WATER QUALITY MEMORANDUM

Gilman Springs Median and Shoulder Improvements Project

Riverside County, California
Federal Project Number: HSIPL-5956(263)
08-RIV-Gilman Springs Road

The environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans.

Caltrans

February 2021

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List of Abbreviated Terms

Basin Plan	Water Quality Control Plan for the Santa Ana Basin
BMP	best management practice
Caltrans	California Department of Transportation
CGP	Construction General Permit
County	County of Riverside Transportation Department
DSA	disturbed soil area
EPA	United States Environmental Protection Agency
HUC	hydrologic unit code
LID	Low-Impact Development
MS4	Municipal Separate Storm Sewer System
MSHCP	Multiple Species Habitat Conservation Plan
NES	Natural Environment Study
NPDES	National Pollutant Discharge Elimination System
project	Gilman Springs Median and Shoulder Improvements Project
RUSLE	Revised Universal Soil Loss Equation
RWQCB	Regional Water Quality Control Board
SMARTS	Storm Water Multiple Application and Report Tracking System
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load

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1. Introduction

The County of Riverside Transportation Department (County), in cooperation with the California Department of Transportation (Caltrans), proposes to widen the median and shoulders along Gilman Springs Road from approximately 1.29 miles north of Jack Rabbit Trail, to approximately one mile south of Bridge Street, and to add an approximately 6,900-foot long passing lane in the westbound direction. The proposed project is located in Riverside County, California and covers a distance of approximately 4.4 miles. Gilman Springs Road is a two-lane, undivided road with one 12-foot lane in each direction and shoulder widths varying from one to four feet. The County is the lead agency under the California Environmental Quality Act and Caltrans is the lead agency under the National Environmental Policy Act.

The purpose of this Water Quality Memorandum is to determine and, if applicable, address potential impacts on water quality resulting from the planned project. This technical memorandum discusses the water quality background of the project area, the physical setting, the regulatory framework with respect to water quality, and potential water quality impacts of the proposed project and minimization measures, as needed.

1.1 Purpose and Need

1.1.1 Purpose

The purpose of this project is to improve safety and traffic operations associated with the narrow, undivided roadway and improve driver awareness along Gilman Springs Road.

1.1.2 Need

The current roadway configuration on Gilman Springs Road consists of two lanes of undivided traffic and narrow shoulders, which presents safety risks for both directions of traffic and those intending to turn onto the road from Kennedy Hills Materials, Eden Hot Springs Road/Central Avenue, and Jack Rabbit Trail/Curtis Street/Knoch Road.

1.2 Project Description

1.2.1 Build Alternative

The proposed Gilman Springs Shoulder and Median Widening project would reconstruct the existing roadway to a configuration that includes five-foot outside shoulders with rumble strips and a 12-foot lane in each direction, a four-foot double yellow striped median with impact resistant channelizers and rumble strips in the median, and a five-foot graded hinge within the project limits. The project would also include one, approximately 6,900-foot long passing lane in the westbound direction from approximately 1,350 feet north of Bridge Street to approximately 1,200 feet north of Eden Springs. Additionally, the project would replace the existing reinforced concrete box culvert near the Gilman Springs Road intersection with Bridge Street with a single-span concrete slab bridge that would be used to create a wildlife crossing. Three retaining walls, approximately 10 to 16 feet high and approximately 100 to 320 feet long, are proposed to prevent grading into an adjacent channel. An 8-foot high wildlife fence, which would also extend an additional two feet below grade, would be installed at the same location. It would extend 0.5 mile from the Bridge Street bridge underpass in each direction along both sides of Gilman Springs Road and Bridge Street and jumpouts would be integrated into the fencing to allow wildlife to escape from the right-of-way. The project is located on Gilman Springs Road from approximately 1.29 miles north of Jack Rabbit Trail to approximately one mile south of Bridge Street.

The work would include vegetation and tree removal, grading along adjacent properties, reconstructing driveway and street tie-ins, and other associated work as needed. The existing culvert crossings and drainage structures would be extended and or reconstructed. Traffic devices such as striping, reflective markers and signage would be relocated to the new roadway configuration. Lighting systems would be added for intersections at Kennedy Hills Materials, Eden Hot Springs Road/Central Avenue, and Jack Rabbit Trail/Curtis Street/Knoch Road.

Utility relocations and adjustments would be made to power poles, gas valves, and any other utilities determined to be present. Any affected utilities shall be relocated in accordance with State law and regulations and County policies. Permanent acquisition of right of way, along with temporary construction easements, are expected to be necessary at various locations along the project.

The proposed project is included in Southern California Association of Governments' 2019 financially constrained Federal Transportation Improvement Program as project ID FTIP No. SCAG015. This project ID is for grouped projects for safety improvements. Within that listing the proposed project has the unique project ID H8-08-021.

\\PDCCITRDSGIS1\Projects_1\RCTD\P0175_17_GilmanSpringsRd\Figures\Doc\Fig01_Project_Vicinity.mxd Date: 2/19/2021 25119

Figure 1
Regional Vicinity Map
Gilman Springs Median and Shoulder Improvements Project

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Figure 2
Project Location
Gilman Springs Median and Shoulder Improvements Project

