August 24, 2016

MITIGATED NEGATIVE DECLARATION

PROJECT NAME: GIRD/MONSERATE HILL 12-INCH WATER LINE FALLBROOK, CA

This Document is Considered Draft until it is Adopted by the Rainbow Municipal Water District (Rainbow MWD) Board of Directors.

This Mitigated Negative Declaration is comprised of this form along with the Environmental Initial Study that includes the following:

a. Initial Study Form.
b. Environmental Analysis Form and attached extended studies: Biological Impact Analysis, Cultural Resources Inventory, and Geotechnical Investigation.

1. California Environmental Quality Act Negative Declaration Findings:

   Find, that this Mitigated Negative Declaration reflects the decision-making body's independent judgment and analysis, and; that the decision-making body has reviewed and considered the information contained in this Mitigated Negative Declaration and the comments received during the public review period; and that revisions in the project plans or proposals made by the Rainbow MWD applicant would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and, on the basis of the whole record before the decision-making body (including this Mitigated Negative Declaration) that there is no substantial evidence that the project as revised will have a significant effect on the environment.

2. Required Mitigation Measures:

   Refer to the attached Environmental Initial Study for the rationale for requiring the following measures:

   A. Biological Resources

   Impact B-1 Disturbed Wetland Direct Impact
   INTENT: In order to mitigate for the impacts to disturbed wetlands, which is a sensitive biological resource, offsite mitigation shall be acquired.
   DESCRIPTION OF MITIGATION MEASURE: Mitigation may be achieved via purchase of 0.2 acre of habitat credits from a resource agency approved mitigation bank. Alternatively, if habitat credits cannot be purchased in an existing mitigation bank, Rainbow MWD would provide for the conservation of habitat of the same amount and type of land.
   This requirement would include the following:

   - Preparation of a resource management plan,
   - Recording an open space easement,
   - Selection of a resource manager, and
   - Establishment of an endowment to ensure funding of annual ongoing basic stewardship costs.
   - Mitigation may potentially be mitigated onsite, via restoration of impacts (subject to approval by the resource agencies). This would require preparation of a revegetation plan that includes:
     - Installation of plant materials and irrigation, as needed,
     - Maintenance and monitoring (e.g., five years of maintenance and monitoring),
     - Success criteria, and
     - Remedial measures.

   TIMING: The District shall purchase the offsite mitigation credits prior to the commencement of construction.

Impact B-2 Diegan Coastal Sage Scrub

INTENT: In order to mitigate for the impacts to Diegan coastal sage scrub, which is a sensitive vegetation community, offsite mitigation shall be acquired.

DESCRIPTION OF MITIGATION MEASURE: Mitigation may be achieved via purchase of 0.6 acre of habitat credits from a resource agency approved mitigation bank. Alternatively, if habitat credits cannot be purchased in an existing mitigation bank, Rainbow MWD would provide for the conservation of habitat of the same amount and type of land.

This requirement would include the following:

- Preparation of a resource management plan,
- Recording an open space easement,
- Selection of a resource manager, and
- Establishment of an endowment to ensure funding of annual ongoing basic stewardship costs.
- Mitigation may potentially be mitigated onsite, via restoration of impacts (subject to approval by the resource agencies). This would require preparation of a revegetation plan that includes:
    - Installation of plant materials and irrigation, as needed,
    - Maintenance and monitoring (e.g., five years of maintenance and monitoring),
    - Success criteria, and
    - Remedial measures.

TIMING: The District shall purchase the offsite mitigation credits prior to the commencement of construction.

Impact B-3 Non-native Grassland/Historic Orchard

INTENT: In order to mitigate for the impacts to non-native grassland/historic orchard, which is a sensitive vegetation community, offsite mitigation shall be acquired.

DESCRIPTION OF MITIGATION MEASURE: Mitigation may be achieved via purchase of 0.15 acre of habitat credits from a resource agency approved mitigation bank. Alternatively, if habitat credits cannot be purchased in an existing mitigation bank, Rainbow MWD would provide for the conservation of habitat of the same amount and type of land.

This requirement would include the following:

- Preparation of a resource management plan,
- Recording an open space easement,
- Selection of a resource manager, and
- Establishment of an endowment to ensure funding of annual ongoing basic stewardship costs.
- Mitigation may potentially be mitigated onsite, via restoration of impacts (subject to approval by the resource agencies). This would require preparation of a revegetation plan that includes:
    - Installation of plant materials and irrigation, as needed,
    - Maintenance and monitoring (e.g., five years of maintenance and monitoring),
    - Success criteria, and
    - Remedial measures.

TIMING: The District shall purchase the offsite mitigation credits prior to the commencement of construction.

Impact B-4 Indirect Impacts to Sensitive Vegetation Habitats

INTENT: To reduce the potential for erosion and intrusion of non-native weedy species into sensitive vegetation habitats.

DESCRIPTION OF MITIGATION MEASURE: A revegetation plan/sheet would be required to prevent erosion and establishment of invasive species over those areas that will not be permanently converted to urban use. The lands would be revegetated with native coastal sage scrub species and non-native grassland similar to those found within the surrounding area. Revegetation should occur, as feasible between late fall and spring to take advantage rainfall and should require a minimum 120-day plant establishment period (PEP). All native seed and/or plant stock should be from seed and propagules collected from the local San Diego region.

Temporary irrigation may be required to assist with plant establishment. Maintenance and monitoring should occur as needed during the PEP to ensure that:

1) Invasive plant species are absent from the revegetation area,
2) The site is protected from erosion, and
3) Coverage by native species is consistent with coverage in the adjacent, non-impacted habitat,

Invasive plant species include any species identified as having a High inventory rating by California Invasive Plant Council (Cal-IPC) and any nuisance plant causing potential detriment to native flora and/or fauna. The revegetation contractor should have the minimum qualifications:

1) Three years of local, verifiable experience in maintenance and monitoring involving resources similar to those onsite,
2) Ability to carry out maintenance and monitoring as required; and
3) Applicable licenses to implement maintenance.

Following completion of the above measures, a memo documenting the status of the revegetation area should be prepared by the Rainbow MWD and inserted in the Project File.

Impact B-5 Impact to Diegan Sage Scrub Occupied by Coastal California Gnatcatcher

INTENT: To insure that consultation between the USACOE and USFWS under section 7 of the Endangered Species Act (ESA) is accomplished.

DESCRIPTION OF MITIGATION MEASURE: The following permits would be required:

1) USACOE, Clean Water Act (CWA) Section 404 for placement of dredged or fill material within waters of the U.S.,
2) Regional Water Quality Control Board, CWA Section 401 state water quality certification/waiver for an action that may result in degradation of waters of the State, and
3) Notification to CDFW for a streambed alteration agreement under Section 1602 of the Fish and Game Code. The project would likely quality for a USACOE Nationwide Permit (NWP) 12, Utility Line Activities. Under this NWP, impacts cannot result in the loss of greater than half an acre of waters of the U.S.

Mitigation for permanent impacts to federal or state regulated waters would be finalized during the permitting process. Mitigation for impacts to habitat could occur through a combination of the following: creation/restoration or creation/restoration combined with enhancement, and/or preservation; however, the mitigation cannot result in a net-loss of habitat or biological functions and values. Mitigation could potentially be achieved through in-kind restoration of temporary impacts. The remaining mitigation requirement could be achieved through creation/restoration combined with enhancement, and/or preservation within a selected mitigation site or purchased through habitat acquisition in an approved mitigation bank. If offsite mitigation is required, it is recommended that the

final selected mitigation location(s) be located within the project watershed and contribute to the local designation of habitat already conserved. Mitigation to offset impacts to federal waters consisting of creation, restoration, or enhancement would require preparation of a Compensatory Maintenance and Monitoring Plan as part of the regulatory process.

Impact B-6 Impact to Nesting Birds Protected by Federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code

INTENT: To insure that construction impacts to nesting birds are avoided as required by Federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.

DESCRIPTION OF MITIGATION MEASURE: If clearing, grubbing and/or grading of vegetation must occur during nesting migratory bird breeding season, a qualified biologist shall conduct a focused survey for active nests within (approximately) 48-72 hours prior to work in the area. If the biologist determines the area to be free of nesting birds, the work may proceed. If active bird nests were found, then all construction activities undertaken for the project must comply with regulatory requirements of the federal MBTA and California Fish and Game Code Sections §3503 and §3513. This would require protection of the nest, eggs, chicks, and adults until such time as the nestlings have fully fledged and are no longer dependent upon the nest site.

Impact C-1 Impact to Subsurface Historic and Prehistoric-Period Cultural Resources that may be Discovered during Construction

INTENT: To insure that subsurface historic and prehistoric-period cultural resources that may be discovered within active alluvial flood plain deposits (Qa, late Holocene) in the western half of the Project area are evaluated for significance and curated as may be required.

DESCRIPTION OF MITIGATION MEASURE (Mitigation Measure C-1a):

All ground disturbing activities (i.e., trenching) within the western half of the Project Area of Potential Effect (APE) as depicted on Figure 9 in the Initial Study shall be monitored by a qualified professional archaeologist who shall have the authority to halt construction activities in the event that cultural deposits, or those that are potentially cultural, are encountered. The monitor shall examine the deposits and, if the find is confirmed to be cultural in origin, which includes human remains and archaeological materials, then the protocols for unanticipated discovery in Mitigation Measure C-1b shall be followed. The District has determined that a Native American Monitor does not need to be present during ground disturbance within the Project APE.

Mitigation Measure C-1b:

If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 50-foot radius of the discovery. The on-site archaeological monitor or Principal Investigator, meeting the Secretary of the Interior's Professional Qualification Standards (NPS 2015) for prehistoric and historic archaeology, shall be afforded a reasonable amount of time to evaluate the significance of the find. Work cannot continue at the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially significant or eligible for listing on the California Register of Historic Resources (CRHR). If a potentially-eligible resource is encountered, then the archaeologist, lead agency, and Project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations to evaluate eligibility and, if eligible, total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the lead agency (Rainbow MWD) as verification that the provisions in CEQA for managing unanticipated discoveries have been met.

In the event that evidence of human remains is discovered, construction activities within 50-feet of the discovery will be halted or diverted, and the requirements above will be implemented. Depending on the occurrence, a larger radius may be necessary and will be required at the discretion of the on-site archaeologist. In addition, the provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. When human remains are discovered, state law requires that the discovery be reported to the County Coroner (Section 7050.5 of the Health and Safety Code) and that reasonable protection measures be taken during construction to protect the discovery from disturbance (AB 2641). If the Coroner determines the remains are Native American, the Coroner will notify the Native American Heritage Commission, which will designate a Native American Most Likely Descendant (MLD) for the Project (Section 5097.98 of the Public Resources Code). The MLD may not be the same person as the tribal monitor. The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).

ADOPTION STATEMENT: This Negative Declaration was adopted and above California Environmental Quality Act findings made by the:

_____

Rainbow MWD

on _____

DRAFT
MITIGATED NEGATIVE DECLARATION
INITIAL STUDY

GIRD/MONSERATE HILL 12-INCH WATER LINE
FALLBROOK, CA

Prepared for:

Rainbow Municipal Water District
3707 Old Highway 395
Fallbrook, CA 92028

Prepared by:

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June 20, 2016
Revised August 24, 2016

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APPENDICES

PROJECT INFORMATION

1. Project title:	Gird/Monserate Hill Water Line
2. Lead Agency Name and Address:	Rainbow Municipal Water District Engineering Department 3707 Old Highway 395 Fallbrook, CA 92028 (760) 728-1178
3. Contact Person and Phone Number:	Sherry Kirkpatrick, Associate Engineer (760) 728-1178 Ext. 199
4. Project Location:	The Gird/Monserate Hill Water Line Project is located in the Fallbrook Community Plan area of San Diego County, California (see **Figure 1**). The Project is in the northeast quadrant of the Pala Road (SR 76) and Gird Road intersection (see **Figure 2**). The water line extends approximately 2,150 feet east of Gird Road and ends at Monserate Hill Road (see **Figure 3**). The Gird/Monserate Hill Water Line crosses two privately owned parcels. The eastern parcel is identified as Assessor Parcel Number (APN) 124-251-50-00 with a street address of 3510 Monserate Hill Road. This parcel contains 21.76 acres. The western Parcel is identified as APN124-340-32-00 with a street address of 3920 Gird Road. This parcel contains 8.93 acres.
5. Project Sponsor's Name and Address:	Rainbow Municipal Water District Engineering Department 3707 Old Highway 395 Fallbrook, CA 92028 (760) 728-1178
6. General Plan Designation:	The General Plan Regional Category designation for the area is "Semi-Rural" and the Land Use Designation is Semi-Rural Residential (SR-2) [1 DU/2 AC].
7. Zoning:	The properties involved in the Project are zoned (A70) Limited Agriculture.
8. Project Description	See following page.
9. Surrounding Land Uses and Setting	The area west Gird Road is characterized by vacant land, a golf course, and a single family home (see **Figure 3**). Vacant land, agricultural activities and a residence are located north of the Project site. Vacant land, agricultural activities and scattered residences are located to the east and south of the Project site.
10. Other Public Agencies Whose Approval is Required:	

PROJECT DESCRIPTION

The Gird/Monserate Hill water line Project is located in the Fallbrook Community Plan area of San Diego County, California (see **Figure 1**). The Project is in the northeast quadrant of the Pala Road (SR 76) and Gird Road intersection (see **Figure 2**). Monserate Hills is currently served by a single pipeline in the Canonita Zone [1019' High Water Level (HWL)] known as the Monserate Hill Pipeline. Following the installation of the new Gird/Monserate Hill water line the primary feed for Monserate Hills will be the Beck Zone (897' HWL) and the Canonita Zone will serve the secondary feed.

The Gird/Monserate Hill water line crosses two privately owned parcels. The eastern parcel is identified as Assessor Parcel Number (APN) 124-351-50-00 with a street address of 3510 Monserate Hill Road (see **Figure 3**). This parcel contains 21.76 acres and has one residence located adjacent to Monserate Hill Road. The western parcel is identified as APN 124-340-32-00 with a street address of 3920 Gird Road. This parcel contains 8.93 acres and contains agricultural building near Gird Road.

The existing 10-inch Gird/Monserate Hill (Pala Mesa Zone) water line runs from Gird Road under two unnamed tributaries to the San Luis Rey River and up a steep slope to Monserate Hill Road within a 20-foot Rainbow Municipal Water District (MWD) District easement (see **Figure 4**). The District shut off this 2,150+-foot long water line several years ago due to a leak in the pipeline beneath the primary tributary.

The Project is the replacement of the existing water line with a 2,150' long 12" pipeline from Gird Road to Monserate Hill Road within an existing 20' wide District easement. As shown on **Figure 4**, the western 200'+ of the existing water line would be replaced using a 24"± wide open trench to remove the existing line and install a new line. The overall work area would be 20' wide (i.e., within the existing 20' wide easement). The depth of trenching will vary depending on the topography, but the maximum trench depth is expected to be approximately 5'.

As shown in **Figure 4**, a Horizontal Directional Drill (HDD) entry pit would be excavated within an approximate 50' by 100' work area near the western end of the water line. The HDD pit will allow a tunnel to be bored 15' to 20' under the primary tributary which supports southern cottonwood willow riparian forest as well as under Diegan coastal sage scrub, both of which are regionally sensitive vegetation communities. A HDD exit pit would be excavated approximately 500' east of the entry pit as shown on **Figure 4**. Use of the horizontal drilling technique will reduce impacts to regionally sensitive biological resources as well as any potential buried cultural resources in the project area. The existing 10" water line will be abandoned in place, and a 12" High Density Polyethylene (HDPE) water line will be installed in the bored tunnel.

The eastern 1,400' of the new 12" water line would be installed as shown on **Figure 4**. A 24"± wide open trench would be excavated to allow the removal of the existing water line and installation of the new 12" water line. The overall disturbance area would be 20' wide (i.e., within the existing 20' wide easement) and 1,400' long (0.65± acre). The depth of trenching will vary depending on the topography, but the maximum trench depth is expected to be approximately 5'.

Alternatively, the contractor would be allowed to install the eastern 1,400' of water line using the pipe bursting method of replacing existing pipelines. This methodology eliminates excavating and backfilling an open trench by excavating an insertion pit at one end of the water line and a reception pit at the other end of the water line. A winch at the reception pit pulls a "bursting head" and new waterline

through the existing waterline. Compared to an open trench, this approach would reduce the amount of ground disturbance compared to open trenching.

Two potential access paths to the Project work area are shown on **Figure 4**. The northern portion of the western access path could be relocated to the eastern edge of the adjacent staging area. These paths follow the alignments of existing dirt roads that are passable without the need for grading or the removal of vegetation. Three potential equipment and materials staging areas are shown on **Figure 4**. These staging areas are located within disturbed vegetation areas, and each area would contain approximately 5,000 sq.ft. Connecting each end of the new water line to existing water lines will require the excavation of a short trench 12" to 16" wide and up 5' in depth.

Construction activities are expected to occur between September 16 through March 14 to avoid the avian breeding season for the potentially present, federally and state listed endangered species least Bell's vireo (Vireo bellii pusillus) and southwestern willow flycatcher (Empidonax traillii extimus). If construction were to occur during the breeding season of the federally listed threatened coastal California gnatcatcher (Polioptila californica californica) (February 15 through August 31), noise generated by the project would be kept below ambient or 60 dBA hourly average (whichever is higher) at the edge of Diegan coastal sage scrub. Construction activities are expected to occur during normal daylight hours with minimal night work required.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

_____ _____

Signature Date

_____ _____

Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to Projects like the one involved (e.g., the Project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on Project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a Project-specific screening analysis).
2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as Project-level, indirect as well as direct, and construction as well as operational impacts.
3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.

    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a Project's environmental effects in whatever format is selected.
9) The explanation of each issue should identify:

    a) The significance criteria or threshold, if any, used to evaluate each question; and

    b) The mitigation measure identified, if any, to reduce the impact to less than significance

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

I AESTHETICS.

Would the Project:

a) Have a substantial adverse effect on a scenic vista? ☐ ☐ ☒ ☐

Less Than Significant Impact:

The Project site is surrounded by scattered rural residential uses, existing agricultural activities, and vacant lands. There are no designated scenic vistas in the surrounding area. Temporary visual impacts resulting from the removal of existing vegetation and disturbance of soil at various locations along the waterline easement would be visible from immediately adjacent properties. The areas temporarily disturbed for construction of the Project would be revegetated with native plant materials upon Project completion. Although the pipeline construction related activities would be visible during and immediately following Project completion, eventual growth of the revegetation materials would preclude long-term or substantial visual changes to the Project area. Therefore, temporary visual impacts would be reduced to a less than significant level.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ☐ ☐ ☒ ☐

Less Than Significant Impact:

Construction of the Project would not damage or remove any specimen trees, rock outcroppings, or historic buildings. Interstate 15 (I-15) is not designated as a State Scenic Highway, but is eligible for designation (Caltrans 2015). I-15 between the Escondido city limits and the Riverside county line. State Route (SR) 76 [Pala Road] between Oceanside city limits and I-15, and Gird Road north of SR 76 are designated as County Scenic Highways (County 2011a). The Project site is not included in the *Fallbrook I-15 Design Corridor Plan* (County 2011b). The Project site is not visible from I-15 or SR 76. The Project site is screened from view from most locations along Gird Road by vegetation adjacent to the road right-of-way. However, where there are breaks in the roadside vegetation, fleeting glances of the Project site are possible. Because the visual effects of the Project would be temporary and only fleeting glances of the site are possible from Gird Road, the visual impact would be less than significant.

c) Substantially degrade the existing visual character or quality of the site and its surroundings? ☐ ☐ ☒ ☐

Less Than Significant Impact:

The Project site is surrounded by scattered rural residential uses, existing agricultural activities, and vacant lands. The Project would not alter the natural landform or create manufactured slopes, but the trenching operation would temporarily disturb a steep hillside. The construction activity would have a short-term visual effect on the surrounding area. The Project would have a less than significant long-term aesthetic effect on the surrounding area for the reasons stated in section a) above.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ☐ ☐ ☒ ☐

Less Than Significant Impact:

Project construction would occur primarily during daytime hours (7 a.m. to 7 p.m.). The only potential

lighting impacts might occur as a result of temporary lighting used for safety and/or security purposes during Project construction. If night lighting is necessary, it would be of the lowest possible illumination to ensure safety of construction personnel and security of the site. Temporary lighting fixtures would be shielded and directed away from adjacent areas. No permanent lighting fixtures are included in the Project. The Project does not include above ground structures that could result in glare. Therefore, any impact related to light or glare would be less than significant.

II AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

No Impact:

The Project site is located within a rural residential and agricultural area. Orchard activities previously occurred on the eastern portion of the Project site, but the orchard has been removed. The western portion of the site is currently used for agricultural related activities (see **Figure 3**). As shown on **Figure 5** the eastern portion of the site is designated as Unique Farmland and the western portion of the site is designated as Other Land. The western portion of the site is designated as Prime Soils (see **Figure 6**).

The existing water line did not preclude the operation of the previous orchid on the eastern part of the site. Replacing the existing water line would not preclude the reestablishment of an orchid on the site in the future. The western part of the Project site containing prime soils is constrained by the presence disturbed wetland and southern cottonwood-will riparian forest that would limit the feasibility of expanded agricultural activities on the site. The existing agricultural related activities on the western portion of the site would not be inhibited by the replacement of the existing water line. Consequently, the Project would have no impact because the Project would not preclude future agricultural activities on the site.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

No Impact:

The Project site is zoned A-70 Limited Agriculture. The eastern parcel has a minimum lot size of two

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

acres and the western parcel has a minimum lot size of ½ acre. The eastern parcel (AP 124-351-50) is within a Williamson Act contract (see **Figure 7**). The Project is replacing an underground water line that would not conflict with agricultural zoning or Williamson Act contracts; Consequently, the Project would have no impact.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

No Impact:

There are no lands in the Project area zoned for forest or timberland uses. Consequently, the Project would not conflict with land zoned for forest land.

d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact:

The Project site is surrounded by rural residential and agricultural uses. The Project would not result in the loss of, or conversion of, forest land to non-forest uses.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest to non-forest use?	☐	☐	☐	☒

No Impact:

The Project is the construction of an underground water pipeline. The Project would not result in changes that would result in the conversion of farmland or forested land to other uses. Consequently, the Project would have no impact to farmland or forest lands

III AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

Less Than Significant Impact.

The Project would install approximately 2,150 feet of a new water line between Gird Road and Monserate Hill Road in the Fallbrook area. Emissions would occur during the construction phase of the Project, but these temporary emissions would be minor and cease after construction is completed. Small scale construction equipment is typically involved in water line Projects and the equipment generates relatively few emissions. Dust suppression Best Management Practices (BMPs) would be included in the design plans for the Project. The Project is consistent with applicable County of San Diego General Plan and Fallbrook Community plan land use designations, underlying zoning, (County 2011b), and the Regional Air Quality Strategy (SDAPCD 2009). The San Diego Air Basin is currently classified as a

nonattainment area under the California Ambient Air Quality Standards (CAAQS) for particulate matter (PM10 and PM2.5) and ozone (O3) identified in the California State Implementation Plan (SIP) (SDAPCD 2013).

b) Violate any air quality standard or contribute substantially to an existing or Projected air quality violation?	☐	☐	☒	☐

Less Than Significant Impact

Short-Term (Construction) Emissions: Construction-related activities are temporary, short-term sources of air emissions. Sources of construction-related air emissions include fugitive dust from brushing and clearing; grading and trenching activities; construction equipment exhaust; construction-related trips by workers, delivery trucks, and material-hauling trucks; and construction-related power consumption.

Variables that factor into the total construction emissions potentially generated include the level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported to and from the Project site.

Construction operations would result in temporary releases of exhaust emissions from construction vehicles and equipment, as well as materials deliveries. The Project would also result in temporary dust generation due to excavation and backfill activities. The contract documents would require that the following dust control measures be implemented throughout the construction period.

1. Apply water during grading/grubbing activities to all active disturbed areas at least twice daily. All short-term stockpiles would be wetted daily, and long-term stockpiles covered.
2. Apply water to all onsite unpaved roadways at least two times daily.
3. Reduce all construction related traffic speeds onsite to below 15 miles per hour (MPH).
4. Revegetate all inactive areas and maintain yearly.
5. Utilize Tier 2 Equipment equipped with diesel particulate filters to reduce emissions.
6. Provide wheel washers/shakers at the Project egress points to limit dust from being distributed on public roadways.

Implementation of these measures, as required by the District's contract documents, would reduce potential air quality impacts to a less than significant level and would not violate an air quality standard.

Long-Term (Operational) Emissions. Long-term air emission impacts are those associated with stationary sources and mobile sources related to any change caused by a Project. The Project would install a water line and pressure reducing valve. Given the utility nature of the Project, emissions over the long-term are not anticipated to violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Overall, the Project is not expected to generate substantial emissions that would violate any air quality standard or contribute substantially to an existing or Projected air quality violation; therefore less than significant impacts would occur.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

Less than Significant Impact.

As described above, construction operations could temporarily increase the emissions of dust and other pollutants. However, construction emissions would be temporary and short-term in duration; implementation of BMPs would reduce potential impacts related to construction activities to a less than significant level. Therefore, the Project would not result in a cumulatively considerable net increase of any criteria pollutant for which San Diego is identified as a non-attainment area under applicable federal or state ambient air quality standards.

d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒

Less Than Significant Impact:

No sensitive receptors such as schools, nursing homes, youth activity areas, etc. are located in the surrounding area. Consequently, there would be no impact to sensitive receptors.

e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Less than Significant Impact.

Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. The Project would install an underground water line; therefore, impacts associated with odors during construction are considered less than significant.

Typical long-term operational characteristics of underground water lines are not associated with the creation of odors, nor anticipated to generate odors affecting a substantial number of people. Therefore, impacts are considered to be less than significant and no mitigation measures are required.

IV BIOLOGICAL RESOURCES:

Would the Project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS)?	☐	☒	☐	☐

A *Biological Impact Analysis Letter Report, Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project*, dated June 20, 2016 was completed by Merkel & Associates. A copy of the reports is included as Appendix A.

Less Than Significant with Mitigation Incorporated

Special-Status Plants Direct Impacts

Six special status species were identified within the Biological Survey Area (BSA), they are:

- Coastal California gnatcatcher, a federally listed threatened and CDFW Species of Special Concern (SSC) and CNDDB Special Animal;
- Least Bell's vireo, a federally and state listed endangered and CDFW SSC and CNDDB Special

Animal;
- Cooper's hawk, a CDFW Watch List and CNDDB Special Animal;
- Yellow-breasted chat (*Icteria virens*), a CDFW SSC and CNDDB Special Animal;
- Oak titmouse (*Baeolophus inornatus*), a CNDDB Special Animal;
- Nuttall's woodpecker, a CDFW CNDDB Special Animal; and
- Orange-throated whiptail, a CDFW CNDDB Special Animal and SSC.

A single adult male coastal California gnatcatcher was heard calling from the Diegan coastal sage scrub in the central portion of the BSA during the October 2015 survey. A second individual was potentially heard calling on the same survey; however, it could not be confirmed. During the protocol surveys conducted in 2016, three coastal California gnatcatchers were detected at one time during Survey Number 4; an adult male and a presumed female and juvenile. The coastal California gnatcatcher has a high potential to nest in the Diegan coastal sage scrub located just east of the main tributary within the BSA; this corresponds to the area in which the coastal California gnatcatchers were all detected. It should be noted that the coastal sage scrub within the northeastern portion of the BSA, just downslope from Monserate Hill Road would be less suitable for the coastal California gnatcatcher due to the dominance by shrubs and trees (e.g., laurel sumac and oaks) as well as the inclusion of orchard trees.

Two least Bell's vireos were commonly heard singing from the riparian canopy (main tributary) during all of the protocol surveys for the coastal California gnatcatcher (incidental detections). Based on the locations, it is presumed that the individuals represent two separate territories. While M&A did not determine if the territory was comprised of a pair, there is suitable habitat for breeding to occur within the main riparian canopy. M&A biologists inspected the riparian canopy associated with the secondary tributary during all of the protocol surveys but did not detect any vireo's within this secondary canopy.

Oak titmouse, yellow-breasted chat, and Nuttal's woodpecker were also commonly heard calling from the riparian canopy (main tributary) during all of the protocol surveys for the coastal California gnatcatcher (incidental detections). All of these species have a potential to nest within the riparian canopy onsite. Nuttall's woodpecker was also heard calling from the sage scrub/active orchard. Lastly, three orange-throated whiptails were observed throughout the Diegan coastal sage scrub.

Other special status species that have a moderate potential to occur in the BSA based on the presence of suitable habitat include coast horned lizard (*Phrynosoma coronatum*) within the Diegan coastal sage scrub, a species classified as a Special Animal by the CNDDB, and California SSC by CDFW as well as the southwestern willow flycatcher (*Empidonax traillii extimus*), which is federally and state listed endangered species and may occur within the riparian habitat.

An assessment of suitable habitat was conducted for the arroyo toad. Based on the USGS habitat assessment methods, the main tributary to the San Luis Rey River would be considered poor breeding habitat. While the tributary supports low gradient perennial/seasonal flows, it lacks the other key physical features including 1) sandy stream substrate and presence of sandy banks, 2) adjacent flat sandy terraces, and 3) braided channels.

Habitats/Vegetation Communities Direct Impacts

Implementation of the proposed project would result in direct impacts to disturbed wetland, Diegan coastal sage scrub, non-native grassland/historic orchard, disturbed habitat, and urban/developed lands

(see **Table 1** and **Figure 8**). Replacement of the waterline would occur primarily via open trench activities with the exception of under the main tributary, where the line would be replaced via direction drilling/jack and bore construction technique and thus require an entry and exit pit. The access paths are dirt and/or gravel roads and thus are not expected to require improvements (e.g., widening, paving, etc.).

Table 1
Habitats/Vegetation Communities, Impacts, and Mitigation

Vegetation Type	Habitat Type	Existing (acres)	Impacts	Mitigation Ratio	Mitigation Required (acres)
Disturbed wetland (USACOE, RWQCB, CDFW)	Wetland	0.3	0.1	2:1	0.2
Diegan coastal sage scrub (occupied by the gnatcatcher)	Upland	2.5	0.2	3:1	0.6
Non-native grassland/historic orchard	Upland	8.5	0.3	0.5:1	0.15
Disturbed habitat	Upland	2.8	1.0	NA	NA
Urban developed	Upland	4.7	0.8	NA	NA
		Total:	**2.4**		**0.95**

Source: Merkel & Associates, *Biological Impact Analysis Letter Report Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project*, Table 4, June 20, 2016

Direct impacts to disturbed wetland (**Impact B-1**), Diegan coastal sage scrub (**Impact B-2**), and non-native grassland/historic orchard (**Impact B-3**) would be considered significant and would require implementation of habitat-based mitigation in accordance with **Table 1**. The mitigation ratios presented in **Table 1** are based on mitigation guidance provided as mitigation standards developed by the County of San Diego within the *County of San Diego Guidelines for Determining Significance [for] Biological Resources*; however, the ratios are subject to review by the regulatory and resource agencies.

Mitigation Measure for Impacts B-1, B-2, and B-3:

Mitigation may be achieved via purchase of habitat credits from a resource agency approved mitigation bank. The mitigation credit requirements are specified in the last column of **Table 1** above.

Alternatively, if habitat credits cannot be purchased in an existing mitigation bank, the Rainbow MWD would provide for the conservation of habitat of the same amount and type of land. This requirement would include the following:

- Preparation of a resource management plan,
- Recording an open space easement,

- Selection of a resource manager, and
- Establishment of an endowment to ensure funding of annual ongoing basic stewardship costs.
- Mitigation may potentially be mitigated onsite, via restoration of impacts (subject to approval by the resource agencies). This would require preparation of a revegetation plan that includes:
  - Installation of plant materials and irrigation, as needed,
  - Maintenance and monitoring (e.g., five years of maintenance and monitoring),
  - Success criteria, and
  - Remedial measures.

Impacts to disturbed habitat, and urban/developed lands would be considered less than significant under CEQA since these habitats are not regionally considered to have high conservation value requiring mitigation.

Indirect Impacts

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. Project construction is expected to result in indirect impacts **(Impact B-4)** to vegetation communities, most notably from the effects of disturbance/clearing of vegetation within the project footprint associated with the construction activities (i.e., trench and jack and bore) that could result in conditions suitable for non-native, weedy species intrusion and potential erosion. Impacts from intrusion of non-native weedy species and erosion would be significant and would require implementation of the below measure to reduce impacts to less than significant.

Mitigation Measure for Impact B-4:

To reduce the potential for erosion and intrusion of non-native weedy species, a revegetation plan/sheet would be required to prevent erosion and establishment of invasive species over those areas that will not be permanently converted to urban use. The lands would be revegetated with native coastal sage scrub species and non-native grassland similar to those found within the surrounding area. Revegetation should occur, as feasible between late fall and spring to take advantage rainfall and should require a minimum 120-day plant establishment period (PEP). All native seed and/or plant stock should be from seed and propagules collected from the local San Diego region. Temporary irrigation may be required to assist with plant establishment. Maintenance and monitoring should occur as needed during the PEP to ensure that:

4) Invasive plant species are absent from the revegetation area,
5) The site is protected from erosion, and
6) Coverage by native species is consistent with coverage in the adjacent, non-impacted habitat,

Invasive plant species include any species identified as having a High inventory rating by California Invasive Plant Council (Cal-IPC) and any nuisance plant causing potential detriment to native flora and/or fauna. The revegetation contractor should have the minimum qualifications:

4) Three years of local, verifiable experience in maintenance and monitoring involving resources similar to those onsite,
5) Ability to carry out maintenance and monitoring as required; and
6) Applicable licenses to implement maintenance.

Following completion of the above measures, a memo documenting the status of the revegetation area

should be prepared by the Rainbow MWD and inserted in the Project File.

Recommended Project Design Measures

The below project design measures are recommended to be implemented by the Rainbow MWD to ensure avoidance of unauthorized impacts to adjacent biological resources.

- Prior to the start of clearing and grubbing of habitat, temporary fencing (e.g., orange silt fence, orange snow fence, etc.) should be installed along the perimeter of the project footprint to prevent inadvertent disturbance to adjacent biological resources.
- The BMPs proposed for the project should not include any species listed by the Cal-IPC in the California Invasive Plant Inventory.
- A qualified biologist should perform the following duties:
  - Inspect and oversee installation of temporary fencing;
  - Provide environmental training to the contractors and construction personnel prior to the start of construction activities;
  - During construction activities, the biologist should be onsite during all clearing and grubbing of habitat; and
  - The biologist should also conduct weekly inspections to ensure compliance with the project limits, notify the Rainbow MWD if unauthorized impacts to biological resources occur. The qualified biologist should be knowledgeable of upland biology and ecology with the following minimum qualifications: a) bachelor's degree in a biological related field, b) at least three years' experience in field biology or current certification of a nationally recognized biological society; and c) at least one year of field experience with biological resources found in or near the project area. In lieu of the above qualifications, a resume should demonstrate to the satisfaction of the District and wildlife agencies that the proposed biologist has the appropriate training and background to effectively implement the recommended measures within this report.

Special Status Species

Less Than Significant with Mitigation Incorporated

Coastal California gnatcatcher

Construction activities (i.e., trench, directional drilling) would result in impacts to Diegan coastal sage occupied by the coastal California gnatcatcher (**see Figure 5**). In addition to **Mitigation Measure B-2** described above, impacts to habitat occupied by the gnatcatcher would require consultation between the USACOE and USFWS under section 7 of the Endangered Species Act (ESA) (**Mitigation Measure B-5**). Habitat-based mitigation for impacts to Diegan coastal sage scrub would be finalized through consultation as well as other impact minimization measures (e.g., avoidance of removal of habitat during the breeding season and noise restrictions during the breeding season, February 15 through August 31). In addition, designated critical habitat for coastal California gnatcatcher occurs within the central portion of the BSA. Areas designated as critical habitat include features essential for the conservation of a USFWS listed species. Federal agencies undertaking an action (i.e., federal nexus) such as issuing an USACOE 404 permit that may destroy or adversely modify critical habitat is required to consult with the USFWS under section 7 of the ESA.

Least Bell's vireo

Two least Bell's vireos were detected within the riparian canopy of the main tributary. The project has been designed to avoid suitable vireo habitat. In addition, the project is expected to be constructed outside the vireo breeding season, which extends from March 15 through September 15. If this construction schedule were not feasible, the project could result in direct impacts to the nesting success of vireo's, if present, as a result of noise generating activities [if above 60 dBA, hourly average at the edge of occupied habitat (or ambient, if greater than 60 dBA)]. These impacts would be considered significant. To avoid significant impacts to the least Bell's vireo during the breeding season, noise generated from construction activities would be kept below 60 dBA hourly average at the edge of the riparian canopy or below ambient, if ambient were determined to be louder than 60 dBA.

Southwestern willow flycatcher

There is a moderate potential for the southwestern willow flycatcher to occur within the riparian canopy of the main tributary. As with the least Bell's vireo, suitable habitat has been avoided and the project is expected to be constructed outside the avian breeding season. Should construction occur during the breeding season, the same impact and avoidance measure discussed above for the least Bell's vireo would apply to the southwestern willow flycatcher.

Yellow-breasted chat, oak titmouse, Nuttall's woodpecker, and orange-throated whiptail

The yellow-breasted chat, oak titmouse, Nuttall's woodpecker, and orange-throated whiptail occur in suitable habitat (e.g., riparian, oak woodlands, sage scrub) throughout San Diego County. Implementation of the project is not expected to adversely affect the onsite populations of these species and, thus, would not be considered significant.

Arroyo toad

The arroyo toad is not expected to occur onsite; however, designated critical habitat for arroyo toad occurs within the western portion of the project footprint. Since the project has a federal nexus (i.e., impacts to federally regulated waters) and the project activities may destroy or adversely modify critical habitat; the project is required to consult with the USFWS under section 7 of the ESA.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW and USFWS?	☐	☒	☐	☐

Less Than Significant with Mitigation Incorporated

Effects on riparian habitat are discussed in Item c) below.

Effects on sensitive natural vegetation communities are discussed in Item a) above.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐

Less Than Significant with Mitigation Incorporated

Construction activities (i.e., trench and jack and bore) would result in impacts to disturbed wetland (see **Table 1; Figure 8**). While the project design has minimized impacts to jurisdictional resources to the greatest extent practicable (via jack and bore under the main tributary), impacts cannot be avoided entirely. In addition to Impact B-1 and Mitigation Measure B-1 described above, the following mitigation

measure would also be required.

Mitigation Measure B-5

The following permits would be required:

4) USACOE, Clean Water Act (CWA) Section 404 for placement of dredged or fill material within waters of the U.S.,
5) Regional Water Quality Control Board, CWA Section 401 state water quality certification/waiver for an action that may result in degradation of waters of the State, and
6) Notification to CDFW for a streambed alteration agreement under Section 1602 of the Fish and Game Code. The project would likely quality for a USACOE Nationwide Permit (NWP) 12, Utility Line Activities. Under this NWP, impacts cannot result in the loss of greater than half an acre of waters of the U.S.

Mitigation for permanent impacts to federal or state regulated waters would be finalized during the permitting process. Mitigation for impacts to habitat could occur through a combination of the following: creation/restoration or creation/restoration combined with enhancement, and/or preservation; however, the mitigation cannot result in a net-loss of habitat or biological functions and values. Mitigation could potentially be achieved through in-kind restoration of temporary impacts. The remaining mitigation requirement could be achieved through creation/restoration combined with enhancement, and/or preservation within a selected mitigation site or purchased through habitat acquisition in an approved mitigation bank. If offsite mitigation is required, it is recommended that the final selected mitigation location(s) be located within the project watershed and contribute to the local designation of habitat already conserved. Mitigation to offset impacts to federal waters consisting of creation, restoration, or enhancement would require preparation of a Compensatory Maintenance and Monitoring Plan as part of the regulatory process.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

No Impact.

Wildlife Movement and Nursey Sites

Based on the small nature of the project and its position relative to rural residential/agricultural uses, project development would not create artificial wildlife corridors or interfere with connectivity to offsite habitat, or substantially limit access to potential foraging or breeding habitat, or water sources necessary for the successful reproduction of resident wildlife species.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐

Less Than Significant with Mitigation Incorporated

Federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code

Nesting birds may be present within the project footprint during construction and could include such species as Bewick's wren and Ana's hummingbird. Impacts to active migratory bird nests, if present at the time of construction are prohibited under the federal MBTA and California Fish and Game Code

§3503 and §3513. To avoid impacts to nesting migratory birds and raptors, all clearing, grubbing, and/or grading of vegetation that has a potential to support active nests should not take place from January 1 through August 31, the "restricted work period."

Since avian species could potentially nest in the onsite habitats, the proposed project could result in impacts to active bird and/or raptor nests, if construction occurs during the "restricted work period" (**Biology Impact B-6**).

Mitigation Measure B-6:

If clearing, grubbing and/or grading of vegetation must occur during nesting migratory bird breeding season, a qualified biologist shall conduct a focused survey for active nests within (approximately) 48-72 hours prior to work in the area. If the biologist determines the area to be free of nesting birds, the work may proceed. If active bird nests were found, then all construction activities undertaken for the project must comply with regulatory requirements of the federal MBTA and California Fish and Game Code Sections §3503 and §3513. This would require protection of the nest, eggs, chicks, and adults until such time as the nestlings have fully fledged and are no longer dependent upon the nest site.

Local Policies or Ordinances

The Rainbow MWD has not adopted local policies or ordinances that pertain to the biological resources within the project site.

The analysis in the *Biological Impact Analysis Letter Report for the Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project* identifies potential impacts to biological resources that could result from implementation of the proposed project, and addresses the significance of these impacts pursuant to CEQA, in accordance with the issues listed in CEQA Guidelines Appendix G, Section IV. In addition, the City San Diego has developed Significance Determination Thresholds and Biology Guidelines under CEQA and mitigation measures for significant project impacts are recommended in accordance with these City guidelines, as well as the City Multiple Species Conservation Plan (MSCP) Subarea Plan.

V CULTURAL RESOURCES:

Would the Project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☒	☐	☐

Less Than Significant with Mitigation Incorporated.

A *Cultural Resources Inventory* for the Project was completed in October 2015 by Spindrift Archaeological Consulting, LLC (Appendix B). A records search found that 26 previous cultural resources studies were conducted within a ½ mile radius of the Project site, and eight cultural resources have been recorded within ½ mile radius of the Project site. No cultural resources have previously been recorded within the Project area of potential effect (APE). A review of California Inventory of Historic Resources indicated that there are no inventoried historic properties within the vicinity of the Project APE. No California Historical Landmarks have been recorded within the Project APE. Finally, no historic bridges within 1/2 mile of the Project site have been recorded. A search of the Native American Heritage

Commission Sacred Lands file did not reveal the presence of traditional cultural places or Native American cultural resources within the Project APE. A pedestrian survey of the Project APE was conducted by Spindrift archaeologist on 16 October 2015. The pedestrian survey did not reveal the presences of any new cultural materials within the Project APE.

The potential to discover subsurface historic-and prehistoric-period cultural resources is considered high within the western half of the Project APE because it is underlain by active alluvial flood plain deposits (Qa, late Holocene) The potential impact area is depicted on **Figure 9**. (**Impact C-1**).

Mitigation Measure C-1a:

All ground disturbing activities (i.e., trenching) within the western half of the Project APE as depicted on **Figure 9** shall be monitored by a qualified professional archaeologist who shall have the authority to halt construction activities in the event that cultural deposits, or those that are potentially cultural, are encountered. The monitor shall examine the deposits and, if the find is confirmed to be cultural in origin, which includes human remains and archaeological materials, then the protocols for unanticipated discovery in Mitigation Measure C-1b shall be followed. The District has determined that a Native American Monitor does not need to be present during ground disturbance within the Project APE.

Mitigation Measure C-1b:

If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 50-foot radius of the discovery. The on-site archaeological monitor or Principal Investigator, meeting the Secretary of the Interior's Professional Qualification Standards (NPS 2015) for prehistoric and historic archaeology, shall be afforded a reasonable amount of time to evaluate the significance of the find. Work cannot continue at the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially significant or eligible for listing on the California Register of Historic Resources (CRHR). If a potentially-eligible resource is encountered, then the archaeologist, lead agency, and Project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations to evaluate eligibility and, if eligible, total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the lead agency (Rainbow MWD) as verification that the provisions in CEQA for managing unanticipated discoveries have been met.

In the event that evidence of human remains is discovered, construction activities within 50-feet of the discovery will be halted or diverted, and the requirements above will be implemented. Depending on the occurrence, a larger radius may be necessary and will be required at the discretion of the on-site archaeologist. In addition, the provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. When human remains are discovered, state law requires that the discovery be reported to the County Coroner (Section 7050.5 of the Health and Safety Code) and that reasonable protection measures be taken during construction to protect the discovery from disturbance (AB 2641). If the Coroner determines the remains are Native American, the Coroner will notify the Native American Heritage Commission, which will designate a Native American Most Likely Descendant (MLD) for the Project (Section 5097.98 of the Public Resources Code). The MLD may not be the same person as the tribal

monitor. The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).

Implementation of Mitigation Measures C-1a and C-1b would reduce potential impacts to a Less Than Significant level.

A Pala Tribal Historic Preservation Office letter (dated November 3, 2015) states that the Project site is not within the boundaries of the recognized Pala Indian Reservation, but is within the boundaries of the area that the tribe considers its Traditional Use Area (TUA) (Pala 2015). The letter requests that the Pala Band of Mission Indians be informed of project updates, reports, and/or any documentation that may be generated regarding previously reported or newly discovered sites. Further, the letter recommends archaeological monitoring of the Project site given the proximity of known cultural and historic resources.

In 2016, the District retained Spindrift, to provide cultural resources monitoring services during a geotechnical assessment at two locations for the proposed Gird – Monserate Hill Water Line Design Project (Spindrift, 2016). An archaeological monitor was present during a geotechnical assessment conducted within the Project APE and no cultural materials were observed in the spoils or sediment cores collected in two borings.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐

Less Than Significant with Mitigation Incorporated.

See discussion in V.a) above.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Less Than Significant.

There are no fossil collecting localities documented by the Department of Paleontology at the San Diego Natural History Museum (SDNHM) within a half-mile radius of the Project site. This lack of recorded paleontological localities is primarily due to the surrounding geology, as the project alignment is located in areas predominantly underlain by rocks that are not known to produce fossils. These plutonic rocks, including the Granodiorite of Indian Mountain, form under high pressure and/or high temperature conditions which do not support complex life, and are considered to have zero paleontological sensitivity (Deméré 1993). The Holocene-age young alluvial flood plain deposits also have a low paleontological sensitivity, due to their young age. Any biological remains found in these deposits are likely to be modern to sub-fossil. Given the discussion above, and the lack of recorded paleontological localities within the immediate project area, a complete paleontological resource mitigation program during excavation activities is not recommended.

Based on the geologic formations in San Diego county, the County of San Diego Departments of Planning and Development Services, and Public Works developed a graphic illustration of the levels of paleontological resource potential and sensitivity within the unincorporated area (see **Figure 10**) (County 2009). The area north of SR 76 (Pala Road) and west of I-15 have a sensitivity rating of "None". Based on this rating, no monitoring of earthwork is required (see **Figure 11**).Given the sensitivity rating of "None" and no recorded site records at the SDNHM, the Project would have a Less Than Significant impact on paleontological resources.

d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

The likelihood of encountering human remains in the Project area is considered to be very slight. However, should human remains be encountered, implementation of Mitigation Measure C-1b above would reduce the impact to a less than significant level.

VI GEOLOGY AND SOILS

Would the Project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐

Less Than Significant Impact.

A *Geotechnical Investigation Gird/Monserate Hill Waterline, Fallbrook, CA, Report* was prepared in 2016 for the Project (see Appendix C).

As shown on **Figure 12**, no mapped active or potentially active faults are known to be present at or near the Project site (County 2011d). As shown on **Figure 13** the Project site is not located within an Alquist-Priolo Earthquake Fault Zone or within a County Special Study Fault Zone (County 2011d). The closest known active fault is the Newport-Inglewood fault zone located about 35 kilometers west of the site. No active faults are known to underlie or project toward the site. Therefore, the probability of fault rupture is low (SCST 2016). Consequently, the potential for surface fault rupture is low and the impact would be less than significant.

ii) Strong seismic ground shaking?.	☐	☐	☒	☐

Less than Significant Impact.

In the event of an earthquake along the Newport-Inglewood Fault, or other faults, the Project area would be subject to some ground shaking. The level of intensity would be determined by the magnitude and location of the earthquake. Because the Project is approximately 35 kilometers east of the Newport-Inglewood Fault, the severity of ground shaking would not be expected to result in significant damage to

the proposed Gird/Monserate waterline. The geotechnical investigation prepared for the Project includes design parameters in accordance with the 2013 California Building Code (SCST 2016).

iii) Seismic-related ground failure, including liquefaction? ☐ ☐ ☒ ☐

Less than Significant Impact.

