term Conditions Description
- Analysis of Near-Term Conditions
- Summary and Conclusions
- Recommendations
- References



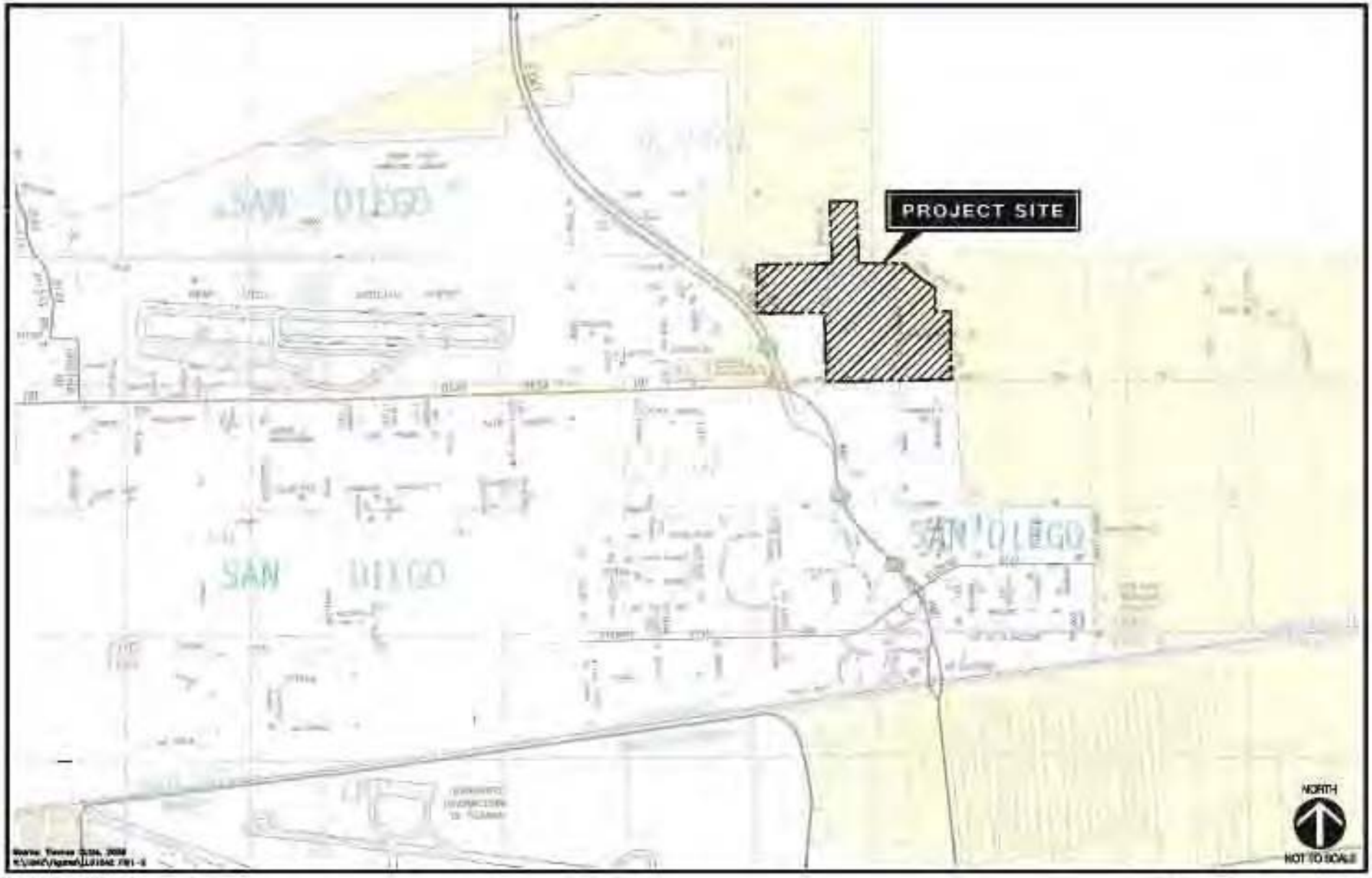
Source: LLG Engineers, 2005
N:\1842\Figures\LLG1842 Fig1-1

LINSCOTT LAW & GREENSPAN engineers

Figure 1-1

Vicinity Map

OTAY TECH CENTER



LINSCOTT LAW & GREENSPAN engineers

Figure 1-2

Project Area Map

OTAY TECH CENTER

NORTH
NOT TO SCALE

Source: RC Jones & Stokes, 2010
N:\1909\Figures\LL01909 FIG 2-1

LINSCOTT LAW & GREENSPAN engineers

Figure 2-1

Proposed Pipelines Location Map

OTAY WATER DISTRICT PIPELINE

2.0 PROJECT DESCRIPTION

As part of the Otay Water District's adopted Capital Budget for fiscal year 2009-2014, the District is scheduled to implement three Capital Facility Projects under the Capital Improvement Program (CIP). All three projects entail the construction and operation of Recycled Water System Transmission Pipeline (RecPL). The three proposed projects are within the District's South District area, which is defined as the Central Area System and the Otay Mesa System. The three RecPL projects would all be constructed within existing utility right-of-way. The method used for the pipeline construction would be completed using cut and cover trenching. The three projects are known as: the Wueste Road Pipeline (CIP No. R2087), the Alta Road Pipeline (CIP No. R2077), and the Airway/La Media Road Pipeline (CIP No. R52058). The specific project schedule will be determined following completion of the environmental document. It is anticipated that the duration for construction of all three pipelines would be a total of approximately 420 days. Assuming approximately 500 feet of trench are open at any time, trenching operations would take three to four days to pass a given point at the planned rate of 120 to 160 feet per day. Construction of the first pipeline is anticipated to start in July 2010. The three projects are described as follows:

Wueste Road Pipeline (R2087)

This is a 20-inch-diameter 13,154-foot long steel pipeline segment within the 944 Pressure Zone. The pipeline will be constructed along a segment of Wueste Road within the Central Area System. The pipeline will start at Olympic Parkway where it will connect to an existing 16-inch-diameter RecPL. The pipeline will then proceed south along Wueste Road past the City of San Diego Otay Water Treatment Plan and connect to an existing 30-inch-diameter RecPL just south of the plant.

Figure 2–1 illustrates the alignment of the proposed Wueste Road Pipeline (R2087) project.

Alta Road Pipeline (R2077)

This is a 24-inch-diameter 8,701-foot-long steel pipeline segment within the 860 Pressure Zone. The pipeline will be constructed along a segment of Alta Road within the Otay Mesa System. The pipeline will start at the Alta Gate just north of Kubler Ranch Road where it will connect to an existing 30-inch-diameter RecPL. The pipeline will then proceed south along Alta Road to Airway Road where it will connect to an existing 16-inch-diameter RecPL. The connecting pipeline is the Airway/La Media Road Pipeline (R2058) project discussed below.

Airway/La Media Road Pipeline (R2058)

This is a 16-inch-diameter 14,610-foot-long PVC pipeline segment within the 860 Pressure Zone. The pipeline will be constructed along a segment of La Media Road and Airway Road within the Otay Mesa System. This pipeline is divided into seven sections; four that are proposed to be constructed and three that were previously constructed by developers. The pipeline will start north of Otay Mesa Road where it will connect to existing pipeline for a short distance before again proceeding south along La Media Road to Airway Road. The pipeline will then proceed east along Airway Road where it will connect to the 24-inch-diameter Alta Road Pipeline (R2077) project and continue just slightly east of Sanyo Road.

Figure 2–1 *also* illustrates the alignment of the proposed Alta Road Pipeline (R2077) project and Airway/La Media Road Pipeline (R2058) project.

3.0 EXISTING CONDITIONS

3.1 Existing Street Network

Effective evaluation of the traffic impacts associated with the proposed pipeline project requires an understanding of the existing transportation system in the project study area. The principal roadways in the project study area are described briefly below. ***Figure 3–1a*** depicts the existing conditions diagram for the Wueste Road Pipeline and ***Figure 3–1b*** depicts the existing conditions diagram for the Alta Road and Airway/La Media Road Pipeline.

Wueste Road is an unclassified roadway on the City of Chula Vista General Plan Circulation Element. It is currently built as a two-lane undivided roadway. Bike lanes and curbside parking are not provided. The posted speed limit is 35 mph.

Otay Mesa Road (SR-905) is classified on the City of San Diego Otay Mesa Community Plan as a Major Arterial from its commencement at Caliente Avenue to State Route 125 (SR-125). This portion of Otay Mesa Road is currently built as a six-lane divided roadway to just east of La Media Road. From just east of La Media Road to SR-125, Otay Mesa Road is built as a four-lane divided roadway. East of SR-125 to Sanyo Avenue, Otay Mesa Road is classified as a Collector 1 and is currently built as a four-lane divided roadway. Otay Mesa Road east of Sanyo Avenue is classified as a Collector 2. This portion of Otay Mesa Road is currently built as a two-lane undivided roadway. No bike lanes or bus stops are provided, and parking is generally prohibited within the project study area. The speed limit in the vicinity of the pipeline project is posted at a cautionary speed of 40 mph within the "working zone".

Otay Mesa Road, approximately 550 feet east of Sanyo Avenue, is within the jurisdiction of the County of San Diego. According to the County of San Diego currently adopted General Plan, this portion of the roadway continuing east to Alta Road is classified as a Prime Arterial and is currently built as a two-lane undivided roadway. No bike lanes or bus stops are provided, and parking is generally prohibited within this roadway segment. The posted speed limit is 55 mph.

Airway Road is classified on the City of San Diego Otay Mesa Community Plan as a Collector 1 from La Media Road to Paseo de Las Americas within the project area. It is currently built as a two-lane undivided roadway between La Media Road and Sanyo Avenue. The posted speed limit is 35 mph along this portion of the roadway. East of Sanyo Avenue to Paseo de Las Americas, Airway Road is constructed as a four-lane divided roadway. Bike lanes and curbside parking are not provided. Currently, this segment only has one lane open in the eastbound direction and the posted speed limit is 25 mph.

Airway Road between SR-905 and Sanyo Avenue has recently been closed and plans are to reopen in Summer 2010. The closure will remain in effect during construction of the SR-905 and Airway Road underpass. Motorists on Airway Road west of SR-905 are currently being detoured westbound on Airway Road to northbound La Media Road and then eastbound on Otay Mesa Road to southbound Sanyo Avenue and finally back eastbound on Airway Road.

La Media Road (SA 1103) is classified as a Collector 1 on the City of San Diego Otay Mesa Community Plan and is currently constructed north of Windsock Street as a two-lane undivided roadway. South of Windsock Street to Otay Mesa Road, La Media Road is built as a four-lane undivided roadway. The portion of roadway between Otay Mesa Road and Airway Road is currently under construction due to the proposed SR-905 and La Media Road interchange and functions as a two-lane undivided roadway. Bike lanes are not provided and curbside parking is permitted intermittently along the roadway north of Otay Mesa Road. The posted speed limit is 30 mph.

Sanyo Avenue is classified as a Collector 1 on the City of San Diego Otay Mesa Community Plan and is currently constructed as a four-lane undivided roadway from Otay Mesa Road to Airway Road. Bike lanes and curbside parking are not permitted, however, a dirt shoulder exists along the west side of the roadway which is currently utilized by trucks. The posted speed limit is 55 mph.

Alta Road is classified as a Major Road on the County of San Diego General Plan and is currently constructed as a two-lane undivided roadway north of Otay Mesa Road. Bike lanes and curbside parking are not provided and the posted speed limit is 55 mph. South of Otay Mesa Road, Alta Road is a dirt roadway.

3.2 Existing Traffic Volumes

Table 3–1 is a summary of the available average daily traffic volumes (ADTs). The ADTs for the Otay Mesa area were conducted in January, February and March 2008 and supplemented with counts conducted in June 2009. The ADT for the Wueste Road project were conducted in June 2009.