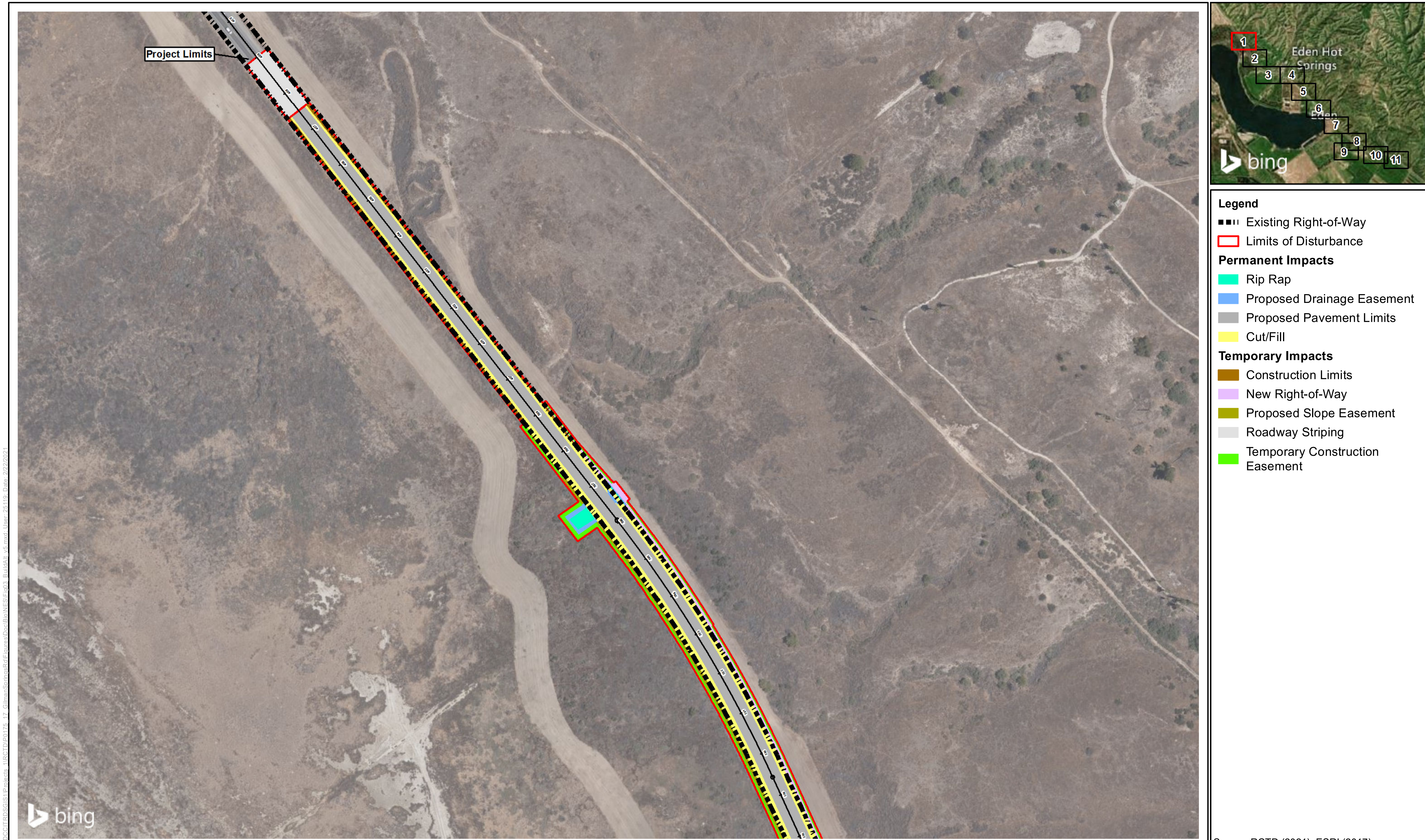

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Figure 3 - Sheet 1
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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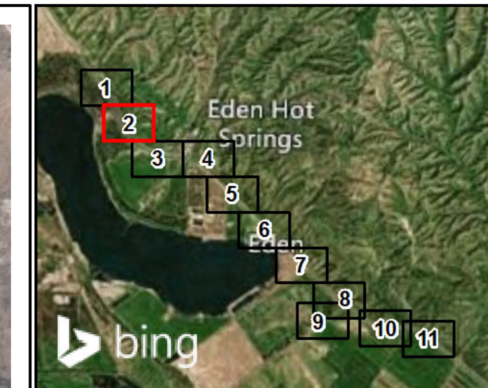

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Proposed Drainage Easement
- Proposed Pavement Limits
- Cut/Fill

Temporary Impacts

- Construction Limits
- New Right-of-Way
- Proposed Slope Easement
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 2
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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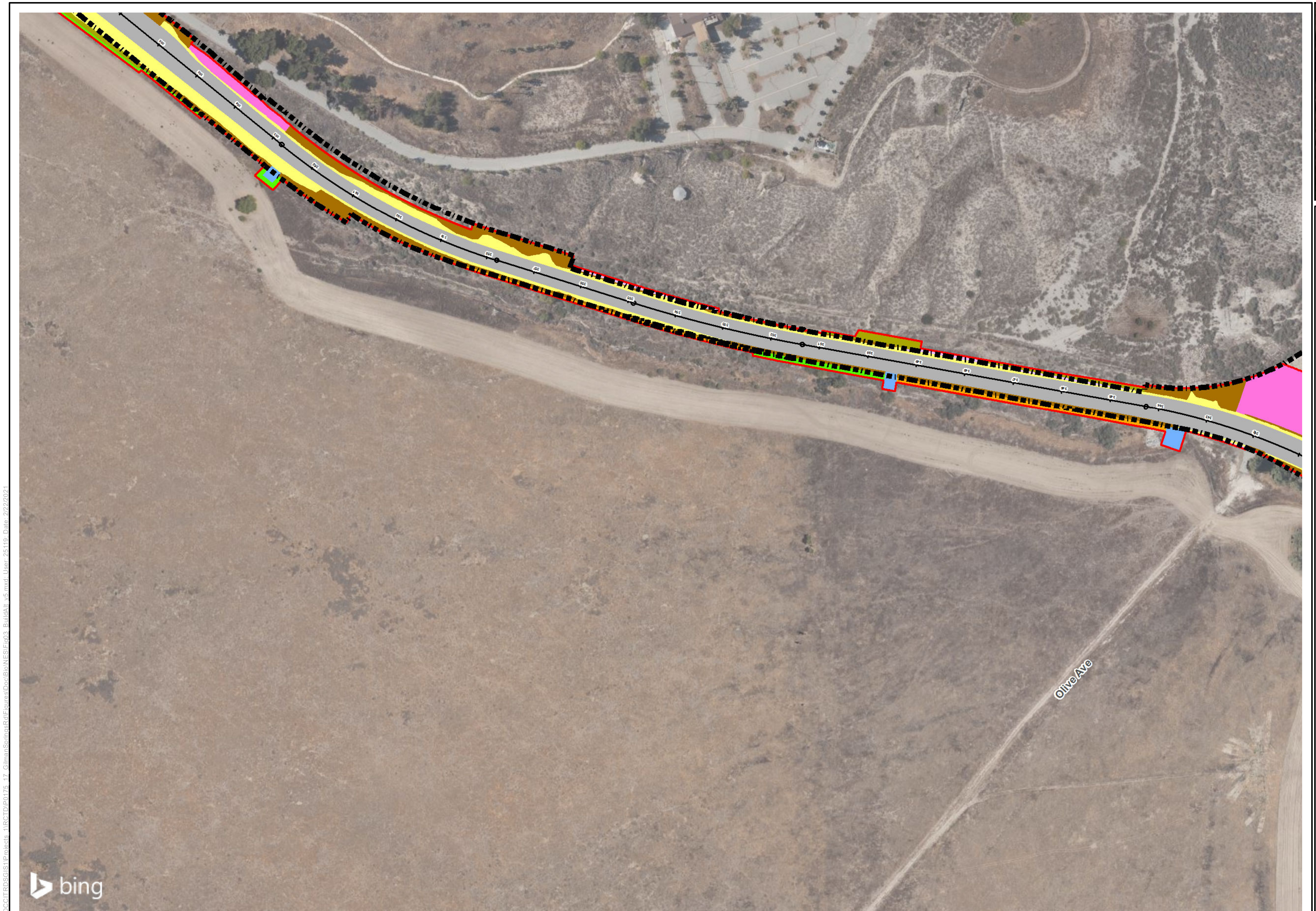

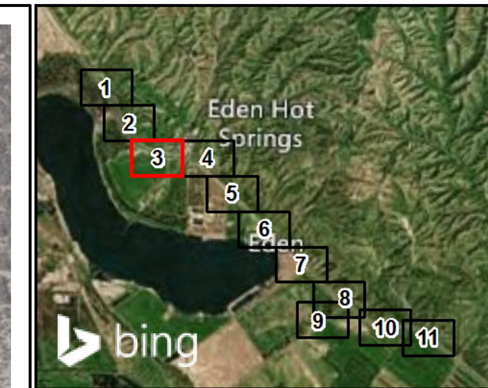

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Proposed Drainage Easement
- Proposed Pavement Limits
- Cut/Fill

Temporary Impacts

- Construction Limits
- New Right-of-Way
- Proposed Construction Stage Areas
- Proposed Slope Easement
- Retaining Wall Footing & Maintenance Easement
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 3
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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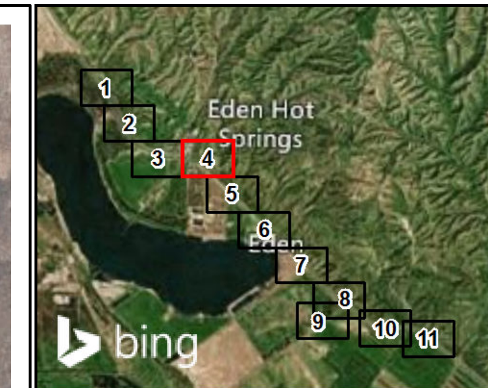

