ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT
SCL-17 CAPM – Pavement Rehabilitation (EA 04-1J970)

Resolution SHOPP-P-1819-11B
(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 *SCL-17 CAPM – Pavement Rehabilitation (EA 04-1J970)*, effective on, 3-14-19 (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 March 22, 2018 meeting the Commission approved the State Highway Operation and Protection Program, and included in this program of projects the *SCL-17 CAPM – Pavement Rehabilitation (EA 04-1J970)*, 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-18-13, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated March 22, 2018
- ☐ 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

SCL-17 CAPM - Pavement Rehabilitation (EA 04-1J970)

Resolution SHOPP-P-1819-11B

for

Tony Tavares
District 4 Director
California Department of Transportation

1-17-19
Date

Laurie Berman
Director
California Department of Transportation

3/1/19
Date

Susan Bransen
Executive Director
California Transportation Commission

3/19/19
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 | **Date:** 02/26/19 01:28:19 PM

District	EA	Project ID	PPNO	Project Manager
04	1J970	0414000404	1480B	PETERSON II, JOHN E

County	Route	Begin Postmile	End Postmile	Implementing Agency	
SCL	17	2.8	13.9	PA&ED	Caltrans
				PS&E	Caltrans
				Right of Way	Caltrans
				Construction	Caltrans

Project Nickname

SCL 17 CAPM

Location/Description

In and near Los Gatos, Campbell and San Jose, from Hebard Way to Route 280. Pavement rehabilitation.

Legislative Districts

Assembly:	28	Senate:	15	Congressional:	18

PERFORMANCE MEASURES

	Primary Asset	Good	Fair	Poor	New	Total	Units
Existing Condition	Pavement	1.53	46.73	1.74		50	Lane-miles
Programmed Condition	Pavement	50				50	Lane-miles

Project Milestone	Actual	Planned
Project Approval and Environmental Document Milestone	10/10/18	
Right of Way Certification Milestone		01/17/20
Ready to List for Advertisement Milestone		01/27/20
Begin Construction Milestone (Approve Contract)		07/15/20

FUNDING (Allocated amounts are shaded)

Component	Fiscal Year	SHOPP					Total
PA&ED	16/17	2,400					2,400
PS&E	17/18	2,750					2,750
RW Support	18/19	175					175
Const Support	19/20	3,150					3,150
RW Capital	19/20	20					20
Const Capital	19/20	30,141					30,141
Total		38,636					38,636

04 - SCL - 17 – PM 2.8/13.9
EA 04-139700 – 0414000404 – 14930
SHOPP 201.121 – CAPM
August/2018

Capital Preventive Maintenance Project Report

For Project Approval

On Route: 17

Between 0.1 mile north of Hebard Road

And Route 17/280 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:

Mark L. Weaver, Deputy District Director
Right of Way and Land Surveys

APPROVAL RECOMMENDED:

John Peterson, Project Manager

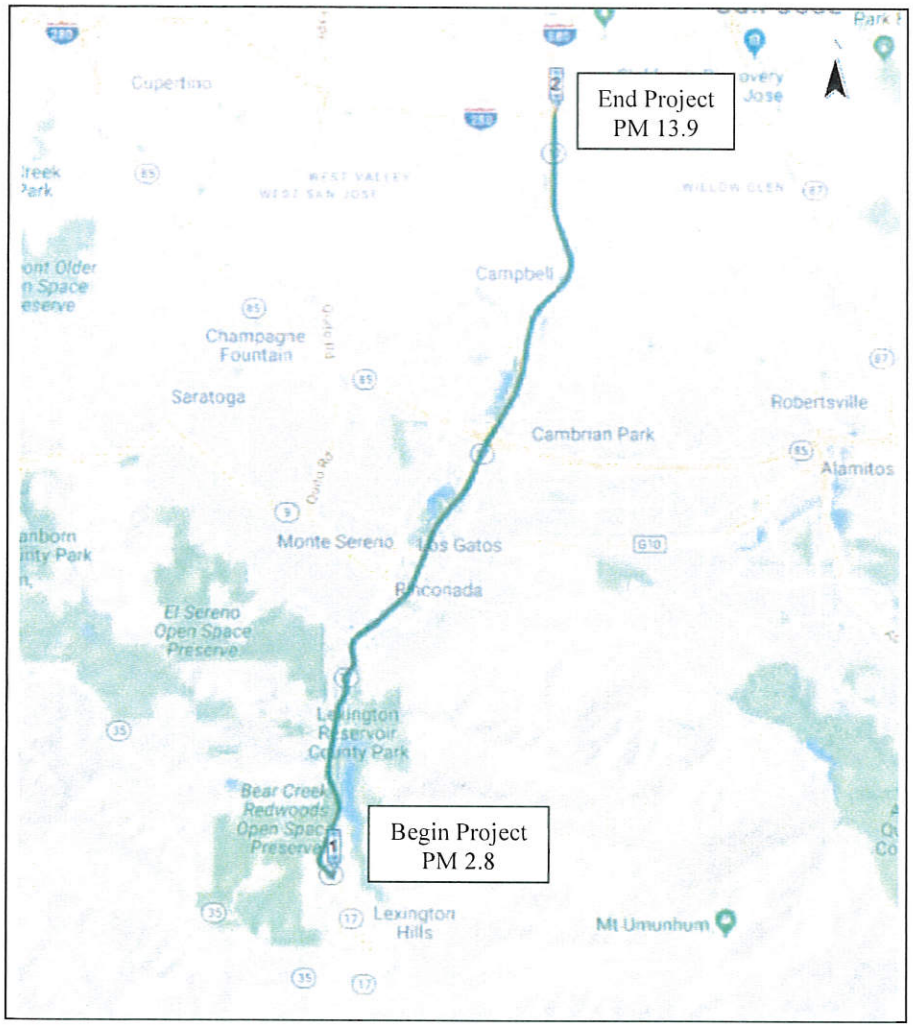
"Tom" Tung Ly, Office Chief, Design Santa Clara

PROJECT APPROVED:

Helena (Lenka) Culik-Caro
Deputy District Director, Design

10/10/2018
Date

Vicinity Map



Route 17 from 0.1 mile north of Hebard Road to Route 17/280 Separation

0414000404 04-1J970

SB1 SHOPP PROJECT BASELINE AGREEMENT

ATTACHMENT B

Project Report

04 - SCl - 17 – PM 2.8/13.9
EA 04-1J9700 – 0414000404 – 1480B
SHOPP 201.121 – CAPM
August/2018

Capital Preventive Maintenance Project Report

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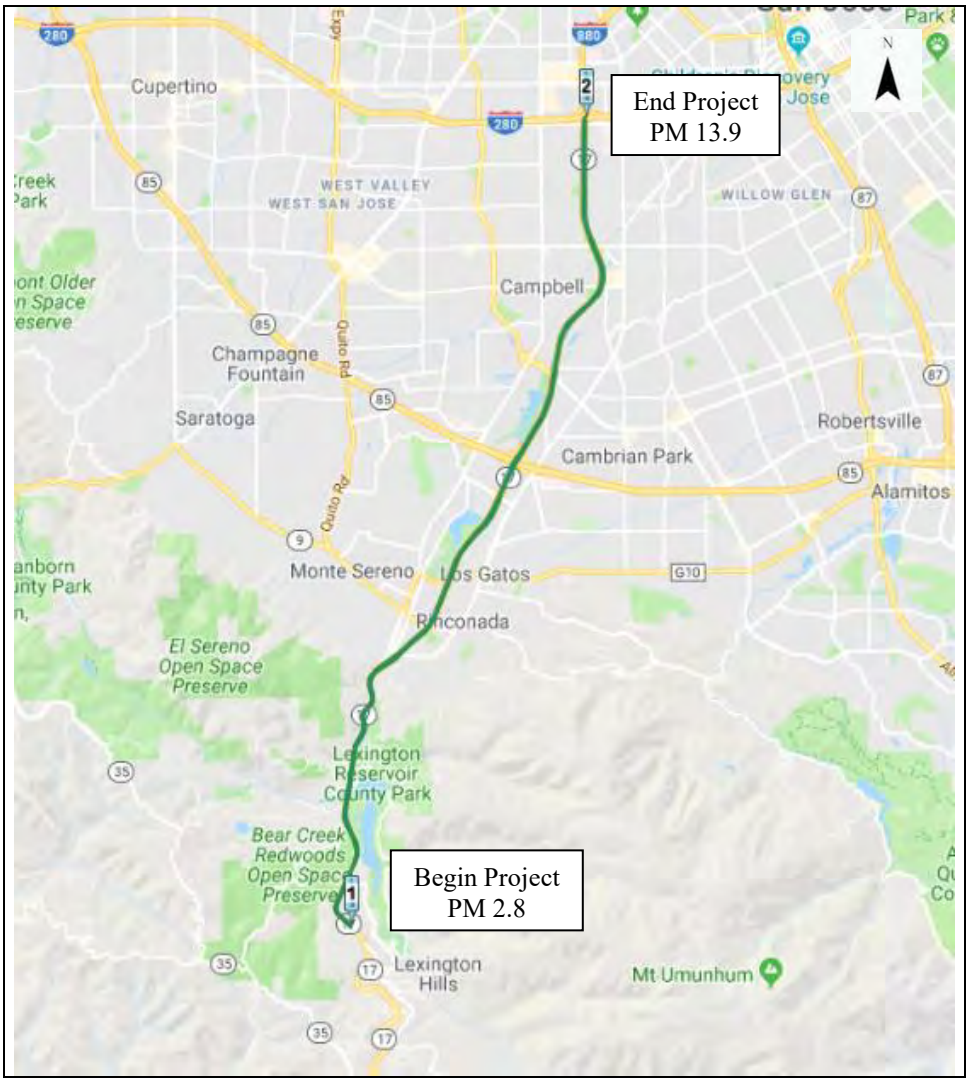


Route 17 from 0.1 mile north of Hebard Road to Route 17/280 Separation

This capital preventive maintenance 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.

Peter Lac — *REGISTERED CIVIL ENGINEER*

8/29/18 — *DATE*

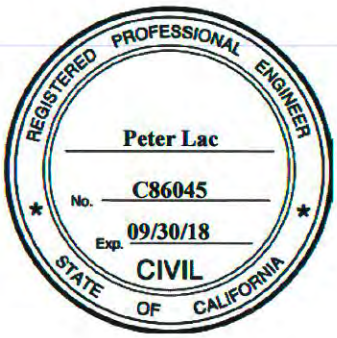


Table of Contents

1. INTRODUCTION

Project Description:

The proposed project is in Santa Clara County on State Route (SR) 17. The project limits extend from 0.1 mile north of Hebard Road (post mile [PM] 2.8), to the Route 17/280 Separation (PM 13.9) (see Attachment A for project title sheet).

The scope of work for this Capital Preventive Maintenance (CAPM) project mainly consists of cold planing existing pavement and overlaying it with rubberized hot mix asphalt, replacing select slabs with precast jointed concrete pavement to improve ride quality, and upgrading to Americans with Disabilities Act (ADA) curb ramps at 42 existing and 4 new locations.

The project scope of work also includes the following incidental work within the project limits:

- Replacement of loop detectors
- Modification of signals at several intersections
- Upgrade of metal beam guard railing to the current Midwest Guardrail System (MGS) standard and crash cushion
- Installation of rumble strips and safety striping
- Improvements to drainage and dikes
- Use of compaction grouting to mitigate settlement

The following table lists some of the key features of the project.

Project Limits	04 - SCl - 17 – PM 2.8/13.9	
	Current Cost Estimate:	**Escalated Cost Estimate:**
Capital Outlay Support*	$11,225,000	$11,225,000
Capital Outlay Construction*	$49,343,700	$53,133,962
Capital Outlay Right-of-Way*	$52,800	$54,600
Funding Source	SHOPP 20.XX.201.121	
Funding Year	2019/20	
Type of Facility	Conventional highway/freeway (4 to 8 lanes)	
Number of Structures	0	
SHOPP Project Output	50 lane-miles, 46 curb ramps	
Environmental Determination or Document	Categorical Exemption / Categorical Exclusion (CE/CE)	
Legal Description	In and near Los Gatos, Campbell and San Jose, from Hebard Road to Route 280.	
Project Development Category	Category 5	

Notes:
CE/CE =Categorical Exemption (CEQA) / Categorical Exclusion (NEPA)
CEQA = California Environmental Quality Act
NEPA = National Environmental Policy Act
PCR = Project Change Request
PM = post mile
PS&E = Plans, Specifications, and Estimate
SHOPP = State Highway Operation and Protection Program
SCl = Santa Clara County

*The Capital Outlay Support, Construction, and Right-of-Way costs are estimates. The programmed amounts are $8,475,000, $30,141,000, and $20,000, respectively. A PCR have been processed to address the increase.

2. RECOMMENDATION

It is recommended that this CAPM project report be approved and that the project proceed to the Plans, Specifications, and Estimate (PS&E) phase.

3. PURPOSE AND NEED

Purpose
The purpose of this CAPM project is to preserve and extend the service life of the existing pavement and improve ride quality.

Need
The need for the project was established by the results of the Pavement Condition Survey (PCS) (see Attachment B) for this section of the road. The PCS results were

Pavement Management System (PMS) priority number 5, which characterizes the road as having minor pavement distress and poor ride quality. If left uncorrected, the roadway condition would deteriorate to levels that might require major roadway rehabilitation.

Modifications from the Project Initiation Report:

The Project Initiation Report (PIR) for this project was approved on April 6, 2015. The PIR proposed to repair a northbound shoulder slip-out at PM 4.35 with grout injection.

During the Project Approval and Environmental Document (PA&ED) phase, repair of storm damage at the Campbell Avenue approach slabs (see Attachment C) and embankment settlement at the southbound Bear Creek Road off-ramp (see Attachment D) was added to the project scope. The project scope of work for the previously identified drainage improvements and the electrical items was also increased.

The added scope of work for drainage improvements increased the cost from $1,800,000 (as described in the PIR) to $7,100,000. Similarly, the added scope of work for electrical items increased the cost from $91,000 (as described in the PIR) to $2,130,000.

4. EXISTING FACILITY, DEFICIENCIES AND TRAFFIC DATA

4A. Roadway Geometric Information

Facility Location (Post Mile Limits)	Min Curve Radius (ft)	Through Traffic Lanes			Paved Shoulder Width		Median Width (ft)	Additional Paved Width for Bicycle Lane or Other (ft)
		Number of Lanes	Lane Width (ft)	Type (Flexible, Rigid, or Composite)	Left (ft)	Right (ft)		
2.8/13.9	N/A	2 to 4*	12	Flexible/ composite	0 to 16	0 to 10	2 to 46	0

Notes:
N/A = not applicable
*Divided highway consisting of two to four lanes in each direction and auxiliary lanes.

Nonstandard Design Features

No new nonstandard features are proposed. The following existing nonstandard features will be maintained: stopping sight distance, superelevation, horizontal alignment and grade, lane width, shoulder width, median width, cross slopes, side

slopes, horizontal and vertical clearance, and ramp entrance and exit standards.

Upgrading the roadway to provide for standard features would require roadway widening and roadway realignment, which would necessitate additional environmental impacts and it would be cost prohibitive. Per CAPM Design Information Bulletin (DIB) 81-01 Guidelines, in order for this project to be consistent with the scope of intent of the CAPM 121 Program, it will maintain the existing geometric features.

The accident history for this stretch of SR 17 from PM 2.8 to PM 13.9 in Santa Clara County has been examined for the latest available three years (from 1/1/2014 to 12/31/2016). Accident data from Traffic Accident Surveillance and Analysis System (TASAS) indicates the actual fatal accident rate and the actual total accident rate are lower than the average fatal and total accident rates.

As such, these nonstandard design features will be maintained. This determination was made based on, but not limited to evaluation of latest TASAS data, maintaining the project scope as this SHOPP project is programmed as a CAPM project, consideration of the existing horizontal and vertical roadway features, and consideration of corridor context.

4B. Condition of Existing Facility

1) Traveled Way Data

Pavement Management System (PMS) Category (1–29): 5

Priority classification (0.1–0.4): 0.3

International Roughness Index (IRI): 60–271

*Rigid Pavement: *Flexible Pavement:

* From latest PMS-Pavement Condition Inventory Survey Data.

3rd Stage Cracking %	N/A	Alligator B Cracking %	0–19%
Faulting	N/A	Patching %	N/A
Joint Spalls	N/A	Rutting	Yes
Pumping	N/A	Bleeding	None
Corner Breaks %	N/A	Raveling	None

Location(s) of subsurface or ponded surface-water problem:

Drainage improvements will be implemented throughout the project limits. Specifically, the scuppers under the median barrier at the south end of the project limits are partially blocked from a previous overlay project.

2) Pedestrian Facility Data

Pedestrian Facilities

Facility Type and Location(s): (*Station, post mile or other reference point)*	**Meets ADA Standards?** *(Yes or No for each listed location)*	**If Facility does not meet ADA Standards, what feature(s) are not ADA compliant?** (*List features per location)*	**Status of Each Noncompliant Location** Use the following statements, as appropriate: • *Will be corrected as part of this project;* • *Will not be corrected to full standard. An Exception to Accessibility Design Standards had been approved.*
Curb ramps: (*See Attachment E for locations)*	No	Missing DWS, ramp slope	Will be corrected as part of this project
Others: (*List locations as appropriate))*	—	—	—

Notes:
ADA = Americans with Disabilities Act
DWS = detectable warning surface
— = not applicable

Remarks:

The PIR initially proposed to upgrade 36 existing and 4 new curb ramps to ADA standards. However, it was determined that one of the existing curb ramps at the Lark Avenue southbound off-ramp is completely outside of the State of California (State) right-of-way; therefore, it was removed from the project, leaving 35 existing curb ramps for the project. Seven (7) island passage locations were not included in the PIR, but they have been added to the project, so 42 existing curb ramps and 4 new curb ramps will be updated to ADA standards as part of the project.

Bicycle Facilities

Bicyclists are permitted roadway users on SR 17 from PM 0 to PM 7.8 in the northbound direction and from PM 0 to PM 6.2 in the southbound direction. For locations where rumble strips will be installed adjacent to bicycle facilities, the rumble strip will be placed as per Pedestrian and Bicycle Branch recommendation (see Attachment F).

4C. Structures Information

Structures			Vertical Clearance	
Bridge Name	Bridge Number	PM	Existing (ft)	Proposed (ft)
Bear Creek Road OC	37-0565	4.30	16.90	16.90
Sidehill Viaduct	37-0029	5.43	N/A	N/A
Santa Cruz Avenue UC	37-0124L	6.16	14.47	14.47
Los Gatos Creek	37-0042	6.55	N/A	N/A
Main Street OC	37-0117	6.55	15.32	15.32
Los Gatos School POC	37-0137	6.65	15.16	15.16
Saratoga Avenue Separation	37-0144	7.07	14.89	14.89
Blossom Hill Road OC	37-0148	7.67	15.16	15.16
Lark Avenue OC	37-0151	8.89	17.65	17.65
Lark Avenue On-ramp Separation	37-0498S	8.98	17.06	17.06
N17–N85 Connector Separation	37-0515G	9.24	N/A	N/A
Bascom Avenue Off-ramp Separation	37-0495K	9.30	17.16	17.16
Route 17/85 Separation	37-0493	9.32	21.82	21.82
Route 17/85 Separation (N17–N85)	37-0493H	9.32	18.57	18.57
S17-S85 Connector OC	37-0494F	9.34	16.93	16.93
Los Gatos Creek (N&S17–N85)	37-0491H	9.42	N/A	N/A
N17–N85 Connector OC	37-0537G	9.43	25.59	25.59
S17–N85 Connector OC	37-0536F	9.45	18.08	18.08
S17–S85 Connector OC	37-0516F	9.50	N/A	N/A
Mozart POC	37-0535	9.60	19.03	19.03
Camden Avenue UC	37-0147	10.50	15.75	15.75
Campbell Avenue UC	37-0133	11.80	15.42	15.42
Los Gatos Creek	37-0134	12.03	N/A	N/A
Campbell Underpass	37-0135	12.22	15.22	15.22
Hamilton Avenue UP (LRT)	37-0603	12.23	17.98	17.98
Hamilton Avenue OC	37-0136	12.34	15.06	15.06
Westfield-Downing Ave POC	37-0307	13.11	18.34	18.34
Moorpark Avenue UC	37-0139	13.85	14.83	14.83
N17–S280 Connector OC	37-0139G	13.85	15.49	15.49
N280–S17 Connector Viaduct	37-0050G	13.93	16.40	16.40
Route 17/280 Separation	37-0131	13.93	16.83	16.83
Route 17/280 Separation	37-0131F	13.93	18.18	18.18
Route 17/280 Separation	37-0131G	13.93	15.42	15.42

Notes:
LRT = light-rail transit
N/A = not applicable
OC = Overcrossing
PM = post mile
POC = Pedestrian Overcrossing
UC = Undercrossing
UP = Underpass

Remarks:

The intention of the project is that the cold planing thickness will be equivalent to the overlay thickness. The existing vertical clearance at the bridge structures within the project limits will not need to be changed.

4D. Traffic Data

Forecasted Traffic:

Construction Year ADT (2020) 105,600

DHV (2040) 10,430 % Trucks 5.53

Safety Review Date: April 18, 2018

Notes:
ADT = Average Daily Traffic
DHV = Design Hourly Volume

Accident Data and Analysis:

A total of 1,003 accidents, with 7 fatal accidents, occurred on this segment of SR 17 from PM 2.8 to PM 13.9 during the 3-year period from January 1, 2014, to December 31, 2016 (the most recent period for which information is available). The actual fatal accident rate and the actual total accident rate are lower than the average fatal and total accident rates.

Actual Accident Rate*		
Fatal	**Fatal + Injury**	**Total**
0.005	0.23	0.74

Note:
*Per million vehicle-miles.

Average Accident Rate*		
Fatal	**Fatal + Injury**	**Total**
0.008	0.42	1.22

Note:
*Per million vehicle-miles.

5. CORRIDOR AND SYSTEM COORDINATION

5A. Corridor Overview

SR 17 constitutes a major north-south route corridor in Northern California, connecting SR 1 in Santa Cruz with Interstate 280 (I-280) in San Jose. SR 17 extends 13.9 miles through Santa Clara County, from the Santa Cruz–Santa Clara County line in the Santa Cruz Mountains to I-280 in San Jose. SR 17 serves interregional and regional travel, including recreational and commuting traffic and goods movement.

The portion of the route within the project limits varies between a conventional highway, a four-lane expressway, and a six-lane freeway.

The primary provider of bus and rail transit services within the corridor is the Santa Clara Valley Transportation Authority (VTA). Bicycle and pedestrian facilities are present within the urban area of San Jose, and SR 17 allows bicycles on the

conventional portions of the route, but only allows bicycles on the shoulders of the SR 17 expressway section and prohibits bicycles on the freeway section of the route.

5B. Federal and State Planning

SR 17 is designated as an Other Principal Arterial on the California Road System. It is also a Surface Transportation Assistance Act Terminal Access route.

The 2015 Interregional Transportation Strategic Plan (ITSP) identifies 11 "Strategic Interregional Corridors" in California. The ITSP defines Strategic Interregional Corridors as having varying levels of freight and recreational travel while providing communities access to local and interregional markets, recreational designations, emergency response and disaster recovery activities, and vital medical and social services. Strategic Interregional Corridors also link the regions of the state and support its diverse economic and social needs. SR 17 is not identified as a Strategic Interregional Corridor.

The purpose of Transportation Concept Reports (TCRs) is to evaluate current and projected conditions along routes in each California Department of Transportation (Caltrans) district and communicate a vision for the development of those routes over a 20-year planning horizon. The TCR for the SR 17 route is still under development.

5C. Regional Planning

The Metropolitan Transportation Commission (MTC) functions as both the State-designated Regional Transportation Planning Agency (RTPA) and the federal-designated Metropolitan Planning Organization (MPO). As such, MTC is responsible for the update of the Regional Transportation Plan (RTP), a financially constrained, long-range programming report for the region. Under Senate Bill (SB) 375, along with an updated RTP, each region in California must develop a Sustainable Communities Strategy (SCS) that promotes walk- and bike-friendly mixed-use commercial and residential development that is close to mass transit, jobs, schools, shopping, parks, recreation, and other amenities. MTC's Plan Bay Area (PBA), adopted in July 2013 and updated in July 2017 (and renamed Plan Bay Area 2040), serves as the San Francisco Bay Area's RTP and SCS.

The following table lists the planned SR 17 projects included in Plan Bay Area 2040.

County	Route	Program	RTP ID	Description	Cost*	Proposed Construction Date*
SCl	17	Plan Bay Area 2040	17-07-0067	SR 17 corridor congestion relief in Los Gatos	$30M	2027
SCl	17	Plan Bay Area 2040	17-07-0085	Santa Clara County Express Lanes– environmental and design phases for future segments	$200M	N/A

Notes:
N/A = not available
RTP ID = Regional Transportation Plan identification
SCl = Santa Clara County

*Cost and proposed construction date are subject to change. Project without proposed construction date are yet to be developed.

5D. Local Planning

VTA is the designated Congestion Management Agency for Santa Clara County. VTA is responsible for countywide transportation planning, including congestion management; design and construction of specific highway, pedestrian, and bicycle improvement projects; and promotion of transit-oriented development.

VTA's Valley Transportation Plan 2040 provides a long-rang vision for the transportation system in Santa Clara County. Although the plan does not specifically mention the portion of SR 17 that is within the project limits, the plan's overarching objectives are to invest in system operations, replace and rehabilitate the existing system, and preserve the investments that have already been made.

5E. Future Projects

State Highway Operation and Protection Program

The following projects in the project vicinity are included in the State Highway Operation and Protection Program (SHOPP). SHOPP is the State's "fix-it-first" program that funds the repair and preservation of the State Highway System (SHS), safety improvements, and some highway operational improvements.

The following table lists the SHOPP projects planned for SR 17.

County	Route	Program	EA Number	Description	Cost*	Proposed Construction Date*
SCl	17	2020 SHOPP	0P970	Bridge rail	$2.5M	—
SCl	17	2017 Ten-Year SHOPP Plan	—	Install fiber communication/TOS/RM	$27.7M	—
SCl	17	2016 SHOPP	4J020	Major damage	$0.5M	2019/20
SCl	17	2016 SHOPP	2K140	Safety	$8.8M	2019/20
SCl	17	2016 SHOPP	2K650	Major damage	$1.5M	—
SCl	17	2017 Ten-Year SHOPP Plan	—	New weigh-in motion site	$1.6M	—
SCl	17	2020 SHOPP	4s820	Construct underdrains	$0.5M	—

Notes:
EA = Expenditure Authorization
N/A = not available
RTP ID = Regional Transportation Plan identification
SCl = Santa Clara County
SHOPP = State Highway Operation and Protection Program
TOS/RM = Traffic Operations System / ramp metering
— = not applicable

*Cost and proposed construction date are subject to change. Project without proposed construction date are yet to be developed.

Distrct 4 Bicycle Plan Projects

The *Caltrans District 4 Bike Plan for the San Francisco Bay Area* (District 4 Bike Plan), the first of its kind in the state, evaluates bicycle needs on and across the Bay Area's State transportation network and identifies infrastructure improvements to enhance bicycle safety and mobility and remove some of the barriers to bicycling in the region. The District 4 Bike Plan builds on the 2017 California State Bicycle and Pedestrian Plan, titled *Toward an Active California: State Bicycle and Pedestrian Plan*, and will guide District 4 and its partners to develop an integrated bicycle network for the Bay Area.

The following table lists proposed projects within the project limit for SR 17 included in the District 4 Bike Plan. Note that the locations described in the table below are on the ramps and intersections, and not on SR 17 mainline. This CAPM project does not propose any bike plan work at these locations.

County	Route	Program	Project ID	Description	Cost*	Proposed Construction Date*
SCl	17	District 4 Bike Plan	SC-17-X02	Intersection or ramp improvement at Hamilton Ave	>$7M	N/A
SCl	17	District 4 Bike Plan	SC-17-X01	Intersection or ramp improvement San Tomas Expressway	>$7M	N/A
SCl	17	District 4 Bike Plan	SC-9, 17-X01	Interchange improvement at Los Gatos–Saratoga Road	>$7M	N/A

Notes:
N/A = not available
SCl = Santa Clara County

*Cost and proposed construction date are subject to change. Project without proposed construction date are yet to be developed.

California State Transportation Improvement Program

The California State Transportation Improvement Program (STIP) is the biennial 5-year plan adopted by the California Transportation Commission for future allocations of certain State transportation funds for State highway improvements, intercity rail, and regional highway and transit improvements. No projects in the project vicinity are included in the STIP.

6. ALTERNATIVES

6A. CAPM Strategy

This CAPM project proposes to rehabilitate the existing pavement surface within the project limits. The typical cross sections (see Attachment G) and the preliminary layout plans (see Attachment H) were developed based on recommendations from Materials (see Attachment I). The strategy for the project is as follows:

- Mainline: Cold-plane 0.25 foot of existing Asphaltic Concrete (AC) pavement and overlay it with 0.10 foot of Rubberized Hot Mix Asphalt–Open Graded (RHMA-O) over 0.15 foot of Rubberized Hot Mix Asphalt–Gap Graded (RHMA-G)

- Ramps: Cold-plane 0.15 foot of existing AC pavement and overlay it with 0.15 foot of RHMA-G
- Replace AC surfacing (dig out) up to 0.50 foot
- Replace severely broken individual Portland Cement Concrete (PCC) slabs to a depth of 1.10 feet using 0.67 foot of Precast Jointed Concrete Pavement (PJCP) over 0.42 foot of Lean Concrete Base Rapid Setting (LCBRS)
- Replace existing loop detectors
- Install pavement delineation with enhanced wet-night visibility striping

The project will also include the following incidental work:

- Upgrade 42 existing and 4 new curb ramps and island passages to current ADA standards
- Upgrade the existing traffic signals at six locations on northbound (NB) and southbound (SB) ramps (Lark Avenue, Camden Avenue, and E. Hamilton Avenue), including the pedestrian push buttons
- Upgrade the existing guardrails to MGS with vegetation control
- Install median and outside shoulder rumble strips throughout the project limits where applicable
- Install "Ultraguard Safety Barrier Delineation" on both sides of the median barrier
- Install compaction grouting at the SB Bear Creek Road off-ramp (PM 4.15), the NB Bear Creek Road on-ramp (PM 4.35), and the NB/SB approach and leave slabs at Campbell Avenue Undercrossing (Bridge No. 37-0133) (PM 11.80).
- Reconstruct, reline, clean, and inspect corrugated steel pipes, reinforced concrete pipes, headwalls, drainage inlets, dikes, and overside drains.

Life-Cycle Cost Analysis

Per the Life-Cycle Cost Analysis (LCCA) Procedures Manual, Chapter 1.4, Caltrans' Policy, LCCA is not required for CAPM projects. The Pavement Strategy Checklist is provided as Attachment J.

Enhancements

Loop Detectors

The existing loop detectors within the project limits that will be impacted by the cold planing and overlay will be replaced.

Midwest Guardrail System

The existing metal beam guard railing will be replaced with the current standard MGS within the project limits. Transition railing (Type WB-31) will be used at

bridge structure barriers. End treatments will be upgraded to current Manual Assessing Safety Hardware (MASH)–compliant hardware.

ADA Curb Ramps

The project will upgrade 42 existing curb ramps and island passages and 4 new curb ramps to current standards within the project limits. Attachment E provides a list of the locations requiring ADA curb ramp upgrades.

Pavement Delineation

The project will upgrade the pavement delineation to current standards using wet/night extra reflective thermoplastic material within the project limits. "UltraGuard Safety Barrier Delineation (yellow)" will be installed on both sides of the median barrier.

Rumble Strips

Rumble strips will be placed throughout the project limits at both the left edgeline and the right edgeline.

6B. Hazardous Waste Disposal

Asphaltic pavement grinding mixed with thermoplastic paint may contain soluble lead in excess of the threshold limit that would require disposal as a hazardous waste. A full evaluation of the potential hazardous waste or contamination issues will be addressed during the PS&E phase of the project.

6C. Material and/or Disposal Site

The need for a disposal site will be determined during the PS&E phase.

6D. Roadside Design and Management

The purpose of a CAPM project is to preserve and extend the life of existing pavement and roadway. The existing roadway geometric features will be maintained.

6E. Right of Way

General

A Right of Way Data Sheet (see Attachment K) has been prepared for the project based on the scope of work described in Section 6A and maps provided by the Division of Design. Estimated cost information is provided in the Right of Way Data Sheet.

Most of the construction work in the project scope of work will be within the existing State right-of-way. There are 13 drainage culverts with outfalls that are outside of the State right-of-way; these culverts will require temporary construction easements or drainage easements. Also, one curb ramp at South Santa Cruz Avenue/Wood Road falls partially outside of the State right-of-way. A Permit to Enter and Construct will be needed to allow access for constructing the curb ramp upgrades.

Utilities

Verification of utilities will be conducted during the PS&E phase. The need for potholing will be ascertained after the utility verification process is completed. The current scope of work allots $20,000 for utility verification.

6F. Railroad Involvement

Union Pacific Railroad (UP) tracks and VTA light rail tracks are within the project limits. Although railroad impacts are not anticipated as a result of the project, coordination with both UP and VTA will be required.

6G. Airspace Lease Area

There are two Freeway Lease Agreements (FLAs) within the project limits:

1) FLA-04-SCl-17-01, walking path leased for park use (Town of Los Gatos) PM 5.0/6.6
2) FLA-04-SCl-17-04, Construction Staging Area (West Valley Construction) PM 4.9/5.0

There are drainage systems within the walking path of the FLA between PM 5.0/6.6, and coordination will be required to notify tenants before any access for construction.

6H. Value Analysis

A Value Analysis (VA) study was conducted in May 2018, and three VA alternatives were proposed:

1) Construct the project seven days a week in lieu of a five-days-a-week schedule
2) Increase the lane closure hours from 7 to 8 hours throughout the entire project limit or for the north end of the project
3) Use a contractor incentive/disincentive approach

VA alternatives 1 and 3 were not implemented due to increased costs. VA alternative 2 is conditionally accepted. This alternative will be further studied during PS&E phase.

6I. Recycled Materials

The existing asphaltic concrete that will be removed as a result of the cold planing for the project may be recycled.

6J. Consequences of Not Doing the Entire Project

If the project is not implemented, the existing pavement will continue to deteriorate and the existing curb ramps will not be upgraded to meet ADA standards.

6K. Water Quality

The project will have a disturbed soil area (DSA) of more than 1 acre. To comply with the conditions of the Construction General Permit (NPDES No. CAS000002) and the Caltrans National Pollutant Discharge Elimination System (NPDES) Permit (NPDES No. CAS000003) and address the temporary water quality impacts resulting from the construction activities for this project, compliance with the Storm Water Pollution Prevention Plan (SWPPP) Standard Specifications will be required. These Standard Specifications address the preparation of the SWPPP and the implementation of the SWPPP during construction.

The project will use four different types of Best Management Practices (BMPs): Construction Site BMPs and Design Pollution Prevention BMPs and, possibly, Permanent Treatment BMPs and Maintenance BMPs. A Stormwater Data Report (SWDR) has been prepared to summarize all of the proposed water quality measures for the project. The approved SWDR is provided as Attachment L.

The BMPs need to be implemented to address the temporary water quality impacts resulting from the construction activities for the project. The BMPs will include measures for soil stabilization, sediment control, wind erosion control, tracking control, non-storm-water management, and waste management/materials pollution control. Appropriate BMPs and their quantities will be developed during the PS&E phase. In addition, certain types of monitoring and reporting will be required, depending on project risk levels.

Permanent erosion control measures will be implemented for the project to stabilize disturbed areas as a means of source control. Permanent treatment BMPs will also be constructed to treat storm water.

If a significant amount of groundwater is encountered in deep excavations for the project, dewatering will be required. As part of the Hazardous Waste Investigation, a Site Investigation Report and groundwater testing will be required to determine contamination levels to develop contract provisions for groundwater handling and disposal during construction. See risk register (Attachment P), ID No.5 Existing Underground Drainage Facility, for risk associated with dewatering.

The project will require Section 401 certification from the Regional Water Quality Control Board, identification of areas of temporary and permanent impacts, and mitigation for permanently impacted areas.

6L. Air Quality Conformity

The project is exempt from the requirement to determine conformity under Title 40 of the Code of Federal Regulations (CFR) Section 93.126. Therefore, an air quality study is not required.

6M. Noise Abatement Decision Report

The proposed work is not considered Type 1 per 23 CFR § 772 and the Caltrans Noise Analysis Protocol. Therefore, the proposed work does not require a Noise Abatement Decision Report or a Traffic Noise Study.

6N. Construction Greenhouse Gas Emissions

Construction generated Greenhouse Gas (GHG) includes emissions resulting from material processing by onsite construction equipment, workers commuting to and from the project site, and traffic delays due to construction. The emissions will be produced at different rates throughout the project depending on the activities involved at various phases of construction. The analysis was focused on carbon dioxide (CO_2) emissions, as it is the single most important GHG pollutant due to its abundance when compared with other vehicle-emitted GHG, including methane (CH_4), nitrous oxide (N_20), hydrofluorocarbon (HFCs) and black carbon (BC).

Based on project information available for environmental studies, the construction-related CO_2 emissions were calculated using the Road Construction Emissions Model (RCEM), version 8.1.0, provided by the Sacramento Metropolitan Air Quality Management District. The estimated total amount of CO_2 produced due to construction in 20 months is 1536.59 tons, summary shown in Table 1.

Table 1: Summary of Construction-related GHG Emission Estimates

	Construction-related GHG Emissions			
	Parameters			**TOTAL**
	CO_2 (tons)	**CH_4 (tons)**	**N_2O (tons)**	**CO_2e (MT)***
TOTAL	1536.59	0.33	0.03	1407.31

Note:

* Gases are converted to CO2e by multiplying by their global warming potential (GWP). Specifically, GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO2).

Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of

greenhouse gas emissions that may occur related to this project. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project.

6O. Highway Planting

No trees are expected to be removed as part of the project. However, some tree and vegetation pruning may occur. Any replacement planting will be replaced as part of the project, and the replacement highway planting will have a 1-year plant establishment period. See risk register (Attachment P), ID No.14 Bird Nesting Season, for risk associated with vegetation trimming.

7. TRANSPORTATION MANAGEMENT

7A. Transportation Management Plan

A Transportation Management Plan (TMP), which is a program designed to be implemented during construction to assist and minimize impacts to the traveling public, will be required for this project. The TMP will provide public information such as press releases or notifications to groups that may be impacted by the project (e.g. motorists, bicyclists, local businesses, pedestrians). Lane closures, portable changeable message signs, flaggers, and the California Highway Patrol's Construction Zone Enhanced Enforcement Program (COZEEP) may be used as part of TMP implementation. Preliminary TMP elements and costs, including a traffic maintenance strategy, have been provided in the TMP Data Sheet (see Attachment M). The TMP will be developed and refined during the PS&E phase of the project.

7B. Vehicle Detection Systems

Throughout the project limits, the existing loop detectors that will be impacted by the cold planing and the placement of the RHMA overlay will be replaced.

8. ENVIRONMENTAL COMPLIANCE

The project is Categorically Exempt under Class 1 of the State California Environmental Quality Act (CEQA) Guidelines and Categorically Excluded under the National Environmental Policy Act (NEPA) (see Attachment N).

Date Approved: September 18, 2018

The Biological Opinion from the United States Fish and Wildlife Service was approved on September 17, 2018.

Anticipated permits are described below:

US Army Corps of Engineers
Department of the Army Permit for:
Clean Water Act Section 404

California Department of Fish and Wildlife
California Fish and Game Code Section 1602
Lake or Streambed Alteration Agreement

Regional Water Quality Control Board
Clean Water Act Section 401
Water Quality Certification

9. PROJECT ESTIMATE

The current capital outlay cost estimate (escalated to mid-construction of 2021) is rounded to $53,189,000, which consists of an estimated cost of $53,133,962 for construction capital and an estimated cost of $54,600 for right-of-way capital (see Attachment O).

10. FUNDING/PROGRAMMING

Funding

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

Programming

This project is funded under SHOPP program code 20.XX.201.121, Pavement Preservation Program for CAPM projects, currently programmed with $30,141,000 for construction capital and $20,000 for right-of-way capital.

A Project Change Request (PCR) was processed to increase project scope and cost. Major categories of changes are summarized below.

Pavement Structural Section
Increased from $12,787K to $16,417K ($ 3,630K)
Major items include: The cost of the Rubberized Hot Mix Asphalt (Gap Graded) increased by $1,277K due to a 10% increase in the quantity and a 10% increase in the

unit price. The cost of the Rubberized Hot Mix Asphalt (Open Graded) increased by $1,322K due largely to an increase in the unit price of 60%. The cost of Hot Mix Asphalt (Type A) was not captured in the Project Initiation Document (PID) estimate ($492K). Finally, additional areas requiring soil densification were identified during the PA&ED process that require an additional $837K in materials.

Drainage
Increased from $1,900K to $7,200K ($ 5,300K)
Most of the drainage systems on this section of Highway 17 were installed between 1937 and 1958. The PID estimated that more than $9M of work was required to replace or rehabilitate these systems based on a very limited field investigation. At the time of programming only $1.9M was allocated. The specific systems to be included were not identified at the time of programming, however, the performance measure would increase from 53 to 292 systems based on review of the as-built drawings. Since that time severe winter storms and a more detailed PA&ED investigation have raised the urgency of doing a larger portion of this work. As an example of the risk, emergency work was required this spring 2018 at one of the drainage locations resulting in a $3M Director's Order (04-4K410). Including this needed drainage work as part of this CAPM preservation project will result in more efficient use of funds, reduced inconvenience to the public, and better long-term pavement condition.

Traffic Items
Increased from $1,569K to $3,800K ($2,231K)
The scope of the project includes constructing or upgrading 40 ADA curb ramps. During the PA&ED design process it was determined that these ramp modifications will trigger an upgrade to the signals and lighting at the effected intersections. These changes, and an increase in the estimated number of loop detectors needing replacement, increase the traffic items cost by $2.2M.

Minor Items
Increased from $659K to $1,290K ($631K)
A new requirement for Intelligent Compaction ($300K) and the need for additional temporary K-rail ($240K) make up the majority of this increase.

Supplemental Work
Increased from $185K to $1,067K ($882K)
This largely due to the omission of Payment Adjustment for Price Index from the PID estimate.

Mobilization
Increased from $1,015K to $ 3,354K ($ 2,340K)
The cost of Mobilization was estimated at 5% of construction costs at the K phase. It has been raised to 10% in the current estimate.

State Furnished Materials
Increased from $1,070K to $1,590K ($520K)
COZEEP has increased by $232K to account for the difficult staging sequences from PM 2.8 to 6.1. The RE office cost has also increased by $232K from the PID phase based on a refinement of the working days. In addition, an item for Tow Truck Service Patrol for $90K has been added.

Time Related Overhead
Increased from $1,015K to $ 3,354K ($2,340K)
This item has increased from 5 to 10% from the previous estimate. This is a more typical percentage for a project of this size.

Roadway Contingency
Increased from $2,358K to $6,436K ($4,078K)
Contingency was estimated at 10% in the PID document. It has been raised to 15% of the higher current construction capital estimate. This is the standard percentage for a project at the end of PA&ED.

The following table lists the amount that was programmed for the project in the Project Initiation Document phase.

Fund Source	**Fiscal Year Estimate**								
20.XX.201.121	**Prior**	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**	**2020/ 21**	**2021/ 22**	**Future**	**Total**
Component	**In thousands of dollars ($1,000)**								
PA&ED Support	—	750	1,650	—	—	—	—	—	2,400
PS&E Support	—	750	750	750	500	—	—	—	2,750
Right-of-Way Support	—	—	—	75	100	—	—	—	175
Construction Support	—	—	—	—	1,000	1,150	1,000	—	3,150
Right-of-Way	—	—	—	—	20	—	—	—	20
Construction	—	—	—	—	30,141	—	—	—	30,141
Total	—	1,500	2,400	825	31,761	1,150	1,000	—	38,636

Notes:
PA&ED = Project Approval and Environmental Document
PCR = Project Change Request
PS&E = Plans, Specifications, and Estimate
— = not applicable

The current cost estimate for total capital outlay is $53,189,000, which includes 3% per year escalation to mid-construction year of 2021. The support cost ratio is 23%. A PCR was approved by the District Director on October 5, 2018.

