10-STA-99-PM 9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
December 2018

Project Report

For Project Approval

On Route 99 in Stanislaus County in and near Ceres

Between 0.7 mile south of Mitchell Road Undercrossing

And 0.1 mile north of Pine Street Overcrossing

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:

Nicholas O Dumar
for JAMIE LUPO, *CENTRAL REGION DIVISION CHIEF, RIGHT OF WAY*

APPROVAL RECOMMENDED:

Sinarath P.
SINARATH PHENG, *PROJECT MANAGER*

APPROVED:

Dennis T. Agar
DENNIS T. AGAR, *DISTRICT 10 DIRECTOR*

12/14/18
DATE

Vicinity Map

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

PRASANNA MUTHIREDDY, P.E.
REGISTERED CIVIL ENGINEER

11/09/2018
DATE

REGISTERED PROFESSIONAL ENGINEER
Prasanna Muthireddy
No. C78942
Exp. 03/31/20
CIVIL
STATE OF CALIFORNIA

Table of Contents

1. INTRODUCTION

Project Description:

Caltrans, in coordination with the City of Ceres, proposes improvements to the existing State Route 99/Mitchell Road interchange to address issues of congestion, circulation, and access. The project is in the city of Ceres along State Route (SR) 99 between Pine Street on the north and Esmar Road on the south. The southern edge of the project area is outside of the city boundary, within an unincorporated area of Stanislaus County. The proposed project would also improve or alter surrounding local roadways including Service Road, Mitchell Road, El Camino Avenue, Rohde Road, Moffett Road, Don Pedro Road, Sixth Street, Ninth Street, and Lucas Road.

This is a Project Development Category 3 type project because it requires a revised freeway agreement, but not a route adoption.

Alternative 1 has been identified as the preferred Build Alternative and proposes to construct a new type of interchange, called a diverging diamond interchange (DDI), at Service Road on SR 99. The existing interchange at Mitchell Road would be converted to a partial interchange, with a northbound off-ramp and a southbound on-ramp. The project also includes an extended deceleration lane at the northbound off-ramp to Mitchell Road, an extended acceleration lane at the southbound on-ramps from Mitchell Road and Service Road, auxiliary lanes between the Service Road interchange and the Fourth Street ramps, replacement of the Mitchell Road Undercrossing and Service Road Overcrossing structures, and various local road improvements.

The SR 99 Transportation Concept Report (TCR), District 10 establishes the concept facility and the Ultimate Transportation Corridor for SR 99 as an 8 lane freeway within the project limits. The proposed project improvements for the preferred alternative align with the TCR and would accommodate the future widening of the SR 99 mainline by means of proposing new bridge structures at Service Road and Mitchell Road that will accommodate the width of an 8 lane facility.

The support cost to develop the project report and the environmental document is funded by the City of Ceres with local funds. The plans, specifications, and estimate (PS&E) phase will also be funded by the City of Ceres with local funds. It is anticipated that construction and all associated right-of-way costs will be funded with a combination of Measure L and local funds. The funding source breakdown is provided in Section 8 of this report.

The current estimated capital costs (construction and right-of-way capital) are $96.3 million for the preferred alternative. The project is listed in Stanislaus Council of Government's (StanCOG's) 2014 Regional Transportation Plan (RTP) for $123 million of fiscally constrained funding (Tier I), with an opening year of 2023. The project is also included in StanCOG's financially constrained 2017 Federal Transportation Improvement Program (FTIP).

Table 1-1: Proposed Project Summary

Project Limits	10-STA-99, 9.5/R11.4	
Number of Alternatives	2 Alternatives plus No Build	
	Current Cost Estimate: FY 2016-17	**Escalated Cost Estimate: FY 2020**
Capital Outlay Support	$21,060,000	$24,000,000
Capital Outlay Construction	$86,660,000	$99,445,000
Capital Outlay Right-of-Way	$9,616,000	$10,122,000
Funding Source	20.XX.400.100 (Local)	
Funding Year	2021	
Type of Facility	6-lane freeway	
Number of Structures	6	
Environmental Determination or Document	Initial Study with Mitigated Negative Declaration	
Legal Description	In Stanislaus County in and near Ceres from 0.7 mile south of Mitchell Road Undercrossing to 0.1 mile north of Pine Street Overcrossing	
Project Development Category	Category 3	

2. RECOMMENDATION

It is recommended that the project be approved using the preferred alternative and that the project proceed to the design phase.

An Initial Study/Mitigated Negative Declaration (IS/MND) with technical studies has been completed for this project, in accordance with the requirements of the California Environmental Quality Act (CEQA). As the lead agency under the CEQA, Caltrans supports the project. As the Contract Manager and the primary funding agency, City of Ceres has been leading the project development effort, is sponsoring the project, and is in general accord with the plan as presented.

At the time of this writing, no federal funding has been obtained and therefore the Environmental Assessment (EA) has not been finalized and the NEPA decision document (Finding of No Significant Impact) has not been signed. If federal funding is obtained within the next 5 to 10 years, Caltrans will proceed with the Final EA and the preparation of a Finding of No Significant Impact, the appropriate decision document based on the findings of the draft EA. It would also be necessary to re-evaluate the findings of this document.

3. BACKGROUND

3A. Project History

The SR 99/Mitchell Road/Service Road Interchange Project is located in the City of Ceres in Stanislaus County. The existing Mitchell Road interchange is approximately 1.8 miles south of the Whitmore Avenue interchange, 1.2 miles south of the downtown Fourth Street on/off-ramps, and approximately 1.5 miles north of the Keyes Road interchange. The Mitchell Road interchange is the third and southernmost interchange serving the City of Ceres and is considered the "Southern Gateway" to the City. Service Road is the main east-west roadway serving the southern portion of the City.

A Project Study Report - Project Development Support (PSR-PDS) for the SR 99/Mitchell Road/Service Road Interchange Project was approved on July 7, 2002. It identified one no-build and four interchange build alternatives. The four build alternatives were as follows:

- Alternative 1 proposed to construct a new interchange at SR 99 and Service Road, eliminate the existing interchange at Mitchell Road, and extend Mitchell Road across SR 99 to the west.

- Alternative 2 proposed to construct a new diamond interchange at Mitchell Road and extend Mitchell Road across SR 99 to the west.

- Alternative 3 proposed to construct a new Single Point Urban Interchange (SPUI) between the existing Service Road Overcrossing and the Mitchell Road interchange, realign Service Road and Mitchell Road, and eliminate the existing Service Road Overcrossing and the Mitchell Road interchange.

- Alternative 4 proposed to construct a new interchange on SR 99 at Service Road, maintain and modify the existing southbound on-ramp and northbound off ramp at Mitchell Road, eliminate the existing southbound off-ramp and northbound on-ramp at Mitchell Road, and extend Mitchell Road across SR 99 to the west.

The approved PSR-PDS recommended that the proposed alternatives be evaluated in the Project Approval & Environmental Document (PA&ED) phase and that delivery support and capital costs be programmed in future STIP cycles.

A traffic operations analysis was undertaken by the City of Ceres in 2004 and a Traffic Operations Analysis Report (TOAR) was completed and approved in December 2005 that analyzed the four alternatives that were identified in the PSR-PDS. The approved TOAR specified that the PSR-PDS Alternative 1 (Construct Service Road Interchange and Eliminate Mitchell Road Interchange) and Alternative 3 (Single Point Urban Interchange (SPUI)) were unacceptable based on traffic operations analysis and level of service (LOS).

In 2006, the City of Ceres began work on the Draft Project Report, geometric exhibits for PSR-PDS Alternative 2 and 4, and the Environmental Document.

On May 15, 2007, a constructability review meeting was held with Caltrans to review design issues, construction staging, and detour routes for the project. In June 2007, the Project Development Team (PDT) agreed that the extension of Mitchell Road across SR 99 would not be a part of the PSR-PDS Alternative 4 project. In August 2007, the PDT agreed to drop the PSR-PDS Alternative 4 design option of a combined southbound on-ramp from Service Road and Mitchell Road from further consideration. Caltrans requested to drop the combined southbound on-ramp option due to concerns regarding traffic safety, operations, and accommodations for future expansion, noting that this design option creates congestion points and merge conflicts.

In late 2011, the City reevaluated previously developed alternatives to address Caltrans concerns and added other alternatives for project consideration. The following three alternatives were developed for further consideration:

- Northbound L-8 – this alternative modified the previously developed Alternative 4 ramp layouts at Service Road. The northbound on and off-ramps were shifted to the northeast quadrant, thereby eliminating the off-ramp directly across from the future Walmart driveway. The southbound off-ramp was realigned at Service Road to provide for better turning movements and improve sight distance concerns.
- Tight Diamond – this alternative is a modification of the PSR-PDS Alternative 4 and realigned Service Road to improve the existing skew with SR 99 and provide standard diagonal on and off- ramps.
- Diverging Diamond – this alternative provided a new interchange at Service Road with divergent lane configuration for better traffic operations.

These three new alternatives were presented to Caltrans in March 2012 and were further refined along with revising the TOAR for the project. The alternative refinement process, in coordination with Caltrans, has resulted in the identification of two proposed alternatives that are being considered viable in this report, which are described in detail in Section 5. The Final TOAR, which was completed and approved for the project in January 2015, evaluated Alternative 1 and Alternative 2 that are described in Section 5.

As part of the City of Ceres extensive public outreach on the project over the course of many years and related economic development activities in the area, a few property owners potentially impacted by the project have approached the City regarding selling their properties. The City has successfully negotiated the purchase of a few of properties from willing sellers using local funding sources and the parcels now owned by the City are reflected on the RW data sheets.

The Draft Project Report (DPR) was approved November 16, 2017 for approving the circulation of the Draft Environmental Document (DED) from November 22nd, 2017 to December 22nd, 2017.

The PDT (Caltrans, City of Ceres and Consultant staff) reviewed the comments provided by the public and various agencies, evaluated both the alternatives and selected Alternative 1 as the preferred alternative during the February 22, 2018 PDT meeting. The decision is documented in the minutes of the PDT meeting.

3B. Community Interaction

The need for the project was discussed in the past during City Council meetings, public meetings, and community workshops.

The list presented below identifies the various events that the project was part of, leading to the current development of the preferred alternative.

- NOVEMBER 18, 1996 – Report on Service Road / Mitchell Road Interchange alternatives presented to the City Council.
- JANUARY 27, 1997 – Public meeting with the presentation of the Mitchell Road converted as one-way couplet.
- FEBRUARY 9, 1998 – Contract for preparation of the PSR-PDS for the interchange improvements was initiated. City hired Nolte Associates, Inc. to prepare the report.
- JUNE 22, 1998 – Memorandum of understanding between City of Ceres and Caltrans was signed.
- JUNE 24, 1998 – Community workshop to solicit public's input for the project.
- OCTOBER 5, 1998 – Presentation to the City's Planning Commission on project's status.
- OCTOBER 12, 1998 – Presentation to City Council.
- OCTOBER 20, 1998 – Held community workshop.
- DECEMBER 14, 1998 – Authorization issued to Nolte team to study design options of taking Mitchell Road under SR 99.
- APRIL 19, 1999 – City Planning Commission selected the PSR-PDS-Alternative 4 as preferred alternative.
- APRIL 26, 1999 – Presentation to the City Council.
- APRIL 28, 1999 – Article in the local newspaper (Ceres Courier) describing the project progress.
- JUNE 14, 1999 – City Council Meeting.

  City Council did not like any of the alternatives and requested alternatives or justification why these are the only possible solutions.
- SEPTEMBER 2, 1999 – City Council proposed a workshop to discuss the proposed alternatives.
- DECEMBER 13, 1999 – City Council approved an additional study to be conducted by Nolte, identifying Service Road as a primary interchange.

- MARCH 14, 2000 – City Council selected PSR-PDS-Alternative 4 as the preferred, subject to environmental review.
- AUGUST 22, 2000 and AUGUST 28, 2000 – Presentation to City Council on results of the meeting with Caltrans.
- JANUARY 2001 – Report to the City Council on project status update.
- APRIL 2001 – Report to the City Council on project status update.
- NOVEMBER 12, 2002 – City Council meeting and an approval to hire Nolte to conduct the Project Approval and Environmental Document (PA&ED) phase of the project.
- JUNE 2004 – Fact sheet on the project mailed to property owners.
- FEBRUARY 13, 2006 – City Council hired MONK & ASSOCIATES to continue with the environmental process.
- FEBRUARY 2006 – Permission to enter letters sent to property owners of Service Road in the Area of Potential Effect (APE).
- MAY 22, 2006 – City Council re-hired Nolte Associates to complete PA&ED phase of the project.
- AUGUST 2006 – Permission to enter letters sent to all affected property owners.
- OCTOBER 15, 2006 – Report to the City Council on project status update.
- OCTOBER 17, 2006 – Informational meeting conducted to update general public on project progress. Sent 160 notices to property owners and properties; twenty-five people attended.
- DECEMBER 13, 2007 – Nolte Associates submitted Draft Project Report, based on updates to PSR-PDS Alternatives 2 and 4.
- FEBRUARY 2008 – Project development efforts put on hold due to economic downturn.
- AUGUST 2009 – Nolte Associates submitted memorandum to the City identifying potential scenarios to continue developing the project.
- AUGUST 4, 2011 – City, Caltrans, and NV5 met to discuss restarting the PA&ED phase, with updates to meet current standards and regulations, and revised project alternatives.
- MARCH 15, 2012 – NV5 presented revised project alternatives. Caltrans accepted the approach for continuing with the PA&ED phase, including updating Draft Project Report, Draft Environmental Document, Technical Studies, and the TOAR completed in 2005.
- JULY 9, 2012 – City approved contract amendment with NV5 to complete the PA&ED phase based on Alternatives 1 and 2.
- NOVEMBER 24, 2014 – Report to the City Council on project status update.
- NOVEMBER 30, 2015 - The interchange project was part of Joint City Council/Planning Commission – Kick-off Meeting.

- DECEMBER 8-9, 2015 – The interchange project was part of Consultant meetings with Agency & Community Stakeholders.
- JANUARY 6, 2016 – The project was a part of General Plan Update (GPU) Presentation to Soroptimist International of Ceres.
- JANUARY 28, 2016 – Community Workshop # 1 – Visioning.
- FEBRUARY 24, 2016 – GPU Presentation to Ceres Lions Club.
- MARCH 11, 2016 – Spanish Community Workshop # 1 – Visioning.
- APRIL 13, 2016 – GPU Presentation to St. Jude's Church.
- MARCH 30-APRIL 22, 2016 – Community Wide Survey – Newsletter # 1.
- SEPTEMBER 12, 2016 – Planning Commission Meeting – Visioning.
- SEPTEMBER 20, 2016 – Community Survey Results – Newsletter #2 distributed to City Council, Planning Commission and GPU Distribution List.
- OCTOBER 10, 2016 – City Council Meeting – Visioning Statement Selection.
- NOVEMBER 15, 2016 – Joint City Council/Planning Commission Meeting – Proposed Land Use Alternatives.
- JANUARY 25, 2017 – Community Workshop #2 – Proposed Land Use Alternatives.
- FEBRUARY 1, 2017 – Spanish Community Workshop #2 – Proposed Land Use Alternatives.
- FEBRUARY 17, 2017 – Proposed Land Use Alternatives Presentation to G3 Enterprises.
- MARCH 6, 2017 – Planning Commission Meeting – Review of Proposed Land Use Alternatives – Recommended Preferred Land Use Alternative to City Council.
- MARCH 22, 2017 – GPU presentation and citywide update to Soroptimist International of Ceres.
- MARCH 27, 2017 – City Council Meeting – Selection of Preferred Land Use Alternative.
- MAY 6-7, 2017 – General Plan Update Booth – Ceres Street Faire.
- NOVEMBER 22, 2017 to DECEMBER 22, 2017 – Circulation of the Draft Environmental Document.

3C. Existing Facility

Through the study area, SR 99 is a six-lane divided urban freeway with three 12-foot mixed flow lanes in each direction. The existing freeway has a 22-foot median with opposing traffic separated by a concrete barrier. Inside shoulders are 10 feet wide. The existing paved outside shoulder varies in width from 8 to 10 feet and fill slopes are at 2:1 and flatter. The existing right-of-way width varies from 260 feet at the south end of the project to 141 feet north of the Service Road Overcrossing. The existing structural section within the project limits is in generally fair to good condition. A recent pavement rehabilitation project (EA

10-0M8004) was completed in 2014 through the project area (on SR 99 from Merced County line to San Joaquin County line), with full replacement of the No. 2 and No. 3 lanes, individual slab replacements in the No. 1 lane, and hot mix asphalt (HMA) overlay on the shoulders. There are no known significant structural or drainage deficiencies on the mainline facility within the project area.

The Mitchell Road interchange is located on SR 99 in the City of Ceres, in Stanislaus County and was built in the 1960s. The interchange is a modified Type L-1 interchange with standard one-lane ramps. Mitchell Road is a four-lane facility (Average Daily Traffic (ADT) 25,000) that connects to the City of Ceres north of SR 99. South of the northbound SR 99 on-ramp, Mitchell Road is a two-lane facility. The northbound SR 99 off-ramp provides a free right-turn to northbound Mitchell Road with a stop controlled left turn lane. The northbound SR 99 on-ramp is accessible from a free right turn lane from southbound Mitchell Road, as well as via a left-turn movement from northbound Mitchell Road. The southbound SR 99 off-ramp is stop controlled at the intersection with Mitchell Road and the southbound SR 99 on-ramp. Mitchell Road currently ends at the southbound SR 99 ramps on the east side of the Union Pacific Railroad (UPRR) right-of-way.

The next adjacent interchange to the south along SR 99 is at Keyes Road. This interchange is a Type L-2 interchange, and is located 2.35 miles south of Mitchell Road, near the community of Keyes. The next interchange to the north along SR 99 is at Whitmore Avenue. This interchange has a hybrid configuration, with a partial Type L-9 layout in the northbound direction. In the southbound direction, button-hook ramps connect to the local street system in the downtown area of Ceres, passing under the freeway in undercrossing structures. Access to Whitmore Avenue is provided through the local street system. In addition, there are button-hook ramps in the northbound direction that provide direct access to the local street system at Fourth Street. This interchange complex is located 1.76 miles north of Mitchell Road, in the City of Ceres.

The existing three-span Mitchell Road Undercrossing (Br. No. 38-0093) was built in 1965. The Ceres Main Canal bridge carrying the SR 99 mainline (Br. No. 38-0007) was built in 1941 and widened in 1965. The Ceres Main Canal Bridge carrying the southbound on-ramp from Mitchell Road (Br. No. 38-0007K) was built in 1912 and widened in 1927. The Ceres Main Canal Bridge carrying the northbound off-ramp to Mitchell Road (Br No. 38-0007S) was built in 1965. The Canal crosses under the freeway approximately 700 feet south of Mitchell Road Undercrossing. The existing six-span Service Road Overcrossing (Br. No. 38-0094) was built in 1965 and crosses over the freeway approximately 2,100 ft north of the Mitchell Road Undercrossing. Freeway access to and from Service Road currently does not exist. The UPRR parallels SR 99 about 50 ft to the west of the existing State right-of-way.

The local street network provides motorists with alternate routes of travel that parallel SR 99. West of the freeway, Lucas Road is a two-lane frontage road. The frontage road begins at Service Road and continues southward along the west side of the UPRR right-of-way. East of the freeway, Rohde Road is a two-lane frontage road that begins at Mitchell Road and continues southward. El Camino Avenue is a two-lane frontage road, and begins at

Service Road and continues north along the east side of the freeway. Service Road is a two-lane facility that runs east to west and provides access across SR 99 and UPRR. All other local facilities within the project area are two-lane roads, including Moffett Road, Brickit Court, Don Pedro Road, 9th Street, and 6th Street.

Local access within the area of the City of Ceres is currently constrained by the SR 99/UPRR corridor, which divides the east and west parts of the city. In this area, the only crossings of the freeway and railroad are at Service Road, Pine Street, Whitmore Avenue, and Hatch Road. Currently, none of these crossings include a full interchange with direct freeway access.

Land uses in the project area range from primarily agricultural uses south of Service Road to a combination of residential, industrial and commercial north of Service Road. The project area includes both the incorporated area of the City of Ceres and unincorporated areas of Stanislaus County. The southern city limit is generally along Service Road, and the eastern city limit is along Moore Road. The triangular area formed by SR 99, Service Road, and Moore Road also falls within the City of Ceres. Several parcels north of Service Road, between Central Avenue and Mitchell Road, are outside of the city limits.

4. PURPOSE AND NEED

Purpose:

The project has two primary objectives.

- Relieve congestion and improve regional mobility by improving access to and from the freeway.
- Improve existing and future local traffic circulation.

Need:

The project is needed to respond to the following concerns.

- Declining LOS on local streets.
- Increasing difficulty in accessing local areas during peak travel periods.

4A. Problem, Deficiencies, Justification

The need for the project is demonstrated by current and projected declining LOS at intersections along Mitchell Road, Service Road, and the SR 99 on and off-ramps. Declining LOS means increased wait times at intersections and congestion. Congestion at these intersections and freeway ramps is projected to worsen with anticipated future growth.

The City of Ceres General Plan established LOS D conditions as the standard for roadways such as Mitchell Road and Service Road. Caltrans Office of Traffic Operations established LOS D conditions as the standard for ramp junctions along State facilities such as SR 99.

The Final TOAR (dated January 2015) for this project, prepared by Fehr & Peers, indicates that under existing conditions, three intersections are rated LOS F, indicating there are considerable delays at these locations. Additionally, three freeway mainline segments operate at LOS E during morning peak hour and four freeway mainline segments operate at LOS E during evening peak hour. All other roadway components are rated at LOS D or better, which means that delays are minimal. See Table 4-1 for the locations of these intersections and freeway segments. The City of Ceres General Plan anticipates increased residential land use in the southern areas of the city, near the project area. Planned development in this area includes commercial development with Walmart in the northwest corner of Service and Mitchell Road, and planned development named Gateway Plaza in the triangular parcel between SR 99, Mitchell Road and Service Road. While the Walmart parcel is planned to open in early 2019, the Gateway Center is in the conceptual site plan and marketing phase. This growth will result in future conditions with more east-west traffic along Service Road and between Service and Mitchell Roads on SR 99, leading to reduced levels of service and increased wait times. Forecasted traffic in 2040 without the proposed project is estimated to result in seven intersections rated LOS F. Additionally, by 2040 only one freeway mainline segment is forecast to operate at LOS D, while three will operate at LOS F and the other four at LOS E. Three freeway ramps are forecast to operate at LOS F, one at LOS E and the other four at LOS D. See Table 4-2 for the 2040 conditions without the project.

Table 4-1: Locations of Roadway Segments with Unacceptable LOS, Existing Conditions

Intersections		
Rohde Rd / Mitchell Rd	AM & PM	LOS F[1]
NB SR 99 Off-Ramp / Mitchell Rd	AM & PM	LOS F[2]
SB SR 99 Off-Ramp / Mitchell Rd	AM & PM	LOS F[3]
Freeway Segments		
Northbound SR 99 South of Keyes Rd On-Ramp	AM	LOS E
Northbound SR 99 Keyes Rd to Mitchell Rd	AM	LOS E
Northbound SR 99 North of Downtown Ceres On-Ramp	AM	LOS E
Southbound SR 99 North of Downtown Ceres Off-Ramp	PM	LOS E
Southbound SR 99 Downtown Ceres Off-Ramp	PM	LOS E
Southbound SR 99 Mitchell Rd On-Ramp	PM	LOS E
Southbound SR 99 Mitchell Rd On-Ramp to Keyes Rd Off-Ramp	PM	LOS E

Source: Fehr & Peers 2013

[1] *Level of service at westbound left turn*

[2] *Level of service at westbound right and left turn*

[3] *Level of service at eastbound left turn*

Intersections

Intersections with the most congestion and delays were found to operate at LOS E and F, below the City and Caltrans standards. Table 4-2 shows the morning and evening peak-hour level of service for the traffic conditions without the project for three scenarios: existing year (2013), year the project would open for traffic (2020), and forecasted design year (2040).

Table 4-2: Intersection Peak-Hour Traffic Level of Service for 2013, 2020, and 2040 without Project

Intersection	Morning Peak Hour			Evening Peak Hour		
	2013 Level of Service	2020 Level of Service	2040 Level of Service	2013 Level of Service	2020 Level of Service	2040 Level of Service
Service Rd/Mitchell Rd	D	C	E	D	D	E
Mitchell Rd/Rohde Rd	F[1]	C	C	F[1]	C	D
Mitchell Rd/NB SR 99 On-Ramp	B[4]	D[4]	F[4]	B[4]	C[4]	B
Mitchell Rd/ NB SR 99 Off-Ramp	F[2]	F[2]	F	F[2]	F[2]	F
Mitchell Rd/SB SR 99 Off-Ramp	F[3]	F	F	F	F	F
Service Rd/Moffett Rd	B	A	E	B	B	F
Service Rd/Moore Rd	A	C	C	A	B	D
Service Rd/Lucas Rd	B[4]	-	-	C[4]	-	-
Service Rd/El Camino Ave	C[5]	-	-	C[5]	-	-
Mitchell Rd/Roeding Rd	B	B	D	C	C	F
Mitchell Rd/Don Pedro Rd	A	B	F	B	B	F
Mitchell Ranch Driveway #1	-	B	D	-	C	D
Mitchell Ranch Driveway #2	-	B	D	-	D	F[6]
Mitchell Ranch Driveway #3	-	A	C	-	A	C
Mitchell Ranch Driveway #4	-	A	F	-	A	F
Lucas Rd/Moffett Rd	-	A	A	-	A	A

Source: Fehr & Peers 2013

[1] *Level of service at westbound left turn*

[2] *Level of service at westbound right and left turn*

[3] *Level of service at eastbound left turn*

[4] *Level of service at northbound left turn*

[5] *Level of service at southbound left turn*

[6] *Level of service at eastbound right turn*

- Not present

The approved 2015 TOAR indicates that of the eleven intersections analyzed under existing conditions (2013), three are rated at LOS F. At the Mitchell Road/Rohde Road intersection, vehicles experience considerable delays during the morning and evening peak hours. The Mitchell Road/SR 99 northbound off-ramp and southbound off-ramp intersections also have LOS F during morning and evening peak hours. The other eight intersections are rated at LOS D or better under existing conditions, with vehicles experiencing very short to minimal delays. In 2040, forecasts indicate that with planned intersection signalization improvements, conditions will improve at the Mitchell Road/Rohde Road intersection, with LOS of D or better, while LOS will decline to F at the Mitchell Road/Roeding Road intersection during the evening peak hours and at the Mitchell Road/Don Pedro Road intersection during the morning and evening peak hours.

Two of the four new intersections at driveways from Mitchell Ranch Center will also operate at LOS F. Mitchell Ranch Center is an approved planned commercial development located on the west side of Mitchell Road between Don Pedro Road and Service Road that has not yet been constructed.

Freeway On and Off-Ramps

In addition to traffic at intersections, congestion occurs at freeway on and off-ramps at Mitchell Road. Table 4-3 shows freeway on and off-ramps that would be affected by this project and the LOS during morning and evening peak hours. The LOS indicate minimal delays currently occur except on the southbound SR 99 on-ramp from Mitchell Road, during the evening peak hour. Forecast traffic data indicates that the LOS on the northbound SR 99 off-ramp to Mitchell Road and the southbound SR 99 on-ramp from Mitchell Road would reach LOS E or F by 2040 during the morning and evening peak commute hours.

Table 4-3: SR 99 On and Off-Ramp Peak-Hour Traffic Level of Service for 2013, 2020, and 2040 without Project

Freeway On and Off-Ramps	**Morning Peak Hour**			**Evening Peak Hour**		
	2013 LOS	**2020 LOS**	**2040 LOS**	**2013 LOS**	**2020 LOS**	**2040 LOS**
NB SR 99 Off-Ramp to Mitchell Rd	D	E	F	D	D	F
NB SR 99 On-Ramp from Mitchell Rd	D	D	D	C	D	D
SB SR 99 Off-Ramp to Mitchell Rd	B	C	D	D	D	D
SB SR 99 On-Ramp From Mitchell Rd	C	C	E	E	E	F

Source: Fehr & Peers 2013

Inadequate Local Circulation

Current and projected declining levels of service at intersections and traffic delays, which result in inadequate local circulation, are another indicator of project need. Traffic circulation is defined as the flow of vehicles through a specified area. Both roadway design and traffic flow management, such as traffic signals and stop signs, affect traffic circulation. Intersections are typically the most critical capacity-controlling locations within roadway networks because they facilitate the movement of conflicting traffic flows. In addition to local roadway intersections, the regional freeway on-ramp merge and off-ramp diverge sections also affect the movement of regional traffic entering and exiting the local area.

Under existing conditions, there are three intersections on Mitchell Road between Roeding Road and SR 99 with traffic signals (at Roeding Road, Don Pedro Road, and Service Road) and one two-way stop intersection (at Rohde Road). As noted in Table 4-2, the LOS at all the signalized intersections is acceptable under existing conditions, with the exception of the intersection of Mitchell Road and Rohde Road, which operates at LOS F during the morning and evening peak hours. There are five intersections on Service Road. The intersection of Mitchell Road and Service Road is signal-controlled and the intersections of Service Road with Moffett Road, Lucas Road, El Camino Avenue, and Moore Road are side street stop-sign controlled. All of the intersections on Service Road operate at an acceptable LOS under existing conditions. Mitchell Road is a heavily used route for truck traffic destined for the eastern sections of Ceres and Modesto. Up to 15% of existing traffic on Mitchell Road is truck traffic carrying fruit, vegetables, or other goods to and from processing plants and industrial land uses north and east of the interchange.

Existing undeveloped land in the southern portion of Ceres on both sides of SR 99 is planned to be fully developed at build-out in the year 2040, with traffic on Service Road projected to increase by more than 250% (current ADT is 12,000; 2040 projected ADT is 31,000). Mitchell Road traffic is projected to increase by more than 176%, from 25,000 existing ADT to 44,000 ADT in 2040 (build-out). New developments surrounding the project area would affect local circulation by increasing the number of daily trips from the future developed land to the rest of Ceres and other regional destinations via local roads and SR 99.

The interchange at this regionally significant location provides access to southern Ceres and eastern Modesto. Areas to the north and south of Service Road on both sides of SR 99 are designated for business and residential development. Mitchell Road provides access to eastern Modesto to the north, to existing established neighborhoods, to regionally important business parks with industrial and agricultural processing facilities, and the Modesto City-County Airport.

Project objectives are:

- Correct existing traffic circulation and operation deficiencies.
- Accommodate planned growth as identified in the General Plans for the City of Ceres, City of Modesto and for Stanislaus County.
- Mitigate traffic impacts to the collector and local street network for existing and planned development in the City of Ceres.
- Establish a southern gateway for the City of Ceres.
- Provide improved access to the existing industrial and agricultural areas north of Ceres, and future residential development west of SR 99.

Propose improvements that do not preclude future mainline improvements of widening SR 99 to an 8-lane freeway.

4B. Regional and System Planning

Identify Systems

SR 99 is functionally classified as a Principal Arterial – Other Freeways or Expressways[1]. Through Ceres, SR 99 has these system designations:

- Part of the Strategic Highway Network (STRAHNET) subcategory of the National Highway System (NHS), and is thus considered to be important to the United States' strategic defense policy and to provide defense access, continuity

---

[1] http://dot.ca.gov/hq/tsip/hseb/map21nhs.html

and emergency capabilities for defense purposes.[2]

- Part of the 1959-established Freeway and Expressway System (F&E).[3]
- Part of the California Farm-to-Market Corridor on the list of NHS High Priority Corridors.[4]
- An Intermodal Corridor of Economic Significance (ICES, AB 1283, 1993)
- On the National Network for State Transportation Assistance Act (STAA)[5]
- "High Emphasis" and "Focus Route" part of the Interregional Road System (IRRS).[6]
- A Terminal Access Route for National Truck Network[7]

SR 99 is not on the Interstate System[8], is not an intermodal connector[9], is not on the "Extra Legal Load Network" (ELLN), and it is not a California Scenic Highway.

State Planning

SR 99 has been the subject of many planning studies and documents. The most important of these completed to date include:

- Interregional Transportation System Plan (2015)
- SR 99 Transportation Concept Report (November 2002)
- SR 99 – Stanislaus County Corridor System Management Plan (April 2011)
- SR 99 Corridor Enhancement Master Plan
- SR 99 Corridor Business Plan (February 2013)

As identified in the above documents, the 2035 Concept Facility for SR 99 through Ceres is an 8-lane freeway with consideration of High Occupancy Vehicle (HOV) lanes in the final phase of widening. The proposed project will accommodate the future 8-lane facility with the conversion of the proposed auxiliary lanes to mixed use lanes in the project area. The proposed reconstruction of the Mitchell Road Undercrossing and Service Road Overcrossing structures will accommodate the future 8-lane facility.

This project is included as a programmed "Capacity and Operational Improvement Project" in the SR 99 Corridor Business Plan.

---

[2] http://www.fhwa.dot.gov/planning/national_highway_system/nhs_maps/northern_california/index.cfm
[3] http://www.dot.ca.gov/dist10/media/docs/TCR%27s/SR-99%20web.pdf
[4] http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/hpcor.cfm
[5] http://www.dot.ca.gov/hq/traffops/trucks/truckmap/truckmap-d10.pdf
[6] http://www.dot.ca.gov/hq/transprog/ocip/te/itsp.pdf
[7] http://www.dot.ca.gov/dist10/media/docs/TCR%27s/SR-99%20web.pdf
[8] http://dot.ca.gov/hq/tsip/hseb/map21nhs.html
[9] http://www.fhwa.dot.gov/planning/national_highway_system/intermodal_connectors/california.cfm

According to Caltrans' 2017 Ramp Metering Development Plan, the segment of SR 99 in Stanislaus County from Mitchell Road to the San Joaquin County line has been identified as medium priority for ramp metering implementation. The segment of SR 99 in Stanislaus County south of Mitchell Road has been identified as a low priority. The project Build Alternatives will include HOV bypass lanes and California Highway Patrol (CHP) enforcement areas for all proposed freeway on-ramps. Installation of ramp meter hardware is proposed for all on-ramps, to be compatible with the future implementation of ramp metering in the freeway corridor

Regional Planning

The proposed improvements are consistent with the Stanislaus County Countywide Expressway Study. This project is included in the StanCOG 2014 RTP as a Tier I Roadway Project. The RTP identifies the project as a capacity enhancement project, with a planned total cost of $122,987,400 and a construction year of 2020. The project is also listed in StanCOG's 2017 FTIP as a regionally significant project.

Mitchell Road is identified as a MAP-21 NHS Principal Arterial[10], providing connectivity between SR 99 and the eastern portion of the cities of Ceres and Modesto. As shown in Appendix X of the RTP, Mitchell Road and Service Road are both classified as urban arterials in the existing condition within the project area. The functional classification for Service Road will be upgraded to expressway in the future condition. The proposed project improvements are consistent with the upgraded functional classification on Service Road.

Local Planning

The interchange improvements are consistent with local planning goals and policies as contained in the General Plan for the City of Ceres. In order to maintain the City of Ceres' small-town qualities and ensure acceptable LOS conditions, the City's General Plan established LOS D conditions as the standard for roadways such as Mitchell and Service Roads. Caltrans has established LOS D conditions as the standard for ramp junctions along State facilities like SR 99.

As identified in the City of Ceres General Plan, the future functional classification for Service Road is an expressway, while Mitchell Road is an arterial. Frontage roads such as El Camino Avenue, Rohde Road, and Lucas Road are classified as primary collectors. The Stanislaus County General Plan identifies Service Road as a principal arterial with limited access control. See Attachment M for the circulation diagrams from the City and County General Plan documents. It is noted that the future extension of Mitchell Road to the west side of SR 99, with a connection to Grayson Road, as shown in both circulation diagrams, is no longer supported by the City.

The Central Stanislaus Freight Study, prepared for StanCOG in 2001, evaluated goods movement to and from the major industrial area in eastern Modesto, known as Beard Industrial Park, which is currently served from the south by Mitchell Road. One of the

---

[10] https://www.fhwa.dot.gov/planning/national_highway_system/nhs_maps/northern_california/modesto_ca.pdf

primary problems identified is the congestion experienced by truck traffic traveling through Ceres and Modesto along Mitchell Road, between SR 99 and the Beard Industrial Park. Therefore, one of the objectives identified is to reduce the amount of truck traffic on Mitchell Road in Ceres. With the proposed project, it is anticipated that the demand for truck traffic on the southern portion of Mitchell Road, near SR 99, would be reduced, as more direct and less congested routes to the freeway would be provided.

Transit Operator Planning

Stanislaus Regional Transit (StaRT) and Ceres Area Transit (CAT) operate transit services within the project area. StaRT bus routes #10 and #70 run on SR 99 through the project area and StaRT bus route #15 runs along Service Road and Mitchell Road. CAT bus routes A, B, C, and D operate on various local streets within the project area. Existing bus stops within the project area would be relocated. The project also includes provision of HOV bypass lanes for future implementation of ramp metering on SR 99, which could be used by transit services.

4C. Traffic

Current and Forecasted Traffic

The traffic operations analyses of the proposed project are detailed in the Final TOAR, prepared by Fehr & Peers Transportation Consultants, and was approved by Caltrans District 10 Office of Traffic Operations on January 23, 2015. The following section summarizes information provided in this report.

Existing and forecasted traffic volumes, in Annual Average Daily Traffic (AADT), for the No-Build and Build Alternatives are shown in Table 4-4. Table 4-5 provides existing and forecasted peak hour traffic volumes.

Table 4-4: Existing and Forecasted Traffic Volumes (AADT)

Location	Existing	2040 Design Traffic Volumes[1]		
		No-Build	Alt. 1	Alt. 2
SR 99 Mainline				
South of Mitchell Rd	99,000	138,000	137,000	138,000
North of Mitchell Rd	97,000	122,000	123,000	122,000
Percentage Trucks	13%	13%	13%	13%

Note: Future AADT determined using 9.1% of peak hour percentage of daily.

Table 4-5: Existing and Forecasted Peak Hour Volumes

Location	Existing[2]		2040 Design[3]					
			No-Build		Alt. 1		Alt. 2	
	AM	PM	AM	PM	AM	PM	AM	PM
SR 99 Mainline								
NB - South of Mitchell Rd/ Service Rd	5,770	4,600	6,435	6,250	6,385	6,345	6,435	6,250
NB - North of Mitchell Rd/ Service Rd	5,330	4,095	5,535	5,405	5,450	5,510	5,535	5,405
SB – South of Mitchell Rd/	3,565	5,820	5,760	6,300	5,855	6,115	5,760	6,300

Location	**Existing[2]**		**2040 Design[3]**					
			No-Build		**Alt. 1**		**Alt. 2**	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Service Rd								
SB - North of Mitchell Rd/ Service Rd	2,750	5,150	4,580	5,700	4,590	5,700	4,580	5,700
Ramps								
- NB off to Mitchell Rd	770	765	1,530	1,680	1,135	1,280	1,530	1,680
- NB on from Mitchell Rd	330	260	630	835	N/A	N/A	630	835
- SB on from Mitchell Rd	1,000	1,035	1,515	1,475	1,135	1,335	1,515	1,475
- SB off to Mitchell Rd	185	365	335	875	N/A	N/A	335	875
- NB off to Service Rd	N/A	N/A	N/A	N/A	630	670	N/A	N/A
- NB on from Service Rd	N/A	N/A	N/A	N/A	830	1,115	N/A	N/A
- SB off to Service Rd	N/A	N/A	N/A	N/A	560	1,780	N/A	N/A
- SB on from Service Rd	N/A	N/A	N/A	N/A	690	860	N/A	N/A

Notes:

1. *Existing volumes were collected in 2014*
2. *Existing and 2040 volumes per Fehr and Peers, 2015*

Accidents

SR 99 mainline and ramp accident data at the Mitchell Road interchange was collected between PM 9.5 and PM R11.4 for a three-year period beginning July 1, 2013 and ending June 30, 2016. A summary of the Traffic Accident Surveillance and Analysis System (TASAS) Table B data is presented in Table 4-6 below.

Table 4-6: SR 99 Accident History –July 1, 2013 through June 30, 2016

SR 99/ Location	**Number of Accidents**			**Accident Rates (Accidents per million vehicle miles)**					
				Actual Rate			**Statewide Average**		
	Total	**Fatal**	**F+I**	**Total**	**Fatal**	**F+I**	**Total**	**Fatal**	**F+I**
SR 99 Mainline	171	0	51	0.85	0.000	0.25	0.67	0.005	0.22
Mitchell Rd Ramps									
- SB on from Mitchell Rd	2	0	1	0.20	0.000	0.10	0.60	0.002	0.21
- NB off to Mitchell Rd	3	0	1	0.30	0.000	0.10	0.92	0.004	0.32
- NB on from Mitchell Rd	1	0	0	0.27	0.000	0.00	0.60	0.002	0.21
- SB off to Mitchell Rd	13	0	2	3.28	0.00	0.51	0.92	0.004	0.32

Note: Shading denotes locations that exceed the statewide average for similar facilities.

The SR 99 mainline within the project limits and southbound off-ramp to Mitchell Road have total accident rate that exceeds the statewide average for similar facilities during the study period. These locations are identified in the shading in the Table 4-6.

5. ALTERNATIVES

The PSR-PDS for this project, approved on July 9, 2002, considered four Build Alternatives and the No-Build Alternative.

Two Build alternatives in addition to the No-Build alternative were considered in the DPR. The City and Caltrans were in agreement that both build alternatives are viable. Alternative 1 (Service Road Diverging Diamond Interchange) and Alternative 2 (Mitchell Road Interchange Reconstruction). Typical sections, layouts, profiles, and superelevation diagrams for both alternatives are provided in Attachments B through D. The DPR was approved November 16, 2017 for approving the circulation of the DED for a period of one month, from November 22nd, 2017 to December 22nd, 2017.

Identification of Preferred Alternative

The PDT (Caltrans, City of Ceres and Consultant staff) reviewed the comments provided by the public and various agencies. Public comments on the DED did not result in changes to the project alternatives and their design. The PDT then evaluated both of the alternatives and selected Alternative 1 as the preferred alternative during the February 22, 2018 PDT meeting. The project team considered several contributing factors and scored evaluation criteria for each of the alternatives that meet engineering, environmental and planning rationale to select the preferred alternative.

The evaluation criteria and contributing factors encompass the overall project goal, and measure an alternative by its impacts to environment, traffic, safety, overall cost, and ability to meet the project's purpose and need. Table 5-1 below shows these criteria, contributing factors and the scoring given at the PDT meeting for each of the two alternatives. Alternative 1 received a score of 21 points while Alternative 2 received 14 points out of a maximum of 26 points. Alternative 1 was thus selected to be the preferred alternative by the PDT.

Table 5-1: Scoring of Contributing Factors For Each Alternative

Evaluation Criteria	Contributing Factors	Alternative 1	Alternative 2
Purpose and Need	Relieves Congestion	1	1
	Improves Regional Mobility	1	1
	Improves Access to and From Freeway	1	0
	Improves existing and future local traffic circulation	1	0
	Meets Future Concept Facility	1	1
Traffic	Does the alternative have acceptable LOS at all major City Intersections?	1	0
	Regional Impacts to other interchanges adjacent to project area	1	0
	Daily Vehicle Miles Travelled:	1	0
	Average Travel Speed Average Delay Per Vehicle (sec) Total Vehicle Hours Delay	1	0

Evaluation Criteria	Contributing Factors	Alternative 1	Alternative 2
	Traffic Handling and Stage Construction	1	0
Safety	Predictive Crash Reduction (2020-2040)	1	1
	Predictive Crash Severity Reduction (2020-2040)	1	0
Cost	Total Project Cost	1	1
	Constructability	1	0
Environmental	Farmlands and Timberlands	1	1
	Relocations and Real Property Acquisition	0	1
	Water Quality and Storm Water Runoff	0	1
	Noise and Vibration	1	1
	Wetlands and Other Waters	1	0
	Permanent impact to Wildlife Species – Birds Foraging Habitat	0	1
	Temporary impact to Wildlife Species – Birds Foraging Habitat	1	0
Department of Transportation Concern	Interchange Spacing	0	1
	LOS on mainline	1	1
	Design Exceptions	0	1
Local Preference	Complete Streets	1	1
	City Council Resolution	1	0
TOTAL SCORE		**21**	**14**

Approval of the Project Report constitutes project approval for the PDT recommended alternative, which is described in detail below.

5A. No-Build Alternative

The No-Build Alternative offers a basis for comparison with the Build alternatives in the future analysis year of 2040. It assumes no major construction on SR 99 within the project limits other than planned and programmed improvements included in the No-Build maintenance.

The No-Build Alternative does not provide the capacity needed to accommodate the projected traffic volumes. Under the No-Build Alternative, the Service Road/Mitchell Road intersection will operate at LOS F. The operations of the southbound Mitchell Road on and off-ramps to SR 99 will degrade to LOS F due to the high traffic volumes on southbound Mitchell Road. Traffic on the southbound Mitchell Road off-ramp will back up onto the freeway mainline resulting in LOS F conditions for the southbound SR 99 mainline during PM Peak hours. No short-term construction costs would be associated with the No-Build Alternative.

This alternative fails to mitigate the established purpose and need of the project. For this reason, the No-Build Alternative will not be considered as a feasible option.

5B. Build Alternatives

Alternative 1 – Service Road Diverging Diamond Interchange (Preferred Build Alternative)

Alternative 1 would build a new type of interchange, called a Diverging Diamond Interchange (DDI), at Service Road and SR 99. The DDI would use traffic signals to direct traffic lanes crossing the freeway on Service Road to the left side of the roadway so that no turns crossing traffic are necessary to enter or exit the freeway. This design allows a compact diamond configuration that reduces the footprint of the interchange.