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Rip Rap
- Proposed Drainage Easement
- Proposed Pavement Limits
- Cut/Fill

Temporary Impacts

- Construction Limits
- New Right-of-Way
- Proposed Construction Stage Areas
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 4
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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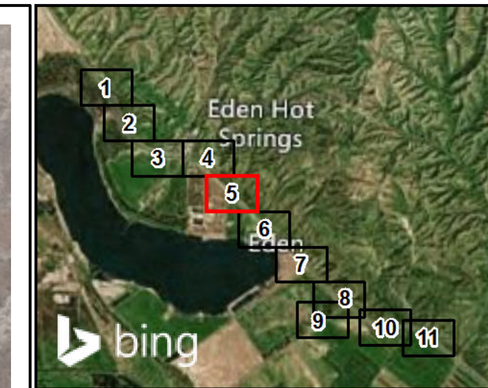

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Proposed Drainage Easement
- Proposed Pavement Limits
- Cut/Fill

Temporary Impacts

- Construction Limits
- New Right-of-Way
- Proposed Slope Easement
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 5
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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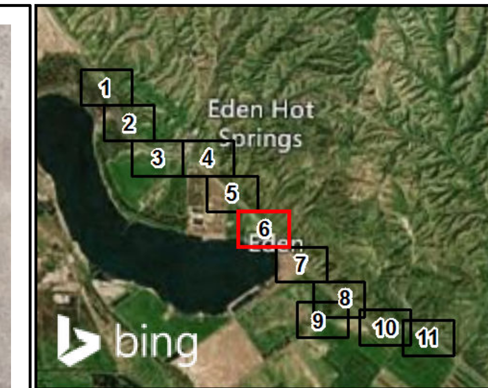

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Utility Easement
- Rip Rap
- Proposed Drainage Easement
- Proposed Pavement Limits
- Cut/Fill

Temporary Impacts

- Construction Limits
- New Right-of-Way
- Proposed Construction Stage Areas
- Proposed Slope Easement
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 6
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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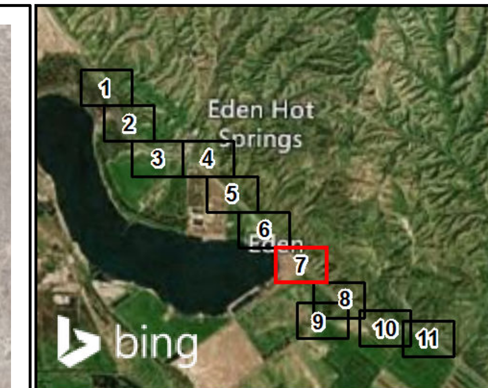

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Rip Rap
- Proposed Drainage Easement
- Proposed Pavement Limits
- Fence Footing
- Wildlife Fencing
- Cut/Fill

Temporary Impacts

- Construction Limits
- New Right-of-Way
- Proposed Construction Stage Areas
- Proposed Slope Easement
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 7
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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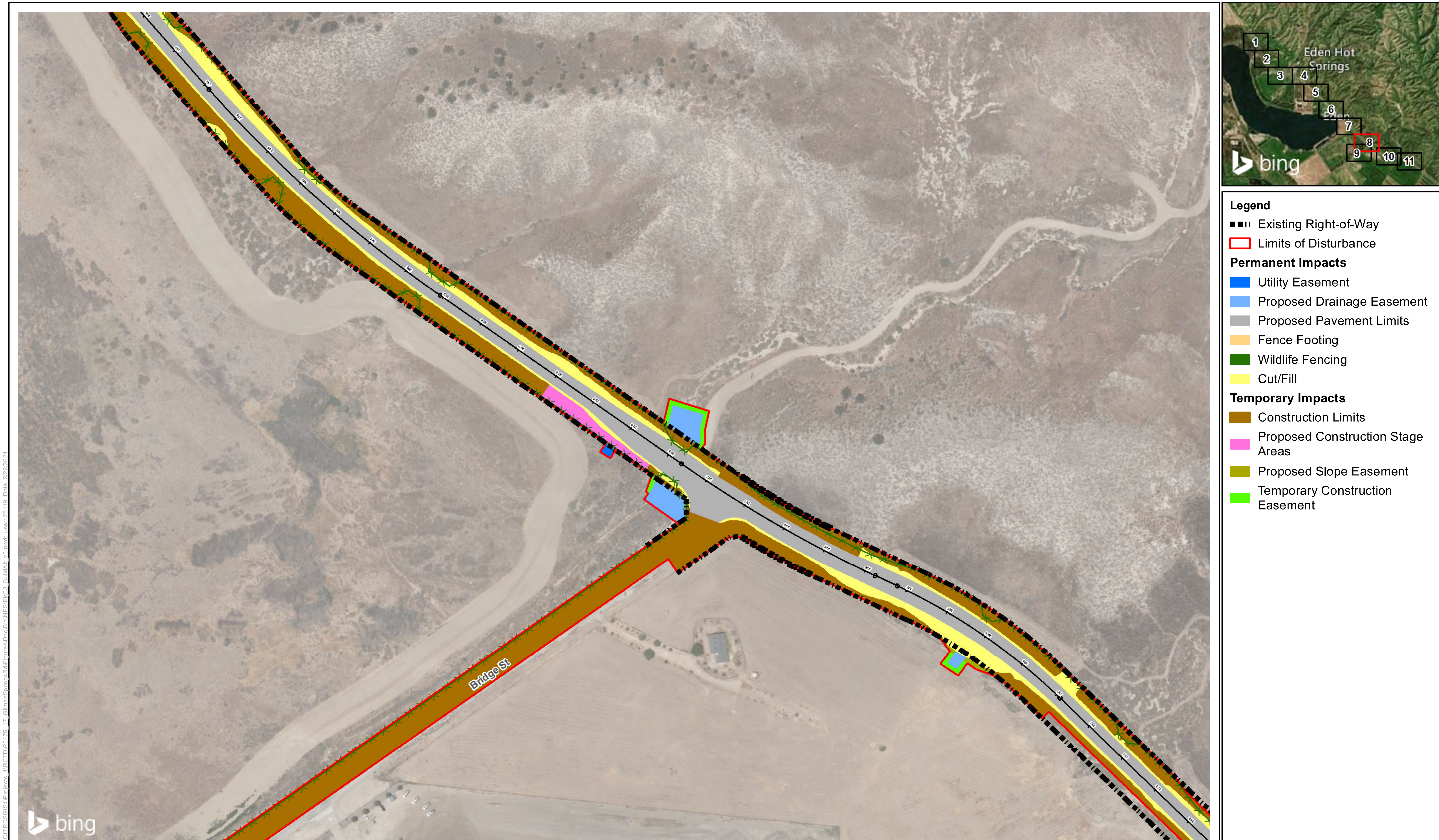

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Utility Easement
- Proposed Drainage Easement
- Proposed Pavement Limits
- Fence Footing
- Wildlife Fencing
- Cut/Fill

