

ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017  
PROJECT BASELINE AGREEMENT  
SR-4 Ramp Metering System Installation (10-1F180)

Resolution \_\_\_\_\_  
(will be completed by CTC)

**1. FUNDING PROGRAM**

- Active Transportation Program
- Local Partnership Program (Competitive)
- Solutions for Congested Corridors Program
- State Highway Operation and Protection Program
- Trade Corridor Enhancement Program

**2. PARTIES AND DATE**

- 2.1 This Project Baseline Agreement (Agreement) for the *SR-4 Ramp Metering System Installation (10-1F180)*, effective on, \_\_\_\_\_ (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, *Caltrans*, \_\_\_\_\_, and the Implementing Agency, *Caltrans*, \_\_\_\_\_, sometimes collectively referred to as the "Parties".

**3. RECITAL**

- 3.2 Whereas at its May 13, 2020 meeting the Commission approved the State Highway Operation and Protection Program, and included in this program of projects the *SR-4 Ramp Metering System Installation (10-1F180)*, the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as Exhibit A and the Project Report attached hereto as Exhibit B, as the baseline for project monitoring by the Commission.
- 3.3 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

**4. GENERAL PROVISIONS**

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

- 4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.
- 4.2 To adhere, as applicable, to the provisions of the Commission:
- Resolution *Insert Number*, "Adoption of Program of Projects for the Active Transportation Program", dated \_\_\_\_\_
  - Resolution *Insert Number*, "Adoption of Program of Projects for the Local Partnership Program", dated \_\_\_\_\_
  - Resolution *Insert Number*, "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated \_\_\_\_\_
  - Resolution G-20-40, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated May 13, 2020
  - Resolution *Insert Number*, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated \_\_\_\_\_

- 4.3 All signatories agree to adhere to the Commission's State Highway Operation and Protection Program, Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.
- 4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.
- 4.5 Caltrans agrees to secure funds for any additional costs of the project.
- 4.6 Caltrans agrees to report on a quarterly basis; after July 2019, reports will be on a semi-annual basis on the progress made toward the implementation of the project, including scope, cost, schedule, outcomes, and anticipated benefits.
- 4.7 Caltrans agrees to prepare program progress reports on a quarterly basis; after July 2019, reports will be on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.
- 4.8 Caltrans agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.
- 4.9 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits during the course of the project, and retain those records for four years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.
- 4.10 The Transportation Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for four years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

## **5. SPECIFIC PROVISIONS AND CONDITIONS**

### **5.1 Project Schedule and Cost**

See Project Programming Request Form, attached as Exhibit A.

### **5.2 Project Scope**

See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

### **5.3 Other Project Specific Provisions and Conditions**

## **Attachments:**

Exhibit A: Project Programming Request Form

Exhibit B: Project Report

SIGNATURE PAGE  
TO  
PROJECT BASELINE AGREEMENT

SR-4 Ramp Metering System Installation (10-1F180)

Resolution SHOPP-P-2021-01B



Dan McElhinney  
District Director  
California Department of Transportation

6/29/2020

Date



Toks Omishakin

Director

California Department of Transportation

7-28-20

Date



Mitchell Weiss

Executive Director

California Transportation Commission

08/31/20

Date

Baseline agreement information was extracted from Caltrans' project data systems. Project description, funding and performance measures are from CTIPS. Project delivery milestones are from PRSM. All information is current and accurate.

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

**BASELINE AGREEMENT**

<b>Date:</b>	07/07/20 09:56:17 AM
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District	EA	Project ID	PPNO	Project Manager	
10	1F180	1016000077	3274	LODGE, PARISA RASOULI	
County	Route	Begin Postmile	End Postmile	Implementing Agency	
SJ	4	R 16.0	R 19.4	PA&ED	Caltrans
				PS&E	Caltrans
				Right of Way	Caltrans
				Construction	Caltrans

**Project Nickname**

SR-4 Ramp Metering System Installation

**Location/Description**

In Stockton, from Route 5 to Route 99. Install ramp meters, traffic monitoring systems, Closed Circuit Television (CCTV), and synchronize intersection signals with ramp metering.

**Legislative Districts**

<b>Assembly:</b>	26	<b>Senate:</b>	05, 14	<b>Congressional:</b>	11, 18
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**PERFORMANCE MEASURES**

	Primary Asset	Good	Fair	Poor	New	Total	Units
Existing Condition	Transportation Management Systems (Elements)					0	Each
Programmed Condition	Transportation Management Systems (Elements)				14	14	Each

**Project Milestone**

	Actual	Planned
Project Approval and Environmental Document Milestone	05/28/20	
Right of Way Certification Milestone		11/17/22
Ready to List for Advertisement Milestone		01/05/23
Begin Construction Milestone (Approve Contract)		08/17/23

**FUNDING (Allocated amounts are shaded)**

Component	Fiscal Year	SHOPP				Total
PA&ED	18/19	2,177				2,177
PS&E	20/21	6,057				6,057
RW Support	20/21	695				695
Const Support	22/23	9,438				9,438
RW Capital	22/23	1,332				1,332
Const Capital	22/23	39,097				39,097
<b>Total</b>		<b>58,796</b>				<b>58,796</b>



**Project Report  
To  
Provide Project Approval**

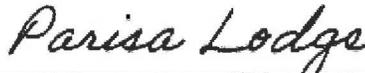
On Route 4  
In San Joaquin County  
Between Route 4 / 5 Separation  
And Route 4 / 99 Separation

I have reviewed the right-of-way information contained in this report and the right-of-way data sheet attached hereto, and find the data to be complete, current and accurate:



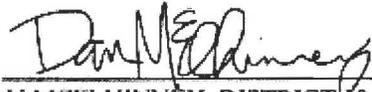
JAMIE LUPO, DISTRICT DIVISION CHIEF, RIGHT OF WAY

APPROVAL RECOMMENDED:



PARISA LODGE, PROJECT MANAGER

PROJECT APPROVED:



DAN MCELHINNEY, DISTRICT 10 DIRECTOR

May 28, 2020  
Date

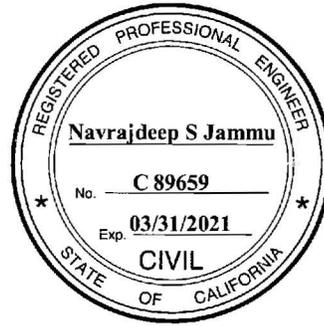
This project report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

*Navrajdeep S Jammu*

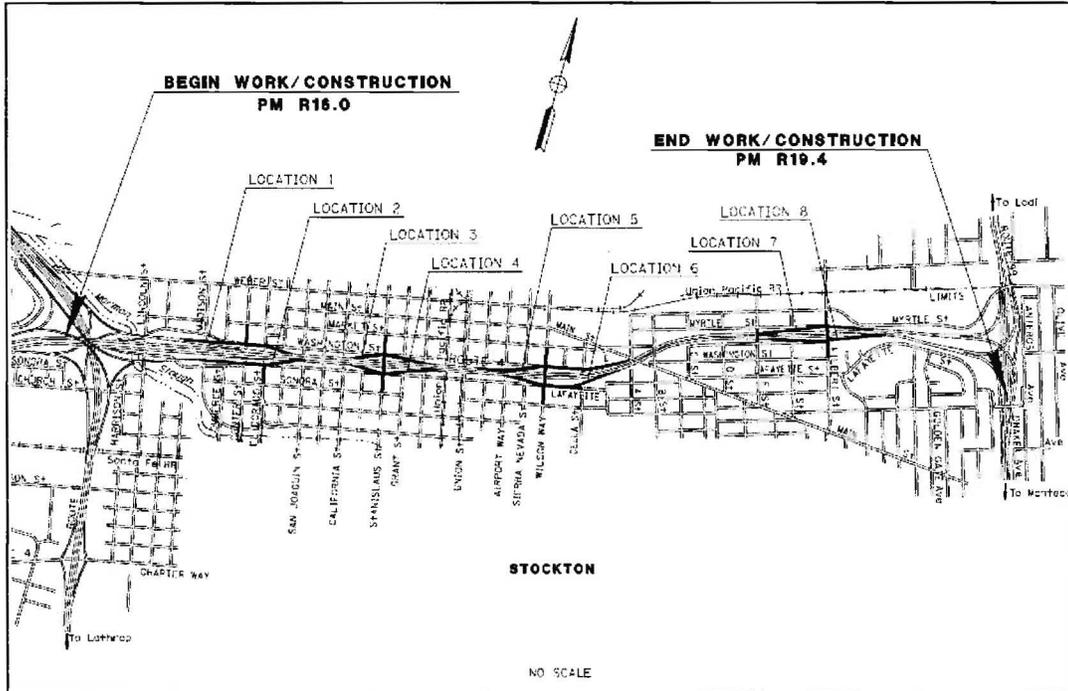
REGISTERED CIVIL ENGINEER

05/08/2020

DATE



# Vicinity Map



**Project Report  
To  
Provide Project Approval**

On Route 4  
In San Joaquin County  
Between Route 4 / 5 Separation  
And Route 4 / 99 Separation

I have reviewed the right-of-way information contained in this report and the right-of-way data sheet attached hereto, and find the data to be complete, current and accurate:



JAMIE LUPO, DISTRICT DIVISION CHIEF, RIGHT OF WAY

APPROVAL RECOMMENDED:



PARISA LODGE, PROJECT MANAGER

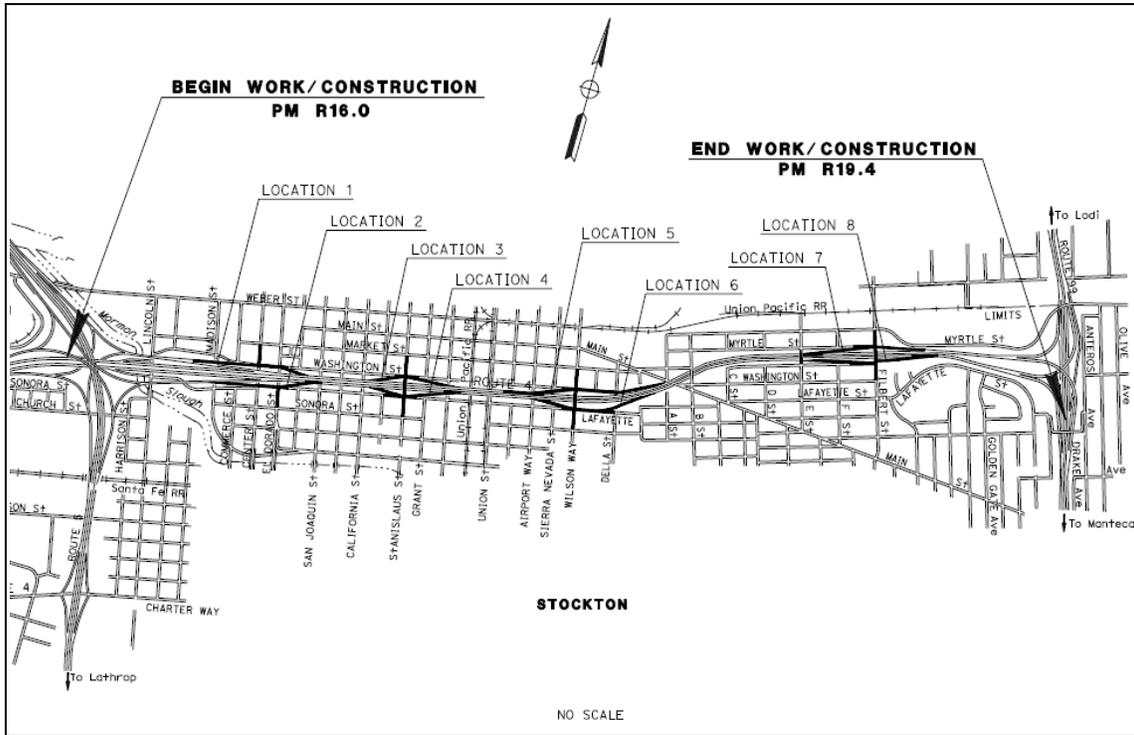
PROJECT APPROVED:



DAN MCELHINNEY, DISTRICT 10 DIRECTOR

May 28, 2020  
Date

# Vicinity Map



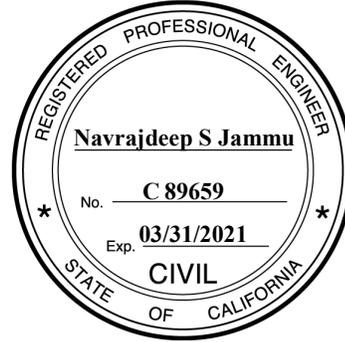
This project report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

*Navrajdeep S Jammu*

05/08/2020

REGISTERED CIVIL ENGINEER

DATE



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## 1. INTRODUCTION

### Project Description:

The proposed Transportation Management Systems (20.10.201.315) project is located on State Route (SR) 4 in San Joaquin County, Post Mile (PM) R16.0/R19.4 between SR 4/ Interstate I-5 and SR 4/ SR 99 interchange (see Attachment A). The proposed improvement includes installation of Ramp Metering System (RMS) on the existing eight on-ramps of SR 4 at S Center St Westbound (WB), El Dorado St Eastbound (EB), S Stanislaus St WB and EB, S Wilson Way WB, E Lafayette St EB, N Filbert St WB and S Filbert St EB. In addition to RMS, the proposal includes installation of eight Closed Circuit Television (CCTV) cameras at various locations, and Traffic Monitoring Station (TMS) along the mainline of SR 4, at eight on-ramps mentioned above, and at eight adjacent upstream off-ramps. The proposal also includes installation of inductive loop detectors on local streets (S Center St, Washington St, E Lafayette St, S Stanislaus St and S Wilson Way) for the City of Stockton to operate traffic signals and minimize traffic impacts to local streets.

<b>Project Limits</b>	10 - SJ - 4 – R16.0/R19.4	
<b>Number of Alternatives</b>	Two (one build and one no build)	
	<b>Current Cost Estimate:</b>	<b>Escalated Cost Estimate:</b>
<b>Capital Outlay Support</b>	\$14,948,000	\$15,610,000
<b>Capital Outlay Construction</b>	\$33,686,700	\$39,712,694
<b>Capital Outlay Right-of-Way</b>	\$538,750	\$603,972
<b>Funding Source</b>	20.10.201.315 (SHOPP)	
<b>Funding Year</b>	2022/2023	
<b>Type of Facility</b>	6-Lane Freeway, On-Ramps	
<b>Number of Structures</b>	2 Bridge Widening, 3 On-Ramp Viaduct Widening and 5 Retaining Walls	
<b>SHOPP Project Output</b>	8 RMS, 8 CCTV and 8 Vehicle Detection System (VDS)	
<b>Environmental Determination or Document</b>	Categorically Exempt (CE) under Class 1 of the state CEQA Categorically Excluded under National Environmental Policy Act (NEPA)	
<b>Legal Description</b>	In Stockton From Route 4 / 5 Separation to Route 4 / 99 Separation	
<b>Project Development Category</b>	Category 5	

## 2. RECOMMENDATION

It is recommended that this project report be approved for the Preferred Alternative and that authorization be granted to proceed the project through Plans, Specifications and Estimate (PS&E) phase.

### 3. BACKGROUND

This project was initiated by the District Traffic Management Branch to install RMS on the existing eight on-ramps of SR 4 located at S Center St WB, El Dorado St EB, S Stanislaus St WB and EB, S Wilson Way WB, E Lafayette St EB, N Filbert St WB and S Filbert St EB between I-5 and SR 99 in the City of Stockton with the approval of the Conceptual Report dated September 3, 2015. In addition to RMS, TMS on the mainline, on-ramps and off-ramps, CCTV cameras, local signal synchronization, additional Right of Way acquisitions along local streets and widening the local streets to provide queue storage lengths were also part of the proposed work. Structures work included bridge widening, ramp viaducts, retaining walls, and sound wall relocations.

The scope of this project was changed due to District's asset management's efforts to re-evaluate its State Highway Operations and Protection Program (SHOPP) priorities and determining that this project must be down-scoped to fund project 10-IE740 (SR 99/120 Collector Project), which is a higher priority for the District. Headquarters Asset Management committed the freed-up funds to fund project 10-IE740. Project down-scoping was approved, via a Project Change Request (PCR), by the California Transportation Commission during the August 2018 meeting. The revised project scope proposed to install RMS at only four on-ramps located at S Center St WB, S Stanislaus St WB, E Lafayette St EB, and S Filbert St EB. The other four locations previously listed were eliminated from the project scope.

With the availability of SB-1 funding, a PCR was approved on February 13, 2019 to deliver the project PA&ED (Project Approval and Environmental Document) as programmed in 2018 SHOPP and delay programming of the remaining components. Therefore, the scope of the project was changed back to install RMS at the existing eight on-ramps and work described under Project Description of this report. The local traffic signals synchronization component of the scope was replaced with installation of inductive loop detectors on the local streets for the City of Stockton to manage their traffic signals because the City traffic signals and RMS signals use different controller units, the signal synchronization is impossible.

### 4. PURPOSE AND NEED

#### Purpose

The purpose of this project is to reduce traffic congestion and improve traffic operations during AM and PM peak hours on SR 4 between I-5 and SR 99 in the City of Stockton by using RMS.

#### Need

The SR 4 segment between I-5 and SR 99 currently experiences significant congestion, which is forecast to increase without any physical and operational improvements to the facility. This segment is the shortest connection between I-5 and SR 99 in San Joaquin county, resulting in congestion on SR 4 in both directions, especially at the connectors of SR 4/I-5 and SR 4/SR 99 during AM and PM peak hour.

## **A. Problem, Deficiencies, Justification**

RMS is recognized as an effective tool for mitigating traffic congestion. The system helps by managing the discharge rate of vehicles from the on-ramps merging to the mainline, therefore reducing the bottleneck impacts and the breakdown of mainline traffic flow. The intent is to control access to the mainline to reduce traffic congestion and mainline delay by breaking up platoons of vehicles from entering the mainline that would otherwise cause friction during peak periods. It also makes merging and diverging maneuvers smooth and controlled by creating gaps in the ramp traffic.

The Division of Freeway and Highway Operations performed the corridor analysis along SR 4 corridor between SR 99 and I-5 connectors, and the results were summarized in the Traffic Operations Analysis Report (TOAR) dated February 28, 2020. For corridor analysis, the Level of Service (LOS) is defined in terms of density (passenger cars / mile / lane) and Measures of Effectiveness (MOEs) which includes freeway travel time (Vehicle-Hours), Vehicle Miles Traveled (VMT), average speed (MPH), average density (VPMPL) /LOS, gasoline consumed (gallons), and total emissions (Kg).

Results from an existing 2018 corridor analysis have confirmed that the AM and PM peak hour operate at an unacceptable LOS in both directions (WB SR 4 operates at LOS F in the AM and PM peak hour, and EB SR 4 operates at LOS E in the AM peak hour). The corridor MOEs are consistent with existing observations and data collected.

The corridor analysis for the opening year (2023) projects that the AM and PM peak hour operations will be unacceptable (LOS E or F), below Caltrans Standard of LOS D for the No Build scenario in both directions. The Build condition analysis indicates that both the directions will operate at acceptable LOS (C to D) during the AM and PM peak hour with implementation of the RMS project. Also, freeway travel time, average speed and average density show positive improvement with RMS implementation.

The design year (2038) corridor analysis projects that the AM and PM peak hour operations will be unacceptable (LOS F), below Caltrans standard of LOS D, for the No Build scenario in both directions. The build condition analysis indicates that the EB and WB directions will still operate at unacceptable LOS E or F during the AM and PM peak hour however, implementation of the RMS is expected to reduce the average density from 20% to 50% during the peak hour. Additionally, freeway travel time, average speed, average density, gasoline consumed, and total emissions shows improvement with RMS implementation throughout the Crosstown Freeway.

## **B. Regional and System Planning**

### Route Description

SR 4 is an east to west arterial traversing from Hercules in the Bay Area to its terminus at SR 89 in Alpine County. In addition to serving interregional, commuter, and local traffic, SR 4 provides access for the movement of people, goods and services along the East Bay and through the Central Valley.

### System Designation

Within District 10, SR 4 is functionally classified as a freeway and is on the National Highway System (NHS) and the Strategic Highway Network. SR 4 is included in the Interregional Road System, and the Freeway and Expressway System. SR 4 conforms to the requirements of the Surface Transportation Assistance Act (1982) for trucks and is classified as a Terminal Access Route. SR 4 is restricted for bicycles and pedestrians but is not a scenic highway within project boundaries.

### Planning Horizon

Within the project area, SR 4 is a six-lane freeway with a concept LOS E and with a concept planning facility of an eight-lane freeway for 2030.

## **C. Traffic**

### Current and Forecasted Traffic

In March 2019, the Caltrans District 10 Office of Travel Forecasting and Traffic Operations calculated the current and forecasted on-ramp traffic volumes for the opening year (2023) and the design year (2038), which are shown as follow:

<b>SR 4 On-Ramps Traffic Volumes Post Mile R16.0 to R19.4</b>										
<b>On-Ramps</b>	<b>Post Mile</b>	<b>2018</b>			<b>2023</b>			<b>2038</b>		
		<b>AADT</b>	<b>AM Peak Hour</b>	<b>PM Peak Hour</b>	<b>AADT</b>	<b>AM Peak Hour</b>	<b>PM Peak Hour</b>	<b>AADT</b>	<b>AM Peak Hour</b>	<b>PM Peak Hour</b>
W Center St WB	16.47	10,700	640	1,090	11,000	660	1,150	11,900	710	1,250
El Dorado Dt EB	16.79	7,400	450	680	7,600	470	700	8,200	500	760
S Stanislaus St WB	17.05	3,100	240	260	3,300	260	280	3,900	300	530
S Stanislaus St EB	17.27	5,150	330	580	5,300	340	600	5,700	370	650
S Wilson Way WB	17.59	12,850	820	970	13,200	850	1,000	14,200	910	1,100
E Lafayette St EB	17.97	3,450	260	290	3,550	270	300	3,850	290	330
N Filbert St WB	18.59	8,650	840	580	8,900	870	600	9,600	930	650
S Filbert St EB	18.88	2,550	210	150	2,650	220	160	2,850	240	170

### Collision Analysis

The most recent three-year (01/1/2015 to 12/31/2017) traffic collision data Table B for SR 4 R16.0/ R19.4, obtained from Traffic Accident Surveillance and Analysis System (TASAS) Transportation Systems Network (TSN), indicates that the total of actual fatal and actual fatal plus injury are less than the State average except for the mainline and the EB on-ramps at El Dorado St and S Filbert St. The collision rates expressed as number of collisions per million vehicle miles are as follows:

<b>SR 4 Selective Collision Rate PM R16.0 to R19.4</b>							
<b>Location Description</b>	<b>PM</b>	<b>Actual</b>			<b>Statewide Average</b>		
		<b>Fatal</b>	<b>F + I</b>	<b>Total</b>	<b>Fatal</b>	<b>F + I</b>	<b>Total</b>
Mainline	16.0 to 19.4	0.009	0.29	0.96	0.003	0.24	0.73
W Center St WB	16.47	0.00	0.10	0.30	0.002	0.21	0.60
El Dorado Dt EB	16.79	0.00	0.33	0.99	0.002	0.21	0.60
S Stanislaus St WB	17.05	0.00	0.00	0.00	0.002	0.21	0.60
S Stanislaus St EB	17.27	0.00	0.00	0.00	0.002	0.21	0.60
S Wilson Way WB	17.59	0.00	0.11	0.22	0.002	0.21	0.60
E Lafayette St EB	17.97	0.00	0.00	0.00	0.003	0.10	0.28
N Filbert St WB	18.59	0.00	0.00	0.15	0.003	0.10	0.28
S Filbert St EB	18.88	0.00	0.99	0.99	0.002	0.21	0.60

There were a total of 320 collisions on SR 4 mainline between PM R16.0 and R19.4 in the last three years, “Rear End” collisions were the most frequent type of collision (53.17%) and the most frequent cause of these collisions was “Speeding” (49.69%). The collision data for SR 4 mainline is shown as follows:

<b>Type of Collision - SR 4 Mainline PM R16.0/R19.4</b>									
Type of Collision	Head On	Sideswipe	Rear End	Broadside	Hit Object	Over Turn	Auto/Peds	Other	Total
Number of Collisions	2	92	170	2	43	4	1	6	320
Percentage of Total	0.63%	28.75%	53.13%	0.63%	13.44%	1.25%	0.31%	1.88%	

There were a total of 14 collisions on SR 4 on-ramps between PM R16.0 and R19.4 in the last three years. There were an equal number of “Rear End” and “Broadside” type of collisions (5 collisions or 35.71% of the total) and “Speeding” was the most frequent cause for these collisions (35.71% of the total). The collision data for SR 4 on-ramps is shown as follows:

<b>Type of Collision - SR 4 On-Ramps PM R16.0/R19.4</b>									
Type of Collision	Head On	Sideswipe	Rear End	Broadside	Hit Object	Over Turn	Auto/Peds	Other	Total
Number of Collisions	0	2	5	5	0	0	2	0	14
Percentage of Total	0.00%	14.29%	35.71%	35.71%	0.00%	0.00%	14.29%	0.00%	

## 5. ALTERNATIVES

### 5A. Viable Alternatives

#### Proposed Engineering Features

The Preferred Alternative is the only viable alternative as determined by the Project Development Team (PDT). This alternative proposes the following improvements:

#### Location 1 – S Center St

- Install RMS at the WB on-ramp
- Roadway and S Madison St bridge widening to accommodate two General Purpose (GP) lanes, MVP and CHP areas
- A retaining wall is proposed for the widening section
- Install TMS at the on-ramp, off-ramp and the mainline
- Install CCTV at the mainline
- Install inductive loop detectors on S Center St and Washington St to manage traffic flow

#### Location 2 – El Dorado St

- Install RMS at the EB on-ramp
- Crosstown Freeway ramp viaduct widening to accommodate two General Purpose (GP) lanes, MVP and CHP areas
- Install TMS at the on-ramp, off-ramp and the mainline
- Install two CCTV, one at the corner of El Dorado St / E Lafayette St and the second at the corner of Washington St / S San Joaquin St
- Install inductive loop detectors on E Lafayette St to manage traffic flow

#### Location 3 and 4 – S Stanislaus St

- Install RMS at the WB and EB on-ramps
- Two Crosstown Freeway ramp viaducts widening to accommodate two General Purpose (GP) lanes, MVP and CHP areas
- Install TMS at the on-ramps, off-ramps and the mainline
- Install three CCTV, one at the corner of S Stanislaus St / Washington St, second at the corner of S Stanislaus St / E Lafayette St and third on the mainline
- Install inductive loop detectors on S Stanislaus St and E Lafayette St to manage traffic flow

#### Location 5 – S Wilson Way

- Install RMS at the WB on-ramp
- Roadway and S Airport Way bridge widening to accommodate two General Purpose (GP) lanes, MVP and CHP areas
- A retaining wall is proposed for the widening section
- Install TMS at the on-ramp, off-ramp and the mainline
- Install CCTV on the mainline
- Install inductive loop detectors on S Wilson Way to manage traffic flow

#### Location 6 – E Lafayette St

- Install RMS and CCTV at the EB on-ramp
- Roadway widening to accommodate MVP and CHP areas
- Install TMS at the on-ramp, off-ramp and the mainline
- A retaining wall is proposed for the side slope stability

#### Location 7 and 8 – N and S Filbert St

- Install RMS at the WB and EB on-ramp
- Roadway widening to accommodate CHP area
- Install TMS at the on-ramp, off-ramp and the mainline
- Two retaining walls are proposed, one for each on-ramp for the side slope stability

Additional drainage systems are not proposed, but the existing drainage inlets within widened sections of on-ramps are proposed to be relocated.

#### Nonstandard Design Features

The project proposes to maintain the following existing nonstandard features:

- Shoulder Widths – the project proposes to maintain and improve the existing shoulder widths for certain portions of all the on-ramps, which does not meet the minimum standard shoulder width requirements of 4 feet for the left shoulder and 8 feet for the right shoulder
- Minimum Interchange Spacing – Between W Center St WB and S Stanislaus St WB, El Dorado Dt EB and S Stanislaus St EB, S Stanislaus St and S Wilson Way
- Minimum Weaving Lengths – at El Dorado Dt EB, S Stanislaus St WB and EB, S Wilson Way WB on-ramps
- Minimum Length of Vertical Curves – at all the on-ramps within project limit except WB on-ramp at S Center St and EB on-ramp at E Lafayette St
- Freeway Entrances, Exits and Transition Taper – at W Center St WB, El Dorado Dt EB, S Stanislaus St WB, S Stanislaus St EB and S Filbert EB on-ramps
- Grades – at W Center St WB, El Dorado Dt EB, S Stanislaus St WB on-ramps

A Design Standard Decision Document for delegated and nondelegated Highway Design Manual (HDM) standards was approved on April 22, 2020.

#### Ramp Metering Policy Non-Compliance Features

The project proposes the following non-compliance features:

- No HOV Preferential Lanes – at all the eight on-ramps
- Minimum Number of Metered Entrance Ramp Lanes – at S Wilson Way WB on-ramp
- Queue Storage Length Design - at all the eight on-ramps
- Maintenance Vehicle Pullout – at WB N Filbert St and EB S Filbert St on-ramps

A Fact Sheet Exception to Ramp Metering Policy for the non-compliance features was approved by the HQ System Operations Chief on February 7, 2020.

## **5B. Rejected Alternatives**

### No-Build

The purpose of this project is to reduce traffic congestion and improve traffic operations during AM and PM peak hours on SR 4 between I-5 and SR 99 in the City of Stockton by using RMS. With the No-Build Alternative, traffic congestion on SR 4 would further increase in the future and not meet the purpose and need of the project.

## **6. CONSIDERATIONS REQUIRING DISCUSSION**

### **6A. Hazardous Waste**

As a part of the project scope, trenching will be required on local streets to install inductive loop detectors, electrical conduits, pull boxes and CCTV pole foundations. There are several open and closed Leaking Underground Storage Tank (LUST) cases adjacent to the project locations and due to proximity of the LUST sites to the trenching locations, a project specific survey for petroleum hydrocarbons and Title-22 constituents is required prior to construction activities. Aerially Deposited Lead (ADL) is known to occur in the unpaved areas adjacent to highways. There is a potential to encounter ADL impacted soil during project construction. A project specific ADL soil survey shall be conducted at each of the ramp locations prior to construction activities. Asbestos Containing Materials are known to occur in bridge bearing pad, shims, mastic, material, and/or concrete. The scope of work for this project will require widening of three existing bridges; therefore, a project specific survey for Asbestos Containing Material shall be conducted prior to construction activities. Painted surfaces such as girders, graffiti abatement, and traffic striping may be present on bridges therefore, a project specific survey for lead based paint shall be conducted prior to construction activities. Hazardous materials or contamination exceeding regulatory thresholds and not present within the project limits.

### **6B. Value Analysis**

A Value Analysis for this project was conducted in January 2020 to analyze current project design, estimate and schedule, and provide possible cost and/or schedule saving recommendations. The VA team developed six alternatives for improvement of the project (see Attachment N). The following are the alternatives identified, along with their associated potential cost savings, potential change in schedule and performance change.

1. This alternative recommends placing controller cabinets off the bridges and monitor traffic with CCTV to reduce MVP required bridge widening at five structures. This alternative has a potential cost savings of \$8,980,000, 6-month reduction in schedule and change in performance by -1%.
2. This alternative recommends eliminating all bridge widening from the project, this alternative has a potential cost savings of \$15,930,000, 18-month reduction in schedule and change in performance by -8%.
3. This alternative recommends eliminating CHP pullouts at 3 locations (EB on-ramp at El Dorado St, EB and WB on-ramp at Stanislaus St). This alternative has a

potential cost savings of \$3,010,000, half a month reduction in schedule and change in performance by +2%.

4. This alternative recommends keeping existing retaining walls at WB on-ramp at S Center St and WB on-ramp at S Wilson Way, and construct a new adjacent retaining wall. This alternative has a potential cost savings of \$150,000, no change in schedule and change in performance by +1%.
5. This alternative recommends eliminating the ramp "count" loop detectors that are located on the structures and this alternative has a potential cost savings of \$25,000, no change in schedule and change in performance by +2%.
6. This alternative recommends constructing the controller cabinet and MVP next to the existing traffic signal controller cabinet at EB on-ramp at Filbert St. This alternative will result in an additional cost of \$110,000, no change in schedule and no change in performance.

PDT conducted a meeting on April 1, 2020 and accepted alternative four and six to be implemented into the project design, but a final approval from the management is still pending for these two alternatives. These two alternatives together have a potential cost savings of \$40,000, change in improvement by 1% and no changes in schedule.

#### **6C. Resource Conservation**

There are no major facilities that can be salvaged and relocated from this project. However, wherever possible, existing roadway features such as signs, light standards, bridge railings, associated hardware and roadway materials will be relocated or stockpiled in maintenance yards to be used later. Efforts will be made to recycle any pavement removed during construction.

#### **6D. Right-of-Way Issues**

The installation of RMS, TMS elements, CCTV poles and bridge widenings are all within Caltrans' right of way and no additional right of way acquisition is anticipated for this project. Construction permits will be required to install falsework for bridge widenings, install inductive loop detectors, flashing beacons on local streets and CCTV poles at various locations. The work is more than 25 feet away from the railroad tracks, but a Railroad flagging agreement may be needed during construction due to the proximity of one of the locations (EB On-Ramp at S Stanislaus St) to the Railroad and structure widening at this location requires foundation work with large equipment and the potential to foul the tracks, see Attachment J for the Right of Way Data Sheet. Relocation of utilities is anticipated under some of the on-ramps to accommodate structural widenings. Final determination of utility impacts will be made during the PS&E phase of the project and relocation plans will be prepared. The need for potholing will be ascertained following the verification process.

#### **6E. Environmental Compliance**

The project is Categorically Exempt (CE) under Class 3 of the State of California Environmental Quality Act (CEQA) guidelines and Categorically Excluded (CE) under National Environmental Policy Act (NEPA) guidelines (See Attachment I).

**6F. Air Quality Conformity**

This project is not expected to cause any operational effects on air pollutants. The project is non-attainment for the State and Federal ambient air quality standards for ozone, Particulate Matter (PM) 10 and PM 2.5 standards. A PM hot spot memo is not required because the project falls into the exempt category under the Code of Federal Regulations 93.126 under project type: traffic control devices and operating assistance other than signalization projects.

**6G. Title VI Considerations**

The proposed project complies with Title VI considerations.

**6H. Life-Cycle Cost Analysis**

The proposed project involves improvements along the on-ramps and Life Cycle Cost Analysis is not conducted for on-ramps.

**6I. Reversible Lanes**

Reversible lanes are not applicable to this project.

**6J. Cultural Resources**

As currently planned, the proposed project has no potential to affect any archaeological or built-environmental historical resources or historic properties.

**6K. Biology**

The proposed project would have no effect on any state or federal threatened or endangered species and it is also outside National Marine Fisheries Service jurisdiction. There are no state or federally-listed species, designated critical habitat; state or federally recognized sensitive habitats, or potential waters of the U.S. associated with this geographic region, that will be impacted. Additionally, Army Corps of Engineers, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or Regional Water Quality Control Board permits will not be required for this project. Agricultural fields, mature trees, and large shrubs, which may provide nesting habitat for migratory birds, were observed within and adjacent to the project's limits. A preconstruction survey for migratory birds and raptors will be required seven to fourteen days prior to start of construction activities occurring during the migratory bird nesting season (February 1- September 30).