Although there are currently no DDI's in California, as of August 2017 there are 88 DDI's in operation throughout the country. Design guidelines for DDI's are provided in the Federal Highway Administration's (FHWA's) technical publication, *Diverging Diamond Interchange Informational Guide*, dated August 2014; and in Caltrans DIB 90, dated December 2017. A summary of the design criteria from both these documents and the corresponding proposed project geometry is provided in Table 5-2 below.

Table 5-2: DDI Design Criteria and Assumptions

No	Issue	Proposed	FHWA Recommendation(1)	Caltrans Recommendation(2)	Comment
1	Design speed at crossover	25 mph	25 to 35 mph	25 to 35 mph	
2	Crossing angle	West Node: 47° and East Node: 45°	40° Minimum; 45° Preferred	Minimum 40°; 40°-50° desirable	
3	Tangent length before crossover	West: 34 ft EB/0 ft WB; and East: 22 ft EB/26 ft WB	15 ft	15 ft - 25 ft	
4	Tangent length after crossover	West: 0 ft EB/10 ft WB; and East: 27 ft EB/0 ft WB	10 ft	15 ft - 25 ft	
5	Turning radii at crossover	200 ft (25 mph)	200 ft to 300 ft (25 to 35 mph)	200 ft to 300 ft (25 to 35 mph)	
6	Lane width	13 ft	12 to 15 ft	13 ft	13 ft provided per DIB 90 and HDM Table 504.3

No	Issue	Proposed	FHWA Recommendation(1)	Caltrans Recommendation(2)	Comment
7	Outside (left) shoulder width	2 ft	4 ft	2 ft minimum	DIB 90 mandates 2 ft minimum
8	Inside (right) shoulder width	6 ft	8 ft	4 ft	DIB 90 recommends 4 ft minimum or 3 ft wider than the gutter pan
9	Design vehicle	STAA-56	WB-67 Truck (WB-20)	WB-67 Truck (WB-20)	SR 99 is part of National Network for State Transportation Assistance Act (STAA).(3)
10	Intersection Sight Distance	West Node: 294 ft; East Node: 295 ft	294 ft	294 ft	Line of sight on passenger car clears the top of concrete barrier at west node.
11	Off Ramp Intersection Angle	Varies	N/A	90°-110°	Off ramp intersection angle is measured to Intersection Sight Distance (ISD).
12	Pass Through Distance	Varies	N/A	0 ft	The design balanced between crossover angle, tangent length and curve radii to optimize pass through distance.

Notes:

1. *Per Diverging Diamond Interchange Informational Guide, Publication No. FHWA-SA-14-067, August 2014.*
2. *Per Design Information Bulletin Number 90 - Diverging Diamond Interchange, December 2017*
3. *Caltrans District 10 map last revised on 3/20/2013 (http://www.dot.ca.gov/trafficops/trucks/docs/truckmap-d10.pdf)*

The major improvements included as part of Alternative 1 are as follows:

- Construct a DDI at Service Road:
    - The DDI configuration would divert traffic in both directions to the opposite side of the road while crossing the freeway, providing direct left turns to freeway on-ramps and from freeway off-ramps. Traffic would be signalized where it crosses to the other side of the road in both directions.

  - On and off-ramps would have diagonal configurations.
  - SR 99 northbound on-ramp from Service Road would have three lanes (two mixed flow and one HOV bypass lane).
  - SR 99 southbound on-ramp from Service Road would have three lanes (two mixed-flow and one HOV bypass lane).
  - SR 99 northbound off-ramp to Service Road would have two lanes (one left turn only and one left turn/right turn lane).
  - SR 99 southbound off-ramp to Service Road would have three lanes (two left-turn-only and one right-turn-only lane).
  - Bicycle traffic on Service Road would follow traffic, crossing over to the left side on the overcrossing and back, in a Class II bike lane.
  - Pedestrians on Service Road would use a sidewalk to the outside of the roadway, except for the length between the ramp intersections where the pedestrians use sidewalk on the inside.

- Proposed improvements to the Mitchell Road interchange:
  - Realign and widen the SR 99 northbound off-ramp to Mitchell Road to two lanes.
  - Realign and widen the southbound on-ramp to SR 99 from Mitchell Road to three lanes (two mixed flow and one HOV bypass lane) with standard shoulder width and horizontal clearance.
  - Replace the existing Mitchell Road Undercrossing to accommodate the modified southbound on-ramp alignment.
- Realign Rohde Road, creating an intersection with Mitchell Road approximately 120 feet north of the existing intersection. The Rohde Road connection with Mitchell Road is proposed to be maintained to provide access to parcels on the east side of Mitchell Road.
- Remove Brickit Court connection to El Camino Avenue and access Brickit Court parcels from the west, via a new road coming south from Don Pedro Road and turning west to roughly parallel Service Road and end in cul-de-sac.
- Remove El Camino Avenue between Pine Street and Service Road, and construct a new roadway connection between Ninth Street and Don Pedro Road.
- Remove connection between Sixth Street and El Camino Avenue and create a cul-de-sac at the end of Sixth Street.

- Construct retaining walls on both sides of the on and off-ramps to and from Service Road, on southbound SR 99 on-ramp from Mitchell Road, and on both sides of Service Road.
- Widen Service Road from two lanes to up to six through lanes from Mitchell Road to Collins Road.
- Remove the existing two-lane overcrossing on Service Road over SR 99.
- Construct a new overcrossing on Service Road over SR 99.
- Remove the connection between Lucas Road and Service Road.
- Realign Lucas Road, turning it west adjacent to Service Road and create a T-intersection with Moffett Road south of Service Road.
- Widen Moffett Road at its intersection with Service Road.
- Signalize the intersection of Moffett Road and Service Road.
- Widen Mitchell Road at the intersection with Service Road from six lanes to ten lanes.
- Construct separate storm water detention/retention basins for Caltrans and local facilities.
- Provide for future ramp metering and HOV bypass lanes on SR 99 on-ramps.
- Traffic Operations Systems (TOS) elements, such as CHP enforcement areas, Maintenance Vehicle Pullouts (MVPs), Closed Circuit Television Cameras (CCTVs), Roadside Weather Information System (RWIS), and Traffic Management Systems (TMS) will be incorporated in the project as directed by Caltrans.
- Install a communication conduit for fiber optic systems from 0.7 miles south of Mitchell Road to the Mitchell Road Undercrossing.
- Construct complete street elements such as sidewalks and bike lanes along Service Road, Mitchell Road and other local roads within the project area.

The existing and proposed design speeds for the major roadway segments in Alternative 1 are presented in Table 5-3 below.

Table 5-3: Alternative 1 Existing and Proposed Design Speeds

	Mitchell Road	**Service Road**	**SR 99**	**Ramps**
Proposed Design Speed for project:	45 mph	25 mph	65 mph	25-50 mph
Minimum Design Speed for this type of facility (Per HDM Topic 101.2):	45 mph	45 mph	55 mph	25-50 mph
Design Speed of roadway segment prior to project:	N/A	45 mph	60 mph	25-50 mph
Design Speed of roadway segment after project:	45 mph	25 mph	60 mph	25-50 mph
If an existing facility, what is the posted speed?	45 mph	45 mph	65 mph	N/A

Nonstandard Mandatory and Advisory Design Features

Fact sheets for exceptions to the mandatory and advisory standards requiring an approval were prepared for both alternatives. Only fact sheets for the preferred alternative were submitted for approval. Advisory fact sheets for the preferred alternative were approved on September 10, 2018 and mandatory fact sheets for the preferred alternative were approved on October 22, 2018. A summary of the exceptions for the preferred alternative is provided below.

Preferred alternative proposes a total of four mandatory design exceptions and five advisory design exceptions. Nonstandard mandatory design features include superelevation rate, interchange spacing, local street (partial) interchange, and access control. Nonstandard advisory features include decision sight distance at exits, side slopes, median width, and distance between ramp intersection and local road intersection.

The improvements in the preferred alternative include a DDI at Service Road, which is not one of the standard interchange configurations in the current Highway Design Manual. Design Information Bulletin (DIB) Number 90 is developed by Caltrans to establish design standards for this new kind of interchange. As such, some of the interchange standards from Highway Design Manual do not apply to a DDI and so the design of DDI follows the standards outlined in the approved DIB Number 90. Tables 5-4 and 5-5 provide a summary of the identified mandatory and advisory nonstandard features respectively, for the locations identified.

Table 5-4: Alternative 1 Mandatory Design Exceptions Summary

Design Standard from Highway Design Manual	**Non- Standard Design Exceptions Approved**		
	Standard	**Existing**	**Proposed**
202.2 - Standards for Superelevation			
On SR 99 horizontal curve south of Ceres Main Canal	3.8% (R = 5000 feet)	2%	2%
On Mitchell Road Southbound On-Ramp, south of proposed bridge.	11.4% (R = 650 feet)	N/A	6%
501.3 - Interchange Spacing (Urban)			
Between proposed Service Road Interchange and Mitchell Road Interchange	1 mile	N/A	0.4 miles
Between proposed Service Road Interchange and Downtown Ceres hook ramps Interchange	1 mile	N/A	0.9 miles
502.2 – Local Street Interchanges			
At proposed SR 99 Mitchell Road Interchange	Full IC	Full IC	Partial with NB off-ramp SB on-ramp
504.8 – Access Control			
At Rohde Road intersection with Ramps at Mitchell Road	Access Rights on opposite side to preclude local roads	N/A	Local Road within Ramp Intersection.

Table 5-5: Alternative 1 Advisory Design Exceptions Summary

Design Standard from Highway Design Manual	**Non- Standard Design Exceptions Approved**		
	Standard	**Existing**	**Proposed**
201.7 - Decision Sight Distance; and 504.2 - Decision Sight Distance at Exits and Branch Connections			
Service Road Northbound off-ramp	1050 feet	N/A	662 feet

Design Standard from Highway Design Manual	**Non- Standard Design Exceptions Approved**		
	Standard	**Existing**	**Proposed**
304.1 – Side Slope Standards Multiple Locations	4:1 or flatter	Var	2:1 or flatter
304.1 – Side Slope Standards Multiple Locations	18 ft min uniform catch point	Var	Does not have uniform catch point.
305.1 - Median Width Freeways and Expressways – Urban SR 99 Mainline	36 feet	22 feet	22 feet
504.3 - Distance between Ramp Intersection and Local Road Intersection Between Mitchell Rd ramps/ Rohde Rd intersection and Mitchell Rd/ Service Rd intersection	500 feet	N/A	425 feet

Alternative 2 – Mitchell Road Interchange Reconstruction

Alternative 2 would reconstruct the Mitchell Road Interchange as a modified Type L-1 Interchange. This interchange configuration would include a new undercrossing to provide access from southbound SR 99 to Mitchell Road, with the ramp terminus on the northeast side of SR 99. The remaining on and off-ramps would be realigned, but would retain their basic configuration. The major improvements included as part of Alternative 2 are as follows:

- Modify existing interchange at Mitchell Road:
  - Widen existing one-lane northbound SR 99 off-ramp to two-lanes.
  - Signalize the SR 99 northbound off-ramp to Mitchell Road intersection.
  - Realign and widen the northbound on-ramp to SR 99 from Mitchell Road.
  - Realign the SR 99 southbound off-ramp to cross under the highway and connect at a signalized intersection on Mitchell Road.
  - Realign and widen the SR 99 southbound on-ramp from Mitchell Road to cross under the freeway.
  - Replace the existing Mitchell Road Undercrossing to accommodate the modified southbound on-ramp alignment.

  - Realign Rohde Road creating an intersection with Mitchell Road approximately 120 feet north of the existing intersection. The Rohde Road connection with Mitchell Road is proposed to be maintained to provide access to parcels on the east side of Mitchell Road.

- Remove the connection between El Camino Avenue and Service Road, and turn El Camino Avenue north to access Don Pedro Road.

- Construct retaining wall at the southbound on and off-ramps, along SR 99, and on both sides of Service Road.

- Widen Service Road from two lanes to up to six through lanes from Mitchell Road to Collins Road.

- Remove the existing two-lane overcrossing on Service Road over SR 99.

- Construct a new overcrossing on Service Road over SR 99.

- Remove the connection between Lucas Road and Service Road.

- Realign Lucas Road, turning it west adjacent to Service Road and create a T-intersection with Moffett Road south of Service Road.

- Widen Moffett Road at its intersection with Service Road.

- Signalize the intersection of Moffett Road and Service Road.

- Widen Mitchell Road at the intersection with Service Road from six lanes to ten lanes.

- Construct separate storm water detention/retention basins for Caltrans and local facilities.

- Provide for future ramp metering and HOV bypass lanes on SR 99 on-ramps.

- TOS elements, such as CHP enforcement areas, MVPs, CCTVs, RWIS, and other TMS elements will be incorporated in the project as directed by Caltrans.

- Install a communication conduit for fiber optic systems from 0.7 miles south of Mitchell Road to the Mitchell Road Undercrossing.

- Construct complete street elements such as sidewalks and bike lanes along Service Road, Mitchell Road and other local roads within the project area.

The existing and proposed design speeds for the major roadway segments in Alternative 2 are presented in Table 5-6 below.

Table 5-6: Alternative 2 Existing and Proposed Design Speeds

	Mitchell Road	**Service Road**	**SR 99**	**Ramps**
Proposed Design Speed for project:	45 mph	45 mph	65 mph	25-50 mph
Minimum Design Speed for this type of facility (Per HDM Topic 101.2):	45 mph	30 mph	55 mph	25-50 mph
Design Speed of roadway segment prior to project:	N/A	45 mph	60 mph	25-50 mph
Design Speed of roadway segment after project:	45 mph	45 mph	60 mph	25-50 mph
If an existing facility, what is the posted speed?	45 mph	45 mph	65 mph	N/A

Nonstandard Mandatory and Advisory Design Features

Fact sheets for exceptions to the mandatory and advisory standards requiring an approval were prepared for both alternatives. However, fact sheets for Alternative 2 were not submitted for approval. The exceptions identified for Alternative 2 propose a total of two mandatory design exceptions and four advisory design exceptions. Nonstandard mandatory design features include stopping sight distance and superelevation rate. Nonstandard advisory features include superelevation transition, side slopes, median width, and outer separation.

Cost Estimates

The capital costs for construction and right-of-way have been estimated for each “Build” alternative and are summarized for Alternative 1 and Alternative 2 in Table 5-7 and Table 5-8 respectively. Capital outlay support costs are not included in these estimates. Project Report Cost Estimates are included as Attachment E.

Table 5-7: Alternative 1 Current Preliminary Project Cost Estimate Summary

	Alternative 1
Roadway Items	$58,570,000
Structure Items	$28,090,000
Subtotal Construction	**$86,660,000**
Right-of-Way	$9,616,000
Total Cost	**$96,276,000**

Table 5-8: Alternative 2 Current Preliminary Project Cost Estimate Summary

	Alternative 2
Roadway Items	$60,222,000
Structure Items	$30,180,000
Subtotal Construction	**$90,402,000**
Right-of-Way	$4,215,000
Total Cost	**$94,617,000**

Traffic Operations

Design Year 2040 traffic forecasts were developed using the StanCOG Travel Demand Forecasting (TDF) model. The forecasting model was reviewed and formally approved by Caltrans District 10 Office of Advanced Planning for use in operations analysis in May 2014.

Design Year 2040 Freeway Operations

Table 5-9 below summarizes the Design Year 2040 mainline and ramp operations analysis results for the No-Build Condition, while Tables 5-10 and 5-11 show the Design Year 2040 mainline and ramp analysis operations results for the Alternative 1 and Alternative 2 conditions, respectively.

Table 5-9: Freeway Analysis - SR 99 Design Year 2040 No Build Conditions

Freeway Segment	**Segment Type**	**Peak Hour**	**Volume**	**Density**	**LOS**
Northbound SR 99 South of Keyes Road On-Ramp	Mainline 3 Lanes	AM	5,700	**38.5**	**E**
		PM	5,700	**38.5**	**E**
Northbound SR 99 Keyes Road On-Ramp	Merge 1 Lane	AM	735	**38.4**	**E**
		PM	550	**36.9**	**E**
Northbound SR 99 Keyes Road to Mitchell Road	Mainline 3 Lanes	AM	6,435	**49.9**	**F**
		PM	6,250	**46.6**	**F**
Northbound SR 99 Mitchell Road Off-Ramp	Diverge 1 Lane	AM	1,530	**39.9**	**F**
		PM	1,680	**38.3**	**F**
Northbound SR 99 Mitchell Road Off-Ramp to Mitchell Road On-Ramp	Mainline 3 Lanes	AM	4,905	30.3	D
		PM	4,570	27.5	D
Northbound SR 99 Mitchell Road On-Ramp	Merge 1 Lane	AM	630	33.3	D
		PM	835	33.2	D
Northbound SR 99 Mitchell Road On-Ramp to Downtown Ceres Off-Ramp	Mainline 3 Lanes	AM	5,535	**36.6**	**E**
		PM	5,405	**35.1**	**E**
Northbound SR 99 Downtown Ceres Off-Ramp	Diverge 1 Lane	AM	500	33.2	D
		PM	535	32.7	D
Northbound SR 99 Downtown Ceres Off-Ramp to Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	5,035	31.4	D
		PM	4,870	30.0	D

Freeway Segment	Segment Type	Peak Hour	Volume	Density	LOS
Northbound SR 99 Downtown Ceres On-Ramp	Merge 1 Lane	AM	750	**35.0**	**E**
		PM	1,015	**36.3**	**E**
Northbound SR 99 North of Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	5,785	**39.6**	**E**
		PM	5,885	**40.9**	**E**
Southbound SR 99 North of Downtown Ceres Off-Ramp	Mainline 3 Lanes	AM	4,940	30.6	D
		PM	6,265	**46.8**	**F**
Southbound SR 99 Downtown Ceres Off-Ramp	Diverge 1 Lane	AM	1,065	31.6	D
		PM	1,555	**38.2**	**F**
Southbound SR 99 Downtown Ceres Off-Ramp to Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	3,875	22.8	C
		PM	4,710	28.7	D
Southbound SR 99 Downtown Ceres On-Ramp	Merge 1 Lane	AM	705	28.5	D
		PM	990	**35.2**	**E**
Southbound SR 99 Downtown Ceres On-Ramp to Mitchell Road Off-Ramp	Mainline 3 Lanes	AM	4,580	27.6	D
		PM	5,700	**38.5**	**E**
Southbound SR 99 Mitchell Road Off-Ramp	Diverge 1 Lane	AM	335	28.6	D
		PM	875	34.5	D
Southbound SR 99 Mitchell Road Off-Ramp to Mitchell Road On-Ramp	Mainline 3 Lanes	AM	4,245	25.2	C
		PM	4,825	29.6	D
Southbound SR 99 Mitchell Road On-Ramp	Merge 1 Lane	AM	1,515	**37.0**	**E**
		PM	1,475	**39.8**	**F**
Southbound SR 99 Mitchell Road On-Ramp to Keyes Road Off-Ramp	Mainline 3 Lanes	AM	5,760	**39.3**	**E**
		PM	6,300	**47.5**	**F**
Southbound SR 99 Keyes Road Off-Ramp	Diverge 1 Lane	AM	365	33.9	D
		PM	655	**38.6**	**F**
Southbound SR 99 South of Keyes Road Off-Ramp	Mainline 3 Lanes	AM	5,400	**35.0**	**E**
		PM	5,645	**37.9**	**E**

Notes: Based on methodologies described in the Highway Capacity Manual (HCM) 2010.
Density is in passenger cars per mile per lane. Corresponding LOS is based on first significant digit using HCM thresholds.
Bolded and underlined cells represent density and LOS that exceeds LOS standard.
Source: Fehr & Peers, 2015.

Table 5-10: Freeway Analysis - SR 99 Design Year 2040 Alternative 1 Conditions

Freeway Segment	Segment Type	Peak Hour	Volume	Density	LOS
Northbound SR 99 South of Keyes Road On-Ramp	Mainline 3 Lanes	AM	5,700	**38.5**	**E**
		PM	5,700	**38.5**	**F**
Northbound SR 99 Keyes Road On-Ramp	Merge 1 Lane	AM	685	**38.0**	**F**
		PM	645	**37.7**	**F**
Northbound SR 99 Keyes Road to Mitchell Road	Mainline 3 Lanes	AM	6,385	**49.0**	**F**
		PM	6,345	**48.3**	**F**
Northbound SR 99 Mitchell Road Off-Ramp	Diverge 2 Lanes	AM	1,135	**22.3**	**F**
		PM	1,280	**21.9**	**F**
Northbound SR 99 Mitchell Road Off-Ramp to Service Road Off-Ramp	Mainline 3 Lanes	AM	5,250	33.5	D
		PM	5,065	31.7	D
Northbound SR 99 Service Road Off-Ramp	Diverge 1 Lane	AM	630	32.1	D
		PM	670	31.4	D

Freeway Segment	Segment Type	Peak Hour	Volume	Density	LOS
Northbound SR 99 Service Road Off-Ramp to Service Road On-Ramp	Mainline 3 Lanes	AM	4,620	27.9	D
		PM	4,395	26.3	D
Northbound SR 99 Service Road On-Ramp	Merge 1 Lane	AM	830	33.5	D
		PM	1,115	34.6	D
Northbound SR 99 Service Road On-Ramp to Downtown Ceres Off-Ramp	Weave 4 Lanes	AM	5,450	27.0	C
		PM	5,510	27.2	C
Northbound SR 99 Downtown Ceres Off-Ramp	Diverge 1 Lane	AM	200	32.4	D
		PM	410	32.9	D
Northbound SR 99 Downtown Ceres Off-Ramp to Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	5,250	33.5	D
		PM	5,100	32.0	D
Northbound SR 99 Downtown Ceres On-Ramp	Merge 1 Lane	AM	580	34.8	D
		PM	860	**36.2**	**E**
Northbound SR 99 North of Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	5,830	**40.2**	**E**
		PM	5,960	**42.0**	**E**
Southbound SR 99 North of Downtown Ceres Off-Ramp	Mainline 3 Lanes	AM	4,945	30.6	D
		PM	6,280	**47.1**	**F**
Southbound SR 99 Downtown Ceres Off-Ramp	Diverge 1 Lane	AM	955	31.4	D
		PM	1,500	**38.4**	**F**
Southbound SR 99 Downtown Ceres Off-Ramp to Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	3,990	23.5	C
		PM	4,780	29.2	D
Southbound SR 99 Downtown Ceres On-Ramp	Merge 1 Lane	AM	600	28.3	D
		PM	920	**35.0**	**E**
Southbound SR 99 Downtown Ceres On-Ramp to Service Road Off-Ramp	Weave 4 Lanes	AM	4,590	25.5	C
		PM	5,700	**38.0**	**E**
Southbound SR 99 Service Road Off-Ramp	Diverge 2 Lanes	AM	560	8.5	A
		PM	1,780	17.2	B
Southbound SR 99 Service Road Off-Ramp to Service Road On-Ramp	Mainline 3 Lanes	AM	4,030	23.8	C
		PM	3,920	23.1	C
Southbound SR 99 Service Road On-Ramp	Merge 1 Lane	AM	690	29.2	D
		PM	860	30.0	D
Southbound SR 99 Service Road On-Ramp to Mitchell Road On-Ramp	Mainline 3 Lanes	AM	4,720	28.7	D
		PM	4,780	29.2	D
Southbound SR 99 Mitchell Road On-Ramp	Merge 1 Lane	AM	1,135	**36.5**	**E**
		PM	1,335	**38.4**	**E**
Southbound SR 99 Mitchell Road On-Ramp to Keyes Road Off-Ramp	Mainline 3 Lanes	AM	5,855	**40.6**	**E**
		PM	6,115	**44.3**	**E**
Southbound SR 99 Keyes Road Off-Ramp	Diverge 1 Lane	AM	335	34.3	D
		PM	575	**36.8**	**E**
Southbound SR 99 South of Keyes Road Off-Ramp	Mainline 3 Lanes	AM	5,525	**36.4**	**E**
		PM	5,540	**36.6**	**E**

Notes:

Based on methodologies described in the Highway Capacity Manual (HCM) 2010.

Density is in passenger cars per mile per lane. Corresponding LOS is based on first significant digit using HCM thresholds.

Bolded and underlined cells represent density and LOS that exceeds LOS standard.

Source: Fehr & Peers, 2015.

Table 5-11: Freeway Analysis - SR 99 Design Year 2040 Alternative 2 Conditions

Freeway Segment	Segment Type	Peak Hour	Volume	Density	LOS
Northbound SR 99 South of Keyes Road On-Ramp	Mainline 3 Lanes	AM	5,700	**38.5**	**E**
		PM	5,700	**38.5**	**E**
Northbound SR 99 Keyes Road On-Ramp	Merge 1 Lane	AM	735	**38.4**	**F**
		PM	550	**36.9**	**F**
Northbound SR 99 Keyes Road to Mitchell Road	Mainline 3 Lanes	AM	6,435	**49.9**	**F**
		PM	6,250	**46.6**	**F**
Northbound SR 99 Mitchell Road Off-Ramp	Diverge 2 Lanes	AM	1,530	**30.9**	**F**
		PM	1,680	**21.0**	**F**
Northbound SR 99 Mitchell Road Off-Ramp to Mitchell Road On-Ramp	Mainline 3 Lanes	AM	4,905	30.3	D
		PM	4,570	27.5	D
Northbound SR 99 Mitchell Road On-Ramp	Merge 1 Lane	AM	630	33.3	D
		PM	835	33.2	D
Northbound SR 99 Mitchell Road On-Ramp to Downtown Ceres Off-Ramp	Weave 4 Lanes	AM	5,535	30.0	D
		PM	5,405	31.3	D
Northbound SR 99 Downtown Ceres Off-Ramp	Diverge 1 Lane	AM	255	32.8	D
		PM	535	32.7	D
Northbound SR 99 Downtown Ceres Off-Ramp to Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	5,280	33.8	D
		PM	4,870	30.0	D
Northbound SR 99 Downtown Ceres On-Ramp	Merge 1 Lane	AM	600	**35.1**	**E**
		PM	1,015	**36.3**	**E**
Northbound SR 99 North of Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	5,880	**40.9**	**E**
		PM	5,885	**40.9**	**E**
Southbound SR 99 North of Downtown Ceres Off-Ramp	Mainline 3 Lanes	AM	4,940	30.6	D
		PM	6,255	**46.7**	**F**
Southbound SR 99 Downtown Ceres Off-Ramp	Diverge 1 Lane	AM	1,065	31.6	D
		PM	1,555	**38.1**	**F**
Southbound SR 99 Downtown Ceres Off-Ramp to Downtown Ceres On-Ramp	Mainline 3 Lanes	AM	3,875	22.8	C
		PM	4,710	28.7	D
Southbound SR 99 Downtown Ceres On-Ramp	Merge 1 Lane	AM	705	28.5	D
		PM	990	**35.2**	**E**
Southbound SR 99 Downtown Ceres On-Ramp to Mitchell Road Off-Ramp	Weave 4 Lanes	AM	4,580	26.1	C
		PM	5,700	33.8	D
Southbound SR 99 Mitchell Road Off-Ramp	Diverge 2 Lanes	AM	335	8.4	A
		PM	875	14.7	B
Southbound SR 99 Mitchell Road Off-Ramp to Mitchell Road On-Ramp	Mainline 3 Lanes	AM	4,245	25.2	C
		PM	4,825	29.6	D
Southbound SR 99 Mitchell Road On-Ramp	Merge 1 Lane	AM	1,515	**37.0**	**E**
		PM	1,475	**39.8**	**F**
Southbound SR 99 Mitchell Road On-Ramp to Keyes Road Off-Ramp	Mainline 3 Lanes	AM	5,760	**39.3**	**E**
		PM	6,300	**47.5**	**F**
Southbound SR 99 Keyes Road Off-Ramp	Diverge 1 Lane	AM	365	33.9	D
		PM	655	**38.6**	**F**
Southbound SR 99 South of Keyes Road Off-Ramp	Mainline 3 Lanes	AM	5,400	**35.0**	**E**
		PM	5,645	**37.9**	**E**

Notes:
Based on methodologies described in the Highway Capacity Manual (HCM) 2010.

Density is in passenger cars per mile per lane. Corresponding LOS is based on first significant digit using HCM thresholds.
Bolded and underlined cells represent density and LOS that exceeds LOS standard.
Source: Fehr & Peers, 2015.

Design Year 2040 Intersection Operations

Table 5-12 below summarizes the Design Year 2040 intersection operations analysis results for the No-Build Condition, while Tables 5-13 and 5-14 show the Design Year 2040 intersection operations analysis results for the Alternative 1 and Alternative 2 conditions, respectively.

Table 5-12: Intersection Analysis - SR 99 Design Year 2040 No Build Conditions

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1. Roeding Rd / Mitchell Rd	Traffic Signal	53.8	D	**> 120**	**F**
2. Don Pedro Rd / Mitchell Rd	Traffic Signal	**84.2**	**F**	**> 100**	**F**
3. Service Rd / Mitchell Rd	Traffic Signal	**55.1**	**E**	**58.6**	**E**
4. Rohde Rd / Mitchell Rd	Traffic Signal	29.3	C	40.3	D
5. NB SR 99 On-Ramp / Mitchell Rd	Side-Street Stop	**NB LT = >60** Entire = 9.5	**F** A	NB LT = 14.1 Entire = 5.9	B A
6. NB SR 99 Off-Ramp / Mitchell Rd	Side-Street Stop	**WB LT = >180** **WB RT = >100** **Entire = >70**	**F** **F** **F**	**WB LT = >180** **WB RT = >180** **Entire = > 115**	**F** **F** **F**
7. SB SR 99 Off-Ramp / Mitchell Rd	Side-Street Stop	**EB LT = >180** **Entire = >180**	**F** **F**	**EB LT = >180** **Entire = >180**	**F** **F**
8. Moffett Rd / Service Rd	Traffic Signal	**73.0**	**E**	**91.5**	**F**
11. Moore Rd / Service Rd	Traffic Signal	28.3	C	40.6	D
12. Mitchell Ranch Dwy #1 / Mitchell Rd	Traffic Signal	48.4	D	51.1	D
13. Mitchell Ranch Dwy #2 / Mitchell Rd	Side-Street Stop	EB RT = 22.1 Entire = 29.4	C D	**EB RT = >70** Entire = 26.9	**F** D
14. Mitchell Ranch Dwy #4 / Service Rd	Side-Street Stop	SB RT = 5.0 **Entire = 78.2**	A **F**	SB RT = 7.4 **Entire = >50**	A **F**
15. Mitchell Ranch Dwy #3 / Service Rd	Side-Street Stop	SB RT = 5.4 Entire = 21.1	A C	SB RT = 10.4 Entire = 15.2	B C
16. Lucas Rd / Moffett Rd	Side-Street Stop	WB LT = 5.3 SB LT = 3.7 Entire = 1.5	A A A	WB LT = 7.6 SB LT = 3.9 Entire = 1.8	A A A

Notes:
All results above based on SimTraffic Version 8.0 report output for 12 runs.
Bolded and underlined cells represent average delay and LOS that exceeds LOS standard.
Source: Fehr & Peers, 2015.

Table 5-13: Intersection Analysis - SR 99 Design Year 2040 Alternative 1 Conditions

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1. Roeding Rd / Mitchell Rd	Traffic Signal	25.2	C	34.4	C
2. Don Pedro Rd / Mitchell Rd	Traffic Signal	12.9	B	33.2	C
3. Service Rd / Mitchell Rd	Traffic Signal	37.1	D	48.4	D
4. Rohde Rd / Mitchell Rd	Traffic Signal	19.5	B	22.7	C
8. Moffett Rd / Service Rd	Traffic Signal	18.5	B	30.2	C
11. Moore Rd / Service Rd	Traffic Signal	43.6	D	31.9	C
12. Mitchell Ranch Dwy #1 / Mitchell Rd	Traffic Signal	16.9	B	23.1	C
13. Mitchell Ranch Dwy #2 / Mitchell Rd	Side-Street Stop	EB RT = 11.3 Entire = 5.6	B A	EB RT = 26.0 Entire = 10.8	D B
14. Mitchell Ranch Dwy #4 / Service Rd	Side-Street Stop	NB RT = 5.3 SB RT = 32.4 Entire = 2.6	A C A	NB RT = 30.7 **SB RT = >70** Entire = 5.3	D **F** A
15. Mitchell Ranch Dwy #3 / Service Rd	Side-Street Stop	SB RT = 8.1 Entire = 2.8	A A	SB RT = 18.2 Entire = 7.7	C A
16. Lucas Rd / Moffett Rd	Side-Street Stop	WB LT = 6.7 SB LT = 4.6 Entire = 1.8	A A A	WB LT = 9.0 SB LT = 4.2 Entire = 4.0	A A A
17. SB SR 99 Ramps / Service Rd	Traffic Signal	10.5	B	16.9	B
18. NB SR 99 Ramps / Service Rd	Traffic Signal	10.4	B	19.6	C
19. SB SR 99 Ramps Right-Turn / Service Rd DDI	Traffic Signal	2.0	A	5.3	A
20. SB SR 99 Ramps Left-Turn / Service Rd DDI	Traffic Signal	4.6	A	9.1	A
21. NB SR 99 Ramps Right-Turn / Service Rd DDI	Traffic Signal	4.7	A	5.5	A
22. NB SR 99 Ramps Left-Turn / Service Rd DDI	Traffic Signal	1.5	A	1.7	A
27. NB SR 99 Off-Ramp / Service Rd	Uncontrolled	4.4	A	4.9	A
31. SB SR 99 Off-Ramp / Service Rd	Uncontrolled	8.3	A	40.9	D

Notes:
All results above based on SimTraffic Version 8.0 report output for 12 runs.
Bolded and underlined cells represent average delay and LOS that exceeds LOS standard.
Source: Fehr & Peers, 2015.

Table 5-14: Intersection Analysis - SR 99 Design Year 2040 Alternative 2 Conditions

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1. Roeding Rd / Mitchell Rd	Traffic Signal	25.0	C	49.5	D

2. Don Pedro Rd / Mitchell Rd	Traffic Signal	15.4	B	40.9	D
3. Service Rd / Mitchell Rd	Traffic Signal	53.2	D	**65.9**	**E**
4. Rohde Rd / Mitchell Rd	Side-Street Stop	EB RT = 28.6 WB RT = 9.0 Entire = 5.6	D A A	**EB RT = 45.3** WB RT = 17.6 Entire = 7.0	**E** C A
5. NB SR 99 On-Ramp / Mitchell Rd	Side-Street Stop	SB RT = 4.3 Entire = 2.0	A A	SB RT = 6.1 Entire = 2.4	A A
6. NB SR 99 Off-Ramp and SB SR 99 Off/On-Ramps / Mitchell Rd	Traffic Signal	10.5	B	17.8	B
8. Moffett Rd / Service Rd	Traffic Signal	13.0	B	26.3	C
11. Moore Rd / Service Rd	Traffic Signal	28.4	C	31.3	C
12. Mitchell Ranch Dwy #1 / Mitchell Rd	Traffic Signal	18.4	B	28.3	C
13. Mitchell Ranch Dwy #2 / Mitchell Rd	Side-Street Stop	EB RT = 10.2 Entire = 13.8	B B	**EB RT = 35.7** Entire = 17.2	**E** C
14. Mitchell Ranch Dwy #4 / Service Rd	Traffic Signal	33.4	C	32.5	C
15. Mitchell Ranch Dwy #3 / Service Rd	Side-Street Stop	SB RT = 4.0 Entire = 5.5	A A	SB RT = 11.8 Entire = 5.2	B A
16. Lucas Rd / Moffett Rd	Side-Street Stop	WB LT = 5.9 SB LT = 3.3 Entire = 1.5	A A A	WB LT = 7.8 SB LT = 2.9 Entire = 1.8	A A A

Notes:
All results above based on SimTraffic Version 8.0 report output for 12 runs.
Bolded and underlined cells represent average delay and LOS that exceeds LOS standard.
Source: Fehr & Peers, 2015.

Interim Features

There are no interim features on SR 99 proposed as part of this project.

High Occupancy Vehicle (Bus and Carpool) Lanes

High Occupancy Vehicle (HOV) lanes on the SR 99 mainline are not proposed within the project limits under both build alternatives. Caltrans District 10 does not have a policy for HOV lanes on SR 99 within the project limits. HOV bypass lanes are proposed in conjunction with provisions for future ramp metering for the following on-ramps:

- Southbound on-ramp from Mitchell Road (Alternative 1 and 2)
- Northbound on-ramp from Mitchell Road (Alternative 2 only)
- Southbound on-ramp from Service Road (Alternative 1 only)
- Northbound on-ramp from Service Road (Alternative 1 only)

Ramp Metering

A majority of SR 99 in Stanislaus County has been identified as medium priority for ramp metering implementation, in the Caltrans 2017 Ramp Metering Development Plan. The project Build Alternatives will include HOV bypass lanes and CHP enforcement areas for all proposed freeway on-ramps. Installation of ramp meter equipment and infrastructure is proposed for all on ramps, for a future ramp metering implementation project. The activation of these elements would be part of an as yet undetermined project. District 10 ramp metering priorities are based on the approved Final Report, Northern San Joaquin Valley Regional Ramp Metering and HOV Master Plan, dated February 27, 2009.

California Highway Patrol Enforcement Areas

California Highway Patrol (CHP) enforcement areas are proposed for all on-ramps under both Build Alternatives.

Park-and-Ride Facilities

There are no park-and-ride facilities proposed for this project.

Utility and Other Owner Involvement

Numerous utilities are present within the project area, consisting of overhead electrical transmission and distribution lines, gas transmission and distribution lines, water, sanitary sewer, storm drain, telephone, cable, fiber optic, and oil pipelines. Electrical service and irrigation water in the area is provided by the Turlock Irrigation District (TID). Gas service is provided by Pacific Gas and Electric (PG&E), telephone service is provided by AT&T, cable television is provided by Charter Communications, and domestic water service is provided by the City of Ceres.

Irrigation water is conveyed via a lined irrigation channel operated by TID. The Ceres Main Canal is located east of Mitchell Road and crosses under SR 99 near the southern limits of the project area. In addition, a 230 kV overhead electrical transmission line owned by TID parallels the Ceres Main Canal. Both the Ceres Main Canal and 230 kV transmission line traverse SR 99.

The proposed project would require protection of the existing canal, overhead electrical transmission lines, and underground utilities in place as much as is feasible.

Potential utility work would involve relocation of overhead facilities such as electrical distribution systems, telephone and television cables and relocation of underground facilities such as water mains, sanitary sewers, gas, fiber optic, storm drain and electrical cables along the realigned segments of El Camino Avenue and Lucas Road. Additionally, existing utilities along Mitchell Road and Service Road would be relocated to match the proposed horizontal and vertical alignments. These relocations are outside of the proposed Caltrans right-of-way. Existing utility conflicts and the needs for utility relocations will be evaluated by the design team at the beginning of the PS&E phase. Arrangements for right-of-way activities and utility relocations that are part of this project will be performed by the City.

A 24-inch water line crosses under SR 99 just south of the existing Service Road Overcrossing. This water line will need to be relocated to accommodate construction of the new Service Road overcrossing. An 18-inch sanitary sewer line crosses under SR 99 near Don Pedro Road. In Alternative 1, a portion of this sewer line would need to be relocated to accommodate the construction of the northbound on-ramp from Service Road. An 42-inch sanitary sewer line crosses SR 99 just north of Service Road overcrossing. A portion of this sewer line will need to be relocated under Alternative 1. No other utility relocations are anticipated at this time.

There are no known longitudinal encroachments within the project limits.

Railroad Involvement

The UPRR parallels SR 99 on the west. Reconstruction of the Service Road Overcrossing would require crossing two parallel railroad tracks. Additional coordination with and permit approval by UPRR and California Public Utilities Commission (CPUC) will be required for construction of the temporary falsework and new bridge structure as well as relocation of existing utility lines within the UPRR right-of-way.

It is anticipated that Temporary Construction Easements (TCEs) will be required within the UPRR right-of-way in order to construct the proposed improvements in both alternatives. Additionally, a maintenance agreement with UPRR will be required to provide maintenance access rights for Caltrans for barriers and walls that abut the railroad property. These agreements and permits will be developed during the PS&E phase.

Highway Planting

A separate planting project will be provided for mitigation of the removal of existing highway planting and trees during construction. The planting project would be ready to begin construction six months after completion of the interchange project.

Erosion Control

Erosion control will be provided for all graded areas in accordance with the Standard Specifications and Caltrans Landscape Architecture guidelines. Temporary erosion control would be provided on all temporary slopes as required to meet water quality discharge requirements under the Storm Water Pollution Prevention Plan (SWPPP). Caltrans approval will be required for slopes steeper than 4:1. Permanent erosion control measures, including proposed slope stabilization treatments, are further discussed in the project's Storm Water Data Report (SWDR). The SWDR cover page is provided in Attachment G.

Noise Barriers

The Noise Study Report (NSR) for the project was prepared by ICF International in April 2016 and approved by Caltrans Environmental unit in June 2016. The Noise Abatement Decision Report (NADR) was approved by Caltrans Design unit on November 16, 2017, with the approval of the DPR.

Traffic noise level increases of up to 9 A-weighted decibels (dBA) are predicted to occur under Alternatives 1 and 2 at noise sensitive receivers within the project limits. Noise abatement barriers in the form of sound walls were assessed for sensitive receptors. To be considered feasible, a noise reduction barrier should achieve a minimum 5-dBA reduction at any given receptor.

Based on the studies completed to date and input from the public, Caltrans intends to incorporate noise abatement in the form of a barrier at the northbound edge of shoulder or right-of-way line on State Route 99 between Service Road and Pine Street, with the respective length and height of 0.72 mile and 12 feet. Calculations based on preliminary design data show that the barrier will reduce noise levels by 5 to 9 dBA for 58 residences at a cost of $1,626,000. If during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement will be made upon completion of project design.

Complete Streets

The proposed project is developed in accordance with the goals stated in Caltrans Deputy Directive DD-64-R2, "Complete Streets – Integrating the Transportation System". In consideration of the goal of providing "complete streets" as part of this project, the safety and mobility needs of all roadway users are accommodated through the provision of bicycle, pedestrian, and transit facilities. The proposed project provides pedestrian facilities such as sidewalks, curb ramps, overcrossings with sidewalks, and other facilities intended for pedestrians in accordance with guidelines provided in DIB 82, "Pedestrian Accessibility Guidelines for Highway Projects".

Curb ramps meeting the American with Disabilities Act (ADA) requirements would be installed in sidewalks at all crosswalks affected by the project. In both alternatives, the proposed project would make provisions for a Class II bikeway along Service Road through the project area in conformance with the City of Ceres designated bike routes. Bicycle access on Mitchell Road and other local roads within the project area will be accommodated within the roadway shoulder. Bicycles and pedestrians are prohibited on the SR 99 right-of-way.

All detours or roadways that permit bicycles and pedestrians modes of travel would include provisions for pedestrian and bicycle access during construction.

Needed Roadway Rehabilitation and Upgrading

Pavement replacement is proposed on SR 99 within the project limits. The existing roadway surface consists of Portland Cement Concrete (PCC) paving on the mainline travel lanes, with asphalt concrete (AC) shoulders and ramps. A recent pavement rehabilitation project (EA 10-0M8004) was completed in 2014 in the project area, with full replacement of the No. 2 and No. 3 lanes, individual slab replacements in the No. 1 lane, and hot mix asphalt (HMA) overlay on the shoulders.

Where work along mainline SR 99 is limited to widening work, no roadway rehabilitation or overlay work is planned for the existing pavement. Where realignment and reconstruction occur along mainline SR 99, the entire pavement section will be replaced with new pavement. A Life Cycle Cost Analysis (LCCA) was conducted for this project, and the results are provided in Attachment K.

For local roads, the need for total pavement reconstruction will be determined during the PS&E phase. A field review of the project will be made at the start of the PS&E phase to determine the condition of local roads.

Cost for pavement rehabilitation and overlay work identified as part of the project improvements are included in the Project Report Cost Estimate in Attachment E.

Needed Structure Rehabilitation and Upgrading

The existing Mitchell Road Undercrossing and Service Road Overcrossing structures will be replaced as part of this project in both alternatives. The existing mainline Ceres Main Canal Bridge will be replaced in Alternative 2 only. In each case, due to the new horizontal and vertical alignments of the roadways proposed in each alternative, rehabilitation of these existing structures is not feasible. The Ceres Main Canal Bridges for the Mitchell Road on and off-ramps will be replaced in both alternatives.

The approved Advanced Planning Studies (APS) for this project are provided in Attachment L.

Effects of Projects-Funded-by-Others on State Highway

Effects of the build alternatives on highway operations are discussed in Section 4A of this report. A summary of impacts and mitigations is included in Section 6E of this report.

5C. Rejected Alternatives

The PSR-PDS identified four interchange concept alternatives to be evaluated for further study. Through the PA&ED process, all four of these alternatives were rejected. Several modifications of the four alternatives that were identified in the PSR-PDS were analyzed and resulted in further rejections, while two new alternatives that were introduced were considered viable as discussed in Section 5A. All of the alternatives considered and rejected, from the PSR-PDS and from the PA&ED analysis, are described below.

PSR-PDS Alternative 1 – Construct Service Road Interchange and Eliminate Mitchell Road Interchange

PSR-PDS Alternative 1 would construct an interchange at Service Road. The interchange would be a modified Type L-9 interchange on the east side of SR 99 and a modified Type L-1 interchange on the west side of SR 99. The existing interchange at Mitchell Road would be eliminated and Mitchell Road would be realigned to cross under SR 99 and the UPRR tracks, and connect with Redwood Road on the west side of SR 99.

