Appendix A

Notice of Preparation (NOP) and NOP Comments

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

Paso Robles Gateway

SCH Number: 2013101050

Document Type: NOP - Notice of Preparation

Project Lead Agency: Paso Robles, City of

Project Description

Located on the northwest corner of Highway 101 and State Route 46 West, the 270+\- acre property, currently within the County of San Luis Obispo, is the subject of this EIR. The project entitlements include a sphere of influence update, annexation, general plan amendment, rezone, planned development plan, and tract map. The proposed development includes three (3) hotels, commercial and residential components, agriculture/open space, and related infrastructure improvements.

Contact Information

Primary Contact:
Mr. Ed Gallagher
City of El Paso de Robles
(805) 237-3970
1000 Spring Street
Paso Robles, CA 93446

Project Location

County: San Luis Obispo
City: Paso Robles
Region:
Cross Streets:
Latitude/Longitude:
Parcel No:
Township:
Range:
Section:
Base:
Other Location Info:

Proximity To

Highways: Hwy 101, 46
Airports:
Railways:
Waterways:
Schools:
Land Use: GPD: Subarea H - Residential Suburban (RS) & Regional Commercial (RC) Z: Subarea H - Residential Suburban (RS) & Regional Commercial (RC)

Development Type

Residential, Commercial, Agriculture (199.20 acres +\-)

Local Action

Other Action

Project Issues

Aesthetic/Visual, Air Quality, Biological Resources, Other Issues (Mandatory Findings of Significance), Water Quality, Landuse, Noise, Public Services, Traffic/Circulation

Reviewing Agencies (Agencies in **Bold Type** submitted comment letters to the State Clearinghouse)

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Resources Agency; Department of Conservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 4; **Native American Heritage Commission**; California Highway Patrol; Department of Housing and Community Development; Caltrans, District 5; Air Resources Board; Regional Water Quality Control Board, Region 3

Date Received: 10/16/2013 **Start of Review:** 10/16/2013 **End of Review:** 11/14/2013

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COUNTY OF SAN LUIS OBISPO
Department of Agriculture/Weights and Measures
2156 SIERRA WAY, SUITE A • SAN LUIS OBISPO, CALIFORNIA 93401 - 4556
MARTIN SETTEVENDEMIE (805) 781-5910
AGRICULTURAL COMMISSIONER/SEALER
www.slocounty.ca.gov/agcomm AgCommSLO@co.slo.ca.us

DATE: **November 8, 2013**

TO: **Ed Gallagher, Director of Community Development**

FROM: **Lynda L. Auchinachie, Agriculture Department**

SUBJECT: **The Paso Robles Gateway Notice of Preparation (1727)**

Thank you for the opportunity to review the Notice of Preparation (NOP) for the Draft Environmental Impact Report (DEIR) for the proposed Paso Robles Gateway project located on the southwest boundary of the current city limit. The requested entitlements include a sphere of influence update, annexation, general plan amendment, rezone, planned development and a tract map. The proposed project includes changing the land use and zoning designations on the approximately 270 acre site from Residential Suburban and Agriculture to Residential Suburban (RS) and Regional Commercial (RC). Proposed development includes approximately 376,000 square feet of hotel/conference facilities and 62,250 square feet of commercial/office space with 854 associated parking spaces as well as thirty acres of residential suburban development. While the mapped information is conceptual in nature, it appears the applicant is also proposing to intermingle 114 acres of wine grape vineyards throughout the RC portion of the site.

The Agriculture Department has reviewed the initial study (IS) and has the following comments:

- The Agriculture and Forestry Resources section identified the site 's soils but failed to indicate the project site includes approximately 40 acres of Unique Farmland as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. The DEIR should include an analysis of converting this Farmland to non-agricultural uses. A discussion of consistency with the County's Agriculture Element regarding conversion of agricultural lands should also be included.
- While the IS identifies potentially significant impacts due to land use conflicts between proposed RS and RC development and off-site agricultural operations in the Land Use section, it is recommended that a complete discussion be included within the Agriculture and Forestry Resources (e) because the proposed development due to location and/or nature could result in conversion of off-site Farmland due to land use conflicts limiting agricultural operation and/or competition for groundwater. Land use conflicts include but are not limited to noise, odor, dust, runoff into agricultural fields, and nighttime

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operations. Consistency with the County's Agriculture Element buffer policy and criteria in Appendix C should be considered. The on-site development should be evaluated for consistency with the buffer policy as well because the conceptual maps suggest vineyards have been placed in close proximity to sensitive development much like landscaping rather than commercial agriculture.

- It is unclear why groundwater is being used within an urban land use designation that is proposed to be served by the City's existing utility services. Such use eliminates the opportunities for water conservation measures that are available through City utilities and results in unnecessary competition for limited groundwater resources. The DEIR should explore a project alternative that does not include groundwater extraction.

Thank you for your consideration.

cc: Mike Wulkan, Department of Planning and Building
David Church, Executive Officer, LAFCo

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SLO COUNTY apcd | Air Pollution Control District
San Luis Obispo County

November 8, 2013

Ed Gallagher
City of Paso Robles Community Development Department
1000 Spring Street
Paso Robles, CA 93446

SUBJECT: APCD Comments Regarding the Paso Robles Gateway Project's Notice of Preparation for an Environmental Impact Report

Dear Mr. Gallagher,

Thank you for including the San Luis Obispo County Air Pollution Control District (APCD) in the environmental review process. We have completed our review of the Notice of Preparation for an Environmental Impact Report (EIR) for the proposed Paso Robles Gateway project, located on the northwest corner of Highway 101 and State Route 46 West. The site currently has 70.5 acres of Residential Suburban (RS) zoning and about 199 acres zoned as agricultural land. The RS land is within the Paso Robles Urban Reserve Line (URL) and the agricultural land is unincorporated San Luis Obispo County land. The project proposes an annexation of the County land into the City of Paso Robles URL.

As specified in the Initial Study, the project also proposes three (3) hotels totaling 392 room and 26.2 acres, each with conference rooms and two having restaurants. Proposed parking for these hotels would total 567 spaces with one hotel having 100 overflow spaces. The project also proposes 7.2 acres of commercial retail development including 287 parking spaces, 18,500 square feet (s.f.) of retail, 7,750 s.f. for restaurants, and 36,000 s.f. of commercial/office land uses. The project would also retain 60.5 acres of existing agricultural land, provide 69.3 acres of agricultural buffer, and 82.3 acres of open space. The project proposes 30 acres of rural residential with building envelopes of 17,500 s.f. per lot. Finally, the project proposes 11.5 acres of road right-of-ways. *The following are APCD comments that are pertinent to this project.*

GENERAL COMMENTS

As a commenting agency in the California Environmental Quality Act (CEQA) review process for a project, the APCD assesses air pollution impacts from both the construction and operational phases of a project, with separate significant thresholds for each.

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T 805.781.5912 F 805.781.1002 W slocleanair.org 3433 Roberto Court, San Luis Obispo, CA 93401

Please address the action items contained in this letter, with special attention to items that are highlighted by bold and underlined text.

1. Contact Person:

   Andy Mutziger
   Air Pollution Control District
   3433 Roberto Court
   San Luis Obispo, CA 93401
   (805) 781-5912

2. Permit(s) or Approval(s) Authority:

   Construction Permit Requirements
   Portable equipment, 50 horsepower (hp) or greater, used during construction activities may require California statewide portable equipment registration (issued by the California Air Resources Board) or an APCD permit. Operational sources may also require APCD permits. The following list is provided as a guide to equipment and operations that may have permitting requirements, but should not be viewed as exclusive. For a more detailed listing, refer to the Technical Appendices, page 4-4, in the APCD's 2009 CEQA Handbook.

   - Power screens, conveyors, diesel engines, and/or crushers
   - Portable generators and equipment with engines that are 50 hp or greater
   - Electrical generation plants or the use of standby generator
   - Internal combustion engines
   - Rock and pavement crushing
   - Unconfined abrasive blasting operations
   - Tub grinders
   - Trommel screens
   - Portable plants (e.g. aggregate plant, asphalt batch plant, concrete batch plant, etc)

   To minimize potential delays, prior to the start of the project, please contact the APCD Engineering Division at (805) 781-5912 for specific information regarding permitting requirements.

   Operational Permit Requirements
   Operational sources may require APCD permits. The following list is provided as a guide to equipment and operations that may have permitting requirements, but should not be viewed as exclusive. For a more detailed listing, refer to the Technical Appendix, page 4-4, in the APCD's 2009 CEQA Handbook.

   - Portable generators and equipment with engines that are 50 hp or greater;
   - Electrical generation plants or the use of standby generator;
   - Dry cleaning;
   - Boilers;
   - Internal combustion engines; and
   - Cogeneration facilities.

   Most facilities applying for an Authority to Construct or Permit to Operate with stationary diesel engines greater than 50 hp, should be prioritized or screened for facility wide health risk impacts. A diesel engine-only facility limited to 20 non-emergency operating hours per year or

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that has demonstrated to have overall diesel particulate emissions less than or equal to 2 lb/yr does not need to do additional health risk assessment. **To minimize potential delays, prior to the start of the project, please contact the APCD Engineering Division at (805) 781-5912 for specific information regarding permitting requirements.**

3. Environmental Information:

The potential air quality impacts should be assessed in the Environmental Impact Report (EIR). The "2012 CEQA Air Quality Handbook" (the Handbook) is to be used as guidance for assessing the air quality impacts for this project and defining mitigation measures. It can be accessed on the APCD web page at:

http://slocleanair.org/images/cms/upload/files/CEQA_Handbook_2012_v1.pdf

This analysis should address both short-term, construction, and long-term, operational, emissions impacts including traditional air pollutants, toxics and greenhouse gas emissions and include the following information:

a) A description of existing air quality and emissions in the impact area, including the attainment status of the APCD relative to State and Federal air quality standards and any existing regulatory restrictions to development. The most recent Clean Air Plan (CAP) should be consulted for applicable information and the APCD should be consulted to determine if there is more up to date information available.

b) A complete emission analysis should be performed on all relevant construction and operational phase emission sources (e.g. vehicles, equipment and fugitive dust), using the latest approved version of CalEEMod (www.caleemod.com) or other APCD approved emission calculator tools. Documentation of the modeling assumption and emission factors must be provided in the EIR. The quantitative analysis needs to address criteria pollutants, greenhouse gases, toxics, and diesel particulate matter and be compared to APCD's CEQA thresholds.

c) A qualitative analysis of the air quality impacts should be conducted. A consistency analysis with the CAP will determine if the emissions resulting from development under the project will be consistent with the emissions projected in the CAP, as described in item 6 of this letter. The qualitative analysis should be based upon criteria such as prevention of urban sprawl and reduced dependence on automobiles. A finding of Class I impacts could be determined qualitatively. The DEIR author should contact the APCD if additional information and guidance is required. All assumptions used should be fully documented in an appendix to the DEIR.

d) To aid in the air quality analysis, the traffic study should include the total daily traffic volumes projected. The traffic study results can be used in the quantitative and qualitative analyses by providing a tool for comparing trip generation between different alternatives and evaluating effectiveness of mitigation methods for reducing traffic impacts.

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e) The DEIR should include a range of alternatives that could effectively minimize air quality impacts. A consistency analysis should be performed for each of the proposed alternatives identified, as described above. A quantitative and qualitative analysis of the air quality impacts should be generated for each of the proposed alternatives. Examples include but are not limited to:
   - Flexible zoning to promote mixed use and design standards that protect mixed use.
   - Increase the amount of neighborhood scale mixed use.
   - Additional density beyond proposed zoning allowances.
   - Design standards that require narrow streets and minimum front setbacks on structures.
   - Limiting the size of each arterial through the development. This reduces the need for noise barriers such as cinder block walls along roadways, decreases roadway widths, and slows the speed of traffic, creating an atmosphere that encourages walking and bicycling.

f) Mitigation measures to reduce air quality impacts from construction and operational phases to a level of insignificance should be specified. If you would like to receive a copy of an example of a recommended format for the qualitative analysis section on air emissions impacts, contact the APCD Planning Division at 781-5912.

4. Permit Stipulations/Conditions:

In the preparation of the EIR, the preparer should refer to the APCD's CEQA Handbook for guidance on permitting, special conditions, air quality analysis, mitigating emissions, etc.

5. Alternatives:

Any alternatives described in the EIR should involve the same level of air quality analysis as described in section 3 above.

6. Reasonably Foreseeable Projects, Programs or Plans:

The most appropriate standard for assessing the significance of potential air quality impacts for project EIRs is the preparation of a consistency analysis where the proposed project is evaluated against the land use goals, policies, and population projections contained in the CAP. The rationale for requiring the preparation of a consistency analysis is to ensure that the attainment projections developed by the APCD are met and maintained. Failure to comply with the CAP could result in long term air quality impacts. Inability to maintain compliance with the state ozone standard could bear potential negative economic implications for the county's residents and business community. The APCD's CEQA Air Quality Handbook provides guidance for preparing the consistency analysis and recommends evaluation of the following questions:

a) Are the population projections used in the plan or project equal to or less than those used in the most recent Regional Transportation Plan for the same area?

b) Is the rate of increase in vehicle trips and miles traveled less than or equal to the rate of population growth for the same area?

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c) Have all applicable land use and transportation control measures from the CAP and Regional Transportation Plan been included in the plan or project to the maximum extent feasible?

The land use and circulation policy areas contained in Appendix E of the APCD's CAP are crucial to the consistency analysis and should be specifically addressed in the DEIR. Implementation of these land use planning strategies is the best way to mitigate air quality impacts at the project scale.

These land use planning strategies are:

- Planning Compact Communities
- Providing for Mixed Land Use
- Balancing Jobs and Housing
- Circulation Management Policies and Programs
    - Promoting Accessibility in the Transportation System
    - Promoting Walking and Bicycling
    - Parking Management
    - Transportation Demand Management
    - Communication, Coordination and Monitoring

The formation of compact, pedestrian friendly and more economically self-sufficient communities will reduce automobile trip generation rates and trip lengths.

7. Relevant Information:

As mentioned earlier, the Handbook should be referenced in the EIR for determining the significance of impacts and level of mitigation recommended.

8. Further Comments:

Construction Phase Exceedence:
Based on the project description, the construction phase could exceed the APCD's daily and or quarterly construction emission thresholds for criteria and toxic pollutants. Greenhouse pollutants from construction activity will need to be evaluated and amortized into the operational phase impacts. **Section 3 of this letter describes the process for evaluating the proposed project's air quality impacts and defining appropriate mitigation. Beyond project specific mitigation measures that will be defined using the process described above in Section 3, the following are standard construction phase mitigation measures that are applicable to this project:**

Asbestos / Naturally Occurring Asbestos
Naturally occurring asbestos (NOA) has been identified by the state Air Resources Board as a toxic air contaminant. Serpentine and ultramafic rocks are very common throughout California and may contain naturally occurring asbestos. The SLO County APCD has identified areas throughout the County where NOA may be present (see the APCD's 2012 CEQA Handbook, Technical Appendix 4.4). If the project site is located in a candidate area for Naturally Occurring Asbestos (NOA), the following requirements apply. Under the ARB Air Toxics Control Measure

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(ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (93105), **prior to any construction activities at the site, the project proponent shall ensure that a geologic evaluation is conducted to determine if the area disturbed is exempt from the regulation. An exemption request must be filed with the APCD**. If the site is not exempt from the requirements of the regulation, the applicant must comply with all requirements outlined in the Asbestos ATCM. This may include development of an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program for approval by the APCD. More information on NOA can be found at: www.slocleanair.org/business/asbestos.php.

Demolition of Asbestos Containing Materials

The project referral did not indicate whether there are existing structures on the proposed site that will be demolished. Demolition activities can have potential negative air quality impacts, including issues surrounding proper handling, demolition, and disposal of asbestos containing material (ACM). Asbestos containing materials could be encountered during demolition or remodeling of existing buildings. Asbestos can also be found in utility pipes/pipelines (transite pipes or insulation on pipes). **If building(s) are removed or renovated; or utility pipelines are scheduled for removal or relocation, this project may be subject to various regulatory jurisdictions, including the requirements stipulated in the National Emission Standard for Hazardous Air Pollutants (40CFR61, Subpart M - asbestos NESHAP).** These requirements include, but are not limited to: 1) notification requirements to the APCD, 2) asbestos survey conducted by a Certified Asbestos Inspector, and, 3) applicable removal and disposal requirements of identified ACM. Please contact the APCD Enforcement Division at (805) 781-5912 for further information.

Developmental Burning

Effective February 25, 2000, **the APCD prohibited developmental burning of vegetative material within San Luis Obispo County.** If you have any questions regarding these requirements, contact the APCD Enforcement Division at 781-5912.

Operational Phase Exceedence

Based on the project description, the operational phase will exceed APCD's daily operational emission thresholds and will exceed some (GHG), if not all (GHG & criteria pollutants) of the APCD's annual thresholds. **Section 3 of this letter describes the process for evaluating the proposed project's air quality impacts and defining appropriate mitigation. Project such as Paso Robles Gateway that are removed from urban cores need to use the "Rural" modeling setting in the CalEEMod model to accurately define the projects air quality impacts. Beyond project specific mitigation measures that will be defined using the process described above in Section 3, the following are standard operational phase mitigation measures that are applicable to this project:**

Residential Wood Combustion

Under APCD Rule 504, **only APCD approved wood burning devices can be installed in new dwelling units.** These devices include:

- All EPA-Certified Phase II wood burning devices;
- Catalytic wood burning devices which emit less than or equal to 4.1 grams per hour of particulate matter which are not EPA-Certified but have been verified by a nationally-recognized testing lab;

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- Non-catalytic wood burning devices which emit less than or equal to 7.5 grams per hour of particulate matter which are not EPA-Certified but have been verified by a nationally-recognized testing lab;
- Pellet-fueled woodheaters; and
- Dedicated gas-fired fireplaces.

If you have any questions about approved wood burning devices, please contact the APCD Enforcement Division at 781-5912.

San Luis Obispo Car Free Program

Vehicle emissions are often the largest source of emissions from the operational phase of development. This project has the potential to increase the amount of vehicle trips to our County and appropriate mitigation measures should be considered. San Luis Obispo Car Free is a program to encourage car-free, care-free transportation to and around the San Luis Obispo area. SLO Car Free provides tools to travelers on the pleasures and availability of traveling to our area without their cars, or by parking their cars once they arrive. By pledging to travel to, or around San Luis Obispo without a car, visitors receive special incentives from participating hotels, restaurants, transportation services and attractions. In addition, businesses who join SLO Car Free as a participating business, receive free advertisement on their website, highlighting the businesses efforts to encourage "green," tourism to San Luis Obispo County. The SLO Car Free website is a hub for information and web-links on transportation, lodging, attractions and other visitor needs. Visitors can use the website to find out what they can do in San Luis Obispo and how they can do it without a car. **To mitigate the potential vehicle trips to the proposed hotels, they will be required to participate in the SLO Car Free Program, provide incentives to car-free travels and promote the program in their communication tools**.

Again, thank you for the opportunity to comment on this proposal. If you have any questions or comments, feel free to contact me at 781-5912.

Sincerely,

Andy Mutziger
Air Quality Specialist

AJM/arr

cc: Carroll Florence, Contract Planner, Oasis Associates
Tim Fuhs, Enforcement Division, APCD
Karen Brooks, Enforcement Division, APCD
Gary Willey, Engineering Division, APCD

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Atascadero Mutual Water Company

ESTABLISHED 1913

November 6, 2013

Mr. Ed Gallagher
City of Paso Robles
Community Development Department
1000 Spring Street
Paso Robles, CA 93446

Subject: Paso Robles Gateway Project

Dear Mr. Gallagher:

We have reviewed the Initial Study prepared for the subject project and offer the following comments regarding Section IX.b, Groundwater.

The EIR should provide a map that shows the proposed parcel configuration, the location of the existing wells, and the areas on the project site that overlie the Atascadero sub-basin. The EIR should identify which parcels will be served from the existing wells.

The existing wells should be metered and water use reported to the City to confirm that actual water use is in substantial conformance with the estimates used in the initial study. Water levels in the wells should be taken in the spring and fall and reported to the City. Project approval should include a means for the City to curtail pumping of the wells in the event that the trend of groundwater levels in the area is on the decline .

Project approval should require best management practices to be incorporated into the planting of the agricultural component. The City should consider requiring the agricultural component to be dry-farmed, with groundwater only being used to establish the plantings.

Respectfully yours,

John B. Neil
General Manager

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STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

PUBLIC UTILITIES COMMISSION
320 WEST 4TH STREET, SUITE 500
LOS ANGELES, CA 90013
(213) 576-7083

November 7, 2013

Ed Gallagher
City of El Paso de Robles
1000 Spring Street
Paso Robles, CA 93446

Dear Mr. Gallagher:

Re: SCH 2013101050 Paso Robles Gateway - NOP

The California Public Utilities Commission (Commission) has jurisdiction over the safety of highway-rail crossings (crossings) in California. The California Public Utilities Code requires Commission approval for the construction or alteration of crossings and grants the Commission exclusive power on the design, alteration, and closure of crossings in California. The Commission Rail Crossings Engineering Section (RCES) is in receipt of the *Notice of Preparation (NOP)* for the proposed City of Paso Robles (City) Paso Robles Gateway project.

The project area includes active railroad tracks. RCES recommends that the City add language to the Paso Robles Gateway so that any future development adjacent to or near the railroad/light rail right-of-way (ROW) is planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade crossings. This includes considering pedestrian circulation patterns or destinations with respect to railroad ROW and compliance with the Americans with Disabilities Act. Mitigation measures to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade crossings due to increase in traffic volumes and continuous vandal resistant fencing or other appropriate barriers to limit the access of trespassers onto the railroad ROW.

If you have any questions in this matter, please contact me at (213) 576-7076, ykc@cpuc.ca.gov.

Sincerely,

Ken Chiang, P.E.
Utilities Engineer
Rail Crossings Engineering Section
Safety and Enforcement Division

C: State Clearinghouse

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DEPARTMENT OF TRANSPORTATION
50 HIGUERA STREET
SAN LUIS OBISPO, CA 93401-5415
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November 7, 2013

SCH# 2013101050
SLO 101 PM 054.10

Mr. Ed Gallagher
City of El Paso de Robles
1000 Spring Street
Paso Robles CA 93446

Dear Mr. Gallagher:

COMMENTS ON THE NOTICE OF PREPARATION (NOP) FOR THE PASO ROBLES GATEWAY DRAFT ENVIRONMENTAL IMPACT REPORT (EIR)

Thank you for the request for comments on the proposed Paso Robles Gateway draft EIR. The California Department of Transportation (Caltrans) provides the following comments for your consideration.

1) To fully understand the traffic impacts of the proposed development, Caltrans would need to see a Traffic Impact Study (TIS). It is recommended that the analysis be prepared in accordance with the Department's *Guide for the Preparation of Traffic Impact Studies* (2002). To help facilitate the TIS, we invite the submission of a Scope of Work prior to initiating the document.

2) Since Caltrans is responsible for the safety, operations, and maintenance of the State transportation system, Caltrans' Level of Service (LOS) standards should be used to determine the significance of the project's impact. Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on all State transportation facilities.

3) The TIS should include information on existing traffic volumes within the study area and should be based on recent traffic volumes less than two years old. Counts older than two years cannot be used as a baseline. Feel free to contact us for assistance in acquiring the most recent data available.

4) The methodologies used to calculate the LOS should be consistent with the methods in the current version of the Highway Capacity Manual. All LOS calculations should also be included in the TIS for review.

5) Any work completed in Caltrans right-of-way will require an encroachment permit. As part of the application process, additional analyses may be required for submission including, but not limited to, environmental or hydraulic studies.

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6) We would like to see how the proposed Vine Street realignment will work in conjunction with the US 101/State Route 46 West interchange. Please include queuing and operations for the associated ramps and intersections in the traffic analysis.

7) The intersections of the northbound US 101 onramp as well as at Ramada Drive (County ROW) is currently experiencing heavy traffic congestion. Please provide an analysis of the project's impacts on those two intersections.

8) Please include a hydrological analysis of the proposed project on State Route 46 and US 101. The project should not result in an increase of water flow on any Caltrans facility.

We look forward to receiving the draft EIR, and providing comments from a more thorough analysis. If you have any questions or desire further clarification, feel free to contact me at (805) 549-3131 or adam.fukushima@dot.ca.gov.

Sincerely,

Adam Fukushima, PTP
Caltrans District 5
Development Review

Cc: Glenn Marshall (SLO County)
Michael Conger (SLO County)

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SAN LUIS OBISPO COUNTY
DEPARTMENT OF PLANNING AND BUILDING

November 8, 2013

Mr. Ed Gallagher, Director of Community Development
City of Paso Robles, Community Development Department
1000 Spring Street
Paso Robles, CA 93446

SUBJECT: Comments on Notice of Preparation for Paso Robles Gateway EIR

Thank you for the opportunity to comment on the Notice of Preparation for the Environmental Impact Report for the Paso Robles Gateway project. We have reviewed the Notice of Preparation and the Environmental Initial Study Checklist Form and have the following comments.

As noted in the Initial Study, the entire site is located within the unincorporated area. Of the site's 270 acres, between 70 and 75 acres are located within the County-identified Urban Reserve Line for Paso Robles and included in the Residential Suburban land use category in the County General Plan. The remaining roughly 200 acres are included in the Agriculture land use category.

Our comments focus on Land Use and Planning and project alternatives. Our comments at this time are general in nature, especially since the proposed project is conceptual at this stage. For example, the concept maps do not include much information on the location of and circulation for the proposed suburban/rural residential development and its connection to the rest of the project.

Since the proposed project includes a proposal to include this site in the City's Sphere of Influence, the EIR should address applicable County land use policies as well as City General Plan policies. This would be in keeping with the intent of the City and the County to use both the City and County General Plans to guide the orderly development of areas within the existing Sphere of Influence (Memorandum of Agreement between the City and the County regarding the City's 2012 Sphere of Influence Update, item 4, page 2).

According to Chapter 4 of Framework for Planning of the County's Land Use Element, proposed expansions of Spheres of Influence should consider the factors for expanding urban reserve lines (also listed in Chapter 4 of Framework for Planning). Those factors include consistency with the Chapter 1 Planning Principles and Policies (strategic growth), conversion of agricultural lands per the Agriculture Element, and provision of significant open space adjacent to a community.

976 OSOS STREET, ROOM 300 • SAN LUIS OBISPO • CALIFORNIA 93408 • (805) 781-5600
EMAIL: planning @co.slo.ca.us • FAX: (805) 781-1242 • WEBSITE: http://www.sloplanning.org

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In this case, examples of applicable strategic growth principles and policies include the following:

- Principle 1: Preserve open space and protect agricultural land and resources
- Principle 2: Strengthen and direct development toward existing and strategically planned communities (strategically planned communities include neighborhoods that can accommodate a variety of housing types located close to focal points serving daily needs)
- Principle 2, Policy 2: Avoid establish or expanding Residential Rural and Residential Suburban areas outside urban or village reserve lines
- Principle 4: Create walkable neighborhoods and towns
- Principle 6: Create a range of housing opportunities and choices (a relevant policy is to create a range of housing types within each neighborhood)
- Principle 8: Take advantage of compact neighborhoods (a relevant policy is to develop compact neighborhoods with residential uses that are affordable-by-design and efficient in land and energy consumption)

In consideration of the preceding strategic growth principles and policies, the EIR should evaluate how the project provides or could better provide:

- A compact development pattern with efficient connections between residential and commercial development and other daily destinations, as opposed to creating a pocket of suburban development that is more remote from everyday services, activity centers and transit.
- A walkable neighborhood with connections to the rest of the project.
- A variety of lot sizes and opportunities for different housing types.

The project description emphasizes preserving open space and incorporating agricultural uses. The proposed protection of agricultural land should be evaluated against the applicable policies and criteria in the County's Agriculture Element. We understand that the County Agriculture Department will submit separate comments addressing specific Agriculture Element policies that are applicable to this proposal.

In order to reduce potential impacts on agriculture and potential conflicts with the County's strategic growth principles and policies, we suggest that the EIR include the following two project alternatives. These alternatives could reduce potential land use conflicts resulting from locating development near areas of agricultural production. The alternatives could also reduce potential conflicts with County strategic growth principles and policies resulting from locating low density residential development in a dispersed manner outside of the Paso Robles Urban Reserve Line in an area more remote from activity centers. The following alternatives might also reduce potential visual and other impacts.

1. Limit development to the County-identified Paso Robles Urban Reserve Line

2. Limit development to the County-identified Paso Robles Urban Reserve Line and an area along Highway 46 West.

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Community Development Dept.

Thank you for considering our comments. We look forward to continued discussion with you about this project and the proposals for inclusion in the Sphere of Influence and annexation.

Sincerely,

Mike Wulkan, Supervising Planner
Department of Planning and Building

c: David Church, Executive Officer, LAFCo
Lynda Auchinache, County Agriculture Department

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2/28/20
City of Paso Robles
Community Development Dept.

John Larson

From: Emily Ewer < >
Sent: Friday, November 22, 2013 3:57 PM
To: Larson, John; Carol Florence
Cc: Avery, Garrett L.; Kaufman, Laura; Miller, Caitlin
Subject: RE: Paso Robles Gateway EIR - Status and minor questions

Hello John,
In response to your aesthetics questions;

1. Regarding Lighting; aside from the Zoning Code (Section 21.21.040.H -requiring that all exterior lighting be shielded so as to contain glare on-site) there is no Night Sky Ordinance.
2. As you have noted, per the Sign Code (Section 21.19.040.D) billboards may be established with a CUP.

The City feels it could be appropriate to adopt site-specific conditions to implement measures beyond those in the Zoning Code regarding billboard signage and lighting. More discussion may be needed on what and how the policies would be applied, but the above is the quick answer.

Following are Ed Gallagher's notes from last night's Templeton Area Advisory Group meeting.
Here are my notes from TAAG's discussion on the Gateway Project at last night's meeting.

- The project is very likely to further degrade traffic impacts at the interchange of Highway 101 and Main Street, which is already projected to move from D to F without the project. They dispute AECOM's/ATE's conclusion (offered by Carol) that the project will not have a significant effect on that interchange. The project should not proceed until that interchange is upgraded. (Bill Hockey and Bob Roos, primarily – others echoed this opinion)

- Highway 46W between Highway 101 and the realigned S. Vine Street cannot accommodate westbound traffic that would turn right (north) onto S. Vine without having created major congestion blocking through traffic that wants to continue west. (Bill Pelfry)

- Local traffic (as opposed to tourist traffic) will not want to use the realigned S. Vine Street since it will be congested with tourist traffic. This will cause them to no longer use S. Vine Street and use the Spring Street exit instead, further exacerbating congestion at that intersection. (Gwen Pelfry)

- What is the demand for three hotels, given existing proposals for hotels elsewhere? Will there be a market study? (E.g., two are proposed in Templeton.) (Rex Swan and Dorothy Jennings)

- This project does not appear to be consistent with the Purple Belt Plan. (Dorothy Jennings)

- What will the impacts to population be from the hotels? (Robert Rosales)

I recorded the following rather positive remarks.

- The Vine Street Realignment should help improve traffic flow at the intersection of Highways 101 and 46 West. (Dorothy Jennings)

- Will there be any benefits/positive impacts from the use of Nacimiento Water? (Bob Roos)

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Regards,
Emily Ewer

OASIS ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE + PLANNING
3427 Miguelito Court, San Luis Obispo, CA 93401
P: 805.541.4509 | F: 805.546.0525
www.OASISASSOC.COM

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Appendix B

Architectural Plans Set and Grading Site Sections

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50' Agriculture setback from Habitable Structures

Area 7
Agriculture

Existing Riparian Corridor (typical)

Area 5a
Highway 46 Resort
Area 5b
Multi-Family w/ Resort Overlay

50' Agriculture setback from Habitable Structures

Area 3
Hillside Hotel

Area 4
Promontory Center

Project Marquee Signage

Entry Monuments

Area 7
Agriculture

Area 2
Village Commercial Center

Area 1
Vine Street Vineyard Hotel

Entry Monuments

Project Marquee Signage

Area 6
Vine Street Commercial

Entry Monuments

Area 7
Agriculture

City of Paso Robles "City Limit Line"

For illustrative purposes only. See civil plans for precise plan and building locations.

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The Paso Robles Gateway

CONCEPTUAL MASTER PLAN

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For illustrative purposes only. See civil plans for precise plan and building locations.

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STATISTICAL SUMMARY

BUILDING	AREA
Building #1 (3-Story)	
Hotel	38,000 sf
Building #2 (3-Story)	
Hotel	18,000 sf
Building #3 (3-Story)	
Hotel	20,000 sf
Building #4	
Retail	1,600 sf
Building #5	
Retail	1,600 sf
Building #6	
Restaurant 1	2,400 sf
Building #7 (2-Story)	
Retail	8,200 sf
Residential	9,500 sf
Building #8 (Partial 2-Story)	
Retail	10,000 sf
Office	3,800 sf

LAND USE	AREA
Total Hotel	76,000 sf
100 Rooms	
1,500 sf Meeting Area	
Total Retail (includes Market)	18,200 sf
Total Restaurant	5,600 sf
Total Office	3,800 sf
Total Residential	9,500 sf
Total Site	113,100

PARKING

243 spaces

Note: parking is shared between the Vine Street Vineyard Hotel and Village Commercial Center.

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The Paso Robles Gateway

VINE STREET VINEYARD
HOTEL & VILLAGE
COMMERCIAL CENTER
SITE PLAN

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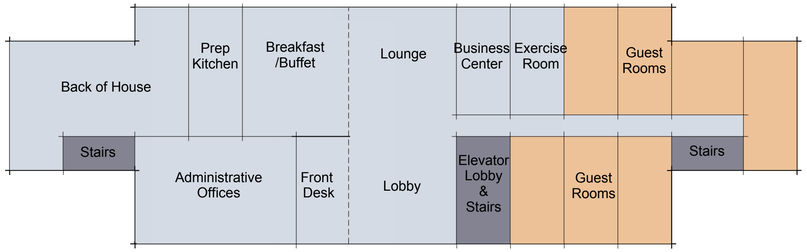
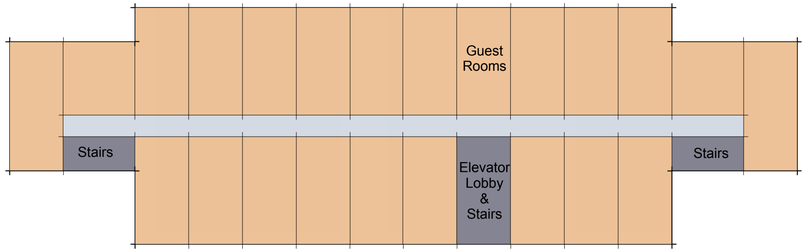
Northwest Elevation

Southeast Elevation



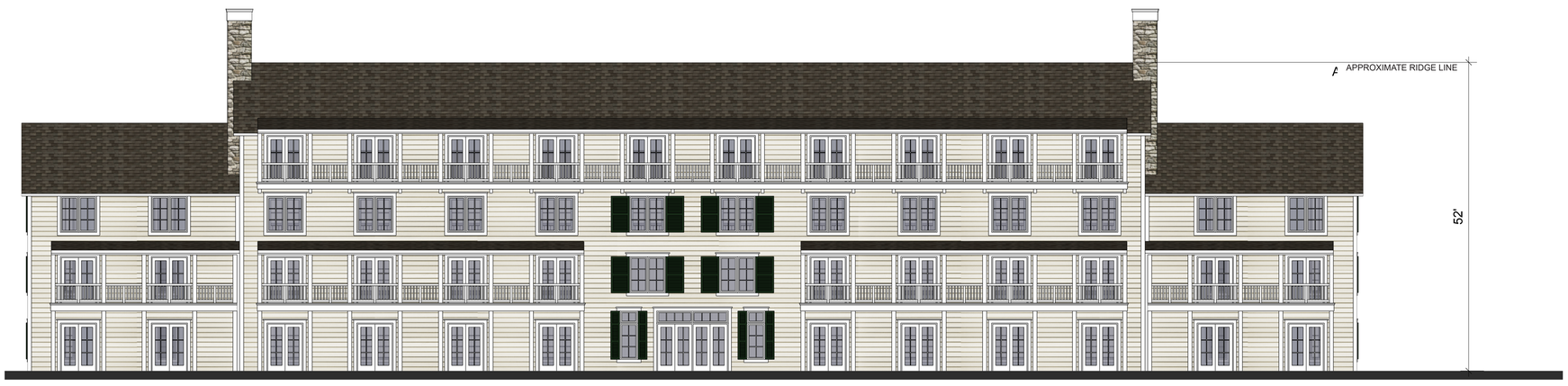
Level 1 Floor Plan



Levels 2, 3 Floor Plan

0′ 10′ 20′ 40′

Northeast Elevation



Southwest Elevation

0’ 5’ 10’ 20’

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The Paso Robles Gateway

VINE STREET VINEYARD
HOTEL - BUILDING #1
PLANS AND ELEVATIONS

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A 3

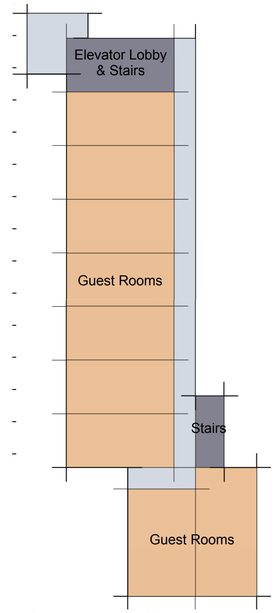
Northwest Elevation

Southeast Elevation

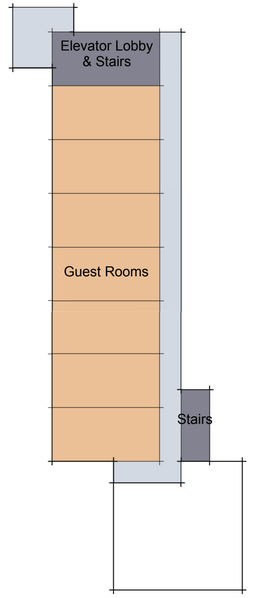
Southwest Elevation

Northeast Elevation

0' 5' 10' 20'



Levels 1, 2 Floor Plan



Level 3 Floor Plan

0' 10' 20' 40'

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The Paso Robles Gateway

VINE STREET VINEYARD
HOTEL - BUILDING #2
PLANS AND ELEVATIONS

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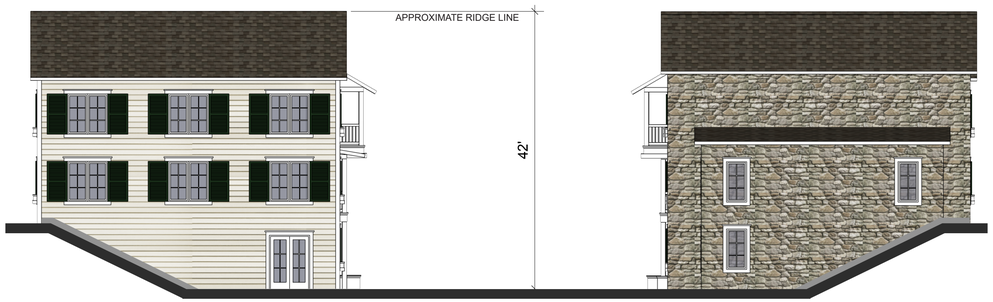
Southeast Elevation

Northwest Elevation



Southwest Elevation **Northeast Elevation**

0' 5' 10' 20'

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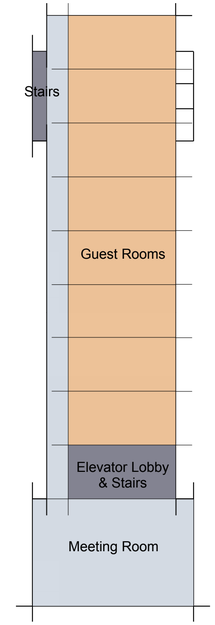
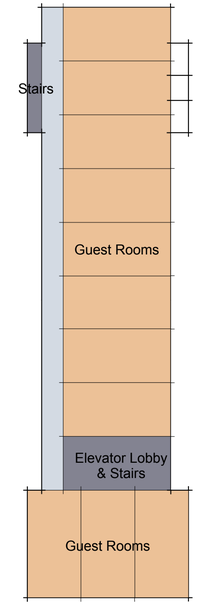
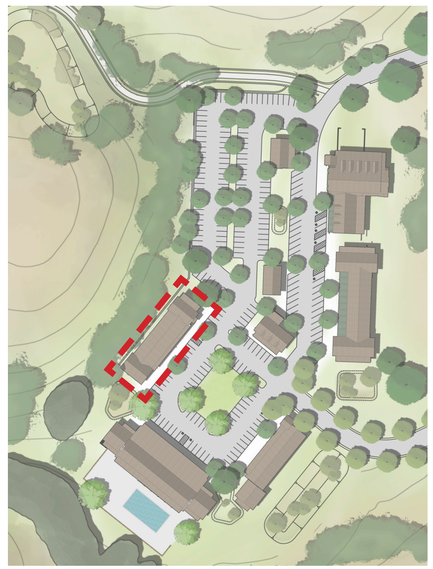


Level 1 Floor Plan

0' 10' 20' 40'



Levels 2, 3 Floor Plan



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The Paso Robles Gateway

VINE STREET VINEYARD
HOTEL - BUILDING #3
PLANS AND ELEVATIONS

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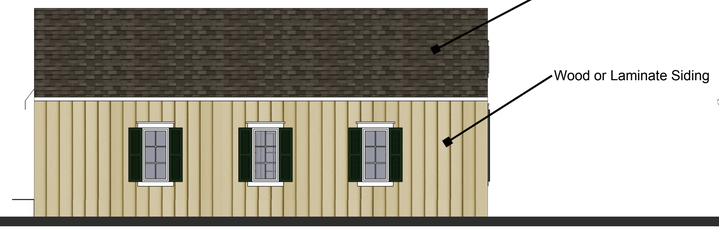
BUILDINGS #4 & #5

East Elevation



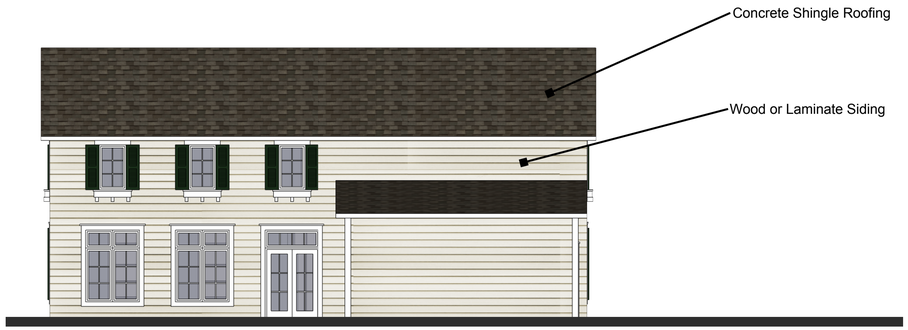
West Elevation

North Elevation

South Elevation

BUILDING #6

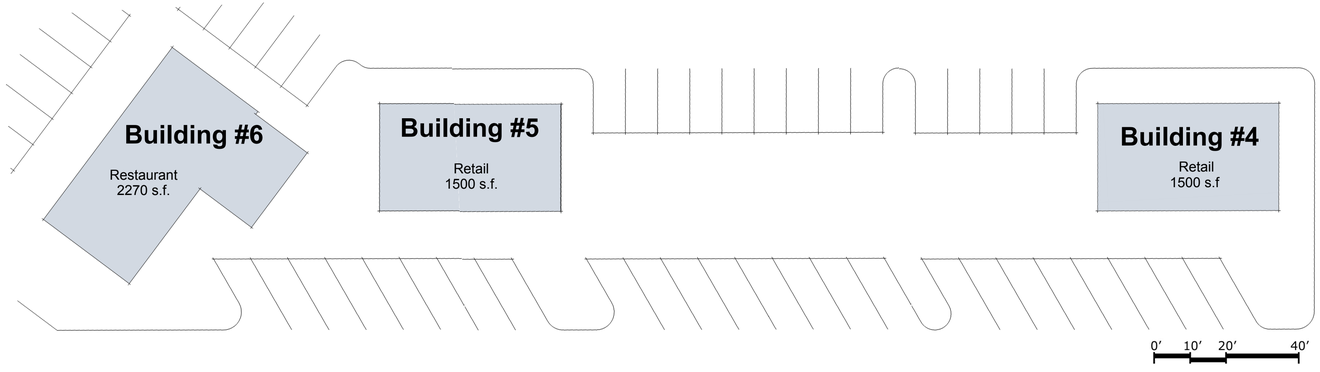
Southwest Elevation

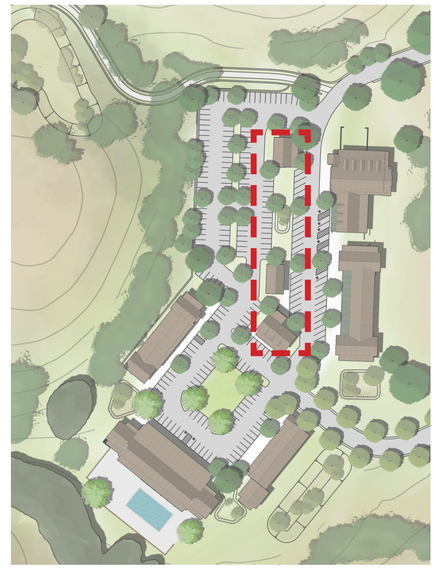


Northeast Elevation

Southeast Elevation

Northwest Elevation





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VILLAGE COMMERCIAL
CENTER - BUILDING #4 #5 #6
PLANS AND ELEVATIONS

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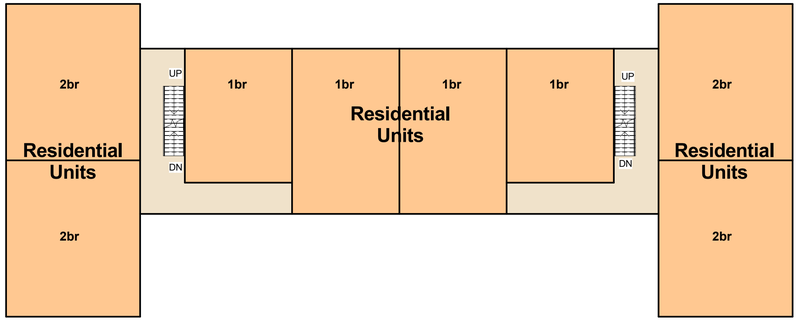
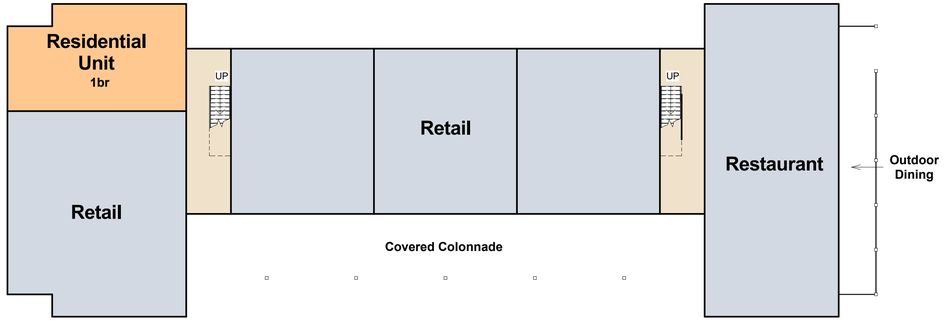
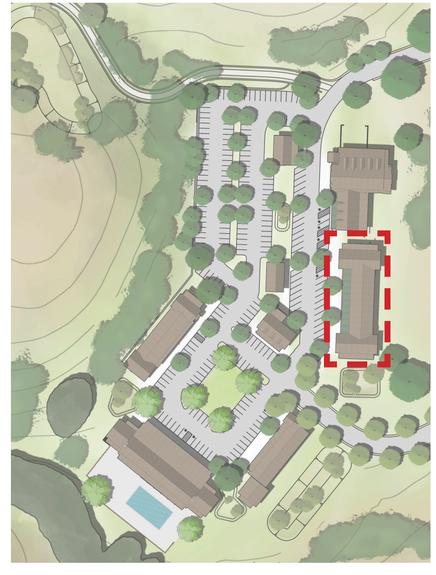
3 VINE STREET VILLIAGE - BUILDING #7
ELEVATIONS
1/16" = 1'-0"



2 VINE STREET VILLIAGE - BUILDING #7
LEVEL 2 (LEVEL 3 SIMILAR)
1/16" = 1'-0"



1 VINE STREET VILLIAGE - BUILDING #7
LEVEL 1
1/16" = 1'-0"



0' 8' 16' 32'

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VILLAGE COMMERCIAL CENTER - BUILDING #7
PLANS AND ELEVATIONS

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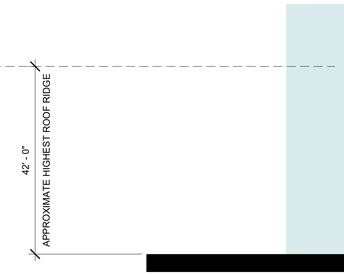

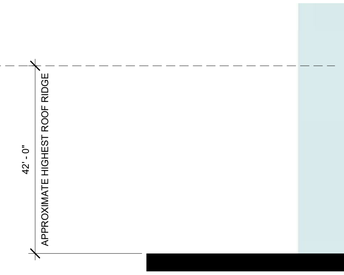

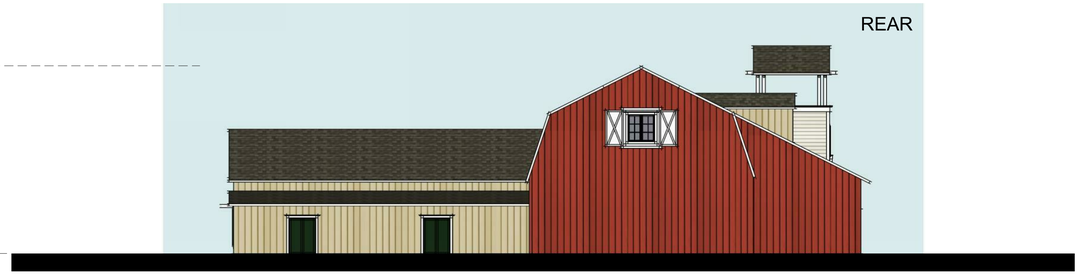

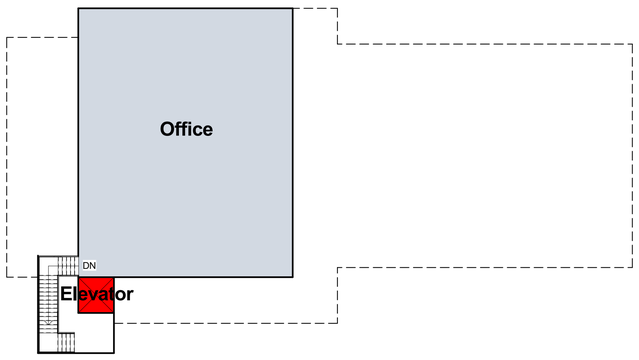

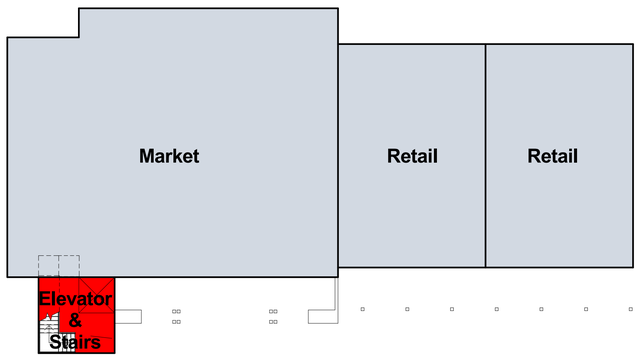

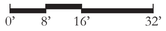

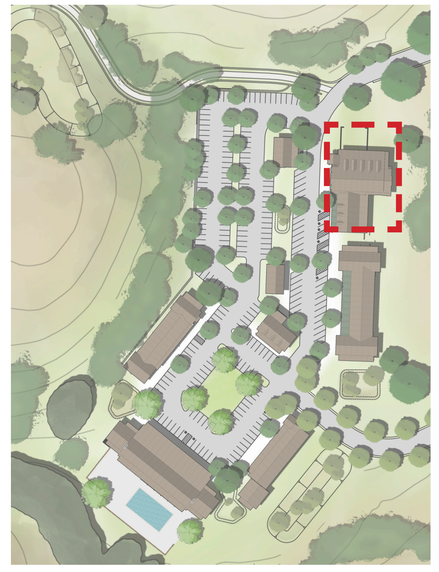

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The Paso Robles Gateway

VILLAGE COMMERCIAL CENTER - BUILDING #8 PLANS AND ELEVATIONS

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For illustrative purposes only. See civil plans for precise plan and building locations.

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STATISTICAL SUMMARY

BUILDING	AREA
Restaurant	5,000 sf
Meeting/Banquet Areas	20,000 sf
Spa	7,000 sf
Back of House/ Office Administration	20,000 sf
Guest Rooms and Suites	148,000 sf
Total	200,000 sf
225 Rooms	

PARKING
581 spaces

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MARCH 29, 2019

The Paso Robles Gateway

HILLSIDE HOTEL
SITE PLAN

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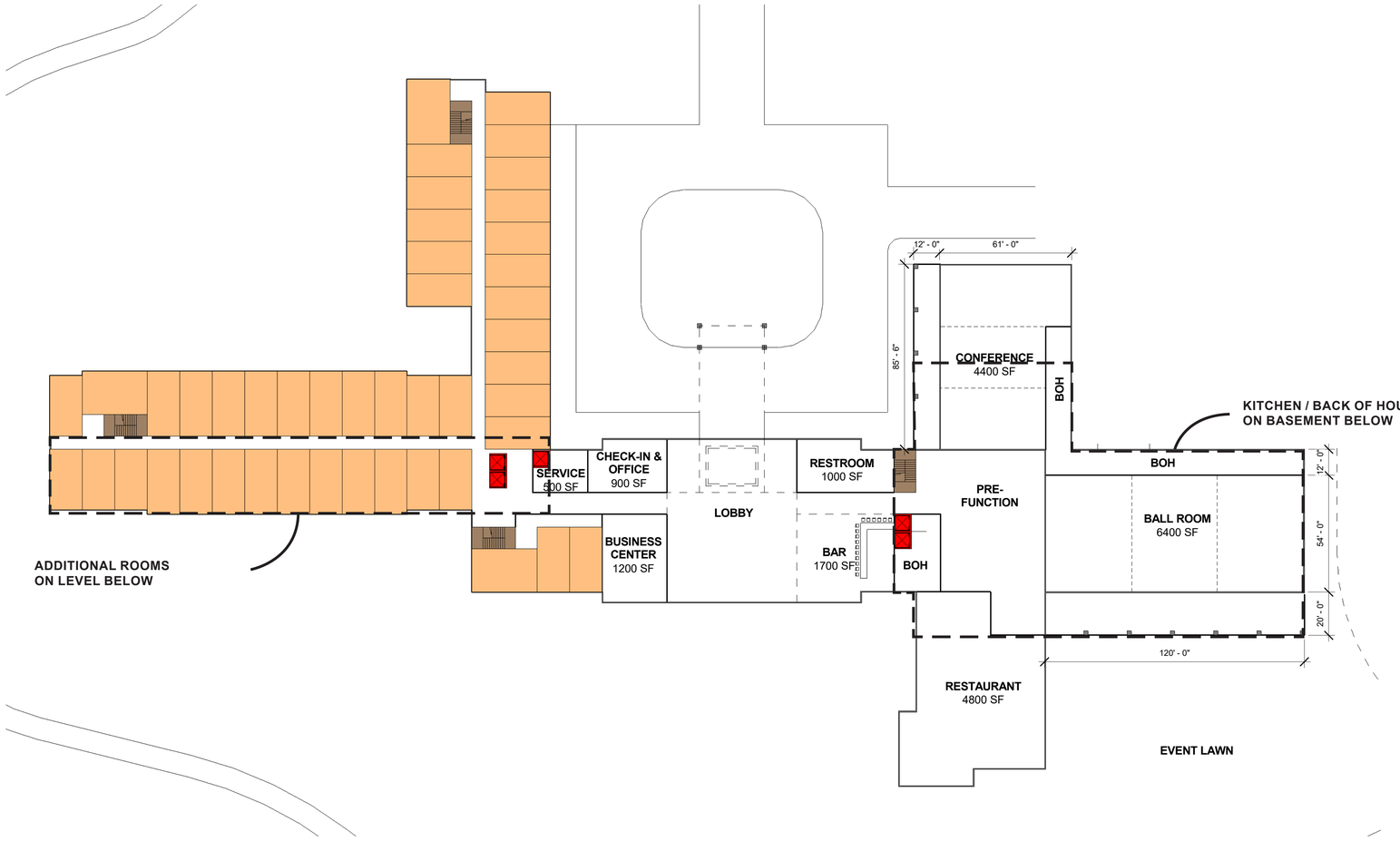
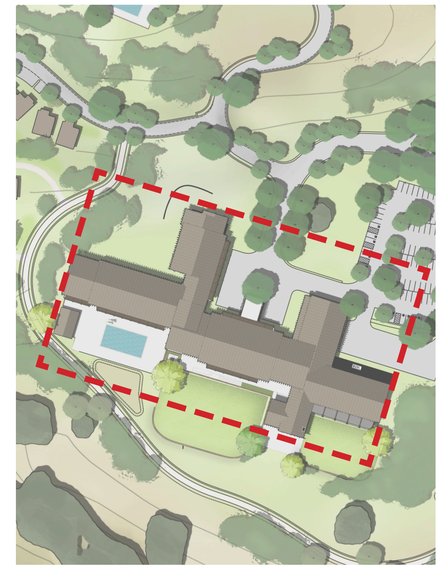
City of Paso Robles
Community Development Dept.





0' 16' 32' 64'

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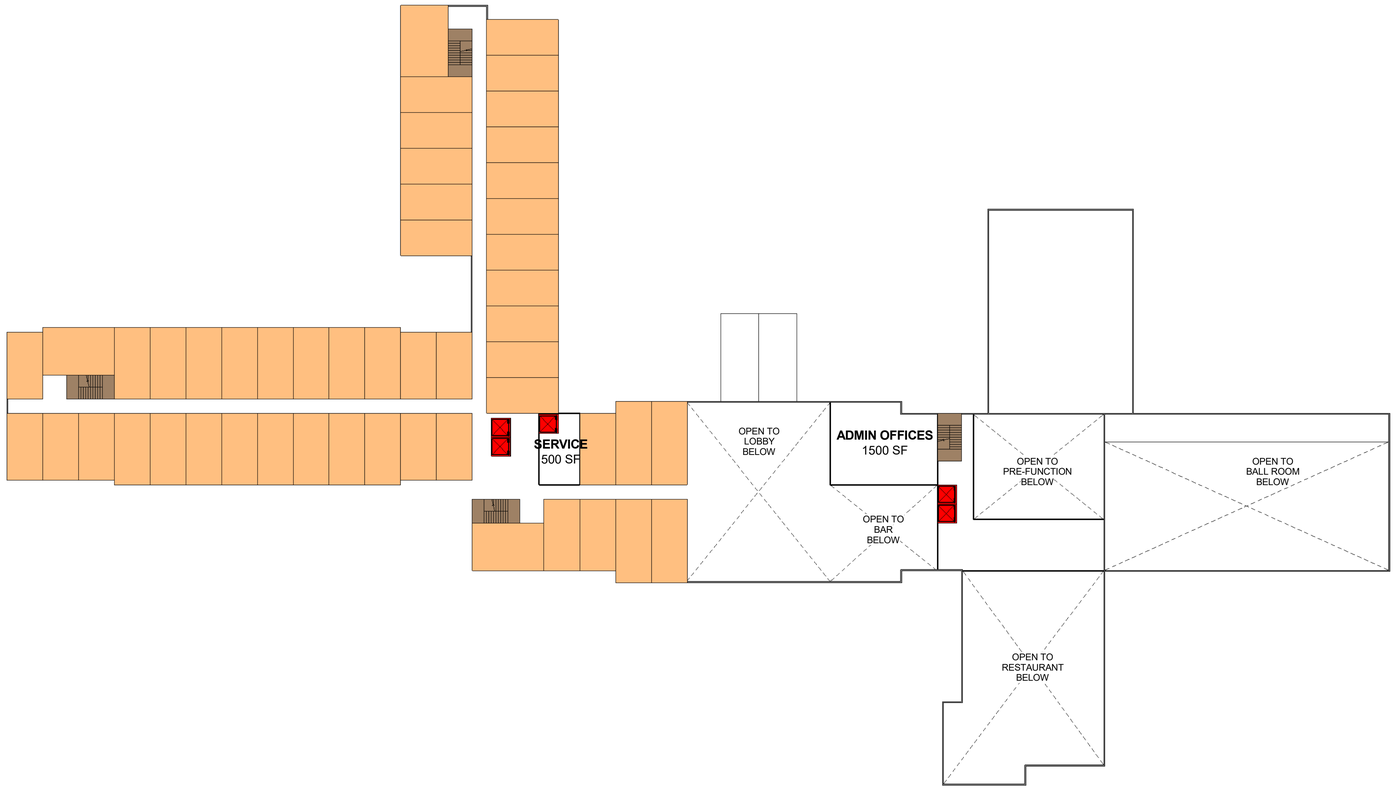
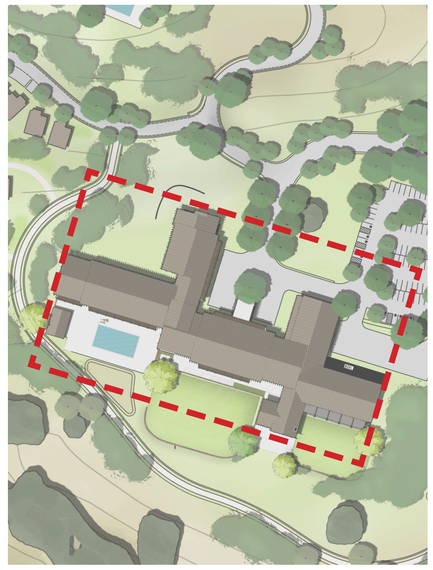
The Paso Robles Gateway

HILLSIDE HOTEL
BUILDING #1, #2, #3
GROUND FLOOR PLAN

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.





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The Paso Robles Gateway

HILLSIDE HOTEL
BUILDING #1, #2, #3
SECOND FLOOR PLAN

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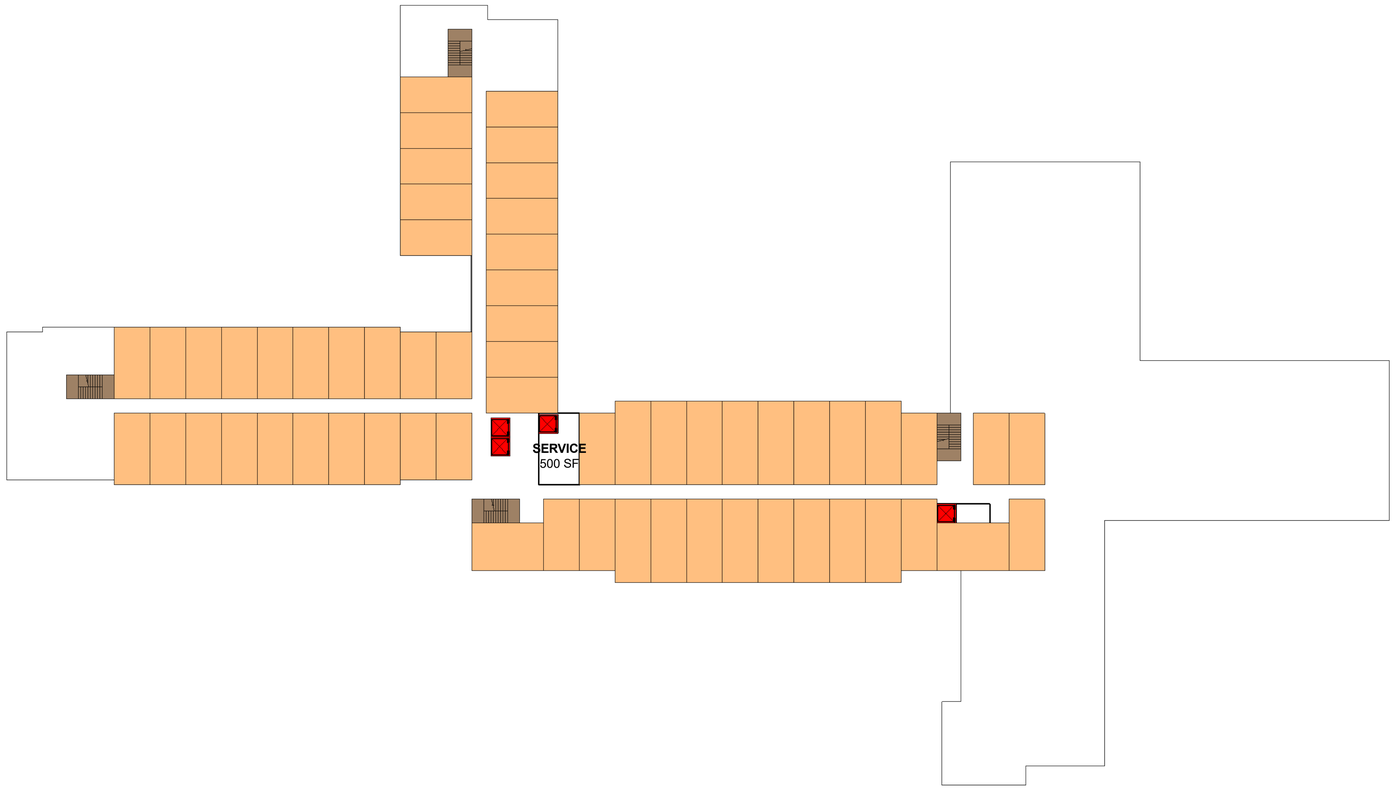
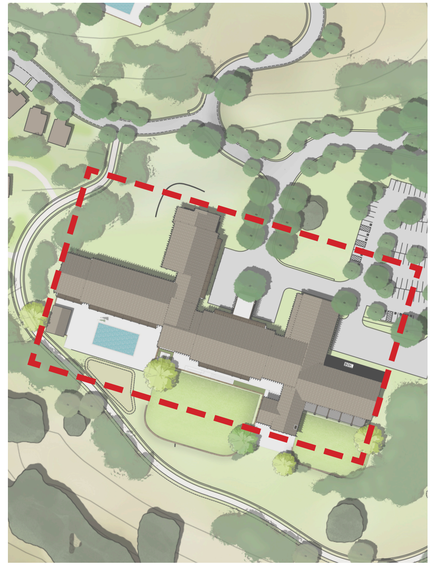
2/26/20
City of Paso Robles
Community Development Dept.





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The Paso Robles Gateway

HILLSIDE HOTEL
BUILDING #1 #2 #3
UPPER FLOOR PLAN
(TYPICAL)

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City of Paso Robles
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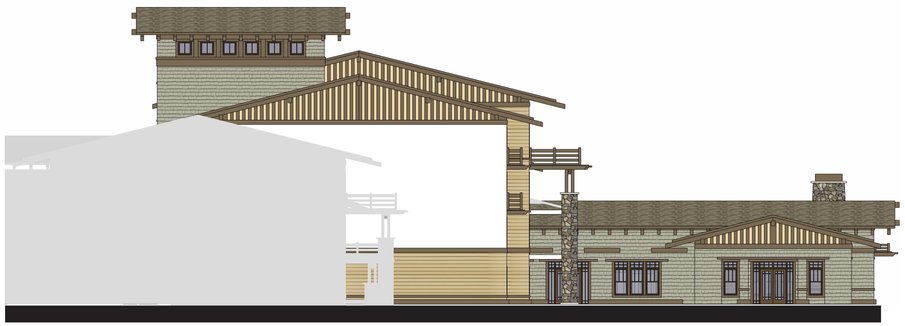
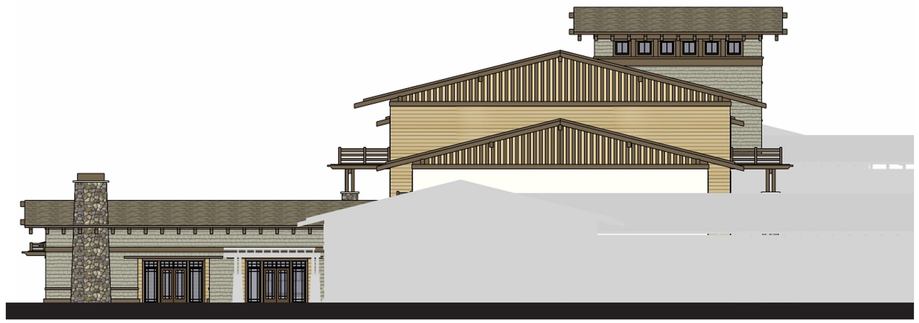


1 BUILDING #1
NORTHWEST ELEVATION
1/16" = 1'-0"



2 BUILDING #1
SOUTHEAST ELEVATION
1/16" = 1'-0"

3 BUILDING #1
NORTHEAST ELEVATION
1/16" = 1'-0"

4 BUILDING #1
SOUTHWEST ELEVATION
1/16" = 1'-0"

0' 8' 16' 32'

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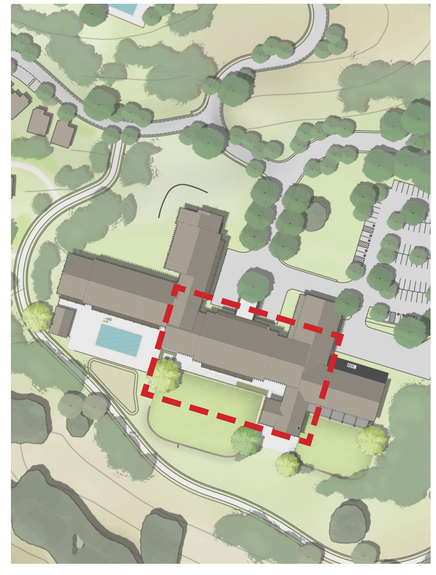

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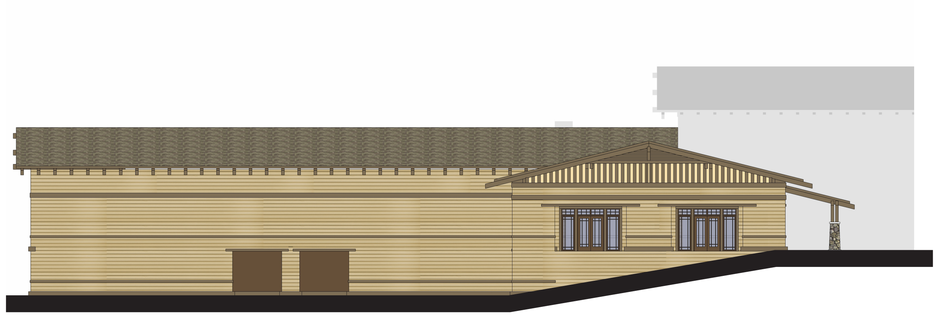
MARCH 29, 2019

The Paso Robles Gateway

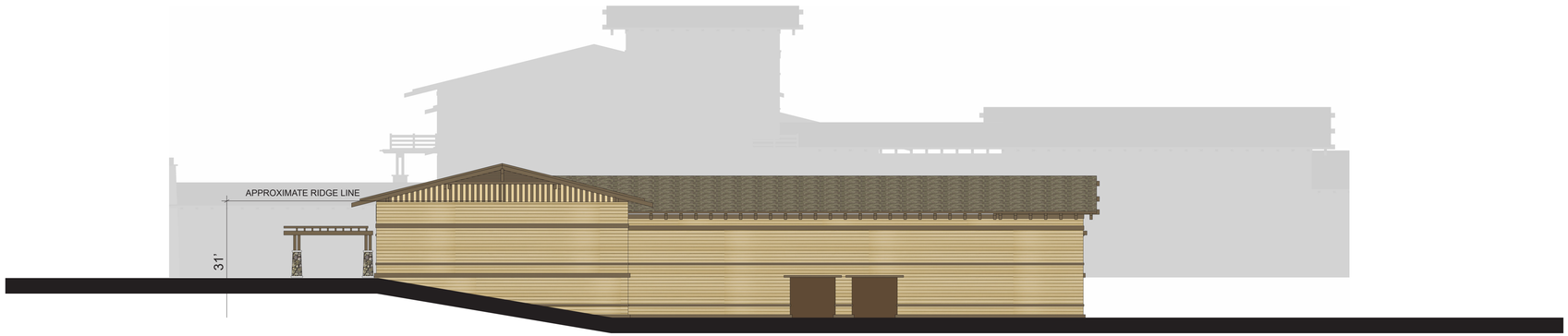
HILLSIDE HOTEL
BUILDING #1 - ELEVATIONS

Paso Gateway DEIR Appendix
3/26/20
City of Paso Robles
Community Development Dept.

1 BUILDING #2
NORTHWEST ELEVATION
1/16" = 1'-0"



2 BUILDING #2
NORTHEAST ELEVATION
1/16" = 1'-0"



3 BUILDING #2
SOUTHEAST ELEVATION
1/16" = 1'-0"

4 BUILDING #2
SOUTHWEST ELEVATION
1/16" = 1'-0"

0' 8' 16' 32'

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The Paso Robles Gateway

HILLSIDE HOTEL
BUILDING #2 - ELEVATIONS

Paso Gateway DEIR Appendix
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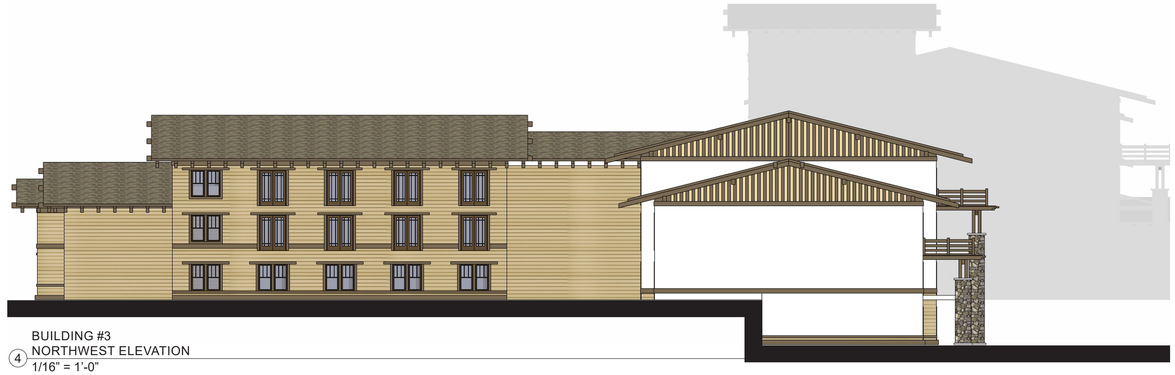
1 BUILDING #3
SOUTHEAST ELEVATION
1/16" = 1'-0"

2 BUILDING #3
SOUTHWEST ELEVATION
1/16" = 1'-0"

3 BUILDING #3
NORTHEAST ELEVATION
1/16" = 1'-0"



4 BUILDING #3
NORTHWEST ELEVATION
1/16" = 1'-0"

0' 8' 16' 32'

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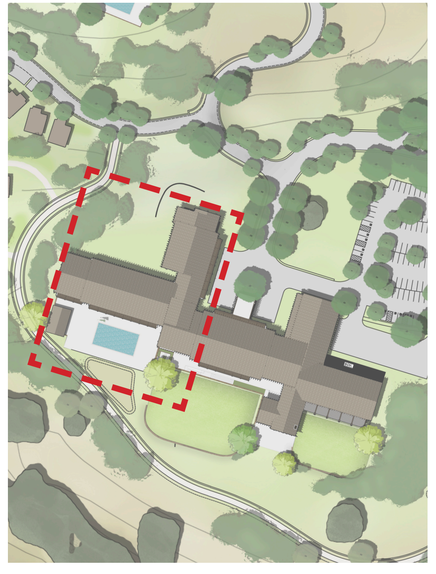

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Paso Robles Gateway

The Paso

HILLSIDE HOTEL
BUILDING #3 - ELEVATIONS

Paso Gateway DEIR Appendix
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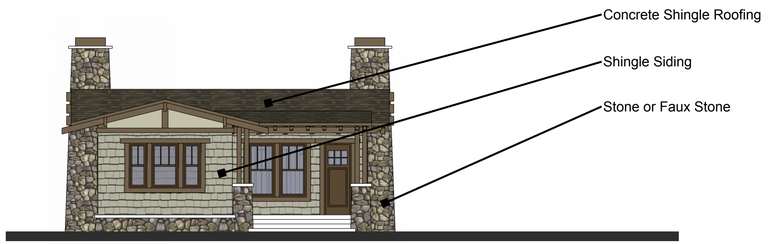
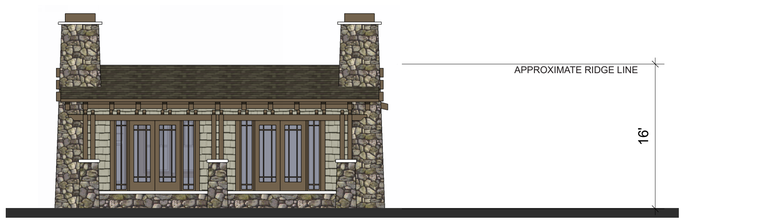
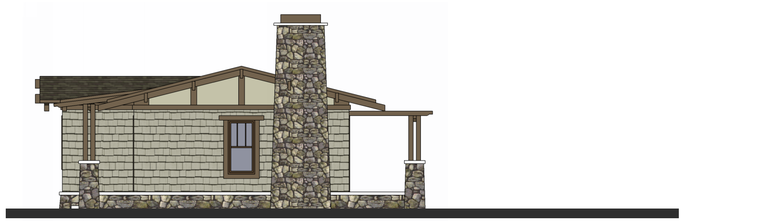


Front Elevation



Back Elevation

Left Elevation



Right Elevation

0' 4' 8' 16'

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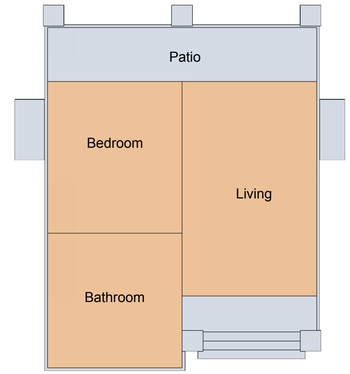

Floor Plan

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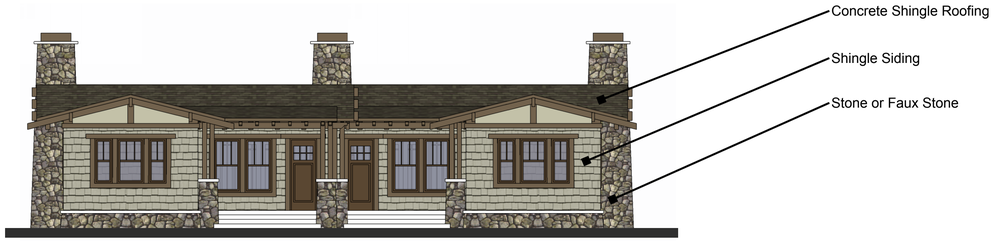
MARCH 29, 2019

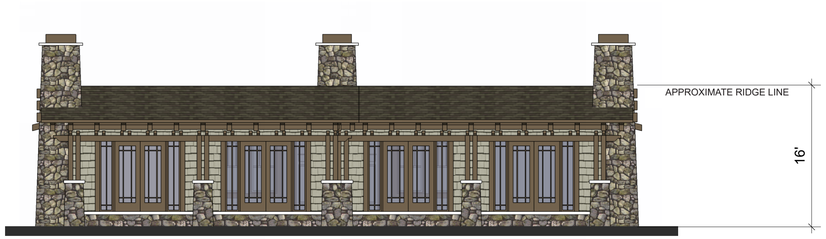
The Paso Robles Gateway

HILLSIDE HOTEL
BUNGALOW TYPE A
PLANS AND ELEVATIONS

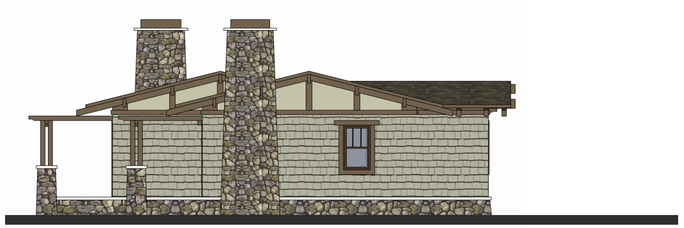
Paso Gateway DEIR Appendix
3/26/20
City of Paso Robles
Community Development Dept.



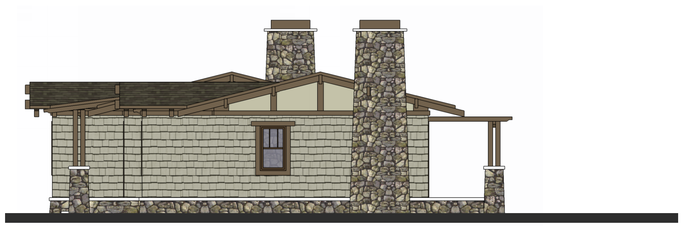
Front Elevation



Back Elevation



Left Elevation



Right Elevation

0' 4' 8' 16'

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Floor Plan

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MARCH 29, 2019

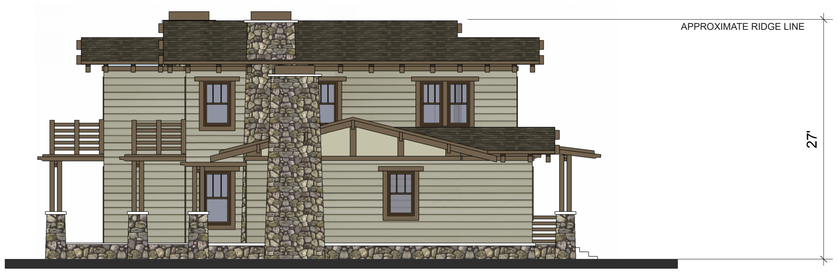
The Paso Robles Gateway

HILLSIDE HOTEL
BUNGALOW TYPE B
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
3/26/20
City of Paso Robles
Community Development Dept.

Front Elevation

Back Elevation



Left Elevation

Right Elevation

0' 4' 8' 16'

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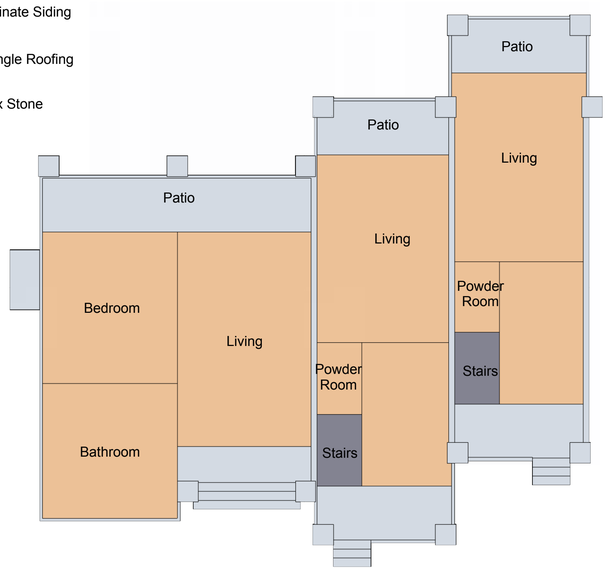


Level 1 Floor Plan

Level 2 Floor Plan

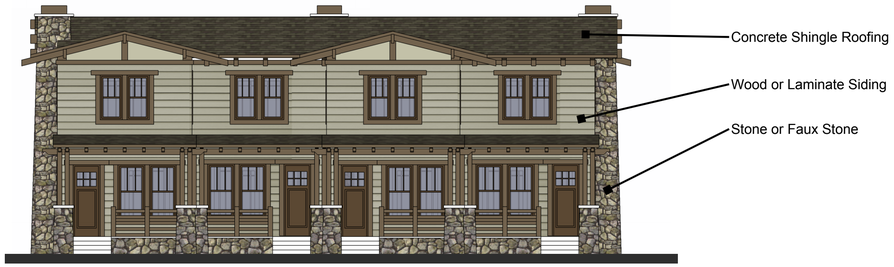
MVE + PARTNERS

MARCH 29, 2019

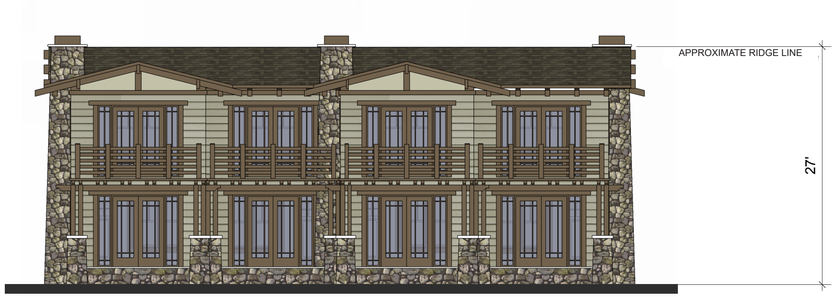
The Paso Robles Gateway

HILLSIDE HOTEL
BUNGALOW TYPE C
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
3/26/20
City of Paso Robles
Community Development Dept.



Front Elevation



Back Elevation

Left Elevation

Right Elevation

0' 4' 8' 16'

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Level 1 Floor Plan

Level 2 Floor Plan

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MARCH 29, 2019

The Paso Robles Gateway

HILLSIDE HOTEL
BUNGALOW TYPE D
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
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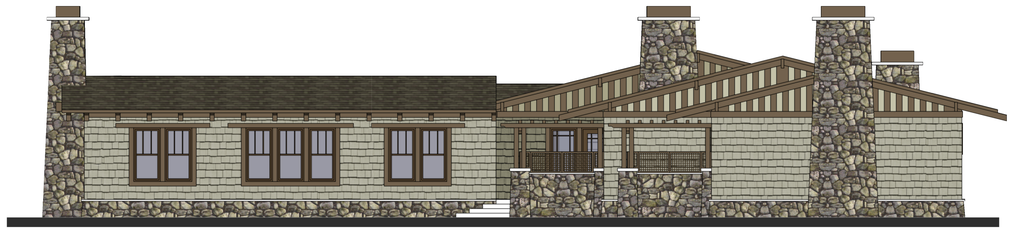
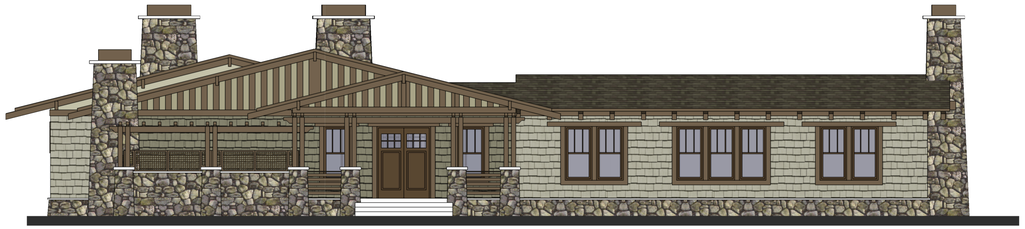
City of Paso Robles
Community Development Dept.

Southeast Elevation

Northwest Elevation



Southwest Elevation



Northeast Elevation

0' 4' 8' 16'

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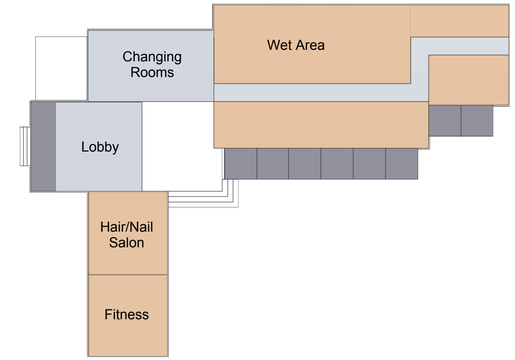

Floor Plan

0' 10' 20' 40'

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MARCH 29, 2019

The Paso Robles Gateway

HILLSIDE HOTEL
SPA
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
3/26/20
City of Paso Robles
Community Development Dept.

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The Paso Robles Gateway

HILLSIDE HOTEL
PERSPECTIVE VIEW #1

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

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The Paso Robles Gateway

HILLSIDE HOTEL
PERSPECTIVE VIEW #2

Paso Gateway DEIR Appendix
x/28/20
City of Paso Robles
Community Development Dept.

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The Paso Robles Gateway

HILLSIDE HOTEL
PERSPECTIVE VIEW #3

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
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The Paso Robles Gateway

HILLSIDE HOTEL
PERSPECTIVE VIEW #4

Paso Gateway DEIR Appendix
3/28/20
City of Paso Robles
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For illustrative purposes only. See civil plans for precise plan and building locations.

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STATISTICAL SUMMARY

BUILDING	AREA
Building #1 (3-Story) Office	24,000 sf

PARKING
73 spaces

MVE + PARTNERS
MARCH 29, 2019

The Paso Robles Gateway

PROMONTORY CENTER
SITE PLAN

Paso Gateway DEIR Appendix
3/26/20
City of Paso Robles
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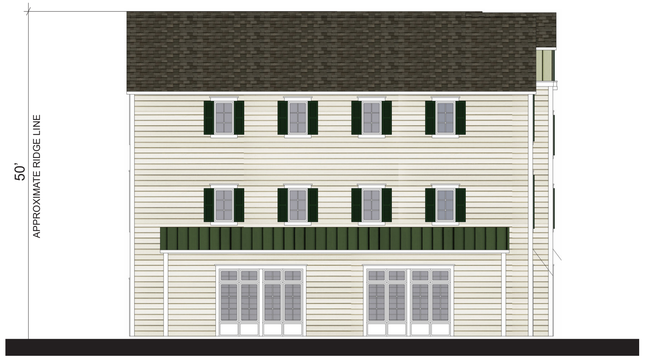
1 BUILDING #1
NORTH ELEVATION
3/32" = 1'-0"

1 BUILDING #1
SOUTH ELEVATION
3/32" = 1'-0"

1 BUILDING #1
EAST ELEVATION
3/32" = 1'-0"

0' 5' 10' 20'



1 BUILDING #1
WEST ELEVATION
3/32" = 1'-0"

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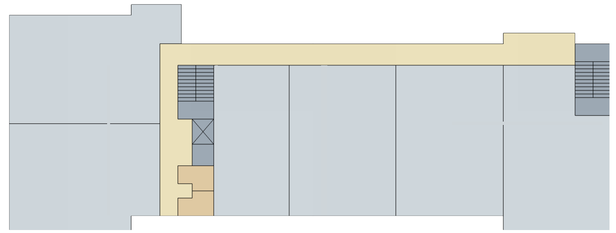
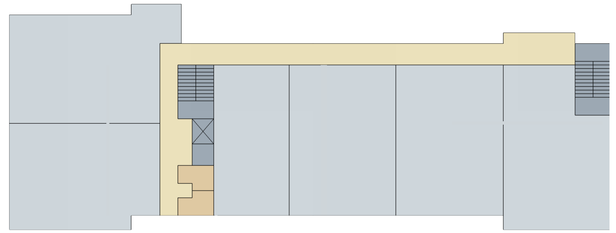
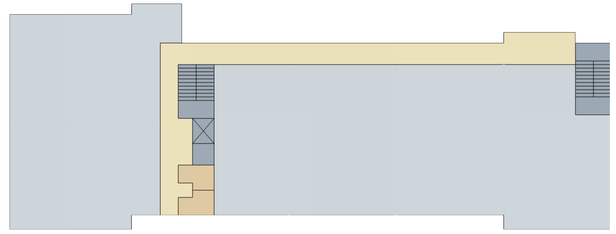


1 BUILDING #1
FIRST FLOOR PLAN
1/20" = 1'-0"



1 BUILDING #1
SECOND FLOOR PLAN
1/20" = 1'-0"



1 BUILDING #1
THIRD FLOOR PLAN
1/20" = 1'-0"

0' 10' 20' 40'

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MARCH 29, 2019

The Paso Robles Gateway

PROMONTORY CENTER
BUILDING #1
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
3/28/20
City of Paso Robles
Community Development Dept.

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STATISTICAL SUMMARY

BUILDING	# OF BLDGS	AREA	TOTAL AREA
Bungalow Type "A"	8	840 sf	6,720 sf
Bungalow Type "B"	9	1,680 sf	15,120 sf
Bungalow Type "C"	7	3,000 sf	21,000 sf
Bungalow Type "D"	3	4,300 sf	12,900 sf
Main Lodge	1	57,000 sf	57,000 sf
Includes 4,000 sf Restaurant #1			
Includes 1,300 sf Conference Room "A"			
Includes 2,500 sf Ballroom			
Restaurant #2	1	1,300 sf	1,300 sf
Spa	1	6,000 sf	6,000 sf
Conference Room "B"	1	1,000 sf	1,000 sf

TOTAL SITE

Hotel Rooms	41
Bungalow Rooms	59

PARKING

186 spaces

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MARCH 29, 2019

The Paso Robles Gateway

HIGHWAY 46 RESORT
SITE PLAN

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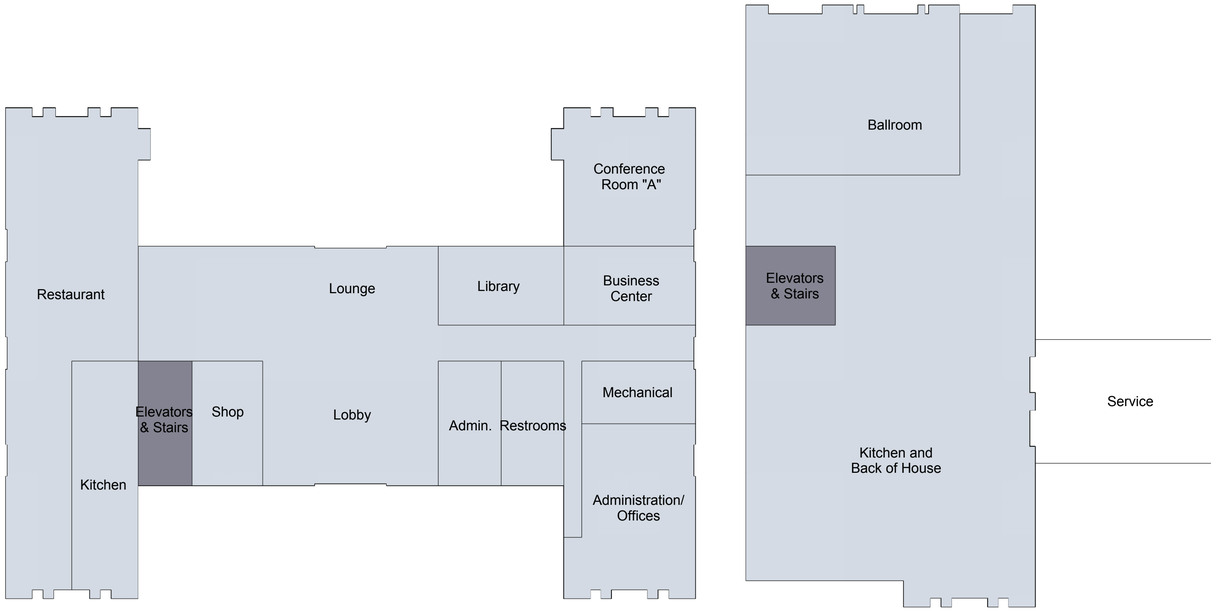
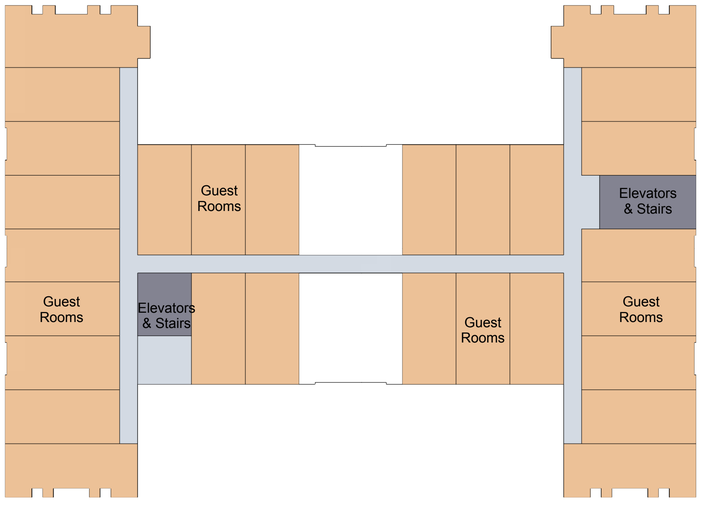
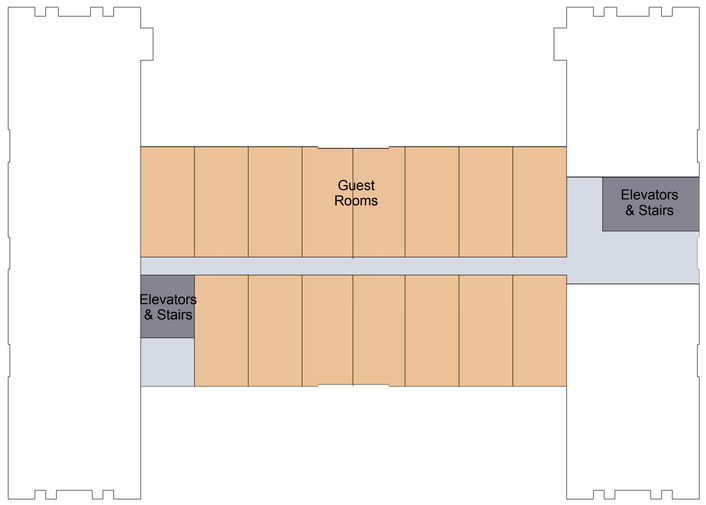
2/28/20
City of Paso Robles
Community Development Dept.



Level 1 Floor Plan



Level 2 Floor Plan



Level 3 Floor Plan

0’ 20’ 40’ 80’

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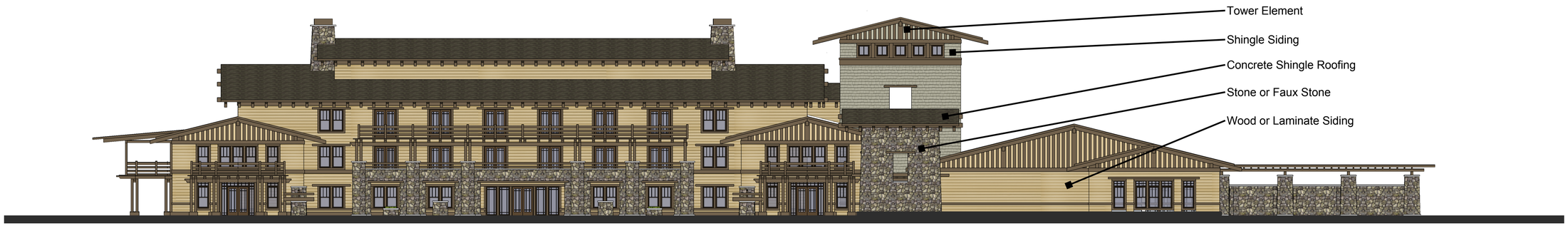
MARCH 29, 2019

The Paso Robles Gateway

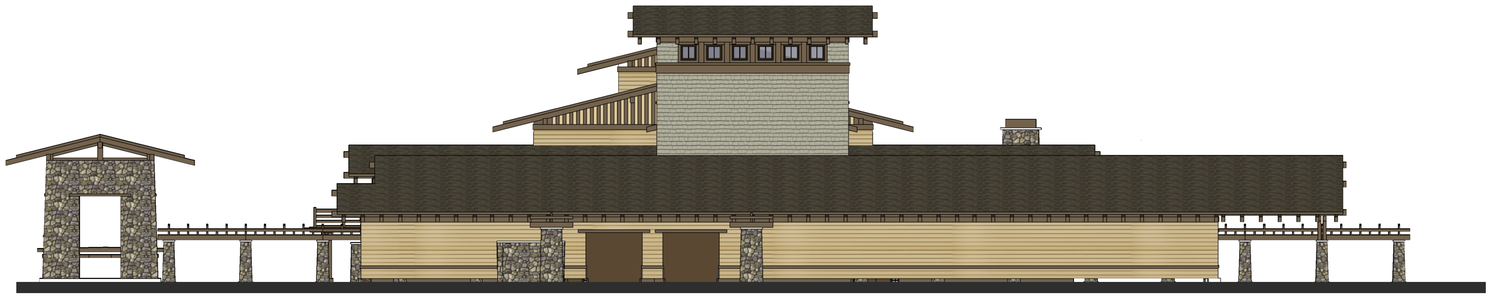
HIGHWAY 46 RESORT
MAIN LODGE - FLOOR PLANS

Paso Gateway DEIR Appendix
4/28/20
City of Paso Robles
Community Development Dept.



Southeast Elevation

Northwest Elevation



Northeast Elevation

Southwest Elevation

0' 8' 16' 32'

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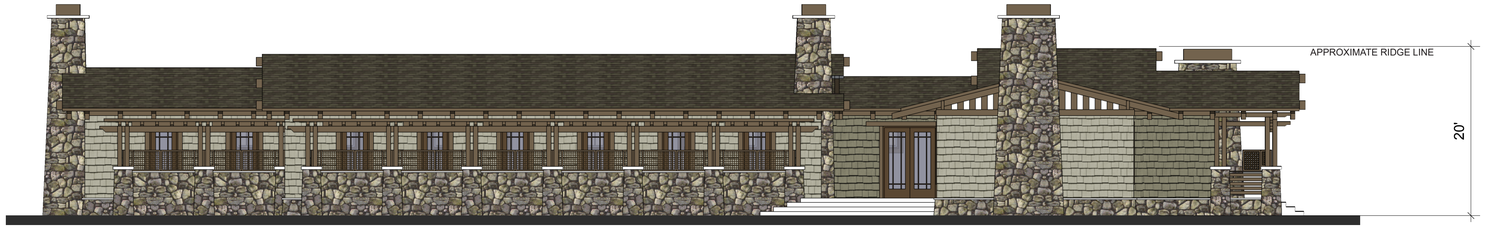
The Paso Robles Gateway

HIGHWAY 46 RESORT
MAIN LODGE - ELEVATIONS

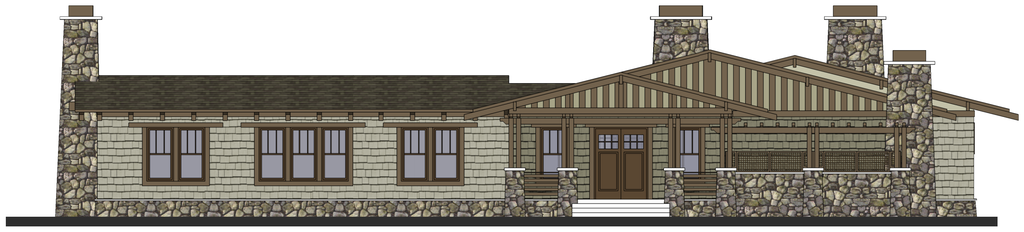
Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.



Southeast Elevation

Northwest Elevation

Southwest Elevation



Northeast Elevation

0' 4' 8' 16'

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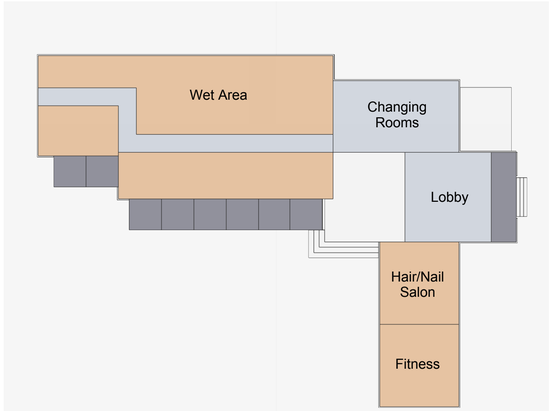


Floor Plan

0' 10' 20' 40'

MVE + PARTNERS

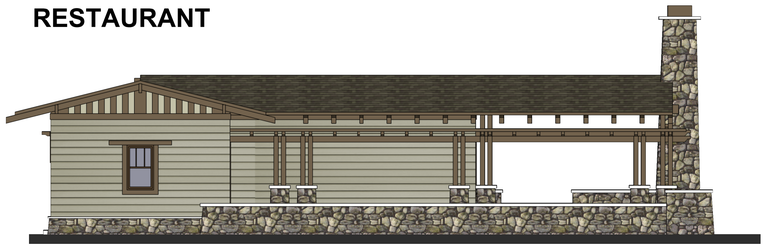
MARCH 29, 2019

The Paso Robles Gateway

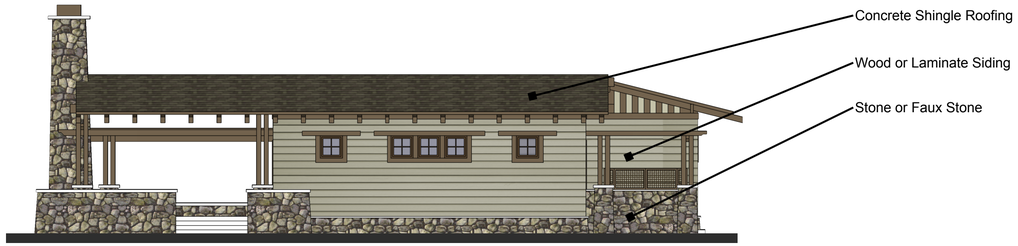
HIGHWAY 46 RESORT
SPA
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
3/28/20
City of Paso Robles
Community Development Dept.

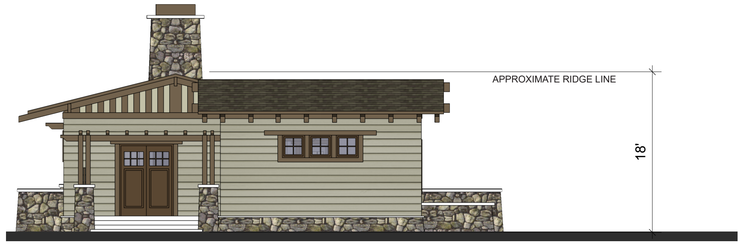
RESTAURANT



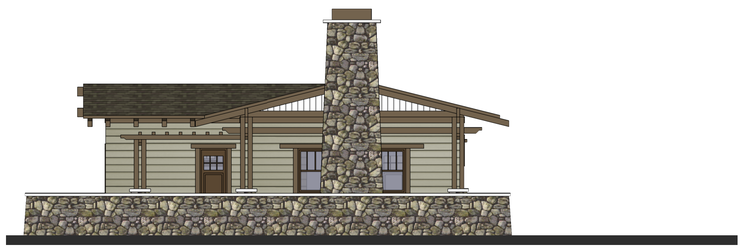
Southeast Elevation



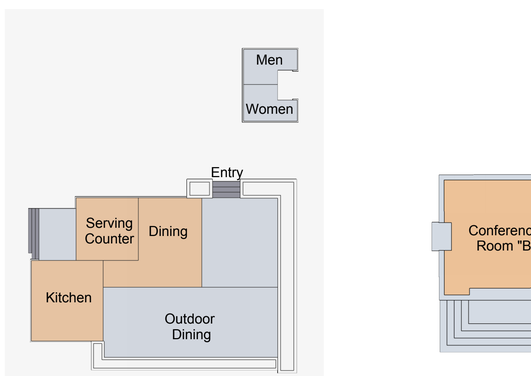
Northwest Elevation



Southwest Elevation

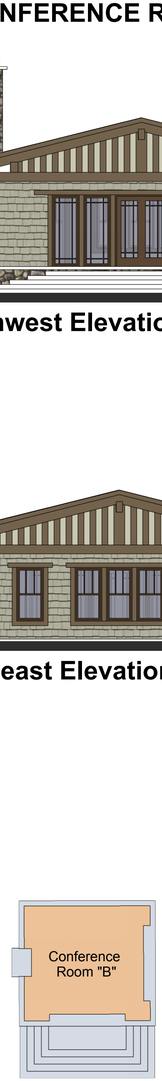


Northeast Elevation

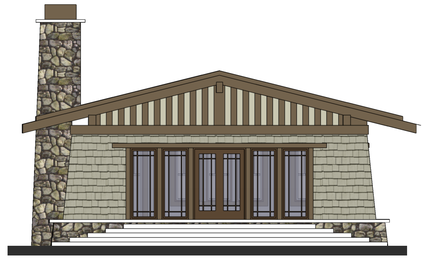


Floor Plan

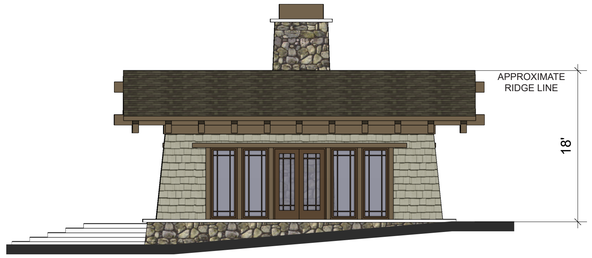
0' 10' 20' 40'



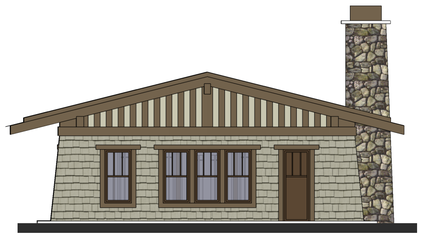
CONFERENCE ROOM "B"



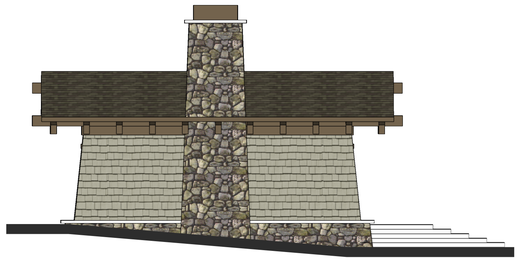
Southwest Elevation



Southeast Elevation



Northeast Elevation



Southwest Elevation

Southeast Elevation Northwest Elevation Southwest Elevation Northeast Elevation

0' 4' 8' 16'

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MVE + PARTNERS

MARCH 29, 2019

The Paso Robles Gateway

HIGHWAY 46 RESORT
RESTAURANTS &
CONFERENCE ROOM
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
3/26/20
City of Paso Robles
Community Development Dept.

For illustrative purposes only. See civil plans for precise plan and building locations.

STATISTICAL SUMMARY

TOTAL SITE

Residential Units	80 du
Units Sizes	1,600-2,300 sf

PARKING

160 garage spaces
140 driveway spaces
48 on-street spaces

348 total spaces

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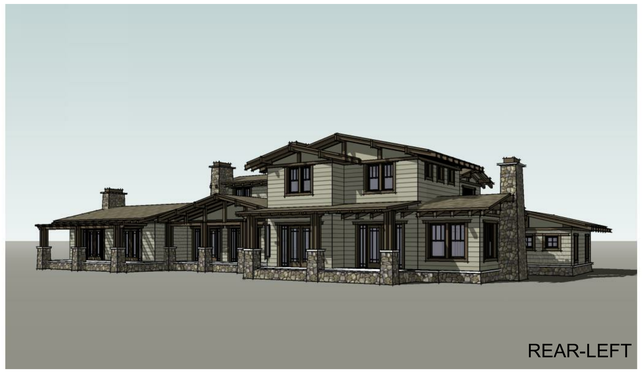
MVE + PARTNERS
MARCH 29, 2019

The Paso Robles Gateway

MULTI-FAMILY
SITE PLAN

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.



TOWNHOME TRIPLEX ELEVATIONS

0’ 8’ 16’ 32’

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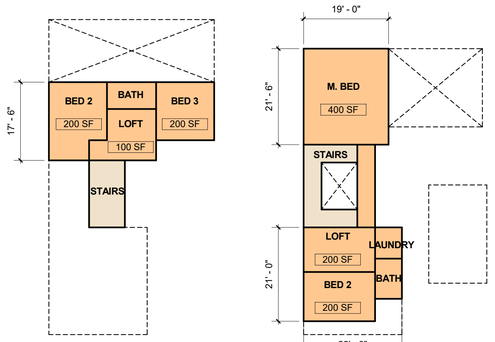
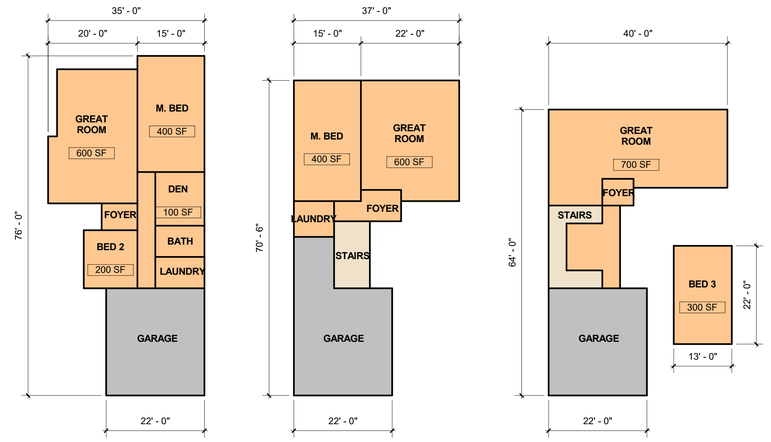


PLAN 2 **PLAN 3**

LEVEL 2 1/16" = 1'-0"



PLAN 1 **PLAN 2** **PLAN 3**

LEVEL 1 1/16" = 1'-0"

MVE + PARTNERS

MARCH 29, 2019

The Paso Robles Gateway

MULTIFAMILY- TOWNHOUSE
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
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STATISTICAL SUMMARY

BUILDING
Building #1 (2-Story)

AREA
22,000 sf

PARKING
66 spaces

MVE + PARTNERS
MARCH 29, 2019

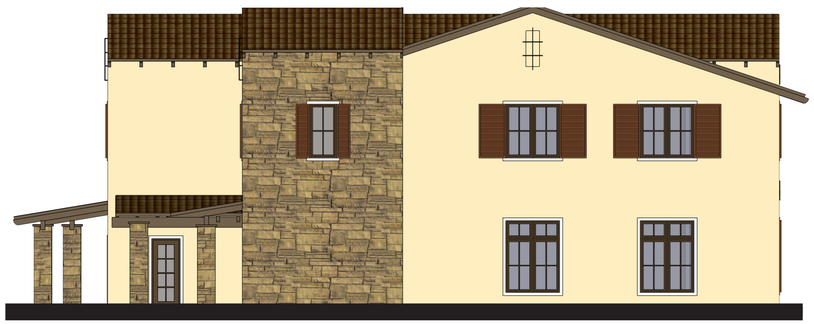
The Paso Robles Gateway

VINE STREET COMMERCIAL
SITE PLAN

Paso Gateway DEIR Appendix
3/28/20
City of Paso Robles
Community Development Dept.

1 BUILDING #1
NORTH ELEVATION
1/16" = 1'-0"

1 BUILDING #1
SOUTH ELEVATION
1/8" = 1'-0"



1 BUILDING #1
WEST ELEVATION
1/8" = 1'-0"

1 BUILDING #1
EAST ELEVATION
1/8" = 1'-0"

0' 4' 8' 16'

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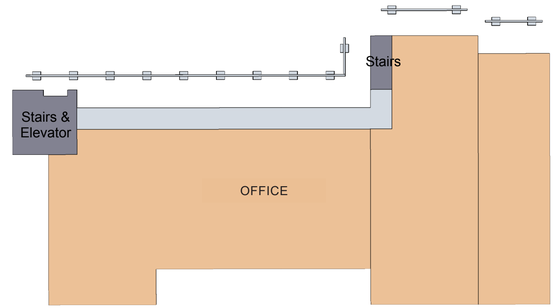
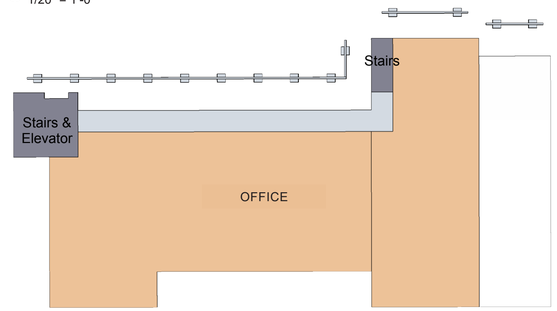


1 BUILDING #1
FIRST FLOOR PLAN
1/20" = 1'-0"



1 BUILDING #1
SECOND FLOOR PLAN
1/20" = 1'-0"

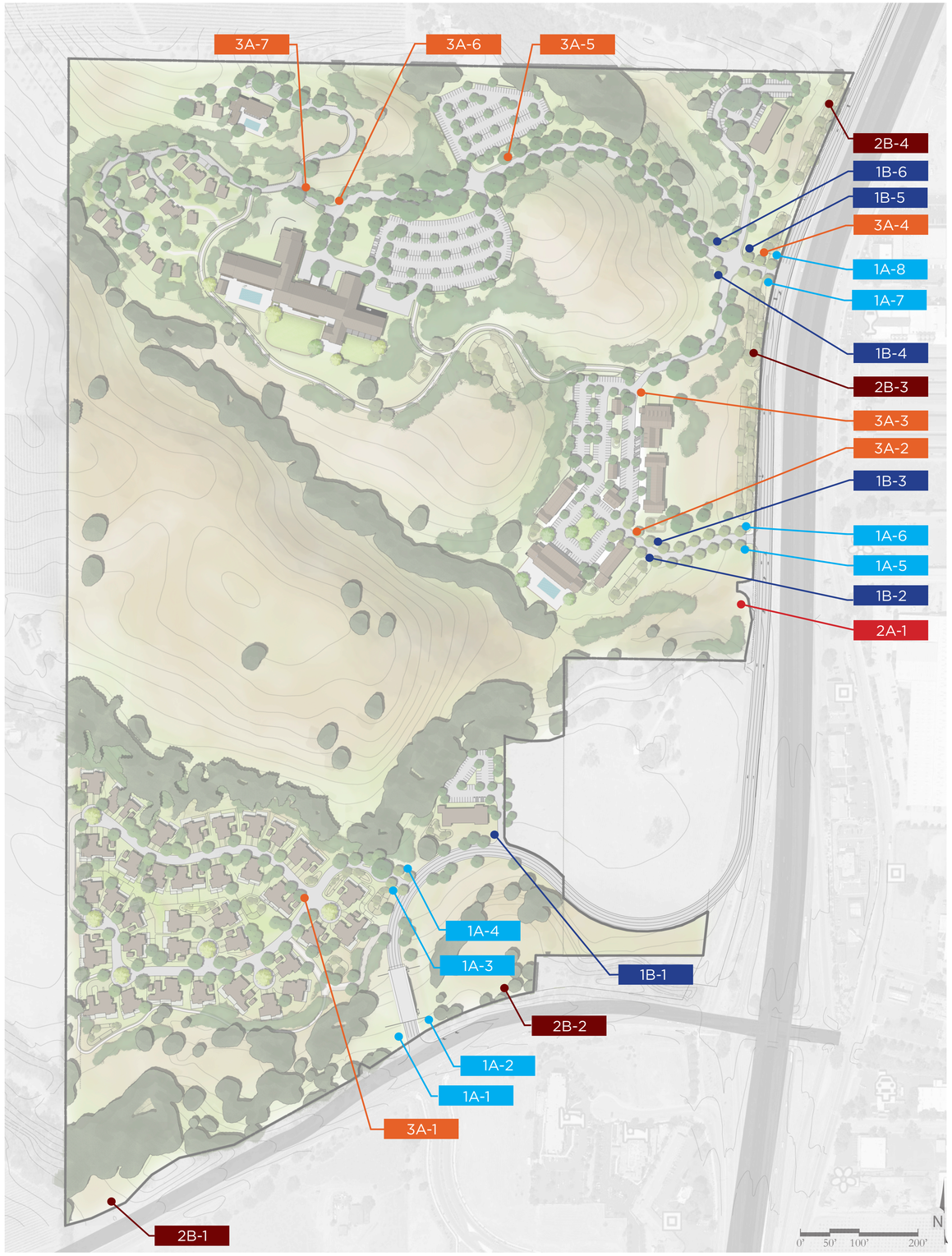
0' 10' 20' 40'

MVE + PARTNERS
MARCH 29, 2019

The Paso Robles Gateway

VINE STREET COMMERCIAL
BUILDING #1
PLANS AND ELEVATIONS

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.



Type	Sign Type	Quantity	Foundation (mount to)	Approximate Size *
1A	Monument: Entrance Project ID Primary	8	Freestanding	Approximately 24'-0" wide x 4'-6" high. Depth of sign dependent on chosen electrical/illumination
1B	Monument: Entrance Project ID Secondary	6	Freestanding	Approximately 7'-4" wide x 6'-8" high. Depth of sign dependent on chosen electrical/illumination
2A	Marquee: Project ID & Grouped Tenant Signage Primary (highway visible)	1	Freestanding	Approximately 19'-0" (base) wide x 30'-0" high. Depth of sign is dependent on chosen electrical/illumination
2B	Marquee: Project ID & Grouped Tenant Signage Secondary	4	Freestanding	Approximately 11'-6" (base) wide x 18'-6" high. Depth of sign dependent on chosen electrical/illumination
3A	Directional: Vehicular Project Wayfinding	7	Freestanding	Approximately 3’-6” (base) wide x 4’-6” high. Depth of sign dependent on chosen electrical/illumination

Sizing of signs predicted by street location, number of lanes, and speed limit.

Sign type, quantity, and sizing are estimations and intended for preliminary character design only.

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MVE + PARTNERS

MARCH 29, 2019

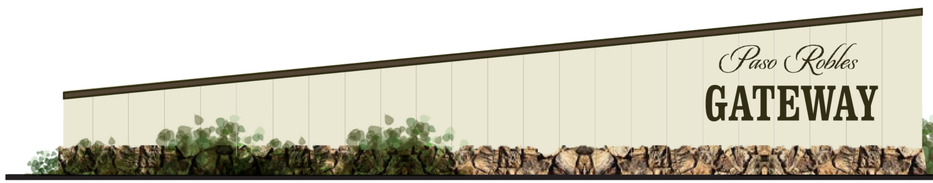
The Paso Robles Gateway

OVERALL SIGN PLAN

Paso Gateway DEIR, Appendix
3/28/20
City of Paso Robles
Community Development Dept.

2B

Marquee:Project ID &
Grouped Tenant: Signage Secondary



1A

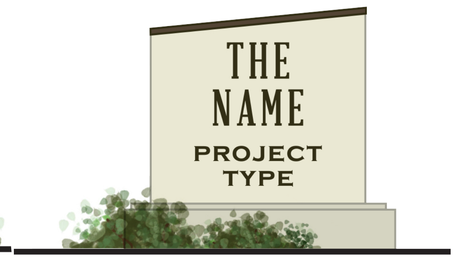
Monument: Entrance Project ID: Primary

2A

Marquee: Project ID&
Grouped Tenant Signage: Primary

3A

Directional: Vehicular
Project Wayfinding



1B

Monument: Entrance
Project ID:Secondary

0’ 1’ 2’ 4’

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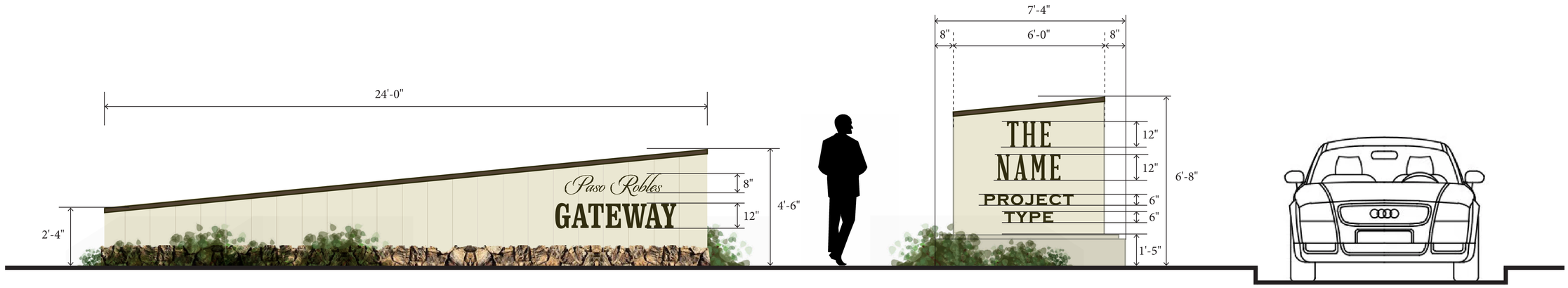
MVE + PARTNERS
MARCH 29, 2019

The Paso Robles Gateway

OVERALL SIGN FAMILY

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

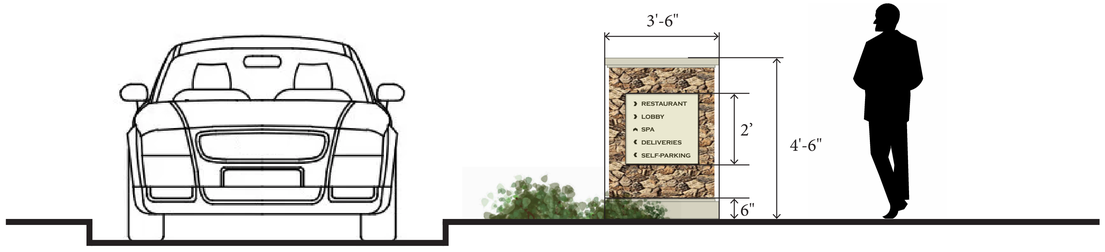


1A

Monument: Entrance Project ID: Primary

1B

Monument: Entrance
Project ID:Secondary



3A

Directional: Vehicular
Project Wayfinding

0' 1' 2' 4'

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MVE + PARTNERS
MARCH 29, 2019

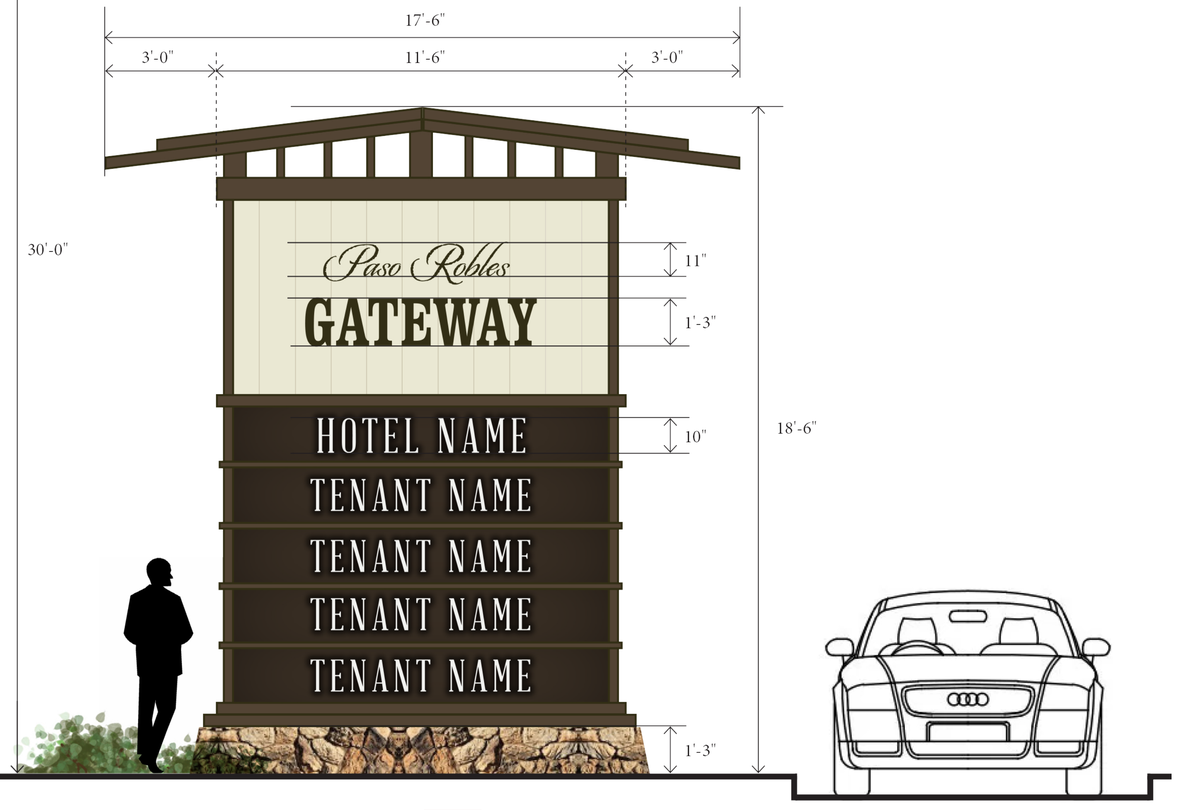
The Paso Robles Gateway

PROJECT ID: MONUMENT

Paso Gateway DEIR Appendix
4/28/20
City of Paso Robles
Community Development Dept.

2A

Marquee: Project ID&
Grouped Tenant Signage: Primary



2B

Marquee:Project ID &
Grouped Tenant: Signage Secondary

0' 1' 2' 4'

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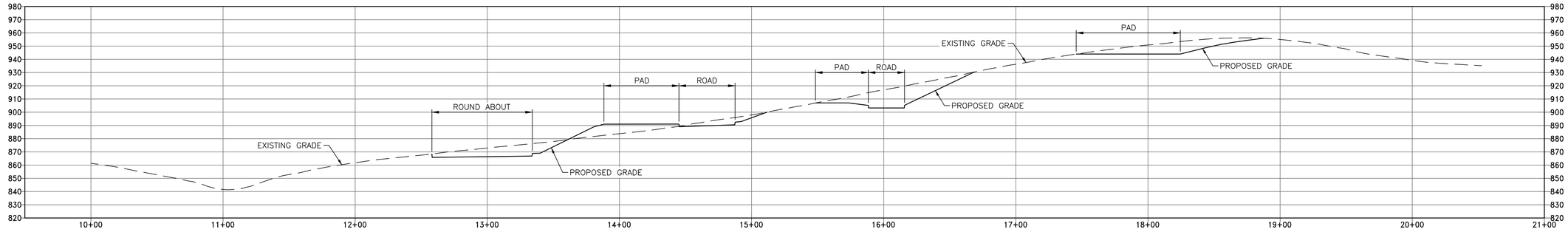
MVE + PARTNERS

MARCH 29, 2019

The Paso Robles Gateway

PROJECT ID:
GROUPED TENANT

Paso Gateway DEIR Appendix
4/28/20
City of Paso Robles
Community Development Dept.



SITE SECTION 'A'

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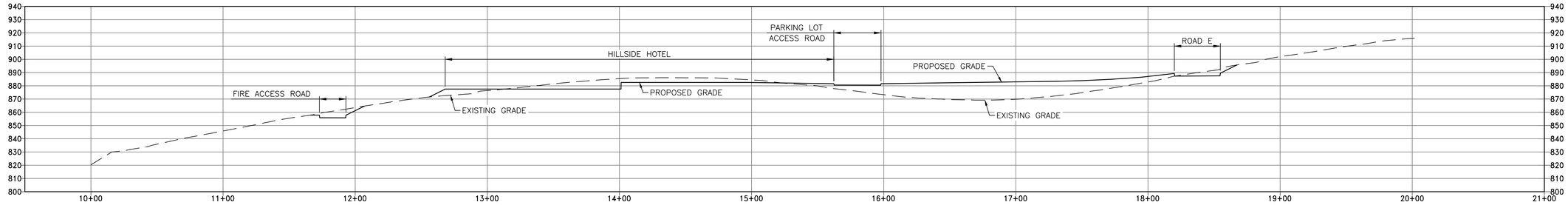

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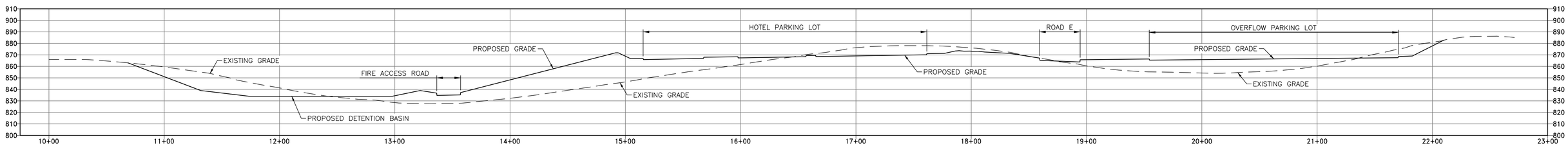

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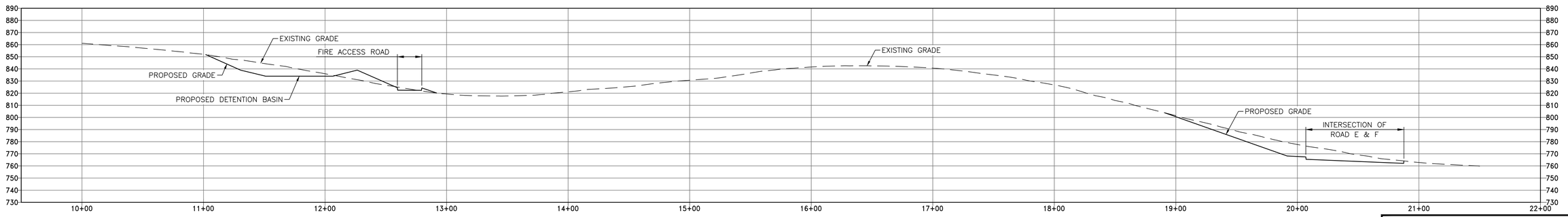


SITE SECTION 'D'

SCALE: 1"=40'

NO.	DATE	REVISION

PASO ROBLES GATEWAY

SITE SECTIONS

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

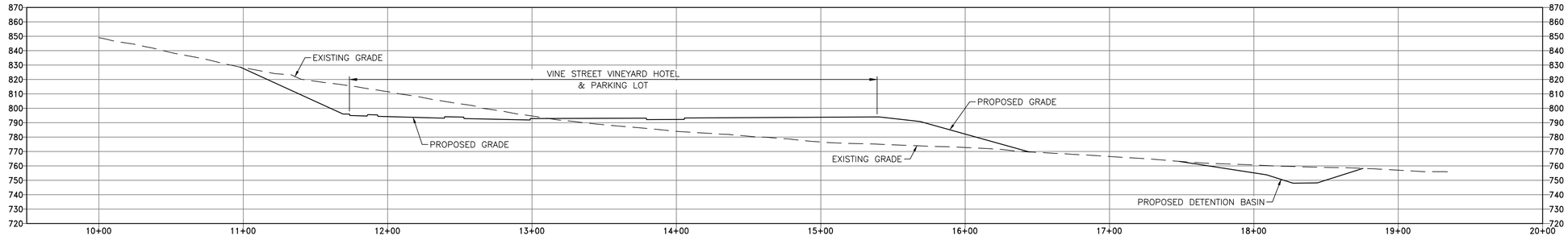
JOB NO. 1208-003

DRAWN BY: CM

SHEET 15 of 23

Document: Paso Gateway DEIR Appendix
2/28/17 Recirculated
Draft Environmental Impact Report

F:\PROJECTS\1208\003\PLANS\ENTITLEMENTS\EIR\1208-001EIR13-16EW.DWG (04-03-19 8:05:16AM) Plotted by: Victor Phom



SITE SECTION 'E'

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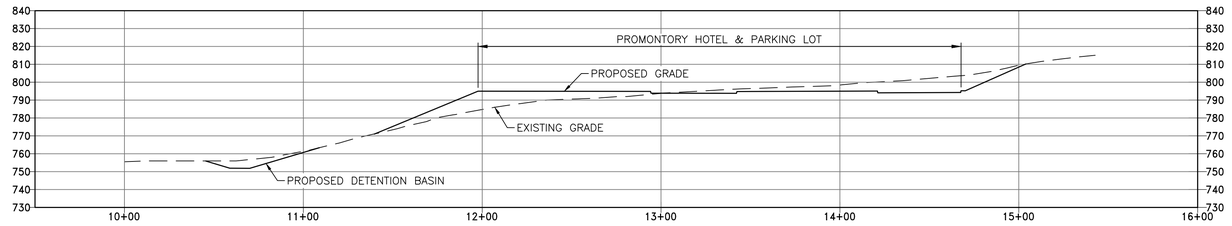

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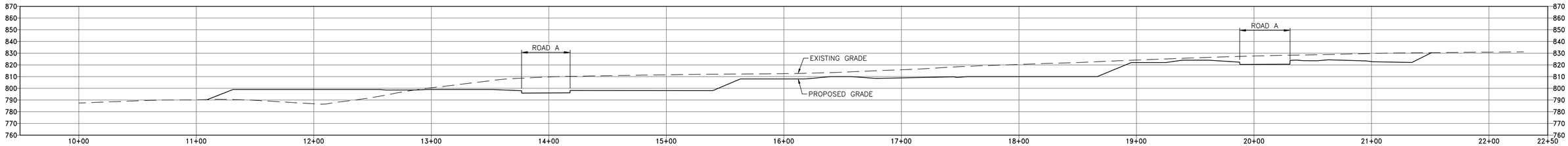

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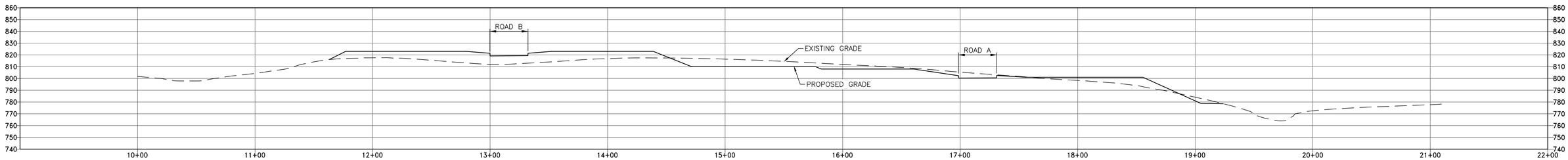

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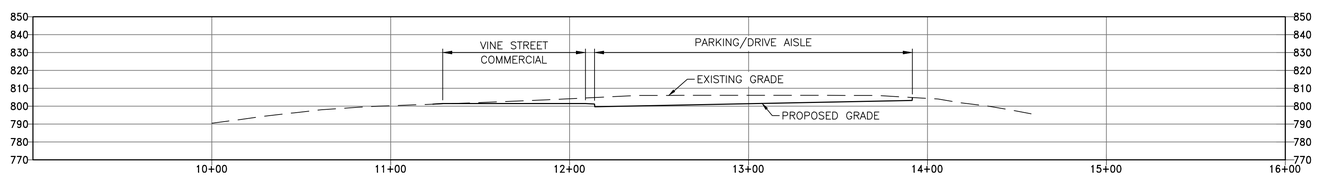

SITE SECTION 'I'

SCALE: 1"=40'

NO.	DATE	REVISION

PASO ROBLES GATEWAY

SITE SECTIONS

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

JOB NO. 1208-003

DRAWN BY CM

SHEET 16 of 23

Paso Gateway DRI Appendix
2128.1 Revised Development Submittal
Date: 4/3/19

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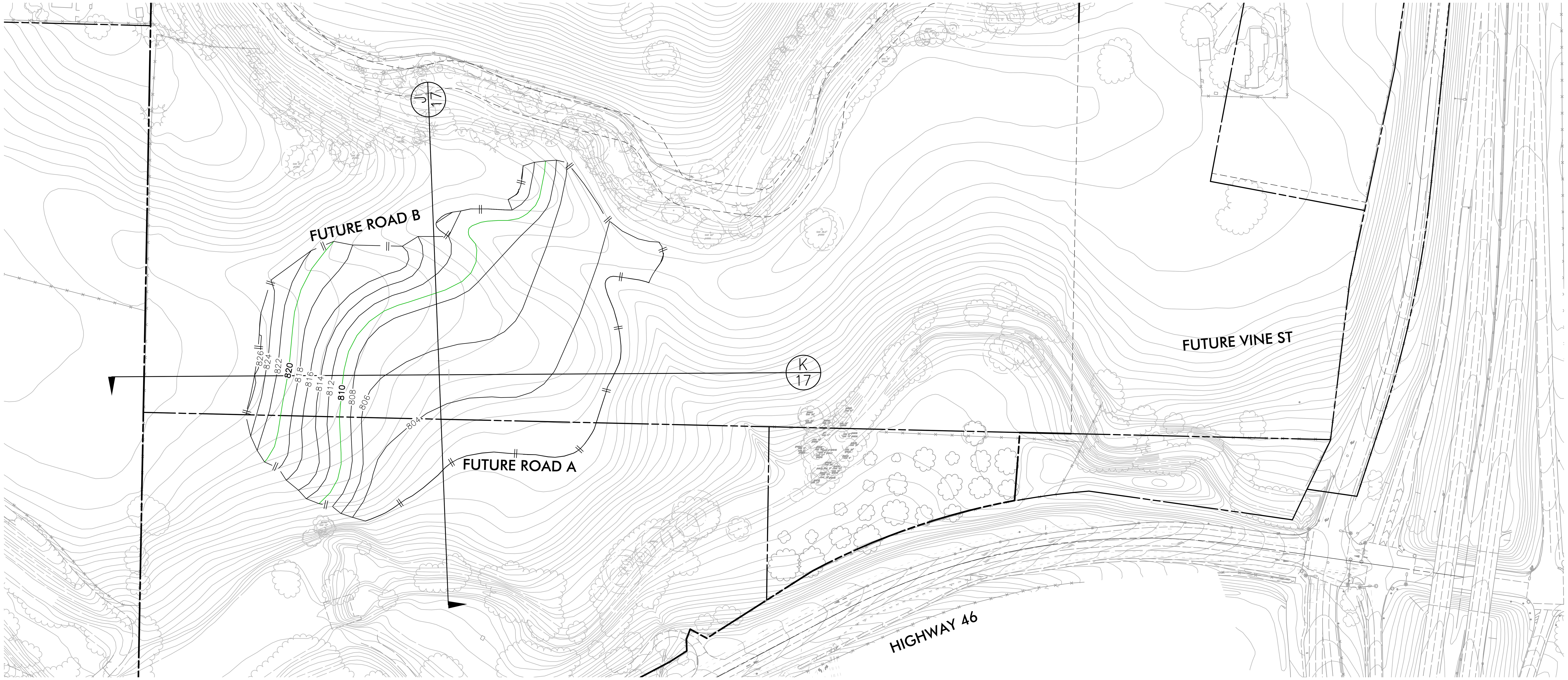


LEGEND

900	EXISTING CONTOUR
900	PROPOSED CONTOUR
	EXISTING FENCE
	PROJECT BOUNDARY
	PROPERTY LINE
	CENTERLINE
	PROPOSED RETAINING WALL
	EASEMENT (TYPE PER PLAN)
	PROPOSED V-GUTTER
	GRADING DAYLIGHT LINE
	PROPOSED STORM DRAIN

BORROW SITE AREA

TOTAL GRADED AREA = 7.00 AC

	CUT	FILL
RAW	52,479 CY	0 CY

VOLUME CHANGE: SHRINKAGE

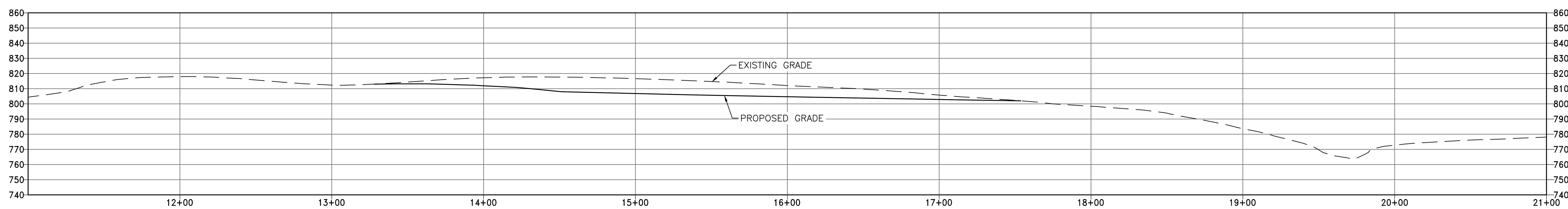
CUT 52,479 CY x 5% = 2,624 CY

TOTALS

+52,479 CY
−2,624 CY
+50,000 CY (CUT)

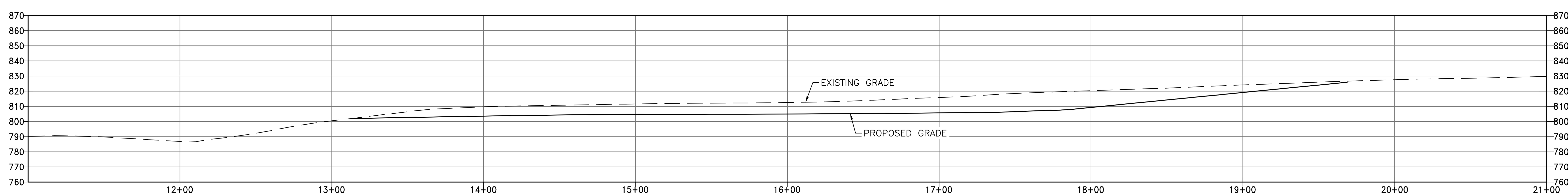
ASSUMPTIONS USED:

5% SHRINKAGE



SITE SECTION 'J'

SCALE: 1"=40'



SITE SECTION 'K'

SCALE: 1"=40'

N

100' 0' 50' 100'

SCALE: 1" = 100'

NO.	DATE	REVISION

PASO ROBLES GATEWAY

BORROW SITE MAP & SECTIONS

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ∘ fax 949.474.5315
www.fuscoe.com

JOB NO. 1208-003

DRAWN BY: CM

SHEET 17 of 23

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Appendix C

California Emissions Estimator Model (CalEEMod; Version 2016.3.2) Output and Fuel Consumption Calculations

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Paso Robles Gateway Project

South Central Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3.80	1000sqft	0.00	3,800.00	0
General Office Building	24.00	1000sqft	2.40	24,000.00	0
General Office Building	22.00	1000sqft	1.60	22,000.00	0
High Turnover (Sit Down Restaurant)	5.60	1000sqft	0.00	5,600.00	0
Hotel	100.00	Room	3.40	76,000.00	0
Hotel	225.00	Room	35.20	200,000.00	0
Apartments Low Rise	17.00	Dwelling Unit	0.00	17,000.00	49
Single Family Housing	80.00	Dwelling Unit	18.50	144,000.00	229
Regional Shopping Center	18.20	1000sqft	6.50	18,200.00	0
Parking Lot	963.00	Space	0.00	385,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	298.65	**CH4 Intensity (lb/MWhr)**	0.014	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

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Paso Robles Gateway Project - South Central Coast Air Basin, Annual

Project Characteristics - Adjusted for 2030 RPS.

Land Use - Parking acreage allocated to other land uses. Acreage for Village Comm Center allocated to retail.

Construction Phase -

Vehicle Trips - Trip rates from Revised Traffic and Circulation Study (ATE 2019)

Mobile Land Use Mitigation -

Architectural Coating - SLOAPCD Rule 433 limit for nonflat and traffic marking coatings.

Area Coating - SLOAPCD Rule 433 limit for nonflat and traffic marking coatings.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblAreaCoating	Area_EF_Parking	250	150
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblConstructionPhase	PhaseEndDate	7/18/2023	8/29/2025
tblConstructionPhase	PhaseEndDate	2/14/2023	1/31/2025
tblConstructionPhase	PhaseEndDate	4/14/2020	10/30/2020
tblConstructionPhase	PhaseEndDate	5/2/2023	5/16/2025
tblConstructionPhase	PhaseStartDate	5/3/2023	5/19/2025
tblConstructionPhase	PhaseStartDate	4/15/2020	11/2/2020
tblConstructionPhase	PhaseStartDate	1/1/2020	6/1/2020
tblConstructionPhase	PhaseStartDate	2/15/2023	2/3/2025

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tblLandUse	LandUseSquareFeet	145,200.00	76,000.00
tblLandUse	LandUseSquareFeet	326,700.00	200,000.00
tblLandUse	LotAcreage	0.09	0.00
tblLandUse	LotAcreage	0.55	2.40
tblLandUse	LotAcreage	0.51	1.60
tblLandUse	LotAcreage	0.13	0.00
tblLandUse	LotAcreage	3.33	3.40
tblLandUse	LotAcreage	7.50	35.20
tblLandUse	LotAcreage	1.06	0.00
tblLandUse	LotAcreage	25.97	18.50
tblLandUse	LotAcreage	0.42	6.50
tblLandUse	LotAcreage	8.67	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.014
tblProjectCharacteristics	CO2IntensityFactor	641.35	298.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	11.03	9.74
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	42.70	37.75
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

Paso Gateway DEIR Appendix
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2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3357	3.5388	2.4700	5.4000e-003	0.5656	0.1466	0.7122	0.2218	0.1354	0.3572	0.0000	482.3373	482.3373	0.1164	0.0000	485.2459
2021	0.4630	4.1622	3.8362	0.0112	0.4731	0.1328	0.6059	0.1283	0.1249	0.2532	0.0000	1,026.8069	1,026.8069	0.1115	0.0000	1,029.5953
2022	0.4222	3.7964	3.6665	0.0110	0.4713	0.1121	0.5834	0.1278	0.1055	0.2333	0.0000	1,008.7275	1,008.7275	0.1095	0.0000	1,011.4638
2023	0.3835	3.2760	3.5150	0.0108	0.4713	0.0953	0.5665	0.1278	0.0896	0.2174	0.0000	989.7744	989.7744	0.1059	0.0000	992.4210
2024	0.3636	3.1430	3.4396	0.0107	0.4749	0.0845	0.5594	0.1288	0.0795	0.2083	0.0000	985.1658	985.1658	0.1057	0.0000	987.8084
2025	4.1017	0.6320	0.9668	2.0900e-003	0.0670	0.0242	0.0912	0.0180	0.0226	0.0406	0.0000	187.6984	187.6984	0.0344	0.0000	188.5580
Maximum	**4.1017**	**4.1622**	**3.8362**	**0.0112**	**0.5656**	**0.1466**	**0.7122**	**0.2218**	**0.1354**	**0.3572**	**0.0000**	**1,026.8069**	**1,026.8069**	**0.1164**	**0.0000**	**1,029.5953**

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2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3357	3.5388	2.4700	5.4000e-003	0.5656	0.1466	0.7122	0.2218	0.1354	0.3572	0.0000	482.3369	482.3369	0.1163	0.0000	485.2455
2021	0.4630	4.1622	3.8362	0.0112	0.4731	0.1328	0.6059	0.1283	0.1249	0.2532	0.0000	1,026.8065	1,026.8065	0.1115	0.0000	1,029.5949
2022	0.4222	3.7964	3.6665	0.0110	0.4713	0.1121	0.5834	0.1278	0.1055	0.2333	0.0000	1,008.7271	1,008.7271	0.1095	0.0000	1,011.4635
2023	0.3835	3.2760	3.5150	0.0108	0.4713	0.0953	0.5665	0.1278	0.0896	0.2174	0.0000	989.7740	989.7740	0.1059	0.0000	992.4206
2024	0.3636	3.1430	3.4396	0.0107	0.4749	0.0845	0.5594	0.1288	0.0795	0.2083	0.0000	985.1655	985.1655	0.1057	0.0000	987.8081
2025	4.1017	0.6320	0.9668	2.0900e-003	0.0670	0.0242	0.0912	0.0180	0.0226	0.0406	0.0000	187.6983	187.6983	0.0344	0.0000	188.5579
Maximum	**4.1017**	**4.1622**	**3.8362**	**0.0112**	**0.5656**	**0.1466**	**0.7122**	**0.2218**	**0.1354**	**0.3572**	**0.0000**	**1,026.8065**	**1,026.8065**	**0.1163**	**0.0000**	**1,029.5949**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
2	**4-1-2020**	**6-30-2020**	0.5869	0.5869
3	**7-1-2020**	**9-30-2020**	1.7997	1.7997
4	**10-1-2020**	**12-31-2020**	1.4260	1.4260
5	**1-1-2021**	**3-31-2021**	1.1393	1.1393
6	**4-1-2021**	**6-30-2021**	1.1425	1.1425

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7	**7-1-2021**	**9-30-2021**	1.1551	1.1551
8	**10-1-2021**	**12-31-2021**	1.1646	1.1646
9	**1-1-2022**	**3-31-2022**	1.0431	1.0431
10	**4-1-2022**	**6-30-2022**	1.0464	1.0464
11	**7-1-2022**	**9-30-2022**	1.0579	1.0579
12	**10-1-2022**	**12-31-2022**	1.0663	1.0663
13	**1-1-2023**	**3-31-2023**	0.9060	0.9060
14	**4-1-2023**	**6-30-2023**	0.9089	0.9089
15	**7-1-2023**	**9-30-2023**	0.9189	0.9189
16	**10-1-2023**	**12-31-2023**	0.9262	0.9262
17	**1-1-2024**	**3-31-2024**	0.8711	0.8711
18	**4-1-2024**	**6-30-2024**	0.8644	0.8644
19	**7-1-2024**	**9-30-2024**	0.8739	0.8739
20	**10-1-2024**	**12-31-2024**	0.8806	0.8806
21	**1-1-2025**	**3-31-2025**	0.4760	0.4760
22	**4-1-2025**	**6-30-2025**	1.8290	1.8290
23	**7-1-2025**	**9-30-2025**	2.3329	2.3329
		Highest	2.3329	2.3329

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.4439	8.3900e-003	0.7308	4.0000e-005		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	1.2008	1.2008	1.1800e-003	0.0000	1.2304
Energy	0.0903	0.8138	0.6358	4.9300e-003		0.0624	0.0624		0.0624	0.0624	0.0000	1,466.1971	1,466.1971	0.0440	0.0221	1,473.8929
Mobile	0.8080	3.2876	8.4540	0.0332	3.8723	0.0231	3.8954	1.0362	0.0214	1.0577	0.0000	3,071.6944	3,071.6944	0.1185	0.0000	3,074.6567
Waste						0.0000	0.0000		0.0000	0.0000	83.5734	0.0000	83.5734	4.9391	0.0000	207.0496
Water						0.0000	0.0000		0.0000	0.0000	8.3956	24.7363	33.1318	0.8635	0.0206	60.8600
Total	**3.3422**	**4.1098**	**9.8206**	**0.0382**	**3.8723**	**0.0895**	**3.9618**	**1.0362**	**0.0879**	**1.1241**	**91.9690**	**4,563.8285**	**4,655.7975**	**5.9661**	**0.0428**	**4,817.6896**

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.4439	8.3900e-003	0.7308	4.0000e-005		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	1.2008	1.2008	1.1800e-003	0.0000	1.2304
Energy	0.0903	0.8138	0.6358	4.9300e-003		0.0624	0.0624		0.0624	0.0624	0.0000	1,466.1971	1,466.1971	0.0440	0.0221	1,473.8929
Mobile	0.8080	3.2876	8.4540	0.0332	3.8723	0.0231	3.8954	1.0362	0.0214	1.0577	0.0000	3,071.6944	3,071.6944	0.1185	0.0000	3,074.6567
Waste						0.0000	0.0000		0.0000	0.0000	83.5734	0.0000	83.5734	4.9391	0.0000	207.0496
Water						0.0000	0.0000		0.0000	0.0000	8.3956	24.7363	33.1318	0.8635	0.0206	60.8600
Total	**3.3422**	**4.1098**	**9.8206**	**0.0382**	**3.8723**	**0.0895**	**3.9618**	**1.0362**	**0.0879**	**1.1241**	**91.9690**	**4,563.8285**	**4,655.7975**	**5.9661**	**0.0428**	**4,817.6896**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

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Paso Robles Gateway Project - South Central Coast Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	6/1/2020	10/30/2020	5	110	
2	Building Construction	Building Construction	11/2/2020	1/31/2025	5	1110	
3	Paving	Paving	2/3/2025	5/16/2025	5	75	
4	Architectural Coating	Architectural Coating	5/19/2025	8/29/2025	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 0

Residential Indoor: 326,025; Residential Outdoor: 108,675; Non-Residential Indoor: 524,400; Non-Residential Outdoor: 174,800; Striped Parking Area: 23,112 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	343.00	131.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	69.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4770	0.0000	0.4770	0.1978	0.0000	0.1978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2448	2.7609	1.7577	3.4100e-003		0.1196	0.1196		0.1100	0.1100	0.0000	299.6636	299.6636	0.0969	0.0000	302.0865
Total	**0.2448**	**2.7609**	**1.7577**	**3.4100e-003**	**0.4770**	**0.1196**	**0.5966**	**0.1978**	**0.1100**	**0.3078**	**0.0000**	**299.6636**	**299.6636**	**0.0969**	**0.0000**	**302.0865**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-003	3.2400e-003	0.0310	8.0000e-005	8.8400e-003	6.0000e-005	8.9000e-003	2.3500e-003	6.0000e-005	2.4000e-003	0.0000	7.4394	7.4394	2.2000e-004	0.0000	7.4450
Total	**4.2000e-003**	**3.2400e-003**	**0.0310**	**8.0000e-005**	**8.8400e-003**	**6.0000e-005**	**8.9000e-003**	**2.3500e-003**	**6.0000e-005**	**2.4000e-003**	**0.0000**	**7.4394**	**7.4394**	**2.2000e-004**	**0.0000**	**7.4450**

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3.2 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4770	0.0000	0.4770	0.1978	0.0000	0.1978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2448	2.7609	1.7577	3.4100e-003		0.1196	0.1196		0.1100	0.1100	0.0000	299.6633	299.6633	0.0969	0.0000	302.0862
Total	**0.2448**	**2.7609**	**1.7577**	**3.4100e-003**	**0.4770**	**0.1196**	**0.5966**	**0.1978**	**0.1100**	**0.3078**	**0.0000**	**299.6633**	**299.6633**	**0.0969**	**0.0000**	**302.0862**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-003	3.2400e-003	0.0310	8.0000e-005	8.8400e-003	6.0000e-005	8.9000e-003	2.3500e-003	6.0000e-005	2.4000e-003	0.0000	7.4394	7.4394	2.2000e-004	0.0000	7.4450
Total	**4.2000e-003**	**3.2400e-003**	**0.0310**	**8.0000e-005**	**8.8400e-003**	**6.0000e-005**	**8.9000e-003**	**2.3500e-003**	**6.0000e-005**	**2.4000e-003**	**0.0000**	**7.4394**	**7.4394**	**2.2000e-004**	**0.0000**	**7.4450**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0466	0.4221	0.3707	5.9000e-004		0.0246	0.0246		0.0231	0.0231	0.0000	50.9542	50.9542	0.0124	0.0000	51.2650
Total	**0.0466**	**0.4221**	**0.3707**	**5.9000e-004**		**0.0246**	**0.0246**		**0.0231**	**0.0231**	**0.0000**	**50.9542**	**50.9542**	**0.0124**	**0.0000**	**51.2650**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0113	0.3304	0.0983	7.5000e-004	0.0191	1.9700e-003	0.0211	5.5200e-003	1.8900e-003	7.4000e-003	0.0000	73.2456	73.2456	5.2300e-003	0.0000	73.3765
Worker	0.0288	0.0222	0.2124	5.6000e-004	0.0606	4.2000e-004	0.0610	0.0161	3.8000e-004	0.0165	0.0000	51.0345	51.0345	1.5400e-003	0.0000	51.0729
Total	**0.0401**	**0.3526**	**0.3106**	**1.3100e-003**	**0.0798**	**2.3900e-003**	**0.0821**	**0.0216**	**2.2700e-003**	**0.0239**	**0.0000**	**124.2801**	**124.2801**	**6.7700e-003**	**0.0000**	**124.4494**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0466	0.4221	0.3707	5.9000e-004		0.0246	0.0246		0.0231	0.0231	0.0000	50.9541	50.9541	0.0124	0.0000	51.2649
Total	**0.0466**	**0.4221**	**0.3707**	**5.9000e-004**		**0.0246**	**0.0246**		**0.0231**	**0.0231**	**0.0000**	**50.9541**	**50.9541**	**0.0124**	**0.0000**	**51.2649**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0113	0.3304	0.0983	7.5000e-004	0.0191	1.9700e-003	0.0211	5.5200e-003	1.8900e-003	7.4000e-003	0.0000	73.2456	73.2456	5.2300e-003	0.0000	73.3765
Worker	0.0288	0.0222	0.2124	5.6000e-004	0.0606	4.2000e-004	0.0610	0.0161	3.8000e-004	0.0165	0.0000	51.0345	51.0345	1.5400e-003	0.0000	51.0729
Total	**0.0401**	**0.3526**	**0.3106**	**1.3100e-003**	**0.0798**	**2.3900e-003**	**0.0821**	**0.0216**	**2.2700e-003**	**0.0239**	**0.0000**	**124.2801**	**124.2801**	**6.7700e-003**	**0.0000**	**124.4494**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099
Total	**0.2481**	**2.2749**	**2.1631**	**3.5100e-003**		**0.1251**	**0.1251**		**0.1176**	**0.1176**	**0.0000**	**302.2867**	**302.2867**	**0.0729**	**0.0000**	**304.1099**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0553	1.7692	0.5209	4.4100e-003	0.1135	5.3300e-003	0.1188	0.0327	5.1000e-003	0.0378	0.0000	431.3861	431.3861	0.0304	0.0000	432.1462
Worker	0.1597	0.1181	1.1523	3.2400e-003	0.3596	2.4100e-003	0.3620	0.0955	2.2200e-003	0.0978	0.0000	293.1342	293.1342	8.2000e-003	0.0000	293.3392
Total	**0.2150**	**1.8873**	**1.6732**	**7.6500e-003**	**0.4731**	**7.7400e-003**	**0.4808**	**0.1283**	**7.3200e-003**	**0.1356**	**0.0000**	**724.5202**	**724.5202**	**0.0386**	**0.0000**	**725.4854**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095
Total	**0.2481**	**2.2749**	**2.1631**	**3.5100e-003**		**0.1251**	**0.1251**		**0.1176**	**0.1176**	**0.0000**	**302.2863**	**302.2863**	**0.0729**	**0.0000**	**304.1095**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0553	1.7692	0.5209	4.4100e-003	0.1135	5.3300e-003	0.1188	0.0327	5.1000e-003	0.0378	0.0000	431.3861	431.3861	0.0304	0.0000	432.1462
Worker	0.1597	0.1181	1.1523	3.2400e-003	0.3596	2.4100e-003	0.3620	0.0955	2.2200e-003	0.0978	0.0000	293.1342	293.1342	8.2000e-003	0.0000	293.3392
Total	**0.2150**	**1.8873**	**1.6732**	**7.6500e-003**	**0.4731**	**7.7400e-003**	**0.4808**	**0.1283**	**7.3200e-003**	**0.1356**	**0.0000**	**724.5202**	**724.5202**	**0.0386**	**0.0000**	**725.4854**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0510	1.6606	0.4845	4.3500e-003	0.1130	4.6300e-003	0.1177	0.0326	4.4200e-003	0.0370	0.0000	425.9891	425.9891	0.0299	0.0000	426.7378
Worker	0.1494	0.1058	1.0548	3.1100e-003	0.3582	2.3400e-003	0.3606	0.0952	2.1500e-003	0.0973	0.0000	281.4955	281.4955	7.3400e-003	0.0000	281.6790
Total	**0.2003**	**1.7664**	**1.5392**	**7.4600e-003**	**0.4713**	**6.9700e-003**	**0.4782**	**0.1278**	**6.5700e-003**	**0.1344**	**0.0000**	**707.4847**	**707.4847**	**0.0373**	**0.0000**	**708.4168**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0510	1.6606	0.4845	4.3500e-003	0.1130	4.6300e-003	0.1177	0.0326	4.4200e-003	0.0370	0.0000	425.9891	425.9891	0.0299	0.0000	426.7378
Worker	0.1494	0.1058	1.0548	3.1100e-003	0.3582	2.3400e-003	0.3606	0.0952	2.1500e-003	0.0973	0.0000	281.4955	281.4955	7.3400e-003	0.0000	281.6790
Total	**0.2003**	**1.7664**	**1.5392**	**7.4600e-003**	**0.4713**	**6.9700e-003**	**0.4782**	**0.1278**	**6.5700e-003**	**0.1344**	**0.0000**	**707.4847**	**707.4847**	**0.0373**	**0.0000**	**708.4168**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0386	1.3108	0.4351	4.2600e-003	0.1130	2.0000e-003	0.1150	0.0326	1.9200e-003	0.0345	0.0000	417.5260	417.5260	0.0276	0.0000	418.2159
Worker	0.1404	0.0952	0.9681	3.0000e-003	0.3582	2.2800e-003	0.3605	0.0952	2.1000e-003	0.0973	0.0000	270.9023	270.9023	6.5800e-003	0.0000	271.0667
Total	**0.1790**	**1.4060**	**1.4033**	**7.2600e-003**	**0.4713**	**4.2800e-003**	**0.4756**	**0.1278**	**4.0200e-003**	**0.1318**	**0.0000**	**688.4282**	**688.4282**	**0.0342**	**0.0000**	**689.2827**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0386	1.3108	0.4351	4.2600e-003	0.1130	2.0000e-003	0.1150	0.0326	1.9200e-003	0.0345	0.0000	417.5260	417.5260	0.0276	0.0000	418.2159
Worker	0.1404	0.0952	0.9681	3.0000e-003	0.3582	2.2800e-003	0.3605	0.0952	2.1000e-003	0.0973	0.0000	270.9023	270.9023	6.5800e-003	0.0000	271.0667
Total	**0.1790**	**1.4060**	**1.4033**	**7.2600e-003**	**0.4713**	**4.2800e-003**	**0.4756**	**0.1278**	**4.0200e-003**	**0.1318**	**0.0000**	**688.4282**	**688.4282**	**0.0342**	**0.0000**	**689.2827**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0372	1.2951	0.4194	4.2600e-003	0.1139	1.9100e-003	0.1158	0.0329	1.8200e-003	0.0347	0.0000	418.4773	418.4773	0.0279	0.0000	419.1747
Worker	0.1336	0.0867	0.9024	2.9100e-003	0.3610	2.2500e-003	0.3632	0.0959	2.0800e-003	0.0980	0.0000	262.9662	262.9662	5.9900e-003	0.0000	263.1159
Total	**0.1708**	**1.3818**	**1.3218**	**7.1700e-003**	**0.4749**	**4.1600e-003**	**0.4791**	**0.1288**	**3.9000e-003**	**0.1327**	**0.0000**	**681.4435**	**681.4435**	**0.0339**	**0.0000**	**682.2905**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0372	1.2951	0.4194	4.2600e-003	0.1139	1.9100e-003	0.1158	0.0329	1.8200e-003	0.0347	0.0000	418.4773	418.4773	0.0279	0.0000	419.1747
Worker	0.1336	0.0867	0.9024	2.9100e-003	0.3610	2.2500e-003	0.3632	0.0959	2.0800e-003	0.0980	0.0000	262.9662	262.9662	5.9900e-003	0.0000	263.1159
Total	**0.1708**	**1.3818**	**1.3218**	**7.1700e-003**	**0.4749**	**4.1600e-003**	**0.4791**	**0.1288**	**3.9000e-003**	**0.1327**	**0.0000**	**681.4435**	**681.4435**	**0.0339**	**0.0000**	**682.2905**

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3.3 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0157	0.1434	0.1850	3.1000e-004		6.0700e-003	6.0700e-003		5.7100e-003	5.7100e-003	0.0000	26.6707	26.6707	6.2700e-003	0.0000	26.8275
Total	**0.0157**	**0.1434**	**0.1850**	**3.1000e-004**		**6.0700e-003**	**6.0700e-003**		**5.7100e-003**	**5.7100e-003**	**0.0000**	**26.6707**	**26.6707**	**6.2700e-003**	**0.0000**	**26.8275**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1400e-003	0.1114	0.0356	3.7000e-004	0.0100	1.6000e-004	0.0102	2.8900e-003	1.5000e-004	3.0400e-003	0.0000	36.5192	36.5192	2.4600e-003	0.0000	36.5806
Worker	0.0111	6.9100e-003	0.0732	2.5000e-004	0.0317	1.9000e-004	0.0319	8.4200e-003	1.8000e-004	8.6000e-003	0.0000	22.1628	22.1628	4.8000e-004	0.0000	22.1747
Total	**0.0143**	**0.1183**	**0.1088**	**6.2000e-004**	**0.0417**	**3.5000e-004**	**0.0420**	**0.0113**	**3.3000e-004**	**0.0116**	**0.0000**	**58.6820**	**58.6820**	**2.9400e-003**	**0.0000**	**58.7553**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0157	0.1434	0.1850	3.1000e-004		6.0700e-003	6.0700e-003		5.7100e-003	5.7100e-003	0.0000	26.6707	26.6707	6.2700e-003	0.0000	26.8274
Total	**0.0157**	**0.1434**	**0.1850**	**3.1000e-004**		**6.0700e-003**	**6.0700e-003**		**5.7100e-003**	**5.7100e-003**	**0.0000**	**26.6707**	**26.6707**	**6.2700e-003**	**0.0000**	**26.8274**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1400e-003	0.1114	0.0356	3.7000e-004	0.0100	1.6000e-004	0.0102	2.8900e-003	1.5000e-004	3.0400e-003	0.0000	36.5192	36.5192	2.4600e-003	0.0000	36.5806
Worker	0.0111	6.9100e-003	0.0732	2.5000e-004	0.0317	1.9000e-004	0.0319	8.4200e-003	1.8000e-004	8.6000e-003	0.0000	22.1628	22.1628	4.8000e-004	0.0000	22.1747
Total	**0.0143**	**0.1183**	**0.1088**	**6.2000e-004**	**0.0417**	**3.5000e-004**	**0.0420**	**0.0113**	**3.3000e-004**	**0.0116**	**0.0000**	**58.6820**	**58.6820**	**2.9400e-003**	**0.0000**	**58.7553**

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3.4 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.3218	0.5467	8.5000e-004		0.0157	0.0157		0.0144	0.0144	0.0000	75.0722	75.0722	0.0243	0.0000	75.6792
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0343**	**0.3218**	**0.5467**	**8.5000e-004**		**0.0157**	**0.0157**		**0.0144**	**0.0144**	**0.0000**	**75.0722**	**75.0722**	**0.0243**	**0.0000**	**75.6792**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	9.9000e-004	0.0104	3.0000e-005	4.5200e-003	3.0000e-005	4.5500e-003	1.2000e-003	3.0000e-005	1.2300e-003	0.0000	3.1605	3.1605	7.0000e-005	0.0000	3.1622
Total	**1.5900e-003**	**9.9000e-004**	**0.0104**	**3.0000e-005**	**4.5200e-003**	**3.0000e-005**	**4.5500e-003**	**1.2000e-003**	**3.0000e-005**	**1.2300e-003**	**0.0000**	**3.1605**	**3.1605**	**7.0000e-005**	**0.0000**	**3.1622**

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3.4 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.3218	0.5467	8.5000e-004		0.0157	0.0157		0.0144	0.0144	0.0000	75.0721	75.0721	0.0243	0.0000	75.6791
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0343**	**0.3218**	**0.5467**	**8.5000e-004**		**0.0157**	**0.0157**		**0.0144**	**0.0144**	**0.0000**	**75.0721**	**75.0721**	**0.0243**	**0.0000**	**75.6791**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	9.9000e-004	0.0104	3.0000e-005	4.5200e-003	3.0000e-005	4.5500e-003	1.2000e-003	3.0000e-005	1.2300e-003	0.0000	3.1605	3.1605	7.0000e-005	0.0000	3.1622
Total	**1.5900e-003**	**9.9000e-004**	**0.0104**	**3.0000e-005**	**4.5200e-003**	**3.0000e-005**	**4.5500e-003**	**1.2000e-003**	**3.0000e-005**	**1.2300e-003**	**0.0000**	**3.1605**	**3.1605**	**7.0000e-005**	**0.0000**	**3.1622**

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3.5 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.0221					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4100e-003	0.0430	0.0678	1.1000e-004		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	9.5747	9.5747	5.2000e-004	0.0000	9.5878
Total	**4.0285**	**0.0430**	**0.0678**	**1.1000e-004**		**1.9300e-003**	**1.9300e-003**		**1.9300e-003**	**1.9300e-003**	**0.0000**	**9.5747**	**9.5747**	**5.2000e-004**	**0.0000**	**9.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2900e-003	4.5300e-003	0.0480	1.6000e-004	0.0208	1.3000e-004	0.0209	5.5200e-003	1.2000e-004	5.6400e-003	0.0000	14.5383	14.5383	3.1000e-004	0.0000	14.5461
Total	**7.2900e-003**	**4.5300e-003**	**0.0480**	**1.6000e-004**	**0.0208**	**1.3000e-004**	**0.0209**	**5.5200e-003**	**1.2000e-004**	**5.6400e-003**	**0.0000**	**14.5383**	**14.5383**	**3.1000e-004**	**0.0000**	**14.5461**

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3.5 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.0221					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4100e-003	0.0430	0.0678	1.1000e-004		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	9.5747	9.5747	5.2000e-004	0.0000	9.5878
Total	**4.0285**	**0.0430**	**0.0678**	**1.1000e-004**		**1.9300e-003**	**1.9300e-003**		**1.9300e-003**	**1.9300e-003**	**0.0000**	**9.5747**	**9.5747**	**5.2000e-004**	**0.0000**	**9.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2900e-003	4.5300e-003	0.0480	1.6000e-004	0.0208	1.3000e-004	0.0209	5.5200e-003	1.2000e-004	5.6400e-003	0.0000	14.5383	14.5383	3.1000e-004	0.0000	14.5461
Total	**7.2900e-003**	**4.5300e-003**	**0.0480**	**1.6000e-004**	**0.0208**	**1.3000e-004**	**0.0209**	**5.5200e-003**	**1.2000e-004**	**5.6400e-003**	**0.0000**	**14.5383**	**14.5383**	**3.1000e-004**	**0.0000**	**14.5461**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8080	3.2876	8.4540	0.0332	3.8723	0.0231	3.8954	1.0362	0.0214	1.0577	0.0000	3,071.6944	3,071.6944	0.1185	0.0000	3,074.6567
Unmitigated	0.8080	3.2876	8.4540	0.0332	3.8723	0.0231	3.8954	1.0362	0.0214	1.0577	0.0000	3,071.6944	3,071.6944	0.1185	0.0000	3,074.6567

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	124.44	121.72	103.19	340,544	340,544
General Office Building	37.01	9.35	3.99	67,732	67,732
General Office Building	233.76	59.04	25.20	427,779	427,779
General Office Building	214.28	54.12	23.10	392,131	392,131
High Turnover (Sit Down Restaurant)	628.21	886.87	738.30	790,010	790,010
Hotel	836.00	819.00	595.00	1,518,316	1,518,316
Hotel	1,881.00	1,842.75	1338.75	3,416,211	3,416,211
Regional Shopping Center	687.05	909.45	459.37	1,203,286	1,203,286
Single Family Housing	755.20	792.80	689.60	2,113,914	2,113,914
Parking Lot	0.00	0.00	0.00		
Total	5,396.95	5,495.10	3,976.50	10,269,924	10,269,924

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4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	37.50	15.00	47.50	86	11	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Single Family Housing	10.80	7.30	7.50	37.50	15.00	47.50	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
General Office Building	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
High Turnover (Sit Down Restaurant)	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Hotel	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Regional Shopping Center	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Single Family Housing	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Parking Lot	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	572.3194	572.3194	0.0268	5.7500e-003	574.7033
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	572.3194	572.3194	0.0268	5.7500e-003	574.7033
NaturalGas Mitigated	0.0903	0.8138	0.6358	4.9300e-003		0.0624	0.0624		0.0624	0.0624	0.0000	893.8777	893.8777	0.0171	0.0164	899.1896
NaturalGas Unmitigated	0.0903	0.8138	0.6358	4.9300e-003		0.0624	0.0624		0.0624	0.0624	0.0000	893.8777	893.8777	0.0171	0.0164	899.1896

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	173380	9.3000e-004	7.9900e-003	3.4000e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2522	9.2522	1.8000e-004	1.7000e-004	9.3072
General Office Building	360140	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.2184	19.2184	3.7000e-004	3.5000e-004	19.3327
General Office Building	392880	2.1200e-003	0.0193	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003	0.0000	20.9656	20.9656	4.0000e-004	3.8000e-004	21.0902
General Office Building	62206	3.4000e-004	3.0500e-003	2.5600e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3196	3.3196	6.0000e-005	6.0000e-005	3.3393
High Turnover (Sit Down Restaurant)	1.16413e+006	6.2800e-003	0.0571	0.0479	3.4000e-004		4.3400e-003	4.3400e-003		4.3400e-003	4.3400e-003	0.0000	62.1223	62.1223	1.1900e-003	1.1400e-003	62.4915
Hotel	3.36756e+006	0.0182	0.1651	0.1387	9.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	179.7058	179.7058	3.4400e-003	3.2900e-003	180.7737
Hotel	8.862e+006	0.0478	0.4344	0.3649	2.6100e-003		0.0330	0.0330		0.0330	0.0330	0.0000	472.9101	472.9101	9.0600e-003	8.6700e-003	475.7203
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	43134	2.3000e-004	2.1100e-003	1.7800e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.3018	2.3018	4.0000e-005	4.0000e-005	2.3155
Single Family Housing	2.32521e+006	0.0125	0.1071	0.0456	6.8000e-004		8.6600e-003	8.6600e-003		8.6600e-003	8.6600e-003	0.0000	124.0819	124.0819	2.3800e-003	2.2700e-003	124.8193
Total		**0.0903**	**0.8138**	**0.6358**	**4.9300e-003**		**0.0624**	**0.0624**		**0.0624**	**0.0624**	**0.0000**	**893.8777**	**893.8777**	**0.0171**	**0.0164**	**899.1896**

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	173380	9.3000e-004	7.9900e-003	3.4000e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2522	9.2522	1.8000e-004	1.7000e-004	9.3072
General Office Building	360140	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.2184	19.2184	3.7000e-004	3.5000e-004	19.3327
General Office Building	392880	2.1200e-003	0.0193	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003	0.0000	20.9656	20.9656	4.0000e-004	3.8000e-004	21.0902
General Office Building	62206	3.4000e-004	3.0500e-003	2.5600e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3196	3.3196	6.0000e-005	6.0000e-005	3.3393
High Turnover (Sit Down Restaurant)	1.16413e+006	6.2800e-003	0.0571	0.0479	3.4000e-004		4.3400e-003	4.3400e-003		4.3400e-003	4.3400e-003	0.0000	62.1223	62.1223	1.1900e-003	1.1400e-003	62.4915
Hotel	3.36756e+006	0.0182	0.1651	0.1387	9.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	179.7058	179.7058	3.4400e-003	3.2900e-003	180.7737
Hotel	8.862e+006	0.0478	0.4344	0.3649	2.6100e-003		0.0330	0.0330		0.0330	0.0330	0.0000	472.9101	472.9101	9.0600e-003	8.6700e-003	475.7203
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	43134	2.3000e-004	2.1100e-003	1.7800e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.3018	2.3018	4.0000e-005	4.0000e-005	2.3155
Single Family Housing	2.32521e+006	0.0125	0.1071	0.0456	6.8000e-004		8.6600e-003	8.6600e-003		8.6600e-003	8.6600e-003	0.0000	124.0819	124.0819	2.3800e-003	2.2700e-003	124.8193
Total		**0.0903**	**0.8138**	**0.6358**	**4.9300e-003**		**0.0624**	**0.0624**		**0.0624**	**0.0624**	**0.0000**	**893.8777**	**893.8777**	**0.0171**	**0.0164**	**899.1896**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	73929.6	10.0149	4.7000e-004	1.0000e-004	10.0566
General Office Building	392260	53.1376	2.4900e-003	5.3000e-004	53.3590
General Office Building	427920	57.9683	2.7200e-003	5.8000e-004	58.2098
General Office Building	67754	9.1783	4.3000e-004	9.0000e-005	9.2166
High Turnover (Sit Down Restaurant)	183232	24.8216	1.1600e-003	2.5000e-004	24.9250
Hotel	1.524e+006	206.4492	9.6800e-003	2.0700e-003	207.3092
Hotel	579120	78.4507	3.6800e-003	7.9000e-004	78.7775
Parking Lot	134820	18.2634	8.6000e-004	1.8000e-004	18.3395
Regional Shopping Center	194558	26.3559	1.2400e-003	2.6000e-004	26.4657
Single Family Housing	647246	87.6794	4.1100e-003	8.8000e-004	88.0446
Total		**572.3194**	**0.0268**	**5.7300e-003**	**574.7033**

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	73929.6	10.0149	4.7000e-004	1.0000e-004	10.0566
General Office Building	392260	53.1376	2.4900e-003	5.3000e-004	53.3590
General Office Building	427920	57.9683	2.7200e-003	5.8000e-004	58.2098
General Office Building	67754	9.1783	4.3000e-004	9.0000e-005	9.2166
High Turnover (Sit Down Restaurant)	183232	24.8216	1.1600e-003	2.5000e-004	24.9250
Hotel	1.524e+006	206.4492	9.6800e-003	2.0700e-003	207.3092
Hotel	579120	78.4507	3.6800e-003	7.9000e-004	78.7775
Parking Lot	134820	18.2634	8.6000e-004	1.8000e-004	18.3395
Regional Shopping Center	194558	26.3559	1.2400e-003	2.6000e-004	26.4657
Single Family Housing	647246	87.6794	4.1100e-003	8.8000e-004	88.0446
Total		**572.3194**	**0.0268**	**5.7300e-003**	**574.7033**

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.4439	8.3900e-003	0.7308	4.0000e-005		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	1.2008	1.2008	1.1800e-003	0.0000	1.2304
Unmitigated	2.4439	8.3900e-003	0.7308	4.0000e-005		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	1.2008	1.2008	1.1800e-003	0.0000	1.2304

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4022					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0191					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0226	8.3900e-003	0.7308	4.0000e-005		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	1.2008	1.2008	1.1800e-003	0.0000	1.2304
Total	**2.4439**	**8.3900e-003**	**0.7308**	**4.0000e-005**		**4.0400e-003**	**4.0400e-003**		**4.0400e-003**	**4.0400e-003**	**0.0000**	**1.2008**	**1.2008**	**1.1800e-003**	**0.0000**	**1.2304**

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4022					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0191					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0226	8.3900e-003	0.7308	4.0000e-005		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	1.2008	1.2008	1.1800e-003	0.0000	1.2304
Total	**2.4439**	**8.3900e-003**	**0.7308**	**4.0000e-005**		**4.0400e-003**	**4.0400e-003**		**4.0400e-003**	**4.0400e-003**	**0.0000**	**1.2008**	**1.2008**	**1.1800e-003**	**0.0000**	**1.2304**

7.0 Water Detail

7.1 Mitigation Measures Water

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Paso Robles Gateway Project - South Central Coast Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	33.1318	0.8635	0.0206	60.8600
Unmitigated	33.1318	0.8635	0.0206	60.8600

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.10762 / 0.698281	1.4944	0.0362	8.6000e-004	2.6554
General Office Building	8.85114 / 5.42489	11.8681	0.2888	6.9000e-003	21.1456
High Turnover (Sit Down Restaurant)	1.69979 / 0.108497	1.8367	0.0555	1.3200e-003	3.6165
Hotel	8.2442 / 0.916022	9.0928	0.2689	6.4100e-003	17.7260
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.34812 / 0.826267	1.8076	0.0440	1.0500e-003	3.2207
Single Family Housing	5.21232 / 3.28603	7.0323	0.1701	4.0600e-003	12.4959
Total		**33.1318**	**0.8635**	**0.0206**	**60.8600**

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.10762 / 0.698281	1.4944	0.0362	8.6000e-004	2.6554
General Office Building	8.85114 / 5.42489	11.8681	0.2888	6.9000e-003	21.1456
High Turnover (Sit Down Restaurant)	1.69979 / 0.108497	1.8367	0.0555	1.3200e-003	3.6165
Hotel	8.2442 / 0.916022	9.0928	0.2689	6.4100e-003	17.7260
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.34812 / 0.826267	1.8076	0.0440	1.0500e-003	3.2207
Single Family Housing	5.21232 / 3.28603	7.0323	0.1701	4.0600e-003	12.4959
Total		**33.1318**	**0.8635**	**0.0206**	**60.8600**

8.0 Waste Detail

8.1 Mitigation Measures Waste

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Paso Robles Gateway Project - South Central Coast Air Basin, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	83.5734	4.9391	0.0000	207.0496
Unmitigated	83.5734	4.9391	0.0000	207.0496

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	7.82	1.5874	0.0938	0.0000	3.9327
General Office Building	46.31	9.4005	0.5556	0.0000	23.2894
High Turnover (Sit Down Restaurant)	66.64	13.5273	0.7994	0.0000	33.5134
Hotel	177.94	36.1202	2.1346	0.0000	89.4863
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	19.11	3.8792	0.2293	0.0000	9.6105
Single Family Housing	93.89	19.0588	1.1263	0.0000	47.2174
Total		**83.5734**	**4.9390**	**0.0000**	**207.0496**

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	7.82	1.5874	0.0938	0.0000	3.9327
General Office Building	46.31	9.4005	0.5556	0.0000	23.2894
High Turnover (Sit Down Restaurant)	66.64	13.5273	0.7994	0.0000	33.5134
Hotel	177.94	36.1202	2.1346	0.0000	89.4863
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	19.11	3.8792	0.2293	0.0000	9.6105
Single Family Housing	93.89	19.0588	1.1263	0.0000	47.2174
Total		**83.5734**	**4.9390**	**0.0000**	**207.0496**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Paso Robles Gateway Project

South Central Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3.80	1000sqft	0.00	3,800.00	0
General Office Building	24.00	1000sqft	2.40	24,000.00	0
General Office Building	22.00	1000sqft	1.60	22,000.00	0
High Turnover (Sit Down Restaurant)	5.60	1000sqft	0.00	5,600.00	0
Hotel	100.00	Room	3.40	76,000.00	0
Hotel	225.00	Room	35.20	200,000.00	0
Apartments Low Rise	17.00	Dwelling Unit	0.00	17,000.00	49
Single Family Housing	80.00	Dwelling Unit	18.50	144,000.00	229
Regional Shopping Center	18.20	1000sqft	6.50	18,200.00	0
Parking Lot	963.00	Space	0.00	385,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	298.65	**CH4 Intensity (lb/MWhr)**	0.014	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

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Paso Robles Gateway Project - South Central Coast Air Basin, Winter

Project Characteristics - Adjusted for 2030 RPS.

Land Use - Parking acreage allocated to other land uses. Acreage for Village Comm Center allocated to retail.

Construction Phase -

Vehicle Trips - Trip rates from Revised Traffic and Circulation Study (ATE 2019)

Mobile Land Use Mitigation -

Architectural Coating - SLOAPCD Rule 433 limit for nonflat and traffic marking coatings.

Area Coating - SLOAPCD Rule 433 limit for nonflat and traffic marking coatings.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblAreaCoating	Area_EF_Parking	250	150
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblConstructionPhase	PhaseEndDate	7/18/2023	8/29/2025
tblConstructionPhase	PhaseEndDate	2/14/2023	1/31/2025
tblConstructionPhase	PhaseEndDate	4/14/2020	10/30/2020
tblConstructionPhase	PhaseEndDate	5/2/2023	5/16/2025
tblConstructionPhase	PhaseStartDate	5/3/2023	5/19/2025
tblConstructionPhase	PhaseStartDate	4/15/2020	11/2/2020
tblConstructionPhase	PhaseStartDate	1/1/2020	6/1/2020
tblConstructionPhase	PhaseStartDate	2/15/2023	2/3/2025

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tblLandUse	LandUseSquareFeet	145,200.00	76,000.00
tblLandUse	LandUseSquareFeet	326,700.00	200,000.00
tblLandUse	LotAcreage	0.09	0.00
tblLandUse	LotAcreage	0.55	2.40
tblLandUse	LotAcreage	0.51	1.60
tblLandUse	LotAcreage	0.13	0.00
tblLandUse	LotAcreage	3.33	3.40
tblLandUse	LotAcreage	7.50	35.20
tblLandUse	LotAcreage	1.06	0.00
tblLandUse	LotAcreage	25.97	18.50
tblLandUse	LotAcreage	0.42	6.50
tblLandUse	LotAcreage	8.67	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.014
tblProjectCharacteristics	CO2IntensityFactor	641.35	298.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	11.03	9.74
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	42.70	37.75
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

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Paso Robles Gateway Project - South Central Coast Air Basin, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5353	50.2580	32.5284	0.0861	8.8376	2.1750	11.0126	3.6401	2.0010	5.6411	0.0000	8,714.6057	8,714.6057	1.9469	0.0000	8,738.8556
2021	3.7055	31.7383	29.7201	0.0850	3.7031	1.0191	4.7222	1.0022	0.9585	1.9606	0.0000	8,608.1405	8,608.1405	0.9497	0.0000	8,631.8838
2022	3.3968	29.0559	28.4999	0.0838	3.7031	0.8637	4.5668	1.0022	0.8128	1.8150	0.0000	8,488.6105	8,488.6105	0.9355	0.0000	8,511.9983
2023	3.0904	25.0972	27.2741	0.0821	3.7032	0.7331	4.4363	1.0022	0.6897	1.6920	0.0000	8,328.9044	8,328.9044	0.9037	0.0000	8,351.4955
2024	2.9103	23.8913	26.4748	0.0811	3.7033	0.6455	4.3487	1.0022	0.6070	1.6093	0.0000	8,227.0293	8,227.0293	0.8953	0.0000	8,249.4126
2025	107.6446	22.6590	25.7523	0.0800	3.7033	0.5586	4.2619	1.0023	0.5253	1.5276	0.0000	8,119.6029	8,119.6029	0.8878	0.0000	8,141.7975
Maximum	**107.6446**	**50.2580**	**32.5284**	**0.0861**	**8.8376**	**2.1750**	**11.0126**	**3.6401**	**2.0010**	**5.6411**	**0.0000**	**8,714.6057**	**8,714.6057**	**1.9469**	**0.0000**	**8,738.8556**

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2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5353	50.2580	32.5284	0.0861	8.8376	2.1750	11.0126	3.6401	2.0010	5.6411	0.0000	8,714.6057	8,714.6057	1.9469	0.0000	8,738.8556
2021	3.7055	31.7383	29.7201	0.0850	3.7031	1.0191	4.7222	1.0022	0.9585	1.9606	0.0000	8,608.1405	8,608.1405	0.9497	0.0000	8,631.8838
2022	3.3968	29.0559	28.4999	0.0838	3.7031	0.8637	4.5668	1.0022	0.8128	1.8150	0.0000	8,488.6105	8,488.6105	0.9355	0.0000	8,511.9983
2023	3.0904	25.0972	27.2741	0.0821	3.7032	0.7331	4.4363	1.0022	0.6897	1.6920	0.0000	8,328.9044	8,328.9044	0.9037	0.0000	8,351.4955
2024	2.9103	23.8913	26.4748	0.0811	3.7033	0.6455	4.3487	1.0022	0.6070	1.6093	0.0000	8,227.0293	8,227.0293	0.8953	0.0000	8,249.4126
2025	107.6446	22.6590	25.7523	0.0800	3.7033	0.5586	4.2619	1.0023	0.5253	1.5276	0.0000	8,119.6029	8,119.6029	0.8878	0.0000	8,141.7975
Maximum	**107.6446**	**50.2580**	**32.5284**	**0.0861**	**8.8376**	**2.1750**	**11.0126**	**3.6401**	**2.0010**	**5.6411**	**0.0000**	**8,714.6057**	**8,714.6057**	**1.9469**	**0.0000**	**8,738.8556**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	13.5185	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449	0.0000	14.7076	14.7076	0.0145	0.0000	15.0700
Energy	0.4949	4.4590	3.4841	0.0270		0.3419	0.3419		0.3419	0.3419		5,399.0768	5,399.0768	0.1035	0.0990	5,431.1608
Mobile	5.0749	20.3718	53.7088	0.2034	24.4089	0.1431	24.5520	6.5201	0.1329	6.6530		20,749.0167	20,749.0167	0.8223		20,769.5733
Total	**19.0884**	**24.9240**	**65.3126**	**0.2309**	**24.4089**	**0.5299**	**24.9388**	**6.5201**	**0.5197**	**7.0398**	**0.0000**	**26,162.8010**	**26,162.8010**	**0.9403**	**0.0990**	**26,215.8041**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	13.5185	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449	0.0000	14.7076	14.7076	0.0145	0.0000	15.0700
Energy	0.4949	4.4590	3.4841	0.0270		0.3419	0.3419		0.3419	0.3419		5,399.0768	5,399.0768	0.1035	0.0990	5,431.1608
Mobile	5.0749	20.3718	53.7088	0.2034	24.4089	0.1431	24.5520	6.5201	0.1329	6.6530		20,749.0167	20,749.0167	0.8223		20,769.5733
Total	**19.0884**	**24.9240**	**65.3126**	**0.2309**	**24.4089**	**0.5299**	**24.9388**	**6.5201**	**0.5197**	**7.0398**	**0.0000**	**26,162.8010**	**26,162.8010**	**0.9403**	**0.0990**	**26,215.8041**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	6/1/2020	10/30/2020	5	110	
2	Building Construction	Building Construction	11/2/2020	1/31/2025	5	1110	
3	Paving	Paving	2/3/2025	5/16/2025	5	75	
4	Architectural Coating	Architectural Coating	5/19/2025	8/29/2025	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 0

Residential Indoor: 326,025; Residential Outdoor: 108,675; Non-Residential Indoor: 524,400; Non-Residential Outdoor: 174,800; Striped Parking Area: 23,112 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	343.00	131.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	69.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0852	0.0605	0.5701	1.4900e-003	0.1643	1.1000e-003	0.1654	0.0436	1.0200e-003	0.0446		148.1597	148.1597	4.4900e-003		148.2720
Total	**0.0852**	**0.0605**	**0.5701**	**1.4900e-003**	**0.1643**	**1.1000e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**148.1597**	**148.1597**	**4.4900e-003**		**148.2720**

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3.2 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0852	0.0605	0.5701	1.4900e-003	0.1643	1.1000e-003	0.1654	0.0436	1.0200e-003	0.0446		148.1597	148.1597	4.4900e-003		148.2720
Total	**0.0852**	**0.0605**	**0.5701**	**1.4900e-003**	**0.1643**	**1.1000e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**148.1597**	**148.1597**	**4.4900e-003**		**148.2720**

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3.3 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5276	14.8166	4.7010	0.0337	0.8853	0.0909	0.9763	0.2548	0.0870	0.3418		3,620.6039	3,620.6039	0.2701		3,627.3562
Worker	1.4607	1.0370	9.7775	0.0255	2.8177	0.0190	2.8366	0.7474	0.0175	0.7648		2,540.9387	2,540.9387	0.0771		2,542.8649
Total	**1.9883**	**15.8537**	**14.4786**	**0.0592**	**3.7030**	**0.1099**	**3.8129**	**1.0021**	**0.1045**	**1.1066**		**6,161.5426**	**6,161.5426**	**0.3471**		**6,170.2211**

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3.3 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5276	14.8166	4.7010	0.0337	0.8853	0.0909	0.9763	0.2548	0.0870	0.3418		3,620.6039	3,620.6039	0.2701		3,627.3562
Worker	1.4607	1.0370	9.7775	0.0255	2.8177	0.0190	2.8366	0.7474	0.0175	0.7648		2,540.9387	2,540.9387	0.0771		2,542.8649
Total	**1.9883**	**15.8537**	**14.4786**	**0.0592**	**3.7030**	**0.1099**	**3.8129**	**1.0021**	**0.1045**	**1.1066**		**6,161.5426**	**6,161.5426**	**0.3471**		**6,170.2211**

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3.3 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4379	13.3767	4.2084	0.0334	0.8854	0.0420	0.9274	0.2548	0.0402	0.2949		3,594.3815	3,594.3815	0.2645		3,600.9941
Worker	1.3666	0.9295	8.9365	0.0247	2.8177	0.0185	2.8361	0.7474	0.0170	0.7644		2,460.3951	2,460.3951	0.0692		2,462.1254
Total	**1.8045**	**14.3062**	**13.1449**	**0.0581**	**3.7031**	**0.0605**	**3.7635**	**1.0022**	**0.0572**	**1.0594**		**6,054.7766**	**6,054.7766**	**0.3337**		**6,063.1195**

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3.3 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4379	13.3767	4.2084	0.0334	0.8854	0.0420	0.9274	0.2548	0.0402	0.2949		3,594.3815	3,594.3815	0.2645		3,600.9941
Worker	1.3666	0.9295	8.9365	0.0247	2.8177	0.0185	2.8361	0.7474	0.0170	0.7644		2,460.3951	2,460.3951	0.0692		2,462.1254
Total	**1.8045**	**14.3062**	**13.1449**	**0.0581**	**3.7031**	**0.0605**	**3.7635**	**1.0022**	**0.0572**	**1.0594**		**6,054.7766**	**6,054.7766**	**0.3337**		**6,063.1195**

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3.3 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4054	12.6046	3.9317	0.0330	0.8855	0.0367	0.9221	0.2548	0.0351	0.2899		3,562.4842	3,562.4842	0.2615		3,569.0205
Worker	1.2852	0.8357	8.2048	0.0238	2.8177	0.0180	2.8357	0.7474	0.0166	0.7640		2,371.7927	2,371.7927	0.0621		2,373.3455
Total	**1.6906**	**13.4403**	**12.1365**	**0.0568**	**3.7031**	**0.0547**	**3.7578**	**1.0022**	**0.0516**	**1.0538**		**5,934.2769**	**5,934.2769**	**0.3236**		**5,942.3661**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4054	12.6046	3.9317	0.0330	0.8855	0.0367	0.9221	0.2548	0.0351	0.2899		3,562.4842	3,562.4842	0.2615		3,569.0205
Worker	1.2852	0.8357	8.2048	0.0238	2.8177	0.0180	2.8357	0.7474	0.0166	0.7640		2,371.7927	2,371.7927	0.0621		2,373.3455
Total	**1.6906**	**13.4403**	**12.1365**	**0.0568**	**3.7031**	**0.0547**	**3.7578**	**1.0022**	**0.0516**	**1.0538**		**5,934.2769**	**5,934.2769**	**0.3236**		**5,942.3661**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3072	9.9603	3.5057	0.0323	0.8855	0.0159	0.9014	0.2548	0.0152	0.2700		3,491.1596	3,491.1596	0.2402		3,497.1643
Worker	1.2105	0.7521	7.5244	0.0229	2.8177	0.0175	2.8352	0.7474	0.0162	0.7635		2,282.5349	2,282.5349	0.0556		2,283.9252
Total	**1.5177**	**10.7123**	**11.0301**	**0.0552**	**3.7032**	**0.0334**	**3.7366**	**1.0022**	**0.0313**	**1.0335**		**5,773.6945**	**5,773.6945**	**0.2958**		**5,781.0895**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3072	9.9603	3.5057	0.0323	0.8855	0.0159	0.9014	0.2548	0.0152	0.2700		3,491.1596	3,491.1596	0.2402		3,497.1643
Worker	1.2105	0.7521	7.5244	0.0229	2.8177	0.0175	2.8352	0.7474	0.0162	0.7635		2,282.5349	2,282.5349	0.0556		2,283.9252
Total	**1.5177**	**10.7123**	**11.0301**	**0.0552**	**3.7032**	**0.0334**	**3.7366**	**1.0022**	**0.0313**	**1.0335**		**5,773.6945**	**5,773.6945**	**0.2958**		**5,781.0895**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2937	9.7678	3.3530	0.0321	0.8856	0.0150	0.9006	0.2549	0.0143	0.2692		3,472.6018	3,472.6018	0.2408		3,478.6216
Worker	1.1450	0.6798	6.9550	0.0221	2.8177	0.0172	2.8349	0.7474	0.0158	0.7632		2,198.7286	2,198.7286	0.0502		2,199.9834
Total	**1.4387**	**10.4475**	**10.3080**	**0.0541**	**3.7033**	**0.0322**	**3.7354**	**1.0022**	**0.0301**	**1.0324**		**5,671.3304**	**5,671.3304**	**0.2910**		**5,678.6050**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2937	9.7678	3.3530	0.0321	0.8856	0.0150	0.9006	0.2549	0.0143	0.2692		3,472.6018	3,472.6018	0.2408		3,478.6216
Worker	1.1450	0.6798	6.9550	0.0221	2.8177	0.0172	2.8349	0.7474	0.0158	0.7632		2,198.7286	2,198.7286	0.0502		2,199.9834
Total	**1.4387**	**10.4475**	**10.3080**	**0.0541**	**3.7033**	**0.0322**	**3.7354**	**1.0022**	**0.0301**	**1.0324**		**5,671.3304**	**5,671.3304**	**0.2910**		**5,678.6050**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2818	9.5722	3.2404	0.0318	0.8857	0.0141	0.8998	0.2549	0.0135	0.2684		3,452.2159	3,452.2159	0.2415		3,458.2523
Worker	1.0875	0.6171	6.4272	0.0212	2.8177	0.0169	2.8345	0.7474	0.0155	0.7629		2,110.9126	2,110.9126	0.0454		2,112.0472
Total	**1.3693**	**10.1893**	**9.6676**	**0.0530**	**3.7033**	**0.0310**	**3.7343**	**1.0023**	**0.0291**	**1.0313**		**5,563.1286**	**5,563.1286**	**0.2868**		**5,570.2995**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2818	9.5722	3.2404	0.0318	0.8857	0.0141	0.8998	0.2549	0.0135	0.2684		3,452.2159	3,452.2159	0.2415		3,458.2523
Worker	1.0875	0.6171	6.4272	0.0212	2.8177	0.0169	2.8345	0.7474	0.0155	0.7629		2,110.9126	2,110.9126	0.0454		2,112.0472
Total	**1.3693**	**10.1893**	**9.6676**	**0.0530**	**3.7033**	**0.0310**	**3.7343**	**1.0023**	**0.0291**	**1.0313**		**5,563.1286**	**5,563.1286**	**0.2868**		**5,570.2995**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0476	0.0270	0.2811	9.3000e-004	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		92.3140	92.3140	1.9800e-003		92.3636
Total	**0.0476**	**0.0270**	**0.2811**	**9.3000e-004**	**0.1232**	**7.4000e-004**	**0.1240**	**0.0327**	**6.8000e-004**	**0.0334**		**92.3140**	**92.3140**	**1.9800e-003**		**92.3636**

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3.4 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0476	0.0270	0.2811	9.3000e-004	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		92.3140	92.3140	1.9800e-003		92.3636
Total	**0.0476**	**0.0270**	**0.2811**	**9.3000e-004**	**0.1232**	**7.4000e-004**	**0.1240**	**0.0327**	**6.8000e-004**	**0.0334**		**92.3140**	**92.3140**	**1.9800e-003**		**92.3636**

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3.5 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	107.2550					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**107.4259**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2188	0.1242	1.2929	4.2600e-003	0.5668	3.3900e-003	0.5702	0.1504	3.1200e-003	0.1535		424.6442	424.6442	9.1300e-003		424.8725
Total	**0.2188**	**0.1242**	**1.2929**	**4.2600e-003**	**0.5668**	**3.3900e-003**	**0.5702**	**0.1504**	**3.1200e-003**	**0.1535**		**424.6442**	**424.6442**	**9.1300e-003**		**424.8725**

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3.5 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	107.2550					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**107.4259**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2188	0.1242	1.2929	4.2600e-003	0.5668	3.3900e-003	0.5702	0.1504	3.1200e-003	0.1535		424.6442	424.6442	9.1300e-003		424.8725
Total	**0.2188**	**0.1242**	**1.2929**	**4.2600e-003**	**0.5668**	**3.3900e-003**	**0.5702**	**0.1504**	**3.1200e-003**	**0.1535**		**424.6442**	**424.6442**	**9.1300e-003**		**424.8725**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.0749	20.3718	53.7088	0.2034	24.4089	0.1431	24.5520	6.5201	0.1329	6.6530		20,749.0167	20,749.0167	0.8223		20,769.5733
Unmitigated	5.0749	20.3718	53.7088	0.2034	24.4089	0.1431	24.5520	6.5201	0.1329	6.6530		20,749.0167	20,749.0167	0.8223		20,769.5733

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	124.44	121.72	103.19	340,544	340,544
General Office Building	37.01	9.35	3.99	67,732	67,732
General Office Building	233.76	59.04	25.20	427,779	427,779
General Office Building	214.28	54.12	23.10	392,131	392,131
High Turnover (Sit Down Restaurant)	628.21	886.87	738.30	790,010	790,010
Hotel	836.00	819.00	595.00	1,518,316	1,518,316
Hotel	1,881.00	1,842.75	1338.75	3,416,211	3,416,211
Regional Shopping Center	687.05	909.45	459.37	1,203,286	1,203,286
Single Family Housing	755.20	792.80	689.60	2,113,914	2,113,914
Parking Lot	0.00	0.00	0.00		
Total	5,396.95	5,495.10	3,976.50	10,269,924	10,269,924

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4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	37.50	15.00	47.50	86	11	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Single Family Housing	10.80	7.30	7.50	37.50	15.00	47.50	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
General Office Building	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
High Turnover (Sit Down Restaurant)	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Hotel	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Regional Shopping Center	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Single Family Housing	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Parking Lot	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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Paso Robles Gateway Project - South Central Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.4949	4.4590	3.4841	0.0270		0.3419	0.3419		0.3419	0.3419		5,399.0768	5,399.0768	0.1035	0.0990	5,431.1608
NaturalGas Unmitigated	0.4949	4.4590	3.4841	0.0270		0.3419	0.3419		0.3419	0.3419		5,399.0768	5,399.0768	0.1035	0.0990	5,431.1608

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	475.015	5.1200e-003	0.0438	0.0186	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.8841	55.8841	1.0700e-003	1.0200e-003	56.2162
General Office Building	1076.38	0.0116	0.1055	0.0886	6.3000e-004		8.0200e-003	8.0200e-003		8.0200e-003	8.0200e-003		126.6334	126.6334	2.4300e-003	2.3200e-003	127.3859
General Office Building	170.427	1.8400e-003	0.0167	0.0140	1.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003		20.0503	20.0503	3.8000e-004	3.7000e-004	20.1694
General Office Building	986.685	0.0106	0.0967	0.0813	5.8000e-004		7.3500e-003	7.3500e-003		7.3500e-003	7.3500e-003		116.0806	116.0806	2.2200e-003	2.1300e-003	116.7704
High Turnover (Sit Down Restaurant)	3189.39	0.0344	0.3127	0.2627	1.8800e-003		0.0238	0.0238		0.0238	0.0238		375.2226	375.2226	7.1900e-003	6.8800e-003	377.4523
Hotel	24279.5	0.2618	2.3803	1.9995	0.0143		0.1809	0.1809		0.1809	0.1809		2,856.4061	2,856.4061	0.0548	0.0524	2,873.3803
Hotel	9226.19	0.0995	0.9045	0.7598	5.4300e-003		0.0687	0.0687		0.0687	0.0687		1,085.4343	1,085.4343	0.0208	0.0199	1,091.8845
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	118.175	1.2700e-003	0.0116	9.7300e-003	7.0000e-005		8.8000e-004	8.8000e-004		8.8000e-004	8.8000e-004		13.9030	13.9030	2.7000e-004	2.5000e-004	13.9856
Single Family Housing	6370.43	0.0687	0.5871	0.2498	3.7500e-003		0.0475	0.0475		0.0475	0.0475		749.4624	749.4624	0.0144	0.0137	753.9161
Total		**0.4949**	**4.4590**	**3.4841**	**0.0270**		**0.3419**	**0.3419**		**0.3419**	**0.3419**		**5,399.0768**	**5,399.0768**	**0.1035**	**0.0990**	**5,431.1608**

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0.475015	5.1200e-003	0.0438	0.0186	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.8841	55.8841	1.0700e-003	1.0200e-003	56.2162
General Office Building	0.170427	1.8400e-003	0.0167	0.0140	1.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003		20.0503	20.0503	3.8000e-004	3.7000e-004	20.1694
General Office Building	0.986685	0.0106	0.0967	0.0813	5.8000e-004		7.3500e-003	7.3500e-003		7.3500e-003	7.3500e-003		116.0806	116.0806	2.2200e-003	2.1300e-003	116.7704
General Office Building	1.07638	0.0116	0.1055	0.0886	6.3000e-004		8.0200e-003	8.0200e-003		8.0200e-003	8.0200e-003		126.6334	126.6334	2.4300e-003	2.3200e-003	127.3859
High Turnover (Sit Down Restaurant)	3.18939	0.0344	0.3127	0.2627	1.8800e-003		0.0238	0.0238		0.0238	0.0238		375.2226	375.2226	7.1900e-003	6.8800e-003	377.4523
Hotel	24.2795	0.2618	2.3803	1.9995	0.0143		0.1809	0.1809		0.1809	0.1809		2,856.4061	2,856.4061	0.0548	0.0524	2,873.3803
Hotel	9.22619	0.0995	0.9045	0.7598	5.4300e-003		0.0687	0.0687		0.0687	0.0687		1,085.4343	1,085.4343	0.0208	0.0199	1,091.8845
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.118175	1.2700e-003	0.0116	9.7300e-003	7.0000e-005		8.8000e-004	8.8000e-004		8.8000e-004	8.8000e-004		13.9030	13.9030	2.7000e-004	2.5000e-004	13.9856
Single Family Housing	6.37043	0.0687	0.5871	0.2498	3.7500e-003		0.0475	0.0475		0.0475	0.0475		749.4624	749.4624	0.0144	0.0137	753.9161
Total		**0.4949**	**4.4590**	**3.4841**	**0.0270**		**0.3419**	**0.3419**		**0.3419**	**0.3419**		**5,399.0768**	**5,399.0768**	**0.1035**	**0.0990**	**5,431.1608**

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	13.5185	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449	0.0000	14.7076	14.7076	0.0145	0.0000	15.0700
Unmitigated	13.5185	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449	0.0000	14.7076	14.7076	0.0145	0.0000	15.0700

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2039					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.0633					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2514	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449		14.7076	14.7076	0.0145		15.0700
Total	**13.5185**	**0.0933**	**8.1198**	**4.3000e-004**		**0.0449**	**0.0449**		**0.0449**	**0.0449**	**0.0000**	**14.7076**	**14.7076**	**0.0145**	**0.0000**	**15.0700**

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2039					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.0633					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2514	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449		14.7076	14.7076	0.0145		15.0700
Total	**13.5185**	**0.0933**	**8.1198**	**4.3000e-004**		**0.0449**	**0.0449**		**0.0449**	**0.0449**	**0.0000**	**14.7076**	**14.7076**	**0.0145**	**0.0000**	**15.0700**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

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Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Paso Robles Gateway Project

South Central Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3.80	1000sqft	0.00	3,800.00	0
General Office Building	24.00	1000sqft	2.40	24,000.00	0
General Office Building	22.00	1000sqft	1.60	22,000.00	0
High Turnover (Sit Down Restaurant)	5.60	1000sqft	0.00	5,600.00	0
Hotel	100.00	Room	3.40	76,000.00	0
Hotel	225.00	Room	35.20	200,000.00	0
Apartments Low Rise	17.00	Dwelling Unit	0.00	17,000.00	49
Single Family Housing	80.00	Dwelling Unit	18.50	144,000.00	229
Regional Shopping Center	18.20	1000sqft	6.50	18,200.00	0
Parking Lot	963.00	Space	0.00	385,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	298.65	**CH4 Intensity (lb/MWhr)**	0.014	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

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Paso Robles Gateway Project - South Central Coast Air Basin, Summer

Project Characteristics - Adjusted for 2030 RPS.

Land Use - Parking acreage allocated to other land uses. Acreage for Village Comm Center allocated to retail.

Construction Phase -

Vehicle Trips - Trip rates from Revised Traffic and Circulation Study (ATE 2019)

Mobile Land Use Mitigation -

Architectural Coating - SLOAPCD Rule 433 limit for nonflat and traffic marking coatings.

Area Coating - SLOAPCD Rule 433 limit for nonflat and traffic marking coatings.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblAreaCoating	Area_EF_Parking	250	150
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblConstructionPhase	PhaseEndDate	7/18/2023	8/29/2025
tblConstructionPhase	PhaseEndDate	2/14/2023	1/31/2025
tblConstructionPhase	PhaseEndDate	4/14/2020	10/30/2020
tblConstructionPhase	PhaseEndDate	5/2/2023	5/16/2025
tblConstructionPhase	PhaseStartDate	5/3/2023	5/19/2025
tblConstructionPhase	PhaseStartDate	4/15/2020	11/2/2020
tblConstructionPhase	PhaseStartDate	1/1/2020	6/1/2020
tblConstructionPhase	PhaseStartDate	2/15/2023	2/3/2025

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tblLandUse	LandUseSquareFeet	145,200.00	76,000.00
tblLandUse	LandUseSquareFeet	326,700.00	200,000.00
tblLandUse	LotAcreage	0.09	0.00
tblLandUse	LotAcreage	0.55	2.40
tblLandUse	LotAcreage	0.51	1.60
tblLandUse	LotAcreage	0.13	0.00
tblLandUse	LotAcreage	3.33	3.40
tblLandUse	LotAcreage	7.50	35.20
tblLandUse	LotAcreage	1.06	0.00
tblLandUse	LotAcreage	25.97	18.50
tblLandUse	LotAcreage	0.42	6.50
tblLandUse	LotAcreage	8.67	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.014
tblProjectCharacteristics	CO2IntensityFactor	641.35	298.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	11.03	9.74
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	42.70	37.75
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

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2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5250	50.2499	32.5335	0.0880	8.8376	2.1750	11.0126	3.6401	2.0010	5.6411	0.0000	8,910.0414	8,910.0414	1.9470	0.0000	8,933.9825
2021	3.5154	31.6386	29.3939	0.0868	3.7031	1.0171	4.7202	1.0022	0.9566	1.9587	0.0000	8,800.3738	8,800.3738	0.9377	0.0000	8,823.8166
2022	3.2161	28.9797	28.2124	0.0856	3.7031	0.8618	4.5650	1.0022	0.8110	1.8132	0.0000	8,677.2390	8,677.2390	0.9237	0.0000	8,700.3323
2023	2.9212	25.0439	27.0818	0.0839	3.7032	0.7324	4.4356	1.0022	0.6890	1.6912	0.0000	8,512.8893	8,512.8893	0.8943	0.0000	8,535.2454
2024	2.7475	23.8483	26.3046	0.0828	3.7033	0.6448	4.3481	1.0022	0.6064	1.6086	0.0000	8,406.6886	8,406.6886	0.8861	0.0000	8,428.8405
2025	107.6163	22.6255	25.5946	0.0816	3.7033	0.5580	4.2613	1.0023	0.5247	1.5270	0.0000	8,294.6456	8,294.6456	0.8787	0.0000	8,316.6119
Maximum	**107.6163**	**50.2499**	**32.5335**	**0.0880**	**8.8376**	**2.1750**	**11.0126**	**3.6401**	**2.0010**	**5.6411**	**0.0000**	**8,910.0414**	**8,910.0414**	**1.9470**	**0.0000**	**8,933.9825**

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2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5250	50.2499	32.5335	0.0880	8.8376	2.1750	11.0126	3.6401	2.0010	5.6411	0.0000	8,910.0414	8,910.0414	1.9470	0.0000	8,933.9825
2021	3.5154	31.6386	29.3939	0.0868	3.7031	1.0171	4.7202	1.0022	0.9566	1.9587	0.0000	8,800.3738	8,800.3738	0.9377	0.0000	8,823.8166
2022	3.2161	28.9797	28.2124	0.0856	3.7031	0.8618	4.5650	1.0022	0.8110	1.8132	0.0000	8,677.2390	8,677.2390	0.9237	0.0000	8,700.3323
2023	2.9212	25.0439	27.0818	0.0839	3.7032	0.7324	4.4356	1.0022	0.6890	1.6912	0.0000	8,512.8893	8,512.8893	0.8943	0.0000	8,535.2454
2024	2.7475	23.8483	26.3046	0.0828	3.7033	0.6448	4.3481	1.0022	0.6064	1.6086	0.0000	8,406.6886	8,406.6886	0.8861	0.0000	8,428.8405
2025	107.6163	22.6255	25.5946	0.0816	3.7033	0.5580	4.2613	1.0023	0.5247	1.5270	0.0000	8,294.6456	8,294.6456	0.8787	0.0000	8,316.6119
Maximum	**107.6163**	**50.2499**	**32.5335**	**0.0880**	**8.8376**	**2.1750**	**11.0126**	**3.6401**	**2.0010**	**5.6411**	**0.0000**	**8,910.0414**	**8,910.0414**	**1.9470**	**0.0000**	**8,933.9825**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	13.5185	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449	0.0000	14.7076	14.7076	0.0145	0.0000	15.0700
Energy	0.4949	4.4590	3.4841	0.0270		0.3419	0.3419		0.3419	0.3419		5,399.0768	5,399.0768	0.1035	0.0990	5,431.1608
Mobile	5.3729	19.9272	51.9598	0.2110	24.4089	0.1425	24.5514	6.5201	0.1324	6.6525		21,524.2332	21,524.2332	0.8006		21,544.2471
Total	**19.3864**	**24.4794**	**63.5637**	**0.2384**	**24.4089**	**0.5294**	**24.9383**	**6.5201**	**0.5192**	**7.0393**	**0.0000**	**26,938.0175**	**26,938.0175**	**0.9185**	**0.0990**	**26,990.4778**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	13.5185	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449	0.0000	14.7076	14.7076	0.0145	0.0000	15.0700
Energy	0.4949	4.4590	3.4841	0.0270		0.3419	0.3419		0.3419	0.3419		5,399.0768	5,399.0768	0.1035	0.0990	5,431.1608
Mobile	5.3729	19.9272	51.9598	0.2110	24.4089	0.1425	24.5514	6.5201	0.1324	6.6525		21,524.2332	21,524.2332	0.8006		21,544.2471
Total	**19.3864**	**24.4794**	**63.5637**	**0.2384**	**24.4089**	**0.5294**	**24.9383**	**6.5201**	**0.5192**	**7.0393**	**0.0000**	**26,938.0175**	**26,938.0175**	**0.9185**	**0.0990**	**26,990.4778**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	6/1/2020	10/30/2020	5	110	
2	Building Construction	Building Construction	11/2/2020	1/31/2025	5	1110	
3	Paving	Paving	2/3/2025	5/16/2025	5	75	
4	Architectural Coating	Architectural Coating	5/19/2025	8/29/2025	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 0

Residential Indoor: 326,025; Residential Outdoor: 108,675; Non-Residential Indoor: 524,400; Non-Residential Outdoor: 174,800; Striped Parking Area: 23,112 (Architectural Coating – sqft)

OffRoad Equipment

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Paso Robles Gateway Project - South Central Coast Air Basin, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	343.00	131.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	69.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0749	0.0524	0.5752	1.5500e-003	0.1643	1.1000e-003	0.1654	0.0436	1.0200e-003	0.0446		154.5896	154.5896	4.6000e-003		154.7047
Total	**0.0749**	**0.0524**	**0.5752**	**1.5500e-003**	**0.1643**	**1.1000e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**154.5896**	**154.5896**	**4.6000e-003**		**154.7047**

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3.2 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0749	0.0524	0.5752	1.5500e-003	0.1643	1.1000e-003	0.1654	0.0436	1.0200e-003	0.0446		154.5896	154.5896	4.6000e-003		154.7047
Total	**0.0749**	**0.0524**	**0.5752**	**1.5500e-003**	**0.1643**	**1.1000e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**154.5896**	**154.5896**	**4.6000e-003**		**154.7047**

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3.3 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5007	14.8150	4.2358	0.0345	0.8853	0.0887	0.9740	0.2548	0.0848	0.3396		3,705.7661	3,705.7661	0.2559		3,712.1623
Worker	1.2852	0.8983	9.8653	0.0266	2.8177	0.0190	2.8366	0.7474	0.0175	0.7648		2,651.2123	2,651.2123	0.0789		2,653.1858
Total	**1.7859**	**15.7133**	**14.1011**	**0.0611**	**3.7030**	**0.1076**	**3.8107**	**1.0021**	**0.1023**	**1.1044**		**6,356.9784**	**6,356.9784**	**0.3348**		**6,365.3480**

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3.3 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5007	14.8150	4.2358	0.0345	0.8853	0.0887	0.9740	0.2548	0.0848	0.3396		3,705.7661	3,705.7661	0.2559		3,712.1623
Worker	1.2852	0.8983	9.8653	0.0266	2.8177	0.0190	2.8366	0.7474	0.0175	0.7648		2,651.2123	2,651.2123	0.0789		2,653.1858
Total	**1.7859**	**15.7133**	**14.1011**	**0.0611**	**3.7030**	**0.1076**	**3.8107**	**1.0021**	**0.1023**	**1.1044**		**6,356.9784**	**6,356.9784**	**0.3348**		**6,365.3480**

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3.3 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4132	13.4014	3.7788	0.0342	0.8854	0.0400	0.9254	0.2548	0.0383	0.2930		3,679.6992	3,679.6992	0.2506		3,685.9649
Worker	1.2012	0.8052	9.0399	0.0258	2.8177	0.0185	2.8361	0.7474	0.0170	0.7644		2,567.3107	2,567.3107	0.0711		2,569.0875
Total	**1.6145**	**14.2065**	**12.8187**	**0.0599**	**3.7031**	**0.0585**	**3.7616**	**1.0022**	**0.0553**	**1.0575**		**6,247.0099**	**6,247.0099**	**0.3217**		**6,255.0523**

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3.3 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4132	13.4014	3.7788	0.0342	0.8854	0.0400	0.9254	0.2548	0.0383	0.2930		3,679.6992	3,679.6992	0.2506		3,685.9649
Worker	1.2012	0.8052	9.0399	0.0258	2.8177	0.0185	2.8361	0.7474	0.0170	0.7644		2,567.3107	2,567.3107	0.0711		2,569.0875
Total	**1.6145**	**14.2065**	**12.8187**	**0.0599**	**3.7031**	**0.0585**	**3.7616**	**1.0022**	**0.0553**	**1.0575**		**6,247.0099**	**6,247.0099**	**0.3217**		**6,255.0523**

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3.3 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3824	12.6401	3.5279	0.0338	0.8855	0.0348	0.9203	0.2548	0.0333	0.2881		3,648.0587	3,648.0587	0.2479		3,654.2555
Worker	1.1275	0.7240	8.3211	0.0248	2.8177	0.0180	2.8357	0.7474	0.0166	0.7640		2,474.8468	2,474.8468	0.0639		2,476.4446
Total	**1.5099**	**13.3641**	**11.8490**	**0.0586**	**3.7031**	**0.0528**	**3.7559**	**1.0022**	**0.0499**	**1.0521**		**6,122.9055**	**6,122.9055**	**0.3118**		**6,130.7001**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3824	12.6401	3.5279	0.0338	0.8855	0.0348	0.9203	0.2548	0.0333	0.2881		3,648.0587	3,648.0587	0.2479		3,654.2555
Worker	1.1275	0.7240	8.3211	0.0248	2.8177	0.0180	2.8357	0.7474	0.0166	0.7640		2,474.8468	2,474.8468	0.0639		2,476.4446
Total	**1.5099**	**13.3641**	**11.8490**	**0.0586**	**3.7031**	**0.0528**	**3.7559**	**1.0022**	**0.0499**	**1.0521**		**6,122.9055**	**6,122.9055**	**0.3118**		**6,130.7001**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2892	10.0074	3.1853	0.0331	0.8855	0.0151	0.9007	0.2548	0.0144	0.2693		3,575.9790	3,575.9790	0.2290		3,581.7045
Worker	1.0593	0.6516	7.6526	0.0239	2.8177	0.0175	2.8352	0.7474	0.0162	0.7635		2,381.7004	2,381.7004	0.0574		2,383.1349
Total	**1.3485**	**10.6591**	**10.8378**	**0.0570**	**3.7032**	**0.0327**	**3.7359**	**1.0022**	**0.0306**	**1.0328**		**5,957.6794**	**5,957.6794**	**0.2864**		**5,964.8393**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2892	10.0074	3.1853	0.0331	0.8855	0.0151	0.9007	0.2548	0.0144	0.2693		3,575.9790	3,575.9790	0.2290		3,581.7045
Worker	1.0593	0.6516	7.6526	0.0239	2.8177	0.0175	2.8352	0.7474	0.0162	0.7635		2,381.7004	2,381.7004	0.0574		2,383.1349
Total	**1.3485**	**10.6591**	**10.8378**	**0.0570**	**3.7032**	**0.0327**	**3.7359**	**1.0022**	**0.0306**	**1.0328**		**5,957.6794**	**5,957.6794**	**0.2864**		**5,964.8393**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2767	9.8155	3.0484	0.0328	0.8856	0.0143	0.8999	0.2549	0.0137	0.2685		3,556.6227	3,556.6227	0.2298		3,562.3680
Worker	0.9992	0.5891	7.0894	0.0230	2.8177	0.0172	2.8349	0.7474	0.0158	0.7632		2,294.3669	2,294.3669	0.0519		2,295.6649
Total	**1.2759**	**10.4046**	**10.1377**	**0.0558**	**3.7033**	**0.0315**	**3.7348**	**1.0022**	**0.0295**	**1.0317**		**5,850.9897**	**5,850.9897**	**0.2817**		**5,858.0329**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2767	9.8155	3.0484	0.0328	0.8856	0.0143	0.8999	0.2549	0.0137	0.2685		3,556.6227	3,556.6227	0.2298		3,562.3680
Worker	0.9992	0.5891	7.0894	0.0230	2.8177	0.0172	2.8349	0.7474	0.0158	0.7632		2,294.3669	2,294.3669	0.0519		2,295.6649
Total	**1.2759**	**10.4046**	**10.1377**	**0.0558**	**3.7033**	**0.0315**	**3.7348**	**1.0022**	**0.0295**	**1.0317**		**5,850.9897**	**5,850.9897**	**0.2817**		**5,858.0329**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2657	9.6210	2.9483	0.0326	0.8857	0.0136	0.8992	0.2549	0.0130	0.2678		3,535.4547	3,535.4547	0.2307		3,541.2217
Worker	0.9464	0.5348	6.5616	0.0221	2.8177	0.0169	2.8345	0.7474	0.0155	0.7629		2,202.7165	2,202.7165	0.0470		2,203.8922
Total	**1.2121**	**10.1558**	**9.5099**	**0.0547**	**3.7033**	**0.0304**	**3.7338**	**1.0023**	**0.0285**	**1.0307**		**5,738.1713**	**5,738.1713**	**0.2777**		**5,745.1139**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2657	9.6210	2.9483	0.0326	0.8857	0.0136	0.8992	0.2549	0.0130	0.2678		3,535.4547	3,535.4547	0.2307		3,541.2217
Worker	0.9464	0.5348	6.5616	0.0221	2.8177	0.0169	2.8345	0.7474	0.0155	0.7629		2,202.7165	2,202.7165	0.0470		2,203.8922
Total	**1.2121**	**10.1558**	**9.5099**	**0.0547**	**3.7033**	**0.0304**	**3.7338**	**1.0023**	**0.0285**	**1.0307**		**5,738.1713**	**5,738.1713**	**0.2777**		**5,745.1139**

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3.4 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0414	0.0234	0.2870	9.7000e-004	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		96.3287	96.3287	2.0600e-003		96.3801
Total	**0.0414**	**0.0234**	**0.2870**	**9.7000e-004**	**0.1232**	**7.4000e-004**	**0.1240**	**0.0327**	**6.8000e-004**	**0.0334**		**96.3287**	**96.3287**	**2.0600e-003**		**96.3801**

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3.4 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0414	0.0234	0.2870	9.7000e-004	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		96.3287	96.3287	2.0600e-003		96.3801
Total	**0.0414**	**0.0234**	**0.2870**	**9.7000e-004**	**0.1232**	**7.4000e-004**	**0.1240**	**0.0327**	**6.8000e-004**	**0.0334**		**96.3287**	**96.3287**	**2.0600e-003**		**96.3801**

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3.5 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	107.2550					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**107.4259**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1904	0.1076	1.3200	4.4400e-003	0.5668	3.3900e-003	0.5702	0.1504	3.1200e-003	0.1535		443.1121	443.1121	9.4600e-003		443.3486
Total	**0.1904**	**0.1076**	**1.3200**	**4.4400e-003**	**0.5668**	**3.3900e-003**	**0.5702**	**0.1504**	**3.1200e-003**	**0.1535**		**443.1121**	**443.1121**	**9.4600e-003**		**443.3486**

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3.5 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	107.2550					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**107.4259**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1904	0.1076	1.3200	4.4400e-003	0.5668	3.3900e-003	0.5702	0.1504	3.1200e-003	0.1535		443.1121	443.1121	9.4600e-003		443.3486
Total	**0.1904**	**0.1076**	**1.3200**	**4.4400e-003**	**0.5668**	**3.3900e-003**	**0.5702**	**0.1504**	**3.1200e-003**	**0.1535**		**443.1121**	**443.1121**	**9.4600e-003**		**443.3486**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.3729	19.9272	51.9598	0.2110	24.4089	0.1425	24.5514	6.5201	0.1324	6.6525		21,524.2332	21,524.2332	0.8006		21,544.2471
Unmitigated	5.3729	19.9272	51.9598	0.2110	24.4089	0.1425	24.5514	6.5201	0.1324	6.6525		21,524.2332	21,524.2332	0.8006		21,544.2471

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	124.44	121.72	103.19	340,544	340,544
General Office Building	37.01	9.35	3.99	67,732	67,732
General Office Building	233.76	59.04	25.20	427,779	427,779
General Office Building	214.28	54.12	23.10	392,131	392,131
High Turnover (Sit Down Restaurant)	628.21	886.87	738.30	790,010	790,010
Hotel	836.00	819.00	595.00	1,518,316	1,518,316
Hotel	1,881.00	1,842.75	1338.75	3,416,211	3,416,211
Regional Shopping Center	687.05	909.45	459.37	1,203,286	1,203,286
Single Family Housing	755.20	792.80	689.60	2,113,914	2,113,914
Parking Lot	0.00	0.00	0.00		
Total	5,396.95	5,495.10	3,976.50	10,269,924	10,269,924

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4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	37.50	15.00	47.50	86	11	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Single Family Housing	10.80	7.30	7.50	37.50	15.00	47.50	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
General Office Building	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
High Turnover (Sit Down Restaurant)	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Hotel	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Regional Shopping Center	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Single Family Housing	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804
Parking Lot	0.604374	0.031903	0.196198	0.101737	0.013626	0.004981	0.018143	0.019683	0.001877	0.001260	0.004427	0.000985	0.000804

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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Paso Robles Gateway Project - South Central Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.4949	4.4590	3.4841	0.0270		0.3419	0.3419		0.3419	0.3419		5,399.0768	5,399.0768	0.1035	0.0990	5,431.1608
NaturalGas Unmitigated	0.4949	4.4590	3.4841	0.0270		0.3419	0.3419		0.3419	0.3419		5,399.0768	5,399.0768	0.1035	0.0990	5,431.1608

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	475.015	5.1200e-003	0.0438	0.0186	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.8841	55.8841	1.0700e-003	1.0200e-003	56.2162
General Office Building	1076.38	0.0116	0.1055	0.0886	6.3000e-004		8.0200e-003	8.0200e-003		8.0200e-003	8.0200e-003		126.6334	126.6334	2.4300e-003	2.3200e-003	127.3859
General Office Building	170.427	1.8400e-003	0.0167	0.0140	1.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003		20.0503	20.0503	3.8000e-004	3.7000e-004	20.1694
General Office Building	986.685	0.0106	0.0967	0.0813	5.8000e-004		7.3500e-003	7.3500e-003		7.3500e-003	7.3500e-003		116.0806	116.0806	2.2200e-003	2.1300e-003	116.7704
High Turnover (Sit Down Restaurant)	3189.39	0.0344	0.3127	0.2627	1.8800e-003		0.0238	0.0238		0.0238	0.0238		375.2226	375.2226	7.1900e-003	6.8800e-003	377.4523
Hotel	24279.5	0.2618	2.3803	1.9995	0.0143		0.1809	0.1809		0.1809	0.1809		2,856.4061	2,856.4061	0.0548	0.0524	2,873.3803
Hotel	9226.19	0.0995	0.9045	0.7598	5.4300e-003		0.0687	0.0687		0.0687	0.0687		1,085.4343	1,085.4343	0.0208	0.0199	1,091.8845
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	118.175	1.2700e-003	0.0116	9.7300e-003	7.0000e-005		8.8000e-004	8.8000e-004		8.8000e-004	8.8000e-004		13.9030	13.9030	2.7000e-004	2.5000e-004	13.9856
Single Family Housing	6370.43	0.0687	0.5871	0.2498	3.7500e-003		0.0475	0.0475		0.0475	0.0475		749.4624	749.4624	0.0144	0.0137	753.9161
Total		**0.4949**	**4.4590**	**3.4841**	**0.0270**		**0.3419**	**0.3419**		**0.3419**	**0.3419**		**5,399.0768**	**5,399.0768**	**0.1035**	**0.0990**	**5,431.1608**

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0.475015	5.1200e-003	0.0438	0.0186	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.8841	55.8841	1.0700e-003	1.0200e-003	56.2162
General Office Building	0.170427	1.8400e-003	0.0167	0.0140	1.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003		20.0503	20.0503	3.8000e-004	3.7000e-004	20.1694
General Office Building	0.986685	0.0106	0.0967	0.0813	5.8000e-004		7.3500e-003	7.3500e-003		7.3500e-003	7.3500e-003		116.0806	116.0806	2.2200e-003	2.1300e-003	116.7704
General Office Building	1.07638	0.0116	0.1055	0.0886	6.3000e-004		8.0200e-003	8.0200e-003		8.0200e-003	8.0200e-003		126.6334	126.6334	2.4300e-003	2.3200e-003	127.3859
High Turnover (Sit Down Restaurant)	3.18939	0.0344	0.3127	0.2627	1.8800e-003		0.0238	0.0238		0.0238	0.0238		375.2226	375.2226	7.1900e-003	6.8800e-003	377.4523
Hotel	24.2795	0.2618	2.3803	1.9995	0.0143		0.1809	0.1809		0.1809	0.1809		2,856.4061	2,856.4061	0.0548	0.0524	2,873.3803
Hotel	9.22619	0.0995	0.9045	0.7598	5.4300e-003		0.0687	0.0687		0.0687	0.0687		1,085.4343	1,085.4343	0.0208	0.0199	1,091.8845
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.118175	1.2700e-003	0.0116	9.7300e-003	7.0000e-005		8.8000e-004	8.8000e-004		8.8000e-004	8.8000e-004		13.9030	13.9030	2.7000e-004	2.5000e-004	13.9856
Single Family Housing	6.37043	0.0687	0.5871	0.2498	3.7500e-003		0.0475	0.0475		0.0475	0.0475		749.4624	749.4624	0.0144	0.0137	753.9161
Total		**0.4949**	**4.4590**	**3.4841**	**0.0270**		**0.3419**	**0.3419**		**0.3419**	**0.3419**		**5,399.0768**	**5,399.0768**	**0.1035**	**0.0990**	**5,431.1608**

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	13.5185	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449	0.0000	14.7076	14.7076	0.0145	0.0000	15.0700
Unmitigated	13.5185	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449	0.0000	14.7076	14.7076	0.0145	0.0000	15.0700

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2039					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.0633					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2514	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449		14.7076	14.7076	0.0145		15.0700
Total	**13.5185**	**0.0933**	**8.1198**	**4.3000e-004**		**0.0449**	**0.0449**		**0.0449**	**0.0449**	**0.0000**	**14.7076**	**14.7076**	**0.0145**	**0.0000**	**15.0700**

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2039					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.0633					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2514	0.0933	8.1198	4.3000e-004		0.0449	0.0449		0.0449	0.0449		14.7076	14.7076	0.0145		15.0700
Total	**13.5185**	**0.0933**	**8.1198**	**4.3000e-004**		**0.0449**	**0.0449**		**0.0449**	**0.0449**	**0.0000**	**14.7076**	**14.7076**	**0.0145**	**0.0000**	**15.0700**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

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Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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N2O Operational GHG Emission Mobile Calculations

Project Code & Title: 17-04447 Paso Robles Gateway Project

Vehicle Population Breakdown*	
281904	Gasoline vehicles
16037	Diesel vehicles
94.6%	Gasoline vehicle %
5.4%	Diesel vehicle %

VMT per Vehicle Type	
10,269,924	Project VMT (CalEEMod output)
9717137	Gasoline vehicle VMT
552787	Diesel vehicle VMT

Gasoline Vehicles	
94.6%	Gasoline vehicle %
3.2876	Tons per year mobile NOX emissions (annual output in CalEEMod)
3.11	Gasoline vehicle tons per year NOX emissions
4.16%	Percentage to convert NOX emissions to N2O **
0.1294	Tons per year N2O emissions for gasoline vehicles
0.1174	Metric tons per year N2O emissions for gasoline vehicles

Diesel Vehicles	
0.3316	grams N2O per gallon of fuel for diesel vehicles**
222675.12	Diesel average miles per gallon*
0.00000	grams per mile N2O for diesel vehicles
0.8	grams per year N2O for diesel vehicles
0.0000008	Metric tons per year N2O emissions for diesel vehicles

CO2E Emissions from N2O	
0.1174	Metric tons per year from gasoline + diesel vehicles
298	GWP of N2O***
35.0	**CO2E emissions per year from N2O emissions from gasoline + diesel vehicles**

Sources
***Vehicle population source:** EMFAC2017 (v1.0.2) Emissions Inventory Region Type: County Region: SAN LUIS OBISPO Calendar Year: 2030 Season: Annual Vehicle Classification: EMFAC2011 Categories ****Methodology source:** EMFAC2011 Frequently Asked Questions https://www.arb.ca.gov/msei/emfac2011-faq.htm *****GWP source:** Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Climate Change 2007: The Physical Science Basis. Contrbution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

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Gateway Project

Last Updated: February 11, 2020

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Excavators	2	8	158	0.38	Grading	-
Graders	1	8	187	0.41	Grading	-
Rubber Tired Dozers	1	8	247	0.40	Grading	-
Scrapers	2	8	367	0.48	Grading	-
Tractors/Loaders/Backhoes	2	8	97	0.37	Grading	-
Cranes	1	7	231	0.29	Building Construction	2,726.59
Forklifts	3	8	89	0.20	Building Construction	2,761.45
Generator Sets	1	8	84	0.74	Building Construction	3,214.45
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction	4,871.90
Welders	1	8	46	0.45	Building Construction	1,070.45
Pavers	2	8	130	0.42	Paving	51,257.16
Paving Equipment	2	8	132	0.36	Paving	44,610.62
Rollers	2	8	80	0.38	Paving	31,727.04
Air Compressors	1	6	78	0.48	Architectural Coating	14,652.88
					Total Fuel Used	**156,892.54 (Gallons)**

Construction Phase	Days of Operation
Demolition	0
Site Preparation	0
Grading	110
Building Construction	1110
Paving	75
Architectural Coating	75

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition	24.0	-	0.0	-
Site Preparation	24.0	-	0.0	-
Grading	24.0	20	10.8	990.00
Building Construction	24.0	343	10.8	171,328.50
Paving	24.0	15	10.8	506.25
Architectural Coating	24.0	69	10.8	2,328.75
			Total	**175,153.50**

VENDOR TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition	7.4	-	0.0	-
Site Preparation	7.4	-	0.0	-
Grading	7.4	-	0.0	-
Building Construction	7.4	131	7.3	143,445.00
Paving	7.4	-	0.0	-
Architectural Coating	7.4	-	0.0	-
			Total	**143,445.00**

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HAULING TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition	7.4	-	0.00	-
			Total	**-**

Total Gasoline Consumption (gallons)	**175,153.50**
Total Diesel Consumption (gallons)	**300,337.54**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018* . Available at: https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf.

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Gateway Project

Last Updated: February 11, 2020

Populate one of the following tables (Leave the other blank):

Annual VMT		OR	Daily Vehicle Trips	
Annual VMT:	10,269,924		Daily Vehicle Trips:	
			Average Trip Distance:	

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.604374
Light Duty Truck 1 (LDT1)	0.031903
Light Duty Truck 2 (LDT2)	0.196198
Medium Duty Vehicle (MDV)	0.101737
Light Heavy Duty 1 (LHD1)	0.013626
Light Heavy Duty 2 (LHD2)	0.004981
Medium Heavy Duty (MHD)	0.018143
Heavy Heavy Duty (HHD)	0.019683
Other Bus (OBUS)	0.001877
Urban Bus (UBUS)	0.001260
School Bus (SBUS)	0.000985
Motorhome (MH)	0.000804
Motorcycle (MCY)	0.004427

Fuel Economy (MPG)	
Passenger Vehicles	24.0
Light-Med Duty Trucks	17.4
Heavy Trucks/Other	7.4
Motorcycles	43.9

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*60.44%*	*Gasoline*	6,206,875	0.00	258,619.79
Light-Medium Duty Trucks	*32.98%*	*Gasoline*	3,387,411	0.00	194,678.80
Heavy Trucks/Other	*6.14%*	*Diesel*	630,152	0.00	85,155.71
Motorcycle	*0.44%*	*Gasoline*	45,465	0.00	1,035.65

Total Gasoline Consumption (gallons)	**454,334.25**
Total Diesel Consumption (gallons)	**85,155.71**

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Appendix D

Biological Reports

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Biological Report

for

The Paso Robles Gateway Project

APNs 040-031-017, 040-031-019, 040-031-020,
040-031-001, 040-091-039, and 040-091-041
City of El Paso de Robles, San Luis Obispo County, California

Prepared for

Michael Furlotti
c/o Kirk Consulting
8830 Morro Road
Atascadero, CA 93422

by

ALTHOUSE AND MEADE, INC.
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1602 Spring Street
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August 2019

730.03

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Reporting Biologist: LynneDee Althouse
Principal Biologist
Althouse and Meade, Inc.
1602 Spring Street
Paso Robles, CA 93446
(805) 237-9626
LynneDee@althouseandmeade.com

I hereby certify that this Biological Report was prepared according to Professional Standards and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief.

Lynne Dee Althouse

Signature

08/06/2019

Date

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Cover Page: Aerial photo of the annual grassland and oak woodland habitat on the Project site, view southwest. June 26, 2019.

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SYNOPSIS

- This biological report describes the study of biological resources at a 162.5-acre property located in San Luis Obispo County, California (Study Area). The Study Area includes Assessor's Parcel Number (APN) 040-031-017, 040-031-019, 040-031-020, 040-031-001, 040-031-001, 040-091-039, and 040-091-041.
- The proposed project (Project) includes a hotel with community and conference centers, retail spaces, residential units, associated utilities, and a permanent agricultural easement.
- Habitat types identified and mapped within the Study Area consist of California annual grassland series, orchard, coast live oak woodland alliance, tree of heaven groves, Alvord oak woodland, and riparian.
- Botanical surveys conducted in June 2019 identified 133 species, subspecies, and varieties of vascular plants in the Study Area. A spring botanical survey will be conducted in 2020 and an addendum to this report will be prepared. Appropriate habitat and soil conditions are suitable for three special status plant species. Based on habitat and soil types in the Study Area, two special status plants have low to moderate potential to occur. One special status plant species was observed in the Study Area.
- Wildlife surveys performed in the Study Area detected 34 animal species: one (1) reptile, 29 birds, and four (4) mammals. Based on the habitat types in the Study Area, there is potential for nine (9) special status animals to occur. No special status animals were detected in the Study Area.
- Mitigation recommendations are provided to reduce potential impacts to sensitive biological resources.

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1 INTRODUCTION

1.1 Purpose

The purpose of this report is to provide results from the study of biological resources on an approximately 162.5-acre site (Study Area) to be annexed into the City of El Paso de Robles, San Luis Obispo County, California. This report also provides analysis of the potential impacts to those resources from the proposed hotel and residential project (Project). Results include habitat assessment, botanical and wildlife inventory, special status species database search, and literature review. Discussion of special status species that have potential to occur within the Study Area, or be affected by the Project, is also included. The effects of the Project on biological resources are evaluated and mitigation recommendations are outlined.

1.2 Location

The Study Area is located just outside the southwest boundary of the Paso Robles city limit within the City Planning Impact Area, north of State Highway 46 West, and west of U.S. Highway 101, in San Luis Obispo County, California (Figure 1). Approximate coordinates for the center of the Study Area are 35.5939° N, 120.6997° W (WGS84) in the United States Geological Survey (USGS) 7.5-minute topographic quadrangle Templeton (Figure 1). Elevation ranges from approximately 750 to 950 feet above mean sea level. The Study Area is within an area to be annexed into the City of El Paso de Robles.

TABLE 1. ASSESSOR'S PARCEL NUMBERS

Assessor's Parcel Number	Area (acres)
040-031-017	14.80
040-031-019	1.30
040-031-020	53.44
040-031-001	82.16
040-091-039	16.77
040-091-041	2.01

1.3 Project Description

The Paso Robles Gateway Project includes a hotel with conference center, a hotel and village, two visitor and community centers, and a 32-acre on-site agricultural conservation easement. The Project will include retail and office space and up to 425 transient units, 80 of which will be permitted as residential units. Access roads and parking areas would also be constructed as part of the project. Approximately half of the Property would be placed under a permanent agricultural easement (AG Easement) and will be used for orchards and vineyards to promote agritourism. Approximately ten percent of the Property will be open space and the remaining 40 percent will be used for development. The Property would be annexed into the City of Paso Robles as part of the project.

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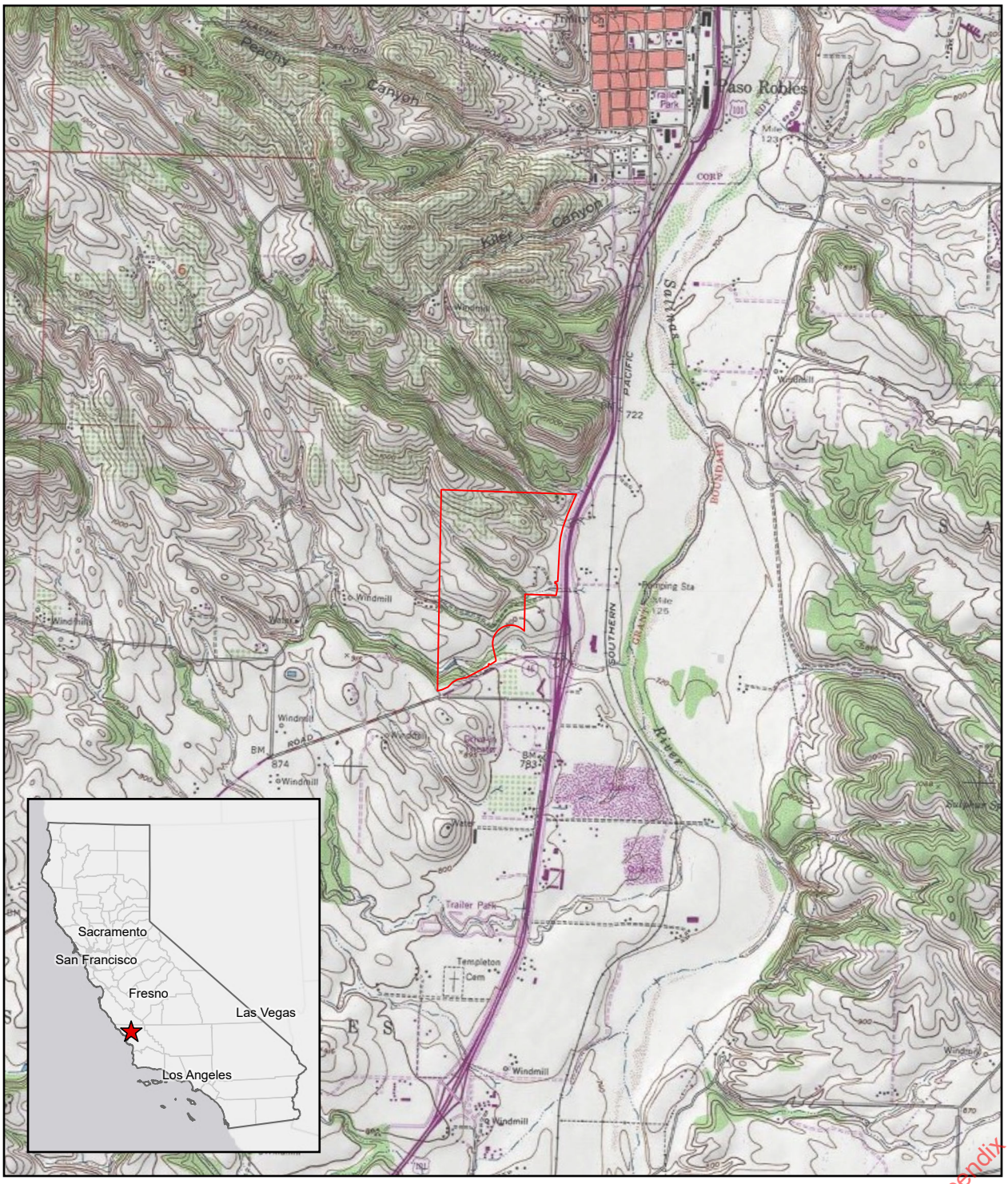
Figure 1. United States Geological Survey Topographic Map



Legend

Study Area

N

0 0.25 0.5 0.75 1 Mile

Paso Robles Gateway
Map Center: 120.6995°W 35.59296°N
Paso Robles, San Luis Obispo County

USGS Quadrangle: Templeton

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Map Updated:
July 19, 2019 11:50 AM by JBB

1.4 Regulatory Framework

Standards for environmental protection and restoration, in the form of laws and regulations, are created within three different organizational levels of the government: Federal, State, and Local. Entities exist within each level to create and enforce regulations that help ensure protection of specific and pertinent regional issues threatening ecosystems and environments. The following regulations are applicable to the Project.

1.4.1 Federal Law and Regulations

Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act (BGEPA) prohibits anyone, without a permit issued by the Secretary of the Interior, from taking (pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb) bald or golden eagles, including their parts, nests, or eggs. This includes substantially interfering with normal breeding, feeding, or sheltering behavior. Activities that may result in the take of a bald or golden eagle require permits; the three activities eligible for permits include to remove or relocate an eagle nest; to transport, exhibit, collect, or control eagles or eagle parts, and for incidental take of eagles.

Clean Water Act. The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. Permitting is required for filling waters of the U.S. (including wetlands). Permits may be issued on an individual basis or may be covered under approved nationwide permits.

Endangered Species Act. The federal Endangered Species Act (FESA) provides the legal framework for the listing and protection of species (and their habitats) identified as being endangered or threatened with extinction. "Critical Habitat" is a term within the FESA designed to guide actions by federal agencies and is defined as "an area occupied by a species listed as threatened or endangered within which are found physical or geographical features essential to the conservation of the species, or an area not currently occupied by the species which is itself essential to the conservation of the species." Actions that jeopardize endangered or threatened species and/or critical habitat are considered a 'take' under the FESA. "Take" under federal definition means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

Projects that would result in "take" of any federally listed threatened or endangered species, or critical habitats, are required to obtain permits from the USFWS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of FESA, depending on the involvement by the federal government in permitting and/or funding of the project. Through Section 10, it is required to prepare a Habitat Conservation Plan (HCP) to be approved by the United States Fish and Wildlife Service (USFWS), which results in the issuance of an Incidental Take Permit (ITP). Through Section 7, which can only occur when a separate federal nexus in a project exists (prompting interagency consultation), a consultation by the various federal agencies involved can take place to determine appropriate actions to mitigate negative effects on endangered and threatened species and their habitat.

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Migratory Bird Treaty Act. All migratory bird species that are native to the U.S. or its territories are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R. Section 10.13), as amended under the Migratory Bird Treaty Reform Act of 2004. The MBTA makes it illegal to purposefully take (pursue, hunt, shoot, wound, kill, trap, capture, or collect) any migratory bird, or the parts, nests, or eggs of such a bird, except under the terms of a valid Federal permit.

1.4.2 State Law and Regulations

California Endangered Species Act. The California Endangered Species Act (CESA), similar to FESA, contains a process for listing of species and regulating potential impacts to listed species. State threatened and endangered species include both plants and wildlife, but do not include insects. The designation "rare species" applies only to California native plants. State threatened and endangered plant species are regulated largely under the Native Plant Preservation Act in conjunction with the CESA. State threatened and endangered animal species are legally protected against "take." The CESA authorizes the California Department of Fish and Wildlife (CDFW) to enter into a memorandum of agreement for take of listed species to issue an incidental take permit for a state-listed threatened and endangered species only if specific criteria are met. Section 2080 of the CESA prohibits the take of species listed as threatened or endangered pursuant to the Act. Section 2081 allows CDFW to authorize take prohibited under Section 2080 provided that: 1) the taking is incidental to an otherwise lawful activity; 2) the taking will be minimized and fully mitigated; 3) the applicant ensures adequate funding for minimization and mitigation; and 4) the authorization will not jeopardize the continued existence of the listed species.

California Environmental Quality Act (CEQA). CEQA defines a "project" as any action undertaken from public or private entity that requires discretionary governmental review (a non-ministerial permittable action). All "projects" are required to undergo some level of environmental review pursuant to CEQA, unless an exemption applies. CEQA's environmental review process includes an assessment of existing resources, broken up by categories (i.e., air quality, aesthetics, etc.), a catalog of potential impacts to those resources caused by the proposed project, and a quantifiable result determining the level of significance an impact would generate. The goal of environmental review under CEQA is to avoid or mitigate impacts that would lead to a "significant effect" on a given resource; section 15382 of the CEQA Guidelines defines a "significant effect" as

> *a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant.*

Public agencies are required to implement CEQA and execute jurisdiction to determine when applicable activities are or are not subject to CEQA. A public agency with the most prominent nexus and jurisdiction to a project is called the lead agency. The lead agencies determine the scope of what is considered an impact and what constitutes a "significant effect". "Biological resources" is one of the varying categories considered during environmental review through CEQA. A lead agency can require a biological assessment to be prepared to report on existing biological resources and recommended mitigation measures that will reduce or lessen potential negative impacts to those biological resources. The questions listed in CEQA's Appendix G:

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Biological Resources section, which are used to guide assessment of impacts to biological resources are as follows:

- *Does the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*
- *Does the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?*
- *Does the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*
- *Does the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*
- *Does the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*
- *Does the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

The lead agency has the final determination over whether a project is or is not permissible, based upon the environmental review, completed requirements and environmental documentation, and their judgement that the project will not have a significant effect on the environment, or that all significant effects have been mitigated for.

California Oak Woodland Conservation Act. This act established the Oak Woodland Conservation Program, administered by the Wildlife Conservation Board, to help local jurisdictions protect and enhance their oak woodland resources. It offers landowners, conservation groups, and cities/counties an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands.

California Fish and Game Code (CFGC). The California Fish and Game Code (CFGC) is one of the 29 legal codes that form the general statutory law of California. A myriad of statutes regarding fish and game are specified in the CFGC; the following codes are specifically relevant to the Project:

California Native Plant Protection Act. Sections 1900-1913 of the California Fish and Game Code contain the regulations of the Native Plant Protection Act of 1977. The intent of this act is to help conserve and protect rare and endangered plants in the state. The act allowed the CFGC to designate plants as rare or endangered

Lake and Streambed Alteration. Section 1602 of the CFGC requires any person, state, or local governmental agency to provide advance written notification to CDFW prior to initiating any activity that would: 1) divert or obstruct the natural flow of, or substantially change or remove material from the bed, channel, or bank of any river, stream, or lake; or 2) result in the disposal or deposition of debris, waste, or other material into any river, stream, or lake. The state definition of "lakes, rivers, and streams" includes all rivers or streams that flow at least periodically or permanently through a well-defined bed or channel with banks that support fish or other aquatic

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life, and watercourses with surface or subsurface flows that support or have supported riparian vegetation.

Nesting Birds. Section 3503 of CFGC states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto," and "unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird" unless authorized.

Natural Community Conservation Planning (NCCP) Act of 1991. The NCCP Act is designed to conserve natural communities at the ecosystem scale while accommodating compatible land use. CDFW is the primary state agency that implements the NCCP. The NCCP plan provides for the comprehensive management and conservation of multiple wildlife species. It identifies and provides for regional protection of natural wildlife diversity while allowing for compatible and appropriate development and growth.

Regional Water Quality Control Board. The Regional Water Quality Control Board (RWQCB) not only regulates impacts to water quality in federal waters of the U.S. under Section 401 of the Clean Water Act, but they also regulate any isolated waters that are impacted under the state Porter Cologne Act utilizing a Waste Discharge Requirement. Discharge of fill material into waters of the State not subject to the jurisdiction of the USACE pursuant to Section 401 of the Clean Water Act may require authorization pursuant to the Porter Cologne Act through application for waste discharge requirements or through waiver of waste discharge requirements.

1.4.3 Local Policies and Regulations

City of Paso Robles Oak Tree Ordinance. The City of Paso Robles regulates oak tree removal by requiring an Oak Tree Removal Permit which requires oak tree replacement (of the same species as those removed) at the replacement ratio of 25-percent of the combined diameter of the removed trees. Each replacement tree shall be a minimum 24-inch box specimens with a 1.5-inch minimum trunk diameter per Section 10.01.050 F of Ordinance No 835 N.S.

City of Paso Robles Oak Tree Preservation Ordinance. The City of Paso Robles requires review of request to remove oak trees with trunk diameter of six inches (dbh) or greater. The Ordinance also requires approval for trimming branches 6 inches or greater on undeveloped or vacant sites, designation of critical root zones, and replacement requirements for tree removals.

County of San Luis Obispo Oak Woodland Ordinance. San Luis Obispo (SLO) County Code, Title 22 of its Land Use Ordinance was established to limit the clear-cutting of Oak Woodland (as defined by Title 22) in SLO County. This ordinance applies to the clear-cutting of Oak Woodland only and does not apply to the removal of individual oak trees except for Heritage Oaks, woodland thinning, tree trimming, or oak trees that are diseased, dead or that are creating a hazardous condition. Section 22.58.040 of the ordinance defines clear-cutting limitations and prohibitions. Section 22.58.050 discuses permit requirements for clear-cutting of one to three acres of Oak Woodland and clear-cutting of more than three acres of Oak Woodland. An approved Minor Use Permit is required to remove any Heritage Oak (as defined as any individual oak species of 48 inches diameter at breast height (dbh) or greater, separated from all stands and Oak Woodlands by at least 500 feet). An Oak Woodland Management Plan may be used to provide long-term conservation and maintenance of the Oak Woodland. Oak Woodland Management Plan criteria is stated in Section 22.58.060 of the ordinance.

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1.5 Special Status Species and Sensitive Habitat Regulations

For the purposed of this Biological Report, special status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the FESA; those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the CESA; animals designated as "Species of Special Concern," "Fully Protected," or "Watch List" by the CDFW; and plants with a California Rare Plant Rank (CRPR) of 1, 2, 3, or 4. In the following sections, further details are provided to highlight the different guidelines and qualifications that are used to help identify special status species in this report. In Sections 3.7 and 3.8, the various qualifications are listed in the potential special status species tables (3 & 4) for each species with potential to occur in the project area.

1.5.1 California Natural Diversity Database (CNDDB)

"Special Plants" and "Special Animals" are broad terms used to refer to all the plant and animal taxa inventoried by the CNDDB, regardless of their legal or protection status (CDFW 2019). The Special Plants list includes vascular plants, high priority bryophytes (mosses, liverworts, and hornworts), and lichens. The Special Animals list is also referred to by the California Department of Fish and Wildlife (CDFW) as the list of "species at risk" or "special status species."

According to the CNDDB (2018a, 2018b), Special Plants and Animals lists include: taxa that are officially listed or proposed for listing by California or the Federal Government as Endangered, Threatened, or Rare; taxa which meet the criteria for listing, as described in Section 15380 of CEQA Guidelines; taxa deemed biologically rare, restricted in range, declining in abundance, or otherwise vulnerable; population(s) in California that may be marginal to the taxon's entire range but are threatened with extirpation in California; and/or taxa closely associated with a habitat that is declining in California at a significant rate. Separately, the Special Plants List includes taxa listed in the California Native Plant Society's Inventory of Rare and Endangered Plants of California, as well as taxa determined to be Sensitive Species by the Bureau of Land Management, U.S. Fish and Wildlife Service, or U.S. Forest Service. The Special Animals List distinctively includes taxa considered by the CDFW to be a Species of Special Concern (SSC) and taxa designated as a special status, sensitive, or declining species by other state or federal agencies.

1.5.2 Federal and State Endangered Species Listings

The Federal and California Endangered Species Acts are the regulatory documents that govern the listing and protection of species, and their habitats, identified as being endangered or threatened with extinction (see Section 1.4.1). Possible listing status under both Federal and California ESA includes Endangered and Threatened (FE, FT, CE, or CT). Species in the process of being listed are given the status of either Proposed Federally Endangered/Threatened, Candidate for California Endangered/Threatened (PE, PT, CCE, or CCT). The CESA has one additional status: Rare (CR).

1.5.3 Global and State Ranks

Global and State Ranks reflect an assessment of the condition of the species (or habitats, see 1.5.6 below) across its entire range. Basic ranks assign a numerical value from 1 to 5, respectively for species with highest risk to most secure. Other ranking variations include rank ranges, rank

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qualifiers, and infraspecific taxon ranks. Rank definitions, where G represents Global and S represents State, are as follows:

- **G1/S1:** Critically imperiled globally/in state because of extreme rarity (5 or fewer populations).
- **G2/S2:** Imperiled globally/in state because of rarity (6 to 20 populations).
- **G3/S3:** Vulnerable; rare and local throughout range or in a special habitat or narrowly endemic (on the order of 21 to 100 populations).
- **G4/S4:** Apparently secure globally/in state; uncommon but not rare (of no immediate conservation concern).
- **G5/S5:** Secure; common, widespread, and abundant.
- **G#G#/S#S#:** Rank range - numerical range indicating uncertainty in the status of a species, (e.g., G2G3 more certain than G3, but less certain that G2).
- **G/S#?:** Inexact numeric rank
- **Q:** Questionable taxonomy - Taxonomic distinctiveness of this entity is questionable.
- **T#:** Infraspecific taxa (subspecies or varieties) – indicating an infraspecific taxon that has a lower numerical ranking (rarer) than the given global rank of species.

1.5.4 California Rare Plant Ranks

Plant species are considered rare when their distribution is confined to localized areas, their habitat is threatened, they are declining in abundance, or they are threatened in a portion of their range. The California Rare Plant Rank (CRPR) categories range from species with a low threat (4) to species that are presumed extinct (1A). All but a few species are endemic to California. All of them are judged to be vulnerable under present circumstances, or to have a high potential for becoming vulnerable. Threat ranks are assigned as decimal values to a CRPR to further define the level of threat to a given species. The rare plant ranks and threat levels are defined below.

- **1A:** Plants presumed extirpated in California and either rare or extinct elsewhere.
- **1B:** Plants rare, threatened, or endangered in California and elsewhere.
- **2A:** Plants presumed extirpated in California, but common elsewhere
- **2B:** Plants rare, threatened, or endangered in California, but more common elsewhere
- **4:** Plants of limited distribution - a watch list
- **0.1:** Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- **0.2:** Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
- **0.3:** Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

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1.5.5 California Department of Fish and Wildlife Animal Rank

The California Department of Fish and Wildlife (CDFW) assigns one of three ranks to Special Animals: Watch List (WL), Species of Special Concern (SSC), or Fully Protected (FP). Unranked species are referred to by the term Special Animal (SA).

Animals listed as Watch List (WL) are taxa that were previously designated as SSC, but no longer merit that status, or taxa that which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

Animals listed as California Species of Special Concern (SSC) may or may not be listed under California or federal Endangered Species Acts. They are considered rare or declining in abundance in California. The Special Concern designation is intended to provide CDWF biologists, land planners, and managers with lists of species that require special consideration during the planning process to avert continued population declines and potential costly listing under federal and state endangered species laws. For many species of birds, the primary emphasis is on the breeding population in California. For some species that do not breed in California but winter here, emphasis is on wintering range. The SSC designation thus may include a comment regarding the specific protection provided such as nesting or wintering.

Animals listed as Fully Protected (FP) are those species considered by CDFW as rare or faced with possible extinction. Most, but not all, have subsequently been listed under the CESA or FESA. Fully Protected species may not be taken or possessed at any time and no provision of the California Fish and Game code authorizes the issuance of permits or licenses to take any Fully Protected species.

1.5.6 Sensitive Habitats

Sensitive Natural Community is a state-wide designation given by CDFW to specific vegetation associations of ecological importance. Sensitive Natural Communities rarity and ranking involves the knowledge of range and distribution of a given type of vegetation, and the proportion of occurrences that are of good ecological integrity (CDFW 2018a). Evaluation is conducted at both the Global (G) and State (S) levels, resulting in a rank ranging from 1 for very rare and threatened to 5 for demonstrably secure. Natural Communities with ranks of S1-S3 are considered Sensitive Natural Communities in California and may need to be addressed in the environmental review processes of CEQA and its equivalents.

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2 METHODS

2.1 Literature Review

Relevant literature, including relevant plans, policies, and biological information, was reviewed to determine what biological resources may occur near or in the project area. Research included:

- Queries of special-status species occurrence records;
- Review of previous biological resource studies in the vicinity;
- Review of literature on sensitive species and biological resources in the project area and region (refer to Section 5);

We conducted a search of the California Natural Diversity Database (CNDDB July 2019 data), the California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Plants of California, and USFWS Critical Habitat data for special status species known to occur in the nine USGS 7.5-minute quadrangles surrounding the Study Area: Adelaida, Paso Robles, Estrella, York Mountain, Templeton, Creston, Morro Bay North, Atascadero, and Santa Margarita.

Additional special status species research consisted of reviewing previous biological reports for the area and searching online museum and herbarium specimen records for locality data within San Luis Obispo County. We reviewed online databases of specimen records maintained by the Museum of Vertebrate Zoology at the University of California, Berkeley, the California Academy of Sciences, and the Consortium of California Herbaria. Additional special status species with potential to occur on or near the Study Area were added to our special status species list (refer to Table 4 and Table 6). Special status species lists produced by database and literature searches were cross-referenced with the described habitat types in the Study Area to identify all potential special status species that could occur on or near the Study Area. Each special status species that could occur on or near the Study Area is individually discussed (refer to Section 3.7.2 and 3.8.2).

After review of the literature, the following criteria were used to determine the potential for special-status species to occur within the Study Area:

- **Present:** The species was observed in the Study Area during field surveys.
- **High Potential:** Highly suitable habitat and CNDDB or CNPS occurrence records indicate the species is likely to occur in the Study Area. Individuals may not have been observed during field surveys; however, the species likely occurs in the project vicinity and could move onto the project site in the future.
- **Moderate Potential:** Suitable habitat is present in the Study Area and CNDDB occurrences or surveys have recorded the species within 5 miles of the project. Individuals were not observed during field surveys, but the species could be present, at least seasonally or as a transient.
- **Low Potential:** Marginally suitable habitat is present in the Study Area, and there are no occurrence records or other historical (i.e., 50 years or older) records within 10 miles of the Study Area. Individuals were not observed during surveys and are not expected to be present.
- **No Potential:** Suitable habitat for the species is not present in the Study Area, and/or the species is not known to occur in the region.

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2.2 Mapping

Mapping efforts utilized Samsung Galaxy Tab 4 tablets equipped with Garmin GLO GPS receivers and a third-party mapping application. Biological resource constraints were mapped in the field on site. Hand notation of habitats on high resolution aerials were digitized into polygon layers. Maps were created using aerial photo interpretation, field notation, and spatial data imported to Esri ArcGIS, a Geographic Information System (GIS) software program. Data were overlaid on a 2018 National Agriculture Imagery Program (NAIP) aerial of San Luis Obispo County (NAIP 2018).

2.3 Soils

A custom soil report was created by importing the Study Area as an Area of Interest (AOI) into the Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database (SSURGRO) via their online portal (USDA 2018). The resulting custom soils report was reviewed, and a map was created using the U.S. Department of Agriculture NRCS Soil Survey GIS data (USDA 2018). The exported custom soil report includes a map showing an overlay of the soil map units within the AOI as well as a description of each.

2.4 Surveys

The Study Area was surveyed for biological resources on June 17, 21, and 26, 2019. Surveys were conducted by biologists and environmental scientists LynneDee Althouse, Jacqueline Tilligkeit, Kristen Andersen, and Kyle Nessen. A full survey was conducted on foot to compile species lists, search for special status plants and animals, map habitats, and to photograph the Study Area. The entire Study Area was surveyed.

TABLE 2. BIOLOGICAL SURVEYS

Survey Date	Biologist(s)	Weather Observations	Activities
June 17, 2019	LynneDee Althouse Jacqueline Tilligkeit	Weather 55 - 68°F, marine layer in the morning	Site tour with planner
June 21, 2019	Kristen Andersen	Weather 58 - 78°F, early fog, clear skies late morning through afternoon, wind 0-10 mph	Botanical and wildlife survey
June 26, 2019	Kyle Nessen	Weather 70 - 86°F, clear skies, calm	Aerial drone survey

2.4.1 Botanical

Each habitat type occurring in the Study Area was inspected, described, and catalogued (Section 3.4). All plant and animal species observed in the Study Area were identified and recorded (Sections 3.7.3 and 3.8.3). Transects were meandering with an emphasis on locating habitat and soil types appropriate for special status plants. Transects were utilized to map boundaries of different vegetation types, describe general conditions and dominant species, compile species lists, and evaluate potential habitat for special status species. Identification of botanical resources included field observations and laboratory analysis of collected material (refer

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to Table 5). Botanical surveys were conducted on June 21 according to agency guidelines (USFWS 2000, CDFG [CDFW] 2009, and CNPS 2001). The June 21 survey constitutes a late-season botanical survey and was appropriately timed to identify late-blooming special status plant species known from the region with potential to occur in the Study Area (refer to Section 3.7.1, and Table 4). Targeted late-blooming special status species included Salinas milk vetch (*Astragalus macrodon*), Douglas' spineflower (*Chorizanthe douglasii*), and shining navarretia (*Navarretia nigelliformis* subsp. *radians*). Botanical nomenclature used in this document follows the Jepson Flora Project (Regents of the University of California 2018). We also provide Jepson Manual First Edition names in brackets where nomenclature has recently changed. An appropriately-timed (spring) botanical survey will also be conducted in 2020 and the results will be compiled in an addendum to this report.

2.4.2 Wildlife

Wildlife documentation included observations of animal presence and wildlife sign such as nests, tracks, and scat. Observations of wildlife were recorded during field surveys in all areas of the Study Area (refer to Table 7). Birds were identified by sight, using 10-power binoculars, or by vocalizations. Reptiles and amphibians were identified by sight, often using binoculars; traps were not used. Mammals recorded in the Study Area were identified by sight, tracks, and den observations, such as entrance dimensions, apron length, and den location.

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3 RESULTS

3.1 Regional Context

The Project is an agricultural property situated on the eastern side of the Santa Lucia Range, at an elevational range of approximately 750 to 950 feet. The Study Area is in the Lower Salinas – Paso Robles Creek Area watershed and sits approximately 0.5 miles west of the Salinas River adjacent to the City of Paso Robles. The Study Area is surrounded by residential rural and agriculturally zoned properties to the west and Urban Reserve Line – Village Reserve Line (URL – VRL) zoned properties to the north, east, and south. Vine Street acts as a frontage road to Highway 101 and parallels the Study Area along its eastern border. Highway 46 borders the southern boundary of the Study Area. Wilmar Place is a dirt road that dissects the Study Area and connects to two residential properties just east of the Study Area boundary.

3.2 Existing Conditions

The Study Area is predominantly an agriculturally zoned property with its northern portion zoned for residential land use. The majority of the Study Area is undeveloped annual grassland and oak woodland habitat, with abandoned almond orchards located in the northern portion (Figure 2). Topography consists of rolling hills with gently sloping alluvial terraces and four ephemeral drainages which seasonally convey water east-bound toward the Salinas River. Two dirt roads provide access to the site from Vine Street. The northern access road runs northwest and connects to an adjacent vineyard outside of the Study Area boundary. The southern access road parallels the southern drainage fork and leads to two residential properties west of the Study Area. A concrete dam exists in the southwest corner of the Study Area, known to form a pond in past years. Standing water was not observed in the Study Area during 2019 surveys during an above-average rain year, totaling 20.56 inches of precipitation. The 20-year average is 14.83 inches from Paso Robles Weather Station (USDA 2019). One existing water tank is situated just south of the almond orchard, and two water troughs were observed being utilized by cattle currently grazing the site. Some portions of the Property are delineated by fencing and a billboard exists near Vine Street in the northern portion of the site. No other existing structures were observed in the Study Area.

3.3 Soils

Five individual soil map units from the Natural Resource Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) overlap the Study Area: Linne-Calodo complex (9-30 percent slopes, soil map unit 152), Linne-Calodo complex (50 to 75 percent slopes, soil map unit 154), Lockwood shaly loam (2 to 9 percent slopes, soil map unit 158), Nacimiento-Los Osos complex (9 to 30 percent slopes, soil map unit 179), and Nacimiento-Los Osos complex (30 to 50 percent slopes, soil map unit 180) (Soil Survey Staff et al. 2018) (Figure 3). The soil on the Property was formed from residuum or alluvium from sandstone or calcareous shale. The majority of the topsoil is a type of loam, clay loam, or silty clay loam with channery and gravelly soils very common.

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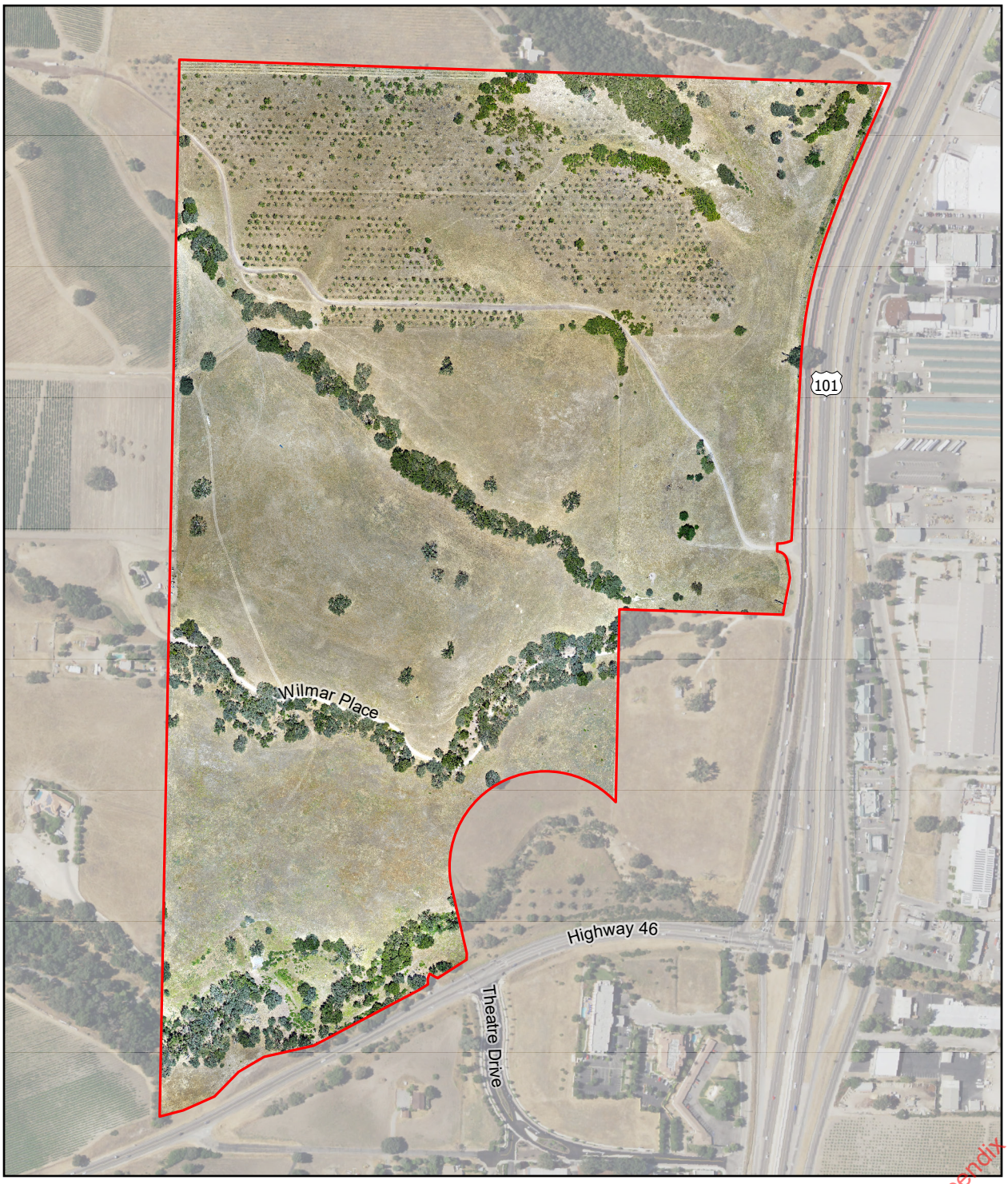
Figure 2. Aerial Photograph



Legend

Study Area (162.5 acres)

N

0 400 800 Feet

Paso Robles Gateway
Map Center: 120.6995°W 35.59296°N
Paso Robles, San Luis Obispo County

Imagery Source: Althouse and Meade, Inc., 7/8/2019

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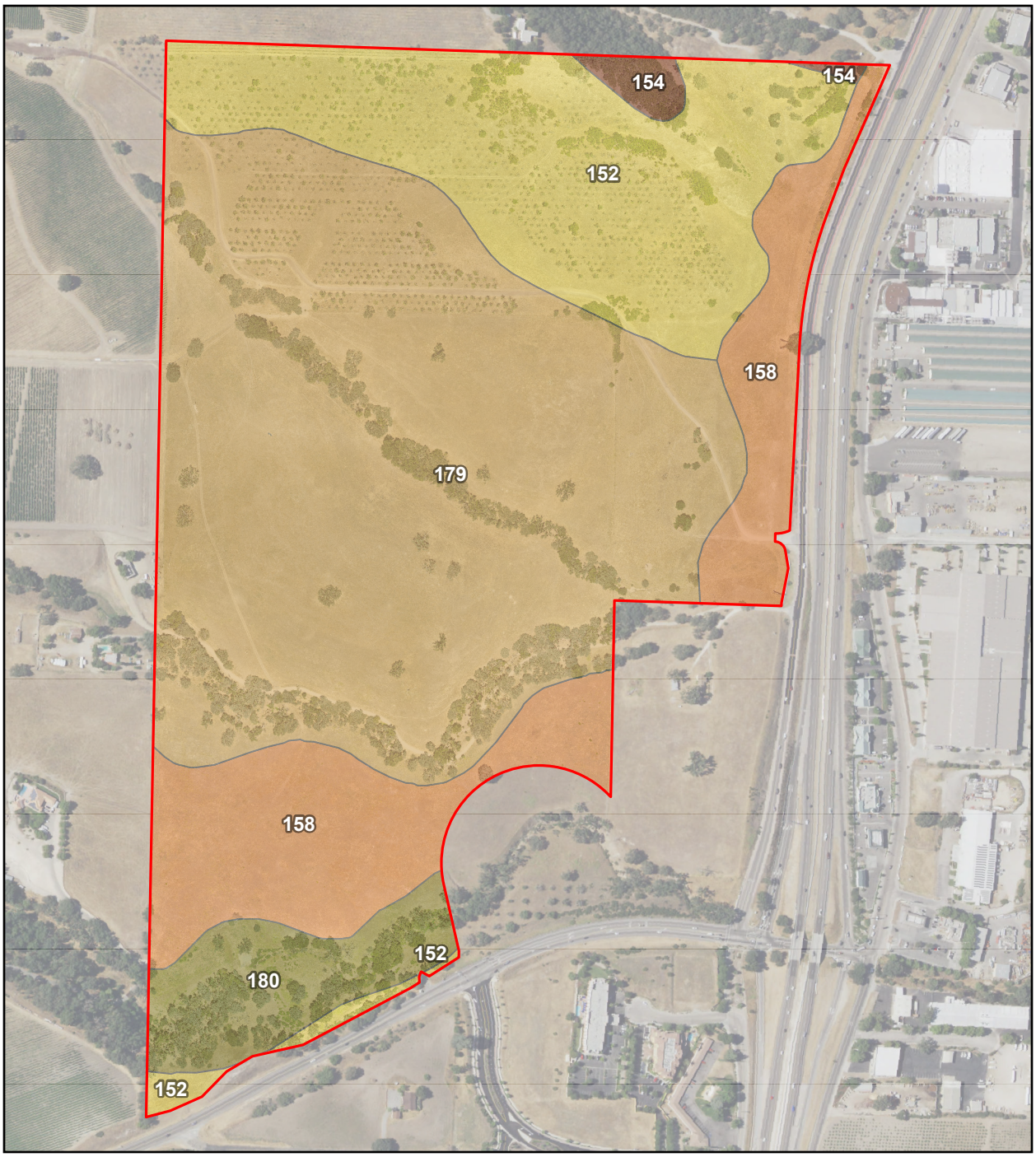
Map Updated:
July 19, 2019 11:55 AM by JBB

Figure 3. United States Department of Agriculture Soil Survey



Soil Type	Study Area
152: Linne-Calodo complex, 9 to 30 percent slopes	22%
154: Linne-Calodo complex, 50 to 75 percent slopes	1%
158: Lockwood shaly loam, 2 to 9 percent slopes	17%
179: Nacimiento-Los Osos complex, 9 to 30 percent slopes	53%
180: Nacimiento-Los Osos complex, 30 to 50 percent slopes	6%

N

0 400 800 Feet

Paso Gateway
Map Center: 120.69922°W 35.593°N
Paso Robles, San Luis Obispo County

Data Source: USDA

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Map Updated:
July 19, 2019 12:08 PM by JBB

3.4 Habitat Types

Habitat in the Study Area includes California annual grasslands, abandoned almond orchards, coast live oak woodlands, tree of heaven groves, Alvord oak woodland, and riparian habitat. Habitats are characterized and acreages occurring in the Study Area are provided (Table 3; Figure 4). The dominant habitat type, California annual grassland, comprises 105.7 acres of the Study Area. Senesced native wildflowers observed during June 2019 surveys suggest that healthy native plant populations occur in portions of non-native grassland across the site (refer to Table 5). Orchard habitat comprises approximately 28.9 acres and review of aerial photographs indicates that orchard farming dates back prior to 1937. The grass understory of orchard habitat is fairly overgrown with old grass thatch and bromes. Coast live oak woodland habitat occurs with a relatively closed canopy along the three ephemeral drainages (refer to Section 3.5) and comprises approximately 18.8 acres of the Study Area. Approximately 4.5 acres of tree of heaven grove habitat occurs in small dense patches in the northern portion of the Study Area. The two dirt access roads make up approximately 1.7 acres of the Study Area and are comprised of little to no vegetation cover; therefore, are not considered a habitat type. Alvord oak woodland is a unique woodland habitat characterized by hybrid Alvord's oak and comprises 1.6 acres in the north portion of the Study Area, extending north of the property boundary. Several native woodland forbs comprise the understory, along with abundant poison oak and grass thatch. Approximately 1.3 acres of riparian habitat is associated with the southern-most ephemeral drainage in the southwest corner. Few willows are accompanied by mature oak trees with dense poison oak in the understory. Annual grasses persist as the canopy opens, where riparian transitions to annual grassland habitat.

The current condition of the Study Area is generally undisturbed and is being grazed by cattle. Understory areas in woodland and tree-bearing habitat have an abundance of overgrowth and have been generally avoided by cattle. Some cattle fencing exists throughout the site. Some trash was observed at the south and central drainages near easy-access areas.

TABLE 3. HABITAT TYPES

Habitat Type	Location	Approximate Acreage
California Annual Grassland Series	Open space throughout Study Area	105.7
Orchard	North and northwest portion of Study Area	28.9
Coast Live Oak Woodland Alliance	Along three drainages in and south and central portions of Study Area	18.8
Tree of Heaven Groves	North and northeast portion of Study Area	4.5
Alvord Oak Woodland	North portion of Study Area near northern boundary	1.6
Riparian	Southwest corner of Study Area	1.3

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3.4.1 California Annual Grassland Series

California annual grassland is the most abundant habitat, followed by oak woodlands along drainages and north-facing slopes. The California Annual Grassland Series (CNPS 2019) is used to describe the grassland habitat on site which varies with dominant species composition. Annual grasses, such as wildoats (*Avena fatua*), soft-chess brome (*Bromus hordeaceus*), and rattail sixweeks grass (*Festuca myuros*), fluctuate dominance across the Study Area. Brome grassland dominates the northeastern portion of grassland accompanied by native associates including Chilean trefoil (*Acmipon wrangelianus*) and clustered tarweed (*Deinandra fasciculata*), and invasive species such as wild mustard (*Hirschfeldia incana*) and yellow starthistle (*Centaurea solstitialis*) (Photo 1). Annual grassland on hilltops in the central portion of the Study Area are dominated by rattail sixweeks grass and/or wildoats, with patches of native forbs, such as senesced purple owl's clover (*Castilleja exserta* subsp. *exserta*) and occasional milkweed (*Asclepias eriocarpa*, *A. fascicularis*) (Photo 2). Grassland in the southwest portion of the Study Area is dominated by wildoats, with high density hairy vetch (*Vicia villosa* subsp. *villosa*) and yellow starthistle. The site is currently being used as rangeland and cattle were present during June 2019 surveys. California Annual Grassland Series is not a sensitive habitat type.

Photo 1. Brome grassland with clustered tarweed in northeastern portion of the Study Area, view northwest. June 21, 2019.

Photo 2. Annual grassland hilltop in central portion of the Study Area, view southwest. June 21, 2019.

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3.4.2 Coast Live Oak Woodland Alliance

Oak woodlands have the greatest native plant cover and species diversity of habitats in the Study Area. Coast live oak woodland habitat aligns the ephemeral drainages, comprised of coast live oaks (*Quercus agrifolia* var. *agrifolia*), with occasional blue oaks (*Quercus douglasii*) and valley oaks (*Quercus lobata*) (Photo 3). The oak woodland canopy ranges from open to contiguous, where density is highest along the immediate banks of the drainages. The understory vegetation varies between drainages, but poison oak (*Toxicodendron diversilobum*) is consistently abundant throughout all woodland habitat (Photo 4). Other understory associates include wild rye (*Elymus condensatus*, *E. glaucus*, *E. triticoides*), bromes (*Bromus diandrus*, *B. hordeaceus*, *B. madritensis* subsp. *rubens*), clarkia (*Clarkia purpurea* subsp. *quadrivulnera*, *C. unguiculata*) creeping snowberry (*Symphoricarpos mollis*), milk thistle (*Silybum marianum*), and Italian thistle (*Carduus pycnocephalus*). Coast live oak woodland alliance has a State Rarity rank of S4 and a Global Rarity rank of G5. It is not considered a Sensitive Natural Community by CDFW.

Photo 3. Mixed oak woodland along southern drainage fork in central portion of the Study Area, view southeast. June 21, 2019.

Photo 4. Coast live oak woodland on south bank of southern drainage with grasses and poison oak in the understory, view northwest. June 21, 2019.

3.4.3 Alvord Oak Woodland

A small oak woodland in the northeastern portion of the Study Area is comprised of Alvord's oak (*Quercus x alvordiana*) and inland scrub oak (*Quercus berberidifolia*), with an understory dominated by non-native grasses, including wildoats (*Avena fatua*) and ripgut brome (Photo 5 and Photo 6). Alvord's oaks are a hybrid oak which are shrub-like and grow low in stature (less than three meters tall). Common associates in the understory included native forbs and shrubs, including creeping snowberry (*Symphoricarpos mollis*), hummingbird sage (*Salvia spathacea*), and California Paeonia (*Paeonia californica*), along with abundant poison oak (*Toxicodendron diversifolium*) (Photo 5). As a hybrid of *Quercus douglasii* and *Quercus john-tuckeri*, Alvord's oak woodland is a community group that falls under both the *Quercus douglasii* Woodland and *Quercus john-tuckeri* Shrubland Alliances. This woodland therefore has a State Rarity rank of S4 and a Global Rarity rank of G4. It is not considered a Sensitive Natural Community by CDFW.

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Photo 5. Alvord's oak woodland in northeastern portion of the Study Area with native California paeonia and poison oak in understory, view north. June 21, 2019.

Photo 6. Scrub oak (*Quercus berberidifolia*) associate observed in Alvord's oak woodland. June 21, 2019.

3.4.4 Tree of Heaven Groves

The non-native woodland habitat located in the northeast portion of the Study Area is dominated by tree of heaven (*Ailanthus altissima*) (Photo 7). Invasive tree of heaven is locally abundant in patches along the eastern edge of the property and extends along hills adjoining almond orchards. This habitat consists of two small patches of dense tree of heaven comprising 4.5 acres of the Study Area (Photo 8). The understory was dominated by ripgut brome and occasional forbs. The *Ailanthus altissima* Woodland Semi-Natural Alliance has no State or Global Rarity rank and is not considered a Sensitive Natural Community by CDFW.

Photo 7. Tree of heaven grove habitat in northern portion of the Study Area, view south. June 21, 2019.

Photo 8. Small tree of heaven stand in northern portion of the Study Area, view northwest. June 21, 2019.

3.4.5 Orchard

Approximately 28.9 acres of orchard habitat occurs in the northern portion of the Study Area (Photo 9 and Photo 10), dating back before 1937. Many of the almond trees (*Prunus dulcis*) on site are dead or senescent and have not been harvested as a crop for many years. Annual grasses

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comprise the understory of the orchard with an abundance of yellow starthistle. Orchards are not considered a Sensitive Natural Community by CDFW.

Photo 9. Almond orchard in northwest portion of the Study Area, view southeast. June 21, 2019.

Photo 10. Orchard habitat in the background with existing water tank to the right, view northwest. June 21, 2019.

3.4.6 Riparian

Approximately 1.3 acres of riparian habitat is present in the southwest portion of the Study Area along the southern most drainage. Red willow (*Salix laevigata*) is present with blue oak associates in the canopy. Where the canopy opens, riparian associates include mugwort (*Artemisia californica*), creeping wild rye (*Elymus triticoides*), California blackberry (*Rubus ursinus*), and wild rose (*Rosa californica*) (Photo 11 and Photo 12).

Photo 11. Beardless wild rye (*Elymus triticoides*) in riparian habitat, view south. June 21, 2019.

Photo 12. California mugwort (*Artemisia californica*) in upland portion of riparian habitat. June 21, 2019.

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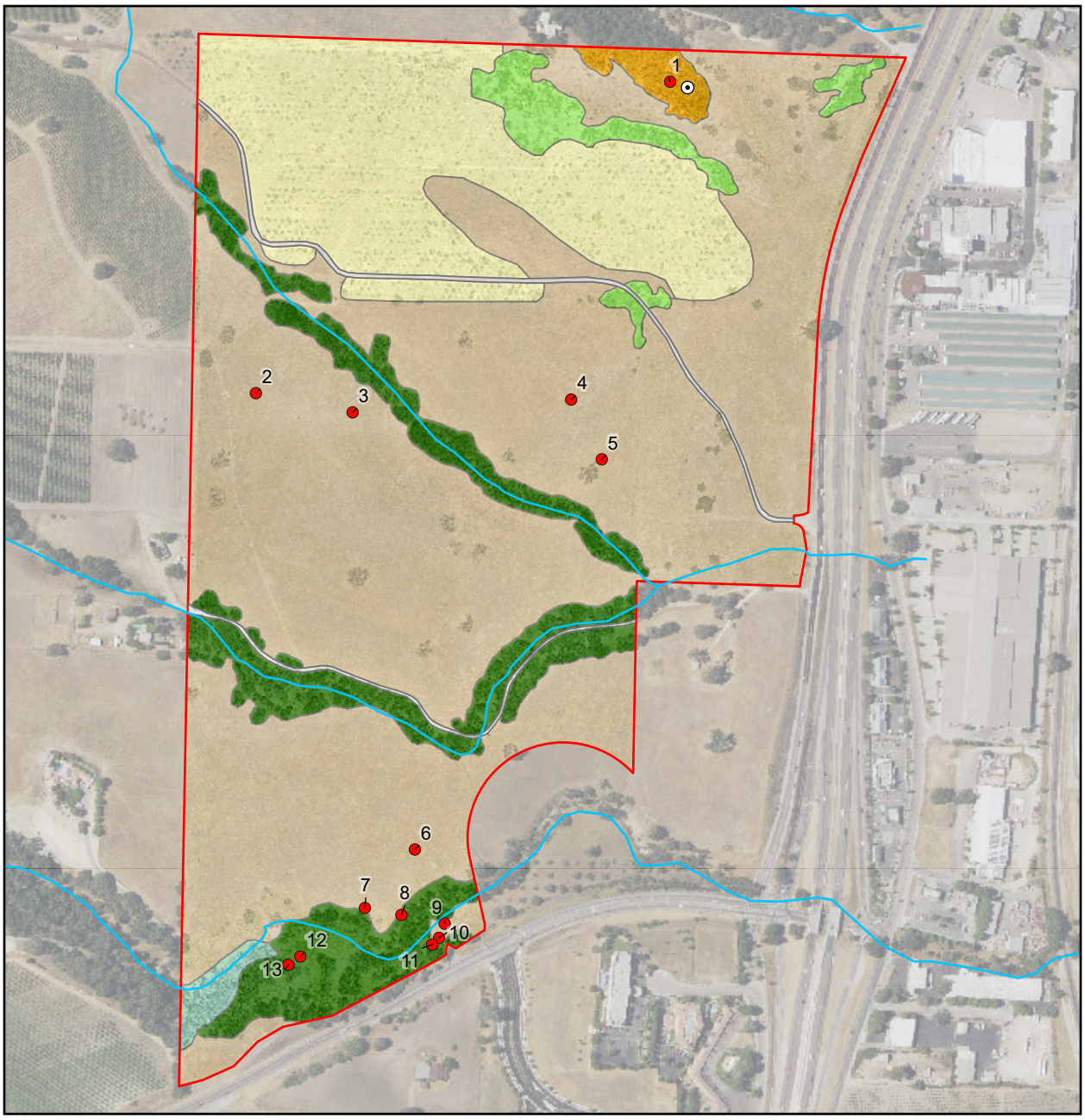
Figure 4. Biological Resources



Legend

- Study Area (162.5 acres)
- *Astragalus macrodon*
- Red-tailed Hawk Nest
- Drainages
- Existing Roads (1.7 acres)
- Alvord Oak Woodland (1.6 acres)
- California Annual Grassland Alliance (105.7 acres)
- Coast Live Oak Woodland (18.8 acres)
- Orchard (28.9 acres)
- Riparian (1.3 acres)
- Tree of Heaven Groves (4.5 acres)

N

0 400 800 Feet

Paso Gateway
Map Center: 120.69922°W 35.593°N
Paso Robles, San Luis Obispo County

Biological Survey Date: 06/14/2017

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Map Updated:
July 30, 2019 11:15 AM by JBB

3.5 Potential Wetlands and Jurisdictional Waters

Potentially jurisdictional wetlands and waters may be present in the Study Area. Portions of three drainages exist in the Study Area. Two drainages with defined bed, banks, and oak woodland habitat flow through the center of the property and join 500 feet east of the Study Area boundary before passing through a culvert under Vine Street. The southernmost drainage flows eastward in a meandering path along the southern portion of the Study Area and exits through a culvert under the Vine Street and Highway 46 intersection. There is a clear outlet east of Ramada Drive where the flow path continues until its terminus at the Salinas River.

A formal wetland delineation will be necessary if future project activities are proposed that may result in the fill of aquatic features. Wetland delineations should be conducted according to state and federal standards to determine the extent of Clean Water Act (CWA) Section 404 wetlands and waters under jurisdiction of the United States Army Corps of Engineers and Section 401 waters and wetlands under jurisdiction of the State Water Resource Control Board.

3.6 Environmentally Sensitive Habitat Areas

There are no existing Environmentally Sensitive Habitat Areas (ESHA) in the Study Area.

3.7 Botanical Resources

Research on special status plant occurrences conducted within the designated search area (refer to Methods) determined 62 special status plant species are known to occur in the region (refer to Appendix A). Figure 5 and Figure 7 depict the current GIS data for special status species and critical habitat mapped near the Study Area by the CNDDB and the United States Fish and Wildlife Service (USFWS).

3.7.1 Potential Special Status Plant List

Table 4 lists three special status plant species for which appropriate soil and habitat conditions exist, and therefore could potentially occur in the Study Area. Federal and California State status, Global and State rank, CRPR, typical blooming periods, and habitat preference for each species are provided (CNPS 2019; CNDDB 2019). Potential for occurrence on site is assessed and provided. Species are listed alphabetically by scientific name.

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TABLE 4. SPECIAL STATUS PLANT LIST

	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
1.	Astragalus milk vetch	*Astragalus macrodon*	-/-	G4/S4	4.3	Apr-Jul	Eroded pale shales or sandstone, or serpentine alluvium; 300-950 m. SCoR	Present. Thirteen separate occurrences were observed across the Study Area.
2.	Douglas' spineflower	*Chorizanthe douglasii*	-/-	G4/S4	4.3	Apr-Jul	Foothill woodland, pine forest, chaparral, sandy or gravelly soils; 200-1600 m. e SCoRO, SCoRI	Low. Moderately suitable soils and woodland habitat are present in the Study Area. Closest record is >11.8 mi east of the property (CCH#CHSC64125).
3.	Shining navarretia	*Navarretia nigelliformis* subsp. *radians*	-/-	G4T2/S2	1B.2	(Mar)Apr-Jul	Vernal pools, clay depressions; Valley grassland, foothill woodland; 10–1000 m. NCoRI, SNF, Teh, GV, SCoR	Moderate. Suitable grassland habitat with clay loam soils occurs in the Study Area.

See Section 1.5 for status and rank definitions

California Geographic Subregion Abbreviations:

CCo: Central Coast
SCo: South Coast
SCoR: South Coast Ranges
SCoRO: Outer South Coast Ranges
SCoRI: Inner South Coast Ranges
SnFrB: San Francisco Bay
TR: Transverse Ranges
WTR: Western Transverse Ranges
SnJV: San Joaquin Valley
ScV: Sacramento Valley
SLO: San Luis Obispo
SN: Sierra Nevada
SnJt: San Jacinto Mtns
SnBr: San Bernardino
Teh: Tehachapi Mtn Area
CW: Central West
SW: South West
DMoj: Mojave Desert
PR: Peninsular Range

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3.7.2 Special Status Plants Discussion

Based on an analysis of known ecological requirements for the special status plant species reported from the region (see Appendix A), and the habitat conditions that were observed in the Study Area, it was determined that one species has a moderate potential to occur (shining navarretia) and one species has a low potential to occur (Douglas' spineflower). One species, Salina milk-vetch, was observed at several locations in the Study Area. We discuss a total of three species below and describe habitat, range restrictions, known occurrences, and survey results for the Study Area.

A. Salinas milk-vetch (*Astragalus macrodon*) is a CNPS List 4.3 species with a range that extends from San Benito County south to San Luis Obispo County and east to Kern County. It is uncommon in most areas but occurs regularly in appropriate soil conditions. It usually occurs on sandstone, pale shales, or serpentinite soils in grassland, chaparral, and cismontane woodland habitats. *A. macrodon* is distinguished from the more common Douglas's milkvetch (*A. douglasii*) by its purple to red leaflet margins and midribs, wavy to incurled hairs on fruits and leaves, and 29 to 52 seeds per fruit. Salinas milk-vetch in the Paso Robles area is documented by numerous voucher specimens (Hoover 1970; Consortium of California Herbaria 2010). Althouse and Meade, Inc. observed a total of 40 individuals of *A. macrodon* across four different locations on the property in 2010 (Althouse and Meade, Inc. 2011) and in vegetative condition in Kiler Canyon approximately one mile north of the property in 2005 (Althouse and Meade, Inc. August 2005). In June 2019 we identified Salinas milk-vetch at 13 different locations in the Study Area (refer to Biological Resource Map, Figure 4). A total of approximately 62 plants were observed; some in vegetative state, while most with flower and fruit (Photo 13 and Photo 14).

Photo 13. Salinas milk-vetch (*Astragalus macrodon*) in flower at Photo Point 3 (see Figure 4). June 21, 2019.

Photo 14. Salinas milk-vetch in fruit and flower at Photo Point 2. June 21, 2019.

B. Douglas' spineflower (*Chorizanthe douglasii*) is a CRPR 4.3 species endemic to San Benito, Monterey and San Luis Obispo Counties. It is known to occur on sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forests habitats between 180 and 5,250 feet in elevation. It is an annual herb that typically blooms between April and July. The closest known record is approximately 11.8 miles east of the Study Area

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(CCH#CHSC64125) in 1989. Gravelly soil patches that occur on rolling grassy hills in the Study Area could be suitable for this species and Douglas' spineflower has low potential to occur. Douglas' spineflower was not detected during June 2019 surveys conducted within the blooming period for this species (April through July). A second botanical survey is required to qualify as a protocol-level botanical survey.

C. **Shining navarretia** (*Navarretia nigelliformis* subsp. *radians*) is a CRPR 1B.2 subspecies endemic to California, primarily occurring in central California. It is known to occur in vernal pools, grassland, and cismontane woodland habitats, often on clay and alkaline sites between 210 and 3,280 feet in elevation. It is an annual herb that typically blooms between (March) April and July. Shining navarretia is the only species of *Navarretia* in San Luis Obispo County with a yellow flower. The closest known record is approximately 2.9 miles northeast of the Study Area on Chandler Ranch (CNDDB #68). Appropriate grassland and woodland habitat in the Study Area is suitable for shining navarretia. The clay loam soil could have enough clay texture to support this species and shining navarretia has moderate potential to occur in the Study Area. Shining navarretia was not detected during June 2019 surveys conducted within the blooming period for this species. A second botanical survey is required to qualify as a protocol-level botanical survey (CDFW 2018b).

The remaining 62 special status plant species that were evaluated were determined to have no potential to occur in the Study Area due to lack of suitable habitat present. However, two of these species either are listed or are candidates for listing as threatened or endangered under the Federal Endangered Species Act (FESA) and/or California Endangered Species Act (CESA). Therefore, although they are not expected to occur, these species also warrant further discussion:

A. **San Luis Obispo fountain thistle** (*Cirsium fontinale* var. *obispoense*) is listed as Endangered under the FESA and the CESA and is a CRPR 1B.2 species. It is endemic to San Luis Obispo County, California where it is known to occur in serpentinite seeps and drainages in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland between 115 and 1,260 feet in elevation. San Luis Obispo fountain thistle is a perennial herb that typically blooms between February and July (August – September). The closest known record is approximately 13.5 miles southwest of the Study Area (CNDDB #9) in seep habitat. San Luis Obispo Fountain thistle occurrences are restricted to the Santa Lucia Range. The Study Area is outside the known range for this species and seep habitat is not present in the Study Area. San Luis Obispo fountain thistle has no potential to occur and was not detected during June 2019 surveys.

B. **Spreading navarretia** (*Navarretia fossalis*) is listed Threatened by the FES) and is a CRPR 1B.1 species that occurs from southern California south to Baja California. It is known to occur in chenopod scrub, shallow freshwater marshes and swamps, playas, and vernal pool habitats between 100 and 2,150 feet in elevation. It is an annual herb that typically blooms between April and June. The closest known record is approximately 11.3 miles southeast of the Study Area (CNDDB #70) in vernal pool habitat. Vernal pool habitat does not occur in the Study Area and spreading navarretia has no potential to occur. Spreading navarretia was not detected in the Study Area during the June 2019 surveys.

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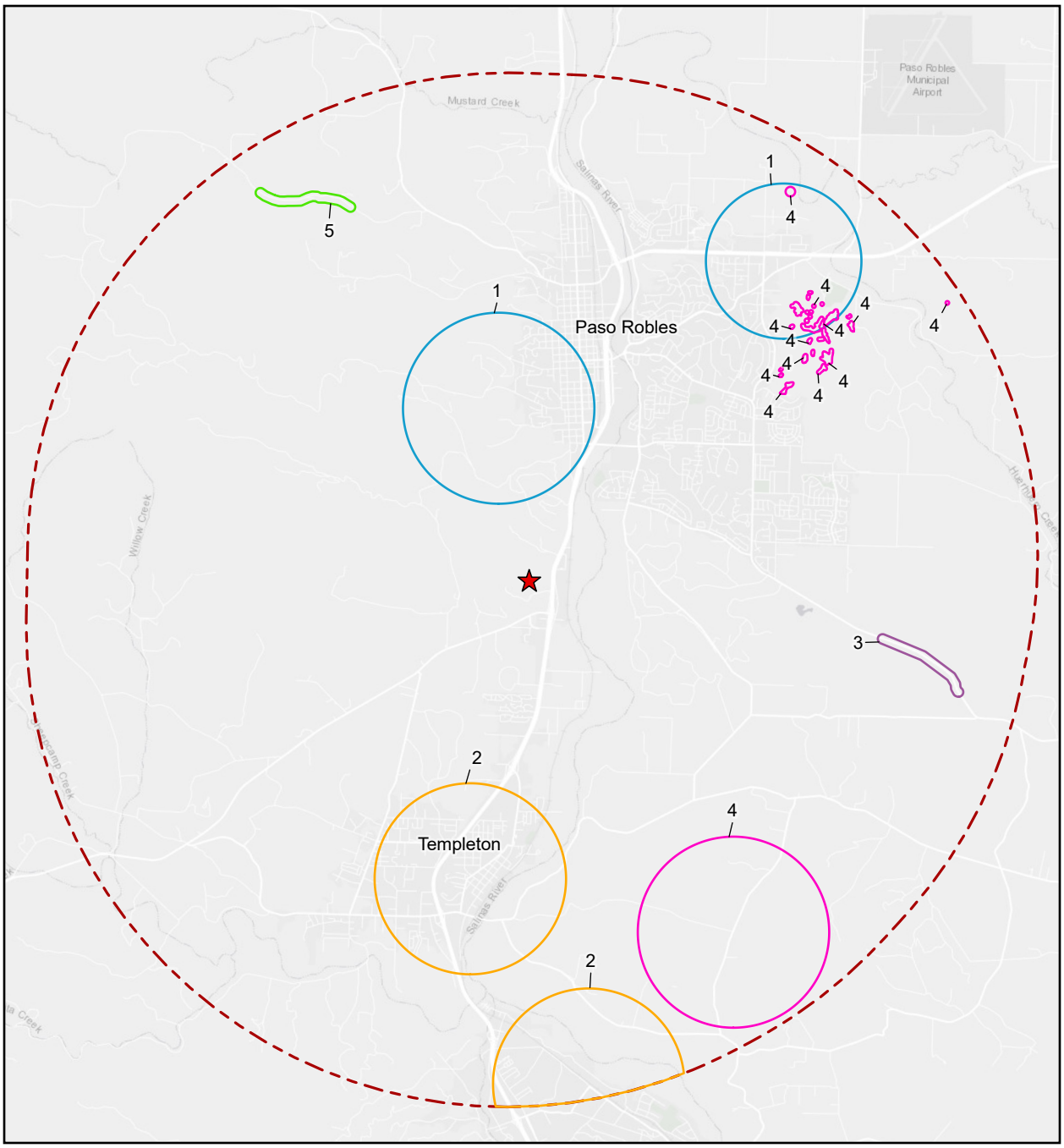
Figure 5. California Natural Diversity Database Plant Records



Label	Common Name
1	Lemmon's jewelflower
2	Mesa horkelia
3	Santa Lucia dwarf rush
4	Shining navarretia
5	Woodland woolythreads

Legend

Project Location

5-Mile Radius

N

0 0.5 1 2 Miles

Paso Robles Gateway
Map Center: 120.6993°W 35.59533°N
Paso Robles, San Luis Obispo County

CNDDB GIS Data Last Updated: July 2019

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Map Updated:
July 23, 2019 09:47 AM by JBB

3.7.3 Botanical Survey Results

Botanical surveys conducted on June 21, 2019 identified 133 species, subspecies, and varieties of vascular plant taxa in the Study Area (Table 5). The list includes 86 species native to California and 47 introduced (naturalized or planted) species. Native plant species account for approximately 65 percent of the Study Area flora; introduced species account for approximately 35 percent. One special status plant species, Salinas milk-vetch, was identified in the Study Area. Botanical nomenclature used in this document follows the Jepson Manual, Second Edition (Baldwin et al. 2012). We also provide Jepson Manual First Edition names in brackets where nomenclature has recently changed (Jepson and Hickman 1993).

TABLE 5. VASCULAR PLANT LIST

Common Name	Scientific Name	Special Status	Origin
Trees - 12 Species			
Tree of heaven	*Ailanthus altissima*	None	Introduced
Red gum	*Eucalyptus camaldulensis*	None	Introduced
Honeylocust	*Gleditsia triacanthos*	None	Introduced
Monterey cypress	*Hesperocyparis macrocarpa*	None	Native, Planted
Bishop pine	*Pinus muricata*	None	Native
Gray pine	*Pinus sabiniana*	None	Native
Almond	*Prunus dulcis*	None	Introduced
Alvord's oak	*Quercus ×alvordiana*	None	Native
Coast live oak	*Quercus agrifolia* var. *agrifolia*	None	Native
Scrub oak	*Quercus berberidifolia*	None	Native
Blue oak	*Quercus douglasii*	None	Native
Valley oak	*Quercus lobata*	None	Native
Shrubs -10 Species			
Coyote brush	*Baccharis pilularis* subsp. *consanguinea*	None	Native
American dogwood	*Cornus sericea*	None	Native
Chaparral honeysuckle	*Lonicera subspicata* var. *denudata*	None	Native
Common oleander	*Nerium oleander*	None	Introduced
Oak mistletoe	*Phoradendron villosum*	None	Native
Hollyleaf cherry	*Prunus ilicifolia*	None	Native
California rose	*Rosa californica*	None	Native

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Common Name	Scientific Name	Special Status	Origin
California blackberry	*Rubus ursinus*	None	Native
Red willow	*Salix laevigata*	None	Native
Poison oak	*Toxicodendron diversilobum*	None	Native
Forbs - 94 Species			
Yarrow	*Achillea millefolium*	None	Native
Soft blow wives	*Achyrachaena mollis*	None	Native
Mountain dandelion	*Agoseris heterophylla*	None	Native
Spanish lotus	*Acmispon americanus* var. *americanus*	None	Native
Fiddleneck	*Amsinckia* sp.	None	Native
Common fiddleneck	*Amsinckia menziesii* var. *intermedia*	None	Native
Bristly fiddleneck	*Amsinckia tesselata*	None	Native
Mugwort	*Artemisia douglasiana*	None	Native
Kotolo	*Asclepias eriocarpa*	None	Native
Narrow-leaf milkweed	*Asclepias fascicularis*	None	Native
Salinas milkvetch	*Astragalus macrodon*	**CRPR 4.3**	Native
Marsh baccharis	*Baccharis glutinosa*	None	Native
Common goldenstar	*Bloomeria crocea*	None	Native
Black mustard	*Brassica nigra*	None	Introduced
Jepson's morning glory	*Calystegia malacophylla* subsp. *pedicellata*	None	Native
Italian thistle	*Carduus pycnocephalus* subsp. *pycnocephalus*	None	Introduced
Purple owl's clover	*Castilleja exserta* subsp. *exserta*	None	Native
Tocalote	*Centaurea melitensis*	None	Introduced
Yellow star-thistle	*Centaurea solstitialis*	None	Introduced
Sticky mouse-ear chickweed	*Cerastium glomeratum*	None	Introduced
Bull thistle	*Cirsium vulgare*	None	Introduced
Four-spot	*Clarkia purpurea* subsp. *quadrivulnera*	None	Native
Woodland clarkia	*Clarkia unguiculata*	None	Native
Miner's lettuce	*Claytonia perfoliata*	None	Native

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Common Name	Scientific Name	Special Status	Origin
Yerba buena	*Clinopodium douglasii*	None	Native
Poison hemlock	*Conium maculatum*	None	Introduced
Bindweed	*Convolvulus arvensis*	None	Introduced
Common sandaster	*Corethrogyne filaginifolia*	None	Native
Turkey-mullein	*Croston setiger*	None	Native
California dodder	*Cuscuta californica*	None	Native
Jimsonweed	*Datura wrightii*	None	Native
Wild carrot	*Daucus pusillus*	None	Native
Clustered tarweed	*Deinandra fasciculata*	None	Native
Salinas river tarweed	*Deinandra pentactis*	None	Native
Blue dicks	*Dichelostemma capitatum*	None	Native
Horseweed	*Erigeron canadensis*	None	Native
Thread stemmed fleabane	*Erigeron foliosus* var. *foliosus*	None	Native
Idria buckwheat	*Eriogonum vestitum*	None	Native
Golden yarrow	*Eriophyllum confertiflorum* var. *confertiflorum*	None	Native
Red stemmed filaree	*Erodium cicutarium*	None	Introduced
California poppy	*Eschscholzia californica*	None	Native
Reticulate seeded spurge	*Euphorbia spathulata*	None	Native
Fennel	*Foeniculum vulgare*	None	Introduced
Phlox-leaved bedstraw	*Galium andrewsii*	None	Native
Narrow leaved bedstraw	*Galium angustifolium* subsp. *angustifolium*	None	Native
Goose grass	*Galium aparine*	None	Native
Purplespot gilia	*Gilia clivorum*	None	Native
Telegraph weed	*Heterotheca grandiflora*	None	Native
Short podded mustard	*Hirschfeldia incana*	None	Introduced
Smooth cat's-ear	*Hypochaeris glabra*	None	Introduced
Prickly lettuce	*Lactuca serriola*	None	Introduced
Common hareleaf	*Lagophylla ramosissima*	None	Native
Henbit	*Lamium amplexicaule*	None	Introduced
Daggerleaf cottonrose	*Logfia gallica*	None	Introduced

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Common Name	Scientific Name	Special Status	Origin
Bird's-foot trefoil	*Lotus corniculatus*	None	Introduced
Miniature lupine	*Lupinus bicolor*	None	Native
Bajada lupine	*Lupinus concinnus*	None	Native
Chick lupine	*Lupinus microcarpus*	None	Native
Bull mallow	*Malva nicaeensis*	None	Introduced
California man-root	*Marah fabacea*	None	Native
Horehound	*Marrubium vulgare*	None	Introduced
California burclover	*Medicago polymorpha*	None	Introduced
White sweetclover	*Melilotus albus*	None	Introduced
Sourclover	*Melilotus indicus*	None	Introduced
California paeonia	*Paeonia californica*	None	Native
Popcornflower	*Plagio* sp.	None	Native
Valley popcornflower	*Plagiobothrys canescens* var. *canescens*	None	Native
California plantain	*Plantago erecta*	None	Native
English plantain	*Plantago lanceolata*	None	Introduced
Radish	*Raphanus sativus*	None	Introduced
California rose	*Rosa californica*	None	Native
Curly dock	*Rumex crispus*	None	Introduced
Willow dock	*Rumex salicifolius*	None	Native
California hummingbird sage	*Salvia spathacea*	None	Native
Milk thistle	*Silybum marianum*	None	Introduced
Charlock	*Sinapis arvensis*	None	Introduced
London rocket	*Sisymbrium irio*	None	Introduced
Oriental hedge mustard	*Sisymbrium orientale*	None	Introduced
Rod wirelettuce	*Stephanomeria virgata* subsp. *virgata*	None	Native
Field hedge parsley	*Torilis arvensis*	None	Introduced
Hedge parsley	*Torilis nodosa*	None	Introduced
Death camas	*Toxicoscordion* sp.	None	Native
Yellow salsify	*Tragopogon dubius*	None	Introduced
Indian clover	*Trifolium albopurpureum*	None	Native
Pinpoint clover	*Trifolium gracilentum*	None	Native

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Common Name	Scientific Name	Special Status	Origin
Rose clover	*Trifolium hirtum*	None	Introduced
Small-head clover	*Trifolium microcephalum*	None	Native
Stinging nettle	*Urtica dioica*	None	Native
Dwarf nettle	*Urtica urens*	None	Introduced
Western vervain	*Verbena lasiostachys*	None	Native
American vetch	*Vicia americana* subsp. *americana*	None	Native
Hairy vetch	*Vicia villosa* subsp. *villosa*	None	Introduced
Cocklebur	*Xanthium strumarium*	None	Native
Davy's centaury	*Zeltnera davyi*	None	Native
Grasses - 17 Species			
Wildoats	*Avena fatua*	None	Introduced
California brome	*Bromus carinatus* var. *carinatus*	None	Native
Ripgut grass	*Bromus diandrus*	None	Introduced
Soft chess	*Bromus hordeaceus*	None	Introduced
Red brome	*Bromus madritensis* subsp. *rubens*	None	Introduced
Giant wild-rye	*Elymus condensatus*	None	Native
Blue wild-rye	*Elymus glaucus*	None	Native
Beardless wild rye	*Elymus triticoides*	None	Native
Small fescue	*Festuca microstachys*	None	Native
Rattail sixweeks grass	*Festuca myuros*	None	Introduced
Rye grass	*Festuca perennis*	None	Introduced
Wall barley	*Hordeum murinum*	None	Introduced
Toad rush	*Juncus bufonius*	None	Native
Little California melica	*Melica imperfecta*	None	Native
Annual bluegrass	*Poa annua*	None	Introduced
Nodding needle grass	*Stipa cernua*	None	Native
Purple needlegrass	*Stipa pulchra*	None	Native

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3.8 Wildlife Resources

Research on special status animal occurrences conducted within the designated search area (see Methods) determined 40 special status animal species are known to occur in the region (refer to Appendix B). Figure 6 and Figure 7 depict the current GIS data for special status species and critical habitat mapped in the vicinity of the property by the CNDDB and the United States Fish and Wildlife Service (USFWS).

3.8.1 Potential Special Status Animals List

Table 6 lists nine special status animal species reported from the region for which appropriate habitat conditions exist in the Study Area, and therefore could potentially occur in the Study Area. Federal and California State status, global and State rank, and CDFW listing status for each species are given. Typical nesting or breeding period, habitat preference, potential habitat on site, and whether the species was detected in the Study Area are also provided. Species are listed alphabetically by scientific name.

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TABLE 6. SPECIAL STATUS ANIMAL LIST

	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting / Breeding Period	Habitat Preference	Potential to Occur
1.	**Cooper's hawk***	*Accipiter cooperii*	-/-	G5/S4	WL (Nesting)	May - September	Oak woodland, riparian, open fields. Nests in dense trees, esp. coast live oak.	Moderate. Suitable oak woodland habitat with coast live oaks are present in the Study Area.
2.	**Northern California legless lizard**	*Anniella pulchra*	-/-	G3/S3	SSC	May - September	Sandy or loose loamy soils under coastal scrub or oak trees. Soil moisture essential.	Moderate. Potentially suitable sandy loam soil and oak tree leaf litter are present in the Study Area.
3.	**Golden eagle**	*Aquila chrysaetos*	-/-	G5/S3	WL/Fully Protected	March 15 - August 15	Nests in large, prominent trees in valley and foothill woodland. Requires adjacent food source.	Low. Nesting habitat is not present, but the Study Area could be used by foraging eagles.
4.	**Lesser slender salamander**	*Batrachoseps minor*	-/-	G1/S1	SSC	n/a	South Santa Lucia Mountains in tanbark oak, coast live oak, blue oak, sycamore & laurel.	Low. Suitable habitat is present though conditions are mostly xeric in the Study Area.
5.	**Loggerhead shrike***	*Lanius ludovicianus*	-/-	G4/S4	SSC (Nesting)	March 15 - August 15	Open areas with appropriate perches, near shrubby vegetation for nesting.	Low. Open, foraging habitat is present but shrubby nesting habitat is not present in the Study Area.
6.	**Lewis's woodpecker**	*Melanerpes lewis*	-/-	G4/S4	Special Animal (Nesting)	Late April - July	Open woodlands near streams, oak woodlands, orchards, and pinyon-juniper woodlands.	Low. Appropriate oak tree and orchard habitat is present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting / Breeding Period	Habitat Preference	Potential to Occur
7.	**Monterey dusky-footed woodrat**	*Neotoma macrotis luciana*	-/-	G5T3 S3	SSC	n/a	Variety of habitats with moderate to dense understory vegetation	Low. Oak woodland could provide suitable nesting habitat. Nearest occurrence is 8 mi NW of the Study Area (CNDDB #1).
8.	**Salinas pocket Mouse**	*Perognathus inornatus psammophilus*	-/-	G4T2?/S1	SSC	n/a	Annual grassland and desert shrub in Salinas Valley, with friable soils	Low. Suitable grassland habitat and friable soils are present in the Study Area.
9.	**American badger**	*Taxidea taxus*	-/-	G5/S3	SSC	February – May	Needs friable soils in open ground with abundant food source such as California ground squirrels.	Moderate. Suitable soils and open grassland habitat is present in the Study Area.