The following table lists the new programmed fund for the project.

Fund Source	Fiscal Year Estimate								
20.XX.201.121	Prior	2016/ 17	2017/ 18	2018/ 19	2019/ 20	2020/ 21	2021/ 22	Future	Total
Component	In thousands of dollars ($1,000)								
PA&ED Support	—	750	1,650	—	—	—	—	—	2,400
PS&E Support	—	750	750	750	500	—	—	—	2,750
Right-of-Way Support	—	—	—	75	100	—	—	—	175
Construction Support	—	—	—	—	2,000	2,000	1,900	—	5,900
Right-of-Way	—	—	—	—	60	—	—	—	60
Construction	—	—	—	—	53,200	—	—	—	53,200
Total	—	1,500	2,400	825	55,860	2,000	1,900	—	64,485

Notes:
PA&ED = Project Approval and Environmental Document
PCR = Project Change Request
PS&E = Plans, Specifications, and Estimate
— = not applicable

11. DELIVERY SCHEDULE

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Target/ Actual)
PROGRAM PROJECT	M015	02/28/16	Actual
BEGIN ENVIRONMENTAL	M020	10/01/16	Actual
PA&ED	M200	09/14/18	Target
PS&E TO DOE	M377	06/01/19	Target
PROJECT PS&E	M380	07/01/19	Target
RIGHT OF WAY CERTIFICATION	M410	01/01/20	Target
READY TO LIST	M460	01/01/20	Target
AWARD	M495	03/01/20	Target
APPROVE CONTRACT	M500	05/01/20	Target
CONTRACT ACCEPTANCE	M600	05/01/22	Target
END PROJECT EXPENDITURES	M800	05/01/23	Target

Notes:
DOE = District Office Engineer
PA&ED = Project Approval and Environmental Document
PS&E = Plans, Specifications, and Estimate

12. RISKS

A risk management plan (RMP) has been prepared, and it is provided as Attachment P. Two risks in the RMP have either high cost impact, schedule impact, or both.

1) Existing pavement to remain could deteriorate over time. This would increase the cost to repair it during construction. The existing pavement to remain will be monitored during PS&E phase.
2) Lack of survey data. Design is currently utilizing existing as-builts and project site condition. Survey request will be followed up tightly during PS&E phase.

The risk management plan will be maintained and updated for subsequent project development phase.

13. EXTERNAL AGENCY COORDINATION

Federal Highway Administration

This project is considered to be a Delegated Project in accordance with the current Stewardship and Oversight Agreement signed between the Federal Highway Administration (FHWA) and Caltrans on May 28, 2015.

The project requires the following coordination:

US Army Corps of Engineers
Department of the Army Permit for:
Clean Water Act Section 404

California Department of Fish and Wildlife
California Fish and Game Code Section 1602
Lake or Streambed Alteration Agreement

US Fish and Wildlife Service
Endangered Species Act (ESA) Section 7 consultation

Regional Water Quality Control Board
Clean Water Act Section 401
Water Quality Certification

14. PROJECT REVIEWS

Scoping team field review	*PDT*	Date	01/31/17
District Program Advisor	*Robert Camargo*	Date	08/08/18
HQ Pavement Program Advisor	*Gurinderpal Bhullar*	Date	08/20/18
District Maintenance	*Stephen Khun*	Date	08/08/18
Project Manager	*John Peterson*	Date	08/10/18
District Safety Review	*Luis Chanchu*	Date	08/15/18
Constructability Review	*Mohinder Chahal*	Date	08/09/18
Geotechnical Review	*Vahid Khata-O-Khotan*	Date	08/02/18

15. PROJECT PERSONNEL

Program Manager	Robert Camargo	(510) 286-4450
Project Manager	John Peterson	(510) 385-6893
Assistant Project Manager	Brian Santos	(510) 286-5271
Design Santa Clara, Office Chief	Tung Tom Ly	(510) 286-5076
Design Santa Clara, Branch Chief	Arick Bayford	(510) 286-4776
Project Engineer	Peter Lac	(510) 286-6199
Environmental Senior Planner	Brian Gassner	(510) 286-6025
Environmental Planner	Charles Winter	(510) 286-5594
Landscape Architect	Connie Yip	(510) 622-8703
Hydraulics Branch Chief	Khai Leong	(510) 286-5550
Hydraulics Engineer	Brian Wolcott	(415) 691-0885
Traffic Safety, Branch Chief	Katie Yim	(510) 286-4578
Traffic Safety Engineer	Luis Chanchu	(510) 622-8813
Transportation Management Unit	Fanhua Yuan	(510) 286-4713
Materials Branch Chief	Ashok Das	(510) 286-4692
Materials Engineer	Rick D'Onofrio	(510) 622-1776
Hazardous Waste Branch Chief	Ray Boyer	(510) 286-5668
Water Poll. Control, Branch Chief	Kamran Nakhjiri	(510) 286-5664
Storm Water Treatment, Branch Chief	Norman Gonsalves	(510) 286-5930
Storm Water Treatment, Engineer	Johnathan Wellen	(510) 286-5673
Erosion Control, Branch Chief	Alex McDonald	(510) 286-4147
Senior Right of Way Agent	Sunnie Stanton	(510) 286-5476
Right of Way Agent	Shella Orson	(510) 286-5487
Utility Engineering, Branch Chief	Hanna Khoury	(510) 622-5456
Utility Engineer	Hong Wong	(510) 286-6989
Geotechnical Design Engineer	Vahid Khata-O-Khotan	(916) 227-1061
HQ Pavement Program Advisor	Gurinderpal Bhullar	(916) 227-1061

16. ATTACHMENTS (Number of Pages)

A. Title Sheet (1)
B. Pavement Condition Detailed Report (2)
C. Storm Damage Investigation (6)
D. Bear Creek Off-Ramp Embankment Settlement Geotechnical Recommendation (9)
E. List of ADA Curb Ramp Locations (1)
F. Rumble Strip Guidance for Shoulders where Bicyclists are Permitted (1)
G. Typical Cross Sections (5)
H. Preliminary Layout Plans (43)
I. Materials Recommendation (5)
J. Pavement Strategy Checklist (4)
K. Right of Way Data Sheet (7)
L. Stormwater Data Report (18)
M. TMP Data Sheet (4)
N. Categorical Exemption / Categorical Exclusion Determination Form (2)
O. Preliminary Cost Estimate (10)
P. Risk Register (4)

ATTACHMENT A

Title Sheet

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	17	2.8/13.9	1	A

INDEX OF PLANS

SHEET No. DESCRIPTION

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

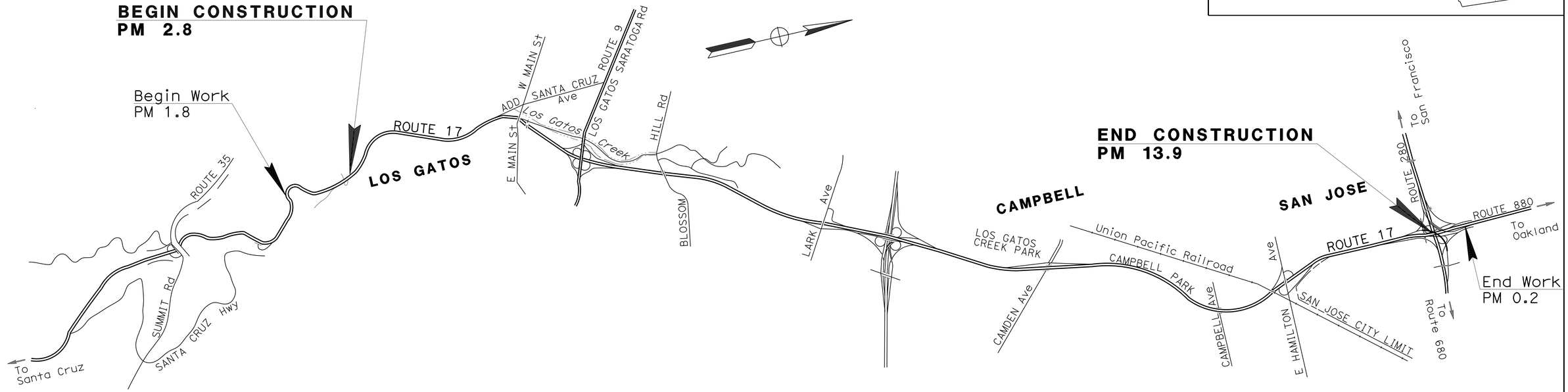
PROJECT PLANS FOR CONSTRUCTION ON

STATE HIGHWAY

IN SANTA CLARA COUNTY
FROM 0.1 MILE NORTH OF HEBARD ROAD
TO ROUTE 17/280 SEPARATION

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2015

LOCATION MAP



NO SCALE

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.

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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

CONTRACT No.	04-1J9700
PROJECT ID	0414000404

LAST REVISION 00-00-00
DATE PLOTTED => 20-AUG-2018
TIME PLOTTED => 17:02

PROJECT MANAGER A
DESIGN MANAGER A

ATTACHMENT B

Pavement Condition Detailed Report

PaveM Scenario Used: #2671
APCS Data Year: 2016
Using: Prior-Treatment Distresses

Caltrans Pavement Program
Pavement Condition Detailed Report (PaveM)

District: 4; County: Santa Clara (SCL); Route: 17
From PM: 2.800 To PM: 13.949

Highlighted are limits of proposed pavement work

Year: 2016 (Current)

R-Length: 11.149. L-Length: 11.149

R-Lane Miles: 26.440. L-Lane Miles: 29.706 (Unknown lane miles: 0.000)

Pavement Segment	Lane	Type	Concrete			Asphalt			IRI in/mi	MAP-21 Condition	Traditional Condition	Road Class	Estimated Lane Miles
			1st%	3rd%	Fault%	Alligator		Rut (in)					
						A%	B%						
Post Mile: 2.800 to 4.000 Length: 1.200 Estimated Lane Mileage: 4.800	L1	Flexible				10.40	6.60	0.15	106	Fair	Yellow	2	1.200
	L2	Flexible				11.00	16.90	0.26	177	Fair	Orange	2	1.200
	R1	Flexible				7.50	3.50	0.15	105	Fair	Yellow	2	1.200
	R2	Flexible				5.70	3.20	0.16	121	Fair	Yellow	2	1.200
Post Mile: 4.000 to 4.856 Length: 0.856 Estimated Lane Mileage: 3.424	L1	Flexible				17.90	16.70	0.22	130	Fair	Orange	2	0.856
	L2	Flexible				11.10	7.00	0.19	202	Fair	Blue	2	0.856
	R1	Flexible				8.20	3.60	0.14	102	Fair	Yellow	2	0.856
	R2	Flexible				11.10	9.60	0.16	122	Fair	Yellow	2	0.856
Post Mile: 4.856 to 5.604 Length: 0.748 Estimated Lane Mileage: 1.146	R1	Flexible				9.10	8.00	0.15	121	Fair	Yellow	2	0.573
	R2	Flexible				10.50	10.60	0.15	177	Fair	Orange	2	0.573
Post Mile: 4.856 to 6.164 Length: 1.308 Estimated Lane Mileage: 2.266	L1	Flexible				6.60	7.10	0.12	159	Fair	Yellow	2	1.133
	L2	Flexible				8.40	12.30	0.19	232	Fair	Orange	2	1.133
Post Mile: 5.604 to 7.148 Length: 1.544 Estimated Lane Mileage: 3.056	R1	Flexible				5.50	10.90	0.15	142	Fair	Orange	2	1.528
	R2	Flexible				4.10	4.70	0.17	184	Fair	Blue	2	1.528
Post Mile: 6.164 to 7.148 Length: 0.984 Estimated Lane Mileage: 1.732	L1	Flexible				1.40	2.60	0.11	153	Fair	Green	2	0.866
	L2	Flexible				1.80	0.20	0.22	166	Fair	Green	2	0.866
Post Mile: 7.148 to 7.889 Length: 0.741 Estimated Lane Mileage: 2.964	L1	Flexible				0.20	0.00	0.14	88	Good	Green	2	0.741
	L2	Flexible				0.60	0.20	0.14	115	Fair	Green	2	0.741
	R1	Flexible				1.30	0.00	0.09	99	Fair	Green	2	0.741
	R2	Flexible				1.30	0.00	0.14	126	Fair	Green	2	0.741
Post Mile: 7.889 to 8.991 Length: 1.102 Estimated Lane Mileage: 2.204	L1	Flexible				0.30	0.10	0.13	104	Fair	Green	2	1.102
	L2	Flexible				0.60	0.10	0.17	115	Fair	Green	2	1.102
Post Mile: 7.889 to 9.316 Length: 1.427 Estimated Lane Mileage: 2.854	R1	Flexible				0.60	0.20	0.13	91	Good	Green	2	1.427
	R2	Flexible				2.20	0.40	0.18	115	Fair	Green	2	1.427
Post Mile: 8.991 to 10.204 Length: 1.213 Estimated Lane Mileage: 3.639	L1	Flexible				1.70	1.10	0.25	95	Fair	Green	2	1.213
	L2	Flexible				7.50	1.00	0.27	111	Fair	Yellow	2	1.213
	L3	Flexible				4.80	3.30	0.16	131	Fair	Yellow	2	1.213
Post Mile: 9.316 to 10.384 Length: 1.068 Estimated Lane Mileage: 2.136	R1	Flexible				6.10	1.30	0.22	109	Fair	Yellow	2	1.068
	R2	Flexible				10.40	4.50	0.27	99	Fair	Yellow	2	1.068
Post Mile: 10.204 to 10.498 Length: 0.294 Estimated Lane Mileage: 0.588	L1	Flexible				5.20	0.90	0.21	91	Fair	Yellow	2	0.294
	L2	Flexible				6.50	0.00	0.16	97	Fair	Yellow	2	0.294
Post Mile: 10.384 to 11.085 Length: 0.701 Estimated Lane Mileage: 1.974	R1	Flexible				15.00	1.20	0.16	106	Fair	Yellow	2	0.658
	R2	Flexible				5.30	0.60	0.17	90	Good	Yellow	2	0.658
	R3	Flexible				5.70	3.20	0.14	102	Fair	Yellow	2	0.658
Post Mile: 10.498 to 10.775 Length: 0.277 Estimated Lane Mileage: 0.702	L1	Flexible				1.50	1.50	0.23	88	Fair	Green	2	0.234
	L2	Flexible				3.00	4.90	0.12	163	Fair	Yellow	2	0.234
	L3	Flexible				4.40	0.30	0.11	246	Fair	Blue	2	0.234
Post Mile: 10.775 to 11.085 Length: 0.310 Estimated Lane Mileage: 1.240	L1	Flexible				1.40	1.70	0.20	60	Good	Green	2	0.310
	L2	Flexible				8.60	7.40	0.24	88	Fair	Yellow	2	0.310
	L3	Flexible				13.00	8.60	0.29	127	Fair	Yellow	2	0.310
	L4	Flexible				10.20	3.80	0.13	129	Fair	Yellow	2	0.310
Post Mile: 11.085 to 11.804 Length: 0.719 Estimated Lane Mileage: 2.157	R1	Flexible				5.30	0.00	0.16	82	Good	Yellow	2	0.719
	R2	Flexible				2.40	0.00	0.14	65	Good	Green	2	0.719
	R3	Flexible				1.00	0.10	0.17	81	Good	Green	2	0.719

Post Mile: 11.085 to 12.336 Length: 1.251 Estimated Lane Mileage: 4.804	L1	Flexible				2.10	1.80	0.19	106	Fair	Green	2	1.201
	L2	Flexible				8.60	10.20	0.21	133	Fair	Orange	2	1.201
	L3	Flexible				5.90	6.20	0.21	142	Fair	Yellow	2	1.201
	L4	Flexible				10.70	10.00	0.11	153	Fair	Yellow	2	1.201
Post Mile: 11.804 to 11.829 Length: 0.025 Estimated Lane Mileage: 0.000	R1	Bridge				0.00	0.00	0.15	129			2	0.000
	R2	Bridge				0.00	0.00	0.13	125			2	0.000
	R3	Bridge				0.00	0.00	0.18	195			2	0.000
	R4	Bridge				0.00	0.00	0.11	112			2	0.000
Post Mile: 11.829 to 12.026 Length: 0.197 Estimated Lane Mileage: 0.591	R1	Flexible				24.40	0.10	0.18	109	Fair	Yellow	2	0.197
	R2	Flexible				5.50	1.40	0.15	110	Fair	Yellow	2	0.197
	R3	Flexible				8.80	1.20	0.17	100	Fair	Yellow	2	0.197
Post Mile: 12.026 to 12.051 Length: 0.025 Estimated Lane Mileage: 0.000	R1	Bridge				0.00	0.00	0.18	112			2	0.000
	R2	Bridge				0.00	0.00	0.13	121			2	0.000
	R3	Bridge				0.00	0.00	0.18	110			2	0.000
	R4	Bridge				0.00	0.00	0.10	247			2	0.000
Post Mile: 12.051 to 12.481 Length: 0.430 Estimated Lane Mileage: 1.290	R1	Flexible				7.60	3.30	0.15	156	Fair	Yellow	2	0.430
	R2	Flexible				9.90	2.90	0.17	211	Fair	Blue	2	0.430
	R3	Flexible				5.90	4.10	0.18	202	Fair	Blue	2	0.430
Post Mile: 12.336 to 12.481 Length: 0.145 Estimated Lane Mileage: 0.435	L1	Flexible				3.50	2.80	0.10	271	Fair	Blue	2	0.145
	L2	Flexible				10.00	17.90	0.23	147	Fair	Orange	2	0.145
	L3	Flexible				10.20	12.00	0.19	193	Fair	Orange	2	0.145
Post Mile: 12.481 to 13.596 Length: 1.115 Estimated Lane Mileage: 5.575	L1	Flexible				11.10	13.40	0.23	125	Fair	Orange	2	1.115
	L2	Flexible				12.10	10.10	0.20	130	Fair	Orange	2	1.115
	L3	Flexible				11.50	4.50	0.26	115	Fair	Yellow	2	1.115
	L4	Flexible				6.80	6.30	0.13	139	Fair	Yellow	2	1.115
	L5	Flexible				9.90	11.40	0.16	142	Fair	Orange	2	1.115
Post Mile: 12.481 to 13.851 Length: 1.370 Estimated Lane Mileage: 5.480	R1	Flexible				8.50	7.30	0.22	94	Fair	Yellow	2	1.370
	R2	Flexible				11.10	5.70	0.26	85	Fair	Yellow	2	1.370
	R3	Flexible				7.90	7.70	0.26	95	Fair	Yellow	2	1.370
	R4	Flexible				10.40	19.10	0.19	109	Fair	Orange	2	1.370
Post Mile: 13.596 to 13.949 Length: 0.353 Estimated Lane Mileage: 0.927	L1	Flexible				4.60	10.90	0.21	165	Fair	Orange	2	0.309
	L2	Flexible				8.30	9.60	0.21	181	Fair	Blue	2	0.309
	L3	Flexible				1.10	0.50	0.13	146	Fair	Green	2	0.309
Post Mile: 13.851 to 13.949 Length: 0.098 Estimated Lane Mileage: 0.162	R1	Flexible				9.30	5.00	0.14	200	Fair	Blue	2	0.054
	R2	Flexible				5.90	1.80	0.14	196	Fair	Blue	2	0.054
	R3	Flexible				5.40	9.30	0.13	227	Fair	Blue	2	0.054
						6.74	**5.50**	**0.18**	**126**				**56.146**
			Lane Weighted Average										Total

ATTACHMENT C

Storm Damage Investigation

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Serious drought.
Help Save Water!

To: MS. KIM LE
District Office Chief
Maintenance Services

Attention: S. Kakihara

Date: June 20, 2016

File: 04-SCL-17- PM 11.84
59 - 930322
Efis: 00 0000 0999N
SD: 5937017011.8
Storm Damage

From: M. ZABOLZADEH/A. KADDOURA
Associate Materials & Research Engineers
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

H. Nikoui

HOOSHMAND NIKOUI
Chief, Branch A
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: **STORM DAMAGE INVESTIGATION- REQUEST TO INITIATE A PROJECT**

This is in response to your request dated February 22, 2016 to inspect water seepage, voids and pavement settlements at SR 17, PM 11.84, Campbell Avenue UC (Bridge No. 37-0133) in the City of Campbell, Santa Clara County.

We visited the site on February 22, 2016 and observed the following:

Northbound SR 17 Approach Areas

1. It appears that lanes # 2 and #3 of the AC approach areas have been AC overlaid to smooth the ride and to mitigate a settlement problem. See photo Exhibit 1.
2. There is about 6 inches wide pothole between lanes #2 and #3 at the abutment joint. See photo Exhibit 2.
3. The newly paved #2 and #3 lanes are spalling and settling at the abutment joints for a distance of about 67 feet from the existing bridge joints.

Northbound SR 17 Leave Areas

1. There are longitudinal and transvers AC pavement cracks across all 4 lanes for a distance of about 42 feet from the existing bridge joint. See Photo Exhibit 3.
2. The AC pavement appears to be settling.
3. Based on our discussion with maintenance crew, it appears that there may be cavities beneath the AC foundation.

Southbound SR 17 Approach Areas

1. It appears that all four AC 4 lanes including the outside and inside shoulders of the approach areas have recently been AC overlaid to smooth the ride and to mitigate a settlement problem. See photo Exhibit 4.
2. The outside AC shoulder have settled about 3 inches near the bridge barrier rail. Also, there are transverse and longitudinal cracks in the shoulder area. See photo Exhibits 5 and 6.

Southbound SR 17 Leave Areas

1. The existing 4 lanes and outside shoulder are PCC and inside (median) shoulder is AC. Based on our visual inspection of the site, it appears that the PCC slabs have settled across all 4 lanes including shoulders for a distance of about 30 feet from the existing bridge joints. See Photo Exhibit 7.
2. Bridge joint appears to be broken or dislocated and an AC sealant has been used. See photo Exhibit 8.

According to the Bridge Inspection Reports (BIRIS), dated July 2012 and 2014, there are up to 0.04 inch wide transverse and pattern cracks on the north and southbound lanes. The AC approach of the southbound lanes has raveled and 2 inches potholes were observed. In the northbound lanes, the right barrier rail has about 2 feet and 4 inches deep spall.

Conclusion

Based on our visual inspection of the site and review of the as built plans and BIRIS photos, we believe the cause of the settlement is due to the surface runoff seeping into the broken joint seals at the approach and leave areas as well as through pavement cracks. The water seepage has saturated and softened the foundation soils under the pavement structural section causing the settlement. The depth of the soft foundation soils is not known at this time. However, we will determine the exact depth of the soft soils during our subsurface investigation after a project has been initiated. Also, based on our conversation with Maintenance crew, there may be cavities beneath the structural section in the northbound leave area. These cavities may be formed because of migration of the soil foundation into the PM materials behind the abutment wall.

Recommendation

Based on the above, we recommend strengthening the foundation soils under the structural section with the use of ***soil densification with expanded polyurethane material*** (EPM). This will fill the voids, decrease permeability of the foundation soils, and increase the shear strength of the foundation soil. The EPM injection will lift the approach and leave PCC slabs to their original profile. Refer to the attached Exhibit A.

EPM will be used within the limits of the settled area as shown on the attached Exhibit A to an approximate depth of 10 ft (two injection points at the depths of 5 feet, and 10 feet per grout hole).

The following is the estimated geotechnical cost breakdown:

Southbound SR 17 Approach Areas

31,000 lbs. of EPM x $9.0/lb = $279,000

Southbound SR 17 Leave Areas

18,500 lbs. of EPM x $9.0/lb = $166,500

Northbound SR 17 Approach Areas

14,500 lbs. of EPM x $9.0/lb = $130,500

Northbound SR 17 Leave Areas

19,500 lbs. of EPM x $9.0/lb = $175,500

EPM Equipment Mobilization = $ 5,000

The total estimated geotechnical cost for this is $756,500

If you have any questions or need additional information, please call Hooshmand Nikoui, Branch Chief, at (510) 286-4811 or Ali Kaddoura/M. Zabolzadeh at (510) 286-4676/286-4831.

c: TPokrywka, HNikoui, Daily File

MZabolzadeh/AKaddoura/mm

Photo Exhibit 1 (NB Approach)

Photo Exhibit 2 (NB Approach)

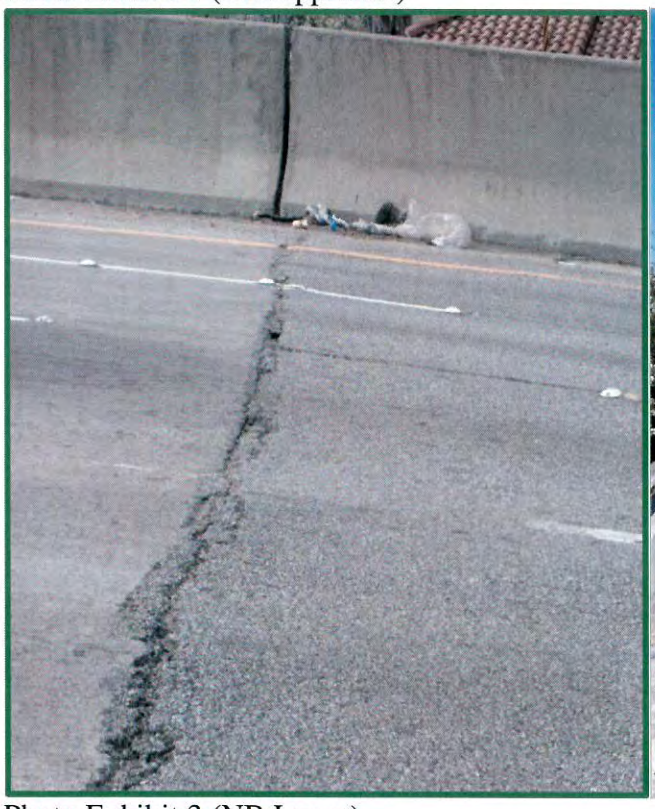


Photo Exhibit 3 (NB Leave)

Photo Exhibit 4 (SB Approach)

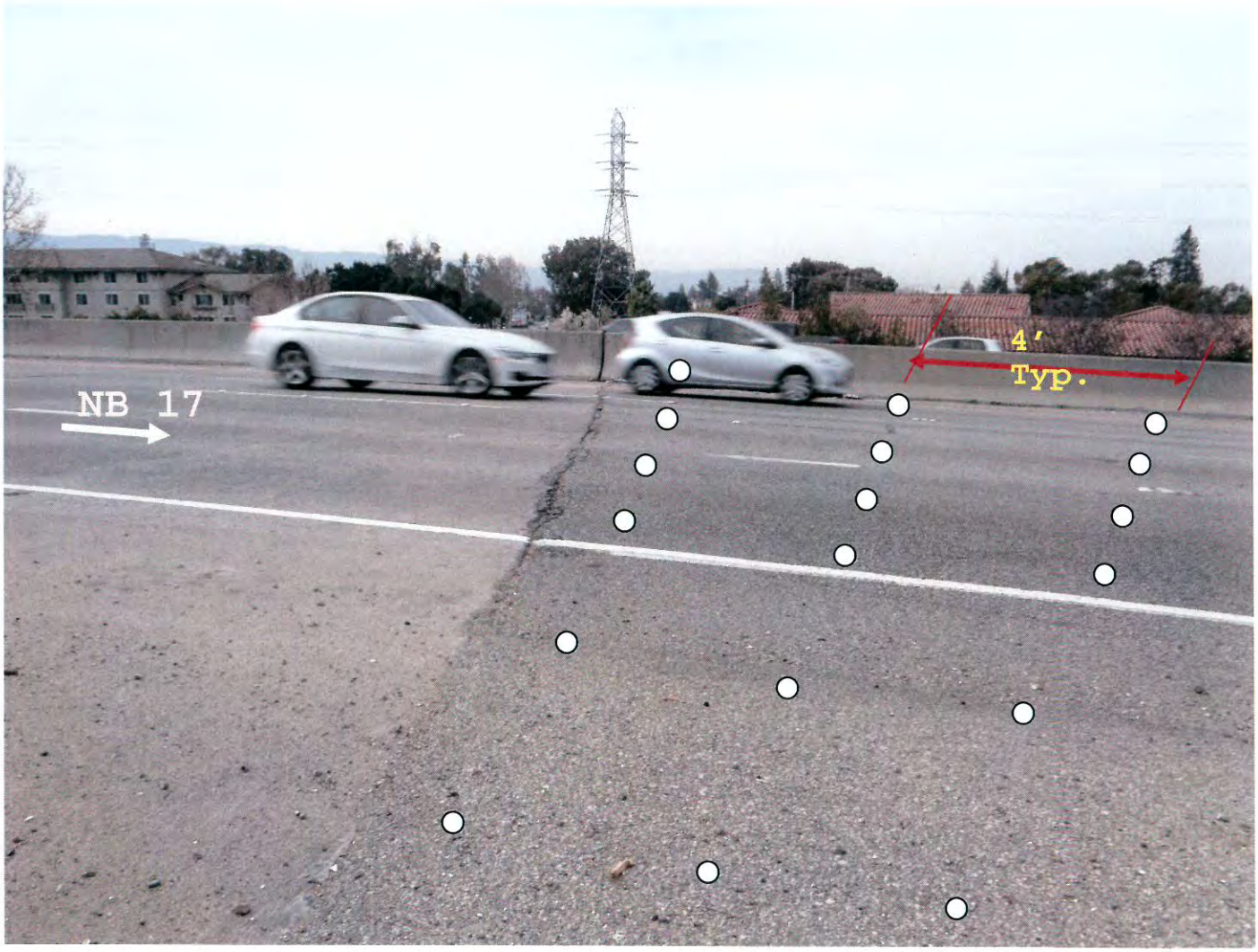
Photo Exhibit 5 (SB Approach)

Photo Exhibit 6 (SB Approach)

Photo Exhibit 7 (SB Leave)

Photo Exhibit 8 (SB Leave)

SR 17- Campbell Avenue UC-Typical PLAN



○ Polyurethane Material Grout (10' deep)-2 injection points/hole @ the depth of 5'and 10'. Typical Pattern of injection points is 4' spacing.

PHOTO EXHIBIT A
TYPICAL
04-SCL-17 PM 11.84
(Campbell Ave UC)
59-930322
June 2016

ATTACHMENT D

Bear Creek Off-Ramp Embankment Settlement Geotechnical Recommendation

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Making Conservation
a California Way of Life!

To: **HASSAN NIKZAD**
Senior Transportation Engineer
District 4

Date: February 12, 2018

Attention: Peter Lac

File: 04- SCL-17 PM 2.8 – 13.94
04-1J970K
Efis 0414000404
DPGR
Southbound Bear Creek Offramp

From: VAHID KHATA-O-KHOTAN
Transportation Engineer
Office of Geotechnical Design – North
Geotechnical Services
Division of Engineering Services

ANGEL PEREZ-COBO
Senior Transportation Engineer
Office of Geotechnical Design –North
Geotechnical Services
Division of Engineering Services

Subject: **SCL 17 CAPM Project, Bear Creek Offramp Embankment Settlement**

The proposed project will address embankment settlement on Southbound direction of highway 17 at Bear Creek offramp, and drainage issue atthe Bear Creek onramp to Southbound 17. This is part of the capital improvement project of highway 17, PM 2.8 to 13.9. The site, Bear Creek Overcrossing, is located in Santa Clara County, Post Mile 4.3 of highway 17(Figure 1). This report provides the repair recommendation strategy for pavement and drainage issues for this embankment offramp and onramp.

Introduction

The proposed project (SCL-17-2.8-13.9; 04-1J970K) lies in Santa Clara County, about 3 miles south of highway 9, in the city of Los Gatos. The purpose of this project is to improve drainage issues on the roadway, and thus safety for motorists. Findings presented in this report are based on field reconnaissance and review of literature.

The Bear Creek Southbound offramp was visited on December 27, 2017 to assess the pavement distress. It was observed that the pavement on the exit lane to Eastbound bridge crossing has settled. There are numerous pavement cracks visible longitudinally next to guardrail. The cracks have allowed surface water to seep into the pavement, causing more embankment settlement. The severity of the embankment settlement is noticed in the guard rail not being straight, but concave (Figure 2). In addition to the pavement settlement, the Bear Creek Overcrossing onramp to Southbound 17 has experienced drainage problems at the edge of pavement leading down to the DI. Runoff surface water from roadway and the hill on north side has created gullies along the edge of pavement shoulder. Gullies in turn are undermining the edge of asphalt pavement, thus accelerating more soil erosion at the toe of the slope/edge of pavement (see Figure3).

Pertinent Reports and Investigations

- Foundation Recommendations and LOTB for Bear Creek OC, dated May 31, 1994
- Caltrans ARS Online (v2.3.09)

Site Geology and Subsurface Conditions

Regional Geology

The project site lies on the eastern edge of the Santa Cruz Mountain, which is located in the southern portion of the Coast Range geomorphic province of California. The Coast Ranges of California span approximately 600 miles along the western edge of California from Del Norte County to Santa Barbara County. The Santa Cruz Mountains are largely the result of compressive uplift caused by a leftward bend of the San Andreas Fault. The Santa Cruz Mountains are composed predominately of the Franciscan and Salinian Block basement rocks which are overlain by Miocene rock strata of the Lompico Sandstone, the Vaqueros Sandstone and the Santa Margarita Formation.

According to the Geologic Map of the California (Department of Conservation, 2010), the project site lies in the area of two geologic units. The western most unit is Mesozoic in age and consists of metavolcanic and volcanic rocks of the Franciscian Complex (Mzv). These rocks are composed of andesite and rhyolite flow rocks, greenstone, volcanic breccia and other pyroclastic rocks, which in part, are strongly metamorphosed. The eastern unit are Cretaceous to Jurassic aged marine sedimentary and metasedimentary rocks (Kjf) of the Franciscian Complex. These rocks are composed of sandstone with smaller amounts of shale, chert, limestone, and conglomerates.

Subsurface Conditions

A previous subsurface field investigation for the Foundation Recommendations report (dated May 31, 1994) for Bear Creek Overcrossing, was reviewed for this report. Based on our review, the subsurface materials consist of artificial fill, colluvium deposits of silty clay, sandy clay, clayey sand, and landslide deposits of, shale, claystone, siltstone and sandstone. All of the rock material is moderately to intensely weathered, slightly to intensely fractured with a tendency to be less weathered and fractured with depth. The hardness of the rocks ranged from soft to moderately soft.

Geotechnical Conditions

Groundwater

Although no current groundwater data is available for the project area, the groundwater was encountered at elevation 661 feet based on the Bear Creek Overcrossing Foundation Recommendations report previously mentioned (See Attached LOTB).

Faulting and Seismicity

Caltrans defines a fault as "active" if the fault is known to have ruptured within the past 700,000 years (Late-Quaternary to present). The Caltrans Acceleration Response Spectrum (ARS) Online Tool (V.2.3.09) and the Caltrans fault database indicates that the nearest active" fault is San Andreas Fault (fault ID 158) located approximately 1.0 mile west of the project location.

Based on the Methodology for Developing Design Response Spectrum for Use in Seismic Design Recommendations, the design ground motion is the highest spectral acceleration as obtained by any or a combination of the following three methods for this project site.

1. Statewide minimum deterministic spectrum requirements with MMax of 6.5, vertical strike-slip event with a rupture distance of 7.5 miles.
2. The nearest active fault as shown on the ARS Online Tool.
3. The United States Geological Survey (USGS) 5% Probability of Exceedance in 50 years (975 years return period).

In accordance with the Caltrans Seismic Design Criteria Appendix B, the average small strain shear velocity for the top 100 feet at the site (Vs30) is estimated to be about 900 feet per second. Based on the Vs30, the preliminary design ARS curve was determined utilizing method 3 as stated above. Utilizing the estimated Vs30 and ARS Online (V.2.3.09) web-based tool, a Peak Ground Acceleration (PGA) of 0.8g was calculated.

Table No. 1. Caltrans Fault Database Active (1) Faults

FAULT	San Andreas Fault	Cascade Fault
Fault ID	158	153
Maximum Magnitude (MMax)	8	6.7
Fault Type	SS	Rev
Fault Dip	90 Degrees	50 Degrees
Rrup (mi)	1.0	5.3
Rx(mi)	1.0	6.9
Approx. PGA	0.5g	0.5g

Note: (1) Active = late-Quaternary in age or younger (active in the past 700,000 years) and capable of producing an earthquake greater than magnitude 6 when evaluated deterministically (Caltrans Fault database (V2a) Report for ARS Online, dated 10-23-12). Distances measured from the middle of the project.

Hazardous Waste Potential

To our knowledge, there is no hazardous waste within the project site.

Recommendations

Based on the above, we recommend strengthening the embankment soils under the pavement by the following method:

Compaction grouting :

- An area of 60 by 13 ft, to be covered (beyond the settlement area footprint).
- Maximum spacing of 5ft on center for grout holes.
- Grout injected to a depth of 15ft.
- Verification CPTs before and after compaction grouting operation.

This method requires temporary road closure during the reconstruction. The roadway may be closed at night time and reopened in the morning. Based on similar projects done in the area, the work would take maximum of two or three nights.

To take care of surface water runoff at the onramp, we recommend constructing a V-ditch at the tow of the slope, leading to the DI. Please consult with hydraulics for design of the ditch.

If you have any questions or require further information, please contact Vahid Khata-O-Khotan at (916) 227-1061 or Angel Perez-Cobo at (916) 227-1038.

Attachments:

- Figure 1 : Site location
- Figure 2 : Pavement settlement
- Figure 3 : Drainage issue
- Figure 4 : Seismic information
- Figure 5 : Bear Creek OC LOTB

Figure 1.

Site location

04-SCL-17-PM6

Figure 2.

Site location, SB17 Bear Creek offramp

04-SCL-17-PM6

Figure 3.

Site location, SB17 Bear Creek offramp

04-SCL-17-PM6


SELECT SITE LOCATION
Map
Satellite
Saint Joseph's Hill Open Space Preserve
Lexington Reservoir County Park
Felton Station Open Space Preserve
Bear Creek Redwoods Open Space Preserve
Mark Site
Overlay
Google
Latitude: 37.19052794
Longitude: -121.99317455
Vs30: 270
m/s
Calculate

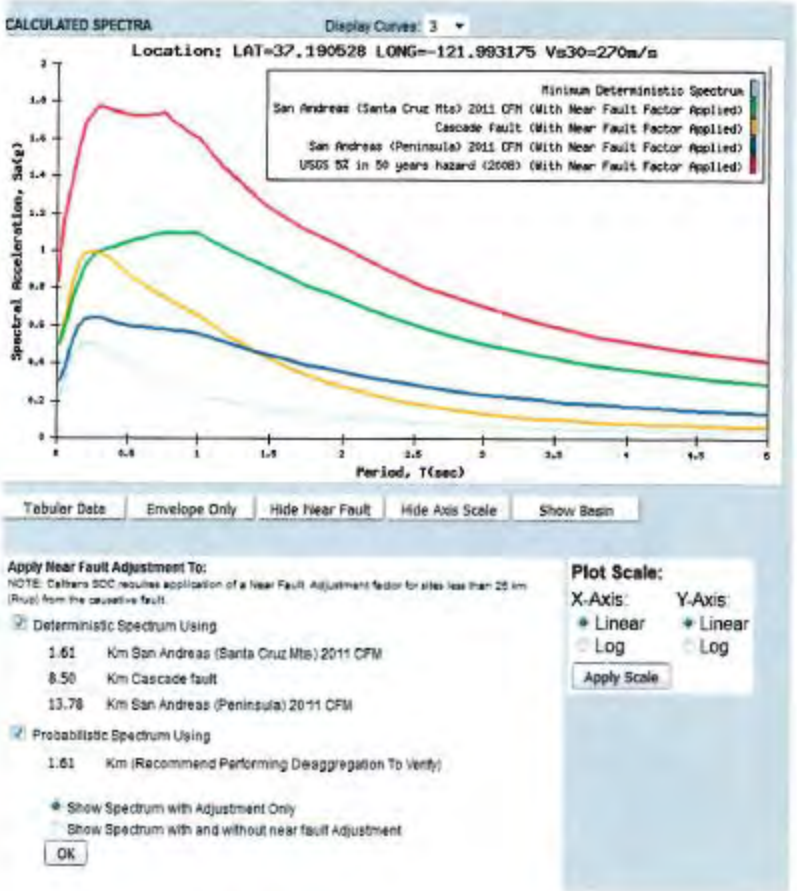

CALCULATED SPECTRA
Display Curves: 3
Location: LAT=37.190528 LONG=-121.993175 Vs30=270m/s
Minimum Deterministic Spectrum
San Andreas (Santa Cruz Mts) 2011 CFM (With Near Fault Factor Applied)
Cascade Fault (With Near Fault Factor Applied)
San Andreas (Peninsula) 2011 CFM (With Near Fault Factor Applied)
USGS 5% in 50 years hazard (2008) (With Near Fault Factor Applied)
Spectral Acceleration, Sa(g)
Period, T(sec)
Tabular Data
Envelope Only
Hide Near Fault
Hide Axis Scale
Show Basin
Apply Near Fault Adjustment To:
NOTE: Caltrans SDC requires application of a Near Fault Adjustment factor for sites less than 25 km (Rrup) from the causative fault.
Deterministic Spectrum Using
1.61 Km San Andreas (Santa Cruz Mts) 2011 CFM
8.50 Km Cascade fault
13.78 Km San Andreas (Peninsula) 2011 CFM
Probabilistic Spectrum Using
1.61 Km (Recommend Performing Deaggregation To Verify)
Show Spectrum with Adjustment Only
Show Spectrum with and without near fault Adjustment
OK
Plot Scale:
X-Axis: Linear Log
Y-Axis: Linear Log
Apply Scale

Figure 4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

PREPARED FOR:
DISTRICT 4
GEOTECHNICAL SECTION

PLOTTED BY
CHECKED BY
DATE
DATE

STANDARD SOIL SURVEY SHEET

DATE ______ ESAL ______ Traffic Index ______ LIMITS ______

DIST	COUNTY	ROUTE	POST MILE	SHEET NO.	TOTAL SHEETS
04	SCI	17	3.4/5.1		

REGISTERED GEOTECHNICAL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. ______
Exp. ______
GEOTECHNICAL
STATE OF CALIFORNIA

DESCRIPTION	BORING/SAMPLE NO	B-15				B-16							B-17			
	TEST NUMBER	15-1	15-2	15-3	BULK	16-1	16-2	16-3	16-4	16-5	16-6	16-7	17-1	17-2	17-3	BULK
	DATE SAMPLED	2/1/93				1/31/93							2/2/93			
	STATION	199+67				200+86							202+29			
	LINE	CL2				CL2							CL2			
	DISTANCE FROM LINE (RT or LT)	200' RT				100' RT							173' RT			
	DEPTH OR ELEVATION	3-4.5	9-10.5	15-16.5	0-5	4-5.5	9-10.5	15-16.5	20-21.5	25-26.5	30-31.5	36.5-38	5-6.5	11.5-13	20-21.5	0-5
	TYPE OF MATERIAL	SC				CL										
SIEVE ANALYSIS	1 1/2" SQUARE OPENING															
	3/4" SQUARE OPENING															
	3/8" SQUARE OPENING															
	NO 4 (4760 MICRONS)															
	NO 10 (2000 MICRONS)	100				100										
	NO 20 (840 MICRONS)	94				96										
	NO 40 (420 MICRONS)	79				80										
	NO 80 (250 MICRONS)	67														
	NO 100 (149 MICRONS)	57														
	NO 200 (74 MICRONS)	47				63										
	5 MICRONS															
COMPACTION	IN-PLACE DENSITY (DRY WT-lb/ft)^3	91.6	103.2	102.3		101.7	103.0	107.9	113.9	105.2	98.0	113.6	111.0			
	IN-PLACE MOISTURE (PERCENT)	28.5	21.0	14.3		21.6	24.6	16.5	14.8	17.6	14.3	17.5	18.0	19.3	19.6	
	MAXIMUM DENSITY (DRY WT-lb/ft)^3				99											
	OPT MOISTURE (PERCENT)				17.5											
	RELATIVE COMPACTION (PERCENT)															
R-VALUE	MOISTURE															
	DENSITY															
	R-VALUE - STABILOMETER															
	R-VALUE BY EXPANSION															
	THICKNESS OF COVER REQUIRED															
	LIQUID LIMIT															
	PLASTICITY INDEX															

PLAN

SCALE Lateral: 1" = 50'

Borings: B-15/B-16/B-17

PROFILE/LOG OF BORINGS

Vertical: 1" =
Horizontal: 1" = 50'

PROFILE SCALE:

B-15 675.0±

FILL: Brown CLAYEY SAND, so[illegible] SILTSTONE fragments, very moist.