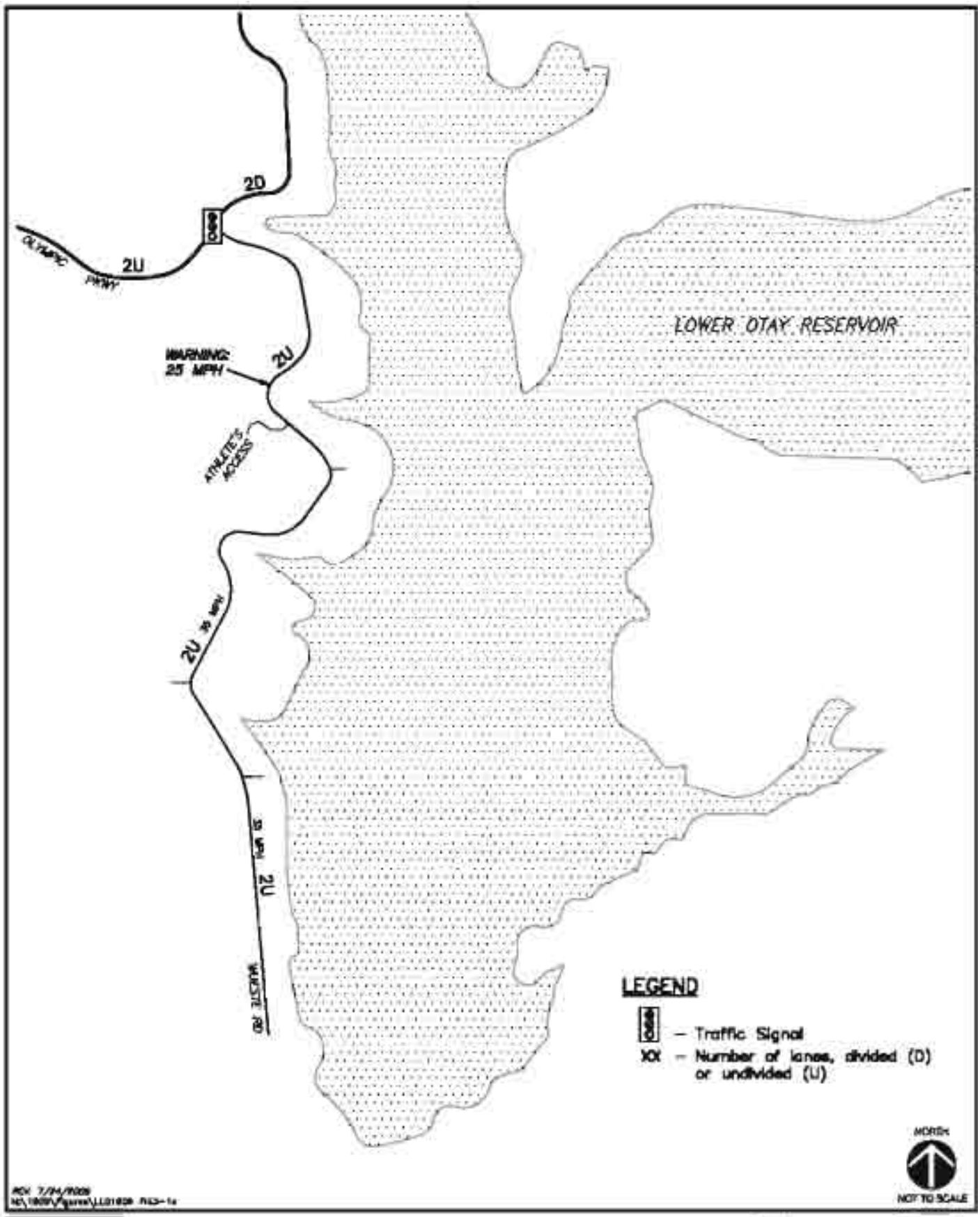
Figure 3–2a illustrates the existing traffic volumes for the Wueste Road Pipeline and ***Figure 3–2b*** depicts the existing traffic volumes for the Alta Road and Airway/La Media Road Pipeline. ***Appendix A*** contains the segment manual count sheets.

TABLE 3–1
EXISTING TRAFFIC VOLUMES

Street Segment	ADT[a]
Wueste Road Pipeline (R2087)	
Wueste Road	
Olympic Parkway to Athlete's Access	780
Alta Road Pipeline (R2077)	
La Media Road	
North of Otay Mesa Road	4,350
Airway Road	
Sanyo Avenue to Paseo de Las Americas	5,650
Sanyo Avenue	
Airway Road to Otay Mesa Road	2,670
Otay Mesa Road	
Sanyo Avenue to Alta Road	10,000
Alta Road	
Otay Mesa Road to Calzada de la Fuente	6,790
Airway/La Media Road Pipeline (R2058)	
La Media Road	
Otay Mesa Road to Airway Road	16,450
Airway Road	
La Media Road to Avenida de la Fuente	8,100
Avenida de la Fuente to SR-905	8,100
SR-905 to Sanyo Avenue	9,640

Footnotes:

a. Average Daily Traffic Volumes.

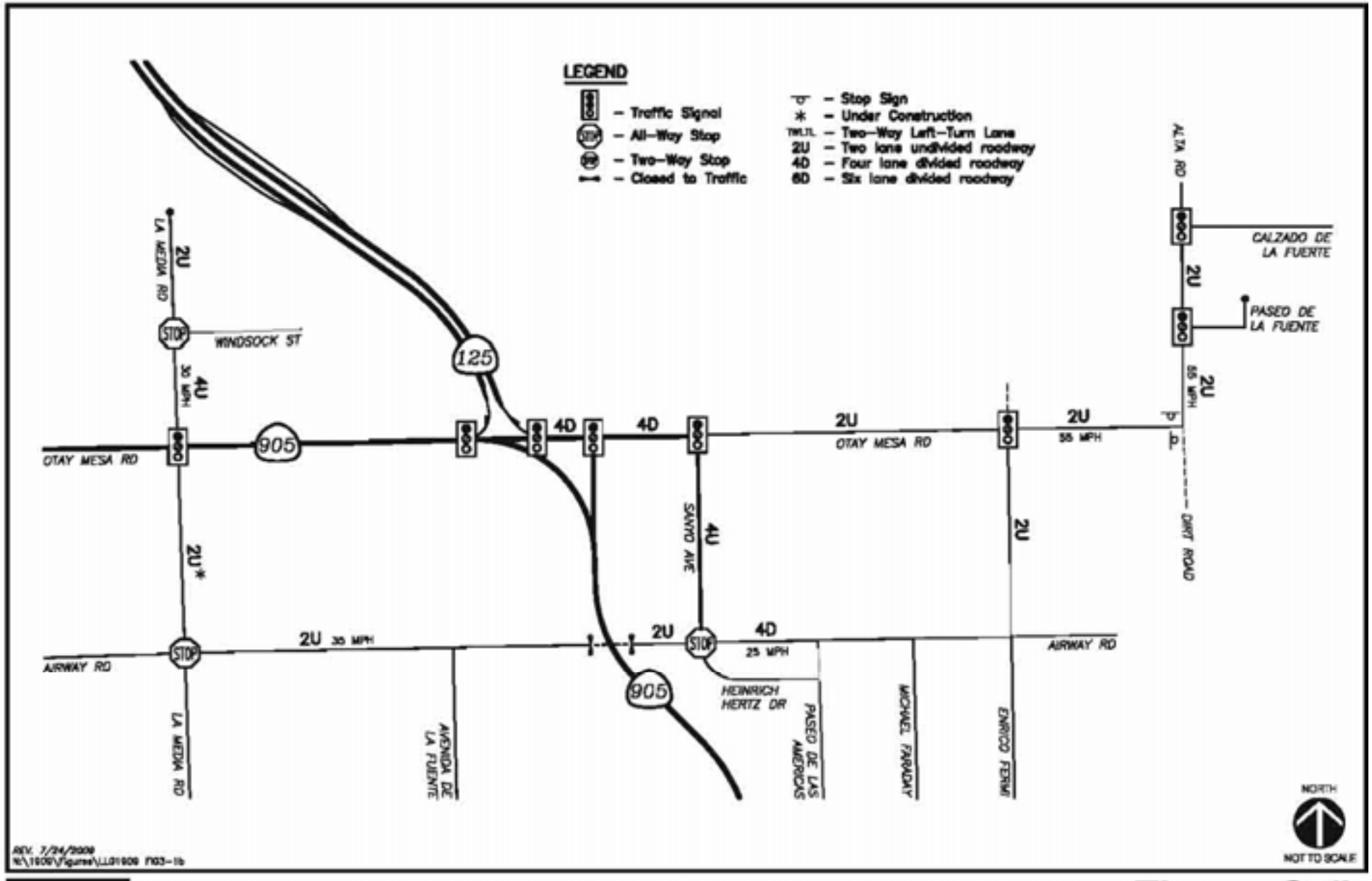


LINSCOTT LAW & GREENSPAN engineers

Figure 3-1a

Wueste Road Pipeline (R2087)
Existing Conditions Diagram

OTAY WATER DISTRICT PIPELINE

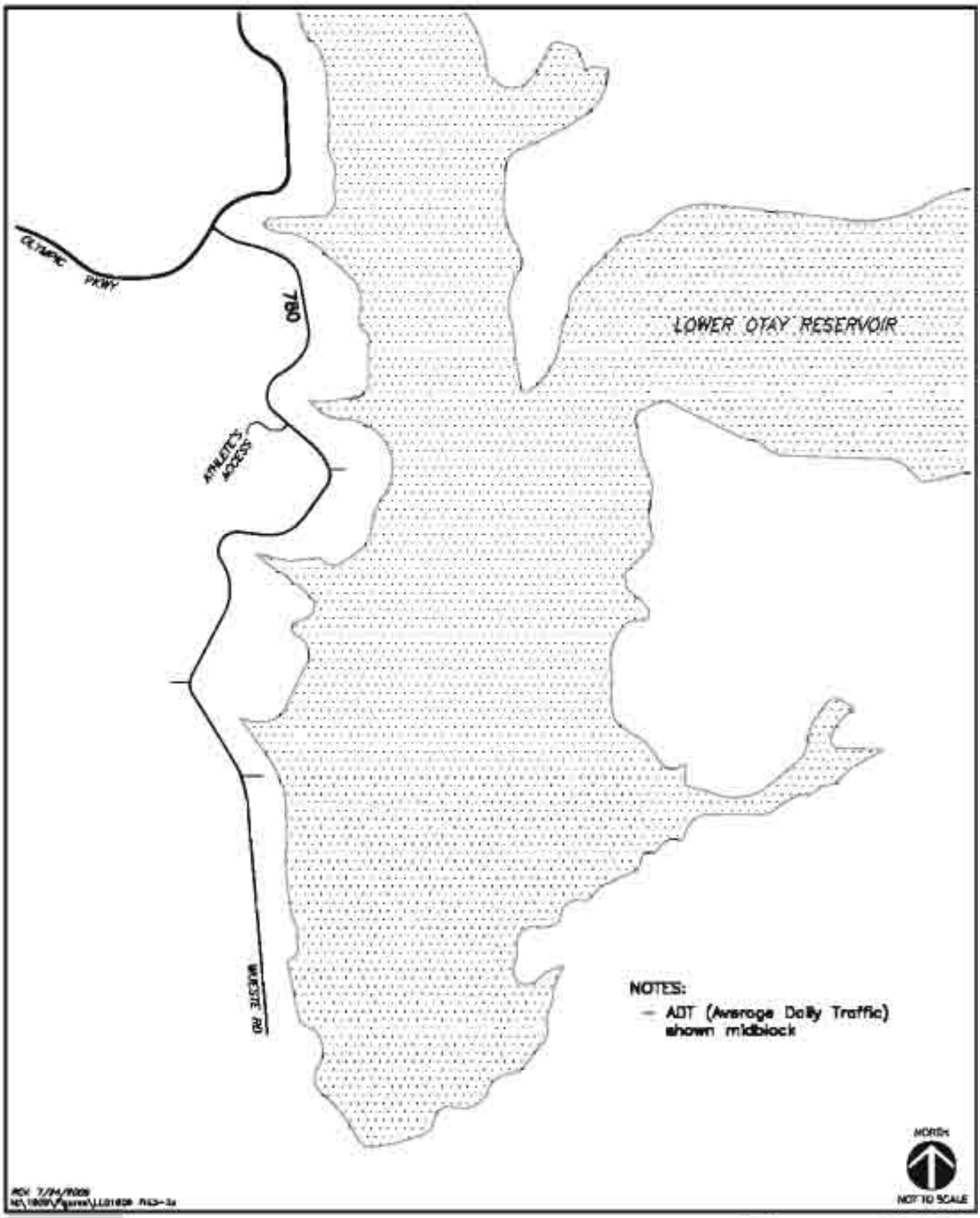


LINSCOTT LAW & GREENSPAN engineers

Figure 3-1b

Alta Road Pipeline (R2079) & Airway/ La Media Road Pipeline (R2058)
Existing Conditions Diagram