*Not listed in the CNDDB for the search area, but species is a possibility for the location.
See section 1.5 for status and rank definitions.

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3.8.2 Special Status Animals Discussion

Based on an analysis of known ecological requirements for the 40 special-status wildlife species reported or known from the region, and the habitat conditions that were observed in the Study Area, it was determined that three species have a moderate potential to occur (Cooper's hawk, northern California legless lizard, and American badger), and six species have a low potential to occur in the Study Area (golden eagle, lesser slender salamander, Monterey dusky-footed woodrat, Salinas pocket mouse, Lewis's woodpecker, loggerhead shrike). We discuss a total of nine species below and describe habitat, range restrictions, known occurrences, and survey results for the Study Area.

A. Cooper's hawk (*Accipiter cooperii*) is a CDFW Watch List species (for nesting occurrences only) that occurs regularly in California during the winter months and during spring and fall migration (CDFW 2018a). It is generally regarded as a regular but uncommon nesting species in San Luis Obispo County (Hall et al. 1992) . Cooper's hawks frequent oak and riparian woodland habitats, and increasingly urban areas, where they prey primarily upon small birds (Curtis et al. 2006). Multiple occurrences of Cooper's hawks in the area have been reported on online data sources, such eBird, though no known nesting occurrences have been reported in the vicinity of the Project. Appropriate oak woodland nesting habitat is present in the Study Area and the site is likely to support nesting and foraging Cooper's hawks. One adult male Cooper's hawk was observed on the barn structure and trees within the anthropogenic habitat on April 4, 2019. No Cooper's hawk nests were observed

B. Northern California legless lizard (*Anniella pulchra*) is a California Species of Special Concern that occurs from Contra Costa to Santa Barbara County. It has a Global Rank of G3 and a State Rank of S3, both of which indicate that this species is considered Vulnerable. This species includes the subspecies formerly treated as *A. pulchra nigra* and *A. pulchra pulchra* which was shown to be an invalid designation (Pearse and Pogson 2000). Northern California legless lizard inhabits friable soils in a variety of habitats from coastal dunes to oak woodlands and chaparral. Adapted to subterranean life, the legless lizard thrives near native coastal shrubs that produce an abundance of leaf litter and have strong roots systems (Kuhnz et al. 2005). Areas of exotic vegetation and open grassland do not provide suitable habitat for the silvery legless lizard since these plant communities support smaller populations of insect prey and offer little protection from higher ground temperatures and soil desiccation (Jennings and Hayes 1994; Slobodchikoff and Doyen 1977). There are two reports of legless lizards from the east side of Paso Robles, the closest of which is off Golden Hill Road in the vicinity of Barny Schwarz Park approximately 4.2 miles northeast of the Study Area (Althouse and Meade, Inc. 2012). Moderately suitable habitat is present in the Study Area in leaf litter and loam soils beneath oak trees and in orchard habitat. This area, however, is typically drier and soil moisture content is relatively low throughout the year. Northern California legless lizards were not observed in the Study Area during our June 2019 surveys.

C. Golden eagle (*Aquila chrysaetos)* is designated a Fully Protected species by the CDFG. Fully Protected species may not be taken under any circumstances, and authorization for take may not be granted (refer to Section 3.6.2). The golden eagle is also protected under the federal Bald and Golden Eagle Protection Act. Golden eagles require large trees for nesting and open hunting grounds with abundant prey. Golden eagles were documented nesting approximately

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4.5 miles northeast of the Study Area from 2006 through the present (CNDDB #122). Another pair of golden eagles nested from at least 1999 through 2005 and again in 2019 on the Santa Ysabel Ranch, approximately 3.4 miles southeast of the Study Area (Althouse and Meade, Inc. unpublished field notes 1999-2005, and Meade pers. obs. 2019). No eagle nests were detected in the Study Area during 2019 and appropriately large, prominent trees are not present. Golden eagles are likely to forage but very unlikely to nest in the Study Area.

D. Lesser slender salamander (*Batrachoseps minor*) is designated as a Species of Special Concern by California Department of Fish and Wildlife (CDFW) and has a Global Rank of G1 (Critically Imperiled) and a State Rank of S1 (Critically Imperiled). To be ranked as Critically Imperiled means that this species is at a very high risk of extinction due to extreme rarity, very steep declines, and/or other factors. The range of this species is restricted to South Santa Lucia Mountains where it inhabits shaded slopes with abundant leaf litter in broadleaved upland forests consisting of tanbark oak, coast like oak, blue oak, sycamore and laurel (Stebbins 2019). The closest reported occurrence of lesser slender salamander was located approximately 5.4 miles in southwest of the project (CNDDB #4) in oak woodland. Lesser slender salamander is known to coexist with black-bellied slender salamander (*Batrachoseps nigriventris*) and *B. nigriventris* was observed on the property in 2011 (Althouse and Meade, Inc. 2011). Appropriate oak woodland is present, though site conditions are predominantly xeric and lesser slender salamander has low potential to occur. Lesser slender salamander was not observed in the Study Area during June 2019 site surveys.

E. Loggerhead shrike (*Lanius ludovicianus*) is a California Species of Special Concern and resident in arid regions of San Luis Obispo County and elsewhere in California. It requires open areas with appropriate perches for hunting, and shrubby trees or bushes for nesting. They feed on arthropods, reptiles and amphibians, small rodents, and birds, and often store prey for later consumption by impaling it on thorns, plant stems, or barbed wire for storage (Shuford and Gardali 2008). Barbed wire fencing is present on the property and could act as a hunting perch and cache. Suitable nesting habitat is not abundant in the Study Area for loggerhead shrikes; however, the almond orchard trees and sparse shrubby vegetation along some oak woodland edges could provide nesting habitat. CNDDB spatial data is incomplete for this species, which is known from northern San Luis Obispo County. Several occurrences of loggerhead shrike were reported between 2013 and 2018, just one mile southwest of the Study Area, through the online data source eBird (eBird 2019). Marginal nesting habitat is present and loggerhead shrikes have low potential to nest on the Property, though they may be observed foraging across the site. Loggerhead shrike was not observed during our June 2019 surveys.

F. Lewis' woodpecker (*Melanerpes lewis*) is a CDFW Special Animal species that is an uncommon, local winter resident occurring in open oak savannahs, broken deciduous and coniferous habitats, found along eastern slopes of the Coast Ranges south to San Luis Obispo County. It requires open habitats with scattered trees and snags with cavities. Nests are excavated nest cavities in snag or dead parts of live trees and usually nests in sycamore, cottonwood, oak, or conifer. Lewis' woodpecker forages primarily on insects in spring and summer, and winter food consists mostly of cached acorns or nuts used in the nonbreeding season (CDFW 2014). The closest known occurrence is less than one mile southwest of the Study Area near Highway 46 (eBird 2019); however, no known occurrences have been

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documented within the County according to CNDDB. CDFW and the City of Paso now require a targeted Lewis' woodpecker survey for projects with oak tree habitat, due to the steep decline of this species. Appropriate foraging and oak tree nesting habitat is present in the Study Area. Lewis' woodpecker was not observed in the Study Area during our June 2019 surveys. Focused Lewis' woodpecker surveys will be conducted in May 2020 during Lewis' woodpecker nesting season and results will be submitted to the City of Paso Robles as an addendum to this report.

G. Monterey dusky-footed woodrat (*Neotoma macrotis luciana*) is a California Species of Special Concern known only from the Santa Lucia Mountains in southeastern Monterey and northwestern San Luis Obispo Counties. Monterey dusky-footed woodrat occurs in broadleaved upland forest and chaparral with moderate canopy and moderate to dense understory. It constructs nests using grass, leaves, sticks, feathers, etc. The availability of nest materials may be a limiting factor for population growth. The nearest collection record for *N. macrotis luciana* is from the Camp Roberts area, northwest of the Study Area. Occurrence numbers 1, 2, and 6 in the CNDDB are on Camp Roberts military reservation. These records are 8.5 to 11 miles from the Study Area. Insufficient trapping has been conducted in the Paso Robles area to determine the exact range of *N. macrotis luciana.* Dusky-footed woodrats were present in oak and riparian woodland habitats on the property during 2011 surveys (Althouse and Meade, Inc. 2011). Trapping was not conducted as part of the 2011 surveys; therefore, subspecies could not be determined for woodrats on the property. Woodrat middens were not observed during June 2019 surveys and woodrats have low potential to occur on the Property. Monterey dusky-foot woodrat was not observed during June 2019 surveys.

H. Salinas pocket mouse (*Perognathus inornatus psammophilus*) is a rare pocket mouse listed as a California Species of Special Concern (CDFW 2019). It has a Global Rank of G4T2 (rounded status T2 – Imperiled) and a State Rank of S1 (Critically Imperiled). The Salinas pocket mouse is one of three subspecies located from the Sacramento Valley, south to the San Joaquin and contiguous valleys (including Salinas Valley). Like other species of pocket mice, the Salinas pocket mouse is nocturnal and spends the day in a burrow with a plugged entrance. During periods of low temperatures, these mice will enter a period of torpor, emerging occasionally from their burrow if its cache needs to be replenished. The Salinas pocket mouse forages on the seeds of grasses and forbs as well as seasonal vegetation. The closest reported occurrence of Salinas pocket mouse is located approximately 7.4 miles northeast of the Study Area (CNDDB #9) in 1918. More recent occurrences have been reported within nine miles of the site at Camp Roberts. Due to the suitable soils and annual grassland habitat in the Study Area, Salinas pocket mouse have low potential to occur. Salinas pocket mouse was not observed during June 2019 surveys.

I. American badger (*Taxidea taxus*) is a California Species of Special Concern with a widespread range across the state (Brehme et. al. 2015, CDFW 2014). It is a permanent but uncommon resident in all parts of California, except for forested regions of the far northwestern corner, and is more abundant in dry, open areas of most shrub and forest habitats (CNDDB 2019). The American badger requires friable soil in order to dig burrows for cover and breeding. The main food source for the species is fossorial rodents, mainly ground squirrels and pocket gophers (CDFW 2014). The breeding season for badgers is in summer and early fall, and females give birth to litters usually in March and April (CDFW 2014). The

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closest reported occurrence of the American badger is located approximately one mile southeast from the Study Area (CNDDB #23). Badgers are highly mobile and could be present anywhere in the region where suitable prey base is found. No sign of badgers was observed during our June 2019 surveys; however, California ground squirrels were observed on the site and soils are friable and suitable for denning badgers. Badgers were not observed during our June 2019 surveys, but they could be present in the future.

The remaining 32 special status animal species that were evaluated were determined to have no potential to occur in the Study Area due to lack of suitable habitat present. However, two of these species either are listed or are candidates for listing as threatened or endangered under the Federal Endangered Species Act (FESA) and/or California Endangered Species Act (CESA). Therefore, although they are not expected to occur, these species also warrant further discussion:

A. Vernal pool fairy shrimp (*Branchinecta lynchi*) is a small freshwater crustacean that is federally listed as threatened and occurs in the Central Valley of California from Shasta County to Tulare County and the central and southern Coast Ranges from northern Solano County to Ventura County, California (USFWS 2003). This shrimp is found in grasslands in cool, clear-water sandstone-depression, grassed swale, earth slump and basalt-flow depression pools with a higher occurrence in Redding, Corning and Red Bluff soils (Helm 1998; CDFW 2018a). Preferred pool depth by the shrimp ranges from 2-122 cm. Individuals hatch from cysts during cold-weather winter storms and require water temperatures of 50°F or lower to hatch (Helm 1998; Eriksen and Belk 1999). The time to maturity and reproduction is temperature dependent, varying between 18 days and 147 days, with a mean of 39.7 days. Immature and adult shrimp are known to die off when water temperatures rise to approximately 75°F (Helm 1998). The species is typically associated with smaller and shallower vernal pools (typically about 6 inches deep) that have relatively short periods of inundation (Helm 1998) and relatively low to moderate total dissolved solids (TDS) and alkalinity. The closest reported occurrence of the vernal pool fairy shrimp is located approximately 1.3 miles northeast from the Project (CNDDB #621) in vernal pool habitat. The property does not have vernal pool or wetland habitat to support vernal pool fairy shrimp and there is no potential for this species to occur on the site.

B. San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF) is federally listed as endangered and state listed as threatened. The SJKF is one of two subspecies of the kit fox, *Vulpes macrotis*, which is the smallest canid species in North America. It is endemic to the San Joaquin Valley and a few adjacent valleys in the central region of California (Cypher et al. 2013). The SJKF is primarily nocturnal and typically occurs in annual grassland or mixed shrub/grassland habitats throughout low, rolling hills and in valleys. They need loose sandy soils in order to dig their burrows and a prey population of black-tailed jackrabbits, rodents, desert cottontails, insects, some birds, reptiles and vegetation (CDFW 2014, CNDDB 2017). The most suitable habitat for SJKF has low precipitation, sparse vegetation coverage with high densities of kangaroo rats (*Dipodomys* spp.). For the SJKF to succeed in an area it needs large expanses of non-fragmented suitable habitat. This type of habitat is decreasing rapidly by conversion into agricultural land or degraded by urban development (Cypher et al. 2013). The closest reported occurrence of the SJKF is located approximately 3.2 miles northeast from the Study Area (CNDDB #945). The property is outside the range of contiguous kit fox habitat as defined by the CDFW and therefore does not require a SJKF habitat evaluation. SJKF or its sign was not observed in the Study Area during June 2019 surveys.

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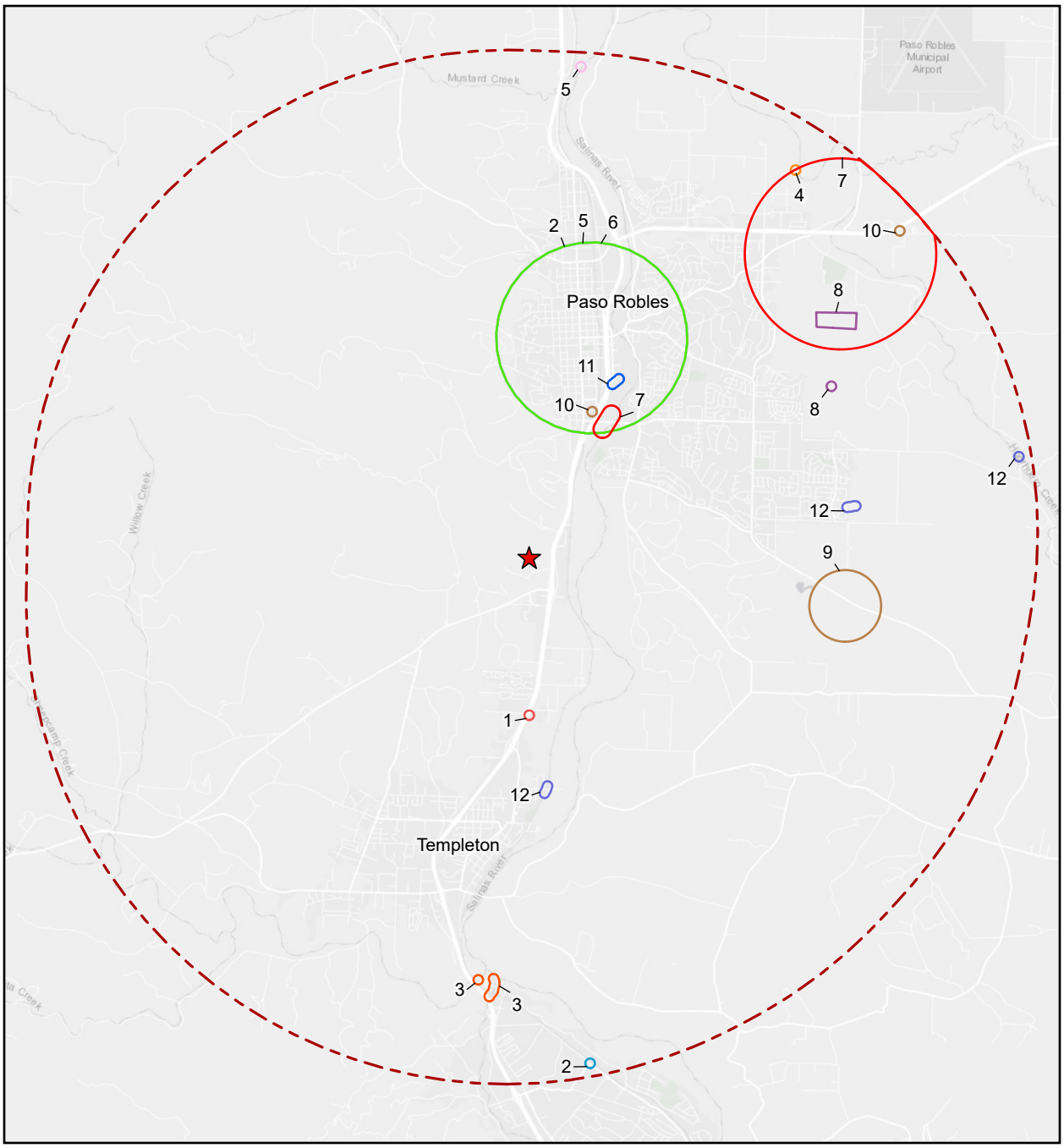
Figure 6. California Natural Diversity Database Animal Records



Label	Common Name
1	American badger
2	Atascadero June beetle
3	California red-legged frog
4	Golden eagle
5	Least Bell's vireo
6	Lompoc grasshopper
7	Northern California legless lizard
8	San Joaquin kit fox
9	Tricolored blackbird
10	Vernal pool fairy shrimp
11	Western pond turtle
12	Western spadefoot

Legend

Project Location

5-Mile Radius

N

0 0.5 1 2 Miles

Paso Gateway
Map Center: 120.69918°W 35.59189°N
Paso Robles, San Luis Obispo County

CNDDB GIS Data Last Updated: July 2019

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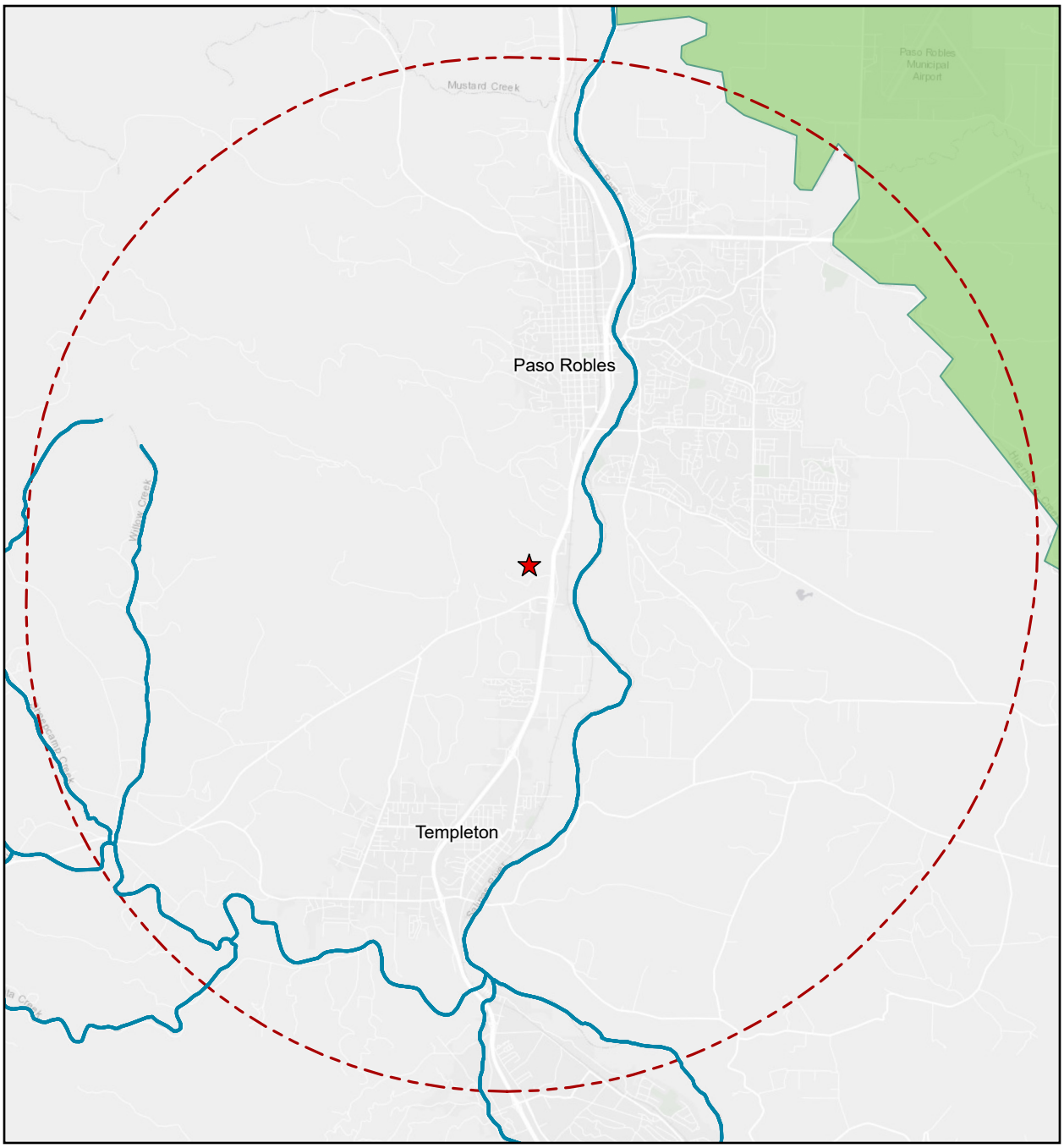
Map Updated:
July 23, 2019 09:46 AM by JBB

Figure 7. United States Fish and Wildlife Service Critical Habitat



Legend

- Project Location
- 5-Mile Radius

Critical Habitat

- Steelhead
- Vernal pool fairy shrimp

N

0 0.5 1 2 Miles

Paso Robles Gateway
Map Center: 120.69922°W 35.593°N
Templeton, San Luis Obispo County

USFWS Critical Habitat Data Last Updated: December 2018

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3.8.3 Wildlife Survey Results

Table 6 is provided as a guide to the wildlife observed in the Study Area and to the species that could potentially be present, at least seasonally. Table 7 lists 113 animal species that could potentially occur or were found in the Study Area, specifically, four amphibians, 11 reptiles, 60 birds, and 38 mammals. Small mammal trapping studies were beyond the scope of this report, and several common species are likely to be present. Many transient bird species are likely to occur.

Wildlife species detected in the Study Area during the June 21, 2019 included one reptile, 29 birds, and four mammals. One active red-tailed hawk nest with a female attending was observed in a blue oak in the northeastern portion of the Study Area (Figure 4). Several bird species were observed utilizing the dense canopy of oak woodland along the drainages, where nests were not detected but could potentially be present. A large coyote den was observed along the northern drainage fork and one adult coyote was observed heading toward the den. Several ground burrows were observed throughout the Study Area and a large prey-base is apparent.

TABLE 7. WILDLIFE LIST

Common Name	Scientific Name	Special Status	Found On-site	General Habitat Preference
Amphibians – 4 Species				
California (Western) toad	*Anaxyrus [=Bufo] boreas halophilus*	None		Grassland, woodland
Lesser slender salamander	*Batrachoseps minor*	None		Mixed oak forests, tanbark oak, sycamore and laurel
Black-bellied Slender Salamander	*Batrachoseps nigriventris*	None		Moist habitats
Sierran treefrog [=pacific chorus frog]	*Pseudacris sierra* [formerly *P. regilla*]	None		Many habitats near water
Reptiles – 11 Species				
Northern California legless lizard	*Anniella pulchra*	SSC		Sandy soils in dunes, woodlands, coastal scrub
Northern pacific rattlesnake	*Crotalus oreganus oreganus*	None		Dry, rocky habitats
California alligator lizard	*Elgaria multicarinata multicarinata*	None		Open grassland, woodland, chaparral
Western pond turtle	*Emys [=Actinemys] marmorata*	SSC		Lakes, ponds, streams
California kingsnake	*Lampropeltis californiae [=getula californiae]*	None		Woodland, grassland, streams
San Joaquin coachwhip	*Masticophis flagellum ruducki*	SSC		Open, dry habitats with no trees. Needs burrows.
Blainville's (coast) horned lizard	*Phrynosoma blainvillii*	SSC		Dune scrub, alkali scrub, chaparral, grasslands
Pacific gopher snake	*Pituophis catenifer catenifer*	None		Woodland, grassland, rural

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Common Name	Scientific Name	Special Status	Found On-site	General Habitat Preference
Coast range [=western] fence lizard	*Sceloporus occidentalis bocourtii*	None	✓	Wide range; variety of habitats
California red-sided Garter Snake	*Thamnophis sirtalis infernalis*	None		Many habitats near water
Side-blotched lizard	*Uta stansburiana*	None		Dry habitats
Birds – 60 Species				
Cooper's hawk	*Accipiter cooperii*	Special Animal[1] (nesting)		Oak, riparian woodland
Tricolored blackbird	*Agelaius tricolor*	SSC, State Candidate Endangered (nesting colonies)		Marshes, fields
California scrub-jay	*Aphelocoma californica*	None	✓	Oak, riparian woodlands
Burrowing owl	*Athene cunicularia*	SSC		Grasslands with ground squirrel burrows
Oak titmouse	*Baeolophus inornatus*	Special Animal (nesting)	✓	Oak woodland
Great horned owl	*Bubo virginianus*	None		Woodland, grassland
Great horned owl	*Bubo virginianus*	None		Woodland, grassland
Red-tailed hawk	*Buteo jamaicensis*	None	✓	Open, semi-open country
Rough-legged hawk	*Buteo lagopus*	None		Variety of open habitats
Red-shouldered hawk	*Buteo lineatus*	None		Oak, riparian woodlands
Ferruginous hawk	*Buteo regalis*	Special Animal (wintering)		Grasslands, open fields
Anna's hummingbird	*Calypte anna*	None	✓	Many habitats
Turkey vulture	*Cathartes aura*	None	✓	Open country
Lark sparrow	*Chondestes grammacus*	None	✓	Woodland edges
Northern flicker	*Colaptes auratus*	None		Woodlands
Olive-sided flycatcher	*Contopus cooperi*	SSC (nesting)	✓	Riparian
Western wood pewee	*Contopus sordidulus*	None		Riparian woodlands
Common raven	*Corvus corax*	None	✓	Variety of habitats
Pacific-slope flycatcher	*Empidonax difficilis*	None		Riparian, oak woodlands

1 Special Animal refers to all of the animal taxa inventoried by the CNDDB, regardless of their legal or protection status. Refer to discussion of Special Animals in Section 3.5.2.

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Common Name	Scientific Name	Special Status	Found On-site	General Habitat Preference
Brewer's blackbird	*Euphagus cyanocephalus*	None		Open habitats
Prairie falcon	*Falco mexicanus*	Special Animal (nesting)		Open country, nests on cliffs
House finch	*Haemorhous mexicanus*	None	✓	Riparian, grasslands, chaparral, woodlands, urban
Purple finch	*Haemorhous purpureus*	None		Riparian and woodlands
Barn swallow	*Hirundo rustica*	None		Riparian, grasslands, lakes
Bullock's oriole	*Icterus bullockii*	None		Oak, riparian woodlands
Loggerhead shrike	*Lanius ludovicianus*	SSC (nesting)		Nests in shrubs, trees near open areas
Western screech owl	*Megascops kennicottii*	None		Open woodlands, drainages, suburbs
Acorn woodpecker	*Melanerpes formicivorus*	None	✓	Oak woodland, urban areas with oaks
Lewis's woodpecker	*Melanerpes lewis*	Special Animal (nesting)		Oak woodland, orchards
Wild turkey	*Meleagris gallopavo*	None	✓	Open woodlands
Song sparrow	*Melospiza melodia*	None		Oak, riparian woodland
California towhee	*Melozone crissalis*	None	✓	Chaparral scrub, shrubby urban areas
Northern mockingbird	*Mimus polyglottos*	None	✓	Riparian, chaparral, woodlands, urban
Ash-throated flycatcher	*Myiarchus cinerascens*	None	✓	Open, arid habitats
Black-headed grosbeak	*Pheucticus melanocephalus*	None		Woodlands
Nuttall's woodpecker	*Picoides nuttallii*	None		Oak, riparian woodlands
Hairy woodpecker	*Picoides villosus*	None	✓	Oak, riparian woodlands
Bushtit	*Psaltriparus minimus*	None	✓	Woodlands, chaparral
Ruby-crowned Kinglet	*Regulus calendula*	None		Oak, riparian woodlands
Black phoebe	*Sayornis nigricans*	None	✓	Near water in natural and urban settings
Allen's hummingbird	*Selasphorus sasin*	WL		Riparian, chaparral and woodland
Western bluebird	*Sialia mexicana*	None	✓	Woodland near open areas
White-breasted Nuthatch	*Sitta carolinensis*	None	✓	Oak savannah, woodland
Lesser goldfinch	*Spinus psaltria*	None	✓	Riparian, oak woodlands

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Common Name	Scientific Name	Special Status	Found On-site	General Habitat Preference
American goldfinch	*Spinus tristis*	None		Weedy fields, woodlands
Eurasian collared dove	*Streptopelia decaocto*	None	✓	Urban areas
Western meadowlark	*Sturnella neglecta*	None		Open habitats, grasslands
European starling	*Sturnus vulgaris*	None	✓	Agricultural, livestock areas
Tree swallow	*Tachycineta bicolor*	None	✓	Oak, riparian woodlands, open areas near water
California thrasher	*Toxostoma redivivum*	None	✓	Chaparral, coastal scrub
American robin	*Turdus migratorius*	None		Streamsides, woodlands, urban parks
Western kingbird	*Tyrannus verticalis*	None	✓	Grasslands, savannah
Cassin's kingbird	*Tyrannus vociferans*	None		Open and semi-open areas
Barn owl	*Tyto alba*	None	✓	Agricultural, woodlands
Least bell's vireo	*Vireo bellii pusillus*	FE, SE (nesting)		Riparian, riparian scrub
Warbling vireo	*Vireo gilvus*	None	✓	Oak, riparian woodlands
Wilson's warbler	*Wilsonia pusilla*	None		Oak, riparian woodlands
Mourning dove	*Zenaida macroura*	None	✓	Open and semi-open habitats
Golden-crowned Sparrow	*Zonotrichia atricapilla*	None	✓	Dense woodlands, brushy areas
White-crowned sparrow	*Zonotrichia leucophrys*	None		Open or shrubby habitats, meadows, forest edges
Mammals – 38 Species				
Pallid bat	*Antrozous pallidus*	SSC		Riparian, woodland, urban
Coyote	*Canis latrans*	None	✓	Open woodlands, brushy areas, wide ranging.
California pocket mouse	*Chaetodipus californicus*	None		Chaparral, brush habitats
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC		Arid western desert scrub and pine forest regions
Virginia opossum	*Didelphis virginiana*	None		Woodlands, streams
Heermann's kangaroo rat	*Dipodomys heermanni*	None		Dry grasslands with few shrubs
Big brown bat	*Eptesicus fuscus*	None		Deciduous forest areas, also in habitats ranging from timberline meadows to lowland deserts
Western mastiff bat	*Eumops perotis californicus*	SSC		Roosts in cliffs, buildings, trees, and tunnels

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Common Name	Scientific Name	Special Status	Found On-site	General Habitat Preference
Western red bat	*Lasiurus blossevillii*	SSC		Closely associated with cottonwoods in riparian areas
Hoary bat	*Lasiurus cinereus*	Special Animal		Variety of habitats, roosts in foliage
Black-tailed jackrabbit	*Lepus californicus*	None		Grasslands
Bobcat	*Lynx rufus*	None		Chaparral and woodlands
Striped skunk	*Mephitis mephitis*	None		Mixed woods, brush, semi-open country
California vole	*Microtus californicus*	None		Grassland meadows
Long-tailed weasel	*Mustela frenata*	None		Grasslands
California myotis	*Myotis californicus*	None		Tunnels, hollow trees, buildings, bridges.
Little brown myotis	*Myotis lucifugus*	Special Animal		Woodlands, often near water.
Merriam's chipmunk	*Neotamias merriami*	None		Brushy habitats
Dusky-footed woodrat	*Neotoma fuscipes*	None		Moderate canopy in many habitats
Monterey dusky-footed woodrat	*Neotoma macrotis luciana*	SSC		Moderate canopy in many habitats
Mule [Black-tailed] deer	*Odocoileus hemionus*	None	✓	Many habitats
California ground squirrel	*Otospermophilus beecheyi*	None	✓	Grasslands
Salinas pocket mouse	*Perognathus inornatus psammophilus*	SSC		Annual grassland, desert scrub, oak woodland
California mouse	*Peromyscus californicus*	None		Oak woodland, chaparral
Deer mouse	*Peromyscus maniculatus*	None		All dry land habitats
Raccoon	*Procyon lotor*	None		Streams, lakes, rock cliffs, dens in trees
Mountain lion	*Puma concolor*	Specially Protected Species**		Mountains, woodlands, stream corridors
Broad-footed mole	*Scapanus latimanus*	None		Grasslands, agricultural, in moist soils
Ornate shrew	*Sorex ornatus*	None		Riparian, woodland, grassland, and shrubland
Trowbridge's shrew	*Sorex trowbridgii*	None		Streamsides, woodlands
Western spotted skunk	*Spirogale gracilis*	None		Variety of habitats
Wild boar	*Sus scrofa*	None		Variety of habitats with water source and dense vegetation for cover

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Common Name	Scientific Name	Special Status	Found On-site	General Habitat Preference
Brush rabbit	*Sylvilagus bachmani*	None		Brushy habitats
Mexican Free-tailed Bat	*Tadarida brasiliensis*	None		Variety of habitats; roosts in bridges, buildings, caves
American badger	*Taxidea taxus*	SSC		Open country
Valley pocket gopher	*Thomomys bottae*	None	✓	Variety of habitats
Gray fox	*Urocyon cinereoargenteus*	None		Chaparral, dry woodlands
Red fox	*Vulpes vulpes*	None		Forest and open country

3.8.4 Habitat Connectivity and Wildlife Movement

Wildlife corridors and habitat connectivity are important for the movement of wildlife between different populations and habitats. On-site drainages flow east toward the Salinas River, providing connectivity to water sources and refugia within the oak woodland. Oak woodland habitat is known to provide suitable nesting and foraging habitat for year-round and migrating birds, and several bird species were observed utilizing the canopy. The contiguous open grassland habitat provides a strong prey base with optimal foraging habitat for birds of prey and other carnivorous wildlife species.

Wildlife movement and connectivity are constrained on the Study Area by surrounding development. To the east is the US 101 corridor and industrial buildings between the Study Area and the Salinas River corridor. South of the Study Area is Highway 46, commercial development consisting of a shopping center and other businesses, and residential, rural residential, and agricultural uses that have removed most natural habitat for many miles. West of the property is a mosaic of vineyards, rural residences, agricultural fields, pastures, and orchards, with remaining patches of oaks, scrub, and shrubs along drainages. About a mile to the north are urban neighborhoods, and in between are rural residences, vineyards, orchards, and roads along several canyons and ridges. Habitat within the Study Area is usable by wildlife and development would reduce the amount of wildlife habitat available. Although it would contribute to a reduction in the ability of wildlife to move through the area, development in the Study Area would not create a new barrier to an existing corridor since ground movement of wildlife is already constrained by significant development to the east and south.

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4 ENVIRONMENTAL IMPACT ANALYSIS

The Project is anticipated to affect 97.7 acres of the 162.5-acre Study Area. The Project could affect various biological resources, including oak woodland habitat, individual oak trees, riparian habitat, rare plant species Salinas milk-vetch, several listed wildlife species, and nesting birds. Mitigation measures are recommended to reduce potential impacts to sensitive biological resources. Table 8 summarizes the potential or present biological resources within the Study Area, the Project's level of effect on biological resources, and the mitigation measure recommended to reduce or offset negative effects from the Project.

TABLE 8. IMPACTS AND MITIGATIONS SUMMARY

Biological Resource	Level of Significance	Recommended Mitigation Measures
California Annual Grassland Alliance	Significant but Mitigable	N/A, BR-7, BR-8, BR-9
Orchard	Significant but Mitigable	N/A, BR-3
Coast Live Oak Woodland	Significant but Mitigable	See Oak Tree Protection Plan; BR-3, BR-4 BR-7
Tree of Heaven Groves	Significant but Mitigable	N/A, BR-3
Alvord Oak Woodland	Significant but Mitigable	See Oak Tree Protection Plan; BR-3, BR-4 BR-7
Riparian	Less than Significant	N/A
Special Status Plants	Significant but Mitigable	BR-1, BR-2
Special Status Animals	Significant but Mitigable	BR-4, BR-5, BR-6, BR-7, BR-8, BR-9,
Nesting Birds	Significant but Mitigable	BR-3

4.1 Habitats

There are six types of habitat present within the Study Area: California annual grassland, orchard, coast live oak woodland, tree of heaven groves, Alvord oak woodland, and riparian (Figure 8). The Project would permanently affect portions of six of those habitat types. Table 9 lists the habitat types and estimated area of habitat to be impacted. Potential impacts to nesting birds, special status plant species, and/or special status animal species could occur as a result of impacts to select habitat types. Mitigation measures are recommended to reduce impacts to these species to less than significant.

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TABLE 9. POTENTIAL HABITAT IMPACTS

Habitat Type	Agriculture Easement Impact Acres	Development Impacts Acres	Permanent Impact Acres
California Annual Grassland Alliance	31.7	45.8	77.5
Orchard	0.4	16.2	16.6
Coast Live Oak Woodland	0	0.4	0.4
Tree of Heaven Groves	0	2.3	2.3
Alvord Oak Woodland	0	0.2	0.2
Riparian	0	0	0

4.1.1 California Annual Grassland

California annual grassland is not considered a Sensitive Natural Community by CDFW; however, annual grassland in the Study Area supports special status plant species Salinas milk-vetch and has potential to support other listed wildlife species. For mitigation for select species, refer to Sections 4.4 and 4.5.

4.1.2 Orchard

Approximately 16.5 acres of orchard habitat would be permanently impacted. Orchards are not considered a Sensitive Natural Community by CDFW; however, almond trees in the orchard and debris in the understory have potential to support nesting birds and special status species. For mitigation for nesting birds and select species, refer to Section 4.5.

4.1.3 Coast Live Oak Woodland and Alvord Oak Woodland

The Project plans to remove a total of 44 oak trees on site. An oak tree protection plan was prepared by A&T Arborists and submitted to the City of Paso Robles Planning Department to address impacts to oak trees by the Project (A&T 2018). Some special status species are known to occur in oak woodlands, therefore work activities involving tree removal or trimming will be required to comply with mitigation measures protecting those species: nesting birds, lesser slender salamander and/or northern California legless lizard, and Monterey dusky-footed woodrat (BR-3, BR-4 and BR-7 respectively, see below).

4.1.4 Tree of Heaven Groves

Tree of heaven is an invasive, non-native plant species and tree of heaven groves are not considered a Sensitive Natural Community by CDFW; however, nesting birds could potentially utilize these groves during nesting season. Mitigation measures for nesting birds are provided in Section 4.5.1.

4.1.5 Riparian

The Project does not anticipate impacting riparian habitat. No mitigation is recommended.

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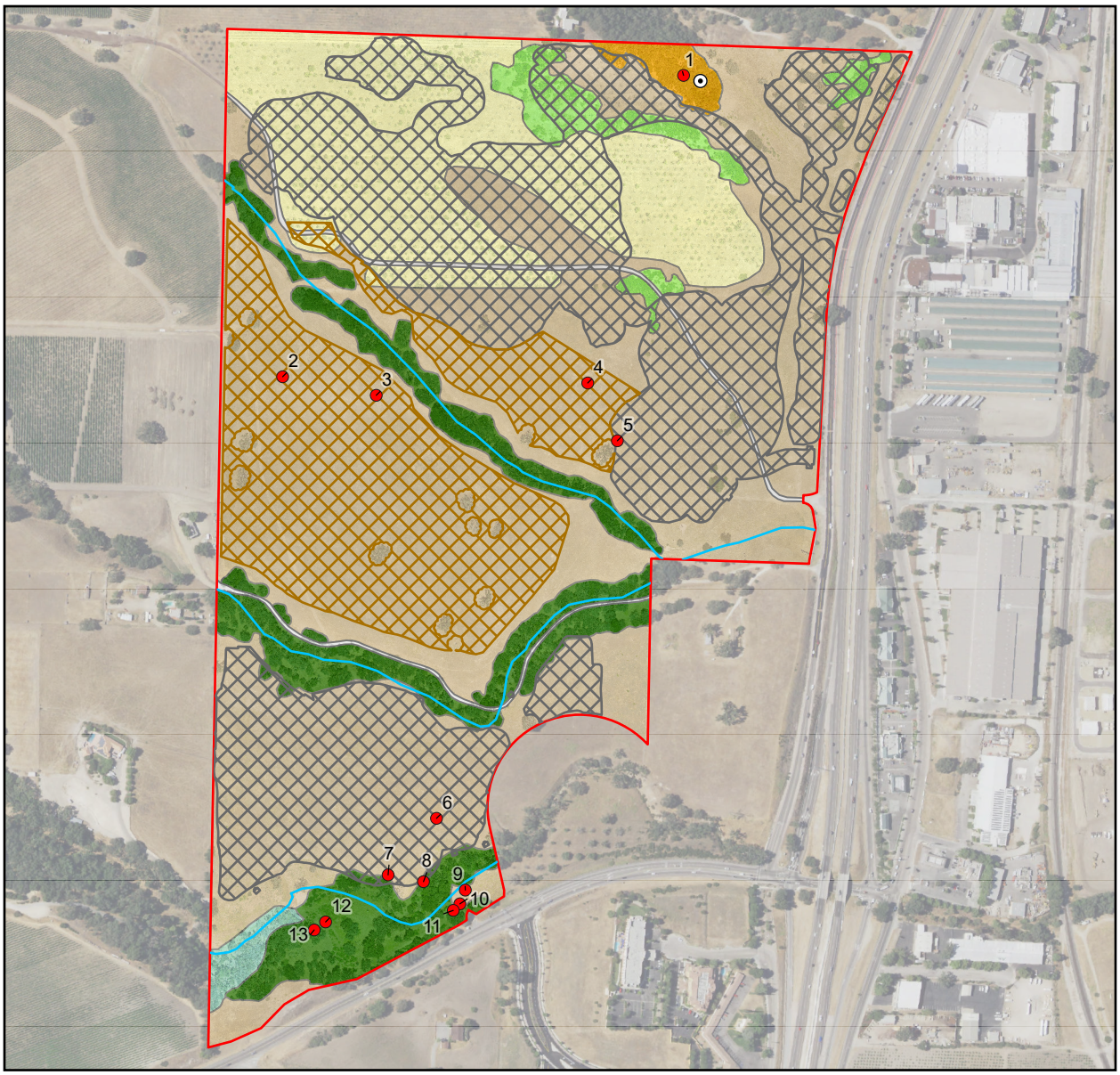
Figure 8. Impacts to Biological Resources



Legend

- *Astragalus macrodon*
- Red-tailed Hawk Nest
- Alvord Oak Woodland
- California Annual Grassland Alliance
- Coast Live Oak Woodland
- Orchard
- Riparian
- Tree of Heaven Groves
- Drainages
- Existing Roads (1.7 acres)
- Study Area

Impacts

- Agriculture Easement (32.3 acres)
- Development (65.4 acres)

N

0 400 800 Feet

Paso Gateway
Map Center: 120.69922°W 35.593°N
Paso Robles, San Luis Obispo County
Imagery Source:
Althouse and Meade, Inc., 7/8/2019

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ALTHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
August 07, 2019 01:29 PM by JBB

4.2 Potential Wetlands and Jurisdictional Waters

Potentially jurisdictional wetlands and waters could occur in the Study Area. A formal wetland delineation will be necessary if future Project activities are proposed that may result in the fill of aquatic features. Wetland delineations should be conducted according to state and federal standards to determine the extent of Clean Water Act (CWA) Section 404 wetlands and waters under jurisdiction of the United States Army Corps of Engineers and Section 401 waters and wetlands under jurisdiction of the State Water Resource Control Board.

4.3 Environmentally Sensitive Habitat Areas

There are no existing Environmentally Sensitive Habitat Areas (ESHA) to be impacted by the Project. No further mitigation is recommended.

4.4 Botanical Resources

4.4.1 Special status plants

The late-season botanical survey conducted on June 21, 2019 detected one special status plant, Salinas milk-vetch, which could be impacted by the Project. An appropriately-timed (spring) botanical survey should be conducted to search for special-status plant species that were not detected during June 2019 surveys and may be impacted by the Project, including (but not limited to) Douglas' spineflower and shining navarretia. The survey report shall include mitigation measures to avoid or reduce impacts to any special status plant species, should they be present. A copy of the survey report (Addendum) shall be provided to the City.

4.4.1.1 Salinas Milk-vetch

Salinas milk-vetch is present in the Study Area and in the Project area. Salinas milk-vetch is a listed CRPR 4.3 plant species (see Section 1.5.4). Of the 13 known occurrence locations detected on the site, four occurrences are in the Project development footprint. Three occurrences are located within the AG Easement parcel (Figure 8). To reduce potential impacts to Salinas milk-vetch we recommend the following mitigation measures:

BR-1. **Avoidance.** Where populations of Salinas milk-vetch occur outside of the Project footprint, measures shall be implemented to avoid disturbance of this perennial species during work activities. Locations of special status plant populations will be clearly identified in the field by staking, flagging, or fencing a minimum 100-foot wide buffer around them prior to the commencement of activities that may cause disturbance. No activity will occur within the buffer area.

BR-2. **A mitigation and monitoring plan** shall be prepared that provides for the retention of a viable population of Salinas milk-vetch on the subject property. The Plan will provide means and methods to maintain existing plants in the open space areas and increase the number of individuals above the number observed (62). Plant materials (seeds or cuttings) will come from the site so that genetic material of the original population will be conserved. Implementation of the plan will reduce impacts to Salinas milk-vetch to a less than significant level. The plan shall be subject to approval by the City.

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4.5 Wildlife Resources

4.5.1 Nesting Birds

One red-tailed hawk nest was observed in the Study Area in oak woodland. There is high potential for other bird species to nest in the oak woodland or other tree stands occurring on the site. Impacts to or take of nesting birds could occur if tree trimming or removal is conducted during nesting season (February 1 through August 31). To reduce potential adverse effects of the Project on nesting birds, the following mitigation measure is recommended.

BR-3. Within one week of ground disturbance activities, if work occurs between March 15 and August 15, nesting bird surveys shall be conducted**.** If surveys do not locate nesting birds, construction activities may be conducted. If nesting birds are located, no construction activities shall occur within 100 feet of nests until chicks are fledged. A pre-construction survey report shall be submitted to the lead agency immediately upon completion of the survey. The report shall detail appropriate fencing or flagging of the buffer zone and make recommendations on additional monitoring requirements. A map of the Project site and nest locations shall be included with the report. The Project biologist conducting the nesting survey shall have the authority to reduce or increase the recommended buffer depending upon site conditions.

4.5.2 Amphibians and Reptiles

One special status amphibian, lesser slender salamander, and one special status reptile, northern California legless lizard, have potential to occur in the Project area. Lesser slender salamanders may be found under rocks, logs, bark, and other debris within oak woodland in the Study Area. Legless lizards may be found in areas of friable soils and leaf litter in the blue oak woodland, orchard, and/or riparian habitat. To minimize potential impacts to lesser slender salamanders and/or northern California legless lizards, the following mitigation measure is recommended:

BR-4. **Preconstruction Surveys.** A focused preconstruction survey for lesser slender salamanders and legless lizards shall be conducted in proposed work areas immediately prior to ground-breaking activities that would affect potentially suitable habitat (oak woodland, orchard, and/or riparian habitat; where leaf litter is abundant), as determined by the project biologist. The preconstruction survey shall be conducted by a qualified biologist familiar with slender salamander and/or legless lizard ecology and survey methods, and with approval from California Department of Fish and Wildlife to relocate either species out of harm's way. The scope of the survey shall be determined by a qualified biologist and shall be sufficient to determine presence or absence in the project areas. If the focused survey results are negative, a letter report shall be submitted to the City, and no further action shall be required. If slender salamanders and/or legless lizards are found to be present in the proposed work areas the following steps shall be taken:

- Slender salamanders and/or legless lizards shall be captured by hand by the project biologist and relocated to an appropriate location well outside the project areas.
- Construction monitoring shall be required for all new ground-breaking activities located within slender salamander or legless lizard habitat. Construction monitors shall capture and relocate found species as specified above.

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- A letter report shall be submitted to the City and CDFW within 30 days of slender salamander or legless lizard relocation, or as directed by CDFW.

4.5.3 Birds

Four special status bird species have potential to occur in the Project area: Cooper's hawk, golden eagle, loggerhead shrike, and Lewis's woodpecker. In order to reduce the potential for disturbance of special status birds that may be present during nesting season, the applicant shall implement BR-3 one week prior to ground disturbance or tree pruning activities (refer to Section 4.5.1). If nests of special status birds are identified in the work area, the following additional mitigation measures shall be implemented:

BR-5. Occupied nests of special status bird species shall be mapped using GPS or survey equipment. Work shall not be allowed within a 100-foot buffer (for non-raptors) or 300-foot buffer (for raptors) while the nest is in use. The buffer zone shall be delineated on the ground with highly visible fencing or rope barriers where it overlaps work areas. The Project biologist conducting the nesting survey shall have the authority to reduce or increase the recommended buffer depending upon site conditions.

BR-6. Occupied nests of special status bird species that are within 100 feet (for non-raptors) or 300 feet (for raptors) of Project work areas shall be monitored at least every two weeks through the nesting season to document nest success and check for Project compliance with buffer zones. Once nests are deemed inactive and/or chicks have fledged and are no longer dependent on the nest, work may commence in these areas.

In addition to implementation of the above mitigation measures, a focused Lewis' woodpecker survey will be conducted in May 2020 during Lewis' woodpecker nesting season, as required by the City of Paso Robles. Lewis' woodpecker survey results will be submitted to the City as an addendum to this report.

4.5.4 Mammals

4.5.4.1 Monterey Dusky-footed Woodrat

Monterey dusky-footed woodrat has potential to occur and woodrat middens have been observed on the property in previous years. Project implementation could result in direct disturbance or take of Monterey dusky-footed woodrat, if individuals of these species occupy annual grassland or oak woodland of the project site prior to construction. We recommend the following mitigation measures to reduce potential impact to woodrats:

BR-7. **Preconstruction Surveys and Biological Monitoring:** Prior to issuance of construction permit, the applicant shall retain a qualified biologist to conduct a pre-activity survey for Monterey dusky-footed woodrat that may occupy the site. The survey shall be conducted within 30 days prior to proposed site disturbance and construction activities. Results of the survey shall be submitted to the City of Paso Robles. The survey report shall include the date of the survey, methods of inspection, and findings. If active burrows of woodrats are found within proposed development areas during the survey, the biologist shall establish an appropriate buffer area to protect the nest(s). An alternative to buffer area is

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to disassemble nests by hand outside of the nesting season (February through September) and allow the woodrats to leave the site.

4.5.4.2 Salinas Pocket Mouse

Salinas pocket mouse could occur in the Project areas. Several small rodent burrows were observed across the Study Area in several different habitat types. To reduce this potential impact the following measure is recommended:

BR-8. **Biological Monitoring**. A biological monitor approved by CDFW to relocate Salinas pocket mouse shall be present during all earth disturbing construction activities associated with developing the project, including but not limited to grading, excavations, and tilling. The biologist shall conduct a morning clearance survey of the Project area each day that ground disturbing activities are proposed. Salinas pocket mouse captured during surveys or during construction monitoring shall be relocated to the nearest suitable habitat outside of the Project area. A letter report shall be submitted to the City and CDFW within 30 days of Salinas pocket mouse relocation, or as directed by CDFW.

4.5.4.3 American Badger

American badger could occur within the Project areas. Project activities including grading and other excavation work could result in take of American badger adults or young, or disturbance of natal dens and abandonment by adult badgers. To reduce this potential impact the following measure is recommended:

BR-9. Within 15 days of starting any grading, grubbing, or oak tree removal, a preconstruction survey shall be conducted in the Study Area to locate occupied American badger dens within 100 feet of project areas. Highly visible fencing or rope barriers shall be installed under the direction of a project biologist in a manner sufficient to protect the dens from construction equipment. A buffer of 50 feet shall be used for occupied non-maternal dens. A buffer of 150 feet shall be installed if the den is determined to be a maternal pupping den. Construction activities shall not commence within the exclusion area until the badger has moved of its own accord. A preconstruction survey letter report shall be submitted to the lead agency for review within one week after completion of the survey.

4.5.5 Habitat Connectivity and Wildlife Movement

The Project area is designed to allow wildlife movement across sections of the Study Area. Impacts to ephemeral drainages (the primary wildlife corridors on the property) will be avoided. No mitigation measures are recommended for habitat connectivity and wildlife movement.

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6 APPENDICES

- **Appendix A. Special Status Plants Reported from the Region**
- **Appendix B. Special Status Animals Reported from the Region**

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APPENDIX A. SPECIAL STATUS PLANTS REPORTED FROM THE REGION

	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
1.	**Bristlecone fir**	*Abies bracteata*	-/-	G2G3/S2S3	1B.3	n/a	Lower montane coniferous forest, broadleafed upland forest, chaparral, riparian woodland.	No. Suitable habitat is not present in the Study Area.
2.	**Red sand-verbena**	*Abronia maritima*	-/-	G4/S3?	4.2	Feb-Nov	Dunes, coastal, Monterey shale, dry.	No. Suitable substrate is not present in the Study Area.
3.	**Hoover's bent grass**	*Agrostis hooveri*	-/-	G2/S2	1B.2	Apr-Jul	Chaparral, cismontane woodland, closed-cone coniferous forest, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
4.	**Douglas' fiddleneck**	*Amsinckia douglasiana*	-/-	G4/S4	4.2	Mar-May	Valley grassland, foothill woodland; serpentinite, rocky.	No. Suitable substrate is not present in the Study Area.
5.	**Oval-leaved snapdragon**	*Antirrhinum ovatum*	-/-	G3/S3	4.2	May-Nov	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
6.	**Santa Lucia manzanita**	*Arctostaphylos luciana*	-/-	G2/S2	1B.2	Dec-Mar	Chaparral, cismontane woodland.	No. Suitable habitat is not present in the Study Area.
7.	**Bishop manzanita**	*Arctostaphylos obispoensis*	-/-	G3/S3	4.3	Feb-Jun	Closed-cone pine forest; sandstone, shale, or serpentinite	No. Suitable substrate is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
8.	**Santa Margarita manzanita**	*Arctostaphylos pilosula*	-/-	G2?/S2?	1B.2	Dec-May	Closed-cone coniferous forest, chaparral, broadleafed upland forest, cismontane woodland.	No. Suitable habitat is not present in the Study Area.
9.	**Miles' milk-vetch**	*Astragalus didymocarpus* var. *milesianus*	-/-	G5T2/S2	1B.2	Mar-Jun	Coastal scrub.	No. Suitable habitat is not present in the Study Area.
10.	**Salinas milk-vetch**	*Astragalus macrodon*	-/-	G4/S4	4.3	Apr-Jul	Openings in chaparral, valley grassland, foothill woodland; eroded pale shales or sandstone, serpentine alluvium, clay.	Present. Thirteen separate occurrences were observed in the Study Area.
11.	**San Luis mariposa-lily**	*Calochortus obispoensis*	-/-	G2/S2	1B.2	May-Jul	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
12.	**La Panza mariposa-lily**	*Calochortus simulans*	-/-	G2/S2	1B.3	Apr-Jun	Valley and foothill grassland, cismontane woodland, chaparral, lower montane coniferous forest.	No. Suitable habitat is not present in the Study Area.
13.	**Dwarf calycadenia**	*Calycadenia villosa*	-/-	G3/S3	1B.1	May-Oct	Chaparral, cismontane woodland, valley and foothill grassland, meadows and seeps.	No. Suitable habitat is not present in the Study Area.
14.	**Cambria morning-glory**	*Calystegia subacaulis* subsp. *episcopalis*	-/-	G3T2?/S2?	4.2	(Mar)Apr-Jun(Jul)	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
15.	**Hardham's evening-primrose**	*Camissoniopsis hardhamiae*	-/-	G2/S2	1B.2	Mar-May	Chaparral, cismontane woodland.	No. Suitable habitat is not present in the Study Area.
16.	**San Luis Obispo sedge**	*Carex obispoensis*	-/-	G3?/S3?	1B.2	Apr-Jun	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
17.	**San Luis Obispo owl's-clover**	*Castilleja densiflora* var. *obispoensis*	-/-	G5T2/S2	1B.2	Mar-May	Valley and foothill grassland, meadows and seeps.	No. Suitable habitat is not present in the Study Area.
18.	**Lemmon's jewelflower**	*Caulanthus lemmonii*	-/-	G3/S3	1B.2	Feb-May	Pinyon and juniper woodland, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
19.	**Lompoc ceanothus**	*Ceanothus cuneatus* var. *fascicularis*	-/-	G5T4/S4	4.2	Feb-Apr	sandy or gravelly	No. Suitable habitat is not present in the Study Area.
20.	**Brewer's spineflower**	*Chorizanthe breweri*	-/-	G3/S3	1B.3	Apr-Aug	Chaparral, cismontane woodland, coastal scrub, closed-cone coniferous forest.	No. Suitable habitat is not present in the Study Area.
21.	**Douglas' spineflower**	*Chorizanthe douglasii*	-/-	G4/S4	4.3	Apr-Jul	Chaparral, foothill woodland, yellow pine forest; sand or gravel.	Low. Moderately suitable soils and woodland habitat are present on the Property. Closest record is >11.8 mi east of Property (CCH#CHSC64125).
22.	**Palmer's spineflower**	*Chorizanthe palmeri*	-/-	G4/S4	4.2	Apr-Aug	Chaparral, Cismontane woodland, Valley and foothill grassland	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
23.	**Straight-awned spineflower**	*Chorizanthe rectispina*	-/-	G2/S2	1B.3	Apr-Jul	Chaparral, cismontane woodland, coastal scrub.	No. Suitable habitat is not present in the Study Area.
24.	**San Luis Obispo fountain thistle**	*Cirsium fontinale* var. *obispoense*	FE/CE	G2T2/S2	1B.2	Feb-Jul(Aug-Sep)	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
25.	**Cuesta Ridge thistle**	*Cirsium occidentale* var. *lucianum*	-/-	G3G4T2/S2	1B.2	Apr-Jun	Chaparral, woodland or forest openings, often on serpentine.	No. Suitable habitat is not present in the Study Area.
26.	**Slender clarkia**	*Clarkia exilis*	-/-	G3/S3	4.3	Apr-May	Clay, serpentinite seeps.	No. Suitable habitat is not present in the Study Area.
27.	**Small-flowered morning-glory**	*Convolvulus simulans*	-/-	G4/S4	4.2	Mar-Jul	Seeps, usually vernally mesic, sometimes sandy	No. Suitable habitat is not present in the Study Area.
28.	**Paniculate tarplant**	*Deinandra paniculata*	-/-	G4/S4	4.2	(Mar)Apr-Nov(Dec)	Grassland, open chaparral and woodland, disturbed areas, often in sandy soils.	No. Suitable habitat is not present in the Study Area.
29.	**Small-flowered gypsum-loving larkspur**	*Delphinium gypsophilum* subsp. *parviflorum*	-/-	G4T2T3Q/S2S3	3.2	(Mar)Apr-Jun	Cismontane woodland, Valley and foothill grassland	No. Suitable habitat is not present in the Study Area.
30.	**Dune larkspur**	*Delphinium parryi* subsp. *blochmaniae*	-/-	G4T2/S2	1B.2	Apr-Jun	Chaparral, coastal dunes (maritime).	No. Suitable habitat is not present in the Study Area.
31.	**Eastwood's larkspur**	*Delphinium parryi* subsp. *eastwoodiae*	-/-	G4T2/S2	1B.2	(Feb)Mar-Mar	Chaparral, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
32.	**Umbrella larkspur**	*Delphinium umbraculorum*	-/-	G3/S3	1B.3	Apr-Jun	Cismontane woodland, chaparral.	No. Suitable habitat is not present in the Study Area.
33.	**Betty's dudleya**	*Dudleya abramsii* subsp. *bettinae*	-/-	G4T2/S2	1B.2	May-Jul	Coastal scrub, valley and foothill grassland, chaparral.	No. Suitable habitat is not present in the Study Area.
34.	**Mouse-gray dudleya**	*Dudleya abramsii* subsp. *murina*	-/-	G4T2/S2	1B.3	May-Jun	Chaparral, cismontane woodland, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
35.	**Blochman's dudleya**	*Dudleya blochmaniae* subsp. *blochmaniae*	-/-	G3T2/S2	1B.1	Apr-Jun	Coastal scrub, coastal bluff scrub, chaparral, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
36.	**Small spikerush**	*Eleocharis parvula*	-/-	G5/S3	4.3	(Apr)Jun-Aug(Sep)	Brackish, wet soil, coastal, sometimes alkaline.	No. Suitable habitat is not present in the Study Area.
37.	**Yellow-flowered eriastrum**	*Eriastrum luteum*	-/-	G2/S2	1B.2	May-Jun	Broadleafed upland forest, cismontane woodland, chaparral.	No. Suitable habitat is not present in the Study Area.
38.	**Blochman's leafy daisy**	*Erigeron blochmaniae*	-/-	G2/S2	1B.2	Jun-Aug	Coastal dunes, coastal scrub.	No. Suitable habitat is not present in the Study Area.
39.	**San Joaquin spearscale**	*Extriplex joaquinana*	-/-	G2/S2	1B.2		Chenopod scrub, alkali meadow, playas, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
40.	**Ojai fritillary**	*Fritillaria ojaiensis*	-/-	G3/S3	1B.2	Feb-May	Broadleafed upland forest (mesic), chaparral, lower montane coniferous forest, cismontane woodland.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
41.	**San Benito fritillary**	*Fritillaria viridea*	-/-	G2/S2	1B.2	Mar-May	Chaparral, cismontane woodland.	No. Suitable habitat is not present in the Study Area.
42.	**Hogwallow starfish**	*Hesperevax caulescens*	-/-	G3/S3	4.2	Mar-Jun	Valley and foothill grassland (mesic, clay), Vernal pools (shallow)	No. Suitable habitat is not present in the Study Area.
43.	**Mesa horkelia**	*Horkelia cuneata* var. *puberula*	-/-	G4T1/S1	1B.1	Feb-Jul(Sep)	Chaparral, cismontane woodland, coastal scrub.	No. Suitable habitat is not present in the Study Area.
44.	**Kellogg's horkelia**	*Horkelia cuneata* var. *sericea*	-/-	G4T1?/S1?	1B.1	Apr-Sep	Closed-cone coniferous forest, coastal scrub, coastal dunes, chaparral.	No. Suitable habitat is not present in the Study Area.
45.	**Santa Lucia dwarf rush**	*Juncus luciensis*	-/-	G3/S3	1B.2	Apr-Jul	Vernal pools, meadows and seeps, lower montane coniferous forest, chaparral, Great Basin scrub.	No. Suitable habitat is not present in the Study Area.
46.	**Jones' layia**	*Layia jonesii*	-/-	G2/S2	1B.2	Mar-May	Chaparral, valley and foothill grassland, open serpentine or clayey slopes.	No. Suitable substrate is not present in the Study Area.
47.	**Jared's pepper-grass**	*Lepidium jaredii* subsp. *jaredii*	-/-	G2G3T1T2/S1S2	1B.2	Mar-May	Valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
48.	**Jones' bush-mallow**	*Malacothamnus jonesii*	-/-	G4/S4	4.3	(Mar)Apr-Oct	Chaparral, Cismontane woodland	No. Suitable habitat is not present in the Study Area.
49.	**Carmel Valley bush-mallow**	*Malacothamnus palmeri* var. *involucratus*	-/-	G3T2Q/S2	1B.2	Apr-Oct	Chaparral, cismontaine woodland, coastal scrub; gravelly, openings.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
50.	**Santa Lucia bush-mallow**	*Malacothamnus palmeri* var. *palmeri*	-/-	G3T2Q/S2	1B.2	May-Jul	Chaparral. Cismontane woodland, coastal scrub.	No. Suitable habitat is not present in the Study Area.
51.	**Oregon meconella**	*Meconella oregana*	-/-	G2G3/S2	1B.1	Mar-Apr	Coastal prairie, coastal scrub.	No. Suitable habitat is not present in the Study Area.
52.	**Palmer's monardella**	*Monardella palmeri*	-/-	G2/S2	1B.2	Jun-Aug	Cismontane woodland, chaparral.	No. Suitable habitat is not present in the Study Area.
53.	**Woodland woollythreads**	*Monolopia gracilens*	-/-	G3/S3	1B.2	(Feb)Mar-Jul	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, North Coast coniferous forest.	No. Suitable habitat is not present in the Study Area.
54.	**Spreading navarretia**	*Navarretia fossalis*	FT/-	G2/S2	1B.1	Apr-Jun	Vernal pools, chenopod scrub, marshes and swamps, playas.	No. Suitable habitat is not present in the Study Area.
55.	**Shining navarretia**	*Navarretia nigelliformis* subsp. *radians*	-/-	G4T2/S2	1B.2	(Mar)Apr-Jul	Cismontane woodland, valley and foothill grassland, vernal pools.	Moderate. Suitable grassland habitat with clay loam soils occurs on the Property.
56.	**Large-flowered nemacladus**	*Nemacladus secundiflorus* var. *secundiflorus*	-/-	G3T3?/S3?	4.3	Apr-Jun	Dry, rocky gravelly slopes.	No. Suitable habitat is not present in the Study Area.
57.	**Hooked popcornflower**	*Plagiobothrys uncinatus*	-/-	G2/S2	1B.2	Apr-May	Chaparral, cismontane woodland, valley and foothill grassland.	No. Suitable habitat is not present in the Study Area.
58.	**Chaparral ragwort**	*Senecio aphanactis*	-/-	G3/S2	2B.2	Jan-Apr(May)	Chaparral, cismontane woodland, coastal scrub.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur
59.	**San Gabriel ragwort**	*Senecio astephanus*	-/-	G3/S3	4.3	May-Jul	Coastal bluff scrub, Chaparral	No. Suitable habitat is not present in the Study Area.
60.	**Cuesta Pass checkerbloom**	*Sidalcea hickmanii* subsp. *anomala*	-/CR	G3T1/S1	1B.2	May-Jun	Closed-cone coniferous forest, chaparral	No. Suitable habitat is not present in the Study Area.
61.	**Most beautiful jewelflower**	*Streptanthus albidus* subsp. *peramoenus*	-/-	G2T2/S2	1B.2	(Mar)Apr-Sep(Oct)	Chaparral, valley and foothill grassland, cismontane woodland.	No. Suitable habitat is not present in the Study Area.
62.	**California seablite**	*Suaeda californica*	FE/-	G1/S1	1B.1	Jul-Oct	Marshes and swamps.	No. Suitable habitat is not present in the Study Area.

State/Rank Abbreviations:

FE: Federally Endangered
FT: Federally Threatened
PE: Proposed Federally Endangered
PT: Proposed Federally Threatened
CE: California Endangered
CR: California Rare
CT: California Threatened
Cand. CE: Candidate for California Endangered
Cand. CT: Candidate for California Threatened

California Rare Plant Ranks:

CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere
CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
CRPR 2A: Plants presumed extirpated in California, but common elsewhere
CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 4: Plants of limited distribution - a watch list

CRPR Threat Ranks:

0.1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 - Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3 - Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Global/State Ranks:

G1/S1 – Critically Imperiled
G2/S2 – Imperiled
G3/S3 – Vulnerable
G4/S4 – Apparently Secure
G5/S5 – Secure

Q – Element is very rare but there are taxonomic questions associated with it.
Range rank – (e.g., S2S3 means rank is somewhere between S2 and S3)
? – (e.g., S2? Means rank is more certain than S2S3 but less certain that S2)

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APPENDIX B. SPECIAL STATUS ANIMALS REPORTED FROM THE REGION

	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur
1.	**Cooper's hawk***	*Accipiter cooperii*	-/-	G5/S4	WL (nesting)	March 15 - August 15	Chaparral (sandstone)	Moderate. Suitable oak woodland habitat with coast live oaks are present in the Study Area.
2.	**Tricolored blackbird**	*Agelaius tricolor*	-/CT	G2G3/S1S2	SSC	March 15 - August 15	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California.	No. Suitable habitat is not present in the Study Area.
3.	**Grasshopper sparrow**	*Ammodramus savannarum*	-/-	G5/S3	SSC	March 15 - August 15	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes.	No. Suitable habitat is not present in the Study Area.
4.	**Northern California legless lizard**	*Anniella pulchra*	-/-	G3/S3	SSC	May - September	Sandy or loose loamy soils under sparse vegetation.	Moderate. Potentially suitable sandy loam soil and oak tree leaf litter are present in the Study Area.
5.	**Pallid bat**	*Antrozous pallidus*	-/-	G5/S3	SSC	Spring - Summer	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur
6.	**Golden eagle**	*Aquila chrysaetos*	-/-	G5/S3	WL/FP	March 15 - August 15	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Low. Nesting habitat is not present, but the Study Area could be used by foraging eagles.
7.	**Great blue heron**	*Ardea herodias*	-/-	G5/S4	SA	March 15 - August 15	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	No. Suitable habitat is not present in the Study Area.
8.	**Lesser slender salamander**	*Batrachoseps minor*	-/-	G1/S1	SSC	n/a	South Santa Lucia Mountains in tanbark oak, coast live oak, blue oak, sycamore & laurel.	Low. Suitable habitat is present though conditions are mostly xeric in the Study Area.
9.	**Obscure bumble bee**	*Bombus caliginosus*	-/-	G4?/S1S2	SA	Spring	Coastal areas from Santa Barbara County to north to Washington state.	No. Suitable habitat is not present in the Study Area.
10.	**Crotch bumble bee**	*Bombus crotchii*	-/-	G3G4/S1S2	SA	Spring	Coastal California east to the Sierra-Cascade crest and south into Mexico.	No. Suitable habitat is not present in the Study Area.
11.	**Vernal pool fairy shrimp**	*Branchinecta lynchi*	FT/-	G3/S3	SA	Rainy Season	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur
12.	**Ferruginous hawk**	*Buteo regalis*	-/-	G4/S3S4	WL	October - April (Wintering)	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	No. No. Suitable habitat is not present in the Study Area. More common in the interior.
13.	**Western snowy plover**	*Charadrius alexandrinus nivosus*	FT/-	G3T3/S2S3	SSC	March 15 - August 15	Sandy beaches, salt pond levees & shores of large alkali lakes.	No. Suitable habitat is not present in the Study Area.
14.	**Sandy beach tiger beetle**	*Cicindela hirticollis gravida*	-/-	G5T2/S2	SA	n/a	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	No. Suitable habitat is not present in the Study Area.
15.	**Globose dune beetle**	*Coelus globosus*	-/-	G1G2/S1S2	SA	n/a	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico.	No. Suitable habitat is not present in the Study Area.
16.	**Townsend's big-eared bat**	*Corynorhinus townsendii*	-/-	G3G4/S2	SSC	Spring - Summer	Throughout California in a wide variety of habitats. Most common in mesic sites.	No. Suitable habitat is not present in the Study Area.
17.	**Monarch - California overwintering population**	*Danaus plexippus*	-/-	G4T2T3/S2S3	SA	September - March (aggregations)	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur
18.	**White-tailed kite**	*Elanus leucurus*	-/-	G5/S3S4	FP	March 15 - August 15	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland.	No. Suitable habitat is not present in the Study Area.
19.	**Western pond turtle**	*Emys marmorata*	-/-	G3G4/S3	SSC	April - August	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	No. Suitable habitat is not present in the Study Area.
20.	**Tidewater goby**	*Eucyclogobius newberryi*	FE/-	G3/S3	SSC	n/a	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	No. Suitable habitat is not present in the Study Area.
21.	**Morro shoulderband (=banded dune) snail**	*Helminthoglypta walkeriana*	FE/-	G1/S1S2	SA	n/a	Restricted to the coastal strand in the immediate vicinity of Morro Bay.	No. The Study Area is outside the range for this species.
22.	**Loggerhead shrike**	*Lanius ludovicianus*	-/-	G4/S5	SSC (Nesting)	March 15 - August 15	Open areas with appropriate perches, near shrubby vegetation for nesting.	Low. Open, foraging habitat is present but shrubby nesting habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur
23.	**California linderiella**	*Linderiella occidentalis*	-/-	G2G3/S2S3	SA	Rainy season	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.	No. Suitable habitat is not present in the Study Area.
24.	**Lewis's woodpecker**	*Melanerpes lewis*	-/-	G4/S4	Nesting	n/a	Open woodlands near streams, oak woodlands, orchards, and pinyon-juniper woodlands.	Low. Appropriate oak tree and orchard habitat is present in the Study Area.
25.	**Monterey dusky-footed woodrat**	*Neotoma macrotis luciana*	-/-	G5T3/S3	SSC	n/a	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats.	Low. Oak woodland could provide suitable nesting habitat. Nearest occurrence is 8 mi NW of the Study Area (CNDDB #1).
26.	**Steelhead - south-central California coast DPS**	*Oncorhynchus mykiss irideus*	FT/-	G5T2Q/S2	SA	February - April	Federal listing refers to runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River.	No. Suitable habitat is not present in the Study Area.
27.	**Salinas pocket mouse**	*Perognathus inornatus psammophilus*	-/-	G4T2?/S1	SSC	n/a	Annual grassland and desert shrub communities in the Salinas Valley.	Low. Suitable grassland habitat and friable soils are present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur
28.	**Coast horned lizard**	*Phrynosoma blainvillii*	-/-	G3G4/S3S4	SSC	May - September	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	No. Suitable habitat is not present in the Study Area.
29.	**Morro Bay blue butterfly**	*Plebejus icarioides moroensis*	-/-	G5T2/S2	SA	n/a	Inhabits stabilized dunes and adjacent areas of coastal San Luis Obispo and NW Santa Barbara counties.	No. Suitable habitat is not present in the Study Area.
30.	**Atascadero June beetle**	*Polyphylla nubila*	-/-	G1/S1	SA	Summer	Known only from inland sand dunes in San Luis Obispo County.	No. Suitable habitat is not present in the Study Area.
31.	**Purple martin**	*Progne subis*	-/-	G5/S3	SSC	March 15 - August 15	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine.	No. Suitable habitat is not present in the Study Area. No. Suitable habitat is not present in the Study Area.
32.	**San Luis Obispo pyrg**	*Pyrgulopsis taylori*	-/-	G1/S1	SA	n/a	Freshwater habitats in San Luis Obispo County.	No. Suitable habitat is not present in the Study Area.
33.	**Foothill yellow-legged frog**	*Rana boylii*	-/CCT	G3/S3	SSC	March - September	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur
34.	**California red-legged frog**	*Rana draytonii*	FT/-	G2G3/S2S3	SSC	January - September	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	No. Suitable habitat is not present in the Study Area.
35.	**Western spadefoot**	*Spea hammondii*	-/-	G3/S3	SSC	January - August	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands.	No. Suitable habitat is not present in the Study Area. Connectivity to breeding sites is highly disturbed.
36.	**Coast Range newt**	*Taricha torosa*	-/-	G4/S4	SSC	December - May	Coastal drainages from Mendocino County to San Diego County.	No. Suitable habitat is not present in the Study Area.
37.	**American badger**	*Taxidea taxus*	-/-	G5/S3	SSC	February – May	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Moderate. Suitable soils and open grassland habitat is present in the Study Area
38.	**Lompoc grasshopper**	*Trimerotropis occulens*	-/-	G1G2/S1S2	SA	n/a	Known only from Santa Barbara and San Luis Obispo counties.	No. Suitable habitat is not present in the Study Area.

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	Common Name	Scientific Name	Federal/State Status	Global/State Rank	CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur
39.	**Least Bell's vireo**	*Vireo bellii pusillus*	FE/CE	G5T2/S2	SA	March 15 - August 15	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft.	No. Suitable shrubby habitat is not present in the Study Area.
40.	**San Joaquin kit fox**	*Vulpes macrotis mutica*	FE/CT	G4T2/S2	SA	December - July	Annual grasslands or grassy open stages with scattered shrubby vegetation.	No. The Study Area is south and west of the range for SJKF in the County.

*Not listed in the CNDDB for the search area, but species is a possibility for the location.
Habitat characteristics are from the CDNNB.

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G4/S4 – Apparently Secure	
G5/S5 – Secure	

California Department of Fish and Wildlife Rank:

WL: Watch Lis
SSC: Species of Special Concern
FP: Fully Protected
SA: Special Animal

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A&T ARBORISTS
CERTIFIED ARBORISTS
Contractor Lic.#906700

8-29-18

To: City of Paso Robles Planning Department
From: Chip Tamagni, A & T Arborists
Re: Gateway Project Changes

This letter/addendum is in regard to the Gateway project as it relates to the native oaks on the property. In our final tree plan, we suggested several changes that we felt the design team should look into. We appreciated the effort on their part as the total tree removal (originally 66 trees) has declined by 22 leaving a total of 44 trees to remove for the entire project. Changes included:

- Efforts were made in the northwest corner of the project which reduced impacts to several trees.
- Tree #254 now has a significant retaining wall designed around it thereby eliminating the need to remove it. It is a quality tree so this was important.
- Tree 4950 is one of the highest quality trees on the entire site. Originally, it was planned to be removed or severely impacted to a point it might not survive. Design changes are going to preserve this specimen tree.
- The bridge was originally designed as a fill slope with a culvert underneath. Now, there is an actual bridge planned that vastly reduced the number of trees required for removal in that area.

Of the 44 trees marked for removal, two of those trees are dead, and an additional three trees have a 6-inch DBH. Therefore, the mitigation for the 44 trees is 658 x 25% = 164.5 inches.

Chip Tamagni
Certified Arborist #WE 6436-A
California State Pest Control Advisor #75850
Certified Hazard Risk Assessor #1209
Cal Poly B.S. Forestry and Natural Resources Management

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Oak Tree Protection Plan

Paso Robles Gateway Project

Prepared By

Chip Tamagni
Certified Arborist #WE 6436-A
Certified Hazard Risk Assessor #1209

Steven Alvarez
Certified Arborist #WE 0511-A

P.O. Box 1311
Templeton, CA 93465
(805) 434-0131

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A & T ARBORISTS

P.O. BOX 1311 TEMPLETON, CA 93465 (805) 434-0131

As consulting arborists, we have been hired to inform and educate how to protect trees both during the design phase and construction. Different species can adapt to more impacts than others just as young trees can sustain more root disturbance that older trees. All individuals and firms involved in the planning stages should be made completely aware of the limitations regarding setbacks from critical root zones that are recommended to protect the trees. When we are given a plan, it should show **all** possible disturbances within the critical root zone areas. This includes all cuts, fills, over-excavation limits, building clearances, and all utilities. We will suggest changes if we feel the impacts are too great and it is up to the owner or their designee to follow our recommendations. If the plan we receive is not complete with potential impacts, we will fairly assume any additions will fall completely out of the critical root zone areas. It is the burden of the property owner or their designee to inform us of any changes, omissions, or deletions that may impact the critical root zone area of the trees in any way.

It is the responsibility of the **owner** or their designee to provide a copy of this tree protection plan to each and every contractor and sub that work or plan to work within the critical root zone of any native oak tree. We recommend making it mandatory that the grading/trenching contractor have all of his/her employees sign that they have read this tree plan. It is highly recommended that all other contractors sign and acknowledge this tree protection plan as well. In addition, each their respective employees shall also be made aware of this tree plan.

The term “critical root zone” is often referred to in this report. The CRZ is an imaginary circle around the trunk of the tree with a radius in feet equal to the tree’s diameter in inches. Therefore, a 10 inch diameter tree would have a critical root zone with a 10 foot radius.

Project monitoring shall be fully documented for this project. For all trees impacted, the project arborist is required to be on site for advice, documentation, and recommendation of any possible mitigation measures. The overall construction manager is directly responsible for establishing a working relationship with the project arborist for a project of this magnitude.

Part of a responsible tree preservation plan is not only protecting trees during construction but actually acting to preserve the trees for the long term. Many of the oak trees on this site shall be pruned for weight reduction and elimination of all mistletoe and major deadwood. This action will reduce risk of future failures and promote better healing when dead stubs are removed. This is mandatory for trees adjacent to any construction area.

This project will require an on-site pre-construction meeting with the city, owner, grading contractor, general contractor, and the arborist. Topics will include fencing,

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monitoring and requirements for a positive final occupancy letter. It is the owner's responsibility to adequately inform us prior to any meetings where we need to be present.

All trees potentially impacted by this project are numbered and identified on both the grading plan and the spreadsheet. Trees whose CRZ edges are greater than 50 feet from site disturbance will generally not be tagged and inventoried. Trees that are inherently protected by other saved trees will also not be tagged. Trees are numbered on the grading plans and in the field with an aluminum tag. Tree protection fencing is shown on the grading plan. This project had several smaller projects that were looked at separately. All the spreadsheets have now been combined for referencing.

This project involves the development of several parcels located near the confluence of Highway 46 West and 101. The development will include both commercial and residential elements with different points of access. The northern portion of the property will be accessed off of South Vine Street in two locations. The southern portion will be accessed over a bridge from Highway 46 West. The two portions are separated by Wilmar Place which is a natural oak lined riparian area with three species of oaks including coast live oaks (*Quercus agrifolia*), blue oaks (*Quercus douglasii*), and valley oaks (*Quercus lobata*). All three species are scattered throughout the northern and southern areas. There are also stands of true scrub oaks (*Quercus dumosa*) at the higher elevations of the north portion. The property has been historically used for grazing and prior to that there were approximately 3000 almond trees in production on the northern portion. Other species include extensive stands of ailanthus trees (*Ailanthus altissima*), several locust trees (*Gleditsia triacanthos*), red gum eucalyptus (*Eucalyptus camaldulensis)*, and a Monterey pine tree (Pinus radiata). Most, if not all of the non-native trees will be removed with the vast majority (99%) being alilanthus which are more of a pest than a viable tree species. When totaled, there are probably well over 2000 oak trees on the entire property. This project will require a small percentage of those trees to be removed. Thirteen of the proposed removal oaks are located on the northern portion of the property. Two of those trees are completely dead with one having fallen onto the ground some years ago. We had previously rated this tree as a 4/10 which is a decent quality tree. This shows that the drought conditions we have experienced can really impact some susceptible trees in a short amount of time. The trees in the area of the old home are marginal quality rating 2-3 out of 10. Higher up the hill, there are a couple of small oak removals. Both trees are pretty stressed with excess deadwood. Higher up the hill are two more proposed removals south of the conference center. By observing the grade changes in this area, it appears possible to save tree #254 or at least it should be explored. The current elevation of the tree trunk is 870 feet. There is proposed fill of eight feet at the trunk. The entire building could possibly be shifted north about 10 feet then a gravity wall could be used to keep the fill off of the tree.

Other impacts in the northern section include the sidewalk around tree #1 next to South Vine Street. While there is some bulb out seen on the plans, all efforts shall be made to minimize any excavation to six inches maximum near this tree. In an upper parking area, there is some critical root zone encroachment near tree #250. All grading in this area shall be monitored and plans should be made to possible extending the wall a few more feet northwest to protect additional smaller trees.

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For the southern section of this project, the planned removal trees exist in two areas. The first area is near the homes at the end of a cul-de-sac. The trees are #4784-4789. Many years ago (8-10) when we originally inventoried these trees, they were in pretty good condition averaging a 4/10. Now, they are barely a 2/10. We see no reason to try and save this small grove as they have really declined. The other set of removals is more extensive as they are required for the bridge construction to link this project to Highway 46 West. Trees are in average condition with no "must save" specimens that would possible dictate shifting the bridge location. The number of trees originally labeled to be removed totaled 52 from the survey we performed many years ago. From the current plans, it appears this numb can be drastically reduced by at least 30% or more.

All the oak trees on the periphery of the southern section will be fenced from construction impacts. There is one tree in the center of this section that really should be saved. Tree #4950 is a specimen quality oak. We strongly feel the plans can be changed to accommodate this tree. First, there is a detention basin near this tree that can be shifted to the north and/or reconfigured. The entire road could be shifted south about ten feet then a wall can be constructed at the edge of the critical root zone. This tree really should be showcased for this project and not removed. I is worth making all attempts to save it.

Tree Rating System

A rating system of 1-10 was used for visually establishing the overall condition of each tree on the spreadsheet.

Determining factors include:

- Previous impacts to tree root zone
- Observation of cavities, conks or other structurally limiting factors
- Pest, fungal, or bacterial disorders
- Past failures
- Current growth habit

The rating system is defined as follows:

Rating	**Condition**
0	Deceased
1	Evidence of massive past failures, extreme disease and is in severe decline.
2	May be saved with attention to class 4 pruning, insect/pest eradication and future monitoring.
3	Some past failures, some pests or structural defects that may be mitigated by class IV pruning.
4	May have had minor past failures, excessive deadwood or minor structural defects that can be mitigated with pruning.
5	Relatively healthy tree with little visual structural and or pest defects.

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6	Healthy tree that probably can be left in its natural state. Future pruning may be required.
7-9	The tree has had proper arboricultural pruning and attention or have no apparent structural defects.
10	Specimen tree with perfect shape, structure and foliage in a protected setting (i.e. park, arboretum).

The following standard mitigation measures/methods must be fully understood and followed by anyone working within the drip line of any native tree. While these are generic, they are mandatory. Any deviation requires written project arborist approval. Any necessary clarification will be provided by us (the arborists) upon request.

Fencing: The proposed fencing shall be shown in orange ink on the grading plan. It must be a minimum of 4' high chain link, snow or safety fence staked at the edge of the CRZ or line of encroachment for each tree or group of trees. The fence shall be up before any construction or earth moving begins. If the project grading begins in the northern section only, fencing only needs to be erected for that area only and not for the entire project as fencing degrades over time. The owner or their designee shall be responsible for maintaining an erect fence throughout the construction period. The arborist(s), upon notification, will inspect the fence placement once it is erected. After this time, fencing shall not be moved without arborist inspection/approval. If the orange plastic fencing is used, a minimum of four zip ties shall be used on each stake to secure the fence. All efforts shall be made to maximize the distance from each saved tree. The fencing must be constructed prior to the city pre-construction meeting for inspection by the city and the arborists. Fence maintenance is an issue with many job sites. Windy conditions and other issues can cause the fence to sage and fall. Keeping it erect should be a part of any general contractor's bid for a project. Down fencing is one of the causes for a stop work notice to be placed on a project.

Soil Aeration Methods: Soils within the CRZ that have been compacted by heavy equipment and/or construction activities must be returned to their original state before all work is completed. Methods include adding specialized soil conditioners, water jetting, adding organic matter, and boring small holes with an auger (18" deep, 2-3' apart with a 2-4" auger) and the application of moderate amounts of nitrogen fertilizer. The arborist(s) shall advise.

Chip Mulch: All areas within the CRZ of the trees that cannot be fenced shall receive a 4-6" layer of chip mulch to retain moisture, soil structure and reduce the effects of soil compaction.

Trenching Within CRZ: All trenching/excavation for foundations within the CRZ of native trees shall be **hand dug**. All major roots shall be avoided whenever possible. All exposed roots larger than 1" in diameter shall be clean cut with sharp pruning tools and not left ragged. A **Mandatory** meeting between the arborists and grading/trenching contractor(s) shall take place prior to work start. This activity shall be monitored by the arborist(s) to insure proper root pruning is talking place. Any landscape architects and contractors involved shall not design any irrigation or other features within any drip line unless previously approved by the project arborist.

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Grading Within CRZ: Grading shall not encroach within the drip line unless approved by the project arborist. Grading should not disrupt the normal drainage pattern around the trees. Fills should not create a ponding condition and excavations should not leave the tree on a rapidly draining mound.

Exposed Roots: Any exposed roots shall be re-covered the same day they were exposed. If they cannot, they must be covered with burlap or another suitable material and wetted down 2x per day until re-buried.

Paving Within The CRZ: The preferred method on paving within the drip line consists of placing base material on existing grade. Any grade lowering removes important surface roots. Pavers can be used with limitations. The base material must be above natural grade and the curbing to retain the pavers shall not be trenched any deeper than six inches into the natural grade.

Equipment Operation: Vehicles and all heavy equipment shall not be driven under the trees, as this will contribute to soil compaction. Also there is to be no parking of equipment or personal vehicles in these areas. All areas behind fencing are off limits unless pre-approved by the arborist. All soil compaction within drip line areas shall be mitigated as described previously.

Existing Surfaces: The existing ground surface within the CRZ of all native trees shall not be cut, filled, compacted or pared, unless shown on the grading plans **and** approved by the arborist.

Construction Materials And Waste: No liquid or solid construction waste shall be dumped on the ground within the CRZ of any native tree. The CRZ areas are not for storage of materials either. Any violations shall be remedied through proper cleanup approved by the project arborist at the expense of the owner.

Arborist Monitoring: An arborist shall be present for selected activities (trees identified on spreadsheet and items bulleted below). The monitoring does not necessarily have to be continuous but observational at times during these activities. It is the responsibility of the owner(s) or their designee to inform us prior to these events so we can make arrangements to be present. It is the responsibility of the owner to contract (prior to construction) a locally licensed and insured arborist that will document all monitoring activities.

- pre-construction fence placement
- any utility or drainage trenching within any CRZ
- All grading and trenching near trees requiring monitoring on the spreadsheet

Pre-Construction Meeting: An on-site pre-construction meeting with the Arborist(s), Owner(s), Planning Staff, and all contractors and subs is highly recommended prior to the start of any work. At a minimum, the grading contractor shall be present. It is the sole responsibility of the owner that all topics covered during the preconstruction meeting are appropriately passed on to non-present contractors. Prior to final occupancy, a letter from the arborist(s) shall be required verifying the health and

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condition of all impacted trees and providing any recommendations for any additional mitigation. The letter shall verify that the arborist(s) were on site for all grading and/or trenching activity that encroached into the CRZ of the selected native trees, and that all work done in these areas was completed to the standards set forth above.

Pruning: All native tree pruning shall be completed by a licensed and insured D49 tree trimming contractor that has a valid city business license. Class II pruning consists of removal of dead, dying, decaying, interfering, obstructing and weak branches as well as selective thinning to lesson wind resistance. Class IV pruning includes: Crown reduction pruning consisting of reduction of tops, sides or individual limbs in and effort to prevent future major breakage. A trained arborist shall perform all pruning. Any tree company working on site shall have a certified arborist on staff that is on the City of Paso Robles's approved list. No pruning shall take more than 25% of the live crown of any native tree without the project arborist's approval. Any trees that may need pruning for road/home clearance shall be pruned **prior** to any grading activities to avoid any branch tearing. Absolutely no skill saw pruning is allowed.

Landscape: All landscape within the CRZ shall be drought tolerant or native varieties. Lawns shall be avoided. All irrigation trenching shall be routed around drip lines; otherwise above ground drip-irrigation shall be used. It is the owner's responsibility to notify the landscape architect and contractor regarding this mitigation. The project arborist shall approve all landscape materials and irrigation within the CRZ of any oak tree.

Utility Placement: All utilities and sewer/storm drains shall be placed down the roads/driveways and when possible outside of the CRZ. If roads exist between two trees, the utilities shall be routed down the middle of the road or completely hand dug. The arborist shall supervise trenching within the CRZ. **All trenches in these areas shall be exposed by air spade or hand dug with utilities routed under/over the roots**. Roots greater than 2 inches in diameter shall **not** be cut.

Fertilization and Cultural Practices: As the project moves toward completion, the arborist(s) may suggest fertilization, insecticide, fungicide, soil amendments, and/or mycorrhiza applications that will benefit tree health.

The included spreadsheet includes trees listed by number, species and multiple stems if applicable, diameter and breast height (4.5'), condition (scale from poor to excellent), status (avoided, impacted, removed, exempt), percent of drip line impacted, mitigation required (fencing, root pruning, monitoring), construction impact (trenching, grading), recommended pruning and individual tree notes.

Final Inspection Letter: Upon project completion, the City of Paso Robles shall require a final letter from the project arborist. This final inspection shall note any problems with the trees ranging from failure to monitor critical root zone activities, improper pruning such as leaving stubs, and any visual declining tree health.

If **all** the above mitigation measures are followed, we feel there will be no additional long-term significant impacts to the remaining native oak trees.

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A & T Arborists strongly suggests that the responsible party (owner of their designee) make copies of this report. Any reproduction by A & T Arborists or changes to this original report will require an additional charge.

Please let us know if we can be of any future assistance to you for this project.

Chip Tamagni
Certified Arborist #WE 6436-A
CA State Pest Control Advisor and Applicator
ISA Certified Hazard Risk Assessor #1209
Cal Poly B.S. Forestry and Natural Resources Management

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TREE NUMBER	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE COND	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MIT. PROP.	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW	LTSI H-M-L-N	USEFUL LIFE EXP.
1	BO	*Q. doug.*	28	3	I	20%	GR	F, RP, M	YES	II	fair	past failure	40/25	low	30
8	VO	*Q.lobata*	28	4	A	0%	NONE	F	NO		fair	3x stem	40/30	none	40
9	LO	*Q. agrif.*	20	3	A	0%	NONE	F	NO		fair	2x stem	20/20	none	40
101	LO	*Q. agri.*	52	3	I	5%	GR	F	NO		fair	power lines	70/65	none	40
102	BO	*Q. doug.*	32	0	R	0%	NONE	NONE	NO		fair	dead	70/60		20
103	BO	*Q. doug.*	32	2	R	100%	GR	YES	NO		good	decline	0		0
104	BO	*Q. doug.*	26	3	R	100%	GR	YES	NO		good	mistletoe	60/60		40
105	BO	*Q. doug.*	20	3	A	0%	NONE	YES	NO		fair	cavity	30/30	none	10
106	BO	*Q. doug.*	16	0	R	0%	NONE	YES	NO		fair	dead	25/22		60
107	BO	*Q. doug.*	27	1	R	100%	GR	YES	NO		poor	severe decline	25/25		5
108	BO	*Q. doug.*	32	3	R	100%	GR	YES	NO		fair	needs wt. reduc.	40/45		40
109	BO	*Q. doug.*	9	3	R	100%	GR	YES	NO		fair	on cut slope	15/15		20
110	BO	*Q. doug.*	13	3	R	100%	GR	YES	NO		fair	poor crotches	12/12		40
111	BO	*Q. doug.*	18	3	R	100%	GR	YES	NO		fair	poor crotches	12/12		40
3504	BO	*Q. doug.*	14	3	A	0%	NONE	NONE	NO		fair			none	50
3505	BO	*Q. doug.*	4x30	3	A	0%	NONE	NONE	NO		good			low	40
3506	BO	*Q. doug.*	2x19	3	A	0%	NONE	NONE	NO		fair	suppressed		none	50
3507	BO	*Q. doug.*	24	4	A	0%	NONE	NONE	NO		fair			none	50
3508	BO	*Q. doug.*	22	3	A	0%	NONE	NONE	NO		poor	decline			30
3509	BO	*Q. doug.*	21	4	A	0%	NONE	F,RP,M	NO		fair			low	50
3510	BO	*Q. doug.*	14	4	A	0%	NONE	F,RP,M	NO		fair				50
3511	LO	*Q. agrif.*	15	2	A	0%	NONE	F,RP,M	NO		fair	cavity			35
3512	LO	*Q. agrif.*	22	4	A	0%	NONE	F,RP,M	NO		fair				50
3513	LO	*Q. agrif.*	21	2	A	0%	NONE	NONE	NO		good	cavity		low	
3514	LO	*Q. agrif.*	27	2	A	0%	NONE	NONE	NO		good	cavity		low	
3515	BO	*Q. doug.*	7	3	A	0%	NONE	NONE	NO		poor			none	
3516	BO	*Q. doug.*	6	1	A	0%	NONE	NONE	NO		poor	barely alive		none	
3517	BO	*Q. doug.*	18	2	A	0%	NONE	NONE	NO		poor	split trunk		none	
3518	LO	*Q.agrif.*	3x36	3	A	0%	NONE	NONE	NO		good			none	
3519	LO	*Q.agrif.*	3	2	A	0%	NONE	NONE	NO		poor	suppressed		none	
3520	LO	*Q.agrif.*	3	1	A	0%	NONE	NONE	NO		poor	suppressed		none	

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH
2 = TREE TYPE: COMMON NAME IE.W.O.= WHITE OAK
3= SCIENTIFIC NAME
4 = TRUNK DIAMETER @ 4'6"
5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT
6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL
7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE
8= CONSTRUCTION IMPACT TYPE: **G**RADING, **C**OMPACTION, **TR**ENCHING, **F**ILL
9 = MITIGATION REQUIREMENTS: **F**ENCING, **M**ONITORING, **R**OOT**P**RUNING,
10 = ARBORIST MONITORING REQUIRED: YES/NO
11 = PERSCRIBED PRUNING: CLASS 1-4
12= AESTHETIC VALUE
13= FIELD NOTES
13= NORTH SOUTH/ EAST WEST CANOPY SPREAD
14= CANOPY SPREAD
15= LONG TERM SIGNIFICANT IMPACTS: HIGH, MEDIUM, LOW, NONE
16 = USEFUL LIFE EXPECTANCY

Note: "Construction Status," "CRZ % Impact" and "Construction Impact" determined by North Coast Engineering Inc. All other information provided by A&T Arborists.

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3521	LO	*Q.agrif.*	26	2	A	0%	NONE	NONE	NO		fair	past failure		none	
3522	LO	*Q.agrif.*	8	2	A	0%	NONE	NONE	NO		poor	suppressed		none	
3523	LO	*Q.agrif.*	9	3	A	0%	NONE	NONE	NO		fair	suppressed		none	
3524	BO	*Q. doug.*	5	1	A	0%	NONE	NONE	NO		poor	suppressed		none	
3525	BO	*Q. doug.*	12	3	A	0%	NONE	NONE	NO		fair	suppressed		none	
2526	BO	*Q. doug.*	10	3	A	0%	NONE	NONE	NO		fair	suppressed		low	
3527	BO	*Q. doug.*	13	4	A	0%	NONE	NONE	NO		fair			low	
3528	BO	*Q. doug.*	10	2	A	0%	NONE	NONE	NO		poor	in decline		low	
3529	BO	*Q. doug.*	12	2	A	0%	NONE	NONE	NO		fair	suppressed		low	
3530	BO	*Q. doug.*	14	4	A	0%	NONE	NONE	NO		fair			none	
3531	LO	*Q. agrif.*	18	4	A	0%	NONE	NONE	NO		fair			low	
3532	LO	*Q. agrif.*	6	1	A	0%	NONE	NONE	NO		poor	dead top		low	
3533	LO	*Q. agrif.*	4	1	A	0%	NONE	NONE	NO		poor	suppressed		low	
3534	BO	*Q. doug.*	5	2	A	0%	NONE	NONE	NO		poor				
3535	LO	*Q. agrif.*	9	2	A	0%	NONE	NONE	NO		poor				
3536	BO	*Q. doug.*	7	3	A	0%	NONE	NONE	NO		poor				
3537	BO	*Q. doug.*	10	0	A	0%	NONE	NONE	NO		poor	dead			
3538	LO	*Q. agrif.*	7	0	A	0%	NONE	NONE	NO		poor	dead			
3539	BO	*Q. doug.*	13	3	A	0%	NONE	NONE	NO		fair				
3540	BO	*Q. doug.*	15	3	A	0%	NONE	NONE	NO		fair				
3541	BO	*Q. doug.*	4	2	A	0%	NONE	NONE	NO		poor				
3542	BO	*Q. doug.*	15	1	A	0%	NONE	NONE	NO		poor	2/3 dead			
3543	LO	*Q. agrif.*	3	1	A	0%	NONE	NONE	NO		poor				
3544	LO	*Q. agrif.*	4	1	A	0%	NONE	NONE	NO		poor				
3545	LO	*Q. agrif.*	14	3	A	0%	NONE	NONE	NO		fair				
3546	LO	*Q. agrif.*	15	2	A	0%	NONE	NONE	NO		poor	in decline			
3547	VO	*Q. lobata*	8	3	A	0%	NONE	NONE	NO		fair				
3548	LO	*Q. agrif.*	16	3	A	0%	NONE	NONE	NO		fair				
3549	LO	*Q. agrif.*	7	2	A	0%	NONE	NONE	NO		poor				
3550	LO	*Q. agrif.*	3	1	A	0%	NONE	NONE	NO		poor				

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Note: "Construction Status," "CRZ % Impact" and "Construction Impact" determined by North Coast Engineering Inc. All other information provided by A&T Arborists.

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TREE NUMBER	**TREE SPECIES**	**SCIENTIFIC NAME**	**TRUNK DBH**	**TREE COND**	**CONST STATUS**	**CRZ % IMPACT**	**CONST IMPACT**	**MIT. PROP.**	**MONT REQUIRED**	**PRUNING CLASS**	**AESTH. VALUE**	**FIELD NOTES**	**NS EW**	**LTSI H-M-L-N**	**USEFUL LIFE EXP.**
3551	LO	*Q. agrif.*	10	2	A	0%	NONE	NONE	NO		poor	suppressed			
3552	BO	*Q. doug.*	26	5	A	0%	NONE	NONE	NO		good				
3553	LO	*Q. agrif.*	38	5	A	0%	NONE	NONE	NO		good				
3554	BO	*Q. doug.*	22	4	A	0%	NONE	NONE	NO		good				
3555	LO	*Q. agrif.*	2x20	4	A	0%	NONE	NONE	NO		fair				
3556	BO	*Q. doug.*	3	1	A	0%	NONE	NONE	NO		poor				
3557	BO	*Q. doug.*	5	0	A	0%	NONE	NONE	NO		poor	dead			
3558	LO	*Q. agrif.*	10	2	A	0%	NONE	NONE	NO		poor	suppressed			
3559	LO	*Q. agrif.*	24	4	A	0%	NONE	NONE	NO		fair				
3560	LO	*Q. agrif.*	3	2	A	0%	NONE	NONE	NO		poor				
3561	BO	*Q. doug.*	5	2	A	0%	NONE	NONE	YES		poor			low	
3562	LO	*Q. agrif.*	3x28	4	A	0%	NONE	NONE	YES		fair			moderate	
3563	BO	*Q. doug.*	9	2	A	0%	NONE	NONE	NO		poor			none	
3564	BO	*Q. doug.*	8	2	A	0%	NONE	NONE	NO		poor			none	
3565	BO	*Q. doug.*	10	3	A	0%	NONE	NONE	NO		fair			none	
3566	LO	*Q. agrif.*	16	3	A	0%	NONE	NONE	NO		fair			none	
3567	BO	*Q. doug.*	7	2	A	0%	NONE	NONE	NO		poor			none	
3568	BO	*Q. doug.*	7	2	A	0%	NONE	NONE	NO		poor			none	
3569	BO	*Q. doug.*	9	2	A	0%	NONE	NONE	NO		poor			none	
3570	LO	*Q. agrif.*	8	2	A	0%	NONE	NONE	NO		poor	in decline		none	
3571	LO	*Q. agrif.*	25	4	A	0%	NONE	NONE	NO		good			none	
3572	LO	*Q. agrif.*	7	2	A	0%	NONE	NONE	NO		fair			none	
3573	LO	*Q. agrif.*	26	3	A	0%	NONE	NONE	NO		good			none	
3574	BO	*Q. doug.*	10	2	A	0%	NONE	NONE	NO		fair	suppressed		none	
3575	BO	*Q. doug.*	18	3	A	0%	NONE	NONE	NO		fair			none	
3576	LO	*Q. agrif.*	16	4	A	0%	NONE	NONE	NO		fair			none	
3577	LO	*Q. agrif.*	5	2	A	0%	NONE	NONE	NO		poor			none	
4514	BO	*Q. doug.*	2x49	3	A	0%	NONE	NONE	NO		good	cracks in trunk		none	
4515	BO	*Q. doug.*	10	4	A	0%	NONE	NONE	NO		fair			none	
4516	LO	*Q. agrif.*	17	3	A	0%	NONE	NONE	NO		good			none	
4517	LO	*Q. agrif.*	33	5	A	0%	NONE	NONE	NO		good			none	

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FINAL ARBORIST REPORT FOR PASO ROBLES GATEWAY

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4518	BO	*Q. doug.*	7	2	A	NONE	NONE	NONE	NO		fair			none	
4519	BO	*Q. doug.*	13	3	A	NONE	NONE	NONE	NO		good			none	
4520	LO	*Q. agrif.*	25	4	A	NONE	NONE	NONE	NO		good			none	
4521	LO	*Q. agrif.*	19	4	A	NONE	NONE	NONE	NO		good			none	
4522	BO	*Q. doug.*	8	1	A	NONE	NONE	NONE	NO		poor	1/2 dead		none	
4602	LO	*Q. agrif.*	15	3	A	NONE	NONE	NONE	NO		good		25/25	none	35
4603	BO	*Q. doug.*	6	3	A	NONE	NONE	NONE	NO		fair	suppressed	12/12	none	15
4604	BO	*Q. doug.*	10	3	A	NONE	NONE	NONE	NO		poor	suppressed	10/10	none	20
4605	BO	*Q. doug.*	4	2	A	NONE	NONE	NONE	NO		poor	suppressed	6/6	none	10
4606	BO	*Q. doug.*	11	4	A	NONE	NONE	NONE	NO		good		15/15	none	40
4607	BO	*Q. doug.*	6	2	A	NONE	NONE	NONE	NO		fair	past failure	8/8	none	15
4627	LO	*Q. agrif.*	27	4	A	NONE	NONE	NONE	NO		good		25/20	none	30
4628	VO	*Q. lobata*	35	5	A	NONE	NONE	NONE	NO		excel.		50/50	none	40
4691	BO	*Q. doug.*	6	3	A	NONE	NONE	NONE	NO		fair		12/12	none	40
4692	BO	*Q. doug.*	7	2	A	NONE	NONE	NONE	NO		poor	leaning	15/20	none	20
4693	BO	*Q. doug.*	9	3	A	NONE	NONE	NONE	NO		fair	suppressed	15/12	none	30
4694	BO	*Q. doug.*	4	1	A	NONE	NONE	NONE	NO		poor	suppressed	5/5	none	6
4695	BO	*Q. doug.*	12	2	A	NONE	NONE	NONE	NO		poor	bark damage	15/15	none	10
4696	BO	*Q. doug.*	24	4	A	NONE	NONE	NONE	NO		good	poison oak	50/50	none	50
4697	LO	*Q. agrif.*	22	2	A	NONE	NONE	NONE	NO		poor	in decline	30/30	none	10
4698	BO	*Q. doug.*	25	5	I	1%	NONE	NONE	NO		excel.	mistletoe	50/50	none	50
4699	BO	*Q. doug.*	22	4	A	NONE	NONE	NONE	NO		good	mistletoe	45/40	none	50
4700	BO	*Q. doug.*	8	2	A	NONE	NONE	NONE	NO		poor	poison oak	15/12	none	30
4702	LO	*Q. agrif.*	43	5	A	0%	NONE	NONE	NO		excel.		70/60	none	50
4703	BO	*Q. doug.*	11	3	A	0%	NONE	F	NO		fair	suppressed	20/15	none	35
4704	BO	*Q. doug.*	11	4	A	0%	NONE	F	NO		fair		20/25	none	30
4705	BO	*Q. doug.*	13	4	A	0%	NONE	F	NO		fair	suppressed	20/20	none	30
4706	BO	*Q. doug.*	5	2	A	0%	NONE	F	NO		poor	suppressed	15/6	none	5
4707	BO	*Q. doug.*	4	2	A	0%	NONE	F	NO		poor	suppressed	5/5	none	10
4708	LO	*Q. agrif.*	19	4	A	0%	NONE	F	NO		good	3x stem	25/25	none	35
4709	BO	*Q. doug.*	16	4	A	0%	NONE	F	NO		good	2x stem	25/25	none	40

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4710	BO	*Q. doug.*	11	3	A	0%	NONE	F	NO		fair	mistletoe	18/15	none	20
4711	BO	*Q. doug.*	4	2	A	0%	NONE	F	NO		poor	suppressed	8/8	none	5
4712	LO	*Q.agrif.*	30	1	A	0%	NONE	F	NO		poor	in decline	20/20	none	5
4713	LO	*Q.agrif.*	33	1	A	0%	NONE	F	NO		poor	in decline	20/25	none	5
4714	BO	*Q. doug.*	13	2	A	0%	NONE	F	NO		fair	leaning	25/15	none	15
4715	BO	*Q. doug.*	33	3	A	0%	NONE	F	NO		good	past failure	70/45	none	30
4716	BO	*Q. doug.*	17	5	A	0%	NONE	F	NO		excel.		40/40	none	50
4717	BO	*Q. doug.*	6	4	A	0%	NONE	F	NO		good		12/12	none	50
4718	BO	*Q. doug.*	7	4	A	0%	NONE	F	NO		good		15/15	none	50
4719	BO	*Q. doug.*	23	2	A	0%	NONE	F	NO		fair	cavities	40/25	none	20
4720	BO	*Q. doug.*	5	3	A	0%	NONE	F	NO		fair		10/10	none	30
4721	LO	*Q.agrif.*	15	3	A	0%	NONE	F	NO		excel.	decay	25/25	none	10
4722	BO	*Q. doug.*	3	3	A	0%	NONE	F	NO		fair		7/8	none	30
4723	BO	*Q. doug.*	3	3	A	0%	NONE	F	NO		fair		7/6	none	30
4724	BO	*Q. doug.*	9	3	A	0%	NONE	F	NO		fair	suppressed	25/15	none	20
4725	BO	*Q. doug.*	24	5	A	0%	NONE	F	NO		excel.		40/40	none	50
4726	BO	*Q. doug.*	8	3	A	0%	NONE	F	NO		fair	suppressed	12/12	none	40
4750	BO	*Q. doug.*	17	4	A	0%	NONE	F	NO		good	2x stem	25/20	none	40
4751	BO	*Q. doug.*	9	3	A	0%	NONE	F	NO		fair	suppressed	20/15	none	30
4752	BO	*Q. doug.*	11	4	A	0%	NONE	F	NO		good		25/25	none	30
4753	BO	*Q. doug.*	12	4	A	0%	NONE	F	NO		good	2x stem	20/20	none	30
4754	BO	*Q. doug.*	8	3	A	0%	NONE	F	NO		fair	suppressed	15/12	none	30
4755	LO	*Q. agrif.*	34	6	I	10%	GR	F,RP,M	YES		excel.		80/80	none	50
4756	LO	*Q. agrif.*	5	1	A	0%	NONE	F	NO		poor	decline	10/10	none	3
4757	LO	*Q. agrif.*	19	1	A	0%	NONE	F	NO		poor	decline	20/15	none	5
4758	LO	*Q. agrif.*	41	4	A	0%	NONE	F	YES		good		70/40	none	40
4759	LO	*Q. agrif.*	23	4	I	3%	NONE	F	NO		good		60/40	none	50
4760	LO	*Q. agrif.*	20	2	A	0%	NONE	F	NO		fair	decay	20/12	none	10
4761	LO	*Q. agrif.*	16	5	A	0%	NONE	F	NO		good		20/20	none	50
4763	LO	*Q. agrif.*	14	5	A	0%	NONE	F	NO		good		25/25	none	40
4764	LO	*Q. agrif.*	9	4	A	0%	NONE	F	NO		good		20/20	none	40

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4765	BO	*Q. doug.*	7	3	A	0%	NONE	F	NO		fair	suppressed	10/10	none	15
4766	LO	*Q. agrif.*	13	4	A	0%	NONE	F	NO		good		20/20	none	40
4767	LO	*Q. agrif.*	13	5	A	0%	NONE	F	NO		good		25/25	none	50
4772	VO	*Q. lobata*	24	4	A	0%	NONE	F	NO		good	wire in trunk	40/40	none	40
4773	BO	*Q. doug.*	21	3	A	0%	F	F	NO		good	v-crotch	20/25	none	40
4774	BO	*Q. doug.*	11	4	A	0%	NONE	F	NO		good		20/20	none	50
4775	BO	*Q. doug.*	10	2	A	0%	NONE	F	NO		fair	suppressed	15/15	none	20
4776	LO	*Q. agrif.*	19	5	A	0%	NONE	F	NO		good		30/30	none	45
4778	LO	*Q. agrif.*	10	5	A	0%	NONE	NONE	NO		good		20/20	none	40
4779	BO	*Q. doug.*	31	5	A	0%	NONE	NONE	NO		good		50/50	none	40
4780	LO	*Q. agrif.*	12	5	A	0%	NONE	NONE	NO		good		25/25	none	50
4781			17		I	18%	GR	F,RP,M	YES						
4782			13		I	11%	GR	F,RP,M	YES						
4783	BO	*Q. doug.*	31	5	I	10%	GR	F,RP,M	YES		excel.	mistltoe	60/60	none	40
4784	VO	*Q. lobata*	22	3	R	100%	GR	YES	NO		fair		15/15		25
4785	VO	*Q. lobata*	26	3	R	100%	GR	YES	NO		fair	suppressed	25/20		25
4786	VO	*Q. lobata*	21	4	R	100%	GR	YES	NO		good		30/30		40
4787	VO	*Q. lobata*	7	3	R	100%	GR	YES	NO		fair	suppressed	8/8		20
4788	BO	*Q. doug.*	18	4	R	100%	GR	YES	NO		good	suppressed	30/25		40
4789	VO	*Q. lobata*	11	4	R	100%	GR	YES	NO		fair	suppressed	15/18		30
4872	VO	*Q. lobata*	23	4	I	5%	GR	F,RP,M	YES		good		25/25		40
4880	VO	*Q. lobata*	44	6	A	0%	NONE	F	NO		excel.	heritage tree	80/80	none	30
4881	BO	*Q. doug.*	15	1	A	5%	NONE	F	NO		fair	split at base	30/30	none	10
4882	BO	*Q. doug.*	30	3	A	0%	NONE	F	NO		fair	8x stem	40/50	none	35
4883	BO	*Q. doug.*	7	2	A	0%	NONE	F	NO		poor	suppressed	15/7	none	10
4884	BO	*Q. doug.*	7	2	A	0%	NONE	F	NO		poor	suppressed	20/12	none	15
4885	BO	*Q. doug.*	3	1	A	0%	NONE	F	NO		poor	suppressed	12/5	none	5
4886	BO	*Q. doug.*	18	2	A	0%	NONE	F	NO		poor	suppressed	20/20	none	30
4887	BO	*Q. doug.*	18	3	A	0%	NONE	F	NO		good	trunk is split	30/30	none	25
4888	BO	*Q. doug.*	7	2	A	0%	NONE	F	NO		fair	deadwood	12/12	none	15
4889	LO	*Q. agrif.*	8	1	A	0%	NONE	F	NO		poor	dying	10/10	none	3
4890	BO	*Q. doug.*	13	4	A	0%	NONE	F	NO		good		40/30	none	40

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4891	BO	*Q. doug.*	13	3	A	0%	NONE	F	NO		fair	suppressed	40/25	none	35
4892	BO	*Q. doug.*	5	3	A	0%	NONE	NONE			fair		8/10		10
4893	BO	*Q. doug.*	5	2	A	0%	NONE	NONE			poor	suppressed	6/9		10
4894	BO	*Q. doug.*	14	5	A	0%	NONE	NONE			good		30/40		50
4895	LO	*Q. agrif.*	7	3	A	0%	NONE	NONE			poor	in decline	10/12		15
4896	BO	*Q. doug.*	10	5	A	0%	NONE	NONE			good		20/25		50
4897	BO	*Q. doug.*	10	4	A	0%	NONE	NONE			fair	v crotch	18/15		40
4898	BO	*Q. doug.*	19	4	A	0%	NONE	NONE			good	3x stem	25/30		50
4899	BO	*Q. doug.*	19	4	A	0%	NONE	NONE			good	2x stem	40/40		50
4900	BO	*Q. doug.*	9	3	A	0%	NONE	NONE			fair	suppressed	30/30		40
4908	VO	*Q. lobata*	6	2	A	0%	NONE	NONE	NO		poor	suppressed			
4909	VO	*Q. lobata*	12	2	A	0%	NONE	NONE	NO		poor	suppressed			
4910	VO	*Q. lobata*	23	4	A	0%	NONE	NONE	NO		good				
4911	BO	*Q. doug.*	10	4	A	0%	NONE	NONE	NO		good				
4912	BO	*Q. doug.*	6	3	R	100%	GR	NONE	NO		fair				
4913	VO	*Q. lobata*	10	3	R	100%	GR	YES	NO		fair				
4914	VO	*Q. lobata*	14	3	R	100%	GR	YES	NO		fair				
4915	VO	*Q. lobata*	17	4	R	100%	GR	YES	NO		fair				
4916	VO	*Q. lobata*	20	5	R	100%	GR	YES	NO		fair				
4917	VO	*Q. lobata*	21	3	R	100%	GR	YES	NO		fair				
4918	LO	*Q. agrif.*	14	3	R	100%	GR	YES	NO		fair				
4919	LO	*Q. agrif.*	8	3	R	100%	GR	YES	NO		fair				
4920	LO	*Q. agrif.*	15	4	R	100%	GR	YES	NO		fair				
4921	VO	*Q. lobata*	15	3	R	100%	GR	YES	NO		good				
4922	LO	*Q. agrif.*	16	2	R	100%	GR	YES	NO		fair				
4923	LO	*Q. agrif.*	16	4	R	100%	GR	YES	NO		fair				
4924	VO	*Q. lobata*	11	2	R	100%	GR	YES	NO		poor				
4925	VO	*Q. lobata*	16	3	R	100%	GR	YES	NO		poor				
4926	LO	*Q. agrif.*	6	2	R	100%	GR	NONE	NO		poor				
4927	LO	*Q. agrif.*	19	3	R	100%	GR	YES	NO		fair				
4928	LO	*Q. agrif.*	12	3	R	100%	GR	YES	NO		fair				
4929	LO	*Q. agrif.*	10	3	R	100%	GR	YES	NO		fair				
4930	VO	*Q. lobata*	13	3	A	0%	NONE	NONE	NO		fair				

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4931	VO	*Q. lobata*	36	2	A	0%	NONE	NONE	NO		good				
4932	VO	*Q. lobata*	6	3	A	0%	NONE	NONE	NO		poor				
4933	VO	*Q. lobata*	7	2	A	0%	NONE	NONE	NO		poor				
4934	LO	*Q. agrif.*	12	2	A	0%	NONE	NONE	NO		fair				
4935	LO	*Q. agrif.*	19	3	A	0%	NONE	NONE	NO		fair				
4936	VO	*Q. lobata*	25	4	A	0%	NONE	NONE	NO		good				
4937	VO	*Q. lobata*	17	4	A	0%	NONE	NONE	NO		good				
4938	VO	*Q. lobata*	15	2	A	0%	NONE	NONE	NO		fair				
4939	VO	*Q. lobata*	14	3	A	0%	NONE	NONE	NO		fair				
4940	VO	*Q. lobata*	38	4	R	100%	GR	YES	NO		excel.				
4941	LO	*Q. agrif.*	14	4	R	100%	GR	YES	NO		good				
4942	LO	*Q. agrif.*	10	3	R	100%	GR	YES	NO		fair				
4943	VO	*Q. lobata*	11	3	R	100%	GR	YES	NO		fair				
4944	LO	*Q. agrif.*	9	4	R	100%	GR	YES	NO		fair				
4945	VO	*Q. lobata*	9	3	R	100%	GR	NONE	NO		fair				
4946	VO	*Q. lobata*	8	2	A	0%	NONE	NONE	NO		poor				
4947	LO	*Q. agrif.*	9	3	A	0%	NONE	NONE	NO		poor				
4948	LO	*Q. agrif.*	11	4	A	0%	NONE	NONE	NO		fair				
4949	VO	*Q. lobata*	26	2	A	0%	NONE	NONE	NO		good				
4950	BO	*Q. doug.*	40	6	I	1%	NONE	F	NO		excel.	heritage tree	20/20	none	50
4952	VO	*Q. lobata*	35	5	R	100%	NONE	NONE	NO		excel				
4953	VO	*Q. lobata*	6	2	A	0%	NONE	NONE	NO		poor				
4954	VO	*Q. lobata*	9	2	A	0%	NONE	NONE	NO		poor				
4955	BO	*Q. doug.*	15	2	A	0%	NONE	NONE	NO		fair				
4956	VO	*Q. lobata*	22	3	A	0%	NONE	F	NO		fair				
4957	VO	*Q. lobata*	30	3	A	0%	NONE	F	NO		good				
4958	VO	*Q. lobata*	13	3	A	0%	NONE	F	NO		fair				
4959	VO	*Q. lobata*	18	4	A	0%	NONE	F	NO		fair				
4960	VO	*Q. lobata*	11	4	A	0%	NONE	F	NO		fair				
4976	BO	*Q. doug.*	33	4	A	0%	NONE	F	NO		good	3x stem	50/40		50
4977	BO	*Q. doug.*	35	3	A	0%	NONE	F	NO		fair	3x stem	30/40		40
4978	LO	*Q. agrif.*	15	3	A	0%	NONE	F	NO		good	weak base	25/40		40
4979	BO	*Q. doug.*	26	3	A	0%	NONE	F	NO		poor	suppressed	20/40		30
4980	BO	*Q. doug.*	7	1	A	0%	NONE	F	NO		poor	suppressed	5/5		2

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH
2 = TREE TYPE: COMMON NAME IE.W.O.= WHITE OAK
3= SCIENTIFIC NAME
4 = TRUNK DIAMETER @ 4'6"
5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT
6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL
7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE
8= CONSTRUCTION IMPACT TYPE: **G**RADING, **C**OMPACTION, **TR**ENCHING, **F**ILL
9 = MITIGATION REQUIREMENTS: **F**ENCING, **M**ONITORING, **R**OOT**P**RUNING,
10 = ARBORIST MONITORING REQUIRED: YES/NO
11 = PERSCRIBED PRUNING: CLASS 1-4
12= AESTHETIC VALUE
13= FIELD NOTES
13= NORTH SOUTH/ EAST WEST CANOPY SPREAD
14= CANOPY SPREAD
15= LONG TERM SIGNIFICANT IMPACTS: HIGH, MEDIUM, LOW, NONE
16 = USEFUL LIFE EXPECTANCY

Note: "Construction Status," "CRZ % Impact" and "Construction Impact" determined by North Coast Engineering Inc. All other information provided by A&T Arborists.

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FINAL ARBORIST REPORT FOR PASO ROBLES GATEWAY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TREE NUMBER	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE COND	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MIT. PROP.	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW	LTSI H-M-L-N	USEFUL LIFE EXP.
4981	VO	*Q. lobata*	17	3	A	0%	NONE	F	NO		fair	poor canopy	20/20		25
4982	LO	*Q. doug.*	18	3	A	0%	NONE	F	NO		fair	leaning	25/25		35
4983	BO	*Q. doug.*	17	2	A	0%	NONE	F	NO		fair	suppressed	15/25		25
4984	LO	*Q. agrif.*	13	3	A	0%	NONE	F	NO		fair	suppressed	20/20	none	30
4985	BO	*Q. doug.*	7	2	A	0%	NONE	F	NO		poor	suppressed	30/40	none	20
4986	BO	*Q. doug.*	5	1	A	0%	NONE	F	NO		poor	suppressed	50/40	none	5
4987	BO	*Q. doug.*	16	3	A	0%	NONE	F	NO		fair	ex. dead wood	25/25	none	50
4988	BO	*Q. doug.*	17	3	A	0%	NONE	F	NO		fair	suppressed	20/25	none	30
4989	BO	*Q. doug.*	9	2	A	0%	NONE	F	NO		poor	suppressed	10/20	none	10
4994	LO	*Q. agrif.*	22	5	A	0%	NONE	F	NO		good			none	50
F1	VO	*Q. lobata*	11	2	R	100%	GR	NONE	NO		fair	25 FT SW OF 4958		none	50
FEI 2			52		I	3%	GR	F,RP,M	YES						
FEI 15	BO	*Q.doug.*	21	3	I	5%	GR	F,RP,M	YES		good		24x24	none	50
4505	BO	*Q. doug.*	14	3	I	5%	GR	F	NO		fair		18/18	none	50
4507	BO	*Q. doug.*	25	3	I	5%	GR	F	NO		fair		26/30	none	40
4961	BO	*Q. doug.*	18	4	I	25%	GR	F,RP,M	YES		good	shift lot	25/25	low	40
4906	BO	*Q. doug.*	20	3	A	0%	NONE	NONE	NO		fair		25/20		30
4907	BO	*Q. doug.*	17	3	A	0%	NONE	NONE	NO		fair		18/16		30
4910	BO	*Q. doug.*	23	4	A	0%	NONE	NONE	NO		fair		25/22		30
248	BO	*Q. doug.*	6	2	R	100%	GR	NONE	NO		fair		8/8		40
249	SO	*Q. dum.*	11	2	R	100%	GR	NONE	NO		fair		12/14		30
250	BO	*Q. doug.*	34	2	I	15%	GR	F,RP,M	YES		fair	faiures	40/40		20
251	SO	*Q. dum.*	10	4	A	0%	NONE	NONE	NO		fair		10/10		20
252	SO	*Q. dum.*	8	4	A	0%	NONE	NONE	NO		fair		8/10		20
253	BO	*Q. doug.*	14	3	R	100%	GR	NONE	NO		good		20/20		40
254	VO	*Q. lobata*	28	4	A	0%	NONE	NONE	NO		good		30/30		50

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH
2 = TREE TYPE: COMMON NAME IE.W.O.= WHITE OAK
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9 = MITIGATION REQUIREMENTS: **F**ENCING, **M**ONITORING, **R**OOT**P**RUNING,
10 = ARBORIST MONITORING REQUIRED: YES/NO
11 = PERSCRIBED PRUNING: CLASS 1-4
12= AESTHETIC VALUE
13= FIELD NOTES
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15= LONG TERM SIGNIFICANT IMPACTS: HIGH, MEDIUM, LOW, NONE
16 = USEFUL LIFE EXPECTANCY

Note: "Construction Status," "CRZ % Impact" and "Construction Impact" determined by North Coast Engineering Inc. All other information provided by A&T Arborists.

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[Table 2-5 Oak Tree Impact Summary]

Project Area	Removal	Impact	Totals
Northerly	9	5	14
Southerly	6	10	16
**S. Vine St. Alignment*	*26*	*1*	*27*
****TOTAL PROJECT IMPACTS***	***41***	***16***	***57***
ADJUSTED TOTALS (less Re-alignment)	**15**	**15**	**30**

**Includes Tree Removals and Impacts covered under Caltrans US Highway 101/State Route 46 West Interchange Modification Project FONSI dated December 2009.*

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Appendix E

Tribal Consultation Summary

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Gateway

- Consultation letters sent: March 2019
- Consultation requests received:
    - Northern Chumash Tribal Council – March 2019
    - Salinan Tribe – April 2019
    - yak titʸu titʸu yak tilhini – courtesy consultation (did not request on this project, but City is consulting to be consistent with Olsen-South Chandler) May 2019
- Reports sent: March 6, 2019
- Request to schedule consultation:
    - Salinan Tribe
        - March 6, 2019 – email to Patti Dunton (salinantribe@aol.com) from Brandi Cummings (brandi.cummings@swca.com) with a map of the three projects and a request to schedule the consultation meeting, the 18.12.17 CRMS report for OSC, the 12.06.xx Cogstone report for Gateway, and indicated the remainder of the reports would be via a separate email due to the file size
        - March 6, 2019 – email from Microsoft Outlook indicating the email to Patti was too large and wasn't delivered
        - March 6, 2019 – resend email to Patti Dunton (salinantribe@aol.com) from Brandi Cummings (brandi.cummings@swca.com) with a map of the three projects and a request to schedule the consultation meeting, the 12.06.xx Cogstone report, and indicated the remainder of the reports would be via two additional emails due to the file size
        - March 6, 2019 –email to Patti Dunton (salinantribe@aol.com) from Brandi Cummings (brandi.cummings@swca.com) with the 18.12.17 CRMS
        - April 8, 2019 – phone call to Patti Dunton (805-460-9202) from Brandi Cummings (805-543-7095 x:6818), received a message that the phone number is out of service
        - April 8, 2019 – phone call to Patti Dunton (805-423-5195) from Brandi Cummings (805-543-7095 x:6818), Patti indicated that Fred Segobia would be handling this consultation and that she would provide him the reports that were email and he would call me within the week
        - April 25, 2019 – phone call to Fred Segobia (831-385-1490) from Brandi Cummings (805-543-7095 x:6818), asked Fred about scheduling a tribal consultation meeting for all three projects, Fred indicated he was unaware of the consultation request and would have to confer with Patti, also indicated that he needed time to review the reports that were sent to Patti
        - May 10, 2019 – phone call to Fred Segobia (831-385-1490) from Brandi Cummings (805-543-7095 x:6818), left a voicemail asking to schedule consultation meeting
        - May 17, 2019 – email to Fred Segobia (salinan.fs@gmail.com) , Patti Dunton (salinantribe@aol.com), and Salinan Tribe main email (info@salinantribe.com) from Brandi Cummings (brandi.cummings@swca.com) seeking if the tribe is still interested in consulting on these projects; also sent a link to the reports

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- May 20, 2019 – phone call from Fred Segobia (831-385-1490) to Brandi Cummings (805-543-7095 x:6818), scheduled consultation meeting for May 24, 2019
- May 24, 2019 – in person meeting with Warren Frace, Darren Nash, Darcey Delgado, Lori Wilson, Katie Banister, Brandi Cummings, and Fred Segobia at the Community Development Department, Fred explained the significance of the Salinan Tribe in the area and the importance of the area to the tribes in the area, Fred requested access to walk the three project site before making a determination
- June 5, 2019 – phone call to Fred Segobia (831-385-1490) from Brandi Cummings (805-543-7095 x:6818), regarding a site visit
- June 6, 2019 – email to Fred Collins (fcollins@northernchumash.com) from Brandi Cummings (brandi.cummings@swca.com) confirming site visit on June 7, 2019 and providing address
- June 11, 2019 – phone call to Fred Segobia (831-385-1490) from Brandi Cummings (805-543-7095 x:6818), discussed outcome of site visit, Fred requested monitoring for all ground disturbance in excess of 4 feet for potential burials

o Northern Chumash Tribal Council

- March 6, 2019 - email to Fred Collins (fcollins@northernchumash.com) from Brandi Cummings (brandi.cummings@swca.com) with a map of the three projects and a request to schedule the consultation meeting, the 18.12.17 CRMS report for OSC, the 12.06.xx Cogstone report for Gateway, and indicated the remainder of the reports would be via a separate email due to the file size
- March 6, 2019 - email to Fred Collins (fcollins@northernchumash.com) from Brandi Cummings (brandi.cummings@swca.com) with the the 19.01.02 Applied Earthworks report for Beechwood and the 18.09.28 Applied Earthworks historic memo for Beechwood
- March 14, 2019 – email from Fred Collins (fcollins@northernchumash.com) to Brandi Cummings (brandi.cummings@swca.com) stating he would like to meet with the City and WCA to discuss the consultation process
- March 18, 2019 - email to Fred Collins (fcollins@northernchumash.com) from Brandi Cummings (brandi.cummings@swca.com) proposing to meet on Thursday, March 21, 2019
- March 19, 2019 - email from Fred Collins (fcollins@northernchumash.com) to Brandi Cummings (brandi.cummings@swca.com) stating March 21, 2019 is not good but perhaps the following week
- March 19, 2019 - email to Fred Collins (fcollins@northernchumash.com) from Brandi Cummings (brandi.cummings@swca.com) proposing to meet on March 29, 2019
- March 21, 2019 - email from Fred Collins (fcollins@northernchumash.com) to Brandi Cummings (brandi.cummings@swca.com) confirming March 29, 2019 meeting

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        - March 29, 2019 – in person meeting with Warren Frace, Darren Nash, David Athey, Brandi Cummings, Fred Collins and Violet Sage Cavanaugh at the Community Development Department, NCTC indicated their dismay and lack of inclusion in development projects in the north county, and expressed concern that certain archaeologists were not properly portraying the Chumash in cultural reports, NCTC expressed their desire for the reports to be peer-reviewed
    - Yak tit^{y}u tit^{y}u yak tilhini
        - May 24, 2019 - email to Mona Tucker (olivas.mona@gmail.com) from Brandi Cummings (brandi.cummings@swca.com) with a request to schedule the consultation meeting, and a Dropbox link with a map of the three projects, the 18.12.17 CRMS report for OSC, the 12.06.xx Cogstone report for Gateway, and the 19.01.02 Applied Earthworks report for Beechwood
        - June 6, 2019 – follow up email to Mona Tucker (olivas.mona@gmail.com) from Brandi Cummings (brandi.cummings@swca.com) with a request to schedule the consultation meeting
        - June 6, 2019 –email from Mona Tucker (olivas.mona@gmail.com) to Brandi Cummings (brandi.cummings@swca.com) asking about name and location of the projects
        - June 7, 2019 – follow up email to Mona Tucker (olivas.mona@gmail.com) from Brandi Cummings (brandi.cummings@swca.com) with answer to name and location of projects, attach map to email and reference Dropbox link
        - June 14, 2019 – follow up email to Mona Tucker (olivas.mona@gmail.com) from Brandi Cummings (brandi.cummings@swca.com) with a request to schedule the consultation meeting
        - August 2, 2019 – follow up email to Mona Tucker (olivas.mona@gmail.com) from Brandi Cummings (brandi.cummings@swca.com) with a suggested meeting date and time for August 16th at 2:00 p.m. (*note: no response was received)*
- Consultation Closure:
    - Salinan – June 11, 2019
    - NCTC – March 29, 2019
    - ytt – August 16, 2019 (no response)

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Appendix F

Geotechnical Reports, and Preliminary Grading and Drainage Plans

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GEOTECHNICAL FEASIBILITY
GEOLOGIC HAZARDS
STUDY AND PERCOLATION TEST RESULTS
PASO ROBLES GATEWAY
VINE STREET
PASO ROBLES, CALIFORNIA

June 20, 2012

Prepared for

Furlotti Family Ranch

Prepared by

Earth Systems Pacific
4378 Old Santa Fe Road
San Luis Obispo, CA 93401

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Earth Systems Pacific

4378 Old Santa Fe Road
San Luis Obispo, CA 93401-8116

(805) 544-3276 • FAX (805) 544-1786
E-mail: esp@earthsys.com

June 19, 2012

FILE NO.: SL-16784-SA

Mr. Michael Furlotti
Furlotti Family Ranch
4 Embarcadero Center, Suite 400
San Francisco, CA 94111

PROJECT: PASO ROBLES GATEWAY
VINE STREET
PASO ROBLES, CALIFORNIA

SUBJECT: Geotechnical Feasibility/Geologic Hazards Study andPercolation Test Results

REF: Proposal for Geotechnical Feasibility/Geologic Hazards Study and Percolation Testing, The Paso Robles Gateway, Vine Street, Paso Robles, California, by Earth Systems Pacific, Doc. No.: 1205-002.PRP, dated May 1, 2012

Dear Mr. Furlotti:

In accordance with your authorization of the referenced proposal, this study has been prepared to address the feasibility, from a geotechnical/geologic standpoint, of constructing the proposed Paso Robles Gateway project on Vine Street in Paso Robles, California. Percolation testing was also performed to assess the suitability of various areas of the site for on-site effluent disposal and for infiltration of storm water runoff. Preliminary conclusions and recommendations related to the development of the property, from a geotechnical and geologic standpoint, are presented to assist in the planning process. One bound copy and one electronic copy of the report are furnished for your use; as requested, two bound copies to North Coast Engineering, and additional electronic copies have been sent to members of the design team as indicated below.

We appreciate the opportunity to have provided services for this project and look forward to working with you again in the future. If there are any questions concerning this report, please do not hesitate to contact the undersigned.

Sincerely,

Earth Systems Pacific

REGISTERED PROFESSIONAL ENGINEER
ROBERT W. DOWN
No. 70206
Exp. 9/30/12
CIVIL
STATE OF CALIFORNIA

Robert Down, PE
Project Manager

PROFESSIONAL GEOLOGIST
RICHARD T. GORMAN
No. CEG 1325
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Richard T. Gorman
Certified Engineering Geologist

Copies to: Landsite, Inc., Attn: Daniel Lloyd
North Coast Engineering, Inc., Attn: Mr. Larry Werner and Mr. Greg Jaeger

Doc. No.: 1206-020.FEA/jr

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Appendix A	Boring and Percolation / Infiltration Test Location Map Boring Logs Boring Log Legend
Appendix B	Geologic Map Historical Earthquake / Fault Map
Appendix C	Percolation Test Data
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1.0 PROJECT DESCRIPTION

The Paso Robles Gateway project consists of a 270-acre master commercial and residential development proposed for annexation to the City of Paso Robles. The project will encompass three hotels, three commercial centers, twenty 1-acre custom residential lots, an on-site agricultural reservoir, and a network of interior roads. We understand that the agricultural reservoir will be lined and will have an earthen dam. On-site effluent disposal is planned for the custom residential lots. The road system will cross three seasonal drainages, which will necessitate the construction of bridges or culverts. On-site infiltration of some of the site's storm water runoff is planned via a system of Low Impact Design/Best Management Practices (LID/BMP) improvements, which are expected to encompass bio-retention swales, rain gardens, gravel swales, and retention ponds. These features may also include the use of dry wells and subsurface storage.

Three hotels are planned. The Destination Resort Hotel will be located in the southeastern region of the site. In addition to a main building, the hotel will encompass several detached cottages, some of which will border adjacent drainages. The Hillside Hotel will be located in the northern region of the site. The Vine Street Vineyard Hotel will be built on the easternmost hotel site, closest to Highway 101. Both of these hotels are anticipated to have two to three main buildings. For the purposes of this report, it is assumed that the main hotel buildings will be multi-story structures that will likely be of stud construction, with steel post, beam and moment frame elements. Slabs-on-grade are probable. It is assumed that the cottages associated with the Destination Resort Hotel will be one or two-story, wood-frame structures that may utilize slabs-on-grade, raised wood floors, or a combination. It is assumed that all of the hotel sites will include swimming pools, spas, and asphalt concrete parking lots.

There will be three commercial centers. The Farm Village Retail Center will be located in the eastern region of the site, and will be constructed in conjunction with Vine Street Vineyard Hotel. The Vine Street Commercial Flex Site will be constructed in the southeast region of the site. A third commercial site will lie to the east of the Hillside Hotel. It is assumed that the commercial centers will encompass retail stores, restaurants, and other services. For the purposes of this report, it is anticipated that the structures will be one or two-stories, of stud construction, and will utilize slabs-on-grade.

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Custom residential lots will be distributed through the northern portion of the property, with the majority of the lots in the northwest region. It is anticipated that the residential structures would be one or two stories, of stud construction, or a combination of stud and masonry construction. They are expected to utilize slabs-on-grade, raised wood floors, or a combination. On-site effluent disposal is planned for the residential sites. Due to the potential for steep slopes in the proximity of some of the effluent disposal areas, we understand that the use of drywells is under consideration to dispose of effluent on these lots. Drywell depths would be approximately 30 feet.

Access will be provided by a series of interior roads. A major road will provide ingress from Vine Street, and will loop around the site and branch off into several cul-de-sacs. A second entry to the project will provide access from Highway 46. It is assumed that the low-lying area adjacent to Highway 46 will be filled to create an embankment to support an entry road, which will then cross a bridge structure and connect to the loop road. It is assumed that the road system will be paved with asphalt concrete, and that retaining walls may be constructed in various areas to support slopes and as bridge abutments.

Grading of the project will entail several cut slopes. The highest cut slope is expected to be approximately 35 feet, and will be on the north side of the loop road, south of Lot 36. According to the grading and drainage plan prepared by the project civil engineer, North Coast Engineering (NCE), fills up to 50 feet deep are also anticipated. The location of the deepest fill will be in the parking lot area of the Hillside Hotel.

An LID Mitigation Plan has been prepared by NCE. The plan details potential locations for drainage features intended to reduce the velocity of storm water crossing the site. These improvements include gravel swales and bio-retention swales constructed along the roadways. Pervious pavements are planned to reduce the area of impermeable surfaces across the site. To contain or detail major storm runoff, thereby improving water quality and facilitating groundwater recharge, infiltration ponds are planned. Rain gardens are planned around some of the hotel and commercial developments. Dry wells may be added to some of these features to enhance infiltration potential.

Drainage crossings are proposed near the Destination Resort Hotel, near the Vine Street Vineyard Hotel, in the residential area in northwest region of the site, and near Highway 46. It is assumed that a bridge will be constructed to cross the drainage near Highway 46, and that culverts placed within trapezoidal fills will be used to cross the remaining drainages.

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2.0 SCOPE OF SERVICES

The scope of work for the geotechnical feasibility/geologic hazards study included research of geologic maps, review of existing geotechnical/geologic data contained in previous studies of the area, a site reconnaissance by a Registered Geotechnical Engineer and a Certified Engineering Geologist, field exploration, and geotechnical/geologic evaluation of data with respect to the proposed project. The study is based, in part, upon information and a conceptual site map provided by Landsite, Inc. (Landsite) and NCE. It is recognized that this map may be subject to change, but is referred to in this report in discussions of various site features.

The purpose of our study was to assess the major geotechnical and geologic issues that could potentially affect the project, thus providing a framework for continued project planning. The intent of this report is to provide information regarding general site characteristics, including identification of any geotechnical or geologic features that could constitute a constraint to the proposed use of the land for the proposed development, and to provide guidance for future geotechnical engineering or geologic studies. It is intended to be used by the client and the client's design team in the continued planning of the project.

In the event that there are any changes in the proposed development concept, or if any of the assumptions used in the preparation of this report prove to be incorrect, the conclusions contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report verified or modified by this firm in writing. Please note that this report is not intended as a design level document. The conclusions presented in this report are considered preliminary until such time as they are modified or verified by additional study such as that performed during a geotechnical engineering investigation. Evaluation or analyses of the soil for corrosivity, radioisotopes, hydrocarbons, or other chemical properties are beyond the scope of this report.

3.0 FIELD INVESTIGATION

Between May 10 and May 22, 2012, a total of 22 borings were drilled at the property. The borings were drilled to depths ranging from 10 to 40 feet. The approximate locations of the borings are shown on the Boring and Percolation/Infiltration Test Location Map (Appendix A.) A Mobile Drill rig, Model B-53, equipped with 4-inch and 6-inch diameter solid stem and 8-inch outside diameter hollow stem augers were used to drill the borings. As the borings were drilled, soil samples were retrieved using a ring-lined barrel sampler (ASTM D 3550-07, with shoe

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similar to D 2937-10) and Standard Penetration Tests (SPT) were conducted at selected depths (ASTM D 1586-11). Samplers were driven by means of an automatic trip hammer. Bulk soil samples were also obtained from the auger cuttings.

Soils encountered in the borings were categorized and logged in general accordance with the Unified Soil Classification System and ASTM D 2488-09a. Where rock was encountered, its properties were described based upon observation of ring or SPT samples, observation of the spoils, the effort required to drill into the rock, and the energy required to drive samplers into the rock.

Logs of the borings are presented in Appendix A, along with a boring log legend. In reviewing the boring logs and legend, the reader should recognize that the legend is intended as a guideline only, and there are a number of conditions that may influence the soil characteristics as observed during drilling. These include, but are not limited to, the presence of cobbles or boulders, cementation, variations in soil moisture, presence of groundwater, and other factors. Consequently, the logger must exercise judgment in interpreting soil and bedrock characteristics, possibly resulting in soil or bedrock descriptions that vary somewhat from the legend.

4.0 PERCOLATION TESTING

Percolation Tests for On-site Effluent Disposal

Shallow Percolation Tests (Tests A Through I). In the percolation test areas, exploratory borings were drilled to a minimum depth of 15 feet. At each test location, additional borings were drilled to depths of 3 to 5 feet for the purpose of percolation testing. Soils and rock encountered in the borings were classified as described previously. Each of the borings were cased with perforated PVC pipe, and the annular spaces were backfilled with gravel.

The percolation test borings were saturated on the day of drilling and/or the day prior to the testing. Following the saturation period, percolation test borings were refilled and the percolation rates were measured for 2 to 3.7 hours, until generally stabilized readings were obtained. The cased exploratory borings were later checked for the presence of groundwater. Following testing, the PVC pipes were removed and the borings were backfilled with auger cuttings.

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Deep Percolation Tests (Tests J Through L). In areas where drywells may be used, deep percolation tests were performed. At each test location, an exploratory boring and a deep percolation test boring was drilled. The percolation test borings were drilled to a maximum depth of 30 feet. The exploratory borings were drilled to depths of approximately 10 feet deeper than the percolation borings to demonstrate that no impermeable materials or groundwater were present within 10 feet of the bottom of the test borings. The test holes and the borings were cased with perforated PVC pipe, and the annular spaces were backfilled with gravel. The percolation test holes were saturated on the day of drilling. Following the saturation period, the test holes were refilled and the rate of percolation measured until stabilized readings were obtained. The cased exploratory borings later were checked for the presence of groundwater. Following testing, the upper portion of the PVC pipes were removed and the borings and test holes were backfilled with auger cuttings.

The results of both the shallow and deep percolation tests were tabulated and can be found in Appendix C.

LID/BMP Infiltration Testing (Tests M Through S)

Where the LID/BMP improvements are planned, a slightly different methodology was used. Each infiltration test consisted of a 15-foot profile boring and a 5-foot infiltration test boring. Seven locations were tested. Profile borings were left open overnight to observe potential groundwater. The infiltration test borings were cased with perforated PVC pipe, and the annular spaces backfilled with gravel. A water meter and a valve were used as the test borings were filled to approximately 0.5 foot below the ground surface. The valves were adjusted to maintain the water level for about 30 minutes. At the end of the 30-minute period, the valves were closed and the volumes of water introduced into each hole were recorded. As the water level dropped, the fall in each test boring was measured until the rate of fall stabilized.

Following testing, the PVC pipes were removed and the percolation test borings were backfilled with auger cuttings. The results of these tests are presented in Appendix C.

5.0 LABORATORY TESTING

The ring samples were tested for unit weight and moisture (ASTM D 2937-10, as modified for ring liners). Bulk samples were tested for maximum density vs. optimum moisture (ASTM D 1557-09), expansion index (ASTM D 4829-11) and R-value (ASTM D 2844-07). Direct shear tests (ASTM D 3080-11) were performed on three ring sample. Two samples were tested for unconfined compressive strength (ASTM D 2166-06). The laboratory test results can be found in Appendix D.

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6.0 SITE DESCRIPTION

The approximately 270-acre site is located northwest of the intersection of Highway 101 and Highway 46, south of the city of Paso Robles, California. Vine Street lies between the Highway 101 and the subject property: Theatre Drive parallels Highway 46. The surrounding area to the north and west is predominantly rural, with homes located on acreage properties and some agricultural land use, including vineyards and orchards. The area across Highway 101 is developed with commercial establishments. Highway 46 forms the southern boundary; across Highway 46 and along Theatre Drive are several hotels and a shopping center.

Topographically, the site encompasses several broad, gently sloping ridges separated by three major drainages. Two of the drainages are narrow incised drainages and are in the southern region of the site; an older, broad drainage crosses the central region. Vegetation consists predominantly of wild grasses and scattered trees on the slopes, with more dense concentrations of trees and riparian vegetation along the drainages.

7.0 GEOLOGIC SETTING

Regional Geology

The project area lies near the base of the eastern flanks of the Santa Lucia Mountain Range, within the Coast Ranges Geomorphic Province of California. The Coast Ranges Geomorphic Province is divided into two major blocks, the Salinian block and the Coastal block. The project area is within the Salinian block, which consists of a crystalline basement complex of primarily granitic and metamorphic rock units. The Salinian block is separated from the Coastal block to the west by the Sur-Nacimiento fault zone, and is bounded to the east by the San Andreas fault. The Rinconada fault trends through the middle of the Salinian block. This fault extends from the central part of the block to the north end, creating a sliver within the Salinian block. In the general project area, the basement rock units are overlain by Miocene-age Monterey Formation, early to late Plio-Pleistocene-age Paso Robles Formation, older alluvium and Holocene surficial alluvial deposits.

Local Geology and Geologic Units

Locally, the project area encompasses several broad, rounded, northwest-trending ridges. Two narrow incised drainages bound the ridges in the northern part of the site. An older, broad drainage crosses the central part of the site. A younger, narrow, incised drainage meanders within this broad drainage.

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Based on our site field exploration and review of the Geologic Map of the Templeton Quadrangle (Dibblee, 2004), the southern and northern parts of the project area are underlain predominantly by sandstone and claystone of the Paso Robles Formation. The Paso Robles Formation is a Plio-Pleistocene-age,, predominantly nonmarine geologic units comprising relatively thin, often discontinuous sand and gravel layers interbedded with thicker layers of silt and clay. It was deposited in alluvial fan, flood plain, and lake depositional environments. The formation is generally poorly sorted. In some areas, it is characterized by a rock-like structure, consistency, and hardness, and is described as a sandstone, siltstone, claystone, or conglomerate material. In others, the formation has more soil-like qualities, and is described as clayey sand, poorly graded sand, or well-graded sand with gravel.

The central region within the broad drainage is underlain by gravel, sand and clay older alluvium. Gravel, sand and clay (younger) alluvium is present within the drainages. The alluvial soils are generally coarser than the Paso Robles Formation sediments.

A geologic map of the site can be found in Appendix B.

Surficial and Soil Units (USSCS Classifications)

The Soil Survey of San Luis Obispo County, California, Paso Robles Area, prepared by the United States Department of Agriculture, Soil Conservation Service (USSCS, 1983), lists several soil types as being present at the site and describes their characteristics as follows:

Nacimiento-Los Osos Complex. Found on moderately steep to very steep slopes, this complex is characterized by slow permeability, rapid surface water runoff, high potential for erosion, and high shrink-swell potential. The broad swale area in the central part of the site is shown to be underlain by the Nacimiento-Los Osos Complex. The complex is about 40 percent Nacimiento silty clay loam and 25 percent Los Osos clay loam. Areas of these soils are so intricately mixed or so limited in extent that they are typically not mapped as individual units.

Linne-Calodo Complex. This complex tends to develop on slopes with gradients of 9 to 30 percent and is characterized by moderately slow permeability and high erosion potential. The complex is about 30 percent Linne shaly clay loam and 25 percent Calodo clay loam. The southwestern and northwestern parts of the site area underlain by the Linne-Calodo complex. Lockwood shaly loam, a subunit of the Linne-Calodo complex that is characteristically found on slopes ranging from 2 to 9 percent, is depicted as overlying the central region of the site.

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Please note that the classifications described above are based upon soil properties that differ from those used in the Unified Soil Classification System. The Unified Soil Classification System is generally used in the geotechnical engineering profession to classify soils based upon physical properties, and was the system used to generally classify soils encountered during our subsurface exploration.

Faulting

Active faults within a 65-mile radius are generally considered to have the greatest potential impact upon a particular site. Within this radius of the site are the Rinconada, San Andreas, Los Osos, and Hosgri-San Simeon faults. Regional faults and locations of historic earthquake events associated with these faults are shown on the Historical Earthquake/Fault Map in Appendix B.

Rinconada Fault. The main trace of the Rinconada Fault is located approximately 1.2 miles east of the site. It is the closest mapped active fault to the site. A secondary fault splay off the Rinconada Fault lies approximately 1/2 mile west of the site. Southeast of Santa Margarita, the Rinconada fault merges with the Nacimiento fault and continues across the Cuyama River Gorge to the San Rafael Mountains where it intersects the Big Pine fault. Northwestward, the Rinconada fault passes through Paso Robles and then branches into high-angle faults, locally called the San Marcos and Jolon faults (Burch and Durham, 1970). These faults are mapped as part of the Rinconada fault zone.

Although classified as potentially active under the California Alquist-Priolo Earthquake Fault Zoning Act, recent studies for the Santa Ysabel Ranch in Paso Robles and the Chicago Grade Landfill in Templeton have shown features that suggest Holocene (last 11,000 years) movement (Lew Rosenberg, personal communication 2008). Vertical displacements across the fault apparently were dominant in the Paleocene and Oligocene; however, the fault has accommodated approximately 11 miles of right-lateral offset from the Miocene to the present (Dibblee 2004). Jennings and Bryant (2010) classifies the fault as late Quaternary (i.e., displacement during the past 700,000 years), while Dibblee (2004) has indicated that the youngest unit or formation offset by the fault system is the Plio-Pleistocene Paso Robles Formation. Although no ground rupture has been mapped in Holocene time on the Rinconada Fault, there have been historical small to moderate earthquakes (< 5.9 magnitude) that have been recorded in the vicinity of the fault during the last 200 years, suggesting that the fault is active. It is possible that the shock waves produced by these small earthquakes did not have enough energy to break the ground surface or cause any displacement within the surface materials.

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San Andreas Fault. The most seismically active fault in California is the San Andreas Fault, which lies 27 miles to the northeast of the site. The San Andreas Fault is the primary surface boundary between the Pacific and North American plates and it is generally considered to be the most likely source for strong ground motion in the County. There have been numerous historic earthquakes along the San Andreas fault. The last major earthquake (magnitude 8.0 or greater) on this part of the fault was the 1857 event.

The San Andreas Fault undergoes a major change in character between Parkfield and Cholame. North of Cholame, the fault moves more or less constantly in a process called creep, whereas the south end of the fault is locked, moving only in very large earthquakes. An exception to this general pattern of movement occurs in what is known as the Parkfield segment. In the vicinity of Parkfield, there is a 20-mile segment that is locked, generating an earthquake approximately every 20 years on average. Dated quakes on this segment are 1881, 1901, 1922, 1934, 1966, and 2004, and are usually in the magnitude 5.5 to 6.0 range (Bakun 1988). A 6.0 magnitude earthquake last occurred on this fault segment on September 28, 2004 (USGS 2004).

Los Osos Fault. The Los Osos Fault is a west-northwest-trending reverse fault on the south side of the Los Osos Valley, along the northern flank of the Irish Hills. The fault is divided into four segments. The most westerly segment of the fault is the Estero Bay segment, which lies mostly offshore. The Irish Hills segment starts in the vicinity of Los Osos and extends to just past San Luis Obispo Creek. A two-mile length of the Irish Hills segment, west of Laguna Lake and near the westerly limit of the City of San Luis Obispo, is considered to be active (Treiman 1989) and is designated as an Alquist-Priolo Earthquake Fault Zone (Hart 1997, revised). This active segment lies about 23 miles to the southwest of the site. The other two segments of the Los Osos Fault are the Lopez Reservoir segment and the Newsome Ridge segment, both located southeast of the Irish Hills segment.

Hosgri-San Simeon Fault System. The Hosgri-San Simeon Fault System lies approximately 23 miles to the west of the site. A northwest-trending strike-slip fault, the San Simeon fault extends from offshore of Ragged Point to just offshore of San Simeon Point, where it joins the northern end of the Hosgri fault. From this point, the Hosgri fault extends to an ocean shelf 2 miles west of Point Buchon, and then trends toward the Point Sal area. The fault system is considered active by the United States Geologic Survey (Jennings & Bryant, 2010), based on Hall's claims of recent offset terrace deposits along San Simeon Cove, and also by a relocation of the 1927 "Lompoc Earthquake" onto the southern end of the Hosgri fault (Hall, 1975, 1976, 1977).

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On December 22, 2003, a 6.5 magnitude earthquake occurred approximately 6 miles northeast of San Simeon, California and approximately 26.5 miles north of the subject site. Analysis by the USGS and the University of California at Berkeley indicates that the event had a thrust (reverse-faulting) mechanism (Goel, 2004). The earthquake occurred in the vicinity of the northern end of the Hosgri-San Simeon fault.

8.0 GEOLOGIC/GEOTECHNICAL HAZARDS

Landsliding and Slope Instability. The San Luis Obispo County General Plan Safety Element (the Safety Element) identifies the project site as lying within an area of moderate landslide potential. The Safety Element states that the "moderate" designation applies to areas where slope gradients exceed 20 percent, even where the geologic units (such as the Paso Robles Formation) are not considered susceptible to slope instability and have no known history of previous landslides or slope instability.

A site reconnaissance was conducted by a Certified Engineering Geologist to observe the topography for indications of potential landslide and slope instability. No evidence of landslides or gross slope instability was observed in areas where development is proposed. There were some minor areas of shallow, surficial slumping on slopes adjacent to drainages, as well as some minor, isolated areas of surficial instability due to erosion. As these areas of minor instability are erosion-related, erosion protection measures implemented along the drainage channels should be sufficient to provide mitigation.

While the project site is considered grossly stable in its current state, alterations to the existing slopes during grading could result in slope instability if improper grading is performed, see discussion under "Cut and Fill Slopes."

Cut and Fill Slopes. It is anticipated that grading of cut and fill slopes can generally be accomplished using conventional grading equipment and techniques. Generally, it is anticipated that cuts in older alluvium or Paso Robles Formation will be grossly stable at a 2:1 slope; steeper cuts in Paso Robles Formation may be appropriate depending upon the conditions exposed at the time of construction. Where fill is to be placed, it will probably be necessary to construct a keyway at the toe of the fill, and to cut the natural slope to a series of level benches prior to the placement of fill.

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Loose or soft conditions were observed in several areas in the (younger) alluvium and topsoil that overlie the older alluvium and Paso Robles Formation. If significant cut slopes are planned in alluvium, stabilization fills may be necessary. With a stabilization fill, the face of the cut slope is overexcavated, regraded and compacted to provide stabilization. If slopes steeper than 2:1 in soil are necessary, use of geogrid reinforcement within a stabilized fill is an option. Stabilization fill could also be used in situations where cuts in Paso Robles Formation expose layers of non-cohesive sand and gravels, which could create an unstable plane within an otherwise stable slope. Depending upon the thickness of the sand or gravel layer, another option may be use of a geosynthetic fabric on the slope face to stabilize the layer.

Grading activities can create a potential for slope failure under certain circumstances, such as improper material removal from the base of a slope, or excavation/filling of slopes that results in too steep a gradient. Instability can result if drainage is improperly introduced into the area of a slope. Slope failure can also occur if fill is placed over a cut slope that has not been properly prepared, or if inappropriate fill materials are used. Provided that excavation, fill, and construction activities conform to the recommendations of the project geotechnical engineering report, Title 19 of the County of San Luis Obispo Building and Construction Ordinance, and the California Building Code, these types of slope instability issues should be mitigated.

Erosion. The erosion potential of soil is governed by the physical properties of the soil along with environmental factors such as rainfall, wind, topography, and vegetative cover. The USSCS (1983) identifies the soil types found at the project site as having moderate to high erosion potential. The highest erosion potential (and most difficult to mitigate) will probably be on slopes with steeper gradients, and along the outside bends of drainage channels. The potential for erosion could be increased if site development activities result in concentration of drainage or uncontrolled surface drainage, particularly in areas of steeper slopes.

Erosion potential can be reduced through the implementation of LID techniques and erosion control measures such as control of surface runoff, vegetation, straw bales, erosion matting, brow or V-ditches, mid-slope benches, and control of rodent activity. Drainage should discharge in a nonerosive manner away from improvements and, where slopes are present, away from the toes of the slopes.

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Erosion of drainage channel banks can be reduced by such measures as vegetation, erosion matting, rock rip-rap, gabions, or retaining walls.

Expansive Soils. Expansion index tests performed on samples resulted in values of 39 and 92, indicating low to high expansion potential. Expansive soils tend to swell with increases in soil moisture and shrink as soil moisture decreases; regionally, the upper 3 to 5 feet of soil is the zone most affected by these seasonal soil moisture fluctuations. The volume changes that the soils undergo in this cyclical pattern can stress and damage foundations and slabs-on-grade if precautionary measures are not incorporated in design and in the construction procedure.

To reduce the potential for damage to foundations and slabs due to expansive soils, precautionary measures should be incorporated into design and construction. For example, to protect foundations from the damaging effects of expansive soils, the foundations are generally deepened to depths below those required for nominal code compliance and bearing capacity. Depending upon how expansive the soil is, foundations are sometimes more heavily reinforced. Slab protection generally involves placement of nonexpansive material beneath the slab in conjunction with premoistening of subslab soils, or alternately, post-tensioned slab foundations could be used. Other options include conventionally reinforced mat foundations, construction of deep, nonexpansive pads, or deep foundations in conjunction with structural slabs. Control of drainage to reduce fluctuations in soil moisture in the vicinity of improvements is also important.

Springs and Seeps. No indication of seeps or springs was noted at the project site at the time of reconnaissance. However, the Paso Robles Formation, which underlies much of the site, comprises various mixtures of sand, silt, clay, and gravel that can be porous and conducive to spring or seep activity.

Settlement and Differential Settlement. Borings indicated that soil settlement may be an issue in certain building areas. Significant depths of alluvial soil were encountered in some areas; some of the alluvium was characterized by loose soil conditions with high settlement potential. Settlement will be of particular concern where the alluvium will support deep fills, or where high concentrated loads such as those that may be planned for multi-story structures or bridge abutments are planned. There are a number of engineering solutions available to mitigate settlement potential of the soil. These include overexcavation and recompaction of loose soils, overexcavation and recompaction with using more suitable soils, surcharging to induce settlement prior to construction, cement or lime treatment of fill soil, and use of deep foundations.

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The determination of the most appropriate and cost-effective approach will depend upon the final design and grading concepts for the buildings, and the proposed locations and depths of fills.

Another geotechnical concern is the potential for *differential* settlement. Differential settlement occurs when a foundation of a particular structure spans two materials having different settlement characteristics, such as alluvium and Paso Robles Formation. Typically, the alluvium would be expected to settle more than the Paso Robles Formation under the loads imposed by structures or fill soil. Other situations that could create differential settlement would be where a structure would span cut and fill, or fills of varying depths. Differential settlement can stress and possibly damage foundations, slabs, and other rigid improvements, often resulting in severe cracks and displacement. To reduce this potential, it is necessary for all foundations of an individual structure to bear in sufficiently uniform material. This may involve: 1) extending all foundations to bear in more uniform strata, or 2) overexcavating the denser stratum and replacing it with compacted soil.

The determination of which alternative is most appropriate will depend upon the final locations of, and grading concepts for, each structure. Where significant grading is proposed, it would be prudent to plan grading and siting of structures in such a manner that the building footprints will be entirely in cut or entirely in fill, insofar as practicable. Proper attention to grading and siting of structures to take the subsurface conditions into account will reduce the need for overexcavation and recompaction of building pads, or the use of deep foundations, and thus may reduce the expenditure necessary to develop the site.

The Paso Robles Formation will provide relatively high bearing capacities with a lower potential for settlement than the alluvium. For conventional footings bearing in Paso Robles Formation, bearing capacities in the range of 2,000 to 3,500 psf are anticipated. For foundations bearing in compacted fill, bearing capacities are expected to be in the range of 1,500 to 2,500 psf.

Grading Considerations. Where significant cuts are made, it is likely that Paso Robles Formation will be exposed or will be very shallow. Exceptions will be along the drainages or in the area of the Vine Street Vineyard Hotel and Farm Village Retail Center, where alluvium is present. Where fill is to be placed on a natural slope, it will be necessary to construct a keyway at the toe of the fill, and to cut the natural slope to level benches prior to the placement of fill.

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Near drainages, drains, usually referred to as "back drains," are likely to be recommended in the fill. The need for back drains in the fill should be further discussed in a geotechnical engineering report, and should be finally assessed depending upon the conditions encountered during construction. It is expected that the excavated native material will be largely suitable for use as general fill.

It is anticipated that the topsoil, alluvium, older alluvium and Paso Robles Formation material will be able to be excavated with conventional earthwork equipment. Greater difficulty may be encountered in deeper cuts where harder, less weathered Paso Robles Formation is encountered.

The soils are expansive and, while they are suitable for use as general fill material, use of a more granular, easily compacted soil may be recommended for utility trench backfill. Where utility trenches will be constructed on slopes, sand-cement slurry or lean concrete plugs (seepage collars) with gravel pocket drains will likely be recommended to reduce the potential for subsurface water to gain access to, and potentially wash out, utility trench backfill.

Ground Shaking. The site is located in a seismically active area, as is most of California. The site has the potential to experience strong ground shaking from earthquakes on regional and/or local active (causative) faults. There are several faults in the vicinity of the site that are capable of producing strong ground motion, including the San Andreas Fault, the Rinconada Fault, the Los Osos Fault, and the Hosgri-San Simeon Fault System. During an earthquake along any of these faults, seismically induced ground shaking would be expected to occur. The severity of the shaking will be influenced by the distance of the site to the seismic source and the soil conditions. Where groundwater is present, it can also affect the severity of ground shaking.

Ground Surface Rupture Due to Faulting. Surface rupture is the displacement and cracking of the ground surface that occurs along a fault trace. Unlike seismically induced ground shaking, which can affect a wide geographic area, surface rupture is confined to the area very near the fault. The project site is not located in an Alquist-Priolo State Earthquake Fault Zone, and there are no mapped active faults adjacent to or crossing the site. Therefore, the potential for surface ground rupture to occur at the site is considered to be low.

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Liquefaction and Lateral Spreading. Soil liquefaction is the loss of soil strength during a significant seismic event. Liquefaction potential is influenced by such factors as soil type, depth to groundwater, degree of seismic shaking, and density of the soil. It occurs most commonly in saturated, loose to medium-dense, fine to medium-grained sands, and sandy silts. Common types of liquefaction-related ground failure include differential settlement and lateral spreading. In some cases, cracks in the ground surface occur, allowing mixtures of sand and water to be released at the surface in cone-shaped deposits known as "sand boils." Lightweight buried structures, such as pipelines or underground tanks, may float to the surface.

The Safety Element identifies the eastern region of the site as being within an area of moderate liquefaction potential, while the western region of the site is shown to have a low potential. The more current San Luis Obispo County Geologic Liquefaction Risk map 2007 shows only the southeastern corner of the site to be located within an area of moderate liquefaction risk.

No subsurface water was encountered in any of the borings drilled. Based on the conditions observed in the borings and during our site reconnaissance, there may be a potential for liquefaction to occur where alluvial soils are present to significant depths, particularly near drainages where subsurface water may also be present. Liquefaction potential should be addressed in the project geotechnical engineering investigation.

Lateral spreading is a phenomenon that is associated with liquefaction. Slopes may become unstable during liquefaction, and level areas near descending slopes may move laterally toward the slope as the slope becomes unstable. A potential for lateral spreading may exist along drainage channel banks.

Tsunamis and Seiches. Vertical ground displacement due to submarine faulting occurring at a great distance or just offshore from a site may cause hazardous tsunamis along the California coastline. Due to the distance to the Pacific Ocean, there is no potential for a tsunami to affect the site.

A seiche is a single water wave that can be generated in a reservoir, pond, water storage tank, or swimming pool as the result of long-period surface waves normally generated by strong local earthquakes or larger earthquakes at farther distances. The proposed development will include an agricultural reservoir and swimming pools. In view of these proposed improvements, a potential for seiches will exist once the site is developed.

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If a seiche were to occur, there is a potential that the berms enclosing the agricultural reservoir could be overtopped, which could lead to flooding and erosion of downslope areas. This potential could be mitigated by designing the reservoir with sufficient freeboard to accommodate the seiche waves, or in such a manner that overtopping of the berms could occur without damage to downslope areas due to flooding or erosion.

The potential for seiches occurring in swimming pools to adversely impact the surrounding areas is considered too insignificant to require mitigation.

9.0 CONSTRAINTS ANALYSIS

Destination Resort Hotel

The hotel, parking lot, and some of the cottages will be sited atop a broad, grass-covered ridge; additional cottages will border the adjacent drainages to the north and southwest. At the site of the destination resort hotel, 8 feet of topsoil and older alluvium was encountered above the Paso Robles Formation (Boring 3). The depth to the Paso Robles Formation appears to decrease to the south and west. The topsoil and older alluvium comprised clayey sand; the topsoil was in a loose condition and the older alluvium was dense. No subsurface water was observed.

It is anticipated that conventional foundations can be utilized for the main hotel building, pending an appropriate earthwork program that will likely be necessary to remove the loose topsoil and promote higher soil density and more uniform soil conditions. Differential settlement may be an issue depending upon the final grading concept, due to the presence of the Paso Robles Formation and older alluvium at somewhat shallow depths; however, this potential can be readily mitigated by an appropriate grading program or by ensuring that foundations bear in sufficiently uniform material.

The cottages to the north of the main hotel building will be located along the outside bend of the thread of the drainage, where the potential for erosion is high. An adequate setback from the drainage for those buildings will be necessary and protection/stabilization of the bank might be appropriate to reduce future erosion potential. While no unstable conditions were observed in the drainage, there is a concrete headwall that appears to be constricting flow and causing water to pond.

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The cottages to the southwest of the main hotel are depicted as closely bordering the top of the bank. There is a spillway in this part of the drainage and what appears to be a small agricultural pond. Paso Robles Formation is exposed in the bank. The bank is over-steepened, which appears to be the result of an excavation made to source fill for construction of the pond rather than erosion or inherent instability of the slope. The steep gradient of the bank is causing accelerated erosion. An adequate setback from the bank for the cottages will be necessary, and erosion protection will be essential to halt the erosion.

Soils are likely to be expansive. Depending upon the materials exposed following final grading, expansive soil mitigation is likely to be necessary.

The soils are moderately to highly erodible, and control of drainage during and following construction will be essential. Erosion protection measures along the creek will likely be necessary to reduce the potential for erosion.

Hillside Hotel

The Hillside Hotel will be sited in gently sloping terrain along a broad, northwest trending ridgeline. The building site is currently vegetated with wild grasses and an almond orchard. The parking lot that will be constructed to serve the hotel extends into a drainage. Grading proposed for this area will involve the placement of as much as 50 feet of fill with only minor cuts. A boring drilled at the Hotel (Boring 13) yielded a profile consisting of 1.5 feet of topsoil above Paso Robles Formation. A boring drilled in the vicinity of the parking lot (Boring 12) revealed 3.5 feet of alluvium over older alluvium, which extended to the termination depth of the boring at 10 feet.

Geotechnical issues affecting development of this area of the site include the potentials for settlement of the proposed fill, differential settlement, and erosion. The potential for settlement of the fill will be increased as stormwater infiltration is planned for this area. Differential settlement is a concern as the structure may span both fill and Paso Robles Formation. To reduce the potential for excessive settlement of the proposed fill and differential settlement across the building, an earthwork program to remove the alluvium, densify the underlying soils, and develop greater uniformity of soil conditions across the building site is expected be necessary. It is anticipated that the hotel building can be founded on conventional continuous and spread footing foundations, provided that an appropriate earthwork program is performed prior to construction. Soils are likely to be expansive, and expansive soil mitigation should be planned.

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A potential for liquefaction and lateral spreading may exist in the area of the drainage. If a liquefaction potential is found to exist, mitigation may be necessary if structures are planned for this area or to assess the stability of the slope supporting the large fill. Such mitigation might include overexcavation and recompaction of soils or drainage systems to mitigate subsurface water flow. As current plans show the proposed parking lot extending into the drainage area, earthwork will be necessary to remove unsuitable materials and to properly establish a base for placement of fill soil. Subdrains may also be recommended for this area.

The soils are moderately to highly erodible, and control of drainage during and following construction will be essential.

Vine Street Vineyard Hotel

The Vine Street Vineyard Hotel will be located in the eastern region of the property, near Highway 101. A parking lot will lie to the north. The hotel buildings will wrap around the base of a rounded knoll and extend northerly into a broad drainage. A boring drilled in this area (Boring 10) revealed topsoil, alluvium, and older alluvium to a depth of 16.5 feet. Loose conditions were encountered from the surface to 2 feet, and between 8 and 15 feet.

The primary geotechnical issues affecting this site appear to be the loose soil conditions that extend to significant depths, a potential for liquefaction, and the proposed location of a building and a swimming pool near the creek bank. If a liquefaction potential is found to exist, the mitigation measures implemented to address the loose soils should also incorporate mitigation of liquefaction potential. Such measures could include an earthwork program to densify the soil conditions, mat foundations, or deep foundations. As the proposed building site extends into a drainage area, an earthwork program will probably be necessary to remove unsuitable materials and to properly establish a base for placement of fill soil. The building, pool, and any associated retaining walls will need to be set back an appropriate distance from the drainage, or founded appropriately to avoid the impacts of future erosion. This drainage is characterized by gently sloping banks and a low energy environment, so its erosion potential is expected to be less than other drainages at the site.

It is anticipated that conventional foundations can be utilized for the main hotel buildings, pending an appropriate earthwork program that will likely be necessary to promote higher soil density and more uniform soil conditions. Differential settlement may be an issue depending

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upon the final grading concept, due to the siting of the buildings around the knoll; however, this potential can be readily mitigated by an appropriate grading program or by ensuring that foundations bear in sufficiently uniform material.

Soils are likely to be expansive, and expansive soil mitigation will likely be necessary.

The soils are moderately to highly erodible, and control of drainage during and following construction will be essential. Erosion protection measures along the creek will likely be necessary to reduce the potential for erosion.

Farm Village Retail Center

The Farm Village Retail Center will be located to the north of the Vine Street Vineyard Hotel. A boring drilled in this area (Boring 11) revealed alluvium extending to the termination depth of the boring at 16 feet, with soft or loose conditions throughout most of the depth of the boring. The primary geotechnical concerns at this site are the soft or loose soil conditions that extend to a significant depth, and establishing appropriate subgrade conditions prior to placement of fill. An earthwork program will likely be necessary to mitigate the soft/loose soil conditions and remove unsuitable materials prior to placement of fill soil.

It is anticipated that the retail center can be founded on conventional continuous and spread footing foundations, provided that an appropriate earthwork program is performed prior to construction. Soils are likely to be expansive, and expansive soil mitigation will likely be necessary.

The soils are moderately to highly erodible, and control of drainage during and following construction will be essential. Erosion protection measures along the drainage will likely be necessary to reduce the potential for erosion.

Vine Street Commercial Flex Site

The Vine Street Commercial Flex Site is located in the southeast region of the site. Two borings were drilled in this area. Boring 5 revealed a profile of 2 feet of loose clayey sand topsoil above dense to medium dense older alluvium. Boring 6 encountered 2.5 feet of loose clayey sand topsoil above loose to medium dense clayey sand with gravel older alluvium. The loose conditions in Boring 6 extended to a depth of 9 feet.

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The primary geotechnical issues at this site are the high settlement potential due to the loose soil conditions in part of the site, the potential for differential settlement, and erosion. To reduce the potential for excessive settlement as well as excessive differential settlement, an earthwork program to densify the underlying soils, and promote more uniform conditions across the building sites is expected be necessary. It is anticipated that the building can be founded on conventional continuous and spread footing foundations, provided that an appropriate earthwork program is performed prior to construction. Soils are likely to be expansive, and expansive soil mitigation should be planned.

The soils are moderately to highly erodible, and control of drainage during and following construction will be essential.

Hillside Commercial (Former Winery Site)

This commercial site lies east of the Hillside Hotel. Boring 14 was drilled at the site, and indicated a profile of older alluvium extending to a depth of 16.5 feet. Conditions within the older alluvium were medium dense to loose. The primary geotechnical issues at this site are settlement potential and erosion. To reduce settlement potential, an earthwork program to densify the soil and promote more uniform conditions across the building area is expected be necessary. It is anticipated that the building can be founded on conventional continuous and spread footing foundations, provided that an appropriate earthwork program is performed prior to construction. Soils are likely to be expansive, and will likely require mitigation.

The soils are moderately to highly erodible, and control of drainage during and following construction will be essential.

Custom Residential Lots

Borings 7, 8, 9, 15, 16, 17, 19, 20, 21, and 22 were drilled in the areas proposed for custom residential lots. In general, the custom residential lots, in their current configuration, are distributed along the ridges of the property where the Paso Robles Formation tends to be shallow. Depending upon the grading concept for each lot, the primary geotechnical concern is likely to be the potential for differential settlement. To mitigate this potential, it will be necessary for all foundations of an individual structure to bear in sufficiently uniform material. This may involve: 1) extending all foundations to bear in the Paso Robles Formation or 2) overexcavating the soil units and Paso Robles Formation in the proposed foundation area and

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replacing them with compacted soil. The determination of which alternative is most appropriate will depend upon the final locations and grading concepts for each residence. Soils are likely to be expansive, and will likely require mitigation.

The soils are moderately to highly erodible, and control of drainage during and following construction will be essential.

Drainage Crossings

Drainage crossings are proposed near the Destination Hotel, near the Vine Street Vineyard Hotel and near Highway 46. It is assumed that a bridge will be constructed to cross the drainage near Highway 46, and that culverts placed within trapezoidal fills will be used to cross the minor drainages.

Highway 46 Crossing. Adjacent to Highway 46, there is an approximately 20-foot tall embankment that descends at a 1.5:1 slope from Highway 46 to an older stream terrace. The terrace extends over 100 feet to the drainage, which is a well-incised high energy drainage with steeply sloping banks. There is debris evident along the drainage banks, suggesting that this area may be have been used as a local dumping ground in the past. Fill soil may also be present along the banks. A boring (Boring 1) drilled on the south side of the drainage indicate that alluvial soils are present to significant depths, while a boring (Boring 2) drilled on the north side of the drainage revealed Paso Robles Formation at a depth of 2.5 feet.

The primary geotechnical concerns at the bridge site are the potential for differential settlement, the potential for liquefaction, the necessity of placing a deep fill to provide the approach from Highway 46 to the bridge, and erosion. A geotechnical engineering investigation will be necessary to assess liquefaction potential and to develop foundation design criteria for the drainage crossing. From a geotechnical standpoint, a bridge would be a more feasible alternative for this drainage crossing than a culvert. Placement of fill across this drainage would necessitate removal of the debris and unsuitable soils to a significant depth prior to fill placement. Erosion of a soil embankment and stability of the fill slopes would be of concern due to the high energy environment of this drainage. A major culvert structure and deep cut off walls would be necessary. A bridge structure would eliminate the need for removal of existing fill soil and debris, as well as eliminate the need for benching and keying of the new fill, thus reducing earthwork costs and resulting in less disturbance to the creek environment.

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Due to the variable profiles on the north and south sides of the creek, the presence of debris within the soils adjacent to the drainage, and to mitigate liquefaction potential (if any), a deep foundation may be the most appropriate option for support of the bridge.

Placement of a deep fill will likely be necessary to create an approach to the bridge from Highway 46. The soils in the area where the fill will be placed are alluvial materials. These materials will likely have a moderate settlement potential under the weight of the fill. An earthwork program will probably be necessary to densify the alluvial soils prior to fill placement. The earthwork program should be developed as part of the geotechnical engineering investigation, as should recommendations for placement of the fill to reduce settlement within the fill. These measures could include increasing the relative compaction specification, using granular soils as fill, and/or the use of geogrids.

Minor Drainage Crossings. The remainder of the drainage crossings will be relatively minor and no significant issues of geotechnical or geologic concern were noted in any of the proposed crossing areas. Earthwork programs involving removal of unsuitable soil materials and establishing an appropriate subgrade prior to placement of fill are likely to be recommended. Cut off walls may be necessary in environments where shallow subsurface water may be present. Near the Vine Street Commercial center, soft alluvial soils were present to significant depths and soil settlement may be an issue. The potential for settlement should be addressed in a geotechnical engineering investigation.

Road Construction

When an R-value (resistance to deformation under repeated loading) test was performed on a sample of clay soil, the sample extruded from the test apparatus. When this situation occurs, ASTM protocol requires that that the test result be reported as "less than 5." For the purposes of calculating pavement design sections, however, a value of 0 is typically used for such cases. The test results indicate that the clay soil has very low resistance to the type of loads imposed by traffic. A sample of the clayey sand yielded a value of 29. Based upon these R-values, moderate to thick aggregate base sections should be anticipated. Where pavement will overlie in situ Paso Robles Formation, minimum pavement sections will probably be adequate.

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A major cut slope is planned on the north side of the loop road, south of Lot 36. It is anticipated that the cut will expose Paso Robles Formation for most of its height. The Paso Robles Formation is a sedimentary formation that contains non-cohesive sand and gravel layers. If one of these layers is exposed in the cut slope, gross or surficial instability could result. To mitigate the potential for gross instability, it may be necessary to regrade the slope to buttress any non-cohesive layer, possibly with geotextile stabilization. Surficial stabilization might also be necessary and would generally be in the form of geotextiles or other specialized fabrics placed on the slope, combined with the establishment and maintenance of vegetative cover.

Retaining Walls

Due to the sloping topography, it is assumed that retaining walls will be needed in various locations throughout the site. The on-site clayey soils will exert moderate to high lateral pressures on the walls; active equivalent fluid pressures in the range of 45 to 55 pcf should be anticipated. The pressures imposed on walls that retain in-place Paso Robles Formation will be dependent upon the type of backfill used. Clean sand or gravel backfill will apply the least pressure, on the order of 30 pcf. At-rest pressures for rigid walls will be about 15 pcf higher than the active pressures. Any upslope conditions retained above the walls will add to these values.

Lateral resistance will be derived from passive pressure and friction of the footings on the bearing material. Passive resistance of 200 to 300 pcf (equivalent fluid pressure) for the soil and is anticipated; for the Paso Robles Formation, passive resistance will likely be on the order of 300 to 500 pcf. The friction coefficients will probably range from about 0.30 to 0.45 for clay soil and Paso Robles Formation, respectively. Bearing capacities for retaining wall foundations will be similar to building foundation bearing capacities.

Proper drainage of retaining walls and thorough waterproofing of walls where transmission of moisture is undesirable will be essential, particularly for walls built near drainages where subsurface water could be present.

Agricultural Reservoir

Boring 17 was drilled at the site of the agricultural reservoir. The profile encountered consisted of 3 feet of clayey sand topsoil above Paso Robles Formation. As we understand that the reservoir will be lined, percolation of the soil will not be an issue. It is anticipated that a grading program for the reservoir will likely involve removal of the topsoil, and establishing a keyway at the base of the fill that would extend into the underlying Paso Robles Formation. The Paso Robles Formation should provide stable bearing strata for the reservoir.

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10.0 PERCOLATION TEST RESULTS

Shallow Effluent Disposal Systems

One set of three shallow percolation tests was performed in each of the three main residential areas. Design of shallow systems is typically based upon the test results recorded in final 30 minutes of the test. The majority of the final individual readings were relatively consistent with values of 5.2 to 8.0 minutes per inch. Test D generated more rapid percolation of 4.1 minutes per inch, while Test E generated the slowest reading of 15 minutes per inch. Based upon these rates, it is anticipated that the sites will be suitable for shallow effluent disposal systems utilizing conventional septic tanks and leachfields.

Deep Effluent Disposal Systems

One deep percolation test was also performed in each of the three main residential areas. The upper approximately 10 feet of the test boring was not tested, as it was assumed that these shallow soils would not be utilized due to the need to set back from slopes. The series of readings performed for Tests J and L produced a typical rates between 1.1 and 4.1 minutes per inch, while Test K exhibited a typical rate as low as 50 minutes per inch. It should be noted that deep percolation tests often exhibit more rapid percolation rates than shallow tests; however, this can be due in part to the much greater head of water rather than any marked difference in the soil characteristics. In addition, at this site, the Paso Robles Formation contains zones of permeable material that create avenues for infiltration, and more of these zones can be exploited in a deeper test boring.

Test K was observed to have water remaining in the test boring the day following saturation.

Stormwater Infiltration

Seven locations were designated by NCE for testing of infiltration potential for shallow stormwater infiltration systems. The test results indicated that while potential for stormwater infiltration at shallow depths exists, it is variable and somewhat limited. Where infiltration of significant volumes of stormwater is desired, it is likely that deep dry wells will need to be incorporated into the system design.

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Unlike percolation-based systems for effluent disposal, no local jurisdictional guidelines for design of LID infiltration systems have been established at the time that this report was prepared. Consequently, it is incumbent upon the design engineer to design the LID infiltration system based upon judgment and experience, taking into consideration such factors as infiltration rates, size of the test borings in relation to the size of the LID feature, site variability, frequency and effectiveness of system maintenance, and sediment load entering the system. Raw test values are typically reduced by factors of 5 to 30.

11.0 CONCLUSIONS

While there are some geotechnical and geologic issues at the site that may affect design and construction of the proposed project, the issues identified are fairly typical of the central California coastal region and can be readily mitigated by appropriate project planning, design, and construction. The primary geotechnical/geologic concerns are the potentials for erosion, soil settlement, expansive soils, and slope instability. Seismicity is also a concern, as it is throughout California, and there is a potential for liquefaction and possibly lateral spreading in some areas of the site. Site-specific soils geotechnical engineering investigations will be necessary for major improvements, and the geotechnical/geologic characteristics of each specific development site will need to be taken into consideration in project design, construction, and cost projections.

12.0 CLOSURE

This report is valid for conditions as they exist at this time for planning the type of development described herein. Our intent was to perform this feasibility study in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the locality of this project under similar conditions. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client as discussed in the Scope of Services section. Application beyond the stated intent is strictly at the user's risk.

If changes with respect to assumed development type or location become necessary, if items not addressed in this report are incorporated into plans, or if any of the assumptions used in the preparation of this report are not correct, this firm should be notified for modifications to this report.

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The preliminary conclusions presented in this geotechnical/geologic feasibility study are based upon the geotechnical and geologic conditions encountered at the site as indicated by a site reconnaissance and a limited number of borings, and should be confirmed (or modified) by appropriate geotechnical engineering investigations once the project reaches the appropriate stage.

This document, the data, conclusions, and recommendations contained herein are the property of Earth Systems Pacific. This report shall be used in its entirety, with no individual sections reproduced or used out of context. Copies may be made only by Earth Systems Pacific, the client, and his authorized agents for use exclusively on the subject project. Any other use is subject to federal copyright laws and the written approval of Earth Systems Pacific.

Thank you for this opportunity to have been of service. If you have any questions, please feel free to contact this office at your convenience.

End of Text

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APPENDIX A

Boring and Percolation / Infiltration Test Location Map
Boring Logs
Boring Log Legend

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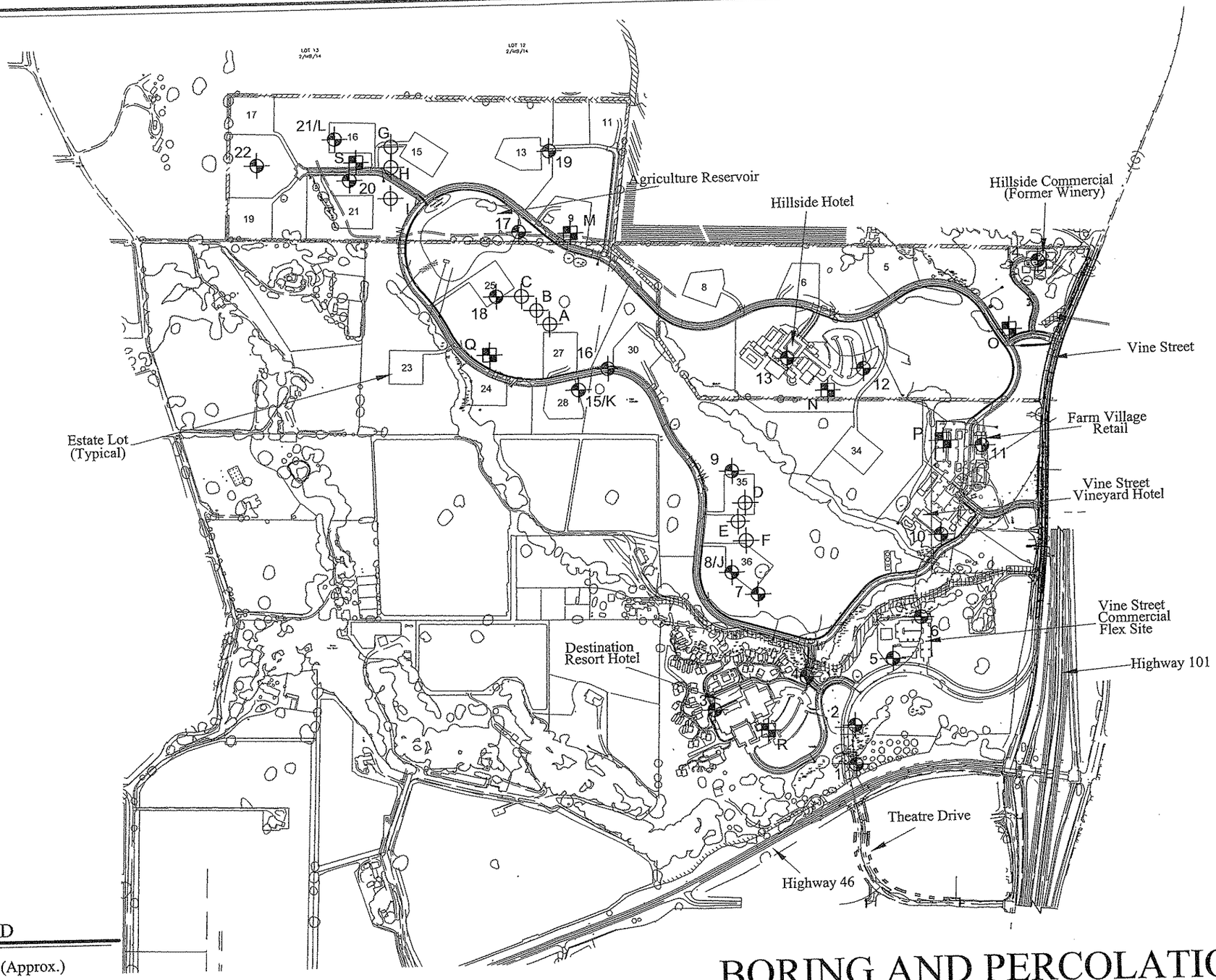

LEGEND

- 22 — Boring Location (Approx.)
- A-L — Percolation Test Location (Approx.)
- M-S — Infiltration Test Location (Approx.)

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NOT TO SCALE

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SL-16784-SA

May 25, 2012

SB

BORING AND PERCOLATION / INFILTRATION LOCATION MAP

PASO ROBLES GATEWAY

Vine Street
Paso Robles, California

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PASO ROBLES GATEWAY—051212borings

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Boring No. 1
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JOB NO.: SL-16784-SA
DATE: 05/10/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark brown, medium dense, slightly moist, trace fine gravel (Alluvium)	0.0–5.0	○			
5				5.0–6.5	▬	9.8	6.0	6 9 9
10			moist, trace caliche deposits, trace coarse gravel	10.0–11.5	▬	101.7	16.8	7 14 15
15				15.0–16.5	▬	94.6	22.4	8 20 40
20				20.0–21.5	●			8 8 11
22			End of Boring @ 21.5' No subsurface water encountered					

LEGEND: ▬ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

SOIL DESCRIPTION

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark brown, medium dense, slightly moist (Alluvium)					
1			moist					
2								
3			SANDSTONE: light tan to white, soft, slightly moist (Paso Robles Formation)					
4								17
5				5.0–6.5	■	93.7	11.1	38
6								50
7								
8								
9			trace fine gravel					12
10				10.0–11.5	●			14
11								12
12								
13			CLAYSTONE: tan, soft, moist, caliche veins					
14								12
15				15.0–16.5	●			15
16								30
17			SANDSTONE: light tan to white, moderately hard, slightly moist					
18								9
19				19.0–20.5	●			11
20								21
21			End of Boring @ 20.5'					
22			No subsurface water encountered					
23								
24								
25								
26								

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: grey brown, loose, dry, trace fine gravel (Topsoil)					
2			moist					
3			CLAYEY SAND: light orange brown, dense, slightly moist (Older Alluvium)					
4			moist	4.5–5.5	■	96.4	18.4	7 24 47
8			SANDSTONE: light gray, very soft, moist, some fine gravel (Paso Robles Formation)	9.0–10.5	●			4 12 14
13				14.0–15.5	●			9 8 8
15			End of Boring @ 15.5' No subsurface water encountered					

LEGEND: ■ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: gray brown, loose, dry, trace fine to coarse gravel (Topsoil)					
4			CLAYEY SAND WITH GRAVEL: light orange brown, dense, moist, caliche deposits, fine to coarse gravel (Older Alluvium)	4.0–5.5	Ring	100.9	17.3	11, 32, 39
9			CLAYSTONE: light brown, very soft, slightly moist, caliche deposits (Paso Robles Formation)	9.0–10.5	SPT			4, 12, 15
14			trace fine gravel	14.0–15.5	SPT			7, 12, 23
19				19.0–20.5	SPT			5, 11, 17
21			End of Boring @ 20.5' No subsurface water encountered					

LEGEND: Ring Sample; Grab Sample; Shelby Tube Sample; SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: gray brown, loose, dry, trace fine gravel (Topsoil)					
2			CLAYEY SAND WITH GRAVEL: light brown, dense, slightly moist, fine to coarse gravel (Older Alluvium)					
4			medium dense	5.0–6.5	■	98.5	16.7	11, 32, 39
9				10.0–11.5	●			4, 12, 15
11			End of Boring @ 11.5' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: gray brown, loose, dry, trace fine to coarse gravel (Topsoil)					
3			CLAYEY SAND WITH GRAVEL: gray brown, loose, moist (Older Alluvium)	4.0–5.5	Ring	76.7	17.0	5 6 7
9			light gray brown, medium dense	9.0–10.5	Ring	95.4	17.4	3 11 16
13			less gravel	14.0–15.5	SPT			6 8 6
15			increased gravel content					
19				19.0–20.5	SPT	NO RETURN		5 9 11
20			End of Boring @ 20.5' No subsurface water encountered					

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LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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DATE: 05/10/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 4" Solid Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: gray brown, medium dense, slightly moist (Topsoil)					
1			SANDSTONE: light orange brown, soft, slightly moist, weathered, clayey (Paso Robles Formation)					
2								
3								
4								
5								
6								
7			fine gravel layer					
8			light tan to white, gravel ends					
9								
10								
11			CLAYSTONE: tan, soft, slightly moist					
12								
13								
14			light orange brown					
15								
16								
17								
18								
19			moderately hard, moist					
20								
21								
22								
23			soft					
24								
25								
26								

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LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 7
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JOB NO.: SL-16784-SA
DATE: 05/10/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 4" Solid Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
27			CLAYSTONE: as above					
28								
29								
30			moderately hard					
31								
32								
33			soft					
34								
35			moderately hard					
36								
37			hard					
38								
39								
40			End of Boring @ 40.0' No subsurface water encountered					
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 8/Percolation Test J

LOGGED BY: T. Conroy
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/22/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CL		SANDY LEAN CLAY: dark brown, moist, stiff, some fine gravel (Topsoil)					
4			SANDY CLAYSTONE: light brown, moist, soft, trace fine gravel (Paso Robles Formation)					
9			orange brown, gravel ends					
16			CLAYEY SANDSTONE: red brown, moist, moderately hard, some coarse gravel					
20			SANDY CLAYSTONE: brown to red brown, moist, soft					
25			CLAYEY SANDSTONE: red brown, moist, moderately hard					

LEGEND: ▬ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Earth Systems Pacific

Boring No. 8/Percolation Test J

LOGGED BY: T. Conroy
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/22/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
27			CLAYEY SANDSTONE: as above					
28			SANDY CLAYSTONE: light brown, moist, soft					
29								
30			End of Boring @ 30.0' No subsurface water encountered					
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 9
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JOB NO.: SL-16784-SA
DATE: 05/10/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark gray, medium dense, slightly moist (Topsoil)	1.0–5.0	○			
1–2			SANDSTONE: white to light tan, soft, slightly moist (Paso Robles Formation)					
3			moist					
4–5				5.0–6.5	■	91.7	30.2	8, 19, 24
6			CLAYSTONE: light orange brown, soft, very moist					
7–8			moist					
9								6, 11, 15
10				10.0–11.5	●			
10–11			SANDY CLAYSTONE: light orange brown, soft, moist					
12			abundant fine to coarse gravel layer					
13–14								21, 14, 11
15				15.0–16.5	●			
16								
17			End of Boring @ 16.5' No subsurface water encountered					
18–26								

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 10
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: brown, loose, dry, trace fine gravel (Topsoil)					
2	SC		CLAYEY SAND WITH GRAVEL: brown, medium dense, very moist, fine to coarse gravel (Alluvium)	5.0–6.5	■	86.8	19.5	6, 17, 19
8	SW		WELL GRADED SAND WITH GRAVEL: brown, loose, moist, trace clay, fine gravel	10.0–11.5	●			6, 7, 7
15	SC		CLAYEY SAND WITH GRAVEL: light brown, dense, moist, fine to coarse gravel (Older Alluvium)	15.0–16.5	●			11, 22, 26
16			End of Boring @ 16.5' No subsurface water encountered					

LEGEND: ■ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 11
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CH		SANDY FAT CLAY dark brown, soft, dry (Alluvium)	1.0–4.0	○			
4			medium stiff, moist	5.0–6.5	■	97.9	16.7	9, 20, 26
8	SW		WELL GRADED SAND WITH GRAVEL: brown, loose, moist, trace clay, fine gravel	10.0–11.5	●			3, 4, 6
15			increased gravel content	15.0–16.0	●			17, 50/6.0"
16			End of Boring @ 16.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 12
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CH		SANDY FAT CLAY WITH GRAVEL: dark brown, medium stiff, dry, fine gravel (Alluvium)					
4	SC		CLAYEY SAND: light orange brown to light brown, medium dense, slightly moist, caliche deposits, trace fine gravel (Older Alluvium)					
8			moist					
10			End of Boring @ 10.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 13
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: brown, loose, dry (Topsoil)					
1–4			SANDSTONE: light orange brown, soft, slightly moist, caliche deposits (Paso Robles Formation)					
5				5.0–6.5	Ring	98.5	17.1	9, 24, 29
6–9								
10				10.0–11.5	SPT			7, 13, 18
11–12			orange brown, some clay					
13–15								
15				15.0–16.5	SPT			8, 15, 19
16–17			End of Boring @ 16.5' No subsurface water encountered					
18–26								

LEGEND: Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 14
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JOB NO.: SL-16784-SA
DATE: 05/16/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC	CLAYEY SAND WITH GRAVEL: brown, medium dense, slightly moist, fine gravel (Older Alluvium)					
3		moist					
4		very moist	5.0–6.5	Ring	85.6	24.1	8, 17, 17
10		loose	10.0–11.5	SPT			5, 5, 6
15			15.0–16.5	SPT			3, 4, 7
16.5		End of Boring @ 16.5' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 15/Percolation Test K

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/16/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: brown, loose, dry, trace cobbles (Topsoil)					
1			SANDSTONE: orange brown, soft, slightly moist, trace fine to coarse gravel and cobbles (Paso Robles Formation)					
5			cobbles end					
9			fine gravel, moderately hard					
15			soft					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 15/Percolation Test K

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/16/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
27			SANDSTONE: as above					
30			End of Boring @ 30.0' No subsurface water encountered					

LEGEND: ▬ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 16
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JOB NO.: SL-16784-SA
DATE: 05/16/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 4" Solid Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND WITH GRAVEL: brown, loose, dry, fine gravel (Topsoil)					
1			SANDSTONE: orange brown, very soft, slightly moist (Paso Robles Formation)					
13			trace fine gravel					
18			brown, gravel ends					
21			CLAYSTONE: gray brown, soft, slightly moist					
26								

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 16
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JOB NO.: SL-16784-SA
DATE: 05/16/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 4" Solid Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
27			CLAYSTONE: as above					
28								
29			trace fine gravel					
30								
31								
32								
33								
34			moderately hard					
35								
36								
37								
38			some sand					
39								
40			End of Boring @ 40.0' No subsurface water encountered					
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 17
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark brown, medium dense, slightly moist (Topsoil)					
2			brown					
3			SANDSTONE: light brown, soft, slightly moist, caliche deposits (Paso Robles Formation)	5.0–6.5	■	103.7	10.0	11 37 50/4.5"
8			thin fine gravel lenses	10.0–11.5	●			2 14 19
11.5			End of Boring @ 11.5' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 18
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JOB NO.: SL-16784-SA
DATE: 05/10/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND WITH GRAVEL: dark orange brown, medium dense, slightly moist, fine to coarse gravel (Older Alluvium)	0.0–5.0	Grab			
5				5.0–6.5	Ring	102.1	9.0	11, 18, 17
6			SANDSTONE: brown, soft, moist, clayey, some fine gravel (Paso Robles Formation)					
10				10.0–11.5	SPT			7, 6, 8
15				15.0–16.5	SPT			11, 14, 17
16			End of Boring @ 16.5' No subsurface water encountered					

LEGEND: Ring Sample; Grab Sample; Shelby Tube Sample; SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 19
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0 - 1	SC		CLAYEY SAND: brown, medium dense, dry (Topsoil)					
2 - 3			SANDSTONE: light orange brown, very soft, dry (Paso Robles Formation)					
4 - 7			orange brown, slightly moist, soft					
8 - 9			some clay					
10 - 26			End of Boring @ 11.5' No subsurface water encountered					

LEGEND: ■ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 20
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 4" Solid Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: brown, loose, dry (Topsoil)					
1			SANDSTONE: orange brown, very soft, slightly moist (Paso Robles Formation)					
7			trace caliche deposits					
11			light gray brown, soft					
15			light orange brown					
18			CLAYSTONE: orange brown, soft, moist					
25			trace fine gravel					

LEGEND: ■ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 20
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 4" Solid Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
27			CLAYSTONE: as above					
30			moderately hard					
35			hard					
36			End of Boring @ 36.0' No subsurface water encountered					

LEGEND: ▬ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 21/Percolation Test L

LOGGED BY: T. Conroy
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/22/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CL		SANDY LEAN CLAY: dark brown, slightly moist, medium stiff (Topsoil)					
2			CLAYEY SANDSTONE: light brown to red brown, moist, soft (Paso Robles Formation)					
6			trace caliche deposits					
12			SANDY CLAYSTONE: light brown, moist, soft					
17			orange brown, some fine to coarse gravel					
22			CLAYEY SANDSTONE: light brown, moist, moderately hard, some fine to coarse gravel					

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LEGEND: ▬ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 21/Percolation Test L

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
27			CLAYEY SANDSTONE: as above					
30			End of Boring @ 30.0' No subsurface water encountered					

LEGEND: Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Boring No. 22
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JOB NO.: SL-16784-SA
DATE: 05/15/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark brown, loose, dry, trace fine gravel (Topsoil)					
3			SANDSTONE: orange brown, very soft, slightly moist, caliche deposits (Paso Robles Formation)					
5				5.0–6.5	Ring	87.1	17.4	10, 24, 45
8			light brown, soft					
10				10.0–11.5	SPT			11, 18, 22
13			moderately hard					
15				15.0–16.5	SPT			15, 27, 43
16			End of Boring @ 16.5' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Earth Systems Pacific

Percolation Test A

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark brown, medium dense, slightly moist (Topsoil)					
2			brown					
3			SANDSTONE: light brown, soft, slightly moist, caliche deposits (Paso Robles Formation)					
4			End of Boring @ 4.0' No subsurface water encountered					

LEGEND: Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Earth Systems Pacific

Percolation Test B

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0 - 2	SC		CLAYEY SAND: dark brown, medium dense, slightly moist (Topsoil)					
			brown					
3 - 5			SANDSTONE: light brown, soft, slightly moist, coliche deposits (Paso Robles Formation)					
			End of Boring @ 5.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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City of Paso Robles
Community Development Dept.

Earth Systems Pacific

Percolation Test C

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark brown, medium dense, slightly moist (Topsoil)					
1								
2			brown					
3			SANDSTONE: light brown, soft, slightly moist, caliche deposits (Paso Robles Formation)					
4			End of Boring @ 4.0' No subsurface water encountered					
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Community Development Dept.

Earth Systems Pacific

Percolation Test D

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/10/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark gray, medium dense, slightly moist (Topsoil)	1.0–5.0	○			
1–4			SANDSTONE: white to light tan, soft, slightly moist (Paso Robles Formation)					
4			End of Boring @ 4.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Earth Systems Pacific

Percolation Test E

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/10/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark gray, medium dense, slightly moist (Topsoil)	1.0–5.0	○			
1–4			SANDSTONE: white to light tan, soft, slightly moist (Paso Robles Formation)					
4			End of Boring @ 4.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Percolation Test F

LOGGED BY: T. Conroy/R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/22/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CL		SANDY LEAN CLAY: dark brown, moist, stiff, some gravel (Topsoil)					
4		× × ×	SANDY CLAYSTONE: light brown, moist, soft, fine grained, trace fine gravel (Paso Robles Formation)					
4.5			End of Boring @ 4.5' No subsurface water encountered					

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LEGEND: ▬ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Percolation Test G

LOGGED BY: T. Conroy
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/22/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0 - 1	CL		SANDY LEAN CLAY: dark brown, slightly moist, medium stiff (Topsoil)					
2 - 4			CLAYEY SANDSTONE: light brown to red brown, moist, soft (Paso Robles Formation)					
5			End of Boring @ 4.5' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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City of Paso Robles
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Earth Systems Pacific

Percolation Test H

LOGGED BY: T. Conroy
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/22/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CL		SANDY LEAN CLAY: dark brown, slightly moist, medium stiff (Tosoil)					
2			CLAYEY SANDSTONE: light brown to red brown, moist, soft (Paso Robles Formation)					
4			End of Boring @ 4.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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City of Paso Robles
Community Development Dept.

Earth Systems Pacific

Percolation Test I

LOGGED BY: T. Conroy
DRILL RIG: Mobile B-53
AUGER TYPE: 8" Hollow Stem

JOB NO.: SL-16784-SA
DATE: 05/22/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0 - 1	CL		SANDY LEAN CLAY: dark brown, slightly moist, medium stiff (Topsoil)					
2 - 5			CLAYEY SANDSTONE: light brown to red brown, moist, soft (Paso Robles Formation)					
5 - 6			End of Boring @ 4.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Infiltration Test M

PAGE 1 OF 1

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/10/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND WITH GRAVEL: dark orange brown, medium dense, slightly moist, fine to coarse gravel (Alluvium)	0.0–5.0	○			
5			End of Boring @ 5.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Earth Systems Pacific

Infiltration Test N

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: brown, loose, dry (Topsoil)					
1–5			SANDSTONE: light orange brown, soft, slightly moist, caliche deposits (Paso Robles Formation)					
5			End of Boring @ 5.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Infiltration Test O

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CL		SANDY LEAN CLAY WITH GRAVEL: dark brown, medium stiff, dry, fine gravel (Topsoil)					
4	SC		CLAYEY SAND: light orange brown to light brown, medium dense, slightly moist, caliche deposits, trace fine gravel (Older Alluvium)					
5			End of Boring @ 5.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Infiltration Test P

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark brown, loose, dry (Alluvium)	1.0–5.0	◯			
5			End of Boring @ 5.0' No subsurface water encountered					

LEGEND: ▬ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Infiltration Test Q

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: dark brown, medium dense, slightly moist (Topsoil)					
2			brown					
3			SANDSTONE: light brown, soft, slightly moist, caliche deposits (Paso Robles Formation)					
5			End of Boring @ 5.0' No subsurface water encountered					

LEGEND: ■ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Infiltration Test R

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/11/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: gray brown, loose, dry, trace fine gravel (Topsoil) moist					
3			CLAYEY SAND: light orange brown, dense, slightly moist (Older Alluvium)					
5			End of Boring @ 5.0' No subsurface water encountered					

LEGEND: ▬ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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Infiltration Test S

LOGGED BY: R. Wagner
DRILL RIG: Mobile B-53
AUGER TYPE: 6" Solid Stem

JOB NO.: SL-16784-SA
DATE: 05/15/12

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SC		CLAYEY SAND: brown, loose, dry (Topsoil)					
1			SANDSTONE: orange brown, very soft, slightly moist (Paso Robles Formation)					
5			End of Boring @ 5.0' No subsurface water encountered					

LEGEND: ▬ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

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BORING LOG LEGEND

SAMPLE / SUBSURFACE WATER SYMBOLS	GRAPH. SYMBOL
CALIFORNIA MODIFIED	
STANDARD PENETRATION TEST (SPT)	
SHELBY TUBE	
BULK	
SUBSURFACE WATER DURING DRILLING	
SUBSURFACE WATER AFTER DRILLING	

SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS	GROUP SYMBOL	TYPICAL DESCRIPTIONS	GRAPH. SYMBOL
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS TESTED OR JUDGED TO BE LARGER THAN #200 SIEVE SIZE)	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
	GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES	
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES	
	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
	SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES	
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES	
FINE GRAINED SOILS (HALF OR MORE OF MATERIAL IS TESTED OR JUDGED TO BE SMALLER THAN #200 SIEVE SIZE)	ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY, CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY	
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY, SILTY SOILS, ELASTIC SILTS	
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

OBSERVED MOISTURE CONDITION

DRY	SLIGHTLY MOIST	MOIST	VERY MOIST	WET
LITTLE/NO MOISTURE	JUDGED BELOW OPTIMUM	JUDGED ABOUT OPTIMUM	JUDGED OVER OPTIMUM	SATURATED

TYPICAL CONSISTENCY

COARSE GRAINED SOILS

BLOWS/FOOT		DESCRIPTIVE TERM
SPT	CA SAMPLER	
0-10	0-16	LOOSE
11-30	17-50	MEDIUM DENSE
31-50	51-83	DENSE
OVER 50	OVER 83	VERY DENSE

FINE GRAINED SOILS

BLOWS/FOOT		DESCRIPTIVE TERM
SPT	CA SAMPLER	
0-2	0-3	VERY SOFT
3-4	4-7	SOFT
5-8	8-13	MEDIUM STIFF
9-15	14-25	STIFF
16-30	26-50	VERY STIFF
OVER 30	OVER 50	HARD

GRAIN SIZES

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENING		
# 200	# 40	# 10	# 4	3/4"	3"	12"

SILT & CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

TYPICAL ROCK HARDNESS

MAJOR DIVISIONS	TYPICAL DESCRIPTIONS
EXTREMELY HARD	CORE, FRAGMENT, OR EXPOSURE CANNOT BE SCRATCHED WITH KNIFE OR SHARP PICK; CAN ONLY BE CHIPPED WITH REPEATED HEAVY HAMMER BLOWS
VERY HARD	CANNOT BE SCRATCHED WITH KNIFE OR SHARP PICK; CORE OR FRAGMENT BREAKS WITH REPEATED HEAVY HAMMER BLOWS
HARD	CAN BE SCRATCHED WITH KNIFE OR SHARP PICK WITH DIFFICULTY (HEAVY PRESSURE); HEAVY HAMMER BLOW REQUIRED TO BREAK SPECIMEN
MODERATELY HARD	CAN BE GROOVED 1/16 INCH DEEP BY KNIFE OR SHARP PICK WITH MODERATE OR HEAVY PRESSURE; CORE OR FRAGMENT BREAKS WITH LIGHT HAMMER BLOW OR HEAVY MANUAL PRESSURE
SOFT	CAN BE GROOVED OR GOUGED EASILY BY KNIFE OR SHARP PICK WITH LIGHT PRESSURE, CAN BE SCRATCHED WITH FINGERNAIL; BREAKS WITH LIGHT TO MODERATE MANUAL PRESSURE
VERY SOFT	CAN BE READILY INDENTED, GROOVED OR GOUGED WITH FINGERNAIL, OR CARVED WITH KNIFE; BREAKS WITH LIGHT MANUAL PRESSURE

TYPICAL ROCK WEATHERING

MAJOR DIVISIONS	TYPICAL DESCRIPTIONS
FRESH	NO DISCOLORATION, NOT OXIDIZED
SLIGHTLY WEATHERED	DISCOLORATION OR OXIDATION IS LIMITED TO SURFACE OF, OR SHORT DISTANCE FROM; SOME FRACTURES PRESENT; FELDSPAR CRYSTALS ARE DULL
MODERATELY WEATHERED	DISCOLORATION OR OXIDATION EXTENDS FROM FRACTURES, USUALLY THROUGHOUT; Fe-Mg MINERALS ARE "RUSTY"; FELDSPAR CRYSTALS ARE "CLOUDY"
INTENSELY WEATHERED	DISCOLORATION OR OXIDATION THROUGHOUT; FELDSPAR AND Fe-Mg MINERALS ARE ALTERED TO CLAY TO SOME EXTENT OR CHEMICAL ALTERATION PRODUCES IN SITU DISAGGREGATION
DECOMPOSED	DISCOLORATION OR OXIDATION THROUGHOUT, BUT RESISTANT MINERALS SUCH AS QUARTZ MAY BE UNALTERED; FELDSPAR AND Fe-Mg MINERALS ARE COMPLETELY ALTERED TO CLAY

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Community Development Dept.

APPENDIX B

Geologic Map
Historical Earthquake / Fault Map

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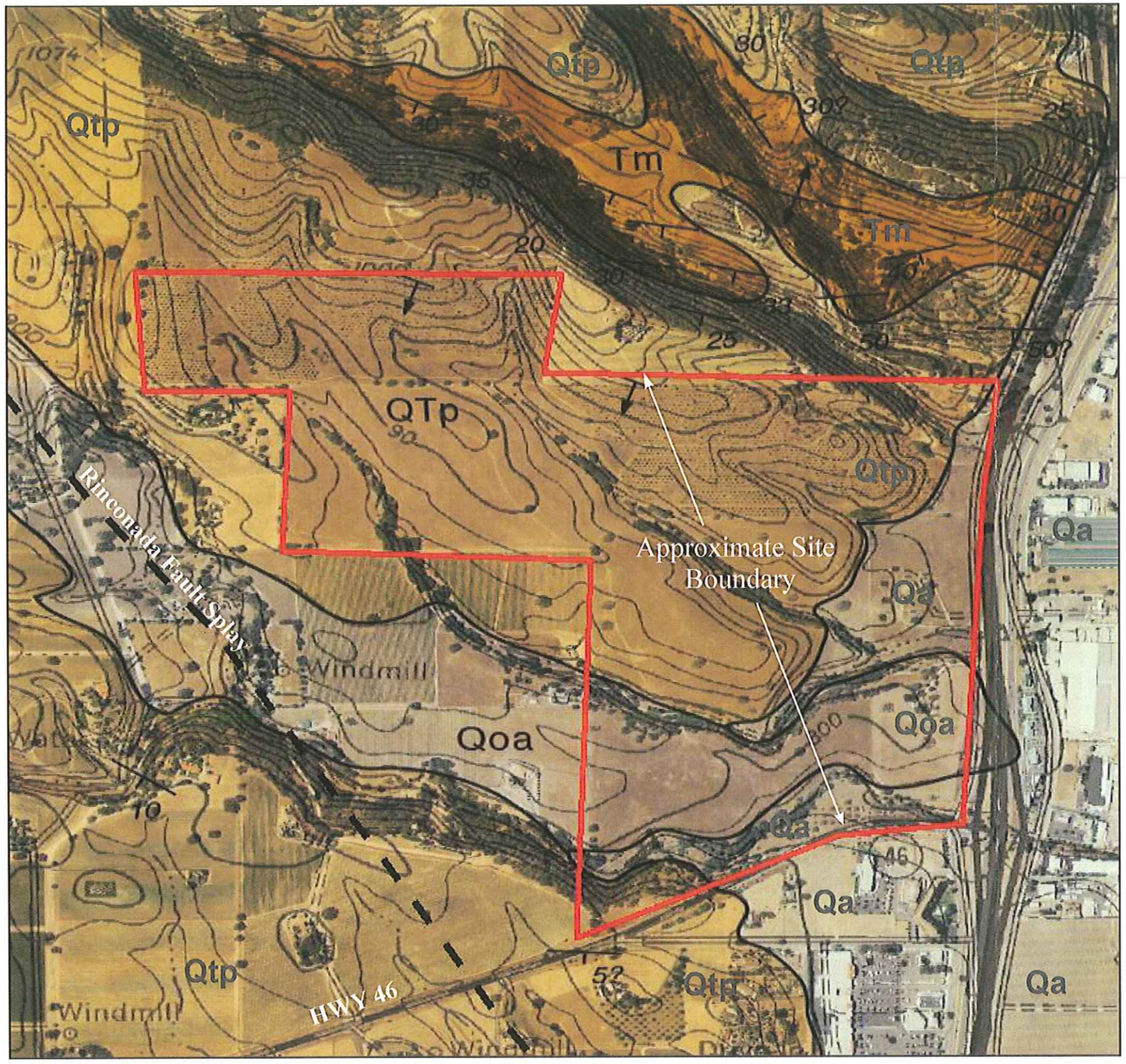
City of Paso Robles
Community Development Dept.

GEOLOGIC MAP

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California



Extract from: Geologic Map of the Templeton Quadrangle, San Luis Obispo County, California: by T.W. Dibblee, Jr., 2004.

EXPLANATION

Geologic Units

Qa

Surficial Sediments
-alluvial gravel & sand of valley areas

Qoa

Older Surficial Sedimets
-dissected terrace remnants of older alluvial gravel & sand

QTp

Paso Robles formation
- pebble, gravel sand and clay, sandstone and claystone, light medium gray, Pleistocene age

Tm

Monterey formation
Upper member-shale, siliceous, white, weathered, thin bedded, platy porcelonous, locally cherty, brittle late Miocene

Geologic Symbols

Contact
Dashed where approximately located or inferred

High-angle fault
Dashed where approximately located or inferred; dotted where concealed

Thrust or reverse fault
Dashed where approximately located or inferred; dotted where concealed. Saw-teeth on upper plate. Dip of fault plane between 30° and 80°

Anticline
Showing axis at surface. Dashed where approximately located; dotted where concealed

Syncline
Showing axis at surface. Dashed where approximately located; dotted where concealed

30 90
Horizontal Inclined Vertical
Strike and dip of beds

N

Approx. Scale: 1" = 700'

Earth Systems Pacific

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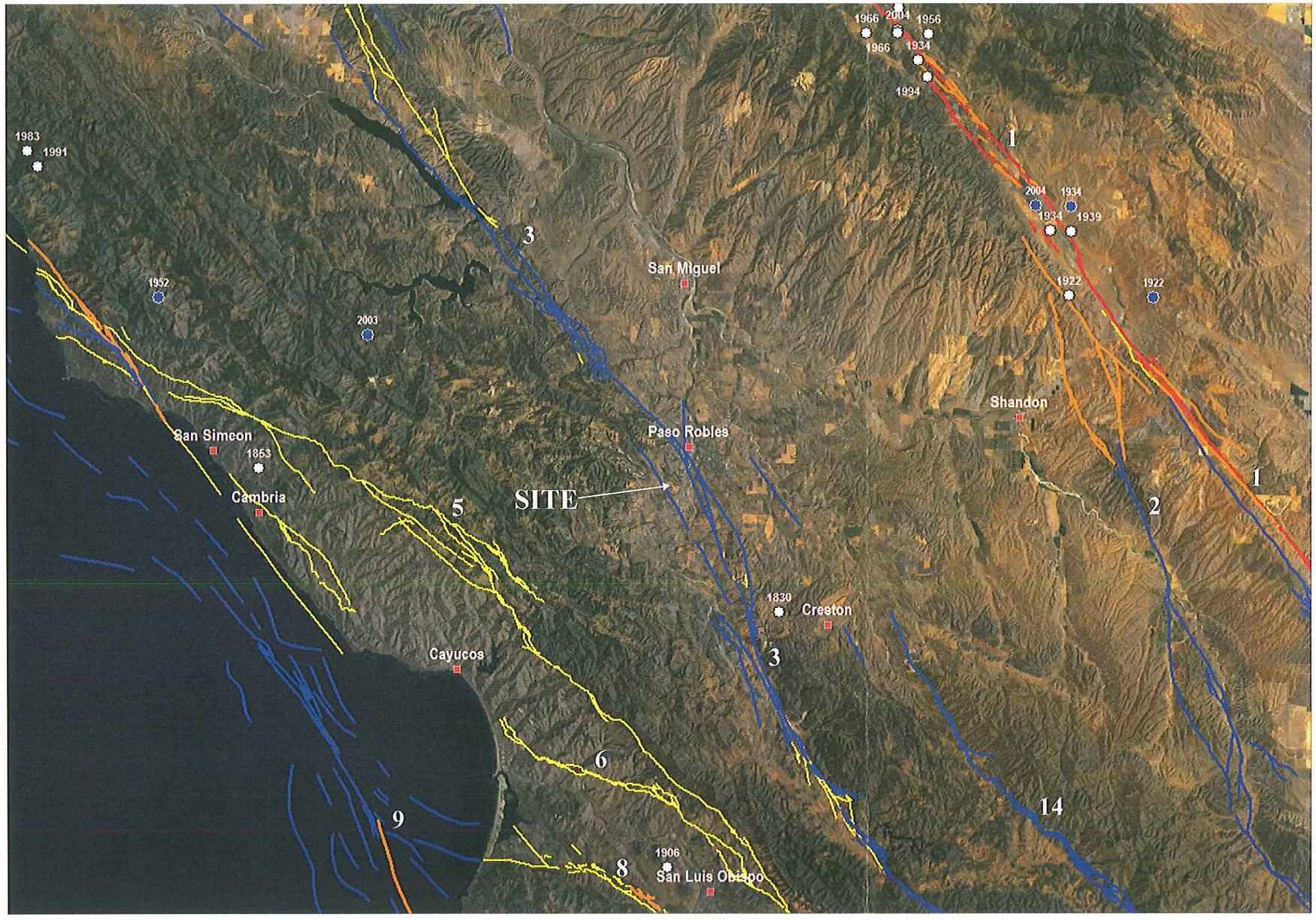
June 2012

Paso Gateway EIR Appendix
Received 9/28/20
City of Paso Robles
Community Development Dept.

HISTORICAL EARTHQUAKE/ FAULT MAP

PASO ROBLES GATEWAY
Vine Street
Paso Robles, California



LEGEND

- Historic rupture (<200 years)
- Holocene fault (<10,000 years)
- Late Quaternary (<700,000 years)
- Quaternary fault (<1.6 million)

HISTORICAL EARTHQUAKE MAGNITUDE

○ 5.0 to 5.9 ● 6.0 to 6.9 ● 7.0 to 7.9

FAULTS

1	San Andreas	11	Casmalia
2	San Juan	12	Lions Head
3	Rinconada	13	Oceano
4	East Huasna	14	La Panza
5	Oceanic	15	South Cuyama
6	Cambria		
7	West Huasna		
8	Los Osos		
9	Hosgri-San Simeon		
10	San Luis Range		

Note: Not all faults are shown on map

REFERENCES

Blake, T.F., EQSEARCH, 2000, updated 2009
Jennings, C.W, 1994

N

(Approximate Scale: 1" = 6 miles)

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City of Paso Robles
2/28/20
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June 2012

APPENDIX C

Percolation Test Data

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

Paso Robles Gateway

SL-16784-SA

PERCOLATION TEST RESULTS

Boring/Test: A
Date Drilled: 5/10/2012
Date Tested: 5/11/2012
Technician: RD

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.0 Feet
Test Duration: 2.0 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
2:59 PM	0.00	3.17	---	---	---
3:27 PM	28.00	3.79	0.63	3.7	16.1
REFILL					
3:28 PM	---	3.17	---	---	---
3:59 PM	31.00	3.63	0.46	5.6	10.6
12:50 PM					
3:59 PM	---	3.17	---	---	---
2:00 PM	-119.00	3.54	0.38	-26.4	-2.3
REFILL					
4:28 PM	---	3.33	---	---	---
4:58 PM	30.00	3.75	0.42	6.0	10.0

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PERCOLATION TEST RESULTS

Boring/Test: B
Date Drilled: 5/10/2012
Date Tested: 5/11/2012
Technician: RD

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.8 Feet
Test Duration: 2.0 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
2:57 AM	0.00	3.92	---	---	---
3:26 AM	29.00	4.36	0.44	5.5	11.0
REFILL					
3:27 AM	---	3.96	---	---	---
4:01 AM	34.00	4.38	0.42	6.8	8.8
12:50 PM					
4:02 AM	---	3.92	---	---	---
2:00 PM	598.00	4.21	0.29	170.9	0.4
REFILL					
4:31 AM	---	4.00	---	---	---
4:59 AM	28.00	4.29	0.29	8.0	7.5

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PERCOLATION TEST RESULTS

Boring/Test: C
Date Drilled: 5/10/2012
Date Tested: 5/11/2012
Technician: RD

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.0 Feet
Test Duration: 2.1 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
2:55	0.00	3.33	---	---	---
3:25	30.00	3.79	0.46	5.5	11.0
REFILL					
3:26	---	3.21	---	---	---
4:04	38.00	3.83	0.63	5.1	11.8
12:50 PM					
4:06	---	3.17	---	---	---
14:00	594.00	3.54	0.38	132.0	0.5
REFILL					
4:33	---	3.25	---	---	---
5:01	28.00	3.63	0.38	6.2	9.6

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PERCOLATION TEST RESULTS

Boring/Test: D
Date Drilled: 5/10/2012
Date Tested: 5/11/2012
Technician: RD

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.0 Feet
Test Duration: 2.0 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
3:08	0.00	3.13	---	---	---
3:34	26.00	3.88	0.75	2.9	20.8
REFILL					
3:35	---	3.17	---	---	---
4:04	29.00	3.88	0.71	3.4	17.6
12:50 PM					
4:05	---	3.08	---	---	---
14:00	595.00	3.75	0.67	74.4	0.8
REFILL					
4:38	---	3.13	---	---	---
5:08	30.00	3.73	0.60	4.1	14.5

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PERCOLATION TEST RESULTS

Boring/Test: E
Date Drilled: 5/10/2012
Date Tested: 5/11/2012
Technician: RD

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.0 Feet
Test Duration: 2.0 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
3:10	0.00	3.27	---	---	---
3:36	26.00	3.58	0.31	6.9	8.7
REFILL					
3:37	---	3.29	---	---	---
4:07	30.00	3.50	0.21	12.0	5.0
12:50 PM					
4:08	---	3.33	---	---	---
14:00	592.00	3.50	0.17	296.0	0.2
REFILL					
4:39	---	3.42	---	---	---
5:09	30.00	3.58	0.17	15.0	4.0

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PERCOLATION TEST RESULTS

Boring/Test: F
Date Drilled: 5/10/2012
Date Tested: 5/11/2012
Technician: RD

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.5 Feet
Test Duration: 2.0 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
3:12	0.00	3.29	---	---	---
3:38	26.00	3.88	0.58	3.7	16.2
REFILL					
3:39	---	3.31	---	---	---
4:09	30.00	3.81	0.50	5.0	12.0
12:50 PM					
4:10	---	3.38	---	---	---
14:00	590.00	3.79	0.42	118.0	0.5
REFILL					
4:40	---	3.38	---	---	---
5:10	30.00	3.77	0.40	6.3	9.5

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PERCOLATION TEST RESULTS

Boring/Test: G
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: BK

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.5 Feet
Test Duration: 3.7 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
8:08	0.00	3.71	---	---	---
8:33	25.00	4.25	0.54	3.8	15.6
REFILL					
8:33	---	3.69	---	---	---
8:53	20.00	4.04	0.35	4.7	12.8
12:50 PM					
8:53	---	3.67	---	---	---
14:00	307.00	4.17	0.50	51.2	1.2
REFILL					
9:23	---	3.71	---	---	---
9:53	30.00	4.21	0.50	5.0	12.0
REFILL					
9:53	---	3.79	---	---	---
10:08	15.00	4.06	0.27	4.6	13.0
REFILL					
10:08	---	3.71	---	---	---
10:43	35.00	4.31	0.60	4.8	12.4
REFILL					
10:43	---	3.67	---	---	---
11:18	35.00	4.25	0.58	5.0	12.0
REFILL					
11:18	---	3.75	---	---	---
11:48	30.00	4.23	0.48	5.2	11.5

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PERCOLATION TEST RESULTS

Boring/Test: H
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: BK

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.0 Feet
Test Duration: 3.7 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
8:09	0.00	3.29	---	---	---
8:34	25.00	3.88	0.58	3.6	16.8
REFILL					
8:34	---	3.31	---	---	---
8:54	20.00	3.73	0.42	4.0	15.0
12:50 PM					
8:54	---	3.33	---	---	---
14:00	306.00	3.88	0.54	47.1	1.3
REFILL					
9:24	---	3.42	---	---	---
9:54	30.00	3.85	0.44	5.7	10.5
REFILL					
9:54	---	3.31	---	---	---
10:09	15.00	3.54	0.23	5.5	11.0
REFILL					
10:09	---	3.35	---	---	---
10:44	35.00	3.90	0.54	5.4	11.1
REFILL					
10:44	---	3.29	---	---	---
11:19	35.00	3.83	0.54	5.4	11.1
REFILL					
11:19	---	3.33	---	---	---
11:49	30.00	3.77	0.44	5.7	10.5

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PERCOLATION TEST RESULTS

Boring/Test: I
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: BK

Test Hole Diameter: 8 Inches
Test Hole Depth: 4.0 Feet
Test Duration: 3.2 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
8:11	0.00	3.33	---	---	---
8:36	25.00	3.83	0.50	4.2	14.4
REFILL					
8:36	---	3.31	---	---	---
8:56	20.00	3.67	0.35	4.7	12.8
12:50 PM					
8:56	---	3.46	---	---	---
14:00	304.00	3.90	0.44	57.9	1.0
REFILL					
9:26	---	3.35	---	---	---
9:56	30.00	3.77	0.42	6.0	10.0
REFILL					
9:56	---	3.42	---	---	---
10:11	15.00	3.60	0.19	6.7	9.0
REFILL					
10:11	---	3.46	---	---	---
10:46	35.00	3.92	0.46	6.4	9.4
REFILL					
10:46	---	3.46	---	---	---
11:21	35.00	3.90	0.44	6.7	9.0
REFILL					
11:21	---	3.33	---	---	---
11:51	30.00	3.71	0.38	6.7	9.0

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PERCOLATION TEST RESULTS

Boring/Test: J
Date Drilled: 5/22/2012
Date Tested: 5/23/2012
Technician: TC

Test Hole Diameter: 8 Inches
Test Hole Depth: 30.0 Feet
Test Duration: 5.3 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
10:12 AM	0.00	18.22	---	---	---
10:32 AM	20.00	28.04	9.82	0.2	353.5
REFILL					
10:39 AM	---	14.60	---	---	---
11:09 AM	30.00	25.30	10.70	0.2	256.8
REFILL					
11:12 AM	---	10.82	---	---	---
11:35 AM	23.00	25.22	14.40	0.1	450.8
12:04 PM	29.00	27.60	2.38	1.0	59.1
12:49 PM	45.00	28.46	0.86	4.4	13.8
1:40 PM	51.00	29.50	1.04	4.1	14.7
REFILL					
1:53 PM	---	14.35	---	---	---
2:23 PM	30.00	25.40	11.05	0.2	265.2
3:00 PM	37.00	27.85	2.45	1.3	47.7
3:30 PM	30.00	28.66	0.81	3.1	19.4

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PERCOLATION TEST RESULTS

Boring/Test: K
Date Drilled: 5/16/2012
Date Tested: 5/23/2012
Technician: TC

Test Hole Diameter: 8 Inches
Test Hole Depth: 30.0 Feet
Test Duration: 5.1 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
10:08***	0.00	14.41	---	---	---
REFILL					
10:10	---	9.40	---	---	---
10:41	31.00	10.38	0.98	2.6	22.8
11:10	29.00	10.56	0.18	13.4	4.5
11:40	30.00	10.70	0.14	17.9	3.4
12:10	61.00	10.85	0.15	33.9	1.8
12:40	30.00	10.94	0.09	27.8	2.2
1:32	42.00	11.05	0.11	31.8	1.9
2:50	78.00	11.28	0.23	28.3	2.1
3:40	50.00	11.38	0.10	41.7	1.4
4:22	42.00	11.45	0.07	50.0	1.2

*** Water remaining from presaturation on previous day

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PERCOLATION TEST RESULTS

Boring/Test: L
Date Drilled: 5/22/2012
Date Tested: 5/23/2012
Technician: TC

Test Hole Diameter: 8 Inches
Test Hole Depth: 30.0 Feet
Test Duration: 4.8 Hours

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
10:26	0.00	11.92	---	---	---
10:56	30.00	16.45	4.53	0.6	108.7
11:45	49.00	22.78	6.33	0.6	93.0
REFILL					
11:50	---	10.60	---	---	---
12:20	30.00	14.57	3.97	0.6	95.3
1:00	40.00	18.40	3.83	0.9	68.9
1:25	25.00	20.70	2.30	0.9	66.2
1:58	33.00	23.67	2.97	0.9	64.8
2:28	30.00	26.25	2.58	1.0	61.9
REFILL					
2:40	---	14.80	---	---	---
3:10	30.00	18.75	3.95	0.6	94.8
3:45	35.00	21.75	3.00	1.0	61.7
4:15	30.00	24.00	2.25	1.1	54.0

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INFILTRATION TEST RESULTS

Boring/Test: M
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: BK

Test Hole Diameter: 6 Inches
Test Hole Depth: 5.0 Feet
Test Duration: 2.6 Hours

CONSTANT HEAD DATA

DURATION minutes	WATER ELEVATION BELOW TOP OF GRADE feet	VOLUME OF WATER TO FILL THE BORING cubic feet	WATER ADDED TO MAINTAIN FULL cubic feet
2	0.2	0.8	
30	0.4		0.1

FALLING HEAD DATA

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	INFILTRATION RATE min. / inch	INFILTRATION RATE inches / hour
12:45 PM	0.00	0.33	---	---	---
1:00 PM	15.00	0.67	0.33	3.7	16.0
1:15 PM	15.00	0.77	0.10	12.0	5.0
2:15 PM	60.00	1.00	0.23	21.8	2.8
3:20 PM	65.00	1.13	0.13	43.3	1.4

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INFILTRATION TEST RESULTS

Boring/Test: N
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: BK

Test Hole Diameter: 6 Inches
Test Hole Depth: 5.0 Feet
Test Duration: 1.2 Hours

CONSTANT HEAD DATA

DURATION minutes	WATER ELEVATION BELOW TOP OF GRADE feet	VOLUME OF WATER TO FILL THE BORING cubic feet	WATER ADDED TO MAINTAIN FULL cubic feet
2	0.3	0.9	
30	0.5		1.2

FALLING HEAD DATA

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	INFILTRATION RATE min. / inch	INFILTRATION RATE inches / hour
2:05 PM	0.00	0.54	---	---	---
2:35 PM	30.00	3.15	2.60	1.0	62.5
3:15 PM	40.00	4.83	1.69	2.0	30.4

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INFILTRATION TEST RESULTS

Boring/Test: O
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: BK

Test Hole Diameter: 6 Inches
Test Hole Depth: 5.0 Feet
Test Duration: 1.8 Hours

CONSTANT HEAD DATA

DURATION minutes	WATER ELEVATION BELOW TOP OF GRADE feet	VOLUME OF WATER TO FILL THE BORING cubic feet	WATER ADDED TO MAINTAIN FULL cubic feet
2	0.3	0.8	
30	0.5		0.4

FALLING HEAD DATA

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	INFILTRATION RATE min. / inch	INFILTRATION RATE inches / hour
3:12 PM	0.00	0.27	---	---	---
3:42 PM	30.00	1.29	1.02	2.4	24.5
4:12 PM	30.00	1.73	0.44	5.7	10.5
4:42 PM	30.00	2.13	0.40	6.3	9.5
5:02 PM	20.00	2.38	0.25	6.7	9.0

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INFILTRATION TEST RESULTS

Boring/Test: P
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: BK

Test Hole Diameter: 6 Inches
Test Hole Depth: 5.0 Feet
Test Duration: 2.8 Hours

CONSTANT HEAD DATA

DURATION minutes	WATER ELEVATION BELOW TOP OF GRADE feet	VOLUME OF WATER TO FILL THE BORING cubic feet	WATER ADDED TO MAINTAIN FULL cubic feet
2	0.3	0.8	
35	0.3		0.3

FALLING HEAD DATA

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	INFILTRATION RATE min. / inch	INFILTRATION RATE inches / hour
9:13 AM	0.00	0.35	---	---	---
9:28 AM	15.00	0.69	0.33	3.7	16.0
9:43 AM	15.00	0.88	0.19	6.7	9.0
9:58 AM	15.00	1.02	0.15	8.6	7.0
10:13 AM	15.00	1.15	0.13	10.0	6.0
10:28 AM	15.00	1.25	0.10	12.0	5.0
10:43 AM	15.00	1.35	0.10	12.0	5.0
10:58 AM	15.00	1.44	0.08	15.0	4.0
12:00 PM	62.00	1.77	0.33	15.5	3.9

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INFILTRATION TEST RESULTS

Boring/Test: Q
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: RD

Test Hole Diameter: 6 Inches
Test Hole Depth: 5.0 Feet
Test Duration: 2.1 Hours

CONSTANT HEAD DATA

DURATION minutes	WATER ELEVATION BELOW TOP OF GRADE feet	VOLUME OF WATER TO FILL THE BORING cubic feet	WATER ADDED TO MAINTAIN FULL cubic feet
2	0.2	0.6	
35	0.2		0.3

FALLING HEAD DATA

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	INFILTRATION RATE min. / inch	INFILTRATION RATE inches / hour
2:53 PM	0.00	0.21	---	---	---
3:22 PM	29.00	0.75	0.54	4.5	13.4
4:10 PM	48.00	1.58	0.83	4.8	12.5
4:32 PM	22.00	1.83	0.25	7.3	8.2
4:57 PM	25.00	2.08	0.25	8.3	7.2

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INFILTRATION TEST RESULTS

Boring/Test:	R	Test Hole Diameter:	6 Inches
Date Drilled:	5/11/2012	Test Hole Depth:	5.0 Feet
Date Tested:	5/16/2012	Test Duration:	2.0 Hours
Technician:	BK		

CONSTANT HEAD DATA

DURATION minutes	WATER ELEVATION BELOW TOP OF GRADE feet	VOLUME OF WATER TO FILL THE BORING cubic feet	WATER ADDED TO MAINTAIN FULL cubic feet
2	0.3	0.6	
30	0.3		0.6

FALLING HEAD DATA

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	INFILTRATION RATE min. / inch	INFILTRATION RATE inches / hour
12:50 PM	0.00	0.33	---	---	---
1:20 PM	30.00	1.02	0.69	3.6	16.5
1:50 PM	30.00	1.67	0.65	3.9	15.5
2:20 PM	30.00	2.19	0.52	4.8	12.5
2:50 PM	30.00	2.67	0.48	5.2	11.5
3:20 PM	30.00	3.13	0.46	5.5	11.0

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INFILTRATION TEST RESULTS

Boring/Test: S
Date Drilled: 5/15/2012
Date Tested: 5/16/2012
Technician: BK

Test Hole Diameter: 6 Inches
Test Hole Depth: 4.5 Feet
Test Duration: 2.0 Hours

CONSTANT HEAD DATA

DURATION minutes	WATER ELEVATION BELOW TOP OF GRADE feet	VOLUME OF WATER TO FILL THE BORING cubic feet	WATER ADDED TO MAINTAIN FULL cubic feet
2	0.2	1.2	
30	0.2		1.0

FALLING HEAD DATA

TIME	INTERVAL minutes	READING feet	INCREMENTAL DROP feet	INFILTRATION RATE min. / inch	INFILTRATION RATE inches / hour
10:03 AM	0.00	0.21	---	---	---
10:23 AM	20.00	1.83	1.63	1.0	58.5
10:43 AM	20.00	2.92	1.08	1.5	39.0
11:03 AM	20.00	3.44	0.52	3.2	18.8
11:23 AM	20.00	3.85	0.42	4.0	15.0
11:43 AM	20.00	4.08	0.23	7.3	8.2
12:03 PM	20.00	4.29	0.21	8.0	7.5

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APPENDIX D

Laboratory Test Data

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BULK DENSITY TEST RESULTS

ASTM D 2937-10 (modified for ring liners)

June 4, 2012

BORING NO.	DEPTH feet	MOISTURE CONTENT, %	WET DENSITY, pcf	DRY DENSITY, pcf
1	6.0 - 6.5	6.0	97.3	91.8
1	11.0 - 11.5	16.8	118.8	101.7
1	16.0 - 16.5	22.4	115.7	94.6
2	6.0 - 6.5	11.1	104.1	93.7
3	5.0 - 5.5	18.4	114.1	96.4
4	5.0 - 5.5	17.3	118.3	100.9
5	6.0 - 6.5	16.7	115.0	98.5
6	5.0 - 5.5	17.0	89.8	76.7
6	10.0 - 10.5	17.4	111.9	95.4
9	6.0 - 6.5	30.2	119.4	91.7
10	6.0 - 6.5	19.5	103.7	86.8
11	6.0 - 6.5	16.7	114.2	97.9
13	6.0 - 6.5	17.1	115.3	98.5
14	6.0 - 6.5	24.1	106.3	85.6
17	6.0 - 6.5	10.0	114.1	103.7
18	6.0 - 6.5	9.0	111.3	102.1
22	6.0 - 6.5	17.4	102.3	87.1

EXPANSION INDEX TEST RESULTS

ASTM D 4829-11

BORING NO.	DEPTH feet	EXPANSION INDEX
11	1.0 - 4.0	92
18	0.0 - 5.0	39

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MOISTURE-DENSITY COMPACTION TEST

ASTM D 1557-09 (Modified)

June 4, 2012

PROCEDURE USED: A

PREPARATION METHOD: Moist

RAMMER TYPE: Mechanical

SPECIFIC GRAVITY: 2.65 (assumed)

Boring #1 @ 0.0 - 5.0'

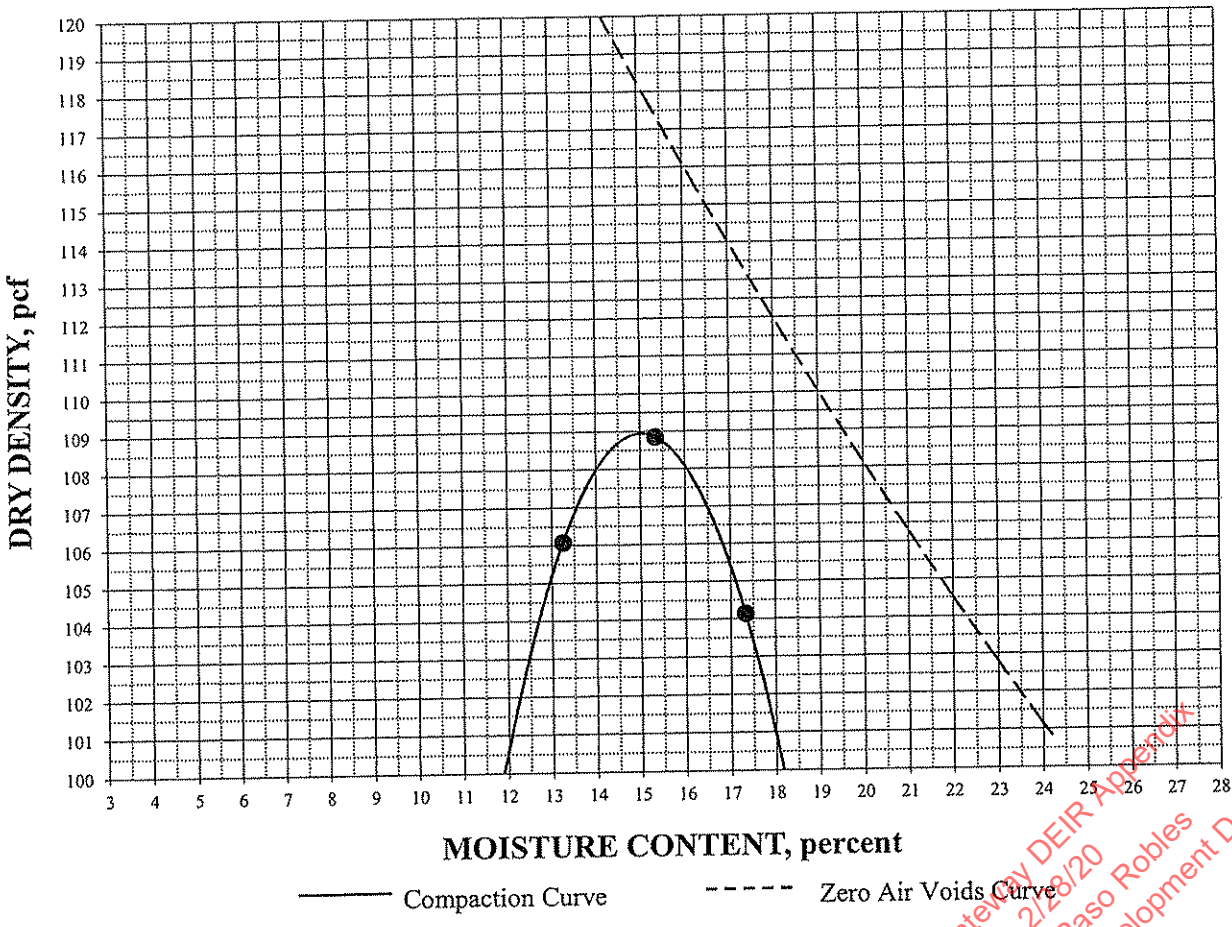
Dark Brown Clayey Sand (SC)

SIEVE DATA:

Sieve Size	% Retained
3/4"	0
3/8"	0
#4	0

MAXIMUM DRY DENSITY: 108.9 pcf

OPTIMUM MOISTURE: 15.0%



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SL-16784-SA

MOISTURE-DENSITY COMPACTION TEST

ASTM D 1557-09 (Modified)

PROCEDURE USED: A

PREPARATION METHOD: Moist

RAMMER TYPE: Mechanical

SPECIFIC GRAVITY: 2.70 (assumed)

June 4, 2012

Boring #11 @ 1.0 - 4.0'

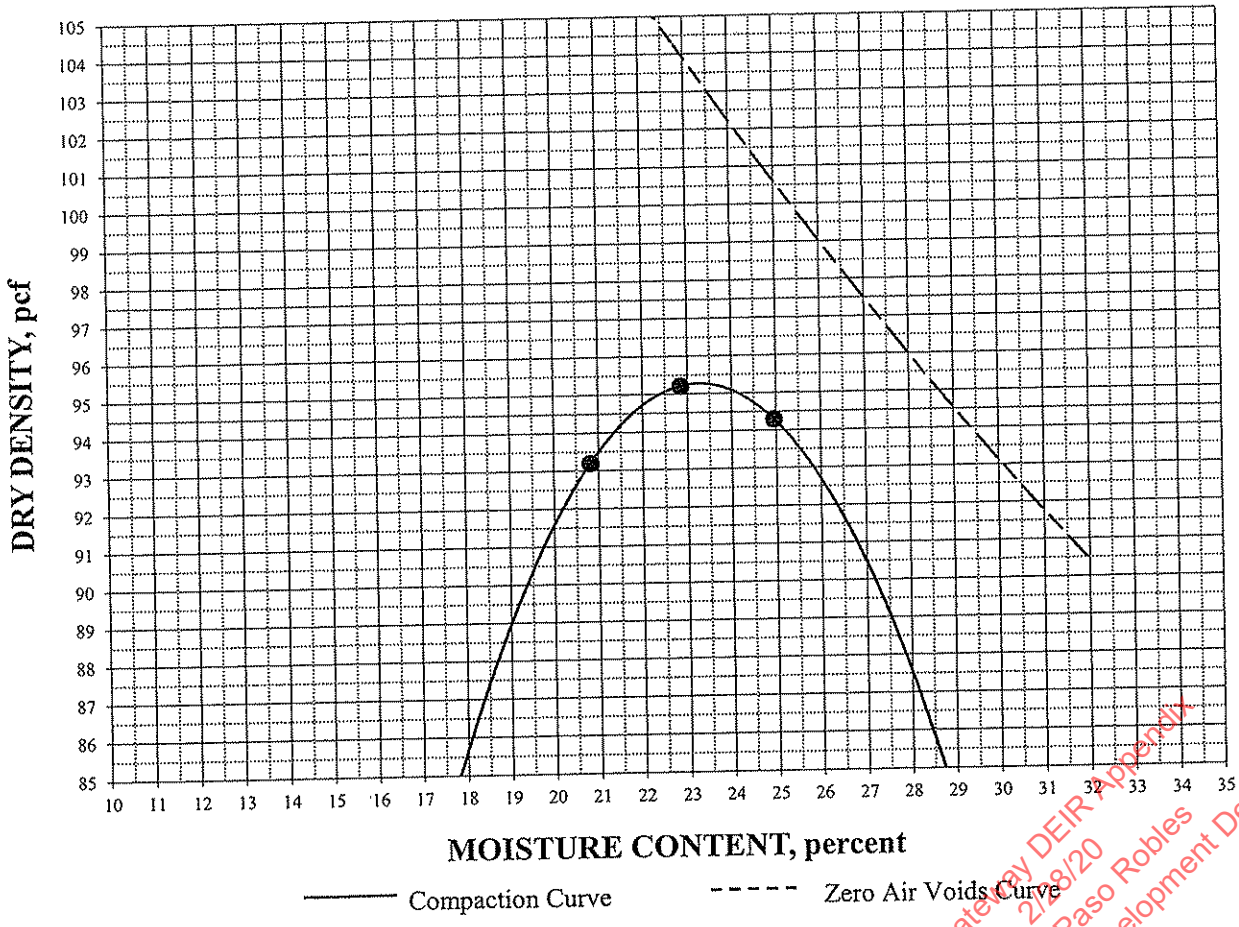
Dark Brown Sandy Fat Clay (CH)

MAXIMUM DRY DENSITY: 95.3 pcf

OPTIMUM MOISTURE: 23.3%

SIEVE DATA:

Sieve Size	% Retained
3/4"	0
3/8"	0
#4	3



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RESISTANCE '*R*' VALUE AND EXPANSION PRESSURE

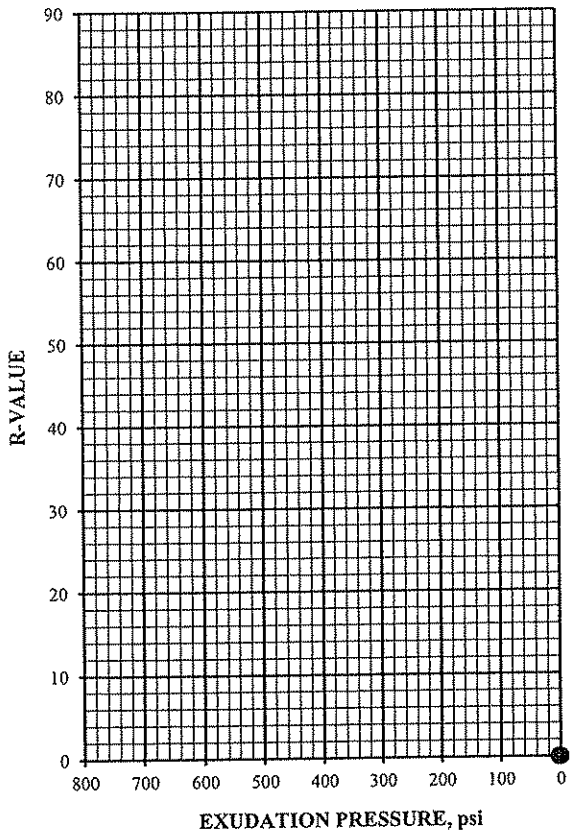
ASTM D 2844-07

June 4, 2012

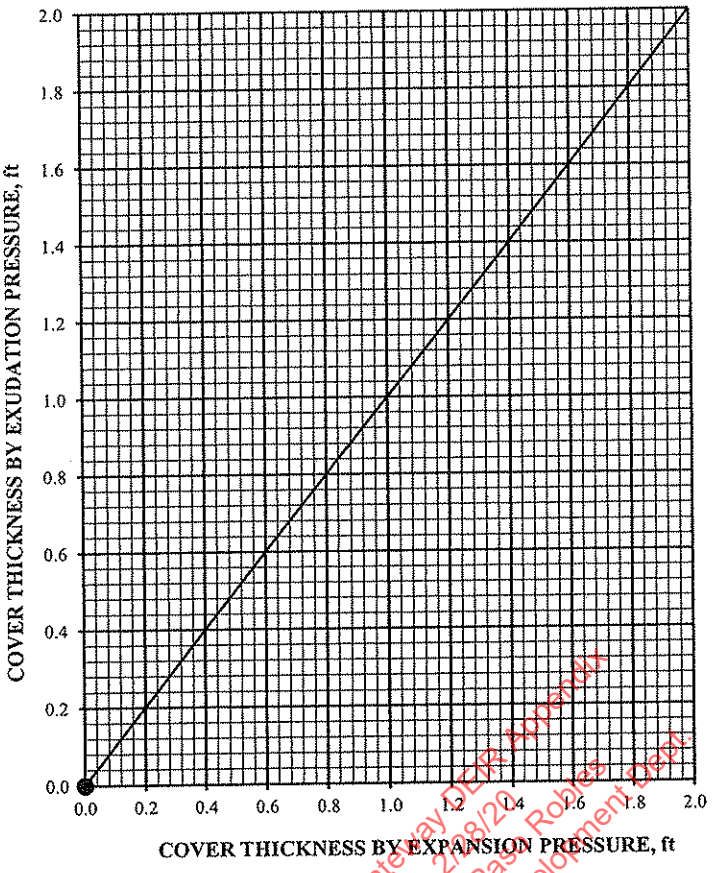
Boring #11 @ 1.0 - 4.0'
Dark Brown Sandy Fat Clay (CH)

Dry Density @ 300 psi Exudation Pressure: N/A
%Moisture @ 300 psi Exudation Pressure: N/A
R-Value - Exudation Pressure: N/A
R-Value - Expansion Pressure: N/A
R-Value @ Equilibrium: Less than 5
(sample extruded from mold during testing)

EXUDATION PRESSURE CHART



EXPANSION PRESSURE CHART



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MOISTURE-DENSITY COMPACTION TEST

ASTM D 1557-09 (Modified)

PROCEDURE USED: B

PREPARATION METHOD: Moist

RAMMER TYPE: Mechanical

SPECIFIC GRAVITY: 2.65 (assumed)

June 4, 2012

Boring #18 @ 0.0 - 5.0'

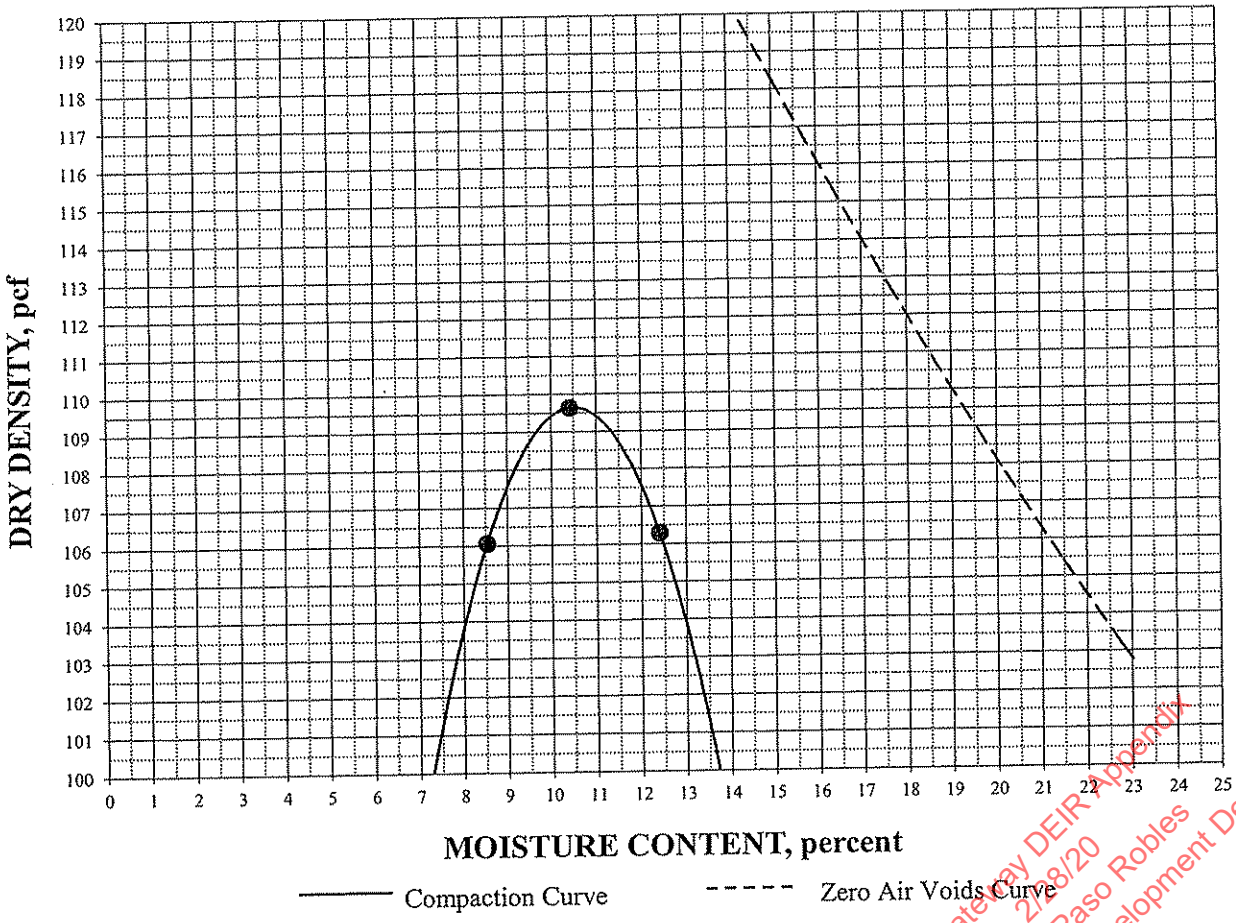
Dark Orange Brown Clayey Sand with Gravel (SC)

MAXIMUM DRY DENSITY: 109.6 pcf

OPTIMUM MOISTURE: 10.5%

SIEVE DATA:

Sieve Size	% Retained
3/4"	1
3/8"	2
#4	23



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RESISTANCE '*R*' VALUE AND EXPANSION PRESSURE

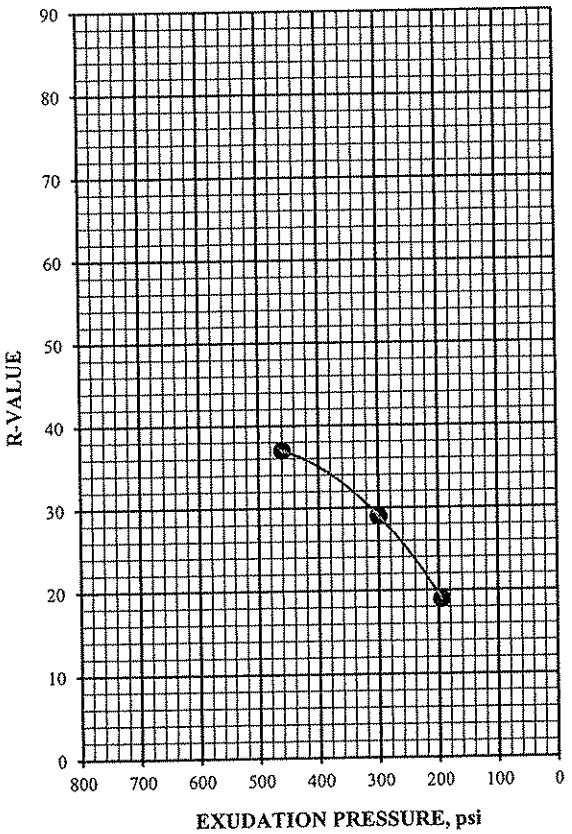
ASTM D 2844-07

June 4, 2012

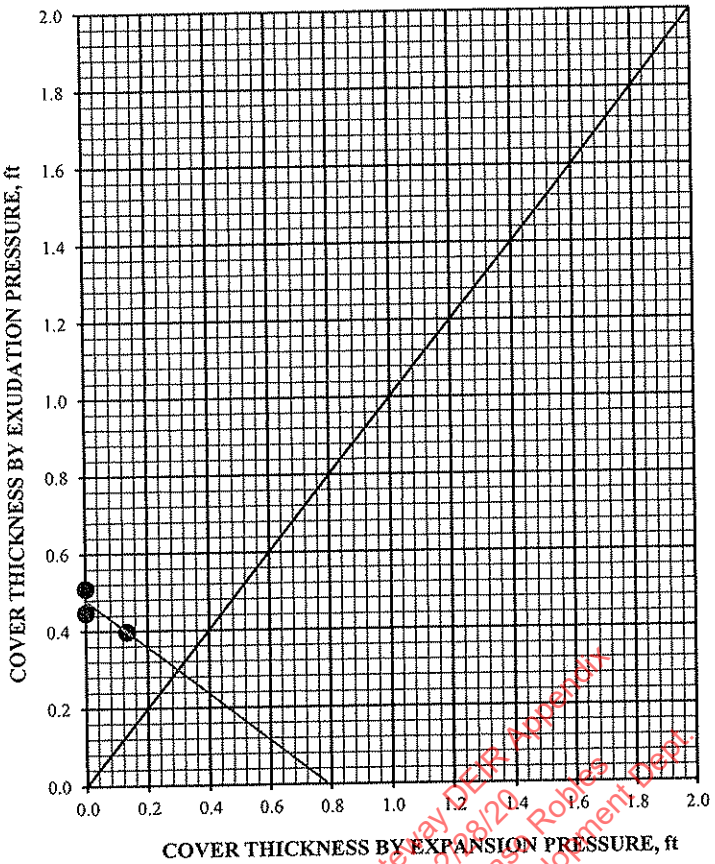
Boring #18 @ 1.0 - 5.0'
Dark Orange Brown Clayey Sand with Gravel (SC)
Specified Traffic Index: 5.0

Dry Density @ 300 psi Exudation Pressure: 91.2-pcf
%Moisture @ 300 psi Exudation Pressure: 29.9%
R-Value - Exudation Pressure: 29
R-Value - Expansion Pressure: 53
R-Value @ Equilibrium: 29

EXUDATION PRESSURE CHART



EXPANSION PRESSURE CHART



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UNCONFINED COMPRESSION ON COHESIVE SOIL

ASTM D 2166-06

June 4, 2012

Boring #2 @ 6.0 - 6.5'
Sandstone
Ring Sample
COMPRESSIVE STRENGTH: 12 psi (1,705 psf)

Dry Density: 93.7 pcf
Moisture Content: 11.1%
Degree Saturation: 38.5%
Specific Gravity: 2.65 (assumed)
H/D Ratio: 2.11

TIME (MINUTES)	DEFORM, in (X 1000)	AXIAL STRAIN	AREA (SQ. IN.)	APPLIED LOAD (LBS)	STRENGTH (PSI)	STRENGTH (PSF)
0.5	29	0.0058	4.46	14	3	452
1.0	58	0.0116	4.48	20	4	643
1.5	80	0.0160	4.50	30	7	960
2.0	118	0.0236	4.54	35	8	1,111
2.5	148	0.0296	4.57	40	9	1,262
3.0	170	0.0340	4.59	47	10	1,476
3.5	208	0.0416	4.62	52	11	1,620
4.0	231	0.0462	4.64	55	12	1,705
4.5	260	0.0520	4.67	54	12	1,664
5.0	294	0.0588	4.71	50	11	1,530
5.5	330	0.0660	4.74	49	10	1,488
6.0	351	0.0702	4.76	42	9	1,269
6.5	386	0.0772	4.80	34	7	1,020
7.0	410	0.0820	4.83	30	6	895
7.5	438	0.0876	4.86	22	5	652
8.0	463	0.0926	4.88	19	4	560
8.5	498	0.0996	4.92	13	3	380

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SL-16784-SA

UNCONFINED COMPRESSION ON COHESIVE SOIL

ASTM D 2166-06

June 4, 2012

Boring #22 @ 6.0 - 6.5'
Sandstone
Ring Sample
COMPRESSIVE STRENGTH: 5 psi (764 psf)

Dry Density: 87.1 pcf
Moisture Content: 17.4%
Degree Saturation: 51.4%
Specific Gravity: 2.65 (assumed)
H/D Ratio: 2.11

TIME (MINUTES)	DEFORM, in (X 1000)	AXIAL STRAIN	AREA (SQ. IN.)	APPLIED LOAD (LBS)	STRENGTH (PSI)	STRENGTH (PSF)
0.5	25	0.0050	4.45	9	2	291
1.0	53	0.0106	4.48	17	4	547
1.5	80	0.0160	4.50	22	5	704
2.0	103	0.0206	4.52	24	5	764
2.5	141	0.0282	4.56	19	4	600
3.0	163	0.0326	4.58	18	4	566
3.5	197	0.0394	4.61	9	2	281
4.0	206	0.0412	4.62	5	1	156

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DIRECT SHEAR

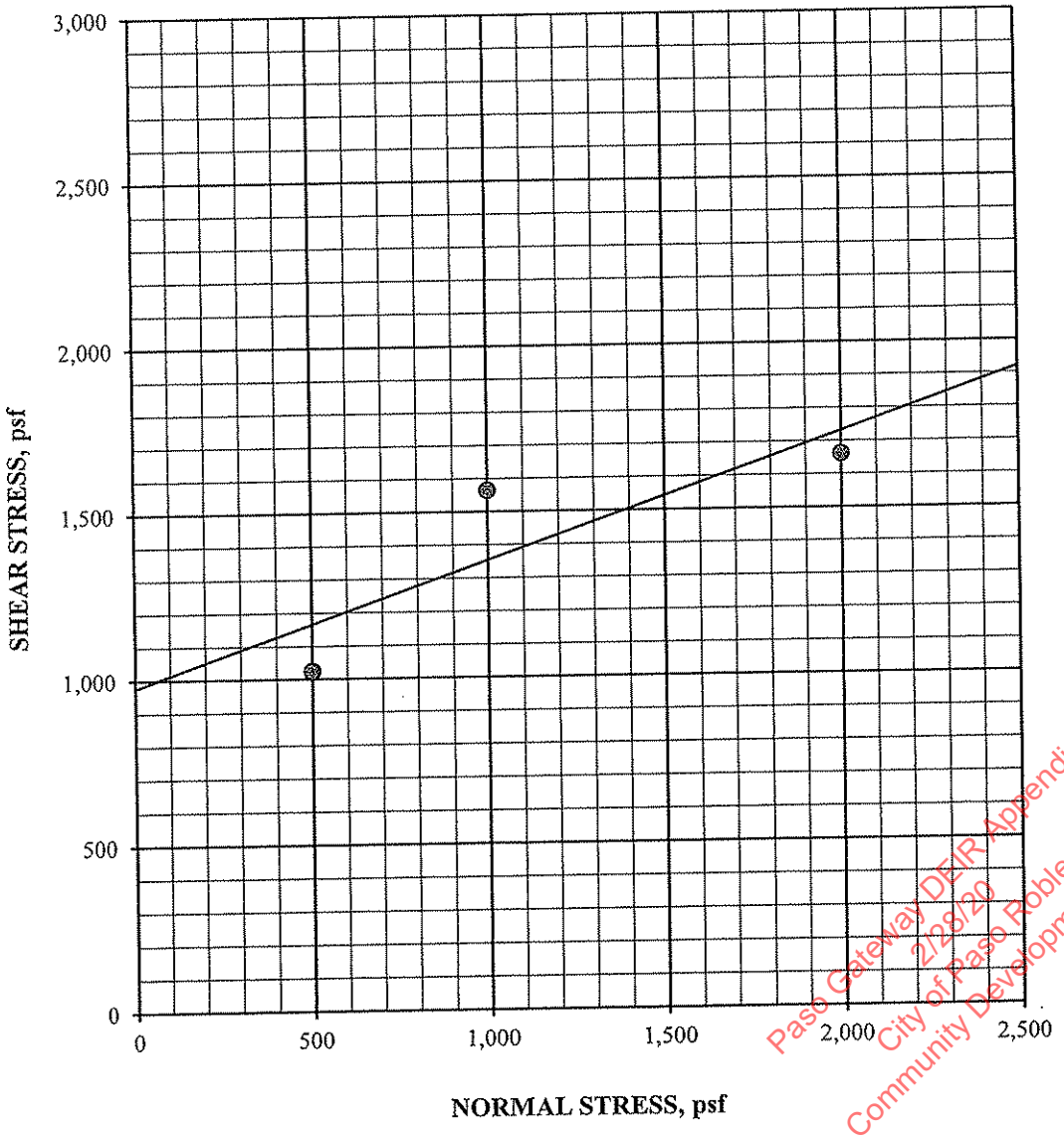
ASTM D 3080-11 (modified for consolidated, undrained conditions)

June 4, 2012

Boring #1 @ 6.0 - 6.5'
Clayey Sand (SC)
Ring sample, saturated

INITIAL DRY DENSITY: 93.1 pcf
INITIAL MOISTURE CONTENT: 6.0 %
PEAK SHEAR ANGLE (Ø): 21°
COHESION (C): 976 psf

SHEAR vs. NORMAL STRESS



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SL-16784-SA

DIRECT SHEAR continued

ASTM D 3080-11 (modified for consolidated, undrained conditions)

June 4, 2012

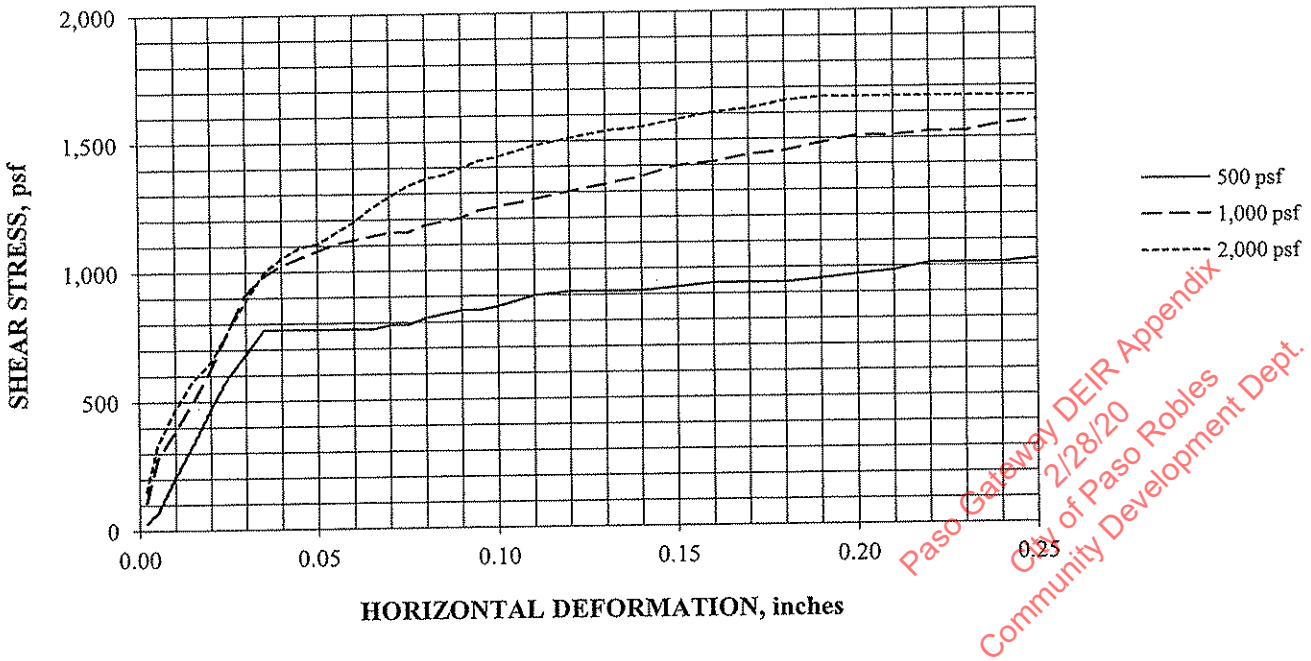
Boring #1 @ 6.0 - 6.5'

Clayey Sand (SC)

Ring sample, saturated

SPECIFIC GRAVITY: 2.65 (assumed)

SAMPLE NO.:	1	2	3	AVERAGE
INITIAL				
WATER CONTENT, %	6.0	6.0	6.0	6.0
DRY DENSITY, pcf	92.4	93.7	93.3	93.1
SATURATION, %	20.1	20.8	20.6	20.5
VOID RATIO	0.790	0.765	0.772	0.776
DIAMETER, inches	2.375	2.375	2.375	
HEIGHT, inches	1.00	1.00	1.00	
AT TEST				
WATER CONTENT, %	29.2	26.6	25.0	
DRY DENSITY, pcf	93.3	97.0	100.2	
SATURATION, %	100.0	100.0	100.0	
VOID RATIO	0.772	0.705	0.650	
HEIGHT, inches	0.99	0.97	0.93	



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DIRECT SHEAR

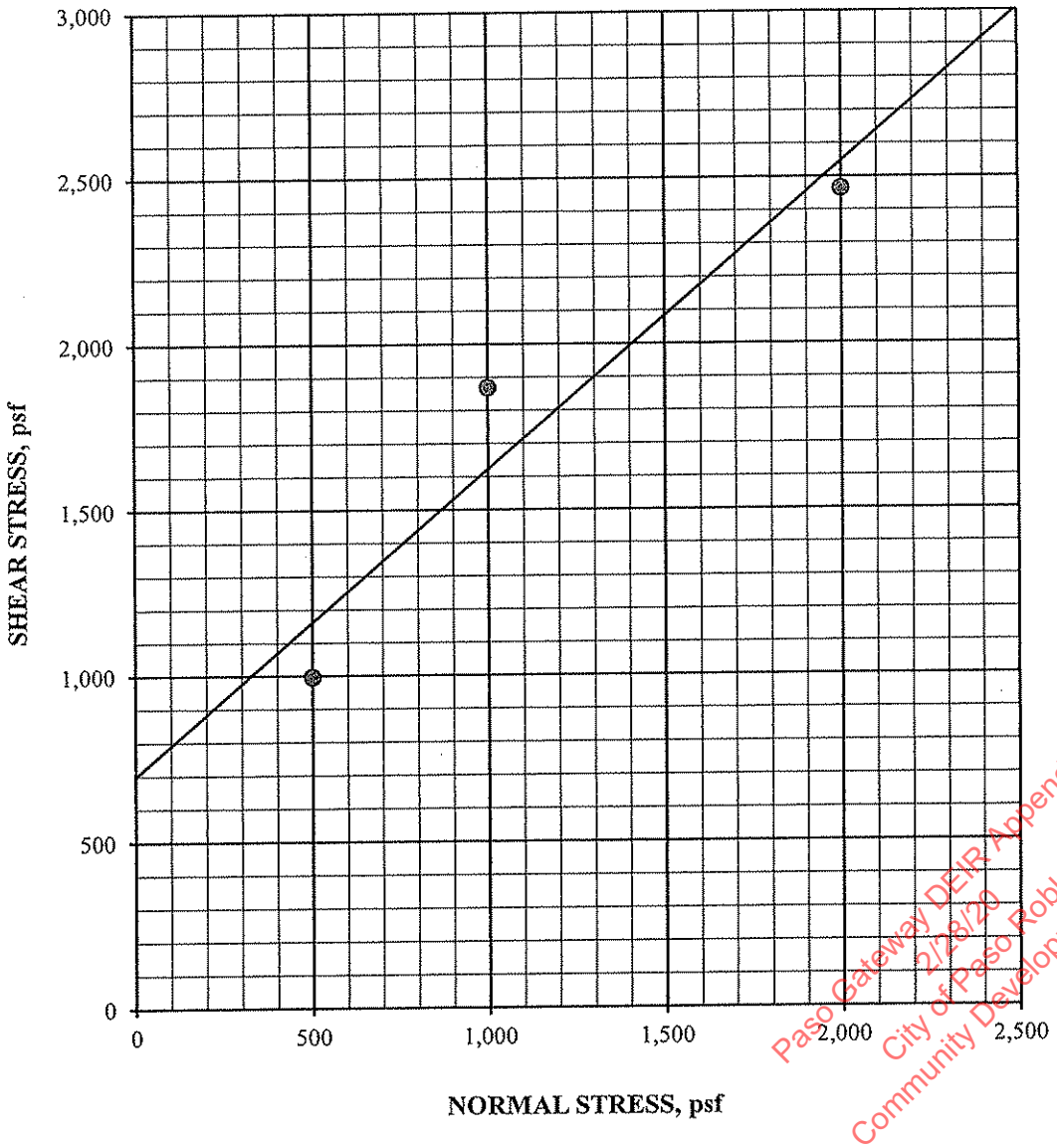
ASTM D 3080-11 (modified for consolidated, undrained conditions)

June 4, 2012

Boring #4 @ 5.0 - 5.5'
Clayey Sand with gravel (SC)
Ring sample, saturated

INITIAL DRY DENSITY: 100.9 pcf
INITIAL MOISTURE CONTENT: 17.3 %
PEAK SHEAR ANGLE (Ø): 43°
COHESION (C): 699 psf

SHEAR vs. NORMAL STRESS



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DIRECT SHEAR continued

ASTM D 3080-11 (modified for consolidated, undrained conditions)

June 4, 2012

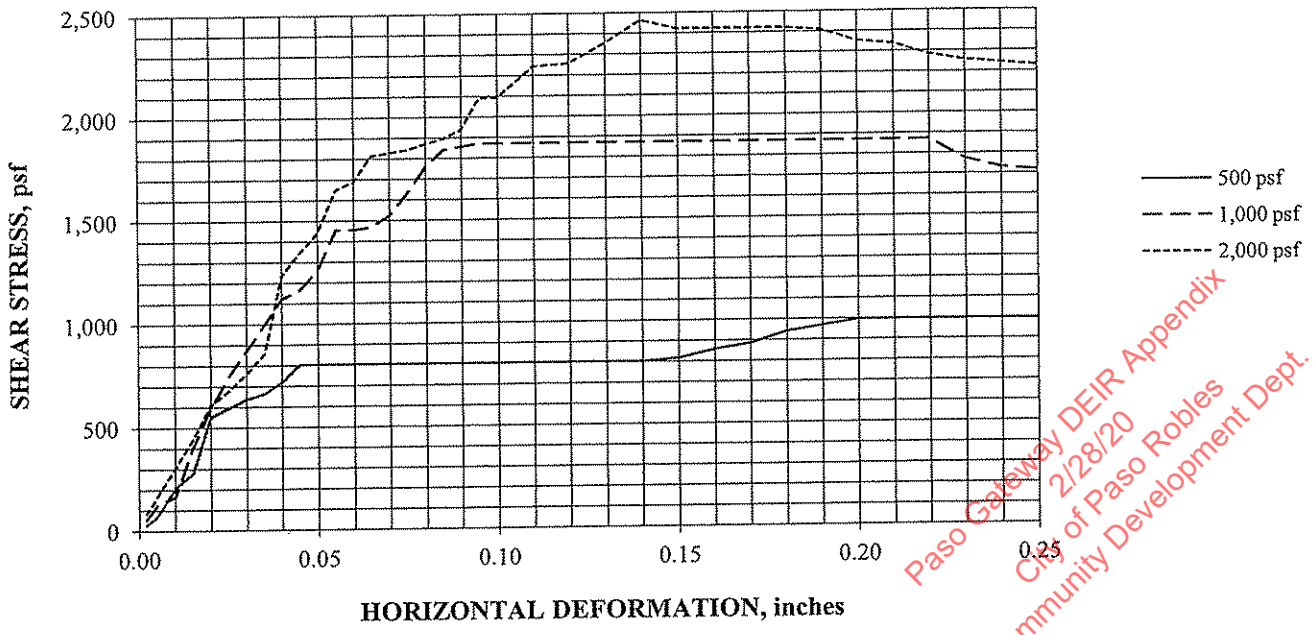
Boring #4 @ 5.0 - 5.5'

Clayey Sand with gravel (SC)

Ring sample, saturated

SPECIFIC GRAVITY: 2.65 (assumed)

SAMPLE NO.:	1	2	3	AVERAGE
INITIAL				
WATER CONTENT, %	17.3	17.3	17.3	17.3
DRY DENSITY, pcf	100.8	100.7	101.3	100.9
SATURATION, %	71.6	71.4	72.5	71.8
VOID RATIO	0.640	0.642	0.632	0.638
DIAMETER, inches	2.375	2.375	2.375	
HEIGHT, inches	1.00	1.00	1.00	
AT TEST				
WATER CONTENT, %	26.3	26.9	28.2	
DRY DENSITY, pcf	101.5	102.5	106.4	
SATURATION, %	100.0	100.0	100.0	
VOID RATIO	0.629	0.614	0.554	
HEIGHT, inches	0.99	0.98	0.95	



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DIRECT SHEAR

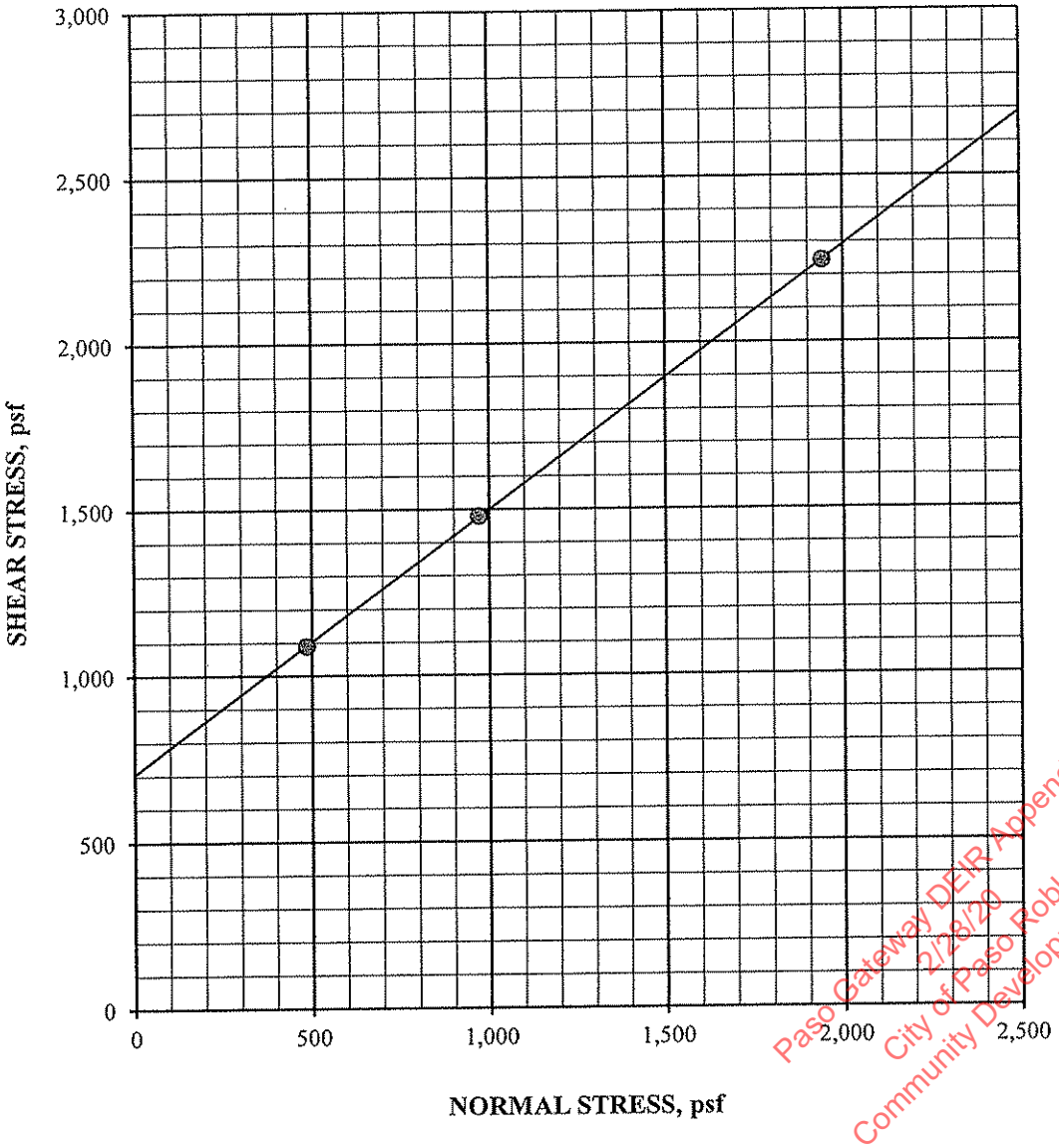
ASTM D 3080-11 (modified for consolidated, undrained conditions)

June 4, 2012

Boring #13 @ 6.0 - 6.5'
Sandstone
Ring sample, saturated

INITIAL DRY DENSITY: 103.1 pcf
INITIAL MOISTURE CONTENT: 17.1 %
PEAK SHEAR ANGLE (Ø): 38°
COHESION (C): 706 psf

SHEAR vs. NORMAL STRESS



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DIRECT SHEAR continued

ASTM D 3080-11 (modified for consolidated, undrained conditions)

June 4, 2012

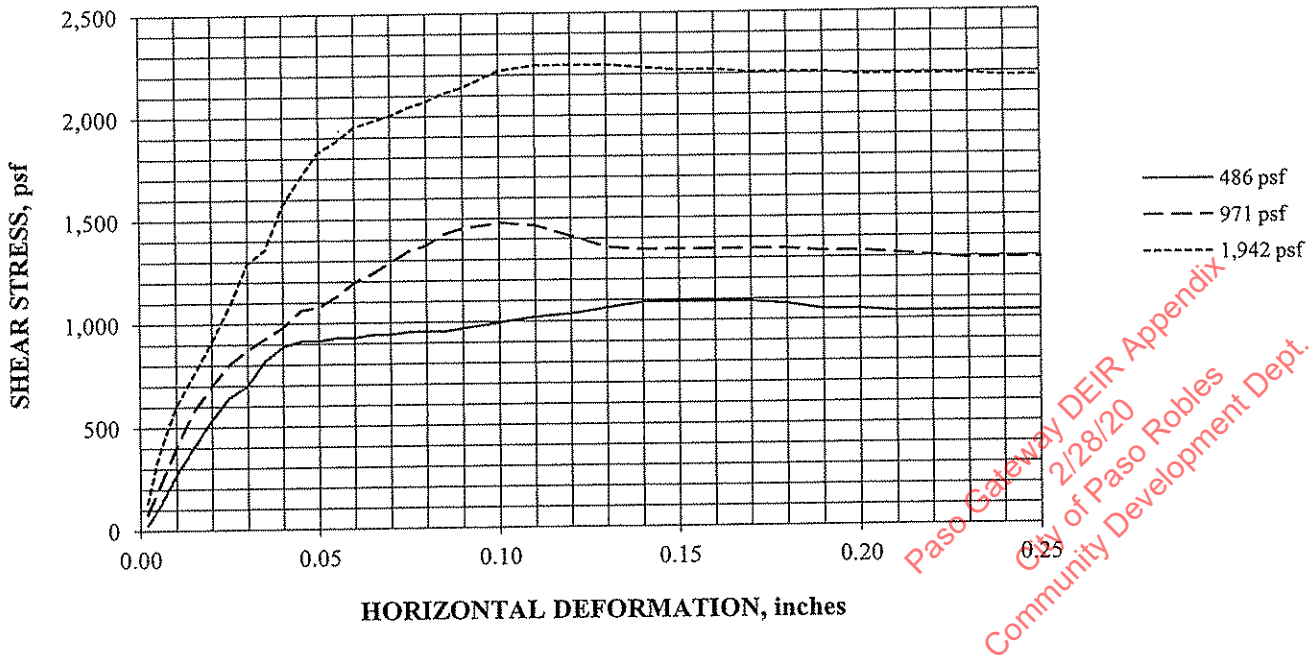
Boring #13 @ 6.0 - 6.5'

Sandstone

Ring sample, saturated

SPECIFIC GRAVITY: 2.65 (assumed)

SAMPLE NO.:	1	2	3	AVERAGE
INITIAL				
WATER CONTENT, %	17.1	17.1	17.1	17.1
DRY DENSITY, pcf	98.3	106.6	104.3	103.1
SATURATION, %	66.5	82.2	77.3	75.4
VOID RATIO	0.681	0.551	0.586	0.606
DIAMETER, inches	2.410	2.410	2.410	
HEIGHT, inches	1.00	1.00	1.00	
AT TEST				
WATER CONTENT, %	25.7	22.3	23.6	
DRY DENSITY, pcf	99.7	109.6	111.4	
SATURATION, %	100.0	100.0	100.0	
VOID RATIO	0.658	0.509	0.484	
HEIGHT, inches	0.99	0.97	0.94	



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Earth Systems
4378 Old Santa Fe Road | San Luis Obispo, CA 93401 | Ph: 805.544.3276 | www.earthsystems.com

June 14, 2018

FILE NO.: 302207-001

Mr. Michael Furlotti
Quorum Realty Fund IV
P.O. Box 862
Ross, CA 94957

PROJECT: PASO ROBLES GATEWAY
VINE STREET
PASO ROBLES, CALIFORNIA

SUBJECT: Update of Geotechnical Feasibility Report

REF:
1) Geotechnical Feasibility/Geologic Hazards Study and Percolation Testing, Paso Robles Gateway, Vine Street, Paso Robles, California, by Earth Systems Pacific, Doc. No. 1206-020.FEA, dated June 19, 2012

2) Conceptual Earthwork and Grading Plans, by Fuscoe Engineering, dated April 25, 2018

Dear Mr. Furlotti:

As authorized, we have reviewed the geotechnical feasibility report (Ref. No. 1) prepared by this firm, as well as the project's current conceptual earthwork and grading plans (Ref. No. 2). The purpose of this review was to assess modifications made to the project as they relate to geotechnical constraints discussed in the geotechnical feasibility report ("the report"), and to update those constraints, as necessary. Additionally, changes with respect to the California Building Code (CBC), including seismic requirements and common geotechnical practice in this area were also assessed in preparation of this report. As requested, estimates of soil shrinkage as a result of site grading have also been included within this report. Please refer to the report for all other issues not specifically modified in the following sections. This report, however, is not intended to be a design level geotechnical report and does not fulfill the requirements of Chapter 18 and J104 of the 2016 CBC. A design level report should be prepared once the project reaches its appropriate stage.

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Project Modifications

Based upon our review of the referenced conceptual plans, the overall project size has been reduced by roughly 30 percent. The portions removed from the original design appear to include the agricultural reservoir, and several estate lots originally planned at the northwest and central portions of the project area. Additional modifications are as follows:

- The Hillside Hotel generally resides in the original planned location. Additional parking has been included to the northeast of the hotel, adjacent the northern property line. West of the hotel, approximately 18 individual structures are planned; although it is not apparent if these structures will be associated with the hotel, such as cottages, or if they will serve as individual private residences. Further to the northwest, a hotel spa facility, several other structures, and additional parking are planned. The original grading for the Hillside Hotel included the placement of up to 50 feet of fill, with only minor cuts. The modified project plan indicates that the amount of fill may be reduced to roughly 32 feet; however, cuts may reach depths of 25 feet.

- The Hillside Commercial (Former Winery Site) will remain in the northeast corner of the project site. As with the Hillside Hotel, cuts are anticipated to reach depths of 25 feet, while fill depths are anticipated to be minimal within the building area.

- The Vine Street Vineyard Hotel and Village Commercial Center also remain in close proximity to their original locations on the east side of the site; adjacent Vine Street. As similar to the previously mentioned improvements, cuts and fills are estimated to approach depths of 25 and 32 feet, respectively.

- The Vine Street Commercial site also appears to still remain in the southeast portion of the project site. The majority of this improvement area will involve minor cut and fill depths up to 4 feet.

- The formerly planned Destination Report Hotel site has been re-designated with two preliminary options. The first option would include the construction of a similar resort ("Highway 46 Resort"), which would be approximately 135,000 square feet, equipped with a 60,000 square-foot lodge, spa, restaurant, outdoor event area, swimming pool, and parking areas. The second option would consist of a resort community, consisting of a maximum of 80 residences constructed on sub-divided lots. Grading for either option would entail cut and fill depths of approximately 21 feet, with fill being placed along the north and south sides and cuts within the central portion.

- The number of interior roads accessing the improvements has been reduced from the original plan; presumably to reduce the number of drainage crossings. The primary access points will remain along Vine Street and Highway 46. The grading of the interior roads will closely resemble that of the improvement areas for which they are providing access.

- Several stormwater basins have been included within the modified design throughout the project area and adjacent improvements. Generally, the basins will be constructed with interior and exterior slopes of 4:1 and 2:1, respectively.

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Updated Geotechnical Constraints

Based upon our review of the report and the conceptual earthwork and grading plans, we are of the opinion that the constraints discussed in the report are still considered applicable. The primary geotechnical constraints remain the potential for total and differential settlement due to the somewhat variable subsurface conditions at the site and the proposed grading. As discussed in the report, stormwater infiltration, such as where the basins are proposed, will increase the potential for settlement. To reduce the potential for excessive total and differential settlement, particularly where structures are planned, an earthwork program is expected to be necessary to provide densification of the underlying soils and to provide greater uniformity of the soils across improvement areas. Based upon the current grading plan and building locations, we anticipate the recommended grading program below the structures will include a maximum fill differential under an individual building of 75 percent. For example, if the maximum fill under a portion of the building will be 10 feet, the minimum fill depth should be 7.5 feet. In addition, it is anticipated that the recommended relative compaction will be increased from a typical minimum of 90 percent to minimum of 95 percent in fills with depths greater than 10 feet.

With respect to the planned basins, we expect that impermeable liners will be necessary to reduce the potential for excessive settlement and reduce the potential for destabilizing adjacent fill slopes. We also recommend all basins include and armored emergency overflow to reduce the risk of flooding and erosion of the berms constructed above grade due to overtopping. In addition the exterior slopes of basins are commonly set at a maximum inclination of 3:1.

The site soils are considered to be highly erodible; therefore, control and drainage during and following construction will be essential. The site soils are also expected to be expansive and mitigation measures should be anticipated.

Under the current CBC, seismic lateral earth pressures on retaining walls exceeding a height of 6 feet are required to be provided by the geotechnical engineer. These values should be determined within a design level geotechnical engineering report once the project reaches its appropriate stage. Depending upon the site's calculated seismic parameters, the wall heights, and the type of wall backfill material, the incremental increase in lateral soil pressure, above the static active equivalent fluid pressures provided in the report, can range from approximately 0 to 20 pcf.

Soil Shrinkage Estimation

Soil volume loss, or "shrinkage", during earthwork can generally be attributed to subsidence of the underlying soils due to compaction and shrinkage of the soil as it is compacted. These factors are partly due to the soil characteristics, but largely due to depths of cuts and fills, type and weight of earthwork equipment, and soil moisture at the time of grading.

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To estimate shrinkage, laboratory data from the report was evaluated with respect to the conceptual earthwork and grading plans. Based upon an average compaction of 93 percent and 97 percent depending upon the depth of fill, an estimated shrinkage of 10 percent was determined to be a reasonable number for use in preliminary calculations. This value is based upon a limited number of soil borings and samples tested in the laboratory as part of the report.

As loss, subsidence, and shrinkage are only partly due to the soil characteristics, and are largely influenced by the grading plan, earthwork equipment, earthwork methods, and natural soil moisture, these factors cannot be precisely estimated. Further, it has been our experience determination of quantities of import and export soils including select trench backfill, aggregate base for roadways, non-expansive fill under buildings, etc.; can have a significant impact upon the final cut/fill volumes frequently exceeding the shrinkage or bulking calculations. If possible, the grading should be planned in such a manner that grades in select areas can be adjusted upward or downward to either generate or receive fill material as necessary to aid in balancing the earthwork.

We appreciate the opportunity to have provided geotechnical services for this project. If there are any questions concerning this letter, please do not hesitate to contact the undersigned.

Sincerely,

Earth Systems Pacific

REGISTERED PROFESSIONAL ENGINEER
ROBERT W. DOWN
No. 70206
Exp. 9/30/18
CIVIL
STATE OF CALIFORNIA

Robert Down, PE
Senior Engineer
6/14/18

Copy to: Fuscoe Engineering, Attn.: Trevor Dodson and Cesar Morales

Doc. No.: 1806-050.LTR/cr

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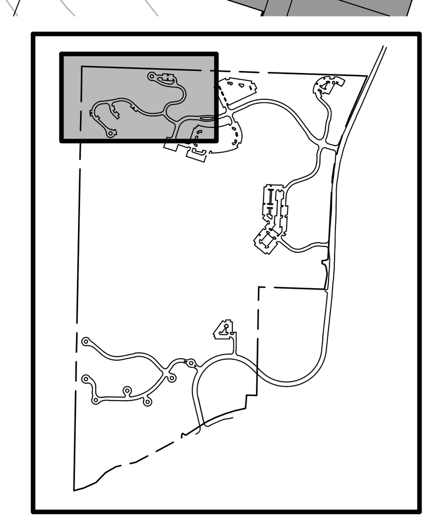
SEE SHEET 7

LEGEND

900	EXISTING CONTOUR
900	PROPOSED CONTOUR
	EXISTING FENCE
	PROJECT BOUNDARY
	PROPERTY LINE
	CENTERLINE
	PROPOSED RETAINING WALL
	EASEMENT (TYPE PER PLAN)
	PROPOSED V-GUTTER
	GRADING DAYLIGHT LINE
SD	PROPOSED STORM DRAIN

EXISTING OAK TREE TO REMAIN — (TREE NUMBER AND TREE CONDITION PER A & T ARBORISTS AND VEGETATION MANAGEMENT REPORT TITLED 'TREE PRESERVATION PLAN FOR FULOTTI WILMAR PLACE CROSSING' PREPARED BY CHIP TAMAGNI AND STEVEN ALVAREZ)

EXISTING OAK TREE TO BE REMOVED — (TREE NUMBER AND TREE CONDITION PER A & T ARBORISTS AND VEGETATION MANAGEMENT REPORT TITLED 'TREE PRESERVATION PLAN FOR FULOTTI WILMAR PLACE CROSSING' PREPARED BY CHIP TAMAGNI AND STEVEN ALVAREZ)



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EXISTING CONTOUR	
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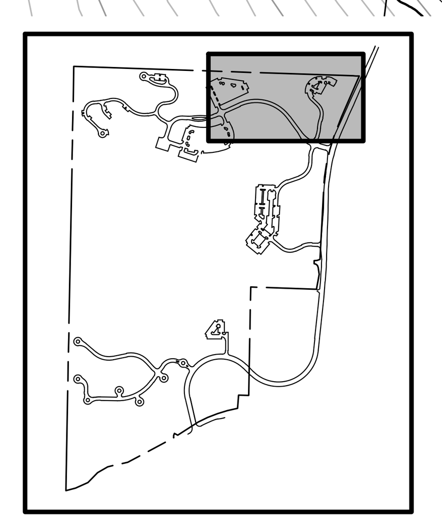

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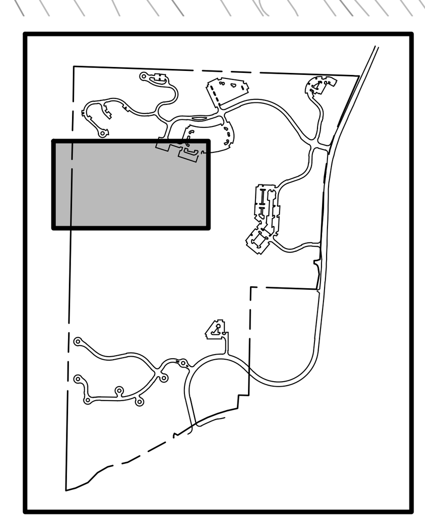

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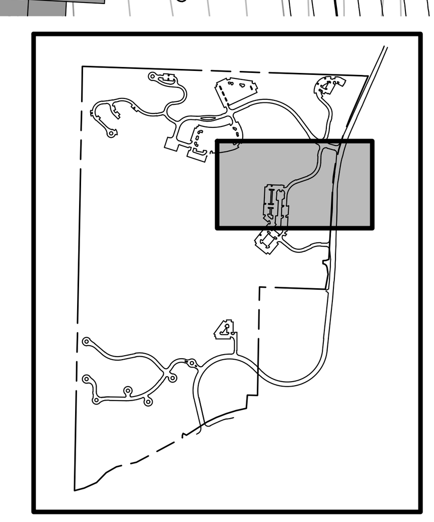

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PAD=797.0
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EXTEND EX. 30" RCP SD
PROP. R/W
EX. R/W
ROAD C
5.6%
11.1%
10.1%
5.1%
4.5%
3.5%
2.0%
24.0'
R30.0'
DETENTION BASIN #3 BOT=781.0
EXIST WELL FAC. #2
PROP. SIDEWALK
PROP. CURB & GUTTER
APN
040-031-017
15.85 AC
ABANDON SOUTH VINE STREET R/W
EXTEND EX. 48" RCP SD
EX. OHD POWER TO BE REMOVED
EX. LOT LINE
EX. LOT LINE
EX. LOT LINE
EX. OHD POWER TO BE REMOVED
50.0' INGRESS & EGRESS EASEMENT PER DOC. NO. 1995-057841 & 187/OR/434
APN 040-031-019
1.3 AC
EX. BILLBORAD TO BE REMOVED
SOUTH VINE STREET
HIGHWAY 101

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Updated per Paso Gateway PRT Appendix 2/28/19 Paso Robles Development Notes

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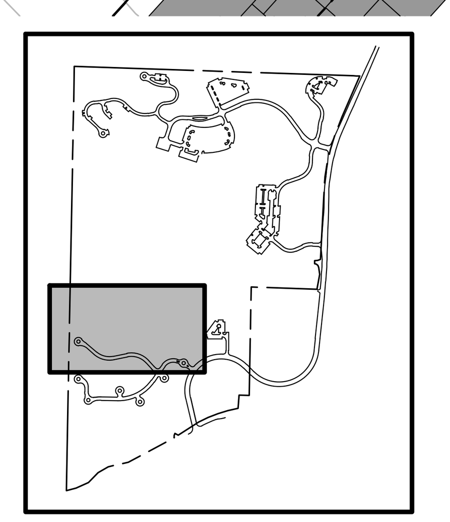

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SEE SHEET 12

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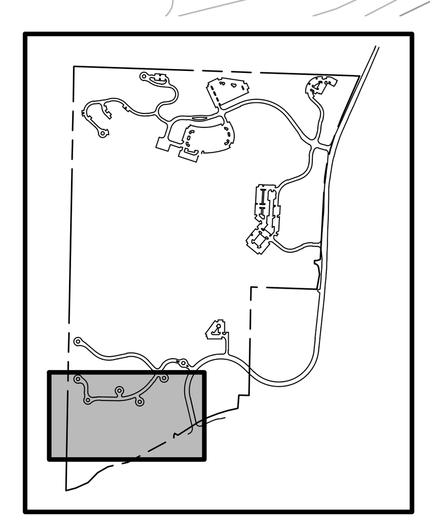

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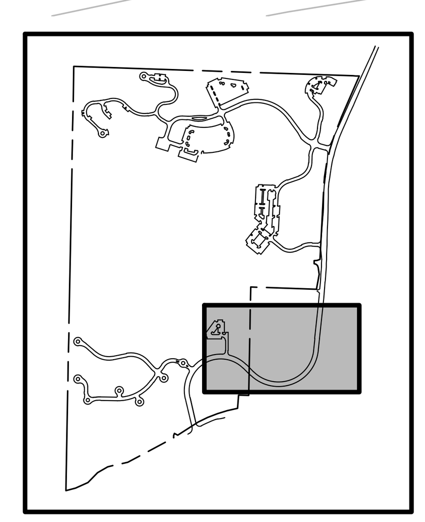

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Appendix G

Hydrology and Stormwater Reports

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HYDROLOGY REPORT

Paso Robles Gateway

Paso Robles, California

Prepared For

Quorum Realty Fund IV
23 Corporate Plaza, Suite 150
Newport Beach, CA 92660
310.826.0100

Prepared By
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Project Manager:
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Hydrologist:
Susan Williams, P.E.

Date Prepared: March 2019

Job Number: 1208.003.01

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HYDROLOGY REPORT

Paso Robles Gateway

QUORUM REALTY FUND IV

March 2019

1208.003.01

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HYDROLOGY REPORT

Paso Robles Gateway

QUORUM REALTY FUND IV

March 2019

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HYDROLOGY REPORT

Paso Robles Gateway

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March 2019

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1.0 INTRODUCTION

1.1 GEOGRAPHIC SETTING

The *Paso Robles Gateway* project site encompasses a total area of approximately 179 acres, and is in the City of Paso Robles, California. The site is located west of South Vine Street and U.S. Route (Highway) 101, and north of California State Route 46 and Green Valley Road. A Location Map is shown below.

LOCATION MAP
NO SCALE

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1.2 PROJECT DESCRIPTION

The existing site consists primarily of agriculture-related development, and includes cattle-grazing, vineyards, orchards, and grain fields. Ephemeral streams convey offsite and onsite drainage through the site, from west to east, and discharge through outfall culverts and structures under South Vine Street and Highway 101 to the east. The runoff eventually discharges to the Salinas River, which meanders in a southerly direction, and is located a few thousand feet west of Highway 101.

The following culverts accept discharge from the project site, along with offsite drainage:

- 3' x 8' Box Culvert
- 30" RCP
- 48" RCP
- 10' x 10' Box Culvert

The topography of the site is generally rolling hills with slopes ranging from 10% to 20%, and consists of vegetation, which includes grasslands and clusters of oak trees. An aerial topographic exhibit is included as Appendix 1.

The proposed project will consist of hospitality and residential development. A Site Plan is included in this report as Appendix 2

1.3 PURPOSE OF THIS REPORT

Previous studies and reports have documented that the four outfall culverts are hydraulically deficient, which results in flooding at or near South Vine Street. Therefore, any new development within the tributary area of the culverts must not result in additional peak (100-year/24-hour) storm flows to the culverts.

The purpose of this report is to prepare and present hydrologic calculations and maps for existing and proposed conditions for the proposed project. The report includes calculations to support proposed detention mitigation for the site, which will be required to prevent overloading of the existing culverts. An analysis of the 100-year flood limits is also included to establish base flood elevations (BFE) for the proposed project.

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1.4 REFERENCES

- NOAA Atlas 14, Volume 6, Version 2
- Hydrologic Engineering Center/Hydrologic Modeling System (HEC-HMS), developed by U.S. Army Corps of Engineers (ACOE)
- Hydrologic Engineering Center/River Analysis System (HEC-RAS) v5.0.3, developed by U.S. Army Corps of Engineers (ACOE)
- HY-8 Culvert Analysis Program v7.5, provided by the Federal Highway Administration (FHWA)
- *100-Year Flood Plain Analysis and Calculations for The Gateway Project Paso Robles, CA*, prepared by North Coast Engineering (NCE), May 2010
- *Paso Robles Gateway Stormwater Control Plan*, prepared by NCE, July 17, 2003
- Web Soil Survey, prepared by United States Department of Agriculture (USDA) Natural Conservation Service
- Paso Robles Gateway Tentative Tract Map
- Correspondence with City of Paso Robles

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2.0 METHODOLOGY

2.1 HYDROLOGY

The hydrology of the watershed was modeled using the Hydrologic Engineering Center/Hydrologic Modeling System (HEC-HMS) computer program, which was developed by U.S. Army Corps of Engineers (ACOE). The program uses a synthetic storm hydrograph to simulate the peak 100-year/24-hour rainfall and model the runoff hydrographs for the watershed. The program uses curve numbers (CN), which are based on the type of vegetation, along with soil type of the tributary areas. In addition, lag times of the sub-areas were determined, using time of concentration (Tc) x 0.6. The sub-area lag times and CN values were obtained from the NCE 2010 hydrology report (See References). The curve number and time of concentration information are included in Appendix 3.

As discussed above, the 100-year/24-hour rainfall was used as input into the HEC-HMS model, to achieve the hydrograph associated with the peak 24-hour storm event. The peak 24-hour total rainfall of 6.2 inches was determined, using NOAA rainfall estimates for several points throughout the watershed, and calculating a weighted average. The NOAA rainfall information is included in Appendix 4.

The Web Soil Survey website (See Referenced) was utilized to determine the hydrologic soil types. Soil types are classified from "A" to "D", with "A" soils having the highest potential for infiltration, and the lowest potential for runoff, and "D" soils having the lowest potential for infiltration, and therefore the highest potential for runoff. It was determined that the soil types within the project area were in the "C"/"D" range. However, a few of the upstream tributary areas were in soil type "B". The onsite soils information is included in Appendix 5.

2.2 FLOOD HYDROGRAPH DETENTION ROUTING

Due to the limitations of the hydraulic capacities of the existing culverts, as discussed previously in this report, detention basins are proposed within the new development, which will mitigate the flooding potential by reducing the peak outflow to the culverts such that the peak 100-year/24-hour storm flows will not exceed those of the existing condition. HEC-HMS was used to model the proposed project condition, and incorporated the proposed detention basins into the model.

2.3 HYDROLOGIC CALCULATIONS

The existing condition HEC-HMS model is included as Appendix 6 of this report. The model utilizes hydrologic parameters that were developed in the NCE report (see references). The model includes the total tributary drainage areas to the four culverts discussed previously in this report.

The proposed condition HEC-HMS model uses the existing condition model as a base, but incorporates the proposed development, along with detention basins as needed. The purpose of the detention basins is to restrict the proposed condition flows such that they not exceed those of the existing condition to each culvert. The proposed condition HEC-HMS hydrologic model is included as Appendix 7.

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2.4 HYDRAULICS

The hydraulics of the watershed was modeled using the Hydrologic Engineering Center/River Analysis System (HEC-RAS) computer program, which was also developed by the ACOE. Steady flow water surface profiles were modeled using HEC-RAS which performs computations of the one-dimensional energy equation. Energy losses are calculated for friction and contraction/expansions based on the channel geometry and characteristics and the momentum equation is utilized for locations where the water surface profile rapidly changes. HEC-RAS also provides a spatial data and mapping tool for establishing inundation boundaries which correspond to the modeled BFE. The hydraulic capacities of the receiving culverts for Channel-01, -02 and -03C & 03B, the existing 10' X 10' box, 3' X 8' box and 48-in RCP culverts respectively, were analyzed using HY-8 Culvert Analysis Program (HY-8) computer program, which is provided by the FHWA. HY-8 automates the design methods described in HDS-5 No. 5 "Hydraulic Design of Highway Culverts".

2.5 HYDRAULIC CALCULATIONS

The HEC-RAS model for each river and reach were built from cross sectional data obtained from aerial topographic mapping of the proposed project site. Geometry of Channel-01, -02, and -03C & 03B was modeled utilizing the Manning's n-values of 0.045 and 0.10 for the main channel and overbank areas respectively and 0.035 for the main channel and overbanks of Channel-03C, which were obtained from the NCE report. Flows modeled within each channel are based on the results of the HEC-HMS 100-year/24-hour storm event analysis. As previously discussed, hydraulic capacities of the existing culverts are limited. Calculations were therefore prepared to determine the culvert inlet headwater elevations which would in turn cause tailwater effects on the downstream portion of each channel in the form of ponding at the culvert inlet. Inundation boundaries, which correspond to the 100-year BFE for each channel, were modeled and calculated based on the above criteria. Refer to Appendix 9 – HEC-RAS Analysis Results for detailed data on the channel analysis and Appendix 10 – Existing Culvert Calculations for detailed data on the culvert analysis.

The below table summarized the HEC-RAS hydraulic analysis parameters of the existing channels.

Channel	Receiving Culvert	n-value	Flow	Downstream Control
01	10' X 10' Box	0.045 & 0.10	3,313 cfs	760.87 Culvert Headwater Elev.
02	3' X 8' Box	0.045 & 0.10	442 cfs	756.51 Culvert Headwater Elev.
03C-Upper	48-in RCP	0.035	137 cfs	Junction with 03C-Lower
03C-Lower	48-in RCP	0.035	225 cfs	761.14 Culvert Headwater Elev.
03B	48-in RCP	0.045 & 0.10	88 cfs	Junction with 03C-Lower

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3.0 RESULTS

3.1 EXISTING CONDITION HYDROLOGY

The table below summarizes the results of HEC-HMS hydrologic and hydraulic analysis of the existing watershed.

Sub-basin	Area (acres)	Area (sq mi)	Curve Number (CN)	Lag (min)	Q100 (cfs) (sub-basin)	Culvert	Area (acres) to culvert	Existing Q100 (cfs) (culvert)
1a	1,850	6.416	70	33	1481	10'x10' box	4,105	3,313
1b	1,115	1.742	67	28	851			
1c	590	0.922	73	20	504			
1d	550	0.861	75	34	477			
2	515	0.805	74	29	442	3'x8' box	515	442
3a	27	0.042	74	4	24	30" RCP	27	24
3b	100	0.156	74	10	87	48" RCP	258	225
3c	158	0.247	74	17	137			

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3.2 PROPOSED CONDITION HYDROLOGY

Detention basins are proposed, to ensure that the proposed condition runoff does not exceed existing condition. The table below summarizes the results of HEC-HMS hydrologic and hydraulic analysis of the proposed condition watershed.

Sub-basin	Area (acres)	Area (sq mi)	Curve Number (CN)	%-Imper-vious	Lag (min)	Detention Basin Size (ac-ft)	Q100 (cfs) (to culvert)	Culvert	Area (acres) to culvert	Proposed Q100 (cfs) (culvert)
1a	1,850	6.416	70	-	33	-	1481	10'x10' box	4,101	3,313
1b	1,115	1.742	67	-	28	-	851			
1c	590	0.922	73	-	20	-	504			
1d	527	0.8319	75	-	34	-	461			
South	19	0.0291	72	50%	4	1.4	16			
2	509	0.7964	74	-	29	-	437	3'x8' box	515	442
North	6	0.0086	72	70%	4	1.1	5			
3a	31	0.0485	72	40%	4	4.2	24	30" RCP	31	24
3b	82	0.1280	74	-	10	-	72	48" RCP	254	222
3b-1	14	0.0215	72	60%	4	1.7	12			
3c	157	0.2447	74	-	17	-	136			
Southeast	1	0.0023	74	80%	4	0.3	2			

3.3 CHANNEL HYDRAULICS

Analysis results of the 100-year flood limits, which are based on existing channel topography and proposed 100-year/24-hour storm flows, are depicted on the Base Flood Elevation Exhibit and tabulated in the HEC-RAS Analysis Results, which can be found in Appendix 10 and 9 respectively of this report.

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4.0 APPENDICES

Appendix 1	*Aerial Topographic Exhibit*
Appendix 2	*Site Plan*
Appendix 3	*CN Values and Time of Concentration Information*
Appendix 4	*NOAA Precipitation Data*
Appendix 5	*Soils Information*
Appendix 6	*Existing Condition Hydrology*
Appendix 7	*Proposed Condition Hyrology*
Appendix 8	*Base Flood Elevation Exhibit*
Appendix 9	*HEC-RAS Analysis Results*
Appendix 10	Existing Culvert Calculations

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Appendix 1

Aerial Topographic Exhibit

Paso Gateway DEIR Appendix
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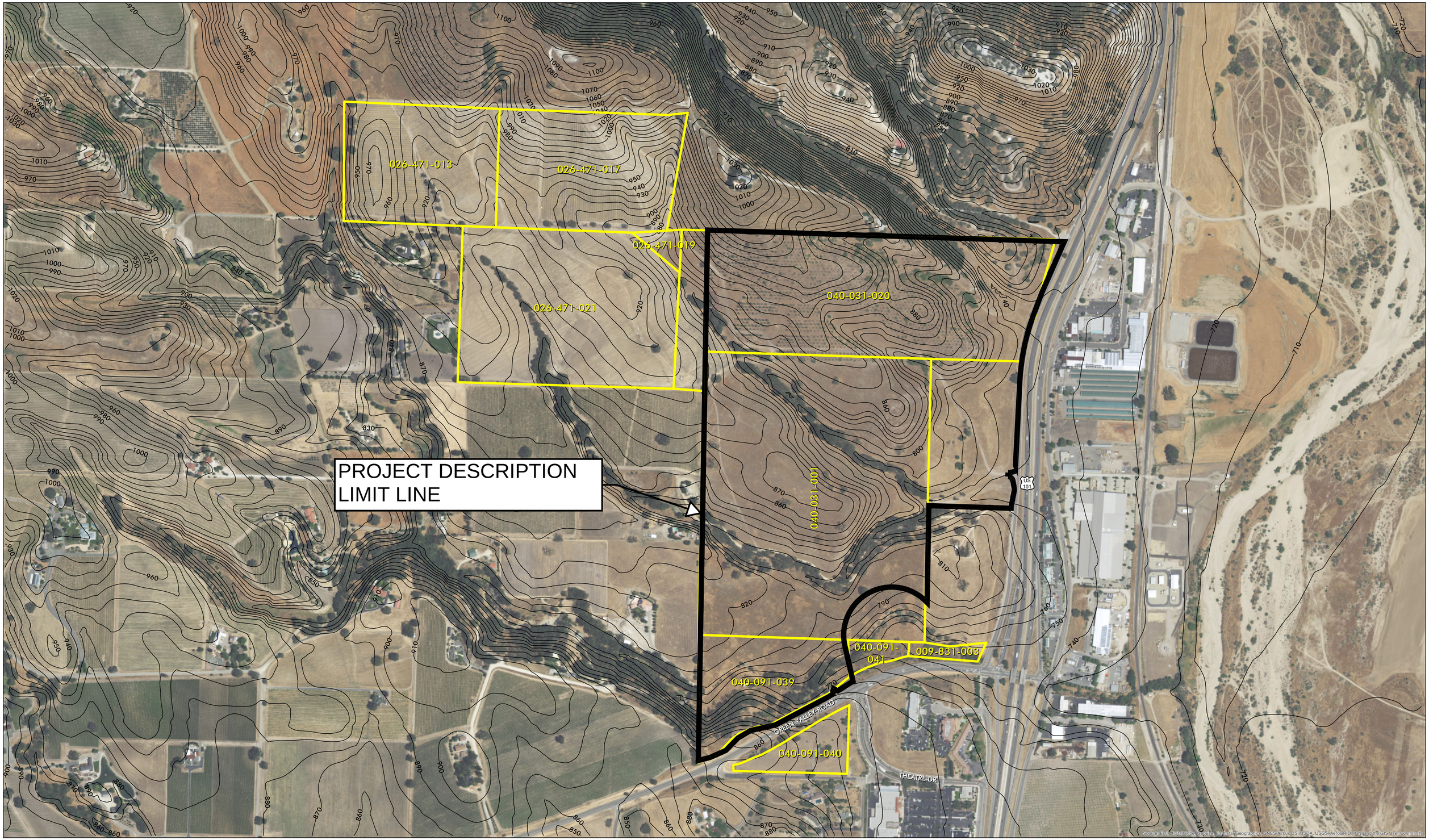
City of Paso Robles
Community Development Dept.



Paso Robles

City of Paso Robles

FUSCOE ENGINEERING
full circle thinking

Project Site

AERIAL TOPOGRAPHIC EXHIBIT

10/18/2017

Paso Gateway SPA Alignment
2/2/2017
City of Paso Robles
Community Development Dept.