Compact.

NATIVE: Yellow brown weathered SILTSTONE/CLAYSTONE, some SAND, bla[illegible] streaks, very moist.

Compact, mottled gray and ye[illegible] orange SILTSTONE/CLAYSTONE, bedding dip=3°-11°, very moist.

▼ G.W.S. Elev. 661.0 ± DATE MEASURED 01/31/93

Dense [illegible] SANDSTONE and dark gray CLAYSTONE, bedding dip=13°, moist.

Dense, dark gray SILTSTONE, bedding dip=32°, moist.

Dense, gray brown SANDSTONE, bedding dip=25°, moist.

Dense, light gray to yellow brown SILTSTONE/SANDSTONE, bedding dip=23°, moist. Hard drilling.

Dense, green gray brown coarse SANDSTONE with minor bedding (dip=27°), moist. Auger refusal.

1/31/93 Groundwater encountered at 14 f[illegible]

SEE PLATE 7

B-15 652.0±

FILL: Brown SANDY CLAY, traces of fine SAND, very moist.

Stiff.

NATIVE: Slightly compact, brown weathered SILTSTONE, with light gray brown CLAYSTONE, bedding dip=24°, very moist.

Gray, traces of fine white SAND, moist.

Dense, medium gray SILTY SANDSTONE with fine yellow coating on bedding planes (dip=28°), moist.

2/1/93 Groundwater not encountered

B-17 656.0±

FILL: Brown SANDY CLAY, traces fine GRAVEL and SILT, very moist.

NATIVE: Slightly compact, gray brown weathered SANDSTONE/SILTSTONE, bedding dip=30°?, moist. Start continuous coring. Bedding planes:
at 6', dip=14°-18°;
at 10', with orange and gray powder, dip=20°.
at 11.5', with white and gray slick, dip=19°.
Dense, no recovery for continuous coring.

Very hard drilling, grinding sound and vibrations.

Very dense, brown fractured SILTSTONE, moist, auger refusal.

2/2/93 Groundwater not encountered

B-1R

CLAYEY SILT
SI CLAY
V Stiff CLAY
Hard CLAY
V Stiff CLAY
CLAYEY SILT
spread footing
HARD CLAY
HARD CLAY
qu 15 TSF
28 TSF
CLAYSTONE
45 TSF
CLAYSTONE
58 KSF
CLAYSTONE
SHAFT TIP
71 TSF

LEGEND OF EARTH MATERIALS

- ▨ CLAY
- ▨ SILT
- ☐ SAND
- ☐ GRAVEL
- ▨ SANDY CLAY, CLAYEY SAND
- ▨ SANDY SILT, SILTY SAND
- ▨ SILTY CLAY
- ▨ CLAYEY SILT
- ▤ ORGANIC MATTER AND/OR PEAT
- ▤ SEDIMENTARY ROCK
- ▥ METAMORPHIC ROCK
- ▩ IGNEOUS ROCK

BORING TYPE

- (P-4) POWER BORING-NO.
- S-4 1" SOIL TUBE-NO.
- CP-4 ELECTRONIC CONE PENETRATION TEST-NO.
- H-4 TEST HOLE AND/OR COMPACTION

EXPLORATION METHOD

- DA AUGER BORING (HOLLOW STEM)
- DA ROTARY BORING
- DA AUGER BORING (SOLID STEM)
- DH PUSH SAMPLER

SAMPLING METHODS

- MC MODIFIED CALIFORNIA SAMPLER
- SP STANDARD PENETRATION SAMPLER
- AC AUGER CUTTING
- CA CONTINUOUS AUGER (DRY CORE)
- D DIAMOND CORE
- ST SHELBY TUBE

UNCONFINED COMPRESSIVE STRENGTH

- 1.0 LABORATORY TEST
- 1.0 POCKET PENETROMETER

PSC PROJECT # 88147.10

PLATE 8

CU 04273

EA 119651

Figure 5

ATTACHMENT E

List of ADA Curb Ramp Locations

EA 1J970 - SCl - 17, PM 2.8/13.9 CAPM Project
List of ADA Curb Ramp Locations

No.	Location Description (Intersection)	SCL-17 PM	Direction	Curb Ramp		Island Passage		Detectable Warning Surface (DWS)		Upgrade PPB to APS	REMARKS
				Proposed Case	Each	Proposed Type	Each	EA	Area (sf)	EA	
1	NB Off to Bear Creek Rd	4.13	RT	A	1			1	12		Pull Box, connect to bridge structure
2	NB On from Bear Creek Rd		RT	See Remark	1			1	12		No existing sidewalk. Proposed level pad to connect to bike trail
3	Bear Creek/Frontage Rd		LT	See Remark	1			1	15		No existing sidewalk. Proposed level pad to connect to goat path
4	Bear Creek/Frontage Rd		RT	C	1			1	15		Pull box, Electrical light, DI
5	SB On from Santa Cruz Ave	6.19	RT	A	1			1	12		Partially outside State-Right-of-Way, DI by curb ramp
6	NB On from SR-9	7.09	LT	C	1			1	15		
7	NB On from SR-9		RT	C	1			1	15		
8	NB Off from SR-9		LT	C	1			1	15		
9	NB Off from SR-9		RT	C	1			1	15		
10	SB On from SR-9		LT	C	1			1	15		
11	SB On from SR-9		RT	C	1			1	15		
12	SB Off from SR-9		LT	C	1			1	15		
13	SB Off from SR-9		RT	C	1			1	15		
14	NB off to Lark Ave	8.88	LT	C	1			1	15	1	Pull box
15	NB off to Lark Ave		RT	C	1			1	15		Utilities near, but out of way
16	NB off to Lark Ave		IP			B	1	2	24	1	
17	NB On from Lark Ave		LT	C	1			1	15	1	Signal Pole
18	NB On from Lark Ave		RT	C	1			1	15		Proposed New Curb Ramp, signal pole, utilities boxes
19	NB On from Lark Ave		IP			B	1	2	24	1	Pull box
20	SB Off to Lark Ave		IP			B	1	2	24	1	Pull boxes, signal pole
21	SB On from Lark Ave		RT	G	1			1	12	1	Signal Pole
22	WB on from Private Property		LT	F	1			1	12		
23	WB on from Private Property		RT	F	1			1	12		
24	NB On from Camden Ave/White Oaks Ave	10.51	RT	C	1			1	15		AC sidewalk, cabinets
25	NB On from Camden Ave/White Oaks Ave		IP			B	1	2	24	1	Signal pole, pull boxes
26	SB Off to Camden Ave		RT	C	1			1	15		Proposed New Curb Ramp, AC sidewalk
27	SB Off to Camden Ave		IP			B	1	2	24	1	
28	Island on Camden Ave		IP			A	1	2	24	1	
29	SB on from Camden Ave		LT	F	1			1	12	1	AC sidewalk, signal, pull boxes, cabinets
30	SB on from Camden Ave		RT	C	1			1	15		
31	SB on from Camden Ave		IP			C	1	3	36	2	Signals
32	NB diagonal off to E. Hamilton Ave	12.33	LT	A	1			1	12	1	DI, patterned sidewalk
33	NB diagonal off to E. Hamilton Ave		RT	A	1			1	12	2	Signals,
34	NB Loop on-ramp from Hamilton Ave		LT	A	1			1	12		
35	NB Loop on-ramp from Hamilton Ave		RT	C	1			1	15		
36	NB Diagonal on-ramp from Hamilton Ave		LT	A	1			1	12		Signal
37	NB Diagonal on-ramp from Hamilton Ave		RT	C	1			1	15		Pull box
38	SB Diagonal on-ramp from Hamilton Ave		LT	A	1			1	12		
39	SB Diagonal on-ramp from Hamilton Ave		RT	C	1			1	15		
40	SB Loop on-ramp from Hamilton Ave		LT	A	1			1	12		Signal poles, pull box
41	SB Loop on-ramp from Hamilton Ave		RT	C	1			1	15		
42	SB off-ramp to Hamilton Ave		LT	A	1			1	12	1	Cabinets, signal, pull boxes
43	SB off-ramp to Hamilton Ave		RT	A	1			1	12		Pull box, colored DWS
44	SB off-ramp to Hamilton Ave (Raised Island)		RI	A	3			3	36	2	Signal pole
			TOTAL		**39**		**7**	**54**	**711**	**18**	

Abbreviations: **IP**=Island Passage; **RI**=Raised Island

ATTACHMENT F

Rumble Strip Guidance for Shoulders where Bicyclists are Permitted

From: Currey, Gregory@DOT
To: Peterson, John E@DOT; Lac, Peter@DOT
Subject: Rumble Strip guidance for shoulders where bicyclists are permitted (re 1J970 CAPM project)
Date: Friday, January 13, 2017 9:32:24 AM

John and Peter,

Below is the generally accepted guidance for installation of shoulder rumble strips on State Highways where bicyclists are permitted, within the District. Regarding CAPM project 1J970, bicyclists are permitted on SR 17 south of State Route 9, all the way to the Santa Cruz County line. Just FYI, even when this guidance is followed, we have still experienced (and should expect) concerns from local bicyclist groups.

- If the shoulder is less than 5', a rumble strip should not be placed (see Standard Plan A40A note 1, and A40B note 1)
- If the shoulder width is at least 5', but less than 6.5', a 6" wide rumble strip would be placed on the edge line extending 2" into the right lane from the 4" wide edge line, leaving the entire shoulder for cyclists (per written direction from the District 4 Office of Traffic Safety, which was reviewed and accepted by the District 4 Bicycle Advisory Committee in July 2013)
- If the shoulder width is 6.5' or more, a 12" wide rumble strip would be placed 6" to the right of the right border edge line, thereby extending one and one half feet into the shoulder, leaving at least 5" of clear width for cyclists (per written direction from the District 4 Office of Traffic Safety, which was reviewed and accepted by the District 4 Bicycle Advisory Committee in July 2013)

Where shoulder rumble strips will be installed, the width of the shoulder should be shown.

Gaps in rumble strips need to be provided at and in advance of driveways, intersections, and interchanges to allow bicyclists to merge where necessary.

Greg Currey, Associate Transportation Planner
Pedestrian and Bicycle Branch
Office of Transit and Community Planning
Caltrans, District 4 | 510.286.5623

ATTACHMENT G

Typical Cross Sections

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	17	2.8/13.9	A	A

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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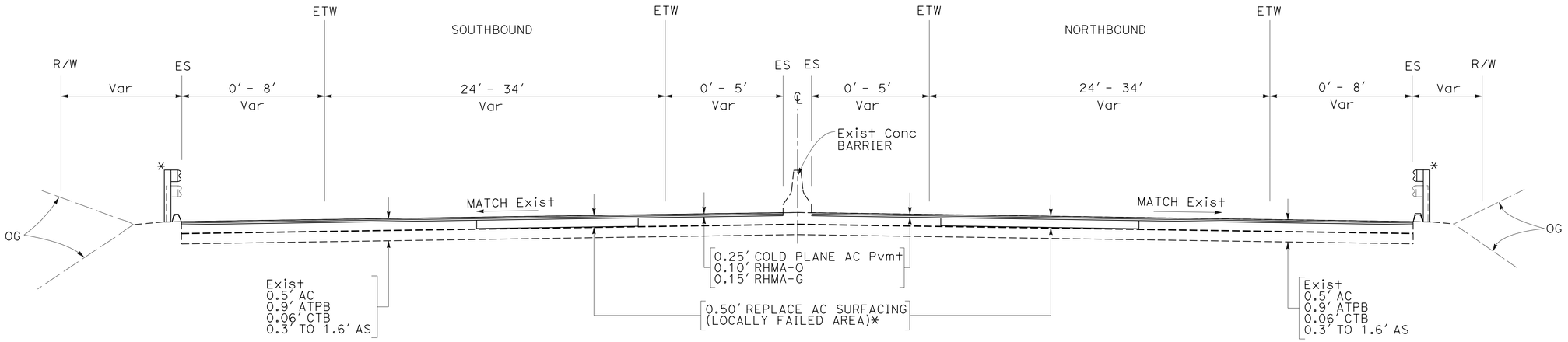
FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

NOTES:

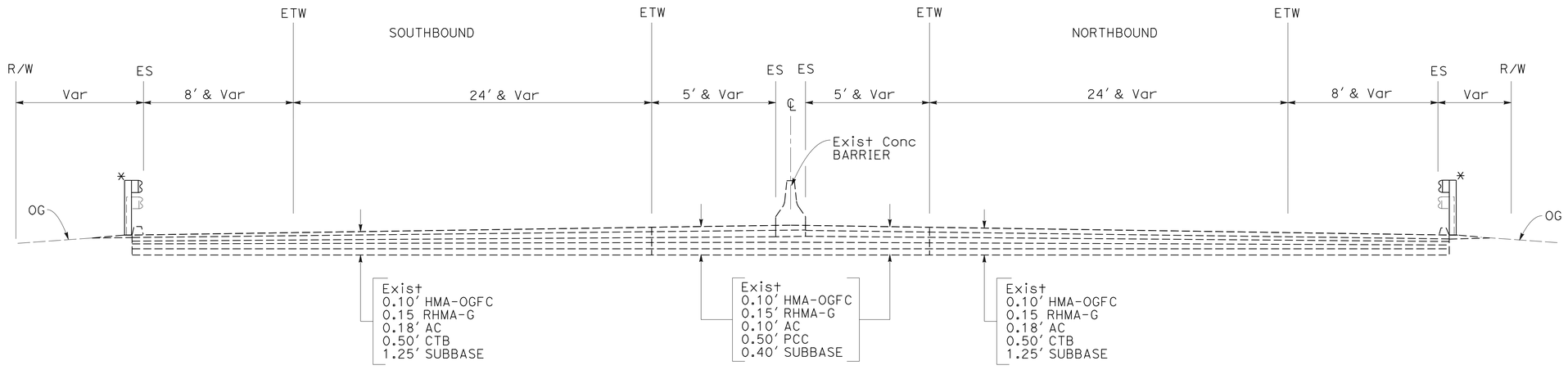
* LOCATIONS OF DIGOUT, PJCP, RUMBLE STRIP, DIKE AND MBGR REPLACEMENT WILL BE DETERMINED DURING PS&E

ABBREVIATIONS:

HMA-A	HOT MIX ASPHALT (TYPE A)
LCBRS	LEAN CONCRETE BASE RAPID SETTING
PJCP	PRECAST JOINTED CONCRETE PAVEMENT
RHMA-O	RUBBERIZED HOT MIX ASPHALT (OPEN GRADED)
RHMA-G	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)



ROUTE 17
PM 2.8 TO 6.9



ROUTE 17
PM 6.9 TO 7.1

TYPICAL CROSS SECTIONS

NO SCALE

X-1

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BORDER LAST REVISED 7/2/2010

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UNIT 0713

PROJECT NUMBER & PHASE 0414000404

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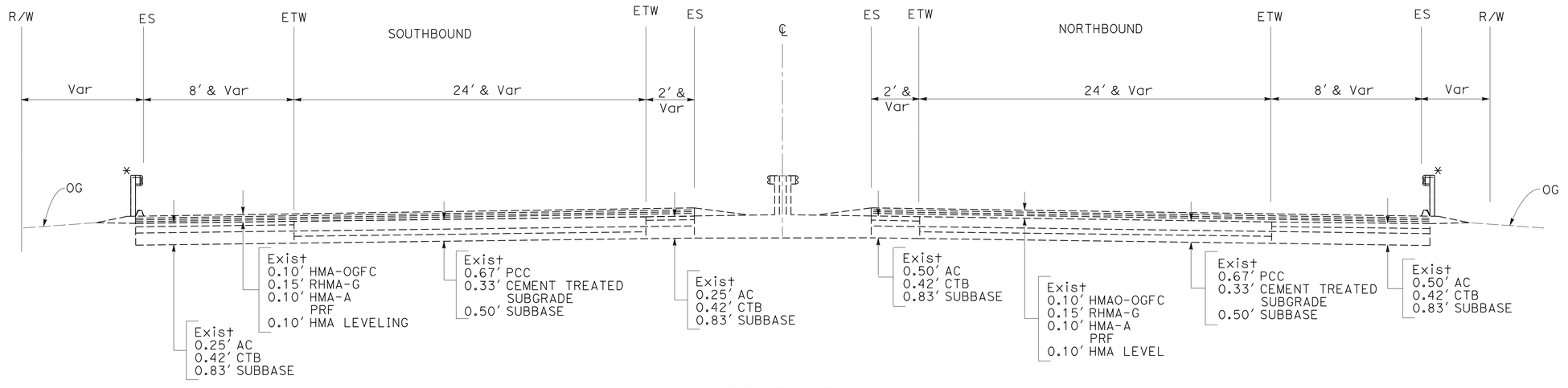
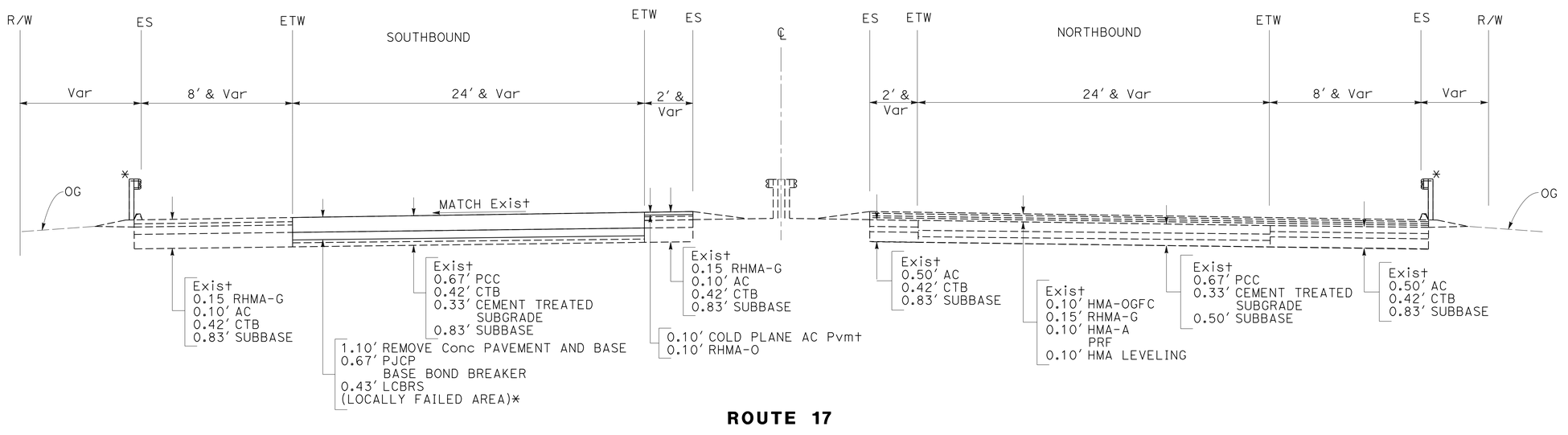


ROUTE 17
PM 7.1 TO 7.63
PM 7.66 TO 7.9



ROUTE 17

PM 7.63 TO 7.66

TYPICAL CROSS SECTIONS

NO SCALE

FOR ABBREVIATIONS, SEE SHEET X-1

X-2

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04	SCI	17	2.8/13.9	A	A

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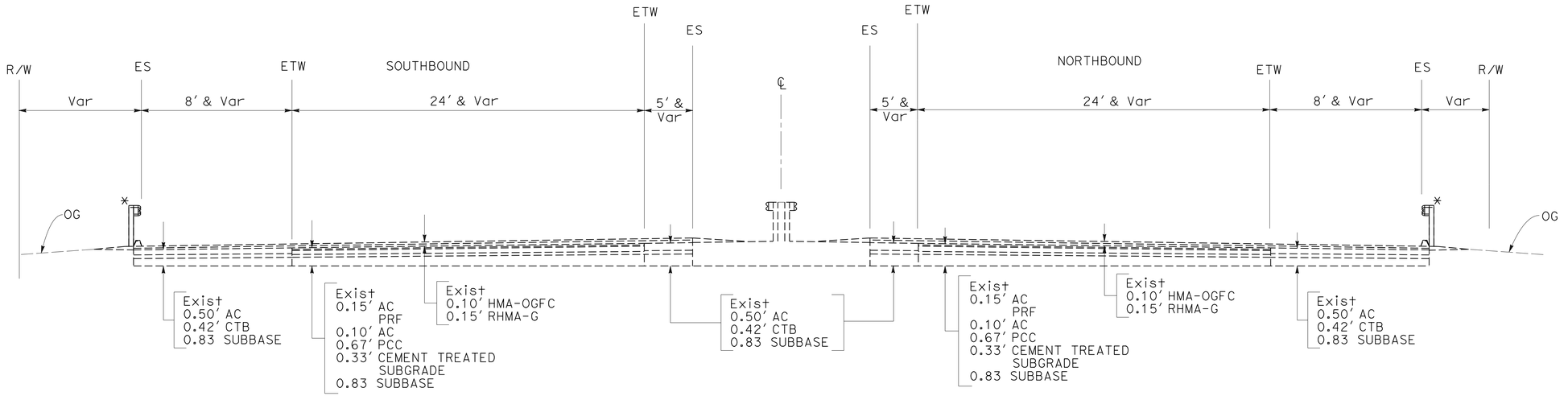
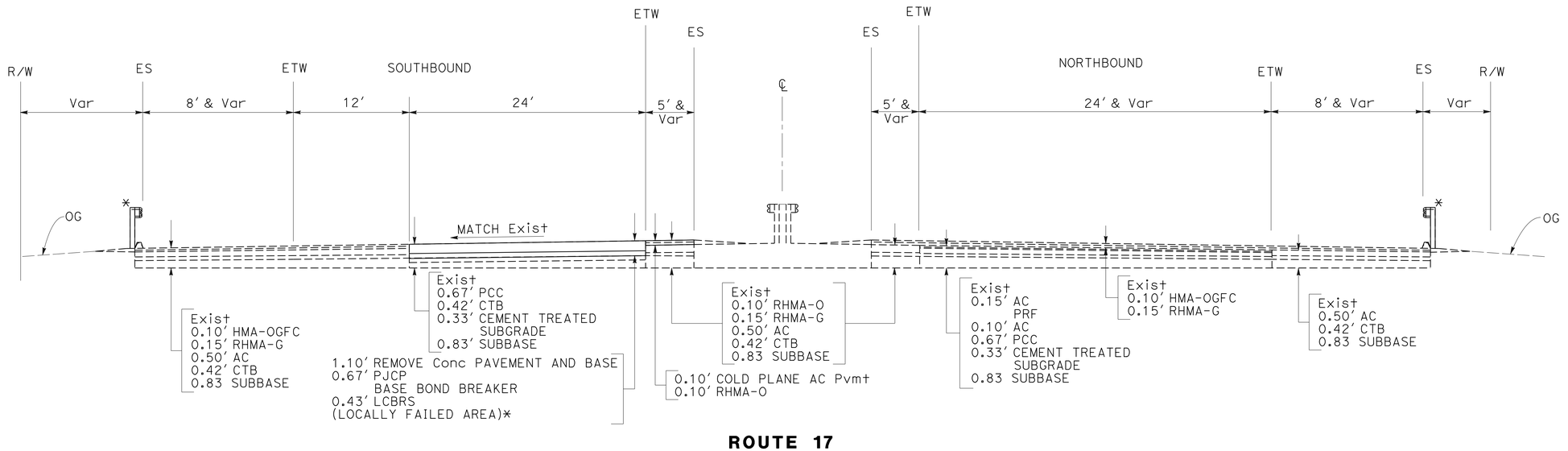


ROUTE 17

PM 7.9 TO 8.86
PM 8.91 TO 9.1



ROUTE 17

PM 8.86 TO 8.91

TYPICAL CROSS SECTIONS

NO SCALE

FOR ABBREVIATIONS, SEE SHEET X-1

X-3

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04	SCl	17	2.8/13.9	A	A

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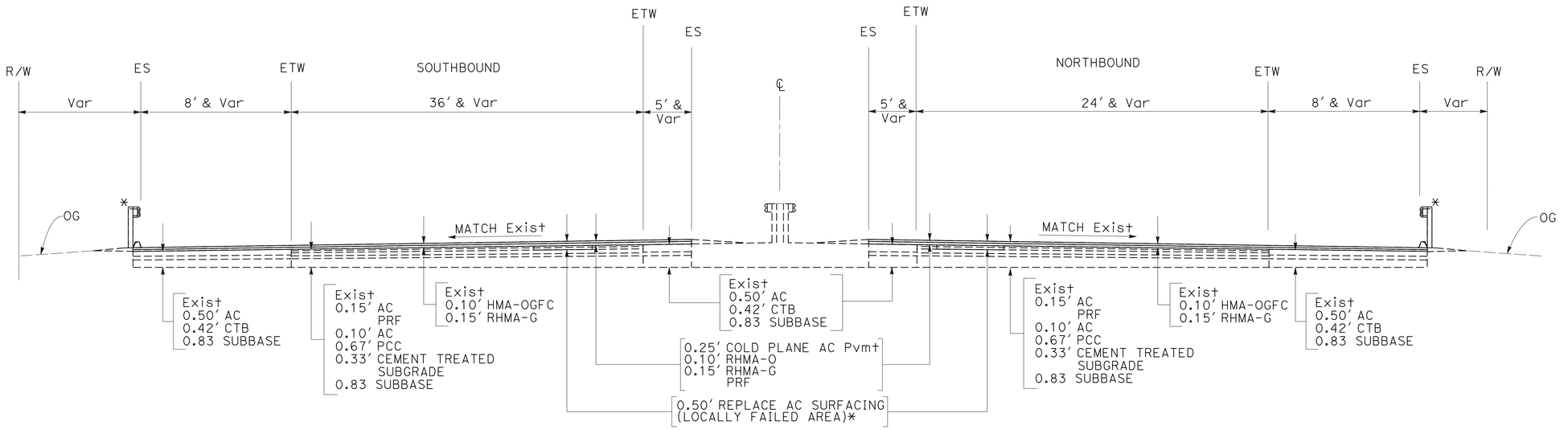
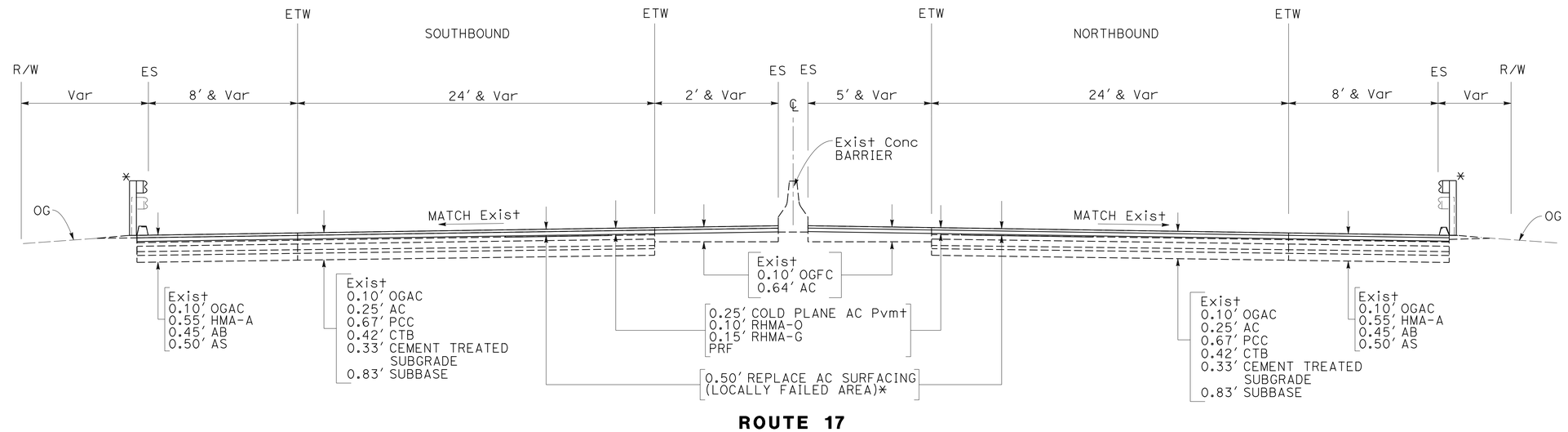


ROUTE 17
PM 9.1 TO 9.3



ROUTE 17
PM 9.3 TO 12.2
PM 12.35 TO 13.9

TYPICAL CROSS SECTIONS

NO SCALE

FOR ABBREVIATIONS, SEE SHEET X-1

X-4

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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NOTES:

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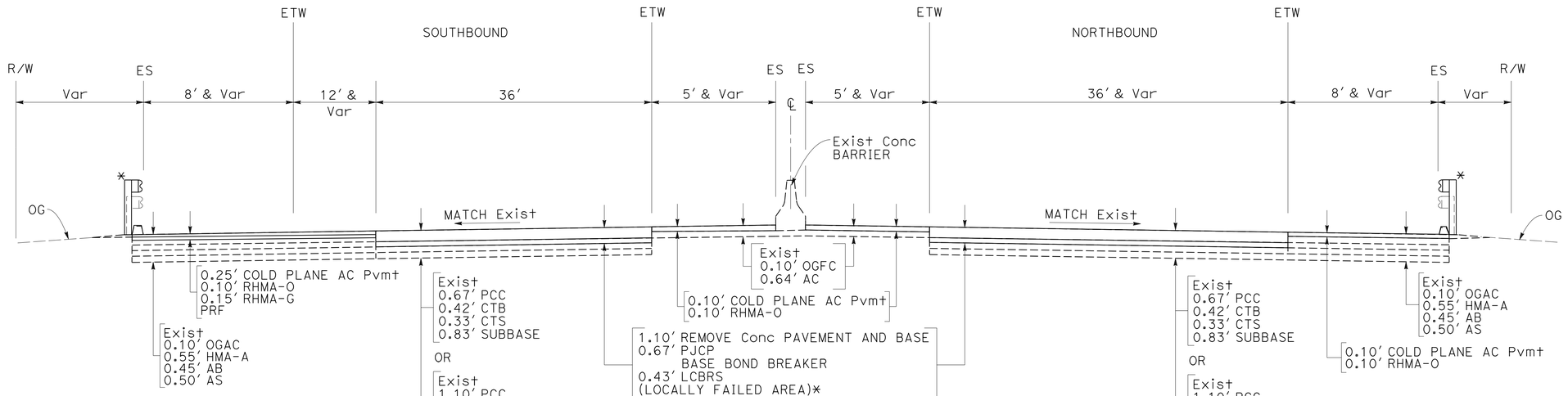

ROUTE 17

PM 12.2 TO 12.35

RAMPS
(TYPICAL)

TYPICAL CROSS SECTIONS

NO SCALE

FOR ABBREVIATIONS, SEE SHEET X-1

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UNIT 0712
PROJECT NUMBER & PHASE 0414000404

ATTACHMENT H

Preliminary Layout Plans

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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LEGEND

ADA CURB RAMP

REPLACE CONCRETE SLAB w/PJCP
PCC GRINDING

SOIL DENSIFICATION
w/EXPANDED POLYURETHANE MATERIAL

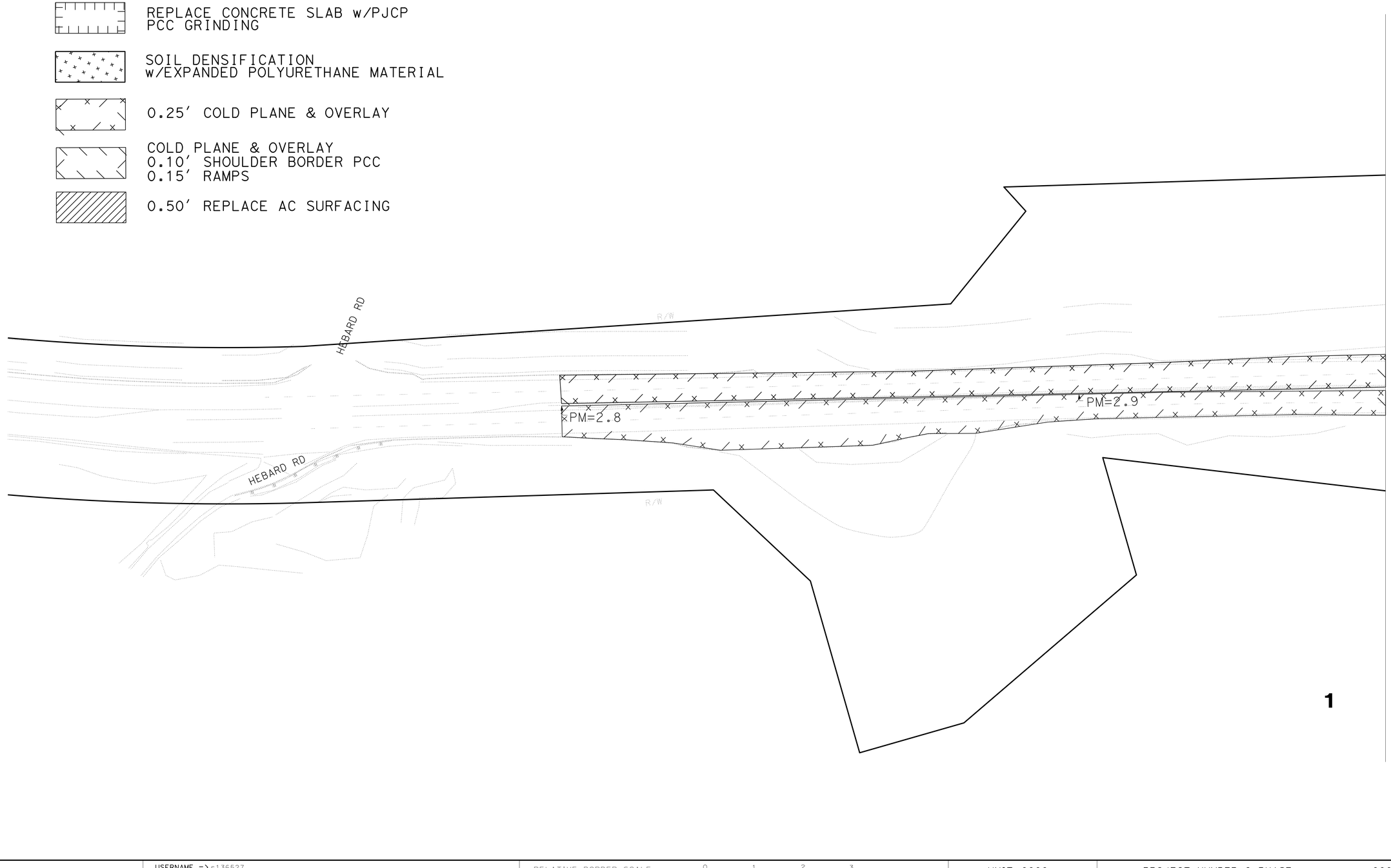
0.25′ COLD PLANE & OVERLAY

COLD PLANE & OVERLAY
0.10′ SHOULDER BORDER PCC
0.15′ RAMPS

0.50′ REPLACE AC SURFACING

NOTES:

1. LOCATIONS OF DIGOUT, PJCP, RUMBLE STRIP, DIKE AND MBGR REPLACEMENT WILL BE DETERMINED DURING PS&E



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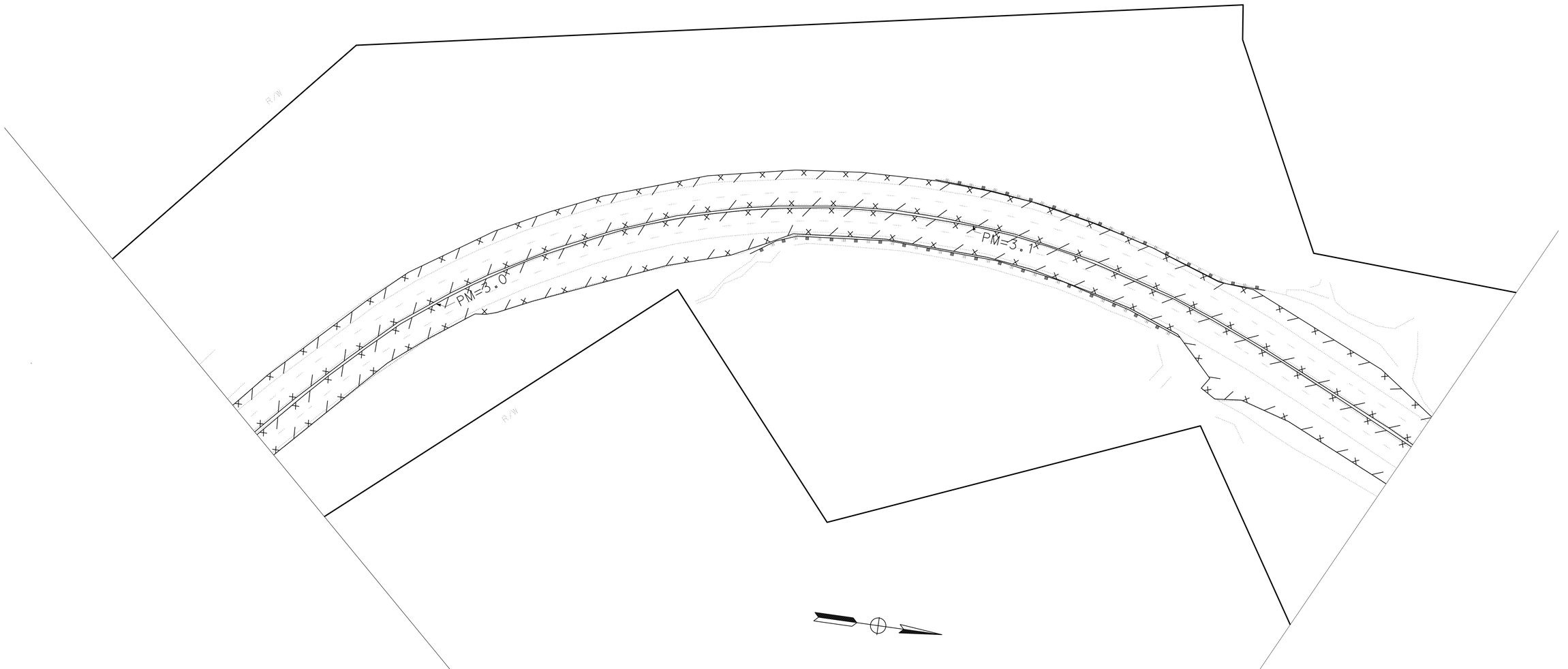

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

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PLANS APPROVAL DATE

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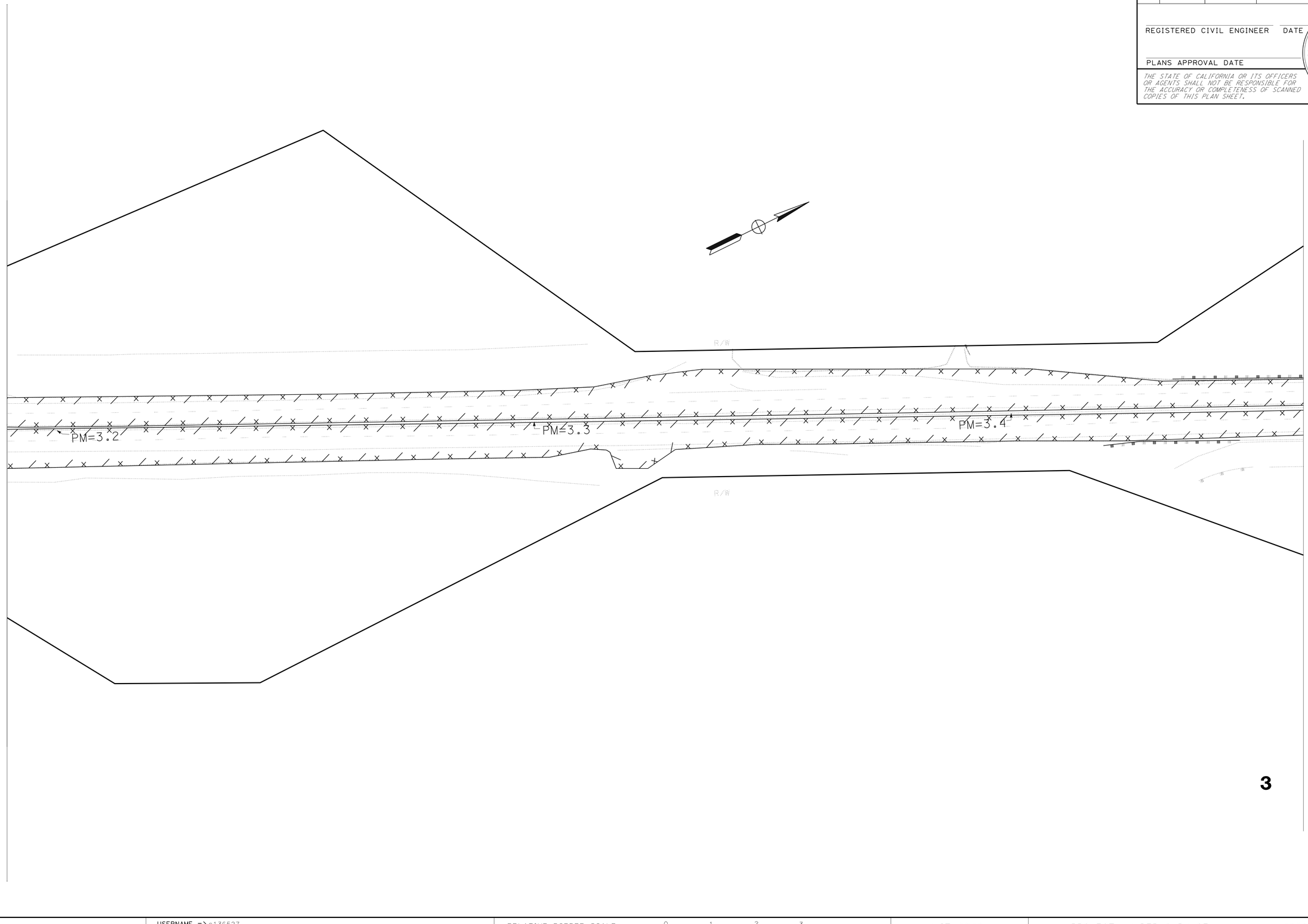
Exp.
CIVIL
STATE OF CALIFORNIA



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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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BORDER LAST REVISED 7/2/2010