Traffic analysis demonstrated that under this alternative, five of the seven study intersections would operate at unacceptable LOS F; therefore, the alternative did not meet the project purpose and need objectives of relieving traffic congestion and improving traffic operations.

PSR-PDS Alternative 2 - Mitchell Road Interchange Reconstruction

PSR-PDS Alternative 2 would reconstruct the Mitchell Road Interchange as a Modified Type L-1 Interchange. Mitchell Road would be realigned perpendicular to and cross under SR 99 and the UPRR tracks and would be extended in a southwesterly direction to Redwood Road on the west side of SR 99.

This alternative was dropped as it did not adequately address issues of local circulation, would limit the development potential for vacant parcels on the east side of the freeway, and due to constructability issues at the proposed crossing of Mitchell Road under the UPRR tracks.

PSR-PDS Alternative 3 – Construct Single Point Urban Interchange and Eliminate Mitchell Road Interchange and Service Road Overcrossing

PSR-PDS Alternative 3 would construct a Single Point Urban Interchange (SPUI) between Service Road and Mitchell Road. Service Road and Mitchell Road would be realigned to combine as one roadway crossing SR 99. The combined Service Road/Mitchell Road will cross under SR 99 and the UPRR tracks in an east-west direction.

Traffic analysis demonstrated that under this alternative, three of the five study intersections would operate at acceptable LOS D or better. However, two of the intersections (Mitchell Road/Service Road and Service Road/Moore Road) would operate at unacceptable LOS E or F. Therefore, this alternative did not meet the project purpose and need objectives of relieving traffic congestion and improving traffic operations.

It was recommended in an August 15, 2005 letter from the City of Ceres to Caltrans that the SPUI Concept Plan be eliminated from further consideration. On September 20, 2005, the PDT approved dropping this alternative from further consideration.

PSR-PDS Alternative 4 - Construct a Combined Service Road/Mitchell Road Interchange

PSR-PDS Alternative 4 would construct a modified Type L-5 Interchange that would connect Service Road and Mitchell Road to make it operate as one interchange connection to SR 99. The interchange would be constructed with the following components:

- A Modified Type L-9 Interchange would be constructed on the east side of SR 99 at Service Road;
- A Modified Type L-1 Interchange would be constructed on the west side of SR 99 at Service Road;

- The existing northbound SR 99 off-ramp would be realigned and connect to Mitchell Road. The southbound on-ramp from Service Road would be combined with the southbound on-ramp from Mitchell Road and connect to SR 99 south of Mitchell Road; and
- Mitchell Road would cross under SR 99 and the UPRR tracks and extend west to Redwood Road.

On May 15, 2007, a constructability review meeting was held with Caltrans to review design issues, construction staging, and detour routes for the project. In June 2007, the PDT agreed that the extension of Mitchell Road across SR 99 would not be a part of the PSR-PDS Alternative 4 project, but would be a future improvement project at the interchange. In August 2007, the PDT agreed to drop the PSR-PDS Alternative 4 design option of a combined southbound on-ramp from Service Road and Mitchell Road from consideration.

During the course of the PA&ED phase, the PSR-PDS Alternatives 2 and 4 were evaluated further and the following additional design alternatives were introduced:

Alternative 4, Option 2 - Construct a Combined Service Road/Mitchell Road Interchange, with Type L-8 Interchange Northbound at Service Road

This alternative would modify the previously developed PSR-PDS Alternative 4, replacing the northbound ramp configuration at Service Road with a modified Type L-8 Interchange on the east side of Service Road. This eliminated the local road connection opposite the ramp terminal that was present in the original alternative.

Tight Diamond (L-1) Interchange

This alternative would reconstruct Service Road on a new alignment, crossing over SR 99 and the UPRR tracks at approximately a 15 degree skew. A modified Type L-1 Interchange would be constructed at the realigned Service Road. Due to right-of-way constraints, access from westbound Service Road to southbound SR 99 would not be provided. As with PSR-PDS Alternative 4, the existing northbound off-ramp and southbound on-ramp at Mitchell Road would be slightly realigned, but would retain their basic configuration. The northbound on-ramp and southbound off-ramp at Mitchell Road would be removed.

Due to issues related to constructability, right-of-way, and traffic operations, PSR-PDS Alternative 4, Alternative 4/Option 2, and the Tight Diamond Interchange Alternative were dropped from further consideration.

At the February 2013 PDT meeting, Caltrans recommended that the remaining design alternatives to be evaluated during the PA&ED phase are the Service Road Diverging Diamond Interchange (current Alternative 1) and Mitchell Road Interchange Reconstruction (current Alternative 2).

Alternative 1A - Service Road Diverging Diamond Interchange Without Mitchell Road Ramps

A variation to Alternative 1 was evaluated as part of the TOAR. This would retain the same basic configuration as Alternative 1, but without the northbound off-ramp and southbound on-ramp at Mitchell Road. The results of the traffic operations analysis showed that this alternative would not provide sufficient capacity to serve the projected design year traffic volumes; thus, this alternative was determined to be unacceptable based on traffic operations results.

Consideration of Reversible Lanes

Reversible lanes were considered for the project per Assembly Bill No. 2542. Reversible lanes are not considered viable for this project for not satisfying the following three criteria:

1. When considering reversible lanes, guidance states that reversible lanes are most appropriate when corridors have a high directional split (65% or more in peak direction) in freeway vehicular volumes. For design year 2040, the southbound is the peak direction, therefore when considering a reversible lane in this segment, the non-peak direction (i.e., northbound) density is very close to the LOS threshold. Therefore, reversible lanes do not appear feasible for this location given the high level of congestion in the non-peak direction.

2. Due to the unique operational requirements with reversible lanes, the minimum length for such a facility should be 2 miles. The project length is 1.9 miles; however, the proposed realignment of SR 99 is only for a distance of about 1 mile.

3. There should be adequate capacity on highway sections downstream from a reversible lane to allow for the additional peak flows, which does not exist with the current corridor conditions.

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. Hazardous Waste

A *Phase I – Initial Site Assessment* was prepared for this project (Parikh Consultants, Inc., March 2016). The assessment included identifying potential hazards and hazardous materials sites within the ½ mile perimeter of the project area through a site inspection and database record search of regulatory agency lists by Environmental Data Resources, Inc. (EDR).

The Initial Site Assessment did not identify any hazardous material uses or hazardous waste issues within the project corridor that would significantly impact the proposed project.

Any yellow paint striping and thermoplastic traffic stripes or pavement markings to be removed separately during the project shall be managed as a hazardous waste. During construction, unknown hazardous materials could be encountered, or materials could be accidentally spilled. Best Management Practices would minimize or avoid these risks.

Aerially Deposited Lead

Because the corridor has been used by vehicular traffic since the 1960s, the soils next to the highway in the project area have the potential to be contaminated with aerially deposited lead (ADL) from the exhausts of vehicles burning leaded gasoline. A *Preliminary Site Investigation (PSI) Report* was prepared for this project (Geocon Consultants, Inc., December 2016). The surface and shallow subsurface soils in the unpaved areas within the project limits were surveyed for ADL and any other potential contaminants such as hydrocarbons. Testing for ADL, hydrocarbons, and other contaminants in the areas along SR 99 and local roads was conducted in August 2016. The findings of the PSI report show that soil excavated to a depth of 2.5 feet along the local roads would qualify as "clean soil", while soils along SR 99 contain elevated concentrations of ADL. The PSI report recommends that on SR 99, soils excavated from the surface to a depth of one foot can be reused within Caltrans right-of-way if covered with at least one foot of clean soil or pavement structure. Excavated soil from a depth of 1 to 5 feet can be reused without restrictions or disposed of as non-hazardous soil with respect to lead content Provisions for the handling of soil containing ADL have been included in the Project Report Cost Estimate in Attachment E.

Asbestos and Lead-Containing Paint Survey

An *Asbestos and Lead-Containing Paint Survey Report* was prepared for this project (Geocon Consultants, Inc., December 2016). Structures were tested for both lead based paint (LBP) and asbestos containing material (ACM). This testing is necessary to meet the current California Air Resources Board (CARB) requirements. This information is also necessary for the National Emission Standards for Hazardous Air Pollutants (NESHAP) notification process. The results of this testing indicate that asbestos is present in the nonfriable sheet packing material used as barrier rail shims on the Service Road Overcrossing (Bridge No. 38-0094). The results of the testing indicate that paint on the existing structures within the project limits do not contain levels of lead that would qualify as hazardous waste.

6B. Value Analysis

A Value Analysis Study will be performed after completion of the PA&ED phase.

6C. Resource Conservation

The proposed project will minimize the use of energy and nonrenewable resources. No major facilities can be salvaged or relocated from this project. However, whenever possible, existing roadway items such as signs, light standards, guardrails, and other associated hardware will be relocated or stockpiled to be used at a later date. Asphalt concrete pavement and concrete removed from existing roadways and structures could be reused as either base material or embankment material. Measures to conserve energy and nonrenewable resources during construction will be considered during the design phase of the project.

The potential for using recycled asphalt concrete or rubberized asphalt concrete will be determined during the PS&E phase.

6D. Right-of-Way Issues

The project is located at the southern end of the City of Ceres. The area north of Service Road is a mixture of residential, community service, commercial, industrial, and retail. The area is primarily agricultural south of Service Road. Both alternatives will require additional right-of-way for interchange construction, widening and realignment of local roads, and construction of storm water detention/retention basins.

Alternative 1, the preferred alternative will require right-of-way from a total of 39 parcels (12 full acquisitions and 27 partial acquisitions). Alternative 2 will require right-of-way from a total 27 parcels (5 full acquisitions and 22 partial acquisitions). Right-of-Way Data Sheets are included in Attachment I. The proposed project would also require additional permanent and temporary easements to be determined during the final design phase.

It is anticipated that displaced residents would be relocated within the City of Ceres. There is adequate housing and industrial area in the Ceres area (as defined by ZIP Code 95307) to relocate displaced residents and businesses. To reduce or eliminate the potentially adverse displacement effects of the proposed project, all right-of-way activities will be handled in accordance with the Federal Uniform Relocation Assistance and Property Acquisition Policies Act of 1970 and the 1987 Amendments as implemented by the Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally Assisted Programs adopted by the Department of Transportation, dated March 2, 1989. An independent appraisal of the affected properties will be obtained, and an offer for the full appraisal will be made. Mitigation measures will be implemented to ensure compliance and reduce the potentially adverse impacts associated with residential relocations.

Right-of-way costs related to Railroad are dependent on the structures type selection and will be evaluated in the PS&E phase. Coordination with UPRR will be needed to determine any potential temporary easements and their costs. Potential risks related to the railroad right-of-way costs are documented in Attachment J, Risk Management Plan.

It is assumed that all the proposed utility relocations for the project are within the project right-of-way and that there are no utility related right-of-way costs. Potential risks related to the utility right-of-way costs are documented in Attachment J, Risk Management Plan.

6E. Environmental Compliance

The Department is the lead agency under the California Environmental Quality Act (CEQA). An Initial Study/Mitigated Negative Declaration (IS/MND) is the appropriate level of document under CEQA.

The Mitigated Negative Declaration has been prepared in accordance with Caltrans' environmental procedures, as well as State and federal environmental regulations. The attached Mitigated Negative Declaration (Attachment H) is the appropriate document for the proposal. The final Environmental Document was approved on October 26, 2018.

At the time of this writing, no federal funding has been obtained and therefore the EA has not been finalized and the NEPA decision document (Finding of No Significant Impact) has not been signed. Should federal funding be obtained, Caltrans will proceed with the finalization of the EA and the preparation of a Finding of No Significant Impact, the appropriate decision document based on the findings of the Environmental Assessment. It would also be necessary to re-evaluate the findings of this document.

The Final Initial Study with Mitigated Negative Declaration includes a detailed discussion of the following environmental issues, as well as a summary of other environmental studies conducted for the project, together with the findings. A summary of the anticipated environmental impacts of the project are provided in Table 6-1 below.

Table 6-1: Summary of Potential Impacts from Alternatives

Potential Impact		**Alternative 1**	**Alternative 2**	**No-Build Alternative**
Land Use	Consistency with the City of Ceres General Plan	Consistent – facilitates planned growth to east and west.	Consistent – facilitates planned growth to east.	Not Consistent – does not accommodate planned growth; results in unacceptable levels of service on local streets.
	Consistency with the Stanislaus County General Plan	Consistent	Consistent	Consistent
Coastal Zone		No impact	No impact	No impact
Wild and Scenic Rivers		No impact	No impact	No impact
Parks and Recreational Facilities		No impact	No impact	No impact

Potential Impact		Alternative 1	Alternative 2	No-Build Alternative
Growth		No impact. The project will accommodate growth, but not induce growth.	No impact. The project would accommodate growth, but not induce growth.	No impact
Farmlands and Timberlands		Conversion of 2.15 acres of Prime Farmland and 2.79 acres of grazing farmland.	Conversion of 2.12 acres of Prime Farmland and 2.68 acres of grazing farmland.	No impact
Community Character and Cohesion		No impact	No impact	No impact
Relocations and Real Property Acquisition	Business displacements	10 partial commercial acquisitions; 5 full commercial acquisitions; 3 commercial displacements	10 partial commercial acquisitions; 1 full commercial acquisition and displacement	No impact
	Housing displacements	12 partial residential acquisitions; 6 full residential acquisitions; 18 residential displacements	8 partial residential acquisitions;3 full residential acquisitions and displacements	No impact
	Utility service relocation	Relocation of multiple underground and overhead utilities. Relocation of water and sewer lines under SR 99.	Relocation of multiple underground and overhead utilities. Relocation of water line under SR 99.	No impact
Environmental Justice		No impact	No impact	No impact
Emergency Services		Temporary disruption of emergency services; long term improvement.	Temporary disruption of emergency services; long term improvement.	Long-term traffic may result in response time increases for emergency services.

Potential Impact	Alternative 1	Alternative 2	No-Build Alternative
Traffic and Transportation/ Pedestrian and Bicycle Facilities	System-wide reduction in traffic congestion and improved levels of service.	System-wide reduction in traffic congestion and improved levels of service.	In 2020, two intersections would operate at unacceptable levels of service. In 2040 four intersections would operate at unacceptable levels of service.
Visual/Aesthetics	Short term visual change during construction. Moderate-low impacts to visual resources and light and glare.	Short term visual change during construction. Moderate-low impacts to visual resources and light and glare.	No impact
Cultural Resources	Finding of No Adverse Impact on Ceres Main Canal	Finding of No Adverse Impact on Ceres Main Canal	No impact
Hydrology and Floodplain	No impact on floodplain	No impact on floodplain	No impact
Water Quality and Storm Water Runoff	9.4 acres of impervious surface will increase runoff; runoff will be contained within new retention basins.	5.2 acres of impervious surface would increase runoff; runoff would be contained within new retention basins.	No impact
Geology, Soils, Seismicity and Topography	No impacts. A geotechnical report will be completed during design phase of the project, and recommendations will be used to address any soil issues.	No impacts. A geotechnical report will be completed during design phase of the project, and recommendations would be used to address any soil issues.	No impact
Paleontology	Sensitive geological units known to contain vertebrate fossils are located within the project area.	Sensitive geological units known to contain vertebrate fossils are located within the project area.	No impact

Potential Impact	**Alternative 1**	**Alternative 2**	**No-Build Alternative**
Hazardous Waste and Materials	Potential to disturb contaminated soils or encounter hazardous materials during construction; health and safety plan and standard measures to be implemented.	Potential to disturb contaminated soils or encounter hazardous materials during construction; health and safety plan and standard measures to be implemented.	No impact
Air Quality	Short term construction-related impacts; Caltrans standard specifications and Dust Control Plan to be implemented.	Short term construction-related impacts; Caltrans standard specifications and Dust Control Plan to be implemented.	No construction emissions. Future emissions of criteria air pollutants and mobile source air toxics are expected to decrease due to improvements in technology.
Noise and Vibration	Predicted traffic noise levels for the design year with the project approach or exceed noise abatement criteria at 156 sensitive receptors; noise abatement was considered reasonable and feasible at 1 location.	Predicted traffic noise levels for the design year with the project approach or exceed noise abatement criteria at 137 sensitive receptors; noise abatement was considered reasonable and feasible at 1 location.	No impact
Natural Communities	No impact	No impact	No impact
Wetlands and Other Waters	Temporary impact on 0.01 acre of other waters. Permanent Impact on 2.25 square feet of other waters.	Temporary impact on 0.07 acre of other waters. Permanent impact on 2.25 square feet of other waters.	No impact
Plant Species	Removal of trees protected by City Ordinance.	Removal of trees protected by City Ordinance.	No impact

Potential Impact	Alternative 1	Alternative 2	No-Build Alternative
Animal Species	Permanent loss of 9.83 acres of foraging habitat for northern harrier, white-tailed kite, burrowing owl, and migratory birds and other raptors. Potential disturbance of roosting bats.	Permanent loss of 7.33 acres of foraging habitat and temporary disturbance of 1.36 acres of habitat for northern harrier, white-tailed kite, burrowing owl, and migratory birds and other raptors. Potential disturbance of roosting bats.	No impact
Threatened and Endangered Species	Permanent loss of 9.83 acres of Swainson's hawk foraging habitat.	Permanent loss of 7.33 acres of foraging habitat and temporary disturbance of 1.36 acres of habitat for Swainson's hawk.	No impact
Invasive Species	Potential to spread invasive species during construction.	Potential to spread invasive species during construction.	No impact

Wetlands and Flood Plains

Within the proposed project vicinity, 1.041 acres of other waters (i.e., non-wetlands) were mapped in the project's delineation area. These other waters consist of 0.882 acre of perennial drainage (TID irrigation canal facilities), 0.154 acre of seasonal pools, and 0.005 acre of ephemeral drainage (ponding areas near the canals). There are no wetlands. The proposed project would avoid impacts to the seasonal pools and ephemeral drainage. Temporary impacts on perennial drainage (Ceres Main Canal) would be 0.01 acre under Alternative 1 and 0.07 acre under Alternative 2 and permanent impacts would be less than 0.0001 acre under either alternative.

Potential mitigation for impacts on "other waters" may include enhancements of their jurisdictional areas within the project area by planting native vegetation.

Species of Concern and Habitat

The proposed project may impact several special-status species (threatened, endangered, or species of concern), including vernal pool fairy shrimp, white-tailed kite, northern harrier, Swainson's hawk, western burrowing owl, pallid bat, and western red bat. The project could also result in impacts to common (not special status) nesting raptors and other nesting birds.

Nesting surveys for burrowing owls will be conducted prior to construction, in accordance with the survey requirements detailed by the California Department of Fish and Game. Preconstruction nesting surveys will also be conducted to protect other birds or tree nesting raptors before trees are impacted or removed from the area during construction.

Appropriate nesting buffers would be established between the nest tree and construction activities if nesting activity is identified during the surveys.

Preconstruction surveys will be conducted for roosting bats and protective measures will be implemented if roosting bats are present.

The proposed project could result in indirect effects on vernal pool fairy shrimp habitat through the inadvertent introduction of sediment and construction-related pollutants to seasonal pools. Avoidance and minimization measures to minimize ground disturbance during the wet season, install exclusionary fencing and monitor as necessary would be implemented.

Flood Plains and Hydrology

A Hydrology Study, prepared by Nolte Associates, Inc. in September 2006, indicates that the site is not located within a floodplain or a floodway, nor does the site encroach into a base floodplain per Federal Emergency Management Agency (FEMA) Flood Insurance rate maps dated September 26, 2008.

The main channel that conveys runoff through and from the site is the TID Ceres Main Canal. There is an existing agreement between Caltrans and the TID that allows Caltrans to discharge its runoff to TID's canal. This agreement states that no more than 22 cubic feet per second (cfs) of flow shall be discharged into the Canal. The project will maintain this rate as the maximum discharge rate from the Caltrans right-of-way. A separate Preliminary Drainage Report has been prepared, detailing the existing and proposed site hydrology and hydraulics.

Water Quality and Storm Water Runoff

A Storm Water Data Report was prepared by NV5 Inc. in March 2017 for the project in accordance with Caltrans requirements. As with many storm drainage systems throughout California, the SR 99 drainage system was originally designed with the objective of conveying storm water runoff off the site to streams and flood control channels as quickly as possible. The existing drainage pattern within the State right-of-way includes a system of inlets and pipe culverts that collect runoff from the roadway and discharges to the Ceres Main Canal, which crosses SR 99 approximately 700 feet south of Mitchell Road. In the proposed condition, biofiltration swales and detention basins will be provided to treat runoff within the State right-of-way. Excess flows that discharge to the Ceres Main Canal would be treated on-site to the maximum extent practicable per Caltrans storm water quality guidelines. The project would increase the amount of impervious surface by 9.4 acres and 5.2 acres, for Alternative 1 and Alternative 2, respectively. The proposed design would integrate this conventional flood control methodology with a system for storm water control that would protect the off-site drainage and streams from non-point source pollution generated from the freeway.

Noise

Traffic noise level increases of up to 9 dBA under Alternative 1 and up to 2 dBA under Alternative 2 are predicted to occur at noise sensitive receivers within the project limits, due to a combination of increased traffic volumes associated with area build out and the realignment of the roadway closer to residences. Noise abatement barriers in the form of sound walls were assessed for sensitive receptors. To be considered feasible, a noise reduction barrier should achieve a minimum of a 5 dBA reduction at any given receptor. Three potential noise barrier locations were found to be feasible under both project alternatives. The locations of the proposed noise barriers and an analysis of their feasibility for incorporation into the project were approved with the Draft Project Report approval. The proposed project intends to incorporate a noise barrier along the eastern edge of proposed northbound on-ramp and SR99 northbound lanes. There was no opposition to the proposed noise barrier during the public comment period in 2017.

Seismic Hazard and Geotechnical Considerations

The nearest active faults are the Greenville Fault Zone on the west side of the Diablo Range and the Corral Hollow-Carnegie Fault Zone, east of Livermore in the Coast Ranges. The ground-shaking hazard in the project vicinity is generally low. No geotechnical/geologic conditions have been identified in the project area that would preclude construction of the proposed improvements. The project will conform to the current seismic standards to withstand the seismic effects that would result from a maximum credible earthquake.

The site is underlain by Modesto Formation alluvium, consisting of interbedded sands, gravels, silts, and clays to depths of several hundred feet. The subsurface soil conditions generally consist of loose, silty fine sand to very dense sand to very dense sand with gravel. Groundwater elevation ranges from 77.1 ft to 83.0 ft above sea level. The liquefaction potential along the project is estimated to be generally moderate.

Cultural Resources

Cultural resources studies conducted by ICF in 2006 and 2016 indicated that there were no known archaeological resources within the APE. A geoarchaeological study conducted to assess the potential for buried deposits determined that the potential for buried archaeological resources was low. Caltrans standard operating procedures to stop work in case of accidental discovery would further reduce any potential impact on archaeological resources.

The Ceres Main Canal is eligible for listing in the National Register of Historic Places (NRHP) as a contributing element of the Turlock Irrigation District Water Conveyance System historic district. However, project construction and operation would not result in an adverse effect to the character-defining features of this resource. The State Historic Preservation Officer concurred with the Finding of No Adverse Effect on July 26, 2017. Therefore, no mitigation is necessary.

Paleontological Resources

As determined in the October 2006 Paleontological Identification Report prepared by Jones & Stokes and the March 2017 Paleontological Evaluation Report prepared by ICF, project excavation will impact sensitive paleontological resources that have yielded scientifically important fossils in the area near the project. Impacts on paleontological resources will be reduced through compliance with Caltrans Standard Specifications Section 14-7 to stop work and appropriately recover and treat any paleontological resources encountered during project construction and through preparation of a Paleontological Mitigation Plan to be implemented during construction.

Visual Impact

A Visual Impact Analysis was completed for the project in March 2016.

With implementation of the proposed mitigation in the attached FED, the proposed project would have no significant impact on visual resources. The project's minimization and mitigation measures will minimize escaping light during construction, replace or relocate site features and landscaping on private property affected by the project, require use native grasses and wildflowers in erosion control seed mix, implement project landscaping and visual buffer elements, implement retaining wall and noise barrier aesthetics and apply minimum lighting standards.

The cost of visual impact mitigation is included in Section 5B of the cost estimates in Attachment E of the DPR. The landscape project would be ready to begin construction six months after completion of the interchange project.

Climate Change

A detail project-level analysis related to climate change is included in the attached FED. Included in this discussion is a summary of Caltrans and statewide efforts that Caltrans is implementing to reduce greenhouse gas (GHG) emissions, with the goal to reduce or mitigate the impacts of climate change. Specific elements that are considered for inclusion in the project to reduce GHG emissions and potential climate change impacts from the project include Intelligent Transportation System (ITS) elements to help manage the efficiency of the existing highway system, roadside landscaping to reduce surface warming, energy-efficient lighting and traffic signals, and contract specifications to comply with San Joaquin Valley Air Pollution Control District rules, ordinances, and regulations for air quality restrictions. Analysis indicates that Alternative 1, the preferred alternative would reduce GHG emissions compared to existing conditions in 2020 and the No-Build Alternative in 2020 and 2040. Alternative 2 would have no effect on emissions compared to existing conditions in 2020 and the No-Build Alternative in 2020 and 2040.

6F. Air Quality Conformity

The project would improve traffic flow through the project area, thereby reducing the auto emissions over the long-term project operation. In addition, the proposed project would relieve existing traffic congestion and reduce travel time. This would result in a reduction of pollution emissions and have a beneficial long-term effect on air quality for the region.

The proposed project is fully funded and is identified in StanCOG's *2014 Regional Transportation Plan and Sustainable Communities Strategy* (RTP/SCS) Tier 1 roadway projects as ID CO8. The project is also included in StanCOG’s financially constrained 2017 FTIP as regionally significant project. The RTP/SCS, the FTIP, and the corresponding air quality conformity analysis were approved by FHWA and the Federal Transit Administration (FTA) in December 2014. The design concept and scope of the proposed project is consistent with the project description in the RTP/SCS, 2015 FTIP, and StanCOG’s regional emissions analysis. Each project alternative is fully compatible with the design concept and scope described in the current regional transportation plan.

A project level conformity determination was not obtained from FHWA due to the absence of federal funding. If federal funding is obtained, Caltrans will obtain project level conformity from FHWA. This will be documented when the EA is re-evaluated.

6G. Title VI Considerations

The study area, when considered as a whole, exhibits demographic characteristics similar to the rest of Ceres. Environmental justice impacts of the proposed project will be typical of those of an interchange improvement project: construction-related air quality emissions, noise, and visual impacts. Under both alternatives, the impacts will be distributed uniformly across the extent of the project area, will decrease in intensity with distance from the project area boundary, and no adverse effects will be predominantly borne by a minority and/or low-income population. Operational impacts on air quality are expected; however, these impacts will also be distributed throughout the study area and will not be predominantly borne by a minority and/or low-income population. No minority or low-income populations that would be adversely affected by the proposed project have been identified as determined above. Construction phase impacts would be mitigated with Best Management Practices to control noise and fugitive dust. Furthermore, detour routes would be planned in coordination with transit operators, local agencies and emergency service providers. Emergency service providers, transit operators, and SR 99 users would be notified in advance of detour routes.

Local facilities would provide designated sidewalks, crosswalks and curb ramps according to ADA requirements within the project limits. In addition, the preferred alternative would make provisions for Class II bicycle routes at the Service Road interchange in conformance with the local agency designated bike routes. Therefore, the project would improve accessibility within the interchange area for pedestrian and non-motorized transportation, including low mobility and minority groups.

7. OTHER CONSIDERATIONS

7A. Public Hearing Process

The Draft Initial Study/Environmental Assessment was circulated to the public for 30 days between November 22, 2017 and December 22, 2017. A public hearing was offered, but no requests were made during the public comment period. During the review period, 5 comment letters were received, two of which are from public and three from other agencies. There are no changes in the project design or mitigating features resulting from the DED circulation and its comments.

7B. Route Matters

The existing SR 99 is an access controlled facility. The preferred Alternative 1 proposes a new connection to SR 99 at Service Road and modifications to the existing interchange at Mitchell Road. California Transportation Commission (CTC) consent will be needed for a new connection and access control modifications on controlled access highways. City of Ceres will submit a resolution requesting the new connection with a funding commitment in January 2019. After Project Report approval, Caltrans will submit the New Public Road Connection (NPRC) Book Item to the CTC. A revised Freeway Agreement with both the County and the City will be executed after CTC approval.

Preferred Alternative 1 will build a new type of interchange, called a Diverging Diamond Interchange (DDI), at Service Road and SR 99. This new connection will provide connection to the west side of SR99 at Service Road, something lacking with existing interchanges in Ceres. The existing Mitchell Road interchange will be converted to a partial interchange, with a northbound off-ramp and a southbound on-ramp. This alternative also includes an extended deceleration lane at the northbound off-ramp to Mitchell Road, auxiliary lanes between the Service Road interchange and the Fourth Street (Downtown Ceres) ramps, replacement of the Service Road Overcrossing, and various local road improvements. **There will be no ramp connection or merge weave movement between the partial interchange at Mitchell Road and new interchange at Service Road.**

The proposed Alternative 1 improvements are needed to fulfill the purpose and need of the project in improving operations, relieving traffic congestion, and improving regional and local circulation. Without the new connection and access modification, there will be increased traffic congestion on adjacent interchanges and local streets in the City of Ceres resulting in unacceptable LOS at key local intersections. Additionally, parcels west of SR 99 will have limited access to and from SR 99, leading to increased local congestion, limiting future growth potential and restricting economic expansion for the city and region.

This section summarizes justifications for a new connection and access modification documented in this report. This new connection and interchange modification justification summary is the culmination of several steps that have been completed to document the benefits and impacts associated with an exhaustive range of proposed alternatives that have been considered. This section follows the outline for eight FHWA policy requirements for access change request provided in the Interstate System Access Information Guide dated August 2010. It also addresses the Access Control Modification requirements provided in the Project Development Procedural Manual (PDPM) Chapter 27 updated September 20, 2016.

Alternative 1 is selected as the preferred alternative by the PDT and by City Council Resolution No. 2017-035 (approved April 10,2017), primarily due to the significant improvement to design year (2040) traffic operations for both regional and local circulation and providing a direct access to parcels west of SR 99, while maintaining important regional access.

FHWA Policy Points for New Connection

The following FHWA Policy Points were considered and satisfied for conceptual approval of the new connection and access modification to SR 99.

1. **Policy Point 1:**

   Since the inception of the PSR-PDS in early 2000, numerous build alternatives have been evaluated. Options included modifying the existing Mitchell Road interchange, closing the Mitchell Road interchange, constructing a new interchange at Service Road, and constructing a new Type L-13 Single Point interchange at a location between Service and Mitchell Roads, as well as many other variations. The DPR developed new alternatives and further evaluated alternatives that were considered under the PSR-PDS phase and narrowed down to the two viable build alternatives, as described previously.

   Improvements to the existing roadway network to satisfy the project's purpose and need were evaluated before considering Alternative 1, which requires a new connection to SR 99 as a viable alternative.

   The primary purpose of this project is to relieve congestion, improve regional mobility, improve local traffic circulation and accommodate planned growth. The need for the project is related to declining level of service on both local streets and on SR 99 at the Mitchell Road interchange, increasing wait times at local intersections near the interchange during peak hours, and difficulty in accessing local areas west of SR 99.

   The project's purpose and need is directly related to the projected increase in traffic volumes along both Service Road and Mitchell Road. The Mitchell Road interchange is the third and southernmost interchange serving the City of Ceres, and is considered the "Southern Gateway" to the City. Service Road is the main east-west roadway serving the southern portion of the City.

Existing undeveloped land in the southern portion of Ceres on both sides of SR 99 is planned to be fully developed at build-out in 2040, with traffic on Service Road projected to increase by more than 250% (current ADT is 12,000; 2040 projected ADT is 31,000). Mitchell Road traffic is projected to increase by more than 176%, from 25,000 existing ADT to 44,000 ADT in 2040 (build-out). New developments surrounding the project area will affect local circulation by increasing the number of daily trips from the future developed land to the rest of Ceres and other regional destinations via local roads and SR 99.

Keyes Road interchange, 2.4 miles south of Mitchell Road interchange and Whitmore Avenue interchange, 1.7 miles north of Mitchell Road interchange; both serve traffic demand, usage, needs and circulation different from that of Mitchell and Service Roads. The long distances of these two interchanges before and after Mitchell Road and lack of local road connectivity between them does not allow for any beneficial improvements to these interchanges to adequately address purpose and need of this project.

The location and geometry for the southbound on and off-ramps on SR 99 through Ceres is severely constrained by the presence of the UPRR tracks that are located directly to the west of the freeway right-of-way. As such, providing convenient access between the freeway and the western portion of Ceres is currently limited. In the existing conditions, vehicles traveling southbound must use either Hatch, Whitmore or Crows Landing interchanges and use local streets to access the west side of the freeway, causing long detours and out of direction travel. The existing local road connection between these interchanges and Service Road do not meet the projected heavy traffic needs. For local streets within this area, only Mitchell Road and Whitmore Avenue are multi-lane facilities; all other local roads are two-lane facilities. None of the existing local road networks provide the direct access to meet traffic need and serve future local and regional growth. Improvements to the existing local road intersections neither mitigates the existing and forecasted congestion and operational deficiencies nor provide for additional capacity for future traffic growth.

Alternative 2, which improves existing Mitchell Road interchange without a new connection at Service Road, improves traffic operations compared to the existing interchange operations but cannot satisfactorily accommodate future regional and local circulation. The results of the unconstrained demand analysis, included in the approved TOAR, shows that limited connectivity of Alternative 2 to serve the growth areas of the City of Ceres and Stanislaus County on the west side of SR 99 will result in unacceptable LOS for three local signalized intersections and negatively impact other local interchanges, due to out of direction travel, that already have existing deficiencies. These constrained interchanges are:

- Downtown Ceres hook-ramp interchanges;
- Hatch Road interchange;
- Whitmore Avenue interchange; and
- Crows Landing interchange.

Based on the results of traffic operations analysis, Alternative 1 with the combination of partial ramps at Mitchell Road and full interchange at Service Road meets the project purpose and need and provides the highest benefit to SR 99, regional travel patterns and eliminates adverse impact to other interchanges in the City of Ceres, Stanislaus County and the City of Modesto.

Table 7-1 below summarizes a few measures of effectiveness (MOE) from the TOAR for total network performance within the project area for the no build, Alternative 1, and Alternative 2 improvements.

Table 7-1: Project Measures of Effectiveness

Design Year MOE	No Project	Alternative 1	Alternative 2
Daily Vehicle Miles travelled	1,213,562	1,209,547	1,213,562
Average Travel Speed	18 MPH – AM 13 MPH - PM	26 MPH – AM (+44.4%) 22 MPH – PM (+69.2%)	23 MPH – AM (+27.8%) 20 MPH – PM (+53.8%)
Average delay per vehicle (sec)	288.3 – AM 425 – PM	96.4 – AM (-66.6%) 130.6 – PM (-69.3%)	129.7 – AM (-55.0%) 161.5 – PM (-62.0%)
Total Vehicle Hours delay	620.6 VHD – AM 1,211.4 VHD – PM	228.0 VHD – AM (-63.3%) 413.1 VHD – PM (-65.9%)	270.9 VHD – AM (-56.3%) 446.8 VHD – PM (-63.1%)
Construction Cost (2016 Dollars)	-	$87,874,690	$90,402,200*
Access/ Connectivity	No direct Connectivity to West of SR 99	Provides direct access areas west of SR 99	No direct Connectivity to West of SR 99

**Alternative 2 construction Costs does not include potential improvements to other interchanges and local streets.*

The results of the unconstrained demand analysis show that Alternative 1 with a new connection serves more unconstrained demand volumes than Alternative 2, which keeps the existing connection, during both Design Year 2040 AM and PM Peak Hour Conditions. Alternative 1 will also serve 970 more vehicles during the morning (AM) peak hour and 2,195 more vehicles during the evening (PM) peak hour.

Traffic operations analysis shows that the proposed Alternative 1 - a new interchange at Service Road with movements in all directions at Service Road, in combination with a partial interchange at Mitchell Road - improves regional mobility, provides for direct access to parcels west of the freeway, and is operationally superior to other alternatives.

2. **Policy Point 2:**

The results of the traffic operations analysis for design year 2040 show that the existing configuration at the Mitchell Road interchange has severe shortfalls in accommodating future traffic conditions. Provision of transportation system management components, such as ramp metering and HOV bypass lane on ramps, does not improve the interchange and/or the local streets to an acceptable level of service.

SR 99 currently does not have HOV lanes and there are no planned projects to construct HOV lanes on the freeway mainline. As identified in the regional planning documents which includes Stanislaus County Corridor System Management Plan (CSMP), the 2035 Concept Facility for SR 99 through Ceres is an 8-lane freeway with consideration of HOV lanes in the final phase of widening. Alternative 1 will accommodate the future 8-lane facility. The proposed reconstruction of the Mitchell Road Undercrossing and Service Road Overcrossing structures in Alternative 1 will accommodate the future 8-lane facility. CSMP also identifies the proposed project as one of the planned interchange projects within the corridor.

Per Caltrans' 2017 Ramp Metering Development Plan and Stanislaus County CSMP, the segment of SR 99 in Stanislaus County from Mitchell Road to the San Joaquin County line has been identified as medium priority for ramp metering implementation. The segment of SR 99 in Stanislaus County south of Mitchell Road has been identified as a low priority. Alternative 1 will include HOV bypass lanes and CHP enforcement areas for all proposed freeway on-ramps. Installation of ramp meter hardware is proposed for all on-ramps, to be compatible with the future implementation of ramp metering in the freeway corridor.

Stanislaus Regional Transit (StaRT) and Ceres Area Transit (CAT) operate transit service within the project area. StaRT bus Routes #10 and #70 run on SR 99 through the project area and StaRT bus Route #15 runs along Service Road and Mitchell Road. CAT bus Routes A, B, C, and D operate on various local streets within the project area. Based on the existing and proposed travel patterns, traffic demand forecasts, congestion, and potential ridership for the transit services, it is understood that any improvements to the mass transit facilities does not address the project's purpose and need. Alternative 1 provides for HOV bypass lanes for future implementation of ramp metering on SR 99, which could be used by transit services. No other known mass transit plans like light rail are planned in the project area that have potential to solve the future traffic needs.

3. Policy Point 3:

Based on the traffic operations analysis report that analyzed current and future traffic conditions, the new connection will have no significant adverse impact on the safety and operation of the highway facility.

The proposed Service Road interchange for Alternative 1 (new connection) is 0.4 miles north of the existing Mitchell Road interchange and 1.3 miles south of the existing Whitmore Avenue interchange. The existing Mitchell Road interchange would be modified and operationally combined with a new full interchange at Service Road. There will be no ramp connection or merge weave movement between the existing interchange at Mitchell Road and new interchange at Service road.

South of Service Road in the northbound direction, there will be consecutive off-ramps (spaced more than 1,000 feet apart), with no on-ramp from Mitchell Road in between thus eliminating weaving and conflicting movements. In the southbound direction, there will be consecutive on-ramps (spaced more than 1,000 feet apart), with no off-ramp to Mitchell Road in between. The provision of auxiliary lanes, which is the typical mitigation for nonstandard interchange spacing, will not be needed in the proposed alternative due to the absence of conflicting movements.

The final TOAR shows that SR 99, all interchanges, ramp terminals and all local road intersections within the interchange influence area will operate at an acceptable level of service for Alternative 1 with the new Service Road connection (See Table 5-5). This is a substantial improvement from the existing conditions, in which three intersections are rated at LOS F, three freeway mainline segments operating at LOS E during morning peak and four freeway mainline segments operating at LOS E during evening peak, indicating there are considerable operational deficiencies. Forecasted traffic in 2040 without the proposed project is estimated to result in seven intersections rated level of service F. Additionally, by 2040 only one freeway mainline segment is forecast to operate at LOS D, while three will operate at LOS F and the other four at LOS E. Three freeway ramps are forecast to operate at LOS F, one at LOS E and the other four at LOS D.

Traffic accident data for SR 99 mainline was collected between PM 9.5 and PM R11.4 for a three-year period beginning July 1, 2013 and ending June 30, 2016 (Refer to Table 4-6). Ramp accident data at the Mitchell Road interchange was also collected for the same period. SR 99 mainline within the project limits and the southbound off-ramp to Mitchell Road have a total accident rate that exceeds the statewide average for similar facilities during the study period.

A major component of improved safety and access to and from SR 99 is the elimination of the existing stop-controlled intersection at the terminus of the southbound SR 99 off-ramp to Mitchell Road. The existing freeway undercrossing design, poor sight distance, and speed of southbound Mitchell Road vehicles entering the southbound SR 99 on-ramp results in poor operating conditions at the stop-controlled southbound off-ramp intersection. Alternative 1 eliminates the existing southbound off-ramp at Mitchell Road and instead replaces it with a signalized southbound off-ramp at Service Road that provides sight distance and, in turn, improves the existing deficient safety and operation conditions.

An analysis of the project safety conditions for the design year (2040) was conducted for elements that are expected to reduce the potential for accidents. The mainline weaving segments within the project function at acceptable levels of service. The spacing between successive entrances and exits meets or exceeds Caltrans and American Association of State Highway and Transportation Officials (AASHTO) criteria.

Specific design elements for Alternative 1 and the basic configuration of the new connection at Service Road are discussed in Section 5 of this report. Pedestrian and bicycle facilities are carefully considered and access for nonmotorized traffic will be provided through the interchange. A bicycle lane adjacent to travel lanes is provided along Service Road within the project limits. ADA compliant sidewalks are proposed along Service Road and Mitchell Road. Sufficient limits of access are identified and will be preserved.

The advisory standard minimum distance of 500 feet between the ramp intersection and local road intersection is met at all locations except for the Mitchell Road northbound off ramp terminus at Mitchell Road / Rohde Road intersection and the next local road intersection, at Mitchell Road / Service Road, which is 425 feet. This condition is proposed to provide sufficient length in the northbound left turn lane at the Mitchell Road / Rohde Road intersection, and to accommodate weaving movements for traffic from the off-ramp. Fact Sheet exceptions to Advisory and Mandatory Design Standards, including this condition, were approved on September 10, 2018 (Advisory) and October 22, 2018 (Mandatory).

The proposed project is a performance based practical design that complies with applicable Federal and State mandated policies, and follows industry-accepted engineering standards in the design of the new connection to SR 99. Given the traffic data, geometric features, traffic operational conditions, and remedies to design features requiring exceptions (per Fact Sheets), the new connection and its approach legs are expected to improve safety and operations. No safety problem has been identified for the SR 99 or existing Mitchell Road interchange in the purpose and need statement for the project. To further analyze the safety of the proposed Service Road interchange, the FHWA Enhanced Interchange Safety Analysis Tool (ISATe) was utilized, which included proposed geometrics and existing and forecasted traffic information.

A predictive safety analysis was conducted on the Existing conditions (No Build), proposed Alternative 1, and proposed Alternative 2 over the design life of the project (2020 to 2040). The predictive safety analysis was conducted using the predictive crash method as found in Part C of the Highway Safety Manual (HSM).

The Interactive Highway Safety Design Model (IHSDM) was used to apply the HSM Part C predictive method. The study area of the predictive safety analysis included the following:

- Service Road from Moffett Road to Mitchell Road
- Mitchell Road from Service Road to SR 99 ramps
- Service Road/Moffett Road Intersection
- Mitchell Road/Service Road Intersection
- Intersection between Service Rd/Mitchell Rd intersection and SR 99 (only Alt 2)
- Mitchell Road/Rohde Road Intersection
- SR 99 from the proposed Mitchell Road north bound off-ramp to the Downtown Ceres north bound off-ramp
- All proposed freeway ramps and ramp terminals

The results of the predictive safety analysis were compared to the predictive analysis for the No-Build Alternative for the period of 2020 (Opening Day) and 2040 (Design Year). The results of the analysis are presented in **Table 7-2** and **Table 7-3**.