The soils in the western portion of the Project site are Grangeville fine sandy loam, 0 to 2 percent slopes (GoA) (see **Figure 14**). This soils series consists of somewhat poorly drained, very deep fine sandy loams derived from granitic alluvium (Agriculture 1973). Liquefaction occurs when loose, saturated, generally fine sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid; resulting in large total and differential ground surface settlements as well as possible lateral spreading during an earthquake. Loose, saturated, fine grained materials were encountered along the alignment west of the creek. This portion of the alignment is likely to undergo liquefaction and dynamic settlement due to the very loose, saturated conditions near the pipeline bottom. Recommendations in Sections 6.4.1 and 6.4.4. of the *Geotechnical Investigation* report for pipeline support and pipe bedding would minimize pipe settlements to a negligible level. Consequently, the potential for ground failure impacts are considered to be less than significant.

The soils in the eastern portion are Cieneba very rocky sandy loam, 30 to 75 percent slopes (CmrG) and Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded (CIE2). This soils series consists of excessively drained, very shallow to shallow coarse sandy loams. These soils formed in material weathered in place from granitic rock. Due to the lack of shallow groundwater, and given the relatively dense nature of the materials beneath the alignment east of the creek, the potential for liquefaction and dynamic settlement to occur is considered low on the eastern portion of the alignment.

iv) Landslides? ☐ ☐ ☒ ☐

Less than Significant Impact.

Evidence of landslides or slope instabilities was not observed and no landslides are mapped within the project area (SCST 2016). Given the 0 to 2 percent slopes of GoA soils there would be no landslide impact within the western portion of the site. The landslide potential of the CmrG and CIE2 soils in the eastern portion of the Project site is minimal given the granitic origin of the soils. Consequently, The potential for landslides or slope instabilities to occur at the site is low (SCST 2016), and construction of the Project would result in a less than significant impact.

b) Result in substantial soil erosion or the loss of topsoil? ☐ ☐ ☒ ☐

Less Than Significant.

The *U.S. Department of Agriculture Soil Survey* characterizes CmrG soils as having a severe erosion hazard, and GoA as having a moderate erosion hazard (Agriculture 1973). Construction of the Project would temporarily disturb soils during the trenching and excavation activities, thereby increasing the potential for soil erosion to occur. The Project design plans incorporate methods to control runoff, including site design, source control, and treatment control BMPs. The Project is required to meet National Pollutant Discharge Elimination System (NPDES) regulations and incorporate BMPs during

construction, and permanent BMPs as defined by the Rainbow MWD regulations. In addition, non-paved areas of the site would be landscaped in accordance with District requirements which would preclude erosion or topsoil loss and all storm water requirements would be met. Therefore, impacts would be less than significant and no mitigation measures are required.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

Less than Significant Impact.

The Project site geologic structure and soils are stable, and would not become unstable as a result of replacing the Gird/Monserate water line. Potential landslides and liquefaction impacts are less than significant as described in a. iii) and iv) above. The potential for lateral spreading, subsidence or collapse of the geologic unit or soils is minimal and would result in a less than significant impact.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐

Less than Significant Impact.

The *U.S. Department of Agriculture Soil Survey* characterizes CmrG, CIE2 and GoA soils as having a slight shrink-swell hazard (Agriculture 1973). The design of water line would reduce the potential effect of expansive soils to a less than significant level.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

No Impact.

No septic or alternative wastewater systems are proposed as a part of this Project. Consequently, there would be no impact to soils in the area.

VII GREENHOUSE GAS EMISSIONS

Would the Project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Less Than Significant Impact

Greenhouse Gas (GHG) emissions result in an increase in the earth's average surface temperature commonly referred to as global warming. This rise in global temperature is associated with long-term changes in precipitation, temperature, wind patterns, and other elements of the earth's climate system, known as climate change. These changes are now broadly attributed to GHG emissions, particularly those emissions that result from the human production and use of fossil fuels.

GHGs include carbon dioxide, methane, hydrofluorocarbons (HFCs), and nitrous oxide, among others. Human induced GHG emissions are a result of energy production and consumption, and personal vehicle use, among other sources. A regional GHG inventory prepared for the San Diego Region identified on-road transportation (cars and trucks) as the largest contributor of GHG emissions in the region, accounting for 46% of the total regional emissions (EPIC 2008). Electricity and natural gas combustion

were the second (25%) and third (9%) largest regional contributors, respectively, to regional GHG emissions.

The *San Diego County Recommended Approach for Addressing Climate Change* in CEQA documents provides guidance for conducting greenhouse gas (GHG) and climate change analyses (County 2015). San Diego County has adopted a screening level of 900 metric tons of $C0_2e$/year for which a Project would require additional analysis and mitigation. The GHG emissions associated with 50 single-family residential units and 30,000 square feet of office were estimated and were found to be 900 metric tons and 800 metric tons, respectively. Given the variance on individual Projects, a single threshold of 900 metric tons was selected for residential and office projects.

Projects that fall below the 900 MT $C0_2e$/year screening level are not expected to result in a cumulatively considerable impact and no further analysis or mitigation would be required. The screening level assumes that the Project does not involve unusually extensive construction activities and does not involve operational characteristics that would generate unusually high GHG emissions. Therefore, the determination of the need for a climate change analysis must consider Project specific details that could contribute to a climate change impact.

The Project would result in GHG emissions during construction (i.e., from the use of off-road equipment and construction vehicle use) as well as emissions from operational use associated with maintenance vehicles and indirect sources such as electricity demand from water used to clean and maintain the PV system. However, given the small scale of the Project (i.e., 2,150 lineal feet of water line), GHG emissions would be well below the established threshold of 900 metric tons per Project per year. Consequently, the GHG impact would be less than significant.

Operation of Gird/Monserate water line will not result in an increase in vehicular traffic as measured in average daily trips (ADT), energy consumption, or water usage. Therefore, operational emissions would result in No Impact.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Less than Significant Impact.

As described in VII a) above, the Project would not result in a cumulatively considerable contribution to global climate change. Therefore, the Project would be consistent with emissions reduction targets of the *Global Warming Solutions Act* (Assembly Bill 32). Thus, the Project would not conflict with any applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gas emissions.

VIII HAZARDS AND HAZARDOUS MATERIALS

Would the Project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

Less than Significant Impact.

Construction of Gird/Monserate water line may require the use of hazardous materials (e.g., fuels,

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

lubricants, solvents, etc.) which would require proper storage, handling, use and disposal. Rainbow MWD construction specifications will include requirements for the contractor regarding where routine handling or disposal of hazardous materials could occur and what measures to implement in the event of a spill from equipment. Compliance with contract specifications would ensure that potential hazards are minimized to below a level of significance

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒

No Impact

Operation of the proposed water line would not transport any hazardous materials or involve the use of hazardous material; consequently, there would be No Impact.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

No Impact

There are no schools within one-quarter mile of the Project site; therefore, there would be no impact.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

Less Than Significant Impact.

The Project site is not included in any of the following lists or databases: the State of California Hazardous Waste and Substances sites list compiled pursuant to Government Code Section 65962.5., the San Diego County Hazardous Materials Establishment database, the San Diego County DEH Site Assessment and Mitigation (SAM) Case Listing, the Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program Database ("CalSites" Envirostor Database), the Resource Conservation and Recovery Information System (RCRIS) listing, the EPA's Superfund CERCLIS database or the EPA's National Priorities List (NPL).

A review of State Water Resources Control Board GeoTracker database revealed that the nearest site is the Rainbow Farm, LLC (case T06019763926) located 4,500 feet southeast of the Project site. This case was closed on February 4, 2013 although soil contamination may still be present. Since the Project would not disturb soils at or near the contamination No Impact would occur.

e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?	☐	☐	☐	☒

No Impact.

The nearest airport is the Fallbrook Community Airpark located 4.1 miles northwest of the Project site. The next nearest airports are the Blackinton Airport (7.9 southeast of the site) and the Camp Pendleton Airport (8.8 miles southwest of the site). The Camp Pendleton airport is the nearest airport with an

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

adopted airport land use plan. The Project would not result in an airport related safety hazard for people in the surrounding area.

f) For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?	☐	☐	☐	☒

No Impact.

There are no private airstrips in the vicinity of the Project site; therefore, no airstrip related safety hazard would result.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact.

Construction of the Project would temporarily affect traffic circulation on nearby roads. However, an approved Traffic Control Plan would be implemented during construction which would avoid interference with the adopted *County of San Diego Emergency Operations Plan* (County 2014).

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Less Than Significant Impact.

Construction of the Project would occur within a County of San Diego urban-wildland interface area that could pose a threat of wildland fires (see **Figure 15**). The maximum travel time allowed pursuant to the County of San Diego *General Plan Safety Element* is 10 minutes (County 2011f). The nearest fire station in the North County Fire Protection District is Station 4 located at 4375 Pala Mesa Drive is located 3.7 miles northeasterly of the Project site and the estimated travel time is 3.7 minutes. Fire Station 5, located at 5906 Olive Hill Road is the next nearest station; Station 5 is 8.4 miles southwesterly of the Project site and the estimated travel time is 16 minutes.

The Project would have a Less Than Significant Impact because the Project will not expose people or structures to a significant risk of loss, injury or death involving wildland fires because the Project will comply with the regulations relating to emergency access, water supply, and defensible space specified in the Consolidated Fire Code for the 16 Fire Protection Districts in San Diego County (County 2011e). Moreover, the Project would not contribute to a cumulatively considerable impact, because all past, present and future Projects in the surrounding area are required to comply with the Consolidated Fire Code.

IX HYDROLOGY AND WATER QUALITY

Would the Project:

a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

Less Than Significant.

Potential impacts to existing water quality standards associated with the construction of the Project include short-term construction-related erosion and sedimentation, but the Project would not result in

any long-term operational storm water impacts. The Project would be required to comply with either a Water Pollution Control Plan (WPCP) or Storm Water Pollution Prevention Plan (SWPPP). These plans would prevent or effectively minimize short-term water quality impacts during construction activities. Therefore, the proposed Project would not violate any existing water quality standards or discharge requirements.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒

No Impact.

Construction of the Project does not propose the use of groundwater. Furthermore, the Project would not introduce a substantially large amount of new impervious surfaces over ground that could interfere with groundwater recharge. Therefore, construction of the Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒

No Impact.

Construction of the Project would involve replacing a portion of the existing water line by trenching. The ground surface would be revegetated with native plant materials after the trench is backfilled. The portion of the waterline under the unnamed tributary of the San Luis Rey river would be replaced by underground boring rather than trenching. A Water Pollution Control Plan (WPCP) or Storm Water Pollution Prevention Plan (SWPPP) would be implemented to insure that erosion and siltation do not occur within the Project area. Consequently, the existing drainage pattern of the site would not be altered and future erosion and on- and off-site siltation would be avoided.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒

No Impact. Please see IX.c above.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

Less Than Significant Impact.

Conformance to BMPs outlined in an approved WPCP would prevent and/or minimize short-term construction runoff impacts associated with the construction of the Project. Additionally, the Project would not increase the amount of impervious surfaces; therefore, the Project would not contribute

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

runoff water that would exceed the capacity of existing storm water systems

f) Otherwise substantially degrade water quality?	☐	☐	☒	☐

Less Than Significant.

Conformance with the BMPs outlined in an approved WPCP would prevent or effectively reduce short-term construction runoff impacts to a less than significant level. See IX.a for additional information.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

No Impact.

The Project does not involve the construction of housing.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒

No Impact.

The Project does not involve the construction of structures within a 100-year floodplain.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒

No Impact.

Construction of the Project Pipeline does not include any features that would increase the risk of loss, injury or death associated with flooding as a result of the failure of a levee or the upstream Red Mountain Reservoir.

j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

No Impact.

The site is not located within a mapped area on the State of California Tsunami Inundation Maps; therefore, damage due to tsunamis is considered negligible. Seiches are periodic oscillations in large bodies of water such as lakes, harbors, bays, or reservoirs. The site is not located adjacent to any lakes or confined bodies of water; therefore, the potential for a seiche to affect the site is considered low (SCTS 2016). Evidence of landslides, mudflows, or slope instabilities was not observed. The potential for landslides, mudflows, or slope instabilities to occur at the site is low (SCST 2016).

X LAND USE AND PLANNING

Would the Project:

a) Physically divide an established community?	☐	☐	☐	☒

No Impact.

Construction of the Project does not include any features that would divide the community of Fallbrook.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

No Impact.

Construction of the Project would be consistent with the *County of San Diego General Plan*, *Fallbrook Community Plan*, and the *I-15 Corridor Plan* and all other plans, policies, or regulations of the County of San Diego.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

No Impact. Construction of the **Project** would not conflict with the *County of San Diego Multiple Species Conservation Plan* (MSCP) for the reasons stated in IV. B e) discussion above.

XI MINERAL RESOURCES

Would the Project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐

Less Than Significant Impact.

The Project site is located within Mineral Resource Zone 3 (MRZ-3) as shown on the Mineral Land Classification Map contained in the County General Plan (see **Figure 16**). MRZ-3 indicates that mineral deposits are potentially present or where it is judged that a high likelihood exists for their presence. Mining within the Project site is unlikely given the steep slopes and critical habitat in the eastern portion of the Project site, and the floodplain and wetlands in the western portion of the site. The areas surrounding the Project site have not used for the recovery of mineral resources. Consequently, the potential impact is deemed to be Less Than Significant.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐

Less Than Significant Impact.

See XI. a) above.

XII NOISE

Would the Project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

Less Than Significant Impact.

The Project proposes to replace the existing water line by tunneling and trenching. Pits will be excavated for the tunneling, and a trench will be excavated to install a new water line. These activities will result in temporary construction related noise during the work period.

Temporary Construction Noise

Section 36.3409 of the County Noise Ordinance limits construction equipment noise levels to an average sound level of 75 decibels (dBA) for an eight-hour period, between 7:00 a.m. and 7:00 p.m., 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 sound level of typical construction equipment at 50 feet is shown in Table 1.

Table 1
Roadway Construction Noise Model (RCNM) Default Noise Emission Reference Levels

Equipment Description	Acoustical Usage Factor	Actual Measured L_{max} @ 50 feet (dBA slow)
Backhoe	40%	78
Concrete Pump Truck	20%	81
Dozer	40%	82
Drill Rig Truck	20%	79
Dump Truck	40%	76
Excavator	40%	81
Flat Bed Truck	40%	79
Front End Loader	40%	79
Horizontal Boring Hydraulic Jack	25%	82
Jackhammer	20%	89
Pickup Truck	40%	75
Pneumatic Tools	50%	85
Source: Federal Highway Administration (FHWA 2006)		

Equipment used during the construction period will be selected to insure that the average sound level of 75 dBA will not be exceeded over an eight-hour period. Therefore, construction noise will result in a Less Than Significant Impact.

Operational Noise

The Project site and surrounding land uses are zoned A70, which is subject to the most restrictive one-hour average sound level limit of 45 dBA at the Project property lines pursuant to Noise Ordinance Section 36.404. As shown on **Figure 3**, the existing water line is along the southern boundary of western parcel (APN 124-340-32) and through middle of the eastern parcel (APN-124-351-50). The eastern end of the existing water line is approximately 140 feet north of the on-site residence. The worst case property line noise level situation is at the southern property line of the western parcel where the existing water line is adjacent to the property line. The nearest off-site residence is located approximately 1,170 feet north of the western end of the existing water line. Operation of the water line will not produce any audible noise and would result in No Impact.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? ☐ ☐ ☐ ☒

No Impact:

Construction activities associated with the Project would not affect any of the following land uses that are sensitive to groundborne vibration or ground borne noise levels.

1. Buildings where low ambient vibration is essential for interior operation, including research and manufacturing facilities with special vibration constraints.
2. Residences and buildings where people normally sleep including hotels, hospitals, residences and where low ambient vibration is preferred.
3. Civic and institutional land uses including schools, churches, libraries, other institutions, and quiet office where low ambient vibration is preferred.
4. Concert halls for symphonies or other special use facilities where low ambient vibration is preferred.

Also, the Project does not propose any major, new or expanded infrastructure such as mass transit, highways or major roadways or intensive extractive industry that could generate excessive groundborne vibration or groundborne noise levels on-site or in the surrounding area.

c) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	☐	☒

No Impact.

The Project would not permanently increase the existing ambient noise levels. Please see XII a) and b) above.

d) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	☒	☐

Less Than Significant Impact.

Construction of the Project would temporarily increase the existing ambient noise levels however, the increase in noise levels would be less than significant as explained in XII a) and b) above.

e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒

No Impact.

The Project is not located within a Comprehensive Land Use Plan (CLUP) for airports or within 2 miles of a public airport or public use airport. Therefore, the Project will not expose people residing or working in the Project area to excessive airport related noise levels.

f) For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒

No Impact.

The Project is not located within one-mile of a private airstrip; therefore, the Project will not expose people residing or working in the Project area to excessive airport-related noise levels.

XIII POPULATION AND HOUSING.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the Project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒

No Impact.

The Gird/Monserate Water Line Project would replace an existing water line that is inoperable. The Project would not extend existing roadways and utilities into undeveloped areas or introduce new roadways and utilities that could induce population growth; therefore, no impact would occur.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact.

Construction of the Gird/Monserate Water Line would not displace any existing housing; therefore, no impact would occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact.

Construction of the Gird/Monserate Water Line would not displace any people residing in the area; therefore, no impact would occur.

XIV PUBLIC SERVICES

a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐

Less than Significant Impact.

The Project would not physically alter any fire protection facilities. Replacement of the existing water line would not require any new or altered fire facilities. A Traffic Control Plan would be prepared to insure major disruptions to traffic flow do not occur and that fire response times are not disrupted.

Police protection?	☐	☐	☒	☐

Less than Significant Impact.

The Project would not physically alter any police facilities. Replacement of the water line would not require any new or altered police facilities. A Traffic Control Plan would be prepared to insure major disruptions to traffic flow do not occur and that to police response times are not disrupted.

Schools?	☐	☐	☒	☐

Less than Significant Impact.

The Project would not physically alter any school facilities. Replacement of the water line would not

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

require any new or altered school facilities.

Parks?	☐	☐	☐	☒

No Impact. There are no existing parks adjacent to the Gird/Monserate Water Line alignment.

Other public facilities?	☐	☐	☒	☐

Less Than Significant Impact.

Constructing the Project would not require the construction of any other public facilities.

XV RECREATION

a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

No Impact.

Construction of the Project would not affect any park or recreational facilities in the area. Thus, the water line would result in any physical deterioration of recreational facilities.

b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

No Impact.

Construction of the Project would not result in any new housing or population growth that would necessitate new or expanded park facilities in the area. Thus, there would no impact resulting from the construction of parks.

XVI TRANSPORTATION/TRAFFIC

Would the Project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐

Less Than Significant Impact.

Construction of the Project would temporarily affect traffic circulation on adjacent roadways (e.g., Gird Road and Monserate Hill Road). The Project would not conflict with any Rainbow MWD or County of San Diego plans, ordinances or policies. A Traffic Control Plan would be approved by the Rainbow MWD and implemented during construction so that traffic circulation would not be substantially disrupted. Therefore, the Project would not result in an increase of traffic which is substantial in relation to existing traffic capacities and the impact would be less than significant.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

for designated roads or highways?

Less Than Significant Impact.

Construction of the Project would temporarily affect traffic circulation on adjacent roadways (e.g., Gird Road and Monserate Hill Road). However, an approved Traffic Control Plan would be implemented during construction so that traffic would not exceed level of service standards or impair the functioning of congestion management plans.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

No Impact.

Construction of the Project would not include any tall structures or new features that could affect air traffic patterns or introduce new safety hazards related to air traffic.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒

No Impact.

Construction of the Project would not involve the realignment or design changes to any roadways or intersections.

e) Result in inadequate emergency access?	☐	☐	☒	☐

Less Than Significant Impact.

Construction of the Project would temporarily affect traffic circulation on adjacent roadway. However, an approved Traffic Control Plan would be implemented during construction so that adequate emergency access would be maintained at all times.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Less Than Significant Impact.

Construction of the Project would not conflict with Rainbow MWD and County of San Diego policies, plans and program for public transit, bicycle and pedestrian facilities. An approved Traffic Control Plan would be implemented during construction so the performance and safety of these facilities would be maintained.

XVII UTILITIES AND SERVICE SYSTEMS

Would the Project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

No Impact

Construction of Project would improve the conveyance of water to the Rainbow MWD Canonita Zone. The Project would not generate wastewater directly or indirectly because the area is served by septic systems. Thus, the wastewater treatment requirements of the Regional Water Quality Control Board would not be exceeded.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

No Impact.

Construction of the Project is not related to construction of new water or wastewater treatment plants or expansion of existing facilities. The Project is required to replace an aging and inadequate water line that serves the Rainbow MWD Canonita Zone. Thus, the Project would no impacts to water and wastewater facilities.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

No Impact.

Construction of the Project is not related to construction of new storm water drainage facilities, or the expansion of existing facilities. The Project is required to replace aging and inadequate water lines that serve the Rainbow MWD Canonita Zone. Thus, there would be no impacts to storm water facilities.

d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

No Impact.

Construction of the Project Line is related to the conveyance of existing water supplies to the Rainbow MWD Canonita Zone. Consequently, the Project does require any new or expanded water entitlements.

e) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒

No Impact. See XVII a).

f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☒	☐

Less Than Significant Impact.

Construction of the Gird/Monserate Water Line would not result in the demolition of structures. Construction of the Project would generate minimal waste, and this waste would be disposed of in accordance with all applicable local and state regulations pertaining to solid waste including permitting capacity of the landfill serving the Project area. Operation of the Project would not generate waste and, therefore, would not affect the permitted capacity of the landfill serving the Project area.

g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

No Impact.

See XVII. f). Any solid waste generated during construction related activities would be recycled or disposed of in accordance with all applicable local state and federal regulations.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVIII MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

The following list of past, present and future Projects were considered and evaluated as a part of this Initial Study

Project Name	Permit/Map Number
Pala Mesa Highlands	PDS2015-TM-5187R and PDS2015-MUP-04-024W1
State Route 76 East Project	FHWA-CA-EIS-10-01-F

Less Than Significant With Mitigation Incorporated.

CEQA as well as local Natural Community Conservation Planning (NCCP) and subarea plans were designed to compensate for the loss of biological resources throughout the program's region; therefore, projects that conform would not result in cumulatively considerable impacts for those biological resources adequately covered by the program. Implementation of the project mitigation and permitting requirements to mitigate for direct impacts to disturbed wetland, Diegan coastal sage scrub, non-native grassland/historic orchard, coastal California gnatcatcher, and indirect impacts from invasive species and erosion would reduce impacts to less than cumulatively considerable.

Implementation of the proposed project would result in significant direct impacts to disturbed wetland, Diegan coastal sage scrub, and the coastal California gnatcatcher. Project construction is also expected to result in indirect impacts to vegetation communities, most notably from the effects of disturbance/clearing of vegetation within the project footprint associated with the construction activities (i.e., trench and jack and bore) that could result in conditions suitable for non-native, weedy species intrusion and potential erosion. The measures discussed in the preceding sections of this Initial Study are required to be implemented to reduce impacts to a level less than significant.

No archaeological or historic resources are known within the Project alignment, but there is a potential for encountering buried archaeological resources, particularly historic period artifacts or features, such as privy pits or trash deposits. In addition, there is a potential for buried resources in alluvial soils, such as the unnamed tributary of the San Luis Rey river. Mitigation measures are included in Section V of this Initial Study that would reduce these impacts to a less than significant level.

b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?	☐	☒	☐	☐

Less Than Significant With Mitigation Incorporated.

The near-term Project and future pipeline Projects in the surrounding area have the potential to impact biological, archaeological and paleontological resources which could incrementally contribute to a

cumulative loss of non-renewable resources. However, with implementation of the mitigation measures contained in Sections IV and V of this Initial Study and the MND would reduce this incremental impact to a less than significant level. Therefore, no cumulative impact would result as a result of this Project.

c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Less Than Significant with Mitigation Incorporated

As stated in Sections XVIII a) and b) above, potentially significant impacts have been identified for Biological and Cultural Resources. However, mitigation measures have been included in this Initial Study to reduce impacts to below a level of significance. Consequently, implementation of the Project would not result in substantial adverse impact to human beings.

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino,*(1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors,* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Revised 2009

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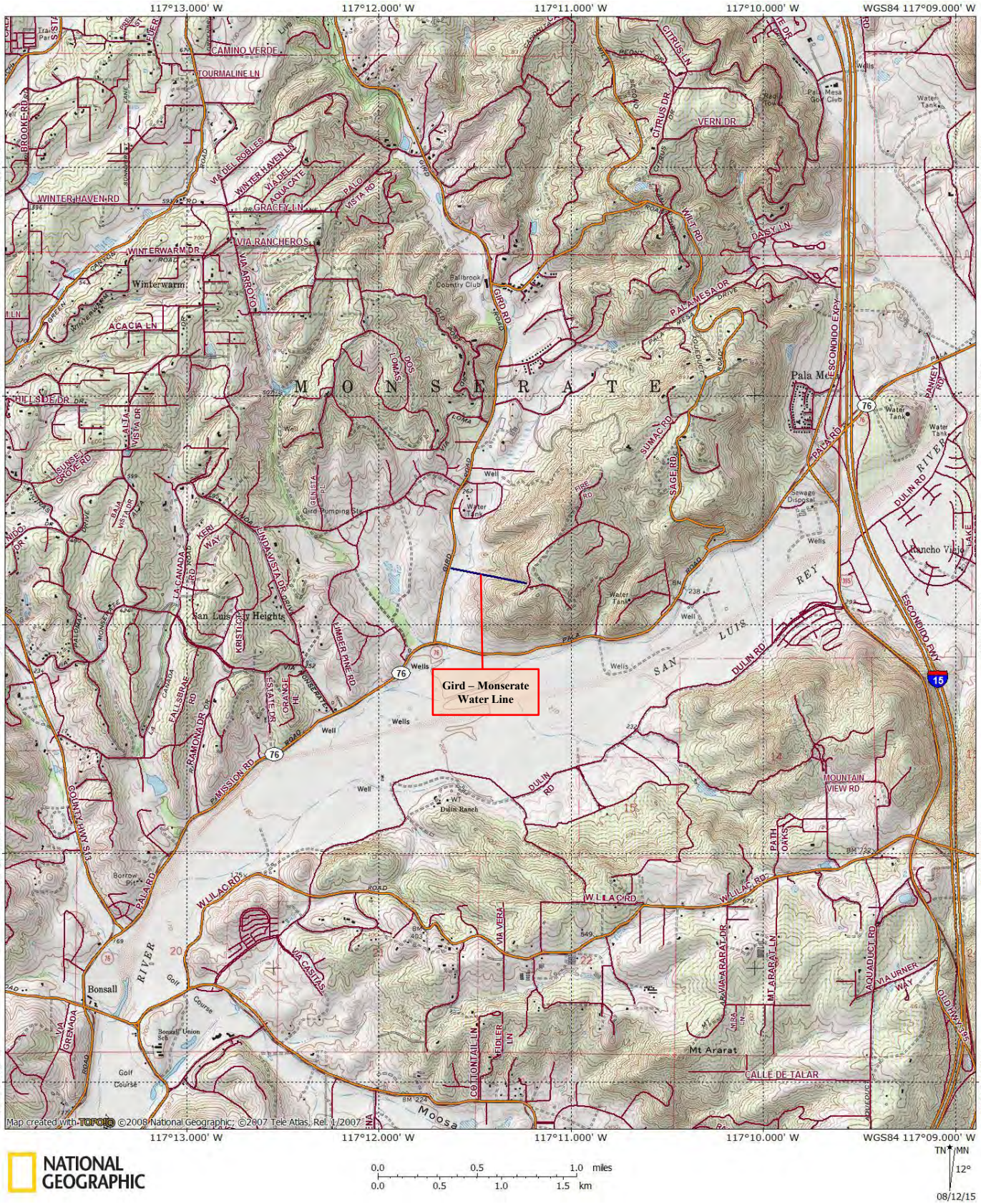
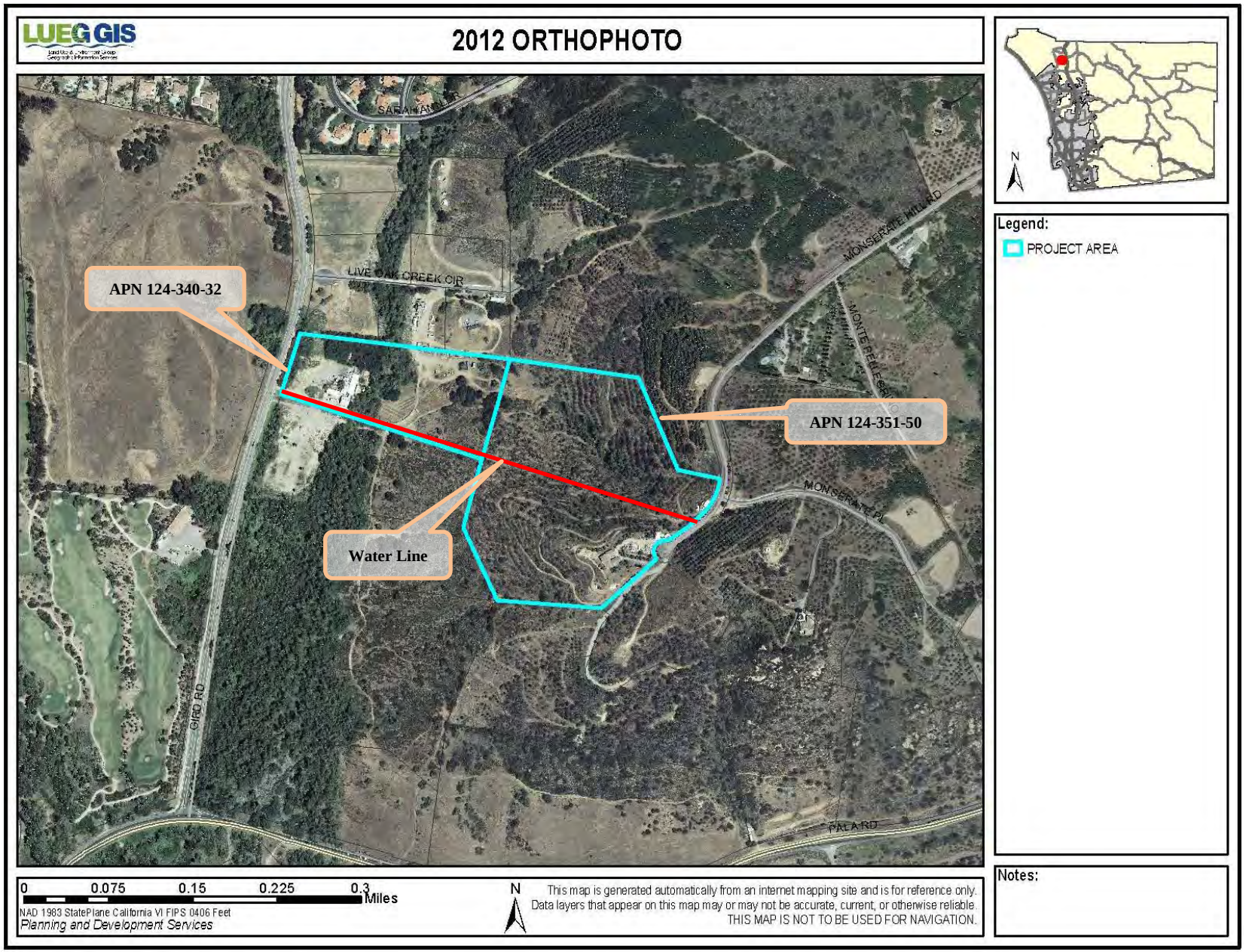
Figures

Source: SANDAG.

A.D. Hinshaw Associates	Regional Location	Figure 1

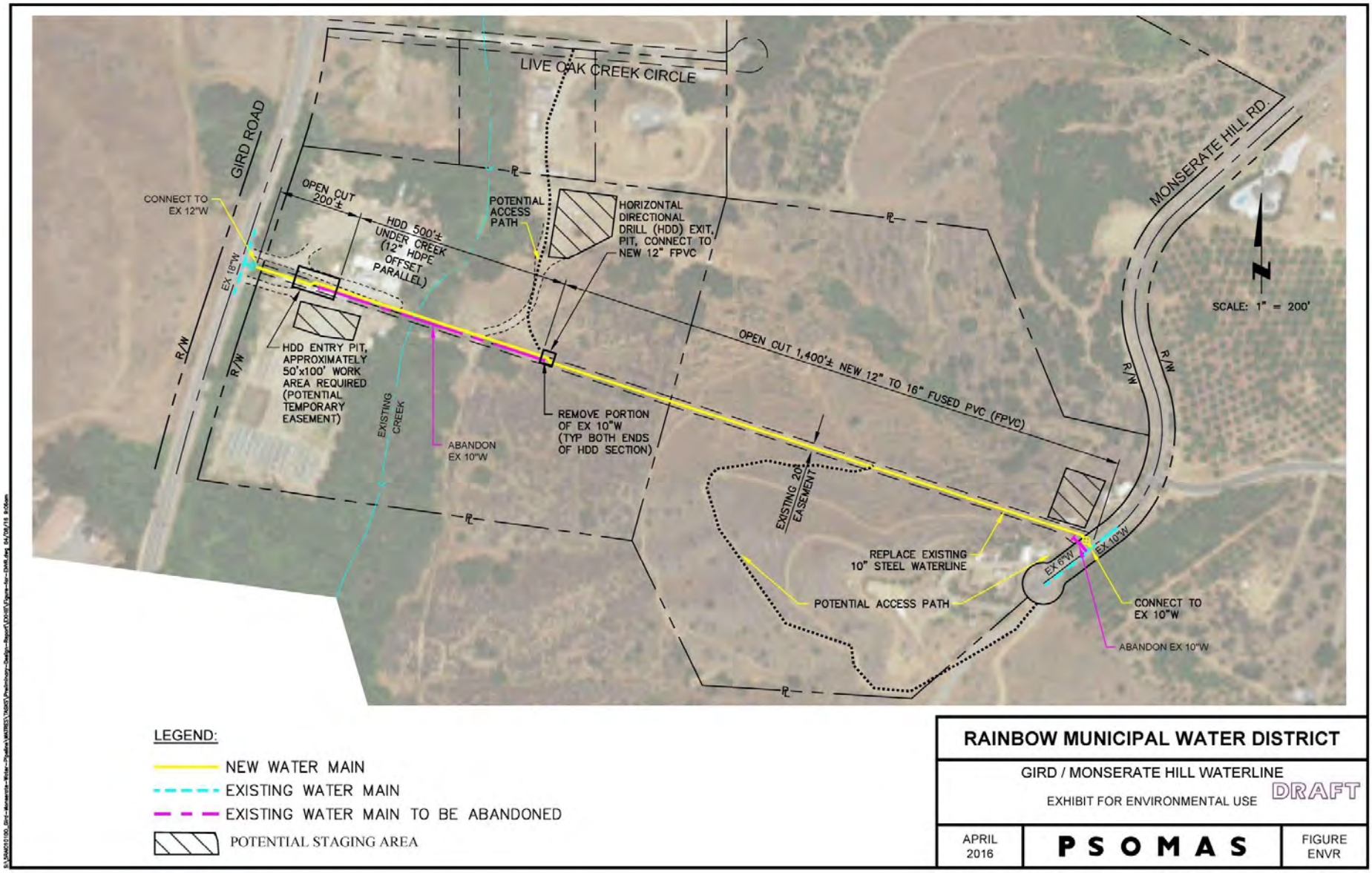


A.D. Hinshaw Associates	Vicinity Map	Figure 2



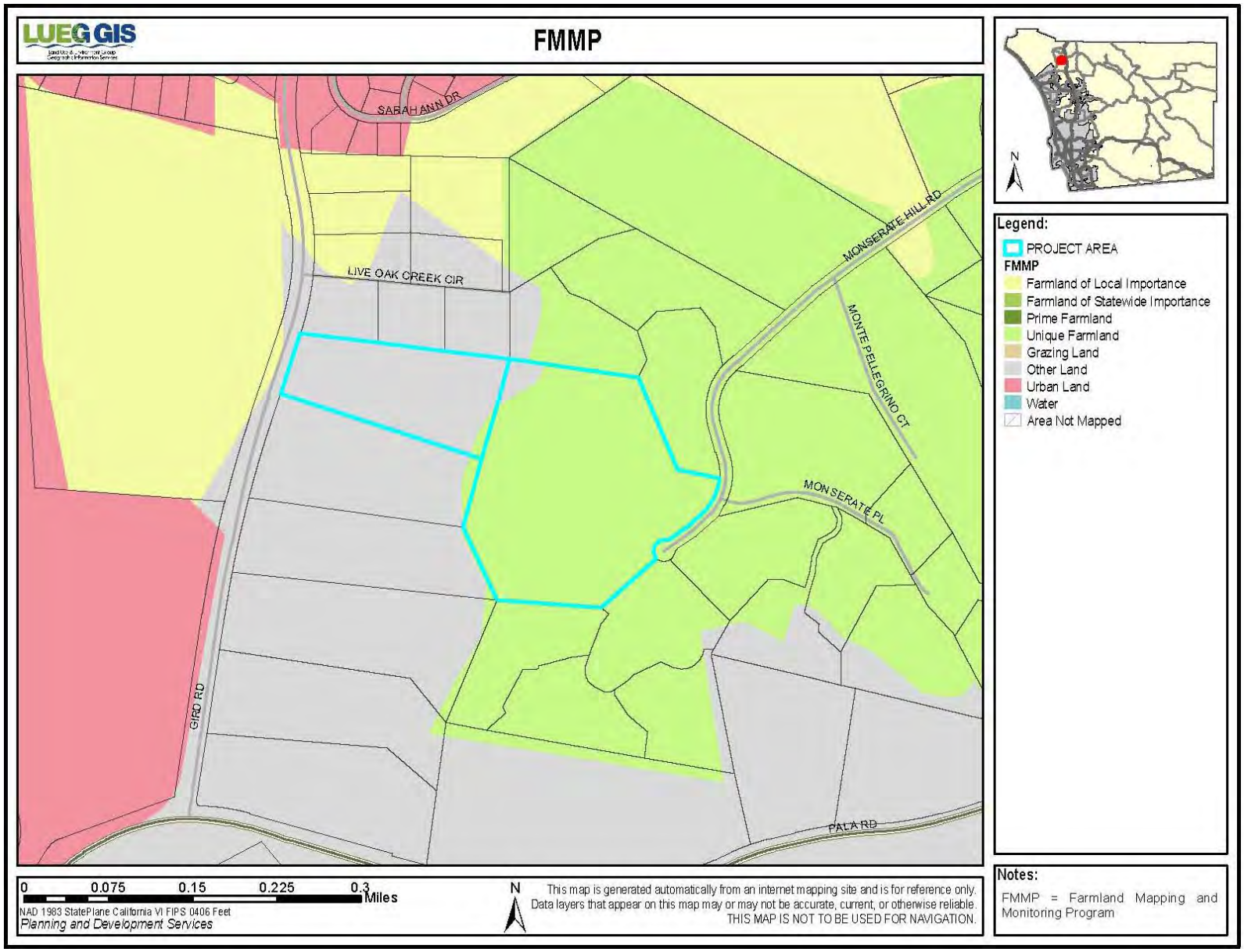
Source: County of San Diego Department of Planning and Development Services, October 2015.

A.D. Hinshaw Associates	Project Area Orthophoto	Figure 3



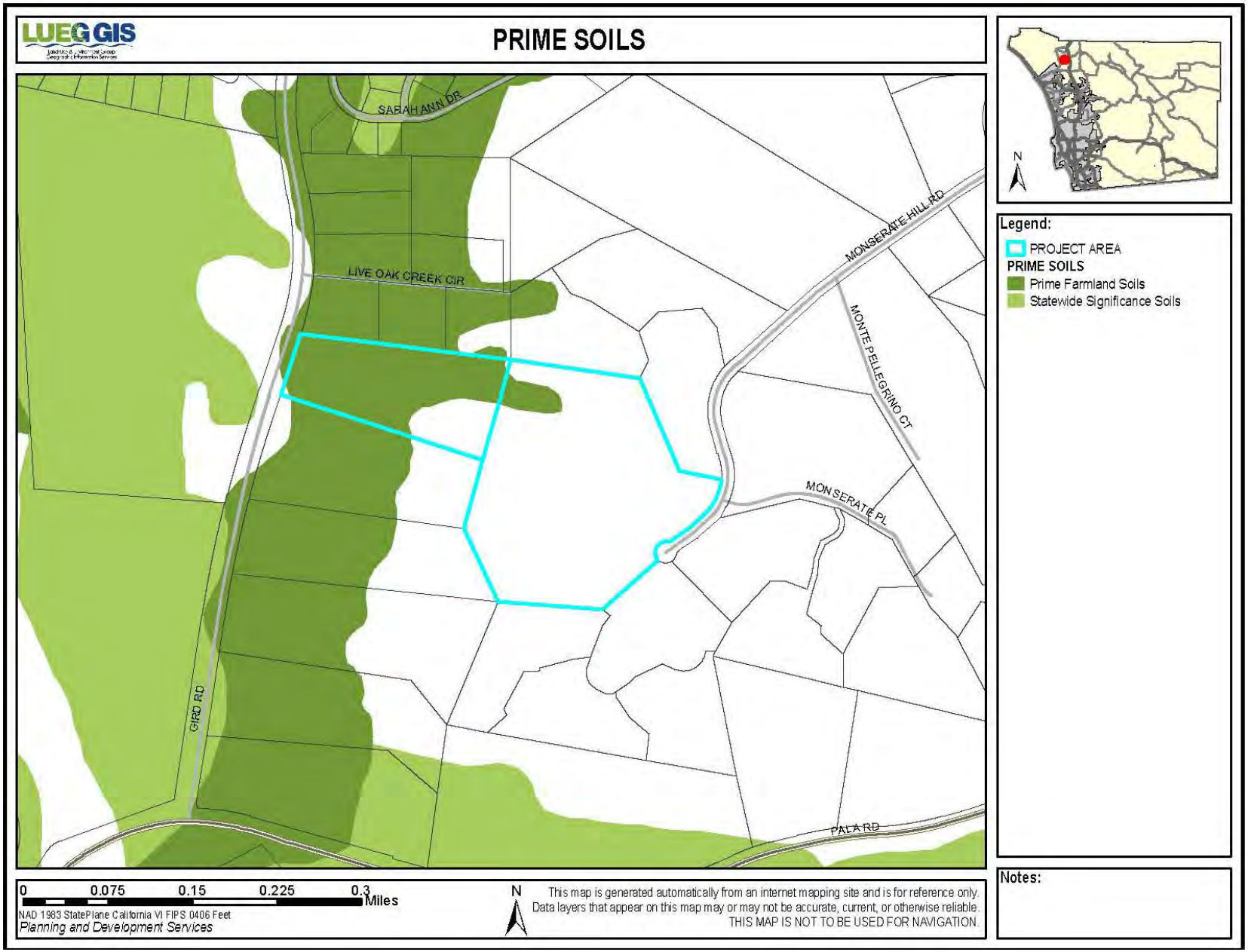
Source: PSOMAS, April 2016.

A.D. Hinshaw Associates	Proposed Gird – Monserate 12” Water Line Project	Figure 4



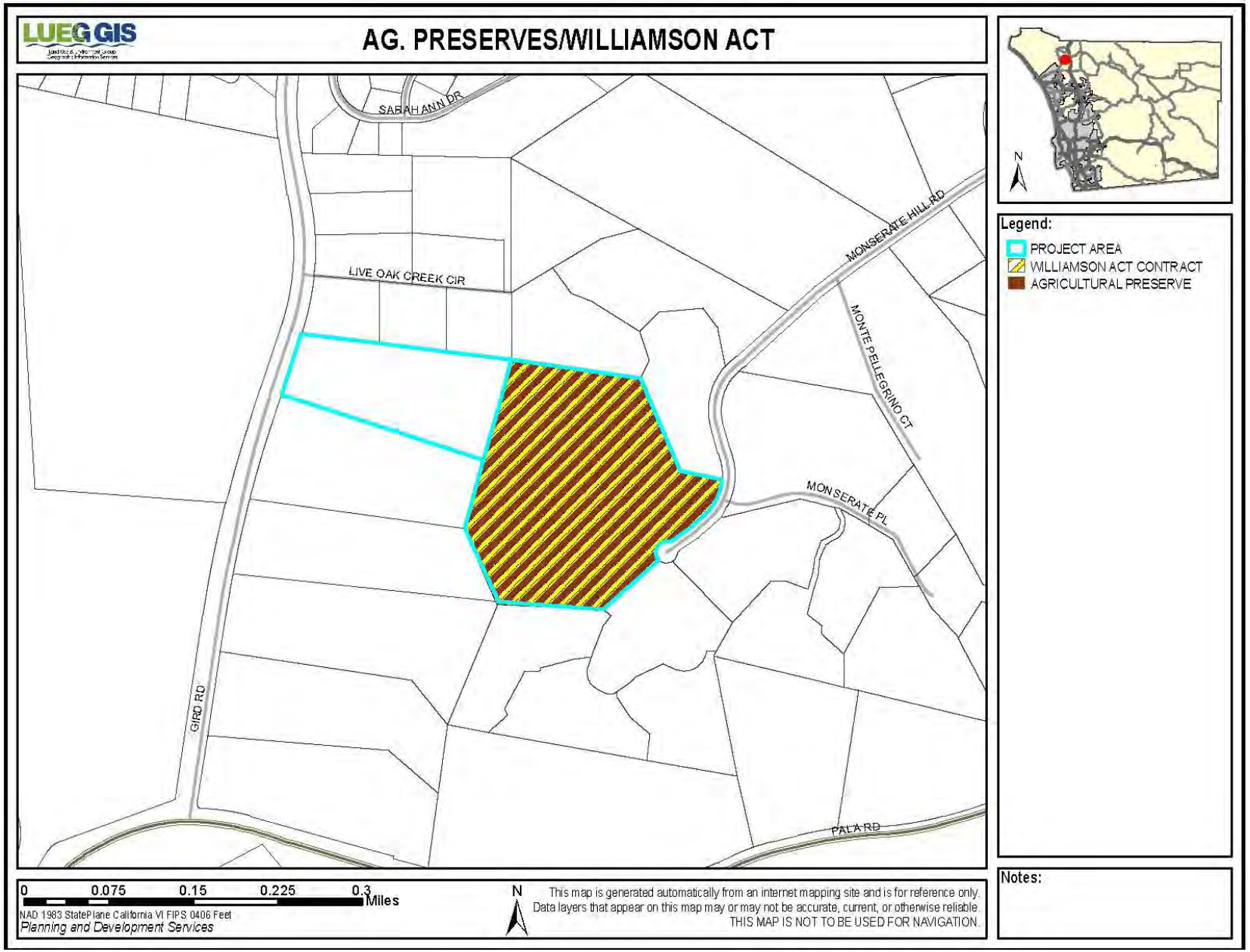
Source: County of San Diego Department of Planning and Development Services, October 2015.

A.D. Hinshaw Associates	Farmland Mapping and Monitoring Program	Figure 5



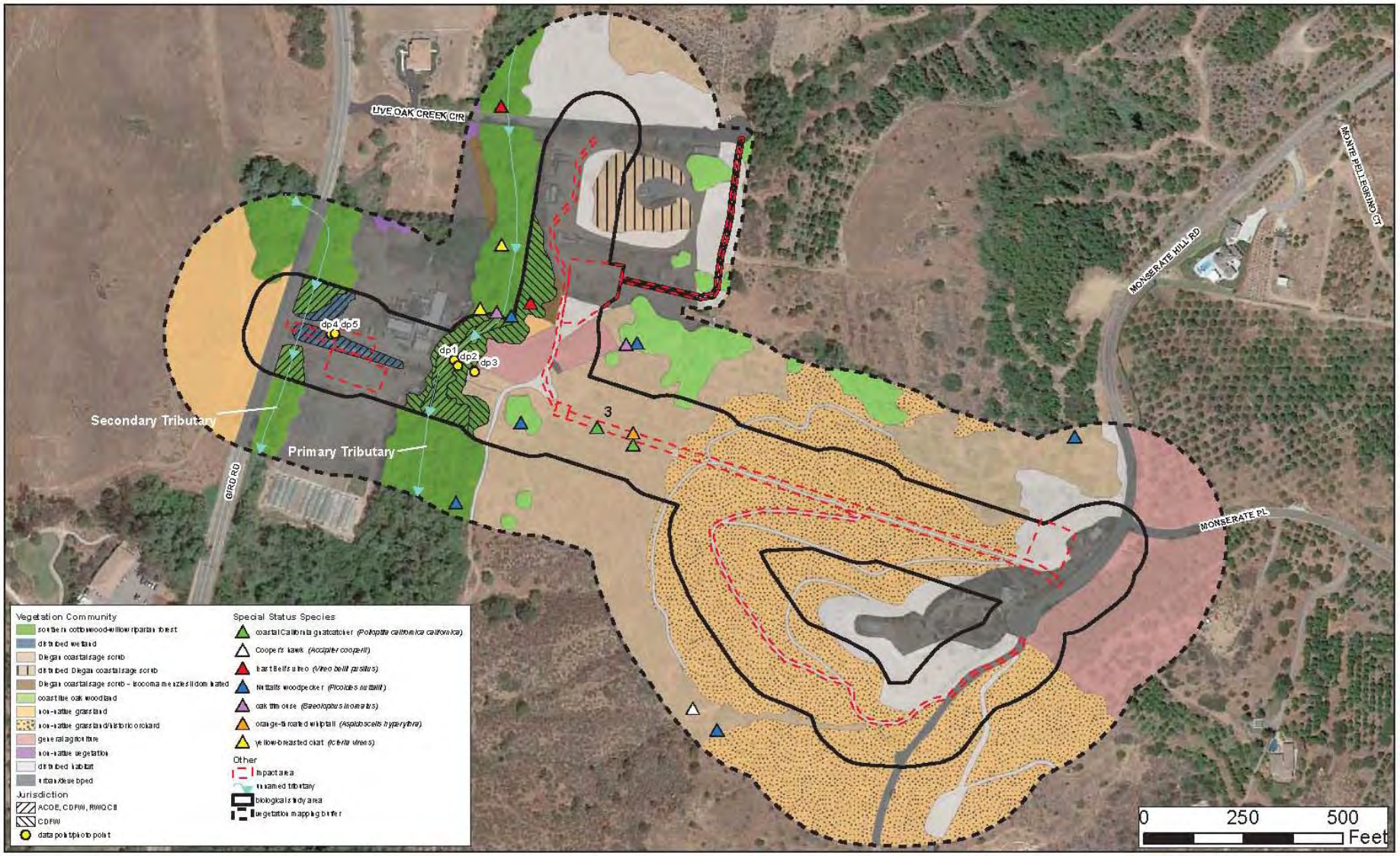
Source: County of San Diego Department of Planning and Development Services, October 2015.