OTAY WATER DISTRICT PIPELINE

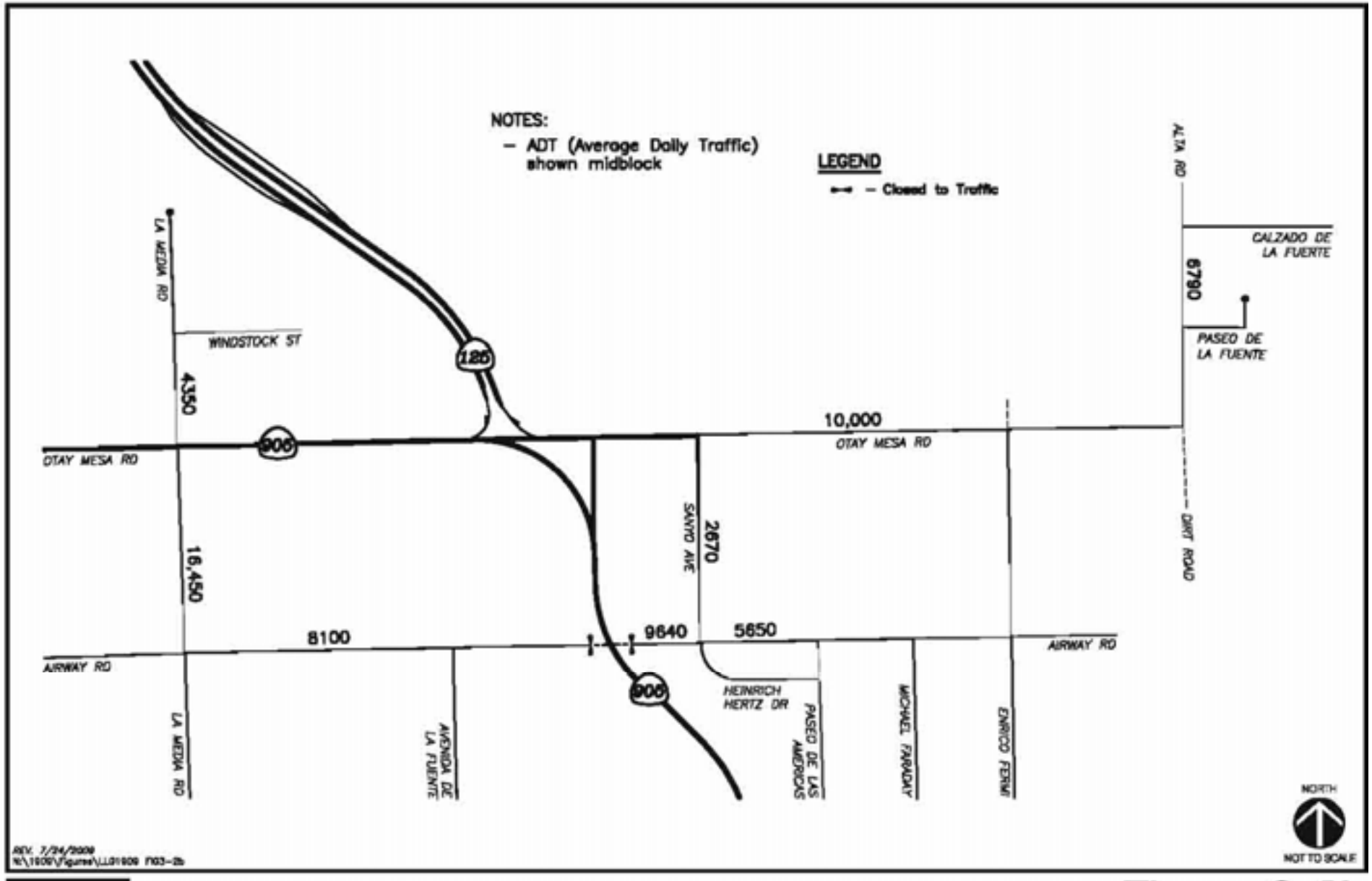


LINSCOTT LAW & GREENSPAN engineers

Figure 3-2a

Wueste Road Pipeline (R2087)
Existing Traffic Volumes

OTAY WATER DISTRICT PIPELINE



LINSCOTT LAW & GREENSPAN engineers

Figure 3-2b

Alta Road Pipeline (R2077) & Airway/ La Media Road Pipeline (R2058)
Existing Traffic Volumes

OTAY WATER DISTRICT PIPELINE

4.0 METHODOLOGY

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported for roadway segments.

4.1 Street Segments

Street segment analysis is based upon the comparison of ADTs to the jurisdiction's Roadway Classification, Level of Service, and ADT Table (obtained from the *City of San Diego's "Traffic Impact Study Manual," dated July 2008, County of San Diego Average Daily Vehicle Trips Table* and *City of Chula Vista's Roadway Capacity Standards Table*). These tables provide segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The referenced tables are attached in ***Appendix B***.

5.0 SIGNIFICANCE CRITERIA

The proposed pipeline project crosses three jurisdictional boundaries: the City of San Diego – Community of Otay Mesa, the County of San Diego – Otay, and the City of Chula Vista. Any potential impacts due to the project were analyzed based on the corresponding jurisdiction's significance criteria. Below is a description of each.

5.1 City of San Diego

According to the City of San Diego's *Significance Determination Thresholds* report dated January 2007, a project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a City defined threshold. For projects deemed complete on or after January 1, 2007, the City defined threshold by roadway type or intersection is shown in ***Table 5–1***.

The impact is designated either a "direct" or "cumulative" impact. According to the City's *Significance Determination Thresholds* report,

> *Direct* traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (near term).
>
> *Cumulative* traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when affected community plan area reaches full planned buildout (long-term cumulative).
>
> It is possible that a project's near term (direct) impacts may be reduced in the long term, as future projects develop and provide additional roadway improvements (for instance, through implementation of traffic phasing plans). In such a case, the project may have direct impacts but not contribute considerably to a cumulative impact.
>
> For intersections and roadway segments affected by a project, level of service (LOS) D or better is considered acceptable under both direct and cumulative conditions.

If the project exceeds the thresholds in *Table 5–1*, then the project may be considered to have a significant "direct" or "cumulative" project impact. A significant impact can also occur if a project causes the Level of Service to degrade from D to E, even if the allowable increases in *Table 5–1* are not exceeded. A feasible mitigation measure will need to be identified to return the impact within the City thresholds, or the impact will be considered significant and unmitigated.

TABLE 5–1
CITY OF SAN DIEGO
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project[b]	Allowable Increase Due to Project Impacts[a]					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E	0.010	1.0	0.02	1.0	2.0	1.0[c]
F	0.005	0.5	0.01	0.5	1.0	

Footnotes:

a. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note b), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.

b. All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

c. The impact is only considered significant if the total delay exceeds 15 minutes.

General Notes:

1. Delay = Average control delay per vehicle measured in seconds for intersections, or minutes for ramp meters.
2. LOS = Level of Service
3. V/C = Volume to Capacity Ratio (capacity at LOS E should be used)
4. Speed = Arterial speed measured in miles per hour for Congestion Management Program (CMP) analyses

Also, according to the City of San Diego's *Significance Determination Thresholds* report, other possible significant impacts that are not accounted for in *Table 5–1* include the following:

- If a project would increase traffic hazards to motor vehicles, bicyclists or pedestrians due to proposed non-standard design features (e.g., poor sight distance, proposed driveway onto an access-restricted roadway), the impact would be significant.

- If a project would result in the construction of a roadway which is inconsistent with the General Plan and/or a community plan, the impact would be significant if the proposed roadway would not properly align with other existing or planned roadways.

- If a project would result in a substantial restriction in access to publicly or privately owned land, the impact would be significant.

5.2 County of San Diego

The following criterion was utilized to evaluate potential significant impacts, based on the County's documents "Guidelines for Determining Significance", effective December 5, 2007.

Road Segments

Pursuant to the County's General Plan Public Facilities Element (PFE), new development must provide improvements or other measures to mitigate traffic impacts to avoid:

a. Reduction in Level of Service (LOS) below "C" for on-site Circulation Element roads;

b. Reduction in LOS below "D" for off-site and on-site abutting Circulation Element roads; and

c. "Significantly impacting congestion" on roads that operate at LOS "E" or "F". If impacts cannot be mitigated, the project will be denied unless a statement of overriding findings is made pursuant to the State CEQA Guidelines. The PFE, however, does not include specific guidelines/thresholds for determining the amount of additional traffic that would "significantly impact congestion" on such roads, as that phrase is used in item (c) above.

The County has created the following guidelines to evaluate likely traffic impacts of a proposed project for road segments and intersections serving that project site, for purposes of determining whether the development would "significantly impact congestion" on the referenced LOS E and F roads. The guidelines are summarized in ***Table 5–2***. The thresholds in *Table 5–2* are based upon average operating conditions on County roadways. It should be noted that these thresholds only establish general guidelines, and that the specific project location must be taken into account in conducting an analysis of traffic impact from new development.

TABLE 5–2
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON ROAD SEGMENTS
ALLOWABLE INCREASES ON CONGESTED ROAD SEGMENTS

Level of Service	Two-Lane Road	Four-Lane Road	Six-Lane Road
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT

General Notes:

1. By adding proposed project trips to all other trips from a list of projects, this same table must be used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes any trips must mitigate a share of the cumulative impacts.
2. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

On-site Circulation Element Roads—PFE, Transportation, Policy 1.1 states that "new development shall provide needed roadway expansion and improvements on-site to meet demand created by the development, and to maintain a Level of Service C on Circulation Element Roads during peak traffic hours". Pursuant to this policy, a significant traffic impact would result if:

- The additional or redistributed ADT generated by the proposed land development project will cause on-site Circulation Element Roads to operate below LOS C during peak traffic hours except within the Otay Ranch project as defined in the Otay Subregional Plan Text, Volume 2. PFE, Implementation Measure 1.1.2.

Off-Site Circulation Element Roads—PFE, Transportation, Policy 1.1 also states that "new development shall provide needed roadway expansion and improvements off-site to meet demand created by the development, and to maintain a Level of Service D on Circulation Element Roads." "New development that would significantly impact congestion on roads operating at LOS E or F, either currently or as a result of the project, will be denied unless improvements are scheduled to

improve the LOS to D or better or appropriate mitigation is provided." The PFE, however, does not specify what would significantly impact congestion or establish criteria for evaluating when increased traffic volumes would significantly impact congestion. The following significance guidelines provided are the County's preferred method for evaluating whether or not increased traffic volumes generated or redistributed from a proposed project will "significantly impact congestion" on County roads, operating at LOS E or F, either currently or as a result of the project.

Traffic volume increases from projects that result in one or more of the following criteria will have a significant traffic impact on a road segment, unless specific facts show that there are other circumstances that mitigate or avoid such impacts:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Circulation Element Road or State Highway currently operating at LOS E or LOS F, or will cause a Circulation Element Road or State Highway to operate at a LOS E or LOS F as a result of the proposed project as identified in *Table 1*, or
- The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity.

5.3 City of Chula Vista

Traffic impacts will be defined as either project specific impacts or cumulative impacts. Project specific impacts are those impacts for which the addition of project trips result in an identifiable degradation in level of service on freeway segments, roadway segments, or intersections, triggering the need for specific project-related improvement strategies. Cumulative impacts are those in which the project trips contribute to a poor level of service, at a nominal level.

Study horizon year as used herein is intended to describe a future period of time in the traffic studies, which corresponds to SANDAG's traffic model years, and are meant to synchronize study impacts to be in line with typical study years of 2005, 2010, 2015 and 2030.

Criteria for determining whether the project results in either project specific or cumulative impacts on freeway segments, roadway segments, or intersections are as follows:

Short-Term (Study Horizon Year 0 To 4)

For purposes of the short-term analysis roadway sections may be defined as either links or segments. A link is typically that section of roadway between two adjacent Circulation Element intersections and a segment is defined as that combination of contiguous links used in the Growth Management Plan Traffic Monitoring Program. Analysis of roadway links under short-term conditions may require a more detailed analysis using the Growth Management Oversight Committee (GMOC) methodology if the typical planning analysis using volume to capacity ratios on an individual link indicates a potential impact to that link. The GMOC analysis uses the Highway Capacity Manual (HCM) methodology of average travel speed based on actual measurements on the segments as listed in the Growth Management Plan Traffic Monitoring Program.

Street Links/Segments

If the planning analysis using the volume to capacity ratio indicates LOS C or better, there is no impact. If the planning analysis indicates LOS D, E or F, the GMOC method should be utilized. The following criteria would then be utilized.

a. Project specific impact if all the following criteria are met:
    i. Level of service is LOS D for more than 2 hours or LOS E/F for 1hour
    ii. Project trips comprise 5% or more of segment volume
    iii. Project adds greater than 800 ADT to the segment
b. Cumulative impact if only (i) is met.

6.0 ANALYSIS OF EXISTING SCENARIO

6.1 Existing

As shown in ***Table 6–1***, the following study area segments were calculated to currently operate at LOS E or F conditions:

Airway/ La Media Road Pipeline (R2058)

- La Media Road between Otay Mesa Road and Airway Road – LOS F
- Airway Road between Avenida de la Fuente and Sanyo Avenue – LOS E

TABLE 6–1
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Existing Classification	Existing Capacity (LOS E)[a]	Existing		
				ADT[b]	LOS[c]	V/C[d]
Wueste Road Pipeline (R2087)						
Wueste Road						
Olympic Parkway to Athlete's Access	City of CV	2-ln Unclassified[e]	9,400	780	A	0.08
Alta Road Pipeline (R2077)						
La Media Road						
North of Otay Mesa Road	City of SD	2-ln Collector	10,000	4,350	B	0.44
Airway Road						
Sanyo Avenue to Paseo de Las Americas	City of SD	4-ln Major Arterial	40,000	5,650	A	0.14
Sanyo Avenue						
Airway Road to Otay Mesa Road	City of SD	4-ln Collector	15,000	2,670	A	0.18
Otay Mesa Road						
Sanyo Avenue to Alta Road[f]	City/County of SD	2-ln Collector	16,200	10,000	D	0.62
Alta Road						
Otay Mesa Road to Calzada de la Fuente	County of SD	2-ln Collector	16,200	6,790	C	0.42
Airway/La Media Road Pipeline (R2058)						
La Media Road						
Otay Mesa Road to Airway Road	City of SD	2-ln Collector[g]	10,000	16,450	F	1.65
Airway Road						
La Media Road to Avenida de la Fuente	City of SD	2-ln Collector	10,000	8,100	D	0.81
Avenida de la Fuente to SR-905	City of SD	2-ln Collector	10,000	8,100	D	0.81
SR-905 to Sanyo Avenue	City of SD	2-ln Collector	10,000	9,640	E	0.96

Footnotes:

a. Capacities based on appropriate jurisdictions mentioned in Section 3.0. Wueste Road capacity based on City of Chula Vista Roadway Classification. (See *Appendix B*).

b. Average Daily Traffic

c. Level of Service

d. Volume to Capacity ratio

e. Class III Collector capacity used for Wueste Road.

f. Segment count conducted at portion of roadway located in County of San Diego jurisdiction.

g. Currently under construction due to the future SR-905/ La Media Road interchange.