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

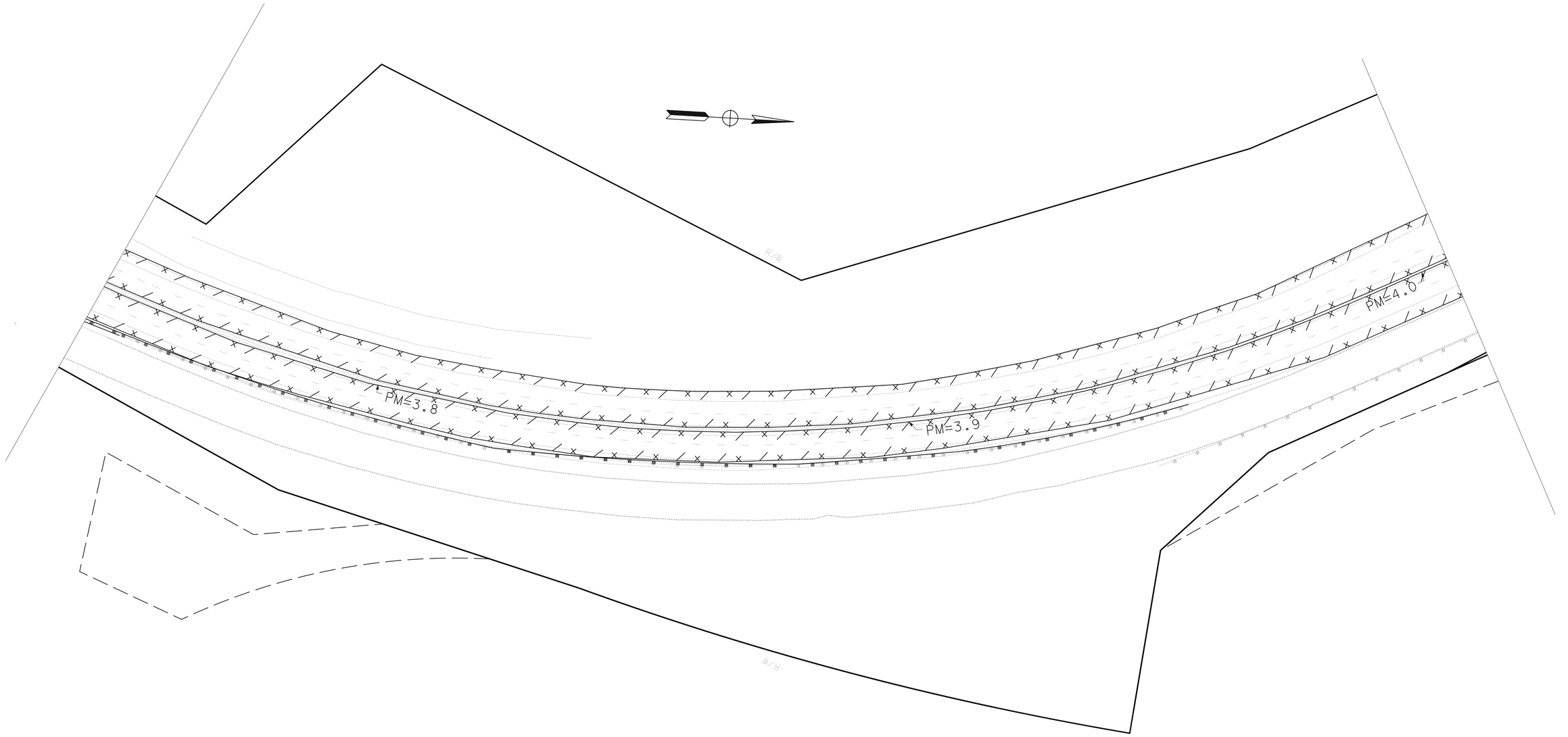
PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA



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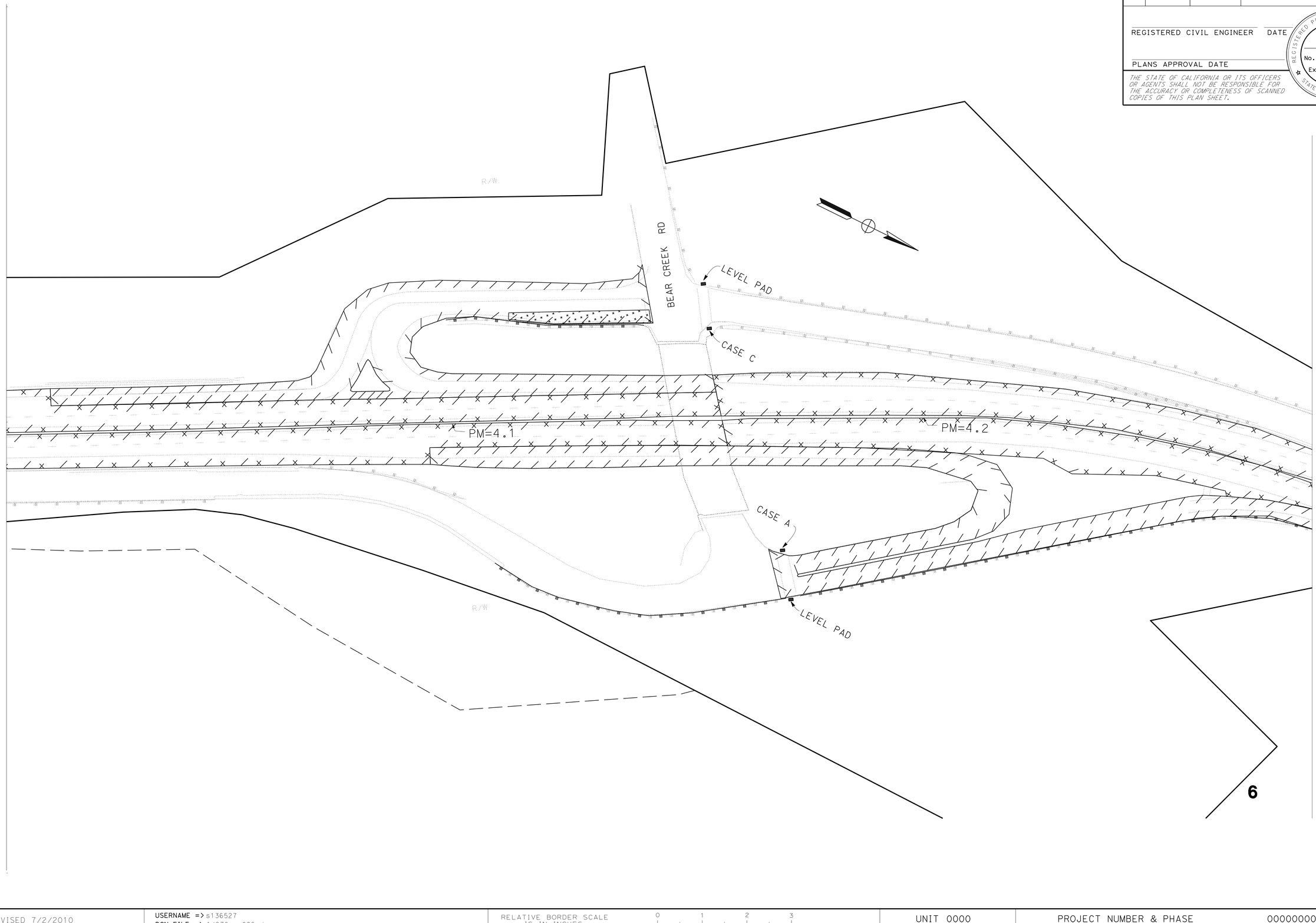
CIVIL
STATE OF CALIFORNIA



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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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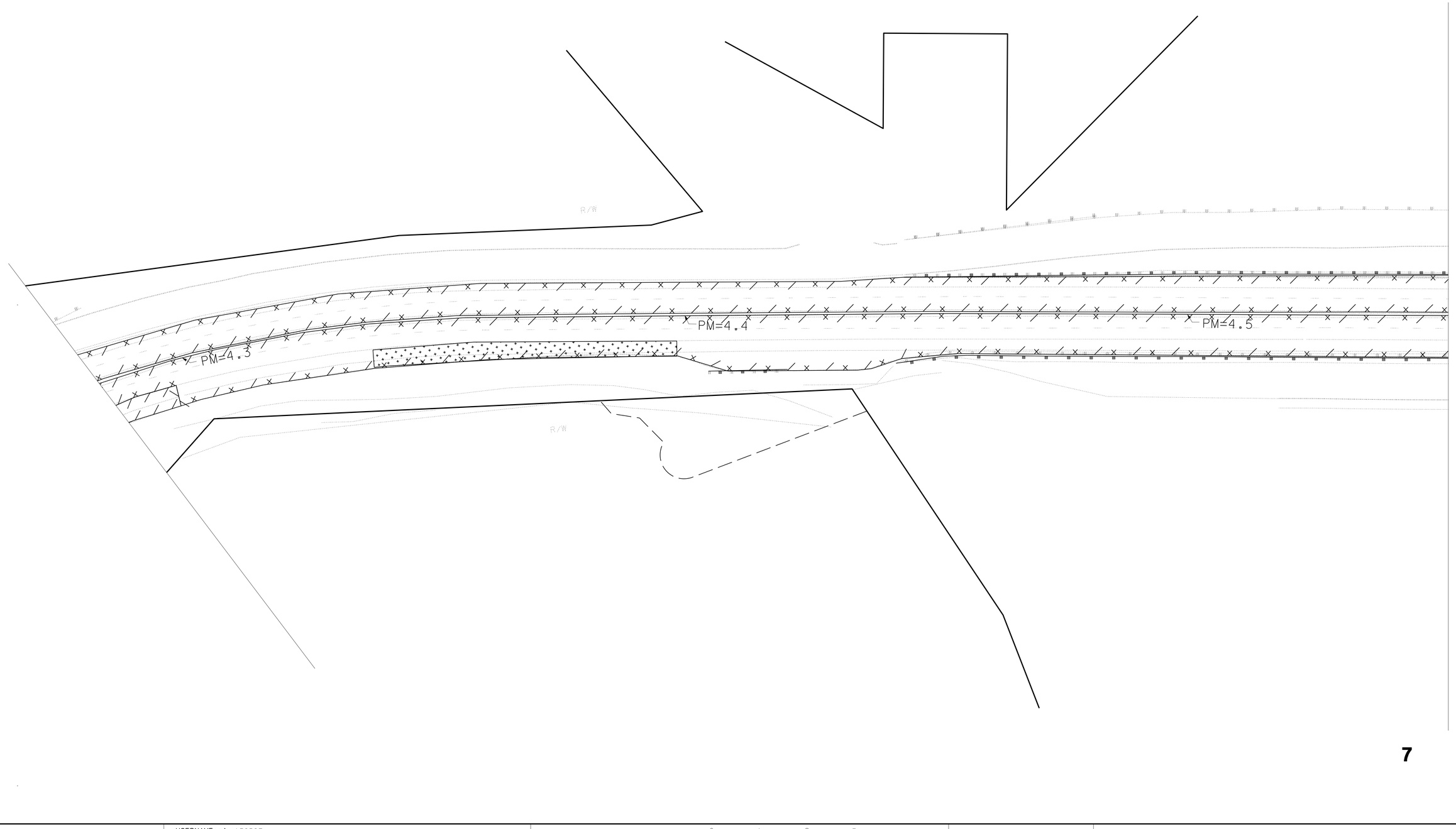
No.
Exp.
CIVIL
STATE OF CALIFORNIA



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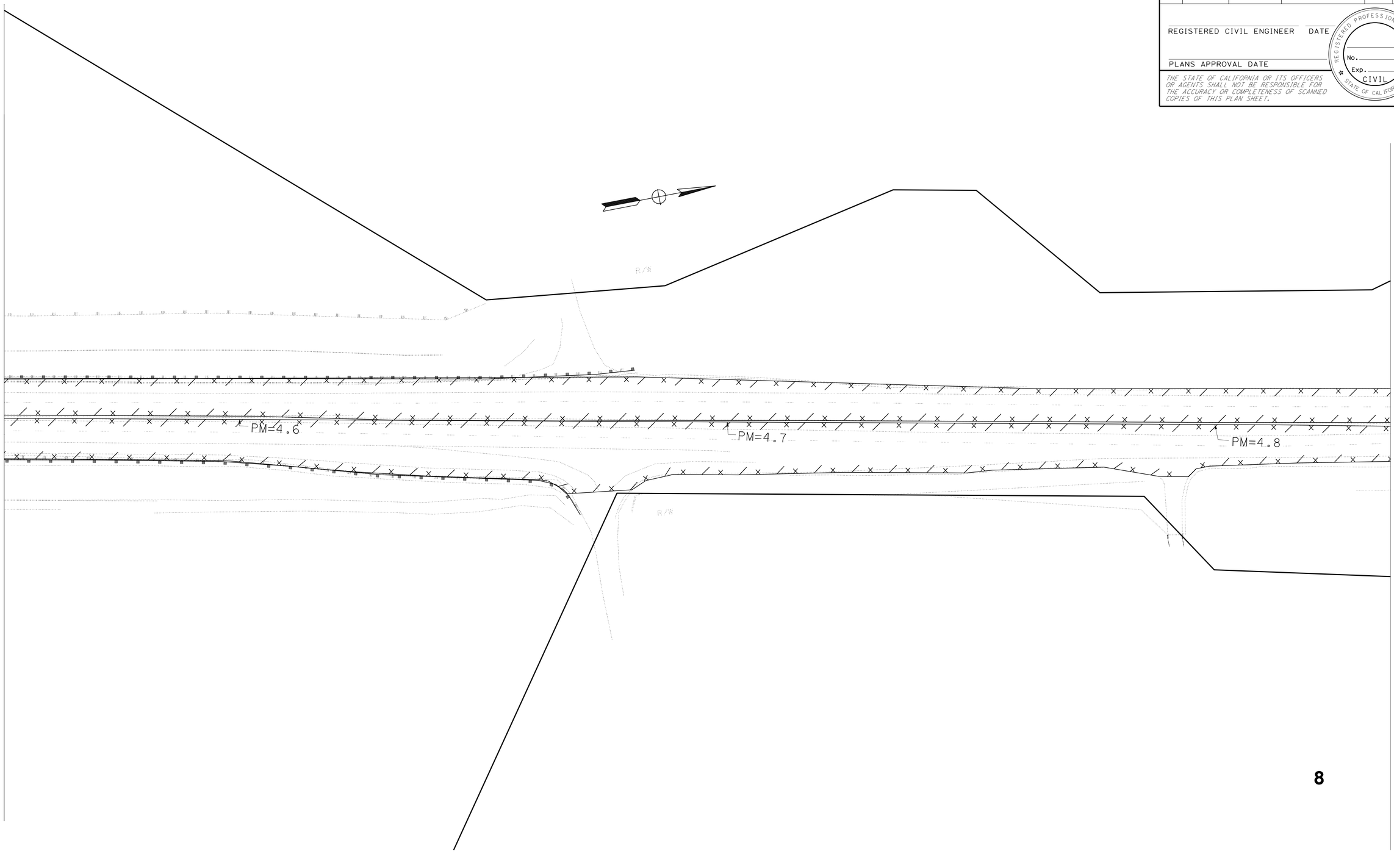

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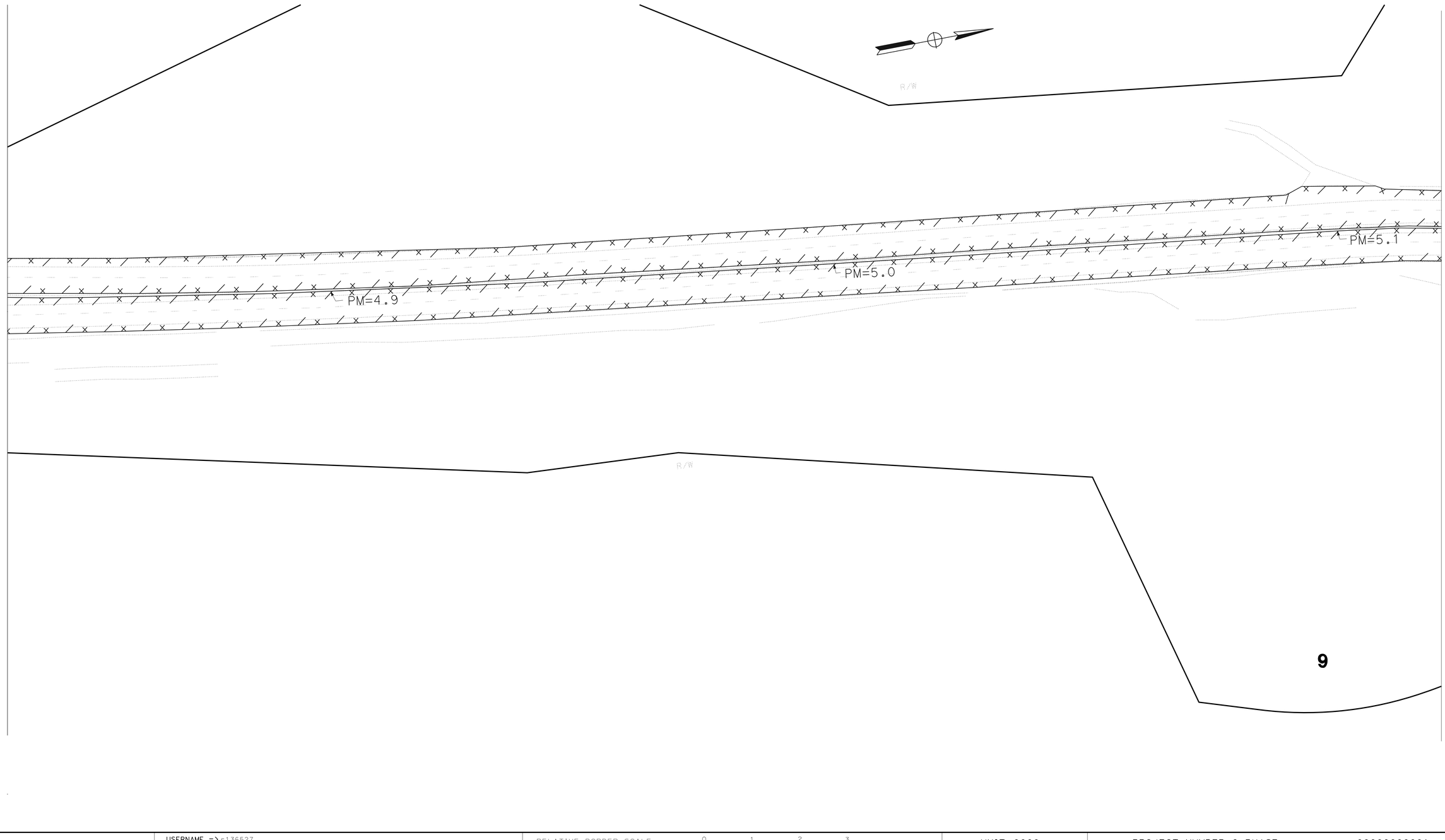

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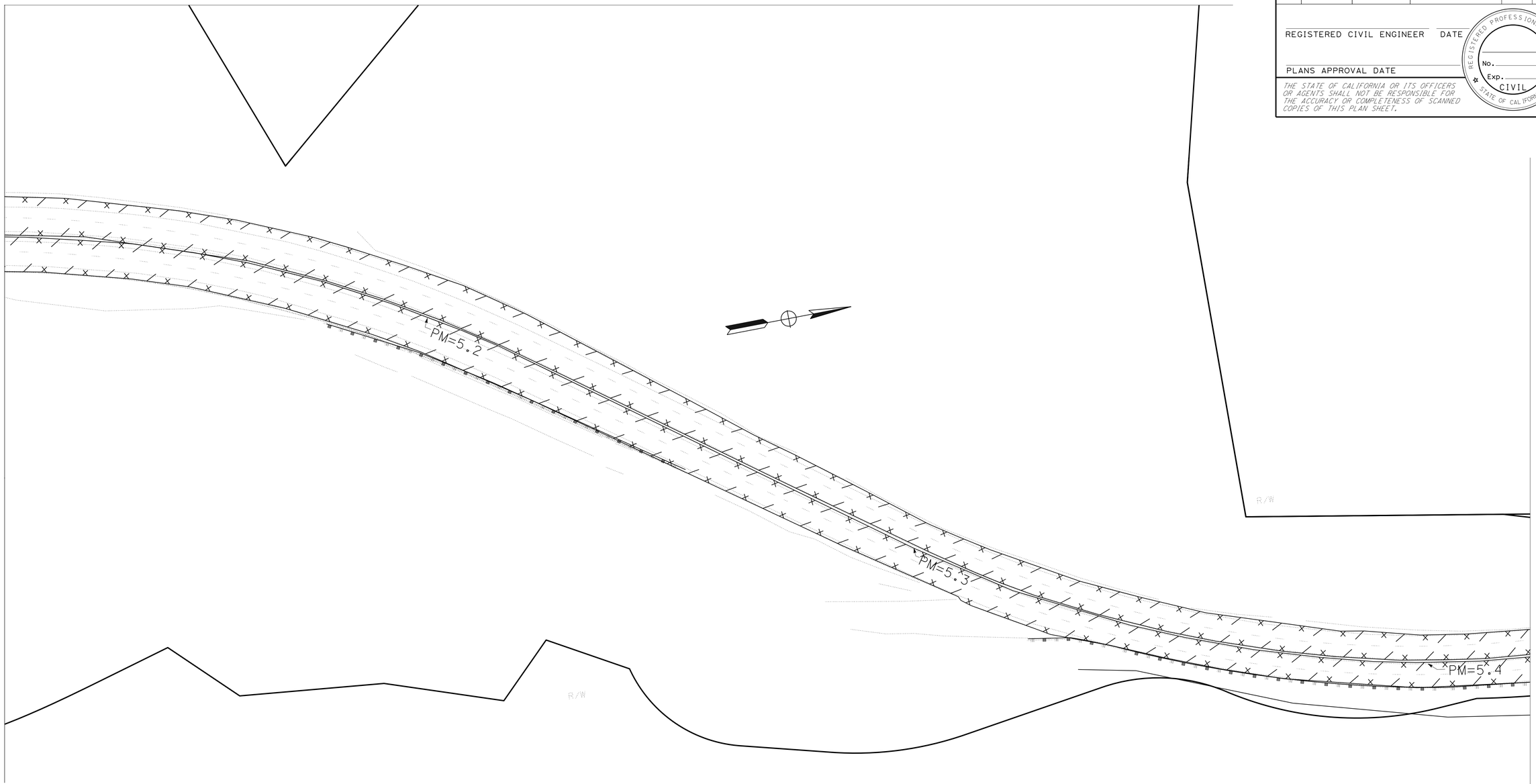

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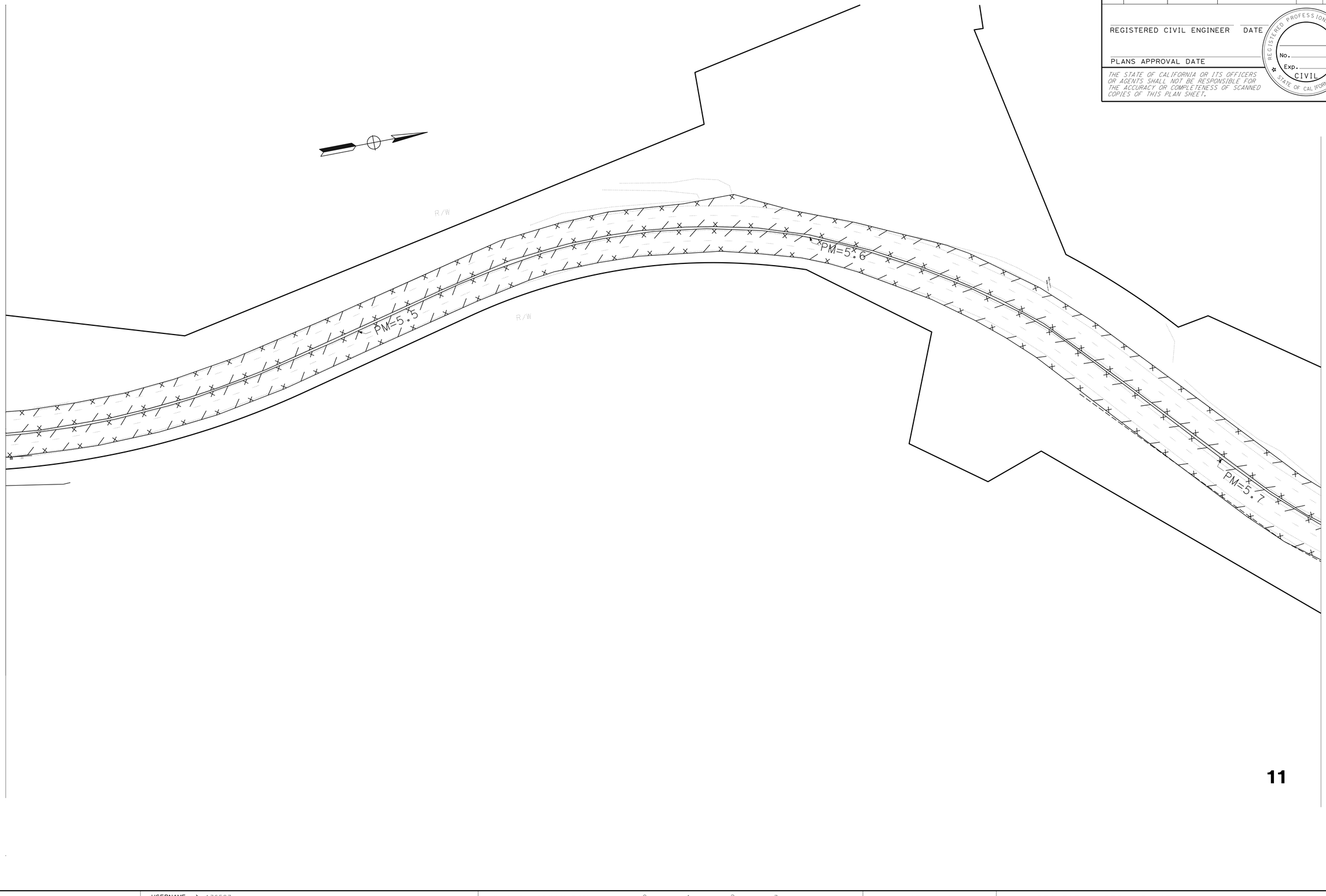

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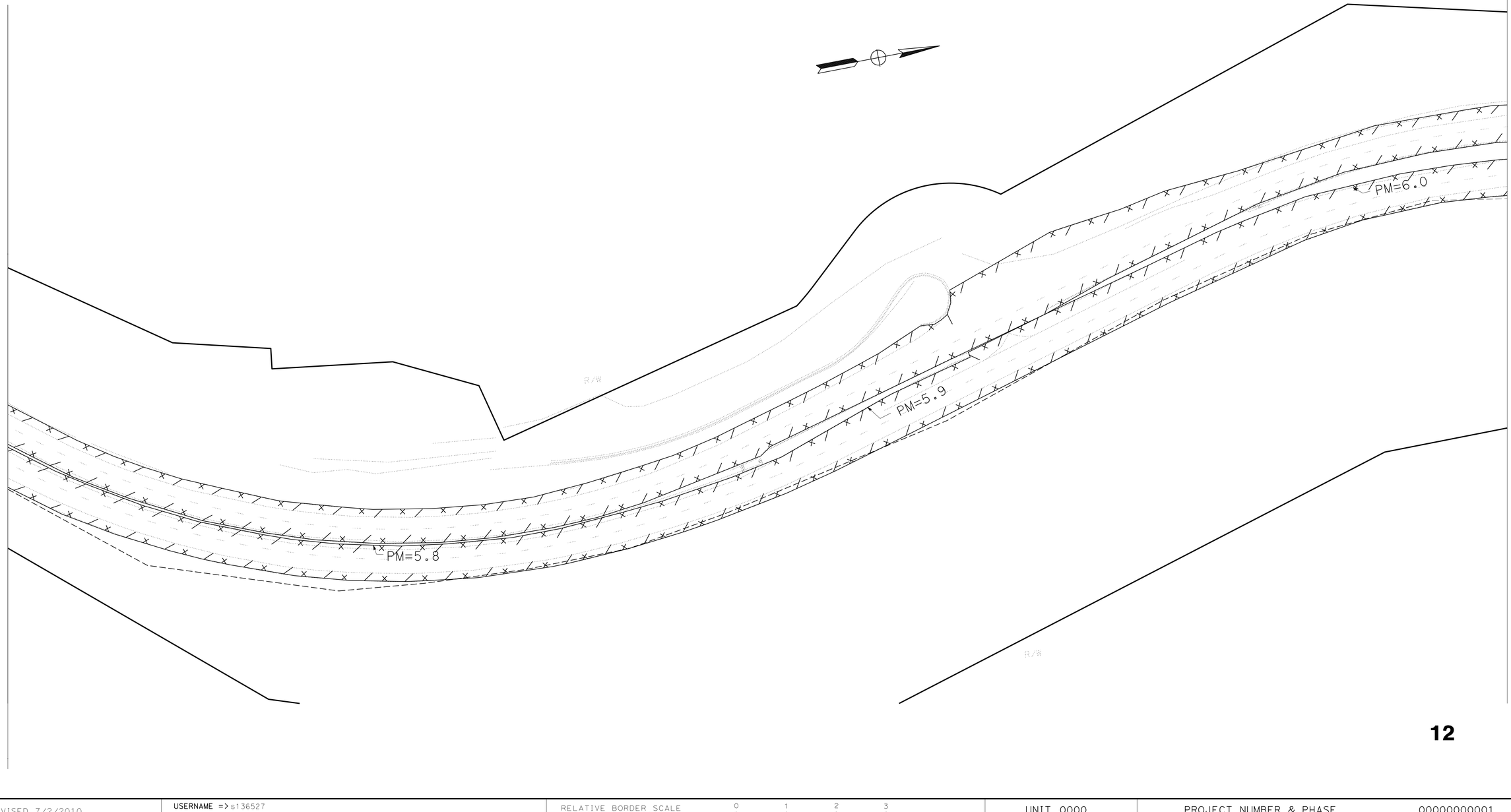

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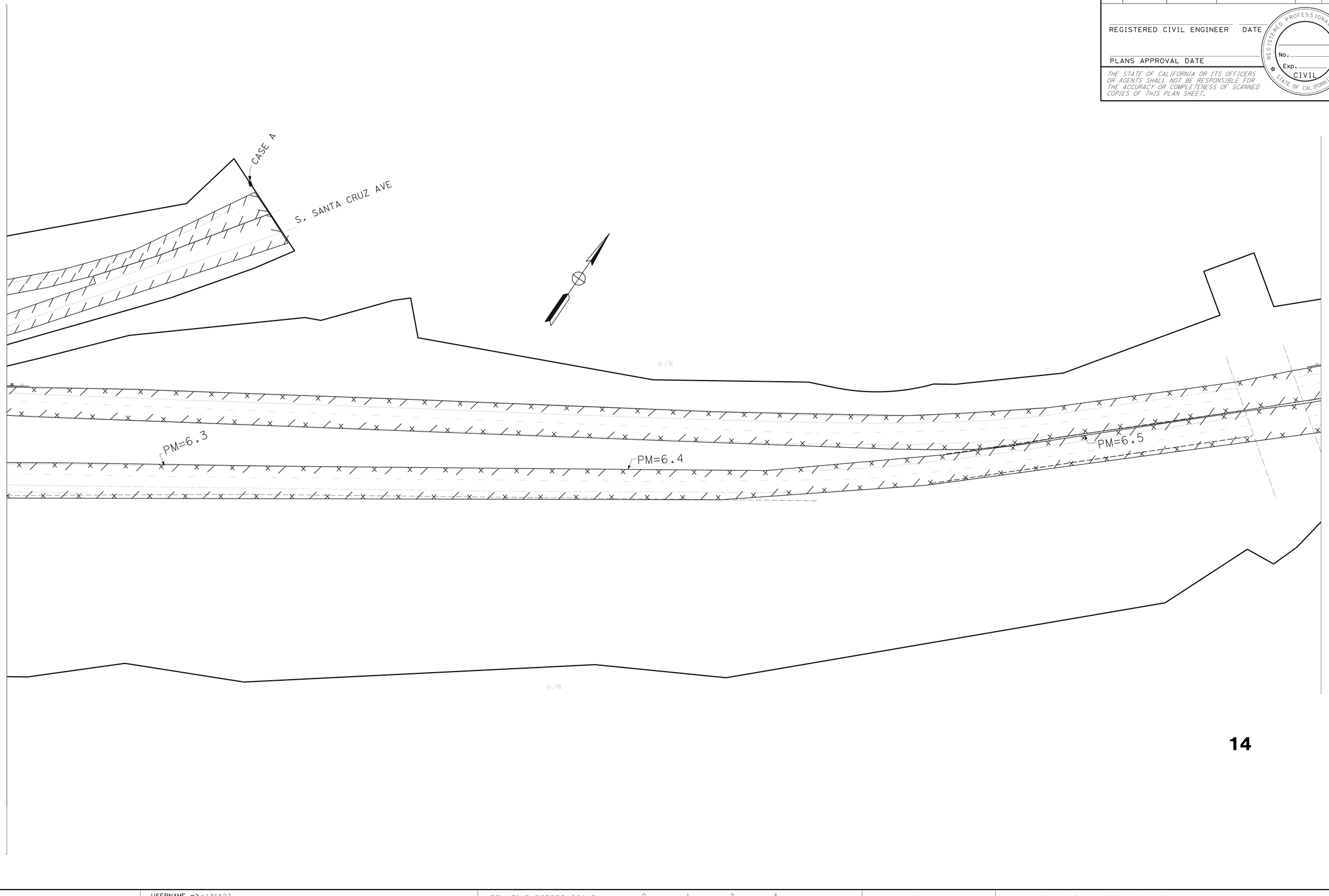

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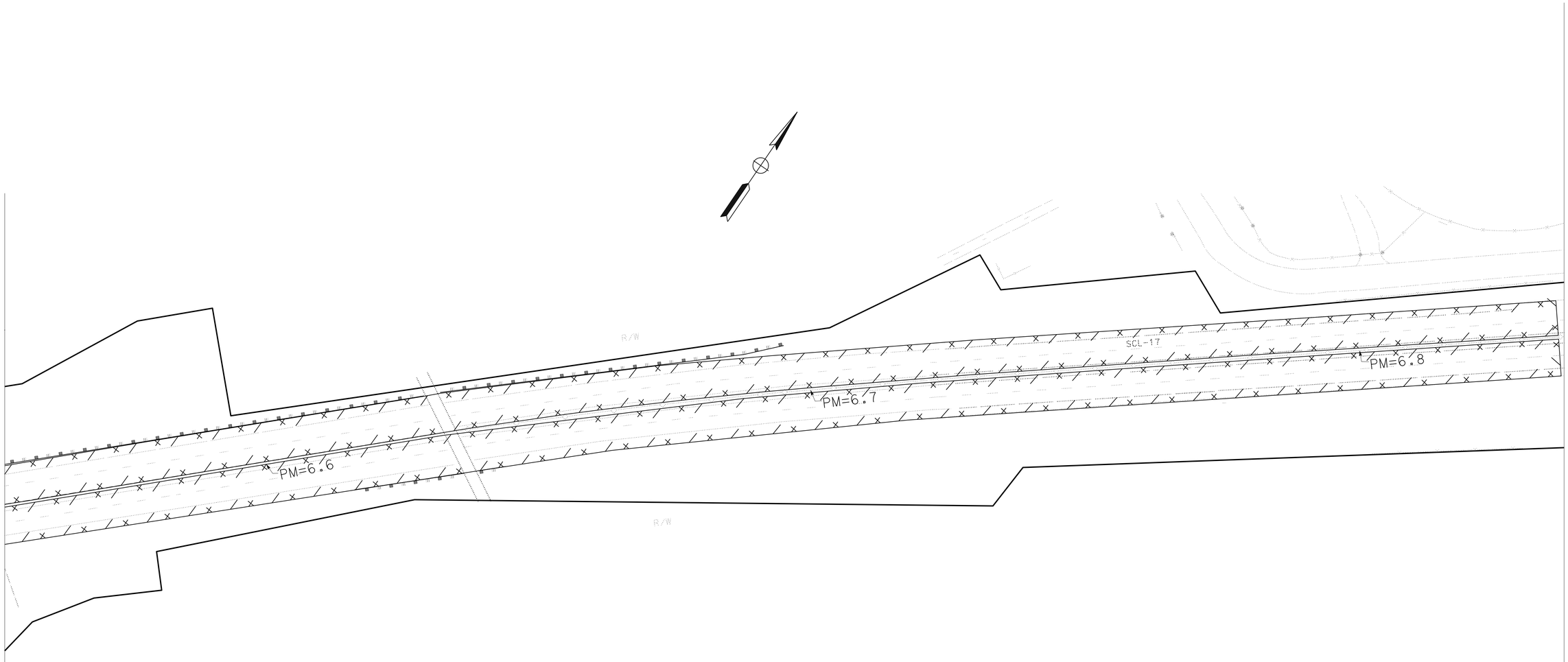

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PROJECT NUMBER & PHASE 00000000001

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE

00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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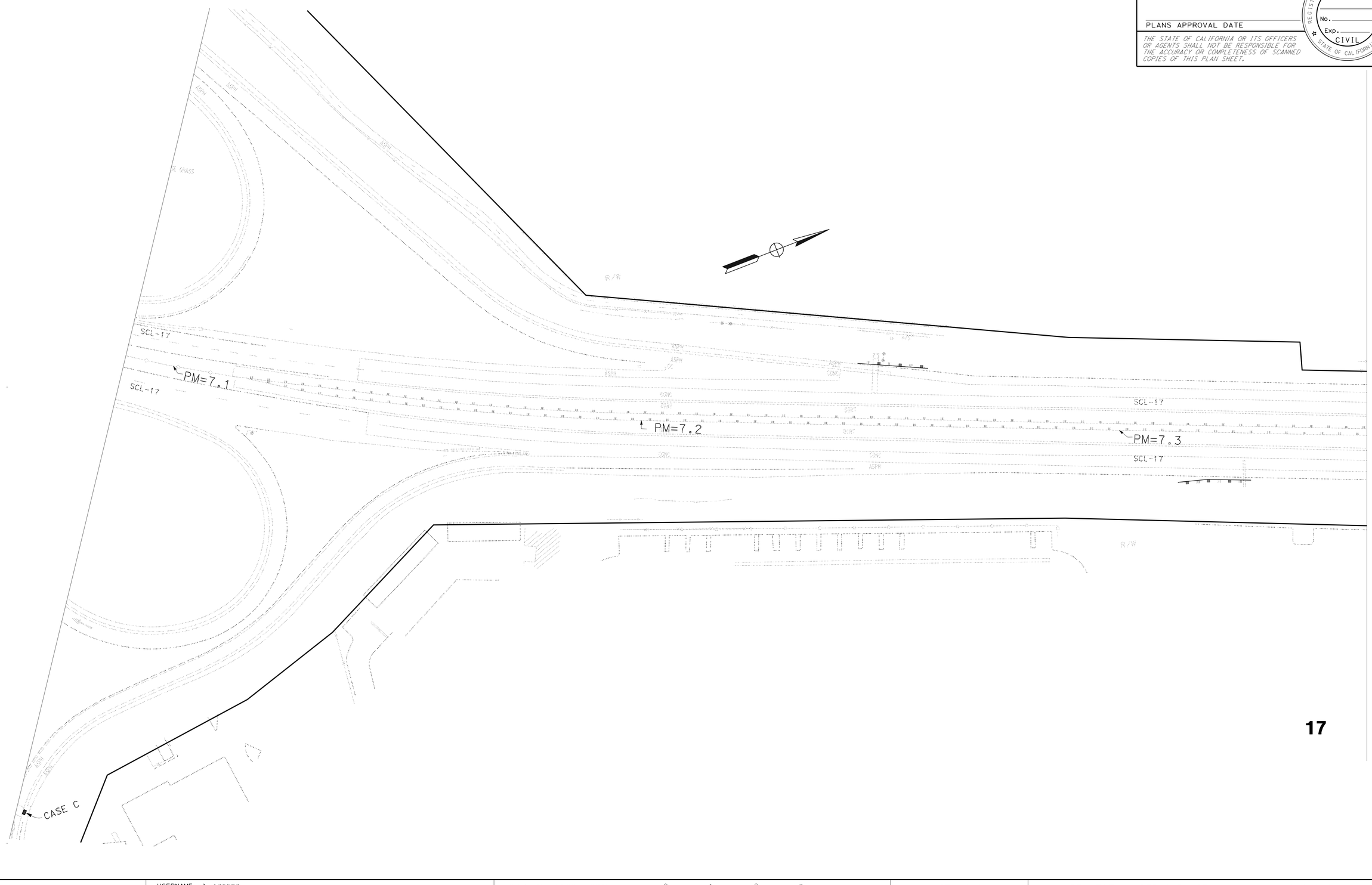

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UNIT 0000

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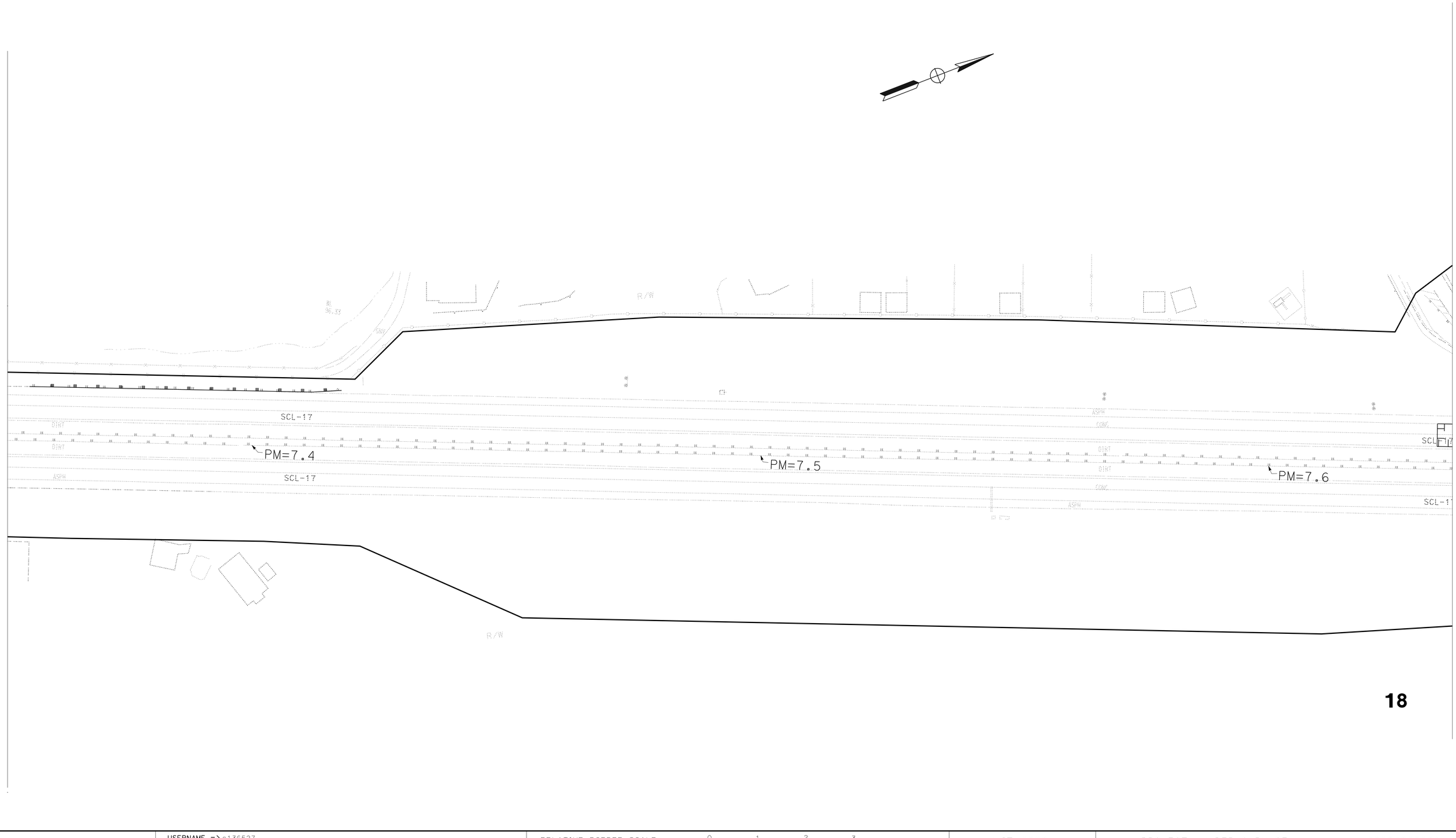