0 300 600 Feet

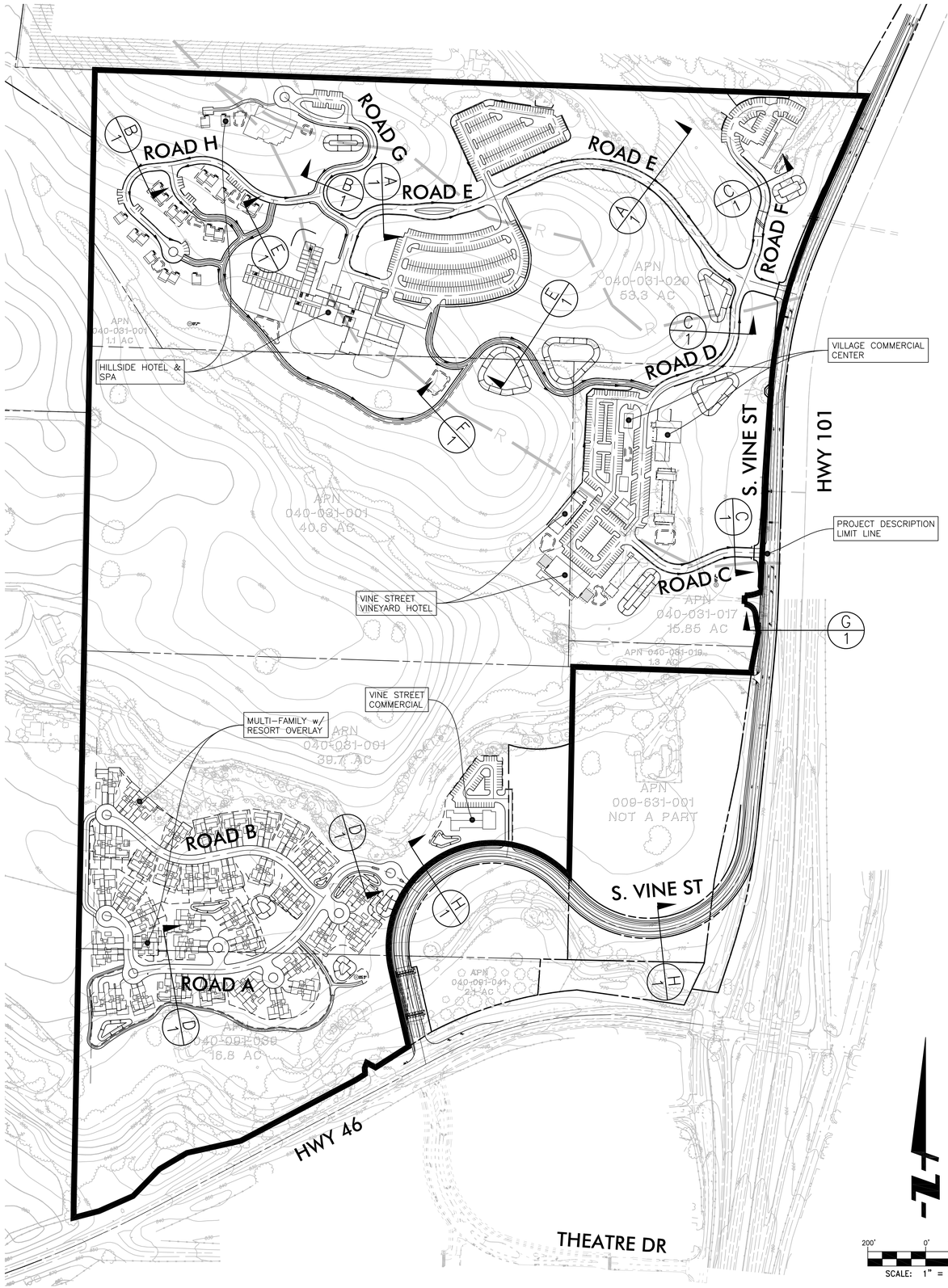
G:\171018_pasoRobles\01\MXD\Exhibits\pasoRobles_171018.mxd

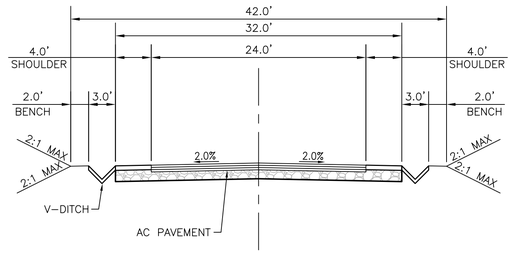
Topo Source: USDA, Imagery Source: USDA/ESRI Aerial Date: 05/30/2016

Appendix 2

Site Plan

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.





TYPICAL STREET SECTION 'A'
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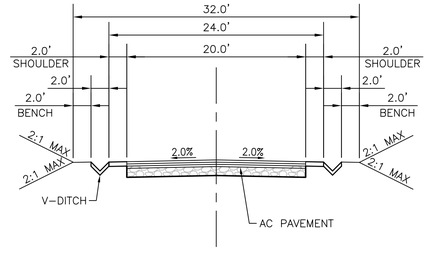

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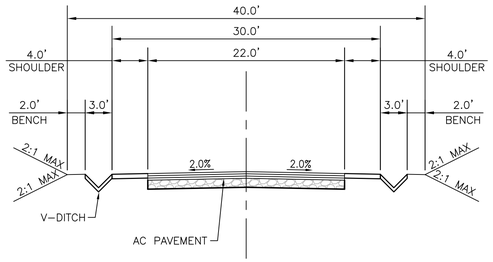

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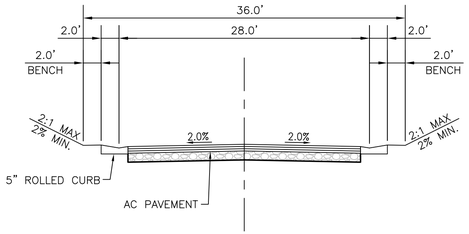

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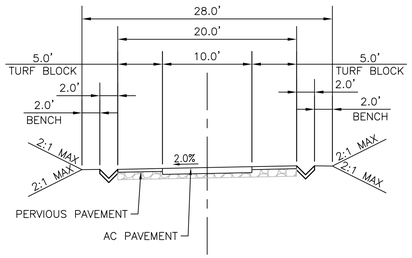

TYPICAL STREET SECTION 'E'
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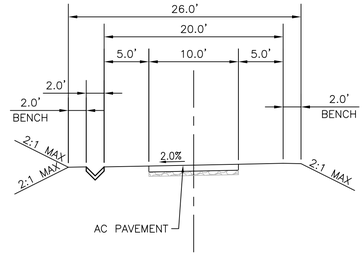

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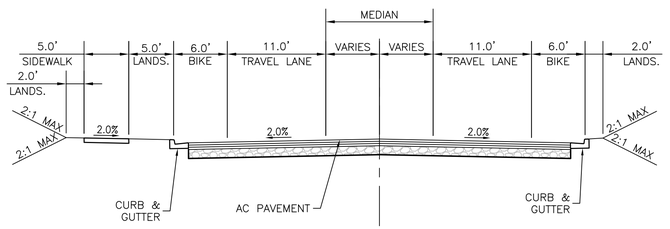

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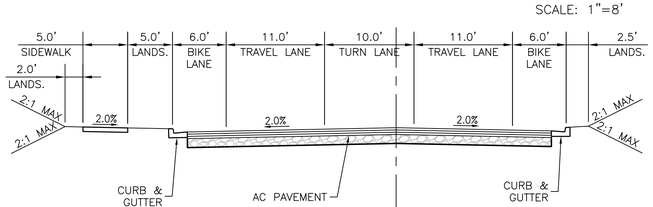

TYPICAL STREET SECTION 'H'
SCALE: 1"=8'

NO.	DATE	REVISION

PASO ROBLES GATEWAY

SITE PLAN & STREET SECTIONS

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

JOB NO. 1208-003
DRAWN BY PSCM
SHEET 2 of 21

Paso Gateway Draft Appendix
2/26/18 Resubmittal
Draft EIR Development Code

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Appendix 3

CN Values and Time of Concentration Information

Paso Gateway DEIR Appendix
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City of Paso Robles
Community Development Dept.

JRL Furlotti

San Luis Opisbo County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Sub-1A	Pasture, grassland or range	(good)	C	700	74
	Pasture, grassland or range	(good)	D	40	80
	Brush - brush, weed, grass mix	(good)	B	75	48
	Brush - brush, weed, grass mix	(good)	C	250	65
	Woods - grass combination	(good)	C	160	72
	Woods	(good)	B	75	55
	Woods	(good)	C	550	70
	Total Area / Weighted Curve Number			1850	70
Sub-3	Row Crop Straight row [SR]	(good)	B	10	78
	Row Crop Straight row [SR]	(good)	C	30	85
	Pasture, grassland or range	(good)	B	15	61
	Pasture, grassland or range	(good)	C	130	74
	Brush - brush, weed, grass mix	(good)	C	10	65
	Woods - grass combination	(good)	C	80	72
	Woods	(poor)	C	10	77
	Total Area / Weighted Curve Number			285	74
Sub-1C	Row Crop Straight row [SR]	(good)	C	10	85
	Small grain Straight row [SR]	(good)	C	200	83
	Pasture, grassland or range	(good)	C	130	74
	Brush - brush, weed, grass mix	(good)	B	50	48
	Brush - brush, weed, grass mix	(good)	C	50	65
	Woods - grass combination	(good)	C	50	72
	Woods	(good)	C	100	70
	Total Area / Weighted Curve Number			590	73
Sub-2	Row Crop Straight row [SR]	(good)	C	50	85
	Small grain Straight row [SR]	(good)	C	100	83
	Pasture, grassland or range	(good)	C	150	74
	Brush - brush, weed, grass mix	(good)	B	20	48
	Brush - brush, weed, grass mix	(good)	C	50	65
	Woods - grass combination	(good)	C	60	72
	Woods	(good)	B	15	55
	Woods	(good)	C	70	70
	Total Area / Weighted Curve Number			515	74
Sub-1B	Small grain Straight row [SR]	(poor)	C	30	84
	Pasture, grassland or range	(good)	C	480	74
	Brush - brush, weed, grass mix	(good)	B	130	48
	Brush - brush, weed, grass mix	(good)	C	100	65
	Woods - grass combination	(good)	C	50	72
	Woods	(good)	B	125	55
	Woods	(good)	C	200	70
	Total Area / Weighted Curve Number			1115	67

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JRL Furlotti

San Luis Opisbo County, California

Sub-Area Land Use and Curve Number Details (continued)

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Sub-1D	Row Crop Straight row [SR]	(good)	B	50	78
	Row Crop Straight row [SR]	(good)	C	210	85
	Pasture, grassland or range	(good)	B	50	61
	Pasture, grassland or range	(good)	C	140	74
	Brush - brush, weed, grass mix	(good)	B	40	48
	Woods - grass combination	(good)	C	40	72
	Woods	(good)	C	20	70
	Total Area / Weighted Curve Number			550	75
				===	==

Paso Gateway DEIR Appendix
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Community Development Dept.

Calculations prepared by NCE (May 2010)

JRL

Furlotti

San Luis Opisbo County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)	Tc (min)	Lag (min)
Sub-1A									
SHEET	100	0.1000	0.150				0.087		
SHALLOW	1500	0.0800	0.050				0.091		
CHANNEL	20000	0.0260	0.045	39.00	23.00	7.590	0.732		
					Time of Concentration		.91	55	33
Sub-3									
SHEET	100	0.1000	0.150				0.087		
SHALLOW	1000	0.0500	0.050				0.077		
CHANNEL	7500	0.0220	0.045	39.00	23.00	6.991	0.298		
					Time of Concentration		.462	28	17
Sub-1C									
SHEET	100	0.1000	0.150				0.087		
SHALLOW	1400	0.0700	0.050				0.091		
CHANNEL	9000	0.0200	0.045	39.00	23.00	6.667	0.375		
					Time of Concentration		.553	33	20
Sub-2									
SHEET	100	0.1000	0.150				0.087		
SHALLOW	2000	0.1200	0.050				0.099		
CHANNEL	15000	0.0210	0.045	39.00	23.00	6.819	0.611		
					Time of Concentration		.797	48	29
Sub-1B									
SHEET	100	0.1000	0.150				0.087		
SHALLOW	4000	0.1100	0.025				0.165		
CHANNEL	15000	0.0300	0.045	39.00	23.00	8.154	0.511		
					Time of Concentration		.763	46	28
Sub-1D									
SHEET	100	0.1000	0.150				0.087		
SHALLOW	2200	0.0600	0.050				0.155		
CHANNEL	12500	0.0110	0.045	39.00	23.00	4.939	0.703		
					Time of Concentration		.945	57	34

Paso Gateway DEIR Appendix
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City of Paso Robles
Community Development Dept.

Calculations prepared by NCE (May 2010)

JRL

Furlotti

San Luis Opisbo County, California

Reach Channel Rating Details

Reach Identifier	Reach Length (ft)	Reach Manning's n	Friction Slope (ft/ft)	Bottom Width (ft)	Side Slope
r-1	8500	0.045	0.022	4	3 :1
r-2	12500	0.045	0.011	4	3 :1

Reach Identifier	Stage (ft)	Flow (cfs)	End Area (sq ft)	Top Width (ft)	Friction Slope (ft/ft)
r-1	0.0	0.000	0	4	0.022
	0.5	21.454	2.8	7	
	1.0	79.782	7	10	
	2.0	333.767	20	16	
	5.0	2698.001	95	34	
	10.0	14791.439	340	64	
	20.0	86619.825	1280	124	
r-2	0.0	0.000	0	4	0.011
	0.5	5.031	2.8	7	
	1.0	18.710	7	10	
	2.0	78.275	20	16	
	5.0	632.737	95	34	
	10.0	3468.900	340	64	
	20.0	20314.150	1280	124	

r-1	tt (hr)	tc (min)	lag (min)
r-1	0.375	23	14
r-2	0.703	42	25

Paso Gateway DEIR Appendix
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Community Development Dept.

Appendix 4

NOAA Precipitation Data

Paso Gateway DEIR Appendix
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City of Paso Robles
Community Development Dept.

NOAA Atlas 14, Volume 6, Version 2
Location name: Paso Robles, California, US*
Coordinates: 35.5985, -120.7027
Elevation: 981 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.122** (0.103-0.145)	**0.156** (0.132-0.186)	**0.204** (0.172-0.243)	**0.244** (0.204-0.294)	**0.302** (0.243-0.378)	**0.349** (0.274-0.448)	**0.399** (0.305-0.526)	**0.453** (0.336-0.617)	**0.530** (0.375-0.757)	**0.594** (0.404-0.881)
10-min	**0.175** (0.148-0.208)	**0.224** (0.190-0.267)	**0.292** (0.247-0.349)	**0.350** (0.293-0.422)	**0.433** (0.349-0.542)	**0.500** (0.393-0.642)	**0.572** (0.437-0.754)	**0.649** (0.481-0.884)	**0.760** (0.537-1.08)	**0.851** (0.579-1.26)
15-min	**0.211** (0.179-0.251)	**0.271** (0.230-0.323)	**0.353** (0.298-0.422)	**0.423** (0.354-0.510)	**0.523** (0.422-0.656)	**0.605** (0.476-0.776)	**0.691** (0.529-0.912)	**0.785** (0.582-1.07)	**0.919** (0.650-1.31)	**1.03** (0.700-1.53)
30-min	**0.297** (0.252-0.353)	**0.381** (0.323-0.454)	**0.496** (0.419-0.593)	**0.595** (0.498-0.718)	**0.736** (0.593-0.922)	**0.850** (0.669-1.09)	**0.972** (0.744-1.28)	**1.10** (0.818-1.50)	**1.29** (0.914-1.84)	**1.45** (0.984-2.15)
60-min	**0.438** (0.372-0.521)	**0.561** (0.476-0.669)	**0.731** (0.618-0.874)	**0.877** (0.734-1.06)	**1.08** (0.874-1.36)	**1.25** (0.986-1.61)	**1.43** (1.10-1.89)	**1.63** (1.21-2.22)	**1.90** (1.35-2.72)	**2.13** (1.45-3.17)
2-hr	**0.645** (0.547-0.767)	**0.812** (0.689-0.968)	**1.04** (0.883-1.25)	**1.24** (1.04-1.50)	**1.53** (1.24-1.92)	**1.77** (1.39-2.27)	**2.02** (1.54-2.66)	**2.29** (1.70-3.12)	**2.68** (1.90-3.83)	**3.01** (2.05-4.46)
3-hr	**0.800** (0.679-0.952)	**1.01** (0.855-1.20)	**1.30** (1.09-1.55)	**1.54** (1.29-1.86)	**1.90** (1.53-2.38)	**2.19** (1.72-2.81)	**2.50** (1.91-3.30)	**2.83** (2.10-3.86)	**3.31** (2.34-4.73)	**3.71** (2.53-5.51)
6-hr	**1.12** (0.954-1.34)	**1.44** (1.22-1.71)	**1.87** (1.58-2.23)	**2.23** (1.87-2.69)	**2.75** (2.22-3.45)	**3.17** (2.50-4.07)	**3.62** (2.77-4.77)	**4.09** (3.03-5.58)	**4.77** (3.38-6.82)	**5.33** (3.63-7.91)
12-hr	**1.40** (1.19-1.67)	**1.90** (1.61-2.27)	**2.57** (2.17-3.07)	**3.12** (2.61-3.76)	**3.87** (3.12-4.85)	**4.46** (3.51-5.73)	**5.07** (3.88-6.70)	**5.71** (4.23-7.78)	**6.59** (4.66-9.41)	**7.29** (4.96-10.8)
24-hr	**1.68** (1.53-1.90)	**2.41** (2.18-2.72)	**3.36** (3.03-3.80)	**4.13** (3.70-4.71)	**5.18** (4.49-6.11)	**5.99** (5.08-7.21)	**6.80** (5.63-8.39)	**7.64** (6.15-9.69)	**8.78** (6.78-11.6)	**9.67** (7.21-13.2)
2-day	**2.14** (1.94-2.41)	**3.02** (2.73-3.40)	**4.18** (3.78-4.73)	**5.16** (4.61-5.88)	**6.50** (5.63-7.66)	**7.55** (6.40-9.09)	**8.64** (7.15-10.7)	**9.78** (7.87-12.4)	**11.3** (8.76-15.0)	**12.6** (9.40-17.2)
3-day	**2.44** (2.21-2.75)	**3.39** (3.07-3.83)	**4.68** (4.22-5.29)	**5.76** (5.16-6.57)	**7.29** (6.31-8.59)	**8.51** (7.21-10.2)	**9.78** (8.09-12.1)	**11.1** (8.96-14.1)	**13.0** (10.1-17.2)	**14.6** (10.9-19.9)
4-day	**2.67** (2.42-3.01)	**3.67** (3.32-4.14)	**5.04** (4.55-5.70)	**6.21** (5.56-7.08)	**7.86** (6.80-9.26)	**9.18** (7.79-11.1)	**10.6** (8.76-13.1)	**12.1** (9.72-15.3)	**14.2** (11.0-18.8)	**15.9** (11.9-21.8)
7-day	**3.22** (2.92-3.63)	**4.33** (3.92-4.89)	**5.87** (5.30-6.64)	**7.18** (6.43-8.19)	**9.07** (7.85-10.7)	**10.6** (8.98-12.7)	**12.2** (10.1-15.1)	**14.0** (11.2-17.7)	**16.5** (12.7-21.8)	**18.5** (13.8-25.3)
10-day	**3.63** (3.29-4.09)	**4.83** (4.38-5.45)	**6.50** (5.87-7.35)	**7.93** (7.10-9.04)	**9.98** (8.65-11.8)	**11.7** (9.89-14.0)	**13.4** (11.1-16.6)	**15.4** (12.4-19.5)	**18.2** (14.0-24.0)	**20.5** (15.3-28.0)
20-day	**4.55** (4.12-5.12)	**6.02** (5.45-6.78)	**8.06** (7.27-9.11)	**9.81** (8.78-11.2)	**12.3** (10.7-14.5)	**14.4** (12.2-17.3)	**16.6** (13.8-20.5)	**19.0** (15.3-24.1)	**22.5** (17.4-29.7)	**25.4** (18.9-34.7)
30-day	**5.39** (4.88-6.07)	**7.15** (6.47-8.06)	**9.59** (8.65-10.8)	**11.7** (10.5-13.3)	**14.7** (12.7-17.3)	**17.1** (14.5-20.6)	**19.7** (16.3-24.3)	**22.6** (18.2-28.6)	**26.6** (20.6-35.2)	**30.0** (22.4-41.0)
45-day	**6.48** (5.87-7.30)	**8.62** (7.80-9.72)	**11.6** (10.4-13.1)	**14.1** (12.6-16.1)	**17.7** (15.3-20.8)	**20.6** (17.4-24.8)	**23.7** (19.6-29.2)	**27.0** (21.7-34.2)	**31.8** (24.5-42.0)	**35.7** (26.6-48.8)
60-day	**7.56** (6.85-8.52)	**10.1** (9.12-11.4)	**13.5** (12.2-15.3)	**16.4** (14.7-18.7)	**20.6** (17.8-24.2)	**23.9** (20.3-28.8)	**27.4** (22.7-33.8)	**31.2** (25.1-39.6)	**36.6** (28.2-48.4)	**41.0** (30.6-56.1)

[1] Precipitation frequency (FF) estimates in this table are based on frequency analysis of partial duration series (FDS).

Numbers in parenthesis are FF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMF) estimates and may be higher than currently valid PMF values.

Please refer to NOAA Atlas 14 document for more information.

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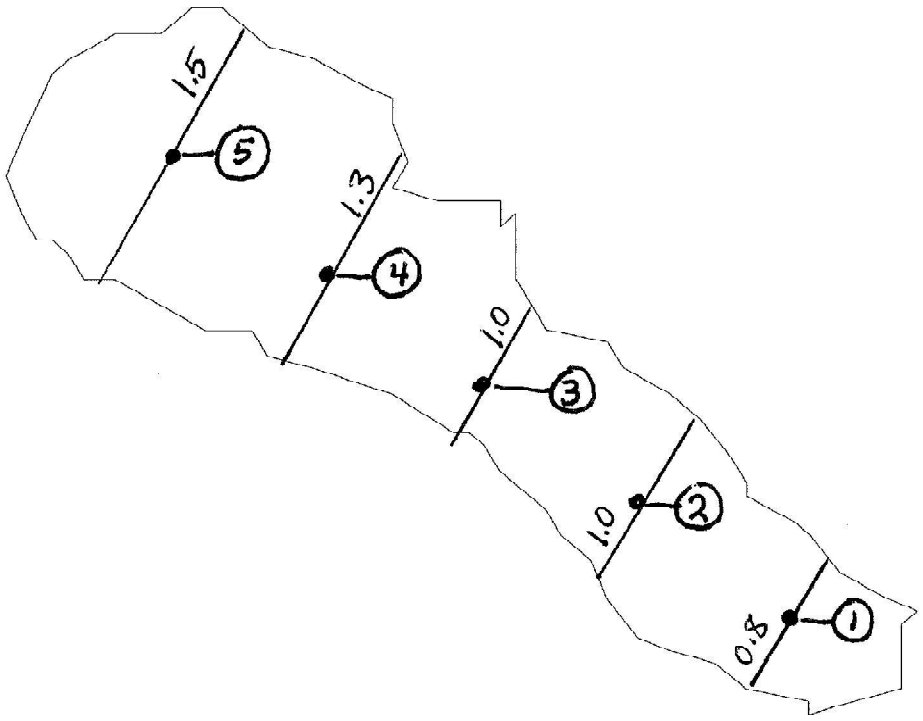
Calculations prepared by NCE (May 2010)

NOAA ATLAS 2 100 YEAR- 24 HOUR RAINFALL

Location	Latitude	Longitude	Rainfall	Weighting Factor	Weighted Rainfall
1	35.591	-120.696	5.71"	0.8	4.57"
2	35.603	-120.712	5.81"	1.0	5.81"
3	35.619	-120.731	6.00"	1.0	6.00"
4	35.636	-120.753	6.38"	1.3	8.29"
5	35.646	-120.769	6.78"	1.5	10.17"
				Sum:	**34.84"**

Weighted Average = 384.84" / 5.6 = 6.22" **Use 6.2"/24-hr in HEC-HMS model**



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Precipitation Frequency Data Output

NOAA Atlas 2
California 35.591□N 120.696□W
Site-specific Estimates

Map	Precipitation (inches)	Precipitation Intensity (in/hr)
2-year 6-hour	1.63	0.27
2-year 24-hour	2.73	0.11
100-year 6-hour	3.56	0.59
100-year 24-hour	5.71	0.24

Hydrometeorological Design Studies Center - NOAA/National Weather Service
1325 East-West Highway - Silver Spring, MD 20910 - (301) 713-1669
Tue Apr 27 19:42:35 2010

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Precipitation Frequency Data Output

NOAA Atlas 2
California 35.603□N 120.712□W
Site-specific Estimates

Map	Precipitation (inches)	Precipitation Intensity (in/hr)
2-year 6-hour	1.67	0.28
2-year 24-hour	2.89	0.12
100-year 6-hour	3.66	0.61
100-year 24-hour	5.81	0.24

Hydrometeorological Design Studies Center - NOAA/National Weather Service
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Tue Apr 27 19:43:00 2010

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Precipitation Frequency Data Output

NOAA Atlas 2
California 35.619□N 120.731□W
Site-specific Estimates

Map	Precipitation (inches)	Precipitation Intensity (in/hr)
2-year 6-hour	1.80	0.30
2-year 24-hour	3.10	0.13
100-year 6-hour	3.81	0.64
100-year 24-hour	6.00	0.25

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Tue Apr 27 19:43:29 2010

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Precipitation Frequency Data Output

NOAA Atlas 2
California 35.636□N 120.753□W
Site-specific Estimates

Map	Precipitation (inches)	Precipitation Intensity (in/hr)
2-year 6-hour	1.86	0.31
2-year 24-hour	3.34	0.14
100-year 6-hour	3.96	0.66
100-year 24-hour	6.38	0.27

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Tue Apr 27 19:44:11 2010

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Precipitation Frequency Data Output

NOAA Atlas 2
California 35.646°N 120.769°W
Site-specific Estimates

Map	Precipitation (inches)	Precipitation Intensity (in/hr)
2-year 6-hour	1.92	0.32
2-year 24-hour	3.42	0.14
100-year 6-hour	4.05	0.68
100-year 24-hour	6.78	0.28

Hydrometeorological Design Studies Center - NOAA/National Weather Service
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Tue Apr 27 19:44:47 2010

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Appendix 5

Soils Information

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United States Department of Agriculture

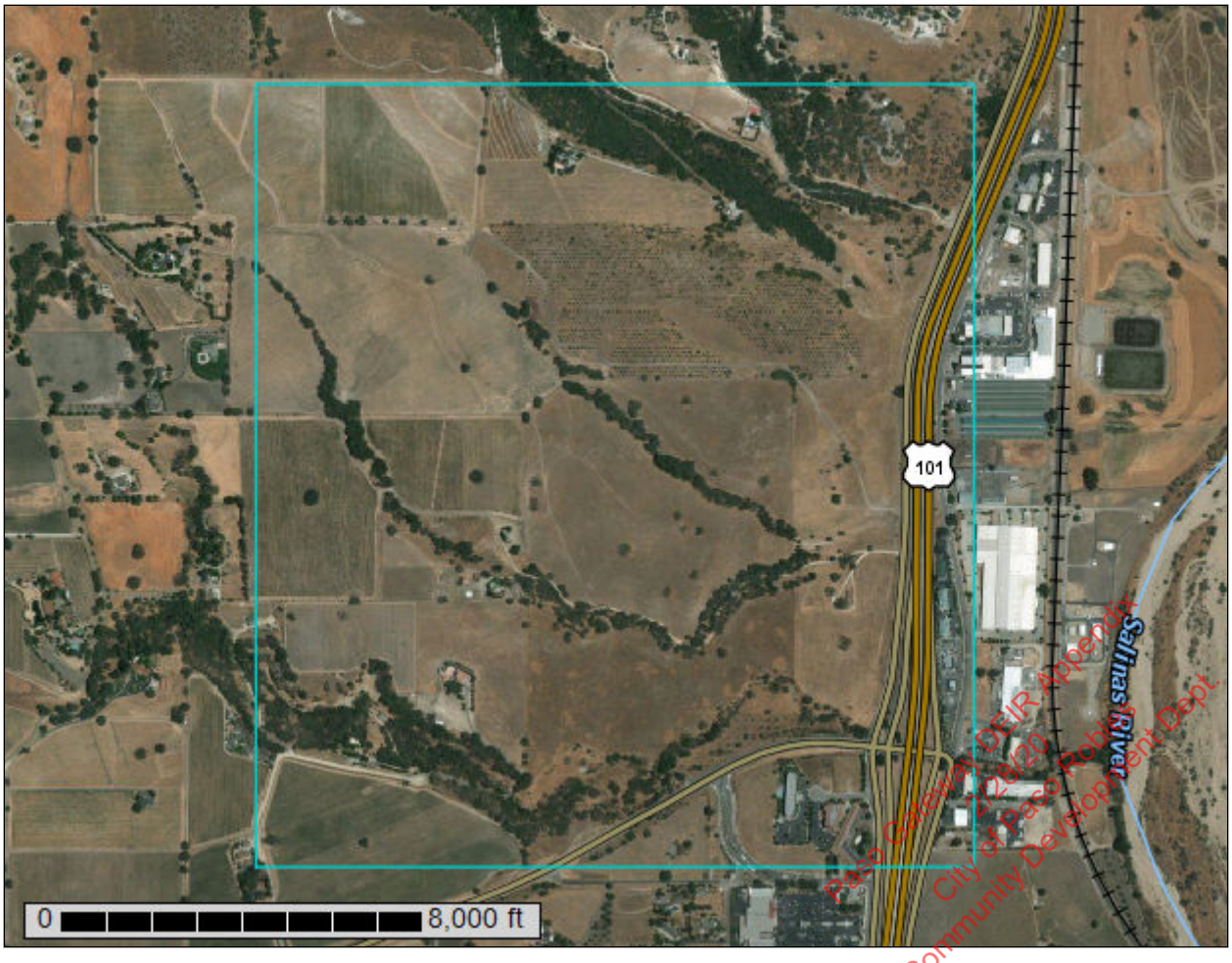
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Luis Obispo County, California, Paso Robles Area

Gateway Paso Robles Project



April 10, 2018

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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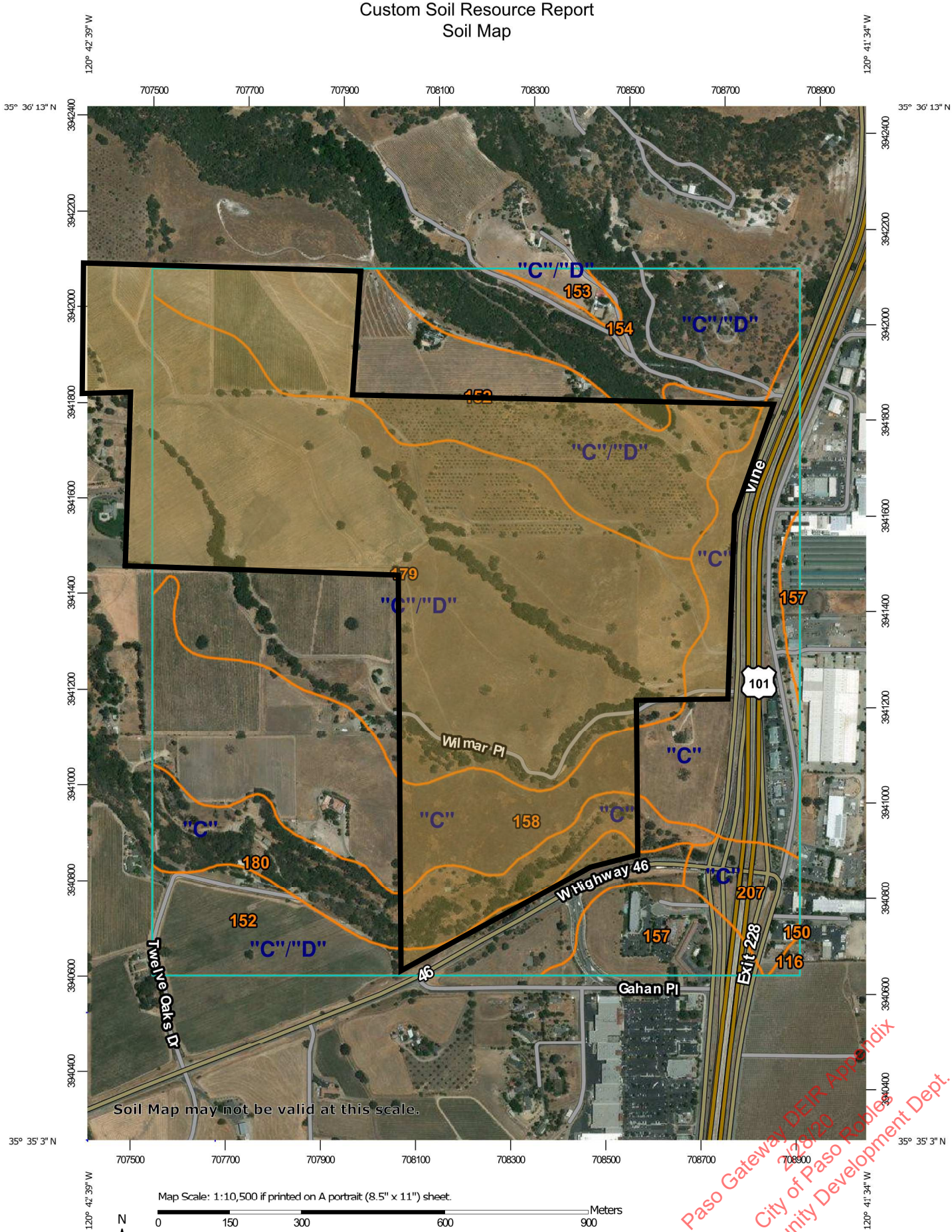
Custom Soil Resource Report
Soil Map



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MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Luis Obispo County, California, Paso Robles Area
Survey Area Data: Version 11, Sep 13, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 16, 2016—Feb 23, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

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MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
116	Botella sandy loam, 2 to 9 percent slopes, MLRA 14	0.7	0.1%
150	Hanford and Greenfield gravelly sandy loams, 2 to 9 percent slopes	0.1	0.0%
152	Linne-Calodo complex, 9 to 30 percent slopes	109.5	22.0%
153	Linne-Calodo complex, 30 to 50 percent slopes	3.1	0.6%
154	Linne-Calodo complex, 50 to 75 percent lsopes	42.1	8.4%
157	Lockwood channery loam, 0 to 2 percent slopes, MLRA 14	17.9	3.6%
158	Lockwood shaly loam, 2 to 9 percent slopes	109.6	22.0%
179	Nacimiento-Los Osos complex, 9 to 30 percent slopes	169.6	34.0%
180	Nacimiento-Los Osos complex, 30 to 50 percent slopes	35.0	7.0%
207	Still gravelly loam, 0 to 2 percent slopes	10.9	2.2%
Totals for Area of Interest		**498.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a

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particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

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San Luis Obispo County, California, Paso Robles Area

116—Botella sandy loam, 2 to 9 percent slopes, MLRA 14

Map Unit Setting

National map unit symbol: 2tyz4
Elevation: 760 to 1,940 feet
Mean annual precipitation: 17 to 21 inches
Mean annual air temperature: 58 to 59 degrees F
Frost-free period: 300 to 330 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Botella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Botella

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

A1 - 0 to 16 inches: sandy loam
A2 - 16 to 21 inches: sandy loam
2Bt1 - 21 to 46 inches: sandy clay loam
2Bt2 - 46 to 60 inches: sandy clay loam
2C - 60 to 65 inches: sandy clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: LOAMY BOTTOMLAND (R014XY001CA)
Hydric soil rating: No

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Minor Components

Concepcion

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Elder

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Arujo

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Metz

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

San andreas

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Unnamed, wet spots

Percent of map unit: 1 percent
Landform: Alluvial fans, depressions, drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: Yes

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150—Hanford and Greenfield gravelly sandy loams, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hbt3
Elevation: 600 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 degrees F
Frost-free period: 200 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Hanford and similar soils: 40 percent
Greenfield and similar soils: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hanford

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed rock sources

Typical profile

H1 - 0 to 25 inches: gravelly sandy loam
H2 - 25 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: COARSE LOAMY BOTTOM (R014XE032CA)

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Hydric soil rating: No

Description of Greenfield

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed rock sources

Typical profile

H1 - 0 to 8 inches: gravelly sandy loam
H2 - 8 to 54 inches: gravelly sandy loam
H3 - 54 to 60 inches: stratified very gravelly sand to gravelly sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: COARSE LOAMY BOTTOM (R014XE032CA)
Hydric soil rating: No

Minor Components

Arbuckle, fine sandy loam

Percent of map unit: 15 percent
Hydric soil rating: No

San ysidro, loam

Percent of map unit: 9 percent
Hydric soil rating: No

Cropley, clay

Percent of map unit: 1 percent
Hydric soil rating: No

Lockwood, shaley loam

Percent of map unit: 1 percent
Hydric soil rating: No

Metz, loamy sand

Percent of map unit: 1 percent
Hydric soil rating: No

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Pico, fine sandy loam
Percent of map unit: 1 percent
Hydric soil rating: No

Rincon, clay loam
Percent of map unit: 1 percent
Hydric soil rating: No

Tujunga, fine sand
Percent of map unit: 1 percent
Hydric soil rating: No

152—Linne-Calodo complex, 9 to 30 percent slopes

Map Unit Setting

National map unit symbol: hbt5
Elevation: 600 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 to 61 degrees F
Frost-free period: 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Linne and similar soils: 30 percent
Calodo and similar soils: 25 percent
Minor components: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Linne

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale and/or sandstone

Typical profile

H1 - 0 to 39 inches: channery clay loam
H2 - 39 to 43 inches: weathered bedrock

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches

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Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: GRAVELLY FINE LOAMY (R015XE103CA)
Hydric soil rating: No

Description of Calodo

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale and/or residuum weathered from calcareous sandstone

Typical profile

H1 - 0 to 16 inches: clay loam
H2 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: SHALLOW FINE LOAMY (R015XE043CA)
Hydric soil rating: No

Minor Components

Nacimiento, silty clay loam

Percent of map unit: 15 percent
Hydric soil rating: No

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Los osos, clay loam
Percent of map unit: 10 percent
Hydric soil rating: No

Unnamed, similar to linne soil
Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, similar to calodo soil
Percent of map unit: 4 percent
Hydric soil rating: No

Ayar, silty clay
Percent of map unit: 1 percent
Hydric soil rating: No

Balcom, loam
Percent of map unit: 1 percent
Hydric soil rating: No

Cropley, clay
Percent of map unit: 1 percent
Hydric soil rating: No

Diablo, clay
Percent of map unit: 1 percent
Hydric soil rating: No

Lockwood, shaley loam
Percent of map unit: 1 percent
Hydric soil rating: No

Rock outcrop
Percent of map unit: 1 percent
Hydric soil rating: No

153—Linne-Calodo complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hbt6
Elevation: 500 to 2,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 to 61 degrees F
Frost-free period: 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Linne and similar soils: 30 percent
Calodo and similar soils: 25 percent
Minor components: 45 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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Description of Linne

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale and/or sandstone

Typical profile

H1 - 0 to 39 inches: channery clay loam
H2 - 39 to 43 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: GRAVELLY FINE LOAMY (R015XE103CA)
Hydric soil rating: No

Description of Calodo

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale and/or residuum weathered from calcareous sandstone

Typical profile

H1 - 0 to 16 inches: clay loam
H2 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high

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Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups
Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: SHALLOW FINE LOAMY (R015XE043CA)
Hydric soil rating: No

Minor Components

Nacimiento, silty clay loam
Percent of map unit: 15 percent
Hydric soil rating: No

Los osos, clay loam
Percent of map unit: 10 percent
Hydric soil rating: No

Zakme, clay
Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, similar to linne soil
Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, similar to calodo soil
Percent of map unit: 4 percent
Hydric soil rating: No

Ayar, silty clay
Percent of map unit: 1 percent
Hydric soil rating: No

Balcom, loam
Percent of map unit: 1 percent
Hydric soil rating: No

Cropley, clay
Percent of map unit: 1 percent
Hydric soil rating: No

Diablo, clay
Percent of map unit: 1 percent
Hydric soil rating: No

Lockwood, shaly loam
Percent of map unit: 1 percent
Hydric soil rating: No

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Rock outcrop
Percent of map unit: 1 percent
Hydric soil rating: No

154—Linne-Calodo complex, 50 to 75 percent lsopes

Map Unit Setting
National map unit symbol: hbt7
Elevation: 500 to 2,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 to 61 degrees F
Frost-free period: 200 days
Farmland classification: Not prime farmland

Map Unit Composition
Linne and similar soils: 30 percent
Calodo and similar soils: 25 percent
Minor components: 45 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Linne

Setting
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale and/or sandstone

Typical profile
H1 - 0 to 39 inches: channery clay loam
H2 - 39 to 43 inches: weathered bedrock

Properties and qualities
Slope: 50 to 75 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.1 inches)

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Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: GRAVELLY FINE LOAMY (R015XE103CA)
Hydric soil rating: No

Description of Calodo

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale and/or residuum weathered from calcareous sandstone

Typical profile

H1 - 0 to 16 inches: clay loam
H2 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: SHALLOW FINE LOAMY (R015XE043CA)
Hydric soil rating: No

Minor Components

Zakme, clay

Percent of map unit: 15 percent
Hydric soil rating: No

Unnamed, similar to linne soil

Percent of map unit: 15 percent
Hydric soil rating: No

Unnamed, similar to calodo soil

Percent of map unit: 8 percent
Hydric soil rating: No

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Ayar, silty clay
Percent of map unit: 1 percent
Hydric soil rating: No

Balcom, loam
Percent of map unit: 1 percent
Hydric soil rating: No

Diablo, clay
Percent of map unit: 1 percent
Hydric soil rating: No

Los osos, clay loam
Percent of map unit: 1 percent
Hydric soil rating: No

Rock outcrop
Percent of map unit: 1 percent
Hydric soil rating: No

Shimmon, loam
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, slopes of 30 to 50 percent
Percent of map unit: 1 percent
Hydric soil rating: No

157—Lockwood channery loam, 0 to 2 percent slopes, MLRA 14

Map Unit Setting

National map unit symbol: 2tb7m
Elevation: 100 to 2,000 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 310 to 350 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Lockwood and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lockwood

Setting

Landform: Alluvial fans, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from acid shale

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Typical profile

Ap1 - 0 to 3 inches: channery loam
Ap2 - 3 to 16 inches: channery loam
AB - 16 to 26 inches: channery loam
BA - 26 to 40 inches: channery clay loam
Bt1 - 40 to 57 inches: channery clay loam
Bt2 - 57 to 82 inches: channery clay loam
C - 82 to 86 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Arbuckle

Percent of map unit: 3 percent
Hydric soil rating: No

Rincon

Percent of map unit: 2 percent
Hydric soil rating: No

Cropley

Percent of map unit: 2 percent
Hydric soil rating: No

Salinas

Percent of map unit: 2 percent
Hydric soil rating: No

Pinnacles

Percent of map unit: 2 percent
Hydric soil rating: No

Chamise

Percent of map unit: 2 percent
Hydric soil rating: No

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158—Lockwood shaly loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hbtc
Elevation: 600 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 degrees F
Frost-free period: 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lockwood and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lockwood

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 26 inches: channery loam
H2 - 26 to 62 inches: channery clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

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Minor Components

Unnamed, similar to lockwood soil
Percent of map unit: 10 percent
Hydric soil rating: No

Elder, loam
Percent of map unit: 2 percent
Hydric soil rating: No

Still, gravelly loam
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, areas with cobbles on the surface
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 1 percent
Landform: Drainageways
Hydric soil rating: Yes

179—Nacimiento-Los Osos complex, 9 to 30 percent slopes

Map Unit Setting
National map unit symbol: hbv1
Elevation: 600 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 degrees F
Frost-free period: 200 days
Farmland classification: Not prime farmland

Map Unit Composition
Nacimiento and similar soils: 30 percent
Los osos and similar soils: 20 percent
Minor components: 50 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nacimiento

Setting
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale and/or sandstone

Typical profile
H1 - 0 to 18 inches: silty clay loam

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H2 - 18 to 28 inches: silty clay loam
H3 - 28 to 32 inches: weathered bedrock

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: Fine Loamy 9-13 (R015XE020CA)
Hydric soil rating: No

Description of Los Osos

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from shale and/or sandstone

Typical profile

H1 - 0 to 14 inches: clay loam
H2 - 14 to 24 inches: clay
H3 - 24 to 59 inches: weathered bedrock

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e

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Hydrologic Soil Group: D
Ecological site: Fine Loamy 9-13 (R015XE020CA)
Hydric soil rating: No

Minor Components

Balcom, loam
Percent of map unit: 10 percent
Hydric soil rating: No

Positas, coarse sandly loam
Percent of map unit: 10 percent
Hydric soil rating: No

Unnamed, similar to los osos soil
Percent of map unit: 10 percent
Hydric soil rating: No

Ayar, silty clay
Percent of map unit: 5 percent
Hydric soil rating: No

Diablo, clay
Percent of map unit: 5 percent
Hydric soil rating: No

Shimmon, loam
Percent of map unit: 5 percent
Hydric soil rating: No

Arbuckle, fine sandy loam
Percent of map unit: 1 percent
Hydric soil rating: No

Greenfield, fine sandy loam
Percent of map unit: 1 percent
Hydric soil rating: No

Rincon, clay loam
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, gr/cb surfaces
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, slopes of 30 to 50 percent
Percent of map unit: 1 percent
Hydric soil rating: No

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180—Nacimiento-Los Osos complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hbv2
Elevation: 600 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 degrees F
Frost-free period: 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Nacimiento and similar soils: 30 percent
Los osos and similar soils: 20 percent
Minor components: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nacimiento

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale and/or sandstone

Typical profile

H1 - 0 to 18 inches: silty clay loam
H2 - 18 to 28 inches: silty clay loam
H3 - 28 to 32 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e

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Hydrologic Soil Group: C
Ecological site: Fine Loamy 9-13 (R015XE020CA)
Hydric soil rating: No

Description of Los Osos

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from shale and/or sandstone

Typical profile

H1 - 0 to 14 inches: clay loam
H2 - 14 to 24 inches: clay
H3 - 24 to 59 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: Fine Loamy 9-13 (R015XE020CA)
Hydric soil rating: No

Minor Components

Shimmon, loam

Percent of map unit: 10 percent
Hydric soil rating: No

Unnamed, similar to los osos soil

Percent of map unit: 10 percent
Hydric soil rating: No

Ayar, silty clay

Percent of map unit: 5 percent
Hydric soil rating: No

Balcom, loam

Percent of map unit: 5 percent
Hydric soil rating: No

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Linne, shaly clay loam
Percent of map unit: 5 percent
Hydric soil rating: No

207—Still gravelly loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hbvy
Elevation: 600 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 degrees F
Frost-free period: 200 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Still and similar soils: 85 percent
Minor components: 11 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Still

Setting
Landform: Alluvial flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile
H1 - 0 to 28 inches: gravelly loam
H2 - 28 to 60 inches: stratified gravelly loam to gravelly clay loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.2 inches)

Interpretive groups
Land capability classification (irrigated): 2s

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Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Clear lake, clay
Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Metz, loamy sand
Percent of map unit: 3 percent
Hydric soil rating: No

Riverwash
Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Unnamed, slopes of 2 to 9 percent
Percent of map unit: 1 percent
Hydric soil rating: No

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Appendix 6

Existing Condition Hydrology

Paso Gateway DEIR Appendix
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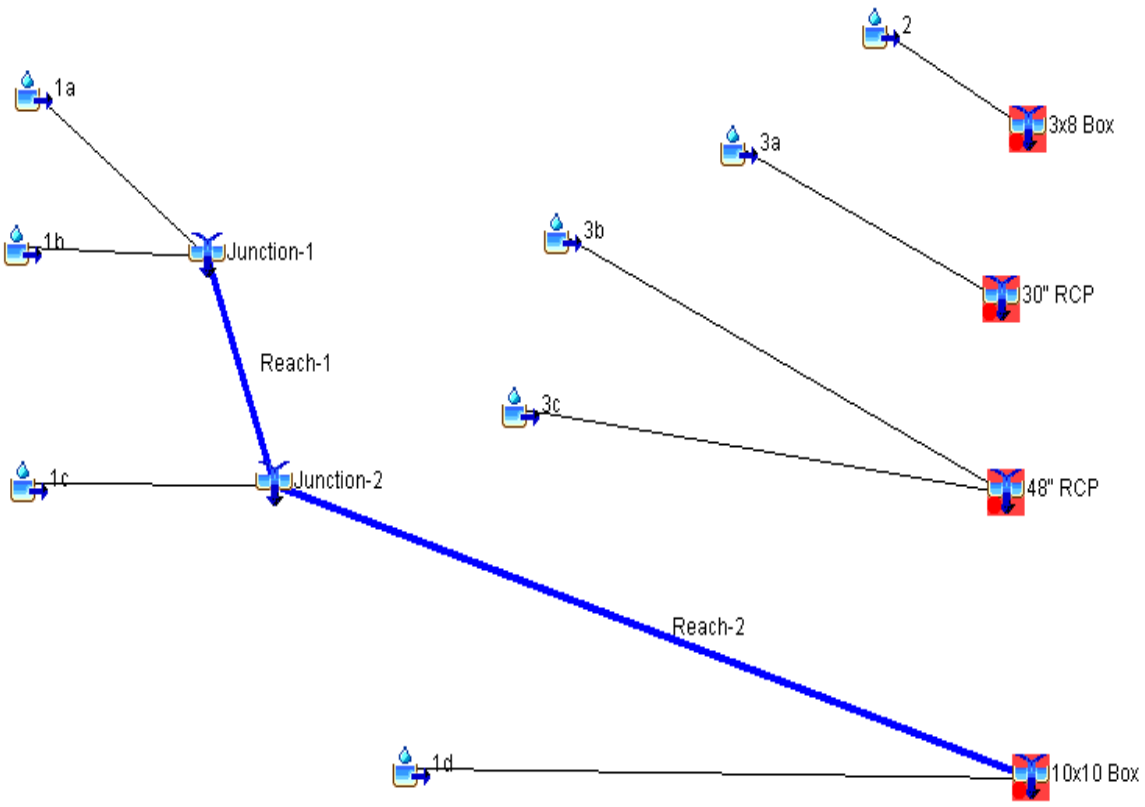
HEC-HMS

Project : Existing

Basin Model : Existing Watershed

Apr 17 11:40:53 PDT 2018



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Global Summary Results for Run "Run 99"

Project: Existing Simulation Run: Run 99

Start of Run: 01Jan3000, 00:00
End of Run: 02Jan3000, 00:00
Compute Time: 17Apr2018, 11:39:07

Basin Model: Existing Watershed
Meteorologic Model: 100 Year
Control Specifications: Control 1

Show Elements: All Elements | Volume Units: (•) IN ( ) AC-FT | Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
1a	2.891	1481.3	01Jan3000, 06:04	2.96
1b	1.742	851.3	01Jan3000, 06:03	2.68
Junction-1	4.633	2332.4	01Jan3000, 06:04	2.86
Reach-1	4.633	2332.4	01Jan3000, 06:04	2.86
1c	0.922	504.0	01Jan3000, 06:01	3.26
Junction-2	5.555	2835.5	01Jan3000, 06:03	2.92
Reach-2	5.555	2835.5	01Jan3000, 06:03	2.92
1d	0.861	477.1	01Jan3000, 06:03	3.45
10x10 Box	6.416	3312.6	01Jan3000, 06:03	3.00
2	0.805	442.1	01Jan3000, 06:03	3.35
3x8 Box	0.805	442.1	01Jan3000, 06:03	3.35
3c	0.247	137.4	01Jan3000, 06:01	3.35
3b	0.156	87.4	01Jan3000, 06:00	3.35
48" RCP	0.403	224.7	01Jan3000, 06:00	3.35
3a	0.042	23.7	01Jan3000, 06:00	3.35
30" RCP	0.042	23.7	01Jan3000, 06:00	3.35

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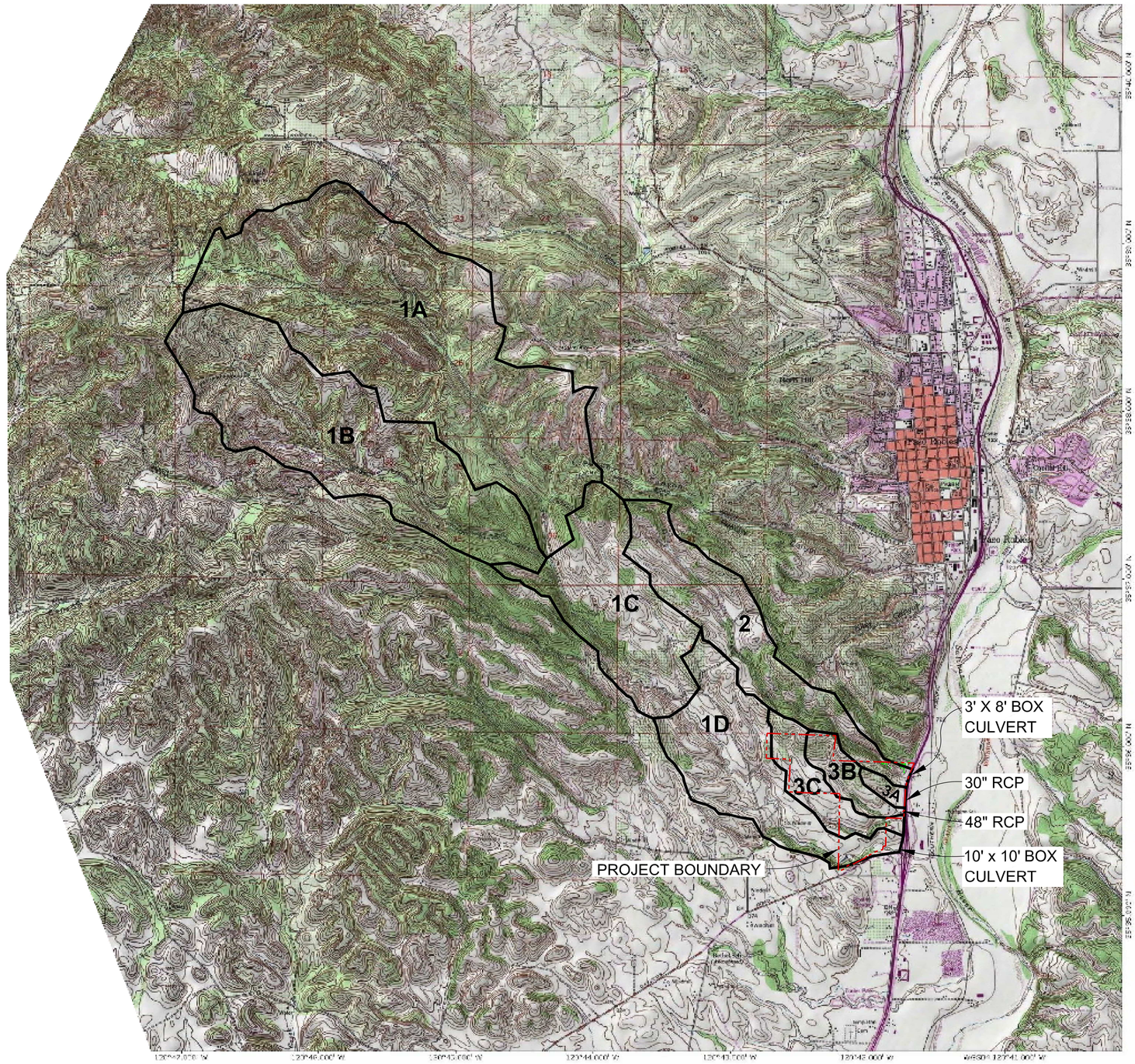

BASIN	AREA (ACRES)	CN
1A	1850	70
1B	1115	67
1C	590	73
1D	550	75
2	515	74
3A	27	74
3B	100	74
3C	158	74
10'x10' BOX	4,105	–
48" RCP	258	–
30" RCP	27	–
3'x8' BOX	515	–

0 1000' 2000' 4000'

SCALE: 1"=2000'

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

WATERSHED MAP
PASO ROBLES GATEWAY

Paso Gateway DEIR - Appendix
2/28/20
City of Paso Robles
Community Development Dept.

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Appendix 7

Proposed Condition Hydrology

Paso Gateway DEIR Appendix
2/28/20
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Community Development Dept.

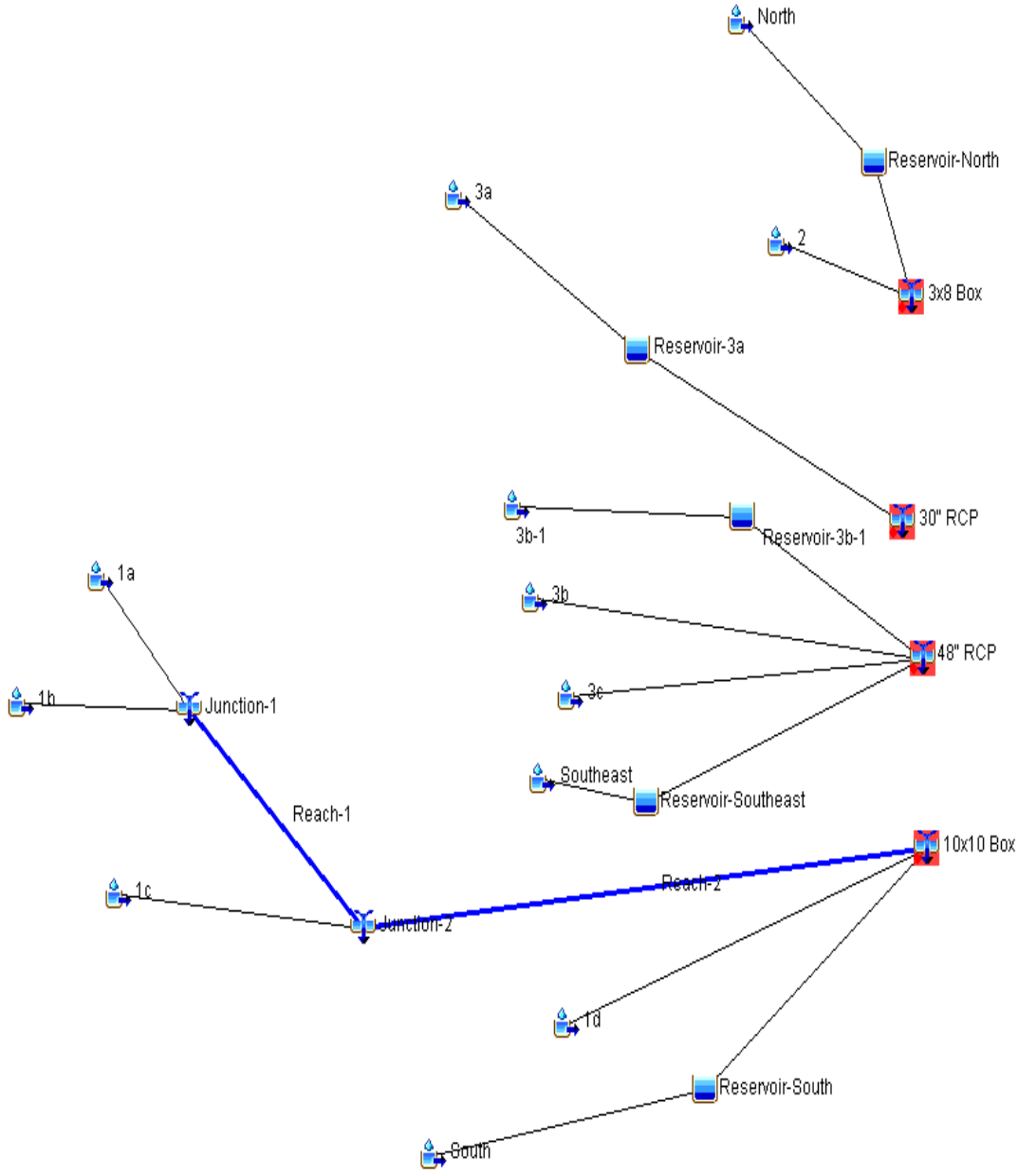
HEC-HMS

Project : Proposed

Basin Model : Proposed Watershed

Feb 25 15:32:09 PST 2019

Basin Model [Proposed Watershed] Current Run [Run 446]



Project: Proposed Simulation Run: Run 446

Start of Run: 01Jan3000, 00:00 Basin Model: Proposed Watershe
End of Run: 02Jan3000, 00:00 Meteorologic Model: 100 Year
Compute Time: 25Feb2019, 16:04:33 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
10x10 Box	6.4160	3312.6	01Jan3000, 06:03	1026.8
3x8 Box	0.8050	442.1	01Jan3000, 06:03	145.0
48" RCP	0.3965	221.1	01Jan3000, 06:00	73.1
30" RCP	0.0485	23.9	01Jan3000, 06:03	11.3

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Project: Proposed Simulation Run: Run 446

Start of Run: 01Jan3000, 00:00
End of Run: 02Jan3000, 00:00
Compute Time: 25Feb2019, 15:31:04

Basin Model: Proposed Watershe
Meteorologic Model: 100 Year
Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
1a	2.891	1481.3	01Jan3000, 06:04	457.1
1b	1.742	851.3	01Jan3000, 06:03	249.2
Junction-1	4.633	2332.4	01Jan3000, 06:04	706.3
Reach-1	4.633	2332.4	01Jan3000, 06:04	706.3
1c	0.922	504.0	01Jan3000, 06:01	160.1
Junction-2	5.555	2835.5	01Jan3000, 06:03	866.4
Reach-2	5.555	2835.5	01Jan3000, 06:03	866.4
1d	0.8319	461.0	01Jan3000, 06:03	153.2
South	0.0291	17.7	01Jan3000, 06:00	7.3
Reservoir-South	0.0291	16.1	01Jan3000, 06:02	7.3
10x10 Box	6.4160	3312.6	01Jan3000, 06:03	1026.8
2	0.7950	436.6	01Jan3000, 06:03	142.2
North	0.01	6.3	01Jan3000, 06:00	2.8
Reservoir-North	0.01	5.5	01Jan3000, 06:02	2.8
3x8 Box	0.8050	442.1	01Jan3000, 06:03	145.0
3c	0.2447	136.1	01Jan3000, 06:01	43.8
3b	0.1280	71.7	01Jan3000, 06:00	22.9
3b-1	0.0215	13.3	01Jan3000, 06:00	5.7
Reservoir-3b-1	0.0215	12.1	01Jan3000, 06:02	5.7
Southeast	0.0023	1.5	01Jan3000, 06:00	0.7
Reservoir-Southeast	0.0023	1.3	01Jan3000, 06:02	0.7
48" RCP	0.3965	221.1	01Jan3000, 06:00	73.1
3a	0.0485	28.9	01Jan3000, 06:00	11.3
Reservoir-3a	0.0485	23.9	01Jan3000, 06:03	11.3
30" RCP	0.0485	23.9	01Jan3000, 06:03	11.3

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Project: Proposed Simulation Run: Run 446

Reservoir: Reservoir-North

Start of Run:	01Jan3000, 00:00	Basin Model:	Proposed Watershed
End of Run:	02Jan3000, 00:00	Meteorologic Model:	100 Year
Compute Time:	25Feb2019, 16:04:33	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	6.3 (CFS)	Date/Time of Peak Inflow:	01Jan3000, 06:00
Peak Discharge:	5.5 (CFS)	Date/Time of Peak Discharge:	01Jan3000, 06:02
Inflow Volume:	2.8 (AC-FT)	Peak Storage:	1.1 (AC-FT)
Discharge Volume:	2.8 (AC-FT)	Peak Elevation:	1.1 (FT)

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Project: Proposed Simulation Run: Run 446
Reservoir: Reservoir-3a

Start of Run:	01Jan3000, 00:00	Basin Model:	Proposed Watershed
End of Run:	02Jan3000, 00:00	Meteorologic Model:	100 Year
Compute Time:	25Feb2019, 15:45:19	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	28.9 (CFS)	Date/Time of Peak Inflow:	01Jan3000, 06:00
Peak Discharge:	23.9 (CFS)	Date/Time of Peak Discharge	01Jan3000, 06:03
Inflow Volume:	11.3 (AC-FT)	Peak Storage:	4.2 (AC-FT)
Discharge Volume	11.3 (AC-FT)	Peak Elevation:	4.2 (FT)

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Project: Proposed Simulation Run: Run 446
Reservoir: Reservoir-3b-1

Start of Run:	01Jan3000, 00:00	Basin Model:	Proposed Watershed
End of Run:	02Jan3000, 00:00	Meteorologic Model:	100 Year
Compute Time:	25Feb2019, 16:04:33	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	13.3 (CFS)	Date/Time of Peak Inflow:	01Jan3000, 06:00
Peak Discharge:	12.1 (CFS)	Date/Time of Peak Discharge	01Jan3000, 06:02
Inflow Volume:	5.7 (AC-FT)	Peak Storage:	1.7 (AC-FT)
Discharge Volume	5.7 (AC-FT)	Peak Elevation:	1.7 (FT)

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Project: Proposed Simulation Run: Run 446

Reservoir: Reservoir-Southeast

Start of Run:	01Jan3000, 00:00	Basin Model:	Proposed Watershed
End of Run:	02Jan3000, 00:00	Meteorologic Model:	100 Year
Compute Time:	25Feb2019, 15:45:19	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	1.5 (CFS)	Date/Time of Peak Inflow:	01Jan3000, 06:00
Peak Discharge:	1.3 (CFS)	Date/Time of Peak Discharge	01Jan3000, 06:02
Inflow Volume:	0.7 (AC-FT)	Peak Storage:	0.3 (AC-FT)
Discharge Volume	0.7 (AC-FT)	Peak Elevation:	0.3 (FT)

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Project: Proposed Simulation Run: Run 446
Reservoir: Reservoir-South

Start of Run:	01Jan3000, 00:00	Basin Model:	Proposed Watershed
End of Run:	02Jan3000, 00:00	Meteorologic Model:	100 Year
Compute Time:	25Feb2019, 15:45:19	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	17.7 (CFS)	Date/Time of Peak Inflow:	01Jan3000, 06:00
Peak Discharge:	16.1 (CFS)	Date/Time of Peak Discharge	01Jan3000, 06:02
Inflow Volume:	7.3 (AC-FT)	Peak Storage:	1.4 (AC-FT)
Discharge Volume	7.3 (AC-FT)	Peak Elevation:	1.4 (FT)

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DRAINS TO 3' X 8' BOX CULVERT
"NORTH" USE BASIN SIZE=1.1 AC-FT FOR 6.4 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 5.8 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

EXIST 3'X8' BOX CULVERT

DRAINS TO 30" RCP CULVERT
"SUBAREA 3a" USE BASIN SIZE=4.2 AC-FT FOR 31 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 7.4 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

EXIST 30" RCP CULVERT

DRAINS TO 48" RCP CULVERT
"SUBAREA 3b-1" USE BASIN SIZE=1.7 AC-FT FOR 14 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 8.2 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

S. VINE STREET

EXIST 48" RCP CULVERT

DRAINS TO 48" RCP CULVERT
"SOUTHEAST" USE BASIN SIZE=0.3 AC-FT FOR 1.5 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 5.0 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

EXIST 10'X10' BOX CULVERT

DRAINS TO 10' X 10' BOX CULVERT
"SOUTH" USE BASIN SIZE=1.4 AC-FT FOR 18 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 12.9 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

HIGHWAY 46 WEST

LEGEND

HYDROLOGIC DEVELOPMENT AREA

FLOOD LIMITS OF BLUE LINE STREAM

EXISTING CULVERT

N

120' 0' 60' 120' 240'
SCALE: 1" = 120'

DEVELOPMENT AREA=±62.6 ac

PROPOSED WATERSHED

PASO ROBLES, CALIFORNIA
February 25, 2019

FUSCOE ENGINEERING
16795 Von Karman, Suite 100, Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315 ◦ www.fuscoe.com

Attachment to Case 2 Safety DEIR Appendix
Received by City of Paso Robles
2/28/20
Community Development Dept.

F:\Projects\1208\003\Sandbox\SueW\X1208-003xh-Proposed-Hydrology-SW.dwg (2/25/2019 5:45 PM) Plotted by: Susan Williams

Appendix 8

Base Flood Elevation Exhibit

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2/28/20
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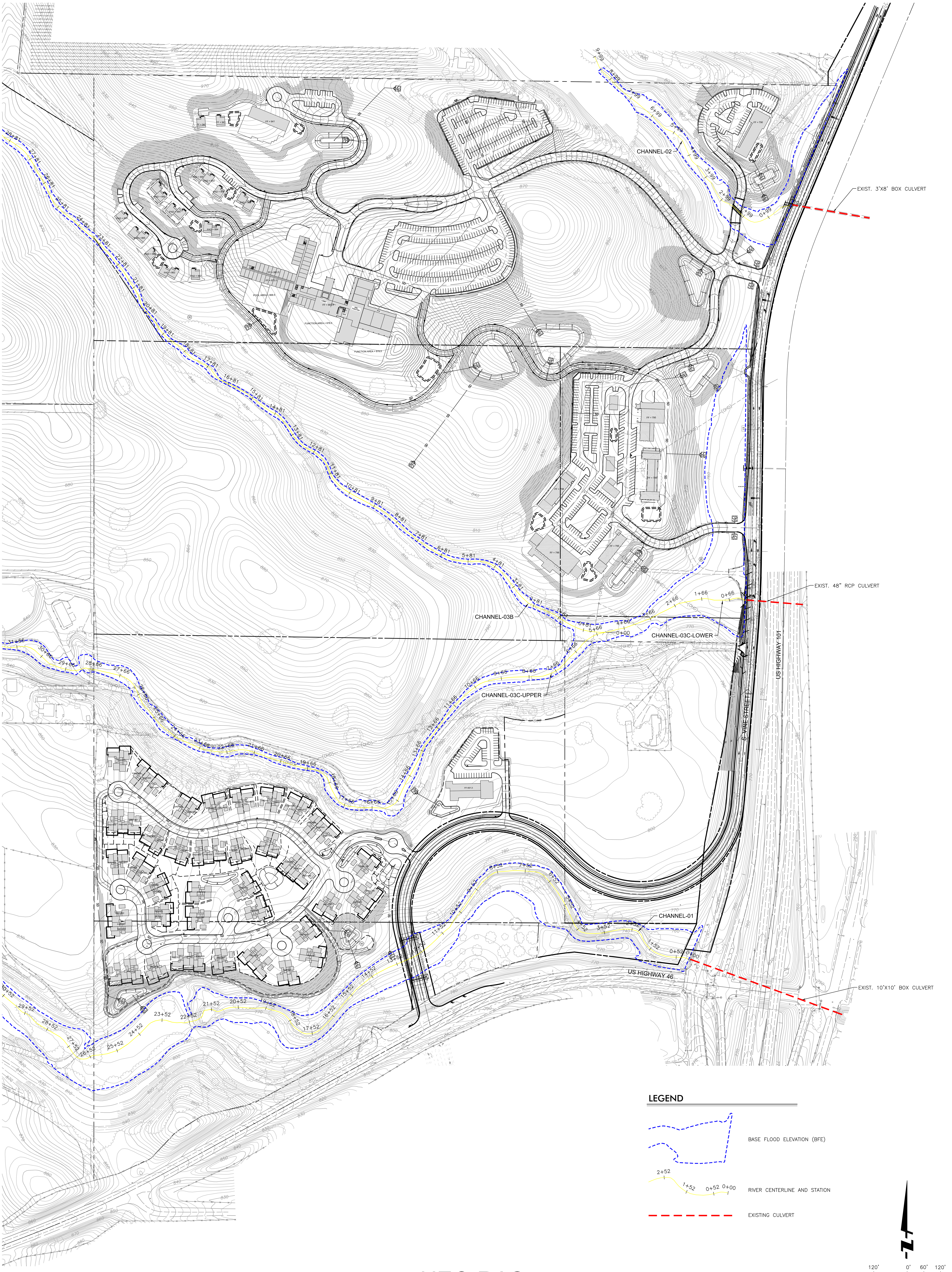

HEC-RAS
BASE FLOOD ELEVATION (BFE) EXHIBIT

PASO ROBLES, CALIFORNIA

MAY 2018

FUSCOE ENGINEERING
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Appendix 9

HEC-RAS Analysis Results

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2/28/20
City of Paso Robles
Community Development Dept.

HEC-RAS Plan: Chan01_WS River: Chan01_Z1208-003 Reach: Chan01 Profile: 100yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Chan01	3502.23	100yr	3313.00	789.85	797.07	797.07	799.19	0.019440	11.67	283.84	68.19	1.01
Chan01	3452.23	100yr	3313.00	787.99	797.17		798.19	0.006746	8.07	410.30	77.01	0.62
Chan01	3402.23	100yr	3313.00	787.99	796.61		797.78	0.008993	8.68	381.87	80.10	0.70
Chan01	3352.23	100yr	3313.00	787.98	796.70		797.35	0.003757	6.48	510.89	86.34	0.47
Chan01	3302.23	100yr	3313.00	787.97	795.70		797.00	0.009876	9.12	363.33	76.25	0.74
Chan01	3252.23	100yr	3313.00	787.96	795.60		796.48	0.006481	7.53	439.95	90.22	0.60
Chan01	3202.23	100yr	3313.00	787.93	795.64		796.15	0.003106	5.74	576.84	102.00	0.43
Chan01	3152.23	100yr	3313.00	787.79	795.31		795.95	0.004386	6.46	512.96	98.61	0.50
Chan01	3102.23	100yr	3313.00	787.65	794.95		795.71	0.004987	6.98	474.79	88.79	0.53
Chan01	3052.23	100yr	3313.00	787.51	794.29		795.36	0.008373	8.29	399.48	85.85	0.68
Chan01	3002.23	100yr	3313.00	787.37	794.00		794.91	0.007624	7.66	432.51	98.07	0.64
Chan01	2962.23	100yr	3313.00	786.68	793.98		794.60	0.004310	6.35	521.38	102.05	0.50
Chan01	2902.23	100yr	3313.00	786.00	793.83		794.35	0.003146	5.79	572.34	101.09	0.43
Chan01	2852.23	100yr	3313.00	786.00	793.78		794.18	0.002344	5.08	652.02	112.61	0.37
Chan01	2802.23	100yr	3313.00	786.00	793.79		794.05	0.001404	4.13	801.86	128.76	0.29
Chan01	2752.23	100yr	3313.00	786.00	793.78		793.97	0.001084	3.46	957.04	166.81	0.25
Chan01	2720.23	100yr	3313.00	786.15	792.61	792.61	793.78	0.023529	8.64	383.43	169.49	1.01
Chan01	2697.23	100yr	3313.00	785.93	791.28	791.28	792.69	0.022046	9.52	348.00	126.64	1.01
Chan01	2627.23	100yr	3313.00	783.98	789.64		790.09	0.004660	5.35	618.76	168.18	0.49
Chan01	2552.23	100yr	3313.00	783.95	789.51		789.80	0.002366	4.29	771.85	175.65	0.36
Chan01	2502.23	100yr	3313.00	783.92	789.37		789.67	0.002530	4.40	753.14	173.65	0.37
Chan01	2452.23	100yr	3313.00	783.90	789.24		789.55	0.002580	4.45	744.30	170.87	0.38
Chan01	2397.23	100yr	3313.00	783.87	789.10		789.41	0.002425	4.41	751.41	166.50	0.37
Chan01	2352.23	100yr	3313.00	783.85	789.04		789.29	0.001966	4.01	825.75	180.57	0.33
Chan01	2304.23	100yr	3313.00	783.16	788.95		789.20	0.001996	4.00	828.41	184.42	0.33
Chan01	2252.23	100yr	3313.00	781.18	787.55	787.55	788.84	0.023130	9.13	362.71	145.91	1.02
Chan01	2229.23	100yr	3313.00	775.42	781.18	781.18	782.86	0.020239	10.40	318.50	94.91	1.00
Chan01	2162.23	100yr	3313.00	766.25	776.62		776.96	0.002146	4.66	710.80	130.33	0.35
Chan01	2100.23	100yr	3313.00	765.97	775.98		776.72	0.005460	6.91	479.67	97.59	0.55
Chan01	2052.23	100yr	3313.00	765.54	775.36		776.37	0.008198	8.07	410.53	89.21	0.66
Chan01	2002.23	100yr	3313.00	763.97	775.00		775.95	0.007933	7.81	424.09	93.55	0.65
Chan01	1954.23	100yr	3313.00	763.03	773.25	773.25	775.27	0.020355	11.40	290.65	72.77	1.01
Chan01	1904.23	100yr	3313.00	761.86	772.25		773.43	0.009520	8.72	379.99	80.65	0.71
Chan01	1857.23	100yr	3313.00	761.13	772.33		772.98	0.004499	6.47	512.01	99.10	0.50
Chan01	1802.23	100yr	3313.00	759.96	772.45		772.73	0.001526	4.22	784.21	129.13	0.30
Chan01	1752.23	100yr	3313.00	759.91	772.14		772.61	0.002721	5.53	599.62	99.59	0.40
Chan01	1702.23	100yr	3313.00	759.87	771.58		772.39	0.005278	7.22	458.71	82.75	0.54
Chan01	1652.23	100yr	3313.00	759.82	770.42		771.94	0.011477	9.91	334.15	66.63	0.78
Chan01	1592.23	100yr	3313.00	759.76	768.71	768.71	770.99	0.019368	12.12	273.41	60.70	1.01
Chan01	1552.23	100yr	3313.00	759.73	768.29	767.97	770.16	0.016078	10.96	302.15	68.66	0.92
Chan01	1502.23	100yr	3313.00	759.68	768.17		769.33	0.009524	8.63	383.68	85.30	0.72
Chan01	1452.23	100yr	3313.00	759.63	767.89		768.84	0.007870	7.81	424.18	95.41	0.65
Chan01	1402.23	100yr	3313.00	759.59	767.68		768.43	0.006178	6.98	474.84	105.82	0.58
Chan01	1338.23	100yr	3313.00	759.53	767.31		768.03	0.006099	6.77	489.30	113.28	0.57
Chan01	1222.23	100yr	3313.00	759.41	766.76		767.33	0.005219	6.09	544.26	132.10	0.53
Chan01	1152.23	100yr	3313.00	758.63	764.87	764.87	766.58	0.019924	10.49	315.75	92.38	1.00
Chan01	1097.23	100yr	3313.00	749.99	762.11	761.53	764.35	0.016275	12.02	275.72	50.88	0.91
Chan01	1052.23	100yr	3313.00	749.92	762.29		763.58	0.007805	9.09	364.34	59.16	0.65
Chan01	1002.23	100yr	3313.00	749.83	761.91		763.17	0.007993	9.01	367.55	61.71	0.65
Chan01	952.23	100yr	3313.00	748.54	761.97		762.74	0.004297	7.01	472.53	73.96	0.49
Chan01	902.23	100yr	3313.00	746.88	761.99		762.49	0.002647	5.67	584.62	87.14	0.39
Chan01	852.23	100yr	3313.00	745.95	761.97		762.34	0.001885	4.88	678.34	99.64	0.33
Chan01	802.23	100yr	3313.00	745.90	761.90		762.24	0.001706	4.69	705.78	101.66	0.31
Chan01	752.23	100yr	3313.00	745.85	761.69		762.13	0.002822	5.29	626.24	110.22	0.39
Chan01	702.23	100yr	3313.00	743.98	761.65		761.97	0.001969	4.54	729.48	123.39	0.33
Chan01	652.23	100yr	3313.00	743.91	761.59		761.87	0.001616	4.23	783.71	128.66	0.30
Chan01	602.23	100yr	3313.00	743.85	761.49		761.79	0.001764	4.38	756.05	124.26	0.31
Chan01	552.23	100yr	3313.00	743.78	761.45		761.69	0.001342	3.90	849.04	136.90	0.28
Chan01	502.23	100yr	3313.00	741.97	761.44		761.63	0.000692	3.46	956.62	109.59	0.21
Chan01	452.23	100yr	3313.00	741.87	761.14		761.56	0.001333	5.18	640.13	58.13	0.27
Chan01	402.23	100yr	3313.00	741.77	761.09		761.49	0.001290	5.07	653.99	61.56	0.27
Chan01	352.23	100yr	3313.00	740.00	761.06		761.42	0.001111	4.78	693.76	62.58	0.25
Chan01	302.23	100yr	3313.00	740.00	761.04		761.35	0.000933	4.49	737.57	63.80	0.23
Chan01	252.23	100yr	3313.00	740.00	761.01		761.30	0.000841	4.33	764.45	63.62	0.22
Chan01	200.23	100yr	3313.00	740.00	760.99		761.25	0.000837	4.08	811.79	78.23	0.22
Chan01	137.23	100yr	3313.00	740.00	761.02		761.17	0.000627	3.12	1062.23	134.02	0.20
Chan01	102.23	100yr	3313.00	740.00	761.01		761.15	0.000591	3.00	1104.03	140.84	0.19
Chan01	52.23	100yr	3313.00	740.00	760.98		761.11	0.000547	2.88	1150.89	146.30	0.18
Chan01	27.23	100yr	3313.00	740.00	760.99		761.09	0.000370	2.55	1298.54	146.95	0.15
Chan01	5	100yr	3313.00	748.83	760.87	755.81	761.07	0.001386	3.59	923.86	182.23	0.28

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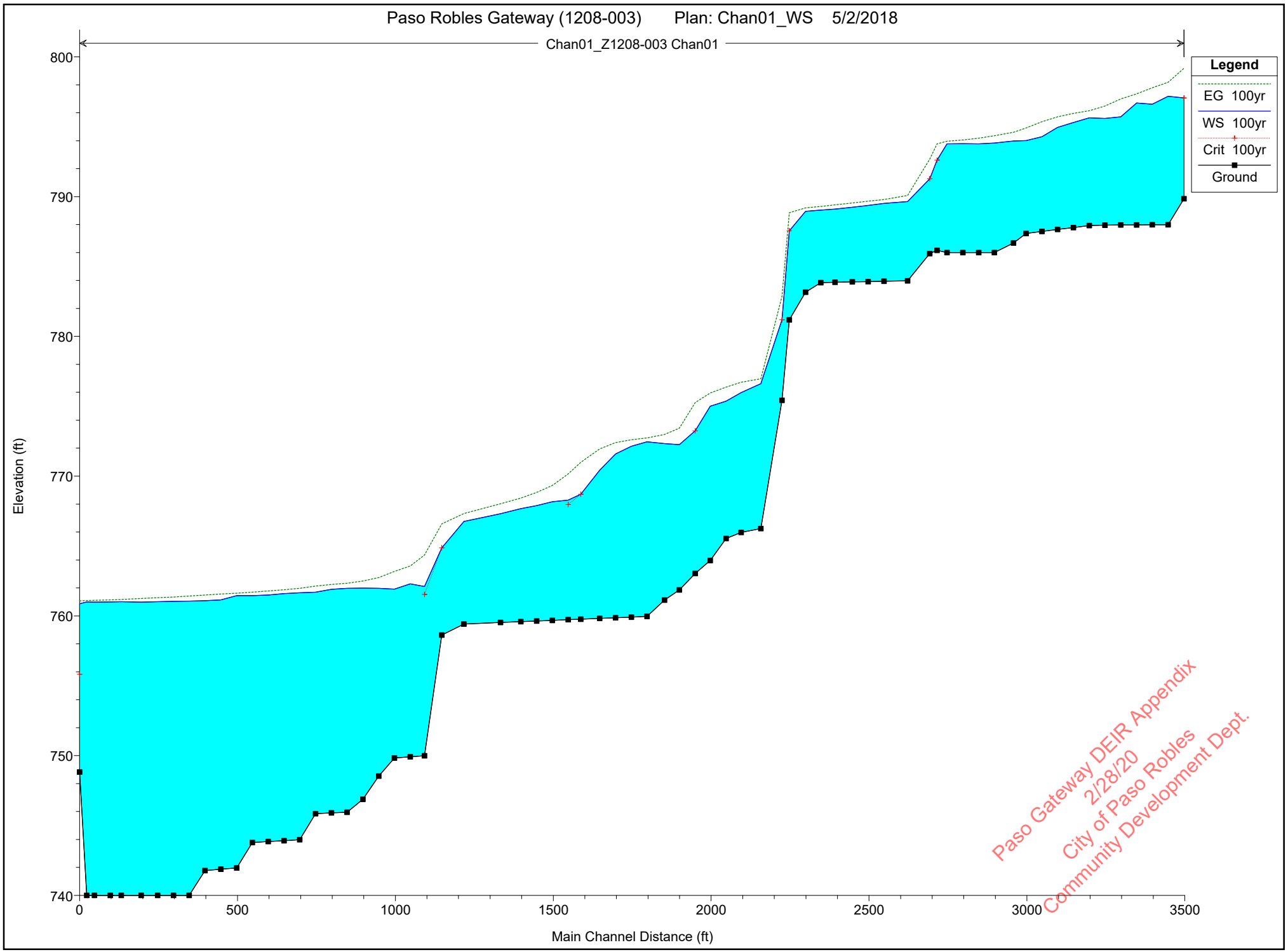
Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
Chan01_Z1208-003 Chan01
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Elevation (ft)
800
790
780
770
760
750
740
0
500
1000
1500
2000
2500
3000
3500
Main Channel Distance (ft)
Paso Gateway DEIR Appendix
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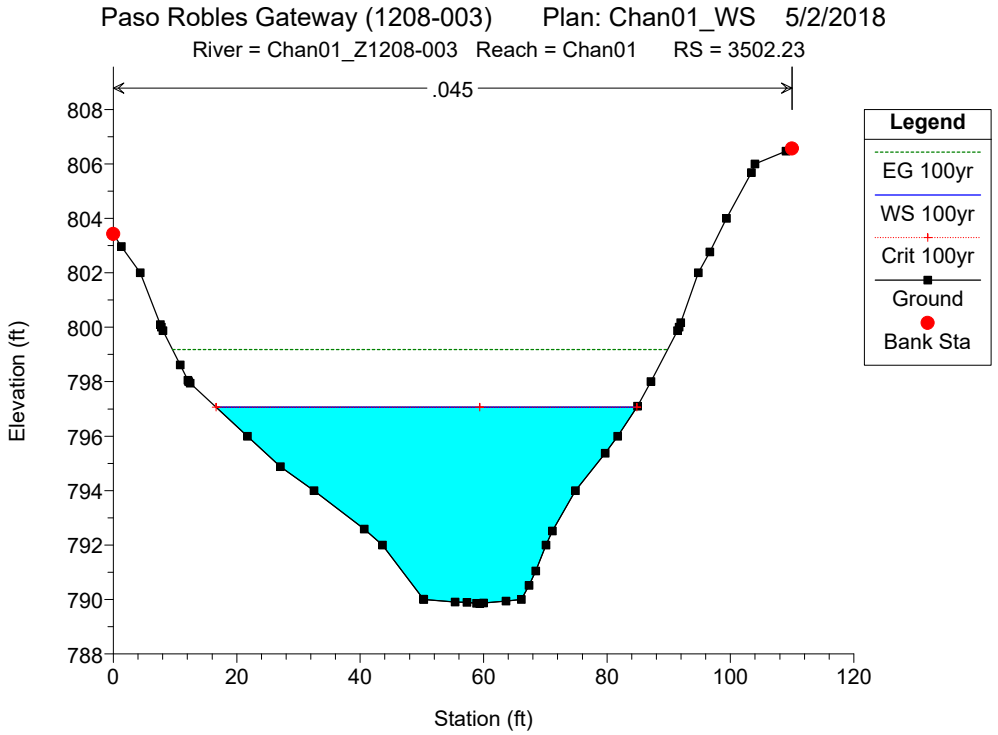
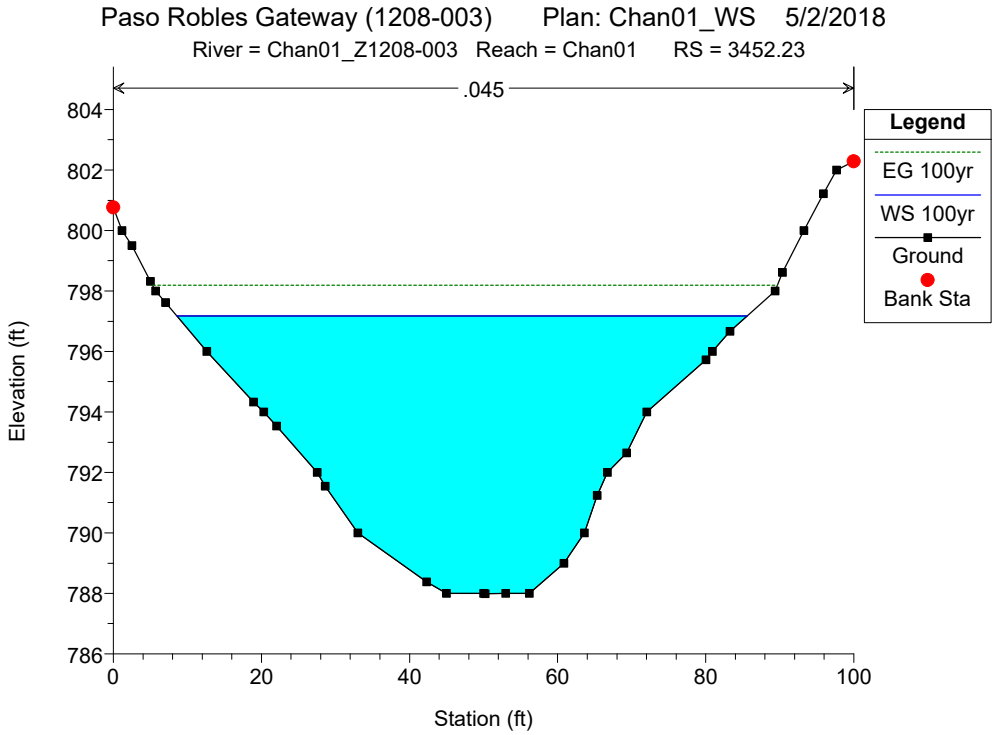
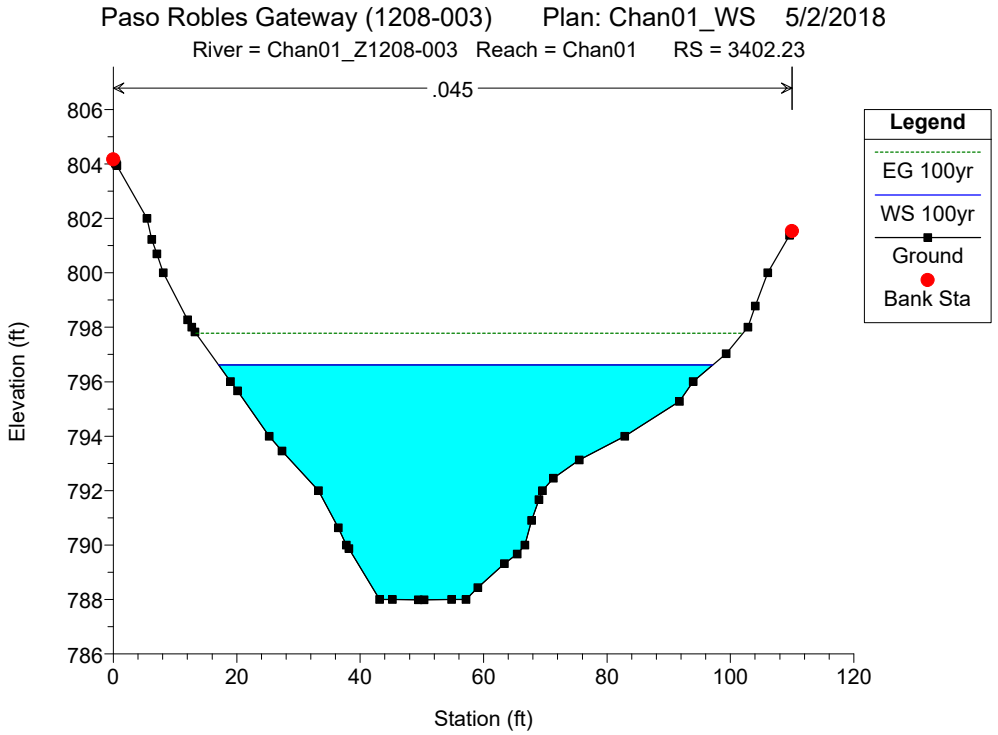

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3502.23
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3452.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3402.23
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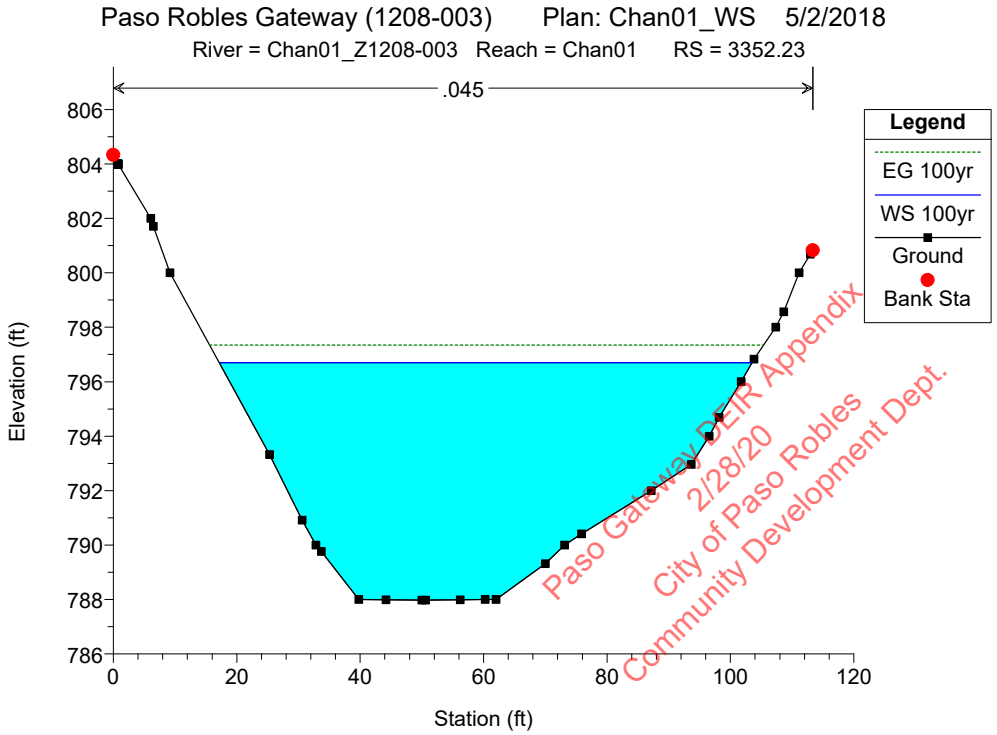
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3352.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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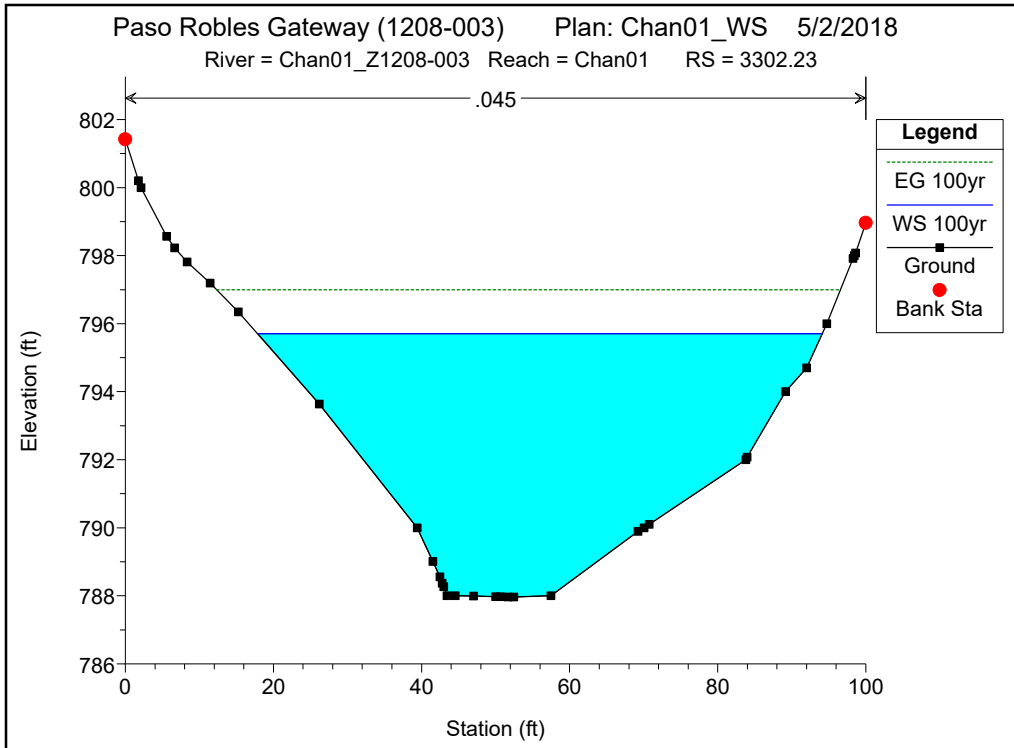
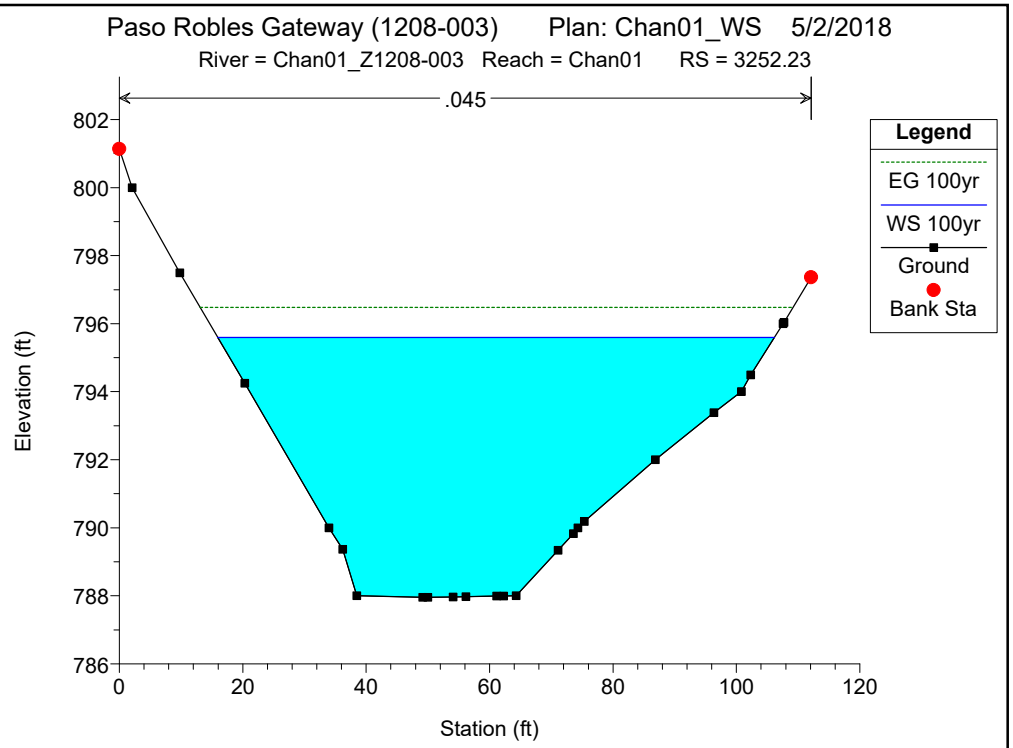
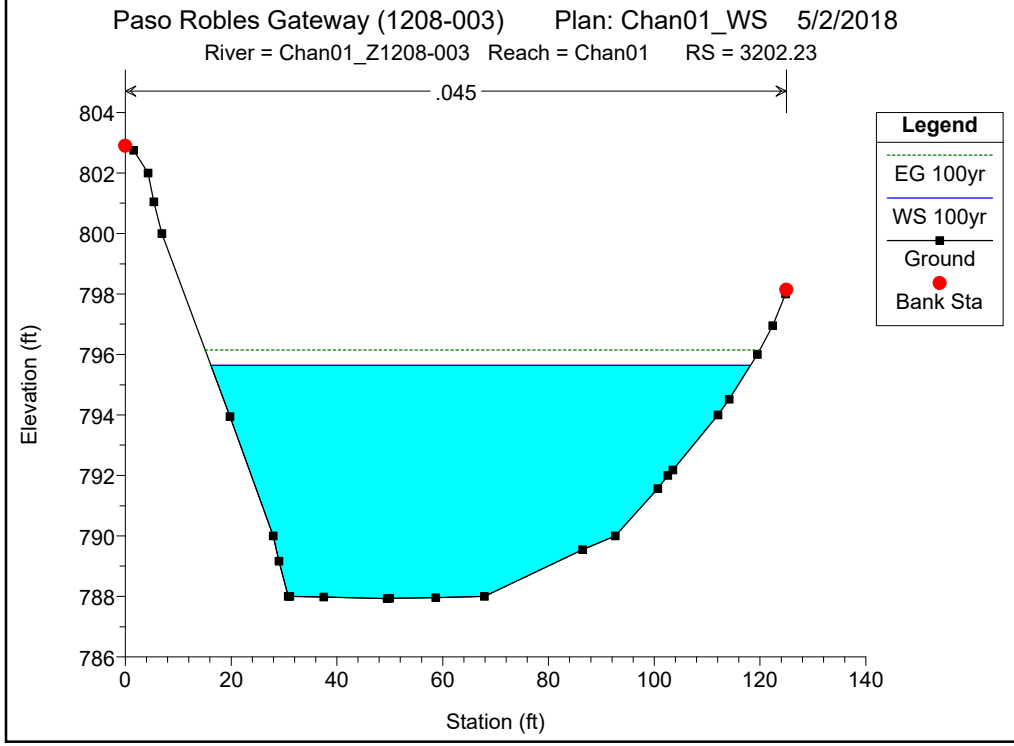
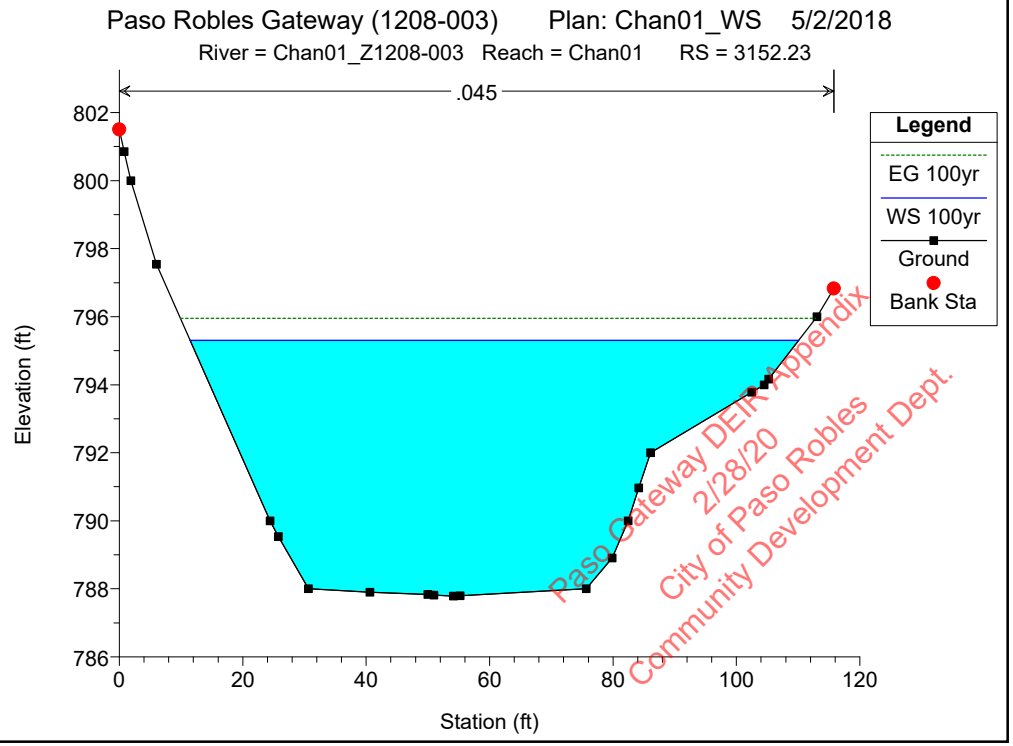

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3302.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3252.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3202.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3152.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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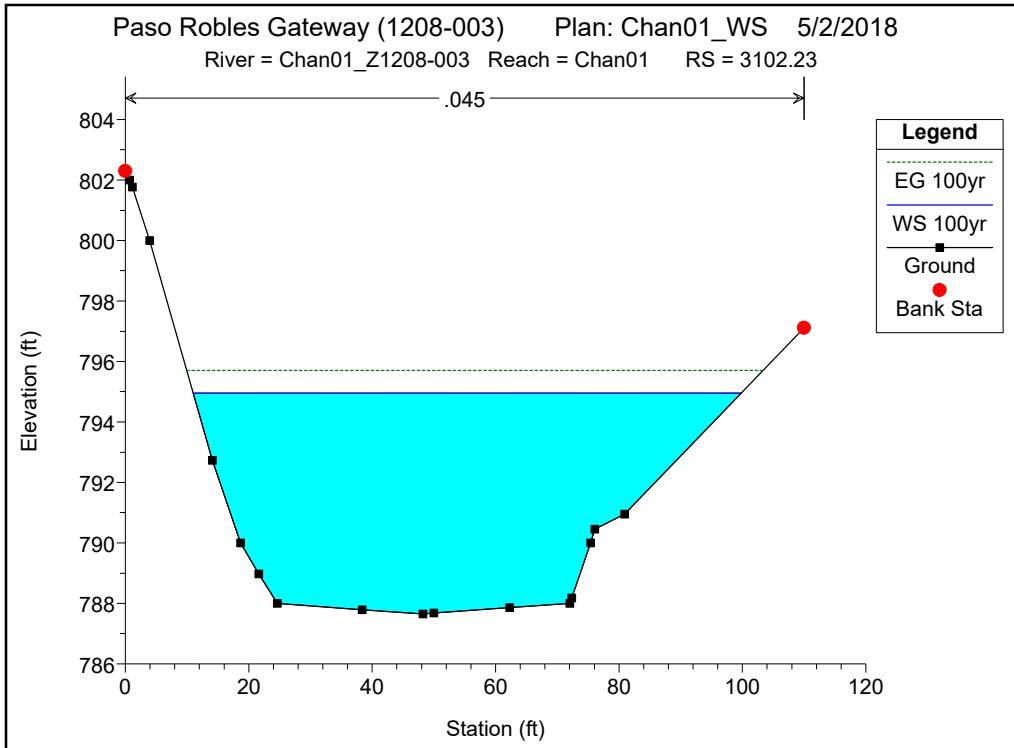
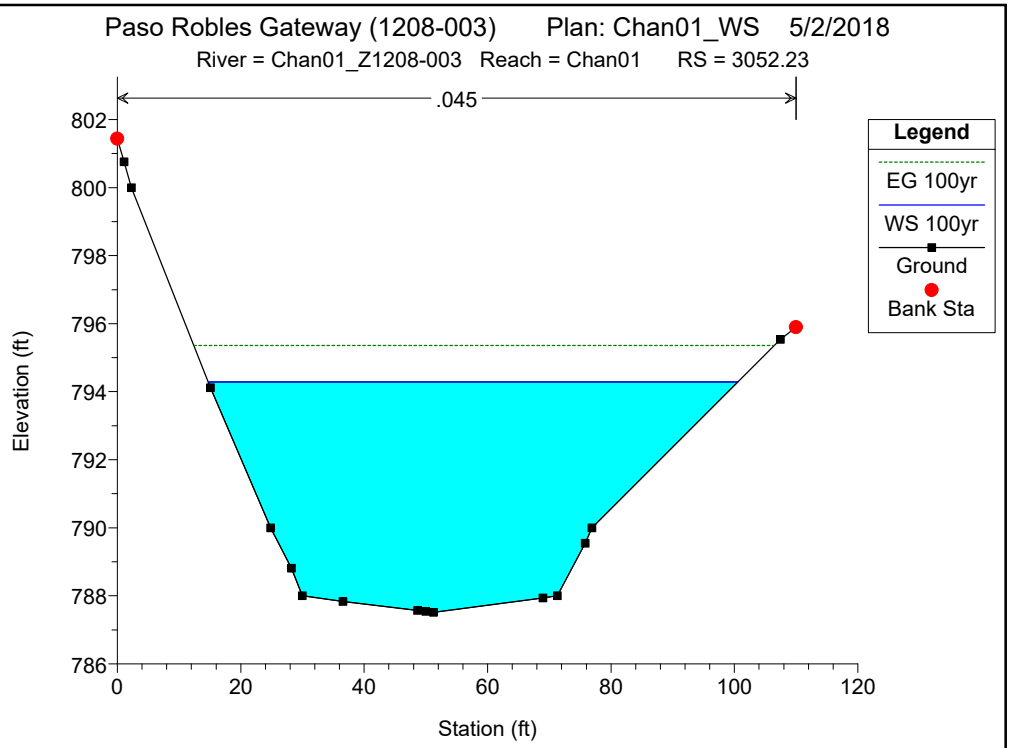
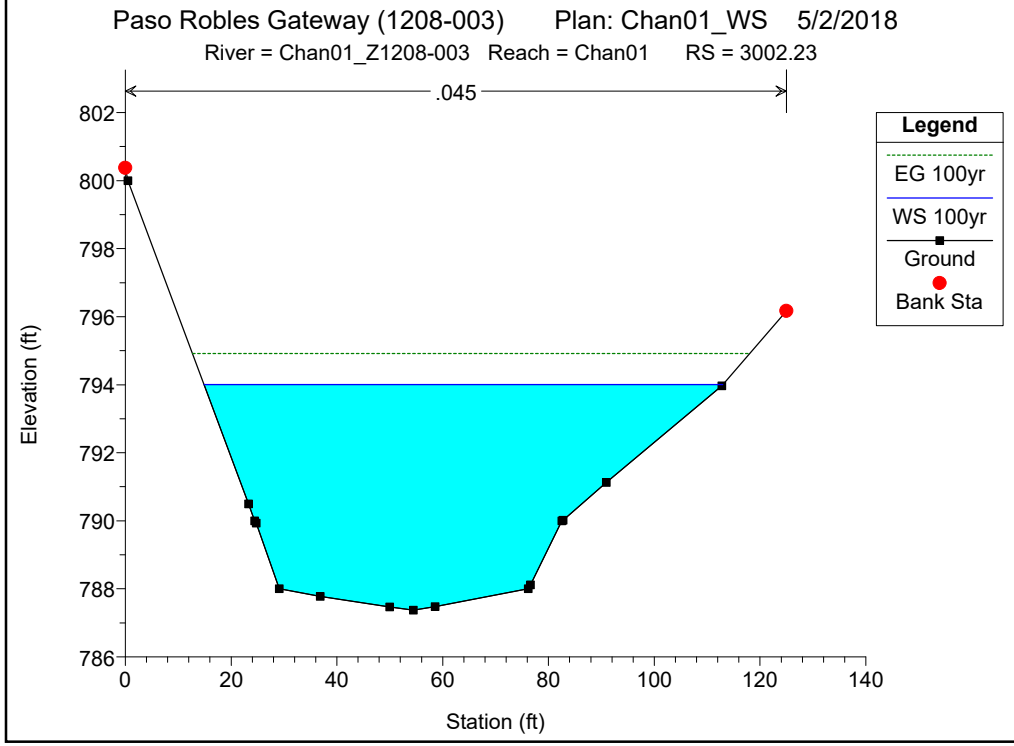
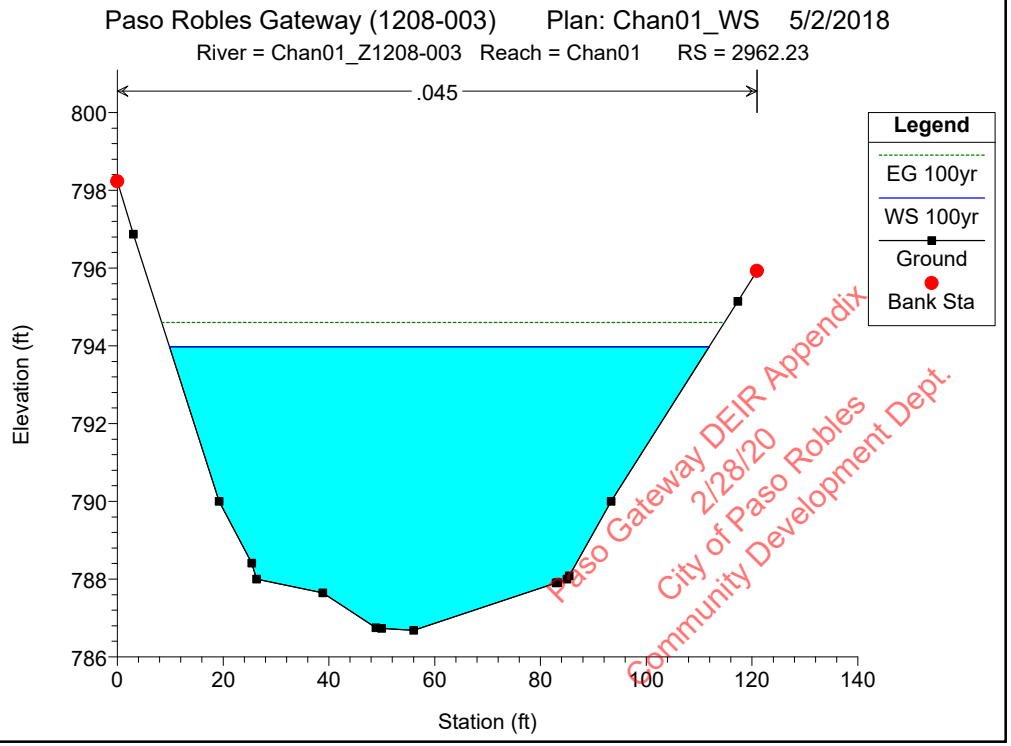

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3102.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3052.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 3002.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2962.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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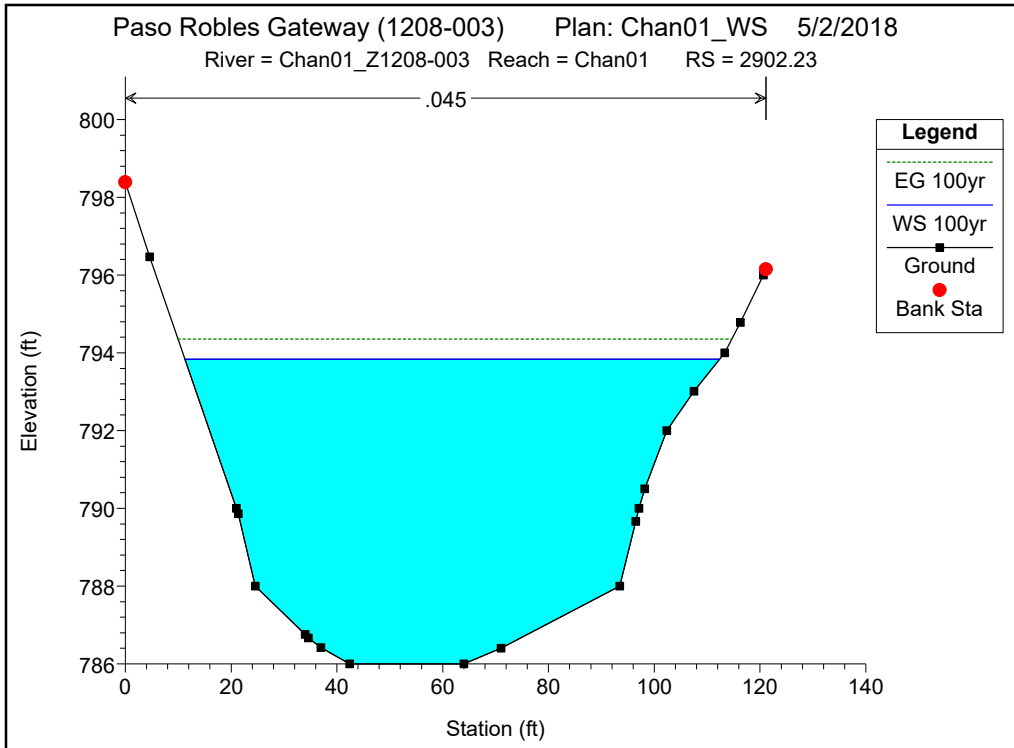
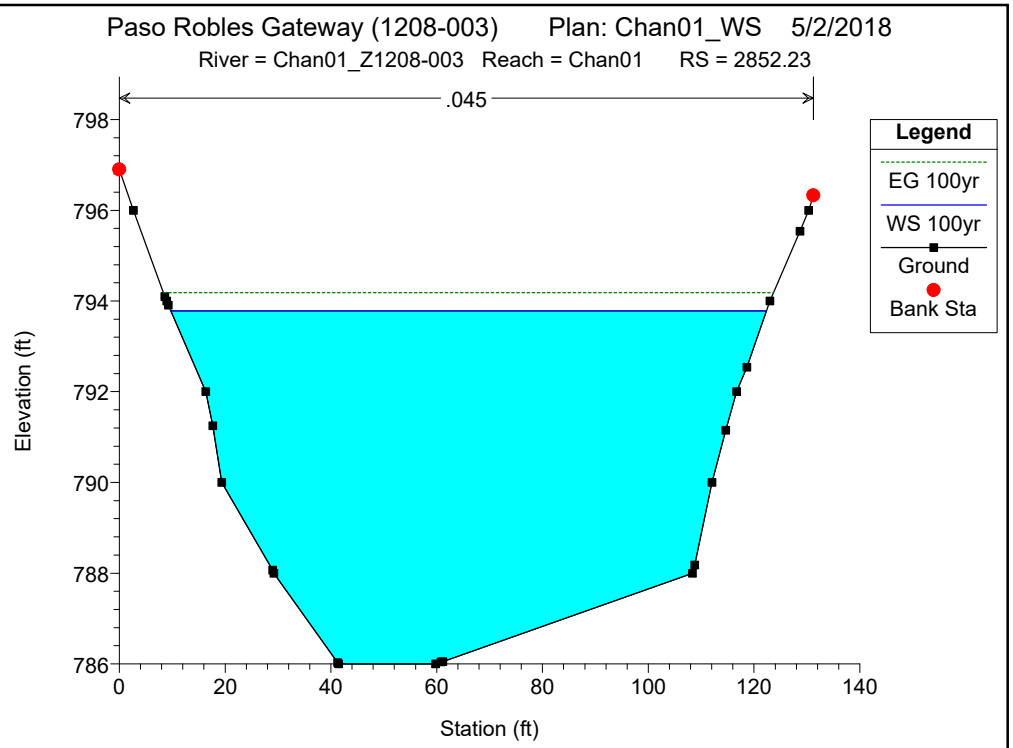
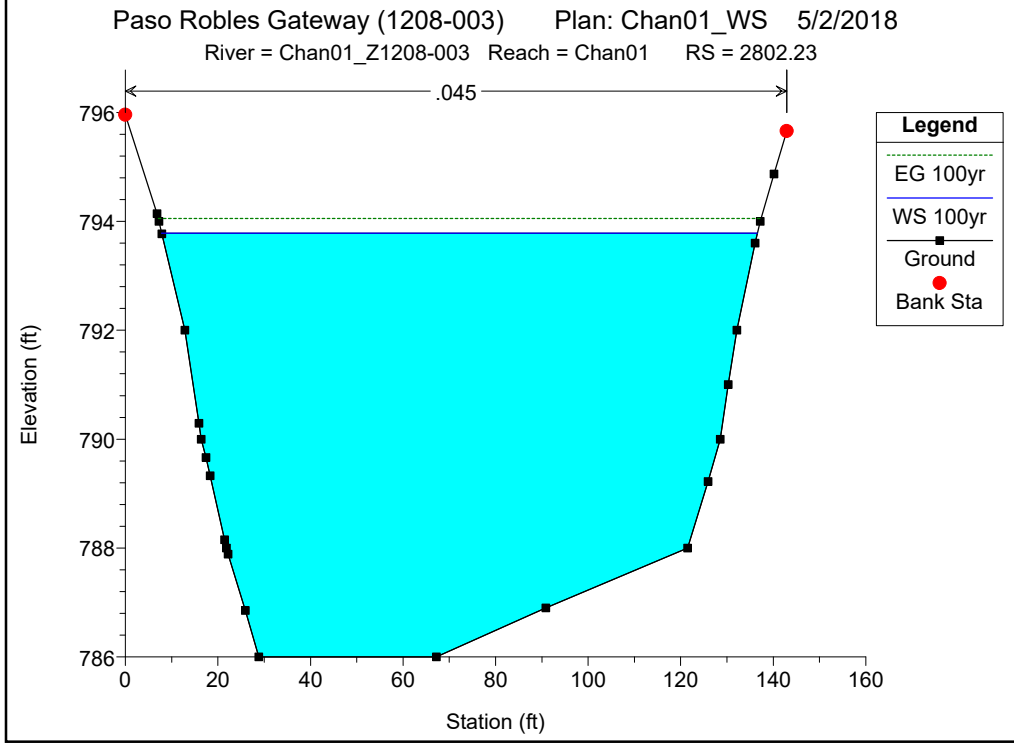
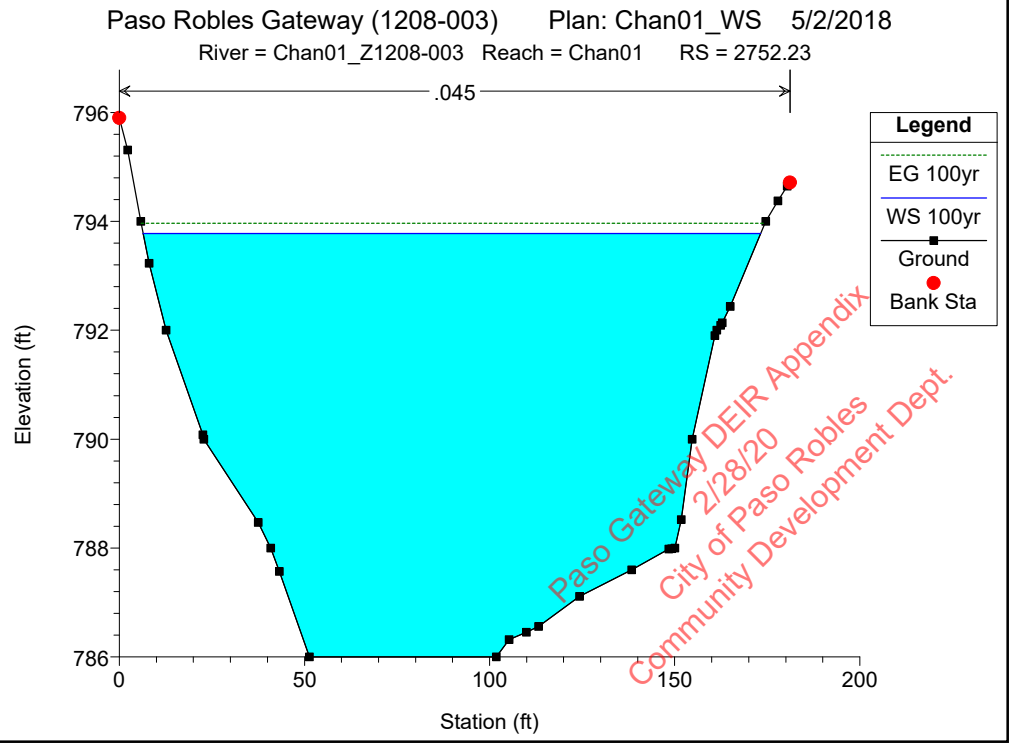

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2902.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2852.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2802.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan01_Z1208-003 Reach = Chan01 RS = 2752.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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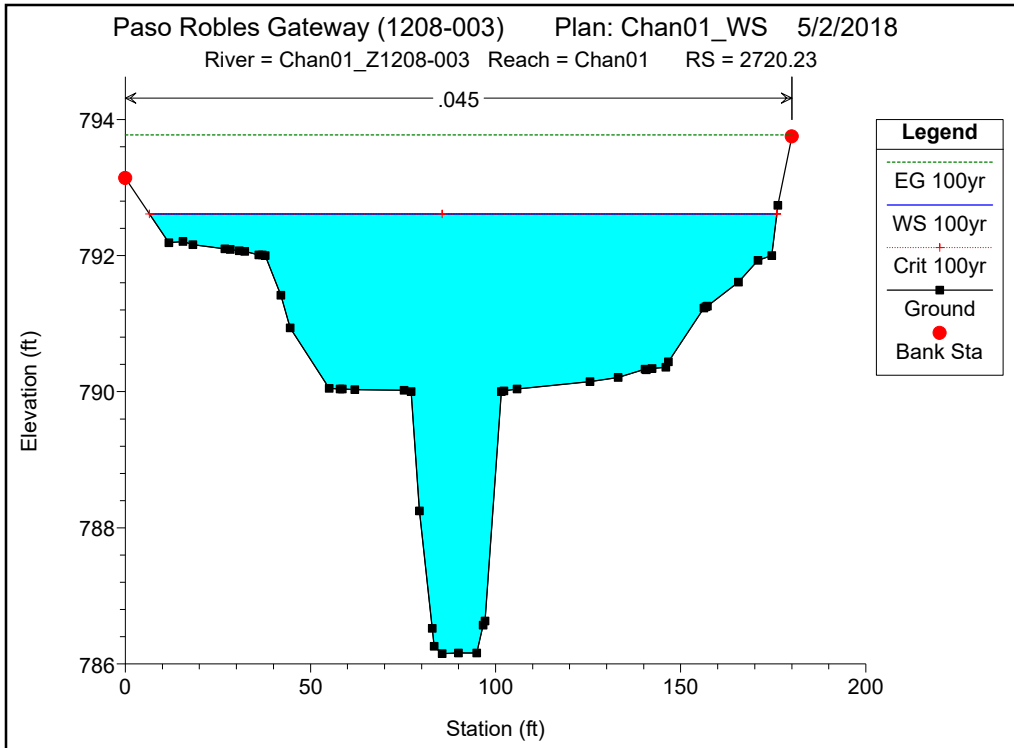

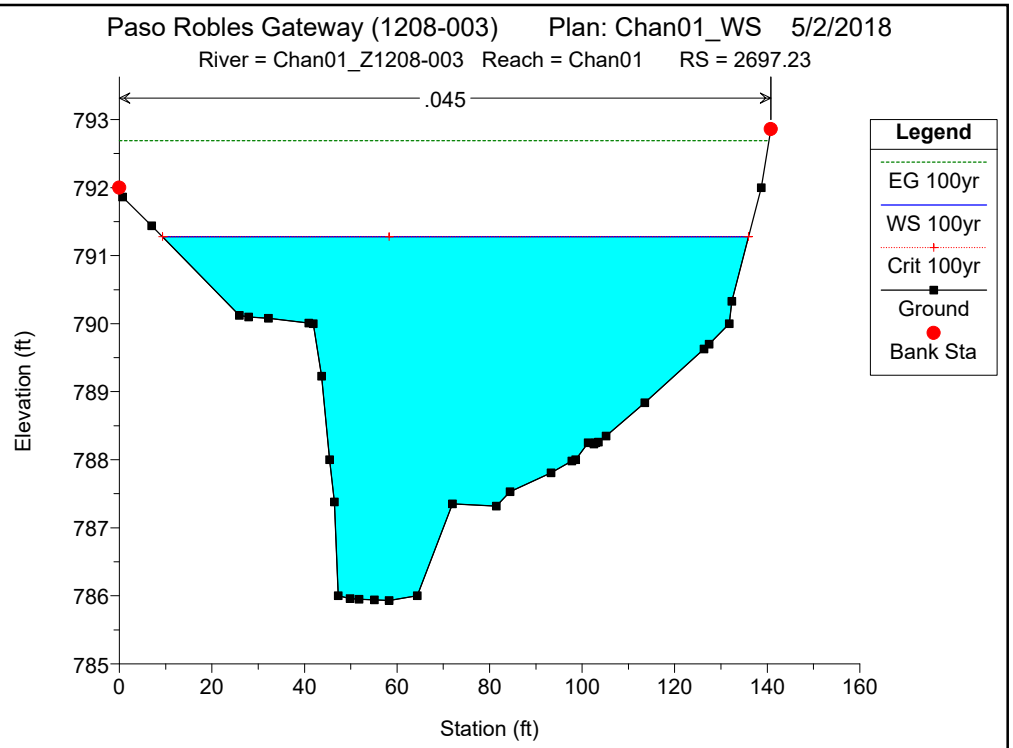

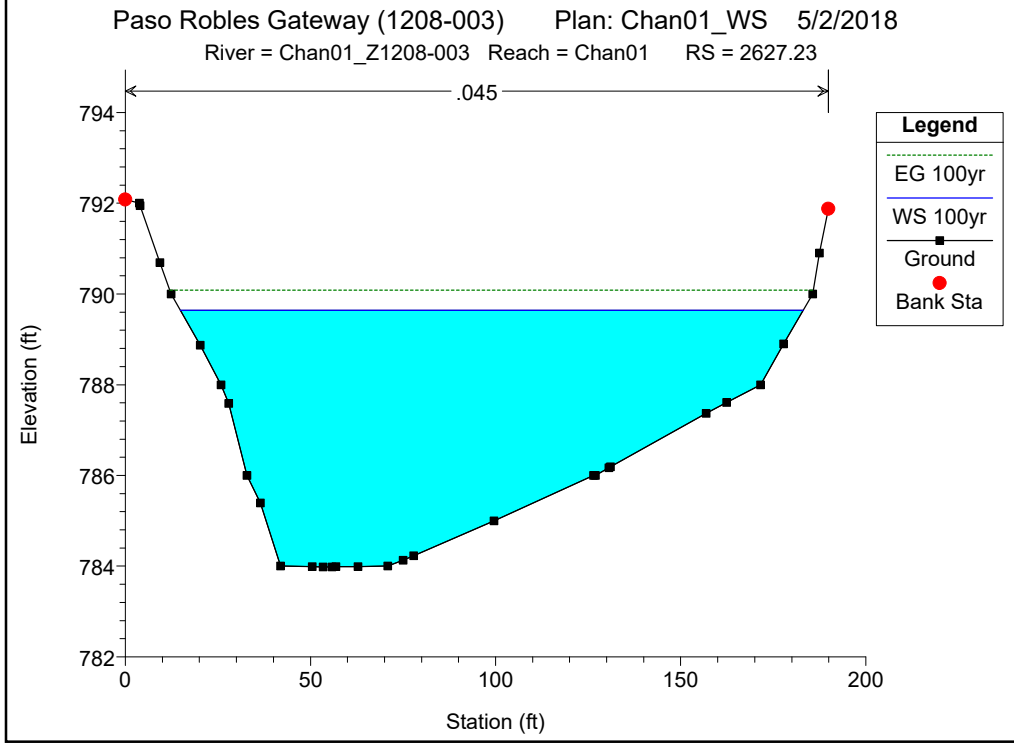

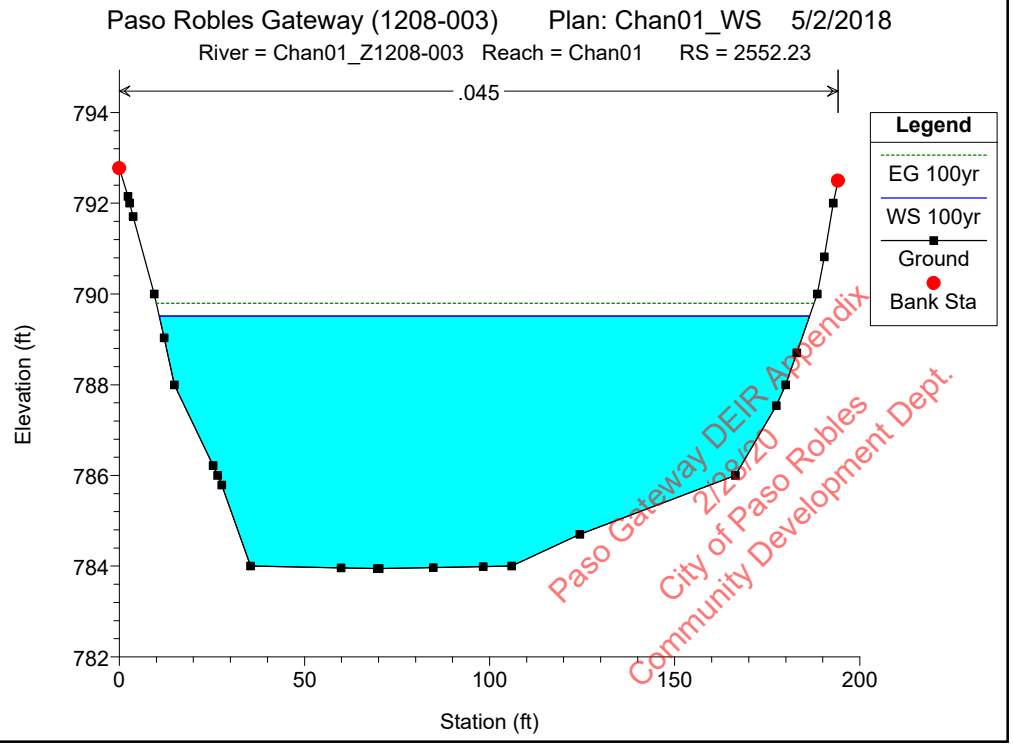

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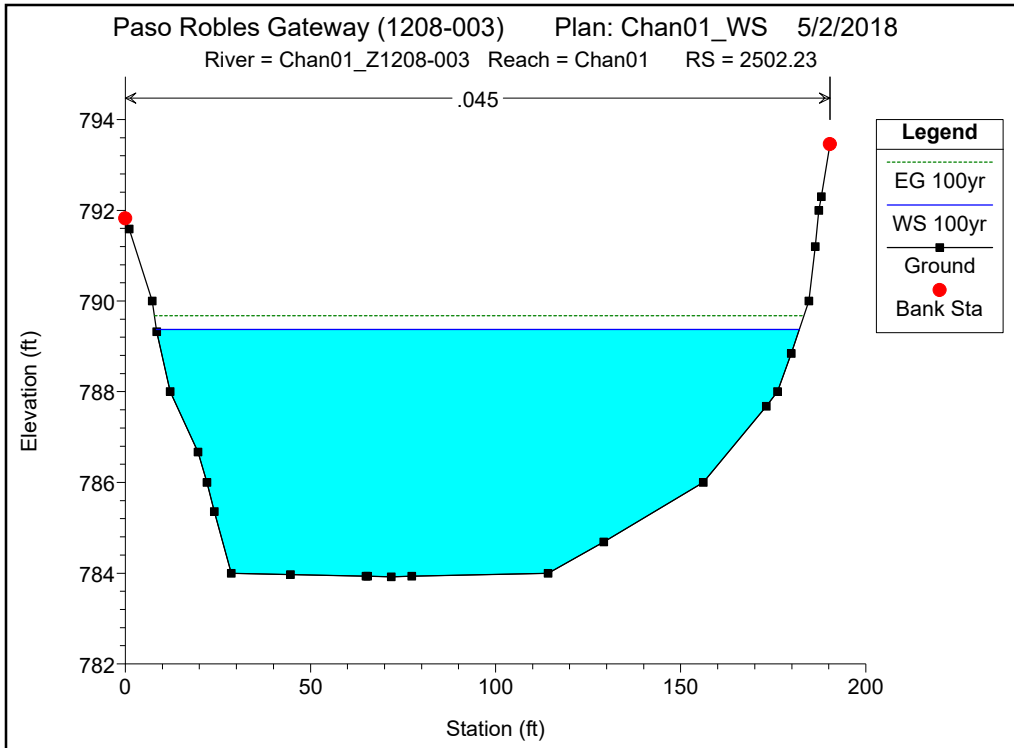
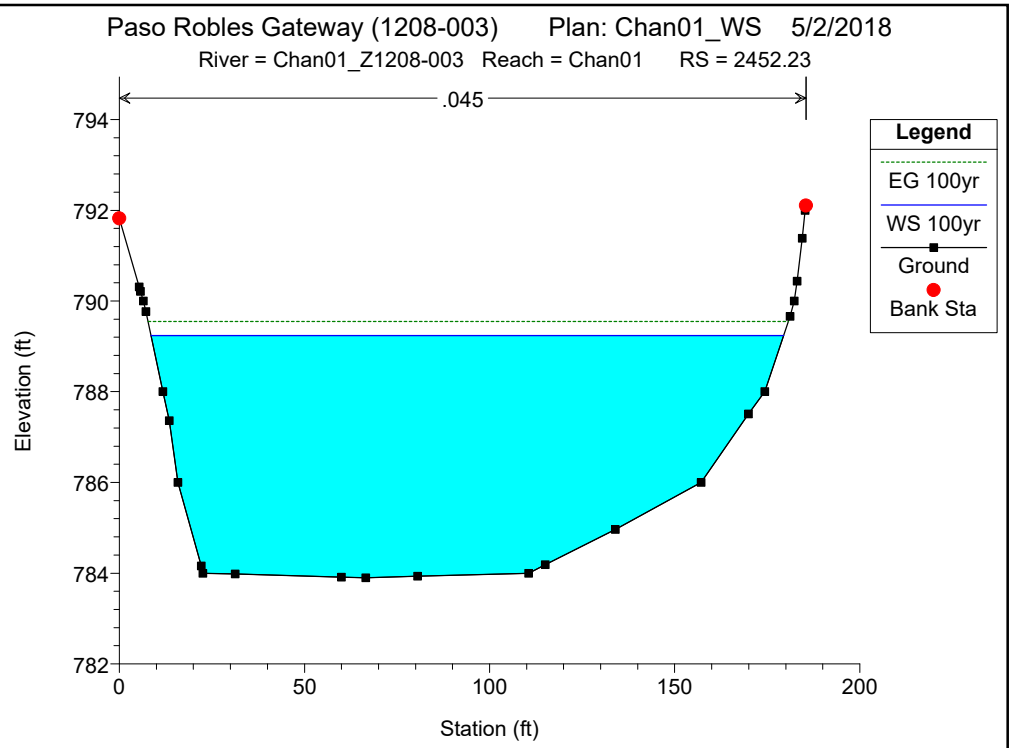
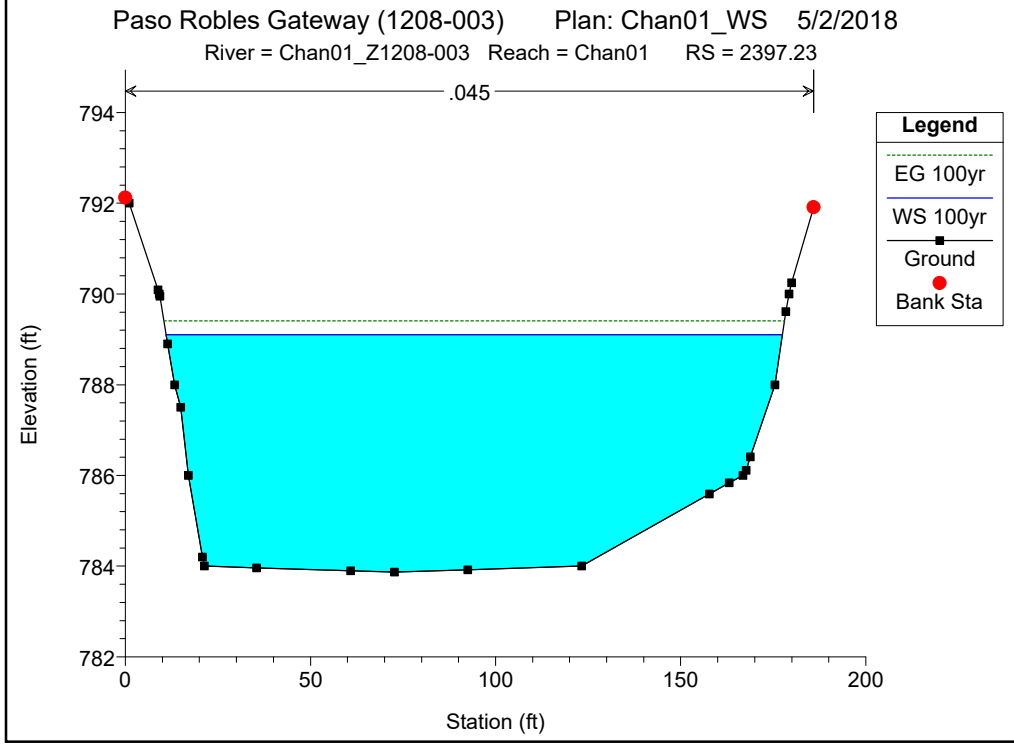
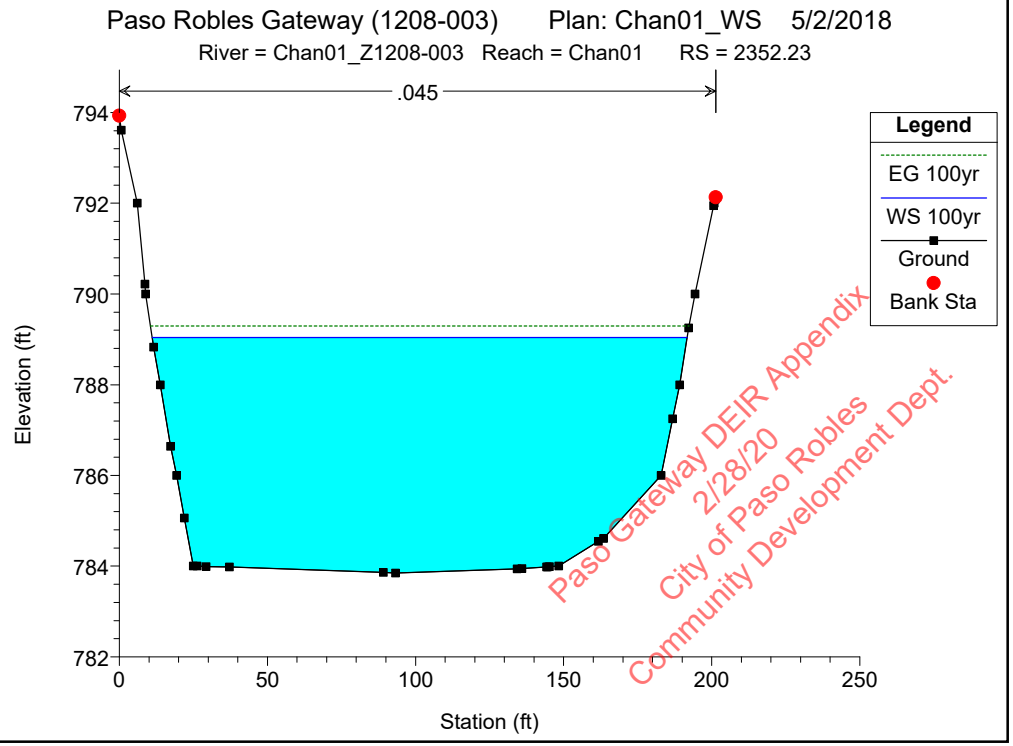

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2502.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
782
784
786
788
790
792
794
0
50
100
150
200


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2452.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
782
784
786
788
790
792
794
0
50
100
150
200


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2397.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
782
784
786
788
790
792
794
0
50
100
150
200


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2352.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
782
784
786
788
790
792
794
0
50
100
150
200
250
Paso Gateway DEIR Appendix
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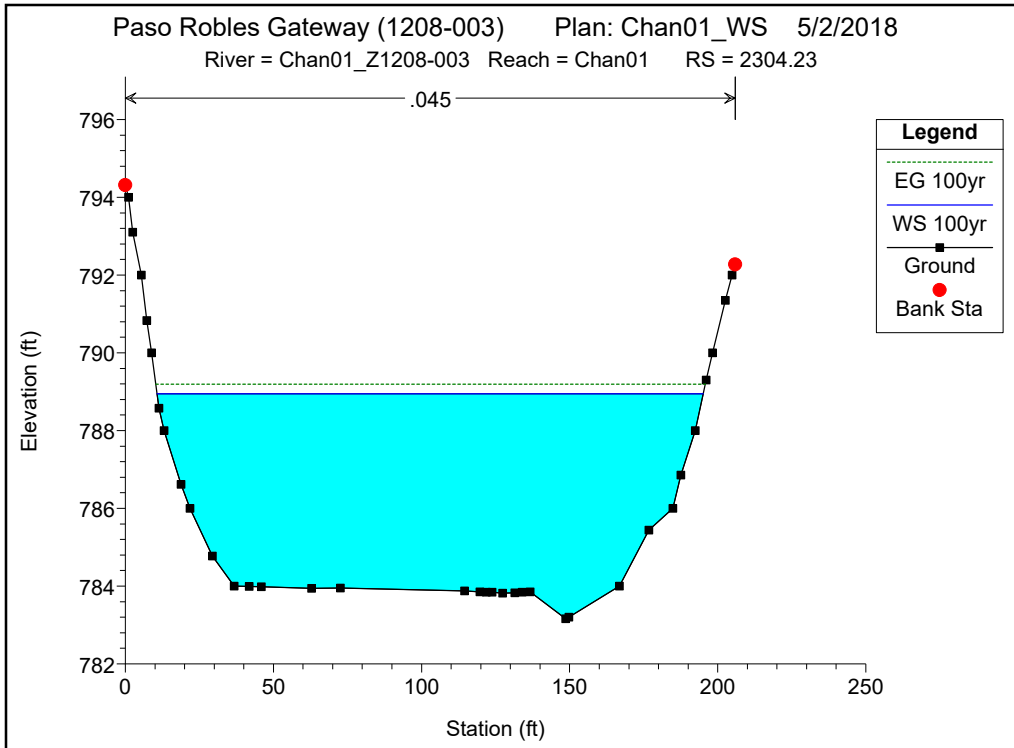
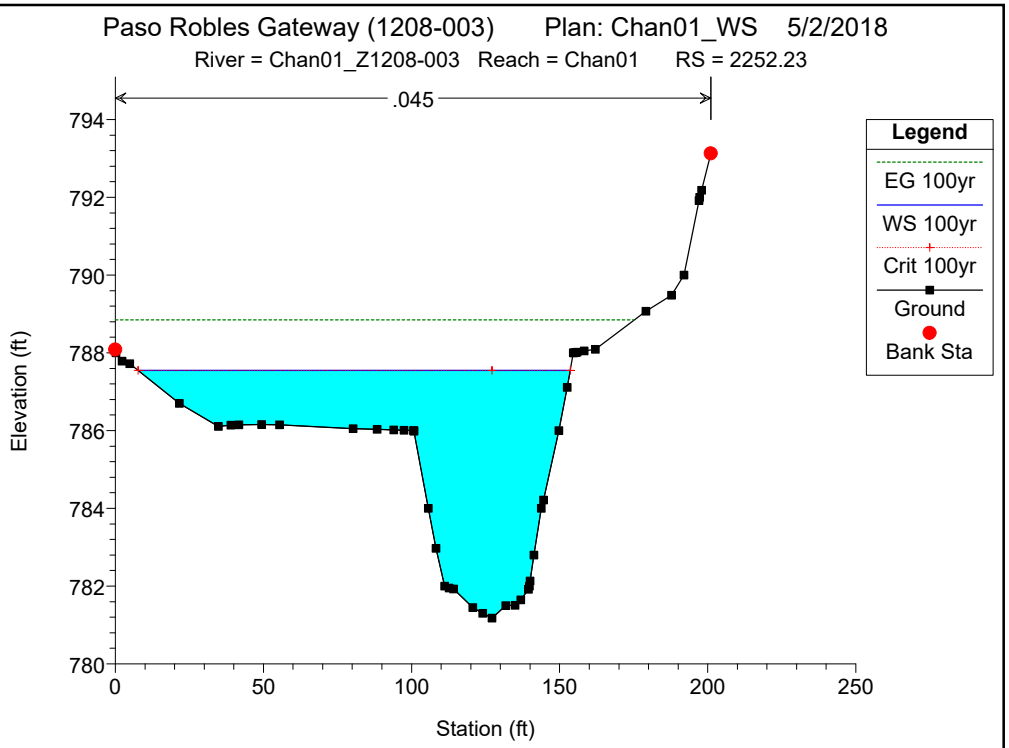
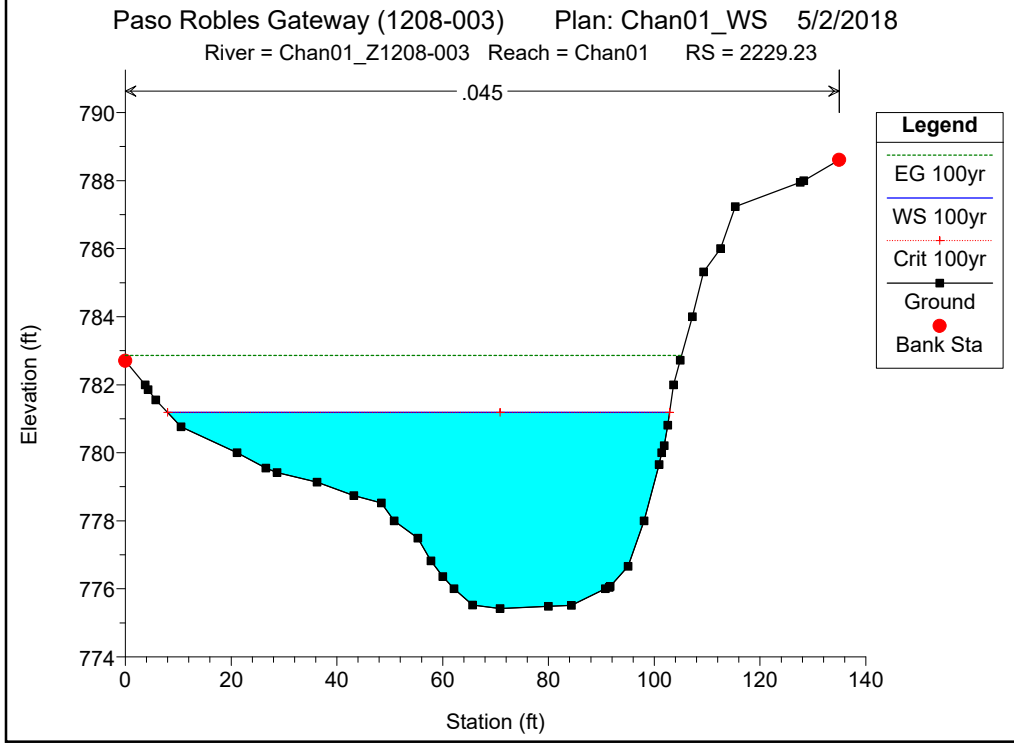

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2304.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2252.23
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2229.23
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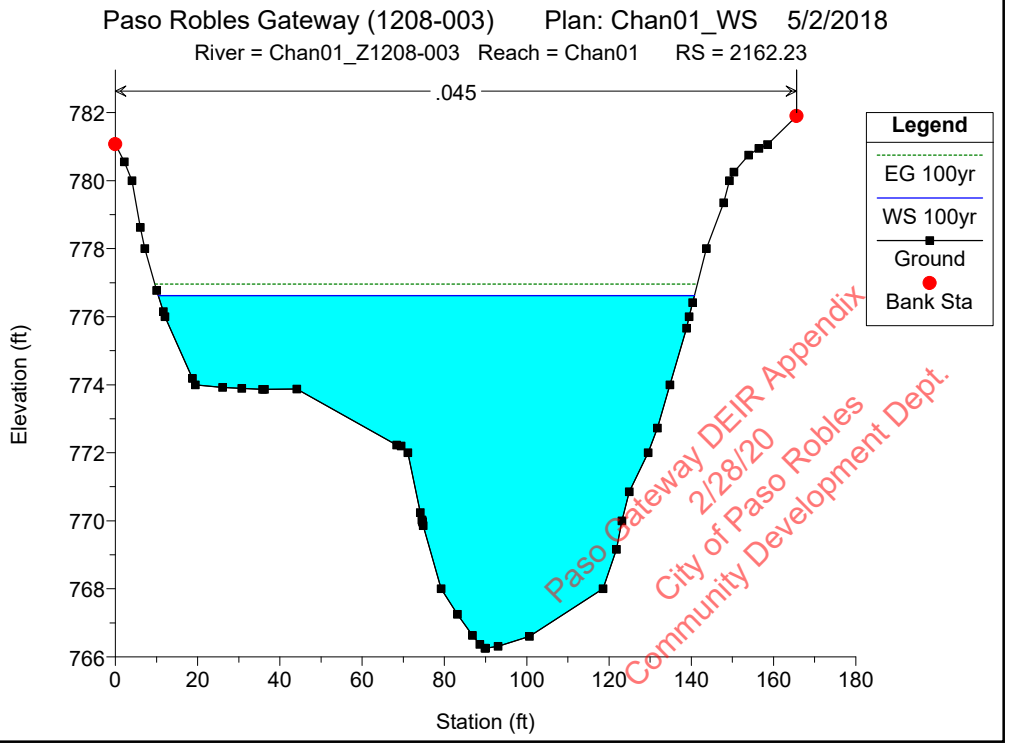
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2162.23
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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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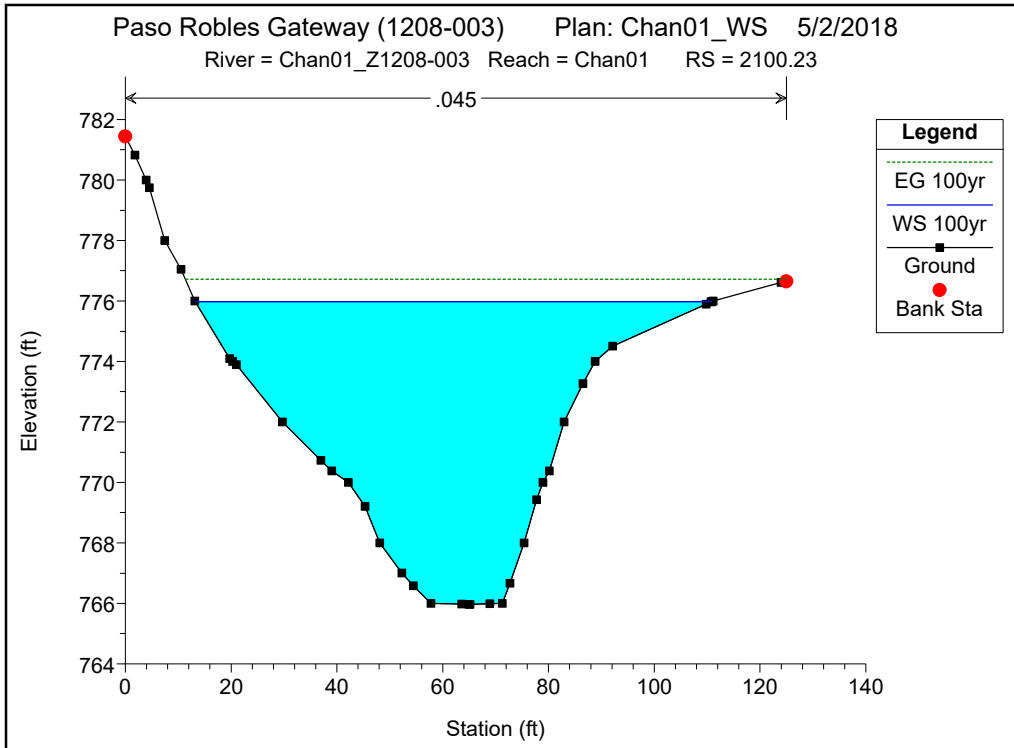
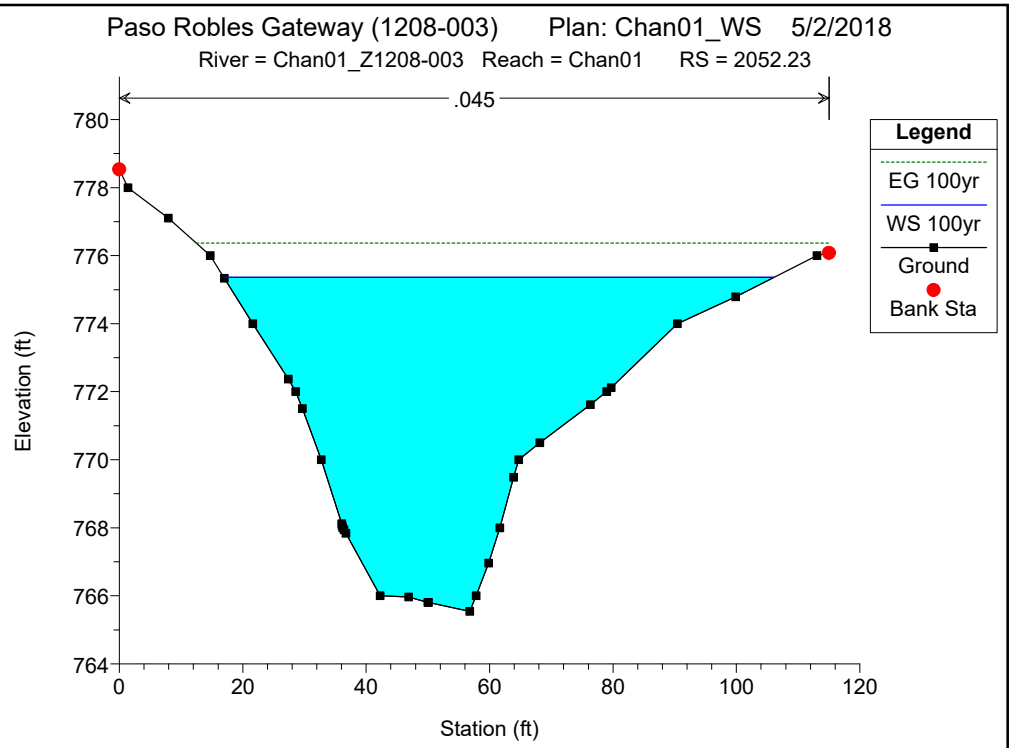

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2100.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2052.23
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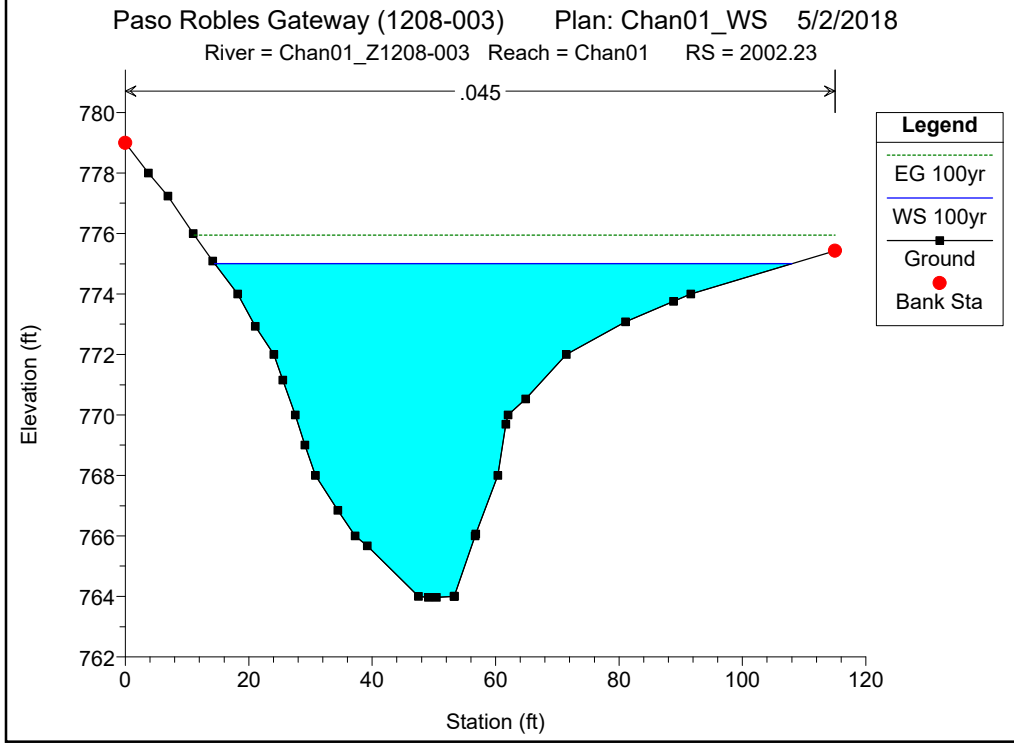
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 2002.23
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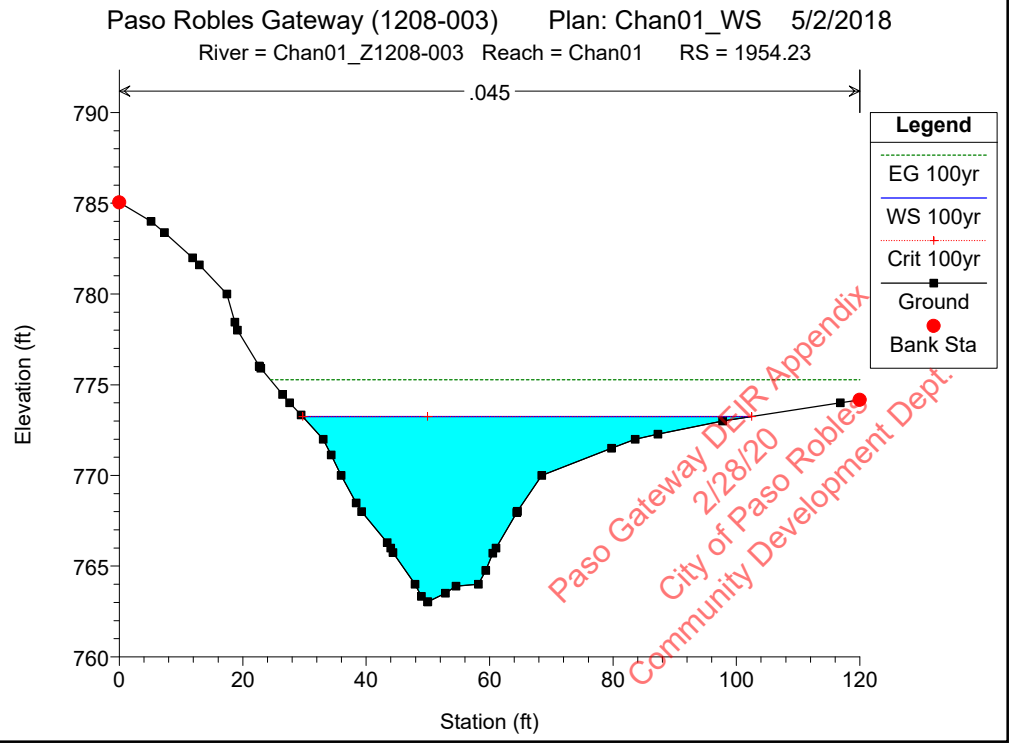
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1954.23
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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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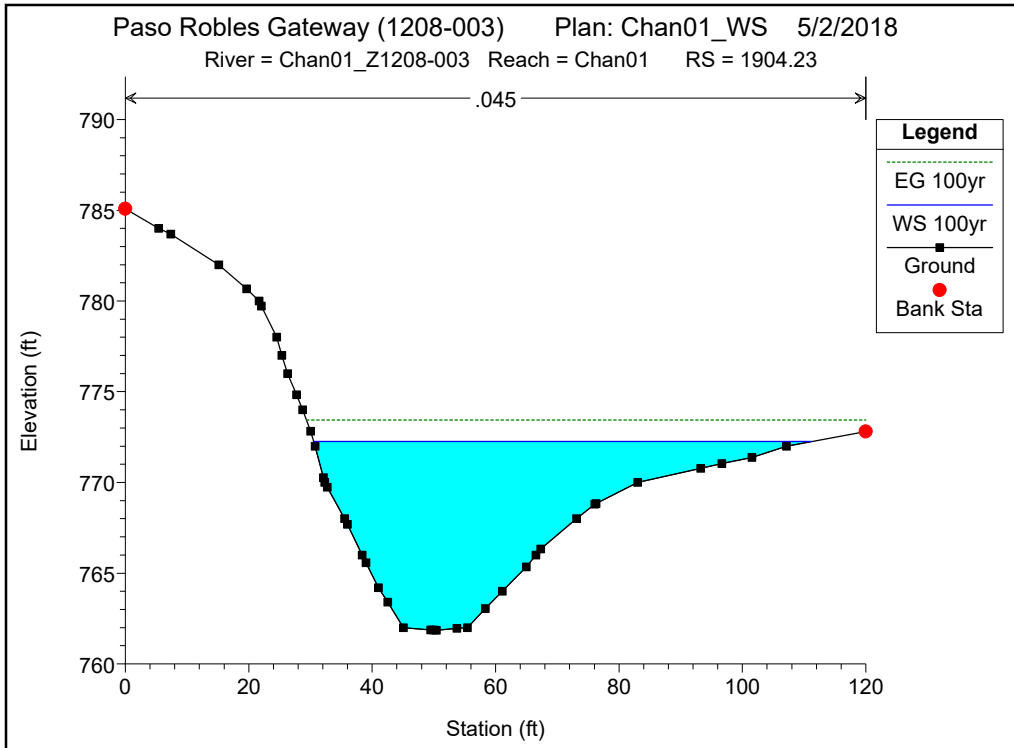
Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1904.23
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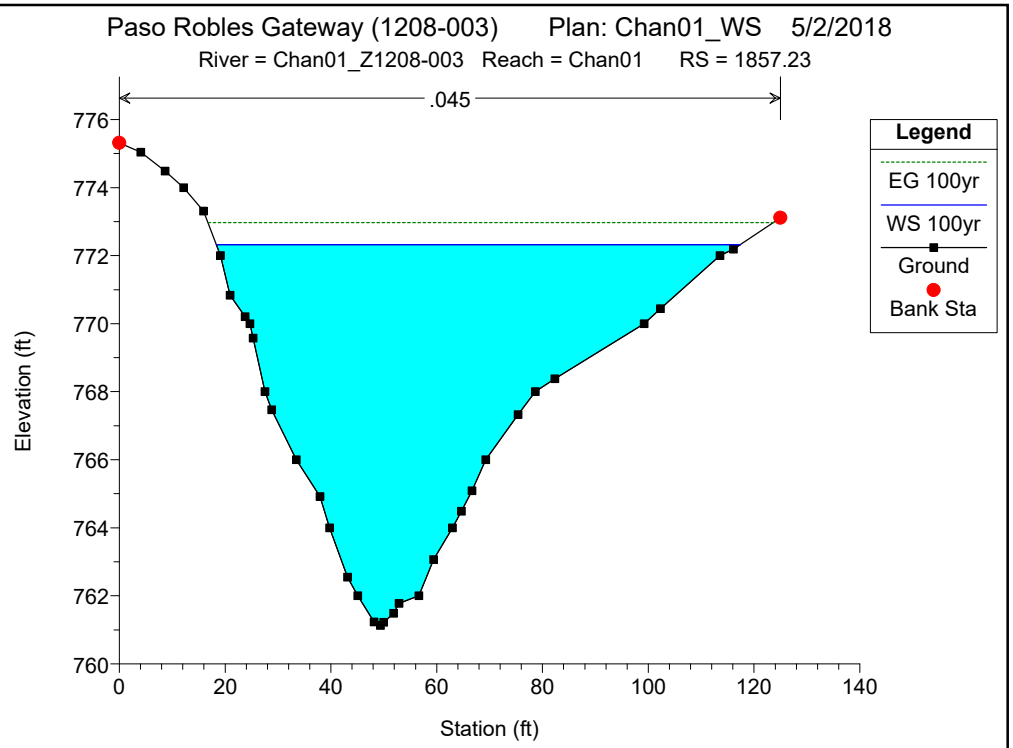
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1857.23
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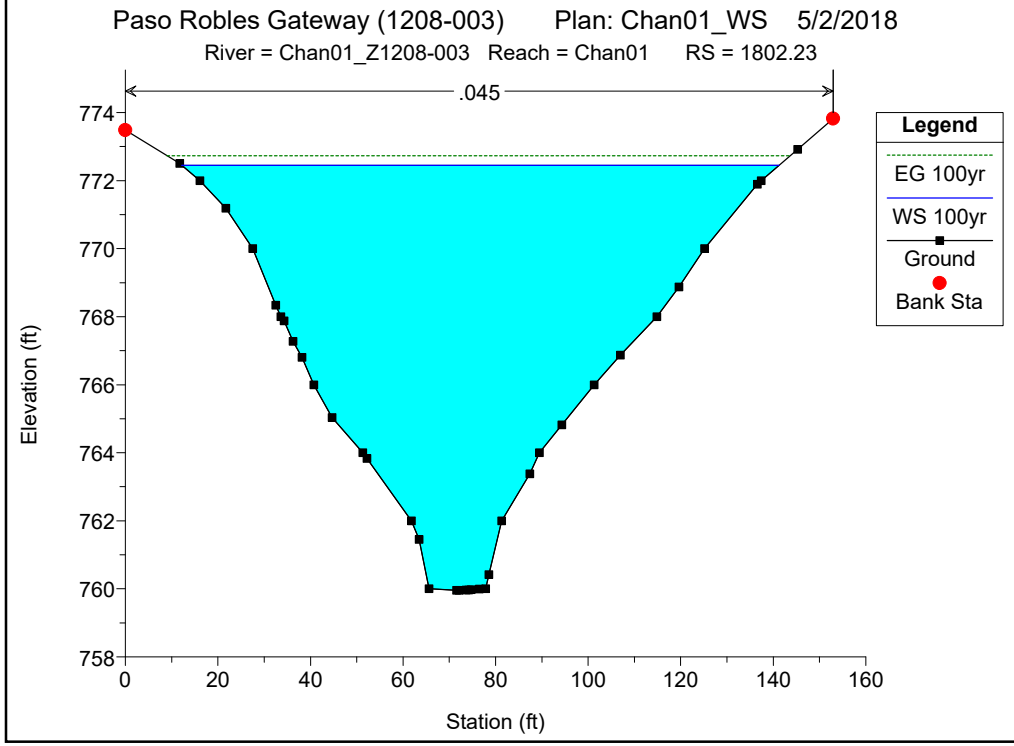
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1802.23
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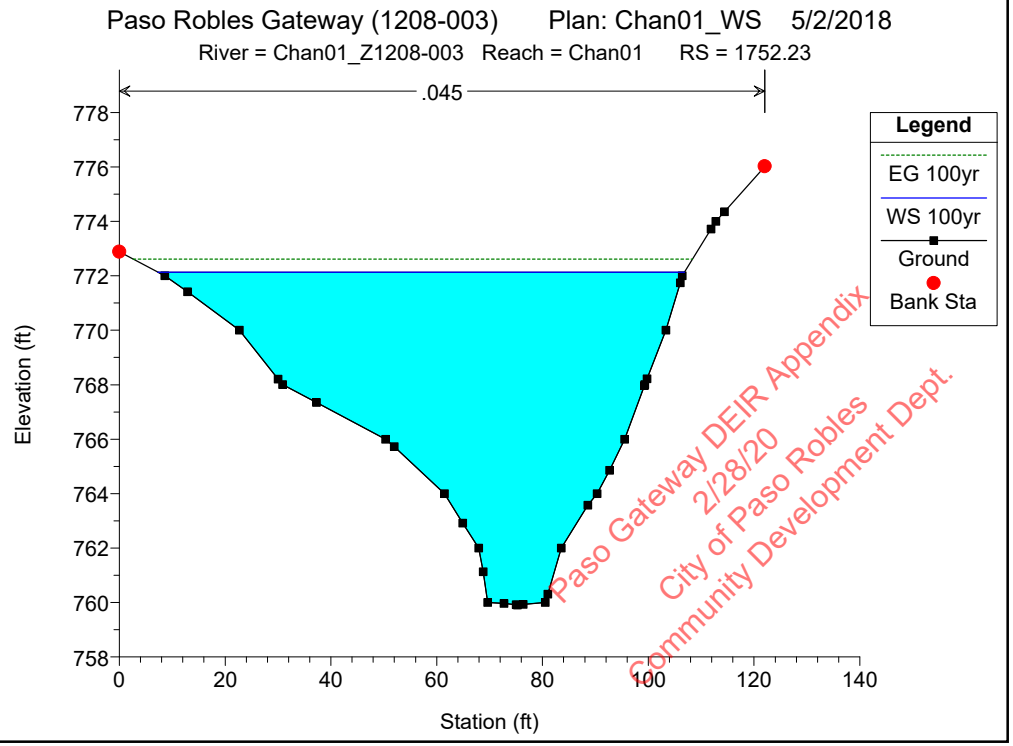
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1752.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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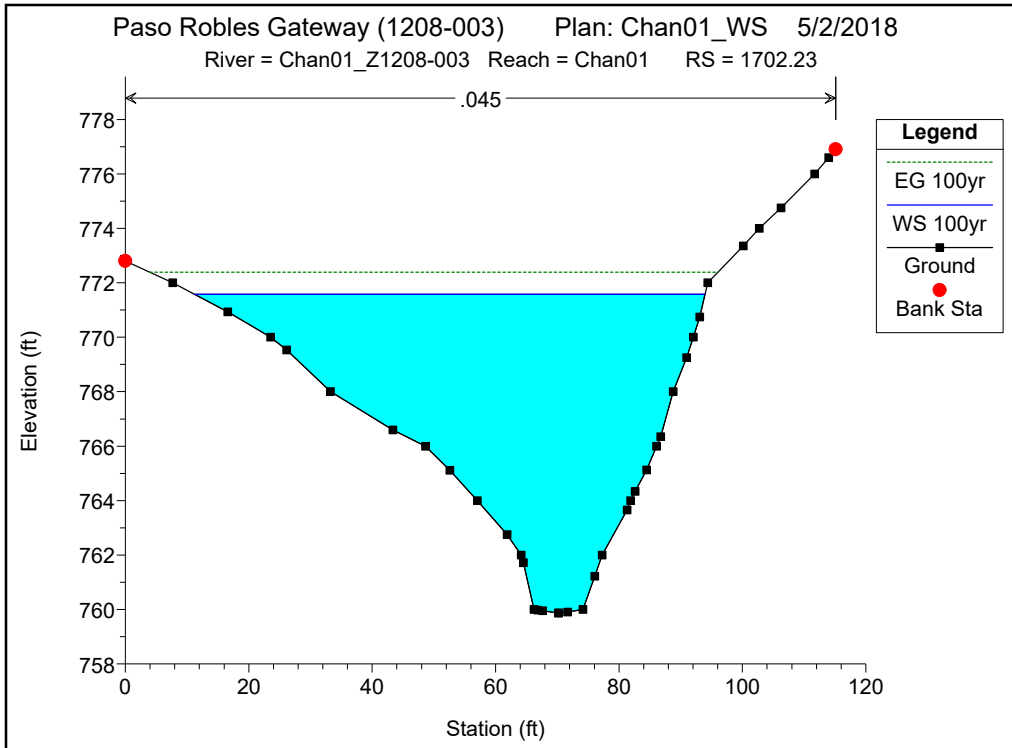
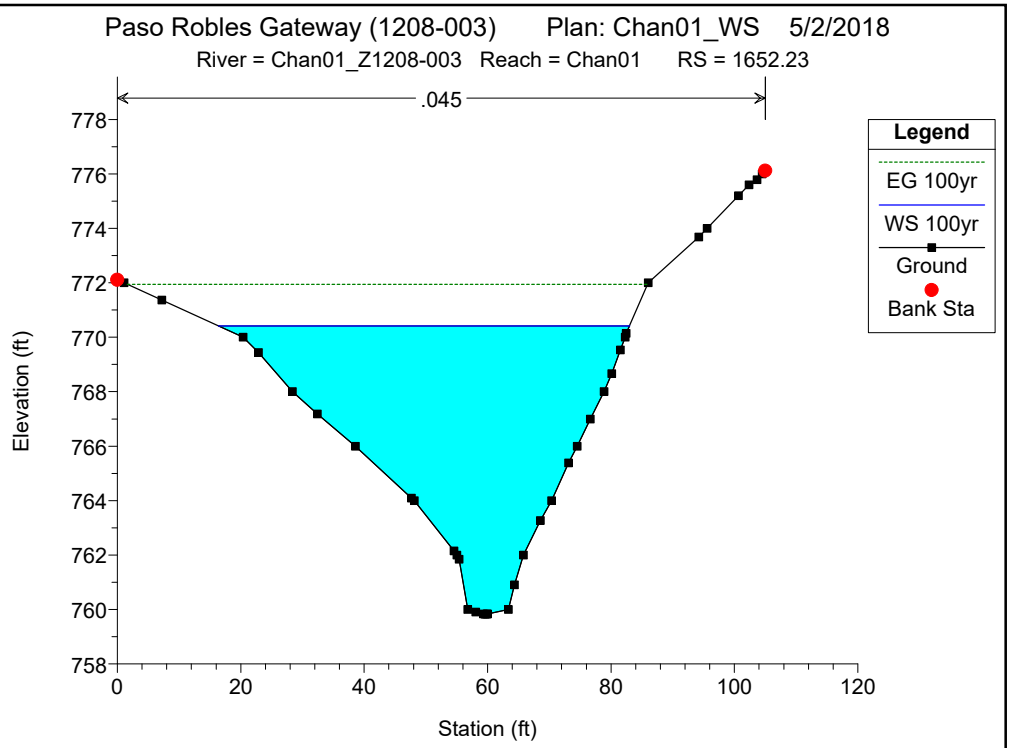

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1702.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1652.23
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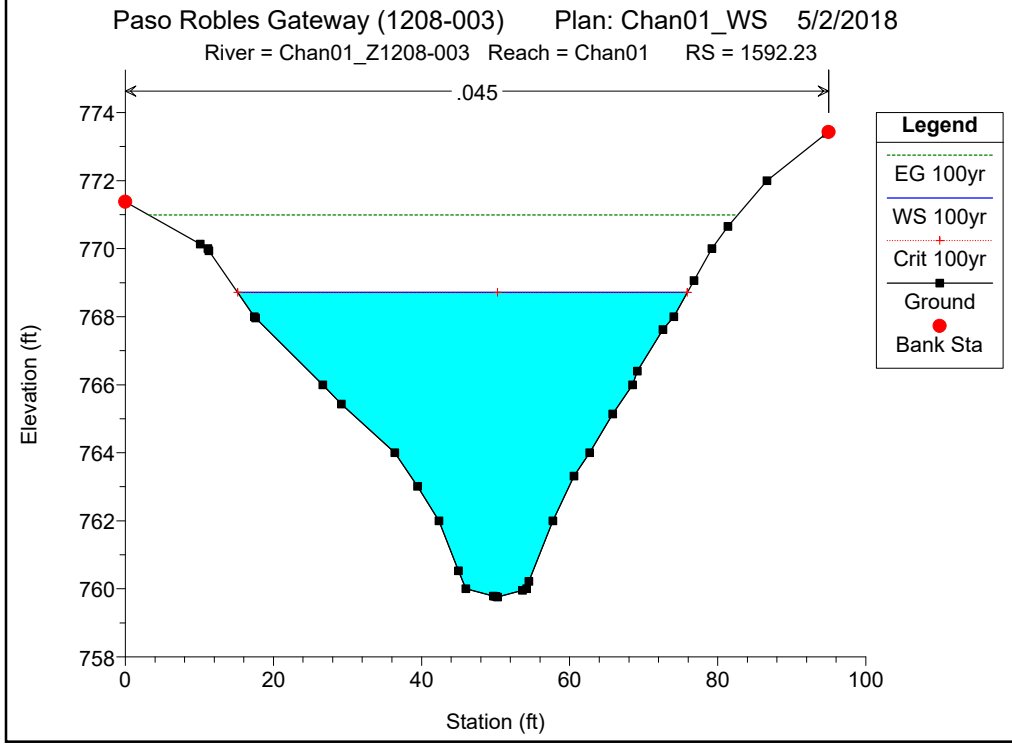
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1592.23
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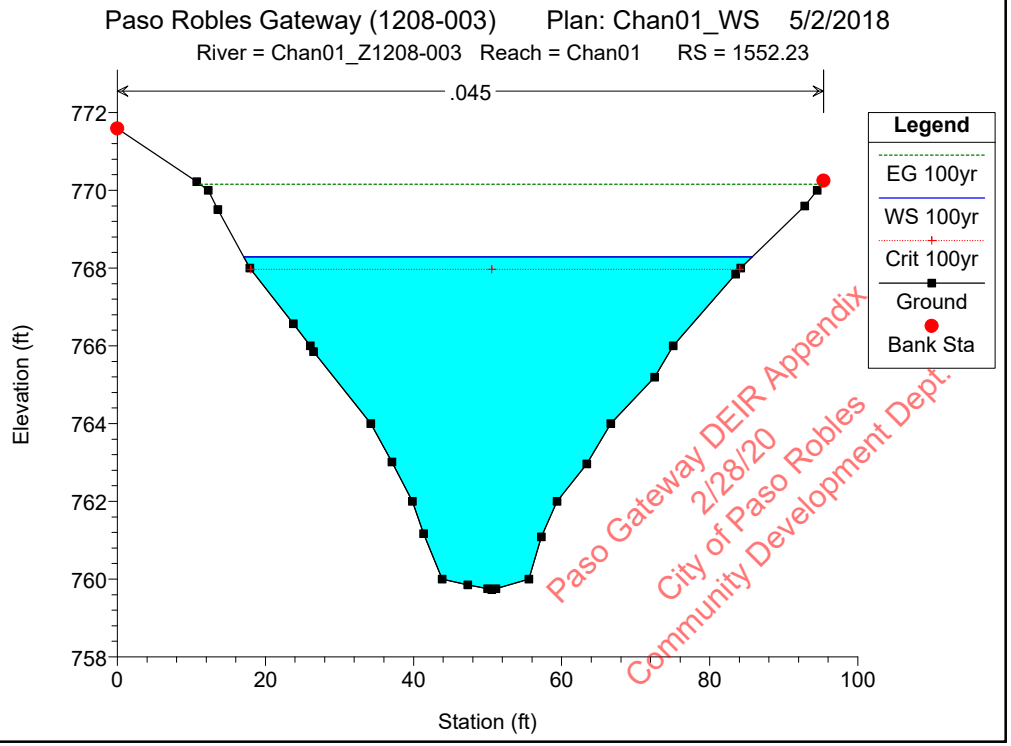
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1552.23
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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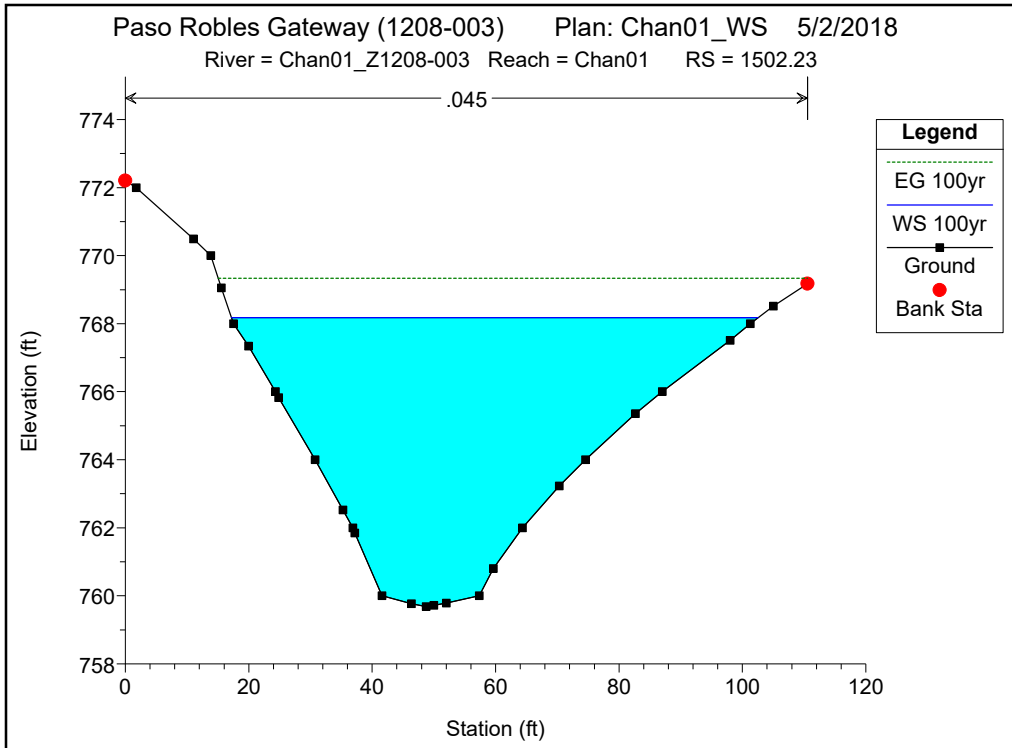
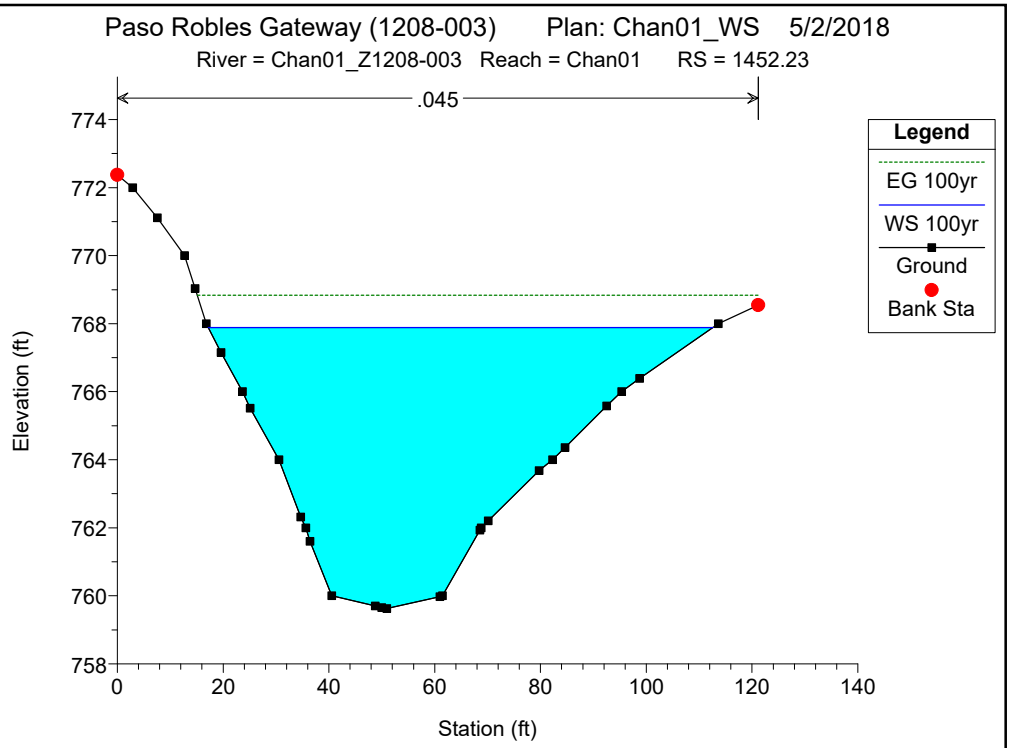
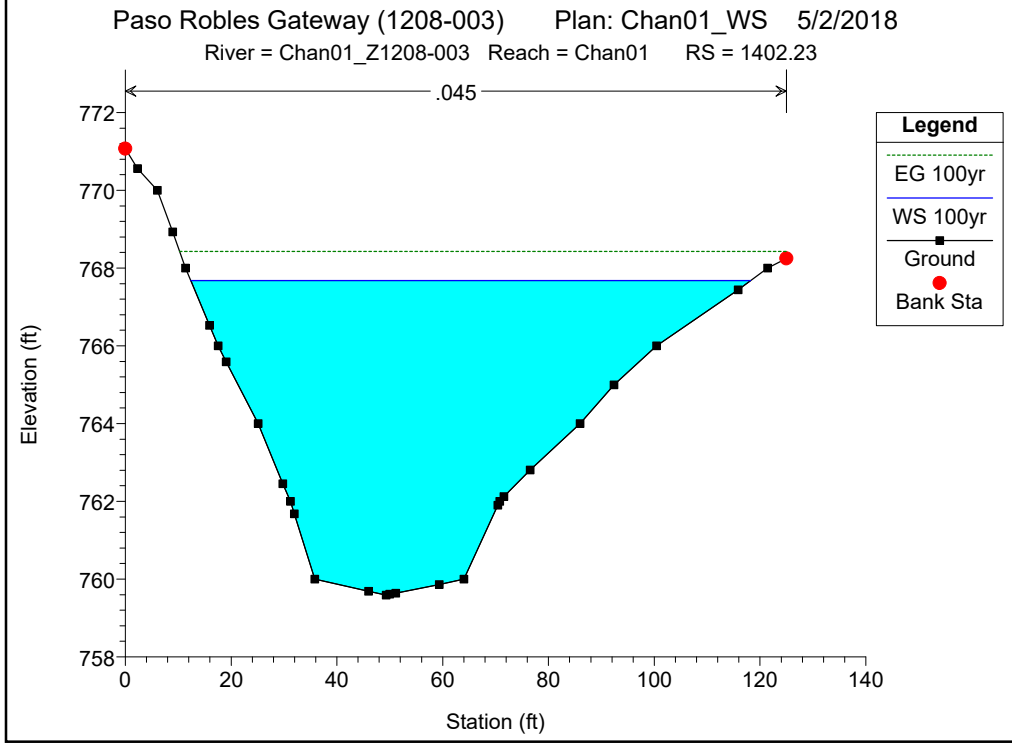
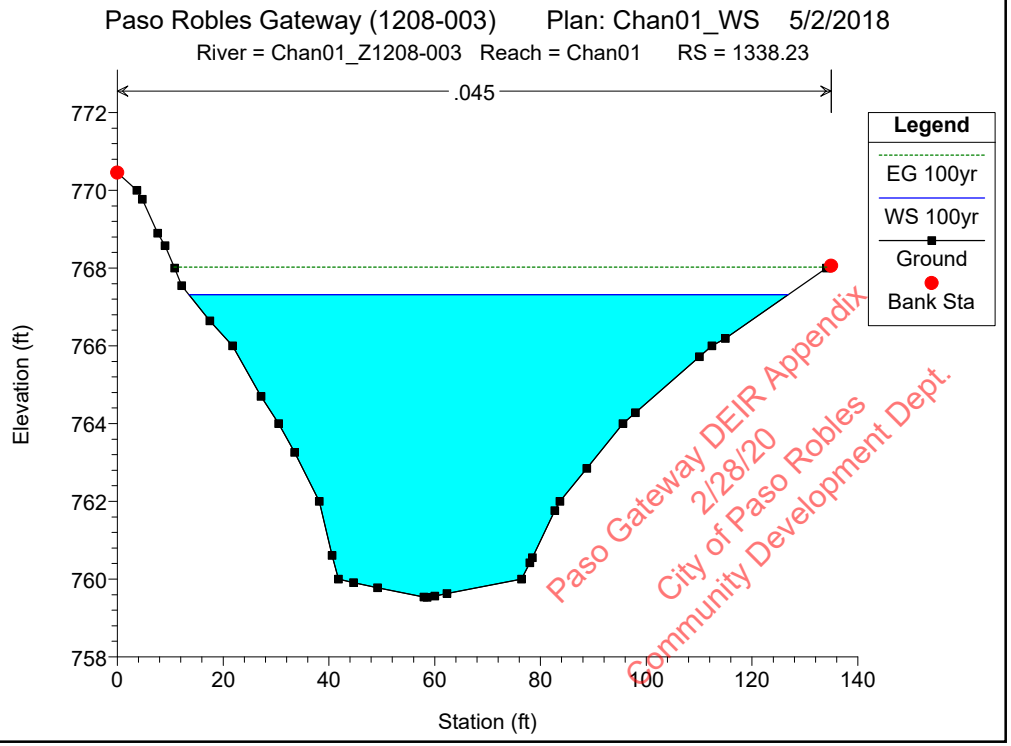

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1502.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1452.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1402.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1338.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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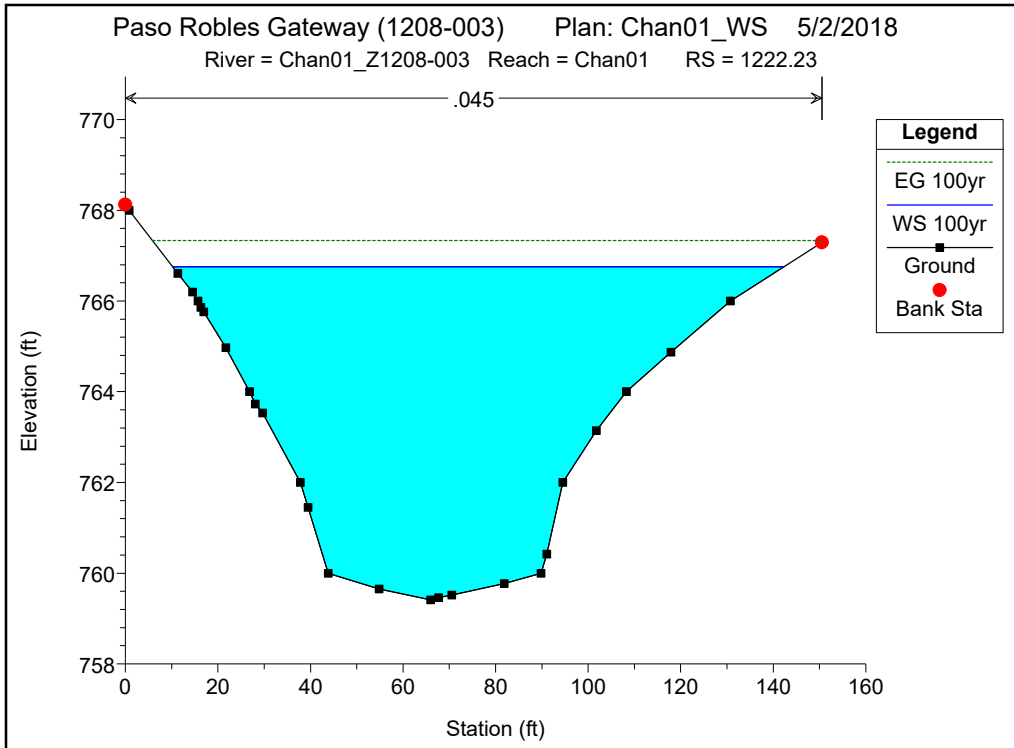
Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1222.23
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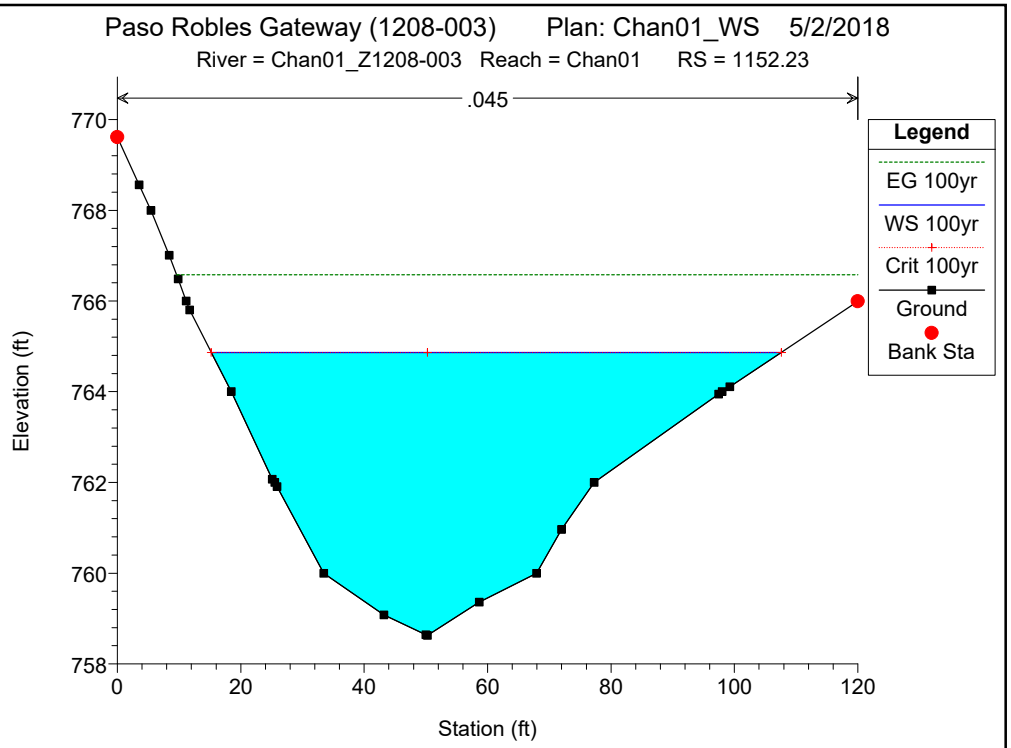
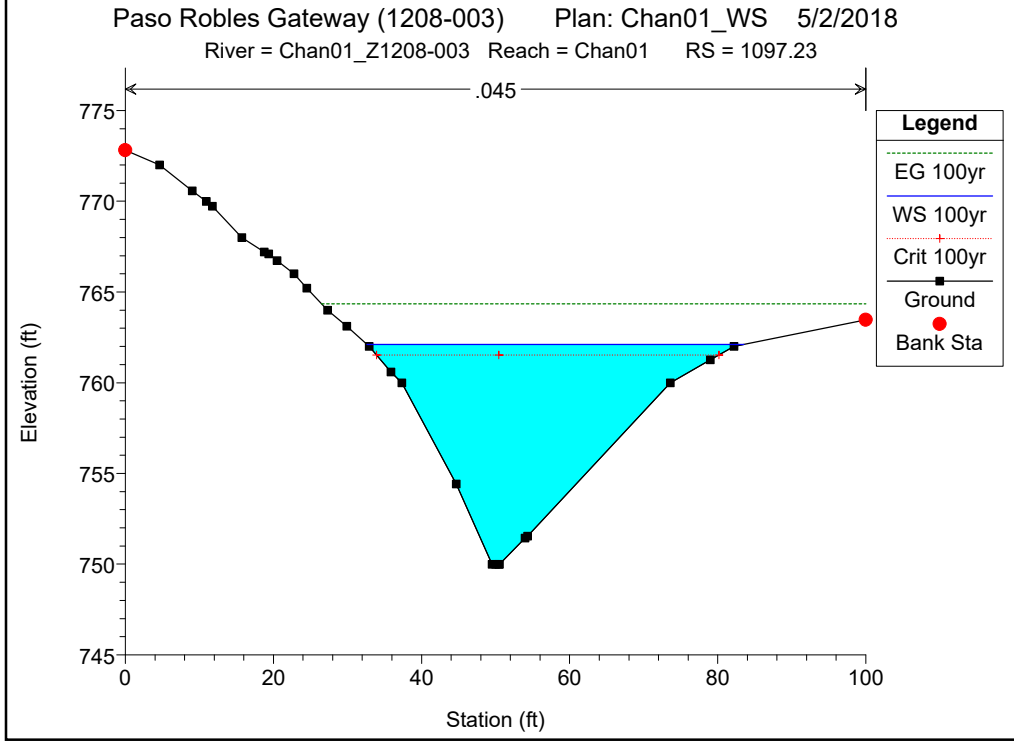
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1152.23
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1097.23
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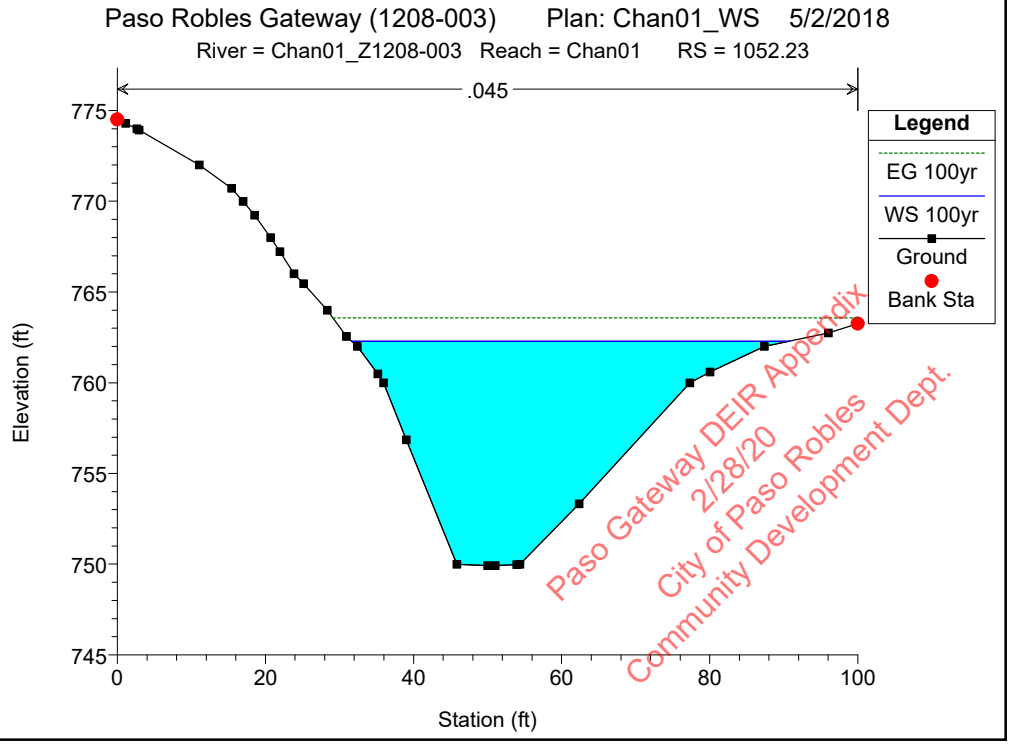
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1052.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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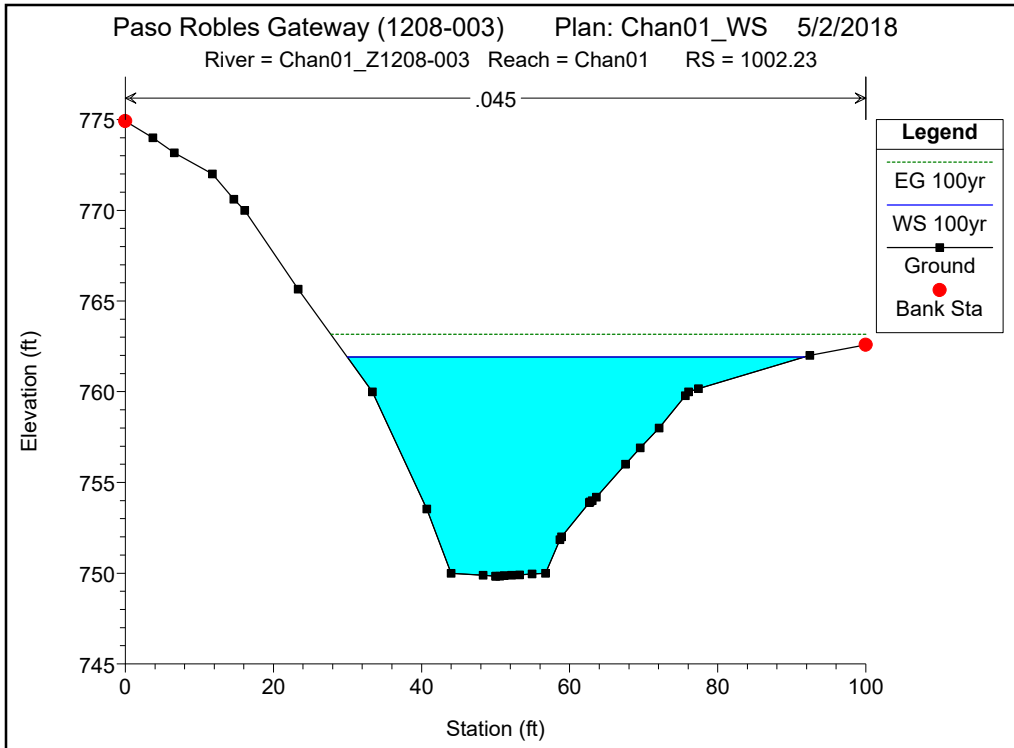
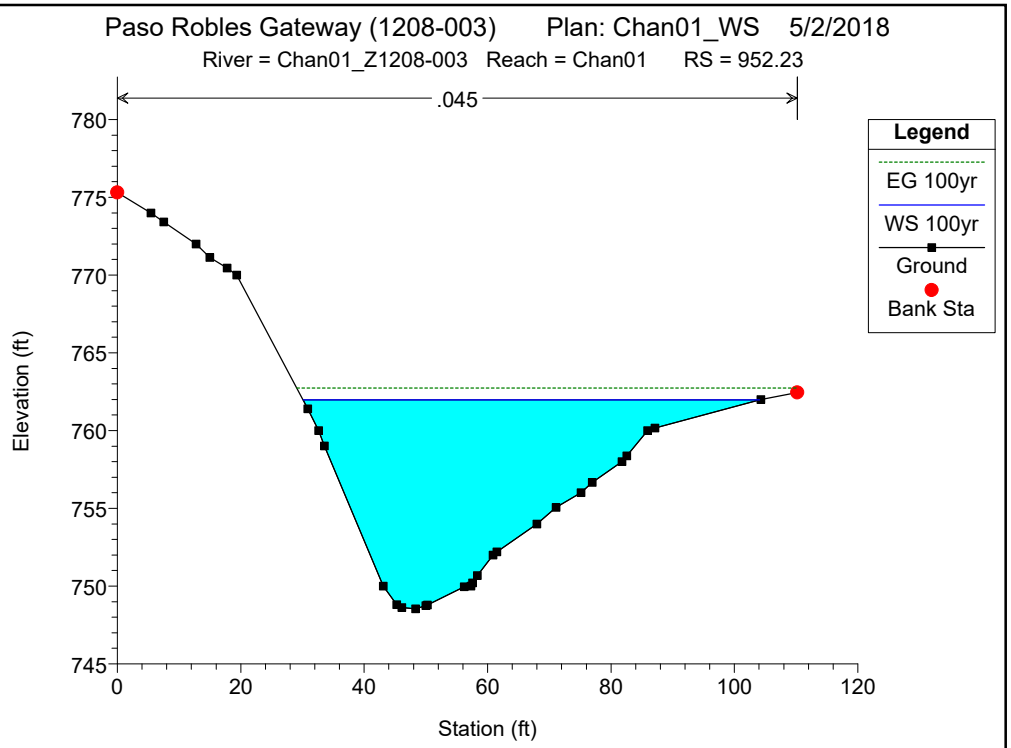
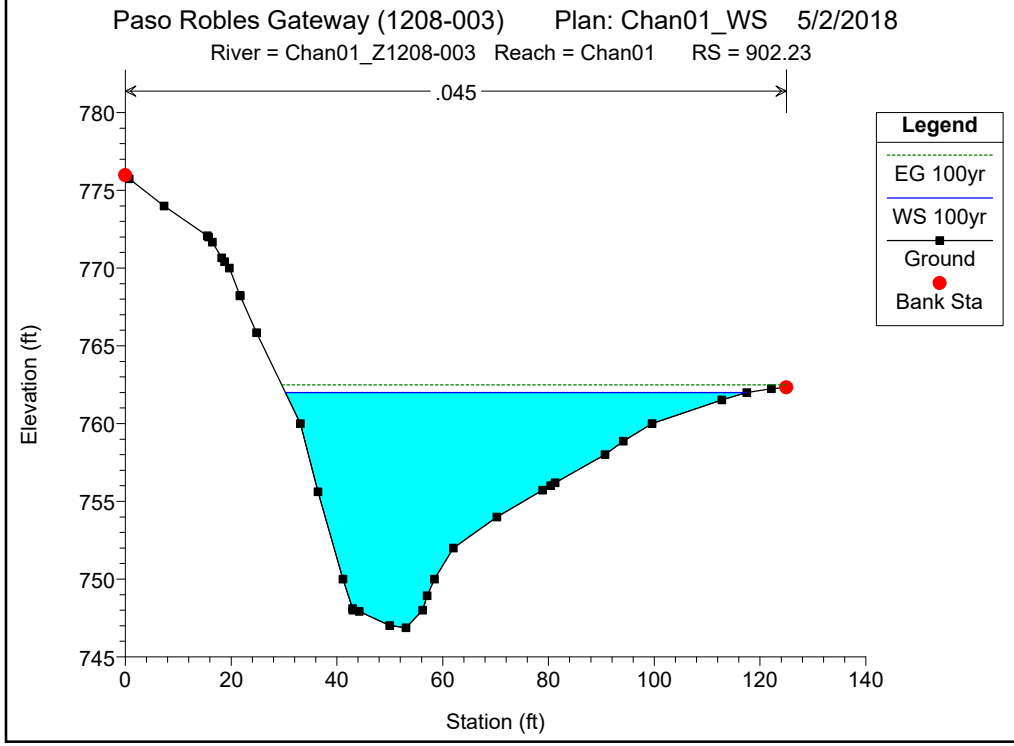

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 1002.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 952.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 902.23
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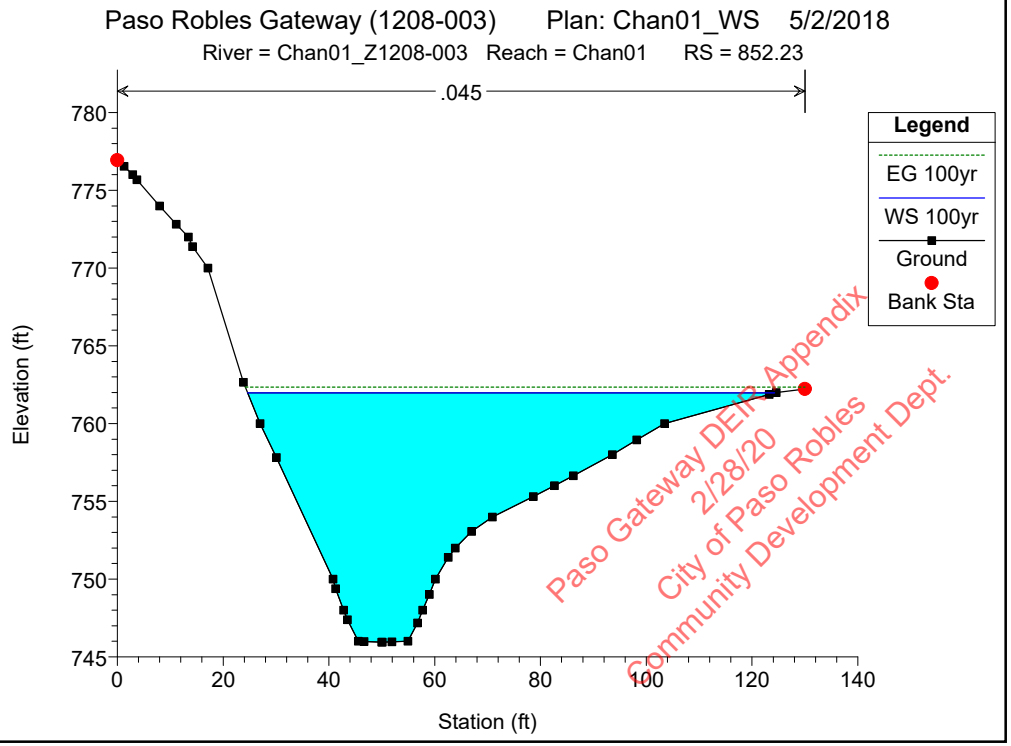
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 852.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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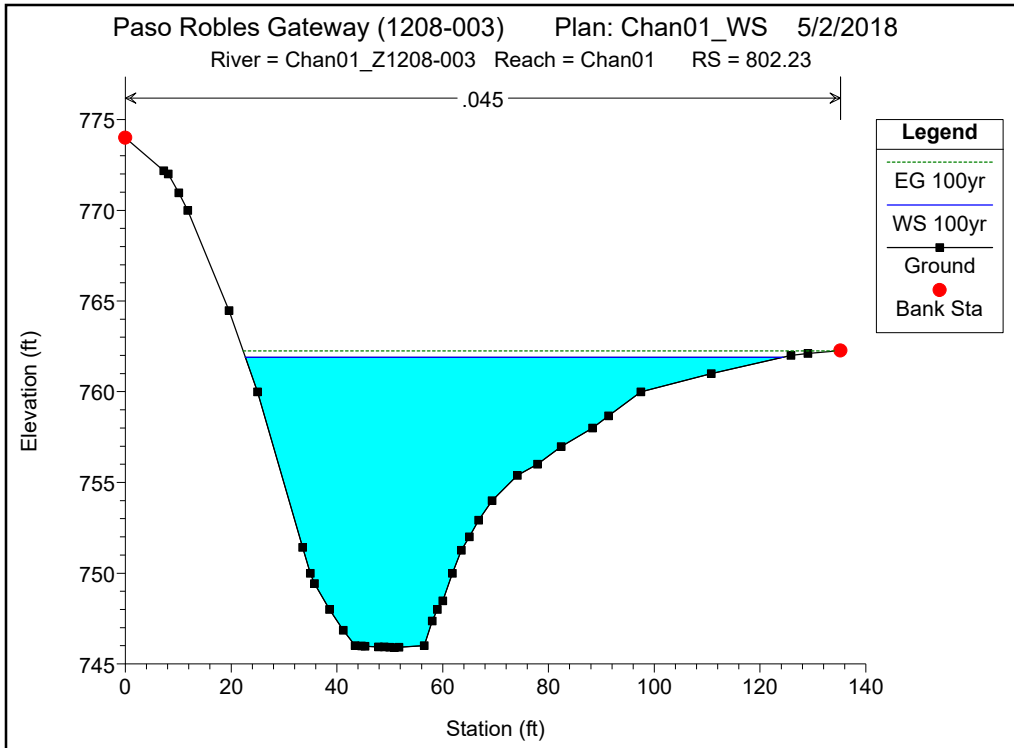
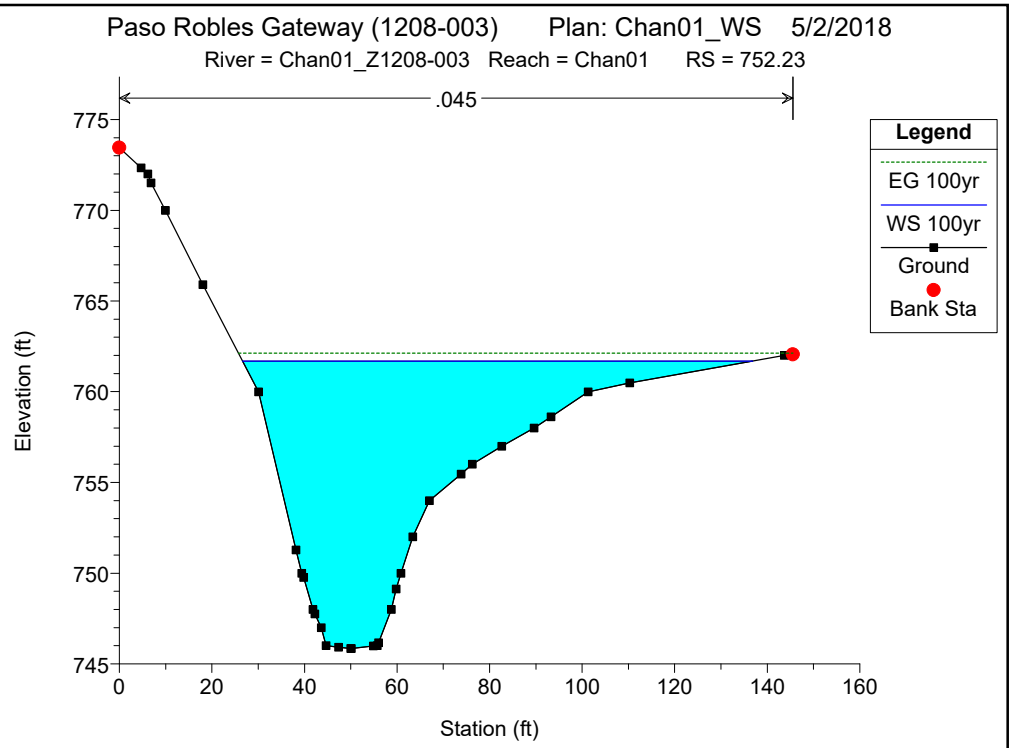

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 802.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 752.23
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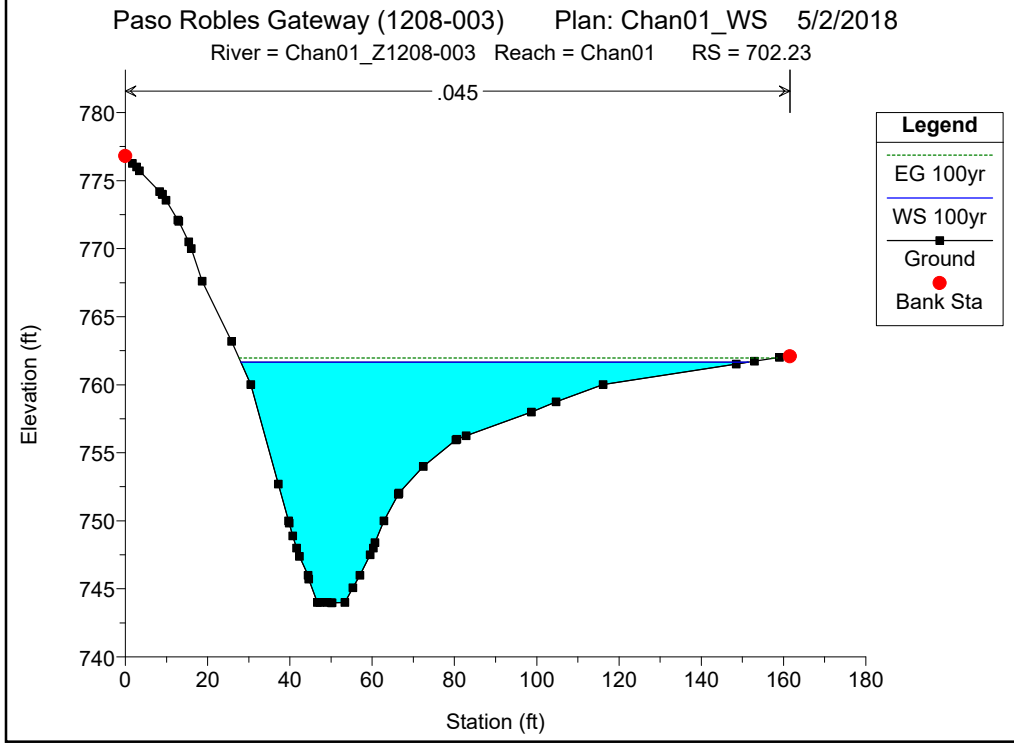
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 702.23
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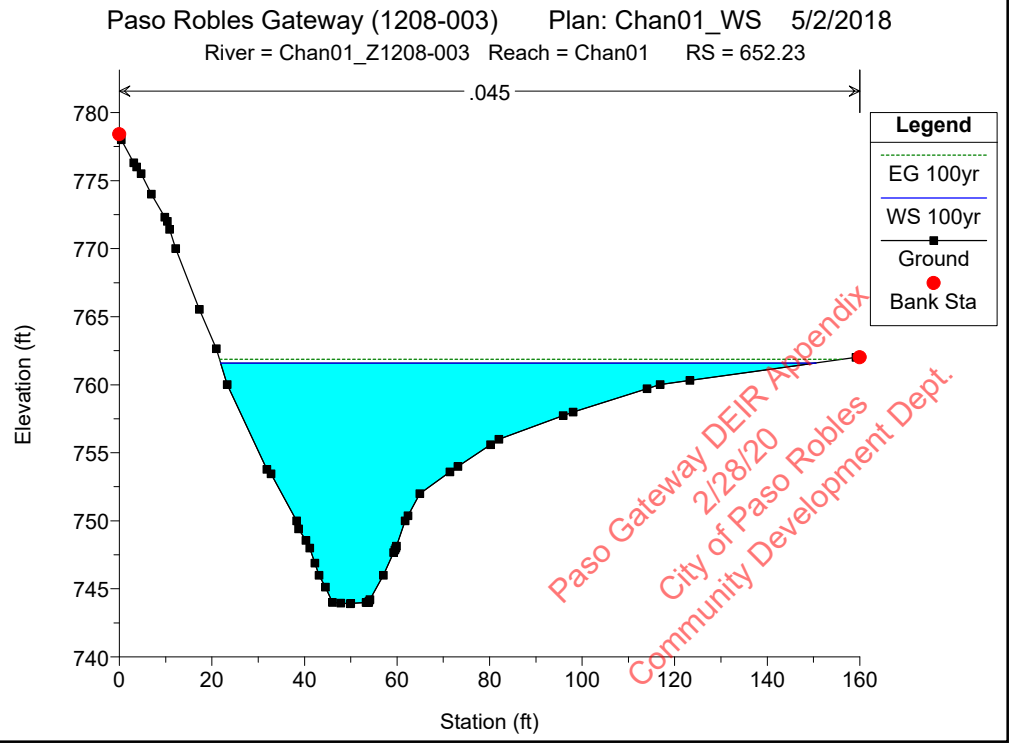
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 652.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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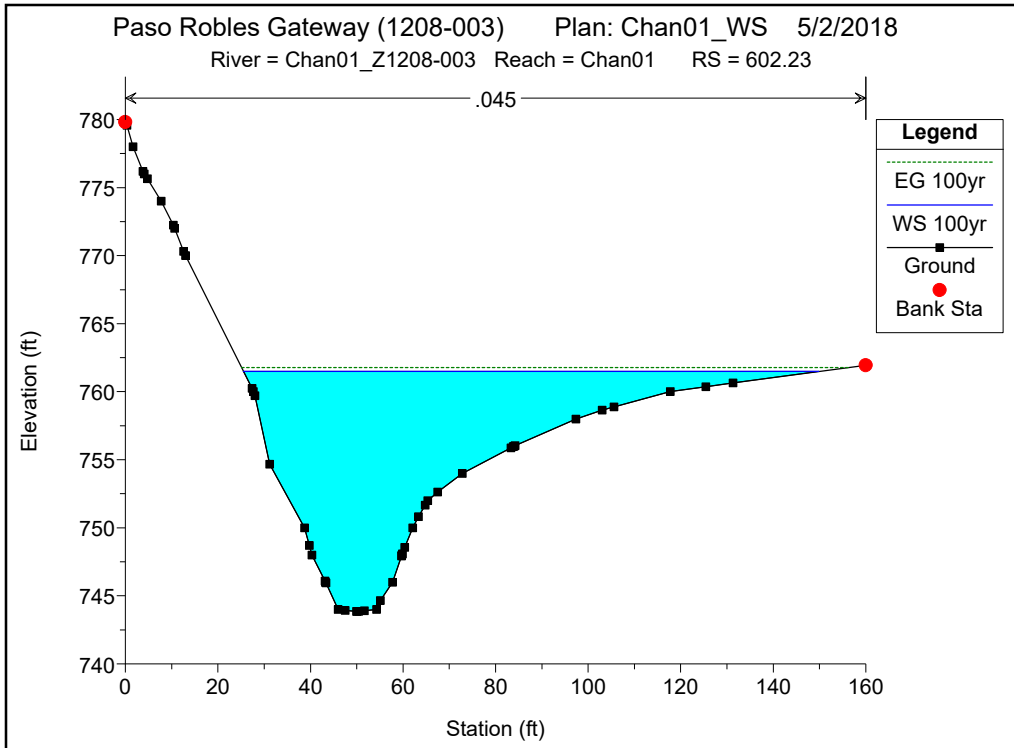
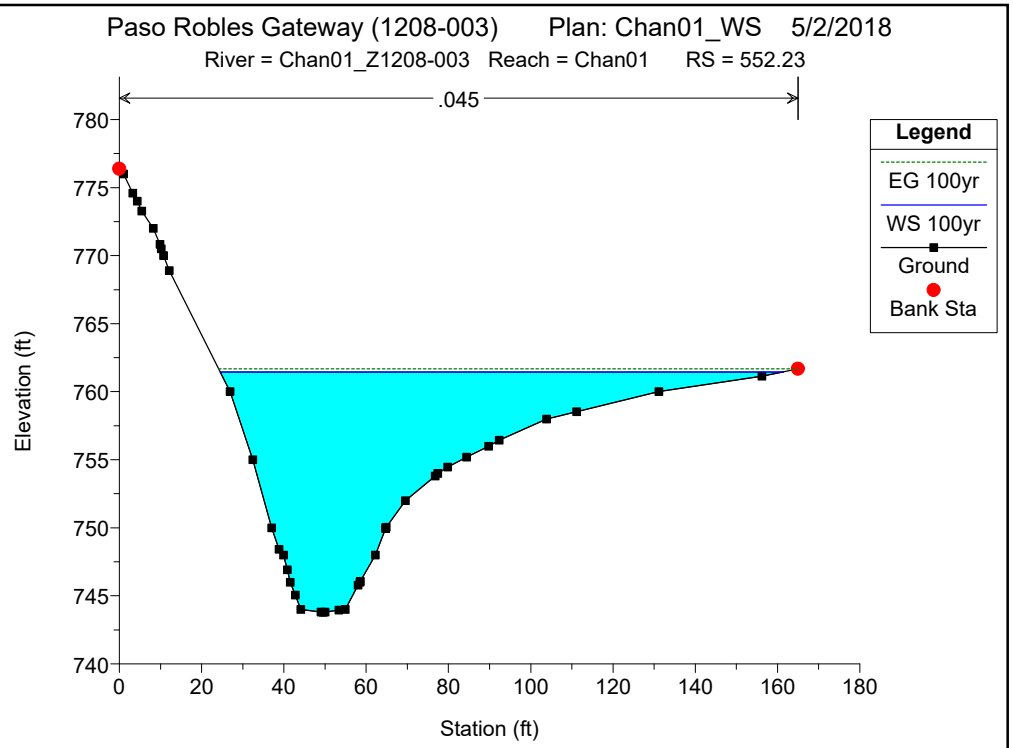

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 602.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 552.23
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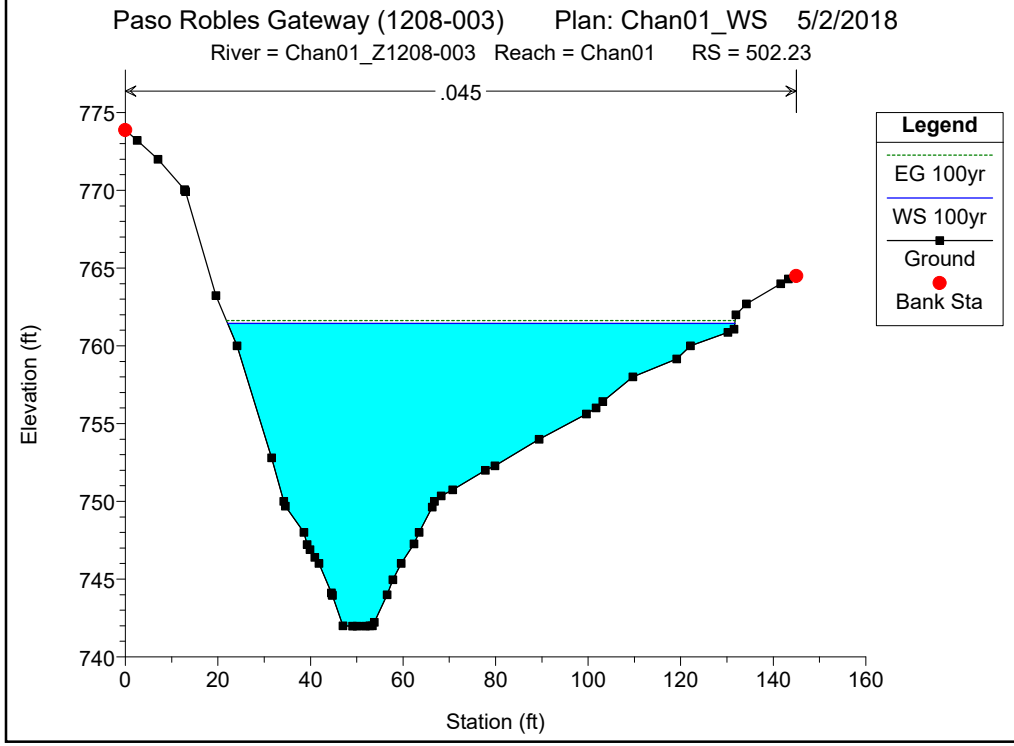
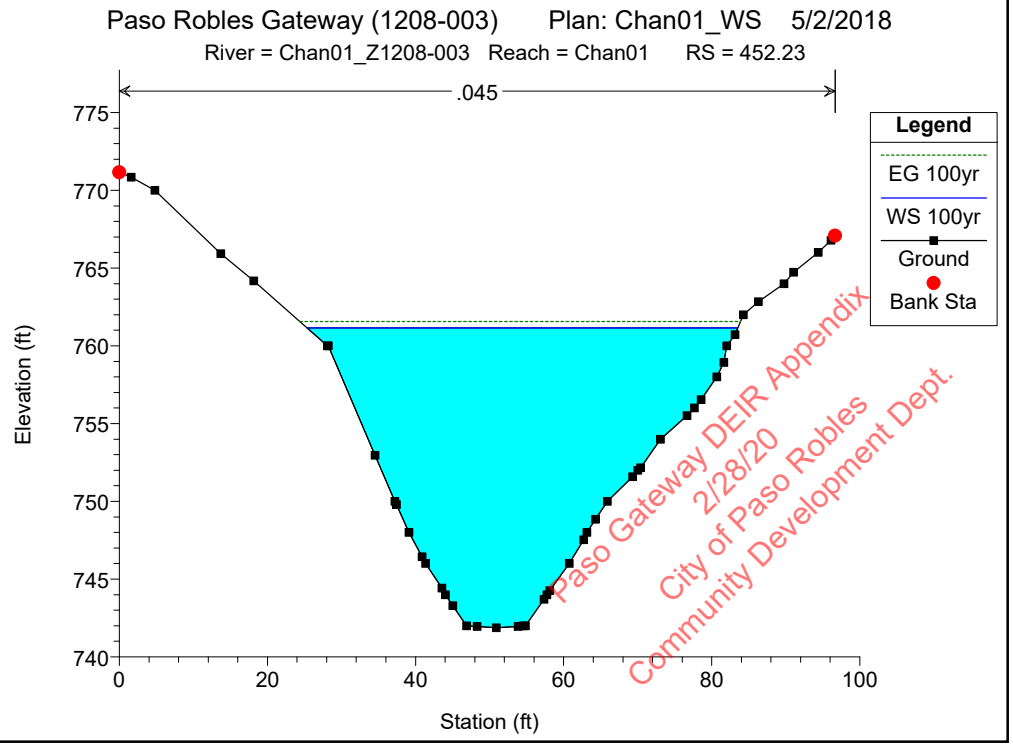
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 502.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 452.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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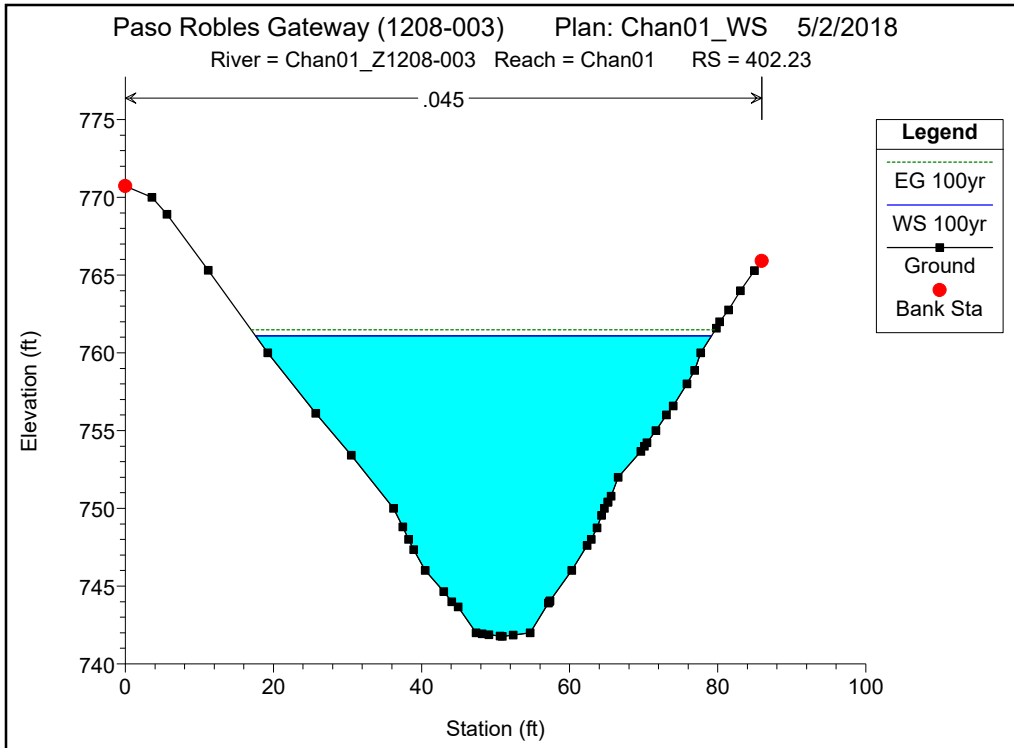
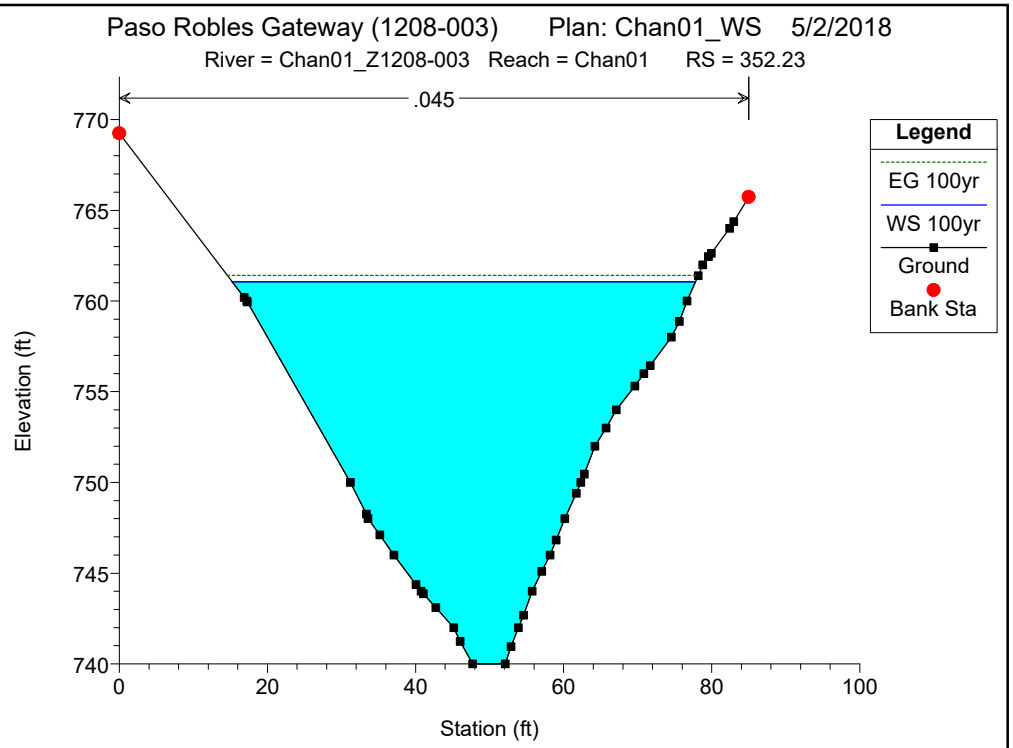
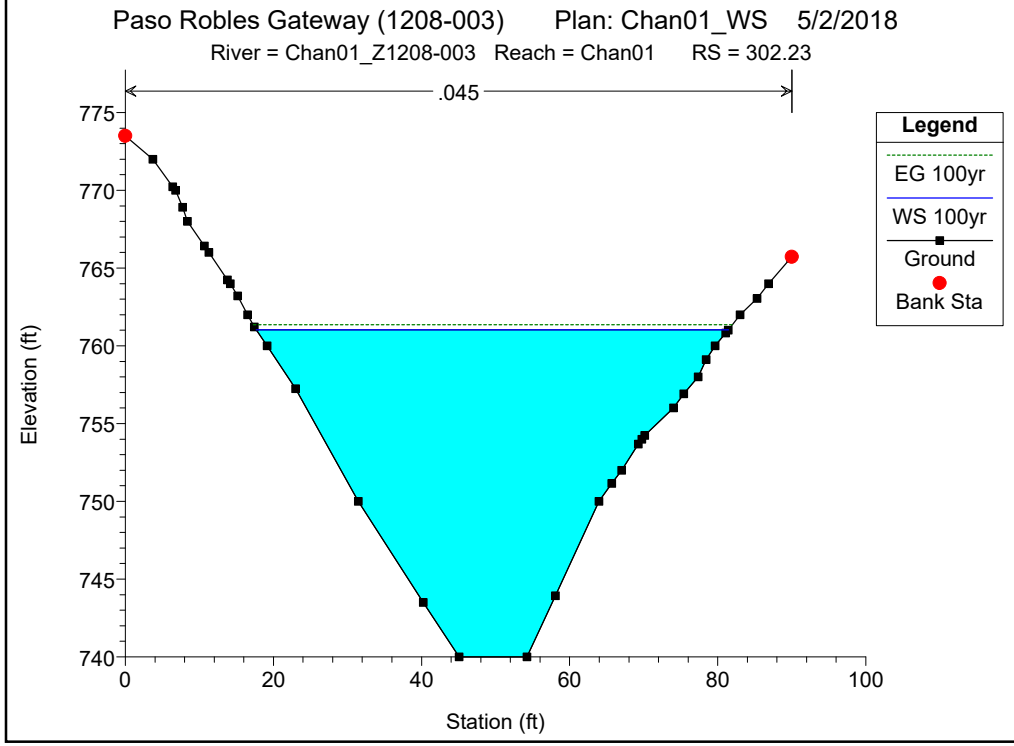

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 402.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 352.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 302.23
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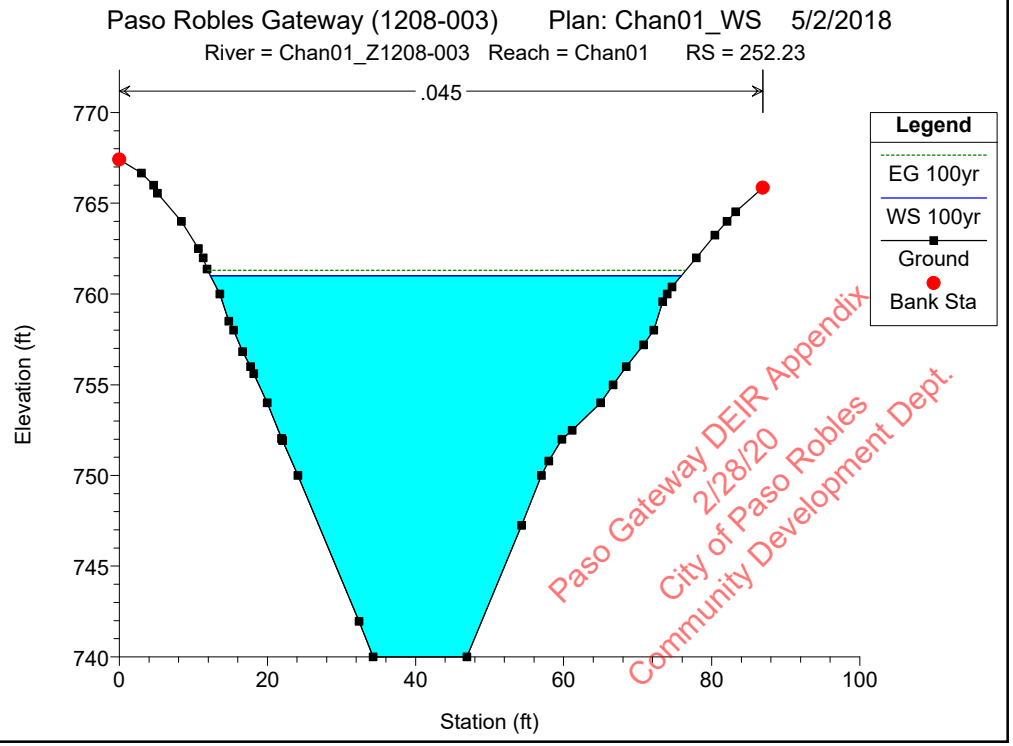
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 252.23
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Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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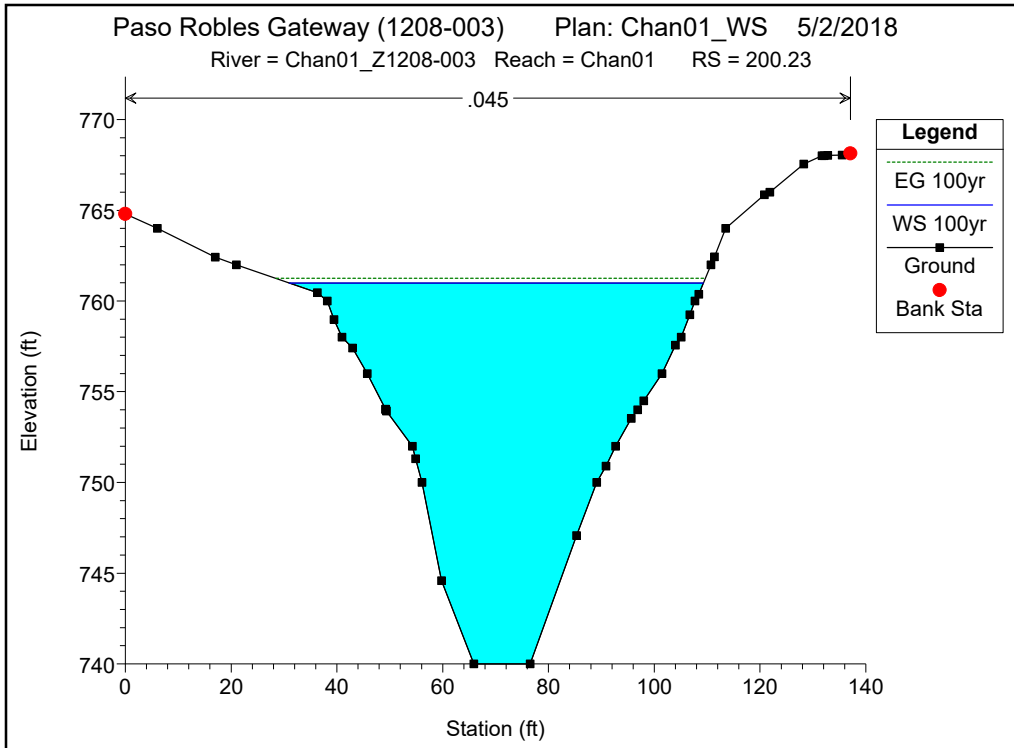
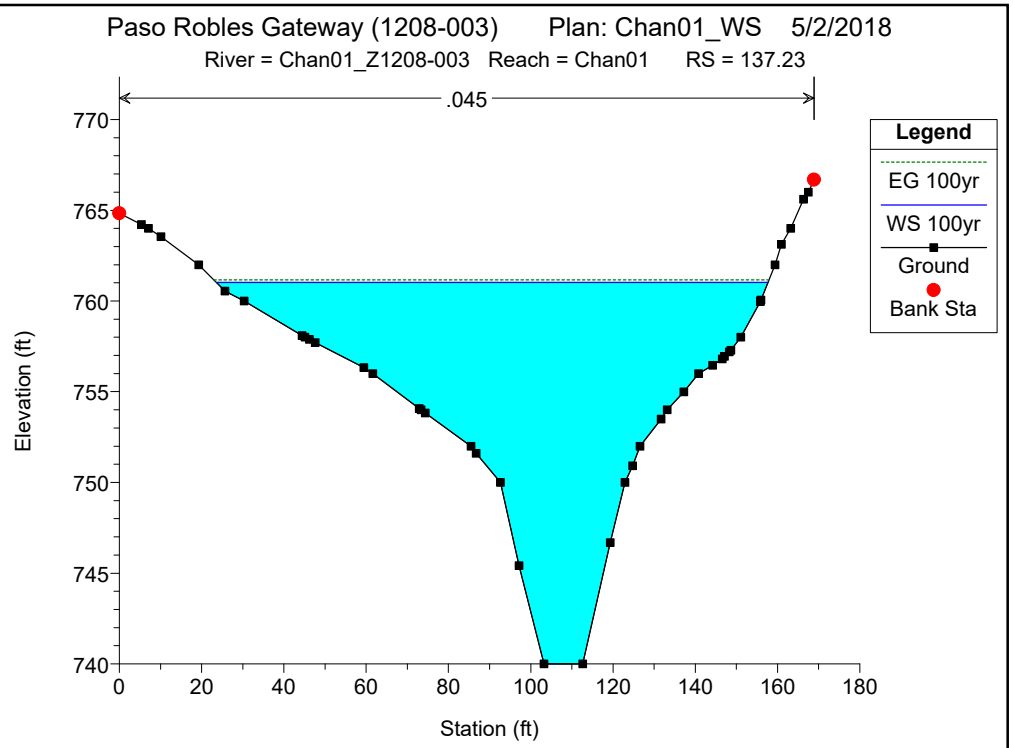

Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 200.23
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 137.23
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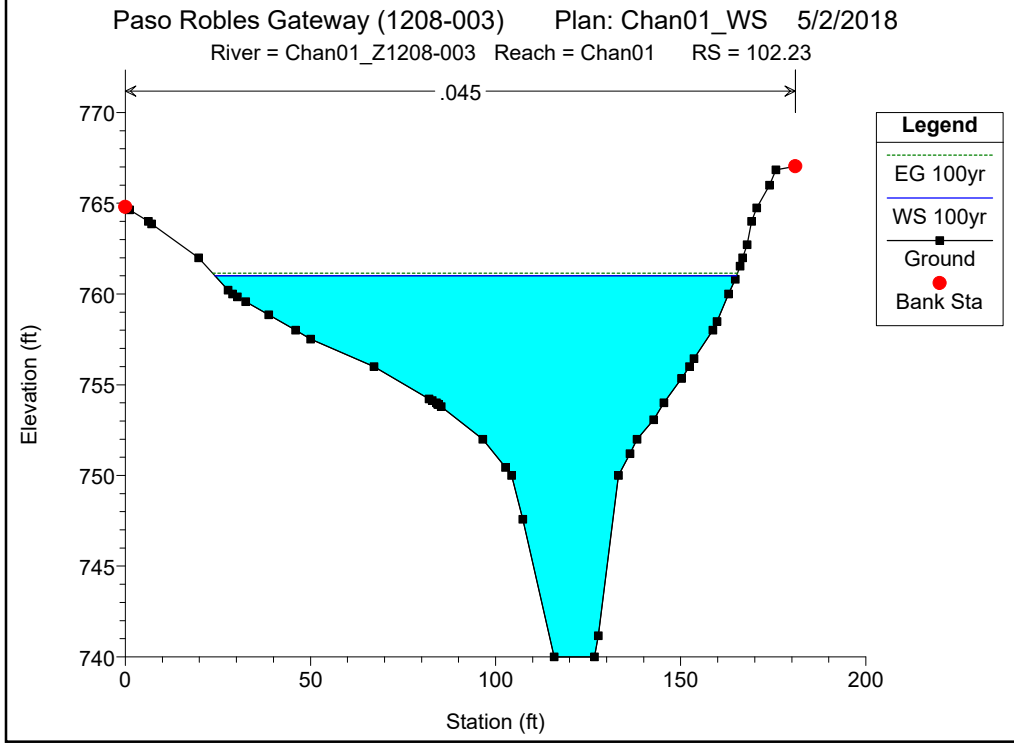
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 102.23
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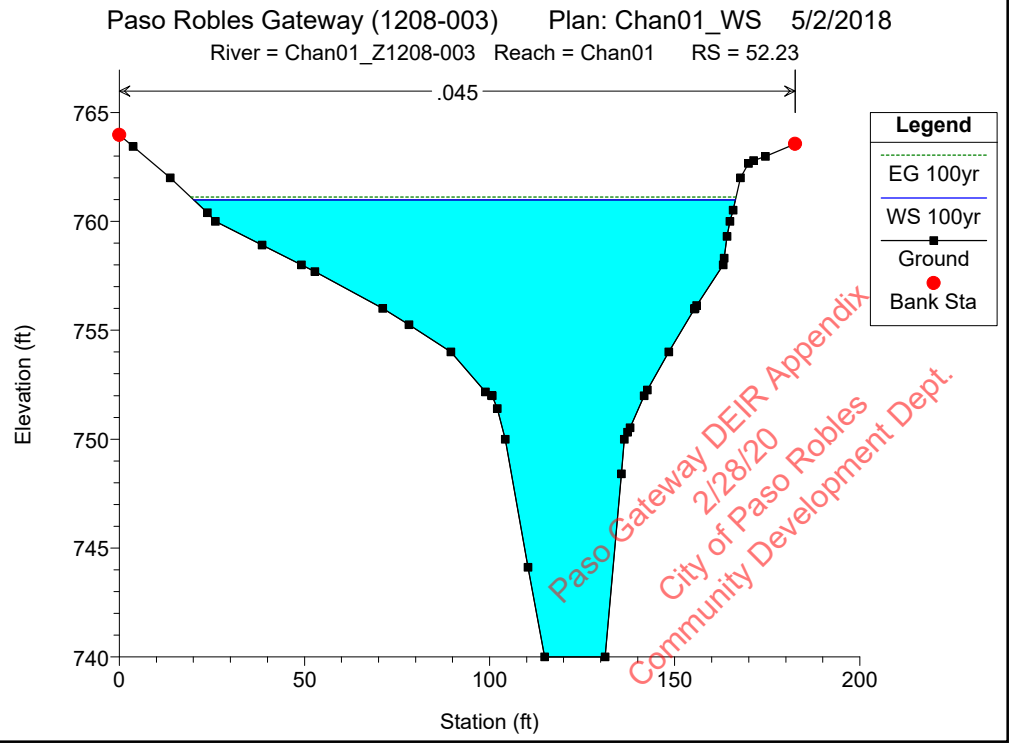
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan01_WS 5/2/2018
River = Chan01_Z1208-003 Reach = Chan01 RS = 52.23
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Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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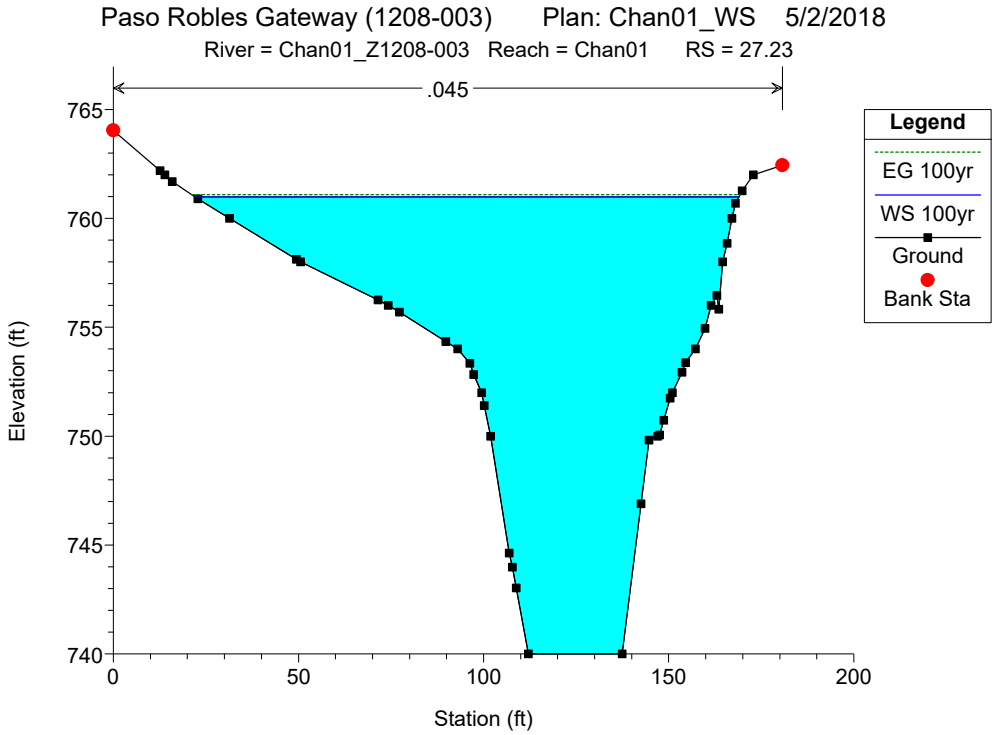

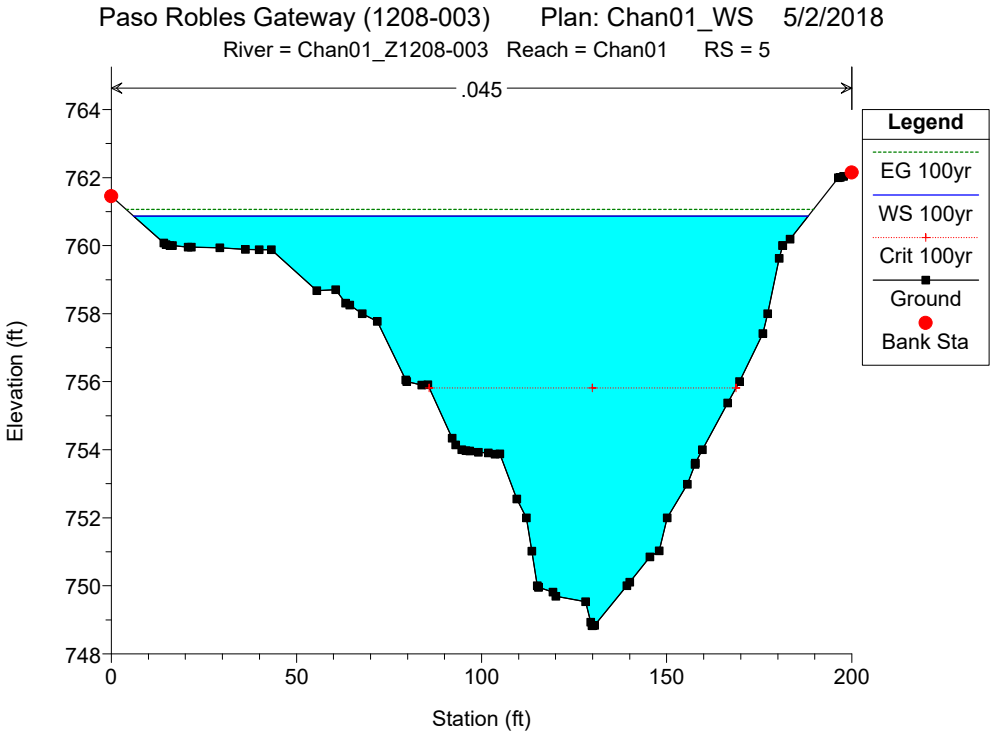

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HEC-RAS Plan: Chan02_WS River: Chan02_Z1208-003 Reach: Chan02 Profile: 100yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Chan02	948.94	100yr	442.00	768.81	773.98		774.91	0.017720	7.74	57.10	22.13	0.85
Chan02	898.94	100yr	442.00	768.00	773.70		774.21	0.007978	5.75	76.83	25.60	0.59
Chan02	848.94	100yr	442.00	768.00	772.30	772.30	773.49	0.024842	8.76	50.47	21.23	1.00
Chan02	798.94	100yr	442.00	766.87	769.51	769.51	770.35	0.026041	7.34	60.22	36.54	1.01
Chan02	748.94	100yr	442.00	765.79	767.79	767.79	768.38	0.028529	6.17	71.67	61.29	1.01
Chan02	698.94	100yr	442.00	764.43	767.07		767.41	0.011619	4.68	94.44	62.21	0.67
Chan02	648.94	100yr	442.00	763.76	766.26	766.02	766.72	0.016454	5.43	81.46	55.74	0.79
Chan02	598.94	100yr	442.00	763.26	764.98	764.98	765.64	0.027726	6.53	67.65	51.84	1.01
Chan02	548.94	100yr	442.00	761.89	764.37		764.65	0.007246	4.26	103.77	55.15	0.55
Chan02	498.94	100yr	442.00	761.67	763.43	763.34	764.03	0.022290	6.26	70.66	48.99	0.92
Chan02	448.94	100yr	442.00	759.98	762.90		763.25	0.009799	4.75	93.05	52.68	0.63
Chan02	398.94	100yr	442.00	759.59	761.81	761.81	762.45	0.028146	6.38	69.26	55.74	1.01
Chan02	368.94	100yr	442.00	758.00	761.08	760.89	761.64	0.019463	6.00	73.65	48.97	0.86
Chan02	318.94	100yr	442.00	757.92	759.92	759.92	760.46	0.029209	5.88	75.15	70.47	1.00
Chan02	263.94	100yr	442.00	755.99	758.58		758.85	0.009850	4.18	105.72	73.10	0.61
Chan02	198.94	100yr	442.00	755.81	757.77		758.06	0.015344	4.33	102.05	93.56	0.73
Chan02	173.94	100yr	442.00	755.73	757.43		757.69	0.013405	4.10	107.85	97.10	0.69
Chan02	148.94	100yr	442.00	755.65	757.13		757.36	0.012207	3.85	114.84	105.91	0.65
Chan02	123.94	100yr	442.00	755.58	756.83		757.04	0.013159	3.72	118.97	122.39	0.66
Chan02	98.94	100yr	442.00	754.82	756.61		756.76	0.008340	3.11	141.90	135.05	0.54
Chan02	67.94	100yr	442.00	753.84	756.52		756.59	0.002950	2.14	206.80	158.75	0.33
Chan02	37.94	100yr	442.00	752.00	756.49		756.53	0.001264	1.57	281.38	180.92	0.22
Chan02	35.94	100yr	442.00	752.00	756.51		756.52	0.000347	0.75	590.68	439.58	0.11
Chan02	30.94	100yr	442.00	752.00	756.51		756.52	0.000085	0.44	1000.04	568.41	0.06
Chan02	23.94	100yr	442.00	752.00	756.51		756.52	0.000086	0.44	999.27	575.78	0.06
Chan02	17.94	100yr	442.00	752.00	756.51		756.51	0.000092	0.45	988.78	589.42	0.06
Chan02	5	100yr	442.00	750.00	756.51	754.35	756.51	0.000113	0.44	994.85	692.87	0.07

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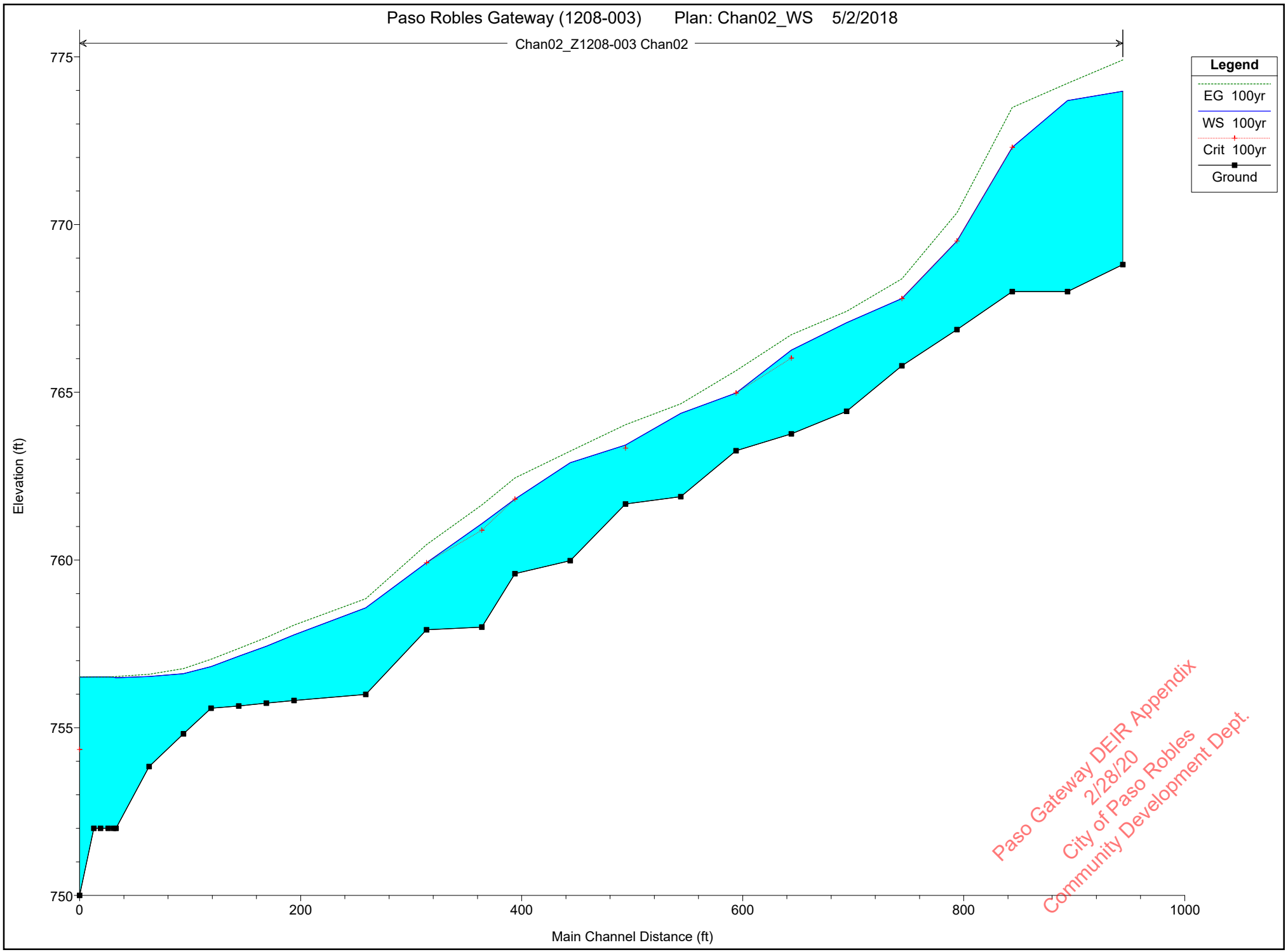
Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
Chan02_Z1208-003 Chan02
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Elevation (ft)
775
770
765
760
755
750
0
200
400
600
800
1000
Main Channel Distance (ft)
Paso Gateway DEIR Appendix
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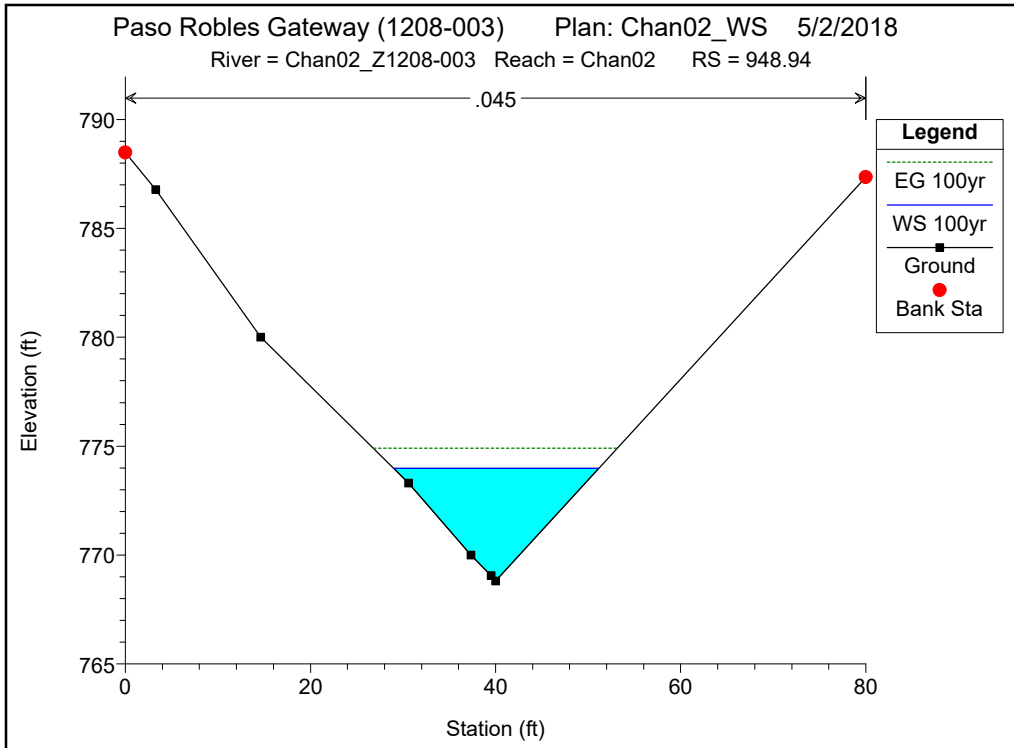
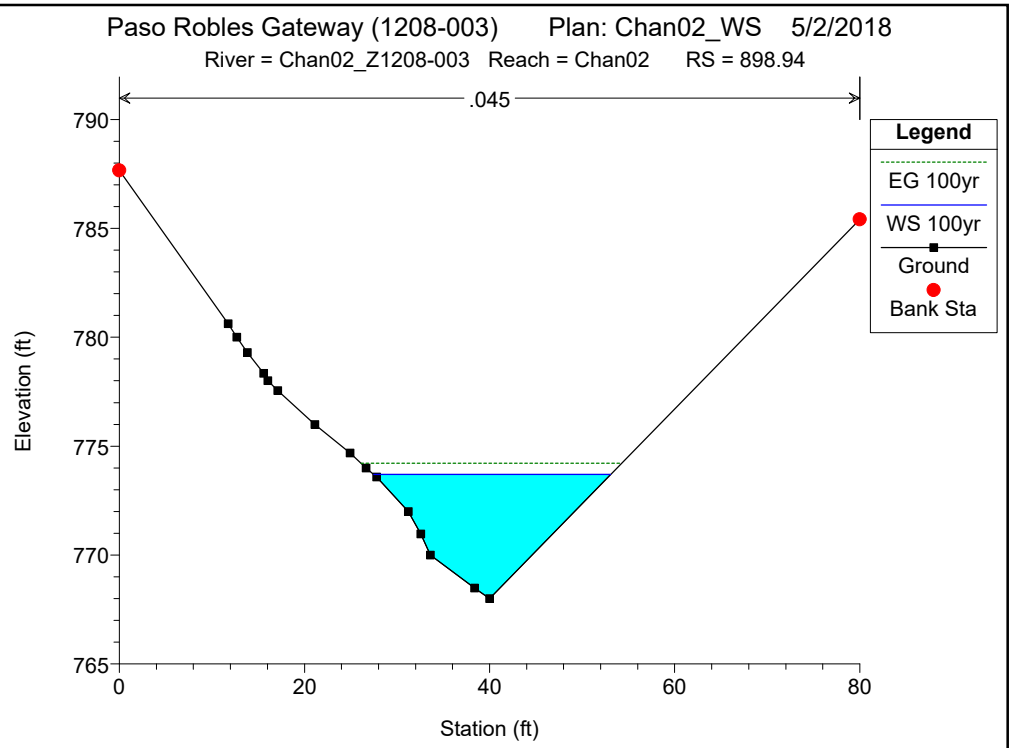
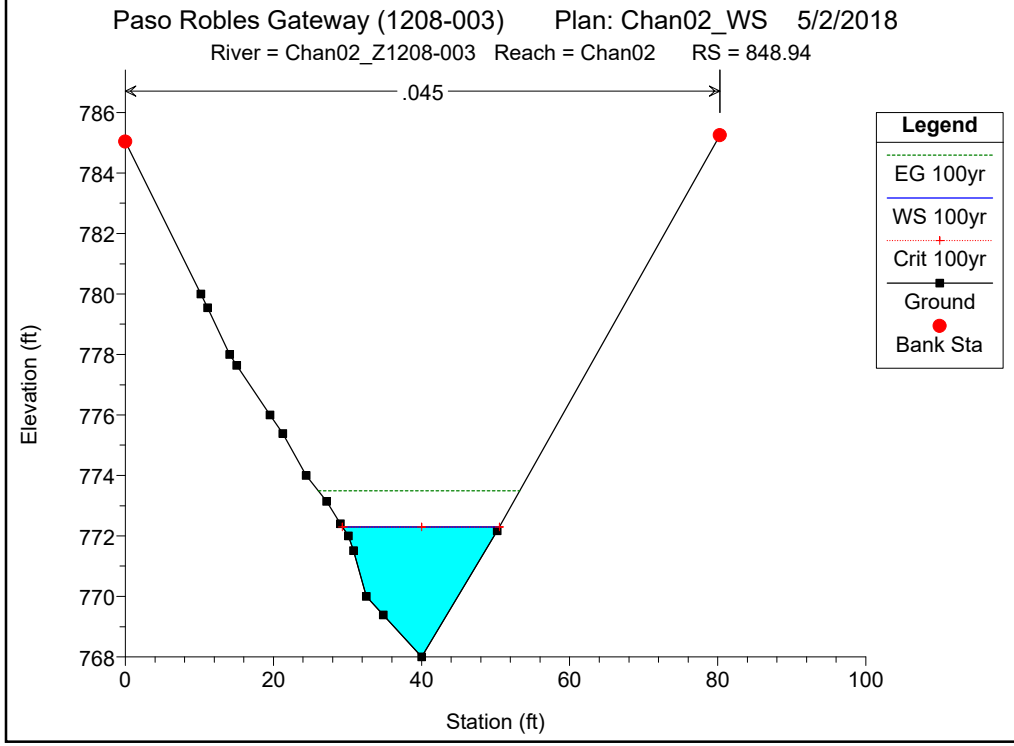
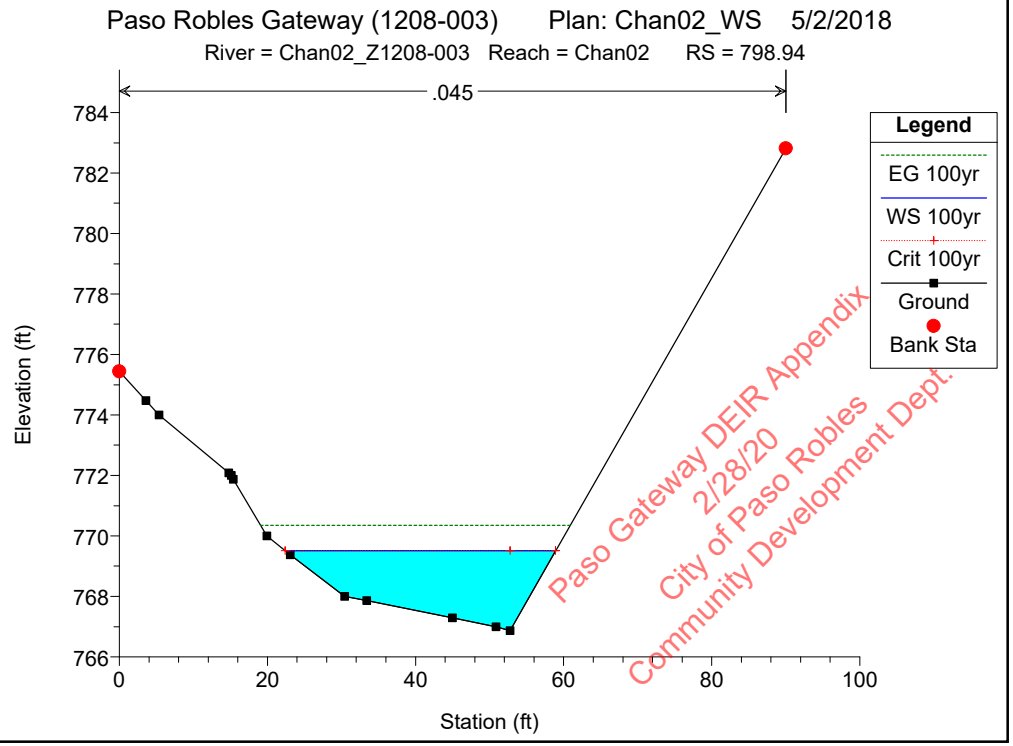

Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 948.94
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 898.94
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 848.94
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 798.94
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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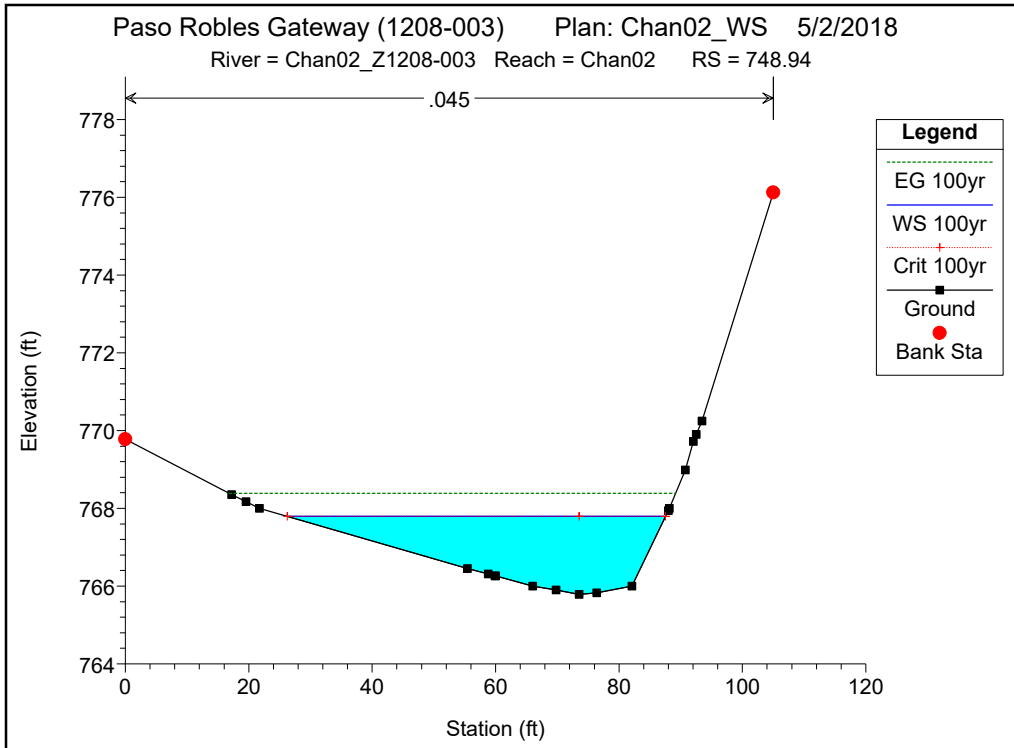
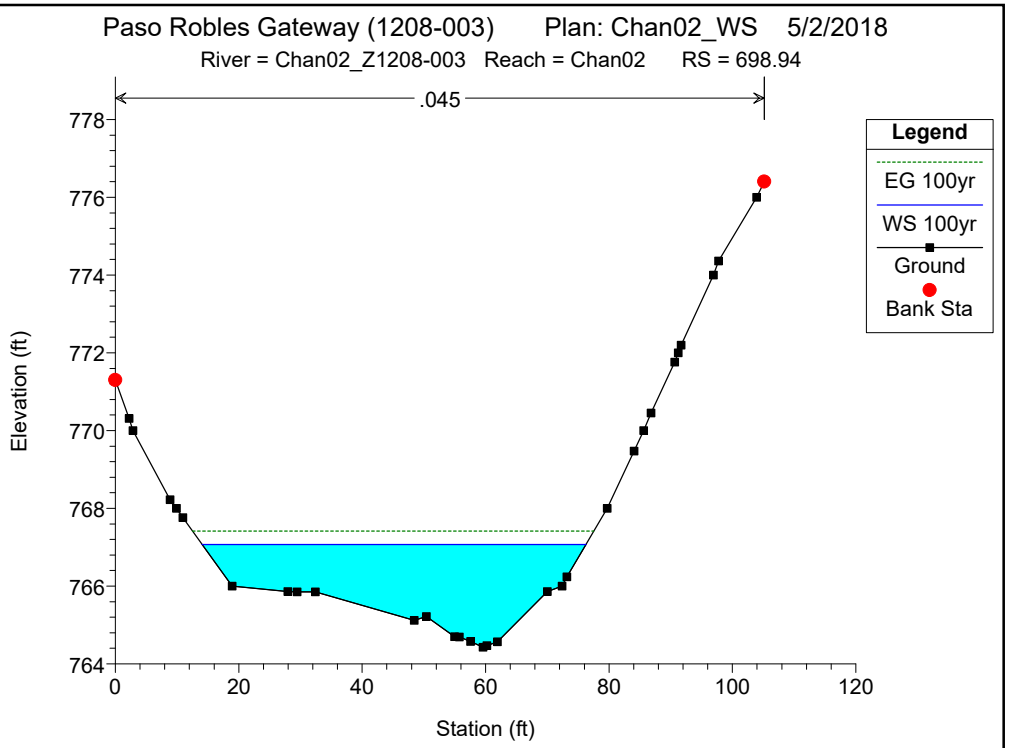
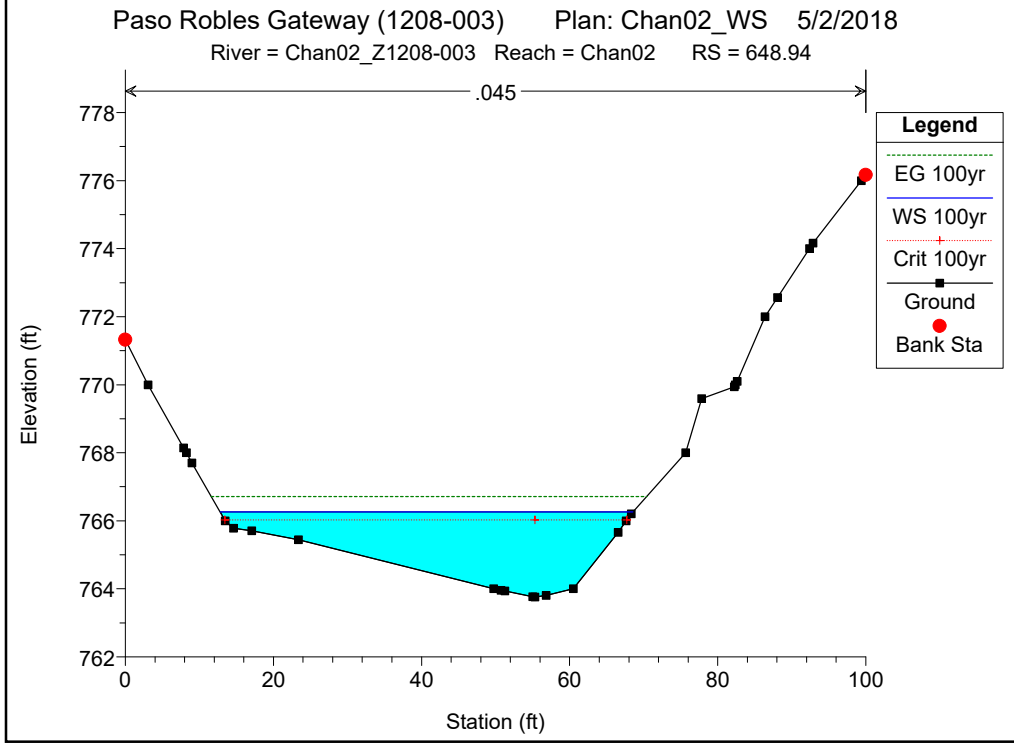
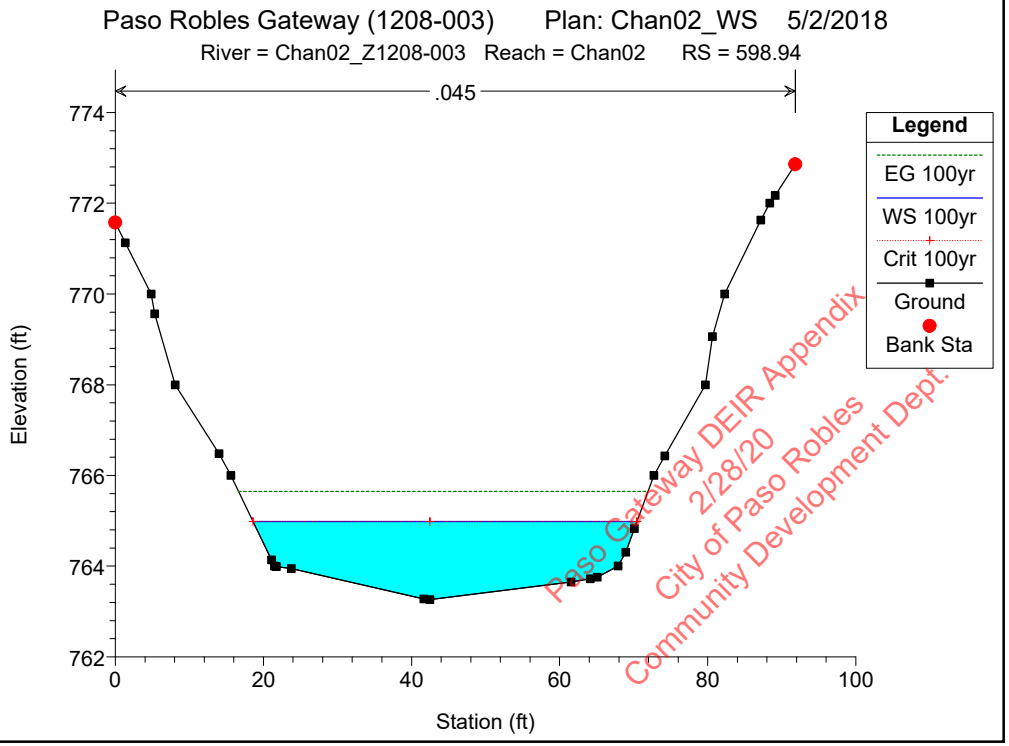

Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 748.94
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 698.94
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 648.94
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 598.94
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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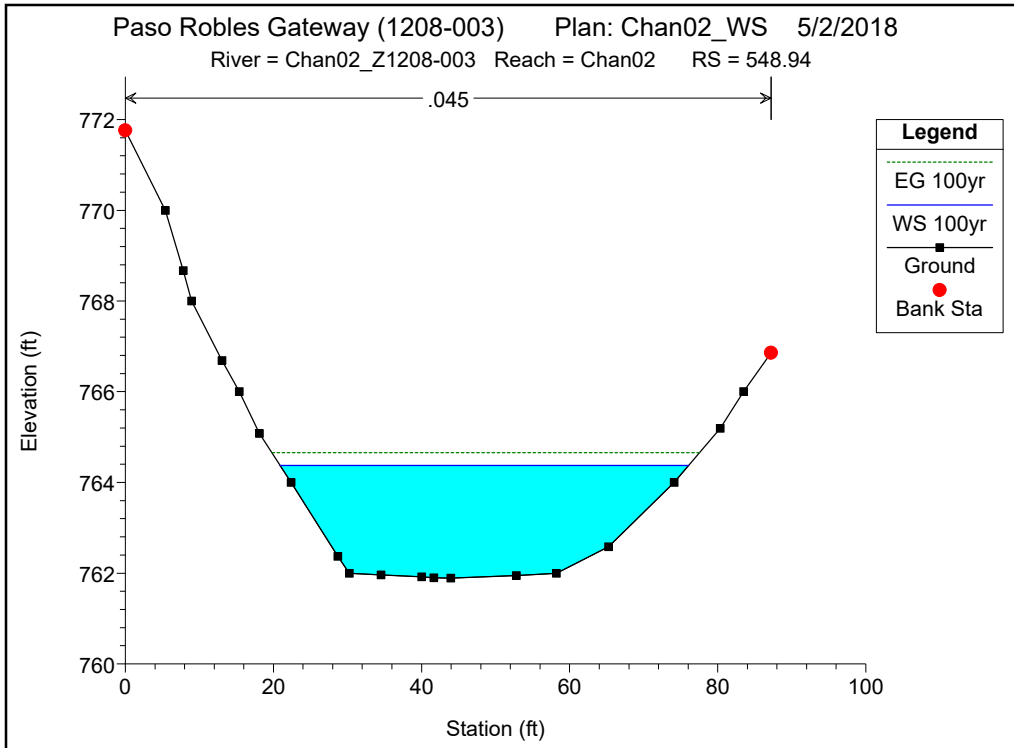
Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 548.94
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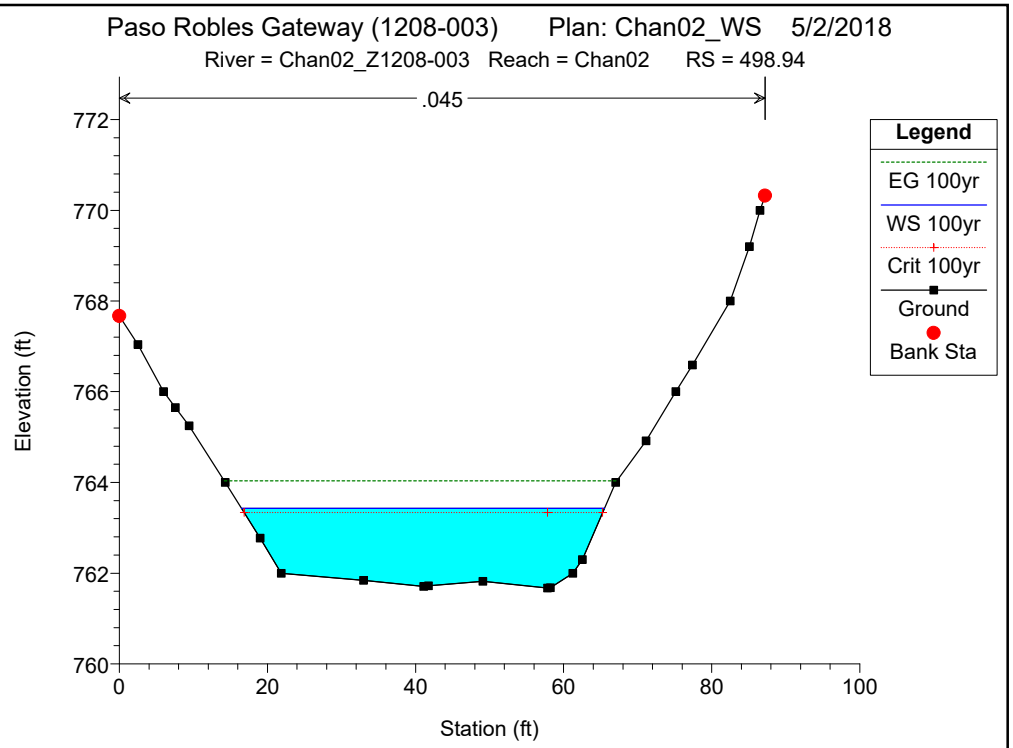
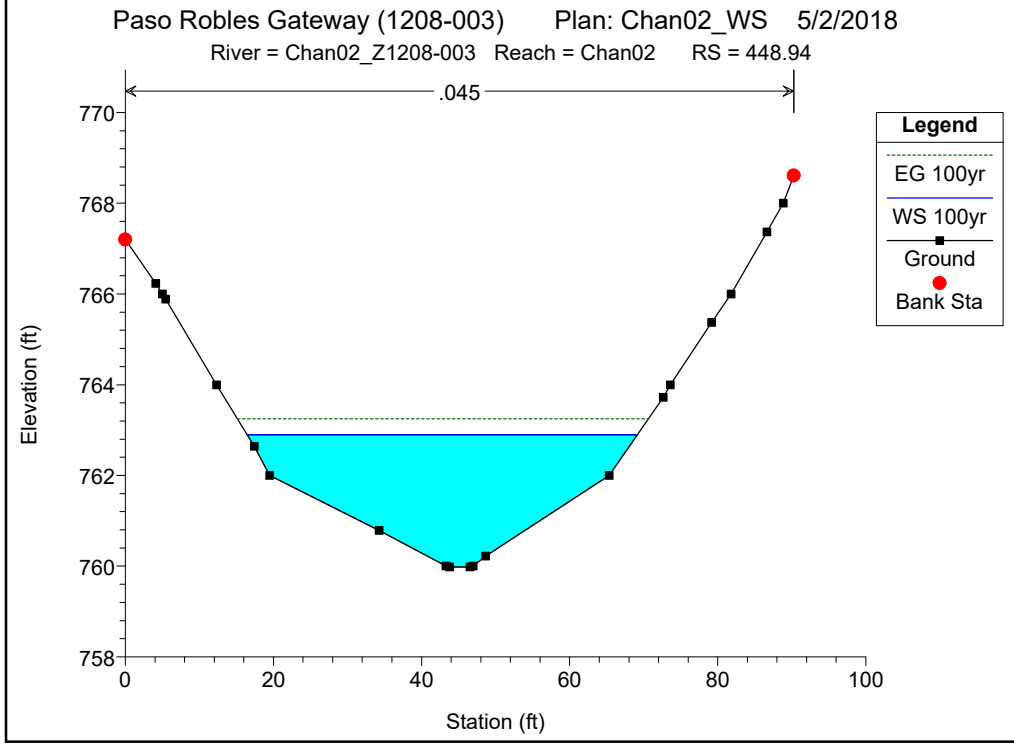
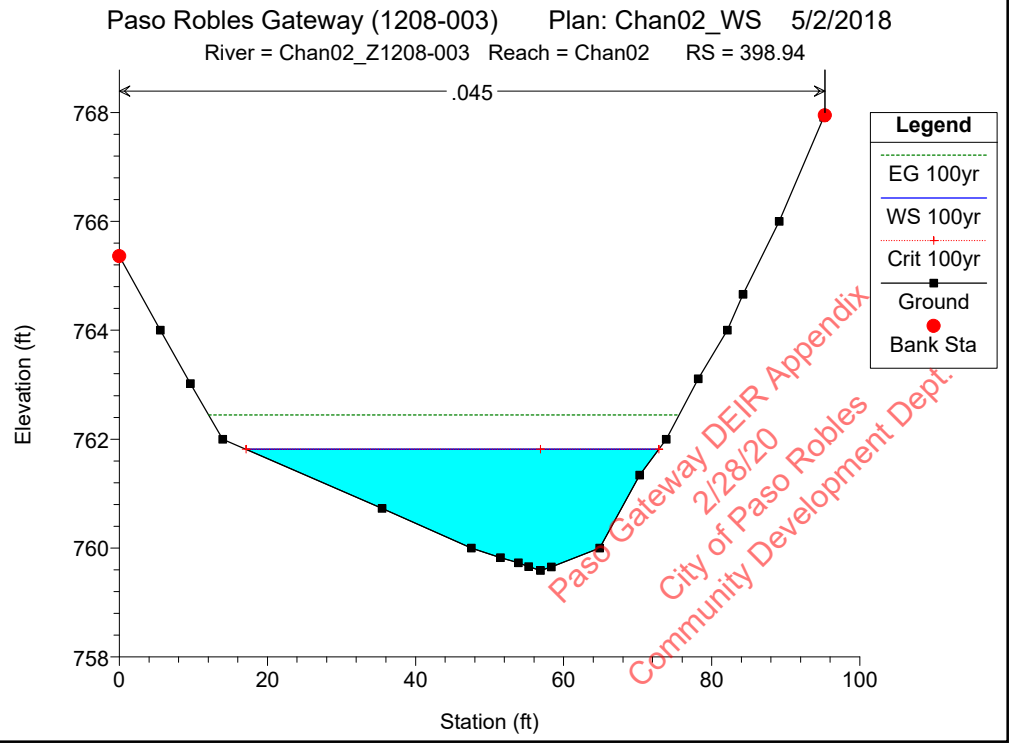
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 498.94
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 448.94
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 398.94
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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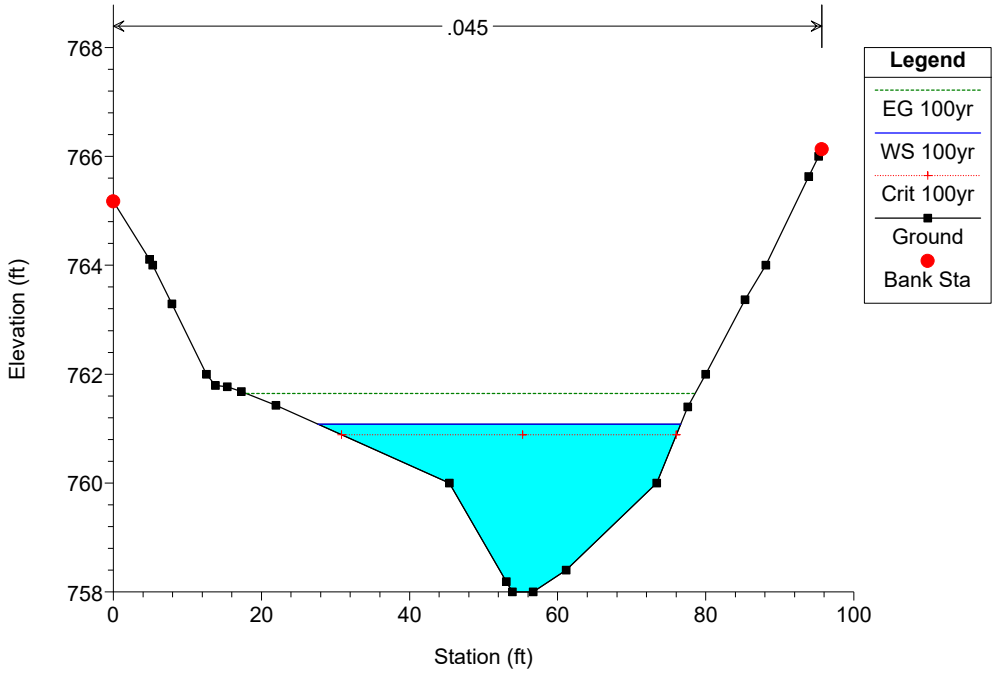
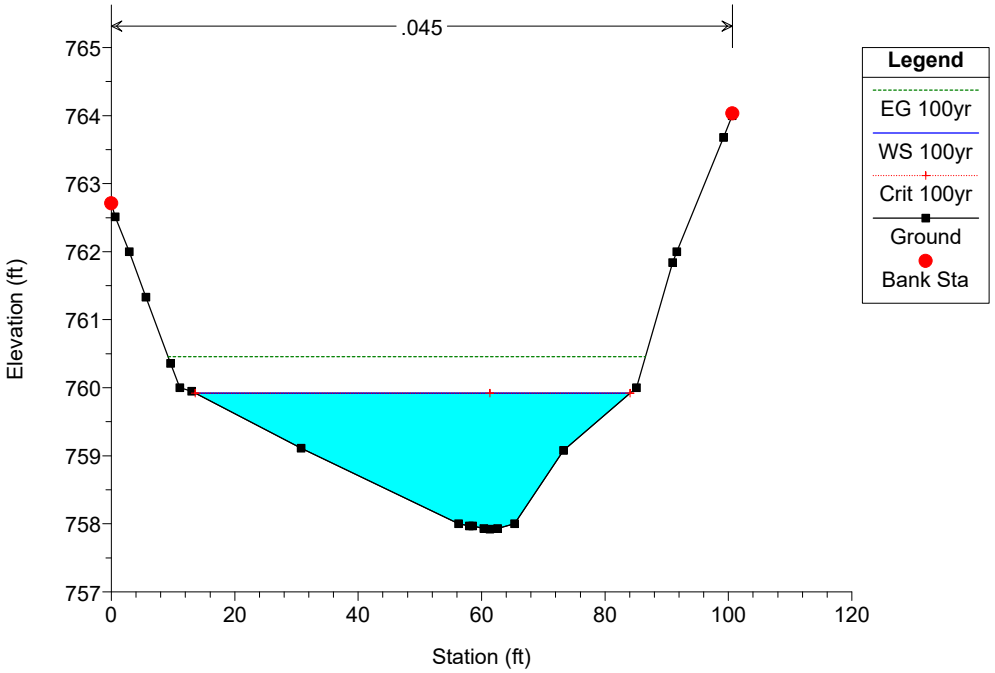
Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018

River = Chan02_Z1208-003 Reach = Chan02 RS = 368.94



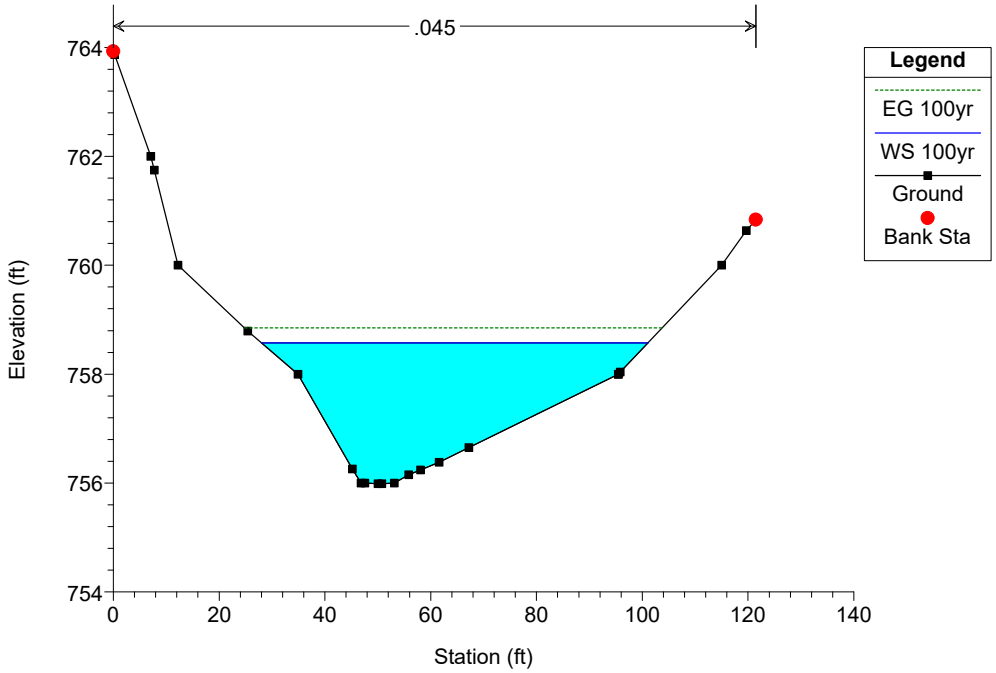
Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018

River = Chan02_Z1208-003 Reach = Chan02 RS = 318.94



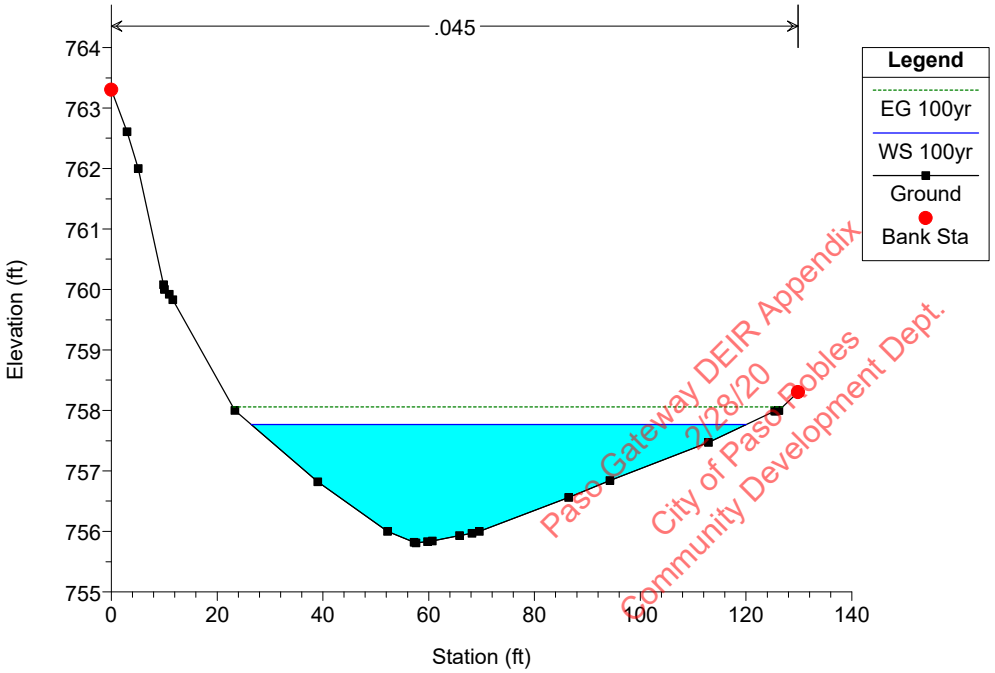
Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018

River = Chan02_Z1208-003 Reach = Chan02 RS = 263.94



Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018

River = Chan02_Z1208-003 Reach = Chan02 RS = 198.94



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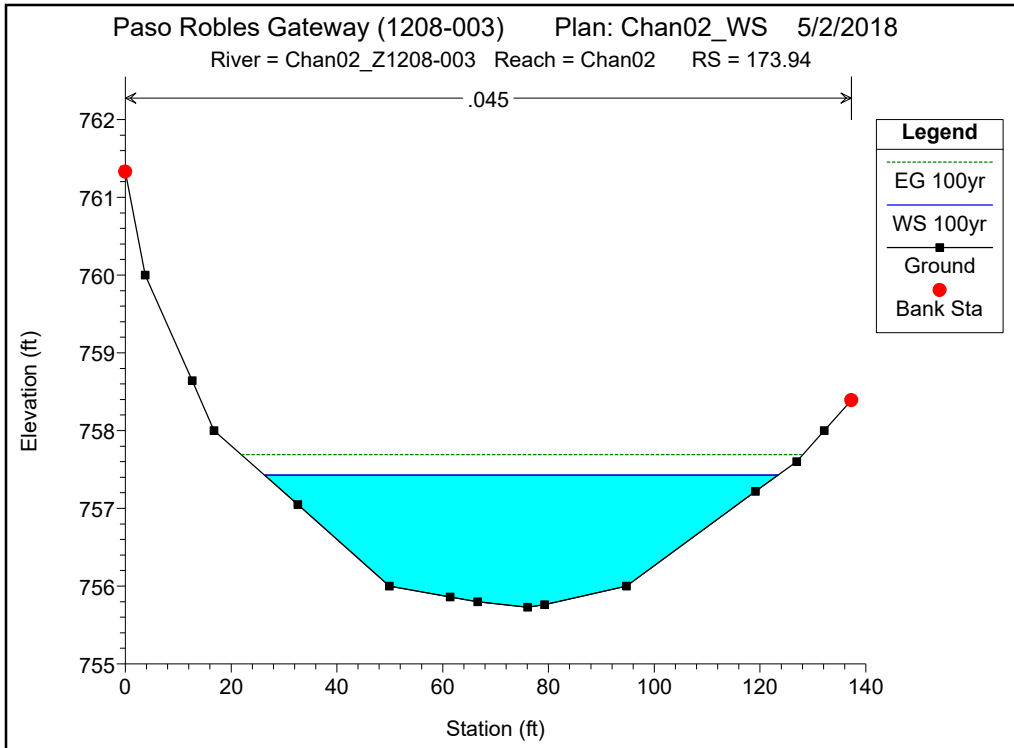

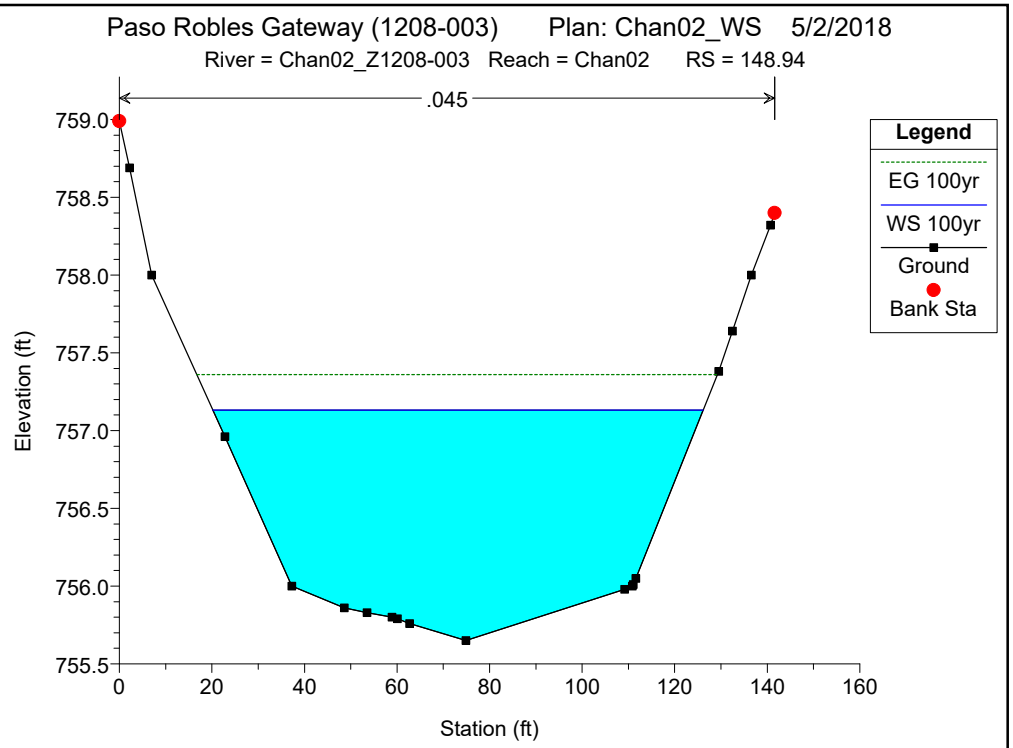

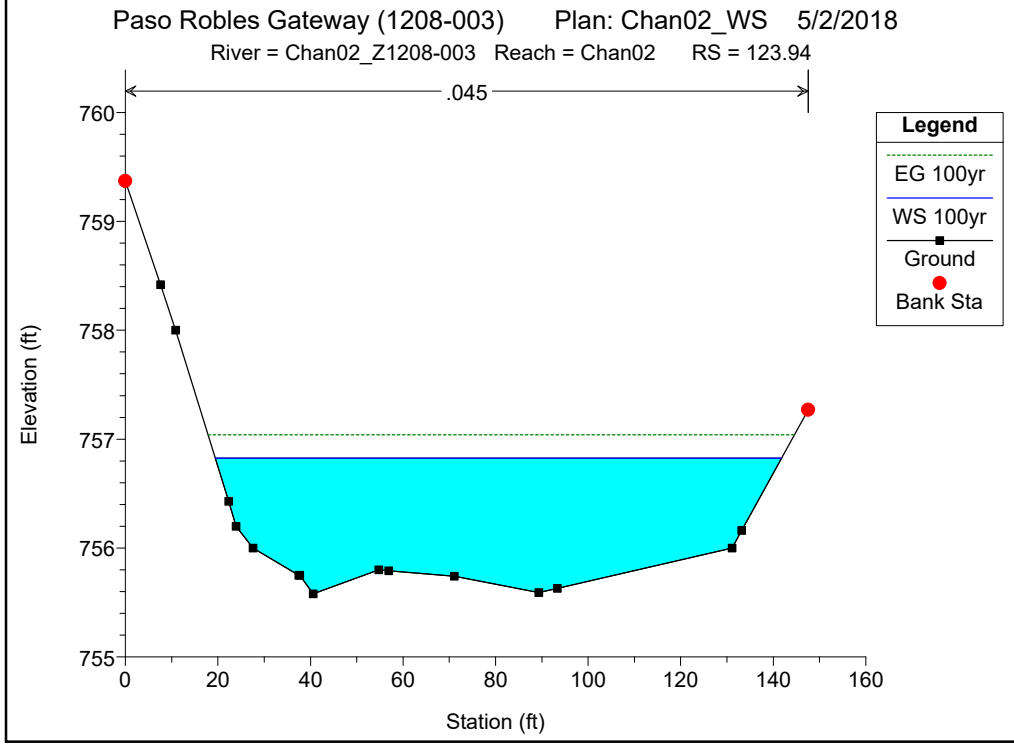

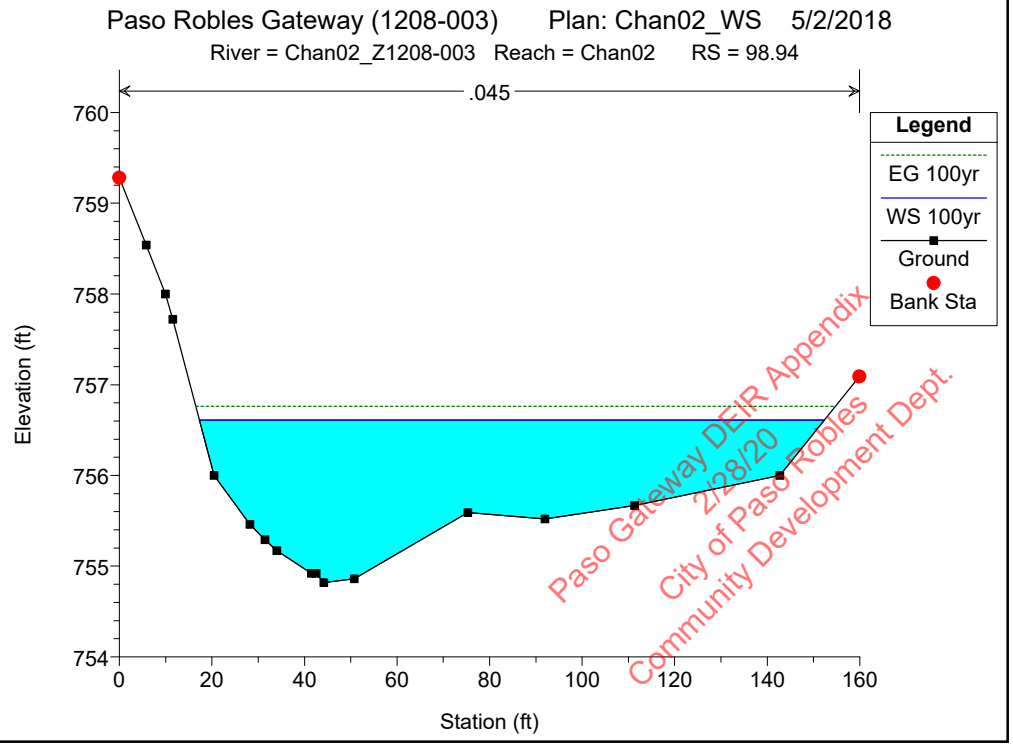

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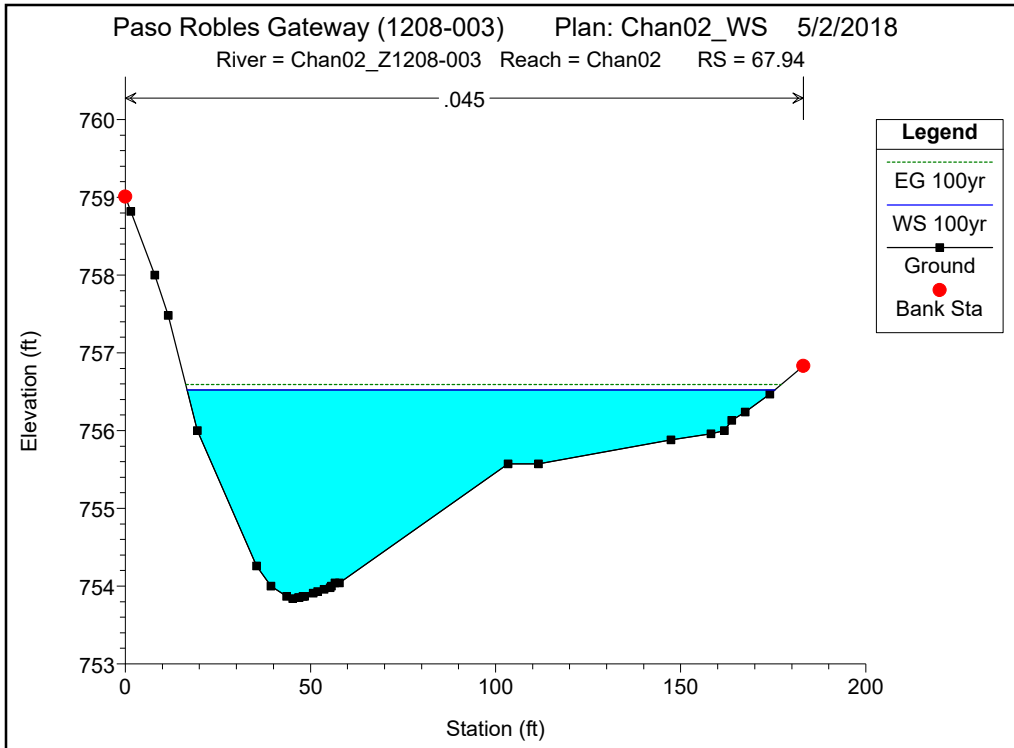
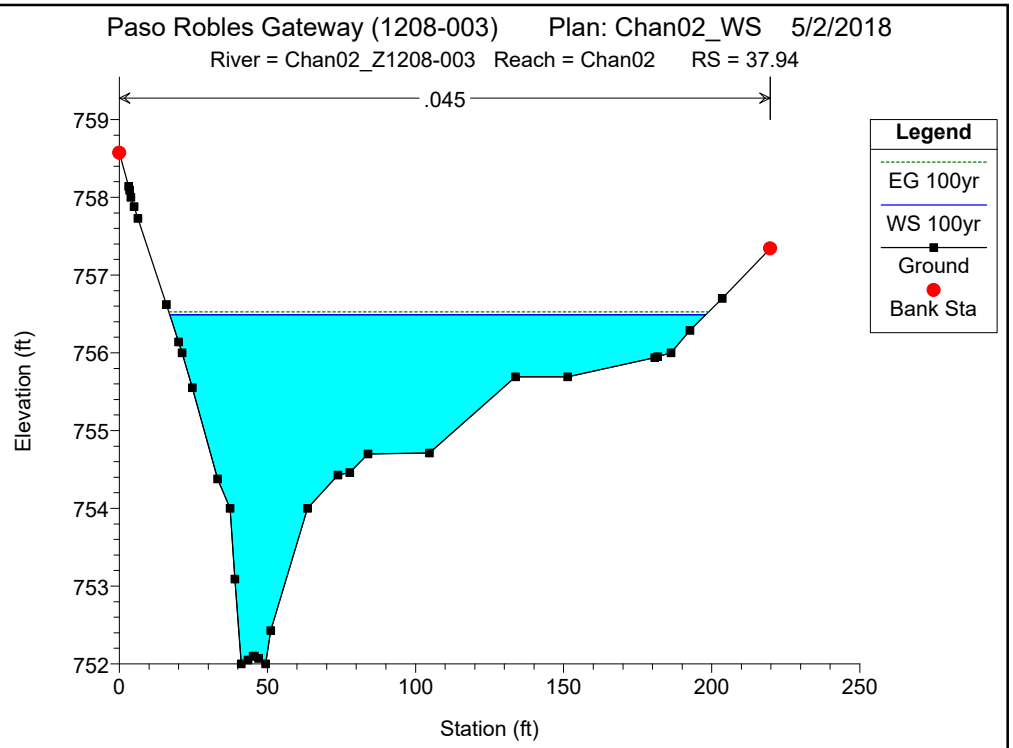

Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
River = Chan02_Z1208-003 Reach = Chan02 RS = 67.94
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan02_WS 5/2/2018
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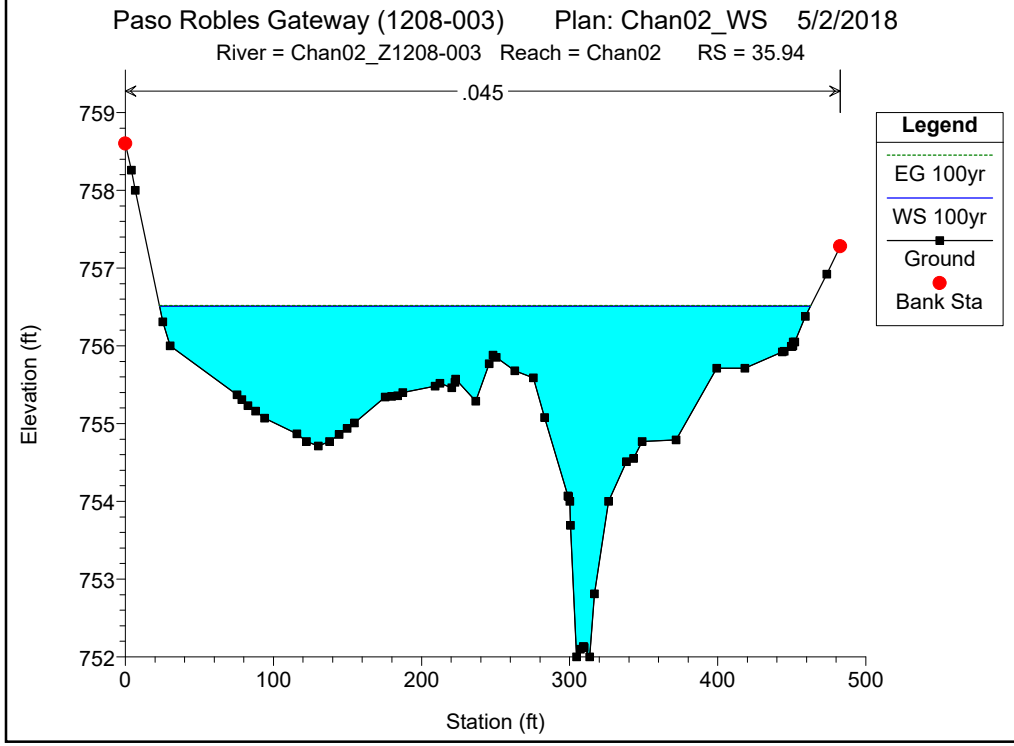
.045
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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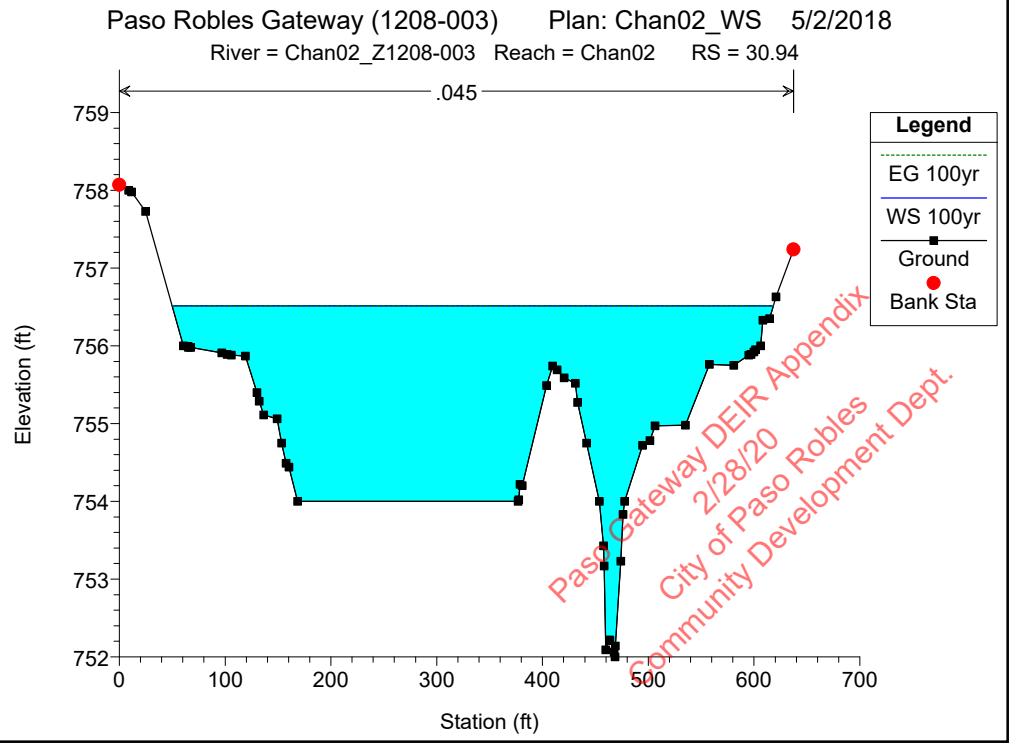
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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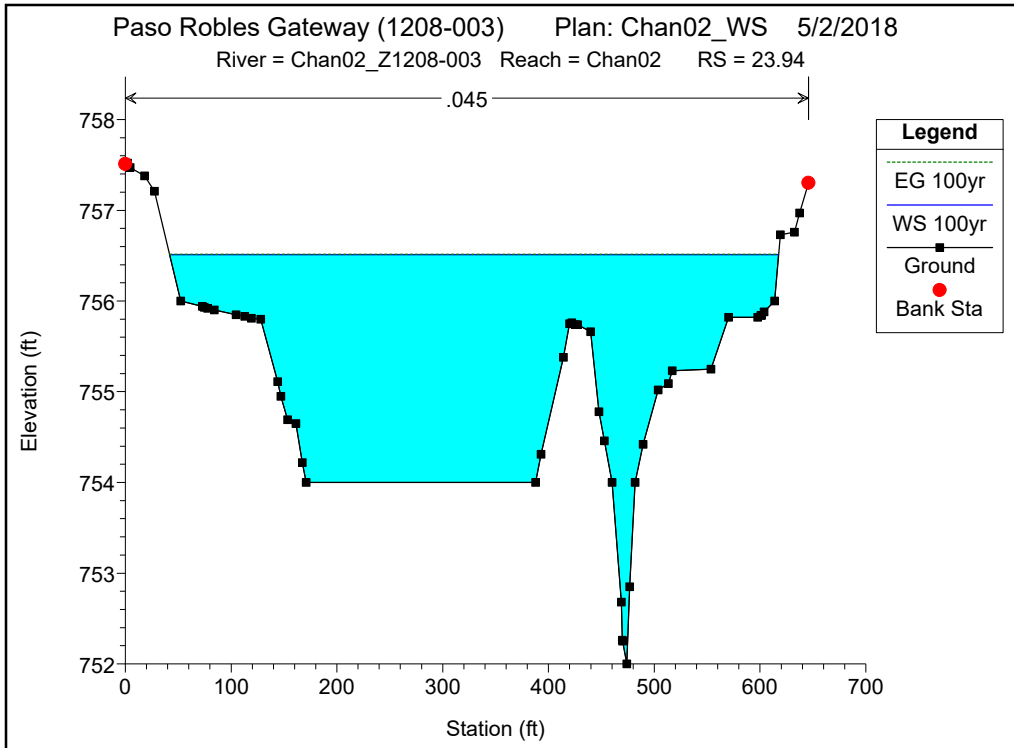