**7. OTHER CONSIDERATIONS AS APPROPRIATE****7A. Public Hearing Process**

The project is Categorical Exempt under Class 3 of the CEQA guidelines and Categorical Excluded under the NEPA guidelines; therefore, it was determined that Public Hearing Process is not required for this project.

**7B. Route Matters**

A Freeway Agreement, revised Route Adoption, or relinquishments is not required for this project.

**7C. Permits**

There are no environmental permits required for this project.

**7D. Other Agreements**

The project proposes installation of inductive loop detectors on local streets for the City of Stockton to operate traffic signals upstream from the Ramp Metering signals to create gaps in the oncoming traffic and minimize traffic impacts to local streets. A maintenance agreement may need to be executed between Caltrans and the City to address the operation and maintenance responsibilities for these loop detectors.

**7E. Transportation Management Plan**

A Transportation Management Plan (TMP) has been developed for this project to address traffic impacts. The purpose of the TMP is to minimize motorist delays associated with the construction of the project without compromising public or worker safety, or the quality of the work being performed. A Public Information Strategy including media releases and notification to impacted groups will be implemented. Portable Changeable Message Signs (PCMS), PCMS for work zone speed limit reduction, radar speed feedback sign will be utilized to alert the public and motorists of construction activities ahead. Lane, shoulder, and ramp closures will be required and restricted to low volume periods. Since the project involves ramp closures, detours will be required. Preliminary traffic impacts and mitigation for this project have been outlined in the attached TMP checklist, see Attachment G. Costs associated with the traffic impact mitigation measures listed in the TMP checklist have been included in the construction cost estimate.

**7F. Stage Construction**

Stage Construction will be required for this project and the suggested construction phases are as follows:

Stage 1

The existing five bridges at S Center St WB, El Dorado St EB, S Stanislaus St WB, S Stanislaus St EB and S Wilson Way WB on-ramps is to be widened in this stage.

Stage 2

The proposed roadway widening at all the on-ramps is to be completed in this stage including the CHP and MVP pullout areas.

Stage 3

The electrical work at all the on-ramps is suggested to be completed in the final stage which includes installation of RMS, TMS elements, CCTVs and inductive loop detectors for the City of Stockton.

**7G. Asset Management**

The performance objective in this project is consistent with the 2017 State Highway System Management Plan and SHOPP Ten-Year Plan. The performance objective identified in this project is Transportation Management Systems (TMS) and are identified in the SHOPP Performance Report (Attachment L). The project's

Programmable Alternative proposes the following:

- Install 8 new CCTV systems. This meets 29.6% of the District objective of 27 new TMS
- Install 8 new RMS. This meets 29.6% of the District objective of 27 new TMS
- Install 25,617 SF of Retaining Wall

#### **7H. Complete Streets**

A Complete Street is a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility. Pedestrians, bicycles, or other non-motorized traffic are not allowed on this freeway segment of SR 4, and there are no pedestrian facilities within the proposed on-ramp widening limits. The scope of this project doesn't propose to improve any existing pedestrian facilities at the on-ramp intersections, which are outside the on-ramp widening limits.

#### **7I. Green House Gas Emissions and Climate Change**

Green House Gas (GHG) emissions were calculated using the FHWA infrastructure carbon estimator tool that estimates the lifecycle energy and greenhouse gas emissions from the construction and maintenance of transportation facilities. A total of 59 (MT CO<sub>2</sub>e) of annual GHG emissions per year over 20 years period was calculated using the carbon estimator tool. The breakdown of the total GHG emissions is 18 (MT CO<sub>2</sub>e) of direct emissions from fuel used in construction equipment, 5 (MT CO<sub>2</sub>e) of direct emissions from fuel used in maintenance equipment and 36 (MT CO<sub>2</sub>e) of indirect lifecycle emissions use embodied in the material used in the construction activities. All the values of GHG emissions are per year over the period of 20 years.

Climate change considerations were evaluated, and it was determined the scope of this project is not susceptible to climate change factors such as increased flooding or sea level rise. Additional sea level rise adaptation measures are not needed for the project since the project is not located in the coastal zone or in an area vulnerable to sea level rise.

#### **7J. Broadband and Advance Technologies**

Electrical design team will be using fiber optics for RMS at all the on-ramps and signalized intersections. Also, Video Imaging Vehicle Detection System (VIVDS) will be used on the mainline where Inductive Loop Detectors cannot be installed because of the structures.

#### **7K. Programmed Projects within the vicinity of Project Area**

- 10-1C670 Surface Transportation Assistance Act (STAA) Truck Improvement (SJ-4-17.7/17.7) – The scope of this project is to improve STAA truck turning movements at the intersection of SR 4 EB off-ramp and Wilson Way, WB on-ramp and Wilson Way. A meeting was conducted with the Program Advisor to discuss the possibility of including 10-1C670 project as a part of 10-1F180 RMS project,

but it was determined that these two projects cannot be combined due to different scopes, schedules and programming codes.

- 10-0X690 SR 4 MVP and Roadside Paving (SJ-4-15.7/19.2) – The scope of this project is to provide roadside safety improvements to reduce the frequency of routine and recurring maintenance activities along SR 4. This project is already in construction.
- 10-1C500 SR 4 Pavement Resurfacing and Restoration (SJ-4-R15.5/R16.5) – This is a resurfacing and restoration (2R) roadway rehabilitation project located on SR 4 at the SR 4/I-5 interchange.
- 10-1C860 SR 4 Reconstruction of Hinge 32 (SJ-4-R17.3/R17.4) – The proposed work is to reconstruct and replace the joint seal and elastomeric bearing pad for Hinge 32 on the EB and WB SR 4 mainline, and to reconstruct and replace the joint seals for hinges at the El Dorado St off-ramp and the Stanislaus St on and off-ramps.
- 10-0X460 Stockton Channel Viaduct Bridge Rehab (SJ-5-26.1/26.5) – The scope of this project is to rehabilitate the Northbound (NB) and Southbound (SB) Stockton Channel Viaduct Bridges 29-0176 L/R in the City of Stockton on I-5 between post miles 26.1 and 27.0 and to construct a new reconfigured Pershing Avenue off-ramp with a dedicated auxiliary lane that would connect the NB I-5 to Pershing Avenue.

#### **7L. Stormwater**

This project does not involve discharges of pollutants or of dredged or fill material into navigable waters and is in compliance with the Section 13260 (Reports of Discharge to Navigable Waters) with no notification necessary to the Regional Water Board. Project activities are anticipated to disturb more than 1.0 acre of soil (about 1.47 acres) therefore, it is required to obtain coverage under CGP NPDES (National Pollutant Discharge Elimination System) CAS000002. The NIS (New Impervious Surface) created by this project is less than 1.0 acre therefore, permanent treatment of highway stormwater runoff is not required.

## **8. FUNDING, PROGRAMMING AND ESTIMATE**

### Funding

It has been determined that this project is eligible for federal-aid funding.

### Programming

This project is programmed for PA&ED as a long lead in the 2018 SHOPP. For the rest of the components, this project will be adopted into 2020 SHOPP with funding from the 20.XX.201.315, Transportation Management Systems in the 2022/2023 fiscal year. The table below shows escalated Construction, Right of Way and Support cost estimates for this project.

Fund Source	Fiscal Year Estimate									
	20.10.201.315	Prior	17/18	18/19	19/20	20/21	21/22	22/23	Future	Total
Component	In thousands of dollars (\$1,000)									
PA&ED Support			\$1,950							\$1,950
PS&E Support					\$5,500					\$5,500
Right-of-Way Support					\$695					\$695
Construction Support							\$7,465			\$7,465
<b>Total Support Cost</b>			<b>\$1,950</b>		<b>\$6,195</b>		<b>\$7,465</b>			<b>\$15,610</b>
Right-of-Way	\$1,332						\$604			\$604
Construction	\$39,097						\$39,713			\$39,713
<b>Total Capital Cost</b>	<b>\$40,429</b>						<b>\$40,317</b>			<b>\$40,317</b>

Note: Construction Capital escalated at 3.2%. The Support Cost ratio is 38.7%. The additional Construction Capital will be covered by G12.

Estimate

See Attachment E for a detailed construction cost estimate.

## 9. DELIVERY SCHEDULE

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Target/Actual)
PROGRAM PROJECT	M015	07/16/2018	Actual
BEGIN ENVIRONMENTAL	M020	08/15/2018	Actual
PA & ED	M200	05/15/2020	Target
BEGIN DESIGN	M210	07/13/2020	Target
BEGIN STRUCTURE	M215	08/01/2020	Target
RIGHT OF WAY REQUESTS	M224	08/17/2020	Target
REGULAR RIGHT OF WAY	M225	10/15/2020	Target
60% CONST REVIEW COMPLETED	M313	12/07/2021	Target
95% CONST REVIEW COMPLETED	M315	05/01/2022	Target
PS&E TO DOE	M377	06/06/2022	Target
DRAFT STRUCTURES PS&E	M378	04/01/2022	Target
RIGHT OF WAY CERTIFICATION	M410	11/17/2022	Target
READY TO LIST	M460	01/05/2023	Target
FUND ALLOCATION	M470	03/25/2023	Target
HEADQUARTERS ADVERTISE	M480	04/25/2023	Target
AWARD	M495	06/25/2023	Target
APPROVE CONTRACT	M500	08/25/2023	Target
CONTRACT ACCEPTANCE	M600	03/15/2026	Target
END PROJECT EXPENDITURES	M800	05/30/2028	Target
FINAL PROJECT CLOSEOUT	M900	03/15/2030	Target

## 10. RISKS

A Risk Management Plan has been prepared by the PDT to assess, respond, and monitor identified project risks that may occur throughout the life of the project. There are a total of eight active risks that have been identified for this project, see Attachment H. The west end of the project is in a highly sensitive area for historical archaeology and a moderate to high potential for prehistoric archaeology. At this time, the Environmental team is not anticipating any project delays and will be doing required studies during the PS&E phase of the project to identify buried deposits.

The scope of the project includes installation of inductive loop detectors on the existing bridge decks as a part of RMS for vehicle detection. This has been identified as one of the risks because there might not be enough concrete cover over the top of the reinforcement bars on the existing structures. Scanning of the existing bridge decks will be done during the PS&E phase of the project, using Ground Penetrating Radar (GPR) to determine the depth of concrete cover and the feasibility of installing loop detectors on the existing structures. If it is determined that the installation of loop detectors is not feasible at these locations, other alternatives will need to be considered which might affect project cost and schedule.

One of the other risks identified for this project is the implementation of RMS. A Memorandum of Understanding (MOU) was signed between Caltrans and the San Joaquin Council of Governments (SJCOG), which is a compilation of policies and procedures intended to make these parties work in a coordinated manner to implement RMS. Caltrans can install RMS on the on-ramps but cooperation from the City of Stockton would be needed before making it operational. The City is aware of this project and the PDT has met previously with the City to discuss this project and address concerns they might have. One of the issues discussed during these meetings was the synchronization of RMS signals with the upstream city traffic signals. Due to different controller units, the synchronization of the City traffic signals and RMS signals is not possible; therefore, Caltrans proposed to install inductive loop detectors on the local streets for the City to manage operations of their upstream traffic signals to create gaps in the oncoming traffic and minimize impacts to the local streets. Cooperation will be needed from the City to implement RMS and install inductive loop detectors on the local streets.

A Railroad flagging agreement may be needed during construction due to the proximity of one of the locations (EB On-Ramp at S Stanislaus St) to the railroad and structural widening at this location requires foundation work with large equipment and the potential to foul the railroad tracks. A request for railroad flagging will be submitted during the PS&E phase of the project and it has been identified as one of the risks that might impact project schedule. Also, further investigation is needed to make sure there are no permanent homeless encampments within the project limits that might impact construction activities and the project schedule.

The Office of Geotechnical Design is recommending driven piles for some of the locations and this has been identified as one of the risks for this project. Driven pile is a cost-effective alternative in which a pile driver is used to drive piles into soil resulting in high noise

levels. The area surrounding the proposed project limits is urban and sensitive receptors (residential units) may be affected by construction noise. Alternative method, Cast in Drilled Hole (CIDH), which costs more than the driven piles but has a lower noise levels, may be used in these sensitive areas resulting in the overall cost of the project going up.

## 11. EXTERNAL AGENCY COORDINATION

The project proposes to install inductive loop detectors on local streets for the City of Stockton to operate traffic signals and minimize traffic impacts to local streets. Coordination with the City of Stockton will be required to perform this work and implement RMS.

## 12. PROJECT REVIEWS

Scoping team field review	PDT	Date	02/29/2016
District Program Advisor	Arlene Cordero	Date	01/30/2020
Freeway and Highway Operations	Vu Nguyen	Date	01/23/2020
District Maintenance	Eduardo Morente	Date	01/30/2020
District Design Liaison	Robert Navarro	Date	01/07/2020
HQ Project Delivery Coordinator	Paul Gennaro	Date	01/30/2020
Project Manager	Parisa Lodge	Date	01/30/2020
District Safety Review	Mark Orr	Date	01/24/2020
Constructability Review	PDT	Date	01/30/2020

## 13. PROJECT PERSONNEL

Name	Title	Phone Number
Parisa Lodge	Project Manager	(209) 948-3612
Mason Leung	Design Manager	(209) 948-3976
Navrajdeep Jammu	Project Engineer	(209) 932-2337
Kyla Lopez	Environmental Planner	(209) 932-2358
Larry Hernandez	Chief Traffic Safety	(209) 948-7859
Jamie Quesada	Freeway and Highway Operations	(209) 948-7184
Quan Trinh	Traffic Management	(209) 948-7076
Daniel Pleau	Electrical Design	(209) 990-5791
Soraya Entezar	ITS Elements	(209) 627-6212

## 14. ATTACHMENTS

Label	Document Type	Number of Pages
A	Project Location Map	1
B	Layout Sheets	8
C	Typical Cross Sections	3

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D	Advanced Planning Study	15
E	Cost Estimate for Build Alternative	10
F	Storm Water Data Report	1
G	TMP Checklist	2
H	Risk Management Plan	3
I	Environmental Document	9
J	Right of Way Data Sheet	5
K	Geotech Recommendations	5
L	SHOPP Performance Report	1
M	Traffic Operations Analysis Report	16
N	Value Analysis Summary Report	6

**ATTACHMENT A  
PROJECT LOCATION MAP**

STATE OF CALIFORNIA  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SAN JOAQUIN COUNTY**  
**IN STOCKTON**  
**FROM ROUTE 4/5 SEPERATION**  
**TO ROUTE 4/99 SEPERATION**

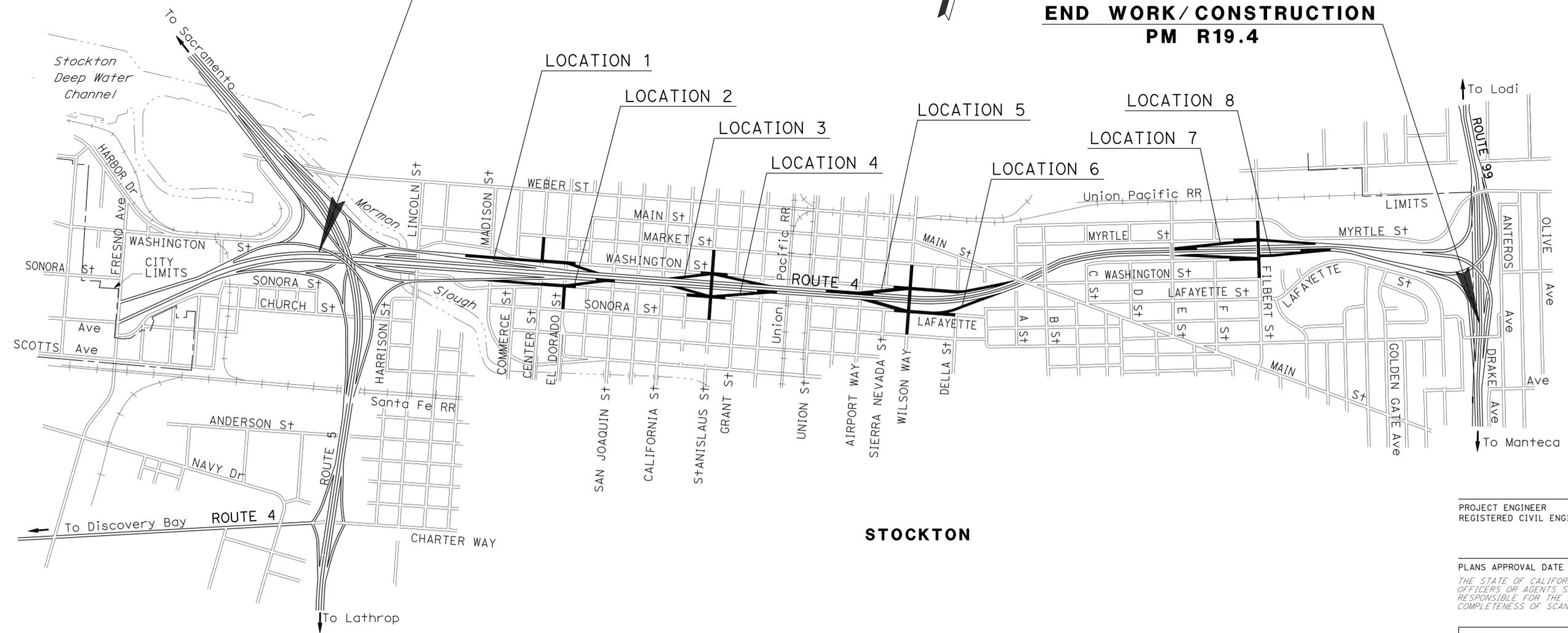
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJ	4	R16.0/R19.4	1	9

LOCATION MAP



**BEGIN WORK/ CONSTRUCTION**  
**PM R16.0**

**END WORK/ CONSTRUCTION**  
**PM R19.4**



PROJECT MANAGER  
 Parisa Lodge  
 DESIGN ENGINEER  
 Navrajdeep Singh Jammu

PROJECT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_  
 REGISTERED CIVIL ENGINEER



PLANS APPROVAL DATE \_\_\_\_\_  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NO SCALE

CONTRACT No. **10-1F180**  
 PROJECT ID **1016000077**

**ATTACHMENT B  
LAYOUT SHEETS**

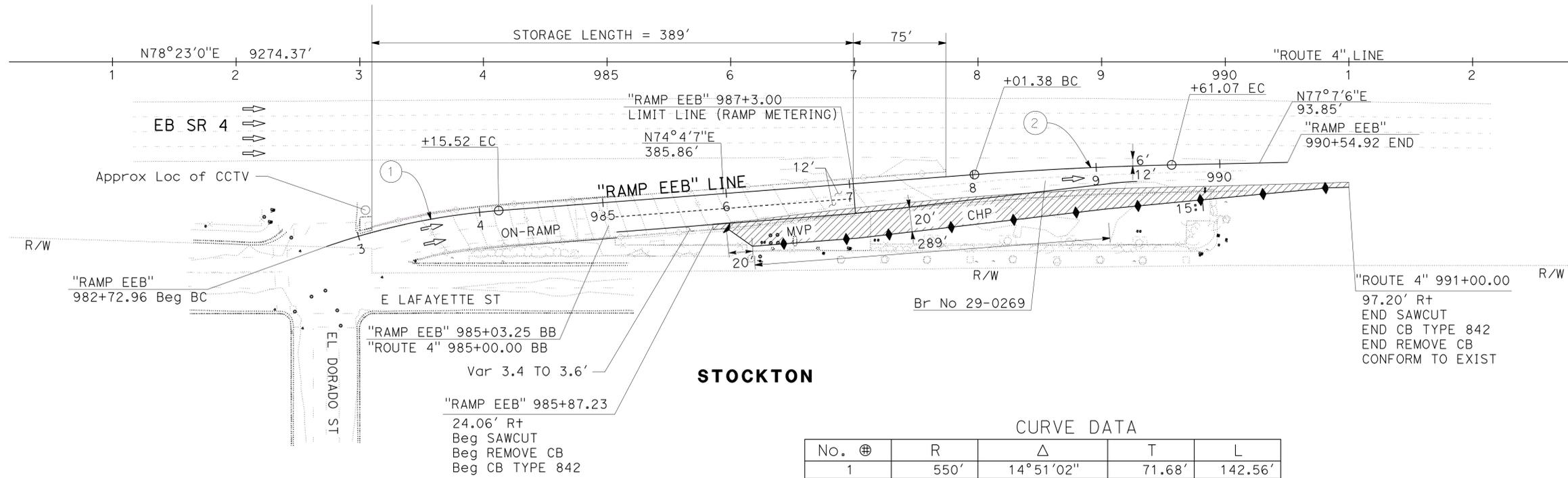


**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- FOR BRIDGE WIDENING DETAILS, SEE ADVANCE PLANNING STUDY.



Approx Loc of CCTV



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN

FUNCTIONAL SUPERVISOR  
 CALCULATED/DESIGNED BY  
 CHECKED BY

SHAHIRA YARI  
 NAVRAJ JAMMU

REVISED BY  
 DATE REVISED

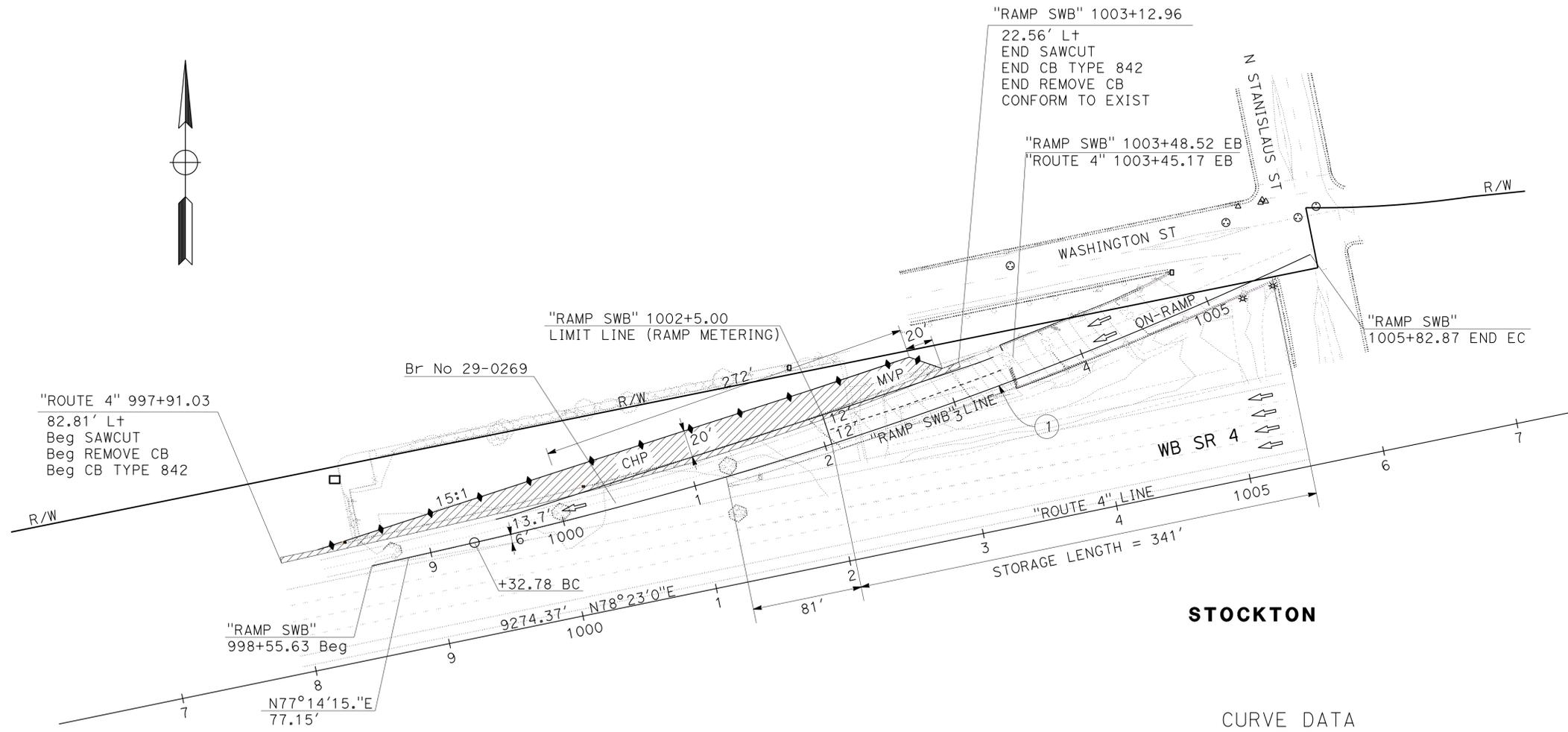
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJ	4	R16.0/R19.4		
PA&ED DRAFT					
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



**NOTES:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. FOR BRIDGE WIDENING DETAILS, SEE ADVANCE PLANNING STUDY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
FUNCTIONAL SUPERVISOR	
CALCULATED/DESIGNED BY	CHECKED BY
SHAHIRA YARI	NAVRAJ JAMMU
REVISOR BY	DATE REVISED



**STOCKTON**

**CURVE DATA**

No. ⊕	R	Δ	T	L
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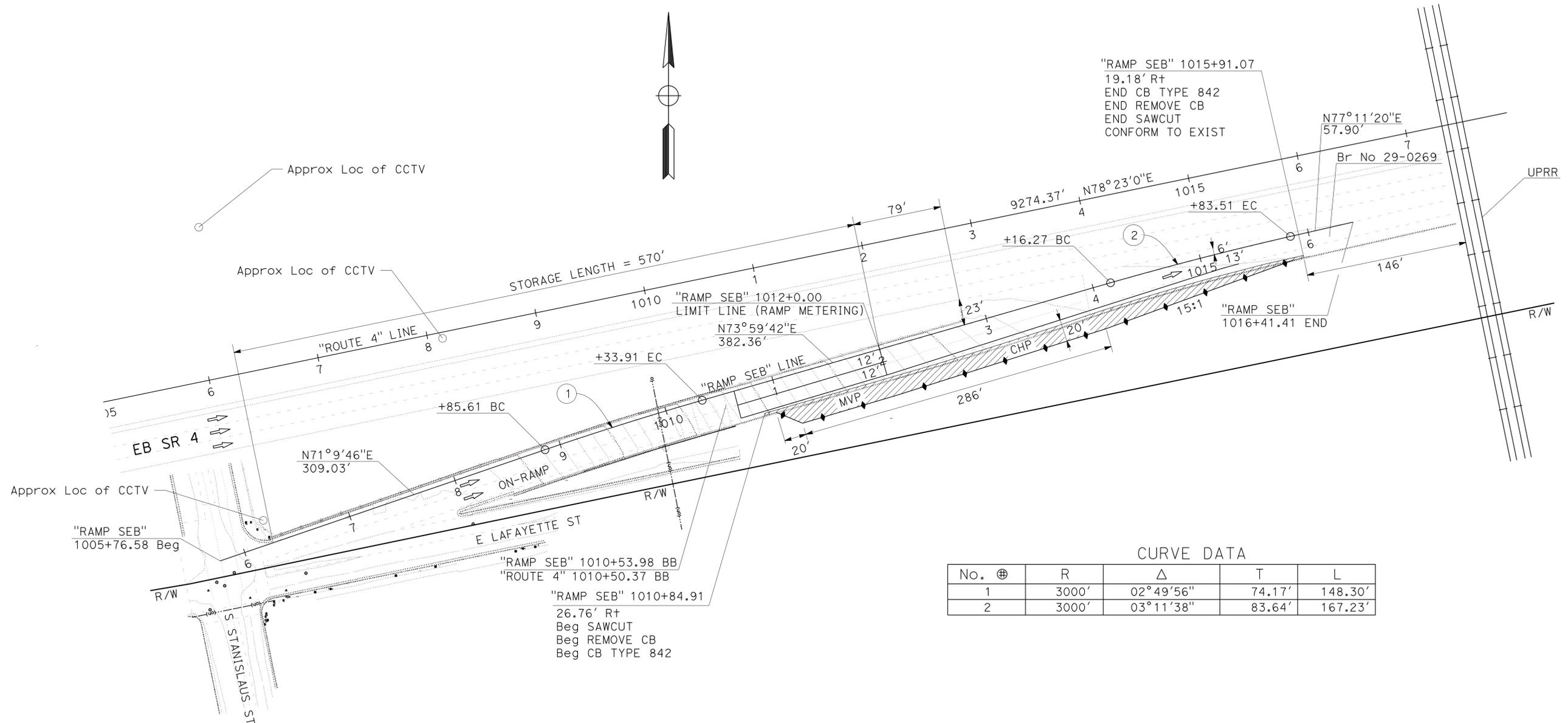
**LAYOUT**  
SCALE: 1" = 50'

**L-3**



**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- FOR BRIDGE WIDENING DETAILS, SEE ADVANCE PLANNING STUDY.



CURVE DATA

No. ⊕	R	Δ	T	L
1	3000'	02°49'56"	74.17'	148.30'
2	3000'	03°11'38"	83.64'	167.23'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 REVISOR BY  
 DATE REVISOR  
 SHAHIRA YARI  
 NAVRAJ JAMMU

**LAYOUT**  
SCALE: 1" = 50'

**L-4**

**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- FOR BRIDGE WIDENING AND RETAINING WALL DETAILS, SEE ADVANCE PLANNING STUDY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
**DESIGN**

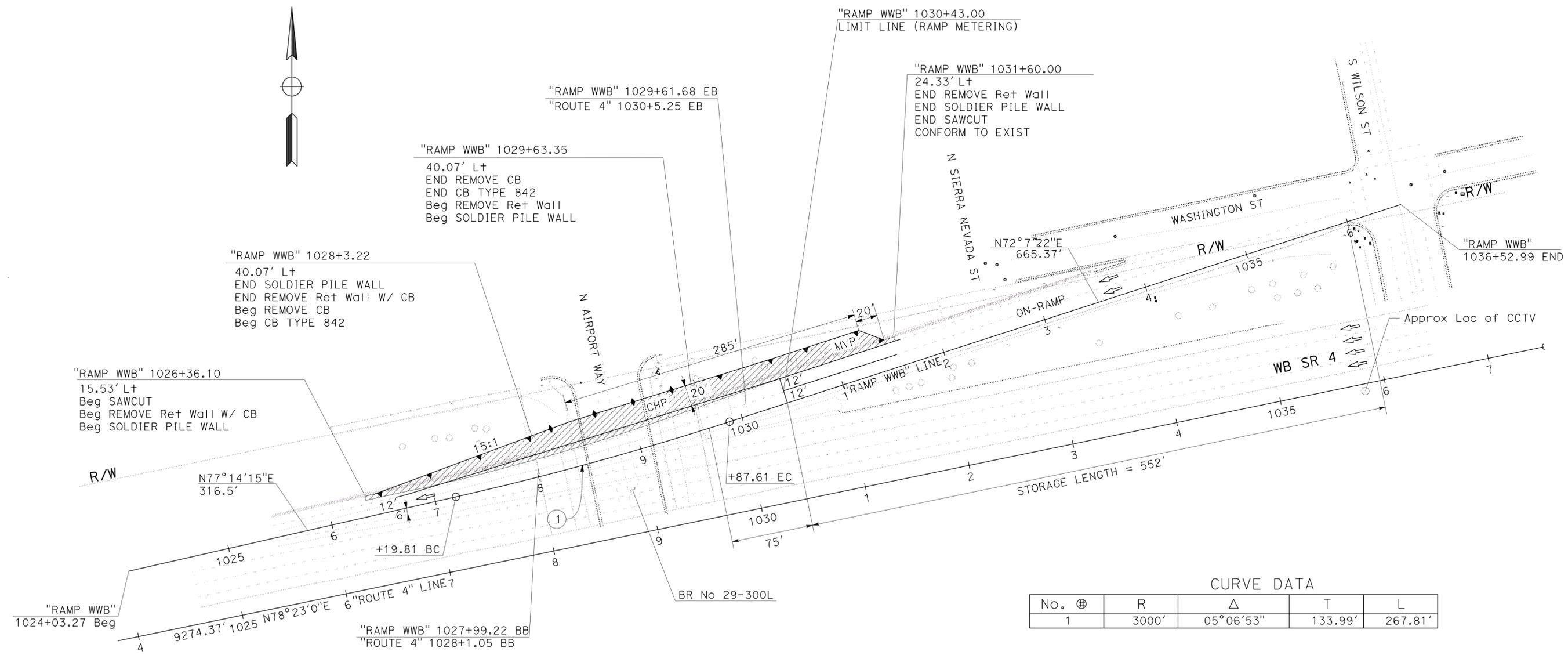
REVISOR BY DATE

SHAHIRA YARI  
NAVRAJ JAMMU

CALCULATED-DESIGNED BY  
CHECKED BY

FUNCTIONAL SUPERVISOR

DESIGN



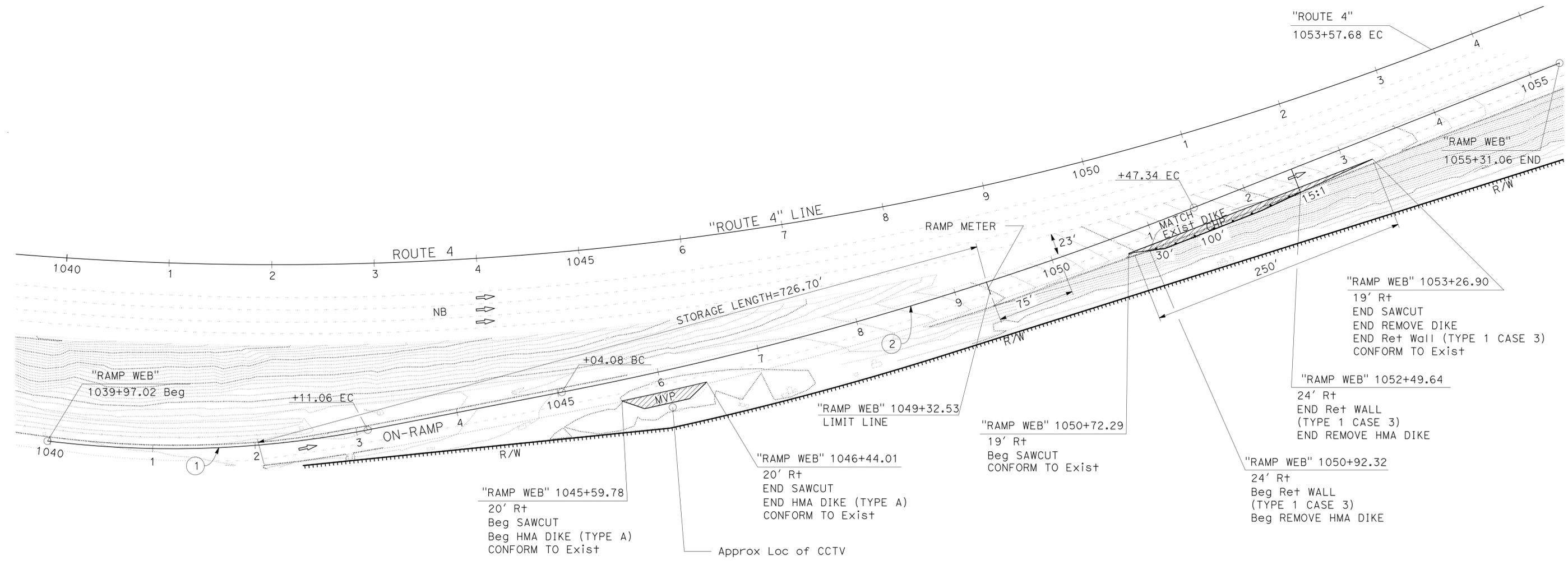
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJ	4	R16.0/R19.4		
PA&ED					
REGISTERED CIVIL ENGINEER			DATE		
DRAFT					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



