

Mitigation Monitoring and Reporting Program

Introduction

The California Environmental Quality Act (CEQA) requires the adoption of feasible mitigation measures to reduce the severity and magnitude of potentially significant environmental impacts associated with project development. In order to ensure that the mitigation measures and project revisions identified in an Environmental Impact Report (EIR) or Mitigated Negative Declaration (MND) are implemented, the Lead Agency is required to adopt a program for monitoring and reporting on the measures it has imposed to mitigate or avoid significant effects (CEQA Guidelines Section 15097[a]). The CEQA Guidelines require that a Mitigation Monitoring and Reporting Program (MMRP) be adopted upon certification of an EIR or adoption of an MND to ensure mitigation measures identified in the EIR or MND are implemented.

According to CEQA Guidelines Section 15097(c) “reporting” generally consists of a written compliance review that is presented to the decision-making body or authorized staff person. A report may be required at various stages during project implementation or upon completion of the mitigation measure. “Monitoring” is generally an ongoing or periodic process of project oversight. This program identifies, at a minimum, the entity responsible for the monitoring, what is to be monitored, how the monitoring shall be accomplished, and the monitoring and reporting schedule.

The MMRP assigns responsibility for monitoring mitigation measures incorporated into the project. Under this program, the Vallecitos Water District (VWD), and the construction contractor under the direction of VWD, would be responsible for the implementation and monitoring of these measures during and immediately following construction of future Master Plan Capital Improvement Projects (CIPs) unless otherwise stated herein, in accordance with State CEQA Guidelines Section 15097. A record of the MMRP will be maintained at the VWD office, located at 201 Vallecitos de Oro, San Marcos, California 92069, and online at www.vwd.org. The Program Environmental Impact Report (PEIR) (State Clearinghouse [SCH] No. 2017111082) analyzed the potential environmental effects of the project and identified measures to mitigate potentially significant impacts associated with construction of the proposed project. The MMRP table presented below documents the mitigation measures to be implemented by VWD.

2018 Master Plan Description

The purpose of the 2018 Master Plan is to update the 2008 Master Plan as a reasonable planning tool to meet the demands of planned development and future growth-based development within the VWD service boundary. The PEIR prepared for the 2018 Master Plan supplements the 2011 PEIR for the VWD 2008 Water, Wastewater, and Water Reclamation Master Plan Update (2008 Master Plan; State Clearinghouse Number 2010071073).

The 2018 Master Plan updates the land use, potable water, wastewater, and recycled water projections utilized in the 2008 Master Plan to accommodate the projected population growth within the District. VWD routinely updates its Master Plan to:

- Evaluate the existing and future needs for water, wastewater, and recycled water services to meet the demands of growth forecast for the region by the San Diego Association of Governments (SANDAG) through 2035, and through ultimate build-out; and
- Develop a facilities plan and CIP to accommodate these needs.

The 2018 Master Plan addresses many local and regional issues, including local water supply development, service territory growth, and wastewater collection, treatment, and disposal capacity. The 2018 Master Plan includes a comprehensive CIP that provides VWD with the strategy and capability for meeting projected water, wastewater, and recycled water customer service demands in a timely and reliable manner up to the year 2036 and through ultimate build-out. The complete 2018 Master Plan is available for review at the VWD office, located at 201 Vallecitos de Oro, San Marcos, California 92069, and online at www.vwd.org.

Conditions of Project Approval

Regulatory Compliance

Construction and operation of the CIP projects proposed in the 2018 Master Plan would be conducted in compliance with all applicable federal, state, and local laws and regulations. Section 3.3.5.4 of the 2011 PEIR for the 2008 Master Plan lists some of the environmental laws and regulations that would apply to the CIPs.

Project Design Features

The CIP projects proposed in the 2018 Master Plan would incorporate the following project design features described in the 2011 PEIR.

Traffic Control Plan

In the event that CIP construction activities would require a lane or roadway closure, or could otherwise substantially interfere with traffic circulation, the contractor would submit a traffic control plan to the local land use agency and local fire protection agency to ensure that adequate emergency access and egress is maintained and that traffic would move efficiently and safely in and around the construction site. The traffic control plan may include, but not be limited to, the following measures:

1. Install traffic control signs, cones, flags, flares, and lights in compliance with the requirements of local jurisdictions, and relocate them as the work progresses to maintain effective traffic control.

2. Provide trained and equipped flag persons to regulate traffic flow when construction activities encroach onto traffic lanes.
3. Control parking for construction equipment and worker vehicles to prevent interference with public and private parking spaces, access by emergency vehicles, and owner's operations.
4. Traffic control equipment, devices, and post settings shall be removed when no longer required. Any damage caused by equipment installation shall be repaired.
5. For CIP construction activities that may affect school access, the contractor shall notify school officials of the construction schedule and coordinate with school officials to maintain acceptable school access.

High Efficiency Pumps and Motors

Proposed CIP projects featuring electric pumps and motors, which include PS-2, PS-3, PS-4, PS-5, PS-6, PS-7, PS-8, and LS-1, would use high-efficiency pumps and motors that meet or exceed the energy efficiency levels listed in the National Electric Manufacturers Associations MGI-1993 publication, as recommended by the California Energy Commission.

Energy Efficient Security Lighting

All security and emergency lighting installed at the proposed above-ground CIP facilities (i.e., water storage reservoirs, water pump stations, and wastewater lift stations) would be shielded and directed downward and away from surrounding areas. In addition, CIP projects would use low illumination, advanced fluorescent interior lighting, high-intensity discharge outdoor lighting, and lighting controls such as timers or motion detectors. Lighting would only be used when personnel are onsite at night and lighting is required.

Periodic Pump Efficiency Testing

VWD would conduct periodic (annual or as needed) pump efficiency tests at each proposed CIP project site featuring electric pumps, which includes PS-2, PS-3, PS-4, PS-5, PS-6, PS-7, PS-8, and would correct any significant decreases in efficiency through the repair or replacement of appropriate pump components or other cause.

Soft Start and Stop Motors

VWD would employ soft starts and stops on proposed CIP project pumps and motors, where applicable, to reduce total electricity consumption during operation of pumps and motors.

Variable-frequency Drives

VWD would install variable-frequency drives that provide continuous control on CIP project pumps and motors, where appropriate, to reduce total electricity consumption during operation of pumps and motors by matching motor speed to the specific demands of work being performed.

Masonry Enclosures

Proposed CIP pump and lift station projects located adjacent to residential land uses would place pumps, emergency generators, and any other motorized equipment within a masonry enclosure that minimizes exterior noise.

Noise Management

Proposed CIP projects located adjacent to residential land uses within San Diego County, San Marcos and Escondido (PS-2, PS-3, PS-4, PS-5, PS-6, PS-7, PS-8, LS-1) would not exceed a one-hour exterior noise limit of 50 A-weighted decibels [dB(A)] at the property line during daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dB(A) during nighttime hours (10:00 p.m. to 7:00 a.m.).