Table 7-2: Predictive Crash Total Summary (2020-2040)

Facility	**Crash Total**			**Crashes/Year**			**Reduction**	
	No Build	**Alt. 1**	**Alt. 2**	**No Build**	**Alt. 1**	**Alt. 2**	**Alt. 1**	**Alt. 2**
Service Rd Segment	95.4	71.6	72.8	4.5	3.4	3.5	25%	24%
Mitchell Rd Segment	263.1	30.5	48.4	12.5	1.5	2.3	88%	82%
Service/Moffett Intersection	58.1	56.2	56.2	2.8	2.7	2.7	3%	3%
Service/Mitchell Intersection	346.8	309.9	342.8	16.5	14.8	16.3	11%	1%
Service Rd Intersection near overpass	NA	NA	75.4	NA	NA	3.6	NA	NA
Mitchell/Rohde Intersection	460.7	154.7	73.5	21.9	7.4	3.5	66%	84%
Freeway Segments	772.5	644.7	780.0	36.8	30.7	37.1	17%	-1%
Freeway Ramps	84.7	85.0	77.2	4.0	4.0	3.7	0%	9%
Ramp Terminals/ Intersections	288.8	348 *	341.1	13.8	16.6 *	16.2	-20% *	-18%
Total	**2,370**	**1,701**	**1,867**	**112.9**	**81.0**	**88.9**	**28%**	**21%**

** Crash Modification Factor (CMF) of 0.67 applied to ramp terminals to account for diverging diamond interchange.*

Table 7-3: Predictive Crash Severity Summary (2020-2040)

Alternative	Crash Severity Total		Crash Severity/Year	
	Fatal & Injury	PDO	Fatal & Injury	PDO
No Build	948	1423	45	68
Alt. 1	709	992	34	47
Reduction	25%	30%	1%	1%
Alt. 2	804	1064	38	51
Reduction	15%	25%	1%	1%

**NOTE: Fatal and Injury Crashes and Property Damage Only Crashes do not necessarily sum up to the Total Crashes because the distribution of these crashes have been derived independently.*

At the time the analysis was performed, all known data related to the project study area was incorporated into the predictive safety analysis. Some assumptions had to be made in order to complete the predictive safety analysis. Engineering judgement was used to determine the following assumptions:

- Overall
    - To yield annual average daily traffic (AADT), the PM Peak hour was assumed to be ten percent of AADT.
    - Lane Width – 12-Feet
- Freeway
    - Average Median Width – 22-Feet (Similar to Existing)
    - Average Outside Shoulder Width – 8 Feet
    - Ramp Barrier Offset – 8 Feet
    - Ramp Shoulder Width – 8 Feet
- Arterial
    - The widening of Service Road was assumed to be associated with the construction of the new interchange – i.e., it remains a two-lane road under the No Build condition.
    - Average Outside Shoulder Width – 8-Feet
    - Fixed Object Offset – 5-Feet (differs in Existing)
    - Fixed Object Density/Mile – 20 Objects/Mile (differs in Existing)
    - Left Turn Signal Phasing
    - Pedestrian Volumes – Medium to Low (IHSDM Category)
    - U-Turns Allowed
    - Right-Turn on red allowed for all movements except dual right-turn lanes

It should be noted that currently the HSM does not have the ability to predict crashes for diverging diamond interchanges. For this project a crash prediction was performed for a diamond interchange and then a crash modification factor for converting a diamond interchange to a diverging diamond interchange was applied to yield the predicted crash results (CMF ID # 8258; value of 0.67).

4. **Policy Point 4:**

Alternative 1 will maintain the existing connection to Mitchell Road and provide a new interchange at Service Road that provides for all traffic movements. The existing southbound on and northbound off-ramps at Mitchell Road are kept operational to serve north-south traffic and to the eastern part of the City of Ceres. Traffic operations analysis shows that a full interchange with movements in all directions at Service Road in combination with a partial interchange at Mitchell Road improves mobility, provides for direct access to parcels west of the freeway, and is operationally superior to other alternatives. It also provides the highest benefit to regional mobility travel patterns and mitigates the potential impact to other interchanges in the City of Ceres, Stanislaus County and the City of Modesto. This alternative provides for movement in all directions and is consistent with the City's General Plan and meets the purpose and need of the project.

The proposed Alternative 1 does not meet the standard interchange spacing requirement. The interchange spacing between the new Service Road interchange and the existing Mitchell Road interchange is 0.4 miles. A new Service Road interchange, without partial interchange at Mitchell Road cannot provide sufficient capacity to serve the projected Design Year 2040 traffic volumes and was determined to be unacceptable in the TOAR. A detailed review and analysis of the need for interchange spacing standard was conducted in the alternative evaluation phase of PA&ED. Spacing of interchanges often has an impact on the traffic operations of a freeway, mainly because interchange spacing typically determines the weaving distance between a merging entrance ramp and the immediate downstream exit ramp. Alternative 1 will not present weaving issues between the Service Road interchange and Mitchell Road ramps, as there will be no conflicting movements between the two interchanges if the northbound on-ramp and southbound off-ramp at Mitchell Road are excluded, as proposed.

As proposed, in the northbound direction, there will be consecutive off-ramps (spaced more than 1,000 feet apart), with no on-ramp from Mitchell Road in between. In the southbound direction, there will be consecutive on-ramps (spaced more than 1,000 feet apart), with no off-ramp to Mitchell Road in between. The provision of auxiliary lanes, which is the typical mitigation for nonstandard interchange spacing, will not be applicable in the proposed alternative due to the absence of conflicting movements. North of the Service Road interchange, auxiliary lanes are proposed between the Service Road ramps and the ramps at Second and Fourth Streets in downtown Ceres. Section 5 of this report discusses the proposed nonstandard design features for the proposed alternatives.

5. **Policy Point 5:**

   SR 99 has been the subject of many planning studies and documents. This project is consistent with City's General Plan and is included as a programmed "Capacity and Operational Improvement Project" in the SR 99 Corridor Business Plan. The proposed improvements are consistent with the Stanislaus County Countywide Expressway Study. This project is included in the StanCOG Regional Transportation Plan (RTP) as a Tier I Roadway Project. The RTP identifies the project as a capacity enhancement project, with a planned total cost of $122,987,400 and a construction year of 2020. The project is also listed in StanCOG's 2017 Federal Transportation Improvement Program (FTIP) as a regionally significant project.

   Mitchell Road is identified as a MAP-21 NHS Principal Arterial, providing connectivity between SR 99 and the eastern portion of the cities of Ceres and Modesto. As shown in Appendix X of the RTP, Mitchell Road and Service Road are both classified as urban arterials in the existing condition within the project area. The functional classification for Service Road will be upgraded to expressway in the future condition. The proposed project improvements are consistent with the upgraded functional classification on Service Road.

   The interchange improvements are consistent with local planning goals and policies as contained in the General Plan for the City of Ceres. The Central Stanislaus Freight Study, prepared for StanCOG in 2001 identifies congestion experienced by truck traffic traveling through Ceres and Modesto along Mitchell Road, between SR 99 and the Beard Industrial Park as one of the primary problems. The improvements recommended in this report address this local and regional need.

6. **Policy Point 6:**

   Besides the new interchange connection at Service Road, there are no current plans or potential exists for future multiple interchange additions in this project vicinity. The proposed interchange access is consistent with SR 99 Business Plan, and is included in the 2017 FTIP.

   As identified in planning documents, the 2035 Concept Facility for SR 99 through Ceres is an 8-lane freeway with consideration of HOV lanes in the final phase of widening. Proposed Alternative 1 will not preclude the future 8-lane facility. The proposed reconstruction of the Service Road Overcrossing structure will provide sufficient clearance to accommodate the future 8-lane facility.

   Coordination with and consideration for future projects along the corridor was performed and the need for this is not isolated.

7. **Policy Point 7:**

   The proposed Alternative 1 is in line with planned growth as identified in the General Plans for the City of Ceres, City of Modesto and for Stanislaus County. The TOAR analysis identifies the project improvements based on traffic resulting from proposed local and regional developments. Alternative 1, as proposed, corrects existing operation deficiencies, mitigates traffic impacts to the collector and local street network for existing and planned development in the City of Ceres, improves east-west traffic flow, and has minimal adverse impact on SR 99 travelers. The proposed Alternative 1 is a standalone project that satisfies the purpose and need for the project with no links to other projects. However, a portion of the local road improvements that are proposed as part of Alternative 1, mainly the Service and Mitchell Road widening may commence on an accelerated schedule to serve the interim traffic demands in the City near the interchange. The City of Ceres is actively involved in the project development and coordination between the proposed interchange improvements and local development. City of Ceres will work with Caltrans and the County to develop a revised Freeway Agreement. With the passage of Stanislaus County Measure L, a ½-cent sales tax increase that identifies funding opportunities for this project, local and regional commitment for this project is demonstrated. This project is anticipated to be fully funded for the preferred Alternative 1, through construction, with Redevelopment Agency (RDA), Public Facility Fee (PFF) and Stanislaus County Measure L. The City has funds available to complete the PS&E and get the project ready for other funding opportunities.

8. **Policy Point 8:**

   The proposal of a new connection at Service Road is included as the preferred alternative in this report and the Final Environmental Document (FED). This report will serve as the conceptual approval document for access control modification and NPRC for Caltrans. CTC action of the access control modification and NPRC approval will occur after final Project Report approval is achieved.

7C. Permits

Permits that would be required under the proposed project are summarized in Table 7-4.

Table 7-4: Anticipated Permits and Approval Required

Agency	Approval or Permit
U.S. Army Corps of Engineers	Clean Water Act Section 404: Placement of Fill
U.S. Fish and Wildlife Service	Section 7 of the Endangered Species Act: Letter of Concurrence
State Historic Preservation Office	Section 106 concurrence with Finding of No Adverse Effect
California Department of Fish and Wildlife	California Fish and Game Code 1602: Lake and Streambed Alteration Agreement
California Public Utilities Commission	Request for an authorization to alter street-rail crossing pursuant to General Order 88-B
Central Valley Regional Water Quality Control Board	Certification of waiver pursuant to Section 401 of the Clean Water Act: National Pollutant Discharge Elimination System or Countywide Non-point Source Permit for discharge of storm water into surface waterways under the Clean Water Act; includes contractor's preparation of a Storm Water Pollution Prevention Plan (SWPPP).
Caltrans	Encroachment permit from Caltrans to perform design surveys and for administration of the construction contract if an agency other than Caltrans provides these services.
City of Ceres	Review and approval of project plans and specifications for work within City right-of-way.

7D. Cooperative Agreements

The City of Ceres is the project sponsor for the project and is the implementing agency for the PA&ED phase. The City intends to remain as the implementing agency for the PS&E and right-of-way phases. A cooperative agreement between the City and Caltrans for the PS&E and right-of-way phases are currently in development. An additional cooperative agreement will be needed for the construction phase of the project. This agreement will be prepared during the PS&E phase of the project. A separate freeway maintenance agreement (FMA) between Caltrans and the City will be executed prior to obligation completion.

7E. Other Agreements

An agreement with UPRR will be required for the replacement of the existing overcrossing at Service Road and for maintenance access to walls and barriers adjacent to UPRR property.

After Project Report approval, Caltrans will submit the New Public Road Connection (NPRC) Book Item to the CTC. A revised Freeway Agreement with both the County and the City will be executed after CTC approval.

Existing shared electrical agreements with the City of Ceres and County of Stanislaus will need to be amended to include new traffic signals and street lighting within the project area.

7F. Report on Feasibility of Providing Access to Navigable Rivers

There are no waterways within the project limits that are classified as navigable.

7G. Transportation Management Plan

A Transportation Management Plan (TMP) has been prepared to address traffic impacts from staged construction, detours, and specific traffic handling concerns during the construction of the project. The TMP includes a public information program, changeable message signs, a Construction Zone Enhanced Enforcement Program (COZEEP) for any required lane closures during construction, and conceptual construction staging plans and detour requirements. The TMP Checklist for this project was approved on April 20, 2016, and is included in Attachment F.

The public information program could include preparation of press releases and other documents necessary to adequately inform the public of traffic delays associated with the project. Advance notification of construction activity would be given to local newspaper, television and radio stations, and emergency response providers. Weekly information updates would also be given to the Caltrans District 10 Public Information Office for use in Caltrans Weekly Traffic Updates.

It is anticipated that traffic counts would show that existing traffic volumes on SR 99 are such that three travel lanes must remain open in each direction during weekday peak hours during construction, and that one or two-lane closures may be allowed at other times of the day and on weekends and holidays. Striping operations, traffic control set-up, installation of drainage culverts, and short-term overcrossing falsework erection would occur at night, using lane and mainline closures, as allowed on the closure charts that will be prepared during the PS&E phase.

It is anticipated that temporary closures of existing freeway ramps at Mitchell Road and Second/Fourth Streets in downtown Ceres may be required to complete construction of new ramp alignments and auxiliary lanes. Ramp closure charts and detour plans for ramp closures will be included in the final TMP and in the PS&E documents.

7H. Stage Construction

The project will be constructed in multiple stages in order to minimize delays and congestion caused by the work. Traffic detours, lane closures, and temporary reduction of lane widths on ramps and the freeway mainline will be required during the construction of the project improvements. Consideration for implementing Accelerated Bridge Construction (ABC) techniques and full road closures during construction will be explored in the PS&E phase. At this time, 660 working days for Alternative 1 and 620 working days for Alternative 2 were estimated for the project. Traffic circulation in the area will be maintained to the greatest possible extent.

Significant traffic delays due to construction are not anticipated at this time and impacts to traffic on the mainline should be minimal. Stage construction of the project will maintain three lanes of traffic in each direction on SR 99 throughout construction except during placement of temporary railing, falsework construction/removal or other short duration activities consistent with the lane closure charts to be developed during the PS&E phase.

Preliminary stage construction plans have been developed as part of the TMP Checklist process. Detailed stage construction and traffic handling plans will be developed in the PS&E phase.

For Alternative 1, the preliminary stage construction concept calls for the work to be completed in eight stages, with the work described as follows:

Alternative 1, Stage 1:

- Reconstruct and widen Mitchell Road and a portion of Service Road
- Reconstruct a portion of the new Mitchell Road southbound on-ramp vertical alignment with temporary pavement in two sub-stages at the Mitchell Road Undercrossing
- Realign and construct local streets
- Relocate utilities within local right-of-way

Alternative 1, Stage 2:

- Construct the northerly portion of the new Service Road vertical alignment
- Construct the northerly portion of the new Service Road Overcrossing and UPRR Overhead
- Construct temporary bridge over existing southbound SR 99 and median
- Construct the first stage of the new Mitchell Road Undercrossing, including partial demolition of the existing bridge
- Construct the northbound on-ramp from Service Road
- Construct the new alignment of northbound SR 99 north of Service Road

Alternative 1, Stage 3:

- Demolish the existing Service Road Overcrossing, with traffic shifted to the new vertical alignment of Service Road and bridge structures
- Construct the southerly portion of the new Service Road vertical alignment
- Construct the southerly portion of the new Service Road Overcrossing and UPRR Overhead
- Construct the second stage of the new Mitchell Road Undercrossing, including partial demolition of the existing bridge
- Construct the northbound off-ramp to Service Road
- Construct the new alignment of northbound SR 99 south of Service Road

Alternative 1, Stage 4:

- Construct the third stage of the new Mitchell Road Undercrossing, including demolition of the remainder of the existing bridge
- Construct the new alignment of southbound SR 99
- Construct the northbound off-ramp to Mitchell Road and replace the ramp bridge over the Ceres Main Canal

Alternative 1, Stage 5:

- Construct a portion of the southbound on-ramp from Service Road
- Construct the southerly portion of Service Road between the UPRR Overhead and the Service Road Overcrossing

Alternative 1, Stage 6:

- Remove the temporary bridge over the existing southbound SR 99 and median
- Construct the northerly portion of Service Road between the UPRR Overhead and the Service Road Overcrossing
- Construct the southbound off-ramp to Service Road

Alternative 1, Stage 7:

- Construct the remainder of the southbound on-ramp from Service Road

Alternative 1, Stage 8:

- Reconstruct the southbound on-ramp from Mitchell Road and replace the ramp bridge over the Ceres Main Canal

7I. Accommodation of Oversize Loads

The proposed improvements under the project will assist in the movement of oversize loads within the project vicinity. The project does not place any new height limitations on loads moving in or out of the area. The proposed vertical clearances will exceed the standard vertical clearance of 16.5 ft over the freeway and 15 ft over the local roads. Standard minimum vertical clearance for falsework will be maintained during construction.

7J. Graffiti Control

This project is within the urban areas of Stanislaus County, which is not identified as a graffiti-prone area.

7K. Life Cycle Cost Analysis

A Life Cycle Cost Analysis (LCCA) was prepared for the mainline and ramp pavement sections for both project alternatives based on the Caltrans Life Cycle Cost Analysis Procedures Manual. Per the manual's guidelines, two options were analyzed for the mainline pavement for each alternative, one with continuously reinforced concrete pavement (CRCP) with a 40-year design life, and one with flexible pavement with a 40-year design life. In both alternatives, the CRCP option has the lower life cycle cost, and is selected as the recommended pavement alternative. Three options were analyzed for the ramp pavement for each alternative - one with flexible pavement with a 20-year design life, one with flexible pavement with a 40-year design life, and one with jointed plain concrete pavement (JPCP) with a 40-year design life. In both alternatives, the 40-year JPCP option has the lowest life cycle cost, and is selected as the recommended pavement alternative. The LCCA results are provided in Attachment K.

7L. Program Projects Within Project Area

For a listing of programmed projects that are within the project area per the Caltrans Central Region Project Management Support Unit (PMSU), see Table 7-5 below.

Table 7-5: Programmed Projects in Vicinity

EA/Project Name	Route-Co-PM	Status
10-1C290/ SR99 Stanislaus CAPM Ramps	99-STA-R0.0/R24.8	Begin Construction is anticipated in spring 2019

8. FUNDING, PROGRAMMING AND ESTIMATE

Funding

StanCOG's 2014 RTP identifies project as a Tier 1 Roadway Project and shows $123 million of fiscally constrained funding for this project with a construction year of 2020 and an opening year of 2023. This project is anticipated to be fully funded for the preferred Alternative 1, through construction, with Redevelopment Agency (RDA), Public Facility Fee (PFF) and Stanislaus County Measure L. A summary of the project funding through various sources is shown in Table 7-6. Tables 7-6 and 7-7 reflect funding for the preferred alternative.

Table 7-6: Project Funding Summary

	Funding Sources (Dollars in Thousands)			
Components	**RDA**	**PFF**	**Measure L**	**TOTAL**
PA&ED Support	$2,700			$2,700
PS&E Support	$3,000	$7,800		$10,800
Right-of-Way Support		$500		$500
Construction Support			$10,000	$10,000
Right-of-Way			$10,100	$10,100
Construction		$88,400	$11,000	$99,400
TOTAL	**$5,700**	**$96,700**	**$31,100**	**$133,500**

It is anticipated that other combinations of local, state, and federal funds may become available in the future. Stanislaus County Measure L, a ½-cent sales tax ballot measure was approved in November 2016; the measure has identified this project as a regionally significant project and $31M is allocated to this project. Another potential revenue source is the local component of the sales tax measure bonded against the future PFF. From time to time opportunities arise to fund projects that are essentially "one time" events. California Proposition 1B passed in 2006 is an example, which provided $4.5 billion in funding for transportation projects statewide that could be delivered quickly. Additionally, federal earmarks and special programs such as American Recovery and Reinvestment Act (ARRA) and Transportation Investment Generating Economic Recovery (TIGER) have historically provided funds for highway projects nationwide. The City has funds available to complete the PS&E and get the project ready for other funding opportunities.

Programming

Table 7-7: Project Programming Summary

Funding Sources	**Fiscal Year Estimate** (Dollars in Thousands)						
RDA, PFF, Measure L	**Prior**	**16/17**	**17/18**	**18/19**	**19/20**	**Future**	**TOTAL**
Components							
PA&ED Support	$2,500	$200					$2,700
PS&E Support	$3,000		$600	$3,700	$3,500		$10,800
Right-of-Way Support				$500			$500
Construction Support						$10,000	$10,000
Right-of-Way						$10,100	$10,100
Construction						$99,400	$99,400
TOTAL	**$5,500**	**$200**	**$600**	**$4,200**	**$3,500**	**$119,500**	**$133,500**

The support to capital cost ratio is 22%
Construction cost escalation assumed as 3.5%.
Support cost escalation assumed as 4.2%
Right-of-way escalation assumed at 5%
Note: Project Support and Capital Costs prepared by Consultant

Estimate

The construction cost estimates for each project build alternative are provided in Attachment E.

9. DELIVERY SCHEDULE

Project Milestones		Milestone Date (Month/Day/Year)
PROGRAM PROJECT	M015	08/30/2012
BEGIN ENVIRONMENTAL	M020	10/18/2012
BEGIN CIRCULATE DED EXTERNALLY	M120	11/22/2017
PA & ED	M200	12/14/2018
REGULAR RIGHT OF WAY	M225	04/01/2019
65% PS&E	M313	12/27/2019
95% PS&E	M315	09/25/2020
FINAL PS&E	M380	03/26/2021
RIGHT OF WAY CERTIFICATION	M410	03/26/2021
READY TO LIST	M460	04/23/2021
AWARD	M495	07/23/2021
COMPLETE CONSTRUCTION	M600	12/29/2023
END PROJECT	M800	12/30/2025

10. RISKS

Project risks are summarized in the Risk Register in Attachment J, and have been collected from PDT members throughout the PA&ED process. They span the planning, design and construction phases and are of varying impacts. Risk control strategies include transference, acceptance and avoidance. In general, the risks would impact project cost and schedule if they were realized.

Two "moderate" risks are related to highway maintenance, with acceptance strategies that recommend involvement of maintenance staff early in PS&E phase so that maintenance requirements can be incorporated.

Two "moderate" risks are related to utility relocation and Railroad coordination, with avoidance strategies that recommend careful adherence to owner notification, involvement, and milestones.

While the project cost estimate includes a conservative estimate for ADL-contaminated soil, it is accepted that future testing during PS&E and construction may identify additional contamination. ADL handling costs trends will be tracked, and additional funding or cost-trade-offs would be sought if this risk were realized.

11. EXTERNAL AGENCY COORDINATION

Federal Highway Administration (FHWA)

The latest *Stewardship and Oversight Agreement on Project Assumption and Program Oversight* between the FHWA, California Division and Caltrans details the project actions assumed by Caltrans and the project actions where FHWA has retained their authority as well as the detail associated with the various oversight responsibilities. Project actions are identified in the "Project Action Responsibility Matrix" within the stewardship agreement.

The project is on the National Highway System (NHS), but not on an Interstate highway. Caltrans may assume the FHWA's Title 23 responsibilities for design, plans, specifications, estimates, contract awards, and inspections, with respect to Federal-aid projects on the NHS if both Caltrans and FHWA determine that assumption of responsibilities is appropriate.

It is anticipated that the project does not qualify as a "Project of Division Interest" or "Project of Corporate Interest", per the current FHWA guidance. Formal determination and coordination with the FHWA for review and approval of project actions has not been conducted at this time.

The project requires the following coordination:

US Army Corps of Engineers
Clean Water Act Section 404: Placement of Fill
Jurisdictional Determination

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

City of Ceres
Cooperative Agreements with Caltrans for PS&E, R/W, and construction phases
Freeway Maintenance Agreement with Caltrans

County of Stanislaus
Electrical Agreements with Caltrans and the City of Ceres
Freeway Agreement with Caltrans and the City of Ceres

California Transportation Commission (CTC)
New Public Road Connection (NPRC) Book Item

California Public Utilities Commission (CPUC)
General Order 88-B

Union Pacific Railroad (UPRR)
Construction and Maintenance (C&M) Agreement

12. PROJECT REVIEWS

Scoping team field review *N/A* Date
District Maintenance *Ali Juma* Date 6/15/2016
Headquarters Project Delivery Coordinator *Paul Gennaro* Date 6/7/2016
Project Manager *Sinarath Pheng* Date 5/3/2017
FHWA *N/A* Date
District Safety Review *Completed* Date 8/16/2017
Constructability Review *Completed* Date 6/22/2016

13. PROJECT PERSONNEL

Table 13-1: Project Personnel

NAME	ROLE	PHONE
Sinarath Pheng	Caltrans Project Manager	(209) 948-7829
Richard Helgeson	Caltrans Chief Office of Design, Central Region	(559) 230-3110
Mason Leung	Caltrans Oversight Design Manager	(209) 948-3976
David Farris	Caltrans Environmental Unit	(559) 445-6328
Vu Nguyen	Caltrans Traffic Operations Branch Chief	(209) 609-5176
Toby Wells	City of Ceres – City Manager	(209) 538-5751
Daryl Jordan	City of Ceres – City Engineer	(209) 538-5775
Parag Mehta	Kimley-Horn – Project Manager	(925) 965-7703
Jack Walker	NV5 – Project Manager	(559) 666-1904
Shahira Ashkar	ICF – Project Manager	(916) 737-3000

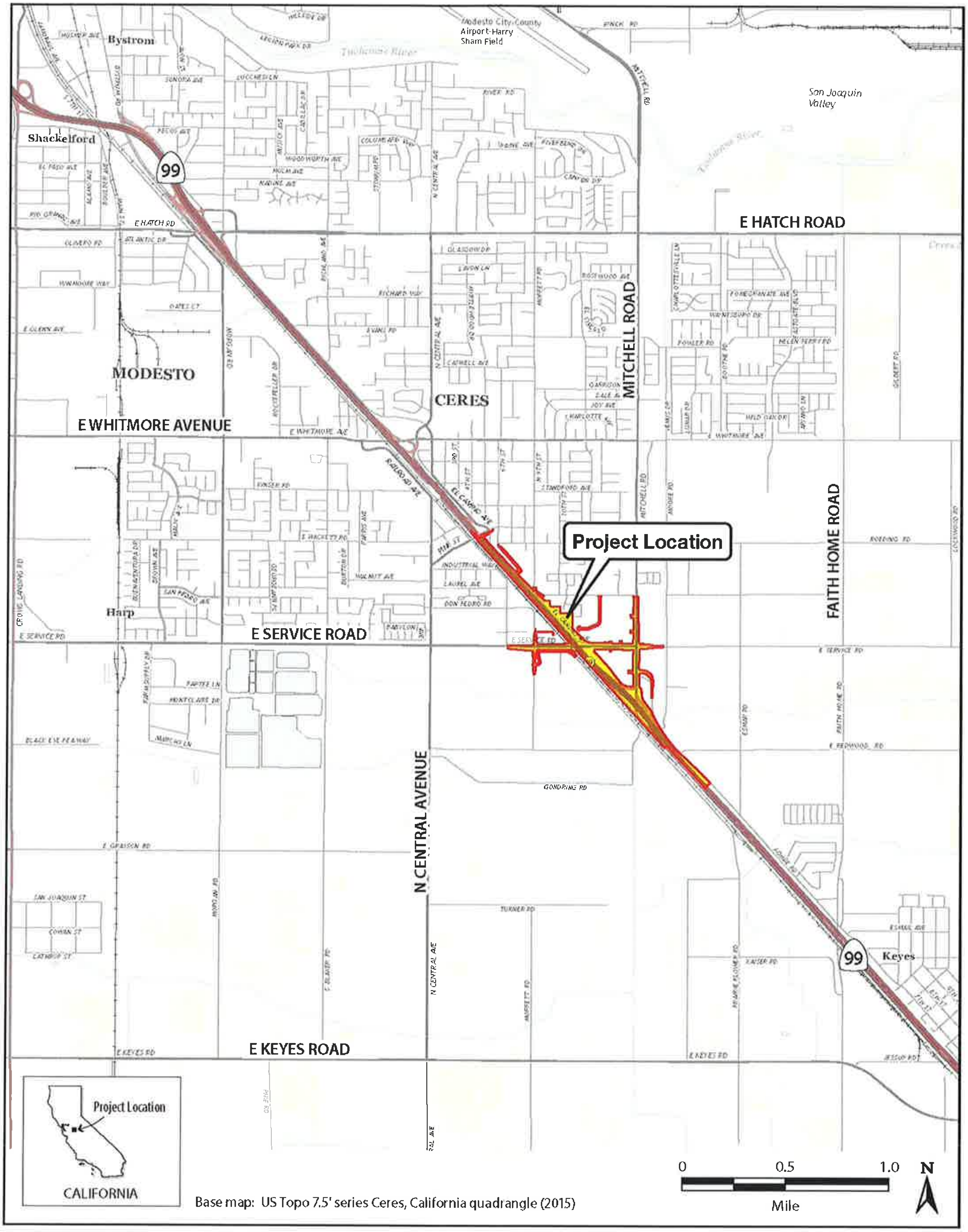
14. ATTACHMENTS

A. Location Map
B. Typical Sections
C. Layouts
D. Profiles and Superelevation Diagrams
E. Project Report Cost Estimate
F. TMP Checklist
G. Storm Water Data Report Cover
H. Final Environmental Document
I. Right-of-Way Data Sheet
J. Risk Management Plan
K. Life Cycle Cost Analysis
L. Structures Advance Planning Study
M. Local Planning Circulation Diagrams

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT A

LOCATION MAP



Base map: US Topo 7.5' series Ceres, California quadrangle (2015)

ATTACHMENT B

TYPICAL SECTIONS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

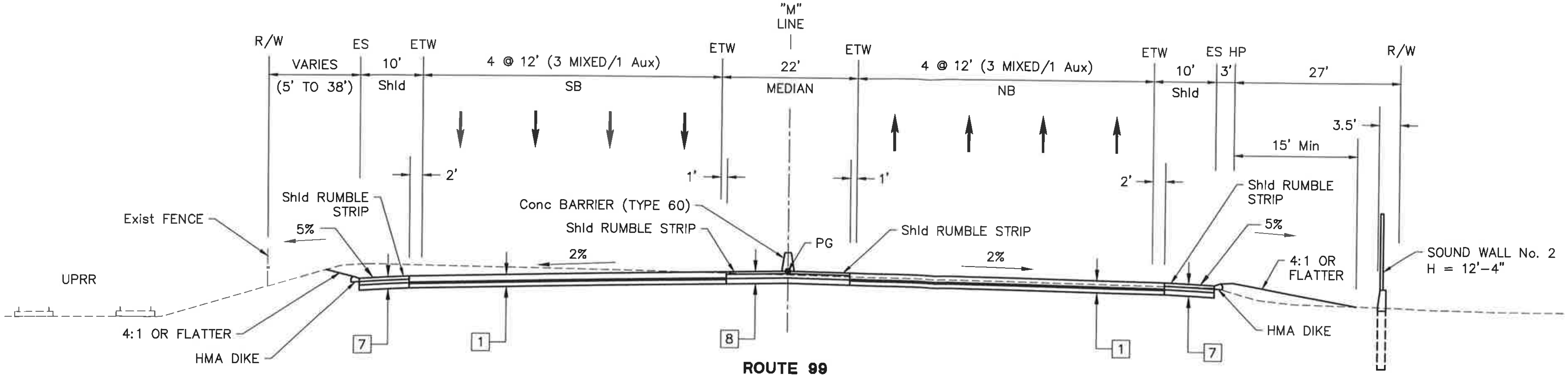
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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.

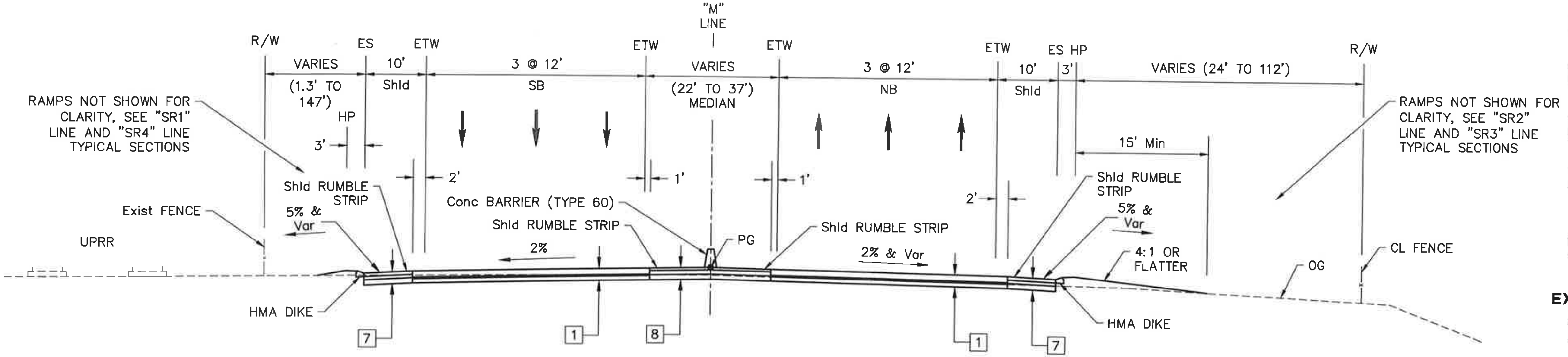
NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



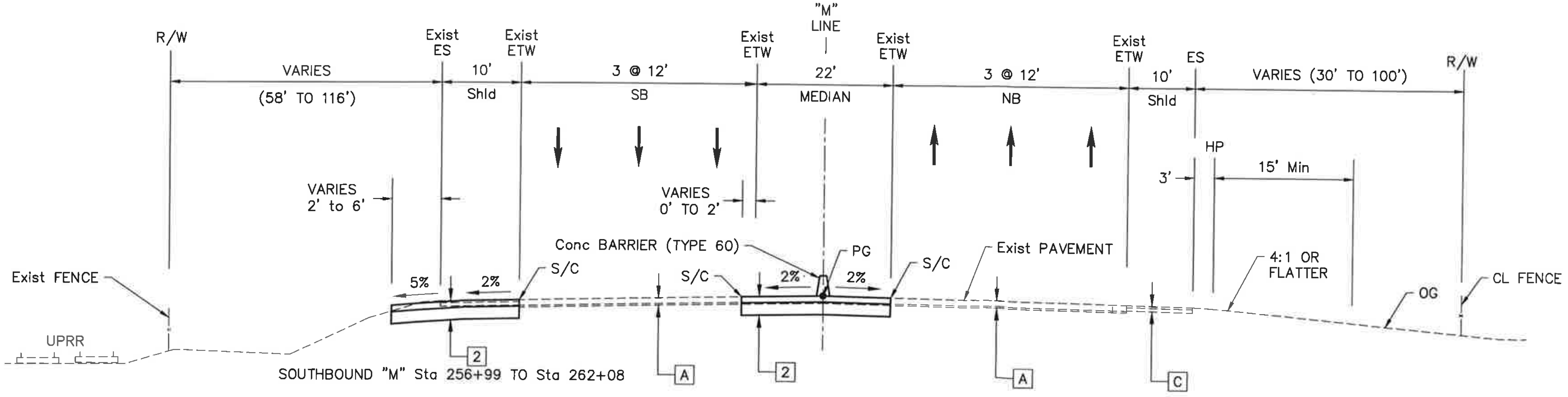
ROUTE 99

"M" Sta 309+42 TO Sta 326+47



ROUTE 99

"M" Sta 262+08 TO Sta 309+42



ROUTE 99

"M" Sta 253+18 TO Sta 262+08

PROPOSED STRUCTURAL SECTIONS

1
- 1.00' CRCP
- 0.25' HMA (TYPE A)
- 0.70' Cl 2 AS

2
- 0.95' HMA (TYPE A)
- 1.80' Cl 2 AB

3
- 0.70' HMA (TYPE A)
- 1.20' Cl 2 AB

4
- 0.65' HMA (TYPE A)
- 1.15' Cl 2 AB

5
- 0.25' HMA (TYPE A)
- 0.50' Cl 2 AB

6
- 0.20' HMA (TYPE A)
- 0.35' Cl 2 AB

7
- 0.55' HMA (TYPE A)
- 0.55' Cl 2 AB
- 0.85' Cl 2 AS

8
- 0.40' HMA (TYPE A)
- 0.70' Cl 2 AB
- 0.85' Cl 2 AS

EXISTING STRUCTURAL SECTIONS

A
- 0.85' PCC
- 0.25' ATPB

B
- 1.05' JPCP
- 0.35' LCB

C
- 0.25'–0.30' Var AC
- 0.50' AB

DESIGN DESIGNATION ROUTE 99

ADT (2013) = 99,000
ADT (2040) = 137,000
DHV (2040) = 9,500
$ESAL_{40}$ = 100,800,000
D = 55%
T = 13%
V = 65 MPH
TI_{40} = 16.0

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-1

LAST REVISION 02-28-17 | DATE PLOTTED => October 25, 2018 | TIME PLOTTED => 3:03:21 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR —
CALCULATED-DESIGNED BY XX —
CHECKED BY XX —
REVISED BY
DATE REVISED

PATH => k:\pby_rdwy\0s727s002 - sr 99mitchell rd ic paed\engineering\cad\dpr_crosssection sheets

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => x-01-alt 1

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

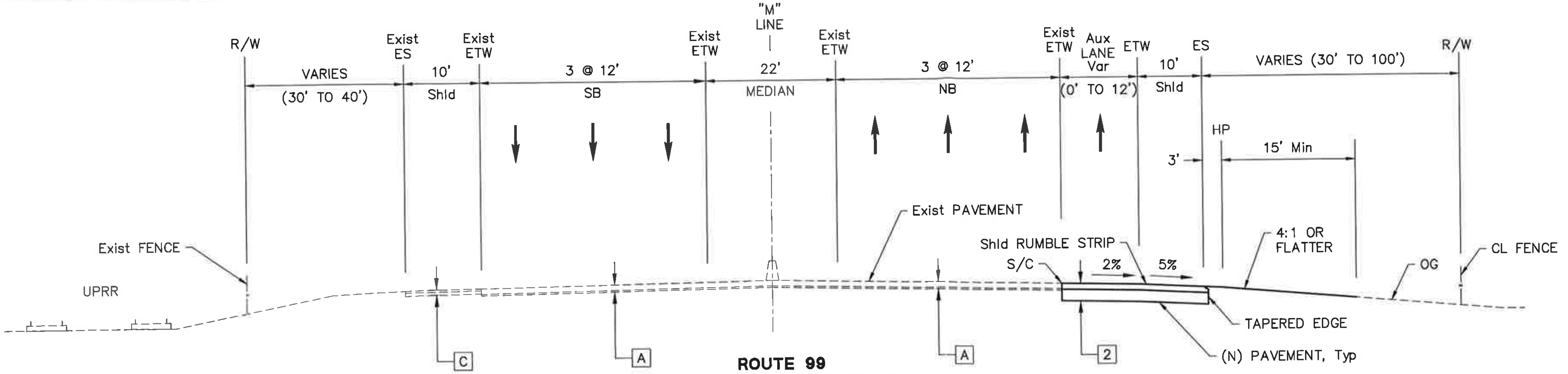
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

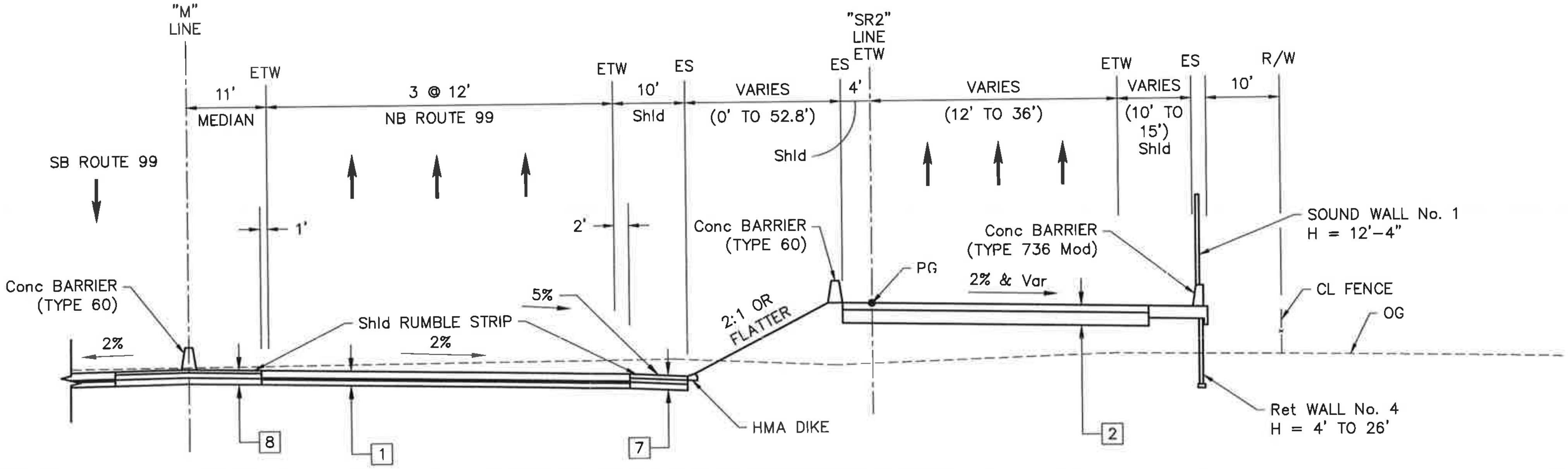
PLANS APPROVAL DATE

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

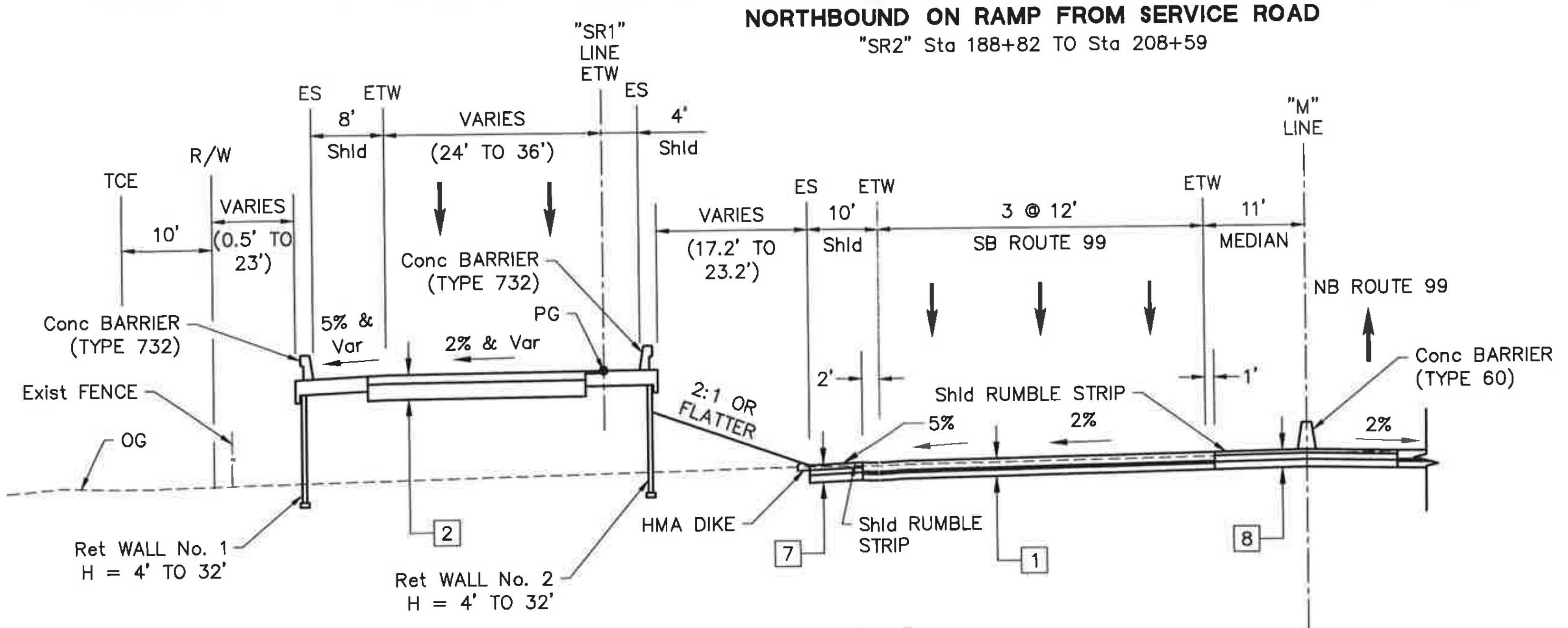
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



ROUTE 99
"M" Sta 239+74 TO Sta 253+99



NORTHBOUND ON RAMP FROM SERVICE ROAD
"SR2" Sta 188+82 TO Sta 208+59



SOUTHBOUND OFF RAMP TO SERVICE ROAD
"SR1" Sta 91+14 TO Sta 106+54

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-2

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY XX
CHECKED BY XX
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

PATH => k:\bay_rdwy\097279002 – sr 99mitchell rd ic paed\engineering\cad\dpr_crosssection sheets

DATE PLOTTED => October 25, 2018

LAST REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

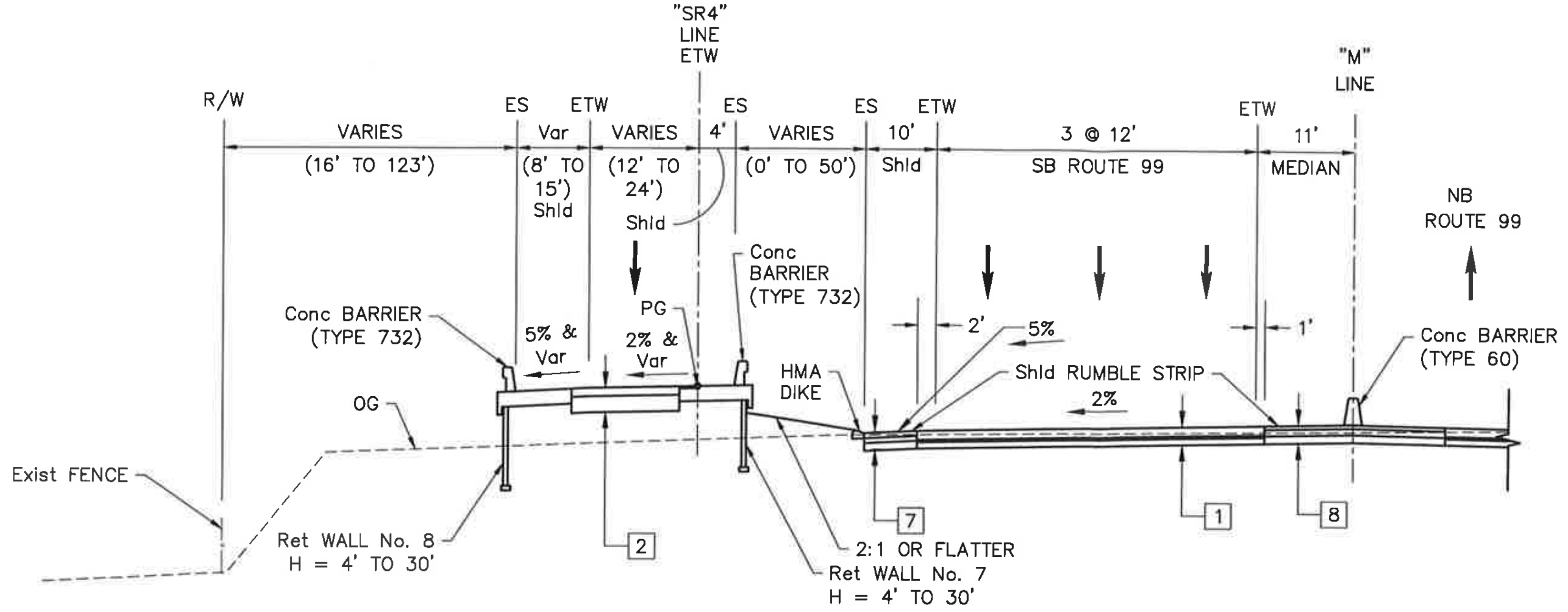
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