**NOTES:**  
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

**CURVE DATA**

No.	⊕	R	Δ	T	L
1		1000'	17°59'35"	158.32'	314.04'
2		3500'	10°31'49"	322.54'	643.26'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: MASON LEUNG  
 CALCULATED/DESIGNED BY: HENRY LTI  
 CHECKED BY: NAVRAJ JAMMU  
 REVISIONS: REVISOR: DATE: REVISIONS: DATE:

**LAYOUT**  
SCALE: 1" = 50' **L-6**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJ	4	R16.0/R19.4		

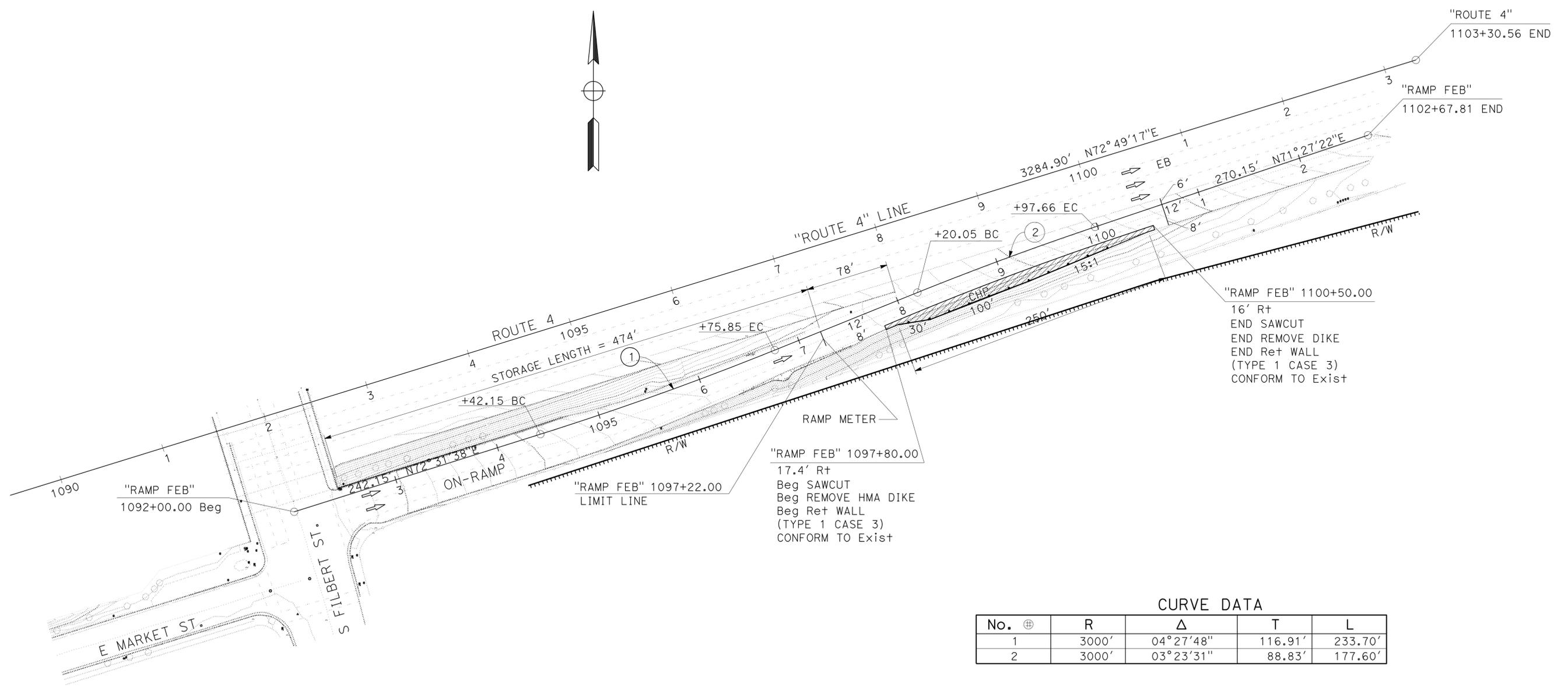
PA&ED  
REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_

DRAFT  
PLANS APPROVAL DATE \_\_\_\_\_

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES:**  
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
Caltrans	
FUNCTIONAL SUPERVISOR	MASON LEUNG
CALCULATED/DESIGNED BY	CHECKED BY
HENRY LIU	NAVRAJ JAMMU
REVISOR BY	DATE REVISED



LAST REVISION DATE PLOTTED => 24-FEB-2020 00-00-00 TIME PLOTTED => 10:54

ATTACHMENT C  
TYPICAL CROSS SECTIONS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJ	4	R16.0/R19.4	1	3

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_

PLANS APPROVAL DATE \_\_\_\_\_

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES:**

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
3. EXACT LOCATIONS AND TYPE OF DIKE AND CURB ARE SHOWN ON THE LAYOUTS AND IN THE SUMMARY OF QUANTITY SHEETS.
4. FOR RETAINING WALL DETAILS, SEE STRUCTURES PLANS.

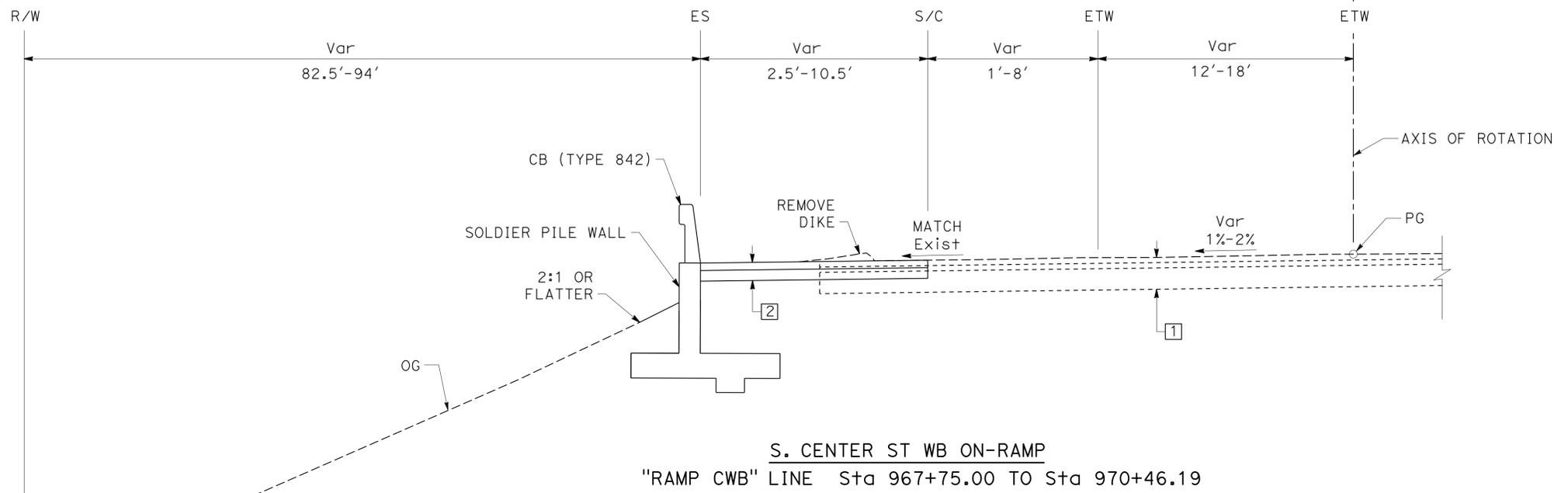
**DESIGN DESIGNATION**

ADT (2020)	XX,000		
ADT (2040)	XXX,000	V	25-50 mph
DHV	XX,000	TI <sub>20</sub>	10.0

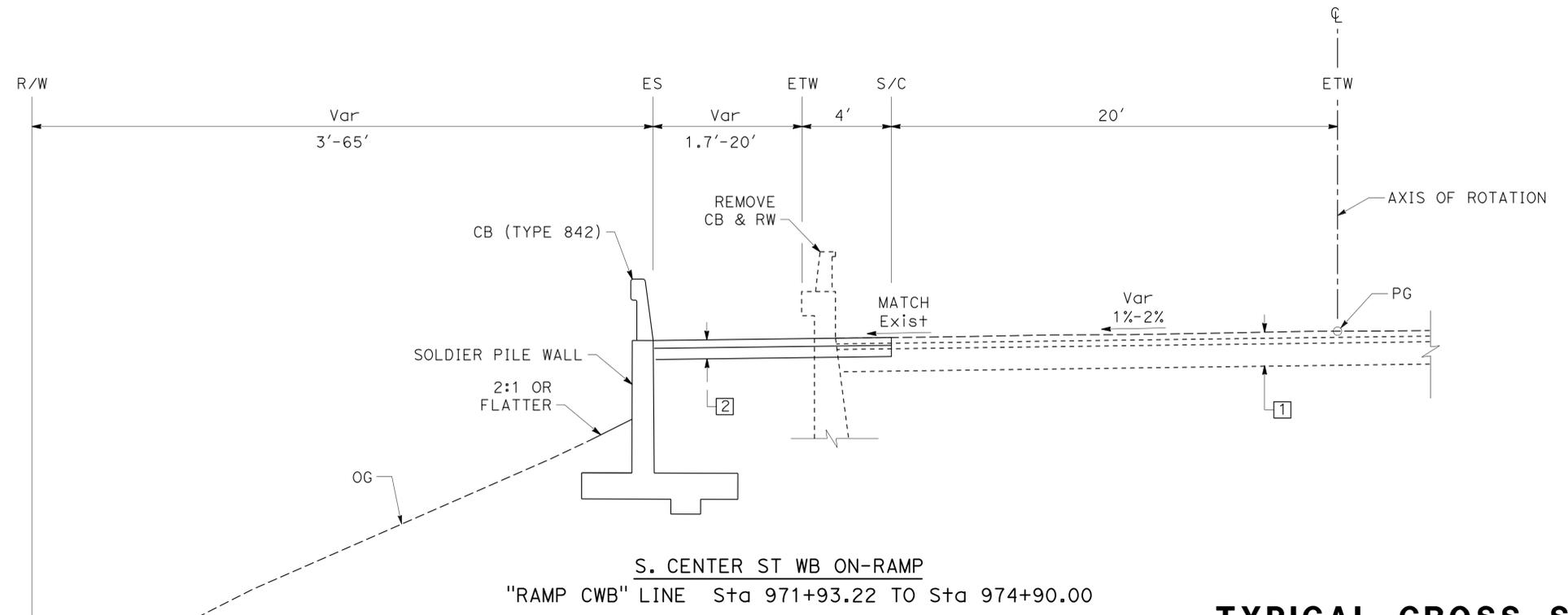
**TYPICAL PAVEMENT STRUCTURE SECTIONS**

EXISTING:	PROPOSED:
1 0.25' COLD PLANE AC PAVEMENT 0.25' HMA (TYPE A) EXISTING	2 0.35' HMA (TYPE A) 0.50' CI 2 AB
3 0.35' TYPE B AC 1.20' CI 2 AB EXISTING	

**PAVEMENT CLIMATE REGION**  
INLAND VALLEY



S. CENTER ST WB ON-RAMP  
"RAMP CWB" LINE Sta 967+75.00 TO Sta 970+46.19



S. CENTER ST WB ON-RAMP  
"RAMP CWB" LINE Sta 971+93.22 TO Sta 974+90.00

**ROUTE 4**

**TYPICAL CROSS SECTIONS**  
NO SCALE  
**X-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans**

DESIGN

FUNCTIONAL SUPERVISOR: MASON LEUNG

REVISOR: HENRY LIU, NAVRAJ JAMMU

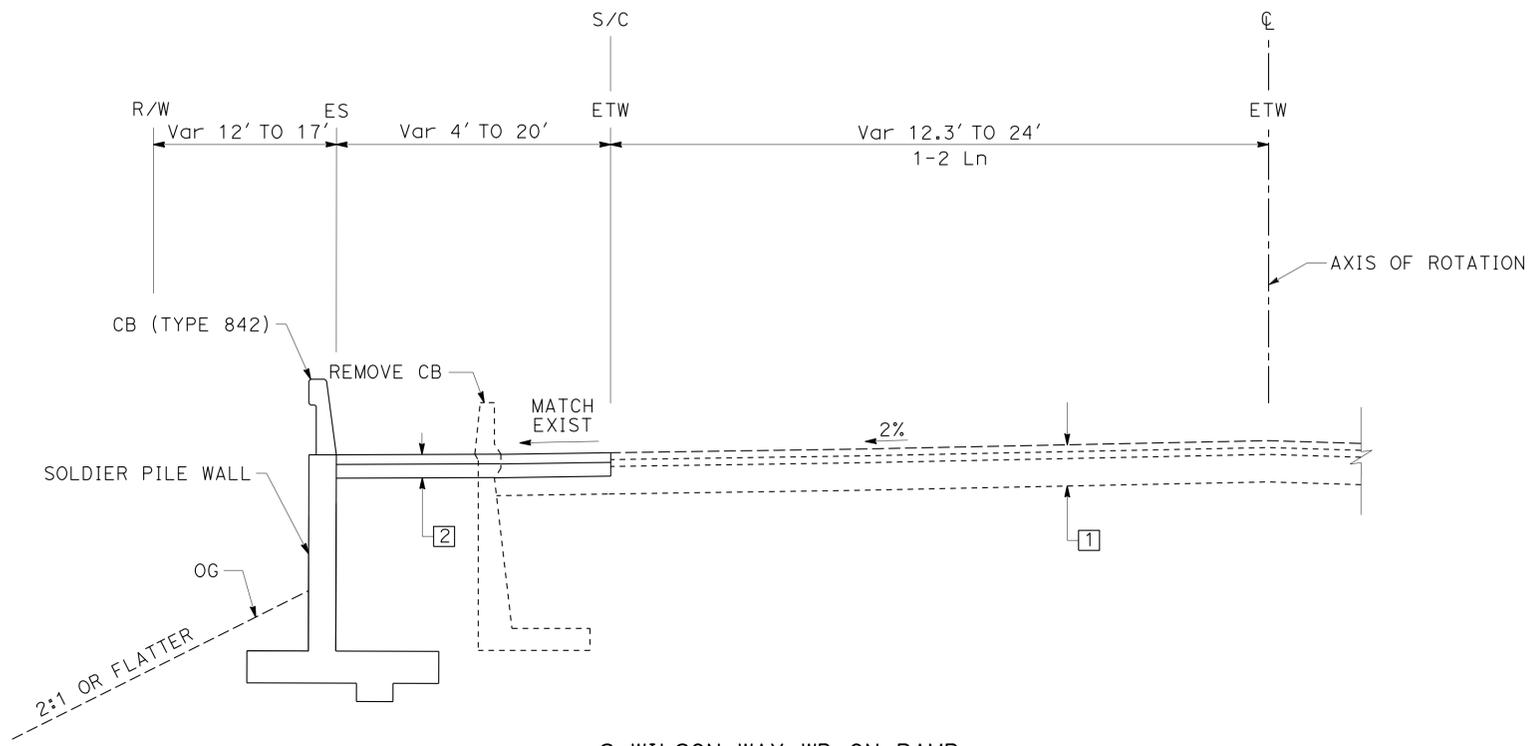
DATE: 02-10-20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJ	4	R16.0/R19.4	2	3

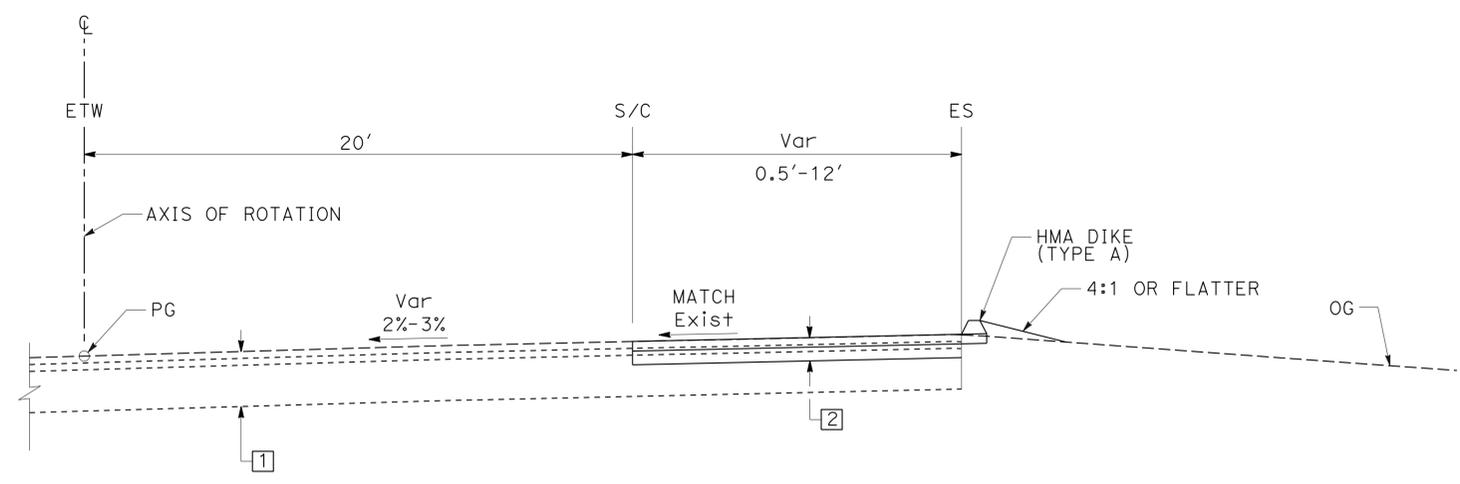
  

REGISTERED CIVIL ENGINEER	DATE
XXXX	XXXX
No. XXXX	Exp. XXXXX
PLANS APPROVAL DATE	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**S WILSON WAY WB ON-RAMP**  
 "RAMP WWB" LINE Sta 1029+61.68 TO Sta 1031+60.00



**E. LAFAYETTE ST EB ON-RAMP**  
 "RAMP WEB" LINE Sta 1045+59.75 TO Sta 1046+44.01

**ROUTE 4**

**TYPICAL CROSS SECTIONS**  
 NO SCALE  
**X-2**

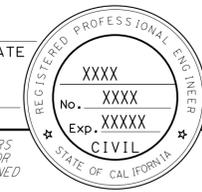
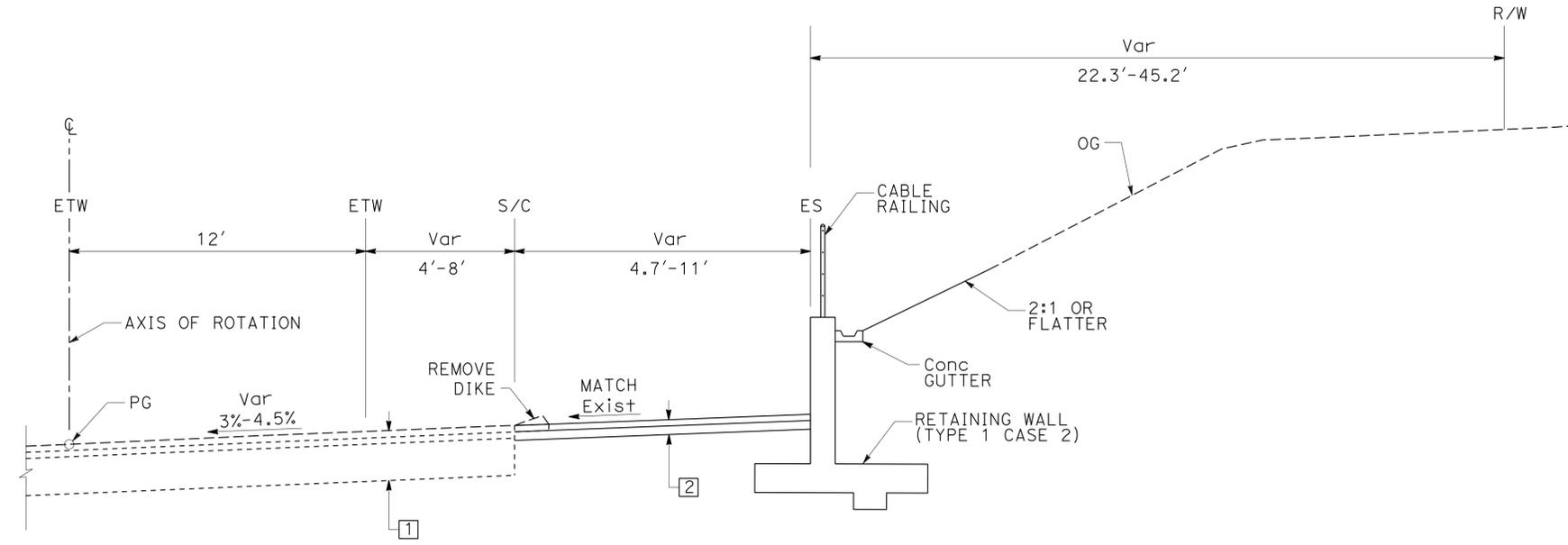
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 MASON LEUNG  
 HENRY LTU/SHAHIRA YARI  
 NAVRAJ JAMMU  
 XXXXX  
 12-11-19

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJ	4	R16.0/R19.4	3	3

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_

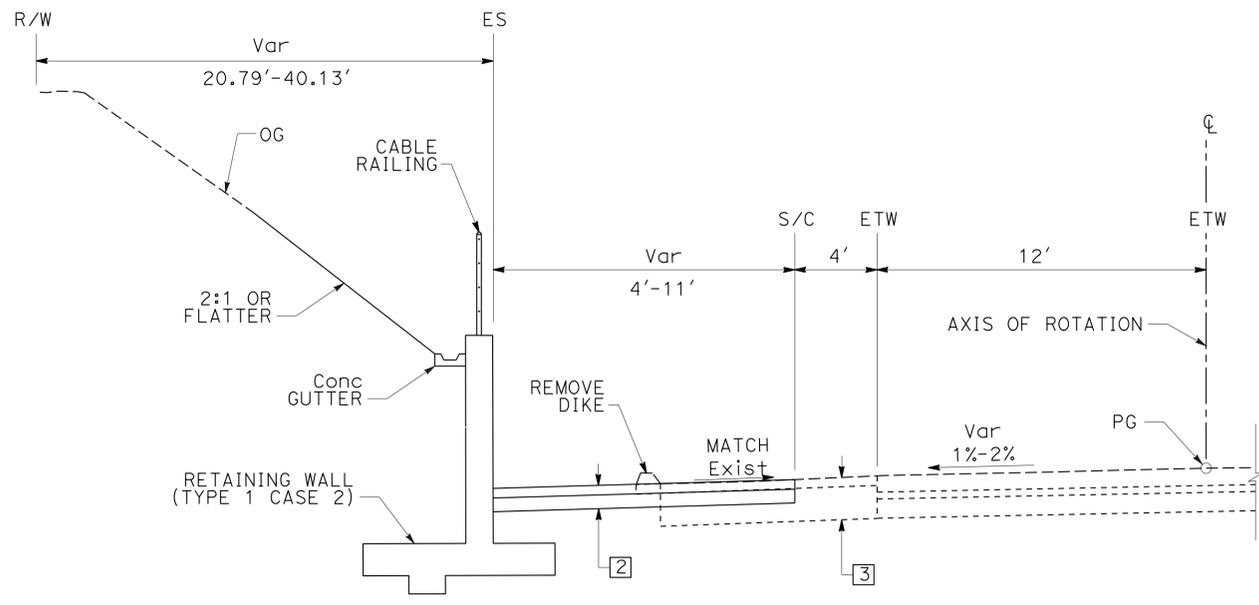
PLANS APPROVAL DATE \_\_\_\_\_

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**E. LAFAYETTE ST EB ON-RAMP**  
 "RAMP WEB" LINE Sta 1050+72.29 TO Sta 1053+26.90

**S. FILBERT ST EB ON-RAMP**  
 "RAMP FEB" LINE Sta 1097+80.00 TO Sta 1100+50.00



**N. FILBERT ST WB ON-RAMP**  
 "RAMP FWB" LINE Sta 1079+92.56 TO Sta 1082+63.60

**ROUTE 4**

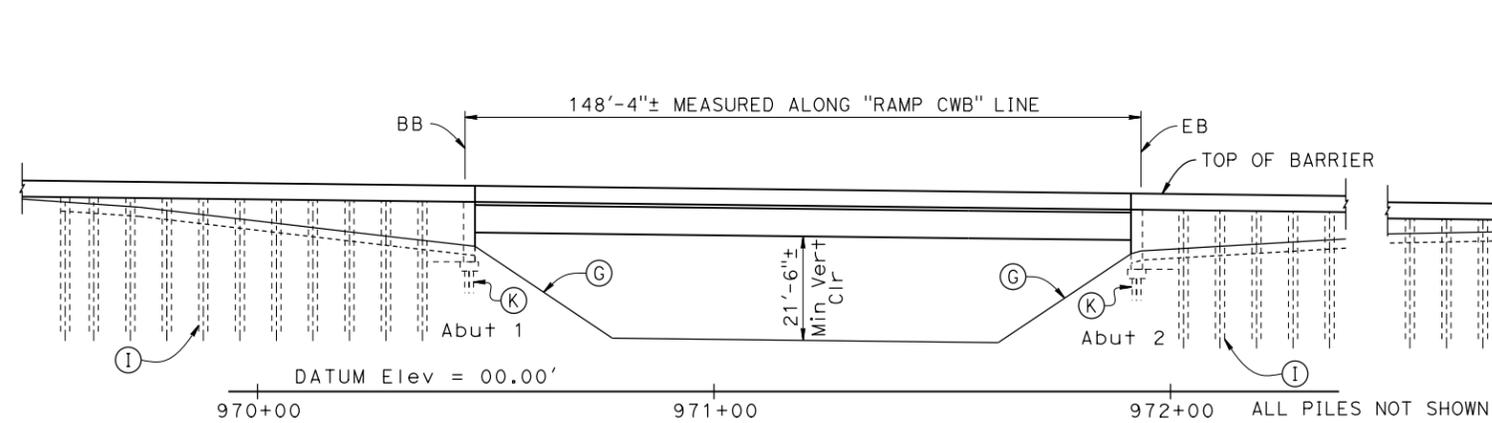
**TYPICAL CROSS SECTIONS**  
 NO SCALE **X-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
FUNCTIONAL SUPERVISOR	MASON LEUNG
CALCULATED/DESIGNED BY	CHECKED BY
HENRY LIU	NAVRAJ JAMMU
REVISOR BY	DATE REVISED
XXXX	02-10-20

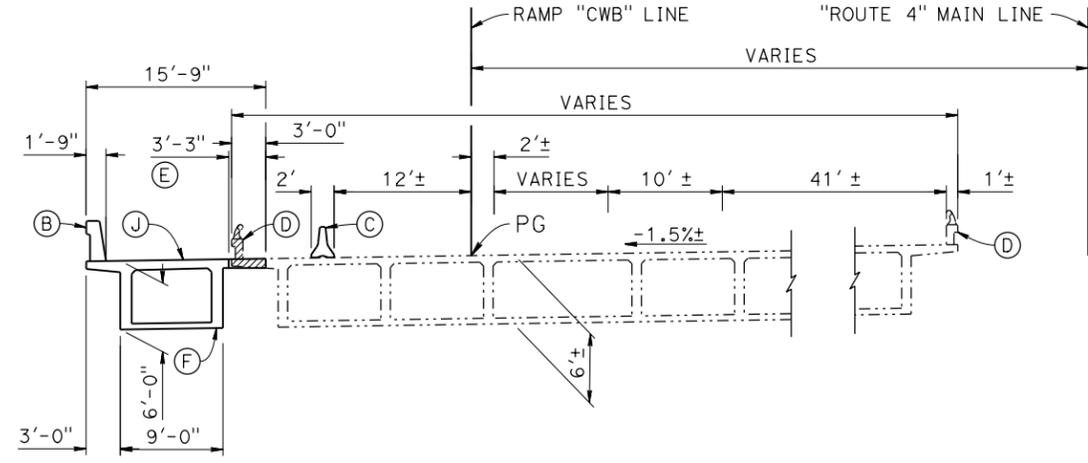
ATTACHMENT D  
ADVANCED PLANNING STUDY



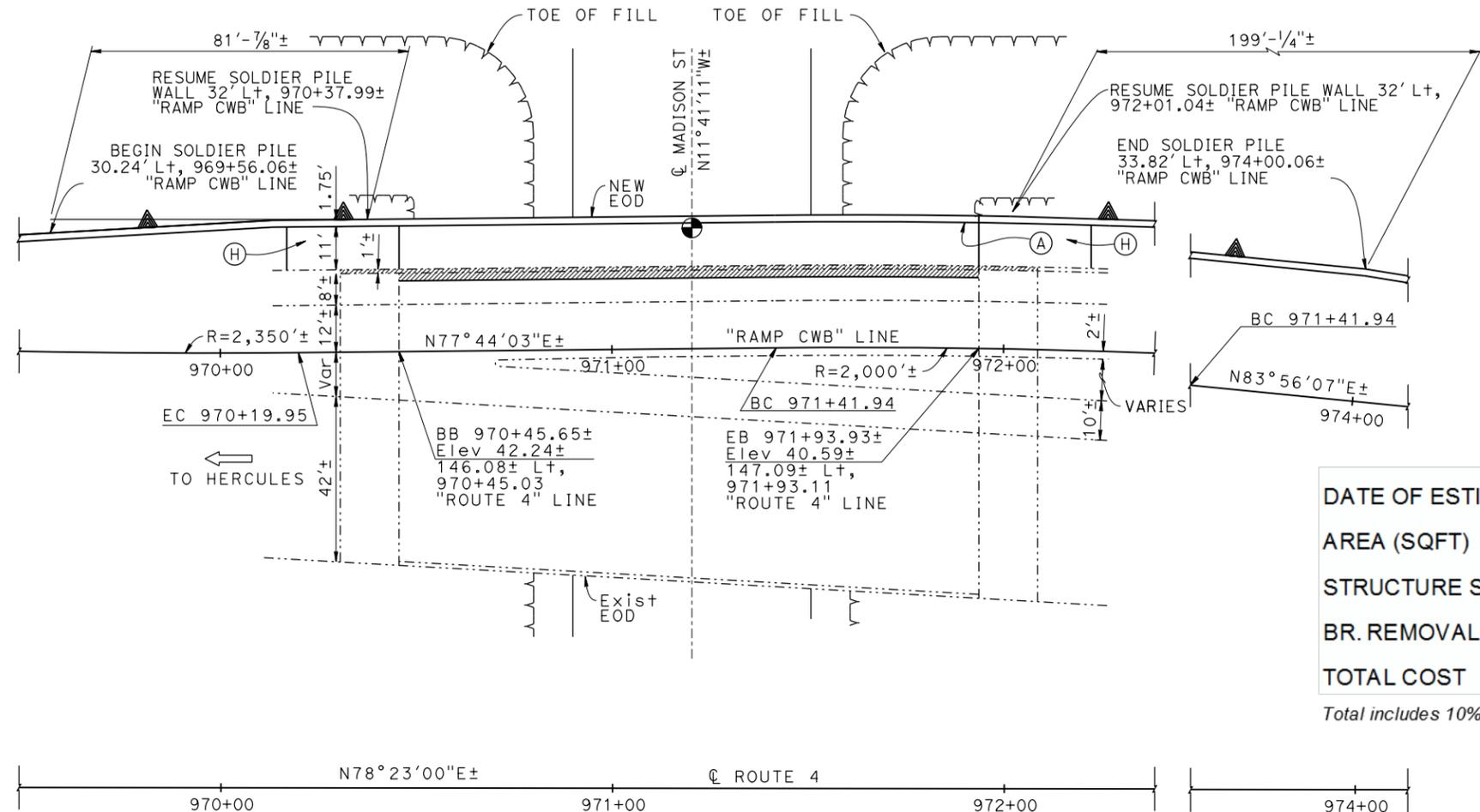
Dist	COUNTY	ROUTE	POST MILE
10	SJ	SR4	16.48



**MIRRORED ELEVATION**  
1" = 20'



**TYPICAL SECTION**  
1" = 10"



- NOTES:
- (A) Paint "W4-N&S5 CONNECTOR UC BRIDGE NO. 29-0239F YEAR CONSTRUCTED"
  - (B) Concrete Barrier Type 842
  - (C) Temporary Railing Type K
  - (D) Existing Barrier Type 3
  - (E) 3'-3" Closure Pour
  - (F) PS CIP Concrete Box Girder
  - (G) Slope Paving
  - (H) Structure Approach Slab Type N(30)
  - (I) Soldier Pile Retaining Wall
  - (J) Match Existing Slope
  - (K) 16" CIDH Pile
- LEGEND:
- Existing structure
  - ▨ Limits of Bridge removal
  - Point of minimum vertical clearance

DATE OF ESTIMATE	12/05/19
AREA (SQFT)	
STRUCTURE SUBTOTAL	\$1,827,163
BR. REMOVAL SUBTOTAL	
TOTAL COST	\$2,791,000

*Total includes 10% TRO, 10% mobilization and 25% contingency*

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

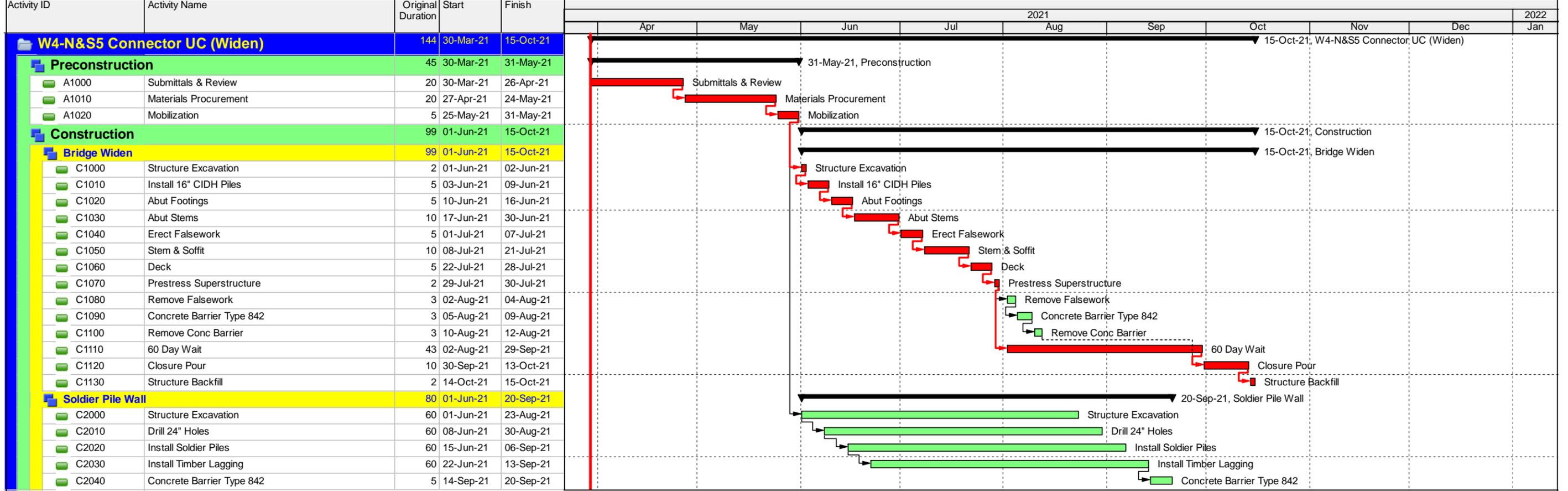
**PLAN**  
1" = 20'