Temporary Impacts

- Construction Limits
- Proposed Construction Stage Areas
- Proposed Slope Easement
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 8
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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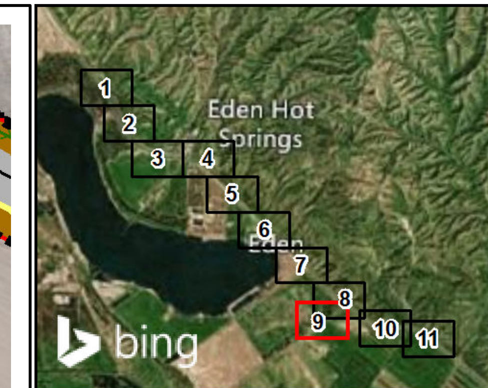

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Proposed Drainage Easement
- Proposed Pavement Limits
- Fence Footing
- Wildlife Fencing
- Cut/Fill

Temporary Impacts

- Construction Limits
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 9
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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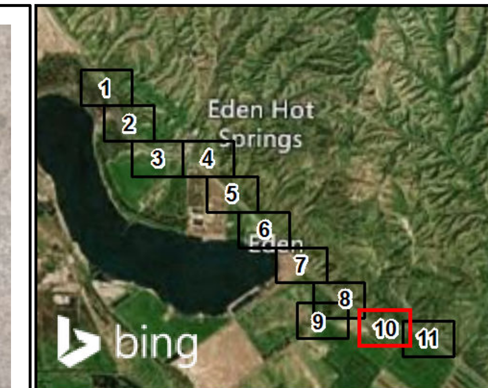

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Rip Rap
- Proposed Pavement Limits
- Fence Footing
- Wildlife Fencing
- Cut/Fill

Temporary Impacts

- Construction Limits
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 10
Build Alternative
Gilman Springs Median and Shoulder Improvements Project

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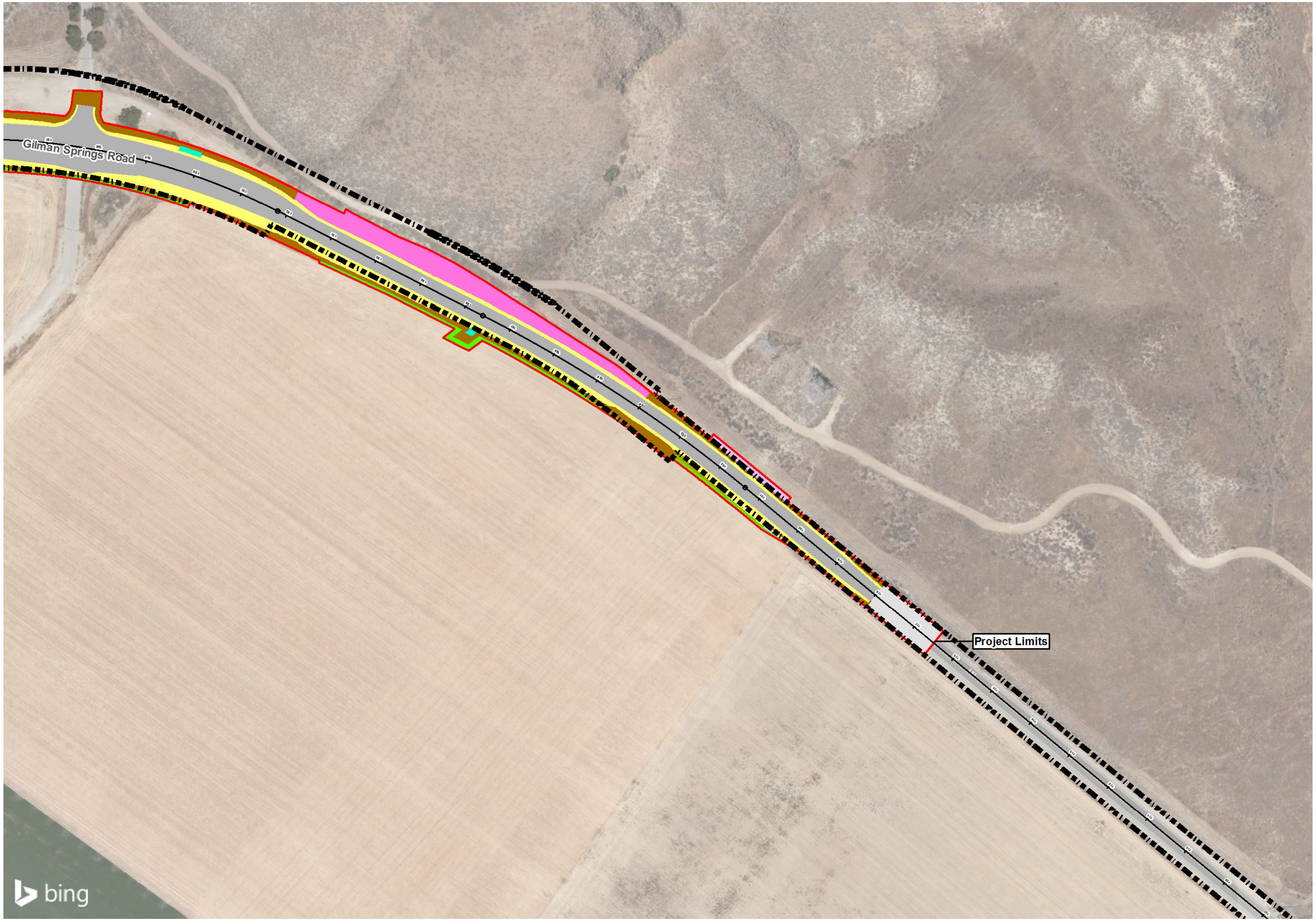

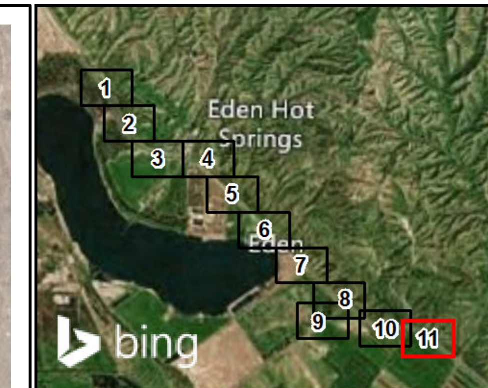

Legend

- Existing Right-of-Way
- Limits of Disturbance

Permanent Impacts

- Rip Rap
- Proposed Pavement Limits
- Cut/Fill

Temporary Impacts

- Construction Limits
- New Right-of-Way
- Proposed Construction Stage Areas
- Proposed Slope Easement
- Roadway Striping
- Temporary Construction Easement

Source: RCTD (2021); ESRI (2017)

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Figure 3 - Sheet 11

Build Alternative

Gilman Springs Median and Shoulder Improvements Project

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2. Regulatory Setting

The project would be required to comply with the following federal and state regulations (or the permits in effect at the time of construction):

- Under Section 401 of the Clean Water Act (CWA), any project activities that involve a discharge to waters of the United States (WoUS) shall comply with the applicable provisions of the Clean Water Act (CWA). The Regional Water Quality Control Board (RWQCB) regulates, at the state level, all activities that are regulated at the federal level by the U.S. Army Corps of Engineers (USACE).

- Clean Water Act Section 402 - National Pollutant Discharge Elimination System (NPDES)

- The discharge (temporary or permanent) of dredged or fill material into WoUS, including wetlands, typically requires authorization from the USACE pursuant to Section 404 of the CWA.