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Trip Generation

Employee Trips

During construction, approximately 10 personnel member would be expected to work on the pipeline activities. It is to be expected that most laborers would be meeting in a staging area and would then be transported to the construction site. However, since the staging areas have not yet been determined, it was assumed that each of the 10 workers could arrive at the construction site.

In addition to worker traffic, construction activities would generate truck traffic on the street system. Based on information provided by the client, it is expected that during peak construction approximately 10-15 trucks per day will be generated. Such truck activities include equipment delivery trucks, excavation trucks, welding trucks, dump trucks and other subcontractor trucks. The hours of operation are expected to be between 7:00 AM to 7:00 PM. The duration of construction for the Wueste Road Pipeline (R2087), Alta Road Pipeline (R2077), and Airway/La Media Road Pipeline (R2058) is projected to last approximately 500 days for each project.

Passenger Car Equivalence (PCE) is defined as the number of passenger cars that are displaced by a single heavy vehicle of a particular type under the prevailing traffic conditions. Heavy vehicles have a greater traffic impact than passenger cars since:

- They are larger than passenger cars, and therefore, occupy more roadway space; and
- Their performance characteristics are generally inferior to passenger cars, leading to the formation of downstream gaps in the traffic stream (especially on upgrades), which cannot always be effectively filled by normal passing maneuvers.

Most of the project-generated traffic consists of heavy vehicles (trucks). Therefore, a PCE factor of 2.5 per truck was applied to the generated truck trips. Exhibit 21-8, Passenger Car Equivalents on Extended General Highway Segments, (o*btained from "Highway Capacity Manual prepared by Transportation Research Board," dated Year 2000*) summarizes PCE factors for various types of vehicles. The type of terrain along the truck route is rolling. As seen in Exhibit 21-8, the passenger car equivalents are 2.5 for trucks on a rolling terrain (See ***Appendix C***).

Table 7–1 tabulates the total project traffic generation. The total project is calculated to generate approximately 105 ADT.

7.2 Trip Distribution & Assignment

As mentioned, it is to be expected that most laborers would be meeting in a staging area and would then be transported to the construction site. However, for purposes of a conservative analysis, it was assumed that all the traffic would be arriving and departing a single point on the study segment.

TABLE 7–1
PROJECT TRIP GENERATION

Type of Trips	Number of Trips	Rate	Volume
Truck Trips	30/day	2.5 PCE [a]	75
Employee Trips (10)	15/day	2.0 —	30
Total		**—**	**105**

Footnotes:

a. Passenger car equivalent of 2.5 was used.
b. It was assumed 50% of the workers will go out during the day for lunch and/or errands.

8.0 NEAR-TERM CONDITIONS

8.1 Near-Term Street Network

State Route 905 from Interstate 805 to Otay Mesa Port of Entry

The California Department of Transportation (Caltrans) and the U.S. Department of Transportation Federal Highway Administration (FHWA) propose to construct State Route 905 as a six-lane (mixed-flow) freeway or tollway with controlled access, to connect the Otay Mesa Point of Entry and Interstate 805 in San Diego County, California. According to the Caltrans project description, the project will include grade-separated local access interchanges and the freeway-to-freeway interchange with the South Bay Expressway. This project is being constructed in two phases. Phase I will construct six lanes, from just east of I-805 to Siempre Viva Road. It will include interchanges at Caliente Avenue, Britannia Boulevard and La Media Road. Improvements will also be made to Sanyo Avenue, Otay Mesa Road, Harvest Road and Airway Road.

The Siempre Viva Road interchange was completed in 2005. Caltrans is in the process of acquiring right-of-way from Siempre Viva Road to just east of I-805 for Phase 1. Due to the escalated costs for right-of-way acquisition, the Department has decided to split Phase 1 into two parts: Phase 1A, the eastern segment from Siempre Viva Road to Britannia Boulevard and Phase 1B, the western segment from Britannia Boulevard to just east of I-805

Per conversations with Caltrans, in correspondence with Phase 1A construction, improvements to Airway Road, which consist of an underpass at the future SR-905, are scheduled to be completed by Summer 2010 and improvements to La Media Road, which consist of an interchange with the future SR-905, are scheduled to be completed by Fall 2010. The pipeline projects are expected to begin construction in late August 2010, therefore, it is expected that the above improvements will be completed or very close to completion.

8.2 Near-Term Traffic Volumes

In order to forecast near-term traffic volumes for the Wueste Road pipeline project which has a commencement date of 2012, LLG applied a conservative 5% growth factor per year for four years to the existing volumes to account for normal annual growth within the study area. For the Alta Road & Airway/La Media Road Pipelines, the 5% annual growth factor was applied for two years to estimate Year 2010 volumes. The 5% growth factor was based on the expected ambient growth within Otay Mesa and the surrounding areas.

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

9.1 Near-Term Without Project

Table 9–1 shows the results of the near-term analysis. All of the study area segments are calculated to operate at acceptable levels of service on a daily basis.

Figure 9–1a depicts the Wueste Road Pipeline near-term without project ADT's and ***Figure 9–1b*** depicts the Alta Road & Airway/La Media Road Pipeline near-term without project ADT's.

9.2 Near-Term With Project

Table 9–1 shows the results of the near-term with project analysis. With the addition of construction traffic, all of the study area segments are calculated to continue to operate at acceptable levels of service on a daily basis.

Figure 9–2a depicts the Wueste Road Pipeline near-term + project ADT's and ***Figure 9–2b*** depicts the Alta Road & Airway/La Media Road Pipeline near-term with project ADT's.

TABLE 9–1
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Near-Term Capacity (LOS E)[a]	Near-Term Without Project			Near-Term With Project			Δ[e]
		ADT[b]	LOS[c]	V/C[d]	ADT	LOS	V/C	
Wueste Road Pipeline (R2087)								
Wueste Road								
Olympic Parkway to Athlete's Access	9,400[g]	950	A	0.10	1,055	A	0.11	0.01
Alta Road Pipeline (R2077)								
La Media Road								
North of Otay Mesa Road	10,000	4,800	B	0.48	4,905	B	0.49	0.01
Airway Road								
Sanyo Avenue to Paseo de Las Americas	40,000	6,230	A	0.16	6,335	A	0.16	0.00
Sanyo Avenue								
Airway Road to Otay Mesa Road	15,000	2,940	A	0.20	3,045	A	0.20	0.00
Otay Mesa Road								
Sanyo Avenue to Alta Road[f]	16,200	10,500	D	0.65	10,605	D	0.65	0.00
Alta Road								
Otay Mesa Road to Calzada de la Fuente	16,200	7,490	D	0.46	7,595	D	0.47	0.01
Airway/La Media Road Pipeline (R2058)								
La Media Road								
Otay Mesa Road to Airway Road	30,000	18,140	C	0.60	18,245	C	0.61	0.01
Airway Road								
La Media Road to Avenida de la Fuente[h]	10,000	8,930	D	0.89	9,035	E	0.90	0.01
Avenida de la Fuente to SR-905	30,000	8,930	A	0.30	9,035	A	0.30	0.00
SR-905 to Sanyo Avenue	30,000	10,630	B	0.35	10,735	B	0.36	0.01

Footnotes:

a. Capacities based on appropriate jurisdictions mentioned in Section 3.0. Wueste Road capacity based on City of Chula Vista Roadway Classification. (See *Appendix B*).

b. Average Daily Traffic.

c. Level of Service.

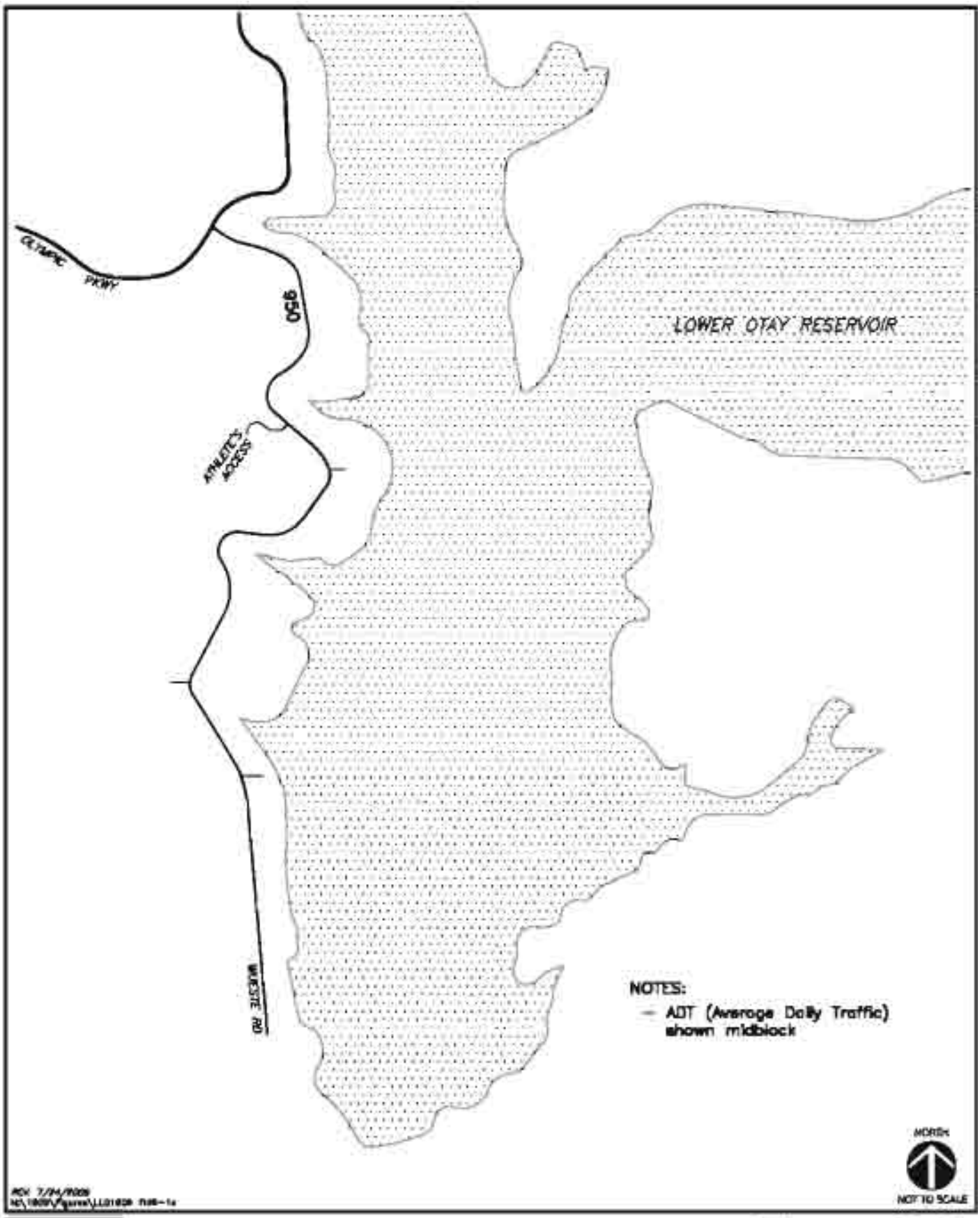
d. Volume to Capacity ratio.

e. Δ denotes a project-induced increase in the Volume to Capacity ratio.

f. Segment count conducted at portion of roadway located in County of San Diego jurisdiction.

g. Class III Collector capacity used for Wueste Road.

h. No significant impact is calculated since the project adds less than 0.02 to the V/C ratio.