DESIGNED BY X. CARRILLO	DATE 08/19
DRAWN BY G. Souza	DATE 11/18
CHECKED BY X	DATE X
APPROVED X	DATE X

<b>STRUCTURE DESIGN</b>
<b>DESIGN BRANCH</b>
13

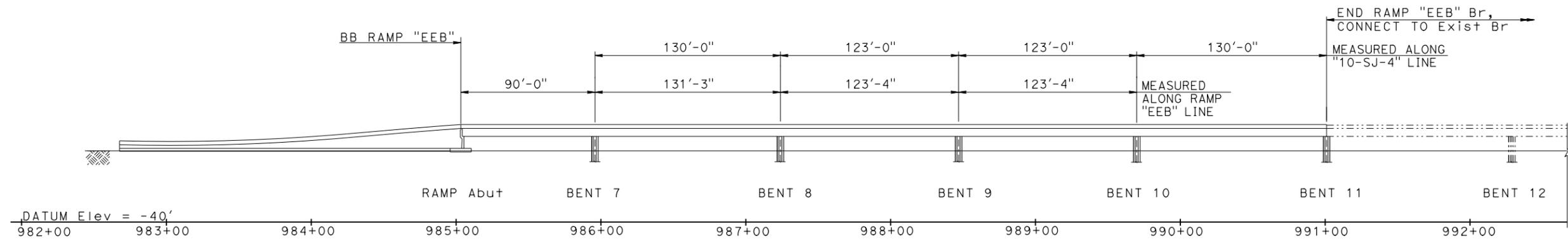
<b>PLANNING STUDY</b>	
<b>W4-N&amp;S5 CONNECTOR UC (WIDEN)</b>	
UNIT: 3586	BRIDGE No.: 29-0239F
CONTRACT No.: X	PROJECT No. & PHASE: 1016000077 0



█ Actual Level of Effort    █ Remaining Work    ◆ Milestone  
█ Actual Work    █ Critical Remaining Work    ▶ summary



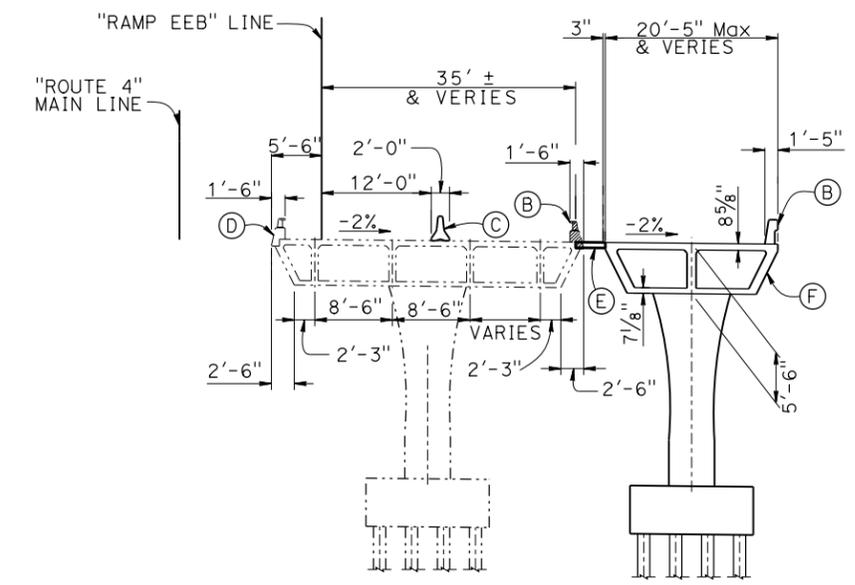
Dist	COUNTY	ROUTE	POST MILE
10	SJ	4	X



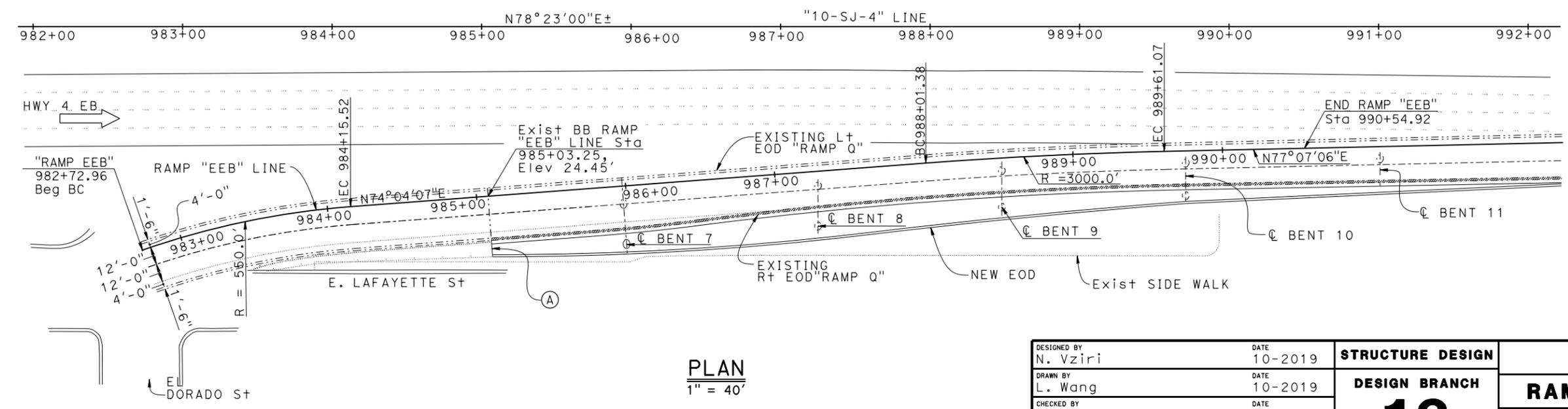
**DEVELOPED ELEVATION**  
1" = 40'

DATE OF ESTIMATE	12/05/19
AREA (SQFT)	7566 sf
STRUCTURE SUBTOTAL	\$2,060,088
BR. REMOVAL SUBTOTAL	
<b>TOTAL COST</b>	<b>\$3,147,000</b>

Total includes 10% TRO, 10% mobilization and 25% contingency



**TYPICAL SECTION**  
1" = 1'-0"



**PLAN**  
1" = 40'

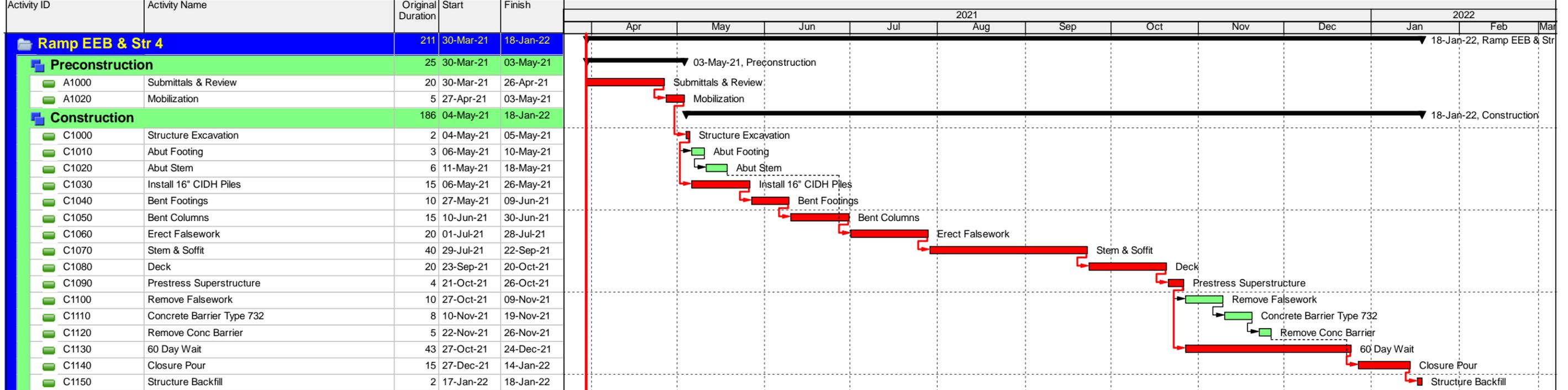
- NOTES:
- (A) Paint "W4-N&S5 CONNECTOR UC BRIDGE NO. 29-0239F YEAR CONSTRUCTED"
  - (B) Concrete Barrier Type 732
  - (C) Temporary Railing Type K
  - (D) Existing Barrier Type 9
  - (E) 3' Closure Pour
  - (F) PS CIP Concrete Box Girder

- LEGEND:
- Existing structure
  - ////// Limits of Bridge removal

DESIGNED BY N. Vziri	DATE 10-2019
DRAWN BY L. Wang	DATE 10-2019
CHECKED BY X	DATE X
APPROVED X	DATE X

**STRUCTURE DESIGN**  
**DESIGN BRANCH**  
**13**

<b>PLANNING STUDY</b>	
<b>RAMP "EEB" &amp; "STR 4"</b>	
UNIT: 3586	BRIDGE No.: 29-0269
PROJECT EA: 10-1F180	PROJECT No. & PHASE: 10160000770

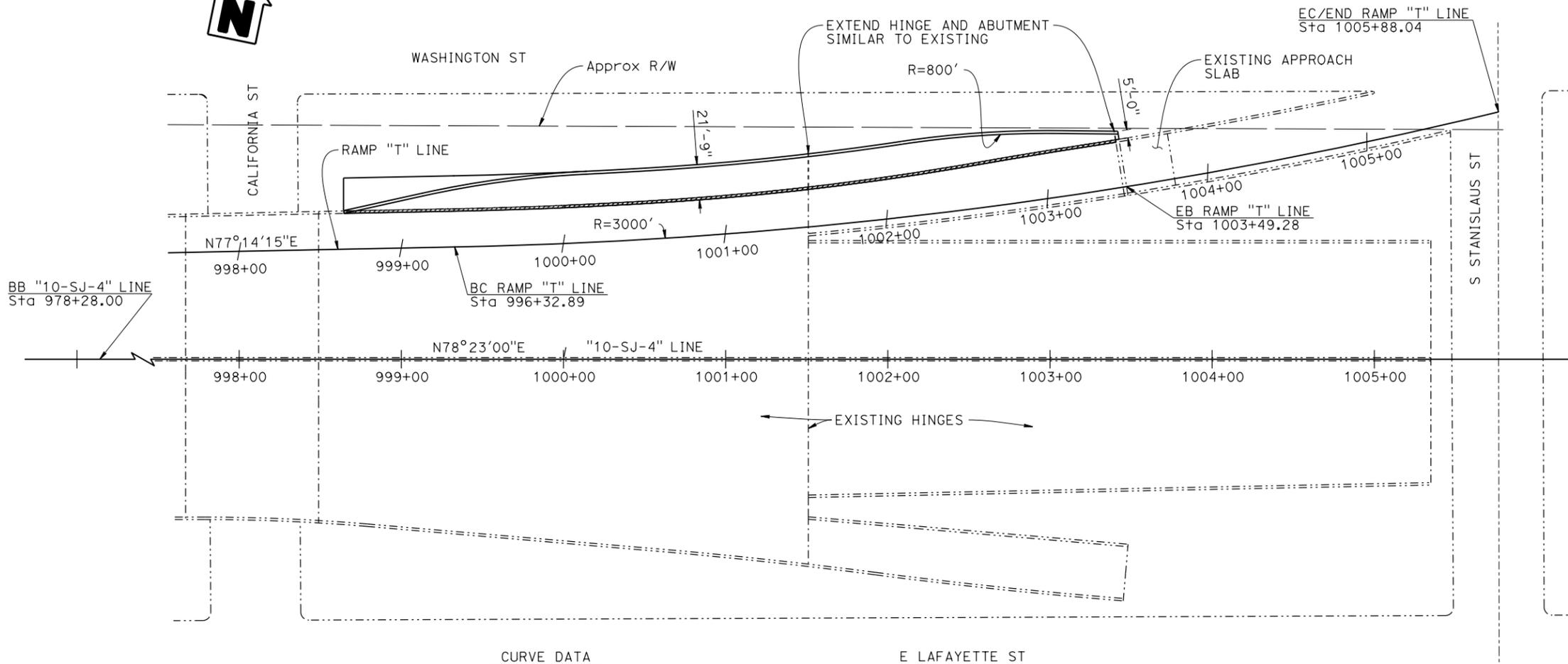
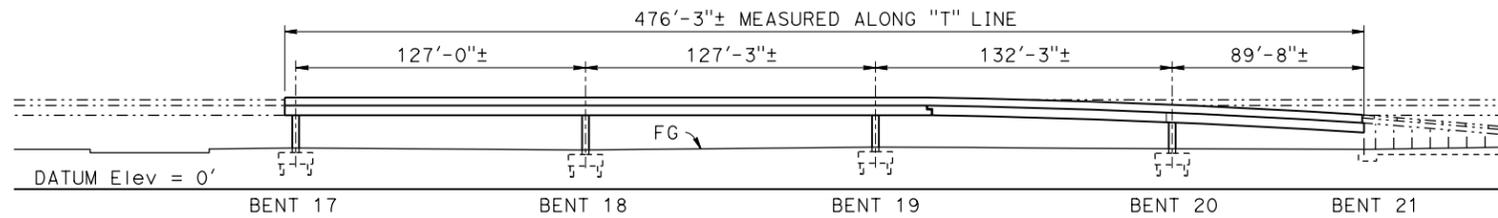
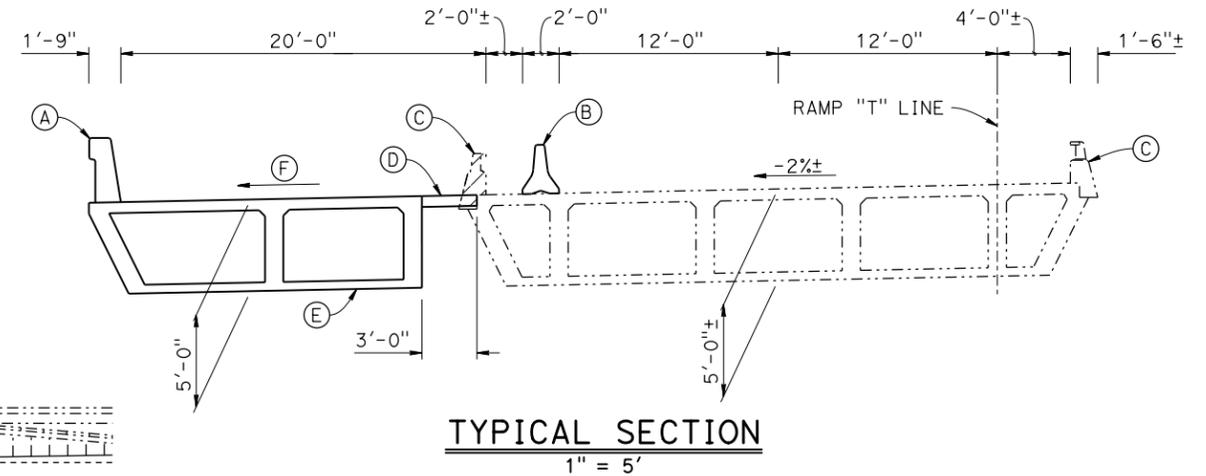


█ Actual Level of Effort   
 █ Remaining Work   
 ◆ Milestone   
 ◆ Milestone  
█ Actual Work   
 █ Critical Remaining Work   
 ▼ summary



DATE OF ESTIMATE	12/05/19
BRIDGE REMOVAL	
STRUCTURE DEPTH	5.00
LENGTH	476
WIDTH	Varies
AREA	9,669
COST/SQFT INCLUDING TRO, MOBILIZATION & 25% CONTINGENCY	
TOTAL COST	\$1,842,000.00

Dist	COUNTY	ROUTE	POST MILE
X	X	X	X



- NOTES:
- (A) Concrete Barrier (Type 842)
  - (B) Temporary Railing (Type K)
  - (C) Existing Barrier (Type 9 Mod)
  - (D) Closure Pour
  - (E) CIP/PS Concrete Box Girder
  - (F) Match Existing Cross Slope

- LEGEND:
- New Structure
  - - - - Existing Structure
  - ▨ Limits of Bridge Removal

CURVE DATA

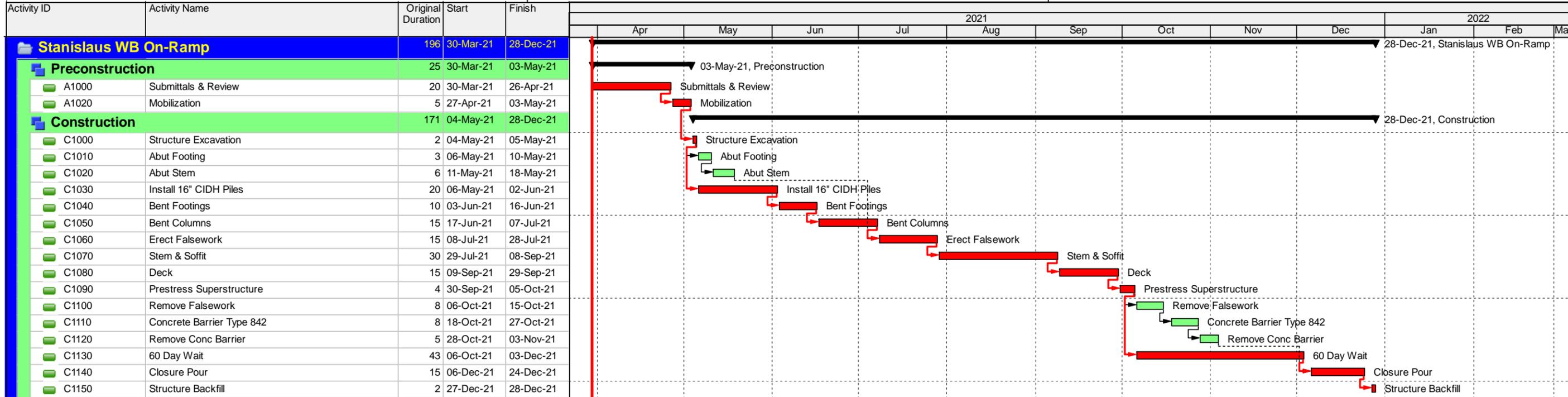
R = 3000'
Δ = 12°24'57"
T = 326.32'
L = 650.09'

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGNED BY J. Rutledge	DATE 07/26/19
DRAWN BY G. Souza	DATE 08/28/19
CHECKED BY X	DATE X
APPROVED X	DATE X

<b>STRUCTURE DESIGN</b>
<b>DESIGN BRANCH</b>
<b>13</b>

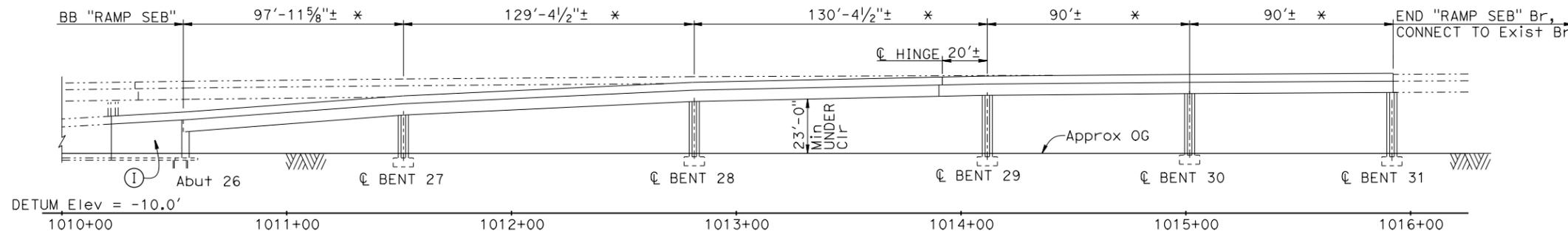
<b>PLANNING STUDY</b>	
<b>STANISLAUS WB ON-RAMP</b>	
UNIT: 3586	BRIDGE No.: 29-0269
CONTRACT No.: X	PROJECT No. & PHASE: 1016000770



█ Actual Level of Effort   
 █ Remaining Work   
 ◆ Milestone  
█ Actual Work   
 █ Critical Remaining Work   
 ── summary



Dist	COUNTY	ROUTE	POST MILE
10	SJ	4	R16.0/R19.4



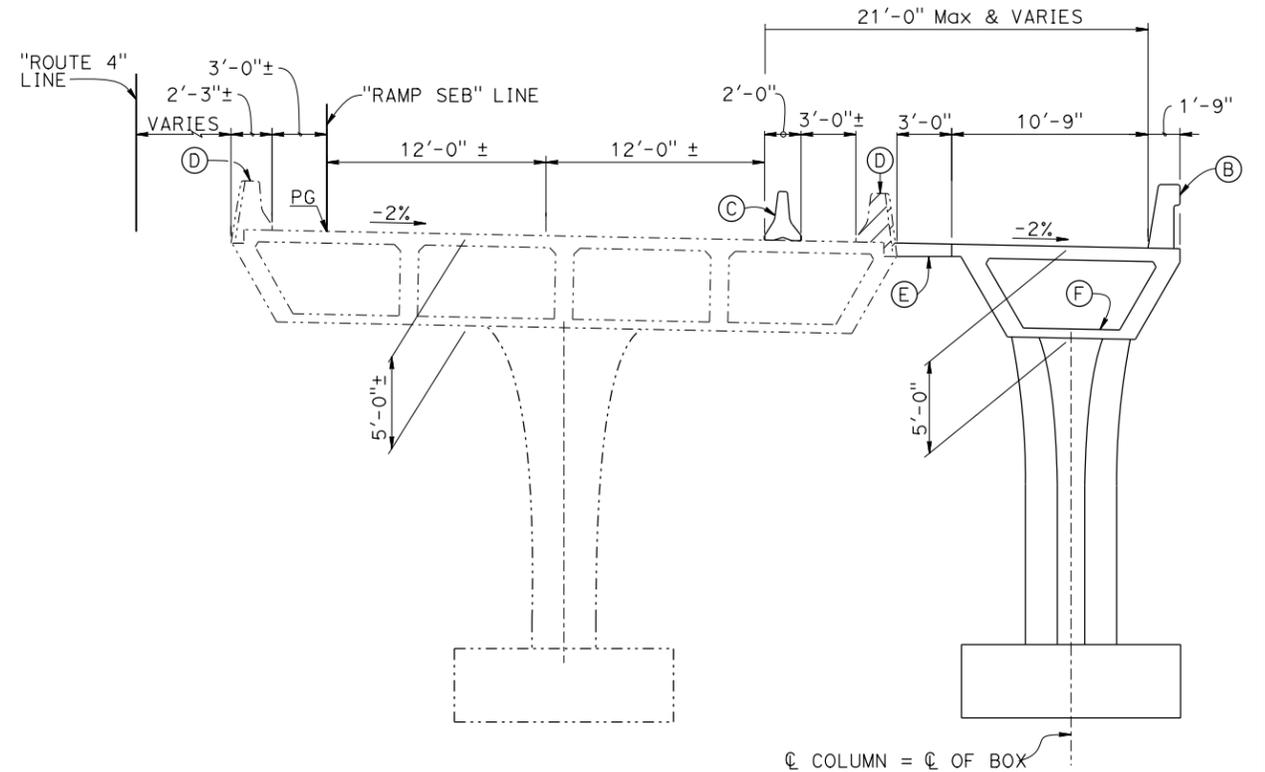
\* MEASURED ALONG "RAMP SEB" LINE

**DEVELOPED ELEVATION**

1" = 30'

DATE OF ESTIMATE	12/05/19
AREA (SQFT)	
STRUCTURE SUBTOTAL	\$1,781,685
BR. REMOVAL SUBTOTAL	
TOTAL COST	\$2,722,000

Total includes 10% TRO, 10% mobilization and 25% contingency



**TYPICAL SECTION**

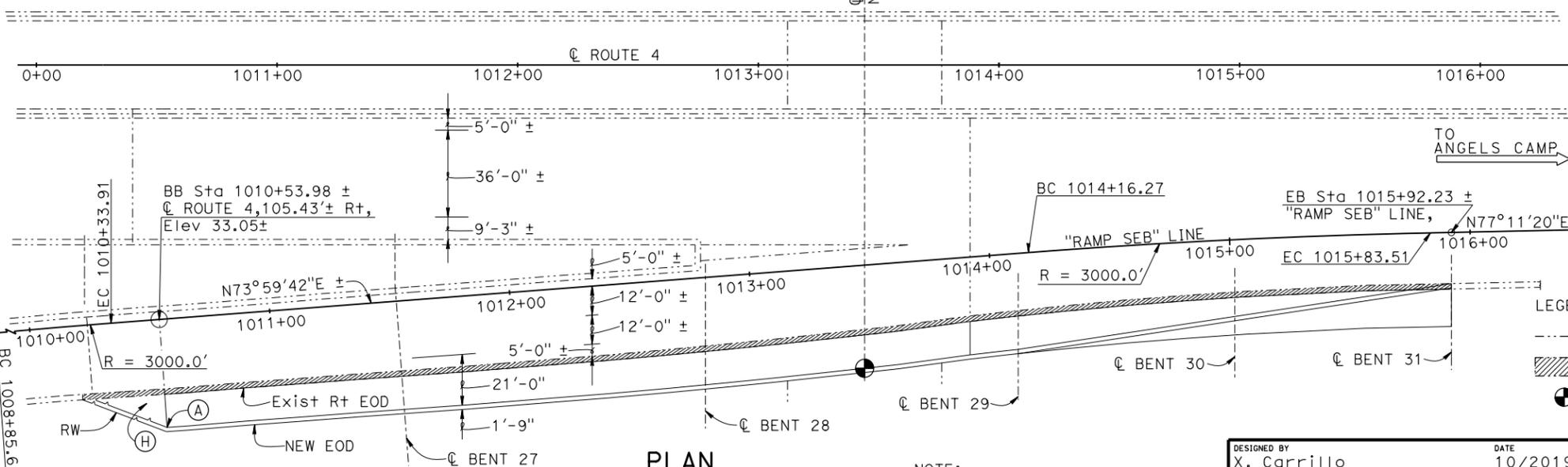
1" = 5'

NOTES:

- ⓐ Paint "AURORA STREET OC BRIDGE NO. 29-0269" YEAR CONSTRUCTED"
- ⓑ Concrete Barrier Type 842
- ⓒ Temporary Railing Type K
- ⓓ Existing Barrier Type 25(Mod)
- ⓔ Closure Pour
- ⓕ PS CIP Concrete Box Girder
- ⓗ Type N Structure Approach Slab
- Ⓢ Soldier Pile Retaining Wall

LEGEND:

- Existing structure
- ▨ Limits of Bridge removal
- ⊙ Point of minimum vertical clearance



**PLAN**

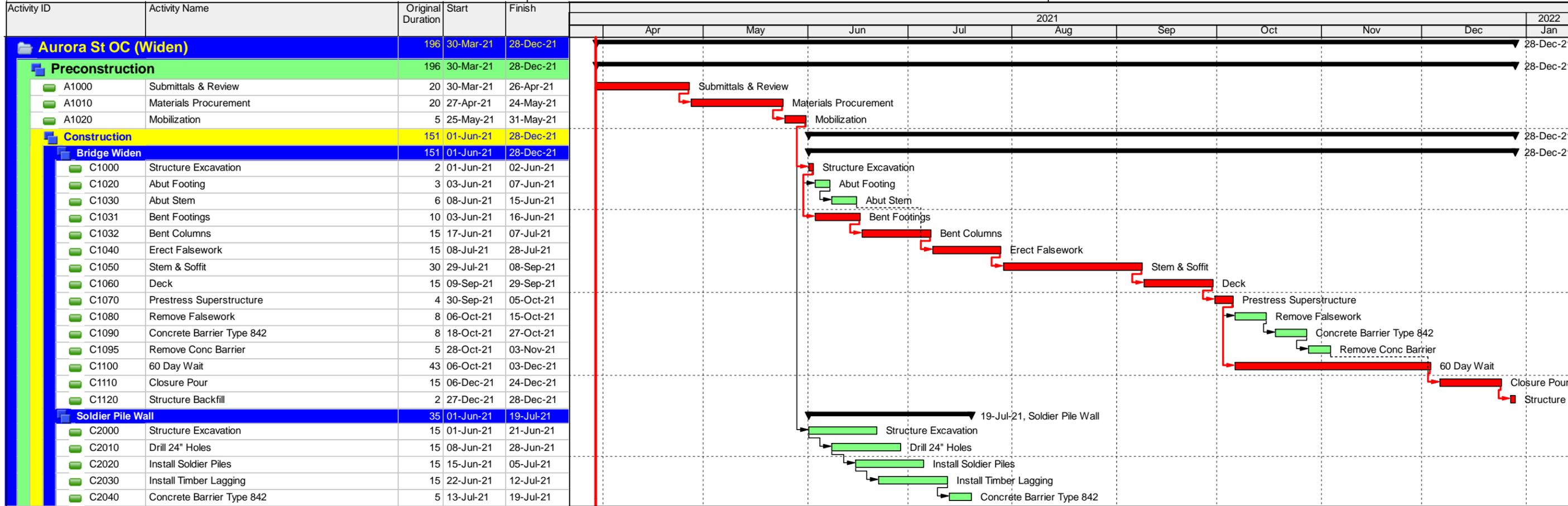
1" = 30'

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGNED BY X. Carrillo	DATE 10/2019
DRAWN BY L. Wang	DATE 10/2019
CHECKED BY X	DATE X
APPROVED X	DATE X

<b>STRUCTURE DESIGN</b>
<b>DESIGN BRANCH</b>
<b>13</b>

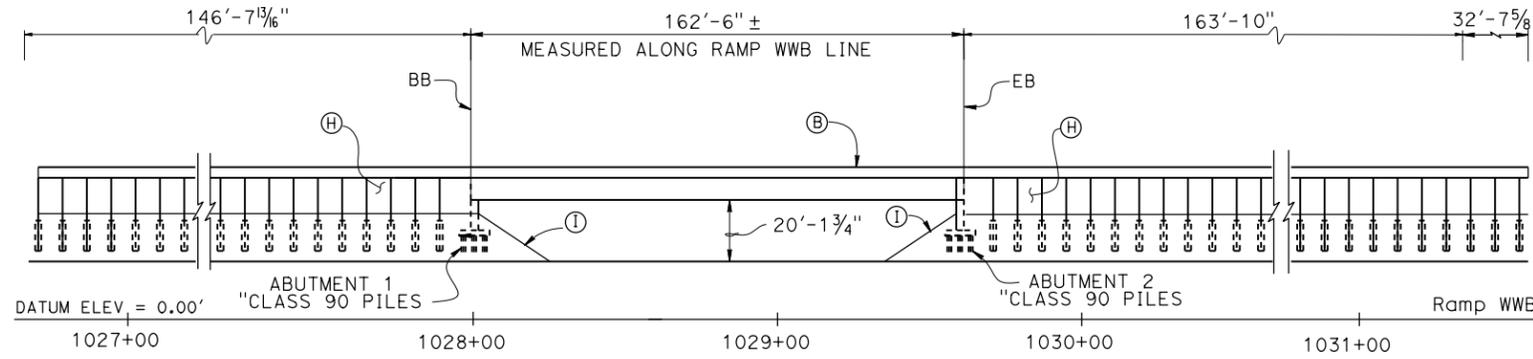
<b>PLANNING STUDY</b>	
<b>AURORA STREET OC WIDENING</b>	
UNIT: 3586	BRIDGE No.: 29-0629
PROJECT EA: 10-1F180	PROJECT No. & PHASE: 1016000077



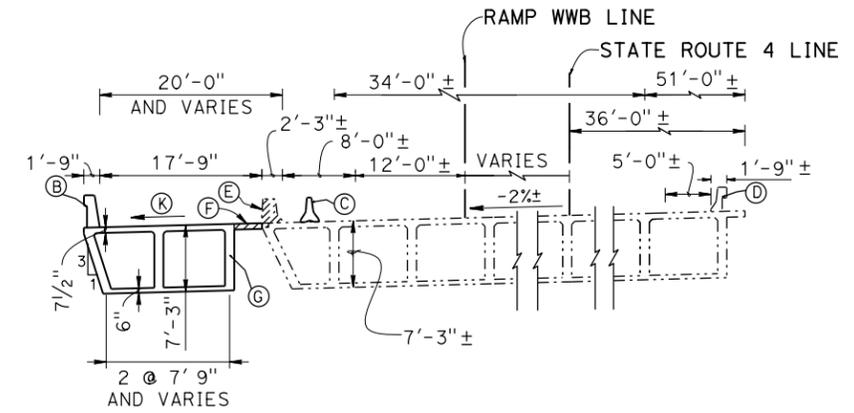
█ Actual Level of Effort   
 █ Remaining Work   
 ◆ Milestone  
█ Actual Work   
 █ Critical Remaining Work   
 ▸ summary



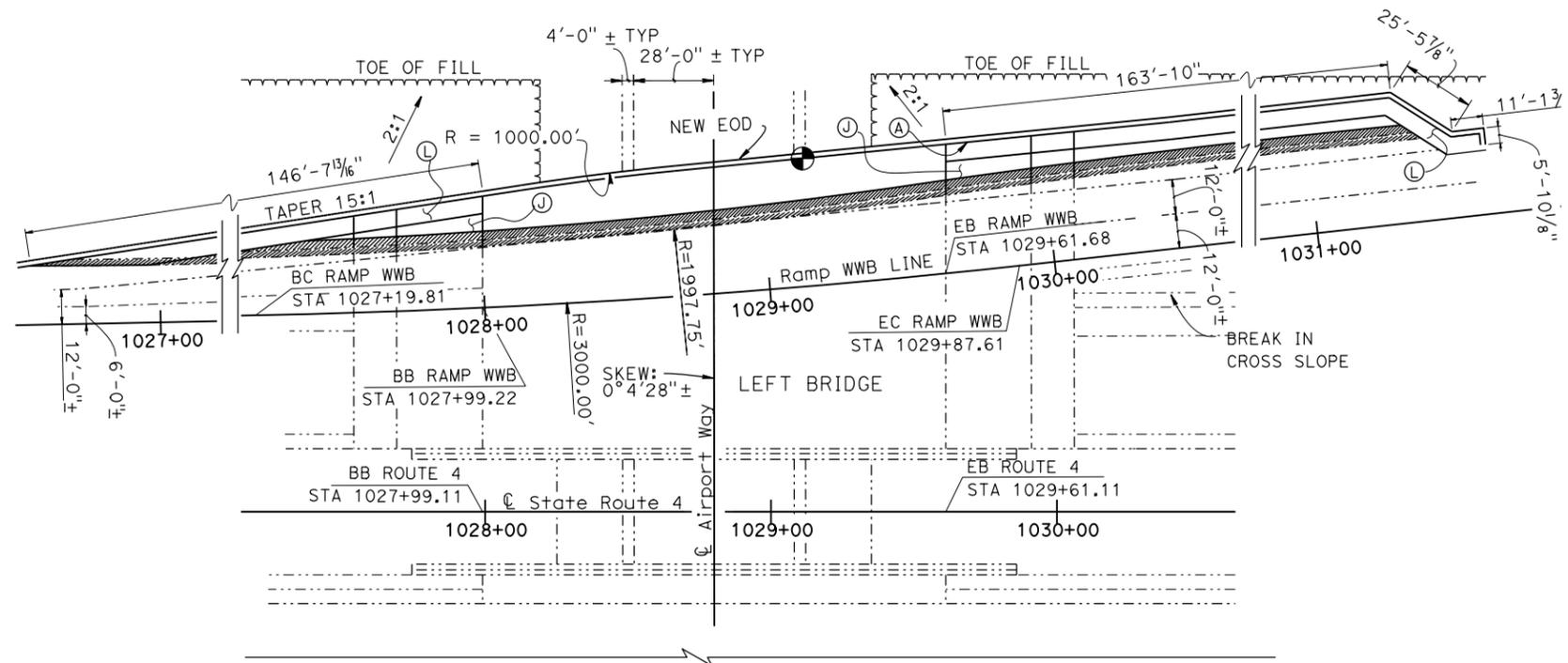
Dist	COUNTY	ROUTE	POST MILE
10	SJ	SR4	17.49