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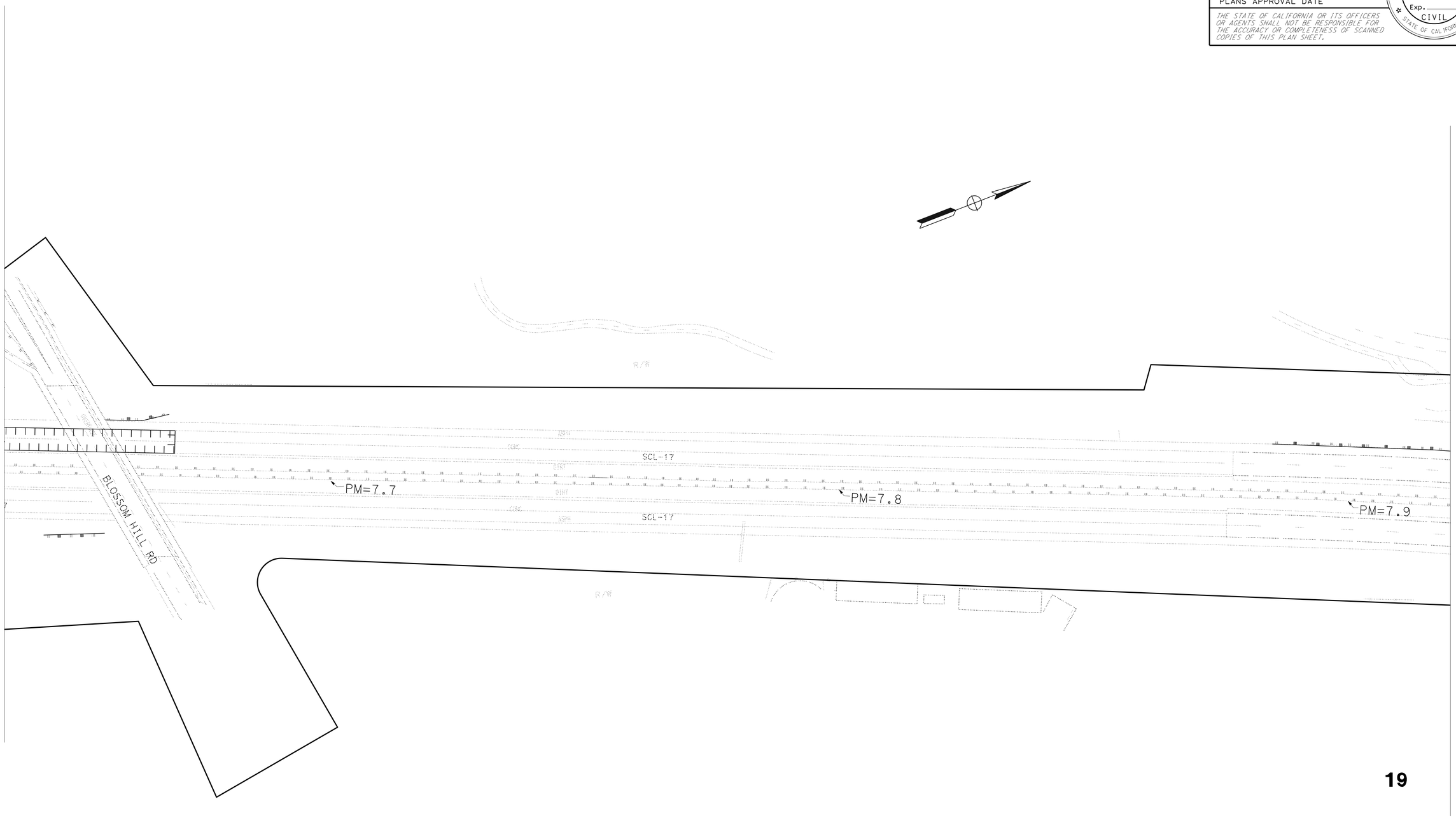

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UNIT 0000
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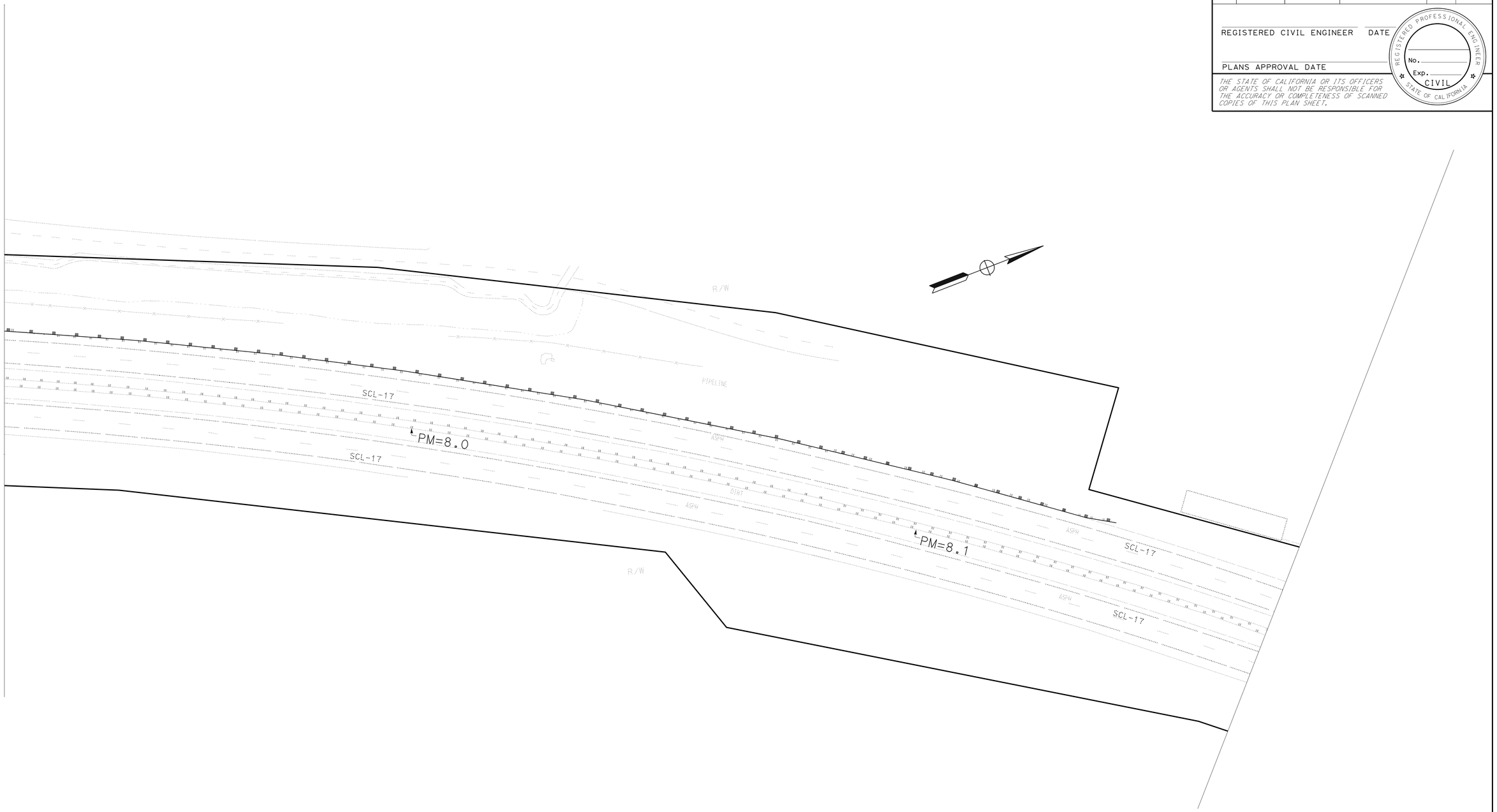

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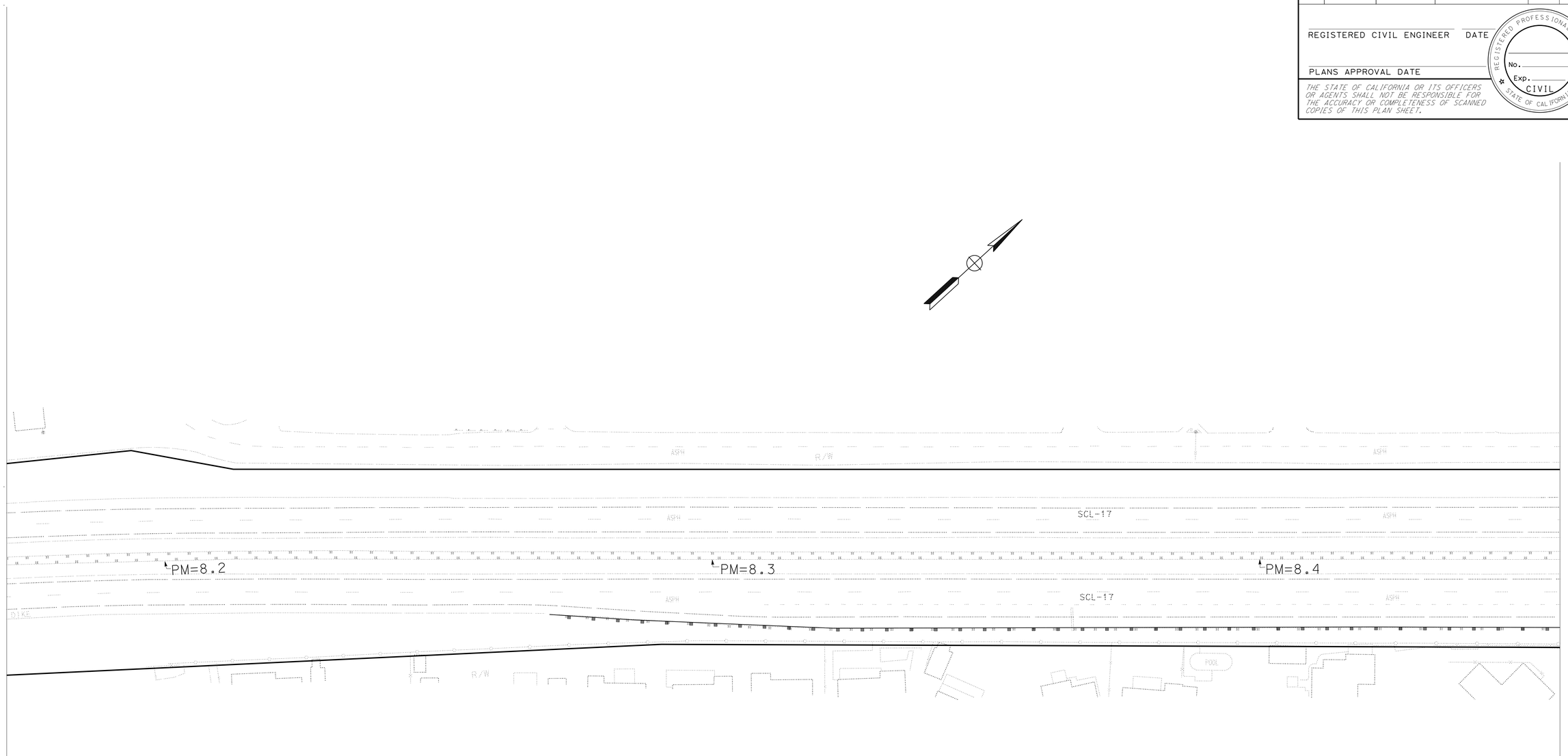

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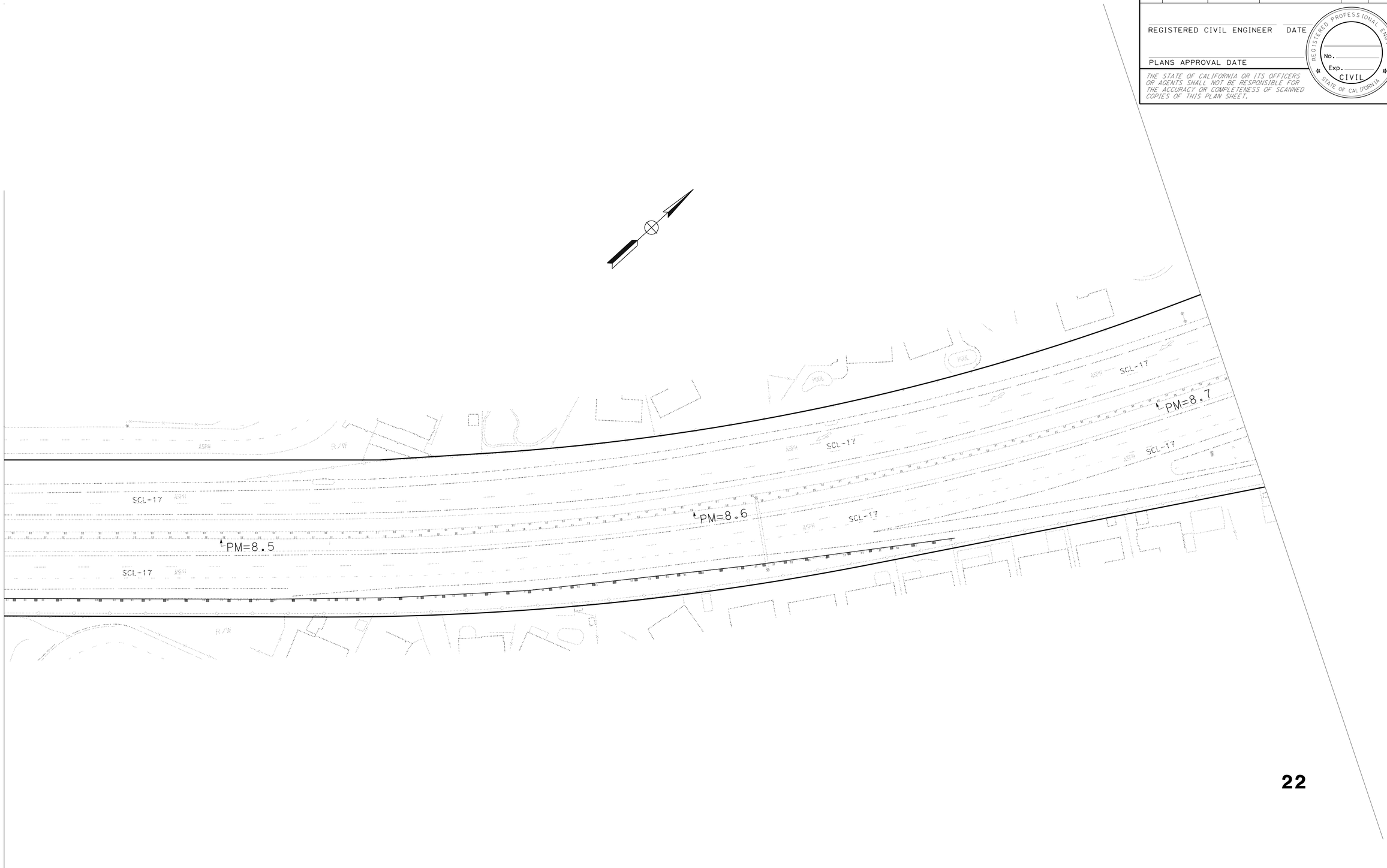

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PASSAGE TYPE B

CASE G

CASE F

CASE F

SCL-17

PM=8.8

SCL-17

LARK AVE

SCL-17

PM=8.9

SCL-17

CASE C

PASSAGE TYPE B

CASE C

PASSAGE TYPE B

CASE C

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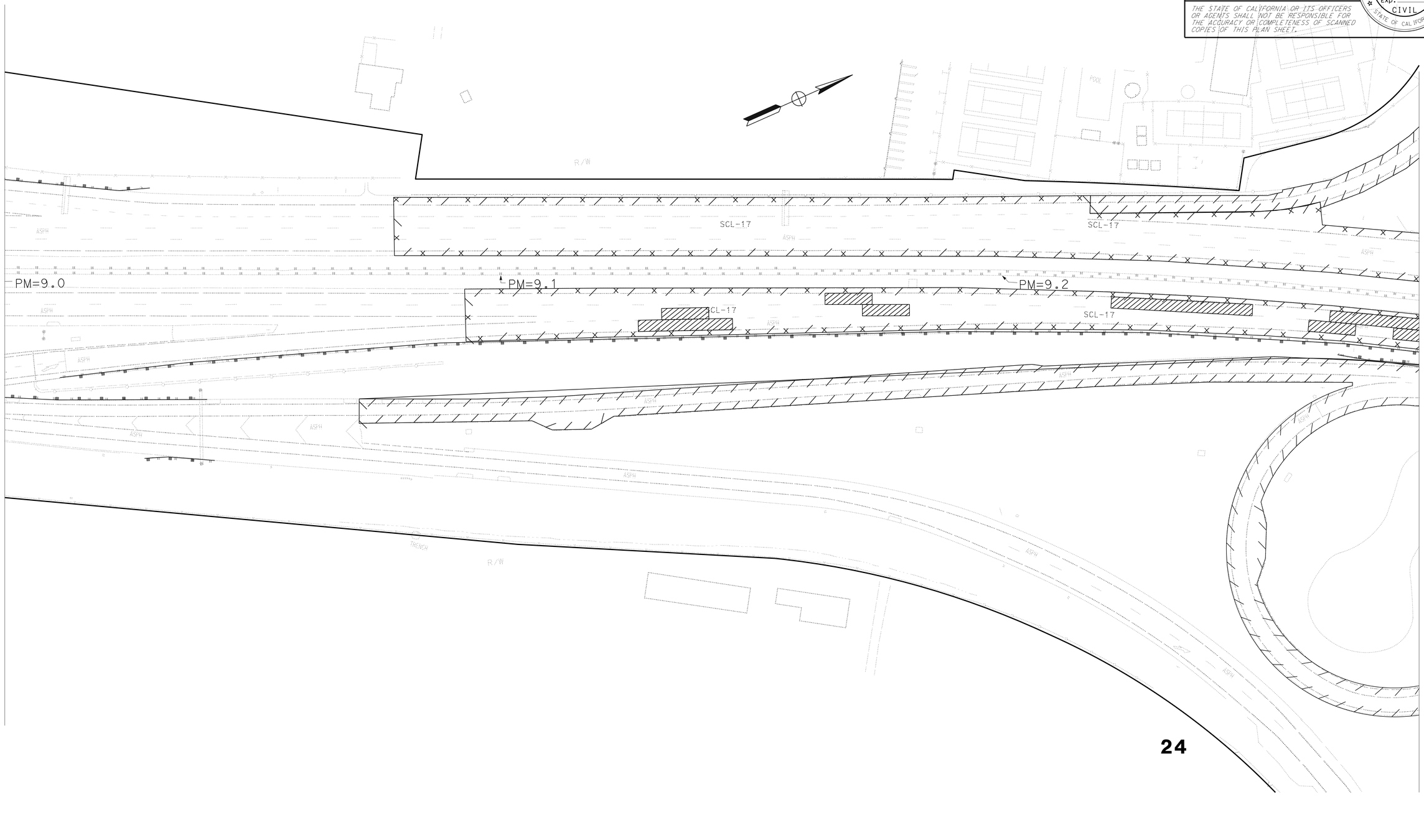

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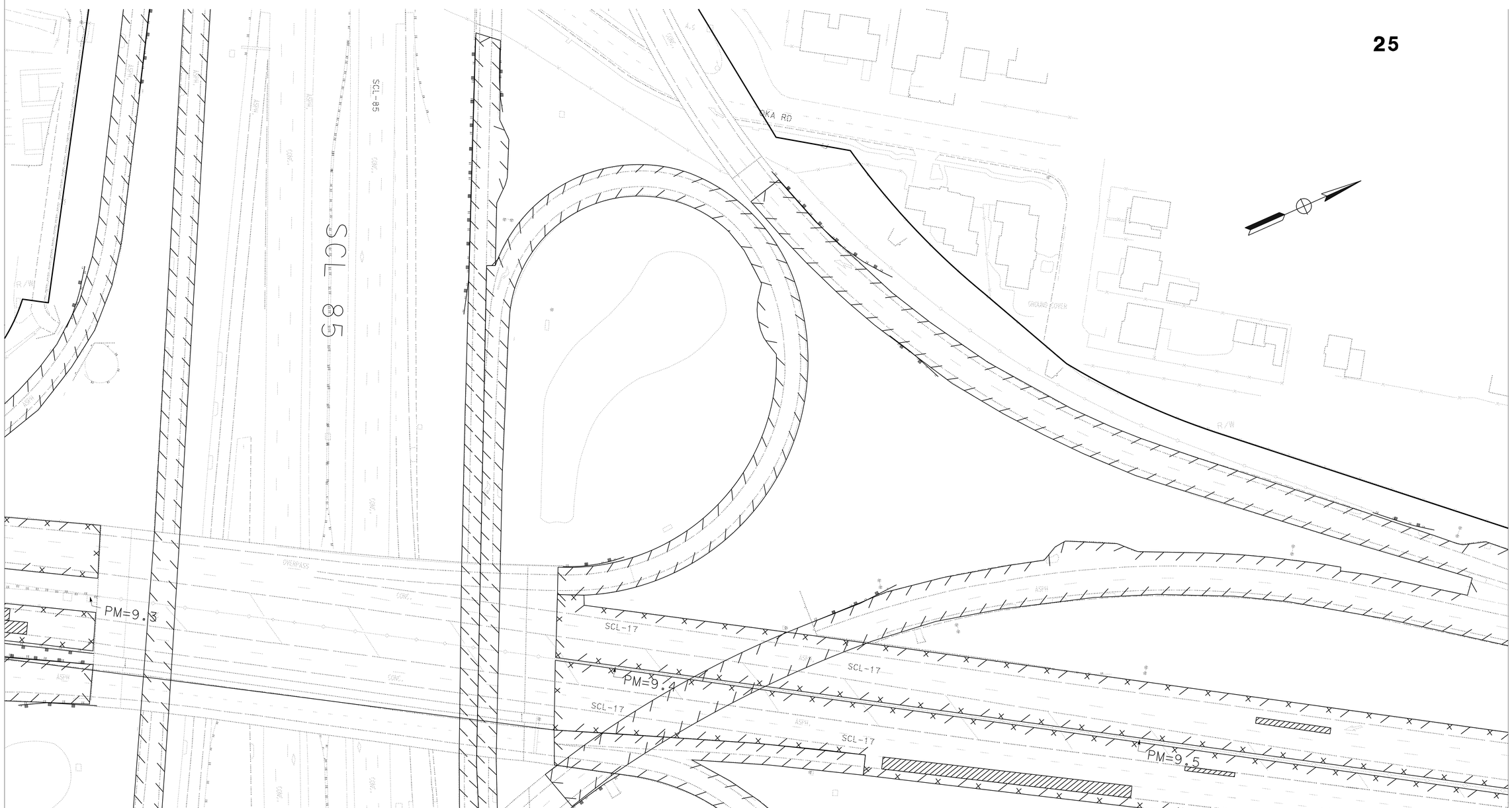

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STATE OF CALIFORNIA

SCL-85

SCL-85

ROUTE 85

ROUTE 85

R/W

R/W

26

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DGN FILE => 1J970-ea026.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
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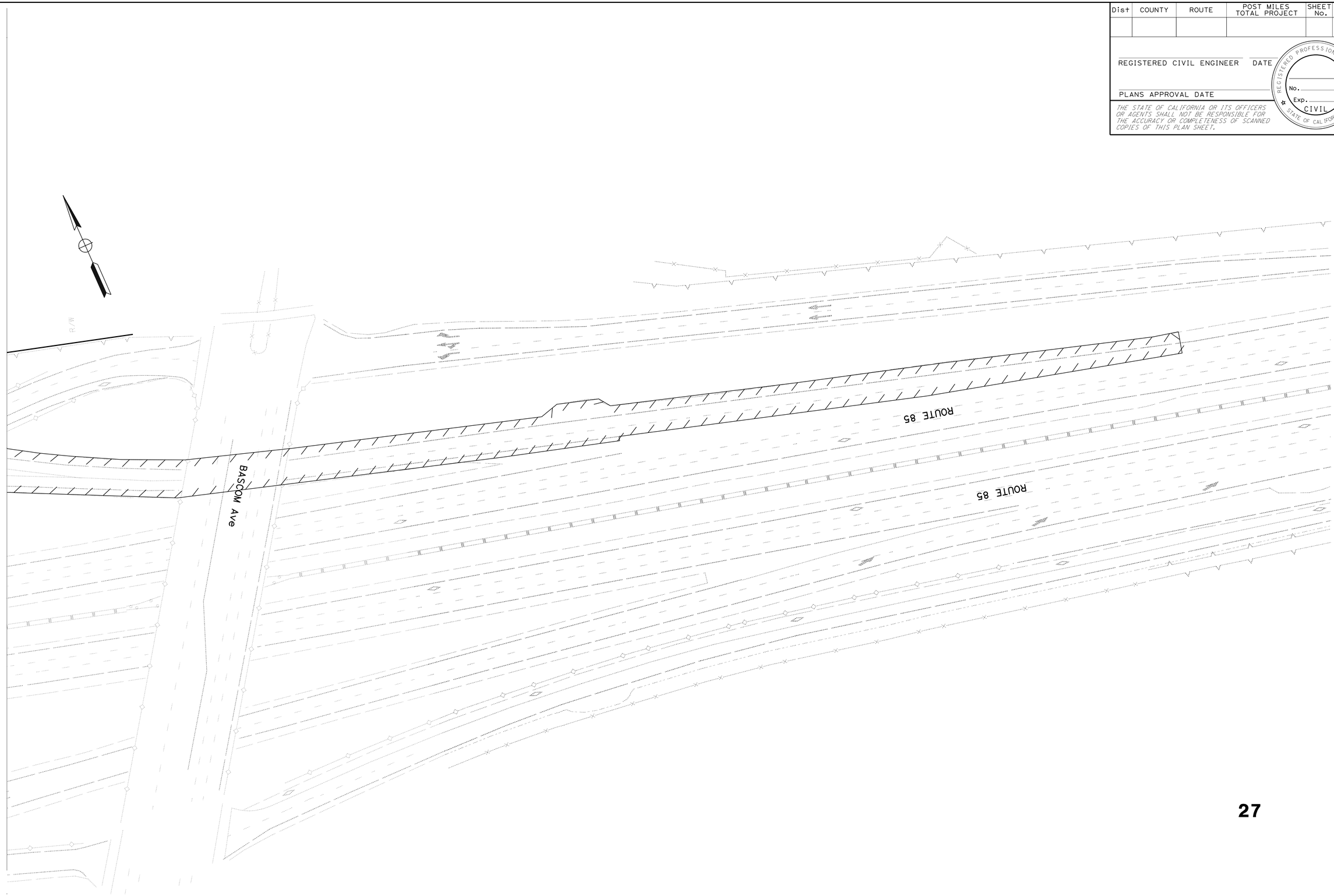

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UNIT 0000

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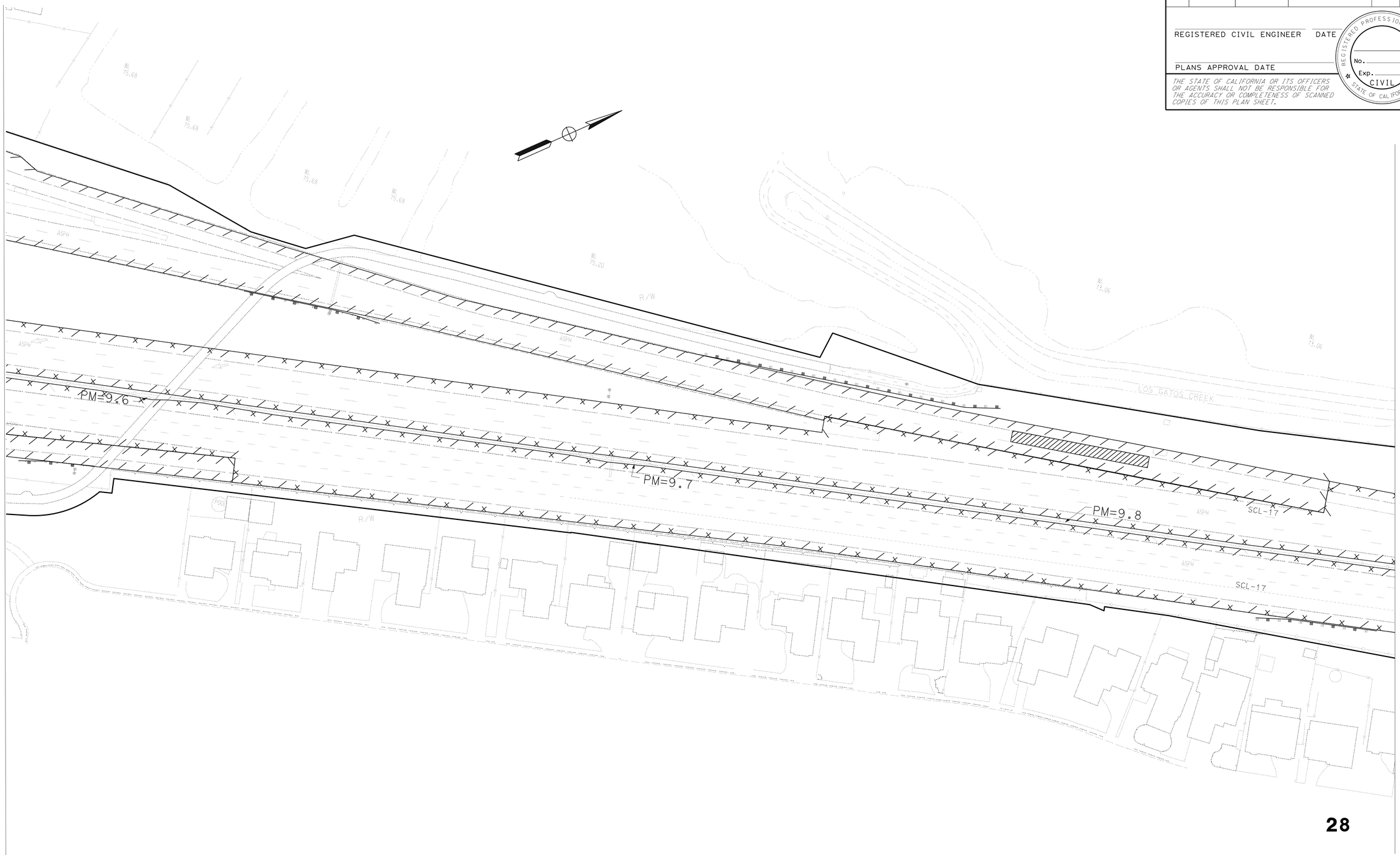

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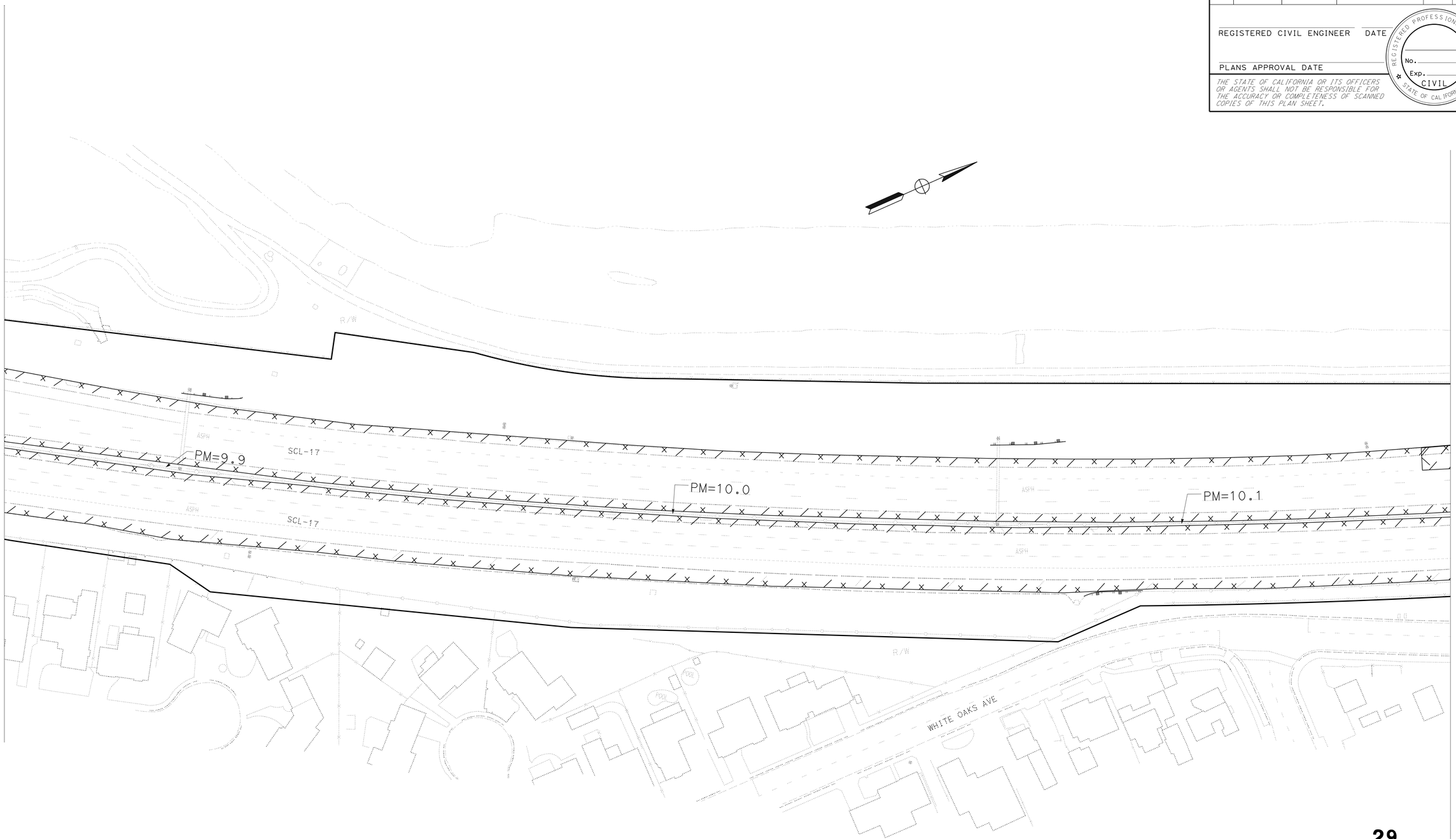

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

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SAN TOMAS EXPWY

CASE C

PASSAGE TYPE C

PASSAGE TYPE B

CASE C

PASSAGE TYPE A

CASE F CAMDEN Ave UC

PM=10.7

PM=10.6

SCL-17

PM=10.5

SCL-17

SCL-17

NB ROUTE 17 ON RAMP

CURTNER AVE

ROUTE 17 ON RAMP

CAMDEN AVE

CASE C

PASSAGE TYPE B

WHITE OAKS AVE

URTNER AVENUE

31

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

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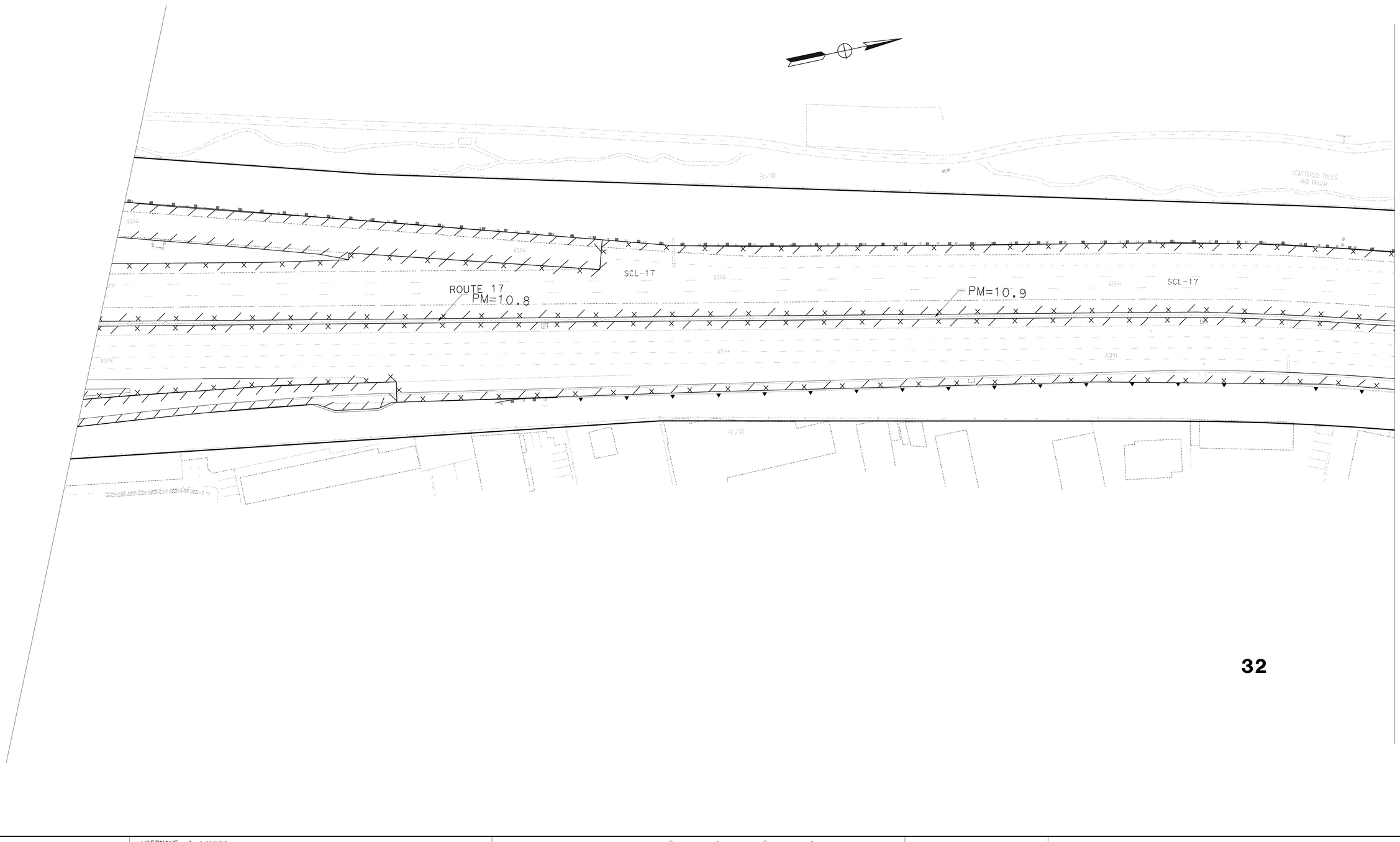

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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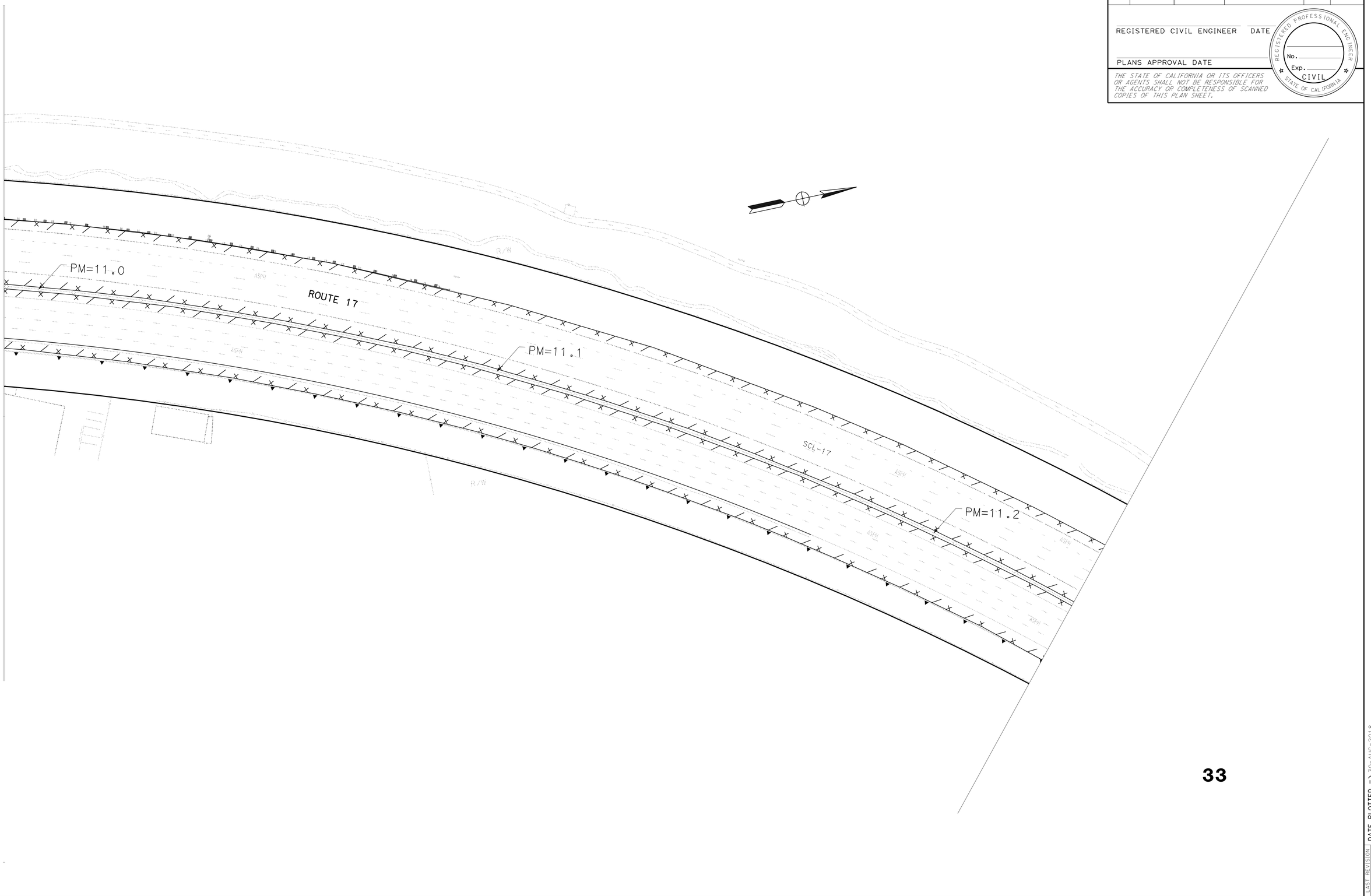

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

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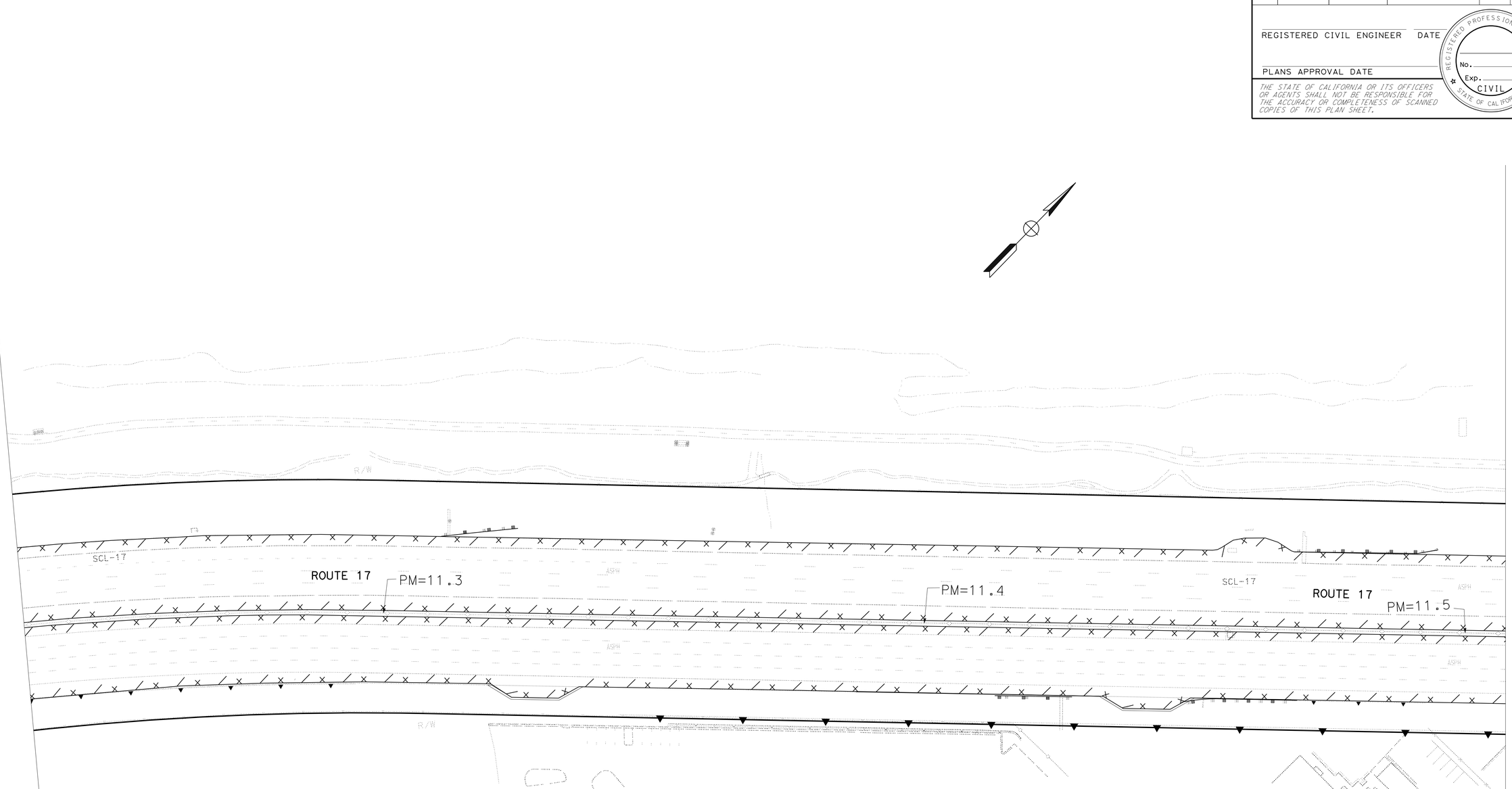