A.D. Hinshaw Associates	Prime Soils	Figure 6



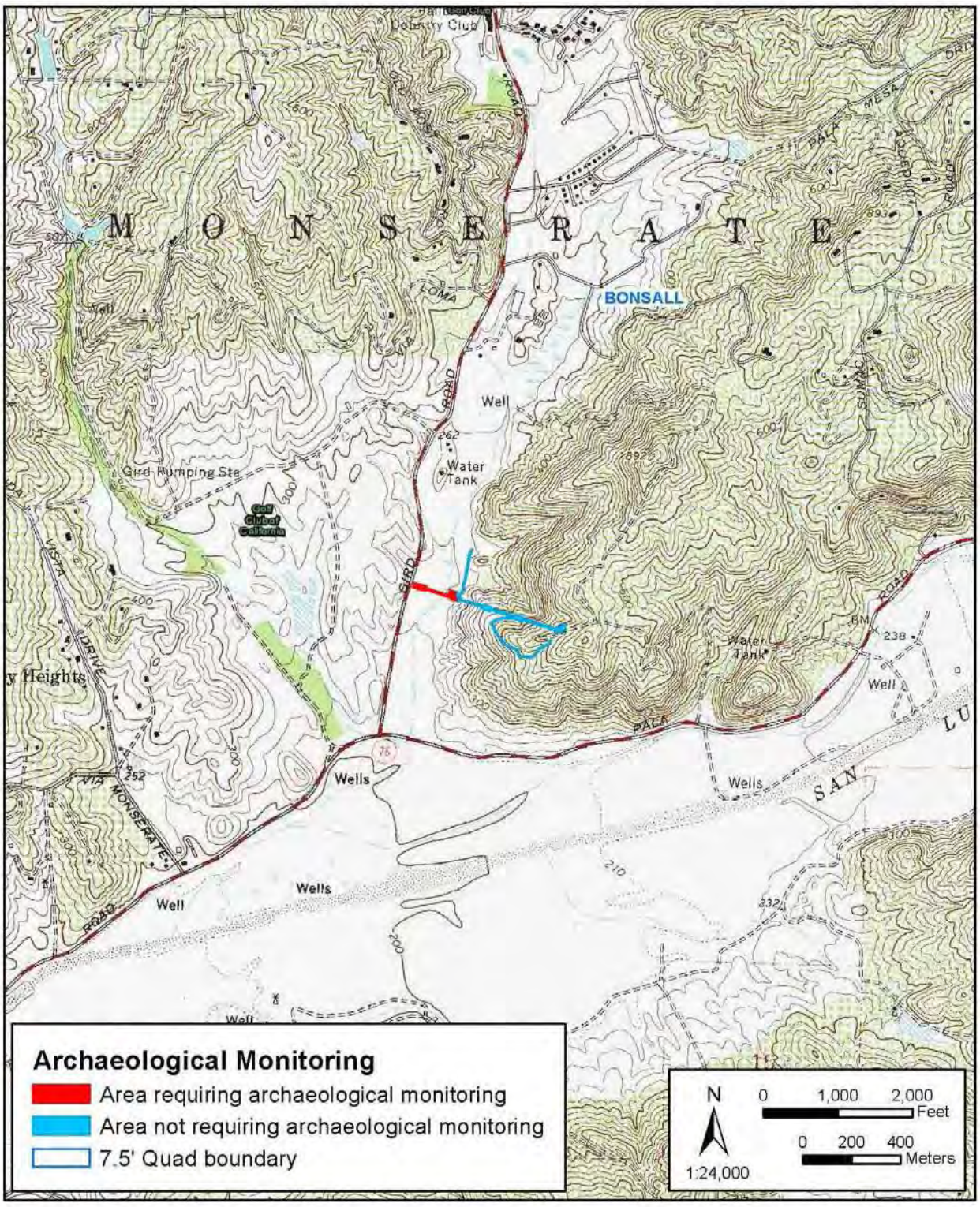
Source: County of San Diego Department of Planning and Development Services, October 2015.

A.D. Hinshaw Associates	Williamson Act Lands	Figure 7



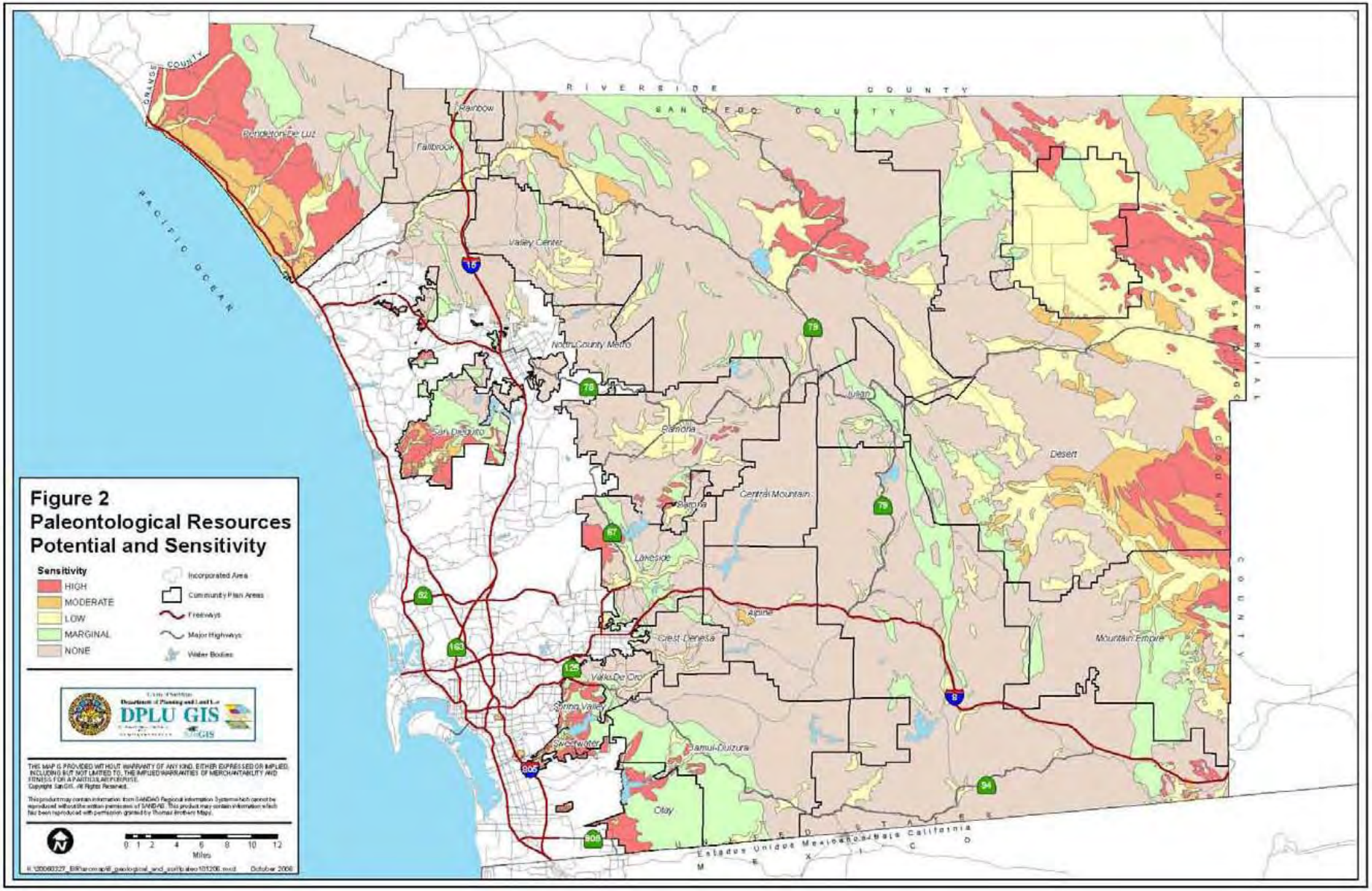
Source: Merkel & Associates, Inc., *Biological Impact Analysis Letter Report Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project*, June 20, 2016.

A.D. Hinshaw Associates	Biological Resources Map	Figure 8



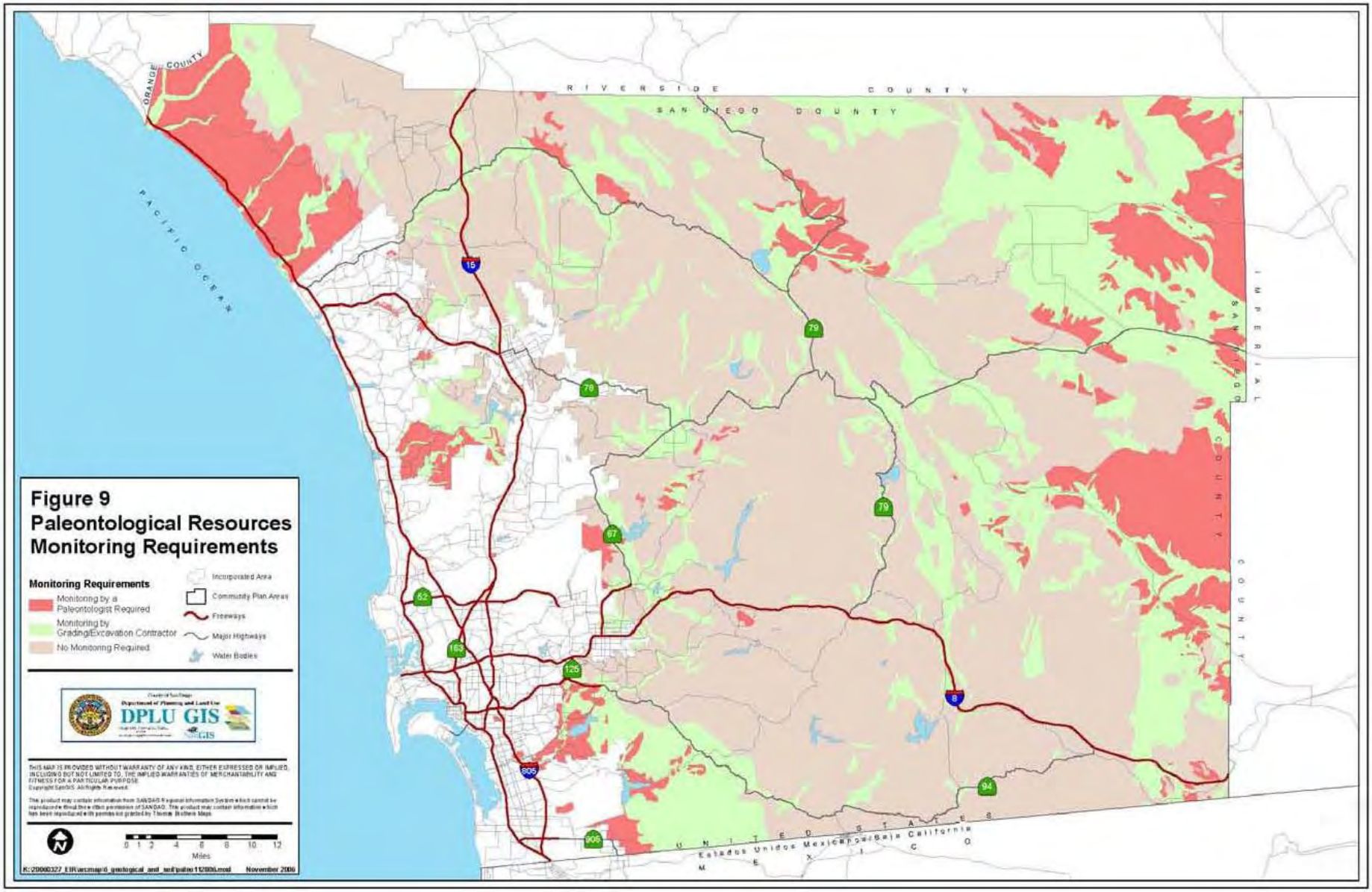
Source: Spindrift Archaeological Consulting, LLC, *Cultural Resources Inventory for the Gird – Monserate Hill Water Line Design Project, Fallbrook, County of San Diego, California*, Figure 6, October 2015

A.D. Hinshaw Associates	Cultural Resources Monitoring Exhibit	Figure 9



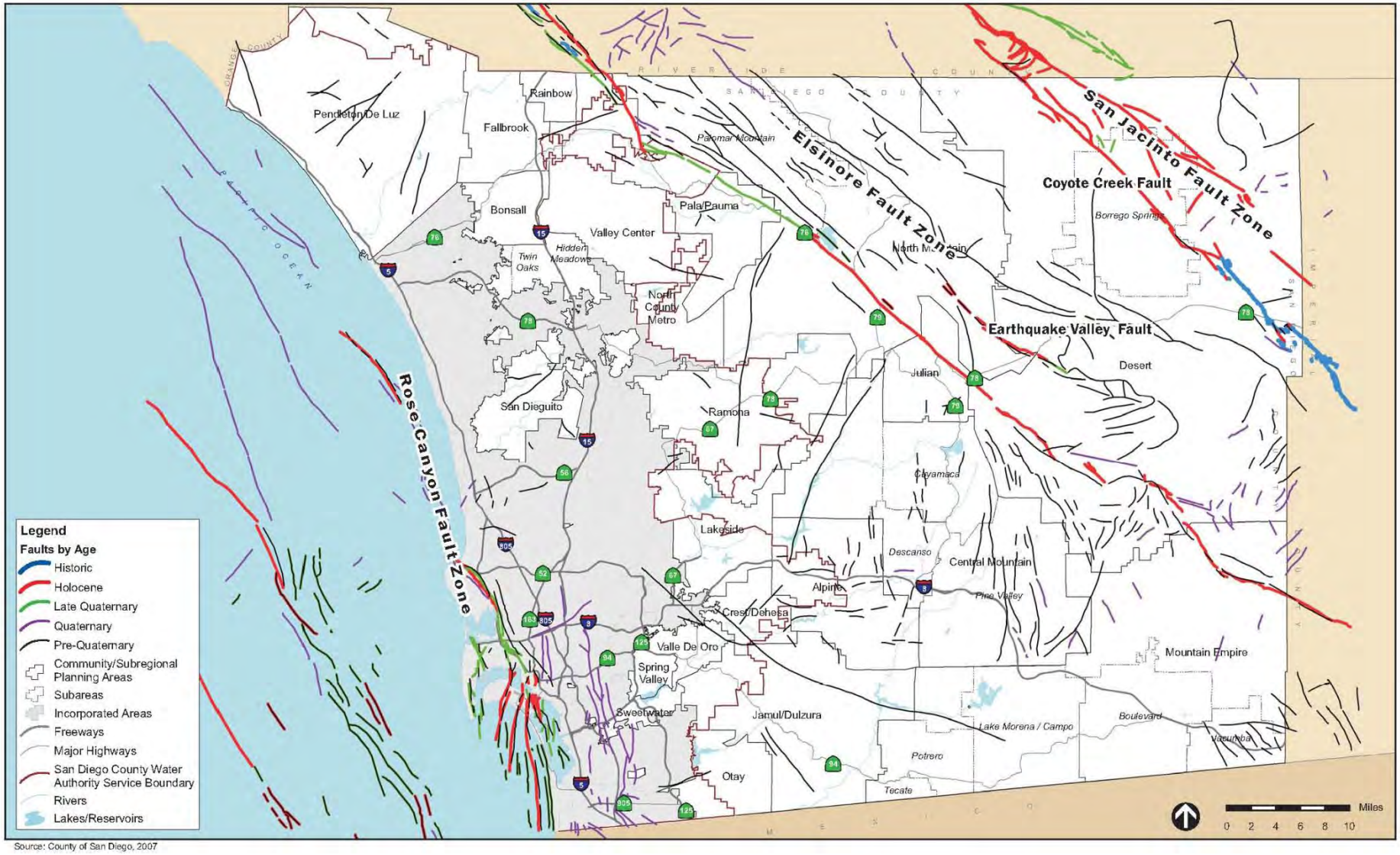
County of San Diego, Department of Planning & Development Services, Guidelines for Determining Significance Paleontological Resources, January 15, 2009.

A.D. Hinshaw Associates	Paleontological Resources Potential and Sensitivity	Figure 10



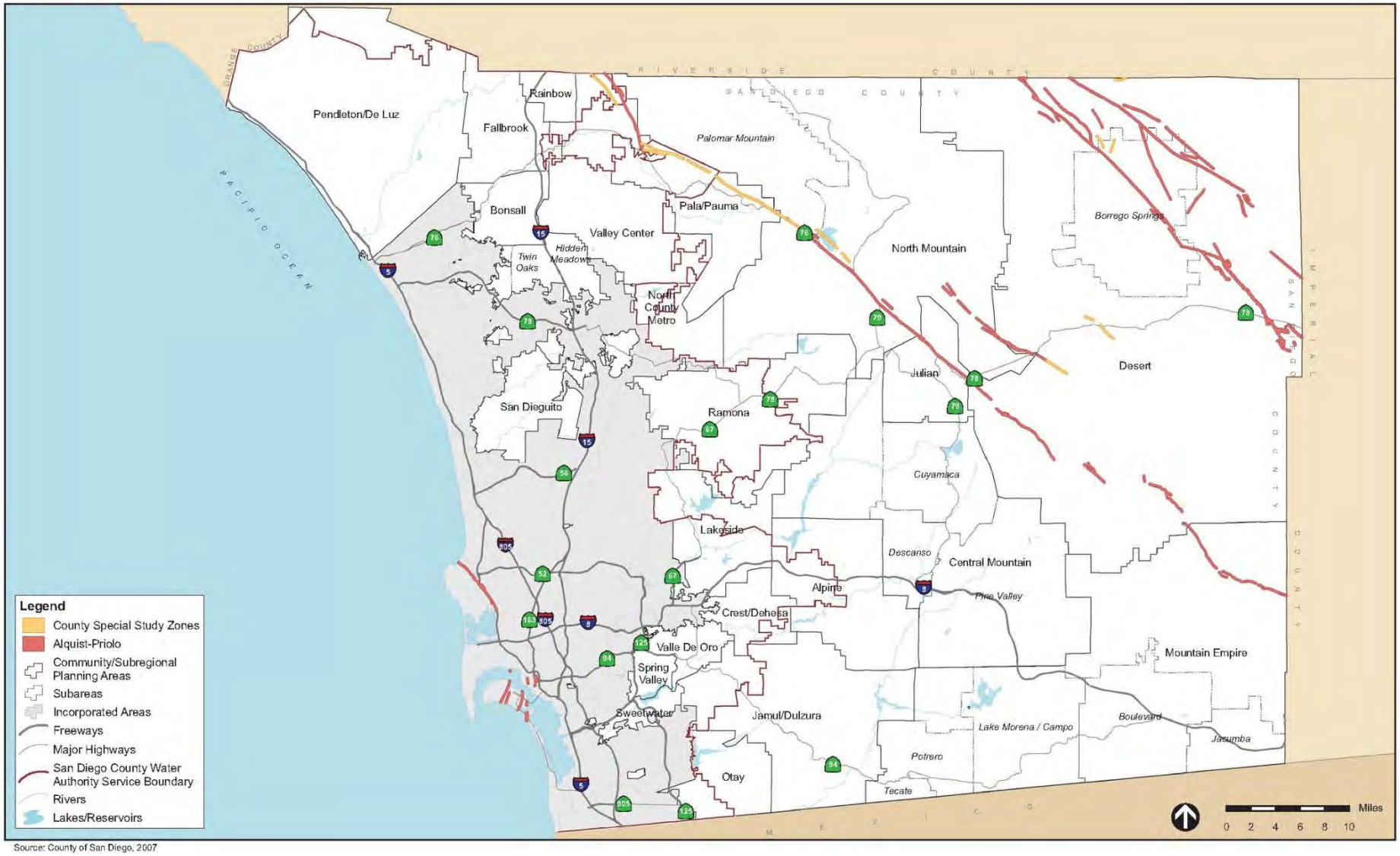
County of San Diego, Department of Planning & Development Services, Guidelines for Determining Significance Paleontological Resources, January 15, 2009.

A.D. Hinshaw Associates	Paleontological Resources Monitoring Requirements	Figure 11



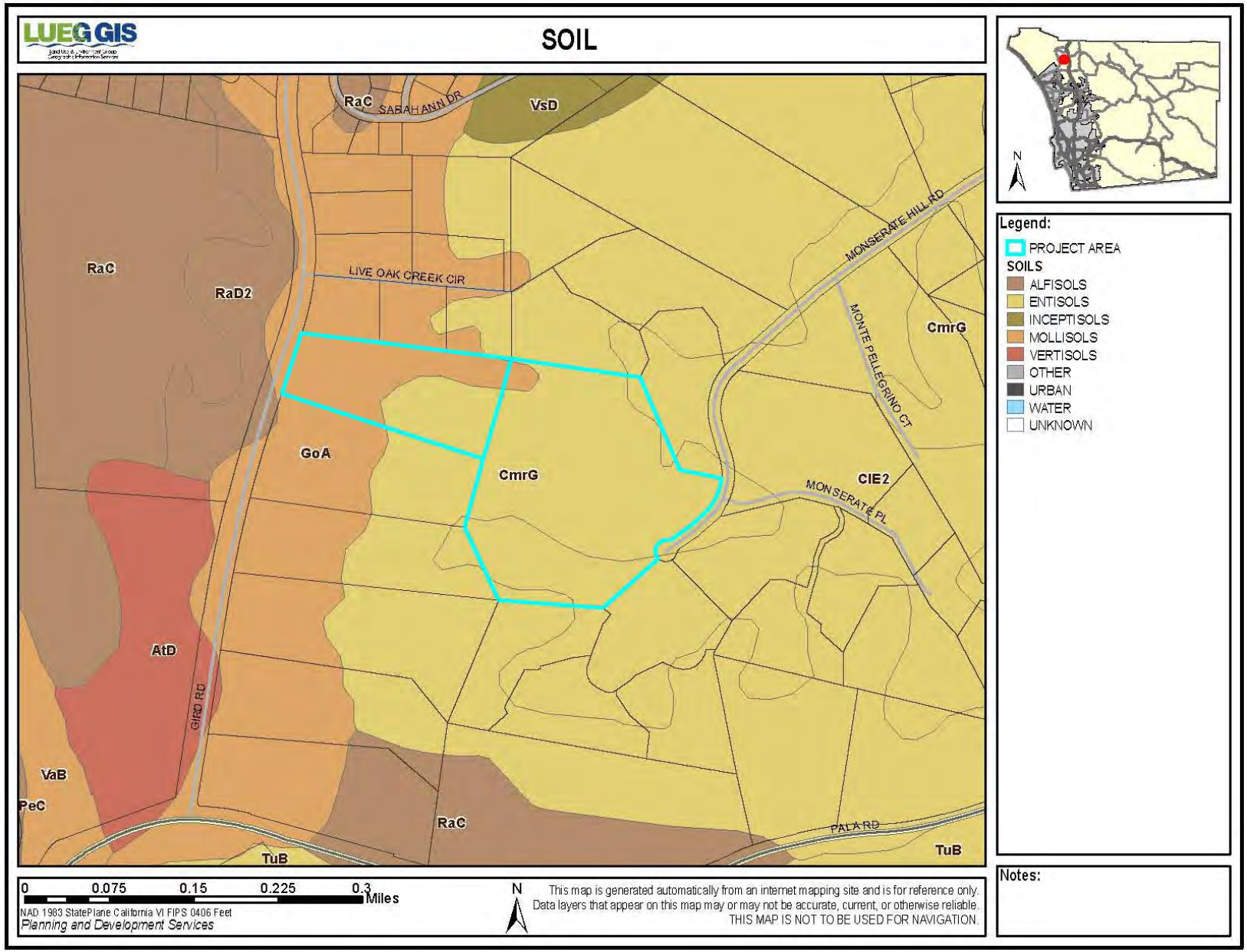
Source: County of San Diego, General Plan Final EIR, Figure 2.6-1, August 2011.

A.D. Hinshaw Associates	Mapped Faults	Figure 12



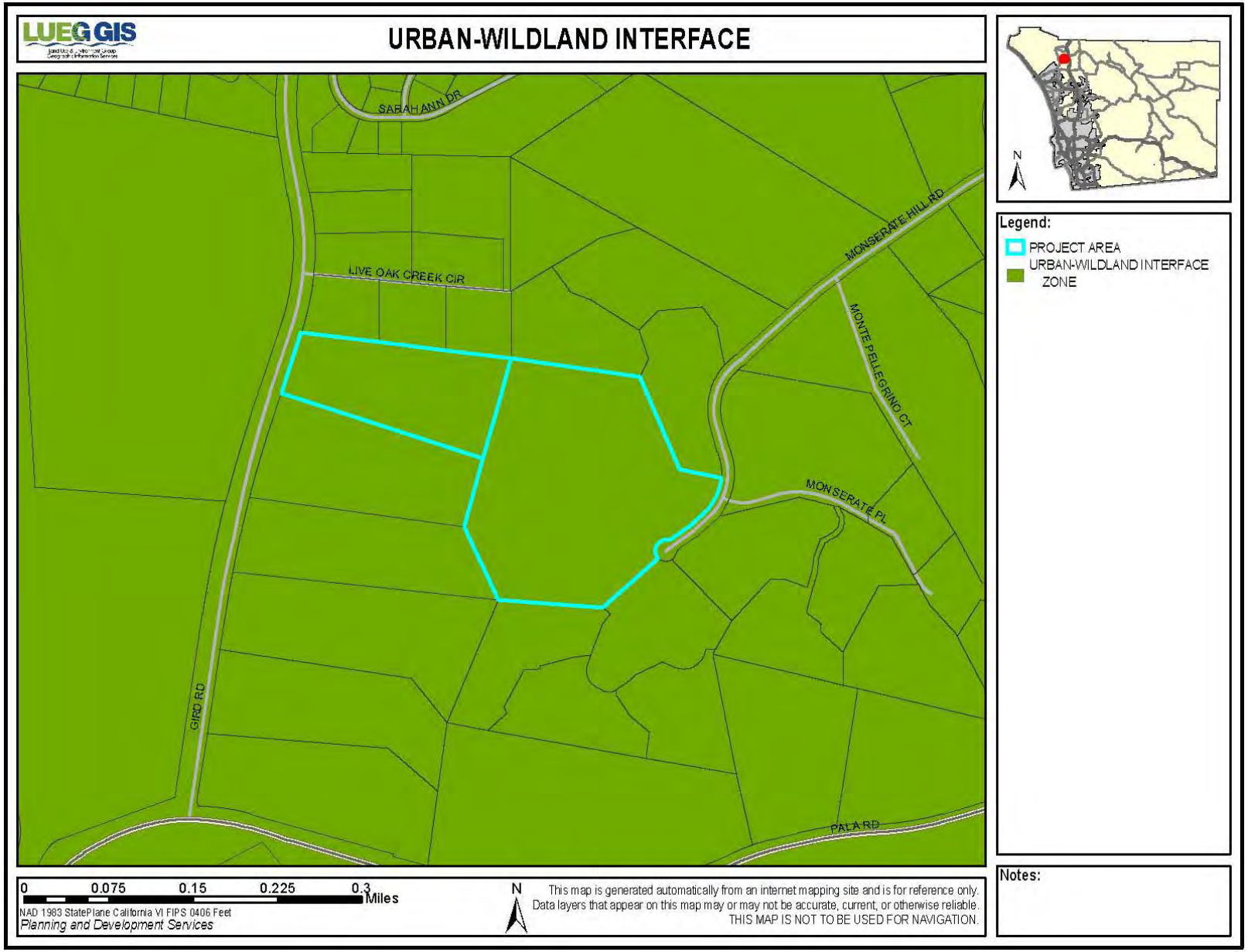
Source: County of San Diego, General Plan Final EIR, Figure 2.6-2, August 2011.

A.D. Hinshaw Associates	Alquist-Priolo and County Special Study Fault Zones	Figure 13



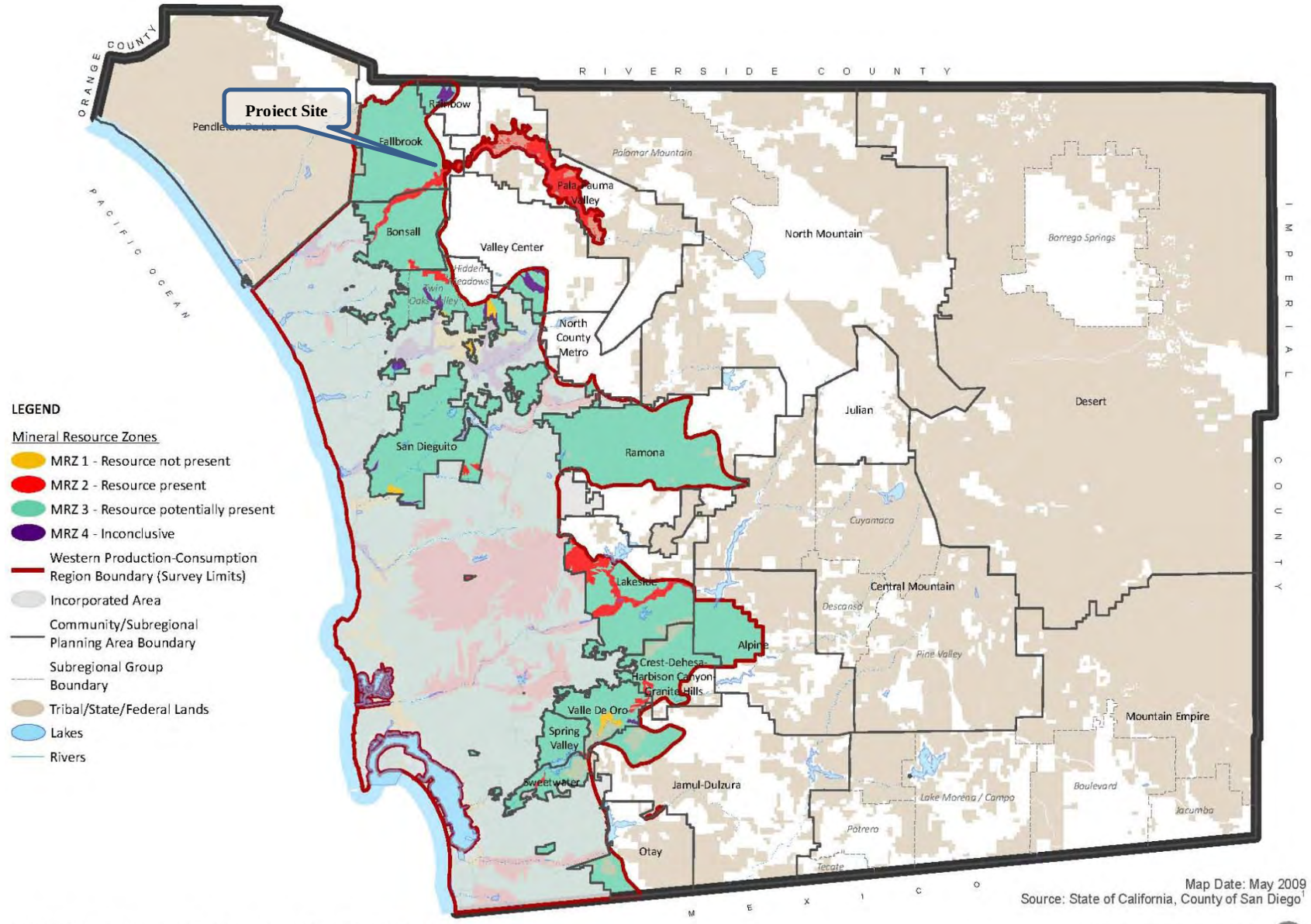
Source: County of San Diego Department of Planning and Development Services, October 2015.

A.D. Hinshaw Associates	Soils	Figure 14



Source: County of San Diego Department of Planning and Development Services, October 2015.

A.D. Hinshaw Associates	Urban-Wildland Interface	Figure 15



MINERAL RESOURCE ZONES

Source: County of San Diego General Plan, Conservation and Open Space Element, Figure C-4, August 2011.

A.D. Hinshaw Associates	Mineral Resources	Figure 16

Appendix A

Merkel & Associates, Inc.
5434 Ruffin Road, San Diego, CA 92123
Tel: 858/560-5465 • Fax: 858/560-7779
e-mail: associates@merkelinc.com

June 20, 2016
Revised August 19, 2016
M&A #14-103-01

Mr. Michael Pollard
PSOMAS
3111 Camino Del Rio North, Suite 702
San Diego, CA 92108

Biological Impact Analysis Letter Report
Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project

Dear Mr. Pollard:

Merkel & Associates, Inc. has prepared the following biological impact analysis letter report for the Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project.

If you have any questions concerning this letter report, please do not hesitate to contact me at (858) 560-5465 or agonzales@merkelinc.com.

Sincerely,

Amanda K. Gonzales
Senior Biologist/Project Manager

Keith W. Merkel
Principal Consultant

SUMMARY

Merkel & Associates, Inc. (M&A) has prepared this biological resource letter report for the proposed Rainbow Municipal Water District (District), Gird/Monserate Hill Water Line Design Project. The purpose of this report is to document the existing biological conditions within the project study area; identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with federal, state, and local rules and regulations including the California Environmental Quality Act (CEQA).

The project site is located between Gird Road and Monserate Hill Road in Fallbrook, San Diego County. Portions of the proposed project occur within final designated critical habitat for the state and federally listed endangered arroyo toad (*Bufo californicus*) and federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*).

The project consists of replacement of an existing, subsurface District 10-inch water pipeline that extends approximately 2,150 linear feet from Gird Road to Monserate Hill Road with a new 12-inch pipeline. The existing pipeline occurs within a 20-foot wide District easement and has been inoperable for several years due to a leak detected under the creek. Implementation of the proposed project would require project elements (e.g., temporary access roads, staging area) to be located outside of the District easement. The location of the project footprint (i.e., 20-foot wide District easement and required project elements outside the easement) is based on a design provided to M&A by PSOMAS in June 2015. Overall, the water line would be replaced via open trench activities with the exception of under a main tributary, here the line would be replaced via directional drilling activities to avoid impacts to jurisdictional resources. All access paths are existing dirt or gravel roads and no improvements (e.g., widening) are expected to be required. Construction activities are expected to occur between September 16 through March 14 to avoid the avian breeding season. Construction activities are expected to occur during normal daylight hours with minimal night work required.

The existing water line occurs within a 20-foot wide District easement, and extends subsurface from Gird Road where much of the area is highly disturbed in association with rural urban/agricultural activities, under a tributary to the San Luis Rey River, east up a steep slope through Diegan coastal sage scrub and non-native grassland/historic orchard to Monserate Hill Road. A secondary tributary to San Luis Rey River occurs parallel with Gird Road and ultimately merges with the main tributary south, beyond the limits of the BSA. It should be noted that an overhead power line is also located within the limits of the District's easement.

Six special status species were identified within the biological survey area (BSA), they are: coastal California gnatcatcher, a federally listed threatened and California Department of Fish and Wildlife (CDFW) Species of Special Concern (SSC) and California Natural Diversity Database (CNDDB) Special Animal; least Bell's vireo (*Vireo bellii pusillus*), a federally and state listed endangered and CDFW SSC and CNDDB Special Animal; Cooper's hawk (Accipiter cooperii), a CDFW Watch List and CNDDB Special Animal; yellow-breasted chat (*Icteria virens*), a CDFW SSC and CNDDB Special Animal; oak titmouse (*Baeolophus inornatus*), a CNDDB Special Animal; Nuttall's woodpecker, a CDFW CNDDB Special Animal; and orange-throated whiptail, a CDFW CNDDB Special Animal and SSC.

Two tributaries to the San Luis Rey River pass through the BSA and are jurisdictional resources.

Implementation of the proposed project would result in significant direct impacts to disturbed wetland, Diegan coastal sage scrub, and the coastal California gnatcatcher. Project construction is also expected to result in indirect impacts to vegetation communities, most notably from the effects of disturbance/clearing of vegetation within the project footprint associated with the construction activities (i.e., trench and jack and bore) that could result in conditions suitable for non-native, weedy species intrusion and potential erosion. The measures discussed within the below report are required to be implemented to reduce impacts to a level less than significant.

INTRODUCTION

Purpose of Report

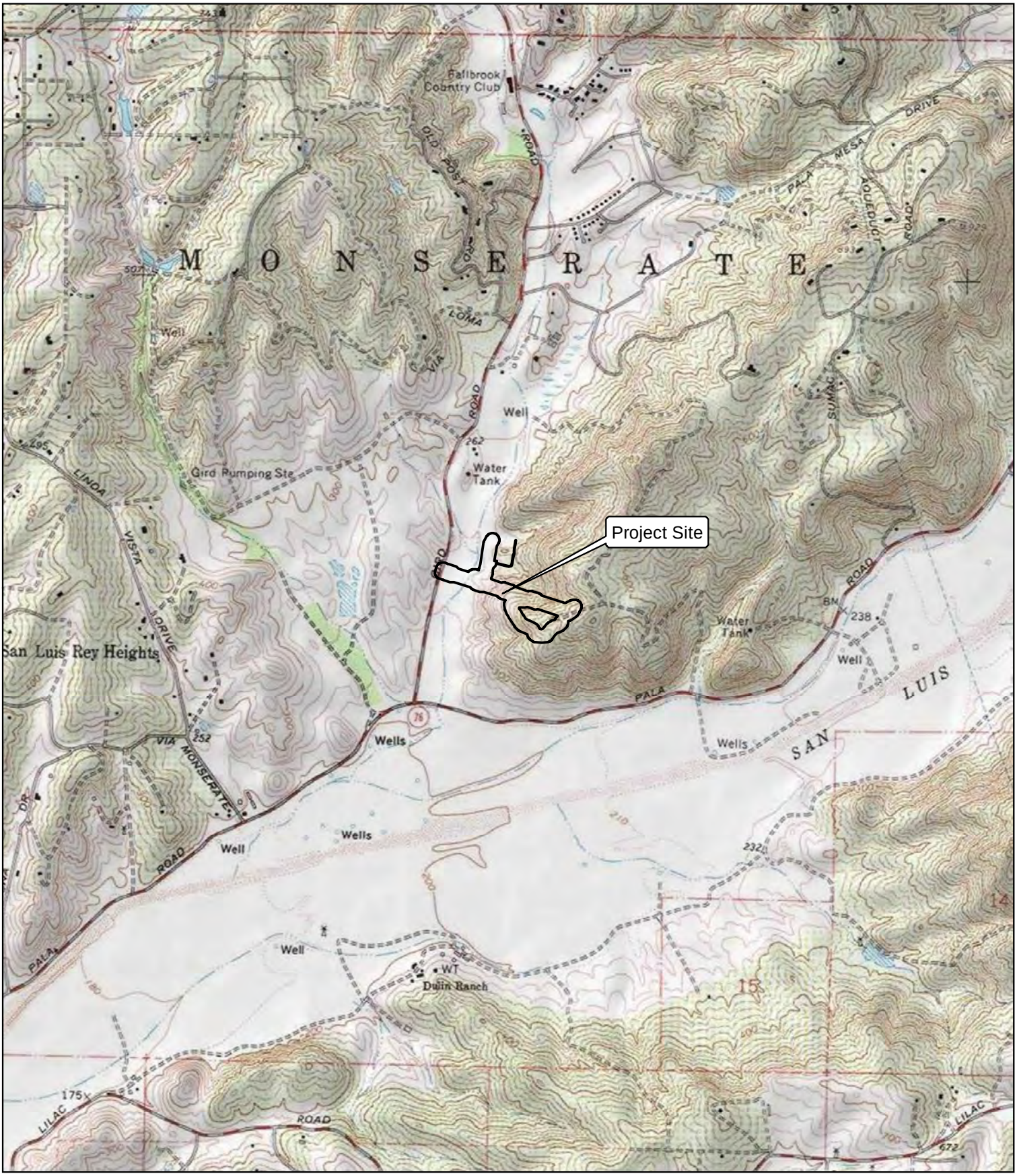
Merkel & Associates, Inc. (M&A) has prepared this biological impact analysis letter report for the proposed Rainbow Municipal Water District (District), Gird/Monserate Hill Water Line Design Project. The purpose of this report is to document the existing biological conditions within the project study area; identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with all applicable federal, state, and local rules and regulations including the California Environmental Quality Act (CEQA).

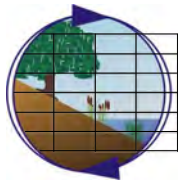
Project Location

The project site is located between Gird Road and Monserate Hill Road in Fallbrook, San Diego County, California within unsectioned lands, Township 10 South, Range 3 West of the San Bernardino Base and Meridian; U.S. Geological Survey (USGS) 7.5' Bonsall, California Quadrangle (Figure 1). The project site is partially located within a District 20-foot wide easement and includes portions of Assessor Parcel Numbers (APN) 124-340-32, 124-340-33, and 124-351-50 (Latitude 33.3200, Longitude -117.1907 decimal degrees for central portion of the northwest-southeast alignment, WGS84 datum) (Figure 2).

Project Description

The proposed project consists of replacement of an existing, subsurface District 10-inch water pipeline that extends approximately 2,150 linear feet from Gird Road to Monserate Hill Road with a new 12-inch pipeline. The existing pipeline occurs within a 20-foot wide District easement and has been inoperable for several years due to a leak detected under the creek. Implementation of the proposed project would require project elements (e.g., temporary access roads, staging area, etc.) to be located outside of the District easement. The location of the project footprint (i.e., 20-foot wide District easement and required project elements outside the easement) is based on a design provided to M&A by PSOMAS in June 2015. Overall, the water line will be replaced via open trench activities with the exception of under the main tributary, here the line would be replaced via directional drilling/jack and bore activities. All access paths are existing dirt or gravel roads and no improvements (e.g., widening) are expected to be required.





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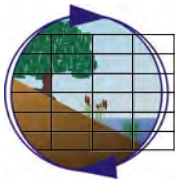
Project Vicinity Map
Rainbow Municipal Water District
Gird/Monserate Hill Water Line Design Project
Source: USGS 7.5' Bonsall, CA Quadrangle

Figure 1



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Local Setting Map

Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project

Aerial Source: Google Earth 2015

Figure 2

Construction activities are expected to occur between September 16 through March 14 to avoid the avian breeding season [i.e., least Bell's vireo (*Vireo bellii pusillus*)]. Construction activities are expected to occur during normal daylight hours with minimal night work required.

METHODS AND SURVEY LIMITATIONS

Literature and Data Review

Historical and currently available biological literature and data pertaining to the project area were reviewed prior to initiation of the field investigation. This review included examination of: 1) aerial photography for the project site (Google Earth, Microsoft Corporation 2010, and Historic Aerials by NETR); 2) regional vegetation data for the project vicinity (SanGIS 2012); 3) geological substrates and soil types mapped on the project site (USGS 2007 and SanGIS 2002, respectively); 4) federally designated critical habitat for the project vicinity (USFWS 2015a); and 5) California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) and U.S. Fish and Wildlife Service (USFWS) special status species records for the project vicinity (CDFW 2015a and USFWS 2015b, respectively).

Field Survey(s) Conducted

Vegetation Mapping and Botanical/Wildlife Survey

M&A conducted a general biological survey of the biological study area (BSA) on-foot, which included a distance ranging from approximately 100 feet to 25 feet beyond the potential project footprint (i.e., 20-foot wide District easement and potentially required project elements outside the easement). In addition, habitat mapping extended beyond the potential project footprint for purposes of providing a local understanding of the lands surrounding the BSA.

Existing vegetation types were delineated onto a 1" = 200' scale, color aerial photograph (Google Earth 2015) of the project site. A minimum mapping unit of 0.1 acre was used for vegetation mapping; however, if necessary, vegetation was mapped at a finer scale.

The vegetation types were classified according to the Holland (1986) code classification system as modified by Oberbauer (2008). A list of detectable flora and fauna species was recorded in a field notebook. Plant identifications were either resolved in the field or later determined through verification of voucher specimens, and wildlife species were determined through direct observation (aided by binoculars), identification of songs, call notes and alarm calls, or by detection of sign (e.g., burrows, tracks, scat, etc.).

The scientific and common names utilized for the floral and faunal resources were noted according to the following nomenclature: flora, Baldwin (2011); butterflies, Klein and San Diego Natural History Museum (2002) and Opler et al. (2010); amphibians and reptiles, Crother et al. (2012); birds, American Ornithologists' Union (1998 and 2015); and mammals, (species level) Wilson and Reeder (2005) and (sub-species level) Hall (1981).

Photographs of the project area were taken to record the biological resources present within the study area, and data collected from the survey were digitized in Environmental Systems Research Institute (ESRI) Geographical Information System (GIS) software, using ArcGIS for Desktop.

Directed Sensitive Species Survey/Assessment

Concurrent with the vegetation mapping and botanical/wildlife survey, a directed survey/assessment for potentially present special status species, as defined under CEQA, was conducted within the BSA.

State CEQA Guidelines §15380 (Title 14, Chapter 3, Article 20) define "endangered, rare or threatened species" as "species or subspecies of animal or plant or variety of plant" listed under the Code of Federal Regulations, Title 50, Part 17.11 or 17.12 (Volume 1, Chapter I) or California Code of Regulations, Title 14, Sections 670.2 or 670.5 (Division 1, Subdivision 3, Chapter 3), or a species not included in the above listings but that can be shown to be "endangered" meaning "when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" or "rare" meaning "although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the Federal Endangered Species Act". State CEQA guidelines Appendix G, Section IV generally refers to species that fall under the above criteria as "special status species".

Thus, for the purposes of this report, special status species are: 1) federally and state listed species (CDFW 2015b and 2015c); 2) CDFW Species of Special Concern (SSC), Fully Protected (FP), and Watch List (WL) species (CDFW 2015d and 2015e); and 3) species designated as Special Plants or Special Animals in the CNDDB, which include all taxa inventoried by the CDFW, regardless of their legal or protection status.

The potential for sensitive species to occur on the project site was assessed based on the presence of potentially suitable habitat, as well as historical and currently available species data.

As part of the assessment for potentially present special status species, a daytime habitat assessment for the arroyo toad was conducted according to methods for the Arroyo Toad (USFWS 1999) as well as the development of a habitat suitability ranking system (USGS 2003). The daytime habitat assessment consisted of hiking through the BSA and noting the key physical features known to be associated with suitable arroyo toad breeding habitat. The key physical features are: 1) stream gradient, 2) sandy stream substrate and presence of sandy banks, 3) adjacent flat sandy terraces, and 4) braided channels. As part of the daytime assessment, onsite habitat quality for potential arroyo toad presence was based on the following:

- High: Any given survey reach with a gradient of less than or equal to 3% and with the other three key physical features present;
- Good: Any given survey reach with a gradient of less than or equal to 3% and only two of the other key physical features present;
- Marginal: Any given survey reach with a gradient of less than or equal to 3% and one of the other key physical features present; or
- Poor: Any given survey reach with a gradient of greater than 3%, or with a gradient of less than or equal to 3% and none of the other key physical features present.

The daytime assessment was also expanded to include evaluation of the BSA to determine if the site contains potential suitable upland habitat (i.e., aestivation sites) for the arroyo toad.

The following section discusses the methodology for those protocol surveys assessed as being necessary to determine the current presence/absence of listed species within the BSA based on the presence of potentially suitable habitat.

Protocol Coastal California Gnatcatcher Surveys

M&A permitted biologists conducted six protocol surveys for the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*), as authorized under M&A's federal ESA, Section 10(a)(1)(A) permit #797999-8.1 and CDFW Memorandum of Understanding (MOU). Surveys were conducted in accordance with the current USFWS *Coastal California Gnatcatcher Presence/Absence Survey Protocol* (USFWS 1997). The surveys were conducted by slowly walking meandering transects in potentially suitable gnatcatcher habitat. Taped recordings of gnatcatcher vocalizations, as well as "pishing', were used to elicit initial vocal responses, and an approximate nine minute time interval was allowed for a response, particularly from advantageous viewpoints. Gnatcatcher presence was determined based on the detection of songs, calls, and/or direct

observations. Efforts were made to determine the gender, paired or unpaired status, age, and any color band information of each observed gnatcatcher. A list of detected avian species was recorded in a field notebook, and the locations of identified gnatcatchers were recorded using a Trimble® geoexplorer GPS unit or noted onto color aerial photographs of the BSA. Data collected from the surveys were digitized into current GIS ESRI software platforms.