**MIRRORED ELEVATION**  
1" = 30'-0"



**TYPICAL SECTION**  
1" = 10'-0"



**PLAN**  
1" = 30'-0"

**NOTES:**

- (A) Paint "AIRPORT WAY UC BRIDGE NO. 29 0300L YEAR CONSTRUCTED"
- (B) Concrete Barrier Type 842
- (C) Temporary Railing Type K
- (D) Existing Barrier Type 25
- (E) Remove Existing Barrier Type 25-Modified
- (F) 3'-0" Closure Pour
- (G) PS CIP Concrete Box Girder
- (H) Soldier Pile Wall 8' Spacing with 6"x12" Timber Lagging
- (I) Slope Paving
- (J) Approach Slab Type N(30)
- (K) Match Existing slope
- (L) Barrier Slab

**LEGEND:**

- Existing Structure
- ▨ Limits of Closure Pour
- Point of Minimum Vertical Clearance
- ▨ Limits of Existing Barrier Removal

DATE OF ESTIMATE	12/05/19
AREA (SQFT)	
STRUCTURE SUBTOTAL	\$2,070,599
BR. REMOVAL SUBTOTAL	
<b>TOTAL COST</b>	<b>\$3,163,000</b>

Total includes 10% TRO, 10% mobilization and 25% contingency

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGNED BY L Hiel	DATE 10/19
DRAWN BY L Hiel	DATE 10/19
CHECKED BY X	DATE X
APPROVED X	DATE X

<b>STRUCTURE DESIGN</b>
<b>DESIGN BRANCH</b>
<b>13</b>

<b>PLANNING STUDY</b>	
<b>AIRPORT WAY UC (WIDEN)</b>	
UNIT: 3586	BRIDGE No.: 29-0300 L
PROJECT EA: 101F180	PROJECT No. & PHASE: 1016000077

Activity ID	Activity Name	Original Duration	Start	Finish	2021												2022
					Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan			
<b>Airport Way UC (Widen)</b>					12-Nov-21, Airport Way UC (Widen)												
<b>Preconstruction</b>					31-May-21, Preconstruction												
A1000	Submittals & Review	20	30-Mar-21	26-Apr-21	Submittals & Review												
A1010	Materials Procurement	20	27-Apr-21	24-May-21	Materials Procurement												
A1020	Mobilization	5	25-May-21	31-May-21	Mobilization												
<b>Construction</b>					12-Nov-21, Construction												
<b>Bridge Widen</b>					12-Nov-21, Bridge Widen												
C1000	Structure Excavation	2	01-Jun-21	02-Jun-21	Structure Excavation												
C1010	Install Class 90 Piles	5	03-Jun-21	09-Jun-21	Install Class 90 Piles												
C1020	Abut Footings	5	10-Jun-21	16-Jun-21	Abut Footings												
C1030	Abut Stems	10	17-Jun-21	30-Jun-21	Abut Stems												
C1040	Erect Falsework	10	01-Jul-21	14-Jul-21	Erect Falsework												
C1050	Stem & Soffit	20	15-Jul-21	11-Aug-21	Stem & Soffit												
C1060	Deck	10	12-Aug-21	25-Aug-21	Deck												
C1070	Prestress Superstructure	2	26-Aug-21	27-Aug-21	Prestress Superstructure												
C1080	Remove Falsework	5	30-Aug-21	03-Sep-21	Remove Falsework												
C1090	Concrete Barrier Type 842	3	06-Sep-21	08-Sep-21	Concrete Barrier Type 842												
C1100	Remove Conc Barrier	5	09-Sep-21	15-Sep-21	Remove Conc Barrier												
C1110	60 Day Wait	43	30-Aug-21	27-Oct-21	60 Day Wait												
C1120	Closure Pour	10	28-Oct-21	10-Nov-21	Closure Pour												
C1130	Structure Backfill	2	11-Nov-21	12-Nov-21	Structure Backfill												
<b>Soldier Pile Wall</b>					18-Oct-21, Soldier Pile Wall												
C2000	Structure Excavation	75	01-Jun-21	13-Sep-21	Structure Excavation												
C2010	Drill 24" Holes	75	08-Jun-21	20-Sep-21	Drill 24" Holes												
C2020	Install Soldier Piles	75	15-Jun-21	27-Sep-21	Install Soldier Piles												
C2030	Install Timber Lagging	75	22-Jun-21	04-Oct-21	Install Timber Lagging												
C2040	Concrete Barrier Type 842	10	05-Oct-21	18-Oct-21	Concrete Barrier Type 842												

█ Actual Level of Effort   
 █ Remaining Work   
 ◆ Milestone  
█ Actual Work   
 █ Critical Remaining Work   
 ▼ summary

**ATTACHMENT E**  
**COST ESTIMATE FOR BUILD ALTERNATIVE**

**PROJECT  
PLANNING COST ESTIMATE ©**

EA: 10-1F180  
PID: 1016000077

EA: 10-1F180 PID: 1016000077

District-County-Route: 10-SJ-4  
PM: 16.0/19.4

Type of Estimate : Project Report Cost Estimate

Program Code : SHOPP 201.315

Project Limits : SJ - 4 - R16.0/ R19.4

Project Description: SR-4 Ramp Metering System Installation

Scope : Install Ramp Metering System (RMS), Traffic Monitoring Stations (TMS) and Closed Circuit Television (CCTV)

Alternative : Alternative # 1

**SUMMARY OF PROJECT COST ESTIMATE**

	<u>Current Year Cost</u>	<u>Escalated Cost</u>
TOTAL ROADWAY COST	\$ 17,271,700	\$ 20,361,322
TOTAL STRUCTURES COST	\$ 16,416,000	\$ 19,361,372
SUBTOTAL CONSTRUCTION COST	\$ 33,688,700	\$ 39,712,694
TOTAL RIGHT OF WAY COST	\$ 538,760	\$ 603,972
<b>TOTAL CAPITAL OUTLAY COSTS</b>	<b>\$ 34,226,000</b>	<b>\$ 40,317,000</b>
PAVED SUPPORT	\$ 1,950,000	\$ 1,950,000
PS&E SUPPORT	\$ 5,315,000	\$ 5,500,000
RIGHT OF WAY SUPPORT	\$ 673,000	\$ 695,000
CONSTRUCTION SUPPORT	\$ 7,010,000	\$ 7,465,000
<b>TOTAL SUPPORT COST</b>	<b>\$ 14,948,000</b>	<b>\$ 15,810,000</b>

<b>TOTAL PROJECT COST</b>	<b>\$ 49,174,000</b>	<b>\$ 55,927,000</b>
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Programmed Amount

Month / Year

Date of Estimate (Month/Year) 2 / 2020

Estimated Construction Start (Month/Year) 8 / 2023

Number of Working Days = 500

Estimated Mid-Point of Construction (Month/Year) 9 / 2024

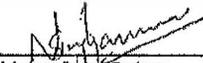
Estimated Construction End (Month/Year) 3 / 2026

Number of Plant Establishment Days

*Estimated Project Schedule*

PID Approval 10/18/2016  
PAVED Approval 4/30/2020  
PS&E 6/6/2022  
RTL 1/5/2023  
Begin Construction 8/26/2023

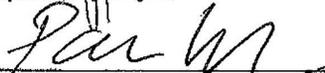
Reviewed by District O.E. or  
Cost Estimate Certifier

  
Navraj Jaramu, Project Engineer

3/17/2020

(209) 932-2337

Approved by Project Manager

  
Parisa Lodge, Project Manager

3/17/2020

(209) 948-3612

# I. ROADWAY ITEMS SUMMARY

	Section	Cost
1	Earthwork	\$ 1,268,100
2	Pavement Structural Section	\$ 1,042,000
3	Drainage	\$ 603,000
4	Specialty Items	\$ 3,155,600
5	Environmental	\$ 595,500
6	Traffic Items	\$ 2,429,300
7	Detours	\$ -
8	Minor Items	\$ 909,400
9	Roadway Mobilization	\$ 2,000,600
10	Supplemental Work	\$ 665,200
11	State Furnished	\$ 1,050,100
12	Time-Related Overhead	\$ 1,300,000
13	Roadway Contingency	\$ 2,252,900

<b>TOTAL ROADWAY ITEMS</b>	<b>\$ 17,271,700</b>
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Estimate Prepared By : \_\_\_\_\_ 11/1/2019 (209) 942-6028  
 Henry Liu, Transportation Engineer Civil Date Phone

Estimate Reviewed By : \_\_\_\_\_ 2/25/2020 (209) 932-2337  
 Navraj Jammu, Project Engineer Date Phone

**By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.**

**SECTION 1: EARTHWORK**

Item code		Unit	Quantity		Unit Price (\$)		Cost
190101	Roadway Excavation	CY	1,525	x	180.00	= \$	274,500
152320	Lead Compliance Plan	LS	1	x	20,000.00	= \$	20,000
194001	Ditch Excavation	CY		x		= \$	-
198010	Imported Borrow	CY	3,936	x	100.00	= \$	393,600
192037	Structure Excavation (Retaining Wall)	CY	3,600	x	150.00	= \$	540,000
193013	Structure Backfill (Retaining Wall)	CY		x		= \$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		= \$	-
16010X	Clearing & Grubbing	LS	1	x	25,000.00	= \$	25,000
170101	Develop Water Supply	LS	1	x	15,000.00	= \$	15,000
19801X	Imported Borrow	CY/TON		x		= \$	-

<b>TOTAL EARTHWORK SECTION ITEMS</b>	<b>\$</b>	<b>1,268,100</b>
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**SECTION 2: PAVEMENT STRUCTURAL SECTION**

Item code		Unit	Quantity		Unit Price (\$)		Cost
401050	Jointed Plain Concrete Pavement	CY		x		= \$	-
400050	Continuously Reinforced Concrete Pavement	CY		x		= \$	-
404092	Seal Pavement Joint	LF		x		= \$	-
404093	Seal Isolation Joint	LF		x		= \$	-
413117	Seal Concrete Pavement Joint (Silicone)	LF		x		= \$	-
413118	Seal Pavement Joint (Asphalt Rubber)	LF		x		= \$	-
280010	Rapid Strength Concrete Base	CY		x		= \$	-
410095	Dowel Bar (Drill and Bond)	EA		x		= \$	-
390132	Hot Mix Asphalt (Type A)	TON	3,000	x	200.00	= \$	600,000
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		= \$	-
39300X	Geosynthetic Pavement Interlayer (Type X)	SQYD		x		= \$	-
260203	Class 2 Aggregate Base	CY	2,000	x	170.00	= \$	340,000
290201	Asphalt Treated Permeable Base	CY		x		= \$	-
250401	Class 4 Aggregate Subbase	CY		x		= \$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		= \$	-
397005	Tack Coat	TON	6	x	1,500.00	= \$	9,000
377501	Slurry Seal	TON		x		= \$	-
3750XX	Screenings (Type XX)	TON		x		= \$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		= \$	-
370001	Sand Cover (Seal)	TON		x		= \$	-
731530	Minor Concrete (Textured Paving)	CY		x		= \$	-
731502	Minor Concrete (Miscellaneous Construction)	CY		x		= \$	-
39407X	Place Hot Mix Asphalt Dike (Type X)	LF		x		= \$	-
150771	Remove Asphalt Concrete Dike	LF	2,500	x	6.00	= \$	15,000
420201	Grind Existing Concrete Pavement	SQYD		x		= \$	-
150860	Remove Base and Surfacing	CY		x		= \$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		= \$	-
153120	Remove Concrete	LF	5,000	x	10.00	= \$	50,000
394090	Place Hot Mix Asphalt (Miscellaneous Area)	SQYD	1	x		= \$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD	4,000	x	7.00	= \$	28,000
39405X	Shoulder Rumble Strip (HMA, X-In Indentations)	STA		x		= \$	-
413113	Repair Spalled Joints, Polyester Grout	SQYD		x		= \$	-
420102	Groove Existing Concrete Pavement	SQYD		x		= \$	-
390136	Minor Hot Mix Asphalt	TON		x		= \$	-
394095	Roadside Paving (Miscellaneous Areas)	SQYD		x		= \$	-
XXXXXX	Some Item	Unit		x		= \$	-

<b>TOTAL PAVEMENT STRUCTURAL SECTION ITEMS</b>	<b>\$</b>	<b>1,042,000</b>
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**SECTION 3: DRAINAGE**

Item code		Unit	Quantity		Unit Price (\$)		Cost
15080X	Remove Culvert	EA/LF		x		= \$	-
150820	Modify Inlet	EA	30	x	1,500.00	= \$	45,000
155232	Sand Backfill	CY		x		= \$	-
15020X	Abandon Culvert	EA/LF		x		= \$	-
152430	Adjust Inlet	LF	30	x	2,000.00	= \$	60,000
155003	Cap Inlet	EA		x		= \$	-
510501	Minor Concrete	CY		x		= \$	-
510502	Minor Concrete (Minor Structure)	CY		x		= \$	-
5105XX	Minor Concrete (Type XX)	CY		x		= \$	-
620XXX	XX" Alternative Pipe Culvert (Type X)	LF		x		= \$	-
6411XX	XX" Plastic Pipe	LF		x		= \$	-
650010	XX" Reinforced Concrete Pipe (Type X)	LF	3,000	x	150.00	= \$	450,000
6650XX	XX" Corrugated Steel Pipe (0.XXX" Thick)	LF		x		= \$	-
68XXXX	XX" Plastic Pipe (Edge Drain)	LF		x		= \$	-
69011X	XX" Corrugated Steel Pipe Downdrain (0.XXX" Thic	LF		x		= \$	-
70321X	XX" Corrugated Steel Pipe Inlet (0.XXX" Thick)	LF		x		= \$	-
70XXXX	XX" Corrugated Steel Pipe Riser (0.XXX" Thick)	LF		x		= \$	-
7050XX	XX" Steel Flared End Section	EA		x		= \$	-
703233	Grated Line Drain	LF		x		= \$	-
72XXXX	Rock Slope Protection (Type and Method)	CY/TON		x		= \$	-
72901X	Rock Slope Protection Fabric (Class X)	SQYD		x		= \$	-
721420	Concrete (Ditch Lining)	CY		x		= \$	-
721430	Concrete (Channel Lining)	CY		x		= \$	-
750001	Miscellaneous Iron and Steel	LB	4,800	x	10	= \$	48,000
XXXXXX	Additional Drainage	LS		x		= \$	-

<b>TOTAL DRAINAGE ITEMS</b>	<b>\$</b>	<b>603,000</b>
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**SECTION 4: SPECIALTY ITEMS**

Item code		Unit	Quantity		Unit Price (\$)		Cost
080050	Progress Schedule (Critical Path Method)	LS		x		= \$	-
582001	Sound Wall (Masonry Block)	SQFT		x		= \$	-
510530	Minor Concrete (Wall)	CY		x		= \$	-
15325X	Remove Sound Wall	LF/LS		x		= \$	-
070030	Lead Compliance Plan	LS	1	x	15,000.00	= \$	15,000
141120	Treated Wood Waste	LB		x		= \$	-
153221	Remove Concrete Barrier	LF	4,000	x	50.00	= \$	200,000
150662	Remove Metal Beam Guard Railing	LF		x		= \$	-
150668	Remove Flared End Section	EA		x		= \$	-
8000XX	Chain Link Fence (Type XX)	LF		x		= \$	-
800360	XX" Chain Link Gate (Type CL-6)	LF	5,000	x	50.00	= \$	250,000
832001	Metal Beam Guard Railing	LF		x		= \$	-
839301	Single Thrie Beam Barrier	LF		x		= \$	-
839310	Double Thrie Beam Barrier	LF		x		= \$	-
839521	Cable Railing	LF		x		= \$	-
8395XX	Terminal System (Type CAT)	EA	5	x	5,000.00	= \$	25,000
839585	Alternative Flared Terminal System	EA		x		= \$	-
839584	Alternative In-line Terminal System	EA		x		= \$	-
4906XX	CIDH Concrete Piling (Insert Diameter)	LF		x		= \$	-
839XXX	Crash Cushion (Insert Type)	EA	30	x	320.00	= \$	9,600
83XXXX	Concrete Barrier (Insert Type)	LF		x		= \$	-
520103	Bar Reinforced Steel (Retaining Wall)	LB		x		= \$	-
510060	Structural Concrete, Retaining Wall	CY	1,000	x	2,500.00	= \$	2,500,000
513553	Retaining Wall (Masonry Wall)	SQFT		x		= \$	-
511035	Architectural Treatment	SQFT		x		= \$	-
598001	Anti-Graffiti Coating	SQFT		x		= \$	-
203070	Rock Stain	SQFT		x		= \$	-
5136XX	Reinforced Concrete Crib Wall (Type X)	SQFT		x		= \$	-
83954X	Transition Railing (Type X)	EA		x		= \$	-
597601	Prepare and Stain Concrete	SQFT		x		= \$	-
839561	Rail Tensioning Assembly	EA		x		= \$	-
83958X	End Anchor Assembly (Type X)	EA		x		= \$	-
832007	Midwest Guardrail System (Wood Post)	LF	300	x	60.00	= \$	18,000
730010	Minor Concrete (Curb)	LF	300	x	19.00	= \$	5,700
600017	Remove Retaining Wall	LF	1,323	x	100.00	= \$	132,300

<b>TOTAL SPECIALTY ITEMS</b>	<b>\$</b>	<b>3,155,600</b>
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**SECTION 5: ENVIRONMENTAL**

**5A - ENVIRONMENTAL MITIGATION**

Item code	Unit	Quantity		Unit Price (\$)		Cost
Biological Mitigation	LS	1	x	175,000.00	= \$	175,000
130670 Temporary Reinforced Silt Fence	LF		x		= \$	-
141000 Temporary Fence (Type ESA)	LF		x		= \$	-
<b>Subtotal Environmental Mitigation</b>						<b>\$ 175,000</b>

**5B - LANDSCAPE AND IRRIGATION**

Item code	Unit	Quantity		Unit Price (\$)		Cost
20XXXX Highway Planting	LS	1	x	100,000.00	= \$	100,000
20XXXX Irrigation System	LS	1	x	100,000.00	= \$	100,000
204099 Plant Establishment Work	LS		x		= \$	-
204101 Extend Plant Establishment Work	LS		x		= \$	-
20XXXX Follow-up Landscape Project	LS		x		= \$	-
150685 Remove Irrigation Facility	LS		x		= \$	-
20XXXX Maintain Existing (Irrigation or Planted Areas)	LS		x		= \$	-
206400 Check and Test Existing Irrigation Facilities	LS		x		= \$	-
21011X Imported Topsoil (X)	CY/TON		x		= \$	-
20XXXX Rock Blanket, Rock Mulch, DG, Gravel Mulch	SQFT/SQYD		x		= \$	-
200122 Weed Germination	SQYD		x		= \$	-
208304 Water Meter	EA		x		= \$	-
2087XX XX" Conduit (Use for Irrigation x-overs)	LF		x		= \$	-
20890X EXISTING XX" CONDUIT (USE FOR EXISTING IRRIGATION x-overs)	LF		x		= \$	-
<b>Subtotal Landscape and Irrigation</b>						<b>\$ 200,000</b>

**5C - EROSION CONTROL**

Item code	Unit	Quantity		Unit Price (\$)		Cost
210010 Move In/Move Out (Erosion Control)	EA	8	x	1,000.00	= \$	8,000
210350 Fiber Rolls	LF	5,000	x	5.00	= \$	25,000
210360 Compost Sock	LF		x		= \$	-
2102XX Rolled Erosion Control Product (X)	SQFT		x		= \$	-
21025X Bonded Fiber Matrix	SQFT/ACRE		x		= \$	-
210300 Hydromulch	SQFT	50,000	x	1.00	= \$	50,000
210420 Straw	SQFT		x		= \$	-
210430 Hydroseed	SQFT	20,000	x	1.00	= \$	20,000
210600 Compost	SQFT		x		= \$	-
210630 Incorporate Materials	SQFT		x		= \$	-
<b>Subtotal Erosion Control</b>						<b>\$ 103,000</b>

**5D - NPDES**

Item code	Unit	Quantity		Unit Price (\$)		Cost
130300 Prepare SWPPP	LS	1	x	15,000.00	= \$	15,000
130200 Prepare WPCP	LS		x		= \$	-
130100 Job Site Management	LS	1	x	80,000.00	= \$	80,000
130330 Storm Water Annual Report	EA		x		= \$	-
130310 Rain Event Action Plan (REAP)	EA		x		= \$	-
130320 Storm Water Sampling and Analysis Day	EA		x		= \$	-
130520 Temporary Hydraulic Mulch	SQYD		x		= \$	-
130550 Temporary Hydroseed	SQYD	2,000	x	5.00	= \$	10,000
130505 Move-In/Move-Out (Temporary Erosion Control)	EA		x		= \$	-
130640 Temporary Fiber Roll	LF	2,500	x	5.00	= \$	12,500
130900 Temporary Concrete Washout	LS		x		= \$	-
130710 Temporary Construction Entrance	EA		x		= \$	-
130610 Temporary Check Dam	LF		x		= \$	-
130620 Temporary Drainage Inlet Protection	EA		x		= \$	-
130730 Street Sweeping	LS		x		= \$	-
<b>Subtotal NPDES</b>						<b>\$ 117,500</b>

<b>TOTAL ENVIRONMENTAL</b>	<b>\$</b>	<b>595,500</b>
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**Supplemental Work for NPDES**

066595 Water Pollution Control Maintenance Sharing*	LS	1	x	15,000.00	= \$	15,000
066596 Additional Water Pollution Control**	LS	1	x	15,000.00	= \$	15,000
066597 Storm Water Sampling and Analysis***	LS	1	x	15,000.00	= \$	15,000
XXXXXX Some Item	LS		x		= \$	-
<b>Subtotal Supplemental Work for NDPS</b>						<b>\$ 45,000</b>

\*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

\*\*Applies to both SWPPPs and WPCP projects.

\*\*\* Applies only to project with SWPPPs.

**SECTION 6: TRAFFIC ITEMS**

**6A - Traffic Electrical**

Item code	Unit	Quantity	Unit Price (\$)	Cost
860460 Lighting and Sign Illumination	LS		x = \$	-
860201 Signal and Lighting	LS		x = \$	-
860990 Closed Circuit Television System	LS		x = \$	-
86110X Ramp Metering System (S Center St)	LS	1	x 180,000.00 = \$	180,000
XXXXX City Interconnect	LS	1	x 20,000.00 = \$	20,000
86110X Ramp Metering System (El Dorado St)	LS	1	x 175,000.00 = \$	175,000
XXXXX City Interconnect	LS	1	x 20,000.00 = \$	20,000
86070X Interconnection Conduit and Cable	LF/LS		x = \$	-
86110X Ramp Metering System (Stanislaus St)	LS	1	x 345,000.00 = \$	345,000
86110X Ramp Metering System (S Wilson Way)	LS	1	x 175,000.00 = \$	175,000
XXXXX City Interconnect	LS	1	x 40,000.00 = \$	40,000
86110X Ramp Metering System (E Lafayette St)	LS	1	x 190,000.00 = \$	190,000
86110X Ramp Metering System ( Filbert St)	LS	1	x 365,000.00 = \$	365,000
XXXXX City Interconnect	LS	1	x 20,000.00 = \$	20,000
151581 Reconstruct Sign Structure	EA		x = \$	-
152641 Modify Sign Structure	EA		x = \$	-
860090 Maintain Existing Traffic Management System Elements During Construction	LS	1	x 200,000.00 = \$	200,000
86XXXX Fiber Optic Conduit System	LS		x = \$	-
XXXXX CCTV	Unit	8	x 25,000.00 = \$	200,000
<i>Subtotal Traffic Electrical</i>				<b>\$ 1,930,000</b>

**6B - Traffic Signing and Striping**

Item code	Unit	Quantity	Unit Price (\$)	Cost
566011 Roadside Sign - One Post	EA	1	x 22,500.00 = \$	22,500
566012 Roadside Sign - Two Post	EA		x = \$	-
5602XX Furnish Sign	SQFT		x = \$	-
568016 Install Sign Panel on Existing Frame	SQFT		x = \$	-
150711 Remove Painted Traffic Stripe	LF	5,018	x 1.00 = \$	5,018
141101 Remove Yellow Painted Traffic Stripe (Hazardous Waste)	LF		x = \$	-
150712 Remove Painted Pavement Marking	SQFT	378	x 4.35 = \$	1,644
150742 Remove Roadside Sign	EA		x = \$	-
152320 Reset Roadside Sign	EA		x = \$	-
152390 Relocate Roadside Sign	EA		x = \$	-
82010X Delineator (Class X)	EA		x = \$	-
840502 Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility)	LF		x = \$	-
846012 Thermoplastic Crosswalk and Pavement Marking (Enhanced Wet Night Visibility)	SQFT		x = \$	-
120090 Construction Area Signs	LS	1	x 80,000.00 = \$	80,000
Remove Pavement Marker	EA	46	x 5.00 = \$	230
84XXXX Permanent Pavement Delineation	LS	1	x 28,100.00 = \$	28,100
<i>Subtotal Traffic Signing and Striping</i>				<b>\$ 137,492</b>

**6C - Traffic Management Plan**

Item code	Unit	Quantity	Unit Price (\$)	Cost
128652 Portable Changeable Message Signs	EA/LS	6	x \$ 20,000 = \$	120,000
<i>Subtotal Traffic Management Plan</i>				<b>\$ 120,000</b>

**6C - Stage Construction and Traffic Handling**

Item code	Unit	Quantity	Unit Price (\$)	Cost
120199 Traffic Plastic Drum	EA		x = \$	-
12016X Channelizer (Type - Surface Mounted)	EA	120	x 70.00 = \$	8,400
120120 Type III Barricade	EA		x = \$	-
129100 Temporary Crash Cushion Module	EA	150	x 220.00 = \$	33,000
120100 Traffic Control System	LS		x = \$	-
129110 Temporary Crash Cushion	EA	7	x 5,000.00 = \$	35,000
129000 Temporary Railing (Type K)	LF	6,783	x 23.00 = \$	156,009
120149 Temporary Pavement Marking (Paint)	SQFT	378	x 10.00 = \$	3,780
82010X Delineator (Class X)	EA		x = \$	-
Temporary Pavement Marker	EA	46	x 12.00 = \$	552
XXXXXX Temporary Traffic Stripe (Painted)	LF	5,018	x 1.00 = \$	5,018
<i>Subtotal Stage Construction and Traffic Handling</i>				<b>\$ 241,759</b>

<b>TOTAL TRAFFIC ITEMS</b>	<b>\$ 2,429,300</b>
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**SECTION 7: DETOURS**

Includes constructing, maintaining, and removal

Item code	Unit	Quantity	Unit Price (\$)	Cost
190101 Roadway Excavation	CY	x	= \$	-
19801X Imported Borrow	CY/TON	x	= \$	-
390132 Hot Mix Asphalt (Type A)	TON	x	= \$	-
26020X Class 2 Aggregate Base	TON/CY	x	= \$	-
250401 Class 4 Aggregate Subbase	CY	x	= \$	-
130620 Temporary Drainage Inlet Protection	EA	x	= \$	-
129000 Temporary Railing (Type K)	LF	x	= \$	-
128601 Temporary Signal System	LS	x	= \$	-
120149 Temporary Pavement Marking (Paint)	SQFT	x	= \$	-
80010X Temporary Fence (Type X)	LF	x	= \$	-
XXXXXX Some Item	LS	x	= \$	-

\* Includes constructing, maintaining, and removal

<b>TOTAL DETOURS</b>	<b>\$</b>	<b>-</b>
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<b>SUBTOTAL SECTIONS 1 through 7</b>	<b>\$</b>	<b>9,093,500</b>
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**SECTION 8: MINOR ITEMS**

**8A - Americans with Disabilities Act Items**

ADA Items	1.0%	\$	90,935
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**8B - Bike Path Items**

Bike Path Items	1.0%	\$	90,935
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**8C - Other Minor Items**

Other Minor Items	8.0%	\$	727,480
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Total of Section 1-7	\$	9,093,500	x	10.0%	= \$	909,350
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<b>TOTAL MINOR ITEMS</b>	<b>\$</b>	<b>909,400</b>
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**SECTIONS 9: ROADWAY MOBILIZATION**

Item code	Quantity	Unit Price (\$)	Cost
999990 Total Section 1-8	\$ 10,002,900	x 20%	= \$ 2,000,580

<b>TOTAL ROADWAY MOBILIZATION</b>	<b>\$</b>	<b>2,000,600</b>
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**SECTION 10: SUPPLEMENTAL WORK**

Item code	Unit	Quantity	Unit Price (\$)	Cost
066670 Payment Adjustments For Price Index Fluctuations	LS	1	x 30,000.00 = \$	30,000
066094 Value Analysis	LS	1	x 35,000.00 = \$	35,000
066070 Maintain Traffic	LS	1	x 150,000.00 = \$	150,000
066919 Dispute Resolution Board	LS		x = \$	-
066921 Dispute Resolution Advisor	LS		x = \$	-
066015 Federal Trainee Program	LS	1	x 5,000.00 = \$	5,000
066610 Partnering	LS		x = \$	-
066204 Remove Rock and Debris	LS		x = \$	-
066222 Locate Existing Crossover	LS		x = \$	-
XXXXXX Some Item	Unit		x = \$	-

Cost of NPDES Supplemental Work specified in Section 5D = \$ 45,000

Total Section 1-8	\$	10,002,900	4%	= \$	400,116
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<b>TOTAL SUPPLEMENTAL WORK</b>	<b>\$</b>	<b>665,200</b>
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**SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES**

Item code		Unit	Quantity		Unit Price (\$)	=	Cost
066105	Resident Engineers Office	LS	1	x	300,000.00	=	\$300,000
066063	Traffic Management Plan - Public Information	LS	1	x	200,000.00	=	\$200,000
066901	Water Expenses	LS		x		=	\$0
8609XX	Traffic Monitoring Station (X)	LS		x		=	\$0
066841	Traffic Controller Assembly	LS		x		=	\$0
066840	Traffic Signal Controller Assembly	LS		x		=	\$0
066062	COZEEP Contract	LS	1	x	250,000.00	=	\$250,000
066838	Reflective Numbers and Edge Sealer	LS		x		=	\$0
066065	Tow Truck Service Patrol	LS		x		=	\$0
066916	Annual Construction General Permit Fee	LS		x		=	\$0
XXXXXX	Electrical SFM	LS	1	x	100,000.00	=	\$100,000
Total Section 1-8			\$ 10,002,900		2%	=	\$ 200,058

**TOTAL STATE FURNISHED \$1,050,100**

**SECTION 12: TIME-RELATED OVERHEAD**

Total of Roadway and Structures Contract Items excluding Mobilization \$26,417,900 (used to calculate TRO)  
 Total Construction Cost (excluding TRO and Contingency) \$30,133,800 (used to check if project is greater than \$5 million excluding contingency)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = **6%**

Item code		Unit	Quantity		Unit Price (\$)	=	Cost
090100	Time-Related Overhead	WD	500	X	\$2,600	=	\$1,300,000

**TOTAL TIME-RELATED OVERHEAD \$1,300,000**

**SECTION 13: ROADWAY CONTINGENCY**

Total Section 1-12 \$ 15,018,800 x 15% = \$2,252,820

**TOTAL CONTINGENCY \$2,252,900**



### III. RIGHT OF WAY

Fill in all of the available information from the Right of Way Data Sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees	\$	0
	A2)	SB-1210	\$	0
B)		Acquisition of Offsite Mitigation	\$	0
C)	C1)	Utility Relocation (State Share)	\$	538,750
	C2)	Potholing (Design Phase)	\$	
D)		Railroad Flagging	\$	
E)		Clearance / Demolition	\$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	\$	
G)		Title and Escrow	\$	0
H)		Environmental Review	\$	0
I)		Condemnation Settlements <u>0%</u>	\$	0
J)		Design Appreciation Factor <u>0%</u>	\$	0
K)	K1)	Utility Relocation-Fire Hydrant (Construction Cost)	\$	
	K2)	Utility Relocation-Inlet Structure (Construction Cost)	\$	
	K3)	Utility Relocation-Joint Poles	\$	

L)	<b>TOTAL RIGHT OF WAY ESTIMATE</b>	<b>\$538,750</b>
----	------------------------------------	------------------

M)	<b>TOTAL R/W ESTIMATE: Escalated</b>	<b>\$603,972</b>
----	--------------------------------------	------------------

N)	<b>RIGHT OF WAY SUPPORT</b>	<b>\$0</b>
----	-----------------------------	------------

Support Cost Estimate Prepared By	Tom Lichtenberg Project Coordinator <sup>1</sup>	(209) 948-3679 Phone
Utility Estimate Prepared By	Song Her Utility Coordinator <sup>2</sup>	(209) 990-5747 Phone
R/W Acquisition Estimate Prepared By	James Summerton Right of Way Estimator <sup>3</sup>	(559) 445-6241 Phone

Note: Items G & H applied to items A + B

<sup>1</sup> When estimate has Support Costs only

<sup>2</sup> When estimate has Utility Relocation

<sup>3</sup> When R/W Acquisition is required

**ATTACHMENT F**  
**STORM WATER DATA REPORT**



Dist-County-Route: 10-SJ-04  
Post Mile Limits: R16.0/R19.4  
Project Type: Ramp Metering System Installation  
Project ID (EA): 1016000077 (10-1F1800)  
Program Identification: SHOPP/201.315  
Phase:  PID  PA/ED  PS&E

Regional Water Quality Control Board: Region 5, Central Valley, Sacramento Office

Total Disturbed Soil Area: **1.47 acres** PCTA: **0.0 acres**  
Alternative Compliance (acres): N/A ATA 2 (50% Rule)? Yes  No   
Estimated Const. Start Date: 08/23/2023 Est Const. Complete: 09/15/2025  
Risk Level: RL 1  RL 2  RL 3  WPCP  Other: \_\_\_\_\_  
Is MWELo applicable? Yes  No   
Is the Project within a TMDL watershed? Yes  No   
TMDL Compliance Units (acres): 0.0  
Notification of ADL reuse (if yes, provide date): Yes  Date: \_\_\_\_\_ No

***This Report has been prepared under my direction. I attest to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E only.***

Navrajdeep Jammu 03/10/2020  
Navrajdeep Jammu, Registered Project Engineer Date

***I concur with the Construction water pollution control strategy and selected temporary BMPs in this report.***

David D. Troop 03/10/2020  
David Troop, Construction Stormwater Coordinator Date

***I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:***

Amanveer Pamma 3-10-20  
Amanveer Pamma, Design Stormwater Coordinator Date

Parisa Rasouli Lodge 3/10/20  
Parisa Rasouli Lodge, Project Manager Date

Robert Shanks 3/10/20  
Robert Shanks, Maintenance Stormwater Coordinator Date

Brad Cole 3/10/20  
Brad Cole, Landscape Architecture Date

Ethan A. Heilman 3/11/2020  
for Mazin Al Ali, Regional SW Coordinator or Designee Date

ATTACHMENT G  
TMP CHECKLIST

## D-10 TRANSPORTATION MANAGEMENT PLAN CHECKLIST

District - Project No: 10 1600 0077      EA: 10-1F180  
 Date Prepared: December 5, 2019  
 Prepared By: Quan Trinh  
 Requested By: Navraj Jammu  
 Stage of Project (X box)     PID     PSR     PR     PS&E XX%

Co.-Rte.-P.M.    SJ-4-R16.0/R19.4  
 Location:        In San Joaquin County, on SR-4 between SR 4/I-5 and SR 4/SR 99 Connectors.