Construction Vibration and Blasting Noise Management Plan

At least five days prior to construction of any CIP project within 200 feet of a building containing vibration sensitive equipment, VWD would notify the building occupants of any construction activity involving heavy construction equipment. The extent and duration of the construction activity would be included in the notification. For all construction activities that include blasting, the following additional measures would be implemented.

1. For any construction activities which include blasting, a qualified blasting consultant and geotechnical consultant shall prepare all required blasting plans and monitor all blasting activities.
2. Prior to blasting, the contractor shall secure all permits required by law for blasting operations and provide notification at least five work days in advance of blasting activities within 300 feet of a residence or commercial building, or within 600 feet of a vibration sensitive land use.
3. Monitoring of all blasting activities shall be in conformance with the Standards of the State of California, Department of Mines and in no case shall blasting intensities exceed the safety standards established by the U.S. Department of Mines.

Project Permits/Approvals

The adoption of the 2018 Master Plan requires the affirmative vote of the VWD Board of Directors. However, implementation of the proposed CIP projects may require that VWD obtain the applicable approvals, permits, licenses, certifications or other entitlements from various federal, state, and local agencies. The approvals and permits that are anticipated to be required were identified in the 2011 PEIR. Due to regulatory changes since the 2011 PEIR, Table 1 lists additional regulatory requirements that would also apply to the VWD under the 2018 Master Plan CIPs.

Table 1 Additional Regulatory Requirements Since 2011		
Agency/Department	Requirement	Action Associated With or Required For
California Native American Tribes	Tribal Consultation (Assembly Bill 52)	CEQA Review
California Executive Order B-30-15	Strengthened Greenhouse Gas Emissions Reductions	CEQA Review

Mitigation Monitoring and Reporting Program

Table 2 presents the mitigation measures that would be implemented as applicable under future CIP projects and specifies the entity (or entities) that would be responsible for implementation and monitoring of these mitigation measures.

**Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program**

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
Air Quality				
Air-1	<p>Odor-Control Measures. VWD will install odor-controlling features, such as activated carbon structures, at all vents along CIP wastewater pipelines and outfall alignments, at the Montiel Lift Station, and the bioxide station, to the extent required to ensure that nuisance odors cannot be detected at the nearest receptor.</p>	VWD CP Design Engineer/ Construction Contractor	VWD CP/VWD EO	During construction activities
Biological Resources				
Bio-1A	<p>Project-Level Biological Resource Surveys. During the design phase and prior to the construction of individual CIP projects, VWD will retain a qualified biologist to conduct project-level biological resources surveys and prepare biological resources technical reports for the following CIP projects: R-4, R-5, R-10, R-11, PS-4, PS-6, PS-8, P-43, P-16 and P-56, P-30, P-64, P-42, SP-11, SP-13, SP-25, LO-D1, LO-D2, LO-A1, and LO-A2.</p> <p>Surveys and reports will be conducted and prepared as part of the project-level CEQA documentation for these projects. VWD will map and quantify project-level impacts to special status species and habitats in a biological resources technical report as part of the CEQA documentation. Detailed project-specific avoidance and mitigation measures for significant impacts to biological resources will be finalized as part of the approval and certification process for the subsequent project-level CEQA documentation. Project-specific avoidance and mitigation measures would be determined during project review, consultations, permitting, and/or negotiations between the VWD and the responsible local, state, and federal agencies from which approvals and permits would be required.</p> <p>If the project-level surveys and reporting determine that suitable habitat for special status species occurs, and that special status species could be present within the CIP project sites and/or could be adversely affected as a result of project implementation, including direct and/or indirect impacts to the species and occupied habitat, then the appropriate presence/absence and protocol-level surveys will be conducted, as necessary for required approvals. VWD would retain a qualified biologist to conduct rare plant surveys for CIP projects determined to have the potential to affect special status plant species. Further, VWD will retain a qualified biologist to conduct focused protocol-level surveys for CIP projects determined to have the potential to affect special status wildlife species. Surveys will follow protocols and guidelines approved by the</p>	Qualified Biologist/ VWD CP Design Engineer	VWD CP/ USFWS/ CDFW/ CNPS	During the design phase and prior to construction activities

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	<p>U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and California Native Plant Society, and will be conducted by qualified biologists permitted by the USFWS and/or CDFW, where applicable.</p> <p>If the rare plant surveys or focused protocol-level surveys identified above determine the presence of federally or state-listed endangered or threatened species and occupied habitat on site, then, in compliance with Federal Endangered Species Act and California Endangered Species Act, and as stated in Section 3.3.5.4 of this PEIR, VWD will consult and obtain all applicable regulatory permits and authorizations from the USFWS and CDFW, and the conditions of the regulatory permits and authorizations will be implemented accordingly, and/or the underlying CIP project would be modified to avoid direct “take” of the species and/or minimize adverse effects to the species and occupied habitat.</p> <p>In accordance with consultation and/or permitting requirements, mitigation measures Bio-1B and Bio-1C below would prevent direct “take” of listed species that are most likely to be affected by individual CIP projects (e.g., coastal California gnatcatcher and least Bell’s vireo) and minimize potential impacts to individuals and occupied habitat in the vicinity of the CIP project sites that may be displaced from habitat or otherwise adversely affected. VWD will further mitigate the loss of habitat according to mitigation measures Bio-2A through Bio-2C.</p>			
Bio-1B	<p>Coastal California Gnatcatcher Avoidance Measures. In addition to those mitigation measures described above within Bio-1A above, and any avoidance, minimization, and conservation measures prescribed by the USFWS during consultation and/or permitting, the following mitigation measures will be implemented for proposed CIP projects potentially affecting the federally threatened coastal California gnatcatcher, including suitable and/or occupied habitat, as applicable:</p> <ol style="list-style-type: none"> 1. Within one year prior to CIP project construction, VWD shall retain a qualified biologist to commence focused surveys in accordance with USFWS protocols to determine the presence or absence of the coastal California gnatcatcher. Documentation of the survey results shall be provided to VWD and USFWS within 45 days of completing the final survey. If surveyed habitat is determined to be occupied by California gnatcatcher, then the following measures shall be implemented in addition to those described above within Bio-1A: 	VWD CP/Qualified Biologist	VWD CP/ USFWS	Within one year prior to CIP construction and during construction activities.