Jurisdictional Wetland Delineation

M&A qualified biologists conducted a jurisdictional wetland delineation. For practical purposes, the delineation was limited to 25 feet beyond the potential project footprint. Any jurisdictional resources located beyond 25-feet within the BSA were assumed based on data collected as part of the formal delineation and assessment during the general biological survey. The delineation used the routine onsite determination methods noted in the U.S. Army Corps of Engineers' (USACOE) *Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACOE 2008a). In addition, the delineation was expanded to provide a full review of jurisdictional regulatory authority over wetlands and non-wetland waters of the U.S./state to define the physical boundaries of regulation by various federal, state, and local agencies.

Evidence supporting jurisdictional determinations was recorded on field data forms and depicted in photographs of the data points. Paired data points were taken in areas that were visually determined to best represent the characteristics of each potential wetland community type and/or jurisdictional resource identified within the BSA, as well as in areas where the presence of a wetland and/or jurisdictional resource was uncertain.

Prior to conducting the delineation, the BSA was evaluated to identify potential jurisdictional wetlands and/or waterways, and their connection to offsite hydrological resources. In addition, the overall landforms, slopes, soils, and climatic/hydrological conditions present within the BSA were assessed.

The USACOE routine onsite determination methods require the presence of three parameters to define an area as a wetland (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology); however, procedural deviations are required and allowed for under the delineation methods where normal circumstances do not exist [i.e., some wetland indicators of one or more of the parameters can be periodically lacking due to normal seasonal or annual variations in environmental conditions (i.e., problem areas) or effects of recent human activities or natural events (i.e., atypical situations)]. At each data point location, the area was first assessed to determine if normal

environmental conditions were present. Each data point was then evaluated for indicators of each of the wetland parameters (as described below).

Wetland habitats and jurisdictional waterways were delineated using a Trimble® geoexplorer GPS unit with submeter accuracy and plotted onto a 1" = 200' scale, color aerial photograph (Google Earth 2015) of the project site. Jurisdictional waterway widths were noted by either: 1) taking the average of three width locations along the waterway (i.e., upstream terminus, mid-stream, downstream terminus) if waterway widths varied by less than five feet; or 2) reporting multiple widths if waterway widths varied by more than five feet. When available, topographical data reviewed to assist in delineating waterways widths. Data collected from the survey were digitized in ESRI GIS software.

Information on the overall delineation process and regulatory jurisdictions may be found in the USACOE *Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACOE 2008a), as well as federal, state, and local enacting legislation, or through guidance provided by judicial interpretation, solicitors opinions, and regulatory guidance issued to jurisdictional agencies.

Survey Date(s), Time(s), and Conditions

Table 1 summarizes the survey date, time, and conditions.

Table 1. Survey Date(s), Time(s), Conditions

Survey	Date	Time	Conditions (start to end) [1]	Biologist [2]
General biology; Assessment for special status species; Wetland delineation	2015 Sept. 30	0750-1715	Weather: 5%-0% cc Wind: 0-0 BS Temperature: 63-88° F	Amanda K. Gonzales Mary C Tamburro
CAGN Protocol Survey 1	2016 Apr. 27	0800-1050	Weather: 5%-0% cc Wind: 0-1 BS Temp.: 55°-80° F	Amanda K. Gonzales Brandon L. Stidum
CAGN Protocol Survey 2	2016 May 4	0730-1110	Weather: 100% cc Wind: 0-1 BS Temperature: 58°-64° F	Gina M. Krantz
CAGN Protocol Survey 3	2016 May 13	0815-1015; 1045-1100	Weather: 90%-0% cc Wind: 0-1 BS Temperature: 58°-70° F	Amanda K. Gonzales
CAGN Protocol Survey 4	2016 May 21	0800-1030	Weather: 99%-50% cc Wind: 2-3 BS Temperature: 57°-62° F	Amanda K. Gonzales

Survey	Date	Time	Conditions (start to end) [1]	Biologist [2]
CAGN Protocol Survey 5	2016 May 28	0900-1105	Weather: 100% cc Wind: 0-1 BS Temperature: 62°-67° F	Amanda K. Gonzales
CAGN Protocol Survey 6	2016 June 5	0730-0951	Weather: 100% cc Wind: 0-1 BS Temperature: 60°-64° F	Amanda K. Gonzales
General biology[3]	2016 June 12	1150-1237	Weather: 70% cc Wind: 1-2 BS Temperature: 70° F	Amanda K. Gonzales

[1] cc = cloud cover; BS = Beaufort scale; °F = degrees Fahrenheit

[2] CAGN = coastal California Gnatcatcher Protocol Surveys; Ms. Gonzales and Ms. Krantz are permitted biologists; Mr. Stidum is an assistant.

[3] General biological survey of the proposed eastern most access path off Live Oak Creek Circle.

Survey Limitations

Biological inventories are generally subject to various survey limitations. Depending on the season and time of day during which field surveys are conducted, some species may not be detected due to temporal species variability. Eight biological surveys were conducted during late summer 2015 and throughout the spring 2016 seasons during the daytime; therefore, some fauna and species of nocturnal wildlife may not have been detected. Based on the biological literature and data review performed though, as well as knowledge of species-specific habitat requirements, it is anticipated that any additional species potentially present on the project site can be fairly accurately predicted, and that the survey conducted was sufficient in obtaining a thorough review of the biological resources present or potentially on the project site.

SURVEY RESULTS

Environmental Setting/Regional Context

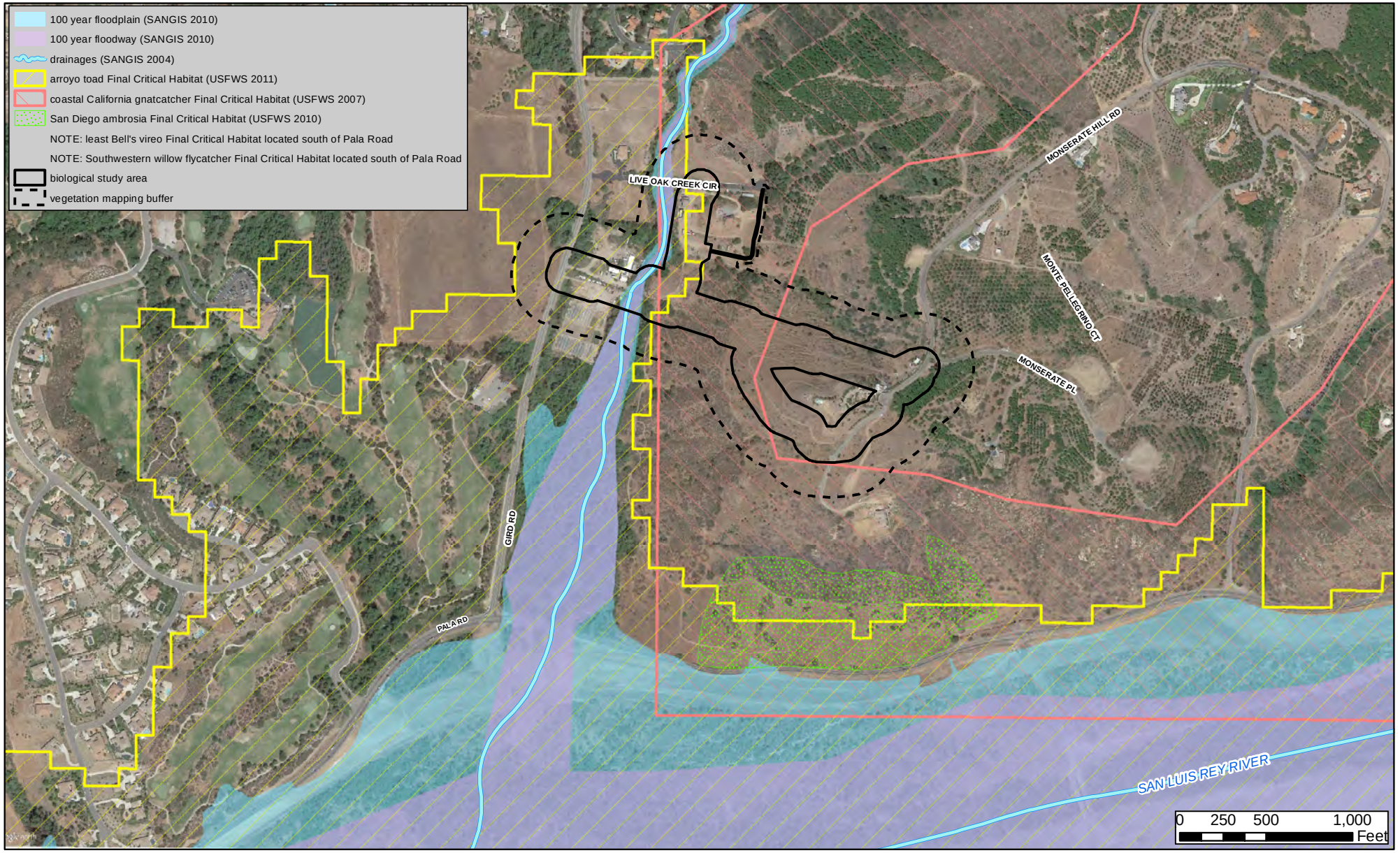
The BSA is located within a semi-rural residential/agricultural community (e.g., orchard) between Gird Road and Monserate Hill Road which is located west of Interstate 15 and north of State-Route (SR) 76/Pala Road (Figure 3). The topography is comprised of steep hillsides covered with active and/or inactive orchards, most of which are located north of SR-76 and east of Gird Road. Where agricultural operations are not present, portions of the hillsides are covered with native and/or naturalized vegetation including Diegan coastal sage scrub and non-native grassland communities. West of Gird Road the lands are predominantly developed for urban uses (e.g., golf course, dense and spaced residential) with the exception of land immediately west of the BSA which is presently undeveloped non-native grassland. A tributary to the San Luis Rey River conveys surface flows

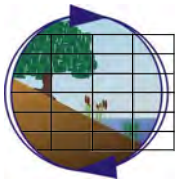
southward through the BSA. It merges with the San Luis Rey River approximately half a mile downstream via a culvert under SR-76. The tributary is generally situated at the toe of the steep slope and drains perennial (to seasonal) flows from the semi-rural urban development to the north and northwest as well as the steep agricultural dominated slopes to the east. A secondary tributary is parallel with Gird Road and ultimately merges with the main tributary to the south, outside the BSA.

The elevation within the BSA ranges from 230 feet above mean sea level (MSL) at Gird Road to 615 feet above MSL at Monserate Hill Road. Soils within the BSA are primarily mapped as Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes; this soil series occurs within the central portion of the BSA just east of the riparian canopy up the slope over most of the historic orchard. Soils are secondarily mapped as Grangeville fine sandy loam, 0 to 2 percent slopes and Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded. Grangeville fine sandy loam occurs at the toe of the slope and encompasses Gird Road and the riparian canopy while Cieneba coarse sandy loam generally occurs at the top of the slope at Monserate Hill Road and the surrounding agricultural lands. The final soil series within the BSA is Ramona sandy loam, 9 to 15 percent slopes, eroded which is limited to the grassland west of Gird Road. The underlying rock type within the BSA is gabbro and diorite.

Portions of the proposed project occur within final designated critical habitat for the state and federally listed endangered arroyo toad (*Bufo californicus*) and federally listed threatened coastal California gnatcatcher (Figure 3). Final designated critical habitat for the arroyo toad is generally centered over the San Luis Rey River but extends northward along the unnamed tributary and thus extends into the BSA (Fed. Reg. February 9, 2011, V76:27 pg. 7246-7467, USFWS 2011). Critical habitat for the coastal California gnatcatcher is limited to east of Gird Road and generally occurs below the hilltops over Diegan coastal sage scrub and non-native grassland (Fed. Reg. December 19, 2007, V72:243 pg. 72010-72213, USFWS 2007).

The BSA lies within the Bonsall Hydrologic Subarea (Basin No. 3.12), which is located within the Lower San Luis Hydrologic Area (Basin No. 3.10) of the San Luis Rey Hydrologic Unit/Watershed (Basin No. 3.00) (Figure 4). Of the nine major watersheds in the San Diego region, the San Luis Rey is the third largest. It is bordered to the north by the Santa Margarita River Watershed and to the south by the Carlsbad and San Dieguito River Watersheds. The San Luis Rey River is the primary feature within the watershed. The River originates in the Palomar and Hot Springs Mountains, both over 6,000 feet above MSL, and approximately 28 miles upstream from the BSA. The River extends over 55 miles across northern San Diego County forming a watershed with an area of approximately 360,000 acres or 562 square miles. The River ultimately discharges to the Pacific Ocean within the City of Oceanside approximately 15 miles to the west of the BSA.





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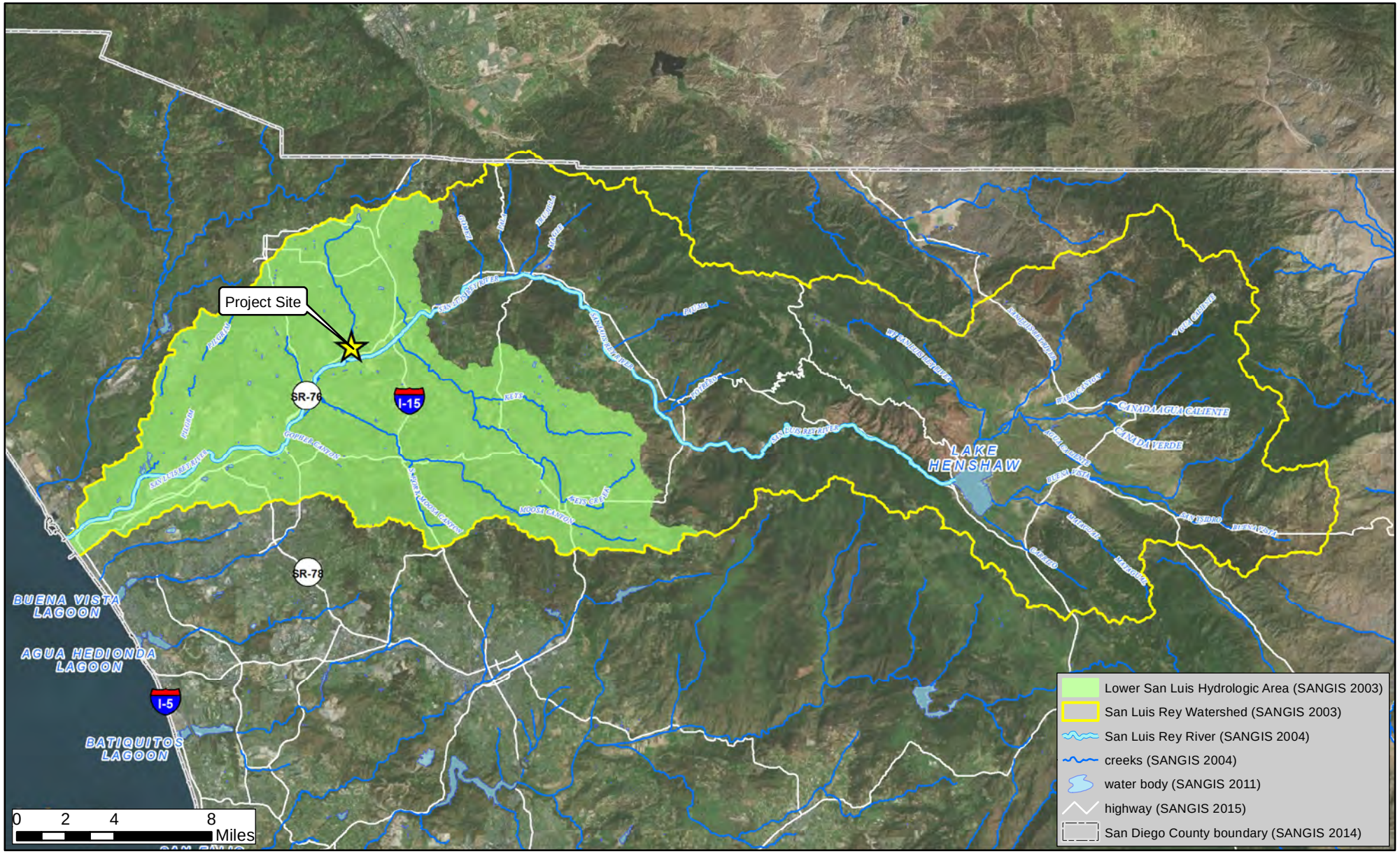
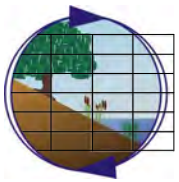
Environmental Setting Map

Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project

Aerial Source: Google Earth 2015

Figure 3





Regional Watershed Map

Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project

Aerial Source: Bing 2014

Figure 4

Within the BSA, the riparian canopy associated with the main tributary is generally consistent with the boundaries of the County of San Diego floodway and 100-year floodplain; however, based on historic aerial imagery (Google Earth and Historic Aerials by NETR), the waters associated with this tributary have historically flooded the land east of Gird Road. This was evident during the biological survey based on the presence of hydrophytic vegetation within areas currently utilized for rural urban/agricultural operations. There are no Federal Emergency Management Agency floodway or floodplain designations within the BSA.

Biological Resources

Botanical Resources-Flora

Ten vegetation types were identified within the BSA during the biological survey (Table 2; Figure 5). A complete list of the floral species observed within the BSA during the biological survey has been included with this report in Attachment 1.

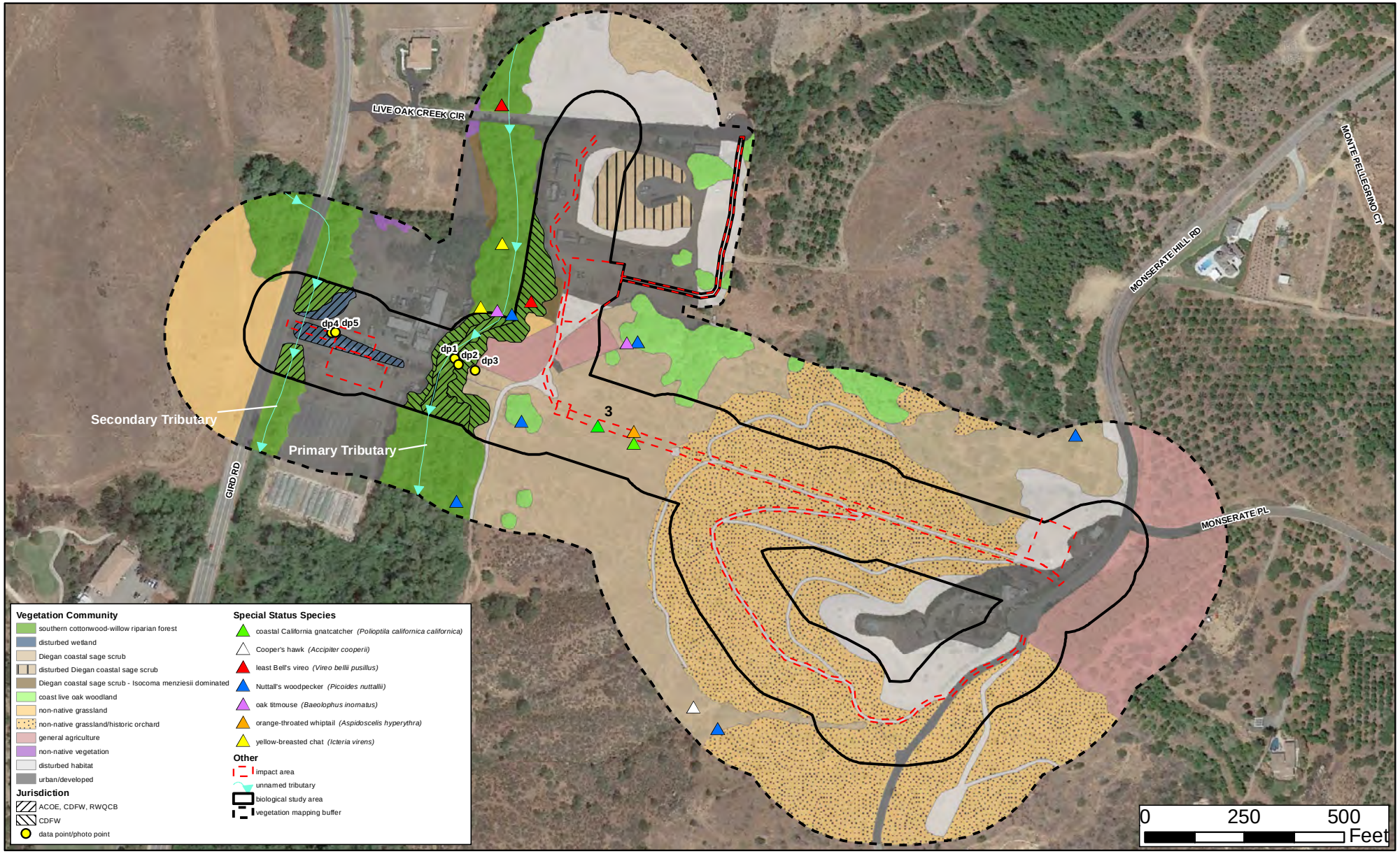
Table 2. Habitats/Vegetation Communities within the Biological Study Area

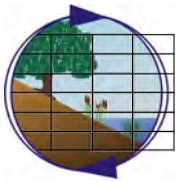
Vegetation Community	Holland/Oberbauer Code	Habitat Type	Existing (acres)
Southern cottonwood-willow riparian forest	61330	Wetland	1.6
Disturbed wetland	11200	Wetland	0.3
Coast live oak woodland	71160	Upland	0.2
Diegan coastal sage scrub	32500	Upland	2.5
Diegan coastal sage scrub – Isocoma menziesii dominated	32500	Upland	0.1
Diegan coastal sage scrub - Disturbed	32500	Upland	0.3
Non-native grassland	42200	Upland	0.3
Non-native grassland/historic orchard	42200	Upland	8.5
Disturbed habitat	11300	Upland	2.8
Urban developed	12000	Upland	4.7

Vegetation Community	Holland/Oberbauer Code	Habitat Type	Existing (acres)
General agriculture	18000	Upland	1.4
		Total:	**22.7**

The existing water line occurs within a 20-foot wide District easement, and extends subsurface from Gird Road where much of the area is highly disturbed in association with rural urban/agricultural activities, under a tributary to the San Luis Rey River, east up a steep slope through Diegan coastal sage scrub and non-native grassland/historic orchard to Monserate Hill Road. A secondary tributary to San Luis Rey River occurs parallel with Gird Road and ultimately merges with the main tributary south, beyond the limits of the BSA. It should be noted that an overhead power line is also located within the limits of the District's easement. Below is a more detailed description of the communities within the BSA.

Two tributaries to the San Luis Rey River pass through the BSA. The main tributary appears to convey perennial (to seasonal) surface flow in a north to southwest direction under a multi-layer canopy of southern cottonwood-willow riparian forest. The tree canopy is dominated by willow species (*Salix lasiolepis, S. gooddingii*, and S. *laevigata*) with inclusions of Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), western sycamore (*Platanus racemosa*), and coast live oak (*Quercus agrifolia* var. *agrifolia*). The shrub layer includes young willow trees and mule fat (*Baccharis salicifolia*) within inclusions of non-native species such as Peruvian pepper tree (*Schinus molle*), tree tobacco (*Nicotiana glauca*), and tamarisk (*Tamarix ramosissima*). The herbaceous layer includes yerba mansa (*Anemopsis californica*), mugwort (*Artemisia douglasiana*), western ragweed (*Ambrosia psilostachya*), celery (*Apium graveolens*), cocklebur (*Xanthium strumarium*), southern cattail (*Typha domingensis*), and desert wild grape (*Vitis girdiana*), all of which are common riparian species. Portions of the perennial low-flow channel itself also support a dense layer of water cress (*Nasturtium officinale*), while the other portions lack vegetation altogether. The riparian canopy within the BSA and most notably within the potential project footprint has been altered as a result of foot-access between the rural urban/agriculture development on the west side of the drainage system and an active row crop of nopal blanco (*Opuntia leucotricha*) on the east side of the drainage. Specifically, shrub and herbaceous vegetation have been cut and thinned from the general area as evidence of piles of southern cattail and cut willow and mule fat branches on the sides of an approximate two to three foot wide access path. In addition, a temporary footbridge has been placed across the perennial, low-flow channel and a temporary irrigation system is staged under the canopy where water is pumped from the channel to the agricultural areas to the east.





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Biological Resources Map

Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project

Aerial Source: Google Earth 2015

Figure 5

The smaller secondary tributary is expected to convey ephemeral or seasonal surface flow from the northwest, parallel with Gird Road and ultimately merge with the main tributary to the south, beyond the limits of the BSA. This riparian canopy has also been classified as southern cottonwood-willow riparian forest; however, the canopy is semi-open and includes a higher dominance of non-native species as well as native vine species. This secondary system conveys surface flows under the driveways to associated lots via culverts and it is expected that the existing District pipeline connects to the main line in Gird Road under this tributary, between two culverts. Within the potential project footprint, between two culverts is a low-lying depression that is dominated by an herbaceous stratum of western ragweed and Olney's threesquare bulrush (*Schoenoplectus americanus*) under a semi-open canopy of individual willows and non-native Peruvian pepper trees. To the east of the low-lying depression between the culverts, the herbaceous community transitions to a community typical of alkali marsh, dominated by saltgrass (*Distichlis spicata*), western ragweed, and yerba mansa and is surrounded by disturbance associated with an agricultural operation on the two adjoining parcels (APN 124-340-32 and 124-340-33). Due to the maintenance associated with the utility lines (e.g., overhead power line) and well as the high degree of disturbance associated with the rural urban/agricultural activities including several nursery structures, livable structures (permanent and temporary), and soil and rock disposal/grading areas, the habitat between the two culverts and eastward has been classified as disturbed wetland.

It should be noted that based on historic aerial imagery (Google Earth and Historic Aerials by NETR), the waters associated with the tributary have historically flooded the two parcels discussed above and during high storm events continue to flood the area. The parcels first appear to be cleared in the 1960's and dirt roads created to access structures in the 1980's. Over the years, the parcels have been utilized for various operations including nursery and row crops in which stock ponds have been created and filled, soil and rock has been imported, berms have been constructed between the parcels and along the tributaries, non-native vegetation has been planted, and additional structures have been added. Based on aerial review, it appears as though soil was most recently imported and stored on the parcels between 2002 and 2005 and spread onsite between 2006 and 2008; rock is currently onsite and being moved around. While there are sporadic patches of disturbed wetland throughout the parcels (e.g., alkali marsh type habitat), the high degree of ongoing disturbance prevents the wetland habitat from persisting. Thus, much of the land between Gird Road and the main tributary has been classified as urban development (but could also be classified as disturbed habitat).

Diegan coastal sage scrub occurs within the central portion of the BSA as a north-south band of habitat between the riparian canopy and the non-native grassland/historic orchard on the steep slopes. This sage scrub community extends offsite to the south but is severed from native or

naturalized habitat to the north as a result of urban development and agricultural activities. The onsite sage scrub community is comprised of a healthy plant composition dominated by low-growing, drought deciduous shrubs and sub-shrubs typical of a sage scrub community including coastal California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*) and California sagebrush (*Artemisia californica*). This community also supports but is not limited to: coast cholla (*Cylindropuntia prolifera*), white sage (*Salvia apiana*), coastal deerweed (*Acmispon glaber* var. *glaber*), bladderpod (*Peritoma arborea*), and non-native grasses. Small areas of sage scrub dominated by spreading goldenbush (*Isocoma menziesii* var. *menziesii*) occur at the toe of the slope, along an existing dirt road. These areas have been classified as Diegan coastal sage scrub – Isocoma menziesii dominated. A small to moderate size patch of Diegan coastal sage scrub is located within the northeastern portion of the BSA on a steep hillside just west of Monserate Hill Road. This community is dominated by shrubs and trees including laurel sumac (*Malosma laurina*) and coast live oak (smaller trees) with inclusions of uncut orchard trees that appear to be dying. Lastly, a hillside just off Live Oak Creek Circle has been classified as disturbed Diegan coastal sage scrub due to the disturbance associated with construction activities ongoing on the adjacent parcels (not associated with the proposed District project).

Coast live oak woodland occurs within the BSA and is generally located along the edge of the Diegan coastal sage scrub and is dominated by mature coast live oak with sporadic sage scrub species and non-native grassland understory.

The majority of the eastern portion of the BSA is mapped as non-native grassland/historic orchard. Based on aerial review (Google Earth), the area west of Monserate Hill Road appears to be an inactive orchard (e.g., no longer harvested) since 2008 with many of the trees cut near the stump in approximately 2013. The area does not appear to be subject to routine and ongoing commercial operations associated with agriculture; however, the existing dirt roads are still in place, irrigation lines and associated features appear to be in place, some trees are still in place, and agriculture debris is present throughout the hillside, most notably within proximity to the residence at the top of the hill. The emerging plant composition varies throughout the inactive orchard and includes areas dominated by non-native grass including ripgut grass (*Bromus diandrus*) with sporadic inclusions of native shrubs typical of a sage scrub community, to areas dominated by Russian thistle (*Salsola tragus*), a non-native annual broadleaf plant. Nevertheless, due to the inclusion of non-native grass species albeit lower than the broadleaf plants in some areas, the area historically utilized as orchard has been classified as non-native grassland. The exception to this are the existing dirt roads and areas in proximity to the residential structures where vegetation has been cleared or the area is littered with debris, which have been classified as disturbed habitat. Non-native grassland is also present west of Gird Road.

Areas of active agriculture have been classified for land east of Monserate Hill Road where orchards are present. In addition, agriculture has also been mapped for row crops of nopal blanco, which appear to be actively harvested as well as a small livestock pen; both areas are located east of the main tributary.

Urban development has been classified for those areas where permanent or semi-permanent structures are located including associated parking/staging areas and ornamental landscaping. In addition, a large area of urban development has been classified for an area under active construction in the northern portion of the BSA (i.e., along the access paths off Live Oak Creek Circle).

Dirt access roads and footpaths have been classified as disturbed habitat. In addition, two large areas around the residential structure off Monserate Hill Road have been classified as disturbed habitat. This is due to an abundance of residential debris and secondarily due to clearing of vegetation around the structure, presumably for a fire break. Lastly, the land just north of Live Oak Creek Circle has been classified as disturbed habitat due to the lack of vegetation, presumably due to disking.

Zoological Resources-Fauna

Wildlife species noted during the biological survey consisted of species commonly found in native and naturalized habitats throughout San Diego County many of which are year-round residents and to a lesser degree are wintering species. A variety of butterflies were observed onsite. Western pygmy-blue (*Brephidium exila*) butterflies were noted in abundance throughout the non-native grassland/historic orchard, most notably where Russian thistle was dominant while individual queen (*Danaus gilippus thersippus*) butterflies were observed flying through the BSA. Several Lorquin's admiral (*Limenitis lorquini*) and California sister's (*Adelpha bredowii californica*) were also observed within the BSA but in association with the riparian, oak woodland, and sage scrub communities. Western mosquitofish (*Gambusia affinis*) and bullfrog (*Lithobates catesbeiana*) were observed within the perennial, low-flow channel of the main tributary. Western toad (*Anaxyrus boreas*) tadpoles were observed in a low-lying depression within the disturbed wetland. Few reptiles were observed, all of which were generally associated with the sage scrub and/or non-native grassland/historic orchard. They included western fence lizard (*Sceloporus occidentalis*) and orange-throated whiptail (*Aspidoscelis hyperythra*).

Three raptor species were detected flying throughout the BSA: red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), and Cooper's hawk (*Accipiter cooperii*). One red-shouldered hawk (*Buteo lineatus*) and one Cooper's hawk were commonly heard throughout the

survey while multiple red-tailed hawks (*Buteo jamaicensis*) were commonly detected throughout BSA. Although no nests were observed within the BSA, a red-tailed hawk nest is presumed to occur just outside the limits of the mapping buffer, west of Gird Road based on the presence of juveniles detected in the associated riparian canopy. Avian species commonly heard within the riparian canopy included common yellowthroat (*Geothlypis trichas*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), and house wren (*Troglodytes aedon*) while species most commonly detected within the sage scrub included (but not limited to) Bewick's wren (*Thryomanes bewickii*), California towhee (*Melozone crissalis*), and Anna's hummingbird (*Calypte anna*). Phainopepla (*Phainopepla nitens*) were also commonly detected throughout the sage scrub and historic orchard. All of the above mentioned avian species are permanent residents of San Diego County and have the potential to utilize the habitat within the BSA as foraging and nesting grounds. Migrants to San Diego County detected within the BSA included a rock wren (*Salpinctes obsoletus*) foraging throughout the sage scrub and a northern flicker (*Colaptes auratus*), heard calling from the riparian canopy.

Mammal detections were limited to brush rabbit (*Sylvilagus bachmani cinerascens*), coyote (*Canis latrans clepticus*) scat, feral/domestic cat (Felis catus) scat, cattle scat [e.g., donkey (*Equus africanus asinus*)], and unknown rodent burrows (e.g., gopher or mouse).

Overall, due to the intact tract of Diegan coastal sage scrub and riparian canopy that pass through the BSA, there is a potential for various sage scrub and riparian associated species to forage, nest, and/or disperse through the BSA. A complete list of the faunal species observed or detected within the study area during the biological survey has been included with this report in Attachment 2.

Rare, Threatened, Endangered, Endemic and/or Sensitive Species or MSCP-Covered Species

Six special status species were identified within the BSA, they are:

- Coastal California gnatcatcher, a federally listed threatened and CDFW Species of Special Concern (SSC) and CNDDB Special Animal;
- Least Bell's vireo, a federally and state listed endangered and CDFW SSC and CNDDB Special Animal;
- Cooper's hawk, a CDFW Watch List and CNDDB Special Animal;
- Yellow-breasted chat (*Icteria virens*), a CDFW SSC and CNDDB Special Animal;
- Oak titmouse (*Baeolophus inornatus*), a CNDDB Special Animal;

- Nuttall's woodpecker, a CDFW CNDDB Special Animal; and
- Orange-throated whiptail, a CDFW CNDDB Special Animal and SSC.

A single adult male coastal California gnatcatcher was heard calling from the Diegan coastal sage scrub in the central portion of the BSA during the October 2015 survey. A second individual was potentially heard calling on the same survey; however, it could not be confirmed. During the protocol surveys conducted in 2016, three coastal California gnatcatchers were detected at one time during Survey Number 4; an adult male and a presumed female and juvenile. The results of the protocol survey are included as Appendix 4. The coastal California gnatcatcher has a high potential to nest in the Diegan coastal sage scrub located just east of the main tributary within the BSA; this corresponds to the area in which the coastal California gnatcatchers were all detected. It should be noted that the coastal sage scrub within the northeastern portion of the BSA, just downslope from Monserate Hill Road would be less suitable for the coastal California gnatcatcher due to the dominance by shrubs and trees (e.g., laurel sumac and oaks) as well as the inclusion of orchard trees.

Two least Bell's vireos were commonly heard singing from the riparian canopy (main tributary) during all of the protocol surveys for the coastal California gnatcatcher (incidental detections). Based on the locations, it is presumed that the individuals represent two separate territories. While M&A did not determine if the territory was comprised of a pair, there is suitable habitat for breeding to occur within the main riparian canopy. M&A biologists inspected the riparian canopy associated with the secondary tributary during all of the protocol surveys but did not detect any vireo's within this secondary canopy.

Oak titmouse, yellow-breasted chat, and Nuttal's woodpecker were also commonly heard calling from the riparian canopy (main tributary) during all of the protocol surveys for the coastal California gnatcatcher (incidental detections). All of these species have a potential to nest within the riparian canopy onsite. Nuttall's woodpecker was also heard calling from the sage scrub/active orchard. Lastly, three orange-throated whiptails were observed throughout the Diegan coastal sage scrub.

Other special status species that have a moderate potential to occur in the BSA based on the presence of suitable habitat include coast horned lizard (*Phrynosoma coronatum*) within the Diegan coastal sage scrub, a species classified as a Special Animal by the CNDDB, and California SSC by CDFW as well as the southwestern willow flycatcher (*Empidonax traillii extimus*), which is federally and state listed endangered species and may occur within the riparian habitat.

An assessment of suitable habitat was conducted for the arroyo toad. Based on the USGS habitat assessment methods, the main tributary to the San Luis Rey River would be considered poor breeding habitat. While the tributary supports low gradient perennial/seasonal flows, it lacks the other key physical features including 1) sandy stream substrate and presence of sandy banks, 2) adjacent flat sandy terraces, and 3) braided channels.

Dominance of the channel bed by a dense layer of herbaceous vegetation (e.g., watercress and celery) would further limit potential suitability of the site to support arroyo toad. No GIS records for the arroyo toad occur within the BSA. One record is present west of the BSA, within what is now developed as a golf course and surrounded by development while several other records are present within the San Luis Rey River. Due to marginal breeding habitat and lack of detection within the BSA, as well as higher quality breeding habitat south of SR-76, the arroyo toad is not expected to breed within the BSA.

The BSA was also assessed for potential arroyo toad upland/aestivation habitat. Potentially suitable arroyo toad upland/aestivation habitat consists of flat sandy terraces adjacent to, or in proximity to, arroyo toad breeding habitat. In addition, these areas are typically sparsely vegetated to facilitate toad movement and would need to support a potential arroyo toad prey base (e.g., ants). Although the survey area supports an ant population, it lacks good quality breeding habitat, including flat sandy terraces, and is located approximately half a mile north of the San Luis Rey separated by SR-76, a major roadway which would serve as a hazard to toads. It is not likely that arroyo toads would travel from the high quality occupied arroyo toad habitat within San Luis Rey River, northward to the BSA (encountering SR-76 and marginal to poor breeding habitat) when higher quality upland habitat is located directly adjacent to the River to the south. Based on the upland habitat assessment, there is low potential for arroyo toads to aestivate and/or forage within the BSA.

No special status flora species were observed within the BSA nor are there any records for special status flora species present within the BSA. However, a CNDDB record for the federally listed endangered, San Diego ambrosia (*Ambrosia pumila*) occurs along the north side of the SR-76 at the toe of a slope, approximately 1,200 feet south of the BSA within a patch of non-native grassland. This non-native grassland is approximately 20 acres and is designated as Subunit 4D, final critical habitat for San Diego ambrosia (Fed. Reg. November 30, 2010, V75:229 pg. 74546-74604, USFWS 2010). San Diego ambrosia is a native, perennial, rhizomatous herb that generally occurs within and/or along the periphery of drainages and blooms between April and October. This perennial species was sought but not detected. There is a low potential for the species to be present within the potential project footprint due to unsuitable habitat, previous disturbance, and use of the land as orchard. There are no species that have a moderate or high potential to occur within the BSA due to the lack of suitable habitat and/or soils.

The project site has a potential to be utilized by other regionally common migratory birds that are not designated as special status species under CEQA, but are protected under the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503 and 3513. No avian nests were observed within the BSA during the biological survey; however, migratory birds observed that have a potential to nest within the BSA include but are not limited to Bewick's wren, phainopepla, Anna's hummingbird, mourning dove (*Zenaida macroura*), and California towhee. All of the above species can breed from January to September, and can build nests in a variety of areas including sage scrub, trees with cavities (e.g., historic orchard), and even on the ground in the absence of suitable trees or shrubs along the habitat's edge.

Jurisdictional Wetland and Waterways

Two tributaries to the San Luis Rey River pass through the BSA (Figure 5). The main tributary appears to convey perennial surface flow in a north to south direction under a multi-layer canopy of southern cottonwood-willow riparian forest. As discussed within the Botanical Resources-Flora section of this report, the riparian canopy within the District's easement has been altered due to foot-access between the rural residential/agriculture development on the west side of the drainage system and an active row crop of nopal blanco on the east side. Specifically, shrub and herbaceous vegetation have been cut and thinned from the general area as evidence of piles of southern cattail and cut willow and mule fat branches on the sides of an approximate two to three foot access path. Further due to the drought conditions San Diego County has experienced over the past several years, evidence of ordinary high water mark was difficult to detect and there is a potential that the redox features may also be difficult to detect.

Based on the delineation, the majority of the main channel is a jurisdictional wetland based on the dominance of hydrophytic vegetation, hydric soils, and wetland hydrology indicators (e.g., high water table). Where the low-flow perennial channel is devoid of vegetation, it has been classified as a jurisdictional, non-navigable, water of the U.S. These areas would be regulated by USACOE under section 404 of the CWA, RWQCB under section 401 of the CWA, and CDFW under section 1602 of the California Fish and Game Code. Hydric soil was not detected in areas further away from the channel; however, this area would be regulated by CDFW.

The smaller, secondary tributary is expected to convey ephemeral or seasonal surface flow from the northwest, parallel with Gird Road and ultimately merge with the main tributary beyond the limits of the BSA. This riparian canopy has also been classified as southern cottonwood-willow riparian forest; however, the canopy is semi-open and includes a great dominance of non-native species as well as native vine species. This secondary system conveys surface flows under the driveways to associated lots via culverts and it is expected that the existing District pipeline connects to the main

line in Gird Road under this tributary, between two culverts. As discussed within the Botanical Resources-Flora section of this report, the area is highly disturbed as a result of the historic and ongoing agriculture/urban operations. As a result, the vegetation between the two culverts and eastward has been classified as disturbed wetland. Although wetland hydrology was not evident outside of the low-lying depression while onsite, review of historic aerials show the area inundated. In addition, while hydric soils were not detected further away from the low-lying area, there is a potential that soil may be difficult to detect due to the previous activities including import of soil and rock. As a result, we have assumed that the areas classified as disturbed wetland would be a jurisdictional wetland regulated by USACOE under section 404 of the CWA, RWQCB under section 401 of the CWA, and CDFW under section 1602 of the California Fish and Game Code.

Overall, the main tributary has moderate physical and chemical functions due to the low gradient and semi-open understory which generally results in water flowing slower, yielding higher groundwater recharge, sediment retention, and nutrient transformation. The limiting factor to this function is the encroachment into the natural floodplain by the urban/agricultural uses between Gird Road and the tributary. As it pertains to biological values, the drainage supports a multi-layer canopy; however, it is relatively narrow and has been altered by urban/agricultural uses.

Table 3 below indicates the acreages of jurisdictional resources within the BSA and Figure 5 shows the locations of these resources. Wetland determination data forms and photo points have been included with this report in Appendix 3. General overview photos of the BSA are included as Appendix 5.

Table 3. Jurisdictional Resources within the Biological Study Area

Vegetation Community	Existing (acres)		
	USACOE, CDFW, RWQCB	CDFW	Total
Southern cottonwood-willow riparian forest	0.7	0.9	1.6
Disturbed wetland	0.3	0.0	0.3
Total:	**1.0**	**0.9**	**1.9**

Wildlife Movement and Nursery Sites

Wildlife movement is generally facilitated through topographic features such as riparian corridors and ridgelines. The BSA is located within a semi-rural area in which the riparian canopy east of Gird

Road likely acts as a local wildlife corridor due to its connectivity to undeveloped habitat to the south and thus, the San Luis Rey River. The large patches of native or naturalized habitat may act as stepping stone corridors for avian species through the rural/agricultural lands. The habitats within the BSA likely provide coverage, foraging and breeding opportunities for urban tolerant species as well as special status species such as the coastal California gnatcatcher. In addition, this area likely facilitates wildlife movement for native and migratory wildlife species and potential native wildlife nursery in association with the San Luis Rey River.

BIOLOGICAL IMPACT ANALYSIS

Thresholds of Significance

State CEQA Guidelines §15065 (a) (Title 14, Chapter 3, Article 5) states, "A project may have a significant effect on the environment" if:

- "The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory."

- "The project has possible environmental effects which are individually limited but cumulatively considerable."

The following analysis identifies potential impacts to biological resources that could result from implementation of the proposed project, and addresses the significance of these impacts pursuant to CEQA, in accordance with the Issues listed under CEQA Guidelines Appendix G, Section IV. In addition, the City has developed Significance Determination Thresholds (2011) and Biology Guidelines (2012a) under CEQA; therefore, mitigation measures for significant project impacts are recommended in accordance with these City guidelines, as well as the City MSCP Subarea Plan (1997).

Impact Definitions

Project impacts are categorized pursuant to CEQA as direct, indirect, or cumulative impacts.

- CEQA Guidelines §15358 (a) (1) and (b) (Title 14, Chapter 3, Article 20) defines a "direct impact or primary effect" as "effects which are caused by the project and occur at the same time and place" and relate to a "physical change" in the environment.

- CEQA Guidelines §15358 (a) (2) and (b) (Title 14, Chapter 3, Article 20) defines an "indirect impact or secondary effect" as "effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable" and relate to a "physical change" in the environment.

- CEQA Guidelines §15355 (Title 14, Chapter 3, Article 20) defines "cumulative impacts" as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."

Direct, indirect, and cumulative impacts can be described as either permanent or temporary. Permanent impacts are generally defined as effects that would result in an irreversible loss of biological resources; temporary impacts can be defined as effects that could be restored, thus providing habitat and wildlife functions and values effectively equal to the functions and values that existed before the area was impacted.

Mitigation Definitions

CEQA Guidelines §15370 (Title 14, Chapter 3, Article 20) defines "mitigation" as:

- "Avoiding the impact altogether by not taking a certain action or parts of an action."

- "Minimizing impacts by limiting the degree or magnitude of the action and its implementation."

- "Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment."

- "Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action."

"Compensating for the impact by replacing or providing substitute resources or environments."

Project Impacts, Significance, and Recommended Mitigation

Potential project impacts were evaluated based on examination of the proposed project within the context of the biological resources documented during the field surveys, and those biological resources assessed as having a likely potential to occur in the project area. Direct impacts were determined by overlaying the project plans on the mapped vegetation communities/habitats in GIS

ESRI software platforms. Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources.

Habitats/Vegetation Communities

Implementation of the proposed project would result in direct impacts to disturbed wetland, Diegan coastal sage scrub, non-native grassland/historic orchard, disturbed habitat, and urban/developed lands (Table 4; Figure 5). Replacement of the waterline would occur primarily via open trench activities with the exception of under the main tributary, where the line would be replaced via direction drilling/jack and bore construction technique and thus require an entry and exit pit. The access paths are dirt and/or gravel roads and thus are not expected to require improvements (e.g., widening, paving, etc.).

Impacts to disturbed wetland, Diegan coastal sage scrub, and non-native grassland/historic orchard would be considered significant and would require implementation of habitat-based mitigation in accordance with Table 4. The mitigation ratios presented in Table 4 are based on mitigation guidance provided as mitigation standards developed by the County of San Diego within the County of San Diego Guidelines for Determining Significance [for] Biological Resources (County 2010); however, the ratios are subject to review by the regulatory and resource agencies. Mitigation may be achieved via purchase of habitat credits from a resource agency approved mitigation bank. If habitat credits cannot be purchased in an existing mitigation bank, then the Rainbow MWD would provide for the conservation of habitat of the same amount and type of land. This would require the following: preparation of a resource management plan, open space easement, selection of a resource manager, and establishment of an endowment to ensure funding of annual ongoing basic stewardship costs. Mitigation for impacts may potentially be mitigated onsite, via restoration of impacts (subject to approval by the resource agencies). This would require preparation of a revegetation plan. The plan would include the following: installation, maintenance and monitoring (e.g., five years of maintenance and monitoring), success criteria, and remedial measures.

Impacts to disturbed habitat, and urban/developed lands would be considered less than significant under CEQA since these habitats are not regionally considered to have high conservation value requiring mitigation.

Table 4. Habitats/Vegetation Communities, Impacts, and Mitigation

Vegetation Type	Habitat Type	Existing (acres)	Impacts	Mitigation Ratio	Mitigation Required (acres)
Disturbed wetland (USACOE, RWQCB, CDFW)	Wetland	0.3	0.1	2:1	0.2
Diegan coastal sage scrub (occupied by the gnatcatcher)	Upland	2.5	0.2	3:1	0.6
Non-native grassland/historic orchard	Upland	8.5	0.3	0.5:1	0.15
Disturbed habitat	Upland	2.8	1.0	NA	NA
Urban developed	Upland	4.7	0.8	NA	NA
		Total:	**2.4**		**0.95**

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. Project construction is expected to result in indirect impacts to vegetation communities, most notably from the effects of disturbance/clearing of vegetation within the project footprint associated with the construction activities (i.e., trench and jack and bore) that could result in conditions suitable for non-native, weedy species intrusion and potential erosion. Impacts from intrusion of non-native weedy species and erosion would be significant and would require implementation of the below measure to reduce impacts to less than significant.