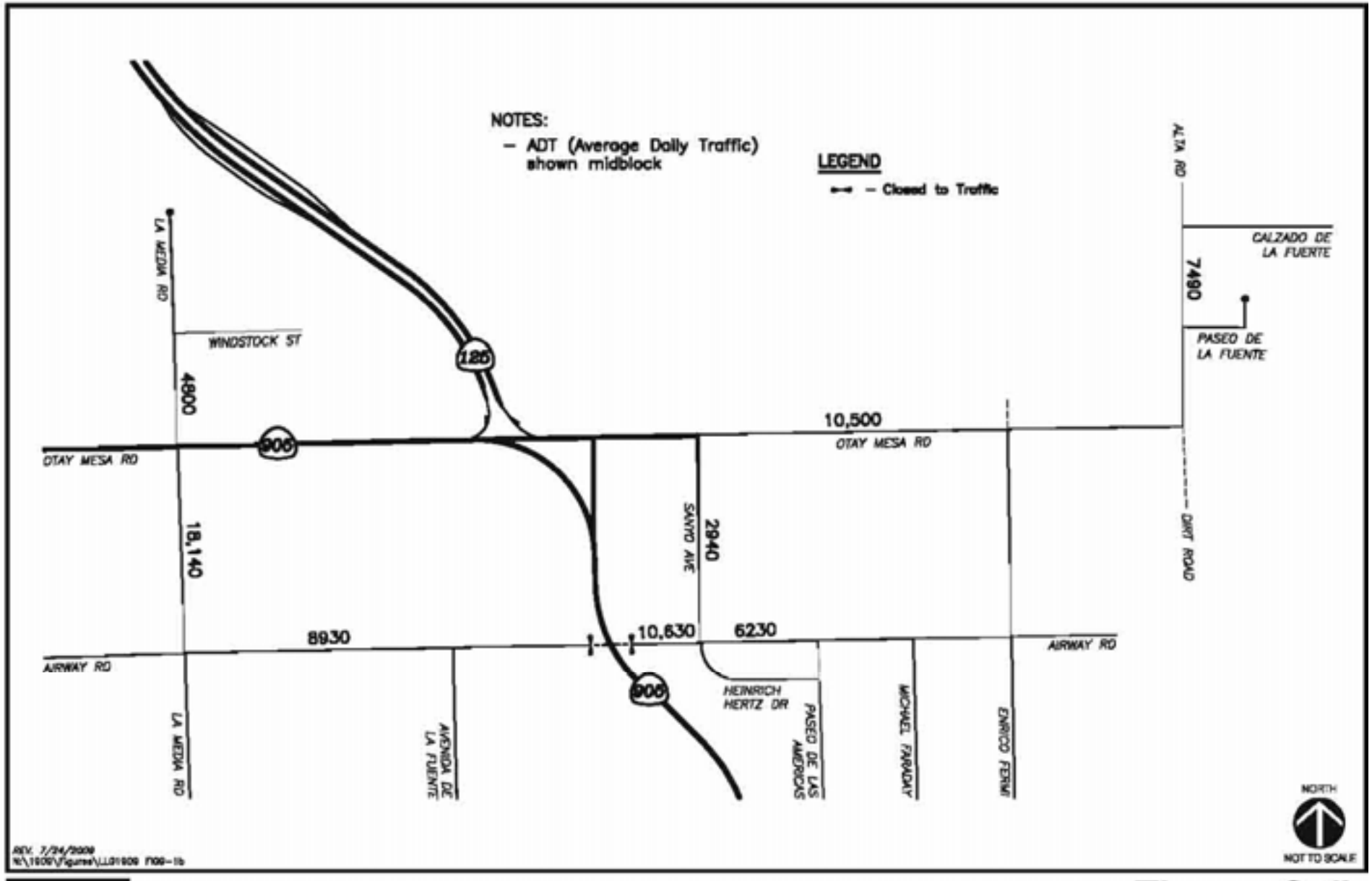


LINSCOTT LAW & GREENSPAN engineers

Figure 9-1a

Wueste Road Pipeline (R2087)
Near-Term Without Project Traffic Volumes

OTAY WATER DISTRICT PIPELINE

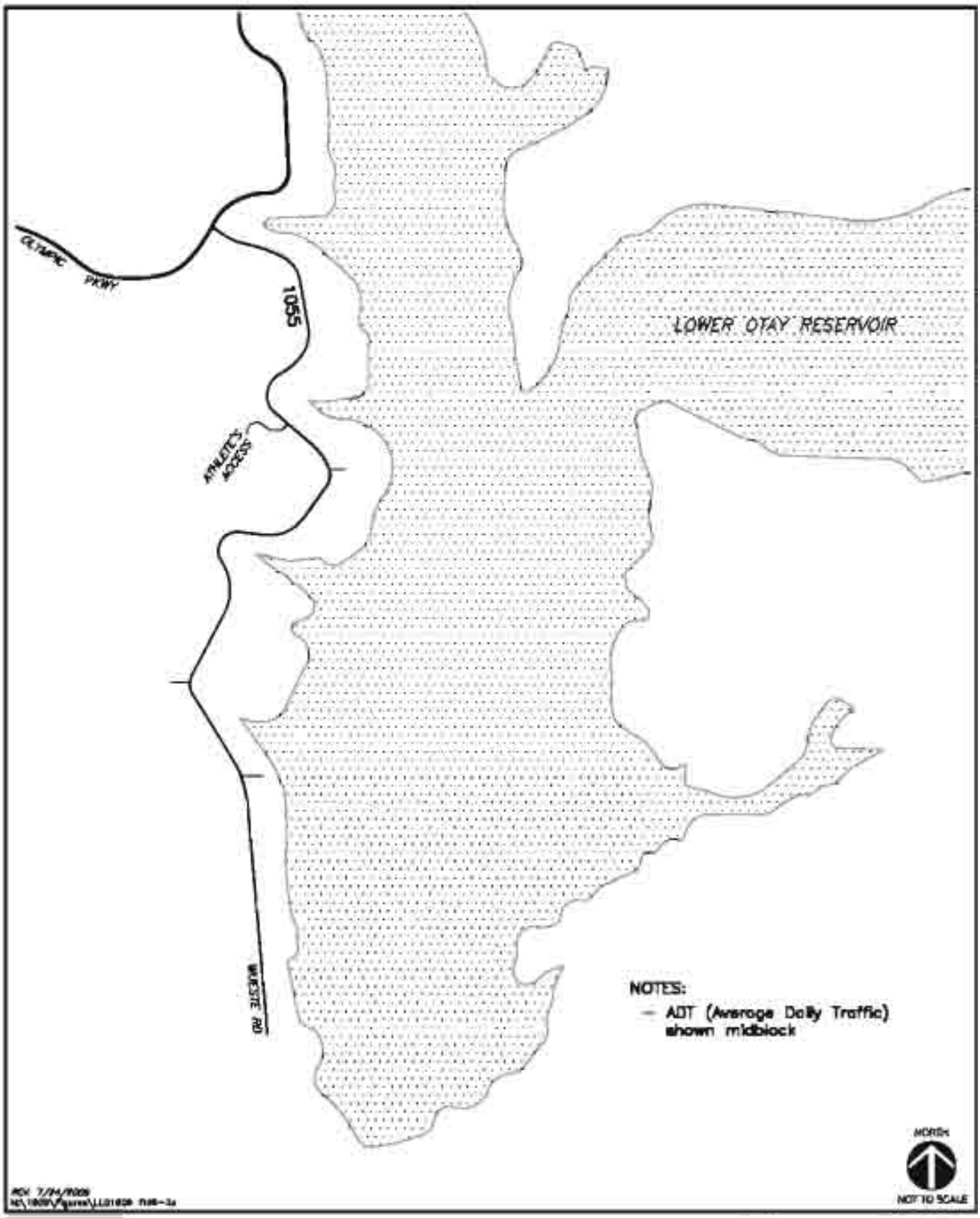


LINSCOTT LAW & GREENSPAN engineers

Figure 9-1b

Alta Road Pipeline (R2077) & Airway/ La Media Road Pipeline (R2058)
Near-Term Without Project Traffic Volumes

OTAY WATER DISTRICT PIPELINE

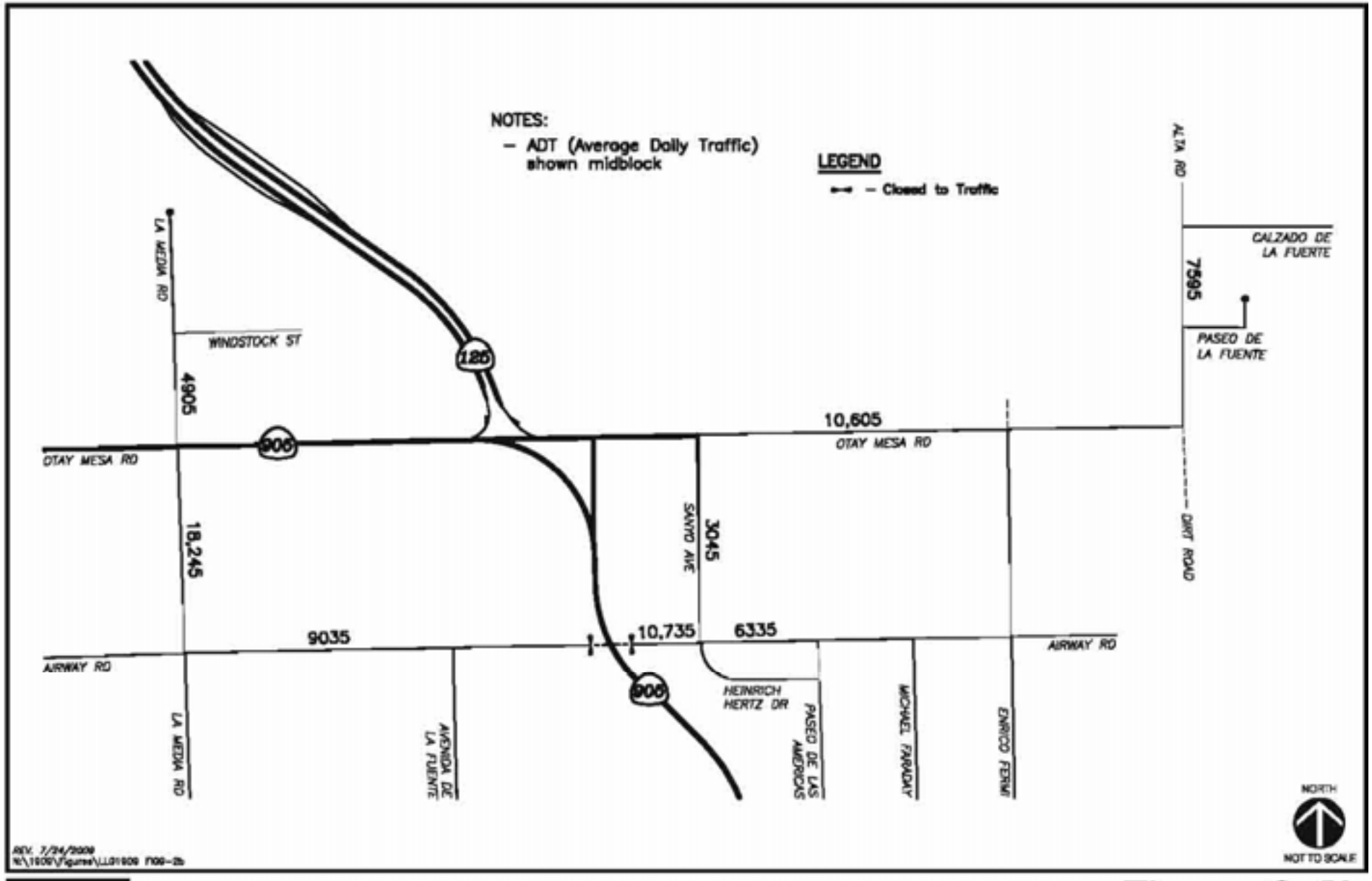


LINSCOTT LAW & GREENSPAN engineers

Figure 9-2a

Wueste Road Pipeline (R2087)
Near-Term With Project Traffic Volumes

OTAY WATER DISTRICT PIPELINE



LINSCOTT LAW & GREENSPAN engineers

Figure 9-2b

Alta Road Pipeline (R2077) & Airway/ La Media Road Pipeline (R2058)
Near-Term With Project Traffic Volumes

OTAY WATER DISTRICT PIPELINE

10.0 PIPELINE CONSTRUCTION CONCLUSIONS

Wueste Road Pipeline (R2087)

Wueste Road

During the pipeline construction process, one of the two lanes on Wueste Road will be temporarily closed to traffic. This will reduce the total capacity of the roadway from 9,400 ADT to approximately 4,700 ADT. As shown in ***Table 9–1***, sufficient capacity will continue to be provided for the estimated 1,055 ADT under the near term + construction project traffic condition.

Alta Road Pipeline (R2077)

La Media Road

During the pipeline construction process, one of the two lanes on La Media Road may be temporarily closed to traffic. This will reduce the total capacity of the roadway from 10,000 ADT to approximately 5,000 ADT. As shown in *Table 9–1*, sufficient capacity will continue to be provided for the estimated 4,905 ADT under the near-term + construction project traffic condition.

Airway Road

During the pipeline construction process, one of the four lanes on Airway Road may be temporarily closed to traffic. This will reduce the total capacity of the roadway from 40,000 ADT to approximately 30,000 ADT. As shown in *Table 9–1*, sufficient capacity will continue to be provided for the estimated 6,335 ADT under the near-term + construction project traffic condition.

Sanyo Avenue

During the pipeline construction process, one of the four lanes on Sanyo Avenue may be temporarily closed to traffic. This will reduce the total capacity of the roadway from 15,000 ADT to approximately 11,250 ADT. As shown in *Table 9–1*, sufficient capacity will continue to be provided for the estimated 3,045 ADT under the near-term + construction project traffic condition.

Otay Mesa Road

During the pipeline construction process, one of the two lanes on Otay Mesa Road may be temporarily closed to traffic. This will reduce the total capacity of the roadway from 16,200 ADT to approximately 8,100 ADT. As shown in *Table 9–1*, this capacity will *not* be sufficient for the estimated 10,605 ADT under the near-term + construction project traffic condition. Therefore, it is recommended that the closures be spaced out throughout the duration of the day to ensure few or no closures during the AM & PM peak hours of commuter traffic.

Alta Road

During the pipeline construction process, one of the two lanes on Alta Road may be temporarily closed to traffic. This will reduce the total capacity of the roadway from 16,200 ADT to approximately 8,100 ADT. As shown in *Table 9–1*, sufficient capacity will continue to be provided for the estimated 7,595 ADT under the near-term + construction project traffic condition.

Airway/La Media Road Pipeline (R2058)

La Media Road

During the pipeline construction process, one of the four lanes on La Media Road may be temporarily closed to traffic. This will reduce the total capacity of the roadway from 30,000 ADT to approximately 22,500 ADT. As shown in *Table 9–1*, sufficient capacity will continue to be provided for the estimated 18,245 ADT under the near-term + construction project traffic condition.