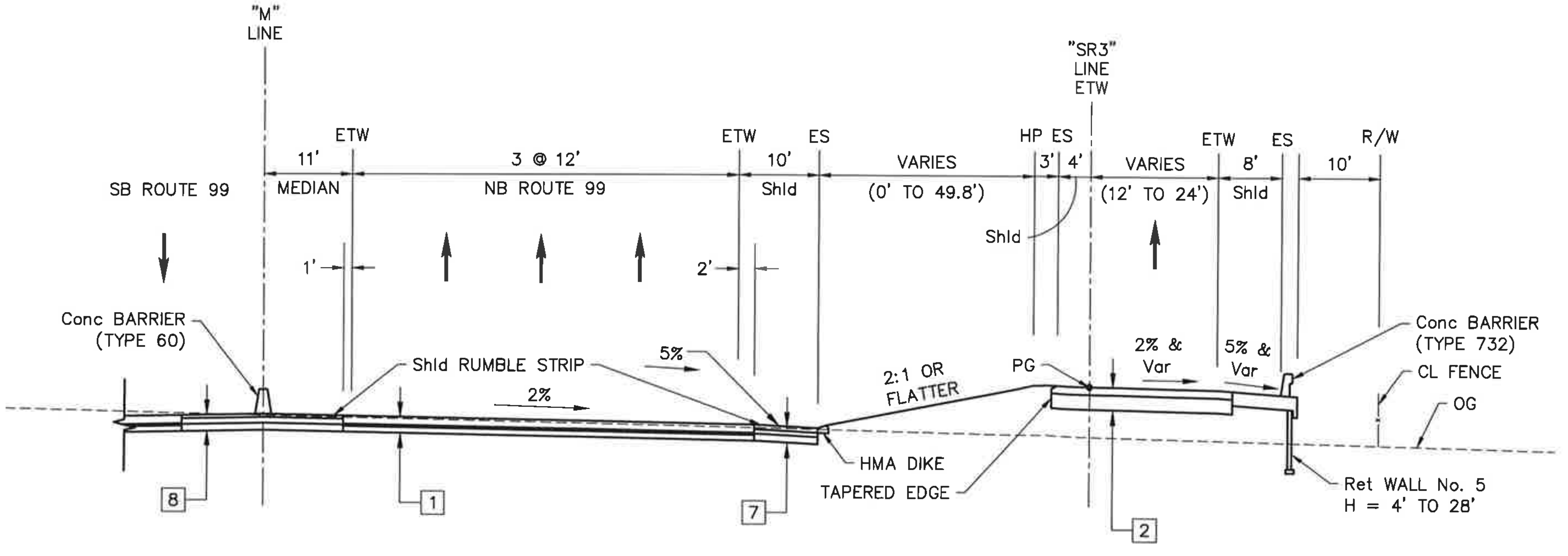
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SOUTHBOUND ON RAMP FROM SERVICE ROAD
"SR4" Sta 375+67 TO Sta 387+94



NORTHBOUND OFF RAMP TO SERVICE ROAD
"SR3" Sta 271+95 TO Sta 282+90

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR –
CALCULATED-DESIGNED BY XX
CHECKED BY XX
REVISED BY –
DATE REVISED –

PATH => K:\bay_rdwy\05727002 sr99mitchell rd ic paed\engineering\cad\dpr_crosssect eets

LAST REVISION 02-28-17
DATE PLOTTED => October 25, 2018
TIME PLOTTED => 3:04:48 PM

BORDER LAST REVISED 7/2/2010
USERNAME => brecheisen, chris
DGN FILE => x-03-alt 1
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

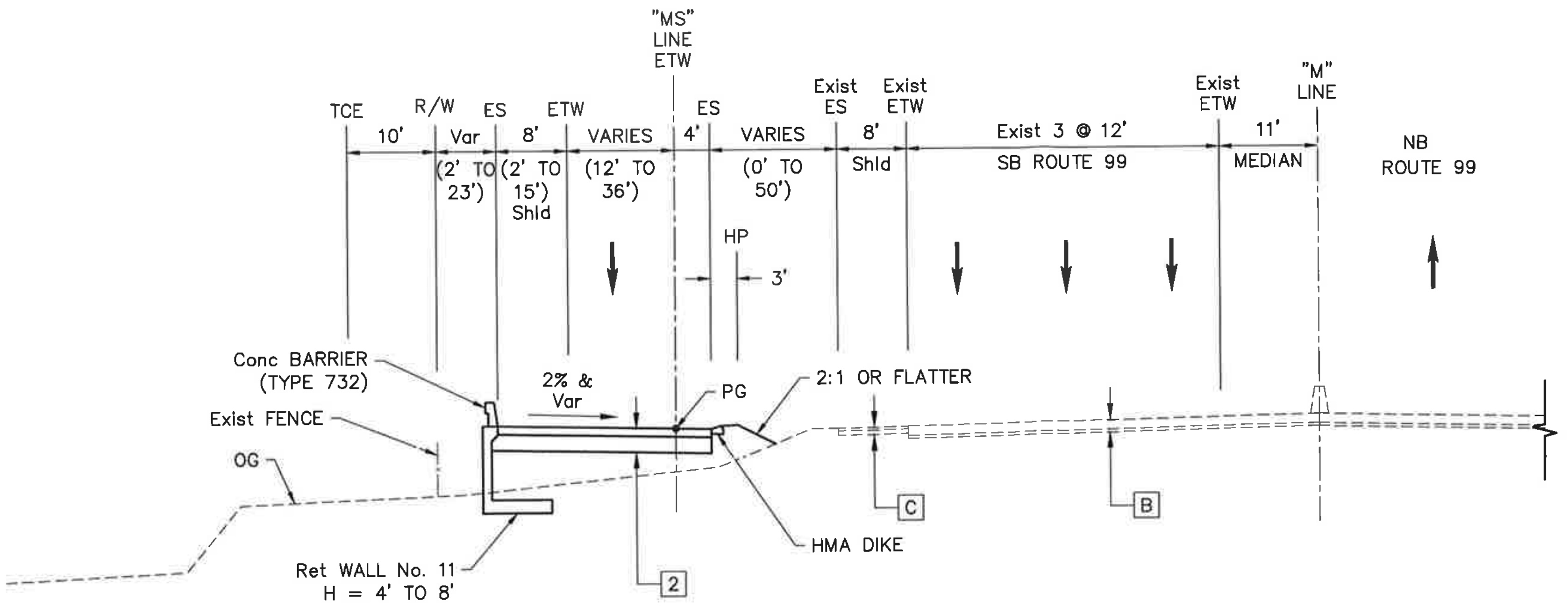
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

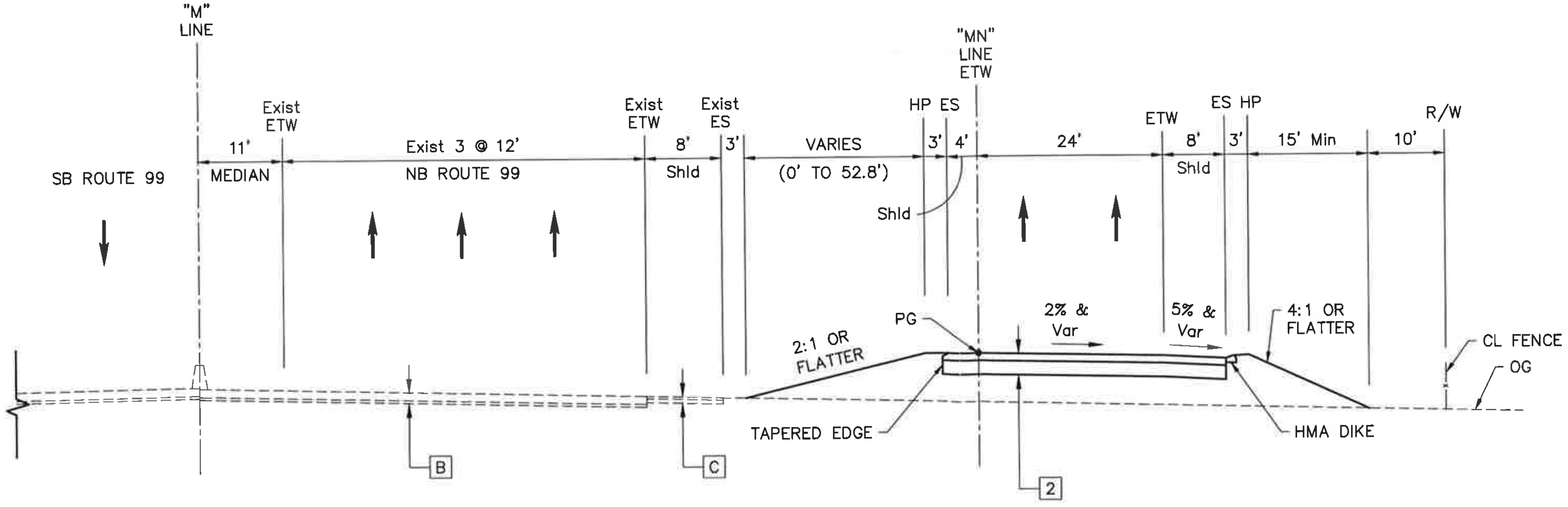
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SOUTHBOUND ON RAMP FROM MITCHELL ROAD
"MS" Sta 651+07 TO Sta 669+33



NORTHBOUND OFF RAMP TO MITCHELL ROAD
"MN" Sta 554+00 TO Sta 570+84

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR –

CALCULATED-DESIGNED BY XX
CHECKED BY XX

REVISED BY –
DATE REVISED –

PATH => k:\bay_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_crosssection sheets

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

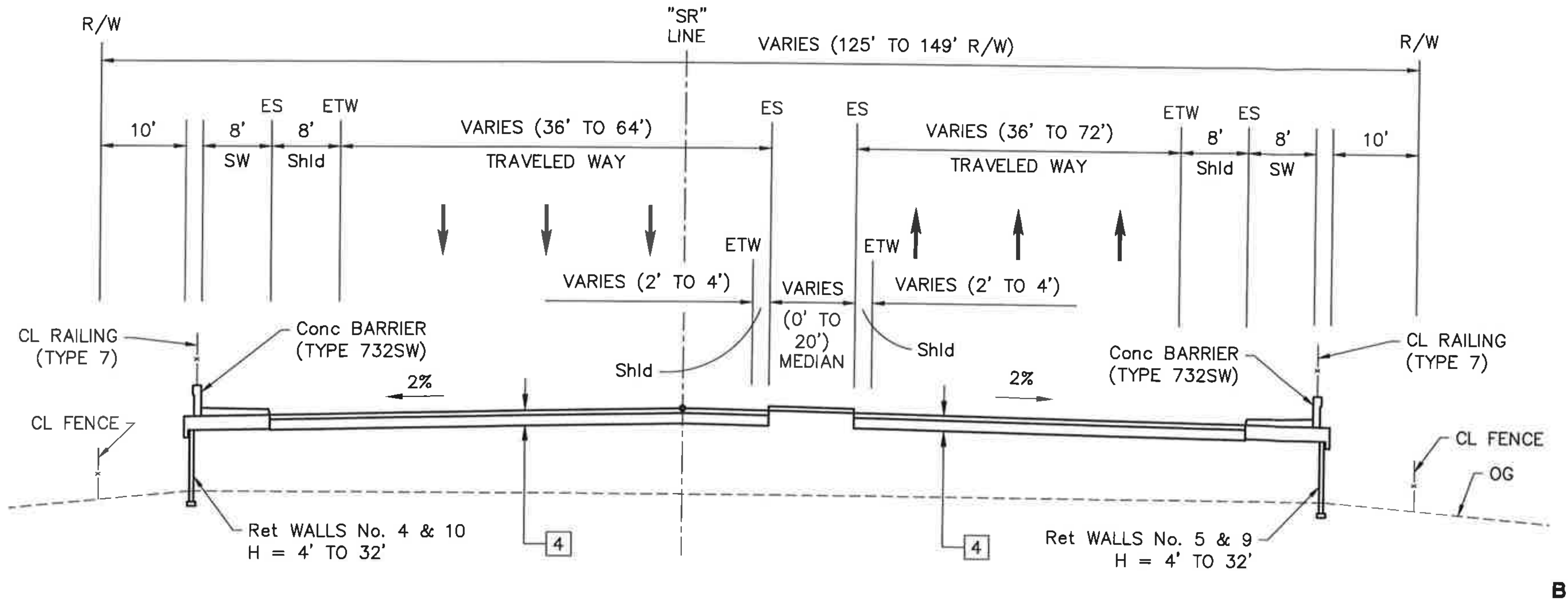
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

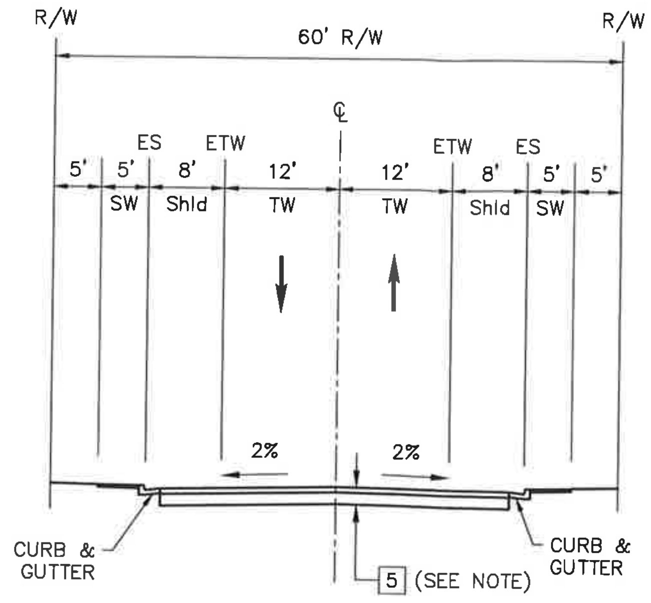
NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



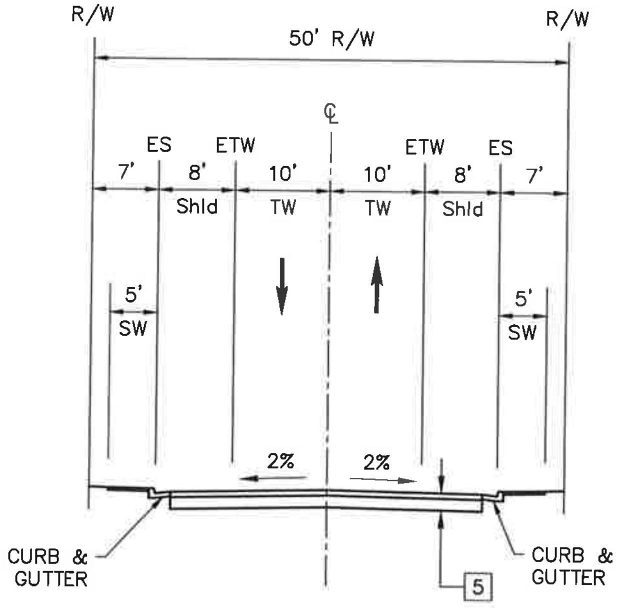
SERVICE ROAD

"SR" Sta 109+31 TO Sta 116+56
"SR" Sta 121+76 TO Sta 128+35

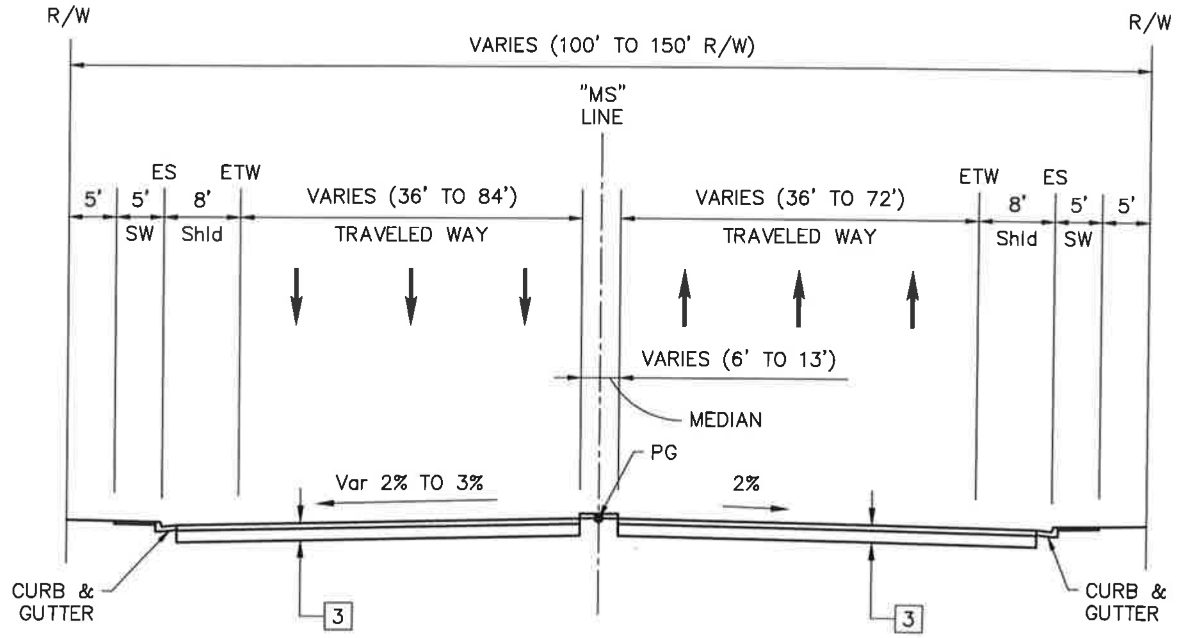


NOTE:
USE STRUCTURAL SECTION 6
FOR BRICKIT COURT

BRICKIT COURT DON PEDRO ROAD AND NINTH STREET

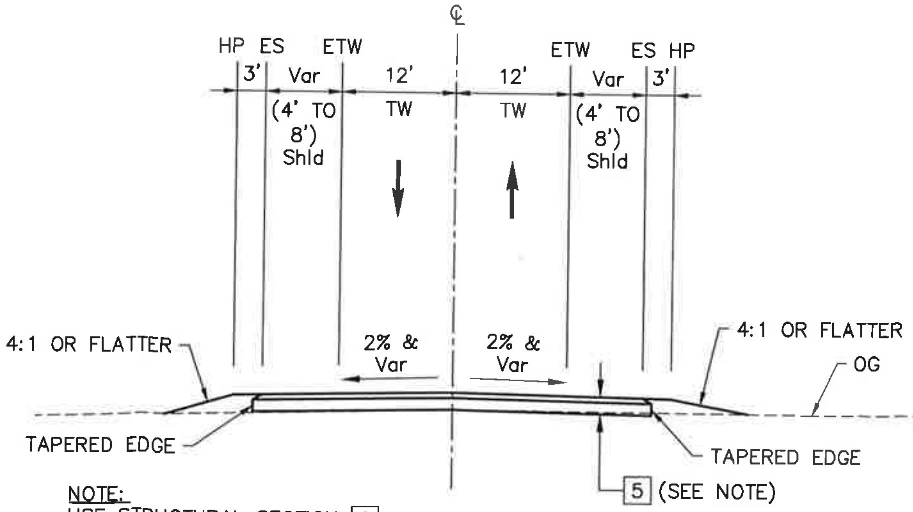


SIXTH STREET



MITCHELL ROAD ROUTE 99 TO DON PEDRO ROAD

"MS" Sta 669+33 TO Sta 693+28



NOTE:
USE STRUCTURAL SECTION 6
FOR LUCAS ROAD AND
ROHDE ROAD

LUCAS ROAD MOFFETT ROAD ROHDE ROAD

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY XX

CHECKED BY XX

REVISED BY

DATE REVISED

Caltrans

PATH => K:\bay_rawy\0s727s002_sr 99mitchell rd ic pasu\engineering\cad\dpr_crosssection sheets

BORDER LAST REVISED 7/2/2010

USERNAME => brechelsen, chris
DGN FILE => x-05-alt 1

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

LAST REVISION 02-28-17

DATE PLOTTED => October 25, 2018
TIME PLOTTED => 3:06:52 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

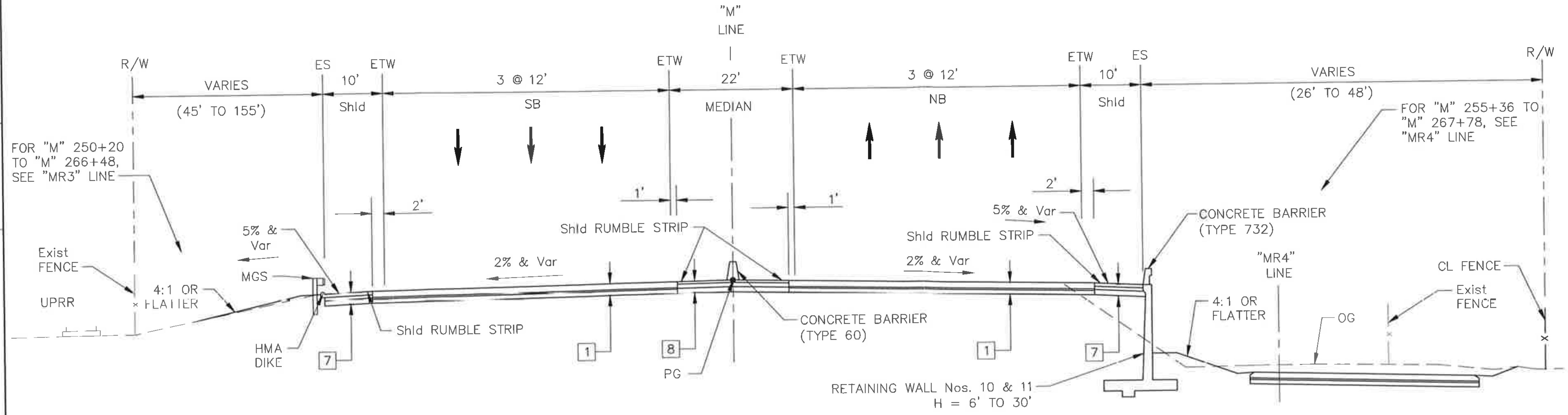
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

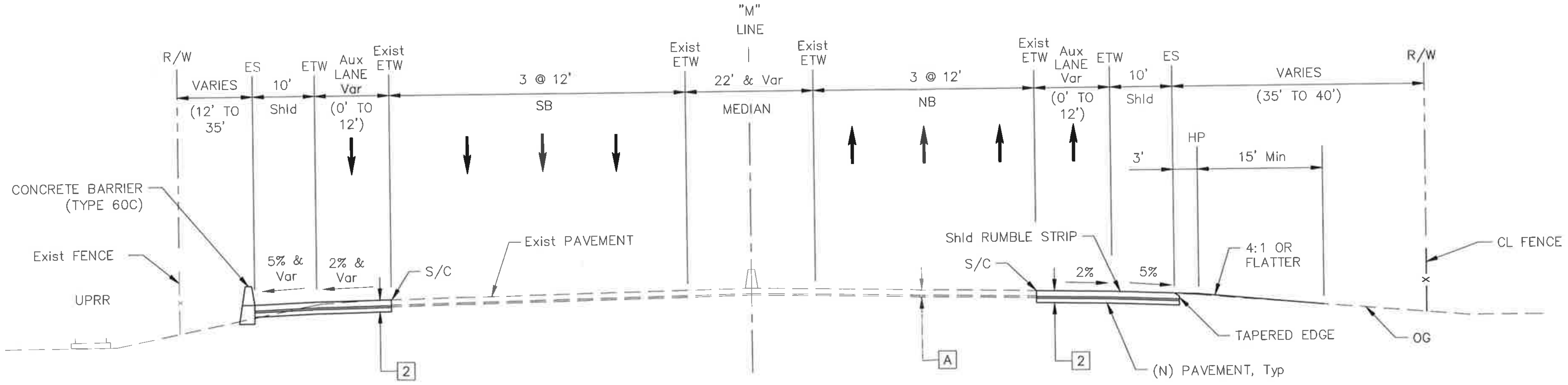
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



ROUTE 99

"M" Sta 250+20 TO "M" Sta 270+69
SOUTHBOUND

"M" Sta 250+75 TO "M" Sta 270+60
NORTHBOUND



ROUTE 99

"M" Sta 233+66 TO "M" Sta 250+20
SOUTHBOUND

"M" Sta 239+74 TO "M" Sta 250+75
NORTHBOUND

PROPOSED STRUCTURAL SECTIONS

1	1.00' CRCP 0.25' HMA (TYPE A) 0.70' Cl 2 AS
2	0.95' JPCP 0.25' HMA (TYPE A) 0.70' Cl 2 AS
3	0.70' HMA (TYPE A) 1.20' Cl 2 AB
4	0.65' HMA (TYPE A) 1.15' Cl 2 AB
5	0.25' HMA (TYPE A) 0.50' Cl 2 AB
6	0.20' HMA (TYPE A) 0.35' Cl 2 AB
7	0.55' HMA (TYPE A) 0.55' Cl 2 AB 0.85' Cl 2 AS
8	0.40' HMA (TYPE A) 0.70' Cl 2 AB 0.85' Cl 2 AS

EXISTING STRUCTURAL SECTIONS

A	0.85' PCC 0.25' ATPB
B	1.05' JPCP 0.35' LCB
C	0.25'–0.30' Var AC 0.50' AB

DESIGN DESIGNATION (ROUTE 99)

ADT (2013) = 99,000
ADT (2040) = 138,000
DHV (2040) = 9,500
$ESAL_{40}$ = 100,800,000
D = 55%
T = 13%
V = 65 MPH
TI_{40} = 16.0

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY XX
CHECKED BY XX
REVISED BY
DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

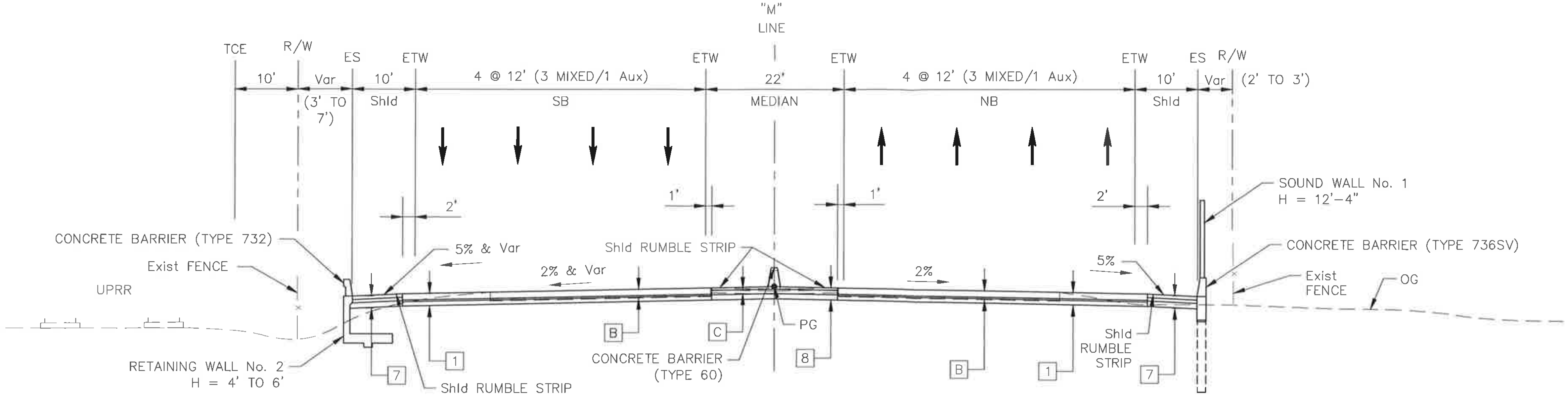
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

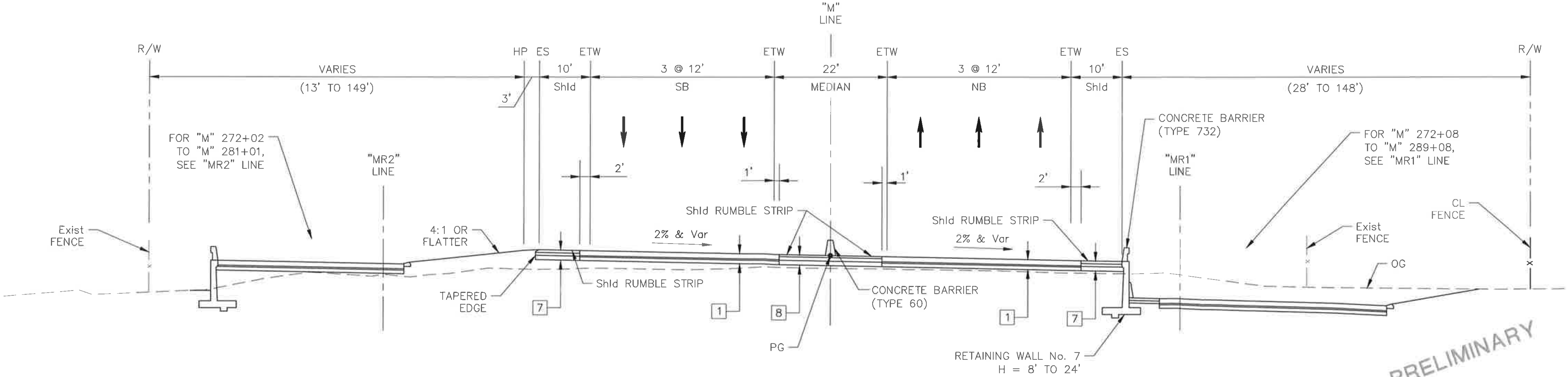
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



ROUTE 99

"M" Sta 281+01 TO "M" Sta 328+00
SOUTHBOUND

"M" Sta 289+08 TO "M" Sta 328+00
NORTHBOUND



PRELIMINARY

ROUTE 99

"M" Sta 270+69 TO "M" Sta 281+01
SOUTHBOUND

"M" Sta 270+60 TO "M" Sta 289+08
NORTHBOUND

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY XX
CHECKED BY XX
REVISED BY
DATE REVISED

DATE PLOTTED => August 22, 2017
TIME PLOTTED => 2:37:45 PM
LAST REVISION 08-22-17

PATH => u:\...\cadd\civil\typical sections\alt 2\...

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => x-02-alt 2

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER —— DATE

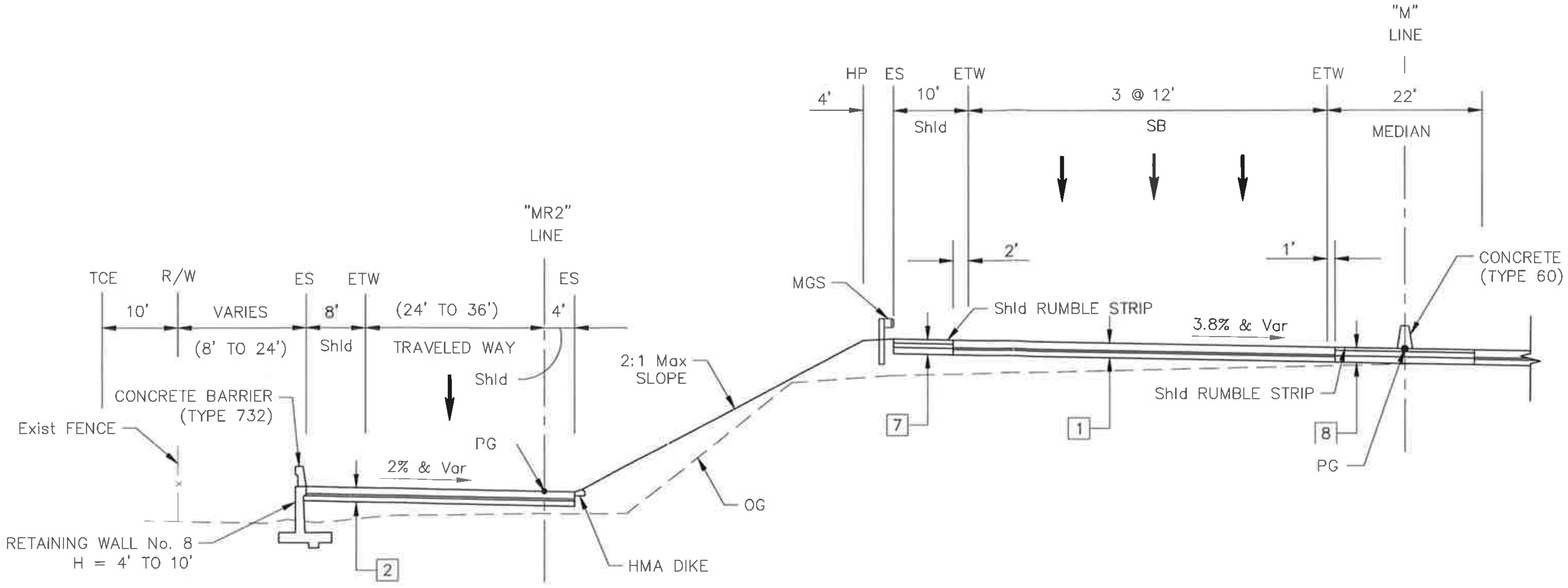
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

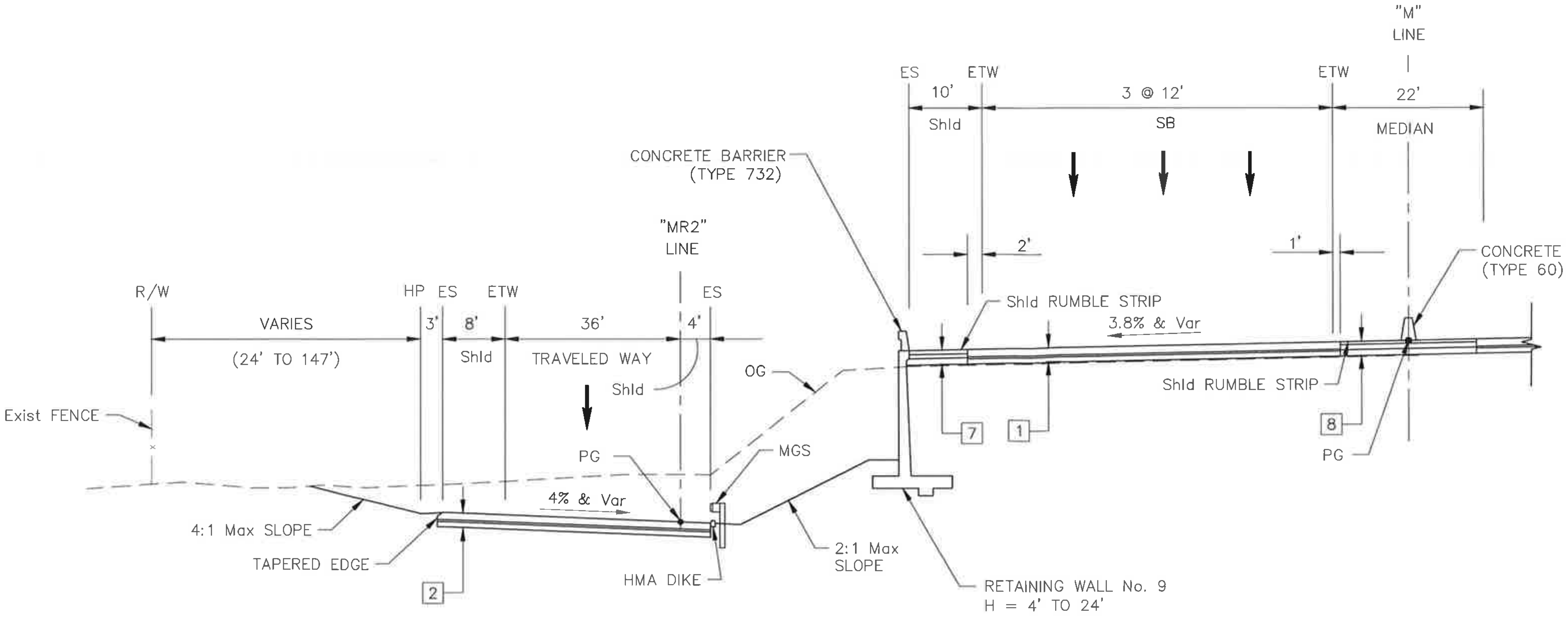
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SOUTHBOUND OFF RAMP TO MITCHELL ROAD
"MR2" Sta 273+86 TO "MR2" Sta 281+01



SOUTHBOUND OFF RAMP TO MITCHELL ROAD
"MR2" Sta 268+00 TO "MR2" Sta 273+86

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-3

DATE PLOTTED => August 22, 2017
LAST REVISION

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY XX
CHECKED BY XX
REVISED BY
DATE REVISED

PATH => u: \mt00043202\cadd\civil\typical sections\alt 2 so

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

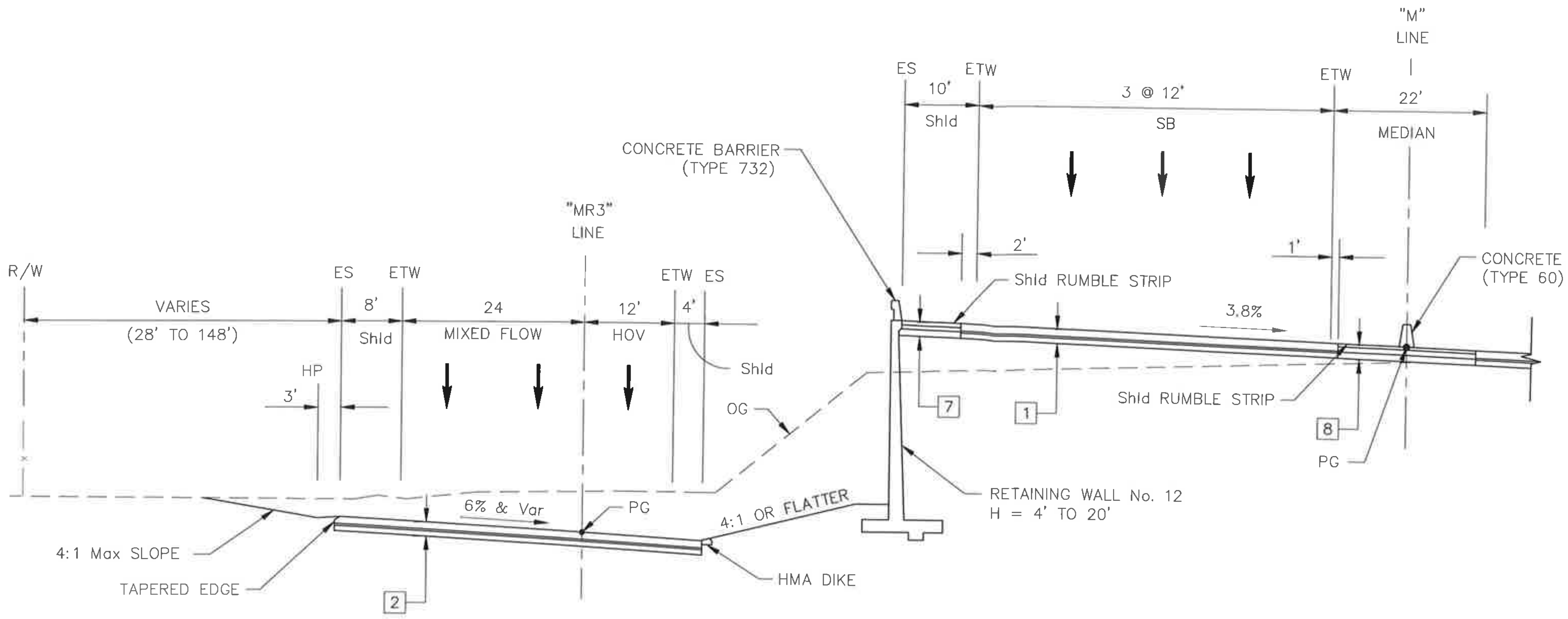
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

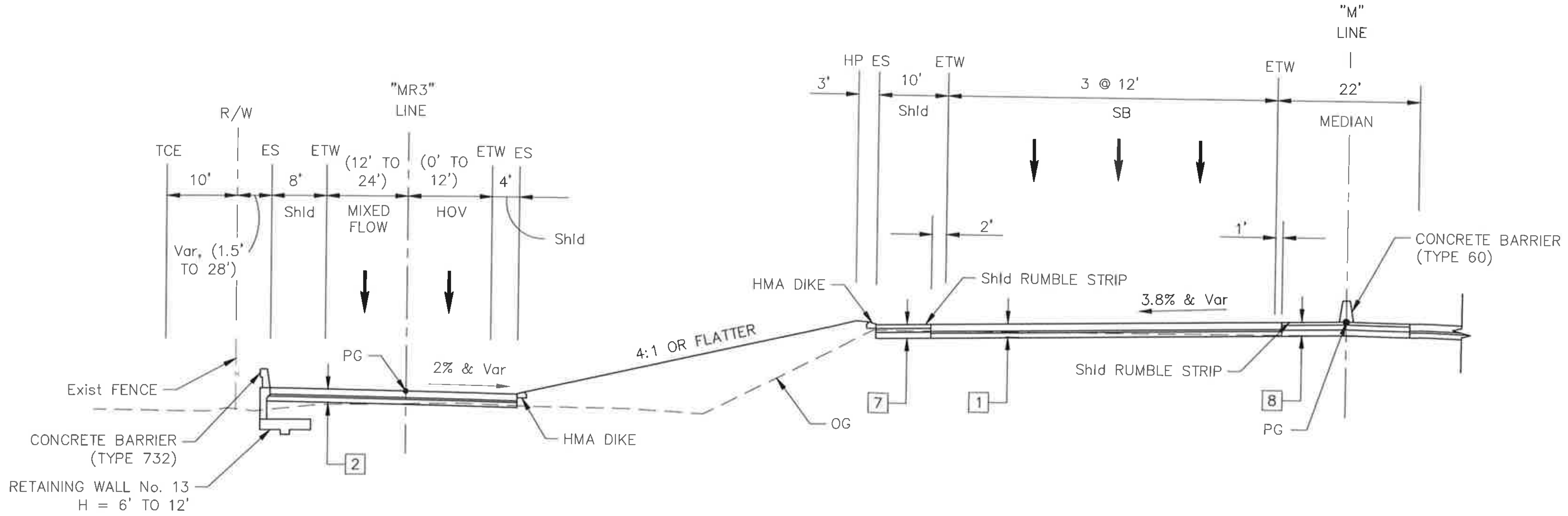
No. ____
Exp. ____
CIVIL

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SOUTHBOUND ON RAMP FROM MITCHELL ROAD
"MR3" Sta 265+03 TO "MR3" Sta 269+45



SOUTHBOUND ON RAMP FROM MITCHELL ROAD
"MR3" Sta 249+66 TO "MR3" Sta 265+03

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
TYPICAL SECTIONS

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY XX
CHECKED BY XX
REVISED BY
DATE REVISED

PATH => u:\rr\004-202\cadd\civil\typical sections\alt 2 so

LAST REVISION 08-22-17
DATE PLOTTED => August 22, 2017
TIME PLOTTED => 2:53:03 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

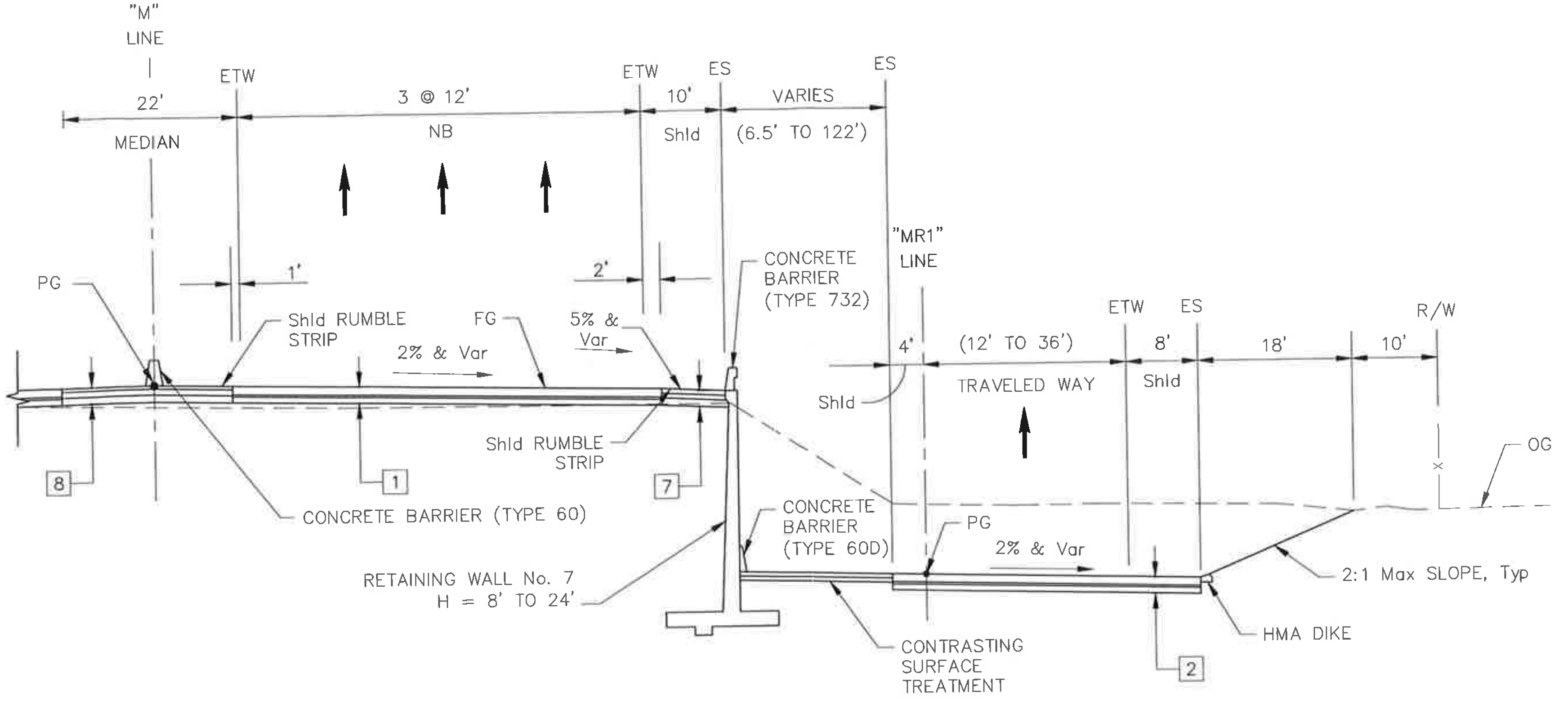
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