- California Fish and Game Code Section 1602 – requires that the California Department of Fish and Wildlife (CDFW) to be notified if the project would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the CDFW or use any material from the streambeds

- Construction General Permit (CGP) (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ)

- Santa Ana Municipal Separate Storm Sewer System (MS4) Permit (NPDES Permit No. CAS618033, Order No. R8-2010-0033)

- Porter-Cologne Water Quality Control Act - requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface water and/or groundwater of the State

- Santa Ana Regional Water Quality Control Board (RWQCB) Water Quality Control Plan for the Santa Ana Basin (Basin Plan) (2016) - establishes water quality objectives and beneficial uses of surface waters and groundwater

The current MS4 Permit requires standard design and post-development best management practice (BMP) guidance to be incorporated into projects for streets, roads, highways, and freeway improvements, under the jurisdiction of the Co-Permittees to reduce the discharge of pollutants from the projects to the maximum extent practicable. The guidance is provided by Low Impact Development: Guidance and Standards for Transportation Projects for the Santa Ana Region Riverside County Co-Permittees dated October 2012. The guidance applies to public transportation projects in the area covered by the Santa Ana Region MS4 Permit that involve the construction of new transportation surfaces or the improvement of existing transportation surfaces (including Class I Bikeways and sidewalks).

This project is subject to the Santa Ana MS4 Permit Transportation Project guidance. The guidance does not establish specific minimum size or impervious area criteria that trigger project coverage. Instead, the guidance (1) establishes minimum BMP design principles and techniques that shall be considered for all projects to which the guidance applies; (2) summarizes site constraints that should be evaluated with each project; and (3) provides project-specific BMP feasibility criteria for consideration to evaluate the feasibility of incorporating green infrastructure elements (Low-Impact Development [LID] Principles and BMPs) into the proposed project.

If a project falls within Category 3 or 4, the guidance applies to that project. Accordingly, the LID Principles and BMPs applicable to the project type shall be evaluated and incorporated into the project design to the maximum extent practicable. This project is considered a Category 3 – Existing Transportation Project (Non-Capacity Improvement Project, shoulder improvements) for the Build Alternative.

3. Affected Environment

3.1 Topography

The study area is located within the El Casco and Lakeview, California U.S. Geological Survey 7.5-Minute topographic quadrangles between 1,430 and 1,560 feet above mean sea level. The topography within the study area consists of foothills associated with the “Badlands” to the north and east of the study area and relatively flat lands to the south and west of the project associated with the ephemeral Mystic Lake and various agricultural practices. Developed land cover exists throughout the study area in several forms including paved and dirt roadways with associated road shoulders, paved and dirt parking lots, agricultural buildings, cattle lots, vacant fields, commercial buildings, and ornamental landscaping (County of Riverside 2018b).

3.2 Climate

Average annual precipitation in Beaumont, located approximately 5.4 miles northeast of the central portion of the project is provided below in Table 3-1. The table summarizes the monthly precipitation for the project area from 1981–2015, 2016, and 2017.

Table 3-1. Rainfall Data Summary for Project Area (inches)

Ontario International Airport, CA													
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1981 – 2015 Mean	3.25	3.51	3.18	1.09	0.60	0.18	0.33	0.29	0.57	0.65	1.40	2.04	18.35
2016	3.64	0.61	1.61	2.00	0.80	0.00	0.00	0.00	0.05	0.33	1.60	4.51	15.15
2017	8.56	2.99	0.31	0.00	0.35	0.00	0.01	0.01	0.00	0.00	0.00	0.00	12.23

* Data source: National Weather Service 2017

3.3 Hydrology

The project area is located within the San Jacinto watershed 8-digit hydrologic unit code (18070202) (HUC), which covers 780 square miles and drains into the Santa Ana River and eventually into the Pacific Ocean. The study area also occurs within the Middle San Jacinto River 10-digit HUC (1807020202). The watershed contains several lakes and reservoirs including Lake Elsinore, Canyon Lake, Lake Perris, and Mystic Lake. Major tributaries in the watershed are San Jacinto River, Bautista Creek, Strawberry Creek, Fuller Mill Creek, Canyon Creek, Stone Creek, Salt Creek, Poppet Creek, and Potrero Creek. The headwaters of the HUC 8 San Jacinto watershed originate in the San Jacinto Mountains and pass through Riverside and Orange counties before emptying into the Pacific Ocean (County of Riverside 2018b).

Various drainage features originate from the badlands and drain toward Gilman Springs Road, south across Gilman Springs Road through culverts, then toward Mystic Lake or the San Jacinto River. Mystic Lake discharges to San Jacinto River. South of the project site are Potrero Creek and Lamb Canyon Creek, both of which discharge to San Jacinto River. San Jacinto River flows to Canyon Lake and then to Lake Elsinore (County of Riverside 2018b).

The majority of the drainage features observed within the study area originate from the foothills located north and east of Gilman Springs Road. These drainage features travel south and west before entering the relatively flat agricultural areas or the dry Mystic Lake area, where many features cease to exhibit indicators of an ordinary high water mark and/or bed and bank. A large number of swales were observed in the study area, some of which were not apparent on aerial imagery and existed only on the north and east side of Gilman Springs Road but not south and west of Gilman Springs Road. However, the majority of these swales appeared to be well-defined features just upslope, or north and east of, the study area, and then lose sign of ordinary high water mark and bed and bank as they enter or pass through the study area (County of Riverside 2018b).

3.4 Flood Zone

A small portion of the project site is located within the flood zone AE (06065C0795H) and adjacent to the floodway (FEMA 2014). Zone AE is the flood insurance risk zone that corresponds to the one-percent-annual-chance (100-year) flood plain.

3.5 Soil Erosion Potential

A soil series is a group of soils with similar profiles. Soils in the project area consist of clays, loams, and sands ranging from silty clay to silt loam to fine sandy loam to rocky fine sandy loam to sandy loam to coarse sandy loam to gravelly sandy loam to loam to loamy sand. Soil series mapped within the study area include Badland, Chino, Friant, Gravel Pits, Greenfield, Hanford, Metz, Riverwash, San Emigdio, San Timoteo, Vista, and Willows (USDA/NRCS 2006).

The soil erosion factor, K, is a measure of the susceptibility of a given soil type to erosion by water. K can vary between 0.02 and 0.69, where soils with higher K values are more erodible. In order to estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, the grade and length of slope, soil management practices, and climate. For the purposes of determining the risk factor for the CGP, the State Water Resources Control Board (SWRCB) identifies the K factor at the majority of the project study area to be 0.32, which suggests a moderate potential for erosion. A small portion of the project area is within an area identified as 0.49, which suggests a higher potential for erosion.

3.6 Biological Communities

The project is entirely within the Plan Area of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The project is in the Reche Canyons/Badlands Area Plan and the San Jacinto Valley Area Plan. Refer to the *Natural Environment Study (NES) (Minimal Impacts)* (County of Riverside 2020a) for details regarding biological communities.

3.7 Water Quality Objectives and Beneficial Uses

The Santa Ana RWQCB Basin Plan (RWQCB 2019) identifies narrative and numerical water quality objectives for the region. Water quality objectives are generally known as the limits or levels of water quality constituents or characteristics, which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area. The general water quality objectives established for surface waters within the project study area include the following: algae, ammonia, boron, chemical oxygen demand, chloride, residual chlorine, color, total dissolved solids, fluoride, hardness, inorganic nitrogen, metals, Methylene Blue-Activated Substances (MBAS), nitrate, nitrogen, Total Inorganic, oil and grease, dissolved oxygen, pathogen indicator bacteria, pH, radioactivity, sodium, solids – suspended and settleable material, sulfide, surfactants, taste and odors, temperature, toxicity, and turbidity.