Description:      Install Ramp Metering System and CCTV.

PID  
Date Signed

PSR  
Date Signed

PR  
Date Signed

PS&E XX%  
Date Signed

REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
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### 1.0 Public Information Strategies

- 1.1 Brochures and Mailers
- 1.2 Media Releases (& minority media sources)
- 1.3 Paid Advertising
- 1.4 Public Information Center
- 1.5 Public Meetings/Speakers Bureau
- 1.6 Project Telephone Hotline
- 1.7 Internet, E-Mail
- 1.8 Local cable TV and News
- 1.9 Notification to Impacted groups  
(i.e. bicycle users, pedestrians with disabilities, others)
- 1.10 Project Web Page
- 1.11 Caltrans Public Information Office
- 1.12 Consultant Public Information Office
- 1.13 Other items

		X				
X						X
		X				
		X				
		X				
		X				
		X				
X				Designer to verify impacted groups.		X
		X				
X				Items 1.1 to 1.11 to be handled by CT PIO.	\$26K	X
		X				
		X				

### 2.0 Traveler Information Strategies

- 2.1 Changeable Message Signs (CMSs)
- 2.2 Portable Changeable Message Signs (PCMSs)
- 2.3 PCMSs for Work Zone Speed Limit Reduction (WZ SLR)
- 2.4 Radar Speed Feedback Sign for WZ SLR
- 2.5 Special Construction Signs
- 2.6 Traveler Information Systems (CHIN/Internet)
- 2.7 Highway Advisory Radio "HAR" (fixed or mobile)
- 2.8 AWIS
- 2.9 Traffic Management Team
- 2.10 Revised Transit Schedules/ Maps
- 2.11 Bicycle community information
- 2.12 Other items

		X				
X				See comments below.	\$36K	X
X				PE to determine, see comments below.		X
X				PE to determine, see comments below.		X
		X				
		X		As required.		
		X				
		X		See comments below.		
		X				
X				Same as Item 1.9.		X
		X				

### 3.0 Incident Management

- 3.1 COZEEP
- 3.2 Freeway Service Patrol (tow truck service patrol)
- 3.3 Transportation Management Center
- 3.4 Traffic Control Inspector (Caltrans)
- 3.5 Traffic Management Team
- 3.6 On-site Traffic Advisor (contractor)
- 3.7 Other Items

X				See comments below.	\$264K	X
		X				
X						X
		X				
		X		As needed.		
		X				
		X				

### 4.0 Construction Strategies

- 4.1 Delay damage clause
- 4.2 Night work
- 4.3 Weekend Work
- 4.4 Extended Weekend Closures
- 4.5 Planned Lane Closures
- 4.6 Planned Ramp Closures/Connector Closure
- 4.7 Total Facility Closure
- 4.8 Project Phasing
- 4.9 Truck Traffic Restrictions
- 4.10 Reduced Lane Widths
- 4.11 Temporary K-Rail
- 4.12 Temporary Traffic Screens
- 4.13 Traffic Control Improvements

		X				
X				Per Lane Closure Charts		X
		X				
		X				
X				Per Lane Closure Charts.		X
X				Per Lane Closure Charts.		X
		X				
		X		As per stage construction if any.		
		X				
X				Per drawings/data sheet if any.		X
X				Project Engineer to determine.		X
		X				
X				As necessary.		X



**ATTACHMENT H  
RISK MANAGEMENT PLAN**

## Risk Register for 10-1F180, SR-4 Ramp Metering System Installation

Form v3.4 last modified April 2019

Risk Checkpoint: PA&ED	
Date: 7/1/2019	
Project Nickname: SR-4 Ramp Metering System Installation	
EA: 10-1F180	
Co-Rt, Post Miles: SJ-004-PM 16.0/19.4	
Project Manager: Parisa Lodge	
FY & Program (SHOPP or STIP):	
Capital Costs: \$40,429k	
Support Costs: \$18,367k	
Total Costs: \$58,796k	
RTL Target: 1/5/2023	

Phase	Cost Contingency Range \$k			Schedule Contingency Range ( Wkg Days)		
	Optimistic	PERT	Pessimistic	Optimistic	PERT	Pessimistic
0-PA&ED	\$55	\$86	\$131	20	28	44
1-PS&E	\$19	\$28	\$44	32	58	100
2-RW Sup	\$3	\$8	\$19	22	52	110
3-Con Sup	\$7	\$11	\$17	10	62	120
Support Contingency	\$85	\$133	\$211	84	200	374
9-RW Cap	\$6	\$18	\$36	9	21	44
4-Con Cap	\$40	\$127	\$320	32	46	66
Capital Contingency	\$46	\$145	\$356	41	67	110
Total Contingency	\$131	\$278	\$567	125	267	484

Risk Identification							Risk Assessment				Risk Response				Quantifying "Red" (High P & I) Level Risks			
Status	ID #	Type	Category	Title	Risk Statement	Current status / assumptions	Risk Trigger	Probability (P)	Cost Impact Schedule Impact (I)	Cost Score Schedule Score (PxI)	Strategy	Response Actions	Risk Owner	Updated	Impacted Phase	Support (Hrs) Capital Cost (\$k)	Schedule (Days)	Calculated Contingency
Active	1	Threat	Environmental	Nesting season	The following risk statement is only valid if construction is scheduled during the nesting season from February 15th through September 1st. Once the contract has been awarded, the MBTA Survey(s) must be completed within the two weeks before construction can start.	MBTA survey will be required prior to start of construction.	The risk trigger kicks in if during the pre-construction (MBTA/borrowing owls) bird survey(s) an active nest is discovered.	1-Very Low (1-10%)	2 - Low (<\$2,940k)	2	Accept	If during our MBTA survey or during construction an active nest is discovered, all work will be suspended (within the 100-foot ESA buffer zone for migratory nesting birds and a 300 to 600-foot buffer will be implemented according to species, and Biological monitoring of species will be required) until after all of the nesting chicks have fledged.	Environmental	3/13/2020	3-Con Sup	O ML P	O ML P	
								10%							4-Con Cap	O ML P	O ML P	
Retired	2	Threat	Environmental		If it is determined work in a waterway will be required, then permits from CDFW, RWQCB, and USACE may be required.		The risk trigger kicks in if during the PID phase it is discovered work will occur within the waterway.	2-Low (11-30%)	4 - Moderate (\$2,941k - \$5,880k)	8	Accept	Coordinate with design to identify any potential work within any water ways.	Environmental	2/19/2019		O ML P	O ML P	
								100%								O ML P	O ML P	
Active	3	Threat	Environmental	bat, Swallow	If it is determined that bat, Swallow and/or Burrowing owl exclusions will be required then that would lead to an additional cost.	Specifications are to be included in the contract and exclusionary measures will be budgeted.	The risk trigger kicks in if during the pre-construction bat survey(s) an active nest is discovered.	2-Low (11-30%)	2 - Low (<\$2,940k)	4	Accept	The contractor must setup the agreed upon ESA (no work) buffer zone until the chick(s) have all fledged the nest.	Environmental	3/13/2020	3-Con Sup	O ML P	O ML P	
								20%							4-Con Cap	O ML P	O ML P	
Retired	4	Threat	Environmental		Regulatory agency may be dilatory in responding to our requests.		Lack of SHPO concurrence in a timely manner on Section 106 Finding of No Adverse Effect.	2-Low (11-30%)	1 - Very Low (Insignificant)	2	Accept	Formal evaluation of one of the six structures would necessitate formal evaluation and built environment. HPSR to SHOP concurrence would be required.	Environmental	2/19/2019				
								20%										
Retired	5	Threat	Environmental		Right-of-Way		Excavation results in, late discovery, identification of intact archaeological deposits within APE.	2-Low (11-30%)	1 - Very Low (Insignificant)	2	Avoid	Coordinate with construction to identify potential archaeological resources as soon as possible. Avoidance would very likely be possible. Would require some work with design to establish project-specific ESA.	Environmental	2/19/2019				
								20%										
Active	6	Threat	Environmental	Archaeological Survey	Identification of previously unidentified archaeological resource(s) within project APE. Additional Excavation, avoidance, and/or mitigation could be required.	Previous cultural surveys were adequate in identifying all resources in the project area and there is a low to moderate sensitivity for buried deposition in general.	Pedestrian archaeological survey identifies previously unidentified archaeological site(s).	2-Low (11-30%)	2 - Low (<\$2,940k)	4	Avoid	If resources are unavoidable, risk would require additional excavation and evaluation. However, resources would likely be avoidable.	Environmental	3/13/2020	1-PS&E Sup	O ML P	O ML P	
								20%							4-Con Cap	O ML P	O ML P	
Retired	7	Threat	Environmental		Potential 4(f) concern		Park under the SR4, Crosstown, may trigger a 4(f) consideration	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Accept	During the PID phase a 4(f) study will be preformed	Environmental	2/19/2019				
								5%										
Retired	8	Threat	Environmental		Potential cultral concerns if the fence at the water treatment plant on Wilson Way is moved east, because of the right turn lane being widened.		Potential cultural concerns if the fence (on Willson Way) is moved, east, because of the right turn lane being widened. The moving of the fence could potentially add an additional 8 months of studies to the environmental FED due date.	5-Very High (>70%)	4 - Moderate (\$2,941k - \$5,880k)	20	Accept	During the PA&ED phase the risk has been retired because the property fence will be impacted.	Environmental	2/19/2019				
								85%										

Risk Identification								Risk Assessment			Risk Response				Quantifying "Red" (High P & I) Level Risks			
Status	ID #	Type	Category	Title	Risk Statement	Current status / assumptions	Risk Trigger	Probability (P)	Cost Impact Schedule Impact (I)	Cost Score Schedule Score (PxI)	Strategy	Response Actions	Risk Owner	Updated	Impacted Phase	Support (Hrs) Capital Cost (\$k)	Schedule (Days)	Calculated Contingency
Retired	9	Threat	Environmental		Potential cultural concern if the fence is moved, east, closer to the water fountain.		The right turn lane may be widened and extended, south, on Wilson Way. This will cause the fence around the property line to be moved closer to the water fountain and add an additional 17 months to the environmental FED delivery date.	4-High (51-70%) 60%	16 - Very High (>\$11,759k)	64	Accept	Still waiting for Design/Traffic reports so we know (during the PA&ED phase) how much the moving of the property line fence will impact the water fountain.	Environmental	2/19/2019				
Retired	10	Threat	Design		Depending City of Stockton Requirement additional R/W may be needed.		Local Street Design	4-High (51-70%) 60%	8 - High (\$5,881k - \$11,759k)	32	Accept	Acquire the R/W needed.	Design	12/27/2019				
Active	11	Threat	Structure Design	Strucrue	Structure estimate may increase due to the following: * Ramp width requirement change. * Spcial footing design. * Special aesthetic treatment.	structures estimated based on available information in PAED	Strucrues future design	3-Moderate (31-50%) 40%	4 - Moderate (\$2,941k - \$5,880k) 2 - Low (<1 month)	12 6	Avoid	Explore other alternatives.	Structure Design	3/16/2020	1-PS&E Sup 4-Con Cap	O ML P O ML P	O ML P O ML P	
Active	12	Threat	Rail Road	Flagger for RR	Requirements for RR include Construction & Maintenance Agreement, Flagging Agreement, Preliminary Engineering Agreement for UPRR to review plans, Right of Entry and Contract Clauses are all required. 36 months R/W leadtime is sufficient for RR workloads.	Enough lead-time, no risks as of yet.	Railroad	1-Very Low (1-10%) #N/A	8 - High (\$5,881k - \$11,759k) 1 - Very Low (Insignificant)	8 1	Accept	Begin correspondence as soon as possible with UPRR.	Right of Way	2/26/2020	1-PS&E Sup 9-RW Cap	O ML P O ML P	O ML P O ML P	
Retired	13	Threat	Right of Way		Parcel acquisitions may require condemnation to obtain possession.		Condemnation	2-Low (11-30%) 20%	8 - High (\$5,881k - \$11,759k)	16	Mitigate	Secure additional right of way resources to reduce impact.	ROW	5/7/2016				
Retired	14	Threat	Right of Way	Utilities	As a result of all utilities not be shown on the plans, additional costs may occur to relocate or work around them.	No Impact Assumption	Utility conflict/relocation	2-Low (11-30%) 20%	4 - Moderate (\$2,941k - \$5,880k)	8	Mitigate	Utility Verification is in the process and potholing will follow in the PS&E phase.	Design/ROW	5/7/2016				
Active	15	Threat	Design	Design Exceptions	Change in design due to rejection of Design Exceptions requests.	Assumption - Design Exceptions will be approved and no impacts	Design Exception requests denied	2-Low (11-30%) 20%	8 - High (\$5,881k - \$11,759k)	16	Accept	DSDD for this project has been approved by Design Chief and waiting to be approved by HQ Project Delivery Coordinator	Design	3/16/2020	1-PS&E Sup 4-Con Cap	O ML P O ML P	O ML P O ML P	
Retired	16	Threat	Design	Surveys	Late existing ground survey or errors in survey.	No Impact	Survey	1-Very Low (1-10%) 5%	8 - High (\$5,881k - \$11,759k)	8	Accept	Request a survey early.	Design	6/11/2016				
Retired	17	Threat	Materials	Inductive Loop Detectors	Material Lab result shows less than required covered depth on the viaduct.	No Impact Assumption	Test Data	2-Low (11-30%) 20%	16 - Very High (>\$11,759k)	32	Mitigate	Explore other alternatives which may include newer technologies or polyester overlay.	Design	6/11/2016				
Retired	18	Threat	Design	Non-compliance Feattures	Change in design due to rejection of HOV excepton requests.	No Impact	Partial acquisition of the gas station parcel leads to gas pump relocation.	2-Low (11-30%) 20%	16 - Very High (>\$11,759k)	32	Avoid	A Fact Sheet for Excpetions to Non-Compliance Features was approved on 2/7/2020	Design	2/19/2020				

Risk Identification								Risk Assessment			Risk Response				Quantifying "Red" (High P & I) Level Risks					
Status	ID #	Type	Category	Title	Risk Statement	Current status / assumptions	Risk Trigger	Probability (P)	Cost Impact Schedule Impact (I)	Cost Score Schedule Score (PxI)	Strategy	Response Actions	Risk Owner	Updated	Impacted Phase	Support (Hrs) Capital Cost (\$k)	Schedule (Days)	Calculated Contingency		
Active	19	Threat	Environmental	Hazardous Waste	If gas pumps at the intersection of have to be relocated, there may potential schedule delay due to harzardous waste Clean up.	Scope does not include relocation of gas pumps	Partial acquisition of the gas station parcel leads to gas pump relocation.	2-Low (11-30%)	8 - High (\$5,881k - \$11,759k)	16	Avoid	Design to avoid partial acquisition of the gas station.	Design	3/13/2020	1-PS&E Sup	O ML P	O ML P			
								20%							4-Con Cap	O ML P	O ML P			
								40%												
Active	20	Threat	Environmental	Archaeological Survey	Change in Design and delete inductive loops for the City of Stockton from the scope if Archaeological and Architectural Surveys are needed.	No Impact Assumption	Environment	3-Moderate (31-50%)	2 - Low (<\$2,940k)	6	Avoid	Environment team is working on finding if Archaeological and Architectural Surveys are needed for the local streets	Design	3/13/2020	1-PS&E Sup	O ML P	O ML P			
								40%							8 - High (3-6 months)	24	9-RW Cap	O ML P	O ML P	

ATTACHMENT I  
ENVIRONMENTAL DOCUMENT

**CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM**

<b>10/SJ/4</b>	<b>R16.0-R19.4</b>	<b>10-1F180</b>	<b>1016000077</b>
Dist.-Co.-Rte. (or Local Agency)	P.M./P.M.	E.A/Project No.	Federal-Aid Project No. (Local Project)/Project No.

**PROJECT DESCRIPTION:** (Briefly describe project including need, purpose, location, limits, right-of-way requirements, and activities involved in this box. Use Continuation Sheet, if necessary.)

The California Department of Transportation (Caltrans) is proposing to install ramp metering in the City of Stockton in San Joaquin County at the following onramp locations: South Center Street (Westbound), El Dorado St (Eastbound), South Stanislaus Street (Westbound and Eastbound), South Wilson Way (Westbound), East Lafayette Street (Eastbound), Filbert Street (Westbound and Eastbound) located along State Route 4 (SR-4) between Interstate I-5 and SR 99. The purpose of this project is to reduce traffic congestion and improve traffic flow on SR-4 during AM and PM peak (rush) hours. The project is needed due to an increase in traffic volume on SR- 4, which serves commuter traffic within the city of Stockton and interregional commuters to and from the Bay Area. Because SR-4 is a heavily traveled route, congestion develops during AM and PM peak (rush) hours. (continued)

**CALTRANS CEQA DETERMINATION** (Check one)

- Not Applicable – Caltrans is not the CEQA Lead Agency       Not Applicable – Caltrans has prepared an Initial Study or Environmental Impact Report under CEQA

Based on an examination of this proposal, supporting information, and the above statements, the project is:

- Exempt by Statute. (PRC 21080[b]; 14 CCR 15260 et seq.)  
 **Categorically Exempt. Class 3 (d).** (PRC 21084; 14 CCR 15300 et seq.)

Based on an examination of this proposal and supporting information, the following statements are true and exceptions do not apply:

- If this project falls within exempt class 3, 4, 5, 6 or 11, it does not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law.
- There will not be a significant cumulative effect by this project and successive projects of the same type in the same place, over time.
- There is not a reasonable possibility that the project will have a significant effect on the environment due to unusual circumstances.
- This project does not damage a scenic resource within an officially designated state scenic highway.
- This project is not located on a site included on any list compiled pursuant to Govt. Code § 65962.5 ("Cortese List").
- This project does not cause a substantial adverse change in the significance of a historical resource.

- Common Sense Exemption.** [This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment (14 CCR 15061[b][3].)]

**C. Scott Guidi**

Print Name: Senior Environmental Planner or Environmental Branch Chief

 1/13/20  
 Signature Date

**Parisa Lodge**

Print Name: Project Manager

 1/13/20  
 Signature Date

**NEPA COMPLIANCE**

In accordance with 23 CFR 771.117, and based on an examination of this proposal and supporting information, the State has determined that this project:

- does not individually or cumulatively have a significant impact on the environment as defined by NEPA, and is excluded from the requirements to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and
- has considered unusual circumstances pursuant to 23 CFR 771.117(b).

**CALTRANS NEPA DETERMINATION** (Check one)

- 23 USC 326:** The State has determined that this project has no significant impacts on the environment as defined by NEPA, and that there are no unusual circumstances as described in 23 CFR 771.117(b). As such, the project is categorically excluded from the requirements to prepare an EA or EIS under the National Environmental Policy Act. The State has been assigned, and hereby certifies that it has carried out the responsibility to make this determination pursuant to Chapter 3 of Title 23, United States Code, Section 326 and a Memorandum of Understanding dated May 31, 2016, executed between the FHWA and the State. The State has determined that the project is a Categorical Exclusion under:

- 23 CFR 771.117(c): activity (c)(27)**  
 **23 CFR 771.117(d): activity (d)(\_)**  
 **Activity \_\_\_ listed in Appendix A of the MOU between FHWA and the State**

- 23 USC 327:** Based on an examination of this proposal and supporting information, the State has determined that the project is a Categorical Exclusion under 23 USC 327. The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

**C. Scott Guidi**

Print Name: Senior Environmental Planner or Environmental Branch Chief

 1/13/20  
 Signature Date

**Parisa Lodge**

Print Name: Project Manager/DLA Engineer

 1/13/20  
 Signature Date

Date of Categorical Exclusion Checklist completion: 12/30/19

Date of ECR or equivalent : 12/23/2020

**CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM**  
**Continuation Sheet**

Continued from page 1:

Project work includes two bridge widenings at South Madison St undercrossing and South Airport Way undercrossing, three ramp viaducts widenings at El Dorado St, South Stanislaus St, retaining walls and road widening to accommodate two mixed flow multipurpose lanes, California Highway Patrol area and Maintenance Vehicle Pullout area at all the eight onramp locations. The ramp metering systems will include Traffic Monitoring Stations and Closed Circuit Television cameras; the proposal also includes an installation of inductive loop detectors on local streets for the City of Stockton to operate traffic signals and minimize traffic impacts. Construction permits would be needed for work outside of Caltrans' Right of Way.

**General**

Under the California Environmental Quality Act (CEQA), this project is Categorically Exempt and under the National Environmental Policy Act (NEPA) it is Categorically Excluded unless: 1.) the scope of the project changes to include additional activities and areas; 2.) there is an unforeseen discovery of sensitive cultural resources.

**1. Air Quality**

According to Transportation Conformity Rule 40 CFR Section 93.126, Table 2: Projects that correct, improve, or elimination of hazardous feature or location, this project is exempt from all emission analysis. The project is not expected to cause any operational effects on air pollutants. Operational CO2 emissions generated from passenger vehicles were not estimated because the project purpose is not capacity increasing or congestion relief.

During construction Caltrans Standard Specifications pertaining to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction:

- Section 14-9.02 Air Pollution Control and Section 10-5 Dust Control

**2. Biology**

Caltrans has determined the proposed project would have no effect on any state or federal threatened or endangered species. The project is also outside National Marine Fisheries Service jurisdiction. Based on the scope and description of the proposed project, no state or federally-listed species, designated critical habitat; state or federally recognized sensitive habitats, or potential waters of the U.S. associated with this geographic region will be impacted or affected by the proposed project as long as the description of the proposed project as described in the project description remains unchanged. Additionally, Army Corps of Engineers, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or Regional Water Quality Control Board permits will not be required for the proposed project.

Agricultural fields, mature trees, and large shrubs, which may provide nesting habitat for migratory birds, were observed within and adjacent to the project's limits. Species Protection Standard Special Provision shall be included in the construction contract. A preconstruction survey for migratory birds and raptors will be required seven to fourteen days prior to start of construction, construction activities occur the migratory bird nesting season (February 1- September 30).

If migratory bird or raptors are found within or to a work area during construction activities, the following Environmentally Sensitive Area buffers will be required:

- If any migratory bird nest is observed, a 100-foot Environmentally Sensitive Buffer must be implemented and avoided until the young have fledged or a qualified biologist determines that construction may proceed.
- If an active tricolored blackbird nest is observed, a 250-foot Environmentally Sensitive Area buffer must be implemented and avoided around the nest until the young have fledged or a qualified biologist determined that construction may proceed.
- If an active burrowing owl burrow is observed, 165-foot Environmentally Sensitive Buffer (for September 1 – January 31 due to non-breeding season) and 250-foot (for February -August 31 due to breeding season) must be implemented and avoided around the nest until the young have fledged or a qualified biologist determined that construction may proceed.
- If an active raptor nest is observed, a 300-foot Environmentally Sensitive Area buffer must be implemented and avoided around the nest until the young have fledged or a qualified biologist determines that construction may proceed.
- If an active Swainson's hawk nest is observed, a 600-foot Environmentally Sensitive Area buffer must be implemented and avoided around the nest until the young have fledged or a qualified biologist determines that construction may proceed.

**3. Cultural**

As currently planned, the proposed project has no potential to affect any archaeological or built-environmental historical resources or historic properties.

**4. Floodplains**

The project is not located within a 100- year base floodplain.

**5. Hazardous Waste**

**Leaking Underground Storage Tanks**

Within the eight project locations, there are several open and closed Leaking Underground Storage Tank cases adjacent to the project area:

- South Center Street (Westbound)
  - Stockton Police Department
  - Chevron Gas Station
  - Greyhound Lines Inc.
- South Stanislaus Street (Westbound)

**CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM**  
**Continuation Sheet**

<b>10/SJ/4</b>	<b>R16.0-R19.4</b>	<b>10-1F180</b>	<b>1016000077</b>
Dist.-Co.-Rte. (or Local Agency)	P.M./P.M.	E.A/Project No.	Federal-Aid Project No. (Local Project)/Project No.

- Goodwill Industries
- South Wilson Way (Westbound)
  - Top Filling Station
  - Roek Construction
  - ARCO Gas Station
- East Lafayette Street (Eastbound)
  - California Water Service
- Filbert Street (Westbound)
  - Del Monte Disco

Project work will require trenching to approximate depths of 30" for electrical conduit, 18" for electrical pull boxes, and 6' for Type 1-D pole foundation, which may create excess soils. Due to the proximity of the LUST sites to the trenching locations, a project specific survey for petroleum hydrocarbons and title-22 constituents is required prior to construction activities.

**Aerially Deposited Lead**

Aerially Deposited Lead is known to occur in the unpaved areas adjacent to highways. There is a potential to encounter Aerially Deposited Lead impacted soil during project construction. A project specific Aerially Deposited Lead soil survey shall be conducted at each of the ramp locations prior to construction activities.

**Asbestos Containing Material**

Asbestos Containing Materials are known to occurring bridge baring pad, shims, mastic, material, and/or concrete. The scope of work for this project will require widening of three existing bridges; therefore, a project specific survey for Asbestos Containing Material shall be conducted prior to construction activities.

**Lead Based Paint**

Painted surfaces such as girders, graffiti abatement, and traffic striping may be present on bridges 29-0239F, 29-300L, and 29-0269. A project specific survey for lead based paint shall be conducted prior to construction activities.

**6. Noise Quality**

The area surrounding the proposed project limits is urban. Sensitive receptors (residential units) that may be affected by construction noise are currently shielded by existing sound walls from PM 17.75 to PM 19.40. The following Caltrans Standard Specification should be implemented to minimize noise and vibration disturbances at sensitive receptors during periods of construction:

- 14-8.02 Noise Control, control and monitor noise resulting from work activities.

Implementing the following measures would minimize the temporary noise impacts from construction:

- All equipment will have sound-control devices that are no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.
- Use construction methods/equipment that will provide the lowest level of noise and ground vibration impact, such as alternative low-pile installation methods.
- Turn off idling equipment when not in use.

As directed by Caltrans, the contractor will implement appropriate additional noise mitigation measures. This may include changing the location of stationary construction equipment, rescheduling construction activity, and notifying adjacent residents in advance of construction work. Additional measures include implementation of construction noise and/or vibration monitoring program, and installing acoustic barriers around stationary construction noise sources, to maintain relatively uniform noise levels, and avoid impulsive noises.

**7. Paleontology**

The project location is noted to have a low sensitivity for paleontological resources. Furthermore, the excavation would occur on fill or highly disturbed areas in an urban setting. Therefore, the likelihood of encountering significant paleontological resources is considered minimal.

**8. Water Quality**

In the design phase, plans need to ensure that there will be no detrimental discharges into any bodies of water. In the construction phase, the contractor shall exercise every reasonable precaution, as stated in the Caltrans Standard Specifications Section 13-1.01, to eliminate potential negative effects to water quality during construction.

Before project initiation, the Caltrans' Stormwater Unit should be consulted to identify the applicable Best Management Practices for stormwater concerns. If potential water quality impacts are correctly identified and mitigated through Best Management Practices, then the potential for adverse effects on surface or groundwater quality would be eliminated.

## Categorical Exclusion Checklist

Dist/Co/Rte/PM: 10/SJ/4/R16.0- R19.4      Fed. Aid No. (Local Project): 1016000077      EA/Project No.: 10-1F180

**SECTION A: TYPE OF CE: Use the information in this section to determine the applicable CE and corresponding activity for this project.**

1. **Project is a CE under CE Assignment 23 USC 326.**     Yes     No  
*If "yes", check applicable activity in one of the three tables below (activity must be listed in 23 CFR 771.117 (c) or (d) list or included in activities listed in Appendix A of the CE Assignment MOU to be eligible for 23 USC 326).*

**Activity Listed in 23 CFR 771.117(c)**

1	<input type="checkbox"/>	Activities that do not involve or lead directly to construction, such as planning and research activities; grants for training; engineering to define the elements of a proposed action or alternatives so that social, economic, and environmental effects can be assessed; and Federal-aid system revisions that establish classes of highways on the Federal-aid highway system.
2	<input type="checkbox"/>	Approval of utility installations along or across a transportation facility.
3	<input type="checkbox"/>	Construction of bicycle and pedestrian lanes, paths, and facilities.
4	<input type="checkbox"/>	Activities included in the State's <i>highway safety plan</i> under <a href="#">23 U.S.C 402</a> .
5	<input type="checkbox"/>	Transfer of Federal lands pursuant to 23 U.S.C. 107(d) and/or 23 U.S.C. 317 when the land transfer is in support of an action that is not otherwise subject to FHWA review under NEPA.
6	<input type="checkbox"/>	The installation of noise barriers or alterations to existing publicly owned buildings to provide for noise reduction.
7	<input type="checkbox"/>	Landscaping.
8	<input type="checkbox"/>	Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur.
9 <sup>1</sup>	<input type="checkbox"/>	The following actions for transportation facilities damaged by an incident resulting in an emergency declared by the Governor of the State and concurred in by the Secretary, or a disaster or emergency declared by the President pursuant to the Robert T. Stafford Act (42 U.S.C 5121): <sup>2</sup>
	<input type="checkbox"/>	(i) Emergency repairs under 23 U.S.C 125;
	<input type="checkbox"/>	(ii) The repair, reconstruction, restoration, retrofitting, or replacement of any road, highway, bridge, tunnel, or transit facility (such as a ferry dock or bus transfer station), including ancillary transportation facilities (such as pedestrian/bicycle paths and bike lanes), that is in operation or under construction when damaged and the action: (A) Occurs within the existing right-of-way and in a manner that substantially conforms to the preexisting design, function, and location as the original (which may include upgrades to meet existing codes and standards as well as upgrades warranted to address conditions that have changed since the original construction); and (B) Is commenced within a 2-year period beginning on the date of the declaration.
10	<input type="checkbox"/>	Acquisition of scenic easements.
11	<input type="checkbox"/>	Determination of payback under 23 U.S.C 156 for property previously acquired with Federal-aid participation.
12	<input type="checkbox"/>	Improvements to existing rest areas and truck weigh stations.
13	<input type="checkbox"/>	Ridesharing activities.
14	<input type="checkbox"/>	Bus and rail car rehabilitation.
15	<input type="checkbox"/>	Alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons.
16	<input type="checkbox"/>	Program administration, technical assistance activities, and operating assistance to transit authorities to continue existing service or increase service to meet routine changes in demand.
17	<input type="checkbox"/>	The purchase of vehicles by the applicant where the use of these vehicles can be accommodated by existing facilities or by new facilities that themselves are within a CE.
18	<input type="checkbox"/>	Track and railbed maintenance and improvements when carried out within the existing right-of-way.
19	<input type="checkbox"/>	Purchase and installation of operating or maintenance equipment to be located within the transit facility and with no significant impacts off the site.

<sup>1</sup> On the CE form, distinguish between c9i or c9ii

<sup>2</sup> Include copy of the emergency declaration in the file

## Categorical Exclusion Checklist

Dist/Co/Rte/PM:	10/SJ/4/R16.0- R19.4	Fed. Aid No. (Local Project):	1016000077	EA/Project No.:	10-1F180
20	<input type="checkbox"/>	Promulgation of rules, regulations, and directives.			
21	<input type="checkbox"/>	Deployment of electronics, photonics, communications, or information processing used singly or in combination, or as components of a fully integrated system, to improve the efficiency or safety of a surface transportation system or to enhance security or passenger convenience. Examples include, but are not limited to, traffic control and detector devices, lane management systems, electronic payment equipment, automatic vehicle locaters, automated passenger counters, computer-aided dispatching systems, radio communications systems, dynamic message signs, and security equipment including surveillance and detection cameras on roadways and in transit facilities and on buses.			
22 <sup>3</sup>	<input type="checkbox"/>	<p>Projects, as defined in 23 U.S.C. 101, that would take place entirely within the existing operational right-of-way. Existing operational right-of-way means all real property interests acquired for the construction, operation, or mitigation of a project. This area includes the features associated with the physical footprint of the project including but not limited to the roadway, bridges, interchanges, culverts, drainage, clear zone, traffic control signage, landscaping, and any rest areas with direct access to a controlled access highway. This also includes fixed guideways, mitigation areas, areas maintained or used for safety and security of a transportation facility, parking facilities with direct access to an existing transportation facility, transportation power substations, transportation venting structures, and transportation maintenance facilities.</p> <p>Note: As a clarifying example, if title 23 (or certain title 49) funds were authorized for the acquisition of the real property, then that property was acquired for an eligible purpose, which was construction, operation, or mitigation, and thus is part of the operational right-of-way. Real property interests acquired with title 23 funds, or otherwise conveyed for title 23 purposes, are eligible for this categorical exclusion as long as the interests are devoted exclusively to the purposes of that facility and the facility is preserved free of all other public or private alternative uses, unless such non-highway alternative uses are permitted by Federal law (including regulations) or the FHWA (23 CFR 710.403(b)).</p>			
23 <sup>4</sup>	<input type="checkbox"/>	<p>Federally-funded projects: Enter project cost \$ _____ and Federal funds \$ _____</p> <p><input type="checkbox"/> (i) That receive less than \$5,500,515.05 of Federal funds; or</p> <p><input type="checkbox"/> (ii) With a total estimated cost of not more than \$33,003,090.30 and Federal funds comprising less than 15 percent of the total estimated project cost.</p>			
24	<input type="checkbox"/>	Localized geotechnical and other investigation to provide information for preliminary design and for environmental analysis and permitting purposes, such as drilling test bores for soil sampling; archeological investigations for archeology resources assessment or similar survey; and wetland surveys.			
25	<input type="checkbox"/>	Environmental restoration and pollution abatement actions to minimize or mitigate the impacts of any existing transportation facility (including retrofitting and construction of stormwater treatment systems to meet Federal and State requirements under sections 401 and 402 of the Federal Water Pollution Control Act (33 U.S.C. 1341; 1342) carried out to address water pollution or environmental degradation.			
26	<input type="checkbox"/>	Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (including parking, weaving, turning, and climbing lanes), if the action meets the constraints in paragraph (e) of this section [771.117(e)]. <b>Note: In order to use this CE, certain constraints must be met. Complete Section A, Item 2 below.</b>			
27	<input checked="" type="checkbox"/>	Highway safety or traffic operations improvement projects, including the installation of ramp metering control devices and lighting, if the project meets the constraints in paragraph (e) of this section [771.117(e)]. <b>Note: In order to use this CE, certain constraints must be met. Complete Section A, Item 2 below.</b>			
28	<input type="checkbox"/>	Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings, if the actions meet the constraints in paragraph (e) of this section [771.117(e)]. <b>Note: In order to use this CE, certain constraints must be met. Complete Section A, Item 2 below.</b>			
29	<input type="checkbox"/>	Purchase, construction, replacement, or rehabilitation of ferry vessels (including improvements to ferry vessel safety, navigation, and security systems) that would not require a change in the function of the ferry terminals and can be accommodated by existing facilities or by new facilities that themselves are within a CE.			
30	<input type="checkbox"/>	Rehabilitation or reconstruction of existing ferry facilities that occupy substantially the same geographic footprint, do not result in a change in their functional use, and do not result in a substantial increase in the existing facility's capacity. Example actions include work on pedestrian and vehicle transfer structures and associated utilities, buildings, and terminals.			
<b>Activity Listed in Examples in 23 CFR 771.117(d)</b>					
1	<i>Reserved.</i>				
2	<i>Reserved.</i>				
3	<i>Reserved.</i>				
4	<input type="checkbox"/>	Transportation corridor fringe parking facilities.			
5	<input type="checkbox"/>	Construction of new truck weigh stations or rest areas.			