Airway Road (La Media Road to Avenida de la Fuente))

During the pipeline construction process, one of the two lanes on Airway Road between La Media Road and Avendia de la Fuente may be temporarily closed to traffic. This will reduce the total capacity of the roadway from 10,000 ADT to approximately 5,000 ADT. As shown in *Table 9–1*, this capacity will *not* be sufficient for the estimated 9,035 ADT under the near-term + construction project traffic condition. Therefore, it is recommended that the closures be spaced out throughout the duration of the day to ensure few or no closures during the AM & PM peak hours of commuter traffic.

Airway Road (Avenida de la Fuente to Sanyo Avenue)

During the pipeline construction process, one of the four lanes on Airway Road between Avenida de la Fuente and Sanyo Avenue may be temporarily closed to traffic. This will reduce the total capacity of the roadway from 30,000 ADT to approximately 22,500 ADT. As shown in *Table 9–1*, sufficient capacity will be provided for the estimated 9,035 to 10,735 ADT under the near-term + construction project traffic condition.

11.0 SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES

Per the jurisdictional significance criteria (*Section 5.0* of this report), no significant direct or cumulative capacity related impacts to the street system were calculated due to the proposed project since the expected lane closures are temporary in nature. Hence, capacity related mitigation measures are not required.

Based on the very small amount of construction traffic, the project would not increase traffic hazards to motor vehicles, bicyclists or pedestrians. The project also would not result in a substantial restriction in access to publicly or privately owned land. Therefore, mitigation measures are not required.

12.0 RECOMMENDATIONS

Although mitigation measures are not required since no significant project impacts were calculated, the following traffic-related recommendations are offered.

- It is recommended that the lane closures for Otay Mesa Road between Sanyo Avenue and Alta Road and the street segment of Airway Road between La Media Road to Avenida de la Fuente be spaced out throughout the duration of the day to ensure few or no closures during the AM & PM peak hours of commuter traffic.

- It is recommended that traffic control plans be prepared for the construction project and that signage and/or flagging be provided.

- Construction activities would restrict access to or from adjacent land uses. Therefore, business should be notified of potential obstruction. Blocked access to nearby properties will require advance coordination with property owners and tenants. Construction shall be scheduled so that at least one access driveway is left unblocked during business hours.

- Construction activities may disrupt bus service route 905A (Iris Avenue Trolley Station to Otay Mesa Border Crossing) on Airway Road. Therefore, advanced coordination with public transit agencies would need to be implemented to avoid disruption to transit operations.

- Construction activities could impede pedestrian and bicyclist movements in the construction area. Therefore, alternative pedestrian access routes should be provided and signed/marked appropriately to avoid obstructions to pedestrians and bicyclists.

13.0 REFERENCES

City of San Diego General Plan: Otay Mesa Community Plan Existing Roadway Conditions, October 15, 2003

City of San Diego's Roadway Classification, Level of Service, and ADT Table: Obtained from the City of San Diego's "Traffic Impact Study Manual", dated July 2008

City of San Diego's Significance Criteria: "City of San Diego's Significance Determination Thresholds", January 2007

County of San Diego General Plan: Circulation Element Zone 6 South Metro/Jamul June 12, 2002

County of San Diego Average Daily Vehicle Trips Table, August 11, 1998

County of San Diego's Significance Criteria: "Guidelines for Determining Significance", December 5, 2007

City of Chula Vista General Plan Vision 2020: Circulation Plan – East, December 13, 2005

City of Chula Vista Roadway Capacity Standards Table B-1

City of Chula Vista Significance Criteria

HCM 2000: "Highway Capacity Manual" prepared by Transportation Research Board, dated Year 2000

California Department of Transportation (CALTRANS): State Route 905, September 2008

LINSCOTT
LAW &
GREENSPAN
engineers

TECHNICAL APPENDICES

OTAY WATER DISTRICT PIPELINE PROJECT

San Diego, California
February 17, 2010

LLG Ref. 3-09-1909

**Linscott, Law &
Greenspan, Engineers**
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

APPENDIX A

SEGMENT MANUAL COUNT SHEETS

MetroCount Traffic Executive
Event Counts

EventCount-400 -- English (ENU)

Datasets:

Site:	[8021.01] LA MEDIA RD (NORTH OF OTAY MESA RD) NORTHBOUND
Input A:	1 - North bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	18:03 Monday, March 03, 2008 => 17:36 Wednesday, March 05, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.01.N05Mar2008.EC0 (Regular)
Identifier:	T54701F7 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Tuesday, March 04, 2008 => 0:00 Wednesday, March 05, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 1583 / 1776 (89.13%)

* Tuesday, March 04, 2008=1582, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
14	15	8	8	10	19	53	57	93	122	113	169	120	151	129	142	105	87	58	32	25	18	17	17	
2	10	2	3	0	2	14	11	21	33	30	41	37	48	30	24	35	28	22	3	5	5	0	0	-
5	1	1	3	3	9	10	13	21	24	26	49	25	31	35	43	22	25	9	12	5	2	10	5	-
2	1	1	0	4	2	15	13	29	41	24	39	27	40	31	39	30	18	11	3	4	8	3	7	-
5	3	4	2	3	6	14	20	22	24	33	40	31	32	33	36	18	16	16	14	11	3	4	5	-

AM Peak 1100 - 1200 (169), AM PHF=0.86

MetroCount Traffic Executive
Event Counts

EventCount-401 -- English (ENU)

Datasets:

Site:	[8021.01] LA MEDIA RD (NORTH OF OTAY MESA RD) SOUTHBOUND
Input A:	3 - South bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	18:05 Monday, March 03, 2008 => 17:37 Wednesday, March 05, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.01.S05Mar2008.EC0 (Regular)
Identifier:	T5450FAN MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Tuesday, March 04, 2008 => 0:00 Wednesday, March 05, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 2761 / 5247 (52.62%)

* Tuesday, March 04, 2008=2761, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
26	8	25	28	34	45	70	69	149	187	206	258	256	216	230	264	233	186	115	66	32	24	16	18	
5	0	10	7	7	5	5	14	28	45	44	38	62	53	62	58	74	49	39	20	5	5	4	1	-
4	1	5	6	17	5	19	23	32	52	56	66	68	58	41	60	54	51	12	17	12	12	3	3	-
9	7	5	6	3	21	21	14	41	55	59	84	59	42	72	84	56	50	40	22	8	3	5	7	-
8	0	5	9	7	14	25	18	48	35	47	70	67	63	55	62	49	36	24	7	7	4	4	7	-

AM Peak 1130 - 1230 (284), AM PHF=0.85

MetroCount Traffic Executive
Event Counts

EventCount-403 -- English (ENU)

Datasets:

Site:	[8021.02] LA MEDIA RD (OTAY MESA RD-AIRWAY RD) SOUTHBOUND
Input A:	3 - South bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	18:35 Monday, March 03, 2008 => 17:38 Wednesday, March 05, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.02.S05Mar2008.EC0 (Regular)
Identifier:	S014F2C9 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Tuesday, March 04, 2008 => 0:00 Wednesday, March 05, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 8906 / 17239 (51.66%)

* Tuesday, March 04, 2008=8906, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
86	56	210	65	81	242	294	659	594	530	587	679	738	622	651	637	583	484	414	243	137	101	151	62	
25	13	37	16	14	11	61	142	180	142	164	138	154	141	166	147	137	141	131	74	42	26	35	13	--
28	12	37	12	24	49	52	135	142	153	150	187	201	165	179	165	163	104	90	73	34	17	39	23	--
16	15	70	14	21	84	93	163	150	105	113	152	188	170	137	158	125	129	112	46	29	27	47	4	--
17	16	66	23	22	98	88	219	122	130	160	202	195	146	169	167	158	110	81	50	32	31	30	22	--

AM Peak 1145 - 1245 (745), AM PHF=0.92

MetroCount Traffic Executive
Event Counts

EventCount-404 -- English (ENU)

Datasets:

Site:	**[8021.03] LA MEDIA RD (AIRWAY RD-SIEMPRE VIVA RD) NORTHBOUND**
Input A:	1 - North bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	19:07 Monday, March 03, 2008 => 23:26 Wednesday, March 05, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.03.N05Mar2008.EC0 (Regular)
Identifier:	S1339PHE MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**0:00 Tuesday, March 04, 2008 => 0:00 Wednesday, March 05, 2008**
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 7544 / 13787 (54.72%)

*** Tuesday, March 04, 2008=7544, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
39	21	18	62	90	92	167	185	401	432	343	664	745	764	731	720	498	690	332	219	114	94	73	50	
15	3	6	17	25	16	47	47	104	65	110	101	200	111	198	130	122	210	95	52	39	18	23	22	-
10	5	9	15	26	29	34	43	112	132	76	158	159	228	193	196	161	220	80	59	26	23	12	10	-
10	8	0	18	20	11	38	44	108	125	58	206	210	183	176	223	98	162	74	38	20	36	16	11	-
4	5	3	12	19	36	48	51	77	110	99	199	176	242	164	171	117	98	83	70	29	17	22	7	-

AM Peak 1145 - 1245 (768), AM PHF=0.81

MetroCount Traffic Executive
Event Counts

EventCount-374 -- English (ENU)

Datasets:

Site:	[8017.09] AIRWAY RD (HWY-905-LA MEDIA RD) EASTBOUND
Input A:	2 - East bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	18:59 Monday, February 25, 2008 => 21:27 Wednesday, February 27, 2008
File:	C:\Users\Gus\True Count\Projects\8017 DA OTAY\8017.09.E27Feb2008.EC0 (Regular)
Identifier:	S1339PHE MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Tuesday, February 26, 2008 => 0:00 Wednesday, February 27, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 4073 / 8348 (48.79%)

* Tuesday, February 26, 2008=4072, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
24	45	21	19	23	43	106	190	242	298	310	281	372	268	307	315	327	364	203	113	68	69	28	36	
8	5	2	2	6	2	15	27	67	62	84	72	89	55	68	67	99	109	54	44	28	26	6	5	-
3	32	0	6	11	16	8	33	52	73	74	69	80	57	83	97	92	91	54	22	16	15	8	8	-
4	6	13	4	3	11	33	63	48	87	56	79	119	87	71	67	70	88	44	31	14	17	6	15	-
9	2	6	7	3	14	50	67	75	76	96	61	84	69	85	84	66	76	51	16	10	11	8	8	-

AM Peak 1145 - 1245 (349), AM PHF=0.73

MetroCount Traffic Executive
Event Counts

EventCount-375 -- English (ENU)

Datasets:

Site:	[8017.09] AIRWAY RD (HWY-905-LA MEDIA RD) WESTBOUND
Input A:	4 - West bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	19:13 Monday, February 25, 2008 => 21:28 Wednesday, February 27, 2008
File:	C:\Users\Gus\True Count\Projects\8017 DA OTAY\8017.09.W27Feb2008.EC0 (Base)
Identifier:	V286M0GP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Tuesday, February 26, 2008 => 0:00 Wednesday, February 27, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 4022 / 8244 (48.79%)

* Tuesday, February 26, 2008=4021, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
15	29	14	37	52	79	180	201	237	337	307	341	338	350	308	292	308	229	167	94	32	31	27	16	
2	0	4	7	7	9	19	45	74	87	68	87	69	74	56	75	84	54	51	27	12	14	9	5	-
3	14	3	9	18	23	40	50	66	71	78	62	81	95	63	66	68	78	33	35	10	6	8	2	-
4	9	2	10	15	23	55	49	50	91	69	103	84	88	92	57	83	51	39	19	2	5	5	6	-
6	6	5	11	12	24	66	57	47	88	92	89	104	93	97	94	73	46	44	13	8	6	5	3	-

AM Peak 1045 - 1145 (344), AM PHF=0.83

MetroCount Traffic Executive
Event Counts

EventCount-372 -- English (ENU)

Datasets:

Site:	**[8017.08] AIRWAY RD (SANYO AVE-HWY-905) EASTBOUND**
Input A:	2 - East bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	20:13 Monday, February 25, 2008 => 21:23 Wednesday, February 27, 2008
File:	C:\Users\Gus\True Count\Projects\8017 DA OTAY\8017.08.E27Feb2008.EC0 (Regular)
Identifier:	T5441WJP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**0:00 Tuesday, February 26, 2008 => 0:00 Wednesday, February 27, 2008**
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 3705 / 7161 (51.74%)

* **Tuesday, February 26, 2008=3705, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
34	21	6	15	21	64	157	280	305	361	344	300	313	312	260	272	233	182	90	55	29	25	17	9	
4	2	5	2	1	3	30	44	94	78	95	51	71	85	60	73	54	54	25	23	6	2	10	1	-
11	13	0	3	9	13	18	51	66	86	97	82	71	72	78	66	58	36	35	10	8	7	0	2	-
7	6	1	1	3	20	38	81	61	96	62	74	100	99	70	65	66	59	10	10	8	12	3	3	-
12	0	0	9	8	28	71	104	84	101	90	93	71	56	52	68	55	33	20	12	7	4	4	3	-

AM Peak 0930 - 1030 (389), AM PHF=0.96

MetroCount Traffic Executive
Event Counts

EventCount-373 -- English (ENU)