- To reduce the potential for erosion and intrusion of non-native weedy species, a revegetation plan/sheet would be required to prevent erosion and establishment of invasive species over those areas that will not be permanently converted to urban use. The lands would be revegetated with native coastal sage scrub species and non-native grassland similar to those found within the surrounding area. Revegetation should occur, as feasible between late fall and spring to take advantage rainfall and should require a minimum 120-day plant establishment period (PEP). All native seed and/or plant stock should be from

seed and propagules collected from the local San Diego region. Temporary irrigation may be required to assist with plant establishment. Maintenance and monitoring should occur as needed during the PEP to ensure that: 1) invasive plant species are absent from the revegetation area, 2) the site is protected from erosion, and 3) coverage by native species is consistent with coverage in the adjacent, non-impacted habitat. Following achievement of the above measures, a memo documenting the status of the revegetation area should be prepared by the Rainbow MWD. Invasive plant species include any species identified as having a *High* inventory rating by California Invasive Plant Council (Cal-IPC) and any nuisance plant causing potential detriment to native flora and/or fauna. The revegetation contractor should have the minimum qualifications: 1) three years of local, verifiable experience in maintenance and monitoring involving resources similar to those onsite; 2) ability to carry out maintenance and monitoring as required; and 3) applicable licenses to implement maintenance.

The below project design measures are recommended to be implemented by the Rainbow MWD to ensure avoidance of unauthorized impacts to adjacent biological resources.

- Prior to the start of clearing and grubbing of habitat, temporary fencing (e.g., orange silt fence, orange snow fence, etc.) should be installed along the perimeter of the project footprint to prevent inadvertent disturbance to adjacent biological resources.

- The BMPs proposed for the project should not include any species listed by the Cal-IPC in the California Invasive Plant Inventory.

- A qualified biologist should perform the following duties: 1) Inspect and oversee installation of temporary fencing; 2) Provide environmental training to the contractors and construction personnel prior to the start of construction activities; 3) During construction activities, the biologist should be onsite during all clearing and grubbing of habitat; and 4) The biologist should also conduct weekly inspections to ensure compliance with the project limits, notify the Rainbow MWD if unauthorized impacts to biological resources occur. The qualified biologist should be knowledgeable of upland biology and ecology with the following minimum qualifications: 1) bachelor's degree in a biological related field, 2) at least three years experience in field biology or current certification of a nationally recognized biological society; and 3) at least one year of field experience with biological resources found in or near the project area. In lieu of the above qualifications, a resume should demonstrate to the satisfaction of the District and wildlife agencies that the proposed biologist has the appropriate training and background to effectively implement the recommended measures within this report.

Special Status Species

Construction activities (i.e., trench, directional drilling) would result in impacts to Diegan coastal sage occupied by the coastal California gnatcatcher (Figure 5). Impacts to habitat occupied by the gnatcatcher would require consultation between the USACOE and USFWS under section 7 of the Endangered Species Act (ESA). Habitat-based mitigation for impacts to Diegan coastal sage scrub would be finalized through consultation as well as other impact minimization measures (e.g., avoidance of removal of habitat during the breeding season and noise restrictions during the breeding season, February 15 through August 31). In addition, designated critical habitat for coastal California gnatcatcher occurs within the central portion of the BSA. Areas designated as critical habitat include features essential for the conservation of a USFWS listed species. Federal agencies undertaking an action (i.e., federal nexus) such as issuing an USACOE 404 permit that may destroy or adversely modify critical habitat is required to consult with the USFWS under section 7 of the ESA.

Two least Bell's vireo were detected within the riparian canopy of the main tributary. The project has been designed to avoid suitable vireo habitat. In addition, the project is expected to be constructed outside the vireo breeding season, which extends from March 15 through September 15. If this construction schedule were not feasible, the project could result in direct impacts to the nesting success of vireo's, if present, as a result of noise generating activities [if above 60 dBA, hourly average at the edge of occupied habitat (or ambient, if greater than 60 dBA)]. These impacts would be considered significant. To avoid significant impacts to the least Bell's vireo during the breeding season, noise generated from construction activities would be kept below 60 dBA hourly average at the edge of the riparian canopy or below ambient, if ambient were determined to be louder than 60 dBA.

There is a moderate potential for the southwestern willow flycatcher to occur within the riparian canopy of the main tributary. As with the least Bell's vireo, suitable habitat has been avoided and the project is expected to be constructed outside the avian breeding season. Should construction occur during the breeding season, the same impact and avoidance measure discussed above for the least Bell's vireo would apply to the southwestern willow flycatcher.

The yellow-breasted chat, oak titmouse, Nuttall's woodpecker, and orange-throated whiptail occur in suitable habitat (e.g., riparian, oak woodlands, sage scrub) throughout San Diego County. Implementation of the project is not expected to adversely affect the onsite populations of these species and thus would not be considered significant.

The arroyo toad is not expected to occur onsite; however, designated critical habitat for arroyo toad occurs within the western portion of the project footprint. Since the project has a federal nexus (i.e., impacts to federally regulated waters) and the project activities may destroy or adversely modify critical habitat; the project is required to consult with the USFWS under section 7 of the ESA.

Jurisdictional Resources

Construction activities (i.e., trench and jack and bore) would result in impacts to disturbed wetland (Table 4; Figure 5). While the Rainbow MWD has minimized impacts to jurisdictional resources to the greatest extent practicable (via jack and bore under the main tributary), impacts cannot be avoided entirely. Impacts to jurisdictional resources are significant and would require implementation of the mitigation measures discussed below.

The following permits would be required: 1) USACOE, Clean Water Act (CWA) Section 404 for placement of dredged or fill material within waters of the U.S., 2) Regional Water Quality Control Board, CWA Section 401 state water quality certification/waiver for an action that may result in degradation of waters of the State, and 3) Notification to CDFW for a streambed alteration agreement under Section 1602 of the Fish and Game Code. The project would likely qualify for a USACOE Nationwide Permit (NWP) 12, Utility Line Activities. Under this NWP, impacts cannot result in the loss of greater than half an acre of waters of the U.S.

Mitigation for permanent impacts to federal or state regulated waters would be finalized during the permitting process. Mitigation for impacts to habitat could occur through a combination of the following: creation/restoration, or creation/restoration combined with enhancement, and/or preservation; however, the mitigation cannot result in a net-loss of habitat or biological functions and values. Mitigation could potentially be achieved through in-kind restoration of temporary impacts. The remaining mitigation requirement could be achieved through creation/restoration combined with enhancement, and/or preservation within a selected mitigation site or purchased through habitat acquisition in an approved mitigation bank. If offsite mitigation is required, it is recommended that the final selected mitigation location(s) be located within the project watershed and contribute to the local designation of habitat already conserved. Mitigation to offset impacts to federal waters consisting of creation, restoration, or enhancement would require preparation of a Compensatory Maintenance and Monitoring Plan as part of the regulatory process.

Wildlife Movement and Nursery Sites

Based on the small nature of the project and its position relative to rural residential/agricultural uses, project development would not create artificial wildlife corridors or interfere with connectivity to offsite habitat, or substantially limit access to potential foraging or breeding habitat, or water sources necessary for the successful reproduction of resident wildlife species.

Local Policies and Ordinances

The following federal/state laws/regulations and local ordinances are applicable to the proposed project, and are evaluated below for consistency purposes.

Federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code

The MBTA (16 U.S.C. 703-712) was enacted in 1918. Its purpose is to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. Under the MBTA of 1918 (16 U.S.C. section 703-712; Ch. 128; July 3, 1918; 40 Stat. 755; as amended 1936, 1956, 1960, 1968, 1969, 1974, 1978, 1986 and 1998), it is unlawful, except as permitted by the USFWS, to "take, possess, transport, sell, purchase, barter, import, or export all species of birds protected by the MBTA, as well as their feathers, parts, nests, or eggs (USFWS 2003). Take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (50 CFR 10.12). Birds protected by the MBTA include all birds covered by the treaties for the protection of migratory birds between the United States and Great Britain (on behalf of Canada, 1916), Mexico (1936), Japan (1972), and Russia (1976), and subsequent amendments."

It is important to note that since the MBTA addresses migratory birds by family rather than at a lower taxonomic level, most bird species are protected by the MBTA because most taxonomic families include migratory members. In addition, "take" as defined under the federal MBTA is not synonymous with "take" as defined under the federal ESA. The MBTA definition of "take" lacks a "harm and harassment" clause comparable to "take" under the ESA, thus, the MBTA authority does not extend to activities beyond the nests, eggs, feathers, or specific bird parts (i.e., activities or habitat modification in the vicinity of nesting birds that do not result in "take" as defined under the MBTA are not prohibited). Further, "a permit is not required to dislodge or destroy migratory bird nests that are not occupied by juveniles or eggs; however, any such destruction that results in take of any migratory bird is a violation of the MBTA (i.e., where juveniles still depend on the nest for survival) (USFWS 2003)."

Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit the "take, possession, or destruction of bird nests or eggs." Section 3503 states: "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3503.5 provides a refined and greater protection for birds-of-prey and states: "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." The distinctions made for birds-of-prey are the inclusion of such birds themselves to the protections and the elimination of the term "needlessly" from the language of §3503. Section 3513 states: "It is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act."

The definition of "take" under the California Fish and Game Code is not distinct from the definition of "take" under California Endangered Species Act (CESA), which is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (California Fish and Game Code §86); however, it is important to note that the state definition of "take" again does not include a "harm and harassment" clause, and thus, activities or habitat modification in the vicinity of nesting birds that do not result in "take" as defined under the California Fish and Game Code/CESA are not prohibited.

Nesting birds may be present within the project footprint during construction and could include such species as Bewick's wren and Ana's hummingbird. Impacts to active migratory bird nests, if present at the time of construction are prohibited under the federal MBTA and California Fish and Game Code §3503 and §3513. Since avian species could potentially nest in the onsite habitats, the proposed project could result in impacts to active bird and/or raptor nests, if present at the time of construction under the federal MBTA and California Fish and Game Code §3503 and §3513; therefore, the project mitigation measure listed below is required.

- To avoid impacts to nesting migratory birds and raptors, all clearing, grubbing, and/or grading of vegetation that has a potential to support active nests should not take place from January 1 through August 31, the "restricted work period." If avoidance of the nesting migratory bird breeding season is not feasible, clearing, grubbing and/or grading of vegetation may occur during the "restricted work period" if a qualified biologist conducts a focused survey for active nests within (approximately) 48-72 hours prior to work in the area and determines the area to be free of nesting birds. If active bird nests were found, then all construction activities undertaken for the project must comply with regulatory requirements of the federal MBTA and California Fish and Game Code Sections §3503 and

§3513. This would require protection of the nest, eggs, chicks, and adults until such time as the nestlings have fully fledged and are no longer dependent upon the nest site.

Cumulative Impacts

CEQA as well as local NCCP and subarea plans were designed to compensate for the loss of biological resources throughout the program's region; therefore, projects that conform would not result in cumulatively considerable impacts for those biological resources adequately covered by the program. Implementation of the project mitigation and permitting requirements to mitigate for direct impacts to disturbed wetland, Diegan coastal sage scrub, non-native grassland/historic orchard, coastal California gnatcatcher, and indirect impacts from invasive species and erosion would reduce impacts to less than cumulatively considerable.

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APPENDIX 1. FLORA SPECIES OBSERVED WITHIN THE BIOLOGICAL STUDY AREA

Habitat Types:

R = Riparian and Bottomland Habitat (Holland/Oberbauer Code 6000)
Southern cottonwood-willow riparian forest (61330)

W = Woodland (Holland/Oberbauer Code 7000)
Coast live oak woodland (71160)

S = Scrub and Chaparral (Holland/Oberbauer Code 3000)
Diegan coastal sage scrub (32500)
Diegan coastal sage scrub – Isocoma menziesii dominated

G = Grassland and Other Herb Communities (Holland/Oberbauer Code 4000)
Non-native grassland (42200)
Non-native grassland/Historic orchard

U = Disturbed or Developed Areas (Holland/Oberbauer Code 1000)
Disturbed habitat (11300)
Urban/developed (12000)
General agriculture (18000)

E = Disturbed wetland (11200)

* = Denotes non-native flora species.

Scientific Name	Common Name	Habitat
CRYPTOGAMS		
Pteridaceae - Brake Family		
Pellaea andromedifolia (Kaulf.) Fée	coffee fern	S
Pentagramma triangularis (Kaulf.) Yatsk. et al. ssp. *triangularis*	California goldenback fern	S
DICOTYLEDONS		
Adoxaceae – Adoxa Family		
Sambucus nigra L. subsp. *caerulea* (Raf.) Bolli	blue elderberry	R, G
Aizoaceae – Fig-Marigold Family		
**Malephora crocea*	Crocea ice plant	E, U
Amaranthaceae - Amaranth Family		
**Amaranthus albus* L.	tumbleweed	U
Anacardiaceae - Sumac Family		
Malosma laurina (Nutt.) Abrams	laurel sumac	S
Rhus aromatica Aiton	skunkbrush	S
Rhus integrifolia (Nutt.) Brewer & S. Watson	lemonadeberry	S
**Schinus molle* L.	Peruvian pepper tree	R, U
Toxicodendron diversilobum (Torrey & A. Gray) Greene	western poison oak	R, S
Apiaceae - Carrot Family		
**Apium graveolens* L.	celery	R
**Foeniculum vulgare* Miller	fennel	G
Apocynaceae - Dogbane Family		
Funastrum cynanchoides (Decne.) Schltr. ssp. *hartwegii* (Vail) R. Holm	climbing milkweed	W, S, G, O
**Nerium oleander* L.	oleander	U
Asteraceae - Sunflower Family		
Ambrosia psilostachya DC.	western ragweed	R,S,G,E,U
Artemisia californica Less.	California sagebrush	S
Artemisia douglasiana Besser	mugwort	R, E
Baccharis pilularis DC.	coyote brush, chaparral broom	G
Baccharis salicifolia (Ruíz Lopez & Pavón) Pers.	mule fat, seep-willow	R, G
**Carduus pycnocephalus* L.	Italian thistle	G
**Centaurea melitensis* L.	tocalote	G, U
Corethrogyne filaginifolia (Hook. & Arn.) Nutt.		

Scientific Name	Common Name	Habitat
	California-aster, sand-aster	S
**Erigeron bonariensis L.*	flax-leaf fleabane	G
*Erigeron canadensis (*L.)	horseweed	
Eriophyllum confertiflorum (DC.) A. Gray var. *confertiflorum*		
	long-stem golden-yarrow	S
**Helminthotheca echioides* (L.) Hoplub	bristly ox-tongue	
Heterotheca grandiflora Nutt.	telegraph weed	All
Isocoma menziesii (Hook. & Arn.) G. L. Nesom var. *menziesii*		
	spreading goldenbush	S, U,
**Lactuca serriola* L.	prickly lettuce	G
Pluchea odorata (L.) Cass.	salt marsh fleabane	R
**Sonchus asper* (L.) Hill ssp. *asper*	prickly sow thistle	S
Stephanomeria diegensis Gottlieb	San Diego wreath-plant	S, G, U
Xanthium strumarium L.	cocklebur	R, E
Boraginaceae - Borage Family		
Heliotropium curassavicum L. var. *oculatum* (A. Heller) Tidestr.		
	salt heliotrope	U
Phacelia ramosissima Lehm. var. *latifolia* (Torrey)Cronq.	branching phacelia	S, G
Brassicaceae - Mustard Family		
**Brassica rapa* L.	turnip, field mustard	G,
**Hirschfeldia incana* (L.)Lagr.-Fossat	short-pod mustard	S, G
Nasturtium officinale W.T. Aiton	water cress	E
**Raphanus sativus* L.	wild radish	G
Cactaceae - Cactus Family		
Cylindropuntia prolifera (Engelm.) F. M. Knuth	coast cholla	S
**Opuntia ficus-indica* (L.) Miller	mission prickly pear, Indian-fig	U
**Opuntia leucotricha* DC.	nopal blanco	
Opuntia littoralis (Engelm.) Cockerell	coast prickly-pear	S
Caryophyllaceae - Pink Family		
**Stellaria media* (L.) Villars	common chickweed	U
Chenopdiaceae – Goosefoot Family		
Atriplex prostrata DC.	spearscale	R, E
**Atriplex semibaccata* R. Br.	Australian saltbush	G
Atriplex serenana A. Nels. var. *davidsonii* (Standl.) Munz		
**Beta vulgaris* L. ssp. *maritima* (L.) Arcangeli	sea beet	G, E
**Chenopodium album* L.	lamb's quarters	All
Chenopodium berlandieri Moq.	pitseed goosefoot	All
**Salsola tragus* L.	Russian thistle, tumbleweed	S, G

Scientific Name	Common Name	Habitat
Cleomaceae – Spiderflower Family		
Peritoma arborea (Nutt.) H.H. Iltis	bladderpod	S
Convolvulaceae - Morning-Glory Family		
Calystegia macrostegia (E. Greene)Brummitt	morning-glory	G, U
Cuscuta californica Hook & Arn. var. *californica*	chaparral dodder, witch's hair	S
Cucurbitaceae - Gourd Family		
Cucurbita foetidissima Kunth	calabazilla	S
Marah macrocarpus (E. Greene) E. Greene var. *macrocarpus*	manroot, wild-cucumber	S
Euphorbiaceae - Spurge Family		
Chamaesyce albomarginata (Torrey & Gray) Small	rattlesnake spurge/ white-margin sandmat	All
**Chamaesyce maculata* (L.) Small	spotted spurge	All
Croton setigerus Hook.	doveweed	U, G
**Ricinus communis* L.	castor-bean	R
Fabaceae - Pea Family		
Acmispon glaber (Vogel) Brouillet var. *glaber*	coastal deerweed	S, U
**Vicia villosa* Roth ssp. *villosa*	winter vetch	G
Fagaceae - Oak Family		
Quercus agrifolia Neé var. *agrifolia*	coast live oak, encina	R, G
Quercus berberidifolia Liebm.	scrub oak	G
Geraniaceae - Geranium Family		
**Erodium botrys* (Cav.) Bertol.	long-beak filaree	U
**Erodium cicutarium* (L.) L'Hér.	red-stem filaree	All
Lamiaceae - Mint Family		
**Mentha* x *piperita* L.	peppermint	E
Salvia apiana Jepson	white sage	S
Salvia columbariae Benth.	chia	S
Trichostema lanceolatum Benth.	vinegar weed	G
Malvaceae - Mallow Family		
Malva neglecta Wallr.	common mallow	G
Moraceae - Mulberry Family		
**Ficus carica* L.	edible fig	R

Scientific Name	Common Name	Habitat
Myrtaceae - Myrtle Family		
**Eucalyptus* sp.	eucalyptus	S
Myrsinacea – Myrsine Family		
**Anagallis arvensis* L.	scarlet pimpernel	G
Nyctaginaceae - Four-O'Clock Family		
Mirabilis laevis (Benth.) Curran var. *crassifolia* (Choisy) Spellenb.	coastal wishbone plant	S, G
Onagraceae - Evening-Primrose Family		
Oenothera elata Kunth ssp. *hirsutissima* (S. Watson) W. Dietr.	great marsh evening primrose	R
Oxalidaceae - Oxalis Family		
Oxalis californica (Abrams) R. Knuth	California wood-sorrel	S
Phrymaceae – Hopseed Family		
Mimulus aurantiacus Curtis var. *pubescens* (Torr.) D.M. Thompson	bush monkey flower	S, G
Phytolaccaceae - Pokeweed Family		
**Phytolacca americana* L. var. *americana*	pokeweed, pokeberry	R
Plantaginaceae - Plantain Family		
Antirrhinum nuttallianum Benth. ssp. *nuttallianum*	Nuttall's snapdragon	G
Keckiella ternata (Torrey) Straw var. *ternata*	summer bush penstemon	S
**Plantago lanceolata* L.	English plantain	U
Platanaceae - Sycamore Family		
Platanus racemosa Nutt.	western sycamore	R
Polygonaceae - Buckwheat Family		
Eriogonum fasciculatum Benth. var. *fasciculatum*	coastal California buckwheat	S, U
Eriogonum gracile Benth. var. *gracile*	slender wooly wild buckwheat	S, G, U
**Rumex crispus* L.	curly dock	E
Portulacaceae - Purslane Family		
**Portulaca oleracea* L.	purslane	All
Rosaceae - Rose Family		
Heteromeles arbutifolia (Lindley) M. Roemer	toyon, Christmas berry	S
**Prunus persica* (L.) Batsch	peach	E
Rosa californica Cham. & Schldl.	California rose	R

Scientific Name	Common Name	Habitat
Salicaceae - Willow Family		
Populus fremontii S. Watson ssp. *fremontii*	Alamo or Fremont cottonwood	R
Salix gooddingii C. Ball	Goodding's black willow	R, E
Salix laevigata Bebb	red willow	U
Salix lasiolepis Benth.	arroyo willow	R, U
Simaroubaceae - Quassia Family		
**Ailanthus altissima* (Miller) Swingle	tree of heaven	U
Simmondsiaceae - Jojoba Family		
Solanaceae - Nightshade Family		
Datura wrightii Regel	western jimsonweed	S
**Nicotiana glauca* Graham	tree tobacco	U, G
Physalis hederifolia A. Gray var. *fendleri* (A. Gray) Cronq.	Fendler's groundcherry	G
Solanum douglasii Dunal	Douglas' nightshade	S
Tamaricaceae - Tamarisk Family		
**Tamarix ramosissima* Ladeb.	Tamarisk, five-petal east Asian	R, G
Urticaceae - Nettle Family		
Urtica dioica L. ssp. *holosericea* (Nutt.) Thorne	hoary nettle	R
Viscaceae - Mistletoe Family		
Phoradendron serotinum (Raf.) M.C. Johnst. ssp. *macrophyllum* (Engelm.) Cockerell	big leaf mistletoe	R
Vitaceae - Grape Family		
Vitis girdiana Munson	desert wild grape	R, E
Zygophyllaceae - Caltrop Family		
Tribulus terrestris L.	puncture vine	G, U
MONOCOTYLEDONS		
Agavaceae – Century Plant Family		
Yucca schidigera K.E. Ortgies	Mojave yucca	S, G
Araceae – Arum Family		
Lemna sp.	duckweed	E
Arecaceae - Palm Family		
**Washingtonia robusta* H. Wendl.	Mexican fan palm	R, G
Cyperaceae - Sedge Family		
Cyperus eragrostis Lam.	tall flatsedge	R, E

Scientific Name	Common Name	Habitat
Schoenoplectus acutus (Bigelow) Á. Löve & D. Löve var. *occidentalis* (S. Waston) S.G. Smith	common tule	E
Schoenoplectus americanus (Pres.) Schinz & R. Keller	Olney's threesquare bulrush	E
Poaceae - Grass Family		
**Arundo donax* L.	giant reed	U
**Avena fatua* L.	wild oat	G
**Bromus diandrus* Roth	ripgut grass	S, G
**Bromus madritensis* L. ssp. *rubens* (L.) Husnot	red brome, foxtail chess	S, G
**Digitaria sanguinalis* (L.) Scop.	large crab grass	U
Distichlis spicata (L.) Greene	saltgrass	E, U
**Eragrostis barrelieri* Daveau	Mediterranean love grass	G
**Festuca myuros*	rattail sixweeks grass	S
* *Stipa miliacea* (L.) Hoover var. *miliacea*	smilo grass	G
Typhaceae - Cat-Tail Family		
Typha domingensis Pers.	southern cattail	R, E
MAGNOLIIDS-PIPERALES		
Saururaceae - Lizard-tail Family		
Anemopsis californica (Nutt.) Hook. & Arn.	yerba mansa	R, E, U
MAGOLIIDS-LAURALES		
Lauraceae - Laurel Family		
Persea americana Mill.	avocado	G, U

APPENDIX 2. FAUNA SPECIES OBSERVED OR DETECTED WITHIN THE BIOLOGICAL STUDY AREA

Habitat Types:

R = Riparian and Bottomland Habitat (Holland/Oberbauer Code 6000)
Southern cottonwood-willow riparian forest (61330)

W = Woodland (Holland/Oberbauer Code 7000)
Coast live oak woodland (71160)

S = Scrub and Chaparral (Holland/Oberbauer Code 3000)
Diegan coastal sage scrub (32500)
Diegan coastal sage scrub – Isocoma menziesii dominated

G = Grassland and Other Herb Communities (Holland/Oberbauer Code 4000)
Non-native grassland (42200)
Non-native grassland/Historic orchard

U = Disturbed or Developed Areas (Holland/Oberbauer Code 1000)
Disturbed habitat (11300)
Urban/developed (12000)
General agriculture (18000)

E = Disturbed wetland (11200)

FO = fly over

* = denotes introduced species

Abundance Codes (birds only):

A = Abundant: Almost always encountered in moderate to large numbers in suitable habitat and the indicated season.
C = Common: Usually encountered in proper habitat at the given season.
U = Uncommon: Infrequently detected in suitable habitat. May occur in small numbers or only locally in the given season.
R = Rare: Applies to species that are found in very low numbers.
"Numbers" indicate the number of individuals observed during the field survey work.

Status Codes (birds only):

M = Migrant: Uses the site for brief periods of time, primarily during the spring and fall months.
R = Year-round resident: Probable breeder on-site or in the vicinity.
S = Spring/summer resident: Probable breeder on-site or in the vicinity unless combined with transient status.
T = Transient: Uses site irregularly in summer but unlikely to breed. Not a true migrant and actual status often poorly known.
W = Winter visitor: Does not breed locally.
V = Casual vagrant: Not expected; out of normal geographic or seasonal range and by definition rare.

Common Name	Scientific Name	Habitat	Abundance	Status
BUTTERFLIES				
Papilionidae (Swallowtails)				
western tiger swallowtail	*Papilio rutulus*	R	---	---
Lycaenidae (Gossamer-wing Butterflies)				
western pygmy-blue	*Brephidium exila*	G,U	---	---
Riodinidae (Metalmarks)				
Behr's metalmark	*Apodemia mormo virgulti*	S	---	---
Nymphalidae (Brushfoots)				
Lorquin's admiral	*Limenitis lorquini*	R, G, R	---	---
California sister	*Adelpha bredowii californica*	R, W, S		
queen	*Danaus gilippus thersippus*	G, S, R	---	---
FISHES				
Poeciliidae (Livebearers)				
*western mosquitofish	*Gambusia affinis*	R	---	---
AMPHIBIANS				
Bufonidae (True Toads)				
western toad	*Anaxyrus boreas*	R	---	---
Ranidae (True Frogs)				
*bullfrog	*Lithobates catesbeiana*	R	---	---
REPTILES				
Phrynosomatidae				
western fence lizard	*Sceloporus occidentalis*	All	---	---
Teiidae (Whiptails and Relatives)				
orange-throated whiptail	*Aspidoscelis hyperythra*	S	---	---
BIRDS				
Accipitridae (Hawks and Harriers)				
Cooper's hawk	Accipiter cooperii	All	C	M, R
red-shouldered hawk	*Buteo lineatus*	R,S,G	C	R
red-tailed hawk	*Buteo jamaicensis*	U,G	C	R, M, W

Common Name	Scientific Name	Habitat	Abundance	Status
Columbidae (Pigeons and Doves)				
rock pigeon	*Columba livia*	U,FO	A	R
mourning dove	*Zenaida macroura*	All	C	R
Trochilidae (Hummingbirds)				
Anna's hummingbird	*Calypte anna*	All	C	R
Picidae (Woodpeckers and Wrynecks)				
northern flicker	*Colaptes auratus*	R	C	M, W, R
acorn woodpecker	*Melanerpes formicivorus*	R	C	R
Nuttall's woodpecker	*Picoides nuttallii*	R,U	C	R
Tyrannidae (Tyrant Flycatchers)				
western kingbird	*Tyrannus verticalis*	S	C	M, S
Vireonidae (Typical Vireos)				
least Bell's vireo	Vireo bellii pusillus	R	U	M, S
Corvidae (Jays, Magpies, and Crows)				
western scrub-jay	*Aphelocoma californica*	R,U	C	R
American crow	*Corvus brachyrhynchos*	FO	A	R
common raven	*Corvus corax*	FO	C	R
Hirundinidae (Swallows)				
northern rough-winged swallow	*Stelgidopteryx serripennis*	All	C	M, S
barn swallow	*Hirundo rustica*	S,FO	U	M, W, S
cliff swallow	*Petrochelidon pyrrhonota*	R,All	C	M, S
Paridae (Chickadees and Titmice)				
oak titmouse	*Baeolophus inornatus*	R	C	R
Aegithalidae (Bushtit)				
bushtit	*Psaltriparus minimus*	S	C	R
Troglodytidae (Wrens)				
Bewick's wren	*Thryomanes bewickii*	S,U	C	R
house wren	*Troglodytes aedon*		C	M, W, S
rock wren	*Salpinctes obsoletus*	S,U	C	R
Sylviidae (Sylviid Warblers and Gnatcatchers)				
coastal California gnatcatcher	*Polioptila californica californica*	S	U	R
blue-gray gnatcatcher	*Polioptila caerulea*	G	C	M, W, S
Mimidae (Mockingbirds and Thrashers)				

Common Name	Scientific Name	Habitat	Abundance	Status
California thrasher	*Toxostoma redivivum*	S	C	R
northern mockingbird	*Mimus polyglottos*	All	C	R
Ptilogonatidae (Silky Flycatchers)				
phainopepla	*Phainopepla nitens*	S,G	C	M, S
Sturnidae (Starlings)				
*European starling	*Sturnus vulgaris*	All	A	R
Parulidae (Warblers)				
orange-crowned warbler	*Oreothlypis celata*		C	M, W, S
common yellowthroat	*Geothlypis trichas*	R	C	M, R
yellow-breasted chat	Icteria virens	R	C	M, S
Cardinalidae (Grosbeaks, Buntings, and Relatives)				
black-headed grosbeak	*Pheucticus melanocephalus*	R	C	M, S
Emberizidae (Sparrows, Blackbirds and Relatives)				
spotted towhee	*Pipilo maculates*	S,R	C	R
California towhee	*Melozone crissalis*	S	C	R
Icteridae (Blackbirds, Meadowlarks, Orioles, and Relatives)				
*brown-headed cowbird	Molothrus ater		C	S, M, W
Fringillidae (Finches)				
house finch	*Haemorhous mexicanus*	S,U	A	R
lesser goldfinch	*Spinus psaltria*	R	C	M, R
MAMMALS				
Leporidae (Hares and Rabbits)				
brush rabbit	*Sylvilagus bachmani cinerascens*	All	---	---
Felidae (Cats)				
Feral/domestic cat	*Felis catus*	U	---	---
Canidae (Coyotes, Dogs, Foxes, Jackals, and Wolves)				
*feral/domestic dog	*Canis familiaris*	U	---	---
coyote	*Canis latrans clepticus*	G	---	---
Equidae (Horses)				
*donkey	*Equus africanus asinus*	G	---	---

APPENDIX 3. JURISDICTIONAL WETLAND DELINEATION DATA FORMS AND PHOTO POINTS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gird/Monserate Hill Water Line City/County: San Diego Sampling Date: 9/30/2015
Applicant/Owner: Rainbow Municipal Water District State: CA Sampling Point: DP1
Investigator(s): Amanda Gonzalez / Mary Tamburro Section, Township, Range: unsectioned; T10South; R3West
Landform (hillslope, terrace, etc.): Terrace / Local relief (concave, convex, none): Concave Slope (%): <1%
Subregion (LRR): LRR-C Lat: 33.32065 Long: -117.19252 Datum: NAD 83
Soil Map Unit Name: Grangeville fine sandy loam, 0-2% slopes NWI classification: PSSH (or C)
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation Y, Soil Y/N or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No _____
Hydric Soil Present? Yes ✓ No _____
Wetland Hydrology Present? Yes ✓ No _____
Is the Sampled Area within a Wetland? Yes ✓ No _____

Remarks: DP located w/in a tributary to San Luis Rey River under a riparian canopy. Vegetation has been cut and placed in piles; result of urban/agricultural activities; footpath and temporary irrig. pump (to row crop to east).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	80	Y	FACW
2.			
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' R)			
1. S. lasiolepis	10	Y	FACW
2. Baccharis salicifolia	10	Y	FAC
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 10' R)			
1. Xanthium strumarium	10	Y	FAC
2. Apium graveolens	10	Y	UPL
3. Eriogonum fasciculatum	8	Y	FACU
4. Typha domingensis	6	Y	OBL
5. Lemna sp.	6	Y	OBL
6. Artemisa douglasiana	5	N	FAC
7. Ambrosia psilostachya	5	N	FACU
8.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: 10' R)			
1. —			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust —

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across All Strata: 8 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
✓ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: DP located under a riparian canopy. Just east of the perennial low-flow channel. Area disturbed due to previous cultivation; piles of veg. tamarisk; Peruvian pepper tree
other plants in area: Oenothera elata; salt heliotrope

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 8/3	80	—				silty clay loam w/ rocks-increased.	
								Black 10YR 2/1; 5%
								Reddish 10YR 3/3; 5%
5-8	2.5YR 4/1	90	2.5YR 5/6	5	C	M	loam	Predom. redox feature
8-13	5Y 4/1	75	7.5YR 5/6	20	C	M	loamy sand	" "
								0 w/ black spots Gley1 2.5Y/N 5/1

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Depleted Matrix between 5-13"; high organic content 0/1 0-5". Area altered due to cutting of veg and piling of vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 10"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 5"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: DP located w/in the boundaries of a tributary to the San Luis Rey River, just east of the perennial, low-flow channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gird / Monserate Hill Water Line City/County: San Diego Sampling Date: 9/30/2015

Applicant/Owner: Rainbow Municipal Water District State: CA Sampling Point: DP 2

Investigator(s): Amanda Gonzalez / Mary Tamburro Section, Township, Range: unsectioned; T10 South; R 3 West

Landform (hillslope, terrace, etc.): Terrace / Local relief (concave, convex, none): Concave Slope (%): <1%

Subregion (LRR): LRR-C Lat: 33.32061 Long: -117.19248 Datum: NAD83

Soil Map Unit Name: Grangeville fine sandy loam, 0-2% slopes NWI classification: PSSH (or C)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation Y, Soil Y/N, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes ___ No ✓

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ~~✓~~	Is the Sampled Area within a Wetland?	Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ~~✓~~		
Wetland Hydrology Present?	Yes ✓ No ___		

Remarks: DP located w/in the banks of a tributary of San Luis Rey River. ~~Hydric soils were not detected~~; however, this area has been subject to human disturbance (see Remarks – Soil) and SD County has been in a drought for several years. Thus, 3 wetland parameters assumed to the limits of the bank (defined slp

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	74	Y	FACW
2. Schinus molle	10	N	FACU
3. Platanus racemosa	5	N	FAC
4.			
	99 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20' R)			
1. S. lasiolepis	10	Y	FACW
2. Baccharis salicifolia	10	Y	FAC
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 20' R)			
1. Ambrosia psilostachya	20	Y	FACU
2. Artemisia douglasiana	15	Y	FAC
3. Typha domingensis	5	N	OBL
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 20' R)			
1. Vitis ~~gra~~ girdiana	2	N	FAC
2.			
	2 = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:
DP located under a riparian canopy.

SOIL

Sampling Point: DP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	-				loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Hydric soils not detected but this general area has been subject to disturbance. Specifically, veg has been cut and placed in piles potentially altering flow patterns, in addition SD (unit) has been in a drought for the past several years.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ✓ Drift Deposits (B3) **(Riverine)**
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): —

Water Table Present? Yes ___ No ✓ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): —

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

See Remarks above. DP located within the defined bankfull of the tributary (i.e., slope b/t tributary and upland habitat).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gird / Monserate Hill Water Line City/County: San Diego Sampling Date: 9/30/2015
Applicant/Owner: Rainbow Municipal Water District State: CA Sampling Point: DP 3
Investigator(s): Amanda Gonzalez / Mary Tamburro Section, Township, Range: unsectioned; T10South; R3 West
Landform (hillslope, terrace, etc.): Upland / terrace Local relief (concave, convex, none): none Slope (%): <1%
Subregion (LRR): LRR-C Lat: 33.32057 Long: -117.19235 Datum: NAD83
Soil Map Unit Name: Grangeville fine sandy loam, 0-2% slopes NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
DP located within upland habitat; outside the limits of the adjacent limits of creek (i.e. bank) and riparian canopy.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10'R)			
1. Eriogonum fasciculatum	70	Y	UPL
2. Artemisia californica	20	Y	UPL
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10'R)			
1. Eriogonum fasciculatum	70	Y	UPL
2. Artemisia californica	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 10'R)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
DP located w/in upland habitat; outside the riparian canopy.

SOIL

Sampling Point: DP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 4/4	100	—				Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

DP located w/in upland habitat.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

DP located w/in upland habitat. Rises in elevation from the adjacent drainage system.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gird/Monserate Hill Water Line City/County: San Diego Sampling Date: 9/30/2015
Applicant/Owner: Rainbow Municipal Water District State: CA Sampling Point: DP 4
Investigator(s): Amanda Gonzalez / Mary Tamburello Section, Township, Range: unsectioned; T10South; R3West
Landform (hillslope, terrace, etc.): low lying area Local relief (concave, convex, none): slight concave Slope (%): 1%
Subregion (LRR): LRR-C Lat: 33.32083 Long: -117.19353 Datum: NAD83
Soil Map Unit Name: Grangeville fine sandy loam, 0-2% slopes NWI classification: PEM ~~Upland~~
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No _____
Hydric Soil Present? Yes ✓ No _____
Wetland Hydrology Present? Yes ✓ No ✓
Is the Sampled Area within a Wetland? Yes ✓ No _____

Remarks:
DP located within an area subject to disturbance from maintenance associated with the onsite pipelines but most notably due to the historic and ongoing urban/agricultural operations

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10' x 4')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	90	Y	FACW
2.			
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' x 4')			
1. S. gooddingii	5	Y	FACW
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 10' x 4')			
1. Ambrosia psilostachya	40	Y	FACU
2. Artemisia californica	30	Y	OBL
3. Distichlis spicata	20	Y	FAC
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 10' x 4')			
1.			
2.			
	Ø = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
✓ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:
DP located within a narrow strip of alkali marsh-type habitat subject to surface flow from a drainage parallel to Gird Road and potentially subject to overflow during large storm events by the main drainage system to the east (DP 1).

SOIL

Sampling Point: DP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/1	90	2.5YR 4/8	3	D	PL	Clay loam	Redox feature present.
5-6	7.5 YR 5/8	100	–				Clay loam - large sand particles	
6-10	2.5Y 4/1	90	2.5YR 4/8	3	D	PL	"	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9) *
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): –

Water Table Present? Yes ___ No ✓ Depth (inches): –

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): –

Wetland Hydrology Present? Yes ✓ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This area is signif. disturbed due to the urban/agricultural operations. Based on review of historic aerials this area was historically part of the floodplain and saturation appears to be visible in recent aerials. Wetland hydrology assumed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gird / Monserate Hill Water Line City/County: San Diego Sampling Date: 9/30/2015
Applicant/Owner: Rainbow Municipal Water District State: CA Sampling Point: DP 5
Investigator(s): Amanda Gonzalez / Nora Tamburr Section, Township, Range: unsectioned; T10South; R3West
Landform (hillslope, terrace, etc.): low lying area Local relief (concave, convex, none): slight concave Slope (%): <1%
Subregion (LRR): LRR-C Lat: 33.32683 Long: -117.19350 Datum: NAD83
Soil Map Unit Name: Grangeville fine sandy loam, 0-2% slopes NWI classification: PEM / ~~Upland~~
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____
Hydric Soil Present? Yes ✓ No ~~✓~~
Wetland Hydrology Present? Yes ✓ No ~~✓~~
Is the Sampled Area within a Wetland? Yes ✓ No ____

Remarks: Same as DP 4. Based on review of historic aerials, this land has been subject to signif. disturbance. Assume soils and hydrology

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10' x 4')			
1. Salix gooddingii	80	Y	FACW
2.			
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' x 4')			
1. S. gooddingii	5	Y	FACW
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 10' x 4')			
1. Ambrosia psilost.	40	Y	FACU
2. Anemopsis cal.	30	Y	OBL
3. Distichlis spicata	20	Y	FAC
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 10' x 4')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
✓ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: DP located several feet east of DP 4 within a narrow strip of habitat b/t dirt roads and area subject to signif. disturbance from the agricultural operations.

SOIL

Sampling Point: DP 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5 Y 4/1	90	—				Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Based on review of historic aerials, this area has been subject to significant disturbance including import of fill and backgrounded with the agricultural operation. This strip of habitat slightly raised between the APNs (fence line).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): —

Water Table Present? Yes ___ No ✓ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): —

Wetland Hydrology Present? Yes ✓ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Same as Data Point 4.

Photo Point 1. Photo of wetland data point 1. Data point (red arrow) located under a canopy of southern cottonwood-willow riparian forest just outside the perennial, low-flow channel (black dashed arrow). The riparian community is subject to disturbance associated with the agricultural/urban activities (e.g., cut vegetation). All three wetland parameters were detected. Photo taken on 9/30/2015 and directed south (downstream).

Photo Point 2. Photo of wetland data point 2. Data point (yellow GPS) located under a canopy of southern cottonwood-willow riparian forest just east of Data point 1 (red line represents approximate location). Hydric soils were not detected at this location. Photo taken on 9/30/2015 and directed northwest (generally upstream).

Photo Point 3. Photo of wetland data point 3. Data point (shovel) located outside the limits of the riparian canopy within upland habitat. The western sycamore tree in the photo represents the outer limits of the riparian canopy. Photo taken on 9/30/2015 and directed northwest.

Intentionally left blank

Photo Point 4. Photo of wetland data point 4. Data point (represented by the shovel) located within an area classified as disturbed wetland. This area is highly disturbed and subject to historic and ongoing urban/agricultural operations. Wetland hydrology was not evident while onsite; however, based on review of historic aerials, this area is subject to flooding. Photo taken on 9/30/2015 and directed west.

Photo Point 5. Photo of wetland data point 5. Data point (represented by the shovel) located within an area classified as disturbed wetland. This area is highly disturbed and subject to historic and ongoing urban/agricultural operations. Wetland hydrology and hydric soils were not evident while onsite; however, based on review of historic aerials, this area is subject to flooding and thus all three wetland parameters are assumed. Photo taken on 9/30/2015 and directed west.

APPENDIX 4. 45-DAY PROTOCOL SURVEY LETTER REPORT (M&A 2016)

Merkel & Associates, Inc.
5434 Ruffin Road, San Diego, CA 92123
Tel: 858/560-5465 • Fax: 858/560-7779
e-mail: associates@merkelinc.com

June 17, 2016
M&A #15-037-01

Ms. Stacey Love
Recovery Permit Coordinator
U.S. Fish and Wildlife Service – Carlsbad Fish and Wildlife Office
2177 Salk Ave, Suite 250
Carlsbad, CA 92008

Re: 45-day Letter Report of Coastal California Gnatcatcher Protocol Surveys for the Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project, Located in Fallbrook, San Diego County

Dear Ms. Love:

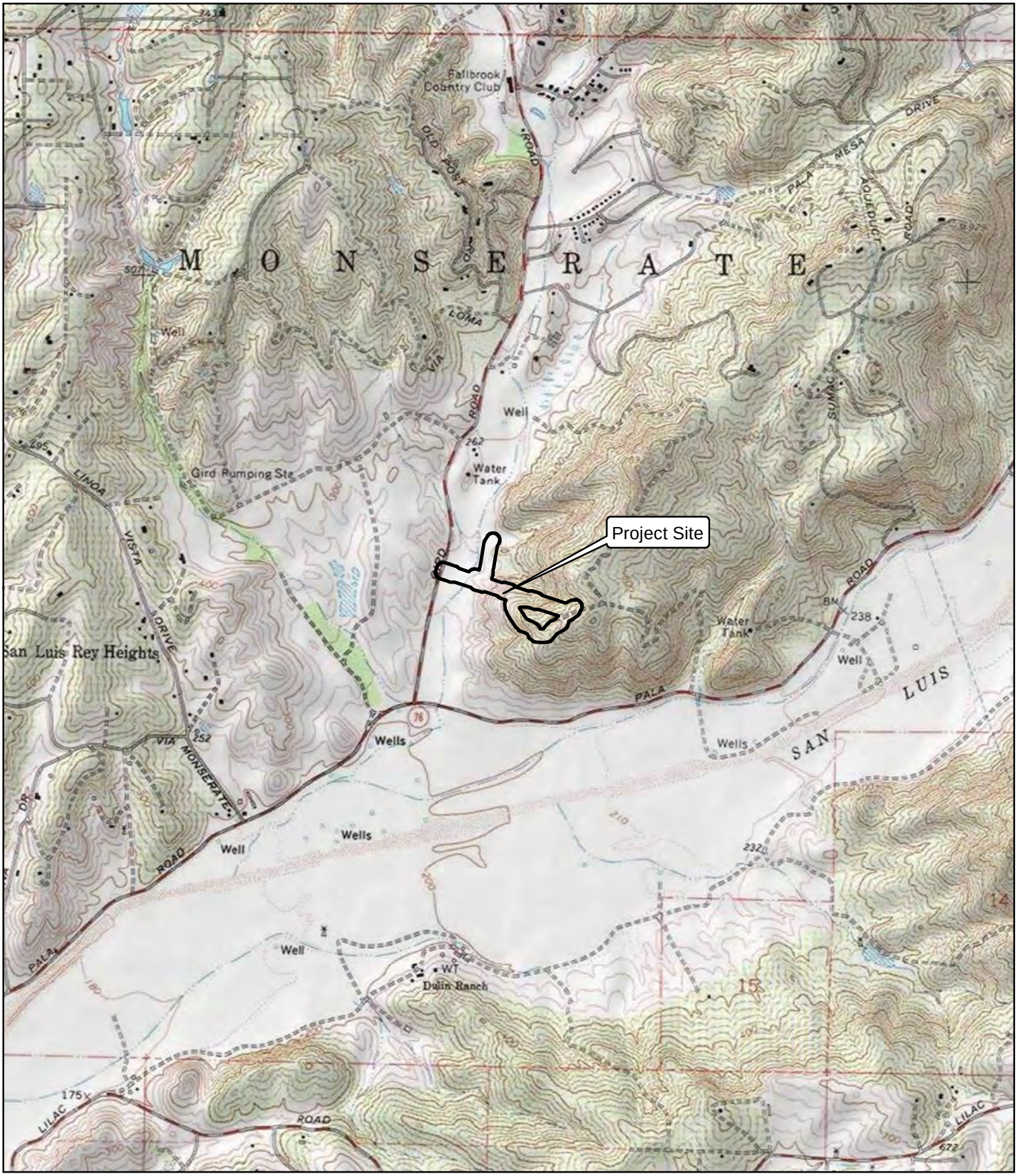
SUMMARY

Merkel & Associates, Inc. (M&A) conducted six protocol surveys for the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*) for the purpose of determining the presence or absence of this species on the Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design project site (portion of Assessors Parcel Numbers 124-340-32, 124-340-33, and 124-351-50). These surveys were conducted in accordance with the current U.S. Fish and Wildlife Service's *Coastal California Gnatcatcher Presence/Absence Survey Protocol* (USFWS 1997), as authorized under M&A's federal Endangered Species Act, Section 10(a)(1)(A) permit #797999-8.1 and California Department of Fish and Wildlife (CDFW) Memorandum of Understanding (MOU). The project site contains approximately 2.8 acres of potential gnatcatcher habitat. Three coastal California gnatcatchers were detected on the project site during the protocol surveys. This letter report has been prepared and submitted to the client, USFWS, and CDFW in accordance with the requirements of M&A's 10a permit and MOU.

INTRODUCTION

Merkel & Associates, Inc. (M&A) conducted protocol surveys for the federally listed threatened, coastal California gnatcatcher (*Polioptila californica californica*) for the purpose of determining the presence or absence of this species on the Rainbow Municipal Water District (District), Gird/Monserate Hill Water Line Design project site.

The project site is located on a portion of Assessors Parcel Numbers 124-340-32, 124-340-33, and 124-351-50, within unsectioned lands, Township 10 South, Range 3 West of the San Bernardino Base and Meridian, U.S. Geological Survey (USGS) 7.5' Bonsall, California Quadrangle (Latitude 33.3200, Longitude -117.1907 decimal degrees for central portion of the District right-of-way, WGS84 datum) (Figure 1).



Project Vicinity Map
Rainbow Municipal Water District
Gird/Monserate Hill Water Line Design Project
Source: USGS 7.5' Bonsall, CA Quadrangle

Figure 1

METHODS

M&A conducted six protocol surveys for the coastal California gnatcatcher, as authorized under M&A's federal Endangered Species Act (ESA), Section 10(a)(1)(A) permit #797999-8.1 and California Department of Fish and Wildlife (CDFW) Memorandum of Understanding (MOU) (Table 1). The approximate 22.4-acre survey area included 2.8 acres of potential gnatcatcher habitat; portions of the study area that extended beyond the parcel boundaries or authorized survey area were visually surveyed only from the approved property boundary lines or areas of public access.