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Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>a. Habitat occupied by gnatcatcher shall not be removed during the gnatcatcher breeding season (February 15 through August 30). Vegetation clearing, grading, and/or construction activities that have commenced within unoccupied habitat prior to the breeding season shall be allowed to continue without interruption. The contractor(s) should maintain continuous construction activities on or in the immediate vicinity (500 feet) of suitable habitat for gnatcatcher, until the work is completed, in order to minimize potential indirect impacts. If gnatcatchers move into an area within 500 feet of ongoing construction and attempt to nest, then it can be deduced that the noise and other indirect impacts are not great enough to discourage gnatcatcher nesting activities.</p> <p>In addition, if these activities are initiated prior to, and extend into, the breeding season, but they cease for any period of time and the contractor wishes to restart work within the gnatcatcher breeding season window (February 15 through August 30), then updated surveys shall be conducted, as described above. If updated surveys indicate no breeding gnatcatchers occur on or within 500 feet of the proposed work, then construction activities shall be allowed to commence. However, if breeding gnatcatchers are confirmed, then construction activities shall be postponed until all nesting activities have ceased, as determined by a qualified biological monitor.</p> <p>b. Prior to vegetation clearing, grading and/or construction activities that shall occur on or in the immediate vicinity (within 500 feet) of coastal sage scrub and/or USFWS-designated Critical Habitat during the gnatcatcher breeding season (February 15 through August 30), VWD shall retain a qualified biologist to monitor construction activities. The biologist must be knowledgeable of gnatcatcher biology and ecology. VWD shall submit the biologist's name, address, and telephone number, and proposed work schedule, to the USFWS at least 7 days prior to construction activities.</p> <p>c. Noise monitoring shall be conducted if construction activities would occur during the gnatcatcher breeding season (February 15 through August 30), if the construction-related noise levels would exceed 60 decibels average sound level (dB L_{eq}; i.e., the noise threshold suggested by the USFWS for indirect impacts to gnatcatcher), and if gnatcatchers</p>			

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	<p>are found within 500 feet of the noise source. Noise monitoring shall be conducted by a biologist experienced in both the vocalization and appearance of California gnatcatcher, and in the use of noise meters. Construction activities that generate noise levels over 60 dB Leq may be permitted within 300 feet of occupied habitat if methods are employed that reduce the noise levels to below 60 dB Leq at the boundary of occupied habitat (e.g., temporary noise attenuation barriers or use of alternative equipment). During construction activities, daily testing of noise levels shall be conducted by a noise monitor with the help of the biologist to ensure that a noise level of 60 dB Leq at the boundary of occupied habitat is not exceeded. Documentation of the noise monitoring results shall be provided to VWD and USFWS within 45 days of completing the final noise monitoring event.</p>			
Bio-1C	<p>Least Bell's Vireo Avoidance Measures. In addition to those mitigation measures described above within Bio-1A above, and any avoidance, minimization, and conservation measures prescribed by the USFWS and CDFW during consultation and/or permitting, the following mitigation measures shall be implemented for CIP projects potentially affecting the federally and state endangered least Bell's vireo, including suitable and/or occupied riparian habitat, as applicable:</p> <ol style="list-style-type: none"> 1. Within one year prior to CIP project construction, VWD shall retain a qualified biologist to perform focused surveys in accordance with USFWS guidelines to determine the presence or absence of the least Bell's vireo on and within 500 feet of the CIP project site. Documentation of the survey results shall be provided to the USFWS and CDFW within 45 days of completing the final survey. If surveyed habitat is determined to be occupied by vireo, then the following measures shall be implemented in addition to those described above within Bio-1A: <ol style="list-style-type: none"> a. CIP projects shall not remove riparian habitat that is occupied by least Bell's vireo during the species' breeding season (March 15 through July 15). b. A minimum 100-foot-wide biological buffer shall be maintained between all construction activities and occupied vireo habitat at all times. c. VWD shall retain a qualified biologist to monitor all construction activities that would occur within 300 feet of occupied vireo habitat during the species' breeding season (March 15 through July 15). The 	VWD CP/Qualified Biologist	VWD CP/ USFWS/ CDFW	Within one year prior to CIP construction and during construction activities.

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Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>biologist must be knowledgeable of vireo biology and ecology. VWD or its designated representative shall submit the biologist's name, address, and telephone number, and proposed work schedule, to the USFWS and CDFW at least seven days prior to construction activities.</p> <p>d. VWD shall retain a qualified biologist to perform noise monitoring of all construction activities that would occur within 300 feet of occupied vireo habitat. Noise levels at the riparian canopy edge shall be kept below 60 dB(A) [A-weighted decibels] L_{eq} from 5:00 a.m. to 11:00 a.m. between March 15 and July 15. For the remainder of the season, the noise levels shall not exceed 60 decibels, averaged over a one-hour period on an A-weighted decibel [dB(A); i.e., 1 hour L_{eq}/dB(A)]. Documentation of the noise monitoring results shall be provided to the USFWS and CDFW within 45 days of completing the final noise monitoring event.</p> <p>2. Permanent and temporary impacts to riparian habitat shall be mitigated in full, as proposed within mitigation measures Bio-2A through Bio-2C, to ensure no net loss of the habitat and enhancement of functions and values.</p>			
Bio-1D	<p>Avoidance of Nesting Birds. To prevent impacts to nesting passerines (song birds) and other non-raptors protected under the federal Migratory Bird Treaty Act and California Fish and Game Code, VWD shall enforce the following:</p> <p>1. If construction occurs during the general nesting season (February 1 through August 31), and where any mature tree, shrub, or structure capable of supporting a bird nest occurs within 300 feet of proposed CIP project construction activities, VWD shall retain a qualified biologist to conduct a pre-construction survey for nesting birds prior to clearing, grading and/or construction activities. The survey shall be conducted within 72 hours prior to the start of construction.</p> <p>2. If any nesting birds are present on or within 300 feet of the proposed project construction area, the following shall be required, as approved by the USFWS and/or CDFW:</p> <p>a. VWD shall retain a qualified biologist to flag and demarcate the location of all nesting birds and monitor construction activities. Temporary avoidance of active bird nests, including the enforcement of an avoidance buffer of 300 feet, as determined by the qualified biological monitor, shall be required until the qualified biological monitor has verified that the</p>	VWD CP/Qualified Biologist	VWD CP/ USFWS/ CDFW	72 hours prior to start of construction activities and during construction activities.

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Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>young have fledged or the nest has otherwise become inactive. Requests for buffer reductions of less than 300 feet shall be provided to the Wildlife Agencies. Documentation of the nesting bird surveys and any follow-up monitoring shall be provided to USFWS and CDFW within 10 days of completing the final survey or monitoring event.</p>			
Bio-1E	<p>Avoidance of Raptor Nests. To prevent impacts to nesting raptors protected under the federal Migratory Bird Treaty Act and California Fish and Game Code, VWD shall enforce the following:</p> <ol style="list-style-type: none"> 1. If construction occurs during the raptor nesting season (January 15 through July 31), and where any mature tree or structure capable of supporting a raptor nest occurs within 500 feet of proposed CIP project construction activities, VWD shall retain a qualified biologist to conduct a pre-construction survey for nesting raptors prior to clearing, grading and/or construction activities. The survey shall be conducted within 72 hours prior to the start of construction. 2. If any nesting raptors are present on or within 500 feet of the proposed project construction area, the following shall be required, as approved by the USFWS and/or CDFW: <ol style="list-style-type: none"> a. VWD shall retain a qualified biologist to flag and demarcate the location of all nesting raptors and monitor construction activities. Temporary avoidance of active raptor nests, including the enforcement of an avoidance buffer of 500 feet shall be required until the qualified biological monitor has verified that the young have fledged or the nest has otherwise become inactive. Documentation of the raptor surveys and any follow-up monitoring, as necessary, shall be provided to USFWS and CDFW within 10 days of completing the final survey or monitoring event. 3. In the event that a California state fully protected species (e.g., white tailed kite) is found to be nesting on the project site, all work in the area shall stop and VWD shall notify the CDFW and/or USFWS. No impacts shall be permitted to occur to fully protected species. 	VWD CP/Qualified Biologist	VWD CP/ USFWS/ CDFW	72 hours prior to start of construction activities and during construction activities.
Bio-1F	<p>Construction Fencing. Prior to vegetation clearing, grading, and/or construction activities, VWD shall retain a qualified biologist to oversee installation of appropriate fencing and/or flagging to delineate the limits of construction and the approved construction staging areas for protection of</p>	Qualified Biologist	VWD CP/ USFWS/ CDFW/ RWQCB/ USACE	Prior to vegetation clearing, grading, and/or construction activities.