Datasets:

Site:	[8017.08] AIRWAY RD (SANYO AVE-HWY-905) WESTBOUND
Input A:	4 - West bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	20:15 Monday, February 25, 2008 => 21:28 Wednesday, February 27, 2008
File:	C:\Users\Gus\True Count\Projects\8017 DA OTAY\8017.08.W27Feb2008.EC0 (Regular)
Identifier:	T575QTP3 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**0:00 Tuesday, February 26, 2008 => 0:00 Wednesday, February 27, 2008**
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 5927 / 11354 (52.20%)

* **Tuesday, February 26, 2008=5926, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
8	1	2	13	27	22	192	192	252	474	474	507	537	511	517	516	520	488	384	153	61	32	22	21	
3	0	0	1	0	1	17	38	65	71	94	144	139	131	110	131	128	142	130	44	20	11	9	10	-
3	0	1	1	17	10	41	40	79	114	136	103	121	141	135	115	118	134	83	69	16	1	4	0	-
2	0	1	7	3	5	51	45	51	145	121	128	139	120	136	90	137	101	103	10	8	16	6	7	-
0	1	0	4	7	6	83	69	57	144	123	132	138	119	136	180	137	111	68	30	17	4	3	4	-

AM Peak 1145 - 1245 (531), AM PHF=0.96

MetroCount Traffic Executive
Event Counts

EventCount-423 -- English (ENU)

Datasets:

Site:	**[8021.14] AIRWAY RD (PASEO DE LAS AMERICAS-SANYO AVE) EASTBOUND**
Input A:	2 - East bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	21:37 Wednesday, March 05, 2008 => 12:12 Friday, March 07, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.14.E07Mar2008.EC0 (Regular)
Identifier:	T5441WJP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**0:00 Thursday, March 06, 2008 => 0:00 Friday, March 07, 2008**
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 2224 / 3233 (68.79%)

*** Thursday, March 06, 2008=2224, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
24	3	1	14	11	41	69	122	185	219	178	215	166	190	207	178	91	92	47	37	48	45	19	22	
0	1	0	1	0	7	6	21	51	52	58	76	48	45	53	72	13	27	18	19	2	21	4	5	--
3	2	0	10	2	8	12	27	45	61	46	29	38	36	60	41	37	24	12	9	9	9	4	2	--
14	0	1	1	7	4	14	33	50	68	32	57	44	47	43	33	19	19	9	3	25	11	5	11	--
7	0	0	2	2	22	37	41	39	38	42	53	36	62	51	32	22	22	8	6	12	4	6	4	--

AM Peak 0915 - 1015 (225), AM PHF=0.83

MetroCount Traffic Executive
Event Counts

EventCount-424 -- English (ENU)

Datasets:

Site:	[8021.14] AIRWAY RD (PASEO DE LAS AMERICAS-SANYO AVE) WESTBOUND
Input A:	4 - West bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	21:34 Wednesday, March 05, 2008 => 12:13 Friday, March 07, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.14.W07Mar2008.EC0 (Regular)
Identifier:	T575QTP3 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Thursday, March 06, 2008 => 0:00 Friday, March 07, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 3425 / 4711 (72.70%)

* Thursday, March 06, 2008=3425, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
8	1	1	5	12	26	111	168	226	270	268	291	322	291	293	257	208	296	151	135	46	20	9	10	
1	1	0	3	3	1	6	33	53	53	82	72	73	84	61	64	51	92	60	54	12	3	4	6	-
0	0	0	2	2	6	19	35	52	68	59	80	75	65	77	63	48	66	51	31	18	7	3	1	-
3	0	1	0	7	13	37	57	65	70	67	63	79	78	89	61	59	68	25	34	10	7	2	1	-
4	0	0	0	0	6	49	43	56	79	60	76	95	64	66	69	50	70	15	16	6	3	0	2	-

AM Peak 1145 - 1245 (303), AM PHF=0.86

MetroCount Traffic Executive
Event Counts

EventCount-421 -- English (ENU)

Datasets:

Site:	[8021.13] AIRWAY RD (MICHAEL FARADAY DR-P. DE LAS AMERICAS) EASTBOUND
Input A:	2 - East bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	21:05 Wednesday, March 05, 2008 => 12:11 Friday, March 07, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.13.E07Mar2008.EC0 (Regular)
Identifier:	S014F2C9 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Thursday, March 06, 2008 => 0:00 Friday, March 07, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 1938 / 2809 (68.99%)

* Thursday, March 06, 2008=1937, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
11	13	4	10	16	41	76	108	170	191	168	168	170	160	183	144	83	90	34	34	25	15	12	11	
0	0	0	4	3	7	14	16	41	42	47	47	32	32	40	54	18	30	5	12	7	5	2	5	-
2	13	3	3	2	3	12	19	38	45	48	30	52	23	54	34	29	23	11	9	3	2	3	1	-
6	0	1	1	9	6	16	29	47	55	37	55	45	36	48	27	11	18	10	10	13	4	1	3	-
3	0	0	2	2	25	34	44	44	49	36	36	41	69	41	29	25	19	8	3	2	4	6	2	-

AM Peak 0930 - 1030 (199), AM PHF=0.90

MetroCount Traffic Executive
Event Counts

EventCount-422 -- English (ENU)

Datasets:

Site:	[8021.13] AIRWAY RD (MICHAEL FARADAY DR-P. DE LAS AMERICAS) WESTBOUND
Input A:	4 - West bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	21:07 Wednesday, March 05, 2008 => 12:10 Friday, March 07, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.13.W07Mar2008.EC0 (Regular)
Identifier:	S1079HQH MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Thursday, March 06, 2008 => 0:00 Friday, March 07, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 2596 / 3503 (74.11%)

* Thursday, March 06, 2008=2596, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
1	0	0	4	3	6	111	154	165	230	216	238	258	199	218	193	158	217	102	89	17	11	3	3	
0	0	0	4	0	0	1	38	30	48	57	62	60	59	46	50	31	67	46	39	4	0	2	3	--
0	0	0	0	0	0	18	36	40	48	52	65	53	51	60	48	43	52	32	20	11	3	0	0	--
1	0	0	0	3	4	51	43	46	58	58	54	65	54	68	41	51	55	20	19	1	7	1	0	--
0	0	0	0	0	2	41	37	49	76	49	57	80	35	44	54	33	43	4	11	1	1	0	0	--

AM Peak 0930 - 1030 (243), AM PHF=0.80

MetroCount Traffic Executive
Event Counts

EventCount-428 -- English (ENU)

Datasets:

Site:	[8021.15] SANYO AVE (AIRWAY RD-OTAY MESA RD) NORTHBOUND
Input A:	3 - South bound. - Excluded from totals. (0)
Input B:	1 - North bound. - Added to totals. (1)
Survey Duration:	22:01 Wednesday, March 05, 2008 => 12:13 Friday, March 07, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.15.07Mar2008.EC0 (Base)
Identifier:	V286M0GP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Split (Count)

Profile:

Filter time:	0:00 Thursday, March 06, 2008 => 0:00 Friday, March 07, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 3935 / 5174 (76.05%)

* Thursday, March 06, 2008=1270, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
6	1	1	5	3	18	23	44	43	50	87	96	95	86	122	107	154	186	63	35	17	18	8	2	
1	0	0	0	0	0	4	8	16	12	20	30	23	29	41	24	32	62	32	7	3	5	1	0	-
0	0	1	0	1	2	1	12	9	10	15	25	30	12	25	25	34	60	13	14	2	7	3	0	-
5	0	0	0	1	6	5	12	9	13	19	23	19	24	31	23	51	31	13	12	8	5	4	2	-
0	1	0	5	1	10	13	12	9	15	33	18	23	21	25	35	37	33	5	2	4	1	0	0	-

AM Peak 1045 - 1145 (111), AM PHF=0.84

MetroCount Traffic Executive
Event Counts

EventCount-425 -- English (ENU)

Datasets:

Site:	[8021.15] SANYO AVE (AIRWAY RD-OTAY MESA RD) SOUTHBOUND
Input A:	1 - South bound. - Added to totals. (1)
Input B:	3 - North bound. - Subtracted from totals. (-1)
Survey Duration:	22:01 Wednesday, March 05, 2008 => 12:13 Friday, March 07, 2008
File:	C:\Users\Gus\True Count\Projects\8021 DA OTAY\8021.15.07Mar2008.EC0 (Base)
Identifier:	V286M0GP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Split (Count)

Profile:

Filter time:	0:00 Thursday, March 06, 2008 => 0:00 Friday, March 07, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 3935 / 5174 (76.05%)

* Thursday, March 06, 2008=1396, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
2	0	0	2	1	7	36	173	185	138	111	110	109	115	104	119	61	45	20	19	10	13	10	6	
0	0	0	0	0	1	5	29	52	46	27	24	29	27	28	40	24	13	7	11	0	4	3	1	-
0	0	0	0	0	3	3	48	42	37	29	26	26	33	26	31	10	8	3	1	6	5	1	0	-
1	0	0	1	1	1	7	33	41	28	29	30	19	18	21	30	14	17	6	4	2	2	4	5	-
1	0	0	1	0	2	21	63	50	27	26	30	35	37	29	18	13	7	4	3	2	2	2	0	-

AM Peak 0745 - 0845 (198), AM PHF=0.79

MetroCount Traffic Executive
Event Counts

EventCount-234 -- English (ENU)

Datasets:

Site:	[8002.03] OTAY MESA RD (ENRICO FERMI DR-SANYO AVE) WESTBOUND
Input A:	4 - West bound. - Added to totals. (1)
Input B:	2 - East bound. - Subtracted from totals. (-1)
Survey Duration:	19:56 Tuesday, January 22, 2008 => 11:44 Thursday, January 24, 2008
File:	C:\Users\Gus\True Count\Projects\8005 DA OTAY HILLS\8002.0324Jan2008.EC0 (Regular)
Identifier:	S1079HQH MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Split (Count)

Profile:

Filter time:	0:00 Wednesday, January 23, 2008 => 0:00 Thursday, January 24, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 12619 / 19267 (65.50%)

* Wednesday, January 23, 2008=5649, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
25	14	11	17	12	8	243	257	203	221	279	316	301	270	651	916	665	430	230	106	78	80	251	65	
5	5	4	4	0	2	18	48	36	45	76	72	82	58	177	344	152	150	67	46	14	31	113	16	-
0	6	4	3	7	2	79	49	54	47	56	88	55	65	177	191	165	132	67	22	22	17	79	7	-
14	2	0	2	1	1	83	78	64	64	75	74	82	59	180	198	180	93	49	23	23	19	36	19	-
6	1	3	8	4	3	63	82	49	65	72	82	82	88	117	183	168	55	47	15	19	13	23	23	-

AM Peak 1115 - 1215 (326), AM PHF=0.93

MetroCount Traffic Executive
Event Counts

EventCount-238 -- English (ENU)

Datasets:

Site:	[8002.05] ALTA RD (CALZADA DE LA FUENTE-OTAY MESA RD) NORTHBOUND
Input A:	1 - North bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	19:22 Tuesday, January 22, 2008 => 11:48 Thursday, January 24, 2008
File:	C:\Users\Gus\True Count\Projects\8005 DA OTAY HILLS\8002.05.N24Jan2008.EC0 (Regular)
Identifier:	R5098KCT MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Wednesday, January 23, 2008 => 0:00 Thursday, January 24, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 3389 / 5703 (59.42%)

* Wednesday, January 23, 2008=3389, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
10	12	12	28	36	443	654	531	267	119	101	124	121	236	154	77	64	85	44	41	39	107	69	15	
0	7	4	1	9	19	204	138	105	29	30	26	32	35	44	25	19	22	7	19	13	8	22	7	-
3	0	2	7	6	61	154	117	78	32	20	19	40	51	34	19	15	18	14	9	8	13	13	4	-
3	3	2	3	12	135	120	119	49	25	15	40	32	87	28	14	12	26	9	7	9	37	14	2	-
4	2	4	17	9	228	176	157	35	33	36	39	17	63	48	19	18	19	14	6	9	49	20	2	-

AM Peak 0530 - 0630 (721), AM PHF=0.79

MetroCount Traffic Executive
Event Counts

EventCount-239 -- English (ENU)

Datasets:

Site:	[8002.05] ALTA RD (CALZADA DE LA FUENTE-OTAY MESA RD) SOUTHBOUND
Input A:	3 - South bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	19:19 Tuesday, January 22, 2008 => 11:50 Thursday, January 24, 2008
File:	C:\Users\Gus\True Count\Projects\8005 DA OTAY HILLS\8002.05.S24Jan2008.EC0 (Base)
Identifier:	V273S0NX MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	0:00 Wednesday, January 23, 2008 => 0:00 Thursday, January 24, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 3399 / 4392 (77.39%)

* Wednesday, January 23, 2008=3398, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
23	8	10	18	11	13	173	117	90	61	122	150	134	118	386	631	498	206	109	68	66	90	239	57	
5	2	3	7	0	2	21	13	18	17	31	34	35	24	88	274	131	103	12	21	15	36	106	15	-
0	2	4	3	5	2	59	21	17	5	33	32	40	30	110	90	125	46	39	17	19	14	84	7	-
14	3	0	4	1	1	60	33	27	19	29	51	32	29	121	143	131	32	24	16	20	19	33	18	-
4	1	3	4	5	8	33	50	28	20	29	33	27	35	67	124	111	25	34	14	12	21	16	17	-