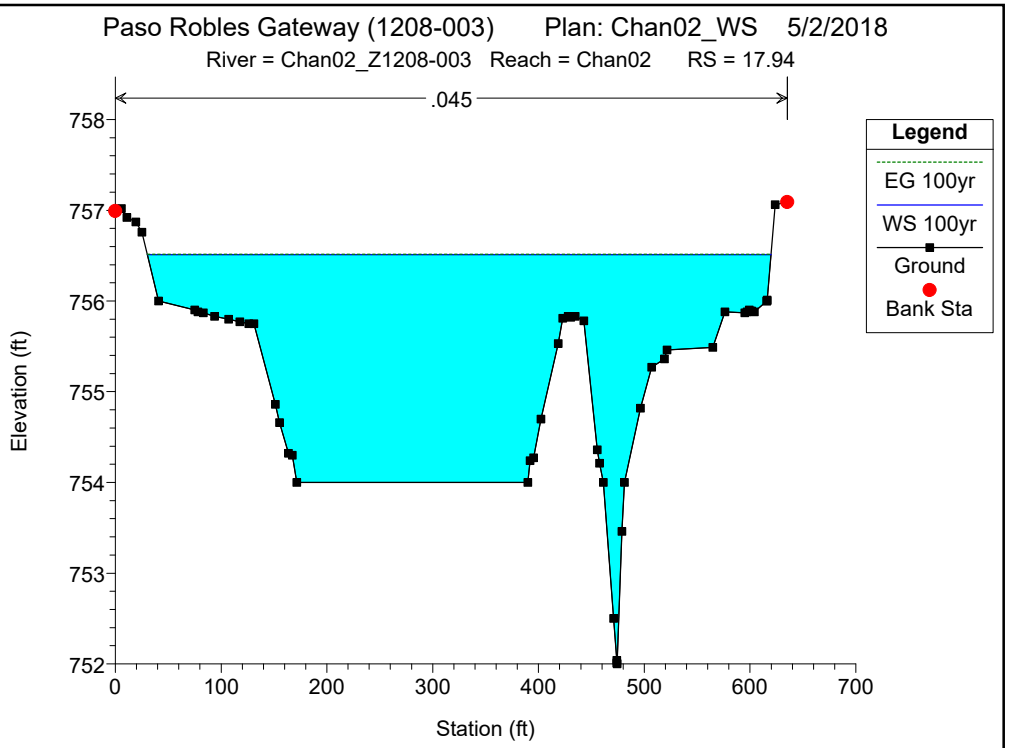

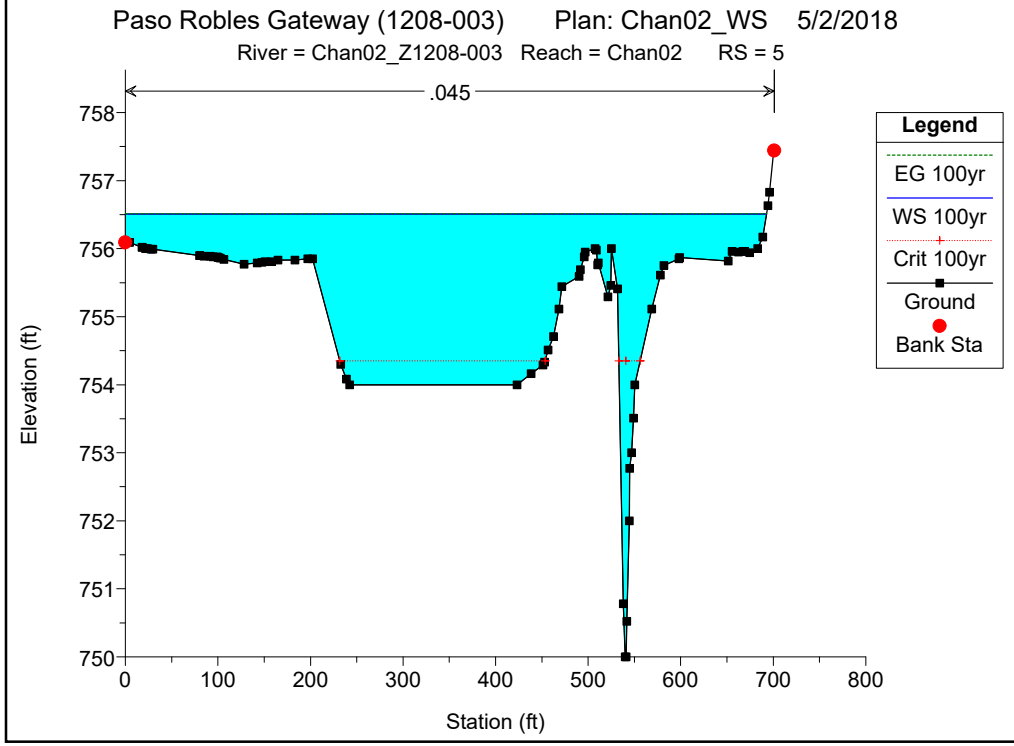

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HEC-RAS Plan: Chan03CJ03B_WS   Profile: 100yr

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Chan03C_Z1208-00	Chan03C-Upper	6966.26	100yr	137.00	945.88	946.78	946.78	947.12	0.020743	4.68	29.28	43.67	1.01
Chan03C_Z1208-00	Chan03C-Upper	6866.26	100yr	137.00	940.82	941.78	941.78	942.09	0.021576	4.43	30.90	51.50	1.01
Chan03C_Z1208-00	Chan03C-Upper	6766.26	100yr	137.00	935.95	937.17	937.17	937.56	0.019987	5.01	27.35	35.76	1.01
Chan03C_Z1208-00	Chan03C-Upper	6666.26	100yr	137.00	932.70	933.87	933.87	934.23	0.020416	4.85	28.26	39.48	1.01
Chan03C_Z1208-00	Chan03C-Upper	6566.26	100yr	137.00	928.72	929.99	929.99	930.34	0.021002	4.73	28.94	42.80	1.01
Chan03C_Z1208-00	Chan03C-Upper	6466.26	100yr	137.00	925.18	926.15	926.15	926.48	0.021075	4.59	29.84	46.36	1.01
Chan03C_Z1208-00	Chan03C-Upper	6366.26	100yr	137.00	921.73	922.61	922.61	922.92	0.021121	4.46	30.69	49.81	1.00
Chan03C_Z1208-00	Chan03C-Upper	6266.26	100yr	137.00	916.23	917.76	917.76	918.16	0.019861	5.09	26.93	34.20	1.01
Chan03C_Z1208-00	Chan03C-Upper	6166.26	100yr	137.00	912.38	913.55	913.55	913.91	0.020555	4.79	28.63	40.99	1.01
Chan03C_Z1208-00	Chan03C-Upper	6066.26	100yr	137.00	907.90	909.14	909.14	909.51	0.020393	4.87	28.10	38.89	1.01
Chan03C_Z1208-00	Chan03C-Upper	5966.26	100yr	137.00	903.95	904.99	904.99	905.31	0.021231	4.56	30.03	47.37	1.01
Chan03C_Z1208-00	Chan03C-Upper	5866.26	100yr	137.00	899.94	900.95	900.95	901.27	0.020891	4.58	29.90	46.26	1.00
Chan03C_Z1208-00	Chan03C-Upper	5766.26	100yr	137.00	894.87	896.00	896.00	896.36	0.020530	4.82	28.44	40.28	1.01
Chan03C_Z1208-00	Chan03C-Upper	5666.26	100yr	137.00	892.57	893.56	893.56	893.87	0.021456	4.46	30.74	50.62	1.01
Chan03C_Z1208-00	Chan03C-Upper	5566.26	100yr	137.00	887.75	889.04	889.04	889.46	0.019464	5.20	26.33	31.83	1.01
Chan03C_Z1208-00	Chan03C-Upper	5466.26	100yr	137.00	883.87	885.09	885.09	885.48	0.019983	5.02	27.32	35.62	1.01
Chan03C_Z1208-00	Chan03C-Upper	5366.26	100yr	137.00	879.79	880.99		881.20	0.008609	3.65	37.54	41.93	0.68
Chan03C_Z1208-00	Chan03C-Upper	5266.26	100yr	137.00	877.95	879.47	879.42	880.03	0.015724	5.97	22.95	18.71	0.95
Chan03C_Z1208-00	Chan03C-Upper	5166.26	100yr	137.00	875.92	877.70	877.70	878.36	0.017543	6.50	21.07	16.29	1.01
Chan03C_Z1208-00	Chan03C-Upper	5066.26	100yr	137.00	873.80	875.02	875.02	875.51	0.018483	5.62	24.40	25.11	1.00
Chan03C_Z1208-00	Chan03C-Upper	4966.26	100yr	137.00	871.03	872.66	872.66	873.15	0.018549	5.63	24.33	25.01	1.01
Chan03C_Z1208-00	Chan03C-Upper	4866.26	100yr	137.00	869.70	870.76	870.76	871.15	0.019986	5.02	27.27	35.50	1.01
Chan03C_Z1208-00	Chan03C-Upper	4766.26	100yr	137.00	865.87	866.94	866.94	867.36	0.019364	5.21	26.31	31.60	1.01
Chan03C_Z1208-00	Chan03C-Upper	4666.26	100yr	137.00	862.12	863.89	863.89	864.38	0.018718	5.64	24.31	25.15	1.01
Chan03C_Z1208-00	Chan03C-Upper	4566.26	100yr	137.00	859.93	861.02	861.02	861.44	0.019376	5.21	26.29	31.58	1.01
Chan03C_Z1208-00	Chan03C-Upper	4466.26	100yr	137.00	855.85	857.35	857.35	857.85	0.018419	5.70	24.05	24.19	1.01
Chan03C_Z1208-00	Chan03C-Upper	4366.26	100yr	137.00	849.80	851.22		851.45	0.006697	3.89	35.22	29.07	0.62
Chan03C_Z1208-00	Chan03C-Upper	4266.26	100yr	137.00	849.27	850.67		850.82	0.005435	3.08	44.41	45.12	0.55
Chan03C_Z1208-00	Chan03C-Upper	4231.26	100yr	137.00	849.09	850.33		850.55	0.011076	3.76	36.47	47.15	0.75
Chan03C_Z1208-00	Chan03C-Upper	4216.26	100yr	137.00	849.01	850.01	850.01	850.32	0.021067	4.50	30.48	48.75	1.00
Chan03C_Z1208-00	Chan03C-Upper	4211.26	100yr	137.00	846.78	848.17	848.17	848.63	0.019032	5.46	25.09	27.60	1.01
Chan03C_Z1208-00	Chan03C-Upper	4189.26	100yr	137.00	839.96	843.72		843.79	0.000895	2.14	64.13	28.03	0.25
Chan03C_Z1208-00	Chan03C-Upper	4166.26	100yr	137.00	839.85	843.74		843.77	0.000246	1.32	103.60	35.36	0.14
Chan03C_Z1208-00	Chan03C-Upper	4066.26	100yr	137.00	839.37	843.75		843.75	0.000066	0.74	184.41	56.76	0.07
Chan03C_Z1208-00	Chan03C-Upper	3974.26	100yr	137.00	834.27	843.75		843.75	0.000003	0.27	512.95	72.15	0.02
Chan03C_Z1208-00	Chan03C-Upper	3946.26	100yr	137.00	834.00	843.75		843.75	0.000006	0.33	414.89	69.09	0.02
Chan03C_Z1208-00	Chan03C-Upper	3921.26	100yr	137.00	842.10	843.36	843.36	843.72	0.019743	4.76	28.77	40.23	0.99
Chan03C_Z1208-00	Chan03C-Upper	3866.26	100yr	137.00	839.58	840.61		840.78	0.008530	3.34	41.08	52.13	0.66
Chan03C_Z1208-00	Chan03C-Upper	3850.26	100yr	137.00	839.41	840.42		840.62	0.011353	3.56	38.47	54.92	0.75
Chan03C_Z1208-00	Chan03C-Upper	3834.26	100yr	137.00	839.04	840.07	840.07	840.36	0.022508	4.36	31.45	55.36	1.02
Chan03C_Z1208-00	Chan03C-Upper	3818.26	100yr	137.00	837.00	838.44	838.44	838.88	0.019662	5.28	25.94	30.72	1.01
Chan03C_Z1208-00	Chan03C-Upper	3766.26	100yr	137.00	830.39	832.48	832.48	833.11	0.017850	6.32	21.66	17.77	1.01
Chan03C_Z1208-00	Chan03C-Upper	3666.26	100yr	137.00	827.83	829.64	829.64	830.35	0.017653	6.78	20.22	14.36	1.01
Chan03C_Z1208-00	Chan03C-Upper	3561.26	100yr	137.00	824.32	826.23	826.23	826.80	0.018116	6.06	22.59	20.26	1.01
Chan03C_Z1208-00	Chan03C-Upper	3466.26	100yr	137.00	823.72	825.78		825.95	0.003766	3.35	40.93	27.54	0.48
Chan03C_Z1208-00	Chan03C-Upper	3366.26	100yr	137.00	823.42	824.75	824.73	825.22	0.017826	5.48	25.01	25.97	0.98
Chan03C_Z1208-00	Chan03C-Upper	3266.26	100yr	137.00	821.72	822.93	822.93	823.39	0.018987	5.43	25.23	27.95	1.01
Chan03C_Z1208-00	Chan03C-Upper	3216.26	100yr	137.00	819.85	821.25	821.25	821.78	0.018075	5.84	23.45	22.17	1.00
Chan03C_Z1208-00	Chan03C-Upper	3166.26	100yr	137.00	818.00	819.57		819.77	0.005237	3.61	38.00	29.38	0.56
Chan03C_Z1208-00	Chan03C-Upper	3116.26	100yr	137.00	817.99	819.57		819.62	0.001121	1.80	76.16	52.94	0.26
Chan03C_Z1208-00	Chan03C-Upper	3066.26	100yr	137.00	817.99	819.51		819.56	0.001126	1.78	76.77	54.11	0.26
Chan03C_Z1208-00	Chan03C-Upper	3016.26	100yr	137.00	817.98	819.18		819.42	0.008766	3.94	34.73	34.74	0.70
Chan03C_Z1208-00	Chan03C-Upper	2966.26	100yr	137.00	817.96	818.89		819.03	0.006093	3.00	45.63	52.53	0.57
Chan03C_Z1208-00	Chan03C-Upper	2926.26	100yr	137.00	816.92	818.24	818.24	818.60	0.020936	4.78	28.65	41.57	1.02
Chan03C_Z1208-00	Chan03C-Upper	2866.26	100yr	137.00	809.97	811.58		811.73	0.006056	3.17	43.22	45.74	0.57
Chan03C_Z1208-00	Chan03C-Upper	2816.26	100yr	137.00	809.87	811.08		811.33	0.010740	3.95	34.65	40.38	0.75
Chan03C_Z1208-00	Chan03C-Upper	2766.26	100yr	137.00	809.77	810.77		810.90	0.005970	2.90	47.29	56.74	0.56
Chan03C_Z1208-00	Chan03C-Upper	2716.26	100yr	137.00	809.19	810.06	810.06	810.38	0.020813	4.55	30.13	47.04	1.00
Chan03C_Z1208-00	Chan03C-Upper	2666.26	100yr	137.00	807.77	808.57	808.57	808.91	0.020816	4.67	29.35	43.91	1.01
Chan03C_Z1208-00	Chan03C-Upper	2616.26	100yr	137.00	805.91	807.24	807.24	807.64	0.019519	5.12	26.76	33.23	1.01
Chan03C_Z1208-00	Chan03C-Upper	2561.26	100yr	137.00	804.00	805.96		806.15	0.006090	3.47	39.47	36.42	0.59
Chan03C_Z1208-00	Chan03C-Upper	2516.26	100yr	137.00	803.93	805.76		805.90	0.004477	2.99	45.86	42.30	0.51
Chan03C_Z1208-00	Chan03C-Upper	2466.26	100yr	137.00	803.86	805.06	805.06	805.46	0.019667	5.12	26.76	33.39	1.01
Chan03C_Z1208-00	Chan03C-Upper	2416.26	100yr	137.00	801.71	803.29		803.58	0.009737	4.29	31.93	30.55	0.74
Chan03C_Z1208-00	Chan03C-Upper	2366.26	100yr	137.00	800.44	802.44	802.44	802.89	0.019523	5.39	25.42	29.02	1.02
Chan03C_Z1208-00	Chan03C-Upper	2316.26	100yr	137.00	799.83	801.15	801.15	801.66	0.018476	5.70	24.04	24.16	1.01
Chan03C_Z1208-00	Chan03C-Upper	2266.26	100yr	137.00	798.97	800.01	800.01	800.38	0.019992	4.88	28.07	38.19	1.00
Chan03C_Z1208-00	Chan03C-Upper	2216.26	100yr	137.00	797.73	798.75	798.75	799.15	0.019744	5.05	27.10	34.59	1.01
Chan03C_Z1208-00	Chan03C-Upper	2166.26	100yr	137.00	795.99	797.51	797.51	798.00	0.018565	5.64	24.30	25.01	1.01
Chan03C_Z1208-00	Chan03C-Upper	2116.26	100yr	137.00	794.15	796.29	796.29	796.86	0.018207	6.05	22.65	20.40	1.01
Chan03C_Z1208-00	Chan03C-Upper	2066.26	100yr	137.00	793.97	796.00		796.18	0.003772	3.37	40.69	27.17	0.49
Chan03C_Z1208-00	Chan03C-Upper	2016.26	100yr	137.00	793.94	795.25	795.25	795.78	0.018250	5.84	23.46	22.46	1.01
Chan03C_Z1208-00	Chan03C-Upper	1966.26	100yr	137.00	791.95	793.83	793.83	794.46	0.017629	6.35	21.58	17.50	1.01
Chan03C_Z1208-00	Chan03C-Upper	1916.26	100yr	137.00	789.96	791.61	791.61	792.25	0.017444	6.42	21.35	16.75	1.00
Chan03C_Z1208-00	Chan03C-Upper	1866.26	100yr	137.00	789.88	791.34		791.45	0.002694	2.58	53.02	41.20	0.40
Chan03C_Z1208-00	Chan03C-Upper	1816.26	100yr	137.00	789.80	790.73	790.73	791.13	0.019869	5.04	27.17	34.86	1.01
Chan03C_Z1208-00	Chan03C-Upper	1766.26	100yr	137.00	787.97	789.73		789.91	0.004559	3.39	40.37	30.86	0.52
Chan03C_Z1208-00	Chan03C-Upper	1721.26	100yr	137.00	787.93	789.50		789.69	0.005475	3.50	39.14	32.83	0.57
Chan03C_Z1208-00	Chan03C-Upper	1666.26	100yr	137.00	787.87	788.77	788.77	789.15	0.020062	4.93	27.81	37.29	1.01
Chan03C_Z1208-00	Chan03C-Upper	1611.26	100yr	137.00	785.58	786.40	786.40	786.71	0.021355	4.47	30.68	50.19	1.01
Chan03C_Z1208-00	Chan03C-Upper	1561.26	100yr	137.00	783.87	785.22		785.32	0.003048	2.52	54.42	48.65	0.42
Chan03C_Z1208-00	Chan03C-Upper	1516.26	100yr	137.00	783.54	784.61	784.61	785.00	0.019910	5.05	27.13	34.86	1.01
Chan03C_Z1208-00	Chan03C-Upper	1466.26	100yr	137.00	781.85	783.59		783.75	0.003738	3.18	43.13	31.38	0.48
Chan03C_Z1208-00	Chan03C-Upper	1416.26	100yr	137.00	781.63	782.88	782.88	783.36	0.018831	5.53	24.77	26.51	1.01
Chan03C_Z1208-00	Chan03C-Upper	1366.26	100yr	137.00	779.85	782.33		782.63	0.006259	4.45	30.82	19.18	0.62
Chan03C_Z1208-00	Chan03C-Upper	1316.26	100yr	137.00	779.57	781.45	781.45	782.11	0.017597	6.52	21.01	16.18	1.01
Chan03C_Z1208-00	Chan03C-Upper	1266.26	100yr	137.00	777.99	779.90	779.90	780.60	0.017471	6.69	20.47	14.90	1.01

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HEC-RAS Plan: Chan03CJ03B_WS Profile: 100yr (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Chan03C_Z1208-00	Chan03C-Upper	1216.26	100yr	137.00	776.74	778.56	778.56	779.19	0.017762	6.39	21.45	17.26	1.01
Chan03C_Z1208-00	Chan03C-Upper	1166.26	100yr	137.00	775.95	777.40	777.40	777.92	0.018271	5.79	23.64	22.98	1.01
Chan03C_Z1208-00	Chan03C-Upper	1116.26	100yr	137.00	773.99	775.72	775.72	776.26	0.018119	5.90	23.21	21.75	1.01
Chan03C_Z1208-00	Chan03C-Upper	1066.26	100yr	137.00	773.76	775.17		775.46	0.009522	4.28	31.98	30.13	0.73
Chan03C_Z1208-00	Chan03C-Upper	1041.26	100yr	137.00	773.64	774.71	774.71	775.12	0.019536	5.09	26.91	33.70	1.00
Chan03C_Z1208-00	Chan03C-Upper	1016.26	100yr	137.00	772.00	773.80		774.08	0.010328	4.28	32.01	32.19	0.76
Chan03C_Z1208-00	Chan03C-Upper	991.26	100yr	137.00	771.95	773.66		773.85	0.006541	3.57	38.42	36.07	0.61
Chan03C_Z1208-00	Chan03C-Upper	966.26	100yr	137.00	771.91	773.52		773.69	0.005812	3.32	41.21	39.40	0.57
Chan03C_Z1208-00	Chan03C-Upper	941.26	100yr	137.00	771.86	773.38		773.54	0.005823	3.25	42.16	41.82	0.57
Chan03C_Z1208-00	Chan03C-Upper	916.26	100yr	137.00	771.81	773.21		773.38	0.007114	3.38	40.55	44.12	0.62
Chan03C_Z1208-00	Chan03C-Upper	891.26	100yr	137.00	771.77	772.75	772.75	773.08	0.020828	4.67	29.37	44.14	1.01
Chan03C_Z1208-00	Chan03C-Upper	866.26	100yr	137.00	770.64	771.81	771.81	772.22	0.019323	5.17	26.48	32.08	1.00
Chan03C_Z1208-00	Chan03C-Upper	841.26	100yr	137.00	769.90	771.27		771.52	0.010184	4.08	33.59	35.87	0.74
Chan03C_Z1208-00	Chan03C-Upper	816.26	100yr	137.00	769.76	770.79	770.79	771.16	0.020307	4.88	28.07	38.59	1.01
Chan03C_Z1208-00	Chan03C-Upper	791.26	100yr	137.00	768.76	770.02	770.02	770.44	0.019368	5.20	26.33	31.71	1.01
Chan03C_Z1208-00	Chan03C-Upper	766.26	100yr	137.00	767.19	768.82	768.82	769.32	0.018288	5.68	24.14	24.29	1.00
Chan03C_Z1208-00	Chan03C-Upper	741.26	100yr	137.00	765.92	767.36	767.36	767.87	0.018338	5.75	23.83	23.54	1.01
Chan03C_Z1208-00	Chan03C-Upper	716.26	100yr	137.00	765.64	766.74	766.74	767.15	0.019705	5.12	26.77	33.48	1.01
Chan03C_Z1208-00	Chan03C-Upper	691.26	100yr	137.00	763.99	765.25		765.51	0.009464	4.08	33.57	33.96	0.72
Chan03C_Z1208-00	Chan03C-Upper	666.26	100yr	137.00	763.97	765.15		765.30	0.005567	3.10	44.16	45.33	0.55
Chan03C_Z1208-00	Chan03C-Upper	641.26	100yr	137.00	763.94	765.03		765.16	0.005151	2.86	47.83	52.29	0.53
Chan03C_Z1208-00	Chan03C-Upper	626.26	100yr	137.00	763.93	764.97		765.08	0.004383	2.62	52.29	57.94	0.49
Chan03C_Z1208-00	Chan03C-Upper	601.26	100yr	137.00	763.89	764.94		764.99	0.001945	1.81	75.63	79.24	0.33
Chan03C_Z1208-00	Chan03C-Upper	576.26	100yr	137.00	763.86	764.83		764.92	0.003915	2.39	57.43	67.30	0.46
Chan03C_Z1208-00	Chan03C-Upper	551.26	100yr	137.00	763.82	764.65		764.78	0.007897	2.97	46.11	65.83	0.63
Chan03C_Z1208-00	Chan03C-Upper	533.46	100yr	137.00	763.62	764.29	764.29	764.55	0.022994	4.06	33.73	67.19	1.01
Chan03C_Z1208-00	Chan03C-Lower	501.26	100yr	225.00	762.12	763.40	763.40	763.76	0.020054	4.86	46.26	63.34	1.00
Chan03C_Z1208-00	Chan03C-Lower	466.26	100yr	225.00	761.16	762.41	762.41	762.81	0.019871	5.09	44.24	56.29	1.01
Chan03C_Z1208-00	Chan03C-Lower	446.26	100yr	225.00	760.08	761.90		762.15	0.009139	3.96	56.76	58.58	0.71
Chan03C_Z1208-00	Chan03C-Lower	416.26	100yr	225.00	759.89	761.71		761.90	0.006504	3.53	63.70	60.65	0.61
Chan03C_Z1208-00	Chan03C-Lower	391.26	100yr	225.00	759.81	761.45		761.71	0.008883	4.05	55.52	54.34	0.71
Chan03C_Z1208-00	Chan03C-Lower	366.26	100yr	225.00	759.15	760.91	760.91	761.37	0.019097	5.46	41.25	45.83	1.01
Chan03C_Z1208-00	Chan03C-Lower	341.26	100yr	225.00	757.97	761.13		761.18	0.000816	1.70	132.13	79.06	0.23
Chan03C_Z1208-00	Chan03C-Lower	316.26	100yr	225.00	757.89	761.14		761.16	0.000296	1.23	183.49	83.92	0.15
Chan03C_Z1208-00	Chan03C-Lower	291.26	100yr	225.00	757.76	761.14		761.15	0.000162	0.99	227.54	91.43	0.11
Chan03C_Z1208-00	Chan03C-Lower	266.26	100yr	225.00	756.69	761.14		761.15	0.000068	0.74	305.28	99.25	0.07
Chan03C_Z1208-00	Chan03C-Lower	241.26	100yr	225.00	755.97	761.14		761.14	0.000034	0.57	397.03	114.06	0.05
Chan03C_Z1208-00	Chan03C-Lower	216.26	100yr	225.00	755.89	761.14		761.14	0.000021	0.46	484.42	132.62	0.04
Chan03C_Z1208-00	Chan03C-Lower	191.26	100yr	225.00	755.81	761.14		761.14	0.000015	0.40	561.27	147.29	0.04
Chan03C_Z1208-00	Chan03C-Lower	166.26	100yr	225.00	755.01	761.14		761.14	0.000009	0.33	676.72	165.01	0.03
Chan03C_Z1208-00	Chan03C-Lower	141.26	100yr	225.00	753.99	761.14		761.14	0.000006	0.27	825.30	181.65	0.02
Chan03C_Z1208-00	Chan03C-Lower	116.26	100yr	225.00	753.14	761.14		761.14	0.000004	0.22	1001.99	213.20	0.02
Chan03C_Z1208-00	Chan03C-Lower	91.26	100yr	225.00	752.28	761.14		761.14	0.000002	0.19	1205.44	258.87	0.02
Chan03C_Z1208-00	Chan03C-Lower	66.26	100yr	225.00	751.88	761.14		761.14	0.000002	0.15	1460.33	308.41	0.01
Chan03C_Z1208-00	Chan03C-Lower	41.26	100yr	225.00	750.43	761.14		761.14	0.000001	0.12	1878.05	487.56	0.01
Chan03C_Z1208-00	Chan03C-Lower	36.26	100yr	225.00	750.00	761.14		761.14	0.000001	0.09	2531.08	647.47	0.01
Chan03C_Z1208-00	Chan03C-Lower	31.26	100yr	225.00	750.00	761.14		761.14	0.000000	0.06	3655.35	825.11	0.01
Chan03C_Z1208-00	Chan03C-Lower	26.26	100yr	225.00	750.00	761.14		761.14	0.000000	0.05	4715.81	958.61	0.00
Chan03C_Z1208-00	Chan03C-Lower	21.26	100yr	225.00	750.00	761.14		761.14	0.000000	0.04	6346.08	1129.41	0.00
Chan03C_Z1208-00	Chan03C-Lower	16.26	100yr	225.00	750.00	761.14		761.14	0.000001	0.16	1421.92	227.95	0.01
Chan03C_Z1208-00	Chan03C-Lower	5	100yr	225.00	750.00	761.14	752.30	761.14	0.000002	0.19	1200.80	194.71	0.01
Chan03B_Z1208-00	Chan03B	3831.24	100yr	88.00	915.01	915.62	915.62	915.83	0.040722	3.60	24.41	61.35	1.01
Chan03B_Z1208-00	Chan03B	3781.24	100yr	88.00	911.14	911.69	911.69	911.88	0.041254	3.51	25.05	66.06	1.01
Chan03B_Z1208-00	Chan03B	3731.24	100yr	88.00	907.58	908.25	908.25	908.45	0.040732	3.63	24.21	60.10	1.01
Chan03B_Z1208-00	Chan03B	3681.24	100yr	88.00	904.58	905.25	905.25	905.48	0.039591	3.80	23.17	52.68	1.01
Chan03B_Z1208-00	Chan03B	3631.24	100yr	88.00	901.77	902.49	902.49	902.73	0.038261	3.98	22.11	45.66	1.01
Chan03B_Z1208-00	Chan03B	3581.24	100yr	88.00	899.93	900.62	900.60	900.86	0.035144	3.94	22.32	43.88	0.97
Chan03B_Z1208-00	Chan03B	3531.24	100yr	88.00	897.98	898.78	898.78	899.01	0.038694	3.82	23.06	51.15	1.00
Chan03B_Z1208-00	Chan03B	3481.24	100yr	88.00	895.94	896.69	896.69	896.92	0.038784	3.90	22.59	48.71	1.01
Chan03B_Z1208-00	Chan03B	3431.24	100yr	88.00	893.97	894.60	894.60	894.82	0.039133	3.77	23.32	53.10	1.00
Chan03B_Z1208-00	Chan03B	3381.24	100yr	88.00	891.80	892.47	892.47	892.70	0.039014	3.87	22.75	49.80	1.01
Chan03B_Z1208-00	Chan03B	3331.24	100yr	88.00	888.79	889.64	889.64	889.88	0.038291	3.94	22.34	46.90	1.01
Chan03B_Z1208-00	Chan03B	3281.24	100yr	88.00	885.98	886.81	886.81	887.10	0.036156	4.33	20.30	35.33	1.01
Chan03B_Z1208-00	Chan03B	3231.24	100yr	88.00	883.42	884.45	884.45	884.75	0.036316	4.40	20.01	34.17	1.01
Chan03B_Z1208-00	Chan03B	3181.24	100yr	88.00	880.74	881.91	881.91	882.27	0.033879	4.87	18.06	25.01	1.01
Chan03B_Z1208-00	Chan03B	3131.24	100yr	88.00	877.63	878.90	878.90	879.27	0.033435	4.89	17.99	24.52	1.01
Chan03B_Z1208-00	Chan03B	3081.24	100yr	88.00	875.00	876.07	876.07	876.42	0.034178	4.76	18.49	26.74	1.01
Chan03B_Z1208-00	Chan03B	3031.24	100yr	88.00	871.92	872.97	872.97	873.32	0.034157	4.76	18.49	26.75	1.01
Chan03B_Z1208-00	Chan03B	2981.24	100yr	88.00	869.84	870.54	870.53	870.79	0.036846	4.07	21.63	41.98	1.00
Chan03B_Z1208-00	Chan03B	2931.24	100yr	88.00	867.79	868.67	868.67	869.00	0.035007	4.55	19.32	30.44	1.01
Chan03B_Z1208-00	Chan03B	2881.24	100yr	88.00	865.83	866.66	866.66	866.99	0.034999	4.56	19.32	30.39	1.01
Chan03B_Z1208-00	Chan03B	2831.24	100yr	88.00	863.91	864.66	864.66	864.96	0.035162	4.46	19.72	32.13	1.00
Chan03B_Z1208-00	Chan03B	2781.24	100yr	88.00	861.71	862.70	862.70	863.05	0.034140	4.75	18.53	26.85	1.01
Chan03B_Z1208-00	Chan03B	2731.24	100yr	88.00	859.76	860.94	860.94	861.33	0.033129	5.02	17.53	22.80	1.01
Chan03B_Z1208-00	Chan03B	2681.24	100yr	88.00	857.96	859.03	859.03	859.40	0.033459	4.91	17.90	24.24	1.01
Chan03B_Z1208-00	Chan03B	2631.24	100yr	88.00	854.91	856.63	856.63	857.08	0.032186	5.38	16.34	18.52	1.01
Chan03B_Z1208-00	Chan03B	2581.24	100yr	88.00	853.75	854.95	854.95	855.33	0.033352	4.95	17.79	23.78	1.01
Chan03B_Z1208-00	Chan03B	2531.24	100yr	88.00	851.31	852.47	852.47	852.88	0.032712	5.13	17.16	21.36	1.01
Chan03B_Z1208-00	Chan03B	2481.24	100yr	88.00	848.75	850.00	850.00	850.46	0.031625	5.42	16.25	18.03	1.01
Chan03B_Z1208-00	Chan03B	2431.24	100yr	88.00	846.93	848.27	848.27	848.69	0.032926	5.18	17.00	20.90	1.01
Chan03B_Z1208-00	Chan03B	2381.24	100yr	88.00	845.45	846.64	846.64	847.06	0.032487	5.22	16.86	20.25	1.01
Chan03B_Z1208-00	Chan03B	2331.24	100yr	88.00	843.86	844.98	844.98	845.42	0.031931	5.33	16.53	18.96	1.01
Chan03B_Z1208-00	Chan03B	2281.24	100yr	88.00	841.89	843.60		843.87	0.013875	4.19	21.02	18.38	0.69
Chan03B_Z1208-00	Chan03B	2231.24	100yr	88.00	841.16	842.46	842.45	842.86	0.031627	5.10	17.27	21.14	0.99
Chan03B_Z1208-00	Chan03B	2181.24	100yr	88.00	839.79	840.84	840.84	841.26	0.032544	5.18	16.99	20.65	1.01
Chan03B_Z1208-00	Chan03B	2139.24	100yr	88.00	837.90	839.21	839.21	839.65	0.032007	5.34	16.49	18.95	1.01
Chan03B_Z1208-00	Chan03B	2081.24	100yr	88.00	833.97	835.85	835.85	836.51	0.031227	6.49	13.56	10.52	1.01

Paso Gateway DEIR - Appendix
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HEC-RAS Plan: Chan03CJ03B_WS Profile: 100yr (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Chan03B_Z1208-00	Chan03B	2031.24	100yr	88.00	832.06	834.22	834.11	834.65	0.024024	5.30	16.61	15.13	0.89
Chan03B_Z1208-00	Chan03B	1981.24	100yr	88.00	831.85	832.84	832.84	833.25	0.032940	5.14	17.11	21.24	1.01
Chan03B_Z1208-00	Chan03B	1931.24	100yr	88.00	829.69	830.82	830.82	831.22	0.032922	5.06	17.38	22.13	1.01
Chan03B_Z1208-00	Chan03B	1881.24	100yr	88.00	826.35	827.51	827.50	827.85	0.032512	4.65	18.92	27.29	0.98
Chan03B_Z1208-00	Chan03B	1824.24	100yr	88.00	823.99	825.55	825.55	825.97	0.033024	5.18	16.98	20.90	1.01
Chan03B_Z1208-00	Chan03B	1781.24	100yr	88.00	821.96	824.05		824.25	0.009644	3.61	24.37	20.17	0.58
Chan03B_Z1208-00	Chan03B	1731.24	100yr	88.00	821.66	822.96	822.96	823.42	0.031634	5.49	16.02	17.35	1.01
Chan03B_Z1208-00	Chan03B	1681.24	100yr	88.00	818.72	821.04	821.04	821.70	0.031921	6.50	13.54	10.51	1.01
Chan03B_Z1208-00	Chan03B	1631.24	100yr	88.00	817.83	819.35	819.35	819.92	0.030834	6.04	14.57	13.04	1.01
Chan03B_Z1208-00	Chan03B	1581.24	100yr	88.00	815.37	817.04	817.04	817.57	0.031214	5.86	15.02	14.37	1.01
Chan03B_Z1208-00	Chan03B	1531.24	100yr	88.00	813.74	815.49		815.68	0.007933	3.49	25.19	18.74	0.53
Chan03B_Z1208-00	Chan03B	1481.24	100yr	88.00	813.41	814.53	814.53	814.94	0.033081	5.14	17.14	21.33	1.01
Chan03B_Z1208-00	Chan03B	1431.24	100yr	88.00	809.85	811.72		812.03	0.012903	4.45	19.78	14.40	0.67
Chan03B_Z1208-00	Chan03B	1381.24	100yr	88.00	809.27	810.70	810.64	811.12	0.026603	5.25	16.77	16.90	0.93
Chan03B_Z1208-00	Chan03B	1331.24	100yr	88.00	807.86	809.15	809.15	809.68	0.031124	5.81	15.16	14.65	1.01
Chan03B_Z1208-00	Chan03B	1281.24	100yr	88.00	805.74	807.02	807.02	807.50	0.031599	5.53	15.90	16.99	1.01
Chan03B_Z1208-00	Chan03B	1231.24	100yr	88.00	801.95	803.42	803.42	803.94	0.030927	5.80	15.18	14.73	1.01
Chan03B_Z1208-00	Chan03B	1181.24	100yr	88.00	799.95	801.85		802.08	0.008576	3.81	23.09	15.55	0.55
Chan03B_Z1208-00	Chan03B	1131.24	100yr	88.00	799.88	801.58		801.71	0.005551	2.93	30.01	22.35	0.45
Chan03B_Z1208-00	Chan03B	1081.24	100yr	88.00	799.81	801.35		801.45	0.004444	2.54	34.69	27.47	0.40
Chan03B_Z1208-00	Chan03B	1031.24	100yr	88.00	799.74	800.67	800.62	800.98	0.027866	4.48	19.66	26.60	0.92
Chan03B_Z1208-00	Chan03B	981.24	100yr	88.00	797.93	799.04	799.04	799.47	0.032153	5.29	16.65	19.45	1.01
Chan03B_Z1208-00	Chan03B	931.24	100yr	88.00	795.89	797.31	797.24	797.71	0.025169	5.04	17.45	18.13	0.91
Chan03B_Z1208-00	Chan03B	881.24	100yr	88.00	794.34	796.18		796.54	0.021402	4.78	18.39	18.21	0.84
Chan03B_Z1208-00	Chan03B	831.24	100yr	88.00	792.90	794.75	794.75	795.24	0.031795	5.58	15.77	16.66	1.01
Chan03B_Z1208-00	Chan03B	781.24	100yr	88.00	790.87	792.53	792.53	793.01	0.031791	5.58	15.77	16.66	1.01
Chan03B_Z1208-00	Chan03B	731.24	100yr	88.00	789.09	790.48	790.48	790.90	0.033032	5.19	16.97	20.85	1.01
Chan03B_Z1208-00	Chan03B	681.24	100yr	88.00	785.96	787.36	787.36	787.83	0.031201	5.54	15.87	16.74	1.00
Chan03B_Z1208-00	Chan03B	631.24	100yr	88.00	783.98	785.35	785.34	785.81	0.030773	5.47	16.09	17.18	1.00
Chan03B_Z1208-00	Chan03B	581.24	100yr	88.00	782.44	783.80	783.80	784.24	0.032035	5.30	16.60	19.27	1.01
Chan03B_Z1208-00	Chan03B	531.24	100yr	88.00	779.99	781.91		782.17	0.011426	4.08	21.55	16.51	0.63
Chan03B_Z1208-00	Chan03B	481.24	100yr	88.00	779.94	780.86	780.86	781.25	0.033209	5.00	17.60	22.94	1.01
Chan03B_Z1208-00	Chan03B	431.24	100yr	88.00	777.84	778.90	778.90	779.31	0.032699	5.10	17.24	21.59	1.01
Chan03B_Z1208-00	Chan03B	381.24	100yr	88.00	775.39	776.39	776.39	776.76	0.033668	4.87	18.08	24.94	1.01
Chan03B_Z1208-00	Chan03B	356.24	100yr	88.00	773.93	775.12		775.33	0.013510	3.62	24.32	26.30	0.66
Chan03B_Z1208-00	Chan03B	331.24	100yr	88.00	773.75	774.91		775.04	0.008500	2.85	30.85	33.77	0.53
Chan03B_Z1208-00	Chan03B	306.24	100yr	88.00	773.47	774.35	774.35	774.64	0.036783	4.28	20.57	36.96	1.01
Chan03B_Z1208-00	Chan03B	281.24	100yr	88.00	770.70	772.13	772.13	772.57	0.031614	5.33	16.51	18.78	1.00
Chan03B_Z1208-00	Chan03B	256.24	100yr	88.00	769.51	770.76	770.76	771.17	0.032759	5.15	17.10	21.14	1.01
Chan03B_Z1208-00	Chan03B	231.24	100yr	88.00	768.18	769.56	769.56	769.98	0.032586	5.22	16.86	20.34	1.01
Chan03B_Z1208-00	Chan03B	206.24	100yr	88.00	767.87	769.06		769.30	0.017039	3.97	22.17	24.85	0.74
Chan03B_Z1208-00	Chan03B	181.24	100yr	88.00	767.45	768.37	768.37	768.70	0.034940	4.62	19.06	29.34	1.01
Chan03B_Z1208-00	Chan03B	156.24	100yr	88.00	765.94	766.83	766.77	767.13	0.027041	4.43	19.85	26.71	0.91
Chan03B_Z1208-00	Chan03B	131.24	100yr	88.00	765.13	766.06	766.06	766.36	0.035875	4.39	20.05	34.01	1.01
Chan03B_Z1208-00	Chan03B	106.24	100yr	88.00	763.98	764.94		765.09	0.012952	3.16	27.82	35.85	0.63
Chan03B_Z1208-00	Chan03B	81.24	100yr	88.00	763.93	764.86		764.91	0.003391	1.69	51.98	62.74	0.33
Chan03B_Z1208-00	Chan03B	56.24	100yr	88.00	763.88	764.79		764.83	0.002850	1.53	57.46	70.76	0.30
Chan03B_Z1208-00	Chan03B	31.24	100yr	88.00	763.84	764.69		764.74	0.004700	1.82	48.33	66.85	0.38
Chan03B_Z1208-00	Chan03B	21.24	100yr	88.00	763.82	764.62		764.68	0.006189	1.99	44.13	65.48	0.43
Chan03B_Z1208-00	Chan03B	5	100yr	88.00	763.80	764.27	764.27	764.46	0.041228	3.53	24.91	65.03	1.01

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018

Chan03B_Z1208-00 Chan03B

Chan03C_Z1208-00 Chan03C-Upper

Chan03C_Z1208-00 Chan03C-Lower

Legend

EG 100yr

WS 100yr

Crit 100yr

Ground

Elevation (ft)

950

900

850

800

750

0

1000

2000

3000

4000

5000

6000

7000

Main Channel Distance (ft)

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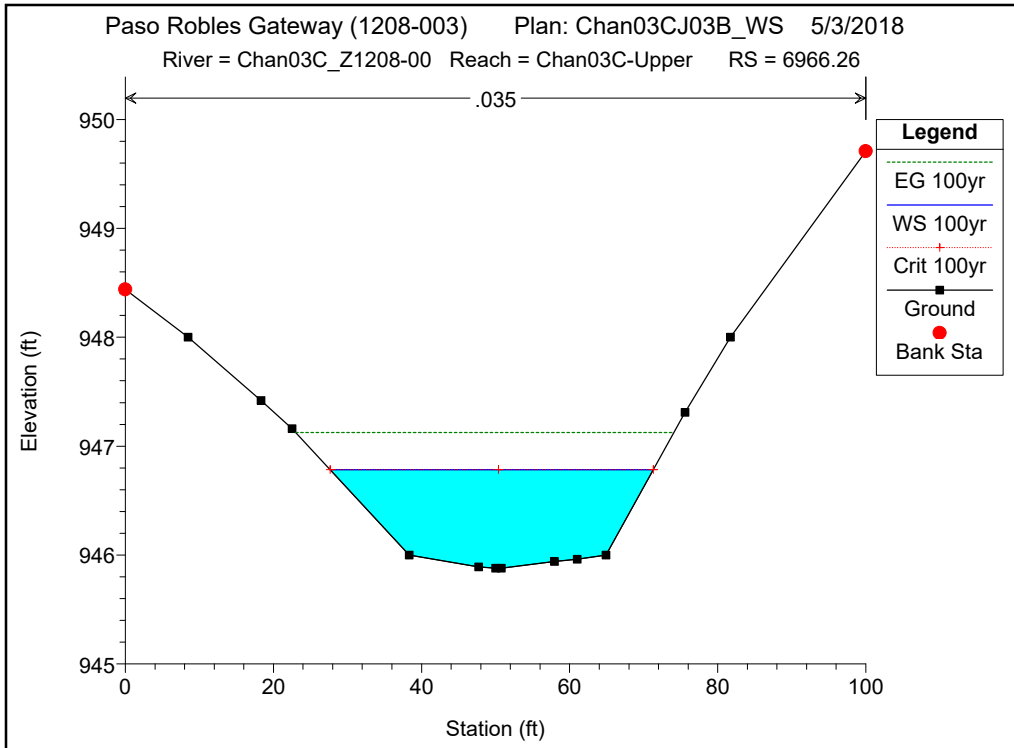
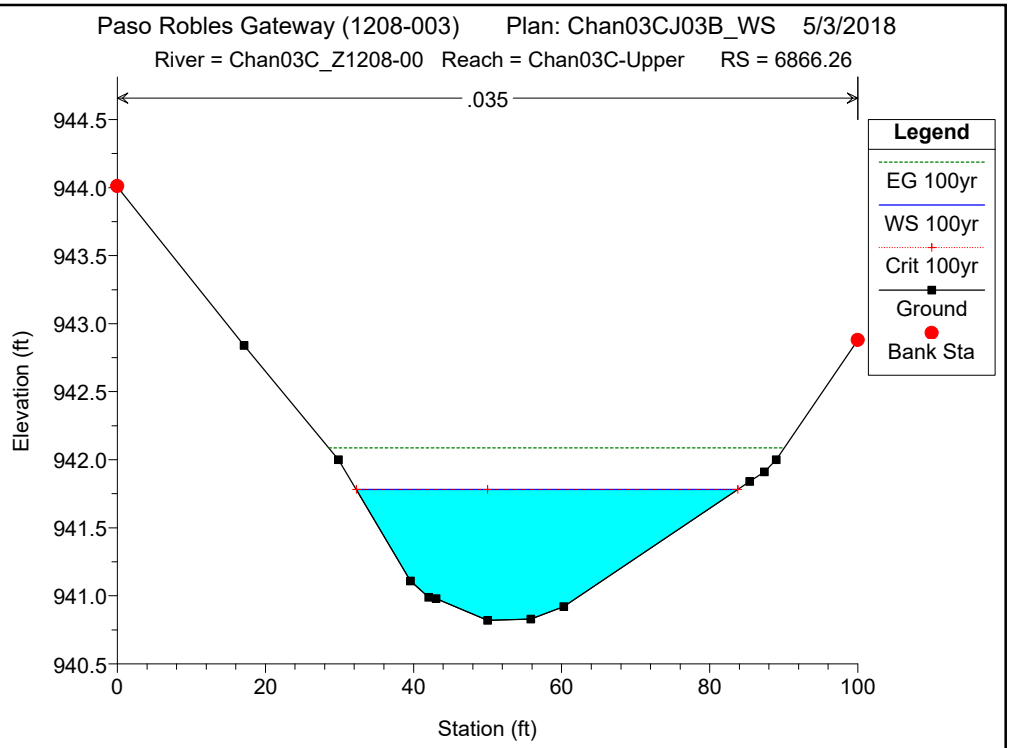

Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 6966.26
.035
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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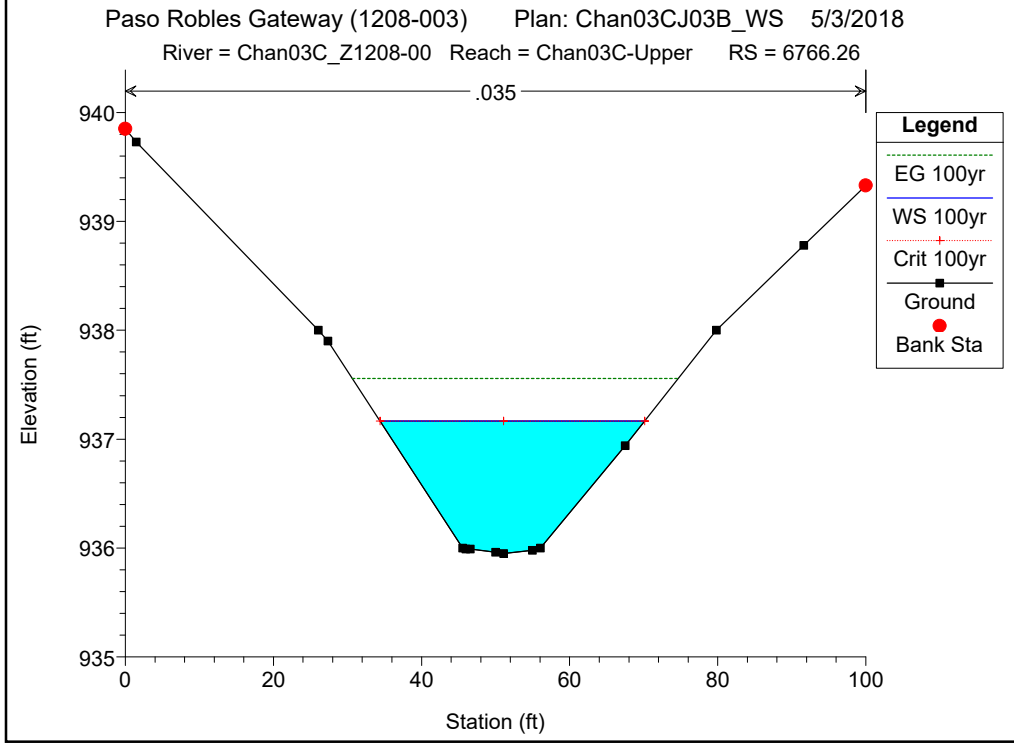
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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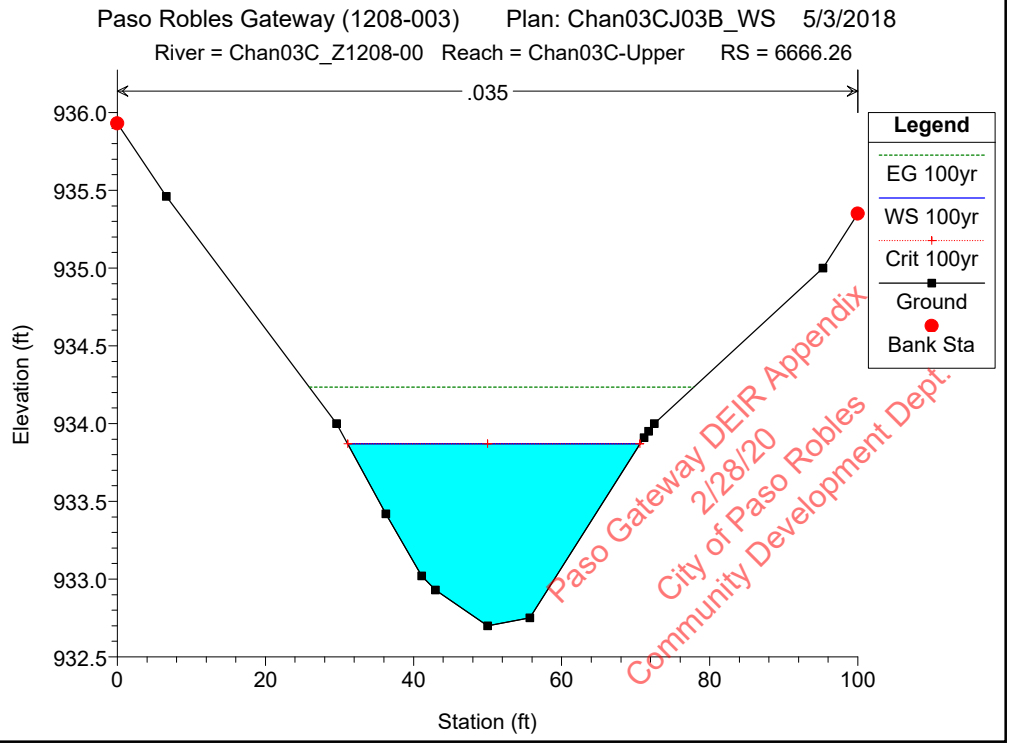
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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EG 100yr
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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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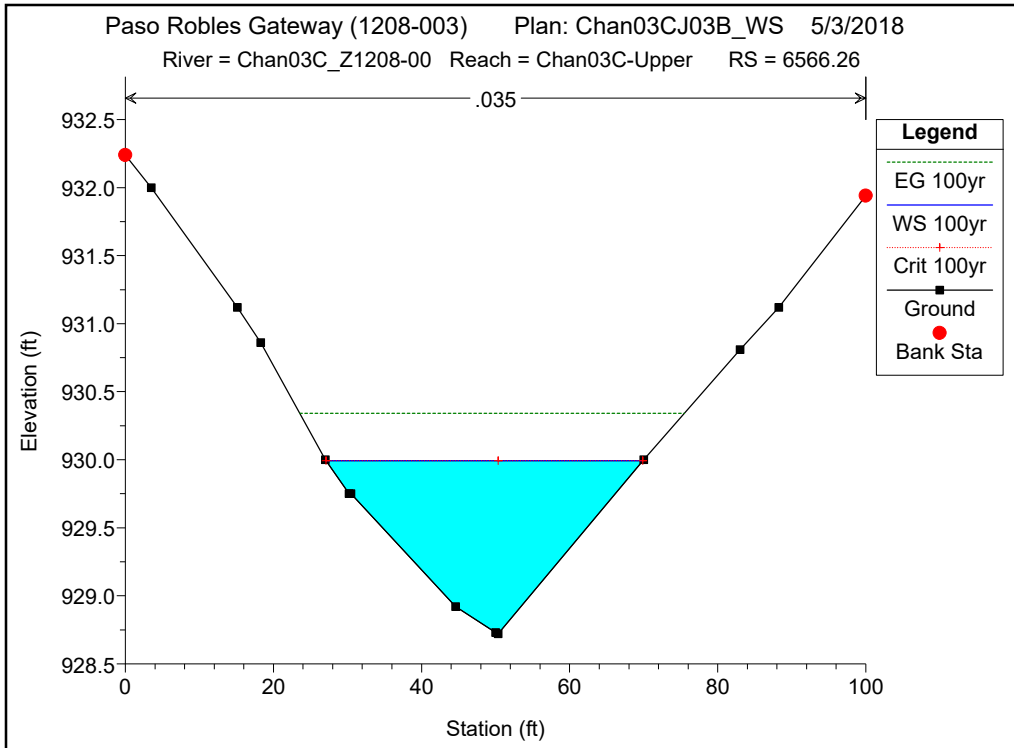
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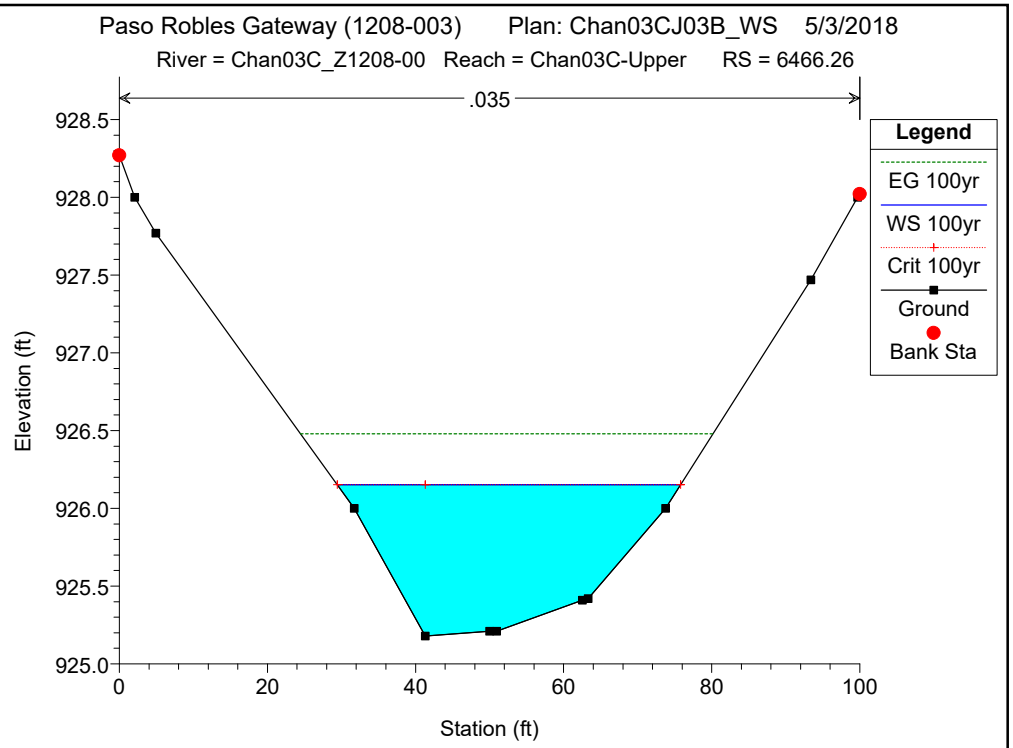
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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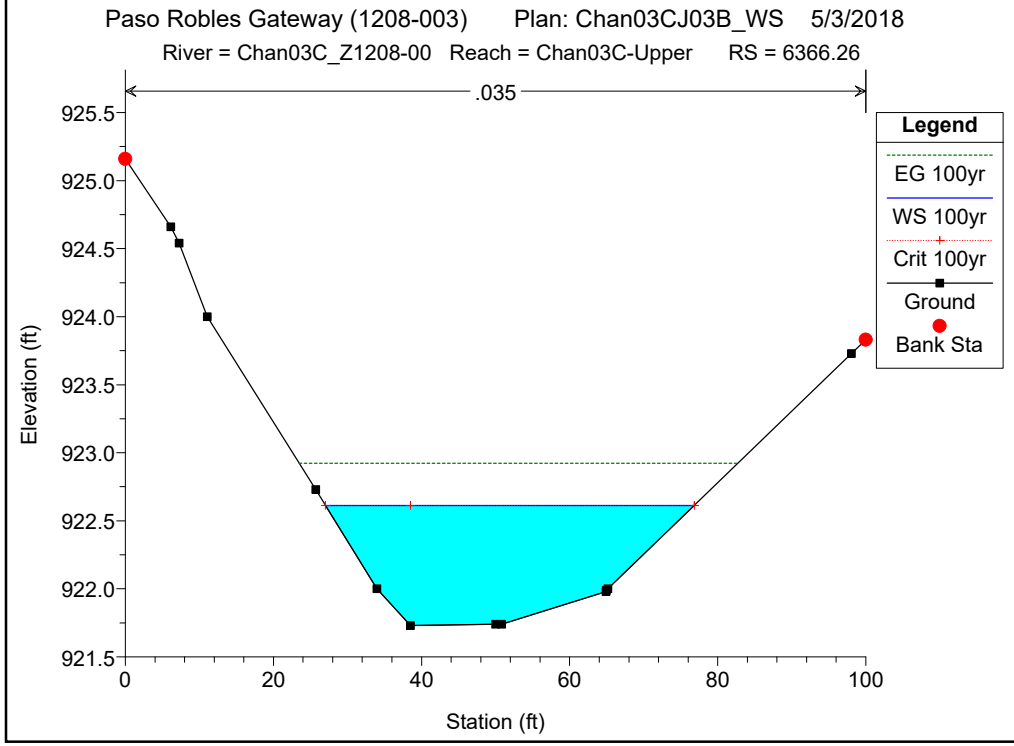
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 6366.26
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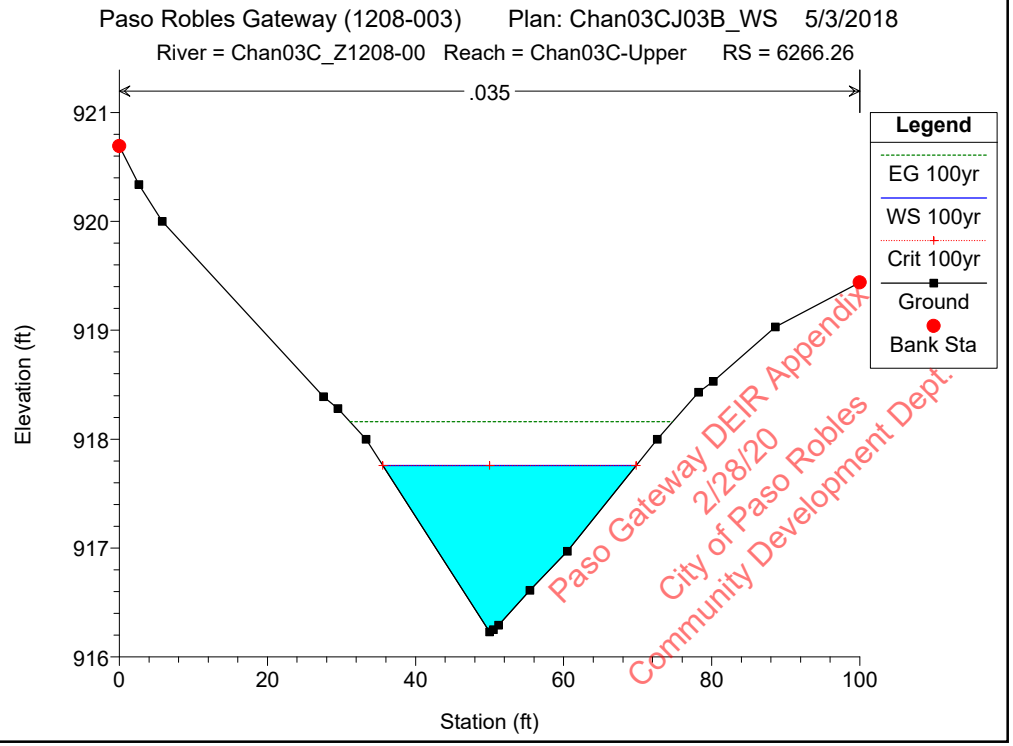
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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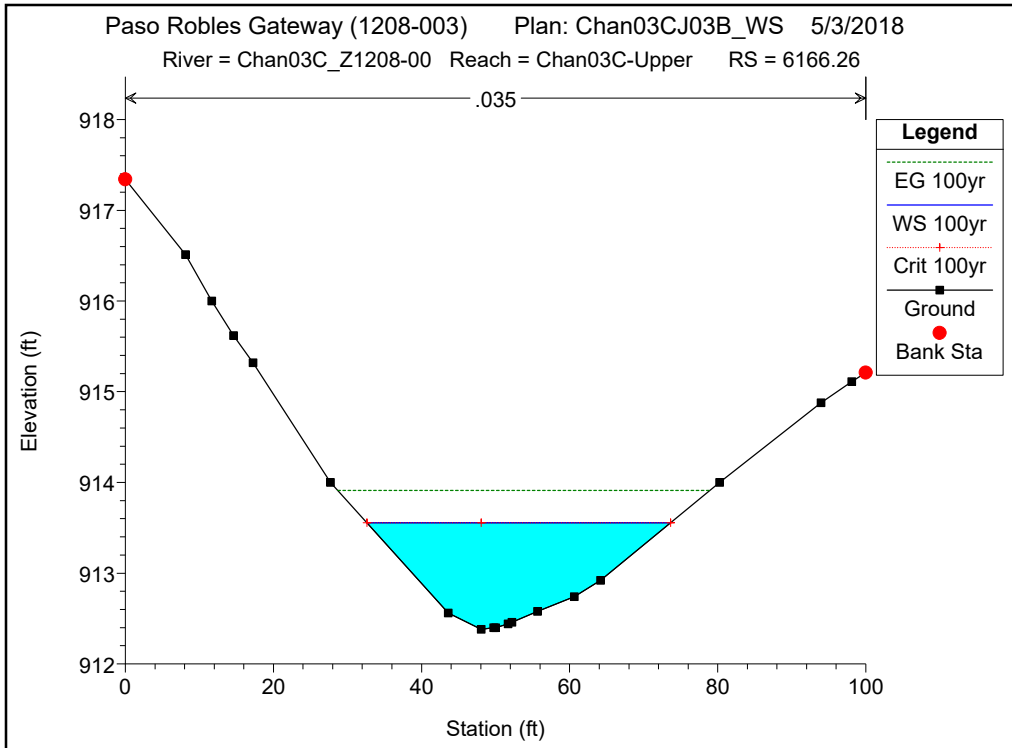

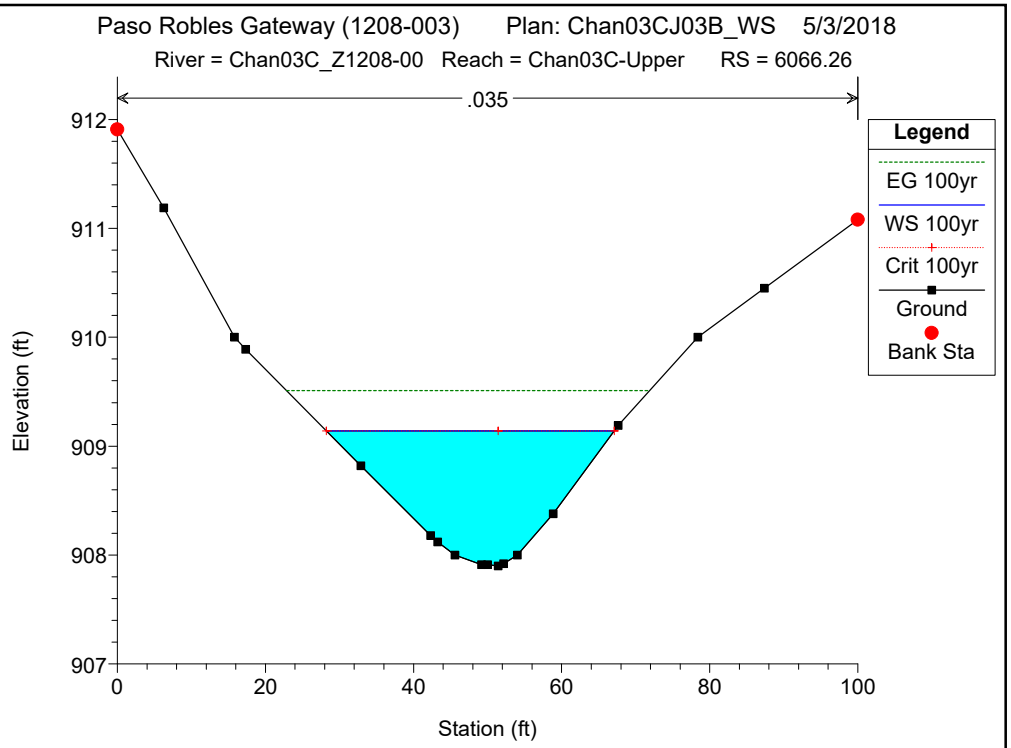

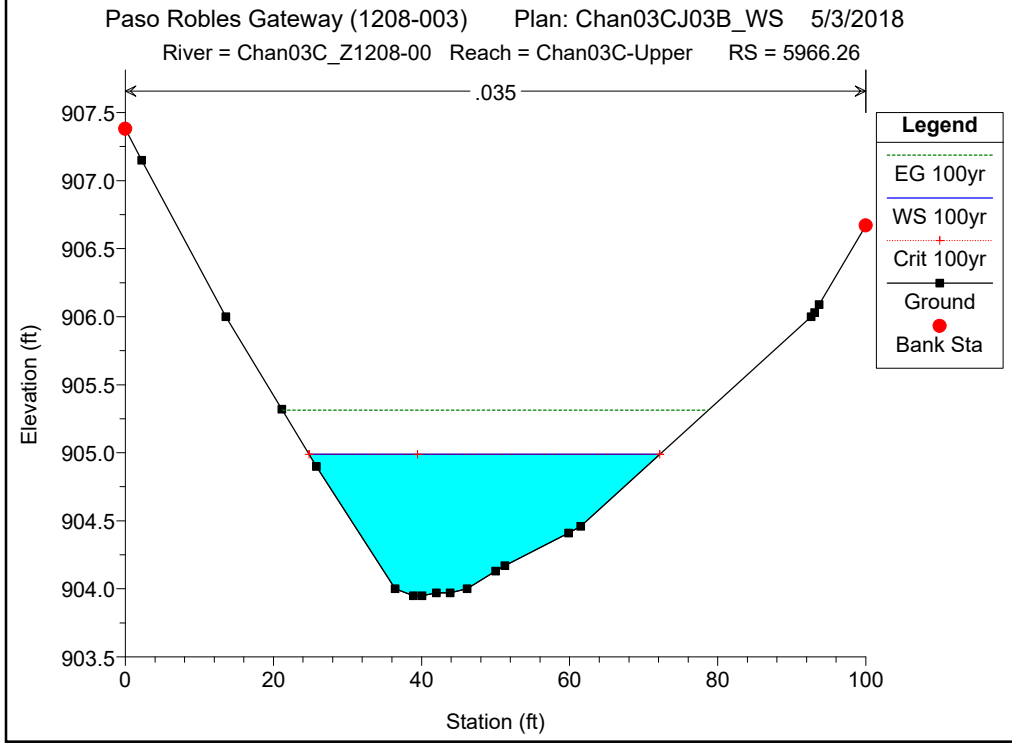

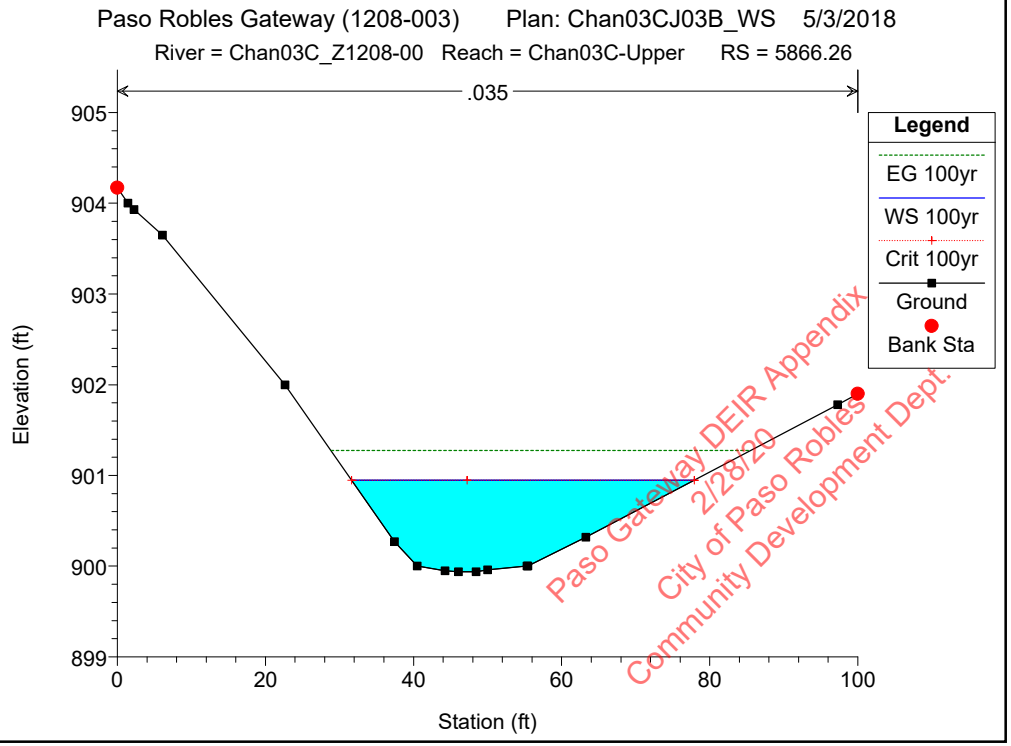

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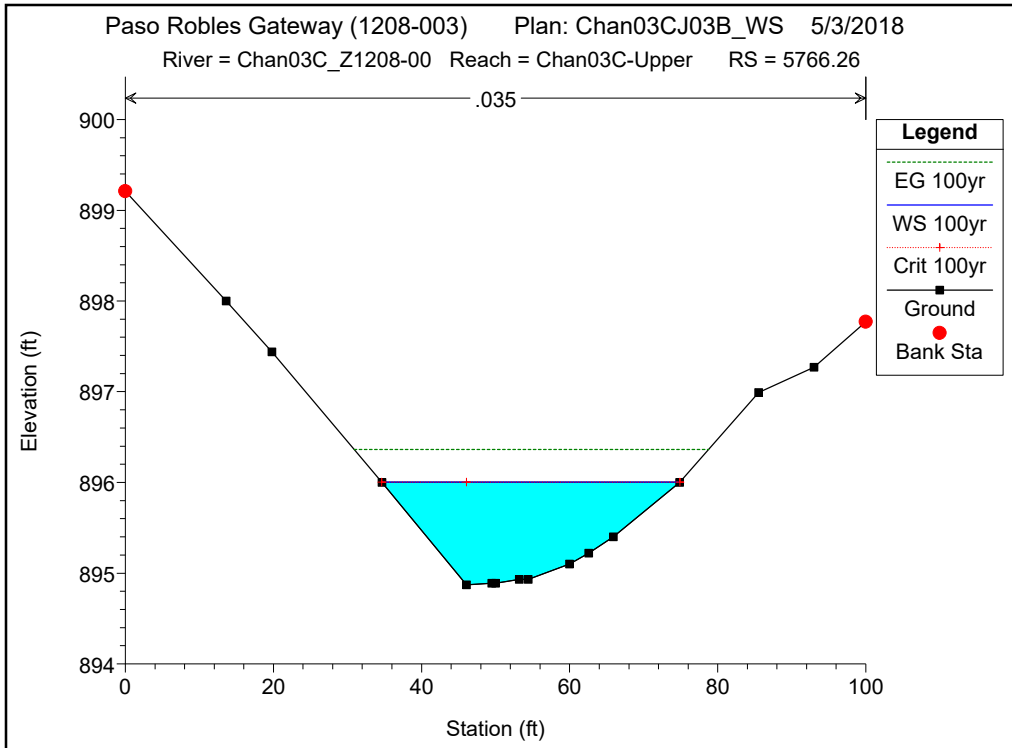
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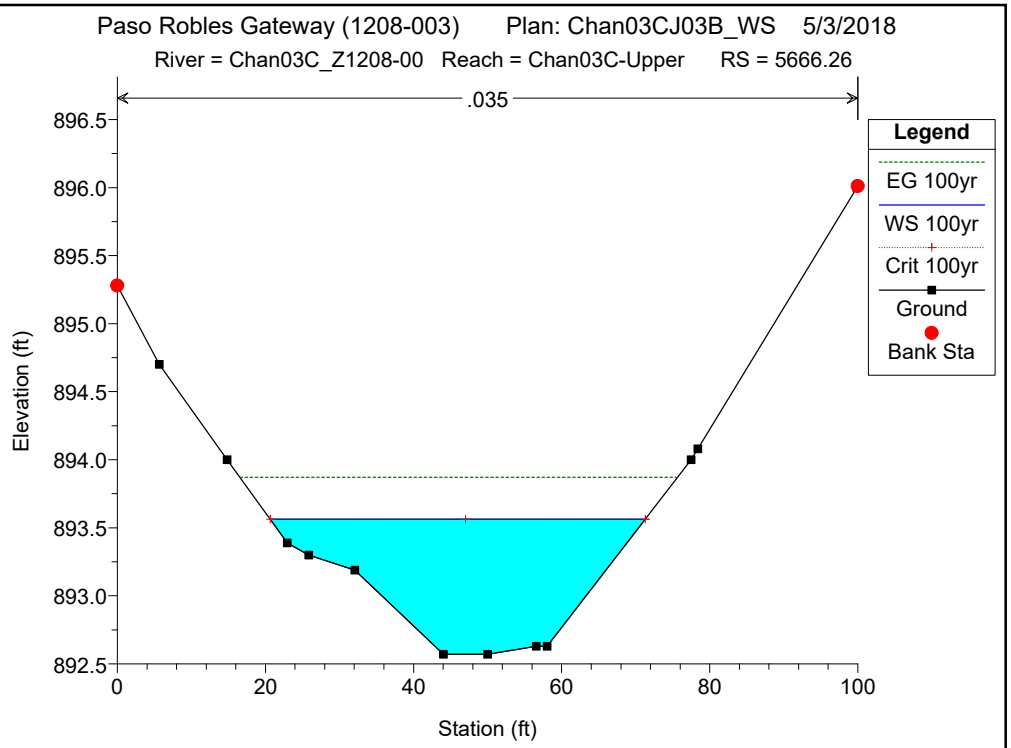
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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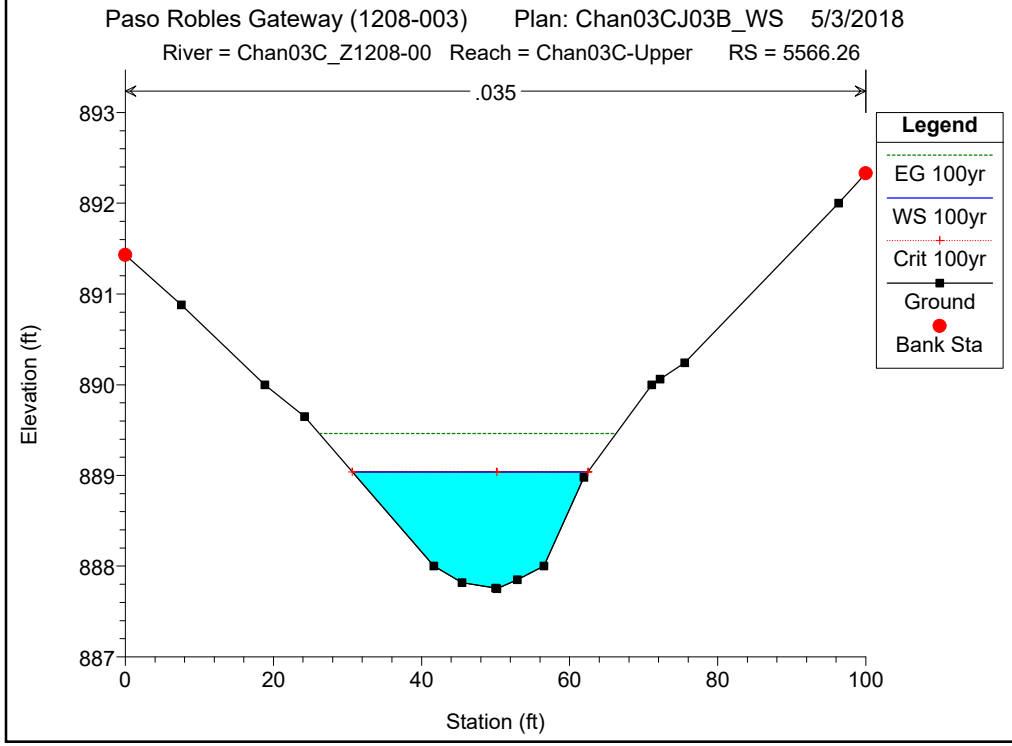
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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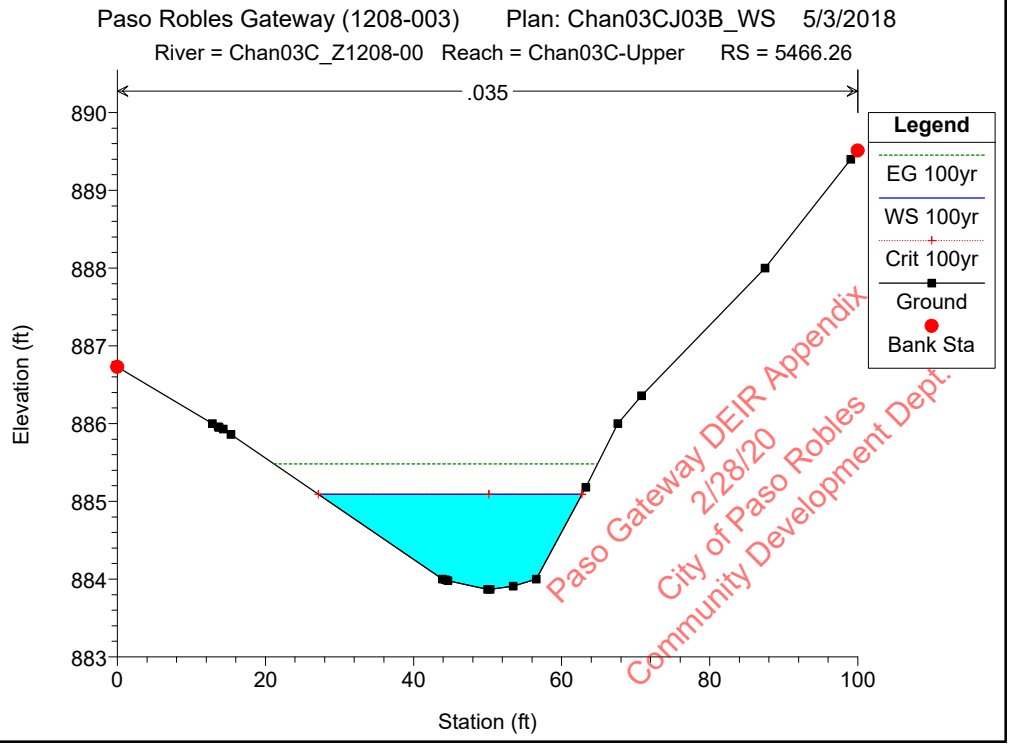
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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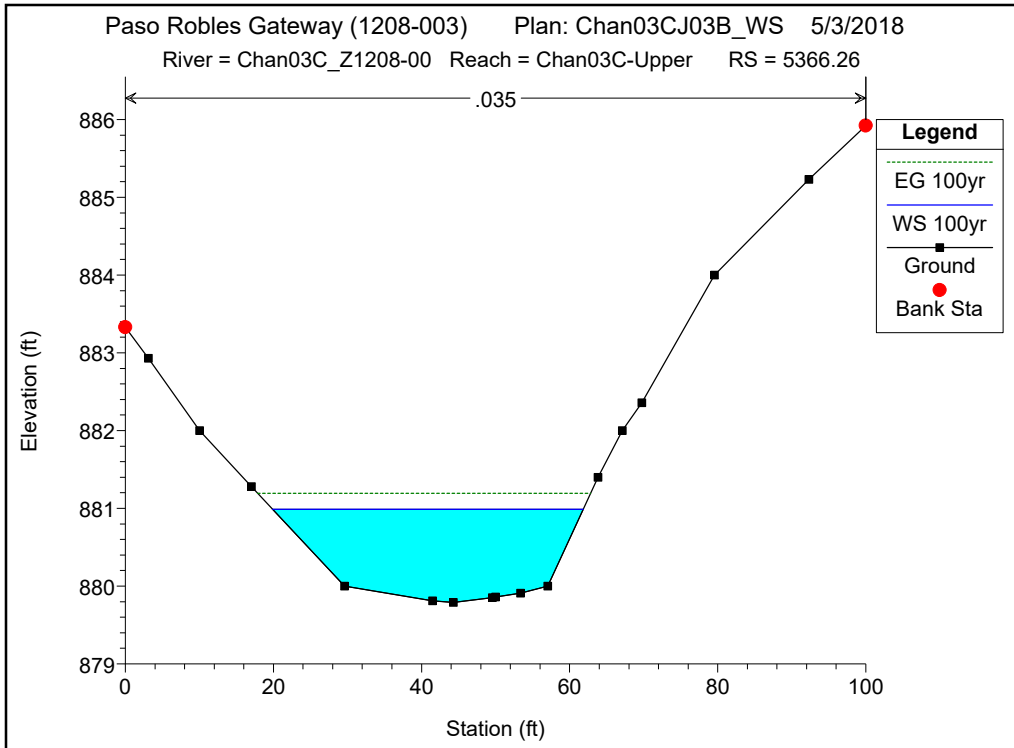
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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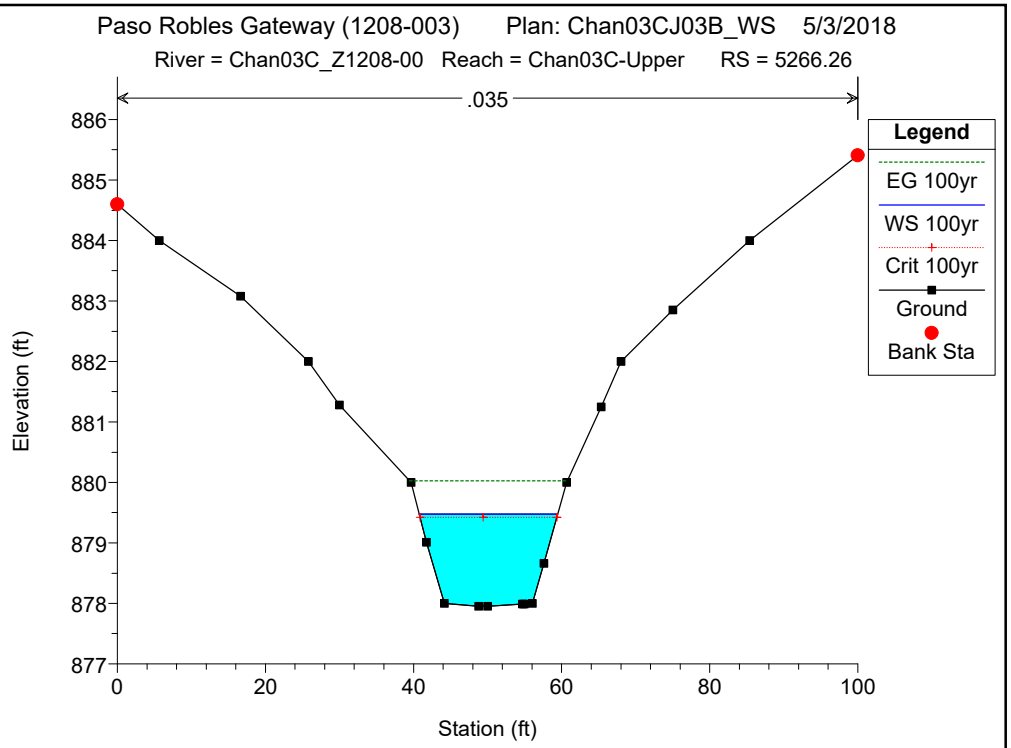
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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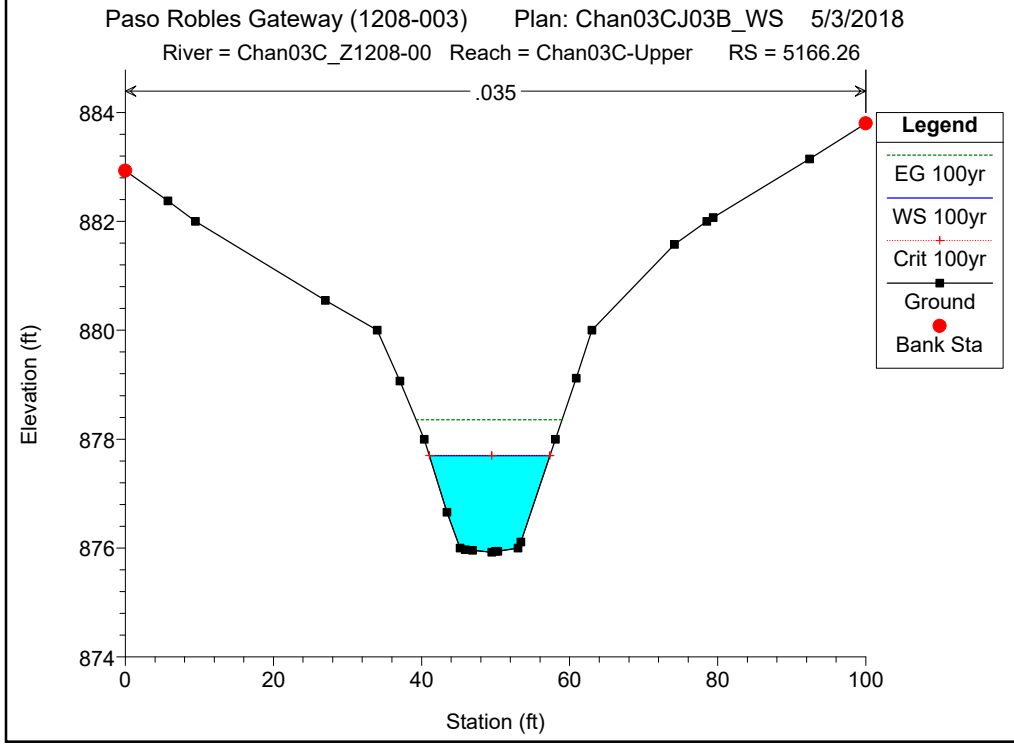
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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Legend
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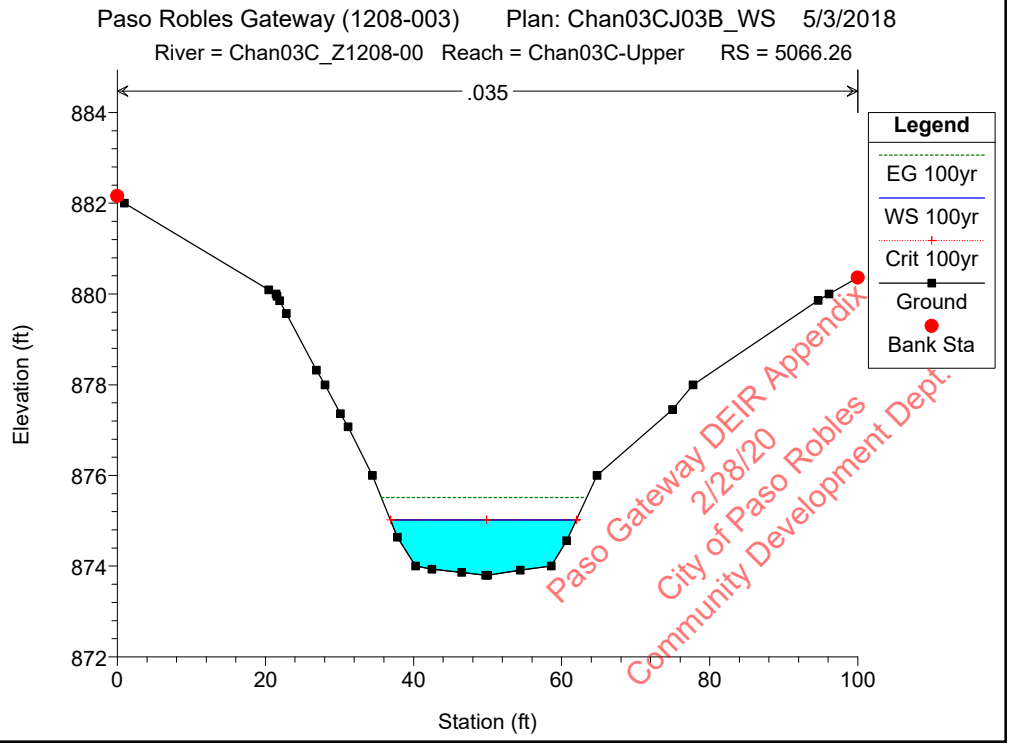
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 5066.26
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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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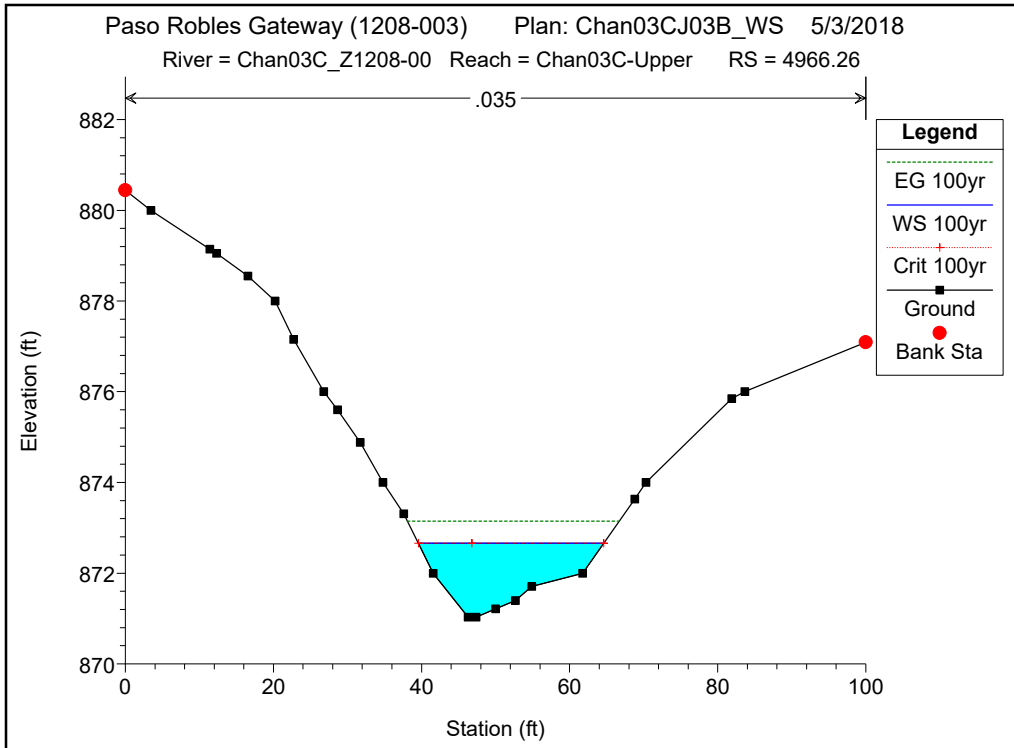
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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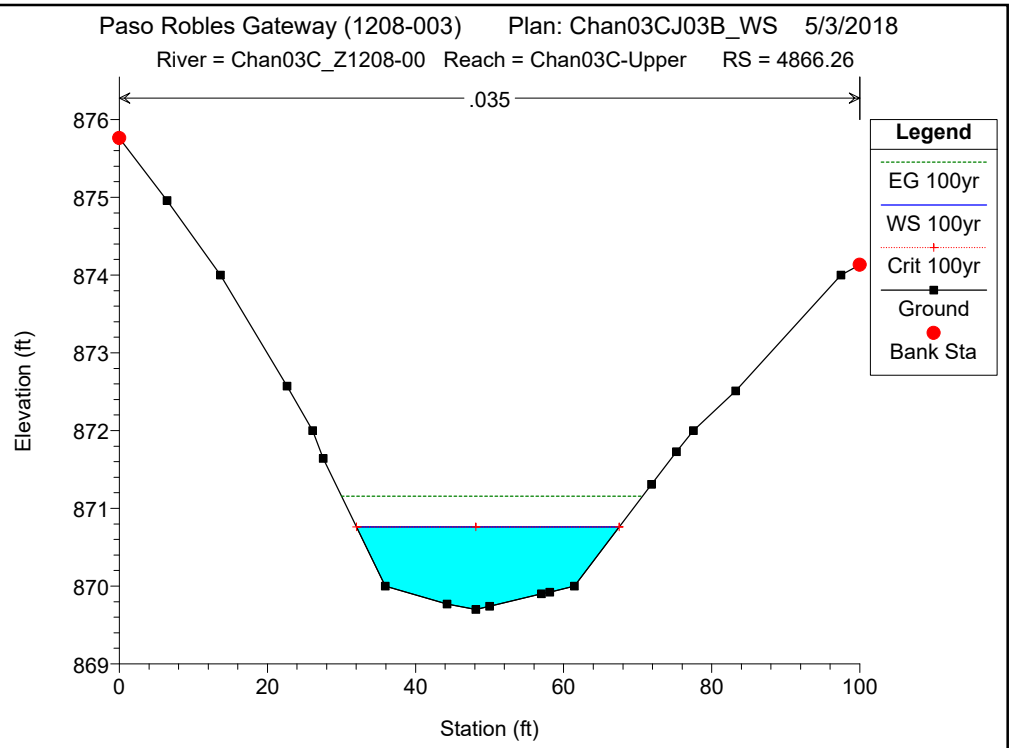
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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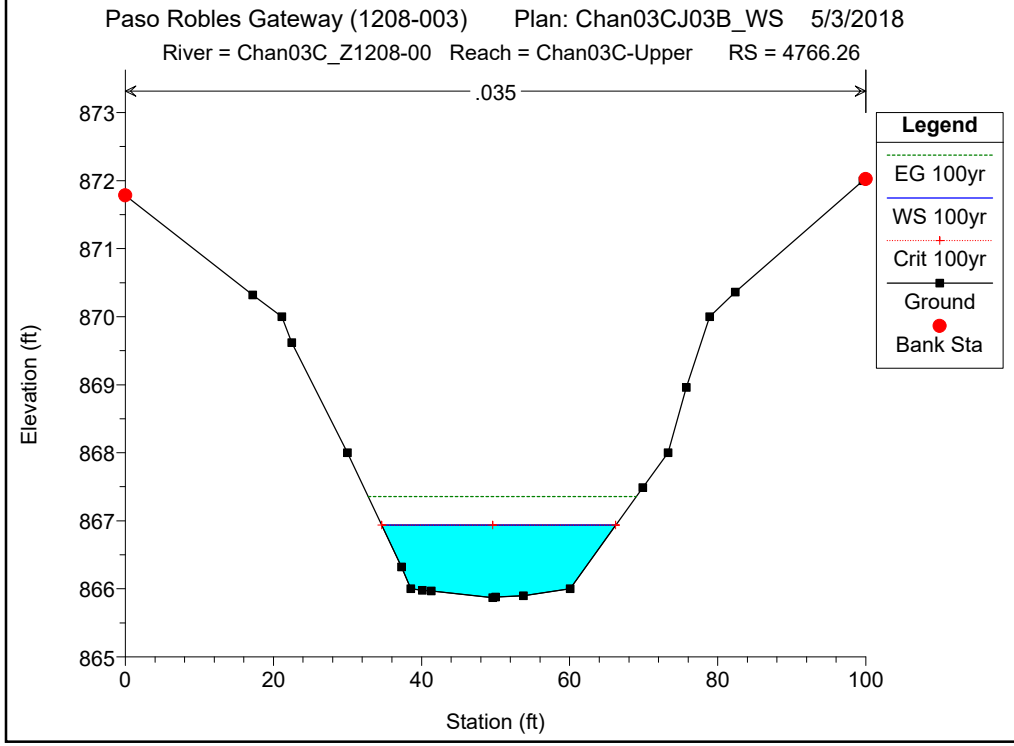
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 4766.26
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Legend
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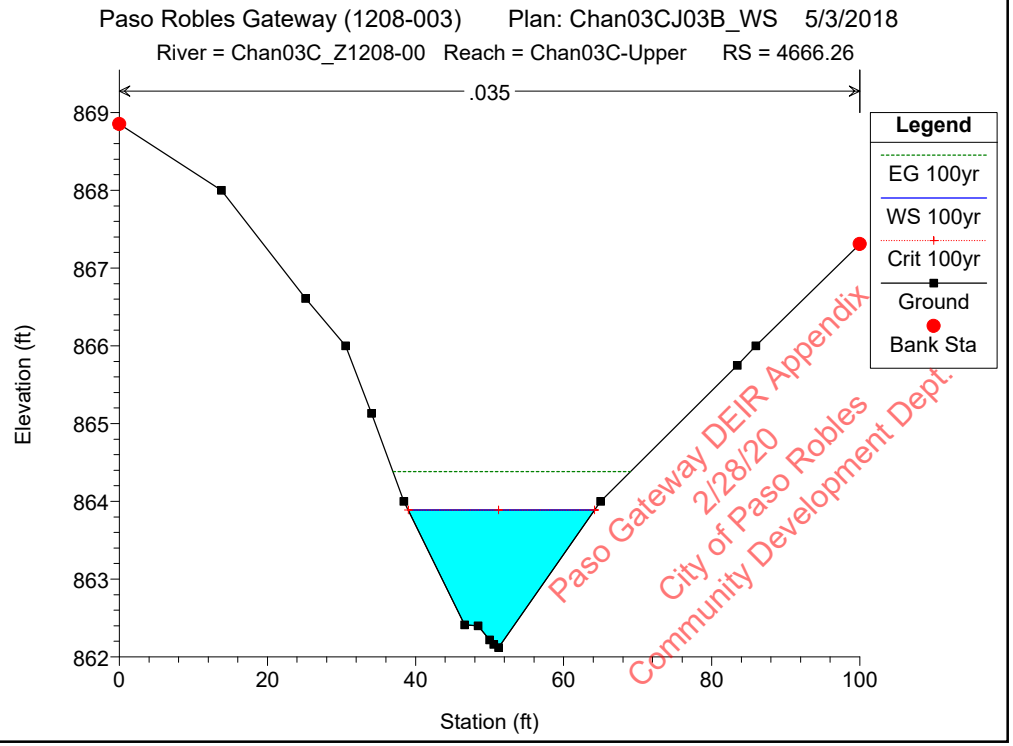
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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Legend
EG 100yr
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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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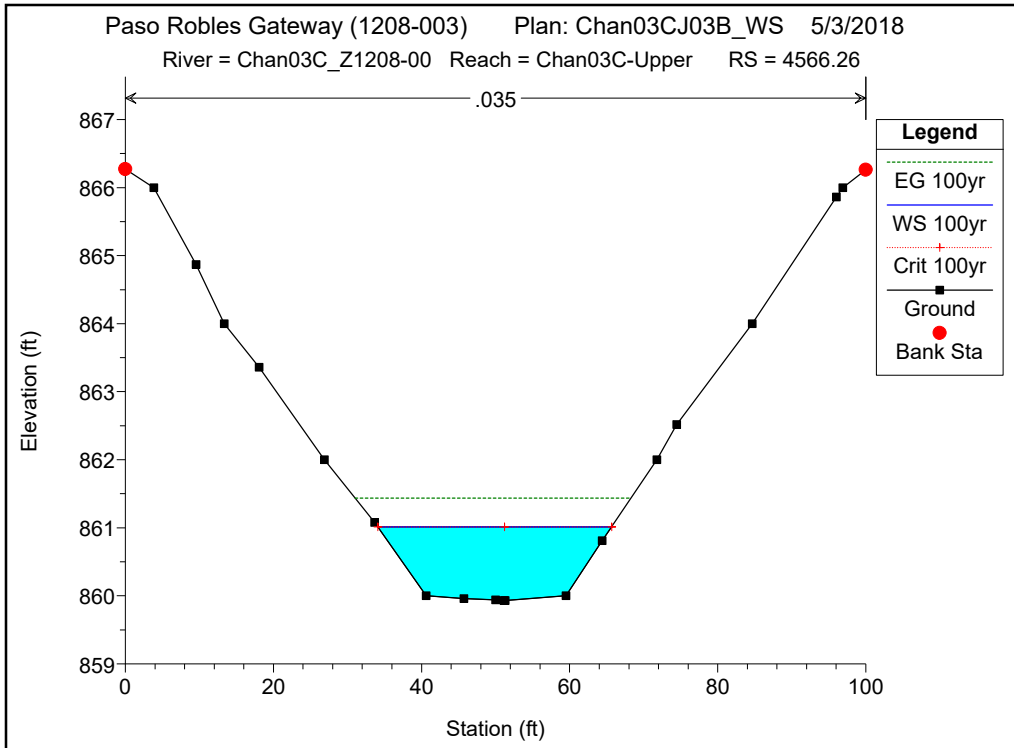
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Legend
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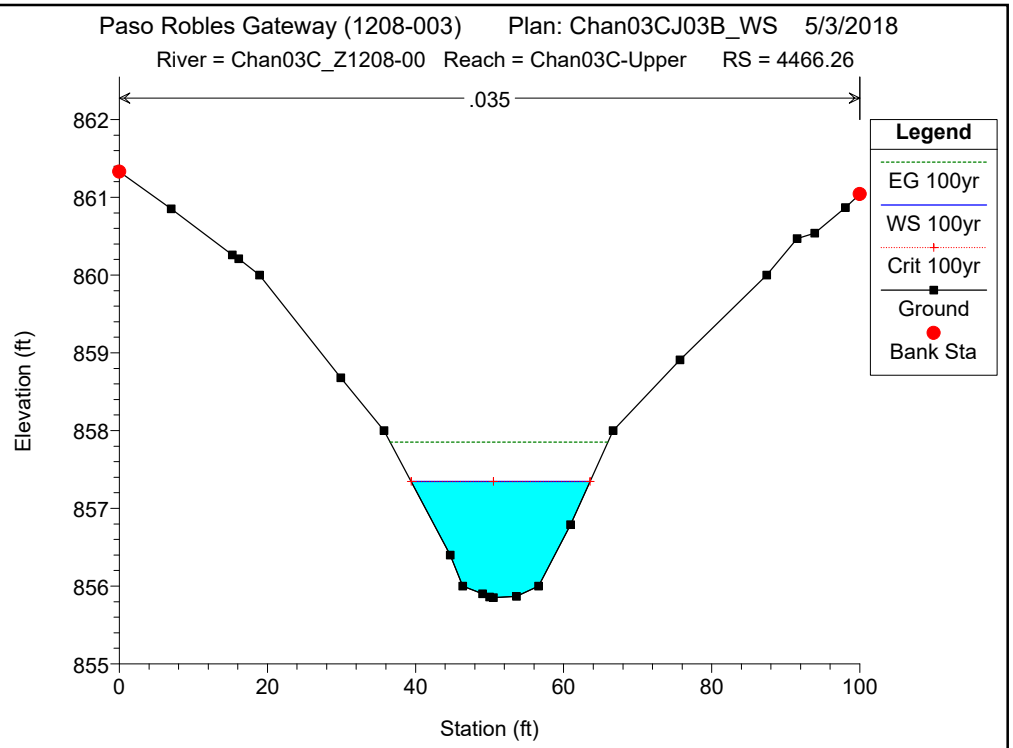
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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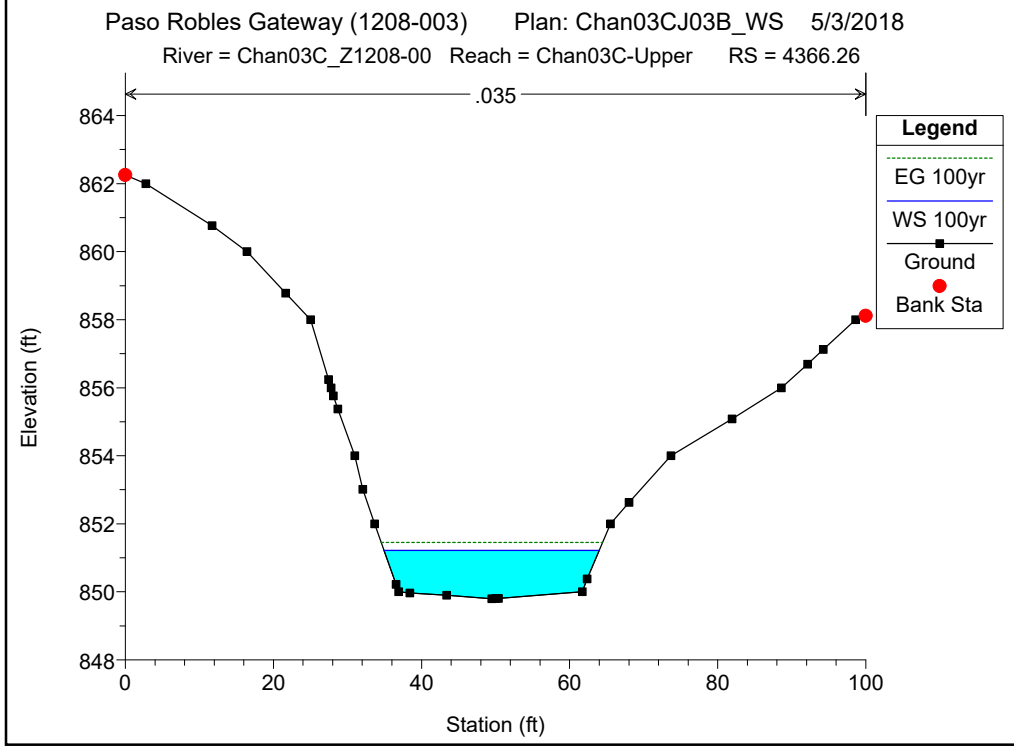
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 4366.26
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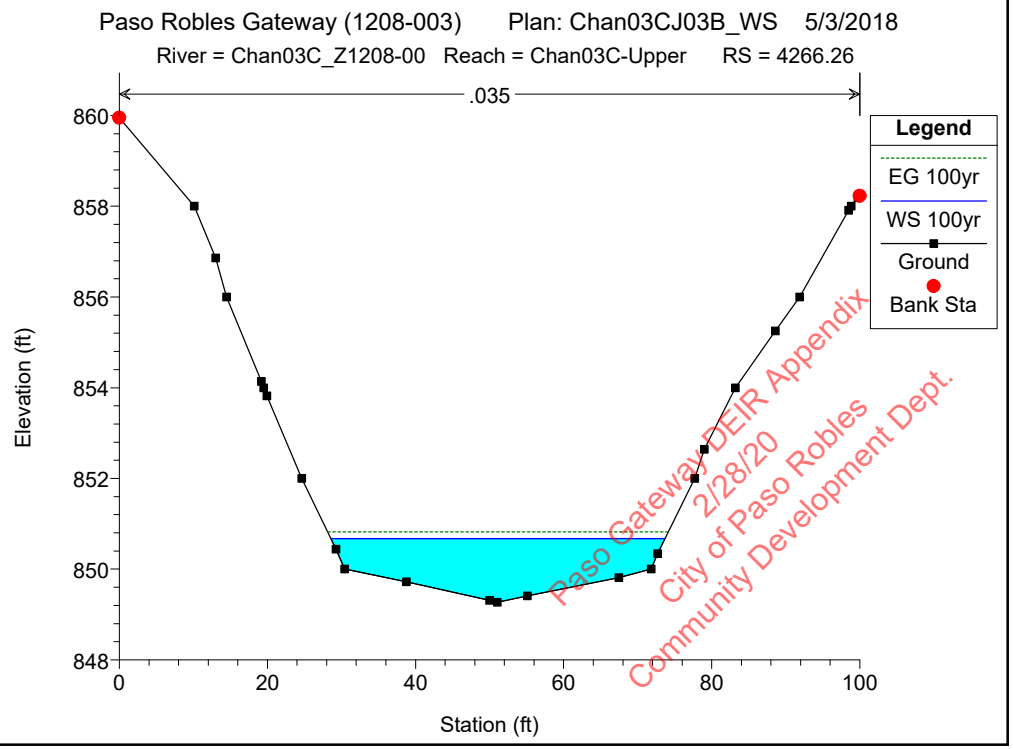
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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Legend
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WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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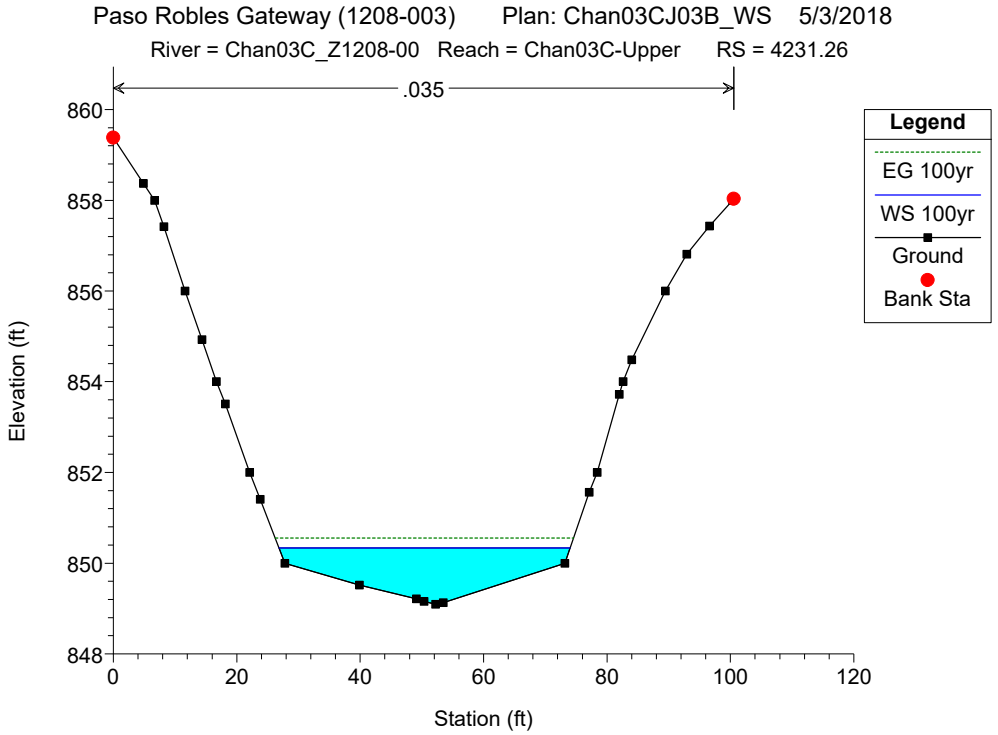
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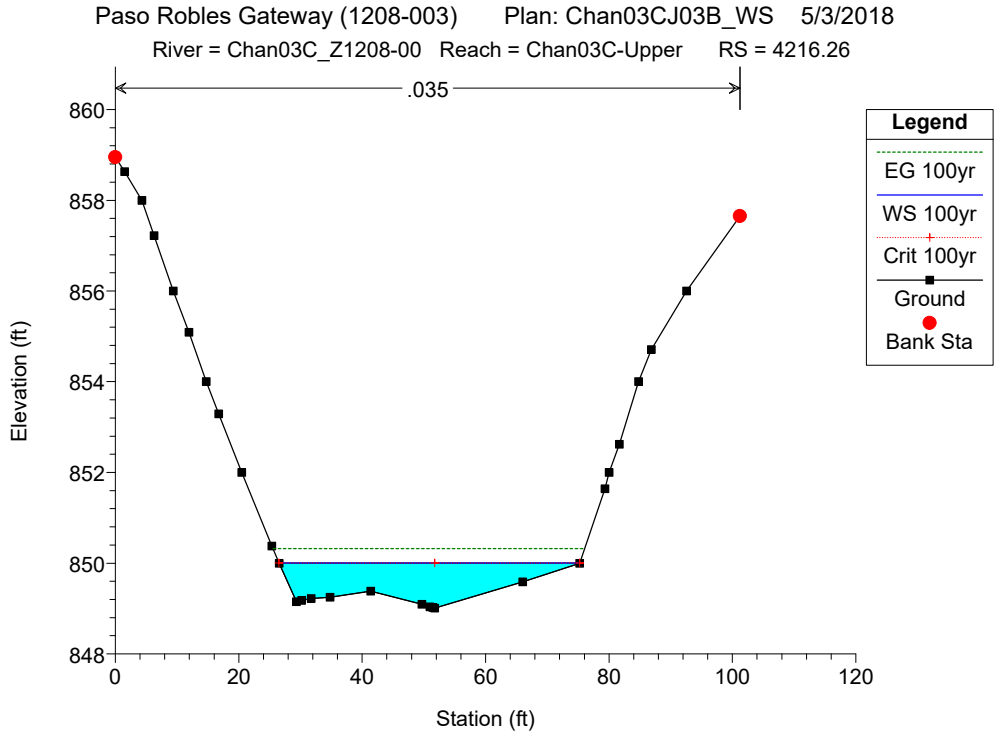
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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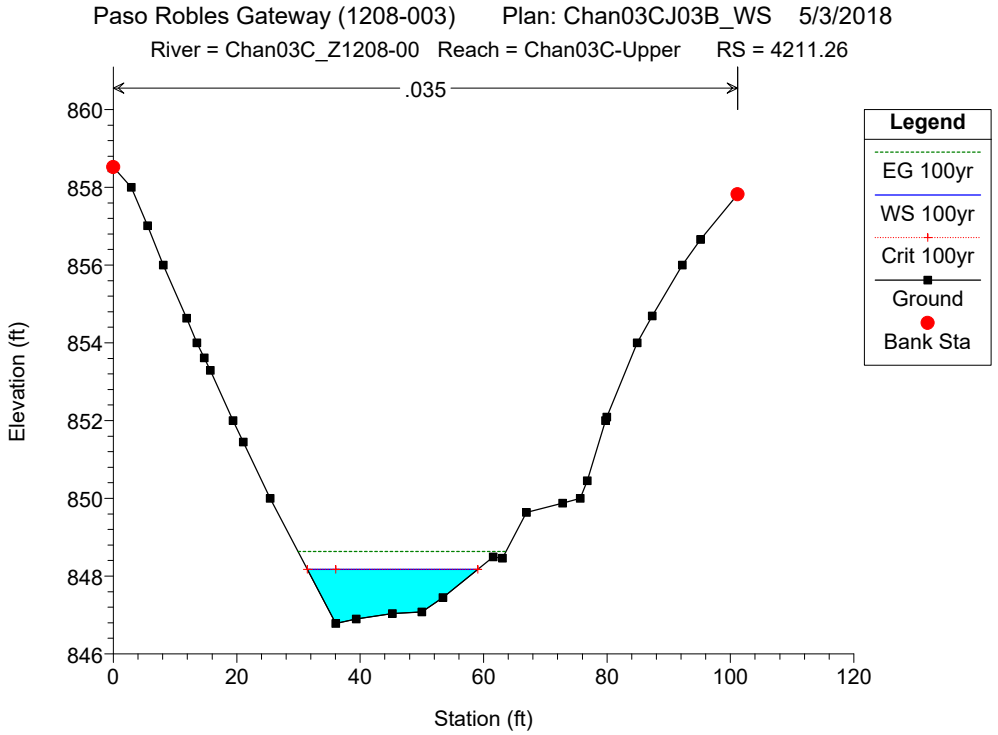
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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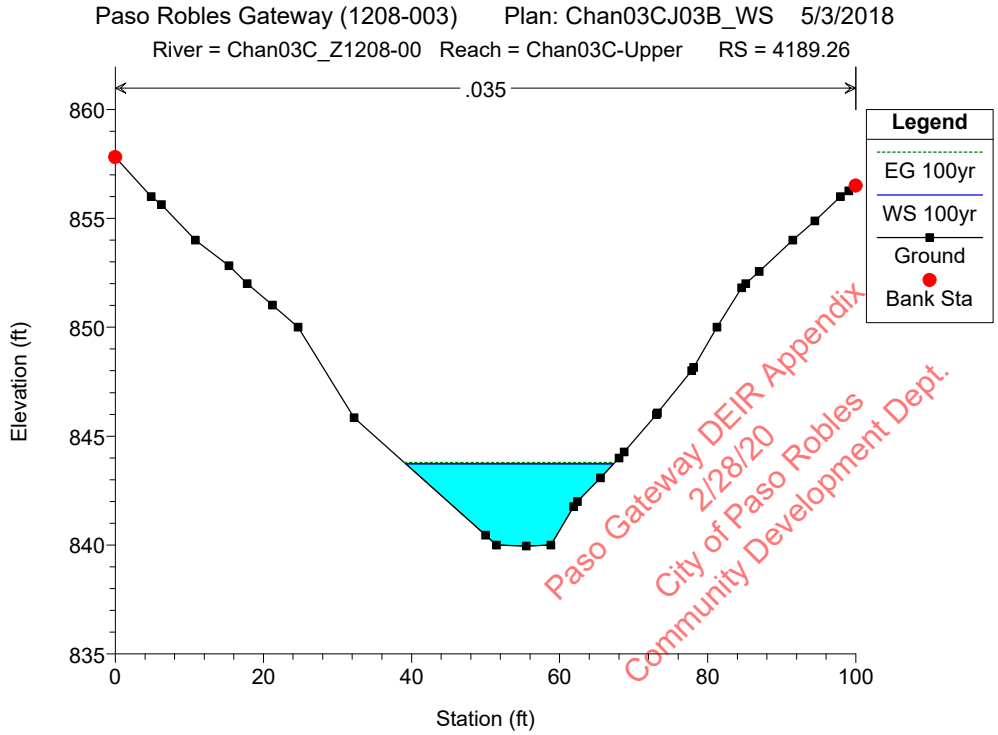
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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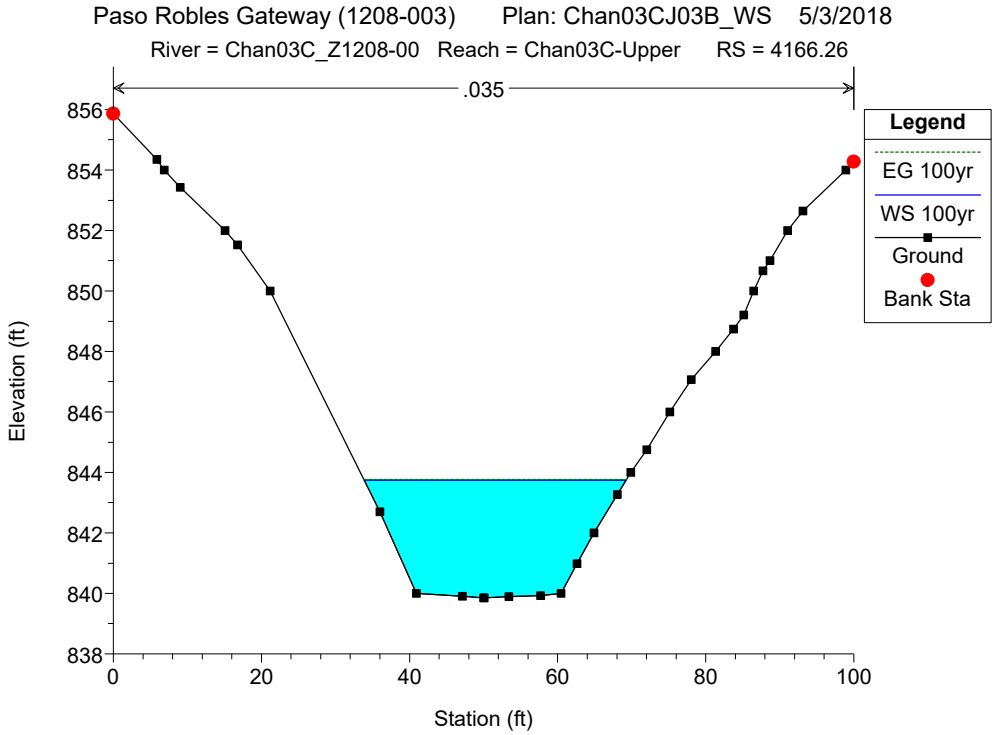
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 4166.26
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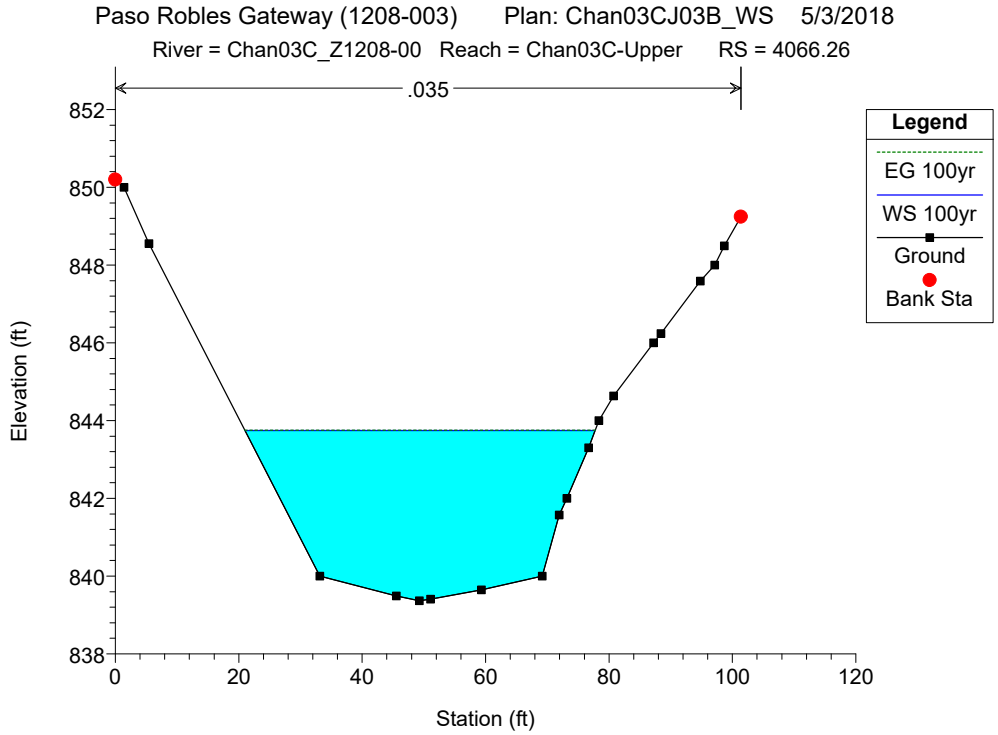
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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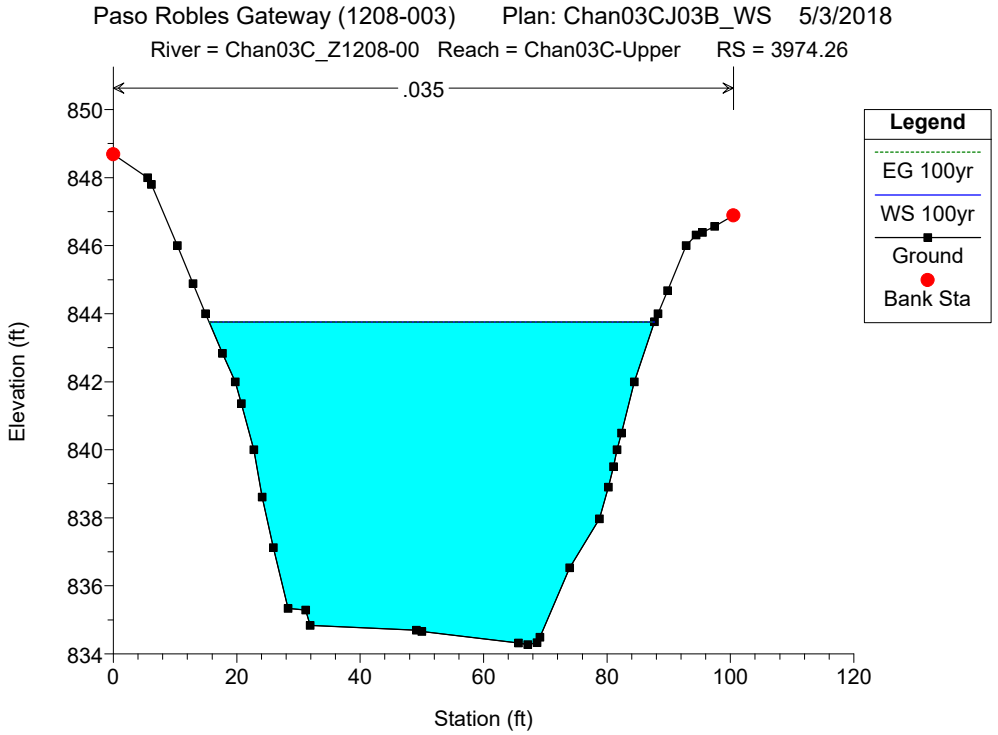
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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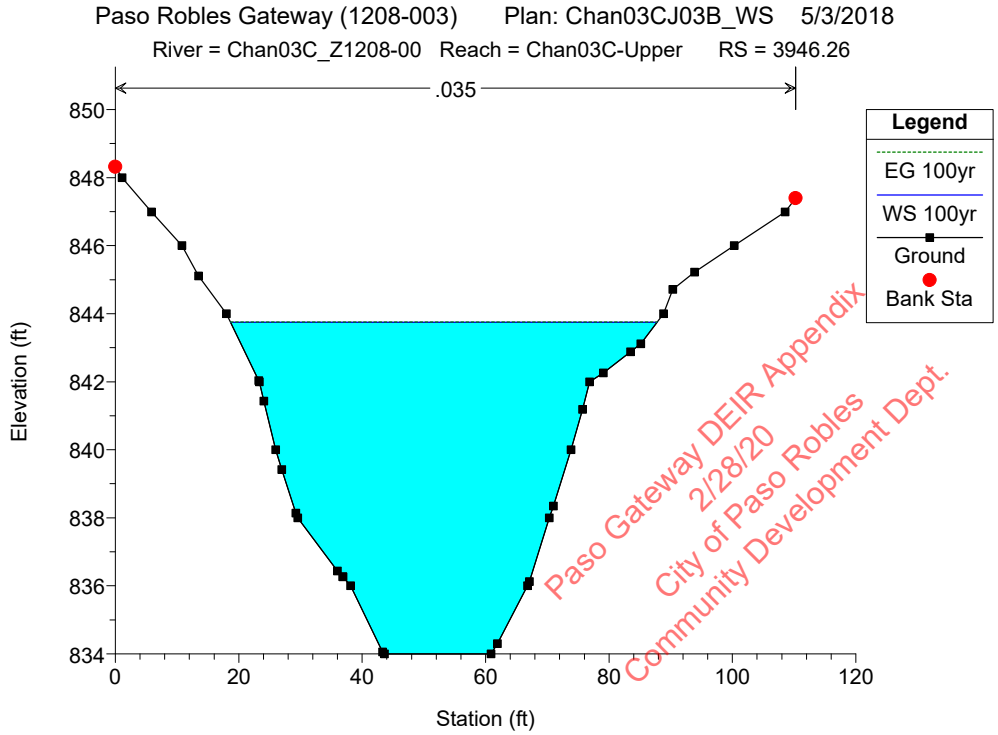
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 3946.26
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Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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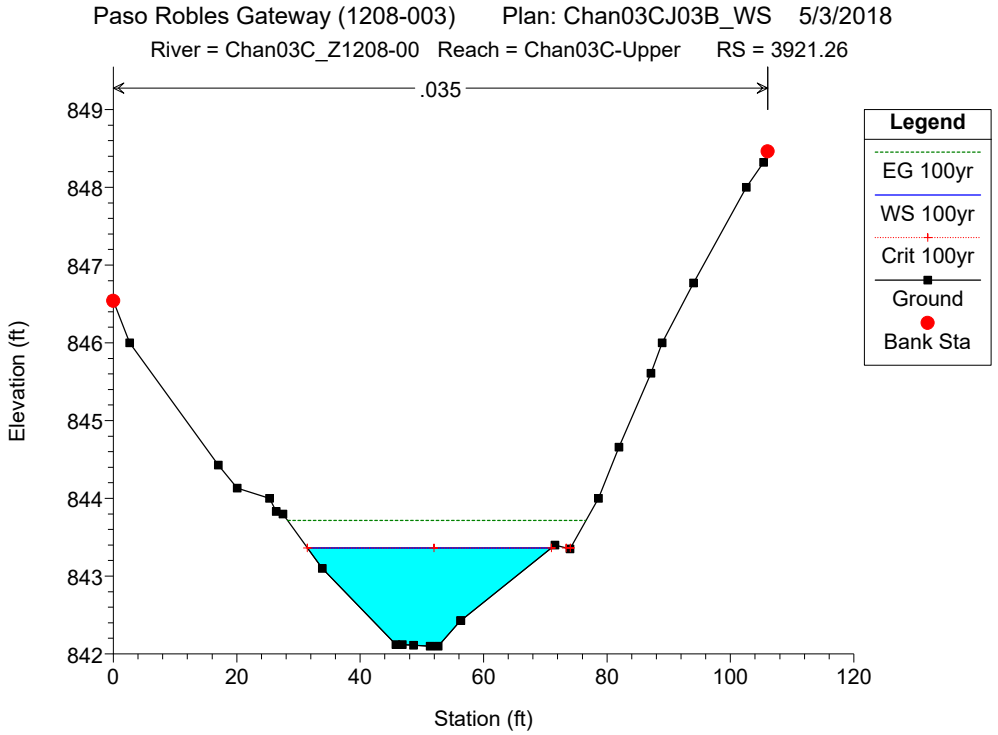
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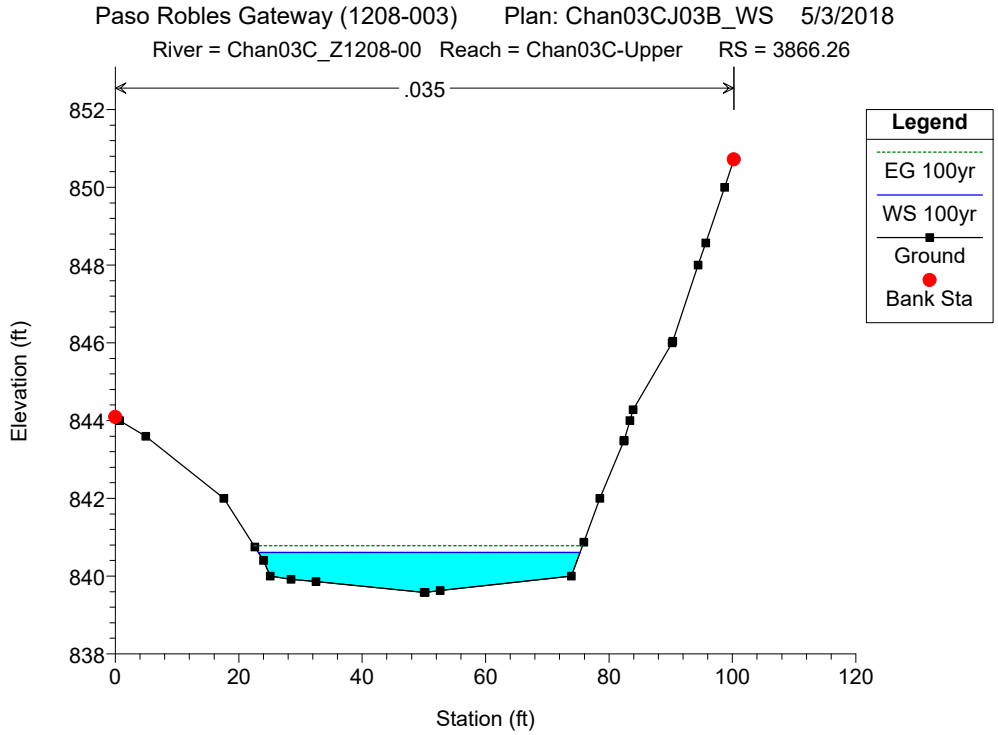
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 3866.26
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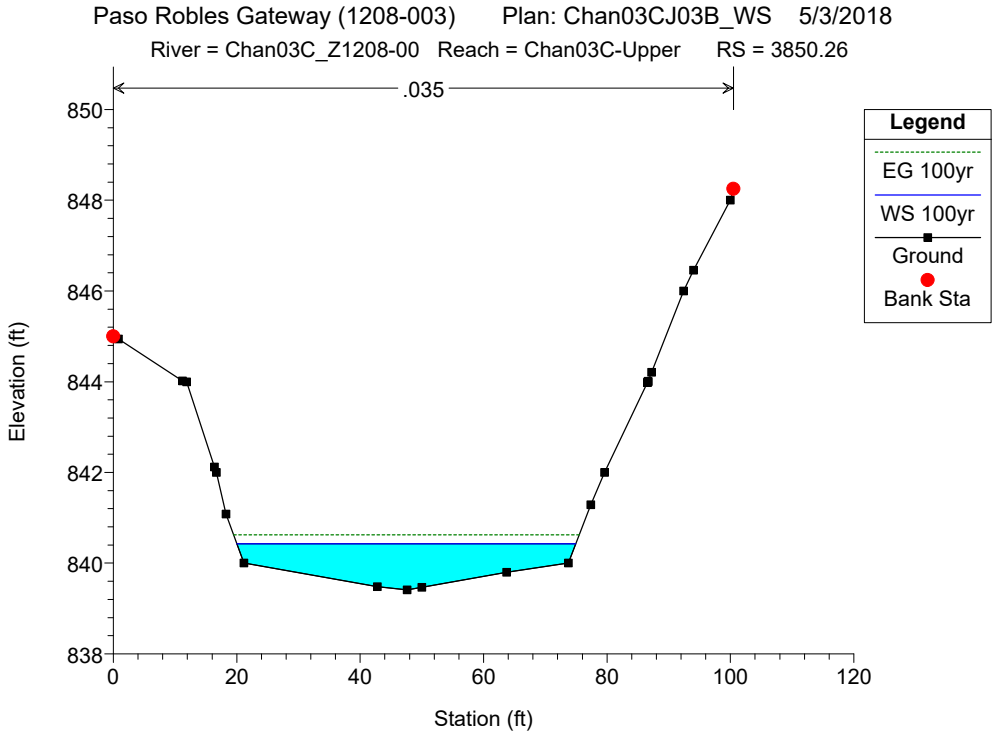
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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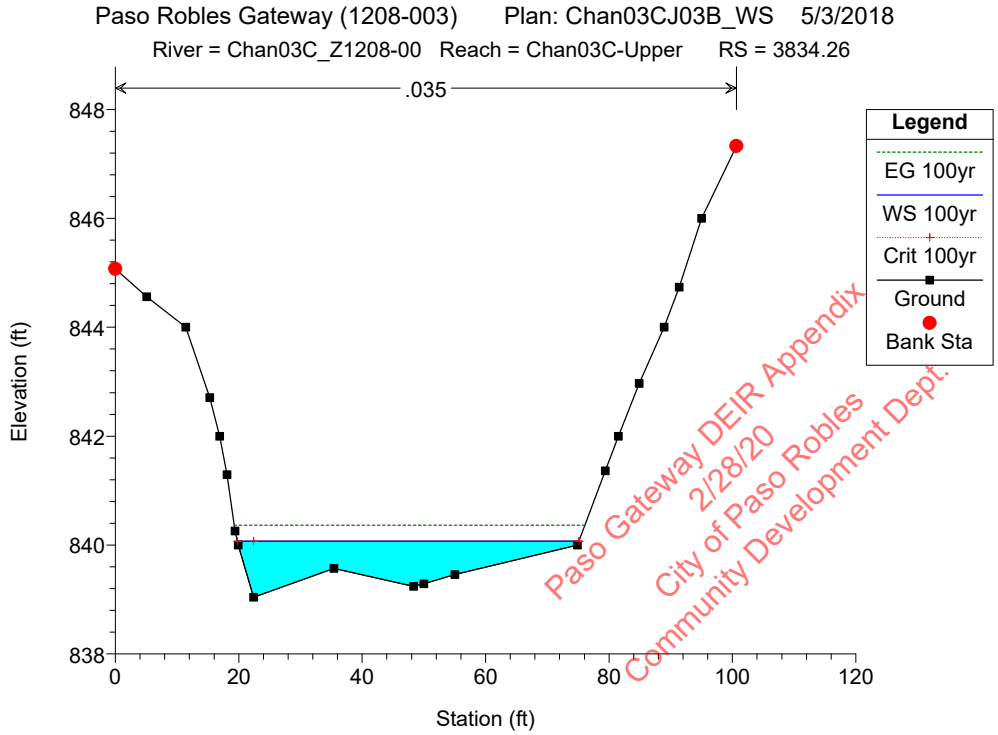
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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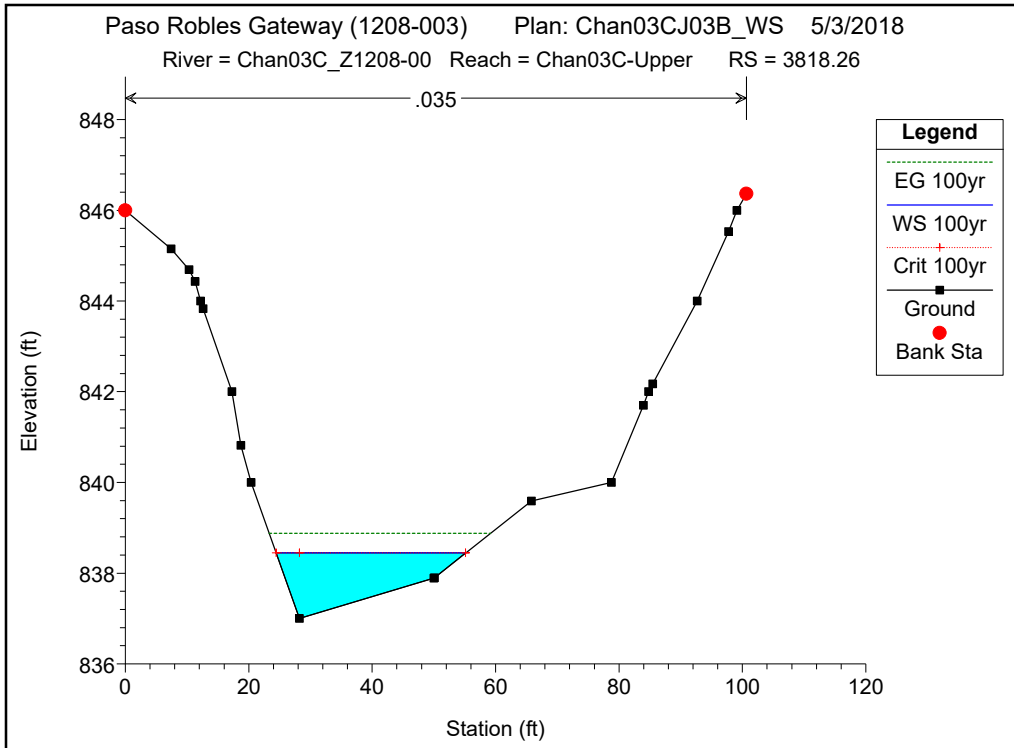
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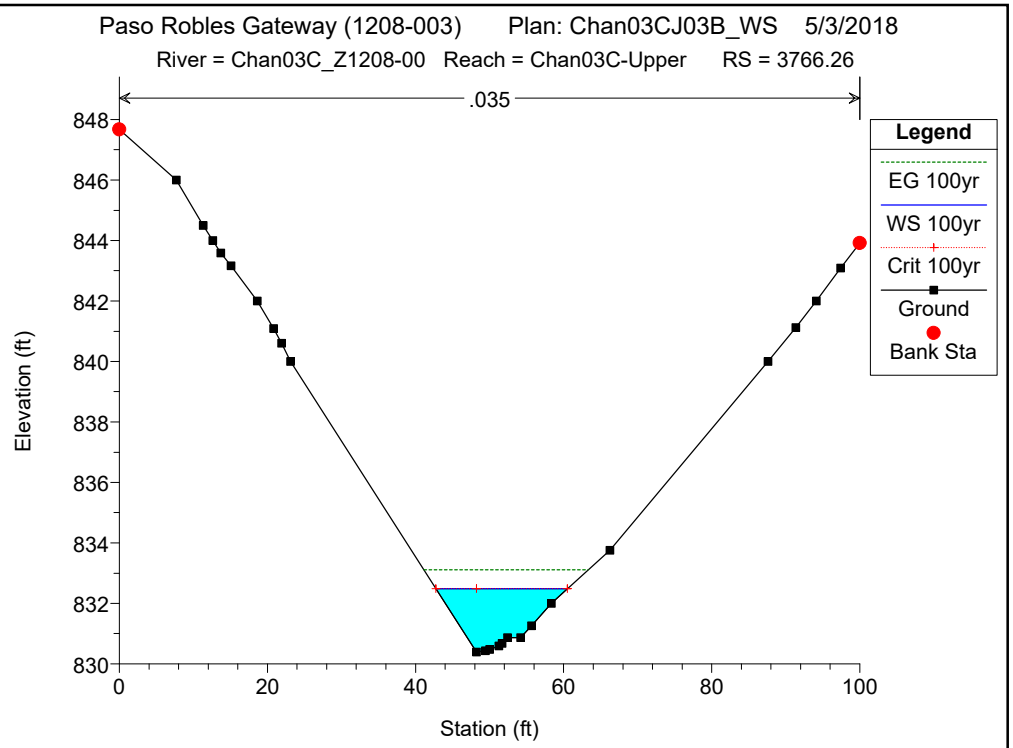
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 3766.26
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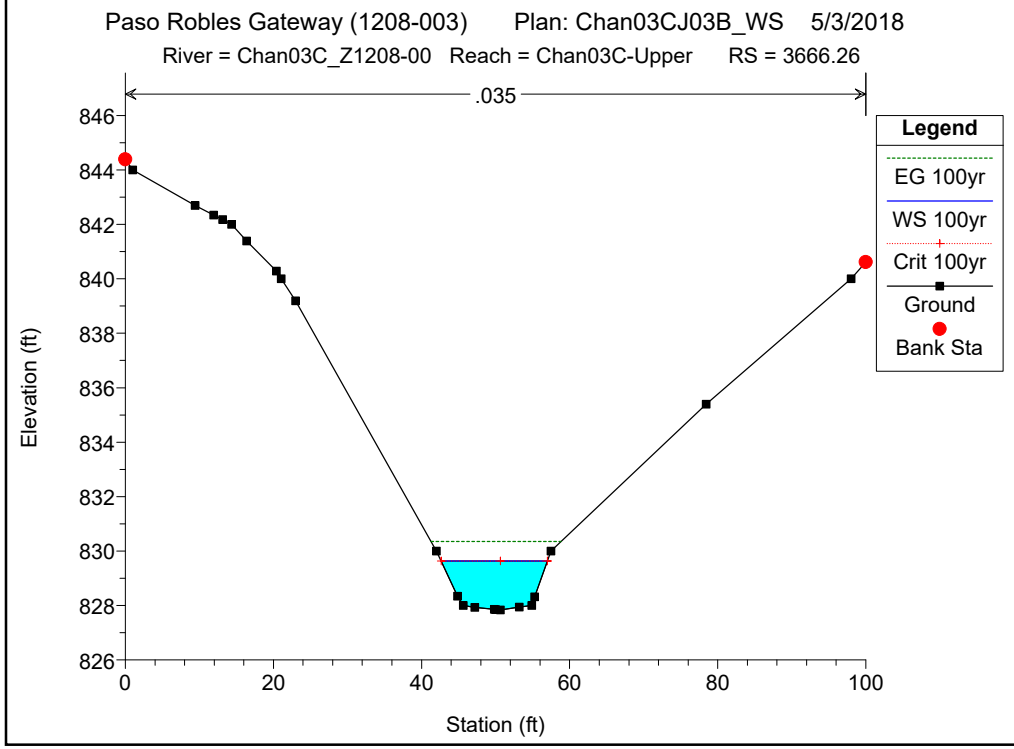
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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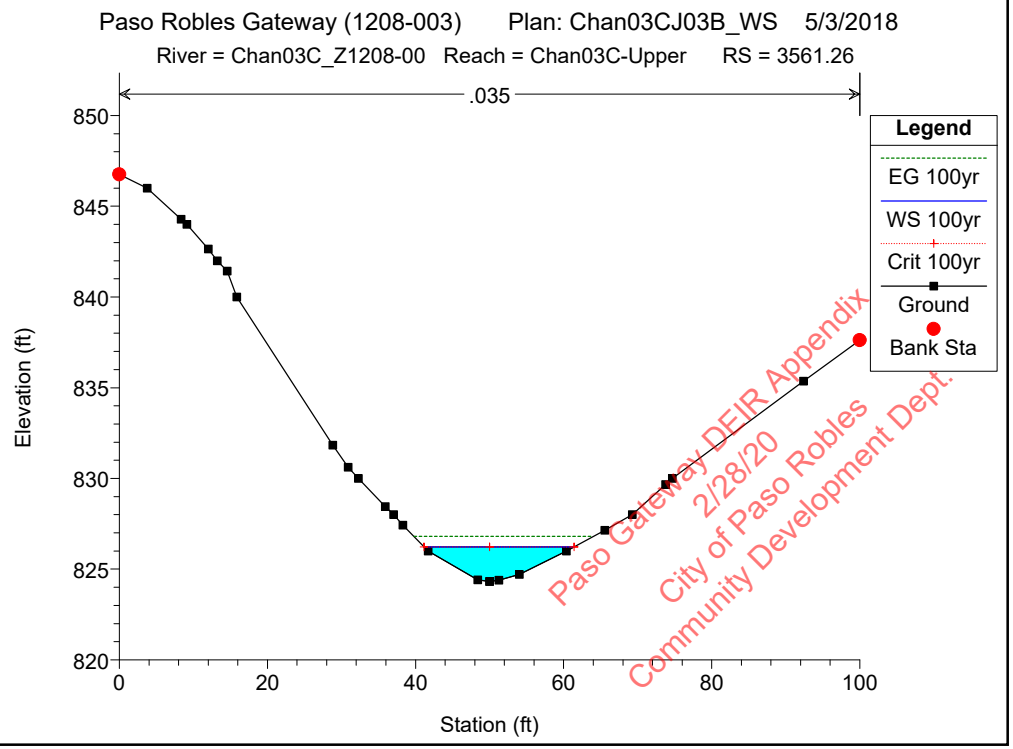
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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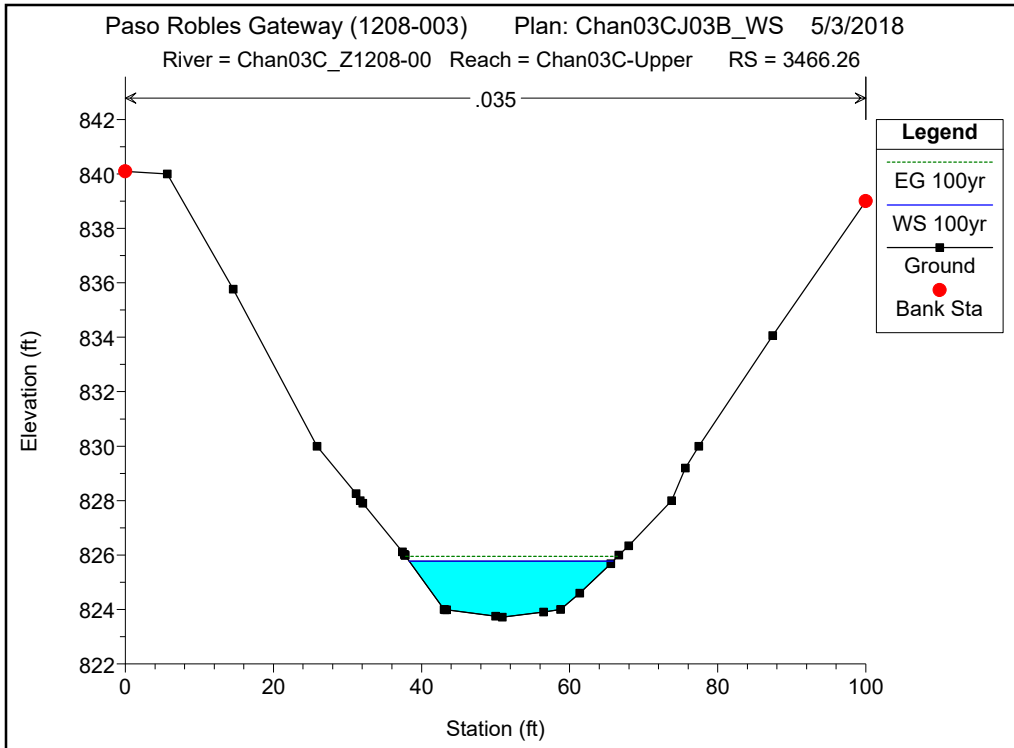
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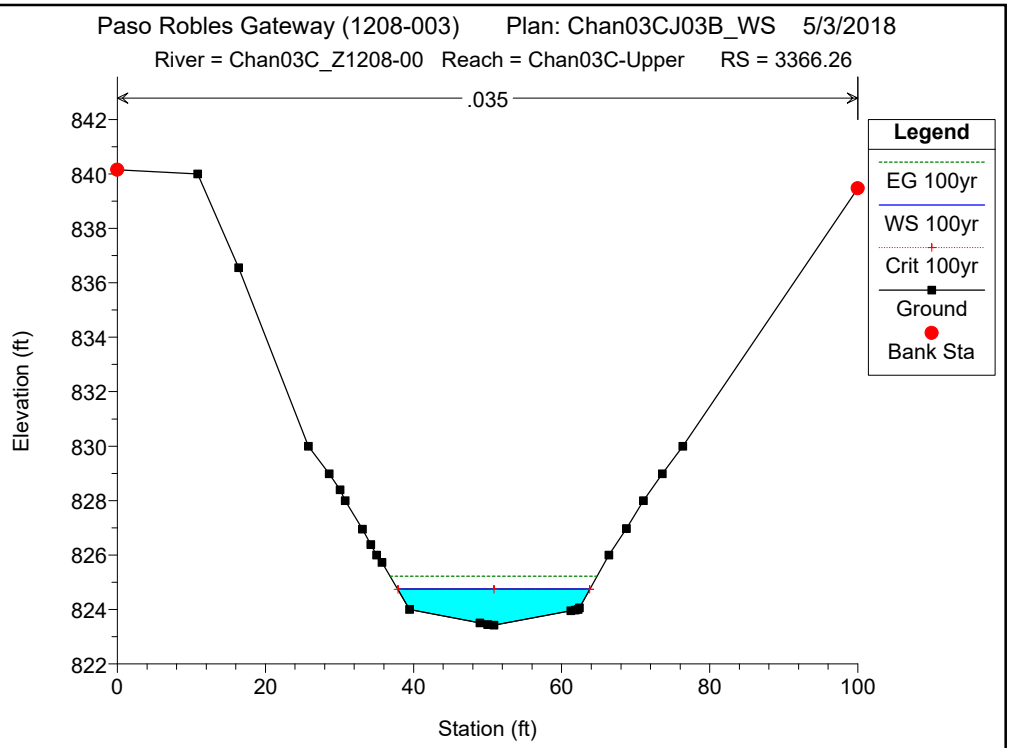
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 3366.26
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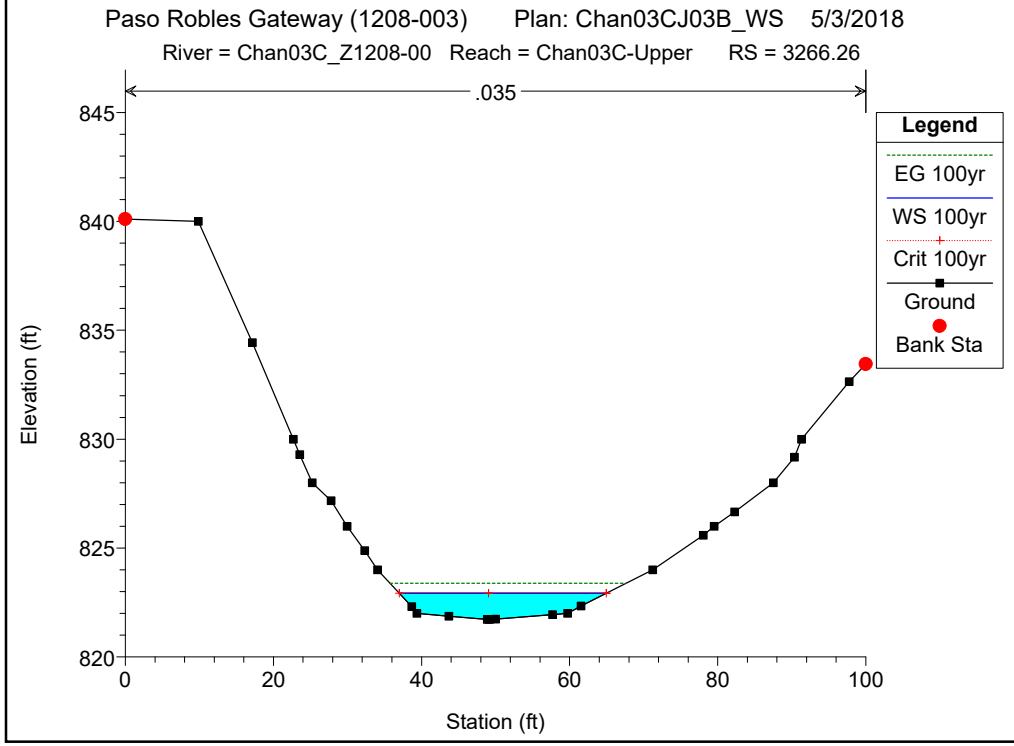
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 3266.26
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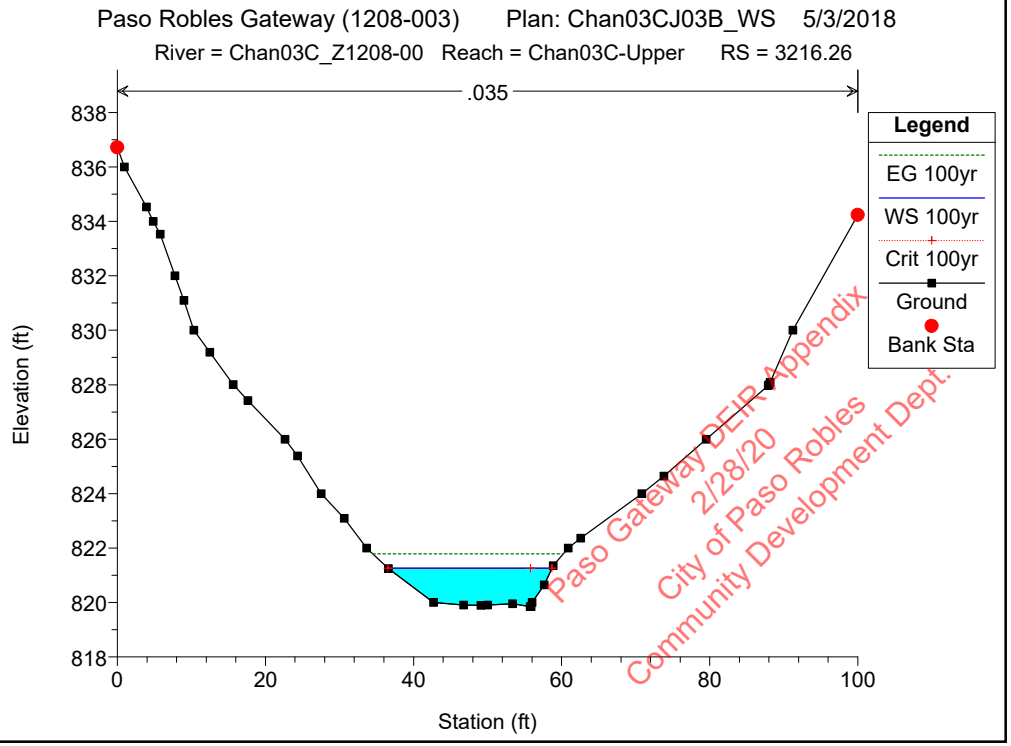
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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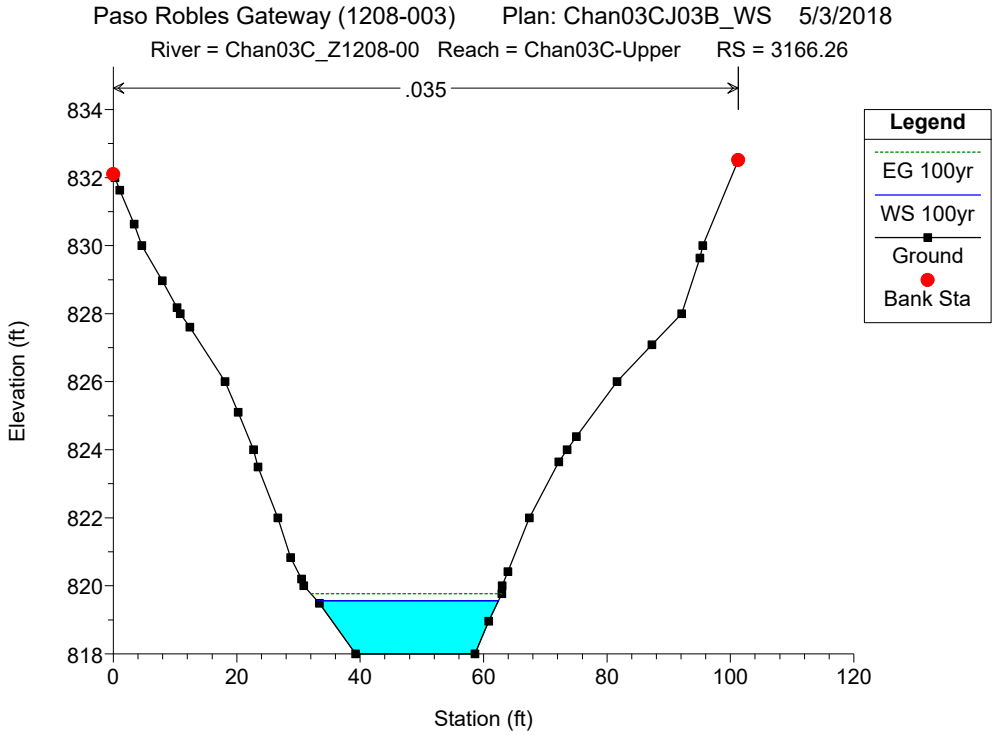
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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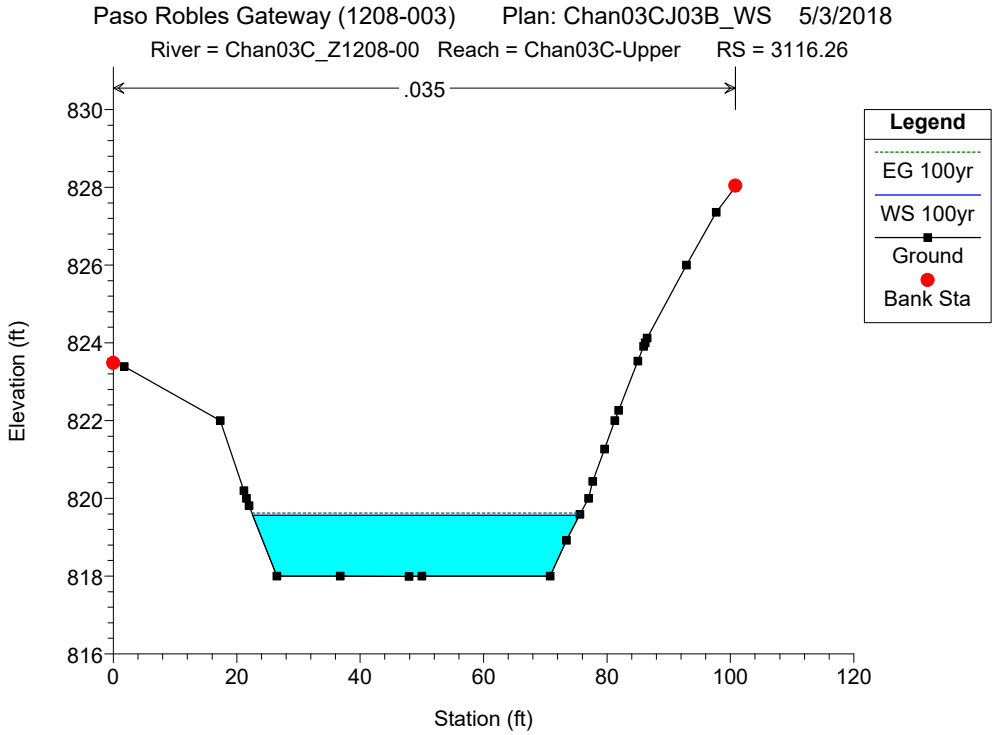
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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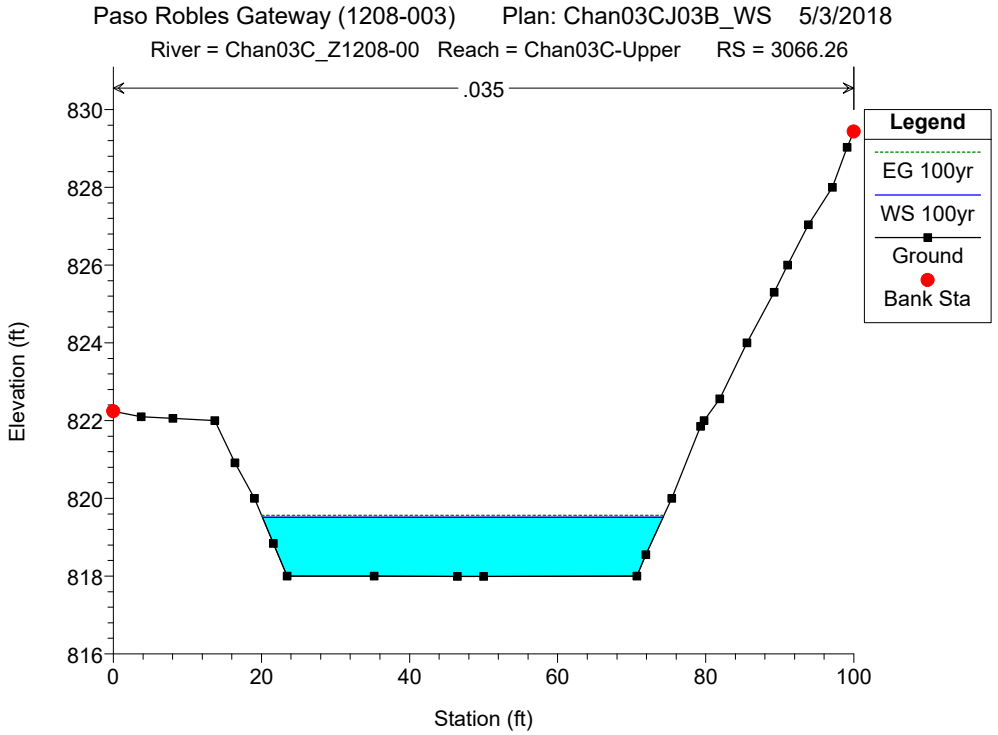
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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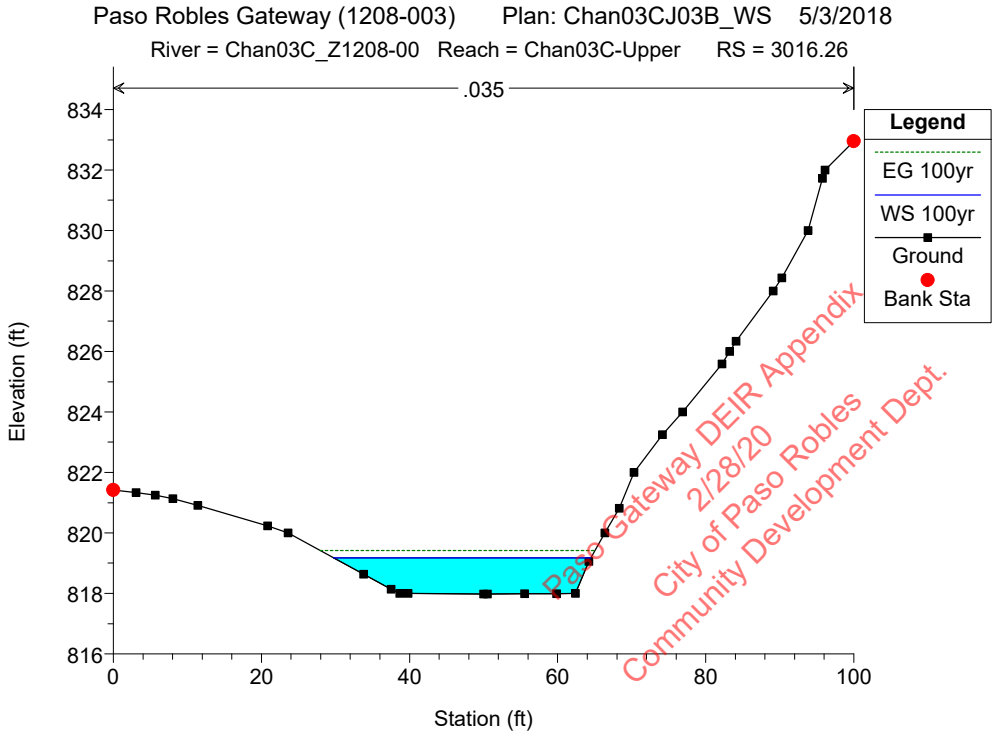
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.035
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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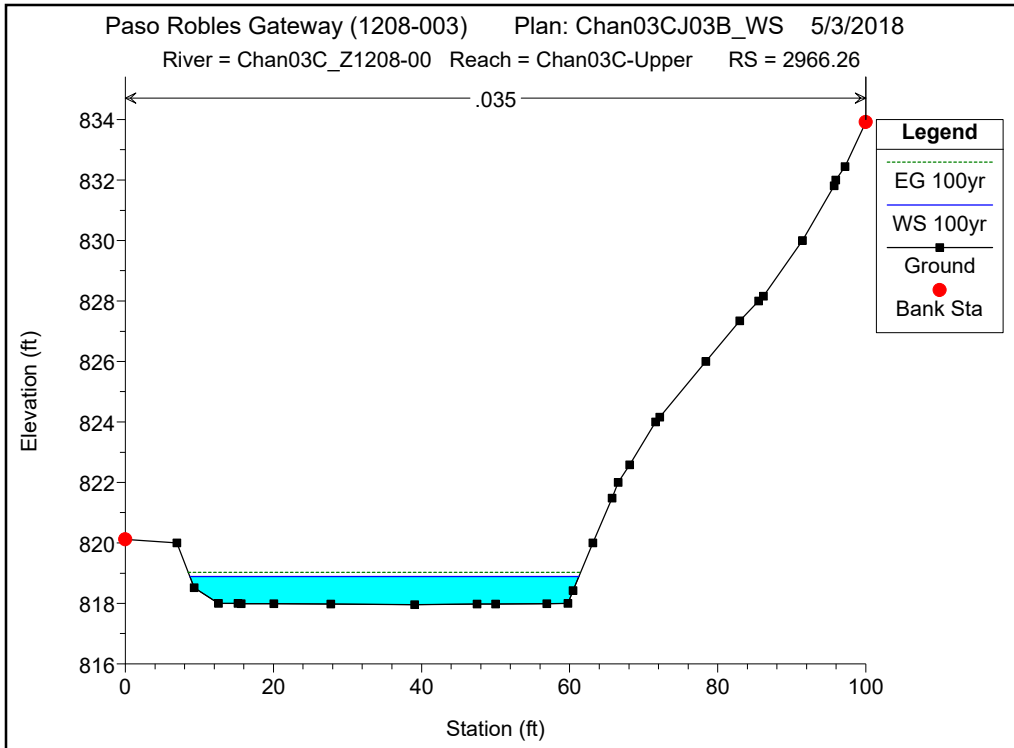
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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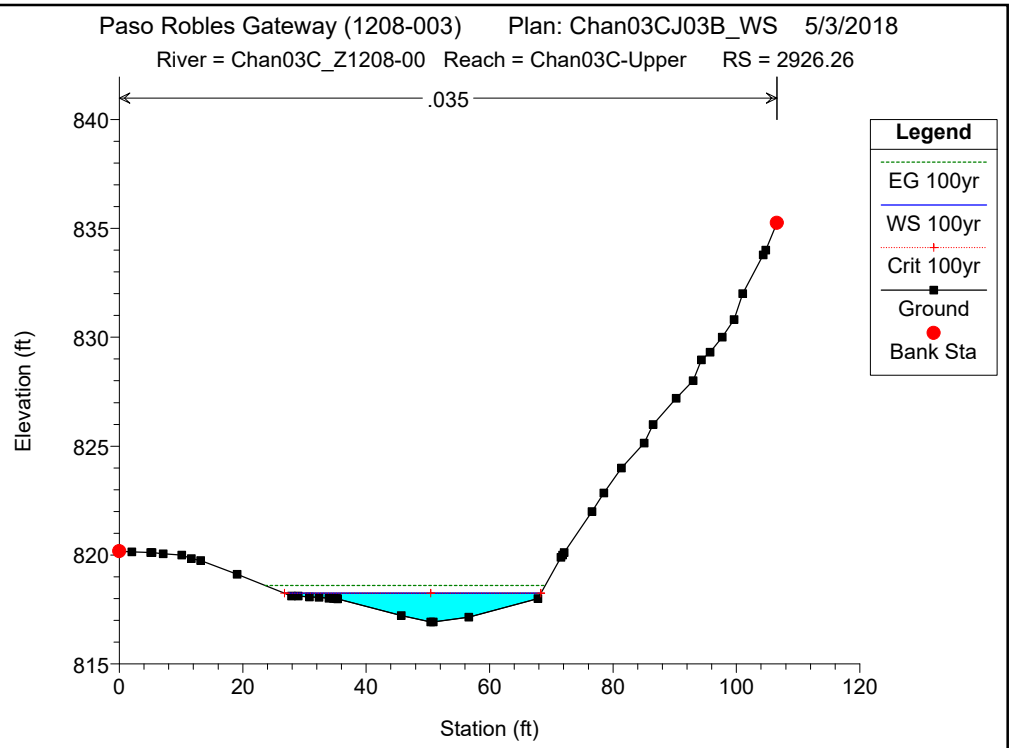
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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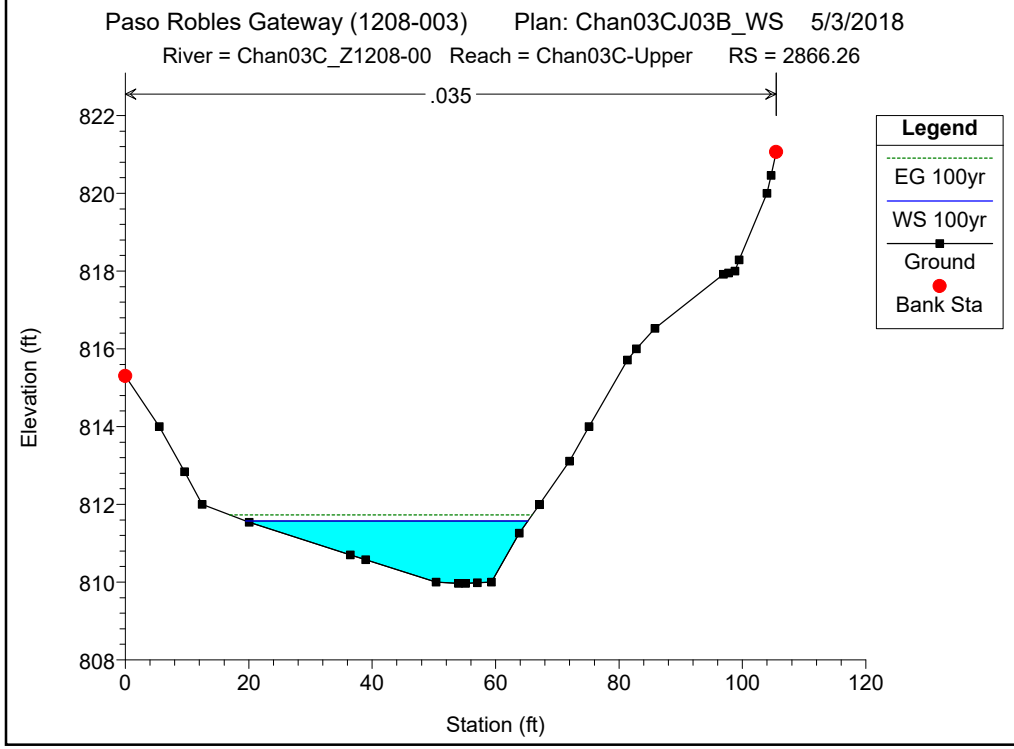
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 2866.26
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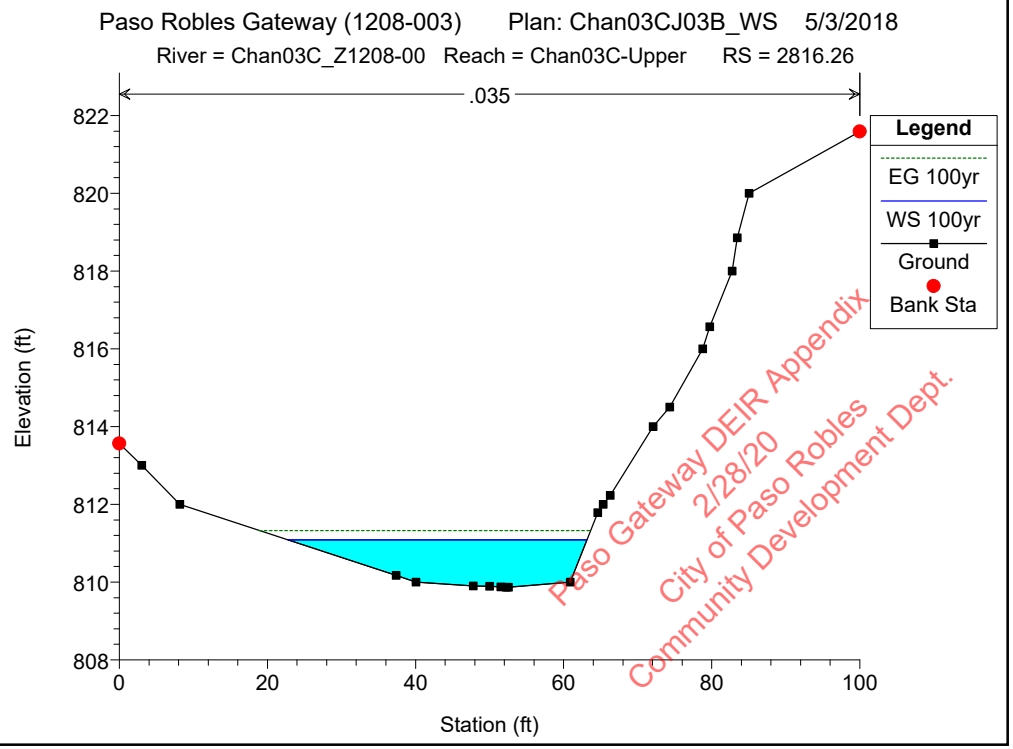
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 2816.26
.035
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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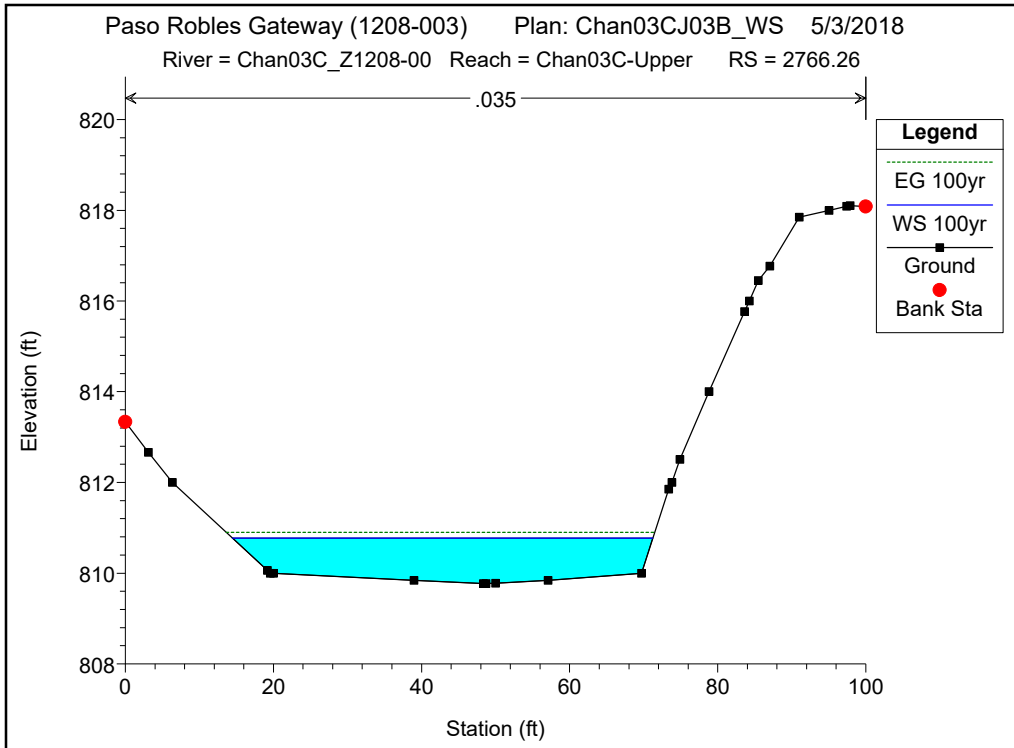
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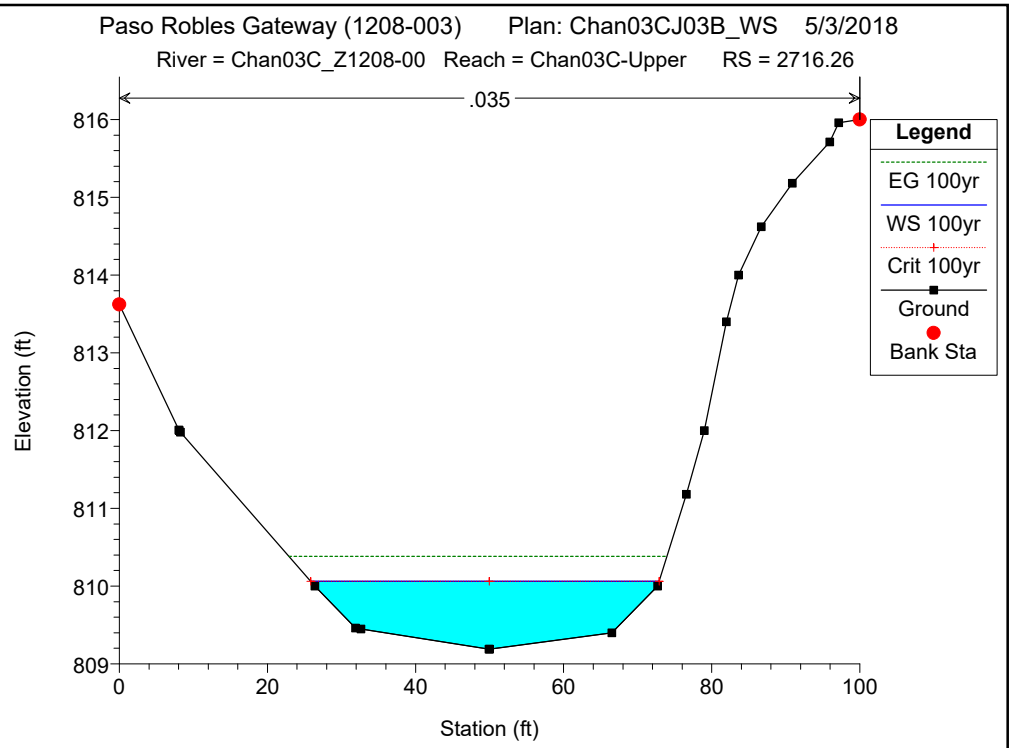
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 2716.26
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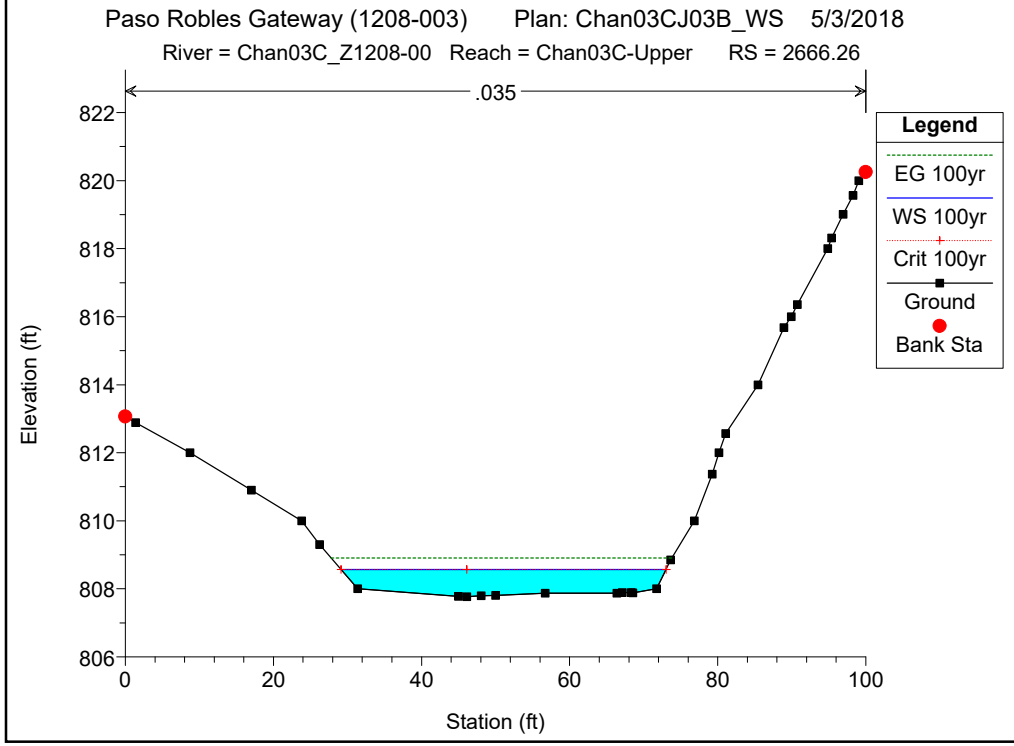
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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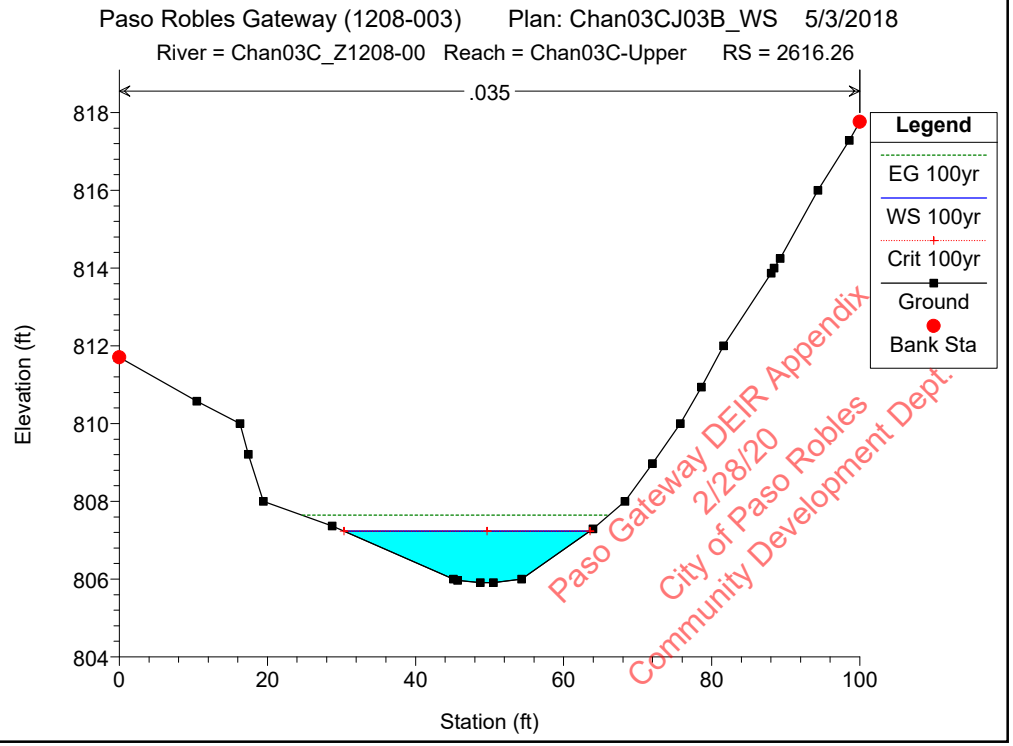
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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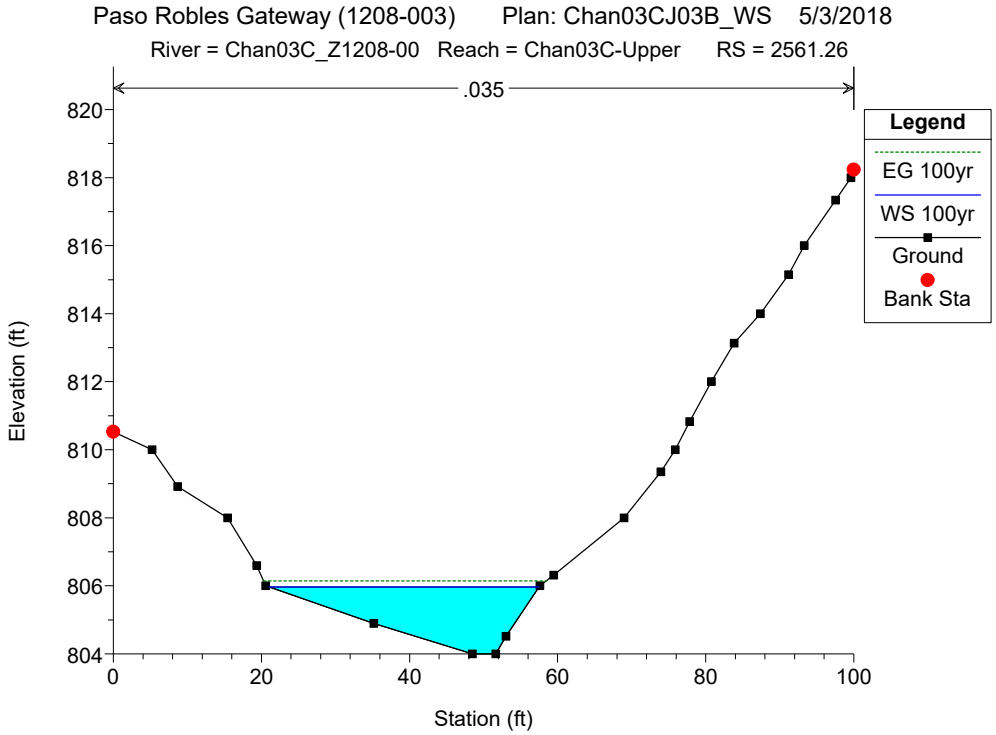
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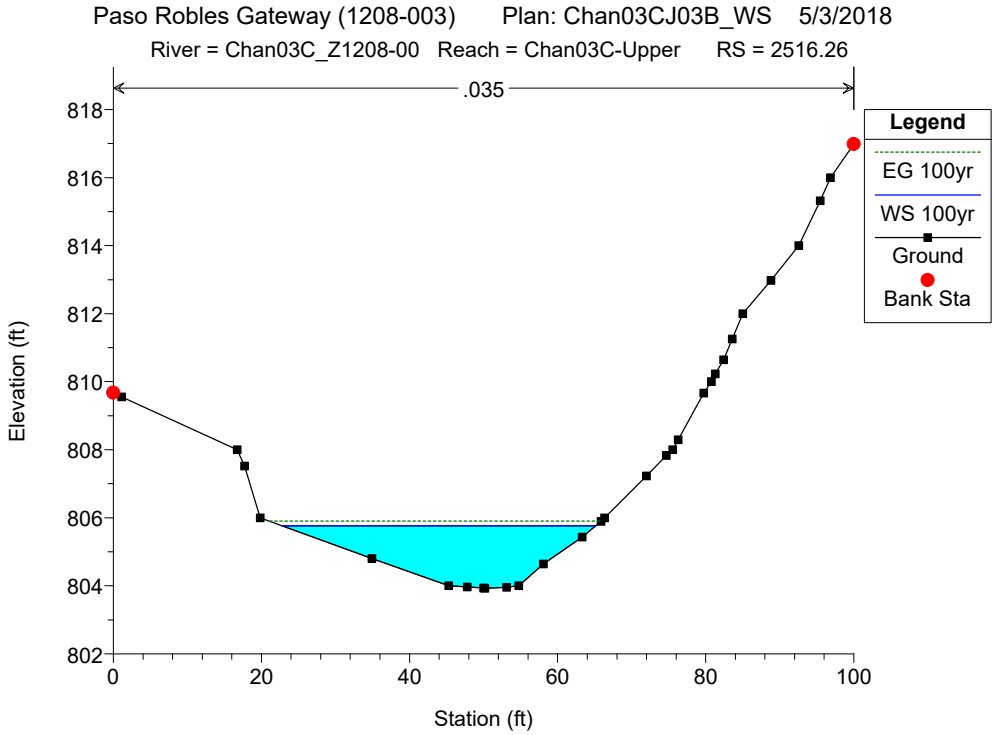
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 2516.26
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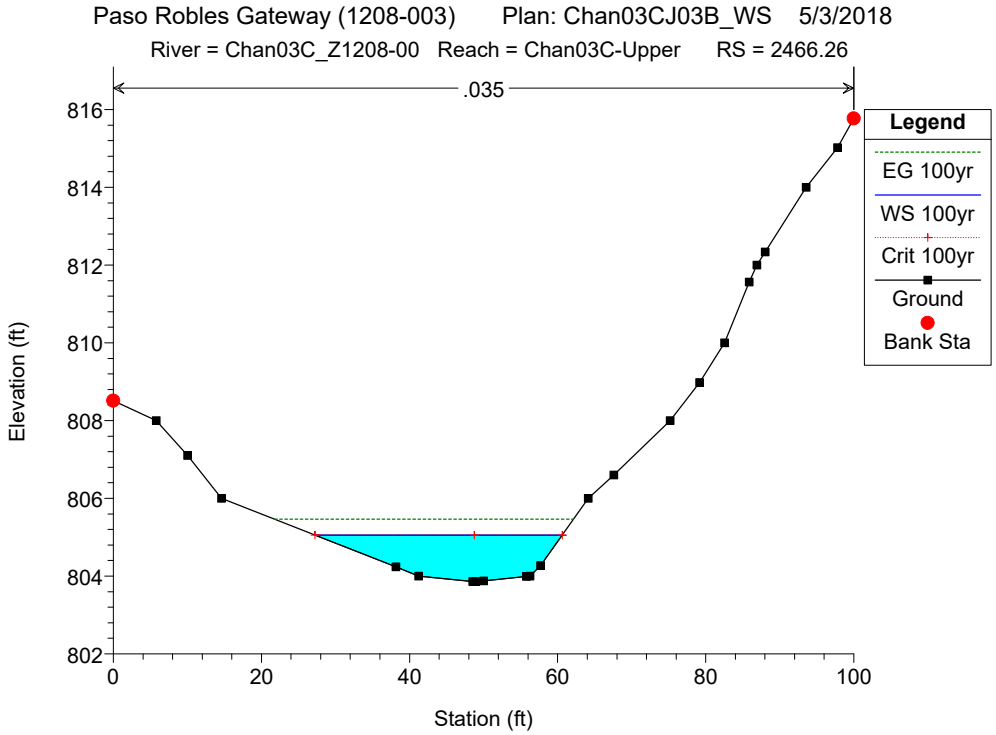
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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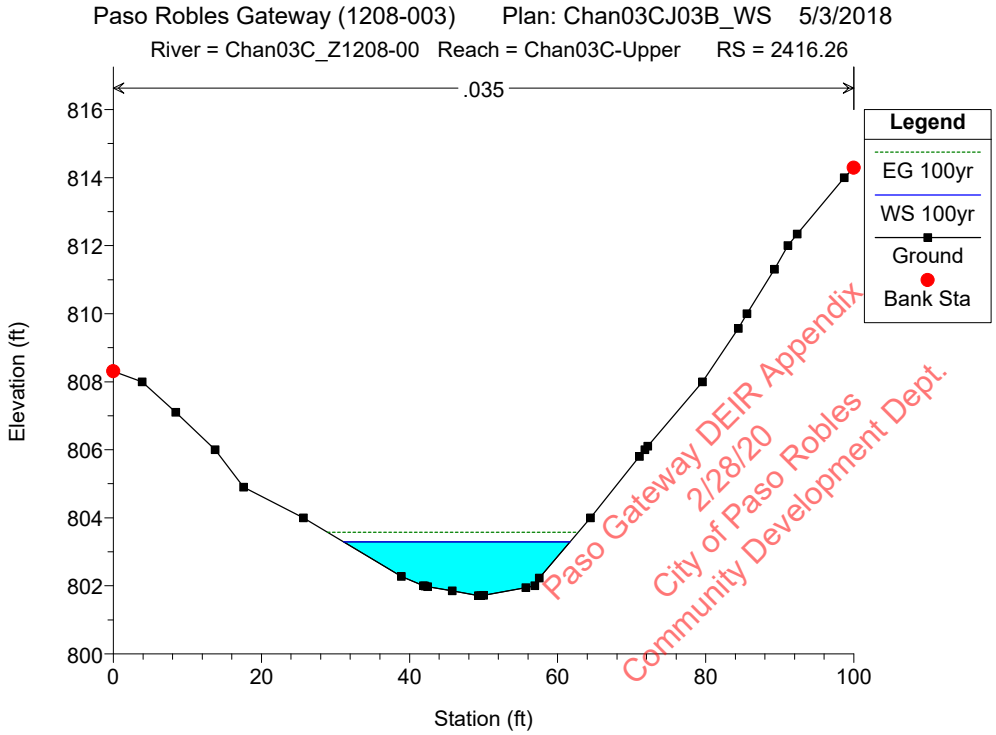
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 2416.26
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WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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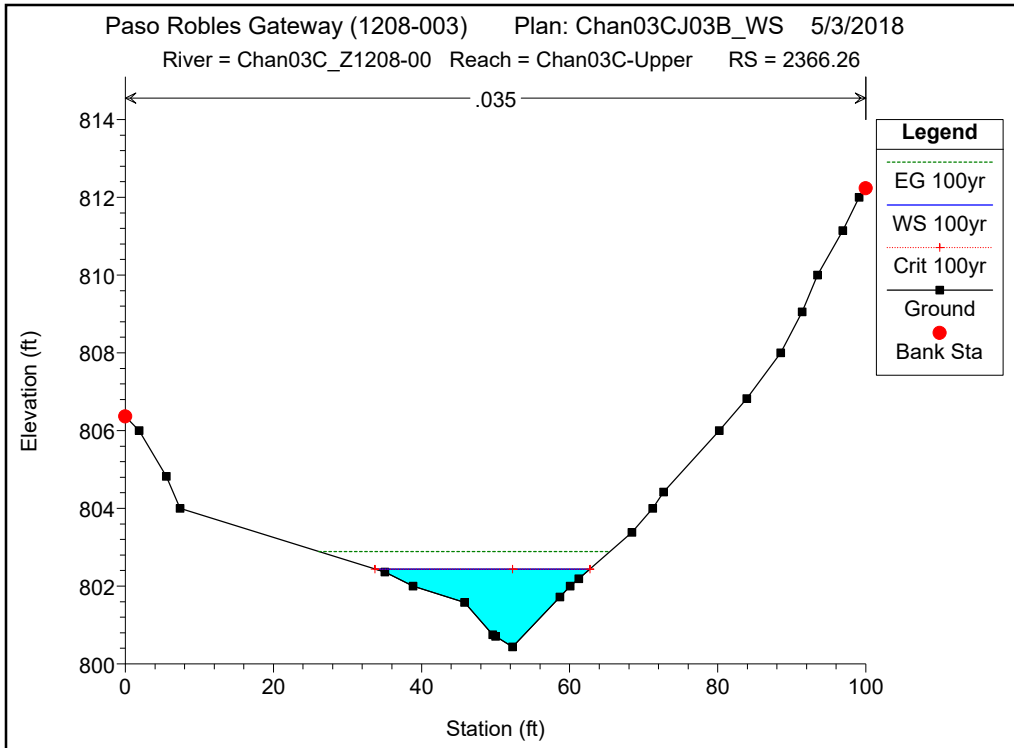
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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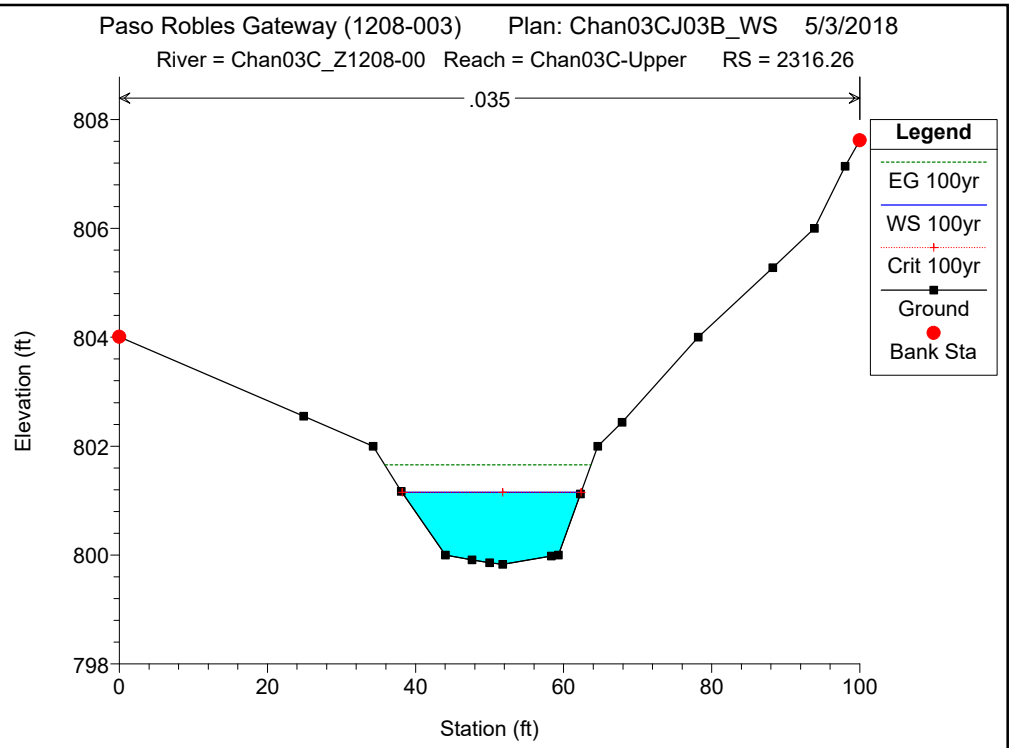
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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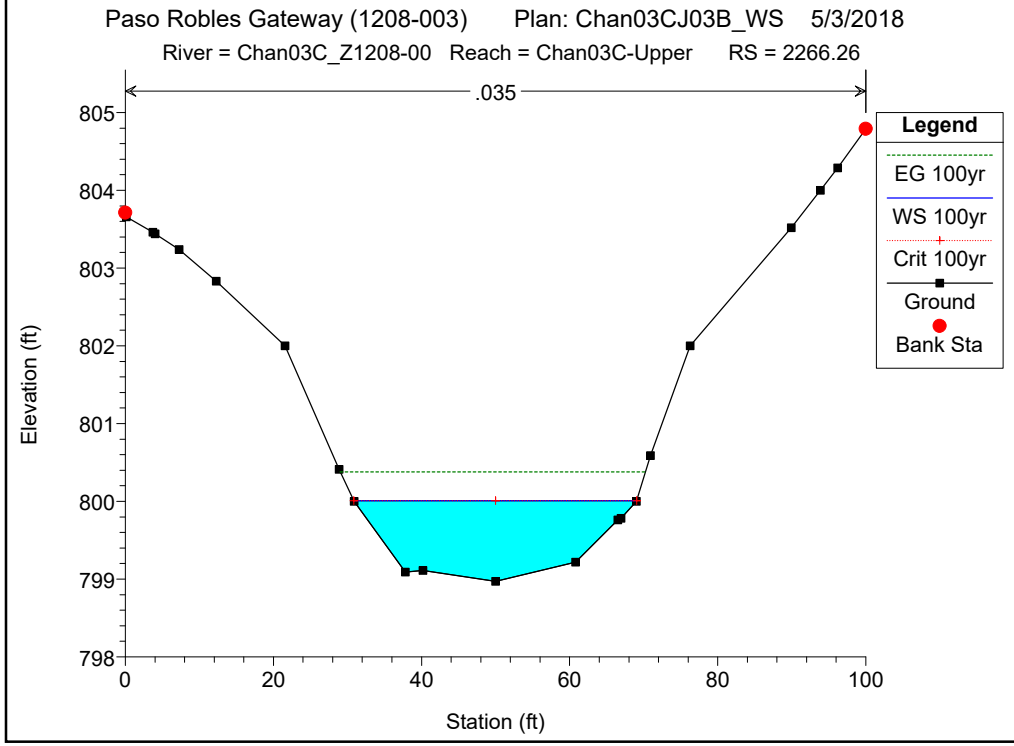
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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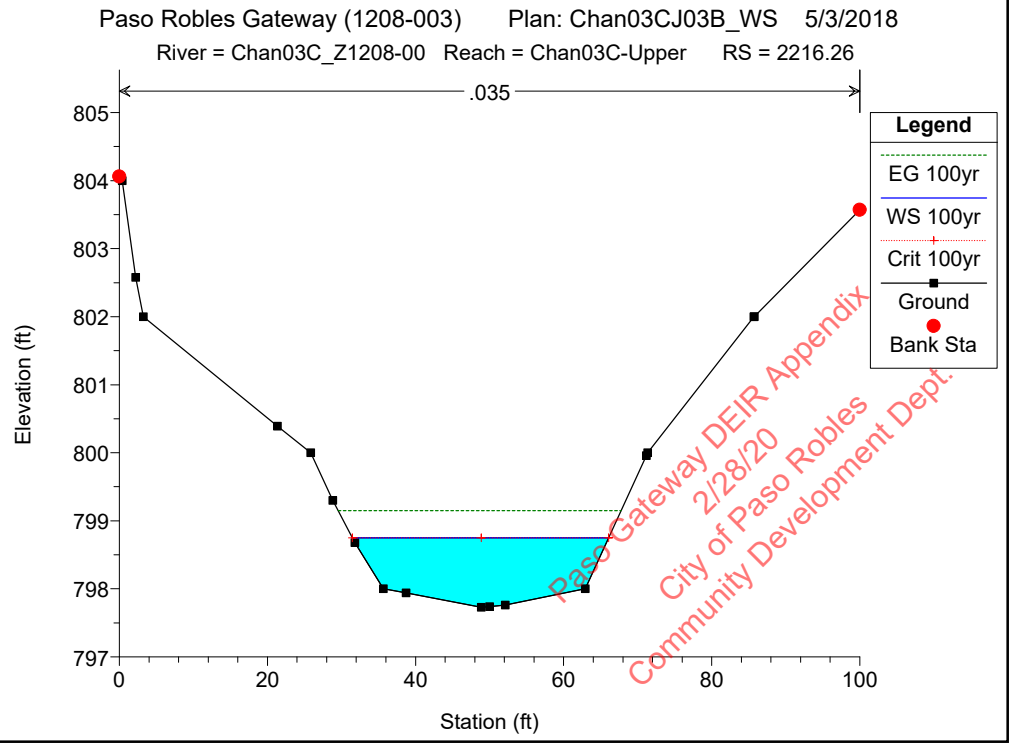
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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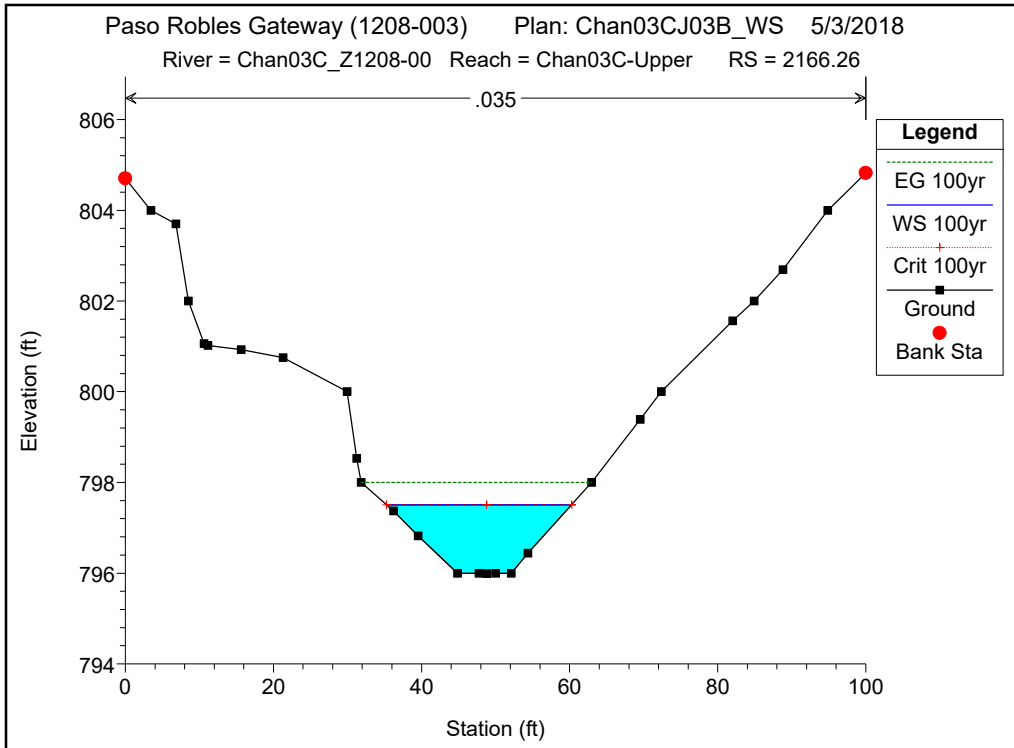
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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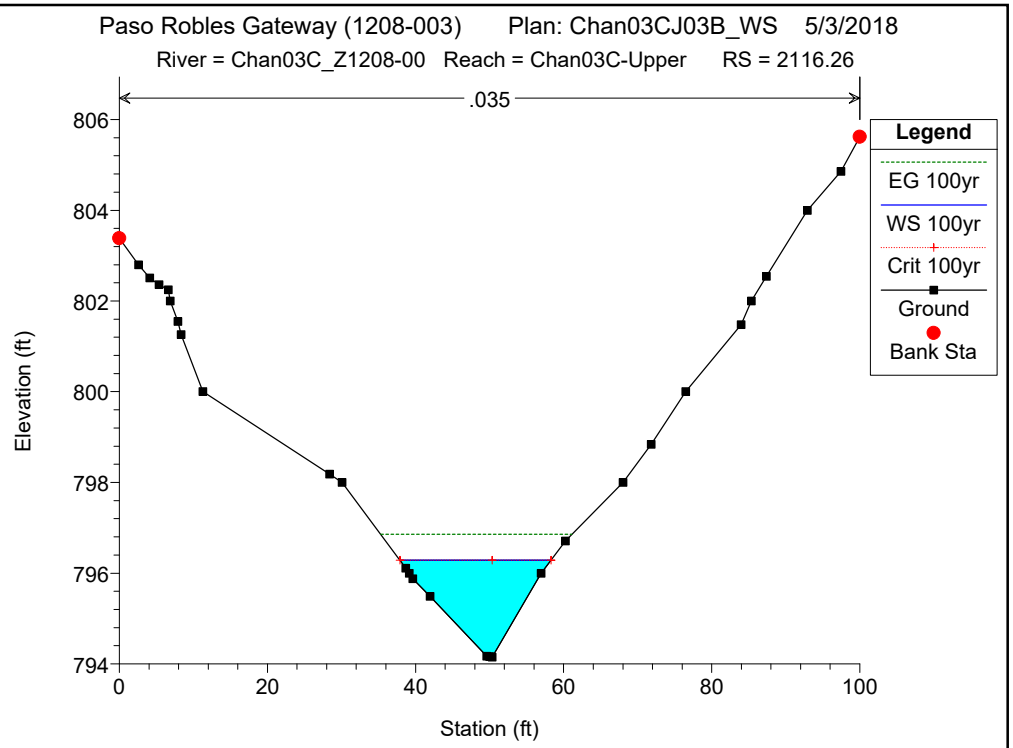
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 2116.26
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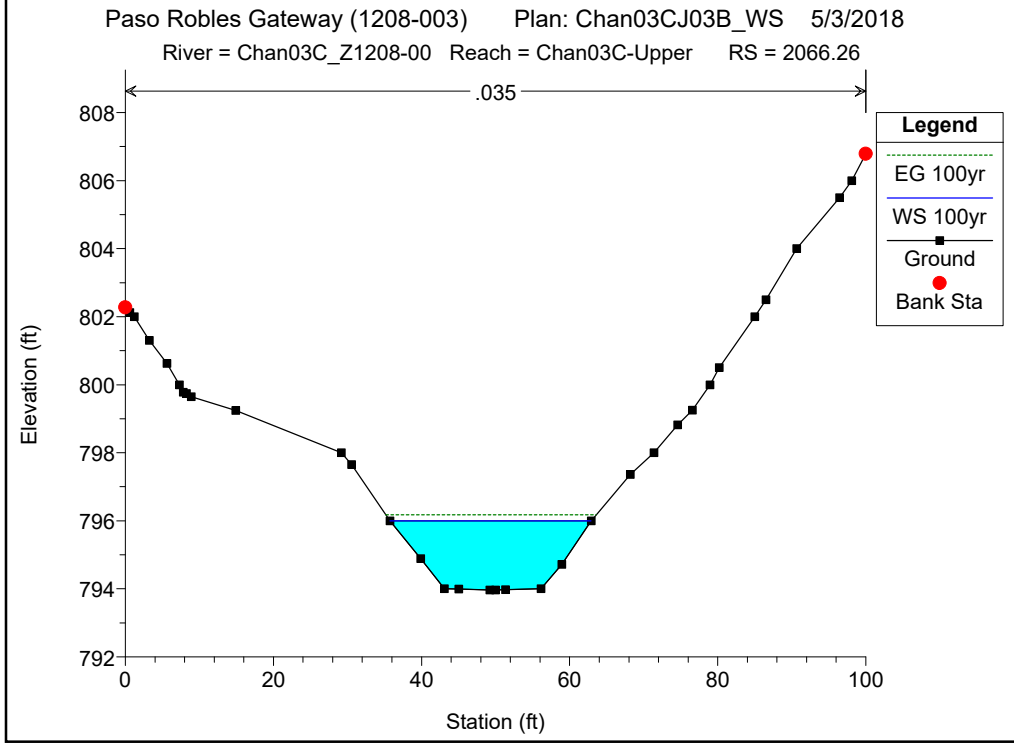
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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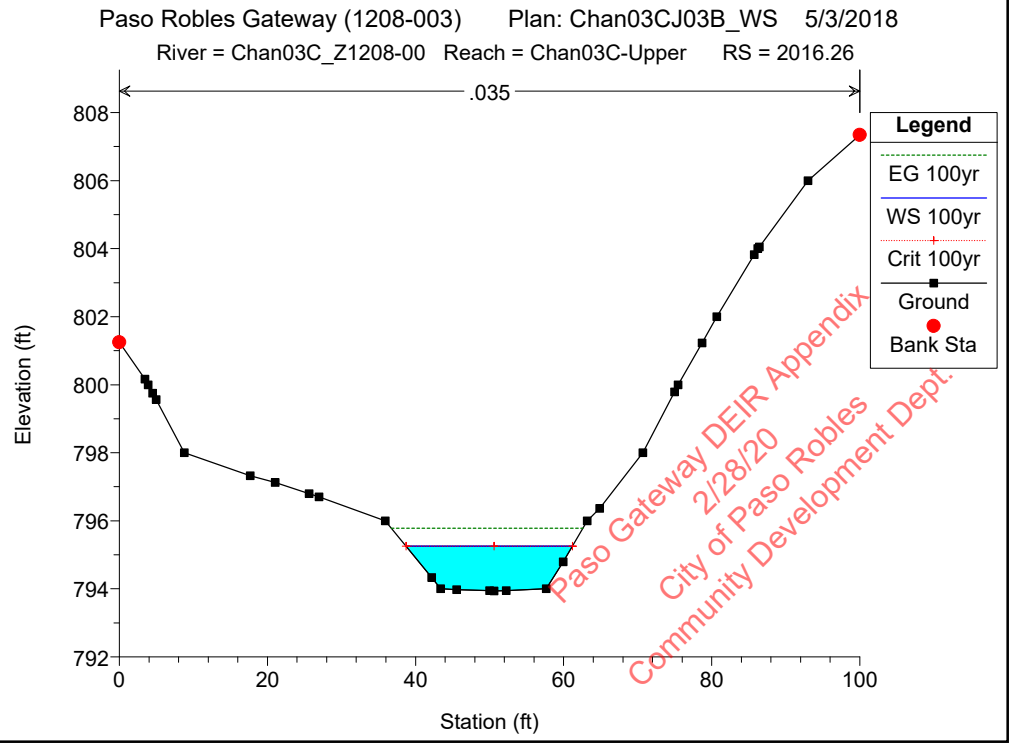
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
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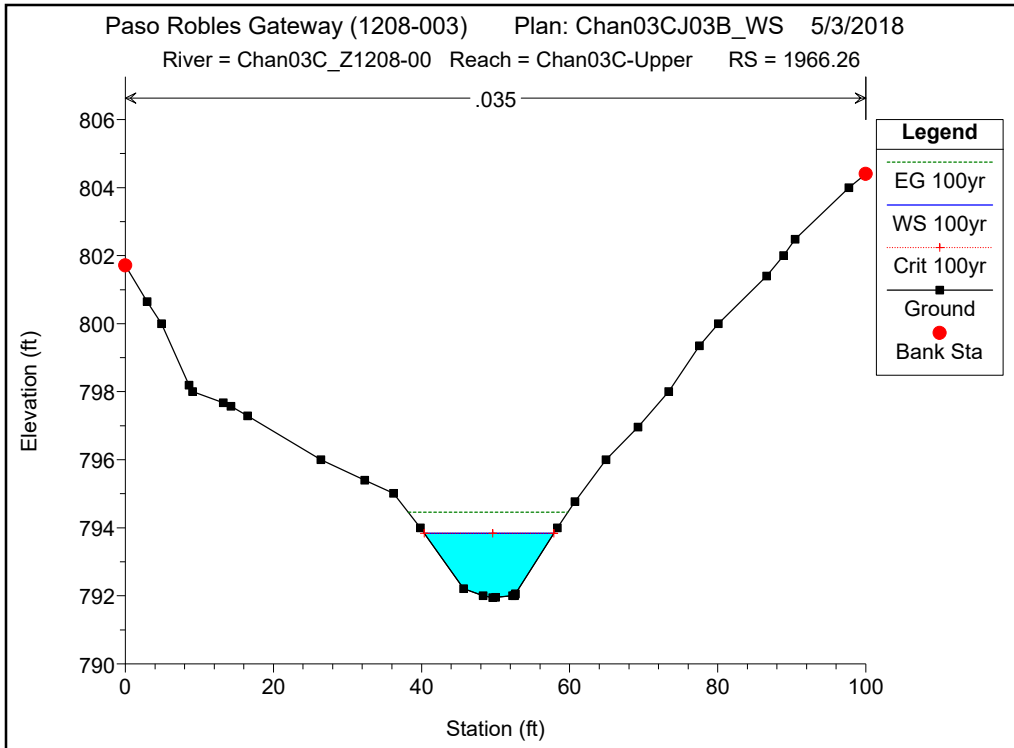
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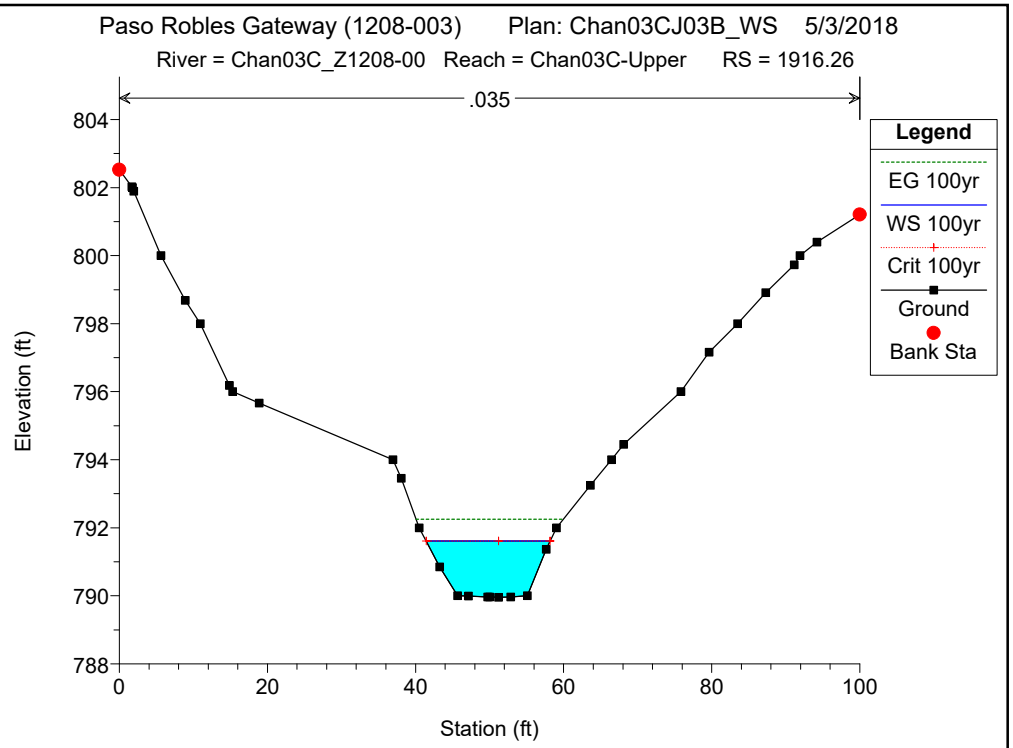
Ground
Bank Sta
Elevation (ft)
Station (ft)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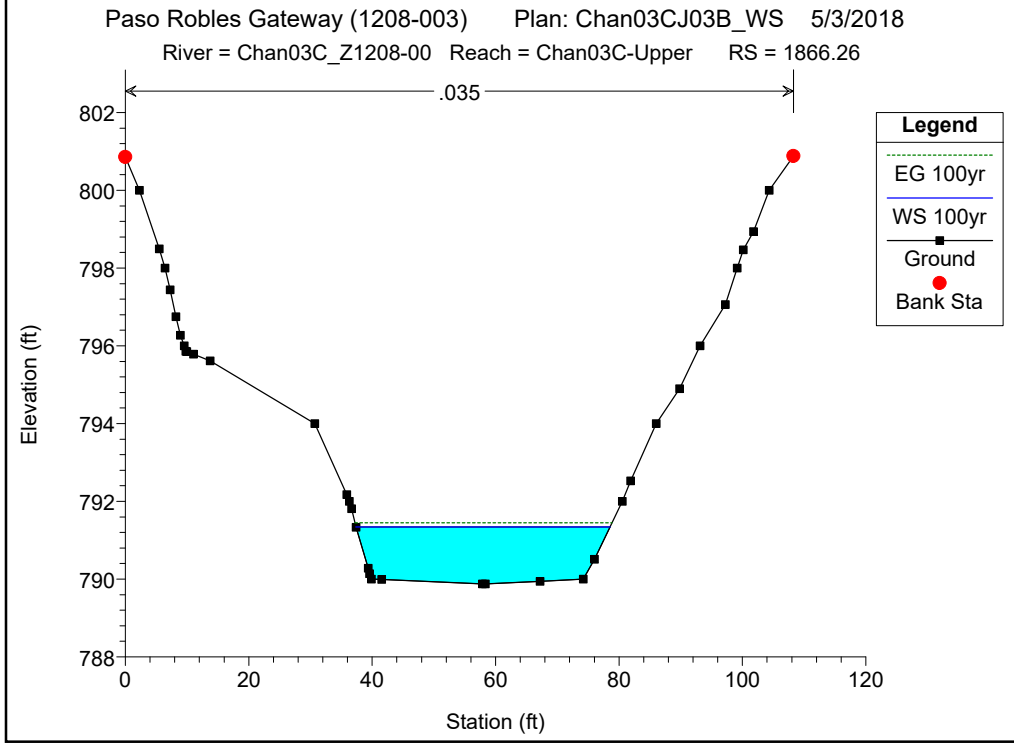
Ground
Bank Sta
Elevation (ft)
Station (ft)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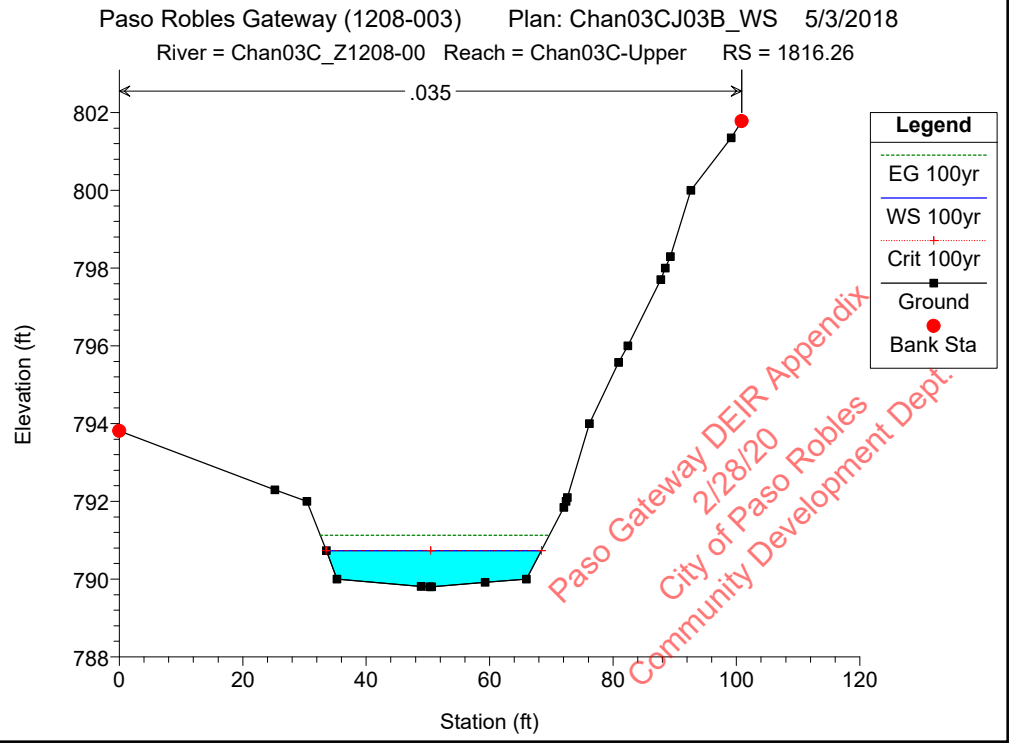
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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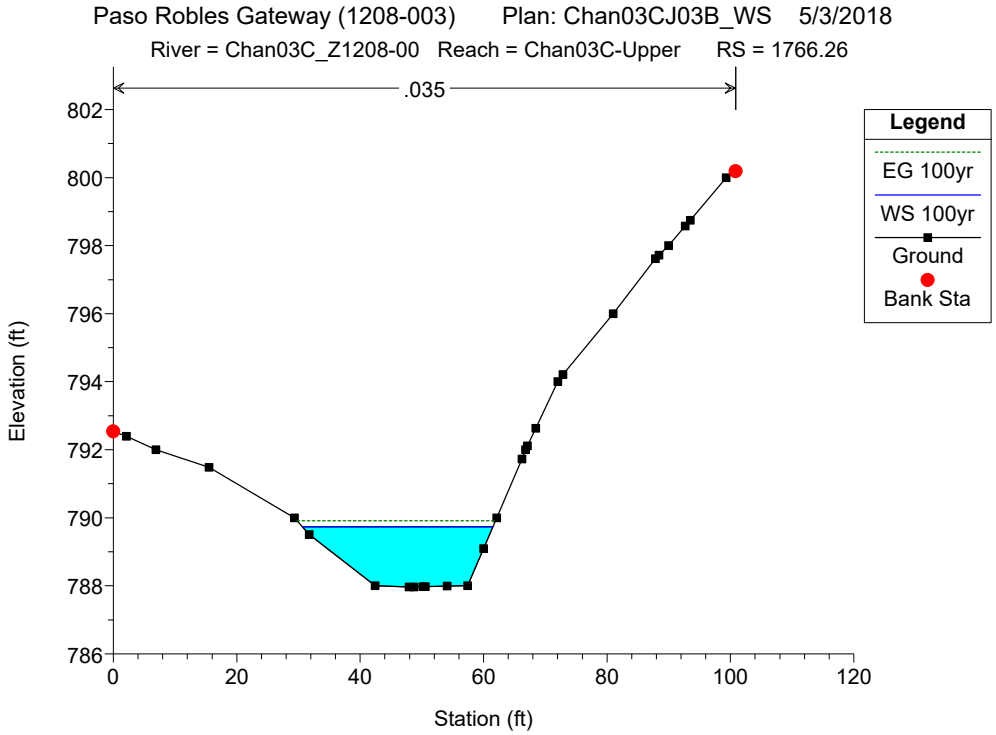
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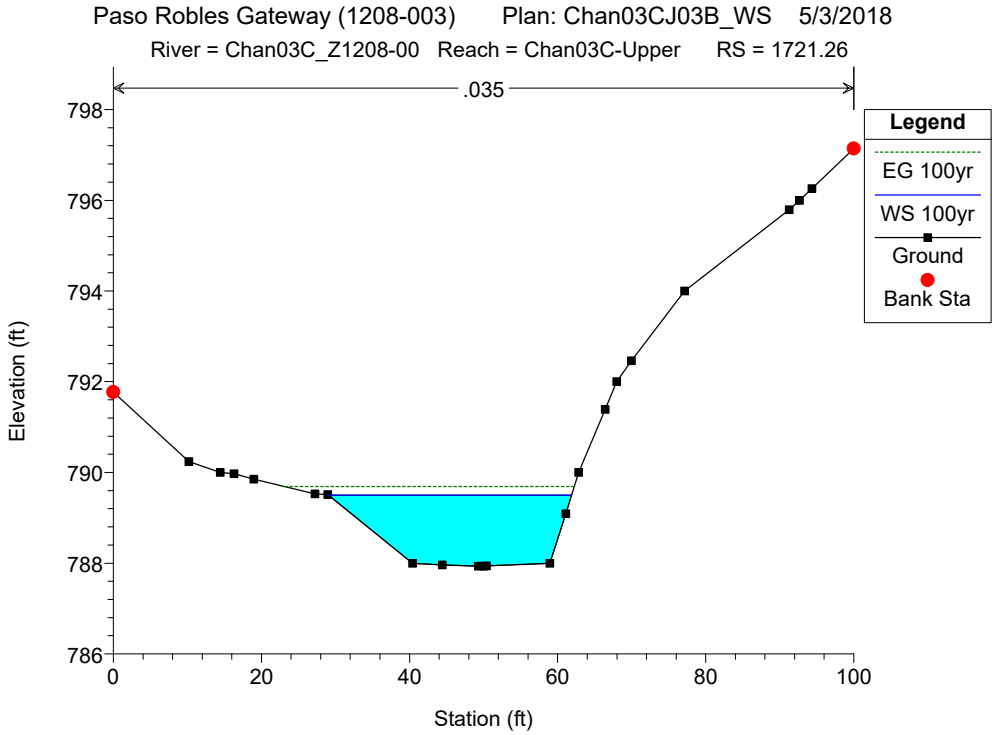
Ground
Bank Sta
Elevation (ft)
Station (ft)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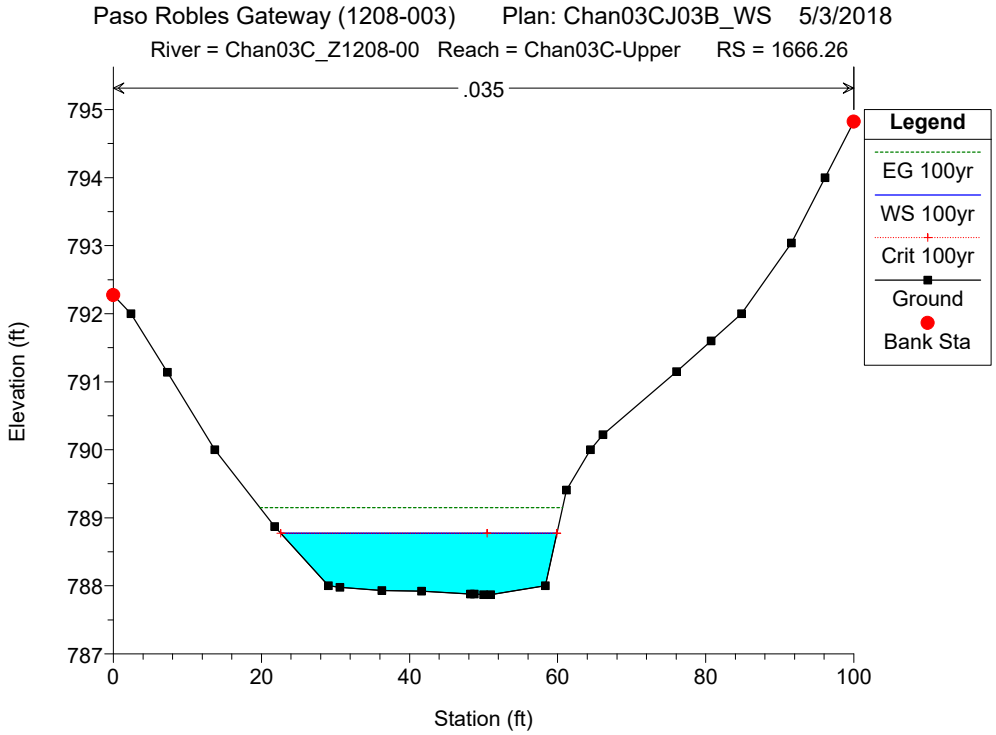
Ground
Bank Sta
Elevation (ft)
Station (ft)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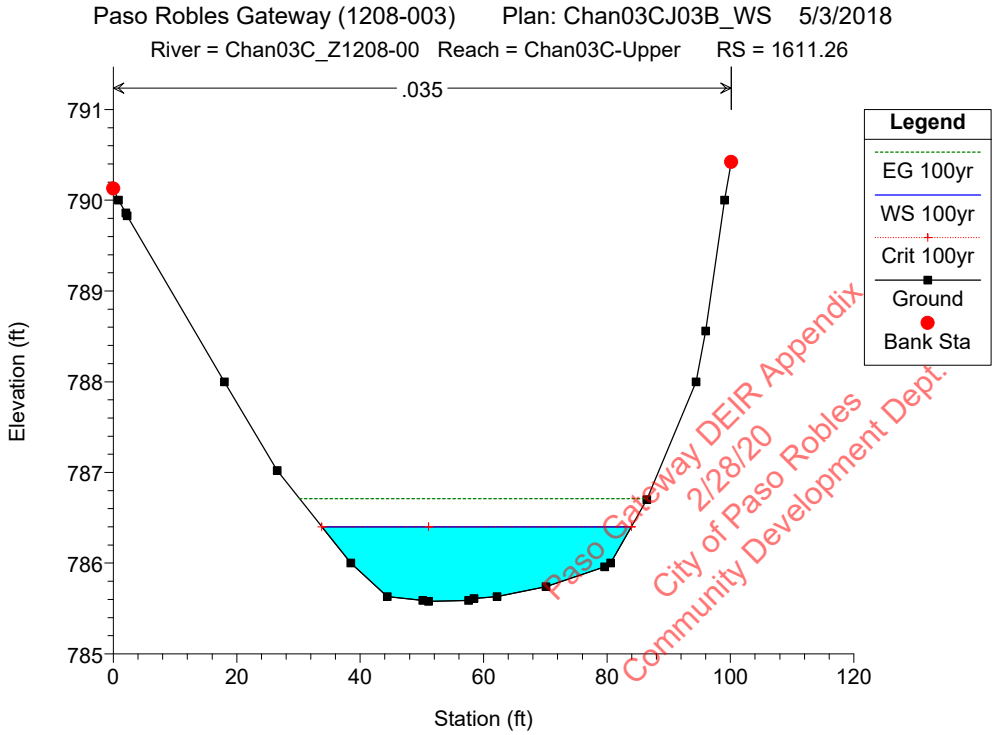
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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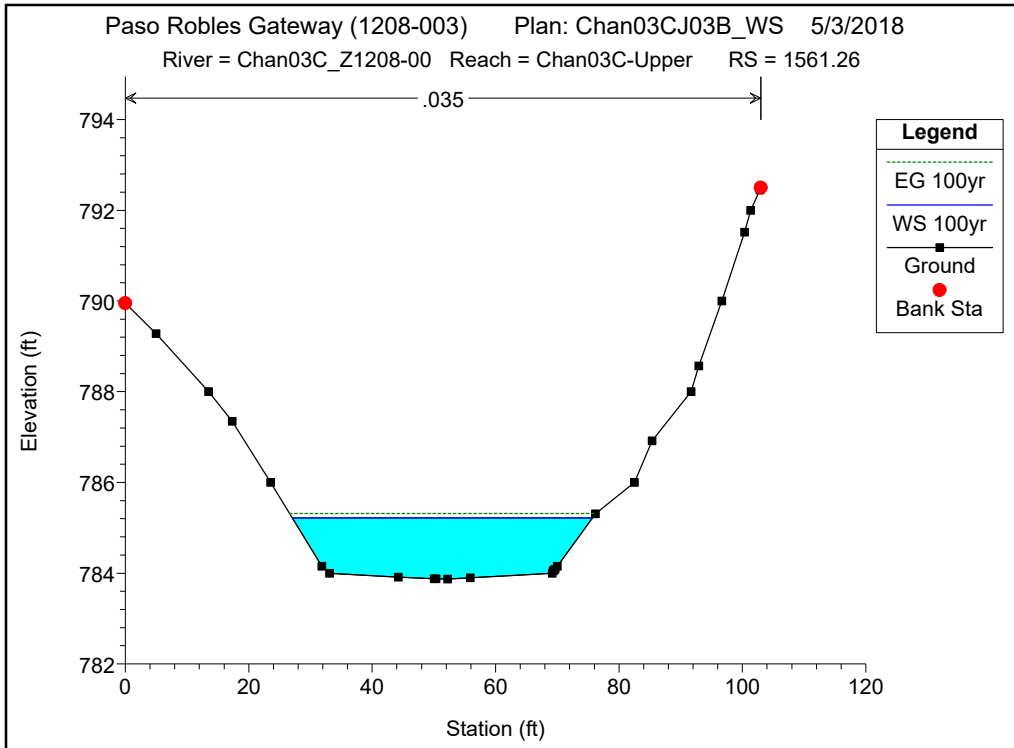
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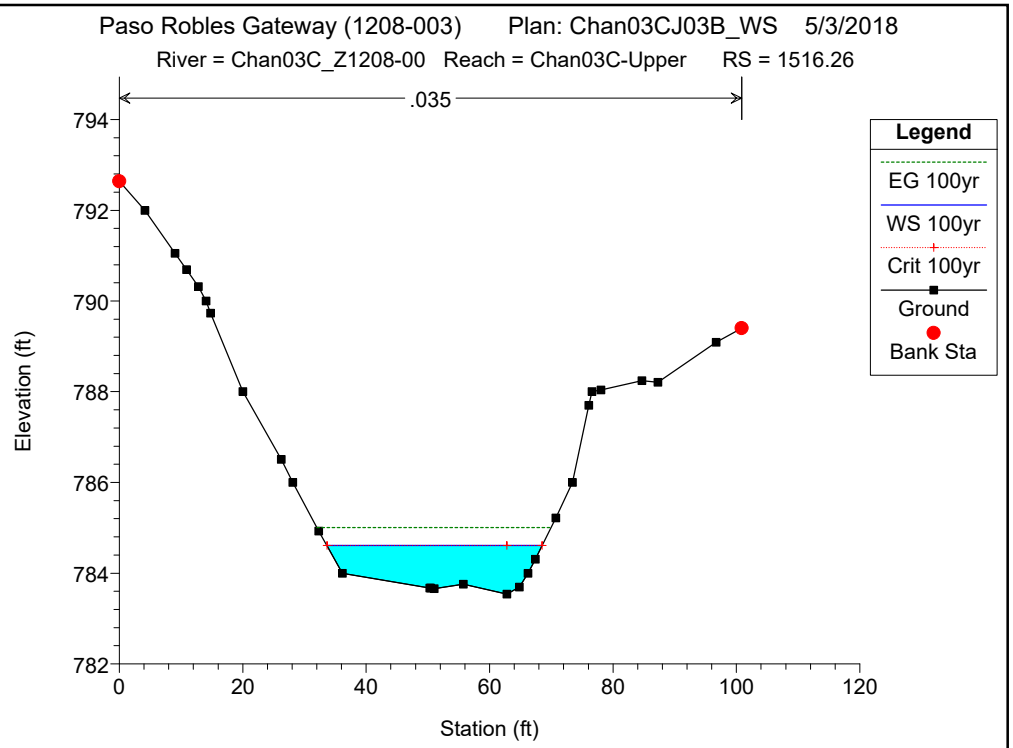
Ground
Bank Sta
Elevation (ft)
Station (ft)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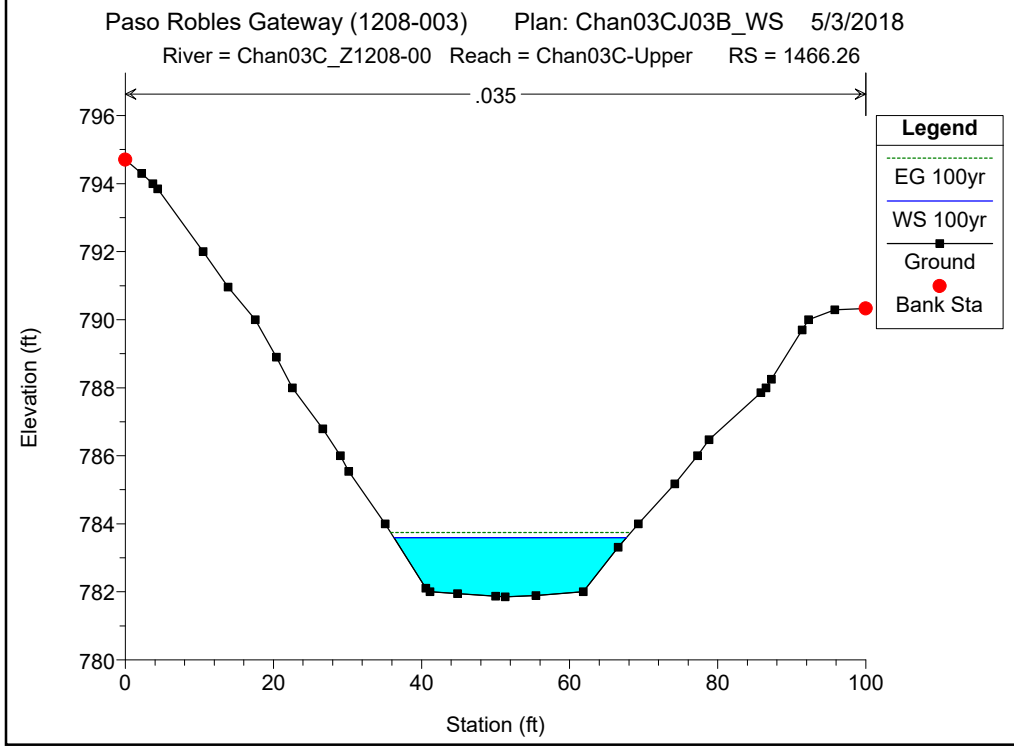
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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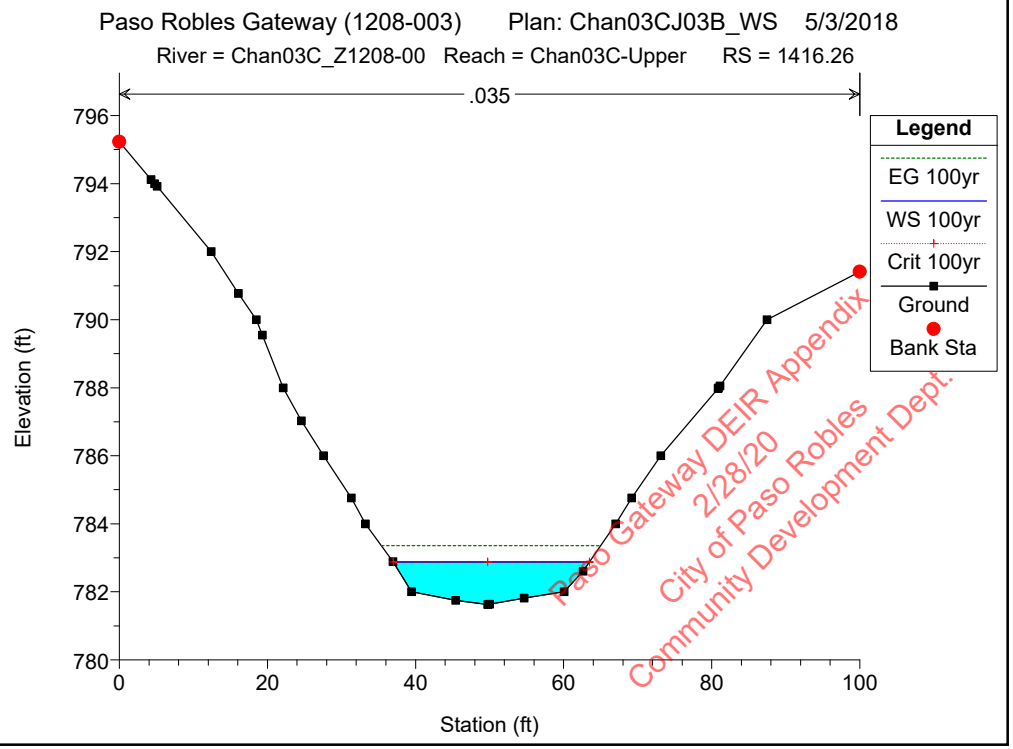
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
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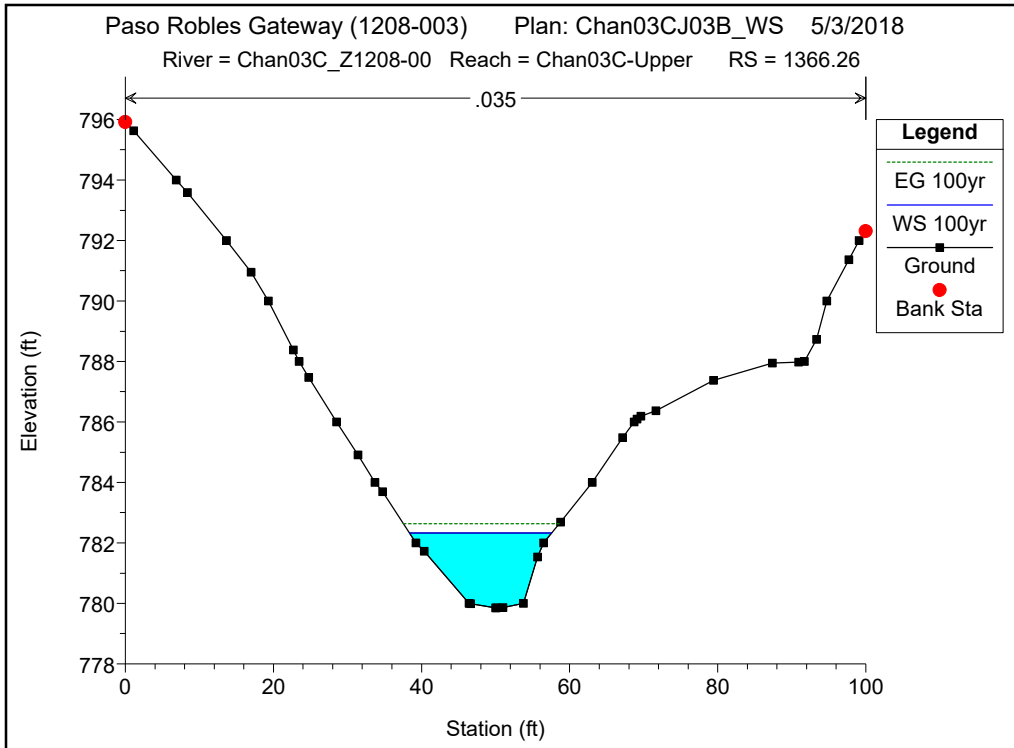
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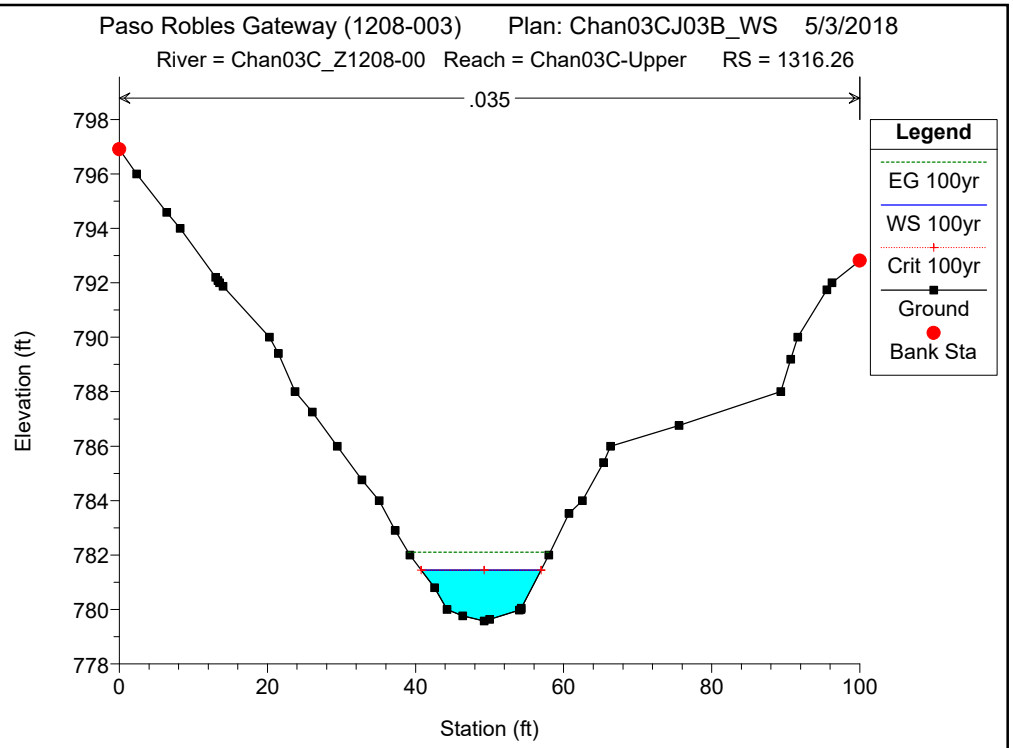
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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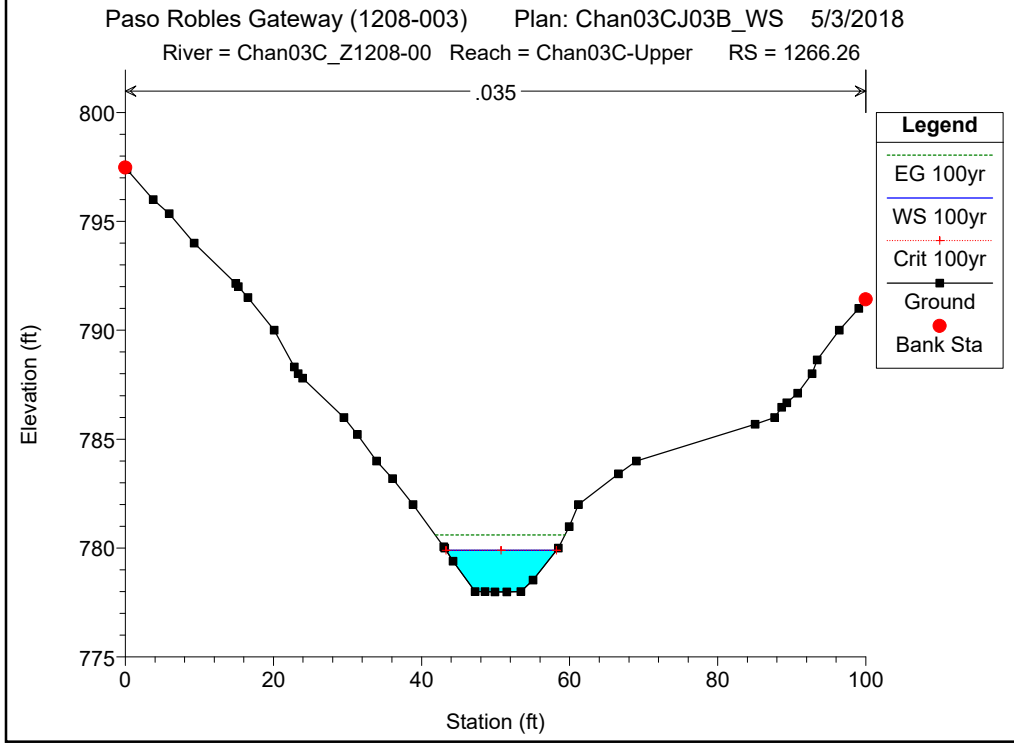
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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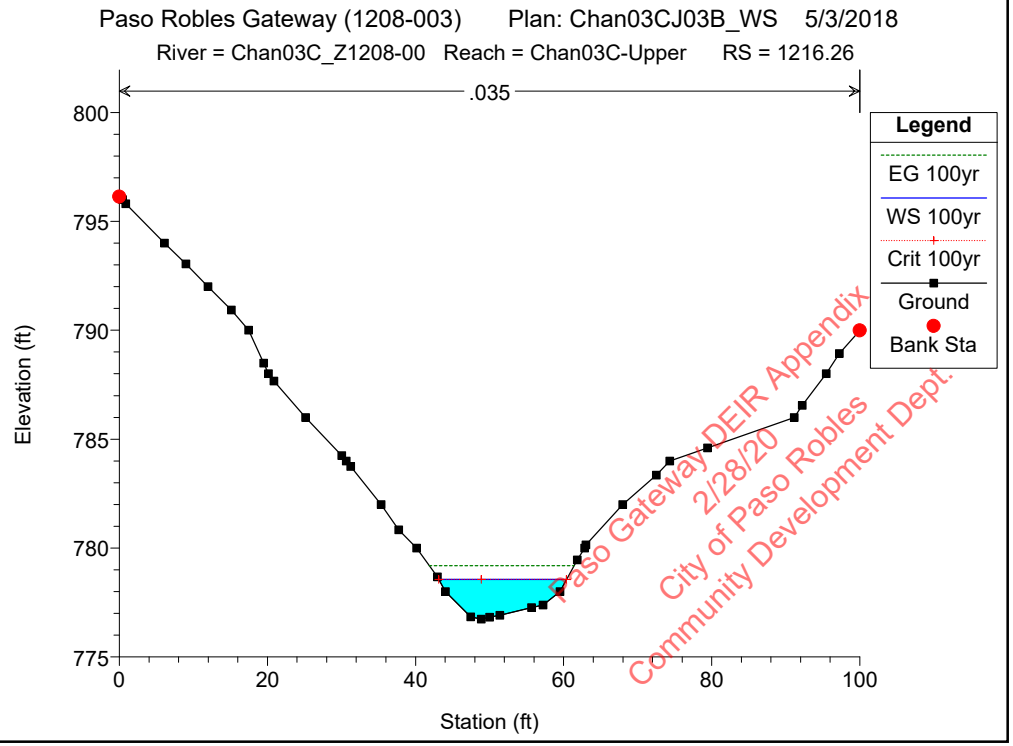
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
EG 100yr
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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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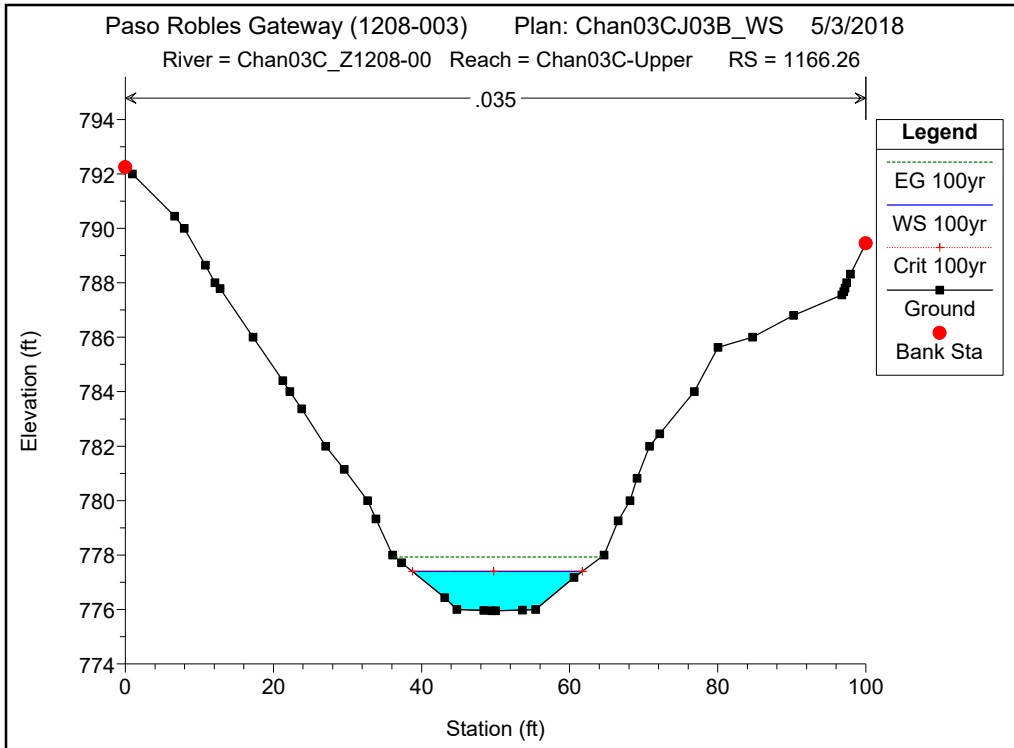
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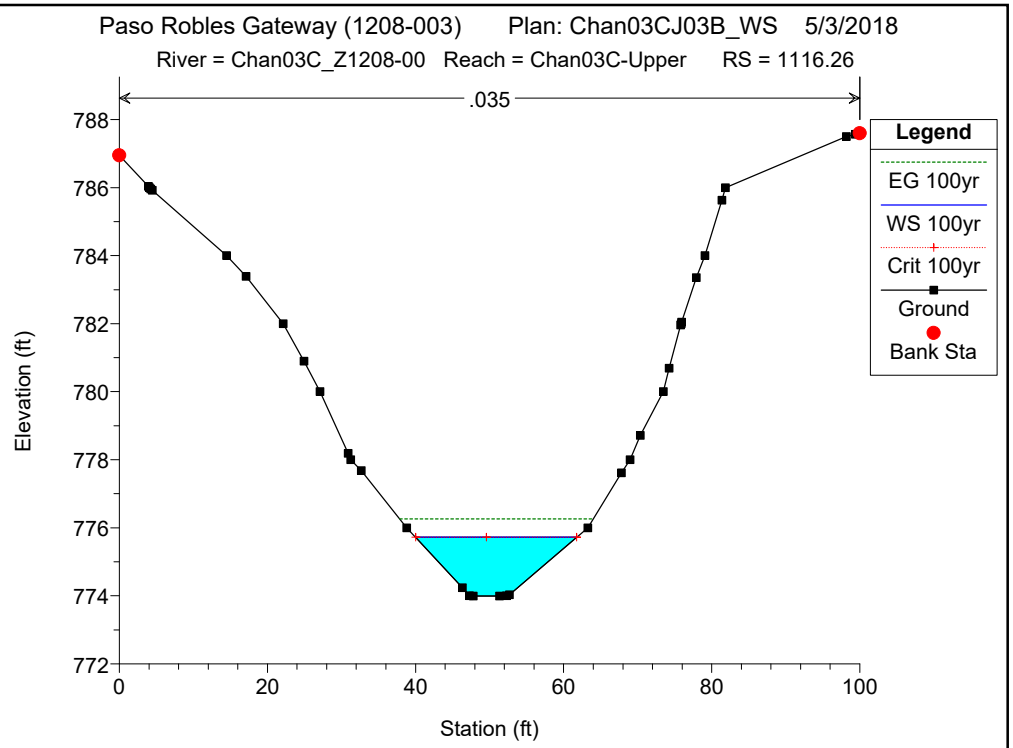
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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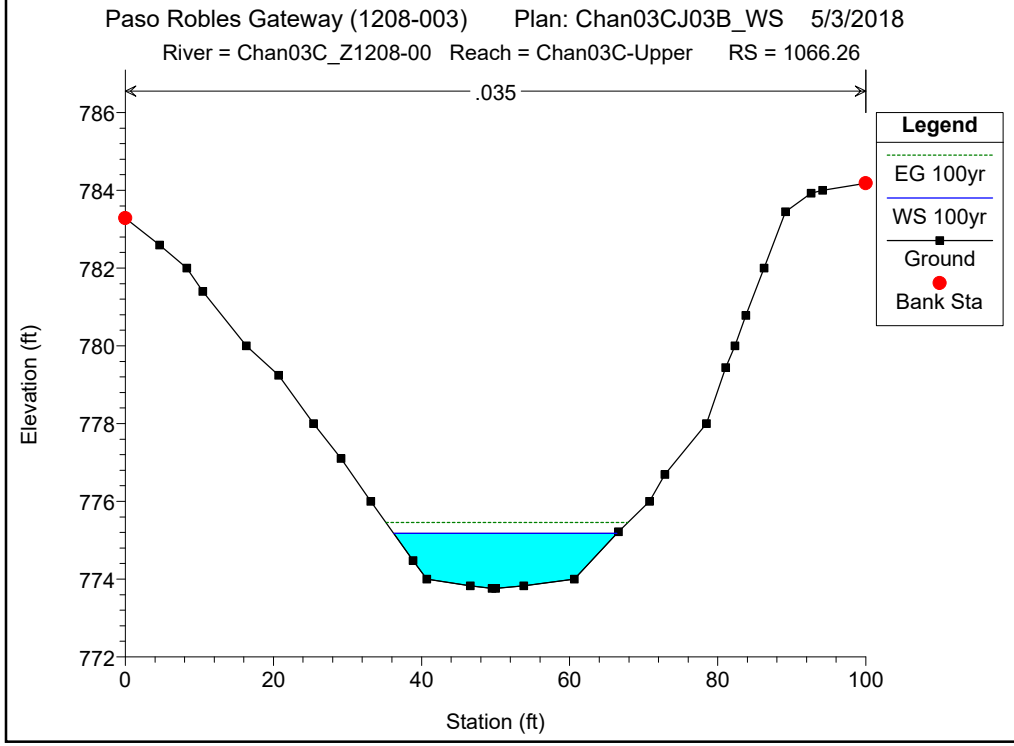
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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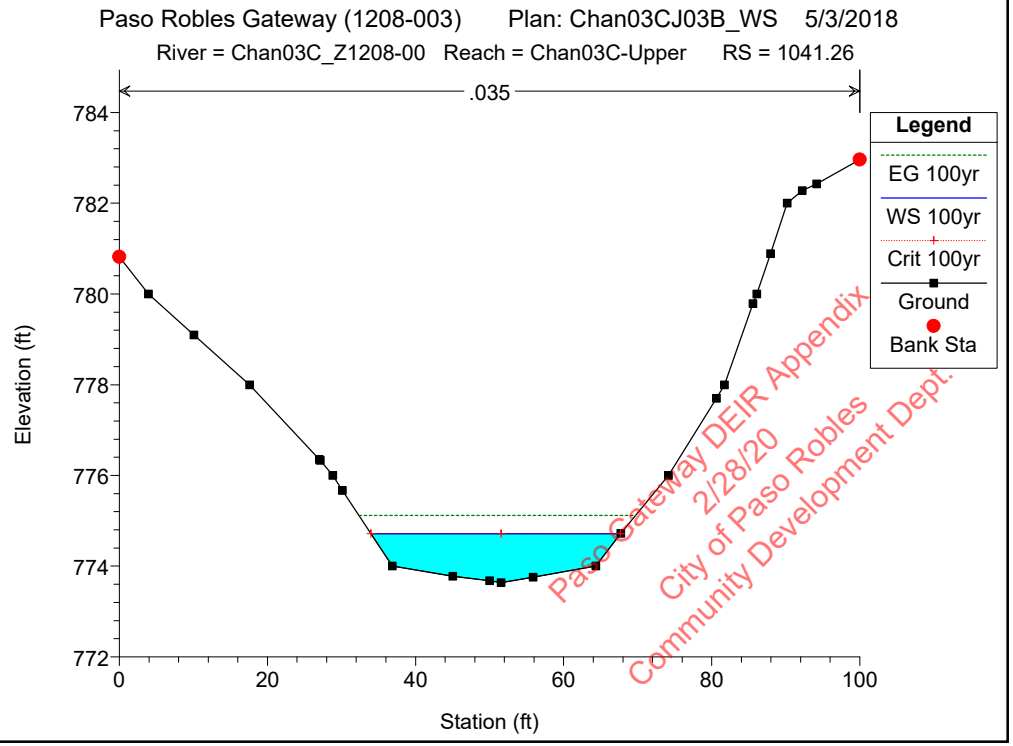
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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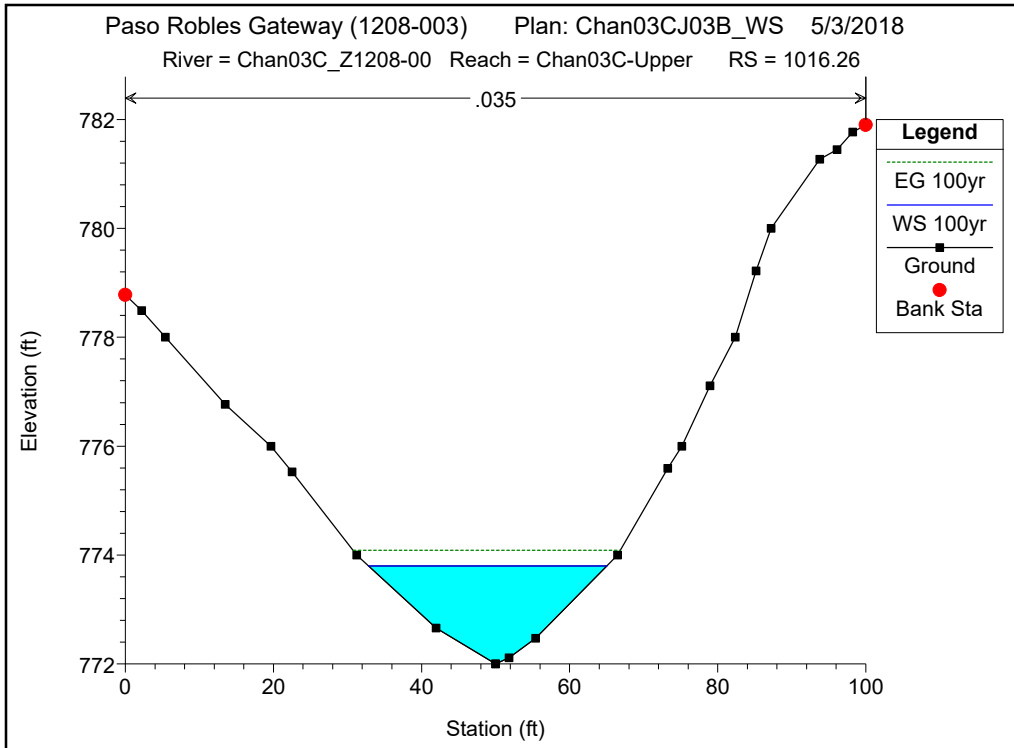
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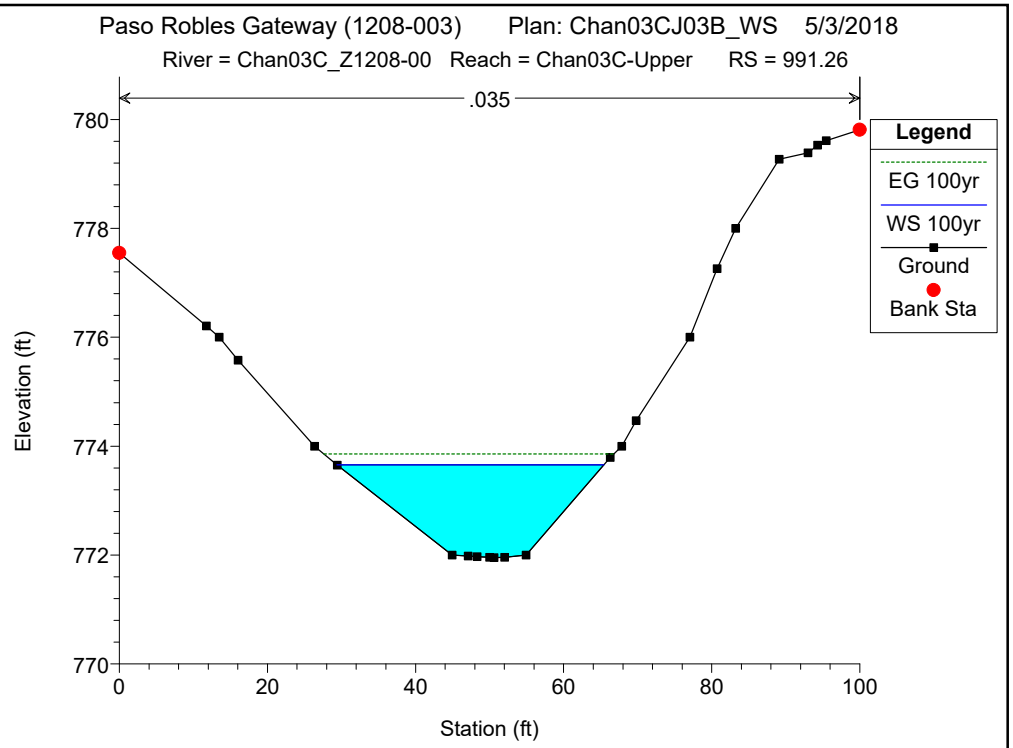
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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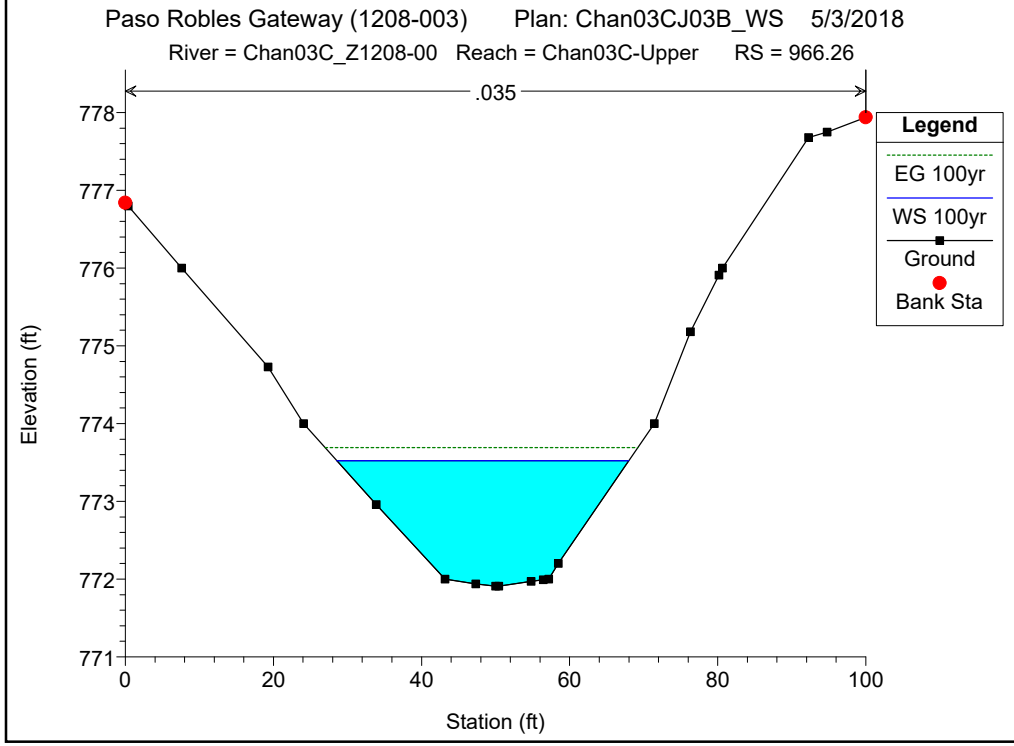
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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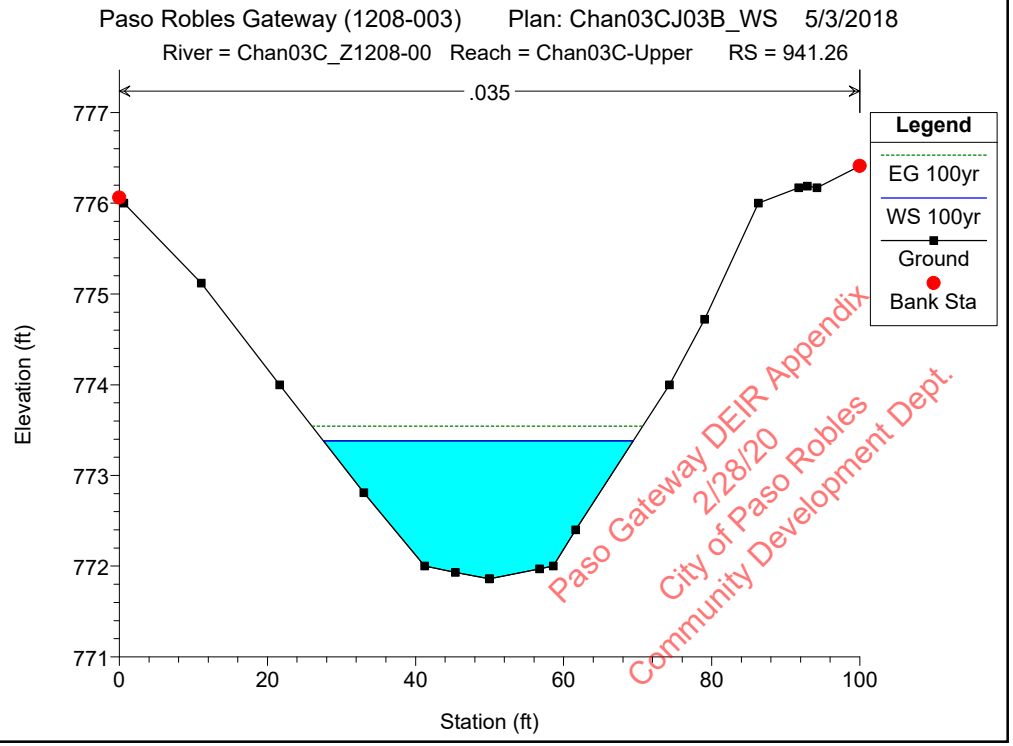
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
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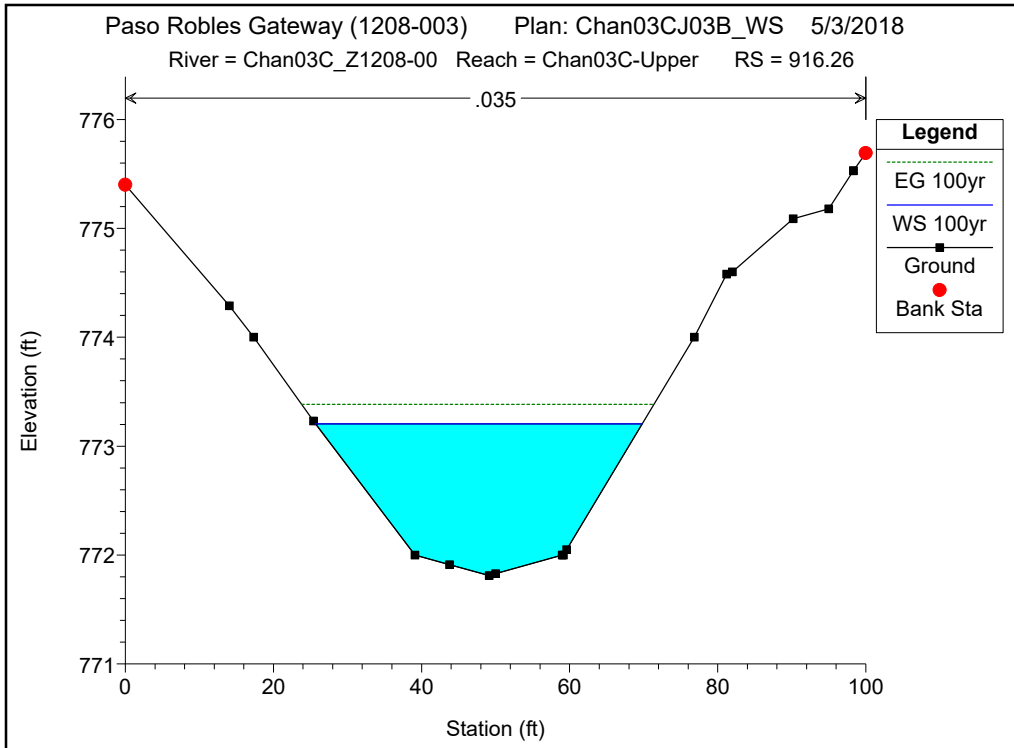
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Ground
Bank Sta
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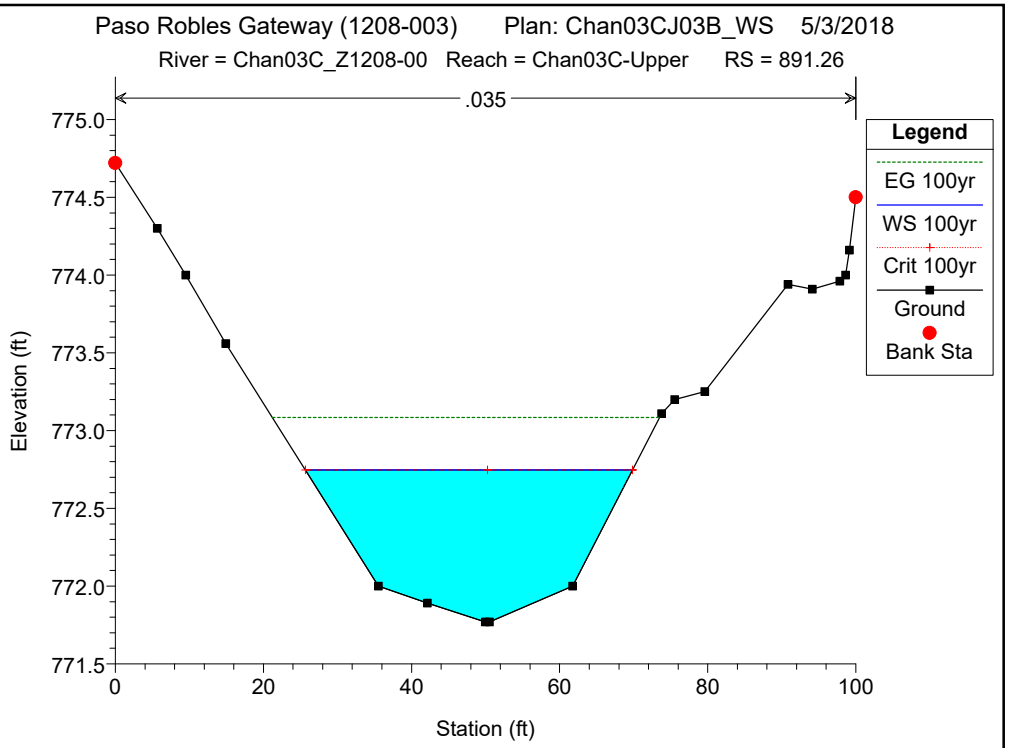
Station (ft)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WS 100yr
Crit 100yr
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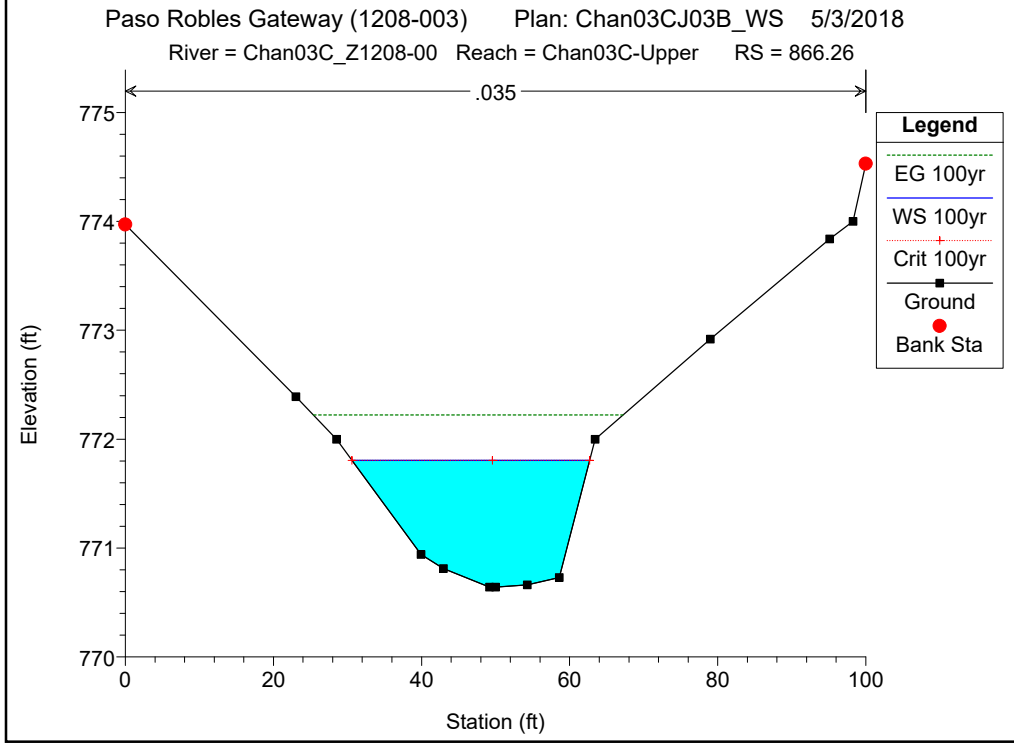
Bank Sta
Elevation (ft)
Station (ft)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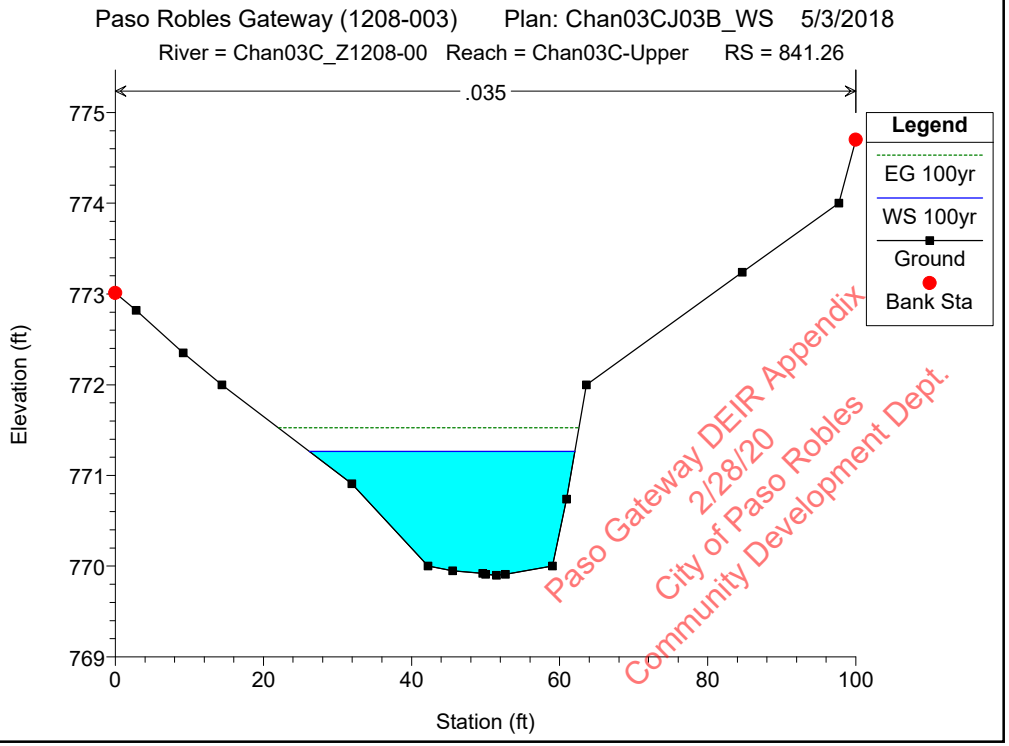
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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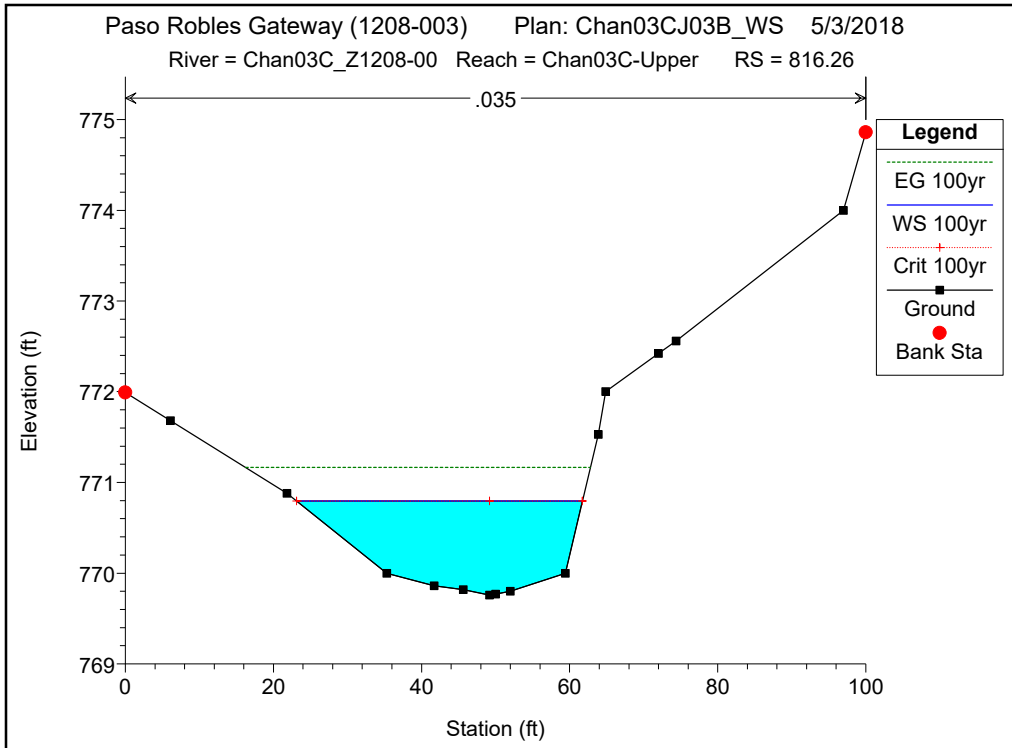
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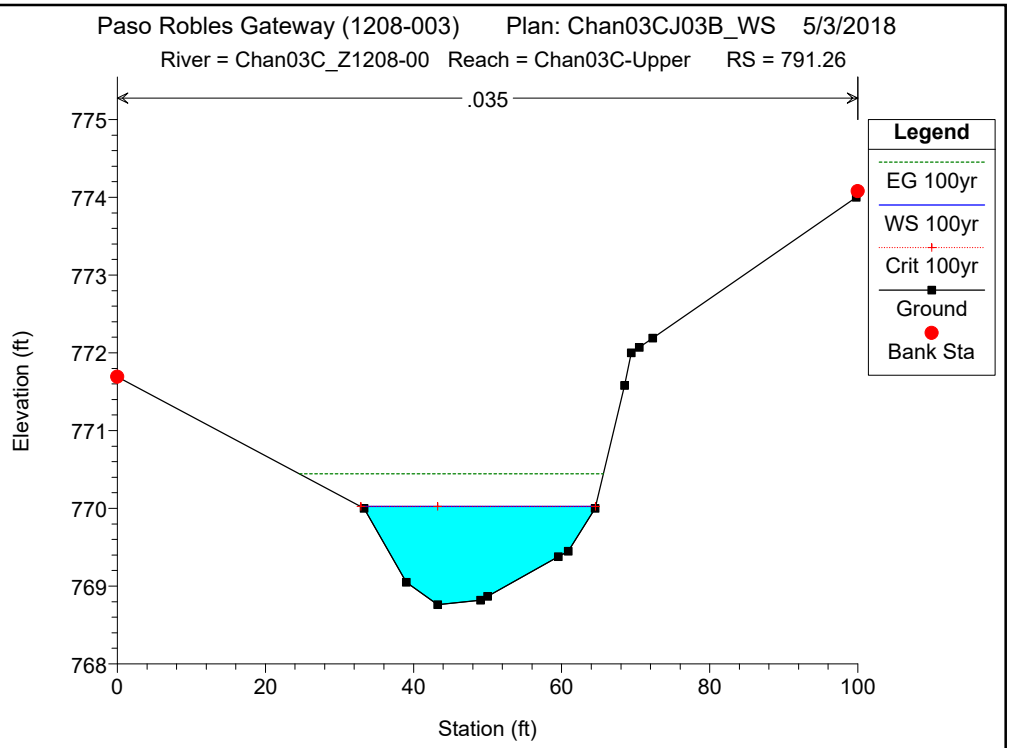
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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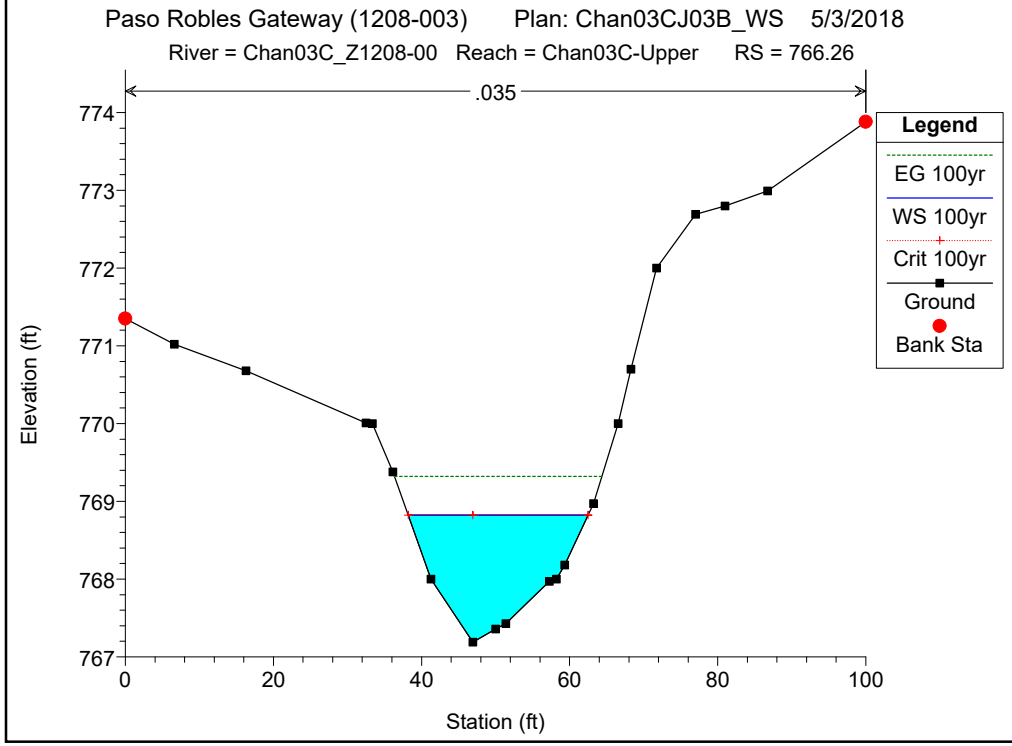
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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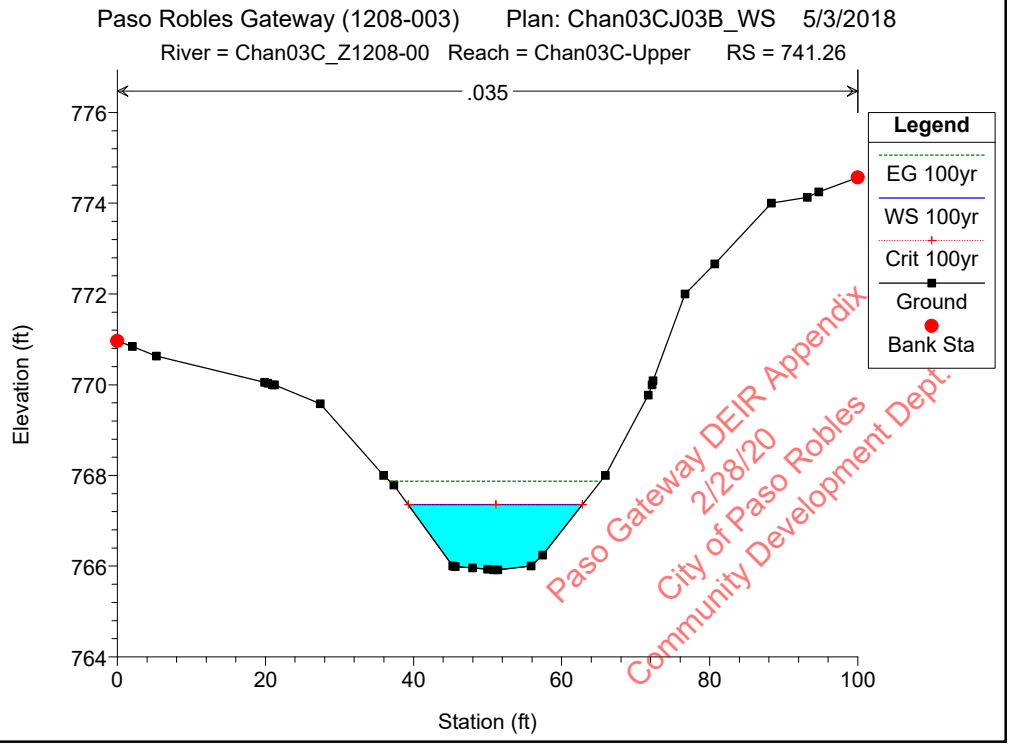
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 741.26
.035
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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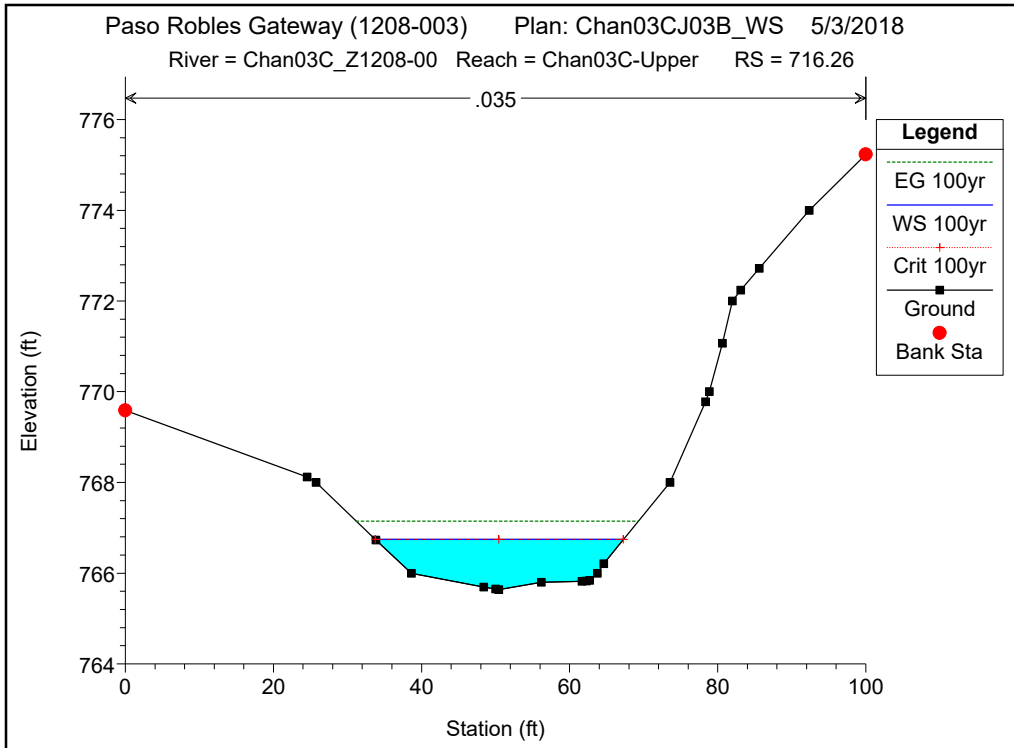
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River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 716.26
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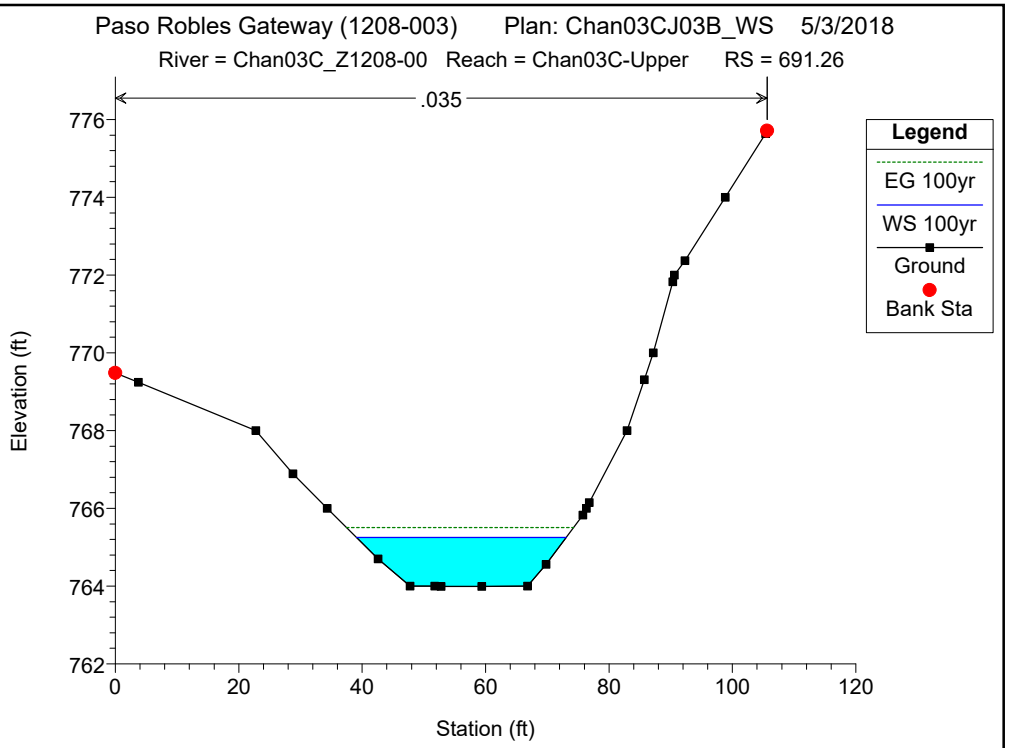
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 691.26
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Legend
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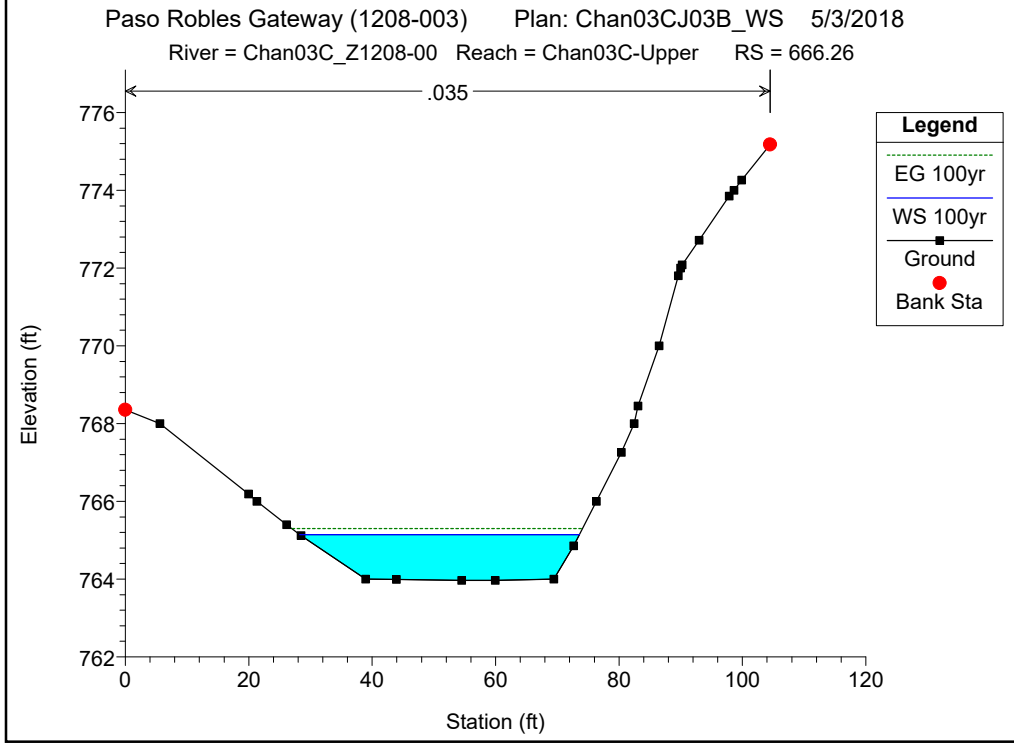
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 666.26
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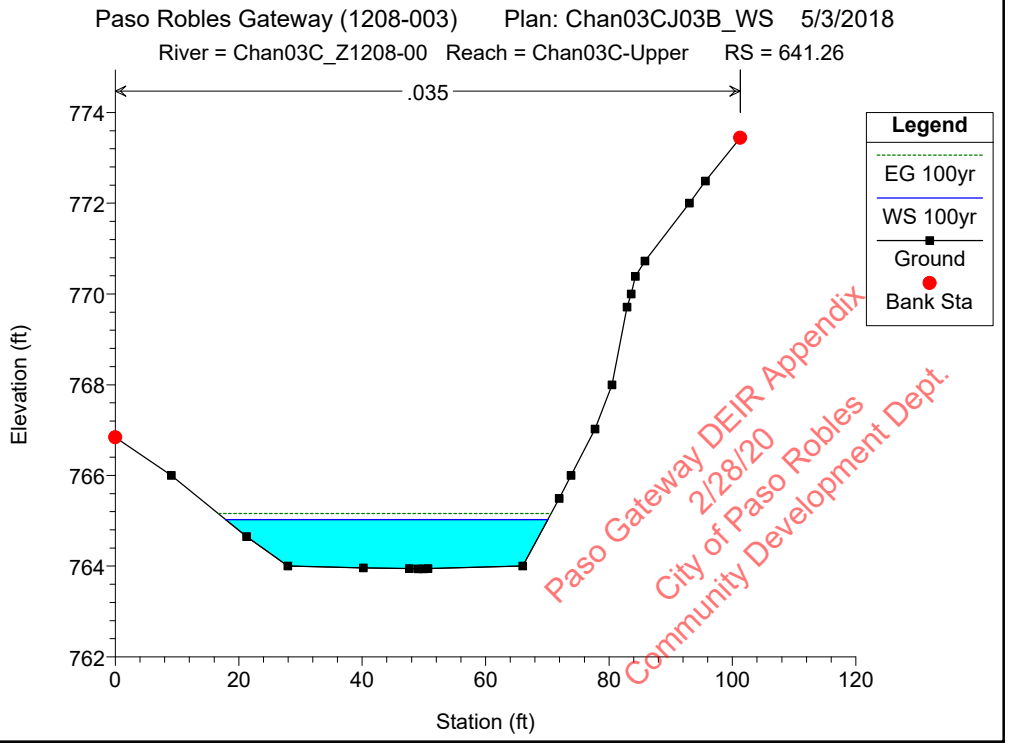
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 641.26
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Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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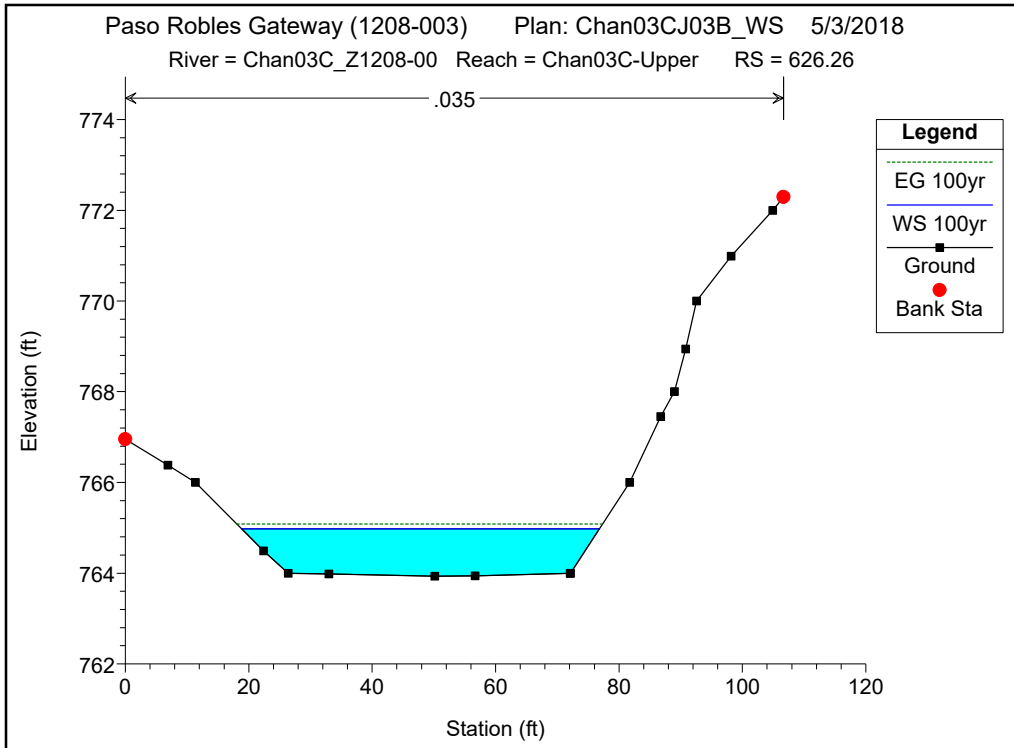
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 626.26
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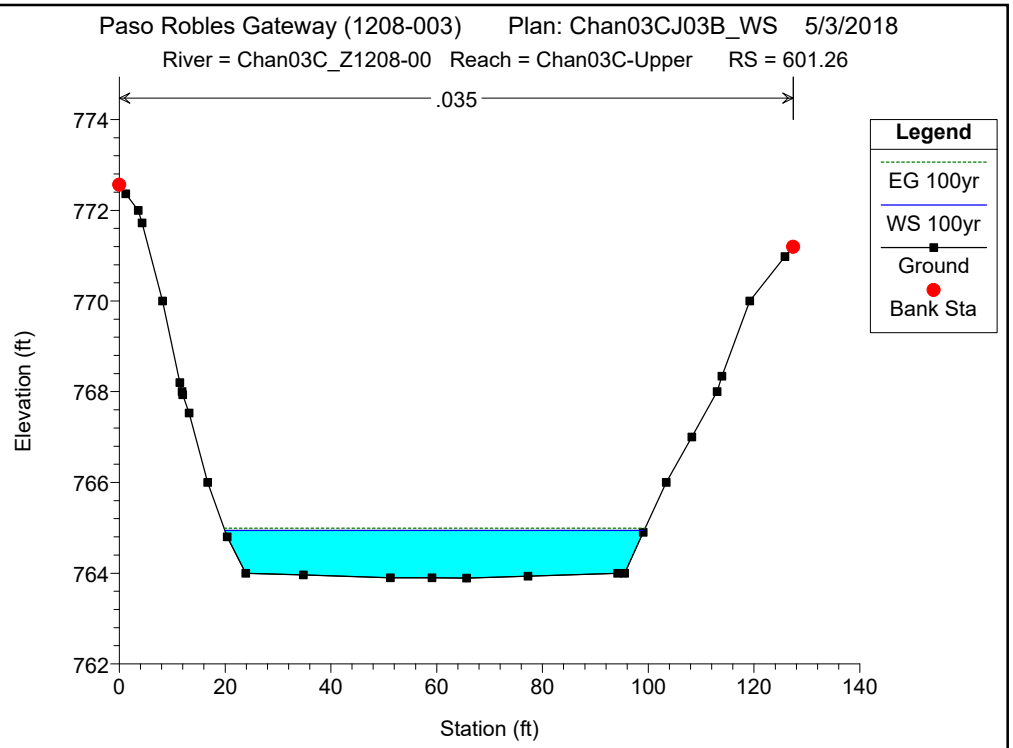
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 601.26
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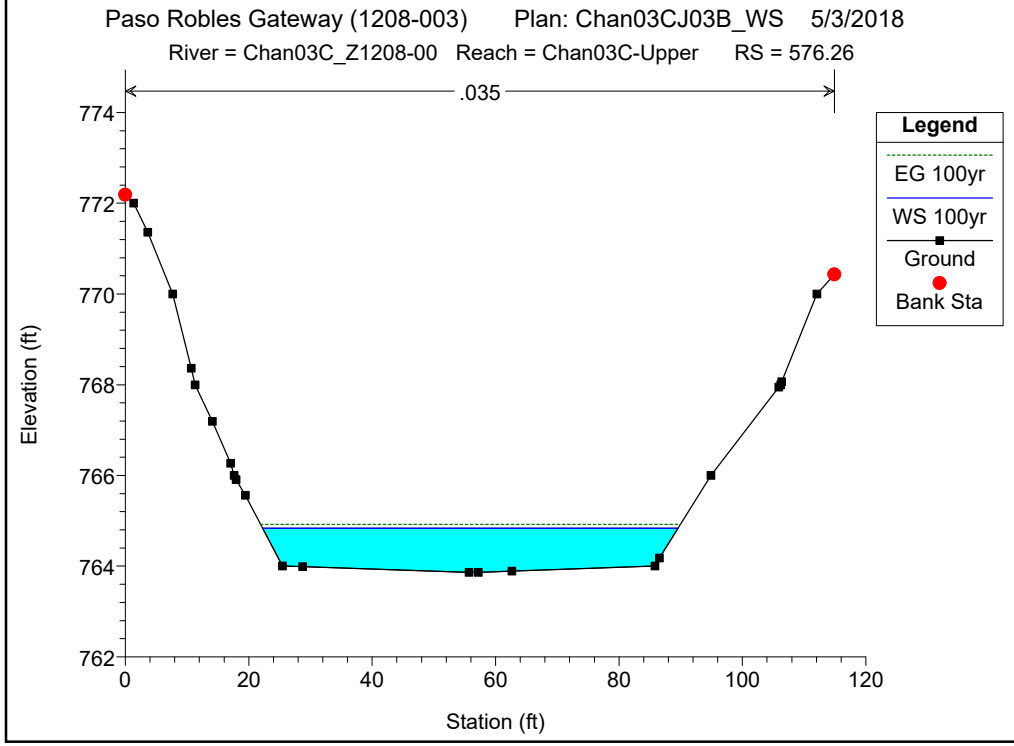
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 576.26
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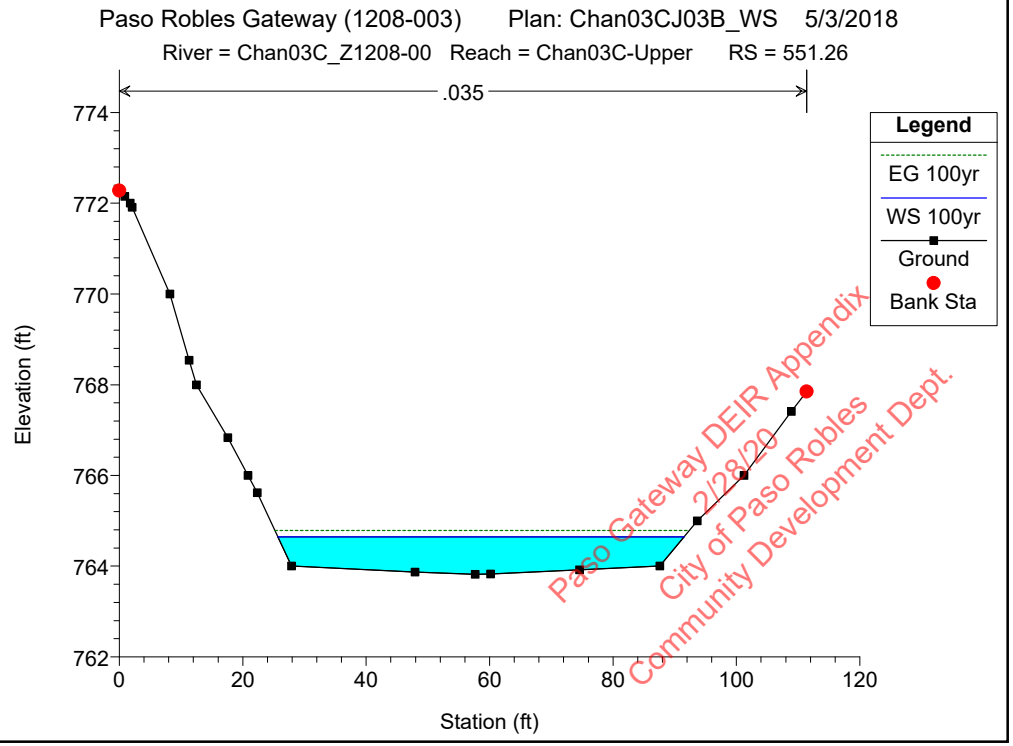
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan03C_Z1208-00 Reach = Chan03C-Upper RS = 551.26
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Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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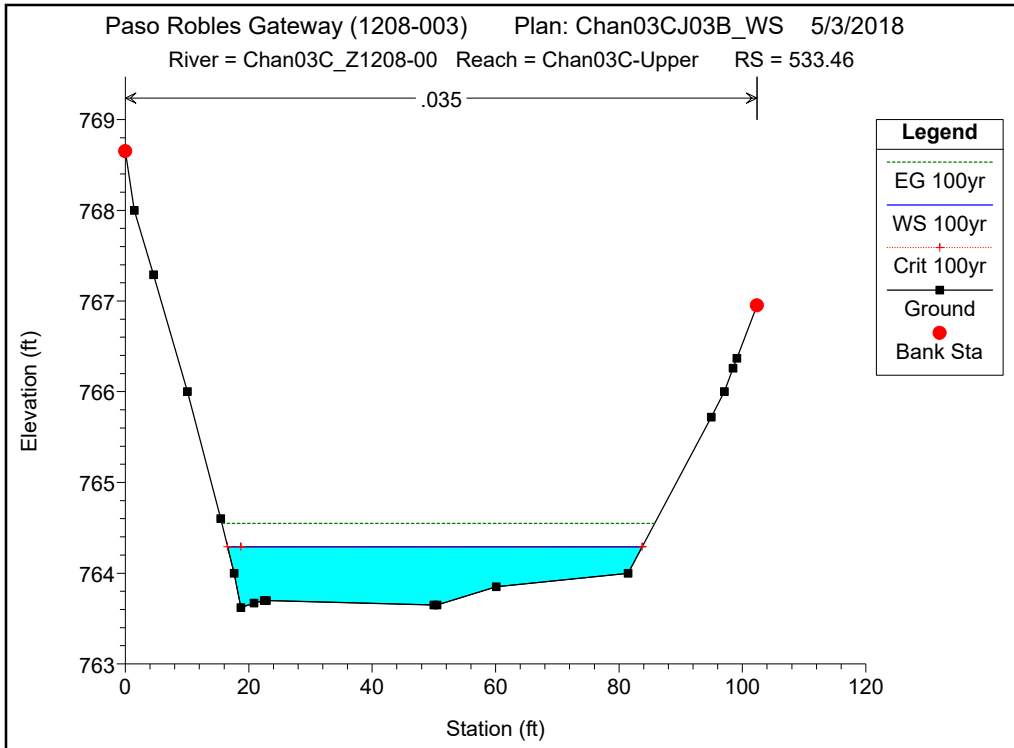