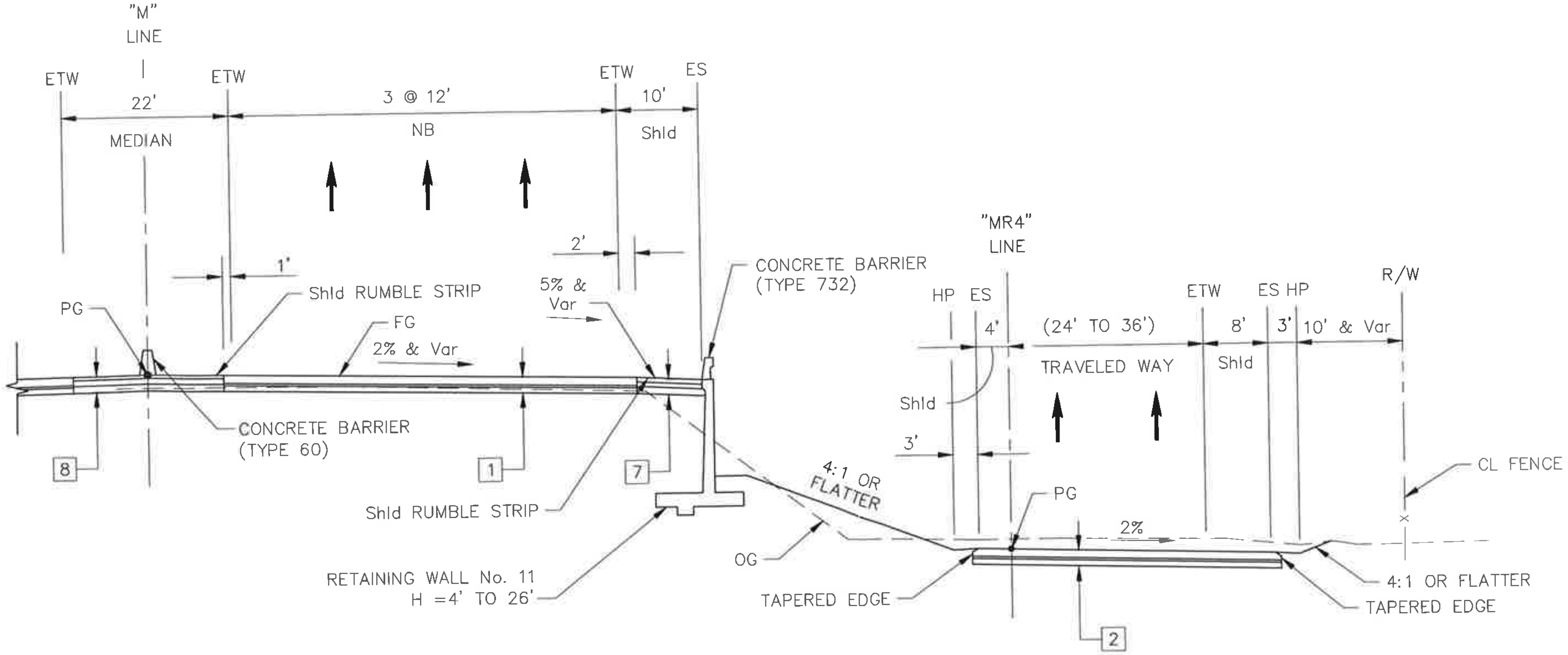
NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



NORTHBOUND ON RAMP FROM MITCHELL ROAD

"MR1" Sta 270+00 TO "MR1" Sta 289+08



NORTHBOUND OFF RAMP TO MITCHELL ROAD

"MR4" Sta 255+36 TO "MR4" Sta 273+53

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR –
CALCULATED-DESIGNED BY XX
CHECKED BY XX
REVISED BY –
DATE REVISED –

LAST REVISION
DATE PLOTTED => August 22, 2017

PATH => u:\mt0043202\cadd\civil\typical sections\alt 2 so

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => x-05-alt 2

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER
DATE –

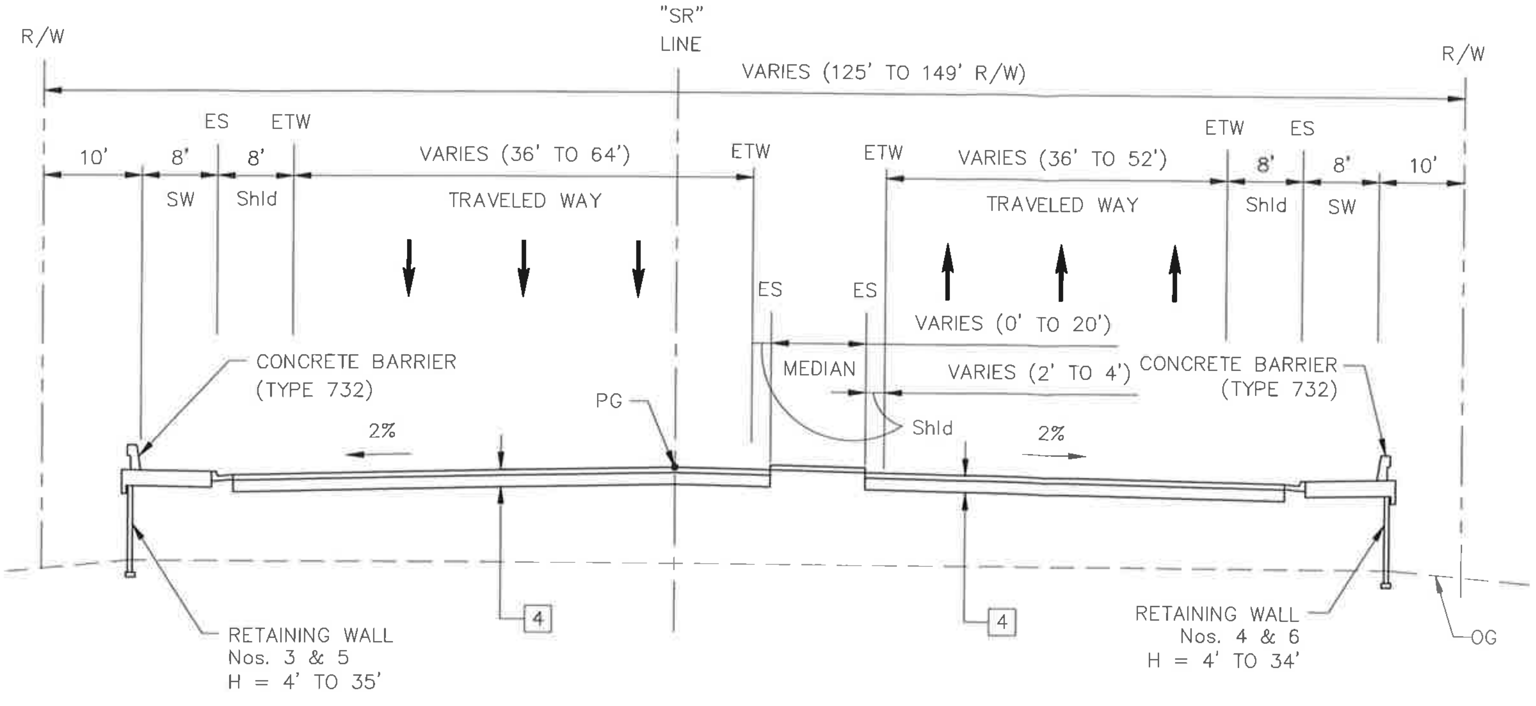
PLANS APPROVAL DATE

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

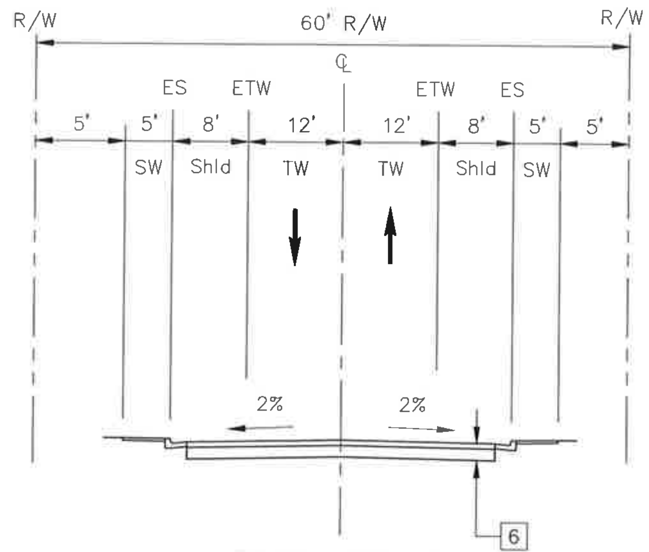
No.
Exp.
CIVIL

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

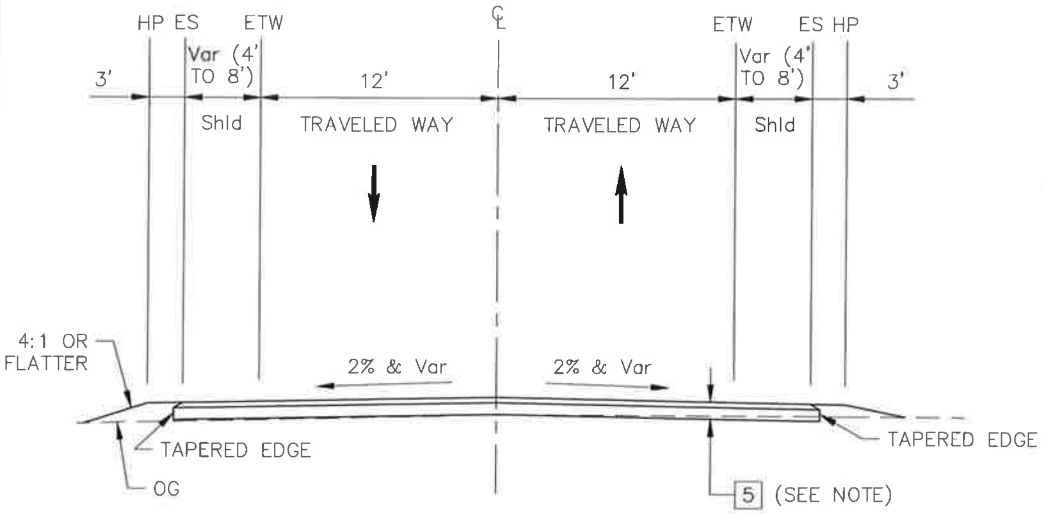
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SERVICE ROAD
"SR" Sta 70+65 TO "SR" Sta 78+40
"SR" Sta 84+70 TO "SR" Sta 95+00

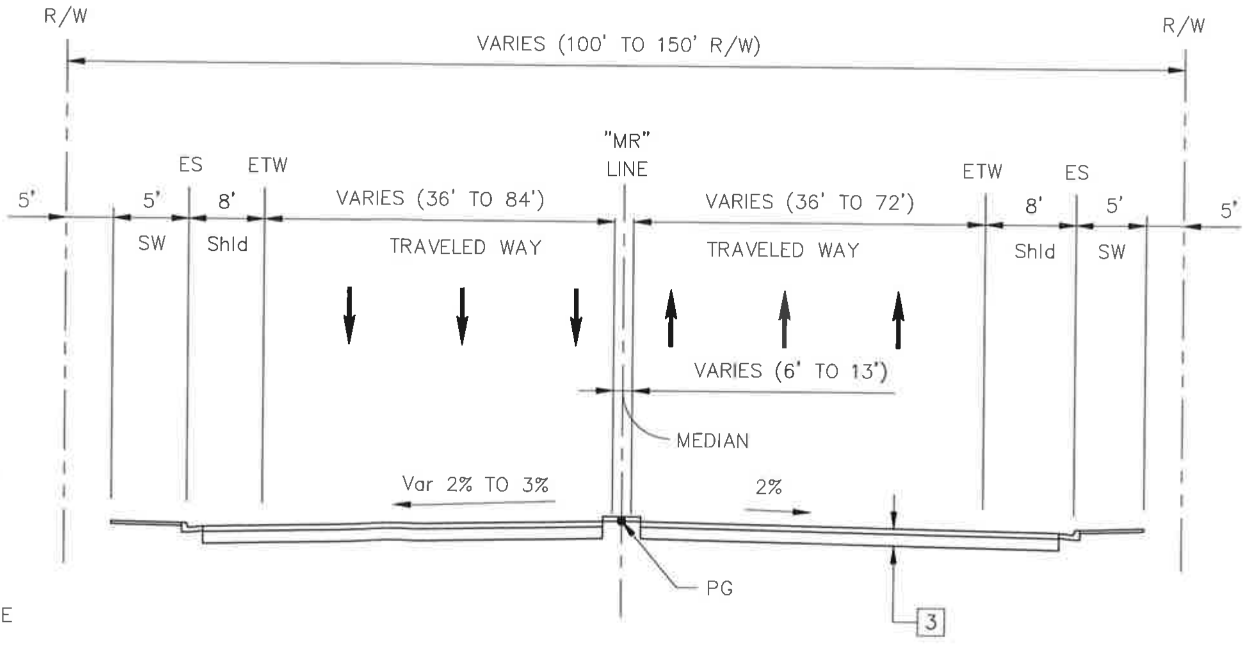


BRICKIT COURT



NOTE:
USE STRUCTURAL SECTION 6 FOR ROHDE ROAD AND LUCAS ROAD

MOFFETT ROAD, LUCAS ROAD, ROHDE ROAD



MITCHELL ROAD (ROUTE 99 TO DON PEDRO ROAD)
"MR" Sta 277+00 TO "MR" Sta 295+53

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
TYPICAL SECTIONS

NO SCALE

X-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY	CHECKED BY
XX	XX
REVISED BY	DATE REVISED

LAST REVISION 08-22-17
DATE PLOTTED => August 22, 2017
TIME PLOTTED => 3:04:26 PM

PATH => u:\n004_0202\cadd\civil\typical sections\alt 2 so

BORDER LAST REVISED 7/2/2010
USERNAME => phillip reuss
DGN FILE => x-06-alt 2
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE –

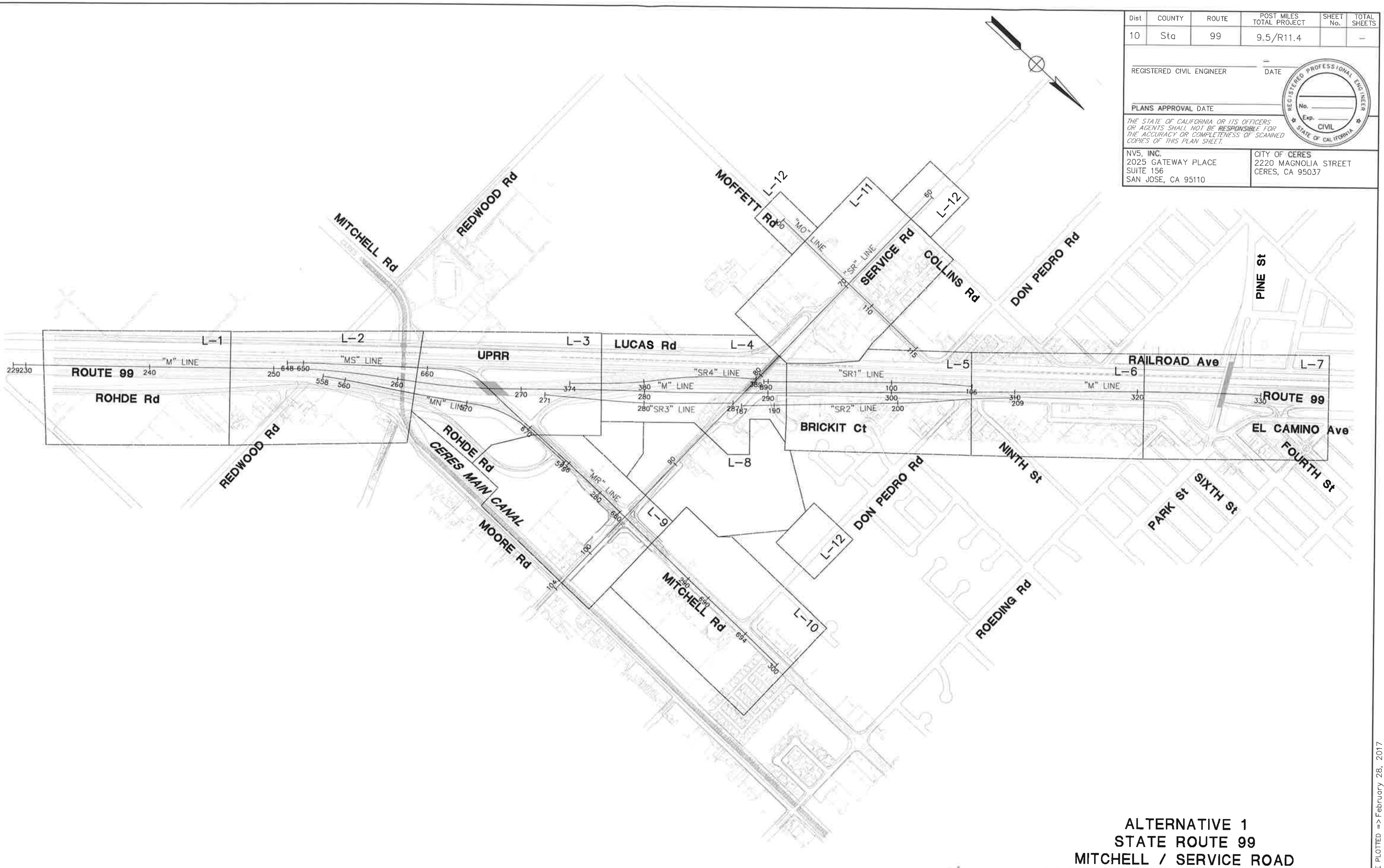
PLANS APPROVAL DATE

No.
Exp.
CIVIL

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
KEY MAP AND LINE INDEX

NO SCALE

K-1

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

DATE PLOTTED => February 28, 2017
TIME PLOTTED => 4:39:27 PM

LAST REVISION 02-28-17

PATH => u:\nt0040202\cadd\civil\layout sheets\alt 1 dd

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => k-1

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

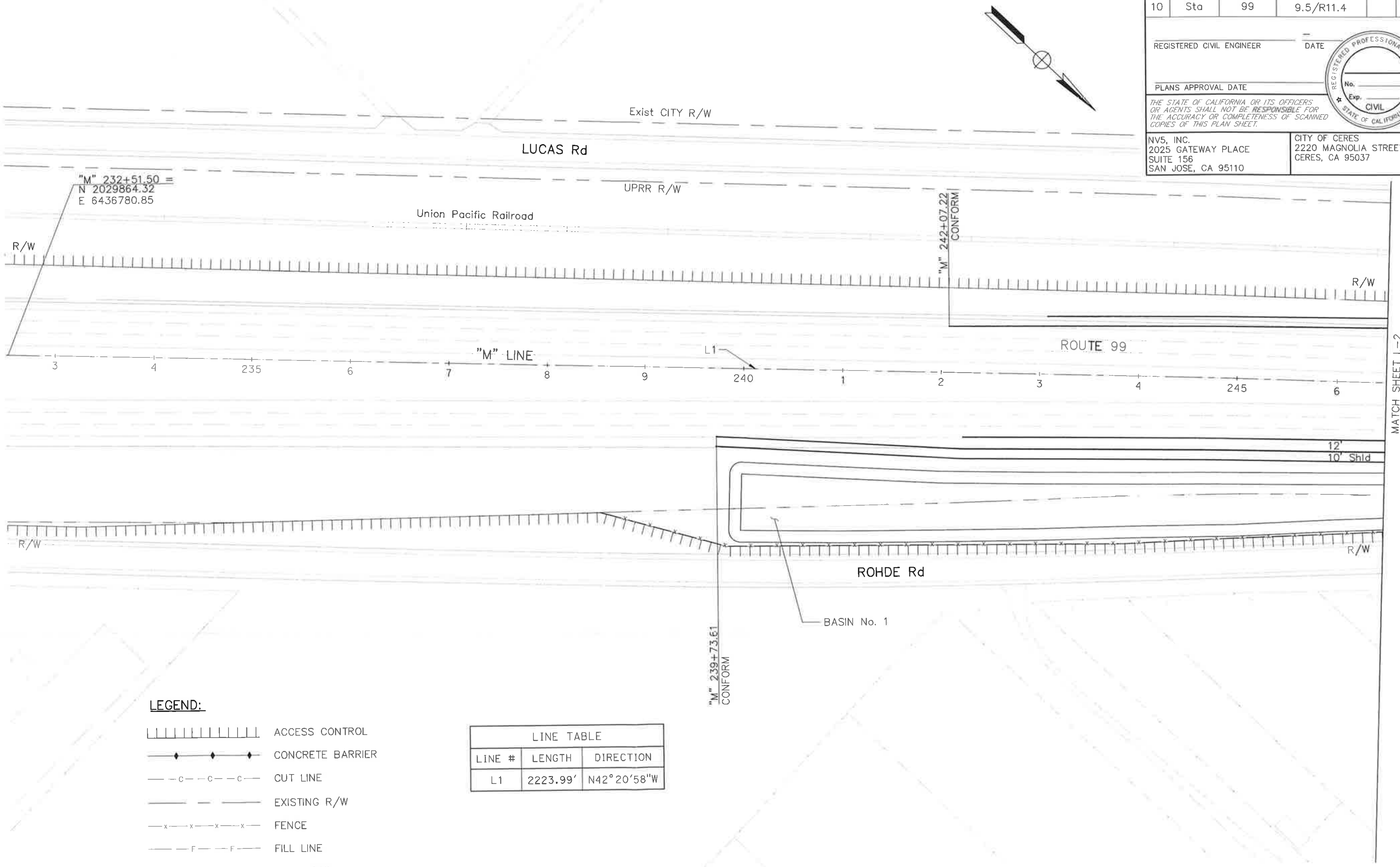
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LEGEND:

┴┴┴┴┴┴┴┴┴┴┴┴	ACCESS CONTROL
—◆—◆—◆—	CONCRETE BARRIER
— C — C — C —	CUT LINE
—— — ——	EXISTING R/W
— x — x — x — x —	FENCE
— — F — — F —	FILL LINE
—▪—▪—▪—▪—	GUARDRAIL
—▼——▼—	RETAINING WALL
—▾——◆—	RETAINING WALL WITH CONCRETE BARRIER
▨	CONTRASTING SURFACE TREATMENT

LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	2223.99'	N42°20'58"W

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR –
CALCULATED-DESIGNED BY –
CHECKED BY –
REVISED BY
DATE REVISED

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

LAST REVISION 02-28-17
DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:15:54 PM

BORDER LAST REVISED 7/2/2010
USERNAME => brecheisen, chris
DGN FILE => l-1
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

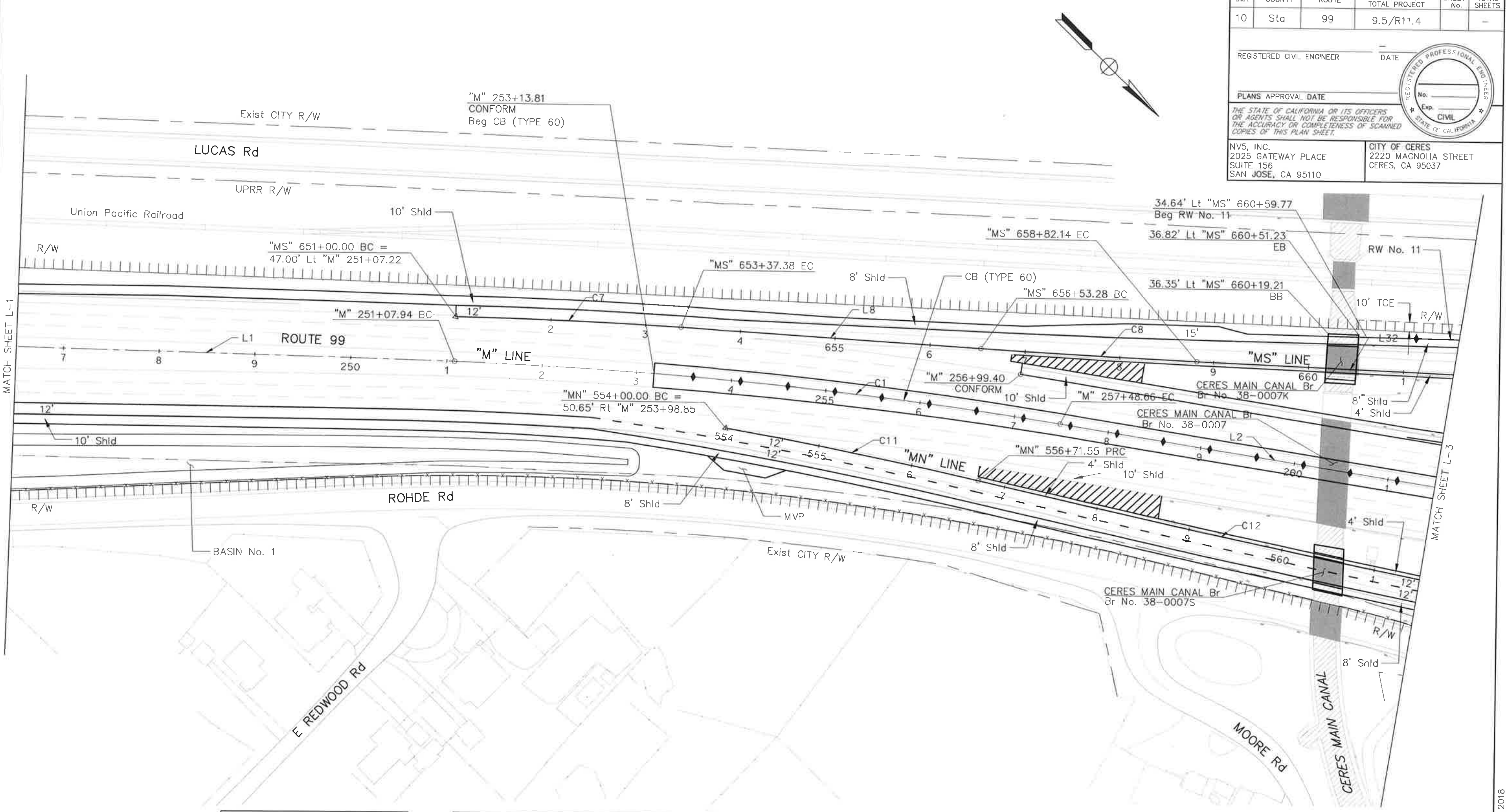
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	2223.99'	N42°20'58"W
L2	459.44'	N35°11'29"W
L8	315.91'	N40°43'49"W
L32	413.49'	N41°49'23"W

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C1	5000.00'	7°09'30"	312.75'	624.27'
C7	5049.00'	2°41'37"	118.71'	237.35'
C8	12000.00'	1°05'34"	114.43'	228.86'
C11	5000.00'	3°06'42"	135.81'	271.52'
C12	20000.00'	2°48'29"	490.21'	980.12'

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-2

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR
Caltrans

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

LAST REVISION 02-28-17
DATE PLOTTED => October 3, 2018
TIME PLOTTED => 8:48:21 AM

BORDER LAST REVISED 7/2/2010
USERNAME => brecheisen, chris
DGN FILE => l-2
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER

DATE

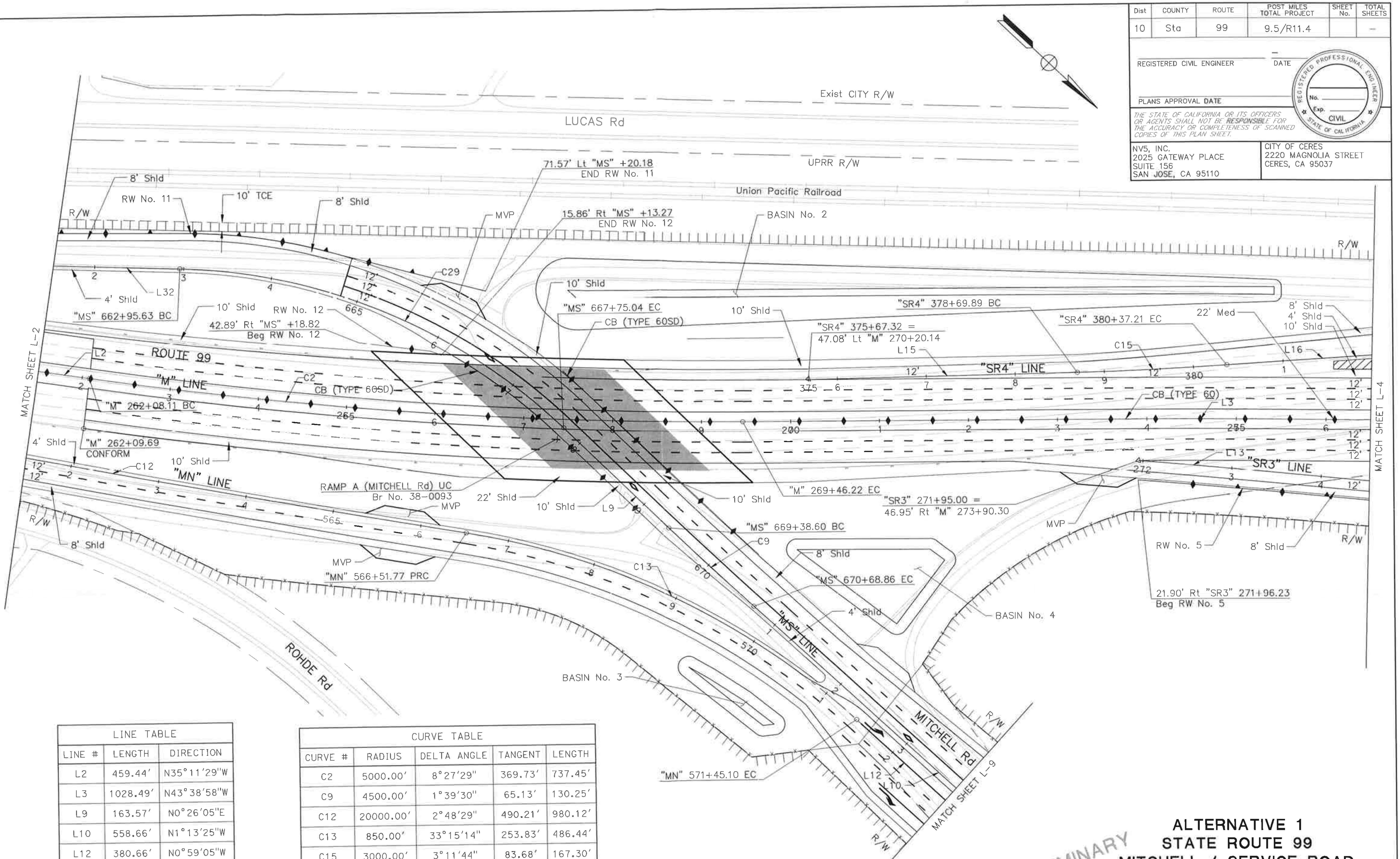
PLANS APPROVAL DATE

No.
Exp.
CIVIL

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L2	459.44′	N35°11′29"W
L3	1028.49′	N43°38′58"W
L9	163.57′	N0°26′05"E
L10	558.66′	N1°13′25"W
L12	380.66′	N0°59′05"W
L13	619.05′	N38°46′33"W
L15	302.57′	N44°46′52"W
L16	283.69′	N47°58′36"W
L32	413.49′	N41°49′23"W

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C2	5000.00′	8°27′29"	369.73′	737.45′
C9	4500.00′	1°39′30"	65.13′	130.25′
C12	20000.00′	2°48′29"	490.21′	980.12′
C13	850.00′	33°15′14"	253.83′	486.44′
C15	3000.00′	3°11′44"	83.68′	167.30′
C29	650.00′	42°15′29"	251.19′	468.61′

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
Caltrans

PATH => k:\bay_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

LAST REVISION 02-28-17
DATE PLOTTED => October 3, 2018
TIME PLOTTED => 8:56:05 AM

ATTACHMENT C

LAYOUTS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

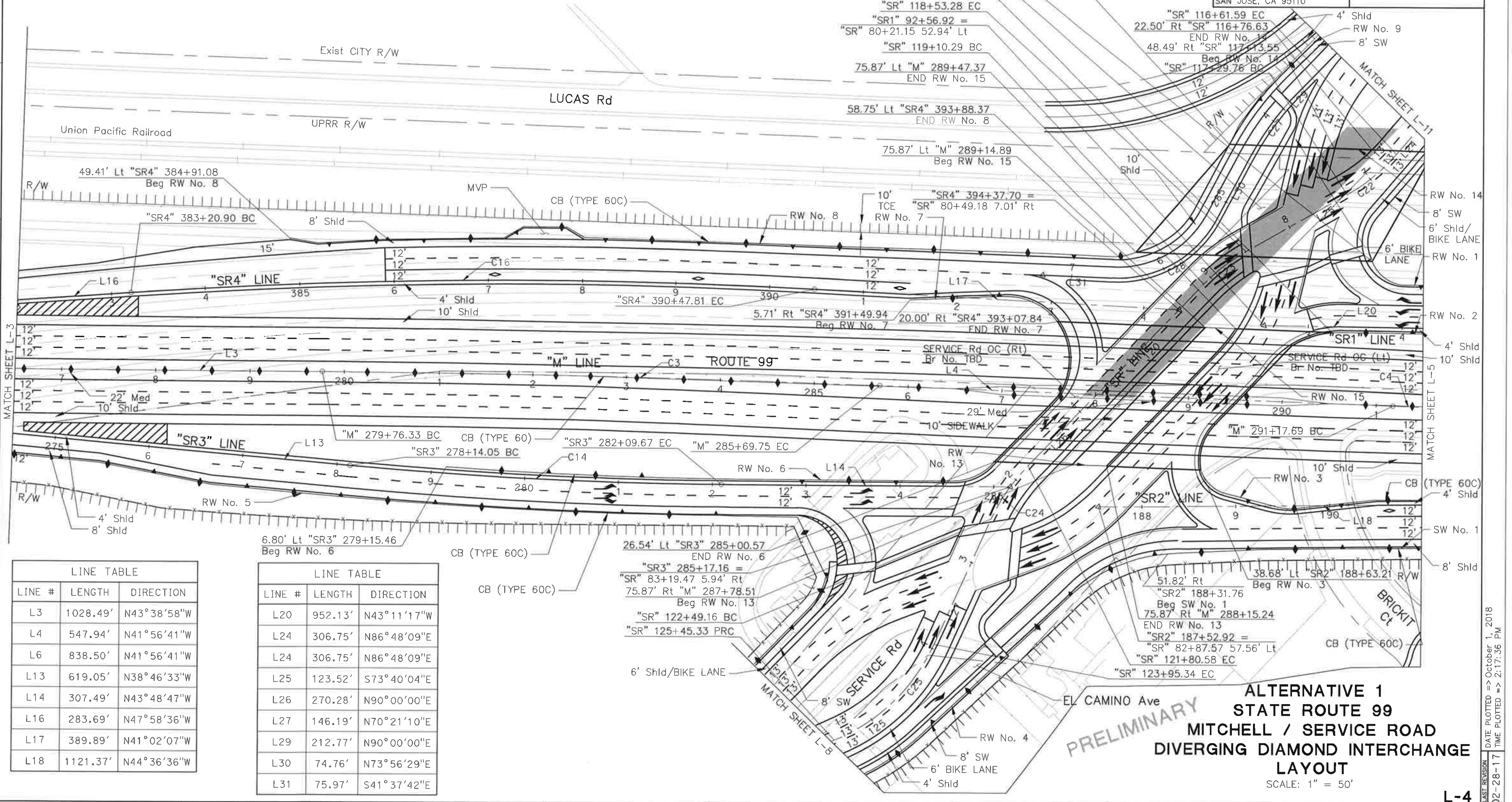
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

CURVE TABLE

CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C3	20000.00'	1°42'17"	297.54'	595.02'
C4	16000.00'	3°10'40"	443.81'	887.28'
C14	4500.00'	5°02'14"	197.94'	395.49'
C16	6000.00'	6°56'29"	363.90'	726.46'

CURVE TABLE

CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C22	200.00'	19°31'46"	34.42'	67.84'
C23	200.00'	16°19'56"	28.70'	56.82'
C24	200.00'	19°38'50"	34.63'	68.25'
C25	200.00'	42°58'02"	78.72'	146.49'
C27	294.00'	16°03'31"	41.47'	82.13'
C28	120.00'	64°25'48"	75.61'	127.94'



LINE TABLE

LINE #	LENGTH	DIRECTION
L3	1028.49'	N43°38'58"W
L4	547.94'	N41°56'41"W
L6	838.50'	N41°56'41"W
L13	619.05'	N38°46'33"W
L14	307.49'	N43°48'47"W
L16	283.69'	N47°58'36"W
L17	389.89'	N41°02'07"W
L18	1121.37'	N44°36'36"W

LINE TABLE

LINE #	LENGTH	DIRECTION
L20	952.13'	N43°11'17"W
L24	306.75'	N86°48'09"E
L24	306.75'	N86°48'09"E
L25	123.52'	S73°40'04"E
L26	270.28'	N90°00'00"E
L27	146.19'	N70°21'10"E
L29	212.77'	N90°00'00"E
L30	74.76'	N73°56'29"E
L31	75.97'	S41°37'42"E

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-4

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR

Caltrans

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:17:36 PM

LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => l-4

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

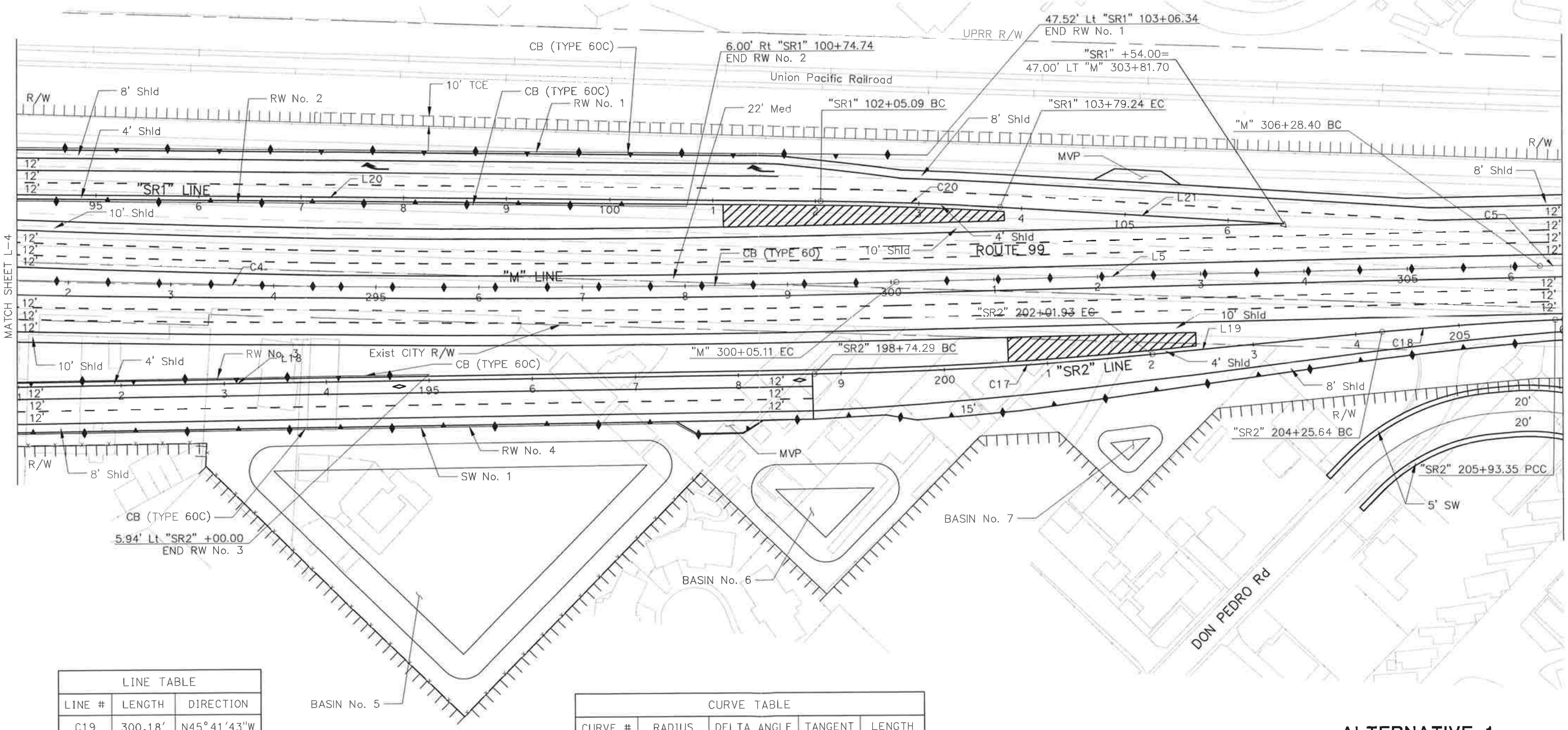
PLANS APPROVAL DATE

No. ____ Exp. ____ CIVIL

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE

LINE #	LENGTH	DIRECTION
C19	300.18'	N45°41'43"W
L5	623.30'	N45°07'21"W
L6	838.50'	N41°56'41"W
L18	1121.37'	N44°36'36"W
L19	230.58'	N49°18'10"W
L20	952.13'	N43°11'17"W

CURVE TABLE

CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C4	16000.00'	3°10'40"	443.81'	887.28'
C5	20000.00'	3°10'40"	554.76'	1109.10'
C17	4000.00'	4°41'35"	163.91'	327.54'
C18	3000.00'	3°04'30"	80.52'	160.99'
C20	3400.00'	2°56'05"	87.09'	174.13'

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-5

PATH => k:\bay_rdwy\097279002 – sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

Caltrans

DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:17:06 PM

LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => l-5

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

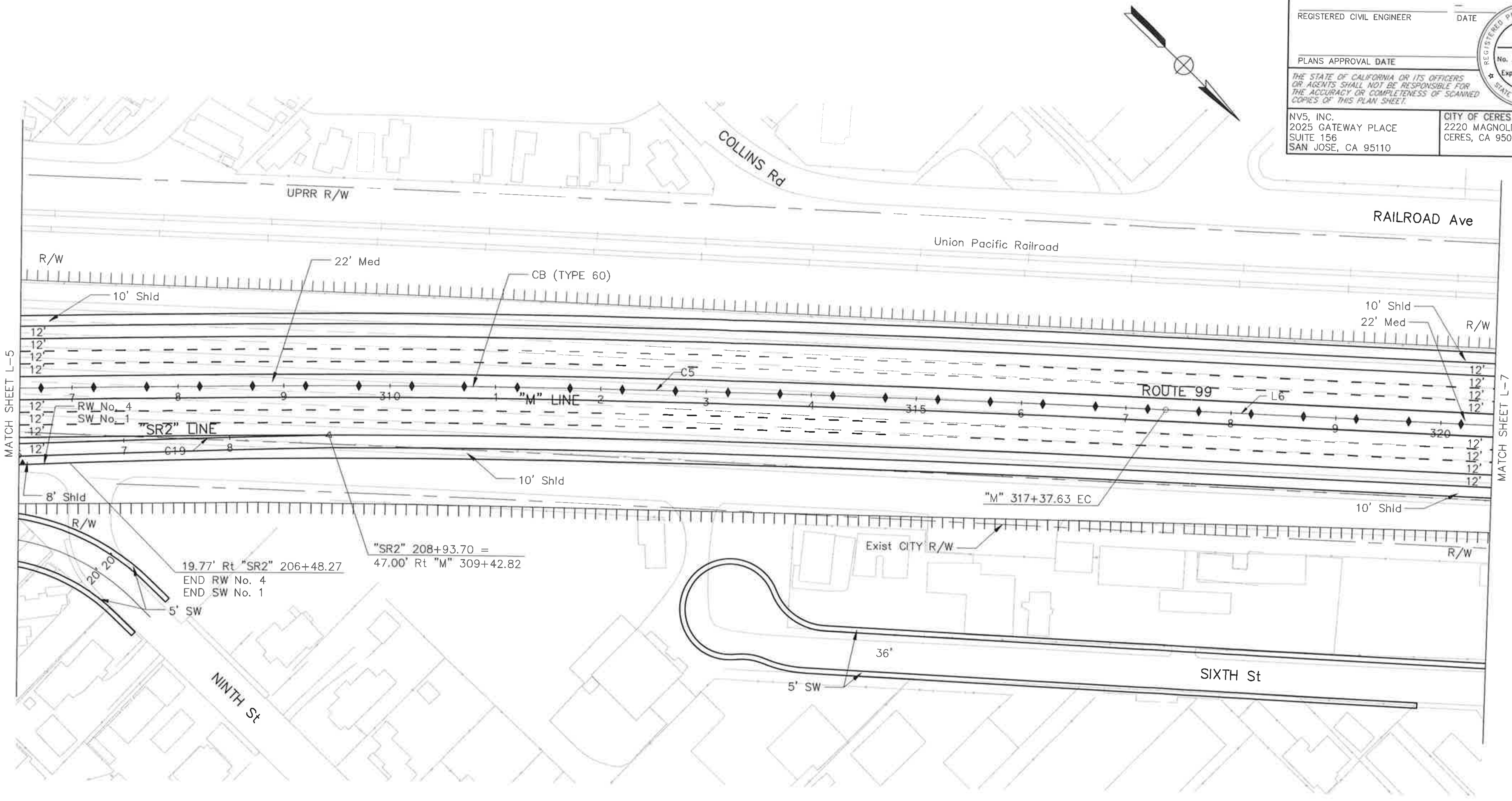
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L6	838.50'	N41°56'41"W