A beneficial use is one of the various ways that water can be used for the benefit of people and/or wildlife. The project's receiving waterbody, San Jacinto River Reach 3, has the following intermittent beneficial uses:

- AGR—Agricultural Supply
- GWR—Groundwater Recharge
- WARM—Warm Freshwater Habitat
- WILD—Wildlife Habitat
- REC-1—Water Contact Recreation
- REC-2—Non-contact Water Recreation

3.8 Existing Water Quality

According to the Final 2014/2016 California Integrated Report (SWRCB 2017), Mystic Lake and San Jacinto River are not listed as 303(d) waterbodies with the SWRCB and United States Environmental Protection Agency (EPA). The nearest downstream receiving waterbody listed on the 303(d) list is Canyon Lake, which is listed as impaired for nutrients.

4. Environmental Consequences

The total project study area has 18.75 acres of existing impervious area. The disturbed soil area (DSA) is 24.44 acres and the proposed new impervious surface is 5.69 acres. The DSA includes the areas for the widened shoulders, vegetation and tree removal, grading along adjacent properties, reconstructing driveway, and street tie-ins. There would be a net increase of approximately 5.7 acres of new impervious surface area within the project study area as a result of the widened shoulders on both sides of the roadway.

4.1 Short-Term Impacts During Construction

4.1.1 Construction General Permit Risk Assessment

A construction site risk assessment was performed for the project; the resultant risk level is Risk Level 1. The risk level was based on the procedure described in the CGP, including two major elements: (1) project sediment risk (the relative amount of sediment that can be discharged, given the project and location details) and (2) receiving water risk (the risk sediment discharges pose to the receiving waters). Project sediment risk is determined by multiplying the R, K, and LS factors from the Revised Universal Soil Loss Equation (RUSLE) to obtain an estimate of project-related bare-ground soil loss, expressed in tons per acre. Attachment A shows the calculation results for the R factor. The receiving-water risk is based on whether or not a project drains to a sediment-impaired waterbody. A sediment-sensitive waterbody is on the most recent 303d list of waterbodies that are impaired by sediment, has an EPA-approved total maximum daily load (TMDL) implementation plan for sediment, or has the beneficial uses of COLD, SPAWN, and MIGRATORY.

Table 4-1 and Table 4-2 summarize the sediment and receiving-water risk factors and document the sources of information used to derive the factors.

Table 4-1. Summary of Sediment Risk

RUSLE Factor	**Value**	**Method for Establishing Value**
R	4 . [a]	Construction General Permit Risk Assessment R-Factor Calculation Notification
K	0.32	RUSLE K Factor Watershed Map Methodology
LS	1.06	RUSLE LS Values Map
Total Predicted Sediment Loss (tons/acre)		4.
Overall Sediment Risk Low Sediment Risk < 15 tons/acre Medium Sediment Risk ≥ 15 and < 75 tons/acre High Sediment Risk ≥ 75 tons/acre		☒ Low ☐ Medium ☐ High

[a] Based on estimated 9-month construction duration for the project from August through May .

Table 4-2. Summary of Receiving Water Risk

Receiving Water Name	**303(d) Listed for Sediment-Related Pollutant[a]**	**TMDL for Sediment-Related Pollutant[a]**	**Beneficial Uses of COLD, SPAWN, and MIGRATORY[a]**
San Jacinto River	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Overall Receiving Water Risk			☒ Low ☐ High

[a] If yes is selected for any option, the receiving water risk is high.

4.1.2 Suspended Particulates (Turbidity)

Short-term or temporary construction impacts on water quality include the biological, physical/chemical, and human impacts that have the potential to occur during pavement breaking, grading, and construction related to the proposed project. Water quality impacts would be associated with soil-disturbing activities. These activities include the establishment and use of construction staging areas, operation of heavy construction equipment (e.g., graders, pavers), and shoulder widening activities. Dewatering activities are not anticipated to be necessary for this project due to minimal amount of excavation needed to achieve the reconstructing driveway and street tie-ins.

Earth-moving, sediment-laden flow from runoff flowing over the DSAs and other construction activities could cause minor erosion and runoff of topsoil into the drainage facilities during construction, which could temporarily affect water quality of downstream surface waters. These impacts include increasing turbidity and decreasing the clarity and beneficial uses of these waters. Additional sources of sediment that could result in increases in turbidity include uncovered or improperly covered active and non-active stockpiles, un-stabilized slopes and construction staging areas, and construction equipment that is not properly cleaned or maintained.

Construction activities would comply with the CGP and prepare a Stormwater Pollution Prevention Plan (SWPPP). Temporary impacts on water quality during construction can be avoided or minimized by implementing temporary construction site BMPs. Typical construction site BMPs that should be considered for this project are listed in Table 4-3. The construction-related impacts on water quality would be minimized by the installation of construction BMPs such as fiber rolls, silt fence, stabilized construction entrance/exit, and concrete washouts. The selected BMPs are consistent with the practices required under the CGP. Further details of these BMPs can be found in Caltrans' *Construction Site Best Management Practices (BMP) Manual* (2017). The construction contractor would be required to regularly inspect and maintain the BMPs to ensure they are in good working order, as required in the CGP.

Implementation of the SWPPP and construction BMPs would minimize the potential for construction-related surface water pollution and ensure that water quality in the receiving waters would not be compromised by erosion or sedimentation during construction.

Table 4-3. Temporary Construction Site BMPs

Temporary BMP	Purpose
Temporary Erosion Control	
Hydraulic Mulch	A mixture of fibrous materials mixed with water and sprayed onto disturbed soils and stockpiles to provide temporary protection from runoff and wind.
Geotextiles & Mats	Plastic matting or a rolled erosion control product used to cover slopes and stockpiles, in concrete washouts, and under equipment to protect from leakage to soil.
Velocity Dissipation Devices	Outlet protection is a physical device composed of rock, grouted riprap, or concrete rubble, which is placed at the outlet of a pipe or channel to prevent scour of the soil caused by concentrated, high velocity flows.
Sediment Control	
Silt Fence	Linear, permeable fabric barriers to intercept sediment-laden sheet flow. Placed downslope of exposed soil areas, along channels, and at the project perimeter.
Fiber Rolls	Degradable fibers rolled tightly and placed on the toe and at regular intervals along the face of slopes to intercept runoff.
Gravel Bag Berm	Installed end-to-end to form a barrier across a slope to intercept runoff.
Tracking Control	
Construction Entrances/Exits	Points of entrance/exit to a construction site that are stabilized to reduce the tracking of mud and dirt onto public roads.
Street Sweeping	Removal of tracked sediment using self-propelled and walk-behind equipment to prevent entrance sediment from entering into a storm drain or watercourse.
Waste Management and Materials Pollution Control	
Temporary Concrete Washout Facilities	Specified vehicle washing areas to contain concrete waste materials.