<sup>3</sup> On the CE form, identify in the project description that all work is within operation right-of-way.

<sup>4</sup> On the CE form, distinguish between c23i or c23ii.

## Categorical Exclusion Checklist

<b>Dist/Co/Rte/PM:</b> 10/SJ/4/R16.0-R19.4 <b>Fed. Aid No. (Local Project):</b> 1016000077 <b>EA/Project No.:</b> 10-1F180	
6	<input type="checkbox"/> Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
7	<input type="checkbox"/> Approvals for changes in access control.
8	<input type="checkbox"/> Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
9	<input type="checkbox"/> Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required, and there is not a substantial increase in the number of users.
10	<input type="checkbox"/> Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
11	<input type="checkbox"/> Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning, and where there is no significant noise impact on the surrounding community.
12	<input type="checkbox"/> Acquisition of land for hardship or protective purposes. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed. (i) Hardship acquisition is early acquisition of property by the applicant at the property owner's request to alleviate particular hardship to the owner, in contrast to others, because of an inability to sell his property. This is justified when the property owner can document on the basis of health, safety or financial reasons that remaining in the property poses an undue hardship compared to others. (ii) Protective acquisition is done to prevent imminent development of a parcel that may be needed for a proposed transportation corridor or site. Documentation must clearly demonstrate that development of the land would preclude future transportation use and that such development is imminent. Advance acquisition is not permitted for the sole purpose of reducing the cost of property for a proposed project.
13	<input type="checkbox"/> Actions described in paragraphs (c)(26), (c)(27), and (c)(28) of this section that do not meet the constraints in paragraph (e) of this section.
<b>Activity Listed in Appendix A of the CE Assignment MOU for State Assumption of Responsibilities for Categorical Exclusions</b>	
1	<input type="checkbox"/> Construction, modification, or repair of storm water treatment devices (e.g., detention basins, bioswales, media filters, infiltration basins), protection measures such as slope stabilization and other erosion control measures throughout California.
2	<input type="checkbox"/> Replacement, modification, or repair of culverts or other drainage facilities.
3	<input type="checkbox"/> Projects undertaken to assure the creation, maintenance, restoration, enhancement, or protection of habitat for fish, plants, or wildlife (e.g., revegetation of disturbed areas with native plant species; stream or river bank revegetation; construction of new, or maintenances of existing fish passage conveyances or structures; restoration or creation of wetlands).
4	<input type="checkbox"/> Routine repair of facilities due to storm damage, including permanent repair, to return the facility to operational condition that meets current standards of design and public health and safety without expanding capacity (e.g., slide repairs, construction or repair of retaining walls).
5	<input type="checkbox"/> Routine seismic retrofit of facilities to meet current seismic standards and public health and safety standards without expansion of capacity.
6	<input type="checkbox"/> Air space leases that are subject to Subpart D, Part 710, title 23, Code of Federal Regulations.
7	<input type="checkbox"/> Drilling of test bores/soil sampling to provide information for preliminary design and for environmental analyses and permitting purposes.

## Categorical Exclusion Checklist

Dist/Co/Rte/PM: 10/SJ/4/R16.0- R19.4      Fed. Aid No. (Local Project): 1016000077      EA/Project No.: 10-1F180

### 2. This section must be completed in order to use a CE under 23 CFR 771.117(c)(26), (c)(27), or (c)(28).

- The action **DOES NOT** include any of the following constraints found in 23 CFR 771.117(e):
- A. • An acquisition of more than a minor amount of right-of-way or that would result in any residential or nonresidential displacements
  - B. • A bridge permit from the U.S. Coast Guard; OR  
• An action that does not meet the terms and conditions of a U.S. Army Corps of Engineers nationwide or general permit under section 404 of the Clean Water Act (i.e., does the project require a Standard 404 permit [Individual Permit or Letter of Permission]?) AND/OR  
• A permit required under Section 10 of the Rivers and Harbors Act of 1899
  - C. • A finding of "adverse effect" to historic properties under the National Historic Preservation Act; OR  
• The use of a resource protected under 23 U.S.C. 138 or 49 U.S.C. 303 (section 4(f)) except for actions resulting in *de minimis* impacts; OR  
• A finding of "may affect, likely to adversely affect" threatened or endangered species or critical habitat under the Endangered Species Act
  - D. • Construction of temporary access or the closure of existing road, bridge, or ramps that would result in major traffic disruptions
  - E. • Changes in access control
  - F. • A floodplain encroachment other than functionally dependent uses (e.g., bridges, wetlands) or actions that facilitate open space use (e.g., recreational trails, bicycle and pedestrian paths); OR  
• Construction activities in, across, or adjacent to a river component designated or proposed for inclusion in the National System of Wild and Scenic Rivers

If the action includes any of the constraints listed above, it **MAY NOT** be processed under 23 CFR 771.117(c)(26), (c)(27), or (c)(28), however, the project may qualify for a CE under 23 CFR 771.117(d)(13).

### 3. Project is a CE for a highway project under NEPA Assignment 23 USC 327.    Yes    No

*(Use only if project does not qualify under CE Assignment 23 USC 326 [activities not included in three previous lists above].)*

### 4. Independent Utility and Logical Termini

- The project complies with NEPA requirements related to connected actions and segmentation (i.e. the project must have independent utility, connect logical termini when applicable, be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made and not restrict further consideration of alternatives for other reasonably foreseeable transportation improvements). (FHWA Final Rule, "Background," *Federal Register* Vol. 79, No. 8, January 13, 2014.)

### 5. Categorical Exclusions Defined (23 CFR 771.117[a]).

FHWA regulation 23 CFR 771.117(a) defines categorical exclusions as actions which:

- do not induce significant impacts to planned growth or land use for the area;
- do not require the relocation of significant numbers of people;
- do not have a significant impact on any natural, cultural, recreational, historic or other resources;
- do not involve significant air, noise, or water quality impacts;
- do not have significant impacts on travel patterns; or
- do not otherwise, either individually or cumulatively, have any significant environmental impacts.

- Checking this box certifies that project meets the above definition for a Categorical Exclusion.

### 6. Exceptions to Categorical Exclusions/Unusual Circumstances (23 CFR 771.117[b]).

FHWA regulation 23 CFR 771.117(b) provides that any action which normally would be classified as a CE but could involve *unusual circumstances* requires the Department to conduct appropriate environmental studies to determine if the CE classification is proper. Unusual circumstances include actions that involve:

- Significant environmental impacts;
- Substantial controversy on environmental grounds;
- Significant impact on properties protected by section 4(f) of the DOT Act or section 106 of the National Historic Preservation Act; or
- Inconsistencies with any Federal, State, or local law, requirement or administrative determination relating to the environmental aspects of the action.

**All of the above unusual circumstances have been considered in conjunction with this project.** (Please select one.)

- Checking this box certifies that **none of the above conditions apply** and that the project qualifies for a Categorical Exclusion.
- Checking this box certifies that **unusual circumstances are involved**. However, the appropriate studies/analysis have been completed, and it has been determined that the CE classification is still appropriate.

## Categorical Exclusion Checklist

**SECTION B:** Compliance with FHWA NEPA policy to complete all other applicable environmental requirements<sup>5</sup> prior to making the NEPA determination:

During the environmental review process for which this CE was prepared, all applicable environmental requirements were evaluated. Outcomes for the following requirements are identified below and fully documented in the project file. **[NOTE: EVERY SECTION BELOW MUST BE COMPLETED, DO NOT SKIP ANY SECTIONS.]**

### FSTIP

The project description on the Categorical Exemption/Categorical Exclusion Form matches the project description in the FSTIP and RTP, and the appropriate page of the FSTIP is in the project file.

### Air Quality

[Air Quality Conformity Findings Checklist](#) has been completed and project meets all applicable AQ requirements.  
 For 23 USC 326 projects which require an air quality conformity determination (this will apply to certain projects under 23 CFR 771.117(c)(22), (c)(23), (c)(26), (c)(27), and (c)(28)), list the date of the Caltrans conformity determination: \_\_\_\_\_  
 For 23 USC 327 projects, list date of FHWA concurrence on conformity determination: \_\_\_\_\_

### Cultural Resources

Section 106 compliance is complete.  Screened Undertaking  
 Select appropriate finding:  No Historic Properties Affected  No Adverse Effect with Standard Conditions  
 No Adverse Effect without Standard Conditions  Adverse Effect/MOA  Phasing/Project PA

### Noise

23 CFR 772  
 Is this a Type 1 project?  Yes  No (skip this section.)  
 Future noise levels with project either approach or exceed NAC or result in a substantial increase.  
 If yes,  Abatement is reasonable and feasible  Abatement is not reasonable or feasible

### Waters, Wetlands

- **Section 404 of the Clean Water Act**  
 Impacts to Waters of the U.S.:  Yes  No; If yes, approval anticipated:  
 Nationwide Permit  Individual Permit  Regional General Permit  Letter of Permission
- **Section 401 of the Clean Water Act**  
 Exemption  Certification  Not Applicable
- **Wetland Protection (Executive Order #11990)**  
 No Wetland Impact  
 Permanent Wetland Impact; Only Practicable Alternative Finding is included in a separate document in the project file

### Biology

- **USFWS, Species List Date: 12/17/19 (must be < 180 days old)**  
 No Effect Section 7 (Federal Endangered Species Act)  
*Consultation with USFWS Findings (Effect determination):*  
 Not Likely to Adversely Affect with USFWS Concurrence. Date: \_\_\_\_\_  
 Likely to Adversely Affect with Biological Opinion Date: \_\_\_\_\_
- **NOAA Fisheries, Species List Date: 12/17/19 (must be < 180 days old)**  N/A: Project outside of NOAA jurisdiction  
 No Effect Section 7 (Federal Endangered Species Act)  
*Consultation with NOAA Fisheries Findings (Effect determination):*  
 Not Likely to Adversely Affect with NOAA Fisheries Concurrence. Date: \_\_\_\_\_  
 Likely to Adversely Affect with Biological Opinion Date: \_\_\_\_\_
- **Essential Fish Habitat (Magnuson-Stevens Act) Findings (Effect determination):**  
 Magnuson-Stevens Fishery Conservation and Management Act does not apply  
 No Adverse Effect  Adverse Effect and consultation with NOAA Fisheries

<sup>5</sup> Please consult the SER for a complete list of applicable laws, statutes, regulations, and executive orders that must be considered before completing the CE.

## Categorical Exclusion Checklist

<b>Floodplains</b>
Floodplains (Executive Order #11988) <input checked="" type="checkbox"/> No Floodplains <input type="checkbox"/> No Significant Encroachment <input type="checkbox"/> Significant Encroachment
<b>Section 4(f) Transportation Act (23 CFR 774)</b>
Section 4(f) regulation was considered as a part of the review for this project and a determination was made: <input checked="" type="checkbox"/> Section 4(f) does not apply <i>(Project file includes documentation that property is not a Section 4(f) property, that project does not use a Section 4(f) property, or that the project meets the criteria for the temporary occupancy exception.)</i> <input type="checkbox"/> Section 4(f) applies <input type="checkbox"/> De Minimis <input type="checkbox"/> Programmatic: Type _____ (List one of the five appropriate categories as defined in 23 CFR 774.3) <input type="checkbox"/> Individual: <input type="checkbox"/> Legal Sufficiency Review complete <input type="checkbox"/> HQ Coordinator Review Complete
<b>Section 6(f) – Properties Acquired with Land and Water Conservation Fund grants</b>
Was the above property purchased with grant funds from the Land and Water Conservation Fund? <input checked="" type="checkbox"/> No, Section 6(f) does not apply. No additional documentation required. <input type="checkbox"/> Yes <input type="checkbox"/> Documentation of approval from National Park Service Director (through California State Parks) has been received for the conversion/and replacement of 6(f) property.
<b>Coastal Zone</b>
Coastal Zone Management Act of 1972 <input checked="" type="checkbox"/> Not in Coastal Zone <input type="checkbox"/> Qualifies for Exemptions <input type="checkbox"/> Qualifies for Waiver <input type="checkbox"/> Coastal Permit Required <input type="checkbox"/> Consistent with Federal State and Local Coastal Plans <input type="checkbox"/> Federal Consistency
<b>Coast Guard – Bridge Over Navigable Waters of the U.S.</b>
<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> 23 USC 144(c) USCG Bridge Permit Exception <input type="checkbox"/> 33 CFR 115.70 Advance Approval <input type="checkbox"/> USCG Bridge Permit
<b>Relocation and Right of Way</b>
<ul style="list-style-type: none"> <li>• <b>Relocations</b>  <input checked="" type="checkbox"/> No Relocations  <input type="checkbox"/> Project involves _____ (#) relocations and will follow the provisions of the Uniform Relocation Act.                 </li> <li>• <b>Right of Way Acquisitions/Easements</b>  <input checked="" type="checkbox"/> No right of way acquisitions or easements  <input type="checkbox"/> Project involves _____ (#) acquisitions and _____ (#) easements.                 </li> </ul>
<b>Hazardous Waste and Materials</b>
<ul style="list-style-type: none"> <li>• Are hazardous materials or contamination exceeding regulatory thresholds (as set by U.S. EPA, Cal EPA, County Environmental Health, etc.) present?    <input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</li> <li>• If yes, is the nature and extent of the hazardous materials or contamination fully known?    <input type="checkbox"/> Yes    <input type="checkbox"/> No</li> </ul> <p>If no, briefly discuss the plan for securing information:</p>
<b>SECTION C: Certification</b>
Based on the information obtained during environmental review process and included in this checklist, the project is determined to be a Categorical Exclusion pursuant to the National Environmental Policy Act and is in compliance with all other applicable environmental laws, regulations, and Executive Orders.
Prepared by (print name): <u>    Kayla Lopez    </u>
Title: <u>    Environmental Planner (Generalist)    </u>
Signature: <u>    , Date:    <u>    1/13/2020    </u></u>

ATTACHMENT J  
RIGHT OF WAY DATA SHEET

**Memorandum**

**To:** Parisa Rasouli Lodge  
Stockton

**Date:** 3/5/2020

**File:** CD 10 EA1F180      **Alt** NA-REV2

**Attn:** Navraj Jammu  
Stockton  
Mason Leung  
Stockton

**Co** SJ      **RTE** 4

**From:** Department of Transportation  
Division of Right of Way Central Region

**DESCRIPTION:**  
**SR-4 RAMP METERING SYSTEM  
INSTALLATION**

**Subject:** RIGHT OF WAY DATA SHEET

We have completed an estimate of the right of way costs for the above-referenced project based on the Right of Way Data Sheet Request Form dated 2/19/2020

**The following assumptions and limiting conditions were identified:**

**Parcels**

The Data Sheet request indicates that all work on this project will occur within the State's right of way, with no additional right of way needed.

**Utility**

Until utility verification and property rights information is received from utility companies, liability split is unknown. It is assumed the State covers all liability at 100%. Mapping provided does not fully delineate existing utilities. Utility verification request has been requested. To determine the depth of underground facilities, Engineer has requested for 100 potholes. This estimate was prepared based on maps provided, and virtual tour with Google Earth.

Right of Way Lead Time will require a minimum 18 months after we receive Certified Appraisal Maps and/or Utility Conflict Plans, obtained necessary environmental clearance and applicable freeway agreements have been approved.

Recommended for approval by:



**JAMES GONZALEZ**  
Office Chief, Central Region Right of Way  
(559)445-6219

**EA: 10-1F180      ALT: NA-REV2**

**General Description of R/W and Excess Lands Required (zoning, use, major improvements, critical or sensitive parcels, etc.):**

The Data Sheet request indicates that all work on this project will occur within the State's right of way, with no additional right of way needed.

**General Description of Utility Involvement:**

Project is located in Stockton, along State Route (SR) 4 between I-5 and SR 99 in San Joaquin County. The project proposes to install Ramp Metering System (RMS), Traffic Monitoring Station (TMS), Closed Circuit Television (CCTV), and synchronize intersection signals with ramp metering. Widening two (2) bridges and three (3) ramp viaducts. Utility permit search has been completed, utility involvement and/or relocation is required, verifications are needed and 100 potholes have been requested.

**General Description of Railroad Involvement:**

At SR4 EB on-ramp at S. Stanislaus St. due to the proximity of the RR tracks flagging maybe required.

Right Of Way Cost Estimate	Current Year 2020	Contingency Rate 25%	Escalation Rate 5%	Escalated Year 2022
Acquisition:	\$0			\$0
Mitigation:	\$0	25%	5%	\$0
State Share of Utilities:	\$538,750	25%	5%	\$593,972
Expert Witness:	\$0	25%	5%	\$0
Relocation Assistance:	\$0	25%	5%	\$0
Demolition and Clearance:	\$0	25%	5%	\$0
Title and Escrow:	\$0	25%	5%	\$0
Ad Signs:	\$0	25%	5%	\$0
<b>Total Current Value:</b>	<b>\$538,750</b>			<b>\$603,972</b>

If RW Cost Est fields are blank, Costs = \$0

NOTE: above estimate includes railroad engineering in the amount of: \$10,000.00

Estimated Construction Contract Work (CCW): R/W LEAD TIME/Mo. 18

Cost Break Down		Parcel Data	
Pot Hole	100,000	# of Parcel Type X:	
# Pot Holes	100	# of Parcel Type A: less than \$10,000 non-complex	
<b>Mitigation</b>		# of Parcel Type B: more than \$10,000 non-complex	
Land		# of Parcel Type C: complex, special valuation	
Bank		# of Parcel Type D: most complex/time consuming	# of Duals Needed:
Permit Fees		<b>Totals:</b>	<b>Totals: 0</b>
<b>Parcel Area</b>		0	
Total R/W Required:			
Total Excess Area:			

# of Excess Parcels:

**Misc R/W Work**

# of RAP Displacements:	0
# of Clearance/Demos:	
# of Const Permits:	
# of Condemnations:	

**RR Involvement**

Railroad Facilities or Right of Way Affected?	Yes
Const/Maint Agreement:	No
Service Contract Count:	1
Right of Entry:	Yes
Clauses:	Yes
Estimated Lead-time:	3 mos

**Utilities**

<input type="checkbox"/> Companies to be potholed
<input type="checkbox"/> Companies for Verification
<input type="checkbox"/> Companies for Utility Relocation
JUA/CCUAs are not needed

Is there a significant effect on assessed valuation:

Were any previously unidentified sites with hazardous waste or material found:

Are RAP displacements required:

# of single family:  # of muliti-family:  # of business/nonprofit:  # of farms:

Sufficient replacement housing will be available without last resort housing:

Are material borrow or disposal sites required:

Are there potential relinquishments or abandonments:

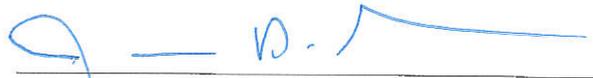
Are there any existing or potential airspace sites:

Are environmental mitigation parcels required:

**Data for evaluation provided by:**

Estimator:	James Summerton	2/24/2020
Railroad Liaison Agent:	Michelle Hernandez	2/28/2020
Utility Relocation Coordinator:	Song Her	2/21/2020

I have personally reviewed this Right of Way Sheet and all supporting information. I find this Data Sheet complete and current, subject to the limiting conditions set forth.

  
 \_\_\_\_\_  
 JAMES GONZALEZ  
 Office Chief, Central Region Right of Way

Date  
 ENTERED PMCS 3/5/2020  
 BY: Nikki Beebe-Pence

Revised: 1/10/2020

### Environmental Division Mitigation and Compliance Cost Estimate (M.C.C.E.)

This MCCE is for: **FED**

Oversight Project:

Dist - Co - Rte - PM: 10-SJ-004-16.000/19.400

EA (Proj ID): 10-1F180\_ (1016000077)

Project Name: SR-4 Ramp Metering System Installation

Alternative #:

Project Manager: LODGE, PARISA RASOULI

Phone Number: (209) 948-7300

MCCE Prepared By: Kayla Lopez

Date: 1/10/2020

Phone Number: 209.932-2358

Resource Item	232/332 Dollars	FY	Acres/Credits	ROW \$ Planned	FY	ROW \$ Actual	Construction 042\$ (BEEs)	FY
Archaeological								
Studies							<input type="checkbox"/>	\$25,000 22/23
Monitoring	\$125,000	22/23					<input type="checkbox"/>	
Hazardous Waste								
PSI	\$25,000	19/20					<input type="checkbox"/>	
Permit Fees								
CDFW Document Filing Fee							<input type="checkbox"/>	
<b>TOTAL</b>	<b>\$150,000</b>			<b>\$50.00</b>				<b>\$25,000</b>

Comments (explanation and risk management plan attached)

Archaeological monitoring includes monitoring for historical resources and Native American Monitoring

Approved By:

  
Environmental Branch Chief

Date: 1/10/20

Right of Way Capital:

  
Right-of-Way Office Chief, Mitigation

Date: 1/10/20

If cultural and biology mitigation totals more than \$500,000:

\_\_\_\_\_  
Environmental Office Chief

Date: \_\_\_\_\_

Submitted to PM on: \_\_\_\_\_ Initial \_\_\_\_\_

ATTACHMENT K  
GEOTECHNICAL RECOMMENDATIONS

# Memorandum

*Making Conservation  
a California Way of Life.*

**To:** Mason Leung  
Central Region PJD, Design IV  
Transportation Engineer, Branch J  
Senior Engineer

**Date:** December 15, 2019

**File:** 10-SJ-4-PM R16.0-19.4  
SR-4 Ramp Metering  
System Installation  
EA: 10-1F180  
ID: 1016000077

Attention: Navraj Jammu

**From:** DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES  
GEOTECHNICAL SERVICES – MS 5

**Subject:** District Preliminary Geotechnical Report for State Route 4 Metering System Installation

## Scope of Work

Per your request, dated July 23, 2019, the Office of Geotechnical Design North (OGD-N) has prepared this District Preliminary Geotechnical Report (DPGR) for this project. The purpose of this report is to provide preliminary geotechnical design and recommendations. Also included in this report are evaluation of geologic hazards, and existing site conditions. The recommendations presented in this report are based on the As-built Log Of Test Borings (LOTBs), draft Layout and Cross Section Plans.

## Project Description

The project is in the city of Stockton at State Route (SR) 4 at Post Mile (PM) R16.0/19.4. The project proposes to install Ramp Metering System (RMS) at eight on-ramp locations, 8 Traffic Monitoring Stations (TMS) on the mainline of SR-4, and 8 Closed Circuit Television (CCTV) cameras. To facilitate these systems, road and ramp widenings and retaining walls are proposed.

## Geotechnical Investigation

There are many As-built LOTBs along SR 4 PM R16.0/19.4. As-built BOTBs include rotary borings and cone penetration borings. The maximum depth of these boring are approximately 80 feet deep.

## **Geotechnical Conditions**

### Geology

The project site lies within California's Great Valley geomorphic province, a Paleozoic age continental margin marine basin filled with Quaternary age erosional sediment from the Sierra Nevada Mountains to the east and Coast Ranges to the west. The Great Valley province includes the Sacramento River Valley to the north and the San Joaquin River Valley to the south, and drains both rivers through the Delta and into Suisun Bay, eventually leading to the Pacific Ocean. The site is situated where the San Joaquin River Valley meets the Sacramento-San Joaquin River Delta. Geologically mapped as Quaternary age Basin Deposits (Qb) of the Great Valley Sequence (CDMG, 1966, Geologic Map of California – San Jose Sheet, 1:250,000), these sediments typically include sand, silt and clay stream and flood plain deposits.

### Subsurface Conditions

Subsurface explorations performed for the Crosstown Freeway Viaduct encountered mostly stiff to very stiff silty clay and clay, and medium dense silt.

### Groundwater

The California Department of Water Resources' Groundwater Information Center Interactive Map Application (<https://gis.water.ca.gov/app/gicima/>) indicates groundwater at a depth of approximately 30 feet (approximate elevation -10 feet). This groundwater data was last updated in the Fall of 2018.

## **Seismicity**

### Ground Motion Parameters

Based on the As-built LOTBs subsurface soil information, the estimated average shear wave velocity ( $V_{s30}$ ) for the upper 100 feet of soil is estimated to be 885 feet/sec (270 m/s). Per the *Caltrans Seismic Design Criteria* (SDC 2.0), the site should be considered as Class S1 soil (formerly known as "competent" soil).

The Peak Ground Acceleration (PGA) for the site is 0.32 g. The earthquake moment magnitude (mean) is 6.4, and the site-to-fault rupture distance (mean),  $r$ , is approximately 19.5 miles.

### Fault Rupture

The fault activity map by the CGS, by C.W. Jennings and W.A. Bryant, updated in 2010 and located on the CGS web site (<http://maps.conservation.ca.gov/cgs/fam/>) shows there is no active fault within 1,000 feet of the site.

According to Memo-To-Designers 20-10, fault rupture analyses will be performed for bridges where any portion of the structure falls within an Alquist-Priolo Earthquake Fault Zone (EFZ) or where any portion of a structure falls within 1,000 feet of an "unzoned" fault (not in an EFZ) that is Holocene or younger in age (ruptured in last 11,000 years). Per EFZ maps, the proposed bridge structure is not located in an EFZ. Therefore, a fault rupture analyses does not appear necessary.

### Liquefaction

Based on the As-built LOTB soil information and the available groundwater information, liquefaction potential appears to be insignificant at the site. Further analyses to determine liquefaction potential will be performed for the Geotechnical Design Report.

## **Geotechnical Design Evaluation**

### Retaining Wall

The proposed Caltrans Standard Plan Type 1 Cases 1 and 3 retaining walls are located on both existing embankments and existing grounds. Based on Caltrans Standard Specifications for embankment soil and the As-built LOTB soil information, the soils have sufficient strength to allow for the Caltrans Standard Plan walls to be used.

### Closed Circuit Television (CCTV)

The proposed Caltrans Standard Plan CCTV poles are located on both existing embankments and existing grounds. Based on Caltrans Standard Specifications for embankment soil and the As-built LOTB soil information, the soils have sufficient strength to allow for the Caltrans Standard Plan CCTV to be used.

Cut Slope

There are proposed cuts of existing embankments shown on Plans X-6 and X-7. The cuts are less than 15 feet high. The recommended cut slope incline for these cuts is no steeper than 2:1 (H:V).

**Additional Field Work and Laboratory Testing**

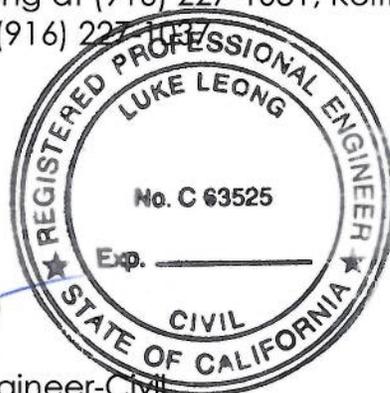
No further geotechnical field subsurface investigation is necessary because there are numerous As-built LOTBs along the project site. Since there is no previous on-site corrosion testing results available, it is recommended that corrosion mitigation measures be provided for this project.

If you have any questions or need further information regarding this report, please contact Luke Leong at (916) 227-1081, Keith Millard at (916) 227-1040, or Qiang (John) Huang at (916) 227-1037.

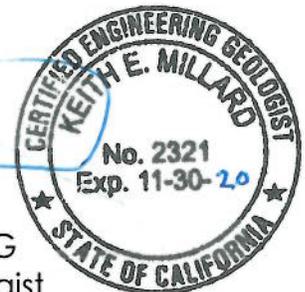
Report by:



LUKE LEONG, P.E.  
Transportation Engineer-Civil  
Office of Geotechnical Design-North



KEITH MILLARD, CEG  
Engineering Geologist  
Office of Geotechnical Design-North



Supervised by:



QIANG (JOHN) HUANG, P.E.  
Senior Materials and Research Engineer  
Office of Geotechnical Design-North



**Report Copy List**

Parisa Lodge – District 10 Project Manager  
Geotechnical Archive (GeoDOG)

**ATTACHMENT L**  
**SHOPP PERFORMANCE REPORT**

SHOPP Project - Accomplishment - Performance Measures - Benefits								
District: 10 Tool ID: 17442 Project ID: 1016000077 EA: 1F180 Co-Rte-PM: SJ-004-16.0/19.4 (Primary Location)								
Res in PID WP: 10/22/15 Project Manager: Parisa Lodge <span style="float: right;"> Save to Excel</span>								
<input type="checkbox"/> Bridge <input type="checkbox"/> Pavement <input type="checkbox"/> Drainage <input type="checkbox"/> Facilities <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Mobility <input type="checkbox"/> Roadside <input checked="" type="checkbox"/> Complete Streets <input type="checkbox"/> Sustainability /Climate Change <input type="checkbox"/> Advance Mitigation/MitigationDamage <input checked="" type="checkbox"/> Major <input checked="" type="checkbox"/> Green-house Gases <input type="checkbox"/> Relinquishment								
Performance & Accomplishments (PPC)								
Activity Detail	Performance Objective	Unit of Measurement	Quantity	Assets in Good Cond	Assets in Fair Cond	Assets in Poor Cond	New Asset Added	Comment
1 CCTV (201.315)	Transportation Management Systems	EA	8.0				8.0	
2 Ramp Meter (201.315)	Transportation Management Systems	EA	8.0				8.0	
3 Complete Streets Not Applicable (3)	No Performance Objective in the SHSMP	3						CS not suitable for project scope
4 Retaining Wall	No Performance Objective in the SHSMP	SF	25617.0				25617.0	
5 Qualitative	No Performance Objective in the SHSMP							use local material within a local radius

**ATTACHMENT M**  
**TRAFFIC OPERATIONS ANALYSIS REPORT**

# Memorandum

*Making Conservation a  
California Way of Life!*

**To:** Parisa Lodge, P.E.  
Program Project Manager  
District 10 Project Management

**Date:** February 28, 2020  
**File:** 10 – SJ - 4 – PM R016.0  
PM R019.4  
**EA:** 10 – 1F180

**From:** Jaime Q. Quesada, P.E.  
District 10 Freeway & Highway Operations Branch  
Division of Traffic Operations

**Subject: SUPPLEMENTAL ANALYSIS: SR 4 RAMP METERING PROJECT BETWEEN THE SR 99 & I-5 CONNECTORS; CROSS-TOWN FREEWAY CORRIDOR**

The District 10 Freeway & Highway Operations Branch has completed the Supplemental Traffic Operations Analysis for the Proposed Ramp Metering Implementation along the SJ 4 Corridor (Cross-Town Freeway) between the SR 99 and I5 Connectors through the City of Stockton. The Supplemental Analysis was performed using updated volumes provided by the District 10 Travel Forecasting Branch on February 13, 2020 (**Attachment B**). The analysis is consistent with the Existing and Future Cross-Town Freeway lane configurations in the eastbound and westbound directions.

The Existing Conditions analysis serves as the baseline for the Opening Year (2023) and Design Year (2038) Analyses. The objective is to calibrate the model to yield Existing Conditions Operations using the traffic data provided by the District 10 Travel Forecasting Branch on February 13, 2020. Once the Existing Conditions model has been calibrated the Opening Year and Design Year Analyses is performed using the forecast traffic data provided by the District 10 Travel Forecasting Branch.

Proposed Ramp Metering Implementation was analyzed for the Opening Year and Design Year scenarios. Revised Traffic data for Existing, Opening Year, and Design Year was provided by the District 10 Travel Forecasting Branch on February 13, 2020. A heavy vehicle assumption of 13% was applied to SR 4 based on available traffic data documented in the Traffic Operations Census Database.

## **BACKGROUND**

The Cross-Town Freeway (SR 4) through the City of Stockton is an east – west freeway that connects the I5 and SR 99 Connectors in San Joaquin County.

SR 4 runs generally through the heart of Downtown Stockton and connects to the Port of Stockton. SR 4 is a six-lane facility with three mixed-flow lanes in each direction and is a high priority route for goods movement between I5 and SR 99 to / from the Central Valley and the Bay Area. The purpose of the operational improvements to the Cross-Town Freeway corridor is to reduce congestion, increase efficiency, and reduce fuel consumption / greenhouse gas emissions along this portion of the SR 4 corridor through the City of Stockton.

## **ANALYSIS METHODOLOGY**

### Ramp Metering – Onramp Storage Calculation Analysis

Onramp Storage calculations were determined using the Design Year (2038) AM & PM Peak Hour volumes with the required storage at each location determined by the higher of the two peak hours. The 7% method was used to calculate ramp storage with no deduction for HOVPL since this project will not construct HOVPL lanes at any of the ramps (**TABLE 5S Attachment C**).

### Ramp Metering – Implementation Justification Analysis Results

Ramp metering has many positive benefits in freeway (corridor) management such as delay reduction, travel time reduction, and operating speed improvement. Ramp metering controls access to the mainline to reduce congestion and mainline delay by breaking up platoons of vehicles from entering the mainline that would otherwise cause friction on the mainline. Reduced friction and improved operating speeds can also reduce vehicle expense, fuel consumption, and emissions by reducing the number of stops and overall delay on the mainline (see **TABLE 4S Attachment A**). Ramp metering also makes merging and diverging maneuvers smooth and controlled by creating gaps in the ramp traffic.

Justification for ramp metering implementation is summarized in **TABLES 3S & 4S** which compare the Opening Day (2023) and Design Year (2035) corridor operations for the EB and WB AM & PM Peak Hours with and without ramp metering. Based on the analysis results it is expected that ramp metering will significantly reduce the corridor delay through the City of Stockton. Once ramp metering implementation had been shown to be justified, the onramp storage was calculated using Design Year (2038) traffic data.