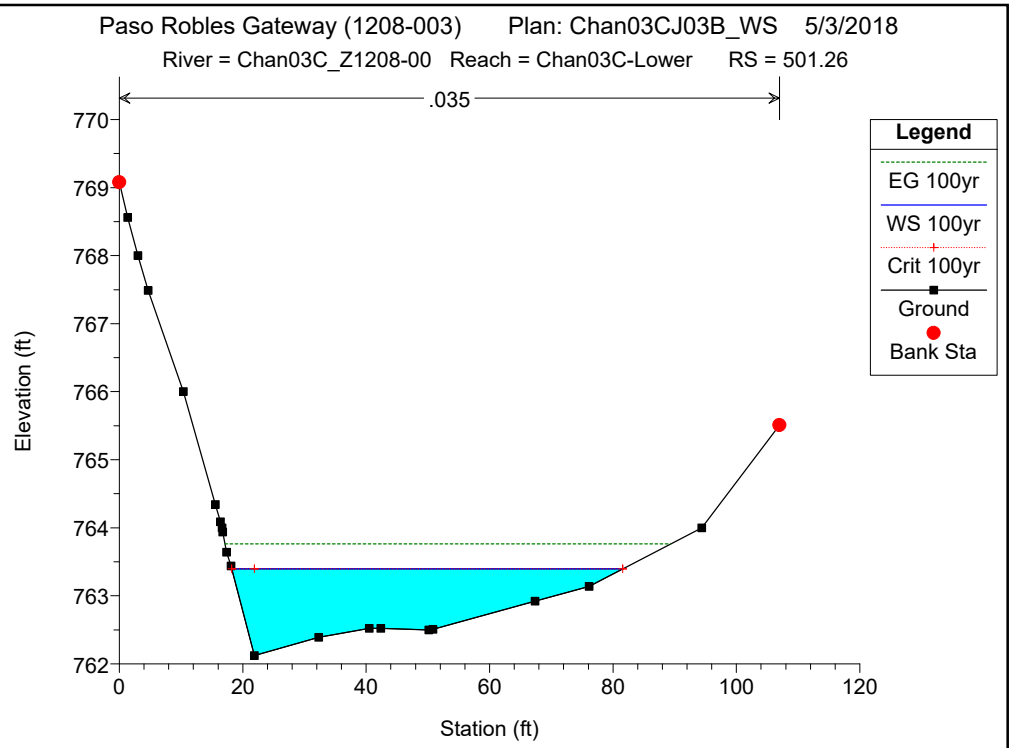

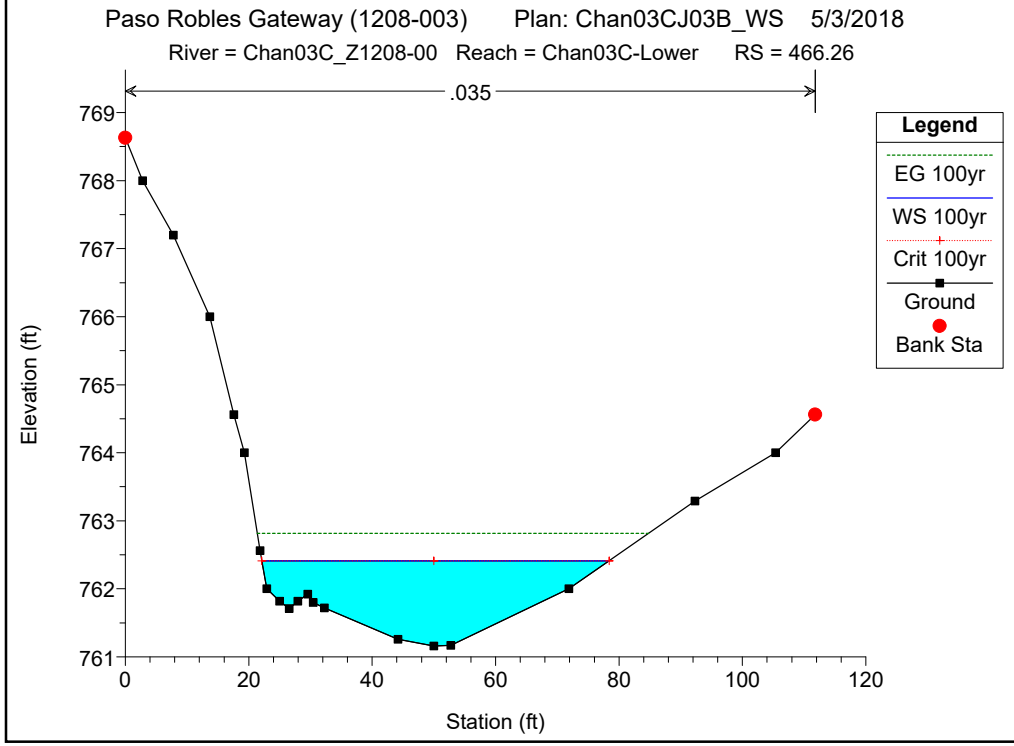

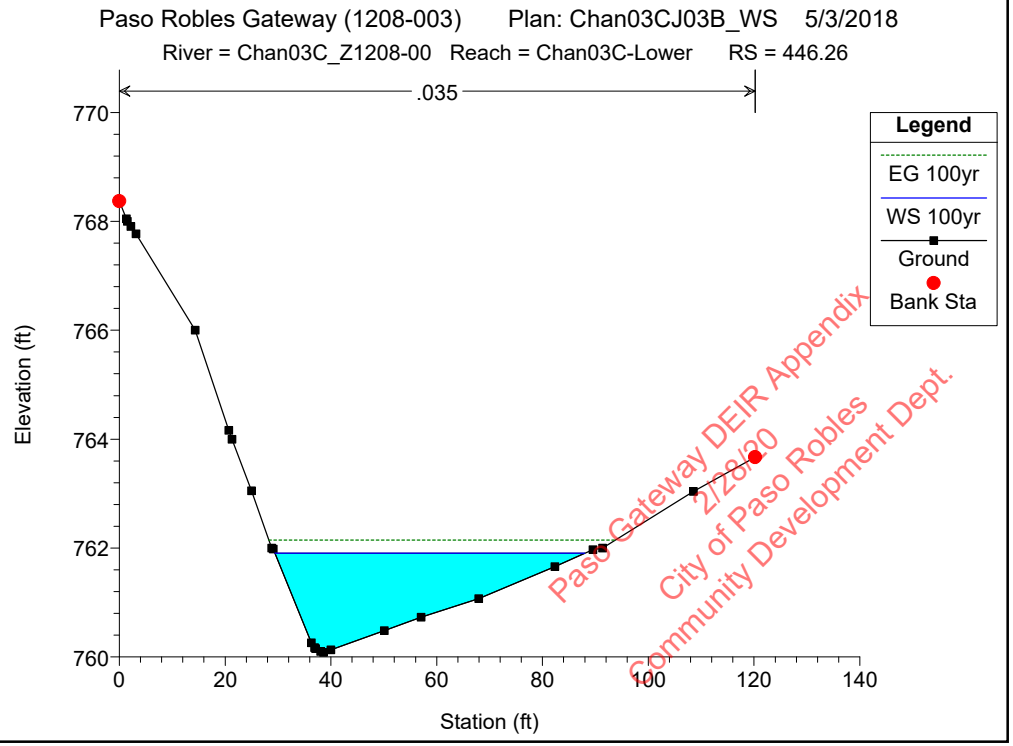

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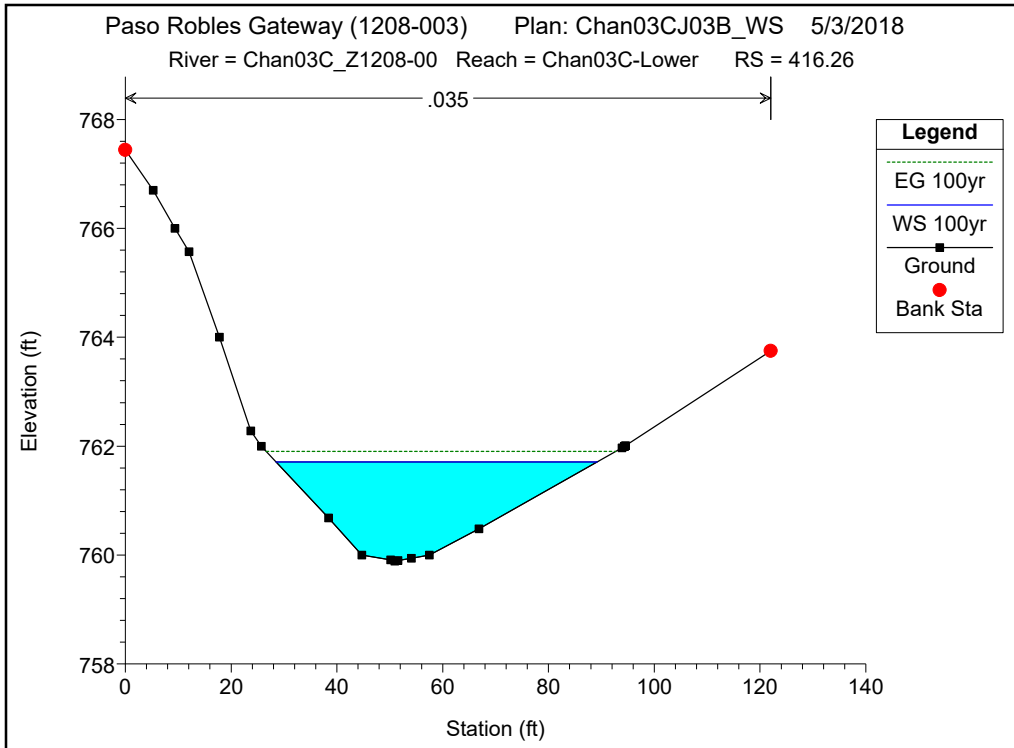
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River = Chan03C_Z1208-00 Reach = Chan03C-Lower RS = 416.26
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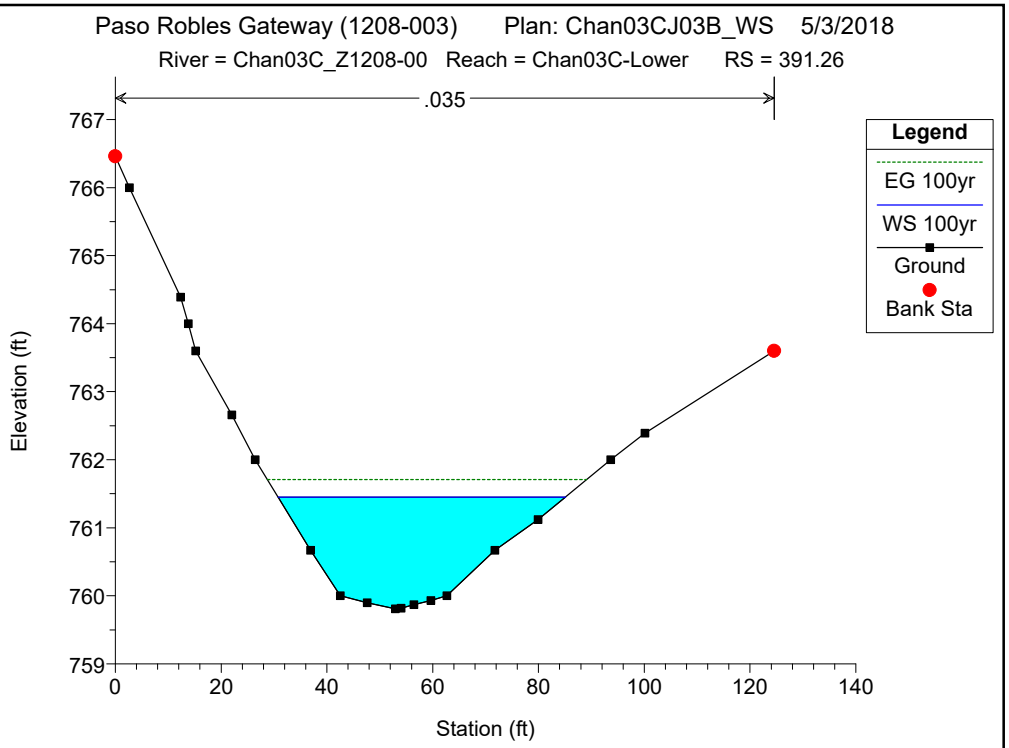
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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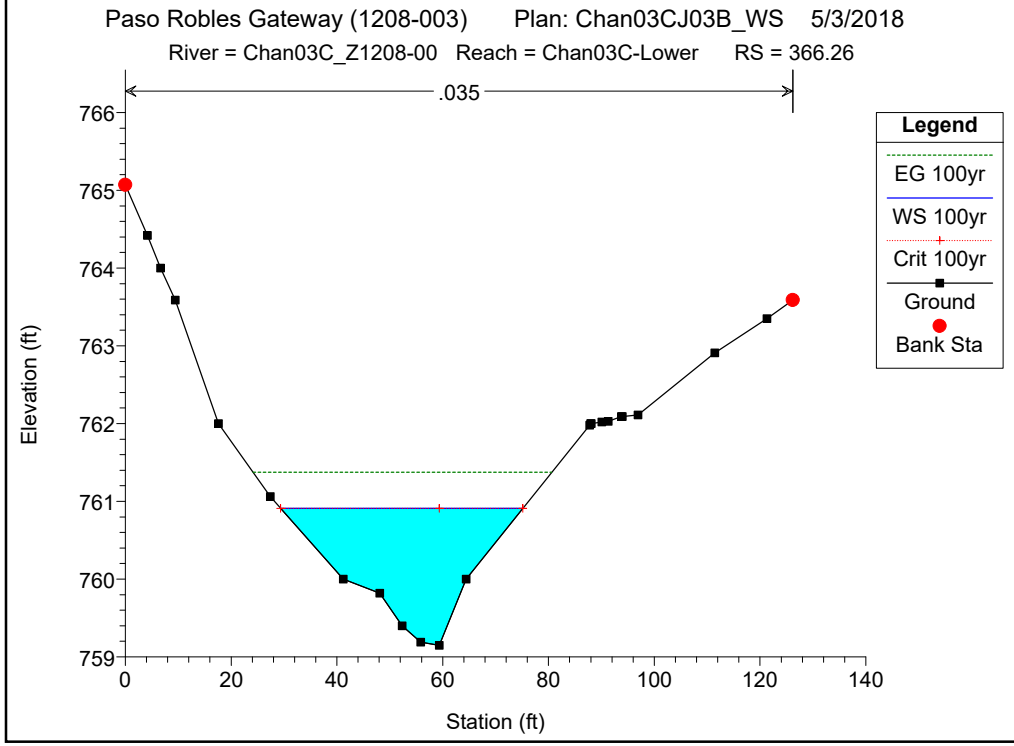
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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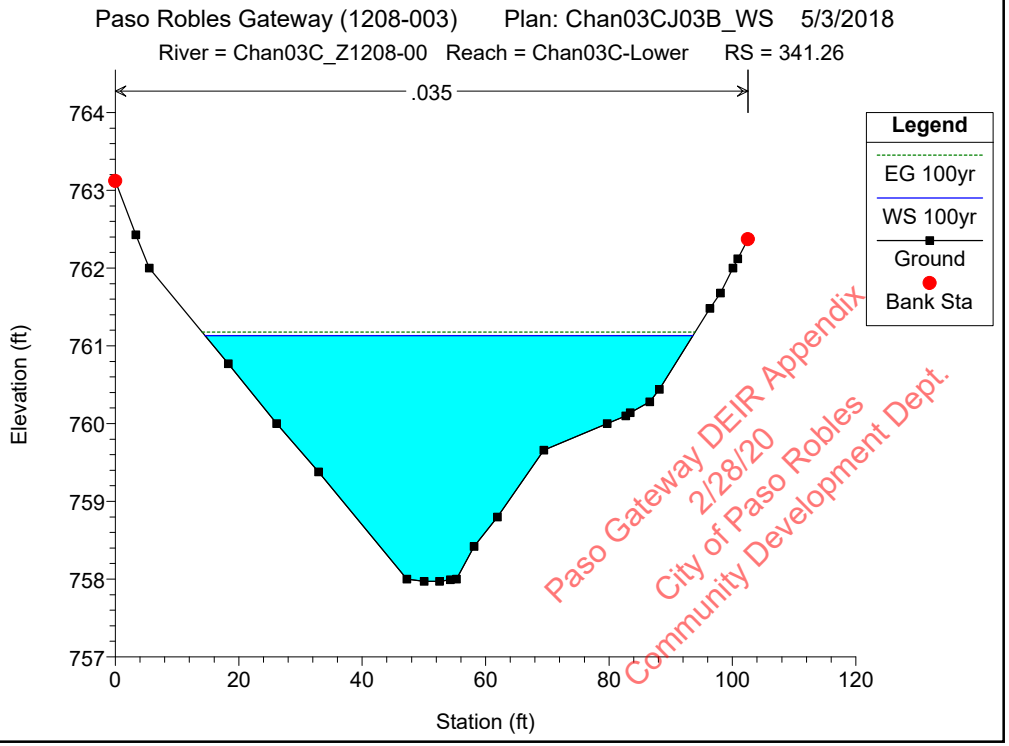
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.035
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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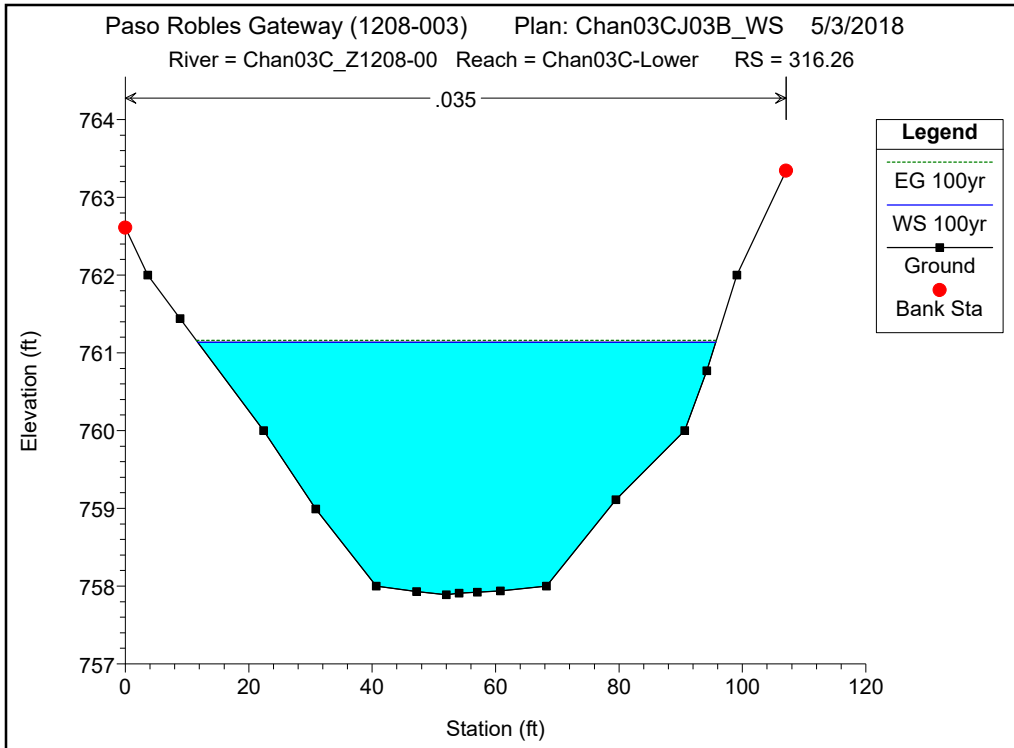

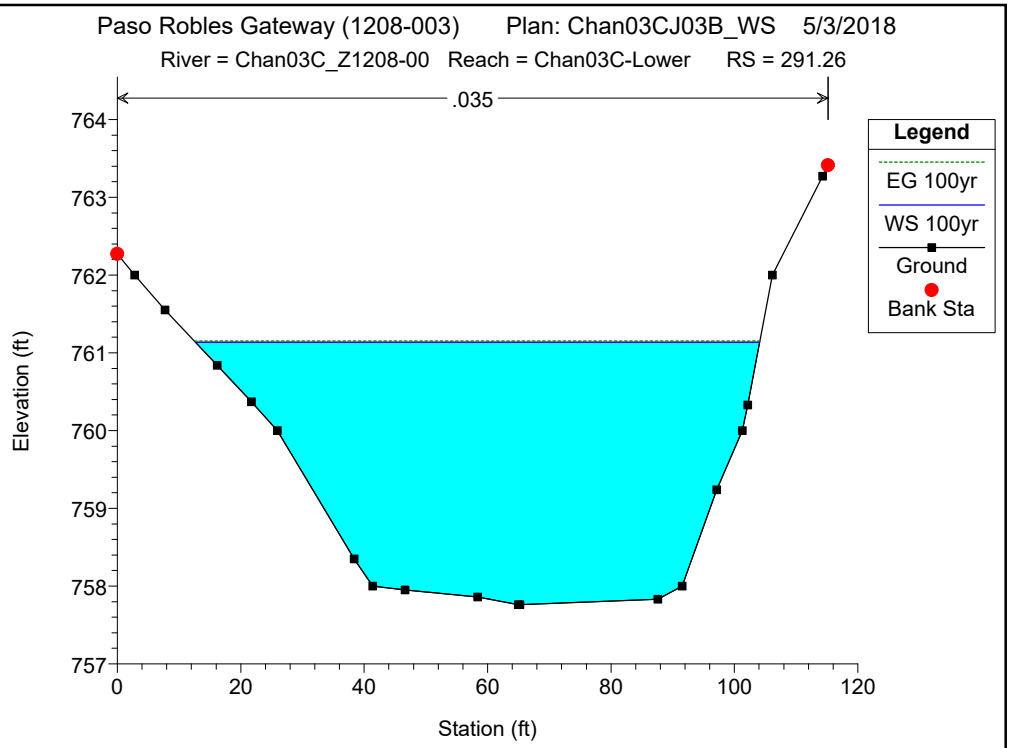

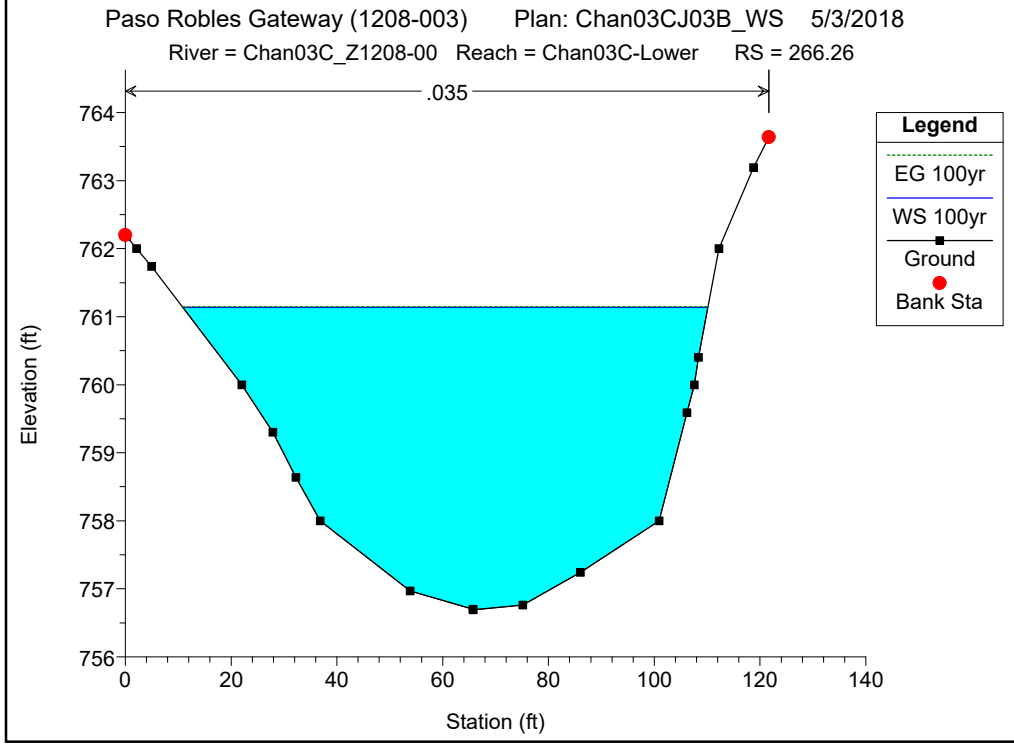

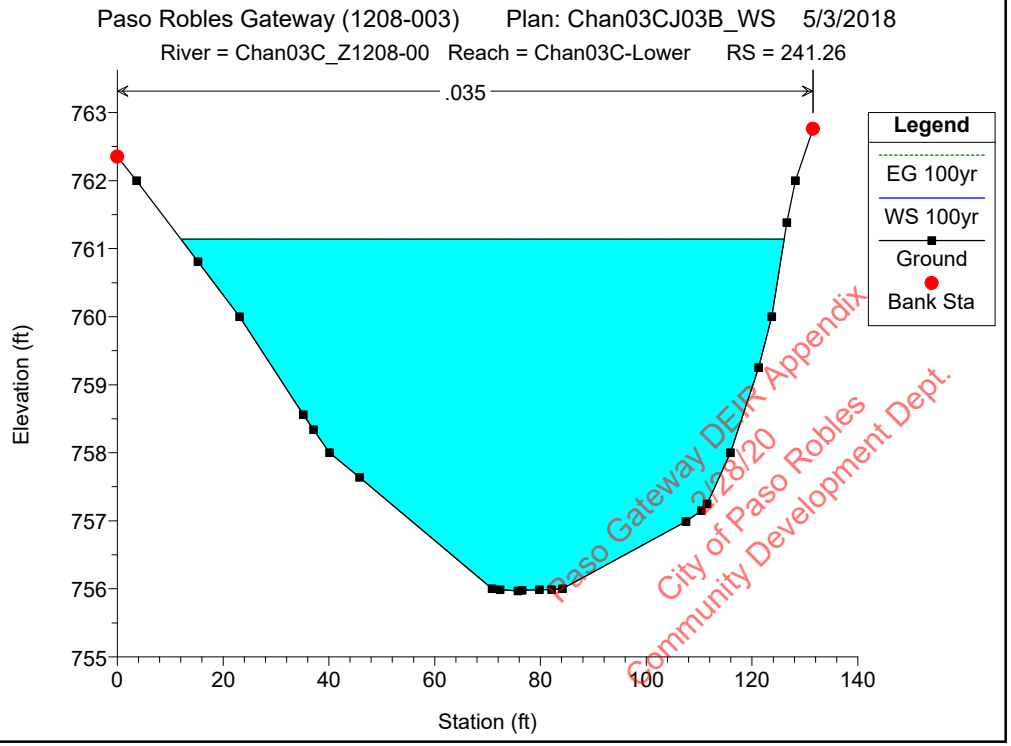

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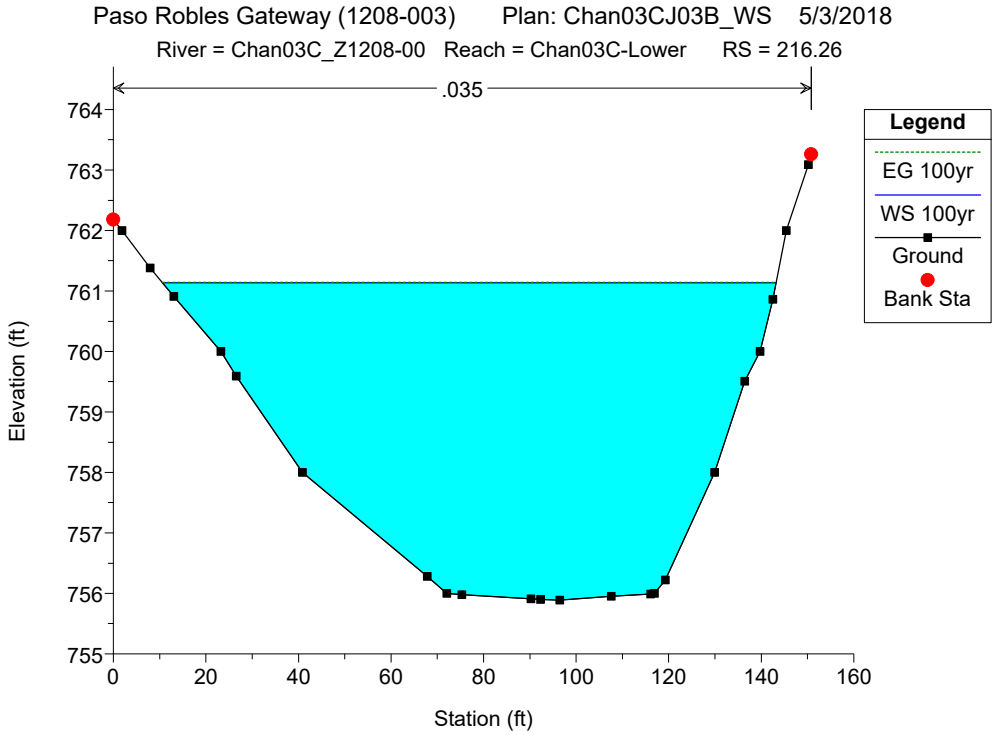
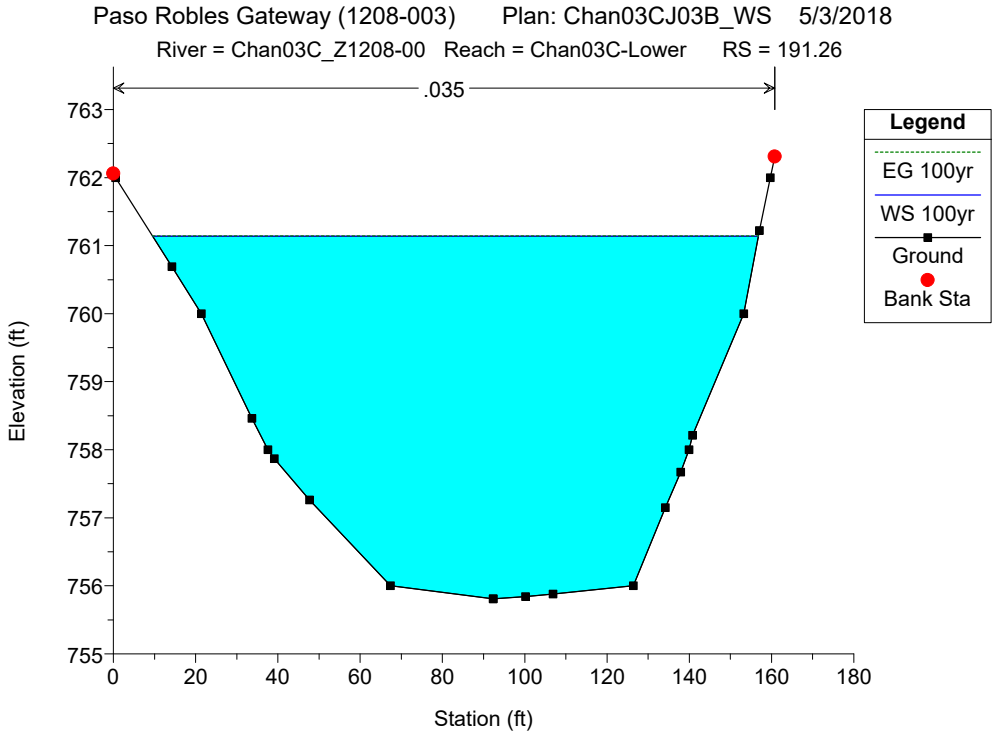
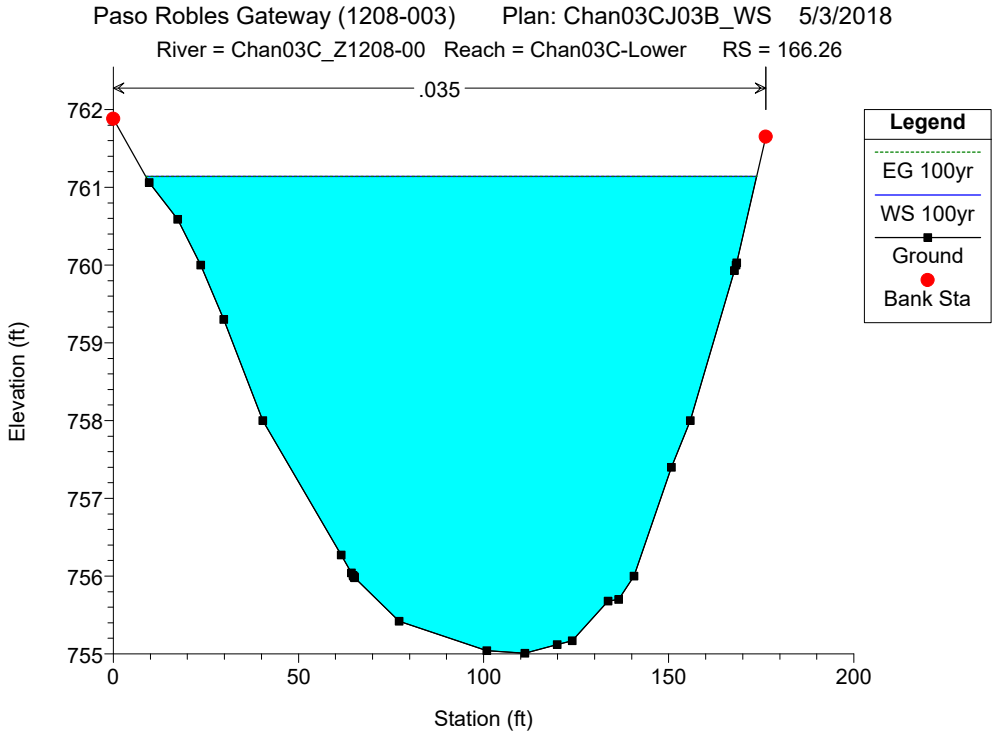

Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Lower RS = 216.26
.035
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Lower RS = 191.26
.035
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Lower RS = 166.26
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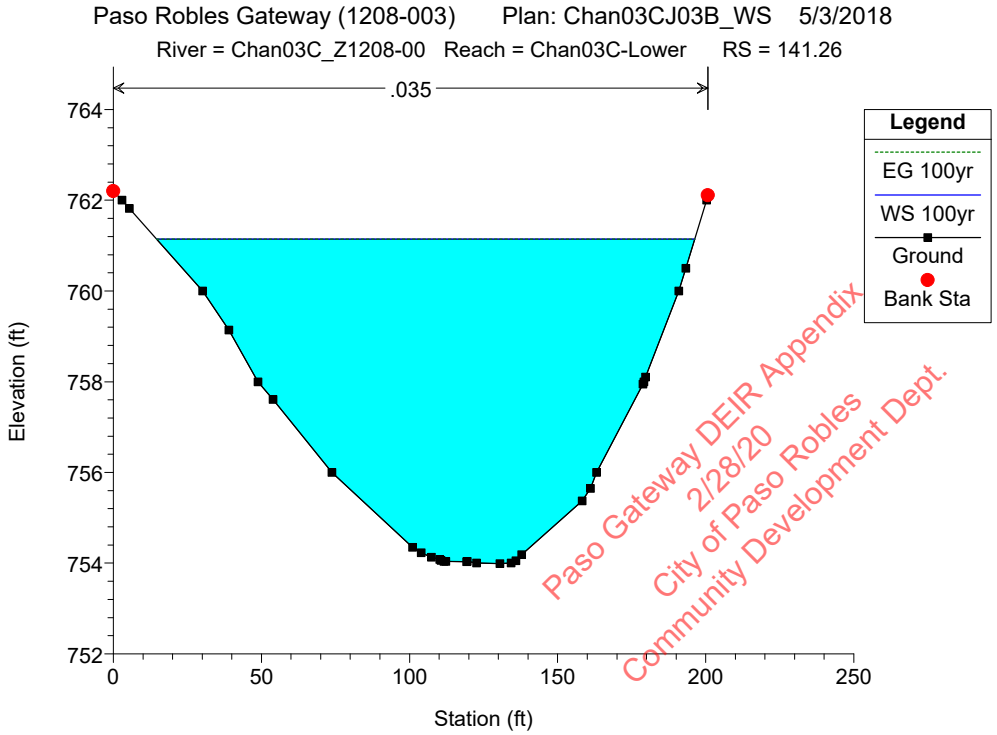
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Lower RS = 141.26
.035
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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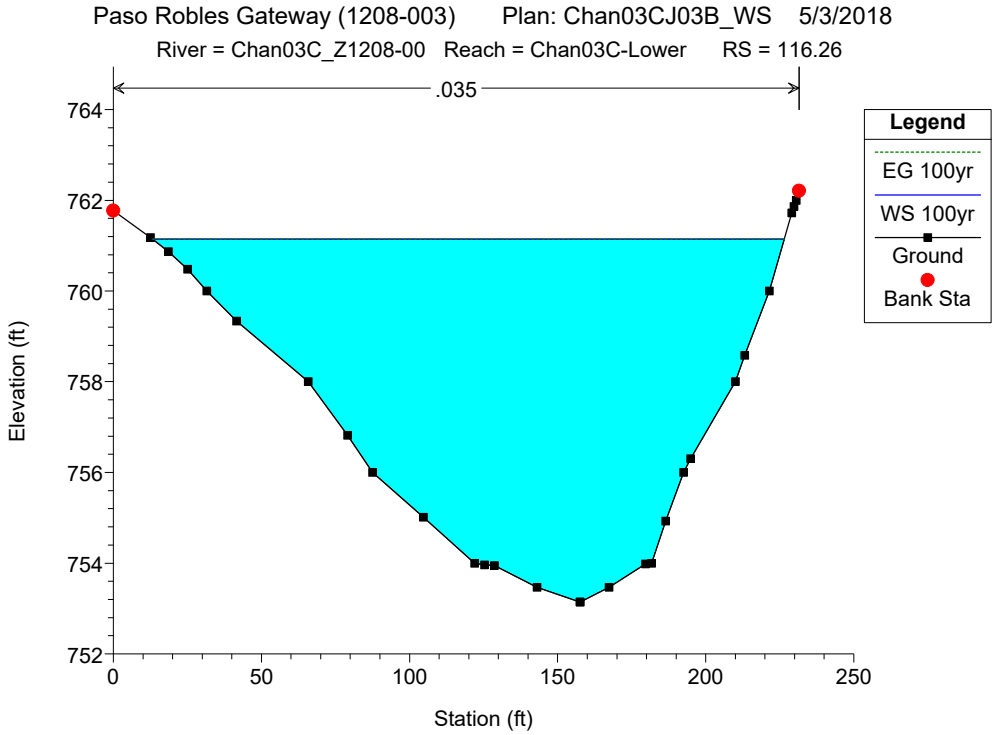

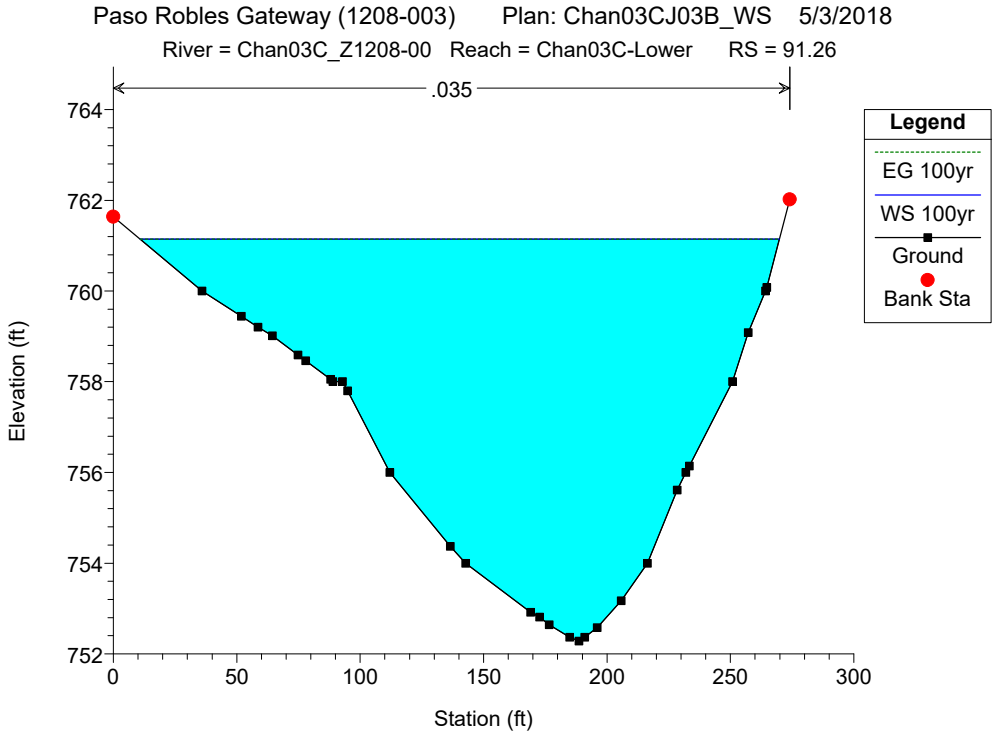

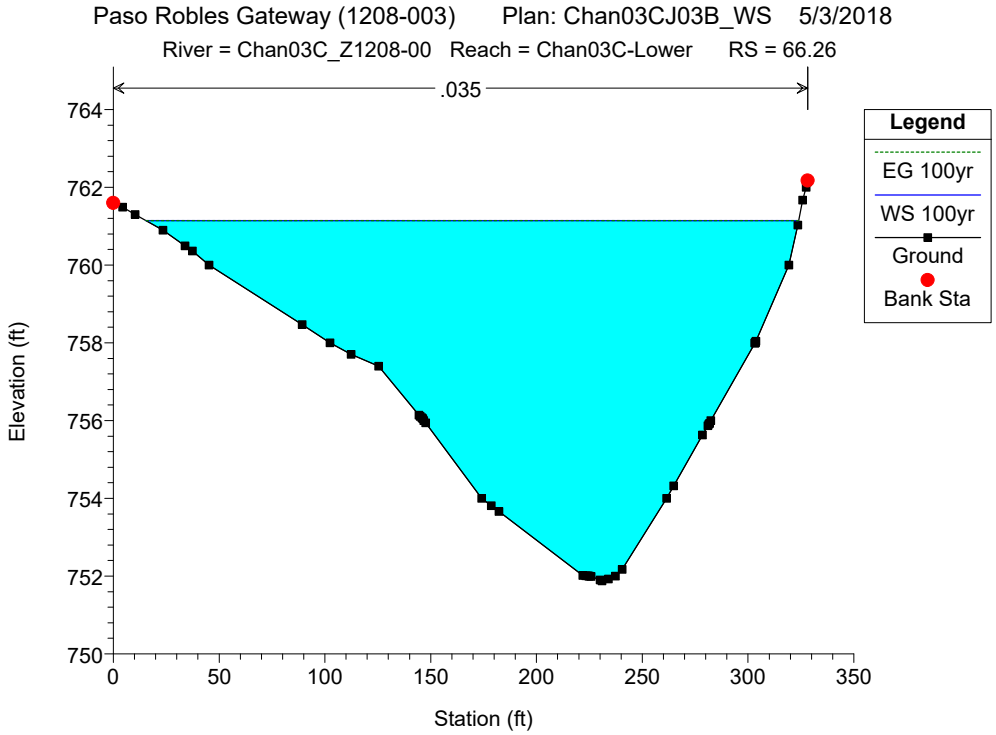

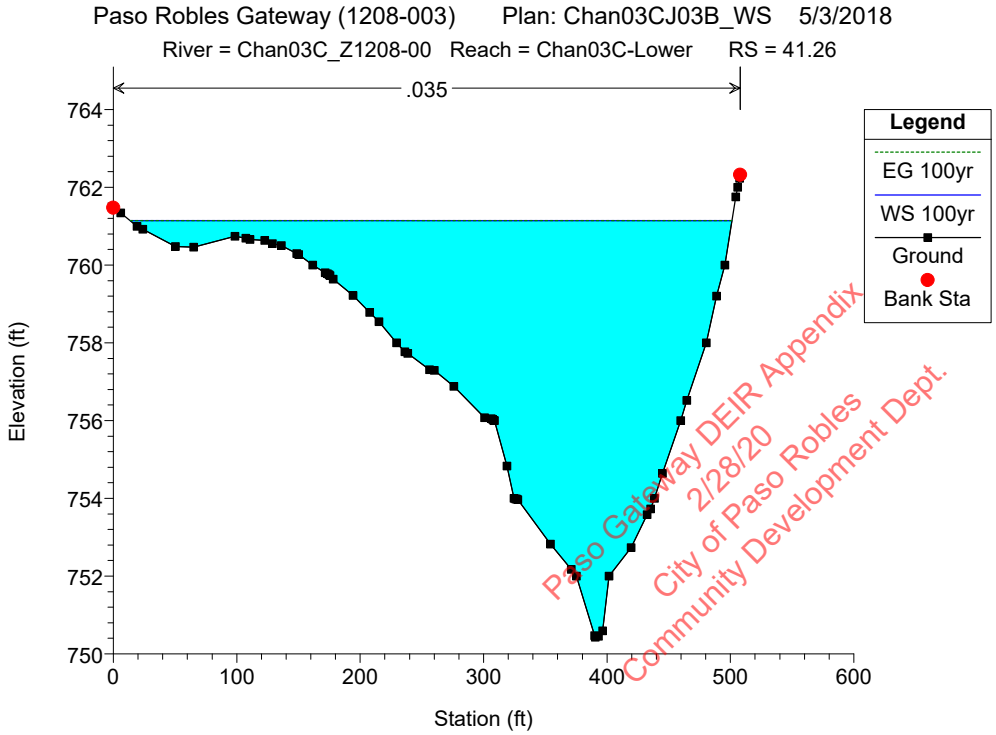

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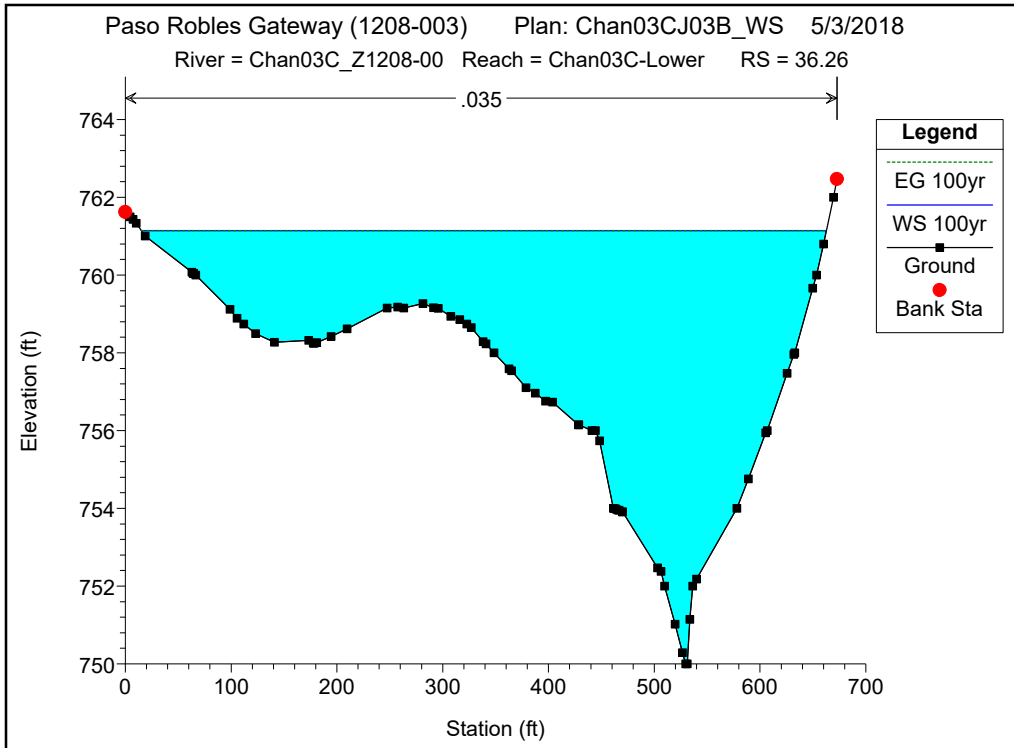

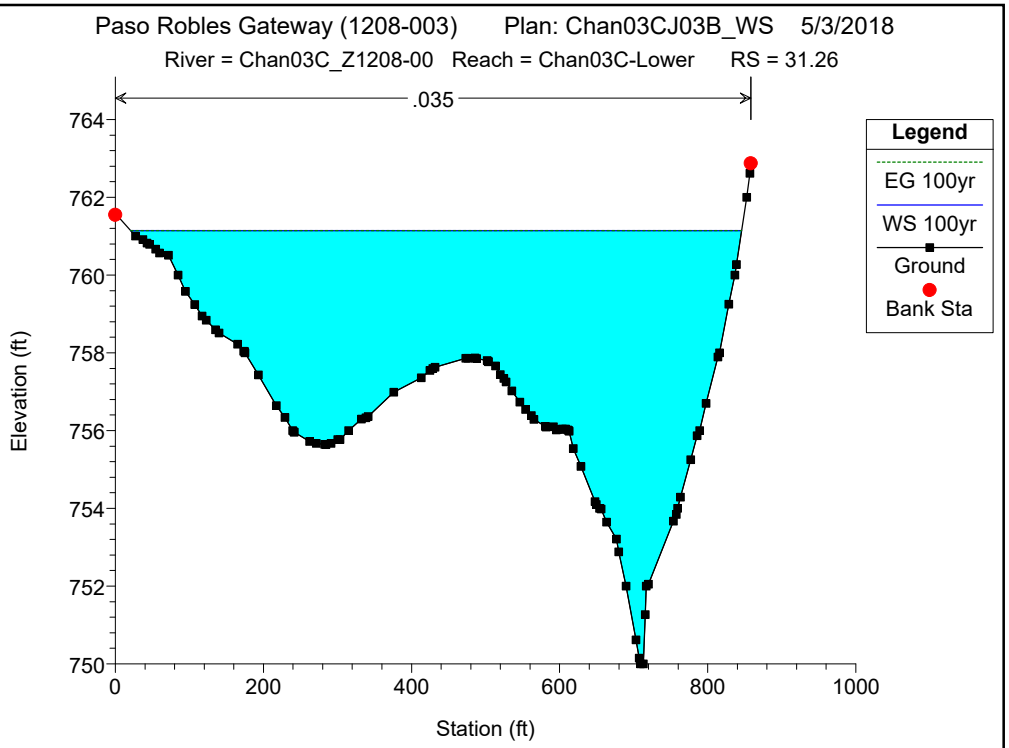

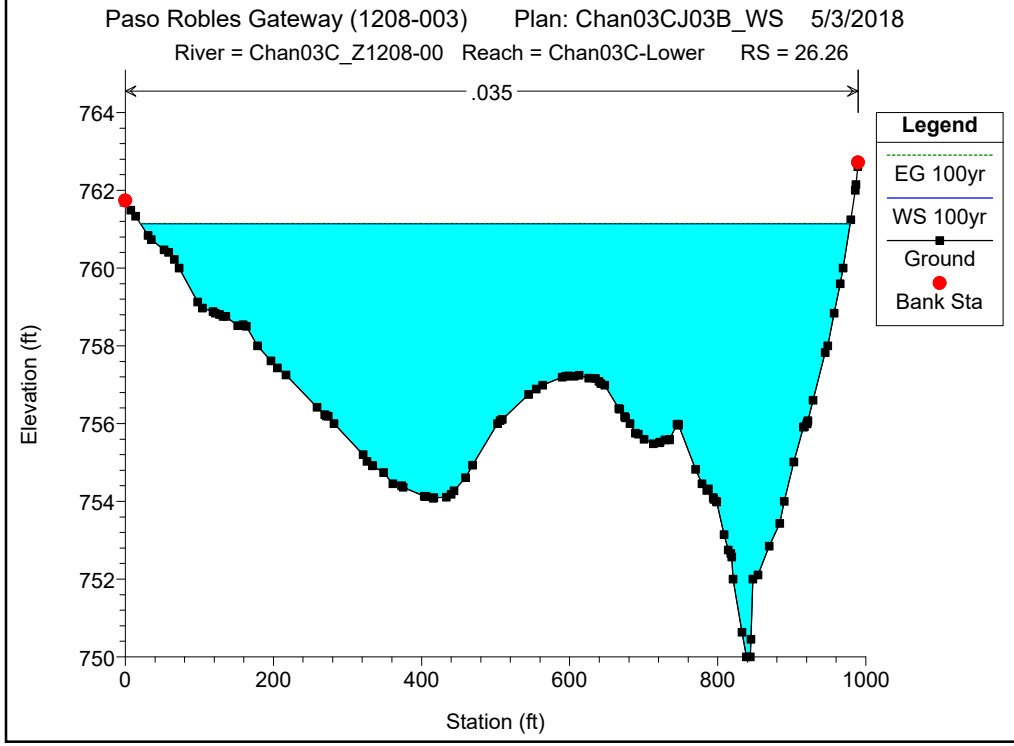

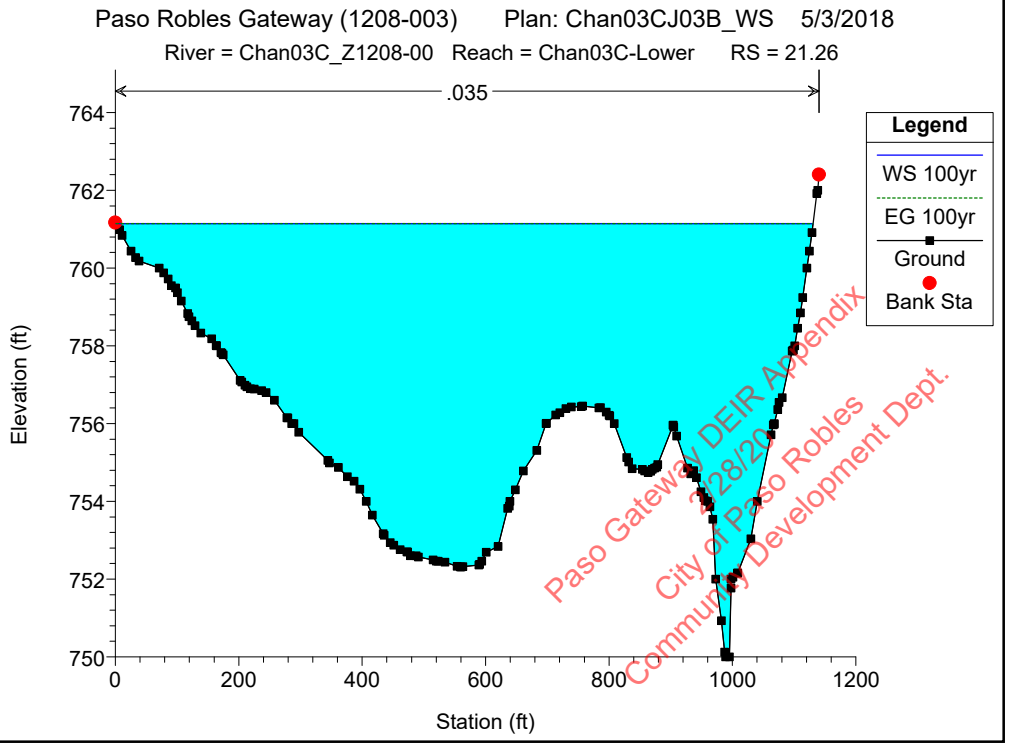

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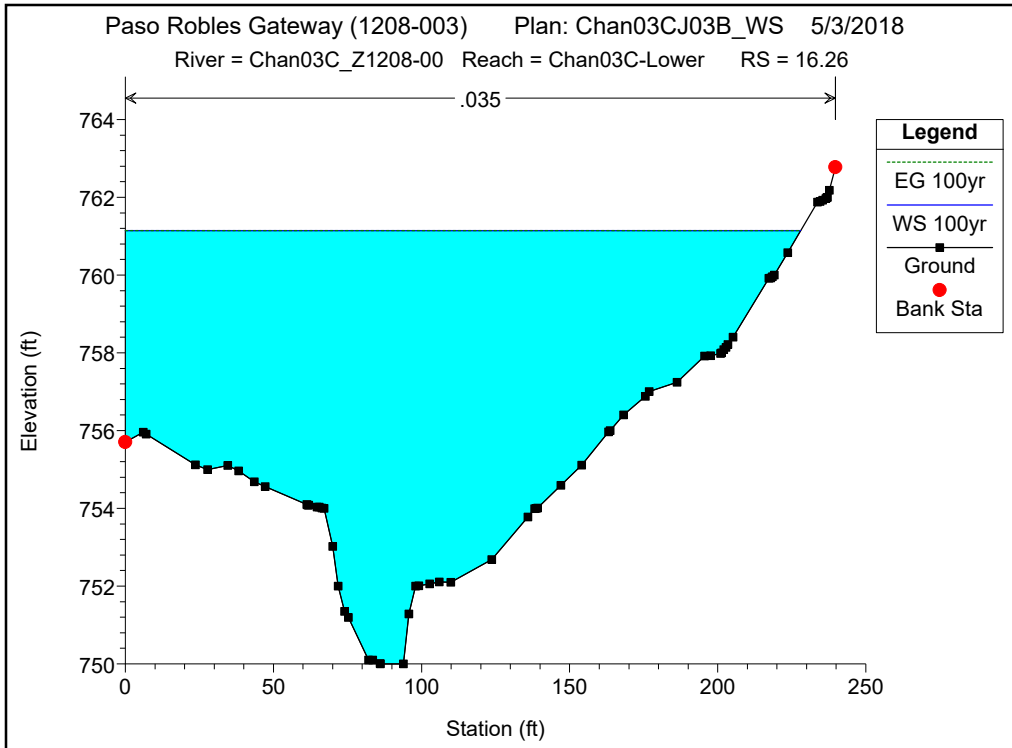
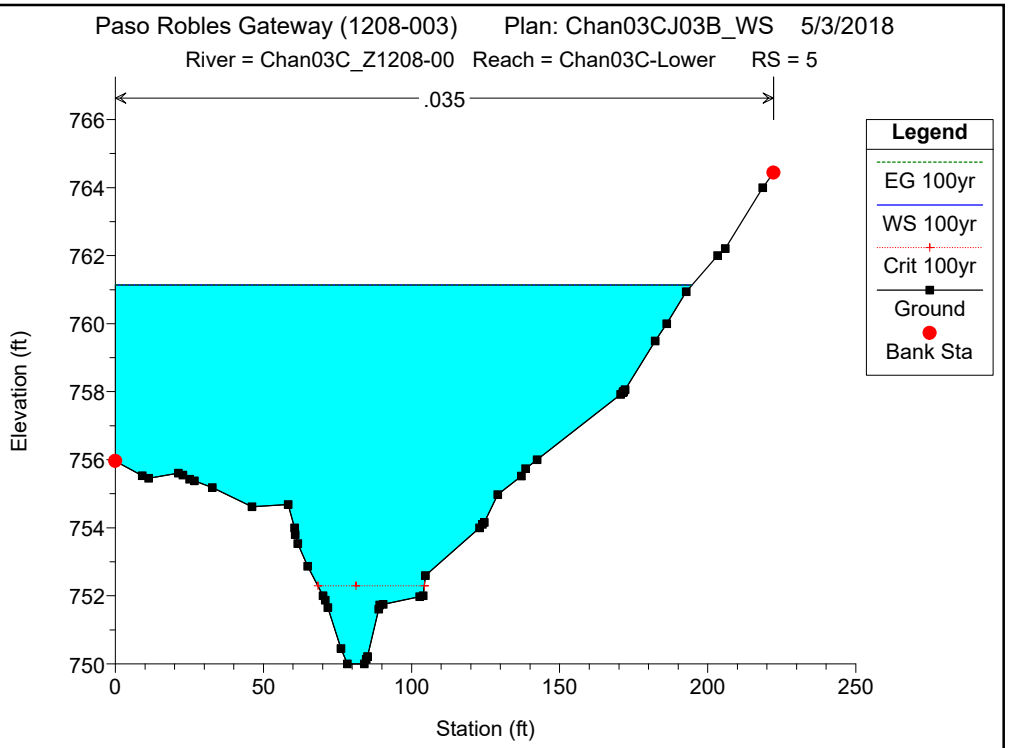

Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Lower RS = 16.26
.035
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03C_Z1208-00 Reach = Chan03C-Lower RS = 5
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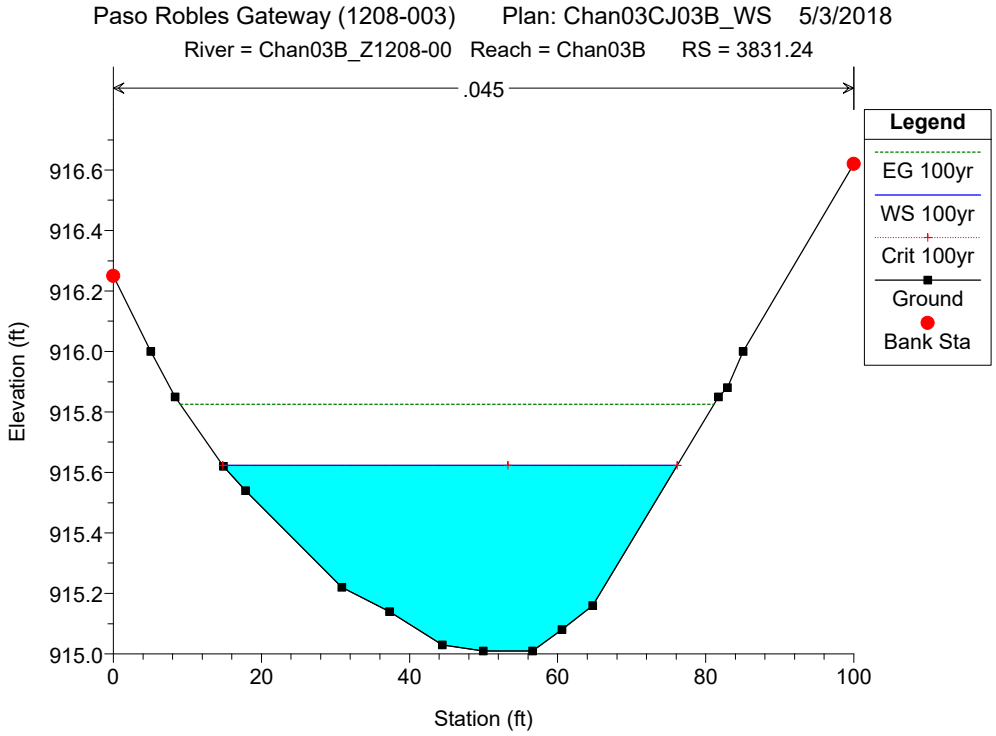
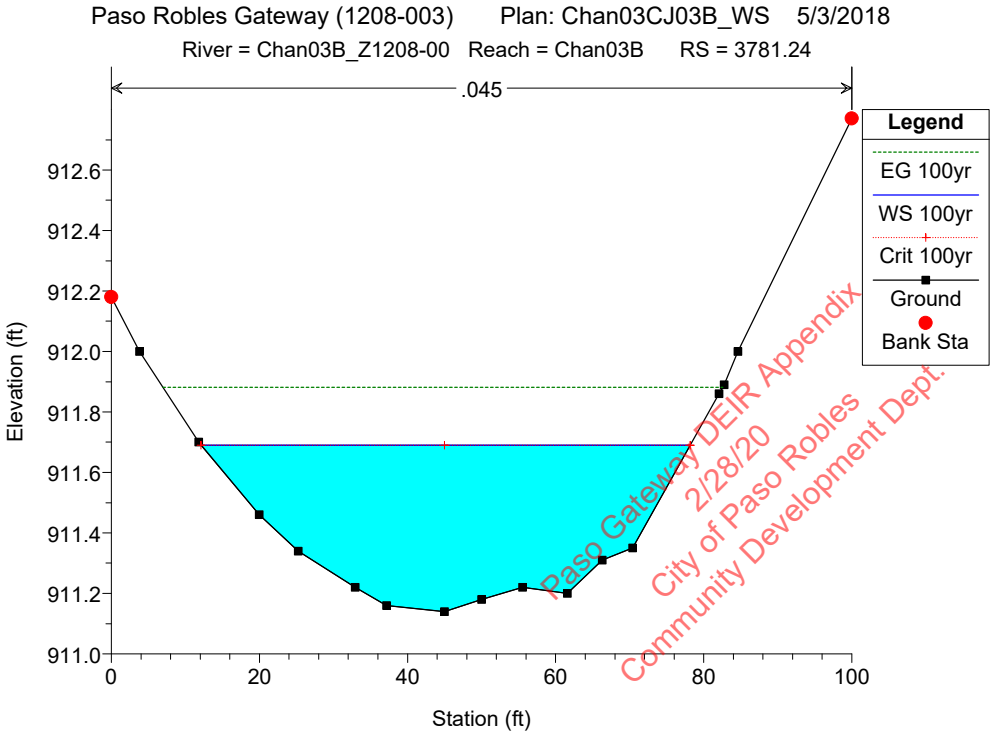
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03B_Z1208-00 Reach = Chan03B RS = 3831.24
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03B_Z1208-00 Reach = Chan03B RS = 3781.24
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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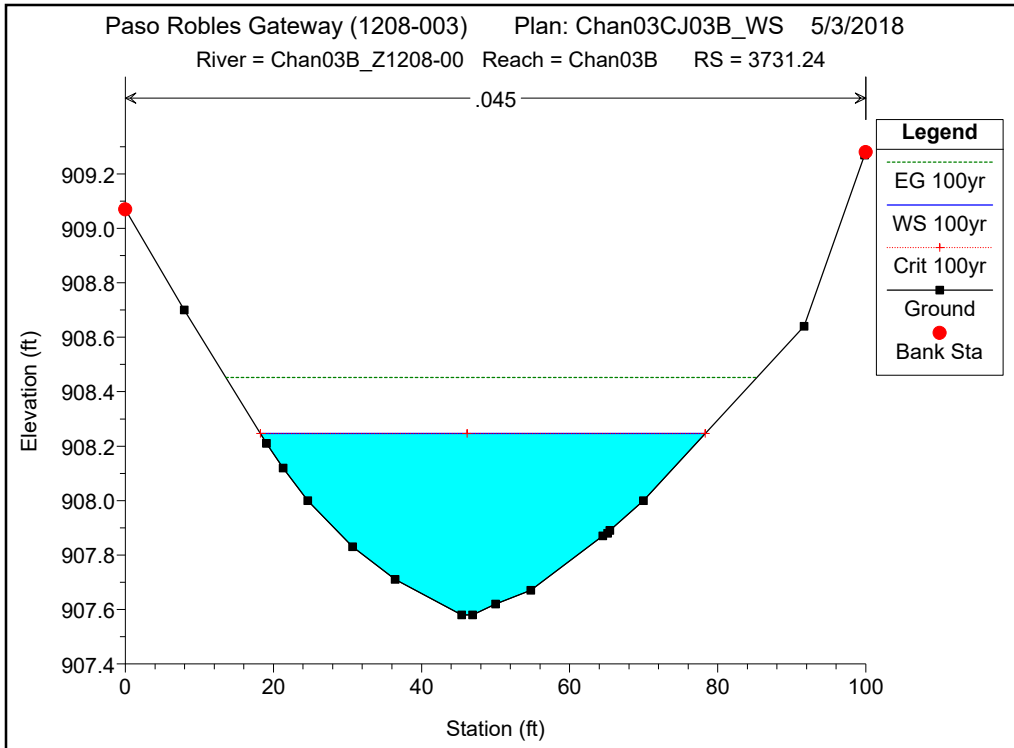
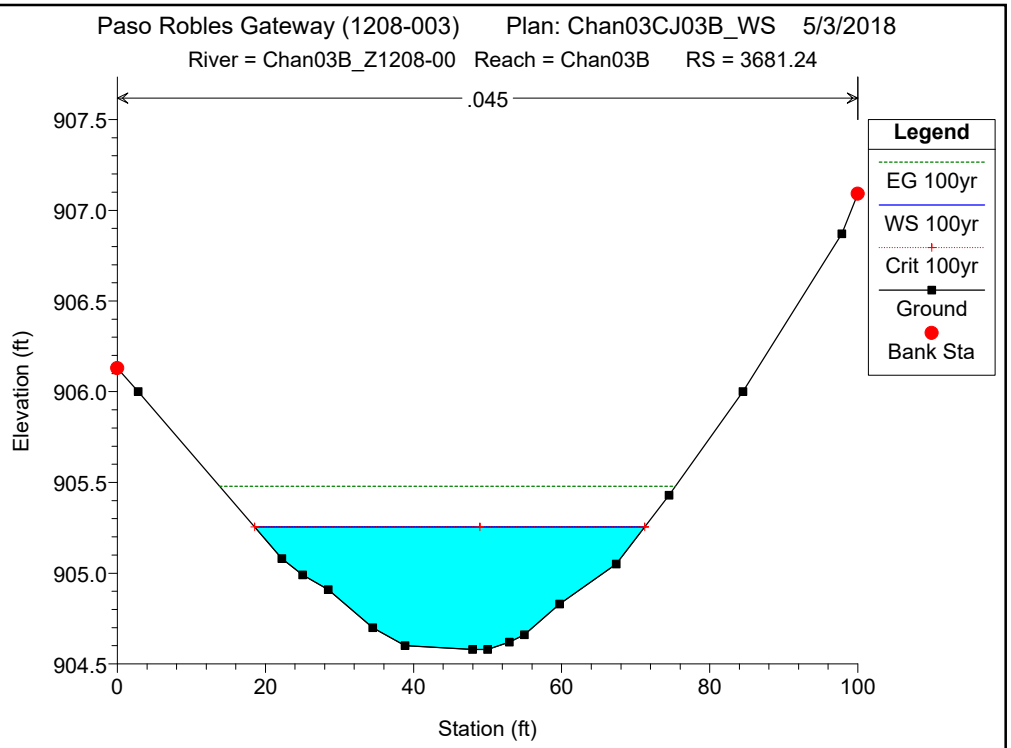

Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03B_Z1208-00 Reach = Chan03B RS = 3731.24
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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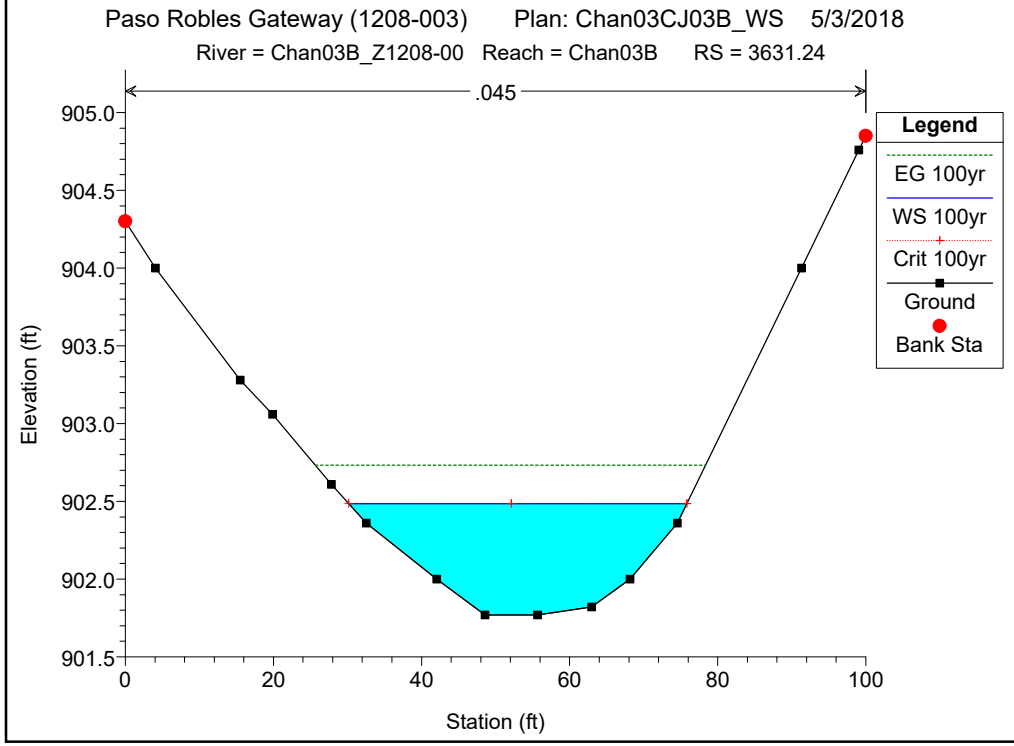
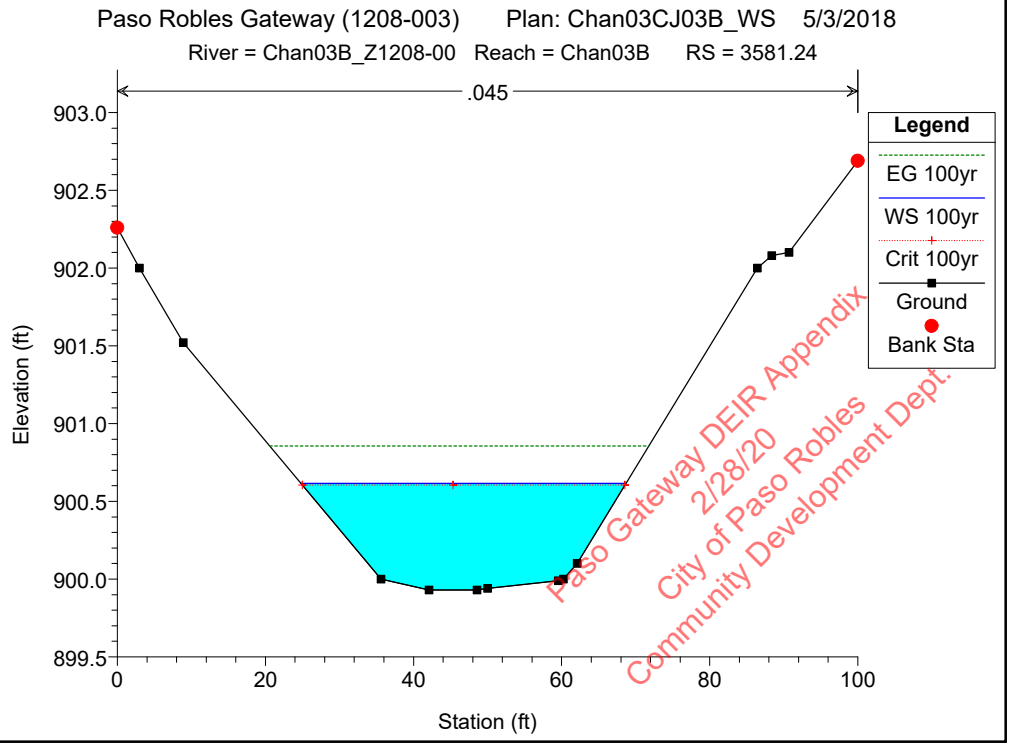
River = Chan03B_Z1208-00 Reach = Chan03B RS = 3681.24
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03B_Z1208-00 Reach = Chan03B RS = 3631.24
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan03B_Z1208-00 Reach = Chan03B RS = 3581.24
.045
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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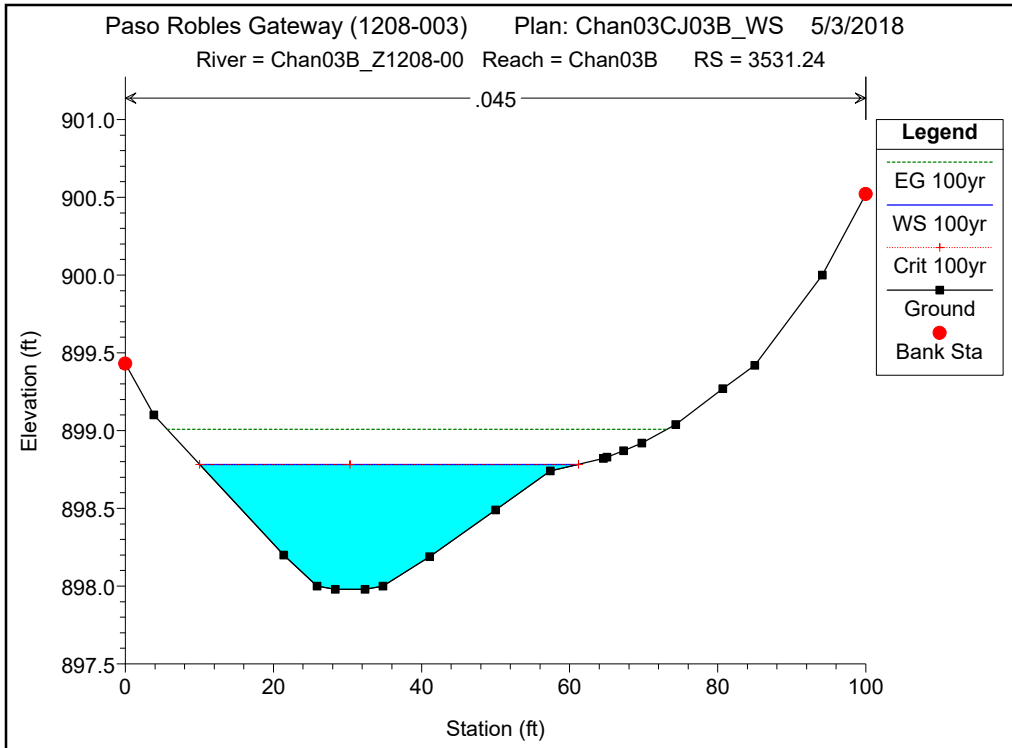
Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
River = Chan03B_Z1208-00 Reach = Chan03B RS = 3531.24
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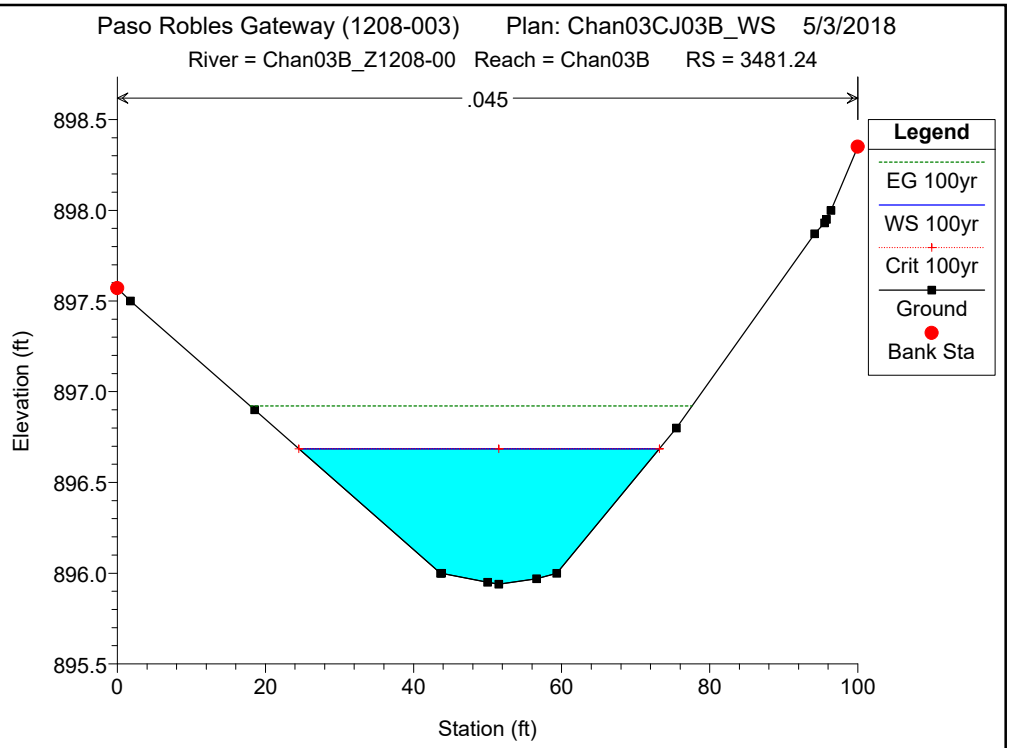
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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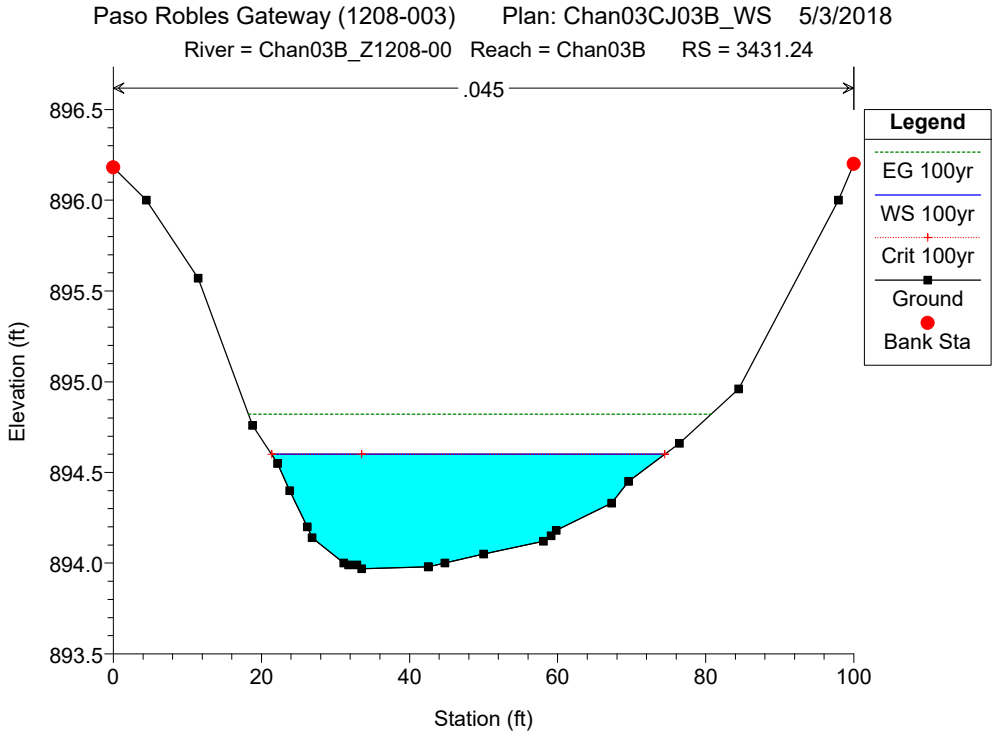
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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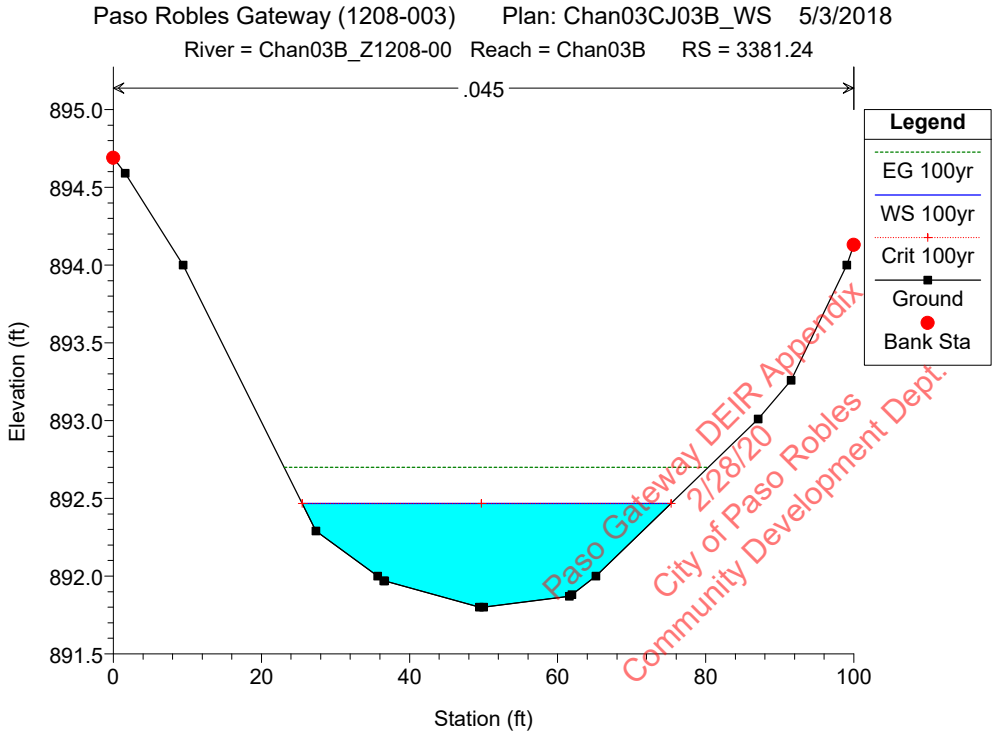
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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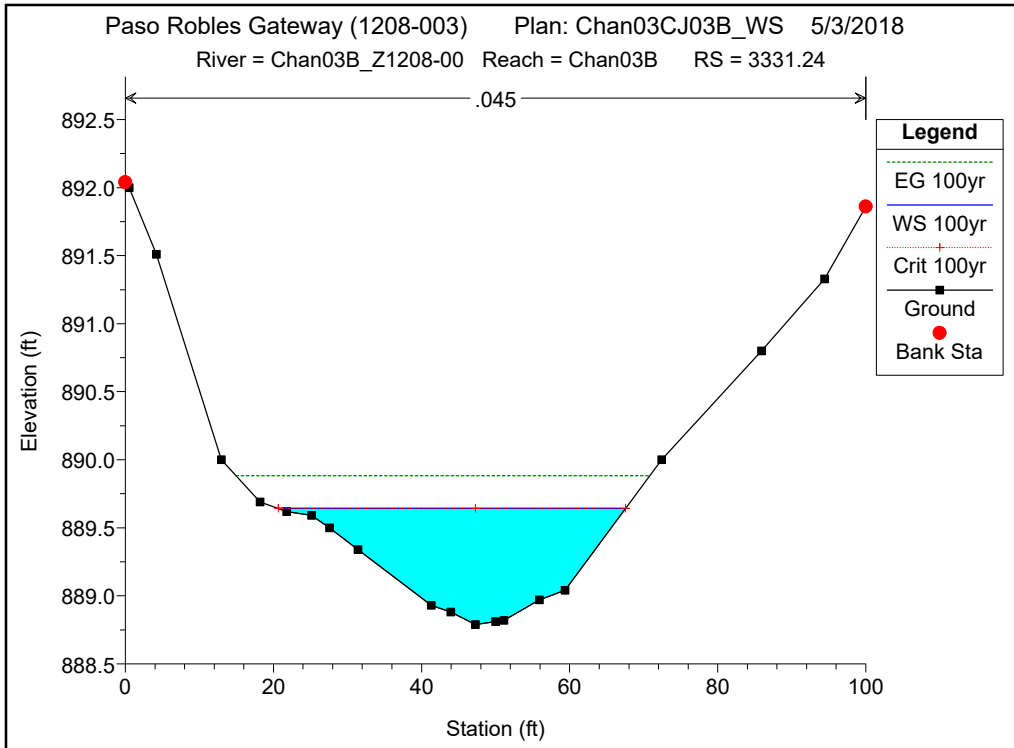
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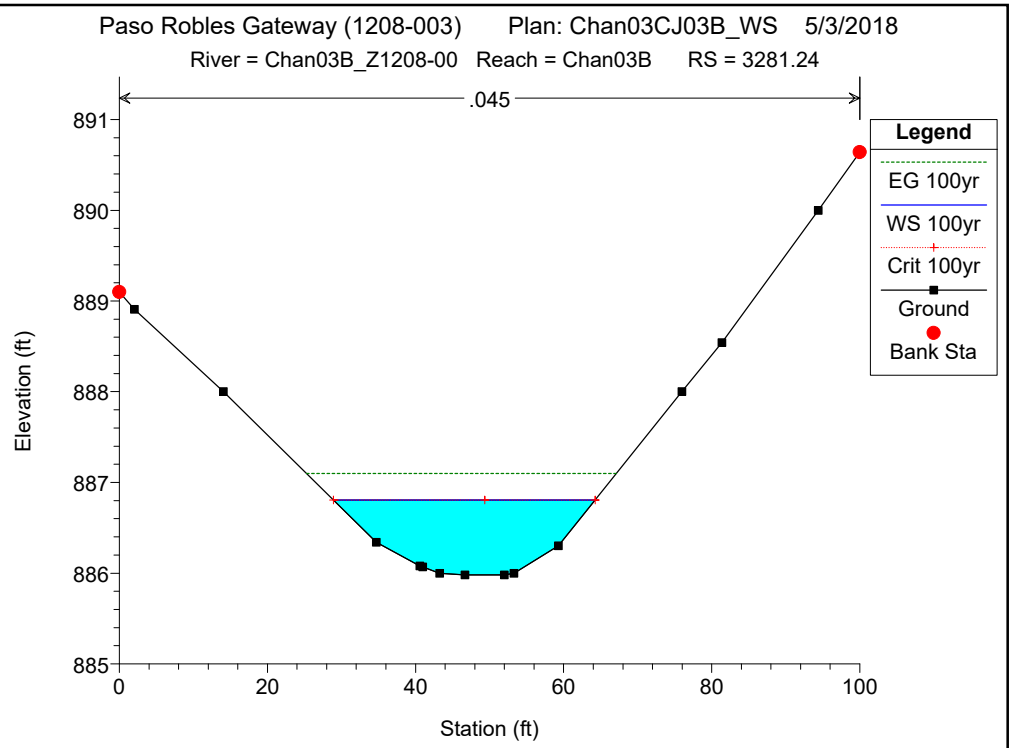
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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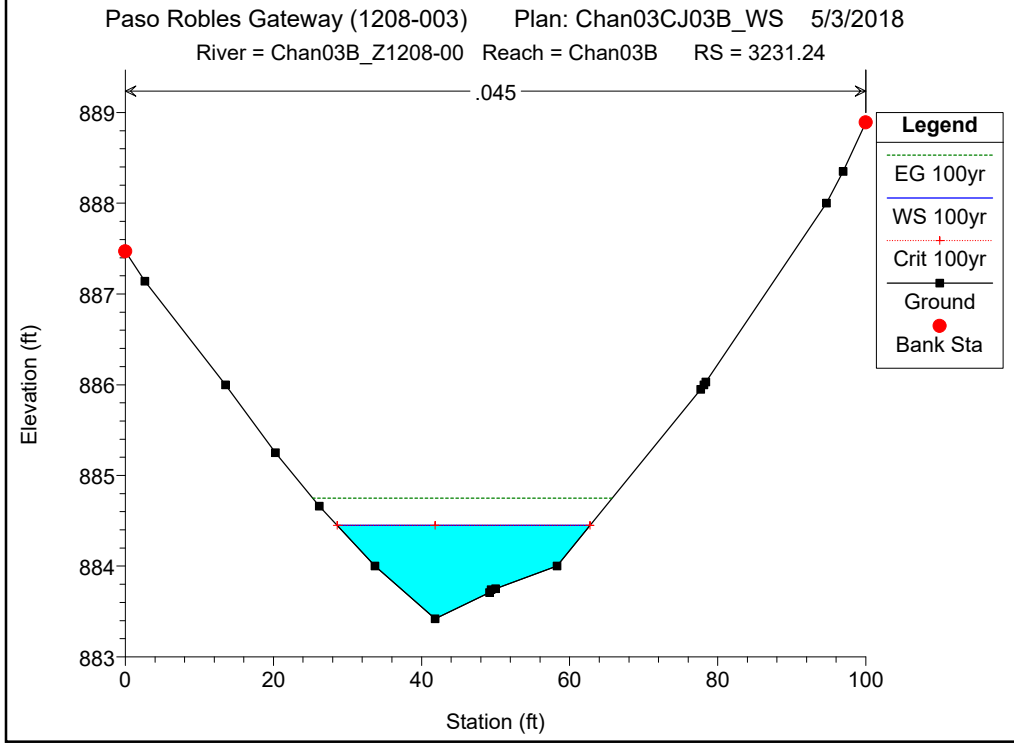
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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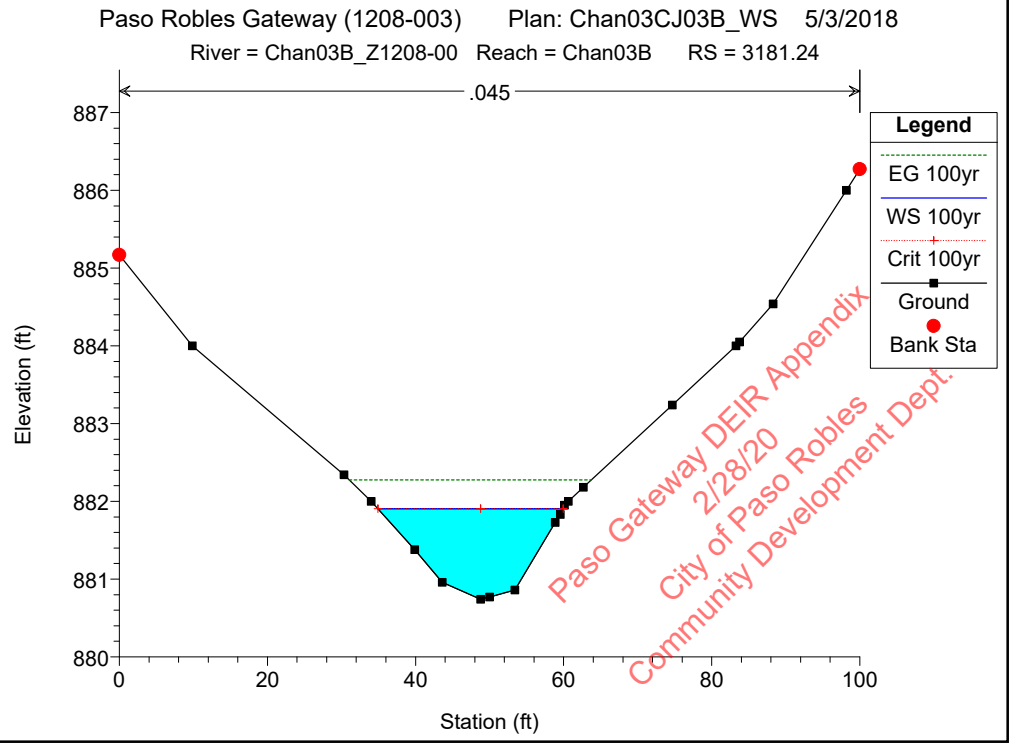
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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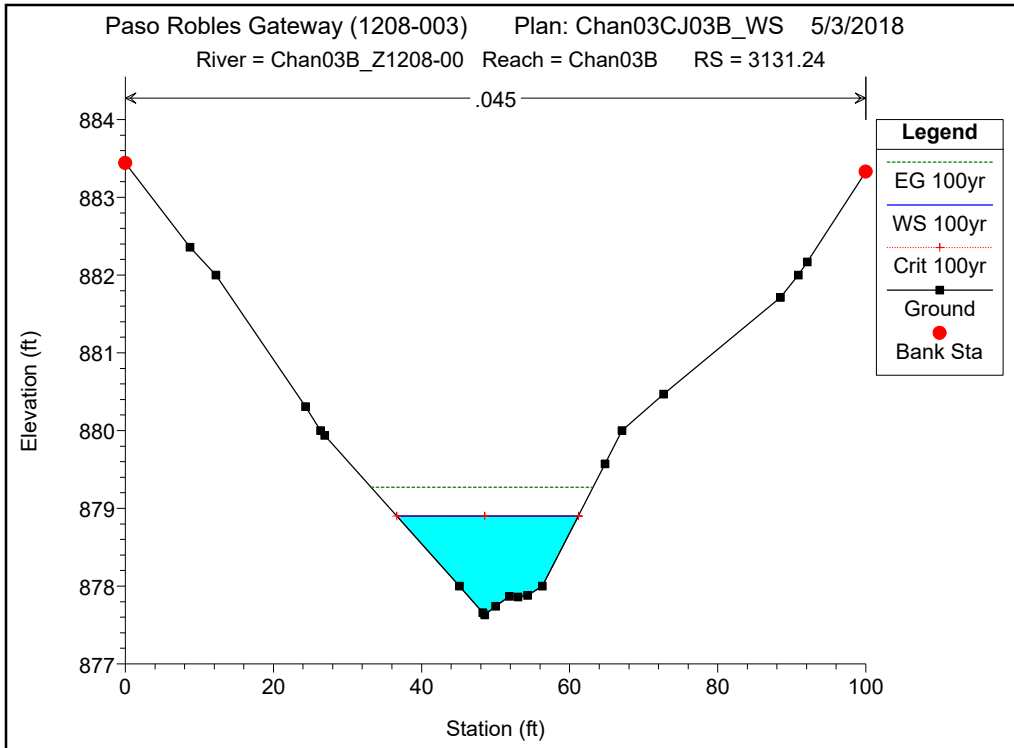
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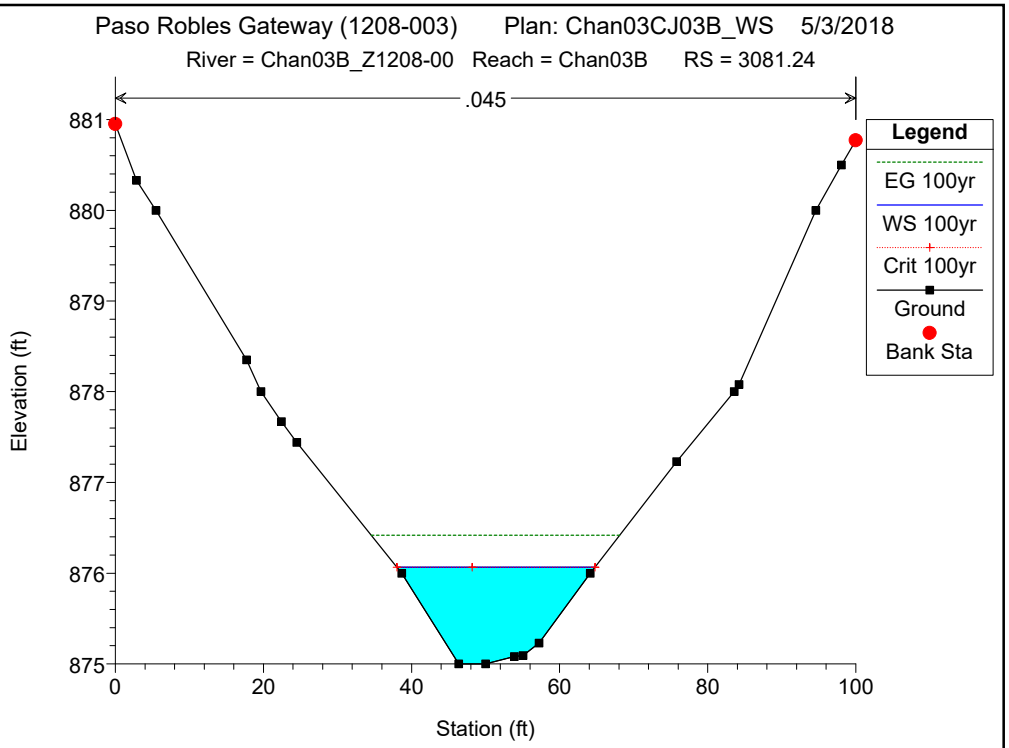
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = Chan03B_Z1208-00 Reach = Chan03B RS = 3081.24
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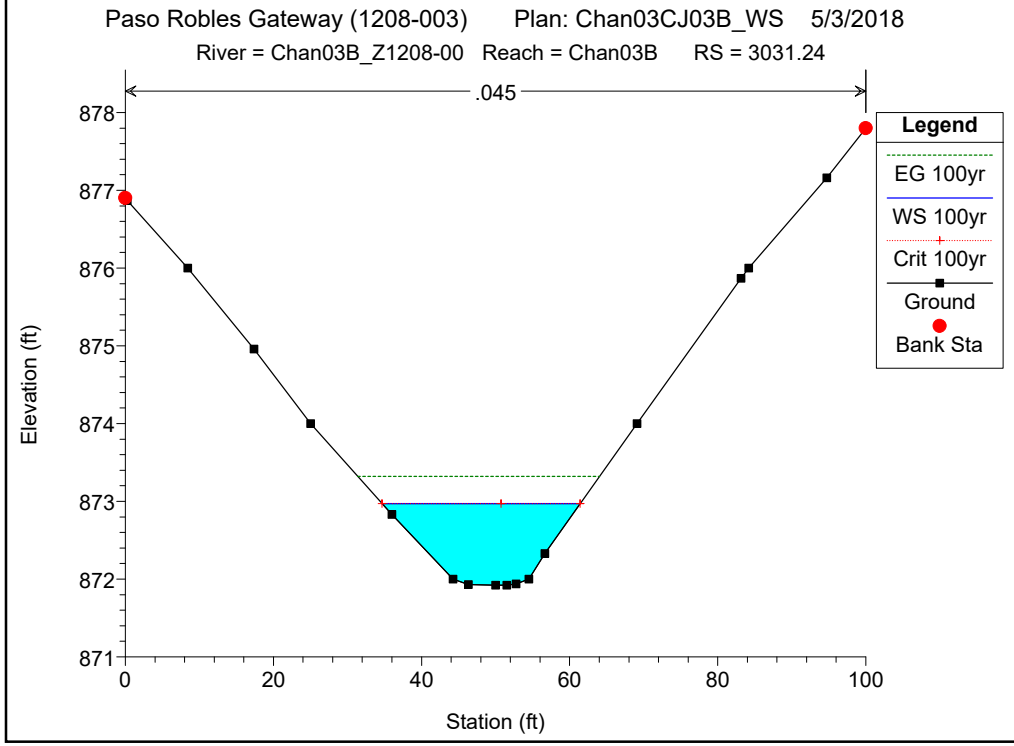
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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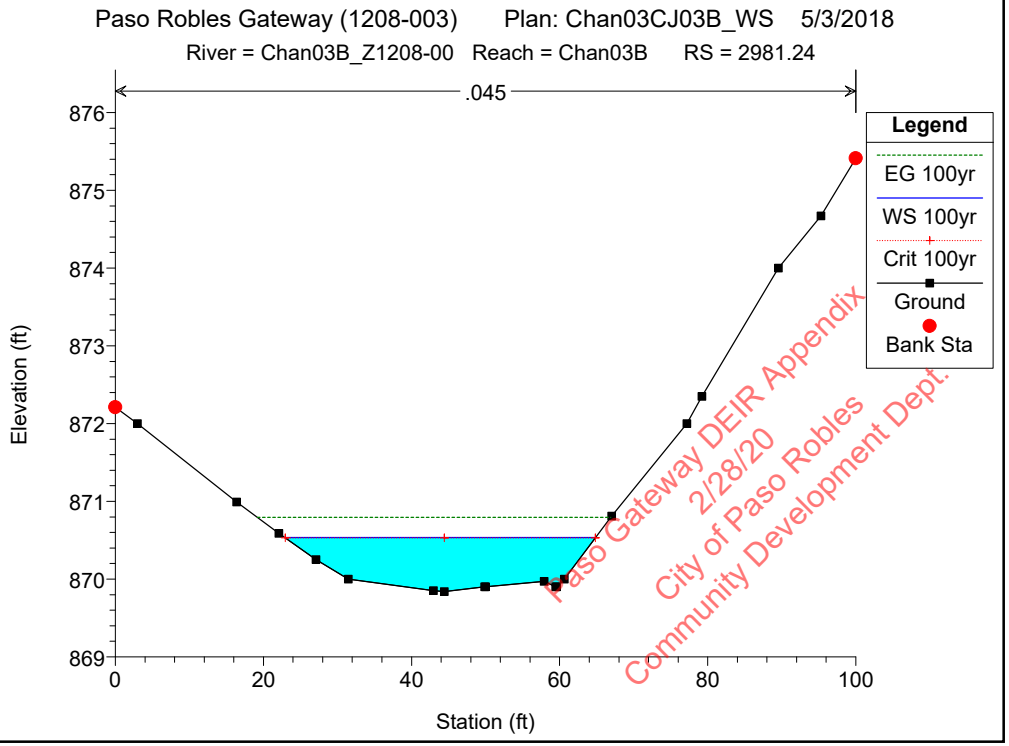
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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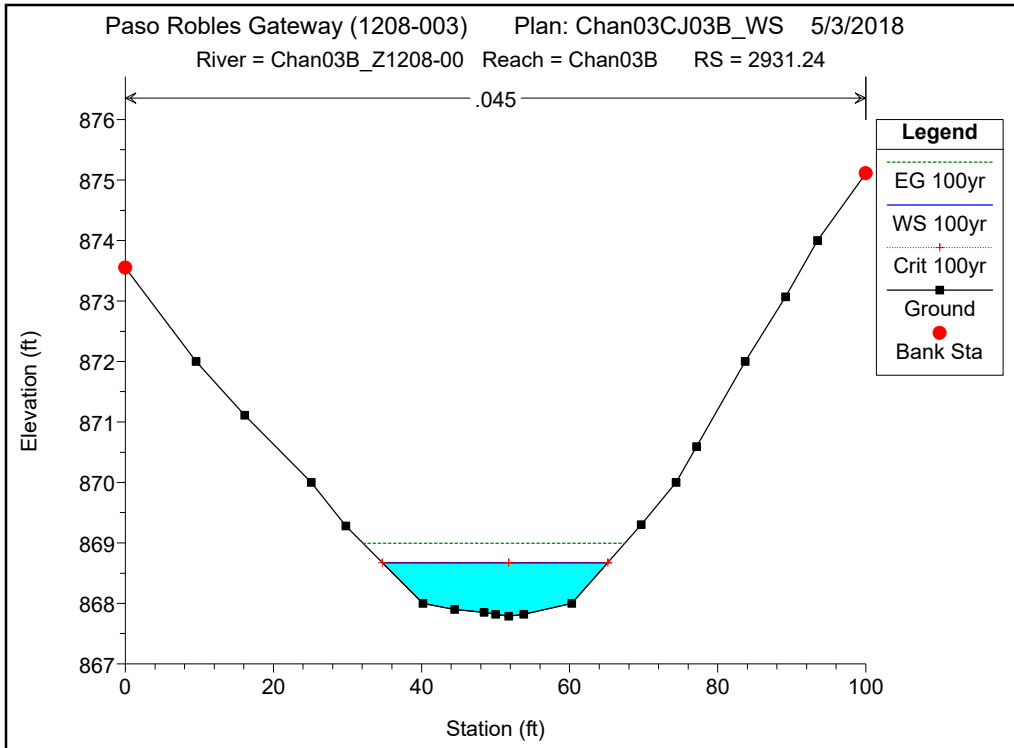
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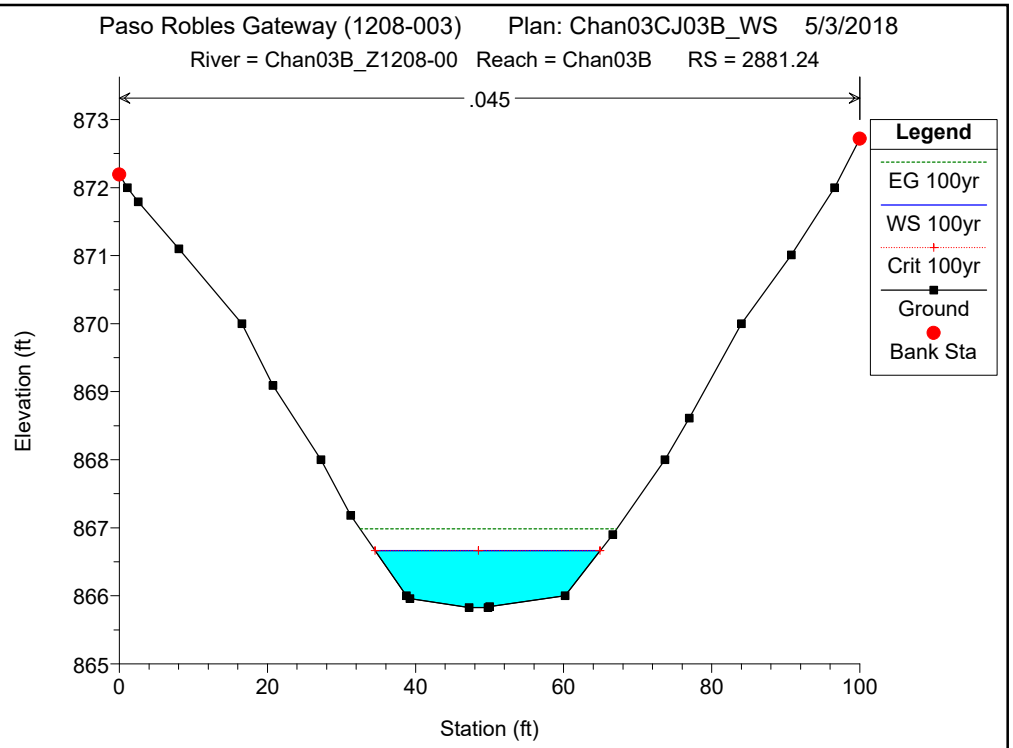
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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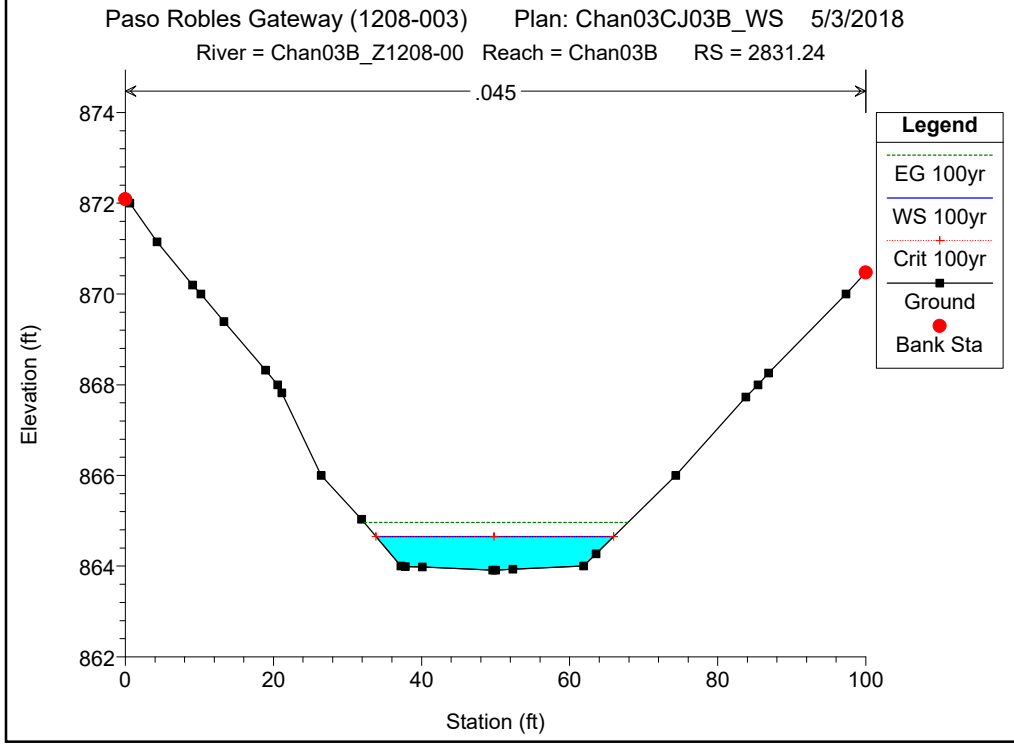
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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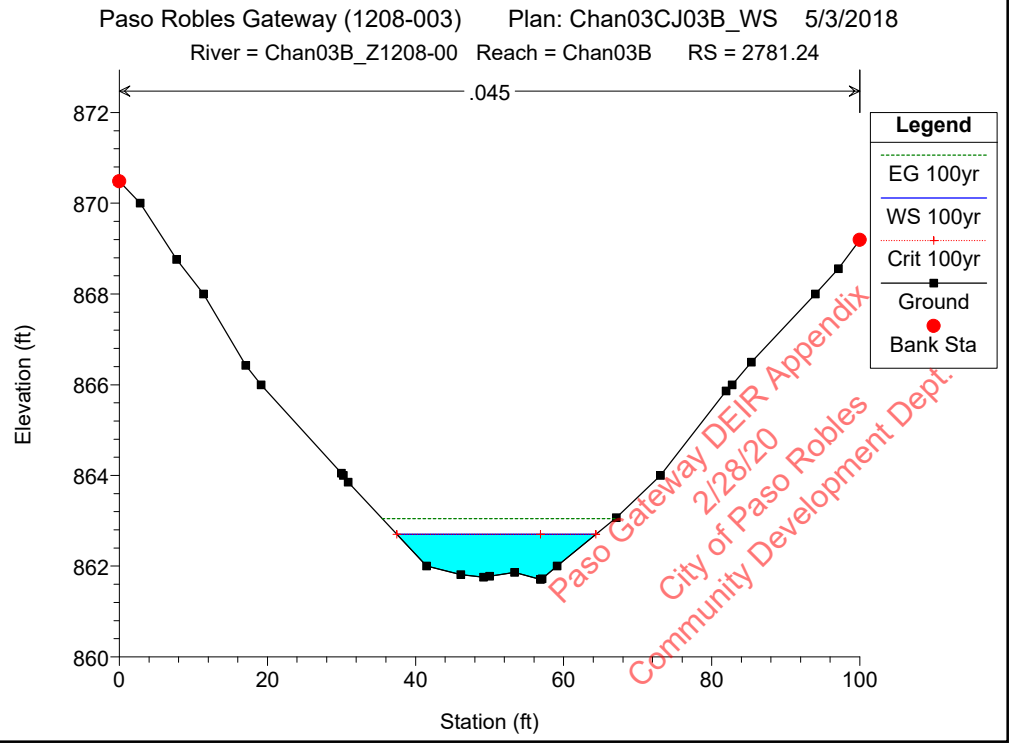
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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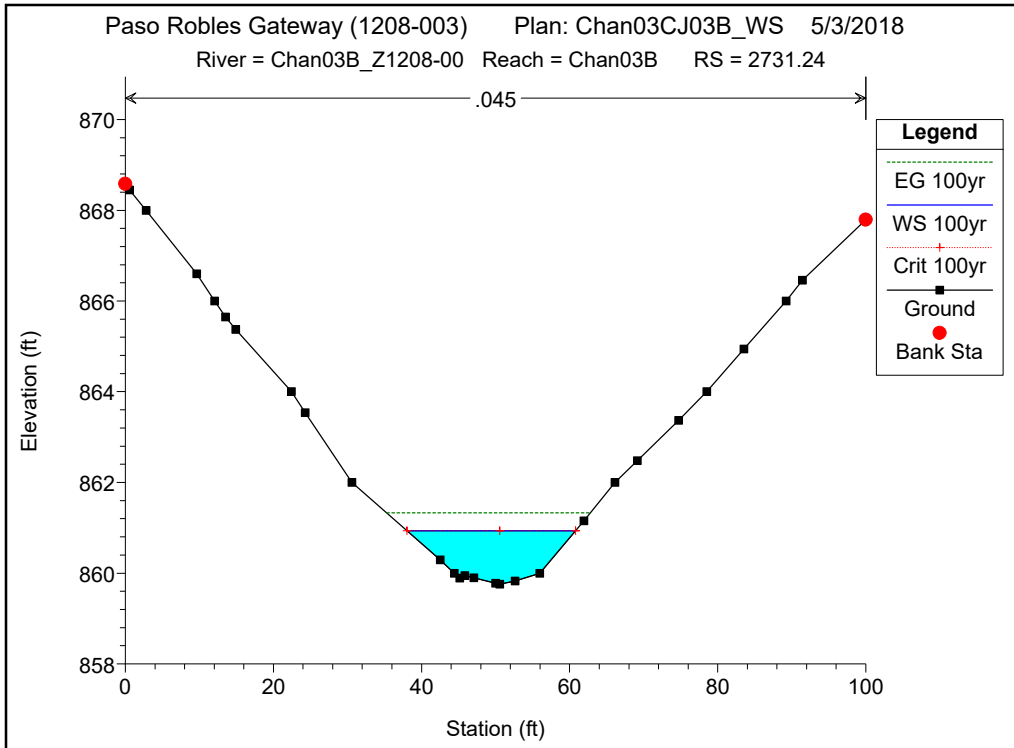
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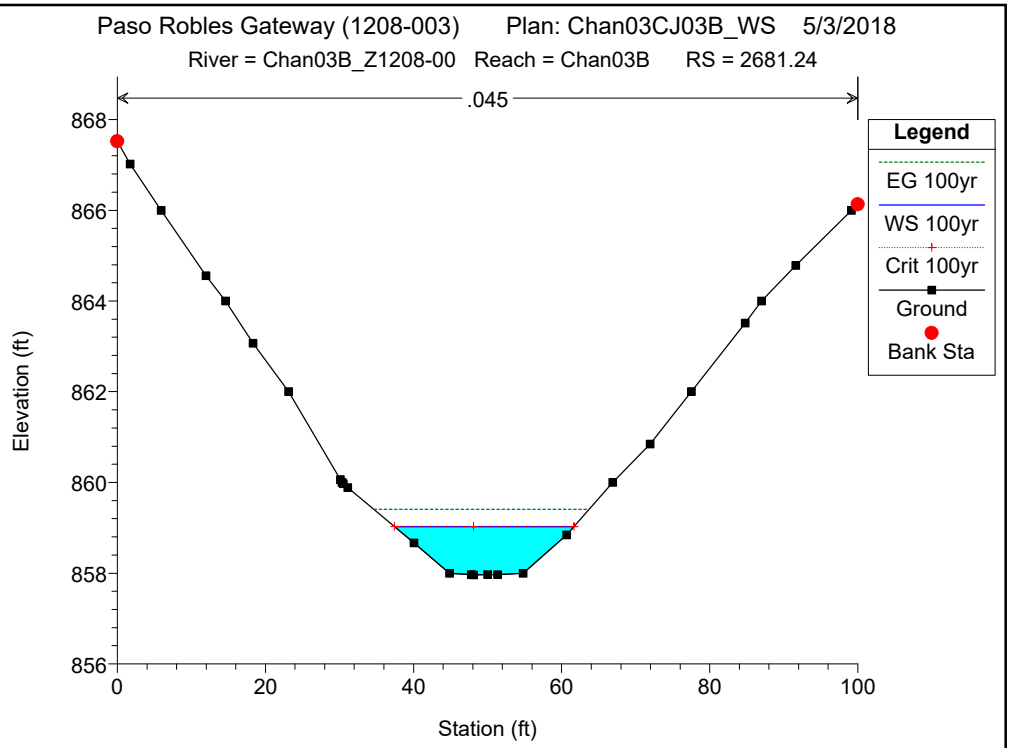
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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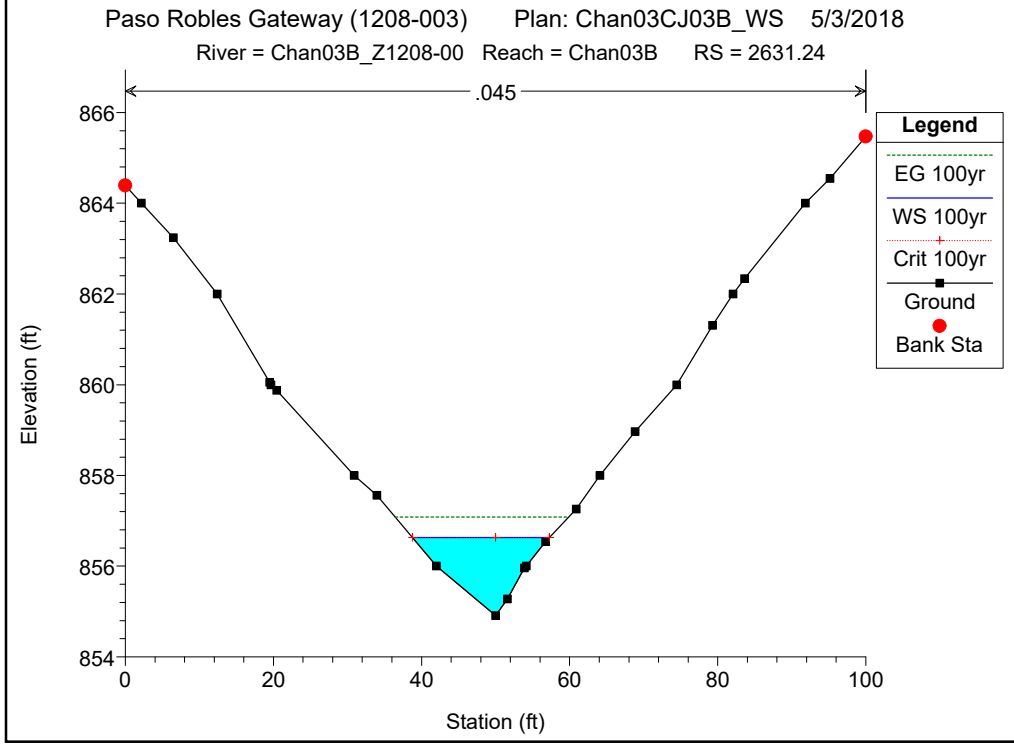
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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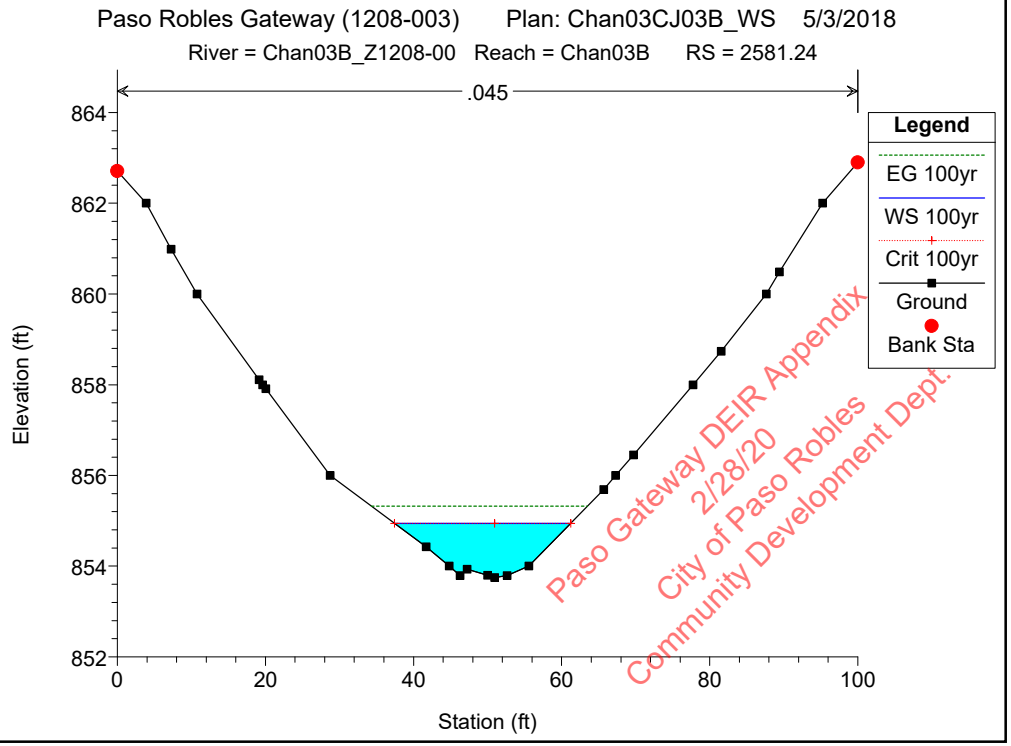
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Paso Robles Gateway (1208-003) Plan: Chan03CJ03B_WS 5/3/2018
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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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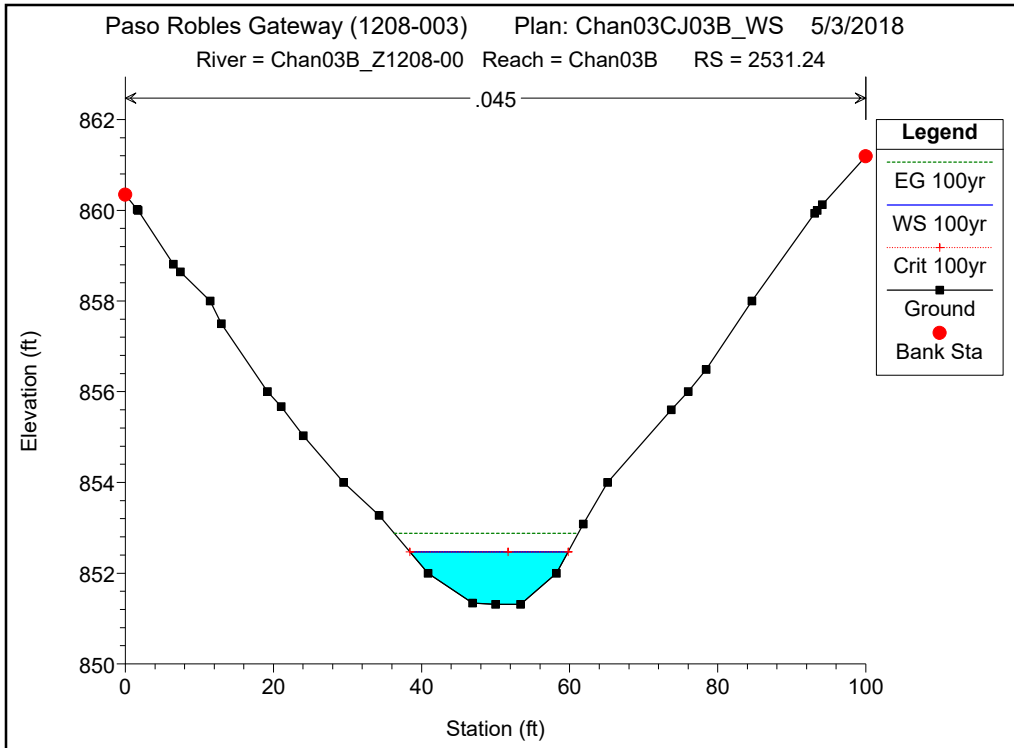
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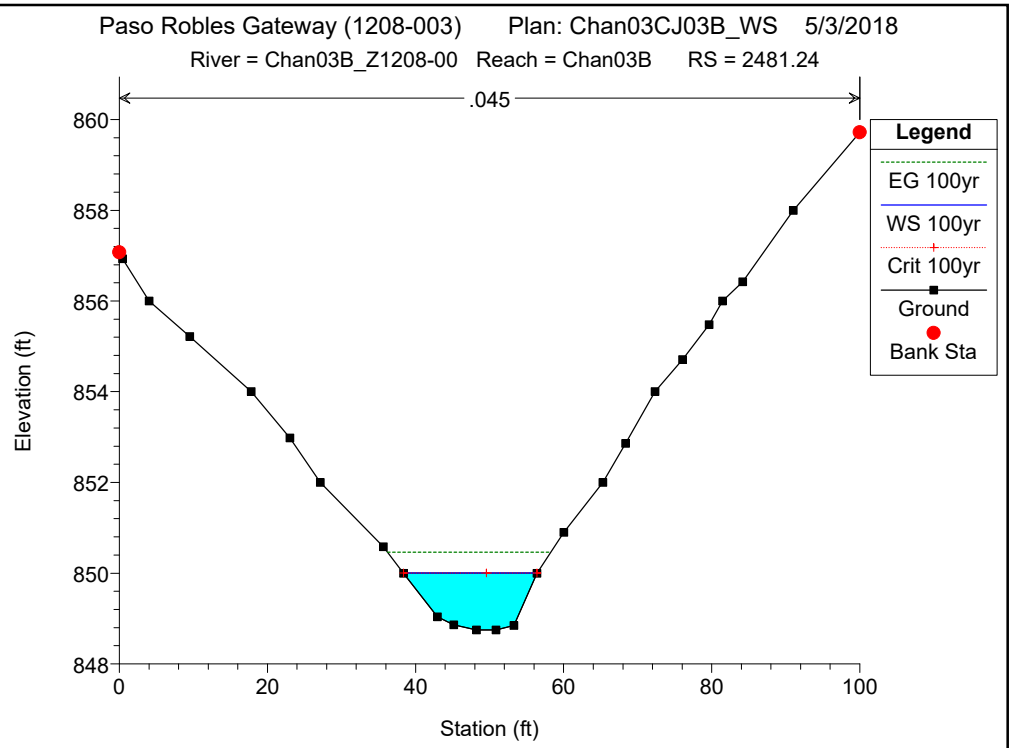
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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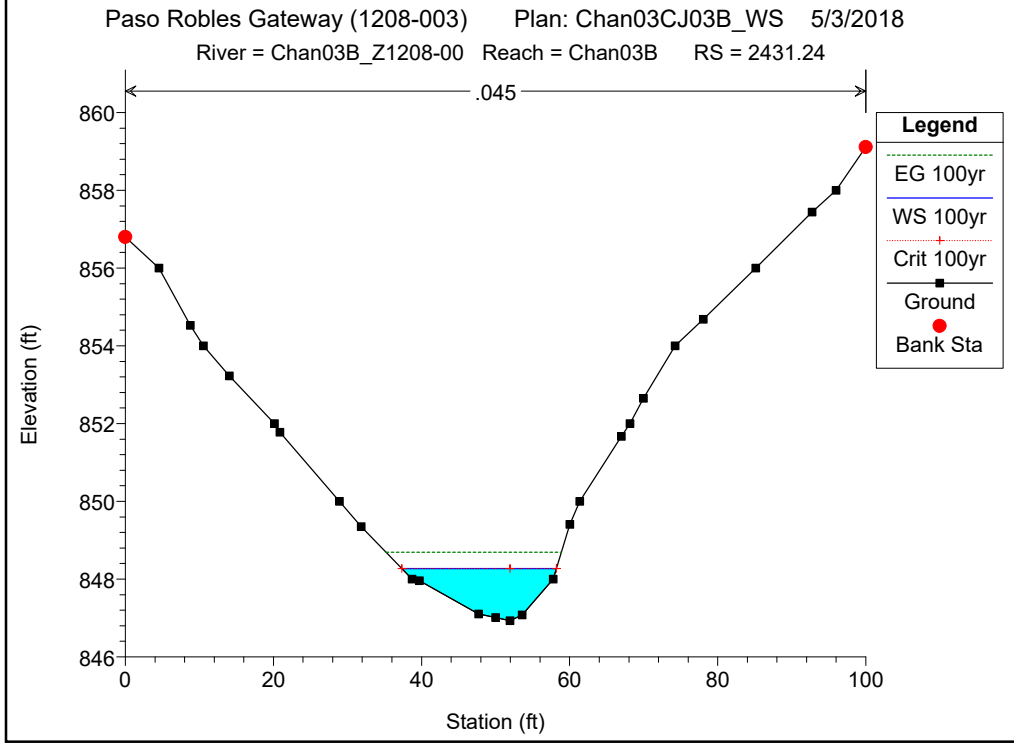
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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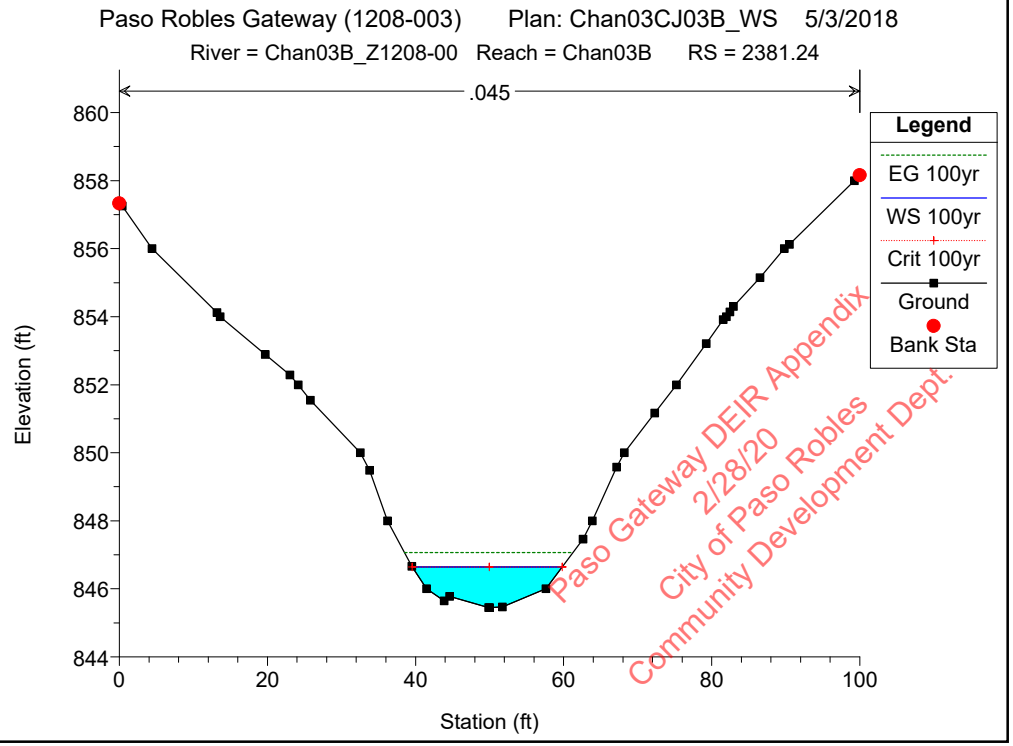
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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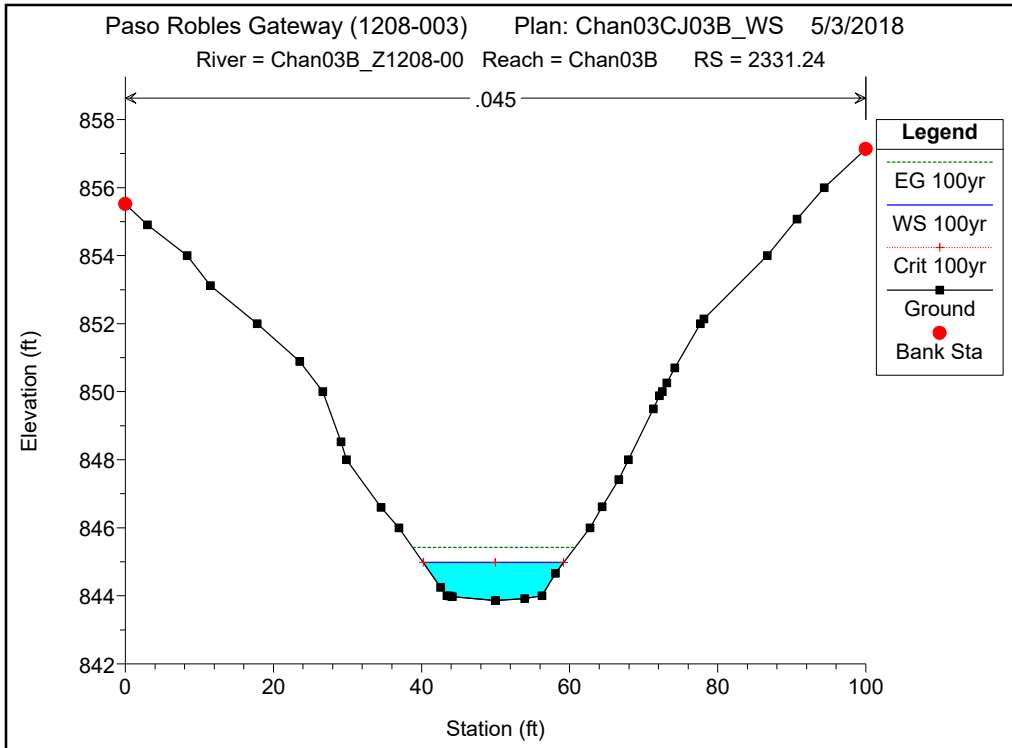
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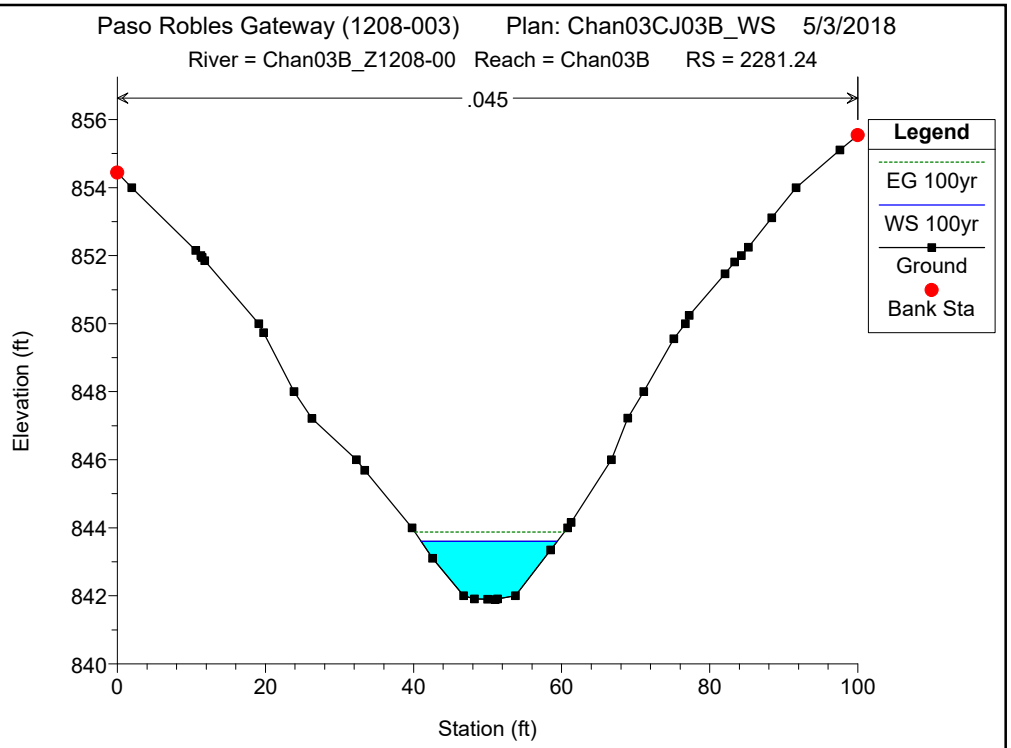
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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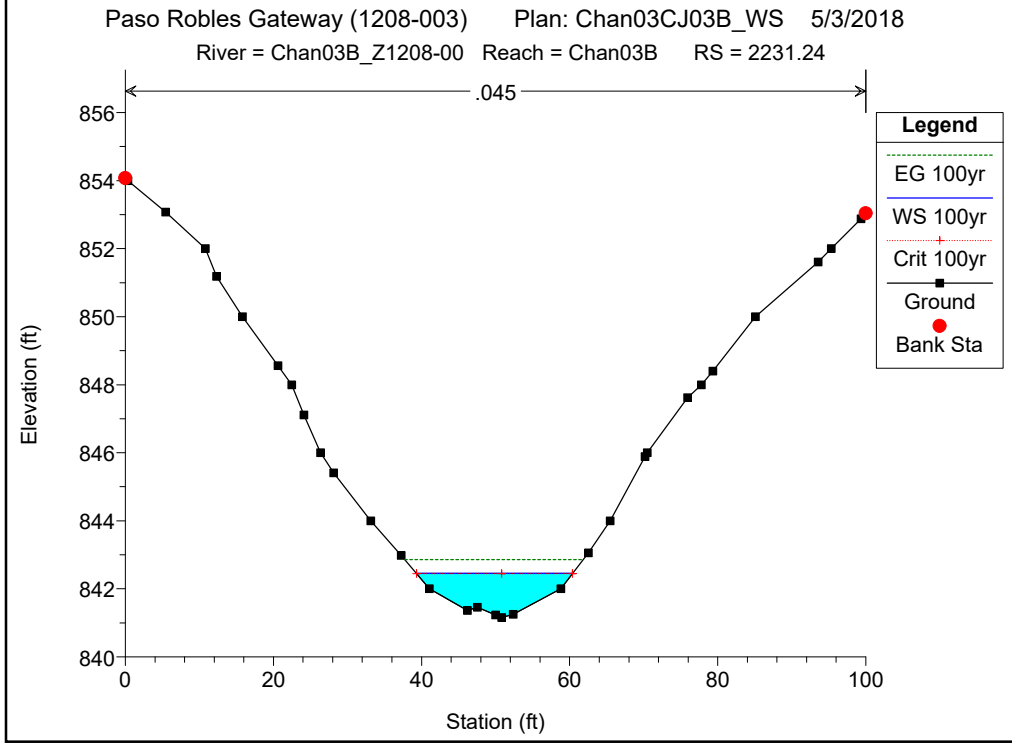
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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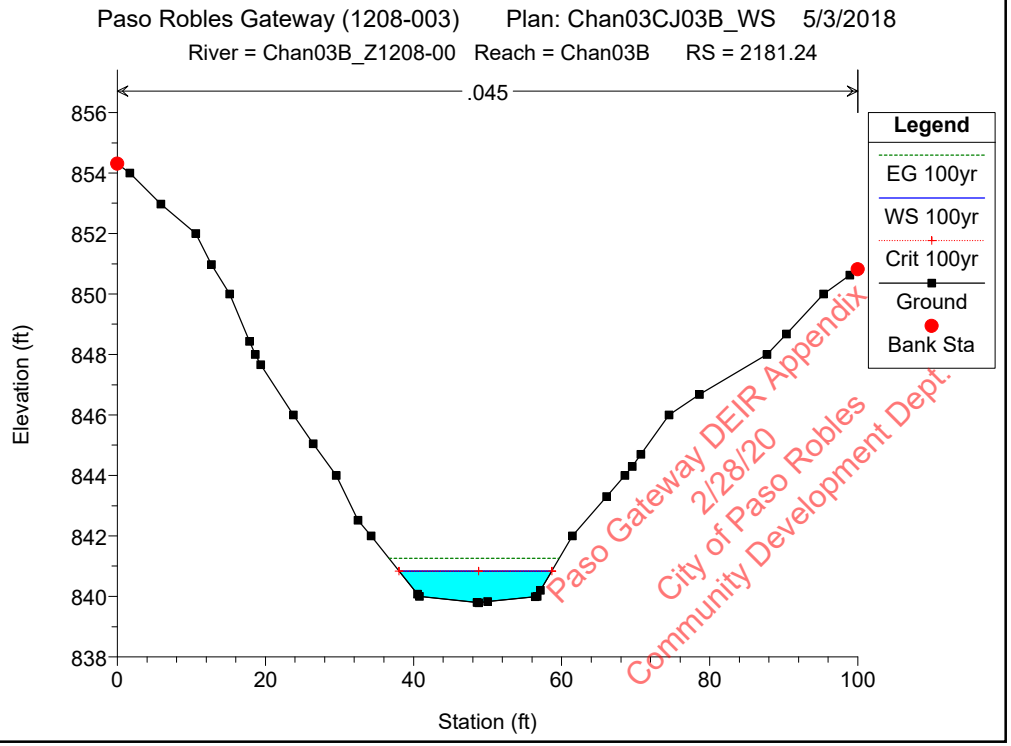
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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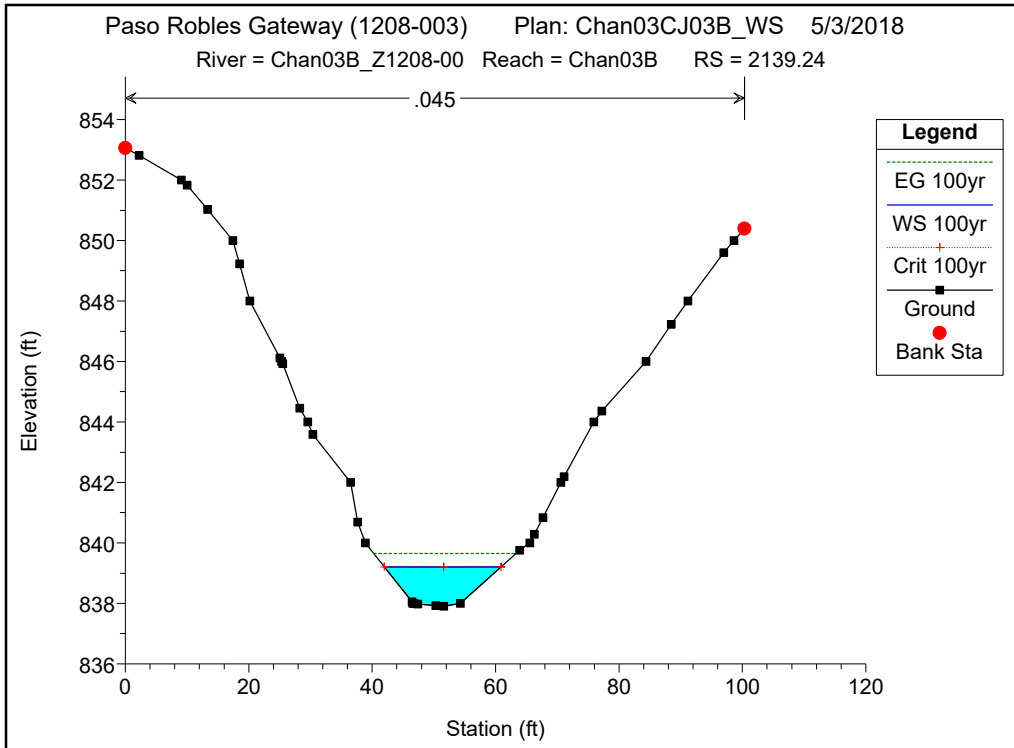
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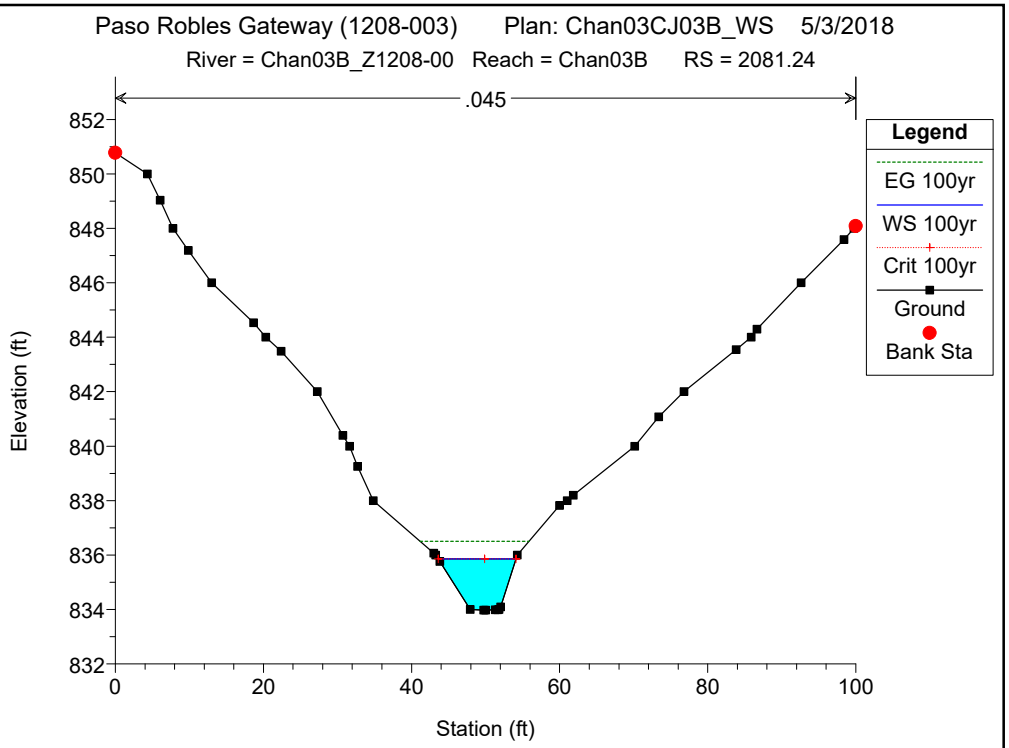
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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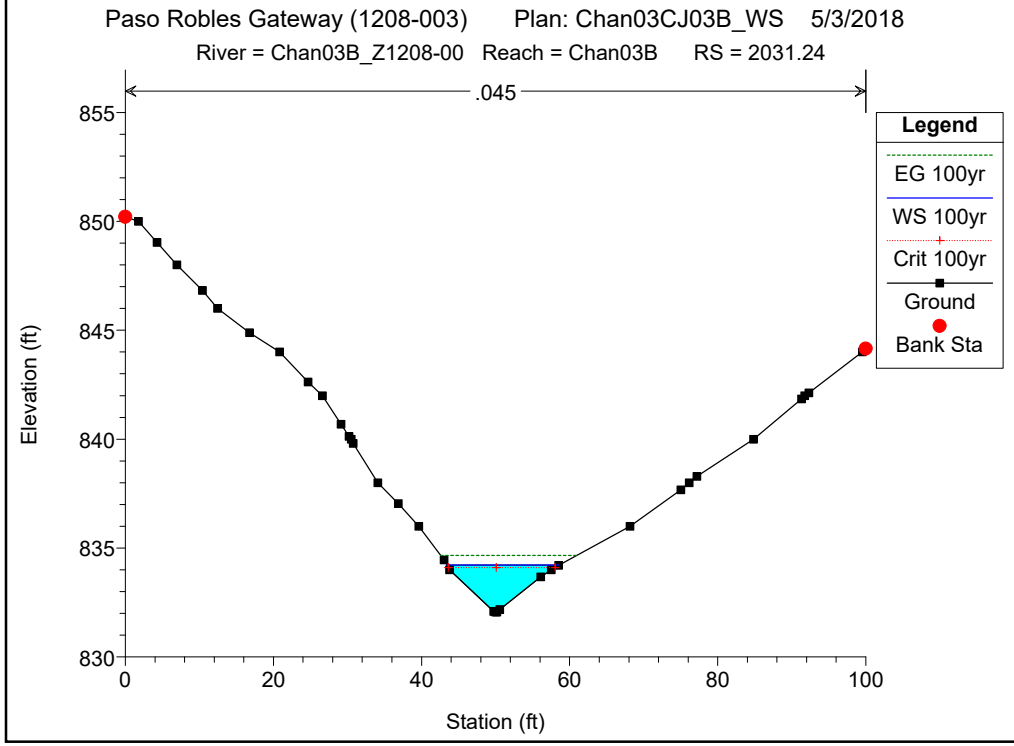
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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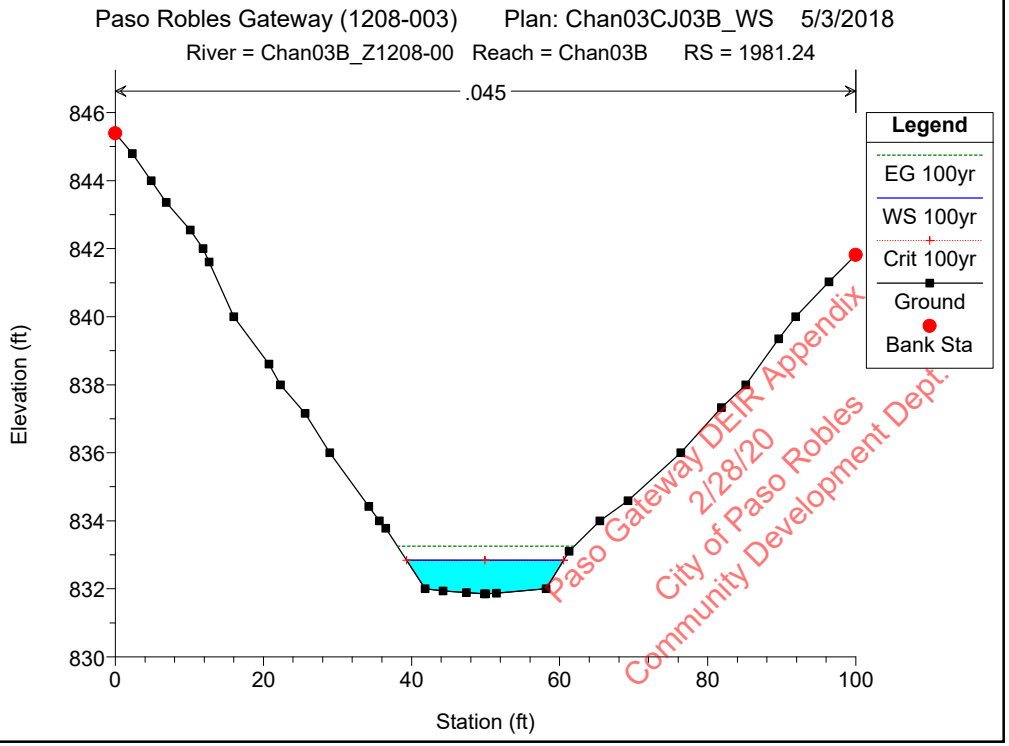
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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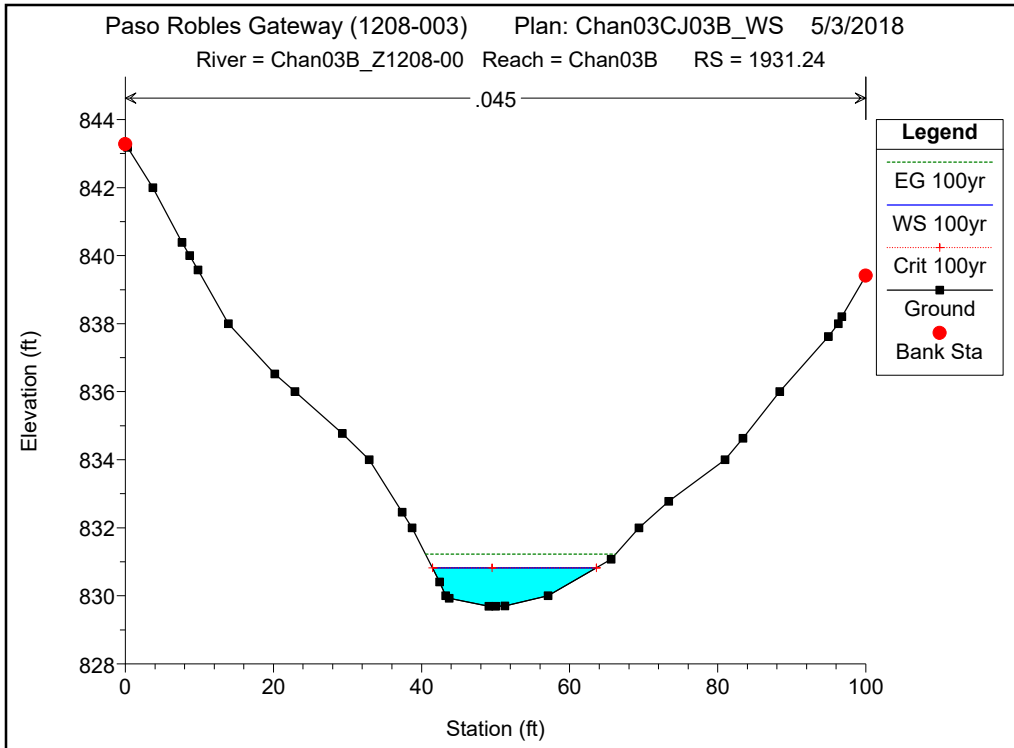
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Legend
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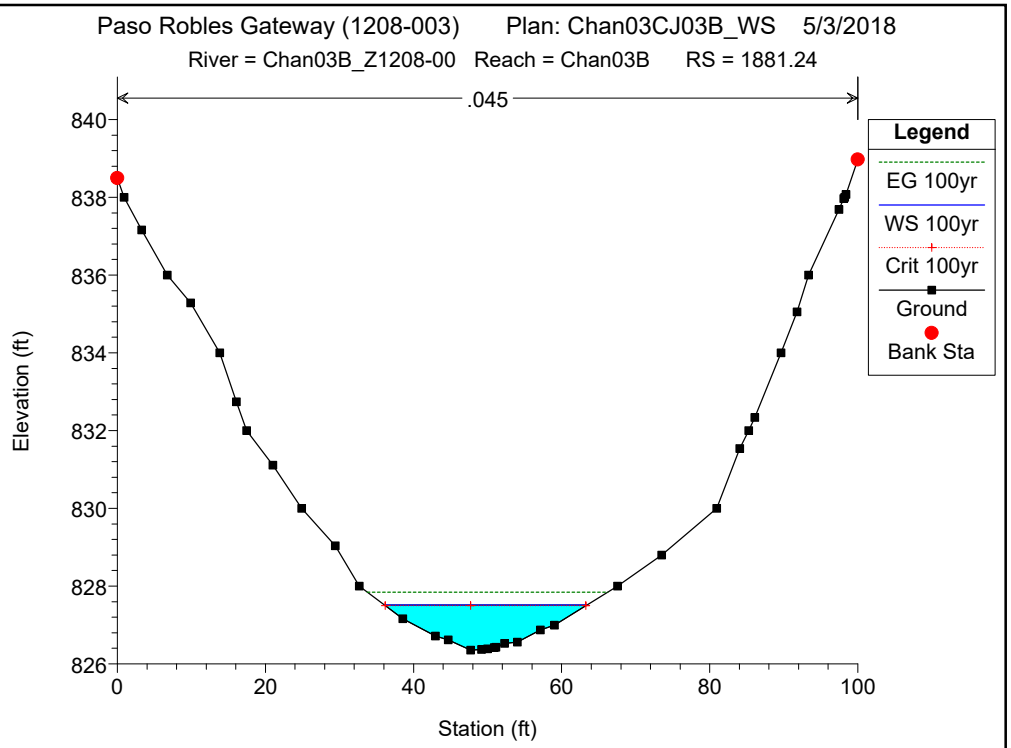
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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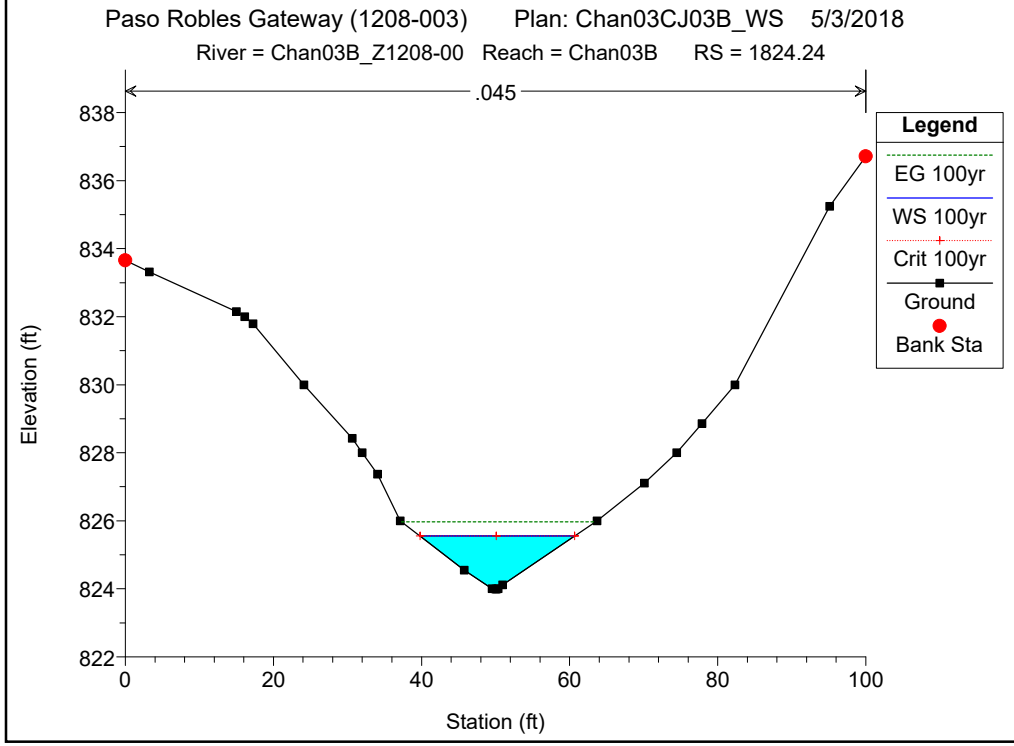
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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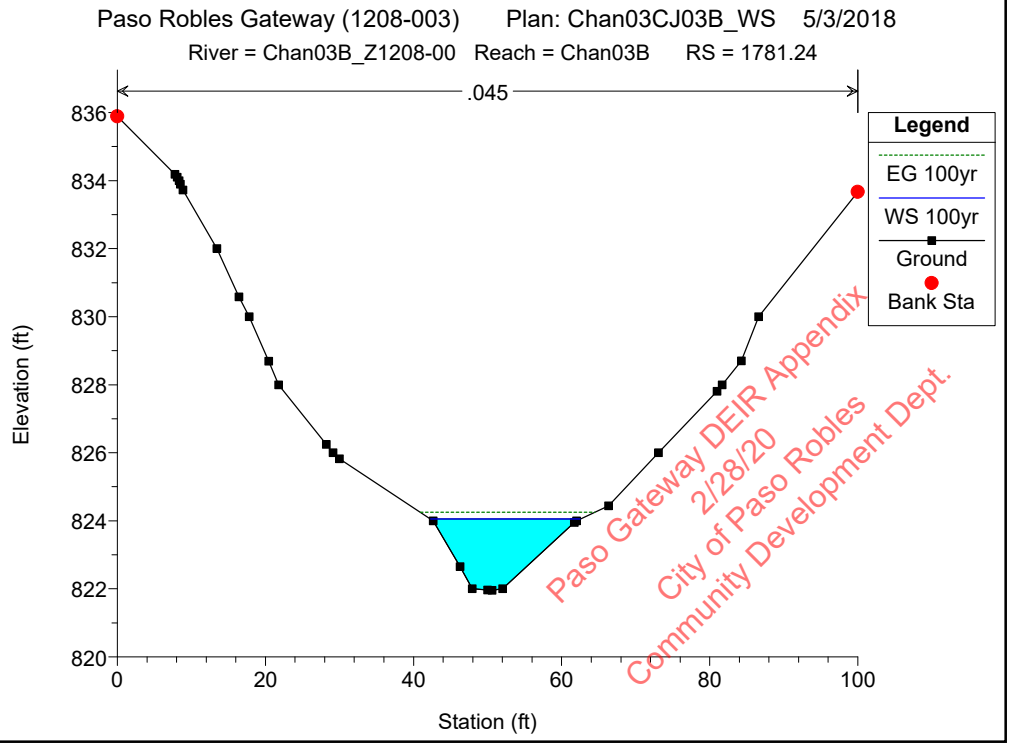
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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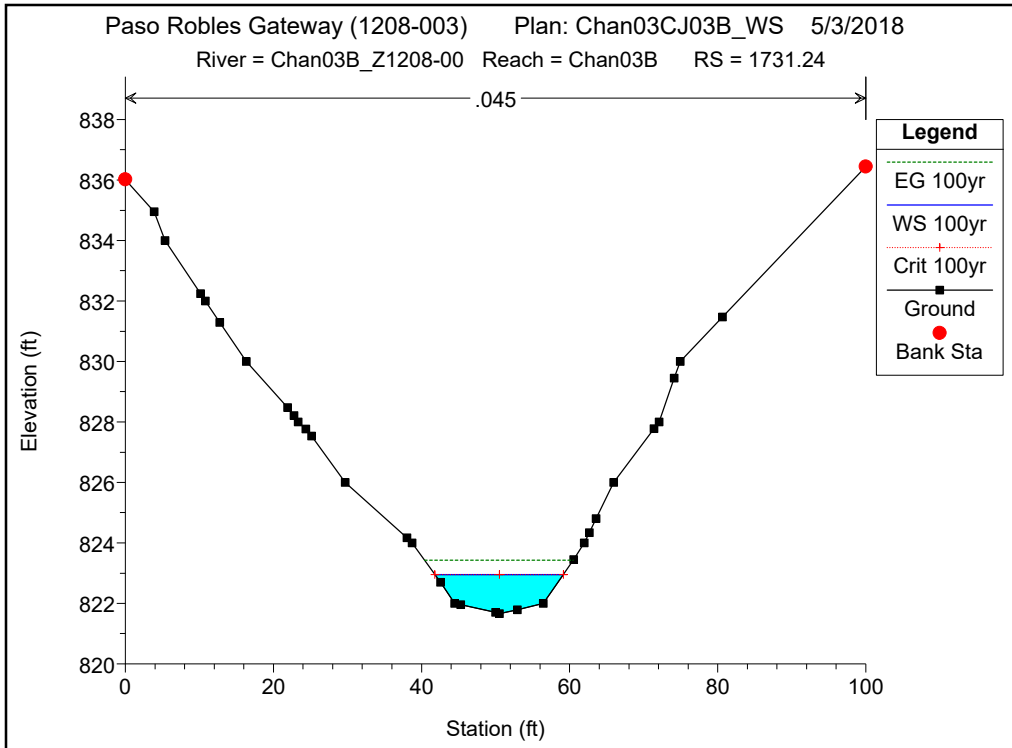
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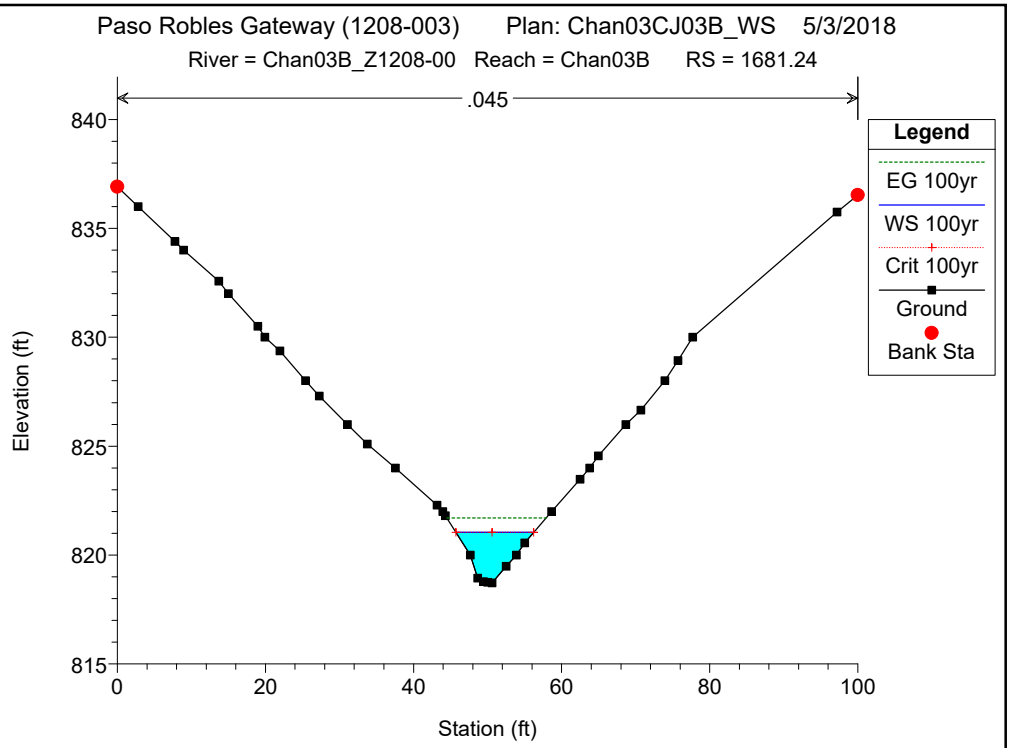
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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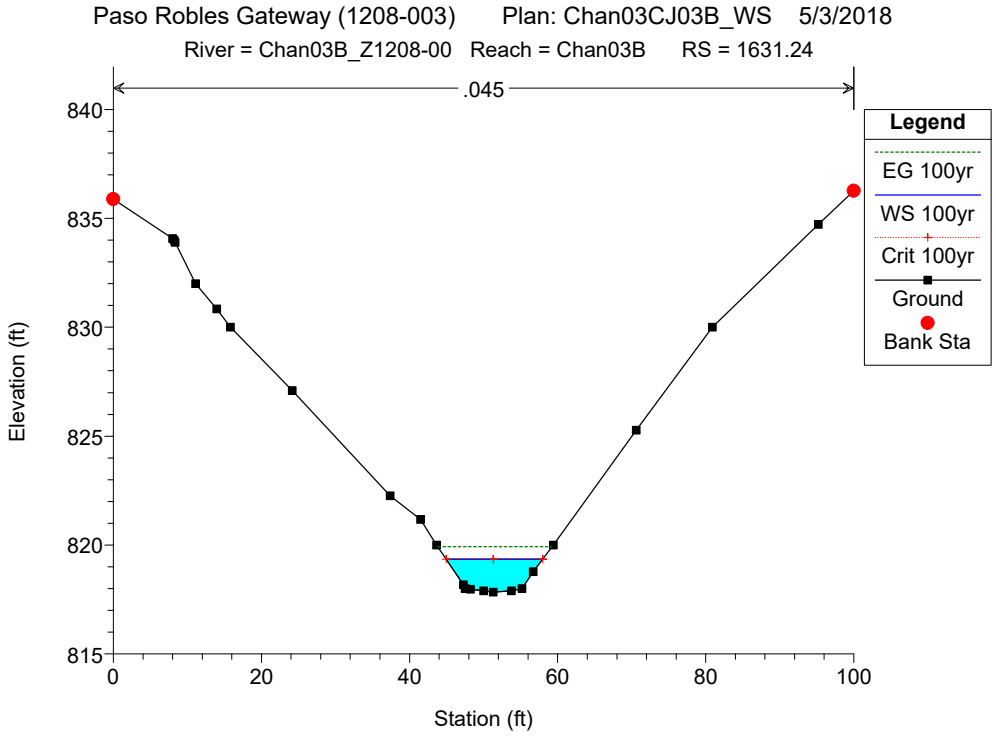
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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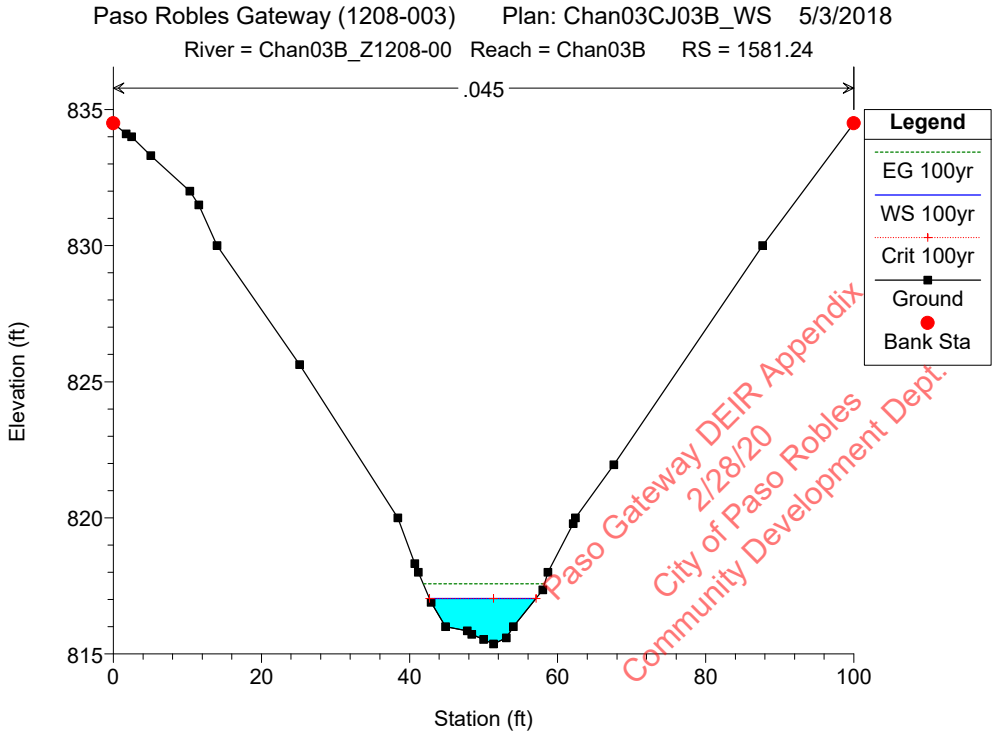
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
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Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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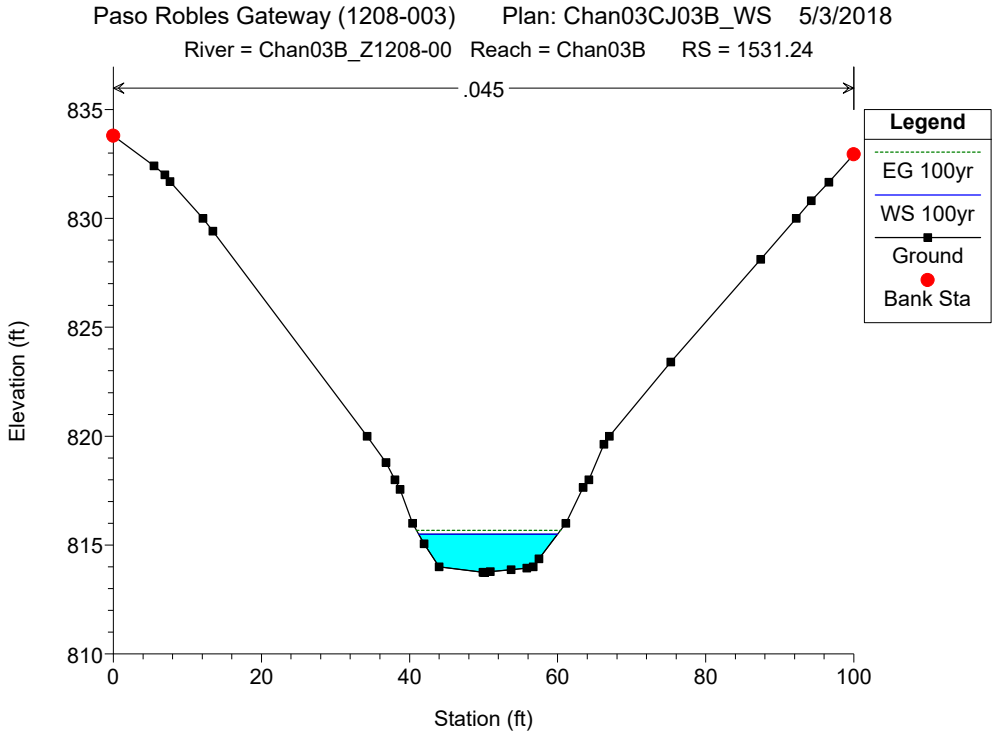
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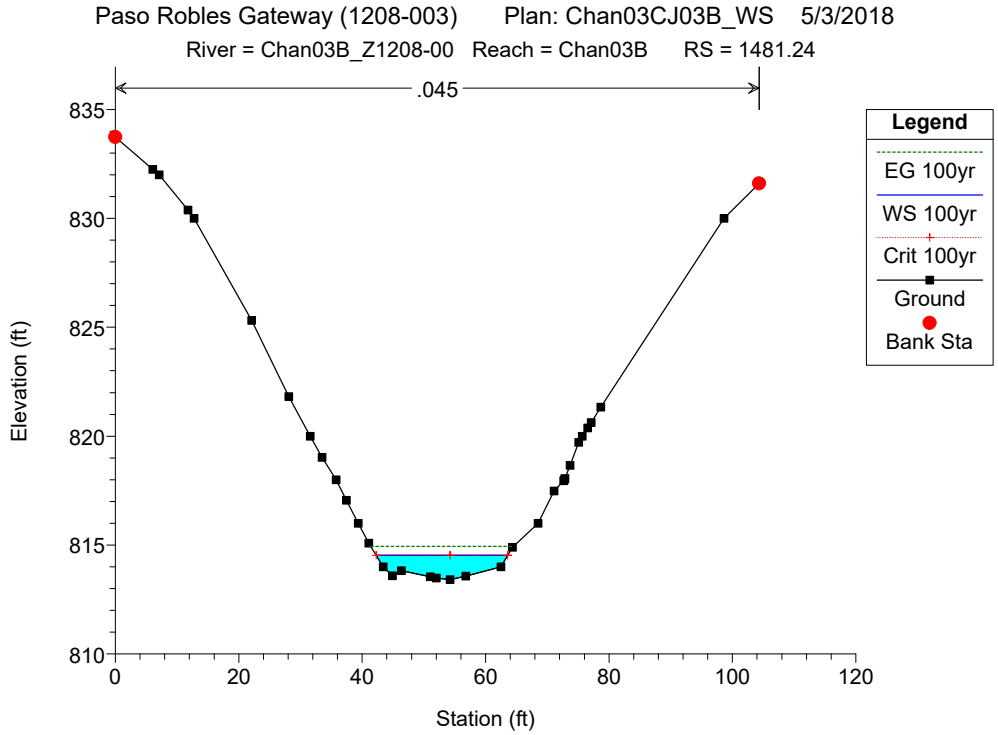
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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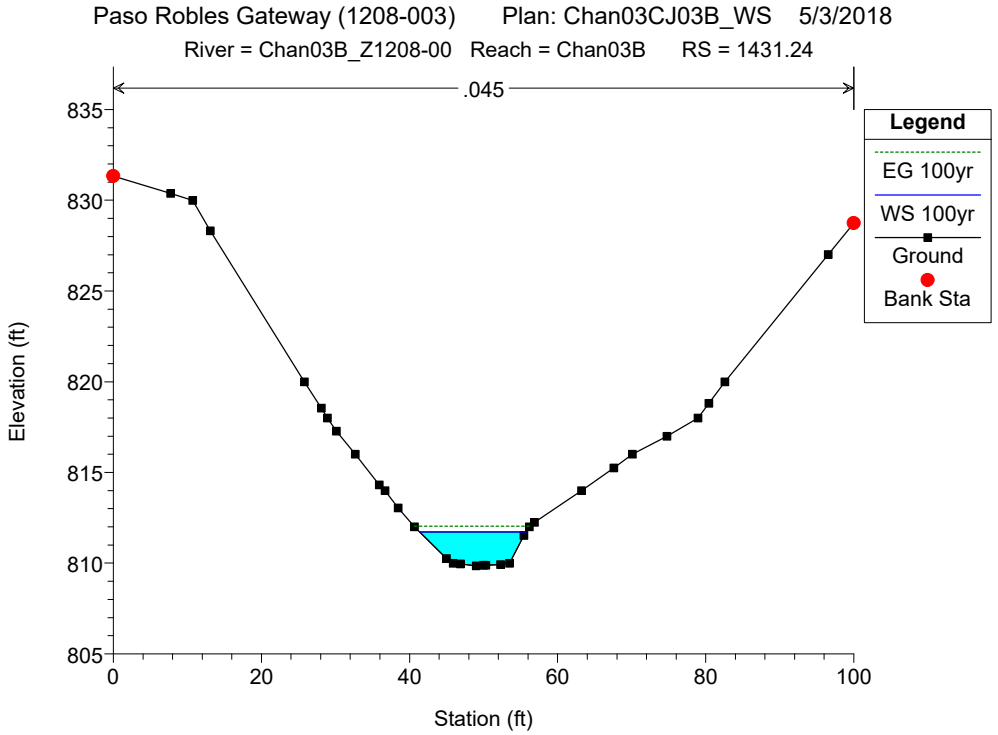
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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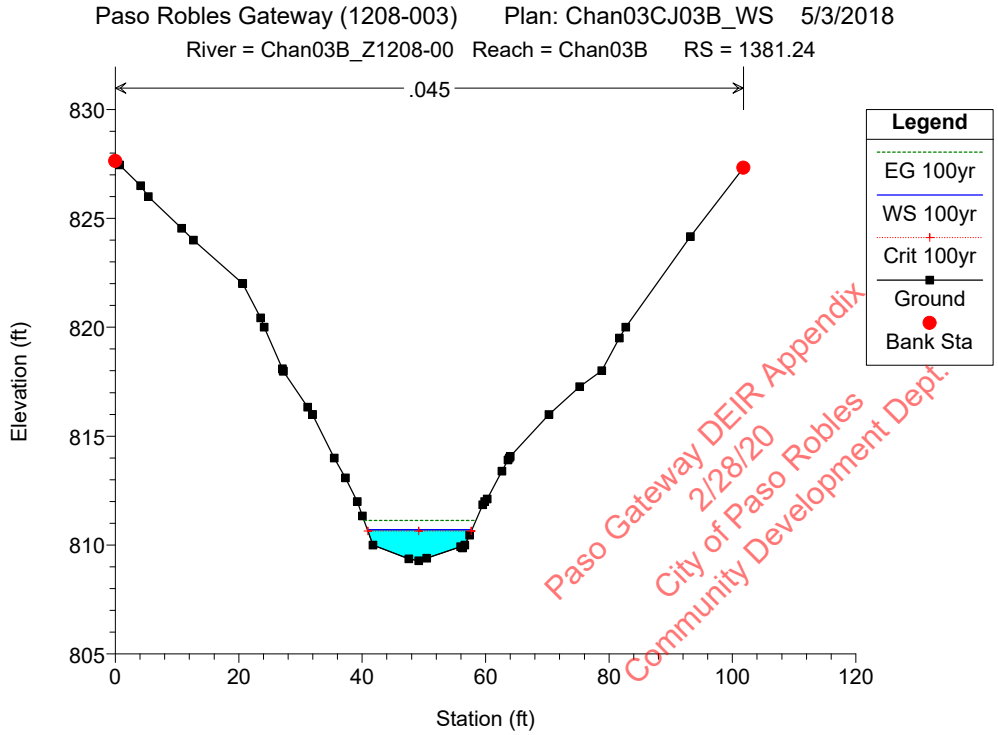
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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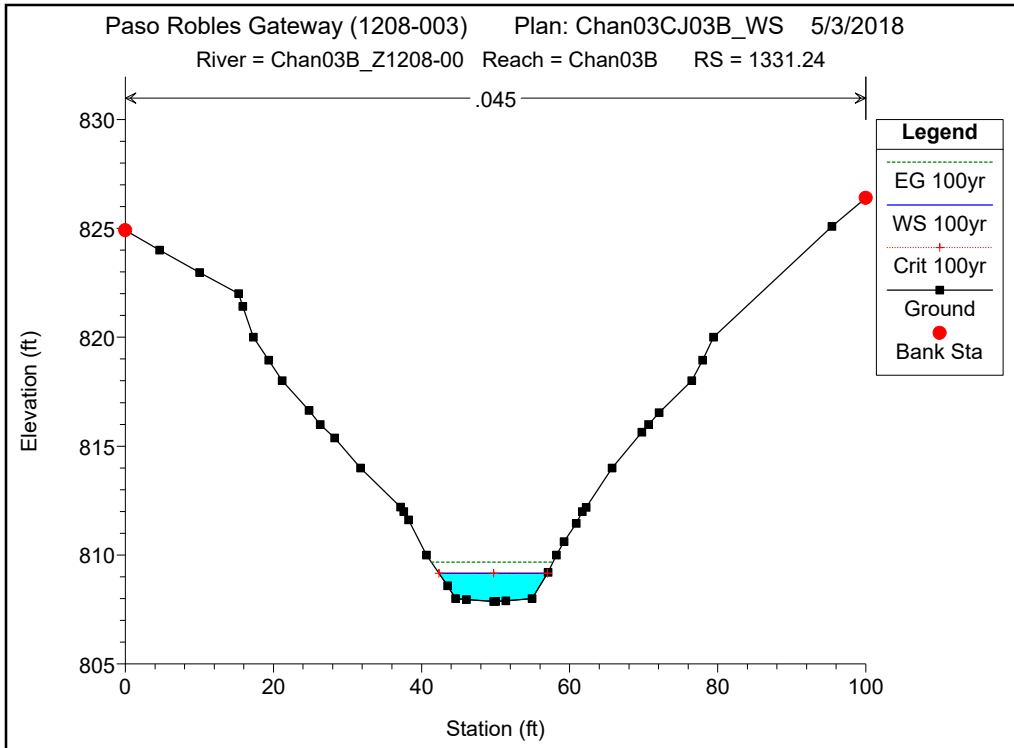
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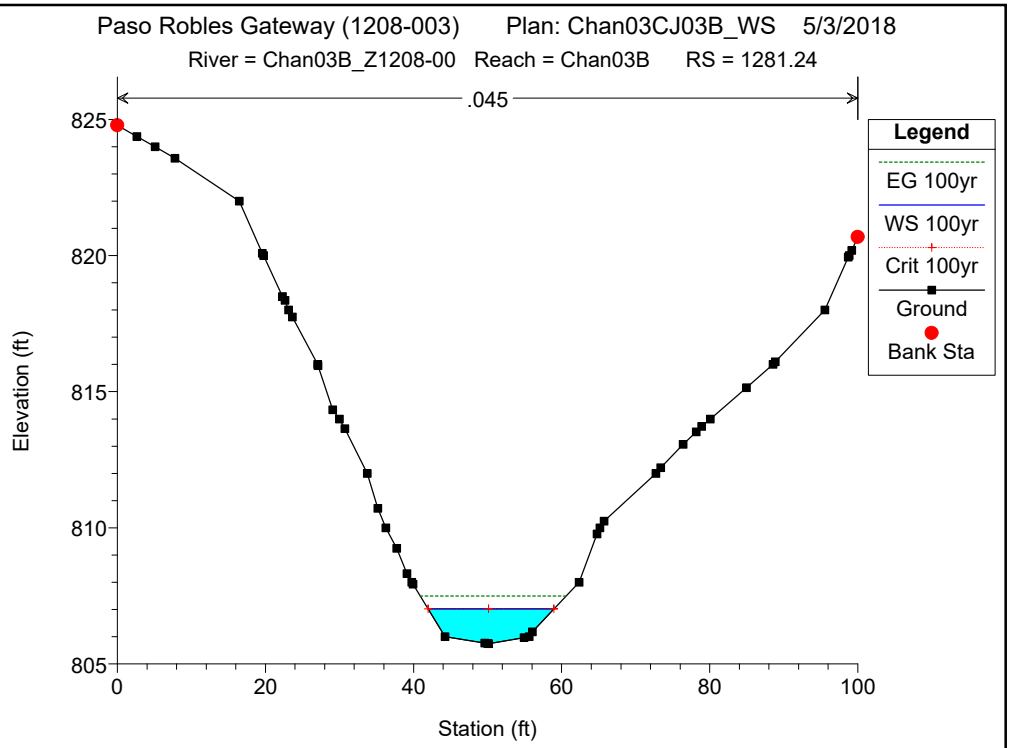
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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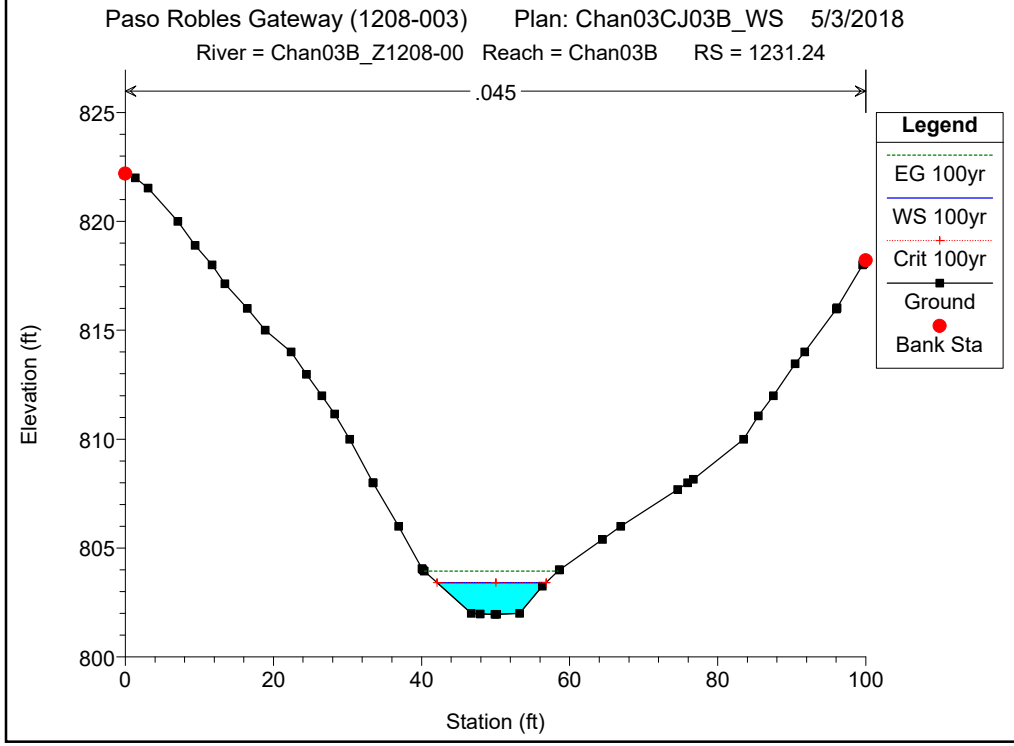
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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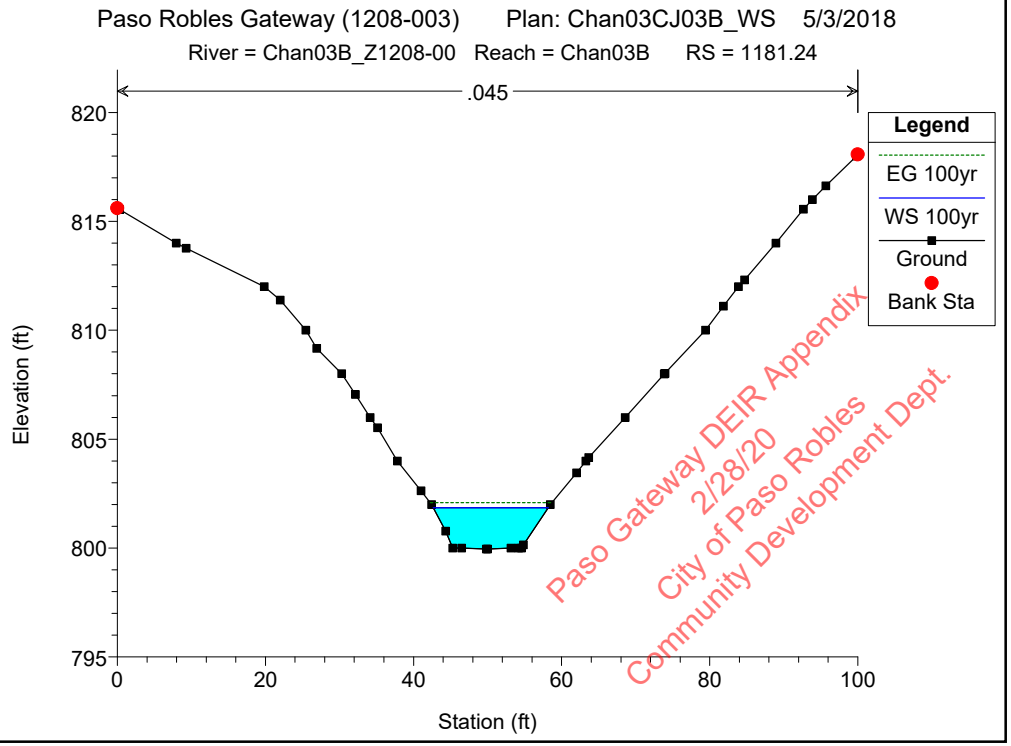
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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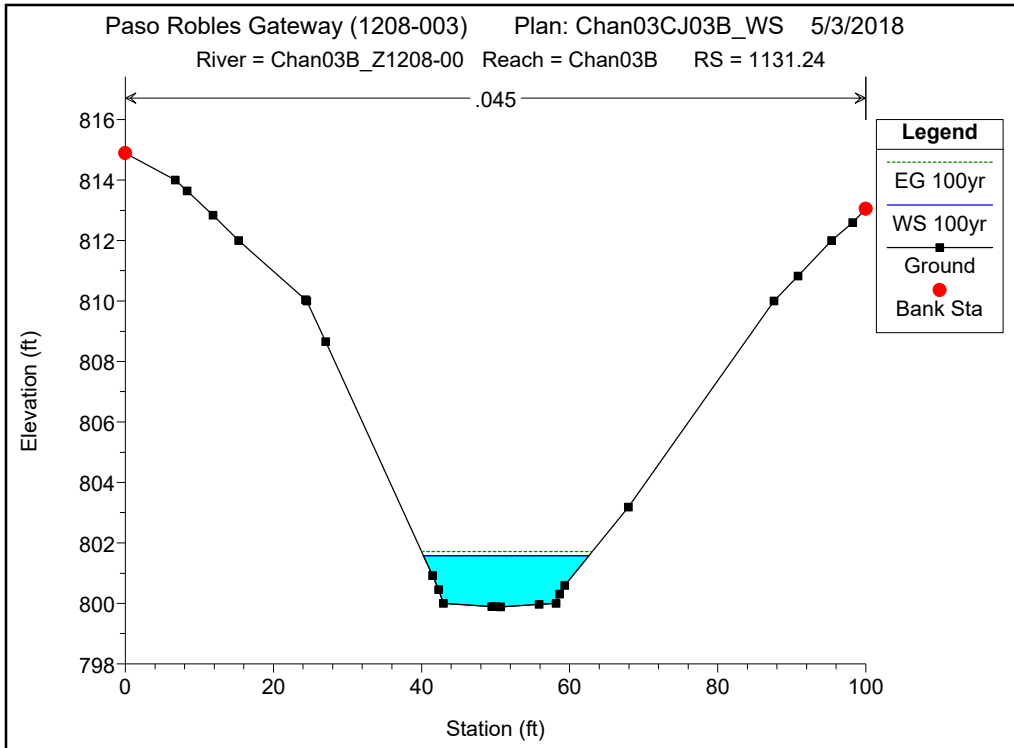
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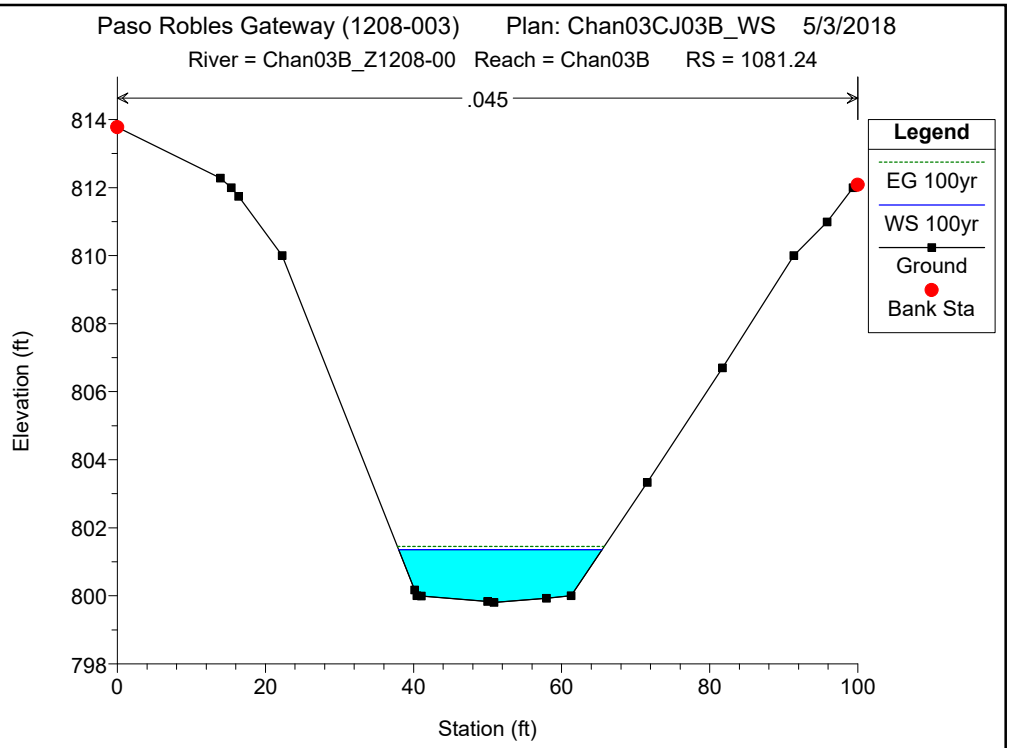
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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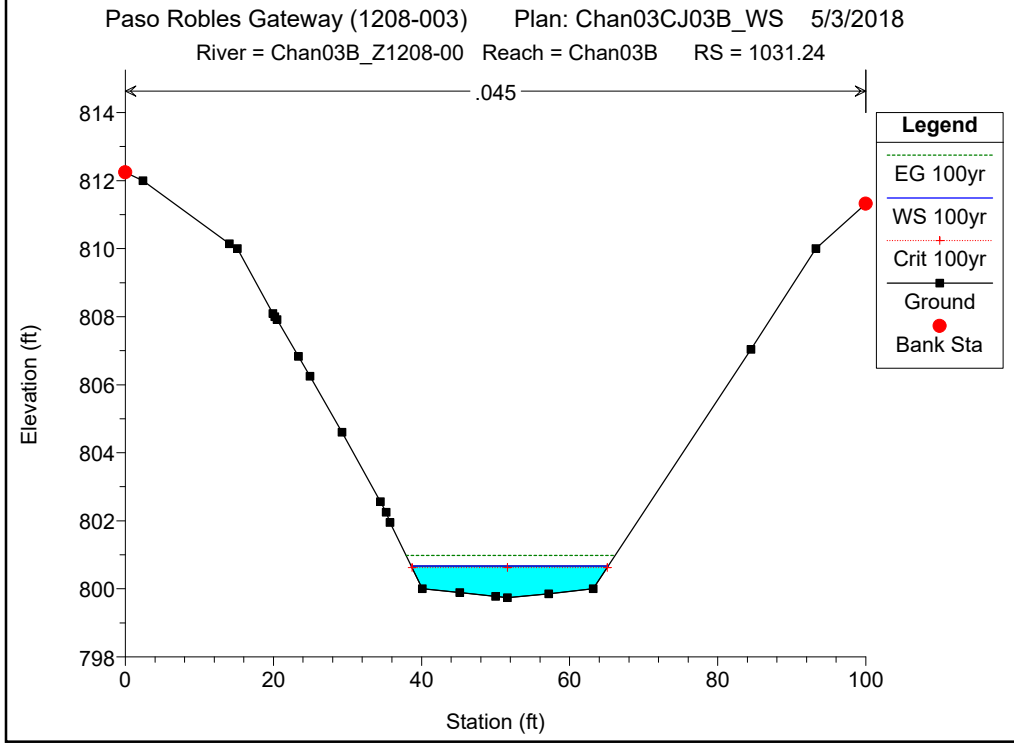
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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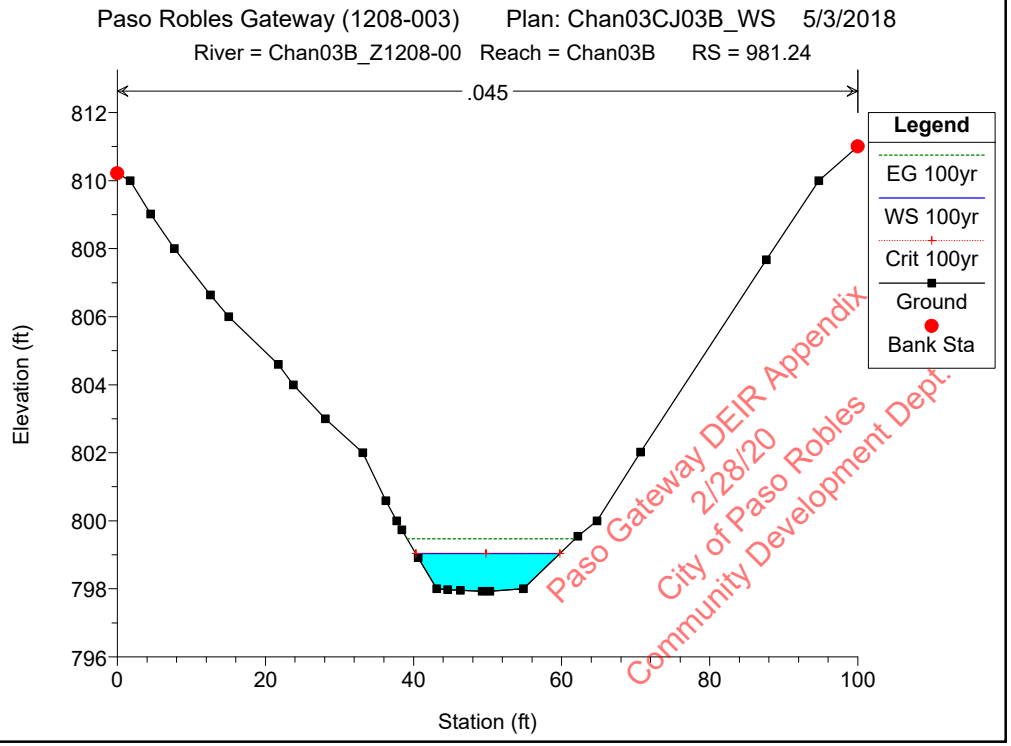
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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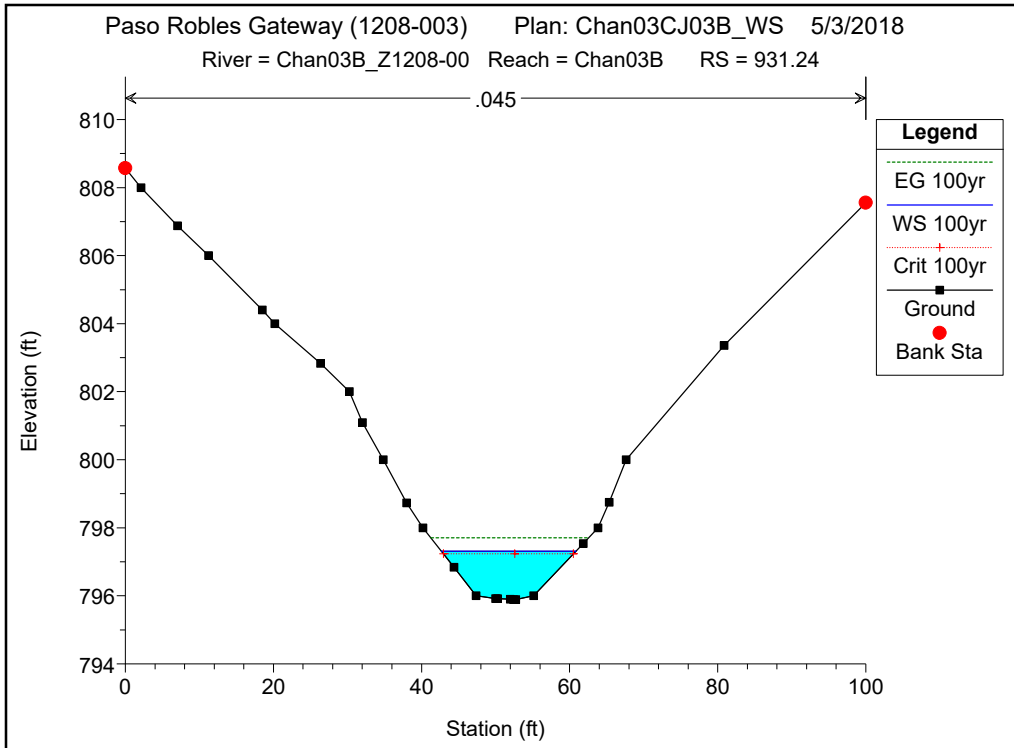
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Legend
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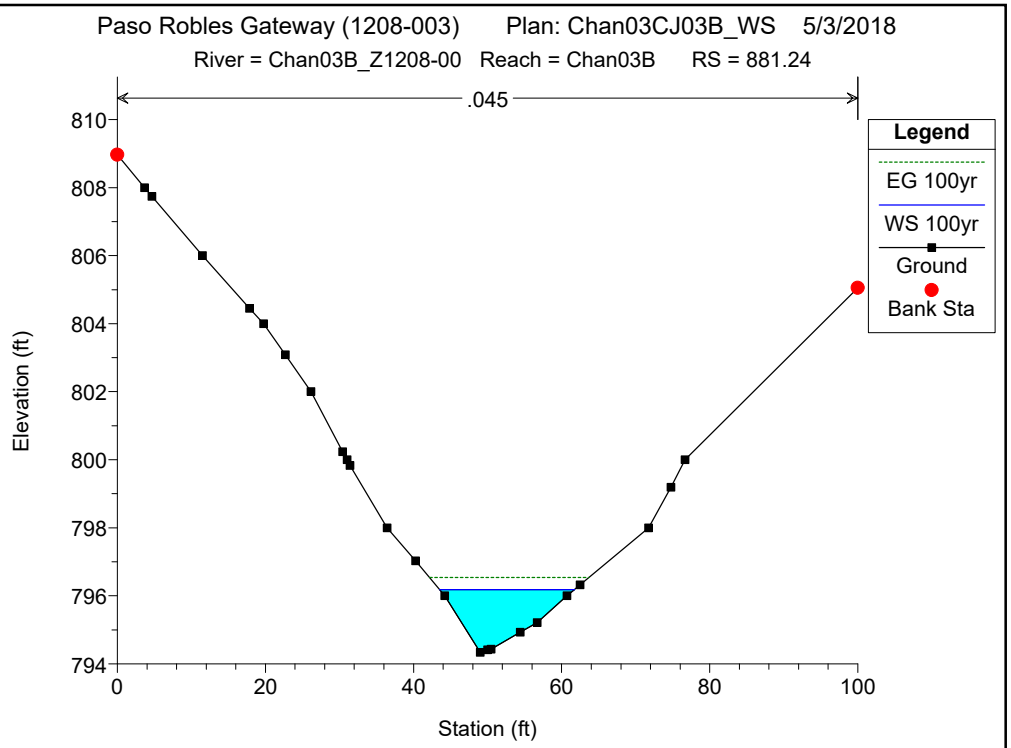
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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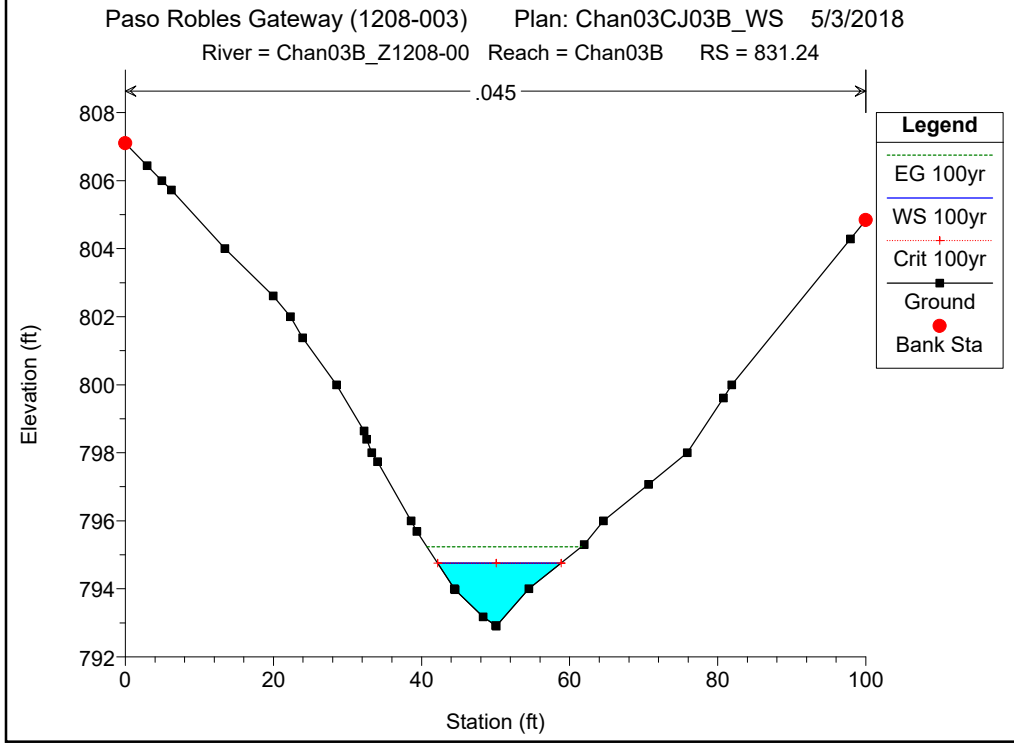
Legend
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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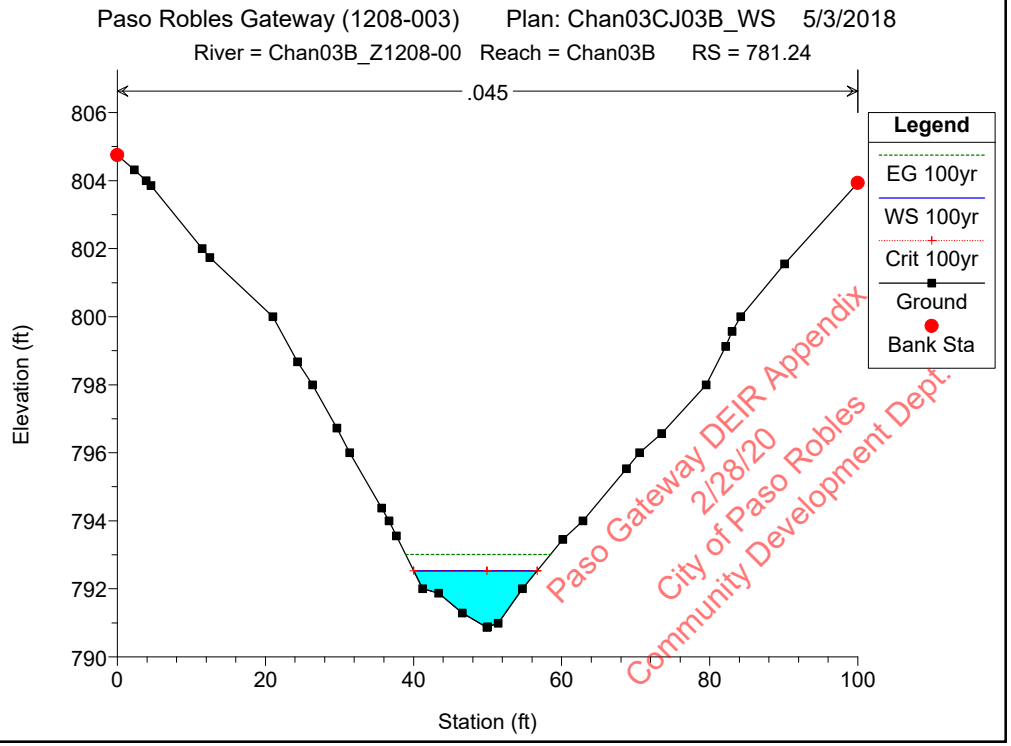
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
Paso Gateway DEIR Appendix
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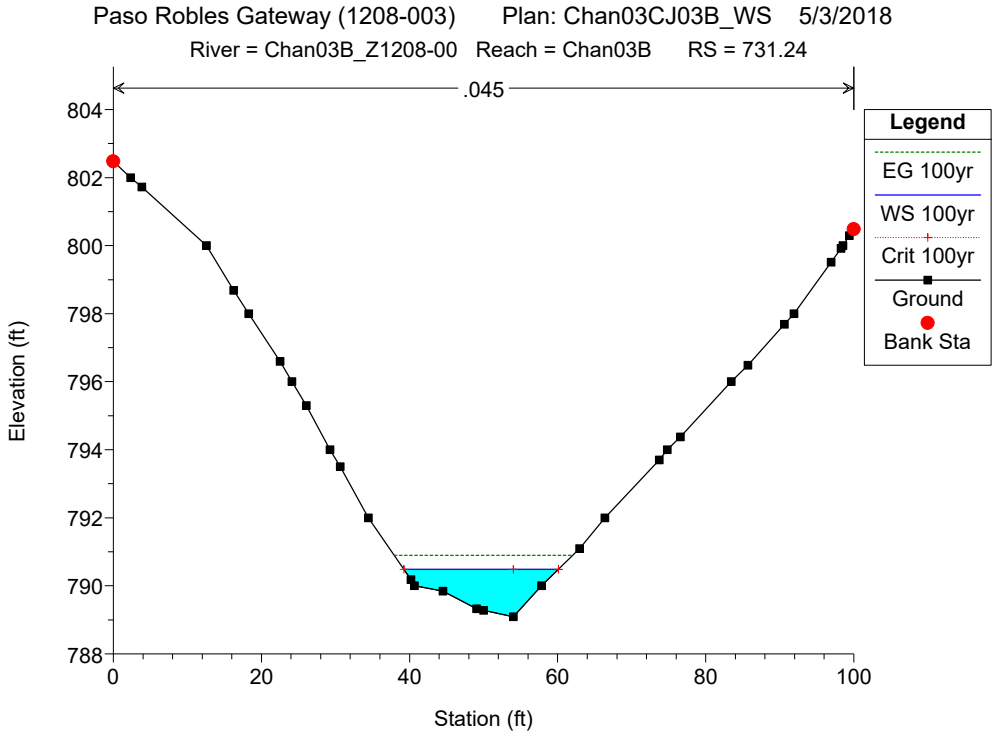

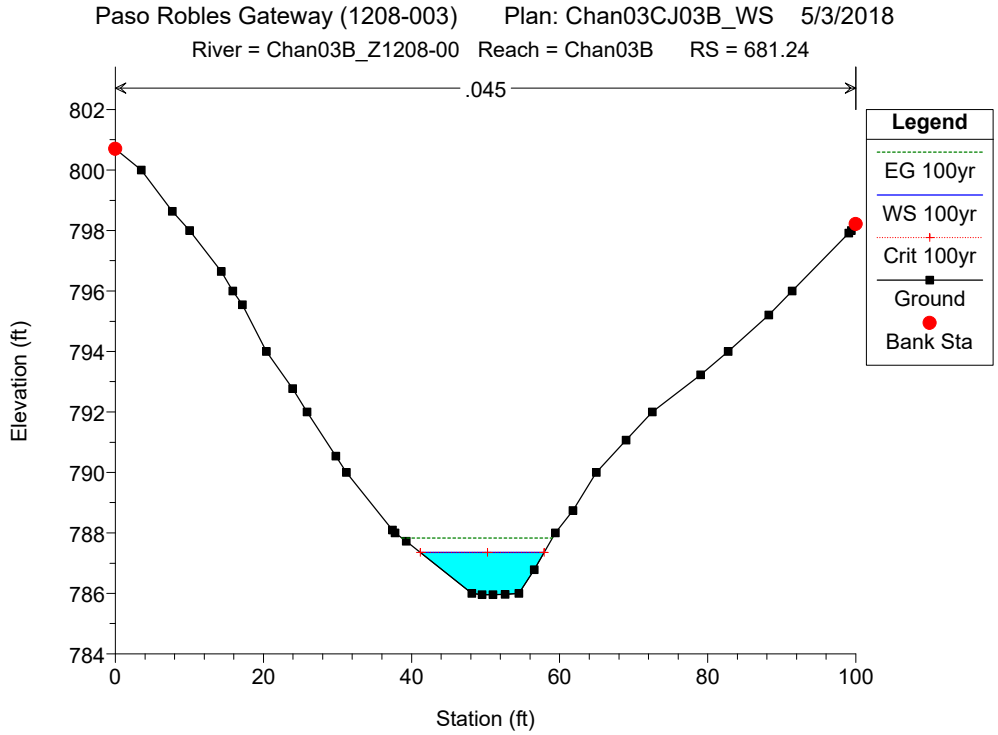

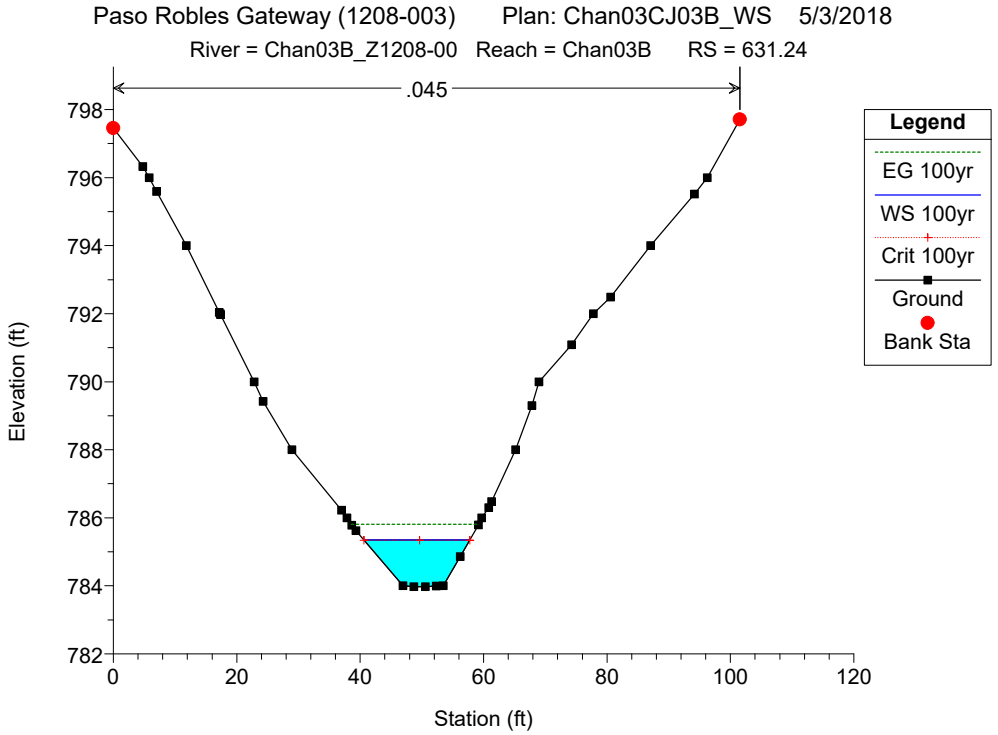

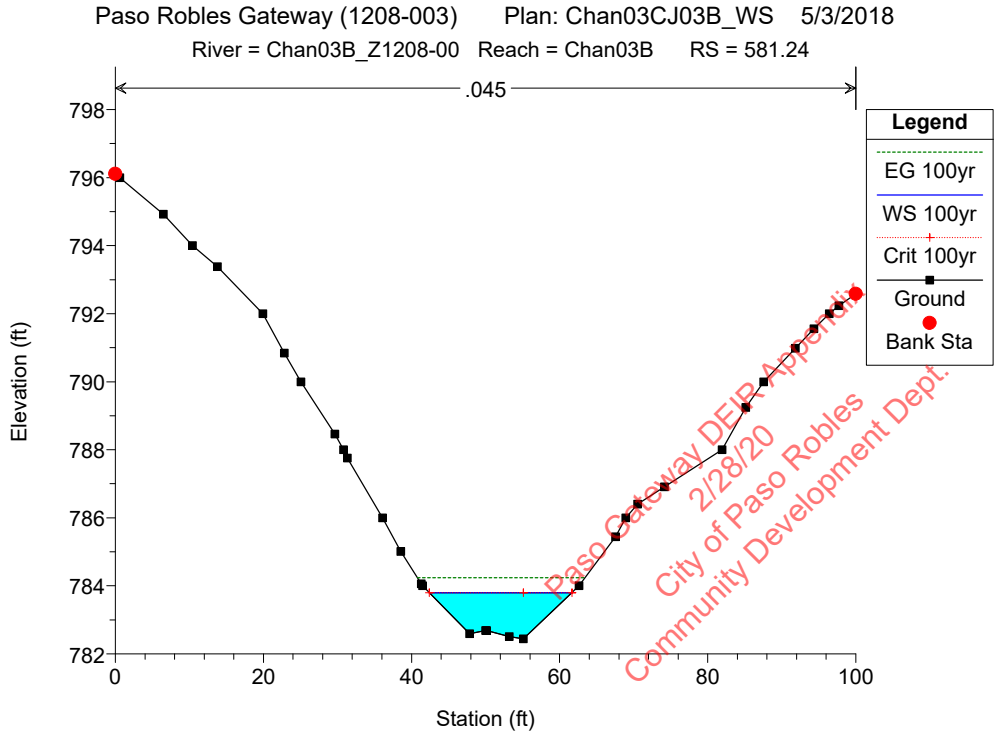

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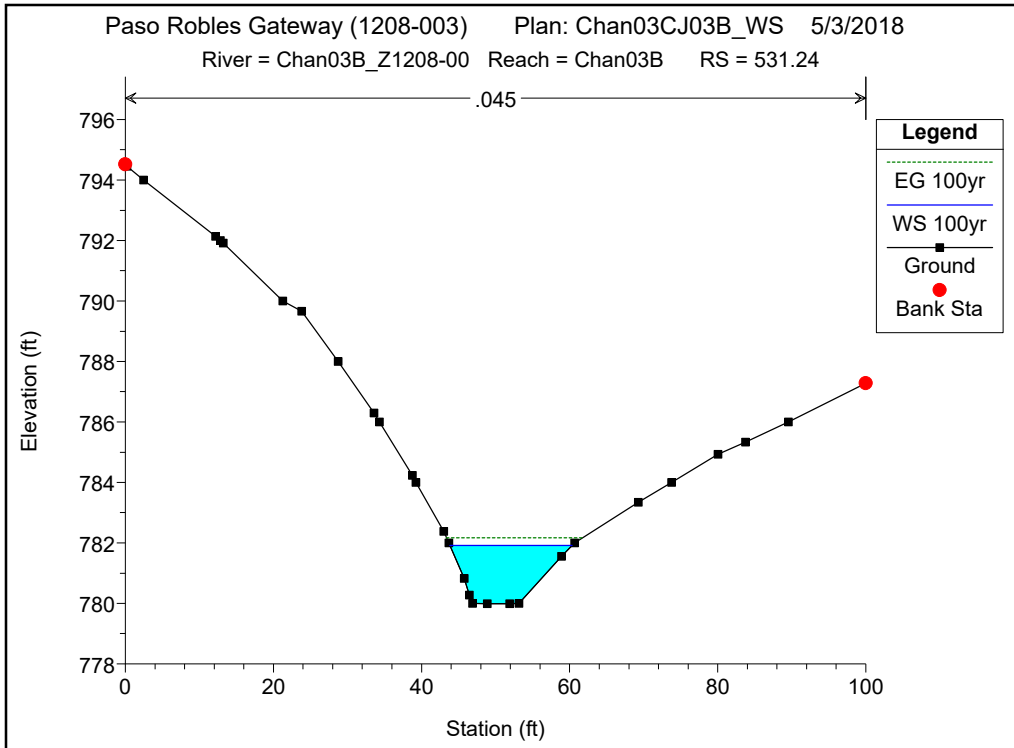
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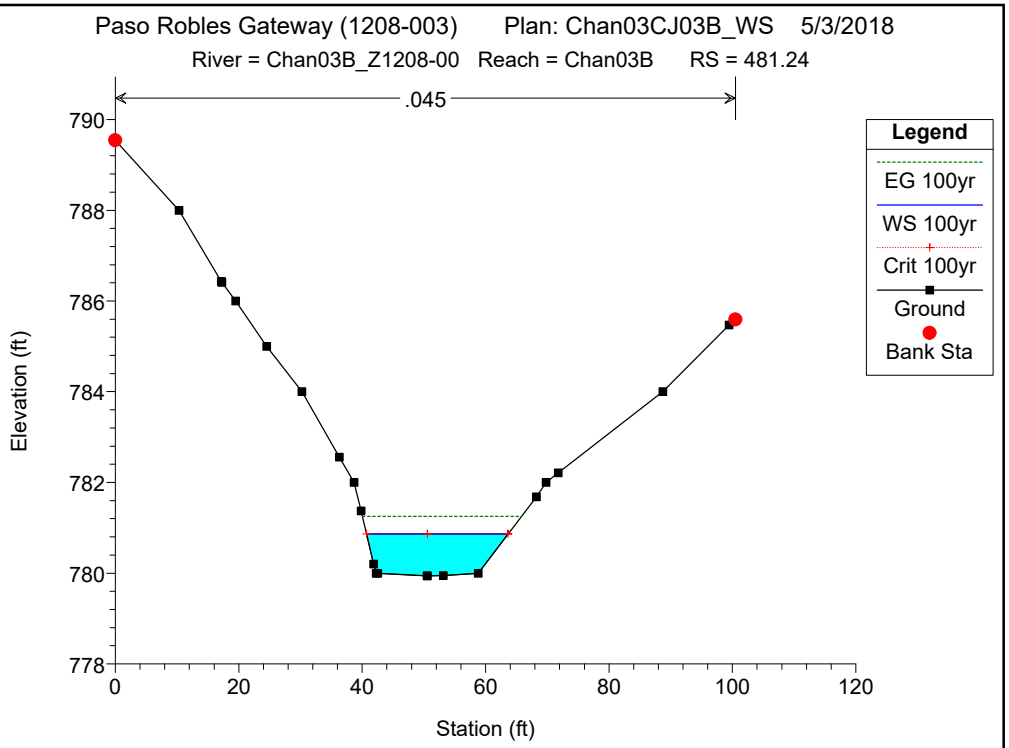
EG 100yr
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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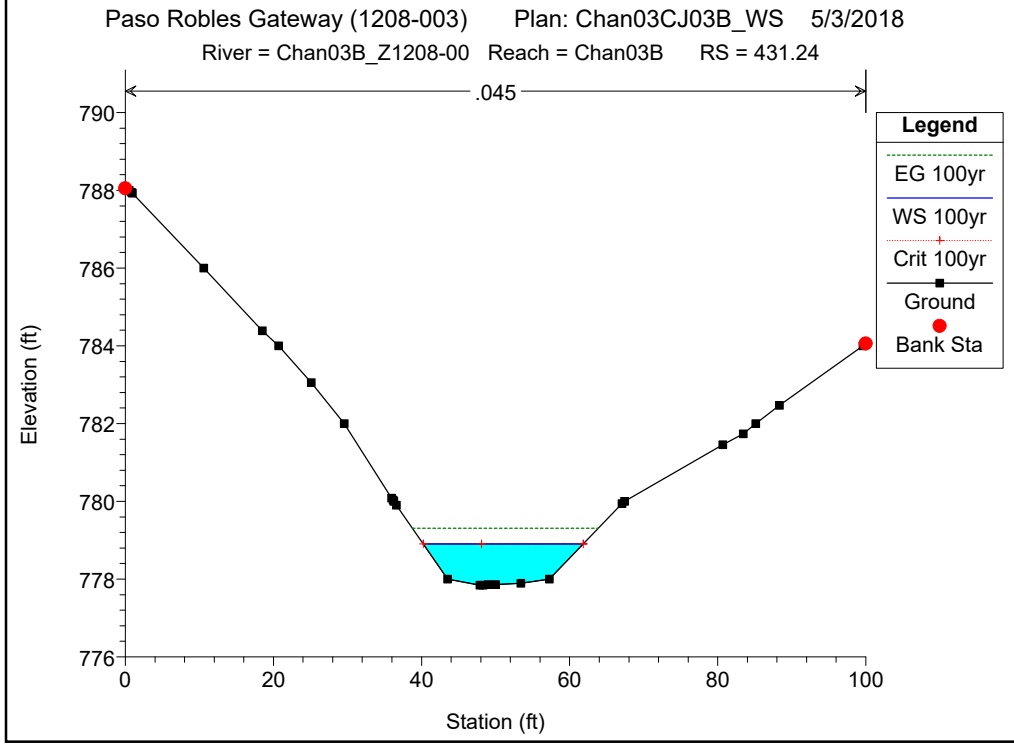
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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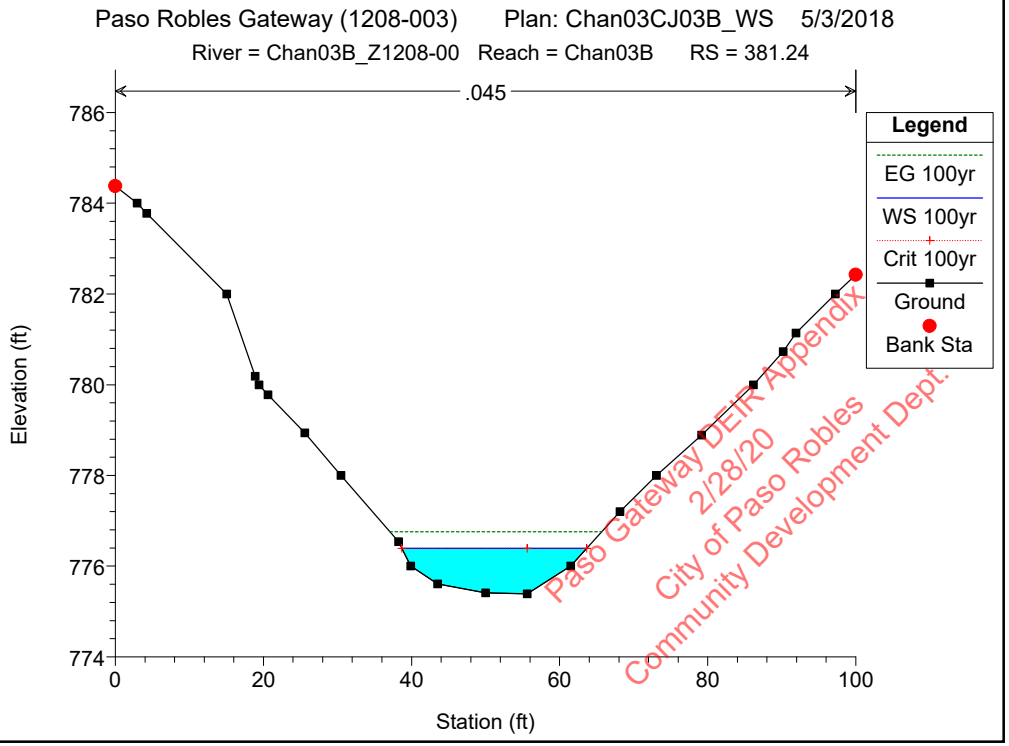
Station (ft)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Legend
EG 100yr
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Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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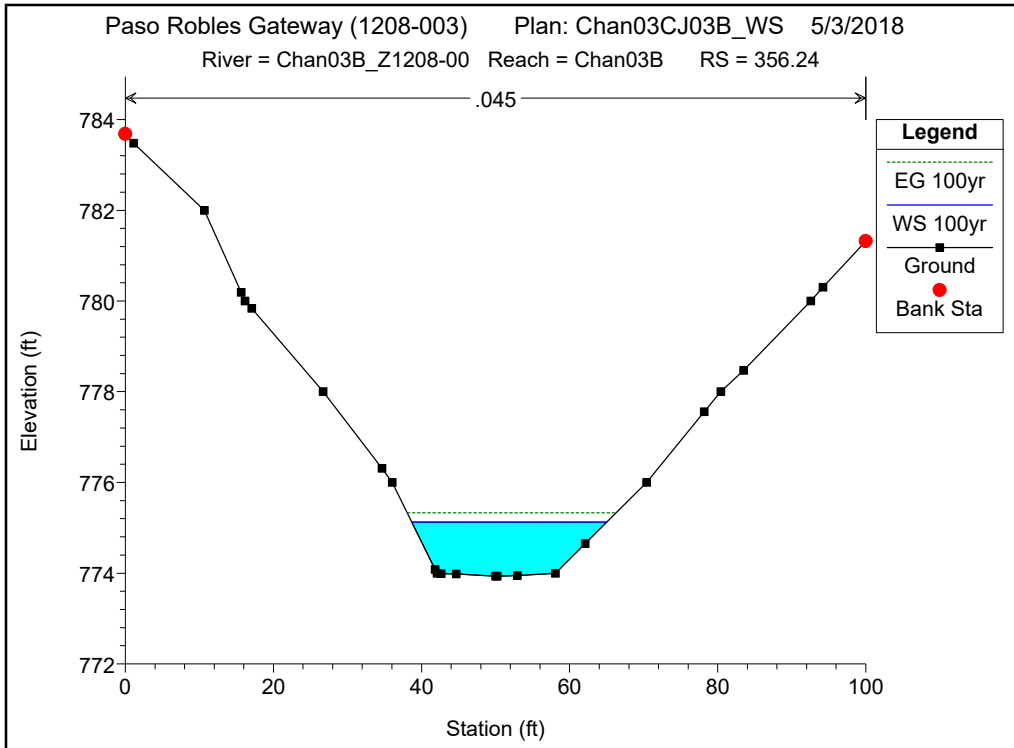

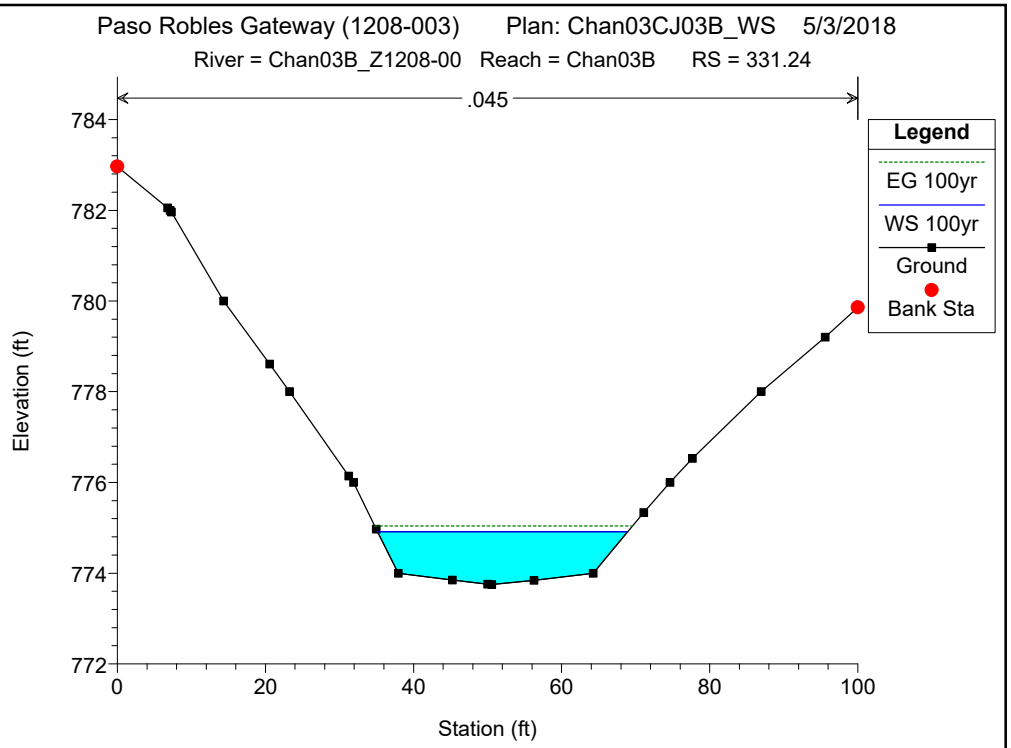

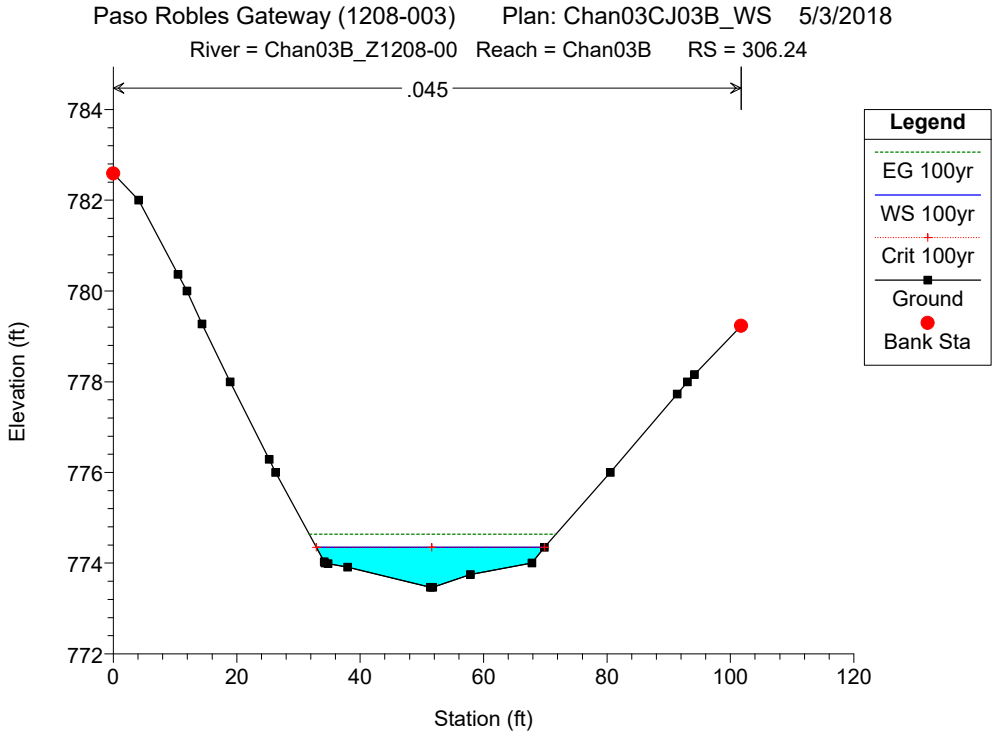

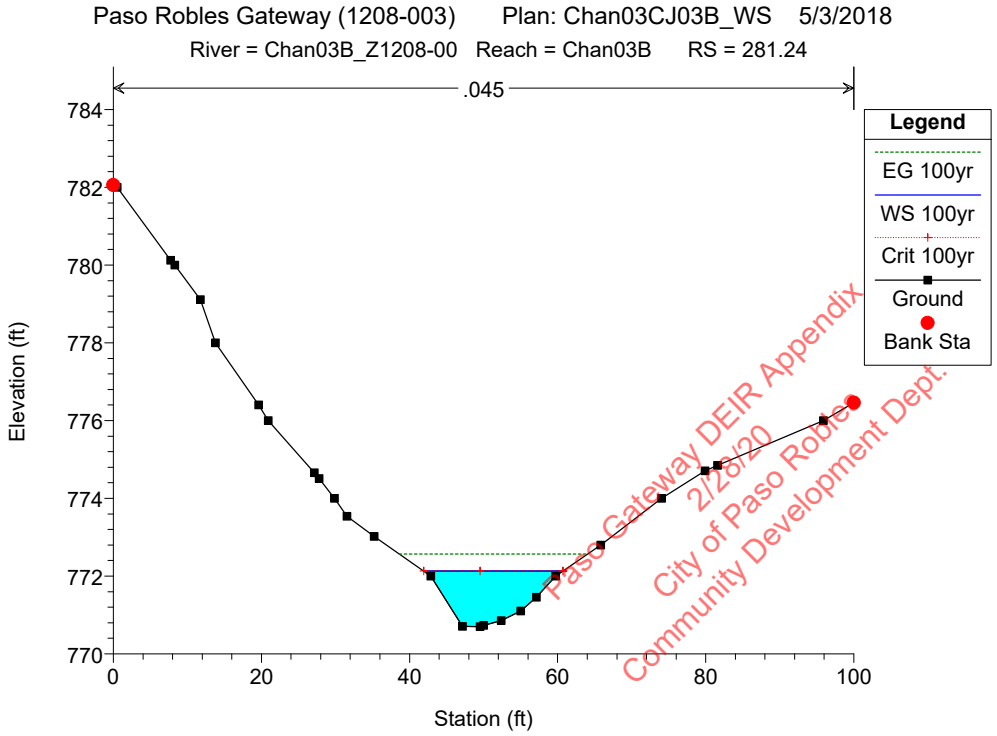

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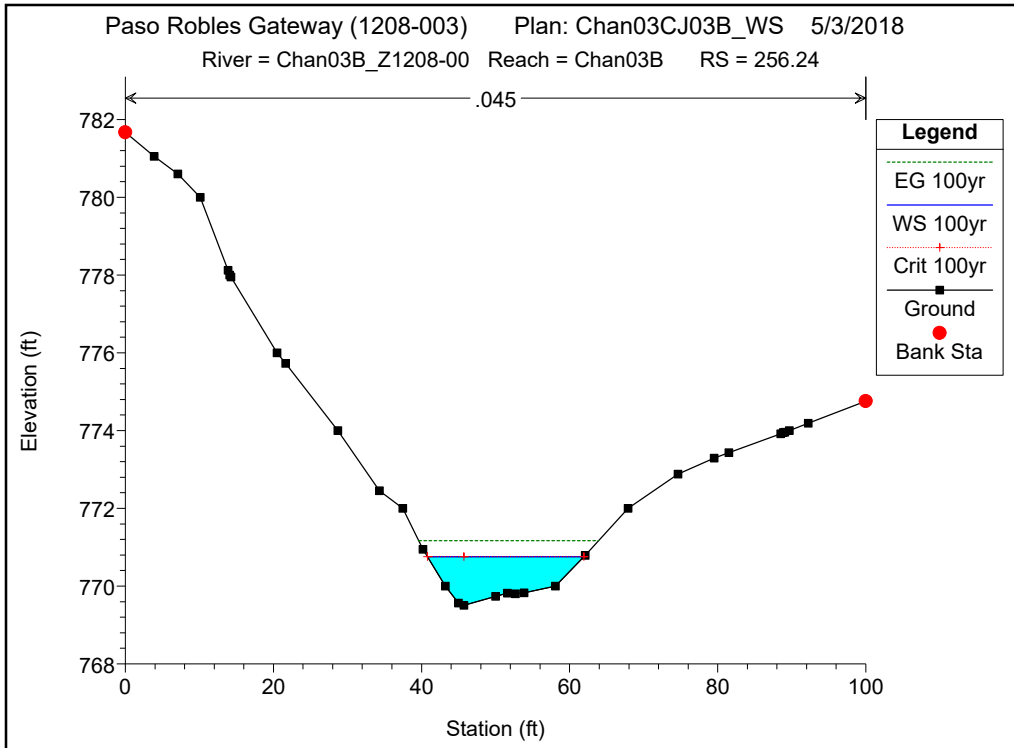
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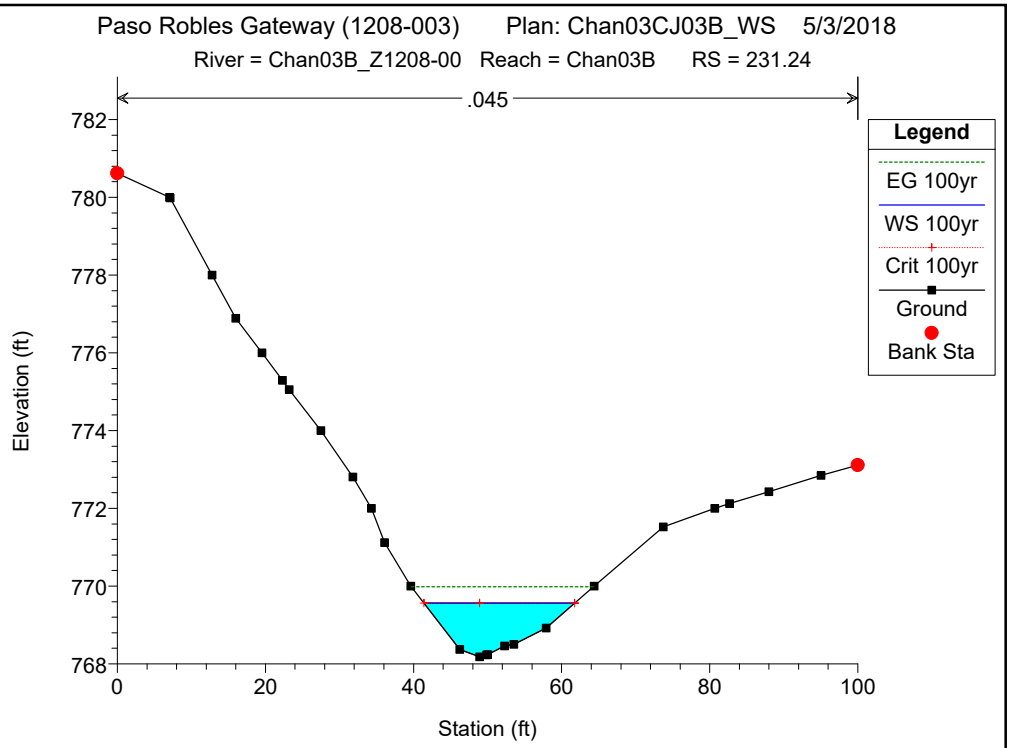
Legend
EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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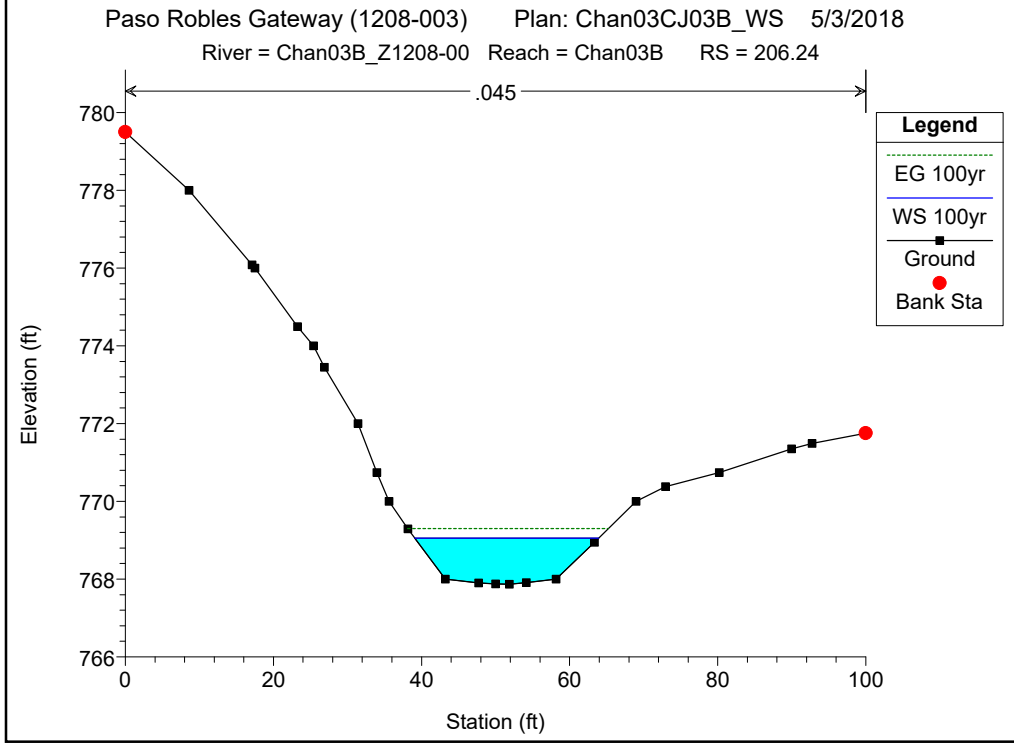
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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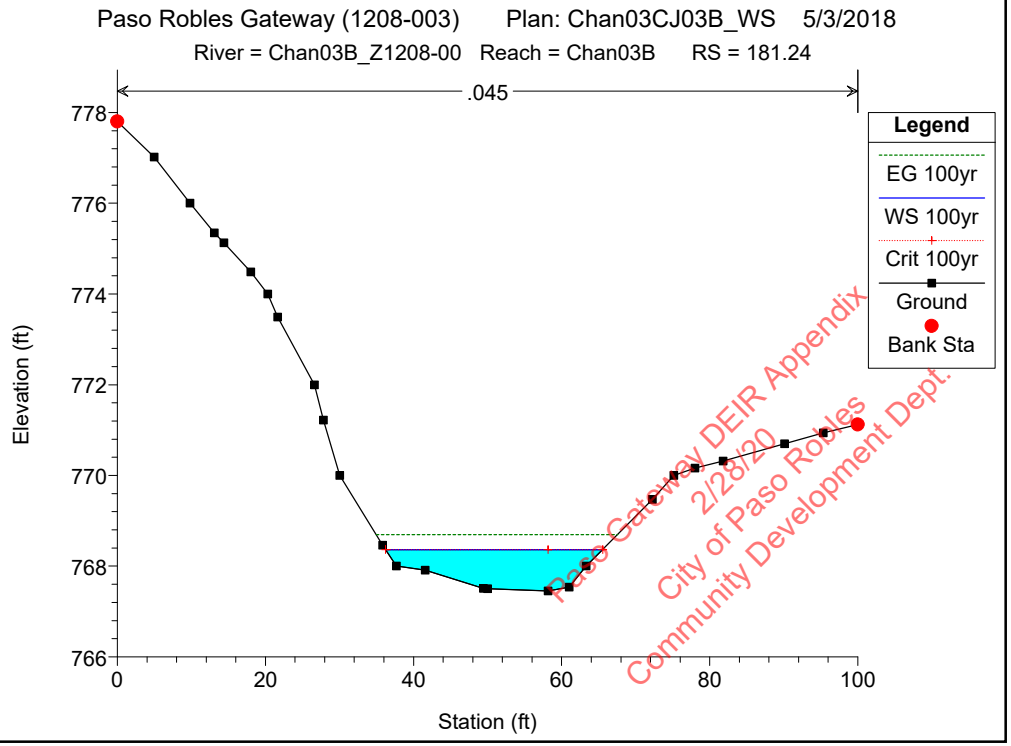
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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EG 100yr
WS 100yr
Crit 100yr
Ground
Bank Sta
Elevation (ft)
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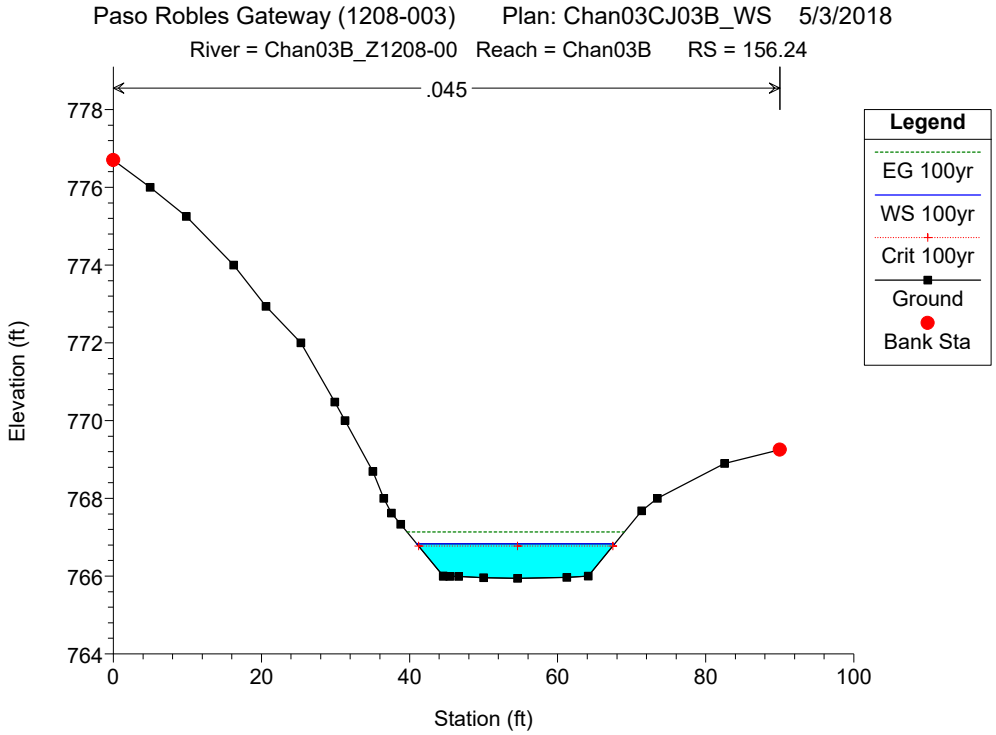
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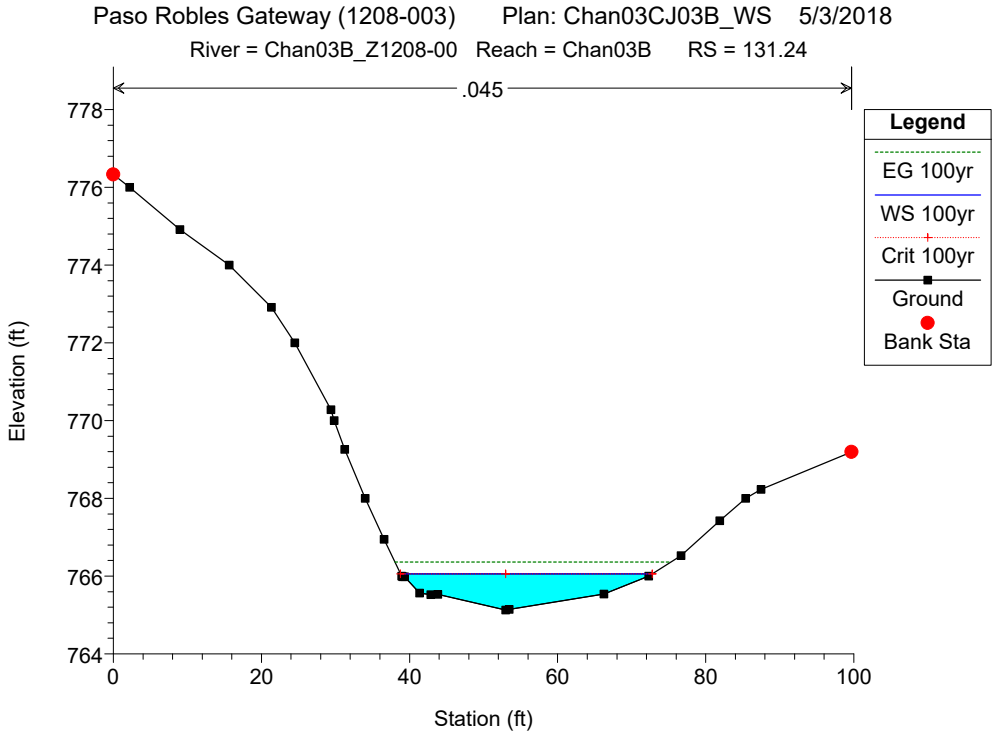
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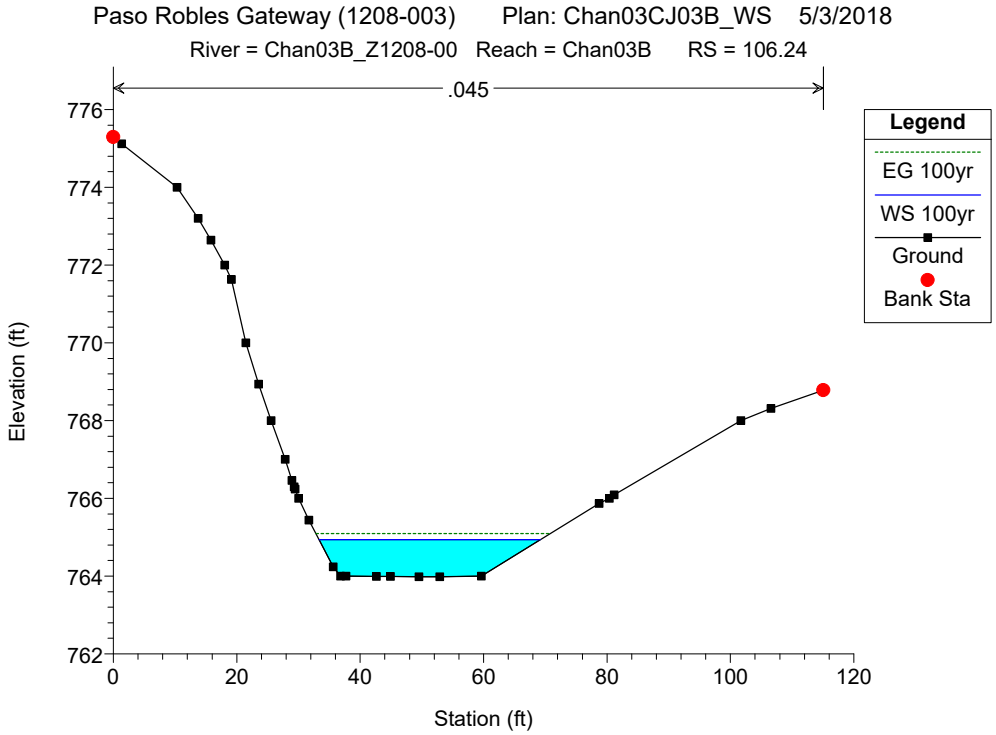
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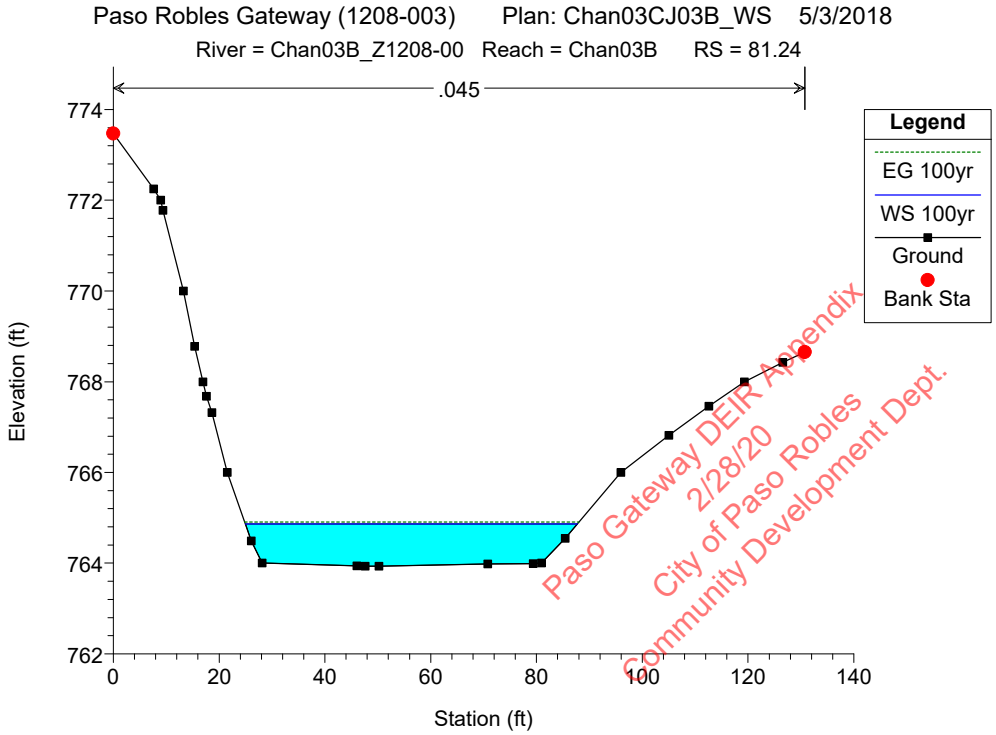
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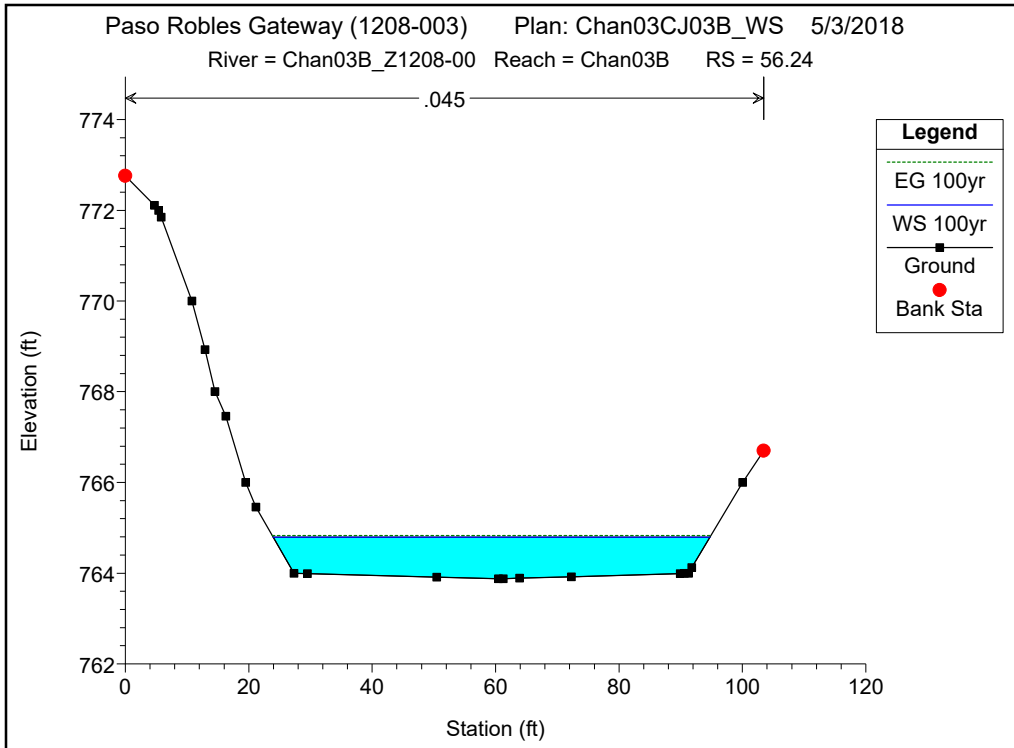
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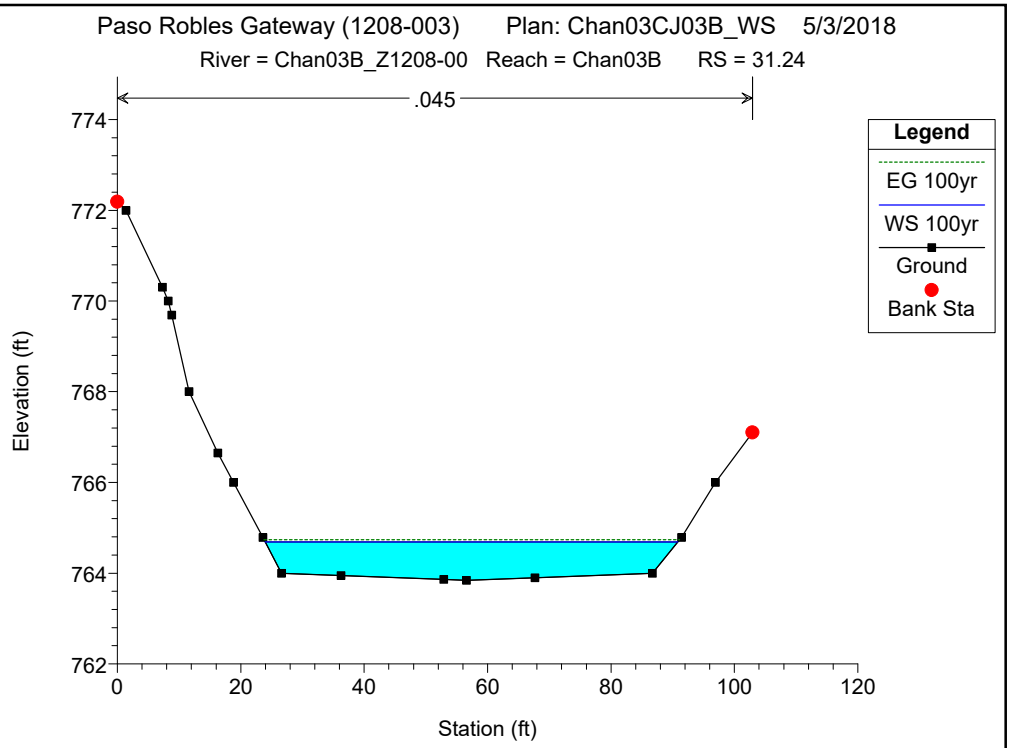
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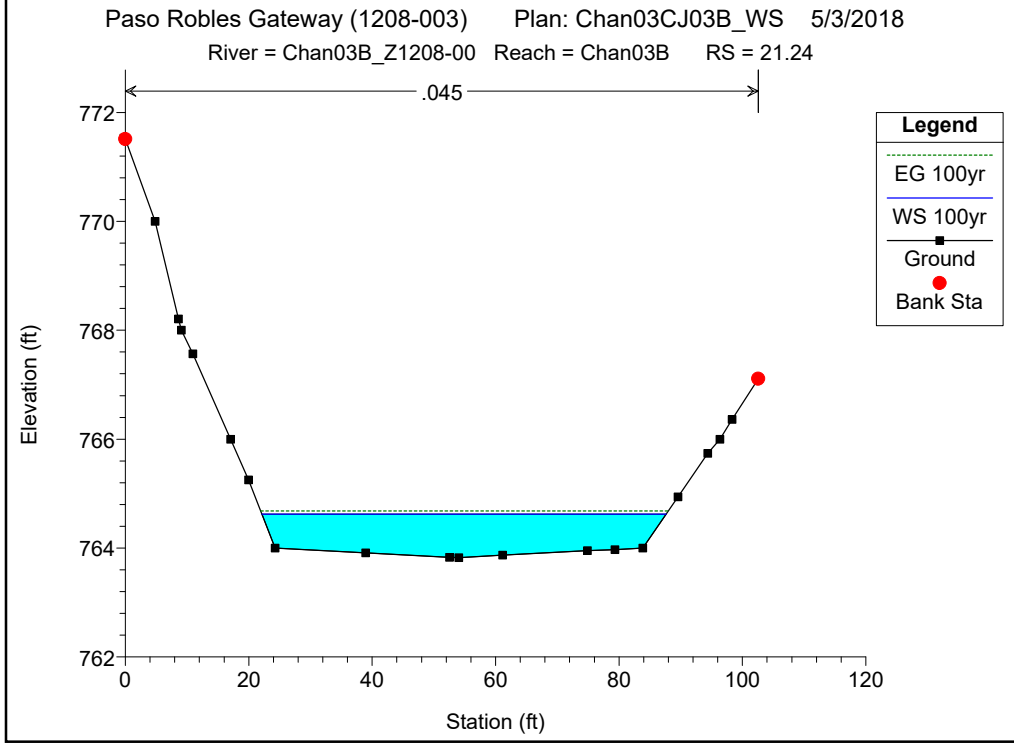
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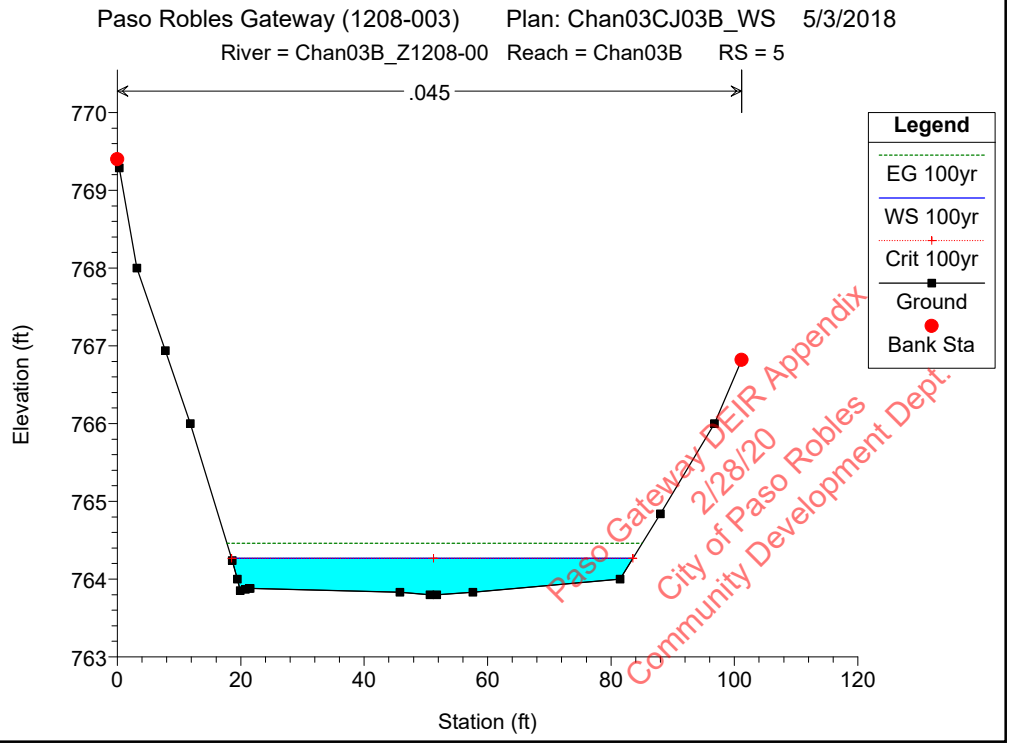
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Appendix 10

Existing Culvert Calculations

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HY-8 Culvert Analysis Report

Project Notes

Project Title:Paso Robles Project

Designer:CTK

Project Date:Tuesday, May 01, 2018

Notes:

HY-8 Culvert Analysis to establish downstream BFE for HEC-RAS analysis.

Crossing Discharge Data

Discharge Selection Method: User Defined

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Table 1 - Summary of Culvert Flows at Crossing: 3'x8' Box

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	3'x8' Box Discharge (cfs)	Roadway Discharge (cfs)	Iterations
756.51	Fuscoe	442.00	266.54	175.27	10
756.51	Fuscoe	442.00	266.54	175.27	2
756.00	Overtopping	243.78	243.78	0.00	Overtopping

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Table 2 - Culvert Summary Table: 3'x8' Box

Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)
Fuscoe	442.00	266.54	756.51	5.668	0.379	5-S2n	1.595	3.000	1.720	1.060	19.369
Fuscoe	442.00	266.54	756.51	5.668	0.379	5-S2n	1.595	3.000	1.720	1.060	19.369

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****

Straight Culvert

Inlet Elevation (invert): 750.84 ft, Outlet Elevation (invert): 743.57 ft

Culvert Length: 281.22 ft, Culvert Slope: 0.0259

****

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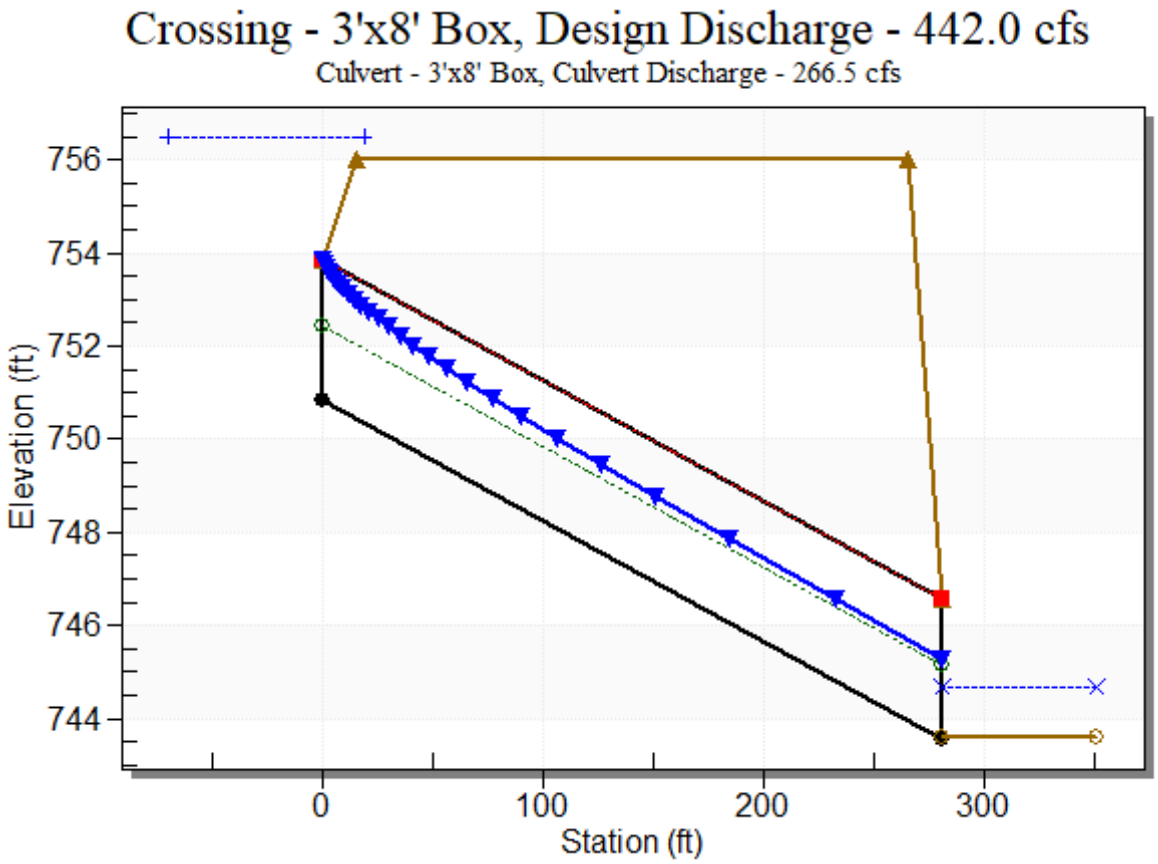
Water Surface Profile Plot for Culvert: 3'x8' Box



Site Data - 3'x8' Box

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 750.84 ft

Outlet Station: 281.13 ft

Outlet Elevation: 743.57 ft

Number of Barrels: 1

Culvert Data Summary - 3'x8' Box

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

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Table 3 - Downstream Channel Rating Curve (Crossing: 3'x8' Box)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
442.00	744.66	1.06	18.86	3.31	3.38
442.00	744.66	1.06	18.86	3.31	3.38

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Tailwater Channel Data - 3'x8' Box

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 20.00 ft

Side Slope (H:V): 2.00 (_:1)

Channel Slope: 0.0500

Channel Manning's n: 0.0170

Channel Invert Elevation: 743.60 ft

Roadway Data for Crossing: 3'x8' Box

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 160.00 ft

Crest Elevation: 756.00 ft

Roadway Surface: Paved

Roadway Top Width: 250.00 ft

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Crossing Discharge Data

Discharge Selection Method: User Defined

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Table 4 - Summary of Culvert Flows at Crossing: 10'x10' Box

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	10'x10' Box Discharge (cfs)	Roadway Discharge (cfs)	Iterations
760.87	Fuscoe	3313.00	2144.82	1167.22	27
760.87	Fuscoe	3313.00	2144.82	1167.22	2
759.00	Overtopping	2026.51	2026.51	0.00	Overtopping

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Table 5 - Culvert Summary Table: 10'x10' Box

Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)
Fuscoe	3313.00	2144.82	760.87	24.103	16.796	5-S2n	7.039	10.000	7.687	2.741	27.902
Fuscoe	3313.00	2144.82	760.87	24.103	16.796	5-S2n	7.039	10.000	7.687	2.741	27.902

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****

Straight Culvert

Inlet Elevation (invert): 736.77 ft, Outlet Elevation (invert): 727.58 ft

Culvert Length: 580.09 ft, Culvert Slope: 0.0158

****

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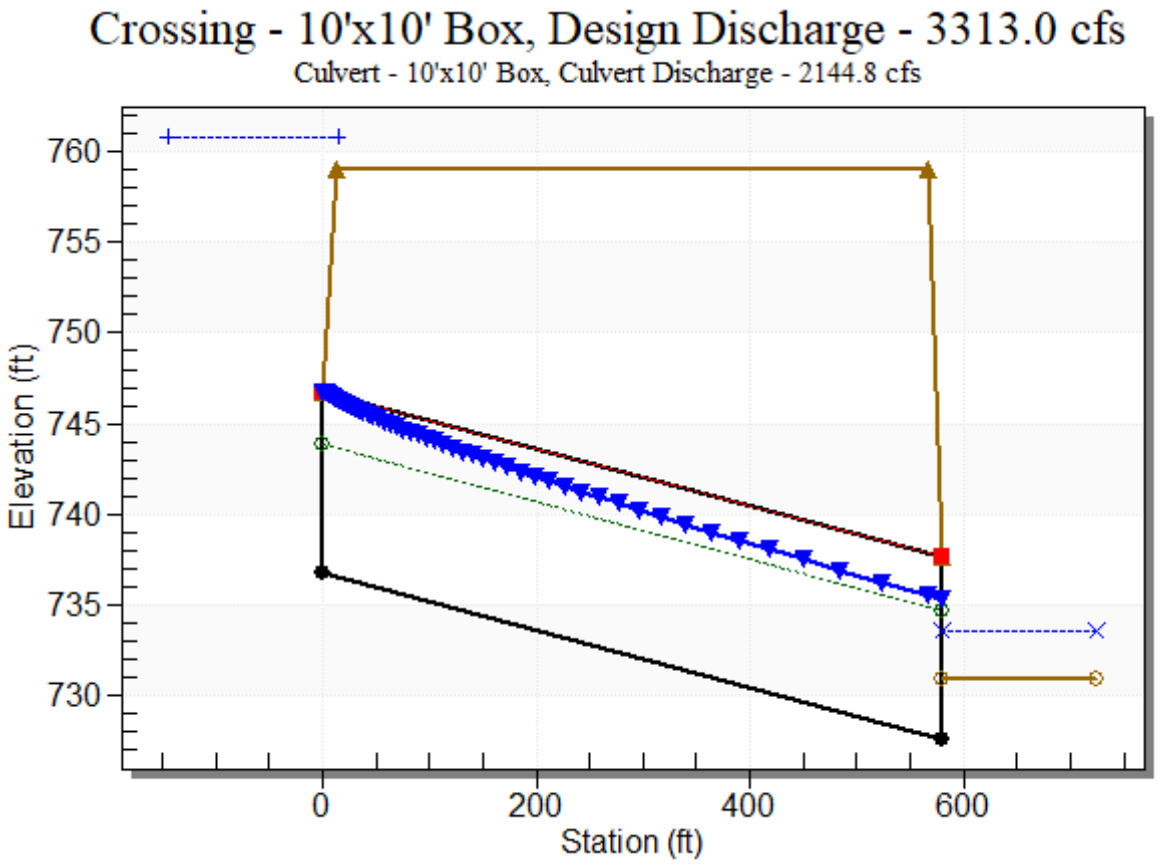
Water Surface Profile Plot for Culvert: 10'x10' Box



Site Data - 10'x10' Box

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 736.77 ft

Outlet Station: 580.02 ft

Outlet Elevation: 727.58 ft

Number of Barrels: 1

Culvert Data Summary - 10'x10' Box

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 10.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Square Edge (30-75° flare) Wingwall

Inlet Depression: None

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Table 6 - Downstream Channel Rating Curve (Crossing: 10'x10' Box)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
3313.00	733.54	2.74	34.07	8.55	3.90
3313.00	733.54	2.74	34.07	8.55	3.90

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Tailwater Channel Data - 10'x10' Box

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 30.00 ft

Side Slope (H:V): 2.00 (_:1)

Channel Slope: 0.0500

Channel Manning's n: 0.0170

Channel Invert Elevation: 730.80 ft

Roadway Data for Crossing: 10'x10' Box

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 150.00 ft

Crest Elevation: 759.00 ft

Roadway Surface: Paved

Roadway Top Width: 555.00 ft

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Crossing Discharge Data

Discharge Selection Method: User Defined

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Table 7 - Summary of Culvert Flows at Crossing: 48" RCP

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	48" RCP Discharge (cfs)	Roadway Discharge (cfs)	Iterations
761.14	Fuscoe	225.00	220.87	3.85	39
761.14	Fuscoe	225.00	220.87	3.85	2
761.10	Overtopping	220.46	220.46	0.00	Overtopping

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Table 8 - Culvert Summary Table: 48" RCP

Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)
Fuscoe	225.00	220.87	761.14	12.639	12.283	6-FFc	4.000	4.000	752.500	1.049	17.576
Fuscoe	225.00	220.87	761.14	12.639	12.283	6-FFc	4.000	4.000	752.500	1.049	17.576

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****

Straight Culvert

Inlet Elevation (invert): 748.50 ft, Outlet Elevation (invert): 746.25 ft

Culvert Length: 203.17 ft, Culvert Slope: 0.0111

****

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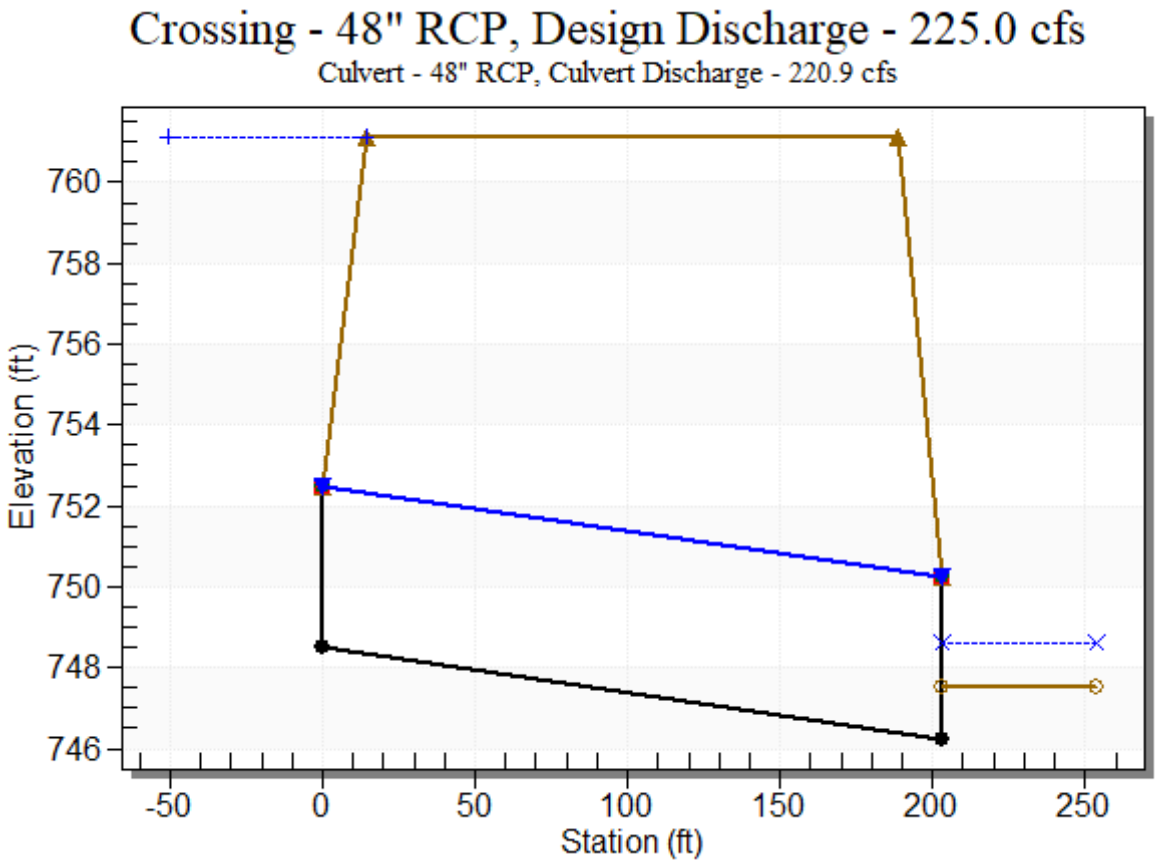
Water Surface Profile Plot for Culvert: 48" RCP



Site Data - 48" RCP

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 748.50 ft

Outlet Station: 203.16 ft

Outlet Elevation: 746.25 ft

Number of Barrels: 1

Culvert Data Summary - 48" RCP

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

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Table 9 - Downstream Channel Rating Curve (Crossing: 48" RCP)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
225.00	748.59	1.05	17.73	3.27	3.30
225.00	748.59	1.05	17.73	3.27	3.30

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Tailwater Channel Data - 48" RCP

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 10.00 ft

Side Slope (H:V): 2.00 (_:1)

Channel Slope: 0.0500

Channel Manning's n: 0.0170

Channel Invert Elevation: 747.54 ft

Roadway Data for Crossing: 48" RCP

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 170.00 ft

Crest Elevation: 761.10 ft

Roadway Surface: Paved

Roadway Top Width: 174.00 ft

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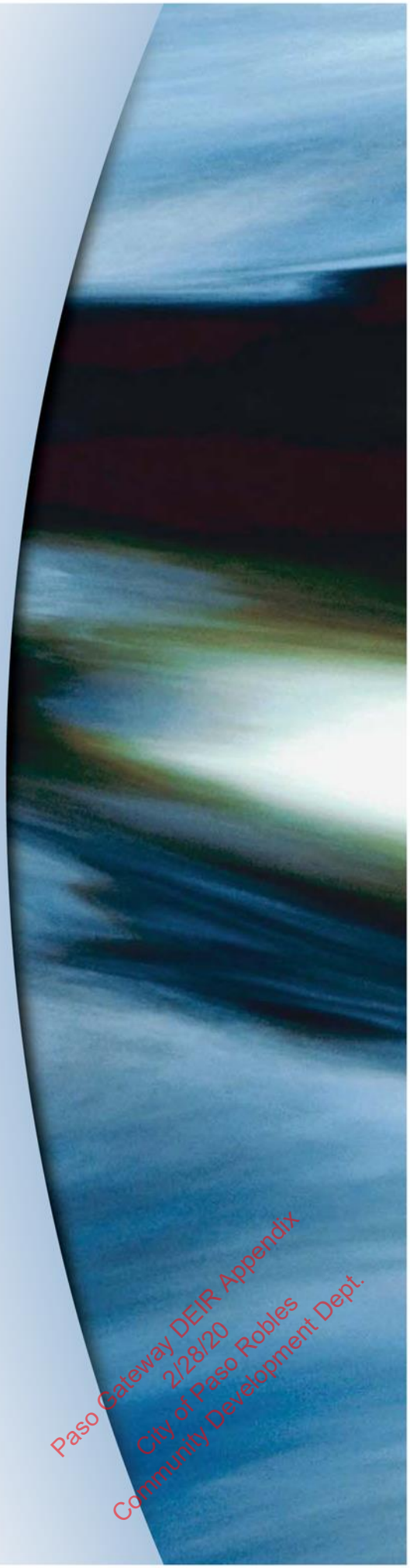

PRELIMINARY
STORMWATER CONTROL PLAN (SWCP)

PASO ROBLES GATEWAY

PASO ROBLES, CA

Prepared For

QUOROM REALTY FUND IV LLC
23 Corporate Plaza, Suite 150
Newport Beach, CA 92660
310.826.0100

Prepared By

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16795 Von Karman, Suite 100
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Project Manager:
Trevor Dodson, PE

Date Prepared: May 7, 2018
Date Revised: March 1, 2019
Job Number: 1208-003-02

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PRELIMINARY STORMWATER CONTROL PLAN (SWCP)

PASO ROBLES GATEWAY

Paso Robles, County of San Luis Obispo

APN: 026-471-013, 026-471-017, 026-471-019, 026-471-021, 040-031-001, 040-031-020, 040-031-017, 040-031-019, 040-091-041, 040-091-039

Prepared for:

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Prepared by:

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Project Manager: Trevor Dodson, PE

Date Prepared: 5/7/2018
Date Revised: 3/1/2019

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APPENDIX

Appendix A – Exhibits
Appendix B – DMA and SCM Calculations
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1. INTRODUCTION AND PROJECT DATA

This Preliminary Stormwater Control Plan (SWCP) has been prepared for the Paso Robles Gateway project in the City of Paso Robles, California. It is intended to serve as a Community-wide Preliminary SWCP to address storm water runoff mitigation on a Master Plan level, and where subsequent preliminary and final SWCP's developed for the Project's successive development phases shall adhere to. This watershed-based approach will allow the Project to address water quality in each individual development area associated with the project, while maintaining a comprehensive, consistent, and synergistic approach to Low Impact Development (LID) and water quality protection for the entire common plan of development.

This report will introduce the low impact design (LID) concepts, best management practices (BMPs) and structural Stormwater Control Measures (SCMs) that will be utilized during the development of the Paso Robles Gateway Project. To meet Central Coast Regional Water Quality Control Board (CCRWQCB) and City of Paso Robles standards, SCMs have been designed to meet the requirements listed in the *Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region*, Resolution No. R3-2013-0032.

Table 1 Project Data

Project Name/Project Case Number	Paso Robles Gateway
Project Location	Northwest Corner of Vine Street and SR46 West
Project Phase No.	N/A
Project Type and Description	Residential, commercial, and resort development.
New Impervious Surface Area (sf)	1,203,216
Replaced Impervious Surface Area (sf)	0
Pre-Project Impervious Surface Area (sf)	500
Post-Project Impervious Surface Area (sf)	1,203,216
"Net Impervious" Area, if applicable	N/A
Watershed Management Zone(s)	1
Tier	Tier 4
Design Storm Frequency Used (85th or 95th percentile) and Design Storm Depth (in)	95th Percentile, 1.45 inches
Urban Sustainability Area, if applicable	The Project is not in an Urban Sustainability area.

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2. SETTING

2A. Project Location and Description

The Gateway Paso Robles Project includes proposed residential, commercial and resort land uses that encompass approximately 170 acres within unincorporated areas of San Luis Obispo County adjacent of the southwest edge of the Paso Robles city limits. The property is located to the northwest of the interchange of US Highway 101 and State Route 46 west (see Figure 1, Vicinity Map).

The primary components of the Project land plan include: (i) a Hillside Destination Resort Hotel and Conference Center, (ii) a Vine Street Vineyard Hotel and Village, (iii) a High Density Resort Community, and (iv) two distinct visitor and community serving commercial centers. The Project will include up to 425 transient units, approximately 464,000 square feet of commercial/office/retail land use, and 17 workforce dwelling units. Table 2 summarizes the proposed project. See Appendix A for full site plan.

Table 2 Project Land Uses

Resort Areas		
Proposed Project Land Use	**Proposed Project Land Use Description**	**Unit Count**
Hillside Destination Resort	The Hillside Destination Resort will include a 225 room hotel, 5,000 square feet of restaurants, 7,000 square foot spa, up to 20,000 square feet of ballroom and conference space, and a total of 380 parking spaces.	225 rooms
Vineyard Hotel	The Vineyard Hotel will be approximately 76,000 square feet with 100 rooms, a 1,500 square foot meeting area, pool, and a total of 120 parking spaces.	100 rooms
Highway 46 Resort	The Highway 46 Resort will be 135,000 square feet with 100 rooms including a 60,000 square foot lodge, 2,500 square foot ballroom, 2,300 square foot conference room, 6,000 square foot spa, 5,300 square feet of two restaurants, an outdoor event area, pool, poolside café/bar, and a total of 186 parking spaces.	100 rooms
Commercial Areas		
Village Commercial Center	The Village Commercial Center will include 42,000 square feet of commercial space with 20,000 square feet of retail, 2 restaurants totaling 5,000 square feet, office space, and 17 workforce residential units.	42,000 sf
Promontory Commercial	The Promontory Commercial area will include 16,000 square feet of commercial and office space.	16,000 sf
Vine Street Commercial	The Vine Street Commercial area will include 22,000 square feet of commercial and office space.	22,000 sf
Agricultural and Landscaped Areas		
Vineyard Areas	Vineyards will be planted throughout the Project area and will cover approximately 48 acres.	48 acres
Landscaped Areas	Common area landscaping throughout the development footprints will be included and will cover approximately 29 acres.	29 acres

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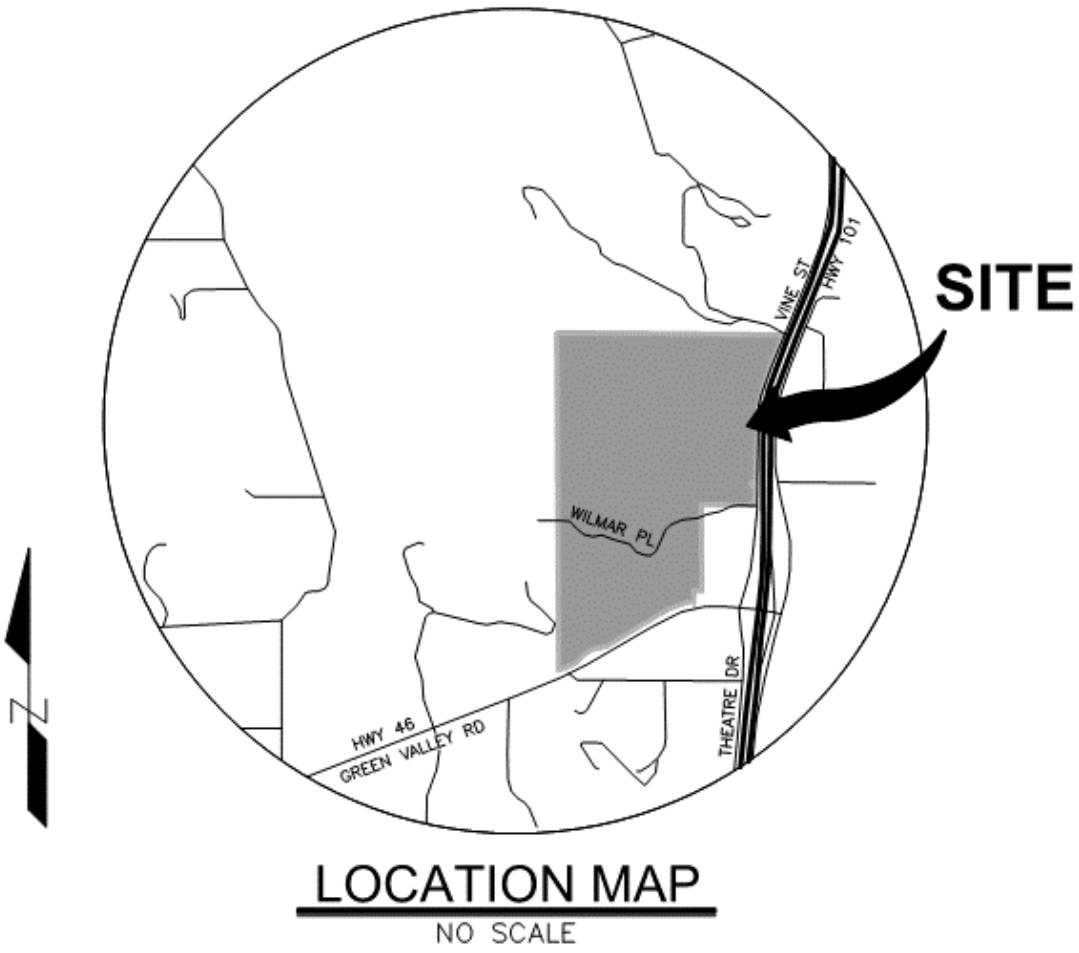
Figure 1 Vicinity Map



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2B. Existing Site Features and Conditions

Under existing conditions, the site is primarily vacant and is characterized by gently sloping hills of approximately 10% to 20% in grade, and includes grasslands and clusters of oak trees. Existing and historical land uses of the site include intermittent grazing and non-irrigated defunct almond orchard.

Under existing conditions, runoff generally drains through the site, from east to west, via sheet flow and through several ephemeral streams that occur during heavy rain periods. Runoff ultimately flows towards S Vine St, where it is collected by four outfall culverts, which then convey the runoff under S Vine St and US Highway 101 before discharging into the Salinas River. The Salinas River flows northwest before discharging to the Monterey Bay north of Marina, CA.

Soils on the project site generally consist of sandstones and claystones of the Paso Robles Formation in the southern and northern parts of the project area. The central areas of the project site includes soils generally consisting of gravel, sand and clay older alluvium. Gravel, sand and clay (younger) alluvium is present within the drainages.

2C. Opportunities and Constraints for Stormwater Control

Due to the presence of alluvial and sandy soils throughout the project site, infiltration is generally considered feasible at this phase in the project development. Since site-specific infiltration rates are not yet known, conservative infiltration rates and safety factors have been applied to the project SCMs. As site and drainage plans progress, the footprints of proposed LID features and SCMs may be adjusted to accommodate revised runoff volumes and rates as more detailed site information is made available. Any changes will be documented in future SWCP(s) prepared for the project.

The site has been designed to avoid any major influence on the existing ephemeral streams, riparian areas and oak groves identified to be preserved across the project site. These areas will be preserved to maintain natural aesthetics for the area and to preserve native ecosystems and treatment of runoff in the area.

2D. Summary of Design Approach for Meeting the Post-Construction Requirements

The Project shall meet CCRWQCB regulations using a combination of low impact design strategies and structural stormwater control measures. Wherever possible, natural systems will be preserved and natural retention and treatment of storm flows will be prioritized. This will be done using a series of site design measures across the Project site. The following measures will be employed as part of the Gateway Paso Robles Project.

Reducing Impervious Surfaces

- Where feasible, interior roads serving only residential lots have had lane widths reduced to 10' from the standard 12' lane. Sidewalks have been eliminated from interior roads except where required to provide path of travel.
- Where feasible, pervious paving will be used to replace portions of asphalt paving throughout parking areas on the Project site. See Section 4A. Drainage Management Areas and SCMs, for more information on structural SCMs employed on site.
- To reduce the Project footprint, all proposed resorts are multi-level structures.

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Promoting Sheet Flow to Vegetated and Landscaped Areas

- Grading has been designed to promote sheet flows and minimize concentrated flows to lined swales and pipes.
- Where possible, runoff will be directed to vegetated areas.
- Curb and gutter cuts will be installed, and, where possible, curbs and gutters will be eliminated entirely to allow surface runoff to flow to bioretention or vegetated areas and reduce flows to storm drain system.

Disconnecting from Storm Drain System

- Where feasible, roof drains will discharge to splash pads, rain barrels, or cisterns to promote potential reuse of stormwater and minimize connections to the storm drain system.
- Where possible, runoff will be directed to vegetated areas.

Promoting Groundwater Recharge

- Retention and infiltration of groundwater in vegetated and bio-retention areas will be promoted.
- Where feasible, pervious paving will be utilized to promote infiltration of runoff at natural rates.

Minimizing Grading

- The Project has been graded to follow natural contours where feasible, reducing grading impacts and preserving natural vegetation.
- Grading has been designed to minimize walls, which can concentrate stormwater flows.

In cases where further stormwater control is necessary, Structural Control Measures (SCMs) will be implemented. The following SCM features will be utilized throughout the Project area to treat the necessary storm water design capture volumes for each DMA.

Rain Gardens (Bioretention with Underdrain

- Bioretention systems are designed to retain and naturally filter and treat stormwater runoff through a combination of plants, media, and gravel filtration. All Project bioretention units shall be equipped with an underdrain.

Pervious Pavement

- Pervious, or porous, pavement allows surface flows to infiltrate into the surface of the paved area, reducing surface runoff and promoting on-site infiltration of stormwater flows.

See Section 4B. SCM Design, for further discussion of SCM design standards and specifications.

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3. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES

To comply with CCRWQCB Performance Requirement #1, the following Low Impact Development (LID) design measures will be employed as part of the Gateway Paso Robles Project.

A. Limit Disturbance to Creeks and Natural Drainage Features

The Project site has been designed to preserve riparian areas and natural drainage features and systems as best as possible. Where feasible, grading that alters drainage patterns has been minimized.

B. Minimize Compaction of Highly Permeable Soils

The Project has been designed to minimize compaction of soils and impacts to natural areas through consolidation of developed and paved areas and minimal grading where feasible.

C. Limit Clearing and Grading of Native Vegetation to Minimum Area Needed, if Applicable

The Project site has been designed to maintain the maximum amount of pervious surfaces and natural areas. Portions of the Project site have been dedicated to preserve native oak groves and riparian areas.

D. Apply Setbacks from Creeks, Wetlands, and Riparian Habitats

The Project site has been designed to preserve natural areas to the maximum extent feasible, including applying adequate setbacks for riparian habitats and oak trees to be preserved. There are no wetland areas present on or adjacent to the Project site.

E. Minimize Stormwater Runoff

See Section 2.D for a description of site design measures intended to minimize stormwater runoff.

F. Phased Grading

As the existing and proposed topography and large areas exposed during grading can create a greater potential for downstream erosion and sedimentation, grading will be phased. During future design phases, an Erosion and Sediment Control Plan will be completed in order to adequately address any construction-related impacts to water quality.

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4. DOCUMENTATION OF DRAINAGE DESIGN

The Project size is located in the CCRWQCB Water Management Zone (WMZ) #1. As the Project is located in WMZ #1 and adds over 22,500 square feet of impervious surface, it is required to meet Performance Requirements 1-4 set forth in the *Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region*, Resolution No. R3-2013-0032 ("Regional Board Requirements"). The requirements are as follows:

1. Site Design and Runoff Reduction
2. Water Quality Treatment
3. Runoff Retention
4. Peak Management

See Section 3 for compliance actions pertaining to CCRWQCB performance requirement #1. To comply with CCRWQCB Performance Requirements #2 and #3, a number of structural stormwater control measures (SCMs) have been proposed for the Project site. All I SCMs have been sized to retain the 95th percentile, 24-hour rainfall event for the Paso Robles area. See Section 4D. Peak Management for peak flow analysis to satisfy Performance Requirement #4.

4A. Drainage Management Areas and SCMs

Drainage management areas (DMAs) were determined for the Project area based on proposed grading and impervious areas. Please note that at this stage in the planning process all DMAs remain conceptual, as plans are updated DMAs will be refined. While it is anticipated that flows from sidewalks and building frontages will be handled by self-retaining landscape areas, the impervious area of several of the DMA's were increased by a 10%-20% factor to account for any additional impervious surfaces that may be incorporated into the site design at a later stage in site plan development. The DMAs for the project site, and proposed SCMs for each DMA, are listed below:

Table 3 Drainage Management Areas (DMAs) as Shown on the Exhibit

DMA Name	DMA Area (ft^2)	Post-Project Surface Type	New, Replaced?	SCM Connection	SCM Type	SCM Safety Factor	Design Infiltration Rate	SCM Area (ft^2)
N1	5,970	Roof	New	RG-N1	Bioretention	1	HSG A/B	299
	597	Hardscape	New					
	9,159	Streets	New	PP-N1	Pervious Pavement	2	HSG A/B	542
N2	7,164	Roof	New	RG-N2	Bioretention	1	HSG A/B	359
	716	Hardscape	New					
	9,949	Streets	New	PP-N2	Pervious Pavement	2	HSG A/B	311
N3	8,358	Roof	New	RG-N3	Bioretention	1	HSG A/B	419
	836	Hardscape	New					
	18,762	Streets	New	PP-N3a	Pervious Pavement	2	HSG A/B	1,111
N4	2,388	Roof	New	RG-N4	Bioretention	1	HSG A/B	120
	239	Hardscape	New					
N5	6,526	Roof	New	RG-N5	Bioretention	1	HSG A/B	652
	653	Hardscape	New					

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DMA Name	DMA Area (ft^2)	Post-Project Surface Type	New, Replaced?	SCM Connection	SCM Type	SCM Safety Factor	Design Infiltration Rate	SCM Area (ft^2)
	6,478	Streets	New					
N6	31,198	Roof	New	RG-N6	Bioretention	1	HSG A/B	3,206
	27,878	Hardscape	New					
	11,301	Streets	New					
N7	32,737	Roof	New	RG-N7	Bioretention	1	HSG A/B	4,029
	14,749	Hardscape	New					
	40,972	Streets	New					
N8	5,308	Roof	New	RG-N8	Bioretention	1	HSG A/B	290
	1,062	Hardscape	New					
	41,333	Parking Lot	New	PP-N8a	Pervious Pavement	2	HSG A/B	2,447
	21,916	Parking Lot	New	PP-N8b	Pervious Pavement	2	HSG A/B	1,297
N9	15,325	Roof	New	RG-N9-1	Bioretention	1	HSG A/B	838
	3,065	Hardscape	New					
	15,100	Parking Lot	New	PP-N9a	Pervious Pavement	2	HSG A/B	894
	14,259	Roof	New	RG-N9-2	Bioretention	1	HSG A/B	779
	2,852	Hardscape	New					
	15,927	Parking Lot	New	PP-N9b	Pervious Pavement	2	HSG A/B	943
N10	21,597	Roof	New	RG-N10	Bioretention	1	HSG A/B	1,181
	4,320	Hardscape	New					
N11	8,500	Roof	New	RG-N11	Bioretention	1	HSG A/B	465
	1,700	Hardscape	New					
N12	20,546	Streets	New	RG-N12	Bioretention	1	HSG A/B	936
N13	106,347	Parking Lot	New	PP-N13	Pervious Pavement	2	HSG A/B	6,296
N14	66,323	Streets	New	PP-N14	Pervious Pavement	2	HSG A/B	3,926
N15	12,760	Streets	New	RG-N15	Bioretention	1	HSG A/B	581
N16	15,634	Streets	New	PP-N16	Pervious Pavement	2	HSG A/B	926
N17	11,983	Streets	New	RG-N17	Bioretention	1	HSG A/B	546
N18	13,458	Streets	New	RG-N18	Bioretention	1	HSG A/B	613
N19	6,757	Streets	New	RG-N19	Bioretention	1	HSG A/B	308
N20	26,281	Streets	New	RG-N20	Bioretention	1	HSG A/B	1,197
N21	35,808	Streets	New	RG-N21	Bioretention	1	HSG A/B	1,631
N22	11,620	Streets	New	PP-N22	Pervious Pavement	2	HSG A/B	688
N23	29,687	Parking Lot	New	PP-N23	Pervious Pavement	2	HSG A/B	1,757
S1	27,592	Roof	New	RG-S1	Bioretention	1	HSG A/B	2,300
	10,092	Hardscape	New					
	12,818	Streets	New					
S2	17,766	Roof	New	RG-S2	Bioretention	1	HSG A/B	1,440
	6,400	Hardscape	New					
	7,438	Streets	New					

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DMA Name	DMA Area (ft²)	Post-Project Surface Type	New, Replaced?	SCM Connection	SCM Type	SCM Safety Factor	Design Infiltration Rate	SCM Area (ft²)
S3	23,624	Roof	New	RG-S3	Bioretention	1	HSG A/B	1,871
	8,467	Hardscape	New					
	8,983	Streets	New					
S4	13,794	Roof	New	RG-S4	Bioretention	1	HSG A/B	1,765
	5,931	Hardscape	New					
	19,015	Streets	New					
S5	9,353	Streets	New	RG-S5	Bioretention	1	HSG A/B	426
S6	31,565	Roof	New	RG-S6	Bioretention	1	HSG A/B	3,105
	13,649	Hardscape	New					
	22,942	Streets	New					
S7	15,876	Roof	New	RG-S7	Bioretention	1	HSG A/B	1,299
	8,653	Hardscape	New					
	3,985	Streets	New					
S8	9,826	Roof	New	RG-S8	Bioretention	1	HSG A/B	970
	3,297	Hardscape	New					
	8,182	Streets	New					
S9	17,767	Roof	New	RG-S9	Bioretention	1	HSG A/B	1,585
	7,263	Hardscape	New					
	9,765	Streets	New					
S10	4,153	Streets	New	RG-S10	Bioretention	1	HSG A/B	189
S11	31,382	Streets	New	RG-S11	Bioretention	1	HSG A/B	1,429
S12	48,995	Streets	New	RG-S12	Bioretention	1	HSG A/B	2,232
S13	9,125	Roof	New	RG-S13	Bioretention	1	HSG A/B	499
	1,825	Hardscape	New					
	21,926	Streets	New	PP-S13	Pervious Pavement	2	HSG A/B	1,298

4B. SCM Design

Structural stormwater control measures for the Project site have been designed to standards that ensure runoff is captured and treated efficiently, and that nuisance ponding is minimized. Consistent with CCRWQCB requirements, bioretention systems with underdrains and permeable pavers were the two SCMs used across the Project site.

Bioretention

Bioretention systems are plant-based biotreatment systems that typically consist of a ponding area, mulch layer, planting soils and plants. They combine shrubs, grasses, and flowering perennials in depressions (approximately 6-12 inches deep) that allow water to pool, evaporate and/or slowly filter, infiltrate and drain out within 48 hours. Additional design details include an amended soil/planting layer 18-24 inches deep, with a 2-3 inch mulch layer on top to protect from erosion. As stormwater passes down through the planting soil, pollutants are filtered, adsorbed, biodegraded and sequestered by the soil and plants. Perforated underdrains are provided for soils with moderate to low infiltration rates to discharge treated runoff at a controlled rate to the downstream storm drain system.

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Pervious Pavement

Permeable pavement, such as permeable pavers, grass pavers, porous concrete, and porous asphalt, provides a surface suitable for light-loads and parking areas in which water can drain through pore spaces to an underlying rock reservoir (approximately 24-36 inches deep) underneath. The sub-surface base allows for physical and microbial filtering processes to take place thereby removing pollutants such as particulates, organics, hydrocarbons and total suspended sediments, including attached heavy metals. The pervious pavement sections proposed for the project will have an average rock reservoir depth of 36 inches; however, depths may be increased or decreased during the final design to achieve minimum required treatment design volumes for each drainage area.

4C. SCM Sizing

After calculating required retention volumes for each DMA on the Project site, SCM sizing for the 95th percentile, 24-hour rain event was confirmed using the CCRWQCB *Central Coast Region Stormwater Control Measure Sizing Calculator*, Version 8-4-2017.

All retention and infiltration SCMs have been conceptually sized to retain the 95th percentile, 24-hour rain event for Paso Robles and drain within a 48 hour window. Detailed calculations are available in Appendix C. The results for each SCM calculated for the various DMAs across the project site are as follows:

Table 4 SCM Storage Volume and Drain Time

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)
RG-N1	359	3.00	18.2
PP-N1	686	3.16	40.5
RG-N2	430	3.00	18.1
PP-N2	373	3.00	38.4
RG-N3	502	3.00	18.1
PP-N3a	1332	3.00	38.3
RG-N4	143	2.98	18.1
RG-N5	726	2.78	16.6
RG-N6	3843	3.00	18.2
RG-N7	4831	3.00	18.2
RG-N8	348	3.00	18.2
PP-N8a	2935	3.00	38.3
PP-N8b	1557	3.00	38.4
RG-N9-1	1004	3.00	18.1
PP-N9a	1072	3.00	38.3
RG-N9-2	935	3.00	18.2
PP-N9b	1131	3.00	38.3
RG-N10	1415	3.00	18.1
RG-N11	557	2.99	18.1
RG-N12	1122	3.00	18.2
PP-N13	7551	3.00	38.3

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SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)
PP-N14	4709	3.00	38.4
RG-N15	697	3.00	18.2
PP-N16	1110	3.00	38.3
RG-N17	654	3.00	18.1
RG-N18	735	3.00	18.2
RG-N19	369	2.99	18.1
RG-N20	1436	3.00	18.2
RG-N21	1956	3.00	18.2
PP-N22	825	3.00	38.3
PP-N23	2108	3.00	38.4
RG-S1	2759	3.00	18.2
RG-S2	1726	3.00	18.1
RG-S3	2243	3.00	18.2
RG-S4	2116	3.00	18.2
RG-S5	511	3.00	18.2
RG-S6	3722	3.00	18.2
RG-S7	1557	3.00	18.2
RG-S8	1164	3.00	18.2
RG-S9	1901	3.00	18.2
RG-S10	227	3.00	18.2
RG-S11	1715	3.00	18.2
RG-S12	2676	3.00	18.2
RG-S13	598	3.00	18.1
PP-S13	1557	3.00	38.3

4D. Peak Management

As the Project is located almost entirely within a designated WMZ #1 area and creates more than 22,500 sq. ft of new impervious surfaces, it is subject to peak flow management requirements pursuant to the CCRWQCB post-construction requirements. Several storm water detention basins have been designed throughout the site to control runoff rates and ensure that post-construction peak flows do not exceed pre-construction peak flows for the 2-year, 5-year, and 10-year storm events. Peak flow calculations were made using each of the four City of Paso Robles drainage culverts as references to ensure that peak flows would not have an adverse effect on existing public infrastructure.

As the Project is still at a preliminary planning stage, hydrology peak-flow calculations were calculated for the 100-year storm event only in order to validate the capacity of the proposed detention basins. The proposed condition 100-year storm peak flows leaving the Project site do not exceed the existing condition 100-year storm peak flows. During future design phases, a weir or outlet system of equivalent will be designed to mitigate proposed peak flows for the 2-, 5-, and 10-year storm events to equal or less than existing peak conditions. Table 5 summarizes. Detailed calculations are available in Appendix C.

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Table 5 Pre and Post Construction Peak Flow Analysis, 100-Year Storm

Culvert	Drainage Area (square miles)	Drainage Area (acres)	100-year Existing & Proposed Peak Discharge at culvert (cfs)	Drainage Area of Proposed Development (acres)	100-year inflow / outflow at basin(s) (cfs)	100-year Required Detention Basin Volume (ac-ft)	100-year Ratio of Onsite Tributary Area to Detention Basin Volume
10'x10' Box	6.4160	4,106	3,313 (existing & proposed)	(South Development) 18 acres	17.7 /16.1	1.4 (south basin)	18/1.4 = 12.9 tributary acres per ac-ft of detention basin volume
3'x8' box	0.805	515	442 (existing & proposed)	(North Development) 6.4 acres	6.3/5.5	1.1 (north basin)	6.3/1.1 = 5.8 tributary acres per ac-ft of detention basin volume
30" RCP	0.0485	32	24 (existing & proposed)	(Central Development) 32 acres	28.9/23.9	4.2 (3a)	32/4.2 = 7.6 tributary acres per ac-ft of detention basin volume
48" RCP	0.3965	254	55 (existing & proposed)	(North Development 3b-1: 12.5 acres) (Southeast Development 3b-1: 1.5 acres)	13.3/12.1 (upper basin 3b-1) 1.0/0.6 (southeast basin)	1.7 (3b-1) 0.3 (Southeast)	3b-1: 12.5/1.7 = 7.4 Southeast: 1.5/0.3 = 5.0

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5. SOURCE CONTROL MEASURES

5A. Site Activities and Potential Sources of Pollutants

The intended site activities for the Project include activities typical for resorts, commercial centers, and residential areas. This includes deliveries and storage of material goods, building maintenance, and food service. Potential sources of stormwater pollutants include parking lots, trash storage areas, and food service areas.

Table 6 Potential Pollutant Sources and Source Control Measures

Potential Source Of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMP
Catch Basin Inlets	Mark all inlets with the words "No Dumping, Flows to Local Waterways" or similar.	Maintain and repaint or replace inlet markings Provide stormwater pollution prevention information to new site owners, lessees, or operators. Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains"
Indoor & Structural Pest Control		Provide Integrated Pest Management (IPM) information to owners, lessees, and operators.
Landscaping/Building and Grounds Maintenance	Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Consider using pest-resistant plants, especially adjacent to hardscape. Where landscaped areas are	Maintain landscaping using minimum or no pesticides. Provide IPM information to new owners, lessees, and operators. See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance", in the CASQA Stormwater Quality Handbook at www.cabmphandbooks.com

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Potential Source Of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMP
	used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind rain land use, air movement, ecological consistency, and plant interactions.	
Pools, spas, ponds, decorative fountains, and other features.		See applicable operation BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbook at www.cabmphanbooks.com
Food service areas	Clean all food service related items in a designated cleaning area adjacent to food preparation areas, with floor and sink drains connecting to sewer system. Size the cleaning area appropriately to handle all items used in food preparation.	
Refuse areas	Store site refuse in designated trash storage areas throughout the property. Post signs at all trash storage areas stating "No Dumping of Hazardous Materials" or similar	Cover receptacles in designated storage areas and inspected regularly. Replace all leaking or damaged receptacles immediately. Make spill control materials available on site.
Plazas, sidewalks, and parking lots		Sweep plazas, sidewalks and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing and wash water containing cleaning agents and degreasers to prevent discharge into the storm drain system.

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6. STORMWATER FACILITY MAINTENANCE

6A. Ownership and Responsibility for Maintenance

The owner of the Gateway Project shall be responsible for all maintenance of stormwater facilities. The owner's contractors or employees shall perform all maintenance as part of the routine maintenance of buildings, grounds, and landscaping. The applicant has reviewed the Paso Robles standard agreement regarding the maintenance of stormwater facilities and commits to execute any necessary agreements prior to completion of construction. Applicant accepts responsibility for interim operation and maintenance of stormwater treatment and flow-control facilities until such time as this responsibility is formally transferred to the subsequent owner.

6B. Summary of Maintenance Requirements for Each Stormwater Facility

See Appendix D for a preliminary Operations and Maintenance plan for the Project, to be submitted for approval prior to the completion of construction. As the Project enters future design phases and SCM details and locations are refined, the O&M Plan will be updated accordingly.

Bioretention

Each bioretention SCM ("RG-XX") shall be maintained on the following schedule at a minimum. Specific details pertaining to maintenance procedures will be included as part of a Stormwater Facility Operation and Maintenance Plan to be submitted for approval prior to the completion of construction.

At no time will synthetic pesticides or fertilizers be applied, nor will any soil amendments, other than aged compost mulch or sand/compost mix, be introduced.

Weekly: The facilities shall be examined for trash during policing of the site. All visible trash shall be removed.

After Significant Rain Events: A significant rainfall event is defined as one that produces one half inch or more of rainfall in a 24-hour period. Within 24 hours after each event, the following will be conducted:

The surface of the bioretention area will be observed to confirm that there is no remaining ponding. All inlets will be inspected; trash and other potential blockages will be removed. The surface of the mulch layer will be inspected for movement of material. Mulch will be replaced and raked smooth if needed.

Prior to the Start of the Rainy Season: Prior to October 1st of each year, the facility will be inspected for accumulation of debris that could block flow, and for any overgrowth that can block inlets or the movement of runoff across the surface of the basin.

Annual Landscape Maintenance: In December-February of each year, vegetation will be cut back as needed, debris shall be removed, and plants and mulch shall be replaced as needed. Concrete and inlets shall be inspected for damage. The elevation of the top of the soil and mulch layer will be confirmed to be consistent with reservoir depth requirements.

Pervious Pavement

All pervious pavement SCMs ("PP-XX") shall be maintained on the following schedule at a minimum.

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Specific details pertaining to maintenance procedures will be included as part of a Stormwater Facility Operation and Maintenance Plan to be submitted for approval prior to the completion of construction.

Weekly: Pervious pavement shall be examined for trash and sediment buildup during policing of the site. All visible trash shall be removed.

After Significant Rain Events: A significant rainfall event is defined as one that produces one half inch or more of rainfall in a 24-hour period. Within 24 hours after each event, the following will be conducted:

The surface of the pervious pavement area will be inspected to confirm that there is no remaining ponding, and that the surface is clean of sediments and debris. Any blockages due to sediment shall be removed by a vacuum sweeper.

Prior to the Start of the Rainy Season: Prior to October 1st of each year, the facility shall be inspected for accumulation of sediment in the pores of the pavement system and for drainage efficiency. Area shall be inspected for potholes, subsidence, and other damage. If necessary, the pavement shall be cleaned using a heavy-duty vacuum sweeper.