Temporary BMP	Purpose
Material Delivery and Storage	The Project Manager will designate a staging area at the project site to be used as needed. Prolonged storage of construction materials will be prohibited. Chemicals will be stored in watertight containers with appropriate secondary containment or in an enclosed storage shed to prevent spillage or leakage. Spills and leaks shall be contained and cleaned using appropriate methods immediately upon discovery. Construction materials shall be stored and contained in a manner that minimizes exposure to precipitation, run-on, and runoff. This excludes materials and equipment designated for outdoor exposure to environmental conditions (i.e., poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
Material Use	When practical and approved by the Project Engineer, recycled and less hazardous product alternatives may be used. Use of construction materials shall be limited to the active construction area and when required to complete construction activity. In addition, construction materials not in use shall be covered and elevated above grade, if possible, to prevent pollutant discharge. An ample amount of spill clean-up material shall be kept onsite to ensure immediate containment and cleanup of spilled materials.
Stockpile Management	All stockpiles shall be bermed and located a minimum of 50 feet away from concentrated flows of stormwater, drainage courses, and inlets. Inactive stockpiles shall be covered at all times to ensure wind and precipitation protection. Destabilized stockpiles will be sprayed with water as needed for dust control. Repair and replace stockpile covers and perimeter controls as needed.
Spill Prevention and Control	The Contractor will assign and train appropriate spill response personnel. Oil, grease, and fuel shall be managed in a manner that will prevent leakage into the ground, storm drains or surface waters. All spills and leaks shall be contained, cleaned, and properly disposed. The Project Manager and the Engineering Project Manager shall immediately be notified of any spills and leaks. Proper clean-up materials will be located near storage, unloading and use areas.
Sanitary-Septic Waste Management	Delivery and regular maintenance of onsite portable restrooms shall be conducted by a licensed service. Restrooms shall be located on level, hardpacked or paved surfaces away from traffic and drainage facilities. Perimeter controls will be utilized to contain and prevent pollutant discharge into drainage systems or receiving waters. In addition, the restrooms shall be firmly secured in the event of high winds. Portable restrooms shall be regularly inspected for cleanliness, leaks, and spills. Leaks and/or spills shall be contained and cleaned immediately upon discovery in accordance with federal, state, and local regulations.

Long-term effects on turbidity are addressed through final stabilization of soils. Final stabilization could include, but is not limited to, hydroseeding, soil binders, velocity dissipation devices, and preservation of existing vegetation. Hydroseeding is the method by which permanent seed is applied to the soil surface to protect exposed soils from erosion by wind and water.

4.1.3 Oil, Grease, and Chemical Pollutants

Fueling or minor maintenance of construction vehicles would occur within the project study area during construction, so there would be a risk of accidental spills or releases of fuels, oils, trash, or other potentially toxic materials. An accidental release of these materials could pose a threat to water quality if contaminants enter downstream receiving waters. The magnitude of the impact from an accidental release depends on the amount and type of material spilled. Pollutants include: petroleum hydrocarbons, petroleum waste, diesel, coal ash, metals, herbicides, lead, concrete, cement, chemically treated wood, and asbestos. Soil disturbance activities may cause contaminated water to discharge off site and into the nearby receiving waters.

Hazardous waste management BMPs would be needed to comply with the CGP and SWPPP requirements. The contractor would implement appropriate hazardous material management practices, spill prevention measures, and other good housekeeping measures to reduce the potential for chemical spills or releases of contaminants, including any non-stormwater discharge off site. Additionally, fueling and hazardous materials storage would occur at least 50 feet away from any drainage. Implementation of BMPs would minimize the potential for surface and groundwater contamination. Implementation of the SWPPP construction BMPs would minimize the potential for construction-related surface water pollution and ensure that water quality in the receiving waters would not be compromised by chemical pollutants during construction.

4.2 Long-Term Impacts During Operation and Maintenance

4.2.1 Transportation Project Guidance – LID Principles and BMPs

Potential LID Principles and BMPs to be evaluated for the proposed project include:

- Minimizing Road Widths
- Drainage Swales
- Bioretention
- Permeable Pavements
- Sidewalk Trees and Tree Boxes
- Infiltration Basins

These LID Principles and BMPs would be further considered and incorporated to the maximum extent practicable during final design as described in **WQ-3**.

4.2.2 Permanent Stabilization Measures

Permanent stabilization measures include a combination of drainage and erosion control practices to ensure permanent water quality and stormwater impacts are minimized. Drainage features such as energy dissipation devices (e.g., flared-end sections, tee dissipaters, and rock slope protection) should be considered at drainage outfalls to reduce the velocity and dissipate flows as they discharge form the culvert. Peak-flow attenuation structures can be placed to detain flows prior to being released to downstream storm drains. Cut-off walls are proposed at the Bridge Street bridge. These drainage design features would be further considered and incorporated as necessary during final design.

Permanent erosion control measures would be applied to all exposed areas to provide vegetation establishment and to achieve final slope stabilization. These measures include hydraulically applying a combination of hydroseed, hydromulch, straw, tackifier, and compost to promote vegetation establishment and installing fiber rolls to prevent sheet flow from concentrating and causing gullies. For steeper slopes, measures such as netting, blankets, or slope paving could be considered to provide permanent stabilization.

4.2.3 Currents, Circulation, or Drainage Patterns

There are anticipated increases in stormwater runoff flow because the project improvements would have a net increase of impervious surface; the additional impervious areas would increase runoff volumes and peak discharges to receiving waters. A new bridge structure will replace the existing culvert north of Bridge Street and would increase hydrological connectivity, increase capacity for flows, reducing scour through the stream, and enhance wildlife movement within the conservation area through the new bridge crossing. Overall, approximately 5.7 acres of new impervious surfaces would be constructed. The proposed drainage design will maintain existing drainage patterns for the roadway shoulder widening and realignment. The proposed project would require existing drainage facilities to be protected in place or modified to continue to collect and convey runoff. The modified drainage facilities would connect to existing outfalls. Existing stormwater conveyance capacities along Gilman Road would be met or exceeded with the proposed roadway shoulder widening and passing lane addition. In addition, the proposed project would implement LID Principles and BMPs such as drainage facility inspection and maintenance, MS4 stencilling and signage, and protecting slopes and channels; therefore, long-term impacts of changes to drainage patterns are not anticipated.

4.2.4 Increase in Sediment Load

Permanent impacts on water quality can result from the impervious surface improvements that prevent stormwater from infiltrating the surface and then carry pollutants to storm drains via runoff. The proposed improvements for storm drain infrastructure and roadway realignment increase the net impervious surface within the project study area so potential increases in sediment-laden flows could occur. The proposed water volume generated by the new net impervious area would be treated through implementation of LID Principles and BMPs such as drainage facility inspection and maintenance, MS4 stencilling and signage, and protecting slopes and channels; therefore, long-term impacts of increased sediment load are not anticipated.

4.2.5 Water Quality

Because the proposed project would increase the amount of impervious surfaces by widening the shoulders and adding a passing lane, it could result in an increase in the amount of polluted stormwater runoff. Contaminants in the runoff from the widened roadway shoulders would include sediments, oils and grease, and metals, similar to the contaminants at the existing

Gilman Road. The addition of impervious surfaces as a result of widened roadway shoulders would not represent a new substantial source of pollutants because the proposed project would not increase the capacity of the roadway to carry additional cars (additional pollutant sources). The proposed project would incorporate LID Principles and BMPs such as drainage facility inspection and maintenance, MS4 stencilling and signage, and protecting slopes and channels that would reduce the discharge of pollutants to the maximum extent practicable; therefore, long-term impacts of increased pollutant loads are not anticipated.

4.3 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

4.3.1 Special Aquatic Sites

Refer to the *NES (Minimal Impacts)* for information about impacts on aquatic habitats (County of Riverside 2020a).

4.3.2 Wildlife Habitat

Refer to the *NES (Minimal Impacts)* for information about impacts on wildlife habitat (County of Riverside 2020a).

4.3.3 Invasive Species

The *NES (Minimal Impacts)* states new landscaping or hydroseeding is expected in temporary impact areas following construction. Any project-related plantings or seeding would use a native seed mix and would avoidinvasive plant species as listed in Table 6-2 of the MSHCP. Measures **BIO-7** and **BIO-8** would reduce the likelihood of project equipment spreading invasive weed seeds on site. Refer to the *NES (Minimal Impacts)* for information about impacts on invasive species (County of Riverside 2020a).