### Corridor Analysis

Corridor Analysis Results were determined using FREQ12 Version 3.01, a macroscopic analysis software, which is capable of corridor analysis and applies procedures / methodologies contained in the Highway Capacity Manual (HCM 2010, Transportation Research Board, 2010). The analysis was performed using the revised mainline and ramp traffic forecast and assumptions approved by

the District 10 Travel Forecasting Branch on February 13, 2020. In freeway analysis, Level of Service (LOS) is a description of a corridor's operation ranging from LOS A (describing low-density with little or no delay) to LOS F (describing high density with long delays). For corridor analysis the LOS is defined in terms of Density (passenger cars / mi / ln). See **TABLE 1**. Additionally, Corridor Analysis Measures of Effectiveness (MOE's) include: Freeway Travel Time (vehicle-ours), Vehicle Miles Traveled (VMT), Average Speed (MPH), Average Density (VPMPL) / LOS, Gasoline Consumed (gallons), and Total Emissions (kg).

**Table 1:** LOS Criteria for Basic Freeway Segments

LOS	Density (pc/mi/ln)
A	≤11
B	>11–18
C	>18–26
D	>26–35
E	>35–45
F	Demand exceeds capacity >45

**ANALYSIS RESULTS**

Existing

An Existing (2018) analysis was performed to develop a baseline model calibrated to current conditions along the Cross-Town Freeway between the SR 99 and I5 Connectors through the City of Stockton. To determine the worst-case scenario, the AM & PM Peak Hour volumes were analyzed in the eastbound and westbound directions. The Ramp Metering Installation Project does not propose to construct HOV Preferential Lanes because of right-of-way restrictions throughout the corridor.

**Table 2S; Attachment A:** The corridor analysis confirmed that the AM and PM Peak Hours operate at unacceptable levels of service in the eastbound and westbound directions (WB SR 4 operates at LOS F in the AM and PM Peak Hour / EB SR 4 operates at LOS E in the AM Peak Hour). The corridor Measures of Effectiveness (MOE's) are consistent with existing observations and data collected from the PeMS database.

Opening Year

An Opening Year (2023; No Build and Build) analysis was performed to determine the projected open to traffic operations along the Cross-Town Freeway between the SR 99 and I5 Connectors through the City of Stockton. To determine the worst-case scenario, the AM & PM Peak Hour volumes were analyzed in the eastbound and westbound directions. The Ramp Metering Installation Project does not propose to construct HOV Preferential Lanes because of right-of-way restrictions throughout the corridor.

**Table 3S; Attachment A:** The corridor analysis projects that the AM and PM Peak Hour operations will be unacceptable (LOS E or F), below Caltrans Standard of LOS D, for the No Build scenario in the EB and WB directions and no additional widening is projected along the Cross-Town Freeway or the connectors to relieve this congestion. The Build condition analysis indicates that the EB and WB directions will operate at acceptable LOS (C to D) during the AM and PM Peak Hours with implementation of the Ramp Metering project. Of particular interest, the Freeway Travel Time (vehicle-hrs), Average Speed (MPH), and Average Density (VPMPL) / LOS generally show improvement with Ramp Metering implementation throughout the Cross-Town Freeway.

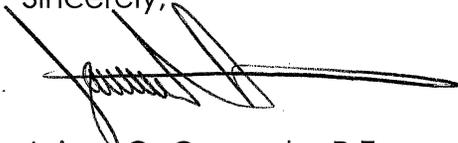
#### Design Year

A Design Year (2035; No Build and Build) analysis was performed to determine the projected 15 year traffic operations along the Cross-Town Freeway between the SR 99 and I5 Connectors through the City of Stockton. To determine the worst-case scenario, the AM & PM Peak Hour volumes were analyzed in the eastbound and westbound directions. The Ramp Metering Installation Project does not propose to construct HOV Preferential Lanes because of right-of-way restrictions throughout the corridor.

**Table 4S; Attachment A:** The corridor analysis projects that the AM and PM Peak Hour operations will be unacceptable with an Average Density greater than 50 VPMPL (LOS F), below Caltrans Standard of LOS D, for the No Build scenario in the EB and WB directions and no additional widening is projected along the Cross-Town Freeway or the connectors to relieve this congestion. The Build condition analysis indicates that the EB and WB directions will still operate at unacceptable LOS E or F during the AM and PM Peak Hours, however, implementation of the Ramp Metering project is expected to reduce the Average Density from 20% to 50% during the peak hours. Additionally, Freeway Travel Time (vehicle-hrs), Average Speed (MPH), Gasoline Consumed (gallons), and Total Emissions (kg) show improvement with Ramp Metering implementation throughout the Cross-Town Freeway.

Please call me at 209-948-7184 if you have any questions regarding this Supplemental Traffic Operations Analysis.

Sincerely,



Jaime Q. Quesada, P.E.

District 10 Freeway & Highway Operations Branch

Attachments:

ATTACHMENT A:  
Analysis Results Summary Tables

ATTACHMENT B:  
District 10 Travel Forecasting Traffic Data and Memo

ATTACHMENT C:  
Ramp Metering Storage Calculations

CC:

Vu H. Nguyen, P.E., T.E., PTOE, Chief District 10 Freeway & Highway Operations Branch  
Eric Chin, P.E., Chief District 10 Project Initiation & Travel Forecasting Branch  
Mason Leung, P.E., Chief District 10 Design Branch  
Navraj Jammu, P.E., District 10 Design Engineer

# **ATTACHMENT A: Analysis Results Summary Tables**

Table 2S: EXISTING 2018 - CORRIDOR ANALYSIS RESULTS SUMMARY

DIRECTION	MOE's	EXISTING
AM PH EASTBOUND (#1)	Freeway Travel Time (VEH-HRS)	510
	Vehicle Miles Traveled (VMT)	20,235
	Average Speed (MPH)	40
	Average Density (VPMPL) / LOS	35 E
	Gasoline Consumed (GAL)	1,210
	Total Emissions (kg)	309
PM PH EASTBOUND (#2)	Freeway Travel Time (VEH-HRS)	465
	Vehicle Miles Traveled (VMT)	17,157
	Average Speed (MPH)	37
	Average Density (VPMPL) / LOS	32 D
	Gasoline Consumed (GAL)	1,047
	Total Emissions (kg)	269
AM PH WESTBOUND (#7)	Freeway Travel Time (VEH-HRS)	1,039
	Vehicle Miles Traveled (VMT)	19,953
	Average Speed (MPH)	19
	Average Density (VPMPL) / LOS	65 F
	Gasoline Consumed (GAL)	968
	Total Emissions (kg)	262
PM PH WESTBOUND (#8)	Freeway Travel Time (VEH-HRS)	1,012
	Vehicle Miles Traveled (VMT)	15,601
	Average Speed (MPH)	15
	Average Density (VPMPL) / LOS	62 F
	Gasoline Consumed (GAL)	1,184
	Total Emissions (kg)	292

(#) Designates the corresponding FREQ output

LOS	Density (pc/mi/ln)
A	≤11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	Demand exceeds capacity >45

Table 3S: OPENING YEAR - 2023 CORRIDOR ANALYSIS RESULTS SUMMARY

DIRECTION	MOE's	NO BUILD	BUILD; NO HOVPL	
AM PH EASTBOUND (#3)	Freeway Travel Time (VEH-HRS)	609	425	30% improvement
	Vehicle Miles Traveled (VMT)	18,365	18,055	2% improvement
	Average Speed (MPH)	30	43	43% improvement
	Average Density (VP MPL) / LOS	41 E	29 D	29% improvement
	Gasoline Consumed (GAL)	1,106	1,117	-1% no improvement
	Total Emissions (kg)	282	296	-5% no improvement
PM PH EASTBOUND (#4)	Freeway Travel Time (VEH-HRS)	744	389	48% improvement
	Vehicle Miles Traveled (VMT)	16,591	16,570	0.1% improvement
	Average Speed (MPH)	22	43	95% improvement
	Average Density (VP MPL) / LOS	47 F	27 D	43% improvement
	Gasoline Consumed (GAL)	1,121	1,192	-6% no improvement
	Total Emissions (kg)	293	332	-13% no improvement
AM PH WESTBOUND (#9)	Freeway Travel Time (VEH-HRS)	1241	480	61% improvement
	Vehicle Miles Traveled (VMT)	19,836	21,257	-7% no improvement
	Average Speed (MPH)	16	44	175% improvement
	Average Density (VP MPL) / LOS	75 F	33 D	56% improvement
	Gasoline Consumed (GAL)	1,447	1,573	-9% no improvement
	Total Emissions (kg)	368	447	-21% no improvement
PM PH WESTBOUND (#10)	Freeway Travel Time (VEH-HRS)	1114	278	75% improvement
	Vehicle Miles Traveled (VMT)	16,433	17,802	-8% no improvement
	Average Speed (MPH)	15	64	327% improvement
	Average Density (VP MPL) / LOS	67 F	20 C	70% improvement
	Gasoline Consumed (GAL)	1,262	1,354	-7% no improvement
	Total Emissions (kg)	311	393	-26% no improvement

(#) Designates the corresponding FREQ output

...above table shows the corridor analysis results with mainline + ramp metering effects...

LOS	Density (pc/mi/in)
A	≤11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	Demand exceeds capacity >45

Table 4S: DESIGN YEAR - 2038 CORRIDOR ANALYSIS RESULTS SUMMARY

DIRECTION	MOE's	NO BUILD	BUILD; NO HOVPL	
AM PH EASTBOUND (#5)	Freeway Travel Time (VEH-HRS)	872	640	27% improvement
	Vehicle Miles Traveled (VMT)	17,983	18,426	-2% <i>no improvement</i>
	Average Speed (MPH)	21	29	38% improvement
	Average Density (VPMPL) / LOS	54 F	43 E	20% improvement
	Gasoline Consumed (GAL)	1,501	1,345	10% improvement
	Total Emissions (kg)	434	377	13% improvement
PM PH EASTBOUND (#6)	Freeway Travel Time (VEH-HRS)	1,100	725	34% improvement
	Vehicle Miles Traveled (VMT)	16,626	18,334	-10% <i>no improvement</i>
	Average Speed (MPH)	15	25	67% improvement
	Average Density (VPMPL) / LOS	65 F	46 F	29% improvement
	Gasoline Consumed (GAL)	1,631	1,406	14% improvement
	Total Emissions (kg)	477	396	17% improvement
AM PH WESTBOUND (#11)	Freeway Travel Time (VEH-HRS)	1,675	1,128	33% improvement
	Vehicle Miles Traveled (VMT)	17,674	21,645	-22% <i>no improvement</i>
	Average Speed (MPH)	11	19	73% improvement
	Average Density (VPMPL) / LOS	96 F	72 F	25% improvement
	Gasoline Consumed (GAL)	2,169	2,026	7% improvement
	Total Emissions (kg)	647	610	6% improvement
PM PH WESTBOUND (#12)	Freeway Travel Time (VEH-HRS)	1,765	669	62% improvement
	Vehicle Miles Traveled (VMT)	15,126	19,923	-32% <i>no improvement</i>
	Average Speed (MPH)	9	30	233% improvement
	Average Density (VPMPL) / LOS	94 F	45 E	52% improvement
	Gasoline Consumed (GAL)	1,900	1,725	9% improvement
	Total Emissions (kg)	545	505	7% improvement

(#) Designates the corresponding FREQ output

...above table shows the corridor analysis results with mainline + ramp metering effects...

LOS	Density (pc/ml/in)
A	≤11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	Demand exceeds capacity >45

**ATTACHMENT B:  
District 10 Travel Forecasting  
Traffic Data & Memo**

State of California  
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

*Serious drought.  
Help Save Water!*

To: Vu H Nguyen

Attention: Jaime Quesada

Date: Feb 13, 2020

From: DISTRICT 10 PLANNING – PROJECT INITIATION & TRAVEL FORECASTING

EA/E-FIS: 1F180 /1016000077 County: San Joaquin Route: 4 PM: R16.0/R19.4

Project Description: SR-4 Ramp Metering System Installation

**DATA TRANSMITTED**  
**Design Year Period 2023 to 2038**

**MAINLINE & RAMPS VOLUMES**

Attachments X

Attached three sheets contain Existing (2018), Construction Year (2023) & Future Year (2038) traffic volumes.

**REMARKS**

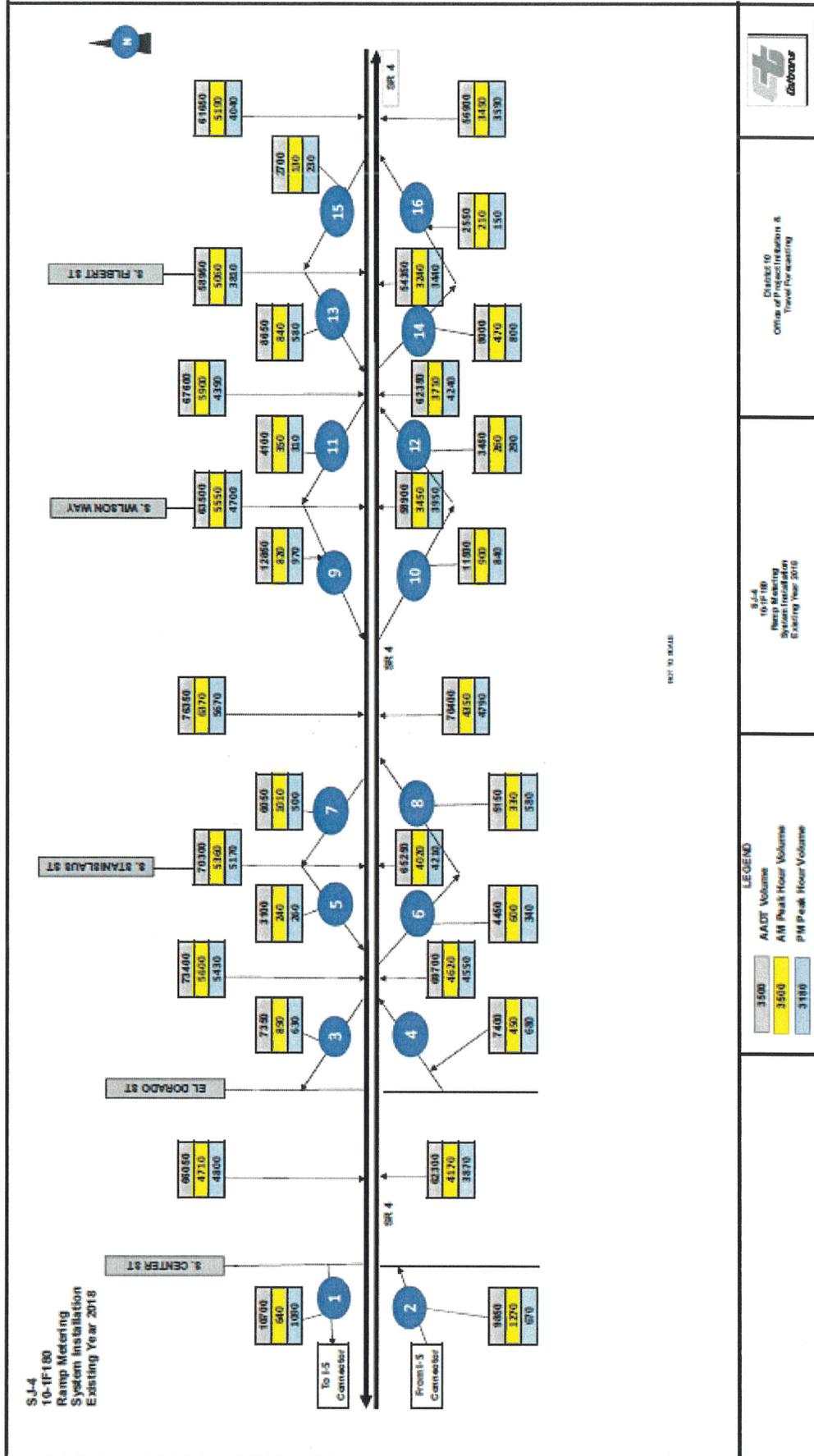
Data Prepared by: Tri Nguyen & Franklin Cai  
Field Count Date (If Any): Field Count on September 2018  
Three-county (SJCOC, SanCOG, MCAG) 2018 traffic model, 2017 Caltrans Traffic Volumes book, and PeMS count data considered for this project.

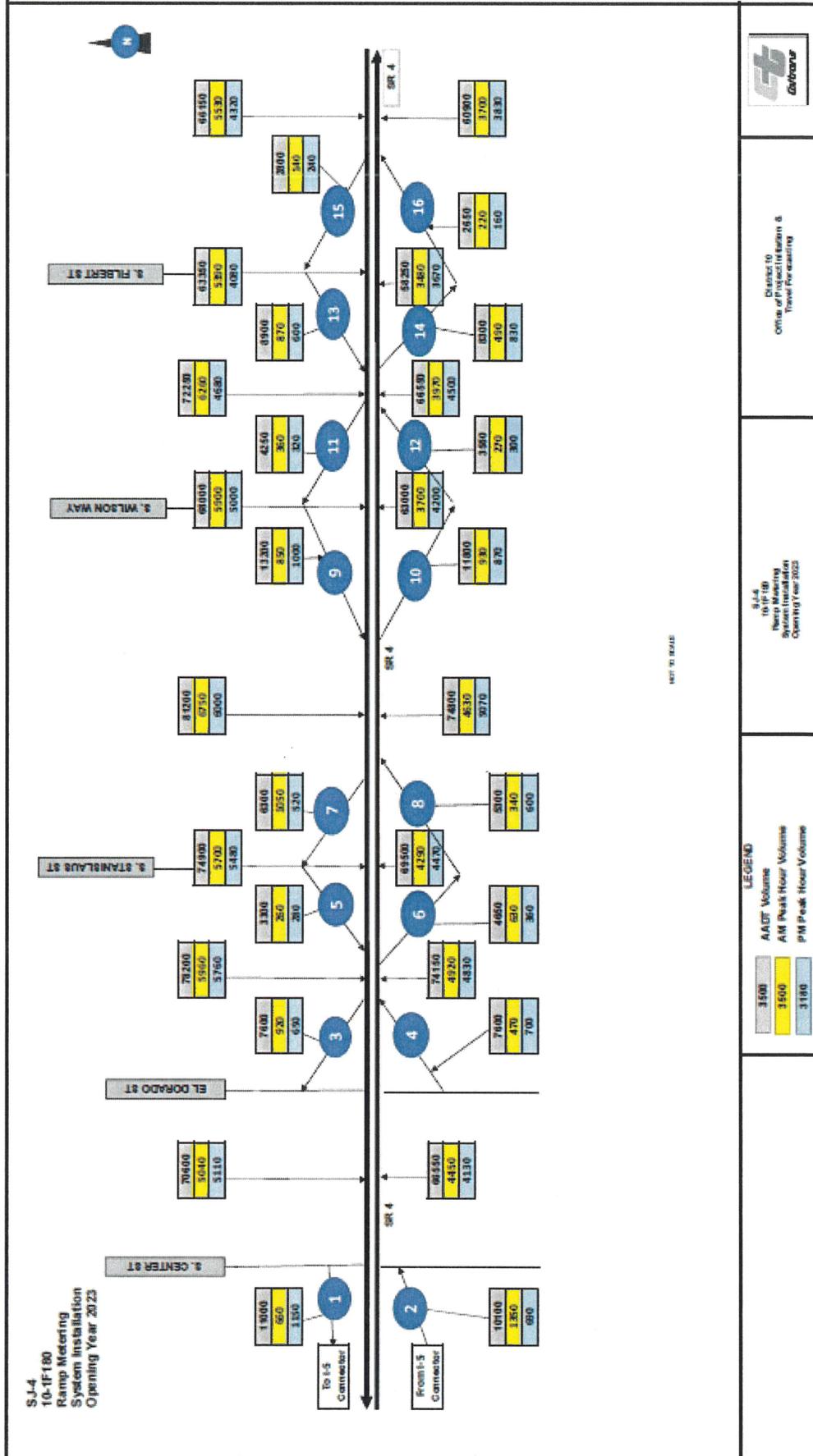
*Note: Forecasting methodology for this project used multiple sources of data and information, one of them being a Travel Demand Model (TDM). Most TDM's used by District 10 Project Initiation & Travel Forecasting/Analysis Department are created primarily in accordance with conformity to Regional Transportation Plan (RTP) and Air Quality in a financially constrained environment. All TDM's used for these purposes are not produced by District 10 but by local transportation planning agencies represented within the boundaries of District 10. A Traffic Index (TI) and Design Designation (DD) is used to assist in determining only the structural section depth, not capacity, of a particular roadway. Therefore, a forecast in accordance with RTP/Air Quality Conformity is not necessarily required.*

Transmitted By: Tri Nguyen

Data Prepared By: Tri Nguyen & Franklin Cai for

Eric Chin, PE *ESC*  
Chief, Office of Project Initiation  
& Travel Forecasting







# **ATTACHMENT C: Ramp Metering Storage Calculations**

**TABLE 5S: SJ 4 RAMP METERING PROJECT FOR PA&ED; EA 1F180**

**TOTAL ON-RAMP STORAGE CALCULATIONS USING REVISED PEAK HOUR FORECASTED 2038 VOLUMES**

Location	2038 Volume (veh / hr)	*Total Required Storage with HOVPL (ft)	**Total Required Storage with NO HOVPL (ft)
SR 4 - WB Center Street Onramp	1,250	2,155	2,540
SR 4 - EB Center Street Onramp	760	1,310	1,545
SR 4 - WB Stanislaus Street Onramp	330	570	670
SR 4 - EB Stanislaus Street Onramp	650	1,120	1,320
SR 4 - WB Wilson Way Onramp	1,100	1,900	2,235
SR 4 - EB Wilson Way Onramp	330	570	670
SR 4 - WB Filbert Street Onramp	650	1,120	1,320
SR 4 - EB Filbert Street Onramp	170	295	345

*\*Required Storage with HOVPL based on 7% calculation, 15% HOV Bypass; and 29 ft average vehicle length*

*\*\*Required Storage with NO HOVPL based on 7% calculation and 29 ft length of vehicle; no 15% credit for HOVPL bypass*

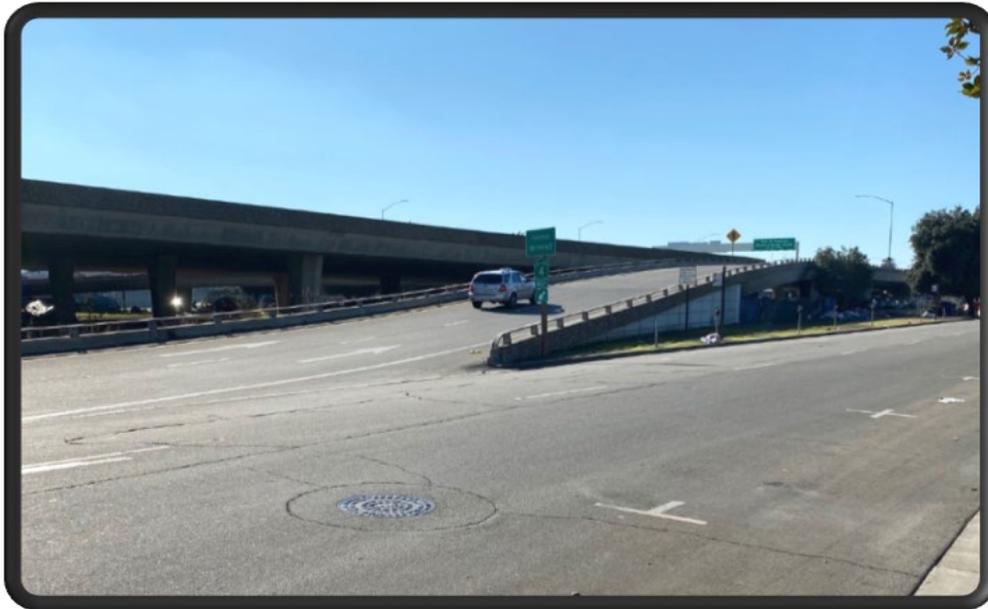
$$Total\ Storage = \frac{[(2038\ volume) - (2038\ volume)(0.15)](0.07)(length\ of\ vehicle)}{1}$$

ATTACHMENT N  
VALUE ANALYSIS SUMMARY REPORT

# VA Study Summary Report – Preliminary Findings

## D-10 SR-4 Ramp Metering

10-SJ-4  
PN 1016000077  
(PM R16.0/R19.4)



A Value Analysis (VA) study, sponsored by California Department of Transportation and facilitated by Value Management Strategies, Inc., was conducted for D-10 State Route 4 (SR-4) Ramp Metering in Stockton, CA. The VA study was conducted January 6-10, 2020. This *VA Study Summary Report – Preliminary Findings* provides an overview of the project, key findings, and the alternatives developed by the VA team.

***Note to reviewer: This is a summary of the VA study results. Please contact the DVAC if you would like a copy of the entire Preliminary VA Study Report with the detailed VA alternatives.***

### PROJECT SUMMARY

The project proposes to implement ramp metering at on-ramps between Interstate 5 (I-5) and SR-99 on SR-4. The project will install ramp metering systems (RMS) at Eastbound (EB) Filbert St., Westbound (WB) Filbert St., EB East Lafayette St., WB S. Wilson St., EB S. Stanislaus St., WB S. Stanislaus St., EB El Dorado St., and WB S. Center St. All locations except for EB and WB Filbert St. will be widened to accommodate California Highway Patrol (CHP) pullouts and Maintenance Vehicle Pullouts (MVP). Inductive loop detectors will be installed at the on-ramps, SR-4, and on local streets for the City of Stockton to operate traffic signals. Additionally, eight Close Circuit Televisions (CCTV) will be placed at the eight on-ramp locations.

Although not part of this project, another element of installing the RMS on SR-4 includes restriping streets within the City of Stockton to provide additional storage capacity and coordinate City lights with the on-ramp traffic. This work is in early discussions with the City and is not within the scope of this project as currently programmed.

The estimated project cost at the time of the VA Study was \$33,433,000.

## PROJECT PURPOSE AND NEED

The purpose of this project is to reduce traffic congestion and improve traffic flow during AM and PM peak hours on SR-4 between I-5 and SR-99 in the City of Stockton by using RMS.

This project is needed because this segment of SR-4 between I-5 and SR-99 is a six-lane freeway currently experiencing high traffic volumes. This segment serves local traffic within the City of Stockton, commuter traffic generated by Lodi and Galt communities commuting to the Bay Area, and interregional traffic. A significant number of drivers prefer this route because it creates the shortest direct link connecting I-5 and SR-99 within San Joaquin County. However, this results in congestion on SR-4 in both directions, especially at the connectors of SR-4/I-5 and SR-4/SR-99 during AM and PM peak hours.

## VA STUDY TIMING

The VA study was conducted in the PA&ED phase which is to be completed in March 2020. The project is scheduled for Ready to List (RTL) in January 2023.

## VA STUDY OBJECTIVES

The objectives of the VA study were to:

- Analyze the current project design, estimate, and schedule
- Provide possible cost and/or schedule saving recommendations
- Provide performance improvement recommendations

## KEY PROJECT ISSUES

The items listed below are the key drivers, constraints, or issues being addressed by the project and considered during this VA study to identify possible improvements.

- **Cultural Resources** - At the time of the VA study, Environmental was researching potential impacts to cultural resources near the Mormon Slough.
- **Government Parking** – The City of Stockton currently has parking under SR-4 for police and government vehicles near S. Stanislaus St. and San Joaquin St. Construction of this project could impact the number of parking spaces available both during construction and after the project is complete.
- **Unable to Purchase Additional R/W** – At the time of the VA study, the environmental document was being prepared without additional right of way. Any additional right of way acquisitions could require a new environmental document with a larger scope.
- **Potential Coordination with Railroads** – The work being performed near S. Stanislaus St. may require railroad coordination due to the proximity to railroad.

- **Challenges with Loop Detector Installation on Structures** – Conductive loop detectors require removing approximately four inches of concrete to provide the depth needed for the loops. Removing four inches of structural decking could be both time consuming to install and detrimental to the long-term maintainability of the structural sections in this project.
- **Unknown Utility Impacts** – At the time of the VA study, the utility impacts were unknown and there could be utility relocation needed to accommodate the project.
- **Arena Traffic** – Due to the close proximity to Stockton Arena, this project may need to accommodate event traffic during construction. Additionally, this could increase complexity for the traffic management during construction.

## EVALUATION OF BASELINE CONCEPT

During the course of the VA study, a number of analytical tools and techniques were applied to develop a better understanding of the baseline concept. A major component of this analysis was Value Metrics which seeks to assess the elements of cost, performance, time, and risk as they relate to project value. These elements required a deeper level of analysis, the results of which are detailed in the *Project Analysis* section of this report. The key performance attributes identified for the project are listed in the table, “Performance Attributes.”

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### Performance Attributes

Mainline Operations  
 Maintainability  
 Local Operations  
 Construction Impacts  
 Environmental Impacts

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The initial evaluation of the current or baseline design by the stakeholders determined that it addresses the mainline traffic concerns, and while it fulfills the purpose and need of the project, it may not function as intended without the initially designed changes to the City of Stockton’s streets and nearby street light coordination. Although the VA team felt that Local Operations and Construction Impacts could use improvement, the other three performance attributes scored higher than typical projects of this nature and prove that a great deal of work and effort have been applied to the current design. The proposed project should also improve upon the future operation of the mainline’s traffic management by providing improved traffic flow and detection capabilities. The construction of the base project is expected to cause a moderate level of traffic disruption over the 24 months of construction due to the work occurring on the on-ramps and from the adjacent streets. Maintainability is standard for the type of assets being installed in this project; however, there is limited space for maintenance activities at several locations. Environmental Impacts are expected to be minimal.

The overall conclusion of the stakeholders present was that this baseline design was good and addressed many of the key concerns admirably; however, there is still room for potential project value improvement, especially with regard to the need for increasing on-ramp widths at several high-cost locations.

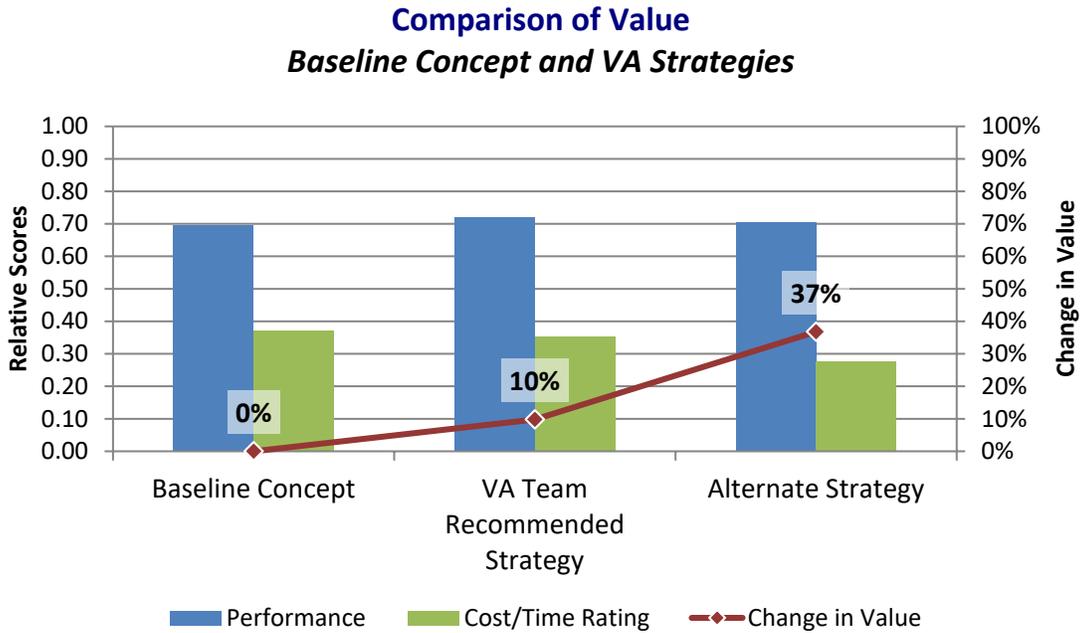
## VA ALTERNATIVES

The VA team developed six alternatives for improvement of the project. The following are the alternatives identified, along with their associated potential initial cost, potential change in schedule, performance change, and a brief discussion of each. Please note that because the cost data depicted below represent *savings*, a number in parentheses represents a cost *increase*.

Alternative No. and Description	Initial Cost Savings	Change in Schedule	Change in Performance
<b>1.1 Place cabinets off of bridge and monitor traffic with CCTV to reduce MVP-required bridge widening at five structures</b>	<b>\$8,980,000</b>	<b>6-month reduction</b>	<b>-1 %</b>
The main benefits of this idea are that it reduces structure cost and construction time; however, it complicates maintenance activities and CHP enforcement at on-ramps because of the elimination of pullouts.			
<b>1.2 Eliminate all bridge widening from project</b>	<b>\$15,930,000</b>	<b>18-month reduction</b>	<b>-8 %</b>
The main benefits of this idea are that it reduces significant construction cost and time; however, this idea does not provide access to ramp for CHP or maintenance pullout.			
<b>1.3 Eliminate CHP pullouts at El Dorado, EB Stanislaus, and WB Stanislaus</b>	<b>\$3,010,000</b>	<b>0.5-month reduction</b>	<b>+2 %</b>
The main benefit of this alternative is that it reduces construction cost; however, this will eliminate CHPs ability to enforce ramp metering.			
<b>2.0 Keep existing retaining walls at WB S. Wilson and Madison UC construct a new adjacent retaining walls</b>	<b>\$150,000</b>	<b>No change</b>	<b>+1 %</b>
The main benefit of this alternative is that it reduces construction cost; however, this complicates backfilling of the retaining walls because it creates a small space between the walls that will need to be backfilled.			
<b>3.0 Eliminate the ramp "count" loop detectors that are located on the structures</b>	<b>\$25,000</b>	<b>No change</b>	<b>+2 %</b>
The main benefit of this idea is that it reduces the number of loops that will need to be installed in bridge decking; however, it reduces the ramp metering system's redundancy.			
<b>4.0 Place controller cabinet and MVP next to signal cabinet at EB Filbert on-ramp</b>	<b>(\$110,000)</b>	<b>No change</b>	<b>No change</b>
The main benefit of this idea is that it provides a protected cabinet location where a maintenance vehicle pullout could easily be constructed; however, this idea adds cost to the project to construct the MVP.			

## VA STUDY RESULTS

A summary of the VA strategies (combinations of VA alternatives) is provided in the following chart and table. This chart illustrates the relative trade-offs between performance (shown by the blue columns) versus cost and schedule (shown by the green columns). The red value line indicates the net % change in total value relative to the baseline concept. Please refer to the *Project Analysis* section of this report for additional details on this analysis.



### Summary of VA Strategies

Strategy Description	Initial Cost Savings	Change in Performance	Value Change
VA Team Recommended Strategy <i>Alternatives 1.3, 2.0, 3.0, 4.0</i>	\$3,075,000	+4 %	+10 %
Alternate VA Strategy <i>Alternatives 1.1, 2.0, 3.0, 4.0</i>	\$9,045,000	+1 %	+37 %

## VA TEAM

### VA Study Team

Name	Organization	Title
Joshua Neri	Caltrans	Ramp Metering
Stephen Pozzo	Caltrans	Structure Construction
Greg Jones	Caltrans	Structures Design
Corey Casey	Caltrans	Construction
Scott Uch	Caltrans	Design
Fred Kolano	VMS, Inc.	VA Team Leader
Dalton LaBoskey	VMS, Inc.	VA Assistant Team Leader

### Key Project Contacts

Name	Organization	Title
Bob Johnson	Caltrans	Central Region VA Coordinator
Parisa Lodge	Caltrans	Project Manager
Navraj Jammu	Caltrans	Design PE