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DMA N4

DMA N5

#N4

#N5

RAIN GARDEN #N1
ROOF AREA = 5,970 SF
TOTAL IMPERVIOUS = 6,567 SF
BASIN AREA NEEDED = 299 SF

RAIN GARDEN #N4
ROOF AREA = 2,398 SF
TOTAL IMPERVIOUS = 2,627 SF
BASIN AREA NEEDED = 120 SF

RAIN GARDEN #N5
ROOF AREA = 6,526 SF
TOTAL IMPERVIOUS = 13,657 SF
BASIN AREA NEEDED = 652 SF

PERVIOUS PAVEMENT #N2
TOTAL IMPERVIOUS = 5,257 SF
AREA NEEDED = 311 SF

PERVIOUS PAVEMENT #N1
TOTAL IMPERVIOUS = 9,159 SF
AREA NEEDED = 542 SF

DMA N12

DMA N14

PERVIOUS PAVEMENT #N14
TOTAL IMPERVIOUS = 66,323 SF
AREA NEEDED = 3,924 SF

DMA N1

#N1

DMA N1

RAIN GARDEN #N12
TOTAL IMPERVIOUS = 20,546 SF
BASIN AREA NEEDED = 936 SF

#N12

#N15

DMA N15

RAIN GARDEN #N15
TOTAL IMPERVIOUS = 12,760 SF
BASIN AREA NEEDED = 581 SF

PERVIOUS PAVEMENT #N3
TOTAL IMPERVIOUS = 18,762 SF
AREA NEEDED = 1,111 SF

DMA N2

#N2

DMA N3

#N3

RAIN GARDEN #N2
ROOF AREA = 7,164 SF
TOTAL IMPERVIOUS = 7,880 SF
BASIN AREA NEEDED = 359 SF

N7a

DMA N6

RAIN GARDEN #N3
ROOF AREA = 8,358 SF
TOTAL IMPERVIOUS = 9,194 SF
BASIN AREA NEEDED = 419 SF

DMA N13

PERVIOUS PAVEMENT #N13
TOTAL IMPERVIOUS = 106,347 SF
AREA NEEDED = 4,844 SF

DMA N7

#N6

RAIN GARDEN #N6
ROOF AREA = 31,198 SF
TOTAL IMPERVIOUS = 70,377 SF
BASIN AREA NEEDED = 3,206 SF

DMA N17

#N7

#N17

#N16

#N18

DMA N19

DMA N20

RAIN GARDEN #N19
TOTAL IMPERVIOUS = 6,757 SF
BASIN AREA NEEDED = 308 SF

PERVIOUS PAVEMENT #N16
TOTAL IMPERVIOUS = 15,634 SF
AREA NEEDED = 712 SF

DMA N16

RAIN GARDEN #N17
TOTAL IMPERVIOUS = 11,983 SF
BASIN AREA NEEDED = 546 SF

RAIN GARDEN #N7
ROOF AREA = 32,737 SF
TOTAL IMPERVIOUS = 88,458 SF
BASIN AREA NEEDED = 4,029 SF

DMA N8

RAIN GARDEN #N8
ROOF AREA = 5,308 SF
TOTAL IMPERVIOUS = 6,370 SF
BASIN AREA NEEDED = 290 SF

#N8

PERVIOUS PAVEMENT #N8a
TOTAL IMPERVIOUS = 41,333 SF
AREA NEEDED = 2,447 SF

PERVIOUS PAVEMENT #N8b
TOTAL IMPERVIOUS = 41,333 SF
AREA NEEDED = 1,297 SF

DMA N10

PERVIOUS PAVEMENT #N9a
TOTAL IMPERVIOUS = 15,100 SF
AREA NEEDED = 894 SF

RAIN GARDEN #N18
TOTAL IMPERVIOUS = 13,458 SF
BASIN AREA NEEDED = 613 SF

RAIN GARDEN #N10
ROOF AREA = 21,597 SF
TOTAL IMPERVIOUS =25,917
BASIN AREA NEEDED = 1,181 SF

#N9-1

#N10

#N18

RAIN GARDEN #9-1
ROOF AREA = 15,325 SF
TOTAL IMPERVIOUS = 18,390
BASIN AREA NEEDED = 838 SF

DMA N9

DMA N18

#N9-2

RAIN GARDEN #9-2
ROOF AREA = 14,259 SF
TOTAL IMPERVIOUS = 17,110 SF
BASIN AREA NEEDED = 779 SF

PERVIOUS PAVEMENT #N9b
TOTAL IMPERVIOUS = 15,927 SF
AREA NEEDED = 943 SF

DMA N23

#N11

DMA N11

PERVIOUS PAVEMENT #N23
TOTAL IMPERVIOUS = 29,857 SF
AREA NEEDED = 1,757 SF

RAIN GARDEN #N11
ROOF AREA = 8,500 SF
TOTAL IMPERVIOUS = 10,200 SF
BASIN AREA NEEDED = 465 SF

DMA N22

PERVIOUS PAVEMENT #N22
TOTAL IMPERVIOUS = 11,620 SF
AREA NEEDED = 688 SF

RAIN GARDEN #N21
TOTAL IMPERVIOUS = 35,808 SF
BASIN AREA NEEDED = 1,631 SF

#N21

DMA N21

#N20

RAIN GARDEN #N20
TOTAL IMPERVIOUS = 26,281 SF
BASIN AREA NEEDED = 1,197 SF

LEGEND:

- BIORETENTION RAIN GARDEN
- PERVIOUS PAVEMENT PARKING
- PERVIOUS PAVEMENT STRIP
- PROPOSED STORM DRAIN
- RIP–RAP OUTLET PROTECTION
- PROPOSED DETENTION BASIN

CONCEPTUAL STORM WATER QUALITY PLAN

PASO ROBLES, CA
March 1, 2019

N

60' 0' 30' 60'
SCALE: 1" = 60'

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16795 Von Karman, Suite 100, Irvine, California 92606
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Circulation Draft DEIR, Appendix
Update (2020)
City of Paso Robles
Community Development Depot

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DMA S1

DMA S2

DMA S3

DMA S4

DMA S5

DMA S6

DMA S7

DMA S8

DMA S9

DMA S10

DMA S11

DMA S12

DMA S13

DMA S13

RAIN GARDEN #S1.1 & #S1.2
ROOF AREA = 27,592 SF
STREET AREA = 12,818 SF
TOTAL IMPERVIOUS = 50,502 SF
BASIN AREA NEEDED = 2,300 SF

RAIN GARDEN #S2
ROOF AREA = 17,766 SF
STREET AREA = 7,438 SF
TOTAL IMPERVIOUS = 31,604 SF
BASIN AREA NEEDED = 1,440 SF

RAIN GARDEN #S3
ROOF AREA = 23,624 SF
STREET AREA = 8,983 SF
TOTAL IMPERVIOUS = 41,074 SF
BASIN AREA NEEDED = 1,871 SF

RAIN GARDEN #S4
ROOF AREA = 13,794 SF
STREET AREA = 19,015 SF
TOTAL IMPERVIOUS = 38,740 SF
BASIN AREA NEEDED = 1,765 SF

RAIN GARDEN #S5
STREET AREA = 9,353 SF
BASIN AREA NEEDED = 426 SF

RAIN GARDEN #S6.1 THRU #6.4
ROOF AREA = 31,565 SF
STREET AREA = 22,942 SF
TOTAL IMPERVIOUS = 68,156 SF
BASIN AREA NEEDED = 3,105 SF

RAIN GARDEN #S7
ROOF AREA = 15,876 SF
STREET AREA = 3,985 SF
TOTAL IMPERVIOUS = 28,514 SF
BASIN AREA NEEDED = 1,299 SF

RAIN GARDEN #S8
ROOF AREA = 9,828 SF
STREET AREA = 8,182 SF
TOTAL IMPERVIOUS = 21,305 SF
BASIN AREA NEEDED = 970 SF

RAIN GARDEN #S9.1 & #S9.2
ROOF AREA = 17,767 SF
STREET AREA = 9,765 SF
TOTAL IMPERVIOUS = 34,795 SF
BASIN AREA NEEDED = 1,585 SF

RAIN GARDEN #S10
STREET AREA = 4,155 SF
BASIN AREA NEEDED = 189 SF

RAIN GARDEN #S11
STREET AREA = 31,382 SF
BASIN AREA NEEDED = 1,429 SF

RAIN GARDEN #S12
STREET AREA = 48,995 SF
BASIN AREA NEEDED = 2,232 SF

PERVIOUS PAVEMENT #S13
TOTAL IMPERVIOUS = 21,926 SF
BASIN AREA NEEDED = 1,298 SF

RAIN GARDEN #S13
ROOF AREA = 9,125 SF
TOTAL IMPERVIOUS = 10,950 SF
BASIN AREA NEEDED = 499 SF

BASIN #1 =15,000 CF

BASIN #2 = 12,700 CF

BASIN #3 =4,600 CF

BASIN #4 =5,000 CF

BASIN #5 =9,500 CF

BASIN #6 =5,200 CF

BASIN #7 =14,400 CF

BASIN #8 =64,600 CF PROVIDED

LEGEND:

- BIORETENTION RAIN GARDEN
- PERVIOUS PAVEMENT PARKING
- PERVIOUS PAVEMENT STRIP
- PROPOSED STORM DRAIN
- RIP–RAP OUTLET PROTECTION
- PROPOSED DETENTION BASIN

CONCEPTUAL STORM WATER QUALITY PLAN

PASO ROBLES, CA
March 1, 2019

N

60' 0' 30' 60'
SCALE: 1" = 60'

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Gateway DEIR Appendix
2-26-20
Courtesy of Paso Robles
Development Dept

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APPENDIX B

SCM AND DMA CALCULATIONS

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

Central Coast Region Stormwater Control Measure Sizing Calculator

1. Project Information

Project name:	Gateway Paso Robles
Project location:	Paso Robles, CA
Tier 2/Tier 3:	Tier 3 - Retention
Design rainfall depth (in):	1.5
Total project area (ft2):	
Total DMA area (ft2):	0
Total new impervious area (ft2):	
Total replaced impervious within a USA (ft2):	
Total replaced impervious not in a USA (ft2):	
Total pervious/landscape area (ft2):	
Total SCM area (ft2):	

2. DMA Characterization

Name	DMA Type	Area (ft2)	Surface Type	New, Replaced?	Connection
N1	Drains to SCM	6567	Roof/Hardscape	New	RG-N1
N1s	Drains to SCM	9519	Concrete or asphalt	New	PP-N1
N2	Drains to SCM	7880	Roof/Hardscape	New	RG-N2
N2s	Drains to SCM	5257	Concrete or asphalt	New	PP-N2
N3	Drains to SCM	9194	Roof/Hardscape	New	RG-N3
N3s	Drains to SCM	18762	Concrete or asphalt	New	PP-N3a
N4	Drains to SCM	2627	Roof/Hardscape	New	RG-N4
N5	Drains to SCM	13657	Roof/Hardscape	New	RG-N5
N6	Drains to SCM	70377	Roof/Hardscape	New	RG-N6
N7	Drains to SCM	88458	Roof/Hardscape	New	RG-N7
N8	Drains to SCM	6370	Roof/Hardscape	New	RG-N8
N8p	Drains to SCM	41333	Concrete or asphalt	New	PP-N8a
N8p2	Drains to SCM	21916	Concrete or asphalt	New	PP-N8b
N9-1	Drains to SCM	18390	Roof/Hardscape	New	RG-N9-1
N9-1p	Drains to SCM	15100	Concrete or asphalt	New	PP-N9a
N9-2	Drains to SCM	17111	Roof/Hardscape	New	RG-N9-2
N9-2p	Drains to SCM	15927	Concrete or asphalt	New	PP-N9b
N10	Drains to SCM	25917	Roof/Hardscape	New	RG-N10
N11	Drains to SCM	10200	Concrete or asphalt	New	RG-N11
N12	Drains to SCM	20547	Concrete or asphalt	New	RG-N12
N13	Drains to SCM	106347	Concrete or asphalt	New	PP-N13
N14	Drains to SCM	66323	Concrete or asphalt	New	PP-N14
N15	Drains to SCM	12760	Concrete or asphalt	New	RG-N15
N16	Drains to SCM	15634	Concrete or asphalt	New	PP-N16
N17	Drains to SCM	11983	Concrete or asphalt	New	RG-N17
N18	Drains to SCM	13458	Concrete or asphalt	New	RG-N18
N19	Drains to SCM	6757	Concrete or asphalt	New	RG-N19
N20	Drains to SCM	26281	Concrete or asphalt	New	RG-N20
N21	Drains to SCM	35808	Concrete or asphalt	New	RG-N21
N22	Drains to SCM	11620	Concrete or asphalt	New	PP-N22
N23	Drains to SCM	29687	Concrete or asphalt	New	PP-N23
S1	Drains to SCM	50502	Roof/Hardscape	New	RG-S1
S2	Drains to SCM	31604	Roof/Hardscape	New	RG-S2
S3	Drains to SCM	41074	Roof/Hardscape	New	RG-S3
S4	Drains to SCM	38740	Roof/Hardscape	New	RG-S4
S5	Drains to SCM	9353	Roof/Hardscape	New	RG-S5
S6	Drains to SCM	68156	Concrete or asphalt	New	RG-S6

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S7	Drains to SCM	28514	Roof/Hardscape	New	RG-S7
S8	Drains to SCM	21305	Roof/Hardscape	New	RG-S8
S9	Drains to SCM	34795	Roof/Hardscape	New	RG-S9
S10	Drains to SCM	4153	Concrete or asphalt	New	RG-S10
S11	Drains to SCM	31382	Concrete or asphalt	New	RG-S11
S12	Drains to SCM	48995	Concrete or asphalt	New	RG-S12
S13	Drains to SCM	10950	Roof/Hardscape	New	RG-S13
S13s	Drains to SCM	21926	Concrete or asphalt	New	PP-S13

DMA Summary Area	
Total assigned DMA area (ft2):	1203216
New impervious area (ft2):	1203216
Replaced impervious within a USA (ft2):	0
Replaced impervious not in a USA (ft2):	0
Total pervious/landscape area (ft2):	0

Check DMA table areas against plan sheet areas

3. SCM Characterization

Name	SCM Type	Safety Factor	SCM Soil Type	Infilt. Rate (in/hr)	Area (ft2)
RG-N1	Bioretention	1	HSG A/B	0.75	299
PP-N1	Direct Infiltration	2	HSG A/B	0.75	542
RG-N2	Bioretention	1	HSG A/B	0.75	359
PP-N2	Direct Infiltration	2	HSG A/B	0.75	311
RG-N3	Bioretention	1	HSG A/B	0.75	419
PP-N3a	Direct Infiltration	2	HSG A/B	0.75	1111
RG-N4	Bioretention	1	HSG A/B	0.75	120
RG-N5	Bioretention	1	HSG A/B	0.75	652
RG-N6	Bioretention	1	HSG A/B	0.75	3206
RG-N7	Bioretention	1	HSG A/B	0.75	4029
RG-N8	Bioretention	1	HSG A/B	0.75	290
PP-N8a	Direct Infiltration	2	HSG A/B	0.75	2447
PP-N8b	Direct Infiltration	2	HSG A/B	0.75	1297
RG-N9-1	Bioretention	1	HSG A/B	0.75	838
PP-N9a	Direct Infiltration	2	HSG A/B	0.75	894
RG-N9-2	Bioretention	1	HSG A/B	0.75	779
PP-N9b	Direct Infiltration	2	HSG A/B	0.75	943
RG-N10	Bioretention	1	HSG A/B	0.75	1181
RG-N11	Bioretention	1	HSG A/B	0.75	465
RG-N12	Bioretention	1	HSG A/B	0.75	936
PP-N13	Direct Infiltration	2	HSG A/B	0.75	6296
PP-N14	Direct Infiltration	2	HSG A/B	0.75	3926
RG-N15	Bioretention	1	HSG A/B	0.75	581
PP-N16	Direct Infiltration	2	HSG A/B	0.75	926
RG-N17	Bioretention	1	HSG A/B	0.75	546
RG-N18	Bioretention	1	HSG A/B	0.75	613
RG-N19	Bioretention	1	HSG A/B	0.75	308
RG-N20	Bioretention	1	HSG A/B	0.75	1197
RG-N21	Bioretention	1	HSG A/B	0.75	1631
PP-N22	Direct Infiltration	2	HSG A/B	0.75	688
PP-N23	Direct Infiltration	2	HSG A/B	0.75	1757
RG-S1	Bioretention	1	HSG A/B	0.75	2300
RG-S2	Bioretention	1	HSG A/B	0.75	1440
RG-S3	Bioretention	1	HSG A/B	0.75	1871
RG-S4	Bioretention	1	HSG A/B	0.75	1765
RG-S5	Bioretention	1	HSG A/B	0.75	426
RG-S6	Bioretention	1	HSG A/B	0.75	3105
RG-S7	Bioretention	1	HSG A/B	0.75	1299
RG-S8	Bioretention	1	HSG A/B	0.75	970

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RG-S9	Bioretention	1	HSG A/B	0.75	1585
RG-S10	Bioretention	1	HSG A/B	0.75	189
RG-S11	Bioretention	1	HSG A/B	0.75	1429
RG-S12	Bioretention	1	HSG A/B	0.75	2232
RG-S13	Bioretention	1	HSG A/B	0.75	499
PP-S13	Direct Infiltration	2	HSG A/B	0.75	1298

4. Run SBUH Model

5. SCM Minimum Sizing Requirements

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)	Orifice Diameter (in)
RG-N1	359	3.00	18.2	
PP-N1	686	3.16	40.5	
RG-N2	430	3.00	18.1	
PP-N2	373	3.00	38.4	
RG-N3	502	3.00	18.1	
PP-N3a	1332	3.00	38.3	
RG-N4	143	2.98	18.1	
RG-N5	726	2.78	16.6	
RG-N6	3843	3.00	18.2	
RG-N7	4831	3.00	18.2	
RG-N8	348	3.00	18.2	
PP-N8a	2935	3.00	38.3	
PP-N8b	1557	3.00	38.4	
RG-N9-1	1004	3.00	18.1	
PP-N9a	1072	3.00	38.3	
RG-N9-2	935	3.00	18.2	
PP-N9b	1131	3.00	38.3	
RG-N10	1415	3.00	18.1	
RG-N11	557	2.99	18.1	
RG-N12	1122	3.00	18.2	
PP-N13	7551	3.00	38.3	
PP-N14	4709	3.00	38.4	
RG-N15	697	3.00	18.2	
PP-N16	1110	3.00	38.3	
RG-N17	654	3.00	18.1	
RG-N18	735	3.00	18.2	
RG-N19	369	2.99	18.1	
RG-N20	1436	3.00	18.2	
RG-N21	1956	3.00	18.2	
PP-N22	825	3.00	38.3	
PP-N23	2108	3.00	38.4	
RG-S1	2759	3.00	18.2	
RG-S2	1726	3.00	18.1	
RG-S3	2243	3.00	18.2	
RG-S4	2116	3.00	18.2	
RG-S5	511	3.00	18.2	
RG-S6	3722	3.00	18.2	
RG-S7	1557	3.00	18.2	
RG-S8	1164	3.00	18.2	
RG-S9	1901	3.00	18.2	
RG-S10	227	3.00	18.2	
RG-S11	1715	3.00	18.2	
RG-S12	2676	3.00	18.2	
RG-S13	598	3.00	18.1	
PP-S13	1557	3.00	38.3	

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6. Self-Retaining Area Sizing Checks

Self-Retaining DMA Name	Self-Retaining DMA Area (ft2)	Tributary DMA Name(s)	Eff. Tributary DMA Area (ft2)	Effective Tributary / SRA Area Ratio

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APPENDIX C
PEAK FLOW ANALYSIS

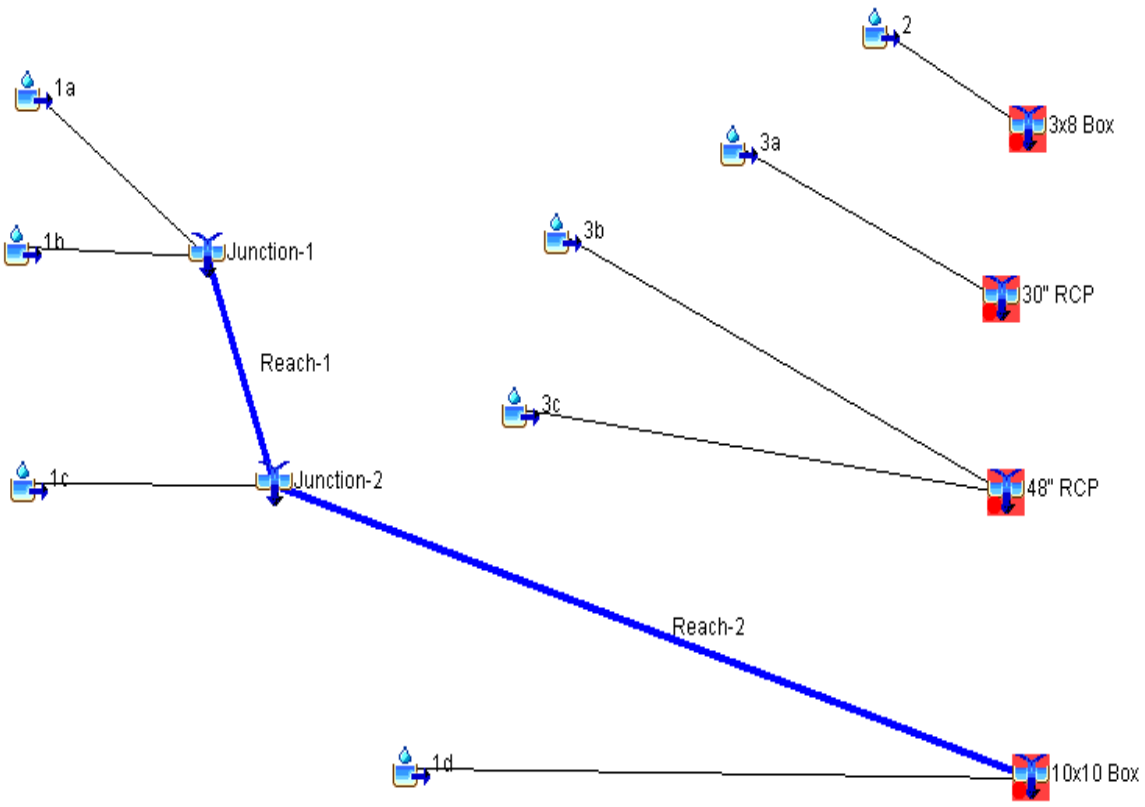
Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

HEC-HMS

Project : Existing

Basin Model : Existing Watershed

Apr 17 11:40:53 PDT 2018



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2/28/20
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Global Summary Results for Run "Run 99"

Project: Existing Simulation Run: Run 99

Start of Run: 01Jan3000, 00:00
End of Run: 02Jan3000, 00:00
Compute Time: 17Apr2018, 11:39:07

Basin Model: Existing Watershed
Meteorologic Model: 100 Year
Control Specifications: Control 1

Show Elements: All Elements | Volume Units: (•) IN ( ) AC-FT | Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
1a	2.891	1481.3	01Jan3000, 06:04	2.96
1b	1.742	851.3	01Jan3000, 06:03	2.68
Junction-1	4.633	2332.4	01Jan3000, 06:04	2.86
Reach-1	4.633	2332.4	01Jan3000, 06:04	2.86
1c	0.922	504.0	01Jan3000, 06:01	3.26
Junction-2	5.555	2835.5	01Jan3000, 06:03	2.92
Reach-2	5.555	2835.5	01Jan3000, 06:03	2.92
1d	0.861	477.1	01Jan3000, 06:03	3.45
10x10 Box	6.416	3312.6	01Jan3000, 06:03	3.00
2	0.805	442.1	01Jan3000, 06:03	3.35
3x8 Box	0.805	442.1	01Jan3000, 06:03	3.35
3c	0.247	137.4	01Jan3000, 06:01	3.35
3b	0.156	87.4	01Jan3000, 06:00	3.35
48" RCP	0.403	224.7	01Jan3000, 06:00	3.35
3a	0.042	23.7	01Jan3000, 06:00	3.35
30" RCP	0.042	23.7	01Jan3000, 06:00	3.35

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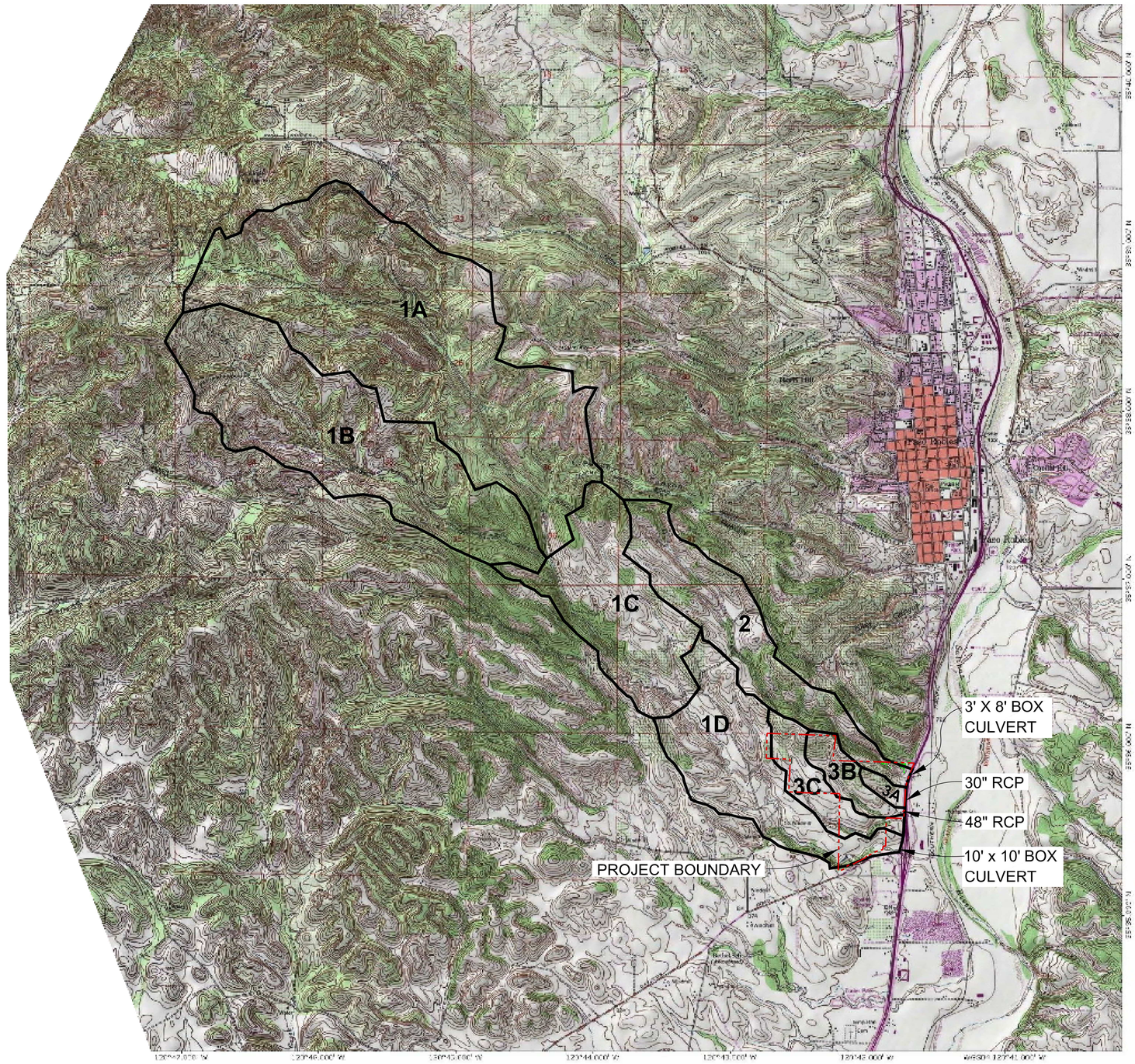

BASIN	AREA (ACRES)	CN
1A	1850	70
1B	1115	67
1C	590	73
1D	550	75
2	515	74
3A	27	74
3B	100	74
3C	158	74
10'x10' BOX	4,105	–
48" RCP	258	–
30" RCP	27	–
3'x8' BOX	515	–

0 1000' 2000' 4000'

SCALE: 1"=2000'

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WATERSHED MAP
PASO ROBLES GATEWAY

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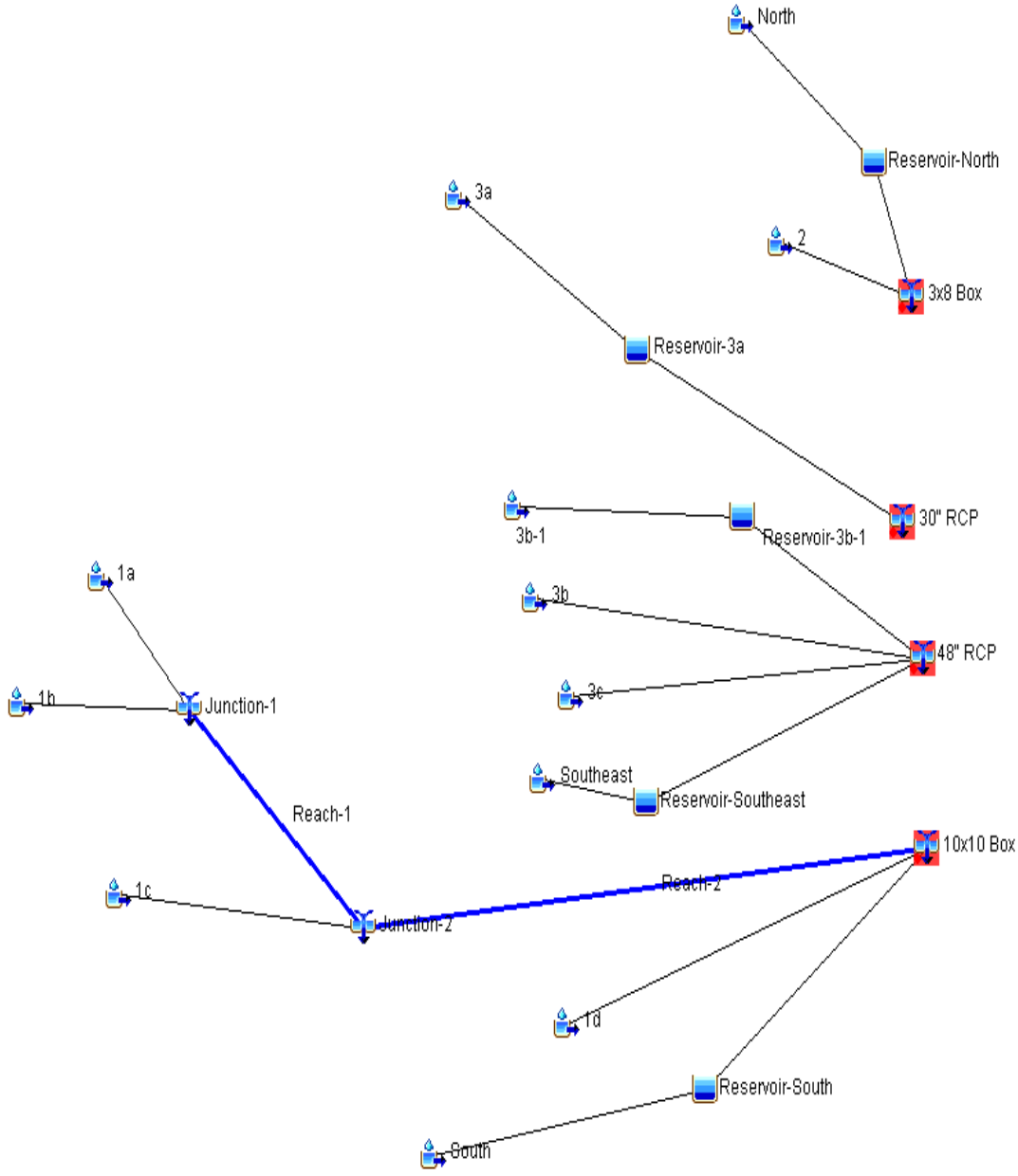
HEC-HMS

Project : Proposed

Basin Model : Proposed Watershed

Feb 25 15:32:09 PST 2019

Basin Model [Proposed Watershed] Current Run [Run 446]



Project: Proposed Simulation Run: Run 446

Start of Run: 01Jan3000, 00:00 Basin Model: Proposed Watershe
End of Run: 02Jan3000, 00:00 Meteorologic Model: 100 Year
Compute Time: 25Feb2019, 16:04:33 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
10x10 Box	6.4160	3312.6	01Jan3000, 06:03	1026.8
3x8 Box	0.8050	442.1	01Jan3000, 06:03	145.0
48" RCP	0.3965	221.1	01Jan3000, 06:00	73.1
30" RCP	0.0485	23.9	01Jan3000, 06:03	11.3

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Project: Proposed Simulation Run: Run 446

Start of Run: 01Jan3000, 00:00
End of Run: 02Jan3000, 00:00
Compute Time: 25Feb2019, 15:31:04

Basin Model: Proposed Watershe
Meteorologic Model: 100 Year
Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
1a	2.891	1481.3	01Jan3000, 06:04	457.1
1b	1.742	851.3	01Jan3000, 06:03	249.2
Junction-1	4.633	2332.4	01Jan3000, 06:04	706.3
Reach-1	4.633	2332.4	01Jan3000, 06:04	706.3
1c	0.922	504.0	01Jan3000, 06:01	160.1
Junction-2	5.555	2835.5	01Jan3000, 06:03	866.4
Reach-2	5.555	2835.5	01Jan3000, 06:03	866.4
1d	0.8319	461.0	01Jan3000, 06:03	153.2
South	0.0291	17.7	01Jan3000, 06:00	7.3
Reservoir-South	0.0291	16.1	01Jan3000, 06:02	7.3
10x10 Box	6.4160	3312.6	01Jan3000, 06:03	1026.8
2	0.7950	436.6	01Jan3000, 06:03	142.2
North	0.01	6.3	01Jan3000, 06:00	2.8
Reservoir-North	0.01	5.5	01Jan3000, 06:02	2.8
3x8 Box	0.8050	442.1	01Jan3000, 06:03	145.0
3c	0.2447	136.1	01Jan3000, 06:01	43.8
3b	0.1280	71.7	01Jan3000, 06:00	22.9
3b-1	0.0215	13.3	01Jan3000, 06:00	5.7
Reservoir-3b-1	0.0215	12.1	01Jan3000, 06:02	5.7
Southeast	0.0023	1.5	01Jan3000, 06:00	0.7
Reservoir-Southeast	0.0023	1.3	01Jan3000, 06:02	0.7
48" RCP	0.3965	221.1	01Jan3000, 06:00	73.1
3a	0.0485	28.9	01Jan3000, 06:00	11.3
Reservoir-3a	0.0485	23.9	01Jan3000, 06:03	11.3
30" RCP	0.0485	23.9	01Jan3000, 06:03	11.3

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DRAINS TO 3' X 8' BOX CULVERT
"NORTH" USE BASIN SIZE=1.1 AC-FT FOR 6.4 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 5.8 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

EXIST 3'X8' BOX CULVERT

DRAINS TO 30" RCP CULVERT
"SUBAREA 3a" USE BASIN SIZE=4.2 AC-FT FOR 31 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 7.4 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

EXIST 30" RCP CULVERT

DRAINS TO 48" RCP CULVERT
"SUBAREA 3b-1" USE BASIN SIZE=1.7 AC-FT FOR 14 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 8.2 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

S. VINE STREET

EXIST 48" RCP CULVERT

DRAINS TO 48" RCP CULVERT
"SOUTHEAST" USE BASIN SIZE=0.3 AC-FT FOR 1.5 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 5.0 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

EXIST 10'X10' BOX CULVERT

DRAINS TO 10' X 10' BOX CULVERT
"SOUTH" USE BASIN SIZE=1.4 AC-FT FOR 18 ACRES
RATIO: 1 AC-FT BASIN VOLUME PER 12.9 TRIBUTARY ACRES
(1 AC-FT = 43,560 CUBIC FEET)

HIGHWAY 46 WEST

LEGEND

HYDROLOGIC DEVELOPMENT AREA

FLOOD LIMITS OF BLUE LINE STREAM

EXISTING CULVERT

N

120' 0' 60' 120' 240'
SCALE: 1" = 120'

DEVELOPMENT AREA=±62.6 ac

PROPOSED WATERSHED

PASO ROBLES, CALIFORNIA
February 25, 2019

FUSCOE ENGINEERING
16795 Von Karman, Suite 100, Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315 ◦ www.fuscoe.com

Attachment to Case 2 Safety DEIR Appendix
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F:\Projects\1208\003\Sandbox\SueW\X1208-003xh-Proposed-Hydrology-SW.dwg (2/25/2019 5:45 PM) Plotted by: Susan Williams

APPENDIX D
OPERATIONS AND MAINTENANCE PLAN

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OPERATIONS AND MAINTENANCE (O&M) PLAN

Stormwater Control Plan

For

Paso Robles Gateway

Paso Robles, County of San Luis Obispo

APN: 026-471-013, 026-471-017, 026-471-019, 026-471-021, 040-031-001,040-031-020, 040-031-017, 040-031-019, 040-091-041, 040-091-039

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Note: This report serves as a preliminary Operations and Maintenance Plan for the proposed Gateway project ("Project") and will be refined during future design phases as additional SCM details become available.

Project Description and Stormwater Treatment Facilities

The Gateway Paso Robles Project includes proposed residential, commercial and resort land uses that encompass approximately 170 acres within unincorporated areas of San Luis Obispo County adjacent of the southwest edge of the Paso Robles city limits. The property is located to the northwest of the interchange of US Highway 101 and State Route 46 west (see Figure 1, Vicinity Map).

The primary components of the Project land plan include: (i) a Hillside Destination Resort Hotel and Conference Center, (ii) a Vine Street Vineyard Hotel and Village, (iii) a High Density Resort Community, and (iv) two distinct visitor and community serving commercial centers. The Project will include up to 425 transient units, approximately 464,000 square feet of commercial/office/retail land use, and 17 workforce dwelling units.

The Project is divided up into 36 separate Drainage Management Areas (DMAs). These DMAs each feature individual stormwater control measures designed to treat runoff from portions or all of the DMA. The primary structural SCMs used on the Project site are bioretention areas ("rain gardens") or permeable pavement. A description of each SCM is as follows:

Rain Gardens (Bioretention with Underdrain

- Bioretention systems are plant-based biotreatment systems that typically consist of a ponding area, mulch layer, planting soils and plants. They combine shrubs, grasses, and flowering perennials in depressions (approximately 6-12 inches deep) that allow water to pool, evaporate and/or slowly filter, infiltrate and drain out within 48 hours. Additional design details include an amended soil/planting layer 18-24 inches deep, with a 2-3 inch mulch layer on top to protect from erosion. As storm water passes down through the planting soil, pollutants are filtered, adsorbed, biodegraded and sequestered by the soil and plants. Perforated underdrains are provided for soils with moderate to low infiltration rates to discharge treated runoff at a controlled rate to the downstream storm drain system.

Pervious Pavement

- Permeable pavement, such as permeable pavers, grass pavers, porous concrete, and porous asphalt, provides a surface suitable for light-loads and parking areas in which water can drain through pore spaces to an underlying rock reservoir (approximately 24-36 inches deep) underneath. The sub-surface base allows for physical and microbial filtering processes to take place thereby removing pollutants such as particulates, organics, hydrocarbons and total suspended sediments, including attached heavy metals. The pervious pavement sections proposed for the project will have an average rock reservoir depth of 36 inches; however, depths may be increased or decreased during the final design to achieve minimum required treatment design volumes for each drainage area.

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Maintenance Responsibility

The owner of the Gateway Project shall be responsible for all maintenance of stormwater facilities. The owner's contractors or employees shall perform all maintenance as part of the routine maintenance of buildings, grounds, and landscaping. The applicant has reviewed the Paso Robles standard agreement regarding the maintenance of stormwater facilities and commits to execute any necessary agreements prior to completion of construction. Applicant accepts responsibility for interim operation and maintenance of stormwater treatment and flow-control facilities until such time as this responsibility is formally transferred to the subsequent owner.

Funding for Operations and Maintenance

The owner of the Gateway Project shall be responsible for long-term funding for all operations and maintenance activities.

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SCM INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX		
Frequency	**SCM Observation**	**SCM Maintenance Activity**
Bioretention/Rain Gardens		
Weekly	Facilities shall be examined for trash during policing of the site.	All visible trash shall be removed.
After Significant Rain Events	The surface of the bioretention area will be observed to confirm that there is no remaining ponding. All inlets will be inspected for blockages. Surface of mulch layer will be inspected for movement of material.	All blockages, trash, and debris will be removed. Mulch will be replaced and raked smooth.
Before Rainy Season (Oct. 1)	The facility will be inspected for accumulation of debris that could block flow, and for any overgrowth that can block inlets or the movement of runoff across the surface of the basin.	Debris will be removed and overgrowth will be cut back.
Annually (December-February)	Concrete and inlets shall be inspected for damage. The elevation of the top of the soil and mulch layer will be confirmed to be consistent with reservoir depth requirements.	Vegetation will be cut back as needed, debris shall be removed, and plants and mulch shall be replaced as needed. Any necessary repairs to concrete and inlets will be made.
Permeable Pavement		
Weekly	Pervious pavement shall be examined for trash and sediment buildup during policing of the site.	All visible trash shall be removed. Sediment shall be removed as necessary.

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SCM INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX		
Frequency	**SCM Observation**	**SCM Maintenance Activity**
After Significant Rain Events	The surface of the pervious pavement area will be inspected to confirm that there is no remaining ponding, and that the surface is clean of sediments and debris.	Any blockages due to sediment shall be removed by a vacuum sweeper.
Before Rainy Season (Oct. 1)	The facility shall be inspected for accumulation of sediment in the pores of the pavement system and for drainage efficiency. Area shall be inspected for potholes, subsidence, and other damage.	Pavement shall be cleaned using a heavy-duty vacuum sweeper, and any potholes and damaged shall be repaired.

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Appendix H

Traffic Studies

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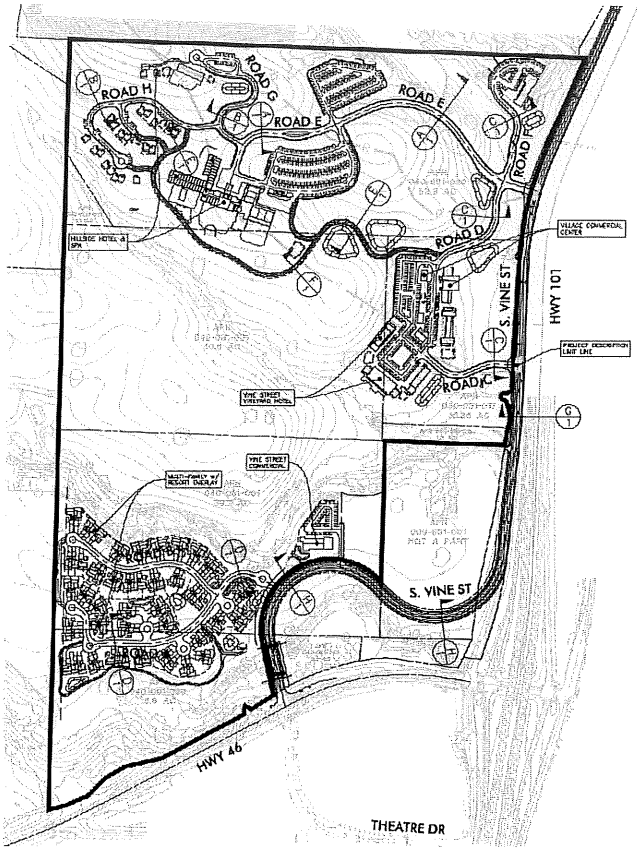
PASO ROBLES GATEWAY PROJECT
CITY OF PASO ROBLES, CALIFORNIA

REVISED TRAFFIC AND CIRCULATION STUDY



June 17, 2019 **ATE #18015**

Prepared for:
Rincon Consultants
1530 Monterey Street, Suite D
San Luis Obispo, CA 93401

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2/28/20
City of Paso Robles
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ASSOCIATED TRANSPORTATION ENGINEERS
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ASSOCIATED TRANSPORTATION ENGINEERS
100 N. Hope Avenue, Suite 4, Santa Barbara, CA 93110 • (805) 687-4418 • FAX (805) 682-8509

Since 1978

Richard L. Pool, P.E.
Scott A. Schell, AICP, PTP

June 17, 2019 18015R01

John Larson
Rincon Consultants
1530 Monterey Street, Suite D
San Luis Obispo, CA 93401

REVISED TRAFFIC AND CIRCULATION STUDY FOR THE PASO ROBLES GATEWAY PROJECT, CITY OF PASO ROBLES, CALIFORNIA

Associated Transportation Engineers (ATE) is submitting this revised traffic and circulation study for the Paso Robles Gateway Project proposed in the City of Paso Robles. ATE previously prepared a traffic study for the project that the City had peer reviewed by Central Coast Transportation Consulting (CCTC). The traffic study was then revised to address the peer review comments.

The study evaluates potential traffic and circulation impacts associated with the project and identifies mitigation measures where appropriate. It is understood that the findings of the traffic study will be incorporated into the EIR being prepared by Rincon Consultants.

We appreciate the opportunity to assist you with the project.

Associated Transportation Engineers

By: Richard L. Pool, PE
President

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INTRODUCTION

Associated Transportation Engineers (ATE) has prepared the following revised traffic and circulation study for the Paso Robles Gateway Project (the "Project"). The study analyzes existing and future traffic conditions within the Project study-area and evaluates the Project's effects on the key roadways and intersections in the vicinity of the site. Mitigation measures are outlined for the transportation facilities that are forecast to exceed adopted standards.

PROJECT DESCRIPTION

The Paso Robles Gateway Project encompasses approximately 269 acres of vacant/undeveloped lands located at the south end of the City of Paso Robles – just northwest of the US 101/SR 46W interchange. Figure 1 shows the location of the Project site. The Project site plan is shown on Figure 2. The Project is proposing to develop up to 425 rooms in three hotels as well as three commercial centers (one with 17 workforce dwelling units). There are two alternatives for the Project. Alternative A includes a 100-room hotel within Area 5 of the Project site. Alternative B includes 80 single family residences or vacation rentals within Area 5 of the Project site. Table 1 summarizes the components of the Project.

Table 1
Paso Robles Gateway Project – Land Use Summary

Project Area	Land Use	Size
Area 1	Vine Street Vineyard Hotel	100 Rooms
Area 2	Village Commercial Center: Commercial Restaurant Office Workforce Housing	 18,200 SF 5,600 SF 3,800 SF 17 DU
Area 3	Hillside Hotel	225 Rooms
Area 4	Promontory Commercial Center	24,000 SF
Area 5	Resort Community: 100-Room Hotel or 80 SFDU or Vacation Rentals	 100 Rooms or 80 DU
Area 6	Vine Street Commercial	22,000 SF

Source: City of Paso Robles.

The Project also includes realignment of Vine Street through the Project site to connect with SR 46W opposite of Theatre Drive (see Figure 2 – Project Site Plan), which is the second phase of the improvements that have been planned by Caltrans and the City for the US 101/SR 46W interchange. Phase 1 included the realignment of Theatre Drive to the west of the US 101/SR 46W interchange. The final phase of the improvements planned at the US 101/SR 46W interchange is the construction of roundabouts at the US 101/SR 46W northbound and southbound ramp terminals. Access for the Paso Robles Gateway Project is proposed via four access connections to realigned Vine Street (see Figure 2).

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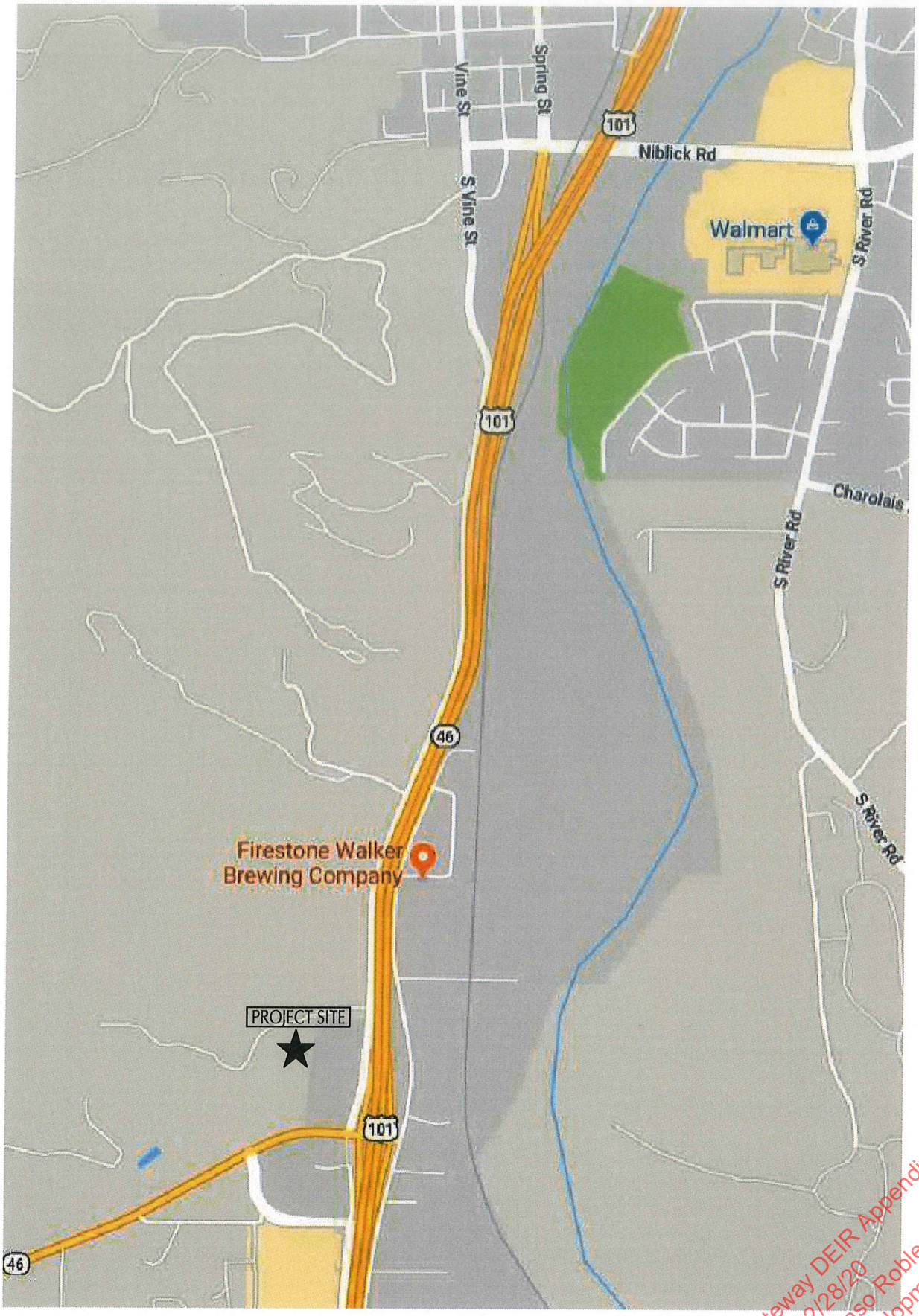

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ASSOCIATED
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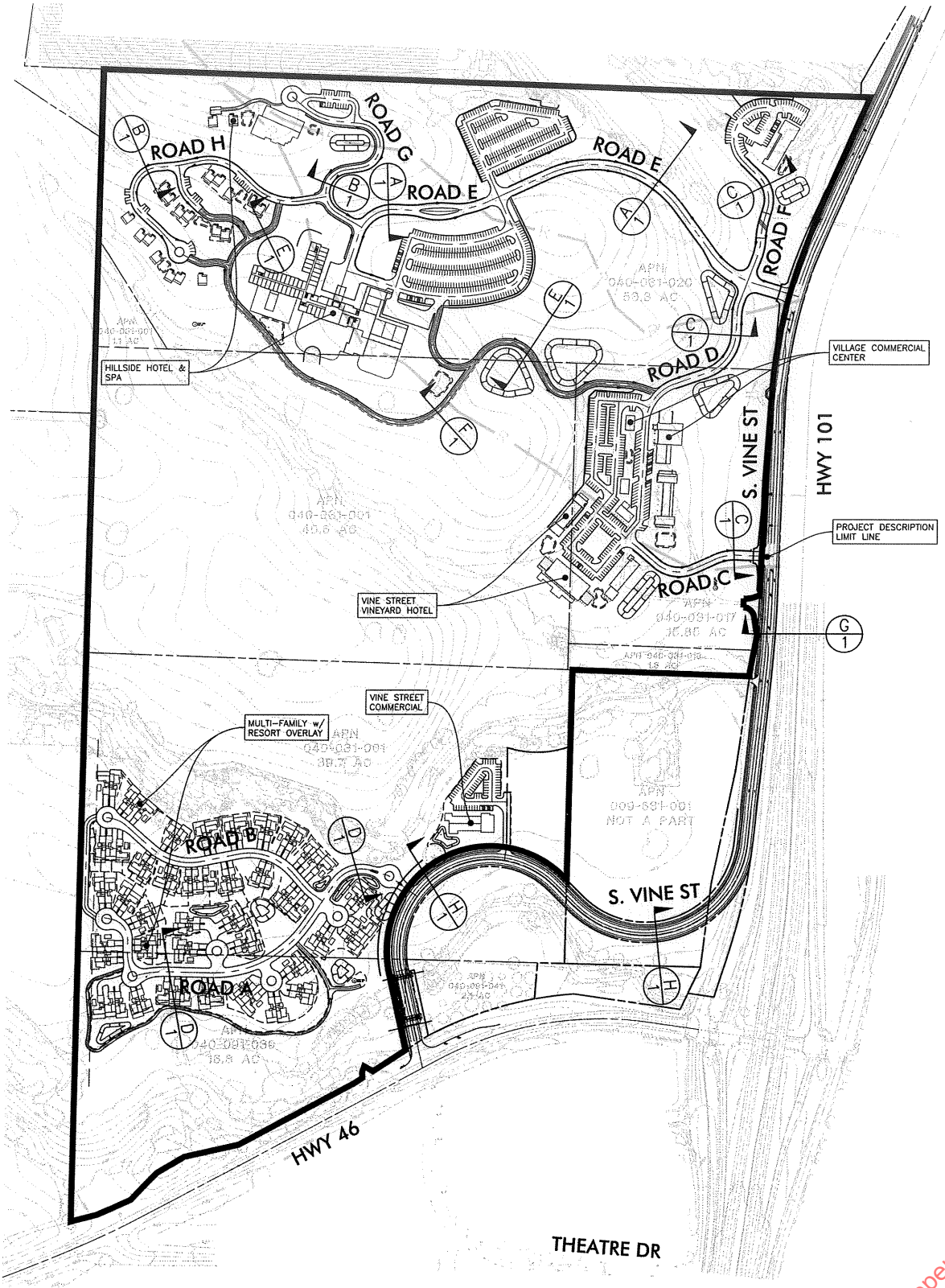
PROJECT SITE LOCATION

FIGURE 1

EKM - ATE#18015



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N
NOT TO SCALE

ASSOCIATED TRANSPORTATION ENGINEERS

PROJECT SITE PLAN

FIGURE 2

EKM - ATE#18015

SCOPE OF WORK AND STUDY METHODOLOGY

The scope of work for the traffic study was developed jointly by City of Paso Robles and Caltrans staffs. The scope of work developed for the traffic study is outlined below.

Traffic Scenarios. Traffic operations are analyzed for the following scenarios:

1) Existing Conditions
2) Existing + Project Conditions
3) Cumulative Conditions (Existing + Approved Projects + Pending Projects)
4) Cumulative + Project Conditions
5) General Plan Buildout Conditions (Year 2045)
6) General Plan Buildout + Project Conditions

Study-Area Facilities. Both local and regional facilities are analyzed in the study. The roadways and intersections identified by the City and Caltrans are listed in Table 2.

Table 2
Study-Area Roadways and Intersections

Freeway Segments	Surface Roadways	Intersections
US 101 n/o SR 46W(a) US 101 s/o SR 46W(a)	SR 46W w/o US 101(b) Vine Street n/o SR 46W(c) Theatre Drive s/o SR 46W(c) Ramada Drive n/o SR 46W(c) Ramada Drive s/o SR 46W(d)	Vine St/1st St(c) US 101 Ramps-Spring St/1st St/Niblick Rd(e) SR 46W/Gahan Pl(b) SR 46W/Theatre Dr(b) SR 46W/Vine St(b) SR 46W/US 101 SB Ramps(b) SR 46W/US 101 NB Ramps(b) SR 46W/Ramada Dr(b)

(a) State highway - traffic operations assessed using Caltrans criteria for freeways.
(b) State highway - traffic operations assessed for intersections along SR 46W using Caltrans criteria for intersections.
(c) City facility - traffic operations assessed using City of Paso Robles criteria.
(d) County facility - traffic operations assessed using County criteria.
(e) City and State facility - traffic operations assessed using City and Caltrans criteria for intersections.

Existing Traffic Volumes and Future Forecasts. Traffic counts were collected in April 2017, August 2017, and June 2018 at the study-area intersection for the Existing Conditions analysis (traffic count data is contained in the Technical Appendix). Existing traffic volumes for US 101 were provided by Central Coast Transportation Consulting. Cumulative traffic volumes were forecast using a list of cumulative projects provided by the City that includes approved and pending development in the adjacent areas of the City of Paso Robles and County of San Luis Obispo. General Plan Buildout (Year 2045) traffic forecasts were provided by Central Coast Transportation Consulting – the firm that developed the City's travel demand model for the Circulation Element Update.

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Peak Summer Friday Analysis. As requested by Caltrans, the study provides an analysis of potential traffic impacts at the study-area intersections during the Peak Summer Friday afternoon period. Traffic volumes along the SR 46W corridor are higher on Friday afternoons during the Summer months when people travel from the San Joaquin Valley to the Central Coast for weekend recreation (see Peak Summer Friday Analysis section).

Peak Summer Sunday Analysis. As requested by Caltrans, the study provides an analysis of potential traffic impacts at the study-area intersections during the Peak Summer Sunday afternoon period. This time period captures traffic related to people returning to the San Joaquin Valley after weekend recreation on the Central Coast (see Peak Summer Sunday section).

San Luis Obispo County Facilities. The study also addresses traffic operations and potential impacts to the US 101/Main Street interchange located in San Luis Obispo County to the south as well as to the County segment of Ramada Drive south of SR 46W (see County of San Luis Obispo Impacts section).

LEVEL OF SERVICE EVALUATIONS

Traffic operations presented in this report are based on "Levels of Service" (LOS) concepts and procedures outlined in the Highway Capacity Manual (HCM).[1] As outlined in the HCM, LOS is measured on an A-F scale, with LOS A representing the best operating conditions from a traveler's perspective and LOS F representing conditions where demands exceed capacity. LOS definitions for signalized intersections is provided in Table 3.

Table 3
Level of Service Delay Ranges & Definitions – Traffic Signals

LOS	Delay Range	Definition
A	0-10 Seconds	Conditions of free unobstructed flow, no delays and all signal phases sufficient in duration to clear all approaching vehicles.
B	10.1- 20.0 Seconds	Conditions of stable flow, very little delay, a few phases are unable to handle all approaching vehicles.
C	20.1-35 Seconds	Conditions of stable flow, delays are low to moderate, full use of peak direction signal phases is experienced.
D	35.1-55 Seconds	Conditions approaching unstable flow, delays are moderate to heavy, significant signal time deficiencies are experienced for short durations during the peak traffic period.
E	55.1-80 Seconds	Conditions of unstable flow, delays are significant, signal phase timing is generally insufficient, congestion exists for extended duration throughout the peak period.
F	>80 Seconds	Conditions of forced flow, travel speeds are low and volumes are well above capacity. This condition is often caused when vehicles released by an upstream signal are unable to proceed because of back-ups from a downstream signal.

[1] Highway Capacity Manual, Transportation Research Board, 2016.

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Models used to evaluate traffic operations provide a best estimate of LOS, but the "true" value likely lies within a confidence interval range above or below the estimated value. While LOS is a useful and widely adopted tool for communicating traffic operations to laypersons and decision makers, its strengths and weaknesses should be kept in mind. Defining performance standards based on LOS (or any fixed numerical value) means that small changes in performance can sometimes result in the standard being exceeded if a facility is already operating close to the standard. Since LOS is a step function, an increase in average delay of 2 seconds at a traffic signal may results in no change in LOS or a drop of one level depending upon the starting delay value. Because a small change in delay (2 seconds) can result in a change from one LOS to another, the LOS letter result can imply a more significant change than actually occurs. This aspect of LOS can be a particularly sensitive issue when transportation agencies define their operational performance standards using LOS. The definition of any fixed standard, whether numerically or a LOS letter, always entails the possibility that a small change in performance may trigger the need for potentially costly improvements.

LEVEL OF SERVICE THRESHOLDS

Caltrans Thresholds

US 101 and SR 46W are under the jurisdiction of Caltrans. Caltrans District 5 has established level of service goals in the *Caltrans Guide for the Preparation of Traffic Impact Studies*.[2] Caltrans strives to maintain operations at the LOS C/D threshold on state-operated facilities. If an existing State Highway facility is operating at LOS D, E, or F, the existing measure of effectiveness should be maintained.

City of Paso Robles Thresholds

Vine Street, Theatre Drive, and Ramada Drive north of SR 46W are located in the City of Paso Robles. The thresholds and policies outlined in the City's Circulation Element[3] were used to assess potential effects to these facilities (see City of Paso Robles Circulation Element Consistency section of this report).

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[2] Caltrans Guide for the Preparation of Traffic Impact Studies, Caltrans, December 2002.

[3] City of Paso Robles General Plan 2011 Circulation Element, Fehr & Peers, February 2011.

County of San Luis Obispo Thresholds

The segment of Ramada Drive south of SR 46W extends into San Luis Obispo County. The County of San Luis Obispo has adopted LOS C as the minimum for traffic operations on this roadway (see County of San Luis Obispo Impacts section of this report for potential effects to this roadway segment).

EXISTING CONDITIONS

Street Network

The study-area street network is shown on Figure 3. The following text provides a brief discussion of the study-area street network.

US 101 is four-lane freeway in the study area. Freeway access to/from the Project site is provided via ramps at the US 101/SR 46W interchange.

SR 46W is a two-lane highway that extends west from US 101 to SR 1 near Cambria. SR 46E extends east of US 101 and connects the City and Paso Robles with the San Joaquin Valley.

Vine Street, classified as an Arterial road by the City, is a two-lane road that fronts the west side of US 101. Vine Street extends northerly from SR 46W into the City of Paso Robles.

Theatre Drive, also classified as an Arterial road by the City, is a two-lane road that fronts the west side of US 101. Theatre Drive extends from SR 46W to the US 101/Main Street interchange south of the City of Paso Robles.

Ramada Drive, classified as a Local road by the City, is a two-lane road that fronts the east side of US 101. The segment of Ramada Drive north of SR 46W is located within the City of Paso Robles. The segment south of SR 46W extends into San Luis Obispo County.

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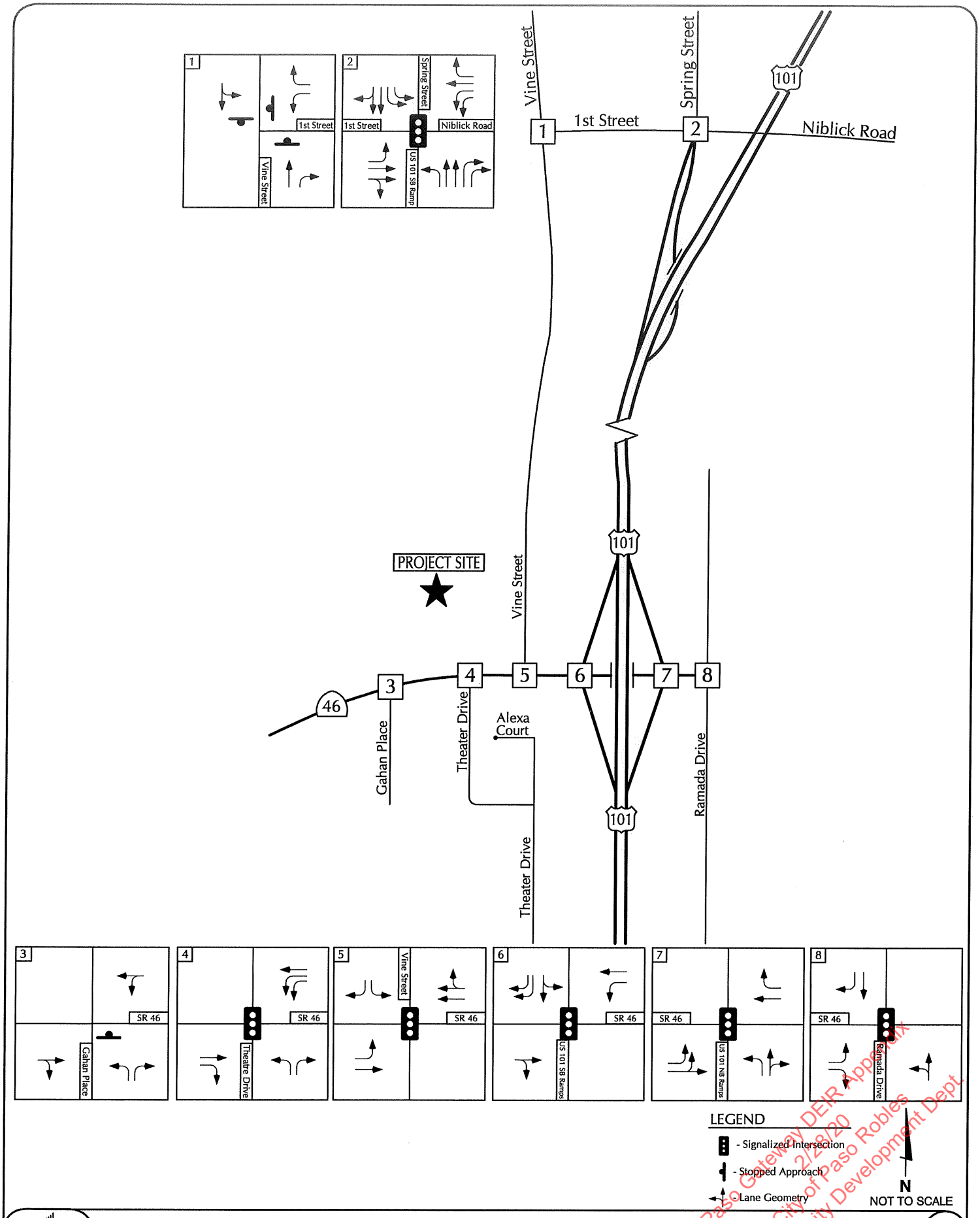

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EXISTING STREET NETWORK

FIGURE 3

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Existing Freeway Operations

Existing AM and PM peak hour traffic volumes for US 101 are illustrated on Figure 4. Existing levels of service were calculated for the US 101 freeway segments using the operations method outlined in the HCM. The performance of US 101 can be characterized by density in passenger cars per mile per lane (pc/mi/ln), average speed in miles per hour (mph), and the ratio of volume-to-capacity (v/c). As outlined in the HCM, density is the performance measure used to rate freeway levels of service. Table 4 presents the Existing densities and levels of service for US 101.

Table 4
Existing Freeway Operations

Segment/Direction	Lanes	AM Peak Hour		PM Peak Hour	
		Density(a)	LOS(b)	Density(a)	LOS(b)
US 101 - North of SR 46W					
Northbound	2	19.9	LOS C	28.0	**LOS D**
Southbound	2	28.5	**LOS D**	28.6	**LOS D**
US 101 - South of SR 46W					
Northbound	2	17.7	LOS B	21.2	LOS C
Southbound	2	22.6	LOS C	23.2	LOS C

Bold Values exceed Caltrans LOS C target.
(a) Density in passenger car equivalents per lane per mile.
(b) LOS based on density pursuant to HCM.

As shown in Table 4, traffic flows on the segment of US 101 north of SR 46W operate at LOS D during the AM and PM peak periods, which exceeds Caltrans' LOS C target for US 101.

Existing Intersection Operations

Because traffic flow on street networks is most restricted at intersections, detailed analyses of traffic conditions examine operations of key intersections during the weekday peak commuter travel periods (7-9 AM and 4-6 PM). Existing AM and PM peak hour traffic volumes for the study-area intersections are illustrated on Figure 4. Existing AM and PM peak hour pedestrian volumes are illustrated on Figure 5. Existing AM and PM peak hour bicycle volumes are illustrated on Figure 6.

Existing levels of service were calculated for the study-area intersections using the SYNCHRO traffic modeling program, which implements the operations method outlined in the HCM. The SYNCHRO traffic modeling program was coded to replicate field conditions for the level of service analyses.

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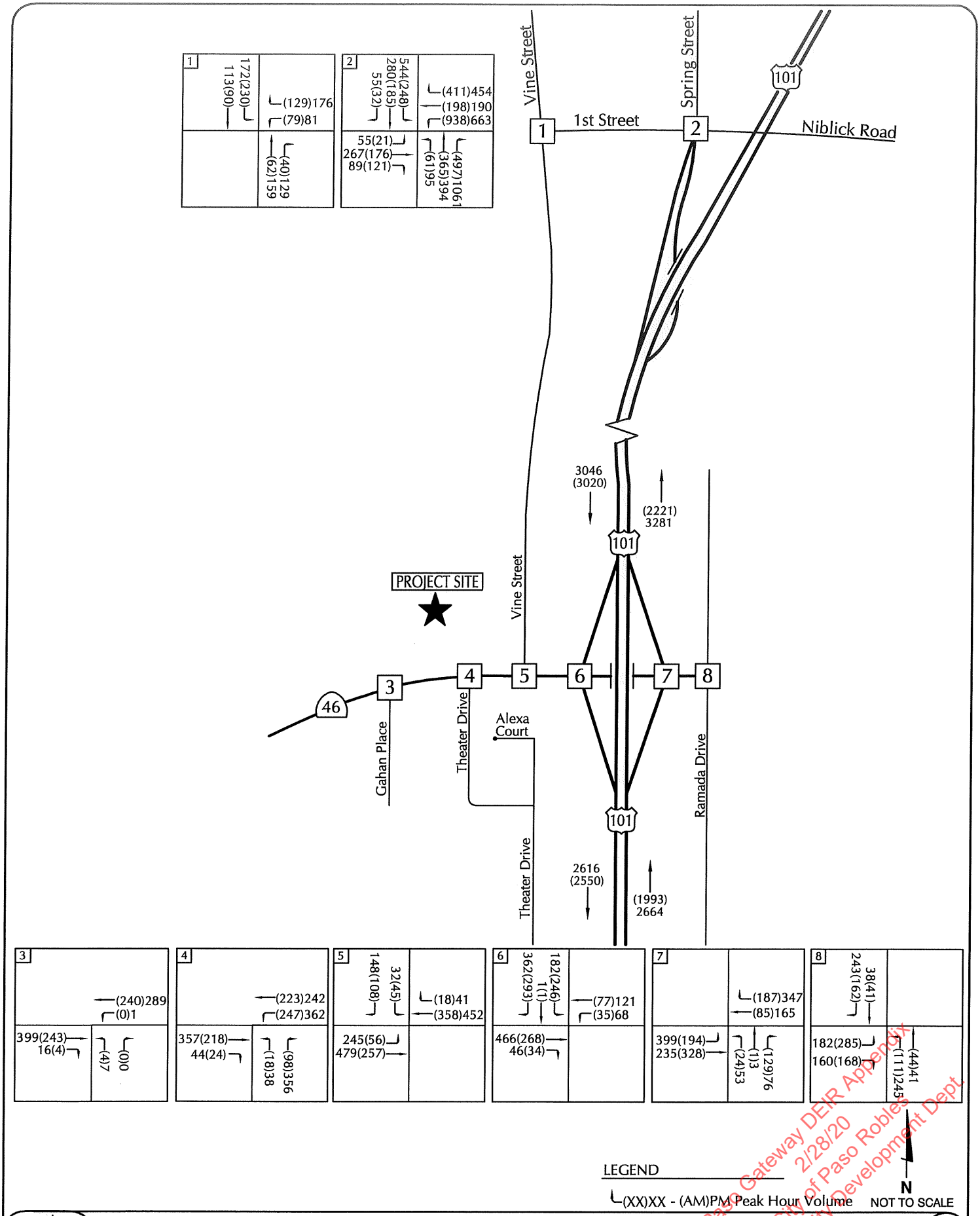

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EXISTING TRAFFIC VOLUMES

FIGURE 4

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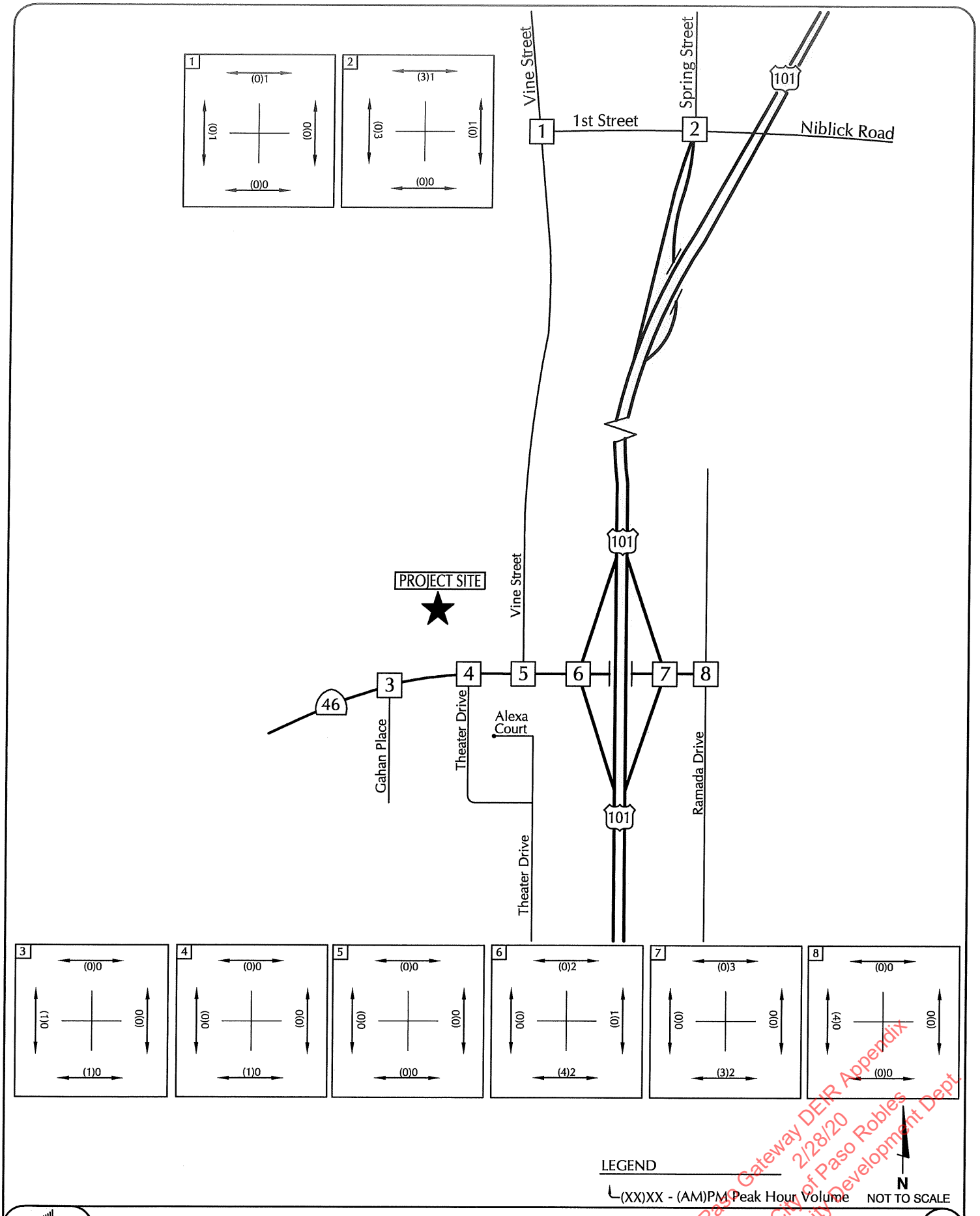

LEGEND

└(XX)XX - (AM)PM Peak Hour Volume

N

NOT TO SCALE

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EXISTING PEDESTRIAN VOLUMES

FIGURE 5

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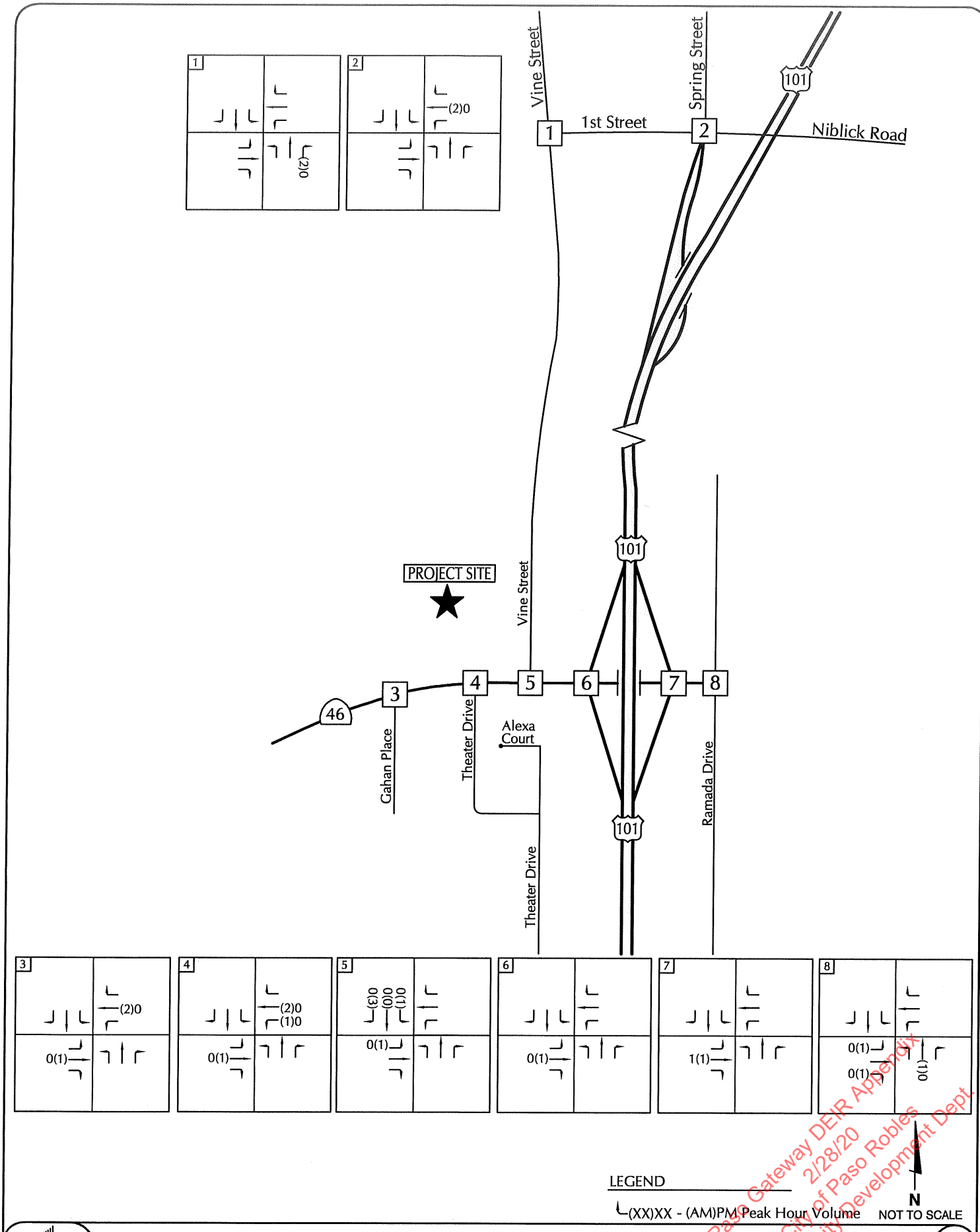

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EXISTING BICYCLE VOLUMES

FIGURE 6

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Table 5 presents the Existing levels of service for the study-area intersections. It is important to note that the US 101/SR 46W interchange is configured as a "tight diamond" with the adjacent frontage roads (Vine Street on the west side and Ramada Drive on the east side) being less than 100 feet from the US 101 ramp intersections. All four intersections are signalized. Due to their close spacing, the two intersections on the west side of the interchange (SR 46W/US 101 SB and SR 46W/Vine Street) operate as a single unit and their level of service is therefore calculated as such. Similarly, the two intersections on the east side of the interchange (SR 46W/US 101 NB and SR 46W/Ramada Drive) operate as a single unit and their level of service is therefore calculated as such.

The traffic movements between the 2 sides of the interchange are coordinated by the signal timing so that queues between the intersections are managed. In traffic engineering parlance, the signal timing is set up in "push-pull" fashion. In other words, traffic that is westbound from the east side of the interchange (during green light for the US 101 NB off-ramp and during green light for northbound and southbound Ramada Drive) is also given a green light at the west side interchange (westbound green light is provided at the SR 46W/US 101 SB and SR 46W/Vine Street intersections to progress traffic through the 2 sides of the interchange). Similarly, traffic that is eastbound from the west side of the interchange (during green light for eastbound SR 46, during green light for southbound Vine Street, and during green light for the US 101 SB off-ramp) is also given an eastbound green light at the east side interchange (eastbound green light is provided at the SR 46W/US 101 NB and SR 46W/Ramada Drive intersections to progress traffic through the 2 sides of the interchange). The existing "push-pull" signal system manages the queues between the east and west sides of the interchange.

Table 5
Existing Intersection Operations

Intersection	Control	Delay Per Vehicle/LOS(a)	
		AM Peak	PM Peak
Vine St/1st St	All-Way Stop	10.1 Sec./LOS B	10.1 Sec./LOS B
US 101 Ramps-Spring St/1st St-Niblick Rd	Signal	31.1 Sec./LOS C	**35.3 Sec./LOS D**
SR 46W/Gahan Pl	1-Way Stop	14.0 Sec./LOS B	15.8 Sec./LOS C
SR 46W/Theatre Dr	Signal	10.1 Sec./LOS B	13.3 Sec./LOS B
SR 46W/US 101 SB Ramps(b) SR 46W/Vine St(b)	Signal	24.9 Sec./LOS C	31.3 Sec./LOS C
SR 46W/US 101 NB Ramps(c) SR 46W/Ramada Dr(c)	Signal	27.2 Sec./LOS C	27.0 Sec./LOS C

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit.
(c) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

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The data in Table 5 show that most of the study-area intersections currently operate at LOS C or better during the AM and PM peak hour periods, which meet the adopted standards. The US 101 Ramps-Spring Street/1st Street-Niblick Road intersection operates at the low end of LOS D during the PM peak hour (LOS D = 35.1-55.0 seconds). Three legs of this intersection are within the City (Spring Street, 1st Street, & Niblick Road) and the US 101 on- and off-ramps are under Caltrans jurisdiction. The LOS D operations exceeds the Caltrans LOS C standard.

EXISTING + PROJECT CONDITIONS

Project Trip Generation

The trip generation forecasts presented below follow the steps recommended in the City's Transportation Impact Analysis Guidelines. Given that the Project includes a mix of land uses, the trip generation steps include: 1) calculate trip generation based on ITE rates, 2) calculate internal trips (internal capture trips), and 3) determine pass-by/diverted linked trips. Additional text and worksheets outlining the trip generation analyses are including in the Technical Appendix for reference. The final trip generation estimates used in the study were reviewed and approved by Caltrans and City staffs.

ITE Trip Generation. The ITE trip generation estimates were calculated for the Project using the standard practices outlined in the Institute of Transportation Engineers (ITE) Trip Generation manual.[4] As noted, there are two alternatives for the Project. Alternative A includes a 100-room hotel within Area 5 of the Project site and Alternative B includes 80 single family residences or vacation rentals within Area 5. The trip generation analysis found that Alternative B with 80 single family residences would generate the highest traffic levels and are therefore used in the following impact analysis since it provides a reasonable worse-case analysis pursuant to CEQA. Table 6 presents the average daily, AM peak hour, and PM peak hour trip generation estimates for the Project based on ITE rates.

As shown in Table 6, the proposed land uses are estimated to generate 5,289 average daily trips (ADT), with 338 trips occurring during the AM peak hour and 453 trips occurring during the PM peak hour.

Internal Capture Trips. Given the mix of land uses, there will be some "Internal Capture" trips that remain within the site and not affect the off-site street network (for example, people staying at the hotels that patronize the commercial uses). The ITE mixed-use traffic model was used to determine the number of trips that would be captured within the site (a copy of the mixed-use model is including in the Technical Appendix). The mixed-use model shows that 17% of the AM peak hour trips and 24% of the PM peak hour trips would be internal to the site. The remaining trips would be external to the site and affect the adjacent street network. Table 7 summarizes the internal and external trips for the AM and PM peak hour periods.

[4] Trip Generation, Institute of Transportation Engineers, 10th Edition, 2017.

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Table 6
Project Trip Generation

Site/Land Uses	Size	Daily		AM Peak Hour		PM Peak Hour	
		Rate	Trips	Rate	Trips	Rate	Trips
Vine Street Hotel(a)	100 Rooms	8.36	836	0.47	47	0.60	60
Village Commercial Center							
Commercial(b)	18,200 SF	37.75	687	0.94	17	3.71	69
Restaurant(c)	5,600 SF	112.18	628	9.94	56	9.77	55
Office(d)	3,800 SF	9.74	37	1.16	4	1.15	4
Workforce Housing(e)	17 DU	7.32	124	0.46	8	0.56	10
Subtotal			1,476		85		138
Hillside Hotel(a)	225 Rooms	8.36	1,881	0.47	106	0.60	135
Promontory Commercial Center							
Office(d)	24,000 SF	9.74	234	1.16	28	1.15	28
Resort Community(f)	80 SFDU	9.44	755	0.74	59	0.99	79
Vine Street Commercial							
Office(d)	11,000 SF	9.74	107	1.16	13	1.15	13
Totals			**5,289**		**338**		**453**

(a) ITE Land Use Code 310 (Hotel).
(b) ITE Land Use Code 820 (Shopping Center).
(c) ITE Land Use Code 932 (High-Turnover Sit-Down Restaurant).
(d) ITE Land Use Code 710 (General Office Building).
(e) ITE Land Use Code 220 (Multifamily Housing).
(f) ITE Land Use Code 210 (Single Family Detached Housing).

Table 7
Internal/External Trip Summary

Trip Type	AM Peak Trips	PM Peak Trips
Internal	56	110
External	282	343
Total	338	453

Pass-By/Diverted-Linked Trips. Some of the retail and restaurant trips will be drawn from existing traffic on nearby roadways. "Pass-By" trips come from the existing traffic streams on roadways that provide direct access to the site (for example, people traveling along Vine Street that decide to turn into the Project site and stop at a retail store as part of their longer trip). "Diverted-Linked" trips will divert from nearby roadways as part of their longer trip (for example, people traveling along SR 46W that turn onto Vine Street to stop at a restaurant along their way). Based on the data contained in the ITE Trip Generation Handbook, 57% of the retail trips will be pass-by/diverted-linked trips and 63% of the restaurant trips will be pass-by/diverted-linked trips. To be conservative, the traffic study assumes that 50% of the retail and restaurant trips will be pass-by/diverted-linked trips (22 AM trips and 26 PM trips). Table 8 summarizes the breakdown of the Project's trip types for the AM and PM peak hour periods.

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Table 8
Project Trip Types

Trip Generation	AM Peak Trips	PM Peak Trips
Internal Capture Trips	56	110
Pass-By/Diverted Linked	22	26
Primary Trips	260	317
Totals	338	453

Project Trip Distribution

The distribution pattern for the Project was determined by a "select zone" traffic model run prepared by the City. The City's traffic model was coded with the Project's land uses and then run to isolate the traffic pattern for the Project. The Project's trip distribution pattern is listed in Table 9.

Table 9
Project Trip Distribution

Origin/Destination	Direction	Percent
US 101	North	25%
US 101	South	37%
Vine Street	North	21%
SR 46(W)	West	3%
Theatre Drive s/o SR 46(W)	South	4%
Ramada Drive n/o SR 46(W)	East	6%
Ramada Drive s/o SR 46(W)	East	4%
Total		**100%**

Vine Street Realignment

The Vine Street realignment that is proposed as one of the Project components would alter traffic patterns at the existing SR 46W/Vine Street and SR 46W/Theatre Drive intersections. The existing SR 46W/Vine Street intersection would be deleted from the system and the SR 46W/Theatre Drive intersection would be modified to include the new Vine Street connection. The Existing traffic volumes at these two intersections were therefore reassigned for this street network modification.

Project Trip Assignments

Figure 7 show the distribution and assignment of Project traffic during the AM and PM peak commuter periods assuming the revised street network with Vine Street realigned. Figure 8 show the Existing + Project traffic volumes.

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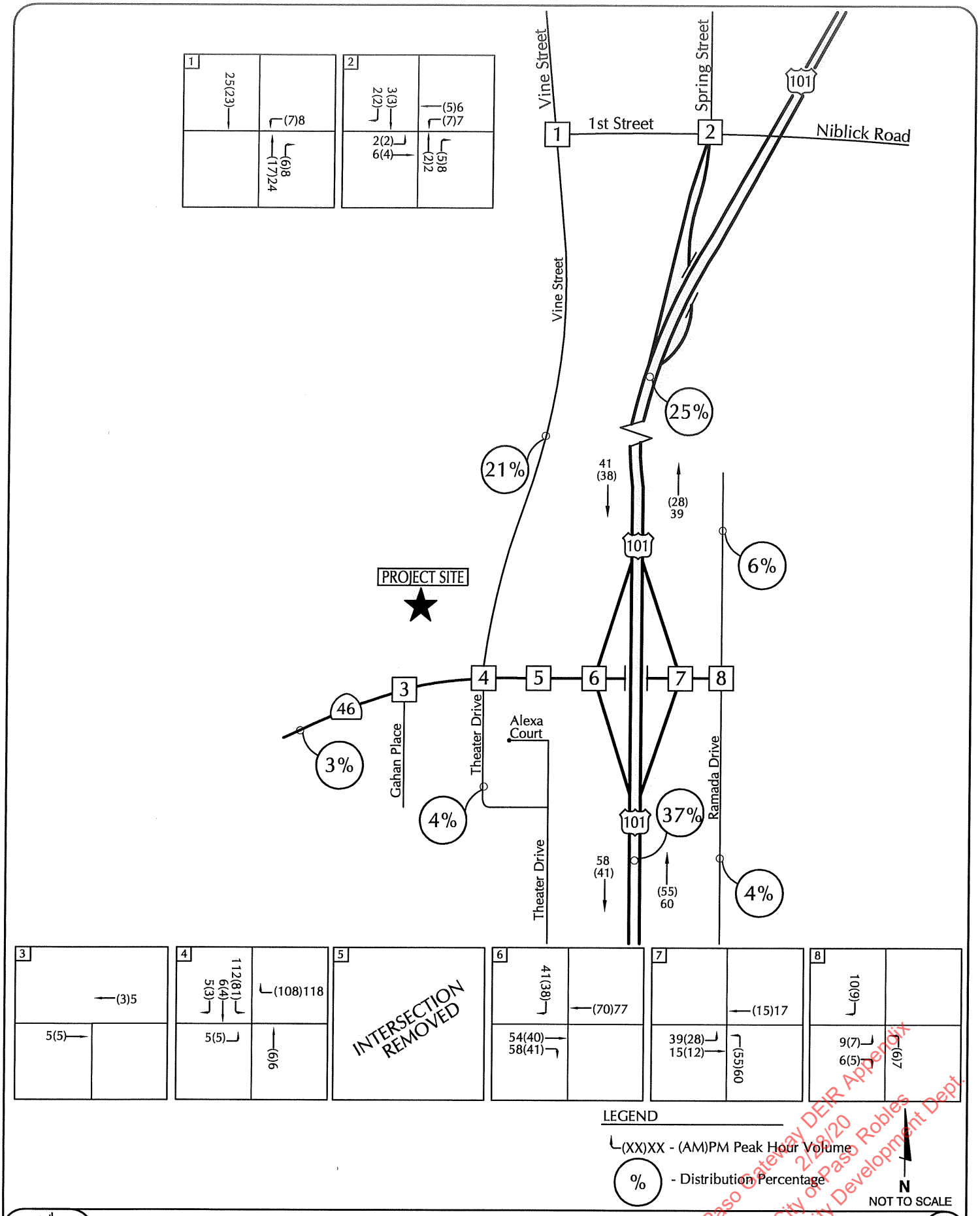

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PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 7

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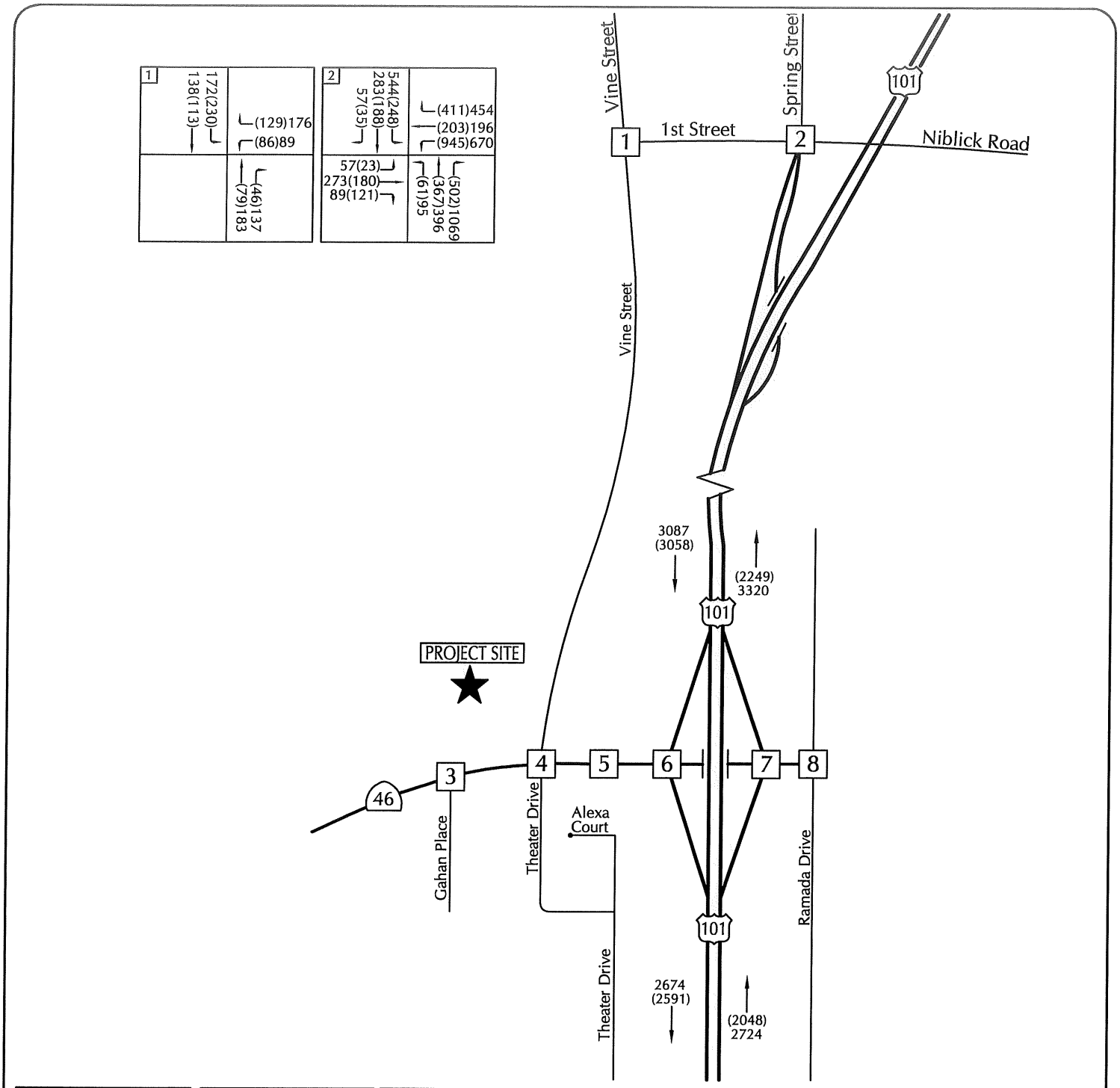

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EXISTING + PROJECT TRAFFIC VOLUMES

FIGURE 8

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Existing + Project Freeway Operations

Levels of service were calculated for US 101 using the Existing + Project peak hour volumes shown on Figure 8. Existing + Project levels of service are compared to Existing levels of service in Table 10.

Table 10
Existing + Project Freeway Operations

Segment/Direction	Density/LOS(a)				Impact?
	AM Peak Hour		PM Peak Hour		
	Existing	Existing + Project	Existing	Existing + Project	
US 101 - North of SR 46W					
Northbound	19.9/LOS C	20.1/LOS C	**28.0/LOS D**	**28.5/LOS D**	NO
Southbound	**28.5/LOS D**	**29.1/LOS D**	**28.6/LOS D**	**29.2/LOS D**	
US 101 - South of SR 46W					
Northbound	17.7/LOS B	18.2/LOS C	21.2/LOS C	21.8/LOS C	NO
Southbound	22.6/LOS C	23.1/LOS C	23.2/LOS C	23.8/LOS C	

Bold Values exceed Caltrans LOS C target.
(a) Density in passenger car equivalents per lane per mile. LOS based on density pursuant to HCM.

As shown, traffic flows on the northbound and southbound segments of US 101 north of SR 46W are forecast to continue to operate at LOS C-D during the AM and/or PM peak periods with Existing + Project traffic. The addition of Project traffic would increase the density on these segments by less than one passenger car per lane per mile at the LOS D locations.

Recommendation: Development of mitigation measures will require Caltrans coordination. Recommendations are discussed under Mitigation Measures.

Existing + Project Intersection Operations

Existing and Existing + Project intersection levels of service for the AM and PM peak commuter periods are compared in Tables 11 and 12. The tables also shows the Project's impact to each intersection.

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Table 11
Existing + Project Intersection Operations – AM Peak Hour

Intersection	Delay Per Vehicle/LOS(a)		Project Added		Impact?
	Existing	Existing + Project	Delay	Trips	
Vine St/1st St	10.1 Sec./LOS B	10.2 Sec./LOS B	0.1 Sec	53	NO
US 101 Ramps-Spring St/1st St-Niblick Rd	31.1 Sec./LOS C	31.5 Sec./LOS C	0.4 Sec	30	NO
SR 46W/Gahan Pl	14.0 Sec./LOS B	14.1 Sec./LOS B	0.1 Sec	8	NO
SR 46W/Theatre Dr(b)	10.1 Sec./LOS B	NA	NA	NA	NA
SR 46W/Theatre Dr-Vine St(b)	NA	18.8 Sec./LOS B	8.8 Sec	207	NO
SR 46W/US 101 SB Ramps(c) SR 46W/Vine St(c)	24.9 Sec./LOS C	NA	NA	NA	NA
SR 46W/US 101 SB Ramps(c)	NA	19.0 Sec./LOS B	-5.9 Sec	189	NO
SR 46W/US 101 NB(d) SR 46W/Ramada Dr(d)	27.2 Sec./LOS C	21.8 Sec./LOS C	-5.4 Sec	110	NO

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) Existing LOS for SR 46W/Theatre Drive intersection. Existing + Project LOS assumes Vine Street realignment.
(c) Existing LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit. Existing + Project LOS assumes Vine Street realignment.
(d) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

Table 12
Existing + Project Intersection Operations – PM Peak Hour

Intersection	Delay Per Vehicle/LOS(a)		Project Added		Impact?
	Existing	Existing + Project	Delay	Trips	
Vine St/1st St	10.1 Sec./LOS B	10.6 Sec./LOS B	0.5 Sec	65	NO
US 101 Ramps-Spring St/1st St-Niblick Rd	**35.3 Sec./LOS D**	**35.7 Sec./LOS D**	0.4 Sec	36	NO
SR 46W/Gahan Pl	15.8 Sec./LOS C	16.0 Sec./LOS C	0.2 Sec	10	NO
SR 46W/Theatre Dr(b)	13.3 Sec./LOS B	NA	NA	NA	NA
SR 46W/Theatre Dr-Vine St(b)	NA	21.8 Sec./LOS B	8.5 Sec	252	NO
SR 46W/US 101 SB Ramps(c) SR 46W/Vine St(c)	31.3 Sec./LOS C	NA	NA	NA	NA
SR 46W/US 101 SB Ramps(c)	NA	20.6 Sec./LOS B	-10.7 Sec	230	NO
SR 46W/US 101 NB(d) SR 46W/Ramada Dr(d)	27.0 Sec./LOS C	26.1 Sec./LOS C	-0.9 Sec	131	NO

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) Existing LOS for SR 46W/Theatre Drive intersection. Existing + Project LOS assumes Vine Street realignment.
(c) Existing LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit. Existing + Project LOS assumes Vine Street realignment.
(d) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

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As shown in Tables 11 and 12, most of the study-area intersections are forecast to operate at LOS C or better with Existing + Project traffic during the AM and PM peak commuter periods. The US 101 Ramps-Spring Street/1st Street-Niblick Road intersection is forecast to operate at LOS D during the PM peak hour with Existing and Existing + Project traffic. The Project would add 0.4 seconds of delay to the intersection. Three legs of this intersection are within the City (Spring Street, 1st Street, & Niblick Road) and the US 101 ramps are under Caltrans jurisdiction. The LOS D operations meets the City standard but exceeds the Caltrans LOS C standard. The Project would add 10 vehicles to the off-ramp approach during the PM peak hour period.

Recommendation: Development of mitigation measures will require Caltrans coordination. Recommendations are discussed under Mitigation Measures.

The Existing + Project forecasts for the US 101/SR 46W interchange illustrate the benefit of realigning Vine Street to the west with the new connection at the existing SR 46W/Theatre Drive intersection. As noted, the Vine Street realignment is the next phase of the improvements programmed by Caltrans and the City for the US 101/SR 46W interchange (first phase was Theatre Drive realignment). The close proximity that currently exists between the SR 46W/Vine Street intersection and SR 46W/US 101 SB Ramps intersection requires that the two intersections operate a single unit. The Vine Street realignment to the west would remove some of the traffic demands and signal phases that are in place on the west side of the interchange, which significantly improves the overall operation at the US 101/SR 46W interchange (the Vine Street realignment also improves operations on the east side of the interchange since the two sides of the interchange require coordinated signal timing in order to progress flows through the system).

Vine Street/1st Street. This intersection is under the jurisdiction of the City. The intersection is forecasts to provide LOS B operations for vehicular traffic during the AM and PM peak periods under Existing + Project conditions. City policies also address non-vehicular traffic operations – pedestrians and bicyclists. The Vine Street/1st Street intersection is an all-way Stop sign controlled intersection. Sidewalks are provided along the east side of Vine Street and on both sides of 1st Street adjacent to the intersection. A painted crosswalk is provided for north-south pedestrian flows on the east leg of the intersection. Class II bike lanes are present on both Vine Street and 1st Street adjacent to the intersection. Given the distance from the Project site, the Project is not anticipated to significantly increase pedestrians and bikes using the intersection. The Project's vehicular traffic additions would result in LOS B for vehicular traffic and not significantly affect pedestrian and bike flows using the intersection.

US 101 Ramp Operations. Caltrans staff requested level of service and queue information for the US 101 off-ramp approaches at the intersections under Caltrans jurisdiction. Table 13 compares the Existing and Existing + Project levels of service for the Caltrans off-ramps.

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Table 13
Existing + Project – US 101 Off-Ramp Operations

US 101 Off-Ramp	LOS(a)			
	AM Peak		PM Peak	
	Existing	Existing + Project	Existing	Existing + Project
US 101 NB Off @ Spring St	LOS C	LOS C	**LOS D**	**LOS D**
US 101 NB Off @ SR 46W	LOS C	LOS C	**LOS D**	**LOS D**
US 101 SB Off @ SR 46W	LOS C	LOS C	**LOS D**	LOS C

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.

As shown in Table 13, the levels of service for the Caltrans US 101 off-ramp approaches at the study-area intersections operate at LOS C during the AM peak period and LOS D during the PM peak period with Existing traffic. The Project would not change the LOS on the Caltrans ramps – except for the US 101 SB off-ramp at SR 46W during the PM peak period. The level of service on this ramp would improve from LOS D for Existing conditions to LOS C under Existing + Project conditions – a beneficial impact as a result of the Vine Street realignment.

Queue forecasts were developed to determine if the vehicle queues are accommodated on the US 101 off-ramps. The SIMTRAFFIC model was used to develop the queue forecasts. The SIMTRAFFIC model was run with 5 iterations to forecast the peak queues. The queue model predicts average queues (50th percentile) and peak queues (95th percentile) during the peak hour period. The 95th percentile peak queue forecasts were used for the analysis (queue forecast worksheets are included in the Technical Appendix for reference).

It is important to note that the peak queues derived from the SIMTRAFFIC model are theoretical forecasts (i.e. model predictions) that are reasonable approximations of actual queues. ATE also performed field observations to validate the model predictions.

Tables 14 and 15 compare the queues on the Caltrans off-ramps during the AM and PM peak commuter periods.

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Table 14
US 101 Off-Ramps – Existing + Project Peak Hour Queue Forecasts – AM Peak Hour (SIMTRAFFIC)

Intersection / Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
US 101 NB Off @ Spring St				
NB Left Turn Lane	85 Feet	90 Feet	190 Feet	No
NB Right #1 Lane	60 Feet	60 Feet	430 Feet	No
NB Right #2 Lane	75 Feet	90 Feet	210 Feet	No
US 101 SB Off @ SR 46W				
SB Left-Thru Lane	180 Feet	170 Feet	400 Feet	No
SB Right #1 Lane	155 Feet	90 Feet	670 Feet	No
SB Right #2 Lane	140 Feet	70 Feet	670 Feet	No
US 101 NB Off @ SR 46W				
NB Left Turn Lane	45 Feet	55 Feet	265 Feet	No
NB Thru-Right Lane	135 Feet	170 Feet	900 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segments.

Table 15
US 101 Off-Ramps – Existing + Project Peak Hour Queue Forecasts – PM Peak Hour (SIMTRAFFIC)

Intersection / Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
US 101 NB Off @ Spring St				
NB Left Turn Lane	125 Feet	100 Feet	190 Feet	No
NB Right #1 Lane	165 Feet	205 Feet	430 Feet	No
NB Right #2 Lane	195 Feet	175 Feet	210 Feet	No
US 101 SB Off @ SR 46W				
SB Left-Thru Lane	260 Feet	125 Feet	400 Feet	No
SB Right #1 Lane	195 Feet	55 Feet	620 Feet	No
SB Right #2 Lane	225 Feet	65 Feet	620 Feet	No
US 101 NB Off @ SR 46W				
NB Left Turn Lane	70 Feet	125 Feet	265 Feet	No
NB Thru-Right Lane	50 Feet	95 Feet	900 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or ramp lanes.

As shown, the 95th percentile peak queue forecasts are accommodated on the Caltrans off-ramps. The field observations confirm that the peak queues are accommodated on the Caltrans off-ramps.

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Although the peak queues that are stopped are accommodated within the turn bays on the US 101 NB Off-Ramp at Spring Street, slow moving vehicles occur along the ramp between the freeway and the intersection that sometimes cause vehicles slowing on the freeway Number 2 lane when approaching the off-ramp. The off-ramp is over ½ mile in length between the freeway diverge point and the intersection at 1st Street-Niblick Road. The diverge point on the freeway is located on an uphill rise adjacent to a crest vertical curve – which limits the sight distance for drivers exiting the freeway and causes vehicles to slow down before exiting the freeway. The off-ramp then transitions to the downhill segment that has horizontal and vertical curves along the off ramp, which also slows vehicle speeds. The combination of vertical and horizontal curves causes slow moving vehicle queues along the off-ramp during peak periods that sometimes affect the freeway mainline.

Recommendation: Development of mitigation measures will require Caltrans coordination. Recommendations are discussed in detail under Mitigation Measures.

CUMULATIVE ANALYSIS

Traffic Forecasts

Cumulative traffic volumes were forecast using a list of approved and pending projects provided by City staff (see cumulative project list in the Technical Appendix). There are three projects that will directly affect traffic operations along the SR 46W corridor: 1) the approved Marriott Residence Inn Project located northwest of the SR 46W/Vine Street intersection and 2) the approved Alexa Court Hotel Project proposed on Alexa Court, and 3) the approved Hyatt Place Hotel Project located on Theatre Drive just south of SR 46W. Traffic generated by the cumulative projects was distributed and assigned to the study-area street network based on the traffic studies prepared for those projects and local traffic patterns. A 3% background growth factor (1% per year for 3 years) was also applied to the Existing traffic volumes to account for traffic growth from outside of the study area. The Cumulative traffic forecasts are illustrated on Figure 9.

The Vine Street realignment proposed as part of the Project will alter traffic patterns at the existing SR 46W/Vine Street and SR 46W/Theatre Drive intersections. The Cumulative traffic volumes at these two intersections were reassigned with the Vine Street realignment. Project traffic was then added to these volumes in order to evaluate Cumulative + Project traffic operations. Figure 10 illustrates the Cumulative + Project traffic forecasts.

Cumulative and Cumulative + Project Freeway Operations

Levels of service were calculated for US 101 using the Cumulative and Cumulative + Project peak hour volumes shown on Figures 9 and 10. Cumulative and Cumulative + Project levels of service forecasts for US 101 are listed in Table 16.

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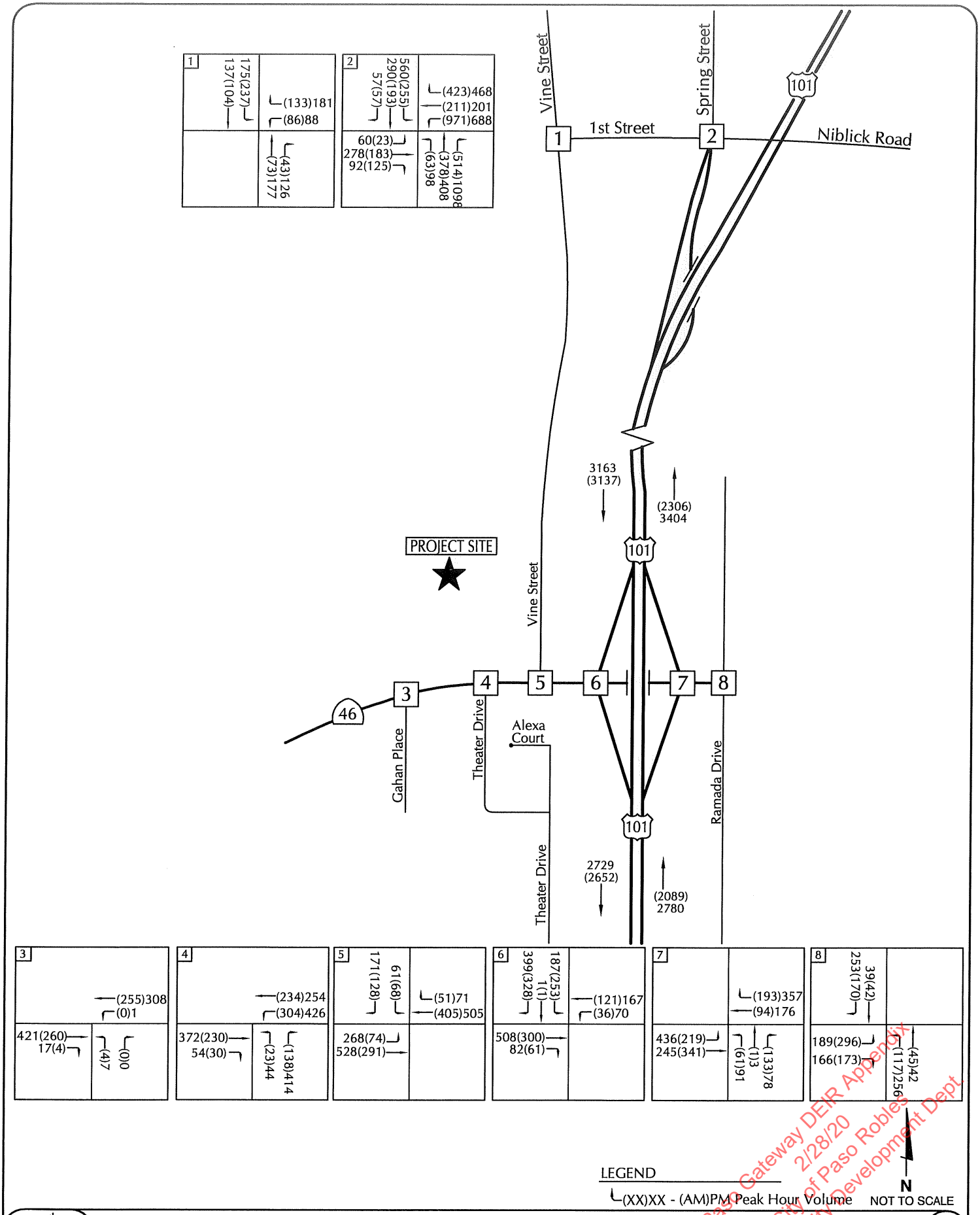

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CUMULATIVE TRAFFIC VOLUMES

FIGURE 9

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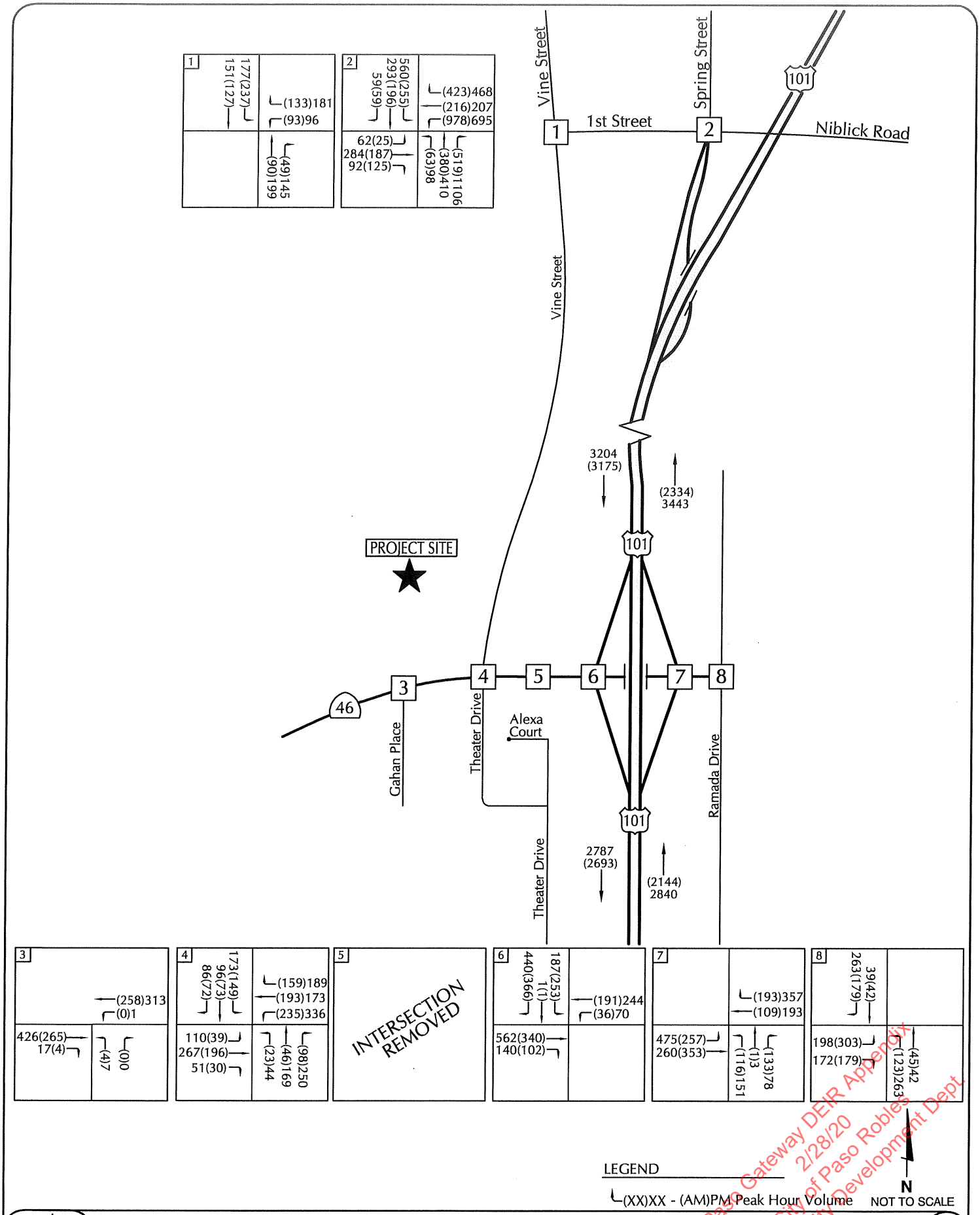

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CUMULATIVE + PROJECT TRAFFIC VOLUMES

FIGURE 10

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Table 16
Cumulative and Cumulative + Project Freeway Operations

Segment/Direction	Density/LOS(a)				Impact?
	AM Peak Hour		PM Peak Hour		
	Cumulative	Cumulative + Project	Cumulative	Cumulative + Project	
US 101 - North of SR 46W					
Northbound	20.7/LOS C	21.0/LOS C	**29.6/LOS D**	**30.2/LOS D**	NO
Southbound	**30.3/LOS D**	**30.9/LOS D**	**30.3/LOS D**	**30.9/LOS D**	
US 101 - South of SR 46W					
Northbound	18.6/LOS C	19.1/LOS C	22.3/LOS C	22.9/LOS C	NO
Southbound	23.8/LOS C	24.3/LOS C	24.5/LOS C	25.1/LOS C	

Bold Values exceed Caltrans LOS C target.
(a) Density in passenger car equivalents per lane per mile. LOS based on density pursuant to HCM.

As shown, traffic flows on the segment of US 101 north of SR 46W are forecast to continue to operate at LOS C-D during the AM and/or PM peak periods with Cumulative and Cumulative + Project traffic. The addition of Project traffic would increase the density on these segments by less than one passenger car per lane per mile at the LOS D locations.

Recommendation: Development of mitigation measures will require Caltrans coordination. Recommendations are discussed in detail under Mitigation Measures.

Cumulative and Cumulative + Project Intersection Operations

Levels of service were calculated for the study-area intersections using the Cumulative and Cumulative + Project traffic volumes shown on Figures 9 and 10. Cumulative and Cumulative + Project levels of service for the AM and PM peak commute hours are compared in Tables 17 and 18.

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Table 17
Cumulative & Cumulative + Project Intersection Operations – AM Peak Hour

Intersection	Delay Per Vehicle/LOS(a)		Project Added		Impact?
	Cumulative	Cumulative + Project	Delay	Trips	
Vine St/1st St	10.4 Sec./LOS B	10.6 Sec./LOS B	0.2 Sec	53	NO
US 101 Ramps-Spring St/1st St-Niblick Rd	32.5 Sec./LOS C	32.9 Sec./LOS C	0.4 Sec	30	NO
SR 46W/Gahan Pl	14.4 Sec./LOS B	14.6 Sec./LOS B	0.2 Sec	8	NO
SR 46W/Theatre Dr(b)	10.7 Sec./LOS B	NA	NA	NA	NA
SR 46W/Theatre Dr-Vine St(b)	NA	20.9 Sec./LOS C	10.2 Sec	207	NO
SR 46W/US 101 SB Ramps(c) SR 46W/Vine St(c)	26.2 Sec./LOS C	NA	NA	NA	NA
SR 46W/US 101 SB Ramps(c)	NA	18.9 Sec./LOS B	-7.3 Sec	189	NO
SR 46W/US 101 NB(d) SR 46W/Ramada Dr(d)	27.0 Sec./LOS C	22.5 Sec./LOS C	-4.5 Sec	110	NO

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) Cumulative LOS for SR 46W/Theatre Drive intersection. Cumulative + Project LOS assumes Vine Street realignment.
(c) Cumulative LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit. Cumulative + Project LOS assumes Vine Street realignment.
(d) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

Table 18
Cumulative & Cumulative + Project Intersection Operations – PM Peak Hour

Intersection	Delay Per Vehicle/LOS(a)		Project Added		Impact?
	Cumulative	Cumulative + Project	Delay	Trips	
Vine St/1st St	10.5 Sec./LOS B	11.0 Sec./LOS B	0.5 Sec	65	NO
US 101 Ramps-Spring St/1st St-Niblick Rd	**37.0 Sec./LOS D**	**37.5 Sec./LOS D**	0.5 Sec	36	NO
SR 46W/Gahan Pl	16.5 Sec./LOS C	16.7 Sec./LOS C	0.2 Sec	10	NO
SR 46W/Theatre Dr(b)	14.4 Sec./LOS B	NA	NA	NA	NA
SR 46W/Theatre Dr-Vine St(b)	NA	22.7 Sec./LOS C	8.3 Sec	252	NO
SR 46W/US 101 SB Ramps(c) SR 46W/Vine St(c)	33.7 Sec./LOS C	NA	NA	NA	NA
SR 46W/US 101 SB Ramps(c)	NA	21.0 Sec./LOS B	-12.7 Sec	230	NO
SR 46W/US 101 NB(d) SR 46W/Ramada Dr(d)	27.4 Sec./LOS C	30.4 Sec./LOS C	3.0 Sec	131	NO

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) Cumulative LOS for SR 46W/Theatre Drive intersection. Cumulative + Project LOS assumes Vine Street realignment.
(c) Cumulative LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit. Cumulative + Project LOS assumes Vine Street realignment.
(d) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

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As shown in Tables 17 and 18, most of the study-area intersections are forecast to operate at LOS C or better with Cumulative and Cumulative + Project traffic. As noted, the Vine Street realignment proposed by the Project would improve operations at the US 101/SR 46W interchange. The US 101 Ramps-Spring Street/1st Street-Niblick Road intersection is forecast to operate at LOS D during the PM peak hour with Cumulative & Cumulative + Project traffic. The Project would add 0.5 seconds of delay to the intersection. Three legs of this intersection are within the City (Spring Street, 1st Street, & Niblick Road) and the US 101 ramps are under Caltrans jurisdiction. The LOS D operations meets the City standard but exceeds the Caltrans LOS C standard. The Project would add 10 vehicles to the off-ramp approach during the PM peak hour period.

Recommendation: Development of mitigation measures will require Caltrans coordination. Recommendations are discussed under Mitigation Measures.

SITE ACCESS

The access analysis provided below was completed using Cumulative + Project traffic forecasts for the PM peak hour period since those volumes are greater than during the AM peak hour period. The Cumulative + Project forecasts for the Project access connections to Vine Street are shown on Figure 11. The following analysis includes review of traffic controls, the need for turn lanes, vehicle delays, levels of service, and sight distances at each of the Project's connection to Vine Street.

Traffic Controls. The traffic forecasts at each of the Project's access connections to Vine Street are well below the minimum thresholds for installation of traffic signals. The access connections should be controlled by Stop signs on the outbound approaches from the Project site (Vine Street would remain a free-flow facility).

Turn Lanes. The right-turn volumes into the four Project driveways are forecast at 20 vehicles or less per hour during the PM peak hour period and do not warrant separate right-turn lanes. The engineering plans developed for the Project show separate left-turn lanes are planned at each of the four proposed driveways. The need for separate left-turn lanes on Vine Street at the Project's access driveways were evaluated using the warrants published by AASTHO.[5] The left-turn lane warrants establish guidelines for determining the need for separate left-turn lanes on Vine Street based on the 1-hour volume of northbound left-turns + through vehicles and the opposing volume of vehicles on southbound Vine Street (see left-turn lane worksheets contained in the Technical Appendix).

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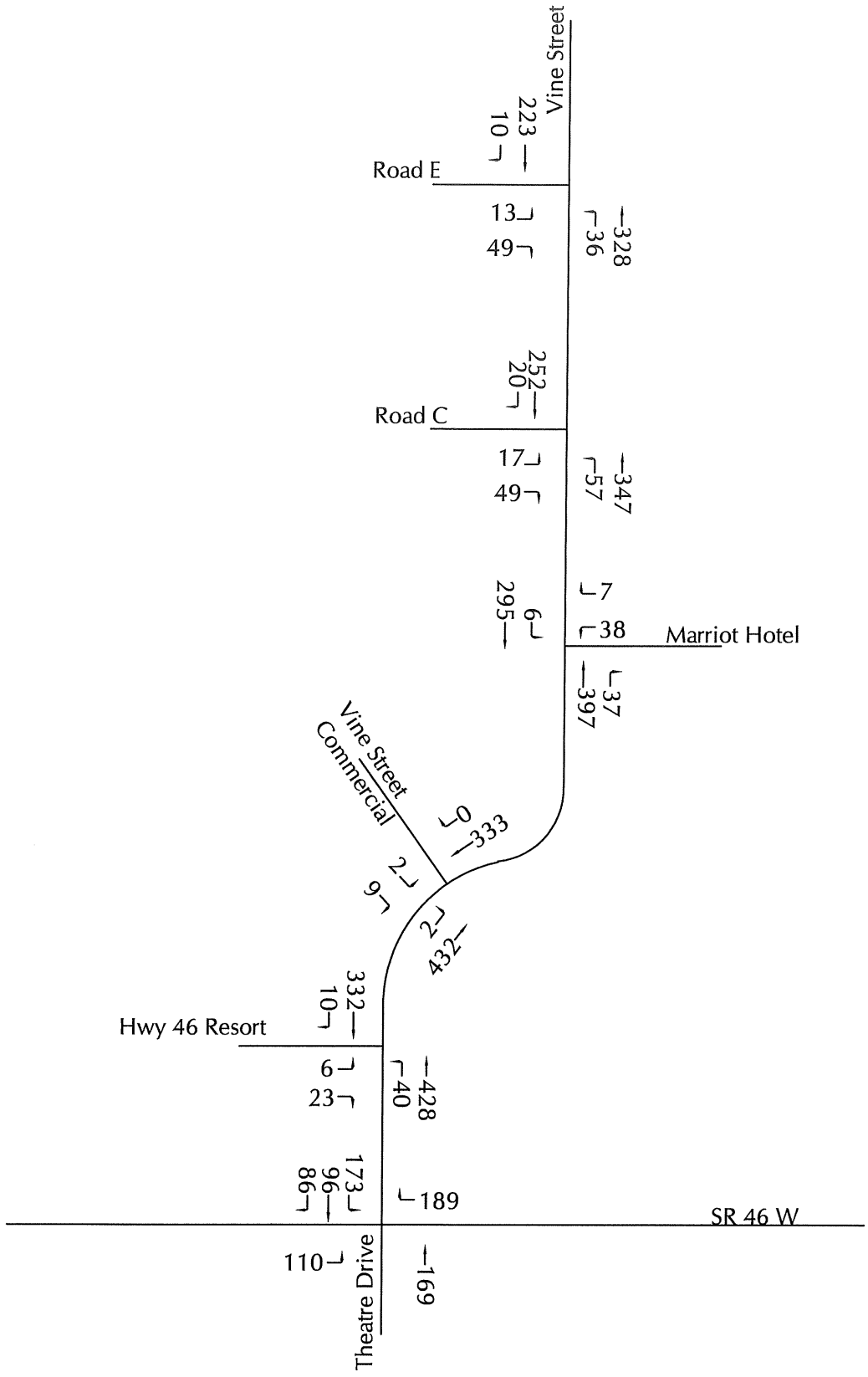
[5] A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 2011.



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CUMULATIVE + PROJECT DRIVEWAY VOLUMES - PM PEAK HOUR

FIGURE 11

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The traffic volumes at the Hillside Hotel-Promontory Center driveway (36 northbound left-turn vehicles per hour during the PM peak hour period) are just below the minimum warrant for a left-turn lane on Vine Street. The engineering plans developed for the Project show a separate left-turn lane at this location, which will improve operations. Traffic volumes at the Vineyard Hotel-Village Commercial Center driveway (57 left-turn vehicles per hour during the PM peak hour period) meet the minimum threshold for installation of a separate left-turn lane and the engineering plans developed for the Project show a separate left-turn lane at this location. Traffic volumes at the Vine Street Commercial driveway are below the minimum thresholds for consideration of a separate left-turn lane, however the engineering plans developed for the Project show a separate left-turn lane at this location. Finally, the traffic volumes at the Highway 46 Resort driveway (40 northbound left-turn vehicles per hour during the PM peak hour period) meet the minimum threshold for installation of a separate left-turn lane and the engineering plans developed for the Project show that a separate left-turn lane is planned at this access point.

Vehicle Delays & Levels of Service. Table 19 shows the delays and levels of service for turning into and out of the Project site at each of the four access connections on Vine Street (level of service worksheets are contained in the Technical Appendix for reference).

Table 19
Vine Street/Project Driveway Connections - Cumulative + Project Operations

Intersection	Control	PM Peak Hour Delay/LOS(a)
Vine Street/Hillside Hotel-Promontory Center		
Inbound Left-Turns	Yield	7.8 Sec./LOS A
Inbound Right-Turns	Free	0.0 Sec./LOS A
Outbound Left + Right Turns	Stop Sign	11.1 Sec./LOS B
Vine Street/Vineyard Hotel-Village Commercial Center		
Inbound Left-Turns	Yield	8.0 Sec./LOS A
Inbound Right-Turns	Free	0.0 Sec./LOS A
Outbound Left + Right Turns	Stop Sign	12.2 Sec./LOS B
Vine Street/Vine Street Commercial Center		
Inbound Left-Turns	Yield	8.0 Sec./LOS A
Inbound Right-Turns	Free	0.0 Sec./LOS A
Outbound Left + Right Turns	Stop Sign	11.4 Sec./LOS B
Vine Street/Highway 46 Resort		
Inbound Left-Turns	Yield	8.2 Sec./LOS A
Inbound Right-Turns	Free	0.0 Sec./LOS A
Outbound Left + Right Turns	Stop Sign	12.2 Sec./LOS B

(a) LOS based on average delay per vehicle under Cumulative + Project conditions.

As shown, vehicle delays are relatively low for turning into and out of the Project site at each of the four access connections. The driveway connections are forecast to operate at LOS A/B assuming Stop sign control on the outbound approaches from the Project site.

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Sight Distances. Drivers turning from the Project's driveways should have an unobstructed view along Vine Street sufficient in length to permit them to anticipate and avoid potential collisions. The unobstructed views form triangular areas known as sight triangles. Part of the equation for determining sight distances is the speed of vehicles traveling along Vine Street. The segment of Vine Street north of SR 46W is currently posted with 50 MPH speed limit signs. The minimum corner sight distance for roads with 50 MPH design speeds is 550 feet. This existing segment would serve the Hillside Hotel-Promontory Center driveway and the Vineyard Hotel-Village Commercial Center driveway. The Vine Street Commercial driveway and Highway 46 Resort driveway would connect to the realigned segment of Vine Street on the outside of a horizontal curve in the new roadway (see Figure 2 – Project Site Plan). The design speeds for this segment is 30 MPH, which requires a minimum corner sight distance of 330 feet.

Hillside Hotel-Promontory Center Driveway. The sight distances looking to the north from this proposed driveway was measured at about 900 feet – to the crest vertical curve in the Vine Street alignment north of the driveway. The sight distances to the south was measured at about 1,500 feet – to the crest vertical curve in the Vine Street alignment south of the proposed driveway. These sight distances exceed the 550-foot minimums for connections to roads with 50 MPH vehicle speeds.

Vineyard Hotel-Village Commercial Center Driveway. The sight distances looking to the north from this proposed driveway was measured at about 820 feet – to the horizontal curve in the Vine Street alignment north of the driveway. The sight distances to the south was measured at about 670 feet – to the crest vertical curve in the Vine Street alignment south of the proposed driveway. These sight distances exceed the 550-foot minimums for connections to roads with 50 MPH vehicle speeds.

Vine Street Commercial Driveway. The sight distances at this location were evaluated using the engineering plans developed for the Project since this segment of Vine Street does not exist. The sight distances looking to the north was measured at approximately 490 feet and the sight distances to the south was measured at approximately 330 feet, which meet the 330-foot minimum for connections to roads with 30 MPH vehicle speeds.

Highway 46 Resort Hotel Driveway. The sight distances at this location were evaluated using the engineering plans developed for the Project since this segment of Vine Street does not exist. The sight distances looking to the north was measured at approximately 345 feet and the sight distances to the south was measured at 350 feet, which meet the 330-foot minimum for connections to roads with 30 MPH vehicle speeds.

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PEAK SUMMER FRIDAY ANALYSIS

Existing Levels of Service

Caltrans requested an analysis of traffic conditions on a "Peak Summer Friday" since traffic volumes along the SR 46W corridor are higher on Friday afternoons during the Summer months when people are traveling from the San Joaquin Valley to the Central Coast for weekend recreation. Traffic counts were collected in 2017 and 2018 for the Peak Summer Friday analysis. The Peak Summer Friday counts include the number of standard vehicles, heavy vehicles (trucks & RVs), pedestrians, and bikes at the study-area intersections. The Peak Summer Friday counts show low levels of pedestrian and bike activity (see count data in Technical Appendix). There were 0-3 pedestrians crossing the key study intersections along the SR 46W corridor during the Peak Summer Friday peak hour period; and 1 bike movement was recorded at SR 46W/Theatre Drive, SR 46W/Vine Street, SR 46W/US 101 SB Ramps, and at SR 46W/US 101 NB Ramps intersections.

Figure 12 illustrates the Peak Summer Friday traffic volumes. Table 20 presents the Existing levels of service for the Peak Summer Friday peak hour period.

Table 20
Existing Intersection Operations – Peak Summer Friday PM Peak Hour

Intersection	Control	Delay Per Vehicle/LOS(a)
Vine St/1st St	All-Way Stop	21.9 Sec./LOS C
US 101 Ramps-Spring St/1st St-Niblick Rd	Signal	29.8 Sec./LOS C
SR 46W/Gahan Pl	1-Way Stop	21.2 Sec./LOS C
SR 46W/Theatre Dr	Signal	13.4 Sec./LOS B
SR 46W/US 101 SB Ramps(b) SR 46W/Vine St(b)	Signal	32.5 Sec./LOS C
SR 46W/US 101 NB Ramps(c) SR 46W/Ramada Dr(c)	Signal	31.4 Sec./LOS C

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit.
(c) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

As shown, the study-area intersections operate at LOS C or better during the Peak Summer Friday peak hour period, which meet the adopted standards.

Existing + Project Levels of Service

The Vine Street realignment proposed as part of the Project will alter traffic patterns at the SR 46W/Vine Street and SR 46W/Theatre Drive intersections. The Existing Peak Summer Friday traffic volumes at these two intersections were reassigned assuming the realignment and Project traffic was added to those volumes in order to evaluate Existing + Project traffic conditions.

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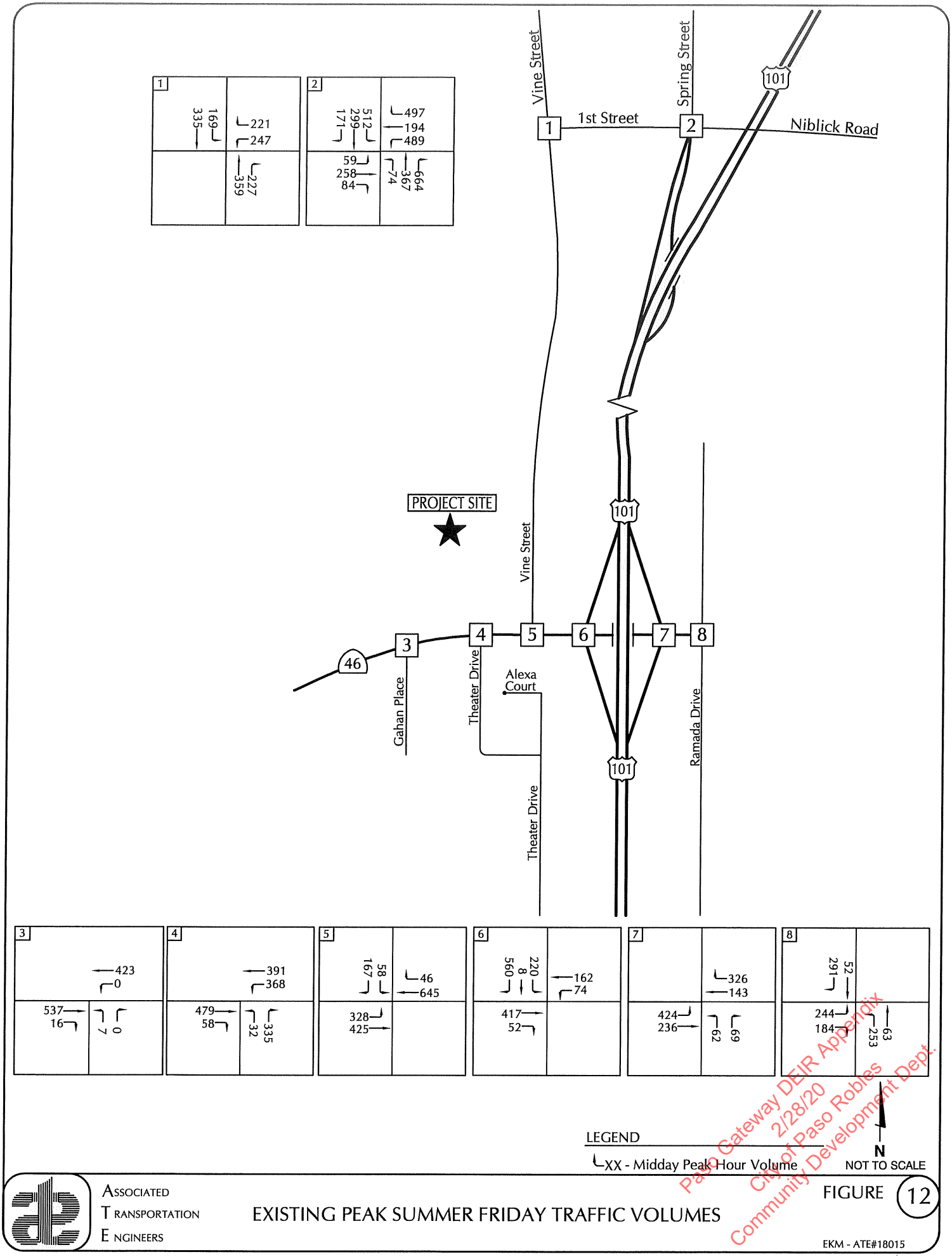

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EXISTING PEAK SUMMER FRIDAY TRAFFIC VOLUMES

FIGURE 12

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Figure 13 shows the Project added trips at the study area intersections. Figure 14 shows the Existing + Project traffic volumes for the Peak Summer Friday peak hour period.

As shown in Table 21, the study-area intersections are forecast to operate at LOS C or better assuming the Existing + Project Peak Summer Friday peak hour traffic volumes, which meet the adopted standards.

Table 21
Existing + Project Peak Summer Friday Peak Hour Intersection Operations

Intersection	Delay Per Vehicle/LOS(a)		Project Added		Impact?
	Existing	Existing + Project	Delay	Trips	
Vine St/1st St	21.9 Sec./LOS C	24.7 Sec./LOS C	2.8 Sec	65	NO
US 101 Ramps-Spring St/1st St-Niblick Rd	29.8 Sec./LOS C	30.1 Sec./LOS C	0.3 Sec	36	NO
SR 46W/Gahan Pl	21.2 Sec./LOS C	21.5 Sec./LOS C	0.3 Sec	10	NO
SR 46W/Theatre Dr(b)	13.4 Sec./LOS B	NA	NA	NA	NA
SR 46W/Theatre Dr-Vine St(b)	NA	27.6 Sec./LOS C	8.3 Sec	252	NO
SR 46W/US 101 SB Ramps(c) SR 46W/Vine St(c)	32.5 Sec./LOS C	NA	NA	NA	NA
SR 46W/US 101 SB Ramps(c)	NA	21.8 Sec./LOS C	-10.7 Sec	230	NO
SR 46W/US 101 NB(d) SR 46W/Ramada Dr(d)	31.4 Sec./LOS C	29.3 Sec./LOS C	-2.1 Sec	131	NO

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) Existing LOS for SR 46W/Theatre Drive intersection. Existing + Project LOS assumes Vine Street realignment.
(c) Existing LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit. Existing + Project LOS assumes Vine Street realignment.
(d) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

Vehicle Queues

Caltrans requested an analysis of vehicle queues for the Caltrans intersections. This traffic study focuses on the peak queues during the Peak Summer Friday and Peak Summer Sunday periods since those time periods experience the highest traffic volumes. Pursuant to the Caltrans request, the SIMTRAFFIC queue model was used for the analysis to forecast the peak queues (95th percentile) for the Existing and Existing + Project scenarios during the Peak Summer Friday peak hour period. The SIMTRAFFIC model was run with 5 iterations to forecast the 95th percentile queues. The queue forecasts were developed to determine if any "damaging" queues occur at the signalized intersections (damaging queues include turn bay overflow, queue spillback between intersections, queues that block access to turn bays or driveways that serve adjacent properties, and queues on the US 101 off-ramps that interfere with freeway operations).

It is important to note that the peak queues derived from the SIMTRAFFIC model are theoretical forecasts (i.e. model predictions). ATE measured the actual vehicle queues in the field to accurately document queues for Existing Conditions and review the Existing + Project queue forecasts.

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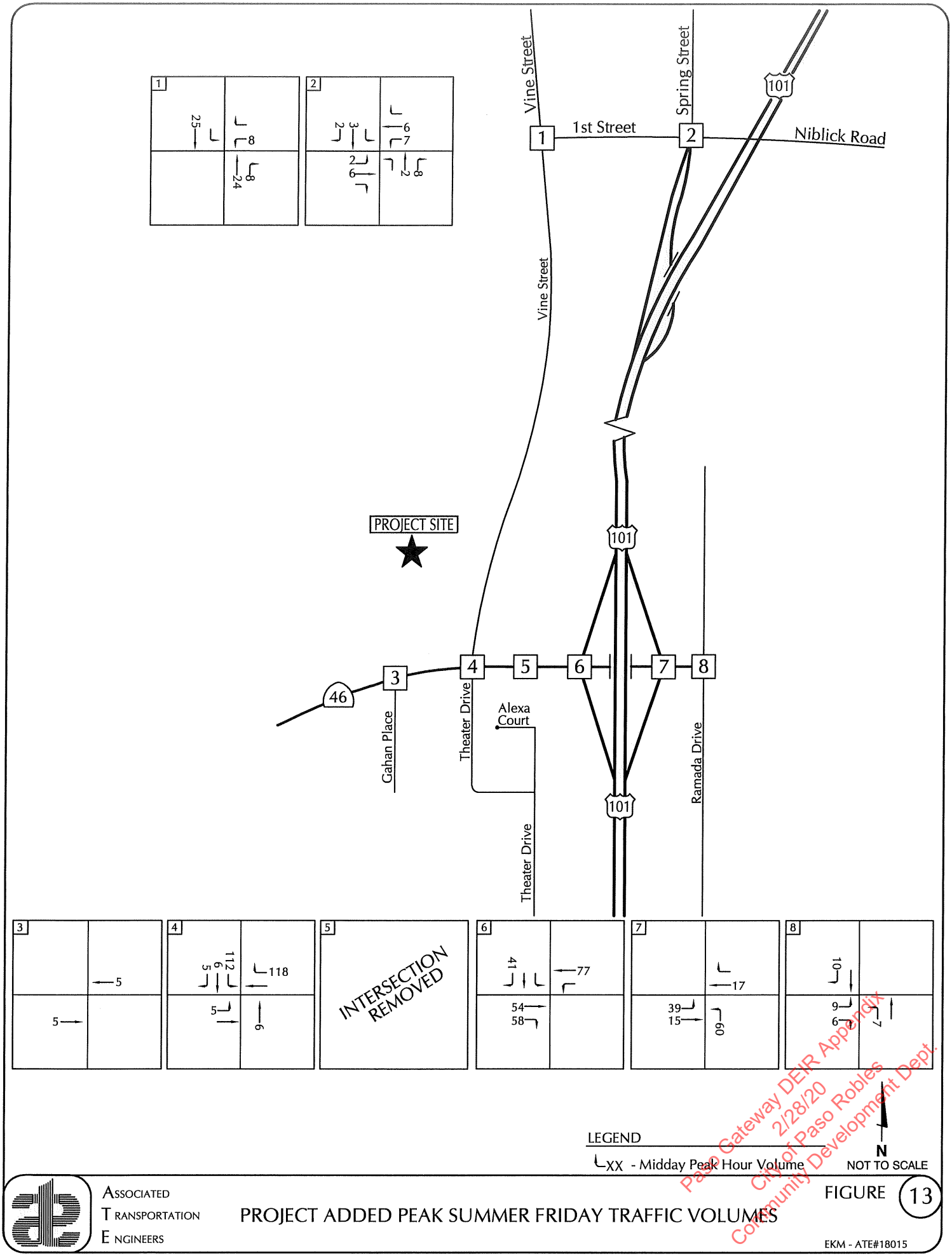

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PROJECT ADDED PEAK SUMMER FRIDAY TRAFFIC VOLUMES

FIGURE 13

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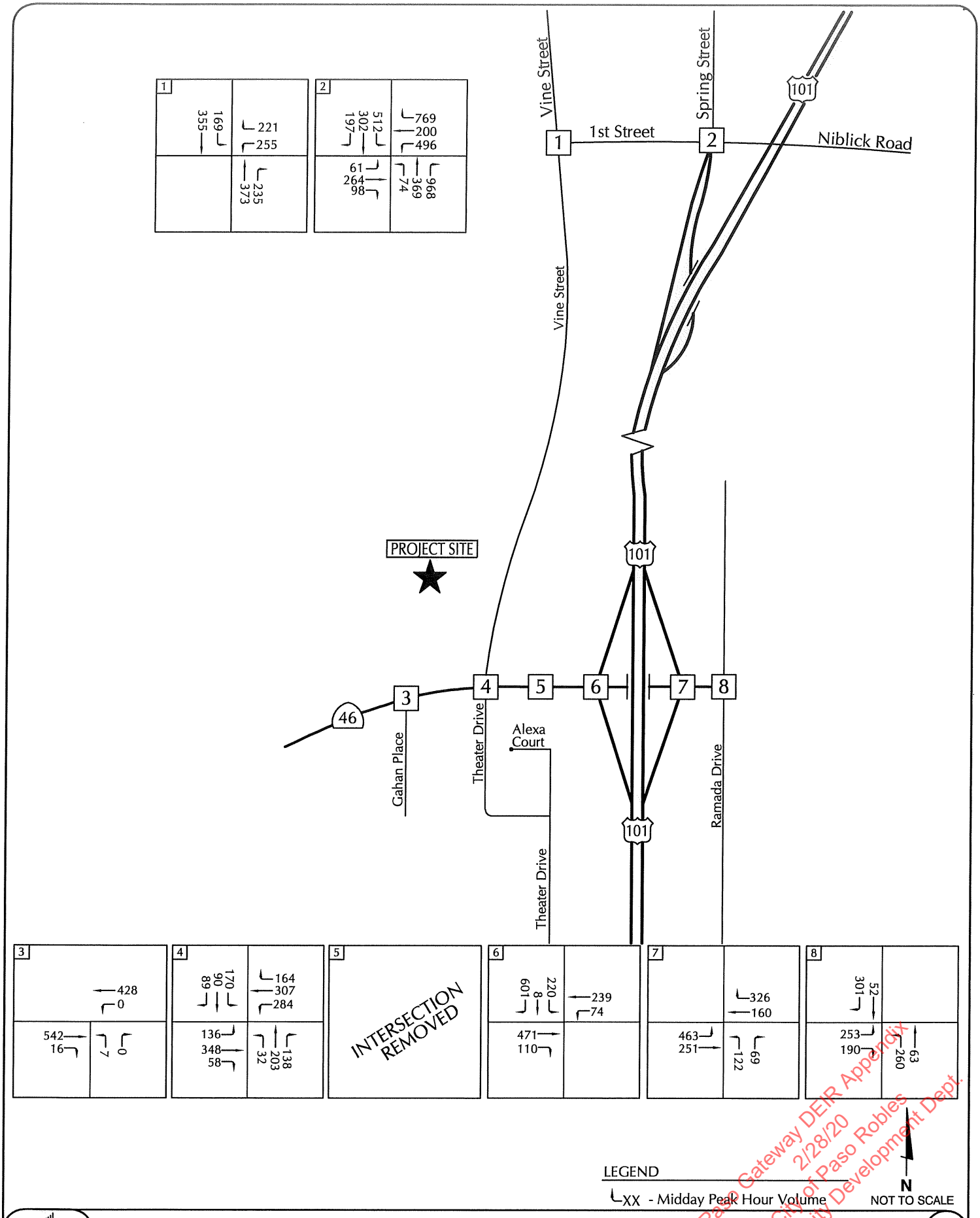

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EXISTING + PROJECT PEAK SUMMER FRIDAY TRAFFIC VOLUMES

FIGURE 14

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US 101 Ramps-Spring Street/1st Street-Niblick Road. Table 22 lists the SIMTRAFFIC peak queue forecasts for the US 101 NB Off-Ramp at Spring Street for the Peak Summer Friday scenario.

Table 22
US 101 Off-Ramp @ Spring Street – Peak Summer Friday Queue Forecasts (SIMTRAFFIC)

Intersection / Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
US 101 NB Off @ Spring St				
NB Left Turn Lane	95 Feet	105 Feet	190 Feet	No
NB Right #1 Lane	160 Feet	145 Feet	430 Feet	No
NB Right #2 Lane	140 Feet	140 Feet	210 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or ramp lanes.

As shown, the Existing and Existing + Project peak queues forecasted by the SIMTRAFFIC model are well within the storage capacity of the US 101 NB Off-Ramp. The field measurements confirmed that the existing vehicle queues are well within the storage provided on the US 101 NB Off-Ramp at Spring Street.

SR 46W/Theatre Drive-Vine Street. Table 23 lists the SIMTRAFFIC peak queue forecasts for the SR 46W/Theatre Drive intersection for the Existing Peak Summer Friday scenario. The realignment of Vine Street with the new connection at the SR 46W/Theatre Drive intersection will alter traffic patterns and vehicle queues at the intersection. Table 24 lists the Existing + Project peak queue forecasts from the SIMTRAFFIC forecasts for the SR 46W/Theatre Drive-Vine Street intersection with Vine Street realigned.

Table 23
SR 46W/Theatre Dr – Peak Summer Friday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
SR 46 EB Thru	230 Feet	NA(c)	Unlimited	No
SR 46 EB Right Turn	50 Feet	NA(c)	175 Feet	No
SR 46 WB #1 Left Lane	85 Feet	NA(c)	350 Feet	No
SR 46 WB #2 Left Lane	135 Feet	NA(c)	350 Feet	No
SR 46 WB Thru	160 Feet	NA(c)	900 Feet	No
Theatre NB Left Turn	35 Feet	NA(c)	465 Feet	No
Theatre NB Right Turn	125 Feet	NA(c)	465 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segments.
(c) Existing + Project queue forecasts not applicable. See Table 24 for Existing + Project forecasts.

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As shown, the Existing peak queues predicted by the SIMTRAFFIC model are well within the storage capacities for the intersection. The field observations found that the left-turn queues on westbound SR 46 extended to about 200 feet and the westbound thru movement extended to about 400 feet, both of which are longer than the SIMTRAFF queue forecasts, but the queues are accommodated within the storage provided. The field observations also found that the right-turn queue on northbound Theatre Drive extended to about 400 feet during the busiest signal cycles (longer than predicted by the model) but was accommodated within the storage provided. This queue is affected by the eastbound SR 46W queue that extended from the SR 46W/Vine Street/US 101 SB Ramps intersection to the Theatre Drive intersection during the busy signal cycles and limits the Theatre Drive right-turn movement.

The realignment of Vine Street with the new connection at the SR 46W/Theatre Drive intersection will improve operations and reduce delays and queuing at the intersection. Table 24 lists the Existing + Project peak queue forecasts from the SIMTRAFFIC model assuming the realignment of Vine Street.

Table 24
SR 46W/Theatre Dr-Vine St – Peak Summer Friday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
SR 46 EB Left Turn	NA(c)	145 Feet	150 Feet(d)	No
SR 46 EB Thru	NA(c)	270 Feet	Unlimited	No
SR 46 EB Right Turn	NA(c)	155 Feet	175 Feet	No
SR 46 WB #1 Left Lane	NA(c)	115 Feet	350 Feet	No
SR 46 WB #2 Left Lane	NA(c)	160 Feet	350 Feet	No
SR 46 WB Thru	NA(c)	200 Feet	900 Feet	No
SB 46 WB Right Turn	NA(c)	50 Feet	150 Feet(d)	No
Theatre NB Left Turn	NA(c)	80 Feet	140 Feet(e)	No
Theatre NB Right Turn	NA(c)	70 Feet	465 Feet	No
Vine SB Left Turn	NA(c)	100 Feet	150 Feet(d)	No
Vine SB Right Turn	NA(c)	35 Feet	150 Feet(d)	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segments.
(c) Existing queue forecasts not applicable. See Table 23 for Existing queue predictions.
(d) Intersection geometry has not been designed. Queue model assumes 150 feet of storage.
(e) Existing 140-foot left-turn lane in place but currently not used (LT pocket crosshatched for non-use under Existing conditions).

The Existing + Project peak queues predicted by the SIMTRAFFIC model are well within the storage capacities at the reconfigured SR 46W/Theatre Drive-Vine Street intersection. Although the intersection has not been designed with the Vine Street realignment, the SIMTRAFFIC queue model was coded with 150 feet of storage in the new turn lanes to forecast vehicle queues. It is recommended that the peak queue forecasts for the new turning lanes at the intersection (turn lanes to/from realigned Vine Street) be considered when designing the intersection.

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SR 46W/US 101 SB Ramps-Vine Street. Table 25 lists the SIMTRAFFIC peak queue forecasts for the SR 46W/US 101 SB Ramps-Vine Street intersection for Existing conditions and Table 26 lists the queue forecasts for the SR 46W/US 101 SB Ramps intersection assuming the realignment of Vine Street to the west with the new connection at the SR 46W/Theatre Drive intersection.

Table 25
SR 46W/Vine St/US 101 SB Ramps – Peak Summer Friday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
SR 46 EB Left Turn	330 Feet	NA(c)	440 Feet	No
SR 46 EB Thru	250 Feet	NA(c)	885 Feet	No
Vine SB Left Turn	115 Feet	NA(c)	190 Feet	No
Vine SB Right Turn	75 Feet	NA(c)	Unlimited	No
US 101 SB Left Turn	495 Feet	NA(c)	400 Feet	Yes(d)
US 101 SB #1 Right Turn	180 Feet	NA(c)	620 Feet	No
US 101 SB #2 Right Turn	200 Feet	NA(c)	620 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segment.
(c) Existing + Project queue forecasts not applicable. See Table 26 for Existing + Project forecasts.
(d) Queue model prediction exceeds capacity, but field review found that queue is less than predicted by the model (see text below).

As shown, the peak queues predicted by the SIMTRAFFIC model are within the storage capacities for most movements. The SIMTRAFFIC model predicts a queue of 495 feet for the left-turn lane on the US 101 SB Off-Ramp. The field observations found that this queue extended to at about 200 feet during the busiest signal cycles, somewhat less than the model prediction, and was accommodated within the left-turn storage lane. The queue model forecasted a peak queue of 180 feet in the #1 right-turn lane and 200 feet in the #2 right-turn lane on the US 101 SB Off-Ramp, but the field observations found that the right-turn queues extended to about 600 feet in the 2 right-turn lanes, within the storage provided. Furthermore, the field observations found that the eastbound SR 46 queue in the thru lane extended to Theatre Drive, about 890 feet, during the busy signal cycles. This queue resulted in northbound right turns from Theatre Drive being blocked during some of the cycle phases (field observations found that the right-turn queue on northbound Theatre Drive extended to about 400 feet during the busy cycles). For southbound Vine Street, the field review confirmed the queue model forecasts (queues are accommodated within storage provided).

The realignment of Vine Street with the new connection at the SR 46W/Theatre Drive intersection will improve operations and reduce delays and queuing at this intersection. Table 26 lists the peak queue forecasts from the SIMTRAFFIC model assuming the realignment of Vine Street.

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Table 26
SR 46W/US 101 SB Ramps – Peak Summer Friday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
SR 46 EB Thru	NA(c)	445 Feet	885 Feet	No
US 101 SB Left Turn	NA(c)	280 Feet	400 Feet	No
US 101 SB #1 Right Turn	NA(c)	55 Feet	620 Feet	No
US 101 SB #2 Right Turn	NA(c)	60 Feet	620 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segment.
(c) Existing queue forecasts not applicable. See Table 25 for Existing forecasts.

As shown, the peak queues forecasted by the SIMTRAFFIC model are within the storage capacities. The realignment of Vine Street to the west will reduce queuing at the intersection as a result of lower traffic demands that are controlled by the US 101/SR 46W signal system (see Table 25 for comparisons). As noted, the existing configuration of the 2 intersections on the west side of the interchange (SR 46W/US 101 SB and SR 46W/Vine Street) operate as a single unit and the 2 intersections on the west side of the interchange (SR 46W/US 101 NB and SR 46W/Ramada Drive) operate as a single unit. The Vine Street realignment would reduce traffic demands at the interchange as well as remove some of the complexity of the signal timing system, thereby reducing queuing at the SR 46W/US 101 SB Ramps intersection.

SR 46W/US 101 NB Ramps-Ramada Drive. Table 27 lists the SIMTRAFFIC peak queue predictions for the east side of the SR 46W/US 101 interchange. The text following the table describes the actual queues measured in the field during the Peak Summer Friday peak hour period.

Table 27
SR 46W/US 101 NB Ramps/Ramada Drive – Peak Summer Friday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
US 101 NB Left Turn	80 Feet	100 Feet	900 Feet	No
US 101 NB Right Turn	60 Feet	85 Feet	220 Feet	No
Ramada NB Left+Thru	850 Feet	780 Feet	Unlimited	No
Ramada SB Thru	695 Feet	710 Feet	Unlimited	No
Ramada SB Right	200 Feet	275 Feet	200 Feet	Yes(c)

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segment.
(c) Queue model prediction exceeds capacity, but field review found that queue is less than predicted by the model (see text below).

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As shown, the Existing peak queues predicted by the model are within the storage capacities of the turn lanes on the east side of the interchange for most movements. The Existing + Project peak queues forecasts generated by the SIMTRAFFIC model show that the queue for southbound right-turn lane on Ramada Drive are forecast to exceed the 200-foot right-turn lane. The field observations found that this queue extended about 200 feet – to the Wine Country Way intersection. The peak queues sometimes block outbound left turns from the Arco gas station site and left turns from Wine Country Way (damaging queue). The field observations also found that the right-turn queue on the US 101 NB Off-Ramp extended to about 160 feet, longer than the queue model prediction but within the storage provided. For northbound Ramada Drive, the queue model forecasted a peak queue of 695 feet for Existing conditions and 710 for Existing + Project conditions. The field review found that the northbound Ramada Drive queue extended about 400 feet south of the intersection – past Calle Propano. The peak queues blocked access to the driveway that serves Wayne's Tires, blocked access to Calle Propano, and blocked access to the driveway that serves Delta RV (damaging queue). The field observations found that "courtesy gaps" are provided for vehicle to turn to/from Wayne's Tires, Calle Propano, and Delta RV (i.e. vehicles in the northbound Ramada Drive queue yield to vehicles turning in/out of Wayne's Tires, Calle Propano, and Delta RV).

PEAK SUMMER SUNDAY ANALYSIS

Caltrans also requested an analysis of traffic conditions on a "Peak Summer Sunday" afternoon since traffic volumes along the SR 46W corridor are higher when people are returning to the San Joaquin Valley after visiting the Central Coast for weekend recreation. Traffic counts were collected in August 2017 and 2018 for the analysis (traffic counts contained in the Technical Appendix for reference). The Peak Summer Sunday counts include the number of standard vehicles, heavy vehicles (trucks & RVs), pedestrians, and bikes traversing the intersections.

Figure 15 illustrates the Peak Summer Sunday traffic volumes. The Peak Summer Sunday traffic counts for the SR 46W corridor show higher volumes on eastbound SR 46W when compared to the typical weekday PM peak hour period. The Peak Summer Sunday counts show low levels of pedestrian and bike activity along the SR 46W corridor. There were 0-1 pedestrians crossing the intersections and 1 bike observed at the SR 46W/Vine Street intersection during the Peak Summer Sunday peak hour period.

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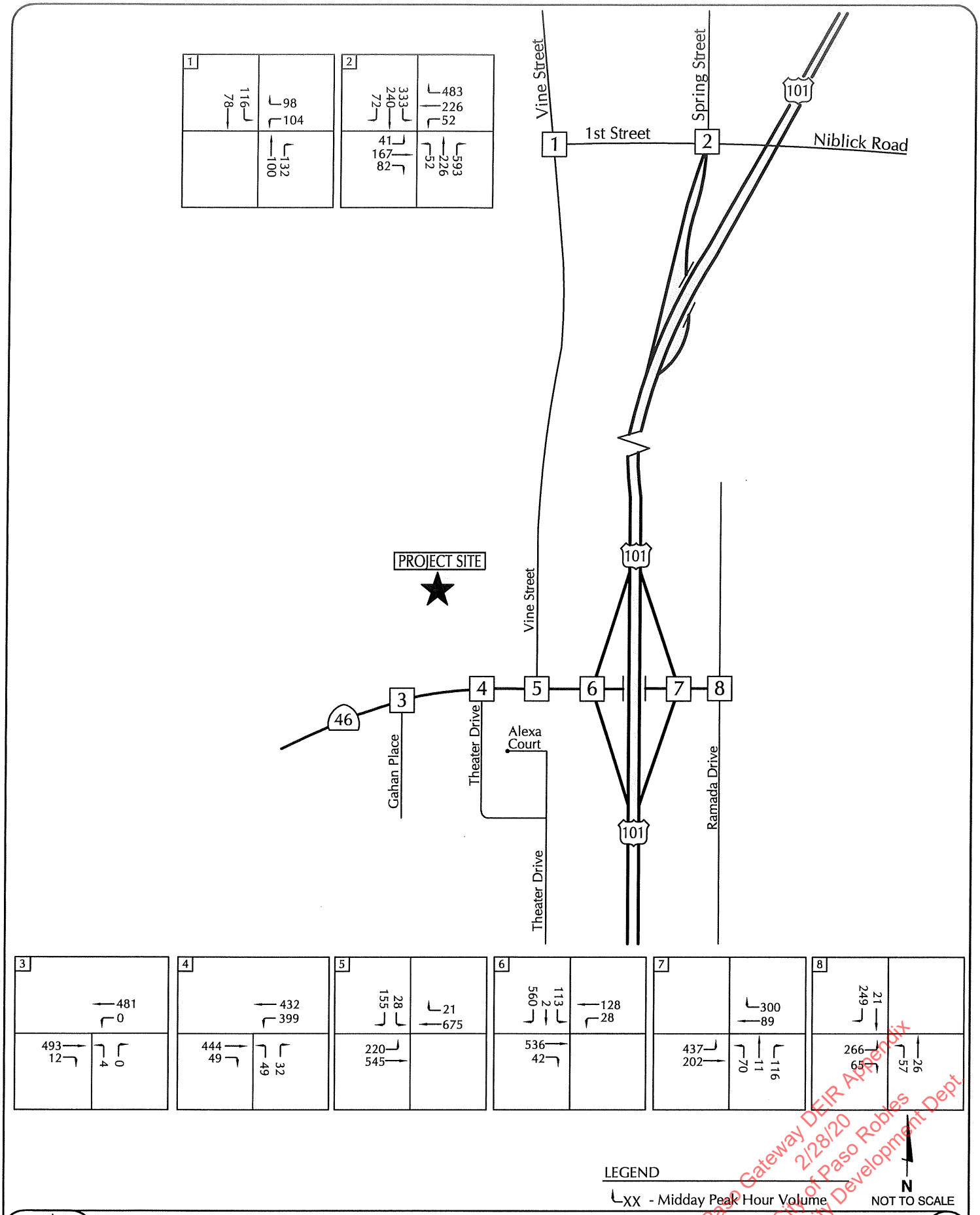

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EXISTING PEAK SUMMER SUNDAY TRAFFIC VOLUMES

FIGURE 15

EKM - ATE#18015

Existing Levels of Service

As shown in Table 28, the study-area intersections operate at LOS C or better during the Peak Summer Sunday peak hour period, which meet the adopted standards.

Table 28
Existing Intersection Operations – Peak Summer Sunday PM Peak Hour

Intersection	Control	Delay Per Vehicle/LOS(a)
Vine St/1st St	All-Way Stop	8.5 Sec./LOS A
US 101 Ramps-Spring St/1st St-Niblick Rd	Signal	18.0 Sec./LOS B
SR 46W/Gahan Pl	1-Way Stop	21.1 Sec./LOS C
SR 46W/Theatre Dr	Signal	13.3 Sec./LOS B
SR 46W/US 101 SB Ramps(b) SR 46W/Vine St(b)	Signal	32.6 Sec./LOS C
SR 46W/US 101 NB Ramps(c) SR 46W/Ramada Dr(c)	Signal	25.8 Sec./LOS C

a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit.
(c) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

Existing + Project Levels of Service

The Vine Street realignment proposed as part of the Project will alter traffic patterns at the SR 46W/Vine Street and SR 46W/Theatre Drive intersections. The Existing Peak Summer Sunday traffic volumes at these two intersections were reassigned assuming the realignment and Project traffic that would be generated on Sundays was added to those volumes in order to evaluate Existing + Project traffic conditions (see Technical Appendix for Sunday trip generation for the Project). Figure 16 shows the Project added trips at the study-area intersections and Figure 17 shows the Existing + Project traffic volumes for the Peak Summer Sunday peak hour period. As shown in Table 29, the study-area intersections are forecast to operate at LOS C or better assuming the Existing + Project Peak Summer Sunday peak hour traffic volumes, which meet the adopted standards.

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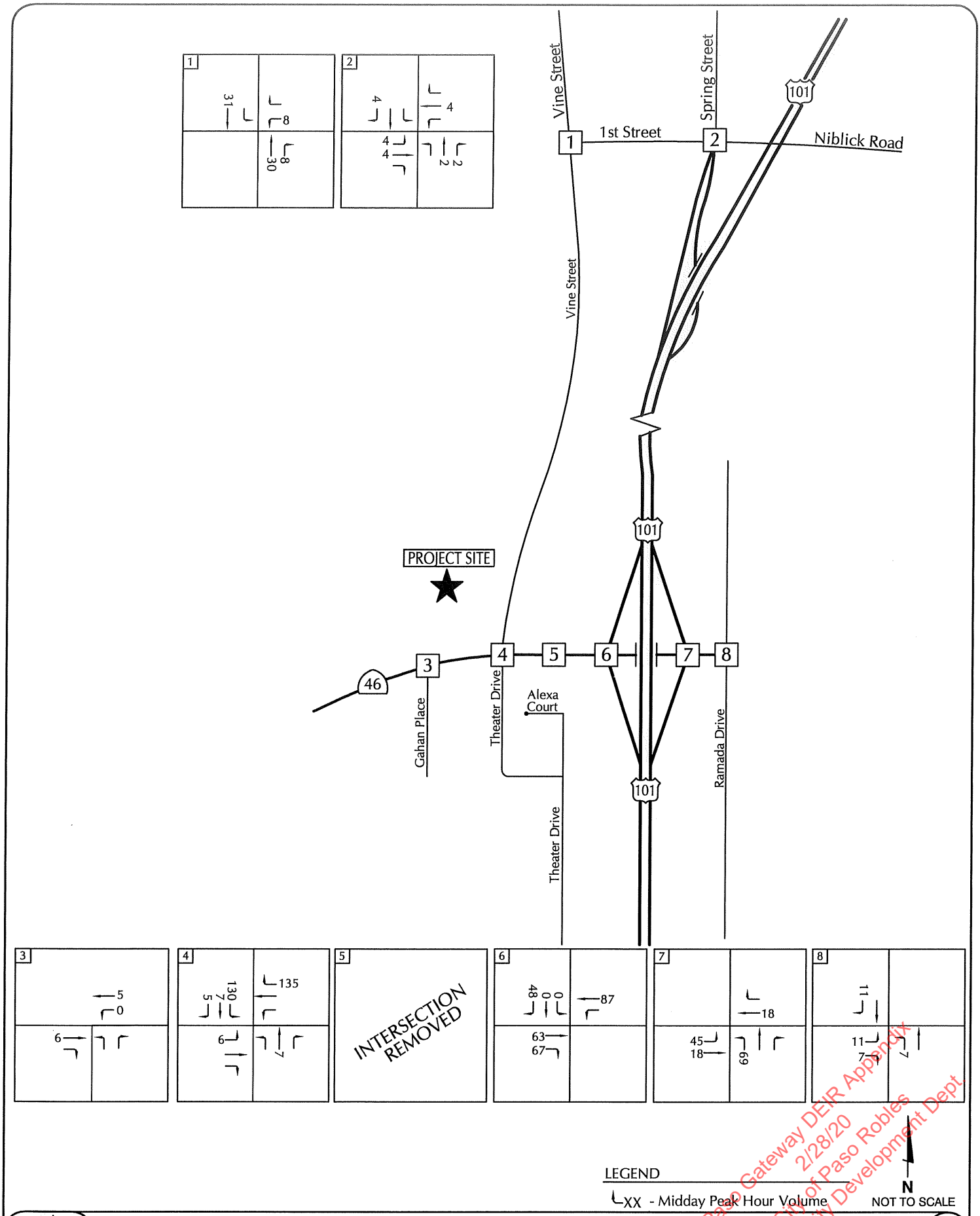

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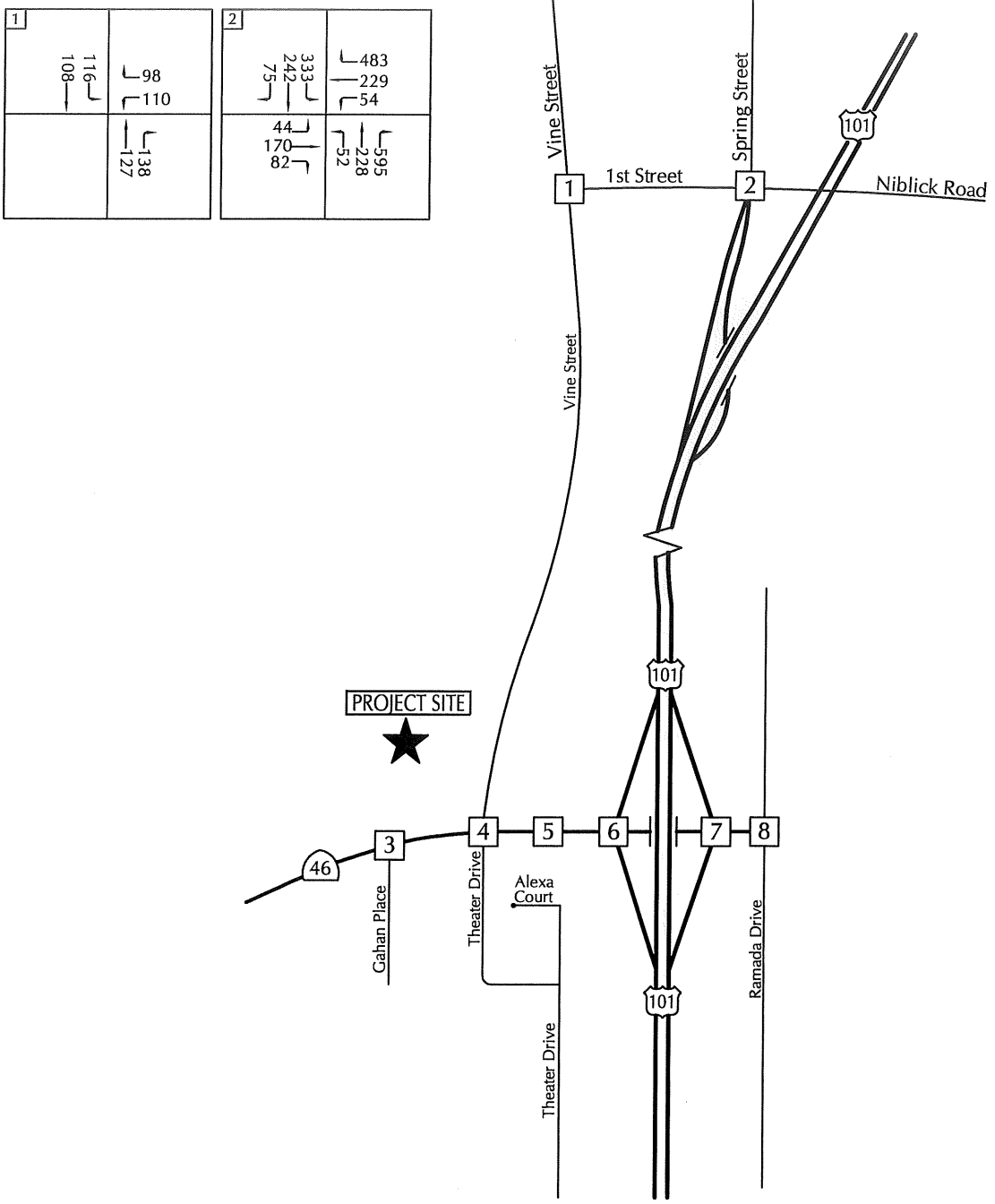
PROJECT ADDED PEAK SUMMER SUNDAY TRAFFIC VOLUMES

FIGURE 16

EKM - ATE#18015



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EXISTING + PROJECT PEAK SUMMER SUNDAY TRAFFIC VOLUMES

FIGURE 17

EKM - ATE#18015

Table 29
Existing + Project Peak Summer Sunday Peak Hour Intersection Operations

Intersection	Delay Per Vehicle/LOS(a)		Project Added		
	Existing	Existing + Project	Delay	Trips	Impact?
Vine St/1st St	8.5 Sec./LOS A	8.8 Sec./LOS A	0.3 Sec	77	NO
US 101 Ramps-Spring St/1st St-Niblick Rd	18.0 Sec./LOS B	18.2 Sec./LOS B	0.2 Sec	20	NO
SR 46W/Gahan Pl	21.1 Sec./LOS C	21.4 Sec./LOS C	0.3 Sec	11	NO
SR 46W/Theatre Dr(b)	13.3 Sec./LOS B	NA	NA	NA	NA
SR 46W/Theatre Dr-Vine St(b)	NA	24.0 Sec./LOS C	10.7 Sec	290	NO
SR 46W/US 101 SB Ramps(c) SR 46W/Vine St(c)	32.6 Sec./LOS C	NA	NA	NA	NA
SR 46W/US 101 SB Ramps(c)	NA	24.7 Sec./LOS C	-10.7 Sec	265	NO
SR 46W/US 101 NB(d) SR 46W/Ramada Dr(d)	25.8 Sec./LOS C	18.5 Sec./LOS B	-7.3 Sec	150	NO

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) Existing LOS for SR 46W/Theatre Drive intersection. Existing + Project LOS assumes Vine Street realignment.
(c) Existing LOS represents average delay per vehicle for all movements using the SR 46W/US 101 SB Ramps and SR 46W/Vine Street intersections since they operate as a single unit. Existing + Project LOS assumes Vine Street realignment.
(d) LOS represents average delay per vehicle for all movements using the SR 46W/US 101 NB Ramps and SR 46W/Ramada Drive intersections since they operate as a single unit.

Vehicle Queues

US 101 Ramps-Spring Street/1st Street-Niblick Road. Table 30 lists the peak queue predictions from the SIMTRAFFIC model for the US 101 NB Off-Ramp for the Peak Summer Sunday scenario.

Table 30
US 101 Off-Ramp @ Spring Street – Peak Summer Sunday Queue Forecasts (SIMTRAFFIC)

Intersection / Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
US 101 NB Off @ Spring St				
NB Left Turn Lane	45 Feet	60 Feet	190 Feet	No
NB Right #1 Lane	110 Feet	175 Feet	430 Feet	No
NB Right #2 Lane	130 Feet	190 Feet	210 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or ramp lanes.

As shown, the peak queues forecasted by the SIMTRAFFIC model are well within the storage capacity of the US 101 NB Off-Ramp at Spring Street. The field observations confirmed that the vehicle queues are within the storage provided on the off-ramp during the Peak Summer Sunday peak hour period.

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SR 46W/Theatre Drive-Vine Street. Table 31 lists the SIMTRAFFIC peak queue forecasts for the SR 46W/Theatre Drive intersection for the Existing Peak Summer Sunday scenario. Table 32 lists the Existing + Project peak queue forecasts from the SIMTRAFFIC forecasts for the SR 46W/Theatre Drive-Vine Street intersection with Vine Street realigned.

Table 31
SR 46W/Theatre Dr – Peak Summer Sunday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
SR 46 EB Thru	225 Feet	NA(c)	Unlimited	No
SR 46 EB Right Turn	45 Feet	NA(c)	175 Feet	No
SR 46 WB #1 Left Lane	70 Feet	NA(c)	350 Feet	No
SR 46 WB #2 Left Lane	110 Feet	NA(c)	350 Feet	No
SR 46 WB Thru	95 Feet	NA(c)	900 Feet	No
Theatre NB Left Turn	30 Feet	NA(c)	465 Feet	No
Theatre NB Right Turn	135 Feet	NA(c)	465 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segments.
(c) Existing + Project queue forecasts not applicable. See Table 32 for Existing + Project forecasts.

As shown, the Existing queues predicted by SIMTRAFFIC model do not exceed the storage lanes at SR 46W/Theatre Drive. The queue model forecasts a peak queue of 110 feet for the westbound SR 46 left turns, but the field observations found that the left-turn queue extended about 220 feet – longer than the queue model but within the storage provided. The field observations also found that the right-turn queue on northbound Theatre Drive extended to about 300 feet (longer than predicted by the model) but was accommodated within the storage provided.

The realignment of Vine Street with the new connection at the SR 46W/Theatre Drive intersection will improve operations and reduce delays and queuing at the intersection. Table 32 lists the Existing + Project peak queue forecasts from the SIMTRAFFIC model assuming the realignment of Vine Street.

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Table 32
SR 46W/Theatre Dr-Vine St – Peak Summer Sunday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
SR 46 EB Left Turn	NA(c)	105 Feet	150 Feet(d)	No
SR 46 EB Thru	NA(c)	190 Feet	Unlimited	No
SR 46 EB Right Turn	NA(c)	45 Feet	175 Feet	No
SR 46 WB #1 Left Lane	NA(c)	95 Feet	350 Feet	No
SR 46 WB #2 Left Lane	NA(c)	115 Feet	350 Feet	No
SR 46 WB Thru	NA(c)	175 Feet	900 Feet	No
SB 46 WB Right Turn	NA(c)	110 Feet	150 Feet(d)	No
Theatre NB Left Turn	NA(c)	55 Feet	140 Feet(e)	No
Theatre NB Right Turn	NA(c)	85 Feet	465 Feet	No
Vine SB Left Turn	NA(c)	130 Feet	150 Feet(d)	No
Vine SB Right Turn	NA(c)	45 Feet	150 Feet(d)	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segments.
(c) Existing queue forecasts not applicable. See Table 31 for Existing queue predictions.
(d) Intersection geometry has not been designed. Queue model assumes 150 feet of storage.
(e) Existing 140-foot left-turn lane in place but currently not used (LT pocket crosshatched for non-use under Existing conditions).

As shown, the Existing + Project peak queues forecasted by the SIMTRAFFIC model are within the storage capacities for the reconfigured SR 46W/Theatre Drive-Vine Street intersection. Although the intersection has not been designed with the Vine Street realignment, the SIMTRAFFIC queue model was coded with 150 feet of storage in the new turn lanes at the intersection in order to forecast vehicle queues. It is recommended that the peak queue forecasts for the new turning lanes at the intersection (turn lanes to/from realigned Vine Street) be considered when designing the intersection.

SR 46W/US 101 SB Ramps-Vine Street. Table 33 lists the SIMTRAFFIC peak queue forecasts for the SR 46W/US 101 SB Ramps-Vine Street intersection for the Existing Peak Summer Sunday scenario. Table 34 lists the SIMTRAFFIC peak queue forecasts for the SR 46W/US 101 SB Ramps intersection for the Existing + Project scenario with Vine Street realigned to the west.

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Table 33
SR 46W/Vine St/US 101 SB Ramps – Peak Summer Sunday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
SR 46 EB Left Turn	410 Feet	NA(c)	440 Feet	No
SR 46 EB Thru	640 Feet	NA(c)	885 Feet	No
Vine SB Left Turn	260 Feet	NA(c)	190 Feet	No
Vine SB Right Turn	100 Feet	NA(c)	Unlimited	No
US 101 SB Left Turn	520 Feet	NA(c)	400 Feet	Yes(d)
US 101 SB #1 Right Turn	405 Feet	NA(c)	620 Feet	No
US 101 SB #2 Right Turn	360 Feet	NA(c)	620 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segment.
(c) Existing + Project queue forecasts not applicable. See Table 34 for Existing + Project forecasts.
(d) Queue model prediction exceeds capacity, but field review found that queue is less than predicted by the model (see text below).

As shown, the peak queues forecasted by the SIMTRAFFIC model are within the storage capacities for most movements. The SIMTRAFFIC queue model predicts a queue of 520 feet for the left-turn lane on the US 101 SB Off-Ramp. The field observations found the left-turn queue at about 120 feet during the peak signal cycles and was accommodated within the left-turn lane. The queue model forecasts peak queues of 360 and 405 feet in two right-turn lanes on the US 101 SB Off-Ramp, but the field observations found that the right-turn queues extended to about 200 feet in the two right-turn lanes – less than the model and within the storage provided. The field observations also found that the eastbound SR 46 queue in the thru lane extended to Theatre Drive, about 890 feet. This queue resulted in northbound right turns from Theatre Drive being held at that intersection during some of the green phases for that movement (field observations found that the Theatre Drive northbound right-turn queue was affected by the eastbound SR 46 queue during peak cycles).

The realignment of Vine Street with the new connection at the SR 46W/Theatre Drive intersection will improve operations and reduce delays and queuing at this intersection. Table 34 lists the peak queue forecasts from the SIMTRAFFIC model assuming the realignment of Vine Street.

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Table 34
SR 46W/US 101 SB Ramps – Peak Summer Sunday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
SR 46 EB Thru	NA(c)	250 Feet	885 Feet	No
US 101 SB Left Turn	NA(c)	85 Feet	400 Feet	No
US 101 SB #1 Right Turn	NA(c)	210 Feet	620 Feet	No
US 101 SB #2 Right Turn	NA(c)	215 Feet	620 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segment. (c) Existing queue forecasts not applicable. See Table 33 for Existing forecasts.

As shown, the peak queues forecasted by the SIMTRAFFIC model for the Existing + Project scenario are within the storage capacities. The realignment of Vine Street to the west will reduce queuing at the intersection because of lower traffic demands that are controlled by the US 101/SR 46W signal system.

SR 46W/US 101 NB Ramps-Ramada Drive. Table 35 lists the SIMTRAFFIC peak queue forecasts for the east side of the SR 46W/US 101 interchange. The text following the table describes the actual queues measured in the field during the Peak Summer Sunday peak hour period.

Table 35
SR 46W/US 101 NB Ramps/Ramada Drive – Peak Summer Sunday Peak Hour Queue Forecasts (SIMTRAFFIC)

Movement	Peak Queue(a)		Storage Provided(b)	Queue Exceeds Storage?
	Existing	Existing + Project		
US 101 NB Left Turn	95 Feet	140 Feet	900 Feet	No
US 101 NB Right Turn	160 Feet	130 Feet	220 Feet	No
Ramada NB Left+Thru	405 Feet	495 Feet	Unlimited	No
Ramada SB Thru	505 Feet	535 Feet	Unlimited	No
Ramada SB Right	220 Feet	210 Feet	200 Feet	No

(a) 95% peak queue forecasts rounded up to nearest 5 feet.
(b) Storage provided in turn bays or storage provided on street segment.

As shown, the peak queues forecasted by the model do not exceed the storage lanes at the SR 46W/Ramada Drive/US 101 NB Ramps intersection for most movements. The queue forecast for the Ramada Drive southbound right-turn lane exceeds the 200-foot turn lane. However, the field observations found the peak queue extended to about 120 feet – which sometimes block outbound left turns from the Arco gas station site (damaging queue). Those left turns wait until the southbound Ramada Drive queue is cleared by the signal cycle.

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GENERAL PLAN BUILDOUT (YEAR 2045) ANALYSIS

Traffic Forecasts

General Plan Buildout (Year 2045) traffic forecasts were provided by Central Coast Transportation Consulting – the firm that developed the City's travel demand model for the Circulation Element Update. A copy of the Central Coast Transportation Consulting memorandum outlining the traffic forecasts is contained in the Technical Appendix for reference. In summary, the City's traffic model was compared to the most recent version of the SLOCOG travel model. The City's model has more local detail and more recent local land uses, while the SLOCOG model is intended for use on routes of regional significance. The forecasts from both models were similar, so a blended approach was taken relying on the City's model for local roads and applying adjustments for regional facilities (e.g. US 101 and SR 46W) based on SLOCOG model data where appropriate.

The General Plan Buildout model assumes the realignment of Vine Street opposite Theater Drive (Phase 2 of the SR 46W/US 101 interchange project) as well as installation of the two-lane roundabouts planned at the SR 46W/US 101 ramp intersections (Phase 3 of the interchange project). Figure 18 show the General Plan Buildout traffic forecasts and Figure 19 shows the General Plan Buildout + Project traffic forecasts.

General Plan Buildout Freeway Operations

Table 36 lists the AM and PM peak hour levels of service for US 101 for the General Plan Buildout and General Plan Buildout + Project scenarios.

Table 36
General Plan Buildout – Freeway Operations

Segment/Direction	Density/LOS(a)				Impact?
	AM Peak Hour		PM Peak Hour		
	GP Buildout	GP Buildout + Project	GP Buildout	GP Buildout + Project	
US 101 - North of SR 46W					
Northbound	**28.3/LOS D**	**28.7/LOS D**	**44.7/LOS E**	**>45/LOS F**	NO
Southbound	**40.9/LOS E**	**41.9/LOS E**	**42.5/LOS E**	**43.7/LOS E**	
US 101 - South of SR 46W					
Northbound	24.0/LOS C	24.6/LOS C	**30.2/LOS D**	**31.1/LOS D**	NO
Southbound	**30.1/LOS D**	**30.8/LOS D**	**30.2/LOS D**	**31.2/LOS D**	

Bold Values exceed Caltrans LOS C target.
(a) Density in passenger car equivalents per lane per mile. LOS based on density pursuant to HCM.

As shown, traffic flows on the segments of US 101 north and south of SR 46W are forecast to operate at LOS D or worst during the AM and/or PM peak periods with General Plan Buildout and General Plan Buildout + Project traffic. The addition of Project traffic would increase the density on these segments by less than two passenger cars per lane per mile.

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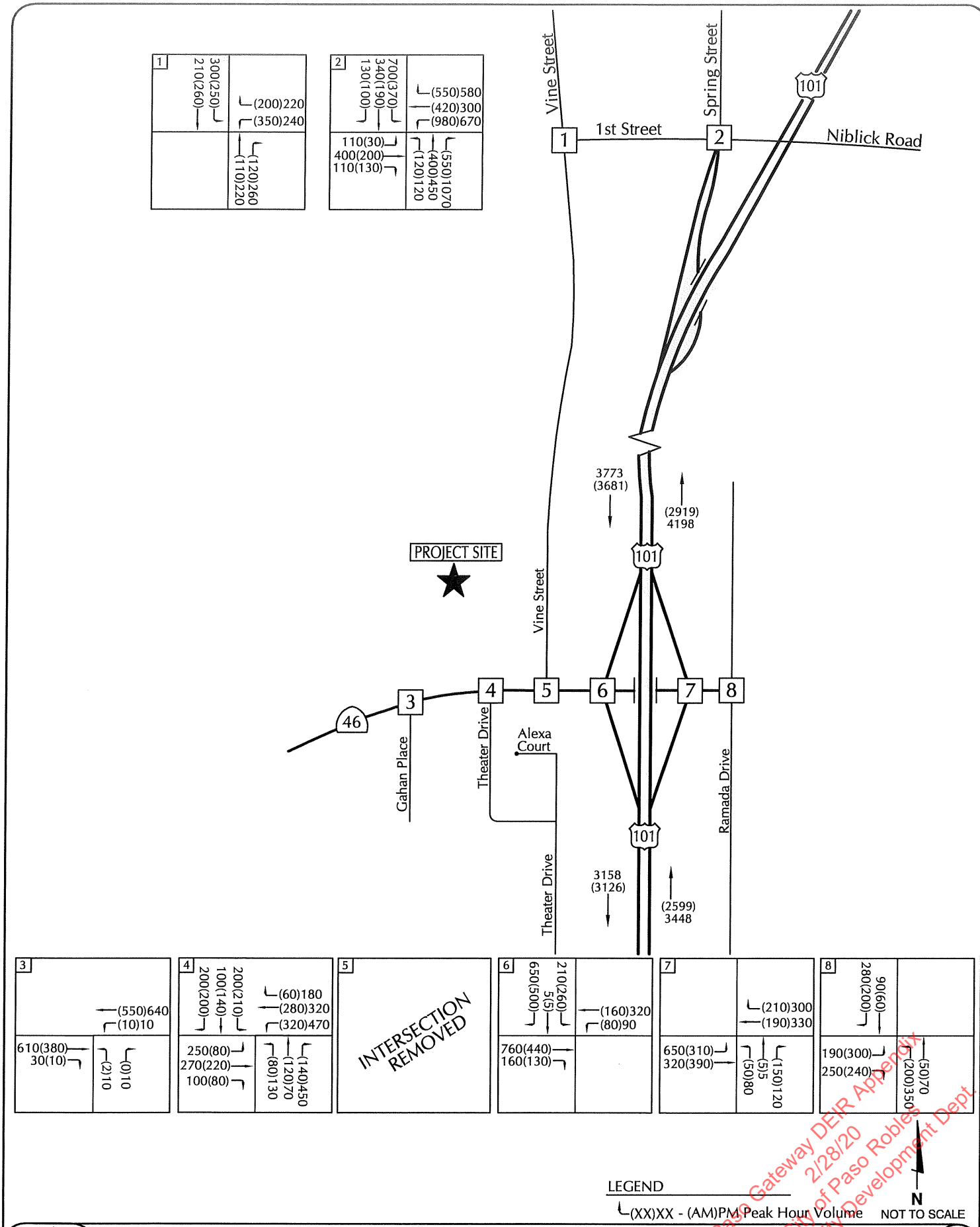

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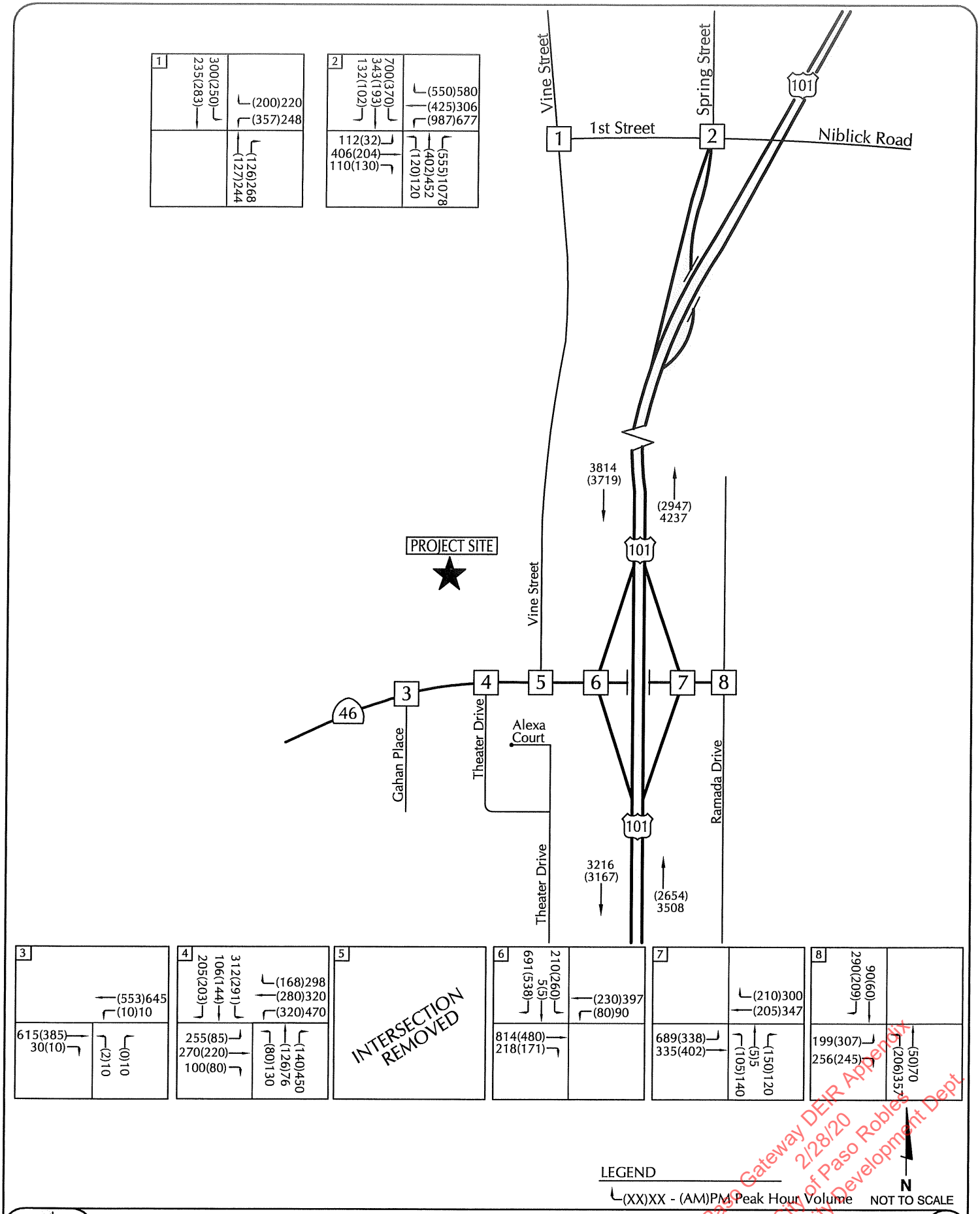
ASSOCIATED TRANSPORTATION ENGINEERS

GENERAL PLAN BUILDOUT TRAFFIC VOLUMES

FIGURE 18

EKM - ATE#18015



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ASSOCIATED TRANSPORTATION ENGINEERS

GENERAL PLAN + PROJECT BUILDOUT TRAFFIC VOLUMES

FIGURE 19

EKM - ATE#18015

Recommendation: Development of mitigation measures will require Caltrans coordination. Recommendations are discussed in detail under Mitigation Measures.

General Plan Buildout Intersection Operations

Table 37 compares the AM and PM peak hour levels of service for the study-area intersections for the General Plan Buildout and General Plan Buildout + Project scenarios (level of service worksheets are contained in the Technical Appendix).

Table 37
General Plan Buildout – Intersection Operations

Intersection	Delay Per Vehicle/LOS(a)			
	AM Peak		PM Peak	
	GP Buildout	GP Buildout + Project	GP Buildout	GP Buildout + Project
Vine St/1st St	25.7 Sec./LOS D	28.7 Sec./LOS D	20.9 Sec./LOS C	22.7 Sec./LOS C
US 101 Ramps-Spring St/1st St-Niblick Rd	**37.2 Sec./LOS D**	**37.3 Sec./LOS D**	**46.0 Sec./LOS D**	**46.2 Sec./LOS D**
SR 46W/Gahan Pl	24.7 Sec./LOS C	**25.2 Sec./LOS D**	23.4 Sec./LOS C	24.0 Sec./LOS C
SR 46W/Theatre Dr-Vine St	23.2 Sec./LOS C	25.4 Sec./LOS C	29.0 Sec./LOS C	33.0 Sec./LOS C
SR 46W/US 101 SB Ramps(b)	7.9 Sec./LOS A	7.5 Sec./LOS A	12.4 Sec./LOS B	16.2 Sec./LOS C
SR 46W/US 101 NB Ramps/Ramada Dr(b)	6.5 Sec./LOS A	7.3 Sec./LOS A	14.0 Sec./LOS B	18.5 Sec./LOS C

(a) LOS based on average delay per vehicle in seconds pursuant to HCM operations methodology.
(b) Roundabout LOS represents average delay per vehicle in seconds pursuant to HCM operation methodology.

Table 37 shows that the US 101 Ramps-Spring Street/1st Street-Niblick Road intersection is forecast to operate at LOS D during the PM peak hour with and without Project traffic. The Project would add 0.2 seconds of delay to the intersection. Three legs of this intersection are within the City (Spring Street, 1st Street, & Niblick Road) and the US 101 ramps are under Caltrans jurisdiction. The LOS D operations meets the City standard but exceeds the Caltrans LOS C standard. The Project would add 10 vehicles to the off-ramp approach during the PM peak hour period.

Recommendation: Development of mitigation measures will require Caltrans coordination. Recommendations are discussed under Mitigation Measures.

Table 37 also shows that the SR 46W/Gahan Place intersection is forecast to operate at the low end of LOS D (LOS D = 25.1-35.0 seconds) during the AM peak hour period with General Plan Buildout + Project traffic. The reported LOS D represents the average delay for vehicles turning left from Gahan Place onto SR 46W. A total of 10 vehicles are forecast to turn left from Gahan Place onto SR 46W. The Paso Robles Gateway Project would not add any vehicles to this movement. Since the intersection would not warrant improvements to reduce delays for the low volume approach (e.g. traffic signals or a median left-turn lane), the impact is considered less than significant and no recommendations are provided to modify the intersection.

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SR 46W/US 101 Roundabouts. As noted, the levels of service for the SR 46W/US 101 interchange in Table 37 assumes the realignment of Vine Street opposite Theater Drive (Phase 2 of the SR 46W/US 101 interchange project) as well as installation of the roundabouts planned at the SR 46W/US 101 interchange (Phase 3 of the interchange project) that were identified by Caltrans in their Project Approval-Environmental Document (PE-ED) that was prepared in 2006. The roundabouts identified in the PA-ED were two-lane roundabouts.

The San Luis Obispo Council of Governments recently prepared a feasibility study to reassess the operational feasibility, right of way impacts, and cost estimate of the potential roundabouts.[6] The draft report concluded that a single-lane roundabout on the east side of the interchange (US 101 NB ramp terminal) would provide LOS C or better operations through the design year for all of the time periods; and a single-lane roundabout of the west side of the interchange (US 101 SB ramp terminal) would provide LOS B or better operations through the design year for all of the time periods. In summary, the analysis concluded that single-lane roundabouts at the ramp terminals would accommodate the design year traffic forecasts without the need for widening the undercrossing.

CITY OF PASO ROBLES CIRCULATION ELEMENT CONSISTENCY

Pursuant to Goal CE-1 of the City of Paso Robles Circulation Element (2011), *"The purpose of the circulation system is to maintain and enhance safe and efficient person mobility in the City. To support this goal, the 2011 Circulation Element Update changes how the performance of the transportation network is measured by de-emphasizing an auto-centric measure (level of service or LOS) in favor of measures that represent a more efficient use of resources, support the mobility of people, quality of life and small town feel desired by residents."*

Vehicular Traffic

For automobile traffic, the Circulation Element assessed future vehicular traffic projections in terms of roadway capacity utilization on a daily basis. Key roadways, which form the basis of the City's circulation network, were identified and analyzed to determine if the future General Plan buildout traffic volumes could be accommodated by the existing roadways or if the roadway network needs to be expanded.

Theatre Drive, Vine Street and Ramada Drive are part of the City's circulation network. Table 38 lists the City's roadway classifications, the acceptable capacities, the General Plan Buildout + Project traffic volumes, and volume-to-capacity (v/c) ratios for the City streets adjacent to the Project site. The analysis applies the roadway capacities and v/c ratio methods outlined in the City's Circulation Element Update.

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[6] US 101/SR 46W Roundabout Interchange Feasibility Report, Draft for Review, San Luis Obispo Council of Governments, undated.

Table 38
City of Paso Robles Circulation Element Roadway Analysis

Roadway Segment	Roadway Class	Acceptable Capacity(a)	GP Buildout + Project Volume	V/C Ratio
Theatre Dr s/o SR 46W	2-Lane Arterial	21,700 ADT(b)	13,320 ADT	0.61
Vine St n/o SR 46W	2-Lane Arterial	17,700 ADT	11,230 ADT	0.63
Ramada Dr n/o SR 46W	2-Lane Local	9,600 ADT	6,490 ADT	0.68
Ramada Dr s/o SR 46W	2-Lane Local	9,600 ADT	7,730 ADT	0.81

(a) Acceptable Capacity rating from City of Paso Robles Circulation Element.
(b) Capacity based on presence of a raised median or two-way left-turn lane.

As shown, the General Plan Buildout + Project traffic volume forecasts for the City's streets are within their respective capacity designations. The results indicate that General Plan Buildout + Project traffic volumes would be accommodated and not trigger the need for widening to add capacity for the future traffic forecasts.

Alternative Travel Modes

Many of the goals and policies in the City's Circulation Element are intended to promote alternative travel modes, including walking, biking, and transit. The following text addresses pedestrian, bicycle, and transit facilities in the Project study area.

Pedestrians. Pedestrian activity in the vicinity of the Project site is relatively light (see Figure 5), which can be attributed to the rural nature of the area. The Project includes construction of sidewalk along the west side of the realigned Vine Street and sidewalks are currently in place on both sides of Theatre Drive street south of SR 46W. Thus, sidewalk facilities would be provided for pedestrians walking along Vine Street adjacent to the Project site as well as pedestrian walking to the commercial uses along Theatre Drive.

Bicycles. Bicycle activity in the Project study area is also relatively light. Bicycle counts collected in the study area show less than 5 bicyclists traveling along the SR 46W corridor between Theatre Drive and US 101 during the AM and PM peak hour periods (see Figure 6). Paved shoulders are provided along SR 46W for bicyclists using that corridor. Similarly, less than 5 bicyclists were observed traveling along the Vine Street-Theatre Drive corridor (see Figure 6). Bike lanes are provided along Vine Street and along Theatre Drive for uses by bicyclists generated by the proposed Project.

Transit. The City of Paso Robles is served by the Paso Express transit system. Paso Express is a fixed-route transit service that operates along designed routes with the City. The system includes Routes A and B that run throughout the City, however the routes do not extend to the Project study area. Instead, the Paso Express system connects riders to the San Luis Obispo Regional Transportation Agency (SLORTA) system for travel outside of the City.

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The Paso Express connects with SLORTA Route 9, which travels northbound and southbound between the City of Paso Robles and the communities to the south (e.g. Templeton, Atascadero, Santa Margarita and San Luis Obispo). Route 9 buses run at about 1-hour headways and there is a bus stop at the Target Shopping Center just south of the Project site for transit users. It is recommended that the applicant coordinate with the City and SLORTA to determine if the transit providers desire to place a new transit stop on Vine Street in the vicinity of the Project site.

PROJECT PHASING

The Project is proposed in two phases. Phase 1 would include the Vine Street Vineyard Hotel (Area 1), the Village Commercial Center (Area 2), the Hillside Hotel (Area 3), and the Promontory Commercial Center (Area 4). Phase 2 would include, the Resort Community (Area 5) and the Vine Street Commercial (Area 6).

The impact analyses presented above found that full development of the Project (Phases 1 and 2) would not generate significant impacts to the study-area streets and intersections under Existing + Project and Cumulative + Project conditions during the weekday AM/PM peak commuter periods, the Peak Summer Friday peak hour period and the Peak Summer Sunday peak hour period. Therefore, Phase 1 of the Project would also not generate significant impacts.

The phasing analysis assumes the realignment of Vine Street, which is a component of the Project. Without the Vine Street realignment, development of Phase 1 would result in project-specific impacts at the US 101/SR 46W/Vine Street intersection. The mitigation would be the realignment of Vine Street by the Project.

COUNTY OF SAN LUIS OBISPO IMPACTS

US 101/Main Street Interchange

Potential impacts were assessed for the US 101/Main Street interchange located in the County area adjacent to Templeton about 1.7 miles south of the US 101/SR 46W interchange. Table 39 lists the Existing AM and PM peak hour vehicle delays and levels of service for the US 101/Main Street interchange. These levels of service were derived from a traffic study that was prepared for a proposed development in the Templeton area of San Luis Obispo County.[7]

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[7] Traffic and Circulation Study for Ruth Way Subdivision Project, Associated Transportation Engineers, February 2017.

Table 39
US 101/Main Street – Existing Intersection Operations

Intersection/Movement	Control	Delay / LOS	
		AM Peak Hour	PM Peak Hour
Main Street/Theatre Drive	Stop Sign		
Eastbound Main		7.8 Sec/LOS A	7.9 Sec/LOS A
Westbound Main		7.3 Sec/LOS A	7.3 Sec/LOS A
Northbound Theatre		8.9 Sec/LOS A	8.9 Sec/LOS A
Southbound Theatre		12.0 Sec/LOS B	15.0 Sec/LOS B
Intersection LOS		**11.8 Sec/LOS B**	**14.6 Sec/LOS B**
Main Street/US 101 SB	Stop Sign		
Westbound Main		8.1 Sec/LOS A	8.9 Sec/LOS A
Southbound Off-Ramp		16.1 Sec/LOS C	30.5 Sec/LOS D
Intersection LOS		**11.4 Sec/LOS B**	**15.5 Sec/LOS C**
Main Street/US 101 NB	Stop Sign		
Eastbound Main		8.1 Sec/LOS A	8.4 Sec/LOS A
Northbound Off-Ramp		10.5 Sec/LOS B	18.8 Sec/LOS C
Intersection LOS		**9.2 Sec/LOS A**	**13.7 Sec/LOS B**
Main Street/Ramada Drive	Stop Sign		
Eastbound Main		8.5 Sec/LOS A	8.2 Sec/LOS A
Southbound Ramada		10.4 Sec/LOS B	9.6 Sec/LOS A
Intersection LOS		**9.0 Sec/LOS A**	**8.8 Sec/LOS A**

(a) LOS based on average delay per vehicle in seconds pursuant to operations method outlined in HCM.

As shown, the intersections that comprise the US 101/Main Street interchange currently operate at LOS C or better, which meet the Caltrans and County LOS C standard for the interchange. Given the location of the Project site, traffic to/from the Project would use the US 101/SR 46W interchange for freeway access rather than the US 101/Main Street interchange located 1.7 miles to the south. Thus, the Project would not significantly impact the US 101/Main Street interchange.

Ramada Drive

The segment of Ramada Drive south of SR 46W extends into the County of San Luis Obispo. Ramada Drive is forecast to carry about 7,730 ADT south of SR 46W assuming General Plan Buildout + Project conditions, which equates to LOS C operations. The analysis shows that the Project would not significantly impact operations on the segment of Ramada Drive located in the County south of SR 46W.

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MITIGATION MEASURES

US 101

Existing traffic flows on the segment of US 101 north of SR 46W operate at LOS D during the AM and/or PM peak periods, which exceeds Caltrans' LOS C target for US 101 (see Table 4). These same segments would continue to operate at LOS D with Existing + Project, Cumulative, and Cumulative + Project traffic (see Tables 10 & 16). The segment of US 101 north of SR 46W are forecast to degrade to LOS E-F under General Buildout conditions; and the segment of US 101 south of SR 46W are forecast to degrade to LOS C-D under General Buildout conditions (see Table 36). The addition of Project traffic would increase the density on these segments by less than one passenger car per lane per mile.

Development of mitigation measures and improvement recommendations will require Caltrans coordination. Widening the mainline to a six-lane facility would be required to provide LOS C or better and meet the Caltrans standard. However, widening to a six-lane facility has not been identified in any SLOCOG nor Caltrans studies.

The US 101 Corridor Mobility Study identified LOS D-E for the northbound segments and LOS D for the southbound off-ramp diverge under 2035 conditions; however, no improvements were identified.

The US 101 Transportation Concept Report for this segment found that in the Year 2035 demand is projected to exceed capacity in both the northbound and southbound directions between the urbanized area of Atascadero and south of the Paso Robles urban boundary. The report identifies the following improvement options:

- Interchange improvements
- Parallel route development
- Ramp and auxiliary lane improvements
- Enhanced transit and rail service
- Transportation Demand Management (TDM)
- Transportation System Management (TSM)

Ramp improvements or metering may be an alternative in addition to Transportation Demand Management (TDM) and Transportation System Management (TSM) strategies.

US 101 Ramps-Spring Street/1st Street-Niblick Road

This intersection currently operates at LOS C during the AM peak period and LOS D during the PM peak period; and is forecast to degrade to LOS D during the AM and PM peak periods with General Plan Buildout conditions. LOS D operations exceeds the Caltrans LOS C standard. Three legs of this intersection are within the City (Spring Street, 1st Street, & Niblick Road) and the US 101 on- and off-ramps are under Caltrans jurisdiction.

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The traffic volumes and signal operations show that optimizing the signal timing for the intersection would provide LOS C (or better) operations with Existing + Project and Cumulative + Project traffic. Implementation of this mitigation would require Caltrans coordination since the US 101 ramps are under Caltrans jurisdiction. Table 40 lists the delays and levels of service with the signal timing optimized.

The City's Circulation Element includes corridor improvements on Niblick Road and Spring Street. The Project would be required to make a fair-share contribution to the future improvements at the intersection by contributing to the City's impact fee program.

Table 40
US 101-Spring Street/1st Street-Niblick Road - Mitigated LOS

Scenario	Delay / LOS (PM Peak Hour)		
	Existing + Project	Cumulative + Project	GP Buildout + Project
Existing Signal Timing	35.7 Sec./LOS D	37.5 Sec./LOS D	46.2 Sec./LOS D
Optimized Signal Timing	21.2 Sec./LOS C	21.3 Sec./LOS C	36.6 Sec./LOS D

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STUDY PARTICIPANTS AND REFERENCES

Associated Transportation Engineers

Richard L. Pool, PE, Associated Transportation Engineers
Scott A. Schell, AICP, PTP, Associated Transportation Engineers
Dan Dawson, Associated Transportation Engineers
Erica Monson, Associated Transportation Engineers

References

Highway Capacity Manual, Transportation Research Board, 2016.

Caltrans Guide for the Preparation of Traffic Impact Studies, Caltrans, 2002.

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Traffic and Circulation Study for the Alexa Court Hotel Project, Associated Transportation Engineers, 2017.

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ASSOCIATED TRANSPORTATION ENGINEERS

Memo

To: Richard Daulton, Rincon Consultants

From: Dan Dawson, ATE

cc: David Athey, City of Paso Robles

Date: February 4, 2020

Re: Paso Robles Gateway Project – Supplemental Traffic Analyses

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This memo provides supplemental level of service and impact analyses for the US 101/Main Street interchange located in San Luis Obispo County about 1.7 miles to the south of the Paso Robles Gateway Project. The traffic study prepared for the Gateway Project found that the intersections that comprise the US 101/Main Street interchange operate at LOS C or better, which meet the LOS C standard used by Caltrans and the LOS D standard adopted by San Luis Obispo County for the Templeton planning area.

The County provided historical information that showed that the US 101 NB Ramp/Main Street intersection operates at LOS D and the US 101 SB Ramp/Main Street intersection operates at LOS F (County memo attached for reference).

The following supplemental level of service and impact analyses is based on more current data contained in the Project Study Report-Project Development Support (PSR-PDS) prepared for the US 101/Main Street interchange by Caltrans and the County in 2018.[1] The purpose of the PSR-PDS document is to evaluate alternatives that would provide LOS C (or better) operations with existing and future traffic.

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1 Project Study Report-Project Development Support, Caltrans District 5, Approved June 2018.

EXISTING CONDITINOS

As derived from the PSR-PDS, Table A lists the levels of service for the four intersections that comprise the US 101/Main Street interchange.

Table A
US 101/Main Street – Existing Levels of Service

Intersection/Movement	Traffic Controls	Delay / LOS	
		AM Peak Hour	PM Peak Hour
Main Street/Theatre Drive			
Northbound Theatre	Stop Sign	5.1 Sec/LOS A	6.8 Sec/LOS A
Southbound Theatre		7.8 Sec/LOS B	9.5 Sec/LOS A
Eastbound Main		7.9 Sec/LOS A	10.0 Sec/LOS B
Westbound Main		1.5 Sec/LOS A	3.4 Sec/LOS A
Main Street/US 101 SB			
Southbound Off-Ramp	Stop Sign	22.1 Sec/LOS C	**35.1 Sec/LOS E**
Eastbound Main		0.0 Sec/LOS A	0.0 Sec/LOS A
Westbound Main		8.5 Sec/LOS A	8.6 Sec/LOS A
Main Street/US 101 NB			
Northbound Off-Ramp	Stop Sign	14.7 Sec/LOS B	**38.5 Sec/LOS E**
Eastbound Main		8.2 Sec/LOS A	8.7 Sec/LOS A
Westbound Main		0.0 Sec/LOS A	0.0 Sec/LOS A
Main Street/Ramada Drive			
Southbound Ramada	Stop Sign	6.6 Sec/LOS A	17.2 Sec/LOS C
Eastbound Main		0.4 Sec/LOS A	23.7 Sec/LOS C
Westbound Main		12.1 Sec/LOS B	13.8 Sec/LOS B

Source: Project Study Report-Project Development Support, Caltrans District 5, 2018.
Bolded values exceed Caltrans LOS C standard and County LOS D standard.

Table A shows that the average vehicle delays at the four intersections are mostly within acceptable levels at LOS C or better during the AM and PM peak hours of operations. However, delays for the northbound and southbound off-ramps are greater than the Caltrans LOS C standard and County LOS D standard during the PM peak hour (LOS E for both off-ramps during the PM peak hour).

IMPACT CRITERIA

San Luis Obispo County Standard

The County has adopted LOS D as the minimum standard for traffic operations in the Templeton area, with mitigation required for LOS E and LOS F operations.

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Caltrans Standard

The Caltrans minimum standard for traffic operations is the cusp of LOS C/D (LOS C or better is considered acceptable). An impact is considered significant if the Project adds traffic to facilities that operate at LOS D, E and F.

PROJECT IMPACTS

A "select-zone" model run was prepared by Central Coast Transportation Consulting (the firm that maintains the City's traffic model) to determine the amount of traffic that would be added to the US 101/Main Street interchange by the Paso Robles Gateway Project (model plot attached for reference). The model shows that the Paso Robles Gateway Project traffic would use US 101 and Ramada Drive when traveling to/from the Templeton community. Tables B and C show the number of trips that would be added to each of the intersections that comprise the US 101/Main Street interchange during the AM and PM peak hour periods.

Table B
US 101/Main Street – Gateway Traffic Impacts – AM Peak Hour

Intersection/Movement	Existing LOS	Gateway Traffic Additions	
		# Trips	Significant Impact?
Main Street/Theatre Drive			
Northbound Theatre	5.1 Sec/LOS A	0	No
Southbound Theatre	7.8 Sec/LOS B		
Eastbound Main	7.9 Sec/LOS A		
Westbound Main	1.5 Sec/LOS A		
Main Street/US 101 SB			
Southbound Off-Ramp	22.1 Sec/LOS C	2	No
Eastbound Main	0.0 Sec/LOS A		
Westbound Main	8.5 Sec/LOS A		
Main Street/US 101 NB			
Northbound Off-Ramp	14.7 Sec/LOS B	5	No
Eastbound Main	8.2 Sec/LOS A		
Westbound Main	0.0 Sec/LOS A		
Main Street/Ramada Drive			
Southbound Ramada	6.6 Sec/LOS A	7	No
Eastbound Main	0.4 Sec/LOS A		
Westbound Main	12.1 Sec/LOS B		

As shown in Table B, the minor amount of traffic added by the Gateway Project during the AM peak hour would not generate significant impacts since the intersections operate at LOS C or better during the AM peak period, which meets the Caltrans LOS C standard and County LOS D standard.

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Table C
US 101/Main Street – Gateway Traffic Impacts – PM Peak Hour

Intersection/Movement	Existing LOS	Gateway Traffic Additions	
		# Trips	Significant Impact?
Main Street/Theatre Drive			
Northbound Theatre	6.8 Sec/LOS A	0	No
Southbound Theatre	9.5 Sec/LOS A		
Eastbound Main	10.0 Sec/LOS B		
Westbound Main	3.4 Sec/LOS A		
Main Street/US 101 SB			
Southbound Off-Ramp	**35.1 Sec/LOS E**	3	**YES**
Eastbound Main	0.0 Sec/LOS A		
Westbound Main	8.6 Sec/LOS A		
Main Street/US 101 NB			
Northbound Off-Ramp	**38.5 Sec/LOS E**	6	**YES**
Eastbound Main	8.7 Sec/LOS A		
Westbound Main	0.0 Sec/LOS A		
Main Street/Ramada Drive			
Southbound Ramada	17.2 Sec/LOS C	8	No
Eastbound Main	23.7 Sec/LOS C		
Westbound Main	13.8 Sec/LOS B		

Bolded values exceed Caltrans LOS C standard and County LOS D standard.

As shown in Table C, the Paso Robles Gateway Project would add 3 trips to the Main Street/US 101 SB Ramps intersection and 6 trips to the Main Street/US 101 NB Ramps intersection during the PM peak period. These impacts are considered significant since these intersections operate at LOS E, which exceed the Caltrans LOS C standard and County LOS D standard.

MITIGATION MEASURES

Caltrans and the County are working cooperatively to provide improvements to the US 101/Main Street interchange, which would mitigate the Gateway Project's impacts. As discussed above, Caltrans and the County prepared a PSR-PDS for the interchange, which is the first step in the planning process. Subsequent steps includes preparation of studies for Project Approval and Environmental Document (PA & ED); and then funding must be secured for construction of the improvements. The improvements will be designed to provide LOS C (or better) operations with existing and future traffic. Given that Caltrans and the County are moving forward with the interchange improvement project, the Paso Robles Gateway Project's impacts would be short-term in nature – until the interchange improvements are implemented.

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COUNTY OF SAN LUIS OBISPO
Department of Public Works
John Diodati, *Interim Director*

September 3, 2019

Mr. David Athey, City Engineer
Community Development Department
City of Paso Robles
1000 Spring Street
Paso Robles, CA 93446

Subject: Department of Public Works Comments on ATE June 2019 Traffic and Circulation Study for the Paso Robles Gateway Project

Dear Mr. Athey:

Thank you for the opportunity to provide comments on the subject report. The report has been reviewed by several divisions of the Department of Public Works and this letter represents a consolidated response. Our comments regarding the Revised Traffic and Circulation Study (June 17, 2019) are as follows:

1. ATE should consult and use for reference the US 101/SR 46W Roundabout Interchange Feasibility Report. This study was based on criteria for build-out traffic agreed to by SLOCOG, the County, and the City of Paso Robles. It is not clear if the ATE work had the same level of assessment done.

2. Page 14 under "Internal Capture Trips" section; the model assumption of 17% for a.m. and 24% for p.m. is rather high. Given the segmented site development, there is no way for the trips to remain on-site and must come out onto Vine Street at a minimum. Moreover, lodging as predominant use would also peak to reducing the internal trips percentage. Would advise to use no more than 10% in all cases.

3. On page 20, Table 11 and 12 denote a higher level of services than Table 5, indicating existing LOS of the interchange. How can that be? Specifically, the southbound ramp intersection is noted as LOS C in Table 5 but LOS B in Tables 11 and 12.

4. Table 20/21 for summer Friday peak hour traffic shows LOS C for the combined northbound ramps plus Ramada Drive intersection. Why combine this information now versus previous tables? This is not reflective of the GHD analysis where this is LOS D given the capacity need for northbound ramp westbound access and the Ramada Drive turning traffic.

5. Table 37 LOS results for build-out is not reflective of results of the GHD interchange study. ATE results show for build-out (2045) the existing interchange at LOS C; again, the northbound combined with Ramada. The GHD study has much degraded LOS with twice

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the projected delay. Specifically, the northbound ramps in ATE are at LOS C with an 18.5 second delay. The GHD study has northbound ramps at LOS F and an 83.5 second delay. For the southbound ramps, the ATE result is LOS C with a 16.2 second delay. GHD study is LOS E at a 60.2 second delay. Why such a difference?

6. Table 39 is not reflective of measured traffic volumes by the County on the Main Street interchange. ATE cites its own study for development on Ruth Way and concludes interchange operating at LOS B. The attached report for the County's Resource Management System would indicate a much worse picture of LOS D/E. Please incorporate this information and use as reference. The County has traffic counts it can readily supply to ATE.

The Department of Public Works seeks the study to be revised and resubmitted for review. Please contact Dave Flynn at (805) 781-4463 for questions related to these comments. Traffic counts can be requested from Michael Britton at (805) 788-2318.

Sincerely,

MARK DAVIS
Engineer IV

Attachment: Level of Service for RMS Memo

c: John Larson
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Richard Pool
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File: CF 830.45.01

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Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

MEMORANDUM

Date: September 18, 2018

TO: Jan Di Leo, Project Manager Resource Summary Report

FROM: Michelle Matson, Traffic Engineer

SUBJECT: **Level of Service Update for the Resource Management System**

Introduction

The Public Works Department provides Roadway and Interchange level of service (LOS) data to the Planning Department for inclusion in the Resource Management System (RMS) Report. The results of the analysis are described in the following sections.

Interchange LOS

The analysis provided is from the area Circulation Studies which are typically updated every five (5) years. The objective of the Circulation Studies are to forecast future capacity demands on the transportation system and the roadway improvements necessary to correct deficiencies. A key element of the study is defining the necessary Capital Improvement Project (CIP) Program and development of Road Improvement Fees (RIF) to support the program. The studies are located at https://www.slocounty.ca.gov/Departments/Public-Works/Services/Traffic-Circulation-Studies.aspx.

The interchange analysis provided considers existing and buildout conditions. Improving the operation or efficiency of an interchange can take between 10 and 20 years. This is due to the long lead times needed to coordinate with Caltrans, acquire right-of-way, complete construction documents, secure funding and seek stakeholder buy-in. Therefore, it has been prudent for Public Works to plan for these kinds of improvements through General Plan buildout.

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Table 1 contains the existing and buildout interchange operations in the Avila Beach, South County and Templeton areas.

Table 1 – RMS Interchange Levels of Service (LOS)

US 101 Interchange	Existing		Buildout		
	SB Ramps	NB Ramps	SB Ramps	NB Ramps	Level of Severity
State Highway 46 West*	B*	C*	C*	C*	II
Main St	**F**	**D**	**F**	**F**	III
Las Tablas Rd*	B	B	*C	*C	I
Vineyard Dr	C	C	C	C	n/a
San Luis Bay Dr	B	**E**	B	**F**	III
Avila Beach Dr	**D**	A	**F**	B	III
Los Berros/Thompson	C	C	C	**E**	I
Willow Rd	B	C	C	**D**	I
Tefft St	**D**	C	**F**	**F**	III
US Highway 166	C	B	**F**	**E**	II

Bold - LOS D or below
*Although LOS delay for single node is acceptable, there are queuing deficiencies due to corridor.
NOTE: Source of information is 2017 Templeton Circulation Study, 2016 Draft Avilla Valley Circulation Study and 2015 South County Circulation Study

Six (6) of the ten interchanges are forecasted to operate at LOS D or below under buildout conditions. The following summarizes each of the interchanges and future CIPs.

- State Highway 46 West, Paso Robles: The City of Paso Robles relocated Theater Drive, one of the western frontage roads, which has relieved some congestion. However, Ramada Drive east of the freeway remains in close proximity to the northbound ramps and queuing exceeds storage. The Templeton Circulation Study has identified a CIP to modify the Highway 46 interchange and the program is currently collecting the areas fair share. Roundabouts are anticipated at this location.

- Main Street, Templeton: Main Street operates an unacceptable LOS in existing and buildout conditions. The Public Works Department is currently completing a Project Study Report and Project Development Study (PSR-PDS) with Caltrans to determine the preferred project alternative. Interchange improvements at this location are included in the Templeton Circulation Study.

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- Las Tablas Road, Templeton: Although the LOS is acceptable there are queuing deficiencies at the intersection. The Templeton Circulation Study and RIF program include an improvement to widen Las Tablas Road between Bennett Way and the US 101 SB off ramps to increased capacity through the signalized intersections.

- Vineyard Drive, Templeton: No intersection or interchange improvements are identified at this time.

- San Luis Bay Drive, Avila Beach: The San Luis Bay Drive/US 101 Southbound Ramps are configured such that the intersection is in close proximity to the Ontario Road intersection. During peak hour periods, the interchange severely constrained and extensive queuing occurs on the side-street and ramp approaches. There is also a high number of collisions at the adjacent intersection of San Luis Bay Drive and Ontario Road. Public Works has initiated an Intersection Control Evaluation (ICE) at this location to identify short and long-term improvements.

- Avila Beach Drive: The Avila Beach Drive/US 101 Southbound Ramps are configured such that the on-ramp forms a T-intersection just east of the US 101 Southbound Off-Ramp/Shell Beach Road intersection. During peak hour periods, the intersection is severely constrained and extensive queuing occurs on the ramps, causing significant delays and safety concerns. The Public Works Department completed a PSR/PDS with Caltrans and has entered into a contract with the Wallace Group to perform the Project Approval and Environmental Document (PA&ED) phase of this project. PA&ED is anticipated in Spring 2020.

- Los Berros Road: Traffic signals or other intersection improvements are included in the South County Circulation Study at the northbound and southbound ramps.

- Willow Road: Traffic signals are included in the South County Circulation Study at the northbound and southbound ramps.

- Tefft Street: Public Works will be overlaying Tefft Street in 2017 and is working toward operational improvements. The South County Circulation Study contains additional interchange improvements including possible bridge widening, realigning ramp terminals, modifying Frontage Road access and additional turn lanes.

- US Highway 166: Roundabouts at the northbound and southbound ramps are included in the South County Circulation Study. Improvements

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Roadway Segment LOS

Table 2 contains the minimum two-way volume for LOS D operations as well as the 2018 peak hour volumes and the projected 2020 and 2023 volumes for roadway segments in the RMS system.

Table 2 – RMS Road Segment Levels of Service

Roadway	Location	LOS D Volume	Peak Hour Volume 2018	2020	2023	Level of Severity
Avila Beach Dr	West of San Luis Bay Dr	1280*	757	788	836	n/a
Corbett Canyon Rd	North of A.G.C.L	909	427	444	471	n/a
Halcyon Rd	North of Camino del Rey	898	416	433	459	n/a
Halcyon Rd	South of A.G Creek	904	**928**	**965**	**1025**	**III**
Las Tablas Rd	West of Duncan Rd	1600	1076	1119	1188	n/a
Lopez Dr	South of Orcutt Rd	886	514	535	567	n/a
Los Berros Rd	South of El Campo Rd	978	**1224**	**1273**	**1351**	**III**
Los Osos Valley Rd	West of Foothill Blvd	1475	1380	1436	**1524**	**I**
Los Ranchos Rd	West of Highway 227	968	555	577	613	n/a
Main St (Cambria)	East of Pine Knolls Dr	1450	1046	1088	1155	n/a
Mission St	North of Highway 101	1200	542	564	598	n/a
Nacimiento Lake Dr	East of Chimney Rock Rd	902	458	477	506	n/a
O'Connor Way	North of Foothill Rd	1084	308	320	340	n/a
Paso Robles St	East of Highway 1	900	131	136	145	n/a
Price Canyon Rd	South of Highway 227	995	979	**1019**	**1081**	**II**
Ramada Dr	South of Highway 46	900	490	510	541	n/a
South Bay Blvd	South State Park Rd	967	**1329**	**1383**	**1467**	**III**
South Ocean Ave	North of 13th St	1200	413	430	456	n/a
Tank Farm Rd	West of Highway 227	1200	**1564**	**1627**	**1727**	**III**
Tefft St	West of Mary Ave	2000	1199	1247	1324	n/a
Vineyard Dr	West of Highway 46	905	297	309	328	n/a
Vineyard Dr	West of Highway 101	1200	898	934	991	n/a

Bold - LOS D or below

* Avila Beach Drive calculation is based on formula in area plan. All other values are derived from the Highway Capacity Manual (HCM)

Six (6) of the twenty-two RMS roadways operate at LOS D or below under the 2016, 2018, or 2021 conditions.

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Table 3 summarizes the 2006 through 2018 RMS peak hour volumes for comparison. In 2018, 7-day volume counts were collected in late April and again in late June to account for seasonal variability. The 2018 volumes included in Table 2 represent the maximum peak hour collected.

Table 3 – 2006 to 2018 RMS Traffic Volumes

		Peak Hour Volumes							
Road	Location	2006	2008	2010	2012	2014	2016	Spring 2018	Summer 2018
Avila Beach Dr	W of San Luis Bay Dr	969	820	692	447	1160	933	757	-
Corbett Canyon Rd	N of AG City Limit	438	295	258	231	291	395	384	427
Halcyon Rd	N of Camino del Rey	628	442	423	486	-	446	416	340
Halcyon Rd	S of AG Creek	817	866	956	852	884	968	928	881
Las Tablas Rd	W of Duncan Rd	1185	1359	1378	1268	1426	1455	1076	1053
Lopez Dr	S of Orcutt Rd	403	294	290	353	-	467	374	514
Los Berros Rd	S of El Campo	609	547	578	525	527	768	1224	815
Los Osos Valley Rd	W of Foothill Blvd	1483	1435	1437	1445	1427	1418	1380	1267
Los Ranchos Rd	W of SR 227	395	512	583	593	-	364	555	370
Main St (Cambria)	E of Pine Knolls Dr	1257	903	924	854	703	790	748	1046
Mission St	N of US 101	305	402	382	368	442	435	542	498
Nacimiento Lake Dr	E of Chimney Rock Rd	568	394	493	464	400	441	450	458
O'Connor Way	N of Foothill Rd	199	446	165	278	355	245	308	-
Paso Robles St	E of SR 1	162	151	152	182	-	165	130	131
Price Canyon Rd	S of SR 227	852	792	805	740	-	1027	979	928
Ramada Dr	S of SR 46	565	475	514	606	547	604	489	490
South Bay Blvd	S State Park Rd	1389	1315	1310	1289	1135	1434	1329	1264
South Ocean Ave	N of 13th St	528	397	499	471	439	508	413	406
Tank Farm Rd	W of SR 227	1891	1763	1668	1858	1896	1854	1549	1564
Tefft St	W of Mary Ave	1628	1723	1728	1680	1057	1526	1199	1040
Vineyard Dr	W of SR 46	155	170	236	209	214	274	293	297
Vineyard Dr	W of US 101	700	938	1020	1017	804	1002	898	581

Six (6) of the twenty-two RMS roadways operate at LOS D or below under the 2016, 2018, or 2021 conditions; these include:

- Halcyon Road (North of Camino Del Rey/South of Arroyo Grande Creek): Public Works is pursuing funding for shoulder widening on the grade.

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- Los Berros: The peak hour volume on Los Berros has nearly doubled over previous years and will need to be monitored. Improvements are included in the South County Circulation Study to widen the roadway and install a two-way left turn lane and bike lanes.

- Los Osos Valley Road (West of Foothill): Los Osos Valley Road operates at LOS E when analyzed as a two-lane roadway. However, Los Osos Valley Road has two (2), one (1) mile long passing relief lanes which provide a LOS benefit. There is currently no funding to construct the widening.

- Price Canyon: Public Works completed shoulder widening between State Highway 227 and Ormonde Road and completed the Class II bike lanes between State Route 227 and the Pismo Beach City Limits. As congestion on US 101 continues additional traffic will use Price Canyon Road.

- South Bay Boulevard (South of State Park Road): The Los Osos Circulation Study includes widening of South Bay Boulevard from Los Osos Valley Road to the Urban Reserve Line. Funds from Los Osos Road Improvement Fees are necessary for the widening; however, the improvement fees are stagnant pending community growth.

- Tank Farm Road (West of State Route 227): The City of San Luis Obispo is planning to widen this portion to four lanes under the Airport Area Specific Plan.

The following roadways are projected to operate at LOS C or better for the foreseeable future:

- Avila Beach Drive
- Corbett Canyon Road
- Halcyon Road (North of Camino del Rey)
- Lopez Drive
- Las Tablas Road
- Los Ranchos Road
- Main Street (Cambria)
- Mission Street
- Nacimiento Lake Drive
- O'Connor Way
- Paso Robles Street
- Ramada Drive

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- South Ocean Avenue
- Tefft Street
- Vineyard Drive (West of Highway 46)
- Vineyard Drive (West of Highway 101)

The roadway RMS methodology does not accurately predict urban conditions. In addition to interchange operations, intersection operations in most of the unincorporated urban areas is covered in the area circulation studies.

Please feel free to contact Michelle Matson at 788-2830 if you have any questions.

File: Traffic Engineering – General (CF 790.10.02)

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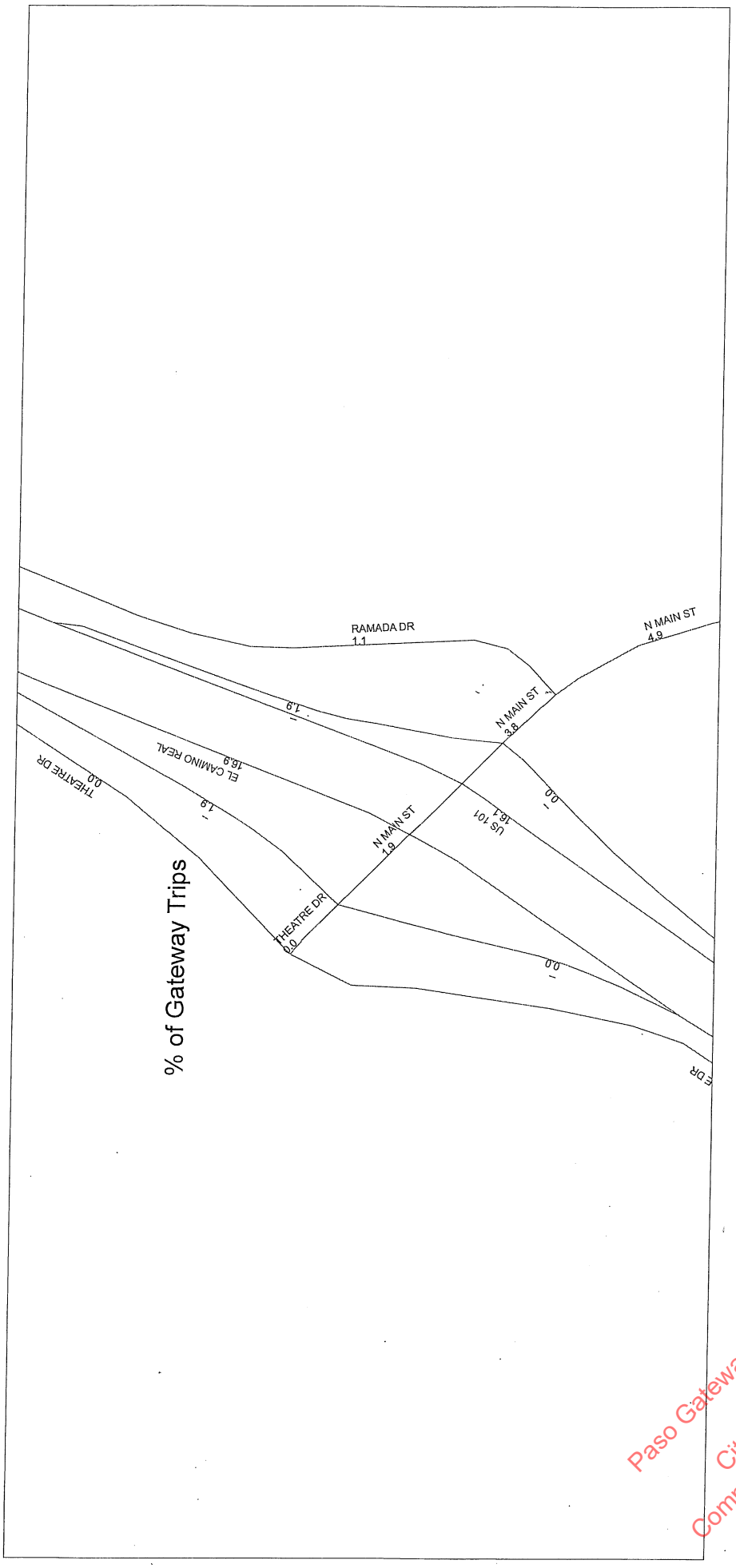

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ASSOCIATED TRANSPORTATION ENGINEERS

Memo

To: Richard Daulton, Rincon Consultants

From: Dan Dawson, ATE

cc: David Athey, City of Paso Robles

Date: February 18, 2020

Re: Paso Robles Gateway Project – Supplemental Traffic Analyses

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This memo provides supplemental level of service and impact analyses for the US 101/Main Street interchange located in San Luis Obispo County about 1.7 miles to the south of the Paso Robles Gateway Project. The traffic study prepared for the Gateway Project found that the intersections that comprise the US 101/Main Street interchange operate at LOS C or better, which meet the LOS C standard used by Caltrans and the LOS D standard adopted by San Luis Obispo County for the Templeton planning area.

The County provided historical information that showed that the US 101 NB Ramp/Main Street intersection operates at LOS D and the US 101 SB Ramp/Main Street intersection operates at LOS F (County memo attached for reference).

The following supplemental level of service and impact analyses is based on more current data contained in the Project Study Report-Project Development Support (PSR-PDS) prepared for the US 101/Main Street interchange by Caltrans and the County in 2018.[1] The purpose of the PSR-PDS document is to evaluate alternatives that would provide LOS C (or better) operations with existing and future traffic.

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1 Project Study Report-Project Development Support, Caltrans District 5, Approved June 2018.

EXISTING CONDITINOS

As derived from the PSR-PDS, Table A lists the levels of service for the four intersections that comprise the US 101/Main Street interchange.

Table A
US 101/Main Street – Existing Levels of Service

Intersection/Movement	Traffic Controls	Delay / LOS	
		AM Peak Hour	PM Peak Hour
Main Street/Theatre Drive			
Northbound Theatre	Stop Sign	5.1 Sec/LOS A	6.8 Sec/LOS A
Southbound Theatre		7.8 Sec/LOS B	9.5 Sec/LOS A
Eastbound Main		7.9 Sec/LOS A	10.0 Sec/LOS B
Westbound Main		1.5 Sec/LOS A	3.4 Sec/LOS A
Main Street/US 101 SB			
Southbound Off-Ramp	Stop Sign	22.1 Sec/LOS C	**35.1 Sec/LOS E**
Eastbound Main		0.0 Sec/LOS A	0.0 Sec/LOS A
Westbound Main		8.5 Sec/LOS A	8.6 Sec/LOS A
Main Street/US 101 NB			
Northbound Off-Ramp	Stop Sign	14.7 Sec/LOS B	**38.5 Sec/LOS E**
Eastbound Main		8.2 Sec/LOS A	8.7 Sec/LOS A
Westbound Main		0.0 Sec/LOS A	0.0 Sec/LOS A
Main Street/Ramada Drive			
Southbound Ramada	Stop Sign	6.6 Sec/LOS A	17.2 Sec/LOS C
Eastbound Main		0.4 Sec/LOS A	23.7 Sec/LOS C
Westbound Main		12.1 Sec/LOS B	13.8 Sec/LOS B

Source: Project Study Report-Project Development Support, Caltrans District 5, 2018.
Bolded values exceed Caltrans LOS C standard and County LOS D standard.

Table A shows that the average vehicle delays at the four intersections are mostly within acceptable levels at LOS C or better during the AM and PM peak hours of operations. However, delays for the northbound and southbound off-ramps are greater than the Caltrans LOS C standard and County LOS D standard during the PM peak hour (LOS E for both off-ramps during the PM peak hour).

IMPACT CRITERIA

San Luis Obispo County Standard

The County has adopted LOS D as the minimum standard for traffic operations in the Templeton area, with mitigation required for LOS E and LOS F operations.

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Caltrans Standard

The Caltrans minimum standard for traffic operations is the cusp of LOS C/D (LOS C or better is considered acceptable). An impact is considered significant if the Project adds traffic to facilities that operate at LOS D, E and F.

PROJECT IMPACTS

A "select-zone" model run was prepared by Central Coast Transportation Consulting (the firm that maintains the City's traffic model) to determine the amount of traffic that would be added to the US 101/Main Street interchange by the Paso Robles Gateway Project (model plot attached for reference). The model, which includes the Vine Street Realignment, shows that the Paso Robles Gateway Project traffic would use US 101 and Ramada Drive when traveling to/from the Templeton community. Tables B and C show the number of trips that would be added to each of the intersections that comprise the US 101/Main Street interchange during the AM and PM peak hour periods.

Table B
US 101/Main Street – Gateway Traffic Impacts – AM Peak Hour

Intersection/Movement	Existing LOS	Gateway Traffic Additions	
		# Trips	Significant Impact?
Main Street/Theatre Drive			
Northbound Theatre	5.1 Sec/LOS A	0	No
Southbound Theatre	7.8 Sec/LOS B		
Eastbound Main	7.9 Sec/LOS A		
Westbound Main	1.5 Sec/LOS A		
Main Street/US 101 SB			
Southbound Off-Ramp	22.1 Sec/LOS C	2	No
Eastbound Main	0.0 Sec/LOS A		
Westbound Main	8.5 Sec/LOS A		
Main Street/US 101 NB			
Northbound Off-Ramp	14.7 Sec/LOS B	5	No
Eastbound Main	8.2 Sec/LOS A		
Westbound Main	0.0 Sec/LOS A		
Main Street/Ramada Drive			
Southbound Ramada	6.6 Sec/LOS A	8	No
Eastbound Main	0.4 Sec/LOS A		
Westbound Main	12.1 Sec/LOS B		

As shown in Table B, the minor amount of traffic added by the Gateway Project during the AM peak hour would not generate significant impacts since the intersections operate at LOS C or better during the AM peak period, which meets the Caltrans LOS C standard and County LOS D standard.

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Table C
US 101/Main Street – Gateway Traffic Impacts – PM Peak Hour

Intersection/Movement	Existing LOS	Gateway Traffic Additions	
		# Trips	Significant Impact?
Main Street/Theatre Drive			
Northbound Theatre	6.8 Sec/LOS A	0	No
Southbound Theatre	9.5 Sec/LOS A		
Eastbound Main	10.0 Sec/LOS B		
Westbound Main	3.4 Sec/LOS A		
Main Street/US 101 SB			
Southbound Off-Ramp	**35.1 Sec/LOS E**	3	**YES**
Eastbound Main	0.0 Sec/LOS A		
Westbound Main	8.6 Sec/LOS A		
Main Street/US 101 NB			
Northbound Off-Ramp	**38.5 Sec/LOS E**	6	**YES**
Eastbound Main	8.7 Sec/LOS A		
Westbound Main	0.0 Sec/LOS A		
Main Street/Ramada Drive			
Southbound Ramada	17.2 Sec/LOS C	10	No
Eastbound Main	23.7 Sec/LOS C		
Westbound Main	13.8 Sec/LOS B		

Bolded values exceed Caltrans LOS C standard and County LOS D standard.

As shown in Table C, the Paso Robles Gateway Project would add 3 trips to the Main Street/US 101 SB Ramps intersection and 6 trips to the Main Street/US 101 NB Ramps intersection during the PM peak period. These impacts are considered significant since these intersections operate at LOS E, which exceed the Caltrans LOS C standard and County LOS D standard.

MITIGATION MEASURES

Caltrans and the County are working cooperatively to provide improvements to the US 101/Main Street interchange, which would mitigate the Gateway Project's impacts. As discussed above, Caltrans and the County prepared a PSR-PDS for the interchange, which is the first step in the planning process. Subsequent steps includes preparation of studies for Project Approval and Environmental Document (PA & ED); and then funding must be secured for construction of the improvements. The improvements will be designed to provide LOS C (or better) operations with existing and future traffic. Given that Caltrans and the County are moving forward with the interchange improvement project, the Paso Robles Gateway Project's impacts would be short-term in nature – until the interchange improvements are implemented.

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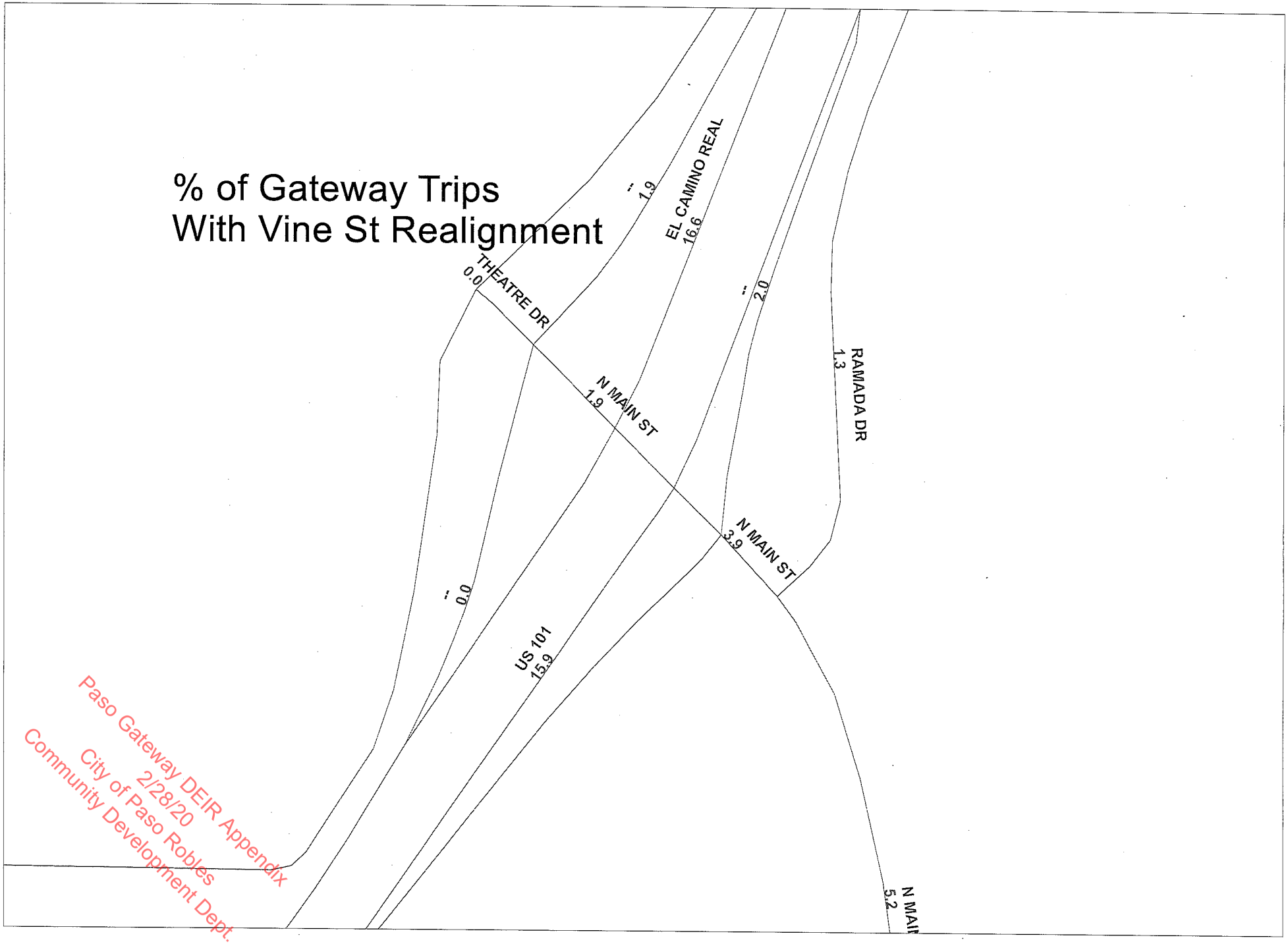
% of Gateway Trips
With Vine St Realignment
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U.S. Highway 101/State Route 46 West
Interchange Modification Project

District 05-SLO-101, PM 53.8/54.5

District 05-SLO-46, PM R21.5/R22.0

EA 05-451300

SCH # 2008051102

Initial Study with Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact

Prepared by the

State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by the California Department of Transportation under its assumption of responsibility pursuant to 23 U.S. Code 327.

December 2009

Caltrans

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SCH# 200805112
05-SLO-101, PM 53.8/54.5
05-SLO-46, PM R21.5/R22.0
EA 05-451300

Interchange improvements in and near the City of El Paso De Robles
at the U.S. Highway 101/State Route 46 West interchange

U.S. HIGHWAY 101/STATE ROUTE 46 WEST INTERCHANGE MODIFICATION PROJECT

INITIAL STUDY WITH MITIGATED NEGATIVE DECLARATION/ ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S. Code 4332(2)(C) and 23 U.S. Code 327

THE STATE OF CALIFORNIA
Department of Transportation

12/9/09
Date of Approval

Richard Krumholz
District 5 Director
California Department of Transportation

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California Department of Transportation

Finding of No Significant Impact

For

U.S. Highway 101/State Route 46 West
Interchange Modification Project

The California Department of Transportation (Caltrans), as delegated by the Federal Highway Administration, has determined that Build Alternative 2 will have no significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Assessment, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached Environmental Assessment and incorporated technical reports (and other documents as appropriate).

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S. Code 327.

12/9/09
Date

Richard Krumholz
District 5 Director
California Department of Transportation

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Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to relieve local and regional circulation problems and reduce existing and future congestion by improving the US 101/State Route 46 West interchange ramps, and relocating Theatre Drive to a new intersection with State Route 46 West, west of its current location. The interchange reconstruction would convert the existing compact diamond interchange signal-controlled ramp intersections into roundabouts. Adjacent frontage roads would be either redirected into the new roundabouts or relocated away from the interchange. The proposed project does not include any modifications to the US 101 through lanes. Improvements would be made to all four on- and off-ramps in the interchange to achieve the desired geometry and traffic operations.

Determination

Caltrans has prepared an Initial Study for this project and, following public review, has determined from this study that the project would not have a significant effect on the environment for the following reasons.

The proposed project would have no effect on mineral resources; land use and planning; population and housing; or parks and recreational facilities.

In addition, the proposed project would have no significant effect on land use and growth; agriculture; cultural and paleontological resources; community cohesion; hydrology and floodplains; utilities and service systems; relocations; geology/soils/seismic/topography; threatened and endangered species; invasive species; waters of the U.S.; hazardous waste materials; air quality; noise; water quality and storm water runoff; traffic and transportation; pedestrian and bicycle facilities; or climate change.

Furthermore, the proposed project would have no significantly adverse effect on aesthetic resources and biological resources because the proposed mitigation measures would reduce potential effects to insignificance.

Impacts on aesthetics would be mitigated by:

- Implementing a landscape and revegetation plan as part of the preliminary and final project design to address affected oak trees and tree and vegetation replanting or removal.
- Limiting project lighting so it is sufficient for safety and directed to minimize light and glare impacts.
- Aesthetic treatments to the wall along the south side of State Route 46 West and the retaining wall associated with the existing drainage.

Impacts on biological resources would be mitigated by:

- Replacement of impacted oak trees at a 10:1 ratio with coordination from Caltrans landscape architecture unit. Oak trees would be replanted on the same property the trees are removed from, to the extent practicable.

12/9/09
Date

Jennifer H. Taylor
Office Chief, Central Region
Environmental South
California Department of Transportation

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General Information About This Document

This document contains a Mitigated Negative Declaration and Finding of No Significant Impact, which examine the environmental effects of a proposed project on U.S. Highway 101/State Route 46 West in San Luis Obispo County.

The Initial Study/Environmental Assessment and proposed Mitigated Negative Declaration were circulated to the public from May 27, 2008 to July 11, 2008. Comment letters were received on the draft document. Responses to the circulated document are shown in the Comments and Responses section of this document (Appendix G), which has been added since the draft. Elsewhere throughout this document, a line in the margin indicates a change made since the draft document circulation.

What happens after this?

The proposed project has completed environmental compliance after the circulation of this document. When funding is approved, the California Department of Transportation, as assigned by the Federal Highway Administration, can design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to the Department of Transportation, Attn: Kelso Vidal, Environmental Analysis Branch, 50 Higuera Street, San Luis Obispo, CA 93401; (805) 542-4671 Voice, or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

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05-SLO-101, PM 53.8/54.5
05-SLO-46, PM R21.5/R22.0
EA 05-451300

Interchange improvements in and near the City of El Paso De Robles
at the U.S. Highway 101/State Route 46 West interchange

U.S. HIGHWAY 101/STATE ROUTE 46 WEST INTERCHANGE MODIFICATION PROJECT

INITIAL STUDY WITH MITIGATED NEGATIVE DECLARATION/ ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S. Code 4332(2)(C) and 23 U.S. Code 327

THE STATE OF CALIFORNIA
Department of Transportation

Date of Approval	Richard Krumholz District 5 Director California Department of Transportation

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California Department of Transportation

Finding of No Significant Impact

For

U.S. Highway 101/State Route 46 West
Interchange Modification Project

The California Department of Transportation (Caltrans), as delegated by the Federal Highway Administration, has determined that Build Alternative 2 will have no significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Assessment, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached Environmental Assessment and incorporated technical reports (and other documents as appropriate).

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S. Code 327.

_____
Date

_____
Richard Krumholz
District 5 Director
California Department of Transportation

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Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to relieve local and regional circulation problems and reduce existing and future congestion by improving the US 101/State Route 46 West interchange ramps, and relocating Theatre Drive to a new intersection with State Route 46 West, west of its current location. The interchange reconstruction would convert the existing compact diamond interchange signal-controlled ramp intersections into roundabouts. Adjacent frontage roads would be either redirected into the new roundabouts or relocated away from the interchange. The proposed project does not include any modifications to the US 101 through lanes. Improvements would be made to all four on- and off-ramps in the interchange to achieve the desired geometry and traffic operations.

Determination

Caltrans has prepared an Initial Study for this project and, following public review, has determined from this study that the project would not have a significant effect on the environment for the following reasons.

The proposed project would have no effect on mineral resources; land use and planning; population and housing; or parks and recreational facilities.

In addition, the proposed project would have no significant effect on land use and growth; agriculture; cultural and paleontological resources; community cohesion; hydrology and floodplains; utilities and service systems; relocations; geology/soils/seismic/topography; threatened and endangered species; invasive species; waters of the U.S.; hazardous waste materials; air quality; noise; water quality and storm water runoff; traffic and transportation; pedestrian and bicycle facilities; or climate change.

Furthermore, the proposed project would have no significantly adverse effect on aesthetic resources and biological resources because the proposed mitigation measures would reduce potential effects to insignificance.

Impacts on aesthetics would be mitigated by:

- Implementing a landscape and revegetation plan as part of the preliminary and final project design to address affected oak trees and tree and vegetation replanting or removal.
- Limiting project lighting so it is sufficient for safety and directed to minimize light and glare impacts.
- Aesthetic treatments to the wall along the south side of State Route 46 West and the retaining wall associated with the existing drainage.

Impacts on biological resources would be mitigated by:

- Replacement of impacted oak trees at a 10:1 ratio with coordination from Caltrans landscape architecture unit. Oak trees would be replanted on the same property the trees are removed from, to the extent practicable.

Date

Jennifer H. Taylor
Office Chief, Central Region
Environmental South
California Department of Transportation

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Summary

Effective July 1, 2007, the California Department of Transportation has been assigned environmental review and consultation responsibilities under the National Environmental Policy Act pursuant to 23 U.S.C. 327.

The City of El Paso de Robles (City) and the surrounding County of San Luis Obispo (County) area have begun to experience substantial commercial and industrial development in the southern portion of the City adjacent to the U.S. Highway 101 (US 101)/State Route 46 West interchange. The California Department of Transportation, in cooperation with the City, the County, and the San Luis Obispo Council of Governments, proposes to relieve local and regional circulation problems and reduce existing and future congestion by improving the US 101/State Route 46 West interchange.

The proposed project includes reconstruction of the US 101/State Route 46 West interchange ramp termini, and the relocation of Theatre Drive to a new intersection with State Route 46 West, west of its current location. Interchange reconstruction would convert the existing compact diamond interchange signal controlled ramp intersections to roundabouts. Adjacent frontage roads would be either redirected into the new roundabouts or relocated away from the interchange. Two viable build alternatives (Build Alternatives 1 and 2) and the No-Build Alternative are being considered for the modification of the US 101/State Route 46 West interchange. Project costs were estimated in 2009 as $25.9 million and $32.3 million for Build Alternatives 1 and 2, respectively. Build Alternative 2 is the preferred alternative for the proposed project.

The proposed project is listed as financially constrained in the San Luis Obispo Council of Governments 2005 Regional Transportation Plan (RTP). It is also included in the cost-constrained 2007 Regional Transportation Improvement Program (RTIP). The San Luis Obispo Council of Governments will update the RTP in June 2010, and cost estimates will be updated to match the most current estimate for the full cost of the project.

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Summary of Major Potential Impacts from Alternatives

Potential Impact		Build Alternative 1	Build Alternative 2	No-Build Alternative
Land Use	Consistency with the City General Plan	Build Alternative 1 is consistent with the City's General Plan.	Build Alternative 2 is consistent with the City's General Plan.	The No-Build Alternative is not consistent with the City General Plan.
	Consistency with the County General Plan	Build Alternative 1 is consistent with the County's General Plan.	Build Alternative 2 is consistent with the County's General Plan. The Salinas River Inland Area Plan of the County's Circulation Element identifies need for circulation improvements along the US 101 and State Route 46 West corridors as accordance with recommendations in the San Luis Obispo Council of Governments' major investment study. Per Section 22.06.040, Title 22 of the County's Land Use Ordinance, County proposed projects are exempt from land use permit requirements.	The No-Build Alternative is not consistent with the County General Plan.
Relocations		Potential displacement of a maximum of four non-residential businesses with Build Alternative 1, including two gas stations and vehicle repair and service businesses on the east side of US 101. Potential impacts (e.g., partial acquisition) to motel west of US 101 along Theatre Drive.	Potential displacement of a maximum of four non-residential businesses with Build Alternative 2, including two gas stations and vehicle repair and service businesses on the east side of US 101. Potential impacts (e.g., partial acquisition) to motel west of US 101 along Theatre Drive.	No relocations would occur with the No-Build Alternative.
Utilities and Emergency Services		Utilities that may be affected include underground water lines, underground natural gas lines, electricity lines, telephone, and cable television lines. Emergency services may experience delays in response times during construction; however, travel along existing roadways (e.g., Theatre Drive) in the project area would be	Utilities that may be affected include underground water lines, underground natural gas lines, electricity lines, telephone, and cable television lines. Emergency services may experience delays in response times during construction; however, travel along existing roadways (e.g., Theatre Drive) in the project area would be	The No-Build Alternative would result in no improvements. Congestion and levels of service would continue to deteriorate potentially delaying emergency vehicles.

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Potential Impact	Build Alternative 1	Build Alternative 2	No-Build Alternative
	maintained for emergency services during project construction.	maintained for emergency services during project construction.	
Traffic and Transportation	Build Alternative 1 would improve the operation (e.g., level of service) of the ramp intersections, and the intersection of Theatre Drive and State Route 46 West. See above discussions regarding "Utilities and Emergency Services."	Build Alternative 2 would improve the operation (e.g., level of service) of the ramp intersections, and the Theatre Drive/South Vine Street intersection. See above discussions regarding "Utilities and Emergency Services."	The No-Build Alternative would not address current and future operational deficiencies at the interchange.
Visual/Aesthetics	Build Alternative 1 would result in low to moderate impacts.	Build Alternative 2 would result in low to moderate impacts; however, Alternative 2 would have a greater visual impact overall.	No impacts.
Hydrology and Floodplain	Portions of this alternative would encroach upon the 100-year floodplain. However, current drainage patterns would be maintained.	Portions of this alternative would encroach upon the 100-year floodplain. However, current drainage patterns would be maintained.	No impacts.
Water Quality and Storm Water Runoff	Build Alternative 1 is expected to result in a net increase of 2.3 acres of impervious surface. Increase in impervious surface results in increased rate of runoff and pollutant load to receiving waters.	Build Alternative 2 is expected to result in a net increase of 3.5 acres of impervious surface. Increase in impervious surface results in increased rate of runoff and pollutant load to receiving waters.	No impacts.
Geology/Soils/Seismic	Build Alternative 1 would be subject to seismic ground shaking. However, the proposed project would be designed in compliance with modern seismic safety standards.	Build Alternative 2 would be subject to seismic ground shaking. However, the proposed project would be designed in compliance with modern seismic safety standards.	The existing facility does not meet current seismic standards. The facility meets the minimum requirements for existing structures.
Paleontology	No known paleontological sites were identified within the project area, and no paleontological resources were observed during field surveys. Paleontological resources may be unearthed during project construction.	No known paleontological sites were reported within the project area, and no paleontological resources were observed during field surveys. Paleontological resources may be unearthed during construction.	No impacts.

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Potential Impact	Build Alternative 1	Build Alternative 2	No-Build Alternative
Hazardous Waste/Materials	Aerially deposited lead contamination may be encountered during construction, as well as lead-based paint in roadway pavement markings. Asbestos-containing material also may be encountered during structure demolition.	Aerially deposited lead contamination may be encountered during construction, as well as lead-based paint in roadway pavement markings. Asbestos-containing material also may be encountered during structure demolition.	No impacts.
Air Quality	Build Alternative 1 would not conflict with any applicable air quality plan, or exceed San Luis Obispo Air Pollution Control District‘s daily or quarterly thresholds for construction-related emissions. Construction would result in temporary, short-term impacts.	Build Alternative 2 would not conflict with any applicable air quality plan, or exceed San Luis Obispo Air Pollution Control District’s daily or quarterly thresholds for construction-related emissions. Construction would result in temporary, short-term impacts.	Long-term increases in congestion would result in worsening of air quality.
Noise and Vibration	Build Alternative 1 would not cause a substantial noise increase, and no noise abatement is proposed.	Build Alternative 2 would not cause a substantial noise increase, and no noise abatement is proposed.	No impacts.
Natural Communities	Build Alternative 1 is not likely to affect special-status plants or animals. This alternative is expected to affect approximately 24 oak trees.	Build Alternative 2 is not likely to affect special-status plants or animals. This alternative is expected to affect approximately 49 oak trees.	No impacts.
Jurisdictional Waters	Build Alternative 1 would result in approximately 0.38 acre of impact to California Department of Fish and Game and Clean Water Act non-wetland jurisdictional features. No wetlands would be affected under this alternative.	Build Alternative 2 would result in approximately 0.29 acre of impact to California Department of Fish and Game and Clean Water Act non-wetland jurisdictional impacts. No wetlands would be affected under this alternative.	No impacts.
Animal Species	No special-status animal species were observed within the biological study area, nor are such species anticipated to be affected under this alternative.	No special-status animal species were observed within the biological study area, nor are such species anticipated to be affected under this alternative.	No impacts.

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Potential Impact	Build Alternative 1	Build Alternative 2	No-Build Alternative
Invasive Species	Build Alternative 1 would not be expected to introduce or materially increase or decrease the abundance or diversity of invasive plant species.	Build Alternative 2 would not be expected to introduce or materially increase or decrease the abundance or diversity of invasive plant species.	No impacts.
Cumulative Impacts	Planned development projects in the immediate area would introduce new construction activities and an increased level of traffic in addition to the proposed project. Build Alternative 1 would improve an existing interchange; therefore, no adverse cumulative impacts are anticipated.	The planned development projects in the immediate area would introduce substantial new construction activities and an increased level of traffic in addition to the proposed project. Build Alternative 2 would improve an existing interchange; therefore, no adverse cumulative impacts are anticipated.	Development would continue at immediate and surrounding areas under the No-Build Alternative. Traffic and congestion would continue to degrade under this alternative.

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List of Abbreviated Terms

AADT	annual average daily trips
AASHTO	American Association of State Highway Transportation Officials
ARRA	American Recovery and Reinvestment Act
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
City	City of El Paso de Robles
CO	carbon monoxide
County	San Luis Obispo County
dB	decibel
Leq	equivalent continuous noise level
Lmax	maximum sound level
LOS	level of service
NO	nitric oxide
NO_2	nitrogen dioxide
NOx	oxides of nitrogen
NSSP	Non-Standard Special Provisions
O_3	ozone
Pb	lead
PM	particulate matter
PM	post mile
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	particulate matter less than or equal to 10 microns in diameter
ppm	parts per million
RTIP	Regional Transportation Improvement Program
SO_2	sulfur dioxide
SOx	oxides of sulfur
US 101	U.S. Highway 101
USGS	U.S. Geological Survey

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Chapter 1 Proposed Project

1.1 Introduction

The City of El Paso de Robles (City) and the surrounding San Luis Obispo County (County) area have begun to experience substantial commercial and industrial development in the southern portion of the City adjacent to the U.S. Highway 101 (US 101)/State Route 46 West interchange. The resulting growth in local traffic, combined with the increasing regional through traffic, has resulted in increasing congestion. The need for this interchange improvement project was identified in 1997 by the California Department of Transportation (Caltrans), the County, San Luis Obispo Council of Governments, and the City. At that time, the City, County, and San Luis Obispo Council of Governments entered into a Cooperative Agreement to share the responsibility of improving the interchange as the surrounding area developed. Caltrans, in cooperation with the City, the County, and San Luis Obispo Council of Governments, proposes to relieve local and regional circulation problems and reduce existing and future congestion by improving the US 101/State Route 46 West interchange.

The proposed project includes reconstruction of the US 101/State Route 46 West interchange ramp termini, and the relocation of Theatre Drive to a new intersection with State Route 46 West, west of its current location. Interchange reconstruction would convert the existing compact diamond (Type L-1), signal-controlled ramp intersections into roundabouts. Adjacent frontage roads would be either redirected into the new roundabouts or relocated away from the interchange. Figure 1-1, Regional Location, shows the regional location of the project, whereas Figure 1-2, Project Area, identifies the project area limits.

The proposed project is listed as financially constrained in the San Luis Obispo Council of Governments 2005 Regional Transportation Plan. It is also included in the cost-constrained 2007 Regional Transportation Improvmeent Program (RTIP). The San Luis Obispo Council of Governments will update the RTP in June 2010, and cost estimates will be updated to match the most current estimate for the full cost of the project.

Three alternatives—Build Alternative 1, Build Alternative 2, and the No-Build Alternative—are being considered for the US 101/State Route 46 West Interchange Modification Project and are described in Section 1.3 Alternatives.

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Existing Facilities

US 101 is a major north-south corridor in the County and State Route 46 is a major east-west expressway serving the regional traffic of the County. US 101 is functionally classified as a Principal Arterial, and consists of a four-lane access controlled freeway with standard lanes and shoulders throughout the project limits. State Route 46 West is classified as a Minor Arterial and consists of a two-lane access controlled conventional highway with 12-foot lanes and 8-foot shoulders between US 101 and the coast within the project area. Both routes are part of the Terminal Access Route for the National Network for Surface Transportation Assistance Act trucks and are included in the California Freeway and Expressway System.

US 101 crosses over State Route 46 West on two separate overcrossing structures, and the US 101/State Route 46 West interchange is composed of single-lane on- and off-ramps in a compact diamond configuration. This interchange is the terminus of State Route 46 from the west at US 101. State Route 46 has a route break at US 101 with the westerly segment of State Route 46 West (approximately Post Mile 21.9) intersecting US 101 at Post Mile 54.1 at the southern limits of the city. The area around the interchange is commercial on the west side and light industrial and commercial on the east side.

Theatre Drive and South Vine Street parallel US 101 to the west, and Ramada Drive parallels US 101 to the east. The current configuration of the interchange does not meet Caltrans design standards. The two frontage road intersections that parallel US 101, Theatre Drive/South Vine Street to the west and Ramada Drive to the east are immediately adjacent to the ramps. The result is a lack of separation between ramp intersections and frontage road intersections.

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FIGURE 1-1
REGIONAL LOCATION

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Source: AirPhotoUSA, August 2003

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FIGURE 1-2
PROJECT AREA

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1.2 Purpose and Need

1.2.1 Purpose

The purpose of the proposed project is to reduce existing congestion, improve traffic operations, and accommodate anticipated travel demand through the year 2038. Specifically, the project purpose is to:

- Improve the US 101 ramp intersections with State Route 46 West to meet the Caltrans minimum level of service standard of C/D cusp, which equates to an average delay per vehicle of 35 seconds or less at an intersection.
- Improve the frontage road intersections with State Route 46 West to meet the Caltrans minimum level of service standard of C/D cusp, which equates to an average delay per vehicle of 35 seconds or less at an intersection.
- Reduce interregional, regional, and local congestion through the US 101/State Route 46 West interchange.

Levels of Service describe the operating conditions a motorist would experience while traveling on a highway or, in this case, through an intersection. This rating system ranges from "A" to "F," with "A" being little delay and "F" being heavy congestion and considerable delay. The following graphic provides an explanation of the various levels of service and corresponding traffic delay.

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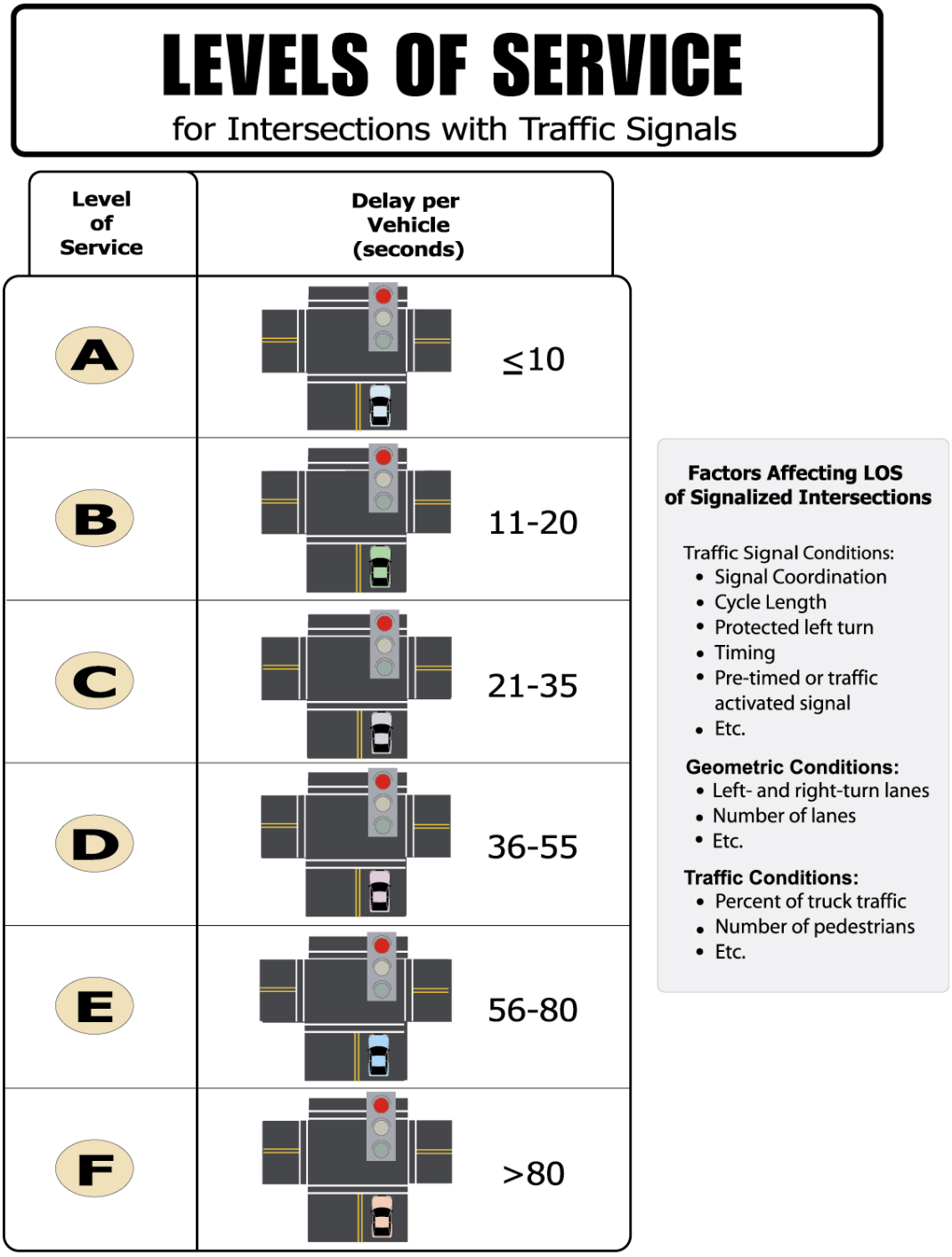
Table 1.2-1 – Level of Service for Intersections with Traffic Signals



Source: 2000 HCM, Exhibit 16-2, Level of Service Criteria for Signalized Intersections

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1.2.2 Need

State Route 46 is a major east-west route between Interstate 5 and US 101. Interregional, regional, and local vehicle trips influence traffic operations at the US 101/State Route 46 West interchange. According to a Jurisdictional Split Study for the US 101/State Route 46 West interchange completed by SLOCOG (Omni-Means, October 29, 2002), the year 2025 traffic use splits (without traffic from the future City South River Crossing project) are approximately 44.0% for the City of Paso Robles, 23.5% for the Templeton area of San Luis Obispo County (County share), and 32.5% for the remainder of San Luis Obispo County (SLOCOG/State of California share).

The State Route 46 and the US 101/State Route 46 West interchange is heavily used for weekend travel between the Central Valley and the coast, particularly during the summer months. The general increase in traffic, coupled with the anticipated future traffic from approved projects in the area, is forecast[1] to degrade ramp intersection operations to level of service F in the years from 2010 to 2014. The existing US 101/State Route 46 West interchange portion includes the following deficiencies:

- Unacceptable Intersection Operations – Due to the lack of separation between the ramp intersections and frontage road intersections with State Route 46, the existing ramp intersections would operate at unacceptable level of service F in the design year 2038. The congestion at these intersections would result in long delays causing motorists to wait multiple signal cycles at each location, as well as vehicle queues that would back up into adjacent intersections.
- Constrained Freeway Operations – Although no improvements on US 101 are proposed as part of this project, constrained freeway operations would likely occur as a result of the congestion at the US 101/State Route 46 West interchange. Queues at the off-ramps currently extend onto US 101 and adversely impact through traffic during Friday peak hours, and this condition would worsen in the design year 2038.
- Constrained Local Area Circulation – The US 101/State Route 46 West interchange provides regional and interregional access to and within the central coastal region, the city and county, and to the Central Valley. Furthermore, a substantial amount of new development is proposed in the project area. Without the proposed project, circulation of the region would be adversely impacted. Please refer to the Traffic Report for additional detailed information on traffic volumes.

[1] Traffic volumes were developed using forecasts from the traffic model developed for the San Luis Obispo Council of Governments.

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- Constrained Regional Accessibility – Without the proposed project, regional east-west vehicle travel between US 101 and nearby State Route 1 (Cabrillo Highway) would be adversely affected as a result of existing and projected future traffic congestion and worsening level of service. Please refer to the Traffic Report for additional detailed information on traffic volumes.

The proposed project is needed because the interchange is currently facing traffic congestion and deteriorating level of service. Modifying the US 101/State Route 46 West interchange is necessary to improve local, regional, and interregional transportation. To improve traffic conditions in this corridor, the following needs must be addressed:

- Reduce existing and projected traffic congestion
- Improve traffic operations and reduce delay

Table 1.2-2 shows the existing 2006 and year 2038 a.m. and p.m. peak-hour traffic volumes. As indicated in the table, traffic is expected to increase, resulting in worse congestion if no improvements are made.

Table 1.2-2 – Existing and Future Year 2038 A.M. and P.M. Peak Hour Level of Service No-Build Alternative

Facility	Control	2006 Level of Service (LOS)		2038 Level of Service (LOS)	
		A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak
US 101 Southbound/State Route 46 West/Theatre Drive-South Vine Street	Signal	LOS C	LOS D	LOS F	LOS F
US 101 Northbound/State Route 46 West/Ramada Drive	Signal	LOS B	LOS B	LOS F	LOS F

Furthermore, mainline US 101 operates at level of service D-E north of the interchange and level of service C-D south of the interchange during peak periods. The proposed project would reduce queues on the off-ramps and therefore reduce the potential of ramp queues extending onto mainline US 101.

The four-lane segment of US 101 north and south of the US 101/State Route 46 West interchange is forecasted to be at level of service F during the a.m. and p.m. peak hours in year 2038.

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1.3 Alternatives

This section describes the proposed action and the design alternatives that were developed by an interdisciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts. Design criteria and technical design details may be referenced in the Project Report (2009). The preliminary roundabout design is based on Caltrans and Federal Highway Administration guidelines with independent peer review by roundabout experts and additional Caltrans district and headquarters oversight. Three alternatives—Build Alternative 1, Build Alternative 2, and the No-Build Alternative—are being considered for the proposed project and are described below.

1.3.1 Build Alternatives

1.3.1.1 Common Design Features of the Build Alternatives

The two build alternatives would include the following common design features:

- Both build alternatives would create a modified diamond interchange with roundabouts at the ramp intersections. Both roundabouts are designed to accommodate turns made by large trucks. Theatre Drive would be realigned as a 25-mile-per-hour design speed collector road as approved by the City from the existing intersection with Gahan Place to a new intersection with signals on State Route 46 West, about 900 feet west of the existing southbound ramps intersection. Existing Theatre Drive between State Route 46 West and Alexa Court would be removed, but access to Alexa Court would be maintained. Gahan Place would be modified to intersect with the new Theatre Drive.
- Both build alternatives also include construction of a 220-foot-diameter roundabout at the northbound ramps termini. The roundabout would have five legs including entrances and exits for State Route 46 West and Ramada Drive, as well as an entrance for the northbound off-ramp and an exit for the northbound on-ramp. This roundabout is identical in both alternatives.
- The proposed drainage design would include the use and extension of existing facilities where possible and construction of new facilities where necessary. Specifically, the existing concrete box culvert under the interchange would be extended approximately 140 feet on both sides to allow for construction of the roundabouts. Drainage would follow existing flow patterns. Runoff currently discharges to the unnamed creek flowing along the north side of State Route 46 West through the interchange and would need to be managed in accordance with Caltrans' Storm Water Quality requirements and guidelines.

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- Pedestrian facilities would be improved with the addition of wide sidewalks, pedestrian refuges, and curb ramps. Bicycle ramps would connect new and existing bike lanes with the off-street bike paths to allow cyclists to circumnavigate the roundabouts if they choose. A shared-use path would be created between the relocated Theatre Drive and Ramada Drive along the south side of State Route 46 West.

1.3.1.2 Unique Features of Build Alternatives

Build Alternative 1

The southbound ramps roundabout would have five legs, see Figure 1.3-1.

The estimated project cost (as estimated in 2009) for Build Alternative 1 is $25.9 million.

Build Alternative 2

The southbound ramps roundabout would include four legs. South Vine Street would be relocated as a 25-mile-per-hour design speed collector road as approved by the City so that it would align with the new Theatre Drive/State Route 46 West intersection to the west of the existing interchange. A new three-lane, approximately 190-foot-long concrete box girder bridge would be constructed over the unnamed drainage creek to connect South Vine Street to State Route 46 West. See Figure 1.3-2.

The estimated project cost (as estimated in 2009) for Build Alternative 2 is $32.3 million.

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Project Phasing

It is to be expected that total costs and funding constraints will require the improvements of the recommended alternative to be constructed in phases as funding is secured throughout the Regional Transportation Plan 20-year timeframe. The Regional Transportation Plan is scheduled to be updated in 2010, with anticipated changes being considered for the Regional Transportation Plan June 2010 update to reflect project phasing and potentially identify each project phase to occur as noted below.

While interim improvements are expected, stand alone phases of the project (i.e., not a full Build Alternative) are not expected to fully meet the Purpose and Need of the project. Major components of phases can be defined for operational benefit and independent utility but specific design features of phases within the overall project footprint will vary as a function of funding availability and the time specific construction cost market.

The American Recovery and Reinvestment Act (ARRA) of 2009 is now an identified funding source for key components and interim improvements of the Phase 1 concept. The May 6, 2008 Traffic Technical Memorandum included an analysis of the traffic operations for interim improvements at the US 101 southbound ramps intersection with SR-46 West. Specifically, the analysis focused on comparing the No-Build concept to the concept of the Theatre Drive/State Route 46 West intersection relocation to approximately 900 feet west of the current location, as discussed in the Phase 1 concept. The traffic analysis documented the operational benefit and utility of the intersection relocation in the year 2018 P.M. peak hour. The following are the key components of anticipated phases of the Build Alternative:

- Phase 1: Theatre Drive will be relocated to create a new intersection with SR-46W approximately 900 feet west of the current location at the existing interchange. This phase is anticipated to be shown as a short-term project in the June 2010 Regional Transportation Plan update. As a short-term project, this timeframe is in the range of 2010-2012. This phase has independent utility and operational benefit that will relieve traffic at the current intersection.
- Phase 2: Relocation of South Vine Street to the new Theatre Drive intersection with State Route 46 West is anticipated to be shown as a mid-term project in the June 2010 Regional Transportation Plan update. A mid-term project may be considered in the timeframe range of 2015-2019.
- Phase 3: Construction of the southbound ramp roundabout is anticipated to be shown as a mid-term project in the June 2010 Regional Transportation Plan

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update. A mid-term project may be considered in the timeframe range of 2015-2019.

- Phase 4: Construction of the northbound ramps roundabout is anticipated to be shown as a long-term project in the June 2010 Regional Transportation Plan update. A long-term project may be considered in the timeframe range of 2015-2030.

1.3.2 No-Build (No-Action) Alternative

Under the No-Build Alternative, conditions along the US 101/State Route 46 West interchange would remain as they currently exist. The interchange currently experiences traffic congestion and deteriorating LOS. The general increase in traffic, coupled with the anticipated future traffic from approved projects in the area, is forecast to degrade ramp intersection operations to LOS F in the years 2010 to 2014. In the year 2038, without construction of the proposed project, the level of service will be F.

The No-Build Alternative would not involve any capital expenditure.

1.3.3 Comparison of Alternatives

The difference between Build Alternative 1 and Build Alternative 2 is the degree to which South Vine Street would be realigned at the northwest quadrant of the interchange. Furthermore, the southbound ramps roundabout would have five legs for Build Alternative 1 and four legs in Build Alternative 2 (refer to Figure 1.3-1 and Figure 1.3-2). Build Alternative 2 would result in a greater degree of realignment compared to Build Alternative 1. So, Build Alternative 2 would result in the greatest amount of ground disturbance and ultimate project footprint.

In addition, compared to Build Alternative 1, Build Alternative 2 would result in removal of more vegetation, including oak trees (refer to Section 2.3, Biological Environment, for more information regarding potential impacts to biological resources). Additionally, an increased area of ground disturbance would result in higher construction-related emissions (see Section 2.2.6 regarding potential air quality related impacts). Furthermore, Build Alternative 2 would result in visual-related impacts above those associated with Build Alternative 1, related to the degree to which South Vine Street would be realigned under Build Alternative 2 (refer to Section 2.1.7 for detailed discussion regarding potential visual/aesthetic impacts).

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Table 1.3-1 compares the effects of Build Alternatives 1 and 2 and the No-Build Alternative being considered in the environmental document for the proposed project. The comparison criteria and potential impacts that have been highlighted in yellow are those that differ by alternative.

Project costs were estimated in 2009 as $25.9 million and $32.3 million for Build Alternatives 1 and 2, respectively. The No-Build would not involve any capital expenditure.

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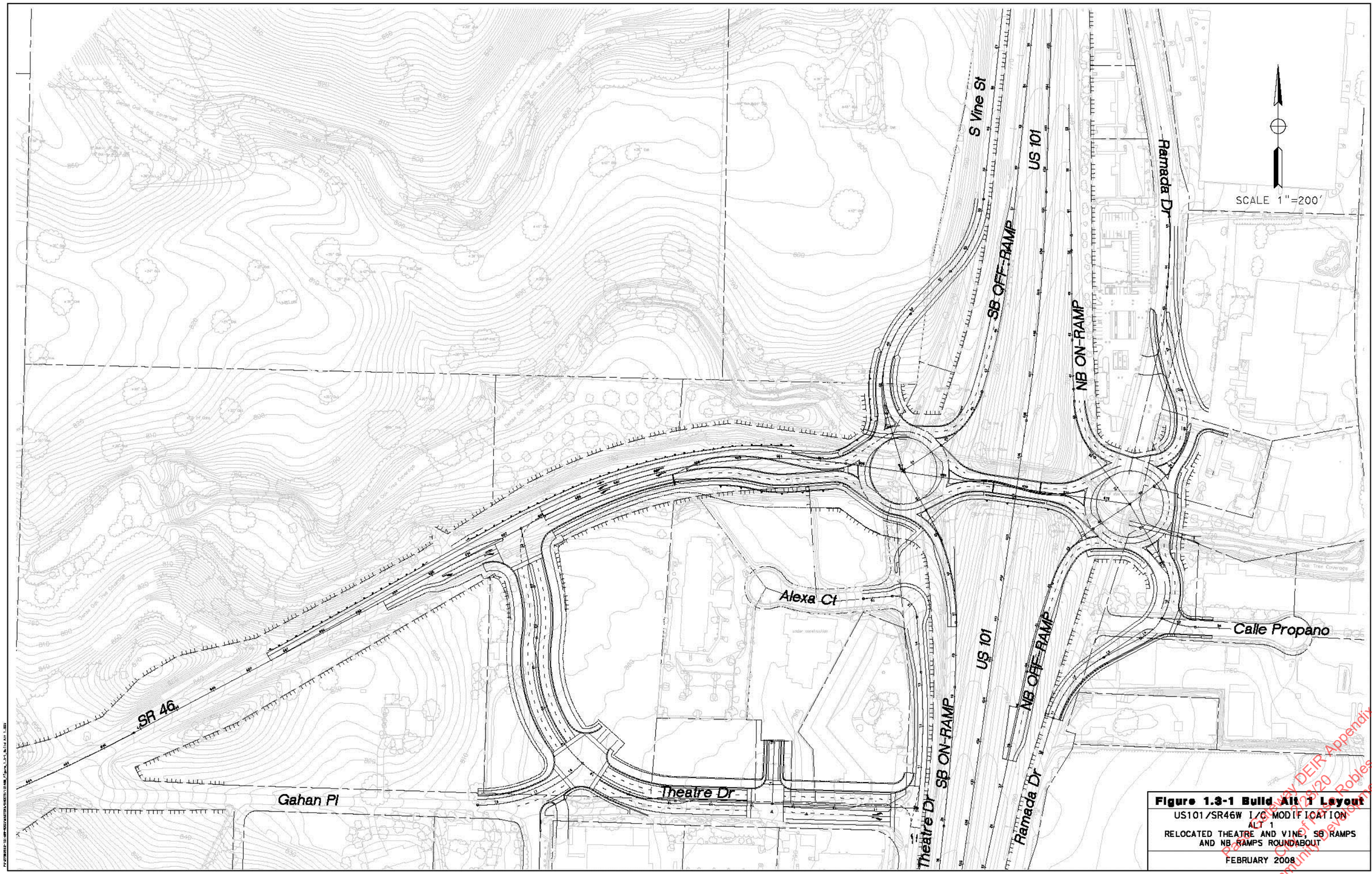

Figure 1.3-1 Build Alt 1 Layout

US101/SR46W I/C MODIFICATION
ALT 1
RELOCATED THEATRE AND VINE, SB RAMPS AND NB RAMPS ROUNDABOUT

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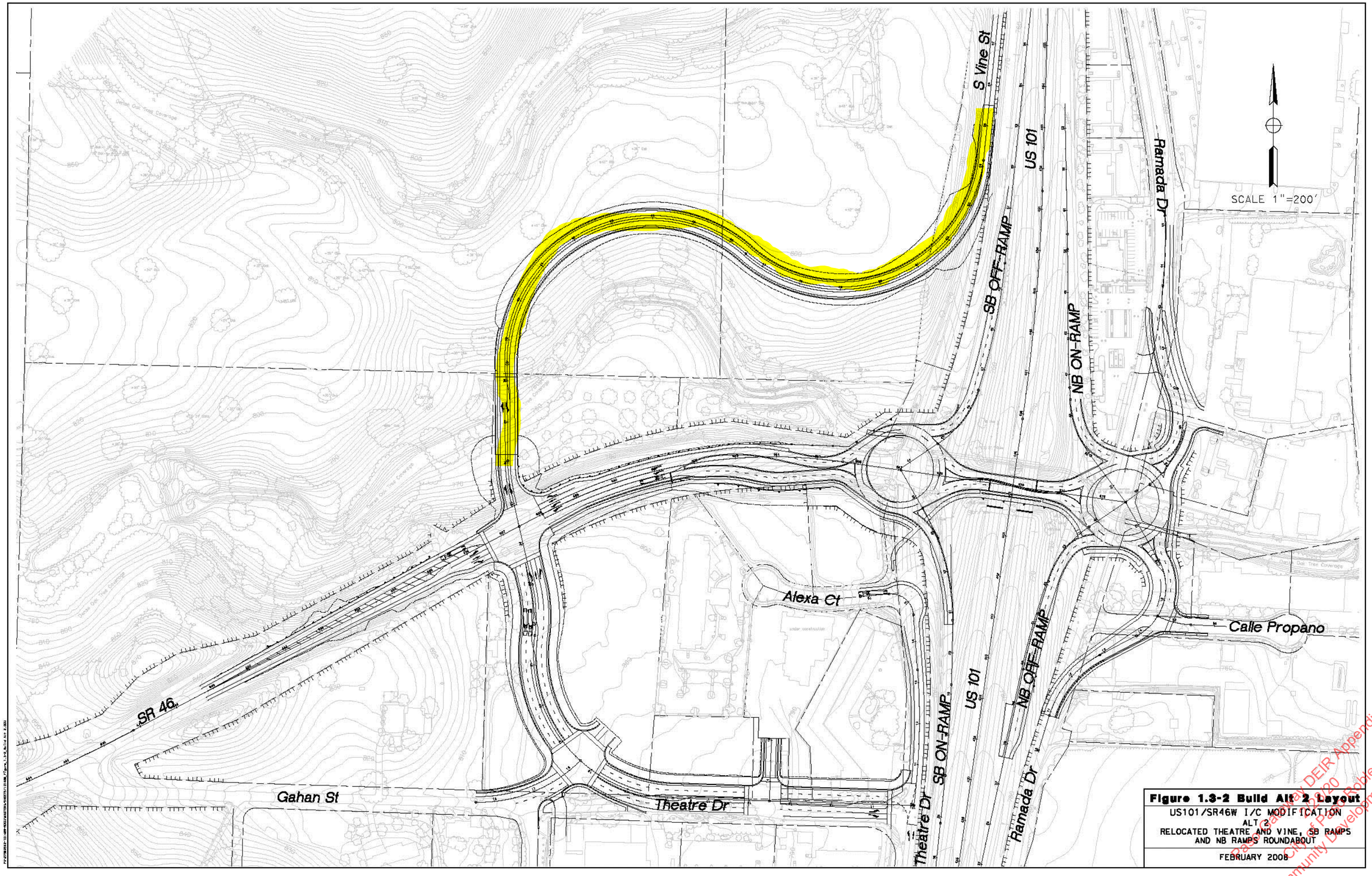

Figure 1.3-2 Build Alt 2 Layout

US101/SR46W I/C MODIFICATION
ALT 2
RELOCATED THEATRE AND VINE, SB RAMPS AND NB RAMPS ROUNDABOUT

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Table 1.3-1 – Comparison of Project Effects by Alternative

Comparison Criteria		Build Alternative 1	Build Alternative 2	No-Build Alternative
Delay Reduction or Future Level of Service (Year 2038)		▪ Delay reduction at interchange ▪ Theater Drive/State Route 46 West level of service B/C ▪ US 101 Mainline level of service F/F	▪ Greatest level of delay reduction at interchange ▪ Theater Drive/South Vine Street/State Route 46 West level of service C/C ▪ US 101 Mainline level of service F/F	▪ No delay reduction at interchange ▪ US 101 Southbound/State Route 46 West/Theater Drive/Vine Street level of service F/F ▪ US 101 Mainline level of service F/F
Design Standards		Caltrans Highway Design Manual, 6th Edition Surface Transportation Assistance Act Design Vehicle	Caltrans Highway Design Manual, 6th Edition Surface Transportation Assistance Act Design Vehicle	Not applicable
Time to Construct		24 months	24 months	Not applicable
Project Cost (2009 dollars)		$25,900,000	$32,300,000	Not applicable
Potential Environmental Impacts				
Land Use	City/County General Plan Consistency	Consistent with the City's and County's General Plan	Consistent with the City's and County's General Plan	Not consistent with the City's and County's General Plan
	Acres New Right of Way	4.69	7.27	None
	Relocations	Potential displacement of a maximum of four non-residential businesses.	Potential displacement of a maximum of four non-residential businesses.	No relocations would occur.
Growth		Designed to accommodate planned growth. Not anticipated to induce unplanned growth.	Designed to accommodate planned growth. Not anticipated to induce unplanned growth.	Would not accommodate planned growth.
Farmlands		3.80 acres of impact to soils mapped as Prime and Unique Farmland, and 0.15 acre of soil mapped as Farmland of Statewide and Local Importance. No impacts to land currently farmed.	3.50 acres of impact to soils mapped as Prime and Unique Farmland, and 1.35 acres of impact to soils mapped as Farmland of Statewide and Local Importance. No impacts to land currently farmed.	None

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Comparison Criteria		Build Alternative 1	Build Alternative 2	No-Build Alternative
Traffic & Transportation	Bicycles	Provides upgraded bicycles facilities along South Vine Street and Theater Drive. A shared-use path will be created between the relocated Theatre Drive and Ramada Drive along the south side of State Route 46 West.	Provides upgraded bicycles facilities along South Vine Street and Theater Drive. A shared-use path will be created between the relocated Theatre Drive and Ramada Drive along the south side of State Route 46 West.	No change
	Transit	No change	No change	No change
	Traffic	Improve traffic operations, reduce delay.	Improve traffic operations, reduce delay.	Does not accommodate existing traffic volumes. Congestion and delay would worsen with projected planned traffic volumes.
Visual/Aesthetics		Setting would appear more landscaped, engineered, and urbanized. Mitigation proposed.	Setting would appear more landscaped, engineered, and urbanized. Mitigation proposed.	No Change
Water Quality and Storm Water Runoff		Net increase in impervious area of 2.3 acres. Upgrade existing storm water drainage system using Best Management Practices.	Net increase in impervious area of 3.5 acres. Upgrade existing storm water drainage system using Best Management Practices.	No Change
Natural Communities		24 oak trees would be removed. Mitigation proposed.	49 oak trees would be removed. Mitigation proposed.	No oak tree removal
Jurisdictional Waters		0.38 acres impact to jurisdictional waters. Mitigation proposed.	0.29 acres impact to jurisdictional waters. Mitigation proposed.	None
Construction	Water Quality	Storm Water Pollution Prevention Plan	Storm Water Pollution Prevention Plan	None
	Traffic Impacts	Coordinated stage construction and traffic handling plan. No lane closures on US 101.	Coordinated stage construction and traffic handling plan. No lane closures on US 101.	None
Cumulative Impacts		No adverse cumulative impacts.	No adverse cumulative impacts.	Traffic congestion would continue to degrade under this alternative.

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After the public circulation period, all comments were considered. Caltrans selected a preferred alternative and has made the final determination of the project's effect on the environment. In accordance with the California Environmental Quality Act, Caltrans has prepared a Mitigated Negative Declaration. Caltrans, as assigned by the Federal Highway Administration, has also prepared a Finding of No Significant Impact in accordance with the National Environmental Policy Act.

1.3.4 Identification of a Preferred Alternative

Three alternatives were under consideration including the No-Build Alternative. After consideration of the comments received during the public circulation period and assessment of the environmental impacts and long-term traffic operations against the purpose and need for the project, Caltrans has identified Build Alternative 2 as the preferred alternative. In addition, the city has identified Build Alternative 2 as the locally preferred alternative. As discussed in Sections 1.3.2 and 1.3.3, the No-Build Alternative would not meet the purpose and need for the project. The No-Build Alternative does not accommodate existing or future traffic volumes. Traffic congestion and delay are expected to worsen with projected traffic volumes under the No-Build Alternative. With the future increase in traffic, the ramp intersection operations are forecast to degrade to LOS F in the years 2010 to 2014, with increased delay and worsened operations in 2038.

Both build alternatives improve traffic operations for the state and local facilities, and both have mitigation measures that reduce any environmental impacts to less than significant levels. Build Alternative 2 is the preferred alternative because it is consistent with national transportation design policies, achieves greater long-term reduction of greenhouse gas emissions and best meets the purpose and need of the project, which includes the following considerations:

- Reduce existing and projected traffic congestion
- Improve traffic operations and reduce delay
- Improve the US 101 ramp intersections with State Route 46 West to meet the Caltrans minimum LOS of C/D cusp
- Improve frontage road intersection with State Route 46 West to meet the Caltrans minimum LOS of C/D cusp
- Reduce congestion that constrains interregional, regional, and local circulation through the US 101/State Route 46 West interchange

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The above purpose and need considerations are important because State Route 46 West is a major east-west route between the San Joaquin Valley and the Pacific Coast. The route, including the US 101/State Route 46 West interchange, is heavily used during Friday evenings of the summer months because it is a main corridor for traffic traveling from the valley to the coast.

In accordance with the national standards published by the American Association of State Highway Transportation Officials (AASHTO) in A Policy on the Geometric Design of Highways and Streets, transportation design is to consider the functional hierarchy of different facility types. AASHTO differentiates between higher order facilities such as US 101 and SR 46 West (which provide intrastate and regional connectivity for freight and general mobility with typically greater volumes, higher speed operations and greater access controls) from lower order facilities such as Theatre Drive and South Vine Street (local access to commercial/retails trip generators with lesser or no access controls). AASHTO guidance stresses preserving, prioritizing, and protecting the higher order facilities from risk of being negatively affected by the lower order facilities if possible. Build Alternative 2 achieves this separation of facility hierarchies by not allowing a third order facility (South Vine Street) to directly interchange traffic with a first order facility (US 101) at the westerly roundabout and thereby safeguards the operations of the first order facility.

For example, a summer Friday evening period for the US 101 southbound/State Route 46 West roundabout was assessed for both Build Alternatives 1 and 2. Because South Vine Street is not connected to the roundabout in Build Alternative 2 as it is in Build Alternative 1, the traffic operations for this Build Alternative 2 are better than that of Build Alternative 1. In Build Alternative 2, the traffic volume-to-lane capacity ratio for the different legs of the roundabout is 0.74 or less, delays are up to 12 seconds per vehicle, and the maximum queues would be accommodated by the storage on the entry legs during the peak 15 minutes of the summer Friday evening period.

Both alternatives accommodate maximum off-ramp storage needs but, during that same period, Build Alternative 1 is affected by the South Vine Street connection to the westerly roundabout as evidenced by the decreased capacity and increased delays (the volume-to-lane capacity ratio for the different legs of the roundabout is up to 0.85 and delays are up to 23 seconds per vehicle); see Section 2.1.6 (Traffic and Transportation/Pedestrian and Bicycle Facilities) regarding traffic operation conditions and analyses done for the project. Safeguarding of volume-to-lane capacity

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ratios would provide more long-term reduction of risk that the off-ramp storage would affect mainline US 101 operations. The separation of traffic types at the interchange is also better achieved by Build Alternative 2 for local bicycle traffic using the frontage road system.

Consistent with the comparison of peak hour delays, Build Alternative 2 also further reduces long-term cumulative delay and emissions as shown in Table 2.5-2 (Future Greenhouse Gas Emissions). This focus on reduction of delay and implementation of improvements to achieve transportation efficiencies is consistent with national, state, Caltrans and local mandates as discussed in Section 2.5 (Climate Change under the California Environmental Quality Act).

Alternative 2 is the preferred alternative to meet the goals of the project and provide greater long-term benefit and sustainability of the proposed improvements.

1.3.5 Alternatives Considered and Withdrawn

The following alternatives, developed as part of the Draft Project Report (2007), were considered but withdrawn from further consideration.

Alternative A

This alternative includes roundabouts at the US 101 ramp for northbound and southbound traffic. This alternative was dropped from further consideration because it would affect 13 parcels. In addition, a total of 10.8 acres in acquisition and 3.43 acres in slope easements would be required for city roadway realignment. A total of 1.68 acres would also need to be acquired for realigned state facilities with this alternative.

Alternative B

Alternative B includes a roundabout at the US 101 ramp termini for southbound traffic only. This alternative was dropped from further consideration because it does not meet the purpose and need for the project.

Alternative C

Alternative C is a spread diamond interchange that meets all current design standards. This alternative proposes to relocate the South Vine Street-Theatre Drive frontage road to the west to achieve standard spacing between that frontage road and the US 101 southbound ramps. The US 101 southbound ramps would be relocated to the west, and the US 101 northbound ramps would be relocated to the east to achieve standard spacing between the ramp intersections. This alternative also proposes to relocate Ramada Drive to the east to achieve standard spacing between that frontage

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road and the US 101 northbound ramps. The four intersections would be signalized. The spacing between intersections would be 525 feet or greater, meeting both the advisory and the mandatory standard per the Highway Design Manual. State Route 46 West would be widened for new turn pockets, the US 101 overpasses over State Route 46 West would be replaced and widened, and two new bridges would be necessary to carry South Vine Street and the southbound US 101 off-ramp over the unnamed creek. This alternative was withdrawn from further consideration because of excessive cost and right-of-way requirements.

Alternative D

Alternative D is a combination of Alternatives A and C, with a spread diamond configuration on the west side and a roundabout intersection on the east side of the interchange. The spread diamond configuration on the west side would have a 360-foot separation between the US 101 southbound ramps and the frontage road. The roundabout on the east side would be similar to that of Build Alternatives 1 and 2. State Route 46 West would be widened for new turn pockets, the US 101 separation structures over State Route 46 West would be replaced and widened, and two new bridges would be necessary to carry South Vine Street and the southbound US 101 off-ramp over the unnamed creek.

This alternative was withdrawn from further consideration because of excessive cost and right-of-way requirements.

Alternative E

Alternative E includes the realignment of the frontage roads on the west side of the interchange and of the US 101 southbound ramp termini to the west. This alternative was dropped from further consideration because it does not meet the purpose and need for the project.

Alternative F

This alternative is similar to Alternative A and includes roundabouts at the US 101 ramp for northbound and southbound highway traffic. This alternative and Alternative A have the least impact from a right-of-way perspective. There are 9 right-of-way parcels affected with this alternative. Three commercial buildings would be demolished due to the roadway realignments and differences in physical access. This alternative was withdrawn from further consideration because it did not include consideration of future traffic volumes from the potential future South River Crossing project.

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1.4 Permits and Approvals Needed

The following resource agency permits, reviews, and approvals would be required for project construction:

Table 1.4-1 – Required Permits and Approvals

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers	Section 404 Permit	Would be obtained prior to construction.
California Department of Fish and Game	1602 Streambed Alteration Agreement	Would be obtained prior to construction.
Regional Water Quality Control Board	Section 401 Water Quality Certification	Would be obtained prior to construction.
State Water Resources Control Board	National Pollutant Discharge Elimination System	Would be obtained prior to construction.
U.S. Environmental Protection Agency/San Luis Obispo County Air Pollution Control District	National Emission Standards for Hazardous Air Pollutants [Title 40, Part 61, Subpart M of the Code of Federal Regulations (40 CFR Part 61)	Removal, monitoring, and disposal of asbestos-containing material would occur before construction/ structure demolition.

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Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

As part of the scoping and environmental analysis conducted for this project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding the following issues in this document:

- Mineral Resources – The proposed project would occur within an existing interchange and developed area of the city. The City's General Plan does not identify any mineral resources within the proposed project location.
- Wild and Scenic Rivers – There are no wild and scenic rivers in the vicinity of the proposed project based on site reconnaissance and background research.
- Timberland Resources – Site reconnaissance and background research has revealed that there are no timberland resources in the project area.
- Coastal Zone Resources – The proposed project is not located within a designated coastal zone based on review of relevant literature.
- Wetlands – Field surveys and jurisdictional delineations performed in accordance with applicable guidelines (such as from the U.S. Army Corps of Engineers) revealed that there are no wetlands in the project area.
- Parks and Recreational Facilities – There are no parks and recreational facilities in the project area based on site reconnaissance and background research
- Plant Species – The *Natural Environmental Study* (*Minimal Impacts*) (2009) shows that no special-status plants would be affected.
- Threatened and Endangered Species – The *Natural Environmental Study* (*Minimal Impacts*) (2009) revealed that no threatened or endangered species would be affected.
- Cultural Resources – A *Historic Property Survey Report*, including an *Archaeological Survey Report* and *Historic Resources Evaluation Report*, was prepared for the proposed project. No historic properties would be affected by this project. Five historic period (pre-1961) buildings were evaluated. The State Historic Preservation Officer concurred on December 5, 2007 that none

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of these properties are eligible for listing in the National Register of Historic Places, for purposes of evaluation under the National Environmental Policy Act and Section 106 of the National Historic Preservation Act. None of these properties are historical resources for purposes of the California Environmental Quality Act.

2.1 Human Environment

2.1.1 Land Use

2.1.1.1 Existing and Future Land Use

Affected Environment

The proposed project is located in an area that is primarily composed of commercial/retail and industrial land use within the limits of the city; a relatively small portion of the project area is located in an unincorporated area of the county. Existing and future land use and jurisdictional boundaries are illustrated in Figure 2.1-1.

Existing Land Use

The vicinity of the project area is dominated by commercial and industrial land use, with interspersed areas of residential development (single-family residences). Existing land use on the east side of US 101 consists primarily of commercial/retail and industrial uses, including a gas service station and fast food property, auto repair establishments and associated vehicle storage, and several office and warehousing buildings.

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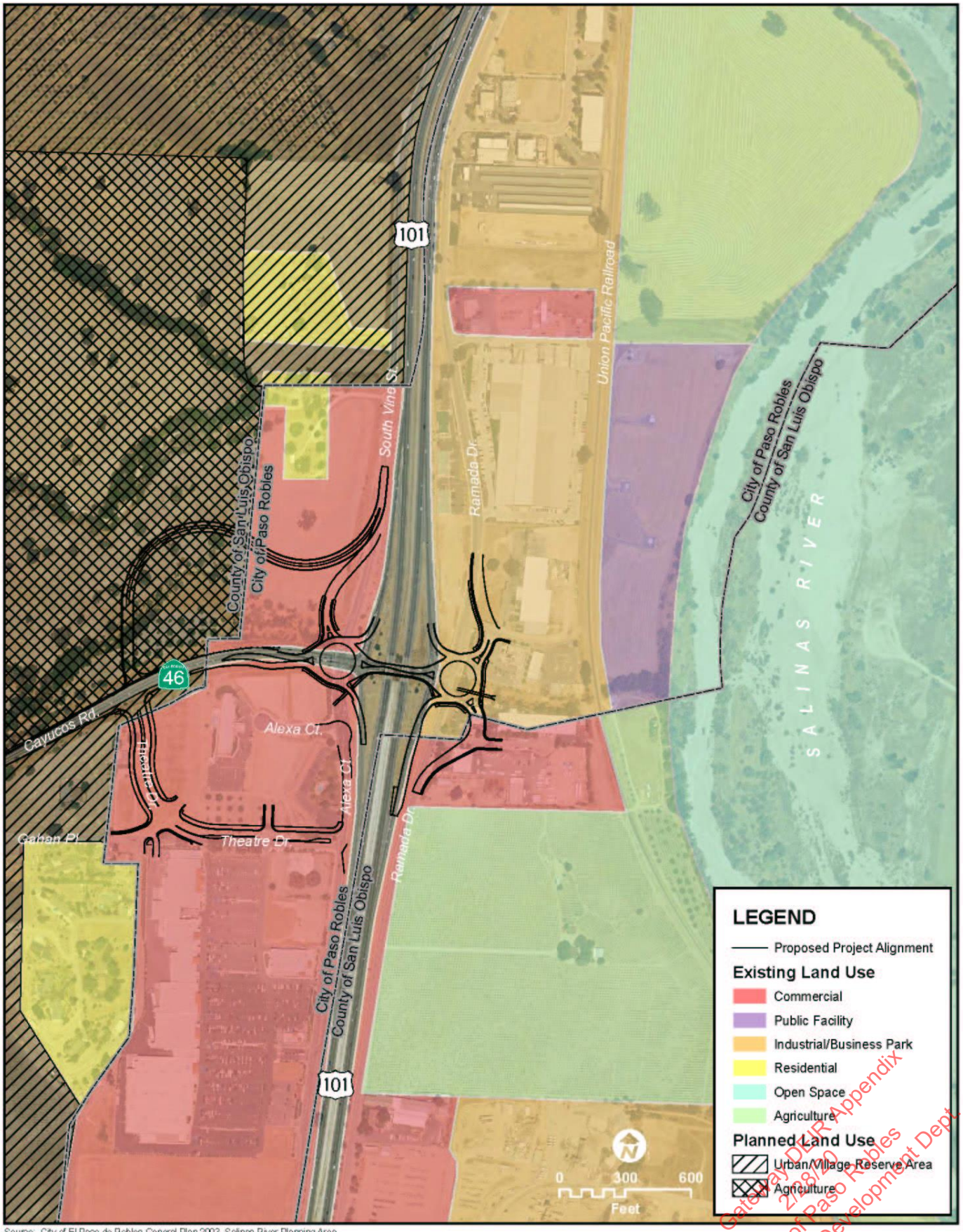

Source: City of El Paso de Robles General Plan 2003, Salinas River Planning Area Rural Land Use Category and Combining Designation Map, June 11, 2007 and AirPhotoUSA, August 2003

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FIGURE 2.1-1
EXISTING AND PLANNED LAND USE

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The northwest quadrant of the US 101/State Route 46 West interchange consists primarily of vacant/undeveloped land with the exception of two single-family residential properties near the area where the proposed South Vine Street realignment would diverge from US 101. Two hotels (Hampton Inn and the La Bellasera Suites and Spa) and a motel (River Lodge Motel) are located in the immediate area of the southwest quadrant of the US 101/State Route 46 West interchange, and a shopping center, which includes a Target retail store, is located immediately south of Gahan Place in the southwest quadrant of the interchange.

Interspersed single-family residential properties are currently located along Gahan Place. Note that the City has previously acquired the residential property that is located immediately north of Gahan Place and west of the existing hotel, and also the residential property located along the proposed Theatre Drive alignment (between Gahan Place and State Route 46 West). Refer to Section 2.1.4.2 regarding City acquisitions and relocations.

Since circulation of the draft environmental document, five developments previously listed as pending in Table 2.1-1 have been built: True Tube, Simons Industrial, U-Haul, Theatre Drive Retail/Storage, and the Thunderbird commercial development. Table 2.1-1 and Figure 2.1-2 have been updated with planned projects that have not yet been built.

Planned Land Use

Planned land use in the project area is based on the City's and the County's respective General Plans and, for the purposes of this analysis, includes those areas in the project area that are currently vacant (undeveloped). Within the city's limits, undeveloped land located west of US 101 is planned for Regional Commercial use (this area includes both Build Alternatives 1 and 2), whereas land located east of US 101 is designated as planned Business Park use; however, no vacant land designated as Business Park would be affected by either Build Alternative 1 or 2.

The City's Planning Department was contacted to identify proposed projects in the vicinity of the interchange. The following table lists the four projects provided by the City's Planning Department, and Figure 2.1-2 shows the location of each planned project (Map ID letters correspond to the location of each respective planned project on Figure 2.1-2).

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Table 2.1-1 – Future Development in the Project Area

Name	Jurisdiction	Proposed Uses	Total Acreage	Status	Map ID
Gheza Mini-Storage	City	Storage facility	5.5	Entitled	A
Durand Project	City	Retail center and hotel	16.0	Entitled	B
1500 Ramada Drive	City	Industrial use	4.0	Entitled	C
Inns at Vintner's Village	City	Hotel	13.2	Pending	D

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Figure 2.1-2 Planned Projects

Source: DigitalGlobe, July 2007

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FIGURE 2.1-2
PLANNED PROJECTS

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The Salinas River Inland Area Plan of the County's General Plan designates the area north of State Route 46 West where Build Alternative 2 would realign South Vine Street as Agriculture.

Environmental Consequences

Build Alternatives 1 and 2

Implementation of the build alternatives would improve existing and future traffic congestion and improve deteriorating levels of service. No significant impacts to existing and future land use are anticipated for Build Alternative 1 or Build Alternative 2. For future land uses, both build alternatives would have some right-of-way impact on an undeveloped private parcel within the city limits, as shown in Figure 2.1-2 map symbol "D." A proposed development on that parcel underwent a legal challenge. The environmental clearance and therefore planned development of that parcel has been ordered to be re-evaluated by the court. Any proposed future development on that parcel would require a new review and evaluation by the City and would need to be presented to the City Planning Commission for approval. The McDonalds/Chevron facility has taken this project into consideration and was built to specifically avoid placing structures along the proposed alignment of the US 101 northbound on-ramp.

No-Build Alternative

In 1996, the City, SLOCOG, County of San Luis Obispo and Caltrans entered into a cooperative agreement that requires the monitoring of traffic operations at the US 101/State Route 46 West interchange and analysis of potential impacts to interchange operations caused by proposed development in the area of the interchange. Operational improvements at the interchange have been required of and built by development projects near the interchange, as necessary, since the cooperative agreement was executed. The No-Build Alternative would affect the development of future land uses with increased traffic impacts and congestion from proposed future developments.

Avoidance, Minimization, and/or Mitigation Measures

LU-1 The City will consider, to the extent appropriate and pursuant to the City's Traffic Calming Program, additional traffic-calming features during final design and/or incorporation of other design features that would serve as traffic-calming criteria. Such features may reduce right-of-way impacts and may include but not be limited to: expanded streetscape improvements, reduced design criteria for horizontal

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curvature radii and/or consider use of City Standard "Typical Knuckle" for collector road realignment and/or pavement width reduction where appropriate.

2.1.1.2 Consistency with State, Regional, and Local Plans

Affected Environment

City General Plan – Circulation Element

The proposed project is included in the Circulation Element of the City's General Plan (refer to Table CE-1, Potential Circulation Improvements).

City General Plan – Land Use Element

The City's Land Use Element identifies the portion of the project area east of US 101 as Business Park. The purpose of the Business Park land use category is to provide areas for clean and attractive businesses and industries in which all activities are conducted indoors. The City General Plan indicates that, where appropriate, compatible convenience and highway commercial land uses may be located in the Business Park category.

The City's General Plan designates the portion of the project area west of US 101 as Regional Commercial. The Regional Commercial land use category is intended to provide for the retail and shopping needs of the city and region. The land uses generally permitted in this category are retail and service uses and with limited number of dwelling units.

County General Plan – Land Use Element

As described above, the Salinas River Inland Area Plan of the County's General Plan designates the portion of the proposed project located in unincorporated County land north of State Route 46 West as Agriculture. Further, the County's Salinas River Inland Area Plan designates the relatively small amount of undeveloped land located immediately south and along State Route 46 West as Industrial.

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As further detailed in Chapter 22.06.030, Title 22 of the County's Land Use Ordinance, uses (types/categories of land development proposals) not identified as "allowable" uses within a General Plan land use designation may be granted approval subject to the review of the County's Director of Planning and Building. Highway/Roadway improvement projects, such as the one addressed here, are not a type of project that is explicitly listed as an allowed use within the Agriculture land use designation (applicable to Build Alternative 2). However, and as further detailed in Section 22.06.040, Title 22 of the County's Land Use Ordinance, public works projects proposed by the County are exempt from land use permit requirements and "allowance" restrictions. The County is contributing to the funding of the proposed project, and also has closely coordinated with the City, Caltrans, and the San Luis Obispo Council of Governments, regarding the planning, sitting, and design of the proposed project.

County General Plan – Circulation Element

Matters regarding circulation for the project area are addressed in the Circulation Element of the County's Salinas River Inland Area Plan of the County's General Plan. The Circulation Element identifies the importance of maintaining the mobility of the traveling public, particularly as it relates to US 101 and State Route 46 West. Moreover, the County's Circulation Element identifies the need for improvements to the US 101 corridor in accordance with the findings and recommendations in San Luis Obispo Council of Governments' major investment study. The proposed project is identified in Segment 4 of San Luis Obispo Council of Governments' US Route 101 North County Corridor Study (dated September 8, 1999), and San Luis Obispo Council of Governments' 2005 Regional Transportation Plan.

California Land Conservation Act of 1965, or the Williamson Act

The Williamson Act is a procedure authorized under state law to preserve agricultural lands as well as open space. Property owners entering into a Williamson Act contract receive a reduction in property taxes in return for agreeing to protect the land's open space or agricultural values. The proposed project would not affect lands subject to a Williamson Act contract. More detail regarding impacts to farmlands is provided in Section 2.1.3, Farmlands, of this document.

Environmental Consequences

Build Alternative 1

Build Alternative 1 is consistent with applicable adopted plans and policies (such as the City General Plan, San Luis Obispo Council of Governments' 2005 Regional

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Transportation Plan, etc.). As such, Build Alternative 1 would not result in incompatible land uses or the physical division of an established community.

Build Alternative 2

Build Alternative 2 is consistent with applicable adopted plans and policies. As noted above, the proposed South Vine Street realignment associated with Build Alternative 2 is located in an area that is designated Agriculture pursuant to the County's General Plan. However, and as further detailed in Section 22.06.040, Title 22 of the County's Land Use Ordinance, public works project such as the proposed project are exempt from land use permit requirements and "allowance" restrictions under the County's Land Use Ordinance.

As stated above, and as further detailed in Section 22.06.040, Title 22 of the County's Land Use Ordinance, public works projects proposed by the County are exempt from land use permit requirements and "allowance" restrictions. The County is contributing to the funding of the proposed project, and also has closely coordinated with the City, Caltrans, and the San Luis Obispo Council of Governments, regarding the planning, siting, and design of the proposed project. A letter dated October 27, 2009 documents the recent funding commitments by the San Luis Obispo Council of Governments, which includes the County of San Luis Obispo. The County's participation in the Value Analysis study dated July 2006 is evidence of its continued involvement and support for the project. Refer to Appendix I for a copy of the above-referenced San Luis Obispo Council of Governments letter dated October 27, 2009.

No-Build Alternative

The No-Build Alternative is not consistent with the goals of the City's and County's General Plans to accommodate proposed improvements to the US 101/State Route 46 West interchange.

Avoidance, Minimization, and/or Mitigation Measures

None anticipated.

2.1.2 Growth

Regulatory Setting

The Council on Environmental Quality regulations, which implement the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The

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Council on Environmental Quality regulations, 40 Code of Federal Regulations 1508.8, refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act also requires the analysis of a project's potential to induce growth. California Environmental Quality Act guidelines, Section 15126.2(d), require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…"

Affected Environment

The interchange plays a vital role for tourists and commercial traffic to and from the coastal areas within the region and is on the main coastal regional route between Southern and Northern California. It also serves regional traffic accessing the retail and industrial facilities surrounding the interchange. Growth in the area is anticipated and further development of the retail and industrial uses will create a greater demand for improvement of the interchange.

Traffic volume projections indicate that traffic demand at the US 101/State Route 46 West interchange is expected to increase substantially over the next 25 years. Traffic within the study area would experience a significant increase in congestion and delay by the year 2038 without implementation of interchange and intersection improvements. These reductions in levels of service would reduce mobility around this US Route to State Route connection.

The proposed project would improve traffic conditions and reduce congestion in and around the US 101/State Route 46 West interchange. The proposed project, in and of itself, is not expected to directly or indirectly induce population growth in the immediate vicinity or the region, as the surrounding vicinity is anticipated to experience growth with or without the proposed project. Under Build Alternative 2, South Vine Street would be realigned across land that is currently undeveloped. However, no existing resources of concern, as detailed in this chapter, would be affected by that realignment; therefore, no further growth analysis is required.

Environmental Consequences

Build Alternatives 1 and 2

No significant growth-related impacts are anticipated as a result of implementing the proposed project. The project entails reconfiguration of an existing highway-to-

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highway interchange to improve existing and future traffic operations (such as level of service) in the area. The project area and vicinity include a combination of developed (commercial, industrial, and interspersed residential properties) and vacant land. The majority of vacant land in the project area and vicinity is planned for commercial/retail and business park and industrial development. The proposed project is also addressed in the Circulation Elements of the City's and County's respective general plans.

Reconfiguration of the existing US 101/State Route 46 West interchange is not expected to result in an acceleration of the schedule of development in the project area and vicinity, as accounted for in each jurisdiction's respective General Plan; therefore, growth-related impacts are not anticipated.

Further, the proposed project-related improvements are not expected to measurably or significantly decrease home-to-work commuter travel times to, from, or within the project area.

No-Build Alternative

The No-Build Alternative would not result in significant impacts to growth, but would not accommodate planned growth, and associated additional traffic generation, in the vicinity of the interchange.

Avoidance, Minimization, and/or Mitigation Measures

None anticipated.

2.1.3 Farmlands

Regulatory Setting

The National Environmental Policy Act and the Farmland Protection Policy Act (United States Code 4201-4209; and its regulations, 7 Code of Federal Regulations Ch. VI Part 658) require federal agencies, such as the Federal Highway Administration, and Caltrans, as assigned, to coordinate with the Natural Resources Conservation Service if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the Farmland Protection Policy Act, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

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The California Environmental Quality Act requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to deter the early conversion of agricultural and open space lands to other uses.

Affected Environment

Digitally mapped data received from the California Department of Conservation's Farmland Mapping and Monitoring Program (2004) and information obtained from the Natural Resources Conservation Service as part of this analysis indicate that some of the new right-of-way for the proposed project encompasses Prime and Unique Farmland and Farmland of Statewide Importance west of the US 101/State Route 46 West interchange. However, these particular areas are not being actively used for agricultural purposes. None of the lands in the project area are under a Williamson Act contract.

Prime Farmland is land that has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use (California Department of Conservation's Office of Land Conservation, A Guide to the Farmland Mapping and Monitoring Program, 1992. Publication Number FM-92-01).

Unique Farmland is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, that is currently used for the production of specific high economic value crops (as listed in the last three years of California Agriculture produced by the California Department of Food and Agriculture). It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly owned lands for which there is an adopted policy preventing agriculture use (California Department of Conservation's Office of Land

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Conservation, A Guide to the Farmland Mapping and Monitoring Program, 1992. Publication Number FM-92-01).

Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops within the last three years. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use (California Department of Conservation's Office of Land Conservation, A Guide to the Farmland Mapping and Monitoring Program, 1992. Publication Number FM-92-01).

Environmental Consequences

A Farmland Conversion Impact Rating Form (see Appendix E) was submitted to the Natural Resources Conservation Service to evaluate impacts to farmlands associated with the proposed project. As noted above, the project area does not encompass lands that are actively being used for agricultural purposes. According to the Farmland Protection Policy Act, additional project alternatives or sites must be taken into consideration if the Farmland Conversion Impact Rating Form, which is evaluated jointly by Natural Resources Conservation Service and the lead agency, exceeds 160 points out of 260 points. The Farmland Conversion Impact Rating totaled 101 points for Build Alternative 1 and 120 points for Build Alternative 2.