AM Peak 0600 - 0700 (173), AM PHF=0.72

MetroCount Traffic Executive
Event Counts

EventCount-233 -- English (ENU)

Datasets:

Site:	**[8002.02] OTAY MESA RD (SANYO AVE-HARVEST RD) EASTBOUND**
Input A:	4 - West bound. - Excluded from totals. (0)
Input B:	2 - East bound. - Added to totals. (1)
Survey Duration:	20:17 Tuesday, January 22, 2008 => 11:49 Thursday, January 24, 2008
File:	C:\Users\Gus\True Count\Projects\8005 DA OTAY HILLS\8002.0224Jan2008.EC0 (Regular)
Identifier:	S1339PHE MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Split (Count)

Profile:

Filter time:	**0:00 Wednesday, January 23, 2008 => 0:00 Thursday, January 24, 2008**
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 10075 / 14832 (67.93%)

* **Wednesday, January 23, 2008=1849, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
2	1	2	11	9	201	302	341	227	104	47	65	65	142	72	41	45	46	16	16	11	53	24	6	
0	0	1	0	1	8	101	75	78	33	13	21	13	28	22	7	12	10	4	7	3	2	8	3	-
0	1	0	3	2	23	48	66	54	22	8	9	17	25	15	6	15	10	5	5	4	7	5	0	-
0	0	0	0	6	61	47	75	55	21	10	18	16	48	10	7	7	14	3	2	2	25	5	1	-
2	0	1	8	0	109	106	125	40	28	16	17	19	41	25	21	11	12	4	2	2	19	6	2	-

AM Peak 0715 - 0815 (344), AM PHF=0.69

MetroCount Traffic Executive
Event Counts

EventCount-232 -- English (ENU)

Datasets:

Site:	[8002.02] OTAY MESA RD (SANYO AVE-HARVEST RD) WESTBOUND
Input A:	4 - West bound. - Added to totals. (1)
Input B:	2 - East bound. - Subtracted from totals. (-1)
Survey Duration:	20:17 Tuesday, January 22, 2008 => 11:49 Thursday, January 24, 2008
File:	C:\Users\Gus\True Count\Projects\8005 DA OTAY HILLS\8002.0224Jan2008.EC0 (Regular)
Identifier:	S1339PHE MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Split (Count)

Profile:

Filter time:	0:00 Wednesday, January 23, 2008 => 0:00 Thursday, January 24, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 10075 / 14832 (67.93%)

Wednesday, January 23, 2008=6375, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
27	18	11	14	18	24	250	306	245	245	329	377	382	336	650	883	776	595	288	132	92	70	239	68	
5	5	4	4	4	2	18	58	47	41	82	88	103	73	167	262	182	203	77	50	22	31	102	18	-
3	5	4	2	8	1	75	65	61	66	66	110	86	93	180	236	185	180	95	26	19	20	83	7	-
14	7	0	2	2	6	90	90	64	63	93	82	99	71	172	174	199	131	62	30	31	10	26	13	-
5	1	3	6	4	15	67	93	73	75	88	97	94	99	131	211	210	81	54	26	20	9	28	30	-

AM Peak 1115 - 1215 (392), AM PHF=0.89

MetroCount Traffic Executive
Event Counts

EventCount-235 -- English (ENU)

Datasets:

Site:	**[8002.03] OTAY MESA RD (ENRICO FERMI DR-SANYO AVE) EASTBOUND**
Input A:	4 - West bound. - Excluded from totals. (0)
Input B:	2 - East bound. - Added to totals. (1)
Survey Duration:	19:56 Tuesday, January 22, 2008 => 11:44 Thursday, January 24, 2008
File:	C:\Users\Gus\True Count\Projects\8005 DA OTAY HILLS\8002.0324Jan2008.EC0 (Regular)
Identifier:	S1079HQH MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Split (Count)

Profile:

Filter time:	**0:00 Wednesday, January 23, 2008 => 0:00 Thursday, January 24, 2008**
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 12619 / 19267 (65.50%)

* **Wednesday, January 23, 2008=3484, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
10	12	9	30	30	446	617	529	289	157	124	149	147	246	168	85	71	86	41	37	28	103	59	11	
0	7	2	2	7	15	187	123	111	32	37	33	33	51	45	27	25	21	5	18	14	7	18	7	-
2	0	3	5	4	67	139	129	80	45	23	22	43	34	44	12	18	20	12	7	6	16	12	1	-
4	3	1	6	10	140	112	118	56	35	19	45	44	99	33	20	12	27	9	6	4	40	12	2	-
4	2	3	17	9	224	179	159	42	45	45	49	27	62	46	26	16	18	15	6	4	40	17	1	-

AM Peak 0530 - 0830 (690), AM PHF=0.77

MetroCount Traffic Executive
Event Counts

EventCount-234 -- English (ENU)

Datasets:

Site:	[8002.03] OTAY MESA RD (ENRICO FERMI DR-SANYO AVE) WESTBOUND
Input A:	4 - West bound. - Added to totals. (1)
Input B:	2 - East bound. - Subtracted from totals. (-1)
Survey Duration:	19:56 Tuesday, January 22, 2008 => 11:44 Thursday, January 24, 2008
File:	C:\Users\Gus\True Count\Projects\8005 DA OTAY HILLS\8002.0324Jan2008.EC0 (Regular)
Identifier:	S1079HQH MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Event Count
Data type:	Axle sensors - Split (Count)

Profile:

Filter time:	0:00 Wednesday, January 23, 2008 => 0:00 Thursday, January 24, 2008
Name:	TC Default Profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 12619 / 19267 (65.50%)

* Wednesday, January 23, 2008=5649, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
25	14	11	17	12	8	243	257	203	221	279	316	301	270	651	916	665	430	230	106	78	80	251	65	
5	5	4	4	0	2	18	48	36	45	76	72	82	58	177	344	152	150	67	46	14	31	113	16	-
0	6	4	3	7	2	79	49	54	47	56	88	55	65	177	191	165	132	67	22	22	17	79	7	-
14	2	0	2	1	1	83	78	64	64	75	74	82	59	180	198	180	93	49	23	23	19	36	19	-
6	1	3	8	4	3	63	82	49	65	72	82	82	88	117	183	168	55	47	15	19	13	23	23	-

AM Peak 1115 - 1215 (326), AM PHF=0.93

APPENDIX B

CITY OF SAN DIEGO ROADWAY CLASSIFICATION TABLE, COUNTY OF SAN DIEGO AVERAGE DAILY VEHICLE TRIPS TABLE, AND CITY OF CHULA VISTA'S ROADWAY CAPACITY STANDARDS TABLE

TABLE 2
ROADWAY CLASSIFICATIONS, LEVELS OF SERVICE (LOS)
AND AVERAGE DAILY TRAFFIC (ADT)

			LEVEL OF SERVICE				
STREET CLASSIFICATION	LANES	CROSS SECTIONS	A	B	C	D	E
Freeway	8 lanes		60,000	84,000	120,000	140,000	150,000
Freeway	6 lanes		45,000	63,000	90,000	110,000	120,000
Freeway	4 lanes		30,000	42,000	60,000	70,000	80,000
Expressway	6 lanes	102/122	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6 lanes	102/122	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes	102/122	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes	78/98	15,000	21,000	30,000	35,000	40,000
Collector	4 lanes	72/92	10,000	14,000	20,000	25,000	30,000
Collector (no Center lane) (continuous left-turn lane)	4 lanes 2 lanes	64/84 50/70	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 lanes	40/60	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 lanes	50/70	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 lanes	40/60	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 lanes	36/56	—	—	2,200	—	—

LEGEND

XXX/XXX = Curb to curb width (feet)/right of way (feet): based on the City of San Diego Street Design Manual.

XX,XXX = Approximate recommended ADT based on City of San Diego Street Design Manual

Notes:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.

2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

County of San Diego
DRAFT

August 11, 1998

TABLE 1

AVERAGE DAILY VEHICLE TRIPS

CIRCULATION ELEMENT ROADS		LEVEL OF SERVICE				
CLASS	**X-SECTION**	**A**	**B**	**C**	**D**	**E**
Expressway	126/146	<36,000	<54,000	<70,000	<86,000	<108,000
Prime Arterial	102/122	<22,200	<37,000	<44,600	<50,000	<57,000
Major Road	78/98	<14,800	<24,700	<29,600	<33,400	<37,000
Collector	64/84	<13,700	<22,800	<27,400	<30,800	<34,200
Town Collector	54/74	<3,000	<6,000	<9,500	<13,500	<19,000
Light Collector	40/60	<1,900	<4,100	<7,100	<10,900	<16,200
Rural Collector	40/84	<1,900	<4,100	<7,100	<10,900	<16,200
Rural Light Collector	40/60	<1,900	<4,100	<7,100	<10,900	<16,200
Recreational Parkway	40/100	<1,900	<4,100	<7,100	<10,900	<16,200
Rural Mountain	40/100	<1,900	<4,100	<7,100	<10,900	<16,200

NON-CIRCULATION ELEMENT ROADS		LEVEL OF SERVICE				
CLASS	**X-SECTION**	**A**	**B**	**C**	**D**	**E**
Residential Collector	40/60	*	*	<4,500	*	*
Residential Road	36/56	*	*	<1,500	*	*
Residential Cul-de-sac or Loop Road	32/52	*	*	< 200	*	*

* Levels of service are not applicable to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

TABLE B-1

CITY OF CHULA VISTA ROADWAY CAPACITY STANDARDS*

AVERAGE DAILY VEHICLE TRIPS

ROAD		LEVEL OF SERVICE				
CLASS	**X-SECTION V/C RATIO**	**A (0.6)**	**B (0.7)**	**C (0.8)**	**D (0.9)**	**E (1.0)**
Expressway	104/128	52,000	61,300	70,000	78,800	87,500
Prime Arterial	104/128	37,500	43,800	50,000	56,300	62,500
Major Street (6 lanes)	104/128	30,000	35,000	40,000	45,000	50,000
Major Street (4 lanes)	80/104	22,500	26,300	30,000	33,800	37,500
Class I Collector	74/94	16,500	19,300	22,000	24,800	27,500
Class II Collector	52/72	9,000	10,500	12,000	13,500	15,000
Class III Collector	40/60	5,600	6,600	7,500	8,400	9,400

* LOS 'C' Capacities are from City of Chula Vista Circulation Element of the General Plan. Other levels of service are derived by volume to capacity (v/c) ratios. This is only a guideline and capacities included in this table represent urban conditions. Rural roadways with little side friction and/or widening at intersections can accommodate much higher volumes than stated on this table.

APPENDIX C

HIGHWAY CAPACITY MANUAL (HCM) 2000
EXHIBIT 21-8, PASSENGER CAR EQUIVALENTS

Adjustment for heavy vehicles in the traffic stream applies to three types of vehicles: trucks, RVs, and buses. No evidence indicates any distinct differences in the performance characteristics of trucks and buses on multilane highways; therefore, buses are considered trucks in this method. Finding the heavy-vehicle adjustment factor requires two steps. First, find an equivalent truck factor (E_T) and RV factor (E_R) for prevailing operating conditions. Second, using E_T and E_R, compute an adjustment factor for all heavy vehicles in the traffic stream.

Extended General Highway Segments

Passenger-car equivalents can be selected for two conditions: extended general highway segments and specific grades. Values of passenger-car equivalents are selected from Exhibits 21-8 through 21-11. For long segments of highway in which no single grade has a significant impact on operations, Exhibit 21-8 is used to select passenger-car equivalents for trucks and buses (E_T) and for RVs (E_R).

EXHIBIT 21-8. PASSENGER-CAR EQUIVALENTS ON EXTENDED GENERAL HIGHWAY SEGMENTS

	Type of Terrain		
Factor	Level	Rolling	Mountainous
E_T (trucks and buses)	1.5	2.5	4.5
E_R (RVs)	1.2	2.0	4.0

A long multilane highway segment can be classified as an extended general highway segment if no grade exceeding 3 percent is longer than 0.5 mi and if grades of 3 percent or less do not exceed 1 mi.

Specific Grade

Any grade of 3 percent or less that is longer than 1 mi or a grade greater than 3 percent that is longer than 0.5 mi should be treated as an isolated, specific grade. In addition, the upgrade and downgrade must be treated separately, because the impact of heavy vehicles differs substantially in each.

Equivalents for Extended General Highway Segments

For an extended general segment analysis, the terrain of the highway must be classified as level, rolling, or mountainous. These three classifications are discussed below.

Level Terrain

Level terrain is any combination of horizontal and vertical alignment that permits heavy vehicles to maintain approximately the same speed as passenger cars. This type of terrain generally includes short grades of no more than 1 to 2 percent.

Rolling Terrain

Rolling terrain is any combination of horizontal and vertical alignment that causes heavy vehicles to reduce their speeds substantially below those of passenger cars. However, the terrain does not cause heavy vehicles to operate at crawl speeds for any significant length of time or at frequent intervals.

Mountainous Terrain

Mountainous terrain is any combination of horizontal and vertical alignment that causes heavy vehicles to operate at crawl speeds for significant distances or at frequent intervals. For these general highway segments, values of E_T and E_R are selected from Exhibit 21-8.