Table 1. Survey Dates, Times, and Conditions

Survey #	Date	Time	Conditions[1] (start-end)	Permitted Biologist(s)	Assistant(s)	Acres per Hour/Day[2]	Taped Vocalizations Playback Frequency
1	2016 Apr 27	0800-1050	Wthr: 5%-0% cc Wind: 0-1 BS Temp.: 55°-80° F	Amanda K. Gonzales	Brandon L. Stidum	1.1 per hour/ 2.8 per day	1 per 9 minutes
2	2016 May 4	0730-1110	Wthr: 100% cc Wind: 0-1 BS Temp.: 58°-64° F	Gina M. Krantz	---	1.3 per hour/ 2.8 per day	1 per 14 minutes
3	2016 May 13	0815-1015; 1045-1100	Wthr: 90%-0% cc Wind: 0-1 BS Temp.: 58°-70° F	Amanda K. Gonzales	---	0.8 per hour/ 2.8 per day	1 per 9 minutes
4	2016 May 21	0800-1030	Wthr: 99%-50% cc Wind: 2-3 BS Temp.: 57°-62° F	Amanda K. Gonzales	---	0.9 per hour/ 2.8 per day	1 per 21 minutes[3]
5	2016 May 28	0900-1105	Wthr: 100% cc Wind: 0-1 BS Temp.: 62°-67° F	Amanda K. Gonzales	---	0.7 per hour/ 2.8 per day	1 per 9 minutes
6	2016 Jun 5	0730-0951	Wthr: 100% cc Wind: 0-1 BS Temp.: 60°-64° F	Amanda K. Gonzales	---	0.8 per hour/ 2.8 per day	1 per 9 minutes

[1] cc=cloud cover; BS=Beaufort Scale [0 = <1 miles per hour (mph); 1 = 1-3 mph; 2 = 4-7 mph; 3 = 8-13 mph]; F = Fahrenheit

[2] Acres of potentially suitable gnatcatcher habitat

[3] Gnatcatchers very vocal in the central portion of the site; thus, no need to play the tape at this location

The surveys were conducted in accordance with the current U.S. Fish and Wildlife Service's (USFWS) *Coastal California Gnatcatcher Presence/Absence Survey Protocol* (USFWS 1997). All onsite vegetation communities were previously mapped, and survey routes were slowly walked in appropriate gnatcatcher habitat. Taped recordings of gnatcatcher vocalizations, as well as "pishing', were used to elicit initial vocal responses, and an approximate nine minute time interval was allowed for a response, particularly from advantageous viewpoints. Gnatcatcher presence was determined based on the detection of songs, calls, and/or direct observations. Efforts were made to determine the gender, paired or unpaired status, age, and any color band information of each

observed gnatcatcher. A list of detected avian species was recorded in a field notebook, and the locations of identified gnatcatchers were noted on the field map.

Data collected from the surveys were digitized into current Geographical Information System (GIS) Environmental Systems Research Institute (ESRI) software platforms.

The scientific nomenclature used in this report is noted according to the following references: vegetation, Holland (1986) and Oberbauer (2008); flora, Baldwin (2011); and birds, American Ornithologists' Union (1998 and 2015).

RESULTS

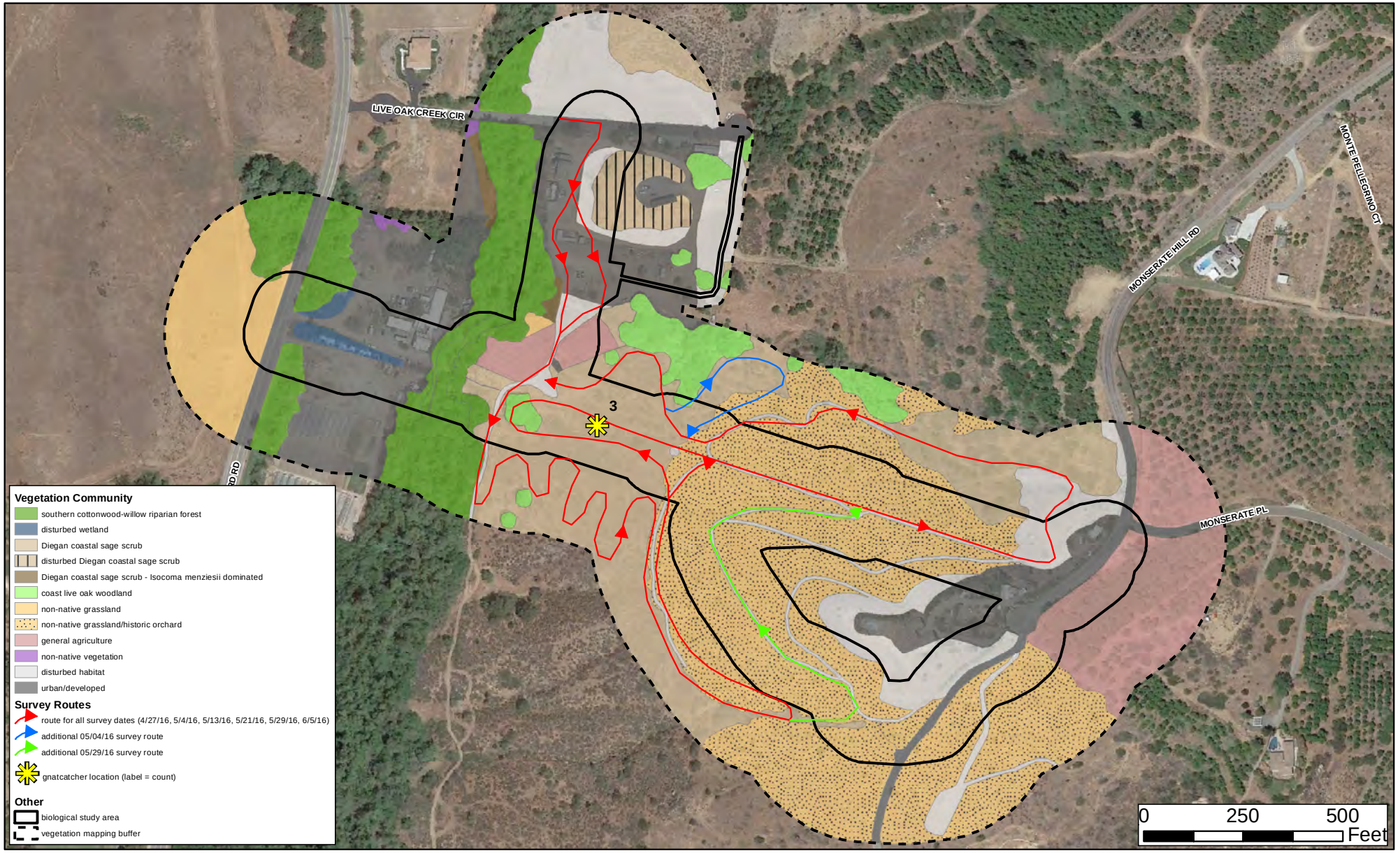
The project site is located within a semi-rural residential/agricultural community (e.g., orchard) between Gird Road and Monserate Hill Road which is located west of Interstate 15 and north of State-Route (SR) 76/Pala Road. The topography is comprised of steep hillsides covered with active and/or inactive orchards, most of which are located north of SR-76 and east of Gird Road. Where agricultural operations are not present/active, portions of the hillsides are covered with native and/or naturalized vegetation including Diegan coastal sage scrub and non-native grassland communities. West of Gird Road the lands are predominantly developed for urban uses (e.g., golf course, dense and spaced residential) with the exception of land immediately west of the BSA which is presently undeveloped non-native grassland. A tributary to the San Luis Rey River conveys surface flows southward through the survey area under a canopy of southern cottonwood-willow riparian forest. It merges with the San Luis Rey River approximately half a mile downstream via a culvert under SR-76. The tributary is generally situated at the toe of the steep slope and drains perennial (to seasonal) flows from the semi-rural urban development to the north and northwest as well as the steep agriculture dominated slopes to the east. A secondary and smaller tributary is parallel with Gird Road and ultimately merges with the main tributary to the south, outside the survey area.

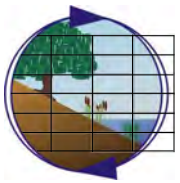
From west to east, the survey area is generally comprised of disturbed lands associated with rural urban/agricultural activities; southern cottonwood-willow riparian forest associated with the tributary; and Diegan coastal sage scrub and historic orchard on the steep hillsides. The approximate 22.4-acre survey area includes approximately 2.8 acres of potentially suitable Diegan coastal sage scrub habitat, which occurs within the central portion of the survey area as a north-south band of habitat between the riparian canopy and the non-native grassland/historic orchard on the steep slopes. This sage scrub community extends offsite to the south but is severed from native or naturalized habitat to the north as a result of urban development and agricultural activities. The onsite sage scrub community is comprised of a healthy plant composition dominated by low-growing, drought deciduous shrubs and sub-shrubs typical of a sage scrub community including coastal California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*) and California sagebrush (*Artemisia californica*). This community also supports but is not limited to: coast cholla (*Cylindropuntia prolifera*), white sage (*Salvia apiana*), coastal deerweed (*Acmispon glaber* var. *glaber*), bladderpod (*Peritoma arborea*), and non-native grasses. This community is healthy and suitable as breeding and/or foraging grounds for the coastal California gnatcatcher.

Small areas of sage scrub dominated by spreading goldenbush (*Isocoma menziesii* var. *menziesii*) occur at the toe of the slope, along an existing dirt road. These areas have been classified as Diegan coastal sage scrub – *Isocoma menziesii* dominated. A small to moderate size patch of Diegan coastal sage scrub is located within the northeastern portion of the survey area on a steep hillside just west of Monserate Hill Road. This community is dominated by shrubs and trees including laurel sumac (*Malosma laurina*) and coast live oak (*Quercus agrifolia* var. *agrifolia*) (smaller trees) with inclusions of uncut orchard trees that appear to be dying. Lastly, a hillside just off Live Oak Creek Circle has been classified as disturbed Diegan coastal sage scrub due to the disturbance associated with construction activities ongoing on the adjacent parcels (not associated with the proposed District project). These monotypic and disturbed sage scrub communities could be utilized by the gnatcatcher; however, due to the composition, small size, and adjacency to higher quality sage scrub habitat, it is likely that these areas serve as foraging and dispersal areas rather than breeding habitat.

A total of three coastal California gnatcatchers were observed at one time during Survey No. 4 within Diegan coastal sage scrub in the central portion of the survey area; one adult male and two non-adult males (Figure 2). The two non-adult males are presumed to be a female and fledgling. No band information was observed on any of the birds. On this day, the gnatcatchers were detected during the early portion of the survey as a result of a non-solicited call and thereafter observed for approximately thirty minutes. During Survey No. 3, a solicited response was heard within the same general location as Survey No. 4 (slightly to the south); however, it was a one-time response and the individual was not observed.

A CNDDB form for this coastal California gnatcatcher occurrence (Survey No. 4) has been completed and submitted to the CDFW electronically.





Coastal California Gnatcatcher Survey Routes and Location(s) Map

Rainbow Municipal Water District, Gird/Monserate Hill Water Line Design Project

Aerial Source: Google Earth 2015

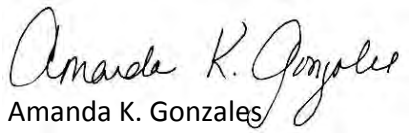
Figure 2

CONCLUSIONS

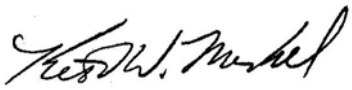
No other pertinent observations pertaining to the coastal California gnatcatcher were noted during the survey efforts. Due to the limited nature of the work on this project (i.e., protocol presence/absence surveys, not long-term research), we have no additional recommendations for species recovery.

If you have any questions concerning this report, please do not hesitate to contact me at (858) 560-5465 or agonzales@merkelinc.com.

Sincerely,



Amanda K. Gonzales
Senior Biologist/Project Manager



Keith W. Merkel
Principal Consultant

cc: Ms. Nancy Frost, California Department of Fish and Wildlife, South Coast Region, nancy.frost@wildlife.ca.gov

Mr. Michael Pollard, Project Manager, PSOMAS, mpollard@psomas.com

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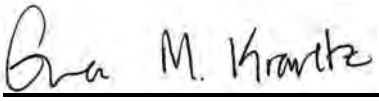
I hereby certify that the statements furnished herein and in the attached exhibits present the data and information as required pursuant to Recovery Permit TE-797999-8.1, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

1) Fieldwork Performed By:

Amanda K. Gonzales, Senior Biologist
10(a) Permit Number 797999-8.1

2) Fieldwork Performed By:



Gina M. Krantz, Senior Biologist
10(a) Permit Number 797999-8.1

APPENDIX 5. PHOTOGRAPHS OF THE POTENTIAL PROJECT AREA

Photo 1 – Overview of the District easement (red line represents approximate location) from Gird Road, under the riparian canopy, through coastal sage scrub. Photo taken on 9/30/2015 and directed west.

Photo 2 – Overview of the District easement (red line represents approximate location) from Photo 1 directed east. Photo taken on 9/30/2015 and directed east.

Photo 3 – Overview of the District easement (red line represents approximate location) though non-native grassland/historic orchard. Photo taken on 9/30/2015 and directed northwest.

Photo 4 – Photo taken on the east side of the perennial, low-flow channel within the southern cottonwood-willow riparian forest. This area is disturbed as a result of the urban/agricultural uses on the parcel. Photo taken on 9/30/2015 and directed west.

Photo 5 – Photo taken from Photo Point 4 but directed west. Photo taken on 9/30/2015.

Photo 6 – View of the distrubed wetland between two culverts. Photo taken a Gird Road and directed east. Photo taken on 9/30/2015.

Appendix B

CULTURAL RESOURCES INVENTORY FOR THE GIRD – MONSERATE HILL WATER LINE DESIGN PROJECT, FALLBROOK, COUNTY OF SAN DIEGO, CALIFORNIA

Prepared for

Rainbow Municipal Water District

3707 Old Hwy 395

Fallbrook, CA 92028

Spindrift Project No. 2015-007

Prepared by Arleen Garcia-Herbst, RPA

October 2015

SPINDRIFT ARCHAEOLOGICAL CONSULTING, LLC

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San Diego, CA 92122
Phone: 858-333-7202 Fax: 855-364-3170

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Figures

Appendices

APE	Area of Potential Effects
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
County	San Diego County
CRHR	California Register of Historical Resources
CWSRF	Clean Water State Revolving Fund
DPR	Department of Parks and Recreation
EPA	United States Environmental Protection Agency
GPS	Global Positioning System
HWL	High Water Line
km	kilometers
MLD	Most Likely Descendant
NADB	National Archaeological Database
NAHC	Native American Heritage Commission
NEPA	National Environmental Protection Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PI	Principal Investigator
PRV	Pressure Reducing Valve
RMWD	Rainbow Municipal Water District
RPA	Register of Professional Archaeologists
SCIC	South Coastal Information Center
USGS	United States Geological Survey

National Archaeological Database

Author:	Arleen Garcia-Herbst
Consulting Firm:	Spindrift Archaeological Consulting
Report Date:	October 2015
Report Title:	Cultural Resources Inventory for the Gird – Monserate Hill Water Line Design Project, Fallbrook – County of San Diego, California
Prepared by:	Spindrift Archaeological Consulting, 8895 Towne Centre Drive #105-248, San Diego, CA 92122
Submitted to:	Rainbow Municipal Water District
Project No.	2015-007
Acreage	approximately 2.19
Keywords:	Gird – Monserate Hill Water Line Design, Inventory Survey, Negative

EXECUTIVE SUMMARY

In 2015, Rainbow Municipal Water District (RMWD) retained Spindrift Archaeological Consulting, LLC (Spindrift) to conduct a cultural resources inventory survey of the proposed Gird – Monserate Hill Water Line Design Project (hereafter termed Project) in the County of San Diego. The entire Project Area of Potential Effects (APE) is composed of approximately 2.19 acres. The Project APE is located in the unincorporated community of Fallbrook in San Diego County, California.

The inventory included a records search, literature review, and field survey. The records search results indicated 26 previous cultural resources studies were conducted within a 0.5-mile radius of the Project APE, and eight (8) cultural resources have previously been recorded within a 0.5-mile radius of the Project APE; none were previously recorded within the Project APE.

A field survey was carried out on 16 October 2015. No new cultural resources were identified as a result of the survey. Recommendations for eligibility evaluations and the management of unanticipated discoveries are provided in this report.

SECTION 1 INTRODUCTION

In 2015, Spindrift was retained by Rainbow Municipal Water District (RMWD) to conduct a cultural resources inventory of the proposed Gird – Monserate Hill Water Line Design Project (Project APE), located in San Diego County (County), California. A survey of the approximately 2.19-acre Project APE was required to identify potentially significant cultural resources (archaeological sites, historic buildings, structures, and objects) that could be affected by the project.

1.1 PROJECT LOCATION

The Project APE is composed of approximately 2.19 acres located in the unincorporated community of Fallbrook, San Diego County, California, as shown on the US Geological Survey (USGS) 7.5-minute Bonsall topographic quadrangle (1946, photorevised 1975) (Figure 1).

1.2 PROJECT DESCRIPTION

The Project includes installation of a pipeline and a pressure reducing station from Gird Road to Monserate Hill Road for the RMWD. Monserate Hills is served from a singular pipeline feed in the Canonita Zone (1019' HWL), known as the Monserate Hill Pipeline with a secondary feed from Pala Mesa Tank Zone (865' HWL), which is inoperable. The Pala Mesa Zone pipeline runs from Gird Road across a stream and up a steep slope to Monserate Hill Road in a 20-foot District easement. The District shut off this feed a number of years ago due to a leak beneath the creek. The 2006 Master Plan calls for installing a pressure reducing valve (PRV) from the Canonita Zone into the Monserate Hills area. This project will swap the main and secondary supply lines and includes the installation of approximately 2,150 Linear Feet of 12-inch pipeline along with the installation of a PRV, within a 20-foot wide right-of-waycorridor. Therefore, the Project must comply with the RMWD's California Environmental Quality Act (CEQA) requirements.

1.3 AREA OF POTENTIAL EFFECTS (APE)

The Project APE consists of the horizontal and vertical limits of the project, and includes the area within which significant impacts or adverse effects to Historical Resources (CEQA) could occur as a result of the project. The Project APE, subject to environmental review under CEQA, consists of all areas where activities associated with the project are proposed. This includes areas proposed for construction, vegetation removal, grading, trenching, stockpiling, staging, paving, and other elements described in the official project description. The horizontal APE is illustrated in Figure 2 and also represents the survey coverage area. It measures approximately 2.19 acres in size.

The Project APE also includes the maximum depth below the surface to which excavations for project foundations and facilities will extend. Thus, it includes all subsurface areas where archaeological deposits could be affected and varies across the project, depending on the type of infrastructure. Subsurface ground disturbance is assumed to a maximum depth of 8 feet.

1.4 REGULATORY CONTEXT

To meet the regulatory requirements of this project, this cultural resources investigation was conducted pursuant to the provisions for the treatment of cultural resources in CEQA (Pub. Res. Code § 21000 et seq.). The goal of CEQA is to develop and maintain a high-quality environment that serves to identify the significant environmental effects of the actions of a proposed project, and to either avoid or mitigate those significant effects, where feasible. CEQA pertains to all proposed projects that require state or local government agency approval, including the enactment of zoning ordinances, the issuance of conditional use permits, and the approval of development project maps.

CEQA (Title 14, CCR, Article 5, Section 15064.5) applies to cultural resources of the historical and prehistoric periods. Any project with an effect that may cause a substantial adverse change in the significance of a cultural resource, either directly or indirectly, is a project that may have a significant effect on the environment. As a result, such a project would require avoidance or mitigation of impacts to those affected resources. Significant cultural resources must meet at least one of four criteria that define eligibility for listing in the California Register of Historical Resources (CRHR) (Pub. Res. Code § 5024.1, Title 14 CCR, Section 4852). Resources listed on or eligible for inclusion in the CRHR are considered Historical Resources under CEQA.

1.5 REPORT ORGANIZATION

The following report documents the study and its findings and was prepared in conformance with the California Office of Historic Preservation's *Archaeological Resource Management Reports: Recommended Contents and Format.* Appendix A includes a confirmation of the records search with the California Historical Resources Information System (CHRIS). Appendix B contains documentation of Native American outreach efforts. Appendix C presents photographs of the Project APE. Appendix D includes copies of the confidential California Department of Parks and Recreation (DPR) 523 series forms.

Sections 6253, 6254, and 6254.10 of the California Code authorizes state agencies to exclude archaeological site information from public disclosure under the Public Records Act. In addition, the California Public Records Act (Government Code §6250 *et seq*.) and California's open meeting laws (The Brown Act, Government Code §54950 *et seq*.) protect the confidentiality of Native American cultural place information. Likewise, the information centers of the CHRIS maintained by the Office of Historic Preservation, prohibit public dissemination of record search information.

Appendix D and Figure 5 were prepared as a confidential materials, which are not intended for public distribution in either paper or electronic format.

SECTION 2 SETTING

The Project is located in the County of San Diego within the Fallbrook Community (Figures 1 and 2).

2.1 Existing Conditions

This section establishes the context for the evaluation of cultural resources through an overview of the environmental setting, the prehistory, and the ethnographic identity of the Project APE, as well as the regulatory setting.

2.1.1 Natural Setting

Located in North San Diego County, Fallbrook began in the area known today as Live Oak County Park (Fallbrook Chamber of Commerce 2015). The first permanent recorded settlement was in 1869, when the Vital Reche family settled here. They named the new community Fall Brook after their former homestead in Pennsylvania.

The present town site was plotted in 1885. The original Fallbrook School, though closed as a school in 1939, still serves the community as the Reche Clubhouse. One of the community's churches was constructed in 1890 and is still in use today.

Oak trees were the original primary trees in Fallbrook. Olives became a major crop by the 1920s and continued through World War II, but were eventually phased out in favor of the present avocado and floral industry. Though the population continues to increase at a moderate pace, Fallbrook maintains an easy lifestyle and retains its "Friendly Village" atmosphere loved by residents and envied by visitors.

Fallbrook has always featured a rural countryside with all the amenities nearby. The community of approximately 50,000 is spread over 127 square miles.

The project site is located within a semi-rural residential/agricultural community between Gird Road and Monserate Hill Road which is located west of Interstate 15 and north of State-Route (SR) 76/Pala Road. The topography is comprised of steep hillsides covered with active and/or inactive orchards, most of which are located north of SR-76 and east of Gird Road. Where agricultural operations are not present, portions of the hillsides are covered with native and/or naturalized vegetation including Diegan coastal sage scrub and non-native grassland. West of Gird Road the lands are predominantly developed for urban uses (e.g., golf course, dense and spaced residential) with the exception of land immediately west of the project site which is presently undeveloped non-native grassland.

2.1.2 Geology and Soils

Three (3) soil units, or types, have been mapped within the Project APE: Grangeville series (GoA) and two types of Cieneba series (CmrG and CIE2) (U.S. Department of Agriculture, Natural Resources Conservation Service 2015). The Grangeville series consists of very deep, somewhat poorly drained soils that formed in moderate coarse textured alluvium dominantly from granitic rock sources. Grangeville soils are on alluvial fans and floodplains and have slopes ranging from 0 to 2 percent.

The Cieneba series consists of very shallow and shallow, somewhat excessively drained soils that formed in material weathered from granitic rock. Cieneba soils are on hills and mountains and have slopes ranging between 9 to 85 percent.

Three geologic units have been mapped within the Project APE: 1) Older alluvial flood plain deposits (Qoa, Pleistocene, younger than 500,000 years) that consist of mostly moderately well consolidated, poorly sorted, permeable flood plain deposits and have low sensitivity for buried cultural materials; 2) Active alluvial flood plain deposits (Qa, late Holocene) that consist of unconsolidated to locally poorly consolidated sand and gravel deposits in active alluvial flood plains, and have high sensitivity for buried cultural materials; and 3) Granodiorite of Indian Mountain (Ki, Cretaceous) that consists of biotite leucocratic granodiorite that is white, fine to medium grained and massive and that has low potential for buried cultural resources (Tan 2000). A previous map (Rogers 1965) shows the Project APE underlain by Mesozoic granitic rocks (gr).

2.1.3 Vegetation and Wildlife

The existing water line occurs within a 20-foot wide District easement, and extends subsurface from Gird Road where much of the area is highly disturbed in association with rural urban/agricultural activities, under a tributary to the San Luis Rey River, east up a steep slope through Diegan coastal sage scrub and non-native grassland/historic orchard to Monserate Hill Road. A smaller, secondary tributary to San Luis Rey River occurs parallel with Gird Road and ultimately merges with the main tributary south, beyond the limits of the project area. Within the project area, the main tributary appears to convey perennial to seasonal surface flow in a north to southwest direction under a semi-disturbed, multi-layer canopy of southern cottonwood-willow riparian forest while the smaller, secondary tributary is expected to convey ephemeral or seasonal surface flow and support patches of disturbed wetland. East of the main tributary the habitat transitions to Diegan coastal sage scrub with patches of coast live oak woodland. The sage scrub community is comprised of a healthy plant composition dominated by low-growing, drought deciduous shrubs and sub-shrubs typical of a sage scrub community including coastal California buckwheat (*Eriogonum fasciculatum* var.*fasciculatum*) and California sagebrush (*Artemisia californica*). Further east the habitat transitions to non-native grassland/historic orchard and is generally dominated by non-native grass species such as ripgut grass (*Bromus diandrus*) with sporadic inclusions of native shrubs typical of a sage scrub community. Urban development has been classified for those areas where permanent or semi-permanent structures are located, including associated parking/staging areas and ornamental landscaping while disturbed habitat has been classified for dirt access roads, foot paths, and areas of disturbance around the residential structure off Monserate Hill Road. Agriculture has also been mapped for lands actively harvested, including land just east of the main tributary where row crops of nopal blanco (*Opuntia leucotricha*) appear to be actively harvested and where a small livestock pen occurs. Wildlife species noted during the biological survey consisted of species commonly found in native and naturalized habitats throughout San Diego County many of which are year-round residents and to a lesser degree are wintering species. This includes a variety of butterflies and birds throughout the riparian, sage scrub, and non-native grassland communities with fewer reptiles and mammals detected. Overall, due to the intact tract of Diegan coastal sage scrub and riparian canopy that pass through the project area, there is a potential for various sage scrub and riparian associated species to forage, nest, and/or disperse through the biological survey area.

2.1.4 Cultural Setting

The following sections have been excerpted from the County of San Diego Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources (GDS 2007) and serves to

provide a comparative framework for the prehistory of the region and context for this inventory report. Archaeological evidence reveals that San Diego County has a long cultural history beginning approximately 10,000 years ago. The following cultural background discusses the characteristics of each cultural period of prehistory and history. The information that follows is reproduced with the permission of the author, *Dennis Gallegos*. The references cited in this section can be found in GDS (2007).

PRE-CONTACT BACKGROUND

The body of current research of Native American (Pre-Contact) occupation in San Diego County recognizes the existence of at least two major cultural traditions, discussed here as Early Period/Archaic and Late Period, based upon general economic trends and material culture. Within San Diego County, the Early Period/Archaic includes the period from 10,000 to 1,300 years ago, while the Late Period is from 1,300 years ago to historic (Spanish) contact. The Post-contact/Historic Period covers the time from Spanish contact to present. Terminology used for the past 10,000 year history of San Diego County includes a mixture of ideas of ordering archaeological sites using terms for peoples, collections of artifacts, and temporal time frames. The first ordering was by Malcolm Rogers who used the terms: Shell-Midden people, Scraper-Maker culture (scraper-makers), and Yuman (Rogers 1929). He later revised his chronology to use the terms San Dieguito (Scraper-Maker), La Jolla culture (Shell-Midden people) and Yuman (Rogers 1945). Claude Warren characterized the San Dieguito Tradition as: "… a wide range of scraper types made on side-struck flakes and finished by well controlled percussion flaking, leaf-shaped knives or large points of several varieties, leaf-shaped, lanceolate and slightly shouldered points in small number. Chipped stone crescents, often eccentric in form, hammerstones and flaked tools are few in number. Milling stones and manos are noticeably absent" (Warren 1968). Warren's revision to Rogers' La Jolla culture, was called the Encinitas Tradition wherein he identifies: "…the majority of flaked stone tools being percussion flaked and made from local macrocrystalline rock. A large percentage of the tool assemblage is composed of chopping, scraping and cutting tools and hammerstones. Projectile points are rare and rather large, suggesting the use of darts, rather than bow and arrow. Ground stone items include large numbers of manos and milling stones usually shaped through use, and occasional items such as doughnut stones, discs and cogstones…Bone tools are rare but include awls, antler flakers, beads…Shell items are also limited, but include beads, pendants…Basketry is represented…Loosely flexed burials are found throughout the area…" (Warren et al. 1968). Warren has more recently updated his chronology and for the San Dieguito Tradition (Initial Occupation) has since included milling tools and a wider range of tools and food sources, and now discusses the potential of Transitional and intermediate stages of occupation to cover the past 10,000 years of Native American occupation in San Diego County (Warren 1998). Early Man in San Diego County was discussed by George Carter in the 1950s; however little to no evidence of Pleistocene human occupation supports this hypothesis (Carter 1957).

Early Period/Archaic

The Early Period/Archaic includes the San Dieguito, La Jolla and Pauma complexes, which are poorly defined, as are the interrelationships between contemporaneous inland, desert, and coastal assemblages (Gallegos 1987). Initially believed to represent big game hunters, the San Dieguito people are better typified as a hunting and gathering society. These people had a relatively diverse and non-specialized economy wherein relatively mobile bands accessed and used a wide range of plant, animal, and lithic resources. Movement of early groups from the California desert may have been spurred by the gradual

desiccation of the vast pluvial lake system that dominated inland basins and valleys during the early to middle Holocene. This hypothesis is supported by the similarity between Great Basin assemblages and those of Early Holocene Archaic sites in San Diego County. Several researchers recognized the regional similarity of artifacts and grouped these contemporaneous complexes under the nomenclature of either the Western Pluvial Lakes Tradition or the Western Lithic Co-tradition (Bedwell 1970; Davis et al. 1969; Moratto 1984; Rogers 1939; Warren 1967).

Early migrations into San Diego County may have come from the north. Recent work on the northern Channel Islands near Santa Barbara demonstrates island occupation dating back to the terminal Pleistocene, roughly 11,600 years ago (Erlandson et al. 1996; Johnson et al. 2000). At this early date, a fully maritime-adapted population exploited shellfish and used seaworthy boats to ply channel waters. Fish were captured using bone gorges by 10,000 years ago (Rick et al. 2001). Such early dates are lacking for the adjacent Santa Barbara mainland; presumably because the rise in sea level brought about by post-Pleistocene deglaciation would have inundated sites along the late Pleistocene/early Holocene coastlines. At this time in San Diego County, the shoreline stood two to six kilometers (km) farther seaward than today's coast (Masters and Gallegos 1997). Therefore, any evidence for early coastal adaptation coeval with that of the northern Channel Islands may have been destroyed within this two to six km paleo-shoreline area by sea encroachment thousands of years ago.

The origin of coastal populations in San Diego County and subsequent interaction between these populations and Great Basin/desert groups is a subject of some debate (Gallegos 1987). Whether they migrated into San Diego County from the coast or inland, the first occupants immediately exploited coastal and inland resources of plants, animals, shellfish, and fish (Gallegos 1991; Moriarty 1967; Kaldenberg 1982; Kyle et al. 1998).

The development of a generalized economic system indicates that the initial occupation, referred to here as San Dieguito can be placed within the general Archaic pattern. Archaic cultures occur within North America at slightly different times in different areas, but are generally correlated with local economic specialization growing out of the earlier Paleo-Indian Tradition (Willig et al. 1988). Archaic cultures are often represented by more diverse artifact assemblages and more complex regional variation than PaleoIndian traditions. This is generally thought to have resulted from the gradual shift away from a herd-based hunting focus to a more diverse and area specific economy.

The earliest known sites are found near coastal lagoons and river valleys of San Diego County. These sites are the Harris Site (CA-SDI-149), Agua Hedionda sites (CA-SDI- 210/UCLJ-M-15 and CA-SDI-10695), Rancho Park North (CA-SDI-4392/SDM-W-49), and Remington Hills (CA-SDI-11069), dating from 9,500 to 8,000 years ago. The northern San Diego County coastal lagoons supported large populations, circa 6,000 years ago, as shown by the numerous radiocarbon-dated sites adjacent to these lagoons. After 3,000 to roughly 1,500 years ago, there are fewer archaeological sites in northern San Diego County. This reduction in number of archaeological sites can be attributed to the slowing of the rise in sea level and concomitant siltation of coastal lagoons causing the depletion of shellfish and other lagoon resources (Gallegos 1985; Miller 1966; Warren and Pavesic 1963). Archaeological sites dated to circa 2,000 years ago are found in the Camp Pendleton area (Byrd and Reddy 2002), wherein shellfish (*Donax gouldii*) were collected from open-shore sandy beach habitat; and bay species were still abundant in San Diego Bay, and present but not as dominate in other lagoons. Batiquitos Lagoon and perhaps other

lagoons reopened circa 1,500 years ago, therein producing shellfish, but not in the quantity, size or variety of shellfish as documented for the early to middle Holocene (Miller 1966, Gallegos 1985).

The La Jolla and Pauma complexes, which are referred to as following the San Dieguito Complex, may simply represent seasonal or geographic variations of the somewhat older and more general San Dieguito Complex. Inland Early/Archaic Period occupation sites have been reported in coastal settings, transverse valleys, sheltered canyons, benches and knolls (True 1958; Warren et al. 1961). In north San Diego County, noncoastal sites were termed "Pauma Complex" by True (1958, 1980), and were defined as containing a predominance of grinding implements (manos and metates), a general lack of shellfish remains, a greater tool variety, and express an emphasis on both gathering and hunting (True 1958, 1980; Warren et al. 1961; Waugh 1986).

Early Period/Archaic sites from 10,000 to 1,300 years ago within San Diego County include a range of sites that include coastal and inland valley habitation sites, inland hunting and milling camps, and quarry sites, usually in association with fine-grain metavolcanic material. Material culture assemblages during this long period are remarkably similar in many respects. These deposits may well represent a process of relative terrestrial economic stability and presumably slow cultural change. Though various cultural traits developed or disappeared during the long span of 10,000 to 1,300 years ago, there is a clear pattern of cultural continuity during this period.

Late Period

During the Late Period (circa 1,300 to historic contact), a material culture pattern, similar to that of historic Native Americans, becomes apparent in the archaeological record. The economic pattern during this period appears to be one of more intensive and efficient exploitation of local resources. The prosperity of these highly refined economic patterns is well evidenced by the numerous Kumeyaay/Diegueño and Luiseño habitation sites scattered throughout San Diego County. This increase in Late Period site density probably reflects both better preservation of the more recent archaeological record and a gradual population increase within the region. Artifacts and cultural patterns reflecting this Late Period pattern include small projectile points, pottery, the establishment of permanent or semi-permanent seasonal village sites, a proliferation of acorn milling sites in the uplands, the presence of obsidian from the Imperial Valley source Obsidian Butte, and interment by cremation.

Luiseño occupation in northern San Diego County during the late Holocene has been viewed as an occupation that migrated from the desert to the coast (Rogers 1966), an incursion called "the Shoshonean Wedge" (Kroeber 1925). Late Period culture patterns were shared with groups along the northern and eastern periphery of San Diego County, incorporating many elements of their neighbors' culture into their own cultures. This transference and melding of cultural traits between neighboring groups makes positive association of archaeological deposits with particular ethnographically known cultures difficult. This is particularly true of the groups within San Diego County. Although significant differences exist between Luiseño and Kumeyaay/Diegueño cultures (including linguistic stock), the long interaction of these groups during the Late Period resulted in the exchange of many social patterns. Archaeologists must rely heavily on ethnographic accounts of group boundaries as recorded during the historic period, although it is not known how long these boundaries had been in place or the validity of these boundaries as presently reported.

Kroeber (1925) placed the Kumeyaay and Luiseño boundary between Agua Hedionda and Batiquitos Lagoon. According to Luomala (1978) the territory of the Ipai extended along the coast from the San Luis Rey River in the north to San Diego Bay in the south with San Felipe Creek marking the eastern boundary. The territory of the Tipai, the southern group, extended south from San Diego Bay to include parts of Mexico and the southern mountains. Florence Shipek (1993) identified the northern and southern Kumeyaay/Diegueño tribal boundary as:

> In 1769, the Kumeyaay national territory started at the coast about 100 miles south of the Mexican border (below Santo Tomas), thence north to the coast at the drainage divide south of the San Luis Rey River including its tributaries. Using the USGS topographic maps, the boundary with the Luiseño then follows that divide inland. The boundary continues on the divide separating Valley Center from Escondido and then up along Bear Ridge to the 2240 contour line and then north across the divide between Valley Center and Woods Valley up to the 1880-foot peak, then curving around east along the divide above Woods Valley (Shipek 1993).

HISTORICAL BACKGROUND

The history of San Diego County is commonly presented in terms of Spanish, Mexican, and American political domination. A discussion of historic land use and occupation under periods of political rule by people of European and Mexican origin is justified on the basis of characteristics associated with each period, when economic, political, and social activities were influenced by the prevailing laws and customs. Certain themes are common to all periods, such as the development of transportation, settlement, and agriculture. Robinson (1969) provides a comprehensive account of public and privately owned land in California, with a discussion of laws, activities and events related to the development of the state.

Spanish Period (1769-1821)

The Spanish Period represents exploration, the establishment of the San Diego Presidio and missions at San Diego (1769) and San Luis Rey (1798), and *asistencías* (chapels) to the San Diego Mission at Santa Ysabel (1818) and to the San Luis Rey Mission at Pala (1816). Horses, cattle, agricultural foods and weed seeds, and a new architectural style and method of building construction were also introduced. Spanish influence continued after 1821 when California became a part of Mexico. For a period of time under Mexican rule, the missions continued to operate as in the past, and laws governing the distribution of land were also retained.

Mexican Period (1821-1848)

The Mexican Period includes the initial retention of Spanish laws and practices until shortly before secularization of the missions in 1834, a decade after the end of Spanish rule. Although several grants of land were made prior to 1834, vast tracts of land were dispersed through land grants offered after secularization. Cattle ranching prevailed over agricultural activities, and the development of the hide and tallow trade increased during the early part of this period. The Pueblo of San Diego was established and transportation routes were expanded. The Mexican Period ended in 1848 as a result of the Mexican-American War.

American Period (1848 to Present)

The American Period began when Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo. Terms of the treaty brought about the creation of the Lands Commission, in response to the Homestead Act of 1851 that was adopted as a means of validating and settling land ownership claims throughout the state. Few Mexican ranchos remained intact because of legal costs and the difficulty of producing sufficient evidence to prove title claims. Much of the land that once constituted rancho holdings became available for settlement by immigrants to California. The influx of people to California and the San Diego region resulted from several factors, including the discovery of gold in the state, the conclusion of the Civil War, the availability of free land through passage of the Homestead Act, and later, the importance of San Diego County as an agricultural area supported by roads, irrigation systems, and connecting railways. The growth and decline of towns occurred in response to an increased population and the economic boom and bust cycle in the late 1800s.

NATIVE AMERICAN PERSPECTIVE

In addition to the point of view discussed above, the County acknowledges that other perspectives exist to explain the presence of Native Americans in the region. The Native American perspective is that they have been here from the beginning as described by their creation stories. Similarly, they do not necessarily agree with the distinction that is made between different archaeological cultures or periods, such as “La Jolla” and “San Dieguito”. They instead believe that there is a continuum of ancestry, from the first people to the present Native American populations of San Diego. To acknowledge this perspective, consultation with affected Native American communities can be beneficial to fully understand the impact to cultural resources. The consultation is typically administered pursuant to Senate Bill 18 and Assembly Bill 52.

2.2 Regulatory Setting

The public stewardship and management of historical resources are provided for in the local, state and federal policies and regulations that form the basis for the County of San Diego's development review process. This project has been completed in accordance with all applicable regulations, provided in the County of San Diego Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources (GDS 2007), and per the cultural resources provisions of CEQA of 1970 (Public Resources Code §§ 21000–21177). Per these applicable regulations impacts to cultural resources associated with this project must be taken into consideration. These regulations are described in detail below.

2.2.1 Public Resources Code and CEQA

CEQA states that:

> The Legislature further finds and declares that it is the policy of the state to. .. Preserve for future generations. .. Examples of the major periods of California history (Section 21001).

CEQA requires that before approving discretionary projects the Lead Agency must identify and examine the significant adverse environmental effects which may result from that project. A project that may cause

a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment (Sections 15064.5(b) and 21084).

As it pertains to cultural resources, CEQA defines the term "historical resource" as the following:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR (Pub. Res. Code §5024.1, Title 14 CCR. Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (Pub. Res. Code §5024.1, Title 14, Section 4852) including the following:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2) It is associated with the lives of persons important to local, California, or national history;

3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or

4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

The fact that a resource is not listed in, or determined eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resource Code) does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

According to CEQA (§15064.5b), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change as:

(1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

(2) The significance of an historical resource is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects on archaeological sites and contains the following additional provisions regarding archaeological sites:

(1) When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).

(2) If a lead agency determines that the archaeological site is an historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, and this section, Section 15126.4 of the Guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.

(3) If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21083.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.

(4) If an archaeological resource is neither a unique archaeological nor an historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) & (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides: (d) When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the Native American heritage Commission as provided in Public Resources Code §5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the Native American heritage Commission. Action implementing such an agreement is exempt from:

(1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5).

(2) The requirement of CEQA and the Coastal Act.

2.2.2 County of San Diego CEQA Significance

As stated above, if a resource is not listed in, or determined eligible for listing in the CRHR, and not included in a local register or not deemed significant in a historical resource survey it may nonetheless be historically significant. If a proposed project has the potential to effect a historical resource, the significance of that resource must be determined. The significance of a historical resource is based on the potential for the resource to address important research questions, as documented in a site specific technical report prepared as part of the environmental review process. Research priorities for the prehistoric, ethnohistoric and historic periods of San Diego County history are discussed in these guidelines and should be used in the determination of historical significance. As a baseline, the County of San Diego has established the following criteria to be used in the determination of significance under CEQA.

A number of criteria are used in identifying significant historic/archaeological resources and are based upon the criteria for inclusion in the San Diego County Local Register. Significance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of San Diego County in history, architecture, archaeology, engineering, and culture.

The San Diego County Local Register was modeled after the California Register. As such, a cultural resource is determined significant if the resource is listed in, or determined to be eligible for listing in the National Register of Historic Places, the California Register of Historical Resources, or the San Diego County Local Register of Historical Resources. Any resource that is significant at the National or State level is by definition significant at the local level.

The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources; or is not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or is not identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that a resource may be historical as defined in Public Resources Code section 5020.1(j) or 5024.1.

The following criteria must be considered when evaluating a resource's importance. The first four criteria were derived from the significance criteria found in the California Environmental Quality Act and the San Diego County Local Register of Historical Resources (Ordinance No.9493; San Diego County Administrative Code §396.7). The San Diego County Local Register is similar to both the National Register and California Register but is different in that significance is evaluated at the local level.

1. Resources associated with events that have made a significant contribution to the broad patterns of California or San Diego County's history and cultural heritage. Examples include resources associated with the Battle of San Pasqual (Mexican-American War, 1846), or gold mining in the Julian area (1870s), or a Kumeyaay settlement in the Cuyamaca Valley. Each of these resources would be considered significant because it is associated with an event that has made a significant contribution to the broad patterns of San Diego County's history and cultural heritage.

2. Resources associated with the lives of persons important to our past, including the history of San Diego County or its communities. Resources that are associated with the life of George W. Marston (Benefactor/Merchant/Civic Leader), Kate Sessions (Horticulturalist), John D. Spreckels (Investor/Developer), Ellen Browning Scripps (Philanthropist), Ah Quin (Chinese Merchant/Labor Contractor), Manuel O. Medina (Pioneer of the Tuna Industry), Jose Manuel Polton (Hatam [Kumeyaay Captain of the Florida Canyon Village]), or Jose Pedro Panto (Kumeyaay Captain of the San Pasqual Pueblo) illustrates this criteria because this list identifies examples of individuals that are important to the history of San Diego County or its communities.

3. Resources that embody the distinctive characteristics of a type, period, region (San Diego County), or method of construction, or represents the work of an important creative individual, or possesses high artistic values. Resources representing the work of William Templeton Johnson (Architect – Balboa Park, Serra Museum), Irving Gill (Architect – Bishop's School), Lilian Rice (Rancho Santa Fe), or Hazel Waterman (Designer – Estudillo Adobe Restoration) would be considered significant because they represent the work of an important creative individual; or if a resource is identified as a Queen Anne, Mission Revival, Craftsman, Spanish Colonial, or Western Ranch Style structure, it would be significant because it embodies the distinctive characteristics of a type or period.

4. Resources that have yielded or may be likely to yield, information important in prehistory or history. Most archaeological resources contain information; however the amount of information varies from resource to resource. For example, a small lithic scatter will contain information, but it will be on a much more limited basis than that of a village or camp site. The information may be captured during initial recordation and testing of the site or may require a full data recovery program or additional treatment/mitigation. Any site that yields information or has the potential to yield information is considered a significant site. Most resources will be considered significant because they contain some information that contributes to our knowledge of history or prehistory. The criteria used to evaluate a single resource is the same criteria used to evaluate cumulative impacts to multiple resources outside the boundary of a project.

5. Although districts typically will fall into one of the above four categories, because they are not specifically identified, the following criterion is included which was obtained from the National Register:

Districts are significant resources if they are composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition, but collectively compose an entity of exceptional historical or artistic significance, or outstandingly commemorate or illustrate a way of life or culture. A traditional cultural landscape is an example a prehistoric district because individual sites must be considered within the broader context of their association with one another.

6. Resource Protection Ordinance (RPO). Cultural resources must be evaluated for both the CEQA as outlined in criteria 1-4 above, and the Resource Protection Ordinance pursuant to Section 2 of the ordinance. Under the Resource Protection Ordinance, cultural resources are considered RPO significant if they meet the definition of a RPO "Significant Prehistoric or Historic Site", as set forth in Section 3.1 above.

7. Human remains are considered “highly sensitive” by the County. As such, human remains require special consideration and treatment. Regulations require that if human remains are discovered, the County Coroner shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains. This criterion was included pursuant to the CEQA (§15064.5) and California State Code (PRC5097.98 and HSC7050.5). As such, a resource shall be considered significant if it contains any human remains interred outside of a formal cemetery. Mitigation measures will be developed on a case by case basis by the County archaeologist and the archaeological consultant. In addition, it is of the utmost importance to tribes that human remains be avoided whenever feasible.

8. Integrity is the authenticity of a resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance. The evaluation of integrity is somewhat of a subjective judgment, but it must always be grounded in an understanding of a property’s physical features and how they relate to its historical associations or attributes and context. Resources must retain enough of their historical character or appearance to be recognizable as historical resources and to convey the reasons for their significance. An evaluation of integrity is an essential part of determining significance for historical resources such as building, structures, and districts.

   Integrity is evaluated through the assessment of a cultural resource’s attributes, and may include location, design, setting, materials, workmanship, feeling, and association. It must be judged with reference to the particular criteria under which a resource is proposed for eligibility (structural, architectural, artistic, historic location, archaeological site, historic district). Alterations over time to a resource or historic changes in its use may themselves have historical, cultural, or architectural significance.

   Attributes - Attributes are those distinctive features that characterize a resource. They should be evaluated and compared to other properties of its type, period, or method of construction.

Location - Location is the place where the property was constructed or the place where the historical event occurred. The actual location of an historical property, complemented by its setting, is particularly important in recapturing the sense of historical events and persons.

Design - Design is the combination of elements that create the historical form, plan, space, structure, and style of a property. This includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials. Design can also apply to districts and to the historical way in which the buildings, sites, or structures are related. Examples include spatial relationships between major features; visual rhythms in a streetscape or landscape plantings; the layout and materials of walkways and roads; and the relationship of other features, such as statues, water fountains, and archaeological sites.

Setting - Setting is the physical environment of an historical property. It refers to the historical character of the place in which the property played its historical role. It involves how, not just where, the property is situated and its historical relationship to surrounding features and open space. The physical features that constitute the historical setting of an historical property can be either natural or manmade and include such elements as topographical features, vegetation, simple manmade paths or fences and the relationships between buildings and other features or open spaces.

Materials - Materials are the physical elements that were present during the development period and are still present or, if materials have been replaced, the replacement(s) must have been based on the original. The property must be an actual historical resource, not a re-creation. For example, a Victorian style wood-frame dwelling that has been covered with reconstructed stucco has lost its integrity of materials. Conversely, an adobe wall that has been reconstructed with similar adobe mud, as opposed to adobe-simulate concrete, would retain its integrity of materials.

Workmanship - Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history. It is the evidence of the artisans' labor and skill in constructing or altering a building, structure, object, or site. It may be expressed in vernacular methods of construction and plain finishes or in highly sophisticated configurations and ornamental detailing. Examples of workmanship in historic buildings include tooling, carving, painting, graining, turning, and joinery. Examples of workmanship in precontact contexts include pottery, stone tools, basketry, rock art, bedrock milling, and stone structures.

To assess integrity one must:

- Define essential physical features that must be present to a high degree for a property to represent its significance;
- Determine whether the essential physical features are apparent enough to convey the property's significance; and

- Compare the property with similar properties in the locally significant theme.

A property that is significant for its historical association should retain the essential physical features that made up its character or appearance during the period of its association with the important event, historical pattern, or person(s). If the property is a site where there are no material cultural remains, such as a battlefield, the setting must be intact. If the historical building associated with the event, pattern, or person no longer exists, the property has lost its historical integrity.

A property important for illustrating a particular architectural style or construction technique must retain the physical features that constitute that style or technique. A property that has lost some historical materials or details can be considered if it retains the majority of the features that illustrate its style in terms of the massing, spatial relationships, proportion, pattern of windows and doors, texture of materials, and ornamentation. A property should not be considered if it retains some basic features conveying massing, but has lost the majority of the features that once characterized its style. Normally changes to a structure that are reversible will not affect integrity because they will be less than significant.