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C5	20000.00'	3°10'40"	554.76'	1109.10'
C19	19964.96'	0°51'41"	150.09'	300.18'

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-6

REVISED BY
DATE REVISED

CALCULATED-DESIGNED BY
CHECKED BY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR

Caltrans

PATH => k:\bay_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:17:54 PM

LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => l-6

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE –

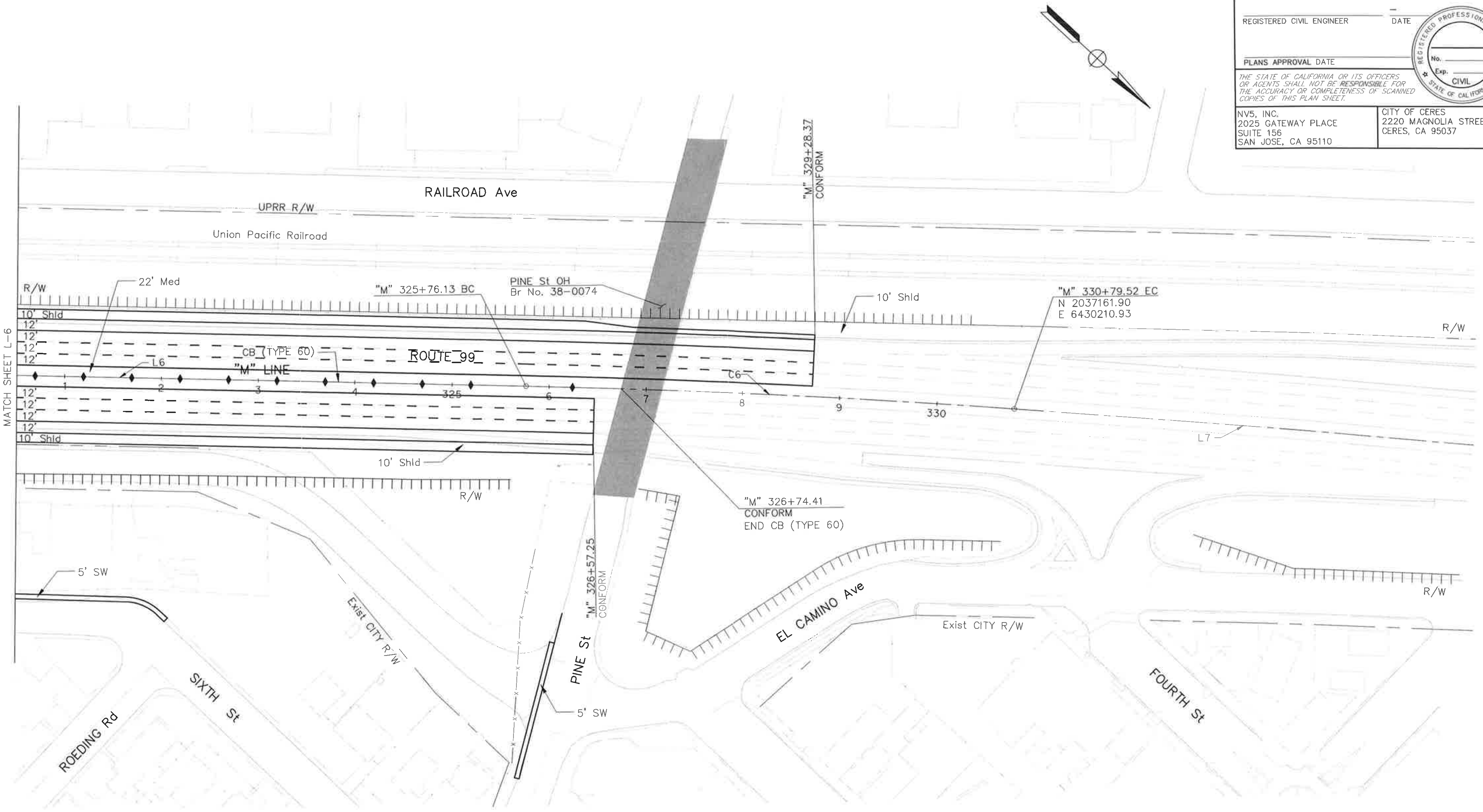
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE

LINE #	LENGTH	DIRECTION
L6	838.50'	N41°56'41"W
L7	472.21'	S39°03'38"E

CURVE TABLE

CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C6	10000.00'	2°53'03"	251.75'	503.34'

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-7

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
Caltrans

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

LAST REVISION 02-28-17
DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:18:11 PM

BORDER LAST REVISED 7/2/2010
USERNAME => brecheisen, chris
DGN FILE => l-7
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

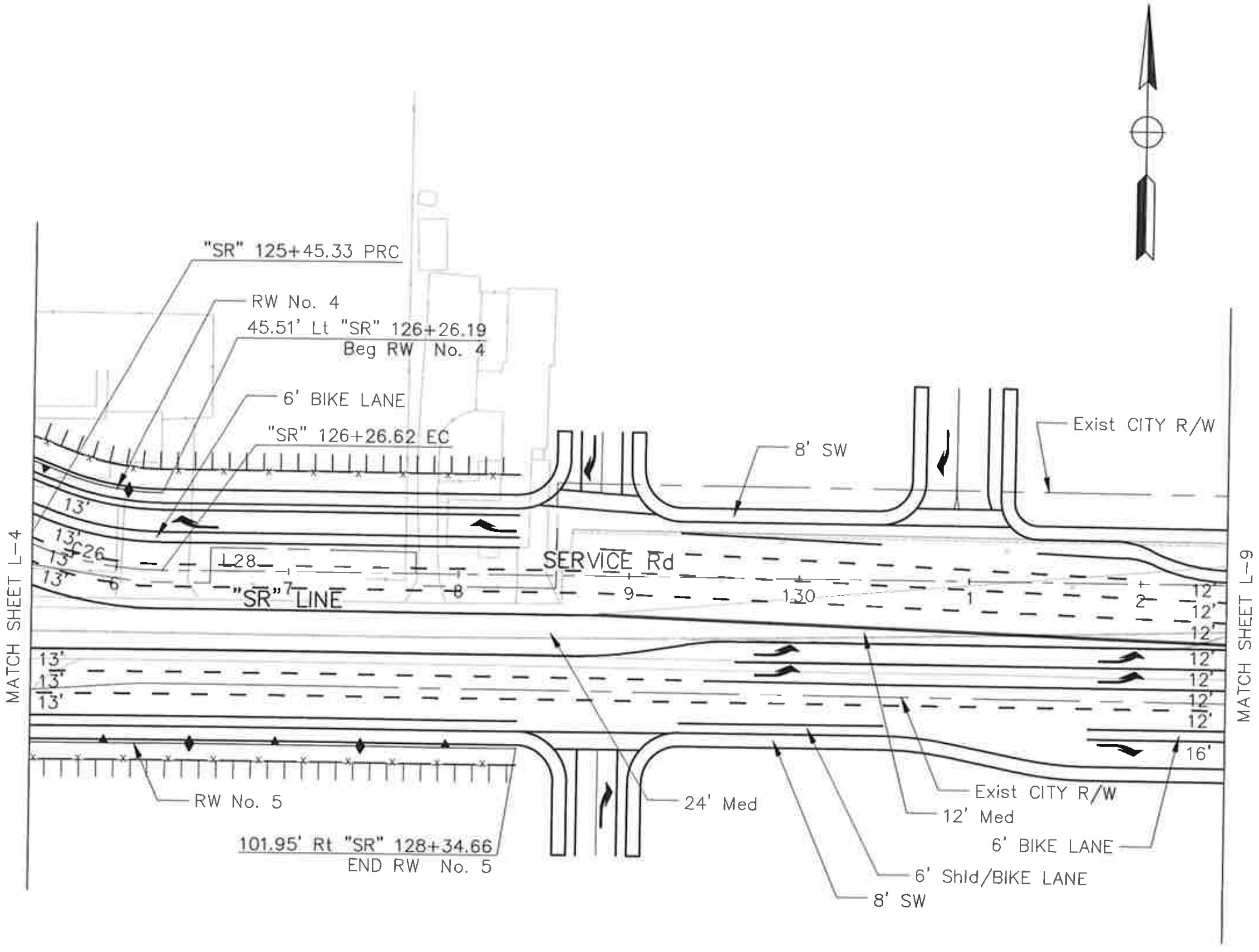
REGISTERED CIVIL ENGINEER – DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L28	1639.98'	S89°58'06"E

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C26	200.00'	23°17'18"	41.22'	80.73'

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => k:\bay_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:18:27 PM

LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => l-8

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER

DATE –

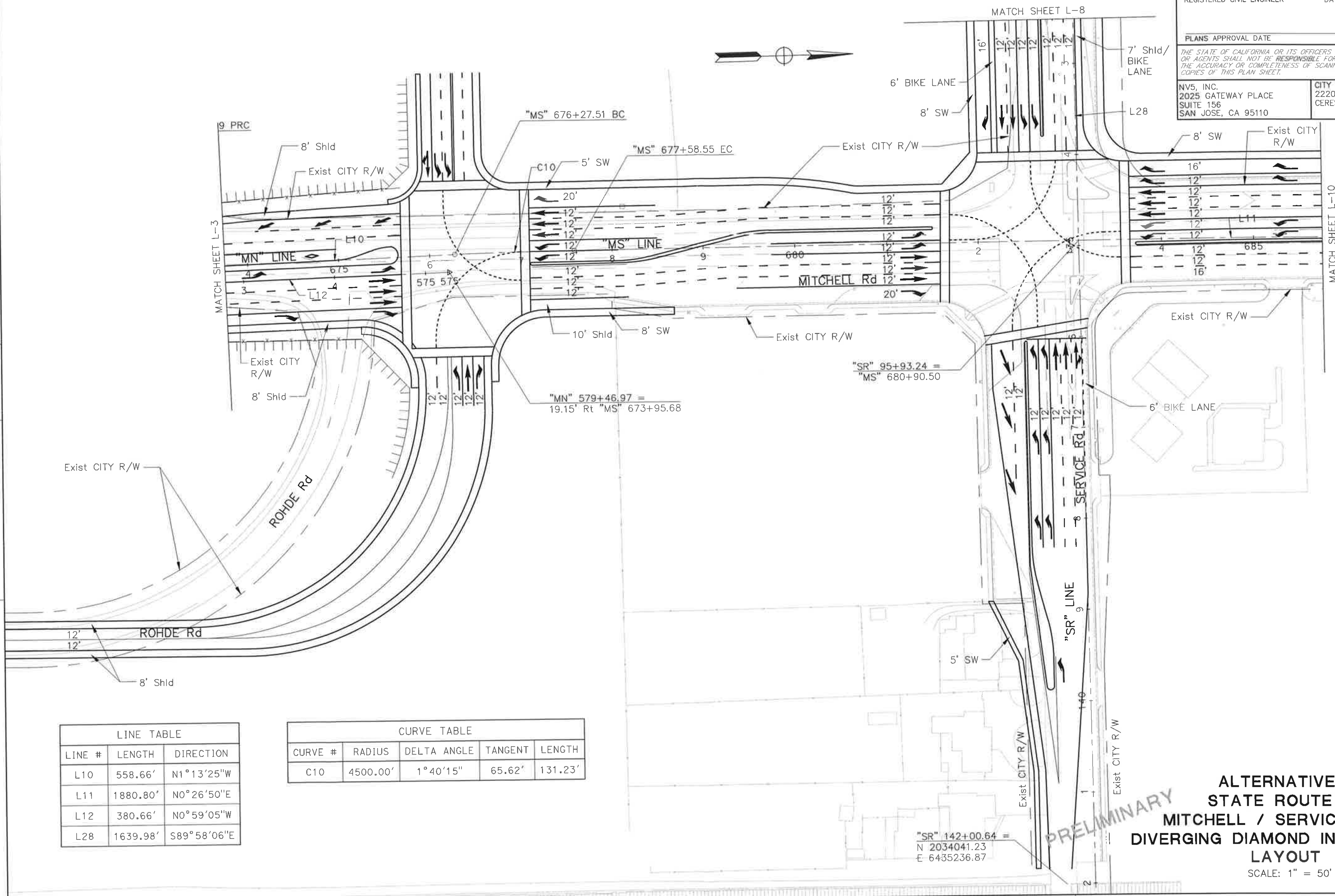
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L10	558.66'	N1°13'25"W
L11	1880.80'	N0°26'50"E
L12	380.66'	N0°59'05"W
L28	1639.98'	S89°58'06"E

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C10	4500.00'	1°40'15"	65.62'	131.23'

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-9

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR

PATH => k:\bay_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

LAST REVISION 02-28-17
DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:18:45 PM

BORDER LAST REVISED 7/2/2010
USERNAME => brecheisen, chris
DGN FILE => l-9
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER

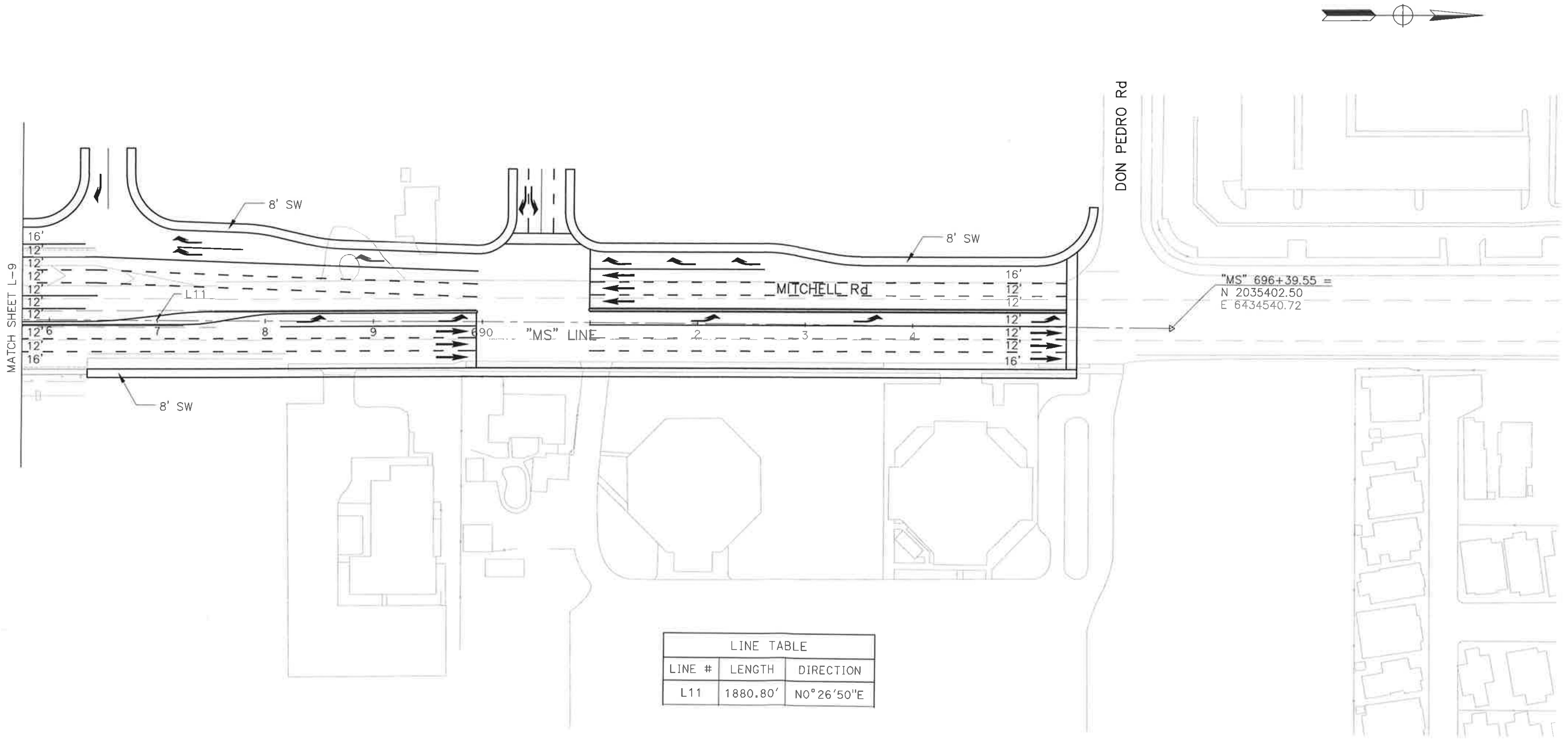
DATE –

PLANS APPROVAL DATE

No.
Exp.
CIVIL

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L11	1880.80'	N0°26'50"E

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR –

CALCULATED-DESIGNED BY –

CHECKED BY –

REVISED BY –

DATE REVISED –

PATH => k:\bay_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:19:05 PM

LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => l-10

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sto	99	9.5/R11.4		—

REGISTERED CIVIL ENGINEER — DATE

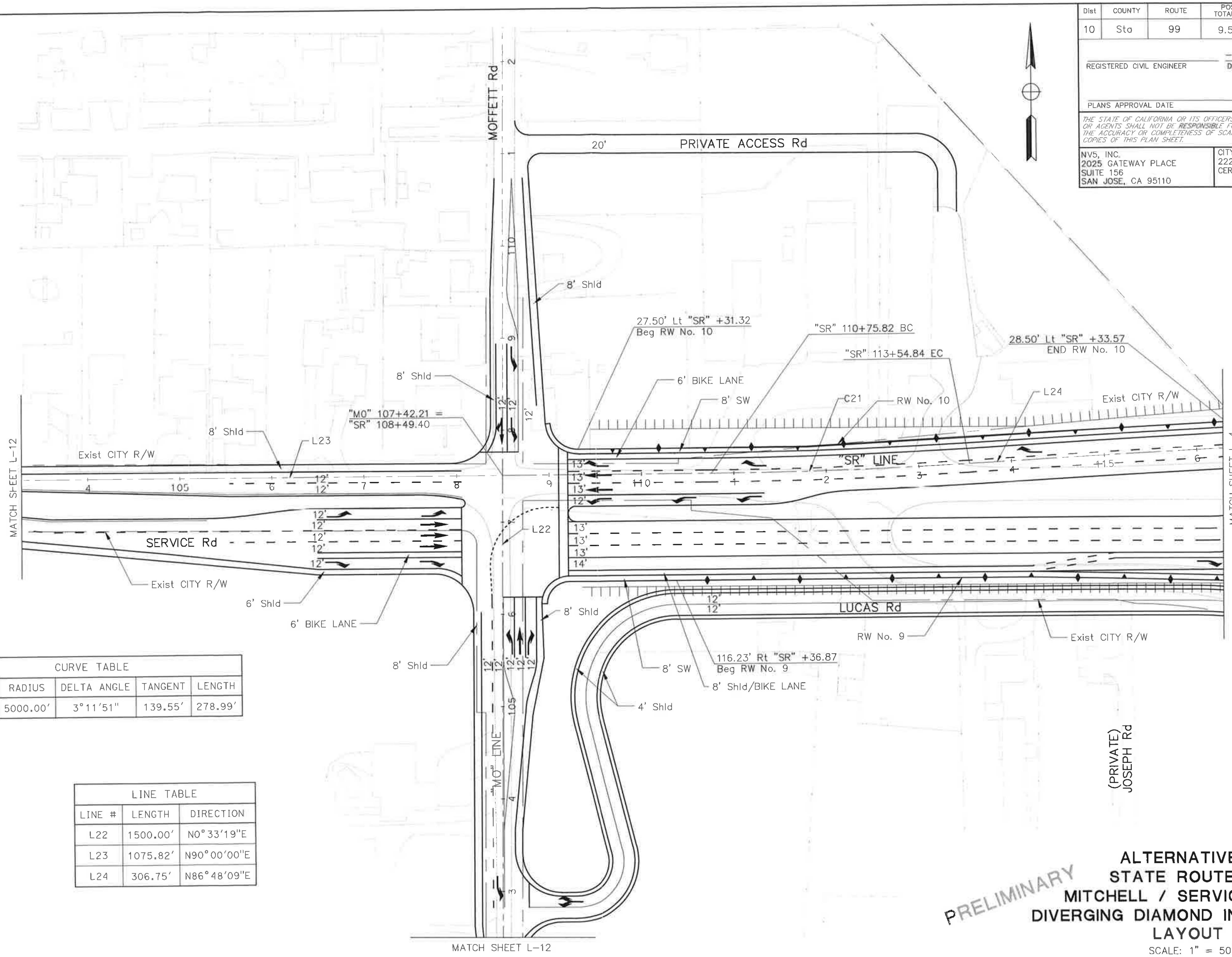
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



CURVE TABLE

CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C21	5000.00'	3°11'51"	139.55'	278.99'

LINE TABLE

LINE #	LENGTH	DIRECTION
L22	1500.00'	N0°33'19"E
L23	1075.82'	N90°00'00"E
L24	306.75'	N86°48'09"E

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-11

LAST REVISION 02-28-17
DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:19:25 PM

PATH => k:\bay_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR —
CALCULATED-DESIGNED BY —
CHECKED BY —
REVISED BY —
DATE REVISED —

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => l-11

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT —

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER – DATE

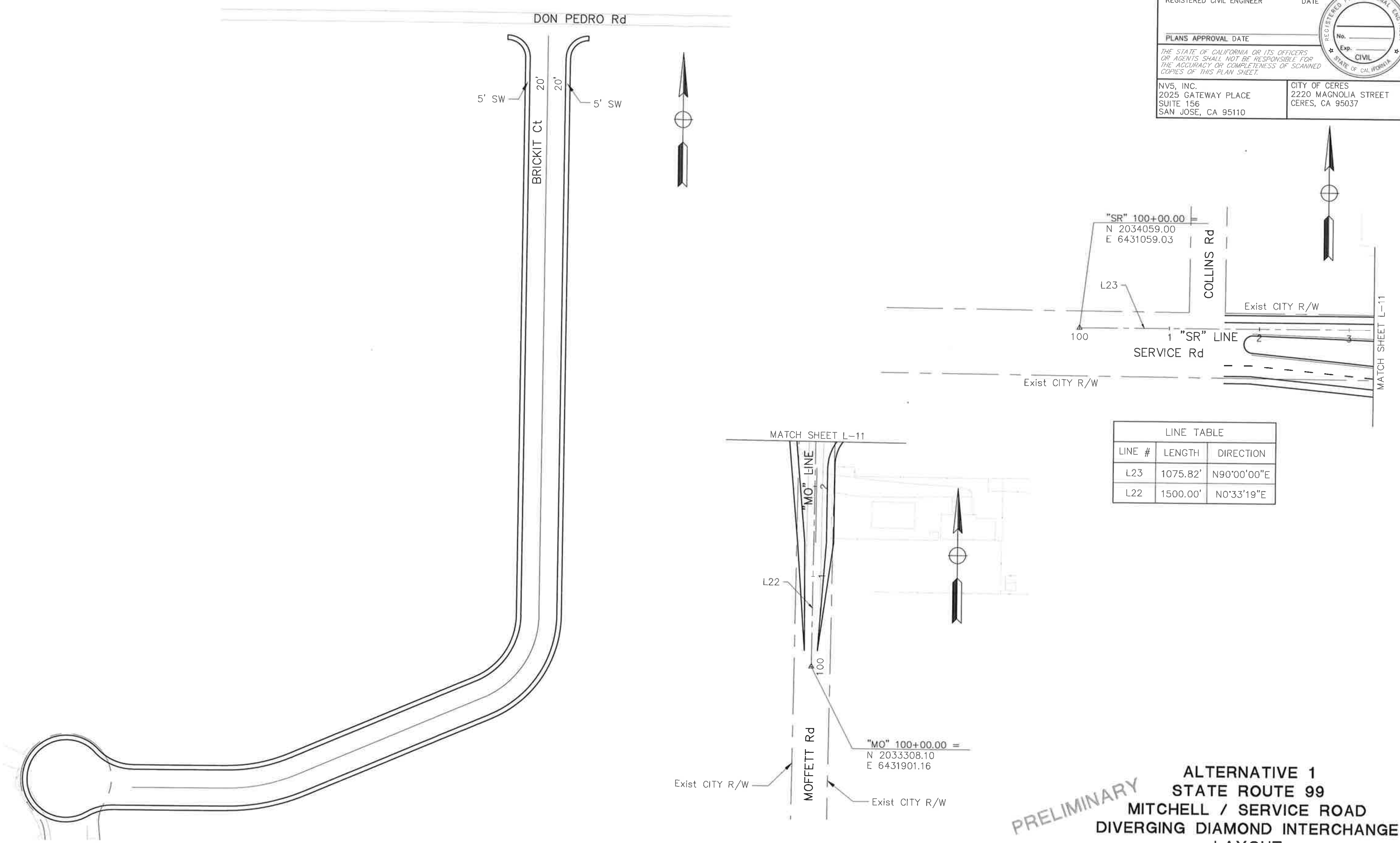
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L23	1075.82'	N90°00'00"E
L22	1500.00'	N0°33'19"E

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-12

LAST REVISION 02-28-17

DATE PLOTTED => October 1, 2018
TIME PLOTTED => 2:19:44 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR –

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY –

DATE REVISED –

PATH => k:\bay_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_layout sheets

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => l-12

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE –

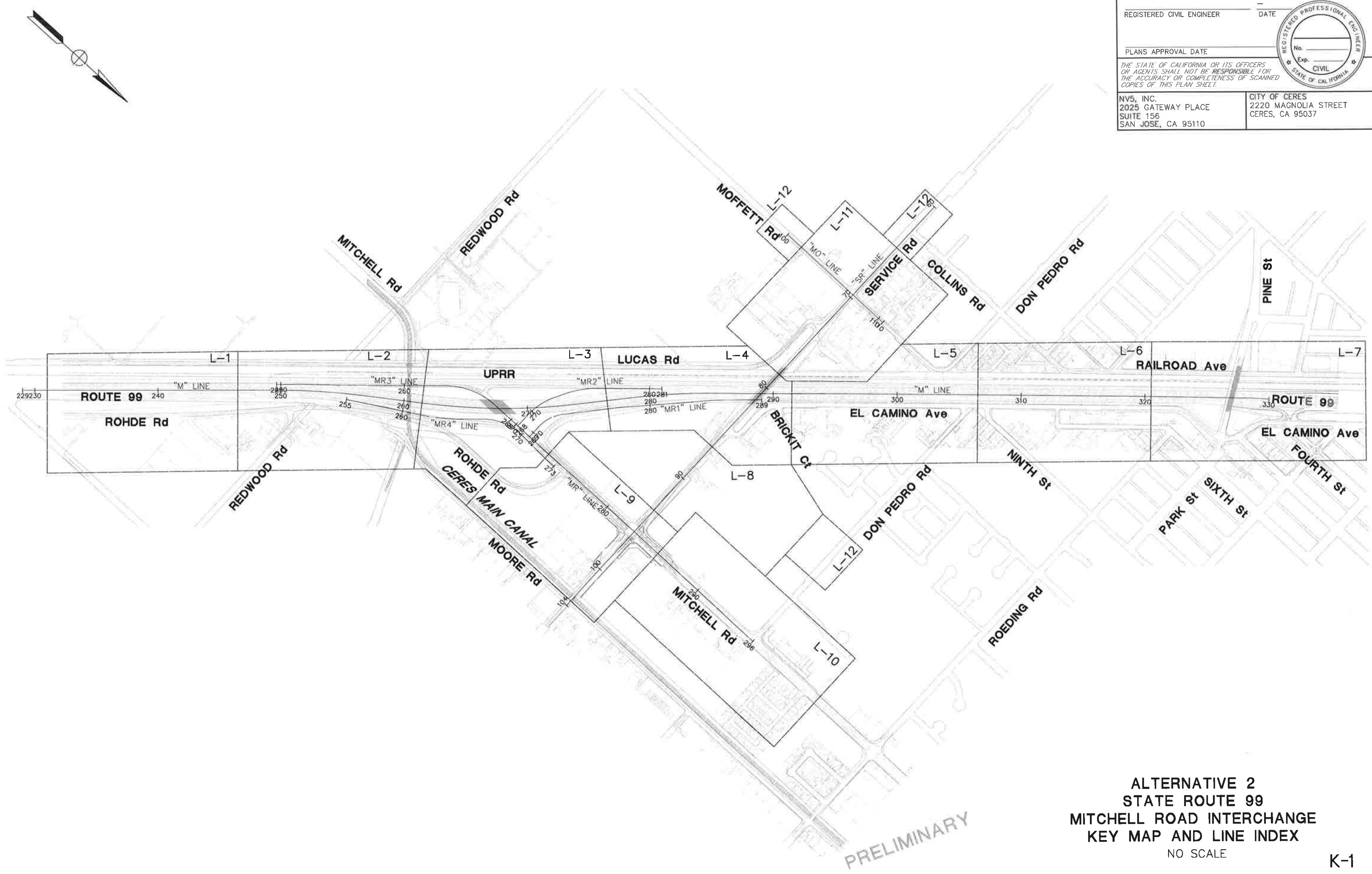
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
KEY MAP AND LINE INDEX

NO SCALE

K-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR –
CALCULATED- DESIGNED BY
CHECKED BY
REVISED BY –
DATE REVISED –

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

LAST REVISION
DATE PLOTTED => February 28, 2017

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => k-1

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER
DATE

PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

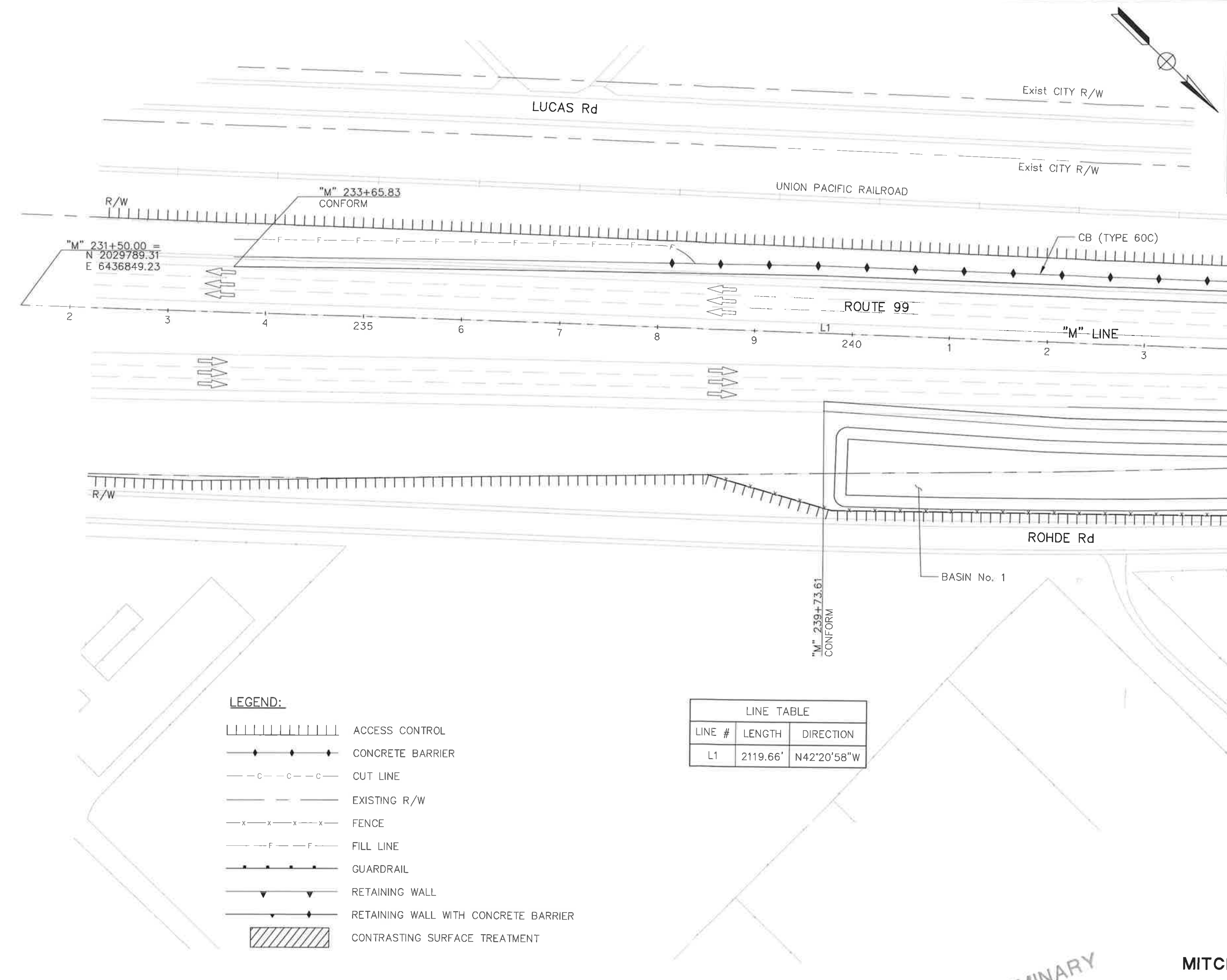
CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED



LEGEND:

⊥⊥⊥⊥⊥⊥⊥⊥	ACCESS CONTROL
—◆—◆—◆	CONCRETE BARRIER
— —C— —C— —C—	CUT LINE
——— — ———	EXISTING R/W
—x—x—x—x—	FENCE
— —F— —F—	FILL LINE
—■—■—■—■—	GUARDRAIL
——▼——▼—	RETAINING WALL
——▾——◆—	RETAINING WALL WITH CONCRETE BARRIER
▨	CONTRASTING SURFACE TREATMENT

LINE TABLE

LINE #	LENGTH	DIRECTION
L1	2119.66'	N42°20'58"W

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-1

LAST REVISION 02-28-17
DATE PLOTTED => March 1, 2017
TIME PLOTTED => 9:30:08 AM

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => l-1 to l-12

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

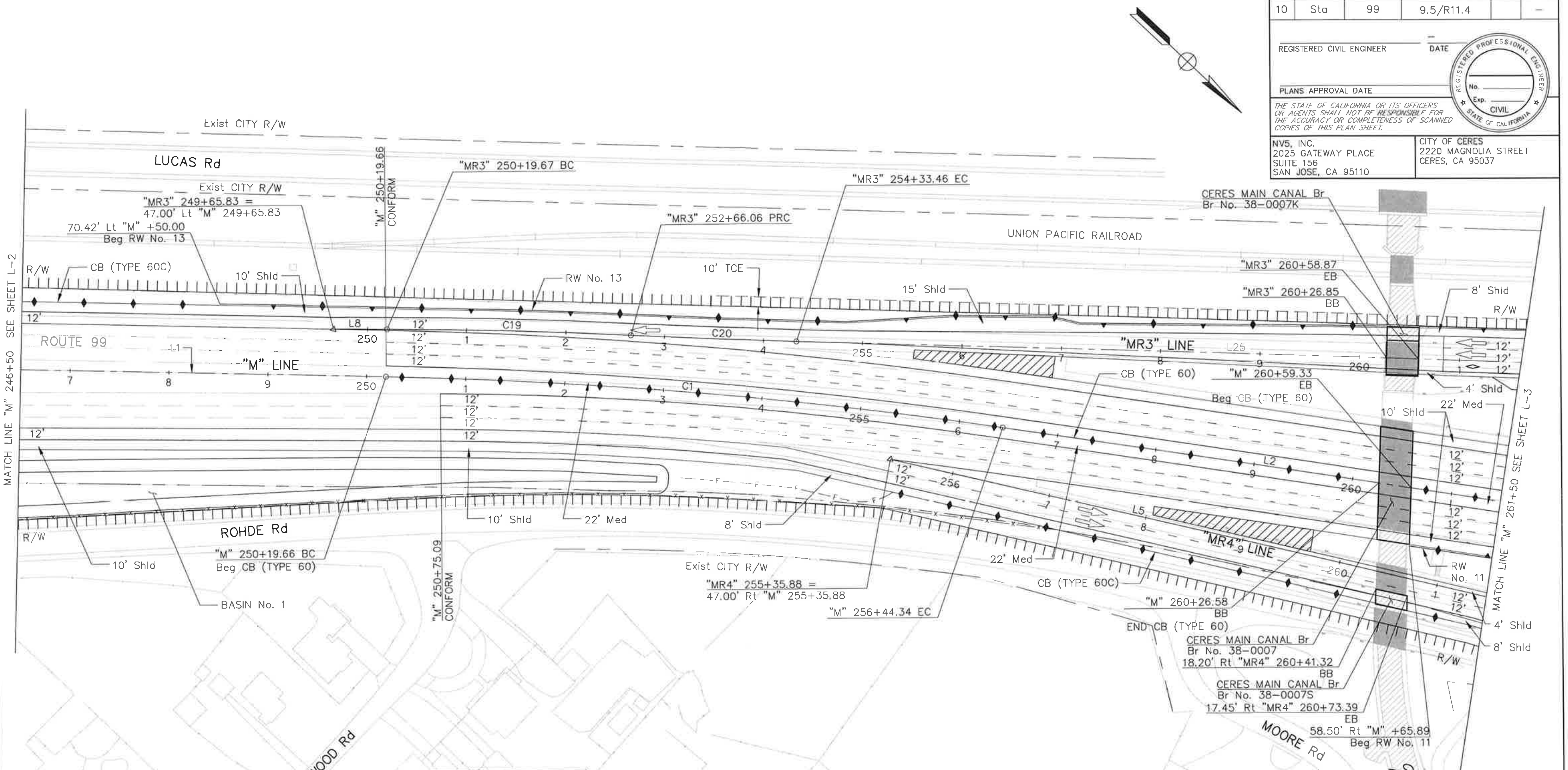
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	2119.66'	N42°20'58"W
L2	541.91'	N35°11'29"W
L5	641.48'	N30°34'04"W
L8	53.84'	N43°29'43"W
L25	896.14'	N41°59'19"W

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C1	5000.00'	7°09'30"	312.75'	624.27'
C19	5047.98'	2°47'48"	123.22'	246.37'
C20	7436.45'	1°17'23"	83.70'	167.40'

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

LAST REVISION 02-28-17

DATE PLOTTED => March 1, 2017

TIME PLOTTED => 10:0[illegible] 54 'M

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => l-1 to l-12

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

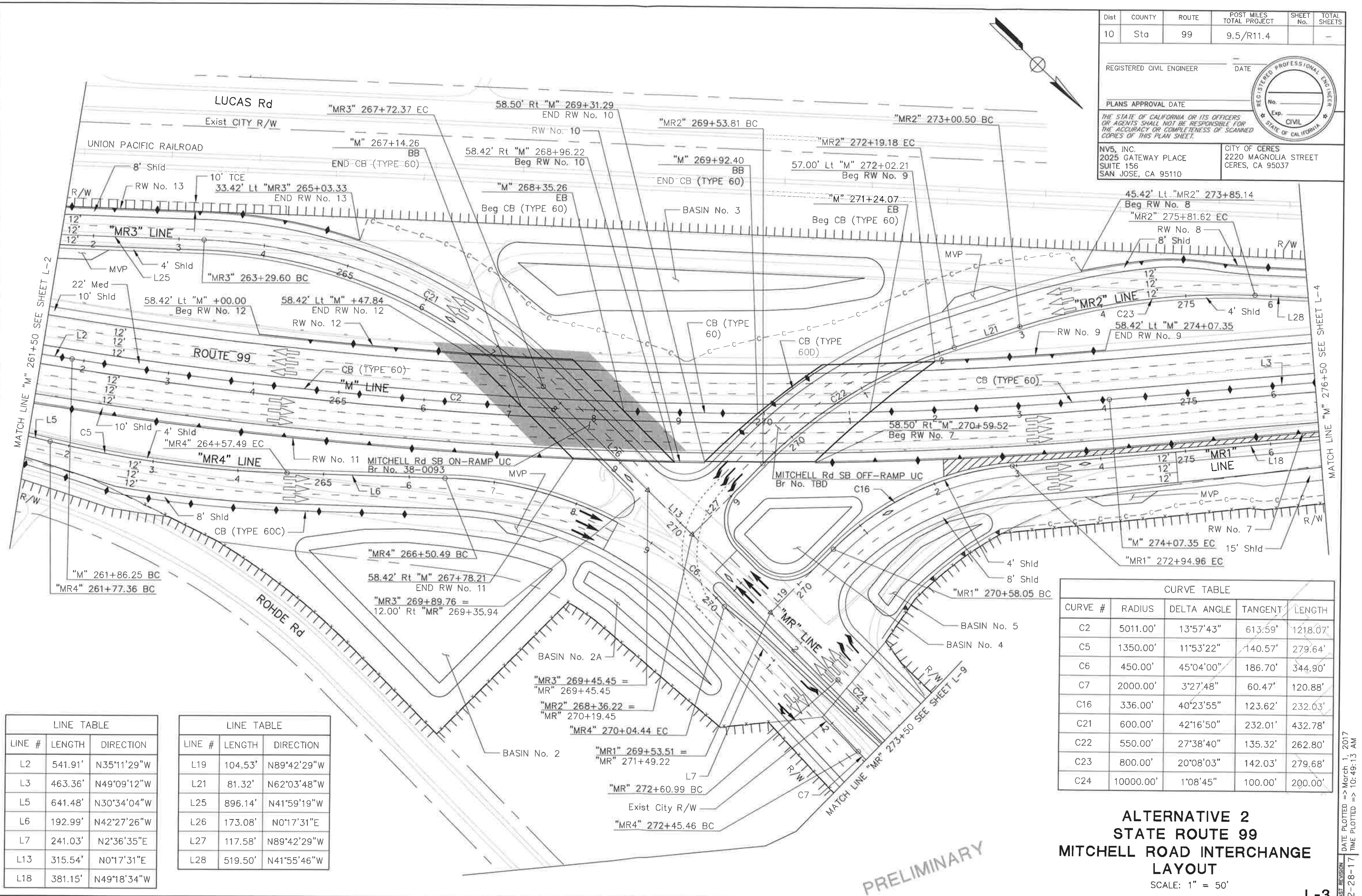
PLANS APPROVAL DATE

No.
Exp.
CIVIL

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L2	541.91'	N35°11'29"W
L3	463.36'	N49°09'12"W
L5	641.48'	N30°34'04"W
L6	192.99'	N42°27'26"W
L7	241.03'	N2°36'35"E
L13	315.54'	N0°17'31"E
L18	381.15'	N49°18'34"W

LINE TABLE		
LINE #	LENGTH	DIRECTION
L19	104.53'	N89°42'29"W
L21	81.32'	N62°03'48"W
L25	896.14'	N41°59'19"W
L26	173.08'	N0°17'31"E
L27	117.58'	N89°42'29"W
L28	519.50'	N41°55'46"W

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C2	5011.00'	13°57'43"	613.59'	1218.07'
C5	1350.00'	11°53'22"	140.57'	279.64'
C6	450.00'	45°04'00"	186.70'	344.90'
C7	2000.00'	3°27'48"	60.47'	120.88'
C16	336.00'	40°23'55"	123.62'	232.03'
C21	600.00'	42°16'50"	232.01'	432.78'
C22	550.00'	27°38'40"	135.32'	262.80'
C23	800.00'	20°08'03"	142.03'	279.68'
C24	10000.00'	1°08'45"	100.00'	200.00'

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE LAYOUT

SCALE: 1" = 50'