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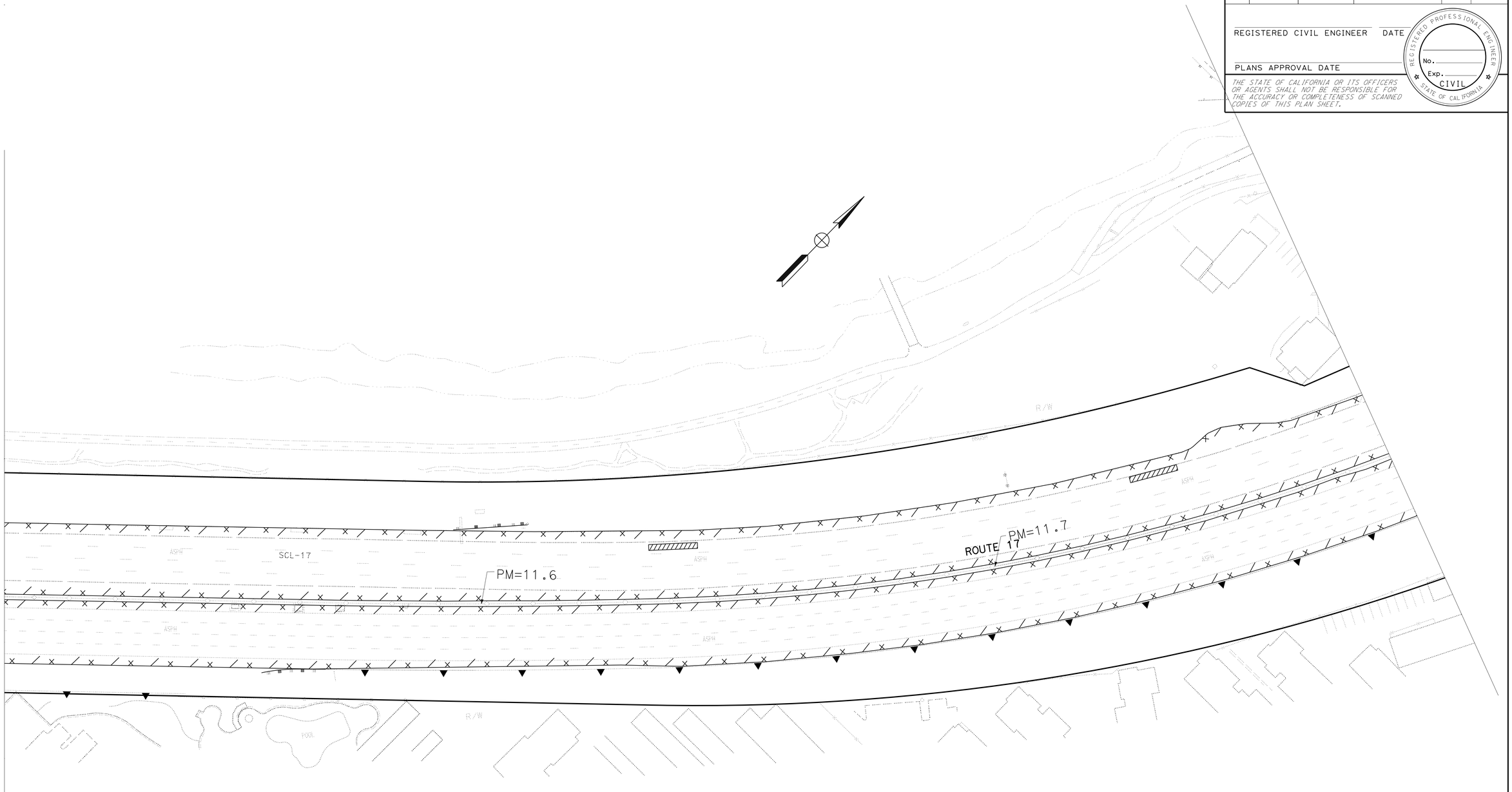

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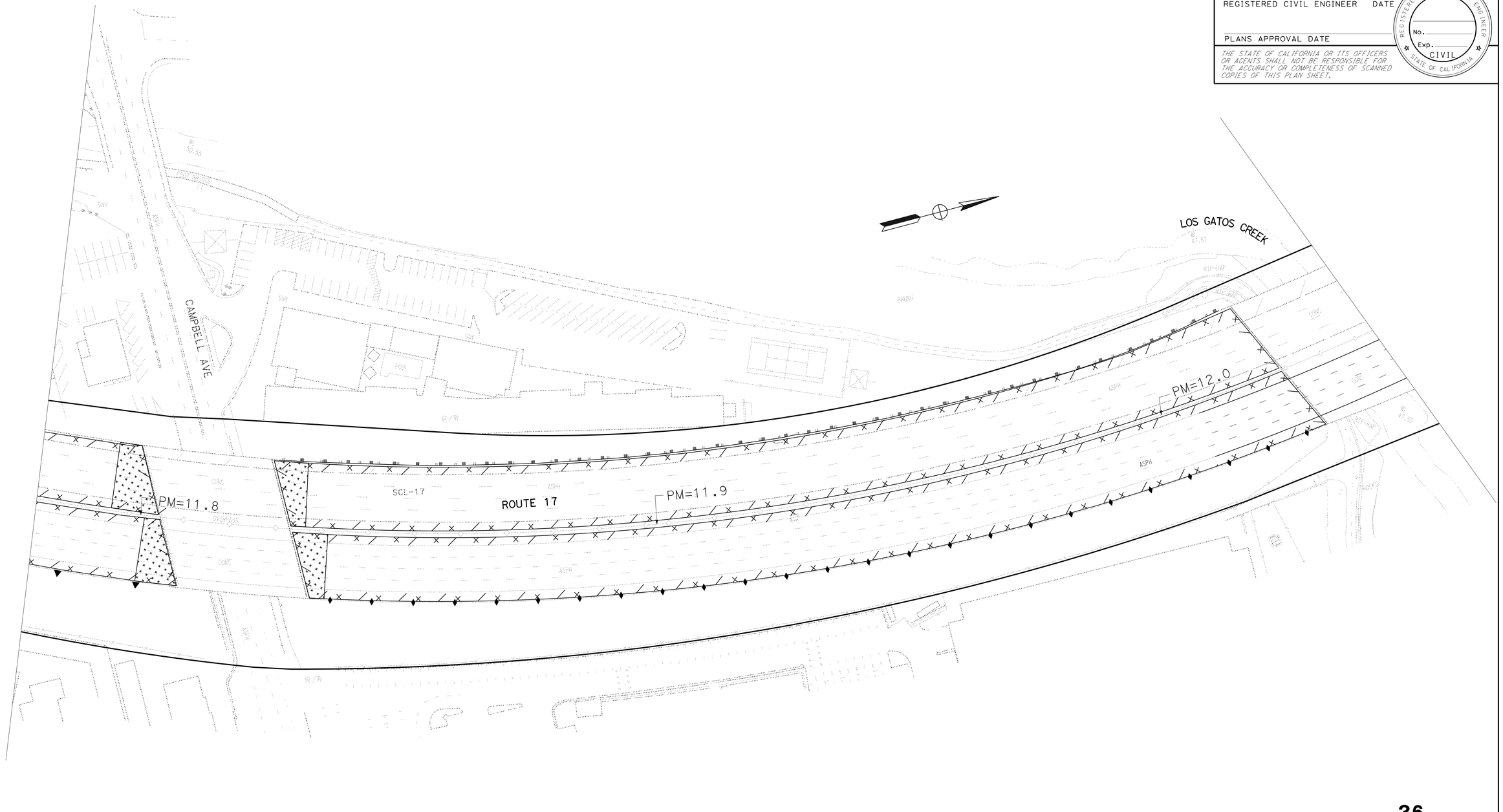

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REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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VASONA LRT/UPRR

SCL-17

ROUTE 17

PM=12.1

SCL-17

PM=12.2

PM=12.3

CASE C

CASE A

CASE A

CASE A

37

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

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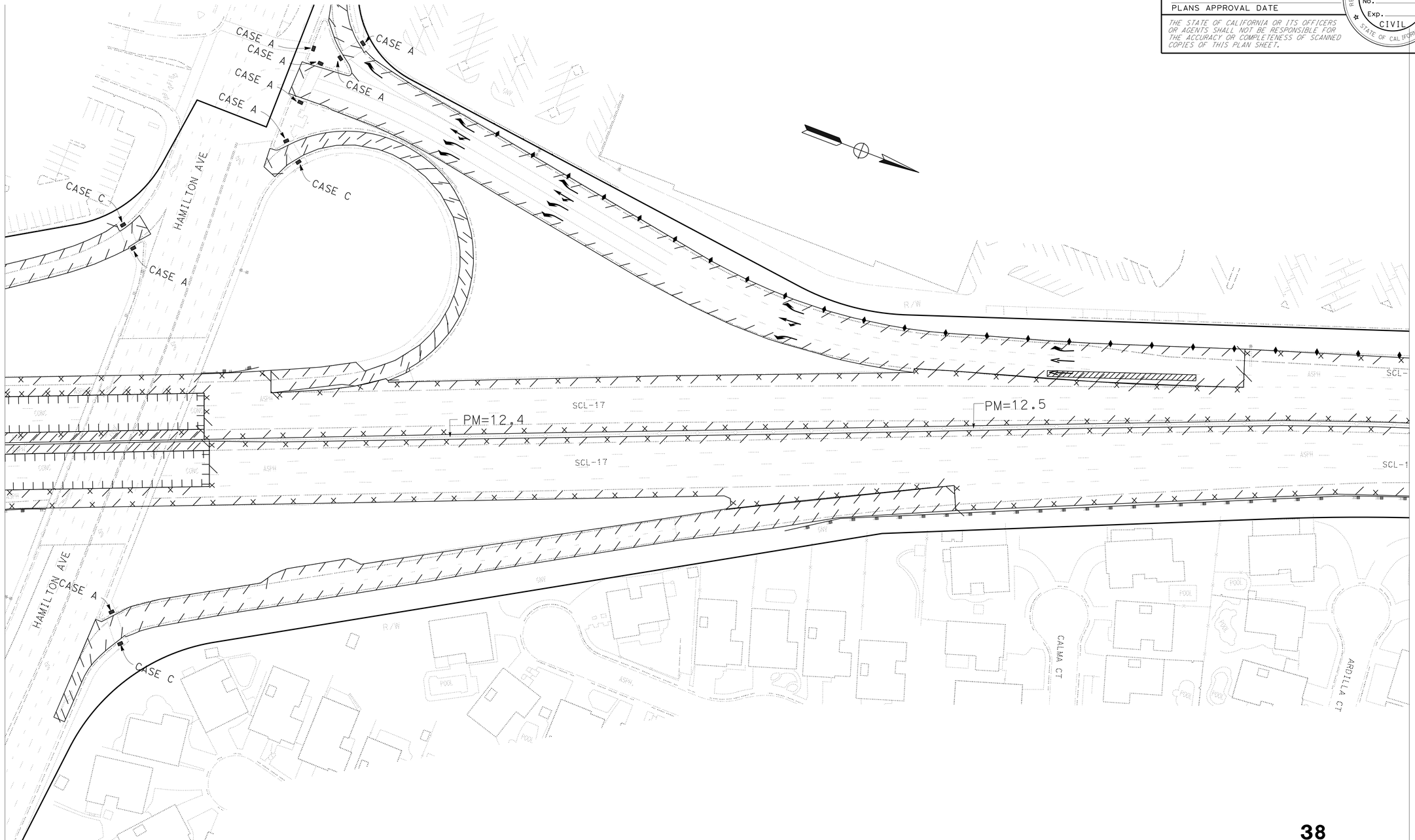

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

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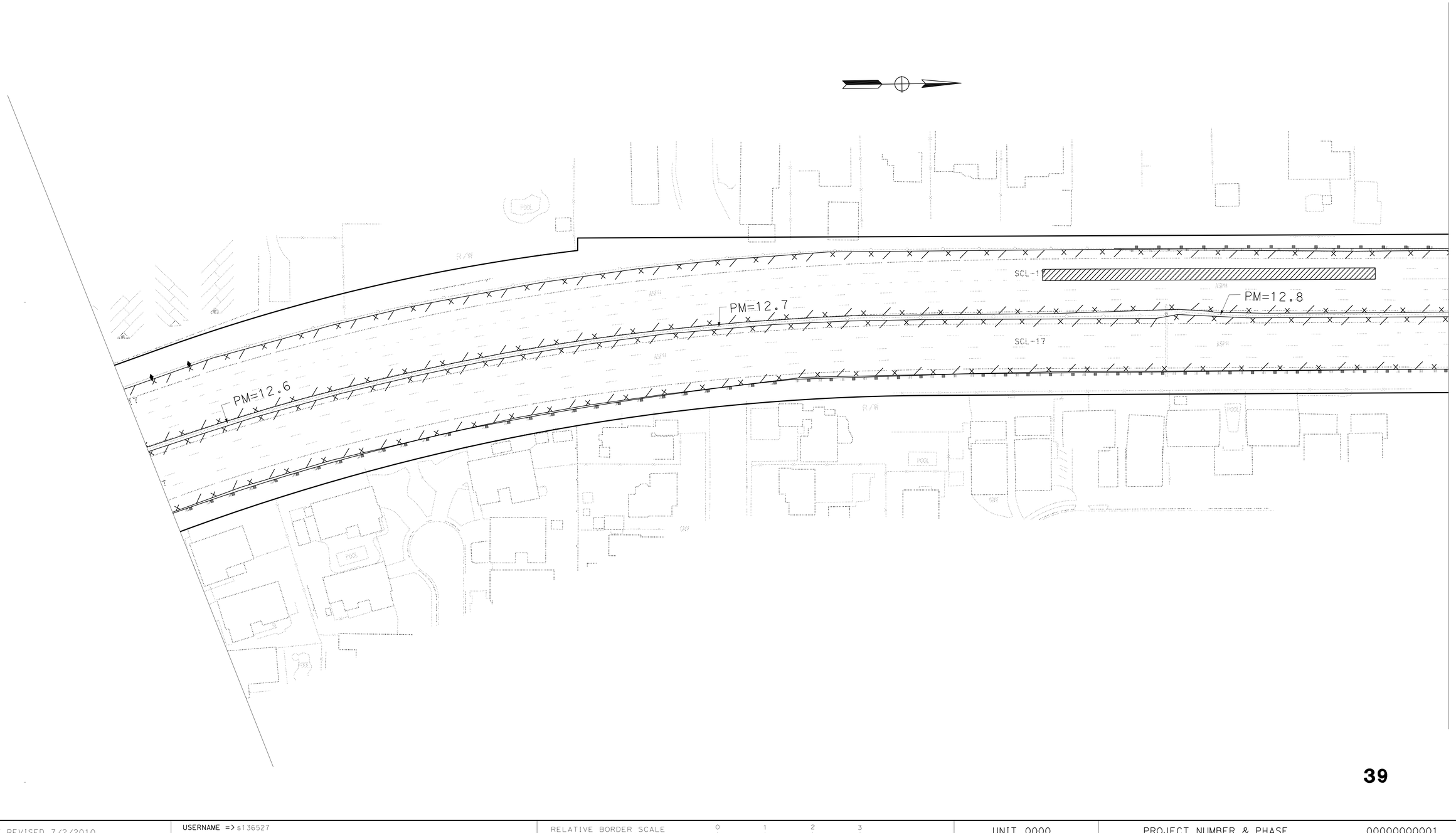

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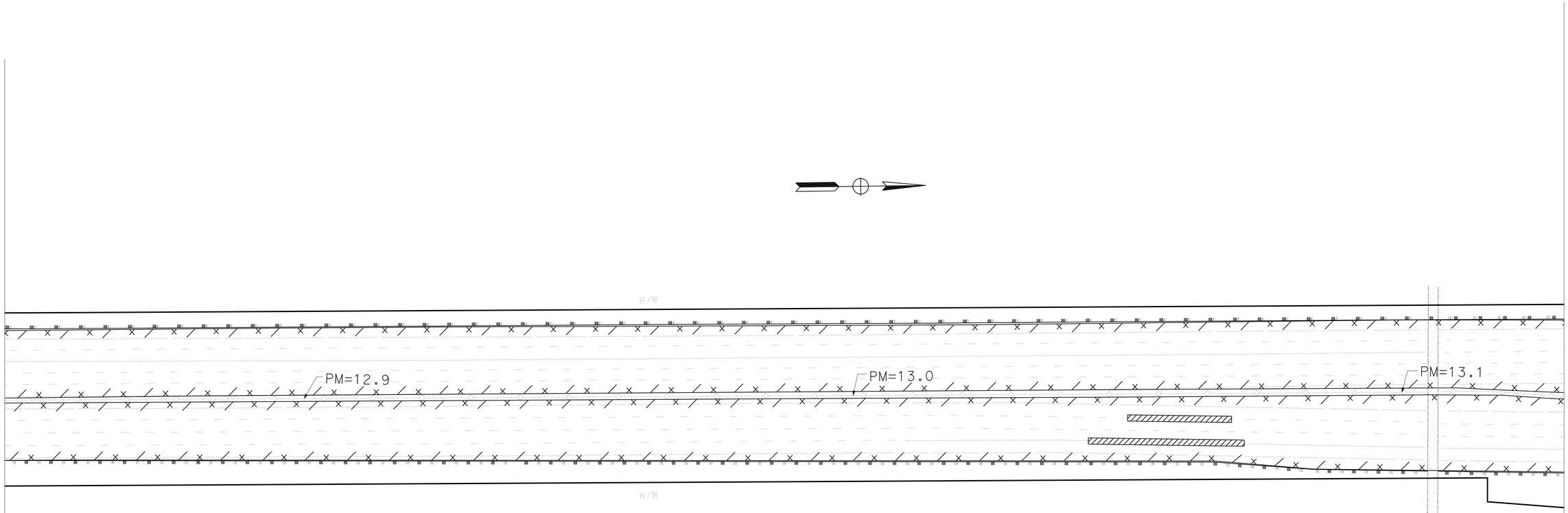

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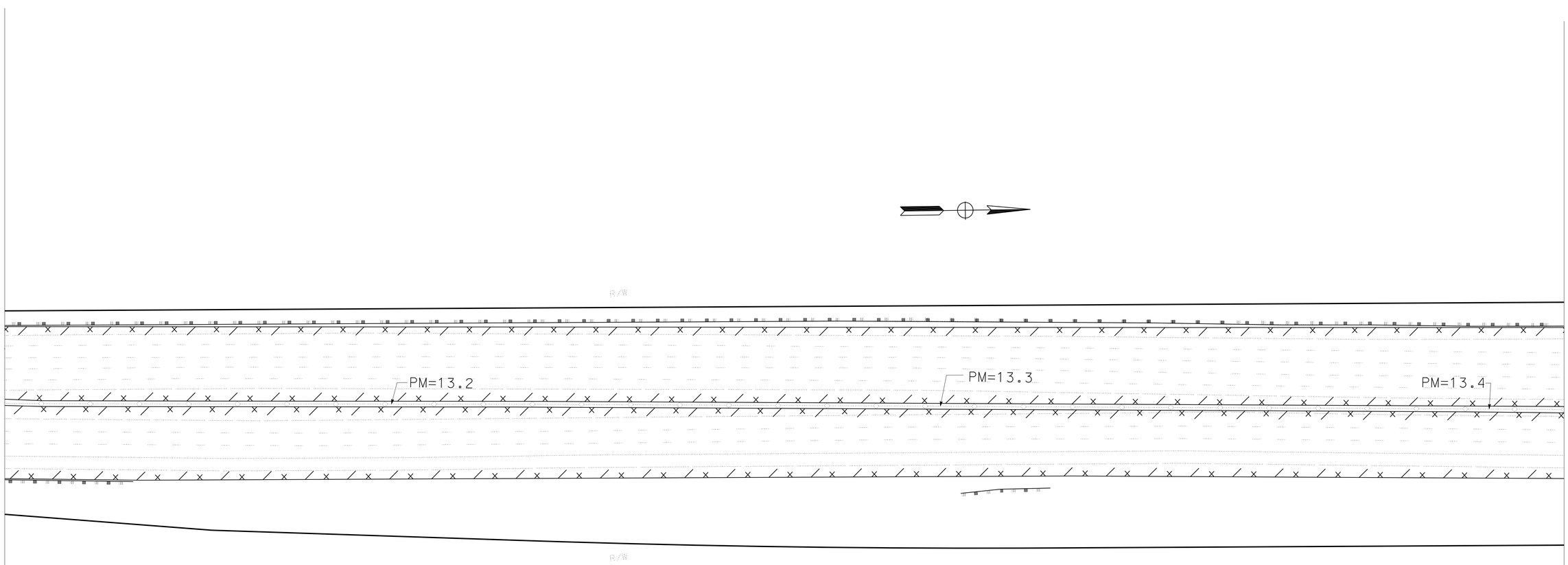

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DGN FILE => 1J970-ea041.dgn

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

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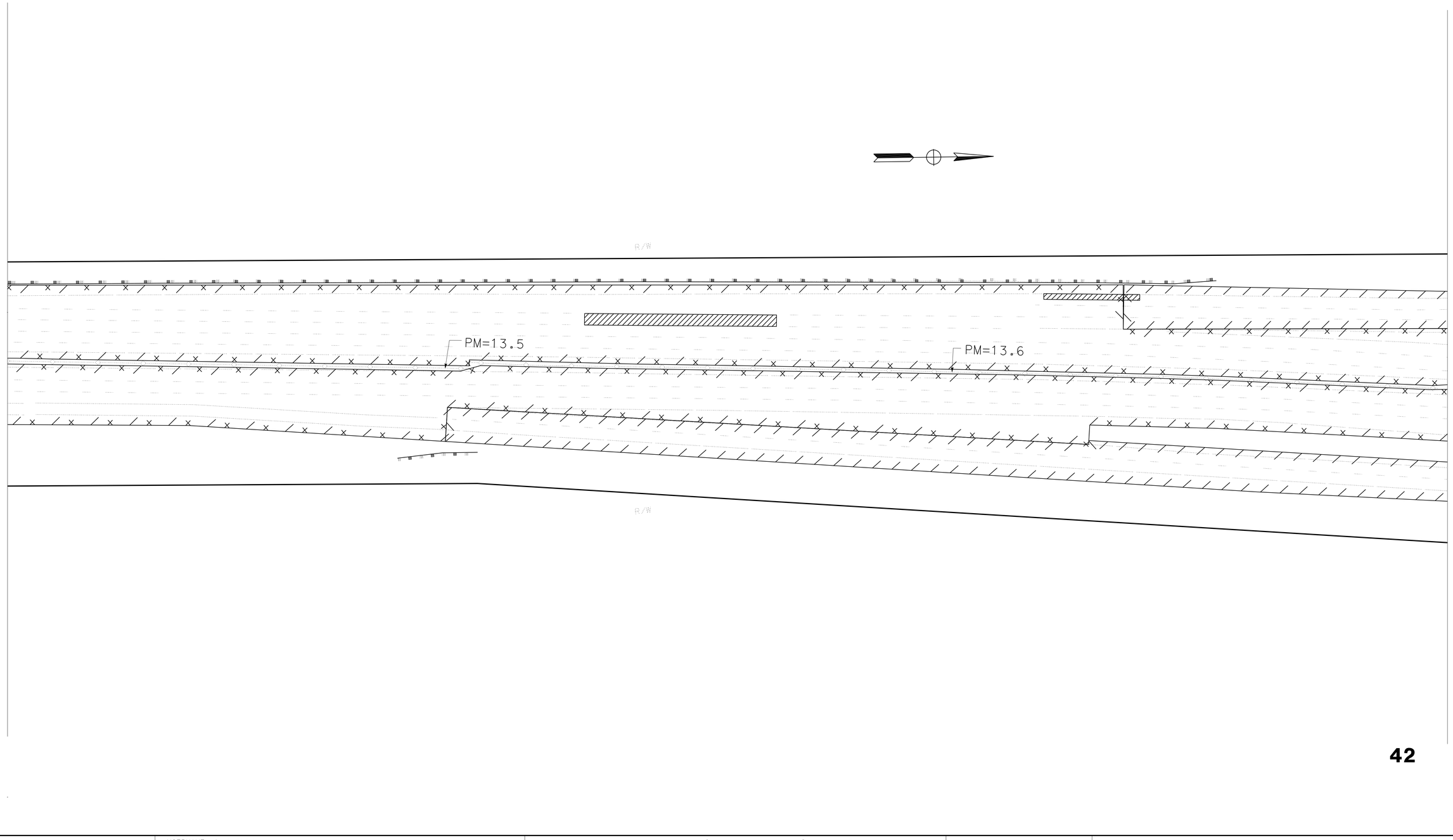

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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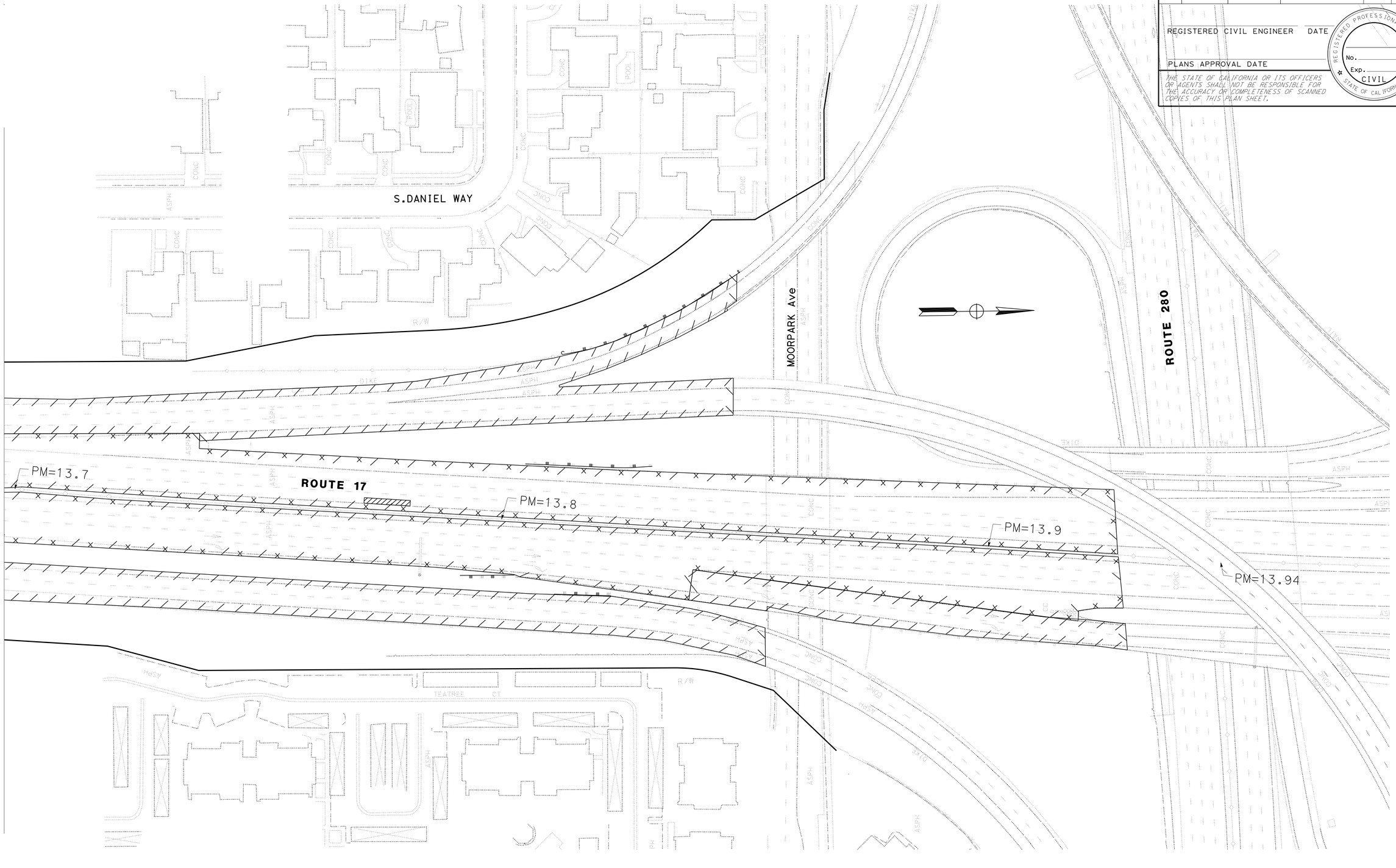

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UNIT 0000

PROJECT NUMBER & PHASE 00000000001

ATTACHMENT I

Materials Recommendation

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Flex your power!
Be energy efficient!

To: HASSAN NIKZAD
District Branch Chief
Office of Design – Santa Clara

Attn: Peter Lac

Date: June 13, 2017
File: 04-SCL17, PM 2.8/13.94
EA: 1J970K
Proj. ID: 0414000404
CAPM Project

From: SAMIA ARA, P.E.
Materials Design Engineer
Engineering Services - Materials B

Subject: Preliminary Materials Recommendations for PR

As per your request, we are providing preliminary materials recommendations for preparation of Project Report (PR) for a CAPM project on Route 17 from 0.1 miles north of Hebard Way (PM 2.8) to the SR-17/I-280/I-880 Interchange (PM 13.94) in Santa Clara County. Based on discussions with your office we understand that the project will include improvements along mainline Route 17 as well as ramps and connectors within the project limits.

Previously we provided preliminary materials recommendations on September 2, 2014 to the Office of Advanced Planning for preparation of Project Scope Summary Report (PSSR) for this project and included recommendations for mainline improvements. Our recent site visit reveals the pavement condition to remain virtually the same as observed in 2014, and hence, our materials recommendations for mainline remain nearly the same and are provided below. In order to confirm our recommendations, we have also revisited latest Google Street View Maps (dated June/September, 2016), Caltrans Maintenance Program Pavement Condition Survey Inventory (PCR, collection dated 6/13/2014), as-built plans in Caltrans DRS website, and our materials files. Additionally, in this memo, we are providing materials recommendations for improvements of ramps and connectors considered for this project.

Route 17 within the project limits is a divided highway with two to four lanes in each direction consisting mostly of asphalt paved surface with limited lengths of PCC pavement at a few undercrossing locations. The existing condition of asphalt pavement varies along the alignment including portions of almost new surface to areas with extensive distress including severe surface roughness, longitudinal and transverse cracking, significant block cracking, localized severe alligator cracking, and existing variable length dig-out areas.

Considering the variability of surface condition, we have split the project in to three segments and are providing our recommendations applicable for each segment.

PM 2.8/6.9

Within the southern portion of the proposed project, between PM 2.8/6.9, existing asphalt surface is relatively old and distressed. Segments of newer patched areas with better asphalt surface are common here. As obtained from as-built plans, the northbound Route 17 within this segment was overlaid with 0.10' Open Graded Asphalt Concrete (OGAC) in 2001 (Contract #04-1R6304).

Considering the existing distressed surface we recommend that the new asphalt overlay for this area should consist of 0.10' Rubberized Hot Mix Asphalt – Type O (RHMA-O) over 0.15' Rubberized Hot Mix Asphalt – Type G (RHMA-G). The RHMA-O layer will be highly beneficial for the wet weather condition of mountainous Route 17. In order to maintain the existing pavement grade, we recommend that the existing pavement be cold planed for 0.25', the total thickness of new overlay, prior to placement of overlay. The recommended cold planning will effectively remove the existing OGAC layer (a D-4 practice). Also, this new overlay material will maintain the continuity of an already improved portion of Route 17 between PM 6.9/9.1.

PM 6.9/9.1

Following our project review, we find that Route 17 between PM 6.9/9.1 was recently improved by another CAPM project (Contract #04-1E0904, completed in 2012). As shown on the project plans, the scope of that project included replacement of broken concrete slabs, crack & seat and asphalt overlay of concrete pavement, and cold plane and overlay of the asphalt pavement areas. The overlay on asphalt pavement performed by that project included placement of 0.10' HMA-O over 0.15' RHMA-G, following cold planning of 0.25' of pre-existing asphalt surface. The cracked and seated pre-existing PCC areas were overlaid with 0.10' HMA-O/0.15' RHMA-G/0.10' HMA-A/PRF/0.10' HMA-A leveling course.

The asphalt paved surface and replaced PCC slabs within this area are presently in good condition and that is also confirmed by the PCR data collected in 2014. No further asphalt overlay for this area is recommended.

However, we find that a few PCC slabs, at undercrossing with Lark Avenue and Blossom Hill Road on southbound 17, that were not replaced or overlaid under Contract #04-1E0904, are presently showing distress including slab cracking and should be evaluated for replacement.

We recommend that any severely broken slabs and slabs with 3rd stage cracking found at these two undercrossing locations be replaced as part of this project. The replacement of the PCC slabs should include removal of the existing PCC slab and the underlying CTB layer. Based on information available from as-built plans we believe that the existing PCC pavement at these

locations consists of 0.67' PCC/0.42' CTB/0.33' CTS/0.83' SB. Hence, the total thickness of replacement PCC pavement should be 1.10' with a bond breaker at the replaced CTB level. Considering existing condition of slabs at these two undercrossing locations, we estimate approximately 25 slabs may require replacement.

PM 9.1/13.94

For the northern portion of project limits between PM 9.1/13.94, the major distress observed is significant block cracking of asphalt surface reflected from the underlying PCC pavement. Also, within the majority of this segment, the asphalt surface is extremely rough contributing to a noisy rough ride.

Based on as-built information, the original PCC pavement within this area was constructed in late 1950's with 0.67' PCC/0.42' CTB/0.33' CTS/0.83' SB. The original PCC pavement was later overlaid with 0.10' OGAC/0.10'-0.15' AC-A/PRF/0.10' AC-A in 1987 (Contract #04-104934). Inside widening of one lane in both north and southbound directions was performed at some locations in 1996 (Contract #04-438701). Along with construction of auxiliary lanes, overlay of northbound pavement between PM 10.6/12.2 was performed with 0.10' OGAC in 2007 (Contract #04-439544). A few ramps were overlaid with 0.10 OGAC the following year under contract 04-4A2104.

Considering the existing distressed surface including reflective cracking from underlying PCC pavement, we recommend that the new asphalt overlay for this area should consist of 0.10' RHMA-O/0.15' RHMA-G over a layer of pavement reinforcing fabric (PRF). Prior to placement of this new overlay the existing pavement should be cold planed for 0.25', the total thickness of new overlay. The recommended PRF layer underneath the new overlay material will be highly beneficial to retard the propagation of reflective cracking from the underlying PCC pavement.

Between PM 12.2/12.35, the existing pavement is PCC underneath a railway structure and Hamilton Avenue. A few PCC slabs within this area were replaced using 1.10' PCC in 1993 under Contract #04-193184. Outside of this replaced slabs, majority of the remaining PCC slabs are severely broken requiring replacement.

We recommend that all severely broken slabs and any slab with 3rd stage cracking be replaced as part of this project. The replacement of the PCC slabs should include removal of the existing PCC slab and the underlying CTB layer. Based on as-built information of PCC pavement as stated above, we estimate the total thickness of replacement PCC pavement to be 1.10' with a bond breaker at the replaced CTB level. We estimate approximately 100 slabs will require replacement at this location.

Ramps

Based on information provided by your office in an email dated June 1, 2017, we understand that a number of ramps within the project limits are considered for improvement as part of this projects. They are, asphalt paved portions of a few connectors at 280 and 85 interchanges, ramps at Hamilton Avenue, Camden Avenue, South Santa Cruz Avenue, and Bear Creek Road. The ramps located between PM 6.9/9.1 were improved as part of Contract #04-1E0904, completed in 2012, and are excluded from this project. Improvement of those ramps included overlay with 0.15' RHMA-G following cold planning of same thickness of asphalt surface.

Based on our review we find the connectors at Route 280 and 85 and most of the ramps at Hamilton Avenue and Camden Avenue are presently in fair to good condition. A few ramps at South Santa Cruz Avenue and Bear Creek Road are showing significant distress requiring surface improvements in the near future.

Even with variable surface condition for individual ramps, for cost estimation purposes, we recommend overlay with 0.15' RHMA-G of all asphalt paved ramps considered for improvements as part of this project. If existing profile grades for the ramp surface are to be maintained as it is, this overlay should be placed following cold planning of equal thickness of existing asphalt materials. We will re-evaluate the condition of all ramps during PS&E phase to finalize our recommendations.

Slip-out Repair

Repair of an existing slip-out along outer lane and shoulder at northbound Route 17 at approximate PM 4.35 is included as part of this project. Caltrans Geotechnical has provided alternative recommendations for repair to mitigate the on-going slip-out.

We are recommending that any new pavement within the repair area should be constructed using full depth asphalt material with of 0.10' RHMA-O over 0.15' RHMA-G over 1.40' HMA-A. This section is calculated using the 20-year traffic index of 12.5 at the project location and an estimated R-value of 15 for the subgrade materials. Considering the limited extent of new pavement at the slip-out area, we are recommending same structural section to be used for travelled lane as well as shoulder. Using a full depth asphalt section will minimize handling of numerous paving materials for this relatively small repair area.

General Recommendations

For existing asphalt areas, prior to overlay, a field review should be conducted to locate specific areas of severe failure such as rutting greater than ½", extensive alligator and transverse cracking,

and/or loose or spalled pavement. These areas should be dug-out by removing the existing AC up to a maximum depth of 0.5' and backfilled with new HMA-A.

The above recommended cold planning and overlay should extend to the full width of pavement including shoulders.

Within existing PCC areas, any spalled longitudinal and transverse joints should be properly repaired using Polyester grout. Following slab replacement and other corrective measures, all PCC pavements should be ground to remove step faulting greater than ½".

Due to anticipated short construction window, standard practice would be using Rapid Strength Concrete (RSC) for slab replacement. Alternatively, considering the estimated number of slabs to be replaced for this project, using pre-cast concrete slabs may become cost effective. When properly constructed, pre-cast concrete slabs should provide better long tern performance. Hence, for cost estimation purposes we recommend considering pre-cast concrete slabs for slab replacement for this project to ensure enough funds available in case this option is selected during PS&E.

Existing asphalt shoulder bordering PCC pavement should be overlaid with 0.10' RHMA-O following cold planning of equal thickness.

If you have any questions, please call Samia Ara at 622-8794.

c: ADas, SAra, Route File, Daily File
SA/SCL-17 – CAPM Project

ATTACHMENT J

Pavement Strategy Checklist

(Rev. 3/04/10)

PAVEMENT STRATEGY CHECKLIST

Date: 08/09/18

Project description and project elements:

This CAPM project will replace failed PCC pavement slabs and grind the existing PCC pavement. It will also digout, cold plane, and overlay the AC portion of the roadway, including shoulders and ramps. Compaction grouting to repair shoulder slipout at PM 4.15, PM 4.35, and NB/SB approach slabs at PM 11.84. In addition, drainage, guardrail and ADA curb ramp work are also included.

EA: 1J9700

Project Manager: John Peterson

Co/Rte: SCl-17

Office: Design Santa Clara

Project Engineer: Peter Lac

Program: SHOPP 201.121

Design Senior: Arick Bayford Initial: AB

PM Limits: 2.8/13.9

Materials Engineer (8th floor): Rick D'Onofrio Signature

This project is at the following phase (please check one):

☐ PID (PSSR, etc.) ☒ PR ☐ PS&E ☐ OTHER

Describe existing structural section (e.g., shoulder, traveled way). Show limits if different sections are within the project:

Route 17 within the project limits is a divided highway with two to four lanes in each direction consisting mostly of asphalt paved surface with limited lengths of PCC pavement at a few undercrossing locations. The existing condition of asphalt pavement varies along the alignment including portions of almost new surface to areas with variable distress including surface roughness, longitudinal and transverse cracking, significant block cracking, localized severe alligator cracking, and existing variable length dig-out areas.

What pavement types/structural sections does Materials propose for each segment (shoulders and traveled way)?

Traveled Way and Shoulders bordering AC pavements

A. Cold plane AC pavement to depth of 0.25'

B. Place 0.10' of Rubberized Hot Mix Asphalt-Open Graded over 0.15' of Rubberized Hot Mix Asphalt-Gap Graded

C. Dig out AC up to maximum depth of 0.50' and backfill with HMA-A

Ramps

A. Cold plane AC pavement to depth of 0.15'

B. Place 0.15' of Rubberized Hot Mix Asphalt-Gap Graded

Shoulders bordering PCC pavements

A. Cold plane AC pavement to depth of 0.10'

B. Place 0.10' of Rubberized Hot Mix Asphalt-Open Graded

Pavement is involved in:

☒ Entire project OR ☐ Part of the project

Assumptions (Is future widening in Regional Transportation Plan? Yes or no?): Please provide information for all of the following items that apply to this project.

No know future widening is proposed. This is a CAPM project. The purpose of this project is to preserve and extend the life of the existing pavement and improve ride quality.

	Yes	No	Question
1.	☒	☐	Are you implementing an innovative strategy (e.g., cold foam Hot-Mix Asphalt (HMA)), pre-cast concrete pavement, continuously reinforced pavement, etc)? If so, which are you implementing and why? If not, why not? Precast for PCC slabs.
2.	☐	☒	Has Rapid Rehab strategy been considered (e.g., weekend closures and lane replacements)? Explain: N/A
3.	☒	☐	Are you using Rubberized Hot-Mix Asphalt (RHMA) in this project? If not, justify:
4.	☐	☒	Was Life Cycle Analysis performed? Provide Life Cycle Analysis and results.
5.	☒	☐	Does existing pavement have a settlement problem? Explain: Settlement issues at PM 4.15, PM 4.35, and PM 11.80
6.	☒	☐	a) Is this project (or part of project) maintaining the grade profile? b) If not, explain how the profile change affects the pavement strategy choice (cut v. fill):

	Yes	No	Question
7.	☐	☒	Will there be a new barrier?
8.	☐	☒	Is the proposed structural section on cut or fill or both? Provide limits of both, if applicable.
9.	☐	☒	Are highly expansive basement soils present?
10.	☒	☐	Are as-builts (including structural section information regarding edge drains, under drains, lime treatment, permeable blanket, etc.) available? If no, did you check map files and online? If yes, existing structural section was based on (check one): ☒ as-built ☐ actual boring
11.	☐	☒	Do the project limits have problems with groundwater (e.g., high water table, flow requirements, etc.)? If yes, explain:
12.	☐	☒	Has the availability of pavement materials (i.e., long haul distances from plants) been considered? If yes, how does material availability affect pavement type selection?
13.	☒	☐	Will the existing pavement be rehabilitated? What are the age and condition of the existing adjacent lanes? Explain: See page 1 of this checklist.
14.	☒	☐	What is the type of pavement/structural section (corridor pavement type/structural section continuity) on upstream/downstream roadway? Explain if several: Similar. See page 1 of this checklist
15.	☒	☐	Is TMP data (lane closure charts) available and was it considered? TMP data sheet was received. Lane closures charts will be requested during PS&E. Will there be nighttime paving? If so, provide lane closure hours: From other projects, closure windows are from 22:00 to 0500 on the NB and 23:00 to 06:00 on the SB.
16.	☒	☐	Was field Maintenance input considered? Robert Camargo and James Hsiao
17.	☐	☒	Were climate conditions (extreme temperature, rainfall, etc.) considered? If so, which ones do you anticipate affecting the pavement job?