Properties being considered for the first five criteria above must not only retain the essential physical features, but the features must be visible enough to convey their significance and historical identity. This means that even if a property is physically intact, its integrity is questionable if its significant features are concealed under modern construction. Archaeological properties are the exception to this – by nature they may not require visible features to convey their significance.

Unless a resource is determined to be “not significant” based on the above criteria, it will be considered a significant resource. If it is agreed to forego significance testing on cultural sites, the sites will be treated as significant resources and must be preserved through project design. In addition, a treatment plan must be prepared that will include preservation of cultural resources.

SECTION 3 METHODOLOGIES

Chapter 3 discusses the methods utilized during the cultural resources inventory survey of the Project APE.

3.1 PERSONNEL QUALIFICATIONS

All phases of the cultural resources investigation were conducted by Registered Professional Archaeologist Arleen Garcia-Herbst, C.Phil., RPA, who meets the Secretary of the Interior's Professional Qualifications Standards for a prehistoric and historical archaeologist. Fieldwork and reporting was completed by Ms. Garcia-Herbst. Mr. Martin Rosen, M.A., RPA, provided technical report review and quality assurance. Resumes are available upon request.

Ms. Garcia-Herbst is a Secretary of the Interior-qualified Archaeologist and has been professionally involved with cultural resources management in California and Hawaii since 2006. She has extensive experience with the cultural and paleontological resources requirements of the City and County of San Diego, CEQA, Hawaii Revised Statutes and Administrative Rules, the National Environmental Policy Act (NEPA), and Section 106 of the National Historic Preservation Act (NHPA). She is a Qualified Archaeologist in the City of San Diego, County of San Diego, and the County of Riverside. While Ms. Garcia-Herbst's professional focus is in California and Hawaii, she also has project experience in Arizona, Nevada, Germany, Peru, and Argentina. She received her B.A. from the University of Arizona (1996), and completed her M.A. at the University of California, Santa Barbara (UCSB, 2000), is advanced to candidacy (C.Phil., 2006) and working on completing her Ph.D. dissertation at the University of California, Santa Barbara.

Mr. Rosen has over 40 years of experience as a cultural resource professional, where he has worked extensively in southern California, and also in the Great Basin, the Southwest, and in Guatemala. He joined Spindrift in 2014, after starting his own small firm called Rosen Cultural Resources Consulting or RC^2, working several years at ICF, and a 30-year career at Caltrans District 11 (San Diego and Imperial Counties), the last 10 spent as the senior cultural resources specialist. He was the District's Heritage Resources Coordinator from 1988 until his departure. At Caltrans he ran numerous capital projects of every size, from small curve corrections, to major highway construction projects covering dozens of miles. He also had the sole responsibility of working with Local Jurisdictions who had received money from the Federal Highway Administration. He received his B.A. in 1974 and his M.A. in 1977, both from the University of California, Los Angeles. Mr. Rosen is a Qualified Archaeologist in the City of San Diego, County of San Diego and County of Riverside. He is also a Registered Professional Archaeologist.

3.2 RECORDS SEARCH METHODS

A records search for the Project APE was completed by the South Coastal Information Center (SCIC) of the CHRIS at San Diego State University on 27 August 2015 (SCIC RSID #1102) (Appendix A, Figure 3). The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the proposed project location, and whether previously documented prehistoric or

historic archaeological sites, architectural resources, or traditional cultural properties exist within this area.

In addition to the official records and maps for archaeological sites and surveys in San Diego County, the following historic references were also reviewed: Historic Property Data File for San Diego County (Office of Historic Preservation 2013a); The National Register Information System website (National Park Service 2015); Office of Historic Preservation, California Historical Landmarks website (Office Historic Preservation 2013b); California Historical Landmarks (Office of Historic Preservation 1996 and updates); and California Points of Historical Interest (Office of Historic Preservation 1992 and updates).

3.3 NATIVE AMERICAN COORDINATION METHODS

Spindrift contacted the California Native American Heritage Commission (NAHC) on 16 September 2015, to request a search of the Sacred Lands File for the Project APE. In a letter dated 2 October 2015, the NAHC said the search indicates the presence of Native American cultural resources located within the Bonsall Quadrangle that may be impacted; however, the NAHC did not state whether the resources were present within the Project APE. The NAHC also provided a list of individuals and organizations in the Native American community that may be able to provide information about tribal resources in the project vicinity (Appendix B).

Spindrift contacted all persons or organizations on the NAHC contact list by email on 26 October 2015 to request information on unrecorded cultural resources that may exist within the current Project APE, or to inquire about any concerns regarding sacred sites or traditional cultural properties in the vicinity that might be affected by the proposed action. A complete record is provided in Appendix B.

3.4 FIELD METHODS

Fieldwork was conducted by Spindrift Archaeologist Arleen Garcia-Herbst on 16 October 2015 during which the 2.19 acres of the Project APE were subjected to an intensive systematic pedestrian survey, under the guidance of the Secretary of the Interior's Standards for the Identification of Historic Properties (National Park Service 1983), using transects spaced 15 meters apart (see survey coverage map in Figure 4). Ground surface visibility was generally poor to good through the majority of the Project APE. Notes were taken on the environmental setting and disturbances within the Project APE. The Project APE was mapped into a handheld Trimble Geo 6000 XH Global Positioning System (GPS) unit which has decimeter accuracy. This GPS unit was also brought to update the boundaries of any previously existing sites, and record the location of any new archaeological sites encountered during the survey.

The general morphological characteristics of the ground surface were inspected for indications of subsurface deposits that may be manifested on the surface, such as circular depressions or ditches. Whenever possible, the locations of subsurface exposures caused by such factors as rodent activity, water or soil erosion, or vegetation disturbances, were examined for artifacts or for indications of buried deposits. No subsurface investigations or artifact collections were undertaken during the pedestrian survey.

SECTION 4 RESULTS AND MANAGEMENT RECOMMENDATIONS

Information about cultural resources in and around the Project APE comes from the records search and the field survey.

4.1 RECORDS SEARCH RESULTS

The records search results indicated that 26 previous cultural resources studies (Table 1 in Appendix A) were conducted within 0.5-mile radius of the Project APE, and eight (8) cultural resources have previously been recorded within 0.5-mile radius of the Project APE (Table 2 in Appendix A).

No cultural resources have previously been recorded within the Project APE (Appendix D, Figure 5). The previous studies were conducted between 1976 and 2013.

A review of California Inventory of Historic Resources (March 1976), indicated that there are no inventoried historic properties within the Project APE or within the vicinity of the Project APE.

Resources listed as California Historical Landmarks (CHL; Office of Historic Preservation 1996) and on the Office of Historic Preservation website (Office of Historic Preservation 2014) were reviewed on 14 October 2015. There are no inventoried CHLs within the Project APE or within the vicinity of the Project APE.

The Caltrans Historic Bridge Local Inventory (Caltrans 2013a) listed no historic bridges within 0.5 mile of the Project APE. Additionally, the Caltrans State Historic Bridge Inventory (Caltrans 2013b) listed no bridges within 0.5 mile of the Project APE.

4.2 NATIVE AMERICAN COORDINATION RESULTS

A search of the Sacred Lands File by the NAHC failed to indicate the presence of traditional cultural places or Native American cultural resources within the Project APE; however, it did indicate the presence of traditional cultural places or Native American cultural resources within the Bonsall quadrangle, in general. If any further comments are received after the submission of this report, then they will be forwarded to the lead agencies for further consideration and appropriate action. A complete record is provided in Appendix B.

4.3 FIELD SURVEY RESULTS

Fieldwork was conducted by Spindrift Archaeologist Arleen Garcia-Herbst on 16 October 2015 during which the 2.19 acres of the Project APE were subjected to an intensive, systematic pedestrian survey. The pedestrian survey revealed the western half of the west-east trending Project APE, as well as the dirt access roads, to be disturbed by grading. These areas had fair-to-excellent ground surface visibility. The remainder of the Project APE consisted of dense vegetation, mostly grasses and shrubs, which occurred within the eastern half of the Project APE.

The records search indicated that no cultural resources have been previously recorded within the Project APE. The pedestrian survey yielded no new cultural materials within the Project APE.

4.4 MANAGEMENT CONSIDERATIONS

4.4.1 Conclusions

No cultural resources were identified within the Project APE. The potential for subsurface historic-and prehistoric-period cultural resources is generally considered high within the western half of the Project APE underlain by active alluvial flood plain deposits (Qa, late Holocene).

The undertaking will not affect any resource eligible for the CRHR. No further evaluations are required for compliance with CEQA, as there is no significant impact to known cultural resources.

4.4.2 Monitoring

RMWD will be conducting excavations for this Project within the same trench that the original pipeline was excavated and placed, hence the soils in the trench have been previously disturbed. Due to the high sensitivity of the western half of the Project APE for prehistoric and historic-period resources, Spindrift recommends that all ground-disturbing activity within this portion of the Project APE (shown in red on Figure 6) that is to a depth greater than the original excavation, as well as any new excavations outside of the original pipeline trench, and hence into undisturbed soils, be monitored by archaeological and Native American monitors. Excavations within the same pipeline trench to the same or lesser depth than the original excavation do not require the presence of an archaeological or Native American monitor. The monitors should have the authority to halt construction activity in accordance with the unanticipated discovery procedures discussed below.

In the event of any unanticipated discoveries during construction, a less than significant impact to buried resources, if present, would occur with implementation of Mitigation Measures C-1 and C-2.

Mitigation Measures

C-1 All ground disturbing activities within the western half of the Project APE should be monitored by a qualified professional archaeologist and a Native American Monitor, following the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites established by the Native American Heritage Commission. Both monitors shall have the authority to halt construction activities in the event that cultural deposits, or those that are potentially cultural, are encountered. The monitors shall examine the deposits and, if the find is confirmed to be cultural in origin, which includes human remains and archaeological materials, then the protocols for unanticipated discovery below in C-2 shall be followed.

C-2 If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 50-foot radius of the discovery. The on-site archaeological monitor or Principal Investigator, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be afforded a reasonable amount of

time to evaluate the significance of the find. Work cannot continue at the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially significant or eligible for listing on the CRHR. If a *potentially*-eligible resource is encountered, then the archaeologist, lead agency, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations to evaluate eligibility and, if eligible, total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the lead agency as verification that the provisions in CEQA for managing unanticipated discoveries have been met.

In the event that evidence of human remains is discovered, construction activities within 50-feet of the discovery will be halted or diverted, and the requirements above will be implemented. Depending on the occurrence, a larger radius may be necessary and will be required at the discretion of the on-site archaeologist. In addition, the provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. When human remains are discovered, state law requires that the discovery be reported to the County Coroner (Section 7050.5 of the Health and Safety Code) and that reasonable protection measures be taken during construction to protect the discovery from disturbance (AB 2641). If the Coroner determines the remains are Native American, the Coroner notifies the Native American Heritage Commission, which then designates a Native American Most Likely Descendant (MLD) for the project (Section 5097.98 of the Public Resources Code). The MLD may not be the same person as the tribal monitor. The designated MLD then has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).

Implementation of the above mitigation measures will reduce impacts to buried cultural resources to a less than significant level.

The CEQA Lead Agency, the RMWD, is responsible for ensuring compliance with these mitigation measures because damage to significant cultural resources is in violation of CEQA and Section 106. Section 15097 of Title 14, Chapter 3, Article 7 of CEQA, *Mitigation Monitoring or Reporting*, "the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a

private entity which accepts the delegation; however, until mitigation measures have been completed, the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program."

In the case of this Project, RMWD has determined that a Native American monitor does not need to be present during ground disturbance within the Project APE.

SECTION 5 REFERENCES

Caltrans

2013a Caltrans Local Bridge Survey, Structure Maintenance & Investigations website. Electronic Document, http://www.dot.ca.gov/hq/structur/strmaint/hs_local.pdf, Viewed 14 October 2015.

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GDS

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1992 *California Points of Historical Interes*t. California Department of Parks and Recreation, Sacramento, California.

1996 *California Historical Landmarks*. California Department of Parks and Recreation, Sacramento, California.

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Tan, Siang S.

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United States Department of Agriculture, Natural Resources Conservation Service (NRCS)

2014 SoilWeb: An Online Soil Survey Browser, Soil Survey Geographic (SSURGO) Database for the United States. Available online: http://casoilresource.lawr.ucdavis.edu/soilweb/, Viewed 14 October 2015.

FIGURES

Figure 1 - Project Location Map

Figure 2 - Project APE Map

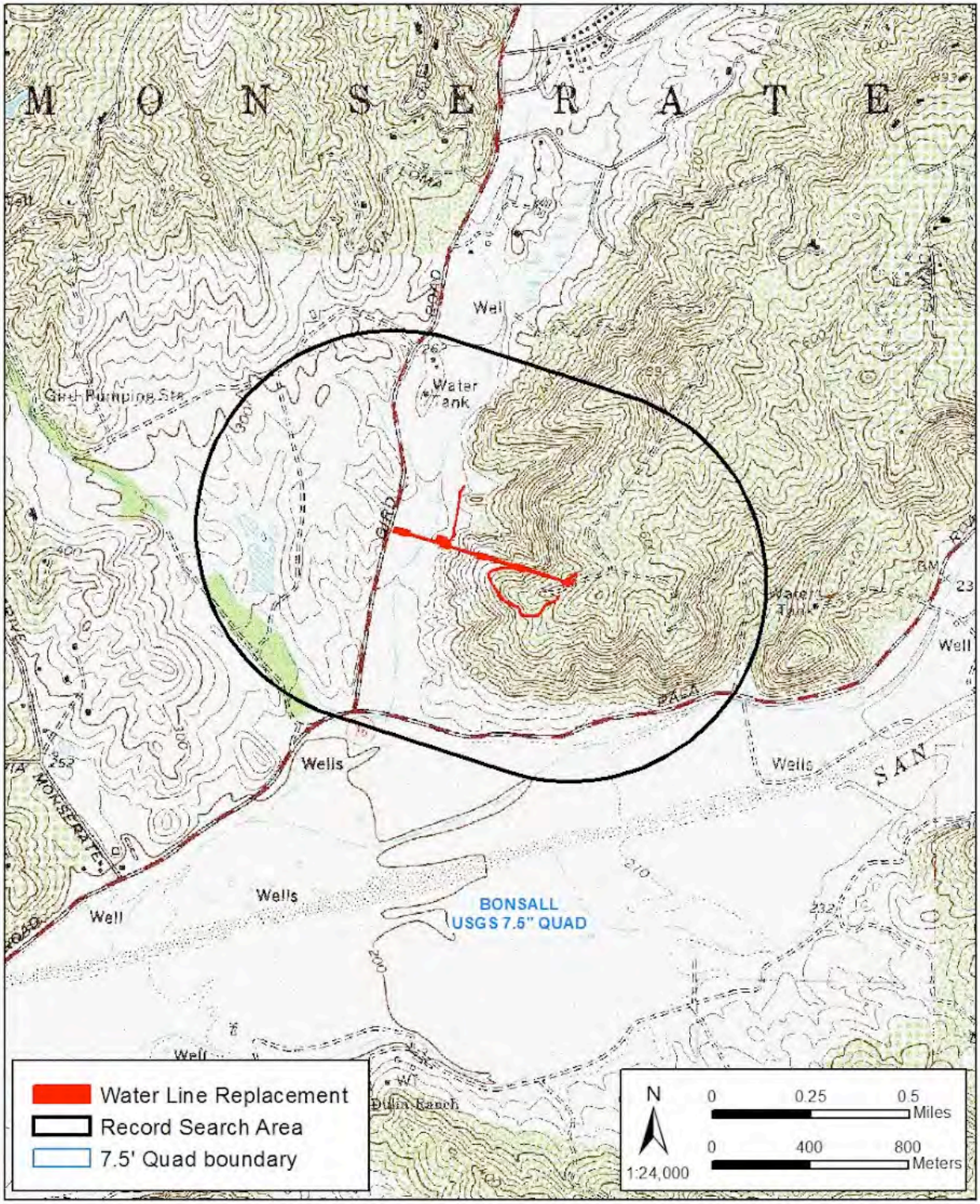

Figure 3 - Records Search Boundary Map

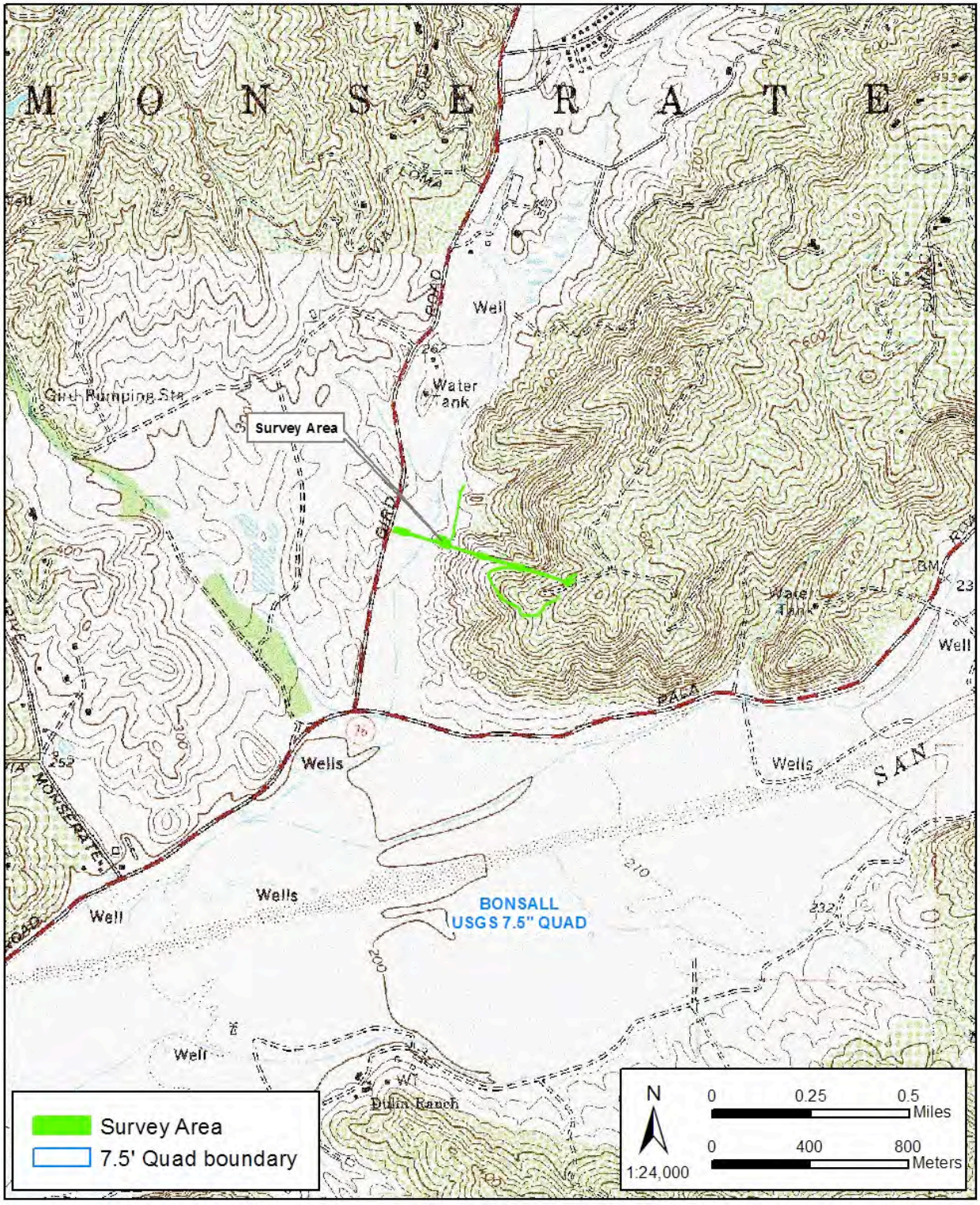

Figure 4 - Survey Coverage Map

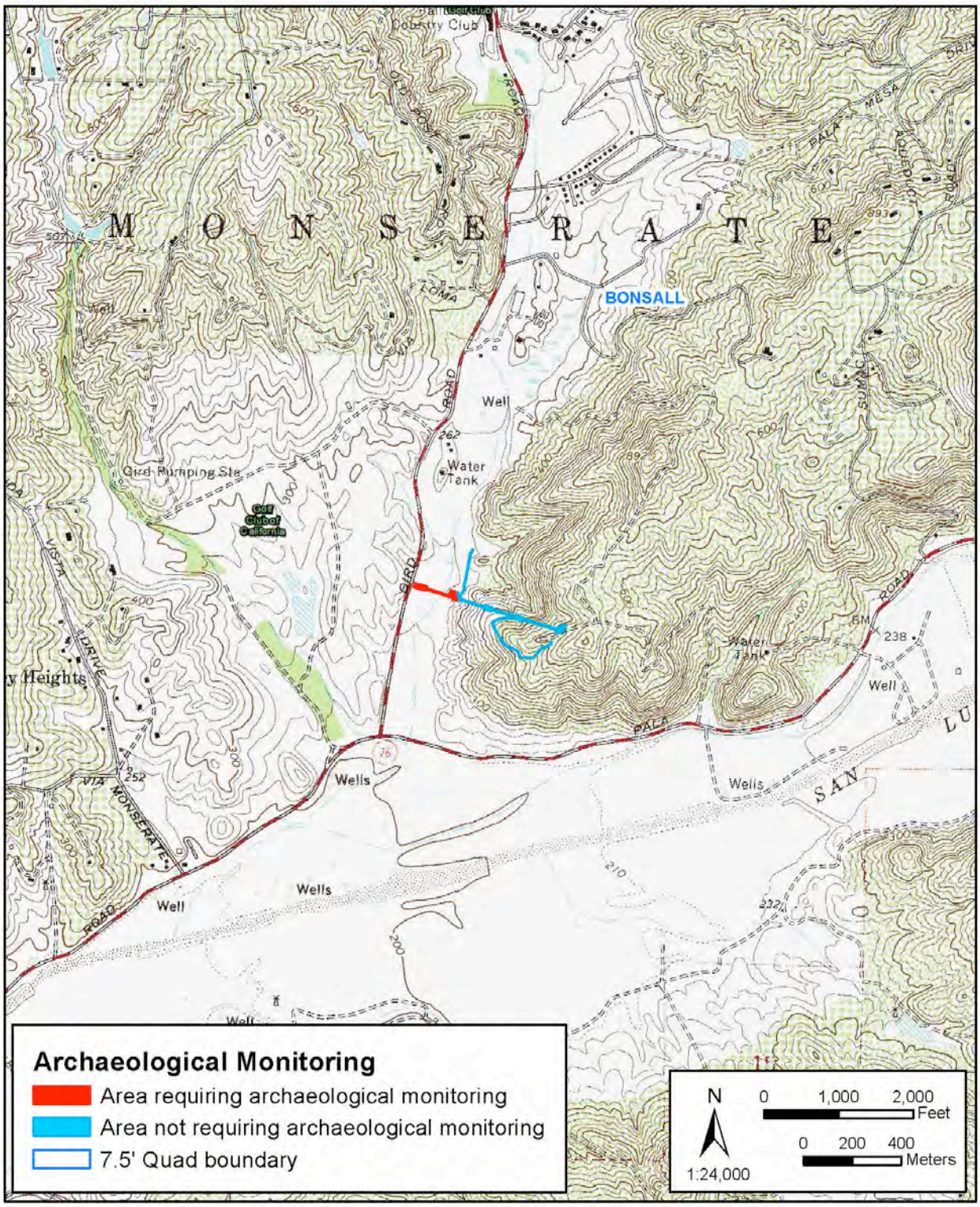

Figure 6 – Monitoring Exhibit Map

APPENDIX A

Table 1. Previous Investigations Within a ½-mile Radius of the Project APE

Report Number	Author	Year	Report Title	Type of Study
SD-00006	DALY, KENNETH	1976	ENVIRONMENTAL IMPACT EVALUATION: ARCHAEOLOGICAL SURVEY OF A PORTION OF THE SAN LUIS REY RIVER VALLEY NEAR BONSALL, SAN DIEGO COUNTY, CALIFORNIA	ARCHAEOLOGICAL, FIELD STUDY
SD-00146	BERRYMAN, STANLEY R.	1977	ARCHAEOLOGICAL RECONNAISSANCE OF RANCH MONSERATE PROJECT.	ARCHAEOLOGICAL, FIELD STUDY
SD-01050	FULMER, SCOTT	1983	ARCHAEOLOGICAL SURVEY REPORT FOR PROPOSED ROAD WIDENING ON ROUTE 76 IN SAN DIEGO COUNTY, 11-SD-76 P.M. 14.8-15.3 (11359-185090)	ARCHAEOLOGICAL, FIELD STUDY
SD-01057	FULMER, SCOTT	1984	A REPORT OF AN EXTENDED PHASE I INVESTIGATION AT ARCHAEOLOGICAL SITE CA-SDI-5589 SAN DIEGO COUNTY, CALIFORNIA 11-SD-79 P.M. 14.8-15.3 11359-185090.	ARCHAEOLOGICAL, EVALUATION
SD-01409	ROSEN, MARTIN	1985	REPORT OF AN ARCHAEOLOGICAL SURVEY ON STATE ROUTE 76 11-SD-76 P.M. 12.4/16.8 11209-116740.	ARCHAEOLOGICAL, EVALUATION, FIELD STUDY
SD-01425	SMITH, BRIAN F.	1989	AN ARCHAEOLOGICAL SURVEY OF THE BROWN TRUCKING MAJOR USE PERMIT P 88-012. RP 88-005, EAD LOG #88-2-10	ARCHAEOLOGICAL, FIELD STUDY
SD-04032	RECON	1984	DRAFT ENVIRONMENTAL IMPACT REPORT FOR FALLBROOK GREEN	OTHER RESEARCH

Table 1. Previous Investigations Within a ½-mile Radius of the Project APE

Report Number	Author	Year	Report Title	Type of Study
SD-04274	FULMER, SCOTT	1984	REQUEST FOR DETERMINATION OF EFFECT CA-SDI-5589	ARCHAEOLOGICAL, EVALUATION, MANAGEMENT/PLANNING
SD-04275	FULMER, SCOTT	1984	FIRST SUPPLEMEMTAL HISTORICAL PROPERTY SURVEY 11-SD-76	MANAGEMENT/PLANNING
SD-04276	FULMER, SCOTT	1984	REQUEST FOR DETERMINATION OF ELIGIBILITY FOR INCLUSION IN THE NATIONAL REGISTOER OF HISTORIC PLACES SDI-5589	ARCHAEOLOGICAL, EVALUATION
SD-04291	FULMER, SCOTT	1984	HISTORIC PROPERTY SURVEY 11-SD-76 P.M. 14.8-15.3 11359-1185090	ARCHITECTURAL/HISTORICAL
SD-04907	ROSEN, MARTIN	1985	REPORT OF AN ARCHAEOLOGICAL SURVEY ON STATE ROUTE 76	ARCHAEOLOGICAL, EVALUATION, MANAGEMENT/PLANNING
SD-05109	CASE, ROBERT	2002	PHASE I CULTURAL RESOURCES PEDESTRIAN SURVEY FOR THE LOWER SAN LUIS REY RIVER VALLEY GROUNDWATER STORAGE AND RECOVERY PROGRAM, SAN DIEGO COUNTY, CA	OTHER RESEARCH
SD-06573	ROSEN, MARTIN	1991	NEGATIVE ARCHAEOLOGICAL SURVEY-4-LANE EXPRESSWAY-CITY OF OCEANSIDE	ARCHAEOLOGICAL, EVALUATION, MANAGEMENT/PLANNING

Table 1. Previous Investigations Within a ½-mile Radius of the Project APE

Report Number	Author	Year	Report Title	Type of Study
SD-06578	ROSEN, MARTIN	1991	NEGATIVE ARCHAEOLOGICAL SURVEY-WIDENING & CHANNELIZATION OF ROUTE 76	ARCHAEOLOGICAL, EVALUATION, MANAGEMENT/PLANNING
SD-06601	MELLON, DR. KNOX	1984	HISTORIC PROPERTY SURVEY INFORMATION REQUEST S.R. 76 WIDENING & REALIGNMENT EAST OF BONSALL, SAN DIEGO COUNTY 11-SD-76 P.M. 14.8-15.3	OTHER RESEARCH
SD-07534	BEDDOW, DONNA	2002	NEGATIVE SURVEY REPORT FOR GRANGER HAUGH TPM	OTHER RESEARCH
SD-10707	SHALOM, DIANE	2006	CULTURAL RESOURCES SURVEY FOR THE SAN LUIS REY RIVER PARK MASTER PLAN SAN DIEGO, CALIFORNIA	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH
SD-10907	DE BARROS, PHILIP	2007	NEGATIVE CULTURAL RESOURCES SURVEY REPORT FOR A 24.61-ACRE PARCEL AT 3624 MONSERATE HILL ROAD, FALLBROOK, SAN DIEGO COUNTY, CALIFORNIA	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH
SD-11822	ROSEN, MARTIN	2008	FIRST SUPPLEMENTAL HISTORIC PROPERTY SURVEY REPORT (HPSR-S1) FOR THE STATE ROUTE 76 WIDENING AND REALIGNMENT PROJECT, SAN DIEGO COUNTY, CALIFORNIA	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH
SD-12001	ROSEN, MARTIN	2007	FIRST SUPPLEMENTAL HISTORIC PROPERTY SURVEY REPORT FOR THE STATE ROUTE 76 MELROSE TO MISSION REALIGNMENT AND WIDENING PROJECT	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH

Table 1. Previous Investigations Within a ½-mile Radius of the Project APE

Report Number	Author	Year	Report Title	Type of Study
SD-12003	LAYLANDER, DON	2006	ARCHAEOLOGICAL SURVEY REPORT FOR THE MORRISON ADVANCED MITIGATION PARCELS, NEAR BONSALL, SAN DIEGO COUNTY, CALIFORNIA	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH
SD-12934	WRIGHT, GAIL	2011	CULTURAL RESOURCES SURVEY REPORT FOR DIMITRI, DIFFENDALE & KIRK 4-LOT SUBDIVISION, 3200 21075(TM) IN FALLBROOK, NEGATIVE FINDINGS	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH
SD-13210	EDAW, INC.	2009	STATE ROUTE 76 CORRIDOR- SR-76 HIGHWAY IMPROVEMENT PROJECT HISTORIC PROPERTY SURVEY REPORT	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH
SD-14827	TSUNODA, KOJI	2013	THIRD SUPPLEMENTAL HISTORIC PROPERTY SURVEY REPORT (HPSR): STATE ROUTE (SR) 76 WIDENING PROJECT BETWEEN SOUTH MISSION ROAD AND INTERSTATE 15	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH
SD-14828	TSUNODA, KOJI	2013	REVISED- THIRD SUPPLEMENTAL HISTORIC PROPERTY SURVEY REPORT (HPSR): STATE ROUTE (SR) 76 WIDENING PROJECT BETWEEN SOUTH MISSION ROAD AND INTERSTATE 15	ARCHAEOLOGICAL, EVALUATION, OTHER RESEARCH
SD-00006	DALY, KENNETH	1976	ENVIRONMENTAL IMPACT EVALUATION: ARCHAEOLOGICAL SURVEY OF A PORTION OF THE SAN LUIS REY RIVER VALLEY NEAR BONSALL, SAN DIEGO COUNTY, CALIFORNIA	ARCHAEOLOGICAL, FIELD STUDY

Table 2. Previously Recorded Sites

Site identifier	Prehistoric or Historic	Report Reference	Within Project APE
P-37-000681	PREHISTORIC LUISEÑO VILLAGE (NRHP ELIGIBLE)	SD-01057, SD-01291, SD-01409, SD-02385, SD-04275, SD-05944, SD-06788	NO
P-37-000772	PREHISTORIC SAN LUIS REY II PERIOD TEMPORARY CAMP	SD-01409, SD-04276	NO
P-37-001284	PREHISTORIC BEDROCK MILLING STATION	SD-00146, SD-05501	NO
P-37-005589	SUBSUMED UNDER SDI-681	SD-01050, SD-01057, SD-01409, SD-02385, SD-04275, SD-04276, SD-04907, SD-05944, SD-06788	NO
P-37-005590	PREHISTORIC TEMPORARY CAMP	SD-01409, SD-04291	NO
P-37-027117	ROCK ART SITE	N/A	NO
P-37-028136	HISTORIC PRE-1903 GIRD ROAD SEGMENT	N/A	NO
P-37-030070	PREHISTORIC BEDROCK MILLING STATION	SD-14827	NO

South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
nick@scic.org

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: Spindrift Archaeological Consulting

Company Representative: Arleen Garcia-Herbst

Date Processed: 9/27/2015

Project Identification: Gird to Monserate Hill Water Line Design Archaeological Inventory Survey #2015-007

Search Radius: 1/2 mile

Historical Resources: YES

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: YES

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: YES

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: YES

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	
RSID:	1102
RUSH:	no
Hours:	1
Spatial Features:	42
Address-Mapped Shapes:	yes
Digital Database Records:	1
Quads:	1
Aerial Photos:	0
PDFs:	No
PDF Pages:	40

This is not an invoice. Please pay from the monthly billing statement

APPENDIX B

Native American Contacts
Gird – Monserate Hill Water Line Design Project 2015-006, San Diego County

Name	Affiliation	Date Contacted			Response Received?	Comments
		1. Letter	2. Phone	3. Phone		
Native American Heritage Commission 1550 Harbor Blvd Sacramento, CA 95814	N/A	09/02/2015	N/A	N/A	Yes	10/02/2015 Rec'd response letter from NAHC, Tribal Cultural Resources present in the Bonsall Quadrangle.
Pala Band of Mission Indians Shasta Gaughen, PhD, THPO PMB 50, 35008 Pala, CA 92059 sgaughen@palatribe.com (760) 891-3515, (760) 742-3189 Fax	Luiseno/ Cupeno	10/26/2015 email	N/A	N/A	No	
Pauma & Yuima Reservation Temet Aguilar, Chairperson P.O. Box 369 Pauma Valley, CA 92061 (760) 742-1289, (760) 742-3422 Fax	Luiseno	10/26/2015 fax	N/A	N/A	No	
Pechanga Band of Mission Indians Paul Macarro, Cultural Resources Manager P.O. Box 1477 Luiseno Temecula , CA 92593 pmacarro@pechanga-nsn.gov (951) 770-8100, (951) 506-9491 Fax	Diegueno/ Kumeyaay	10/26/2015 email	N/A	N/A	No	

Native American Contacts
Gird – Monserate Hill Water Line Design Project 2015-006, San Diego County

Name	Affiliation	Date Contacted			Response Received?	Comments
		1. Letter	2. Phone	3. Phone		
Rincon Band of Mission Indians Jim McPherson, Tribal Historic Pres. Officer 1 West Tribal Road Luiseno Valley Center, CA 92082 vwhipple@rincontribe.org (760) 297-2635, (760) 297-2639 Fax	Diegueno/ Kumeyaay	10/26/2015 email	N/A	N/A	No	
Soboba Band of Mission Indians Rosemary Morillo, Chairperson Attn: Carrie Garcia P.O. Box 487 San Jacinto, CA 92581 carrieg@soboba-nsn.gov (951) 654-2765, (951) 654-4198 Fax	Luiseno/ Cahuilla	10/26/2015 email	N/A	N/A	No	
Pauma Valley Band of Luiseno Indians Bennae Calac P.O. Box 369 Pauma Valley, CA 92061 bennaecalac@aol.com (760) 617-2872, (760) 742-3422 Fax	Luiseno	10/26/2015 email	N/A	N/A	No	
Rincon Band of Mission Indians Bo Mazzetti, Chairperson 1 West Tribal Road Valley Center, CA 92082 bomazzetti@aol.com (760) 749-1051, (760) 749-8901 Fax	Luiseno	10/26/2015 email	N/A	N/A	No	

Native American Contacts
Gird – Monserate Hill Water Line Design Project 2015-006, San Diego County

Name	Affiliation	Date Contacted			Response Received?	Comments
		1. Letter	2. Phone	3. Phone		
San Luis Rey Band of Mission Indians Tribal Council 1889 Sunset Drive Vista, CA 92081 cjmojado@slrmissionindians.org (760) 724-8505, (760) 724-2172 Fax	Luiseno	10/26/2015 email	N/A	N/A	No	

APPENDIX C

PHOTOGRAPH RECORD

Page 1 **of** 2 **Project Name:** Gird – Monserate Hill Water Line **Year** 2015
Camera Format: Digital Lens Size: N/A
Film Type and Speed: N/A **Negatives Kept at:** Spindrift Archaeological Consulting

Mo.	Day	Time	Exp./Frame	Subject/Description	View Toward	Accession #
10	16	9:40	01	W end of APE	W	
10	16		02	View of APE from W end	E	
10	16		03	SW corner of APE	E	
10	16		04	Creek in APE about half way between Staging Area 1 and 2	E	
10	16		05	View of Staging Area 2 from SW corner	NE	
10	16		06	View of Staging Area 2 from SW corner	E	
10	16		07	View of Staging Area 2 from SW corner	SE	
10	16		08	View of Staging Area 2 from SW corner	S	
10	16		09	View of Staging Area 2 from SE corner	W	
10	16		10	View of Staging Area 2 from SE corner	NW	
10	16		11	View of Staging Area 2 from NW corner	E	
10	16		12	View of access road spur off of Staging Area 2	S	
10	16		13	View of access road spur off of Staging Area 2	N	
10	16		14	View of N end of accrees road spur off of Staging Area 2	S	
10	16		15	View of APE between Staging Area 2 and 3	W	
10	16		16	View of APE and Staging Area 3	E	
10	16		17	View of APE and Staging Area 3	SE	
10	16		18	View of Staging Area 3 from P162523. Pole inspected by Osmose in 2004, Davey in 2009, & KA in 2015	S	
10	16		19	View of Staging Area 3 from P162523. Pole inspected by Osmose in 2004, Davey in 2009, & KA in 2015	N	
10	16		20	View of Staging Area 3 from SE corner	E	

PHOTOGRAPH RECORD

Page 2 **of** 2 **Project Name:** Gird – Monserate Hill Water Line **Year** 2015

Mo.	Day	Time	Exp./Frame	Subject/Description	View Toward	Accession #
10	16		21	View of APE between Staging Area 3 & 4 with P236666 in foreground	E	
10	16		22	View of modern cement remnants of water retention feature with metal interior and black plastic tubing/pipe fragments in background	E	
10	16		23	View of APE between Staging Area 4 and 5	E	
10	16		24	View of APE in Staging Area 5 from NW corner	NE	
10	16		25	View of APE in Staging Area 5 from NW corner	E	
10	16		26	View of APE in Staging Area 5 from NW corner	SE	
10	16		27	View of Staging Area 5 from NE corner	NE	
10	16		28	View of Staging Area 5 from NE corner	S/SW	
10	16		29	Scenic photo of Fallbrook		
10	16		30	View of access road spur off SW corner of Staging Area 4 – just S of concrete water retention feature	SW	
10	16		31	View of San Luis River Valley and SR 76 from access road spur	SW	
10	16		32	View of APE from access road spur	NW	
10	16		33	View of E end of access road spur	E	
10	16		34	View of E end of access road spur with SR 76 in background	W	
10	16	11:40	35	End of Project APE along acess road spur	NE	
10	16	11:55	36	View of Oak in APE in Staging Area 2	S	


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Appendix C

SDVOSB . DVBE

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GEOTECHNICAL INVESTIGATION
GIRD/MONSERATE HILL WATERLINE
FALLBROOK, CALIFORNIA

PREPARED FOR:

MICHAEL POLLARD, P.E., ENV SP
SENIOR PROJECT MANAGER
PSOMAS
3111 CAMINO DEL RIO NORTH, SUITE 702
SAN DIEGO, CALIFORNIA 92108

PREPARED BY:

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SDVOSB . DVBE

August 23, 2016

SCST No. 150415P3
Report No. 1R

Michael Pollard, P.E., ENV SP
Senior Project Manager
Psomas
3111 Camino Del Rio North, Suite 702
San Diego, California 92108

Subject: GEOTECHNICAL INVESTIGATION
GIRD/MONSERATE HILL WATERLINE
FALLBROOK, CALIFORNIA

Dear Michael:

SCST, Inc. (SCST) is pleased to present our report describing the geotechnical investigation performed for the subject project. We conducted the geotechnical investigation in general conformance with the scope of work presented in our proposal dated June 5, 2015. If you have any questions, please call us at (619) 280-4321.

Respectfully Submitted,
SCST, INC.

Evan Morrill
Staff Engineer

Emil Rudolph, PE, GE 2767
Principal Engineer

Douglas A. Skinner, CEG 2472
Senior Geologist

(1) Addressee via e-mail: mpollard@psomas.com
(1) Mr. Philip Hinshaw via e-mail: philiphinshaw@cox.net

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ATTACHMENTS

FIGURES

APPENDICES

1 INTRODUCTION

This report presents the results of the geotechnical investigation that SCST, Inc. (SCST) performed for the subject project. We understand that the project will consist of the installation of approximately 2,150 feet of a 12-inch PVC waterline. A segment of the waterline, approximately 850 feet in length, will be installed using horizontal directional drilling (HDD) equipment. The remainder of the pipeline alignment will be constructed using "open cut" methods. The purpose of our work is to provide conclusions and recommendations regarding the geotechnical aspects of the project. Figure 1 presents a site vicinity map.

2 SCOPE OF WORK

2.1 SUBSURFACE EXPLORATION

We explored the subsurface conditions by drilling two borings to depths between approximately 20 feet and 21½ feet below the existing ground surface using a truck-mounted drill rig equipped with a hollow stem auger. The number and locations of the borings were determined by others in order to comply with environmental restraints. Figure 2 shows the approximate locations of the borings. An SCST engineer logged the borings and collected samples of the materials encountered for laboratory testing. The logs of the borings are presented in Appendix I. Soils are classified according to the Unified Soil Classification System illustrated on Figure I-1.

2.2 LABORATORY TESTING

Selected samples obtained from the borings were tested to evaluate pertinent soil classification and engineering properties and enable development of geotechnical conclusions and recommendations. The laboratory tests consisted of grain size distribution, Atterberg limits, and corrosivity. The results of the laboratory tests and brief explanations of the test procedures are presented in Appendix II.

2.3 ANALYSIS AND REPORT PREPARATION

The results of the field and laboratory tests were evaluated to develop conclusions and recommendations regarding:

- Subsurface conditions beneath the site
- Criteria for seismic design in accordance with the 2013 California Building Code (CBC)
- Temporary excavations and shoring
- Excavation characteristics
- Pipeline support
- Resistance to lateral loads for the design of thrust blocks
- Pipe bedding materials
- Backfill placement and compaction
- Corrosion potential of the onsite soil

3 SITE DESCRIPTION

The site of the planned alignment is located between Gird Road and Monserate Hill Road (Figure 2). The right of way for this alignment extends east from Gird Road, across Live Oak Creek and up the south western flank of Monserate Hill to Monserate Hill Road. Vegetation within the alignment consists of native and non-native grasses, brush and trees. Elevations along the alignment range from approximately 233 feet to 625 feet above mean sea level (MSL).

4 SUBSURFACE CONDITIONS

The materials encountered in the borings consist of young alluvial flood plain deposits, fill and granitic rock identified as the Indian Mountain Granodiorite. Descriptions of the materials are presented below.

Fill – Fill was encountered in boring B-2. The fill consists of dense silty sand, and extends to a depth of about 3 feet below the existing ground surface.

Young Alluvial Flood Plain Deposits – Young alluvial flood plain deposits were encountered in boring B-1. The young alluvial flood plain deposits consist of soft sandy lean clay, and very loose clayey sand. While not encountered in boring B-1, cobbles and boulders may be encountered in these deposits.

Indian Mountain Granodiorite – The material underlying the fill consists of Indian Mountain Granodiorite. The granitic rock encountered in the boring was moderately weathered, very dense, and broke down under hand pressure to silty sand. Relatively unweathered outcrops of crystalline granitic rock and boulders were observed in the vicinity of boring B-2.

Groundwater - Groundwater was encountered at a depth of approximately 2 feet in boring B-1. The groundwater table is at a depth that will influence planned construction. Dewatering will likely be required during construction.

We anticipate that material along the eastern section of the pipeline consists of colluvium, Indian Mountain Granodiorite, or crystalline granitic rock.

5 GEOLOGIC HAZARDS

5.1 FAULTING AND SURFACE RUPTURE

The closest known active fault is the Newport-Inglewood fault zone located about 35 kilometers west of the site. The site is not located in an Alquist-Priolo Earthquake Fault Zone. No active faults are known to underlie or project toward the site. Therefore, the probability of fault rupture is low.

5.2 LIQUEFACTION AND DYNAMIC SETTLEMENT

Liquefaction occurs when loose, saturated, generally fine sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid; resulting in large total and differential ground surface settlements as well as possible lateral spreading during an earthquake. Due to the lack of shallow groundwater, and given the relatively dense nature of the materials beneath the alignment east of Live Oak Creek, the potential for liquefaction and dynamic settlement to occur is considered low on the eastern portion of the alignment. Loose, saturated, fine grained materials were, however, encountered along the alignment west of Live Oak Creek. This portion of the alignment is likely to undergo liquefaction and dynamic settlement due to the very loose, saturated conditions near the pipeline bottom.

5.3 LANDSLIDES/SLOPE STABILTY

Evidence of landslides, mudflows, or slope instabilities was not observed. No landslides are mapped within the sites. The potential for landslides, mudflows, or slope instabilities to occur at the site is low.

5.4 FLOODING, TSUNAMIS, AND SEICHES

According to SanGIS/SANDAG, the subject site is located within a floodplain; therefore, there is potential for flooding. The site is not located within a mapped area on the State of California Tsunami Inundation Maps; therefore, damage due to tsunamis is considered negligible. Seiches are periodic oscillations in large bodies of water such as lakes, harbors, bays, or reservoirs. The site is not located adjacent to any lakes or confined bodies of water; therefore, the potential for a seiche to affect the site is considered low.

5.5 HYDRO-CONSOLIDATION

Hydro-consolidation can occur in recently deposited (less than 10,000 years old) sediments that were deposited in a semi-arid environment. Examples of such sediments are aolian sands, alluvial fan deposits, and mudflow sediments deposited during flash floods. The pore space between particle grains can re-adjust when inundated by groundwater causing the material to consolidate. The loose soils at the site will be excavated and replaced as compacted fill. In our opinion, soil below this depth is not susceptible to hydro-consolidation.

5.6 CBC SEISMIC DESIGN PARAMETERS

A geologic hazard that could affect the project is ground-shaking as a result of movement along an active fault in the vicinity of the site. The seismic design parameters in accordance with the 2013 CBC are presented below.

Site Coordinates: Latitude 33.32078°
Longitude -117.19337°

Site Class: D
Site Coefficients, F_a = 1.030
F_v = 1.543
Mapped Spectral Response Acceleration at Short Periods, S_s = 1.174g
Mapped Spectral Response Acceleration at 1-Second Period, S_1 = 0.457g
S_{DS} = 0.807g
S_{D1} = 0.470g
PGA_M = 0.466g

6 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our investigation, we consider the planned construction feasible from a geotechnical standpoint provided the recommendations of this report are followed. In our opinion, the site conditions are suitable to install the potable water pipelines using HDD and traditional open excavation trenching techniques. However, the potential for boulders, the presence of shallow groundwater, and soft alluvial flood plain deposits may make HDD techniques difficult. Additionally, difficult drilling and trenching conditions should be expected in unweathered zones within the Indian Mountain Granodiorite or where boulders are encountered. Shallow groundwater will be encountered within planned construction depths. The onsite materials are generally not expected to meet "Greenbook" Standard Specifications for Public Works Construction material specifications for pipe bedding. They will, however, be suitable for use as backfill following removal of rocks greater than 6 inches in any dimension. The weight of the pipe and contents will be less than the materials excavated, and pipe settlements are expected to be negligible.

6.1 TEMPORARY EXCAVATION AND SHORING

Temporary excavations will be required for the HDD pits and for open cut trenching. Temporary excavations 3 feet deep or less can be made vertically. Deeper temporary excavations in young alluvial flood plain deposits should be laid back no steeper than 1:1 (horizontal:vertical). Deeper temporary excavations in Indian Mountain Granodiorite should be laid back no steeper than ¾:1. 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.

Excavated materials should not be stockpiled behind temporary excavations within a distance equal to or greater than the depth of the excavation. SCST should be notified if other surcharge loads are anticipated so that lateral load criteria can be developed for the specific situation. If temporary slopes are to be maintained during the rainy season, berms are recommended along the tops of the slopes to prevent runoff water from entering the excavation and eroding the slope faces.

Slopes steeper than those described above will require shoring. Soldier piles and lagging, sheet piles, internally braced shoring, or trench boxes 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 pit or trench could be greater where trench boxes are used compared to other methods of shoring.

For design of cantilevered shoring with level backfill, the active earth pressure can be taken as equivalent to a fluid weighing 35 pounds per cubic foot (pcf). An additional 20 pcf should be added for shoring with 2:1 sloping ground. The surcharge loads on shoring from traffic and construction equipment working adjacent to the excavation can be modeled by assuming an additional 2 feet of soil behind the shoring. For design of soldier piles in very old paralic deposits, an allowable passive pressure of 350 psf per foot of embedment over two times the pile diameter up to a maximum of 7,500 psf can be used. Soldier piles should be spaced at least three pile diameters, center to center.