Build Alternative 1

Acquisition of additional right-of-way for Build Alternative 1 would affect a total of approximately 3.80 acres of Prime and Unique Farmland and 0.15 acre of Farmland of Statewide and Local Importance; however, these areas are not being used for agricultural purposes. Combined, this represents a total of 0.0013% of the total existing farmlands within the county planning area.

Build Alternatives 2

Acquisition of additional right-of-way for Build Alternative 2 would affect a total of approximately 3.50 acres of Prime and Unique Farmland and 1.35 acres of Farmland of Local Importance; however, this particular area is not being used for agricultural purposes. The parcels zoned for agricultural uses have been out of production for between 10 to and 30 years. Combined, this represents approximately 0.0016% of total existing farmlands within the county planning area.

Avoidance, Minimization and/or Minimization Measures

No measures would be required.

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2.1.4 Community Impacts

2.1.4.1 Community Character and Cohesion

Regulatory Setting

The National Environmental Policy Act of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 United States Code 4331(b)(2)]. The Federal Highway Administration in its implementation of the National Environmental Policy Act [23 United States Code 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

Regional and Local Setting

The proposed project is located primarily within the limits of the city in the northern portion of the county. However, relatively smaller portions of the project area at the northwest, southwest, and southeast quadrants of the interchange are in unincorporated portions of the county. The project area is dominated by commercial/retail and industrial development, with interspersed single-family residences concentrated in the southwest corner of the project area. The northwest corner of the project area is primarily undeveloped. Please refer to Section 2.1.1.1 for a more detailed discussion of existing land use in the project area and vicinity.

Primary Affected Area

The primary affected area is defined as the area immediately in the project site that could be directly affected by the proposed project. The existing US 101/State Route 46 West interchange is located within United States Census Tracts 100, 103, and 127.04. Figure 2.1-3 illustrates Census Tracts in relation to the project area.

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Population Totals

According to the California State Association of Counties, the county has a current population of 253,600. By 2010, this population is expected to increase by 29.1%. Table 2.1-2 shows the population estimates by census tract based on year 2000 census data.

Table 2.1-2 – 2010 Census Tract Population Estimates

Census Tract	2010 Total Population
100	6,803
103	7,967
127.04	7,817

Source: United States Census Bureau, July 2006.

Housing

Table 2.1-3 shows the existing housing characteristics based on census tracts for the proposed project area.

Table 2.1-3 – Housing Characteristics

Census Tract	Total Housing Units	Owner Occupied	Renter Occupied	Vacancies / Percentage
100	3,922	1,951	686	1,285 / 32.8%
103	2,875	2,122	564	189 / 6.6%
127.04	2,878	2,503	292	83 / 2.9%

Source: United States Census Bureau, July 2006.

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Source: AirPhotoUSA, August 2003 and U.S. Census Bureau, 2000

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FIGURE 2.1-3
CENSUS TRACTS MAP

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Environmental Consequences

Build Alternatives 1 and 2

The proposed project would not physically divide an established community, disrupt community cohesion, isolate any residents from community facilities, or force the relocation of any residences. The proposed project would improve the existing interchange by promoting more efficient traffic circulation in the project area. Overall, neighborhood and community stability would not be significantly altered. Please see Section 2.1.4.2 for a discussion regarding project-related relocations.

Some traffic delays could be expected during project construction; however, these impacts would be temporary and are not considered significant. Vehicular traffic would not be re-routed through residential areas. The project includes the preparation of a Traffic Management Plan to alleviate this temporary construction traffic impact. The construction area would be properly flagged and cordoned off to allow for safe passage of bicyclists.

No-Build Alternative

The No-Build Alternative would not affect community character or cohesion.

Avoidance, Minimization, and/or Mitigation Measures

None anticipated.

2.1.4.2 Relocations and Real Property Acquisition

Regulatory Setting

Caltrans' Relocation Assistance Program is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and Title 49 Code of Federal Regulations, Part 24. The purpose of the Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the Relocation Assistance Program.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 United States Code 2000d, et seq.). Please see Appendix B for a copy of Caltrans' Title VI Policy Statement.

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Affected Environment

The following analysis regarding potential project-related relocations is based on the *Relocation Impact Memorandum* (2009) prepared in coordination with Caltrans' Right-of-Way Division.

The project area and its vicinity are dominated by commercial and industrial land use, with interspersed areas of residential development (single-family residences) and vacant land. There are two gas service station/fast food facilities, several industrial buildings, and numerous equipment and storage yards. The west side of US 101 is less developed and consists of two hotels, a motel, a shopping center, residential uses, and open space (refer to Section 2.1.3 Farmlands). One full acquisition of the Wayne's Tire's parcel (040-091-049) and four partial acquisitions of the River Lodge Motel parcel (009-831-007), McDonalds/Chevron parcel (009-631-012), Jack in the Box/Arco parcel (009-831-015), and Delta Energy Propane Tank, RV Sales, Rentals and Service parcel (040-091-052) are anticipated with implementation of the proposed project, as further discussed below. It should be noted that the Delta Energy Propane Tank, RV Sales, Rentals and Service parcel (040-091-052) consists of a single parcel and a single business; no sub-parcels are located on this parcel or any other parcel affected by the proposed project.

Environmental Consequences

Build Alternatives 1 and 2

Both build alternatives would require full or partial right-of-way acquisitions of five non-residential parcels. These parcels contain light industrial and commercial buildings, including an auto repair facility (Assessor Parcel Number 040-091-049), a recreational vehicle parts and services facility (Assessor Parcel Number 040-091-052), two gas station/convenience store/fast food restaurant combinations (Assessor Parcel Numbers 009-831-015 and 009-631-012), and a motel (Assessor Parcel Number 009-831-007). Figure 2.1-4 identifies the parcels that would be affected by right-of-way acquisition as a result of the proposed project.

Table 2.1-4 provides a list of buildings that may need to be relocated by either Build Alternative 1 or 2. The column labeled "Potential Acquisition" indicates whether a full or partial acquisition of the parcel is expected.

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Table 2.1-4 – Right-of-Way Impacts Including Potential Displacements

Assessor's Parcel Number	Address/Location	Type of Property	Potential Acquisition (Full or Partial)
040-091-049	101 Calle Propano/ southeast quadrant of interchange	Light industrial business building (auto repair facility)	Full
040-091-052	1960 Ramada Drive/ southeast quadrant of interchange	Light industrial business building (RV parts and service facility)	Partial
009-831-015	1900 Ramada Drive*/ northeast quadrant of interchange	Gas Station/Convenience Store/ Fast Food Restaurant	Partial
009-831-007	1955 Theatre Drive*/ southwest quadrant of interchange	Motel	Partial
009-631-012	1859 Ramada Drive*/ northeast quadrant of interchange	Gas Station/Fast Food Restaurant	Partial
009-831-023	N/A/ southwest quadrant of interchange	Spa and Hotel	Partial (no structures)
009-631-011	N/A/ northwest quadrant of interchange	Open land	Partial (no structures)
040-031-001*	N/A/ northwest quadrant of interchange	Open land	Partial (no structures)
040-091-039*	N/A/ northwest quadrant of interchange	Open land	Partial (no structures)
040-091-041*	N/A/ northwest quadrant of interchange	Open land	Full (no structures)
009-831-003	N/A/ northwest quadrant of interchange	Creek/Ravine	Full (no structures)
009-831-021	N/A/ southwest quadrant of interchange	South side of SR-46W	Partial (no structures)
009-831-001	N/A/ northeast quadrant of interchange	Vacant land	Partial (no structures)
009-831-014	N/A/ east of interchange	Vacant land	Partial (no structures)

Note: Based on preliminary engineering, it is anticipated that these properties would require a partial/sliver acquisition. Therefore, relocation of these particular properties is not expected to be necessary. A determination regarding the specific extent of impacts to the properties identified above would be determined during the project's final design phase.
* = Affected by only Build Alternative 2.
N/A = Information not available.

- Parcel 040-091-049, occupied by Wayne's Tires, would be acquired in full due to the proposed Ramada Drive realignment and the realignment of the off-

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ramp and proposed alignment of the roundabout. The size of the parcel to be acquired in full is 0.938 acre.

- Parcel 040-091-052, occupied by the Delta Energy Propane Tank, RV Sales, Rentals and Service business, would require partial acquisition consisting of 0.20 acre of the total 3.83-acre parcel. The commercial frontage of the office building would be demolished due to the proposed Ramada Drive off-ramp alignment. The parcel is large enough to accommodate the reconstruction of the office on the same parcel.

- Parcel 009-831-015, occupied by a Jack in the Box/Arco on the northeast corner of the Ramada Drive and State Route 46 West intersection (1900 Ramada Drive), would be partially acquired due to the proposed alignment of the roundabout and Ramada Drive. Approximately 0.44 acre would be acquired from the 1.24-acre parcel. Based on preliminary engineering data, the gas pump island is located in the acquisition area, but not the convenience store/fast food restaurant.

- Parcel 009-831-007, occupied by the River Lodge Motel, would be partially acquired due to the proposed Theatre Drive alignment. Approximately 0.265 acre would be acquired from the 2.0-acre parcel. The affected area is the southern portion of the motel used as an office.

- A small portion of parcel 009-631-012, occupied by a McDonalds/Chevron facility, would be acquired due to the proposed alignment of the US 101 northbound on-ramp. Approximately 0.055 acre would be acquired from the 1.12-acre parcel. No structures would be affected because the construction of the McDonalds/Chevron facility took the proposed project into consideration and no structures were placed in the alignment of the partial acquisition. The City and owner of the parcel coordinated the layout to ensure that a full acquisition would not be required and a partial acquisition would not render the McDonalds/Chevron facility inoperable.

- Parcel 009-831-023, occupied by an entrance/exit driveway, would be partially acquired due to the alignment of Theatre Drive. Approximately 0.071 acre would be acquired from the 1.57-acre parcel.

- Parcel 009-631-011, occupied by open land in the northwest quadrant of the project, would be partially acquired due to the proposed Vine Street

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alignment. This partial acquisition would require 0.45 acre for Build Alternative 1, and 0.867 acre for Build Alternative 2 from the 17.47-acre parcel. Under Build Alternative 2, 16.60 acres of the total 17.47-acre parcel would remain after project construction. Although portions of the parcel are relatively steep and sloping, the rest of the parcel includes gradual sloping areas deemed viable for commercial development by the city engineer.

- Parcel 040-031-001, occupied by open land in the northwest quadrant of the project, would be partially acquired due to the proposed alignment of Vine Street for Build Alternative 2 only. Approximately 4.558 acres of the 82.160-acre parcel would be partially acquired.

- Parcel 040-091-039, occupied by open land in the northwest quadrant of the project, would be partially acquired due to the proposed alignment of Vine Street for Build Alternative 2 only. Approximately 0.211 acre of the 16.77-acre parcel would be partially acquired for easement purposes.

- Parcel 040-091-041, occupied by open land in the northwest quadrant of the project, would be fully acquired due to the proposed alignment of Vine Street for Build Alternative 2 only. The 2.091-acre parcel would be fully acquired.

- Parcel 009-831-003, occupied by a creek/ravine, would be fully acquired due to the proposed alignment of State Route 46 West and the roundabout. The 1.533-acre parcel would be fully acquired.

- Parcel 009-831-021 on the south side of State Route 46 West, occupied by open land on the shoulder of the State Route 46 West, would be partially acquired due to the proposed alignment of State Route 46 West. About 0.244 acre would be partially acquired from the 1.01-acre parcel.

- Parcel 009-831-001, occupied by vacant land, would be partially acquired due to the proposed alignment of Ramada Drive. Approximately 0.260 acre would be partially acquired from the 5-acre parcel.

- Parcel 009-831-014, occupied by vacant land, would be partially acquired due to the proposed alignment of the roundabout. Approximately 0.301 acre would be partially acquired from the 2.30-acre parcel.

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The project would completely remove two business enterprise structures, both of which are light industrial developments: Wayne's Tire (Parcel 040-091-049) and Delta Energy (Parcel 040-091-052). Based on a 5.0% Industrial/Warehouse business vacancy rate for the city and a 4.3% vacancy rate for the county, there would be sufficient industrial business buildings that are equal to or better than the displacement properties available for rent or purchase.

Avoidance, Minimization and/or Mitigation Measures

COM-1 Once the preferred project alternative is adopted and it is determined whether partial or full acquisitions are required for the above listed properties, a specific non-residential Relocation Plan would be prepared and implemented. Refer to Appendix C (Summary of Relocation Benefits) for additional information.

Any person, including individuals, families, corporations, partnerships, or associations, who moves from real property or moves personal property from real property as a result of the acquisition of the real property, or is required to relocate as a result of a written notice from Caltrans from the real property required for a transportation project, is eligible for "Relocation Assistance." All activities and compensation would be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources would be available to all displacees free of discrimination. Also refer to measure LU-1 above in Section 2.1.1.1 Existing and Future Land Use, Avoidance, Minimization, and/or Mitigation Measures section.

The proposed project would comply with the Caltrans Relocation Assistance Program, which is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and Title 49 Code of Federal Regulations, Part 24. The Caltrans Relocation Assistance Program ensures that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that persons will not suffer disproportionate injuries as a result of such projects.

As noted previously, all considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the director, which can be found in Appendix B of this document. Also refer to Appendix C for a summary of relocation benefits.

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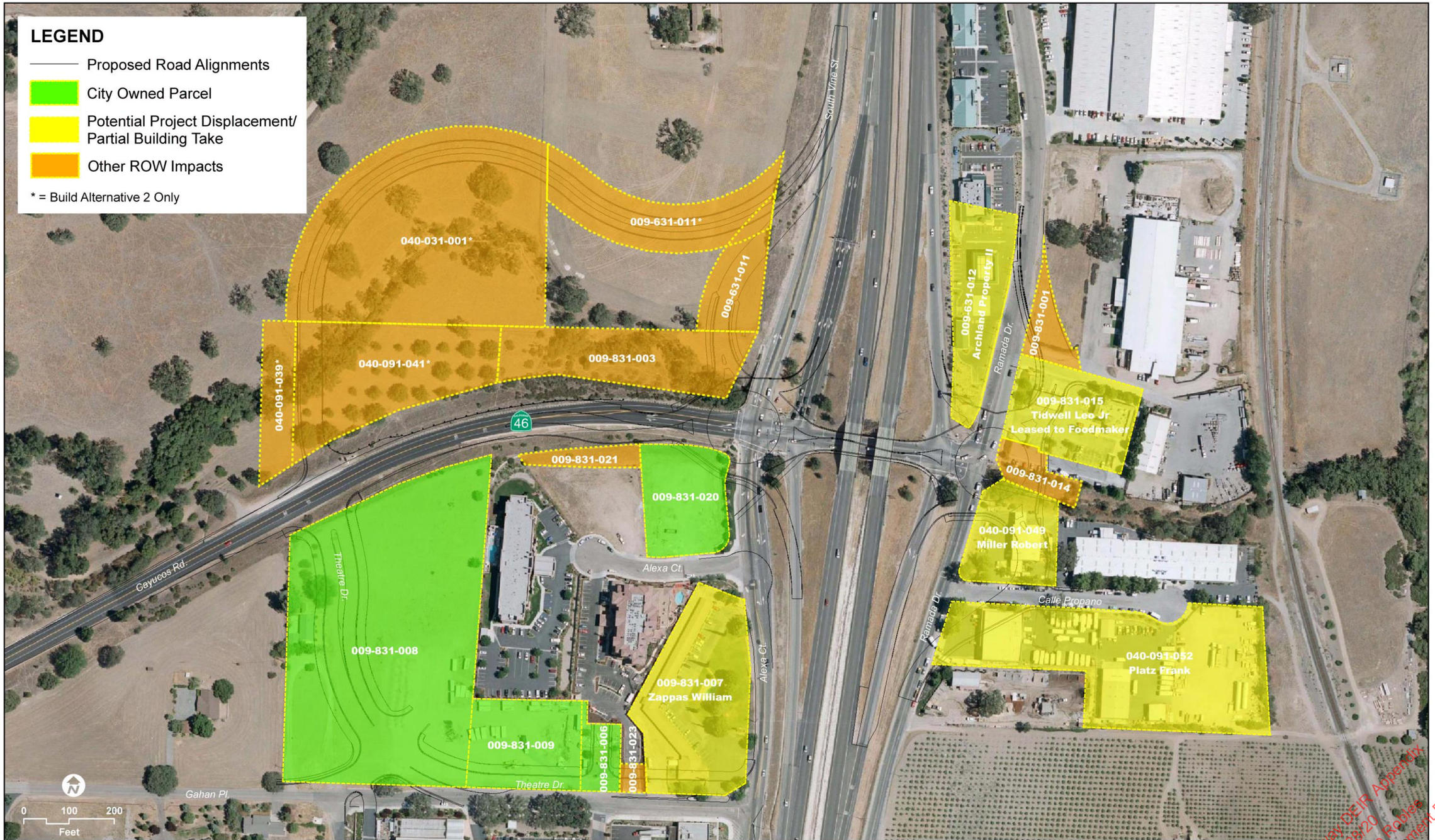

Source: DigitalGlobe, July 2007

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FIGURE 2.1-4
POTENTIAL PROJECT DISPLACEMENTS, CITY-OWNED PARCELS, AND RIGHT OF WAY ACQUISITIONS

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2.1.4.3 Environmental Justice

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Bill Clinton on February 11, 1994. This executive order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2006, this was $20,000 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have been included in this project. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the director, in Appendix B of this document.

Affected Environment

The existing US 101/State Route 46 West interchange sits within United States census tracts 100, 103 and 127.04 (see Figure 2.1-3). The Council on Environmental Quality defines "minority" as individuals who are members of the following population groups: American Indian or Alaska Native; Asian or Pacific Islander; African American, not of Hispanic origin; or Hispanic. As shown in Table 2.1-5, the ethnic makeup of the census tracts encompassing the project area is predominantly white, with 7.7% to 13.5% composed of minority populations.

Table 2.1-5 – Race/Ethnic Composition of Census Tract Population and Impacted Parcel Ownership

Census Tract	White	Other*	Number of Parcels Affected		Project Area Minority-Owned Parcels	
			Build Alt 1	Build Alt 2	Build Alt 1	Build Alt 2
100	86.5%	13.5%	2	5	0	0
103	87.3%	12.7%	5	5	0	0
127.04	92.3%	7.7%	2	2	0	0

Source: United States Census Bureau, July 2006.
* = African American, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, and other.

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According to City correspondence and as confirmed by City staff, there are no minority-owned businesses within census tracts 100, 103, or 127.04 in the project area, so no minority-owned businesses would be affected by the proposed project. A majority of the population within census tracts 100, 103, and 127.04 are employed in management, professional, and related occupations, at approximately 28.1%, 28.2% and 44.4%, respectively, followed by service, sales, and office occupations at 18.9%, 23.3%, and 21.8%, respectively. Table 2.1-6 shows employment and economic information compiled for the study area using 2000 Census data.

Table 2.1-6 – Employment and Income

Census Tract	Labor Force	Unemployment Rate	Median Household Income	Percentage of Families Living Below Poverty Level
100	3,144	4.0	$43,144	7.1
103	4,039	2.7	$51,207	8.6
127.04	3,655	2.2	$56,764	3.5

Source: United States Census Bureau, July 2006.

As shown in the table above, census tract 100 includes 7% of families living below poverty, census tract 103 includes 8.6%, and census tract 127.04 includes 3.5% of families living below the poverty level.

Environmental Consequences

Build Alternatives 1 and 2

Potential environmental justice issues for transportation improvement projects could include air quality, noise, water pollution, hazardous wastes, aesthetic values, community cohesion, economic vitality and employment, displacements/relocations, accessibility, safety, and construction impacts. The key to the analysis addressed in this section is to determine if the proposed project would adversely and disproportionately affect the health of minority and/or low-income populations in accordance with Executive Order 12898.

As further described in each respective section of this report, the proposed project would not result in adverse impacts to any of the areas of interest (such as air quality, noise, etc.) listed above. Furthermore, as described in Table 2.1-5, the project area is predominantly white and, as confirmed by City staff, no minority-owned businesses are located within census tracts 100, 103, or 127.04 in the project area.

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No minority-owned businesses would be affected by the proposed project. Due to proposed mitigation measures for each respective area of interest, the proposed project would not exact a disproportionately high and adverse effect on minority and/or low-income populations.

No-Build Alternative

The No-Build Alternative would not affect neighborhood and community stability, result in the displacement of residents/businesses, or result in disproportionately high and adverse health or environmental effects on minority and/or low-income populations.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the build alternatives would not cause disproportionately high and adverse effects on any minority or low-income populations per Executive Order 12898 regarding environmental justice.

2.1.5 Utilities/Emergency Services

Affected Environment

The utilities within the project limits of the build alternatives have been identified using as-built plans. The utilities along US 101 and State Route 46 West include underground water lines, underground natural gas lines, electricity lines, telephone lines, and cable television lines.

The Paso Robles Department of Emergency Services provides a variety of services to the community, including fire suppression, emergency medical services, rescue, and hazardous materials and other emergency responses. The Department of Emergency Services has automatic and mutual aid contractual agreements with the California Department of Forestry and other surrounding municipal departments for emergency response to the area. In addition, the City's Police Department provides code enforcement and police services in the area. The City's Police Department consists of over 100 full-time, part-time, and volunteer personnel.

The Diablo Canyon Power Plant is located more than 25 miles south of the proposed project. The Diablo Canyon Power Plant has adopted an emergency response plan. Residents in the Protective Action Zone, nearest the Diablo Canyon Power Plant, may be asked to take protective actions, including sheltering in homes or evacuating, in the event of a major emergency at the Diablo Canyon Power Plant. Residents in the Public Education Zone, further removed from the Diablo Canyon Power Plant, are not likely to be affected by an accident at the Diablo Canyon Power Plant. The proposed

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project is more than 25 miles from the Diablo Canyon Power Plant, and is not in the Protective Action Zone or the Public Education Zone as designated by the County of San Luis Obispo County, Office of Emergency Services. Furthermore, the proposed project would not conflict with the Diablo Canyon Power Plant emergency response plan, but rather would improve traffic operations in the project area to assist in the event of an evacuation.

Environmental Consequences

Build Alternatives 1 and 2

Implementation of the proposed project would require relocation of underground utilities of those types described above. However, such relocations are not expected to result in extended interruptions of service, if any. No other major utility conflicts are anticipated to occur to existing utilities. For example, the overhead power line would not conflict with the proposed project and, therefore, would not require relocation or disruption of service.

The realignment of Theatre Drive would provide two points of access to Alexa Court. Alexa Court would be accessible via Theatre Drive, entering through the entrance/exit driveway of the hotel that is currently connected to Gahan Place and through the parking lot of the hotel directly connecting to the Alexa Court cul-de-sac.

The nearest fire station sits at 900 Park Street, about 2.25 miles north of the project site. Police, fire, and emergency services could experience temporary, short-term traffic delays during construction of the proposed project. After construction, the response times for police, fire, and emergency services are not anticipated to be affected and are anticipated to be similar to those of the nearby shopping center. The proposed project would provide greater accessibility to police, fire, and emergency services through the area due to congestion relief.

All road closures and detours would be advertised in advance and adequately posted to minimize adverse impacts to emergency service vehicles using the roadway. A Traffic Management Plan would be required to minimize impacts to emergency services; refer to Section 2.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities) for additional information. Impacts are anticipated to be temporary and short term.

The proposed project would reduce existing congestion, improve traffic operations, and accommodate anticipated future travel demand. This is seen as a beneficial impact for police, fire, and emergency vehicles accessing the area.

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No-Build Alternative

The No-Build Alternative would not affect utilities. Access for emergency services would not be improved.

Avoidance, Minimization and/or Mitigation Measures

Refer to Avoidance, Minimization, and Mitigation Measure TRF-1 in Section 2.1.6.

2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

Caltrans, as assigned by the Federal Highway Administration, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 Code of Federal Regulations 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans is committed to carrying out the 1990 Americans with Disabilities Act by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

Affected Environment

The following analysis regarding potential impacts to traffic and transportation and pedestrian and bicycle facilities is drawn from the pertinent analyses included in the *Traffic Report* (2006).

Within the project limits, US 101 is the major north-south corridor in the county. State Route 46 is the major east/west expressway serving the county regional traffic. US 101 is a four-lane access-controlled freeway with standard lanes and shoulders. State Route 46 West is a two-lane access-controlled conventional highway with 12-foot-wide lanes and 8-foot-wide shoulders. US 101 crosses over State Route 46 West on separate structures, and the US 101/State Route 46 West interchange is composed of single-lane off- and on-ramps in a compact diamond configuration. The ramp intersections have traffic signals and are spaced approximately 260 feet apart and less than 30 feet from the adjacent frontage road intersections. Theatre Drive and South Vine Street parallel US 101 to the west, and Ramada Drive parallels US 101 to the east.

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The 2006 annual average daily trips for a.m. and p.m. peak hour volumes for the US 101/State Route 46 West interchange, US 101, and State Route 46 West were obtained from the California Department of Transportation District 05, in addition to traffic counts conducted in April 2006. Table 2.1-7 lists the existing level of service experienced in the area.

Table 2.1-7 – Year 2006 Levels of Service

Facility	Control	Level of Service (LOS)	
		A.M. Peak	P.M. Peak
US 101/State Route 46 West Interchange			
US 101 Southbound/State Route 46 West/Theater Drive-Vine Street	Signal	31.5 SEC/LOS C	35.2 SEC/LOS D
US 101 Northbound/State Route 46 West	Signal	13.0 SEC/LOS B	15.0 SEC/LOS B
State Route 46/Ramada Drive	Stop Sign	13.7 SEC/LOS B	16.3 SEC/LOS C
US 101 south of State Route 46 West			
Northbound	NA	LOS D	LOS D
Southbound	NA	LOS D	LOS C
US 101 north of State Route 46 West			
Northbound	NA	LOS D	LOS E
Southbound	NA	LOS E	LOS D

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).
Level of Service for intersections (Interrupted Flow Facilities) based on average delay per vehicle in seconds.
Level of Service for US 101 (Uninterrupted Flow Facilities) based on per car per lane p.m.
Level of Service for US 101 SB/State Route 46 West/Theater Dr-Vine St based on average delay per vehicle for all movements using the two intersections since they operate as a single unit.

The queuing on State Route 46 West between the northbound and southbound ramp intersections blocks access to through lanes, which prevents traffic flow during peak periods. The following minor, interim improvements were constructed at the US 101/ State Route 46 West interchange in the summer of 2006:

- Lengthened the US 101 southbound off-ramp storage lanes to provide 500 to 550 feet for existing vehicles
- Added a traffic signal to State Route 46 West at Ramada Drive
- Interconnected traffic signals at the interchange and provided a timing plan for signal coordination

These locally funded interim improvements were constructed to offset traffic increases that will be generated by local area projects that have been approved but not yet constructed. State Route 46 also acts as a major east-west roadway between the San Joaquin Valley and the Pacific Coast region. Thus, regional traffic greatly influences traffic operations at the US 101/State Route 46 West interchange.

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The US 101/State Route 46 West interchange is heavily used for weekend travel between the valley and the coastal regions, particularly during the summer months. Traffic on US 101 southbound to State Route 46 West is approximately 20% higher on Fridays and Saturdays during the summer months, operating at LOS D during these periods, with higher-than-normal delays and longer queues.

Environmental Consequences

No-Build Alternative

The No-Build Alternative would not address the projected operational deficiencies at the US 101/State Route 46 West interchange as development takes place and traffic demands increase as anticipated. The inadequate operational deficiencies of the existing interchange, when paired with increased traffic, would contribute to higher delays and longer queues with adverse impacts on through traffic for the region. Furthermore, the No-Build Alternative is not consistent with the current and future mobility goals for the region.

For the year 2038, the intersections at the US 101/State Route 46 West interchange are also forecast to operate at level of service F under the No-Build Alternative, resulting in a greater than 80-second-delay time for the a.m. and p.m. peak hours. Table 2.1-8a summarizes the level of service under the No-Build Alternative.

Table 2.1-8a – Year 2038 Levels of Service, No-Build Alternative

Facility	Control	Average vehicle delay/LOS	
		A.M. Peak	P.M. Peak
US 101/State Route 46 West Interchange			
US 101 Southbound/SR46 West/Theater Drive-Vine Street	Signal	>80 sec/LOS F	>80 sec/LOS F
US 101 Northbound/SR 46 West/Ramada Drive	Signal	>80 sec/LOS F	>80 sec/LOS F

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).
Level of Service for US 101 southbound/State Route 46 West/Theater Drive-Vine Street based on average delay per vehicle for all movements using the two intersections since they operate as a single unit.
Level of Service for US 101 northbound/State Route 46 West/Ramada Drive based on average delay per vehicle for all movements using the two intersections since they operate as a single unit.

The increase in regional traffic, coupled with the traffic from approved projects in the area, is forecast to degrade operations to LOS F sometime between 2010 and 2014, depending on the regional traffic growth rate. Operational analysis of the roundabouts was completed using the Sidra, Rodel, and Federal Highway Administration analysis tools. For more information regarding the analysis tools, please refer to the Traffic Report prepared for the project. The performance measures for roundabouts include

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volume-to-capacity ratios, queues, and average delays, because a level of service rating system has not been developed for roundabout operations.

Tables 2.1-8b through 2.1-8f summarize the year 2038 traffic operations analysis results for the a.m. and p.m. peak hours for each of the alternatives.

Table 2.1-8b – Alternative 1, 2038 Levels of Service

Facility	Control	A.M. Peak		P.M. Peak	
		Delay (seconds)	LOS	Delay (seconds)	LOS
Theatre Dr./SR-46W	Signal	14.8	B	21.1	C
US 101 Mainline	N/A	N/A	F	N/A	F

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

Table 2.1-8c – Alternative 2, 2038 Levels of Service

Facility	Control	A.M. Peak		P.M. Peak	
		Delay (seconds)	LOS	Delay (seconds)	LOS
Theatre Dr./S. Vine St./SR-46W	Signal	25.2	C	32.3	C
US 101 Mainline	N/A	N/A	F	N/A	F

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

Table 2.1-8d – Alternative 1, US 101 SB/SR 46W/South Vine Street, 2038 Roundabout Performance (A.M./P.M.)

Approach	Sidra			FHWA			Rodel		
Leg	V/C	Delay	Queue	V/C	Delay	Queue	V/C	Delay	Queue
US 101 SB off-ramp	0.43/0.74	9.9/17.6	79/201	0.38/0.60	3.7/6.5	1.8/4.4	0.44/0.68	5.4/10.8	1/3
SR-46W EB	0.65/0.85	12.4/22.6	201/406	0.54/0.67	4.2/5.9	3.5/6.0	0.59/0.73	5.4/8.4	2/3
SR-46W WB	0.48/0.61	5.8/5.6	119/177	0.51/0.63	3.6/4.8	3.1/5.1	0.46/0.56	3.0/4.2	1/1
S Vine SB	0.42/0.98	16.8/61.1	65/351	0.27/0.60	7.4/17.2	1.1/4.3	0.25/0.60	7.8/19.2	0/2

V/C = Volume-to-Capacity ratio. Delay = average delay per vehicle during the peak hour period, reported in seconds.
Queue = 95% queues during the peak period. Sidra reported in feet; FHWA and Rodel reported in vehicles.
Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

Table 2.1-8e – Alternative 1 and 2, US 101 NB/SR 46W/Ramada Drive, 2038 Roundabout Performance (A.M./P.M.)

Approach	Sidra			FHWA			Rodel		
Leg	V/C	Delay	Queue	V/C	Delay	Queue	V/C	Delay	Queue
US 101 NB off-ramp	0.66/1.00	11.2/33.5	154/520	0.37/0.52	3.7/5.2	1.7/3.2	0.45/0.62	5.4/9.0	1/2
SR-46W EB	0.70/0.76	6.9/7.6	111/130	0.57/0.63	4.0/4.7	3.9/5.0	0.66/0.73	6.6/8.4	2/3
Ramada NB	0.22/0.52	9.7/15.7	33/106	0.16/0.43	3.0/5.2	0.6/2.3	0.24/0.56	4.8/9.6	0/2
Ramada SB	0.58/0.73	10.3/18.2	150/239	0.50/0.56	3.8/5.0	3.0/3.8	0.66/0.73	8.4/12.0	2/4

V/C = Volume-to-Capacity ratio. Delay = average delay per vehicle during the peak hour period, reported in seconds.
Queue = 95% queues during the peak period. Sidra reported in feet, FHWA and Rodel reported in vehicles.
Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

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Table 2.1-8f, Alternative 2, US 101 SB/SR 46W, 2038 Roundabout Performance (A.M./P.M.)

Approach	Sidra			FHWA			Rodel		
Leg	V/C	Delay	Queue	V/C	Delay	Queue	V/C	Delay	Queue
US 101 SB off-ramp	0.34/0.51	7.3/8.8	47/90	0.36/0.55	3.4/5.4	1.7/3.6	0.42/0.63	4.8/8.4	1/2
SR-46W EB	0.57/0.70	8.6/11.1	150/234	0.51/0.63	3.8/5.0	3.1/5.0	0.43/0.53	3.0/4.2	1/1
SR-46W WB	0.33/0.38	4.9/4.3	0/0	0.50/0.60	3.4/4.3	2.9/4.5	0.57/0.69	4.8/6.6	1/3

V/C = Volume-to-Capacity ratio. Delay = average delay per vehicle during the peak hour period, reported in seconds.
Queue = 95% queues during the peak period. Sidra reported in feet, FHWA and Rodel reported in vehicles.
Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

Improvements associated with the proposed build alternatives would improve the operation of the on- and off-ramp intersections, as well as the intersection of Theatre Drive and State Route 46 West as compared with the No-Build Alternative. The improvement project would reduce delays to the motoring public, resulting in an estimated savings of $43,823,094 (2008 dollars) during the 2018 to 2038 time period. The savings is based on delay reductions during the weekday a.m. and p.m. peak periods. Additional savings would be gained during other hours.

Funding constraints will require that improvements under the recommended alternative be constructed in phases. Some variation of minor design features may then be made. The major components of potential build phases are discussed in Section 1.3.1.2 “Unique Features of Build Alternatives.” In addition, the American Recovery and Reinvestment Act (ARRA) of 2009 is now an identified funding source for key components and interim improvements of the Phase 1 concept.

The May 6, 2008 Traffic Technical Memorandum included an analysis of the traffic operations for interim improvements at the US 101 southbound ramps intersection with State Route 46 West. Specifically, the analysis focused on comparing the no-build concept to the concept of the Theatre Drive/State Route 46 West intersection relocation to approximately 900 feet west of the current location, as discussed in the Phase 1 concept. That traffic analysis documented the operational benefit and utility of intersection relocation in the year 2018 p.m. peak hour. The modeling reflected a vehicle delay change from 95.3 seconds of delay for the no-build scenario to 82.2 seconds of delay for the build scenario at the US 101 southbound ramps intersection. Though both scenarios reflect a greater than 80-second delay per vehicle (LOS F), the interim improvements show an approximately 14% reduction in delay.

Furthermore, the Technical Memorandum included a sensitivity analysis of interchange operations. Interchange operations are forecast to degrade to LOS F

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during the p.m. peak hour period in the 2010-2014 horizon period depending on the rate of growth in traffic. Implementation of Theatre Drive/State Route 46 West intersection relocation would reduce vehicle delays during other hours of the day when the interchange is not fully saturated. Hours of the day that would be congested under the No-Build Alternative would operate without congestion with the Phase 1 interim improvements. In some instances, the interchange would operate at LOS F during the p.m. peak hour period under the no-build scenario, whereas the interchange would operate at LOS E with the implementation of Phase 1. The Phase 1 improvements would also increase the capacity of the US 101 southbound off-ramp that contains two right-turn lanes. Currently, the southbound US 101 ramp right-turn lane dedicated for vehicles destined for southbound Theatre Drive requires vehicles to make the right turn from the ramp and then reduce vehicle speed to immediately turn left onto Theatre Drive. With implementation of Phase 1 improvements, vehicles would turn right from the ramp and then accelerate away from the intersection since the left turn onto Theatre Drive would be some 900 feet to the west at the new intersection. As such, the implementation of Phase 1 would result in independent and beneficial operational impacts.

Build Alternative 1

Under this alternative, the State Route 46 West/Theatre Drive intersection is forecast to operate at LOS B (with an average delay per vehicle of 15 seconds) during the a.m. and p.m. peak periods in year 2018. For year 2038, the Theatre Drive/State Route 46 West intersection would operate at LOS B (with an average delay per vehicle of 15 seconds) in the a.m. peak hour and at LOS C (with an average delay per vehicle of 21 seconds) in the p.m. peak hour.

Build Alternative 1 would improve the operation of the ramp intersections as well as the intersection of Theatre Drive and State Route 46 West. Roundabout operations are measured in volume-to-capacity ratios as there are no accepted LOS standards. For most of the entry legs of the roundabouts in year 2038, the volume-to-capacity ratios are less than 0.85, with delays between 3 and 23 seconds, and the maximum queues would be accommodated by the storage on the entry legs during the peak 15 minutes of the a.m. and p.m. peak-hour periods.

As previously mentioned, State Route 46 West is a major east-west route between the San Joaquin Valley and the Pacific Coast. The route, including the US 101/State Route 46 West interchange, is heavily used during the summer months, particularly on Friday evenings with traffic headed for the coast and on Sunday afternoons with

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traffic returning to the San Joaquin Valley. The roundabout at State Route 46 West, Theater Drive/South Vine Street, and US 101 southbound was assessed under the summer Friday evening peak-hour traffic scenario. For most of the entry legs of the roundabout, the volume-to-capacity ratios are 0.85 or less, delays are within the 3 to 23 seconds-per-vehicle range, and the maximum queues would be accommodated by the storage available on the entry legs during the peak 15 minutes of the summer Friday evening period.

The proposed project would not adversely affect US 101. A widening to six lanes has been identified in Caltrans' Transportation Concept Report and in the Regional Transportation Improvement Program. Even with the widening to six lanes, US 101 is expected to operate at level of service F. However, adequate storage would be provided for off-ramp queues in Build Alternative 1 and exiting vehicles should not impact the US 101 through lanes.

Furthermore, as mentioned above, even with the minor, interim improvements completed in the summer of 2006, the interchange is expected to degrade to level of service F during the 2010 to 2014 time period. Opening day for the interchange is projected to be in the year 2018, several years after the interchange would degrade to level of service F.

Build Alternative 2

Under Build Alternative 2, the intersection of State Route 46 West and Theatre Drive/South Vine Street is forecast to operate at level of service C during the a.m. and p.m. peak periods in both 2018 and 2038. This alternative would improve the operation of the ramp intersections as well as the Theatre Drive/South Vine Street intersection.

Similar to Build Alternative 1, for most of the entry legs of the roundabouts, the volume-to-capacity ratios are less than 0.85, with delays between 3 and 23 seconds, and the maximum queues would be accommodated by the storage on the entry legs during the peak 15 minutes of the a.m. and p.m. peak-hour periods.

A summer Friday evening period for the US 101 southbound/State Route 46 West roundabout assessment was conducted for Build Alternative 2. Because South Vine Street is not connected to the roundabout as in Build Alternative 1, the traffic operations for this alternative are better than that of Build Alternative 1. The volume-to-capacity ratios are 0.74 or less, delays are in the 4 to 12 seconds per vehicle range,

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and the maximum queues would be accommodated by the storage on the entry legs during the peak 15 minutes of the summer Friday evening period.

The proposed project would not adversely affect US 101. A widening to six lanes has been identified in Caltrans' Transportation Concept Report and in the Regional Transportation Improvement Program. Even with the widening to 6 lanes, US 101 is expected to operate at level of service F. However, adequate storage would be provided for off-ramp queues in Build Alternative 2 and exiting traffic should not impact the US 101 through lanes.

Construction Impacts

Temporary traffic impacts would occur as a result of construction vehicles and heavy equipment in the immediate project area, as well as temporary lane closures, detours, and merging traffic. The anticipated impacts to traffic congestion would be minor and would cease upon project completion.

Modification of the US 101/State Route 46 West interchange would maintain a continuous sidewalk on the south side of State Route 46 West under US 101. Pedestrian traffic through the roundabouts would be facilitated by crosswalks with median refuges. In addition, all standard intersection curbs being constructed in conjunction with this project would provide enhanced access to the handicapped in accordance with Americans with Disabilities Act requirements. State Route 46 West is classified as a bike route, and bicycle traffic would use the paved shoulders and bike lanes provided on State Route 46 West and the frontage roads as part of the proposed project. Bicyclists are also permitted inside the roundabouts. For those bicyclists who do not wish to use the roundabouts, bike ramps would provide continuous access from paved surfaces to the wide sidewalks around the roundabouts. In addition, a shared-use path is proposed along the south side of State Route 46 West between the relocated Theatre Drive and Ramada Drive.

Avoidance, Minimization and/or Mitigation Measures

TRF-1 A construction Traffic Management Plan would be approved prior to construction and implemented by Caltrans and the City. The plan would ensure that traffic flow and roadway safety are maintained in the project area during construction. This Traffic Management Plan would include provisions for adequate notices, sign-postings, detours, phased construction, provisions for pedestrians and bicycles, and the permitted hours of construction activities. The Traffic Management Plan would be

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devised so that construction would not interfere with any emergency response or evacuation plans.

TRF-2 Signage to guide vehicles from the freeway off-ramps and through the roundabouts is a very important part of the operations through roundabouts and through the interchange. Signing would be included to direct travelers to the State Route 46 West direction and to Theatre Drive at the appropriate points determined during final design and as approved by Caltrans.

2.1.7 Visual/Aesthetics

Regulatory Setting

The National Environmental Policy Act of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically (emphasis added) and culturally pleasing surroundings [42 United States Code 4331(b)(2)]. To further emphasize this point, the Federal Highway Administration in its implementation of the National Environmental Policy Act [23 United States Code 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, the California Environmental Quality Act establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic, and historic environmental qualities" [California Public Resources Code Section 21001(b)].

Affected Environment

The following analysis regarding potential project-related visual/aesthetic impacts is based on the analyses included in the Visual Impact Assessment, U.S. Highway 101/State Route 46 West Interchange Improvement Project (2009).

The proposed project is located on the southern edge of the city. Before reaching US 101, State Route 46 West travels through mostly agricultural vineyards and gently rolling hills. A hotel is located south of State Route 46 West near the intersection of Theatre Drive/South Vine Street. A natural drainage occurs on the north side of State Route 46 West paralleling the road. A culvert from the drainage leads east under US 101 to its outlet southeast of the project area where it becomes an open channel again. Oak trees line the drainage, which is a tributary to the Salinas River. Vegetation communities present within the project area include mostly ruderal (disturbed)

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vegetation, grassland, hayfields, and remnant oak associated with the drainage, as well as fruit trees. The majority of the project area consists of commercial/retail and industrial development, primarily concentrated at all quadrants of the interchange, with the exception of the northwest quadrant of the interchange. This particular quadrant consists primarily of vacant (undeveloped) land.

Project Viewshed

A project viewshed is defined as the visual limits of the views from the proposed project. The viewshed includes locations of viewers likely to be affected by visual changes created by the proposed project. Viewsheds are influenced by the existing topography, vegetation, and the built environment and include all areas where physical changes associated with the proposed project can be seen from a sensitive viewpoint.

For the proposed project, the principal travel corridors and intersections assessed included State Route 46 West, US 101, the US 101 on- and off-ramps, Ramada Drive, Theatre Drive, South Vine Street, and Gahan Street. Other views taken into account include nearby residential views, notably the three homes in the area southwest of the State Route 46 West/US 101 interchange.

A total of five key views were selected for the analysis of the proposed project. The key views were chosen through review of existing land use data, the viewshed model, planning documents, agency consultation, and field reviews. Per Federal Highway Administration guidelines, views both "from" and "of" the roadway/interchange have been identified. The five key views for the project are shown in Figure 2.1-5 and summarized below.

- Key View #1 – View of proposed Theatre Drive re-alignment from nearby residence;
- Key View #2 – View from eastbound State Route 46 West of the proposed interchange/roundabout;
- Key View #3 – View from westbound State Route 46 West of the proposed Theatre Drive/South Vine Street re-alignment;
- Key View #4 – View from northbound US 101 of the proposed interchange/ roundabout towards vicinity of Ramada Drive; and
- Key View #5 – View from southbound US 101 traveler looking west toward the proposed South Vine Street re-alignment.

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Existing Visual Character

The Federal Highway Administration measures visual quality using three factors: vividness (memorability), intactness (integrity), and unity (harmony). The character of the area immediately surrounding the project area has become increasingly commercial and industrial with large shopping complexes, industrial buildings, gas stations, and hotels. However, the character of the general region remains agricultural and rural, dotted with vineyards and open space. Furthermore, the City has defined the intersection of State Route 46 West and US 101 as a "Gateway to the City" in its City General Plan, placing an importance on the visual character of the area as a defining entry point into the City.

Existing Visual Quality

While the project area has been affected by development, the local area is generally defined as one of the more visually attractive regions in California with various memorable, natural features such as rolling hills, open space, and native vegetation. The project area is characterized as having moderate vividness, and low to moderate intactness. Unity for the project area is considered moderate. Some disharmony has been created by commercial, industrial, and roadway developments. However, the broader context of the area provides a relatively unified backdrop of rolling hills and rural, open spaces. The visual quality of the natural surroundings has changed and shifted to be more consistent with roadside, urban, and commercial centers. As such, the overall visual quality rating for the project area is considered to be moderate.

Viewer Response

To predict how the public may react to visual changes brought about by a project, a method of viewer response composed of the viewer sensitivity element and viewer exposure element is measured. The level of viewer sensitivity to a proposed project is determined by assessing viewer activity, awareness, local values, and cultural significance of the visual resource. Viewer exposure is determined by assessing the number of viewers exposed to the resource change and the type of viewer activity, the physical location of the viewer, and the duration of their views.

The sensitivity of different types of viewers within the project area varies depending upon viewer activity, along with awareness of and familiarity with the surrounding environment. Recreational viewers such as those at parks and playgrounds are the most sensitive to change due to their focus on the visual surroundings. Residents are the next most sensitive due to the permanency of their views. Workers and visitors are less sensitive viewers due to their infrequent opportunities to experience

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surrounding views. Pedestrians would be considered sensitive viewers, as they can be directly within the viewshed and would have lengthy exposure to views. Regular motorists would be those who frequent the project area or who commute on a regular basis, but their views would be for short periods as they move through the area. Occasional motorists are the least sensitive to views and typically include non-resident, non-commuter tourists.

Taking into account the main viewer groups, their activity, and awareness, the overall viewer exposure rating has been classified as moderate. Table 2.1-9 summarizes the existing visual environment.

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G:\gis\projects\1577\27560583\mxd\keyviews.mxd

SOURCE: USGS (aerial 1997).

EA: 05-111-45130K
05-SLO-101 PM 53.8-54.5 KP 86.58-87.68
05-SLO-46 PM R21.5/R22.0 KP 34.93/35.44

150 0 150 300 Feet
SCALE: 1" = 300 Feet (1:3,600)

KEY VIEWPOINTS
US-101/SR-46W INTERCHANGE PROJECT

CREATED BY: CL	DATE: 11-13-07	FIG. NO: 2.1-5
PM: CM	PROJ. NO: 27560583.20003	

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Table 2.1-9 – Existing Visual Resources and Viewer Response

Key View	Visual Resources		Viewer Response	
	Visual Character	Visual Quality	Viewer Sensitivity	Viewer Exposure
#1	Dominant Urban: commercial with undeveloped properties	Low/Moderate	High	Moderate
#2	Co-dominant Urban/Rural	Low/Moderate	Moderate	Low/Moderate
#3	Dominant Rural with urban influences	Moderate	Moderate	Low/Moderate
#4	Dominant Urban; Industrial/Commercial	Low	Low/Moderate	Moderate
#5	Dominant Rural	Moderate/High	Low/Moderate	Moderate

Source: U.S. Highway 101/State Route 46 West Interchange Improvement Project Visual Impact Assessment (2009).

Environmental Consequences

Build Alternatives 1 and 2

Five key views were analyzed to assess expected project-related impacts. The key views were selected to display the visual effects of the project and represent the primary viewer groups that would potentially be affected by the project. In comparing the potential severity of the change with the degree to which viewers are likely to oppose the change for each key view, it was determined that the overall visual impact resulting from the proposed project would result in moderate visual impacts. Table 2.1-10 summarizes the existing and proposed conditions of each key view and its overall visual impact associated with each respective build alternative.

Table 2.1-10 – Visual Environment, Before and After Proposed Project

Key View	Alt.	Visual Character		Resulting Visual Impact
		Before Project	After Project	
1	1, 2	Dominant urban; commercial with undeveloped properties	Dominant Urban; Commercial	Moderate
2	1	Co-dominant, urban/rural	Dominant Urban	Moderate
	2	Co-dominant, urban/rural	Dominant Urban	Low/Moderate
3	1	Dominant rural with urban influences	Co-dominant, urban/rural	Low/Moderate
	2	Dominant rural with urban influences	Co-dominant, urban/rural	Moderate
4	1, 2	Dominant urban; industrial/commercial	Dominant urban; industrial/commercial	Low/Moderate
5	1	Dominant rural	Dominant rural with urban influences	Moderate
	2	Dominant rural	Dominant rural with urban influences	Low/Moderate

US 101/ State Route 46 West Interchange Improvement Project-Visual Impact Assessment (2009)

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According to the Federal Highway Administration, low visual impacts involve minor adverse changes to the existing visual resource, with low viewer response to change in the visual environment; a low visual impact may or may not require minimization measures. Moderate visual impacts involve moderate adverse change to the visual resource with moderate viewer response.

Detailed discussion regarding the existing characteristics (visual character and quality and viewer response) of each respective key view and project impacts is presented in the *Visual Impact Assessment* (2009) prepared for the proposed project. The summary of findings provided above for all key views is included herein for brevity.

Key View #2 is discussed in more detail below because it is from this particular key view that the traveling public would be exposed to the greatest changes in the visual environment as a result of the proposed improvements and for the longest duration of time. Please refer to the project's *Visual Impact Assessment* (2009) for more detailed discussion regarding selection of key views for analysis and the results of the analysis for each respective key view selected; included are photo simulations for each build alternative at Key View #4.

Visual Simulations – Key View #2

Visual simulations have been prepared for Key View #2 to illustrate potential changes in the visual character of the project area subsequent to project implementation. This particular view represents the most direct impacts of the project and a relatively high number of viewers. The expected change in visual environment is illustrated using simulations that depict the post-project condition for each respective build alternative.

Key View #2 – Existing Conditions

Key View #2 is a view of the location for the proposed roundabout, west of US 101 from an eastbound traveler on State Route 46 West. The existing view includes the US 101 overcrossing, the Theatre Drive/South Vine Street intersection with State Route 46 West, and the southbound ramps for US 101. The view also includes mature oak trees, roadside vegetation, and associated street lights and signage. Refer to Figure 2.1-6 Key View #2 Existing Conditions.

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Figure 2.1-6 Key View #2 Existing Conditions

Key View #2 Visual Simulation – Build Alternative 1

Applying the Federal Highway Administration's visual impact levels, Build Alternative 1 is considered to have a moderate impact on existing visual resources from Key View #2. Build Alternative 1 would have a greater visual impact than Build Alternative 2 from this particular key view because of the inclusion of South Vine Street in the roundabout on the west side of the interchange. This would result in a greater roundabout footprint and, hence, require more trees to be removed resulting in a greater viewer sensitivity and response.

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Figure 2.1-7 Key View #2 Simulation for Build Alternative 1

Key View #2 Visual Simulation – Build Alternative 2

Comparing the severity of resource change with the degree to which viewers are likely to oppose the change, Build Alternative 2 is considered to have a low/moderate impact on existing visual resources from Key View #2. Build Alternative 2 would also have less impact because it would result in a smaller roundabout footprint, and therefore impact fewer trees (oaks), than Build Alternative 1 from this particular key view.

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Figure 2.1-8 Key View #2 Simulation for Build Alternative 2

For Build Alternative 1, realigning South Vine Street would result in a greater visual impact at the location of the roundabout because it would appear more built up than Build Alternative 2. However, with Build Alternative 2, realigning South Vine Street to the west would result in a larger project footprint and require removing more trees overall. Therefore, Build Alternative 2 would have a greater visual impact overall than Build Alternative 1.

Avoidance, Minimization, and/or Mitigation Measures

AES-1 A Landscape and Revegetation Plan shall be developed as part of preliminary and final project design. The plan shall include the following components:

- Landscaping of new areas and restoration of disturbed habitat shall follow construction and demolition activities as soon as practicable.
- Avoidance of tree removal, to the maximum extent possible, shall be implemented. Where possible, vegetation shall be pruned rather than completely removed.
- Vegetation pruning where required shall be conducted using appropriate International Society of Arboriculture standards under the direction of a Certified Arborist.

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- Oak trees shall be replanted at a minimum 10:1 ratio, and each replanted tree shall be a minimum of one gallon in size. Oak trees shall be replanted on the same property as or as close to the area of removal as practicable.
- Ornamental and functional landscaping shall be included as appropriate along highway on- and off-ramps, city streets, roundabouts and other areas to minimize the urban character of the project, support aesthetic goals identified in City of Paso Robles Gateway Plan, and minimize light and glare to the surrounding area.
- Where feasible, the Landscape Plan shall use native species appropriate to the region. For ornamental planting, appropriate non-native plants shall be allowed for design flexibility.
- If required for long-term plant health, a permanent irrigation system shall be installed for ornamental and functional landscaping.
- A minimum 3-year plant establishment period shall be implemented.
- Prior to final design, Caltrans shall review and approve the Landscape and Revegetation Plan.

AES-2 Project lighting shall be developed to the following specifications:

- Type, style, and placement of lighting features shall be designed, to the greatest extent allowable by jurisdictional policy, so as not to create off-site glare and to minimize the effect on surrounding properties.

AES-3 Final graded slopes, in order to blend with natural forms, shall be rounded and contoured, to the extent practicable, to avoid abrupt grade breaks and sharp edges.

AES-4 The wall along the south side of State Route 46 West and the retaining wall associated with the existing drainage shall include aesthetic treatment such as texture and/or color to minimize the urban character of the project and support aesthetic goals identified in the City of Paso Robles Gateway Plan.

AES -5 In addition to the planting required in mitigation measure AES-1, aesthetic treatments shall be incorporated into the center paving of the roundabouts.

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2.2 Physical Environment

2.2.1 Hydrology and Floodplains

Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. Requirements for compliance are outlined in 23 Code of Federal Regulations 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

Affected Environment

A *Summary Floodplain Encroachment Report* (2007) was prepared to assess existing floodplain conditions within the project area and potential impacts associated with the proposed project.

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, portions of the project area lie within the 100-year floodplain (refer to Figure 2.2-1). However, the base flood elevations have not been determined at this location. The 100-year floodplain bisects the US 101/State Route 46 West interchange in an east-to-west orientation, originating at the Salinas River east of the project area. Much of the 100-year flood flows are contained in the existing 10.2-foot by 10.2-foot diameter reinforced concrete box culvert that crosses under US 101. The 100-year floodplain designated by the Federal Emergency Management Agency terminates at a point approximately 600 feet west of US 101 and approximately 500 feet north of State Route 46 West. The existing concrete box culvert under the interchange would be extended approximately 140 feet on both sides to allow for construction of the roundabouts.

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Potential natural and beneficial values of the existing floodplain in the project area include support for plant and animal species and water quality maintenance.

Environmental Consequences

Build Alternatives 1 and 2

As further described in the Summary Floodplain Encroachment Report (2007), the proposed project would not result in a longitudinal encroachment on the Federal Emergency Management Agency's designated 100-year floodplain and there are no significant risks associated with the implementation of the project. The South Vine Street Bridge associated with Build Alternative 2 would span the 100-year floodplain and provide adequate freeboard at the low point of the bridge.

The proposed action also would not support probable incompatible floodplain development; the project entails modification of an interchange that exists within the floodplain. Roadway modifications to the interchange would maintain, at a minimum, the existing below-ground drainage capacity and not adversely impact the surface flows—drainage would follow existing flow patterns.

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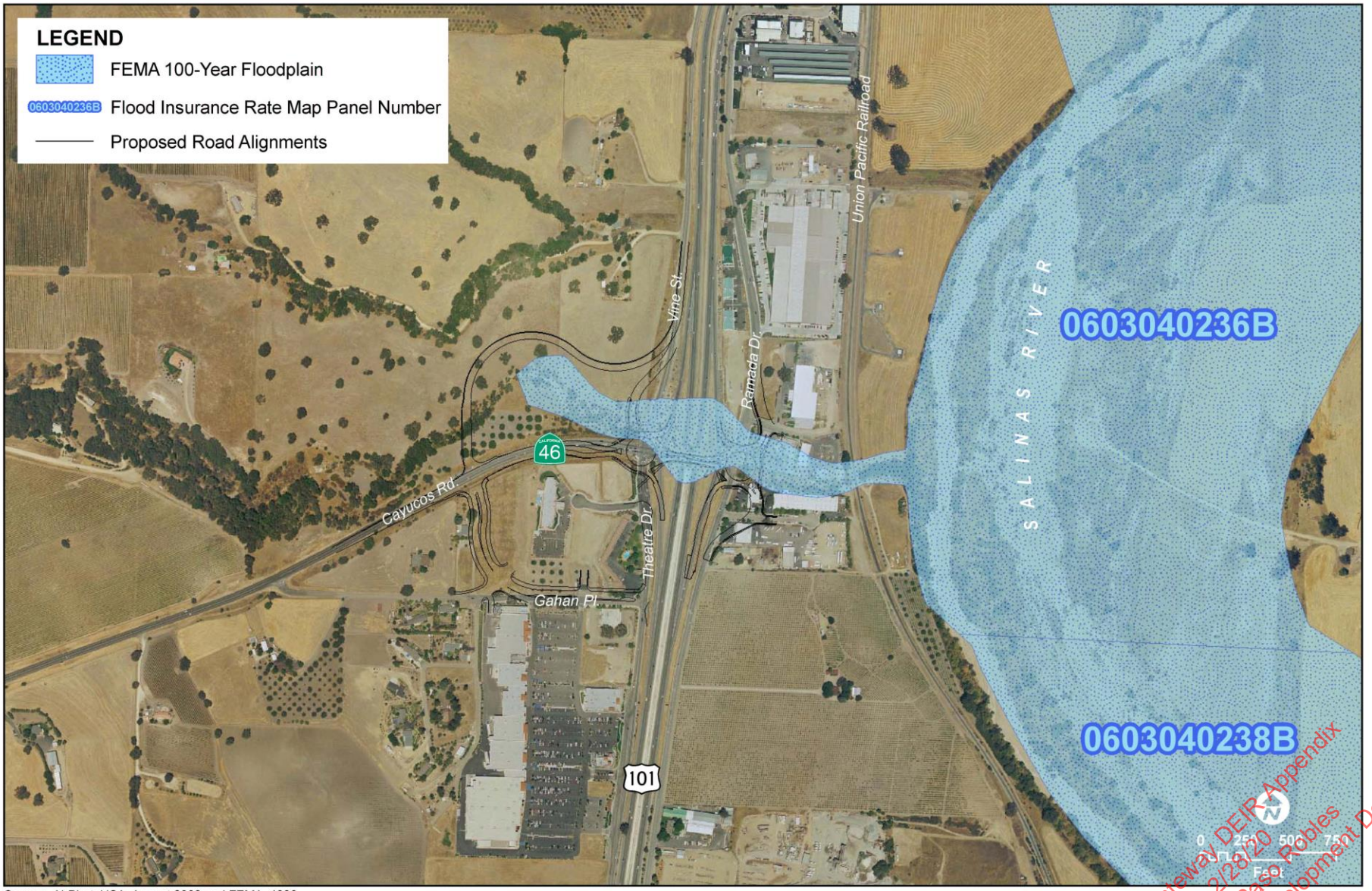

Source: AirPhotoUSA, August 2003 and FEMA, 1998

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FIGURE 2.2-1
FEMA 100-YEAR FLOODPLAIN

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The proposed project would not significantly impact natural and beneficial values of the floodplain would not result in a significant floodplain encroachment as defined in 23 Code of Federal Regulations 650.105(q).

Construction Impacts

Construction activities associated with the proposed interchange improvement project would affect portions of the 100-year floodplain. However, construction-related impacts to the existing floodplain would be temporary and would be minimized through the implementation of standard Best Management Plans.

Avoidance, Minimization, and/or Mitigation Measures

As further discussed in Section 2.3.1, Natural Communities, affected oak trees would be replanted on-site to minimize impacts to oak trees, including those located along oak woodland habitat of the affected drainage within the floodplain. As described in further detail in Section 2.2.2, Water Quality and Storm Water Runoff, best management practices would be implemented during construction to minimize impacts to water quality throughout the project area, including within the floodplain.

2.2.2 Water Quality and Storm Water Runoff

Regulatory Setting

Section 401 of the Clean Water Act requires water quality certification from the State Water Resources Control Board or from a Regional Water Quality Control Board when the project requires a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers to dredge or fill within a water of the United States.

Along with Section 401 of the Clean Water Act, Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System permit for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the National Pollutant Discharge Elimination System program to the State Water Resources Control Board and nine Regional Water Quality Control Boards. The State Water Resources Control Board and Regional Water Quality Control Boards also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act.

The State Water Resources Control Board has developed and issued a statewide National Pollutant Discharge Elimination System permit to regulate storm water discharges from all Caltrans activities on its highways and facilities. Caltrans construction projects are regulated under the statewide permit, and projects performed

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by other entities on Caltrans right-of-way (encroachments) are regulated by the State Water Resources Control Board's Statewide General Construction Permit. All construction projects over 1 acre require a Storm Water Pollution Prevention Plan to be prepared and implemented during construction. Caltrans activities of less than 1 acre require a Water Pollution Control Program.

Affected Environment

The proposed project is not expected to have a substantial impact on water quality; therefore, a formal technical study was not performed. However, a water quality assessment was performed. The results of this water quality assessment were incorporated directly into the Initial Study. A Storm Water Data Report has been prepared for this project to comply with Caltrans' National Pollutant Discharge Elimination System Storm Water Permit. The Storm Water Data Report is an evolving document that is updated at each stage of project development.

The proposed project is located near the Salinas River and within two unnamed sub-watersheds of the Salinas River. Both watersheds are seasonal (dry in the summer). The Salinas River near the proposed project is listed on the Central Coast Regional Water Quality Control Board's 303(d), List of Impaired Watersheds for salinity, total dissolved solids, and chlorides. However, the proposed project is not considered a substantial source of these contaminants. Build Alternatives 1 and 2 would include an area of ground disturbance of approximately 20.2 acres and 24.0 acres, respectively.

Environmental Consequences

Build Alternatives 1 and 2

Build Alternative 1 is anticipated to result in a net increase of 2.3 acres of impervious surface area, whereas Build Alternative 2 is expected to result in a net increase of 3.5 acres of impervious surface area above what currently exists.

With the exception of the difference in net increase in impervious surface area, and with implementation of the pertinent minimization measures described later in this section, the water quality and storm water runoff impacts would be similar for each build alternative. The following analysis examines groundwater and surface water impacts associated with Build Alternatives 1 and 2. Under the Surface Water heading, impacts are further separated into temporary and long-term impacts.

No-Build Alternative

The No-Build Alternative would not alter the existing impervious surface and drainage patterns. No impacts to water quality would occur with this alternative.

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Groundwater

The proposed project is located within the water protection zone for the Thunderbird wells. The depth to groundwater along the project alignment is not known, however, the depth to groundwater at the Thunderbird well field averages approximately 30 feet. The Thunderbird well field consists of four wells northeast of the proposed project used for municipal water supplies for the City of Paso Robles. No areas of groundwater contamination are known to exist in the project area. The primary concern for groundwater would be an accidental release of a contaminant that would impact groundwater quality, including at the Thunderbird well field.

Surface Water

Temporary Impacts

For Build Alternatives 1 or 2, soils disturbance would temporarily occur due to earth-moving activities, such as excavation, soil compaction and moving, cut and fill activities, and grading. Runoff from construction would be typical of urban areas, and may include sediments and contaminants such as oils, fuels, paints, and solvents. Additionally, other pollutants such as nutrients, trace metals, and hydrocarbons can attach to sediments and be transported to downstream drainages and ultimately into collecting waterways, contributing to degradation of water quality.

Long-Term Impacts

Long-term operation of the improved roadway has the potential to degrade water quality as a result of vehicular travel, including increases in such pollutants as the following:

- Petroleum products leaked or spilled from cars and trucks
- Heavy metals contained in brake pads and tires
- Sediment
- Litter

The discharge from the proposed project to storm water facilities would consist of non-point sources throughout the wet weather season. The greatest potential for impacts to surface water is during the first storm of the wet weather season that generates substantial storm water runoff.

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The two build alternatives would include installation of gutters and storm drain improvements. These project features have the potential to increase storm water flow rates and patterns. Increases in storm water flow rates and patterns can have the following consequences:

- Increase pollutant transport to surface water bodies
- Increase channel scour of unlined drainage ways (i.e., increased sedimentation downstream)
- Increase creek bed and bank scour

All Caltrans projects over 1 acre are required under Caltrans' National Pollutant Discharge Elimination System permit to prepare a Storm Water Pollution Prevention Plan to accommodate temporary construction impacts and permanent impacts. The proposed build alternatives would prepare a Storm Water Pollution Prevention Plan and would incorporate Best Management Practices that would address the temporary construction impacts. As part of the project design, permanent Best Management Practices have been incorporated to address long-term impacts. Both Build Alternatives 1 and 2 would have a less than significant impact to water quality based on the incorporation of these design features into the project's design.

Avoidance, Minimization, and/or Mitigation Measures

WQ-1 The project would incorporate standard Best Management Practices during construction to minimize any potential environmental consequences to water quality. Typical Best Management Practices that could be incorporated into the Storm Water Pollution Prevention Plan include, but are not limited to, the following:

- Diversion of offsite runoff away from the construction site
- Revegetation of exposed soil surfaces as a soon as feasible following grading activities
- Perimeter straw wattles (tubes of straw used to control erosion or sediment and storm water runoff) to prevent off-site transport of sediment
- Drop inlet protection (such as filters and sand bags or straw wattles), with sand bag check dams within paved roadways
- Regular watering of exposed soils to control dust during construction
- Specifications for handling and disposal of construction waste
- Contained equipment wash-out and vehicle maintenance areas
- Erosion and sedimentation control measures maintained throughout the construction period

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- Stabilized construction entrances to avoid trucks from tracking debris on city roadways
- Training of subcontractors on general site housekeeping

After the certification of the Final Initial Study/Environmental Assessment, the applicable permits from the respective regulatory agencies would be obtained for the project. This may include National Pollutant Discharge Elimination System permits, a Section 401 Water Quality Certification from the Regional Water Quality Control Board, and a Section 404 Permit from the U.S. Army Corps of Engineers. The requirements of the permits and the implementation of Best Management Practices during construction would ensure that no major water quality, water discharge, erosion, or siltation impacts would occur as a result of the project.

WQ-2 To reduce potential impacts to the four shallow municipal production wells (Thunderbird well field) located near the proposed project site, the following measures are recommended:

- The use of solvents, fertilizers, and other chemical substances that can migrate through soil should be minimized or not used at all.
- All soil and ground water contamination within the public right-of-way should be remediated.
- Contingency plans for both construction and long-term use of the highway should be developed to ensure that spills resulting from vehicular accidents are promptly and thoroughly cleaned.

WQ-3 The following design and construction Best Management Practices would be implemented to reduce impacts to water and storm water quality:

- Sheet flow of storm water runoff into vegetated areas would be implemented where feasible. For slopes too steep to receive sheet flow, storm water would be diverted away. Concentrated flows would be collected in stabilized drains and channels. The majority of surface runoff from this project would be conveyed through a system of concrete gutters, roadside swales, inlets, and pipes to the unnamed creek. Roadside swales would be vegetated rather than concrete lined where feasible. Flared end sections and rock slope protection would be used at drainage outfalls to dissipate energy and reduce erosion.
- Proposed cut slopes would be made as flat as feasible. Proposed embankment slopes would be 4:1 or flatter wherever feasible, and no steeper than 2:1 in areas in which a flatter slope would not be feasible or cause unacceptable

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impacts. All slopes would be revegetated with landscaping or erosion control materials. Where slope stabilization or erosion is a concern, rock slope protection would be used.

- The proposed project has been aligned to minimize impacts to existing vegetation. The contractor staging area is potentially feasible in an open field adjacent to the project site. All vegetation and trees to remain would be protected with high visibility fencing and denoted on the contract plans.
- Construction site Best Management Practices would include, but not be limited to, slope tracking, erosion control, fiber rolls, stabilized construction entrances, and concrete washout facilities.
- Drain inlet stenciling would be applied on applicable inlets within the project limits.

2.2.3 Geology/Soils/Seismic/Topography

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake from young faults in and near California. The Maximum Credible Earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

Affected Environment

The proposed US 101/State Route 46 West interchange project is located at the base of the eastern slopes within the San Luis Range within the southern margin of the Coast Ranges geomorphic province of California. The Coast Ranges province is a seismically active region that is characterized by northwest-southeast trending mountain ranges and valleys.

The US 101/State Route 46 West interchange project is underlain by Quaternary alluvium, older alluvium, and Paso Robles formation. Alluvium refers to sediments such as gravel, sand, or clay deposited by flowing water. Locally, artificial fill

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(human-placed material) overlies the alluvium and the bedrock. The artificial fill material was placed primarily during the original roadway development and surrounding area improvements.

The alluvial deposits underlie most of the project area with the exception of the northwestern and very western project areas. The alluvial deposits are comprised of unconsolidated alluvial gravel, sand, and clay. Older alluvium is located in the northwestern portion of the project area and is comprised of older, dissected alluvial gravel, sand, and clay. Paso Robles formation bedrock is mapped along the western to southwestern project area limits. The Paso Robles formation is comprised of light medium gray pebble, gravel, sand, and clay. Pebbles within the Paso Robles formation are mostly of white siliceous shale derived from the Monterey formation.

The San Luis Range is crossed by several northwest-trending active and potentially active faults. A trace of the Espinosa fault is located north of the project site. However, the California Geological Survey (formerly known as the California Division of Mines and Geology) identifies a strand of the Rinconada fault to the northeast of the project site. An unnamed fault, referred to as a southern strand of the Rinconada fault, is mapped to southwest of the project site.

The Rinconada fault, which is mapped approximately 3,000 feet northeast of the project site, is considered by the California Geological Survey as a potentially active, late Quaternary fault, indicating displacement during the last 700,000 years, nearby the site. The southern strand of the Rinconada fault, mapped approximately 3,000 feet southeast of the project site, is considered by the California Geological Survey as a Quaternary age fault with evidence of fault displacement sometime during the last 1.6 million years. Alluvial deposits conceal the Rinconada fault strands where it is mapped crossing to the northeast and southwest of the project site.

Other faults that are considered potential seismic sources with respect to seismic shaking at the project area include the Los Osos, Hosgri, San Andreas, and San Simeon faults. The geo-seismic characteristics of the potential seismic sources to the site are listed in Table 2.2-1, including an estimate of the maximum earthquake magnitude that may potentially be generated by each fault.

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Table 2.2-1 – Summary of Potential Seismic Sources

Fault Name	Style	Dip (deg.)	Dip Direction	Approximate Closest Distance to Site (kilometer)[1]	Approximate Maximum Magnitude, Mw[2]
Rinconada	Strike Slip	90	--	0.9	7.3
Los Osos Fault Zone	Reverse	45	SW	33	7.0
Hosgri	Reverse-Oblique	N/A	NE	39	7.3
San Andreas	Strike Slip	90	--	39	8
San Simeon	Strike Slip	90	--	47	7.5

Source: City of Paso Robles Hazard Mitigation Plan, Paso Robles, California (2005).
Notes: (1) The distances noted are to the nearest fault surface trace. (2) Maximum credible earthquake values reported as maximum moment magnitude by the California Geological Survey (2003), California Geological Survey (1996), the International Conference of Building Officials (1998), or Mualchin (1996a). For the San Simeon fault, the maximum credible earthquake is derived from fault length/magnitude regression in Wells and Coppersmith (1994).

Environmental Consequences

Build Alternatives 1 and 2

A risk-free seismic environment does not exist anywhere in California. Generally, shaking is less severe on rock than on alluvium or fill, but ridge effects and other local phenomena may override this generalization. Based on the U.S. Geological Survey/California Geological Survey Probabilistic Seismic Hazards Assessment Model (revised April 2003), the site area is likely to experience at least 0.329g ground accelerations in alluvial deposits (where "g" is expressed as a percentage of the acceleration of gravity). The general geology of the project area, the specific geologic characteristics of the project site, and the structural design of the project site are not considered especially high risk with respect to seismic hazards as compared to the rest of California. Pre-1933 structures may be considered at a higher level of risk due to the age and construction techniques used.

Overall, the project is not susceptible to extraordinary risk with respect to seismic or soils hazards. Furthermore, the project components would be designed and constructed to the seismic design requirements for ground shaking specified in the project design documents. Proper design and construction of the project components would reduce impacts from ground shaking and seismicity.

Liquefaction is defined as significant and relatively sudden reduction in stiffness and shear strength of saturated sandy soils caused by a seismically induced increase in pore water pressures. Potential for seismically induced liquefaction exists whenever relatively loose, sandy soils exist with high groundwater level and/or potential for long duration, high seismic shaking. When liquefaction occurs, the site can

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experience damage induced by permanent ground movements resulting in differential settlement and flotation of structures, tanks, and pipelines.

Sections of the US 101/State Route 46 West interchange project are located near the Salinas River and, therefore, it is anticipated that some areas of the project may encounter relatively shallow groundwater. The project site is also located in an area overlain with alluvial soils, indicating the potential for liquefaction of the underlying soils during a seismic event. Therefore, liquefaction is considered a potential seismic hazard to the sections of roadway that cross the alluvial deposits.

As new project elements would be designed with updated seismic design requirements, it is expected that the new US 101/State Route 46 West interchange project would generally be safer with respect to stability during an earthquake event.

Avoidance, Minimization, and/or Mitigation Measures

Refer to WQ-1 and WQ-3, Best Management Practices related to erosion control, identified in Section 2.2.2, Water Quality and Storm Water Runoff, above.

GEO-1 Site-specific geotechnical and geological investigations that focus on the potential liquefaction hazard would be performed as part of the project design studies. As necessary, design and construction of the project components would include foundation treatments, such as removal and re-compaction or deep foundations, to reduce impacts from liquefaction.

2.2.4 Paleontology

Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects (such as the Antiquities Act of 1906 [16 U.S. Code 431-433], Federal-Aid Highway Act of 1935 [20 U.S. Code 78]). Under California law, paleontological resources are protected by the California Environmental Quality Act, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code Section 5097.5.

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Affected Environment

A *Paleontological Identification Report, U.S. Highway/State Route 46 West Interchange Improvement Project* (2007) was prepared for the proposed project to determine the relative sensitivity of paleontological resources of the geologic units underlying the project area. Records searches reported three known paleontological sites within the vicinity, however, not within the project area.

Environmental Consequences

Build Alternatives 1 and 2

The purpose of the field survey was to observe the existing conditions of the project area, gather preliminary geologic information, visit previously recorded paleontological localities, and look for unrecorded paleontological localities. No paleontological resources were observed during the field survey along either of the corridors associated with Build Alternatives 1 and 2.

Since the distribution, density, and significance of paleontological resources within a unit cannot be determined until they are unearthed, the proposed project has the potential to unearth paleontological resources during the project construction phase. As construction of the proposed project would involve grading and earth-moving activities, paleontological resources may be discovered. However, to protect any paleontological resources that may be discovered during construction, the measures listed below would be incorporated into the project for Build Alternatives 1 and 2.

No-Build Alternative

The No-Build Alternative would not result in impacts to paleontological resources in the project area.

Avoidance, Minimization, and/or Mitigation Measures

PAL-1 In earth-moving areas where geologic units have been assigned a high level of paleontological sensitivity, full-time monitoring would be recommended. Monitoring must be performed by a qualified paleontological resources monitor. The monitor would have authority to temporarily divert equipment while evaluating and removing fossils. If fossils are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified paleontologist can evaluate the nature and significance of the find to determine if recovery would be necessary. The monitor should be properly equipped to facilitate rapid removal of specimen. Once discovered, fossils would be salvaged by the monitor in an appropriate manner.

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PAL-2 Recovered specimens should be prepared to stabilize the fragile nature of the fossil and allow for identification. Each specimen should be evaluated by taxa, size, taphonomic condition, and geographic and stratigraphic occurrence. The resulting specimens should be stored in a permanent, recognized repository institution, such as a museum or university. A map indicating the location of each locality, appropriate stratigraphic sections, and field notes should accompany the recovered specimens to the designated repository.

PAL-3 A Paleontological Mitigation Report would be prepared by the project paleontologist. The report should include a summary of field and laboratory methods, a description of the geology and stratigraphy, a complete faunal list, an evaluation of scientifically significant fossils, analyses of the significance and relationship of the site to other fossil localities that are geographically or stratigraphically similar, and a complete set of geologic maps, stratigraphic sections, and field notes. The Paleontological Mitigation Report would be submitted to Caltrans and a copy provided to the designated repository. Acceptance of the final report by Caltrans constitutes completion for the monitoring and mitigation plan

2.2.5 Hazardous Waste Materials

Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

The main federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 and the Comprehensive Environmental Response, Compensation and Liability Act of 1980. The purpose of the Comprehensive Environmental Response, Compensation and Liability Act, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. The Resource Conservation and Recovery Act provides for "cradle to grave" regulation of hazardous wastes. Other federal laws include the following:

- Community Environmental Response Facilitation Act of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act
- Atomic Energy Act

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- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act of 1976 and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

Affected Environment

The following analysis is based on the *Limited Hazardous Materials/Initial Site Assessment, U.S. Highway 101/State Route 46 West Interchange Improvement Project* (2007) and the *Updated Limited Hazardous Materials Study/Initial Site Assessment, U.S. Highway 101/State Route 46 West Interchange Modification Project* (2009).

Historic aerial photographs indicate that in 1937 the project area was mostly undeveloped open space with several farmhouses. US 101 appeared as a small two-lane road with several service roads in the vicinity. By 1956, US 101 was redeveloped as a four-lane divided highway with on-and off-ramps to a small rural road. Retail development was also located near the area. Commercial development and retail development continued to increase throughout the 1970s and 1980s. By 2002, a retail center was added to the east, and several structures, including a gasoline station and a new retail development, were built to the southwest of the project area.

Currently, the project area is surrounded by several land uses including commercial, retail, and undeveloped land. Table 2.2-2 describes properties that could potentially contain hazardous materials.

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Table 2.2-2 – Hazardous Materials Observed or Expected to be Present at Neighboring Properties

Business or Occupant	Address/Location Description	Substance
Orchard Supply Hardware No. 361	2005 Theatre Drive / Southwest quadrant of interchange	Small quantities of hazardous materials for retail sale.
Delta Energy (Propane Tank, RV Sales, Rentals and Service)	1960 Ramada Drive / Southeast quadrant of interchange	Aboveground storage tank (propane) seen during site check.
Wayne's Tires	101 Calle Propano / Southeast quadrant of interchange	Seven drums were seen during site check; four drums labeled as containing fresh product and three drums labeled as containing used oil and gasoline filters. Two approximately 100-gallon polyethylene containers labeled as containing used anti-freeze.
Jack-in-the-Box/ARCO Service Station	1900 Ramada Drive / Northeast quadrant of interchange	Underground storage tanks (fuel) noted at location during site check, though this location was not listed in EDR database.

Note: ARCO Service Station street address incorrectly stated as 1850 Ramada Drive in EDR Database, correct address shown in table.
Source: U.S. 101/State Route 46 West Interchange Modification Project Updated Limited Hazardous Materials Study/Initial Site Assessment (2009).

Environmental Consequences

Build Alternatives 1 and 2

The project hazardous material study analyzed two alternatives that varied in terms of frontage road realignment on the west side of the interchange and included identical improvements on the east side of the interchange. Neither of the alternatives studied would have direct construction impacts such as excavation or demolition activities on the Orchard Supply Hardware property on the west side of the interchange. Both alternatives resulted in direct impacts, including excavation and structure demolition activities at the Delta Energy, Wayne's Tires and Jack-in-the-Box/Arco Service station properties listed in Table 2.2-2. All three of these properties are located on the east side of the interchange. A summary description of potential hazardous materials and/or wastes evaluated for Build Alternatives 1 and 2 is provided below.

Aboveground Storage Tanks

An aboveground storage tank was seen within the project area during the site check (Delta Energy, see Table 2.2-2).

Aerially Deposited Lead (ADL)

The potential exists to encounter aerially deposited lead during project construction.

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Asbestos

The potential exists to encounter asbestos-containing materials as a result of potential structure demolition during project construction.

Discolored/Stained Pavement or Soil/Stressed Vegetation

Minor staining was seen on the asphalt in the drum area at 101 Calle Propano (Wayne's Tires) property.

Drums and Containers

Seven drums were seen on the 101 Calle Propano property (Wayne's Tires). Four of the drums (3 containing fresh product and 1 empty drum) were approximately 35-gallon capacity drums; the remaining three drums (2 labeled used oil/gasoline filter, and 1 empty drum) were approximately 55-gallon capacity drums. In addition, two polyethylene containers of approximately 100-gallon capacity labeled as antifreeze were seen.

Heavy Metals

No thermoplastic pavement markings were identified in the project area.

Underground Storage Tanks

Underground storage tanks were seen in operation within the project area during the site check (ARCO, see Table 2.2-2).

Research and field observations of properties for potential contaminants are conducted to establish a baseline and to determine if conditions warrant additional site investigations. Further, site investigations are generally re-evaluated and/or updated if more than one year elapses since completion. Given the following specific data and conditions, as well as determination that more than one year will elapse from the date of preparation of the site investigation proposed to be conducted in the May 22, 2008 draft environmental document, all hazardous waste materials data has been incorporated, instead, into the referenced "Updated Limited Hazardous Study/Initial Site Assessment, U.S. Highway 101/State Route 46 West Interchange Modification Project (2009)."

The aboveground tank seen at the Delta Energy property is used to distribute propane. Propane tanks and dispensing equipment are not significant sources of potential contamination of soil or groundwater because of the gaseous nature of propane. This facility is regulated by San Luis Obispo County Environmental Health because propane poses a potential fire and explosion risk. There are no violations reported for this facility. This property is proposed for acquisition, so further review to confirm

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the current assessment of no soil or groundwater contamination would occur during the acquisition process.

An Aerially Deposited Lead Testing and Analysis Report was prepared for proposed improvements along the US 101 and State Route 46 East interchange area. Based on analysis done for the US 101/State Route 46 East interchange area, it was determined that none of the samples along State Route 46 East contained total lead concentrations exceeding 50 mg/kg, and therefore no special handling or disposal of soils along State Route 46 East within the limits of the US 101/State Route 46 East project would be required.

For the proposed project, the annual average daily traffic count at State Route 46 East in the vicinity of the US 101/State Route 46 East interchange area is 26,600 (estimated for year 2010), whereas the annual average daily traffic count at State Route 46 West at the US 101/ State Route 46 West interchange area is much lower at 6,800. Therefore, it is reasonable to infer that aerially deposited lead concentrations would be even lower at State Route 46 West at the US 101/State Route 46 West interchange area given the historically lower traffic volumes along the highway. Therefore, lead levels in soil within the project area are anticipated to be well below hazardous levels. No special handling provisions regarding aerially deposited lead are anticipated for the proposed project.

Surveys for asbestos-containing materials and lead-based paint are generally done during the property acquisition process. If asbestos-containing material or lead-based paint is found at that time, it would be handled in compliance with all air quality and waste disposal regulations.

The only property found to be storing drums of hazardous materials is Wayne's Tires. Minor staining of pavement has also been seen at this property. The business is regulated and inspected by San Luis Obispo County Environmental Health. No violations have been reported for this property. Because this property is proposed for acquisition, a due diligence investigation of the existing drum storage area would be done before acquisition.

No thermoplastic pavement markings were identified in the project area. If pavement markings must be removed, then this material may require testing to determine the presence and/or levels of heavy metals.

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Additional records research was done on the ARCO Service Station at 1900 Ramada Drive. The records research established that a site investigation has been performed at the underground storage tank vicinity and a clearance had been granted by the County of San Luis Obispo Environmental Health Services. Inspection records of the local Certified Unified Program Agency (CUPA) show no violations noted as of the latest inspection recorded on April 23, 2009. Based on this information, an additional site investigation at the ARCO Service Station, 1900 Ramada Drive location, is not warranted at this time. Because this property is proposed for acquisition, an investigation of the existing underground tanks and equipment would be performed before acquisition. At the time underground tanks and equipment would be removed, soil samples would be collected to confirm whether contamination is present.

All properties within the project area have been found to pose low or no risk to the proposed project due to current or past hazardous materials storage and/or usage. Due diligence investigations of all properties that must be acquired for this project shall be performed during the design phase of this project including the ARCO/Jack-in-the-Box, Delta energy and Wayne's Tires properties. However, based on the above detailed data, any due diligence investigation is anticipated to confirm the appropriateness of the determinations and conclusions reflected in the "Updated Limited Hazardous Materials Study/Initial Site Assessment, U.S. Highway 101/State route 46 West Interchange Modification Project (2009)."

Avoidance, Minimization, and/or Mitigation Measures

HAZ-1 All structures that would be demolished as part of construction would undergo an evaluation for the presence of asbestos-containing materials during the property acquisition process, at which time the exact number and location of acquisitions would be confirmed. Sample collection procedures would be based on the Asbestos Hazard Emergency Response Act protocols and Environmental Protection Agency guidelines.

HAZ-2 During the property acquisition process, surveys shall be conducted to identify lead-based paint in buildings identified for demolition. Lead-based paint, if affected, shall be handled and disposed of in accordance with applicable state and federal regulations.

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HAZ-3 During final design, surveys shall be conducted to ensure that thermoplastic pavement markings, or other types or colors of street or municipal markings containing lead based paint, if affected, are handled and disposed of in accordance with applicable state and federal regulations.

HAZ-4 As necessary, areas prone to radon gas would be tested prior to demolition or construction operations for the project. The Environmental Protection Agency recommends both long-term (i.e., 90-day) and short-term (i.e., two-day) testing of structures to determine levels of radon gas. The need for long-term testing would be based on the findings of the short-term testing. If hazardous levels of radon are found, measures would be taken to reduce risk.

HAZ-5 A soils and groundwater contaminant management plan would be implemented during construction. The plan would include procedures for contaminant monitoring and identification, temporary storage, handling, treatment, and disposal of materials in accordance with applicable federal, state and local regulations and requirements.

HAZ-6 An Updated Initial Site Investigation would be performed during final design for further assessment of potential soil contamination at tanks in the project area, including those identified in the Initial Site Assessment/Limited Hazardous Materials Study. If contamination is suspected, a Preliminary Site Investigation is to be conducted and, if contamination is confirmed, a detailed Site Investigation will be conducted to identify the characterization of the type, extent, and general magnitude of contamination.

The Site Investigation process includes sampling and analysis of impacted soil or groundwater of the sites with the potential for encountering contamination during project activities. The Site Investigation may detect the presence of contamination and provide preliminary estimates of the nature and extent of the contamination through sampling and analysis of soils and water.

HAZ-7 All procedures for removal of aboveground and underground storage tanks must be in accordance with all applicable federal, state, and local regulations.

HAZ-8 During final design, an assessment would be performed to determine the need for removal of any transformers resulting from project implementation. If it is determined that transformers will require removal, then they would be assessed for presence of polychlorinated biphenyls. If polychlorinated biphenyls are detected, the

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material would be collected and disposed of in accordance with applicable regulations.

HAZ-9 Before construction begins, a hazardous materials contingency plan would be in place to address such events as discovery of unidentified underground storage tanks, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes during construction. This contingency plan would address underground storage tank decommissioning, field screening and material testing methods, mitigation, contaminant monitoring and management requirements, and health and safety requirements for construction workers. If an unexpected release of hazardous substances is found in reportable quantities, the National Response Center must be notified and clean up coordinated with environmental agencies.

2.2.6 Air Quality

Regulatory Setting

The Clean Air Act, as amended in 1990, is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the concentration of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards. Standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), lead (Pb), and sulfur dioxide (SO_2).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans are developed to include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the Regional Transportation Plan, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of

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the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization for San Luis Obispo and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the Regional Transportation Plan is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the Regional Transportation Plan must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the Regional Transportation Plan, then the proposed project is deemed to meet regional conformity requirements for purposes of the project-level analysis.

Conformity at the project-level also requires "hot spot" analysis if an area is in "nonattainment" or "maintenance" for carbon monoxide (CO) and/or particulate matter. A region is a "nonattainment" area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as non-attainment areas but have recently met the standard are called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as carbon monoxide or particulate matter analysis performed for National Environmental Policy Act and California Environmental Quality Act purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the carbon monoxide standard to be violated, and in "nonattainment" areas, the project must not cause any increase in the number and severity of violations. If a known carbon monoxide or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Affected Environment

An *Air Quality Study, U.S. Highway/State Route 46 West Interchange Improvement Project* was prepared (2007) to assess potential project-related air quality impacts. The project site is located in San Luis Obispo County. The San Luis Obispo County Air Pollution Control District is responsible for maintaining air quality in this county, which has a population of approximately 250,000.

Climate

Meteorological and climatological conditions influence ambient air quality. The proposed project is located in the northern portion of San Luis Obispo County. The county is bordered by the Pacific Ocean to the west and generally bounded by the Santa Lucia Mountain Range from the northwest to the southeast. For the most part,

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the county transports to and receives air pollutants from the coast on the western border and Kern County on the eastern border.

The climate in the county is characterized as Mediterranean, with warm, dry summers and cooler, relatively damp winters. Mild temperatures along the coast are caused by the moderating effect of the Pacific Ocean, which decreases further inland due to distance from the coast or the coastal mountain ranges. The effect can be illustrated by the fact that the maximum summer temperature along the coast averages about 70 degrees Fahrenheit, while inland average temperatures are in the high 90s. Minimum winter temperature averages in the low 30s along the coast to the low 20s inland.

Approximately 90% of the total annual rainfall occurs from November through April. The winters are generally mild, with precipitation periods followed by mostly clear days. In the Coastal Plain region of the county, annual rainfall averages between 16 and 28 inches, while the Upper Salinas River Valley, where the project is located, has about 12 to 20 inches of rain. The inland Carrizo Plain in the southeast portion of the county receives significantly less precipitation, with less than 12 inches of rain in an average year.

The airflow in the county is controlled largely by the location and strength of the Pacific High pressure system, topographical factors, and circulation patterns caused by temperature gradients between the land and sea. The Pacific High is strongest in the spring and summer and causes northwest onshore winds to prevail generally during the day. At nighttime, with the high being less prevalent, the sea breeze dies and some drainage winds flow back from the east at light speeds. The fall period brings a decline in onshore surface winds and the marine layer becomes shallower. Occasionally, a weak offshore flow occurs and, when combined with the diurnal alteration of wind direction, can cause pollutants to accumulate over the ocean for up to a few days and then subsequently move back onshore. The strong inversion, caused by a lack of heated turbulence in the lower atmosphere that traps pollutants near the surface where the population resides, occurs mostly in the fall.

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Should the high-pressure system of the Pacific weaken or move inland to the east, a Santa Ana (easterly) wind bringing pollution may occur over several days. When the Santa Ana winds end, a relatively stagnant condition may occur with a buildup of pollutants offshore. When the typical daytime onshore breeze occurs, the pollutants are then brought onshore, combining with local emissions to cause a period of high pollutant concentrations. The Santa Ana winds do not always result in high concentrations, yet they are a significant part of air pollution meteorology in the county.

Environmental Consequences

The project is in an attainment/unclassified area for all current national ambient air quality standards (NAAQS). Therefore, conformity requirements do not apply. Table 2.2-3 shows the national and state attainment status for local pollutants of concern.

The project is listed in the 2007 Federal Transportation Improvement Program for San Luis Obispo County (SLO-0341-01). Only projects consistent with the Regional Transportation Plan were included in the 2007 Federal Transportation Improvement Program as required by federal law. Projects are reviewed for consistency with the Regional Transportation Plan as the Federal Transportation Improvement Program is developed, as they are submitted for funding in the various programs, and as they are amended into the Federal Transportation Improvement Program for the first time. The 2005 Regional Transportation Plan was adopted in April 2005 by the San Luis Obispo Council of Governments Board on April 6, 2005. The board adopted the plan by resolution, which states among other things, that the plan was prepared in accordance with federal and state requirements. Because it is in an attainment region, the San Luis Obispo Council of Governments is allowed to update the Regional Transportation Plan every five years. The next update of the plan is expected in June 2010.

The applicable State Implementation Plan for San Luis Obispo County is the 2001 Clean Air Plan. Both the Regional Transportation Plan and the Federal Transportation Improvement Program are deemed consistent with the Clean Air Plan.

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Table 2.2-3 – Attainment Status

Criteria Pollutant	Federal Standard (National Ambient Air Quality Standards)	Federal Attainment Status	State Standard	State Attainment Status
Carbon Monoxide (CO)	9.0 ppm (10 mg/m^3 (8-hour)	Attainment/ Unclassified	9.0 ppm (10 mg/m^3 (8-hour)	Attainment
Nitrogen Dioxide (NO_2)	0.053 ppm (100 µg/m^3) (Annual Arithmetic Mean)	Attainment/ Unclassified	0.030 ppm (56 µg/m^3) (Annual Arithmetic Mean)	Attainment
Ozone (O_3)	0.08 ppm (100 µg/m^3) (8-hour)	Attainment/ Unclassified	0.070 ppm (137 µg/m^3) (8-hour)	Non-attainment
Respirable particulate (PM_{10})	150 µg/m^3 (24-hour) --	Unclassified	50 µg/m^3 (24-hour) 20 µg/m^3 (Annual Arithmetic Mean)	Non-attainment
Fine particulate ($PM_{2.5}$)	15 µg/m^3 (Annual Arithmetic Mean)	Attainment/ Unclassified	12 µg/m^3 (Annual Arithmetic Mean)	Attainment

Project Operation (Long-term) Emissions – Build Alternatives 1 and 2

Emissions associated with the operation of the proposed project are primarily from the operation of motor vehicles in the project vicinity. The project would not add capacity to the highway, and would improve local circulation, therefore reducing low-speed emissions. Traffic volumes, after completion of the project, would be nearly the same as under existing conditions. Therefore, there should be no detrimental change in local or regional air quality caused by the project.

Construction (Short-term) Emissions

Short-term impacts to air quality could occur during the project construction and grading activities phase. Anticipated temporary impacts are discussed below and include particulate emissions from demolition, clearing and grading activities, exhaust emissions from construction equipment used on the project site, and vehicles used for transport of equipment and workers to and from the project site. The construction of the proposed project would result in short-term emissions of particulate matter, carbon monoxide, reactive organic gases, oxides of nitrogen, and oxides of sulfur. Construction activities would result in criteria pollutant emissions from both stationary and mobile-powered equipment, including those from equipment and material delivery vehicles, and worker vehicles going to and from the project site.

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One of the major pollutants that would be emitted from construction activity is particulate matter (PM). PM_{10} (particulate matter smaller than 10 microns in diameter) comprises about 65% of total suspended particulate matter and is considered a health hazard.

A maximum of 24 acres of soil disturbance is expected with the proposed project. If this area were graded four times (to account for grading and excavation) over half the life of the project (2 quarters or 132 working days), average daily grading would be 0.73 acre per day. According to the San Luis Obispo County Air Pollution Control District's California Environmental Quality Act Guidelines, if less than 2 acres are graded per day, project construction emissions should not exceed the county thresholds for fine particulate matter. This includes at least one daily watering of all disturbed areas.

Naturally Occurring Asbestos

This discussion is limited to naturally occurring asbestos and the Memorandum Addressing Naturally Occurring Asbestos in California Environmental Quality Act Documents (Governor's Office of Planning and Research, 2000). Attachment 1 of the memorandum lists the counties in California where naturally occurring asbestos may be present, and San Luis Obispo County is one of the 44 out of 58 counties listed as containing a type of naturally occurring asbestos.

The Geologic Map of California, San Luis Obispo Sheet, shows there are no ultramafic rocks (type of rock that may contain naturally occurring asbestos) within 12 miles of the project area, and these are generally separated from the project by the crest of the Santa Lucia Range. Therefore, the possibility of naturally occurring asbestos becoming airborne during construction is minimal. The need for minimization of naturally occurring asbestos is limited to that for fugitive dust.

Mobile Source Air Toxics

The project is in a rural, agricultural, commercial, and residential area south of Paso Robles. There are no sensitive land uses (schools, medical centers and similar health care facilities, child care facilities, parks and playgrounds) in the vicinity (500-foot radius) of the proposed construction site.

The Federal Highway Administration has developed an interim guideline on how mobile source air toxics should be addressed in National Environmental Policy Act documents for highway projects. The Federal Highway Administration has developed a tier approach for analyzing mobile source air toxics in National Environmental

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Policy Act documents. Depending on the specific project circumstances, the Federal Highway Administration has identified three levels of analysis:

1. No analysis for exempt projects with no potential for meaningful mobile source air toxic effects
2. Qualitative analysis for projects with low potential for mobile source air toxic effects
3. Quantitative analysis to differentiate alternatives for projects with higher potential for mobile source air toxics.

The proposed project has a low potential for meaningful mobile source air toxic effects, as it is exempt from regional emissions analysis according to Title 40, Section 93.127 of the Code of Federal Regulations, and will not affect the capacity of the adjacent highway.

This document includes a basic analysis of the likely mobile source air toxic emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this document. Due to these limitations, the following discussion is included in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from mobile source air toxics on a proposed highway project would involve several key elements, including emissions and dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the mobile source air toxic health impacts of this project.

Emissions

Environmental Protection Agency tools to estimate mobile source air toxic emissions from motor vehicles are not sensitive to key variables determining emissions of mobile source air toxics in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model—emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that

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MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other mobile source air toxic emission rates do change with changes in trip speed.

Also, the emissions rates used in MOBILE 6.2 for both particulate matter and mobile source air toxics are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of particulate matter under the conformity rule, the Environmental Protection Agency has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate mobile source air toxic emissions. MOBILE6.2 is an adequate tool for projecting emission trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

Dispersion

The tools to predict how mobile source air toxics disperse are also limited. The Environmental Protection Agency's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the National Ambient Air Quality Standards. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program is conducting research on best practices in applying models and other technical methods in the analysis of mobile source air toxics. This work also will focus on identifying appropriate methods of documenting and communicating mobile source air toxic impacts in the National Environmental Policy Act process and to the general public. Along with these general limitations of dispersion models, the Federal Highway Administration is also faced with a lack of monitoring data in most areas for use in establishing project-specific mobile source air toxic background concentrations.

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Exposure Levels and Health Effects

Finally, even if emission levels and concentrations of mobile source air toxics could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of mobile source air toxics near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various mobile source air toxics, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population.

Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of Mobile Source Air Toxics

Research into the health impacts of mobile source air toxics is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of Environmental Protection Agency efforts. Most notably, the agency conducted the National Air Toxics Assessment in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the National Air Toxics Assessment's database best illustrate the levels of various toxics when aggregated to a national or state level.

The Environmental Protection Agency is in the process of assessing the risks of various kinds of exposures to these pollutants. The Environmental Protection Agency Integrated Risk Information System (IRIS) is a database of human health effects that

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may result from exposure to various substances found in the environment. The IRIS database is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized mobile source air toxics was taken from the IRIS database *Weight of Evidence Characterization* summaries.

This information is taken verbatim from the Environmental Protection Agency's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- Benzene is characterized as a known human carcinogen.
- The potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- Formaldehyde is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- 1,3-butadiene is characterized as carcinogenic to humans by inhalation.
- Acetaldehyde is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- Diesel exhaust is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- Diesel exhaust also represents chronic respiratory effects, possibly the primary non-cancerous hazard from mobile source air toxics. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address mobile source air toxic health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by the Environmental Protection Agency, Federal Highway Administration, and industry, has undertaken a major series of studies to research near-roadway mobile source air toxics hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

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Some recent studies have reported that proximity to roadways is related to adverse health outcomes—particularly respiratory problems[2]. Much of this research is not specific to mobile source air toxics, instead surveying the full spectrum of both criteria and other pollutants. The Federal Highway Administration cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts Based Upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emission impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of mobile source air toxic emissions from each of the project alternatives and mobile source air toxic concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of mobile source air toxic emissions and effects of this project. However, even though reliable methods do not exist to accurately estimate the health impacts of mobile source air toxics at the project level, it is possible to qualitatively assess the levels of future mobile source air toxic emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from mobile source air toxics, it can give a basis for identifying and comparing the potential differences among mobile source air toxic emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by

[2] See http://www.fhwa.dot.gov/environment/airtoxic/#note1

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the Federal Highway Administration entitled "*A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*," found at: www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm[3]

For each alternative in this Initial Study/Environmental Assessment, the amount of mobile source air toxics emitted would be proportional to the vehicle miles traveled, assuming that other variables such as fleet mix are the same for each alternative. The vehicle miles traveled estimated for each of the build alternatives is slightly higher than that for the No-Build Alternative. This increase in vehicle miles traveled means mobile source air toxics under the build alternatives would probably be higher, although not substantially, than the No-Build Alternative in the study area. There could also be localized differences in mobile source air toxics from indirect effects of the project, such as associated access traffic, emissions of evaporative mobile source air toxics (e.g., benzene) from parked cars, and emissions of diesel particulate matter from delivery trucks, depending on the type and extent of development. On a regional scale, this increase in emissions would be offset somewhat by reduced travel to other destinations.

Because the estimated vehicle miles traveled under each of the build alternatives are nearly the same, varying by less than 1%, it is expected there would be no appreciable difference in overall mobile source air toxic emissions among the various build alternatives. For all alternatives, emissions are virtually certain to be lower than present levels in the design year as a result of the Environmental Protection Agency's national control programs that are projected to reduce mobile source air toxic emissions by 57% to 87% from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, growth rates of vehicle miles traveled, and local control measures. However, the magnitude of the reductions projected by the Environmental Protection Agency is so great (even after accounting for growth in vehicle miles traveled) that mobile source air toxic emissions in the study area are likely to be lower in the future than they are today.

In summary, under both build alternatives in the design year, it is expected there would be higher mobile source air toxic emissions in the study area, relative to the No-Build Alternative, due to increased vehicle miles traveled. There could be slightly elevated but unquantifiable changes in mobile source air toxics to residents and others in a few localized areas where vehicle miles traveled increases, which may be important, particularly to any members of sensitive populations. However, on a

[3] http://www.fhwa.dot.gov/environment/airtoxic/020306guidapc.htm

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regional basis, Environmental Protection Agency's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide mobile source air toxic levels to be significantly lower than today.[4]

Avoidance, Minimization, and/or Mitigation Measures

Daily watering of all disturbed soil areas is required by Caltrans' Standard Specifications. The purpose of this is to reduce dust emissions from the site. In addition, the contractor would use California Air Resources Board approved low-sulfur diesel fuel in all his construction vehicles. When daily watering is not sufficient to keep dust from blowing off-site, the following measures from the San Luis Obispo County Air Pollution Control District's California Environmental Quality Act Air Quality Handbook can be used as determined applicable by the Resident Engineer.

AQ-1 Standard Minimization Measures for Construction Equipment

Maintain all construction equipment in proper tune according to manufacturer's specifications:

- Fuel all off-road and portable diesel powered equipment including, but not limited to, bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, with motor diesel fuel certified by the California Air Resources Board (non-taxed version suitable for off-road);
- Maximize, to the extent feasible, the use of diesel construction equipment meeting California Air Resources Board's 1996 or newer certification standard for off-road heavy-duty diesel engines.

AQ-2 Discretionary Minimization Measures for Construction Equipment

- Electrify equipment where feasible;
- Substitute gasoline-powered for diesel-powered equipment, where feasible;
- Use alternatively fueled construction equipment onsite, where feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel; and
- Use equipment that has Caterpillar pre-chamber diesel engines.

AQ-3 Discretionary Activity Management Techniques

- Develop a comprehensive construction activity management plan designed to minimize the amount of large construction equipment operating during any given time period.

[4] http://www.fhwa.dot.gov/environment/airtoxic/020306guidapb.htm

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- Schedule construction truck trips during non-peak hours to reduce peak-hour emissions.
- Limit the length of the construction work day, if necessary.
- Phase construction activities, if appropriate.

AQ-4 Fugitive PM_{10} Management Measures Techniques (employ as applicable)

- Reduce the amount of the disturbed area where possible.
- Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 miles per hour. Reclaimed (non-potable) water should be used whenever possible.
- All dirt stockpile areas should be sprayed daily as needed.
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible.
- Vehicle speed for all construction vehicles would not exceed 15 miles per hour on any unpaved surface at the construction site.
- All trucks hauling dirt, sand, or other loose materials are to be covered or should maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114.
- Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.
- Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.

If these mitigation measures are not effective at controlling construction phase fugitive dust emissions from leaving the project site, then the project shall implement the following additional Air Pollution Control District fugitive dust control measures:

- Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil-disturbing activities.
- Exposed ground areas that would be reworked at dates greater than one month after initial grading should be sown with a fast-germinating native grass seed and watered until vegetation is established.

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- All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the San Luis Obispo County Air Pollution Control District.

The contractor or builder should designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off site. Their duties would include working holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons would be provided to the San Luis Obispo County Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.

2.2.7 Noise

Regulatory Setting

The National Environmental Policy Act of 1969 and the California Environmental Quality Act provide the broad basis for analyzing and abating the effects of highway traffic noise. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between the National Environmental Policy Act and the California Environmental Quality Act.

California Environmental Quality Act

The California Environmental Quality Act requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under the California Environmental Quality Act, then the act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

National Environmental Policy Act and 23 Code of Federal Regulations 772 for highway transportation projects with Federal Highway Administration involvement, (and Caltrans, as assigned), the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project.

The regulations contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type

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of land use under analysis. For example, the criterion for residences (67 decibels) is lower than the criterion for commercial areas (72 decibels).

The following table lists the noise abatement criteria for use in the National Environmental Policy Act and 23 Code of Federal Regulations 772 analysis, and Table 2.2-5 shows the noise levels of typical activities. These abatement criteria apply to Type-1 projects as discussed in Caltrans Traffic Noise Analysis Protocol Section 3.

Table 2.2-4 – Noise Abatement Criteria

Activity Category	Noise Abatement Criteria, Hourly A-Weighted Noise Level, dBA Leq(h)	Description of Activities
A	**57 Exterior**	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	**67 Exterior**	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	**72 Exterior**	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Caltrans Traffic Noise Analysis Protocol, August 2006.
A-weighted decibels are adjusted to approximate the way humans perceive sound. Leq(h) is the steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual time-varying levels over 1 hour.

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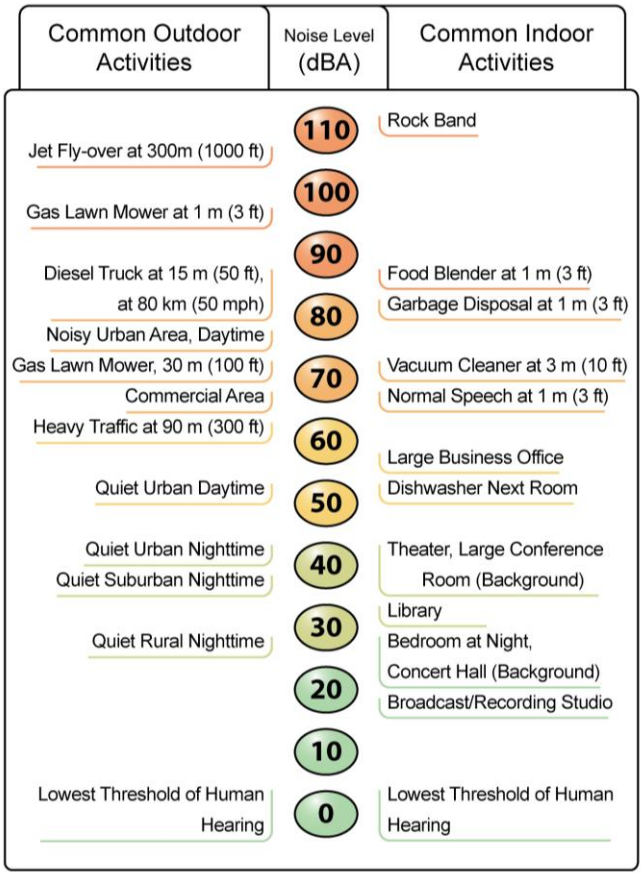
Table 2.2-5 – Common Noise Levels



In accordance with Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level from a Type 1 project results in a substantial increase in noise level (defined as a 12-decibel or more increase) or when the future noise level with the project approaches or exceeds the noise abatement criteria. Approaching the noise abatement criteria is defined as coming within 1 decibel of the criteria.

If it is determined that the project would have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5-decibel reduction in the future noise

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level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

Note: Noise levels used throughout this report use the Leq noise descriptor unless otherwise noted. Leq represents the time-weighted average of all sounds recorded during the period of measurement.

Affected Environment

A *Noise Study Report* (2007) was prepared for the proposed project to evaluate the potential for adverse noise effects from the proposed project at noise-sensitive receivers. The report was prepared pursuant to Caltrans' Traffic Noise Analysis Protocol (August 2006) and Technical Noise Supplement standards.

Land uses adjacent to the project consist of planned and existing commercial and industrial uses with a few interspersed single-family residences and a hotel. The existing single-family residences are one- and two-story residences of varying sizes with rear and side yards. The residences are generally elevated above US 101 and State Route 46.

Residential uses are classified in Activity Category B (exterior—picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals) or Category E (interior—residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums) by the Federal Highway Administration and Caltrans' policies. The Affected Environment and Environmental Consequences sections discuss the existing and future noise levels associated with the proposed build alternatives and the No-Build Alternative.

Traffic

Most of the noise in the vicinity of the project is due to traffic on US 101. To get an idea of how noise near the highway will increase over time, it is important to know how traffic is predicted to grow by the project design year (2038). Table 2.2-6 shows estimated traffic growth of traffic on local highways based on a straight-line increase

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between 2006 traffic and 2038 traffic as shown in annual average daily trips on the California State Highway System.

Table 2.2-6 – Current and Predicted Future Traffic Volumes on Local Highways

Location	Route 101		Route 46	
	2006 Peak Hour/ AADT	2038 Peak Hour/ AADT	2006 Peak Hour/ AADT	2038 Peak Hour/ AADT
South of State Route 46	4450/38000	6,180/53,240		
North of State Route 46	7400/63000	12,920/110,240		
			320/3,200	1,250/12,540

AADT = Annual Average Daily Trips

Ambient Noise Level Measurements

Representative noise measurement sites were selected with a potential exposure to noise from the proposed project. Adjacent to the project, the noise-sensitive land uses are one- or two-story single-family residential homes. Short-term noise measurements were conducted at seven locations (ST 1-7), and two long-term measurements (LT 1-2) were conducted for the proposed project. The measurement locations were next to the single-family residences that are located adjacent to the project in the vicinity of planned residential areas, and near other sensitive receptors.

Figure 2.2-2 shows the noise measurement locations. Table 2.2-7 presents a summary of existing and predicted noise levels for noise sensitive uses.

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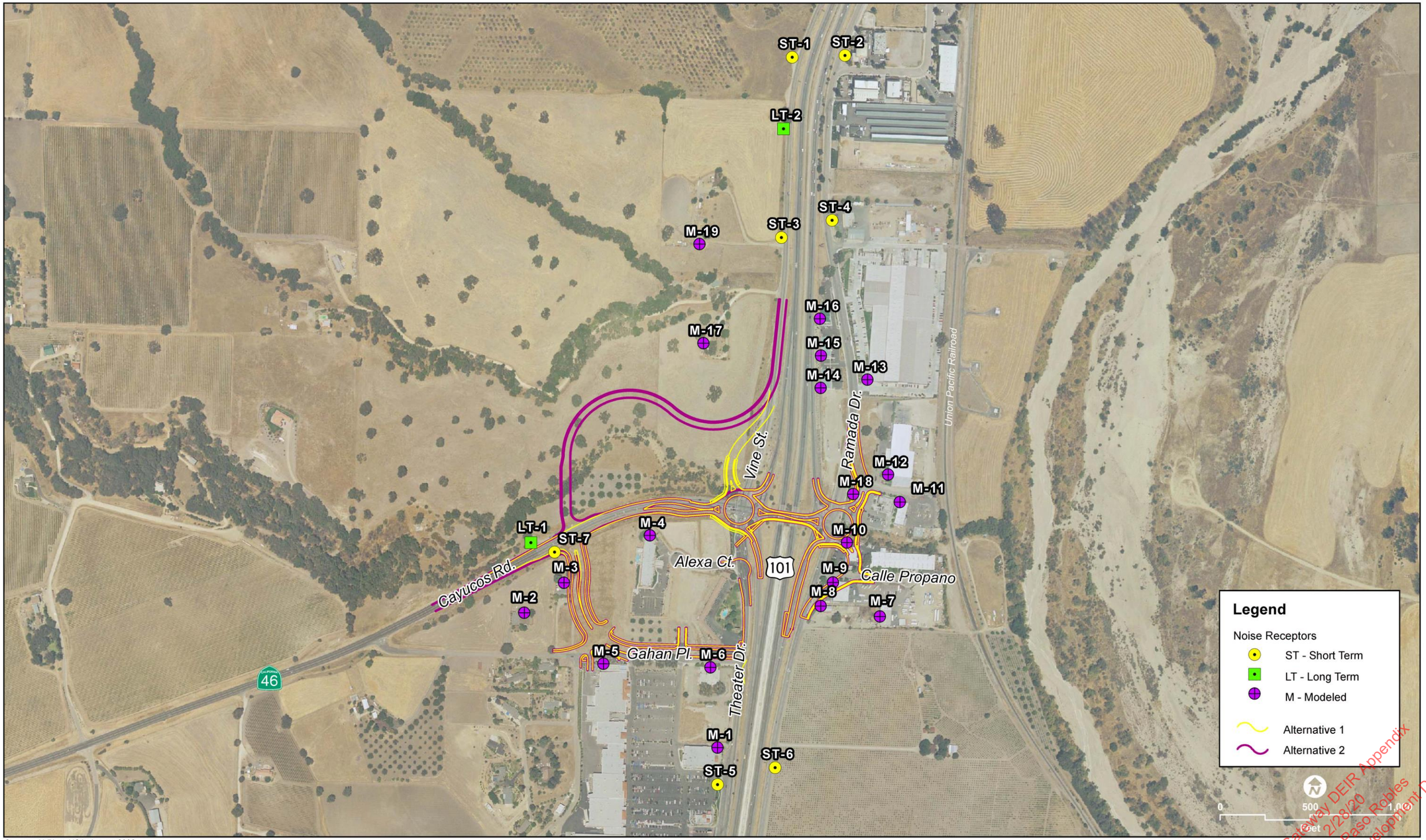

Source: AirPhotoUSA, August 2003

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FIGURE 2.2-2
NOISE MEASUREMENT AND MODELING LOCATIONS

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Table 2.2-7 indicates receptors according to their measurement type (short-term, long-term, modeled). The 19 locations, M-1 through M-19, are modeled-only locations. Short- and long-term measurements were conducted at nine locations. The modeled and measured locations are considered acoustically representative of the study area. The existing exterior peak traffic noise hour levels range from 57 to 79 decibels (dBA) Leq. Long-term noise measurement data indicate that traffic noise generally reaches its lowest hourly levels during the nighttime and early morning hours between 11:00 p.m. and 3:00 a.m. Noise levels during these hours are approximately 5 to 6 dBA lower than the measured daytime noise levels. The peak traffic noise hours occur between 8 a.m. and 4 p.m.

Environmental Consequences under the National Environmental Policy Act

Since a doubling of traffic would lead to a 3-dBA increase in the ambient noise level, one can see from Table 2.2-7 that noise from highway traffic will increase by about 2 dBA by 2038. This increase in noise level is barely perceptible in an outdoor situation. The project does not meet the Caltrans or Federal Highway Administration definition of a Type-1 project, therefore, no long-term noise abatement will be recommended with the project.

Build Alternatives 1 and 2

Year 2038 conditions with both Build Alternatives 1 and 2 approach (within 1 dB), equal, or exceed the noise abatement criteria at Receptors ST-2, ST-4, ST-5, M-1, M-8, M-10, M-14, M-15, M-16, and M-18. Table 2.2-7 shows that both build alternatives would result in a maximum 7-dBA noise increase over existing conditions.

The 10 receptors noted above are in Activity Category C (defined by developed lands, properties, or activities not included in Categories A or B) according to federal noise abatement criteria. The inclusion of soundwalls as a noise abatement measure would not be reasonable because this is not a Type-1 project where highway traffic is moved closer to sensitive receptors.

Furthermore, the build alternatives would not increase traffic noise by 12 dBA or more. Therefore, neither Build Alternative 1 nor Build Alternative 2 would cause a substantial noise increase.

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Table 2.2-7 – Summary of Existing and Predicted Noise Levels for Noise Sensitive Uses (dBA Leq)

Receptor # and Location	Existing Noise Level 2006 (dBA)	Predicted Noise Level without Project 2038* (dBA)	Predicted Noise Level with Project 2038 Alt 1 (dBA)	Predicted Noise Level with Project 2038 Alt 2 (dBA)
ST-1 S. Vine St. north of State Route 46 West, west of US 101 (undeveloped)	72	74	74	74
ST-2 Along Ramada Drive frontage road in front of Bronze Foundry Fine Arts Gallery	75	77	78	78
ST-3 South Vine St. north of State Route 46 West. Across Highway from Quinn Cat Rental Store (undeveloped)	74	76	77	77
ST-4 In front of Quinn Cat Rental Store, 1560 Ramada Drive	73	75	76	76
ST-5 Carl's Jr., south of 46 and west of Route 101.	70	72	73	75
ST-6 Ramada Drive South of State Route 46 West. At the edge of vineyard, directly across highway from Carl's Jr. (undeveloped)	75	77	77	77
ST-7 South side of State Route 46 West near Hampton Inn & Suites. (undeveloped)	67	69	71	71
LT-1 Tree along westbound side of State Route 46 West (undeveloped)	65	67	66	71
LT-2 Telephone pole along southbound side of US 101 (undeveloped)	74	76	76	76

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Receptor # and Location	Existing Noise Level 2006 (dBA)	Predicted Noise Level without Project 2038* (dBA)	Predicted Noise Level with Project 2038 Alt 1 (dBA)	Predicted Noise Level with Project 2038 Alt 2 (dBA)
M-1 Commercial building south of State Route 46 and west of US 101	69	71	71	71
M-2 Residence South of State Route 46, west of US 101	57	59	60	60
M-3 Residence south of State Route 46, west of US 101 that will be acquired for project	58	60	65	65
M-4 Motel south of State Route 46 and west of US 101	62	64	64	64
M-5 Commercial building south of State Route 46 and west of US 101	57	59	63	63
M-6 Commercial building south of State Route 46 and west of US 101	66	68	70	70
M-7 Commercial building east of Ramada Drive	64	66	66	66
M-8 Commercial building east of Ramada Drive	71	73	72	72
M-9 Commercial building east of Ramada Drive	69	71	n/a	n/a
M-10 Commercial building east of Ramada Drive	67	69	73	73
M-11 Commercial building east of Ramada Drive	63	65	64	64
M-12 Commercial building east of Ramada Drive	65	67	65	65
M-13 Commercial building east of Ramada Drive	68	70	67	67
M-14 Between Ramada Drive US 101	76	78	77	77
M-15 Between Ramada Drive US 101	77	79	78	78

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Receptor # and Location	Existing Noise Level 2006 (dBA)	Predicted Noise Level without Project 2038* (dBA)	Predicted Noise Level with Project 2038 Alt 1 (dBA)	Predicted Noise Level with Project 2038 Alt 2 (dBA)
M-16 Between Ramada Drive and US 101	79	81	80	80
M-17 Residence north of State Route 46, west of US 101	63	65	64	64
M-18 Commercial property E of Route 101 near roundabout	71	73	71	71
M-19 Residence north of State Route 46, west of US 101	62	64	64	64

* Noise level estimated based on increase in highway traffic between 2006 and 2038.

Environmental Consequences under the California Environmental Quality Act

The California Environmental Quality Act noise analysis is completely independent of the National Environmental Policy Act 23 Code of Federal Regulations 772 analysis discussed above, which is centered on noise abatement criteria. Under the California Environmental Quality Act, the assessment analyzes the setting of the noise impact and how large or perceptible any noise increase would be in a given area. Key areas of considerations include the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

The proposed project is located within an area that is dominated by commercial/retail and industrial development, with some interspersed residential development. The City's General Plan states that its exterior and interior standards are comparable to those of Caltrans and the Federal Highway Administration as it relates to allowable project-related increases in noise levels. Because the proposed project, under either build alternative, would not increase future traffic noise by 12 dBA or more, the project would not have a significant effect on local long-term noise levels. It is also important to note that under either build alternative, noise levels at sensitive receptors (such as residential use) would not increase more than 3 dBA by the year 2038. This increase is barely perceptible to the human ear in an outdoor situation. (Note that the houses located at 240 and 390 Gahan Place (M-3, M-6) have been purchased by the City. They are uninhabited and will be converted to non-residential use.)

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Construction (Short-term) Noise Impacts – Build Alternatives 1 and 2

Noise produced by construction equipment during the construction phase would occur with varying intensity and duration. Construction of the proposed project is anticipated to occur over an estimated 48-month period. Table 2.2-8 lists typical construction equipment and noise level ranges for similar roadway construction projects.

Table 2.2-8 – Typical Construction Equipment Noise Levels

Equipment	Instantaneous Noise Level (dBA) at 50 feet
Front Loader	73-86
Trucks	82-95
Cranes (moveable)	75-88
Cranes (derrick)	86-89
Vibrator	68-82
Saws	72-82
Pneumatic Impact Equipment	83-88
Jackhammer	81-98
Pumps	68-72
Generators	71-83
Compressors	75-87
Concrete Mixers	75-88
Concrete Pumps	81-85
Backhoe	73-95
Pile Driving (peaks)	95-107
Tractor	77-98
Scraper/Grader	80-93
Paver	85-88

Noise from construction activity is generated by a broad array of powered, noise-producing mechanical equipment used in the construction process. This equipment ranges from hand-held pneumatic tools and concrete pumps and jackhammers to bulldozers, dump trucks, and front loaders. The exact complement of noise-producing equipment that would be in use during any particular period has not yet been determined. However, construction activity on the project site would be required to comply with Caltrans' Standard Specification 7-1.011 (July 1999) "Sound Control Requirements."

Noise levels generated by construction equipment decrease at a rate of approximately 6 dBA per doubling of distance away from the source. Therefore, at a distance of 100 feet, the noise levels would be approximately 6 dBA lower than at a 50-foot distance.

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Similarly, at a distance of 200 feet, the noise levels would be approximately 12 dBA lower than at a 50-foot distance.

During certain types of construction activities (such as demolition of existing paved surfaces and structures), construction of the project may result in temporary, intermittent increases in existing noise levels in areas immediately adjacent to the project area. The "conventional construction" activities for this project would require the use of vehicles and heavy equipment whose noise characteristics are known. To avoid the potential effects of construction noise, the project's contracting agency would apply Caltrans' Standard Specifications (Sections 7 and 42) and Standard Special Provisions, which provide limits on construction noise levels. Normally, conventional construction noise levels should not exceed 86 dBA (L_{max}) at a distance of 50 feet.

Although construction activities would be short term and temporary in nature, to further avoid unnecessary annoyance from construction noise, best practices for construction noise control should also be considered.

Avoidance, Minimization, and Noise Abatement under the National Environmental Policy Act

The project is not a Type-1 project as defined in Caltrans Traffic Noise Analysis Protocol (August 2006); therefore, no long-term noise abatement measures are recommended with this project. Short-term noise abatement measures for use during construction are recommended below.

Avoidance, Minimization, and Noise Abatement under the California Environmental Quality Act

The following avoidance measures should be incorporated into the project contract specifications to minimize construction noise:

N-1 All noise-producing project equipment and vehicles using internal combustion engines would be equipped with mufflers and air-inlet silencers where appropriate, and in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (for example arc-welders and air compressors) would be equipped with shrouds and noise control features that are readily available for that type of equipment.

N-2 All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, would comply with such regulation while in the course of project activity.

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N-3 Material stockpiles and mobile equipment staging, parking, and maintenance areas would be located as far as practicable from noise-sensitive receptors.

N-4 Construction site and haul-road speed limits would be established and enforced during the construction period.

N-5 The hours of construction including noisy maintenance activities would be restricted to the periods and days permitted by local regulations.

N-6 The use of noise-producing signals, including horns, whistles, alarms, and bells, would be for safety warning purposes only.

N-7 No project-related public address or music system would be audible at any adjacent receptor.

N-8 The contractor would develop a project Noise Control Plan, which would have been approved and implemented prior to commencement of any construction activity.

N-9 The placement of berms or erection of temporary soundwall barriers would be considered where project activity is unavoidably close to noise-sensitive receptors.

2.3 Biological Environment

2.3.1 Natural Communities

Regulatory Setting

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Affected Environment

A Natural Environment Study (Minimal Impacts) (2007, updated in 2009) was prepared for the proposed project. This study included field surveys of the project's Biological Study Area (see Figure 2.3-1), literature reviews, and database searches.

Regionally, the Biological Study Area is located within an established transportation corridor and developed commercial and residential area within the city. The most prominent biological resource in the region is the Salinas River, located to the east of the Biological Study Area. The Biological Study Area includes regionally important habitat of oak woodland and a small amount of riparian (streamside) habitat. Riparian habitat is generally dominated by western sycamore (*Platanus racemosa*), with lesser

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amounts of cottonwood (*Populus* sp.), oak (*Quercus* sp.), and willow (*Salix* sp.). Understories vary from open to dense thickets of shrubby willows, mule fat (*Baccharis salicifolia*), or nettle (*Urtica* sp.). The proposed project is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Provided below is a description of the natural communities identified in the Biological Study Area.

Ruderal (Disturbed)/Non-native Grassland

Ruderal vegetation is typical of areas where the native vegetation has been significantly altered by agriculture, grazing, construction, or other land-clearing activities. This habitat type is present on private lots, cultivated fields, along road sides, and in abandoned fields. The type of disturbed lands encountered varies from bare ground to areas dominated with non-native annual species, perennial broadleaf species, and non-native grasses.

Typical plant species include Russian thistle (*Salsola tragus*), star thistle (*Centaurea solstitialis*), hoary mustard (*Hirschfeldia incana*), and lamb's quarters (*Chenopodium album*). Non-native grasses such as brome (*Bromus diandrus*, *B. madritensis* ssp. *madritensis*, and *B. madritensis* ssp. *rubens*) and zorro fescue (*Vulpia myuros*) are typical of this habitat type. Ruderal/non-native grasslands are distributed throughout the Biological Study Area.

Oak Woodland/Disturbed Oak Savannah

The oak woodland habitat type is primarily located within the northwest project quadrant. This oak woodland follows a substantial seasonal wash. Oak woodland canopy cover within the Biological Study Area varies from open to nearly closed with a roughly equivalent mixture of blue oak (*Quercus douglasii*), coastal live oak (*Quercus agrifolia*), and valley oak (*Quercus lobata*), which were mainly observed within the blue-line drainage feature within the northwest project quadrant. Oak trees also occur sporadically within the grassland portions of the Biological Study Area north of State Route 46 West and are characterized as Disturbed/Oak Savannah.

The understory species composition in oak woodland habitat can vary depending upon local conditions such as moisture, soil type, and historic land uses such as grazing and agriculture. The majority of the oak woodland understory in the Biological Study Area is composed of non-native annual grasses and forbs characteristic of grazing activities, such as star thistle. Understory vegetation

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associated with oak woodlands contains additional species, such as native poison oak (*Toxicodendron diversilobum*), non-native poison hemlock (*Conium maculatum*), and Italian thistle (*Carduus pycnocephalus*).

Oak woodlands, in general, provide good habitat for a variety of wildlife species, including nesting sites and cover for birds and many mammals. Dead and decaying oak trees with few branches or no leaves provide perches for birds to search for prey and resting spots for other bird species. They also contribute woody debris to the duff in the woodland understory, which provides foraging areas for small mammals and microclimates suitable for amphibians, reptiles, and fungi. Acorns are a valuable food source for many animal species, including the acorn woodpecker (*Melanerpes formicivorus*), scrub jay (*Aphelocoma corulescens*), western gray squirrel (*Sciurus griseus*), and mule deer (*Odocoileus hemionus*).

Riparian

Riparian vegetation exists in the eastern portion of the Biological Study Area along Ramada Drive. This vegetation community is characterized as moderately closed canopy, broad-leafed riparian habitat dominated by western sycamore (*Platanus racemosa*), with lesser amounts of cottonwood (*Populus freemontii*), oak (*Quercus* sp.), and willow (*Salix* sp.). Understories vary from open to dense thickets of shrubby willows, mule fat (*Baccharis salicifolia*), and nettle (*Urtica* sp.). In general, this community bounds floodplains of sub-perennial streams, usually with a coarse cobble bed and seasonally variable depths to the water table. This riparian habitat appears to be the result of disturbance to a mature, climax oak woodland habitat that was disturbed and removed by public infrastructure along Ramada Drive and naturally replaced by immature understory species (shrubby willows, mule fat, etc.).

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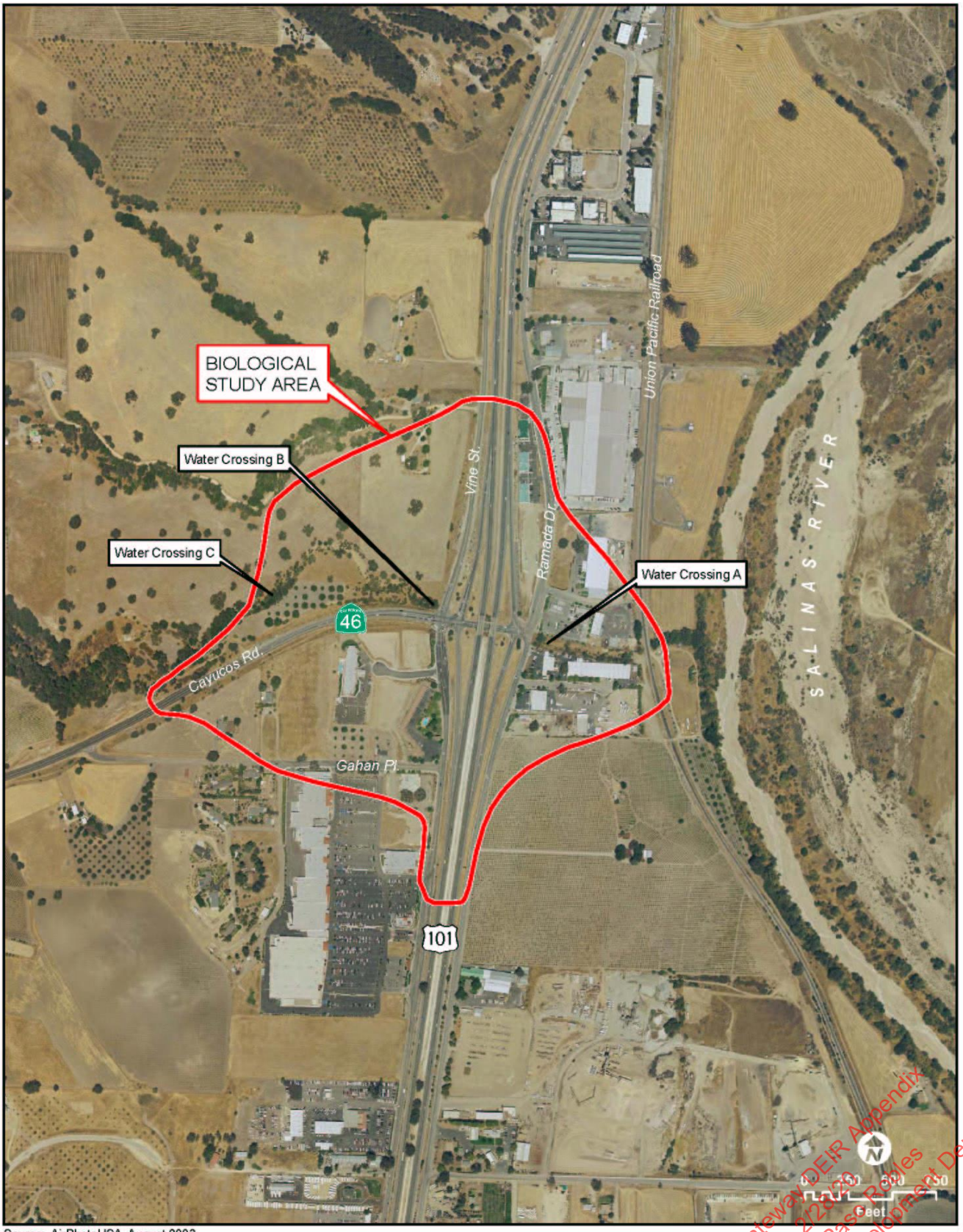

Source: AirPhotoUSA, August 2003

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FIGURE 2.3-1
BIOLOGICAL STUDY AREA

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Other vegetative communities that have been introduced into the Biological Study Area are also identified on Figures 2.3-2 and 2.3-3, and include Coyote Bush Scrub (not impacted by project).

Since the public circulation of the draft Initial Study/Environmental Assessment, on-site, on-foot field surveys were performed for the project area to further substantiate and characterize (e.g., species and size [diameter at breast height]) the magnitude of oak tree impacts anticipated as a result of the project. The results of the updated oak tree impact study are discussed in the following section.

Environmental Consequences

No special-status plant or animal species was observed within the Biological Study Area during the biological reconnaissance surveys or literature reviews. The *Natural Environment Study* (*Minimal Impacts*) concluded that the land within the Biological Study Area is not likely to support a diversity of special-status species, or special aquatic resources. Therefore, the Biological Study Area has not been identified as an area of substantial biological importance, and adverse impacts within the Biological Study Area are expected to only impact commonly occurring native and non-native wildlife or plant species. These commonly occurring species within the Biological Study Area are present in abundance throughout the region and are not anticipated to result in state or federal listing, additional protection, or the loss of viability for any common species.

Build Alternatives 1 and 2

Although the project site is not likely to support special-status plants or animals, there is a potential for direct and indirect impacts to common vegetative species as a result of the proposed project. The permanent impacts from Build Alternatives 1 and 2 are presented in Table 2.3-1. Figures 2.3-2 and 2.3-3 show the location and distribution of the various vegetative communities described in Table 2.3-1.

Table 2.3-1 – Permanent Impacts to Natural Communities

Vegetation	Build Alternative 1 Permanent Impacts (acres)	Build Alternative 2 Permanent Impacts (acres)
Riparian	0.23	0.23
Disturbed Oak Savannah	0.57	1.48
Oak Woodland	0.13	0.25
Ruderal	0.03	0.20
Total	0.96	2.16

Source: U.S. Highway 101/State Route 46 West Interchange Modification Project, Natural Environment Study (Minimal Impacts) (2009).

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As previously mentioned, the Biological Study Area contains oak woodlands regionally considered to be significant. The on-site, on-foot field surveys performed since the public comment process for the project indicate that Build Alternative 1 would affect approximately 24 oak trees and Build Alternative 2 is anticipated to affect approximately 49 oak trees. Oak trees removed by the project would be replaced with one-gallon plants at a ratio of 10:1 (10 oak trees planted per one oak tree removed by the project). This replacement ratio was chosen over the City's oak tree ordinance replacement ratio, which typically results in a replacement ratio of 3:1 to 5:1 using 24-inch box trees. Research and communication with nurseries, landscape architects, arborists throughout the state, and Caltrans project experience confirmed that small-container oak trees, such as 1-gallon plants, establish well with proper maintenance; as a result, they initially grow at a faster rate so that an equivalent size expectation to a 24-inch box-sized tree can be met in about a 5- to 7-year time frame. The 1-gallon plants are also expected to adapt better to natural settings, thereby developing stronger root systems and being less dependent on irrigation.

The intent of this 10:1 oak tree replacement ratio is to achieve a successful oak woodland restoration measure, which in turn will create as strong a habitat restoration measure for the project as reasonably possible. The 10:1 replacement ratio would result in 240 small-container oak trees planted for Build Alternative 1. Build Alternative 2 would result in a total of 490 small-container oak trees planted.

The specific number of oak trees ultimately affected per alternative would depend on final grading plans. Implementation of the proposed avoidance, minimization, and conservation measures would protect oak tree species affected by the proposed project.

Construction (Temporary) Impacts

Although the project site is not likely to support special-status plants or animals, there is a potential for direct and indirect impacts to common vegetative species as a result of the proposed project. Temporary impacts to vegetation communities associated with construction impacts including temporary access roads, haul routes, and staging areas were calculated for each alternative. The temporary impacts to vegetation communities are presented in Table 2.3-2.

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Table 2.3-2 – Temporary Impacts to Natural Communities

Vegetation	Build Alternative 1 Temporary Impacts (acres)	Build Alternative 2 Temporary Impacts (acres)
Riparian	0.26	0.26
Disturbed Oak Savannah	0.99	3.00
Oak Woodland	0.16	0.44
Ruderal	0.59	0.83
Total	2.0	4.53

Source: U.S. Highway 101/State Route 46 West Interchange Modification Project, Natural Environment Study (Minimal Impacts) (2009).

Temporary impacts to the project area were calculated by placing an additional 20-foot offset from the edge of the physical ground disturbance area of Build Alternatives 1 and 2 to approximate a worst-case impact scenario. With the implementation of avoidance and minimization measures, the project is not anticipated to have a substantial adverse effect on any common species, oak trees, or natural communities.

Avoidance, Minimization, and/or Mitigation Measures

NC-1 Oak trees would be replanted at a 10:1 ratio using 1-gallon-size plants and would be replanted on the same property the trees are removed from or in the project area, to the extent practicable and in coordination with Caltrans. Replacement oaks shall be planted and grouped in a natural random, pattern, to the extent possible.

When oaks are planted, preference shall be given to planting at the dripline edge of existing mature oak trees within appropriate portions of the project area, to the extent practicable. Preferred placement of mitigation oaks also includes north-facing slopes, drainage swales lacking riparian vegetation, and in areas away from continuous irrigation as much as practicable. To enhance establishment and subsequent growth rates, these oak trees would be installed with anti-herbivory cages, mulch, and supplemental irrigation, plus be maintained for three years. Planting is not to occur during the driest months of the year regionally (June through September).

A 3-year maintenance and monitoring program that includes plant establishment and replacement, invasive species control and supplemental watering period when needed shall be implemented. A qualified botanist or arborist shall monitor the installation and maintenance of the oak tree for a 3-year minimum or longer until deemed as successfully established by the City. Annual monitoring reports shall be prepared by the botanist or arborist and submitted to the City and Caltrans.

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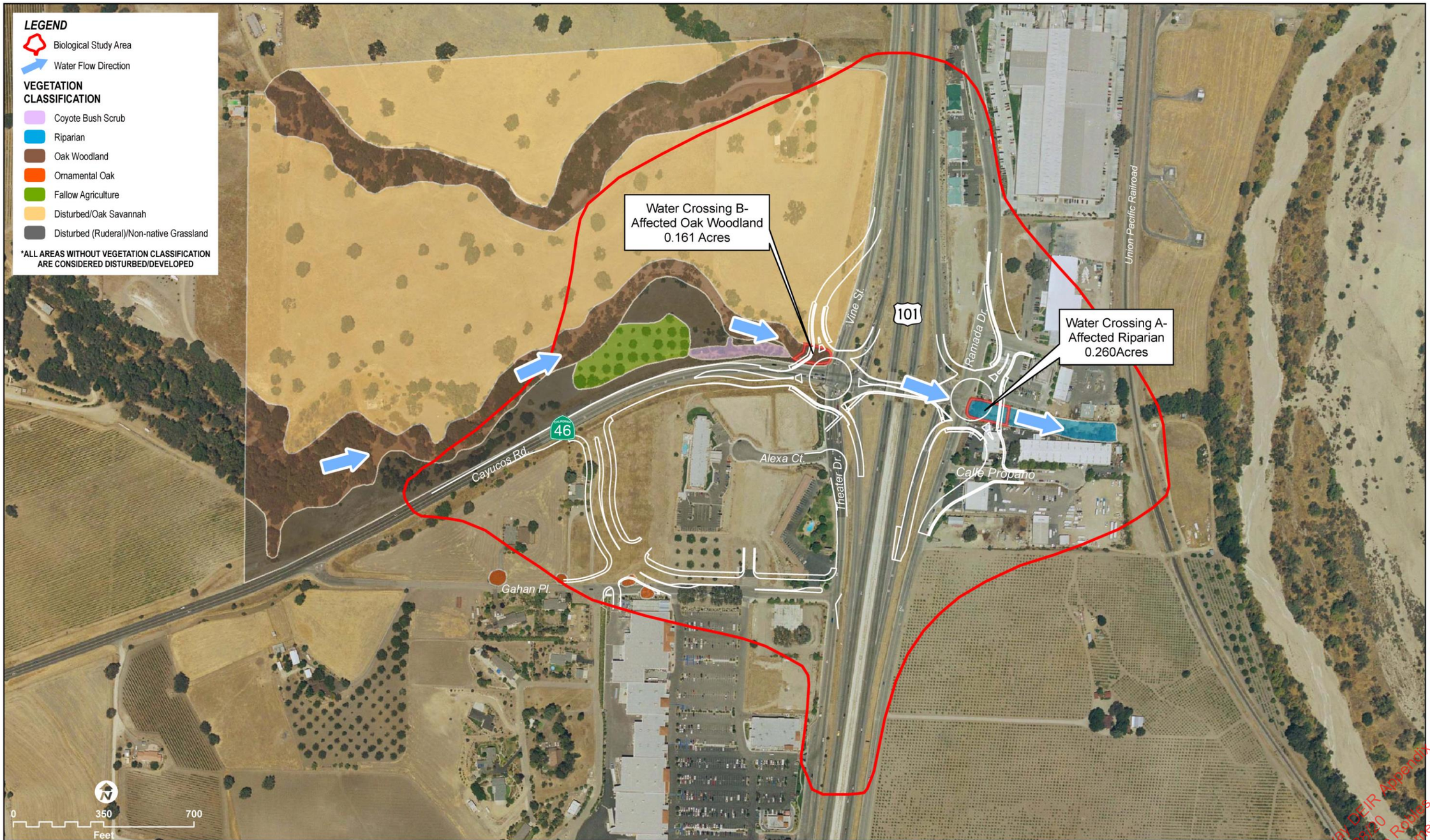

Source: AirPhotoUSA, August 2003

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FIGURE 2.3-2
VEGETATION COMMUNITIES AND WATER CROSSINGS - ALTERNATIVE 1

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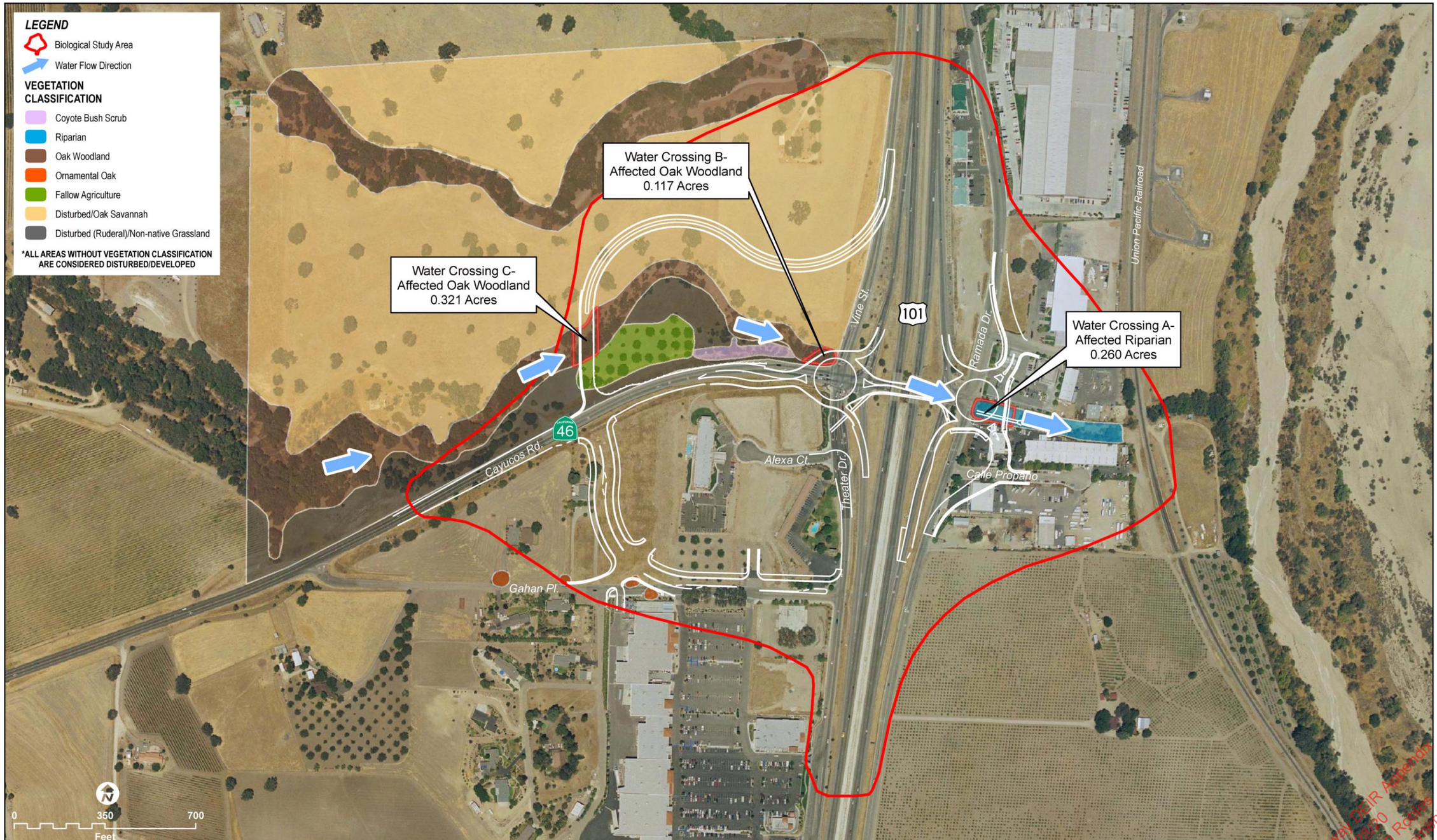

Source: AirPhotoUSA, August 2003

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FIGURE 2.3-3
VEGETATION COMMUNITIES AND WATER CROSSINGS - ALTERNATIVE 2

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NC-2 Environmentally sensitive areas protecting oak woodlands within the Biological Study Area would be delineated on plans and in the field with brightly colored fencing or similar materials in consultation with the Caltrans' Environmental Division. No staging areas, haul routes, stockpile areas, or construction equipment storage areas would be placed within environmentally sensitive areas. Mulch shall be placed at a depth of 4 to 6 inches to root zones of oak woodlands adjacent to the delineated environmentally sensitive areas to reduce damage to root zones of adjacent oak woodlands.

2.3.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 United States Code 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of: hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by the Environmental Protection Agency.

The Executive Order for the Protection of Wetlands (Executive Order 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, and Caltrans as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

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At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Game and the Regional Water Quality Control Boards. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that would substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Game before beginning construction. If the California Department of Fish and Game determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement would be required. The California Department of Fish and Game's jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the Department of Fish and Game.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The Regional Water Quality Control Boards also issue water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

Affected Environment

A Natural Environment Study (Minimal Impacts) (2007, and updated in 2009) was prepared for the proposed project. The Biological Study Area was examined to determine the locations of potential special aquatic resources. Areas suspected of being Clean Water Act or California Department of Fish and Game Code 1600 jurisdictional features were evaluated using the methodology set forth in the U.S. Army Corps of Engineers Wetland Delineation Manual. The potential for special aquatic resources was assessed within the Biological Study Area to determine the presence of definable channels and/or hydrophytic vegetation, riparian habitat, soils, and hydrologic regime.

As further described in the Natural Environment Study (Minimal Impacts), no potential jurisdictional wetlands were observed within the Biological Study Area. However, the Biological Study Area includes three water crossings (see Figures 2.3-2 and 2.3-3):

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- Crossing A – a small portion of riparian vegetation associated with a water crossing along Ramada Street
- Crossing B – a negligible amount of standing water in association with a culvert at the intersection of State Route 46 West and South Vine Street
- Crossing C – a water crossing located north of the proposed State Route 46 West and South Vine Street intersection of Build Alternative 2

Environmental Consequences

The proposed project would affect Waters of the U.S. and California Department of Fish and Game Code Section 1600 jurisdictional waters, including the large drainage and standing water observed at the intersection of South Vine Street and State Route 46 West. The table below describes the permanent area of impact to jurisdictional features for each build alternative. Impacts would require coordination with the U.S. Army Corps of Engineers, California Department of Fish and Game, and the Regional Water Quality Control Board to secure the necessary permits required by the Clean Water Act and California Department of Fish and Game Code.

Table 2.3-3 – Estimated Impacts to Jurisdictional Areas

Crossing Designation	Approximate Linear Feet Crossed	Approximate CDFG Jurisdictional Impacts Permanent Acres	Approximate Waters of the U.S. Impacts Permanent Acres	Vegetation Characteristics
Build Alternative 1				
Crossing A	158	0.26	0.26	Riparian
Crossing B	107	0.12	0.12	Oak Woodland
Build Alternative 2				
Crossing A	158	0.26	0.26	Riparian
Crossing B	63	0.03	0.03	Oak Woodland
Crossing C	Span	None – feature to be spanned	None – feature to be spanned	Oak Woodland

Source: U.S. Highway 101/State Route 46 West Interchange Modification Project, Natural Environment Study (Minimal Impacts) (2009).

Build Alternative 1

Implementation of Build Alternative 1 involves the conversion of the ramp and frontage road intersections into roundabouts and the relocation of Theatre Drive to a new intersection with State Route 46 West approximately 900 feet west of the existing intersection. South Vine Street would be reconstructed to be included in the southbound ramps roundabout. Build Alternative 1 would affect approximately 0.26 acre each of California Department of Fish and Game jurisdictional waters and

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Waters of the U.S. at Crossing A, and 0.12 acre each of California Department of Fish and Game waters and Waters of the U.S. at Crossing B for a total of 0.38 acre of impact (see Figure 2.3-2). No impacts would occur at Crossing C under Build Alternative 1.

Build Alternative 2

Implementation of Build Alternative 2 involves the conversion of the ramp termini and frontage road intersections into roundabouts and the relocation of Theatre Drive to a new intersection with State Route 46 West approximately 900 feet west of the existing intersection. Build Alternative 2 would also relocate South Vine Street so that it becomes the northern leg of the new Theatre Drive/State Route 46 West intersection. Build Alternative 2 would affect approximately 0.26 acre each of California Department of Fish and Game jurisdictional waters and Waters of the U.S at Crossing A, and approximately 0.03 acre each of California Department of Fish and Game jurisdictional waters and Waters of the U.S. at Crossing B for a total of 0.29 acre of impact (see Figure 2.3-3). Crossing C would not result in any impacts.

Construction Impacts

Temporary impacts to riparian and oak woodland would not have substantial adverse effects with the implementation of the proposed avoidance and minimization measures.

Avoidance, Minimization, and/or Mitigation Measures

WET-1 Prior to undertaking ground-disturbing activities or development within or adjacent to any potential Clean Water Act and California Department of Fish and Game Code 1600 (*et seq*.) jurisdictional features (such as wetlands, Waters of the U.S., Waters of the state, sensitive riparian areas, etc.) within the Biological Study Area, Caltrans would consult with the appropriate responsible local, state, and federal agencies to secure all obligatory discretionary permits and authorization.

WET-2 Environmentally sensitive areas within the Biological Study Area (such as streambeds, oak trees, active and avian nest sites) would be delineated on plans and in the field with brightly colored fencing or similar materials in consultation with the Caltrans' Environmental Division. No staging areas, haul routes, stockpile areas, or construction equipment storage areas would be placed within environmentally sensitive areas.

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WET-3 Prior to undertaking ground-disturbing activities, the following permits would be obtained, as ultimately deemed necessary, from the respective agency:

- U.S. Army Corps of Engineers, Section 404 Permit would be obtained prior to construction.
- California Department of Fish and Game, 1602 Streambed Alteration Agreement would be obtained prior to construction.
- Regional Water Quality Control Board, Section 401 Water Quality Certification would be obtained prior to construction.

WET-4 Temporary impacts to Waters of the U.S. shall be compensated for at a ratio of 2:1, and permanent impacts to Waters of the U.S. shall be compensated for at a ratio of 3:1.

2.3.3 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanographic and Atmospheric Administration Fisheries Service, and the California Department of Fish and Game are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Special-status animal species discussed here include California Department of Fish and Game fully protected species and species of special concern, and the U.S. Fish and Wildlife Service or National Oceanographic and Atmospheric Administration Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- Marine Mammal Protection Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1601–1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

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Affected Environment

As previously mentioned, a Natural Environment Study (Minimal Impacts) (2007, and updated in 2009) was prepared for the proposed project, which included field surveys of the project's Biological Study Area, literature reviews, and database searches.

Common Wildlife

The Biological Study Area is in close proximity to urban activities and urban development. Common wildlife observed within the Biological Study Area included avifauna species such as the turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), northern mockingbird (*Mimus polyglottos*), and common raven (*corvus corax*). Common mammal species observed included mule deer (*Odocoileus hemionus*) and woodrat (*Neotoma* sp.). Aquatic species found within standing water within the drainage feature in the northwest project quadrant included tree frogs (*Hyla* sp.). A complete list of all common wildlife species observed within the Biological Study Area during field surveys is found in Appendix B of the Natural Environment Study (Minimal Impacts).

Special-Status Wildlife

Twenty-two special-status animal species have the potential to occur within the general vicinity of the project area based on a review of pertinent records (California Natural Diversity Database). Seven of these species are listed as federal or state Endangered Species Act protected species; the remaining 15 species are not state or federal Endangered Species Act protected.

The following five species are designated as state species of concern, and surveys were conducted to determine potential project-related impacts:

- Monarch butterfly (*Danaus plexippus*)
- Lompoc grasshopper (*Trimerotropis occulens*)
- White-tailed kite (*Elanus leucurus*)
- Monterey dusky-footed woodrat (*Neotoma macrotis luciana*)
- American badger (*Taxidea taxus*)

Refer to the Natural Environment Study (Minimal Impacts) for detailed descriptions regarding the above-listed species.

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Migratory Birds

The Biological Study Area has the potential to support foraging areas for migratory birds and their nests due to the large number of trees and shrubs within the area; potential impacts to such bird species must be considered pursuant to the Migratory Bird Treat Act.

Environmental Consequences

Build Alternatives 1 and 2

Of the 22 special-status species evaluated for this project, 16 species (including the pallid bat and Townsend's western big-eared bat) are considered absent due to lack of suitable habitat within the Biological Study Area. The remaining six species (monarch butterfly, Lompoc grasshopper, white-tailed kite, Monterey dusky-footed woodrat, American badger, and San Joaquin kit fox) have a low probability of occurrence within the Biological Study Area. A low potential for occurrence designation was applied to these six species because their distribution is restricted by the lack of necessary habitat requirements in the Biological Study Area; no further survey or study is required to determine likely presence or absence of these species. The proposed project is not expected to adversely affect special-status species due to the presence of disturbed habitat, distance of species to the project site, or a low probability of occurrence.

The Monterey dusky-footed woodrat has a low potential for occurrence. A low potential designation was applied to this species because its distribution is restricted by the lack of necessary habitat requirements in the Biological Study Area. No further surveys or studies are required to determine the likely presence or absence of this species.

The pallid bat and Townsend's western big-eared bat are considered absent due to a lack of suitable habitat within the Biological Study Area. Therefore, no additional avoidance, minimization and/or mitigation measures are included for these species.

Although the project is not likely to affect special-status animals, there is a potential for direct and indirect impacts to migratory birds, raptors, and bats as a result of the proposed project. No special-status animal was observed within the Biological Study Area, and the proposed project would not directly destroy individuals or nests, cause mortality of nestlings or adults, disrupt breeding activities, affect annual production, or substantially change migration or foraging patterns of wildlife. However, raptors and bats, although not listed or afforded protection, may nest or roost on existing

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structures or trees within the Biological Study Area, and impacts on these species may include habitat loss from construction activities. These impacts are not considered substantial due to the small amount of native functional habitat affected by the project and the existing disturbed conditions of the Biological Study Area. Therefore, the project is not anticipated to have a substantial adverse effect on common or special-status wildlife species.

Construction Impacts

Noise, dust, and vibratory effects resulting from demolition and construction-related activities may have an indirect effect on migratory birds, bats, and raptors nesting or roosting in the project area and vicinity. However, these impacts are not considered substantial due to the relatively small amount of native functional habitat being affected by the project and the assumed tolerance of species to disturbance from existing development in the Biological Study Area.

Project activities may temporarily deter individuals from using the project construction area for foraging and nesting; however, this impact would be limited to the period of active construction and is not expected to result in any long-term or substantial changes in migration or foraging patterns.

Raptors and bats may nest or roost on existing structures or trees within the Biological Study Area, and impacts on these species may include habitat loss and potential temporary displacement due to construction activities.

Project activities may also temporarily deter wildlife from foraging in the area during active construction within the relatively small project construction area. These impacts are not considered substantial due to the small amount of native functional habitat affected by the project and the existing disturbed conditions of the Biological Study Area.

Therefore, the project is not anticipated to have a substantial adverse effect on common or special-status species.

Avoidance, Minimization, and/or Mitigation Measures

AS-1 In order to comply with the Migratory Bird Treaty Act and relevant sections of the California Department of Fish and Game Code , any vegetation clearing would take place outside of the typical avian nesting season (February 15-September 1), to the maximum extent practical. If this is not possible, prior to ground-disturbing activities, construction, and other development within the Biological Study Area, a

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qualified biologist would conduct and submit a migratory nesting bird and raptor survey report. A qualified biologist is an individual with sufficient education and field experience in local California ecology and biology to adequately identify local plant and wildlife species. The survey would occur not more than 72 hours prior to initiation of project activities and any occupied passerines and/or raptor nests occurring within or adjacent to the study area would be delineated. To the maximum extent practicable, a minimum buffer zone, using environmentally sensitive area fencing, from occupied nests would be maintained during physical ground-disturbing activities. If there were migratory birds in trees that are to be removed, construction would be halted until the birds have fledged. Once nesting has ceased, the buffer may be removed.

2.3.4 Invasive Species

Regulatory Setting

On February 3, 1999, President Bill Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem, whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration guidance issued August 10, 1999 directs the use of the state's noxious weed list to define the invasive plants that must be considered as part of the National Environmental Policy Act analysis for a proposed project.

Affected Environment

The proposed project area consists mostly of disturbed non-native grassland, oak woodland/disturbed oak savannah, coyote bush scrub, riparian habitat, ornamental, agricultural, and developed areas. Most of the native vegetation is sporadic and the majority of the Biological Study Area is disturbed and developed with non-native and ornamental species and provides minimal nesting, foraging, and resting habitat. Nonetheless, the Biological Study Area does provide some suitable habitat for plant and wildlife species, although the plant and wildlife species observed during surveys are typical of disturbed/developed habitats in the county.

Plants

Invasive, noxious, exotic, ornamental, and non-native plants were identified by using various plant lists from the California Department of Food and Agriculture, the California Invasive Plant Council, the Nature Conservancy, and the California Weed

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Science Society. Typical plant species observed included Russian thistle (*Salsola tragus*), star thistle (*Centaurea solstitialis*), hoary mustard (*Hirschfeldia incana*), and lamb's quarters (*Chenopodium album*). Additional non-native grasses such as brome (*Bromus diandrus*, *B. madritensis* ssp. *madritensis*, and *B. madritensis* ssp. *rubens*) and zorro fescue (*Vulpia myuros*) were also observed. Disturbed (ruderal)/non-native grasslands are distributed throughout the Biological Study Area and contain species such as non-native poison hemlock (*Conium maculatum*) and Italian thistle (*Carduus pycnocephalus*) among others. The aforementioned non-native and invasive plant species were most likely transferred to the area by, for example, vehicle tires, wind dispersion from landscaped yards, and wildlife. Invasive species have not been able to completely out-compete native species throughout the Biological Study Area.

Environmental Consequences

Build Alternatives 1 and 2

The build alternatives would not be expected to introduce or materially increase or decrease the abundance or diversity of invasive or non-native plant or wildlife species. Therefore, there would not be any anticipated permanent impacts resulting from the introduction of invasive or non-native plant or wildlife species from implementing either build alternative.

Construction Impacts

Impacts associated with removal of vegetation during constructing can have short- and long-term consequences, depending on the ability of vegetative communities to repopulate cleared areas. Cleared and graded areas have the most noticeable short-term impact on vegetation. Yet after restoration, as necessary, the areas typically revegetate due to the availability of water, seeds, and plant parts from which new plants can grow. Nonetheless, the removal of vegetation and the disturbance of soils during construction could create optimal conditions for the invasion and establishment of exotic and nuisance species. However, where the project encompasses areas consisting of existing invasive or non-native species, the removal of the noxious populations can provide an opportunity for the re-establishment of native vegetation.

During construction, the avoidance and minimization measures described below would be implemented to control and inhibit the spread of invasive species.

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Avoidance, Minimization, and/or Mitigation Measures

VEG-1 All native vegetation that is removed or temporarily disturbed during construction would be replaced with native and drought-tolerant plants species as specified by the Landscape Architecture Division of Caltrans' Environmental Planning division. Native vegetation would be monitored to ensure planting success and the City would develop and implement a "Native Vegetation Restoration and Monitoring Plan" with input and oversight from Caltrans for any disturbed areas within the Biological Study Area (such as staging areas, access roads, etc.). The final plan would be prepared before construction.

VEG-2 Topsoils containing non-native, exotic, and/or invasive plant material or seeds would be removed from the Biological Study Area and not reused unless, as specified by Caltrans' Environmental Planning, the topsoils can be used in areas where non-native, exotic, and/or invasive plant material or seeds would not adversely affect native vegetation.

VEG-3 Limits of grading and construction activities should be clearly delineated so that no vegetation outside the delineated grading limits would be disturbed by construction personnel or equipment.

VEG-4 In compliance with the Executive Order on Invasive Species and subsequent guidance from the Federal Highway Administration, landscaping and erosion control included in the project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species were found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

2.4 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation.

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These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

Section 15130 of the California Environmental Quality Act Guidelines describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under the California Environmental Quality Act, can be found in Section 15355 of the California Environmental Quality Act Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act, can be found in 40 Code of Federal Regulations, Section 1508.7 of the Council on Environmental Quality regulations.

Affected Environment

As discussed in Section 2.1.1, Land Use, the City's Planning Department was contacted to identify proposed projects in the vicinity of the US 101/State Route 46 West interchange. No proposed projects were identified in the unincorporated areas of the project vicinity at the time of this analysis. Table 2.1-1, in Section 2.1.1 Land Use, lists 11 projects that were provided by the City's Planning Department in the vicinity of the proposed project. Table 2.1-1 lists these future projects by Map I.D. letter, which corresponds to the Map I.D. letters on Figure 2.1-2, Planned Projects, showing the location of each respective planned development.

Construction of the proposed project may result in some temporary, short-term disruptions in the project vicinity. Short-term cumulative impacts may occur if other projects in the area are constructed during periods of time that overlap with construction of the proposed project.

Environmental Consequences

This section focuses on potential cumulative impacts to visual/aesthetic and biological resources (oak woodlands). No cumulatively considerable impacts would occur to the other disciplines addressed in Chapter 2 of this report, and, therefore, they are not further assessed in this section.

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Visual/Aesthetics

The project is in an area that historically had a viewshed that was rural and agricultural. The landscape of the project area and its surroundings was composed of rolling hills and oak woodlands. As the city and the surrounding county grew and developed, these views have been changing to include a more built-up urban environment surrounded by rural agricultural uses. Today, the majority of the project area and surroundings is located in a commercial and industrial area with some surrounding rural/open space influences. Previous development has resulted in the loss of some oak woodland viewsheds throughout time. In the project vicinity, the combined planned commercial uses (as approved or pending by the City – refer to Figure 2.1-2) and the proposed project would contribute to an overall increase in urban views. However, impacts can be mitigated with appropriate landscaping, proper lighting techniques, and replanting of affected oak trees. Please refer to Section 2.1.7, Visual/Aesthetics, for a detailed discussion of project-related impacts and avoidance, minimization, and mitigation measures proposed for this project.

Biological Environment – Oak Woodlands

Growth and development in the project area and vicinity over the years, particularly in the northern San Luis Obispo County area, has resulted in the conversion of areas of oak woodlands to other uses. Of the known planned projects listed in Table 2.1-1 and shown in Figure 2.1-2, no specific quantification of oak tree impacts was identified. However, the planned and potential future projects identified in the project vicinity are relatively devoid of substantial areas of oak woodlands. Nonetheless, any impacts to oak trees resulting from these planned and future projects would require replacement per the City's standards to help ensure the survival of replanted trees. It is anticipated that the US 101/State Route 46 West interchange project would result in the loss of 49 oak trees (refer to Section 2.3.1, Natural Communities, for additional discussion regarding impacts to oak trees resulting from the project).

The discussion regarding impacts to oak woodlands should focus on the loss of contiguous oak woodland habitat, rather than impacts to individual oak trees. Growth in the region has resulted in the conversion of contiguous oak woodland habitat to other uses. Due to development pressure and the lack of profit that oak woodlands provide, they are being converted with little to no mitigation being employed to compensate for this loss. Individual oak trees are sometimes avoided by projects and other oak trees planted as landscape trees to compensate for the individual tree loss associated with development, but the impact to oak woodlands and the ecosystem values they support are often not mitigated.

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The proposed project is expected to remove 49 oak trees. Implementation of proposed mitigation measures for this project would compensate for the loss of oak trees and afford the opportunity to replant oak trees in areas of degraded, contiguous oak trees.

2.5 Climate Change under the California Environmental Quality Act

Regulatory Setting

While climate change has been a concern since at least 1988 as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change, the efforts devoted to greenhouse gas emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are mainly concerned with the emissions of greenhouse gas related to human activity that include carbon dioxide (CO_2), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane) and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and proactive approach to dealing with greenhouse gas emissions and climate change at the state level. Assembly Bill 1493 requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009 model year; however, to enact the standards, California needed a waiver from the U.S. Environmental Protection Agency. The waiver was denied by the U.S. Environmental Protection Agency in December 2007. See California v. Environmental Protection Agency, 9th Cir. Jul. 25, 2008, No. 08-70011. However, on January 26, 2009, it was announced that U.S. Environmental Protection Agency will reconsider its decision regarding the denial of California's waiver.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this order is to reduce California's greenhouse gas emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020, and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. Assembly Bill 32 sets the same overall greenhouse gas emissions reduction goals while further mandating that the California Air Resources Board create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06, further directs state

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agencies to begin implementing Assembly Bill 32, including the recommendations made by the state's Climate Action Team.

With Executive Order S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10% by 2020.

Climate change and greenhouse gas reduction is also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing greenhouse gas emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the U.S. Environmental Protection Agency to regulate greenhouse gas as a pollutant under the Clean Air Act (Massachusetts v. Environmental Protection Agency et al., 549 U.S. 497 (2007)). The court ruled that greenhouse gas does fit within the Clean Air Act's definition of a pollutant, and that the U.S. Environmental Protection Agency does have the authority to regulate greenhouse gas. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

Affected Environment

According to *Recommendations by the Association of Environmental Professionals on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of greenhouse gas. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See California Environmental Quality Act Guidelines sections 15064(i)(1) and 15130. To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. As discussed in the "Limitations and Uncertainties with Impact Assessment" sections below, to gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult if not impossible task.

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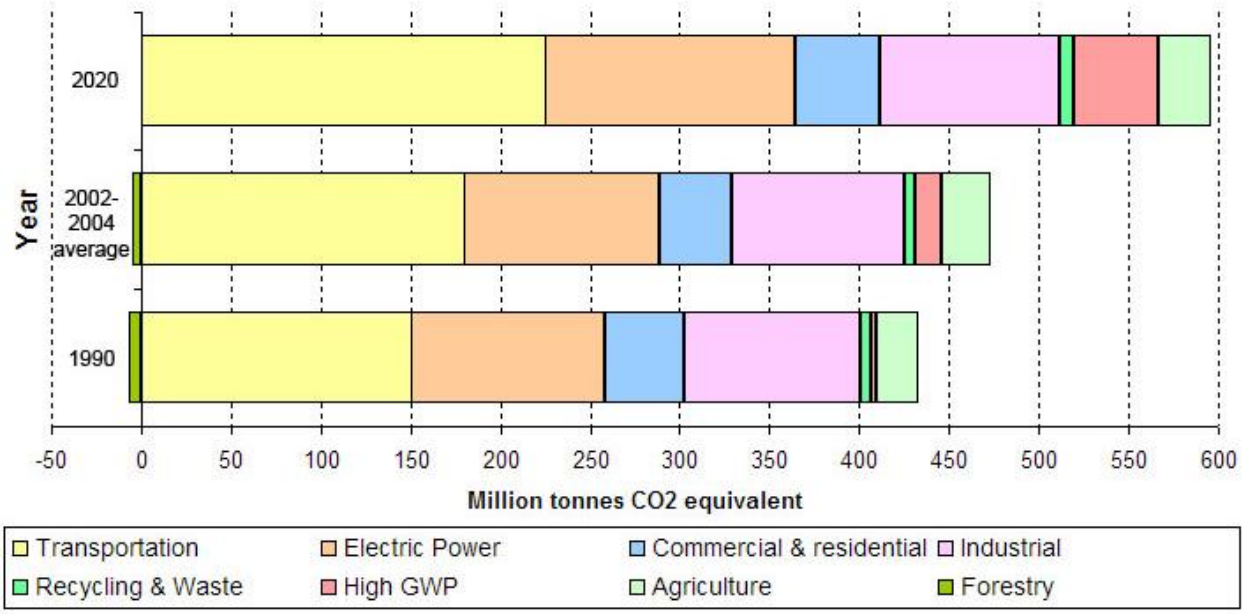
As part of its supporting documentation for the Draft Scoping Plan, the California Air Resources Board recently released an updated version of the greenhouse gas inventory for California (June 26, 2008). Shown below is a graph from that update that shows the total greenhouse gas emissions for California for 1990, 2002-2004 average, and 2020 projected if no action is taken.

Figure 2.5-1 – California Greenhouse Gas Inventory Forecast



California Greenhouse Gas Inventory

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98% of California's greenhouse gas emissions are from the burning of fossil fuels and 40% of all human-made greenhouse gas emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006. This document can be found at: http://www.dot.ca.gov/docs/ClimateReport.pdf.

One of the main strategies in Caltrans' Climate Action Program to reduce greenhouse gas emissions is to make California's transportation system more efficient. Transportation's contribution to greenhouse gas emissions depends on three factors: the types of vehicles on the road, the type of fuel the vehicles use, and the

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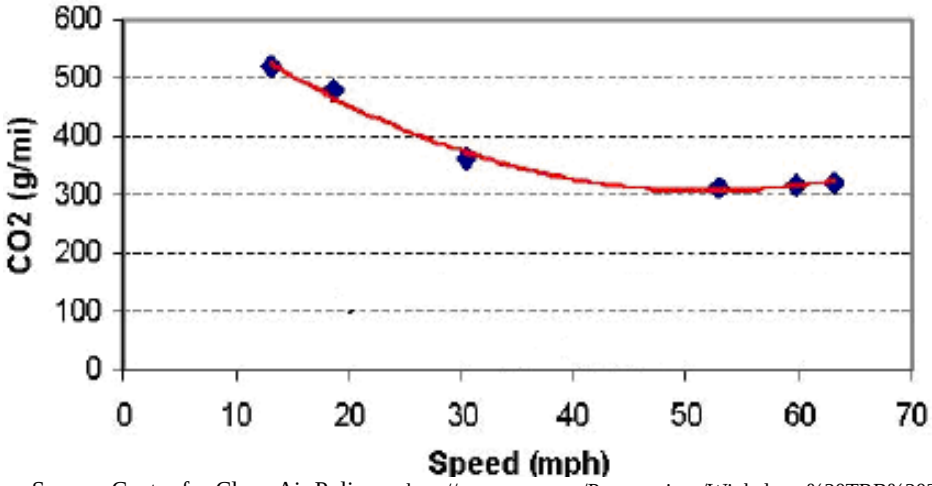
time/distance the vehicles travel. The highest levels of carbon dioxide (CO_2) from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour). Optimum speeds are between 45 and 50 miles per hour. See Figure 2.5-2. To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors greenhouse gas emissions, particularly CO_2, may be reduced.

Figure 2.5-2 – Fleet CO_2 Emissions vs. Speed (Highway)



Source: Center for Clean Air Policy— http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20(1-13-04).pdf

There are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed project and that could thus dramatically change the projected CO_2 emissions.

First, vehicle fuel economy is increasing. The Environmental Protection Agency's annual report, Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008 (http://www.epa.gov/oms/fetrends.htm), which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy, has improved each year beginning in 2005, and is now the highest since 1993. Most of the increase since 2004 is due to higher fuel economy for light trucks, following a long-term trend of slightly declining overall fuel economy that peaked in 1987. These vehicles also have a slightly lower market share, peaking at 52% in 2004 with projections at 48% in 2008.

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Second, near-zero carbon vehicles will come into the market during the design life of this project. According to *Why Hydrogen and Fuel Cells are Needed to Support California Climate Policy*, released by University of California at Davis (UC Davis), Institute of Transportation Studies (March 2008):

> "Large advancements have occurred in fuel cell vehicle and hydrogen infrastructure technology over the past 15 years. Fuel cell technology has progressed substantially resulting in power density, efficiency, range, cost, and durability all improving each year. In another sign of progress, automotive developers are now demonstrating over 100 fuel cell vehicles (FCVs) in California – several in the hands of the general public – with configurations designed to be attractive to buyers. Cold-weather operation and vehicle range challenges are close to being solved, although vehicle cost and durability improvements are required before a commercial vehicle can be successful without incentives. The pace of development is on track to approach pre-commercialization within the next decade."

> "A number of the U.S. Department of Energy (DOE) 2010 milestones for fuel cell vehicles development and commercialization are expected to be met by 2010. Accounting for a five to six year production development cycle, the scenarios developed by the U.S. DOE suggest that 10,000s of vehicles per year from 2015 to 2017 would be possible in a federal demonstration program, assuming large cost share grants by the government and industry are available to reduce the cost of production vehicles."

Third and as previously stated, California has recently adopted a low-carbon transportation fuel standard. The California Air Resources Board is scheduled to come out with draft regulations for low carbon fuels in late 2008 with implementation of the standard to begin in 2010.

Fourth, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, *Effects of Gasoline Prices on Driving Behavior and Vehicle Market*, http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf , the Congressional Budget Office found the following results based on data collected from California: 1) freeway motorists have adjusted to higher gas prices by making fewer trips and driving more slowly; 2) the market share of sports utility vehicles is declining; and 3) the average prices for larger, less-fuel-efficient models have declined over the past five years as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel-efficient vehicles.

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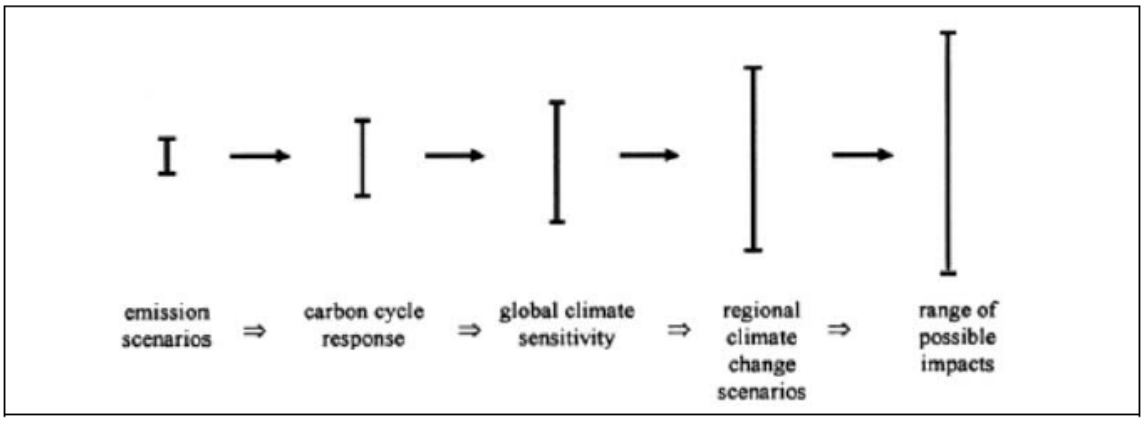
Cascade of Uncertainties

Taken from pp. 3-48 and 3-49 of the National Highway Traffic Safety Administration Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards (June 2008), the figure below illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:



> "Cascade of uncertainties typical in impact assessments showing the 'uncertainty explosion' as these ranges are multiplied to encompass a comprehensive range of future consequences, including physical, economic, social, and political impacts and policy responses."

Much of the uncertainty in assessing an individual project's impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory framework in place that would allow for a ready assessment of what the modeled 11.4 to 20.9 ton increase in CO_2 emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of CO_2 equivalent.

This uncertainty only increases when viewed globally. The Intergovernmental Panel on Climate Change (IPCC) has created multiple scenarios to project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons of CO_2 from 2000 to 2030, which represents an increase of between 25% and 90% (Climate Change 2007: The Physical Science

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Basis: Summary for Policy Makers. February 2007. http://www.ipcc.ch/SPM2feb07.pdf).

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of greenhouse gas emissions, rather than causing "new" greenhouse gas emissions. Although some of the emission increases might be new, a net global increase, reduction, or no change, is uncertain and there are no models approved by regulatory agencies that operate at the global or even statewide scale.

The complexities and uncertainties associated with project-level impact analysis are further borne out in the recently released Draft Environmental Impact Statement completed by the National Highway Traffic Safety Administration Corporate Average Fuel Economy Standards, June 2008. As the text quoted below shows, even when dealing with greenhouse gas emission scenarios on a national scale for the entire passenger car and light truck fleet, the numerical differences among alternatives is very small and well within the error sensitivity of the model.

> "In analyzing across the Corporate Average Fuel Economy 30 alternatives, the mean change in the global mean surface temperature, as a ratio of the increase in warming between the B1 (low) to A1B (medium) scenarios, ranges from 0.5 percent to 1.1 percent. The resulting change in sea level rise (compared to the No Action Alternative) ranges, across the alternatives, from 0.04 centimeter to 0.07 centimeter. In summary, the impacts of the MY 2011-2015 Corporate Average Fuel Economy alternatives on global mean surface temperature, sea level rise, and precipitation are relatively small in the context of the expected changes associated with the emission trajectories. This is due primarily to the global and multi-sectoral nature of the climate problem. Emissions of CO_2, the primary gas driving the climate effects, from the United States automobile and light truck fleet represented about 2.5 percent of total global emissions of all greenhouse gas in the year 2000 (EPA, 2008; CAIT, 2008). While a significant source, this is a still small percentage of global emissions, and the relative contribution of CO_2 emissions from the United States light vehicle fleet is expected to decline in the future, due primarily to rapid growth of emissions from developing economies (which are due in part to growth in global transportation sector emissions). (NHTSA Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards, June 2008, pp.3-77 to 3-78)".

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Project Analysis

The proposed project is designed to reduce congestion and vehicle time delays. It is included in San Luis Obispo Council of Governments' 2005 Regional Transportation Plan and 2007 Regional Transportation Improvement Program to improve traffic flow within the region. The proposed project is an interchange reconfiguration project, and therefore would result in an insignificant increase in vehicle miles traveled.

Furthermore, as discussed in Section 2.1.6, Traffic & Transportation/Pedestrian and Bicycle Facilities, the proposed project would result in an estimated net reduction of 15,996,069 vehicle hours of delay during the course of the project (year 2018 through year 2038). An increase in vehicle hours of delay is associated with a longer travel time resulting from an increase in traffic volumes and a decrease in travel speeds. Conversely, a decrease in vehicle hours of delay is associated with a shorter travel time due to a decrease in traffic volumes and an increase in travel speeds. The quantities of pollutants emitted from vehicles are directly correlated to travel speed (EMFAC2002 model manual). At stop-and-go speeds (0-25 miles per hour) vehicles emit larger quantities of pollutants than vehicles traveling at higher speeds. Therefore, a decrease in vehicle hours of delay (or vehicles traveling at a higher speed) correlates to a reduction in CO_2 emissions.

Air Quality Characteristics and Air District Area

The project is located in the San Luis Obispo County Air Pollution Control District. California, in conjunction with several environmental organizations and several other states, sued to force the U.S. Environmental Protection Agency to regulate greenhouse gas as a pollutant under the Clean Air Act (Massachusetts v. Environmental Protection Agency et al., 549 U.S. 497 (2007)). The court ruled that greenhouse gas does fit within the Clean Air Act's definition of a pollutant, and that the U.S. Environmental Protection Agency does have the authority to regulate greenhouse gas. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

Design Speeds and Correlating Emissions

The highest levels of CO_2 from vehicles occur at stop-and-go speeds. The project proposes two roundabout designs that would provide a constant traffic pattern and therefore minimize stop-and-go traffic. Consequently, roundabout Build Alternatives 1 and 2 would result in lower CO_2 levels than a No-Build Alternative (the three project alternatives are explained further under "Operational Emissions").

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Project Growth: Current and Future Characteristics

Community growth and characteristics can provide a perspective on how growth could potentially affect future traffic operations and greenhouse gas emissions. If we characterize and compare current and future population growth, we can anticipate increased traffic congestion, which would contribute to CO_2 emissions. Thus, a look at the community's current and future growth and traffic data can assist Caltrans and the local stakeholders in making determinations about project impacts and potential contributions to greenhouse gas emissions.

The project area is located in the City of Paso Robles in San Luis Obispo County. A review of the 2000 Census data indicates a total population of about 24,300 within the city. The City has adopted a population projection model for growth that assumes that the city will grow at a constant rate of 289 dwelling units (780 persons) per year; therefore, Paso Robles is expected to reach a population of 44,000 by 2025 (City of Paso Robles, 2008). This population increase would inherently increase traffic in the project area. Given the growth rate and projected increase in traffic volumes, CO_2 emissions would increase. However, the roundabout in Build Alternatives 1 and 2 would accommodate these projected increased traffic volumes.

Furthermore, according to the project Traffic Report, the No-Build Alternative would result in failure at all the intersections at the U.S. Highway 101/Route 46 West interchange in 2038 (Associated Transportation Engineers, 2006). Because the interchange cannot manage the increased number of vehicles, the line of vehicles will essentially stop all interchange traffic. This traffic condition would result in extended idle time and thus increase CO_2 emissions.

Operational Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Operational greenhouse gas emissions are primarily a result of CO_2 emissions generated by vehicles traveling through the project site. The proposed project is designed to reduce congestion by allowing constant traffic flow through the intersection and reduce vehicle time delays, and therefore would reduce greenhouse gas emissions, particularly CO_2. Vehicle delays for future years 2018 and 2038 are compared to a no-build scenario, a Build Alternative 1 scenario, and a Build Alternative 2 scenario, as shown in Table 2.5-1.

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No-Build Alternative

The no-build scenario represents the existing conditions of the project, in which no additional improvements would be made to the interchange. According to the Traffic Report prepared for the project (Associated Transportation Engineers, 2006), traffic operations would worsen, resulting in increased delays due to increased traffic volume in future years. The interchange is forecast to operate at level of service F in the year 2038 under the No-Build Alternative.

Build Alternative 1

The Build Alternative 1 scenario includes 1) realigning Theatre Drive to the west, forming a "T" intersection with signals at State Route 46 West; 2) constructing a roundabout at the U.S. Highway 101Southbound/State Route 46 West/Vine Street intersection; and 3) constructing a roundabout at the US 101 Southbound/State Route 46 West/Ramada Drive intersection. The State Route 46 West/Theatre Drive intersection is forecast to operate at level of service B in 2038.

Build Alternative 2

The Build Alternative 2 scenario is similar to Build Alternative 1, but also includes the realignment of Vine Street to connect with State Route 46 West opposite Theatre Drive at the new intersection west of the interchange. The US 101 Southbound/State Route 46 West intersection would be configured as a roundabout. The roundabout on the east side of the interchange would be the same as in Build Alternative 1. The State Route 46 West/Theatre Drive-Vine Street intersection is forecast to operate at level of service C in 2038.

Table 2.5-1 provides a quantitative summary of projected future delay at the ramp termini for the No-Build Alternative and Build Alternatives 1 and 2.

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Table 2.5-1 - Traffic Delays at US 101 Ramp Termini

Year	Movement		Delay (seconds per vehicle)		
			No-Build Alternative	Build Alternative 1	Build Alternative 2
2018	Eastside	EB	64.6	7.4	7.4
		NB	85.3	8	8
		NB2	96.6	8.7	8.7
		SB	82.6	8.7	8.7
	Westside	EB	90.7	8.4	4.7
		NB	125.3	0	0
		SB	39.2	16.5	0
		SB2	110.7	8.5	5.8
		WB	99	5.5	4.2
2038	Eastside	EB	119.6	7.6	7.6
		NB	277.7	33.5	33.5
		NB2	350.9	15.7	15.7
		SB	230.8	18.2	18.2
	Westside	EB	261.1	22.6	11.1
		NB	251.9	0	0
		SB	124.8	61.1	0
		SB2	232.7	17.6	8.8
		WB	180.1	5.6	4.3

EB: Eastbound; WB: Westbound; NB: Northbound; SB: Southbound;
NB2: US 101 Northbound Off-ramp; SB2: US 101 Southbound Off-ramp

The results indicate that the project would reduce the delays for all turn possibilities at the interchange and that Alternative 2 results in the greatest reduction in delay.

Greenhouse Gas Emissions

While traffic delays can be assessed quantitatively, vehicle emissions potentially contributing to climate change can only be qualitatively defined. However, as previously discussed, the estimated delay can be used to define greenhouse gas emissions in relative comparative terms.

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Table 2.5-2 – Cumulative Assessment of Traffic Delay at Interchange

PM Peak Hour		Eastside[1] Movement	Eastside[1] Delay per Vehicle (seconds)	Eastside[1] Number of Vehicles	Eastside[1] Delay (seconds)	Westside[1] Movement	Westside[1] Delay per Vehicle (seconds)	Westside[1] Number of Vehicles	Westside[1] Delay (seconds)	Total Delay Eastside & Westside Total (seconds)	Total Delay 2 Peak Periods[2] 1 day (seconds)	Total Delay 2 Peak Periods[2] 1 day (hours)
2018	NO BUILD	EB	64.6	890	57,494.0	EB	90.7	555	50,338.5			
		NB	85.3	215	18,339.5	NB	125.3	465	58,264.5			
		NB2	96.6	310	29,946.0	SB	39.2	240	9,408.0			
		SB	82.6	350	28,910.0	SB2	110.7	685	75,829.5			
						WB	99	475	47,025.0			
	Total				**134,689.5**				**240,865.5**	375,555.0	1,126,665.0	313.0
	BUILD ALTERNATIVE 1	EB	7.4	890	6,586.0	EB	8.4	555	4,662.0			
		NB	8	215	1,720.0	NB	0	0	0.0			
		NB2	8.7	310	2,697.0	SB	16.5	240	3,960.0			
		SB	8.7	350	3,045.0	SB2	8.5	685	5,822.5			
						WB	5.5	475	2,612.5			
	Total				**14,048.0**				**17,057.0**	31,105.0	93,315.0	25.9
	BUILD ALTERNATIVE 2	EB	7.4	890	6,586.0	EB	4.7	835	3,924.5			
		NB	8	215	1,720.0	NB	0	0	0.0			
		NB2	8.7	310	2,697.0	SB	0	0	0.0			
		SB	8.7	350	3,045.0	SB2	5.8	610	3,538.0			
						WB	4.2	670	2,814.0			
	Total				**14,048.0**				**10,276.5**	24,324.5	72,973.5	20.3
2038	NO BUILD	EB	119.6	1150	137,540.0	EB	261.1	505	131,855.5			
		NB	277.7	665	184,670.5	NB	251.9	490	123,431.0			
		NB2	350.9	470	164,923.0	SB	124.8	230	28,704.0			
		SB	230.8	820	189,256.0	SB2	232.7	710	165,217.0			
						WB	180.1	1140	205,314.0			
	Total				**676,389.5**				**654,521.5**	1,330,911.0	3,992,733.0	1,109.1
	BUILD ALTERNATIVE 1	EB	7.6	1150	8,740.0	EB	22.6	505	11,413.0			
		NB	33.5	665	22,277.5	NB	0	0	0.0			
		NB2	15.7	470	7,379.0	SB	61.1	230	14,053.0			
		SB	18.2	820	14,924.0	SB2	17.6	710	12,496.0			
						WB	5.6	1140	6,384.0			
	Total				**53,320.5**				**44,346.0**	97,666.5	292,999.5	81.4
	BUILD ALTERNATIVE 2	EB	7.6	1150	8,740.0	EB	11.1	1090	12,099.0			
		NB	33.5	665	22,277.5	NB	0	0	0.0			
		NB2	15.7	470	7,379.0	SB	0	0	0.0			
		SB	18.2	820	14,924.0	SB2	8.8	710	6,248.0			
						WB	4.3	1135	4,880.5			
	Total				**53,320.5**				**23,227.5**	76,548.0	229,644.0	63.8

[1] Data presented is derived from the SIDRA model information within the project Traffic Report, "U.S. Highway 101/Route 46 West PA-ED," Associated Transportation Engineers, November 2, 2006.
[2] 2 Peak Periods - 1 day accounts for peak spreading, since the AM and PM peak periods are estimated to last for more than 1 hour.
EB: Eastbound
WB: Westbound
NB: Northbound
SB: Southbound
NB2: U.S. 101 Northbound Offramp
SB2: U.S. 101 Southbound Offramp

The results indicate that Build Alternative 1 would reduce daily delay and therefore presumably CO_2 emissions at the interchange when compared to the no-build scenario, and Build Alternative 2 would further reduce daily delay and therefore presumably CO_2 emissions at the interchange compared to Build Alternative 1.

In summary, Build Alternatives 1 and 2 would have the following greenhouse gas emissions-reducing benefits:

- **Reduced congestion**: High traffic volumes and inadequate access control would contribute to congestion, delays, and undesirable operating conditions at the interchange. Reduced delay would improve local accessibility. Congestion relief would reduce long lines of traffic.
- **Traffic flow control**: Consistent movement would reduce the CO_2 emissions due to the relatively non-varying traffic speeds and flow through the Build Alternatives 1 and 2 as compared to the no-build scenario. Consistent flow through the roundabouts would reduce idling time, which in turn would reduce CO_2 emissions.

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- **Reduced greenhouse gas emissions**: Both roundabout Build Alternatives 1 and 2 would result in fewer CO_2 emissions due to reduced stop-and-go movement as compared to the No-Build Alternative.
- **Growth management**: Taking into account current growth variables projected by the U.S. Bureau of the Census, the build alternatives would better facilitate the projected increased number of vehicles in the project area.
- **Caltrans Standard Specification Provisions**: According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; in addition, the contractor must comply with the San Luis Obispo County Air Pollution Control District's rules, ordinances, and regulations for air quality restrictions.
- **County's Regional Transportation Plan**: The project is consistent with the Transportation Plan, which discusses improved traffic flow and reduction of congestion and accidents for the region.
- **Compliance with AB 32**: The roundabout in Build Alternatives 1 and 2 supports the climate change strategies of Assembly Bill 32. In addition, roundabouts increase pedestrian and bicycle accessibility, thereby encouraging the use of these alternative transportation modes that reduce greenhouse gases.

The excerpt below further support the benefits of roundabout design in reducing CO_2 emissions.

Because roundabouts improve the efficiency of traffic flow, they also reduce vehicle emissions and fuel consumption. In one study, replacing a signalized intersection with a roundabout reduced carbon monoxide emissions by 29 percent and nitrous oxide emissions by 21 percent.[9] In another study, replacing traffic signals and stop signs with roundabouts reduced carbon monoxide emissions by 32 percent, nitrous oxide emissions by 34 percent, carbon dioxide emissions by 37 percent, and hydrocarbon emissions by 42 percent.[10] Constructing roundabouts in place of traffic signals can reduce fuel consumption by about 30 percent.[9,11] At 10 intersections studied in Virginia, this amounted to more than 200,000 gallons of fuel per year.[8] And roundabouts can enhance aesthetics by providing landscaping opportunities.

[9]Várhelyi, A. 2002. The effects of small roundabouts on emissions and fuel consumption: a case study. *Transportation Research Part D: Transport and Environment* 7:65-71.
[10]Mandavilli, S.; Russell, E.R.; and Rys, M. 2004. Modern roundabouts in United States: an efficient intersection alternative for reducing vehicular emissions. Poster presentation at the 83rd Annual Meeting of the Transportation Research Board, Washington DC.
[11]Niittymäki, J. and Höglund P.G. 1999. Estimating vehicle emissions and air pollution related to driving patterns and traffic calming. Presented at the Urban Transport Systems Conference, Lund, Sweden.

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In summary, both Build Alternatives 1 and 2 would result in less delay time for each turn option, and would therefore reduce future greenhouse gas emissions in comparison to the No-Build Alternative. Because of the congestion relief anticipated with the implementation of the project, project operations would not contribute to the climate change effect, but rather would produce long-term greenhouse gas benefits through improved operation.

Construction Emissions

Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Construction emissions would be mitigated through the use of construction equipment that is equipped with standard vehicular air emission technology (catalytic converters). All equipment used for construction activities would be legally permitted (if required) before used on the construction site. By ensuring that construction equipment is legally permitted for use specifically air emissions, greenhouse gas from the site would be minimized.

Additionally, according to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; furthermore, the contractor must comply with Air Pollution Control District rules, ordinances, and regulations in regard to air quality restrictions. Short-term construction impacts are thus minimized but otherwise unavoidable; however, to offset the short-term greenhouse gas emissions from project construction, the project would produce long-term greenhouse gas benefits through improved operation.

AB 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as the California Air Resources Board works to implement the Governor's Executive Orders and to help achieve the targets set forth in Assembly Bill 32. Many of the

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strategies Caltrans is using to help meet the targets in Assembly Bill 32 come from the California Strategic Growth Plan, which is updated each year.

The governor's Strategic Growth Plan calls for a $238.6 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $100.7 billion in transportation funding through 2016. As shown in the next figure, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in greenhouse gas emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion.

The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

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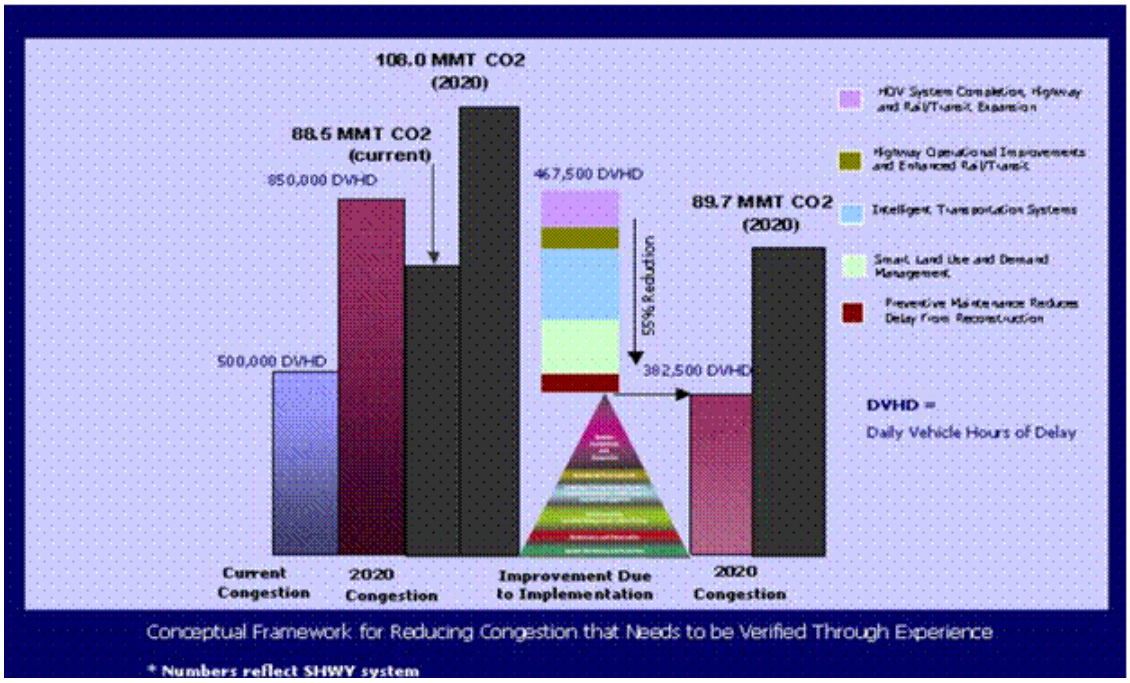
Figure 2.5-3 – Outcome of Strategic Growth Plan



As part of the Climate Action Program at Caltrans (December 2006), Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, transit-oriented communities, and high-density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority.

Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light and heavy-duty trucks. However, it is important to note that control of fuel economy standards is held by the U.S. Environmental Protection Agency and the Air Resources Board.

Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at the University of California at Davis.

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Table 2.5-3 summarizes the department and statewide efforts that Caltrans is implementing to reduce greenhouse gas emissions. For more detailed information about each strategy, please refer to the Climate Action Program at Caltrans (December 2006), available at http://www.dot.ca.gov/docs/ClimateReport.pdf.

Table 2.5-3 – Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies and other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements and Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.007	2.17
Mainstream Energy and Greenhouse Gas into Plans and Projects	Office of Policy Analysis and Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational and Information Program	Office of Policy Analysis and Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening and Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
				Total	2.72	18.67

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Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including: project development team meetings, public hearings, presentations, city council meetings, and interchange area stakeholder meetings.

A Notice of Intent and Notice of Availability were filed and posted with the City of Paso Robles City Clerk and the County of San Luis Obispo County Clerk Recorder on May 27, 2008. The Initial Study/Environmental Assessment and Proposed Mitigated Negative Declaration was made available for public review at the City of Paso Robles Public Library (1000 Spring Street, Paso Robles), City of Paso Robles Public Works Department (1000 Spring Street, Paso Robles), and Caltrans District 5 (50 Higuera Street, San Luis Obispo) during the 45-day public review period that started May 27, 2008 and ended July 11, 2008.

This chapter summarizes the results of Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

Community and Stakeholder Interaction

The City has been in communication with the general public and stakeholders within the project limits during the project's development. Public meetings were held in the form of presentations at city council meetings and interchange area stakeholder meetings. This includes a city council meeting conducted on February 20, 2001 to present the various project alternatives under consideration to the general public and interested agencies.

In early 2002, representatives from Caltrans, the City, County, and San Luis Obispo Council of Governments met with property owners and developers to discuss the proposed project alternatives and traffic projections. Subsequently, the San Luis Obispo Council of Governments took the lead responsibility for and prepared the traffic volume/jurisdictional split forecasting for the proposed project. Furthermore, affected landowners and developers have agreed to conditions of approval that relate to the future interchange, including an agreement to not contest the formation of an

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assessment district in the area; that assessment is currently in formation by the City, in cooperation with the County.

Finally, the City, County, and San Luis Obispo Council of Governments have entered into a cooperative agreement to ensure that this project would be studied and improved when the Target Shopping Center (area of southwest quadrant of the interchange) was built. Caltrans is a party to this agreement.

Public Participation

On June 25, 2008, a public hearing was held at the City of Paso Robles' Chambers Building at 1000 Spring Street from 5:00 p.m. to 8:00 p.m. Twenty-three people attended the public hearing, which was held as an open house with various workstations set up to inform the public about the project. Various City and Caltrans staff members and representatives were available to answer questions from the public.

Comment card tables were available for submitting comments in writing. A court recorder was also available to document oral comments from the public for the record; comments from seven attendees were recorded by the court recorder. Recurring issues and questions raised at the public hearing included the width of the realigned Theatre Drive, timing of the project, aesthetic impacts, impacts to oak trees, roundabout operations, and potential impacts to existing businesses.

Comments and Responding to Comments

As mentioned above, comments were received on the Initial Study/Environmental Assessment and Mitigated Negative Declaration during the public availability period and at the public hearing. From May 27, 2008 to July 11, 2008, the following comments were received on the project:

- Six written comment letters—one from a resident, two from engineering firms representing two different property owners, one from a property management firm for the nearby retail center, one from a legal firm representing a property owner and one from the County of San Luis Obispo Air Pollution Control District

- Five email comments—three from residents, one from a consultant with interest in roundabouts and one set from the San Luis Obispo Council of Governments representative

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- Seven comments via court recorder from attendees of the public hearing were received.

An additional comment letter dated September 9, 2008 from the San Luis Obispo County Department of Planning and Building was received after the comment period had expired; it is included in the response to comments. Copies of the written correspondence (comment letters) and responses to each comment are included in Appendix G of this document.

Native American Coordination

On July 24, 2006, a request for a records search of the Sacred Lands File was sent to the Native American Heritage Commission. The Native American Heritage Commission indicated that no resources were found in the Sacred Lands File and identified tribes and individuals that have ancestral ties to the project area. On August 23, 2006, letters were submitted to a total of 25 tribal representatives identified by the Native American Heritage Commission (refer to the Historic Property Survey Report [2007] for a detailed listing).

Additionally, on November 8 and 9, 2006, project representatives met with representatives of the Northern Chumash Tribal Council regarding the project. The meeting was scheduled to address tribal concerns regarding the proposed project as well as development projects in general that are conducted on Chumash traditional lands. Refer to the Historic Property Survey Report (2007) for further discussion regarding Native American coordination.

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Chapter 4 List of Preparers

The following individuals were involved in the oversight or preparation of this document.

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Bryan Apper, Caltrans Senior Environmental Planner. M.A., Environmental Planning, California State University Consortium, Long Beach; B.A., English, California State University, Northridge; 27 years environmental and transportation planning experience. Contribution: Oversight, Quality Assurance/Control of the Environmental Document.

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Linda Baker, Landscape Associate. B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 16 years working in landscape architecture; 8 years in transportation landscape architecture. Contribution: Oversight reviewer section.

Robert Carr. Associate Landscape Architect. B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 20 years experience preparing Visual Impact Assessments. Contribution: Oversight review for Visual Impact Assessment.

Dan Dawson, Senior Traffic Engineer. Contribution: Preparation of Traffic Report.

Stephen Diem, P.G., C.E.G., Paleontological Resources. Contribution: Preparation of Paleontological Identification Report.

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Greg Hoisington, Biologist. M.S., Biology, California State University, Long Beach; B.S., Ecology, California State University, Long Beach; over 3 years experience in biological resources assessment and identification, compliance, permitting, and construction monitoring. Contribution: Preparation of Natural Environment Study.

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Paula Juelke Carr, Caltrans Associate Environmental Planner (Architectural History). M.A., Independent Studies: History, Art History, Anthropology, Folklore and Mythology, University of California, Santa Barbara; B.A., Cultural Anthropology, University of California, Santa Barbara; over 26 years of experience in California history. Contribution: Oversight of Historic Resources Evaluation Report.

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Paul Nguyen, Air Quality Scientist. Contribution: Air Quality Study.

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water report preparation. Contribution: Preparation of hydrology and water quality analysis.

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Kelso Vidal, Environmental Planner. M.A., Sociology, California State University, Sacramento; 3 years in environmental planning. Contribution: Review and coordinated the environmental document review process.

Youji Yasui, Environmental Planner. B.A., Environmental Analysis and Design, University of California, Irvine; over 8 years of experience in environmental and transportation planning. Contribution: Preparation of CEQA/NEPA documentation.

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Chapter 5 Distribution List

U.S. Army Corps of Engineers 2151 Alessandro Drive, Suite 110 Ventura, CA 93001	California Dept. of Fish and Game Central Region 1234 E. Shaw Avenue Fresno, CA 93710	Central Coast Regional Water Quality Control Board 895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401
State Water Resources Control Board 1001 I Street Sacramento, CA 95812	San Luis Obispo County Office of Emergency Services County of Government Center, Rm D-430 San Luis Obispo, CA 93408	Mr. Fred Collins, Spokesperson Northern Chumash Tribal Council 1177 Marsh Street, Suite 110 San Luis Obispo, CA 93460
U.S. Department of Agriculture Natural Resources Conservation Service 65 Main Street, Suite 108 Templeton, CA 93465	U.S. Fish and Wildlife Service 2943 Portola Road, Suite B Ventura, CA 93003	U.S. Environmental Protection Agency Region 9, Public Affairs 75 Hawthorne Street San Francisco, CA 94105
United States Senate Barbara Boxer 112 Hart Senate Office Building Washington, D.C. 20510	United States Senate Dianne Feinstein 331 Hart Senate Office Building Washington, D.C. 20510	U.S. House of Representatives Lois Capps 1411 Marsh Street, Suite 205 San Luis Obispo, CA 93401
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San Luis Obispo County Planning Director 976 Osos Street, Room 310 San Luis Obispo, CA 93408	San Luis Obispo County Public Works Director 1050 Monterey Street, Room 207 San Luis Obispo, CA 93408	Mr. Richard Murphy Programming Director San Luis Obispo Council of Governments 1150 Osos Street, Suite 202 San Luis Obispo, CA 93401
Department of Transportation Division of Environmental Analysis Attn: Peter Bond P.O. Box 942874, M.S. 27 Sacramento, CA 94274-0001	Department of Conservation 801 K Street, M.S. 24-01 Sacramento, CA 95814	SLO Air Pollution Control District 3433 Roberto Court San Luis Obispo, CA 93401
City of Paso Robles, Public Transportation Administrative Services 821 Pine Street Paso Robles, CA 93446	City of Paso Robles Department of Emergency Services 900 Park Street Paso Robles, CA 93446	City of Paso Robles Police Department 900 Park Street Paso Robles, CA 93446
City of Paso Robles Community Development Department 1000 Spring Street Paso Robles, CA 93446	Paso Robles City Library 1000 Spring Street Paso Robles, CA 93446	City of Paso Robles Public Works Department 1000 Spring Street Paso Robles, CA 93446
Propano Properties LLC P.O. Box 3068 Paso Robles, CA 93447	Robert Miller 591 Via Vaquero Arroyo Grande, CA 93420	Quorum Realty Fund III LLC 10900 Wilshire Blvd. Suite 600 Los Angeles, CA 90024
John & Sarah Alban Trust 8575 Orcutt Road Arroyo Grande, CA 93420	Enos Ranchos LLC 9330 Balboa Ave San Diego, CA 92123	Enos Ranchos LLC 2370 Quail Canyon Rd. Santa Maria, CA 93455
Matthew Ellison Trust P.O. Box 1747 Ventura, CA 93002	Dresser Trust 3445 Gilbert Ave Cayucos, CA 93430	William Zappas Trust 3922 Emerald ST Torrance, CA 90503
McDonalds USA LLC 1 McDonalds Drive Oak Brook, IL 60523	Cenco Investments LLC P.O. Box 310 Creston, CA 93432	Pacific Coast Hotel Properties P.O. Box 3343 Carefree, AZ 85377

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Appendix A California Environmental Quality Act Checklist

The following checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include "potentially significant impact," "less than significant with mitigation incorporated," "less than significant impact," and "no impact."

Supporting documentation of all California Environmental Quality Act checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment document. Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts and avoidance and minimization measures is under the appropriate topic headings in Chapter 2.

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?		X		
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			X	
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X	
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				X
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				X
d) Expose sensitive receptors to substantial pollutant concentrations?			X	

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create objectionable odors affecting a substantial number of people?			X	
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	Note: Archaeological resources are considered "historical resources" and are covered under (a), thus no boxes are checked for this question.			
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries?				X
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
VII. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	
VIII. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing			X	

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?				
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?			X	
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j) Inundation by seiche, tsunami, or mudflow?				X
IX. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
X. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X
XI. NOISE -- Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X
XII. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?			X	
Police protection?			X	
Schools?				X
Parks?				X
Other public facilities?				X
XIV. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X
XV. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?			X	
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?				X
f) Result in inadequate parking capacity?				X
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X
XVI. UTILITIES AND SERVICE SYSTEMS -- Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts that are			X	

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?			X	

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Appendix B Title VI Policy Statement

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

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY (916) 653-4086

Flex your power!
Be energy efficient!

August 25, 2009

TITLE VI
POLICY STATEMENT

The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

RANDELL H. IWASAKI
Director

"Caltrans improves mobility across California"

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Appendix C Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

Relocation Assistance Advisory Services

The California Department of Transportation (Caltrans) will provide relocation advisory assistance to any person, business, farm or non-profit organization displaced as a result of the Department's acquisition of real property for public use. Caltrans will assist residential displacees in obtaining comparable decent, safe and sanitary replacement housing by providing current and continuing information on sales price and rental rates of available housing. Non-residential displacees will receive information on comparable properties for lease or purchase.

Residential replacement dwellings will be in equal or better neighborhoods, at prices within the financial means of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, displaces will be offered comparable replacement dwellings that are open to all persons regardless of race, color, religion, sex or national origin, and are consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include supplying information concerning federal and state assisted housing programs, and any other known services being offered by public and private agencies in the area.

Residential Relocation Payments Program

For more information or a brochure on the residential relocation program, please contact Kelso Vidal at (805) 542-4671 or 50 Higuera Street, San Luis Obispo, CA 92401.

The brochure on the residential relocation program is also available in English at http://www.dot.ca.gov/hq/row/pubs/residential english.pdf and in Spanish at http://www.dot.ca.gov/hq/row/pubs/residential spanish.pdf.

If you own or rent a mobile home that may be moved or acquired by Caltrans a relocation brochure is available in English at http://www.dot.ca.gov/hq/row/pubs/mobile_eng.pdf and in Spanish at http://www.dot.ca.gov/hq/row/pubs/mobile_sp.pdf.

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Business and Farm Relocation Assistance Program

For more information or a brochure on the relocation of a business or farm, please contact Kelso Vidal at (805) 542-4671, or State of California Department of Transportation, 50 Higuera Street, San Luis Obispo, CA 92401.

The brochure on the business relocation program is also available in English at http://www.dot.ca.gov/hq/row/pubs/business_farm.pdf (see attached at the end of this appendix) and in Spanish at http://www.dot.ca.gov/hq/row/pubs/business_sp.pdf.

Additional Information

No relocation payment received will be considered as income for the purpose of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law (except for any federal law providing low-income housing assistance).

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without being given at least 90 days advance notice, in writing. Occupants of any type of dwelling eligible for relocation payments will not be required to move unless at least one comparable "decent, safe and sanitary" replacement residence, open to all persons regardless of race, color, religion, sex or national origin, is available or has been made available to them by the state.

Any person, business, farm, or non-profit organization, which has been refused a relocation payment by Caltrans, or believes that the payments are inadequate, may appeal for a hearing before a hearing officer or Caltrans' Relocation Assistance Appeals Board. No legal assistance is required; however, the displacee may choose to obtain legal council at his/her expense. Information about the appeal procedure is available from Caltrans' Relocation Advisors.

The information above is not intended to be a complete statement of all of Caltrans' laws and regulations. At the time of the first written offer to purchase, owner-occupants are given a more detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted immediately after the first written offer to purchase, and also given a more detailed explanation of Caltrans' relocation programs.

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Important Notice

To avoid loss of possible benefits, no individual, family, business, farm, or non-profit organization should commit to purchase or rent a replacement property without first contacting a Department of Transportation relocation advisor at:

State of California
Department of Transportation, District 5
50 Higuera Street
San Luis Obispo, CA 93401

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Your Rights and Benefits as a Displaced Business, Farm or Nonprofit Organization Under the Uniform Relocation Assistance Program

Introduction

In building a modern transportation system, the displacement of a small percentage of the population is often necessary. However, it is the policy of Caltrans that displaced persons shall not suffer unnecessarily as a result of programs designed to benefit the public as a whole.

Displaced businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments.

This brochure provides information about available relocation services and payments. If you are required to move as the result of a Caltrans transportation project, a Relocation Agent will contact you. The Relocation Agent will be able to answer your specific questions and provide additional information.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 As Amended "The Uniform Act"

The purpose of this Act is to provide for uniform and equitable treatment of persons displaced from their business, farm or nonprofit organization, by federal and federally assisted programs and to establish uniform and equitable land acquisition policies for federal and federally assisted programs.

49 Code of Federal Regulations Part 24 implements the "Uniform Act" in accordance with the following relocation assistance objective:

> To ensure that persons displaced as a direct result of federal or federally-assisted projects are treated fairly, consistently and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

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While every effort has been made to assure the accuracy of this booklet, it should be understood that it does not have the force and effect of law, rule, or regulation governing the payment of benefits. Should any difference or error occur, the law will take precedence.

Relocation Services

The California Department of Transportation has two programs to aid businesses, farms and nonprofit organizations which must relocate.

These are:

1. The Relocation Advisory Assistance Program, which is to aid you in locating a suitable replacement property, and

2. The Relocation Payments Program, which is to reimburse you for certain costs involved in relocating. These payments are classified as:

    - Moving and Related Expenses (costs to move personal property not acquired).

    - Reestablishment Expenses (expenses related to the replacement property).

    - In-Lieu Payment (a fixed payment in lieu of moving and related expenses, and reestablishment expenses).

NOTE: *Payment of loss of goodwill is considered an acquisition cost. California law and the federal regulations mandate that relocation payments cannot duplicate other payments such as goodwill. You will* **not** *be eligible to receive any relocation payments until the State has actually made the first written offer to purchase the property. You will also receive at least 90 days' written notice before you must move.*

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Some Important Definitions...

Your relocation benefits can be better understood if you become familiar with the following terms:

Business: Any lawful activity, with the exception of a farm operation, conducted primarily for the purchase, sale, lease and rental of personal or real property, or for the manufacture, processing, and/or marketing of products, commodities, or any other personal property, or for the sale of services to the public, or solely for the purpose of this Act, and outdoor advertising display or displays, when the display(s) must be moved as a result of the project.

Displaced Person or Displacee: Any person who moves from real property or moves personal property from real property as a result of the acquisition of the real property, in whole or in part, or as the result of a written notice from the agency to vacate the real property needed for a transportation project. In the case of a partial acquisition, Caltrans shall determine if a person is displaced as a direct result of the acquisition.

Owners and tenants **not lawfully present** in the United States are not eligible to receive relocation payments and assistance.

Contributes Materially: A business or farm operation must have had average annual gross receipts of at least $5,000 **or** average annual net earnings of at least $1,000, or their income must have contributed at least 33 1/3 percent of the owner's or operator's average annual gross income form all sources, in order to qualify as a bona-fide operation.

Farm Operation: Any activity conducted solely or primarily for the production of one or more agricultural products or commodities, including timber, for sale and home use, and customarily producing such products or commodities in sufficient quantity to be capable of contributing materially to the operator's support.

Nonprofit Organization: A public or private entity that has established its nonprofit status under applicable law.

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MOVING EXPENSES

If you qualify as a displaced business, farm or nonprofit organization, you are entitled to reimbursement of your moving costs and certain related expenses incurred in moving. To qualify you must legally occupy the property as the owner or lessee/tenant when Caltrans initiates negotiations for the acquisition of the property **OR** at the time Caltrans acquires title or takes possession of the property. However, to assure your eligibility and prompt payment of moving expenses, you should contact your Relocation Agent before you move.

You Can Choose Either:

Actual Reasonable Moving Costs – You may be paid for your actual reasonable moving costs and related expenses when a commercial mover performs the move. Reimbursement will be limited to a move of 50 miles or less. Related expenses, with limitations, ***may*** include:

- Transportation.
- Packing and unpacking of personal property.
- Disconnecting and reconnecting personal property related to the operation.
- Temporary storage of personal property.
- Insurance while property is in storage or transit, or the loss and damage of personal property if insurance is not reasonably available.
- Expenses in finding a replacement location.
- Professional services to plan and monitor the move of the personal property to the new location.
- Licenses, permits and fees required at the replacement location.

OR

Self-Move Agreement – You may be paid to move your own personal property based on the lower of two acceptable bids obtained by Caltrans.

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Under this option, you will still be eligible for reimbursement of related expenses listed above that were not included in the bids.

OR

In-Lieu Payment – You can accept a fixed payment between $1,000 and $20,000, based on your annual earnings IN LIEU OF the moving cost, related expenses and reestablishment cost.

Actual Reasonable Moving Costs

You may be paid the actual reasonable and necessary costs of your move when a professional mover performs the move. All of your moving costs must be supported by paid receipts or other evidence of expenses incurred. In addition to the transportation costs of your personal property, certain other expenses may also be reimbursable, such as packing, crating, unpacking and uncrating, and the disconnecting, dismantling, removing, reassembling, and reinstalling relocated machinery, equipment, and other personal property.

Other expenses such as professional services necessary for planning and carrying out the move, temporary storage costs, and the cost of licenses, permits and certifications may also be reimbursable. This is not intended to be an all-inclusive list of moving related expenses. Your Relocation Agent can provide you with a complete explanation of reimbursable expenses.

Self-Move Agreement

If you agree to take full responsibility for all or part of the move of your business, farm, or nonprofit organization, the Department may approve a payment not to exceed the lower of two acceptable bids obtained by the Department from qualified moving firms or a qualified Department staff employee. A low-cost or uncomplicated move may be based on a single bid or estimate at the Department's discretion. The advantage of this moving option is the fact that it relieves the displaced business, farm or nonprofit organization operator from documenting all moving expenses. The Department may make the payment without additional documentation as long as the payment is limited to the amount of the lowest acceptable bid or estimate. Other expenses, such as professional services for planning, storage costs, and the cost of licenses, permits, and certifications may also be reimbursable if determined to be necessary. These latter expenses must be pre approved by the Relocation Agent.

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Requirements:

Before you move, you must provide Caltrans with the:

- Certified inventory of all personal property to be moved.
- Date you intend to vacate the property.
- Address of the replacement property.
- Opportunity to monitor and inspect the move from the acquired property to the replacement property.

Related Expenses

1. **Searching Expenses for Replacement Property:** Displaced businesses, farms and nonprofit organizations are entitled to reimbursement for actual reasonable expenses incurred in searching for a replacement property, not to exceed $2,500. Expenses may include transportation, meals, and lodging when away from home; the reasonable value of the time spent during the search; fees paid to the real estate agents, brokers or consultants; and other expenses determined to be reasonable and necessary by the Department.

2. **Direct Loss of Tangible Personal Property:** Displaced businesses, farms, and nonprofit organizations may be eligible for a payment for the actual direct loss of tangible personal property which is incurred as a result of the move or discontinuance of the operation. This payment will be based upon the lesser of:

   a. The fair market value of the item for continued use at the displacement site minus the proceeds from its sale.

   OR

   b. The estimated cost of moving and reinstalling the replaced item, based on the lowest acceptable bid or estimate obtained by the Department for eligible moving and related expense4s, including dismantling and reassembly, but with no allowance for storage, cost of code requirement betterments or upgrades at the replacement site.

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EXAMPLE:
You determine that the "document shredder" cannot be moved to the new location because of its condition, and you will not replace it at the new location.

Fair Market Value of the Document Shredder Based on its use at the current location	$ 1,500
Proceeds: Price received from selling the Document Shredder	- $ 500
Net Value	$ 1,000

OR

Estimated cost to move	$ 1,050

Based on the "lesser of", the amount of the "Loss of Tangible Personal Property" = **$ 1,000**

Note: You are also entitled to all reasonable costs incurred in attempting to sell the document shredder (e.g. advertisement).

3. Purchase of Substitute Personal Property: If an item of personal property, which is used as part of the business, farm, or nonprofit organization, is not moved but is promptly replaced with a substitute item that performs a comparable function at the replacement site, the displacee is entitled to payment of the lesser of:

   a. The cost of the substitute item, including installation costs at the replacement site, minus any proceeds from the sale or trade-in of the replaced item;

   OR

   b. The estimated cost of moving and reinstalling the replaced item, based on the lowest acceptable bid or estimate obtained by the Department for eligible moving and related expenses, including dismantling and reassembly, but with no allowance for storage, cost of code requirement betterments or upgrades at the replacement site.

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EXAMPLE A:

You determine that the copying machine cannot be moved to the new location because it is now obsolete and you will replace it.

Cost of a substitute copy machine Including installation costs at the replacement site		$ 3,000
Trade-in Allowance	-	$ 2,500
Net Value		$ 500
OR		
Estimated cost to move		$ 550
Based on the "lesser of", the amount of the "Substitute Personal Property" =		**$ 500**

EXAMPLE B:

You determine that the chairs will not be used at the new location because they no longer match the décor and you will replace them.

Cost of substitute chairs		$ 1,000
Proceeds from selling the chairs	-	$ 100
Net Value		$ 900
OR		
Estimated cost to move		$ 200
Based on the "lesser of", the amount of the "Substitute Personal Property" =		**$ 200**

Note: You are also entitled to all reasonable costs incurred in attempting to sell the copy machine and/or chairs.

4. **Disconnecting and Reinstallation:** You will be reimbursed for your actual and reasonable costs to disconnect, dismantle, remove, reassemble and reinstall any machinery, equipment or other personal property in relation to its move to the new location. This includes connection to utilities available nearby and any modifications to the

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personalty that is necessary to adapt it to utilities at the replacement site.

5. **Physical changes at the new location:** You may be reimbursed for certain physical changes to the replacement property if the changes are necessary to permit the reinstallation of machinery or equipment necessary for the continue operation of the business. ***Note:*** *The changes cannot increase the value of the building for general purposes, nor can they increase the mechanical capability of the buildings beyond its normal requirements.*

6. The cost of installing utilities from the right of way line to the structure(s) or improvements on the replacement site.

7. Marketing studies, feasibility surveys and soil testing.

8. Professional real estate services needed for the purchase or lease of a replacement site.

9. One-time assessments or impact fees for anticipated heavy utility usage.

Reestablishment Expenses

A small business, farm or nonprofit organization may be eligible for a payment, not to exceed $10,000, for expenses actually incurred in relocating and reestablishing the enterprise at a replacement site.

Reestablishment expenses may include, but are not limited to, the following:

1. Repairs or improvements to the replacement real property required by Federal, State or local laws, codes or ordinances.

2. Modifications to the replacement real property to make the structure(s) suitable for the business operation.

3. Construction and installation of exterior signing to advertise the business.

4. Redecoration or replacement such as painting, wallpapering, paneling or carpeting when required by the condition of the replacement site or for aesthetic purposes.

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5. Advertising the new business location.

6. The estimated increased costs of operation at the replacement site during the first two years, for items such as:

    a) Lease or rental charges
    b) Personal or real property taxes
    c) Insurance premiums, and
    d) Utility charges (excluding impact fees).

7. Other items that the Department considers essential for the reestablishment of the business or farm.

Note: *A nonprofit organization must substantiate that it cannot be relocated without a substantial loss of existing patronage (membership or clientele). The payment is based on the average of two years annual gross revenues less administrative expenses.*

In-Lieu Payment (Fixed)

Displaced businesses, farms and nonprofit organizations may be eligible for a fixed payment in lieu of (in place of) actual moving expenses, personal property losses, searching expense, and reestablishment expenses. The fixed payment may not be less than $1,000 or more than $20,000.

For a business to be eligible for a fixed payment, the Department must determine the following:

1. The business owns or rents personal property that must be moved due to the displacement.

2. The business cannot be relocated without a substantial loss of existing patronage.

3. The business is not part of a commercial enterprise having more than three other businesses engaged in the same or similar activity, which are under the same ownership and are not being displaced by the department.

4. The business contributed materially to the income of the displaced business operator during the two taxable years prior to displacement.

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Any business operation that is engaged solely in the rental of space to others is not eligible for a fixed payment. This includes the rental of space for residential or business purposes.

Eligibility requirements for farms and nonprofit organizations are slightly different than business requirements. If you are being displaced from a farm or your represent a nonprofit organization and are interested in a fixed payment, please consult your relocation counselor for additional information.

The Computation of Your In-Lieu Payment:

The fixed payment for a displaced business or farm is based upon the average annual net earnings of the operation for the two taxable years immediately preceding the taxable year in which it is displaced. Caltrans can use a different two year period if it is determined that the last two taxable years do not accurately reflect the earnings of the operation.

EXAMPLE: Caltrans acquires your property and you move in 2005:

2003 Annual Net Earnings	$ 10,500
2004 Annual Net Earnings	$ 12,500
TOTAL	$ 23,000
Average over two years	**$ 11,500**

This would be the amount of your in-lieu payment. Remember – this is in-lieu of all other moving benefits, including reestablishment expenses. You must provide the Department with proof of net earnings to support your claim.

Proof of net earnings can be documented by income tax returns, certified financial statements, or other reasonable evidence of net earnings acceptable to the Department.

Note: The computation for nonprofit organizations differs in that the payment is computed on the basis of average annual gross revenues less administrative expenses for the two year period specified above.

Before You Move:

A. Request a determination of entitlement for in-lieu payment from your Relocation Agent.
B. Include a written statement of the reasons the business cannot be relocated without a substantial loss in net earnings.

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C. Provide certified copies of tax returns for the two tax years immediately preceding the tax year in which you move. (If you move anytime in the year 2005, regardless of when negotiations began or the State took title to the property, the taxable years would be 2003 and 2004).
D. You will be notified of the amount you are entitled to after the application is received and approved.
E. You cannot receive the payment until after you vacate the property, AND submit a claim for the payment within 18 months of the date of your move.

Relocation Advisory Assistance

Any business, farm or nonprofit organization displaced by Caltrans shall be offered relocation advisory assistance for the purpose of locating a replacement property. Relocation services are provided by qualified personnel employed by Caltrans. It is their goal and desire to be of service to you and assist in any way possible to help you successfully relocate.

A Relocation Agent from Caltrans will contact you personally. Relocation services and payments will be explained to you in accordance with your eligibility. During the initial interview with you, your needs and desires will be determined as well as your need for assistance.

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You can expect to receive the following services, advice and assistance from your Relocation Agent who will:

- Determine your needs and preferences.
- Explain the relocation benefits and eligibility requirements.
- Provide information on replacement properties for your consideration.
- Provide information on counseling you can obtain to help minimize hardships in adjusting to your new location.
- Assist you in completing loan documents, rental applications or Relocation Claims Forms.

AND provide information on:

- Security deposits
- Interest rates and terms
- Typical down payments
- Permits, fees and local planning
- SBA loan requirements
- Real property taxes.
- Consumer education literature

If you desire, your Relocation Agent will give you current listings of other available replacement property. Transportation will be provided to inspect available property, especially if you are elderly or handicapped. Though you may use the services of a real estate broker, Caltrans cannot provide a referral.

Your Relocation Agent is familiar with the services provided by others in your community and will provide information on other federal, state, and local programs offering assistance to displaced persons. If you have special needs, your Relocation Agent will make every effort to secure the services of those agencies with trained personnel who have the expertise to help you.

If the highway project will require a considerable number of people to be relocated, Caltrans will establish a temporary Relocation Field Office on or near the project. Project relocation offices will be open during convenient hours and evening hours if necessary.

In addition to these services, Caltrans is required to coordinate its relocation activities with other agencies causing displacements to ensure that all persons displaced receive fair and consistent relocation benefits.

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Remember - YOUR RELOCATION AGENT is there to offer advice and assistance. Do not hesitate to ask questions. And be sure you fully understand all of your rights and available benefits.

YOUR RIGHTS AS A DISPLACEE

It is important to remember that your relocation benefits will not have an adverse affect on your:

- Social Security Eligibility
- Welfare Eligibility
- Income Taxes

In addition, the Title VIII of the Civil Rights Act of 1968 and later acts and amendments make discriminatory practices in the purchase and rental of most residential units illegal if based on race, color, religion, sex, or national origin.

Caltrans' Non-Discrimination Policy ensures that all services and/or benefits will be administered to the general public without regard to race, color, national origin, or sex in compliance with Title VI of the 1964 Civil Rights Act (42 USC 2000d. et seq.).

And you always have the Right to Appeal any decision by Caltrans regarding your relocation benefits and eligibility.

Your Right of Appeal is guaranteed in the "Uniform Act" which states that any person may file an appeal with the head of the responsible agency if that

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person believes that the agency has failed to properly determine the person's eligibility or the amount of a payment authorized by the Act.

If you indicate your dissatisfaction, either verbally or in writing, Caltrans will assist you in filing an appeal and explain the procedures to be followed. You will be given a prompt and full opportunity to be heard. You have the right to be represented by legal counsel or other representative in connection with the appeal (but solely at your own expense).

Caltrans will consider all pertinent justifications and materials submitted by you and other available information needed to ensure a fair review. Caltrans will provide you with a written determination resulting from the appeal with an explanation of the basis for the decision. If you are still dissatisfied with the relief granted, Caltrans will advise you that you may seek judicial review.

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Appendix D Minimization and Mitigation Measures Summary

Task and Brief Description	Reference (Section)	Responsible Branch/Staff	Timing/ Phase	Non-Standard Special Provisions Req.
Land Use				
LU-1 The City will consider, to the extent appropriate and pursuant to the City's Traffic Calming Program, additional traffic calming features during final design and/or incorporation of other design features that would serve as traffic calming criteria. Such features may reduce right of way impacts and may include but not be limited to expanded streetscape improvements, reduced design criteria for horizontal curvature radii and/or consider use of City Standard "Typical Knuckle" for collector road realignment and/or pavement width reduction where appropriate.	ED, Section 2.1.1.1	Director of Public Works	During Final Design	No.
Community Impacts				
COM-1 Once the preferred project alternative is adopted and it is determined whether partial or full acquisitions are required for the above listed properties, a specific non-residential Relocation Plan would be prepared and implemented. If removing a portion of the partial acquisition properties (gas station and motel) would still allow for the viable use of the structures following construction, then relocation assistance would not be required for these properties, but owners would be compensated for the partial acquisition. Refer to Appendix C (Summary of Relocation Benefits) for additional information. Any person, including individuals, families, corporations, partnerships, or associations, who moves from real property or moves personal property from real property as a result of the acquisition of the real property, or is required to relocate as a result of a written notice from Caltrans from the real property required for a transportation project, is eligible for "Relocation Assistance." All activities would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources would be available to all displacees free of discrimination. Also refer to measure LU-1 in	ED, Section 2.1.4.2	Project Mgmt	Pre Construction	No

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Task and Brief Description	Reference (Section)	Responsible Branch/Staff	Timing/ Phase	Non-Standard Special Provisions Req.
Section 2.1.1.1 Existing and Future Land Use, Avoidance, Minimization, and/or Mitigation Measures section. The proposed project would comply with the Caltrans Relocation Assistance Program, which is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and Title 49 Code of Federal Regulations, Part 24. The Caltrans Relocation Assistance Program ensures that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that persons will not suffer disproportionate injuries as a result of such projects. As noted previously, all considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans' commitment to upholding the mandates of Title VI is evidence by its Title VI Policy Statement, signed by the director, which can be found in Appendix B of this environmental document. Also refer to Appendix C of the environmental document for a summary of relocation benefits.				
Traffic & Transportation/Pedestrian and Bicycle Facilities				
TRF-1 A construction Traffic Management Plan would be approved prior to construction and implemented by Caltrans and the City. The plan would ensure that traffic flow and roadway safety are maintained in the project area during construction. This Traffic Management Plan would include provisions for adequate notices, sign-postings, detours, phased construction, provisions for pedestrians and bicycles, and the permitted hours of construction activities. The Traffic Management Plan would be devised so that construction would not interfere with any emergency response or evacuation plans.	ED, Section 2.1.6	Director of Public Works/ Contractor	Pre Construction	No
TRF-2 Signage to guide vehicles from the freeway off-ramps and through the roundabouts is a very important part of the operations through roundabouts and through the interchange. Signing will be included to direct travelers to the SR-46W direction and to Theatre Drive at the appropriate points determined during final design and as approved by Caltrans.	ED. Section 2.1.6	Director of Public Works	Final Design	No

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Task and Brief Description	Reference (Section)	Responsible Branch/Staff	Timing/ Phase	Non-Standard Special Provisions Req.
Visual/Aesthetics				
AES-1 A Landscape and Revegetation Plan shall be developed as part of preliminary and final project design. The plan shall include the following components: Landscaping of new areas and restoration of disturbed habitat shall follow construction and demolition activities as soon as practicable. Avoidance of tree removal, to the maximum extent possible, shall be implemented. Where possible, vegetation shall be pruned rather than completely removed. Vegetation pruning where required shall be conducted using appropriate International Society of Arboriculture standards under the direction of a Certified Arborist. Oak trees shall be replanted at a minimum 10:1 ratio and each replanted tree shall be a minimum of one gallon in size. Oak trees shall be replanted on the same property as or as close to the area of removal as practicable. Ornamental and functional landscaping shall be included as appropriate along highway on and off-ramps, city streets, roundabouts and other areas in order to minimize the urban character of the project, support aesthetic goals identified in City of Paso Robles Gateway Plan, and minimize light and glare to the surrounding area. Where feasible, the Landscape Plan shall use native species appropriate to the region. For ornamental planting, appropriate non-native plants shall be allowed for design flexibility. If required for long-term plant heath, a permanent irrigation system shall be installed for ornamental and functional landscaping. A minimum 3-year plant establishment period shall be implemented. Prior to final design, Caltrans shall review and approve the Landscape and Revegetation Plan.	ED, Section 2.1.7	Director of Public Works/ Contractor	Pre Construction	No
AES-2 Project lighting shall be developed to the following specifications: - Type, style, and placement of lighting features shall be designed, to the greatest extent allowable by jurisdictional policy, so as not to	ED, Section 2.1.7	Director of Public Works	Pre Construction	No

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Task and Brief Description	Reference (Section)	Responsible Branch/Staff	Timing/ Phase	Non-Standard Special Provisions Req.
create off-site glare and to minimize the affect on surrounding properties				
AES-3 Final graded slopes, in order to blend with natural forms, shall be rounded and contoured, to the extent practicable, so as to avoid abrupt grade breaks and sharp edges.	ED, Section 2.1.7	Director of Public Works/Contractor	Pre Construction/ Construction	No
AES-4 The wall along the south side of State Route 46 West and the retaining wall associated with the existing drainage shall include aesthetic treatment such as texture and/or color to minimize the urban character of the project and support aesthetic goals identified in the City of Paso Robles Gateway Plan.	ED, Section 2.1.7	Director of Public Works	Pre Construction	No
AES-5 In addition to the planting required in mitigation measure AES-1, aesthetic treatments shall be incorporated into the center paving of the roundabouts.	ED, Section 2.1.7	Director of Public Works	Pre Construction	No
Water Quality and Storm Water Runoff				
WQ-1 The project would incorporate standard Best Management Practices during construction to minimize any potential environmental consequences to water quality. Typical Best Management Practices that could be incorporated into the Storm Water Pollution Prevention Plan include, but are not limited to, the following: (1) Diversion of offsite runoff away from the construction site; (2) Revegetation of exposed soil surfaces as a soon as feasible following grading activities; (3) Perimeter straw wattles (tubes of straw used to control erosion or sediment and storm water runoff) to prevent offsite transport of sediment; (4) Drop inlet protection (such as filters and sand bags or straw wattles), with sand bag check dams within paved roadways; (5) Regular watering of exposed soils to control dust during construction; (6) Specifications for handling and disposal of construction waste; (7) Contained equipment wash-out and vehicle maintenance areas; (8) Erosion and sedimentation control measures maintained throughout the construction period; (9) Stabilized construction entrances to avoid trucks from tracking debris on city roadways; and (10) Training of subcontractors on general site housekeeping. After the certification of the Final Initial Study/Environmental Assessment, the applicable permits from the respective regulatory	ED, Section 2.2.2	Director of Public works/Contractor	Pre Construction/ Construction	No

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agencies would be obtained for the project. This may include National Pollutant Discharge elimination system permits, a Section 401 Water Quality Certification from the Regional Water Quality Control Board, and a Section 404 Permit from the U.S. Army Corps of Engineers. The requirements of the permits and the implementation of Best Management Practices during construction would ensure that no major water quality, water discharge, erosion, or siltation impacts would occur as a result of the project.				
WQ-2 To reduce potential impacts to the four shallow municipal production wells (Thunderbird well field) located near the proposed project site, the following measures are recommended: (1) The use of solvents, fertilizers, and other chemical substances that can migrate through soil should be minimized or not used at all; (2) All soil and ground water contamination within the public right-of-way should be remediated; and (3) Contingency plans for both construction and long-term use of the highway should be developed to ensure that spills resulting from vehicular accidents are promptly and thoroughly cleaned	ED, Section 2.2.2	Director of Public Works	Pre Construction	No
WQ-3 The following design and construction Best Management Practices would be implemented to reduce impacts to water and stormwater quality: (1) Sheet flow of storm water runoff into vegetated areas would be implemented where feasible. For slopes too steep to receive sheet flow, storm water would be diverted away. Concentrated flows would be collected in stabilized drains and channels. The majority of surface runoff from this project would be conveyed through a system of concrete gutters, roadside swales, inlets, and pipes to the unnamed creek. Roadside swales would be vegetated rather than concrete lined where feasible. Flared end sections and rock slope protection would be used at drainage outfalls to dissipate energy and reduce erosion: (2) Proposed cut slopes would be made as flat as feasible. Proposed embankment slopes would be 4:1 or flatter wherever feasible, and no steeper than 2:1 in areas in which a flatter slope would not be feasible or cause unacceptable impacts. All slopes would be revegetated with landscaping or erosion control materials. Where slope stabilization	ED, Section 2.2.2	Director of Public Works/Contractor	Pre Construction/ Construction	No

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or erosion is a concern, rock slope protection would be used; (3) The proposed project has been aligned to minimize impacts to existing vegetation. The contractor staging area is potentially feasible in an open field adjacent to the project site. All vegetation and trees to remain would be protected with high visibility fencing and denoted on the contract plans; (4) Construction site Best Management Practices would include, but not be limited to, slope tracking, erosion control, fiber rolls, stabilized construction entrances, and concrete washout facilities; and (5) Drain inlet stenciling would be applied on all applicable inlets within the project limits.				
Geology/Soils/Seismic Topography				
GEO-1 Site-specific geotechnical and geological investigations that focus on the potential liquefaction hazard would be performed as part of the project design studies. As necessary, design and construction of the project components would include foundation treatments, such as removal and re-compaction or deep foundations, to reduce impacts from liquefaction.	ED, Section 2.2.3	Director of Public Works/Contractor	Pre Construction/ Construction	No
Paleontology				
PAL-1 In earth-moving areas where geologic units have been assigned a high level of paleontological sensitivity, full-time monitoring would be recommended. Monitoring must be performed by a qualified paleontological resources monitor. The monitor would have authority to temporarily divert equipment while evaluating and removing fossils. If fossils are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified paleontologist can evaluate the nature and significance of the find to determine if recovery would be necessary. The monitor should be properly equipped to facilitate rapid removal of specimen. Once discovered, fossils would be salvaged by the monitor in an appropriate manner.	ED, Section 2.2.4	Contractor	Construction	No
PAL-2 Recovered specimens should be prepared to stabilize the fragile nature of the fossil and allow for identification. Each specimen should be evaluated by taxa, size, taphonomic condition, and geographic and stratigraphic occurrence. The resulting specimens should be stored in a permanent, recognized repository	ED, Section 2.2.4	Director of Public Works	Recovery, storage, and recordation of discovered specimen at a	No

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institution such as a museum or university. A map indicating the location of each locality, appropriate stratigraphic sections, and field notes should accompany the recovered specimens to the designated repository.			recognized repository.	
PAL-3 A Paleontological Mitigation Report would be prepared by the project paleontologist. The report should include a summary of field and laboratory methods, a description of the geology and stratigraphy, a complete faunal list, an evaluation of scientifically significant fossils, analyses of the significance and relationship of the site to other fossil localities that are geographically or stratigraphically similar, and a complete set of geologic maps, stratigraphic sections, and field notes. The Paleontological Mitigation Report would be submitted to Caltrans and a copy provided to the designated repository. Acceptance of the final report by Caltrans constitutes completion for the monitoring and mitigation plan.	ED, Section 2.2.4	Director of Public Works	Preparation and submittal of Paleontological Mitigation Report	No
Hazardous Waste Materials				
HAZ-1 All structures that would be demolished as part of construction will undergo an evaluation for the presence of asbestos-containing materials during the property acquisition process, at which time the exact number and location of acquisitions will be confirmed. Sample collection procedures will be based upon the Asbestos Hazard Emergency Response Act protocols and EPA guidelines.	ED, Section 2.2.5	Director of Public Works/Contractor	During the property acquisition process	No
HAZ-2 During the property acquisition process, surveys shall be conducted to identify lead-based paint in buildings identified for demolition. Lead-based paint, if affected, shall be handled and disposed of in accordance with applicable state and federal regulations.	ED, Section 2.2.5	Director of Public Works/Contractor	During the property acquisition process	No
HAZ-3 During final design, surveys shall be conducted to ensure that thermoplastic pavement markings, or other types or colors of street or municipal markings containing lead based paint, if affected, are handled and disposed of in accordance with applicable state and federal regulations.	ED, Section 2.2.5	Director of Public Works/Contractor	During final design	No
HAZ-4 As necessary, areas prone to radon gas will be tested prior to	ED,	Director of Public	Prior to	No

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demolition or construction operations for the project. The EPA recommends both long-term (i.e., 90-day) and short-term (i.e., two-day) testing of structures to determine levels of radon gas. The need for long-term testing will be based on the findings of the short-term testing. If hazardous levels of radon are found, measures will be taken to reduce risk.	Section 2.2.5	Works/Contractor	demolition or construction	
HAZ-5 A soils and groundwater contaminant management plan will be implemented during construction. The plan will include procedures for contaminant monitoring and identification, temporary storage, handling, treatment, and disposal of materials in accordance with applicable federal, state and local regulations and requirements.	ED, Section 2.2.5	Director of Public Works	Pre Construction/ Construction	No
HAZ-6 An Updated Initial Site Investigation will be performed during final design for further assessment of potential soil contamination at tanks in the project area, including those identified in the Initial Site Assessment/LHMS. If contamination is suspected a Preliminary Site Investigation is to be conducted and if contamination is confirmed, a detailed SI will be conducted to identify the characterization of the type, extent, and general magnitude of contamination. The Site Investigation process includes sampling and analysis of impacted soil or groundwater of the sites with the potential for encountering contamination during project activities. The Site Investigation may detect the presence of contamination and provide preliminary estimates of the nature and extent of the contamination through sampling and analysis of soils and water.	ED, Section 2.2.5	Director of Public Works	During final design	No
HAZ-7 All procedures for removal of aboveground and underground storage tank must be in accordance with all applicable federal, state, and local regulations.	ED, Section 2.2.5	Director of Public Works/Contractor	Pre Construction/ Construction	No
HAZ-8 During final design, an assessment will be performed to determine the need for removal of any transformers resulting from project implementation. If it is determined that transformers will require removal, then they will be assessed for presence of polychlorinated biphenyls. If polychlorinated biphenyls are detected, the material will be collected and disposed of in	ED, Section 2.2.5	Director of Public Works/Contractor	During final design	No

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accordance with applicable regulations.				
HAZ-9 Before construction begins, a hazardous materials contingency plan will be in place to address such events as discovery of unidentified underground storage tanks, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes during construction. This contingency plan will address underground storage tank decommissioning, field screening and material testing methods, mitigation, contaminant monitoring and management requirements, and health and safety requirements for construction workers. If an unexpected release of hazardous substances is found in reportable quantities, the National Response Center must be notified and clean up coordinated with environmental agencies.	ED, Section 2.2.5	Director of Public Works/Contractor	Pre Construction/ Construction	No
Air Quality				
Daily watering of all disturbed soil areas is required by Caltrans' Standard Specifications. The purpose of this is to reduce dust emissions from the site. In addition, the Contractor would use California Air Resources Board approved low-sulfur diesel fuel in all his construction vehicles. When daily watering is not sufficient to keep dust from blowing offsite, the following measures from the San Luis Obispo County Air Pollution Control District's California Environmental Quality Act Air Quality Handbook can be used as determined applicable by the Resident Engineer.	ED, Section 2.2.6	Director of Public Works/Contractor	Construction	No
AQ-1 Standard Minimization Measures for construction equipment. Maintain all construction equipment in proper tune according to manufacturer's specifications: (1) Fuel all off-road and portable diesel powered equipment including, but not limited to, bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, with motor diesel fuel certified by the California Air Resources Board (non-taxed version suitable for off-road); and (2) Maximize, to the extent feasible, the use of diesel construction equipment meeting California Air Resources Board 's 1996 or newer certification standard for off-road heavy-duty diesel engines	ED, Section 2.2.6	Contractor	Construction	No
AQ-2 Discretionary Minimization Measures for Construction Equipment: (1) Electrify equipment where feasible; (2) Substitute	ED, Section	Contractor	Construction	No

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gasoline-powered for diesel-powered equipment, where feasible; (3)Use alternatively fueled construction equipment onsite, where feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel; and (4) Use equipment that has Caterpillar pre-chamber diesel engines.	2.2.6			
AQ-3 Discretionary Activity Management Techniques: (1) Develop a comprehensive construction activity management plan designed to minimize the amount of large construction equipment operating during any given time period; (2) Schedule construction truck trips during non-peak hours to reduce peak-hour emissions; (3) Limit the length of the construction work day, if necessary; and (4) Phase construction activities, if appropriate.	ED, Section 2.2.6	Contractor	Construction	No
AQ-4 Fugitive PM_{10} Management Measures Techniques (employ as applicable): (1) Reduce the amount of the disturbed area where possible; (2) Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 miles per hour. Reclaimed (non-potable) water should be used whenever possible; (3) All dirt stockpile areas should be sprayed daily as needed; (4) All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible; (5) Vehicle speed for all construction vehicles would not exceed 15 miles per hour on any unpaved surface at the construction site; (6) All trucks hauling dirt, sand, or other loose materials are to be covered or should maintain at least 2 feet of freeboard(minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114; (7) Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site; and (8) Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible. If these mitigation measures are not effective at controlling construction phase fugitive dust emissions from leaving the project site, then the project shall implement the following additional APCD fugitive dust control measures: (1) Permanent dust control measures	ED, Section 2.2.6	Contractor	Pre Construction/ Construction	No

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Task and Brief Description	Reference (Section)	Responsible Branch/Staff	Timing/ Phase	Non-Standard Special Provisions Req.
identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil disturbing activities; (2) Exposed ground areas that would be reworked at dates greater than one month after initial grading should be sown with a fast-germinating native grass seed and watered until vegetation is established; and (3) All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the San Luis Obispo Air Pollution Control District. The contractor or builder should designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties would include holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons would be provided to the San Luis Obispo Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.				
Noise				
N-1 All noise-producing project equipment and vehicles using internal combustion engines would be equipped with mufflers and air-inlet silencers where appropriate, and in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (for example arc-welders and air compressors) would be equipped with shrouds and noise control features that are readily available for that type of equipment.	ED, Section 2.2.7	Director of Public Works/Contractor	Pre Construction/ Construction	No
N-2 All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, would comply with such regulation while in the course of project activity.	ED, Section 2.2.7	Contractor	Construction	No
N-3 Material stockpiles and mobile equipment staging, parking, and maintenance areas would be located as far as practicable from noise-sensitive receptors.	ED, Section 2.2.7	Contractor	Construction	No
N-4 Construction site and haul-road speed limits would be established and enforced during the construction period.	ED, Section	Director of Public Works/Contractor	Construction	No

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	2.2.7			
N-5 The hours of construction including noisy maintenance activities would be restricted to the periods and days permitted by local regulations.	ED, Section 2.2.7	Director of Public Works/Contractor	Pre Construction	No
N-6 The use of noise-producing signals, including horns, whistles, alarms, and bells would be for safety warning purposes only.	ED, Section 2.2.7	Director of Public Works/Contractor	Pre Construction/ Construction	No
N-7 No project-related public address or music system would be audible at any adjacent receptor.	ED, Section 2.2.7	Contractor	Pre Construction/ Construction	No
N-8 The Contractor would develop a project Noise Control Plan, which would have been approved and implemented prior to commencement of any construction activity.	ED, Section 2.2.7	Director of Public Works/Contractor	Pre Construction	No
N-9 The placement of berms or erection of temporary soundwall barriers would be considered where project activity is unavoidably close to noise-sensitive receptors.	ED, Section 2.2.7	Director of Public Works	Pre Construction	No
Natural Communities				
NC-1 Oak trees would be replanted at a 10:1 ratio utilizing one-gallon size plants and would be replanted on the same property the trees are removed from or in the project area, to the extent practicable and in coordination with Caltrans. Replacement oaks shall be planted and grouped in a natural random, pattern, to the extent possible. When oaks are planted, preference shall be given to planting at the dripline edge of existing mature oak trees within appropriate portions of the project area, to the extent practicable. Preferred placement of mitigation oaks also includes north-facing slopes, drainage swales lacking riparian vegetation, and in areas away from continuous irrigation as much as practicable. To enhance establishment and subsequent growth rates, these oak trees will be installed with anti-herbivory cages, mulch, supplemental irrigation, and will receive maintenance for three years. Planting is not to occur during the driest months of the year regionally (i.e., June through September).	ED, Section 2.3.1	Director of Public Works/Contractor	Post Construction	No

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Task and Brief Description	Reference (Section)	Responsible Branch/Staff	Timing/ Phase	Non-Standard Special Provisions Req.
A 3-year maintenance and monitoring program that includes plant establishment and replacement, invasive species control and supplemental watering period when needed shall be implemented. A qualified botanist or arborist shall monitor the installation and maintenance of the oak tree for a 3 year minimum or longer until deemed as successfully established by the City. Annual monitoring reports shall be prepared by the botanist or arborist and submitted to the City and Caltrans.				
NC-2 Environmentally sensitive areas protecting oak woodlands within the Biological Study Area would be delineated on plans and in the field with brightly colored fencing or similar materials in consultation with the Caltrans' Environmental Division. No staging areas, haul routes, stockpile areas, or construction equipment storage areas would be placed within environmentally sensitive areas. Mulch shall be placed at a depth of 4 to 6 inches to root zones of oak woodlands located adjacent to the delineated environmentally sensitive areas to reduce damage to root zones of adjacent oak woodlands.	ED, Section 2.3.1	Director of Public Works/Contractor	Pre Construction/ Construction	
Jurisdictional Waters				
WET-1 Prior to undertaking ground-disturbing activities or development within or adjacent to any potential Clean Water Act and California Department of Fish and Game Code 1600 (et seq.) jurisdictional features (such as wetlands, Waters of the U.S., Waters of the state, sensitive riparian areas, etc.) within the Biological Study Area, Caltrans would consult with the appropriate responsible local, state, and federal agencies to secure all obligatory discretionary permits and authorization.	ED, Section 2.3.2	Director of Public Works	Pre Construction	No
WET-2 Environmentally sensitive areas within the Biological Study Area (such as streambeds, oak trees, active and avian nest sites) would be delineated on plans and in the field with brightly colored fencing or similar materials in consultation with Caltrans' Environmental Division. No staging areas, haul routes, stockpile areas, or construction equipment storage areas would be placed within environmentally sensitive areas.	ED, Section 2.3.2	Director of Public Works/Contractor	Pre Construction/ Construction	

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WET-3 Prior to undertaking ground-disturbing activities, the following permits would be obtained, as ultimately deemed necessary, from the respective agency: (1) U.S. Army Corps of Engineers, Section 404 Permit would be obtained prior to construction; (2) California Department of Fish and Game, 1602 Streambed Alteration Agreement would be obtained prior to construction; and (3) Regional Water Quality Control Board, Section 401 Water Quality Certification would be obtained prior to construction.	ED, Section 2.3.2	Director of Public Works	Prior to issuance of construction permits	No
WET-4 Temporary impacts to Waters of the U.S. shall be compensated for at a ratio of 2:1, and permanent impacts to Waters of the U.S. shall be compensated for at a ratio of 3:1.	ED, Section 2.3.2	Director of Public Works	Prior to issuance of construction permits	No
Animal Species				
AS-1 In order to comply with the Migratory Bird Treaty Act and relevant sections of the California Department of Fish and Game Code, any vegetation clearing would take place outside of the typical avian nesting season (February 15th - September 1st), to the maximum extent practical. If this is not possible, prior to ground-disturbing activities, construction, and other development within the Biological Study Area, a qualified biologist would conduct and submit a migratory nesting bird and raptor survey report. A qualified biologist is an individual with sufficient education and field experience in local California ecology and biology to adequately identify local plant and wildlife species. The survey would occur not more than 72 hours prior to initiation of project activities and any occupied passerines and/or raptor nests occurring within or adjacent to the study area would be delineated. To the maximum extent practicable, a minimum buffer zone from occupied nests would be maintained during physical ground-disturbing activities. If there were migratory birds in trees that are to be removed, construction would be halted until the birds have fledged. Once nesting has ceased, the buffer may be removed.	ED, Section 2.3.3	Director of Public Works	Prior to ground-disturbing activities, construction or other development within the Biological Study Area	No
Invasive Species				
VEG-1 All native vegetation that is removed or temporarily disturbed during construction would be replaced with native and	ED, Section	Director of Public Works	Prior to issuance of construction	

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drought-tolerant plants species as specified by the Landscape Architecture Division of Caltrans' Environmental Planning Division. Native vegetation would be monitored to ensure planting success and the City would develop and implement a "Native Vegetation Restoration and Monitoring Plan" within input and oversight from Caltrans for any disturbed areas within the Biological Study Area (such as staging areas, access roads, etc). The final plan would be prepared prior to construction.	2.3.4		permits	
VEG-2 Topsoils containing non-native, exotic, and/or invasive plant material or seeds would be removed from the Biological Study Area and not reused unless, as specified by Caltrans' Environmental Planning, the topsoils can be used in areas where non-native, exotic, and/or invasive plant material or seeds would not adversely affect native vegetation.	ED, Section 2.3.4	Director of Public Works	Prior to ground-disturbing activities, construction or other development within the Biological Study Area	
VEG-3 Limits of grading and construction activities should be clearly delineated so that no vegetation outside the delineated grading limits would be disturbed by construction personnel or equipment.	ED, Section 2.3.4	Director of Public Works/ Contractor	Prior to issuance of construction permits/ Construction	
VEG-4 In compliance with the Executive Order on Invasive Species, and subsequent guidance from the Federal Highway Administration, landscaping and erosion control included in the project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species were found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.	ED, Section 2.3.4	Director of Public Works/ Contractor	Prior to issuance of construction permits/ Construction	

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Appendix E Natural Resources Conservation Service Impact Rating Form

United States Department of Agriculture
NRCS Natural Resources Conservation Service

65 Main St., Suite 108
Templeton CA 93465
(805) 434-0396
FAX (805) 434-0284

September 25, 2006

Ms. Amanda Johnson
URS Corporation
2020 East First Street, Suite 400
Santa Ana, CA 92705

Subject: Farmland Conversion Impact Rating-Hwy 101/Route 46 West Interchange Project SLO county, CA

Dear Ms. Johnson:

Enclosed is the NRCS completed "Farmland Conversion Impact Rating For Corridor Type Projects" form you sent us to process in accordance with the requirements of the Farmland Protection Policy Act for land proposed to be converted as part of the U.S. Highway 101/ State Route 46 West Interchange Improvements Project-San Luis Obispo County, California.

A copy of the form (federal agency part completed) was faxed to Mr. Youji Yasui.

Included is a copy of the soil map of the proposed right-of-way area for corridors A and B combined. Prime farmland and farmland of statewide importance" are determined by the soil type delineated in the soil survey on land that has not been converted to urban buildup.

Soil map unit number(s) 157 (Lockwood shaly loam, 0 to2 percent slopes) and 207 (Still Gravelly loam, 0 to 2 percent slopes) are listed as Prime farmland, and 158 (Lockwood shaly loam, 0 to 2 percent slopes) is listed as farmland of state wide importance under the Paso Robles Area Survey, San Luis Obispo County, California.

If you have any questions please contact me at the above phone number extension 108.

Sincerely,

Tina Vander Hoek
Soil Conservationist

The Natural Resources Conservation Service works in partnership with the American people to conserve and sustain natural resources on private lands.

An Equal Opportunity Employer

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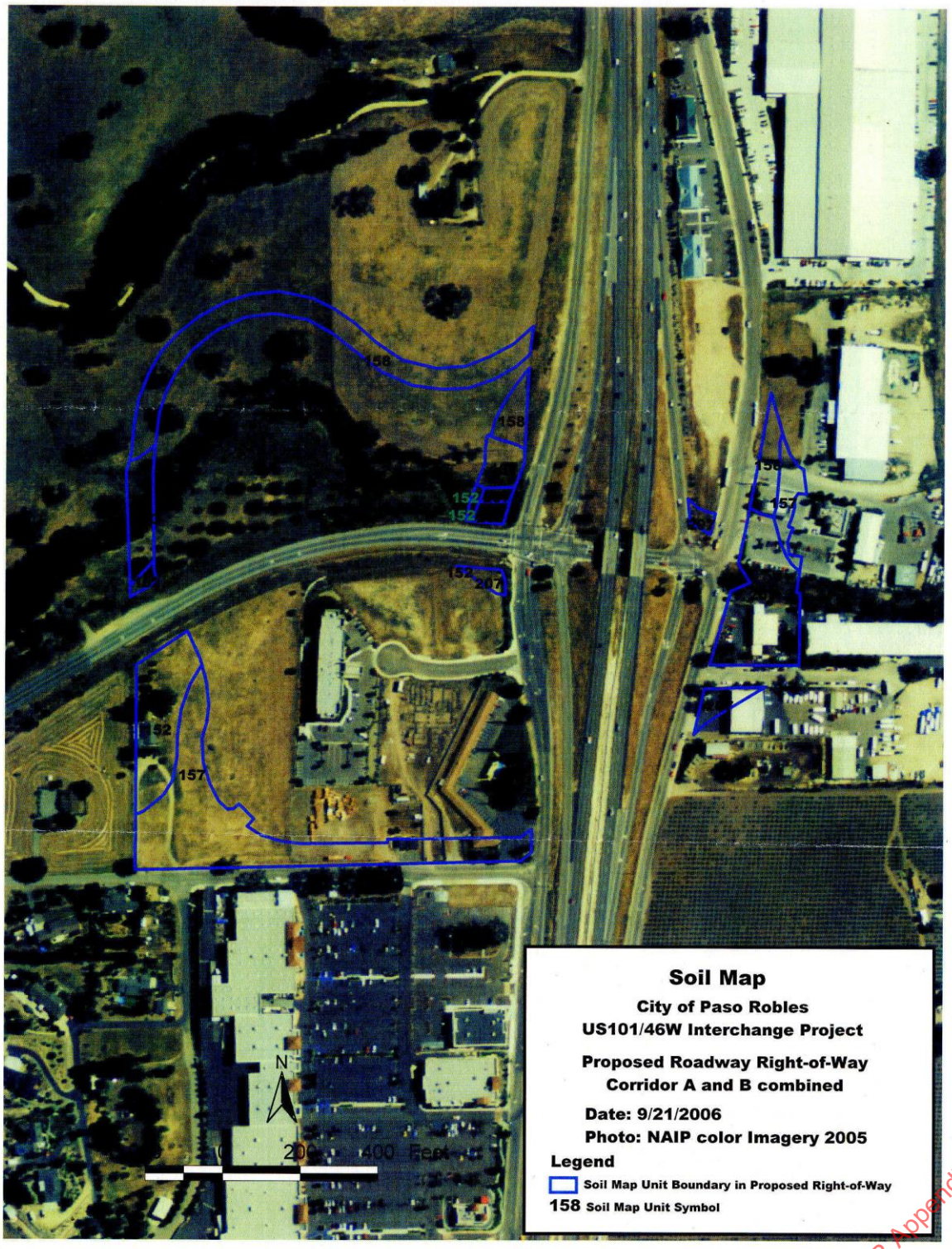

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U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-C PA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*

3. Date of Land Evaluation Request: 9/11/06
4. Sheet 1 of 1
1. Name of Project: U.S. Route 101/Route 46 West Interchange Improvements Project
5. Federal Agency Involved: Federal Highway Administration
2. Type of Project: Interchange Operational Improvements
6. County and State: San Luis Obispos County, Califonria

PART II *(To be completed by NRCS)*

1. Date Request Received by NRCS: 9/14/06
2. Person Completing Form: TINA VANDER HOEK
3. Does the corridor contain prime, unique statewide or local important farmland? YES (NO) (If no, the FPPA does not apply - Do not complete additional parts of this form)
4. Acres Irrigated: 47,479 Average Farm Size: 704
5. Major Crop(s): SMALL GRAIN, HAY, WINE GRAPES
6. Farmable Land in Government Jurisdiction: Acres: 304,740 % 13.2
7. Amount of Farmland As Defined in FPPA: Acres: 358,025 % 15.5
8. Name Of Land Evaluation System Used: CALIFORNIA STORIE INDEX
9. Name of Local Site Assessment System: NONE
10. Date Land Evaluation Returned by NRCS: 9/25/2006

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	6.954	7.764		
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0	0.0		
C. Total Acres In Corridor	6.954	7.764		
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	3.80	3.50		
B. Total Acres Statewide And Local Important Farmland	.15	1.35		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	.0012961	.0015915		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	DATA NOT AVAILABLE			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	64	62		
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))* — Maximum Points				
1. Area in Nonurban Use — 15	10	10		
2. Perimeter in Nonurban Use — 10	0	3		
3. Percent Of Corridor Being Farmed — 20	0	2		
4. Protection Provided By State And Local Government — 20	20	20		
5. Size of Present Farm Unit Compared To Average — 10	0	0		
6. Creation Of Nonfarmable Farmland — 25	0	10		
7. Availablility Of Farm Support Services — 5	5	5		
8. On-Farm Investments — 20	2	5		
9. Effects Of Conversion On Farm Support Services — 25	0	0		
10. Compatibility With Existing Agricultural Use — 10	0	3		
TOTAL CORRIDOR ASSESSMENT POINTS — 160	37	58		
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	64	62		
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	37	58		
TOTAL POINTS *(Total of above 2 lines)* — 260	101	120		

1. Corridor Selected:
2. Total Acres of Farmlands to be Converted by Project:
3. Date Of Selection:
4. Was A Local Site Assessment Used?

5. Reason For Selection:

Signature of Person Completing this Part: DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

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NRCS-C PA-106 *(Reverse)*

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

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Appendix F References

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City of El Paso de Robles General Plan 2003 Volume II, Rincon Consultants, Inc. December 16, 2003.

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State of California, Department of Transportation website: www.dot.ca.gov/ser/.

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Appendix G Response to Comments

This appendix contains the comments received during the public circulation and comment period (May 27, 2008 to July 11, 2008). The comments have been numbered (Comment Set #1, Comment Set #2 and so on) in the order that they were received; a Caltrans response follows each comment set. In this appendix, comments are divided into three groups, based on whom the comment came from: individual members of the public, property owners or their representatives, or a public agency. The Governor's Office of Planning and Research, State Clearinghouse closeout letter (dated June 24, 2008) is first, acknowledging this document's compliance with the State Clearinghouse requirements for environmental documents. No response was required for this letter.

Individuals:

- Comment Set #1 – Amy Salas
- Comment Set #2 – Penny Takier
- Comment Set #3 – Cheryl Crow
- Comment Set #4 – Michael Zappas
- Comment Set #5 – Robert Miller
- Comment Set #6 – Robert Polley
- Comment Set #8 – Bryce Dilger
- Comment Set #9 – Don Simoneau
- Comment Set #10 – Kim Simoneau
- Comment Set #11 – Captain Carl

Property Owner Representatives:

APN 009-631-011

- Comment Set #7 – Jeff Wagner, North Coast Engineering
- Comment Set #12 – INS and OUTS of ROUNDABOUTS
- Comment Set #13 – North Coast Engineering, Inc.
- Comment Set #14 – Ourston Roundabout Engineering
- Comment Set #15 – Carolyn Leach Consulting, LLC
- Comment Set #19 – Matteoni O'Laughlin & Hechtman Lawyers

APNs 040-031-001, 040-091-041

- Comment Set #16 – eda design professionals

Target Retail Center

- Comment Set #17 – Ellis Partners, LLC

Public Agency Comments:

- Comment Set #18 – San Luis Obispo Council of Governments (SLOCOG)
- Comment Set #20 – Air Pollution Control District
- Comment Set #21 – San Luis Obispo County Department of Planning and Building

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STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

June 24, 2008

Michael H. Thomas
California Department of Transportation, District 5
50 Higuera Street
San Luis Obispo, CA 93405

Subject: US Highway 101/State Route 46 West Interchange Modification Project
SCH#: 2008051102

Dear Michael H. Thomas:

The State Clearinghouse submitted the above named Joint Document to selected state agencies for review. The review period closed on June 23, 2008, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

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

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

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

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Comment Set 1

RECEIVED
JUN 17 2008
Public Works

Amy Salas
360 Alice Place
Paso Robles, CA 93446

June 14, 2008

California Department of Transportation, District 05
Attn: Michael H. Thomas
Senior Environmental Planner
50 Higuera Street
San Luis Obispo, CA 93401

Dear Mr. Thomas:

Thank you for giving the public the opportunity to review the Initial Study & Environmental Assessment (ISEA) of the US101/SR46W Interchange Modification Project. My concerns are primarily impacts on safety, water quality, increased noise, lighting and diminished view quality. Secondary concerns are traffic circulation, impact on arterial connections to the interchange and funding for the project.

Safe ingress and egress for our neighborhood will be an issue for pedestrian, bicycle and vehicle traffic. Adequate sidewalks will be necessary for pedestrian traffic. Bicycle lanes will be needed in both directions. A left-hand turn lane should be built for the east-bound Theatre Drive vehicle traffic. What will be the typical vehicle speed? What traffic calming measures with be utilized? The speed limit for this new section of Theatre Drive should at minimum be lowered to 35 MPH. By landscaping with trees of various shapes and sizes, road would appear less like a motor speedway. 1-1

Downstream water quality will be an issue. With the new roads and development from build alternative 2 and subsequent Inn at Vintner's Village, how will the creek and Salinas River be protected from polluted run-off? How will the effects of this project on the watershed be addressed? What standards will be followed? 1-2

With regards to noise, my interest is in location M5. On page 107 of the report it is noted that our existing noise level is 57 dBA. After completion of Alternative 2, the noise level will increase to 63 dBA. This may not seem like a significant increase on paper, however, when you live within 300 feet of the project, it is. Our house is directly behind Orchard Supply Hardware. When the Target project was in the initial phase we attended meetings and were placated by measures used to mitigate the additional noise created by traffic. There was an additional source of noise, however, that was never addressed in the EIR. Noise from the air conditioning units on top of the buildings is terrible. It's especially 1-3

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noticeable in the summer when our windows are open in the evening and in the spring or fall when we can be comfortably outside in the yard. As a result, I would like the noise where Theatre Drive turns east from it's current location, then north to it's proposed location be mitigated as much as possible.

On the subject of lighting, our ability to see the night sky has been greatly impacted, first, by the completion of Orchard Supply Hardware, then later by the Hampton Inn and Bella Serra. And, because our house is slightly elevated from street level, the lights from the hotels shine in our bedroom window. My main concern with lights is the cars traveling where Theatre Drive makes the turn to and from 46W. Additional street lights would also increase light pollution.

1-4

After reviewing the Visual Impact Assessment prepared by URS, the mitigation measures proposes for Key View 1 seem fairly vague. Page 6-3 states, "As part of project mitigation, formal landscaping would be introduced." What exactly does that consist of? I would like to have seen a visual simulation of KV1, not just KV2 and KV4 which were the only ones included in the report. Although the landscaping mitigation measures were vague in the Visual Impact Assessment, all of the above concerns may be effectively addressed through proper landscaping. Perhaps any dirt excavated from the site can be made into berms on the western corner of the Theatre Drive turn with large trees planted on top.

1-5

One of my secondary concerns is traffic circulation. How will cars which don't need to be in our neighborhood avoid turning onto Fortini? We have a paved entrance into our subdivision with a private road maintenance agreement. There are seven property owners required to maintain the road. In addition to service vehicles and guests using the roads, there are four other residences adjacent to the private roads which benefit from their use, but don't have to pay for upkeep. As a result, I would like any additional traffic from Theatre Drive minimized. Could some type of aesthetically pleasing barrier be erected to show a clear boundary between our neighborhood and Theatre Drive? Perhaps signage indicating a private road or gateway feature could be utilized.

1-6

As for impacts on arterial connections, my primary concern is for South Vine Street. That road is so poorly maintained now, it is a hazard for bike riders. The entire length of road from Kiler Canyon on the north end to 46W to the south needs to be repaved. Only the eastern lane adjacent to the new Gateway Center and Courtyard Marriott is adequate. If Build Alternative 2 is adopted, traffic on South Vine Street would be greatly increased, but the road needs to be repaired to accommodate it.

This brings me to my last point, funding. It seems from reading the ISEA that you are leaning towards Build Alternative 2 to complete the modification. However, this alternative costs $5.8 million more. Since the Inns at Vintner's Village will be the primary beneficiary, are they paying this additional cost? And, will they paying to repair South Vine Street?

1-7

Thank you for your time. I'm looking forward to the public meeting on June 25th.

Best regards,

Amy Salas

cc. Frank Mecham,
Mayor, City of Paso Robles
Supervisor- elect, County of San Luis Obispo/District 1
✓ Merceditas J.M. Esperanza
Capital Projects Engineer, City of Paso Robles

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Response to Comment 1-1:

Safe mobility of all transportation modes is a primary consideration of transportation projects, and the issues of pedestrian, bicycle, and vehicular safety are considered and addressed in the proposed project. The project layouts, shown in Figures 1.3-1 and 1.3-2 of the environmental document show pedestrian sidewalks, Class II bike lanes (bicycle lanes using shoulder pavement) in both directions, and protected left-turn lanes at the new intersection of Gahan Place and Theatre Drive.

With regard to design speed, the City has decided to promote a slower design speed of 25 miles per hour for this section of the frontage roadway system in contrast to the typical "collector" roadway speed posting of 35 miles per hour. The design speed is governed by safety and the design of road curves for maneuverability and sight distance for vehicles to be able to stop should an obstacle be present on the roadway. The actual speed of vehicles is determined by motorists' perception of the ability to maintain a given speed and by enforcement of posted speed limits. The motorists' perception of need to reduce the rate of speed will be affected by the required slowing down to make the turn from the realigned Theatre Drive roadway connection to the existing frontage portion of the roadway as well as the proximity of intersections that have signals (as shown in the conceptual layouts).

To slow their speeds, drivers are is influenced by raised medians and landscaping; median and roadside planting areas for the project are shown in Figures 1.3-1 and 1.3-2 of the environmental document. The traffic-calming measures include the proposed road geometry, raised medians, and landscaping. These measures promote slower vehicle speeds by physically constraining speed and visually "narrowing" the roadway due to the presence of the landscaping.

Response to Comment 1-2:

New development is not proposed by this transportation project. This project proposes operational improvements to the existing transportation system to relieve congestion. A project sponsor proposing new development would be responsible for mitigating impacts as a part of a project that causes the impacts. Roadway stormwater runoff is addressed in Section 2.2.2 of the environmental document.

Appropriate best management practices would be implemented during construction and are incorporated into the preliminary design as discussed in these sections. These items

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include among others listed: flattening slopes; sheet flow from roadway surfaces to grass and rock-lined swales; use of erosion control measures for collected flows by use of culvert flared-end sections; and rock energy dissipaters. These items, along with landscaping of various areas, would help minimize any increase of peak stormwater flow, reduce erosion, and provide treatment before discharge to the creek.

Response to Comment 1-3:

The project Noise Study Report identified potential noise receptors near the project area and made predictions for what the worst-case noise impacts would be in the current and project design year (20 years after construction). Inputs to the prediction model include the number and type of vehicles in the peak hour, the highest likely speed, as well as topographic features that could affect noise attenuation.

Caltrans is required to consider noise abatement when a project that moves traffic nearer to residents (Type 1 project), causes noise levels to approach (within 1 decibel) or exceed the noise abatement criteria (67 dBA for residences or 72 dBA for other land uses), or when project design year noise levels increase by 12 dBA (substantial increase) over existing noise levels.

Section 2.2.7 of the final environmental document is a summary of the project Noise Study Report. As noted in Table 2.2-7 of the final environmental document, Receptor M-5 has an existing peak traffic noise hour sound level of 57 dBA and a future-with-project sound level of 63 dBA for both build alternatives. Receptor M-5 is not situated on a residential use parcel, however, it is the closest receptor to existing residences in that area. While a commercial receptor has a less stringent criteria to trigger consideration of noise abatement measures (noise levels at or greater than 72 dBA), the projected noise levels and relative increase do not exceed either the commercial or the residential criteria. The project, if implemented, would not cause peak period traffic noise levels to approach or exceed the noise abatement criteria for residences, commercial sites, or result in a substantial increase over existing noise levels. Therefore, noise abatement is not considered as part of the project design. It is also important to note that residential receptors are further away from the proposed street improvements than the M5 location, noise levels drop as distance from the noise generator increases and therefore the non-substantial 6dBa noise level increase would be anticipated to be even less at the residential receptors further west of the project.

Construction noise was also analyzed in the project's Noise Study Report. Although construction activities would be short-term and temporary in nature, noise control

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measures would be implemented as a part of the proposed project to minimize construction-related noise levels. These construction noise control measures are listed in Section 7.0 (Construction Noise and Its Control) of the Noise Study Report and also provided in Section 2.2.7 Noise, of this environmental document. Please note that the proposed project does not include air conditioning units or any other additional sources of noise other than that from vehicle operations.

Response to Comment 1-4:

The contours on the conceptual plans in Figures 1.3-1 and 1.3-2 in this environmental document show the proposed State Route 46 West/Theatre Drive intersection conforming to the existing elevation of State Route 46 West, which is approximately 10 to 12 feet below the plateau at the referenced location. A cut slope would result between the street level of the proposed Theatre Drive/State Route 46 West intersection and the residences approximately 600 feet south. This slope would provide inherent shielding from the turning vehicles headlights and the street lighting required for operational safety considerations at that intersection. As shown on those conceptual plans, vehicles moving toward the south veer toward the east and the headlights would point away from the subject residence by the time they reach the realigned Gahan Place/Theatre Drive intersection.

Final lighting plans would be developed per local regulations requiring that lighting be shielded, to the extent possible, to minimize light-related impacts to surrounding development. Section 2.1.7 “Visual/Aesthetics” of this environmental document contains Avoidance, Minimization, and/or Mitigation Measure AES-2 regarding project lighting. The project would include final design features to minimize glare and potential impact to adjacent properties. While the specific features are left to the detailed design, typical features used in transportation projects are directional lighting, luminaire shields, or other such means to minimize off-site glare. The referenced layouts show existing large oak trees to remain and proposed landscaping areas, which would provide additional screening.

Response to Comment 1-5:

Formal landscaping, as discussed in the Visual Impact Assessment document, refers to final design phase detailed landscaping plans for the project that would be completed with coordination between the City and Caltrans landscape architects. This is further discussed in “Avoidance, Minimization, and/or Mitigation Measures” AES-1 within Section 2.1.7 “Visual/Aesthetics” of this environmental document.

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Conceptual landscaping exhibits were prepared for the public hearing held June 25, 2008, and copies of the conceptual landscape exhibits from the public hearing are attached at the end of this response. The simulations included in the Visual Impact Assessment were prepared for selected key views in consideration of the conceptual landscaping areas being proposed. The simulations comply with guidance referenced in Section 3.1 "Federal Highway Administration Guidelines" that is listed by Caltrans for California Environmental Quality Act/National Environmental Policy Act compliance on the Standard Environmental Reference web page (http://www.dot.ca.gov/ser/guidance.htm). The simulations included were specifically determined to be needed based on a combination of the relatively higher volumes of viewer exposure, areas proposed for relatively substantial change in form, and for which potential visual impacts were identified. Per this guidance, the degree of change in visual resource at view KV1 was determined not to require a simulation because of the following factors: the area is currently developed with commercial and roadway facilities; the unity of character will not be substantially changed; and landscaping along the street perimeter is expected to further mitigate street visibility.

Response to Comment 1-6:

Fortini Way is currently connected to Gahan Place immediately to the west of the Target retail center and is a minor residential roadway of nominal width. The connection of Fortini Way directly to Gahan Place is not proposed for change in either of the proposed build alternatives in this environmental document. Vehicular traffic, accessing either the retail center or other destinations from Theatre Drive as the frontage road along US 101, would not be expected to divert traffic from a major collector to Fortini Way due to driver expectation and the physical cross-sections of the roadways.

The continuity of Theatre Drive beyond the intersection with Gahan Place and the proposed streetscape treatment areas are expected to serve as directional guidance to traffic, which would therefore deter traffic from inadvertently accessing Fortini Way. While signage details are not shown in these planning documents (they are more appropriately shown in a detailed design phase if the project moves to completion), the presented concepts clearly show a roadway capacity differential among Theatre Drive, the revised Gahan Place connection to Theatre Drive, and the Fortini Way residential collector. This differential and the circuitous travel required to access Fortini Way would inform drivers who are not familiar with the area that Fortini Way is not a large commercial access route.

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According to the data contained in the Traffic Report, traffic on Vine Street would not increase greatly. The proposed project is an operational improvement project intended to make movement through the interchange less congested and, therefore, easier for peak hour and non-peak hour traffic. The Traffic Report, and the summary discussion contained in Section 2.1.6 "Traffic and Transportation/Pedestrian and Bicycle Facilities" of this environmental document, explain the existing and future expected congestion at the interchange and the improvements expected as a result of implementing the proposed improvements. The project, as proposed, would primarily alleviate operations for users of the state facility. This operational improvement on the state facility would attract traffic using the frontage arterial roads and serve to provide some traffic relief for those roadways.

The volume figures shown in the Traffic Report reflect that traffic volume grows on the arterial connections if the interchange improvements are not implemented and is reduced if the project is implemented. This reflects the anticipation that drivers will search for and use the path of least resistance or congestion. Please also note that while the condition of Vine Street outside of the project area is outside the scope of the proposed project, the City has proceeded with a Vine Street improvements project in construction in 2009.

Response to Comment 1-7:

This environmental document clearly states that both build alternatives provide congestion relief and address the purpose of the project. Impacts, operational improvement benefits, and anticipated costs vary between the two viable build alternatives and that data is presented in this environmental document and supporting technical studies. Transportation funding sources include City traffic mitigation fees collected from development in the area, funds from San Luis Obispo Council of Governments as part of the legislated mandate for regional transportation planning, and funding coordination that is part of the State Transportation Improvement Program (STIP) process. Section 1.2.2 Need, of this environmental document includes a discussion of a "jurisdictional split" study that was independently completed by San Luis Obispo Council of Governments to assign a traffic use "split" based on origin and destination modeling. This split of traffic use was then used to define the funding split for state and local anticipated funding distribution. It is noteworthy that the funding commitment is not programmed into a specific funding source and that construction of the proposed improvements would likely occur in phases due to funding needs and as discussed in Section 1.3.1.2 "Unique Features of Build Alternatives" of the environmental document. Additional costs would be collected from the development of

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future projects in the area, such as the Inns at Vintner's Village. Repairs to South Vine Street are planned by the City of Paso Robles outside of the scope of this project.

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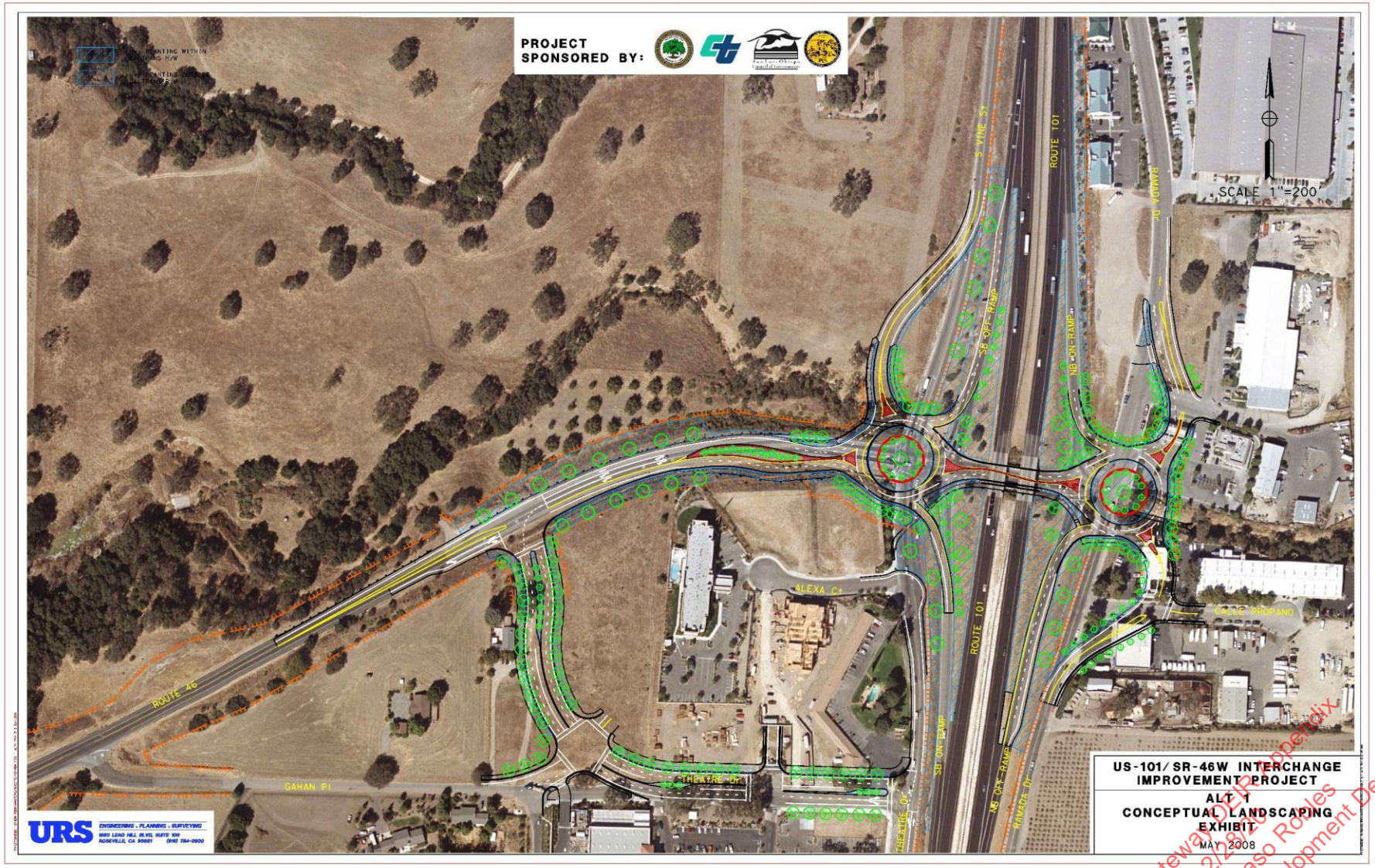
Alternative 1 Conceptual Landscape Exhibit Shown at Public Hearing



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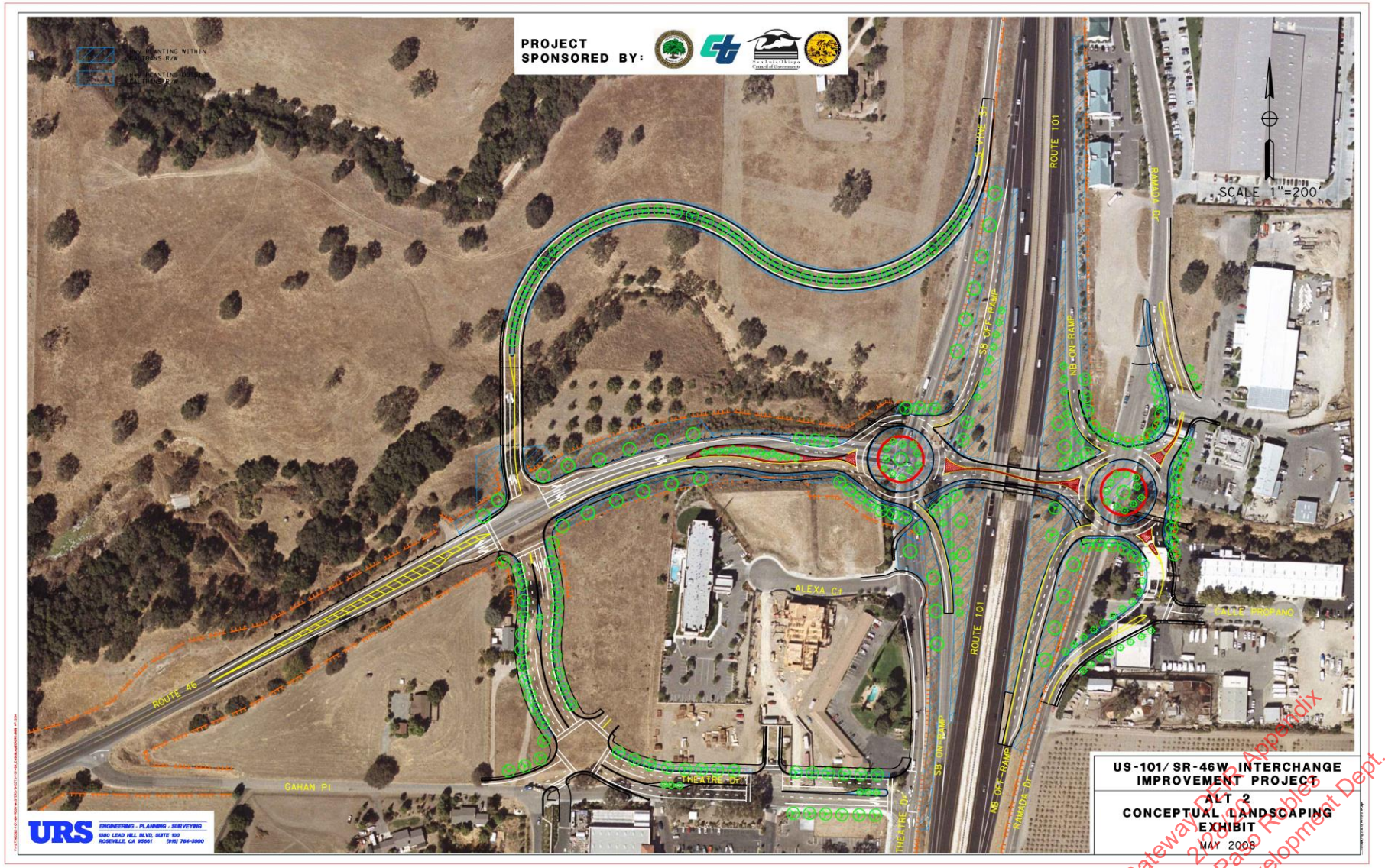
Alternative 2 Conceptual Landscape Exhibit Shown at Public Hearing



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Comment Set 2

Penny Takier
<cnatorn@hotmail.com>

To <yvonne_hoffman@dot.ca.gov>

06/24/2008 07:00 AM

cc

Subject Round abouts

I saw in the paper this morning the future plans for the 101/46 intersection. Living just off of Theatre Dr. I see all the problems encountered getting through this intersection. There are only a few times of the day that this intersection gets overcrowded. Residents just go the other direction to get on the freeway. I HATE ROUNDABOUTS.....what idiot ever thought those were the answer....you want to talk about accidents waiting to happen? I have been on the ones in Santa Maria and people DON'T know how to drive on them. You have near misses EVERY DAY. I will drive in another direction to avoid them. My gas station is the Arco on Ramada, but if a roundabout is put there, it will no longer get my business. Introducing Live Search cashback . It's search that pays you back! Try it Now

2-1

Response to Comment 2-1:

Thank you for your comment. As discussed in response to comment 1-1, 3-1 and 3-2, the safe mobility of all transportation modes is a primary consideration of transportation projects, and the issues of pedestrian, bicycle and vehicular safety as well as near-term and future congestion are considered and addressed in the proposed project.

The project layouts shown in Figures 1.3-1 and 1.3-2 of this environmental document show the roundabout layouts that underwent independent analysis and peer review as discussed in the "Roundabout Peer Review Memorandum" dated December 10, 2007. Federal Highway Administration documentation on the proven and empirical safety record of roundabouts was presented at the Public Workshop for the environmental review of this project. Various videos on how to maneuver through and the safety benefits of roundabouts were presented as were handouts including Federal Highway Administration publication FHWA-SA-08-006 "Roundabouts a Safer Choice." Additional safety and driver education information can be found at:

http://safety.fhwa.dot.gov/intersection/roundabouts/

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We appreciate your concerns about the use of roundabouts at this interchange. As discussed at the public hearing, people do need to get familiar with an intersection type that is relatively newer to the western states. The Federal Highway Administration publication handed out during the public hearing states:

> "Navigating a roundabout is easy. But because people can be apprehensive about new things, it's important to educate the public about roundabout use."

As the comment correctly notes, roundabouts are showing up in other municipalities and, even within this city, development has already included roundabout construction. Caltrans has roundabouts constructed at ramp terminals in other areas throughout the state and has generated guidelines for implementation (Design Information Bulletin 80-01, "Roundabouts," which can be found at http://www.dot.ca.gov/hq/oppd/dib/dib80-01.htm). This Design Information Bulletin was also used in roundabout layout as referenced in Section 3 "Design Overview" of the "Roundabout Peer Review Memorandum." A pertinent section of this Caltrans guide is Section 3.0 "Application," which states:

> "Use of roundabouts on the State Highway system may be considered for the primary purpose of enhancing safety and operational characteristics at intersections."

The City of Paso Robles has also provided valuable roundabout information on its web site linked to the Community Development Department discussion on traffic calming at:

> http://www.prcity.com/government/departments/commdev/planning/pdf/FHWARoundaboutBrochure.pdf

Among other reasons, roundabouts were chosen for this project due to their increased safety compared to more conventional intersections. Research cited in the above-referenced Federal Highway Administration publication that was handed out at the public hearing states that:

> "Compared to other types of intersections, roundabouts have demonstrated safety and other benefits." This publication further goes on to cite roundabouts improve safety by "More than a 90% reduction in fatalities, 76% reduction in injuries, 35% reduction in all crashes, Slower speeds are generally safer for pedestrians."

Collisions may occur at any intersection but, in collisions that do occur at roundabout intersections, vehicles are typically not at the perpendicular angles of traditional intersections and are travelling at reduced speeds; therefore collisions that do occur at roundabouts are more prone to be minor and result in "fender bender"-type accidents.

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These minor types of collisions typically result in less property damage and substantially lower injury and fatality rates than “T” and “head-on” collisions.

As presented in this environmental document, the proposed project alleviates congestion in the near-term and for future projections while enhancing safety by implementation of roundabouts at the ramp termini.

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Comment Set 3

From: Cheryl Crow [mailto:crow.cheryl@yahoo.com]
Sent: Wednesday, June 25, 2008 11:42 AM
To: Planning; slocog@slocog.org
Subject: Hwy 46 & 101 Interchange

City of Paso Robles
1000 Spring Street
Paso Robles, CA 93446

San Luis Obispo County, Board of Supervisors
1055 Monterey Street
San Luis Obispo, CA 93408

San Luis Obispo Council of Governments
1150 Osos St. Ste 202
San Luis Obispo, CA 93401

Ladies and Gentlemen

RE: Proposed Interchanges at Highways 46 and 101

Before deciding to spend between $30 & $36 million, are there simpler, less invasive and less costly options that might be tried? Perhaps a decrease in the traffic light cycling times to move vehicles more quickly off the northbound offramp of 101. Divert coastal destination traffic around town—perhaps an overpass for through-traffic from 46 west?

3-1

I assume the rate of traffic flow per hour from each direction and throughout the year has been determined through your research. Perhaps short-term change needs be accomplished only for peak dates or times when perhaps a detour could be accomplished.

Roundabouts/rotaries seem definitely to be a positive option for decreasing collisions and increasing traffic flow in rural and residential settings (most reports I've read suggest up to 5000 vehicles per hour maximum). However, one can only imagine the difficulties semi-trucks and motorhomes towing boats, both common at the intersection in question, might create in using a roundabout.

May we be assured that your engineers have contacted of the following for their research in the use of roundabouts on major highway interchanges:
US Department of Transportation, Federal Highway Administration
http://www.tfhrc.gov
Transporation Research Board of the National Academies at
http://www.trb.org/

3-2

I can only urge that you give this much further consideration before adopting a roundabout in this particular situation.

Sincerely,

Cheryl Crow
942 Pacific, Morro Bay
1190 The Pike, Arroyo Grande

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Response to Comment 3-1:

Please refer to Section 1.3 “Alternatives” and Section 1.3.5 “Alternatives Considered and Withdrawn” of this document for a thorough discussion of the many alternatives that were considered during the process of narrowing down the proposed alternatives.

Signal cycling times have been adjusted many times in the past five years to maximize current configuration operations, including adjustment when the ramp widening occurred for the Southbound US 101 off-ramp. But signal cycle time changes alone cannot alleviate the current or future congestion. Overpass bypass structures were also considered during the Project Study Report phase and again during value analysis. Overpass structures were anticipated to create substantial environmental impacts, would not feasibly address all traffic movements, and would require high and long bridge structures that would be out of character with the area. The concepts were determined to be not supportable by federal, state and local agencies due to cost and impact factors.

The remaining two build alternatives under consideration were chosen as the ones that best provide for congestion relief (per the documented need and purpose of the project), in the most cost-effective manner. The traffic analysis discussed in Section 2.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities, Regulatory Settings sub-section and in the Traffic Report noted Level of Service F (the worst level of congestion) for the design year of 2038. A sensitivity analysis documented that the Level of Service F threshold would be crossed in the 2010 to 2014 time period. As discussed in the value analysis study, these substantial congestion levels were determined by a multidisciplinary team to require extensive improvements to the interchange.

The currently shown roundabouts have been laid out to accommodate semi-trucks, motor homes with trailers, and the interstate truck trailer (STAA standard), which is the largest standard truck allowed on California state freeway corridors and has larger turn radii than the other vehicles.

Response to Comment 3-2:

The proposed roundabouts were preliminarily designed to accommodate US 101 and State Route 46 West vehicles, including interstate truck trailers (STAA standard). The preliminary roundabout design is based on Caltrans and Federal Highway Administration guidelines with independent peer review by roundabout experts and additional Caltrans district and headquarters oversight. The Federal Highway Administration and Transportation Research Board references cited in the comment specifically endorse the

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methodologies that were used for the traffic analysis and were used as appropriate for the roundabout layouts considering traffic volume and lane use.

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Comment Set 4 thru Set 10

CERTIFIED COPY

THE CITY OF PASO ROBLES

AND

CALIFORNIA DEPARTMENT OF TRANSPORTATION

U.S. ROUTE 101 (US -101)/STATE ROUTE 46 (SR-46) WEST

INTERCHANGE MODIFICATION PROJECT

PASO ROBLES, CALIFORNIA

Wednesday, June 25, 2008

5:00 p.m. – 8:00 p.m.

PUBLIC COMMENTS

held at the City of Paso Robles Chambers Building

1000 Spring Street

Paso Robles, California

Reported by: Jeri Cain, RMR-CRP-CRR, No. 2460
File No. 208937

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PUBLIC COMMENTS were taken at the City of Paso Robles Chambers Building, 1000 Spring Street, first Floor, Paso Robles, California, before verbatim reporter, Jeri Cain, CSR No. 2460, RMR-CRP-CRR, on Wednesday, June 25, 2008, commencing at the hour of 5:00 p.m.

MEETING LEADERS:

APPEARING FOR URS:

REBECCA NICHOLAS, Public Affairs Manager and Facilitator
2870 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833
916-679-2000

APPEARING FOR CALTRANS:

DOUG HEUMANN, Project Manager - Caltrans
District 5-Public Affairs Office
50 Higuera Street
San Luis Obispo, CA 93401
805-549-3788

APPEARING FOR THE CITY OF PASO ROBLES:

MERCEDITAS J.M. ESPERANZA, Capital Projects Engineer
1000 Spring Street
Paso Robles, CA 93446
805-237-3861

PUBLIC COMMENTS BY:

Michael Zappas, Representative of River Lodge Motel
Robert Polley, Wayne's Tire
Robert Miller, Wayne's Tire
Jeff Wagner, EDA
Bryce Dilger, Pacific Coast Survey & Design Group, Inc.
Don Simoneau
Kim Simoneau

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PUBLIC COMMENTS; PASO ROBLES, CALIFORNIA

JUNE 25, 2008, 5:00 P.M.

-o0o-

MS. REBECCA NICHOLAS: Excuse me. Could I get your attention, please. I just want to say thank you so much for coming. The time is now a little past 5:00. This is more of, as you can tell, an open house, a normal workshop about the U.S. Route 101/State Route 46 West Interchange Project.

What we have are various workstations set up for you where you can talk to people, as you are discovering, about the various aspects of the project. You can submit comments in writing. We have comment cards set up around the room. We also have a stenographer available to record your comments. The meeting will adjourn at 8:00 p.m.

If you have any questions, you can ask me or any individuals with name badges around the room. Thank you.

MR. ZAPPAS: My name is Michael Zappas. I am representing the River Lodge Motel. We're concerned about the width of the berms and bike paths on the proposed road and we want to know if it's a negotiable item, if we can talk to somebody about maybe narrowing

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the road so our manager's apartment is not ruined in the process.

My telephone number is 805-462-8606, and my e-mail address is MikeZappas@charter.net.

MR. MILLER: I'm Robert Miller. My primary concern is knowing the time frame as far as long-range planning for the business and the relocation monies, and so forth, that would be available to move our business. Obviously, we're both interested in the values that would be assigned and this is our first real getting involved with the whole project at this point in time, so a lot of this is new and we're quite interested and want to be kept in the loop right from the beginning to know what's going on on the east and the west side of the freeway, because I think one is dependent on the other.

5-1

My address is 591 Via Vaquero, Arroyo Grande, and probably the best phone number is my home phone, which is 805-489-6483. The next best phone number is 805-331-5820. And I don't have a whole lot more to say other than I just want to be kept in the loop.

MR. POLLEY: I'm Robert Polley. I am part owner of the property where Wayne's Tires is located on the east side, and my concern is just that I have plenty of notification so that when they go through the

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process, we're not in a stressful situation, a last-minute situation; that we know in advance. And if the funding is going to be a long ways out, we would appreciate knowing that, too, so we can forget about it for a few years, and everything.

My e-mail address is MPDPShellBeach@aol.com. My phone number is 805-714-1635.

That's pretty much it. Just the communication part of it. Just want to be kept in the loop.

We've got quite a few names and phone numbers right now, so if they would just keep us -- when they are starting Phase I, if they would let us know for sure and even before so we can keep in the loop.

MR. MILLER: Well, pretty much everything that he said, I go along with, and so we just need to be kept informed as early as possible so we can make plans. Thank you.

MR. WAGNER: My name is Jeff Wagner from EDA. I think that the visual impact analysis needs to evaluate the effect of the Vine Street bridge. It's certainly visible to eastbound traffic. It's probably visible to westbound traffic on Highway 46, but it wasn't analyzed at all. I was told why, but it doesn't -- the bridge doesn't show up in any of the analyses, and it's something that needs to be looked

7-1

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at. So that's that comment.

Also, I think the oak tree mitigation needs to be reevaluated. The number of oak trees removed for both alternatives is a significant number, and I think what the report is lacking is the significance of the trees that need to be taken out. Some of them are 48 inches in diameter or larger. They are big trees. And to replace them with a bunch of little trees just doesn't make any sense. And so I think that needs to be evaluated.

7-2

Third thing, the cost-benefit analysis, what I saw was a dollar value of the benefit derived from this project, but we're looking at two different alternatives. One of them costs more than the other. It's not clear to me that the extra cost provides sufficient additional benefit, and I would like to see some discussion on that. Quantitative as possible. So that's it. My phone is 805-549-8658. E-mail address is Jeffw@edainc.com.

7-3

MR. DILGER: My name is Bryce Dilger. I'm a land surveyor in Paso Robles. And I just would like it to be noted that I support the traffic mitigation efforts on the Highway 46 East project that, as the city grows, it's outgrown some of its current infrastructure, and it's good to see efforts being made in this

8-1

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progress. Furthermore, I support the design alternatives being proposed by the city at this time.

My phone number is 805-238-9881.

MR. SIMONEAU: My name is Don Simoneau.

Personally, we like alternative 2 because of the fact that South Vine Street aligns and doesn't go through the circle itself, the roundabout, because I typically use Vine Street more than I use the highway. And what else? And the expense.

9-1

MRS. SIMONEAU: I am Kim Simoneau. That's about it. I agree with what he said. It's more expensive.

10-1

MR. SIMONEAU: In the long term over the years, I don't want to get caught like where Paso city screwed up on Golden Hill Road and made it a truck route, but they didn't make the corner or the intersection big enough for the trucks to make the corner, so that's why I like this. It moves everything out and away from the highway and then makes the highway roundabout the highway roundabout.

9-1 (continued)

The only thing I don't like about both projects is the fact that they have to take the businesses on the east side. Some of those businesses have been there for a long time. Wayne's Tires has been there at least 20 years. That's the only thing I don't

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like about that, unfortunately. Other than that, we have to look towards the future.

MS. REBECCA NICHOLAS: The time is 8:00 p.m. and the public meeting is now adjourned.

-o0o-

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REPORTER'S CERTIFICATE

STATE OF CALIFORNIA)
) SS.
COUNTY OF SAN LUIS OBISPO)

I, JERI L. CAIN, Certified Shorthand Reporter, RMR-CRP-CRR, holding California CSR License No. 2460, do hereby certify:

The aforementioned public comments were verbatim-reported by me by the use of computer shorthand at the time and place therein stated and thereafter transcribed into writing under my direction.

I certify that I am not of counsel nor attorney for nor related to any of the parties hereto, nor am I in any way financially interested in the outcome of this action.

In compliance with Section 8016 of the Business and Professions Code, I certify under penalty of perjury that I am a Certified Shorthand Reporter with License No. 2460 in full force and effect.

WITNESS my hand this 26th day of June, 2008.

JERI L. CAIN, CSR #2460, RMR-CRP-CRR

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Response to Comment 4-1:

The width of the realigned roadway of Theatre Drive was determined by the City based on guidelines contained in the Circulation Element of the City's General Plan. In Section 3 "Circulation Standards and Development Policies," Development Policy 1 states that the City will "… encourage walking and bicycling and enhance the overall livability of a community." With this guidance, 10-foot-wide sidewalks with landscape buffers from the curb and gutter were used in the planning level layouts for the current concepts to be environmentally assessed and documented. Various options for accommodating the necessary left turns and truck turns were reviewed, and the geometry shown was the result of that analysis with a footprint taking into consideration the widest street section believed probable. Potential revisions typically include a change in roadway width or some other change to the design within the current overall footprint. However, it is anticipated that an impact to the structure is likely; that impact is included in the current analysis.

Interested parties are invited to discuss the planning of the project with City staff at any time. The main contact for this project at the City is Ms. Ditas Esperanza, telephone number 805-237-3861. For some clarity on process, public policy mandates that the City Council approve appraisals and negotiations for any property acquisitions, final design and construction contracts before implementation. All City Council meetings are publicly noticed, and parties affected by proposed projects are contacted and notified by City staff prior to council action. Please also note that construction funding for the improvements shown on the conceptual layouts is not yet available or "programmed." And, since the property is currently advertised "for sale or build to suit," it is unknown if project construction will precede the sale and/or redevelopment of the property. Should the sale or redevelopment of the property precede the proposed transportation project, the current layouts will provide guidance to any future project on this parcel.

Response to Comment 5-1:

It is understandable that there is an interest in defining the timeframe for long-range planning and business interests. Section 1.3.1.2, Unique Features of Build Alternatives, Project Phasing subsection of the environmental document, discusses the phasing of the proposed project and anticipated timing for each phase of construction. The timeframe for the project construction would be determined for each phase as funding is secured throughout the Regional Transportation Plan's 20-year timeframe. Section 2.1-6, Traffic

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and Transportation/Pedestrian and Bicycle Facilities, contains traffic analysis data showing a current forecast for project completion (open to public in 2018).

Please also see response to comment 4-1 for information on the actions of prior notification and contacts by City staff prior to approval by City Council to proceed with a project.

Response to Comment 6-1:

Please refer to response to comments 5-1 and 4-1. Additionally, the interim steps of phasing the project will require individual actions by the City Council, public notifications and affected parties notifications. It is expected that the project would not affect the area east of the interchange for many years to come. Refer to Section 1.3.1.2, Unique Features of Build Alternatives, Project Phasing subsection of the FED. As indicated in this subsection, Phase 4 involving the construction of the northbound ramp roundabout on the eastside of the interchange is the final phase of the project and is anticipated to go through the right of way acquisition process and then to construction many years into the future from now as discussed in that section.

Response to Comment 7-1:

The South Vine Street bridge location over the unnamed creek that parallels State Route 46 West on the north was analyzed for potential impact in preparing the Visual Impact Assessment. However, it was not included in a simulation due to factors related to intervening topography and vegetative screening. Section 4.2 “Project Viewshed” of the Visual Impact Assessment discusses factors recognized by field review that relate to whether a potential key view is a reasonable candidate for simulation. This document specifically identifies that consideration was given to road realignment, associated grading and removal of oak trees for identifying key view candidates.

The Visual Impact Assessment specifically considered the State Route 46 West travel corridor in both the eastbound and westbound direction as evidenced in Figure 4-2 by the shown locations and perspectives of Key View 2 and Key View 3. In analyzing Key View 3, the Visual Impact Assessment in Section 6.3 “Analysis of Key Views” discusses the realignment of the Vine Street frontage road and the addition of signals at the intersection in either Alternative 1 or Alternative 2 scenarios. The Visual Impact Assessment supports the environmental document and was available for public review at the time of the public hearing. A summary of the issues discussed in the Visual Impact Assessment is included in Section 2.1.7 “Visual/Aesthetics” of this environmental

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document and specifically cites the influence that existing topography and vegetation have on viewpoints.

Also, as detailed in Section 6.3 (Analysis of Key Views) of the Visual Impact Assessment, implementation of Alternative 1 would result in a low to moderate level of visual impact, whereas Alternative 2 would result in a moderate level of visual impact.

For additional clarity and to confirm the substance of the information presented at the public hearing, in regard to a traveler's perspective driving westbound along State Route 46, one's view is blocked to the north and northwest as the traveler approaches the proposed South Vine Street/Theatre Drive intersection by the topography of the rising roadway grade, the roadway superelevation and trees along the outside (northern) edge of State Route 46 West. This natural screening does not allow views to the north of State Route 46 for westbound traffic until vehicles would reach the proposed intersection of the South Vine Street/Theatre Drive intersection and South Vine Street bridge. So, the view of the bridge would only momentarily be visible from a driver's perspective.

Similarly, for eastbound traffic, views to the north and northeast along State Route 46 are obstructed due to existing vegetation and rising cut slopes on the northern edge of State Route 46 in this particular area. So, similarly for westbound travelers along State Route 46, the view of the South Vine Street bridge would only momentarily be visible from a driver's perspective. Views of this area are similarly screened by topography and vegetation for motorists on US 101. Such factors were taken into consideration when determining the key views to assess and which simulations would be prepared.

Response to Comment 7-2:

A detailed and comprehensive response to the issue of oak tree impacts is offered for this comment to provide sufficient information not only for this specific comment but for other related oak tree comments that will be referred back to this oak tree comment response.

Refer to Section 4.2 "Regional Species and Habitats of Concern" in the Natural Environment Study (Minimal Impacts) dated April 2007 and updated August 2009. This section explains that the Biological Study Area does not contain special-status plant or animal species and therefore the Biological Study Area was not identified as an area of substantial biological importance. This area did contain natural and commonly occurring resources such as the oak trees that have local or regional significance, but the section states that any ~~adverse~~ impacts would be considered minor due to lack of loss of viability

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of common species, lack of trends toward state or federal listing for protection and for lack of apparent changes in availability in large numbers throughout the region.

Section 5.1 “Direct Impacts” of the Natural Environment Study (Minimal Impacts) discusses oak tree impacts and mitigation for species of oaks using a “precautionary principle” defined as the estimated worst-case scenario based on preliminary plans. This estimation and precautionary principle is also consistent with the preliminary survey methodology outlined in Section 3 “Study Methods” where access to private parcels was discussed and a combination of field methods for analysis wais also discussed. Section 6 “Avoidance and Minimization Measures” of the Natural Environment Study (Minimal Impacts) discusses the use of applicable County, City and Caltrans replacement of oak trees and native vegetation along with a requirement to develop and implement a “Native Vegetation Restoration and Monitoring Plan” before construction.

Section 2.3 “Biological Environment” of this environmental document, subsection 2.3.1 “Natural Communities,” specifies that the focus is on biological communities, not individual plants, and further contains the related “Avoidance, Minimization and/or Mitigation Measures” NC-1, which specifically relates to oak tree impact mitigation and defines an oak tree species replacement with 1-gallon plants at a ratio of 10:1 (10 oak trees planted per 1 oak tree removed). The 10:1 replacement ratio applies to any trees actually affected by construction of the project regardless of whether or not they were counted in the estimated counts related to the current layouts. For instance, if new trees grow along the proposed alignment and are subsequently affected at the time of construction, they would be subject to mitigation. Conversely, if existing trees counted in the current concepts for mitigation no longer are affected in the construction of the final design layout or no longer exist at time of construction, the 10:1 ratio would not apply to those specific trees.

The mitigation ratio is considered aggressive relative to a 3:1 or 5:1 ratio required for resource agencies for other recent projects such as the 13th Street Overcrossing project in the City of Paso Robles. The 10:1 replacement ratio is also independent of the affected trees’ size characteristics. The City of Paso Robles Tree Ordinance was not used as the basis for oak tree replacement because of team concerns about how 24-inch-box oak trees would permanently establish. Oak trees grown in 24-inch boxes at nurseries have a difficult time adapting to natural settings. Larger trees are dependent on irrigation, have trouble with root development, are typically slow to establish, have slower growth rates, and typically have a poorer success rate.

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Research and personal communications with nurseries, landscape architects and arborists throughout the state, and by Caltrans project experience confirmed the consensus that small-container oak trees typically have a greater survival rate than large-container oak trees. Furthermore, smaller-container trees grow faster, so that an expectation of a 24-inch-box tree can be met in approximately a 5- to 7-year timeframe. Small-container oak trees adapt better to natural settings because they develop a stronger root system and are less dependent on irrigation.

To enhance establishment, oak trees would be installed with anti-herbivory cages, mulch, and supplemental irrigation, and would receive maintenance for three years. However, even using these establishment techniques, partial mortality is anticipated. The arid climate of Paso Robles, plus the possibility of a mitigation site with a non-desirable slope aspect, leads us to recommend a 10:1 ratio for the best chance at long-term success.

Subsequent to public circulation of the Natural Environment Study (Minimal Impacts) and the environmental document, on-site, on-foot field surveys were performed for the project area to further substantiate and characterize (species and size [diameter at breast height]) the magnitude of oak tree impacts anticipated as a result of the proposed project. The results of these surveys were reflected in the updated Natural Environment Study (Minimal Impacts) dated August 2009 and superimposed on an aerial photograph (see figures following this response text).

It is important to note some trees were subsequently determined to be dead or removed by others between surveys and prior to mapping efforts. It is also important to note that even with greater accuracy, the number of impacted oak trees is anticipated to change due to natural or human activities, but the principle of a 10:1 replacement ratio still applies.

The subsequent survey revealed that Alternative 1 is anticipated to result in impacts (removal) to a total of 24 oak trees, and Alternative 2 is anticipated to result in impacts to 49 oak trees. That information is in the updated Natural Environment Study (Minimal Impacts) and the environmental document and reflects a more accurate level of impact to the approximate assessment. Per the verification field work, it has been confirmed that up to three oak trees having a diameter at breast height measurement of 48 inches or more would be affected by both Alternative 1 and Alternative 2 since those oak trees are found in areas of improvements that are common to both alternatives. A 10:1 oak tree replacement ratio for Alternative 1 results in a total of approximately 240 small-container trees as opposed to approximately 104 24-inch-box trees using the City ordinance. A 10:1 oak tree replacement ratio for Alternative 2 results in a total of approximately 490 small-

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container trees as opposed to approximately 182 24-inch-box trees using the City ordinance. The intent of the 10:1 oak tree replacement ratio is confirmed by sheer numbers to be planted with the hardiest size for establishment, creating the most successful habitat restoration possible within reason.

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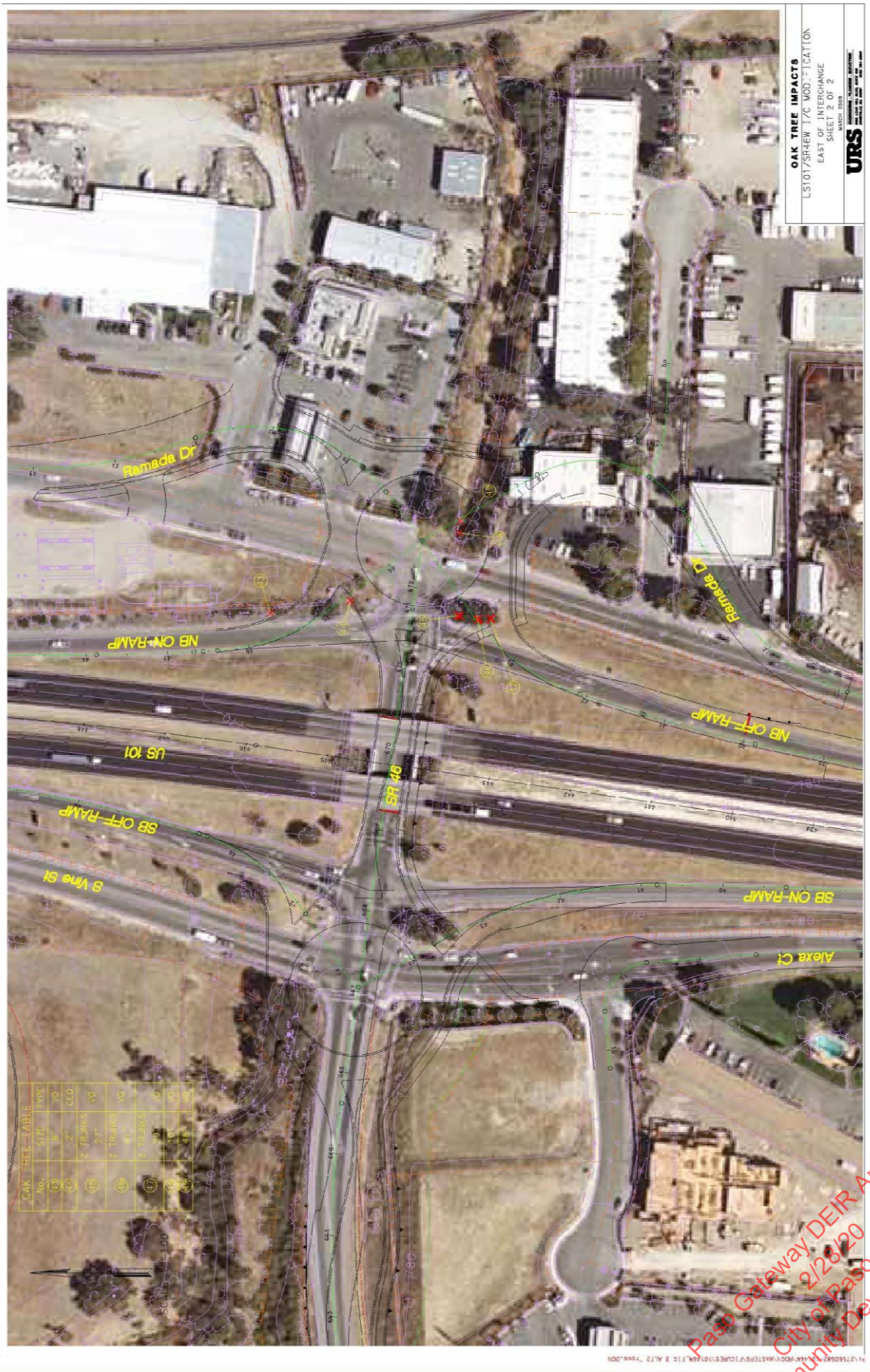

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Response to Comment 7-3:

Both quantitative and qualitative costs and benefits should be considered when comparing alternatives. The rationale for selection of the preferred alternative is presented in Section 1.3.4, Identification of a Preferred Alternative, of this document.

Response to Comment 8-1:

Thank you for attending the public hearing, familiarizing yourself with project design components, and providing your comments in support of the project.

Response to Comment 9-1:

Thank you for your comment and participation. Please refer to response to comment 7-3 regarding segregation of differing trip types between road facilities and the benefit of continuity of frontage roads related to operational and driver expectation issues.

Section 1.3.1.1 "Common Design Features of the Build Alternatives" of this environmental Document contains a discussion on the ability of roundabouts to accommodate truck traffic. While project costs differ by several million, as shown in Table 1.3-1 "Comparison of Project Effects by Alternative" of this environmental document, the construction costs of either alternative are recaptured by the benefit of reduced delay over the 20-year analysis that is mandated for a capital investment project such as this (see Section 2.1.6 "Traffic and Transportation/Pedestrian and Bicycle Facilities"). Avoidance of property-related impacts is always a consideration when defining value metrics and feasible alternatives. However, due to the level of congestion and the existing tight diamond configuration with development immediately adjacent to the interchange, property impacts are unavoidable for this project. Section 2.1.4.2 "Relocations" and Appendix C "Summary of Relocation Benefits" of this document provide technical information and the statutory regulations for the mitigation of impacts through relocation assistance provided by the agencies.

Response to Comment 10-1:

Thank you for your comment and participation at the public hearing. Cost information, as well as project impacts and benefits, was discussed in the environmental document and at the public presentation. Please also refer to response to comment 9-1.

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Comment Set 11

Captain Carl <theesixfifteen@yahoo.com>

To Yvonne_Hoffman@dot.ca.gov
06/28/2008 12:13 PM
cc

Subject some Hiway46West and Interstate 101 interchange input

Please respond to theesixfifteen@yahoo.com

I would like to add my input into the ideas for improving the Interstate 101/hiway 46 west interchange;

Regarding the northbound exit off 101 into a traffic circle... I believe that the laws for traffic circles require that the traffic IN the circle has the right of way and traffic ENTERING the circle must yield. Knowing that there is a nearly constant stream of traffic heading east on 46 and entering 101 North, the traffic exiting 101 north would have to yeild to the traffic IN the circle and judging from the length of the offramp off of 101 north that is planned, traffic will easily back up onto the 101. 11-1

Regarding the realignment of Theatre Drive around the old motel and onto Gahan and then over to 46west... I believe that the ninety-degree turn at Gahan and Theatre within the limited space that exists would not be nearly enough lane space for the volume of vehicles and pedestrians that use it presently, let alone in ten or twenty years. I think the solution would be to destroy the old motel and use the available space to widen Theatre Drive and Gahan and soften the angle of that corner a bit and allow more room for pedestrian crossings. 11-2

The situation that we are in with this entire interchange area is horrible. Twenty-some years ago the people that allowed the development of Theatre Drive and Ramada Drive and the shopping area on Theatre and the annexation of this land for the city of Paso Robles and the subsequent degeneration of South Vine (the only pedestrian and bicycle access to PasoRobles) were incredibly short-sighted. I am curious as to who was involved in the decision making process that allowed this development to occur in the first place. Their greed and ignorance will cost us and our children hundreds of millions of dollars to fix. 11-3

The bicycle ride from Templeton to PasoRobles is an easy ride, but many will not brave it because of the danger of South Vine. The neglect that the city of Paso Robles has allowed through this important transportation corridor is ridiculous knowing how much tax money from the shopping center has been generated for the city of PasoRobles. There are hundreds of families living along South Vine and Theatre Drive and I see all those children walking and biking along these streets daily. Do we continue to structure our society around the automobile or can we begin to plan our future in a responsible manner? Do we have to wait for children who have no choice and adults who choose to use alternative transportaion to die or can we fix an easily foreseeable dangerous situation before it gets worse? 11-4

I am trying to keep this correspondance brief and I thank you for your attention

Carl

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Response to Comment 11-1:

While vehicles entering a roundabout are required to wait for a gap before entering the circulatory roadway, the results of the traffic analysis indicate ~~we respectfully disagree with the statement~~ that traffic exiting US 101 will not backup onto US 101 due to traffic waiting to enter the roundabout. The roundabout operation was tested using three different traffic models for traffic projection to the year 2038. See Section 2.1.6 "Traffic and Transportation/Pedestrian and Bicycle Facilities" of this environmental document and to the supporting technical Traffic Report for a discussion on how the peak traffic queues are accommodated by the ramps. Each traffic model provides queue (number of stopped or backed up vehicles) projections.