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Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>identified sensitive resources for the following CIP projects: R-4, R-5, R-10, R-11, PS-4, PS-6, PS-8, P-43, P-16 and P-56, P-30, P-64, P-42, SP-10, SP-11, SP-13, SP-25, LO-D1, LO-D2, LO-A1, and LO-A2.</p> <p>Temporary fencing (with silt barriers) shall be installed at the limits of project impacts (including construction staging areas and access routes) to prevent additional sensitive habitat impacts and to prevent the spread of silt from the construction zone into adjacent habitats to be avoided. Fencing shall be installed in a manner that does not impact habitats to be avoided. For projects potentially affecting special-status species and sensitive resources, and for which permits or approvals from the USFWS or CDFW require confirmation of project impacts and submittal of as-built plans, VWD shall submit to the USFWS and CDFW for approval, at least 30 days prior to initiating project impacts, the final plans for initial clearing and grubbing of sensitive habitat and project construction. These plans shall also be submitted to the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), or other local agency, from which, approval or permitting is required, as applicable. The final plans shall show the fenced limits of impact and all sensitive areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work shall cease until the problem has been remedied to the satisfaction of VWD and the USFWS, CDFW, USACE, and/or other agency. Temporary construction fencing shall be removed by VWD upon project completion.</p>			
Bio-1G	<p>Construction Staging Areas. Prior to construction activities for CIP projects where it has been demonstrated through project-level studies that drainages, wetlands and areas supporting sensitive habitats or species could be affected by project construction, VWD shall design CIP project construction staging areas to avoid and setback from drainages, wetlands and areas supporting sensitive habitats or species, where feasible. Fueling of equipment shall occur in designated fueling zones within the construction staging areas. All equipment used within the approved construction limits shall be maintained to minimize and control fluid and grease leaks. Provisions to contain and clean up unintentional fuel, oil, fluid and grease leaks/spills shall be in place prior to construction.</p>	VWD CP/ Construction Contractor	VWD CP	Prior to construction activities.
Bio-1H	<p>Pre-Construction Meeting. Prior to vegetation clearing, grading, and/or construction activities, VWD shall retain a qualified biologist to attend a pre-construction meeting to inform construction crews of the sensitive species and</p>	VWD CP/Qualified Biologist	VWD CP	Prior to vegetation clearing, grading, and/or construction

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Bio-1I	Construction-Related Night Lighting. All construction-related night lighting adjacent to sensitive habitat areas shall be of low illumination, shielded and directed downwards and away from adjacent native habitat areas.	VWD CP/ Construction Contractor	VWD CP	During construction activities.																												
Bio-1J	Avoidance of Special Status Habitat Areas. Prior to construction activities for CIP projects where it has been demonstrated through project-level studies that special status plant and wildlife species, as well as USFWS-designated Critical Habitat and coastal ESHA, could be affected by project construction and/or operation, VWD shall design and/or modify CIP projects to avoid and setback from special status plant and wildlife species, USFWS-designated Critical Habitat, and coastal ESHA, where feasible. Specific setback requirements for CIP project avoidance would be determined in consultation with the USFWS, CDFW, City of Carlsbad, and/or the California Coastal Commission.	VWD CP Design Engineer	VWD CP/ USFWS/ CDFW/ City of Carlsbad/ CCC	Prior to construction activities.																												
Bio-2A	<p>Habitat Replacement. Unavoidable impacts to sensitive natural communities shall be mitigated by VWD according to the range of ratios provided below, and would be increased or decreased depending on whether the habitat supports special status species or other sensitive resources, and/or the impacts and mitigation would occur inside or outside an existing preserve area:</p> <table border="0" data-bbox="310 976 1041 1377"> <thead> <tr> <th><u>Sensitive Natural Community</u></th> <th><u>Mitigation Ratio</u></th> </tr> </thead> <tbody> <tr> <td>Non-native grassland</td> <td>0:1 – 0.5:1</td> </tr> <tr> <td>Valley needlegrass grassland</td> <td>1:1 – 3:1</td> </tr> <tr> <td>Diegan coastal sage scrub</td> <td>1:1 – 2:1</td> </tr> <tr> <td>Diegan coastal sage – chaparral scrub</td> <td>1:1 – 2:1</td> </tr> <tr> <td>Chamise chaparral (granitic, mafic)</td> <td>1:1, 1:1 – 3:1</td> </tr> <tr> <td>Scrub oak chaparral</td> <td>1:1 – 2:1</td> </tr> <tr> <td>Southern maritime chaparral</td> <td>1:1 – 3:1</td> </tr> <tr> <td>Southern mixed chaparral (granitic, mafic)</td> <td>1:1, 1:1 – 3:1</td> </tr> <tr> <td>Coast live oak woodland</td> <td>1:1 – 3:1</td> </tr> <tr> <td>Southern coastal live oak riparian forest</td> <td>1:1 – 3:1</td> </tr> <tr> <td>Southern riparian forest</td> <td>1:1 – 3:1</td> </tr> <tr> <td>Southern riparian scrub</td> <td>1:1 – 3:1</td> </tr> <tr> <td>Coastal and valley freshwater marsh</td> <td>1:1 – 3:1</td> </tr> </tbody> </table>	<u>Sensitive Natural Community</u>	<u>Mitigation Ratio</u>	Non-native grassland	0:1 – 0.5:1	Valley needlegrass grassland	1:1 – 3:1	Diegan coastal sage scrub	1:1 – 2:1	Diegan coastal sage – chaparral scrub	1:1 – 2:1	Chamise chaparral (granitic, mafic)	1:1, 1:1 – 3:1	Scrub oak chaparral	1:1 – 2:1	Southern maritime chaparral	1:1 – 3:1	Southern mixed chaparral (granitic, mafic)	1:1, 1:1 – 3:1	Coast live oak woodland	1:1 – 3:1	Southern coastal live oak riparian forest	1:1 – 3:1	Southern riparian forest	1:1 – 3:1	Southern riparian scrub	1:1 – 3:1	Coastal and valley freshwater marsh	1:1 – 3:1	Qualified Biologist/ VWD CP	VWD CP/ USFWS/ USACE/ RWQCB/ CDFW	Prior to vegetation clearing, grading, and/or construction activities; during project grading and construction; and upon completion of project and construction
<u>Sensitive Natural Community</u>	<u>Mitigation Ratio</u>																															
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Scrub oak chaparral	1:1 – 2:1																															
Southern maritime chaparral	1:1 – 3:1																															
Southern mixed chaparral (granitic, mafic)	1:1, 1:1 – 3:1																															
Coast live oak woodland	1:1 – 3:1																															
Southern coastal live oak riparian forest	1:1 – 3:1																															
Southern riparian forest	1:1 – 3:1																															
Southern riparian scrub	1:1 – 3:1																															
Coastal and valley freshwater marsh	1:1 – 3:1																															

**Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program**

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>Permanent and temporary impacts to sensitive natural communities shall be mitigated in-kind by VWD through implementation of any one or combination of the following measures, as approved and/or amended by the USFWS, USACE, RWQCB, and/or CDFW for individual CIP projects, if applicable:</p> <ol style="list-style-type: none"> 1. On site as creation of new habitat within avoided and preserved areas at the CIP project site; 2. On site as restoration of existing habitat within temporary impact areas and/or avoided and preserved areas at the CIP project site; 3. On site as enhancement of existing habitat within avoided and preserved areas at the CIP project site; 4. Off site as purchase of habitat credits within an approved mitigation bank(s) (e.g., North County Habitat Bank); 5. Off site as habitat preservation, creation, restoration, and/or enhancement within other properties or approved mitigation programs available at the time of grading; or 6. A combination of the above. <p>For on- or off-site creation, restoration, and/or enhancement mitigation of upland sensitive natural communities (e.g., grassland, coastal sage scrub, chaparral, woodland), VWD shall prepare an Upland Habitat Restoration Plan, Habitat Mitigation and Monitoring Plan, or similar plan, detailing the specific upland habitat creation, restoration, and/or enhancement measures to be implemented as project mitigation. The Upland Habitat Restoration Plan shall be approved by the USFWS and CDFW prior to vegetation clearing, grading, and/or construction activities.</p> <p>For on- or off-site creation, restoration, and/or enhancement mitigation of riparian and wetland sensitive natural communities (e.g., riparian forest, riparian scrub, willow scrub, mule fat scrub, freshwater marsh), VWD shall prepare a Riparian/Wetland Habitat Restoration Plan, Habitat Mitigation and Monitoring Plan, or similar plan, detailing the specific riparian/wetland creation, restoration, and/or enhancement measures to be implemented as project mitigation. The Riparian/Wetland Habitat Restoration Plan shall be approved by the USFWS, USACE, RWQCB, and/or CDFW, as appropriate, prior to vegetation clearing, grading, and/or construction activities.</p>			

Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
Bio-2B	Riparian/Wetland Replacement Ratio. Any upland or riparian/wetland habitat impacts that occur beyond the approved fencing described above within Bio-1F shall be mitigated at a ratio to be negotiated with the USFWS, USACE, RWQCB, and/or CDFW.	Qualified Biologist/ VWD CP	VWD CP/ USFWS/ USACE/ RWQCB/ CDFW	Prior to vegetation clearing, grading, and/or construction activities; during project grading and construction; and upon completion of project and construction
Bio-2C	Hydroseeding of Graded Areas. Unless otherwise required by the USFWS, USACE, RWQCB, and/or CDFW, and excluding those CIP projects where a permanent access road, path, or other permanent development is required, after completion of final grading for CIP projects located adjacent to native vegetation, the construction documents shall require that all graded areas within 100 feet of native vegetation are hydroseeded and/or planted with native plant species similar in composition to the adjacent undisturbed vegetation communities. VWD or the construction contractor shall retain a qualified biologist to monitor these activities to ensure non-native or invasive plant species are not used in the hydroseed mix or planting palettes. The hydroseeded/planted areas shall be watered via a temporary drip irrigation system or watering truck. Irrigation shall cease after successful plant establishment and growth, to be determined by the biologist. Any irrigation runoff from hydroseeded/planted areas shall be directed away from adjacent native vegetation communities, and contained and/or treated within the development footprint of individual projects. All planting stock shall be inspected for exotic invertebrate pests (e.g., argentine ants) and any stock found to be infested with such pests shall not be allowed to be used in the hydroseeded/planted areas.	Qualified Biologist/ VWD CP	VWD / USFWS/ USACE/ RWQCB/ CDFW/ VWD CP	During project grading and construction activities
Bio-3A	Oak Tree Avoidance. All oak trees and their root systems will be avoided by CIP projects R-4, P-16, and P-56 through project design or site selection, to the extent practicable.	VWD CP/ Qualified Biologist	VWD CP	During project design and construction activities

Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
Bio-3B	<p>Oak Tree Replacement. To off-set any impacts to oak trees potentially resulting from CIP projects R-4, P-16, and P-56, VWD will implement the following measures:</p> <ol style="list-style-type: none"> 1. Unavoidable impacts will be compensated by VWD at a ratio of 1:1 to 3:1. A minimum of one 15-gallon oak tree will be planted within approved areas at the CIP project site as a replacement for every one oak tree damaged. For temporary impacts, trees will be replaced at the same location as the impact area. For permanent impacts, trees will be replaced within avoided areas at the CIP project site where natural water is available. 2. The landscape architect/designer for the project will design replacement trees into landscape plans which will be subject to review by the VWD and local jurisdiction in which the planting would occur. 3. Planting specifications will comply with the following: <ol style="list-style-type: none"> a. The newly planted trees will be planted high, as much as 0.75 foot above the new adjacent grade. b. Amend the backfill soil with wood shavings, unless existing soil is high in natural organic matter with a sandy loam texture as reflected in soils tests following County protocol. 	VWD CP/ Qualified Biologist/ Landscape Architect	VWD CP	During project grading and construction and upon completion of project construction
Bio-4A	<p>Project-Level Biological Studies. During the design phase of CIP SP-13, LO-D1, LO-D2, LO-B, and LO-A2 occurring within the jurisdictional boundaries of the City of Carlsbad, VWD shall prepare project-level biological studies, to include consistency analysis with the Carlsbad MHCP Subarea Plan (Carlsbad HMP), in order to ensure that CIP projects would not conflict with this adopted plan. As necessary, VWD shall conduct project design and review of biological studies in consultation with the USFWS, CDFW, and City of Carlsbad when covered resources identified under the Carlsbad MHCP Subarea Plan have the potential to be affected by individual CIP projects.</p>	VWD CP/ Qualified Biologist/ Qualified Consultant	VWD CP/ USFWS/ CDFW/ City of Carlsbad	During project design
Bio-4B	<p>Species and Habitat Avoidance within Carlsbad MHCP Subarea Plan. VWD shall implement the following specific measures for CIP projects SP-13, LO-D1, LO-D2, LO-B, and LO-A2 occurring within the Carlsbad MHCP Subarea Plan:</p> <ol style="list-style-type: none"> 1. Impacts to narrow endemic species shall be avoided to the maximum extent practicable; however, where impacts to a narrow endemic species population are demonstrated to be unavoidable, impacts shall be restricted 	VWD CP Design Engineer	VWD CP	During project design and during construction activities

Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>to less than the maximum allowed under the Carlsbad MHCP Subarea Plan.</p> <p>2. All development projects shall be located and designed to minimize overall impacts to natural habitat.</p> <p>3. Impacts to wetland and riparian habitats within the Carlsbad MHCP Subarea Plan shall be avoided to the maximum extent feasible. All projects that would affect these habitats must demonstrate that the impacts: (1) cannot be avoided by a feasible alternative; (2) have been minimized to the maximum extent practicable; (3) are mitigated at a minimum 3:1 ratio; and (4) shall be mitigated in ways that assure no net loss of habitat value or function.</p>			
Bio-4C	<p>Habitat In-Lieu Fees. Prior to issuance of permits from the City of Carlsbad, VWD may pay Habitat In-Lieu Mitigation Fees for impacts to Group E (Non-Native Grassland) and Group F (Disturbed Habitat, Eucalyptus Woodland) Habitats identified within the Carlsbad MHCP Subarea Plan for CIP projects SP-13, LO-D1, LO-D2, LO-B, and LO-A2. Fees may be paid in an amount to be determined by City Council, in lieu of providing on-site or off-site mitigation land. The Habitat In-Lieu Mitigation Fee shall also apply to off-site mitigation for impacts to Group D (Unoccupied Coastal Sage Scrub, Coastal Sage/Chaparral, Chaparrals – excluding Southern Maritime Chaparral) Habitat which is not conserved or mitigated on site in accordance with mitigation measures Bio-2A through Bio-2C, or otherwise required by the City of Carlsbad, USFWS, and CDFW during review of individual CIP projects.</p>	VWD CP	City of Carlsbad/ USFWS/ CDFW/ VWD CP	Prior to issuance of permits
Cultural Resources				
	<p>Cul-1 Site-specific Records Search. Prior to construction activities within a CIP project site, a qualified cultural resource professional shall be retained by VWD to complete a CIP project site-specific records search at the South Coastal Information Center to determine if the CIP project site has been subject to a professional survey. If a current cultural resources report to address potential impacts on cultural resources is available, VWD shall implement the mitigation measures provided within the report.</p>	VWD CP/ Qualified Cultural Resource Professional	VWD CP	Prior to construction activities
	<p>Cul-2 Phase I Cultural Resources Study. In the event that a current and valid report (completed within the last five years) is not available, or if the entirety of the CIP project site has not been professionally surveyed (see Cul-1), a Phase I Cultural Resources Survey study shall be completed by a qualified</p>	VWD CP/ Qualified Cultural Resource Professional	VWD CP	Prior to construction activities

**Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program**

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>cultural resource professional.</p> <p>a. If the Phase I study detects built-environment resources (buildings or structures aged 45 years old or older), and implementation of the CIP project will either disturb or destroy such buildings or affect their historic setting, then a cultural resource professional who minimally meets the Secretary of the Interior’s Professional Qualifications Standards for Architectural History shall be contracted to determine if the resource site is significant and if the project may cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines. VWD shall be responsible for implementing methods for eliminating or reducing impacts on historical resources identified in the technical report or memorandum. Such methods could include, but are not limited to, written and photographic recordation of the resource in accordance with the level of Historic American Building Survey documentation that is appropriate to the significance (federal, state, local) of the resource.</p> <p>b. In the event that known or previously undetected archaeological resources are identified during the Phase I study then such resources must be recorded or updated onto Department of Parks and Recreation (DPR) 523 forms in accordance with all applicable regulations. In addition, any addressed resources must be evaluated for significance and eligibility for inclusion in federal, state and local registers of significant resources. This evaluation shall be undertaken by a cultural resource professional who minimally meets the SOI Professional Qualifications Standards for Archaeology. In the event that such resources are found to be historical resources pursuant to CEQA, potential adverse impacts must be analyzed as stated in Public Resources Code (PRC) Sections 21084.1 and 21083.2(l), and appropriate measures must be generated to avoid or reduce potential impacts on archaeological resources as necessary, including data recovery excavation and/or construction monitoring.</p>			
Cul-3	<p>Procedure for Unintentional Disturbance of Cultural Resources. If historical resources are identified during a Phase I Cultural Resources Study and cannot be avoided, construction monitoring by a qualified archaeologist and a Native American monitor, if requested during AB 52 consultation, would be required. If subsurface cultural resources are encountered during CIP project construction, or if evidence of an archaeological site or other suspected</p>	VWD CP/ Qualified Archaeologist	VWD CP	During construction activities

Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>historic resources are encountered, all ground-disturbing activity shall cease within 100 feet of the resource. A qualified archaeologist shall be retained by VWD to assess the find, and to determine whether the resource is significant and requires further study. Potentially significant cultural resources could consist of, but are not limited to, stone, bone, fossils, wood or shell artifacts or features, including structural remains, historic dumpsites, hearths and middens. Midden features are characterized by darkened soil, and could conceal material remains, including worked stone, fired clay vessels, faunal bone, hearths, storage pits, or burials and special attention should always be paid to uncharacteristic soil color changes. Any previously undiscovered resources found during construction should be recorded on appropriate DPR 523 forms and evaluated by a qualified archaeologist retained by VWD for significance under all applicable regulatory criteria.</p> <p>a. No further grading shall occur in the area of the discovery until VWD approves the measures to mitigate the resources. Any archaeological artifacts recovered as a result of mitigation shall be curated at a qualified scientific institution approved by VWD where they would be afforded long-term preservation to allow future scientific study. Curation fees are the responsibility of VWD. Upon completion of monitoring, a final results report with resource data and analysis shall be completed and submitted to VWD and the South Coastal Information Center. Should no resources be encountered, a letter report may be submitted to document completion of construction monitoring.</p>			
Cul-4	<p>Procedure for Unintentional Disturbance of Human Remains. Implementation of the procedures set forth in PRC Section 5097.98 and California State Health and Safety Code 7050.5 would reduce impacts to human remains to a less than significant level. The procedures outline steps to be followed upon unintentional disturbance of human remains. California State Health and Safety Code Section 7050.5 dictates that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined by the County Coroner to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. A professional archaeologist with Native American burial experience shall conduct a field investigation of the specific site and</p>	VWD CP/ Qualified Archaeologist	VWD CP	During construction activities

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Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	consult with the Most Likely Descendant (MLD), if any, identified by the NAHC. As necessary and appropriate, a professional archaeologist shall be retained by VWD to provide technical assistance to the MLD, including but not limited to, the excavation and removal of the human remains. Compliance with California State Health and Safety Code Section 7050.5 and PRC Section 5097.98 would reduce any potential impacts to human remains from the 2018 Master Plan to a level below significance.			
Energy – No additional mitigation measures are required.				
Geology, Soils, and Paleontology				
Geo-1	<p>Site-specific Geotechnical Investigation. Prior to construction of proposed CIP projects, a site-specific geotechnical investigation will be conducted to determine whether geologic or other hazardous conditions exist and, if so, provide recommendations for construction that would reduce the damage potential. Areas of liquefaction; static or groundshaking-induced landslides, lateral spreading, subsidence; liquefaction, soil collapse, expansive soils and/or mudslide potential will be identified as part of the geotechnical investigation. The investigations shall specifically address foundation and slope stability in liquefiable, landslide, expansive soils and mudslide areas proposed for construction. Recommendations made in conjunction with the geotechnical investigations shall be implemented during construction, including (as appropriate) but not necessarily limited to the following actions:</p> <ol style="list-style-type: none"> 1. Over-excavate unsuitable materials and replace them with engineered fill. 2. For thinner deposits, remove loose, unconsolidated soils and replace with properly compacted fill soils, or apply other design stabilization features (i.e., excavation of overburden). 3. For thicker deposits, implement applicable techniques such as dynamic compaction (i.e., dropping heavy weights on the land surface), vibro-compaction (i.e., inserting a vibratory device into the liquefiable sand), vibro-replacement (i.e., replacing sand by drilling and then vibro-compacting backfill in the bore hole), or compaction piles (i.e., driving piles and densifying surrounding soil). 4. Lower the groundwater table to below the level of liquefiable soils. 5. Perform in-situ densification of soils or other alterations to the ground characteristics. 	VWD CP/ Qualified Geologist/ Registered Environmental Assessor	VWD CP	Prior to construction activities

Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>6. For landslides, implement applicable techniques such as stabilization (i.e., construction of buttress fills, retaining walls, or other structural support to remediate the potential for instability of cut slopes composed of landslide debris); remedial grading and removal of landslide debris (e.g., over-excavation and recompaction); or avoidance (e.g., structural setbacks).</p> <p>7. To minimize or avoid lateral spreading of on-site soils, remove compressible soils and replace them with properly compacted fill, perform compaction grouting or deep dynamic compaction, or use stiffened conventional foundation systems.</p> <p>8. To minimize or avoid differential compression or settlement of on-site soils, manage oversized material (i.e., rocks greater than 12 inches) via off-site disposal, placement in non-structural fill, or crushing or pre-blasting to generate material less than 12 inches. Oversized material greater than 4 feet shall not be used in fills, and shall not be placed within 10 feet of finished grade, within 10 feet of manufactured slope faces (measured horizontally from the slope face), or within 3 feet of the deepest pipeline or other utilities.</p> <p>9. Locate foundations and larger pipelines outside of cut/fill transition zones and landscaped irrigation zones.</p> <p>10. As part of the geotechnical investigation, a database search of hazardous materials sites pursuant to Government Code Section 65962.5 shall be performed within a one-mile radius surrounding the proposed CIP site. If the database search identifies hazardous material sites within the search parameters, a Phase I environmental assessment shall be required. In the event hazardous materials sites are identified within the database search and a Phase I environmental assessment is required, VWD shall retain a registered environmental assessor to perform a Phase I Environmental Site Assessment. The Phase I Environmental Site Assessment shall follow the current ASTM standard and the recommendations contained within the Phase I Environmental Site Assessment shall be implemented according to standard regulatory procedures.</p>			
Geo-2	<p>Construction-Related Erosion Control Plan. The construction bid documents for each proposed CIP project shall include either a 90 percent Erosion Control Plan (for projects that would result in less than one acre of land disturbance) or a 90 percent Storm Water Pollution Prevention Plan (SWPPP) (for projects that would result in one acre or greater of land</p>	VWD CP/ Construction Contractor	VWD CP	Prior to construction activities and during construction activities

**Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program**

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>disturbance). The Erosion Control Plan shall comply with the storm water regulations or ordinances of the local agency jurisdiction within which the proposed CIP project occurs; the SWPPP shall comply with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit. These plans shall be based on site-specific hydraulic and hydrologic characteristics, and identify a range of Best Management Practices (BMPs) to reduce impacts related to storm water runoff, including sedimentation BMPs to control soil erosion. The Erosion Control Plan or SWPPP shall identify the specific storm water BMPs to be implemented during the construction phase of a given CIP project. Typical BMPs to be implemented as part of the Erosion Control Plan or SWPPP may include, but may not be limited to, the actions listed below.</p> <ol style="list-style-type: none"> 1. Development of a written plan that includes sequencing of construction activities and the implementation of erosion control and sediment control BMPs that shall take local climate (rainfall, wind, etc.) into consideration. The purpose of the written plan is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking, and to perform the construction activities and control practices in accordance with the planned schedule. 2. Preserve existing vegetation to minimize the potential of removing or injuring existing trees, vines, shrubs, and grasses that protect soil from erosion. 3. Use hydraulic mulch on disturbed soils to provide a layer of temporary protection from wind and water erosion. 4. Temporarily protect exposed soils from erosion by water and wind by applying hydraulic seeding, hydroseeding, or other appropriate soil cover. 5. Divert runoff or channel water to a desired location by constructing earth dikes or drainage swales. A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location. Earth dikes and drainage swales are used to divert off site runoff around the construction site, divert runoff from stabilized areas and disturbed areas, and direct runoff into sediment basins or traps. 6. Prevent scour of the soil caused by concentrated, high velocity flows by providing outlet protection; a physical device composed of rock, grouted riprap, or concrete rubble, which is placed at the outlet of a pipe or channel. 			

Table 2
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Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>7. Apply a compost blanket to slopes and earth disturbed areas to prevent erosion, and in some cases, increase infiltration and/or establish vegetation. The compost blanket can be applied by hand, conveyor system, compost spreader, or pneumatic delivery (blower) system. The blanket thickness is determined from the slope steepness and anticipated precipitation. A compost blanket protects the soil surface from raindrop erosion, particularly rills and gullies that may form under other methods of erosion control.</p> <p>8. Detain sediment-laden water, promoting sedimentation behind a silt fence. A silt fence is made of a woven geotextile that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support.</p> <p>9. Contain sediment-laden runoff in a sediment trap, allowing sediment to settle out before the runoff is discharged. Sediment traps are formed by excavating or constructing an earthen embankment across a waterway or low drainage area.</p> <p>10. Place fiber rolls at the toe and on the face of slopes along the contours. Fiber rolls intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff (through sedimentation). By interrupting the length of a slope, fiber rolls can reduce sheet and rill erosion until vegetation is established.</p> <p>11. Intercept or divert sheet flows with a sandbag barrier on a level contour. Sandbag barriers placed on a level contour pond sheet flow, allowing sediment to settle out.</p> <p>12. Construct a straw bale barrier to pond sheet-flow runoff and allow sediment to settle out. A straw bale barrier is a series of straw bales placed on a level contour to intercept sheet flows.</p>			
Geo-3	<p>Paleontological Resources Investigation. For CIP projects that propose ground-disturbing activities located within the Santiago formation (potentially SP-6, SP-13, SP-15, SP-19, SP-20, SP-23, SP-28, SP-29, R-1, R-3, R-7, and the parallel land outfall), a project-level paleontological resources investigation shall be conducted by a qualified professional paleontologist in cooperation with the County of San Diego and the San Diego Natural History Museum. The paleontological resources investigation shall include:</p> <p>1. A review of the records search performed in the Paleontological Resources</p>	VWD CP/ Qualified Professional Paleontologist	VWD CP/ County of San Diego/ San Diego Natural History Museum	Prior to construction activities

**Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program**

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>Evaluation for the VWD Service Area (Appendix D of this PEIR) and, if necessary, an updated records search;</p> <p>2. Project-level pedestrian surveys of portions of the proposed CIP site where paleontological resources could be encountered based on presence and depth of sensitive formations;</p> <p>3. Formal evaluation of any potentially affected paleontological resources to determine whether they qualify as unique paleontological resources; and</p> <p>4. Recommended measures to avoid, where feasible, impacts on unique paleontological resources, such as preservation in place, planning construction to avoid unique paleontological sites, placing paleontological sites into permanent conservation easements, or planning parks, green space, or other open space to incorporate paleontological sites. Where avoidance or preservation in place is not feasible, excavation and curation may be recommended as mitigation.</p> <p>5. The results of the paleontological resources investigation shall be compiled into a technical report or memorandum and submitted to VWD for further coordination with the County of San Diego Department of Planning and Land Use and the San Diego Natural History Museum, as necessary.</p>			
Greenhouse Gas Emissions – No additional mitigation measures are required.				
Hydrology and Water Quality – No additional mitigation measures are required.				
Landform Alteration and Aesthetics				
Aes-1	<p>Landscaping Measures. The following landscaping measures shall be implemented for all CIP projects:</p> <p>1. For proposed pipeline projects and access roads installed in naturally vegetated areas, the short-term disturbance footprints associated with construction for the pipeline corridor and associated staging areas (with the exception of the drivable pathway, which shall remain clear) shall be hydroseeded, following backfilling and recontouring, using a non-irrigated native plant mix consistent with original site conditions and surrounding vegetation.</p> <p>2. For proposed CIP reservoirs, pump stations, lift stations and access roads in naturally vegetated settings, any disturbed unpaved areas following construction that are not designated for vehicular or pedestrian access shall be revegetated (hydroseeding and/or plantings) using native plant materials</p>	VWD CP/ Construction Contractor	VWD CP	During construction activities

Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>consistent with original site conditions and surrounding vegetation. A temporary irrigation system shall be installed and maintained by VWD, or watering trucks shall be used at a frequency to be determined by VWD to maintain successful plant growth. Temporary irrigation shall be discontinued upon VWD's determination that the landscaping has permanently established, without the need for supplemental watering.</p> <p>3. For proposed CIP reservoirs, pump stations and lift stations in urban settings, any disturbed unpaved areas following construction that are not designated for vehicular or pedestrian access shall be landscaped using plant materials consistent with original site conditions and/or surrounding ornamental vegetation in order to return the disturbed area to its existing visual character.</p> <p>4. The landscaping plan for CIP reservoirs, pump stations and lift stations shall include the planting of large trees and/or shrubs in addition to native vegetation, where appropriate, to adequately provide screening of the proposed structures.</p>			
Aes-2	<p>Visually Compatible Design. The following design measures shall be implemented for all CIP projects that include above-ground facilities (including access roads):</p> <p>1. Reservoirs and access roads shall use appropriate building materials and color palettes that are visually consistent with the surrounding natural vegetation and/or built environment.</p> <p>2. Reservoirs, pump station buildings, access roads and lift station buildings shall use low-reflective low-glare paint and materials unless required for safety or by law.</p> <p>3. Access roads shall be designed to minimize grading, slope ratios and the blockage of existing views when possible. Access roads shall not contain features such as asphalt coating, lighting fixtures, signage, guard rails, walls, fences, curbing, pavement marking, or other service structures or appurtenances unless required for safety or by law.</p>	VWD CP/ Qualified Consultant/ Construction Contractor	VWD CP	During project design and construction activities
Aes-3	<p>Visual Resources Report. Prior to construction of proposed CIP Project R-11, a Visual Resources Report shall be prepared. The Visual Resources Report shall analyze the compatibility of the proposed reservoir with the existing aesthetic character of the surrounding area; assess the potential effect to the visual resources within the Resource Conservation Area, and determine</p>	VWD CP/ Qualified Consultant	VWD CP	Prior to construction activities

**Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program**

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	whether any proposed security or emergency lighting would be detrimental to adjacent residential uses and/or wildlife.			
Land Use and Planning - No additional mitigation measures are required.				
Noise				
Noi-1	<p>Construction Noise Limits. Construction activities shall comply with applicable local noise ordinances and regulations specifying sound control, including the County of San Diego, the City of San Marcos, the City of Escondido, the City of Carlsbad and the City of Vista. Measures to reduce construction/demolition noise to the maximum extent feasible shall be included in contractor specifications and shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> 1. Construction activity shall be restricted to the hours specified within each respective jurisdiction's municipal code, depending on the location of the specific CIP project, as follows: <ol style="list-style-type: none"> a. Construction activity for CIP projects occurring within San Diego County shall occur between hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday (see Table 4.10-1). For construction activities on Sunday or during night hours, a variance from the County must be obtained. CIP projects subject to this provision include R-2, R-3, R-4, R-5, R-6, R-9, R-10, R-11, PS-3, PS-4, PS-5, PS-7, P-52, P-53, P-16, P-56, P-30, P-64, P-42, P-57, P-10, SP-15, SP-22 and SP-31. b. Construction activity for CIP projects occurring within the City of San Marcos shall occur between hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday (see Table 4.10-2). For construction activities on Sunday or during night hours, a waiver from the City Manager must be obtained. CIP projects subject to this provision include PS-1, PS-6, PS-8, P-24, P-100, P-15, SB-1, SP-5, SP-6, SP-7, SP-8, SP-9, SP-10, SP-18, SP-19, SP-20, SP-21, SP-23, SP-24, SP-25, SP-26, SP-27, SP-28, SP-29, SP-30, SP-31, and SP-33. c. Construction activity for CIP projects occurring within the City of Escondido shall occur only between hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, and between the hours of 9:00 a.m. to 5:00 p.m. on Saturdays (see Table 4.10-3 of this PEIR section). For construction activities on Sunday or during night hours, a variance from the City Manager must be obtained. CIP projects subject to this provision 	VWD CP/ Construction Contractor	VWD CP	During construction activities

**Table 2
VWD 2018 Water, Wastewater, and Recycled Water Master Plan Mitigation Monitoring and Reporting Program**

Number	Mitigation Measure	Party Responsible for Implementing Action	Party Responsible for Monitoring	Mitigation Timing
	<p>include R-8, PS-2 and P-43.</p> <p>d. Construction activity for CIP projects occurring within the City of Carlsbad shall occur between 7:00 a.m. and before sunset, Monday through Friday, and between 8:00 a.m. and sunset on Saturday; construction shall be prohibited on Sundays, New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. For construction activities on Sundays, Holidays or during night hours, a permit from the City must be obtained. Projects subject to this provision include SP-6 and SP-13 and the parallel land outfall.</p> <p>2. Construction noise for CIP projects located within San Diego County, City of Vista and City of San Marcos shall not exceed an average sound level of 75 dB(A) for an eight-hour period at the CIP project's property boundary.</p> <p>3. Construction noise for CIP projects located within the City of Escondido shall not exceed a one-hour average sound level limit of 75 dB(A) at any time, unless a variance has been obtained from the City Manager.</p> <p>4. All construction equipment shall be properly outfitted and maintained with manufacturer-recommended noise-reduction devices.</p>			
<p>Public Safety - No additional mitigation measures are required.</p>				