	Yes	No	Question
18.			Which stage construction requirements (matching adjacent sections, temporary paving, etc.) were considered? N/A
19.	☒	☐	Is this a large-scale project? Explain all quantity take-off: See Attached cost estimate
20.	☒	☐	Is there Open-Graded Hot-Mix Asphalt (OGHMA) on the existing pavement? Some location
21.	☒	☐	Was environmental impact considered? Explain: CE/CE. Possible permits
22.			What is the proposed pavement design life? Min of 5 year for CAPM projects.
23.			What is the final lane line configuration? Same
24.	☐	☒	Are there vertical clearance issues? If yes, explain:
25.			What is the traffic index? Not required for CAPM projects.
26.	☐	☒	Are there existing retrofit edge drains?
27.	☐	☒	Will shoulders be used as detours?
28.	☒ ☐	☐ ☒	Is there settlement at bridge approaches? PM 11.84. See attached memo from Geotechnical Design. Are bridge approach slabs being replaced? Does such replacement include shoulders? Consulted with structures maintenance representative on
29.	☒	☐	Is there a minimum standard (2% or 1.5%) cross-slope? If not standard, provide date of design exception approval:_____
30.			Provide the pavement condition report. See attached.
31	☐	☐	Other factors? Explain:

ATTACHMENT K

Right of Way Data Sheet

To: Design Santa Clara

Date May 11, 2018
Dist 4 Co SCl Rte 17 PM 2.8/13.94

Attention: HASSAN NIKZAD
Branch Chief

Project ID: 04-1400-0404 (1J970)

From: ENID LAU
Right of Way Resource Manager

D.S. #6988

CAPM

Subject: Current Estimated Right of Way Costs

We have completed an estimate of the right of way costs for the above referenced project based on maps we received from you on March 14, 2018, and the following assumptions and limiting conditions.

[ ] 1. The mapping did not provide sufficient detail to determine the limits of the right of way required.

[ ] 2. The transportation facilities have not been sufficiently designed so our estimator could determine the damages to any of the remainder parcels affected by the project.

[ ] 3. Additional right of way requirements are anticipated, but are not defined due to the preliminary nature of the early design requirements.

[ ] 4. This estimate does not include $_____ right of way costs previously incurred on the project, which may affect the total project right of way costs for programming purposes.

[ ] 5. We have determined there are no right of way functional involvements in the proposed project at this time, as designed.

Right of Way Lead Time will require a minimum of 18 months after we begin receiving final right of way requirements (PYPSCAN node No. 224), necessary environmental clearance has been obtained, and freeway agreements have been approved. From the date of receipt of final right of way requirements (PYPSCAN node No. 265), we will require a minimum of 15 months prior to the date of certification of the project. Shorter lead times will require either more right of way resources or an increased number of condemnation suits to be filed. Either of these actions may reflect adversely on the District's other programs or our public image generally.

for _____
Right of Way Resource Manager

Attachments:

[✓] Right of Way Data Sheet – Page One (always required)
[✓] Right of Way Data Sheet – All Pages (required when interest in real property is being acquired)
[✓] Utility Information Sheet
[✓] Railroad Information Sheet

RIGHT OF WAY DATA SHEET

TO: Office of Design Santa Clara

Date 3/21/2018 D.S. # 6988

Dist. 04 Co. SCl Rte 17 PM 2.8/13.94

EA 1J9700/0414000404

ATTN: HASSAN NIKZAD

Project Description: CAPM project to overlay existing pavement; upgrade guard rail, curb ramp, traffic signals, drainage

SUBJECT: Right of Way Data - Alternate No.

1. Right of Way Cost Estimate:

		Current Value (Future Use)	Escalation Rate	Escalated Value
A.	Acquisition, including Excess Lands, Damages, and Goodwill	$20,300.00	7 %/year	$22,100.00
	Environmental Mitigation			$0.00
	Grantor's Appraisal Cost			$0.00
B.	Utility Relocation (State Share)	$20,000.00	%	$20,000.00
C.	Railroad (from page 6)			$0.00
D.	Relocation Assistance	$0.00	%	$0.00
E.	Clearance Demolition	$0.00	%	$0.00
F.	Title and Escrow Fees	$12,500.00	%	$12,500.00
G.	TOTAL ESCALATED VALUE			$54,600.00
H.	Construction Contract Work	$0.00		
I.	Railroad Phase 4 Costs	$0.00		

2. Anticipated Date of Right of Way Certification 1/17/2020

3. Parcel Data:

	Type	Dual/Appr	Utilities		RR Involvements	
X			U4-1		None	
A	14		-2		C&M Agrmt	
B			-3		R/W Agrmt	
C			-4		Design	
D			U5-7	5	Const.	
E	XXXX		-8		Lic/RE/Clauses	X
F	XXXX		-9			

Misc R/W Work

RAP Displ	0
Clear Demo	0
Const. Permits	0
Condemnation	0

Total 14

Areas: Right of Way 21,309 s.f. No. Excess Parcels 0 Excess 0

Enter PMCS Screens _____ By _____

4. Are there any major items of construction contract work?
Yes ☐ No ☑ (If yes, explain)

5. Provide a general description of the right of way and excess lands required(zoning, use, major improvements critical or sensitive parcels, etc.).
No right of way required. ☐
13 Drainage Easements and one Encroachment Permit for curb ramp improvement. One parcel is located on undisposed Excess Land. Another parcel affects an Airspace Lease. All other parcels are on public entity owned land.

6. Is there an effect on assessed valuation? (If yes explain)
Yes ☐ Not Significant ☐ No ☑

7. Are utility facilities or rights of way affected? Yes ☑ No ☐
If yes, attach Utility Information Sheet Exhibit 01-01-05)

8. Are railroad facilities or rights of way affected? Yes ☑ No ☐
If yes, attach Railroad Information Sheet Exhibit 01-01-06)

9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes ☐ None evident ☑
(If yes, attach memorandum per Procedural Handbook Volume 1, Section 101.011)

10. Are RAP displacements required? Yes ☐ No ☑
(If yes, provide the following information)

No. of personal property relocations _____

No. of single family _____ No. of business/non profit _____

No. of multi-family _____ No. of farms _____

Based on Draft / Final Relocation Impact Statement / Study dated _____, it is anticipated that sufficient replacement housing will / will not be available without Last Resort Housing.

11. Are material borrow and / or disposal sites required? Yes ☐ No ☑
(If yes, expalin)

12. Are there potential relinquishments / abandonments? Yes ☐ No ☑
(If yes, expalin)

13. Are there any existing and/or potential Airspace sites? Yes ☑ No ☐
(If yes, explain)
It appears that 4 Drainage Easement requirements lie within the boundaries of FLA 04-SCL-017-01.

14. Are there Environmental Mitigation costs? Yes ☐ No ☑
(If yes, explain)

15. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if District proposes less that PMCS lead time and / or if significant pressures for project advancement are anticipated.)

PYPSCAN lead time (from Regular R/W to project certification) 18 months.

16. Is it anticipated that all Right of Way work be performed by CALTRANS staff?
Yes ☑ No ☐ (If no, discuss)

Assumptions and Limiting Conditions

- This data sheet was completed without a hazardous waste/materials report.
- Information on this data sheet was based on maps provided by Hassan Nikzad on 3/14/2018

Evaluation Prepared By: Suzette M. Musetti

Right of Way: Name _____ Date 4-17-18

Railroad: Name _____ Date 4-24-18

Utilities: Name _____ Date 4-24-18

Recommended for Approval:

_____
Right of Way Capital Cost Coordinator

I have personally reviewed this Right of Way Data Sheet and all supporting information. It is my opinion that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set fourth, and find this Data Sheet complete and current.

_____
Chief, R/W Appraisal Services

4.24.18
Date

cc: Program Manager
Project Manger

UTILITY INFORMATION SHEET

1. Utility owners located within project limits:
PG&E, AT&T, Water, Cable Con, Sewer

2. Facilities potentially impacted by project (if known, include Owners(s) & facility type(s)):
None

3. Anticipated Workload:
   - ✓ Utility Verification required
   - ✓ Positive Identification
   - _____ Utility Relocation
   - _____ Other (Specify)

4. Additional information concerning anticipated utility involvements (include limiting conditions and a narative addressing likelihood that conflicts will occur);

_____ Involves possible relocation of electric transmission facilities
(If X'd, Data sheet should be forwarded to environmental)

5. PMCS input information

U4-1	_____	Owner Expense Involvements
U4-2	_____	State Expense Involvements *(Conventional, No Fed Aid)*
U4-3	_____	State Expense Involvements *(Freeway, No Fed Aid)*
U4-4	_____	State Expense Involvements *(Conventional or Freeway, Fed Aid)*
U5-7	5	Verifications - without involvements
U5-8	_____	Verifications - 50% involvements
U5-9	_____	Verifications resulting in involvements

NOTE: The sum of U-4's must equal the sum of ½ of the U5-8's and all of the U5-9's.

ESTIMATED STATE SHARE OF COSTS $ $20,000.00

Prepared by: Nicholas Psiol

Right of Way Utility Coordinator

4.24.18
Date

RAILROAD INFORMATION SHEET

1. Describe railroad facilities or right of way affected.
   VTA, UPRR

2. When branch lines or spurs are affected, would acquisition and/or payment of damages to businesses and/or industries served by the railroad facility be more cost effective than construction of a facility to perpetuate the rail services? (See Procedural Handbook Volume 4a, Chapter 440 for further detail.)
   Yes ☐ No ☐ (If yes, explain)

3. Discuss types of agreements and rights required from the railroads. Are grade crossings requiring service contracts, or grade separations requiring construction and maintenance agreements involved?

4. Remarks (Nonoperating railroad right of way involved?)

5. PMCS Input Information

RR Involvements			Estimated Cost	
None		_____		
C&M Agreement		_____	Phase 4*	$ _____
R/W Agreement		_____	Phase 9	$ _____
	Design	_____		
	Const.	_____	*not part of page 1 total	
Lic/RE/Clauses		X		

TOTAL ESTIMATED COST $ _____

Prepared by: Pat Coggins

_____ 4-24-19
Right of Way Railroad Coordinator Date

ATTACHMENT L

Stormwater Data Report

Dist-County-Route: 04-SCL-17
Post Mile Limits: 2.8/13.94
Type of Work: Cold Plane AC Overlay
Project ID (EA): 1J9701
Program Identification: 414000404
Phase: ☐ PID ☒ PA/ED ☐ PS&E

Regional Water Quality Control Board(s): Region 2 San Francisco
Total Disturbed Soil Area: 4 acres PCTA: 1.5 Acres
Alternative Compliance (acres): TBD ATA 2 (50% Rule)? Yes ☐ No ☒
Estimated Const. Start Date: 06/01/2020 Estimated Const. Completion Date: 01/01/2022
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): TBD
Notification of ADL reuse (if yes, provide date): Yes ☐ Date: _____ No ☒

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests 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.

Peter Lac, Registered Project Engineer/Landscape Architect — 5/25/18 Date

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

John Peterson, Project Manager — 6/4/18 *Date*

Amrinder Jhajj, Designated Maintenance Representative — 06/12/18 *Date*

Alex McDonald, Designated Landscape Architect Representative — 6.21.18 *Date*

[Stamp Required at PS&E only]

Jonathan Wellen, District/Regional Design SW Coordinator or Designee — 05/17/2018 *Date*

STORMWATER DATA INFORMATION

1. Project Description

Caltrans will cold plane and overlay State Route 17 (SR17) from postmile 2.8 to 13.94 in Santa Clara County. In addition, Caltrans will upgrade the Metal Beam Guardrail (MBGR), upgrade crash cushions, upgrade curb ramps, replace loop detectors, and repair shoulder slip outs. This work is necessary to preserve and extend the life of the existing pavement and improve ride quality. Rumble strips, extra reflective thermoplastic stripe.

Cracked and failing slabs will be replaced, resulting in an estimated 1.5 acres of replaced impervious surface.

Cold planning will remove 0.25 ft and overlaying 0.10 ft of Rubberized HMA and 0.15 ft of Rubberized HMA. The subgrade will not be exposed.

Caltrans will explore rehabilitating or replacing all corrugated metal pipe drainage systems built between the years 1937 to 1958 within the project corridor, now beyond their design life of 30-50 years. These culverts are at risk of eroding and collapsing, therefore undermining roadway. A total of 210 such culverts were identified, 27 of which are 36" or greater in diameter. Many culverts less than 36" will be replaced. Regarding culverts greater than 36" in diameter: these culverts will not be replaced but relined. The contractor may enter the creek bed and dig a trench for equipment. Relining of culverts is a permanent impact because it will change the cross section area of culverts.

Caltrans may replace eroded rock slope protection at headwalls as a protection against scouring. Work requires the contractor to enter the creek and excavate to place RSP. This is a permanent impact.

Caltrans may clean concrete pipe cross culverts and spill guard culverts as a flood control measure.

A 401 in anticipated because culverts 36" in diameter and greater will be reduced in their cross section areas from the relining. Placement of RSP is a permanent impact of the creek bed as well.

MBGR replacement, culvert replacement, and other activities will produce 2.5 acres of disturbed soil area.

Caltrans will treat the Post Construction Treatment Area (PCTA), which is the sum of New Impervious Surface (NIS) and Replaced Impervious Surface (RIS). This is estimated to be 1.5 acres. The post project impervious area is 154 acres and is the same as the pre project impervious area. Biofiltration strips and biofiltration swales are the preferred method of treatment.

2. Site Data and Stormwater Quality Design Issues

The project lies in Hydrologic Sub Areas (HSAs) 205.40, 205.50 and is tributary to the Los Gatos Creek and Guadalupe River, both 303d listed waterbodies with TMDLs for diazinon. The project is also tributary to the Lexington Reservoir. To the south there are steep hills and cut and to the north there is urban development. There are mature trees adjacent the right of way.

3. Construction Site BMPs to be used on Project

A SWPPP is necessary because the project disturbs more than one acre of soil. It is possible that one or more creek diversions may be necessary to allow the contractor to operate in a dry environment.

Job Site Management: This non-storm water discharge and waste management practice includes considerations for operations, illicit discharge detection and reporting, vehicle and equipment cleaning, vehicle and equipment fueling, material use, stockpile management, and concrete waste management.

Temporary Drainage Inlet Protection: This sediment control BMP will minimize sediment from entering the drainage inlets, drainage ditches and receiving water bodies. Temporary fabric will be placed under storm drain inlets to prevent sediment from entering the drainage system. This BMP is necessary to keep debris from the grinding and placement of AC from entering the storm drains.

Portable Concrete Washout: This waste management BMP contains procedures and practices that will minimize or eliminate the discharge of concrete waste materials to the storm drain systems or watercourses.

Street Sweeping: This tracking control BMP will provide for a sweeper machine to be on site during construction. Grindings and soil will be swept up and collected to limit debris from entering receiving waters.

The project is a risk level 3.

4. Maintenance BMPs

There are no maintenance BMPs. DRAIN INLETS ACCESSIBLE TO PEDESTRIANS WILL BE STENCILED.

5. Other Water Quality Requirements and Agreements

There are no water quality requirements/agreements.

6. Permanent BMPs

Rapid Stability Assessment

There is no rapid stream assessment.

Design Pollution Prevention (DPP) BMP Strategy

All disturbed soil areas from slab replacement will be stabilized with new pavement.

Vegetation control may be placed under replaced MBGR as a vegetation control. ~~This type of paving will be credited as CUs.~~

Fiber rolls and netting may be deployed to stabilize exposed slopes.

Treatment BMP Strategy

Treatment of all PCTA is required because a 401 is necessary.

Biofiltration strips and swales are the chosen method of treatment. Opportunities to place these BMPs is limited because much of the right of way is constrained with dense urban development, much of the roadway is placed in cut, and there are mature trees in much of the area adjacent the roadway. 7 locations were identified where strips and swales may be placed. These locations are included in the attachments.

Table E-1. Overall Project Treatment Summary Table[1]		
Total Area to be Treated	PCTA (ac)[2]	A=1.5
	Treated Impervious Area (CT RW) (ac)	B=TBD
	Treated Impervious Area (Outside CT RW) (ac)[3]	C=0
	PCTA Balance (ac)[4]	D = (B+C) – A=TBD

1 The table may be edited, altered, or removed as applicable or as directed by the District/Regional Design Stormwater Coordinator.

2 Provide treatment for ATA 1 even if NIS is less than 1 acre.

3 Requires Regional Board approval. Coordinate with District/Regional NPDES Coordinator.

4 If less than 0, additional treatment must be identified.

Required Attachments

- Vicinity Map
- Evaluation Documentation Form (EDF)
- Risk Level Determination Documentation

Supplemental Attachments

- BMP locations deployment

DATE: 04/27/2018

Project EA: 1J9701

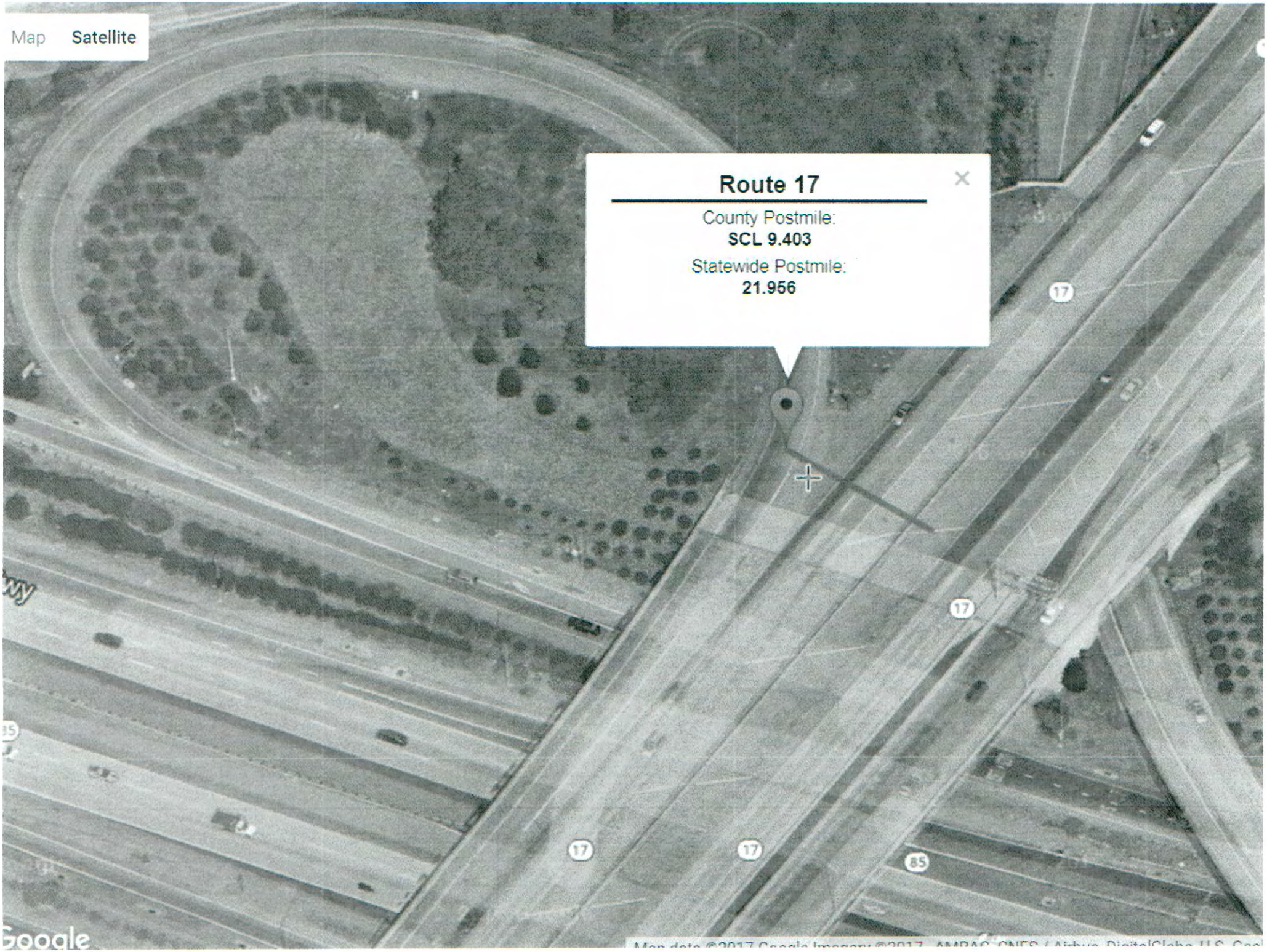
No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to Areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____ *(Dist./Reg. Coordinator initials)* If **No to all**, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or		✓	
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA Condition 1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____ *(Dist./Reg. Design SW Coord. Initials)* _____ *(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

Northbound SR 17, PM 13.55, Right

Southbound, SR 17, PM 13.7, Right

Northbound, SR 17, PM 13.36, Right

Northbound, SR 17, PM 13.30, Right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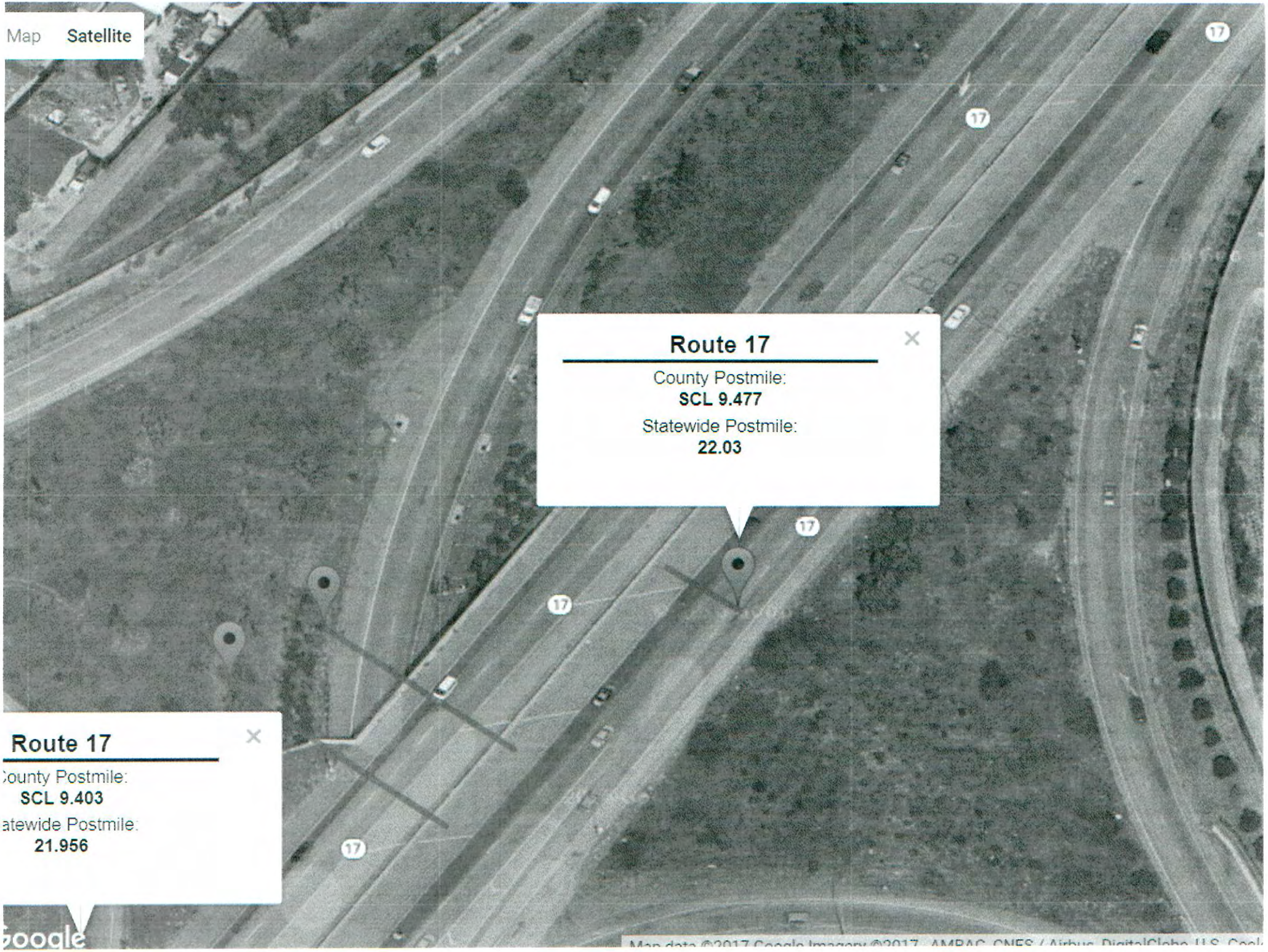
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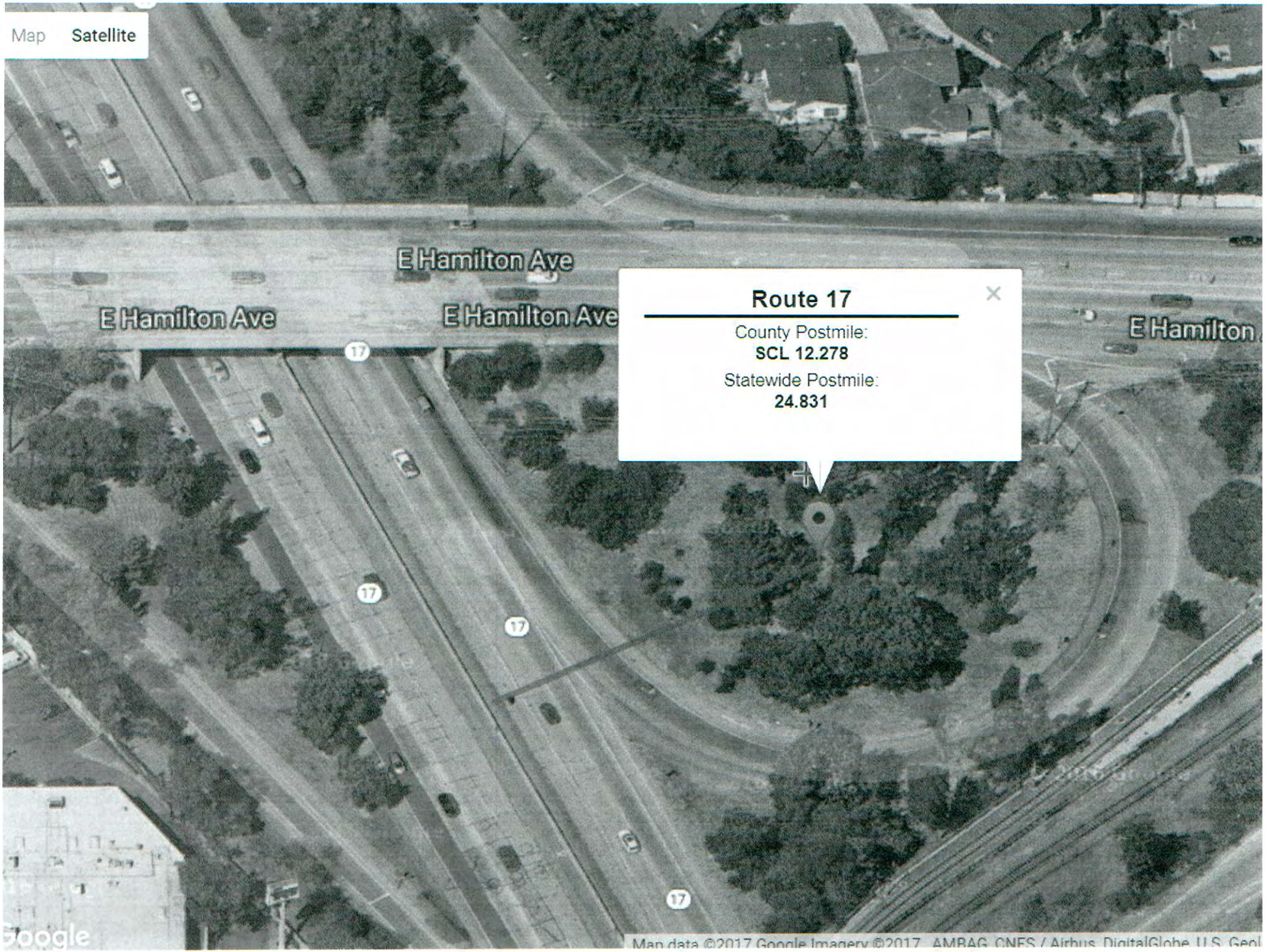
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Statewide Postmile:
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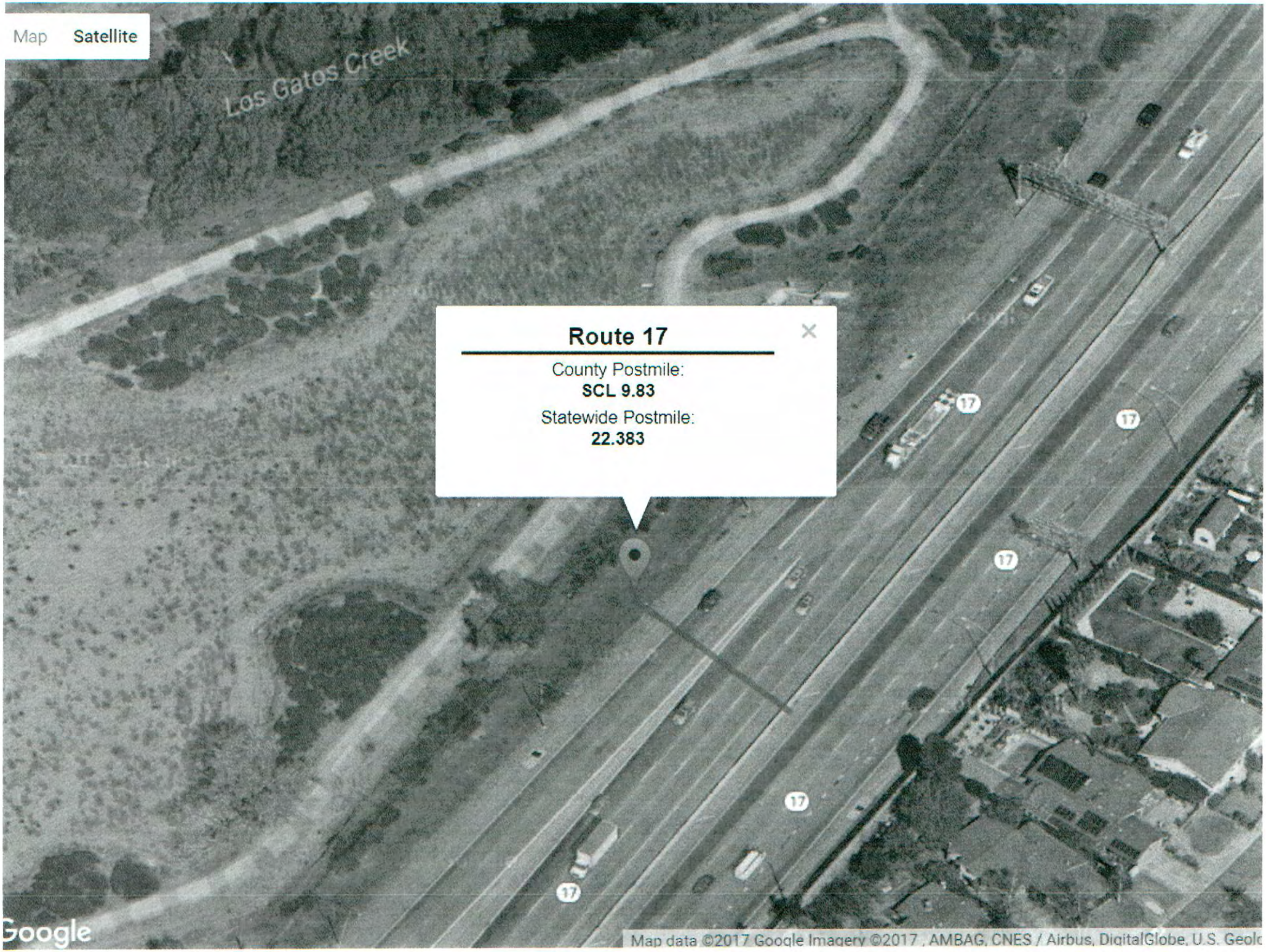
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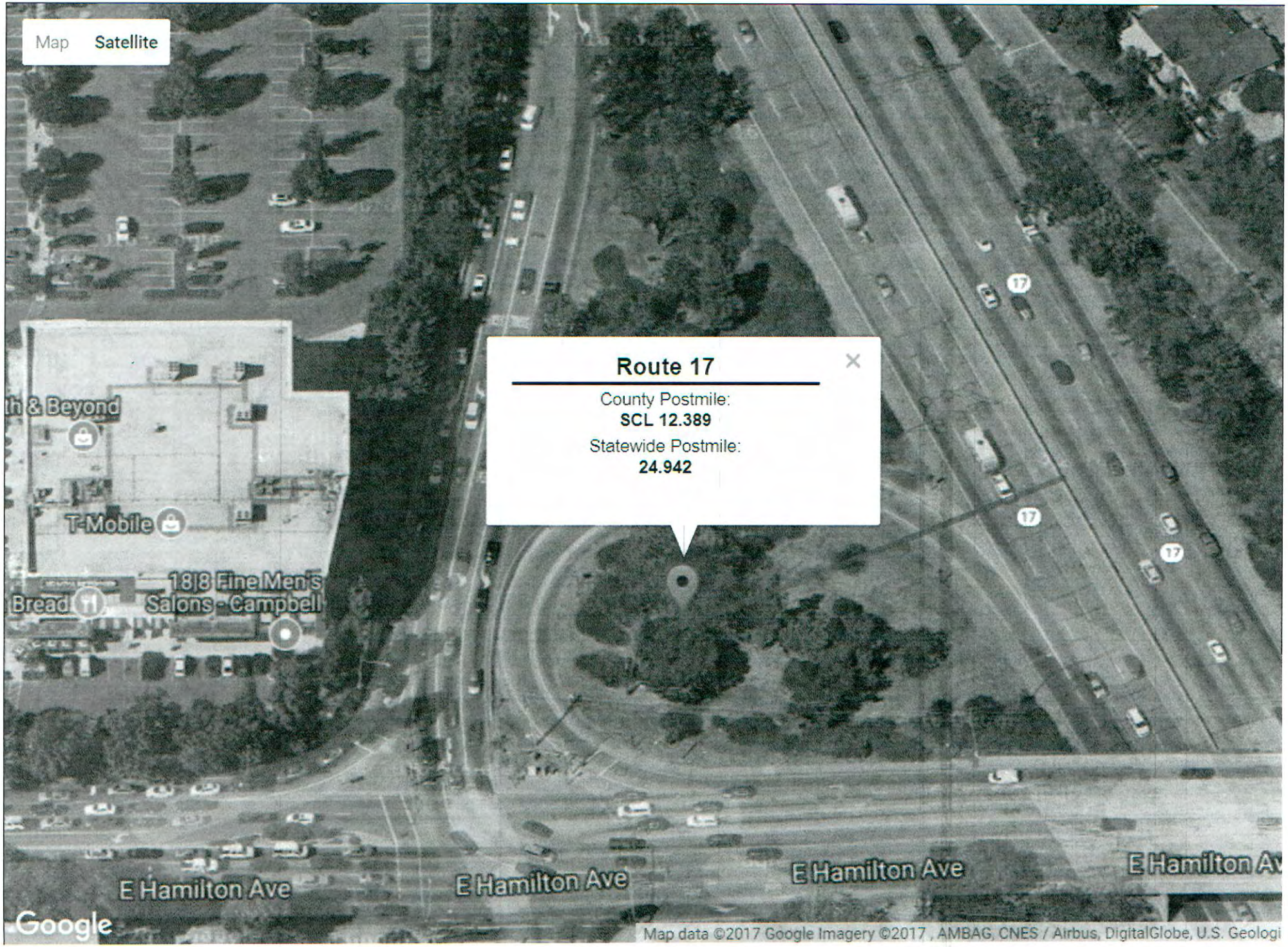
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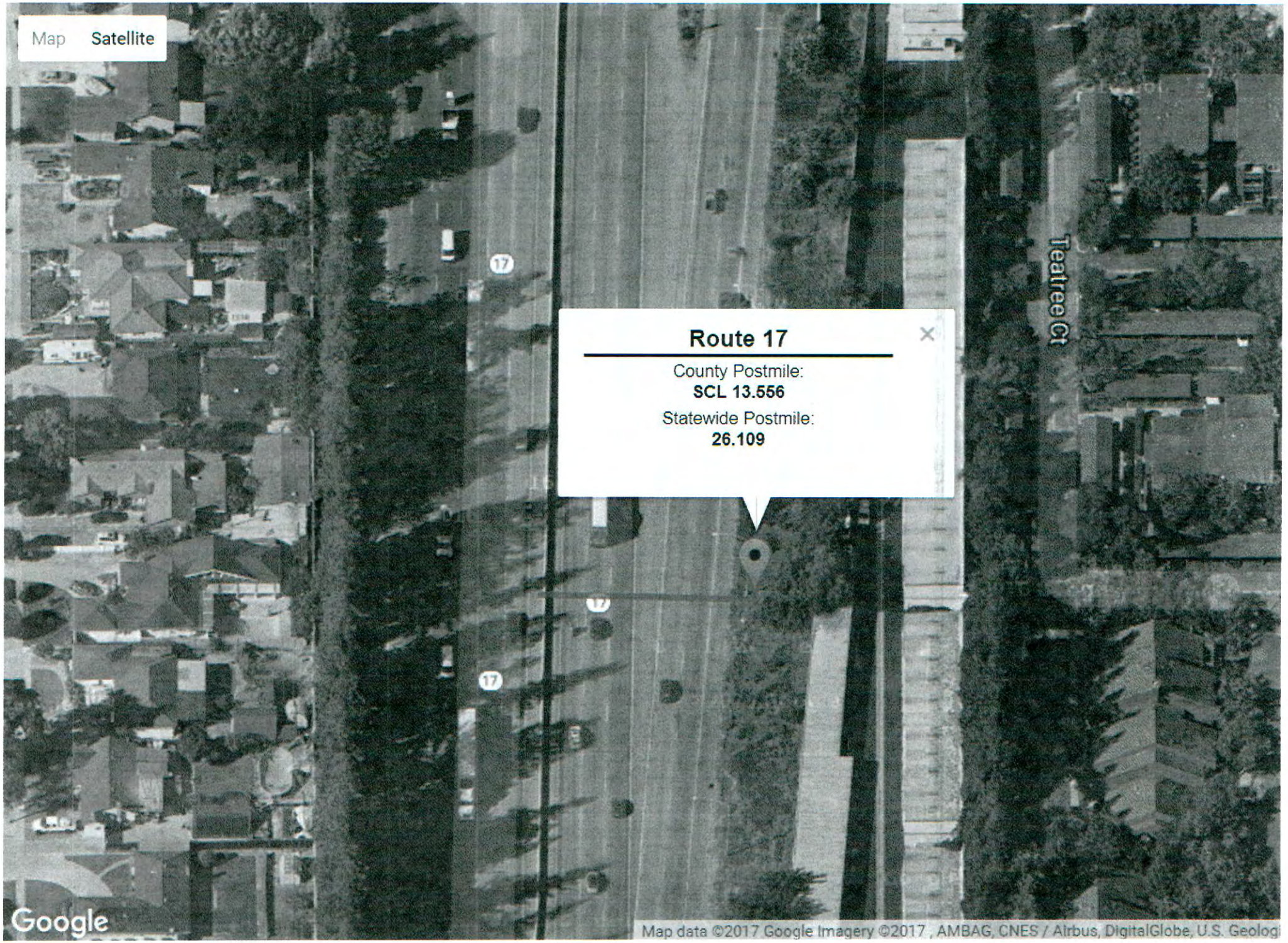
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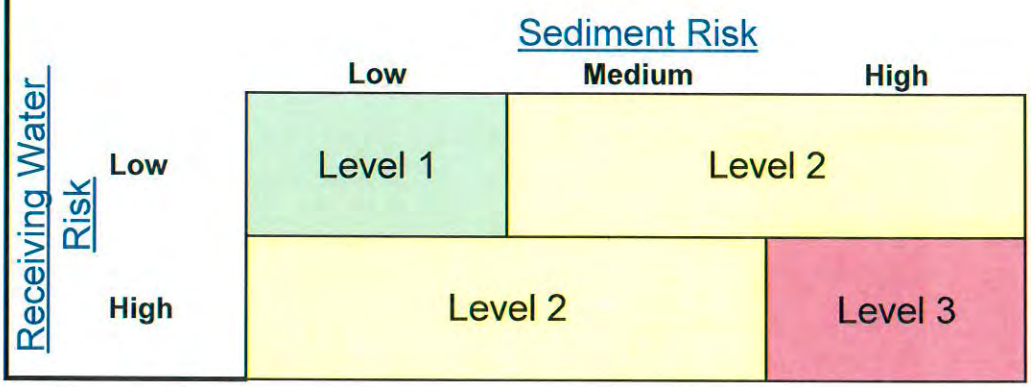
	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5		**R Factor Value**	55
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9		**K Factor Value**	0.32
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13		**LS Factor Value**	8.8
14			
15		**Watershed Erosion Estimate (=RxKxLS) in tons/acre**	154.88
16		**Site Sediment Risk Factor**	**High**
17		Low Sediment Risk: < 15 tons/acre	
18		Medium Sediment Risk: >=15 and <75 tons/acre	
19		High Sediment Risk: >= 75 tons/acre	
20			

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment** (For help with impaired waterbodies please visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml	**yes**	**High**
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) http://www.waterboards.ca.gov/waterboards_map.shtml		
Region 1 Basin Plan Region 2 Basin Plan Region 3 Basin Plan Region 4 Basin Plan Region 5 Basin Plan Region 6 Basin Plan Region 7 Basin Plan Region 8 Basin Plan Region 9 Basin Plan		

Combined Risk Level Matrix



Project Sediment Risk:	**High**
Project RW Risk:	**High**
Project Combined Risk:	**Level 3**

ATTACHMENT M

TMP Data Sheet

Memorandum

Flex your power!
Be energy efficient!

To: SHEIN LIN
District Branch Chief
TMP Coordinator
Office of Traffic Management

Date: June 12, 2017

File: 04-SCl-17-2.8/13.94
EA 1J9700 - CAPM
SHOPP 201.121

From: HASSAN NIKZAD
District Branch Chief
Office of Design-Santa Clara

Subject: REQUEST FOR TRANSPORTATION MANAGEMENT PLAN DATA SHEET

Project Data

PROJECT MANAGER: John Peterson 510-385-6893
PROJECT ENGINEER: Peter Lac 510-622-8785
DIST-EA: 04-1J9700 PROGRAM: SHOPP 201.121
PROJECT COMMON NAME: CAPM
CO-RTE-PM: SCl-17-PM 2.8/13.94
LEGAL DESCRIPTION: In Santa Clara County, from 0.1 miles north of Hebard Road to SR 17/I-280/I-880 Interchange
DETAILED WORK DESCRIPTION: Cold Plane and AC Overlay. Guard rails and Crash Cushion upgrades. New or upgrade ADA curb ramps at intersections. Loop detector replacement. Pavement delineation, drainage and dike improvement, slab replacement at approach and departure at overcrossings. Shoulder slip repair at northbound PM 4.35
CONSTRUCTION COST ESTIMATE: $26,000,000 (Current Value)
PROJECT PHASE: PSR PR X PSSR ☐ PIR ☐ PS&E ☐ %

Traffic Impact Description

A) The Project includes the following:
(Check applicable type of facility closures)

X Highway or freeway lanes
X Highway or freeway shoulders
X Freeway connectors
X Freeway off-ramps
X Freeway on-ramps
X Local streets

B) Major operations requiring traffic control and working days for each

Operation	# of working days
X Clearing and grubbing	20
X Existing feature removal	20
☐ Excavation of embankments construction	
X Structural section construction	120
X Drainage feature construction	40
☐ Structures construction	
X MBGR/Barrier construction	100
X Striping	40
X Electrical component construction	100
Total days requiring traffic control	440

C) Project staging description and # of working days required per stage:

Stage Description	# of working days per stage
1. Temporary on-ramp closures	
2. Temporary Off-ramp Closures__	
3. Temporary Lane Closures_____	
4. Temporary Freeway Connector Closures	

D) Have you considered any construction strategies that can restore existing number of lanes?