The traffic model that produced the longest queues was used for the design (this queue is 520 feet as shown in the Traffic Study on Table 11). The off-ramp lengths for both the southbound and northbound directions of US 101 are hundreds of feet greater than the forecasted queue as shown on Figures 1.3-1 "Build Alternative 1 Layout" and 1.3-2 "Build Alternative 2 Layout" of the environmental document. Therefore, traffic on the US 101 northbound off-ramp would be accommodated on the ramp and not extend to the US 101 mainline.

Response to Comment 11-2:

The traffic analysis, presented in the Traffic Study, was performed to determine the number of lanes required throughout the project limits. Per standard practice for transportation projects, the proposed road geometry has been designed in accordance with the traffic analysis and includes sufficient lanes and accommodation for the projected traffic through the 2038 forecast year (see response to comment 11-1). The proposed improvements at the intersection near the motel also include 10-foot-wide sidewalks, raised medians, and landscaping along Theatre Drive, as well as multiple marked pedestrian crossings. Per pedestrian crossing design criteria, crossing distances have been minimized to lessen the distance for potential conflict with vehicles (see also response to comment 1-1).

Response to Comment 11-3:

Past developments within the areas along Theatre Drive and Ramada Drive were reviewed and approved by either the City of Paso Robles, if within city limits, or the County of San Luis Obispo, if in unincorporated areas. The purpose of the proposed US 101/State Route 46 West Interchange Modification project is to reduce existing

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congestion, improve traffic operations, and accommodate anticipated travel demand through the year 2038 for the US 101/State Route 46 West interchange.

Response to Comment 11-4:

Please see response to comment 1-1 for discussion on safety considerations. This project proposes bike lanes on South Vine Street and Theatre Drive. City staff that are members of the current Bicycle Advisory Committee have participated in the development of the project since the initiation of the current effort in 1997 (see Section 1.1"Introduction" of the environmental document). A shared-use path along the south side of State Route 46 West is proposed to connect the realigned Theatre Drive to Ramada Drive. While the City has another project underway to improve the road section of South Vine Street north of the interchange by repaving and adding bike lanes, that project is independent of the interchange project. It is the intent of these improvements to maximize safety and utility of pedestrian and bicycle travel through the corridor for the US 101/State Route 46 W interchange.

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Comment Set 12

roundabouts
<roundabouts@sunset.net>

07/11/2008 03:07 PM

To: Michael H Thomas <michael_h_thomas@dot.ca.gov>

cc:

Subject: Comments on Proposed Roundabouts at Route 101/46 West Interchange in Paso Robles

Mr. Michael H. Thomas:

Thank you for the opportunity to comment on this project. I offer my comments in the hope they may help with the overall quality of the finished project. I ask for no specific responses to my comments, and hope you are not required by regulations to spend too much time answering them. Except for #5, my comments apply to both alternatives and are in no particular order.

1. The reversing curved approach from the west will slow high-speed traffic and let drivers know they are entering a slow speed environment. A long splitter island, beginning at the start of these curves, will further slow the traffic. (You may be planning on this, but I cannot tell from the scale of the plans.) — 12-1

2. The radius of the westbound exit from the west roundabout looks rather tight. Entries need to be tight to slow traffic, but exits may be loose. A larger radius exit would push the exit farther from the adjacent eastbound entry, allowing entering drivers to know earlier that they may enter and increasing the efficiency of the entry. (This same comment applies to the eastbound exit from the west roundabout and the westbound exit from the east roundabout, but the bridge structure probably constrains these exits.) — 12-2

3. If the westbound exit from the west roundabout requires two lanes, why can't both lanes be carried to the next intersection rather than be narrowed to one lane? — 12-3

4. Regarding the Key Views on page 66, safety is greatly enhanced by more foliage which prevents drivers from seeing across the center island. Neither of these drawings have enough. Contrary to everything we engineers have learned about "greater sight distance promotes greater safety," this does not apply to roundabouts. Too much sight distance across the central island or to the left of each approach can encourage drivers to speed up to "beat" that approaching driver from the left. Shorter sight distance encourages slower speeds, the essence of roundabout safety. Please carefully check sight distance at all entries of both roundabouts, in accordance with Caltrans DIB 80-01. — 12-4

5. In Alternate 2 eastbound traffic in the west roundabout has no reason to turn left but may make a U-turn. The temptation may arise to prevent this move, creating a "tear drop" (or "rain drop") roundabout. Please resist this temptation as it decreases safety by allowing westbound traffic to enter faster as they have no one to yield to. Look at US 101 in Arcata for an example of two tear drop roundabouts with too fast entries. — 12-5

Thank you again for quickly sending me the information I needed to comment on this project. Please do not hesitate to contact me if I might answer any questions on roundabouts.

John Burnside, P.E.
Consulting Traffic Engineer
Designing roundabouts since 1985
INs and OUTs of ROUNDABOUTS
10628 Melody Road
Big Oak Valley, CA 95977-9537
530-432-6526
530-575-5007 cell
530-432-6511 fax

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Response to Comment 12-1:

Thank you for your comment and participation. We agree that a long splitter island is appropriate to alert motorists travelling to the interchange from the west that they are entering a slower speed environment. The referenced splitter island is proposed starting approximately 400 feet west of the westerly roundabout as shown in Figures 1.3-1 and 1.3-2 of this environmental document for each of the build alternative layouts.

Response to Comment 12-2:

As noted in the comment, the existing US 101 structures constrain the geometry of the proposed entries and exits as does the topography of the adjacent steep ravine as shown by the contours in Figures 1.3-1 and 1.3-2 in this document. While the exact layout of the entries and exits would be fine-tuned during the final design phase of the project, the current layouts have been analyzed and meet operational standards as discussed in further detail in the project Traffic Report and the Roundabout Peer Review Memo, both available for public review.

Response to Comment 12-3:

The project has been designed to carry year 2038 peak hour traffic. Please refer to Tables 2.1-8b through Table 2.1-8f and explanation under Build Alternative 1 and Build Alternative 2 subheadings. The project is well within the capacity of a single lane and a second through-lane is not required farther west of the westerly roundabout based on the Level of Service B or C for Alternative 1 or 2, respectively, as discussed in Section 2.1.6 "Traffic and Transportation/Pedestrian and Bicycle Facilities" of this document. State Route 46 West has a single westbound through lane through the project area and to the west of the project area.

Response to Comment 12-4:

It is agreed that sight distance standards for roundabouts are unique in that they are shorter, to promote slower travel through the roundabouts. The analysis of the roundabout design conforms to Caltrans Design Information Bulletin 80-01 "Roundabouts. A thorough analysis of sight distances was accomplished per the design standards of Caltrans Design Information Bulletin 80-01. Formal landscaping plans would be completed during the final design phase, and sight distances would be required to be re-evaluated during final design to be sure the landscaping and geometry interact properly per applicable design standards, including Caltrans Design Information Bulletin 80-01.

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Response to Comment 12-5:

"Tear drop" roundabouts can create higher differentials in entry and circulating speed, as well as the circulating speed at different points in the circle. This differential can result in a decrease in safety. Therefore, a "tear drop" roundabout is not being considered as part of the proposed project, and there is no intent to do so in the future.

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Comment Set 13

NCE NORTH COAST ENGINEERING, INC.
Civil Engineering ▪ Land Surveying ▪ Project Development

July 11, 2008

Ms. Yvonne Hoffman
Mr. Michael H. Thomas
Caltrans District 5
Project Environmental Planner
50 Higuera Street
San Luis Obispo, CA 93401

Subject: Comments on the Initial Study for the Highway 46 West/Highway101 Interchange Improvement Project

Dear Ms. Hoffman and Mr. Thomas:

Thank you for the opportunity to comment on the Initial Study and Proposed Mitigated Negative Declaration/Environmental Assessment for the Highway 101/State Route 46 West Interchange Modification Project.

North Coast Engineering (NCE) represents the property owner, Quorum Realty Fund, for the following properties:

026-471-013	026-471-017
026-471-021	040-031-020
040-031-001	040-031-017
040-021-055	040-091-039
040-031-019	040-091-041

These properties represent the majority of the properties northwest of the proposed interchange improvements. Additionally, the proposed Build Alternative 2 would re-align Vine Street to pass through parcels 040-031-001 and 040-091-039, both owned by Quorum Realty Fund.

Quorum Realty Fund strongly supports the improvements proposed to the Highway 101/Highway 46 interchange and specifically supports Build Alternative 2. Quorum Realty Fund does not support Build Alternative 1.

The support for Build Alternative 2 is based on the following comments:

1. Build Alternative 2 is environmentally and functionally superior with the Vine Street connection at Theater Drive and Hwy. 46 because it is being designed as a parallel route to Highway 101, as opposed to connecting Vine St./Hwy. 46 in a 5 way roundabout as proposed in Build Alternative 1.

13-1

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725 Creston Road, Suite B Paso Robles CA 93446 (805) 239-3127 FAX (805) 239-0758

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2. The 5-way roundabout proposed in Build Alternative 1 will be more difficult for motorists, cyclists and pedestrians to navigate. Because of the increased traffic introduced with the Vine Street/roundabout connection, the level of service for the roundabout will deteriorate more rapidly than if Vine Street was routed to the west to connect to Theater Drive. 13-2

3. BuildAlternative 2 is consistent with the approved U.S. Highway 101/Route 46 West PA-ED (2006) with the fact that Vine Street will connect with the CalTrans/City- approved new connection of Theater Drive to Highway 46, which would otherwise be a 3-way intersection. 13-3

4. Alternate 2 provides superior access to the 009-631-011 property, particularly if the Vine Street alignment is moved in a southerly direction. Please see the attached exhibit which demonstrates that a more southerly alignment is achievable. (The roundabout is optional, but would be a great entry feature.) 13-4

5. Bicycle transportation. Alternate 2 is a vastly superior connection for bicycle travel: 13-5

   a. Vine Street has been recognized by the City, as well as the County, as a vital connection in the City-wide and County bikeway plans.

   b. Alternate 1 would require cyclists to go through the roundabout with Hwy. 46 traffic, as well as on-ramp and off-ramp motor vehicles in a 5-way roundabout configuration, or use the sidewalk, which would present conflicts with pedestrians. Either option is dangerous and inconsistent with Federal requirements that the project provide safe bike and pedestrian access.

   c. Alternate 2 would be a signalized intersection, one commonly understood by most cyclists.

   d. Alternate 2 would provide the opportunity for Class I or Class II Bikeways, Alternative 1 would not.

We encourage Caltrans to approve Build Alternate 2 as the preferred option.

Respectfully yours,

Larry Werner
CEO

RLW/jms
Enclosure
Cc: Alex Furlotti
JimApp, Paso Robles City Manager
John Falkenstien, Paso Robles City Engineer

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Response to Comment 13-1:

Thank you for your comment and statement of preference for an alternative. Alternative 2 has been identified as the preferred alternative (see Section 1.3.4, Identification of a Preferred Alternative, in this document). Table 1.3-1 "Comparison of Project Effects by Alternative" in this document provides relevant information on environmental and operational benefits and impacts for both the build and no-build scenarios. Furthermore, operational analysis and level of delay for either alternative are discussed in Section 2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities." This section shows a volume-to-capacity ratio of 0.85 or less and delays of between 3 and 23 seconds for the roundabout entry legs of Alternative 1; it shows a volume-to-capacity ratio of 0.74 or less and delays of between 4 and 12 seconds for the roundabout entry legs of Alternative 2.

Response to Comment 13-2:

Build Alternative 1 directs more traffic into the westerly roundabout than Build Alternative 2. However, it is speculative that motorists, cyclists, or pedestrians would have difficulty in maneuvering through the roundabout. For clarity, it should be noted that roundabout operation is measured in delay and volume-to-capacity ratios rather than in levels of service, which is appropriate for intersections with signals. Please refer to response to comment 13-1 for discussion on assessed delay and volume-to-capacity ratios for each alternative. Both alternatives accommodate non-vehicular travel modes. Please refer to response to comment 1-1.

Response to Comment 13-3:

Thank you for your comment. Please note that both alternatives are consistent with local and regional planning, as discussed in Section 4B "Regional and System Planning," and with the need and purpose of the project.

Response to Comment 13-4:

Alternative 2 does provide more frontage and access potential along the proposed South Vine Street for the identified parcel as compared to Alternative 1. However, this parcel already has access potential to South Vine Street, and neither alternative provides new access that doesn't already exist. The proposed design of South Vine Street in Alternative 2 has been aligned to minimize tree removal and other environmental impact due to grading, as well as costs of construction and right-of-way while meeting City and state design standards. Your attached exhibit shows an alternate, more southerly alignment of South Vine Street that requires more grading of the hillside slopes as shown on the

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exhibit, more paved roadway, greater right-of-way required on parcel 040-031-001, which is zoned for agricultural use, and a separate distribution for traffic connections via a proposed "entry roundabout." The addition of new traffic access/distribution improvements to parcels with public funds is not an appropriate use of public funds. It should be noted that minor variations of actual alignments and grading in final design are possible as long as they are consistent with the environmental analysis.

Response to Comment 13-5:

It is agreed that both the City and the County have recognized South Vine Street as a vital connection in bikeway planning.

It is also agreed that Alternative 2 does not require bicyclists using South Vine Street that are continuing southward or to the west at State Route 46 West to travel through the proposed US 101/State Route 46 West interchange roundabout(s). However, continuous bicycle and pedestrian facilities are provided through the interchange in both alternatives. Please see response to comment 1-1 for discussion on safe and continuous mobility for all travel modes.

Both alternatives include shared-use paths around the roundabouts and between the roundabouts. As discussed in Section 1.3.1.1 "Common Design Features of the Build Alternatives" in this document, these paths are connected to either bike lanes or sidewalks. The design is consistent with safety considerations and federal requirements and conforms to the requirements contained in Caltrans Design Information Bulletin 80-01 "Roundabouts" and the federal guidance publication "Roundabouts: An Informational Guide." A Class I bikeway is a path that is separated from motorized vehicles; a Class II bikeway is one that uses the paved shoulder of a roadway and sometimes the non-delineated paved area (such as through intersections). Cyclists would have the option of using the roundabout as a vehicle would—by the roadway travelway—or by separated use of the paths. A shared-use path is also included in each alternative between the proposed Theatre Drive intersection with State Route 46 West and the westerly roundabout at the interchange.

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Comment Set 14

Ourston Roundabout Engineering

July 12, 2008

Mr. Stephen Sahadi
Cenco, LLC
5940 Rocky Canyon Road
Atascadero, CA 93422

Dear Stephen:

Re: US 101/SR 46 West, Paso de Robles, San Luis Obispo County
Traffic Analysis of Roundabout Alternatives
Our Project Number 09044

Introduction

This correspondence provides our review and comments on the analysis of intersection alternatives as documented in the following two traffic reports:

1. Traffic Report - U.S. Highway 101/SR46W PA-ED, City of Paso Robles, Associated Transportation Engineers, Santa Barbara, November 2, 2006
2. Draft Project Report - U.S. Highway 101/SR46W PA-ED, City of Paso Robles, URS Corporation, May 8, 2008

In accordance with the terms of our assignment, we evaluated the analysis of the intersection alternatives in the URS and ATE traffic reports and documented a comparison total delay of the two alternative intersection combinations. In this regard, we identified two additional options not previously considered or rejected. We prepared analysis of the two roundabout options not identified previously but did not develop the layouts in any detail. One of the two additional alternatives accommodates all the legs (6) of the two west side intersections. A second additional alternative solution comprises two compact roundabouts on the west side of the interchange. The spacing narrowly splits the two intersections as they currently are but with greater efficiency potential using roundabouts. The results of these investigations are summarized in the following sections.

The detailed tabulation of our comparison of operational analyses for individual intersection delay and our supplemental RODEL analyses are appended as attachments numbered 2 to 5. Attachment # 1 presents several assumptions and identification of a few errors we discovered while examining the subject reports. In our analysis we corrected for those errors to present the most accurate comparison of alternatives. Although we have important comments on the conceptual roundabout designs that would impact the layouts fundamentally, we have not presented those in this initial commentary. Given time we will provide this analysis.

Comparison Methodology

14-1

The URS and ATE traffic reports evaluate the interchange area operations on the basis of each individual intersection's performance. In our opinion, the selection of one type of intersection or another should consider the overall interchange performance, not just each isolated intersection. Since drivers needing to use the interchange ramps will also pass through the adjacent frontage road intersections our method of comparing the alternative solutions uses combined intersection

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delay for the SR46 corridor west of Highway 101. For the alternatives being evaluated, the combined delay was calculated by multiplying the delay for each turning movement at each intersection times the volume of that turning movement, then the movement delay for each leg of that intersection is summed. The system delay is then the sum of the delay of each intersection. In this case, we only compared the west side ramp terminal (southbound) and the adjacent frontage road intersection because of the proposal to separate the two intersections more widely so that their individual operations do not overlap.

If only individual intersection performance is considered then the preferred intersection arrangement is going to favor reducing traffic in the off-ramp terminal intersection. But this will occur at the expense of drivers who will experience higher overall delay for the same two intersections combined. The total delay of the ramp terminal and the adjacent intersection for Alternative 2 would increase by 400 to 500 minutes cumulatively for the 2018 p.m. peak hour. Using incremental delay, Alternative 2 the southbound ramp terminal intersection volume is reduced from 2435 vehicles per hour to 2115 vehicles per hour at 2018. A corresponding decrease in ramp intersection delay is only 76 minutes for the peak hour at 2018. This insignificant difference is accomplished by moving Vine Street off the ramp terminal roundabout – a very costly undertaking with no overall benefit.

Our recommendation is to evaluate the alternative intersection solutions accounting for combined delay of both the ramp terminal and the adjacent frontage road intersection. Rarely, is it prudent to solve a ramp terminal congestion problem by causing more delay at an upstream intersection. Few agencies would make a policy of increasing system delay. Using roundabouts has certainly shown that this isn't necessary. Roundabouts can optimize the road network efficiency and the ramp terminals as well. This is being demonstrated with the proposed concept of combining intersections on the east side of the interchange.

Operational Comparison of Alternatives 1 and 2

Currently the SR46W traffic must use both the ramp terminal and the frontage road intersection. Alternative 1 allows Vine Street traffic to avoid additional delay by only needing to pass through one intersection en route to and from the interchange. However, Theatre Drive traffic does not have direct access to Vine Street with Alternative 1. Alternative 2 is the same as the existing condition except that intersection spacing is increased and the ramp terminal efficiency is improved with the use of a roundabout. A snapshot of each alternative is illustrated on the next page.

Cumulative delay is calculated by multiplying the incremental delay for each movement by the volume of that movement then summing the movements of each intersection to equal the total delay in the system. Combining the calculated traffic delay of both intersections in this analysis reveals Alternative 2 would be operationally inferior. The table on the following page compares the various analysis methods and adds our analysis method, 'ORE RODEL' a further verification of the expected cumulative delay associated with each alternative. The lower tabulated figures indicate reduced delay. Selection on this basis favors Alternative 1. As discussed, the technical analysis should consider total delay in determining the preferred intersection alternative, not just the isolated intersection delay.

14-2

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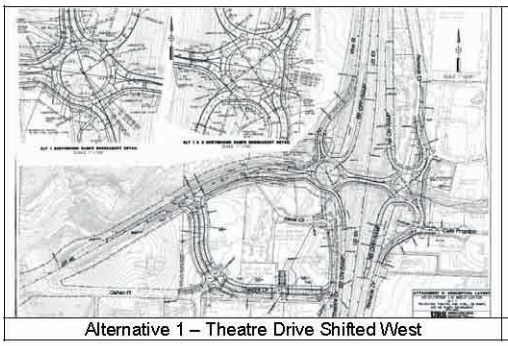
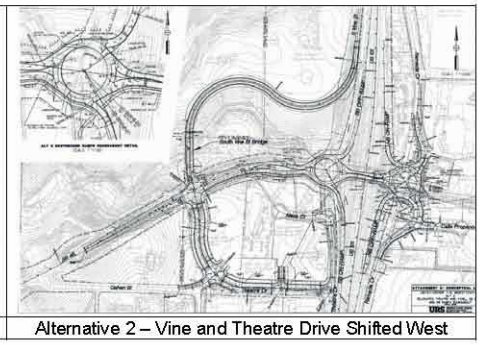


Alternative 1 – Theatre Drive Shifted West



Alternative 2 – Vine and Theatre Drive Shifted West

Intersection Alternatives	Time Period	Combined Intersection Delay - West Ramp Terminal & Adjacent Intersection (vehicle- minutes of delay)							
		Sidra		FHWA		RODEL		ORE RODEL	
		2018	2038	2018	2038	2018	2038	2018	2038
Alternative 1	AM	530	876	406	639	417	664	415	661
	PM	888	1925	700	1266	715	1363	714	1361
Alternative 2*	AM	NA	1141	NA	1014	NA	1036	NA	1044
	PM	1129	1757	1061	1666	1082	1813	1085	1870
*2018 AM Peak SYNCHRO Traffic Volumes were not available for Alternative 2.									

14-3

In these results the differences between the various methods of analysis are not significant except with the Sidra analysis. In the p.m. peak hour the Sidra analysis shows favor to Alternative 2, but it is not consistent with the other three sets of figures. This is not surprising because we have seen research of in-service roundabouts where the Sidra analysis does not correlate well with the observed data at high entry volumes and at high circulating volumes. RODEL has been shown to be more reliable in that regard. In addition, RODEL can account for geometric variation whereas Sidra can only account for the number of lanes. Use of roundabouts has shown that geometry/capacity variation exists and that there are significant capacity benefits from manipulating several other geometric parameters, e.g. flare length and entry radius.

Operational Analysis of Alternatives 3 and 4

The use of roundabouts in the U.S. has grown to the extent that a variety of seemingly complex yet optimal intersection configurations have been shown to work here as well as in their country of origin, the British Isles. The photos shown on the next page are built examples of the kind of interchange configurations that are more efficient, safer and cost effective than traffic signals.

14-4

The pair of roundabouts in the example for Alternative 3 is projected to carry a combined traffic flow of 6,000 vehicles per hour, a significantly higher flow than the west side ramp terminal of the subject interchange. The six leg roundabout, Alternative 4, combines the frontage road and the ramp terminal into one roundabout as is proposed on the east side of the interchange. The Vail, Colorado example was designed by our firm and built in 1995. It won Public Works Project of the

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Year several years running. Prior to this solution, ramp traffic backed up I-70 for up to a mile. There is rarely excessive congestion there anymore and queues occasionally reach back to the gore of the ramp but not into the main-line. It carries up to 4,000 vehicles per hour, more than the 2018 projected traffic flow of 2,400 vehicles per hour proposed for the southbound ramp of the Highway 101/SR46W

Granted the use of either Alternative 3 or 4 at this site has not been thoroughly vetted for property impacts, our cursory review of traffic, space and circle location does not reveal any impediments to giving these alternatives further consideration. Alternative 2 has the highest property acquisition and construction costs. Alternative 1 has less construction and land acquisition cost than Alternative 2 and better yet, our Alternatives 3 and 4 have even lower land and construction costs.

Example of Alternative 3 – A pair of Roundabouts, Lee Road/M23 Michigan

Example of Alternative 4 – A Six Leg Roundabout West Vail/I-70 Interchange, North Roundabout

Comparison of Four Intersection Alternatives

A comparison of the operational analyses of all four alternatives, as shown below, reveals that the two new alternatives have superior efficiency potential. Again, the lower tabulated figures indicate reduced delay. Selection on this basis favors Alternative 4.

Intersection Alternatives	Time Period	Combined Intersection Delay - West Ramp Terminal & Adjacent Intersection (min.)							
		Sidra		FHWA		RODEL		ORE RODEL	
		2018	2038	2018	2038	2018	2038	2018	2038
Alternative 1	AM	530	876	406	639	417	664	415	661
	PM	888	1925	700	1266	715	1363	714	1361
Alternative 2*	AM	NA	1141	NA	1014	NA	1036	NA	1044
	PM	1129	1757	1061	1666	1082	1813	1085	1870
Alternative 3	AM	NA						133	240
	PM	NA						225	437
Alternative 4	AM	NA						92	164
	PM	NA						157	296

*2018 AM Peak SYNCHRO Traffic Volumes were not available for Alternative 2.

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With Alternative 3 the delay of a roundabout is less than a traffic signal. For Alternative 4 the delay is reduced by consolidating intersections.

The delay figures tabulated above for Alternatives 3 and 4 reflect refined geometric solutions that are optimized for delay reduction. Attachment #1 documents the geometric design assumptions that include longer flare lengths and adjusted circle sizes. Similar refinements to Alternatives 1 and 2 are possible but the superiority of Alternative 1 is unlikely to change.

Conclusion

14-5

Given our analysis of the two alternatives, we recommend that Alternative 1 receive preference because of its operational benefits and expected lower cost. If Alternative 1 is selected and a roundabout is placed at the proposed Theatre Drive intersection, it becomes a variation of Alternative 3. Alternative 4, further demonstrates the operational benefits of using one roundabout to consolidate operations of the two west side intersections. We recommend that the evaluation of alternative intersections consider the effects of combined intersection delay and include options, such as Alternative 3 and 4, not previously identified in the draft traffic report.

Yours truly,

OURSTON ROUNDABOUT ENGINEERING INC.

Mark Lenters, P.E.
President

Attch.

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Attachment #1

Roundabout Analysis Assumptions for Alternative Intersection

Alternative	Parameter	Rodel	ORE Rodel	
Alternative 1	ICD	67 m	70 m	
	E	9.0 m, 4.5 m, 5.0 m	7.95 m, 4.3 m	
	ℓ'	10 m	10 m	
	V	3.6 m, 4.0 m, 7.2 m	4.0 m, 7.4 m	
	Flow Ratio	0.91 / 1.10 / 0.91	0.75 / 1.125 / 0.75 (0.89 PHF)	
Alternative 2	ICD	67 m	55 m	
	E	9.0 m, 5.0 m	7.95 m, 4.3 m	
	ℓ'	10 m	10 m	
	V	3.7 m, 4.0 m, 7.4 m	4.0 m, 7.4 m	
	Flow Ratio	0.91 / 1.10 / 0.91	0.75 / 1.125 / 0.75 (0.89 PHF)	
Alternative 3	Intersection		**East Roundabout**	**West Roundabout**
	ICD		50 m	50 m
	E		7.95 m	7.95 m
	ℓ'		10 m (Vine & Theatre 1 lane to 2, SR 46 EB & WB 2 lanes)	50 m (Off ramp 1 lane to 2) 10 m (SR 46 EB 2 lanes) 20 m (SR 46 WB 1 lane to 2)
	V		4.0 m, 7.4 m	4.0 m, 7.4 m
	PHF		0.75 / 1.125 / 0.75	0.75 / 1.125 / 0.75 (0.89 PHF)
Alternative 4	ICD		70 m	
	E		4.3 m, 7.95 m	
	ℓ'		50 m (Off ramp 1 lane to 2) 30 m (Vine 1 lane) 10 m (SR 46 EB & Theatre 2 lanes) 20 m (SR 46 WB 1 lane to 2)	
	V		4.0 m, 7.4 m	
	PHF		0.75 / 1.125 / 0.75 (0.89 PHF)	

Configurations

Errors in the Traffic Report

Alternative 1

- 2018 AM Peak Period: SR 46 eastbound and SR 46 westbound Rodel delays were transposed in Traffic Report Table 4
- 2018 PM Peak Period: SR 46 eastbound and SR 46 westbound Rodel delays were transposed in Traffic Report Table 5
- 2038 AM Peak Period: SR 46 eastbound and SR 46 westbound Rodel delays were transposed in Traffic Report Table 8
- 2038 PM Peak Period: SR 46 eastbound and SR 46 westbound Rodel delays were transposed in Traffic Report Table 9

Alternative 2

- 2018 AM Peak Period Signalized Intersection: Volumes reported in the SYNCHRO analysis corresponded to 2038 AM Peak Period volumes. Did not have SYNCHRO analysis for 2018 AM Peak Period for signalized intersection.
- 2018 PM Peak Period Roundabout Intersection: SR 46 eastbound right turn traffic volume entered as 705 vehicles instead of 70 vehicles
- 2038 PM Peak Period Roundabout Intersection: SR 46 eastbound Rodel delay incorrectly reported as 4.2 seconds in Traffic Report Table 15. Based on Rodel output, correct delay is 3.6 seconds.

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Attachment #2

Alternative 1 - U.S. 101 SB / SR 46W / Vine Street

- 2018 - A.M./P.M. Peak Period Volume and Delay
- ORE RODEL
- 2038 - A.M./P.M. Peak Period Volume and Delay
- ORE RODEL

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Alternative 1 - U.S. 101 SB / SR 46W / Vine Street
2018 - A.M. Peak Period Volume and Delay

Signalized Intersection

Leg	Turn	Turn Volume	Turn Delay (sec per veh)	Leg Volume	Avg. Leg Delay (sec per veh)	Total Leg Delay (s)
SR 46 EB	R	55	8.4	555	15.0	8312.0
	T	500	15.7			
Theatre Dr NB	R	210	16.3	245	16.3	3990.0
	L	35	16.2			
SR 46 WB	T	320	3.3	630	10.4	6574.0
	L	310	17.8			

Roundabout Intersection

				Avg. Leg Delay (sec per veh)			
Leg	Turn	Turn Volume	Leg Volume	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	R1	10	480	7.5	2.7	3.6	3.8
	R2	295					
	L	175					
Vine St SB	R	105	150	12.3	5.5	5.4	5.0
	T	0					
	L	45					
SR 46 EB	R	50	710	6.5	2.9	2.4	2.6
	T	560					
	L	100					
SR 46 WB	R	35	525	5.4	2.5	3.6	3.1
	T	240					
	L	250					

*Based on Rodel output, SR 46 EB and SR 46 WB Rodel delays were transposed in Traffic Report Table 4.

Alternative 1 - U.S. 101 SB / SR 46W / Vine Street
2018 - A.M. Peak Period Delay (minutes)

		Model			
Leg	Intersection*	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	Signal	NA			
	Roundabout	60.0	21.6	28.8	30.4
	Total	**60.0**	**21.6**	**28.8**	**30.4**
Vine St SB	Signal	NA			
	Roundabout	30.8	13.8	13.5	12.5
	Total	**30.8**	**13.8**	**13.5**	**12.5**
SR 46 EB	Signal	138.5	138.5	138.5	138.5
	Roundabout	76.9	34.3	28.4	30.8
	Total	**215.5**	**172.9**	**166.9**	**169.3**
SR 46 WB	Signal	109.6	109.6	109.6	109.6
	Roundabout	47.3	21.9	31.5	27.1
	Total	**156.8**	**131.4**	**141.1**	**136.7**
Theatre Dr NB	Signal	66.5	66.5	66.5	66.5
	Roundabout	NA			
	Total	**66.5**	**66.5**	**66.5**	**66.5**
Total System Delay (minutes)		**529.5**	**406.1**	**416.8**	**415.4**

*Signalized intersection modeled with SYNCHRO.

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Alternative 1 - U.S. 101 SB / SR 46W / Vine Street
2018 - P.M. Peak Period Volume and Delay

Signalized Intersection

Leg	Turn	Turn Volume	Turn Delay (sec per veh)	Leg Volume	Avg. Leg Delay (sec per veh)	Total Leg Delay (s)
SR 46 EB	R	55	10.1	555	19.5	10805.5
	T	500	20.5			
Theatre Dr NB	R	465	18.8	540	18.6	10032.0
	L	75	17.2			
SR 46 WB	T	560	5	990	12.0	11916.0
	L	430	21.2			

Roundabout Intersection

				Avg. Leg Delay (sec per veh)			
Leg	Turn	Turn Volume	Leg Volume	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	R1	15	560	8.5	3.4	4.8	5.1
	R2	435					
	L	110					
Vine St SB	R	170	240	16.5	7.5	7.2	7.0
	T	0					
	L	70					
SR 46 EB	R	70	965	8.4	3.7	3.0	3.2
	T	695					
	L	200					
SR 46 WB	R	55	670	5.5	2.9	4.2	3.7
	T	335					
	L	280					

*Based on Rodel output, SR 46 EB and SR 46 WB Rodel delays were transposed in Traffic Report Table 5.

Alternative 1 - U.S. 101 SB / SR 46W / Vine Street
2018 - P.M. Peak Period Delay (minutes)

		Model			
Leg	Intersection*	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	Signal	NA			
	Roundabout	79.3	31.7	44.8	47.6
	Total	**79.3**	**31.7**	**44.8**	**47.6**
Vine St SB	Signal	NA			
	Roundabout	66.0	30.0	28.8	28.0
	Total	**66.0**	**30.0**	**28.8**	**28.0**
SR 46 EB	Signal	180.1	180.1	180.1	180.1
	Roundabout	135.1	59.5	48.3	51.5
	Total	**315.2**	**239.6**	**228.3**	**231.6**
SR 46 WB	Signal	198.6	198.6	198.6	198.6
	Roundabout	61.4	32.4	46.9	41.3
	Total	**260.0**	**231.0**	**245.5**	**239.9**
Theatre Dr NB	Signal	167.2	167.2	167.2	167.2
	Roundabout	NA			
	Total	**167.2**	**167.2**	**167.2**	**167.2**
Total System Delay (minutes)		**887.7**	**699.5**	**714.6**	**714.3**

*Signalized intersection modeled with SYNCHRO.

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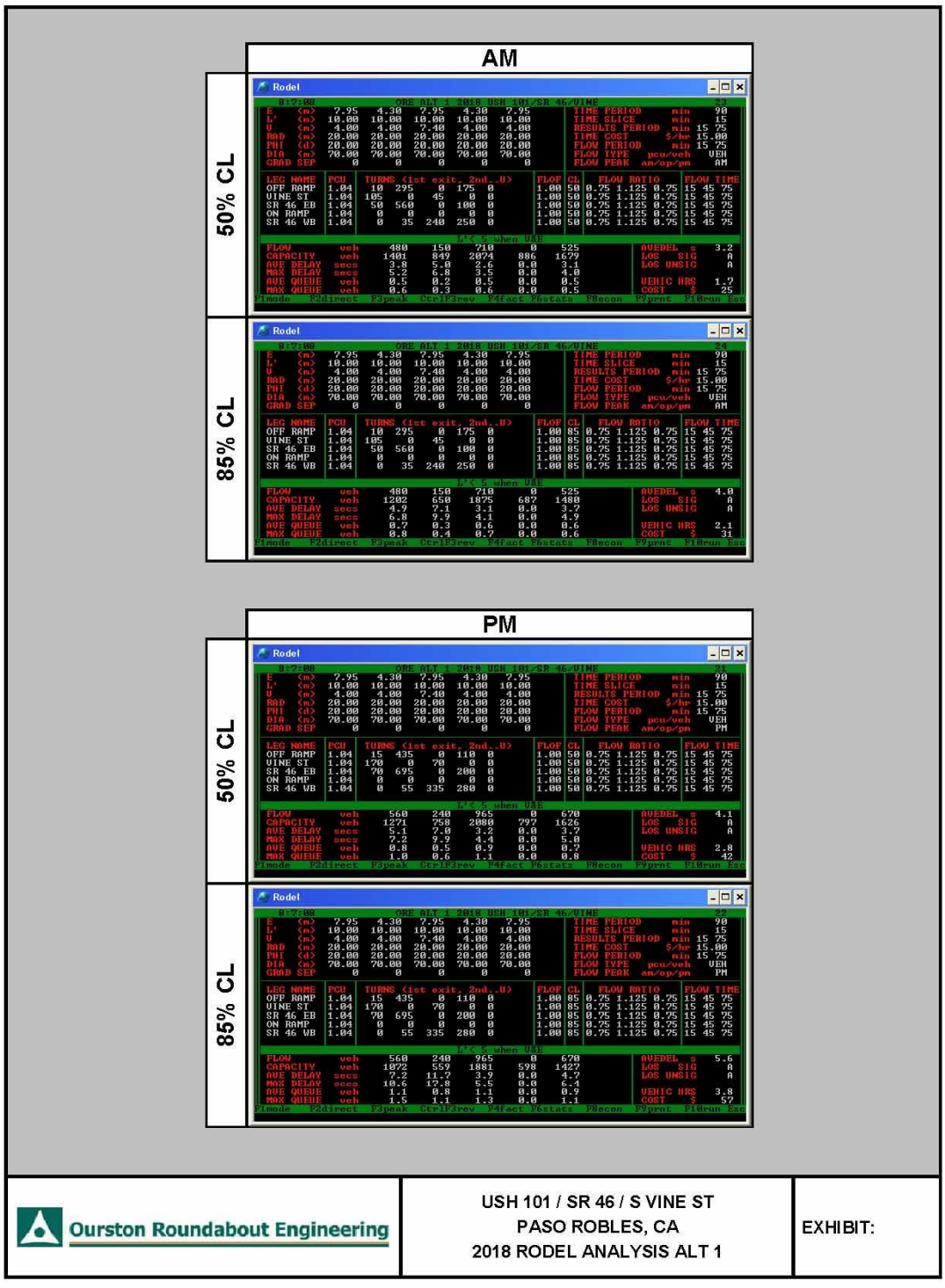

Ourston Roundabout Engineering	USH 101 / SR 46 / S VINE ST PASO ROBLES, CA 2018 RODEL ANALYSIS ALT 1	EXHIBIT:

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Alternative 1 - U.S. 101 SB / SR 46W / Vine Street
2038 - A.M. Peak Period Volume and Delay

Signalized Intersection

Leg	Turn	Turn Volume	Turn Delay (sec per veh)	Leg Volume	Avg. Leg Delay (sec per veh)	Total Leg Delay (s)
SR 46 EB	R	105	8.3	710	17.3	12306.0
	T	605	18.9			
Theatre Dr NB	R	260	18.1	325	18.2	5902.0
	L	65	18.4			
SR 46 WB	T	510	4	855	11.5	9837.0
	L	345	22.6			

Roundabout Intersection

				Avg. Leg Delay (sec per veh)			
Leg	Turn	Turn Volume	Leg Volume	Sidra	FHWA	Rodel	ORE RODEL
U.S. 101 SB Off	R1	20	515	9.9	3.7	5.4	5.4
	R2	350					
	L	145					
Vine St SB	R	90	160	16.8	7.4	7.8	7.2
	T	0					
	L	70					
SR 46 EB	R	80	910	12.4	4.2	3.0	3.5
	T	730					
	L	100					
SR 46 WB	R	60	935	5.8	3.6	5.4	4.8
	T	410					
	L	465					

*Based on Rodel output, SR 46 EB and SR 46 WB Rodel delays were transposed in Traffic Report Table 8.

Alternative 1 - U.S. 101 SB / SR 46W / Vine Street
2038 - A.M. Peak Period Delay (minutes)

		Model			
Leg	Intersection*	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	Signal	NA			
	Roundabout	85.0	31.8	46.4	46.4
	Total	**85.0**	**31.8**	**46.4**	**46.4**
Vine St SB	Signal	NA			
	Roundabout	44.8	19.7	20.8	19.2
	Total	**44.8**	**19.7**	**20.8**	**19.2**
SR 46 EB	Signal	205.1	205.1	205.1	205.1
	Roundabout	188.1	63.7	45.5	53.1
	Total	**393.2**	**268.8**	**250.6**	**258.2**
SR 46 WB	Signal	164.0	164.0	164.0	164.0
	Roundabout	90.4	56.1	84.2	74.8
	Total	**254.3**	**220.1**	**248.1**	**238.8**
Theatre Dr NB	Signal	98.4	98.4	98.4	98.4
	Roundabout	NA			
	Total	**98.4**	**98.4**	**98.4**	**98.4**
Total System Delay (minutes)		**875.6**	**638.7**	**664.2**	**660.9**

*Signalized intersection modeled with SYNCHRO.

Paso Gateway DEIR Appendix
2/28/20
City of Paso Robles
Community Development Dept.

Alternative 1 - U.S. 101 SB / SR 46W / Vine Street
2038 - P.M. Peak Period Volume and Delay

Signalized Intersection

Leg	Turn	Turn Volume	Turn Delay (sec per veh)	Leg Volume	Avg. Leg Delay (sec per veh)	Total Leg Delay (s)
SR 46 EB	R	95	11.3	700	26.4	18497.5
	T	605	28.8			
Theatre Dr NB	R	490	25.7	610	25.0	15245.0
	L	120	22.1			
SR 46 WB	T	750	6.9	1280	16.3	20810.0
	L	530	29.5			

Roundabout Intersection

				Avg. Leg Delay (sec per veh)			
Leg	Turn	Turn Volume	Leg Volume	Sidra	FHWA	Rodel	ORE RODEL
U.S. 101 SB Off	R1	20	710	17.6	6.5	10.8	11.9
	R2	570					
	L	120					
Vine St SB	R	155	280	61.1	17.2	19.2	20.2
	T	0					
	L	125					
SR 46 EB	R	105	1105	22.6	5.9	4.2	4.5
	T	860					
	L	140					
SR 46 WB	R	100	1135	5.6	4.8	8.4	7.1
	T	555					
	L	480					

*Based on Rodel output, SR 46 EB and SR 46 WB Rodel delays were transposed in Traffic Report Table 9.

Alternative 1 - U.S. 101 SB / SR 46W / Vine Street
2038 - P.M. Peak Period Delay (minutes)

		Model			
Leg	Intersection*	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	Signal	NA			
	Roundabout	208.3	76.9	127.8	140.8
	Total	**208.3**	**76.9**	**127.8**	**140.8**
Vine St SB	Signal	NA			
	Roundabout	285.1	80.3	89.6	94.3
	Total	**285.1**	**80.3**	**89.6**	**94.3**
SR 46 EB	Signal	308.3	308.3	308.3	308.3
	Roundabout	416.2	108.7	77.4	82.9
	Total	**724.5**	**417.0**	**385.6**	**391.2**
SR 46 WB	Signal	346.8	346.8	346.8	346.8
	Roundabout	105.9	90.8	158.9	134.3
	Total	**452.8**	**437.6**	**505.7**	**481.1**
Theatre Dr NB	Signal	254.1	254.1	254.1	254.1
	Roundabout	NA			
	Total	**254.1**	**254.1**	**254.1**	**254.1**
Total System Delay (minutes)		**1924.8**	**1265.9**	**1362.9**	**1361.5**

*Signalized intersection modeled with SYNCHRO.

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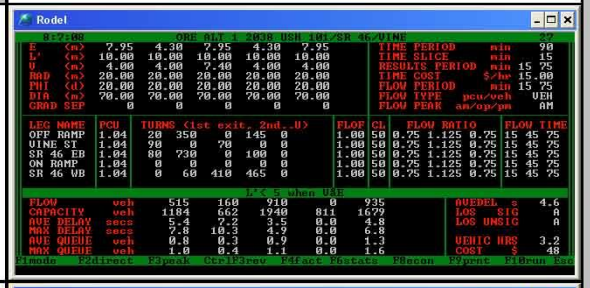
AM

50% CL



85% CL

PM

50% CL

85% CL

Ourston Roundabout Engineering	USH 101 / SR 46 / S VINE ST PASO ROBLES, CA 2038 RODEL ANALYSIS ALT 1	EXHIBIT:

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Attachment #3

Alternative 2 - U.S. 101 SB / SR 46W / Vine Street

- 2018 - A.M./P.M. Peak Period Volume and Delay
- ORE RODEL
- 2038 - A.M./P.M. Peak Period Volume and Delay
- ORE RODEL

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Alternative 2 - U.S. 101 SB / SR 46W
2018 - P.M. Peak Period Volume and Delay (seconds per vehicle)

Signalized Intersection

Leg	Turn	Turn Volume	Turn Delay (sec per veh)	Leg Volume	Avg. Leg Delay (sec per veh)	Total Leg Delay (s)
Vine St SB	R	65	23.6	240	28.6	6854.0
	T	105	25.6			
	L	70	37.6			
SR 46 EB	R	55	15.2	555	34.4	19091.0
	T	450	26.6			
	L	50	125.7			
Theatre Dr NB	R	315	16.1	540	19.7	10659.0
	T	150	23.1			
	L	75	28.3			
SR 46 WB	R	70	11.0	890	23.4	20837.0
	T	495	17.1			
	L	325	35.7			

Roundabout Intersection

				Avg. Leg Delay (sec per veh)			
Leg	Turn	Turn Volume	Leg Volume	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	R	500	610	5.8	3.1	4.7	5.1
	L	110					
SR 46 EB	R	70	835	4.7	3.1	2.6	2.8
	T	765					
SR 46 WB	T	390	670	4.2	2.6	3.6	3.3
	L	280					

*Based on revised Rodel by ORE accounting for corrected SR 46 EB right turn volume.

Alternative 2 - U.S. 101 SB / SR 46W
2018 - P.M. Peak Period Delay (minutes)

		Model			
Leg	Intersection*	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	Signal	NA			
	Roundabout	59.0	31.5	47.8	51.9
	Total	**59.0**	**31.5**	**47.8**	**51.9**
Vine St SB	Signal	114.2	114.2	114.2	114.2
	Roundabout	NA			
	Total	**114.2**	**114.2**	**114.2**	**114.2**
SR 46 EB	Signal	318.2	318.2	318.2	318.2
	Roundabout	65.4	43.1	36.2	39.0
	Total	**383.6**	**361.3**	**354.4**	**357.2**
SR 46 WB	Signal	347.3	347.3	347.3	347.3
	Roundabout	46.9	29.0	40.2	36.9
	Total	**394.2**	**376.3**	**387.5**	**384.1**
Theatre Dr NB	Signal	177.7	177.7	177.7	177.7
	Roundabout	NA			
	Total	**177.7**	**177.7**	**177.7**	**177.7**
Total System Delay (minutes)		**1128.6**	**1061.0**	**1081.5**	**1085.0**

*Signalized intersection modeled with SYNCHRO.

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PM

50% CL

Ourston Roundabout Engineering	USH 101 / SR 46 / S VINE ST PASO ROBLES, CA 2018 CORRECTED RODEL ANALYSIS ALT 2	EXHIBIT:

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Alternative 2 - U.S. 101 SB / SR 46W
2038 - A.M. Peak Period Volume and Delay (seconds per vehicle)

Signalized Intersection

Leg	Turn	Turn Volume	Turn Delay (sec per veh)	Leg Volume	Avg. Leg Delay (sec per veh)	Total Leg Delay (s)
Vine St SB	R	30	29.4	160	32.6	5219.0
	T	60	31.1			
	L	70	35.3			
SR 46 EB	R	105	12.2	755	28.3	21338.5
	T	605	23.9			
	L	45	124.4			
Theatre Dr NB	R	205	21.9	325	25.2	8183.0
	T	55	29.1			
	L	65	32.2			
SR 46 WB	R	80	8.6	845	21.1	17810.5
	T	480	12.1			
	L	285	39.7			

Roundabout Intersection

				Avg. Leg Delay (sec per veh)			
Leg	Turn	Turn Volume	Leg Volume	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	R	370	515	7.3	3.4	4.8	5.6
	L	145					
SR 46 EB	R	80	880	8.6	3.8	3.0	3.4
	T	800					
SR 46 WB	T	470	935	4.9	3.4	4.8	4.5
	L	465					

Alternative 2 - U.S. 101 SB / SR 46W
2038 - A.M. Peak Period Delay (minutes)

		Model			
Leg	Intersection*	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	Signal	NA			
	Roundabout	62.7	29.2	41.2	48.1
	Total	**62.7**	**29.2**	**41.2**	**48.1**
Vine St SB	Signal	87.0	87.0	87.0	87.0
	Roundabout	NA			
	Total	**87.0**	**87.0**	**87.0**	**87.0**
SR 46 EB	Signal	355.6	355.6	355.6	355.6
	Roundabout	126.1	55.7	44.0	49.9
	Total	**481.8**	**411.4**	**399.6**	**405.5**
SR 46 WB	Signal	296.8	296.8	296.8	296.8
	Roundabout	76.4	53.0	74.8	70.1
	Total	**373.2**	**349.8**	**371.6**	**367.0**
Theatre Dr NB	Signal	136.4	136.4	136.4	136.4
	Roundabout	NA			
	Total	**136.4**	**136.4**	**136.4**	**136.4**
Total System Delay (minutes)		**1141.0**	**1013.8**	**1035.9**	**1043.9**

*Signalized intersection modeled with SYNCHRO.

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Alternative 2 - U.S. 101 SB / SR 46W
2038 - P.M. Peak Period Volume and Delay (seconds per vehicle)

Signalized Intersection

Leg	Turn	Turn Volume	Turn Delay (sec per veh)	Leg Volume	Avg. Leg Delay (sec per veh)	Total Leg Delay (s)
Vine St SB	R	50	30.4	280	37.9	10600.0
	T	105	33.5			
	L	125	44.5			
SR 46 EB	R	95	15.8	700	35.8	25036.5
	T	565	33.5			
	L	40	115.2			
Theatre Dr NB	R	390	24.5	610	27.7	16887.0
	T	100	31.2			
	L	120	35.1			
SR 46 WB	R	120	10.4	1245	31.2	38888.0
	T	700	22.2			
	L	425	52.0			

Roundabout Intersection

				Avg. Leg Delay (sec per veh)			
Leg	Turn	Turn Volume	Leg Volume	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	R	590	710	5.8	3.1	8.4	12.9
	L	120					
SR 46 EB	R	105	1090	4.7	3.1	3.6	4.3
	T	985					
SR 46 WB	T	655	1135	4.2	2.6	6.6	6.1
	L	480					

*Based on Rodel output, SR 46 EB Rodel delay was reported incorrectly in Traffic Report Table 15.

Alternative 2 - U.S. 101 SB / SR 46W
2038 - P.M. Peak Period Delay (minutes)

		Model			
Leg	Intersection*	Sidra	FHWA	Rodel	ORE Rodel
U.S. 101 SB Off	Signal	NA			
	Roundabout	68.6	36.7	99.4	152.7
	Total	**68.6**	**36.7**	**99.4**	**152.7**
Vine St SB	Signal	176.7	176.7	176.7	176.7
	Roundabout	NA			
	Total	**176.7**	**176.7**	**176.7**	**176.7**
SR 46 EB	Signal	417.3	417.3	417.3	417.3
	Roundabout	85.4	56.3	65.4	78.1
	Total	**502.7**	**473.6**	**482.7**	**495.4**
SR 46 WB	Signal	648.1	648.1	648.1	648.1
	Roundabout	79.5	49.2	124.9	115.4
	Total	**727.6**	**697.3**	**773.0**	**763.5**
Theatre Dr NB	Signal	281.5	281.5	281.5	281.5
	Roundabout	NA			
	Total	**281.5**	**281.5**	**281.5**	**281.5**
Total System Delay (minutes)		**1757.0**	**1665.7**	**1813.2**	**1869.7**

*Signalized intersection modeled with SYNCHRO.

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Ourston Roundabout Engineering	USH 101 / SR 46 / S VINE ST PASO ROBLES, CA 2038 RODEL ANALYSIS ALT 2	EXHIBIT:

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Attachment #4

Alternative 3 - Two Roundabout Option

- 2018 - A.M./P.M. Peak Period Volume and Delay
- ORE RODEL
- 2038 - A.M./P.M. Peak Period Volume and Delay
- ORE RODEL

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Alternative 3 - Two Roundabout Option
2018 - A.M. Peak Period Volume and Delay

West Roundabout Intersection (Vine St / SR 46 / Theatre Dr)				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
Vine St SB	R	35	150	2.8
	T	70		
	L	45		
SR 46 EB	R	55	555	2.3
	T	455		
	L	45		
Theatre Dr NB	R	155	245	3.1
	T	55		
	L	35		
SR 46 WB	R	45	570	2.1
	T	285		
	L	240		

East Roundabout Intersection (U.S. 101 / SR 46)				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
U.S. 101 SB Off	R	305	480	2.7
	L	175		
SR 46 EB	R	50	655	2.6
	T	605		
SR 46 WB	T	275	525	2.5
	L	250		

Alternative 3 - Two Roundabout Option
2018 - A.M. Peak Period Delay (minutes)

Leg	Intersection	Model ORE Rodel
U.S. 101 SB Off	West Rndbt	NA
	East Rndbt	21.6
	Total	**21.6**
Vine St SB	West Rndbt	7.0
	East Rndbt	NA
	Total	**7.0**
SR 46 EB	West Rndbt	21.3
	East Rndbt	28.4
	Total	**49.7**
SR 46 WB	West Rndbt	20.0
	East Rndbt	21.9
	Total	**41.8**
Theatre Dr NB	West Rndbt	12.7
	East Rndbt	NA
	Total	**12.7**
Total System Delay (minutes)		**132.7**

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Alternative 3 - Two Roundabout Option
2018 - P.M. Peak Period Volume and Delay

West Roundabout Intersection (Vine St / SR 46 / Theatre Dr)				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
Vine St SB	R	65	240	3.9
	T	105		
	L	70		
SR 46 EB	R	55	555	2.5
	T	450		
	L	50		
Theatre Dr NB	R	315	540	4.3
	T	150		
	L	75		
SR 46 WB	R	70	890	2.8
	T	495		
	L	325		

East Roundabout Intersection (U.S. 101 / SR 46)				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
U.S. 101 SB Off	R	500	610	3.4
	L	110		
SR 46 EB	R	70	835	2.9
	T	765		
SR 46 WB	T	390	670	2.8
	L	280		

Alternative 3 - Two Roundabout Option
2018 - P.M. Peak Period Delay (minutes)

Leg	Intersection	Model ORE Rodel
U.S. 101 SB Off	West Rndbt	NA
	East Rndbt	34.6
	Total	**34.6**
Vine St SB	West Rndbt	15.6
	East Rndbt	NA
	Total	**15.6**
SR 46 EB	West Rndbt	23.1
	East Rndbt	40.4
	Total	**63.5**
SR 46 WB	West Rndbt	41.5
	East Rndbt	31.3
	Total	**72.8**
Theatre Dr NB	West Rndbt	38.7
	East Rndbt	NA
	Total	**38.7**
Total System Delay (minutes)		**225.2**

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AM - VINE/SR46/THEATRE (WEST RNDBT)

50% CL

85% CL

AM - USH 101/SR46 (EAST RNDBT)

50% CL

85% CL

Ourston Roundabout Engineering	USH 101 / SR 46 / S VINE ST / THEATRE DR PASO ROBLES, CA 2018 AM RODEL ANALYSIS ALT 3	EXHIBIT:

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PM - VINE/SR46/THEATRE (WEST RNDBT)

50% CL

85% CL

PM - USH 101/SR46 (EAST RNDBT)

50% CL

85% CL

Ourston Roundabout Engineering	USH 101 / SR 46 / S VINE ST / THEATRE DR PASO ROBLES, CA 2018 PM RODEL ANALYSIS ALT 3	EXHIBIT:

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Alternative 3 - Two Roundabout Option
2038 - A.M. Peak Period Volume and Delay

West Roundabout Intersection (Vine St / SR 46 / Theatre Dr)				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
Vine St SB	R	30	160	3.4
	T	60		
	L	70		
SR 46 EB	R	105	755	2.7
	T	605		
	L	45		
Theatre Dr NB	R	205	325	3.7
	T	55		
	L	65		
SR 46 WB	R	80	845	2.5
	T	480		
	L	285		

East Roundabout Intersection (U.S. 101 / SR 46)				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
U.S. 101 SB Off	R	370	515	3.8
	L	145		
SR 46 EB	R	80	880	3.6
	T	800		
SR 46 WB	T	470	935	3.6
	L	465		

Alternative 3 - Two Roundabout Option
2038 - A.M. Peak Period Delay (minutes)

Leg	Intersection	Model ORE Rodel
U.S. 101 SB Off	West Rndbt	NA
	East Rndbt	32.6
	Total	**32.6**
Vine St SB	West Rndbt	9.1
	East Rndbt	NA
	Total	**9.1**
SR 46 EB	West Rndbt	34.0
	East Rndbt	52.8
	Total	**86.8**
SR 46 WB	West Rndbt	35.2
	East Rndbt	56.1
	Total	**91.3**
Theatre Dr NB	West Rndbt	20.0
	East Rndbt	NA
	Total	**20.0**
Total System Delay (minutes)		**239.8**

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Alternative 3 - Two Roundabout Option
2038 - P.M. Peak Period Volume and Delay

West Roundabout Intersection (Vine St / SR 46 / Theatre Dr)				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
Vine St SB	R	50	280	5.5
	T	105		
	L	125		
SR 46 EB	R	95	705	3.1
	T	565		
	L	45		
Theatre Dr NB	R	390	610	5.5
	T	100		
	L	120		
SR 46 WB	R	120	1245	3.9
	T	700		
	L	425		

East Roundabout Intersection (U.S. 101 / SR 46)				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
U.S. 101 SB Off	R	590	710	6.0
	L	120		
SR 46 EB	R	105	1090	4.5
	T	985		
SR 46 WB	T	655	1140	4.5
	L	485		

Alternative 3 - Two Roundabout Option
2038 - P.M. Peak Period Delay (minutes)

Leg	Intersection	Model ORE Rodel
U.S. 101 SB Off	West Rndbt	NA
	East Rndbt	71.0
	Total	**71.0**
Vine St SB	West Rndbt	25.7
	East Rndbt	NA
	Total	**25.7**
SR 46 EB	West Rndbt	36.4
	East Rndbt	81.8
	Total	**118.2**
SR 46 WB	West Rndbt	80.9
	East Rndbt	85.5
	Total	**166.4**
Theatre Dr NB	West Rndbt	55.9
	East Rndbt	NA
	Total	**55.9**
Total System Delay (minutes)		**437.2**

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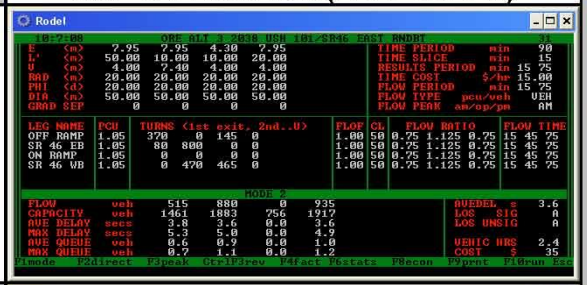
AM - VINE/SR46/THEATRE (WEST RNDBT)

50% CL

85% CL

AM - USH 101/SR46 (EAST RNDBT)

50% CL



85% CL

Ourston Roundabout Engineering	USH 101 / SR 46 / S VINE ST / THEATRE DR PASO ROBLES, CA 2038 AM RODEL ANALYSIS ALT 3	EXHIBIT:

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PM - VINE/SR46/THEATRE (WEST RNDBT)

50% CL

85% CL

PM - USH 101/SR46 (EAST RNDBT)

50% CL

85% CL

Ourston Roundabout Engineering

USH 101 / SR 46 / S VINE ST / THEATRE DR
PASO ROBLES, CA
2038 PM RODEL ANALYSIS ALT 3

EXHIBIT:

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Attachment #5

Alternative 4 - Six Leg Roundabout Option

- 2018 - P.M. Peak Period Volume and Delay
- ORE RODEL
- 2038 - P.M. Peak Period Volume and Delay
- ORE RODEL

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Alternative 4 - Six Leg Roundabout Option
2018 - A.M. Peak Period Volume and Delay

U.S. 101 / Vine St / SR 46 / Theatre Dr				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
U.S. 101 SB Off	R1	25	480	2.7
	R2	150		
	R3	130		
	L	175		
Vine St SB	R	35	155	5.1
	T	70		
	L1	5		
	L2	45		
SR 46 EB	R1	55	555	2.7
	R2	35		
	T	420		
	L	45		
Theatre Dr NB	R1	10	245	2.3
	R2	145		
	T	55		
	L	35		
SR 46 WB	R	20	520	2.6
	T	135		
	L1	115		
	L2	250		

Alternative 4 - Six Leg Roundabout Option
2018 - A.M. Peak Period Delay (minutes)

Leg	Model ORE Rodel
U.S. 101 SB Off	21.6
Vine St SB	13.2
SR 46 EB	25.0
SR 46 WB	22.5
Theatre Dr NB	9.4
Total Delay (minutes)	**91.7**

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Alternative 4 - Six Leg Roundabout Option
2018 - P.M. Peak Period Volume and Delay

U.S. 101 / Vine St / SR 46 / Theatre Dr				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
U.S. 101 SB Off	R1	40	615	3.7
	R2	280		
	R3	185		
	L	110		
Vine St SB	R	65	240	7.8
	T	105		
	L1	5		
	L2	65		
SR 46 EB	R1	55	555	2.8
	R2	40		
	T	410		
	L	50		
Theatre Dr NB	R1	25	540	2.9
	R2	290		
	T	150		
	L	75		
SR 46 WB	R	30	665	3.2
	T	215		
	L1	140		
	L2	280		

Alternative 4 - Six Leg Roundabout Option
2018 - P.M. Peak Period Delay (minutes)

Leg	Model ORE Rodel
U.S. 101 SB Off	37.9
Vine St SB	31.2
SR 46 EB	25.9
SR 46 WB	35.5
Theatre Dr NB	26.1
Total Delay (minutes)	**156.6**

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Alternative 4 - Six Leg Roundabout Option
2038 - A.M. Peak Period Volume and Delay

U.S. 101 / Vine St / SR 46 / Theatre Dr				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
U.S. 101 SB Off	R1	35	515	3.6
	R2	210		
	R3	125		
	L	145		
Vine St SB	R	30	160	3.4
	T	60		
	L1	5		
	L2	65		
SR 46 EB	R1	105	755	3.7
	R2	55		
	T	550		
	L	45		
Theatre Dr NB	R1	20	325	3.0
	R2	185		
	T	55		
	L	65		
SR 46 WB	R	45	935	3.9
	T	265		
	L1	160		
	L2	465		

Alternative 4 - Six Leg Roundabout Option
2038 - A.M. Peak Period Delay (minutes)

Leg	Model ORE Rodel
U.S. 101 SB Off	30.9
Vine St SB	9.1
SR 46 EB	46.6
SR 46 WB	60.8
Theatre Dr NB	16.3
Total Delay (minutes)	**163.6**

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Alternative 4 - Six Leg Roundabout Option
2038 - P.M. Peak Period Volume and Delay

U.S. 101 / Vine St / SR 46 / Theatre Dr				Avg. Leg Delay (sec per veh) ORE Rodel
Leg	**Turn**	**Turn Volume**	**Leg Volume**	
U.S. 101 SB Off	R1	55	705	6.2
	R2	330		
	R3	200		
	L	120		
Vine St SB	R	50	280	5.3
	T	105		
	L1	10		
	L2	115		
SR 46 EB	R1	95	700	4.2
	R2	55		
	T	510		
	L	40		
Theatre Dr NB	R1	40	610	4.0
	R2	350		
	T	100		
	L	120		
SR 46 WB	R	65	1145	5.7
	T	370		
	L1	225		
	L2	485		

Alternative 4 - Six Leg Roundabout Option
2038 - P.M. Peak Period Delay (minutes)

Leg	Model ORE Rodel
U.S. 101 SB Off	72.9
Vine St SB	24.7
SR 46 EB	49.0
SR 46 WB	108.8
Theatre Dr NB	40.7
Total Delay (minutes)	**296.0**

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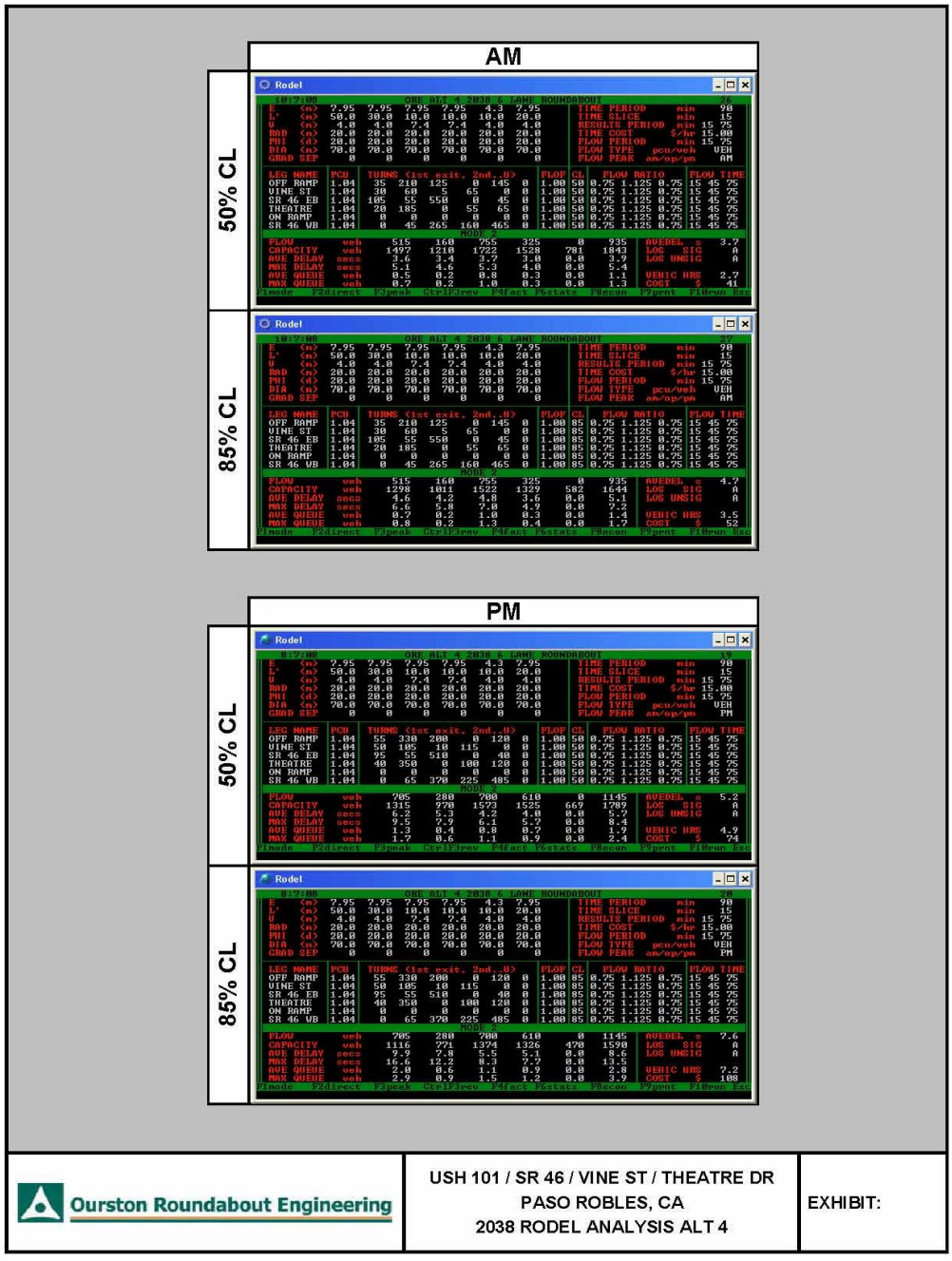

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Response to Comment 14-1:

The Ourston Roundabout Engineering (ORE) approach of total system delay comparison is not appropriate for use in this analysis. That methodology assumes equal priority is given to the local system movements as is given to the freeway interchange movements. The analysis in the project Traffic Study is appropriate because it takes into consideration the functional hierarchy of the different road segments.

The publication "American Association of State Highway Transportation Officials (AASHTO) Policy on the Geometric Design of Highways and Streets" provides guidance to state and local agencies, including Caltrans, and is the basis for national standards related to transportation design. Chapter 1 of that publication describes the role of functional class and hierarchy of movement. The AASHTO guidance is to preserve/prioritize the higher order facilities for the role and characteristics they play (US 101: intrastate and regional travel, high volume, high speeds, freight mobility, etc) and not have the higher order facilities be negatively affected by the operations or risk of lower order facilities (local access to commercial/retail trip generators), such as South Vine Street, if possible.

The west roundabout in Build Alternative 2 is consistent with the diagram of hierarchy of movement in Chapter 1 of the AASHTO policy. The highest order facility (US 101) and its transition (ramps) connect to the next order facility (State Route 46). Theatre Drive and South Vine Street represent, in this case, third order facilities compared to US highways and state routes. It is inappropriate and inconsistent with hierarchy objectives to bring a third order facility into a first order facility if that can be avoided. The analysis results support the AASHTO guidelines in that they show that including South Vine Street in the roundabout degrades the operations of the other higher order facilities connected to it.

The operational analysis and level of delay for either alternative were discussed in Section 2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities" of the draft environmental document. This section shows a volume-to-capacity ratio of 0.85 or less and delays of between 3 and 23 seconds for the roundabout entry legs of Build Alternative 1 and volume to capacity ratio of 0.74 or less and delays of between 4 and 12 seconds for the roundabout entry legs of Build Alternative 2.

Even though the methodology proposed by ORE is not appropriate for this project, if it were applied to the design year of 2038 instead of the opening day year of 2018, the results would show that the total system (all three intersections) delay is less in Build Alternative 2 than in Build Alternative 1 by a range of approximately 70 to 580 minutes, depending on the model used during the p.m. peak hour. In particular, the west side roundabout shows a range of 120

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to 630 minutes less delay in Build Alternative 2 than Build Alternative 1 during the p.m. peak.

Response to Comment 14-2:

Please see response to comment 14-1.

Response to Comment 14-3:

This comment includes statements of preference of one model type over another and a concluding statement that RODEL is more reliable than SIDRA. As discussed in detail in the Traffic Study for the project, the Traffic Study analysis used SIDRA, RODEL, and Federal Highway Administration methodology to study the roundabouts in this project. Findings were developed with a consideration of the results from each of these models rather than by use of a single model exclusively to capture the benefits of each model. RODEL allows geometry differences to be considered whereas SIDRA does not. However, one advantage of SIDRA over RODEL is that SIDRA will account for lane assignment of vehicles, while RODEL primarily accounts for total entry width rather than lane assignment. Given the closeness of the ramp terminal intersections, SIDRA was applied to consider individual lane distributions.

Response to Comment 14-4:

Build Alternatives 1 and 2 were developed with a consideration of the context (geographic constraints, traffic volumes and patterns, non-auto users, etc.) of this intersection.

Many alternatives were considered during the process of narrowing down the proposed alternatives. The remaining two were chosen as the ones that best fit the need and purpose of the project, fit the existing topography and improvements, and were the most cost effective.

With regard to the ORE-suggested Alternative 3, the ORE report does not report queues. Queuing is a performance measure that should be considered and reported given the possibility for interaction between the two roundabouts shown in Build Alternative 3.

With regard to the ORE-suggested Alternative 4, this alternative does not account for system hierarchy (see response to comment 14-1), which would prescribe separating local system movements from freeway system movements where possible. The reference to the I-70 roundabout and queuing is immaterial as the I-70 roundabout operates under a different set of volume, topographic, and geometric conditions.

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Response to Comment 14-5:

It is agreed that Build Alternative 1 is less costly than Build Alternative 2, but the comment is in error when implying that Build Alternative 1 has greater operational benefits than Build Alternative 2. In addition to operational benefits, Alternative 2 was identified as the environmentally preferred alternative. Please see responses to comments 14-1, 14-3, and 14-4. See also response to comment 13-1 where operational analysis is discussed with a greater improvement of operations resulting from Build Alternative 2.

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Comment Set 15

Review of Natural Environment Study for Oak Tree Impacts

U.S. 101 / S.R. 46 West Interchange Improvement Project

By

Carolyn Leach Consulting, L.L.C.

Carolyn Leach, Certified Arborist #727 — Date 7/16/08

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Introduction

This report has been prepared to document the author's review of environmental documents and state her opinions regarding the proposed project at the U.S. 101 / Hwy. 46 West interchange. Many native oak trees exist in the vicinity of this project. The project proposes various design alternatives, which will have different degrees of impacts on the existing oak trees.

Brief Project Description

Two alternatives have been proposed for the design of the street improvements at this intersection. Both Alternative #1 and #2 include changing the off and onramps by creating roundabouts. Alternative #1 merges Vine Street with the roundabout directly west of 101. Alternative #2 moves Vine Street farther to the west so it intersects Highway 46 West about 900 feet west of the 101.

Information Regarding Oak Trees

My review of this project is based on information provided within the Cal Trans published document, titled "Natural Environment Study" dated April 2007, written by Greg Hoisington of URS Corporation and John Luchetta, biologist. Their report maps the tree locations, designates tree numbers, and lists the species, trunk diameters, and canopy sizes for each tree anticipated to be removed. The design layout was shown for Alternative #1 and #2 within the report. Included in the report are aerial photos of the project area that show the tree canopies.

15-1

Additionally, portions of the Initial Study, dated May 2008, were reviewed.

15-2

The species of oaks present include blue oak (*Quercus douglasii*), Coastal live oak (*Quercus agrifolia*), and valley oak (*Quercus lobata*). The report states that these species are of regional / local significance.

Page nine of the report states that field surveys were completed using binoculars or by viewing aerial photos when property access was unavailable. No indication of field measurement of any trees was included in the report.

The report also summarizes the City of Paso Robles Tree Ordinance requirements for removal permits and mitigation. That mitigation would include replanting with 24" box size replacement trees, at the ratio of 25% of the total trunk diameters of all removed trees over 6" in diameter.

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15-3

Oak Tree Impacts, Alternative #1 v. Alternative #2

The total number of trees removed by this project varies within the two documents that I reviewed. The Environment Report shows 24 trees removed with Alternative #1 and 47 trees removed with Alternative #2. The Initial Study states 34 trees removed with Alternative #1 and 45 trees removed with Alternative #2. No information was presented that explains this discrepancy.

No data was provided in the Initial Study as to the specific trees that are to be removed.

Regardless of which report is used, it is obvious that vastly more oak trees are removed under the Alternative #2 design. By looking at Figure #5 of the Environment Study, we see that the additional removals are located in the northwest quadrant of the project, in the location of the Vine Street extension. This includes trees #12-17, and 44-50.

Table #5 of the Natural Environmental Study provides information on the trunk diameters (DBH) of the trees. It also lists the measurement of each tree's dripline radius, in feet. This is the measurement from the trunk outward to the outside edge of the canopy foliage. The trunk diameters listed appear to be too small to match the dripline radius shown.

To further examine the data, I looked at the aerial photo shown on Figure #5. Specifically, I looked at the single trees - #44, 45, 46, and 47. Tree #46 has a canopy about the same width as the proposed roadway, while trees #44, 45, and 47 are much wider than the roadway. Table #5 lists them as having dripline radii at 40, 30, 20, and 32 feet respectively. Their canopy diameters, therefore are twice the radius, or 80, 60, 40, and 64 feet. The right of way is about 64 feet wide, which corresponds approximately with the information in Table #5 for the tree's dripline radius.

Next I looked at the given trunk diameters (DBH) for these four trees – 9" for tree #44 (80' canopy), 7" for tree #45 (60' canopy), 6" for tree #46 (40' canopy), and 8" for tree #47 (64' canopy). In all of my years of inventorying and measuring trees - and I have measured thousands of trees - I have never seen an oak tree with an 80 foot canopy diameter being supported by a 9 inch diameter trunk. I don't think it is physically possible for an oak to have those proportions. A more typical trunk diameter for an oak with an 80-foot canopy is about 48 inches DBH.

This leads me to conclude that the authors of the Cal Trans study made a gross error in either measuring or recording the trunk diameters.

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Canopy Replacement Growth Rates

15-4

Included in my analysis of this project are my estimates for the length of time for the replacement trees to grow and reach the same size as the removed trees.

Growth rates in trees vary from specie to specie. For this project, the three oak types have widely different growth rates, with the Coastal live oak growing the fastest, the Valley oaks nearly but slightly slower rates, and the Blue oaks with extremely slow growth rates. Additionally, growth rates are affected by environmental factors, such as climate, soil type, soil fertility, water availability, and pest influence.

Additionally, trees generally grow much faster when young (first 5 years), then maintain a fairly steady growth rate for the following 10 to 20 years, then taper off and slow their growth rates once they have reached mature sizes. I have adjusted my calculations to reflect those changes.

Specie	Qty. to be Removed	Largest Dripline Radius (ft.)	Average Dripline Radius (ft.)	Yrs. To Reach Original Size, Largest Tree	Yrs. To Reach Original Size, Average Tree
Quercus lobata Valley oak	24	42'	18'	140 yrs.	44 yrs.
Quercus douglasii Blue oak	8	30'	18'	175 yrs.	103 yrs.
Quercus agrifolia Coastal live oak	15	45'	29'	115 yrs.	67 yrs.

I am assuming the replacement trees will be planted from #1 gallon sized pots, as stated in the Initial Study. Should larger trees be used as replacements as the City standards require, reduce the above timelines by five years.

I am also assuming good growing conditions so that the replacement trees will grow normally.

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Conclusions

15-5

The Natural Environmental Study and Initial Study both present information that can be used to compare Alternative #1 with Alternative #2. Although significant flaws exist within the data presented, both shows clearly that Alternative #1 is the preferred design when the oak tree impacts are considered.

Alternative #1 removes far fewer oak trees compared to Alternative #2. Approximately 11 fewer trees are removed using Alternative #1.

Alternative #1 removes 24,865 square feet less of trunk canopy area than does Alternative #2.

The largest Valley oaks will not be removed if Alternative #1 is chosen.

Many of the largest Coastal live oaks will not be removed if Alternative #1 is chosen.

There are significant errors in the Environment Study in representing the actual size of the trees to be removed in both Alternatives, which causes mitigation proposals to be inadequate. This understatement of tree loss is compounded under Alternative #2.

Mitigation to satisfy City of Paso Robles requirements is impossible to determine based on flawed data (inaccurate DBH) in the Environment Study.

The length of time it takes to replace the canopies of mature oak trees is long, from 140 to 175 years for the largest trees at this project. Therefore, Alternative #1 is preferred to Alternative #2, as Alternative #1 removes fewer of the largest trees.

A complete tree impact study should be undertaken by a professional arborist (who is experienced in tree inventories and tree measuring) prior to final determination of the impacts to existing trees for this project. Mitigation should be determined based on the new report findings.

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Response to Comment 15-1:

The Natural Environment Study is a comprehensive compilation that reflects the efforts and analysis of all individuals listed in Appendix C of the Natural Environment Study. For a summary of its contents, interested individuals are referred to Section 2.3 "Biological Environment" of the environmental document.

Response to Comment 15-2:

Please also refer to answer 7-2; after public circulation of the draft environmental document and preparation of the Natural Environment Study (Minimal Impacts), additional on-site, on-foot field surveys were performed for the entire project area with a greater level of access to individual parcels and locations. This was done to reassess the characterization (species and size [diameter at breast height]) and location of trees, particularly oak trees, anticipated to be affected as a result of the proposed project. Results of the subsequent on-foot tree surveys showed Build Alternative 1 would remove 24 oak trees and Build Alternative 2 would remove 49 oak trees. Given the results of the updated tree field survey, and for purposes of reporting consistency throughout the project reports, the Natural Environment Study (Minimal Impacts) has been updated to reflect the minor variations reported through the subsequent tree survey. Furthermore, the results of the updated tree survey have been incorporated into the environmental document.

The project would likely be built in phases as described in Section 1.3.1.2 "Unique Features of Build Alternatives" of the environmental document, with some phases to be built many years from the current inventory date. As is commonly practiced, the ultimate number of trees, including oak trees that would be affected by the proposed project would be determined during the project's final design phase and by actual construction activities. Regardless of timing or final design/construction specifics, mitigation ratios would apply. As the draft environmental document stated, every attempt would be made to minimize the number of affected oak trees, to the extent practicable. The alignment shown was specifically chosen to avoid large oak trees in the northwest quadrant.

The draft environmental document indicated that the focus was on "biological communities, not individual plant or animal species" in Section 2.3.1 "Natural Communities" where oak woodland is discussed and reinforced this focus in Section 2.4 "Cumulative Impacts." The City of Paso Robles' Tree Ordinance was not used to define mitigation as discussed in response to comment 7-2. A 10:1 mitigation ratio was used in lieu of individual tree characteristic analysis and percentage of dbh replacement to increase overall woodland habitat.

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Response to Comment 15-3:

Please see response to comment 15-1, 15-2 and the subsequent field surveys discussed in response to comment 7-2. Noted revisions to correct dbh measurements or number of tree impacts do not change the ratio replacement approach and the anticipation that final and specific number of oak tree impacts would be determined based on final design and construction activities, which are expected in phases at various future years. The dbh and potential number of oak tree impacts are expected to change over the years due to both human actions and natural events.

Response to Comment 15-4:

Please see response to comments 7-2 and 15-3. Thank you for your information and estimates on oak tree growth rates. Please note that while oak tree growth rate estimates may vary by subjective experience, your estimates on the initial accelerated growth rate of smaller-sized oak tree plants are consistent with the reasoning to use larger numbers of smaller-size oak tree mitigation plants as discussed in response to comment 7-2.

Response to Comment 15-5:

We must respectfully disagree with the conclusions contained in this comment; please see response to comments 15-1 through 15-4. The selection process of a preferred alternative includes, but is not limited to, consideration of oak tree impacts. The locally preferred alternative was defined by the consideration of all impacts as well as benefits, as presented in the draft environmental document and related studies. Please see Section 1.3.4 of this document, Identification of a Preferred Alternative. Please also note that mitigation measures NC-1 and AES-1 in the draft environmental document include specificity on the 10:1 oak tree mitigation ratio, the requirement to generate a landscaping plan with mitigation oak planting and a 3-year monitoring of the plantings. A preferred alternative is chosen based on the full consideration of the project purpose and need, the impacts of viable alternatives along with the mitigation measures possible for those impacts, and the benefits of the viable alternatives.

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Comment Set 16

design professionals
eda
civil engineers ◆ land surveyors ◆ land planners

July 16, 2008

Mr. Stephen Sahadi
Cenco, LLC
5940 Rocky Canyon Road
Atascadero, CA 93422

RE: Comments on the Initial Study for US 101 / State Route 46 West

eda analyzed the Alternative #2 roadway impacts across Cenco's property at your request. Our review was inhibited by basic flaws in the geometry of the roadway, which may understate the grading impacts, tree losses, and right-of-way requirements indicated in the Initial Study.

We understand that the new road would be designed to City of Paso Robles' standards for a Collector Street, with a 35 MPH design speed. In addition, the California Highway Design Manual (Figure 201.4, K=47, 250-foot stopping sight distance) provides roadway design parameters to provide for public safety. The road profile for Alternate #2 provided by URS Corporation, the City's engineering consultant, specifies vertical curves that do not provide the minimum safe stopping distance specified by the Highway Design Manual.

16-1

In our opinion, a road design with the curves specified by the Highway Design Manual would likely result in significant horizontal and vertical shifts in the road alignment. Such a revision is required to make accurate estimates of the road's grading impacts, tree losses, ingress and egress issues for new development, and the location and amount of property that would be required for right-of-way and slope easements.

16-2

You also asked **eda** to estimate the area of Cenco's property from the south property line to the north edge of the Alternative #2 right-of-way, including slope easements on the north edge of the right-of-way. Based on the current design, we estimate that area to be approximately 146,138 square feet, or 3.4 acres. These areas will change as the road design is refined and realigned.

16-3

Please call me if you have any questions.

eda - design professionals

Jeffrey P. Wagner, PE

eda – *design professionals*
1998 Santa Barbara Street, San Luis Obispo, CA 93401
805-549-8658 fax 805-549-8704
www.edainc.com

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Response to Comment 16-1:

The comments assessment is based on the incorrect assumption that the frontage road is to accommodate a 35-mile-per-hour design speed. The horizontal and vertical geometry of South Vine Street has been designed in accordance with Highway Design Manual standards, including stopping sight distance, for a 25-mile-per-hour design speed per City direction for design speed of this roadway and not for 35 miles per hour as presumed in the comment. To clarify the design criteria, the design speed has been added to Section 1.3.1.1 "Common Design Features of Build Alternatives" for the Theatre Drive frontage road design speed and Section 1.3.1.2 "Unique Features of Build Alternatives" for the South Vine Street frontage road design speed. The proposed design of South Vine Street in Build Alternative 2 has been aligned to minimize environmental impact and cost while meeting city and state design standards. The design may be modified during final design as long as changes do not result in impacts that are inconsistent with the environmental clearance.

Response to Comment 16-2:

This comment makes suggestions about impacts from design criteria that are not proposed by the preliminary design contained in this environmental document. Please see response to comment 16-1 for additional information.

Response to Comment 16-3:

Thank you for the information estimating the area of Cenco's property from the south property line to the north edge of the Build Alternative 2 right-of-way, including the slope easements on the north edge of the right-of-way.

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Comment Set 17

ELLIS PARTNERS LLC

July 17, 2008

VIA EMAIL

Ms. Yvonne Hoffman
Caltrans District 5
50 Higuera Street
San Luis Obispo, CA 93401

RE: US-101/Route 46 West Interchange Improvement Project

Dear Ms. Hoffman:

I am writing as the owner of the 196,000 square foot shopping center located at 2001-2307 Theatre Drive in Paso Robles and known as The Crossings at Paso Robles.

We have reviewed the *U.S. Highway 101/State Route 46 West Interchange Modification Project Initial Study with Proposed Mitigated Negative Declaration/ Environmental Assessment* ("Initial Study") dated May 2008 prepared by Caltrans in connection with the above-referenced project. Also, we reviewed the *U.S. Highway 101/SR 46W PA-ED City of Paso Robles, California Traffic Report* ("Traffic Report") dated November 2, 2006 prepared by Associated Transportation Engineers. After reviewing these documents, we would like to submit the following comments, and/or request for additional information:

Initial Study (IS):

1. In general, the IS passes on the evaluation of a Health Risk Assessment (HRA), Green House Gas Emissions, and Growth Inducement (Jobs/Housing Imbalance, induced commute lengths, increases in VMTs due to reduced vehicle delay as a result of the project). In these sections, the report includes conclusion statements with no technical back-up or claims that the project is too small to justify such an analysis, regulatory guidelines are unavailable or the lack of available information to conduct a reasoned analysis. There also is no discussion of how induced growth can lead to increased VMTs and increased green house gas emissions. — 17-1
2. Based on the above, one could argue that the lack of specificity or technical evaluation cannot lead to a conclusion of less than significant impacts to support a Mitigated Negative Declaration or Finding of No Significant Impacts. — 17-2
3. There is no mention of how long the project will be constructed in the early sections of IS/EA. This information is included in the noise impact section, page 108 (construction is to last 48 months). This has a direct bearing on construction impacts and how impacts are derived. — 17-3
4. The future planned Salinas River crossing east of the Highway 101 interchange was identified in the General Plan and could have consequence of adding more traffic to the proposed project. While it was included in the traffic analysis, it was not in the list of cumulative projects. — 17-4

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5. The Purpose and Need does not address any safety or accident data. Given that the traffic report suggests that accident rates are relatively low, this may have been intentional. 17-5
6. Page 43 - the Traffic Management Plan is a major mitigation measure that will need to be implemented over 48 months. It contains no detail or information about how will it address traffic impacts to adjacent businesses and traveling motorists. 17-6
7. Environmental Justice does not explain whether the relocation or possible displacement of certain businesses and whether that is a disproportionate effect on minority or low income populations in the area. 17-7
8. Page 54, Table 2.1-7: It appears that the LOS values reported in the table reflect operations before the improvements implemented in mid-2006. If this is the case, the LOS should be recalculated or a note should be added that indicates that the existing LOS is likely better than reported in the table; 17-8
9. Page 54, last sentence – "Traffic on US 101 southbound to State Route 46 West is approximately 20 percent higher on Fridays and Saturdays during the summer months, operating at LOS D during these periods, with higher than normal delays and longer queues.": It is not clear what this sentence means. What operates at LOS D? Is it the off-ramp intersection? That intersection already operates at LOS D. The southbound freeway (north of the interchange) also operates at LOS D. The fact that the delays and queues are longer is not surprising, given that volumes are higher, but is there an operations issue? 17-9
10. Page 55, Table 2.1-8: What is the LOS for opening year (2018)? 17-10
11. Page 56, second full paragraph – "The proposed…": Would the LOS F operations on the mainline result in on-ramp queues that could affect the roundabouts? 17-11
12. Page 56, third full paragraph – "Furthermore…": The text says that "the interchange is expected to degrade to level service F during the 2010-2014 time period." It is not clear what is "the interchange". Is that a specific intersection? Is it for a typical weekday or for a summer Friday? It seems surprising that the weekday traffic would degrade to LOS F that quickly given that the intersections are currently operating at LOS B to D (or maybe better). Also, since the existing summer Friday traffic is LOS D, it doesn't seem like the (presumably SB) intersection would degrade to LOS F by 2010-2014. The stated growth rate, per the traffic report, is only 2%/year so the increase in traffic between 2006 and 2010/2014 is only 8%/17% (compounding growth rates). The traffic report doesn't provide any backup on these issues. 17-12
13. Page 57: The statement that "the anticipated impacts to traffic congestion (during construction) would be minor and cease upon completion." is not backed up by any technical information. 17-13
14. Page 58, Mitigation TRF-1: A more detailed Traffic Management Plan should be provided in IS/EA that addresses impacts to local businesses, motels, shopping center access and egress, signage, etc. 17-14
15. Page 67 - There is no mention of how and what agency would be responsible for implementing a Landscape Plan. 17-15
16. Page 73, the IS does not address how close the project area is to the Salinas River or jurisdictional wetlands. 17-16

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17. Page 75, water quality mitigation: WQ-1 should prescribe distances to keep construction vehicle maintenance areas away from receiving water bodies (such as the Salinas River and wetlands). Also, revegetation should occur as soon as feasible and prior to predicted rains and/or the rainy season. Also, no mention is made of an emergency spill response plan to address solvents, vehicle leaks, etc. and construction employees trained in emergency spill response. — 17-17
18. Geology section - No mention is made of the 2003 Paso Robles earthquake and its effect on freeway structures in the area. — 17-18

Traffic Report:

1. Page 2: The report notes that "the intersections operate at LOS D during these periods" (i.e., Fridays and Saturdays). There is no backup in the appendices, but it seems surprising that both intersections operate at LOS D given that the SB intersection operates at LOS D on regular weekdays and the north intersection operates at LOS B. Please clarify. — 17-19
2. Page 2, Table 2: Is there any explanation for why accident rates are lower than statewide accidents? The queuing and tight spacing of the existing configuration might suggest higher rates. — 17-20
3. Page 3, Table 3: Is there a reason why the 2018 no-build analysis wasn't presented? Later in the report (see comments below), there is an implication that the 2018 is LOS F, but a summary would be helpful. — 17-21
4. Page 13 (U.S. Highway 101 Operations): The first paragraph says "Widening to [sic] the mainline to six lanes will be required…the freeway will operate at LOS F…with six lanes…" Is this correct? Will it still be LOS F with six lanes? If so, was there any queuing analysis conducted to see if the mainline queues will spill back onto the ramps and then the roundabouts? — 17-22
5. Page 15: No analysis of the Vine/Theatre intersection was provided for the summer weekend operations analysis for Alternative 2. — 17-23
6. Page 17 (South River Crossing Analysis): Is there a reason why the no-build was not analyzed (for either 2018 or 2038)? — 17-24
7. Page 20 (Project Planning): the second paragraph says that "the interchange will degrade to LOS F during the P.M. peak period in the 2010-2014 horizon period…" It is not clear what is "the interchange". Is that a specific intersection? Is it for a typical weekday or for a summer Friday? It seems surprising that the weekday traffic would degrade to LOS F given that the intersections are currently operating at LOS B to D. Also, since the existing summer Friday traffic is LOS D (but see the first comment), it doesn't seem like the (presumably SB) intersection would degrade to LOS F by 2010-2014. The stated growth rate is on 2%/year, so the increase in traffic between 2006 and 2010/2014 is only 8%/17% (compounding growth rates). — 17-25

As a general comment, we are very concerned about the negative impact that these proposed improvements will have on our customers and their ability to find and/or access our shopping center. We feel very strongly that new drivers will need guidance in the form of signs at the intersection that either say "Theatre Drive – Use SR 46 West" or — 17-26

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guide the shoppers to Theatre Drive and our shopping center with arrows. We would request at least two signs, one at each of the two off-ramps (northbound and southbound) before the roundabouts.

We look forward to hearing back from you on the above requested information and comments.

Sincerely,

PASO ROBLES VENTURES LLC,
a Delaware limited liability company

by: CEP Investors V, L.P,
a Delaware limited partnership
its Managing Member

by: EPI Investors V, L.P.,
a California limited partnership
its General Partner

by: Ellis Partners, Inc.
a California corporation
its General Partner

Sharon A Christen for

Melinda Ellis Evers
Vice President

cc: Ditas Esperanza, City of El Paso de Robles

MEE:sac

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Response to Comment 17-1:

With regard to a Health Risk Assessment, such assessments are prepared to assess cancer and chronic non-cancer health risks associated with toxic air contaminants (i.e., diesel particulate matter) emissions from project-generated diesel trucks. The proposed project does not generate, in and of itself, additional diesel traffic. Nonetheless, this environmental document does provide a mobile source air toxics analysis. Please refer to Section 2.2.6, Air Quality, of this document, which is in accordance with pertinent Federal Highway Administration guidelines.

With regard to greenhouse gas emissions, please refer to Section 2.5, Climate Change, of this document for a discussion of the project's greenhouse gas emissions-related impacts. This section of the document contained a qualitative statement of the project net benefits on emissions reduction due to delay reduction and a quantitative assessment of reduction of just under 16 million hours of delay within the 20-year analysis period of the project. Greenhouse gas emissions analysis is a rapidly evolving field with new and more quantitative analytical tools and guidance being developed at a rapid pace.

The results of the qualitative greenhouse gas emissions analysis indicate that Build Alternative 1 would reduce daily CO_2 emissions at the interchange when compared to the no-build scenario, and Build Alternative 2 would further reduce daily CO_2 emissions at the interchange compared to Build Alternative 1. In summary, Build Alternatives 1 and 2 would have the following greenhouse gas emissions-reducing benefits:

- **Reduced congestion**: High traffic volumes and inadequate access control would contribute to congestion, delays, and undesirable operating conditions at the interchange. Reduced delay would improve local accessibility. Congestion relief would reduce long lines of traffic.
- **Traffic flow control**: Consistent movement would reduce the CO_2 emissions due to the relatively non-varying traffic speeds and flow through Build Alternatives 1 and 2 compared to the no-build scenario. Consistent flow through the roundabouts would reduce idling time, which in turn would reduce CO_2 emissions.
- **Reduced greenhouse gas emissions**: Both roundabout Build Alternatives 1 and 2 would result in fewer CO_2 emissions due to reduced stop-and-go movement compared to the No-Build Alternative.

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- **Growth management**: Taking into account current growth variables projected by the U.S. Bureau of the Census, the build alternatives would better facilitate the projected increased number of vehicles in the project area.
- **Caltrans Standard Specification Provisions**: According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; in addition, the contractor must comply with the San Luis Obispo County Air Pollution Control District's rules, ordinances, and regulations with regard to air quality restrictions.
- **County's Regional Transportation Plan**: The project is consistent with the Transportation Plan, which discusses improved traffic flow and reduction of congestion and accidents for the region.
- **Compliance with AB 32**: The roundabout Build Alternatives 1 and 2 support the climate change strategies of Assembly Bill 32.

In summary, both Build Alternatives 1 and 2 would result in less delay time for each turn option and would therefore reduce future greenhouse gas emissions compared to the No-Build Alternative. Because of the congestion relief anticipated with implementation of the project, project operations would not contribute to the climate change effect, but rather would produce long-term greenhouse gas emissions benefits through improved operation. Also refer to response to comment 20-7.

With regard to growth inducement, the proposed project would not affect job/housing ratios, total VMTs, or provide the impetus for increases in commute lengths for travelers. The difference in commute length and VMT is anticipated to be negligible between existing conditions and either build alternative. The comment implies that reduced vehicle delay is proportional to an increase in VMT. This implication is erroneous and does not consider the basic origin/destination tenants for VMTs.

Response to Comment 17-2:

As discussed in response to comment 17-1, an MSAT analysis and qualitative greenhouse gas emissions analysis was included in the environmental document. Additionally, the origin/destination tenants of VMTs are not anticipated to be affected by the congestion relief at the interchange. We must respectfully disagree for the reasons stated in response to comment 17-1.

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Response to Comment 17-3:

The project is expected to be completed in phases due to funding constraints as discussed in the Section 1.3.1.2, Unique Features of Build Alternatives, Project Phasing subsection of this environmental document. The project is expected to be constructed in phases as funding is secured and the noise analysis assumes a worst-case scenario of continuous single-phase construction. Construction phasing is discussed in Section 1.3.1.2 and in Table 1.3-1, Comparison of Project Effects by Alternative, in the final environmental document, and impacts are addressed under each issue and analyzed throughout Chapter 2, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures section, as deemed appropriate. Please also refer to response to comment 1-3 regarding the methodology for assessing project-related noise impacts for the proposed project.

Response to Comment 17-4:

Traffic from the future Salinas River crossing is included in the projections and is discussed in detail in the Traffic Report. The cumulative list in the draft environmental document detailed land use projects in the vicinity of the interchange that are traffic generators. The Salinas River crossing is not a traffic generator by land use, but would allow traffic to access the US 101/State Route 46 West interchange from the east instead of only by the current connections. The different traffic pattern and the redistribution of traffic potential were analyzed to ensure the roundabout would function adequately in the event the crossing was built.

Response to Comment 17-5:

The accident rates are below state averages as stated in the Traffic Report prepared for the proposed project. Therefore, accident mitigation is not part of the need and purpose for this project.

Response to Comment 17-6:

For purposes of clarification, and as typically done for Caltrans projects, the details regarding the Traffic Management Plan would be developed and documented during final project design and before construction depending on actual phasing and final design details and impacts. Refer to the Section 1.3.1.2, Unique Features of Build Alternatives, Project Phasing subsection of this document for information on project phases and timing. Business owners in the project area would be kept informed of the project planning process and upcoming construction activities. Further, appropriate signage would be included in the Traffic

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Management Plan to properly direct motorists through or around the construction zone. These elements are all standard principles/features of a Traffic Management Plan that final design and construction staff would be required to prepare for Caltrans review and approval before project construction.

Response to Comment 17-7:

As further detailed in Section 2.1.4.3, Environmental Justice, Environmental Consequences section, of this document, the proposed project would not result in disproportionately high and adverse effects on minority and/or low-income populations. As further described in Section 2.1.4.2, Relocations, persons displaced as a result of the proposed project would receive relocation assistance, including financial assistance, per Caltrans' Relocation Assistance Program, which is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and Title 49 Code of Federal Regulations, Part 24. Appendix C of the draft environmental document included a summary of Caltrans' Relocation Assistance Program.

Response to Comment 17-8:

For clarification, the 2006 Level of Service values shown in Table 1.2-2 of this document are based on the conditions with the improvements implemented in 2006.

Response to Comment 17-9:

For clarification, both intersections operate at Level of Service D with the summer Friday and Saturday volumes, but with higher delays and longer queues when compared to other times of the year. The Level of Service is still D because Level of Service represents a range of delay not a point.

Response to Comment 17-10:

For clarification, there is no established Level of Service criterion for measuring roundabout operations. Roundabout operations are measured using vehicle delay. Please refer to Section 2.5, Climate Change, Table 2.5-1, for a summary of projected future delay for the No-Build Alternative, Build Alternative 1, and Build Alternative 2 for future years 2018 and 2038. The results indicate that the project would reduce the delays for all turn movements at the interchange. Additional 2018 forecast and analysis results are included in the Traffic Report (bound separately).

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Response to Comment 17-11:

For clarification, flows from the roundabouts onto the mainline are expected to merge with the stop-and-go mainline flow without affecting the roundabouts. Merging operations would be the same with or without the project. Note that the Level of Service F condition on the mainline is for the peak 15 minutes of the peak hour period.

Response to Comment 17-12:

A sensitivity analysis was prepared to determine when the interchange would degrade to forced-flow conditions (Level of Service F). The analysis is based on straight-line projections of traffic volume growth. The sensitivity analysis notes that generally when intersections are nearing saturated conditions, smaller amounts of traffic have incrementally larger impacts on delays and levels of service. The analysis found that the interchange would degrade to Level of Service F sometime within the 2010-2014 time period as discussed in Section 1.2.2 "Need" of this document, depending on the magnitude and location of future development as well as the rate of growth for regional traffic. Please also see response to comment 17-25.

Response to Comment 17-13:

Short-term construction-related traffic impacts are to be mitigated per the terms of a Traffic Management Plan that would be developed based on the final design and phasing conditions. Refer to Section 1.3.1.2, Unique Features of Build Alternatives, Project Phasing subsection, of this document for information on project phases and timing. Please also see response to comment 17-6 regarding timing for the development and Caltrans approval of the Traffic Management Plan.

Response to Comment 17-14:

Please see prior response on the development and Caltrans' approval of the Traffic Management Plan.

Response to Comment 17-15:

Development and implementation of a landscape plan depends on the project sponsor as part of the final project design per Avoidance, Minimization and/or Mitigation Measures AES-1 in this document. In this case, the City will be responsible for developing and implementing the plan in coordination with Caltrans.

Response to Comment 17-16:

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The various figures (Figure 2.2-1, 2.3-2 and 2.3-3) included in this document show the project alignment in relation to the Salinas River; all such figures are drawn to scale to enable the reader to estimate the distance of the project from the Salinas River. Section 2.2.2 of this document acknowledges that the project is near the Salinas River. The distance from the easterly edge of the easterly roundabout to the nearest westerly edge of the defined channel for Salinas River is approximately 900 feet.

As noted on the first page of Chapter 2 of this document (bullet 5, Wetlands), no wetlands would be affected by the proposed project.

Response to Comment 17-17:

The issues raised by these combined comments are typically addressed in the final permit and special technical specification conditions of a fully designed and approved project. The details referenced in the comment would be included at the point of final design for the project and/or phases of the project and in the required coordination with resource agencies discussed in Section 2.3.2 "Wetlands and Other Waters" of this document.

Response to Comment 17-18:

For clarification, freeway structures are checked by Caltrans after earthquakes or other such major events. No issues were discussed because no issues were discovered.

Response to Comment 17-19:

Both intersections operate at Level of Service D with the summer Friday and Saturday volumes, but with higher delays and longer queues than those of regular weekdays. Because Level of Service D is a range of delay and not a singular point of delay, the statement is consistent.

Response to Comment 17-20:

Comment noted. It is unknown why rates are lower than average. Statewide averages are averages of similar facilities. The Caltrans accident database does not provide the information needed to determine why rates are lower than average.

Response to Comment 17-21:

Per Caltrans criteria, the no-build analysis is provided for year 2038, which is 20 years beyond anticipated construction. The interchange is expected to degrade to Level of Service F before the year 2018, and this expectation is stated in Section 2.1.6 Traffic and

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Transportation/Pedestrian and Bicycle Facilities section, the Environmental Consequences subsection, of this document.

Response to Comment 17-22:

Level of Service F is forecast for the mainline during the peak 15 minutes of the peak hour period. Flows from the roundabouts onto the mainline are expected to merge with the stop-and-go mainline flow without affecting the roundabouts. Merging operations would be the same with or without the project.

Response to Comment 17-23:

The summer weekend analysis is focused on operations at the roundabouts to ensure that traffic would not affect US 101 mainline operations.

Response to Comment 17-24:

The South River Crossing is included in the expected build-out of the area as shown in the City's General Plan. The Project Development Team made the decision to include analyses of 2038 operations for the project without the river crossing traffic as a check to determine if the change in traffic volume/movements would substantially change the project design and to assess whether regional traffic splits would substantially change the project. County versus City or other jurisdictional agency funding could be affected depending on traffic splits and project changes; no major project design differences were found for the 2038 year, therefore it was not deemed necessary to conduct further analysis for prior years.

Response to Comment 17-25:

The interchange is composed of the State Route 46 West/US 101 Northbound and Southbound ramp terminals. Those two locations have signals, and those traffic signals include signal indications and phasing to accommodate the adjacent frontage roads (Theatre-Vine on the west and Ramada on the east). Operations on both sides of the interchange would be forced-flow (Level of Service F) sometime within the 2010-2014 timeframe. Note that when intersections are nearing saturated conditions, smaller amounts of traffic have incrementally larger impacts on delays and levels of service.

Response to Comment 17-26:

US 101, its ramps and State Route 46 West are all under Caltrans jurisdiction. It is recognized that signage to guide vehicles from the freeway off-ramps and through the roundabouts is a very important part of the operations through roundabouts and through the

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interchange. This would include signs to direct travelers to the State Route 46 West direction and to Theatre Drive at the appropriate points determined during final design and as approved by Caltrans.

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Comment Set 18

<gbaker@slocog.org>

To <Yvonne_Hoffman@dot.ca.gov>

07/18/2008 01:48 PM

cc "Rich Murphy" <RMURPHY@SLOCOG.org>

Subject U.S. Highway 101/State Route 46 West Interchange Modification Project Environmental Assessment

Dear Yvonne,

Thank you for the opportunity to review the US 101/SR 46 West Interchange Modification Project Environmental Assessment. As the regional transportation agency we have an interest in the city's success in developing low cost and fundable solutions for interchange deficiencies. The San Luis Obispo Council of Governments (SLOCOG) has reviewed the document and has prepared the following general comments.

- General –
  - References throughout the document to the need for phasing should be stronger. For instance, the Project Phasing section on page twelve should indicate that phasing is likely. 18-1
  - Because Build Alternative 1 results in less ground disturbance, loss of vegetation (including oaks), lower construction-related emission than Alternative 2, and lower visual impact to sensitive viewers, will not result in the physical division of an established community, and is significantly more cost feasible; SLOCOG conceptually supports Build Alternative 1. 18-2
- Traffic/Circulation –
  - While the project is consistent with the Regional Transportation Plan and the City of Paso Robles Circulation element, please consider the following transportation related suggestions. 18-3
    - Closing 46 west access on Gahan Place; create cul-de-sac and re-direct to the realigned Theatre Drive.
    - Investigate possibility of including a Park and Ride lot between Alexa Court and the proposed west side roundabout, or at some other logical location in the project limits.

Please feel free to contact me with any questions or comments in regard to this issue.

Respectfully,

Geiska Baker

Transportation Planner
San Luis Obispo Council of Governments
1150 Osos St., Suite 202
San Luis Obispo, CA 93401

(805)788-2104
gbaker@slocog.org

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Community Development Dept.

From: Geiska Baker [mailto:gbaker@slocog.org]
Sent: Friday, July 25, 2008 4:46 PM
To: Yvonne_Hoffman@dot.ca.gov
Cc: Ditas Esperanza; ron_whisenand@prcity.com; Rich Murphy
Subject: U.S. Highway 101/State Route 46 West Interchange Modification Project Environmental Assessment

Dear Yvonne,

This letter builds and supplements our letter dated July 16, 2008.

We have since had an opportunity for additional review and input. We concur with the prior comments and recommendations as modified below.

We find Alternative 1for the reasons previously stated is the least costly and more environmentally preferred alternative.

18-4

We reserve final selection of the preferred alternative for input by the Project Development Team. We do find Alternative 2 to be the most (operationally) preferred alternative. This alternative clearly separates local traffic from regional traffic. Additionally, it operates more effectively by eliminating local left turn movements on highway 46 in both the northbound and southbound directions.

We are especially concerned with the potential conflicts of left-turn movements in any phasing alternative. It appears that there is a high likelihood of traffic backing up into the roundabout in the initial phase of the project. We request the Project Development Team and traffic assessment more clearly evaluate this potential.

18-5

It is also important to note that Alternative 2 operates more effectively for alternative modes including pedestrian, bicyclists and local transit. This alternative is more effective as it allows these movements to occur at a controlled intersection with the realignment Vine Street across from Theatre Drive.

18-6

We look forward to more specific assessment of these issues and working with the project development team in the selection f the preferred alternative.

Please contact Geiska Baker at (805) 788-2104 for any clarification.

Sincerely,

Ronald DeCarli
Executive Director

Cc: Ron Whisenand and Ditas Esperanza; City of Paso Robles

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Response to Comment 18-1:

Phasing potential is discussed in this environmental document (as referenced in this comment). Details on phasing potentials and timing are included in Section 1.3.1.2, Unique Features of Build Alternatives, the Project Phasing subsection, to emphasize the phasing potential.

Response to Comment 18-2:

Please refer to response to comment 7-1 for a detailed discussion on visual analysis; response to comment 21-3 for discussion on grading activities and fill in the ravine; response to comment 7-2 for discussion on oak tree impacts; response to comments set 20 for discussion on emissions for both temporary construction and permanent traffic operations; and response to comments set 21 relative to lack of support for the concept that the project creates a physical division in an established community.

While Build Alternative 2 is more expensive and has a greater number of individual oak tree impacts than Build Alternative 1, it also provides greater operational benefit as stated in the subsequent comment 18-6 (also see response to comment set 14) and greenhouse gas reduction (see response to comment 20-7). Costs, operational and social benefits, and environmental impacts are to be considered in determining a preferred alternative. A preferred alternative is chosen based on the full consideration of the project purpose and need, the impacts of viable alternatives along with the mitigation measures possible for those impacts, and the benefits of the viable alternatives.

Response to Comment 18-3:

Thank you for your comment. It is agreed that the project is consistent with regional and local planning as stated. Creating a cul-de-sac at the westerly end of Gahan Place was discussed by the Project Development Team, which determined that the cul-de-sac would be inconsistent with the operational improvements to the interchange as stated in the purpose for the project because it would redirect traffic from an alternate corridor toward the interchange. The closure of Gahan Place at State Route 46 West would also negatively affect access for emergency vehicles. Consideration was given to using the area between Alexa Court and the westerly roundabout, but it was determined to have insufficient usable area for parking and circulation within the parking area. Other areas for park-and-ride facilities were considered in the current alternatives as well, particularly in the area between Ramada Drive and the US 101 northbound off-ramp just south of the proposed easterly roundabout. It was decided that while the project would not preclude park-and-ride lots, additional access points would be

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detrimental to areas immediately adjacent to the roundabout and that the loop area immediately south of the northbound off-ramp connection to the roundabout was to be protected for a potential bypass lane in the future. Other areas for potential park-and-ride facilities adjacent to the interchange were deemed to be topographically constrained due to the steep ravine or adjacent hillsides.

Response to Comment 18-4:

Please see response to comment 18-2.

Response to Comment 18-5:

Potential phasing options include a combination of signals west and east of a roundabout at the west side of the interchange. Measures such as loop detection are envisioned to detect any back-up close to the roundabout. If a queue were detected, the traffic signal would be set to green to release the traffic prior to the traffic backing up into the roundabout to ensure a free flow of traffic within the roundabout. Traffic analyses have been reviewed with the Caltrans Traffic Operations division for various phasing options to avoid any impact of traffic backing up at the ramps. Please see response to comment 18-1.

Response to Comment 18-6:

Thank you for your comment and participation. Please also see response to comment 1-1.

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Comment Set 19

Matteoni
O'Laughlin
& Hechtman
LAWYERS

Norman E. Matteoni
Peggy M. O'Laughlin
Bradley M. Matteoni
Barton G. Hechtman
Gerry Houlihan

July 18, 2008

Advance Copy Via E-Mail

CalTrans
Attention: Yvonne Hoffmann
50 Higuera Street
San Luis Obispo, CA 93401

Re: IS/MND for US 101/SR46W Interchange Improvement Project

Dear Ms. Hoffmann:

This office represents CENCO Investment, LLC, the owner of a 12.9-acre parcel located at the northwest corner of the 101/46W interchange. This letter constitutes CENCO's written comments to the May 2008 Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment ("IS/MND") for the Interchange Improvement Project ("Project"). CENCO reserves the right to provide additional comments, either in writing or at public hearings associated with the approval of the environmental declaration and/or approval of the Project itself. These comments are limited to the portion of the Project located in the northwestern quadrant of the 101/46W intersection.

CEQA and NEPA both apply to the Project. Both Acts were conceived primarily as a means to require public agency decision-makers to document and consider environmental implications of their actions. (See, e.g., Public Resources Code §§21000, 21001.) Though NEPA has been characterized as a "procedural" statute, it has been held that CEQA contains a "substantive mandate" requiring public agencies to refrain from approving projects with significant environmental effects if "there are feasible alternatives or mitigation measures" that can avoid or substantially lessen those effects. (*Mountain Lion Foundation v. Fish & Game Commission* (1997) 16

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Cal.4th 105, 134; PRC §21002; see also *Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 440-441: "a project may not be approved as proposed if feasible alternatives or mitigation measures would substantially lessen the project's significant environmental effect.")

The initial study is the "preliminary analysis" prepared by the lead agency in order to determine whether to prepare a negative declaration or an EIR. (CEQA Guidelines §15365.) When the agency determines that an EIR is not necessary, the initial study serves the purpose of "providing documentation of the factual basis" for the conclusion that a negative declaration will be sufficient. (CEQA Guidelines §15063(c)(5).) The initial study must "disclose the data or evidence upon which the person(s) conducting the study relied. Mere conclusions simply provide no vehicle for judicial review". (*Citizens' Association for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 171.)

Whether the initial study results in the determination that an EIR is required or that a negative declaration is sufficient, in either event findings are required regarding the significance of environmental impacts. These findings are legally required to connect the conclusion reached with the factual support for those conclusions:

> "Among other functions, a findings requirement serves to conduce the administrative body to draw legally relevant subconclusions supportive of its ultimate decision; the intended effect is to facilitate orderly analysis and minimize the likelihood that the agency will randomly leap from evidence to conclusion." (*Topanga Association for Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 516-517.)

This findings requirement of CEQA "reveals to citizens the analytical process by which the public agency arrived at its decision." (*Mountain Lion Foundation, supra,* 16 Cal.4th at 134.)

These principles are applied in our comments on the IS/MND below.

General Plan Consistency

19-1

According to the IS/MND, both alternatives are consistent with the City's general plan (pp. v and 26-35). As the document notes, the City's General Plan map designates CENCO's parcel for commercial use (p. 27). Alternative 1 is consistent

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with the General Plan because it only clips the corner of CENCO's parcel, and consequently it has very limited impact on lands available for commercial development. Alternative 2 is not consistent with the General Plan because it takes a larger portion of CENCO's property that could otherwise be used for commercial development and, by virtue of its location bisecting the property, limits the commercial utility of the land on both sides.

Further, the City's General Plan and other governing documents include policies requiring that grading be minimized (see, *e.g.*, Section 21.16E.140(B) of the City's Zoning Code) and limiting removal of oak trees (see, *e.g.*, Policy C-3 A and the Oak Tree Preservation Ordinance). The IS/MND provides no discussion of General Plan consistency regarding grading or trees and is hence incomplete. From evidence provided elsewhere in the IS/MND, it is apparent that Alternative 1 involves substantially less grading and removal of fewer trees, and is hence more consistent with the City's General Plan.

19-2

Visual Impacts

The City's General Plan describes the northwest quadrant of this intersection as a "visual corridor" and as a "gateway to the City". The IS/MND does not appear to account for the heightened visual sensitivity applicable to this area.

19-3

On page 67, it states that Alternative 1 would have a greater visual impact at the location of the roundabout, but that Alternative 2 would have an overall greater visual impact. This conclusion that Alternative 2 would have greater visual impacts is confirmed at multiple locations in the Visual Impact Assessment prepared by URS and dated March 23, 2007 ("VIA"). In the simulations provided for both Alternatives on page 66, trees are shown on the simulation for Alternative 2, but no trees on the simulation for Alternative 1. There is no explanation in the text for this difference, which appears to have been done to minimize the visual impacts of Alternative 2, but not of Alternative 1.

19-4

Most importantly, the visual impact analyses in both the IS/MND and the VIA entirely omit any discussion of the improvements which constitute the greatest difference in visual impacts between the two Alternatives. Key View #3 (pp. 59-63) looks west from a point between 101 and Theatre Drive. Today the view to the right of 46W is of open land rolling toward the coast. With Alternative 2 that pristine view will be disrupted by a 190 foot bridgespan, retaining walls, and a road in a 64-foot wide right of way meandering from the bridge toward 101. It appears that no visual impact analysis was done from the vantage point of looking east on Hwy 46W from a

19-5

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point west of Theatre Drive. The IS/MND cannot have a complete analysis of the visual impacts caused by Alternative 1 versus Alternative 2 without a discussion of the visual impacts of the bridge from these perspectives. It is conceivable that the visual impact of the bridge is so significant that an EIR would be required because there is no way to mitigate that visual impact.

Natural Habitat Impacts

Paso Robles means "The Pass of the Oaks." Not surprisingly, the City has adopted extremely strong regulations to protect its oak trees and its oak woodlands (see, *e.g.*, Policy C-3 A). Further, oaks are considered a species of regional/local significance (CalTrans' Natural Environment Study dated April 2007 ("NES"), p. 29). These regulations do not appear to have been considered or addressed in the IS/MND. 19-6

The IS/MND states that approximately 34 oak trees would be removed under Alternative 1 and 45 oaks under Alternative 2. It is unclear where these figures come from. The NES includes a list of 47 oaks in the path of Alternative 2, and 24 oaks affected by Alternative 1 (pp. 40-41). 19-7

By focusing on the total number of oaks affected, the IS/MND masks the real difference between the Alternatives in terms of oak loss. Based on Figure 5 of the NES, there are 32 oaks to be removed regardless of which Alternative is selected. If Alternative 1 is chosen, two more oaks will be removed (Nos. 93 and 94). If Alternative 2 is chosen, then thirteen oaks will be removed that would not be affected under Alternative 1 (Nos. 44-50 and 12-17), along with four walnut trees. Thus, the relevant comparison is two oaks for Alternative 1 versus thirteen oaks for Alternative 2. 19-8

Further, the IS/MND contains no qualitative assessment of these trees. Rather, it appears to treat all oaks as being of equal value. As recognized in the City of Paso Robles' Oak Tree Preservation Ordinance, all oak trees are not the same.[1] Larger and older oaks are more highly valued, and receive greater protection. The IS/MND is deficient for failing to include any discussion of this issue. Many of the oaks which would be removed under Alternative 1 are scrub oaks which have a lower protection value than the larger oaks that would need to be removed to implement Alternative 2. 19-9

[1] The NES, and hence the IS/MND, appears to have grossly underestimated the size of the oaks, stating a diameter range of 1" to 12" DBH (pp. 40-41). A drive-by at the area reveals many oaks in the path of the Project with diameters in excess of 24", some having diameters of more than 48 DBH.

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These issues are discussed in the VIA, but that discussion appears to have been ignored in the IS/MND. In fact, the mitigations described in the IS/MND are in conflict with, and inadequate based upon the NES (see Mitigation No. 6 on p. 45 of that Study). For example, oak trees would be replaced at a 10 to 1 ratio, but one gallon-sized specimens would be used (p.123). This sizing of new oaks would conflict directly with the City requirement that 24" box sized trees with a minimum diameter of 1.5" be used (VIA at pp. 3-4). Further, deer populations are prevalent in the northwest quadrant of the intersection. One gallon oak specimens will serve as a convenient meal for these deer. Absent specific protection of the specimens, very few of these new oaks will survive the three year plant establishment period. At a minimum, more detail is required in the IS/MND to explain how the Project will protect these tiny oaks from deer, and larger specimens which meet the local requirements and are less susceptible to destruction by foraging animals should be required. 19-10

Additionally, the IS/MND needs to examine the temporal loss of the canopies of the oak trees to be removed in the oak woodland habitat areas. When a mature oak is cut down, its canopy which created habitat for a variety of plants, animals and insects is lost. (See p. 17 of the NES.) Mitigations are to be designed to replace that canopy. Replanting oaks, even at a 10 to 1 ratio (assuming they all survive) will not immediately replace the canopy. The IS/MND's discussion is deficient for lack of any analysis of how many of these one gallon species will survive to maturity, and how long it will take for those new trees to replace the canopy of the mature oak which they were intended to replace. 19-11

Finally, it does not appear that the IS/MND has included the requirements of PRC Section 21083.4, which applies where, as here, oak woodlands are proposed to be removed from property located in an unincorporated county area. See the attached report of Carolyn Leach Consulting, LLC, dated July 16, 2008, which discusses many of the issues above and identifies other deficiencies in the analysis of native habitat impacts. 19-12

Growth Inducing Impacts

Page 37 of the IS/MND states the conclusion that neither Alternative would cause growth inducing impacts. Alternative 2 would route a major collector street through County property immediately west of CENCO's parcel. That land is not currently served by any internal roads, and has access restrictions into 46W, which limits its development potential. Alternative 2 would facilitate annexation and 19-13

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development of this County land at an earlier date than development would occur without Vine Street being rerouted to run through the parcel, and would eliminate the currently existing access limitation. The IS/MND must accurately address growth inducing impacts.

Farmland Protection Policies

Related to growth inducing impacts, the IS/MND discusses the Farmland Protection Policy Act on page 38. However, the IS/MND analysis appears to only take into account farmland conversion of the actual acreage utilized for the right-of-way. The County parcels immediately west of CENCO's parcel are farmland (p. 27). As described above, Alternative 2 is likely to hasten development of that farmland to the north of the proposed roadway. That farmland acreage must be taken into account in accurately analyzing the impact of Alternative 2 on Prime and Unique Farmland, and on Farmland of Statewide and Local Importance.

19-14

Liquefaction

Pages 78-79 discuss the risks of seismic activity and liquefaction. However, there is no discussion of the particular seismic risks associated with the 190 foot freespan bridge which is a part of Alternative 2. According to the City's Web site (http://www.prcity.com/government/departments/commdev/planning/pdf/general-plan-2003/FigS-3.pdf), the area where the bridge will be located is at high risk for liquefaction. The general conclusions stated in this section of the IS/MND lack factual support in the absence of information demonstrating that the analysis includes consideration of the bridge which, by its elevated nature, creates a greater safety risk than a grade-level roadbed in the event of an earthquake event.

19-15

Road Design

The environmental impacts analysis in the IS/MND is based upon the current roading design. If the design changes, the impacts change. The current design of relocated Vine Street in Alternative 2 does not provide the required minimum sight distance. (See July 17, 2008 letter from Jeffrey Wagner of eda to Stephen Sahadi, attached.) Consequently, for the IS/MND to be completed and accurate as required by CEQA, a redesign of the Alternative 2 version of Vine Street must be done, and an analysis of environmental impacts associated with the redesign must be completed.

19-16

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Traffic Impact Conclusions

The IS/MND says that "the operations in alternative 2 are better than alternative 1." (pp. vi. and 57) That conclusion conflicts with the quantitative data provided in the IS/MND: Alternative 1 results in a Theatre Drive/46 LOS of B/C, where alternative 2 results in an LOS of C/C. (p. 19.) Attached please find a letter report dated July 12, 2008 from Mark Lenters, P.E. of Ourston Roundabout Engineering. As their name suggests, Ourston has a particular expertise in roundabout design. According to Ourston, Alternative 2 is operationally inferior to Alternative 1, based upon a quantitative analysis. In Attachment #1 to their report, they identify eight computation errors they discovered in the URS Draft Project Report. Ourston recommends consideration of two additional alternatives for the roundabout design, each of which would improve operations compared to either of the Alternatives described in the IS/MND.

19-17

Additionally, the IS/MND states that the Project could save the public $44 Million Dollars in avoided delays between 2018 and 2038 when compared to the No Project Alternative. (p. 55.) Missing from the IS/MND analysis is any comparison of the estimated savings arising from delay reductions comparing Alternative 1 with Alternative 2. Those figures, and the data upon which they are based, are necessary for the public to know the benefits of either Alternative over the other.

19-18

Finally, the IS/MND needs to include an aspect of significance in the analysis of the volume to capacity ratios and delay per vehicle ranges discussed for each Alternative on pages 56 and 57. While the document states on page 57 that these figures reflect that Alternative 2 will perform better than Alternative 1, it appears from the figures that the "improvement" in the operation is so nominal that it does not justify the additional environmental impacts and expenses associated with Alternative 2. Further, the Ourston Report suggests that these figures provide an incomplete view of the overall performance of each Alternative.

19-19

Cost Estimates

The IS/MND states that Alternative 1 would cost substantially less than Alternative 2 ($29,929,000 vs. $35,668,000) and would require the acquisition of less right of way (4.69 acres vs. 7.27 acres) (p. 19). However, the cost documentation (the May 8, 2008 Data Report) provides insufficient detail to support the cost or acreage conclusions. On CENCO's parcel alone, Alternative 2 would require acquisition of approximately an acre of right of way (compared to a few

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thousand square feet for Alternative 1). Further, Alternative 2 bisects the CENCO parcel at the edge of a plateau, with the terrain sloping down immediately south of the roadbed. As a result, there will be no safe access to the 2+ acre remainder of CENCO's parcel, and difficulty building into the slope even if access were available. Accordingly, we believe that the Project will be required to acquire this 2+ acres, which is not accounted for in either the cost or acreage conclusions. In order for the cost and acreage figures to be accurate, the IS/MND must address this issue.

19-21

The Data Report appears to have relied on outdated data from May of 2006. Recent sales of comparable properties by the City for the Project (see map at p. 47) have been in the $20 - $36 per square foot range. Consequently, the additional acquisition costs for Alternative 2 solely for the 3+ acres of the CENCO parcel (see July 17, 2008 letter from eda to Stephen Sahadi, attached), appears to be in the $4,000,000 (at $30/sf) to $5,000,000 at ($36/sf) range.[2] Add to that (1) the costs of acquiring the acre+ from the adjacent County parcel to the west for the right of way, (2) severance damage issues those owners may have regarding the south end of their parcel which would be similarly rendered unusable, (3) litigation expense regarding both CENCO's parcel and the parcel to the west, and (4) the estimated $2.3 million for the bridge, and Alternative 2, accurately estimated, will cost over $40 Million Dollars, $10 Million Dollars more than Alternative 1.

19-22

Page 16 of the Draft Project Report states that another previously considered alternative design estimated to cost $40.7 Million Dollars was rejected due to excessive cost. It appears from the facts that Alternative 2 is similar to that rejected alternative in cost and impacts. The IS/MND must be augmented to include sufficient information so that the public can determine accurate acreage figures (including lands required for slope or other easements) and updated cost information demonstrating realistic present day acquisition and construction costs associated with each Alternative.

Miscellaneous

19-23

Page 12 has the construction phasing for both Alternatives, but the phasing for Alternative 1 does not mention the Vine Street relocation. Though the document

[2] Not included in this calculation are severance damages to the portion of CENCO's parcel north of relocated Vine. Though CENCO has a legal right to access from Vine Street (see Deed recorded May 12, 1964 at Volume 1297, pages 14-16), the curve of Vine Street in Alternative 2 could result in the absence of any safe second point of access to CENCO's parcel, resulting in substantial diminution in the value of the land. The IS/MND should include a diagram demonstrating access locations to CENCO's land north of relocated Vine, just as it shows access to parcels along Theatre Drive (p.17).

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discusses right-of-way acquisition for non-residential parcels with buildings (p. 44 - this discussion is in the context of relocation benefits), there is no discussion of how many vacant parcels, such as CENCO's, would be affected by each of the Alternatives, and the degree of impact on each parcel. From the mapping on page 31, it appears that three parcels would be affected by Alternative 2 (with Vine Street bisecting two of those three parcels), while only two vacant parcels would be affected by Alternative 1 (with Vine Street only clipping the corner of both of those parcels).

Recirculation

Based on the deficiencies described above, the IS/MND will need to be recirculated (CEQA Guidelines § 15073.5), unless it qualifies to proceed under CEQA Guidelines Section 15074.1 and CalTrans holds the public hearing required by that Section. 19-24

Environmentally Superior Alternative

Alternative 1 is clearly the environmentally preferable Alternative. Compared to Alterative 2, Alternative 1 involves fewer impacts in the following categories: visual/aesthetic, storm water runoff (2.3 acres of impervious surface vs. 3.5 acres) (p.73), trees (loss of 34 oak trees vs. 45) (pp. vii, 118), ground disturbance causing construction-related emissions (20.2 acres vs. 24) (pp. 13, 73) and size of project footprint (p. 13), and farmland loss (3.95 acres vs. 4.85) (p. 19). Alternative 1 would involve permanent impacts to less acreage of natural communities (.96 vs. 2.16) (p. 117) and temporary impacts to less acreage of natural communities (2.0 vs. 4.56) (p. 118). While Alternative 1 would impact nominally more jurisdictional waters (.38 acres vs. .29), there are no wetlands affected under either alternative. 19-25

A portion of the funding for this Project will come from the Federal government, and accordingly, Federal laws and policies apply. As noted on page 58 of the IS/MND, the "National Environmental Policy Act [23 U.S. Code §109(h)] directs that the final decisions regarding projects are to be made in the *best overall public interest taken into account adverse environmental impacts, including among other destruction or disruption of aesthetic values" (italics added)*. The IS/MND then notes that CEQA contains similar requirements. These same requirements are found in California's eminent domain law, which requires that projects be designed in a manner that affords the greatest public good with the least private injury (Code of Civil Procedure Section 1245.230(c)(2)). 19-26

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19-27

Based on the currently incomplete analyses provided in the IS/MND, it appears abundantly clear that Alternative 1 is superior in terms of environmental impacts, General Plan consistency, cost effectiveness and operational efficiency. Consequently, there is no justification for the selection of Alternative 2 over Alternative 1 consistent with Federal and State Law.

Thank you for the opportunity to comment on the IS/MND. We look forward to CalTrans' responses to this comments, and to the completion of the project approval process that complies in all respects with the requirements of CEQA, NEPA, and all local regulations.

Very truly yours,

Barton Hechtman

BARTON G. HECHTMAN

Att.
cc: (by email only)
Iris Yang, Paso Robles City Attorney
John Falkenstein, Paso Robles Public Works Director
Steve Sahadi
Fred Sahadi
Dennis Law
Mike Thomas, CalTrans

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Response to Comment 19-1:

The CENCO property referred to in the comment letter is identified as Assessor Parcel Number 009-631-011. Figure 2.1-4, Potential Project Displacements, City-Owned Parcels, and Right of Way Acquisitions, identifies this parcel number in the northwest quadrant of the US 101/State Route 46 West interchange.

We agree in part with the comment: Build Alternative 1 is consistent with the General Plan. But we respectfully disagree with the portion of the comment that concludes Build Alternative 2 is not consistent with the General Plan. The project does not change the land use designation, and the comment is speculative on the future commercial use of that parcel with implementation of Build Alternative 2.

Both build alternatives address the issues, as shown in Table 1.3-1 "Comparison of Project Effects by Alternative, and are consistent with the City General Plan, as discussed in Section 2.1.1.2 "Consistency with State, Regional and Local Plans" of this document. Although Build Alternative 2 would require more right-of-way from the identified 12.9-acre parcel than Build Alternative 1 would, neither alternative substantially affects the overall existing condition of the parcel because Build Alternative 2 follows existing contours as shown in Figure 1.3-2 of this document and provides greater frontage road access potential to the parcel in question. Any development of the southerly portion of the parcel with or without the proposed project would need to consider the existing terrain. It should be noted that the alignment of the frontage road may change in final design as long as it is consistent with the analysis of the environmental clearance, but the principle of the commercial viability of the parcel is maintained in each alternative.

Response to Comment 19-2:

The Initial Study/Mitigated Negative Declaration and Natural Environment Study (Minimal Impacts) specifically include discussion on aesthetic, planting and grading concerns in Section 2.1.7 "Visual/Aesthetics" and Sections 6 "Avoidance and Minimization Measures," respectively. Oak tree issues are again specifically addressed in relation to the City Oak tree ordinance in Section 2.3 "Biological Environment." The Visual Impact Assessment (pages 3-4 and 3-5) for the project explicitly addresses the project's consideration of the referenced City Oak Tree Ordinances and specifically Title 20 (Grading) of the City's Municipal Code as it relates to management of grading and excavation-related activities.

Please see response to comment 19-1 for grading considerations; response to comment 7-1 for visual impacts addressing grading concerns; and response to comment 7-2 for discussion

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on oak tree impacts and mitigation issues. Response to comment 7-2 also notes updated tree surveys that were done; the updated Natural Environment Study (Minimal Impacts) (2009) concluded that Build Alternative 1 resulted in 24 oak tree impacts and Alternative 2 resulted in 49 oak tree impacts. The comment states that Build Alternative 1 is more compatible with the City General Plan based on tree and grading consideration, but does not note the need to balance all impacts and differing levels of benefits. Please see response to comment 15-5. Examples of consideration in addition to grading and oak tree impacts include the considerations of the City's Circulation Element of the General Plan, the continuity of frontage roads, system hierarchy and relative congestion relief as discussed in response to comment 14-1, or with regard to other matters of consistency with federal, state, regional and local goals as discussed in response to comment 21-3.

Response to Comment 19-3:

A Visual Impact Assessment was prepared for the proposed project, and the results are included in this document. The Visual Impact Assessment specifically addresses, and takes into account, applicable federal, state, and local planning policies. Local policies include the county and city policies on visual and aesthetic resources. The City of Paso Robles' visual gateway is specifically discussed in Section 2.1.7 Visual/Aesthetics, the Existing Visual Character subsection, of this document. In addition, the Visual Impact Assessment identifies Key View 2 as the view for travelers eastbound on State Route 46 West traveling toward US 101. The existing visual character from Key View 2 is co-dominant urban/rural with some open space/rural influences, mature trees, traffic lights, street signs, and other roadway features. This key view was selected as a key visual simulation location in coordination with Caltrans. As the proposed project would introduce a newly aligned roadway and roundabout, several measures including landscaping and aesthetic treatments would be implemented. This environmental document includes recognition of the visual gateway aspects of the location, and the Visual Impact Assessment considered this aspect. See also response to comments 1-5 and 7-1.

Response to Comment 19-4:

The comment correctly notes that the environmental document states that Build Alternative 2 would have a greater footprint and therefore a greater visual impact overall than Alternative 1; Table 2.1-10 lists the key views and resulting visual impacts by each alternative from the perspective of each key view. The simulations are for Key View 2, and that view has been shown to be less affected by Build Alternative 2. Key View 3 is shown to have a higher level of impact with Build Alternative 2. Both key view impacts are in the Low/Moderate and

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Moderate range without substantial difference or impacts. Please note that simulations are conceptual in nature; they are not detailed landscape plans.

Response to Comment 19-5:

This document and the Visual Impact Assessment contain discussion related to the visual impact analysis done from the perspective of Key View 3; in Table 2.1-10 "Visual Environment, Before and after Proposed Project" of this document and at various points, but more specifically on pages 6-7 through 6-9 of the Visual Impact Assessment. Comparison between alternatives was also noted in Section 2.1.7 Visual/Aesthetics, the Environmental Consequences subsection, under headings Build Alternative 1 and 2 of the environmental document as noted in the previous comment (comment 19-4).

Refer to response to comment 7-1 regarding the visual analysis for the proposed South Vine Street bridge for motorists traveling eastbound and westbound along State Route 46 West. The analysis is based on actual visibility by the traveling public considering geographic and other visual obstructions not readily apparent when looking at a two-dimensional graphic. Field reviews were done after receipt of comments to confirm prior decisions on the appropriateness of key views contained in the Visual Impact Assessment. This document does not include impacts sufficient to require an Environmental Impact Report.

Response to Comment 19-6:

The City's Oak Tree Ordinance was considered during the project development process by the Project Development Team, which was formed early in the project and consisted of personnel from the City, Caltrans, San Luis Obispo Council of Governments, County and consultant firms. See the updated discussion in Section 2.3.1 "Natural Communities" of this document. Roadway alignments were designed to minimize oak tree and grading impacts; this is now specifically clarified as discussed in Section 5 of the Project Report. The Project Development Team decided to use a 10:1 ratio in lieu of the City Ordinance requirements for unavoidable oak tree impacts. Refer to responses to comments 7-2 and 15-1 through 15-5.

Response to Comment 19-7:

Please refer to responses to comments 7-2 and 15-1 through 15-5 regarding analysis and replacement ratios for anticipated impacts to oak trees as well as results of subsequent oak tree surveys done after circulation of the draft environmental document. See the revised Natural Environment Study (Minimal Impact) (2009) for additional discussion.

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Response to Comment 19-8:

We respectfully disagree with the statement that the environmental document masks the real difference between alternatives in terms of oak loss. This document includes individual oak tree data to provide readers with the mitigation intent, overall mitigation strategy and individual tree impacts. Individual tree counts have been verified and included in this document and Natural Environment Study (Minimal Impact) (2009). The focus of the mitigation strategy is creation of oak woodland. A 10:1 oak tree replacement mitigation ratio is a more aggressive mitigation strategy in terms of creation of oak woodland and total number of mitigation oak tree plantings than the City Ordinance requirements. Please see responses to comments 7-2 and 15-2.

Response to Comment 19-9:

Please refer to responses to comments 7-2 and 15-1 through 15-5 regarding analysis and replacement ratios for anticipated impacts to oak trees as well as results of subsequent oak tree surveys done after circulation of the draft environmental document. See also the updated Natural Environment Study (Minimal Impact) (2009). The response to comment 7-2 and the updated Natural Environment Study (Minimal Impact) (2009) contain figures showing the specific oak tree impacts, including dbh measurements and species details.

Response to Comment 19-10:

Please refer to above response regarding the results of the confirmation tree survey information contained in the updated Natural Environment Study (Minimal Impact) (2009) and additional information regarding oak tree planting, protection and monitoring contained in response to comments 7-2 and 15-1, in particular as it relates to anticipated project-related impacts to oak trees and the basis for oak tree mitigation (including means to protect planted oak trees from, among other things, wildlife during the establishment period). The Natural Environment Study (Minimal Impact) Section 5 Project Impacts has been updated to reflect the results of the subsequent tree surveys. Measures addressing oak tree replacement ratios in Section 7.0 (Mitigation Measures) of the Visual Impact Assessment have been updated to match that reported in the Natural Environment Study (Minimal Impact) and this document (Section 2.3.1 Natural Communities) to be consistent.

Response to Comment 19-11:

We respectfully disagree with this comment as it implies that this environmental document is required to study temporal loss of oak tree canopies and that mitigations are required to be included or the document is deficient. No such requirement exists, and the Natural

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Environment Study (Minimal Impact) specifically notes that the project is not expected to affect special-status plant or wildlife species, their habitats, or special aquatic resources (see Natural Environment Study [Minimal Impact] Section 1. Summary) and identifies mitigation measures for general grading and vegetation clearing.

Response to Comment 19-12:

With regard to Public Resources Code Section 21083.4, the Natural Environment Study (Minimal Impact) determined that the oak woodland is characterized as Disturbed/Oak Savannah with understory characteristic of grazing activities (Natural Environment Study [Minimal Impact] Section 4.1.1.1 Vegetation Community Types). The proposed project, regardless of alternative selected, would not result in a substantial impact to oak woodlands (Natural Environment Study [Minimal Impact] Section 4.2 Regional Species and Habitats of Concern). Therefore, the proposed project is not subject to the particular oak woodlands mitigation of Public Resources Code Section 21083.4. However, the project would comply with the spirit of the mitigation policy defined by Public Resources Code Section 21083.4(b)(2)(A) and would focus on oak woodland conservation and mitigation. Please refer to responses to comments 7-2 and 15-1.

Response to Comment 19-13:

With regard to access limitations, as shown on Figure 2.1-2 of this document, the CENCO property is served at its northern perimeter area by Wilmar Place, which connects to South Vine Street. Wilmar Place continues westerly to bisect the referenced parcels immediately west of the CENCO parcel and provides access to South Vine Street from those parcels. Wilmar Place does not have direct access to State Route 46 West, but the agricultural parcels immediately at and east of the proposed South Vine Street connection to State Route 46 West do have access control breaks to the state route.

Annexation by the City of unincorporated County land, zoning of the area for development and then approval of development require multiple actions, approvals by a variety of agencies, and the consideration of such future development is too speculative to be analyzed in detail; the California Environmental Quality Act specifically excludes from analysis (cumulative impacts analysis) speculative actions/development. No less, any request to develop land on nearby parcels would be subject to the County's (and City's) development review process separate from the proposed transportation operational improvement project discussed in this document. Furthermore, while it is true that Build Alternative 2 would locate South Vine Street through currently undeveloped land under the jurisdiction of the

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County, the most of this frontage is expected to be a limited access roadway due to physical constraints. Please see response to comment 21-6.

Response to Comment 19-14:

Please refer to responses to comments 19-13 and 21-6 regarding the proposed project's influence of hastening development on adjacent/nearby undeveloped lands.

The proposed project, regardless of alternative built, would not affect active farmland as noted in Section 2.1.3 (Farmlands) of this document. That section also discusses the Farmland Conversion Rating analysis that documented the lack of substantial impact to farmlands. See also response to comment 21-7.

Response to Comment 19-15:

This comment states there is no discussion on seismic risks with regard to design of the bridge structure. The requirement to use the maximum credible earthquake in the design of structures by Caltrans standards is discussed in Section 2.2.3 Geology/Soils/Seismic/ Topography, the Environmental Consequences subsection. Table 2.2-1 "Summary of Potential Seismic Sources" in Section 2.2.3 Geology/Soils/Seismic/Topography lists various faults and the approximate maximum credible earthquake values. Source citation for that listing includes the City's Hazard Mitigation Plan. Figure S-3, Liquefaction Risk, of the City of Paso Robles General Plan was used in the analysis of liquefaction risk. As noted in the General Plan Safety Element, Seismic and Geologic Hazards Section, the assessment contained in the Safety Element and its appendix should be used as a general guide to indicate when further study may be needed. As indicated in this document, site-specific geotechnical and geological studies that focus on potential liquefaction hazard would be performed as part of the project design studies. The project components would be designed and built to the seismic design requirements for ground shaking specified in the project design documents.

Response to Comment 19-16:

This comment is based on the erroneous assumption that South Vine Street is designed for a 35-mile-per-hour design speed. See response to comment 16-1. The horizontal and vertical geometry of South Vine Street was designed in accordance with Highway Design Manual standards, including stopping sight distance, for a 25-mile-per-hour design speed per City direction, not a 35-mile-per-hour design speed as presumed in the comment.

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Response to Comment 19-17:

This comment relies on comments contained in set 14. Please see prior responses to comments 14-1 through 14-5.

Response to Comment 19-18:

The Build versus No-Build comparison was listed as the primary comparison; cost comparisons and the magnitude difference in delays was also reported. Section 2.5 has been updated to reflect additional tools and analysis available for quantification of greenhouse gas emissions and now also includes estimated delay savings for either alternative. As would be expected, the lower expected delays of Build Alternative 2 would mean a higher level of savings due to the cost of delay. The delay differences and corresponding savings are relatively comparable for the build alternatives and therefore not a substantial difference between alternatives.

Response to Comment 19-19:

This comment requests an aspect of significance be applied to the volume-to-capacity ratios, speculates that operational differences are so nominal that the differences don't justify cost differences, and further speculates that the operational analysis provides an incomplete representation per the comments contained in comment set 14. This document summarizes a variety of technical reports; the section in question contains a summary of the Traffic Report. More detailed discussion of volume-to-capacity levels for various legs of the roundabouts and their interrelation with queue distances can be found in the Traffic Report.

Level of significance will vary due to consideration of system hierarchy and interpretation and is not a standard that can be readily defined across circumstances or facilities and is therefore not appropriate as requested. The comment concludes that, based on operational delay differences between alternatives, the cost differences outweigh the benefits. In addition, the ORE methodology is referred to by the comment as support for speculating that an incomplete view of the operations is provided. Please see responses to comments 14-1 through 14-5 and 13-1 and 13-2 for discussion on system hierarchy as well as other benefits of system separation that are not accounted for by this comment.

Response to Comment 19-20:

We respectfully disagree with this comment's conclusion that insufficient information was provided in the May 8, 2008 Draft Project Report. The Draft Project Report, as referenced by this comment, includes details to support cost and acreage estimates used. Construction cost

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estimates as itemized in Attachments G1/G2, right-of-way impacts are delineated with acreage calculations shown in Attachments H and J and Right of Way data sheets are also attached (per Caltrans Project Development Procedures Manual and Right of Way valuation processes). Given these data sets, the comment approximates the Build Alternative 2 impact on the CENCO parcel of 0.867 acre as 1 acre, but incorrectly characterizes the Build Alternative 1 impact of approximately 0.454 acre as a few thousand square feet. The comment then describes a bisecting of the parcel on the south side of the parcel caused by the Build Alternative 2 South Vine Street alignment and concludes there will be no safe access to approximately 2 acres, with further speculation that the access issue is incorrect, and then difficulty in building on the sloping area remains as a problem. The comment finishes with the conclusion that the project should buy the approximate 2 acres that was not accounted for and the environmental document must address this.

Safe access can be achieved as long as safe stopping sight distances are met and the project is designed to meet stopping site distance criteria per professional standards and as further discussed in response to comment 16-1. With regard to sloping terrain, the natural slope of the parcel is shown in Figures 1.3-1 and 1.3-2 of this document. Contours show slopes ranging from 11:1 to 4:1 outside of the defined ravine and the cut and fill lines of the proposed grading for the roadway to be minimal; in other words, the roadway is following the existing and natural grade of the parcel. The project right-of-way impacts were reviewed by the City Engineer, and it was determined that commercial viability was not negated by the project. Difficulty building on a slope is a subjective reference, and the project does not affect the existing condition of that slope. It should be noted that design variations of the alignment are possible within the parameters of the environmental clearance, that the project is likely to be phased over multiple phases and years, that valuation of the property is subject to change due to market conditions, and that the project cost estimates include substantial contingencies to account for expected fluctuations.

The process for valuation and negotiation of property acquisitions is a legally prescribed process with safeguards for independent valuation and review. This process would be used by the agencies at the appropriate time of project delivery. We respectfully disagree with the conclusions of this comment.

Response to Comment 19-21:

We respectfully disagree per response to comment 19-20. It is important to note that while market conditions will cause fluctuations of actual anticipated costs, the estimates include contingencies and are used for relative comparison of alternatives.

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Response to Comment 19-22:

This comment references page 18 of the Draft Project Report. On page 18 of the Draft Project Report, the previously rejected alternative is described as having excessive cost and construction impacts, including replacement of US 101 structures and two new bridges over the unnamed creek. These issues are not similar to this case. Prior comparison of alternatives and estimation of their costs were done at the Project Study Report phase, an earlier more preliminary planning level study. Those comparisons used equivalent assumptions and unit costs between those alternatives, which is not true if attempting to compare to a different set of assumptions. It is not an "apples to apples" comparison and not directly comparable to the alternatives contained in the current study. Please see response to comment 19-20 on procedures for determining cost and right-of-way data for relative comparison of alternatives.

Response to Comment 19-23:

Phase 1 of Build Alternative 1 includes construction of the southbound ramp roundabout. This would require the relocation of South Vine Street. The document discusses structure impacts and relocation processes. The citation to "page 44" as referenced by the comment is specific to the section discussing relocations, which would not be applicable to undeveloped land. Please see response to comment 19-20 for information on right-of-way data.

Response to Comment 19-24:

Per the response to comments discussed within this section, we disagree that this document requires recirculation. As stated in California Environmental Quality Act Guidelines Section 15073.5(a), "a lead agency is required to recirculate a negative declaration when the document must be substantially revised after public notice of its availability." Further, and as stated in California Environmental Quality Act Guidelines Section 15073.5(b), a "substantial revision" of the negative declaration shall mean: (1) "a new, avoidable significant effect is identified and mitigation measures or project revisions must be added in order to reduce the effect to insignificance;" or (2) "the lead agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significance and new measures or revisions must be required."

Finally, and as set forth in California Environmental Quality Act Guidelines Section 15073.5(c), "recirculation is not required under the following circumstances: (1) mitigation measures are replaced with equal or more effective measures pursuant to Section 15074.1; (2) new project revisions are added in response to written or verbal comments on the project's effects identified in the proposed negative declaration which are not new avoidable significant effects; (3) measures or conditions of project approval are added after circulation

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of the negative declaration which are not required by CEQA, which do not create new significant environmental effects and are not necessary to mitigate an avoidable significant effect; and (4) new information is added to the negative declaration which merely clarifies, amplifies, or makes insignificant modifications to the negative declaration."

Given the above criteria set forth in the California Environmental Quality Act Guidelines regarding when it is that a lead agency must recirculate a negative declaration, and as demonstrated in the responses to comments provided in this document, no substantial revisions to the environmental document (Mitigated Negative Declaration) are required based on comments received subsequent to noticing the availability of, and circulating, the draft environmental document. As detailed in response to comment 7-2, additional mitigation measures have been incorporated into the project to improve the effectiveness of oak tree plantings to account for those anticipated for removal. In addition, Section 2.5, Climate Change under the California Environmental Quality Act, of this document has been updated to include a quantitative greenhouse gas emissions analysis for the project alternatives per pertinent guidelines and legislation. Please also refer to responses to comments 17-1 and 20-7 for additional information regarding the expanded greenhouse gas emissions analysis included in this document. Updating of the greenhouse gas emissions analysis does not result in an avoidable environmental effect; the update clarifies and amplifies the analysis in this document.

With regard to California Environmental Quality Act Guidelines Section 15074.1, and as further detailed in previous responses to comments (responses to comments 7-2 and 15-1), no "infeasible" or "undesirable" mitigation measures have been "deleted" or "substituted." Rather, and as noted above, additional mitigation measures have been incorporated into the project to improve the effectiveness of oak tree plantings to account for those anticipated for removal. More specifically, the original oak tree mitigation measures as provided in the Natural Environment Study (Minimal Impacts) and this document have been augmented to help ensure the effectiveness of that mitigation. Therefore, consideration of this final document is not subject to another public hearing, nor must Caltrans, as the Lead Agency, adopt a written finding that the added measures are equivalent or more effective in mitigation impacts to oak trees.

Response to Comment 19-25:

Thank you for your comment. Your interest in the project and environmental process is appreciated.

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As detailed in Table 2.1-10 of this document, impacts to the five key views resulting from Build Alternatives 1 and 2 would vary at each respective key view from low to moderate; neither of the build alternatives would result in a substantial visual impact. The only key view under Build Alternative 2 would result in a greater visual impact is Key View 3 (Alternative 1 = Low/Moderate impact, whereas Alternative 2 = Moderate impact). In fact, Build Alternative 1 would result in a greater visual impact than Build Alternative 2 at Key Views 2 and 5. The proposed project, regardless of build alternative implemented, would not result in a substantial visual impact.

As the comment states, Build Alternative 1 would result in an area of reduced impervious surface (2.3 acres) compared to Build Alternative 2 (3.5 acres). However, with the implementation of storm water management measures described in Section 2.2.2 (Water Quality and Storm Water Runoff), impacts to water quality and storm water runoff would be reduced to inconsequential levels.

With regard to oak trees, and as noted previously (responses to comments 7-2 and 15-1), the results of the subsequent on-foot tree surveys revealed that Build Alternative 1 would remove 24 oak trees, whereas Build Alternative 2 would remove 49 oak trees. As further detailed in response to comment 7-2, additional oak tree mitigation measures have been added to the project to increase the effectiveness of the mitigation. Regardless, impacts to oak trees, particularly with the mitigation measures incorporated into the project, would continue to be inconsequential.

It is true that the area of ground-disturbance (project footprint) is greater for Build Alternative 2 than Build Alternative 1. However, with regard to construction-related air quality emissions, and as further detailed in the "Construction (Short-term) Emissions" section of Section 2.2.6 (Air Quality) of this document, project construction is not anticipated to exceed the San Luis Obispo County Air Pollution Control District's thresholds for fine particular matter with implementation of at least one daily watering of all disturbed areas.

With regard to impacts to farmlands, and as further detailed in Section 2.1.3 (Farmlands) of this document, Build Alternative 1 is anticipated to affect 3.95 acres of farmland, whereas Build Alternative 2 is anticipated to affect 4.85 acres of farmlands. However, no portion of the area encompassing the farmlands is currently being actively used (cultivated or harvested) as farmland. As Section 2.1.3 (Farmlands) of this document states, Caltrans' consultation with the Natural Resources Conservation Service revealed that the proposed project, regardless of build alternative implemented, would result in a very minimal amount of potential farmland conversion as a percentage compared to total existing farmlands within

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the County planning area. Therefore, neither Build Alternative 1 nor Build Alternative 2 would result in a substantial amount of farmland conversion.

As the comment states, and as further detailed in Table 2.3-1 (Permanent Impacts to Natural Communities) and Table 2.3-2 (Temporary Impacts to Natural Communities) in Section 2.3.1 (Natural Communities) of this document, Build Alternative 2 would result in higher levels (acreage) of permanent and temporary impact to natural communities. However, and as further described in Section 2.3.1 (Natural Communities), neither build alternative would result in any impact to special-status species. Furthermore, implementation of revegetation, including the oak tree mitigation described in the above responses to comments, would keep impacts to natural communities to a level of insignificance.

Build Alternative 1 would affect more acreage of waters (0.38 acres versus 0.29) subject to the jurisdiction of the U.S. Army Corps of Engineers, California Regional Water Quality Control Board, and California Department of Fish and Game, as described in Table 2.3-3 (Estimate Impacts to Jurisdictional Areas) of this document. No wetlands would be affected under either build alternative.

Selection of the preferred alternative takes into account a variety of factors: environmental (human, physical, and biological), engineering feasibility/practicability, and economic considerations, as well as public and agency input.

Response to Comment 19-26:

The project would comply with all applicable California Environmental Quality Act and National Environmental Policy Act requirements. Thank you for your comment and participation.

Response to Comment 19-27:

We disagree with the conclusion that the current analysis is incomplete for the reasons contained in these responses to comments. This environmental document was prepared with current available information and incorporated the use of technical studies prepared specifically for the proposed project. We also disagree with the conclusive comment that "there is no justification for the selection of Alternative 2 over Alternative 1." As stated in Section 1.3.3 (Comparison of Alternatives) in this document, after the public circulation period, all comments will be considered, and Caltrans will select a preferred alternative and make the final determination of the project's effect in the environment. Further, identification of the preferred alternative takes into account a variety of factors, including environmental impacts and the potential for successful mitigation of those impacts, engineering feasibility

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and the success in achieving the project's purpose, economic considerations, plus public and agency input. Section 1.3.4 of this document outlines the reasons why Caltrans identified Build Alternative 2 as the preferred alternative.

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Comment Set 20

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN LUIS OBISPO

July 18, 2008

Michael Thomas, Senior Environmental Planner
California Department of Transportation (Caltrans)
50 Higuera Street
San Luis Obispo, CA 93401

SUBJECT: APCD Comments Regarding the Highway 101/State Route 46 West Interchange Improvement Initial Study/Mitigated Negative Declaration (EA 05-451300)

Dear Mr. Thomas,

Thank you for including the San Luis Obispo County Air Pollution Control District (APCD) in the environmental review process. We have completed our review of the proposed Caltrans highway interchange project that would reconstruct the existing southern Paso Robles US 101/State Route 46 West compact diamond interchange that has signal controlled ramp intersections into two roundabouts. *The following are APCD comments that are pertinent to this project.*

GENERAL COMMENTS

As a commenting agency in the California Environmental Quality Act (CEQA) review process for a project with the potential to cause adverse health or air quality impacts, the APCD assesses the impacts from both the project's construction and operational phases, with separate significant thresholds for each. **Please address the action items contained in this letter that are highlighted by bold and underlined text**.

CONSTRUCTION PHASE MITIGATION

Naturally Occurring Asbestos (NOA)

20-1

The proposed Mitigated Negative Declaration stated:

> The Geological Map of California, San Luis Obispo Sheet, shows there are no ultramafic rocks (type of rock that may contain naturally occurring asbestos) within 12 miles of the project area, and these are generally separated from the project by the crest of the Santa Lucia Range. Therefore, the possibility of naturally occurring asbestos becoming airborne during construction is minimal. The need for minimization of naturally occurring asbestos is limited to that for fugitive dust.

This assessment is not consistent with California and APCD NOA policy. The project site is located in a candidate area for NOA (www.slocleanair.org/business/pdf/serpentine-apcd.pdf), which has been identified as a toxic air contaminant by the California Air Resources Board (ARB). Under the ARB Air Toxics Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations, **prior to any grading activities at the site, the project proponent shall ensure that a geologic evaluation is conducted to determine if NOA is present within the area that will be disturbed. If NOA is not present, an exemption request must be filed with the District (see Attachment 1). If NOA is found at the site the**

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applicant must comply with all requirements outlined in the Asbestos ATCM. This may include development of an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program for approval by the APCD. **Please ensure that this air quality mitigation measure is added to the Minimization Measures in the project's Mitigated Negative Declaration.** Please refer to the APCD web page at *http://www.slocleanair.org/business/asbestos.asp* for more information or contact the APCD Enforcement Division at 781-5912.

Developmental Burning

20-2

Effective February 25, 2000, **the APCD prohibited developmental burning of vegetative material within San Luis Obispo County.** Under certain circumstances where no technically feasible alternatives are available, limited developmental burning under restrictions may be allowed. This requires prior application, payment of fee based on the size of the project, APCD approval, and issuance of a burn permit by the APCD and the local fire department authority. The applicant is required to furnish the APCD with the study of technical feasibility (which includes costs and other constraints) at the time of application. **Please ensure that this air quality mitigation measure is added to the Minimization Measures in the project's Mitigated Negative Declaration.** If you have any questions regarding these requirements, contact the APCD Enforcement Division at 781-5912.

Demolition Activities

20-3

The project referral indicated that there are existing structures on the proposed site that will be demolished. Demolition activities can have potential negative air quality impacts, including issues surrounding proper handling, demolition, and disposal of asbestos containing material (ACM). Asbestos containing materials could be encountered during demolition or remodeling of existing buildings. Asbestos can also be found in utility pipes/pipelines (transite pipes or insulation on pipes). **If utility pipelines are scheduled for removal or relocation; or building(s) are removed or renovated this project may be subject to various regulatory jurisdictions, including the requirements stipulated in the National Emission Standard for Hazardous Air Pollutants (40CFR61, Subpart M - asbestos NESHAP).** These requirements include but are not limited to: 1) notification requirements to the District, 2) asbestos survey conducted by a Certified Asbestos Inspector, and, 3) applicable removal and disposal requirements of identified ACM. **Please ensure that this air quality mitigation measure is added to the Minimization Measures in the project's Mitigated Negative Declaration.** Please contact the APCD Enforcement Division at 781-5912 for further information.

Fugitive Dust Control Measures

20-4

The project's Minimization Measure for fugitive dust includes optional construction equipment combustion emission mitigation measures. These measures are not appropriate for controlling fugitive dust emissions and need to be removed from the fugitive dust Minimization Measure for the project. Construction equipment emissions requirements shall be addressed as stated below in this letter. The appropriate fugitive dust control measures for this project are identified immediately below:

The project's Mitigated Negative Declaration identifies that the project will not likely exceed the APCD's CEQA significance threshold for construction phase fugitive dust emissions. However,

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construction activities can generate fugitive dust, which could be a nuisance to local residents, businesses, and roadways in close proximity to the proposed construction site. Dust complaints could result in a violation of the District's 402 "Nuisance" Rule. **To minimize the potential for nuisance impacts, the "water for dust" air quality Minimization Measure in the project's Mitigated Negative Declaration needs to be expanded as follows:**

- Reduce the amount of the disturbed area where possible;
- Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible;
- All dirt stock-pile areas should be sprayed daily as needed; and,
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible, and building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

If these mitigation measures are not effective at controlling construction phase fugitive dust emissions from leaving the project site, then the project shall implement the following APCD fugitive dust control measures:

a. Reduce the amount of the disturbed area where possible,
b. Use of water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible,
c. All dirt stock pile areas should be sprayed daily as needed,
d. Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil disturbing activities,
e. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading should be sown with a fast germinating native grass seed and watered until vegetation is established,
f. All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the APCD,
g. All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used,
h. Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site,
i. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with CVC Section 23114,
j. Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site, and
k. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.

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All of the above listed construction phase fugitive dust mitigation measures shall be shown on grading and building plans. In addition, the contractor or builder should designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the APCD prior to land use clearance for map recordation and finished grading of the area.

20-5

Construction Permit Requirements

Based on the information provided, we are unsure of the types of equipment that may be present during the project's construction phase. **Portable equipment, 50 horsepower (hp) or greater, used during construction activities will require California statewide portable equipment registration (issued by the California Air Resources Board) or an APCD permit. The following list is provided as a guide to equipment and operations that may have permitting requirements, but should not be viewed as exclusive. For a more detailed listing, refer to page A-5 in the District's CEQA Handbook.**

- Power screens, conveyors, diesel engines, and/or crushers;
- Portable generators and equipment with engines that are 50 hp or greater;
- IC engines;
- Unconfined abrasive blasting operations;
- Concrete batch plants;
- Rock and pavement crushing;
- Tub grinders; and
- Trommel screens.

Please ensure that this air quality mitigation measure is added to the Minimization Measures in the project's Mitigated Negative Declaration. To minimize potential delays, prior to the start of the project, please contact the APCD Engineering Division at (805) 781-5912 for specific information regarding permitting requirements.

20-6

Construction Equipment Emissions and Mitigation for these Emissions

Ozone Precursors (Nitrogen Oxides & Reactive Organic Gases) & Diesel Particulate Matter

The project's Mitigated Negative Declaration did not provide an estimate of the construction equipment emissions and did not compare these emissions against the APCD's construction emission thresholds that are found in the APCD's CEQA Air Quality Handbook. To correctly assess and mitigate to a level of insignificance, the construction equipment emissions can be evaluated using the current URBEMIS 2007 model (version 9.2.4 found at **www.urbemis.com)**. This is the air quality emission estimation tool recommended for use by air districts throughout California and is used for evaluating operational and construction emissions associated with a project. The construction emission estimation tools that the APCD provided to Caltrans District 5 in our January 18, 2007 letter for the first phase of Highway 46 are now out of date and those tools have been replaced with the URBEMIS 2007 model. **The project's construction equipment emissions need to be evaluated, compared against the APCD's daily and quarterly construction phase thresholds, and define mitigation as appropriate. Please update the project's Mitigated Negative Declaration with this information and submit it the**

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APCD for review. Please contact Andy Mutziger in the APCD Planning Division at (805) 781-5912 if you would like an initial APCD review of this work prior to resubmitting the Mitigated Negative Declaration to the APCD.

20-7

Greenhouse Gas (GHG) Emissions

The Mitigated Negative Declaration states:

> Caltrans recognizes the concern that carbon dioxide emissions raise for climate change. However, modeling and gauging the impacts associated with an increase in greenhouse gas emission levels, including carbon dioxide, at the project level is not currently possible. No federal, state, or regional regulatory agency has provided methodology or criteria for greenhouse gas emissions and climate change impact analysis. Therefore, Caltrans is unable to provide a scientific- or regulatory-based conclusion regarding whether the project's contribution to climate change is cumulatively considerable.

On June 19, 2008, the State of California's Governor's Office of Planning and Research released a Technical Advisory entitled CEQA AND CLIMATE CHANGE: Addressing Climate Change Through California Environmental Quality Act Review. This document states:

> Lead agencies should make a good-faith effort, based on available information, to calculate, model, or estimate the amount of CO_2 and other GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities.

Regarding the determination of GHG impact significance, the Technical Advisory states:

> The potential effects of a project may be individually limited but cumulatively considerable. Lead agencies should not dismiss a proposed project's direct and/or indirect climate change impacts without careful available information and analysis should be provided for any project that may significantly contribute new GHG emissions, either individually or cumulatively, directly or indirectly (e.g., transportation impacts).

While the operational phase of the project will likely reduce idling and associated GHG impacts, the long-term operational and short-term construction GHG impacts should be determined. The URBEMIS model can be used to estimate CO_2 emissions during the both phases of the project and Caltrans should provide this estimation in the project's Mitigated Negative Declaration.

Regarding GHG impact mitigation, the Technical Advisory states:

> The lead agency must impose all mitigation measures that are necessary to reduce GHG emissions to a less than significant level. CEQA does not require mitigation measures that are infeasible for specific legal, economic, technological or reasons. A lead agency is not responsible for wholly eliminating all GHG emissions from a project; the CEQA standard is to mitigate to a level that is "less than significant."

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The APCD recommends that Caltrans follows OPR's recommendations and implement measures included in the Technical Advisory's guidance regarding mitigation of GHGs for the operational and construction phase of this project and integrate this into the project's Mitigated Negative Declaration.

20-8

OPERATIONAL PHASE MITIGATION

The APCD staff recognizes that the URBEMIS model is not sophisticated enough to discern the operational phase emission differences from the three alternatives. With that said, there are models available that can determine the emission benefits due to the congestion relief of roundabouts like those proposed by this project. The APCD recently reviewed these kinds of emission estimates that were provided for a project by a local consultant that used an Australian model called SIDRA. This model calculates comparative fuel use and operational phase vehicular emissions associated with alternatives for a roadway project. The model used Australian fleet information and the consultant corrected the model results using local fleet adjustment factors that they determined from the California EMFAC2007 model.

The APCD agrees that the proposed roundabouts will likely reduce the operational emissions for this project. However it is important for the CEQA evaluation of this project that those benefits are quantified for both traditional pollutants as well as GHGs and for a discussion of those benefits to be included in the project's Mitigated Negative Declaration.

Again, thank you for the opportunity to comment on this proposal. If you have any questions or comments, feel free to contact me at 781-5912.

Sincerely,

Andy Mutziger
Air Quality Specialist

AAG/AJM/arr

cc: Tim Fuhs, Enforcement Division, APCD
Karen Brooks, Enforcement Division, APCD
Gary Willey, Engineering Division, APCD

Attachments:
1. Naturally Occurring Asbestos – Construction & Grading Project Exemption Request Form, Construction & Grading Project Form

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Response to Comment 20-1:

~~The City of Paso Robles and Caltrans respectfully disagree with the classification of approximately half of San Luis Obispo County as having the potential to contain naturally occurring asbestos.~~ The attached map (Attachment A) compares the areas that have been classified as having the potential to contain ultramafic rock, source rocks for naturally occurring asbestos (from California Division of Mines and Geology open file report 2000-19), with the broad areas designated by San Luis Obispo Air Pollution Control District as having the potential to contain naturally occurring asbestos (striped area in Attachment A).

Specifically, the project area that is located at the junction of State Route 46 West and US 101 is not located within an area where naturally occurring asbestos has been documented as occurring (see pink colored areas in Attachment A). The project area is, however, located just within the outer limits of an area designated by San Luis Obispo Air Pollution Control District as having the potential to contain naturally occurring asbestos (striped area in Attachment A). However, the geotechnical studies done for the proposed project did not reveal the presence of naturally occurring asbestos; the absence of naturally occurring asbestos is consistent with the experience of the Caltrans Hazardous Waste Coordinator for the project area.

Under Caltrans' Standard Specifications, the contractor is required to follow all rules regulations and ordinances pertaining to air quality established by state, local and federal agencies. Naturally occurring asbestos is covered by the California Air Resources Board Airborne Toxic Control Measure. Adherence to this measure is normally dealt with in the Hazardous Waste Report.

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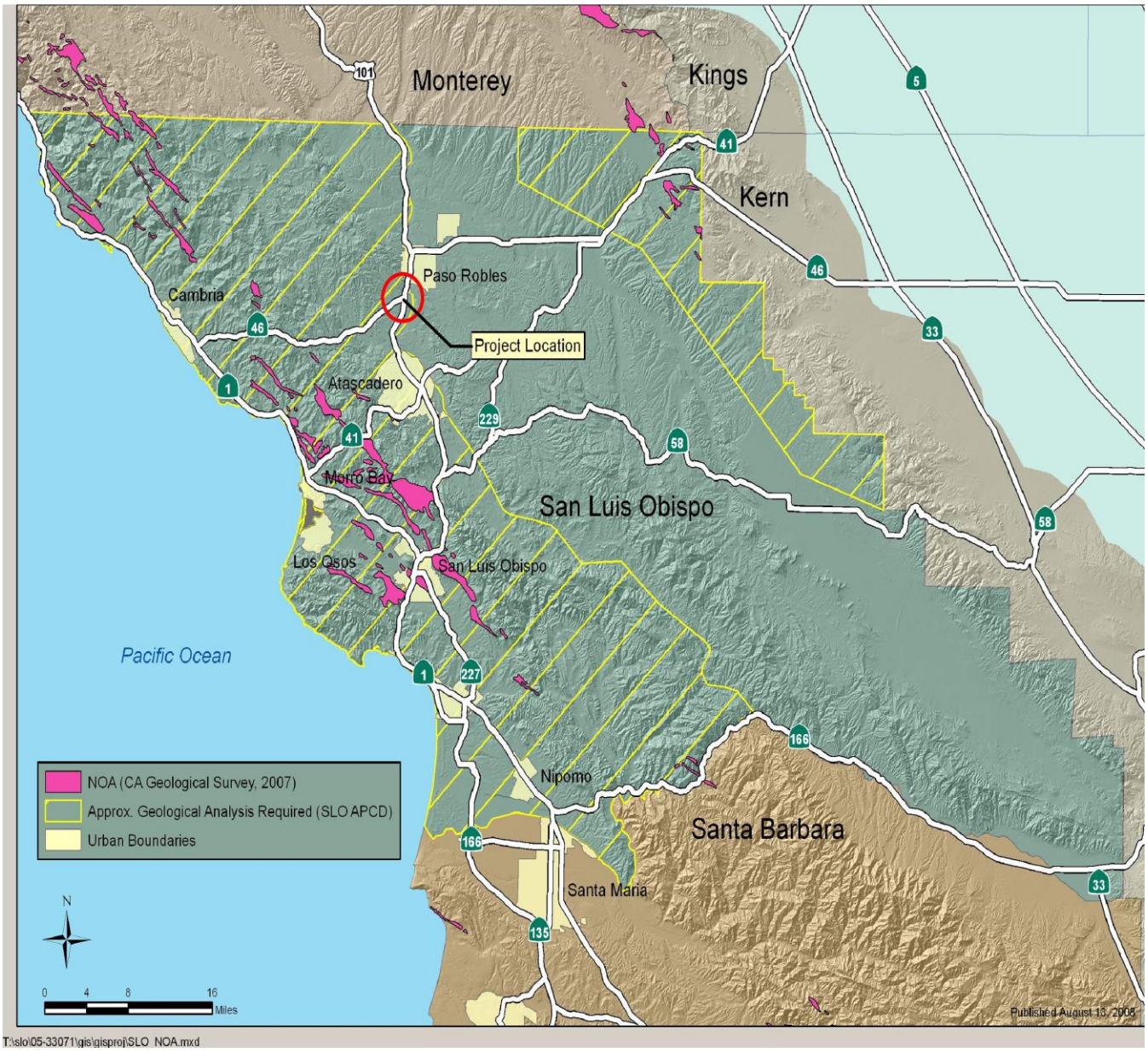
Attachment A:

A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Map



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Response to Comment 20-2:

The City of Paso Robles in conjunction with Caltrans acknowledges the requirements for a burn permit; however, no burning is proposed as part of the project.

The contact information provided for the Air Pollution Control District Enforcement Division is acknowledged. Thank you for the information.

Response to Comment 20-3:

The City of Paso Robles in conjunction with Caltrans is aware of the requirements for National Elimination System for Elimination of Hazardous Air Pollutants notification when structural demolition takes place. These activities are fully addressed in the project Hazardous Waste Report. The construction contractor is responsible for obtaining the appropriate inspections and permits.

Response to Comment 20-4:

Fugitive dust minimization measures have been corrected and listed in Section 2.2.6 Air Quality, under Avoidance, Minimization, and/or Mitigation Measures under AQ-4. The optional fugitive dust control measures would be provided to the resident engineer in case standard dust control measures contained in Caltrans Standard Specifications (Chapter 7-1.0IF, Chapter 10 and Chapter 17) are insufficient to keep dust from blowing off-site. Note that Section 2.26 Air Quality, Environmental Consequences subsection, under Construction (Short-term) Emissions, of this document established that fugitive dust from construction would be well within the guidelines established by San Luis Obispo Air Pollution Control District in its California Environmental Quality Act Guidelines.

The contractor is required to develop a plan to meet applicable air quality standards. That plan is subject to approval before the start of construction. If the contractor violates Rule 402 (Nuisance Dust), then the contractor is responsible for any corrective measures.

Response to Comment 20-5:

The City of Paso Robles in conjunction with Caltrans is aware of the permitting requirements for stationary equipment. The construction contractor is responsible for obtaining all required permits after the construction contract is signed (sometime after January 2015). Until that time, it is not known what equipment would be used on the project. The project Air Quality Report includes calculations of anticipated construction emissions and shows that these are

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well within the thresholds established by San Luis Obispo Air Pollution Control District in its California Environmental Quality Act Guidelines.

Because the area is in attainment or unclassified for all National Ambient Air Quality Standards, air quality conformity (calculations) are not required under the National Environmental Policy Act, and because the fugitive dust thresholds aren't exceeded, there are no significant impacts under the California Environmental Quality Act.

Response to Comment 20-6:

Refer to responses to comments 20-5 and 20-7.

Response to Comment 20-7:

As the San Luis Obispo Air Pollution Control District stated in its comments, the project would not increase operational (long-term) emissions of the primary greenhouse gas, carbon dioxide, because by improving the circulation at the new interchanges, the project would greatly reduce idling time, and would improve the movement of vehicles through the two new roundabouts.

The optimum emissions for CO_2, the main constituent of greenhouse gas, occur at speeds of 45-50 miles per hour according to the CALTRANS Emission Factors (EMFAC) Version 2.5 curves, while the highest emissions occur at idle to 15 miles per hour. The project would remove existing stoplights that cause (approximately half of) the vehicles passing through the existing intersection with signals to sit idling (for approximately half of the time) and would allow all vehicles to circulate through the new roundabouts at a safe speed without the stopping and idling, which would better match the optimal emissions for CO_2.

Section 2.5 Climate Change under the California Environmental Quality Act of this document has been updated to include additional qualitative discussion of greenhouse gas emissions for each alternative, including Build Alternatives 1 and 2 and the No-Build Alternative, associated with vehicle operations at the interchange area.

The qualitative analysis indicates that due to reduction in traffic delay, Build Alternative 1 would reduce CO_2 emissions at the interchange when compared to the no-build scenario, and Build Alternative 2 would further reduce daily CO_2 emissions at the interchange compared to Build Alternative 1.

In summary, Build Alternatives 1 and 2 would have the following greenhouse gas emissions-reducing benefits:

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- **Reduced congestion**: High traffic volumes and inadequate intersection geometry contribute to congestion, delays, and undesirable operating conditions at the interchange. Congestion relief would reduce long lines of traffic.
- **Improved traffic flow control**: Consistent movement would reduce the CO_2 emissions due to the relatively non-varying traffic speeds and flow through the Build Alternatives 1 and 2 as compared to the no-build scenario. Consistent flow through the roundabouts would reduce idling time, which in turn would reduce CO_2 emissions.
- **Reduced greenhouse gas emissions**: Both roundabout Build Alternatives 1 and 2 would result in fewer CO_2 emissions due to reduced stop-and-go movement as compared to the No-Build Alternative.
- **Traffic growth management**: Taking into account current growth variables projected by the U.S. Bureau of the Census, the build alternatives would better facilitate the projected increased number of vehicles in the project area.
- **Caltrans Standard Specification Provisions**: According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is to be restricted; in addition, the contractor must comply with the San Luis Obispo County Air Pollution Control District's rules, ordinances, and regulations with regard to air quality restrictions.
- **County's Regional Transportation Plan**: The project is consistent with the Transportation Plan, which discusses improved traffic flow and reduction of congestion and accidents for the region.
- **Compliance with AB 32**: The roundabout in Build Alternatives 1 and 2 supports the climate change strategies of Assembly Bill 32. In addition, roundabouts decrease through speeds and accident severity while providing for "shared use paths," thereby encouraging the use of these alternative transportation modes that reduce greenhouse gas emissions.

In summary, both Build Alternatives 1 and 2 would result in less delay time and are therefore anticipated to reduce future greenhouse gas emissions compared to the No-Build Alternative. Because of the congestion relief anticipated with the implementation of the project, project operations would not contribute to the climate change effect, but rather would produce long-term greenhouse gas emissions benefits through improved operation.

Absolute and completely accurate quantification of the anticipated construction emissions is not possible, as the number, types and years of the vehicles that would be used on the project

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is unknown. Note that construction is not anticipated to begin on the project at the ramp termini until sometime in the future as funding is programmed. Furthermore, existing emissions models that have been approved by Caltrans do not adequately predict CO_2 for future years, as the effect of proposed and enacted legislation requiring cleaner engines in both on- and off-road vehicles is not accounted for in the current EMFAC Version 2.5 model. The emissions from construction activities would be added to current emissions produced at the intersections during the construction period, but the benefits from reducing idling emissions at these intersections would more than offset the construction emissions. The project would incorporate feasible mitigation measures as further detailed in Section 2.2.6 Air Quality of this document to minimize construction-related emissions, including those known to contribute to climate change.

With regard to energy costs, the net benefit of the project is also true. The new intersections would improve local traffic flow, but are not anticipated to increase the number of trips. The same number of vehicles would use the intersections at slightly higher speeds (and without the impediment of stop-and-go traffic), more efficiently using fuel. Energy costs of construction are anticipated to be offset by long-term benefits to the travelling public in terms of reduced energy use while idling during stop-and-go delay.

Response to Comment 20-8:

Refer to response for comment 20-7. The benefits of the reduction have been discussed and are presented in Section 2.5 of this document.

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Comment Set 21

SAN LUIS OBISPO COUNTY

DEPARTMENT OF PLANNING AND BUILDING

VICTOR HOLANDA, AICP
DIRECTOR

September 9, 2008

California Department of Transportation, District 05
ATTN: Mr. Michael H. Thomas
Senior Environmental Planner
50 Higuera Street
San Luis Obispo, CA 93401

Subject: Highway 101/State Route 46 West Interchange Modification Project;
Initial Study with Proposed Mitigated Negative Declaration

Dear Mr. Thomas:

We recently became aware that the above-referenced document was available for review. Although we have not received a copy or notice to our knowledge, we have reviewed the online document to determine the consistency of the above-referenced project with the County General Plan. The following comments are meant to correct the statements in the document. We are utilizing Alternatives 1 and 2 shown in Chapter 1.

21-1

Alternative 1 locates a minor realignment of South Vine Street to a roundabout on the north side of Highway 46W, entirely within the City of El Paso de Robles. The Agriculture land use category (general plan and zoning designation) is located in the unincorporated area west of this segment. A realignment of Theatre Drive is proposed to a new intersection on the south side of Highway 46W within the city limits. The Agriculture and Residential Suburban land use categories extend along the west side of this segment, which are within the county Urban Reserve for Paso Robles (see Figure 1).

Alternative 2 differs from Alternative no. 1 by a realignment of South Vine Street west and then south to the intersection of the Theatre Drive

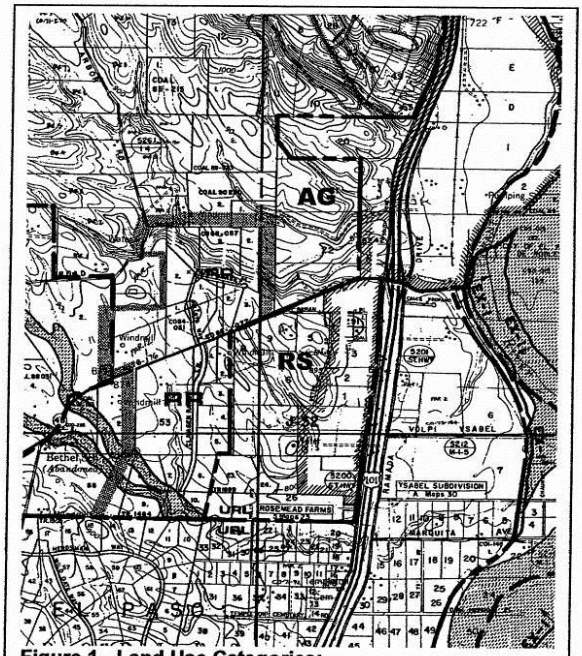

Figure 1 - Land Use Categories:
AG = Agriculture; RR = Residential Rural;
RS = Residential Suburban

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realignment. This project area is located west of the city limits within the unincorporated rural area that is designated in the Agriculture land use category. The Residential Rural category extends along the west side of this segment.

Both alternatives 1 and 2 include a roundabout and realignment of Ramada Drive on three properties, of which the southerly property is in the unincorporated Commercial Service land use Category. This segment would eliminate a corner of the southern site.

21-2

The Circulation Element of the county General Plan identifies Highway 46W as a Principal Arterial, which is designated to convey inter-regional and regional traffic as a state highway. The following circulation policies contained in Framework for Planning (Part I of the Land Use Element) relate to the project:

> **"6.** Develop and coordinate transportation programs that reinforce federal, state, regional and local agency goals.
>
> **7.** Design a transportation system that provides for safe travel within attainable, feasible economic and technical means.
>
> **8.** Design transportation facilities with the intent to preserve important natural resources and features, promote the esthetic quality of the region and minimize environmental changes (Framework, January 1, 2003, p. 5-2).
>
> The Circulation Element includes General Design Guidelines that apply to the project:
>
> "**c.** Pedestrian circulation should be expressly addressed in street designs so that walking is accommodated by various methods of implementation.
>
> **i.** Horizontal and vertical street alignments should be located to minimize grading and to incorporate natural ground contours as much as possible without creating hazards to traffic, and should be consistent with other design objectives.
>
> **j.** Street layouts should be planned to avoid adverse concentration of storm water runoff.
>
> **k.** Street design should promote safe bicycling by considering the placement of bike lanes that will provide for the safety of the cyclist as well as the automobile driver with whom they share the streets (Framework, January 1, 2003, p. 5-6)."
>
> The Salinas River Area Plan contains the following objectives in the Circulation Element chapter. They encourage minimum disturbance of area and retention of open visual character in a project:
>
> **"e.** Design necessary road and street expansions to include measures to minimize the amount of paved surface and retain the open visual character of the local area.
>
> **f.** Circulation routes in new development should be designed to provide direct, convenient and safe access to destinations. Circuitous streets that impede pedestrian, bike and transit

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use should be avoided. Design and maintain roads and streets to expedite the safe and efficient movement of commodities and products around and through the county (Salinas River Area Plan, January 1, 2003, p. 5-2)."

21-3

Consistency with the Circulation Element: The primary project objectives of creating more efficient and safe circulation at the interchange are consistent with the Circulation Element goals and objectives. However, the location and design of Alternative 2 is not as consistent as Alternative 1 with the Circulation Element objectives to "preserve important natural resources…promote esthetic quality…minimize environmental changes…minimize the amount of paved surfaces…and retain the open visual character of the local area." The extensive grading, road cut and fill, tree removal and placement of the South Vine Street alignment in Alternative 2 is not consistent with these objectives. In order for Alternative 2 to be more consistent with Circulation Element, additional design measures could be incorporated such as land-form grading, minimal tree removal and high replacement ratios, breaking up the surface area with a landscape median, and purchase of agricultural conservation easements adjacent to the project area. Nevertheless, Alternative 1 would be more consistent with the Circulation Element.

21-4

The Land Use Element of the county General Plan addresses with policies that are contained in the following documents:

Framework for Planning (Part I of the Land Use Element) identifies the purpose of the Agriculture land use category "to designate areas where agriculture is the primary land use with other land uses in support of agriculture…and to recognize that agricultural activities on a small scale" are appropriate. The purpose of this category is also, "to support conversion of agricultural land within it to other uses only when such conversion would be appropriate or because the continuing agricultural productivity of a specific site is infeasible…considering soil types, topography, water supply, existing parcels sizes and good management practices (Framework, January 1, 2003, p. 6-10)." The Land Use Element contains goals and policies related to the Commercial Service category, including the following General Goal:

14. Designate a pattern of strategically located commercial and/or industrial areas compatible with overall land use that is convenient to patrons, realistically related to market demand and the needs of the community, and near areas designated for residential use (Framework, January 1, 2003, p. 1-3)."

The Salinas River Area Plan (Part 2 of the Land Use Element) is one of 13 area plans and contains more local policies than Framework for Planning. The area is designated for the Agriculture (AG), Residential Rural (RR) and Residential Suburban (RS) land use categories. The following text encourages conserving agricultural resources as a priority policy objective of the area plan:

"The **Agriculture** land use category designates areas that have existing or potential agricultural production capability. Agriculture has historically been and still is a widespread use of land within the planning area. Agriculture surrounds each urban area, visually separating one community from another. This creates the distinct character that is presently enjoyed by all. The removal of these agricultural lands that buffer these communities with open space would result in a linear city from Santa Margarita to San Miguel, thus losing the individual identity of each community. Agriculture and open space uses should be encouraged, through such incentives as Williamson Act agricultural preserves, as the primary land use (Salinas River Area Plan, January 1, 2003, p. 4-10)."

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The policy for rural character between communities is expressed generally in the following section: "This plan recognizes that separation between communities provides each community with the opportunity for developing its own distinctive identity. The physical difference between each community is strengthened by intervening rural land, which can contribute to a unique sense of arrival or departure. The open areas between each town provide rural visual character where densities in the Agriculture, Rural Lands and Residential Rural category are acceptable. Open areas that separate communities, as illustrated in Figure 4-6, should be retained through controls on the amount and location of development. This distinct change in the amount of development at the edge of a town in relation to other towns and the countryside establishes a border to the community (Salinas River Area Plan, January 1, 2003, p. 4-7)."

The **Residential Rural** category adjacent to the north segment in Alternative 2 is designated in recognition of previous subdivisions. Its location adjacent to larger agricultural properties is the basis of a zoning standard that limits new parcel sizes to 10 acres:

"Arbor Road/Highway 46 West. The Highway 46 west area within the planning area is comprised of parcels that are undersized for optimal agriculture, but they are located adjacent to extensive, productive agricultural properties. The area should be limited to its current extent to avoid aggravating conflicts with adjacent agriculture (Salinas River Area Plan, January 1, 2003, p. 4-13)."

Consistency with the Land Use Element: The proposed loss of Commercial Service land on Ramada Drive would be an insignificant reduction of the 72 acres designated within the Templeton urban area and would be consistent with goal no. 14, in terms of meeting market demand.

21-5

It should be noted that new major street alignments, enlargements and intersections typically attract commercial investment. The new routes and intersection for South Vine Street and Theatre Drive are likely to lead to future amendment applications to allow commercial or other urban uses on acreage sites adjacent to them. Such applications would convert agricultural land that would need review as to whether they would be appropriate related to agricultural productivity and potential. Commercial uses would also extend the urban area and eliminate the existing rural uses and open character of properties in the vicinity.

21-6

Alternative 2 would not be consistent with the Land Use Element (LUE) since it would directly convert Agriculture category land that is located outside the Urban Reserve Line and the Sphere of Influence, and no assessment has been made of the feasible agricultural potential of the subject properties. Alternative 2 would generally be consistent with the LUE if it were deemed appropriate in relation to the agricultural capability of the site and the project's potential to minimize conflicts with adjacent agricultural land. However, it would not be appropriate to convert agricultural land where feasible alternatives exist. In this case, Alternative 1 provides a feasible route for South Vine Street outside Agriculture category land.

21-7

Alternative 1 would attract investment interest in urban uses directly adjacent to it, and to convert the Agriculture land north of Highway 46 West. The extent of potential conversion extends from an immediate one-quarter mile area from the intersection, approximately 55 acres, to the full extent of the subject properties, roughly 100 acres, as illustrated in Figure 2.

21-8

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21-9

Policies in the Salinas River Area Plan describe the need to support agricultural areas between communities in order to maintain an open rural character and distinct change at the urban edge to strengthen community separation. The proposed project would create an urban arterial street with growth-inducing potential for adjacent development. Both Alternatives would not be consistent with these Land Use Element policies for strengthening community separation, since they would extend urban infrastructure and uses west of the existing well-defined city edge. The proposed intersection is within one-quarter mile of the Templeton Sphere of Influence, which is established for maintaining a rural-appearing buffer between Paso Robles and Templeton. The extension of urban facilities and uses west of the existing City Limits would be a significant inconsistency with the Land Use Element policies for maintaining community separation.

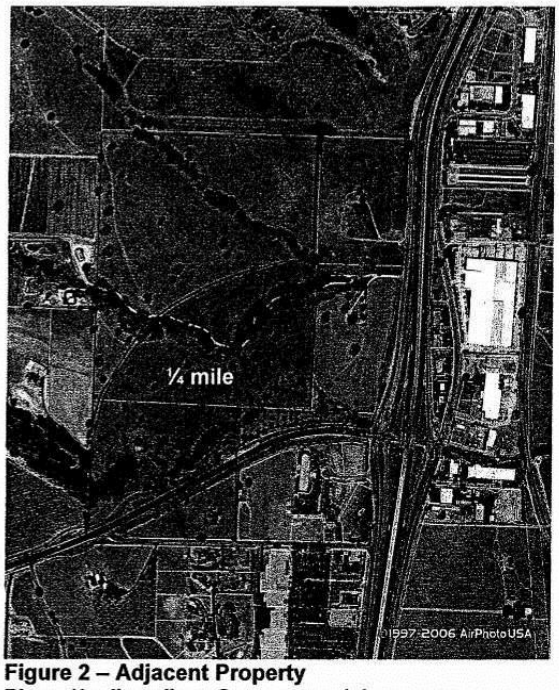

Figure 2 – Adjacent Property
Blue = ¼ mile radius; Green = remaining area

21-10

The Agriculture and Open Space Element includes several policies that address the project alternatives within the Agriculture Element:

> **"Policy AGP18: Location of Improvements**: Locate new buildings, access roads and structures so as to protect agricultural land.
>
> This policy is intended to ensure that new facilities will be sited so that the most productive agricultural land will be kept available for agricultural production (Agriculture and Open Space Element, p. 2-38)."
>
> **"Policy AGP24: Conversion of Agricultural Land:**
>
> Discourage the conversion of agricultural lands to non-agricultural uses through the following actions:
>
> 1. Work in cooperation with the incorporated cities, the County Department of Agriculture…and affected community advisory groups to establish urban service and urban reserve lines…that will protect agricultural land and will stabilize agriculture at the urban fringe.
>
> 4. Avoid locating new public facilities outside urban and village reserve lines unless they serve a rural function or there is no feasible alternative location within the urban…reserve line (Agriculture and Open Space Element, p. 2-50)."

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The Open Space Element is summarized in the Visual Impact Assessment on page 3-3 and evaluated with some shortcomings. To address the open space setting adequately, the **Visual Impact Assessment** should include at least a Key View analysis from eastbound traffic toward the proposed intersection (from west of it). Both this and the Key View #3 should use at least a 37-degree driver's angle of vision and 60-degree peripheral angle to illustrate driver views of arrival and departure from the Vine-Theatre Drive intersection. Similarly, wider 90 and 180-degree angles should be used for passenger cones of vision. The Key Views are too narrow to convey the visual setting adequately.

21-11

Consistency with the Agriculture and Open Space Element: The Alternative 2 alignment crosses grazing land with an oak woodland, stream and riparian forest. Extensive grading is associated with the route through steep topography. It would directly convert Agriculture category land, and it would raise investment interest in re-designating Agriculture land for urban uses. Without further analysis, the alternative is not consistent with policies to avoid destabilizing agriculture and the conversion of agricultural land with urban facilities. An analysis of the conversion potential should respond to the guidelines in policy AGP24, pages 2-52 and 53 (attached). A detailed site evaluation should be made to determine if agricultural production is not feasible due to some physical constraint or surrounding incompatible land uses, and that the conversion to non-agricultural uses will not adversely affect existing or potential agricultural production on surrounding land. This analysis should weigh whether there is an over-riding public need for the conversion that outweighs the need to protect the land for long-term agricultural use, such as the orderly expansion of the City. Other factors are to be included in this evaluation (see attachment).

21-12

The project is not consistent with Open Space Plan policies referenced on page 3-3 in the Visual Assessment because it does not address the setting adequately and address the planned rural appearance for community separation stated in the Salinas River Area Plan. Due to the importance of community separation in county policy, these policies concerning preservation of natural resources, wildlife habitat and visual resources should be fully addressed by the project.

21-13

Impacts. The proposed project will cause potentially significant conflicts with County land use policies and to rural and agricultural resources due to its location and growth inducing aspects.

21-14

Mitigation Measures. Significant impacts can be reduced to insignificance by conductin the recommended analyses, and making a determination from those studies. Mitigation measures should be included with both Alternatives 1 and 2 to minimize the conversion of agricultural land near the project and ensure the continuation of agriculture and rural character on adjacent land. Two project mitigation measures should be included as follows:

21-15

A land conservation easement should be purchased as a condition of the eminent domain for the project, within a one-quarter mile radius of the proposed intersection with Highway 46 West and the Alternative 2 extension of South Vine Street. The easement should restrict uses to rural residences, densities and agriculture that are allowed by the current land use categories. Other measures should be taken to retain agricultural land by establishing an agricultural development fund with the properties to adequately capitalize appropriate production agriculture.

A rural-appearing landscape installation should be provided with the project at the proposed intersection and along the South Vine Street extension, to include local native plant species that extend the nearby natural species and spatial patterns. This installation would avoid decorative or formal or regimented patterns, so that the visual effect is a natural-appearing rural planting.

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Gateway and Land Use Study. South of Highway 46 West, the proposed project is located adjacent to land within the recently adopted Templeton Community Services District Sphere of Influence. The Sphere of Influence was adopted by the Local Agency Formation Commission last year with conditions that, before annexation, the county and City of El Paso de Robles should identify the long-term land use pattern that would most appropriately implement their general plans within the Highway 46W corridor between Highway 101 and Bethel Road. The county has been anticipating the completion of a Gateways study by the city within this area to inform a discussion of appropriate land use. Associated with this discussion would be whether such facilities as the proposed project are appropriate or how they should be modified with such elements as extensive landscape, streetscape and land conservation actions to avoid urbanizing the corridor. The proposed project poses a challenge to addressing the corridor with the City for these purposes.

21-16

The project design raises some questions about other alternatives. It would assist us in knowing whether a less extensive project alternative was considered that entails the use of wide-radius "hook" ramps at locations away from the interchange, with extended ramp lengths. The ramp concept would form signalized intersections with the frontage roads. Wide radius curves may be feasible with realigned frontage roads, perhaps at less overall cost than the project. It seems that the relocation of these ramps could avoid the need to move the frontage roads and perhaps it would eliminate the need for roundabouts. It appears that much less disturbance to property and impact on adjacent land would occur with this alternative.

21-17

We appreciate the opportunity to comment on the consistency of the project with the county General Plan. Issues with the project concern the conversion of agriculture land from the project and potential development adjacent to it. The project objectives should be broadened to include measures to minimize these potential impacts and increase consistency with the County General Plan.

21-18

Please contact me at 781-5975, or email jlopes@co.slo.ca.us if you have any questions or concerns.

Sincerely,

James Lopes, AICP
Planner III

VIA: Chuck Stevenson, Division Manager, Long Range Planning

C: Supervisor Harry Ovitt
Michelle Olmsted, Public Works
Ron Whisenand, Director, Community Development, City of El Paso de Robles
Ditas Esperanza, Public Works Department, City of El Paso de Robles

Attachment

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AGP24: Conversion of Agricultural Land.

a. Discourage the conversion of agricultural lands to non-agricultural uses through the following actions:

1. Work in cooperation with the incorporated cities, service districts, school districts, the County Department of Agriculture, the Agricultural Liaison Board, Farm Bureau, and affected community advisory groups to establish urban service and urban reserve lines and village reserve lines that will protect agricultural land and will stabilize agriculture at the urban fringe.

2. Establish clear criteria in this plan and the Land Use Element for changing the designation of land from Agriculture to non-agricultural designations.

3. Avoid land redesignation (rezoning) that would create new rural residential development outside the urban and village reserve lines.

4. Avoid locating new public facilities outside urban and village reserve lines unless they serve a rural function or there is no feasible alternative location within the urban and village reserve lines.

Discussion: The purpose of this policy is twofold: to protect agricultural land at the urban fringe by limiting the expansion of urban development; and to discourage urban/suburban sprawl by preventing "leapfrog" development into the agricultural areas of the county.

Agricultural land is often converted to other uses for a variety of reasons, including: urban growth pressures, rising land values and speculation, competition between urban and agricultural uses, the desirability of large-lot rural homesites, subdivision of agricultural properties into parcels too small to sustain agricultural uses, piecemeal LUE amendments to non-agricultural land use categories, and a lack of policies that clearly define under what circumstances agricultural lands should be converted to other uses and land use designations in the general plan. This conversion of agricultural land has the potential to seriously erode the long-term protection of agricultural resources.

Even with the strong Williamson Act program in the county, there has been pressure to convert agricultural lands to other non-agricultural uses. Since adoption of the LUE in 1980, over 3,000 acres of land have been rezoned from the Agriculture category to non-agricultural land use categories in the unincorporated areas of the county.

Statistics from the state Department of Conservation's farmland mapping program show that in the period between 1984 and 1995 (the last year for which statistics are available), there was an overall decrease in agricultural land of about 14,800 acres. There was a net

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increase of Prime Farmland due to intensification (primarily irrigated vineyards); however, the net acreage of Farmland of Statewide Importance also declined by 783 acres.

The LUE contains a number of general goals that focus on the environment, distribution of land uses, phasing of urban development, and the provision of public services and facilities. Consistent with those goals, specific criteria should be developed for when it may be appropriate to convert agricultural lands to other uses. The criteria should include, but not necessarily be limited to, the following:

** Do not expand existing urban or village areas until such areas are largely built-out, or until such time as additional land is needed to accommodate necessary uses or services that cannot otherwise be accommodated within the existing urban or village area.

** Urban or village expansion should occur only where contiguous to an existing urban/village reserve line, as shown in the concept diagram in Figure 2-5, or where an entirely new urban or village area is needed in order to direct development away from surrounding agricultural or open space resources.

** Where urban expansion is to occur, it shall be annexed to an incorporated city or an existing community services district/county service area. The annexation shall occur only where the clustered development from rural property is to be located adjacent to the urban area, or when higher density development is to occur and where such development is consistent with resource and service capabilities and orderly extension of urban services.

** Where agricultural land is proposed for conversion to urban/suburban uses, give consideration to the protection of agricultural lands in the following priority order: row crop terrain and soils, specialty crops and forage lands, dry farm lands, and rangelands for grazing.

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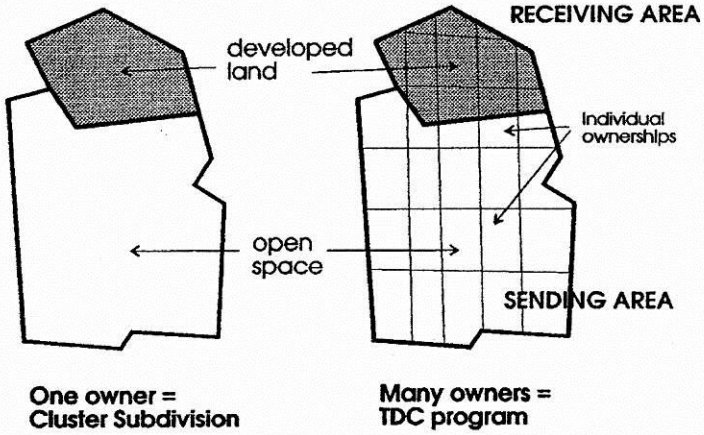
FIGURE 2-5



** Approve land for conversion from Agriculture to non-agriculture designations based upon a detailed site specific evaluation and consistency with the following findings:

a. the land does not meet the criteria for inclusion in the Agriculture designation in this plan or the Land Use Element; and

b. agricultural production is not feasible due to some physical constraint (such as soil infertility, lack of water resource, disease), or surrounding incompatible land uses; and

c. adjacent lands are already substantially developed with uses that are incompatible with agricultural uses; and

d. the conversion to non-agricultural uses shall not adversely affect existing or potential agricultural production on surrounding lands that will remain designated Agriculture; and

e. there is an over-riding public need for the conversion of the land that outweighs the need to protect the land for long-term agricultural use, such as the orderly expansion of an incorporated city or community.

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** Approval of land conversions from agriculture to non-agricultural land uses will include a finding that the conversion will not materially reduce groundwater recharge.

Implementation:

1. In cooperation with the incorporated cities and service districts, consider the criteria described in the above discussion to develop policies and implementation measures that will provide for the protection of agricultural lands as well as appropriate urban expansion.

2. Based on the results from item #1 above, consider proposed amendments to Framework for Planning of the LUE that incorporates those policies and implementation measures into the guidelines for general plan amendments and revise the purpose and character statements for the Agriculture category so they are consistent with those criteria.

   Timeframe: 24 months from plan adoption.

3. The Local Agency Formation Commission (LAFCO), in cooperation with the incorporated cities and service districts, should develop and adopt standards, criteria and procedures consistent with this plan and the LUE to be used in making decisions on proposed annexations and expansions of cities and service districts that may affect agricultural lands.

   Timeframe: LAFCO adoption 18 months from adoption by the county of the criteria specified in item #1 above.

4. Refer proposed general plan amendment requests and proposed annexations and expansions of service districts to the County Department of Agriculture and affected community advisory groups whenever the proposal involves potential conversion of agricultural lands.

   Timeframe: Ongoing.

Policies regarding the protection of open space resources on agricultural lands.

As noted in Chapter 1, this element seeks to equally address and balance agricultural and open space issues. This chapter, the Agriculture Element, has its primary focus on the agricultural resources of the county. However, it is recognized that productive agricultural lands can also contain valuable open space resources such as unique or sensitive habitat for plants and animals, wetlands, riparian vegetation, or scenic lands that are so important to defining the character of San

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Luis Obispo County. Therefore, the following policies and implementation measures address the protection of open space resources on private lands designated (zoned) Agriculture in the LUE and in this element, as well as lands in other designations being used for production agriculture.

Many of these open space topics are also addressed in Chapter 3: The Open Space Element, where the focus is on the treatment of those resources on public lands and private non-agricultural lands. Therefore, the reader may also wish to review that chapter for additional background information and discussion.

To the maximum extent possible, the following policies, implementation measures and programs try to balance protection of open space resources and the needs of production agriculture, and minimize the impacts to ongoing production agriculture. It is the intent to **not** require permits for agriculturally-related projects that are currently exempt, and to **keep** the required level of permit processing for non-exempt projects at the lowest possible level consistent with the protection of agricultural resources and sensitive habitats. The policies and recommended implementation measures apply to discretionary land use permits for new development (see Glossary for definition of development) and proposed land divisions.

AGP25: Unique or Sensitive Habitat.

a. Encourage private landowners to protect and preserve unique or sensitive habitat.

b. For new development requiring a discretionary permit and for proposed land divisions, protect unique or sensitive habitat affected by the proposal through the following measures:

1. Site the proposed development so as to avoid significant impacts on the habitat or significant impacts on the agricultural operations. Provide for adjustments in project design where alternatives are infeasible, more environmentally damaging, or have a significant negative impact on agriculture.

2. When significant impacts are identified, the landowner shall implement county-approved mitigation measures consistent with the existing requirements of CEQA.

Discussion: Consistent with the existing requirements of CEQA, the environmental review of discretionary permits on lands containing both agricultural and open space resources should make every effort to balance the mitigation of potential impacts on the open space resources with the needs of the agricultural operation so that both resources are equally protected. Early consultation with applicants can help define how the potential mitigation measures might affect the agricultural operation. In those instances where significant

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Response to Comment 21-1:

Please note that, at the beginning of the public review process on May 23, 2008, multiple copies of the document were sent to the County, one each for: the Supervisor of District 1, the Planning Director, the Public Works Director and the Office of Emergency Services offices. These copies were sent, in addition to County staff (Supervisor Ovitt, David Flynn, Frank Honeycutt) attending the Project Development Team meetings leading up to the public review process and reviewing the draft project information/report copies prior to the public review. The environmental document was also submitted to the Governor's Office of Planning and Research and posted on May 23, 2008.

The stated information for Build Alternative 1 and Build Alternative 2 is consistent with the proposed plan and environmental analysis. Build Alternative 1 improvements are entirely contained within City limits, and Alternative 2 differs in that a portion of the realigned South Vine Street overlaps the southeast corner of the County area zoned for agricultural use in the vicinity of the ravine at that corner (see Figure 2.1-1 in this document and Figure 1 of the comments).

Response to Comment 21-2:

The stated information as provided in the comment regarding the Circulation Element is consistent with the information and goals used in preparation of the proposed project design and environmental analysis.

Response to Comment 21-3:

We agree that both build alternatives are consistent with the Circulation Element. Both alternatives are designed to "reinforce federal, state, regional and local agency goals …preserve important natural resources …promote aesthetic quality, minimize environmental changes… minimize the amount of paved surfaces…and retain the open visual character of the local area." Furthermore, the final project design would be coordinated with the County to address, to the extent practicable, the goals and objectives of the Circulation Element.

The alignment of South Vine Street in Build Alternative 2 was specifically designed for a 25-mile-per-hour design speed to follow the natural terrain to minimize grading and laid out to minimize tree impacts. The Build Alternative 2 bridge spans the ravine without intermediate supports, specifically to avoid grading impacts within the ravine. While Build Alternative 1 includes less paved area since it does not realign South Vine Street to the extent in Build Alternative 2, it requires greater fill of the existing ravine and a greater extension of the box culvert from under the interchange to collect flow from the ravine. Build Alternative 2

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provides greater reduction in congestion and delay, thereby resulting in energy conservation and greenhouse gas reduction. See Section 2.5 Climate Change under the California Environmental Quality Act of this document.

With regard to circulation, Build Alternative 1 requires the connection of Vine Street to State Route 46 West for the continuation of the frontage road system; Build Alternative 2 proposes a continuous frontage road that crosses the state route, but does not require local traffic to use the state route as a portion of the frontage road (see response to comment 14-1 for greater discussion of American Association of State Highway Transportation Officials classifications and system hierarchy). Both build alternatives have considered the goals and objectives of the Circulation Element.

Response to Comment 21-4:

Thank you for the reference information as it relates to the Land Use Element of the County's General Plan; this plan and the associated Land Use Element were evaluated as part of the analysis performed for the proposed project. As stated in Section 2.1.1.2 Consistency with State, Regional, and Local Plans of the environmental document, the Salinas River Inland Area Plan of the County's General Plan was reviewed and, as detailed in Chapter 22.06.030, Title 22 of the County's Land Use Ordinance, uses that are not explicitly identified as allowable uses within a General Plan land use designation may be granted approval subject to the review of the County's Director of Planning and Building. Highway and roadway projects, such as the proposed project, are not identified as an allowed use within the Agriculture land use designation; however, public works projects proposed by the County are exempt from land use permit requirements and allowance restrictions. The County has closely coordinated with the City, Caltrans, and the San Luis Obispo Council of Governments, regarding this proposed project (refer to Appendix I).

Furthermore, as also stated in this section of the environmental document, the proposed project is consistent with the Circulation Element of the County's General Plan because the Circulation Element identifies the importance of maintaining the mobility of the traveling public, particularly as it relates to US 101 and State Route 46 West. Moreover, the County's Circulation Element identifies the need for improvements to the US 101 corridor in accordance with the findings and recommendations in San Luis Obispo Council of Government's major investment study. The proposed project is identified in Segment 4 of San Luis Obispo Council of Governments' US Route 101 North County Corridor Study dated September 8, 1999, and the San Luis Obispo Council of Governments' 2005 Regional Transportation Plan.

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Response to Comment 21-5:

Thank you for your comment. It is agreed that this project does not have a substantial impact on the 72 acres of commercial service land use area as stated in the comment.

Response to Comment 21-6:

The proposed project proposes to realign existing frontage roads and intersections within a mostly commercial/industrial zoned or developed area rather than create new roads. The project also addresses congestion reduction rather than capacity increase as new through lane capacity is not proposed for state facilities or the South Vine Street frontage road realignment.

Assumptions regarding potential attraction of commercial investment by new roads and intersections must also consider the facts that existing frontage roads are proposed to be realigned within the immediate vicinity of an existing already developed interchange area, and that the realigned frontage roads and the relocated intersections have limited access potential due to topographic and existing access control requirements. Access controls and topographic constraints are shown on the plan concepts for both build alternatives in Figures 1.3-1 and 1.3-2 of this document.

As previously stated by this comment set, the alternatives only differ materially in the level of realignment of the South Vine Street frontage road. The plan concepts show both alternatives connect to Vine Street on the north side of the interchange approximately 600 feet north of the current Vine Street/State Route 46 West intersection. In Build Alternative 1, South Vine Street is reconstructed a distance of approximately 500 feet to connect to a roundabout on the west side of the interchange. In Build Alternative 2, South Vine Street is reconstructed a distance of approximately 1,800 feet to reconnect to State Route 46 West. Because 600 feet of existing South Vine Street pavement area is eliminated by either alignment, this means that Build Alternative 1 actually reduces the length of South Vine Street by approximately 100 feet and Build Alternative 2 increases the length by approximately 1,200 feet.

As shown in Figure 2.1-1 Existing and Planned Land Use of this document, all of the Alternative 1 South Vine Street alignment and approximately 800 feet of the Alternative 2 South Vine Street alignment is within an area currently zoned for commercial use. This negates the concern for potential land use zone amendment applications for those frontage portions of the realignments.

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Figures 1.3-1 and 1.3-2 in this document show embankment, steep slope and access control areas of the proposed South Vine Street realignments for Alternatives 1 and 2 respectively. Figure 1.3-2 also shows steep slope and embankments approaching the South Vine Street bridge at either end of the ravine crossing. As shown, State Route 46 West has access control along its frontage, and neither realignment creates new access, rather a shifting of the existing limited access.

Build Alternative 2 contains approximately 1,000 feet of realignment within County parcels zoned for Agricultural use. Access to the first 400 feet (+/-) of South Vine Street immediately north of State Route 46 West is not feasible due to the bridge crossing at the ravine as well as the steep embankments and terrain along this area. This leaves approximately 600 feet of the Alternative 2 South Vine Street realignment crossing agricultural land. The contours on the Attachment D Concept Plan show that the realigned frontage road follows the natural contours to become frontage to the slope toward the ravine.

In the County area on the agricultural parcel to the north of the ravine, the area between the South Vine Street realignment and the ravine is currently not in production, shows signs of sporadic grazing activity, and the area is to be purchased in anticipation of use for oak tree mitigation planting.

As also noted in these figures, points of access to Vine Street and to State Route 46 West from the large and small parcels within the County's Agriculture zone near the proposed project area already exist. Only a short 600-foot length of potential access frontage on a large agricultural parcel is possible and, due to the terrain, the proposed roadway does not affect any existing agricultural production on that parcel. The topography and alignments shown in these figures as well as a review of the underlying land use zones show that both build alternatives are compatible with the primary land use zoning.

For the proposed Theatre Drive realignment, the land use is either already developed or already zoned commercial as shown in Figure 2.1-1 of this document. The proposed Theatre Drive realignment does not create new commercial land use zones and is entirely within the incorporated limits of the City of Paso Robles in a commercially zoned area.

The proposed project is a transportation operational improvement in an existing interchange area. As such, it would not change the existing character of the area. As the comment notes, any potential future development in the Agriculture zoning district would be subject to site and independent-proposed project-specific evaluations that would require consideration and approval by the County on a project-by-project basis. Due to the discussed access and topographic constraints as well as the existing land use designations, the project would not

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substantially contribute to development land use amendments and increased development applications.

Response to Comment 21-7:

The existing frontage road system supports agricultural land use throughout the County, and the realignment would not induce additional pressure to develop along the frontage per discussion in response to comment 21-6. See Section 2.1.1.2 Consistency with State Regional, and Local Plans and Section 2.1.3 Farmlands for discussion of agricultural uses and considerations for the parcels adjacent to the interchange. As stated in these sections, the areas affected by the proposed project are not being actively used for agricultural purposes, and none of the lands in the project area is under a Williamson Act contract.

Build Alternative 2 includes the Vine Street realignment in an area that is designated Agriculture per the County's General Plan. However, as further detailed in Section 2.1.1.1 Existing and Future Land Use of this document and Section 22.06.040, Title 22 of the County's Land Use Ordinance, public works projects such as the proposed project are exempt from land use permit requirements and allowance restrictions under the County's Land Use Ordinance.

A Farmland Conversion Impact Rating Form was also submitted to the Natural Resources Conservation Service and attached as Appendix E of this document. According to the Farmland Protection Policy Act, additional project alternatives or sites must be taken into consideration if the Farmland Conversion Impact Rating Form exceeds 160 points out of 260 points. The project's Farmland Conversion Impact Rating totaled 101 points for Build Alternative 1 and 120 points for Build Alternative 2; both alternatives are within the stated criteria.

The proposed public road realignment of Build Alternative 2 is compatible with overall land use goals as stated in the cited General Goal and allowed by County and other agency regulations.

Response to Comment 21-8:

We respectfully disagree with the conclusion that Build Alternative 1 would cause an increased attraction of urban land use or directly convert underlying land use zoning. According to the City of Paso Robles' General Plan Salinas River Planning Area, the project area within the City of Paso Robles north of State Route 46 West is designated as Commercial with small portions designated as Residential within the City of Paso Robles boundaries. As stated in Section 2.1.3 Farmlands of this document, the areas affected by the

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proposed project are not being actively used for agricultural purposes. None of the lands in the project area is under a Williamson Act contract. Only local agency action can give permits to allow for conversion of zoning. Please also see responses to comments 21-6 and 21-7.

Response to Comment 21-9:

As recognized by the County, the proposed project is outside of and does not encroach upon the edge of the Templeton Sphere of Influence "which is established for maintaining a rural-appearing buffer between Paso Robles and Templeton." Therefore, since the proposed project does not encroach on the buffer, it does not create inconsistencies with the policies for community separation.

We respectfully disagree with the statement~~,~~ "both alternatives would not be consistent with these Land Use Element policies for strengthening community separation, since they would extend urban infrastructure and uses west…" When looking at the policies of the Salinas River Area Plan more holistically, both alternatives are consistent with the Salinas River Area Plan goals for the area of: (1) providing for greater accessibility and the most responsive level of services, consistent with each community's willingness and ability to provide necessary resources; (2) providing for local circulation that supports transportation needs in the north county; (3) capitalizing on the significant transportation facilities already in place, including Highways 101, 46, and 41, the railroad and the Paso Robles Airport; and (4) developing an infrastructure plan for the Salinas River planning area that identifies the current cumulative demands on area resources and service, projects how those demands can be expected to grow over the life of this plan (Salinas River Area Plan), and sets forth strategies needed to provide the tools necessary to accomplish the tasks and maintain these resources and services.

Response to Comment 21-10:

Thank you for providing a summary of some of the policies related to Agriculture and Open Space Element of the County General Plan. The stated information as provided in the comment regarding Agriculture and Open Space is consistent with the information and goals used in preparation of the proposed project design and environmental analysis.

Response to Comment 21-11:

~~We respectfully disagree with this comment.~~ Key view selection considered roadway geometry and viewshed visibility based on tree screening, cut slopes, and the actual location

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of proposed improvements that appear not to be readily considered in this comment. Please see responses to comments 1-5 and 7-1.

Response to Comment 21-12:

~~We respectfully disagree with the comment "extensive grading … it would raise investment interest in re-designating Agriculture land for urban uses."~~ Please refer to responses to comments 21-3, 21-4, 21-6, 21-7 and 21-9.

Response to Comment 21-13:

~~We respectfully disagree with this comment for the reasons cited in~~ Please refer to responses to comments 21-9 and 21-11.

Response to Comment 21-14:

Please refer to ~~We respectfully disagree that the project has "potentially significant conflicts" with County land use policies or has growth-inducing impacts for the reasons cited in~~ responses to comments 21-4 through 21-9.

Response to Comment 21-15:

The project does not include substantial impacts based on the environmental assessment, technical studies. The two proposed mitigation measures are not appropriate due to the lack of impacts and compatibility of the project with the existing land use and planning goals of the agencies. This comment assumes growth caused by the project must be mitigated by the project. Please refer to responses to comments 21-4 through 21-9 and Section 2.1.2 Growth of this document.

It is important to note that the project, as proposed in pertinent sections of the draft environmental document, includes mitigation measures to minimize the conversion of the rural character. These include, among others, replanting of affected oak trees at a 10:1 ratio (a ratio well above that prescribed under other local ordinances). See response to comment 7-2.

As stated in the Section 2.1.3 Farmlands, the loss of approximately 3.5 acres of Prime and Unique Farmland and 1.35 acres of Farmland of Local Importance is 0.0016 percent of the total existing farmlands within the County's planning area. This level of impact would not constitute a substantial nexus that would require a mitigation fee, and the proposed development of an agricultural development fund is therefore considered infeasible and an excessive mitigation potential.

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Response to Comment 21-16:

The Gateway Study is not part of this project; however, the City finalized this study on August 11, 2008 and posted it on its web site. The City has taken the study into consideration when analyzing this project.

~~We respectfully disagree that this project poses a challenge in coordination between agencies as to whether or not the proposed facilities are appropriate.~~ As discussed in Section 1.1 Introduction and Chapter 3 Comments and Coordination of this document, this project has extensive coordination history between the City, the County and regional agencies.

The need for this interchange improvement project was identified in 1997 by Caltrans, the County of San Luis Obispo, the San Luis Obispo Council of Governments, and the City of Paso Robles. The July 2006 Value Analysis Study also documents ongoing multiple agency coordination for this project, including involvement by San Luis Obispo County, Caltrans, San Luis Obispo Council of Governments, and the City of Paso Robles representatives. See the landscaping discussions on oak trees in response to comment 7-2 and landscape concepts in response to comment 1-5.

Response to Comment 21-17:

The suggested alternatives in the comment were reviewed and rejected as a part of the project development analysis. A discussion of the alternatives considered and rejected during the project design was included in Section 1.3.4 of the draft environmental document. Dozens of alternatives have been considered during the course of this project's development, including hook ramps as the comment suggests. The Caltrans Highway Design Manual advisory design standard 502.2 states that hook ramps should be avoided. For this and other reasons, including system hierarchy as discussed in response to comment 14-1, it was determined that various hook ramp alternatives did not meet the purpose and need of the project, and they were removed from further consideration.

In addition to involvement with the PDT, the County was a key participant in the two-day Value Analysis (VA) Study workshop conducted to assess viable concepts and determine appropriate project alternatives for further analysis as part of the environmental and engineering studies. The VA Study was conducted March 15-16 of 2006 with the final report dated July 2006.

Response to Comment 21-18:

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Thank you for your interest and participation with this project as well as for your time to review and provide comments.

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Appendix H List of Technical Studies Bound Separately

- Air Quality Study
- Community Impact Assessment Memorandum
- Project Report
- Historic Property Survey Report
- Limited Hazardous Materials Study
- Natural Environment Study (Minimal Impacts)
- Noise Study Report
- Paleontological Identification Report
- Preliminary Foundation Report
- Relocation Impact Memorandum
- Traffic Report
- Visual Impact Assessment

To request copies of the above-listed separately bound technical studies, please contact the following agencies:

City of El Paso de Robles
Public Works Department
1000 Spring Street
Paso Robles, CA 93446
(805) 237-3861

California Department of Transportation
District 5
50 Higuera Street
San Luis Obispo, CA 93401
(805) 549-3111

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Appendix I Memorandum of Understanding and Funding Commitment Correspondence

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San Luis Obispo Council of Governments

Ronald L. DeCarli - Executive Director

Regional Transportation Planning Agency
Metropolitan Planning Organization
Rideshare Program / Census Data Affiliate
Service Authority for Freeways and Expressways

Arroyo Grande
Atascadero
Grover Beach
Morro Bay
Paso Robles
Pismo Beach
San Luis Obispo
San Luis Obispo County

10/27/2009

Doug Heumann, Project Manager
Caltrans District 5
50 Higuera Street
San Luis Obispo, California 93401

Subject: Highway 101/SR 46 West Interchange Modification Project – Initial Study with Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact

Dear Mr. Heumann,

This letter is in response to the reference of the SLOCOG Regional Transportation Plan (RTP), its compliance with SAFETEA-LU, and its five year update in the Hwy 101/SR 46W Interchange Modification Project's Initial Study with Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact.

To begin with, the document indicates that the 2005 RTP, Vision 2025, is not compliant with SAFETEA-LU. This statement is wholly untrue. The 2005 RTP was adopted in April of 2005 by the SLOCOG Board by resolution (attached) meeting all state and federal RTP requirements going beyond that indicated in the available (2003) RTP guidelines. As an attainment region, SLOCOG is allowed to update the RTP every five rather than four years, and is currently in process of doing so with an expected adoption in 2010. To this extent the statement indicating RTP non-compliance should be stricken from the document.

Secondly, the document indicates that the RTP is scheduled for adoption in October of 2009. As noted above this is not the case and is not required to occur in the four year time frame. It would be accurate for the document to indicate a scheduled 2010 update adoption.

Finally, there is the issue of cost estimate for project listing in the RTP. As a twenty year planning document, the RTP is required to be constrained, in that the cost estimate indicated for a project, at the time of the RTP adoption, have a reasonably expected revenue source. This project is listed as financially constrained in the 2005 RTP and while the project cost has escalated since its inclusion into the RTP, its fiscal constraint remains. Current cost estimates will be included for this and all other projects listed in the upcoming RTP update.

My staff is prepared to supply alternative language where these issues are concerned in the document if necessary. Please otherwise contact me with any concerns regarding the above comments at 781-4219; or my staff Geiska Velasquez at 788-2104.

Sincerely,

Ron DeCarli
Executive Director

cc: Ditas Esperanza, City of Paso Robles

1114 Marsh St., San Luis Obispo, CA 93401 ♦ Tel. (805) 781-4219 ♦ Fax (805) 781-5703
Email: slocog@slocog.org ♦ Internet: http//www.slocog.org

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SAN LUIS OBISPO COUNCIL OF GOVERNMENTS

RESOLUTION NO. 05- 02

RESOLUTION TO CERTIFY THE ADDENDUM TO THE 2001 ENVIRONMENTAL IMPACT REPORT (EIR) AND ADOPT THE 2005 REGIONAL TRANSPORTATION PLAN (RTP) OF THE SAN LUIS OBISPO COUNCIL OF GOVERNMENTS.

The following Resolution is now offered:

WHEREAS, the San Luis Obispo Council of Governments (SLOCOG) is an entity formed as a Joint Powers Agreement between the cities and county of San Luis Obispo and acts as the Regional Transportation Planning Agency and the Metropolitan Planning Organization for the San Luis Obispo Region; and

WHEREAS, Federal and State legislation and regulations require the SLOCOG to adopt a transportation plan and improvement program, known as the Regional Transportation Plan (RTP); and

WHEREAS, SLOCOG staff presented draft chapters and plan elements to advisory committees, to councils and the SLOCOG Board for review and comment, and conducted regional workshops over the past year; and

WHEREAS, the 2005 San Luis Obispo Regional Transportation Plan and the accompanying Addendum to the 2001 Environmental Impact Report (EIR) were prepared in accordance with Federal and State requirements and guidelines; and

WHEREAS, Section 15164 of the California Environmental Quality Act (CEQA) permits a lead agency or responsible agency to prepare an Addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 triggering a Subsequent or Supplemental EIR have occurred; and

WHEREAS, the Addendum to the EIR contains only minor changes and additions necessary to make the previous EIR adequate, and the changes made by the addendum do not raise important new issues about the significant effects on the environment.

WHEREAS, the RTP and EIR Addendum were distributed to the local cities and the County of San Luis Obispo, the California Department of Transportation (Caltrans), the Federal Highway Administration, the Federal Transit Authority, major libraries, standing SLOCOG advisory committees, and made available on the world wide web, through newsletter publications and to other adjacent Regional Transportation Planning Agencies; and

WHEREAS, the RTP and EIR Addendum were duly noticed in compliance with State law, including a thirty day comment period for the EIR Addendum; and

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WHEREAS, public hearings have been duly advertised and held on March 2, 2005 and April 6, 2005; and

WHEREAS, SLOCOG will receive and incorporate the "Responses to Comments" and modifications to the Draft Addendum to the 2001 EIR as described in Exhibit A; and

WHEREAS, the Mitigation and Monitoring Plan as described in the 2001 EIR and summarized in the Addendum to the 2001 EIR still apply; and

WHEREAS, the "Findings" for each of the impacts as described in the 2001 EIR and summarized in the Addendum to the 2001 EIR still apply; and

NOW, THEREFORE, BE IT RESOLVED, that the San Luis Obispo Council of Governments:

Certifies that the Addendum to the 2001 EIR complies with the California Environmental Quality Act and is hereby certified; and

BE IT FURTHER RESOLVED, that the San Luis Obispo Council of Governments formally adopts the 2005 Regional Transportation Plan, together with minor revisions in Exhibit A as also adopted during the March 2, 2005 meeting.

On a motion by Board Member OVITT, seconded by Board Member MECHAM, and on the following roll call vote, to wit:

AYES: Achadjian, Bianchi, Ferrara, Luna, Mecham, Ovitt, Reiss, Romero, Shoals.

NOES: Patterson & Winholtz

ABSENT: Lenthall

ABSTAIN: None.

The foregoing resolution is hereby adopted on the 6th day of April, 2005.

Shirley Bianchi, President
San Luis Obispo Council of Governments

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DEC-24-00 08:54A SLOCOG 805-781-5703

Copy

Rte 101/46 W Area
(Oak Tree Plaza)
Cooperative Agreement

For the purposes of this Cooperative Agreement, the City of Paso Robles is referred to as "CITY", the County of San Luis Obispo as "COUNTY", and the San Luis Obispo Council of Government as "SLOCOG", and Caltrans as "STATE". All provisions related to STATE are specified in the Memorandum of Understanding, dated February 27, 1997, between SLOCOG, the City of Paso Robles, and Caltrans District 5, attached hereto as Exhibit A.

Cooperative Agreement Purpose

1. Recent traffic studies recognize significant foreseeable traffic impacts created by cumulative development near the Junction of Route 46 West and Route 101. Further studies are needed to assess the impacts of cumulative development on this interchange and the Route 46 West and Route 101 corridors in San Luis Obispo County.

2. CITY is proposing to approve construction of a regional shopping center adjacent to the Route 46 West/101 interchange. With the anticipated additional traffic generated by the proposed regional shopping centers and future foreseeable development in San Luis Obispo County along the Route 46 West and Route 101 corridors, a Project Study Report (PSR), referred to in this report as "STUDY", is needed to identify traffic impacts and address appropriate mitigation for cumulative development. STUDY would also result in the identification of potential funding mechanisms for future recommended transportation improvements.

3. The CITY will advance funding for proposed STUDY, estimated to cost $100,000. SLOCOG, STATE, CITY, and COUNTY will review STUDY; STATE will provide oversight and approval of STUDY. STUDY is to be developed in accordance with the latest version of the Caltrans Project Study Report Guidelines.

4. The primary purpose of this agreement is to identify and address the long term cumulative traffic impacts in the study area (defined in mutual understanding #2) through development and implementation of the STUDY. The parties desire to define the terms and conditions under which STUDY will be developed and financed.

5. A secondary purpose of this agreement is to provide a mechanism to anticipate and fund the improvements identified in STUDY.

Mutual Understanding/Responsibilities

1. The obligations of CITY to cause installation of the "Interim Improvements" and preparation of STUDY are subject to the development of the "Oak Tree Plaza" project. The interim improvements shall be approved by STATE pursuant to an approved Encroachment Permit with regards to the Oak Tree Plaza Project.

2. The STUDY is to address traffic impacts of reasonable foreseeable development within the study area. The "study area," as shown in attached Exhibit B, will include the 101 corridor between and including the Main Street Interchange and Niblick Road/First Street

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intersection and accompanying ramps (PM 52.44/55.85) and the Route 46 corridor between Gahan Place and Ramada Drive (PM R21.50/21.97). The "regional routes" within the study area are Route 101, Route 46, Vine Street, Theater Drive, Ramada Drive, and Main Street. The STUDY will include the following:

A. Development of a micro traffic model which includes the roadway network within the study area (including Main Street, Theater Drive, Vine Street, and Ramada Drive). This model will be developed for use with MINUTP software. This model shall be used to determine future traffic flows within and through the study area and impacts to existing and future improvements using the adopted general plans of each jurisdiction. All parties (CITY, STATE, SLOCOG, COUNTY) must agree on land use and modeling assumptions.

   This micro model will utilize the SLOCOG regional traffic model to determine inputs of through traffic for future scenarios.

B. Operational analysis of all intersections and interchanges on the State Highways that will be effected by development in the study area. All operational analyses will utilize the results and be consistent with the "micro traffic model". The operational analysis will utilize the most recent version of the Highway Capacity Manual. Any weaving analysis shall utilize the most recent version of the Caltrans Highway Design Manual.

C. An identification of long term improvements, programs or actions and estimated costs to allow Route 101 and Route 46, within the study area, to operate at an AADT acceptable level of service (LOS D or better). Strategies, projects, and costs to allow incremental implementation of the long term improvements will be identified.

D. A sensitivity analysis of potential improvements to determine an implementation schedule of phased long term improvements, programs or actions, triggered and timed, to correct deficient levels of service.

E. Identification of feasible local and other funding mechanisms to fund long term phased improvements. Consideration will be given to recent changes in law affecting imposition of fees on property owners (Proposition 218).

3. STUDY shall be completed within two years following the issuance of the Encroachment Permit for the interim improvements. All obligations of CITY under the terms of this agreement are subject to the issuance of the Encroachment Permit and issuance of the building permits for the Oak Tree Plaza project.

4. CITY will be the lead agency for interim improvements and an appropriate agency will be designated, at the time improvements are to occur, to be the lead agency for long term phased improvements in the study area, as described above. The CITY's share of the interim improvement costs shall not exceed $250,000, and the balance for any costs for interim improvements will be borne by the developer of Oak Tree Plaza, pursuant to the conditions of approval for the Oak Tree Plaza Development.

5. Before discretionary land use changes and permits are approved - beyond the Oak Tree Plaza Project - for any future development within the study area, the traffic contribution for that development must be estimated. The estimation must be consistent with the most

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recent version of the Traffic Generation Manual. If "significant traffic" is expected, impacts must be studied with the use of the Micro Traffic Model and an operation analysis (which is consistent with the analysis noted in #2.B above). The jurisdiction in which the development is occurring is responsible for ensuring that the appropriate traffic analysis is completed.

Significant traffic - The following are guidelines as to what constitutes a significant traffic impact within the study area: (1) For any roadway or intersection operating at LOS A or B, a decrease of more than one level of service from project added traffic. (2) For any roadway or intersection operating at LOS C, project added traffic that results in a LOS D or worse. 3) When existing congestion exists (LOS D, E or F) within the study area, the following table will define significant impacts.

LOS	Added Peak Trips
D	20
E	10
F	10

CITY Responsibilities

1. To have STUDY performed in accordance with the standards of STATE.
2. To advance one hundred percent (100%) of cost of STUDY, estimated to be $100,000. Said amount will be reimbursed to the City through a new benefit assessment district or equivalent mechanism to be established by the City Council.
3. To cooperate with STATE in the timely processing of STUDY.
4. To designate a representative through whom all communications between STATE, SLOCOG, COUNTY, and CITY, relative to this Agreement, shall be channeled.
5. To insure completion of all interim improvements (the most recent version is listed in Exhibit C), as mutually agreed to by CITY and STATE in the Encroachment Permit and as approved by STATE, which will be in place prior to the opening of the City of Paso Robles Regional Shopping Center, also known as the "Oak Tree Plaza".
6. To fund an annual monitoring program of peak period traffic at the 46 west/101 interchange (all legs) during April and/or October. The annual monitoring will be for a minimum of seven days. All counts and analysis will be submitted to STATE. Analysis shall be performed using the most recent version of the Highway Capacity Manual Operational Analysis. This monitoring shall continue after completion of STUDY until long term improvements have been constructed as recommended by STUDY. If the STUDY indicates that other interchanges within the study area will be adversely impacted, the monitoring program will be expanded.
7. To ensure that the appropriate traffic analysis (see Mutual Understanding #2.B) is completed prior to issuing any applicable development permit (see Mutual Understanding #5) within the study area.

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8. To work with SLOCOG to ensure that planning for construction of phased roadway improvements, as recommended in STUDY, shall begin when the traffic thresholds (vehicle capacity ratios below) are reached.

9. To secure sufficient (as specified in #10) local funding and work with SLOCOG to program improvements when a volume to capacity ratio of 0. 82 is reached during the peak hour. Funding shall be identified, secured, and programmed so that sufficient funding exists to allow construction when a volume to capacity ratio of 0.89 is reached during the peak hour. Revenue sources should be based on those identified in STUDY.

10. To secure sufficient local funds to construct the CITY's pro-rata share of each phased improvement. This pro-rata share is the percentage of the total improvement cost and is equal to the estimated percentage of "city development generated traffic" (traffic generated by developments within city limits in the study area) that directly contributes to the need for the improvement. The Micro Traffic Model will be used to estimate the traffic generation as specified in #7 above.

11. To consider an ordinance to withhold approval of additional development within the study area when a V/C ratio of 0.93, attributed to development within the study area, is reached on any regional roadway within the study area.

COUNTY Responsibilities

1. To designate a representative through whom all communications between the COUNTY and other agencies in the cooperative agreement, relative to this Agreement, shall be channeled.

2. To ensure that the appropriate traffic analysis (see Mutual Understanding #5) is completed prior to issuing any development permit within the study area.

3. To work with SLOCOG to insure planning for construction of roadway improvements, as recommended in STUDY.

4. To continue to collect road improvement fees under the provisions of the County's Ordinance (No. 2379), a program developed under State Government Code Section 66000 et seq (commonly referred to as AB 1600 plan).

5. To integrate the COUNTY's AB 1600 Plan with the STUDY, upon completion, to take into account funding estimates and improvement needs identified in STUDY.

6. The term of this Agreement, with respect to the obligations of the County of San Luis Obispo, is for a period not to exceed five (5) years from June 3, 1997.

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SLOCOG Responsibilities

1. To designate a representative through whom all communications between SLOCOG, CITY, COUNTY, and STATE, relative to an agreement, shall be channeled.

2. To work with CITY, COUNTY, and STATE to ensure that planning for construction of roadway improvements, as recommended in STUDY, shall begin when the traffic thresholds (V/C ratios below) are reached.

3. To work with CITY, COUNTY, and STATE to select long term phased improvement(s) when a volume to capacity ratio (V/C) of 0.82 in the peak hour is identified on a regional route (Highway 46 and 101) within the study area.

4. To identify state and federal funding sources for the selected improvements when the V/C ratio of 0. 82 is reached during the peak hour. Revenue sources should be based on those identified in STUDY.

5. To work with CITY, COUNTY, and STATE to ensure local funding commitments from the CITY and COUNTY are made and program local, state, and federal funds with the goal of beginning construction of phased improvements when a volume to capacity ratio of 0.89 is reached during the peak hour.

6. To seek the remaining level of funding, as funding becomes available, for the improvement(s) which are not being funded by the CITY and COUNTY. This level of funding is equal to the estimated percentage of traffic which is not generated by development within the study area which directly contributes to the need for the improvement. The Micro Traffic Model will be used to estimate the traffic generation.

7. To withhold, and disperse throughout the region, any discretionary (Regional) State Highway Account or State Transportation Improvement Program funds to a jurisdiction (CITY or COUNTY) which has not provided a sufficient match of local funds (see CITY #10 and COUNTY #5) on an improvement. No further Regional State Highway Account funds will be programmed in that jurisdiction until a sufficient local match is provided or the improvements are constructed as determined by the SLOCOG Board.

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Approval Page:

CITY OF PASO ROBLES

By: _____
Duane Picanco, Mayor

Date: 7/31/97

SAN LUIS OBISPO
COUNCIL OF GOVERNMENTS

By: _____
Hal Carden, President

Date: 8/6/97

ATTEST:

By: _____
City Clerk

APPROVED AS TO FORM AND LEGAL EFFECT:

By: _____
City Attorney

Date: 8/1/97

By: _____
SLOCOG Counsel

Date: 6/23/97

COUNTY OF SAN LUIS OBISPO

BY: _____
Supervisor Ruth Brackett, Chair

Date: JUL 08 1997

APPROVED AS TO FORM AND LEGAL EFFECT:

By: _____
County Counsel

Date: 6-23-97

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Appendix I

Water Supply Assessment

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ADMINISTRATIVE DRAFT

WATER SUPPLY ASSESSMENT

GATEWAY PROJECT

PASO ROBLES

November 24, 2019

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
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Ordinance No. 1021 N.S. Relating to Recycled Water Service and Private Wells within the City

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1. INTRODUCTION

This Water Supply Assessment (WSA) was prepared for the Gateway Project (Project) for the City of Paso Robles. The 170-acre site is northwest of the US Highway 101 and State Route 46 West interchange and just outside the southwestern boundary of the Paso Robles city limits (**Figure 1**). The property is proposed to be annexed into the City and the General Plan amended with appropriate land use designations.

The Project will include two hotels and three commercial centers. It will also include one of two alternatives: a resort center with a third hotel and a conference center or a resort community with 80 residences.

The City will supply potable water to the Project. Recycled water service is not planned for the area at this time and will not be included in the Project. The use of private wells for irrigation of landscaping will not be permitted but the private wells can supply water to agricultural uses such as vineyards and orchards on the Project site. Wastewater will be treated at the City's wastewater treatment plant.

Currently, the Project site contains undeveloped grasslands, oak woodlands, riparian habitat and ephemeral drainages. Suburban commercial land uses are located to the south with agricultural uses and scattered residences located to the north and west. Existing and historical site use includes intermittent cattle grazing. Almond trees are on the northern portion of the site but have exceeded their productive life cycle and are no longer irrigated (Kirk Consulting, 2019).

This WSA was prepared in accordance with the City's Rules and Regulations for implementing projects subject to the California Environmental Quality Act (CEQA). The primary purpose of this WSA is to provide an independent evaluation of the Project's water needs and impacts on City water supplies. It documents Project water demand and provides information to verify that the City has sufficient water supply to meet future water demands within the Project area and within the City's water supply service area under normal and dry hydrologic conditions for the next 20 years.

1.1. PROPOSED PROJECT

The proposed Project (**Figure 2**) will be developed in phases and consist of the following (Fusco, 2019):

- **Hillside Hotel** (200,000 sf)
  - 225 rooms
  - restaurant space (5,000 sf)
  - meeting facilities and ballroom (up to 20,000 sf)
  - spa (7,000 sf)
  - pool.
- **Vineyard Hotel** (76,000 sf)
  - 100 rooms
  - meeting area (1,500 sf)
  - pool.
- **Village Commercial Center** (37,100 sf)
  - retail space (18,200 sf)
  - office space (3,800 sf)
  - 2 restaurants (5,600 sf)

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    - 17 residential units (9,500 sf).
- **Promontory Commercial Center** (24,000 sf)
    - commercial and office space (24,000 sf).
- **Vine Street Commercial** (22,000 sf)
    - commercial and office space (22,000 sf).
- **Alternative A: Highway 46 Resort** (135,000 sf)
    - 100 rooms
    - 2 restaurants (5,600 sf)
    - ballroom and meeting areas (4,800 sf)
    - spa (6,000 sf)
    - outdoor event area, pool, and poolside café/bar.
- **Alternative B: Resort Community** (80 residences)
    - 80 residences for individual ownership for short or long-term stays.
- **Irrigation**
    - commercial landscaped areas (36 acres, City water)
    - agriculture (vineyard and orchard) (47 acres, private well(s)).

The square-footage areas listed above for each Project component generally correspond to building areas and not total land use areas. Phase 1 will consist of the development on the northern portion of the site (Hillside Hotel, Village Commercial Center and Promontory Commercial Center). The southern portion of the site will be developed in Phase 2 and include the Vine Street Commercial Center and one of the alternatives (Highway 46 Resort or the Resort Community).

Areas associated with these development components are provided in **Table 1**.

Table 1. Land Use, Gateway Project, Paso Robles

Land Use	Area (acres)	Number of Hotel Rooms or Dwelling Units
Agriculture	82.1	-
Open Space	16.6	-
Resort Alternatives (Highway 46 Resort or Resort Community)	18.5	100 rooms or 80 dwelling units
Hospitality (Hillside Destination Resort)	35.2	225 rooms
Commercial/Hospitality (Vineyard Hotel and Village Commercial Center)	9.9	100 rooms and 17 dwelling units
Commercial (Promontory and Vine Street Commercial)	4.0	-
Public Roads	3.2	-
Total	**169.5**	-

Information from (Kirk Consulting, 2019 – Table 2-3 and Figure 2-6)

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1.2. BACKGROUND

The City of Paso Robles requires that certain CEQA documents (e.g., an Environmental Impact Report or Mitigated Negative Declaration) be informed by an independent evaluation of the project's water supply needs and impacts on the City's water supply. This requirement applies to all general plan amendments that propose an increase in residential, commercial, and/or industrial intensity and all annexations that have not been approved by the City Council as of January 1, 2014. Each independent evaluation is to be prepared by a consultant of the City's choice based on demonstrated competence in water supply assessment and evaluation and familiarity with the UWMP. The applicants are requesting a sphere of influence amendment and annexation and a general plan amendment.

The California Water Code Section 10910 (also termed Senate Bill 610 or SB610) requires that a Water Supply Assessment (WSA) be prepared for a project that is subject to CEQA and subject to SB610 as defined in Water Code Section 10912. The Gateway Project is subject to CEQA and SB610 because it is a project that will need water equivalent to 500 dwelling units. Under SB610, documentation of water supply sources, quantification of water demands, evaluation of drought impacts, and provision of a comparison of water supply and demand are required to assess water supply sufficiency. This WSA follows the guidelines set out in the Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 (DWR, 2003).

A foundational document for preparation of a WSA is an UWMP; the City has prepared and adopted a 2015 UWMP (Todd, 2016) in compliance with the Water Code. The 2015 UWMP details City water supplies and demands to buildout (2045 or later) and includes projected increases in water demand of both residential and non-residential land uses located within the City limits. The Gateway Project is outside City boundaries and is not included in the City's General Plan nor UWMP.

1.3. WSA PURPOSE AND ORGANIZATION

The purpose of this WSA is to document the City's existing and future water supplies for its service area and to compare them to the area's future water demand, including that of the proposed Project. This comparison, conducted for both normal and drought conditions in five-year increments over the next 20 years, is the basis for assessing water supply sufficiency in accordance with SB610.

The WSA incorporates current and future water supply and demand information from the City's 2015 UWMP, available City and County documents regarding water supplies (groundwater, Nacimiento supply, recycled water), current water use, and estimated water use of the Project and other approved and proposed projects. The analysis extends to 2045 (assumed to be City buildout), addresses water demands in five-year increments, and provides information consistent with SB610 WSA requirements.

While fulfilling SB610 information requirements, this WSA is organized to be easily read and understood, as follows:

- Section 1 introduces the Project and provides background.
- Section 2 focuses on the current and proposed water demands of the Project that is the subject of this WSA.
- Section 3 documents the City's existing and future supplies and demands in normal and drought years. The City currently relies on groundwater, surface water, and Lake Nacimiento water. Recycled water will be available in the future. Section 3 also includes a summary of the status of

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the development of a Sustainable Groundwater Management Plan for the Paso Robles Groundwater Basin and provides a discussion of the degree of certainty associated with available water supplies.

- Section 4 provides the comparison of water supply and demand (in normal and drought years) that fulfills the intent of SB610.
- Section 5 summarizes the report's conclusions.

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2. PROJECT WATER DEMAND

This section addresses water demands for the existing property and presents water demand estimates for the proposed development.

2.1. CURRENT WATER USE

The Project site is currently used for seasonal cattle grazing for vegetation management purposes through an annual grazing lease (Kirk Consulting, 2019). Almond trees exist on the northern portion of the site but have exceeded their productive life cycle and are not irrigated. There are currently seven private wells on the site; four of these are older wells that previously supplied domestic and irrigation water and will be properly abandoned as part of the Project approval process. The remaining three wells (F&T #1, F&T #2, and Mazzi #1) are shown on **Figure 2**. The Mazzi #1 well does not have a pump and will also be properly abandoned.

The remaining two wells, F&T #1 and F&T #2, are currently used to provide irrigation water to 95.24 acres of vineyards with F&T #1 supplying about 4.13 AFY and F&T #2 supplying about 8.25 AFY (Fuscoe, 2019) (**Table 2**). In 2017, these two wells were also used for onsite pasture irrigation for cattle grazing with F&T #1 supplying about 12 AFY and F&T #2 supplying about 24 AFY (Fuscoe, 2019).

Table 2. Current and Proposed Use of Onsite Private Wells, Gateway Project, Paso Robles

Onsite Private Well	Current Water Use (AFY)			Proposed Future Use of Private Wells (AFY)		
	Onsite Pasture Irrigation in 2017[1]	Offsite Vineyard Irrigation[2]	Total Water Use in 2017	Onsite Irrigation[3]	Offsite Irrigation[4]	Total Future Water Use
F&T #1 Well	12.00	4.13	16.13	0.00	4.13-5.18	4.13-5.18
F&T #2 Well	24.00	8.25	32.25	16.00	8.25-10.30	24.25-26.30
Total 2017 Water Use	**36.00**	**12.38**	**48.38**	**16.00**	**12.38-15.48**	**28.38-31.48**

AFY=acre-feet per year
1. Water used for onsite cattle forage pasture in 2017 (Fuscoe, 2019).
2. Both wells are used to irrigate 95.24 net acres of offsite vineyards (Fuscoe, 2019).
3. F&T #2 well will be used for vineyard and orchard irrigation on the Project Site (Fuscoe, 2019). Project site demand from Table 3. F&T #1 well will continue to supply offsite irrigation only (Fuscoe, 2019).
4. Both wells will continue to supply offsite vineyard irrigation (Fuscoe, 2019).

The F&T #1 and #2 wells are completed within the sand and gravel aquifers of the Paso Robles Formation in the Atascadero Area. Well F&T #1 has a recommended flow rate of 75 gallons per minute (gpm) [121 AFY if pumped continuously] (Williams, 2010). Well F&T #2 has a capacity of 150 gpm [242 AFY if pumped continuously] (Fuscoe, 2019).

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2.2. ESTIMATED FUTURE WATER DEMAND

The Project is proposed to be constructed in two phases with the northern portion of the area developed first. Most of the development is projected to be completed by 2025, except for one of the alternatives (Highway 46 Resort or the Resort Community) which will be completed by 2030 (Fuscoe, 2019). **Table 3** shows the buildout water demands of the Project. Water demands are broken down into water use components for each development area. The table lists the development component; the number of hotel rooms, dwelling units, or area in acres for each of these development components; and the associated City or private well buildout water demands. The last column (right-hand side) shows the water rates used to determine these buildout water demands.

Water use rates were obtained from several sources, including the applicant (Fuscoe, 2019), the City (based on its 2015 UWMP planning), and the Monterey Peninsula Water Management District (MPWMD, 2019). The hotel room water use rate and the landscaping and vineyard irrigation rates were from the applicant (Fuscoe, 2019). The hotel room rate was similar to that used in other City water supply evaluations/assessments. The applicant's irrigation rates (1.28 AFY/acre for landscaping and 0.34 AFY/acre for vineyards) are lower than typically used but it will be assumed that state of the art irrigation practices will be utilized to attain these rates. Residential demands are based on water use rate projections used for future development in the City's 2015 UMWP (0.2 AFY for single family homes). Several non-residential demands were derived from water use factors associated with MPWMD's Rule 24 - Calculation of Water Use Capacity and Capacity Fees. These include restaurant, commercial, retail and office uses.

City water will be used to supply Project landscaping irrigation while the F&T #2 well will supply irrigation water to the onsite agriculture (vineyards). A seven percent increase was applied to City water demands to include unaccounted-for (non-revenue) water in the total water demands. Unaccounted-for water is water that represents main flushing or firefighting, meter error, and leaks.

At buildout, total City demand was estimated to be 144.0 AFY with Alternative A (Highway 46 Resort) or 138.5 AFY with Alternative B (Resort Community). Onsite private well demand from the F&T #2 well was estimated to be 16 AFY.

As discussed in the previous section, the F&T #1 and F&T #2 wells will continue to be used to supply irrigation water to offsite vineyards with annual totals ranging between 12 and 16 AFY (see **Table 2**). These demands were not included in the Project demand totals.

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Table 3. Future Water Use, Gateway Project, Paso Robles

Development Component	Planned Number of Rooms, Units or Area in Acres	Buildout Water Demands, AFY		Water Use Rate[1]
		City Supplied Potable Water	Private Well Agriculture Irrigation	
Hillside Destination Resort (200,000 sf)				
Hotel Rooms	225	27.0	0.0	0.12 AFY/room (applicant)
Restaurants (5,000 sf)	0.11	6.7	0.0	Assume 200 seats at 30 gpd/seat (MPWMD, 2019)
Spa (7,000 sf)	0.16	1.0	0.0	Estimated at 1 AFY
Ballroom and Conference Rooms (20,000 sf)	0.46	1.8	0.0	0.08 gpd/sf (3.9 AFY/acre) (MPWMD, 2019)
Hillside Resort Water Demands	-	**36.5**	**0.0**	-
Non-Revenue Water (7%)[2]	-	**2.7**	**0.0**	-
Total Hillside Resort Water Use	-	**39.3**	**0.0**	-
Vineyard Hotel (76,000 sf)				
Hotel Rooms	100	12.0	0.0	0.12 AFY/room (applicant)
Pool	-	0.5	0.0	Pool usage 0.5 AFY (North Coast Engineering, 2016)
Meeting Area (1,500 sf)	0.03	0.1	0.0	0.08 gpd/sf (3.9 AFY/acre) (MPWMD, 2019)
Vineyard Hotel Water Demands	-	**12.6**	**0.0**	-
Non-Revenue Water (7%)[2]	-	**1.0**	**0.0**	-
Total Vineyard Hotel Water Use	-	**13.6**	**0.0**	-
Village Commercial Center (37,100 sf)				
Retail (18,200 sf)	0.42	1.6	0.0	0.08 gpd/sf (3.9 AFY/acre) (MPWMD, 2019)
2 Restaurants (5,600 sf) ~240 seats	0.13	8.1	0.0	Assume 240 seats at 30 gpd/seat (MPWMD, 2019)
Office (3,800 sf)	0.09	0.3	0.0	0.08 gpd/sf (3.9 AFY/acre) (MPWMD, 2019)
Residential Units (9,500 sf)	17	3.4	0.0	0.20 AFY/unit (2015 UWMP)
Village Commercial Water Demands	-	**13.4**	**0.0**	-
Non-Revenue Water (7%)[2]	-	**1.0**	**0.0**	-
Total Village Commercial Water Use	-	**14.5**	**0.0**	-
Promontory Commercial (24,000 sf)				
Commercial and Office (24,000 sf)	0.55	2.1	0.0	0.08 gpd/sf (3.9 AFY/acre) (MPWMD, 2019)
Promontory Commercial Water Demands	-	**2.1**	**0.0**	-
Non-Revenue Water (7%)[2]	-	**0.2**	**0.0**	-
Total Promontory Commercial Water Use	-	**2.3**	**0.0**	-
Vine Street Commercial (22,000 sf)				
Commercial and Office (22,000 sf)	0.51	2.0	0.0	0.08 gpd/sf (3.9 AFY/acre) (MPWMD, 2019)
Vine Street Commercial Water Demands	-	**2.0**	**0.0**	-
Non-Revenue Water (7%)[2]	-	**0.1**	**0.0**	-
Total Vine Street Commercial Water Use	-	**2.1**	**0.0**	-
Alternative A Highway 46 Resort (135,000 sf)				
Hotel Rooms	100	12.0	0.0	0.12 AFY/room (applicant)
2 Restaurants (5,300 sf)	0.12	7.4	0.0	Assume 220 seats at 30 gpd/seat (MPWMD, 2019)
Spa (6,000 sf)	0.14	1.0	0.0	Estimated at 1 AFY
Ballroom and Meeting Areas (4,800 sf)	0.11	0.4	0.0	0.08 gpd/sf (3.9 AFY/acre) (MPWMD, 2019)
Outdoor event area, pool, poolside café/bar	-	0.3	0.0	Assume 1,200 sf at 0.02 AF/100 sf + 0.1 AFY/café
Alternative A Water Demands	-	**21.2**	**0.0**	-
Non-Revenue Water (7%)[2]	-	**1.6**	**0.0**	-
Total Alternative A Water Use	-	**22.8**	**0.0**	-
Alternative B Resort Community				
Single Family Units (Attached or Detached)	80	16.0	0.0	0.2 AFY/unit (2015 UWMP)
Alternative B Water Demands	-	**16.0**	**0.0**	-
Non-Revenue Water (7%)[2]	-	**1.2**	**0.0**	-
Total Alternative B Water Use	-	**17.2**	**0.0**	-
Irrigation				
Commercial Landscaped Areas (City Water)	36	46.1	0.0	1.28 AFY/acre (applicant)
Vineyard and Orchard (Private Well)	47	0.0	16.0	0.34 AFY/acre (applicant)
Irrigation Water Demands	-	**46.1**	**16.0**	-
Non-Revenue Water (7%)[2]	-	**3.5**	-	-
Total Irrigation Water Use	-	**49.5**	**16.0**	-
Total Project Water Use with Alternative A	-	**144.0**	**16.0**	-
Total Project Water Use with Alternative B	-	**138.5**	**16.0**	-

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Table 3 Footnotes:

Information from Fuscoe (2019) and Project Description Tables 2-2 and 2-4 (working draft EIR, Kirk Consulting, May 2019). Note that the square footage areas listed in this table generally represent building areas and are not the same areas as those listed in Table 1.

1. Water use rates are from the following sources:
   - **Applicant (Fuscoe, 2019)**: hotel rooms (0.12 AFY/room) [Similar to rates assumed in other WSE's (Cabernet Links (0.11 AFY/room), Hyatt Hotel (0.15 AFY/room)]; commercial landscaping irrigation (1.28 AFY/acre); vineyard and orchard irrigation (0.34 AFY/acre).
   - **2015 UWMP (Todd, 2016)**: single family homes (0.20 AFY/home).
   - **MPWMD (2019)**: restaurants (assumed 200 seats for a 5,000 sf restaurant at 30 gpd/seat); light commercial, retail, offices, rec/visitor serving commercial, and ballroom (0.08 gpd/sf (3.9 AFY/acre), increased slightly from low water use retail).
   - **North Coast Engineering (2016)**: average pool usage (0.5 AFY).
   - For health spas, assumed 1 AFY, which is slightly higher than the applicant's estimates of 0.8 and 0.7 based on a commercial water usage rate of 4.88 AFY/acre.

Water use for construction or to fill pools is not included in these annual buildout demand estimates.

2. Non-revenue (unaccounted-for) water was assumed to be 7% of potable and 7% of recycled demands to be consistent with the 2015 UWMP and includes water used for main flushing or firefighting, meter error, and leaks.

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3. CITY OF PASO ROBLES WATER SUPPLY AND DEMAND

3.1. CITY SUPPLY AND DEMAND OVERVIEW

The City has relied on groundwater from the Paso Robles Groundwater Basin[1], water from the Salinas River, and more recently, Lake Nacimiento water for its water supply. The City has fulfilled water demand in years that have included both extreme dry years (such as 2013) and prolonged severe drought extending over seven years (1984-1990) (see **Figure 3** for annual rainfall data). Recycled water is planned for the future. Discussion of current and projected City water demand and supplies has recently been updated and documented in the City's 2015 UWMP and will only be summarized here. The UWMP can be found on the City's website: https://prcity.com/467/Urban-Water-Management-Plan-PDF.

Table 4 summarizes projected population and water demands to buildout and the supplies projected to be used to meet those demands.

Table 4. City of Paso Robles Supply and Demand Projections

	2020	2025	2030	2035	2040	Buildout (2045 or later)
Population	32,300	34,400	37,700	39,900	41,900	44,000
Water Demands (AFY)	7,089	7,575	8,061	8,546	9,032	9,519
Water Supply Sources to Meet Demands (AFY)						
Basin Wells	2,600	2,506	2,602	2,124	2,610	2,200
River Wells	3,100	3,500	3,800	4,558	4,558	4,558
Nacimiento Water from Water Treatment Plant	1,120	1,120	1,120	1,120	1,120	2,017
Nacimiento Water from the Recovery Well	269	269	269	269	269	269
Recycled Water for Potable Offset	0	180	270	475	475	475
Total Supply	7,089	7,575	8,061	8,546	9,032	9,519

Note: Supply amounts shown above do not reflect total supply available to the City from each source, nor do they reflect any limits on the City's groundwater rights, but instead the water planned to supply projected demand.

[1] In 2016, the Atascadero Area was subdivided from Paso Robles Area of the Salinas Valley Groundwater Basin (**Figure 1**). In this WSA, the use of the phrase Paso Robles Groundwater Basin is generally meant to cover both the Atascadero Area and the Paso Robles Area subbasins unless indicated otherwise.

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The water demand projections in the 2015 UWMP were developed using representative water demand factors, anticipated future conservation, and City General Plan growth assumptions and buildout conditions. Projected water conservation savings are included in these demand projections. Water demand at buildout is projected to be 9,519 AFY (Todd, 2016).

The supply amounts listed in the table above represent the water planned to supply projected demands and are not the total supply available to the City from each source. More detail on supply sources is provided below.

3.2. CITY OF PASO ROBLES SUPPLIES

3.2.1. Climate

Climate has a notable influence on water availability and demand on a seasonal and annual basis. During drought, influences include greater water demand for outdoor uses, specifically landscape irrigation, and less supply availability because of reduced precipitation and greater evaporation.

Representative climate data for the Paso Robles area are summarized in **Table 5** below, including average monthly rainfall, temperature, and evapotranspiration (ETo). The area has a Mediterranean climate, with moderate temperatures year-round, dry summers and wetter winters. Most of the rainfall occurs between November and April.

Table 5. Climate Data

Month	Average Rainfall[1] (inches)	Average ETo[2] (inches)	Average Temperature[3] (°F)
January	3.45	1.69	46.89
February	3.01	2.24	50.02
March	2.46	3.72	52.98
April	1.01	4.76	56.60
May	0.34	6.03	61.71
June	0.06	6.56	67.44
July	0.05	6.60	71.55
August	0.05	6.30	71.26
September	0.16	4.94	68.12
October	0.59	3.50	61.22
November	1.36	2.02	52.66
December	2.53	1.51	46.76
Average Calendar Year Total	**14.77**	**49.87**	**-**
Monthly Average	**1.26**	**4.16**	**59.01**

1. Precipitation at Paso Robles Station 046730 (Jan 1894-Dec 2018) (WRCC, 2019). Note that Average Calendar Year Total is not the sum of numbers above but rather historical annual average.
2. ETo=Average Evapotranspiration at CIMIS Station 163 Atascadero (CIMIS, 2019).

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3. Temperature at Paso Robles Station 046730 (Jan 1894-Dec 2018) (WRCC, 2019).

Figure 3 shows annual rainfall for the 1931 to 2018 period with average annual rainfall at 14.63 inches for the 1931 to 2018 period. Historical average rainfall for the 1894 through 2018 period is 14.77 inches.

3.2.2. Water Supplies

The City of Paso Robles has historically relied on groundwater from the Paso Robles Groundwater Basin and Salinas River water for its municipal water supply as shown below. This has been supplemented in recent years with water from Lake Nacimiento; recycled water is planned for the future. **Table 6** presents the amount of supply used from each source for the last eight years. A description of the supplies available to the City is provided in the following sections.

Table 6. Past City of Paso Robles Supplies Used to Meet Demands

Water Source (AFY)	2011	2012	2013	2014	2015	2016	2017	2018
Paso Robles Groundwater Basin – Basin Wells	2,327	2,880	3,257	3,497	2,045	951	842	656
Salinas River – River Wells	4,069	3,814	3,743	2,772	3,021	2,448	3,348	3,710
Nacimiento Water Treatment Plant*	0	0	0	0	87	1,763	1,622	1,446
Total Groundwater and Surface Water	6,396	6,694	7,000	6,269	5,153	5,162	5,812	5,812

Note: Supply amounts shown above do not reflect total supply available to the City from each source, nor do they reflect any limits on the City's groundwater rights, but instead the water used to supply projected demand.
* Nacimiento Water Treatment Plant amount shown does not include surface water augmentation with Nacimiento Project Water during periods of drought.

Groundwater

Groundwater from the Paso Robles Groundwater Basin has been and will continue to be an important component of the City's water supply. In 2016, the Atascadero Area Subbasin was subdivided from the Paso Robles Area Subbasin of the Salinas Valley Groundwater Basin (**Figure 1**). In this WSA, the use of the phrase Paso Robles Groundwater Basin is generally meant to cover both the Atascadero Area and the Paso Robles Area subbasins unless indicated otherwise. The City operates deep wells that pump percolating groundwater from California Department of Water Resources (DWR) Basin No. 3-004.06 (Paso Robles Area Subbasin). The Paso Robles Area Subbasin has not been adjudicated but it has been

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designated as high priority and critically overdrafted by the State, requiring management under the Sustainable Groundwater Management Act (SGMA). The City also has shallow river wells in the Atascadero Area Subbasin (DWR Basin No. 3-004.11). More information on these river wells is provided in the subsequent section on surface water.

The Paso Robles Groundwater Basin is the water-bearing portion of the upper Salinas River drainage area. The Salinas River system drains the basin area and surrounding uplands and flows north along the western edge of the drainage area. The major aquifers (or water-bearing units) in the basin include alluvial deposits and the Paso Robles Formation. The alluvial deposits are up to 100 feet in depth and include recent stream-laid sands and gravels along the floodplains of the Salinas River and its tributaries, and older finer-grained terrace deposits along the Salinas River and Estrella River. Wells in alluvium typically produce in excess of 1,000 gallons per minute (gpm) (Fugro, 2002).

The Paso Robles Formation is the most extensive aquifer and consists of sedimentary layers extending from the surface to depths of more than 2,000 feet. It is typically unconsolidated and generally poorly sorted. The water bearing sediments in the basin are 700 to 1,200 feet thick and typically extend to sea level. Paso Robles Formation sediments are relatively thin, often discontinuous sand and gravel layers interbedded with thick layers of silt and clay. Wells generally produce several hundred gpm (Fugro, 2002).

The City operates 13 deep wells that are dispersed across the City east of the Salinas River. All are screened in the Paso Robles Formation as are the many nearby rural residential and agricultural wells surrounding the City.

Groundwater Quality. A general measure of groundwater quality is total dissolved solids (TDS). For drinking water purposes, water with a TDS concentration of 500 mg/L or less is recommended, but can be usable up to 1,000 mg/L. In Paso Robles Groundwater Basin wells, TDS concentrations generally range from 300 to 1,000 mg/L (Fugro, 2002 and 2005).

A survey of local groundwater quality was conducted by the United States Geological Survey (USGS) as part of its Groundwater Ambient Monitoring and Assessment (GAMA) Program (USGS, 2007). The USGS sampled eleven randomly-selected wells located along the major river valleys, including four in or near the City. While trace amounts of pesticides, arsenic, and boron were reported, no constituents of concern were detected above regulatory thresholds.

In general, City water quality is good, but has relatively high TDS and hardness. In response to the hardness, many residents use home water softeners. However, use of water softeners results in addition of salts to the City's wastewater. Nacimiento water is lower in hardness and TDS than groundwater and its provision to City customers may reduce the use of residential water softeners. Reducing or eliminating the use of water softeners will help preserve the quality of local groundwater and advance the use of recycled water for irrigation.

Groundwater Levels and Flow. Groundwater levels in the Paso Robles Groundwater Basin range between 1,500 feet above mean sea level (msl) around the basin margins to below 600 feet msl in the Estrella subarea and along the Salinas River north of the City (Todd, 2007 and GEI, 2011). Groundwater

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flows generally from the margins toward the center of the basin and to the northwest, where the outlet to the lower Salinas Valley is located.

Surface Water

River Wells. The City currently pumps Salinas River water from river wells pursuant to appropriative surface water rights and a permit issued by the State Water Resources Control Board. The City has eight river wells and one Nacimiento water recovery well. Approximately half of the City's current well water supply comes from its shallow Salinas River wells in the Atascadero Area. Groundwater basin boundaries were modified by DWR in 2016 and now define the Atascadero Area of the Salinas Valley Groundwater Basin (DWR Basin No. 3-004.11). The City's Permit allows the City to take up to eight cubic feet per second (3,590 gpm) with a maximum diversion of 4,600 AFY (January 1 to December 31). The permit designates a moveable point of diversion within a specific reach of the Salinas River.

Nacimiento Water. The City of Paso Robles holds a 6,488 AFY delivery entitlement for Lake Nacimiento water with the San Luis Obispo County Flood Control and Water Conservation District. In order to directly use its Nacimiento supply, the City constructed a 2.4 million gallon per day (mgd) surface water treatment plant which became fully operational in early 2016. The City anticipates operating the plant approximately five to nine months out of the year to serve peak summer demands, yielding about 1,120 AFY to 2,017 AFY. Treatment plant operation could be increased to provide up to 2,688 AFY.

In addition to direct deliveries, Nacimiento water also can be utilized by the City through a recovery well. This operation allows Nacimiento water to be turned into the Salinas River channel and captured through the recovery well (as distinct from River water that the City produces pursuant to its water rights permit issued by the State Board). The recovery well is operated at a rate of 400 gpm for five months out of the year, averaging 269 AFY.

Finally, Nacimiento water can be used to augment surface water and improve water supply reliability. Similar to the operation of the recovery well, Nacimiento water can be turned into the Salinas River channel adjacent to City's river wellfield. This allows the river wells to operate when native supplies are low.

Recycled Water

Municipal recycled water is wastewater that has been treated to a specified quality to enable it to be used again. The City currently does not use recycled water but is actively pursuing such use. In 2014, the City completed a Recycled Water Master Plan update (AECOM, 2014) that identified potential recycled water customers, estimated recycled water quality and blending needs, identified recycled water distribution system possibilities, and developed preliminary cost options.

The Recycled Water Master Plan identified the potential to provide approximately 1,530 AFY of recycled water to customers within City boundaries to irrigate City parks, schools, and local government facilities; residential, commercial, and industrial landscape irrigation; and golf course irrigation. This estimate of total recycled water includes potential deliveries that offset potable water demand otherwise served by the City, and deliveries that would offset private well use. This estimate also accounts for blending recycled water with lower salinity sources to make it suitable for agricultural and golf course irrigation.

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Recycled water amounts shown in **Table 6** would offset potable water demand (475 AFY by 2035). Additional recycled water that is not needed within City boundaries will be available for use outside City boundaries for such uses as agricultural and vineyard irrigation and groundwater recharge.

The City of Paso Robles is currently designing a recycled water distribution system that will serve irrigation demands in the City and will also allow regional recycled water use. Recycled water will benefit the City and regional users by providing a drought-resilient supplemental water supply that can be used to offset irrigation demands and contribute to sustainable use of groundwater. The first phase of the City's recycled water distribution system will consist of construction of a five to six-mile pipeline in 2020. Recycled water will be piped from the treatment plant to the City's east side with a reservoir in Barney Schwartz Park. Construction may take 18 months. In the interim, the recycled water will be released into the Salinas River at the current discharge site for treated wastewater. The recycled water will be available to large centralized irrigation uses within the City like golf courses, parks, and commercial landscaping areas. The system will be expanded in the future to serve additional landscape uses in the City and agricultural irrigation.

3.3. SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act (SGMA), which became effective on January 1, 2015, provides a framework for sustainable management of groundwater resources by local agencies, defined as a local public agency with water supply, water management, or land use responsibilities within a groundwater basin.

SGMA establishes a process and timelines for local agencies to achieve sustainable groundwater management in basins designated as medium or high priority by the DWR. The Paso Robles Groundwater Basin is on the following accelerated timeline because it is designated as critically overdrafted:

- Local agencies must form local groundwater sustainability agencies (GSAs) by 2017;
- GSAs must prepare and adopt groundwater sustainability plans (GSPs) by 2020; and
- Once GSPs are adopted, GSAs must implement them and achieve sustainability within 20 years.

In January 2015, the County of San Luis Obispo and Flood Control District Board adopted a SGMA Strategy to "establish community focused Groundwater Sustainability Agencies (GSA) based on cooperative interagency and stakeholder relationships in order to comply with SGMA requirements." Subsequently, five GSAs were formed and, in September 2017, entered into a Memorandum of Agreement to prepare the Groundwater Sustainability Plan for the Paso Robles Area Subbasin. The five overlying GSAs, called the Cooperative Committee, are:

- City of Paso Robles
- Paso Basin - County of San Luis Obispo
- San Miguel Community Services District
- Shandon - San Juan Water District
- Heritage Ranch Community Services District

The GSP is in the process of being completed and is available for review on the Paso Robles Groundwater Communication Portal: http://pasogcp.com. The Portal also provides meeting information

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and updates on other SGMA-related activities in the Paso Robles Groundwater Basin. Additional information on the Paso Robles Groundwater Sustainability Plan can be found on the County's website: https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Paso-Robles-Groundwater-Basin.aspx. Compliance with SGMA means that the GSP document will be completed by 2020 and sustainability will be achieved by 2040.

As mentioned previously, the Atascadero Area Subbasin was subdivided from the Paso Robles Area Subbasin based on information that indicated the Rinconada Fault as a barrier to groundwater flow. The Atascadero Area Subbasin is a very low priority basin and therefore not required to comply with SGMA. However, the Atascadero Area Subbasin GSA, of which the City of Paso Robles is a member, decided to continue to proactively manage the subbasin groundwater resources and develop a GSP using grant funds provided by DWR. Draft sections of the Atascadero GSP are available for review at http://portal.atascaderobasin.com/.

3.4. WATER SUPPLY FACTORS

The City has a diverse water supply portfolio that increases overall City water supply reliability. It has a Water Conservation and Water Shortage Contingency Plan that establishes mandatory and permanent water management requirements to conserve water, enable effective water supply planning, provide for reasonable and beneficial use of water, and prevent waste, unreasonable use, and unreasonable methods of use of water. However, various factors have the potential to affect the City's water supply, including legal, environmental, water quality, and climatic factors, or a combination thereof.

3.4.1. Legal

The City is taking steps to increase the reliability of its surface water and groundwater supplies. For example, and in addition to other efforts described herein, the City is an active party in the development of the GSP for the Paso Robles Groundwater Basin; this GSP is intended and required to achieve groundwater sustainability. Moreover, under SGMA, the five GSAs in the Paso Robles Groundwater Basin have the legal authority to implement the GSP throughout the entire plan area.

In addition, the City has developed policies that apply to the management of non-City wells within City limits. These policies outline permit requirements for the development and use of private wells within City boundaries, establish policies for recycled water use, and extend the City's Water Conservation and Water Shortage Contingency Plan to these private wells. The policies also require that private wells be maintained and operated in a manner to prevent cross-connection with the City water system and be properly abandoned to prevent migration of surface contaminants to groundwater.

In 2013, a quiet title water rights lawsuit was filed by a small group of North County property owners in San Luis Obispo County Superior Court who argued that their overlying groundwater rights and right to continue pumping from the basin is equal or superior to the rights of the County and other governmental entities that also pump from the basin. The case was moved to the Santa Clara County Superior Court because of the court's experience with complex water law. A jury trial in 2018 found that public water suppliers had acquired prescriptive groundwater rights to the Paso Robles Groundwater Basin during times of groundwater shortage conditions. The next phase of the case will determine how much water public water suppliers have a right to pump.

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3.4.2. Environmental

Environmental factors that could affect City's water supply may arise from increased pumping by other groundwater basin users. As noted above, DWR already has designated the Paso Robles Groundwater Basin as a critically overdrafted basin. SGMA regulation will guide the Paso Robles Groundwater Basin water users in the future sustainable management of groundwater resources to prevent SGMA-defined undesirable results (e.g., chronic lowering of groundwater levels, reduction of groundwater storage, degraded water quality, land subsidence, and surface water depletions with adverse impacts on beneficial uses.)

Earthquakes (such as the 2003 San Simeon earthquake) also are an environmental event that could affect supply consistency in the short term as repairs are made to potentially damaged facilities (e.g., storage tanks, pipelines, wells). Heat waves have resulted in power outages in Paso Robles that can temporarily disrupt water supply. The City has backup generators at some but not all City wells. In the past, the City has rented additional generators during power failures.

In addition to the Water Conservation and Water Shortage Contingency Plan, the City has a Water System Emergency/Disaster Response and Notification Plan to respond to emergencies affecting water system operation. The City also has a Local Hazard Mitigation Plan that assesses risks posed by natural and human-caused hazards and includes a mitigation strategy for reducing the City's risks.

Environmental impacts associated with supplying water to the Project will be minimal. The City's main infrastructures for groundwater, surface water and Nacimiento water supplies are already established. The Environmental Impact Report for the Project will address potential environmental impacts associated with construction of the water delivery system on the Project site. Regional water supply-related impacts are being addressed through the SGMA process for the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. At time of writing, the Paso Basin GSP is nearing completion; all GSP sections have been provided for public review and the public comment period closed in September 2019. The GSP establishes Sustainable Management Criteria and subsequent projects and management actions to avoid significant and unreasonable undesirable results related to chronic lowering of groundwater levels, reduction of groundwater storage, degradation of groundwater quality, land subsidence affecting land use and depletion of interconnected surface affecting beneficial use.

3.4.3. Water Quality

It is not anticipated that the current or projected quality of surface water, groundwater, Nacimiento water, or recycled water will affect the volume of water available for use by the City. Nacimiento water improves the quality of the City's water supply with respect to lowering the total dissolved solids (TDS) content of the supply.

While all but one of the Salinas River wells are clustered in two well fields, the remaining City wells are distributed widely. Accordingly, the response to contamination of a well field or one or more wells would be cessation of pumping in the affected wells and greater temporary reliance on the remaining wells (as well as Nacimiento water and recycled water supply as applicable). Wellhead treatment is also an alternative that could be implemented in response to a specific water quality issue. Currently, the

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Ronconi Well Field has a microfiltration wellhead treatment system and Sherwood 9 and Sherwood 11 wells have treatment systems to remove arsenic and hydrogen sulfide.

The City's supply sources are potentially vulnerable to agricultural drainage, auto repair shops, gas stations, home manufacturing, low-density septic systems, sewer collection systems, dry cleaners, metal plating/finishing/fabricating, animal operations, agriculture and irrigation wells, and plastic and synthetics producers. Despite these potential vulnerabilities, all water supplied by the City consistently meets all applicable drinking water standards.

The potential for contamination of City wells is reduced through preparation of a Drinking Water Source Assessment and Protection Program (DWSAP), a federally-mandated program being coordinated by the California State Department of Health Services. The City has prepared DWSAs for all of its wells. For each well, the DWSAs:

- Delineate source protection areas for both surface water and groundwater;
- Identify all potential sources of significant contamination in source protection areas; and
- Determine the susceptibility of water sources to contamination within protection areas.

Additionally, the City has employed several protection measures to reduce potential for contamination which have included increased monitoring, and abatement or remediation of identified sources of potential contamination. These activities, and the regional policies and ongoing programs listed below directly or indirectly reduce the vulnerability of the City's supplies to contamination or the potential for contamination:

- City and County ordinances prohibiting discharge of contaminants and pollutants
- City and County code enforcement
- City's industrial waste, and pretreatment and source control programs
- Stormwater pollution prevention programs
- Strict adherence to DWR well abandonment procedures for public and private wells.

The City's Water Shortage Contingency Plan can be used if unforeseen water supply interruptions occur due to water quality problems. Water supply wells are dispersed throughout the City and it is unlikely that more than one cluster of wells would be impacted at the same time. As mentioned before, the City's diverse water supply portfolio greatly bolsters overall water supply reliability.

With regard to regional groundwater quality, the Salt/Nutrient Management Plan (SNMP) for the Paso Robles Groundwater Basin (RMC, 2015) has characterized groundwater basin conditions, documented salt and nutrient sources, and estimated loading with a focus on TDS, chloride and nitrate. The SNMP indicated that overall groundwater quality was generally stable and could be improved with additional use of Nacimiento supply. Reduction of salt loading has been a long-term goal of the City, which has pursued the reduction of home water softener use, strategic use of City wells with lower salt concentrations, and implementation of an industrial waste discharge ordinance.

3.4.4. Climatic

The climatic events most likely to affect water supply are droughts. Future climate change can bring additional challenges to water supply management.

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While the City's surface water supplies are not dependent on snowmelt (which is most likely to be affected by climate change and global warming), effects of climate change include increased evapotranspiration losses, including increased irrigation water demand and evaporation from Lake Nacimiento. Effects on the water system of increased irrigation demand can be minimized through water conservation measures and provision of recycled water.

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4. COMPARISON OF SUPPLY AND DEMAND

To determine water supply sufficiency, water supply assessments must include a comparison of supply and demand during normal, single dry and multiple dry years during a 20-year projection. **Tables 7** and **8** compare City supply and demand projections in five-year increments between 2020 and buildout (anticipated to occur after 2045) for normal and dry climatic years. These tables are based on 2015 UWMP tables. On an annual basis, the City has been able to provide sufficient supplies to meet demand during normal, single-dry, and multiple-dry year periods. Historical annual pumping has not been greatly affected by drought. The top portions of **Tables 7** and **8** show the City's supply and demands from the 2015 UWMP. Note that the supply totals represent the supply that will be used to meet 2015 UWMP demands.

4.1. CITY SUPPLY AND DEMAND

Although the additional 138.5 to 144.0 AFY of water demand associated with the Project was not accounted for in the 2015 UWMP (shown in red in **Tables 7** and **8**), the City has this supply available from its water supply portfolio of Nacimiento water, groundwater from the Paso Robles Groundwater Basin and water from the Salinas River. Section 4.2 provides discussion of the pre-Project and Project buildout use of the onsite private groundwater wells.

Table 7. City of Paso Robles Normal Year Supply and Demand Projections

Acre-feet/year	2020	2025	2030	2035	2040	Buildout (2045 or later)
UWMP Supply and Demand Projections[1]						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,575	8,061	8,546	9,032	9,519
Difference	0	0	0	0	0	0
Supply and Demand Projections (with Project)[1]						
Alternative A (Highway 46 Resort)						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,696	8,205	8,690	9,176	9,663
Difference	0	121	144	144	144	144
Alternative B (Resort Community)						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,696	8,200	8,685	9,171	9,658
Difference	0	121	139	139	139	139

Note: Supply totals are from the 2015 UWMP and represent the supply that will be used to meet 2015 UWMP demands.

1. Water for the Gateway Project (Table 3) was not included in the 2015 UWMP projections. The City has the additional 139 to 144 AFY of supply available - most likely from groundwater - but the supply amounts in this table were kept at 2015 UWMP-listed supplies. Groundwater production has been reduced by over 1,500 AFY the last two years in response to treated Nacimiento water becoming available (see Table 6).

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Table 8 shows supply and demand for single year droughts in five-year increments between 2020 and buildout (2045 or later). Although customer water use in drought years may increase initially as a result of increased irrigation, water use in a drought year was assumed to be the same as a normal year because water use restrictions would limit additional water use, especially for landscape irritation. Supply totals are the supply that will be used to meet demands. The amount of water supply available in times of drought is deemed the same as that available during normal years, and within historical pumping volumes.

Table 8. City of Paso Robles Single and Multiple Dry Year Supply and Demand Projections

Acre-feet/year	2020	2025	2030	2035	2040	Buildout (2045 or later)
UWMP Supply and Demand Projections[1]						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,575	8,061	8,546	9,032	9,519
Difference	0	0	0	0	0	0
Supply and Demand Projections (with Project)[1]						
Alternative A (Highway 46 Resort)						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,696	8,205	8,690	9,176	9,663
Difference	0	121	144	144	144	144
Alternative B (Resort Community)						
Supply totals	7,089	7,575	8,061	8,546	9,032	9,519
Demand totals	7,089	7,696	8,200	8,685	9,171	9,658
Difference	0	121	139	139	139	139

Note: Supply totals are from the 2015 UWMP and represent the supply that will be used to meet 2015 UWMP demands.

1. Water for the Gateway Project (Table 3) was not included in the 2015 UWMP projections. The City has the additional 139 to 144 AFY of supply available - most likely from groundwater - but the supply amounts in this table were kept at 2015 UWMP-listed supplies. Groundwater production has been reduced by over 1,500 AFY the last two years in response to treated Nacimiento water becoming available (see Table 6).

If approved, at buildout, the Project will use 139 AFY (Alternative B) or 144 AFY (Alternative A) of City-provided potable water (**Table 3**).

4.2. Local Wells

One onsite groundwater well (F&T #2) will supply 16 AFY of water to onsite vineyards and will continue to supply an estimated 8.25 to 10.30 AFY to offsite vineyards. In addition, F&T #1 well will continue to supply 4.13 to 5.18 AFY of irrigation water to offsite vineyards (Fuscoe, 2019) (**Table 2**). These wells pump from the sand and gravel beds of the Paso Robles Formation and range in depth from 400 to 490 feet (Cleath-Harris, 2011).

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The site is surrounded by rural residential and vineyards that presumably rely on groundwater. **Figure 4** shows an aerial image of the Project vicinity that shows the Project site in relation to the surrounding agriculture and rural residential areas. It also shows onsite wells and nearby wells, including the City's Thunderbird well field east of the site and Templeton Community Services District (TCSD) production wells to the south and east of the Project site.

The City's Thunderbird well field pumps mainly from the river alluvium (**Figure 4**). TCSD's Platz River well (Platz 2) pumps from the river alluvium but has been on standby for emergency uses only (Fugro, 2013). It is slated for replacement in 2021 (Lechowicz and Tseng, 2018). The Platz Deep well (Platz 4) and Fortini well are active TCSD water supply wells.

As mentioned in the Surface Water subsection of Section 3.2.2 of this WSA, the Paso Robles Groundwater Basin boundaries were modified by DWR in 2016 to indicate the Rinconada Fault as a subbasin boundary between the proposed Atascadero Area Subbasin and the Paso Robles Subbasin of the Salinas Valley Groundwater Basin.

The Atascadero Area Subbasin, as a whole, is not in overdraft and can sustain the continued use of the onsite wells to supply offsite irrigation (12-16 AFY) and to supply onsite irrigation (16 AFY) (**Table 2**). In 2017, these two wells reportedly produced about 48 AF for onsite and for offsite irrigation. The closest TCSD well (Platz 4) is about 2,000 feet away from F&T #2 well (**Figure 4**). Use of the F&T #1 and F&T #2 wells for onsite and for offsite irrigation will need to comply with the City's Ordinance for Private Wells and approval of a permit from the City. The Ordinance is in Appendix A.

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5. CONCLUSIONS

The findings of this WSA are summarized below.

- The Gateway Project will be built on a 170-acre site is northwest of the US Highway 101 and State Route 46 West interchange and just outside the southwestern boundary of the Paso Robles city limits. The property is proposed to be annexed into the City and the General Plan amended with appropriate land use designations.
- Existing and historical Project site use includes intermittent cattle grazing. Almond trees are on the northern portion of the site but have exceeded their productive life cycle and are no longer irrigated.
- The Project will include two hotels and three commercial centers. It will also include one of two alternatives: a resort center with a third hotel and a conference center or a resort community with 80 residences. The Project also includes onsite vineyards.
- Currently, two onsite private wells, F&T #1 and F&T #2, provide irrigation water to offsite vineyards. It is proposed that these two wells will continue to supply 12 to 16 AFY of offsite irrigation once the Project is completed. In 2017, these two wells were also used for onsite pasture irrigation for cattle grazing.
- Once completed, the Project will use an estimated 138.5 AFY (Alternative B) to 144.0 AFY (Alternative A) of City-supplied potable water.
- The Project will also use an estimated 16 AFY of water from a private onsite well (F&T #2) for onsite irrigation in addition to the continued offsite irrigation.
- The Project's potable water demand of 138 to 144 AFY was not included in the City's 2015 UWMP; however, the City has the additional supply from its water supply portfolio of Nacimiento water, groundwater from the Paso Robles Groundwater Basin and water from the Salinas River.
- The Atascadero Area Subbasin is actively managed and is not in overdraft. It can sustain the continued use of the onsite wells to supply offsite vineyard irrigation (12-16 AFY) and to supply onsite vineyard irrigation (16 AFY).

In conclusion:

The City has adequate potable supply to provide a reliable long-term water supply for the Project under normal and drought conditions.

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FIGURES

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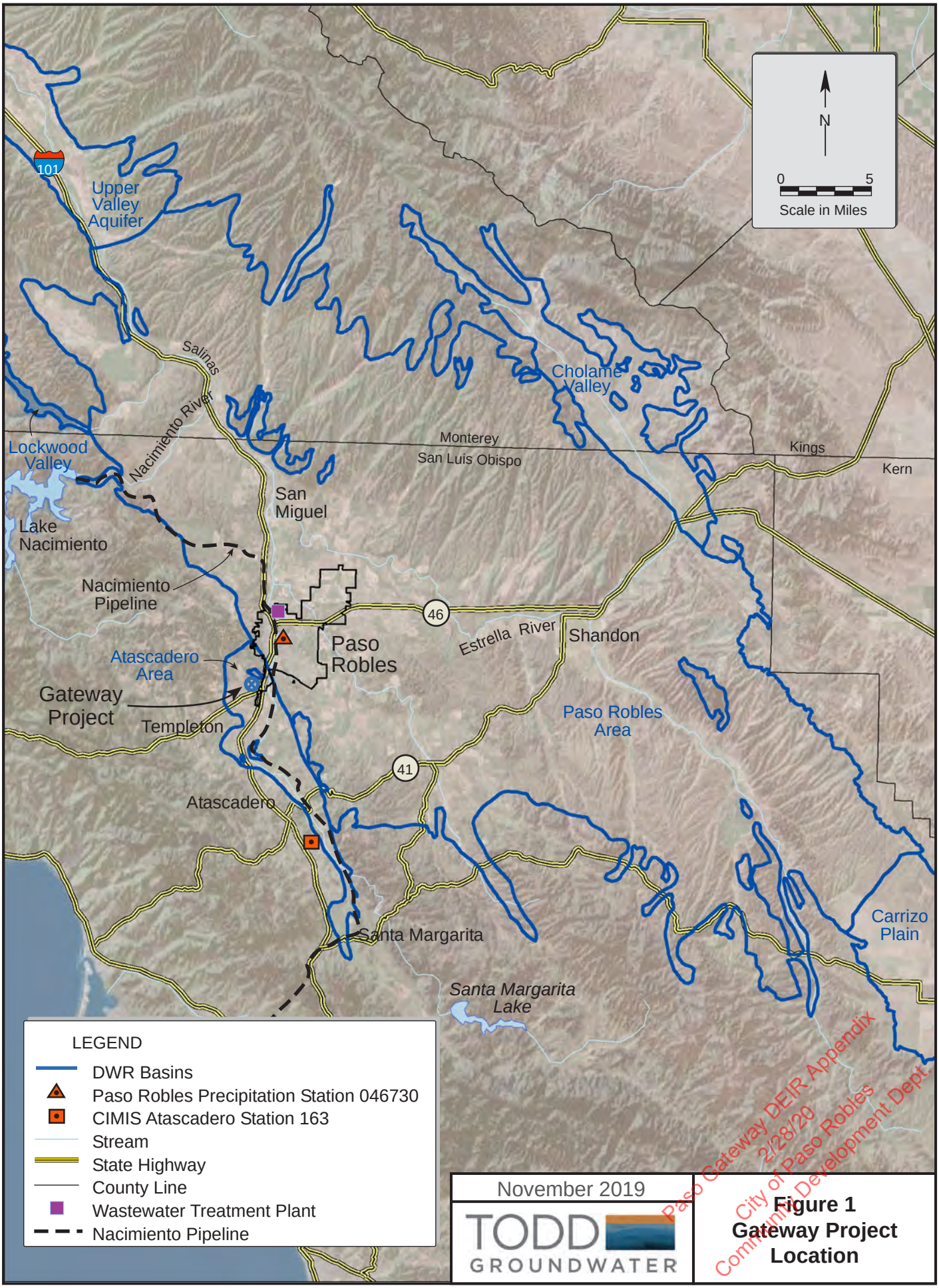
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Upper Valley Aquifer
Salinas
Nacimiento River
Lockwood Valley
Lake Nacimiento
Nacimiento Pipeline
San Miguel
Cholame Valley
Monterey
San Luis Obispo
Kings
Kern
46
Estrella River
Shandon
Paso Robles
Atascadero Area
Gateway Project
Templeton
Paso Robles Area
41
Atascadero
Santa Margarita
Santa Margarita Lake
Carrizo Plain
LEGEND
DWR Basins
Paso Robles Precipitation Station 046730
CIMIS Atascadero Station 163
Stream
State Highway
County Line
Wastewater Treatment Plant
Nacimiento Pipeline
November 2019
TODD GROUNDWATER
Figure 1
Gateway Project
Location
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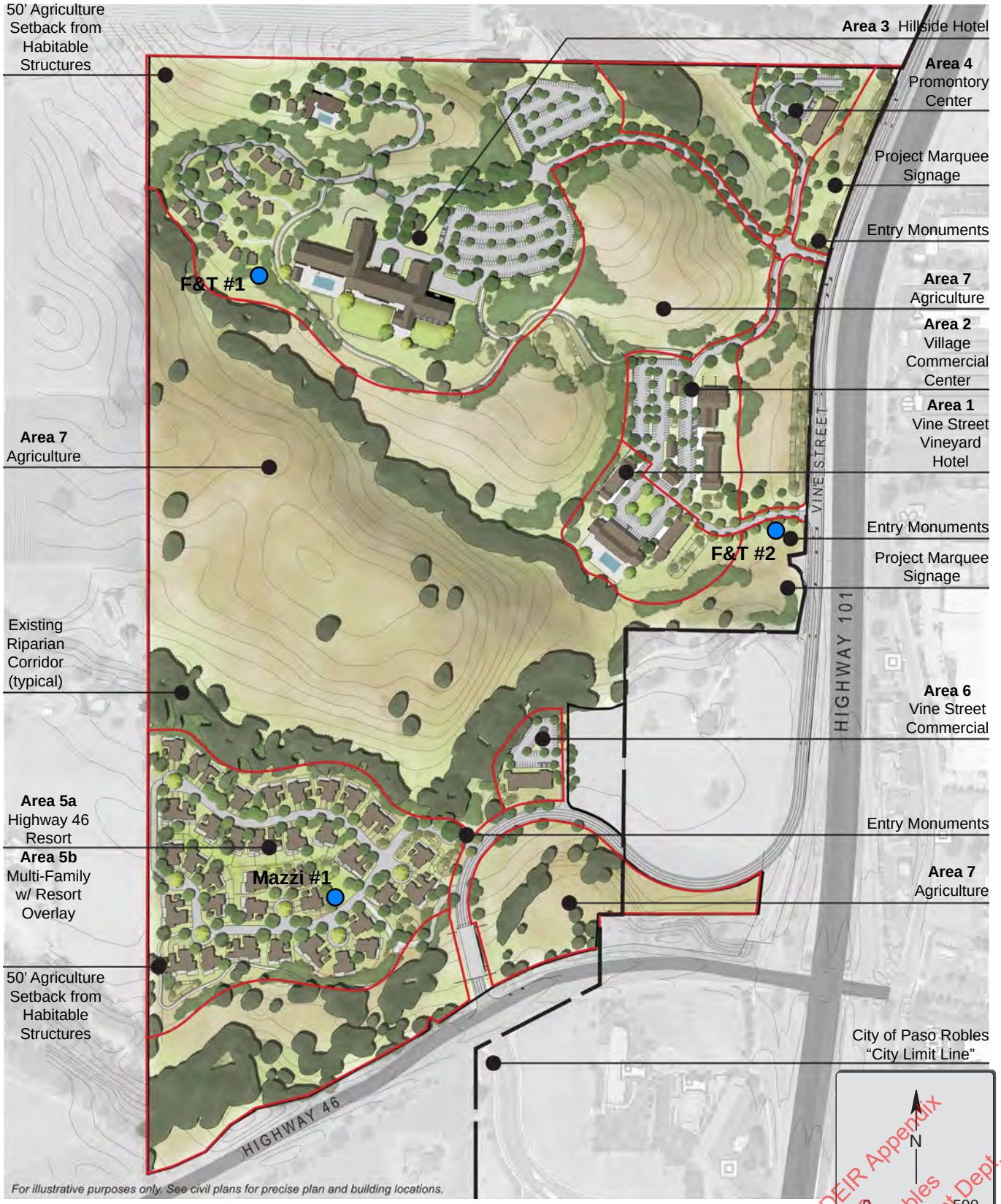

Private Groundwater Well

Source: MVE Engineers March 29, 2019

November 2019

TODD GROUNDWATER

Figure 2
Gateway Project
Conceptual Plan

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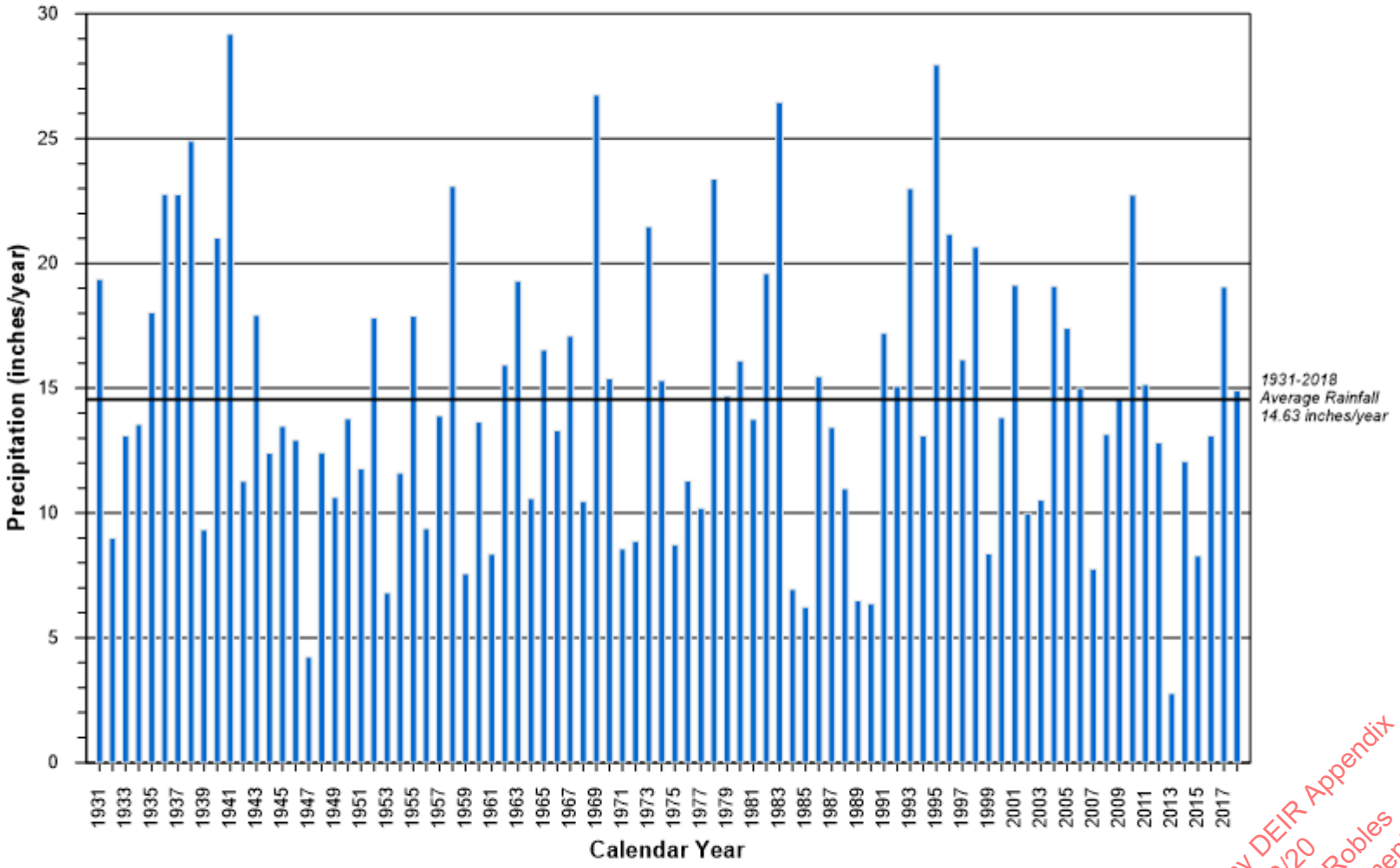

Note: Precipitation data from Paso Robles Station 046730 (WRCC, 2019)

November 2019

TODD GROUNDWATER

Figure 3
Paso Robles
Annual Rainfall

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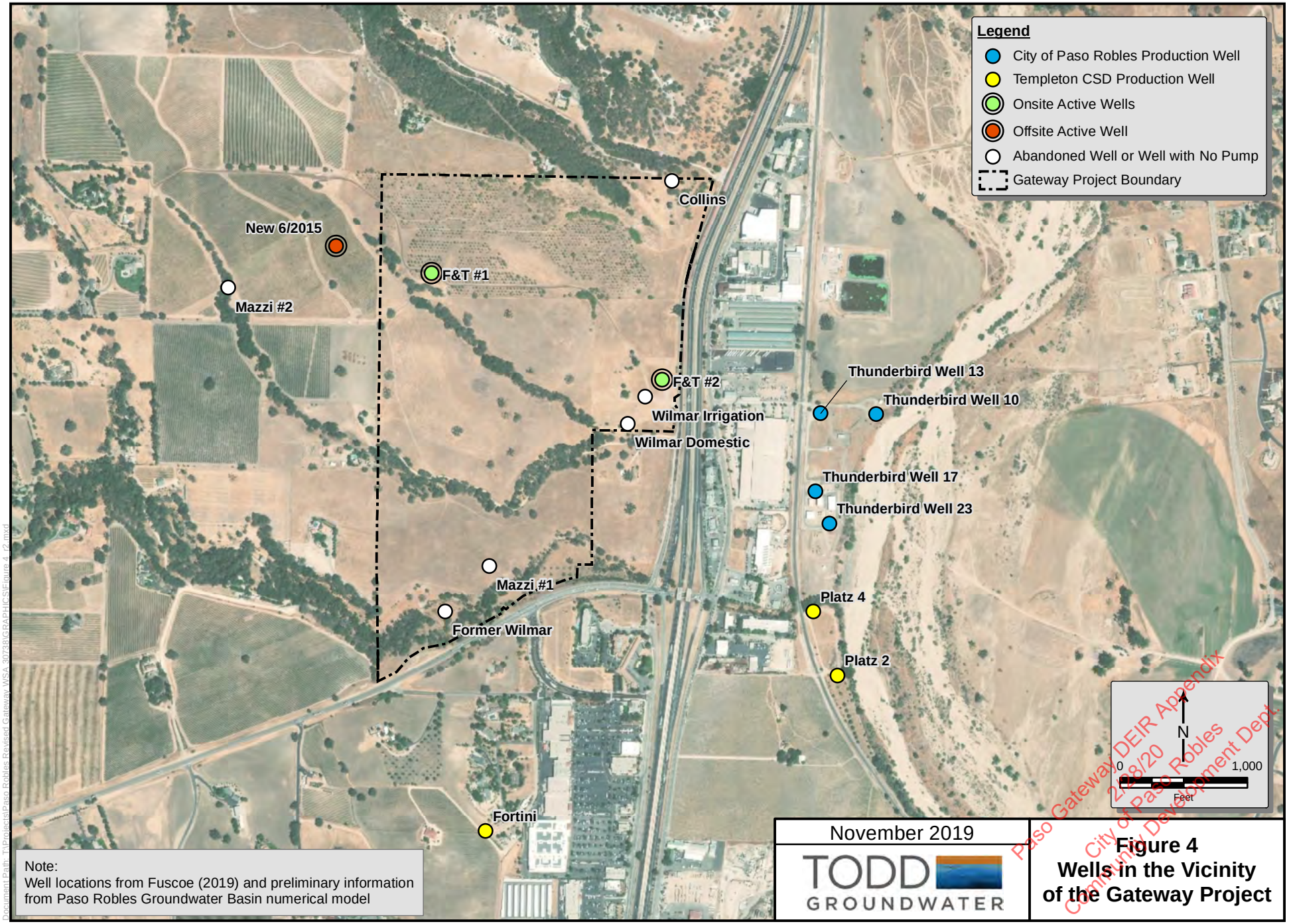

Note:
Well locations from Fuscoe (2019) and preliminary information from Paso Robles Groundwater Basin numerical model

November 2019

TODD GROUNDWATER

Figure 4
Wells in the Vicinity of the Gateway Project

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APPENDIX A

Ordinance No. 1021 N.S.
Relating to Recycled Water Service
and Private Wells within the City

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ORDINANCE NO. 1021 N.S.

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF EL PASO DE ROBLES AMENDING SECTIONS 14.02.020, 14.06.020, 14.06.040, 14.06.049, 14.06.052, 14.06.104, 14.06.132, 14.06.135, 14.06.136 AND 14.06.138 OF CHAPTER 14.06 AND ADDING CHAPTER 14.07 TO TITLE 14 OF THE MUNICIPAL CODE OF THE CITY OF EL PASO DE ROBLES, CALIFORNIA, RELATING TO RECYCLED WATER SERVICE AND PRIVATE WELLS WITHIN THE CITY

WHEREAS, it is the goal of the City of El Paso de Robles to supply water to all premises within the boundaries of the City; and,

WHEREAS, in light of current water conditions and to protect the public health, safety, and welfare, the City Council adopted an urgency ordinance, Ordinance No. 1000, on February 4, 2014, to impose a temporary prohibition on the issuance of permits for new private water wells or modification/rehabilitation of existing wells that would increase groundwater extraction; and

WHEREAS, the provisions of Ordinance No. 1000 were extended by Ordinance No. 1002 in order for the City to have time to consider the issue of private wells more comprehensively; and

WHEREAS, Ordinance No. 1002 will expire on February 5, 2016; and

WHEREAS, with only a few exceptions, the City water system is available to serve the entire City, and therefore private wells may be approved only under limited conditions; and,

WHEREAS, the City's goal and policy regarding private wells is founded on several key principles, including but not limited to the following:

- The City, County, landowners and other stakeholders within the Paso Robles Groundwater Basin should share in the stewardship of Basin resources.
- The City is committed to prudent City-wide use of water and water conservation.
- The goals and objectives of the City's water resource master plans, wastewater and recycled water plans, urban water management plan, and groundwater management and sustainability plans should be integrated to provide a long-term, reliable, and high quality water supply for the City.

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- The City's development of a City recycled water system should be used to offset potable water demand, consistent with statewide water recycling goals and the City's integrated water resources management plan.
- A reliable and sustainable water system requires all water users to contribute financially to the system.
- Potential conflicts among well users in the unincorporated areas should be minimized.
- The need exits to control cross-connections and minimize the possibility that private well usage might degrade groundwater quality.
- The need exists to police the proper abandonment of wells.

WHEREAS, it is recognized that some private wells already exist in the City, and it may be appropriate to allow construction of new private wells or modification, replacement or rehabilitation of existing private wells within the City under certain limited circumstances; and,

WHEREAS, to protect the public health, safety and welfare, it is prudent to also require that existing private wells comply with the same groundwater management and sustainability measures as other City water users; and

WHEREAS, private wells may be temporarily needed to provide water in areas without City water service, including areas recently annexed to the City, agricultural areas, or for resort and recreation uses in appropriate zones; and,

WHEREAS, the City Council of the City of El Paso de Robles held a duly noticed public hearing on December 15, 2015 where it took the following actions:

a) Considered the facts and analysis, as presented in the staff report;

b) Held a public hearing to obtain public testimony on the proposed ordinance:

c) Introduced and waived full reading of said ordinance for the first reading by title only;

NOW, THEREFORE, The City Council of the City of El Paso de Robles does ordain the Paso Robles Municipal Code shall be amended as follows:

Section 1. Subsection A. of Section 14.02.020 is hereby amended in its entirety to read as follows:

"14.02.020 Application

"A. This chapter applies to all customers in the use of any water provided by

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the City of El Paso de Robles, including customers located within or outside the City, and to all private well owners and operators within the City limits."

Section 2. Paragraph A.10. in Section 14.06.020 is hereby deleted and a new Subsection J. is hereby added in its entirety to read as follows:

"14.06.020 Definitions and interpretation.

…..

J. "Private well" means any well that supplies potable or nonpotable water, or both, to residential, agricultural, commercial, industrial, parks, open space, recreational or any other use and that is located on property within the boundaries of the city. As used in this Chapter 14.06, a "private well" shall constitute a "noncity well."

Section 3. Section 14.06.040 is hereby amended to read in its entirety as follows:

"14.06.040 Permits.

No person, firm, corporation, or special district formed under the laws of this state shall within the city, construct, replace, repair, modify, rehabilitate, or destroy any well unless such person possess a valid permit issued by the department of public works as provided in this Chapter 14.06. Any person, firm, corporation, or special district refused or denied the issuance of a permit, or issued a conditional permit, shall have the opportunity for an appeal as described under Section 14.06.052"

Section 4. Subsection C. of Section 14.06.049 is hereby amended in its entirety to read as follows:

"14.06.049 Permit – General requirements.

….

C. Permit – Suspension and Revocation. The department of public works may suspend or revoke any permit issued pursuant to this Chapter, whenever it finds that the permittee has violated any of the provisions of this Chapter, has failed to comply with any permit condition, or has misrepresented any material fact in his application, or any supporting documents, for such a permit. An appeal of a decision by the department of public works may be made as described under Section 14.06.052."

Section 5. Section 14.06.052 is hereby amended in its entirety to read as follows:

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"14.06.052 Appeals.

Any person may appeal a decision by the department of public works regarding the issuance, denial, suspension or revocation of a permit, or any conditions attached thereto, by filing an appeal with the council. The city clerk shall set the matter for hearing before the council and shall give reasonable notice of the time and place thereof to the applicant or permittee. The council shall hear the evidence offered by the applicant/permittee and the department of public works, and shall decide the issue."

Section 6. Section 14.06.070 is hereby deleted in its entirety.

Section 7. Section 14.06.104 is hereby amended in its entirety to read as follows:

"14.06.104 Confidentiality of report.

In accordance with California Water Code Section 13752, reports prepared as set forth in Section 14.06.102 shall not be made available for inspection by the public, but otherwise shall be made available in accordance with State law."

Section 8. Section 14.06.132 is hereby amended in its entirety to read as follows:

"14.06.132 Special Additional Requirements Regarding Private Wells.

It is the goal of the City of El Paso de Robles to supply water to all premises within the boundaries of the City. With only a few exceptions, the City water system is available to serve the entire city, and therefore private wells may be approved only under limited conditions. The City's goal and policy regarding private wells is founded on several key principles, including but not limited to the following:

The City, County, landowners and other stakeholders in the Paso Robles Groundwater Basin should share in the stewardship of Basin resources.

The City is committed to prudent City-wide use of water and water conservation.

The goals and objectives of City's water resource master plans, wastewater and recycled water plans, urban water management plan, and groundwater management and sustainability plans should be integrated to provide a long-term, reliable, and high quality water supply for the City.

The City's development of a City recycled water system should be used to offset the potable water demand, consistent with statewide water recycling goals and the City's integrated water resources management plan.

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A reliable and sustainable water system requires all users to contribute financially to the system.

Potential conflicts among well users in the unincorporated areas should be minimized.

The need exists to control cross-connections and minimize the possibility that private well usage might degrade groundwater quality.

The need exists to police the proper abandonment of wells.

It is recognized that some private wells already exist in the City, and it may be appropriate to allow construction of new private wells or modification, replacement or rehabilitation of existing private wells within the City under certain limited circumstances. Private wells may be temporarily needed to provide water in areas without City water service, including areas recently annexed to the City, agricultural areas, or for resort and recreation uses in appropriate zones.

In recognition of these circumstances the director of public works in accordance with this Chapter may authorize the construction, replacement, repair/reactivation, modification, or rehabilitation of private wells for the supply of potable or irrigation water and may issue orders for the abandonment of such private wells. Property owners shall be required to construct, repair, modify, render inactive and abandon private wells in accordance with the applicable rules, regulations, and requirements of federal, state or local agencies."

Section 9. Section 14.06.135 is hereby added to read in its entirety as follows:

"14.06.135 Existing Private Wells.

Any private well that has been operating continuously in the three-year period immediately prior to the effective date of the ordinance adding this Section 14.06.135 to the Municipal Code may continue in operation, provided, however, that such private well owner shall allow City, at the City's expense, to install a metering device to monitor the production volume of such well. The owner shall grant to the City the authority to enter the property for periodic inspection to ensure proper operation and maintenance of the metering device. Existing private wells with City-installed metering devices shall be exempt from the requirements to obtain a permit under Section 14.06.136 for so long as such well operations continue as exists on such effective date.

Notwithstanding the foregoing, a new permit shall be required and the requirements of Section 14.06.136 and 14.06.138 shall apply to such permit application for the operation of such private well in the event that:

(i) use or uses of the property served by the well(s) is proposed to change or intensify, or

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(ii) deepening, replacing, rehabilitating, or re-drilling the well(s) is proposed, or

(iii) modifications are proposed for such well(s) that would increase the volume of water to be supplied by such well(s), or

(iv) additional water fixtures are proposed as part of a building permit application for residential properties, or

(v) the continued operation of the well(s) has created or is likely to create or result in any nuisance or other hazard that threatens the public health and safety."

Section 10. Section 14.06.136 of Chapter 14.06 of Title 14 of the Municipal Code of the City of El Paso de Robles, California, is hereby amended to read as follows:

"14.06.136 Private Well Permit Eligibility

The director of public works may issue a permit for the construction of a new private well or for the modification, replacement or rehabilitation of existing private well only under one of the following circumstances:

Domestic Uses in Agricultural Zones

For a potable water source for a proposed residence, secondary residence, or an addition to either that is located in an area zoned Agricultural or Parks and Open Space, and where a water service line extension is required, the property boundary is more than 1,000 feet[1] from a City potable water source. Such permit shall remain in effect until such time as a City potable water source becomes available within 1,000 feet of the property boundary.

Agricultural Uses in Agricultural Zones

For non-potable water to be used for agricultural purpose(s) on agriculturally-zoned properties within the City limits and where the nearest property boundary is located more than 1,000 feet from a City recycled or other non-potable water source. Permitted private wells supporting agricultural uses may, at the discretion of the director of public works, remain in service to meet water quality and/or seasonal usage demands if City recycled or other non-potable water source becomes available within 1,000 feet from the property boundary.

Resort and Other Recreational Land Uses

For non-potable water to be used for a recreational land use (golf course, athletic field, related non-potable purpose) in a Parks and Open Space or Agricultural

[1] Distance references are as measured through public right-of-way or existing utility easements. The intent is not to require property owners to secure right-of-way through adjoining private properties

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Zone and where the property boundary is located more than 1,000 feet from a City recycled or other non-potable water source.

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Other Properties Distant from City Water Supply

To provide water supply to any property not listed above within the City limits whose closest property boundary is located more than 1,000 feet from a City water source.

Existing Well on Property Being Annexed to City

For an active well providing water on property that is annexed to the City after the effective date of the ordinance amending this Section 14.06.136 and that meets one of the conditions described above in this Section 14.06.136.

The issuance of a permit for a private well pursuant to this Chapter 14 shall not be deemed to satisfy any other condition required by the City regarding improvements on the property, including, but not limited to, fire suppression needs.

As used in this Section 14.06.136, "Non-potable water" shall have the meaning set forth in Section 14.07.010."

Section 11. Section 14.06.138 is hereby amended in its entirety to read as follows:

"14.06.138 Private Well Approval Conditions

A. The issuance of any permit for a new private well or for the modification, replacement or rehabilitation of existing private well shall be conditioned upon compliance with an agreement executed by the property owner ("Owner") and the director of public works on behalf of the City. Such agreement shall be in a form approved by the City Attorney. The terms of such private well agreement shall include, but are not limited to, the following provisions, as applicable:

(i) The private well shall provide water only to the property identified in the agreement, and strictly for the purpose(s) and for the volume specified in the agreement. Water from the private well shall not be used for any other purpose(s) or for the benefit of or to provide water to any other property.

(ii) The private well shall be operated and maintained in a manner to protect against any threat to public health and safety.

(iii) Owner shall provide the City with specific information on the location of the well, including accurate coordinates through land surveying or use of a Global Positioning System (GPS) and a property map showing the well location in sufficient detail to allow a City agent to readily locate the well.

(iv) City shall have the right to inspect the wellhead, appurtenances, and related facilities with reasonable advance notice to the Owner. The Owner shall grant to the City the authority to enter the property for periodic

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inspection to ensure proper operation and maintenance of the well. Owner shall pay the City for the costs of any such inspections.

(v) All costs of maintenance and repair of the private well shall be at the Owner's expense.

(vi) For any private well(s) serving more than one single family residence, the Owner shall place an approved metering device on the well to monitor its production volume and shall report such usage no less frequently than quarterly to the director of public works.

(vii) Owner shall waive any and all claims against the City for interference with Owner's right or ability to extract water from the private well, or the quality or quantity of the water available from such well, and shall defend, indemnify and hold the City harmless from any such claims from third parties.

(viii) Any private well, appurtenances, and related facilities shall be constructed in accordance with all applicable requirements of the California Department of Water Resources, California Department of Health Services, San Luis Obispo County Health Department, City Public Works Department, and any other local, State or Federal agency with jurisdiction.

(ix) Any private well, appurtenances, and related facilities shall be operated and maintained in a safe and sanitary manner at all times, at no expense to the City.

(x) The private well shall be constructed with a reduced pressure principal backflow prevention assembly (RP device) at the discharge outlet of the well. The RP device shall conform to the standards of the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research, and said device shall be inspected and tested at least once per year by a City-approved qualified technician, at the Owner's expense. A report of the inspection shall be submitted to the City Public Works Department. Further, Owner shall maintain an air gap at all times between the private well system and the City water system.

(xi) If in the opinion of the City director of public works, the San Luis Obispo County Health Department, the San Luis Obispo County Flood Control and Water Conservation District, or any other local, State or Federal agency with jurisdiction, operation of the private well has created or is likely to create or result in any nuisance, or other hazard that threatens the public health and safety, the Owner shall comply with the directives of the enforcement agency. The Owner shall bear any expenses incurred for such compliance. In addition, if a health hazard or nuisance is determined to exist, the City may terminate the private well agreement and revoke the permit and/or certificate of occupancy for those utilizing the private well pursuant to this Chapter 14.06, Sections 102 and 109.6 of the California Building Code and/or Sections 1001.1 and 1001.2 of the Uniform Housing Code, as those sections may be amended from time to time.

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(xii) Private wells may be rendered inactive only in accordance with the provisions of the California Health and Safety Code and any applicable regulations, and the requirements of this Chapter 14.06.

(xiii) The private well agreement shall be recorded against the property, and its provisions shall run with the land and be binding upon any successors in interest to Owner.

(xiv) For any existing private well on property that is annexed to the City after the date of the ordinance amending this Section 14.06.138, Owner shall be required to provide City with all applicable information required by this Chapter 14.06 regarding such existing well.

(xv) The operation of the private well shall comply with the City's Water Conservation and Water Shortage Contingency Plan program, or any similar City water conservation program.

B. If the director of public works issues an order to abandon the private well due to contamination of the well or other situation posing a pollution risk or other threat to groundwater resources or public health or safety, or in the event that the well is displaced by City water service, then the private well shall be abandoned at the Owner's expense in accordance with the standards of the California Department of Water Resources, and any other agency with jurisdiction, and the requirements of this Chapter 14.06.

C. The private well agreement shall terminate if:

(i) Owner fails to comply with the terms of the agreement, or

(ii) The parties mutually consent, or

(iii) The City determines that the private well is interfering with City's ability to deliver water to City residents, is jeopardizing the quality of City water, or is otherwise posing a threat to public health or safety, or

(iv) Owner terminates use of the private well, in which case Owner shall take all steps to properly abandon the well in accordance with the requirements of this Chapter 14.06 and provide evidence thereof to the City, or

(v) At the discretion of the director of public works, for a private well providing non-potable water, City recycled or other non-potable water source becomes available within 1,000 feet of the property boundary.

D. At the discretion of the director of public works, the private well permit agreement may include additional conditions, including but not limited to the following:

(i) Owner shall submit to the director of public works a report prepared by a qualified and licensed professional assessing the impact of the proposed well, both on quality and quantity, on other wells in the area, and the potential impact of such proposed well on surrounding properties, whether within or outside the City.

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(ii) Owner's agreement to not oppose formation of an assessment district or other type of public financing mechanism for the purposes of constructing water mains to provide City water service to Owner's property.

(iii) The parties shall terminate the private well agreement, and Owner shall either abandon or render inactive the private well and connect to City water either when directed to do so by the director of public works or when the conditions set forth under "Domestic Uses in Agricultural Zones" in Section 14.06.136 no longer apply. Owner shall pay City water connection fees at the rates in effect at the time of connection. Owner shall take all steps necessary to either abandon or render inactive the private well in accordance with the applicable rules and regulations of state law, any or local regulatory or enforcement agency with jurisdiction over such matters, and this Chapter 14.06."

Section 12. Chapter 14.07 is hereby added to Title 14 of the Municipal Code of the City of El Paso de Robles, California, to read as follows:

"Chapter 14.07
Non-Potable Water Service

"14.07.010 Definitions

The definitions in this Chapter 14.07 apply to the provisions of Chapter 14.06 and this Chapter only and do not affect any other provisions of law.

A. "Non-potable water" means recycled water that is treated municipal wastewater or other non-potable water supply that is treated to meet water quality requirements for the intended end use as established by federal, state, and local laws and regulations.

"14.07.020 Statement of Policy

When in the discretion of the public works department, non-potable water service can be feasibly provided to a particular parcel for particular use(s), the public works director shall require the use of non-potable water in lieu of potable water or private wells for such use(s). As used herein, the term "feasibly" means non-potable water is available for delivery to the property in compliance with all applicable federal, state, and local laws, ordinances and regulations.

"14.07.030 Use and Distribution of Non-Potable Water

The use and distribution of non-potable water shall be in accordance with adopted City procedures and all applicable federal, state, and local laws, permits and regulations including Titles 17 and 22 of the California Code of Regulations, as may be amended from time to time."

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Section 13. The provisions of this Ordinance shall supersede those contained in Ordinance No. 1002.

Section 14. If any section, subsection, sentence, clause or phrase of this ordinance is for any reason held by a court of competent jurisdiction to be invalid, such a decision shall not affect the validity of the remaining portions of this ordinance. The City Council of the City of El Paso de Robles hereby declares it would have passed this ordinance and each section or subsection, sentence, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, clauses or phrases subsequently be declared invalid.

Section 15. The City Clerk is hereby ordered and directed to certify to the passage of this ordinance and to cause the ordinance to be published in a newspaper of general circulation, published and circulated in the City of Paso Robles, within 15 days after adoption of this ordinance.

Section 16. This ordinance shall be in full force and effect thirty (30) days after its adoption.

INTRODUCED at a regular meeting of the City Council held on December 15, 2015, and PASSED AND ADOPTED by the City Council of the El Paso de Robles on this 5th day of January 2016, by the following vote:

AYES: Strong, Hamon, Reed, Martin
NOES:
ABSENT:
ABSTAIN: Gregory

Steven W. Martin, Mayor

ATTEST:

Kristen L. Buxkemper, Deputy City Clerk

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