4.4 Anticipated Changes to the Human Use Characteristics of the Aquatic Environment

The project is not anticipated to result in any changes to the human-use characteristics of the aquatic environment.

4.5 Cumulative Impacts

This cumulative analysis examines the effects of the proposed project in combination with other current projects, probable future projects, and projected future growth along the San Jacinto River. The geographic context for the analysis of cumulative impacts associated with surface hydrology and water quality is the Middle San Jacinto subwatershed. The context for cumulative hydrology and water quality impacts is geographic and a function of whether impacts could affect surface water features/watersheds or municipal storm drainage systems of Riverside County, each of which has its own physical boundary. This analysis accounts for anticipated cumulative growth within the potentially affected geographic area, as represented by full implementation of the Riverside County General Plan.

Development of the proposed project, combined with other past and future development within the potentially affected geographic area, could degrade stormwater quality through an increase in impervious surface area as well as an increase in contaminated runoff, which could ultimately violate water quality standards and affect beneficial uses within the Middle San Jacinto subwatershed. During construction, runoff may contain sediments as well as construction materials and wastes (e.g., concrete debris) resulting from site clearing, demolition/pavement removal, cut-and-fill activities, minor grading and excavation, and construction and paving. During operation, runoff may contain oil, grease, metals that accumulate in streets and driveways, pesticides, herbicides, particulate matter, nutrients, animal waste, litter, and oxygen-demanding substances from landscaped areas.

Cumulative development could affect water quality if the land use changes, the intensity of the land use changes, and/or drainage conditions are altered to facilitate the introduction of pollutants to surface water resources. An increase in the intensity of a land use would increase potential pollutant loads. Alterations in drainage patterns could increase pollutant loads by increasing the amount of stormwater runoff, transporting pollutants in stormwater runoff, causing or contributing to erosion if the rate of runoff increases, or exposing vulnerable areas to infiltration or runoff.

Construction of the proposed project as well as other planned projects in the vicinity would result in surface disturbances through the grading and compaction associated with typical development activities. Existing vegetation would be removed, thereby increasing the potential for erosion. Consistent with municipal stormwater programs from Riverside County and Caltrans, the project-specific SWPPPs would include construction BMPs. Therefore, the proposed project would not contribute to a cumulative water quality impact during construction.

During project operation, the proposed project could contribute to the degradation of water quality and a cumulative impact if any altered land use would result in an increase in the type and concentration of pollutants in stormwater runoff. New development projects would increase impervious surface areas, which would result in increased stormwater runoff. Therefore, new development projects would need to be consistent with the municipal stormwater programs from Riverside County and Caltrans and include post-construction design measures, such as LID, vegetative areas, and biofiltration swales, that would allow infiltration and water quality treatment. The proposed project does not represent a significant departure from the existing land use of the area. .The proposed project would result in a net increase of 5.7 acres of impervious surface area, however, this impact would be minimized with the implementation of measure **WQ-3**. Stormwater runoff would be directed to existing stormwater collection systems. Other storm drains would be modified to accommodate the widened roadway shoulders. Additionally, one of the underpasses within the project area would be specifically improved for wildlife crossing as a result of the proposed project. The underpass at Bridge Street would be expanded from a 12-foot-wide by 6-foot-high culvert to a single-span bridge would be 26 feet wide by 7.5 feet high, with a dry bench for wildlife to cross during high flows and smaller tube on the dry bench for small mammal passage. In Because the proposed project would not increase roadway capacity, the input of additional pollutants from vehicles is not anticipated. Therefore, the proposed project would not contribute to a cumulative water quality impact during operations.

Cumulative impacts on water quality, as well as the proposed project's contribution to cumulative impacts, would not be cumulatively considerable.

5. Avoidance and Minimization Measures

The measures for construction include preparing a SWPPP and implementing construction BMPs.

WQ-1: Construction SWPPP – The project will comply with the SWRCB CGP in effect at the time the project goes to construction, by developing and implementing a SWPPP. The SWPPP is a project-specific document that calculates the site's risk level during construction, includes guidelines for monitoring and reporting, and provides Erosion Control Plan and BMP details for the construction site. The SWPPP also includes Construction Site BMPs, which are implemented to minimize sediment and erosion during construction. Permit Registration Documents, which include a Notice of Intent, Risk Assessment, Site Map, SWPPP, and other compliance-related documents required by the CGP, would be electronically filed through the SWRCB's Storm Water Multiple Application and Report Tracking System (SMARTS) prior to the start of construction. Additionally, within 90 days of when construction is complete, a Notice of Termination will be electronically filed through SMARTS.

WQ-2: **Post-Construction BMPs** – Post-construction BMPs will be implemented to the maximum extent practicable, consistent with the requirements of the NPDES permit and Waste Discharge Requirements for the County of Riverside's MS4 Permit in place at the time of project approval. Maintenance will be ongoing throughout construction to maintain functionality of any BMPs. In addition to routine maintenance, any sediment control and erosion control BMPs will require monitoring and potential maintenance after each storm event that may occur during construction.

WQ-3: LID Principle and BMPs – LID Principles and BMPs will be implemented to the maximum extent practicable. This includes conservation of natural areas to the extent feasible, minimization of the impervious footprint, minimization of disturbances to natural drainage, design and construction of pervious areas to receive runoff from impervious areas, use of landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers.

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Attachment A

Rainfall Erosivity Factor
Calculation Results

Rainfall Erosivity Factor Calculator for Small Construction Sites

EPA's stormwater regulations allow NPDES permitting authorities to waive NPDES permitting requirements for stormwater discharges from small construction sites if:

- the construction site disturbs less than five acres, and
- the rainfall erosivity factor ("R" in the revised universal soil loss equation, or RUSLE) value is less than five during the period of construction activity.

If your small construction project is located in an area where EPA is the permitting authority and your R factor is less than five, you qualify for a low erosivity waiver (LEW) from NPDES stormwater permitting. If your small construction project does not qualify for a waiver, then NPDES stormwater permit coverage is required. Follow the steps below to calculate your R-Factor.

LEW certifications are submitted through the NPDES eReporting Tool or "CGP-NeT". Several states that are authorized to implement the NPDES permitting program also accept LEWs. Check with your state NPDES permitting authority for more information.

- Submit your LEW through EPA's eReporting Tool
- List of states, Indian country, and territories where EPA is the permitting authority
- Construction Rainfall Erosivity Waiver Fact Sheet
- Appendix C of the 2017 CGP – Small Construction Waivers and Instructions

The R-factor calculation can also be integrated directly into custom applications using the R-Factor web service.

For questions or comments, email EPA's CGP staff at cgp@epa.gov.

Select the estimated start and end dates of construction by clicking the boxes and using the dropdown calendar.

The period of construction activity begins at initial earth disturbance and ends with final stabilization.

Start Date: 08/01/2022

End Date: 05/01/2023

Locate your small construction project using the search box below or by clicking on the map.

Location: -117.04287677185049 , 33.869313454757204 **Search**

+

—

Click the "Calculate R Factor" button below to calculate an R Factor for your small construction project.

Calculate R Factor

Facility Information

Start Date: 08/01/2022	**Latitude:** 33.8693
End Date: 05/01/2023	**Longitude:** -117.0429

Calculation Results

Rainfall erosivity factor (R Factor) = **42.33**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state’s CGP.