6.2 EXCAVATION CHARACTERISTICS

It is anticipated that excavation can be achieved with conventional drilling and earthwork equipment in good working order. Difficult drilling and excavation should be anticipated in unweathered zones within the Indian Mountain Granodiorite or where boulders are encountered. Contract documents should specify that the contractor mobilize equipment capable of excavating and compacting materials with boulders. Rock breakers, carbide tipped augers, or carbide/diamond tipped coring equipment may be required to excavate/drill concretions or rocky materials.

6.3 DEWATERING

Dewatering will be required in order to construct the HDD entry pit in young alluvial flood plain deposits located in the western portion of the alignment. A specialty contractor should be retained to design and perform the dewatering. The design should incorporate measures to ensure the dewatering does not induce settlement of adjacent improvements. Generally, the groundwater should be 3 feet or more below the planned temporary excavation bottom to provide a working surface.

6.4 PIPELINES

6.4.1 Pipeline Support

It is anticipated that most of the materials along the pipeline alignment will provide adequate support for the pipe, although loose, soft, and otherwise unsuitable materials should be anticipated locally in young alluvial flood plain deposits. Unsuitable materials encountered near trench bottom levels, as determined during construction by the geotechnical consultant, should be excavated to competent material or mitigated using an

appropriate method as determined by the geotechnical consultant. The excavated materials can be replaced as compacted fill or with 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 observed by the geotechnical consultant prior to placement of pipe bedding. The use of a stabilizing fabric such as Mirafi® HP 570 can be used to stabilize the bottom of the excavations, if needed.

6.4.2 Modulus of Soil Reaction

A modulus of soil reaction (E') of 2,000 psi can be used to evaluate the deflection of buried flexible pipelines. This value assumes that granular bedding material is placed adjacent to the pipe and is compacted to at least 90% relative compaction.

6.4.3 Thrust Blocks

For level ground conditions, a passive earth pressure of 350 psf per foot of depth below the lowest adjacent final grade can be used to compute allowable thrust block resistance. A value of 150 psf per foot should be used below groundwater level, if encountered.

6.4.4 Pipe Bedding

Pipe bedding as specified in the "Greenbook" Standard Specifications for Public Works Construction can be used. Bedding material should consist of clean sand having a sand equivalent not less than 30 and should extend to at least 12 inches above the top of pipe. Alternative materials meeting the intent of the bedding specifications are also 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. The onsite materials are not expected to meet "Greenbook" bedding specifications. 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.

6.4.5 Cutoff Walls

Where pipeline inclinations exceed 15 percent, cutoff walls may be necessary in trench excavations. Additionally, we do not recommend that open graded rock be used for pipe bedding or backfill because of the potential for piping erosion. The recommended bedding is clean sand having a sand equivalent not less than 30. Alternatively, 2-sack sand-cement slurry can be used for the pipe bedding. If sand-cement slurry is used for pipe bedding to at least 1 foot over the top of the pipe, cutoff walls are not considered necessary. The need for cutoff walls should be further evaluated by the project civil engineer designing the pipeline.

6.4.6 Backfill

Excavated material free of organic debris and rocks greater than 4 inches in any dimension are generally expected to be suitable for use as backfill. Imported material should be granular and not contain rocks greater than 4 inches in any dimension or organic debris. SCST should observe and, if appropriate, test proposed imported materials before they are delivered 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. All references to optimum moisture content and relative compaction in this report are based on ASTM D1557 test method. The upper 12 inches of soil beneath subgrade for pavements should be compacted to at least 95% relative compaction. We recommend that the soils in the top 24 inches below hardscape have an expansion index of 20 or less. SCST should observe and, if appropriate, test the soils to be used within this backfill zone.

6.5 CORROSIVITY

Representative samples of the on-site soils were tested to evaluate corrosion potential. The test results are presented in Appendix II. The project design engineer can use the sulfate results in conjunction with ACI 318 to specify the water/cement ratio, compressive strength and cementitious material types for concrete exposed to soil. A corrosion engineer should be contacted to provide specific corrosion control recommendations.

7 GEOTECHNICAL ENGINEERING DURING CONSTRUCTION

The geotechnical engineer should review project plans and specifications prior to bidding and 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 limited 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.

8 CLOSURE

SCST should be advised of any changes in the project scope so that the recommendations contained in this report can be evaluated with respect to the revised plans. Changes in recommendations will be verified in writing. The findings in this report are valid as of the date of this report. Changes in the condition of the site can, however, occur with the passage of time, whether they are due to natural processes or work on this or adjacent areas. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report may be invalidated wholly or in part by changes beyond our control. This report should not

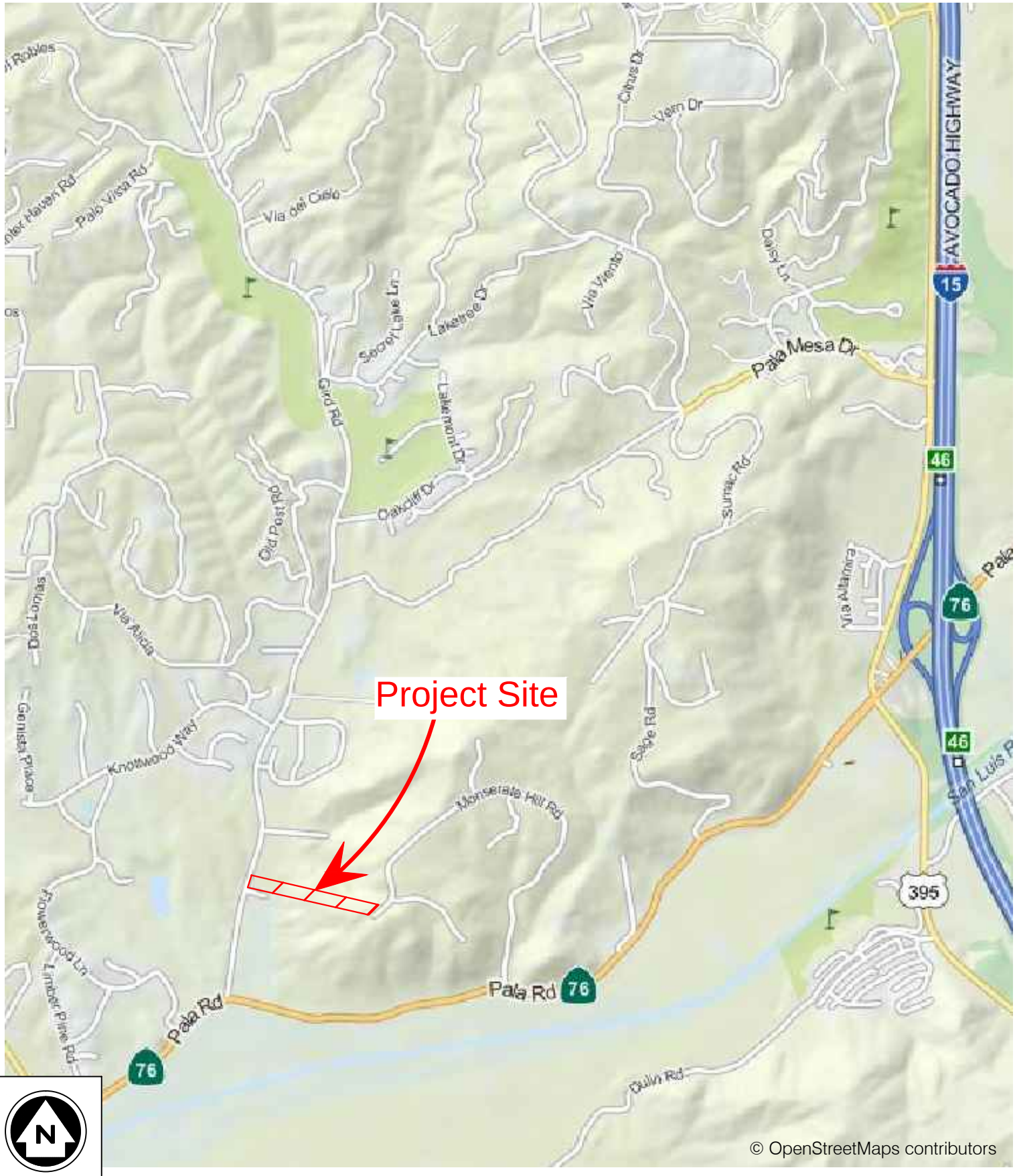
be relied upon after a period of two years without a review by us verifying the suitability of the conclusions and recommendations to site conditions at that time.

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. The client recognizes that subsurface conditions may vary from those encountered at the test pit locations, and that 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 shall 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.

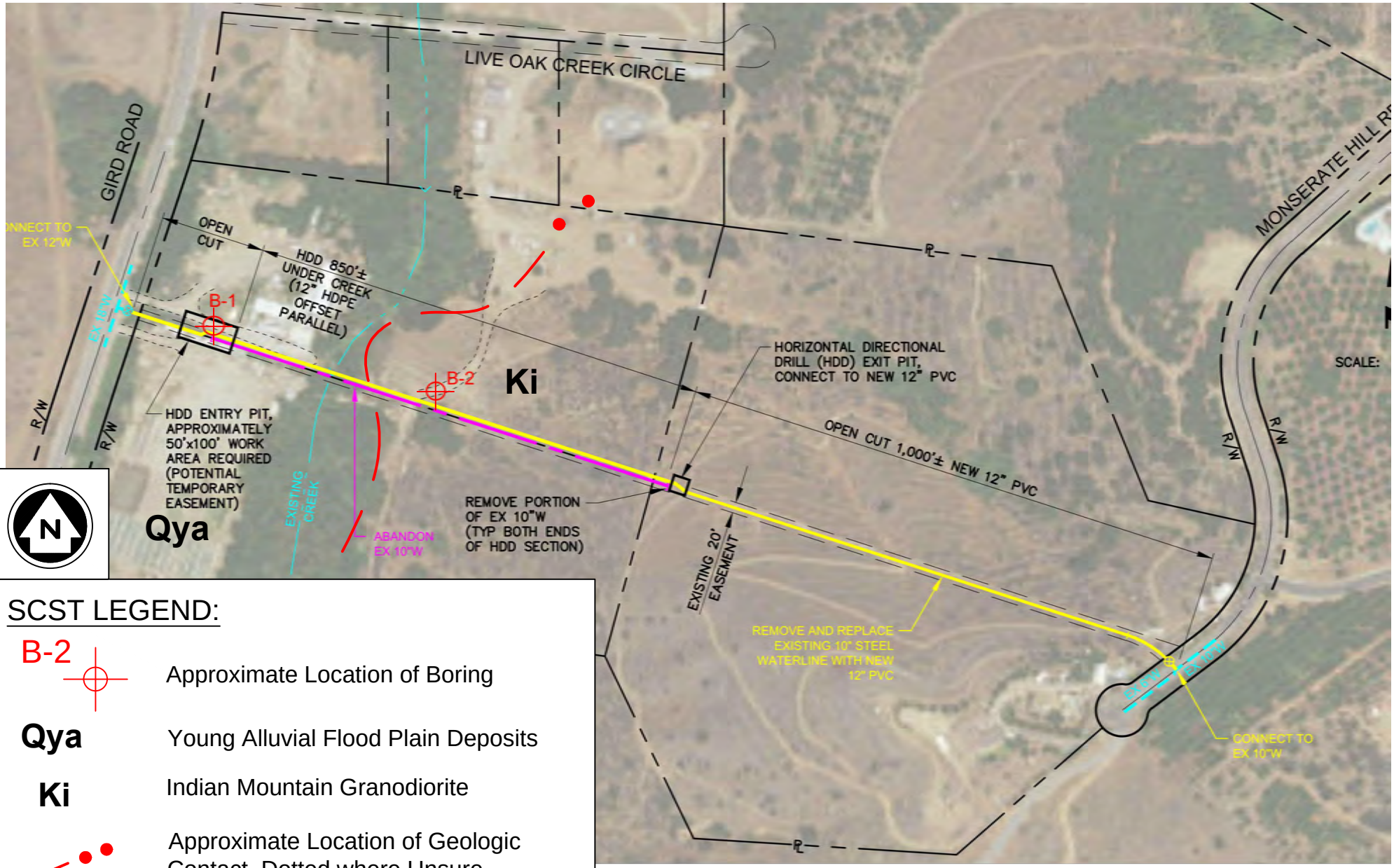
9 REFERENCES

International Code Council (2012), 2013 California Building Code, Based on the 2012 International Existing Building Code, Effective Date: January 1, 2014.

Public Works Standards, Inc. (2011), “Greenbook” Standard Specifications for Public Works Construction, 2012 Edition.



SCST, Inc.	SITE VICINITY MAP Gird/Monserate Hill Water Line Fallbrook, California	Date: April, 2016 By: JCU Job No.: 150415P3-1	Figure: 1



SCST LEGEND:

B-2	Approximate Location of Boring
Qya	Young Alluvial Flood Plain Deposits
Ki	Indian Mountain Granodiorite
	Approximate Location of Geologic Contact, Dotted where Unsure

SCST, Inc.

BORING LOCATION MAP
Gird/Monserate Hill Water Line
Fallbrook, California

Date: April, 2016
By: JCU
Job No.: 150415P3-1

Figure: 2

APPENDIX I
SUBSURFACE EXPLORATION

Our subsurface exploration consisted of drilling two borings on March 30, 2016 to depths of about 20 feet and 21½ feet below the existing ground surface using a truck-mounted drill rig equipped with a hollow stem auger. Figure 2 shows the approximate locations of the current and previous borings. Our subsurface exploration was performed under the observation of an SCST engineer who also logged the borings and obtained samples of the materials encountered.

Relatively undisturbed samples were obtained using a modified California (CAL) sampler, which is a ring-lined split tube sampler with a 3-inch outer diameter and 2½-inch inner diameter. Standard Penetration Tests (SPT) were performed using a 2-inch outer diameter and 1⅜-inch inner diameter split tube sampler. The CAL and SPT samplers were driven with a 140-pound weight dropping 30 inches. The number of blows needed to drive the samplers the final 12 inches of an 18-inch drive is noted on the boring logs as "Driving Resistance (blows/ft of drive)." SPT and CAL sampler refusal was encountered when 50 blows were applied during any one of the three 6-inch intervals, a total of 100 blows was applied, or there was no discernible sampler advancement during the application of 10 successive blows. Because the SPT sampler was driven with a cathead and rope, the driving resistance is representative of a 60% energy transfer ratio (N_{60}). Disturbed bulk samples were obtained from the SPT sampler and the drill cuttings.

The soils are classified in accordance with the Unified Soil Classification System as illustrated on Figure I-1. Logs of the borings are presented on Figures I-2 through I-3.

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.
		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 or 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.

SAMPLE SYMBOLS

- ☒ - Bulk Sample
- CAL - Modified California sampler
- CK - Undisturbed Chunk sample
- MS - Maximum Size of Particle
- ST - Shelby Tube
- SPT - Standard Penetration Test sampler

GROUNDWATER SYMBOLS

- ▽ - Water level at time of excavation or as indicated
- ≈ - Water seepage at time of excavation or as indicated

LABORATORY TEST SYMBOLS

- AL - Atterberg Limits
- CON - Consolidation
- COR - Corrosivity Tests (Resistivity, pH, Chloride, Sulfate)
- DS - Direct Shear
- EI - Expansion Index
- MAX - Maximum Density
- RV - R-Value
- SA - Sieve Analysis
- UC - Unconfined Compression

SCST, Inc.

Gird/Monserate Hill Water Line
Fallbrook, California

By:	JCU	Date:	April, 2016
Job Number:	150415P3-1	Figure:	I-1

LOG OF BORING B-1

Date Drilled:	3/30/2016	Logged by:	EM
Equipment:	Unimog Marl M5 140lb Hammer	Project Manager:	DAS
Elevation (ft):	Estimated 234'	Depth to Groundwater (ft):	2'

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
		2-3 Inches of Base.							
1	SM	**YOUNG ALLUVIAL FLOOD PLAIN DEPOSITS (Qal)** - SILTY SAND, black, fine to coarse grained, moist, medium dense, strong organic odor.		X					COR
2		▽ Groundwater Encountered at 2 Feet.							
3									
4	CL	LEAN CLAY, black, fine to medium grained, wet, soft.	CAL		7				DS
5									
6			SPT		4	5			SA AL
7									
8									
9									
10									
11			CAL		5				DS
	SC	CLAYEY SAND, black, fine to coarse grained, wet, very loose.							
12									
13									
14									
15									
	CL	SANDY LEAN CLAY, black, fine to coarse grained, wet, soft							
16			SPT		2	3			SA AL
17									
18									
19									
20									
21			CAL		3				
22		**BORING TERMINATED AT 21½ FEET**							

SCST, Inc.

Gird/Monserate Hill Water Line
Fallbrook, California

By:	JCU	Date:	April, 2016
Job Number:	150415P3-1	Figure:	I-2

LOG OF BORING B-2

Date Drilled:	3/30/2016	Logged by:	EM
Equipment:	Unimog Marl M5 140lb Hammer	Project Manager:	DAS
Elevation (ft):	Estimated 256	Depth to Groundwater (ft):	Not encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
1	SM	**FILL (Qf)** - SILTY SAND, light brown, fine to coarse, moist, dense.		X					COR
2									
3		**INDIAN MOUNTAIN GRANODIORTE (Ki)** - GRANITIC ROCK, light brown, fine to coarse grained, moist, very dense, breaks down by hand to SILTY SAND.	SPT		50/5"	68/5"			
4									
5		Dry.	SPT	X	50/2"	68/2"			
6									
7									
8									
9									
10			SPT		50/3"	68/2"			
11									
12									
13									
14									
15			SPT	X	50/2"	68/2"			
16									
17									
18									
19									
20		**BORING TERMINATED AT 20 FEET**							
21									

SCST, Inc.

Gird/Monserate Hill Water Line
Fallbrook, California

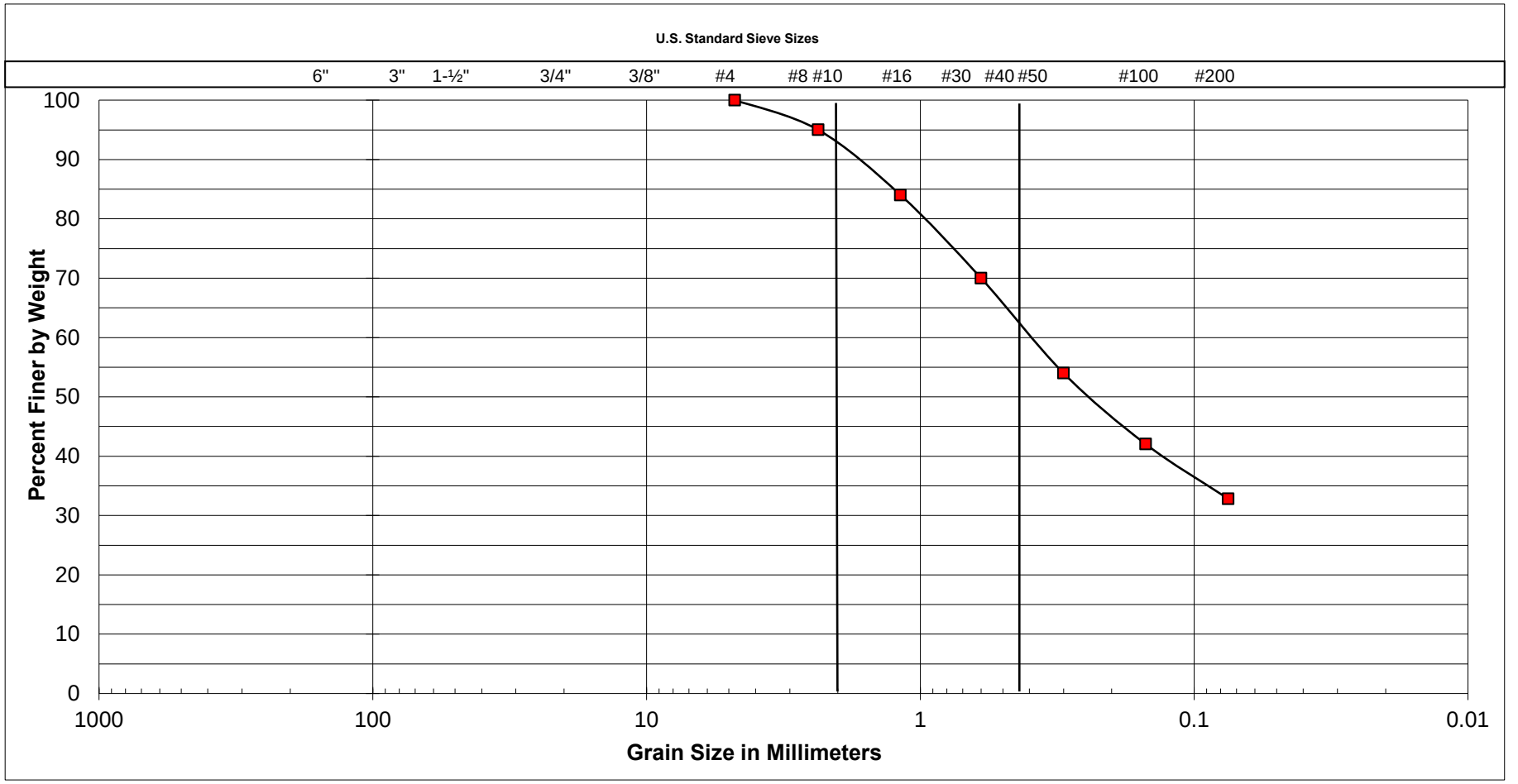
By:	JCU	Date:	April, 2016
Job Number:	150415P3-1	Figure:	I-3

APPENDIX II
LABORATORY TESTING

Laboratory tests were performed to provide geotechnical parameters for engineering analyses. The following tests were performed:

- **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 distribution was determined on two soil samples in accordance with ASTM D422. Figures II-1 and II-2 present the test results.
- **ATTERBERG LIMITS:** The Atterberg limits were determined on two soil samples in accordance with ASTM D4318. Figures II-1 and II-2 present the test results.
- **DIRECT SHEAR:** Direct shear tests were performed on three samples in accordance with ASTM D3080. The shear stress was applied at a constant rate of 0.003 inches per minute. Figures II-3 and II-4 present the test results.
- **CORROSIVITY:** Corrosivity tests were performed on two soil samples. The pH and minimum resistivity were determined in general accordance with California Test 643. The soluble sulfate content was determined in accordance with California Test 417. The total chloride ion content was determined in accordance with California Test 422. Figure II-5 presents the test results.

Soil samples not tested are now stored in our laboratory for future reference and analysis, if needed. Unless notified to the contrary, all samples will be disposed of 30 days from the date of this report.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-1 at 5½ to 6½ Feet

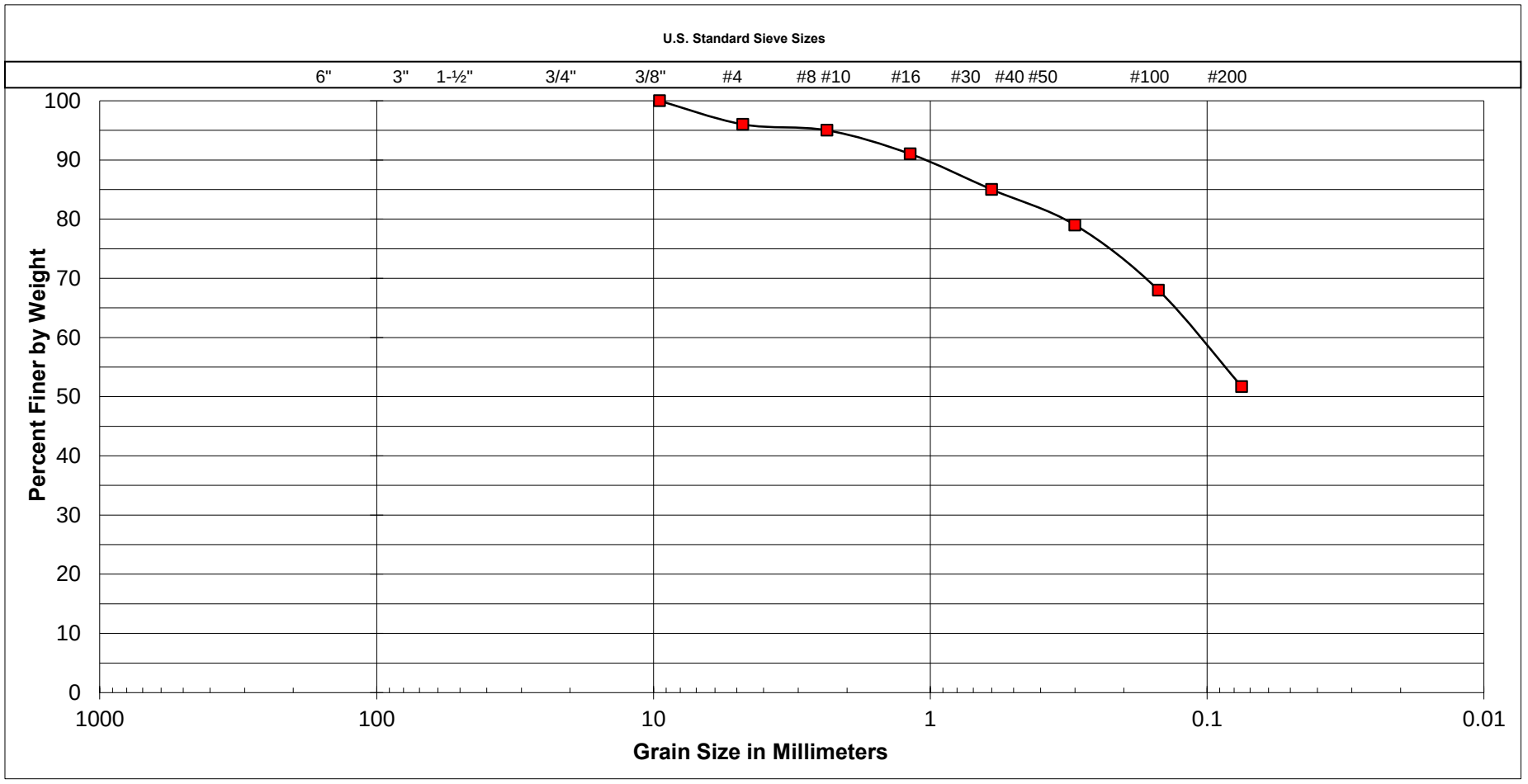
UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	42
PLASTIC LIMIT	24
PLASTICITY INDEX	18

SCST, Inc.

Grid/Monserate Hill Water Line
Fallbrook, California

By:	EM	Date:	April, 2016
Job Number:	150415P3-1	Figure:	II-1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-1 at 15½ to 16½ Feet

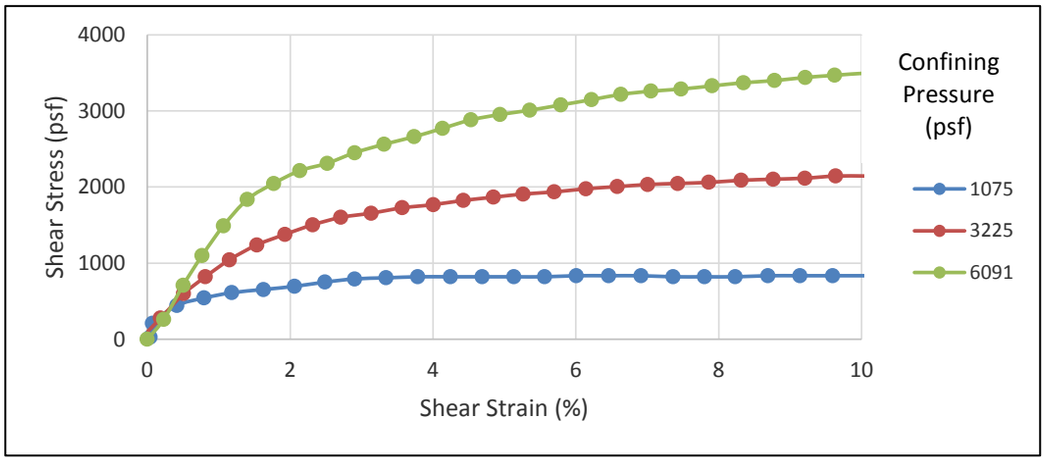
UNIFIED SOIL CLASSIFICATION:	SANDY CLAY
DESCRIPTION	CL

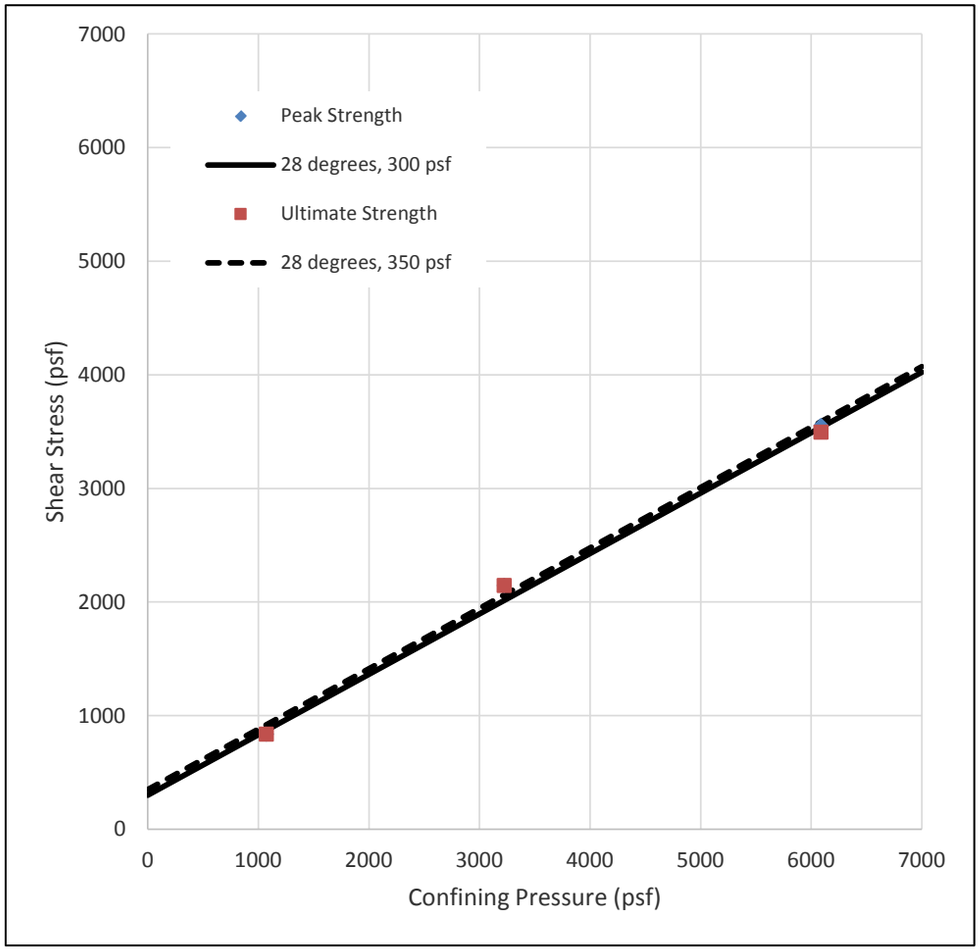
ATTERBERG LIMITS	
LIQUID LIMIT	5
PLASTIC LIMIT	21
PLASTICITY INDEX	14

SCST, Inc.

Gird/Monserate Hill Water Line Design
Falbrook, California

By:	EM	Date:	April, 2016
Job Number:	150415P3	Figure:	II-2





SAMPLE ID: B-1 at 3½ to 4½ Feet

Black LEAN CLAY

NOTES: Insitu

Strain Rate: 0.003 in/min

Sample was consolidated and drained

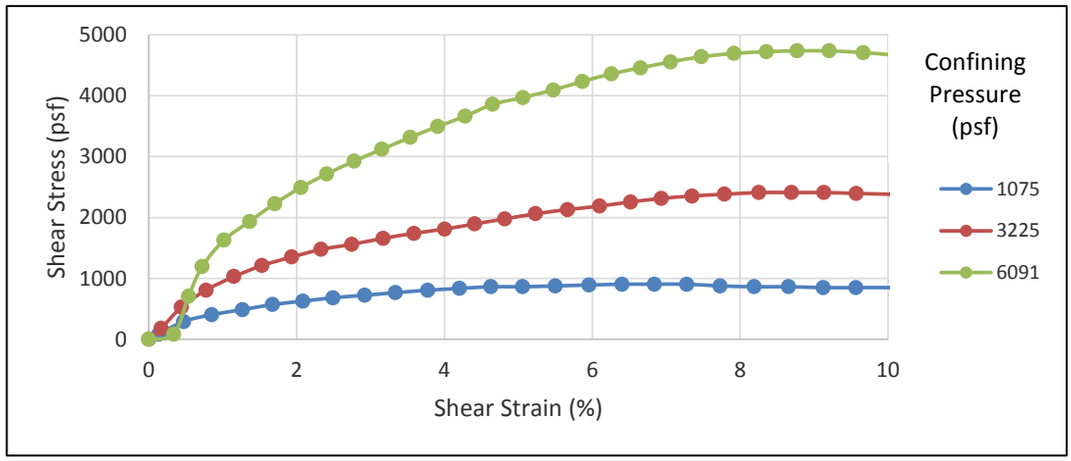
	Peak	Ultimate
Φ	28 °	28 °
c	300 psf	350 psf

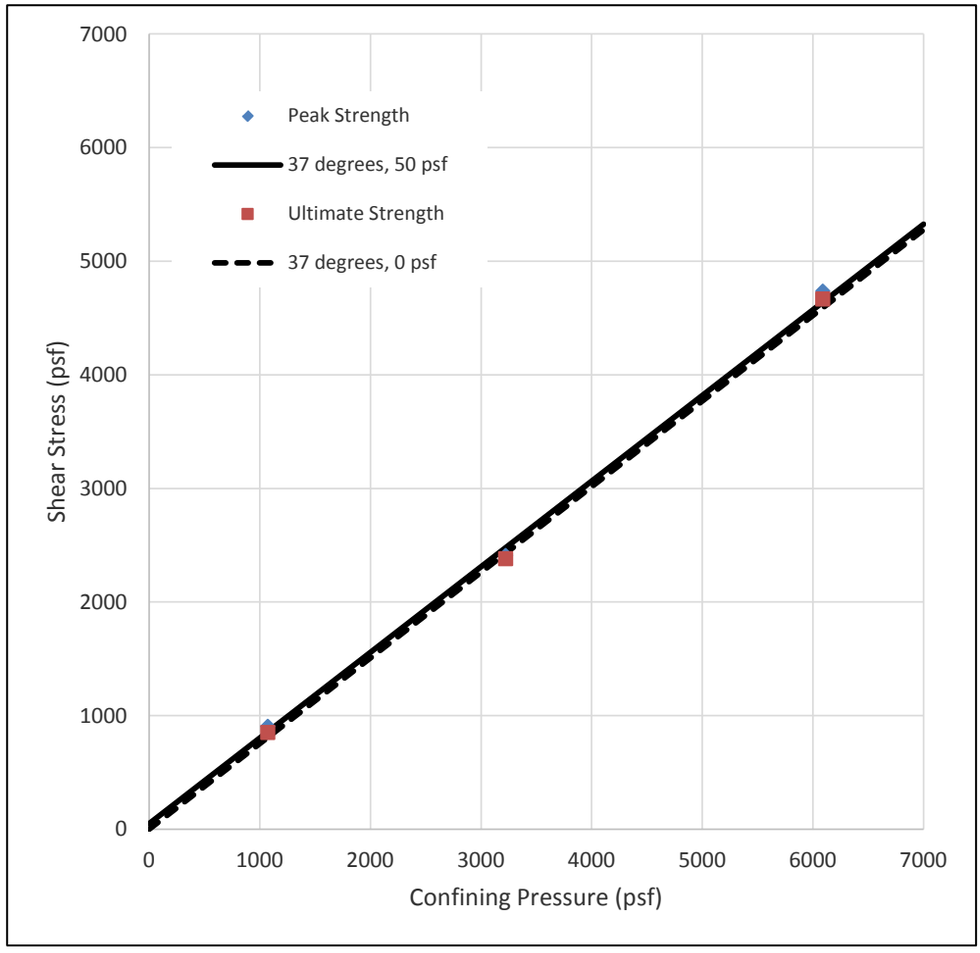
	Initial	Final
γ_d	89.8 pcf	89.8 pcf
w_c	32.8 %	32.8 %
Saturation	102 %	102 %

SCST Inc.

Gird/monserate Hill Water Line
Fallbrook, California

By:	EM	Date:	April, 2016
Job Number:	150415P3-1	Figure:	II-3





SAMPLE ID: B-1 at 10½ to 11½ Feet

Black CLAYEY SAND

NOTES: Insitu

Strain Rate: 0.003 in/min

Sample was consolidated and drained

	Peak	Ultimate
Φ	37 °	37 °
c	50 psf	0 psf

	Initial	Final
γ_d	99.9 pcf	99.9 pcf
w_c	27.8 %	27.5 %
Saturation	111 %	110 %

SCST Inc.

Gird/Monserate Hill Waterline
Fallbrook, California

By:	EM	Date:	April, 2016
Job Number:	150415P3	Figure:	II-4

CORROSION TEST RESULTS

RESISTIVITY, pH, SOLUBLE CHLORIDE and SOLUBLE SULFATE

SAMPLE	RESISTIVITY (Ω-cm)	pH	CHLORIDE (%)	SULFATE (%)
B-1 at ½ to 2 feet	1630	8.13	0.022	0.024
B-2 at 0 to 3 feet	1960	7.07	0.013	0.000

ACI 318-05 Building Code Requirements for Structural Concrete
Table 4.3.1 Requirements for Concrete Exposed to Sulfate-Containing Solutions

Sulfate Exposure	Water-Soluble Sulfate (SO_4) in Soil Percentage by Weight	Cement Type	Maximum Water-Cementitious Materials Ratio, By Weight, Normal Weight Aggregate Concrete	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	4000
Severe	0.20-2.00	V	0.45	4500
Very Severe	Over 2.00	V plus pozzolan	0.45	4500

Classification of Corrosive Environment [2]

pH	CHLORIDE CONTENT (%)	SULFATE CONTENT (%)
≤ 5.5	≥ 0.05	≥ 0.20

2. Based on California Department of Transportation, Division of Engineering Services, Materials Engineering and Testing Services, Corrosion and Structural Concrete, Field Investigation Branch, Corrosion Guidelines, Version 2.0, November 2012

Mitigation Monitoring and Reporting Program

GIRD/MONSERATE HILL 12-INCH WATER LINE

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation measures were incorporated into the Gird/Monserate Hill 12-inch Water Line Project to reduce potential significant environmental impacts identified in the Project Draft Mitigated Negative Declaration (MND)/Initial Study (IS). Pursuant to Section 15097 (c) of the California Environmental Quality Act (CEQA) Guidelines, a written monitoring and reporting program has been compiled to verify implementation of adopted mitigation measures. "Monitoring" refers to the ongoing or periodic process of project oversight. "Reporting" refers to the written compliance review that will be presented to the responsible parties included in the table below. A report can be required at various stages throughout Project implementation or upon completion of the mitigation measure. The following table provides the required information which includes identification of the potential impact, the various mitigation measures, applicable implementation timing, identification of the agencies responsible in implementation, and the monitoring and reporting method for each mitigation measure identified.

Additionally, as a result of comments received on the Draft MND/IS, modifications have been made to mitigation measures as needed. None of these modifications would result in the recirculation of the Draft MND/IS as required by CEQA Guidelines Section 15088.5. No new issues or additional environmental impacts were identified in the comments.

Rainbow Municipal Water District (“RMWD”) will have the responsibility for implementing the measures and reporting the implementation of the mitigation measures. The required mitigation measures are listed and categorized by impact area, with an accompanying identification of the following:

- Impact Category.
- Mitigation Measures.
- Responsible Party – the agency to which reports involving feasibility, compliance, implementation, and development are made.
- Monitoring/Reporting Method Action Indicating Compliance.
- Verification of Compliance: Date complete, Signature and comments.

GIRD/MONSERATE HILL 12-INCH WATER LINE MITIGATION MONITORING AND REPORTING PROGRAM							
IMPACT CATEGORY	**MITIGATION MEASURE**	**IMPLEMENTATION TIMING**	**RESPONSIBLE PARTY**	**MITIGATION/ REPORTING METHOD**	**DATE COMPLETE**	**INITIALS**	**COMMENTS**
Disturbed Wetlands	**Mitigation Measure B-1**: Mitigation may be achieved via purchase of 0.2 acre of disturbed wetland habitat credits from a resource agency approved mitigation bank. Alternatively, if habitat credits cannot be purchased in an existing mitigation bank, Rainbow MWD would provide for the conservation of habitat of the same amount and type of land. This requirement would include the following: • Preparation of a resource management plan, • Recording an open space easement, • Selection of a resource manager, and • Establishment of an endowment to ensure funding of annual ongoing basic stewardship costs. • Mitigation may potentially be mitigated onsite, via restoration of impacts (subject to approval by the resource agencies). This would require preparation of a revegetation plan that includes: o Installation of plant materials and irrigation, as needed, o Maintenance and monitoring (e.g., five years of maintenance and monitoring), o Success criteria, and o Remedial measures.	Preconstruction	RMWD and consulting biologist	Purchase Agreement for habitat credits or recording of an open space easement and establishment of an endowment fund			
Diegan coastal sage scrub	Mitigation Measure B-2: Mitigation may be achieved via purchase of 0.6 acre of habitat credits from a resource agency approved mitigation bank. Alternatively, if habitat credits cannot be purchased in an existing mitigation bank, Rainbow MWD would provide for the conservation of habitat of the same amount and type of land. This requirement would include the following: • Preparation of a resource management plan, • Recording an open space easement, • Selection of a resource manager, and • Establishment of an endowment to ensure funding of annual ongoing basic stewardship costs. • Mitigation may potentially be mitigated onsite, via restoration of impacts (subject to approval by the resource agencies). This would require preparation of a revegetation plan that includes: o Installation of plant materials and irrigation, as needed, o Maintenance and monitoring (e.g., five years of maintenance and monitoring),	Preconstruction	RMWD and consulting biologist	Purchase Agreement for habitat credits or recording of an open space easement and establishment of an endowment fund			

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	○ Success criteria, and ○ Remedial measures.						
Non-Native Grassland/ Historic Orchard	**Mitigation Measure B-3**: Mitigation may be achieved via purchase of 0.15 acre of habitat credits from a resource agency approved mitigation bank. Alternatively, if habitat credits cannot be purchased in an existing mitigation bank, Rainbow MWD would provide for the conservation of habitat of the same amount and type of land. This requirement would include the following: • Preparation of a resource management plan, • Recording an open space easement, • Selection of a resource manager, and • Establishment of an endowment to ensure funding of annual ongoing basic stewardship costs. • Mitigation may potentially be mitigated onsite, via restoration of impacts (subject to approval by the resource agencies). This would require preparation of a revegetation plan that includes: ○ Installation of plant materials and irrigation, as needed, ○ Maintenance and monitoring (e.g., five years of maintenance and monitoring), ○ Success criteria, and ○ Remedial measures.	Preconstruction	RMWD and consulting biologist	Purchase Agreement for habitat credits or recording of an open space easement and establishment of an endowment fund			
Indirect Impacts to Sensitive Vegetation Habitats	**Mitigation Measure B-4**: A revegetation plan/sheet would be required to prevent erosion and establishment of invasive species over those areas that will not be permanently converted to urban use. The lands would be revegetated with native coastal sage scrub species and non-native grassland similar to those found within the surrounding area. Revegetation should occur, as feasible between late fall and spring to take advantage rainfall and should require a minimum 120-day plant establishment period (PEP). All native seed and/or plant stock should be from seed and propagules collected from the local San Diego region. Temporary irrigation may be required to assist with plant establishment. Maintenance and monitoring should occur as needed during the PEP to ensure that: 1) Invasive plant species are absent from the revegetation	Upon completion of trenching operation	RMWD and consulting biologist	Insertion of a Memorandum Report in the Project File			

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	area, 2) The site is protected from erosion, and 3) Coverage by native species is consistent with coverage in the adjacent, non-impacted habitat, Invasive plant species include any species identified as having a High inventory rating by California Invasive Plant Council (Cal-IPC) and any nuisance plant causing potential detriment to native flora and/or fauna. The revegetation contractor should have the minimum qualifications: 1) Three years of local, verifiable experience in maintenance and monitoring involving resources similar to those onsite, 2) Ability to carry out maintenance and monitoring as required; and 3) Applicable licenses to implement maintenance. Following completion of the above measures, a memo documenting the status of the revegetation area should be prepared by the Rainbow MWD and inserted in the Project File.						
Diegan sage scrub occupied by coastal California gnatcatcher	**Mitigation Measure B-5**: The following permits would be required: 1) USACOE, Clean Water Act (CWA) Section 404 for placement of dredged or fill material within waters of the U.S., 2) Regional Water Quality Control Board, CWA Section 401 state water quality certification/waiver for an action that may result in degradation of waters of the State, and 3) Notification to CDFW for a streambed alteration agreement under Section 1602 of the Fish and Game Code. The project would likely quality for a USACOE Nationwide Permit (NWP) 12, Utility Line Activities. Under this NWP, impacts cannot result in the loss of greater than half an acre of waters of the U.S. Mitigation for permanent impacts to federal or state regulated waters would be finalized during the permitting process. Mitigation for impacts to habitat could occur through a combination of the following: creation/restoration or creation/restoration combined with enhancement, and/or preservation; however, the mitigation cannot result in a net-loss of habitat or biological functions and values. Mitigation could potentially be achieved through in-kind restoration of	Prior to commencement of grading or trenching operations	RMWD and consulting biologist	Filing of permits in the Project file and completion of mitigation requirements			

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	temporary impacts. The remaining mitigation requirement could be achieved through creation/restoration combined with enhancement, and/or preservation within a selected mitigation site or purchased through habitat acquisition in an approved mitigation bank. If offsite mitigation is required, it is recommended that the final selected mitigation location(s) be located within the project watershed and contribute to the local designation of habitat already conserved. Mitigation to offset impacts to federal waters consisting of creation, restoration, or enhancement would require preparation of a Compensatory Maintenance and Monitoring Plan as part of the regulatory process.						
Impact to nesting birds	**Mitigation Measure B-6**: If clearing, grubbing and/or grading of vegetation must occur during nesting migratory bird breeding season, a qualified biologist shall conduct a focused survey for active nests within (approximately) 48-72 hours prior to work in the area. If the biologist determines the area to be free of nesting birds, the work may proceed. If active bird nests were found, then all construction activities undertaken for the project must comply with regulatory requirements of the federal MBTA and California Fish and Game Code Sections §3503 and §3513. This would require protection of the nest, eggs, chicks, and adults until such time as the nestlings have fully fledged and are no longer dependent upon the nest site.	Prior to clearing, grubbing and/or grading	RMWD and consulting biologist	Monitoring Report			
Subsurface Historic and Prehistoric-Period Cultural Resources	**Mitigation Measure C-1a**: All ground disturbing activities (i.e., trenching) within the western half of the Project APE as depicted on Figure 9 shall be monitored by a qualified professional archaeologist who shall have the authority to halt construction activities in the event that cultural deposits, or those that are potentially cultural, are encountered. The monitor shall examine the deposits and, if the find is confirmed to be cultural in origin, which includes human remains and archaeological materials, then the protocols for unanticipated discovery in Mitigation Measure C-1b shall be followed. The District has determined that a Native American Monitor does not need to be present during ground disturbance within the Project APE.	During trenching operation	RMWD and consulting Archaeologist	Monitoring Report			
Subsurface Historic and Prehistoric-Period Cultural Resources	**Mitigation Measure C-1b**: If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 50-foot radius of the discovery. The on-site archaeological monitor or Principal Investigator, meeting the Secretary of the Interior's Professional Qualification Standards (NPS 2015) for prehistoric and historic archaeology, shall be afforded a reasonable amount of time to evaluate the significance of the find. Work cannot continue at the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2)	During trenching operation	RMWD and consulting Archaeologist	Monitoring Report			

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	not potentially significant or eligible for listing on the California Register of Historic Resources (CRHR). If a potentially-eligible resource is encountered, then the archaeologist, lead agency, and Project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations to evaluate eligibility and, if eligible, total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the lead agency (Rainbow MWD) as verification that the provisions in CEQA for managing unanticipated discoveries have been met. In the event that evidence of human remains is discovered, construction activities within 50-feet of the discovery will be halted or diverted, and the requirements above will be implemented. Depending on the occurrence, a larger radius may be necessary and will be required at the discretion of the on-site archaeologist. In addition, the provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. When human remains are discovered, state law requires that the discovery be reported to the County Coroner (Section 7050.5 of the Health and Safety Code) and that reasonable protection measures be taken during construction to protect the discovery from disturbance (AB 2641). If the Coroner determines the remains are Native American, the Coroner will notify the Native American Heritage Commission, which will designate a Native American Most Likely Descendant (MLD) for the Project (Section 5097.98 of the Public Resources Code). The MLD may not be the same person as the tribal monitor. The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).						