☐ Temporary Roadway Widening Structure Involvement?
Yes _____ No __X____ if "yes", notify Project Manager
☐ Lane Re-striping (Temporary narrow lane widths)
☐ Roadway Realignment (Detour around work area)
☐ Median and/or Right Shoulder Utilization
☐ Use of HOV lane as a Temporary Mixed Flow Lane
☐ Staging alternatives (Explain below)

TRANSPORTATION MANAGEMENT PLAN DATA SHEET
(Preliminary TMP Elements and Costs)

Co/Rte/PM SCL – 17 – PM 2.8 / 13.94 EA 1J9700 Project Engineer Peter Lac

ID 0414000404

Project Limit In Santa Clara County on Route 17 from 0.1 mile north of Hebard Road to Route 17/I-280/I-80 Interchange

Project Description Capital Preventative Maintenance Project

1) Public Information

☐	a. Brochures and Mailers	$
☒	b. Press Release	
☐	c. Paid Advertising	$
☐	d. Public Information Center/Kiosk	$
☐	e. Public Meeting/Speakers Bureau	
☐	f. Telephone Hotline	
☐	g. Internet, E-mail	
☐	h. Notification to impacted groups (i.e. bicycle users, pedestrians with disabilities, others…)	
☒	i. Others As determined by PIO	$ 8,000

2) Traveler Information Strategies

☐	a. Changeable Message Signs (Fixed)	$
☒	b. Changeable Message Signs (Portable)	$ 110,000
☐	c. Ground Mounted Signs	$
☐	d. Highway Advisory Radio	$
☐	e. Caltrans Highway Information Network (CHIN)	
☐	f. Detour maps (i.e. bicycle, vehicle, pedestrian...etc)	
☐	g. Revised Transit Schedules/maps	
☐	h. Bicycle community information	
☐	i. Others	
		$

3) Incident Management

☒	a. Construction Zone Enhanced Enforcement Program (COZEEP)	$ 1,100,000
☒	b. Freeway Service Patrol	$ 90,000
☐	c. Traffic Management Team	
☐	d. Helicopter Surveillance	$
☐	e. Traffic Surveillance Stations (Loop Detector and CCTV)	$
☐	f. Others	$

TMP Data Sheet (cont.)

4) Construction Strategies

☒	a. Lane Closure Chart	
☐	b. Reversible Lanes	
☐	c. Total Facility Closure	
☐	d. Contra Flow	
☐	e. Truck Traffic Restrictions	$
☐	f. Reduced Speed Zone	$
☐	g. Connector and Ramp Closures	
☐	h. Incentive and Disincentive	$
☐	i. Moveable Barrier	$
☒	j. Maintain Traffic	$ 132,000
☐	k. Others _____	$

5) Demand Management

☐	a. HOV Lanes/Ramps (New or Convert)	$
☐	b. Park and Ride Lots	$
☐	c. Rideshare Incentives	$
☐	d. Variable Work Hours	
☐	e. Telecommute	
☐	f. Ramp Metering (Temporary Installation)	$
☐	g. Ramp Metering (Modify Existing)	$
☐	h. Others _____	$

6) Alternate Route Strategies

☐	a. Add Capacity to Freeway Connector	$
☐	b. Street Improvement (widening, traffic signal... etc)	$
☐	c. Traffic Control Officers	$
☐	d. Parking Restrictions	
☐	e. Others _____	$

7) Other Strategies

☐	a. Application of New Technology	$
☐	e. Others _____	$

TOTAL ESTIMATED COST OF TMP ELEMENTS = $ 1,440,000

*Please note that any change in project scope, schedule, or cost will require re-submittal of TMP Data Sheet request.

PREPARED BY Fanhwa Yuan DATE 6/21/2017

APPROVAL RECOMMENDED BY Shein Lin DATE 6/21/2017

ATTACHMENT N

Categorical Exemption / Categorical Exclusion
Determination Form

CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM

04-SCL-17	2.8/13.94	04-1J970	0414000404
Dist.-Co.-Rte. (or Local Agency)	P.M./P.M.	E.A.	Project Id.

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.)*

Caltrans proposes to cold plane and resurface the mainline and ramps along approximately 11 miles of State Route 17. Other work elements include replacing PCC slabs, adding Americans with Disabilities Act compliant curb ramps, modifying traffic signals, replacing guardrails, installing rumble strips, and addressing minor settlement issues, as well as cleaning and rehabilitating drainage systems. All work will be performed within the Caltrans right-of-way. The Environmental Division must be notified of any project scope changes. See the attached Environmental Commitments Record for conditions.

CEQA COMPLIANCE *(for State Projects only)*

Based on an examination of this proposal and supporting information, the following statements are true and exceptions do not apply (See 14 CCR 15300 et seq.):

- 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.

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**

☐ **Exempt by Statute.** (PRC 21080[b]; 14 CCR 15260 et seq.)
Based on an examination of this proposal, supporting information, and the above statements, the project is:

☒ **Categorically Exempt. Class 1.** (PRC 21084; 14 CCR 15300 et seq.)

☐ **Categorically Exempt. General Rule 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 (CCR 15061[b][3].)

Brian Gassner		John Peterson	
Print Name: Senior Environmental Planner or Environmental Branch Chief		Print Name: Project Manager	
Signature	Date	Signature	Date
	9/18/18		9/18/18

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)(26)**
- ☐ **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.

Brian Gassner		John Peterson	
Print Name: Senior Environmental Planner or Environmental Branch Chief		Print Name: Project Manager/DLA Engineer	
Signature	Date	Signature	Date
	9/18/18		9/18/18

Date of Categorical Exclusion Checklist completion: 9/14/18

Date of ECR or equivalent : 9/14/18

Briefly list environmental commitments on continuation sheet. Reference additional information, as appropriate (e.g., CE checklist, additional studies and design conditions).

CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM
Continuation Sheet

04-SCL-17	2.8/13.94	04-1J970	0414000404
Dist.-Co.-Rte. (or Local Agency)	P.M./P.M.	E.A.	Project Id.

Continued from page 1:

ATTACHMENT O

Preliminary Cost Estimate

PROJECT

PRELIMINARY COST ESTIMATE

EA: 04-1J9700 PID: 414000404

EA: 04-1J9700

PID: 414000404

District-County-Route: 04-SCl-17

PM: 2.8 - 13.9

Type of Estimate : Project Report (PA&ED)

Program Code : SHOPP 20.XX.201.121

Project Limits : 2.8/13.9

Project Description: Pavement Preservation - CAPM

Scope : Cold plane, HMA Overlay, Slab Replacement, ADA Curb Ramp Updates, Drainage Improvements

Alternative : 1 build alternative

SUMMARY OF PROJECT COST ESTIMATE

	Current Year Cost	Escalated Cost
TOTAL ROADWAY COST	$ 49,343,700	$ 53,133,962
TOTAL STRUCTURES COST	$ -	$ -
SUBTOTAL CONSTRUCTION COST	$ 49,343,700	$ 53,133,962
TOTAL RIGHT OF WAY COST	$ 52,800	$ 54,600
TOTAL CAPITAL OUTLAY COSTS	**$ 49,397,000**	**$ 53,189,000**
PA/ ED SUPPORT	$ 2,400,000	$ 2,400,000
PS&E SUPPORT	$ 2,750,000	$ 2,750,000
RIGHT OF WAY SUPPORT	$ 175,000	$ 175,000
CONSTRUCTION SUPPORT	$ 5,900,000	$ 5,900,000
TOTAL SUPPORT COST	**$ 11,225,000**	**$ 11,225,000**
TOTAL PROJECT COST	**$ 60,700,000**	**$ 64,500,000**

If Project has been programmed enter Programmed Amount $38,636,000

	Month	/	Year
Date of Estimate (Month/ Year)	8	/	2018
Estimated Construction Start (Month/ Year)	5	/	2020
Number of Working Days =	440		
Estimated Mid-Point of Construction (Month/ Year)	5	/	2021
Estimated Construction End (Month/ Year)	3	/	2022

Number of Plant Establishment Days

Estimated Project Schedule

PID Approval	4/6/2015
PA/ED Approval	9/14/2018
PS&E	7/1/2019
RTL	1/1/2020
Begin Construction	5/1/2020

Approved by Project Manager John Peterson 9/24/18 510-385-6893

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	Earthwork	$	55,600
2	Pavement Structural Section	$	16,416,900
3	Drainage	$	7,200,000
4	Specialty Items	$	2,684,200
5	Environmental	$	2,095,700
6	Traffic Items	$	3,799,900
7	Detours	$	-
8	Minor Items	$	1,290,100
9	Roadway Mobilization	$	3,354,300
10	Supplemental Work	$	1,066,500
11	State Furnished	$	1,590,000
12	Time-Related Overhead	$	3,354,300
13	Roadway Contingency	$	6,436,200
	TOTAL ROADWAY ITEMS	**$**	**49,343,700**

Estimate Prepared By :	Peter Lac, Project Engineer	9/24/18	510-286-6199
	Name and Title	Date	Phone
Estimate Reviewed By :	Arick Bayford, Senior Engineer	9/24/18	510-286-3796
	Name and Title	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		x		=	$	-
19010X	Roadway Excavation (Type X) ADL	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
19801X	Imported Borrow	CY/ TON		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
170103	Clearing & Grubbing	LS	1	x	30,000.00	=	$	30,000
170101	Develop Water Supply	LS		x		=	$	-
190185	Shoulder Backing	TON	320	x	80.00	=	$	25,600
210130	Duff	ACRE		x		=	$	-
XXXXXX	Some Item	Unit						

TOTAL EARTHWORK SECTION ITEMS $ 55,600

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		=	$	-
280015	Lean Concrete Base Rapid Setting	CY	340	x	520.00	=	$	176,800
410095	Dowel Bar (Drill and Bond)	EA		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	3,520	x	140.00	=	$	492,800
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON	62,190	x	110.00	=	$	6,840,900
390402	Rubberized Hot Mix Asphalt (Open Graded)	TON	33,150	x	135.00	=	$	4,475,250
39300X	Geosynthetic Pavement Interlayer (Type X)	SQYD	341,800	x	1.00	=	$	341,800
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	200	x	750.00	=	$	150,000
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	60,000	x	2.00	=	$	120,000
150771	Remove Asphalt Concrete Dike	LF	32,000	x	1.40	=	$	44,800
420201	Grind Existing Concrete Pavement	SQYD	7,790	x	15.00	=	$	116,850
150860	Remove Base and Surfacing	CY		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY	700	x	330.00	=	$	231,000
15312X	Remove Concrete	LF/ CY/ LS		x		=	$	-
394090	Place Hot Mix Asphalt (Miscellaneous Area)	SQYD		x		=	$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD	635,380	x	2.75	=	$	1,747,295
39405X	Shoulder Rumble Strip (HMA, X-In Indentations	STA	2,400	x	40.00	=	$	96,000
413113	Repair Spalled Joints, Polyester Grout	SQYD		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
XXXXXX	Precast Jointed Concrete Pavement (PJCP)	CY	540	x	1,000.00	=	$	540,000
394095	Roadside Paving (Miscellaneous Areas)	SQYD		x		=	$	-
XXXXXX	Soil Densification (High Density Polyurethane)	LB	111,000	x	9.40	=	$	1,043,400

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS $ 16,416,900

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
15080X	Remove Culvert	EA/ LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
155232	Sand Backfill	CY		x		=	$	-
15020X	Abandon Culvert	EA/ LF		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
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		=	$	-
65XXXX	XX" Reinforced Concrete Pipe (Type X)	LF		x		=	$	-
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"	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		=	$	-
XXXXXX	Bicycle Grates	LS	100	x	1,000.00	=	$	100,000
XXXXXX	Additional Drainage	LS	1	x	7,100,000.00	=	$	7,100,000

TOTAL DRAINAGE ITEMS $ 7,200,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
080050	Progress Schedule (Critical Path Method)	LS	1	x	4,000.00	=	$	4,000
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	10,000.00	=	$	10,000
141120	Treated Wood Waste	LB	541,000	x	0.14	=	$	75,740
153120	Remove Concrete	LF	4,600	x	15.00	=	$	69,000
839752	Remove Guardrail	LF	33,900	x	6.00	=	$	203,400
150668	Remove Flared End Section	EA		x		=	$	-
8000XX	Chain Link Fence (Type XX)	LF		x		=	$	-
80XXXX	XX" Chain Link Gate (Type CL-6)	EA		x		=	$	-
832005	Midwest Guardrail System (Wood Post)	LF	30,200	x	30.00	=	$	906,000
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		x		=	$	-
839585	Alternative Flared Terminal System	EA		x		=	$	-
839584	Alternative In-line Terminal System	EA	65	x	3,570.00	=	$	232,050
4906XX	CIDH Concrete Piling (Insert Diameter)	LF		x		=	$	-
839601	Crash Cushion (Type CAT)	EA	2	x	7,000.00	=	$	14,000
83XXXX	Concrete Barrier (Insert Type)	LF		x		=	$	-
520103	Bar Reinforced Steel (Retaining Wall)	LB		x		=	$	-
510060	Structural Concrete, Retaining Wall	CY		x		=	$	-
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		=	$	-
839543	Transition Railing (WB-31)	EA	47	x	4,180.00	=	$	196,460
597601	Prepare and Stain Concrete	SQFT		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839581	End Anchor Assembly (Type SFT)	EA	43	x	780.00	=	$	33,540
832070	Vegetation Control (Minor Concrete)	SQYD	18,800	x	50.00	=	$	940,000

TOTAL SPECIALTY ITEMS $ 2,684,200

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost	
	Wetland/ Riparian Resources	LS	1	x	200,000.00	=	$	200,000	
	Biological Resources	LS	1	x	50,000.00	=	$	50,000	
	Special Landscaping	LS	1	x	50,000.00	=	$	50,000	
	Permits and Agreement	LS	1	x	9,683.00	=	$	9,683	
130670	Temporary Reinforced Silt Fence	LF		x		=	$	-	
141000	Temporary Fence (Type ESA)	LF		x		=	$	-	
							Subtotal Environmental Mitigation		*$ 309,683*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost	
20XXXX	Highway Planting	LS		x		=	$	-	
20XXXX	Irrigation System	LS		x		=	$	-	
204099	Plant Establishment Work	LS		x		=	$	-	
204101	Extend Plant Establishment Work	LS		x		=	$	-	
20XXXX	Follow-up Landscape Project	LS		x		=	$	-	
206400	Check and Test Existing Irrigation Facilities	LS		x		=	$	-	
20XXXX	Rock Blanket, Rock Mulch, DG, Gravel Mulch	SQFT/ SQYD		x		=	$	-	
200122	Weed Germination	SQYD		x		=	$	-	
2087XX	XX" Conduit (Use for Irrigation x-overs)	LF		x		=	$	-	
20890X	Extend X" Conduit (Use for Extension of	LF		x		=	$	-	
XXXXXX	Erosion Control	LS	1	x	376,000.00	=	$	376,000	
							Subtotal Landscape and Irrigation		*$ 376,000*

5C - EROSION CONTROL

Item code		Unit	Quantity		Unit Price ($)			Cost	
210010	Move In/ Move Out (Erosion Control)	EA		x		=	$	-	
210350	Fiber Rolls	LF		x		=	$	-	
210360	Compost Sock	LF		x		=	$	-	
2102XX	Rolled Erosion Control Product (X)	SQFT		x		=	$	-	
21025X	Bonded Fiber Matrix	SQFT/ ACRE		x		=	$	-	
210300	Hydromulch	SQFT		x		=	$	-	
210420	Straw	SQFT		x		=	$	-	
210430	Hydroseed	SQFT		x		=	$	-	
210600	Compost	SQFT		x		=	$	-	
210630	Incorporate Materials	SQFT		x		=	$	-	
							Subtotal Erosion Control		*$ -*

5D - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost	
130300	Prepare SWPPP	LS		x		=	$	-	
130200	Prepare WPCP	LS		x		=	$	-	
	Temp. Construction Site Water Pollution Contr	LS	3%	x	47,000,000.00	=	$	1,410,000	
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		x		=	$	-	
130505	Move-In/ Move-Out (Temporary Erosion Contro	EA		x		=	$	-	
130640	Temporary Fiber Roll	LF		x		=	$	-	
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		=	$	-	
							Subtotal NPDES		*$ 1,410,000*

TOTAL ENVIRONMENTAL	**$ 2,095,700**

Supplemental Work for NPDES

066595	Water Pollution Control Maintenance Sharing*	LS		x		=	$	-	
066596	Additional Water Pollution Control**	LS		x		=	$	-	
066597	Storm Water Sampling and Analysis***	LS		x		=	$	-	
XXXXXX	Some Item	LS		x		=	$	-	
							Subtotal Supplemental Work for NDPS		*$ -*

*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		=	$	-
870510	Ramp Metering System (Location 6)	LS		x		=	$	-
86070X	Interconnection Conduit and Cable	LF/ LS		x		=	$	-
5602XX	Furnish Sign Structure (Type X)	LB		x		=	$	-
5602XX	Install Sign Structure (Type X)	LB		x		=	$	-
498040	XX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
86080X	Inductive Loop Detectors	EA/ LS		x		=	$	-
8609XX	Traffic Monitoring Station (Type X)	LS		x		=	$	-
15075X	Remove Sign Structure	EA/ LS		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
870009	Maintain Existing Traffic Management System	LS	1	x	20,000.00	=	$	20,000
872130	Modifying Existing Electrical System	LS	1	x	2,130,000.00	=	$	2,130,000
XXXXX	Some Item	LS		x		=	$	-

Subtotal Traffic Electrical **$ 2,150,000**

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
566011	Roadside Sign - One Post	EA		x		=	$	-
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		x		=	$	-
141101	Remove Yellow Painted Traffic Stripe	LF	133,000	x	0.50	=	$	66,500
150712	Remove Painted Pavement Marking	LS	1	x	10,000.00	=	$	10,000
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 N	LF	454,000	x	1.00	=	$	454,000
846012	Thermoplastic Crosswalk and Pavement Marki	SQFT		x		=	$	-
120090	Construction Area Signs	LS	1	x	35,000.00	=	$	35,000
PIR	Ultraguard Safety Barrier Striping	LS	95,000	x	3.00	=	$	285,000

Subtotal Traffic Signing and Striping *$ 850,500*

6C - Traffic Management Plan

Item code		Unit	Quantity		Unit Price ($)			Cost
128652	Portable Changeable Message Signs	LS	1	x	$ 110,000	=	$	110,000

Subtotal Traffic Management Plan *$ 110,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120199	Traffic Plastic Drum	EA		x		=	$	-
12016X	Channelizer (Type X)	EA		x		=	$	-
120120	Type III Barricade	EA		x		=	$	-
129100	Temporary Crash Cushion Module	EA		x		=	$	-
120100	Traffic Control System	LS	1	x	616,000.00	=	$	616,000
129110	Temporary Crash Cushion	EA	10	x	3,000.00	=	$	30,000
129000	Temporary Railing (Type K)	LF	1,000	x	43.33	=	$	43,330
120149	Temporary Pavement Marking (Paint)	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
XXXXXX	Some Item	Unit		x		=	$	-

Subtotal Stage Construction and Traffic Handling *$ 689,330*

TOTAL TRAFFIC ITEMS **$ 3,799,900**

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	Unit		x		=	$	-

TOTAL DETOURS $ -

SUBTOTAL SECTIONS 1 through 7 $ 32,252,300

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items						
	ADA Items		1.0%	$	322,523	
8B - Bike Path Items						
	Bike Path Items		0.0%	$	-	
8C - Other Minor Items						
	Potholing		0.3%	$	96,757	
	Other Minor Items		2.7%	$	870,812	
	Total of Section 1-7	$32,252,300	x 4.0%	= $	1,290,092	

TOTAL MINOR ITEMS $ **1,290,100**

SECTIONS 9: MOBILIZATION

Item code						
999990	Total Section 1-8	$33,542,400	x 10%	= $	3,354,240	

TOTAL MOBILIZATION $ **3,354,300**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost
066670	Payment Adjustments For Price Index Fluctuations	LS	1	x	700,000.00	=	$	700,000
066094	Value Analysis	LS	1	x	10,000.00	=	$	10,000
066070	Maintain Traffic	LS	1	x	264,000.00	=	$	264,000
066919	Dispute Resolution Board	LS	1	x	22,500.00	=	$	22,500
066921	Dispute Resolution Advisor	LS		x		=	$	-
066015	Federal Trainee Program	LS		x		=	$	-
066610	Partnering	LS	1	x	70,000.00	=	$	70,000
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* = $ -

Total Section 1-8 $33,542,400 0% = $ -

TOTAL SUPPLEMENTAL WORK $ **1,066,500**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066105	Resident Engineers Office	LS	1	x	392,000.00	=	$392,000
066063	Traffic Management Plan - Public Information	LS	1	x	8,000.00	=	$8,000
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	1,100,000.00	=	$1,100,000
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066065	Tow Truck Service Patrol	LS	1	x	90,000.00	=	$90,000
066916	Annual Construction General Permit Fee	LS		x		=	$0
XXXXXX	Some Item	Unit		x		=	$0

Total Section 1-8 $ 33,542,400 0% = $ -

TOTAL STATE FURNISHED $1,590,000

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization $33,542,400 (used to calculate TRO)

Total Construction Cost (excluding TRO and Contingency) $39,553,200 (used to check if project is greater than $5 million excluding contingency)

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

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	440	X	$7,623	=	$3,354,300

TOTAL TIME-RELATED OVERHEAD $3,354,300

Note: If the building portion of the project is greater than 50% of the total project cost, then TRO is not included.

SECTION 13: ROADWAY CONTINGENCY

Recommended Contingency : (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)
Total recommended percentages includes any quantified risk based contingency from the risk register.

Total Section 1-12 $ 42,907,500 x **15%** = $6,436,125

TOTAL CONTINGENCY $6,436,200

EA: 04-1J9700 PID: 414000404

II. STRUCTURE ITEMS

DATE OF ESTIMATE	00/00/00		00/00/00		00/00/00	
Name	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx	
Bridge Number	57-XXX		57-XXX		57-XXX	
Structure Type	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx	
Width (Feet) [out to out]	0	LF	0	LF	0	LF
Total Length (Feet)	0	LF	0	LF	0	LF
Total Area (Square Feet)	0	SQFT	0	SQFT	0	SQFT
Structure Depth (Feet)	0	LF	0	LF	0	LF
Footing Type (pile or spread	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx	
Cost Per Square Foot	$0		$0		$0	
COST OF EACH	**$0**		**$0**		**$0**	

DATE OF ESTIMATE	00/00/00		00/00/00		00/00/00	
Name	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx	
Bridge Number	57-XXX		57-XXX		57-XXX	
Structure Type	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx	
Width (Feet) [out to out]	0	LF	0	LF	0	LF
Total Length (Feet)	0	LF	0	LF	0	LF
Total Area (Square Feet)	0	SQFT	0	SQFT	0	SQFT
Structure Depth (Feet)	0	LF	0	LF	0	LF
Footing Type (pile or spread	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx	
Cost Per Square Foot	$100		$0		$0	
COST OF EACH	**$0**		**$0**		**$0**	

TOTAL COST OF BRIDGES		**$0**
TOTAL COST OF BUILDINGS		**$0**
Structures Mobilization Percentage	10%	$0

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)
Total recommended percentages includes any quantified risk based contingency from the risk register.

Structures Contingency Percentage	10%	$0
TOTAL COST OF STRUCTURES		**$0**

Estimate Prepared By: _____ _____

XXXXXXXXXXXXXXXX ------ Division of Structures — Date

EA: 04-1J9700 PID: 414000404

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	$	20,300
	A2)	SB-1210	$	0
B)		Acquisition of Offsite Mitigation	$	0
C)	C1)	Utility Relocation (State Share)	$	20,000
	C2)	Potholing (Design Phase)	$	0
D)		Railroad Acquisition	$	0
E)		Clearance / Demolition	$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	$	0
G)		Title and Escrow	$	12,500
H)		Environmental Review	$	0
I)		Condemnation Settlements 0%	$	0
J)		Design Appreciation Factor 0%	$	0
K)		Utility Relocation (Construction Cost)	$	0

L)	**TOTAL RIGHT OF WAY ESTIMATE**	**$52,800**
M)	**TOTAL R/W ESTIMATE: Escalated**	**$54,600**
N)	**RIGHT OF WAY SUPPORT**	**$175,000**

Support Cost Estimate Prepared By _____ Project Coordinator[1] _____ Phone

Utility Estimate Prepared By _____ Utility Coordinator[2] _____ Phone

R/W Acquisition Estimate Prepared By _____ Right of Way Estimator[3] _____ Phone

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

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

ATTACHMENT P

Risk Register

RISK REGISTER LEVEL	2	PROJECT NAME	SCL - Route 17 CAPM and Curb Ramp Upgrade	DIST-EA	04-1J970 (0414000404)	Project Manager	John E Peterson (PM)	RISK MANAGER	Patrick Treacy / Amani Meligy / Kelly Ma / Daniel Y. Chang	TOTAL COST (Capital +Support)	$37,961,000.00	Total Risk (Capital) ($$$)	$ 11,210,832.33
PROJECT PHASE	PA&ED	PDT MEMBERS	Arick Bayford / Peter Lac (Design); Charlie Winter (Environmental); Brian Wolcott (Hydraulics); Shella Orson (Right of Way); Hong Wong (Utility); Rick D' Onofrio (Materials); Connie Yip (Landscape);	RISK ASSESSMENT						TOTAL DAYS (Construction + Initial review (30 days)+ Closeout (60 days))	530	Total Risk Time (Days)	62

Risk Identification						Probability	Cost Impact		Time Impact		Design / Con	Capital / Support	Individual Risk	Risk Response				Risk Level 2	
Status	ID #	Category	Title	Risk Statement	Current Status/ Assumptions	Rating	Rating	Score	Rating	Score	P1/P4	C/S	Rationale	Strategy	Response Actions	Risk Owner	Updated	Cost Factor (Dollar)	Time Factor (Days)
Active	1	PM	Project Schedule	The project may encounter unanticipated project constraints or additional requirements during the life of the project leading to unanticipated schedule delays resulting in additional cost and time extension to internal milestone.	Resource agencies may need additional time process the required permit. USACOE (U.S. Army Core of Engineers) may take longer to process the needed permits than expected. It takes 2-4 months to apply for the permit and 3 to 8 months to receive permits. The project schedule has 16 months for the PS&E. External outside agency delay may push against the RTL schedule. Drainage scope refinement and investigation may also push against the project schedule.	1-Very Low	01-Very Low	1	04-Moderate	4	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	PM currently, does not see any schedule delays, although permits may take longer to obtain depending on USACOE time table and staffing levels during PS&E. PM will continue to monitor the project schedule during PS&E and will follow up with items that are delayed.	John E Peterson (PM)	8/15/2018	$ 17,082.45	0.79
Active	2	Environmental	Environmental Document	Preliminary Environmental Documents may not reveal the length environmental process required leading to additional time needed to complete the environmental process resulting in additional cost and schedule delays.	This project will be given a CE /CE for the CEQA / NEPA declaration for the environmental clearance. The project will require a 404 permit, 1602 permit. USACOE (U.S. Army Core of Engineers) may take longer than expected as it will take 2-4 months to apply for the permit and 3 to 8 months to receive permits. Permits will be needed for the drainage work. Delays in finalizing the project report may also create a shortfall in the needed time to issue permits.	3-Moderate	01-Very Low	3	04-Moderate	12	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Environmental has confirmed that the project will receive a CE / CE for the CEQA / NEPA. Environmental will need to follow up with resource agency to obtain the needed permit after PA&ED is finalize and within 16 month during PS&E. Any delays will need to be identified to PMT (Project Management Team)	Charlie Winter (Environmental)	8/15/2018	$ 111,984.95	5.19
Active	3	ROW	Temporary Construction Easement (TCE)	Project may need additional TCE (Temporary Construction Easement) to complete project activities leading to increase project cost, possible litigation cost and delays resulting in additional cost and schedule delays.	Right of way easement / acquisition may be required to upgrade features on the mainline and curb ramps. No right of way required was assumed during PID. However, PDT have found more than13 drainage culverts with outfall and a curb ramp at South Santa Cruz Avenue/Wood Road (Location 5) that are outside State right of way during PA&ED.	3-Moderate	02-Low	6	04-Moderate	12	P1	S	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will work with Right of Way to obtain the needed TCE for the project during PS&E. Drainage scope will hopefully be finalize to avoid any delays of obtaining additional TCE late in the PS&E phase.	Shella Orson (Right of Way)	8/15/2018	$ 279,962.38	5.19
Active	4	ROW	Permit To Enter and Construct (PTE&C)	Project will need to encroach on adjacent city or county property may encounter delays from local agency leading to project delays to complete the Right of Way process resulting in schedule delays to meet the RTL schedule.	Although most of the project will work within State right of way, modification of ADA curb ramp operation may require PTE&C during construction for any work to be performed outside of State right of way for other agencies. PDT does not anticipate any major delays for PTE&C easement from the local agencies (San Jose, Campbell and Los Gatos).	1-Very Low	01-Very Low	1	04-Moderate	4	P1	S	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will need to work with Right of Way to acquire the needed PTE&C for the project during PS&E if needed.	Shella Orson (Right of Way)	8/15/2018	$ 17,082.45	0.79
Active	5	Hydraulic	Existing Underground Drainage Facility	Existing underground drainage facilities may conflict with propose project work leading to redesign or modification to avoid existing drainage infrastructure to remain resulting in additional cost.	Most of the drainage underground work will be within the State right of way. The project is planned for CE / CE for the CEQA / NEPA declaration. Locations or work outside of State right of way may increase due to unknown level of drainage work causing addition.$1,800,000 dollars was assumed for drainage work.	2-Low	04-Moderate	8	02-Low	4	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Avoid	Design will work with the office of hydraulics to avoid any major drainage facilities modification around curb ramp. However, there is continuing drainage underground facilities investigation (offsite) that may need repair and replacement.	Brian Wolcott (Hydraulics)	8/15/2018	$ 412,825.88	1.28
Active	6	Construction	Poor Pavement Condition	Existing poor pavement condition to remain may need to be repaired prior to restriping leading to extra work outside the scope of the project resulting in additional costs and potential delays.	Existing pavement condition for both ramps and mainline have considerably deteriorated from 2014 pavement survey. Continuation pavement deterioration may lead to major rehabilitation before the project is in construction.	3-Moderate	08-High	24	01-Very Low	3	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will continue to investigate the current pavement condition during PS&E phase. Pavement condition may worsen through PS&E. Design may need to considered repaving curb ramp areas and intersection as paving conditions may be underestimated.	Construction	8/15/2018	$ 1,679,774.25	1.30
Active	7	Organization	Public Complaints / Concerns	The project may experience public concerns or complaints during the life of the project leading to delays or additional work to mitigate concerns or complaints resulting to additional cost and schedule delays.	The project is located south of downtown City of San Jose, Campbell and Los Gatos where local business and nearby residential are located may be affected. Local communities may raise concerns and complaints regarding the pavement rehab operation and / or the ADA curb ramp upgrade during construction.	3-Moderate	02-Low	6	04-Moderate	12	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design and PM will need to address public concerns if any during PS&E. There may be concerns from local business and residence regarding noise, traffic control, and curb ramp upgrade.	John E Peterson (PM)	8/15/2018	$ 279,962.38	5.19

Printed Date: 8/21/2018

RISK REGISTER LEVEL	2	PROJECT NAME	SCL - Route 17 CAPM and Curb Ramp Upgrade	DIST-EA	04-1J970 (0414000404)	Project Manager	John E Peterson (PM)	RISK MANAGER	Patrick Treacy / Amani Meligy / Kelly Ma / Daniel Y. Chang	TOTAL COST (Capital +Support)	$37,961,000.00	Total Risk (Capital) ($$$)	$ 11,210,832.33
PROJECT PHASE	PA&ED	PDT MEMBERS	Arick Bayford / Peter Lac (Design); Charlie Winter (Environmental); Brian Wolcott (Hydraulics); Shella Orson (Right of Way); Hong Wong (Utility); Rick D' Onofrio (Materials); Connie Yip (Landscape);	RISK ASSESSMENT						TOTAL DAYS (Construction + Initial review (30 days)+ Closeout (60 days))	530	Total Risk Time (Days)	62

Risk Identification						Probability	Cost Impact		Time Impact		Design / Con	Capital / Support	Individual Risk	Risk Response				Risk Level 2	
Status	ID #	Category	Title	Risk Statement	Current Status/ Assumptions	Rating	Rating	Score	Rating	Score	P1/P4	C/S	Rationale	Strategy	Response Actions	Risk Owner	Updated	Cost Factor (Dollar)	Time Factor (Days)
Active	8	TrafficOps.	Traffic Management Plan	Traffic Management Plan (TMP) may need to be revised due to significant traffic delays from project site leading to redesign of detour plans resulting in additional costs to the project.	TMP (Traffic Management Plan) may be underestimated during PID phase. Pavement rehabilitation and curb ramp upgrade is located in three different cities. Temporary street closure and ramp closures would be needed for pavement rehabilitation, ADA curb ramp, drainage work and loop cutting. Detours will be needed on local streets during on / off ramp closures which may affect local traffic circulation.	3-Moderate	04-Moderate	12	02-Low	6	P1	S	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will work with TMP and Traffic to include the necessary lane closure and detour plans in the project plans and specification during PS&E phase. Plans will be forward to local agencies for review and comments. Concerns will be addressed promptly especially in Campbell and Los Gatos as Route 17 is a 4 lane highway.	TrafficOps.	8/15/2018	$ 839,887.13	2.60
Active	9	Construction	Unidentified Utility Conflicts	Unanticipated utilities may be encountered during construction leading to extra work for relocation or mitigation resulting in additional project costs and schedule delays.	The project scope includes ADA curb ramp and guardrail upgrades to MGS (Midwest Guardrail System) which may impact existing underground utilities. The project will also be grinding existing pavement where existing sewer, water and gas line may exist. Existing curb ramps will be upgraded to current ADA standards with some locations containing existing drainage, sewer, water facilities and PG&E utility pull box. Utility as-builts from outside agencies and utility companies may not reflect current conditions.	2-Low	04-Moderate	8	04-Moderate	8	P4	C	Based on PDT's input and Department's experience with past projects of similar nature.	Avoid	Design will submit utility verification request during PS&E phase. Known utilities will be incorporated in the project plans and specifications during PS&E. PDT does not anticipate any conflict with the cold plan operation. ADA curb ramp operation may affect existing utilities. Design will work with utilities companies if relocation of utility infrastructure is needed during PS&E.	Construction	8/15/2018	$ 412,825.88	2.55
Active	10	Construction	Unidentified Facilities Conflicts	Unanticipated existing facilities encountered on the project site may conflict with the construction activities leading to additional work around or repairs resulting in additional cost and potential delays.	The project scope includes ADA curb ramp and guardrail upgrades to MGS (Midwest Guardrail System) which may impact existing facilities. Existing curb ramps will be upgraded to current ADA standards with some locations containing existing signal poles, electrical related conduit for ramp metering, drainage inlet and barricade may exist. Existing electrical to remain has been missed in past projects resulting in potential conflicts during construction.	3-Moderate	04-Moderate	12	01-Very Low	3	P4	C	Based on PDT's input and Department's experience with past projects of similar nature.	Avoid	Design will investigate all known foreseeable conflicts during PS&E phase and attempt to mitigate facility conflicts within the project plans be incorporated in the project plans and specifications during PS&E.	Construction	8/16/2018	$ 839,887.13	1.30
Active	11	ROW	R/W Utility Easement	The project may be required to purchase utility easement for relocating existing utilities leading to unanticipated additional right of way purchase from private property owner resulting in additional cost and time to the project not originally programmed.	Utilities infrastructure may require relocation prior to reconstructing ADA curb ramp. Preliminary investigation of the project area found existing utility pull box at or near existing curb ramp within the project limits. Utility companies may request the project to purchase needed utility easement rights for the relocation of utility infrastructure. Drainage utility easement may also be needed for infrastructure outside of the State right of way.	1-Very Low	01-Very Low	1	04-Moderate	4	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will work with Right of Way to identify if any addition utility easement is needed. $20,000 has been allocated for utility relocation.	Shella Orson (Right of Way)	8/15/2018	$ 17,082.45	0.79
Active	12	Construction	Extra Dig-outs and repaving of Asphalt Concrete	During construction, new distressed asphalt locations that are not called out on plans may be found or increased deterioration of existing locations may occur. This would lead to additional work resulting in additional costs and time.	The project will cold plane 0.25 ft. of existing AC (Asphalt Concrete) pavement and overlay with 0.15 ft. of RHMA-G (Rubberized Hot Mix Asphalt-Gap Graded.) and 0.10 RHMA-O (Rubberized Hot Mix Asphalt- Open Graded.) on the mainline. Ramps will be cold-plane 0.15 ft. pf AC and overlay with 0.15 RHMA-G. Project scope also calls for 0.5 ft. replace AC surfacing. Additional dig-outs and repaving may be found as the pavement survey was done back in June 2014. Continuing damage of the existing paving may increase extra dig-outs. There is also lag between the time design investigated the project footprint and the planned construction start date. Target approved contract is planned for May 2020.	3-Moderate	04-Moderate	12	01-Very Low	3	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will perform field surveys for any additional potential dig out locations during PS&E. If risk materialize, the project's contingency and G-12 funds will be used to cover the cost from additional work.	Construction	8/15/2018	$ 839,887.13	1.30
Active	13	Environmental	Hazardous Materials	Hazardous materials encountered during construction may require an on-site storage area and or potential additional costs to dispose.	Existing AC (Asphaltic Concrete) pavement grinding mixed with yellow thermoplastic may contain soluble lead in excess of threshold limit. Minor excavation for the ADA curb ramp may excavate subsurface ADL (Aerial Deposited Lead). Hazardous materials testing request will need to be submitted Office of Hazardous Materials early on in the PS&E phase.	1-Very Low	01-Very Low	1	01-Very Low	1	P4	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will submit a hazardous material testing request during PS&E. PDT does not anticipate major hazardous materials issue for this type of project. If risk materialize, the project's contingency and G-12 funds will be used to cover the cost from additional work.	Charlie Winter (Environmental)	8/15/2018	$ 17,082.45	0.20

RISK REGISTER LEVEL	2	PROJECT NAME	SCL - Route 17 CAPM and Curb Ramp Upgrade	DIST-EA	04-1J970 (0414000404)	Project Manager	John E Peterson (PM)	RISK MANAGER	Patrick Treacy / Amani Meligy / Kelly Ma / Daniel Y. Chang	TOTAL COST (Capital +Support)	$37,961,000.00	Total Risk (Capital) ($$$)	$ 11,210,832.33
PROJECT PHASE	PA&ED	PDT MEMBERS	Arick Bayford / Peter Lac (Design); Charlie Winter (Environmental); Brian Wolcott (Hydraulics); Shella Orson (Right of Way); Hong Wong (Utility); Rick D' Onofrio (Materials); Connie Yip (Landscape);	RISK ASSESSMENT						TOTAL DAYS (Construction + Initial review (30 days)+ Closeout (60 days))	530	Total Risk Time (Days)	62

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Active	14	Environmental	Bird Nesting Season	Nesting birds, protected from harassment under the Migratory Bird Treaty Act, may delay construction during the nesting season. Any presence of migratory birds in the area would require the work to be deferred until the young birds have fledged.	The project is located in a highly dense vegetated areas located on the roadside where active bird nesting may be found. Pavement rehabilitation activities will most likely occur during night hours within the existing pavement area. PDT does not anticipated nested birds to be a major impact as work can be flexible for a CAPM job. Bird Nesting season is from February 1 and September 30 of the current construction season.	3-Moderate	02-Low	6	04-Moderate	12	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will work with Environmental to include the necessary bird mitigation measure and specification in the project plans and specification during PS&E. Surrounding vegetation may be trimmed to accommodate the new curb ramp and the installation of roadside MGS.	Charlie Winter (Environmental)	8/15/2018	$ 279,962.38	5.19
Active	15	Construction	Asphalt Price Index Fluctuations	Increase in cost of oil based products may lead to increase in cost of contract over and above the amount set aside in Supplemental Work for Asphalt Price Index.	Cost of oil continuously changing because of world market. Petroleum prices are in a state of flux with increase trend towards 2019/2020 when the project is in construction. The shortfall is the difference in the BEES quantity and unit price compared to when the contractor actually performs the AC paving operations.	3-Moderate	04-Moderate	12	01-Very Low	3	P4	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will closely monitor API fluctuation during PS&E phase. BEES may need to be revised at 100 percent PS&E for more accurate estimation. PM has submitted a PCR to include API fluctuations which was missed during PID phase.	Construction	8/15/2018	$ 839,887.13	1.30
Active	16	Construction	Tight weather window for paving	Any delays to paving operation due to weather will result in project delays resulting in additional costs and time.	Construction is planned to begin June 1 2020 and end on June 1 2021. RHMA specification requires ambient air temperature of 55℉ and a surface temperature of at least 60℉. RHMA is not suitable for paving during winter or cold weather. Work could be kicked out to another season due to temperature restriction.	2-Low	02-Low	4	04-Moderate	8	P4	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design may included warm mix RHMA technology, should paving occur during cooler temperature during PS&E.	Construction	8/15/2018	$ 137,608.63	2.55
Active	17	Construction	Staging Loop Detector Work	Cold planning operations may lead to potential damage to loop detectors during construction and may result in system operation disruptions and additional cost.	Design will need to account for loop detectors for signal traffic intersection. Existing loops detector were usually cut 3 inch below finish grade. Existing loop detectors will most likely be destroyed during pavement rehabilitation operations. Newer electrical specification may call for additional depth.	1-Very Low	02-Low	2	02-Low	2	P4	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design will need to work with Electrical to included all affected existing loop detectors to be replaced in the project plans during PS&E.	Construction	8/15/2018	$ 42,706.13	0.40
Active	18	Construction	Coordination Issues With Concurrent Projects	concurrent project may have construction work at or near the highway which may conflict or duplicate the planned highway work or conflict with lane closure resulting to an increase in project coordination or increase in cost.	Current plan assumes Caltrans will be working in the area without foreseeing any future near by work from the County of Santa Clara and the City of Los Gatos, Campbell and the San Jose. Local agency projects are not known to the State, unless disclosed during plan review.	1-Very Low	01-Very Low	1	04-Moderate	4	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design and PM will investigate if there are any concurrent project in the area from state and local agencies and include such projects in the project specification during PS&E.	Construction	8/15/2018	$ 17,082.45	0.79
Active	19	Design	Scope Creep	The local agency (City, County and outside agency), local Resident or other State functional units may request additional work or increase in quantity leading to reengineering or additional work beyond the original project scope resulting in additional cost and schedule delays.	Currently, Drainage investigations to determine the scope have been continuing for over 2 years. Drainage facility scope has not been finalize and may continue to add scope to the project. Drainage scope was never included in the PIR. Currently, PM estimates the drainage work may add 4 million to the project's budget.	3-Moderate	04-Moderate	12	04-Moderate	12	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	PM has already submitted a PCR to accommodate the increase in scope from existing drainage facility repair and replacement. Scope creep may continue to occur in PS&E. However, additional scope may be dropped if additional funds is not available.	Arick Bayford / Peter Lac (Design)	8/15/2018	$ 839,887.13	5.19
Active	20	Survey	Lack of Survey Data	Project may not have the survey data in a timely manner leading to inaccurate design based off of existing as-builts resulting in additional cost to redesign	Survey is currently experiencing a larger number of survey request with a shortage of surveyors to perform work in the District 4.	4-High	02-Low	8	04-Moderate	16	P1	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	Design is currently will utilize existing as-builts and project site condition. Survey requests will be followed up tightly during PS&E.	Survey	8/21/2018	$ 469,767.38	8.71
Active	21	PM	Project Funding Shortfall	The project may not account for the details need to complete the project scope leading to a funding shortfall in subsequent phase than originally programmed resulting in additional cost and schedule delays.	The project estimate from the PIR was incorrectly estimated. Project contingency was short by 15%, mobilization was short 5% TRO estimates were off by 5%, price index fluctuation was not included in the estimates and a scope creep from drainage.	4-High	08-High	32	04-Moderate	16	P4	C	Based on PDT's input and Department's experience with past projects of similar nature.	Accept	PM has already submitted a PCR to increase the project capital cost during PA&ED. PM will continue monitor the project's budgets is inline with the refined scope identified in the PA&ED. Additional scope may be dropped if additional funds is not available.	John E Peterson (PM)	8/15/2018	$ 2,818,604.25	8.71