L-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

LAST REVISION 02-28-17

DATE PLOTTED => March 1, 2017
TIME PLOTTED => 10:49:13 AM

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => I-1 to I-12

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

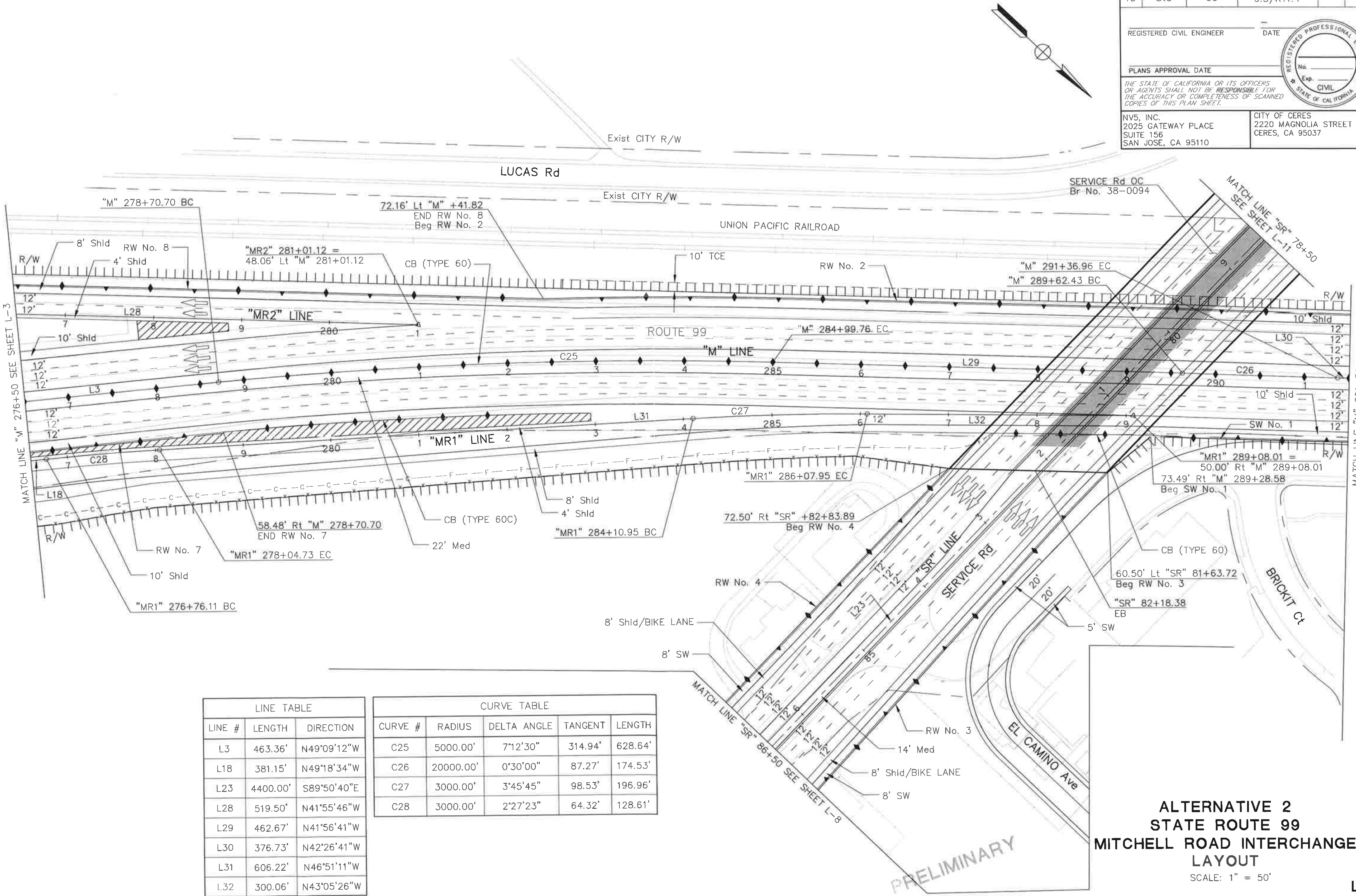
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L3	463.36'	N49°09'12"W
L18	381.15'	N49°18'34"W
L23	4400.00'	S89°50'40"E
L28	519.50'	N41°55'46"W
L29	462.67'	N41°56'41"W
L30	376.73'	N42°26'41"W
L31	606.22'	N46°51'11"W
L32	300.06'	N43°05'26"W

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C25	5000.00'	7°12'30"	314.94'	628.64'
C26	20000.00'	0°30'00"	87.27'	174.53'
C27	3000.00'	3°45'45"	98.53'	196.96'
C28	3000.00'	2°27'23"	64.32'	128.61'

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => I-1 to I-12

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

LAST REVISION

DATE PLOTTED => March 1, 2017

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

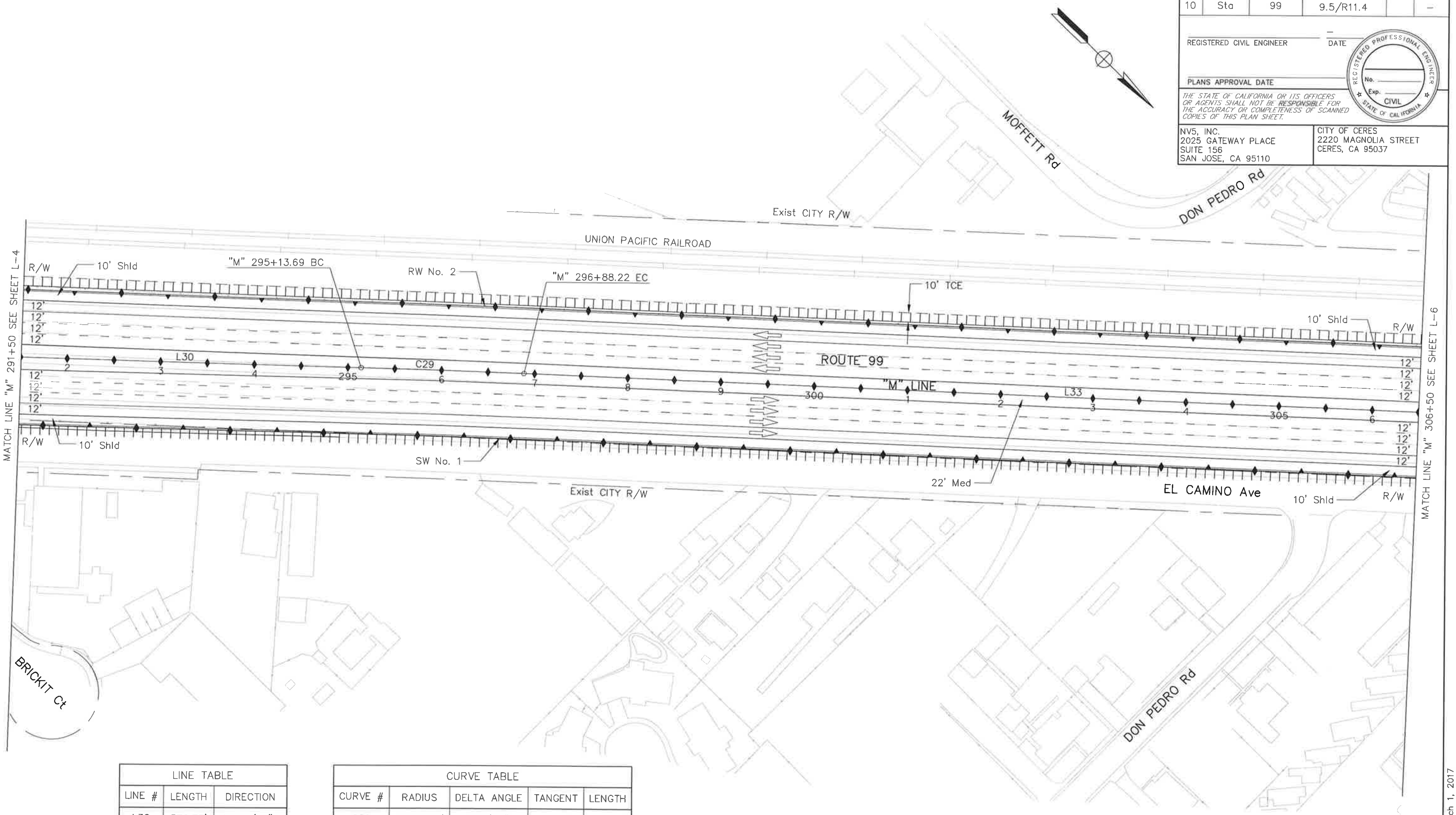
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE

LINE #	LENGTH	DIRECTION
L30	376.73'	N42°26'41"W
L33	3111.49'	N41°56'41"W

CURVE TABLE

CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C29	20000.00'	0°30'00"	87.27'	174.53'

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR

Caltrans

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 02-28-17

DATE PLOTTED => March 1, 2017
TIME PLOTTED => 11:46:02 AM

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER —— DATE –

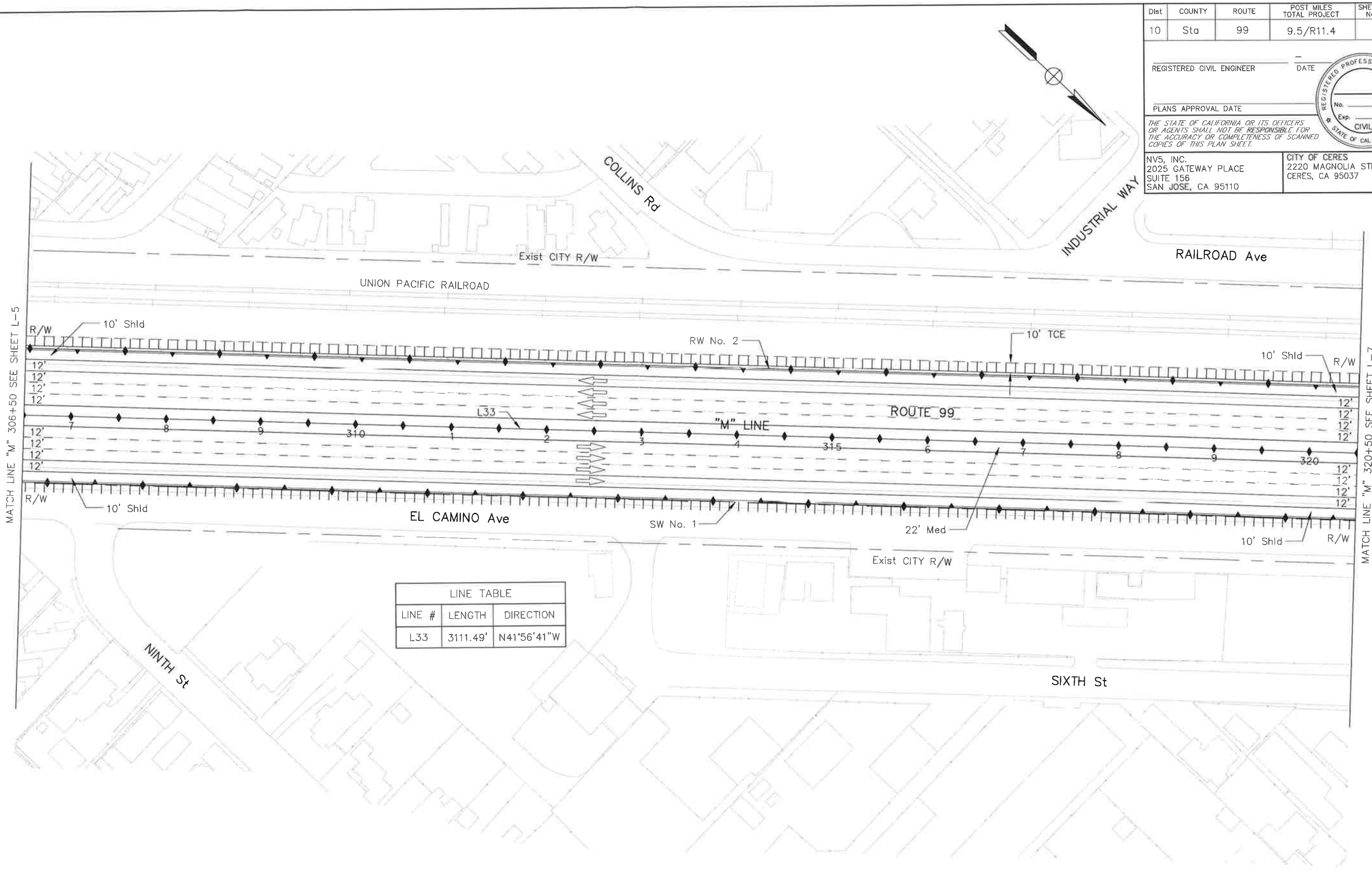
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L33	3111.49'	N41°56'41"W

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-6

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR
Caltrans

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

LAST REVISION
DATE PLOTTED => March 1, 2017

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => l-1 to l-12

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER —— DATE

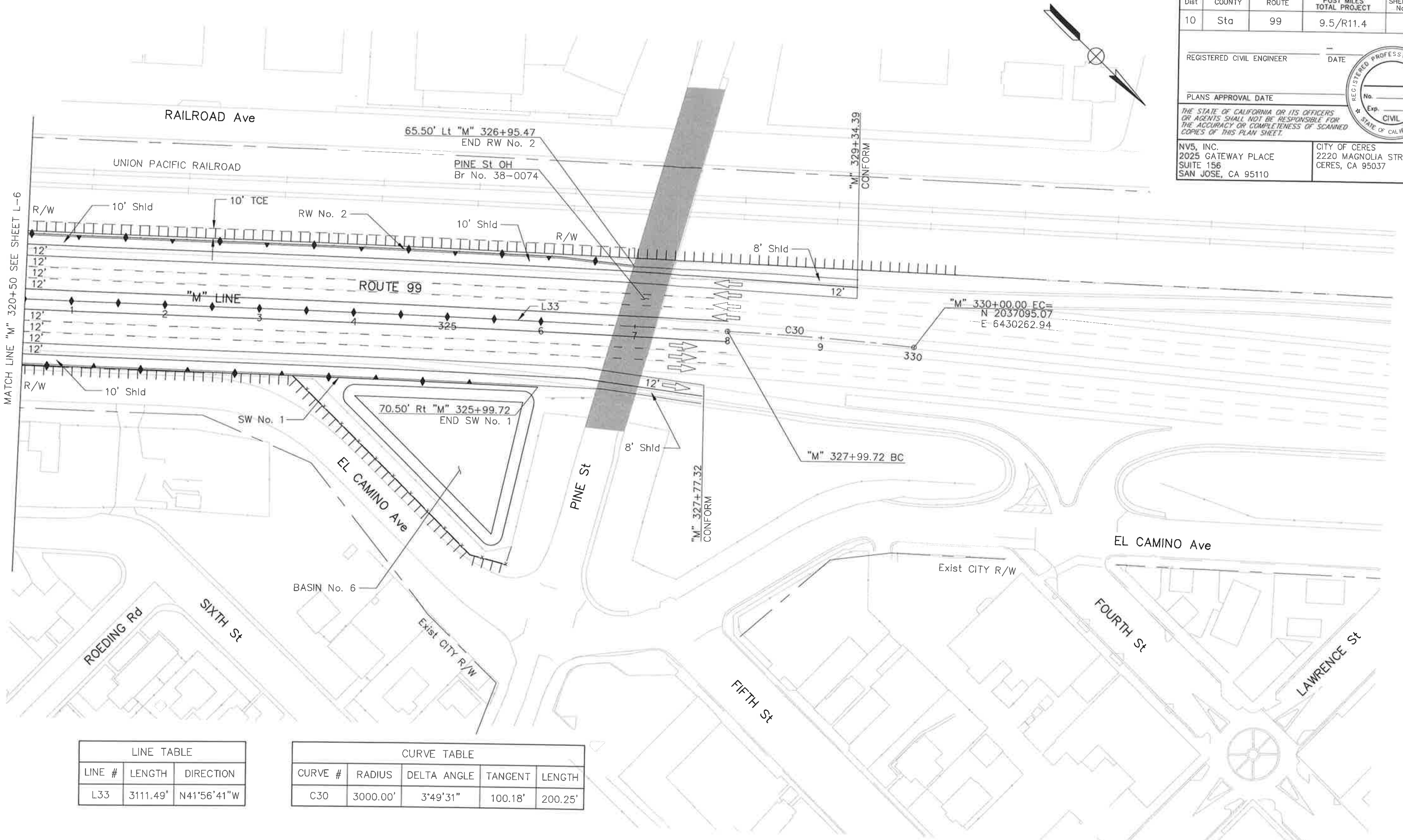
PLANS APPROVAL DATE

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

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

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L33	3111.49'	N41°56'41"W

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C30	3000.00'	3°49'31"	100.18'	200.25'

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-7

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

DATE PLOTTED => March 1, 2017
TIME PLOTTED => 11:59:14 AM

LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => I-1 to I-12

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

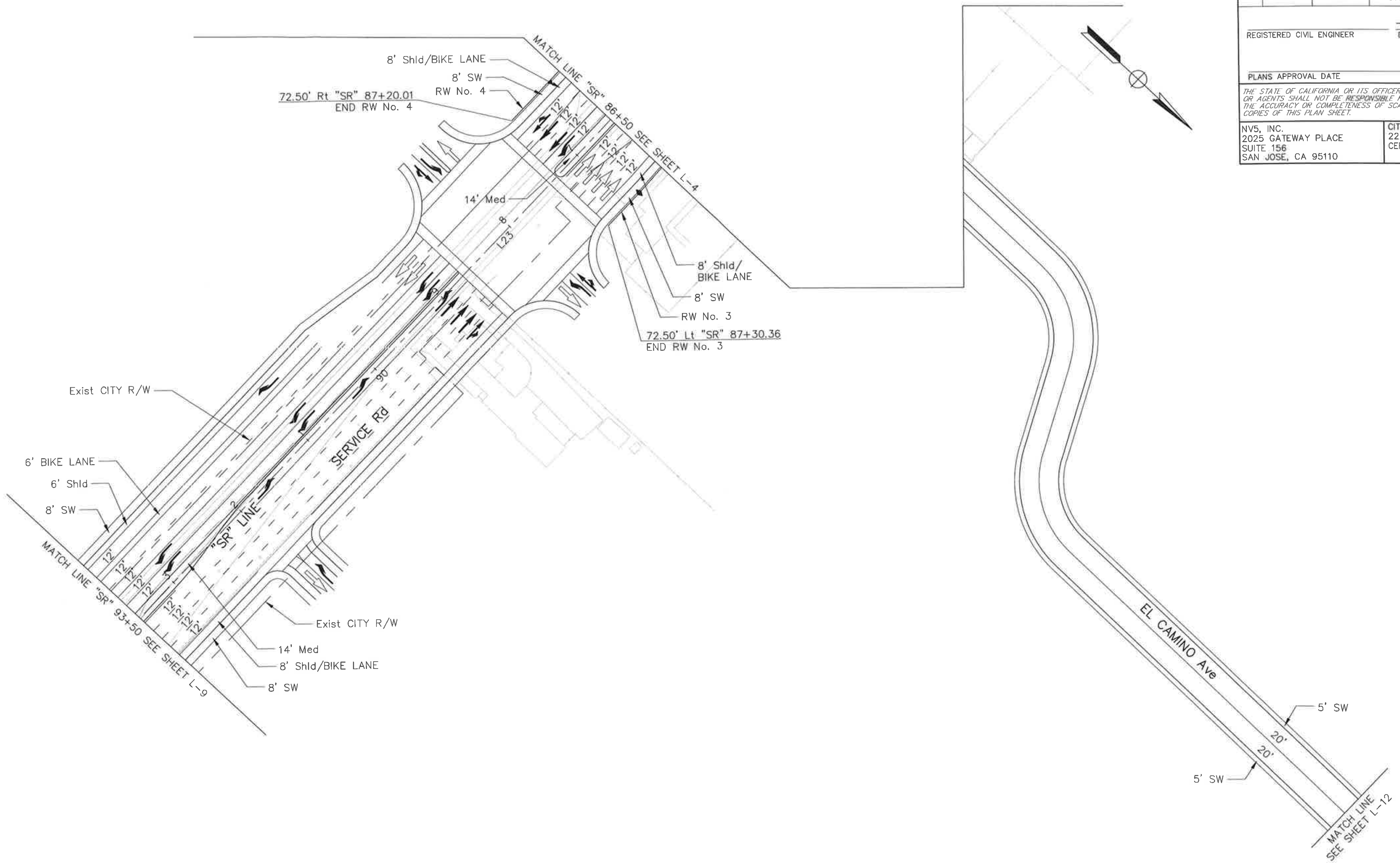
PLANS APPROVAL DATE

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

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L23	4400.00'	S89°50'40"E

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => L-1 to L-12

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

LAST REVISION 02-28-17

DATE PLOTTED => March 1, 2017
TIME PLOTTED => 12:0 36 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

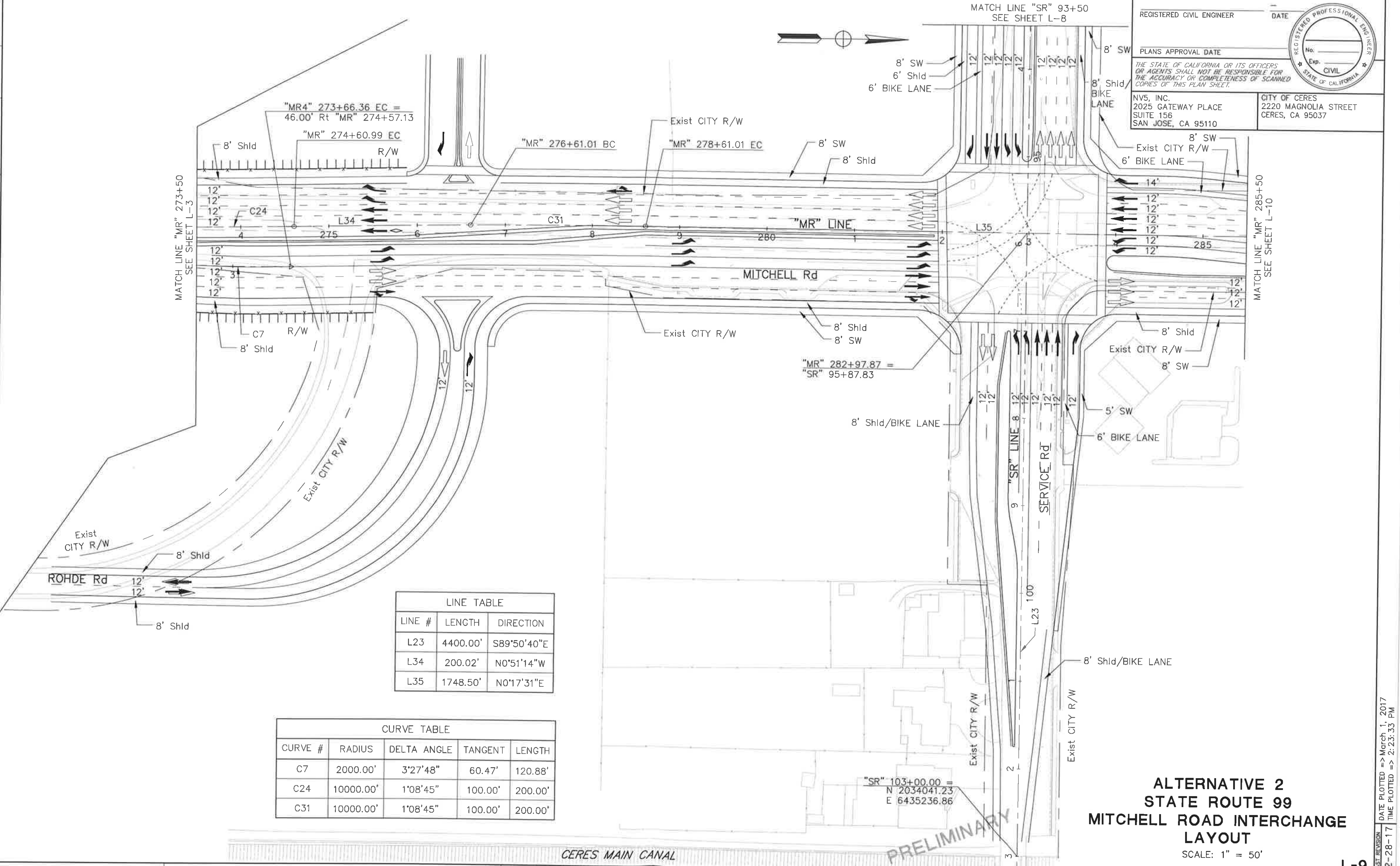
PLANS APPROVAL DATE

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

No.
Exp.
CIVIL

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L23	4400.00'	S89°50'40"E
L34	200.02'	N0°51'14"W
L35	1748.50'	N0°17'31"E

CURVE TABLE				
CURVE #	RADIUS	DELTA ANGLE	TANGENT	LENGTH
C7	2000.00'	3°27'48"	60.47'	120.88'
C24	10000.00'	1°08'45"	100.00'	200.00'
C31	10000.00'	1°08'45"	100.00'	200.00'

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u: \mt0043202\cadd\civil\layout sheets\alt 2.so

LAST REVISION 02-28-17

DATE PLOTTED => March 1, 2017
TIME PLOTTED => 2:23:33 PM

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => I-1 to I-12

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

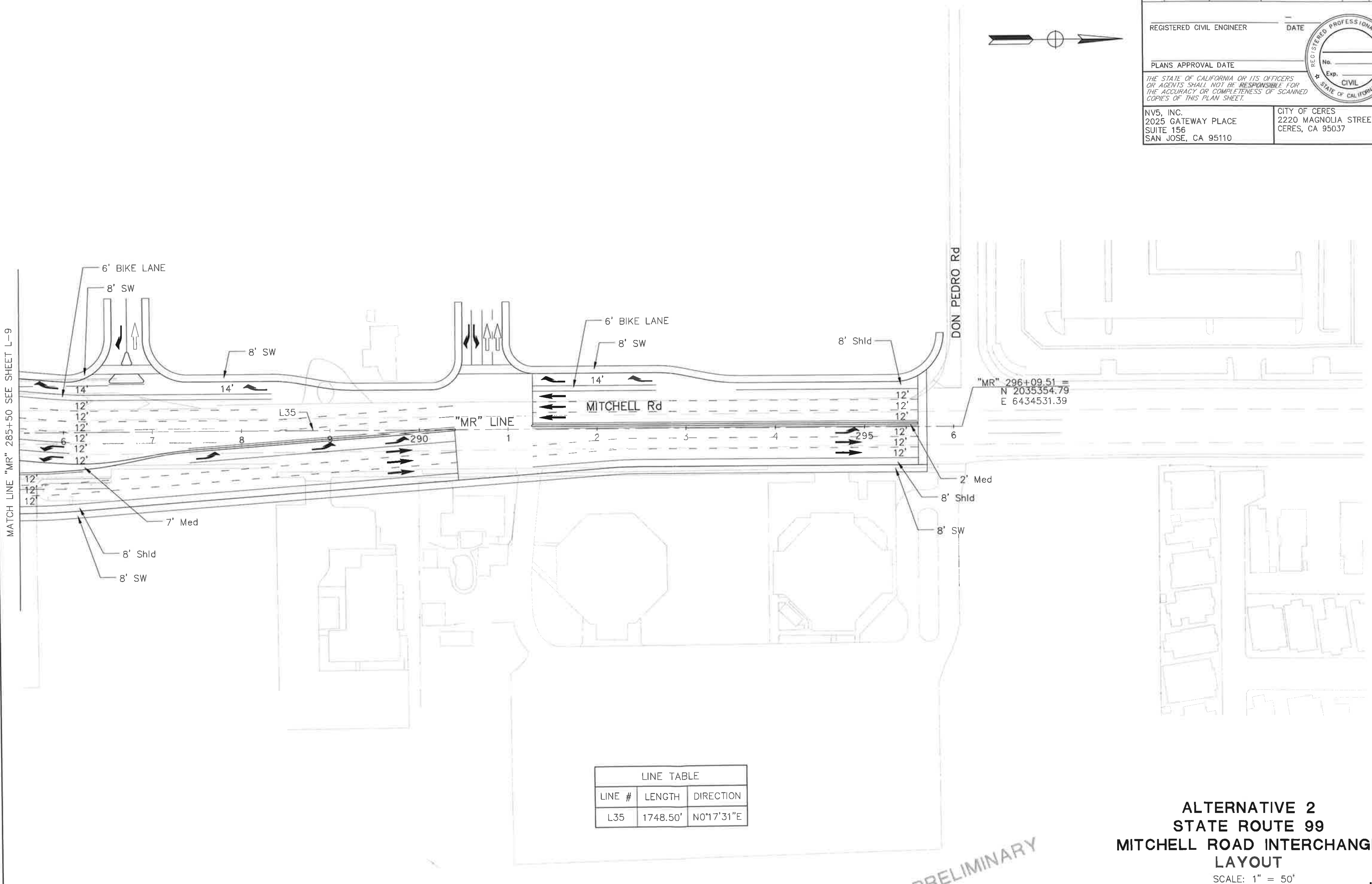
NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED



LINE TABLE		
LINE #	LENGTH	DIRECTION
L35	1748.50'	N0°17'31"E

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-10

LAST REVISION
DATE PLOTTED => March 1, 2017

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => l-1 to l-12

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

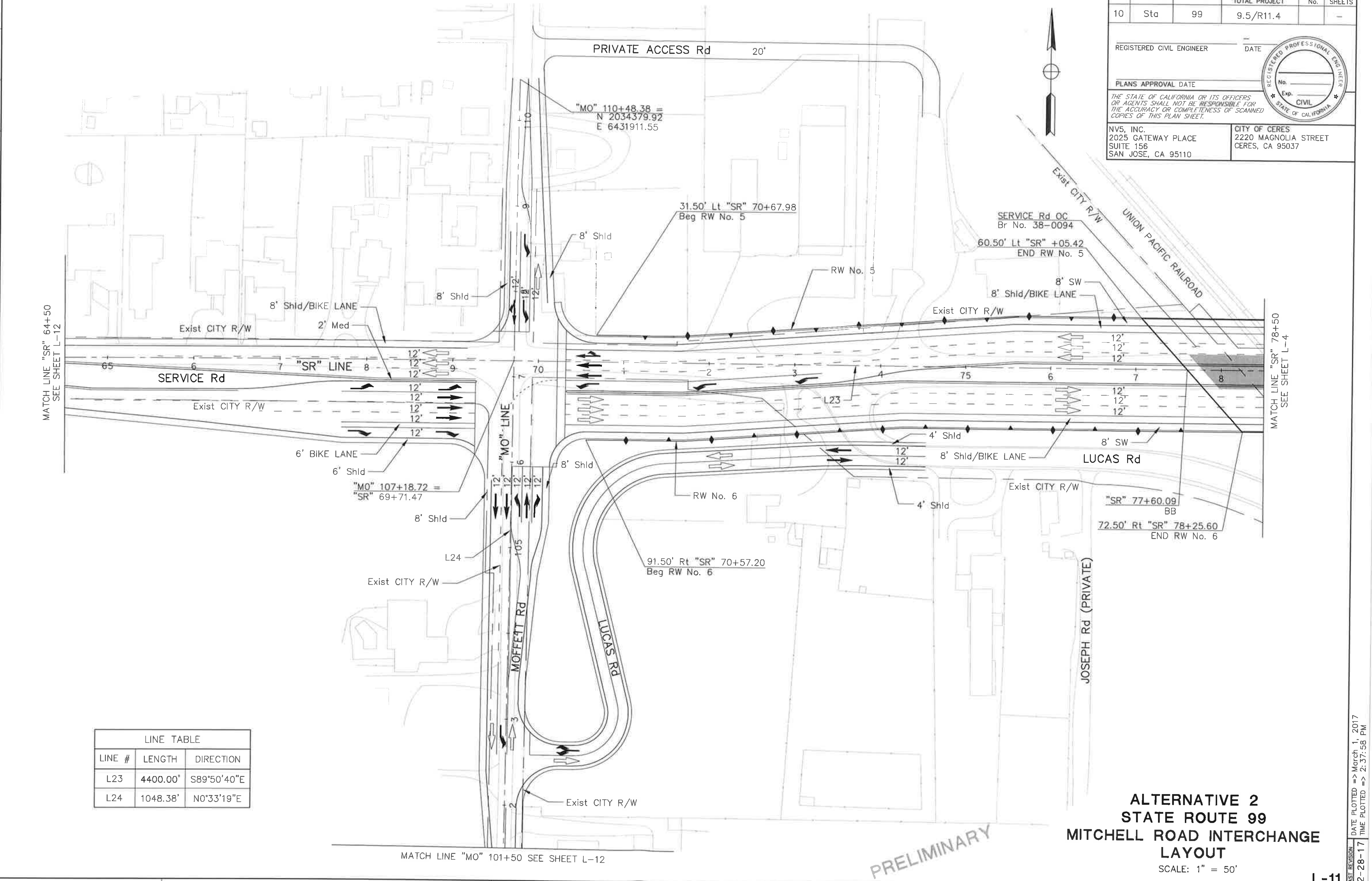
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



LINE TABLE		
LINE #	LENGTH	DIRECTION
L23	4400.00'	S89°50'40"E
L24	1048.38'	N0°33'19"E

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY —
CHECKED BY —
CONSULTANT FUNCTIONAL SUPERVISOR —
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

PATH => u: \mt0043202\cadd\civil\layout sheets\alt 2 so

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => I-1 to I-12

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

LAST REVISION 02-28-17

DATE PLOTTED => March 1, 2017
TIME PLOTTED => 2:37:58 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

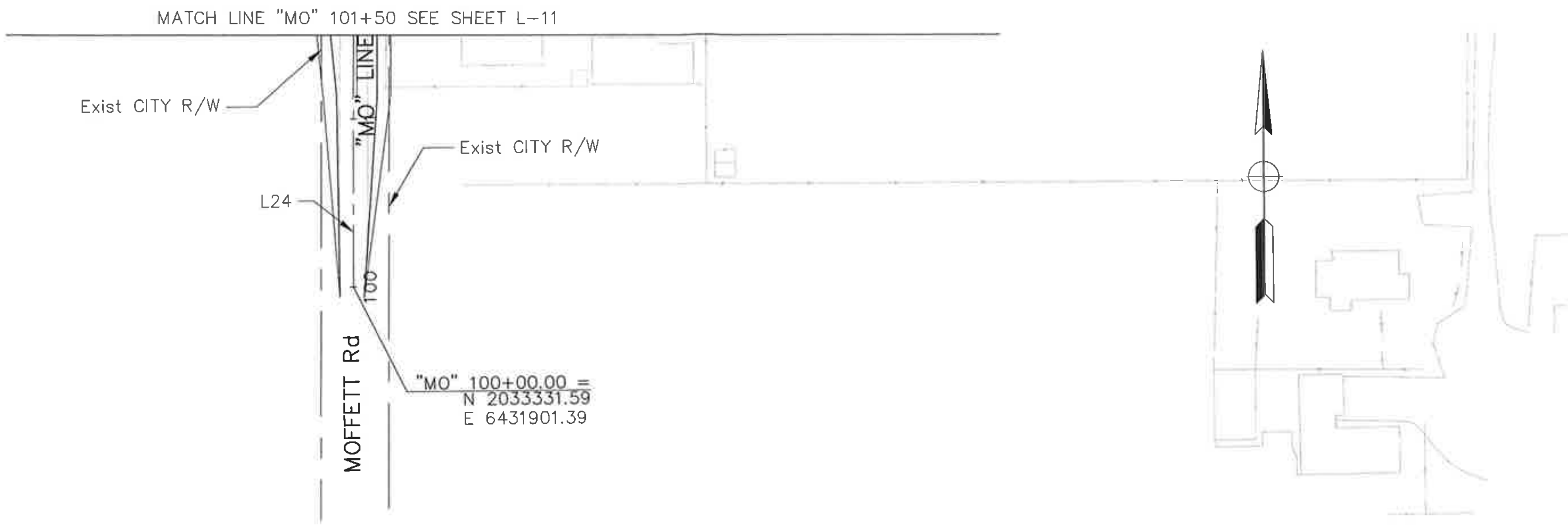
PLANS APPROVAL DATE

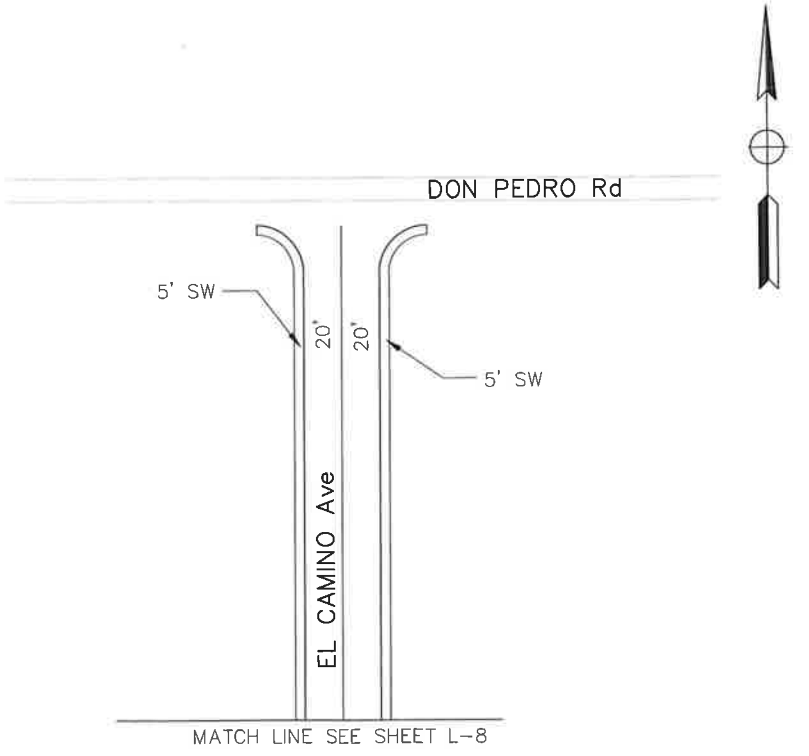
REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

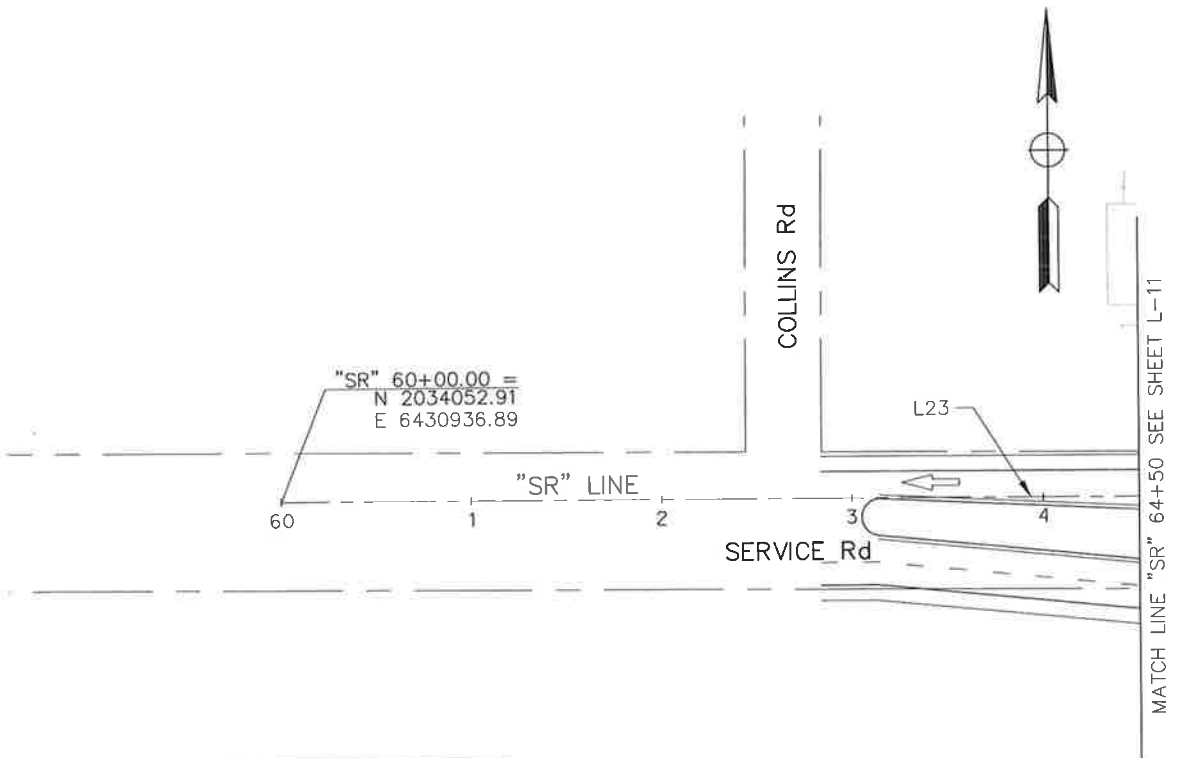
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037







LINE TABLE		
LINE #	LENGTH	DIRECTION
L23	4400.00'	S89°50'40"E
L24	1048.38'	N0°33'19"E

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
LAYOUT

SCALE: 1" = 50'

L-12

DATE PLOTTED => March 1, 2017

LAST REVISION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\layout sheets\alt 2 so

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => l-1 to l-12

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT D

PROFILES AND SUPERELEVATION DIAGRAMS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

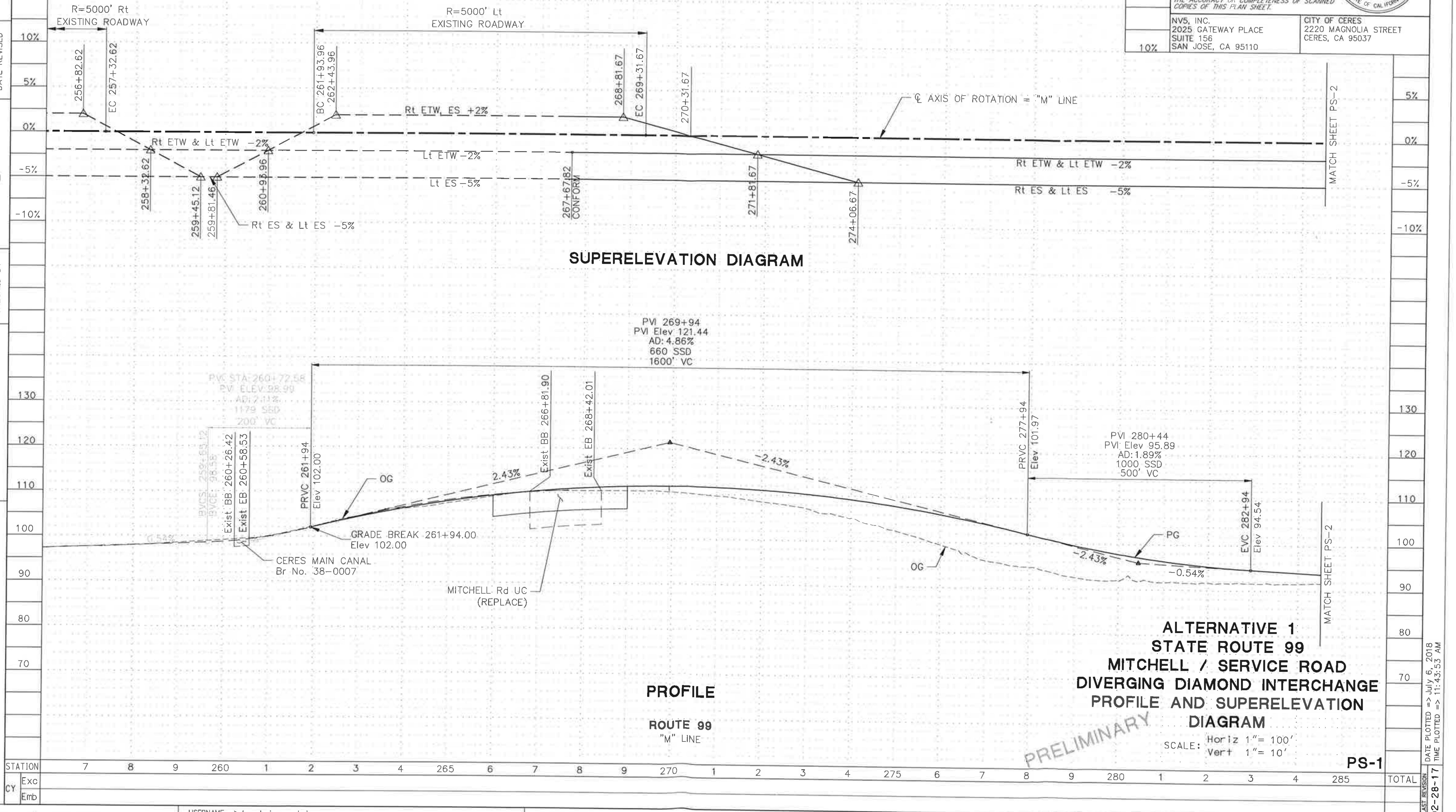
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_profile sheets

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => ps-1

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

LAST REVISION 02-28-17

DATE PLOTTED => July 6, 2018
TIME PLOTTED => 11:43:53 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

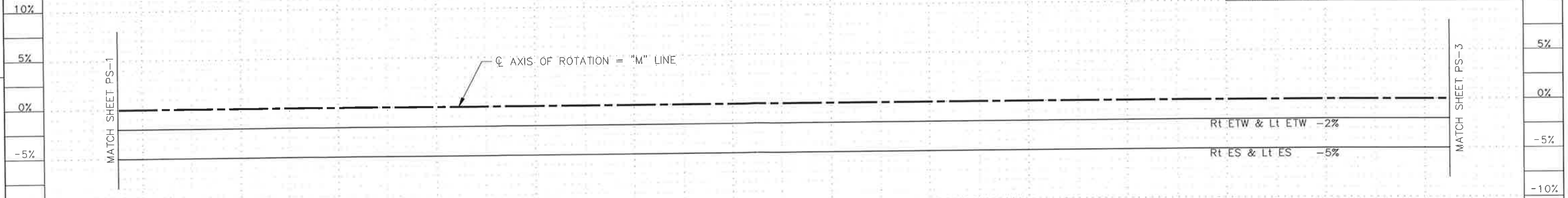
REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

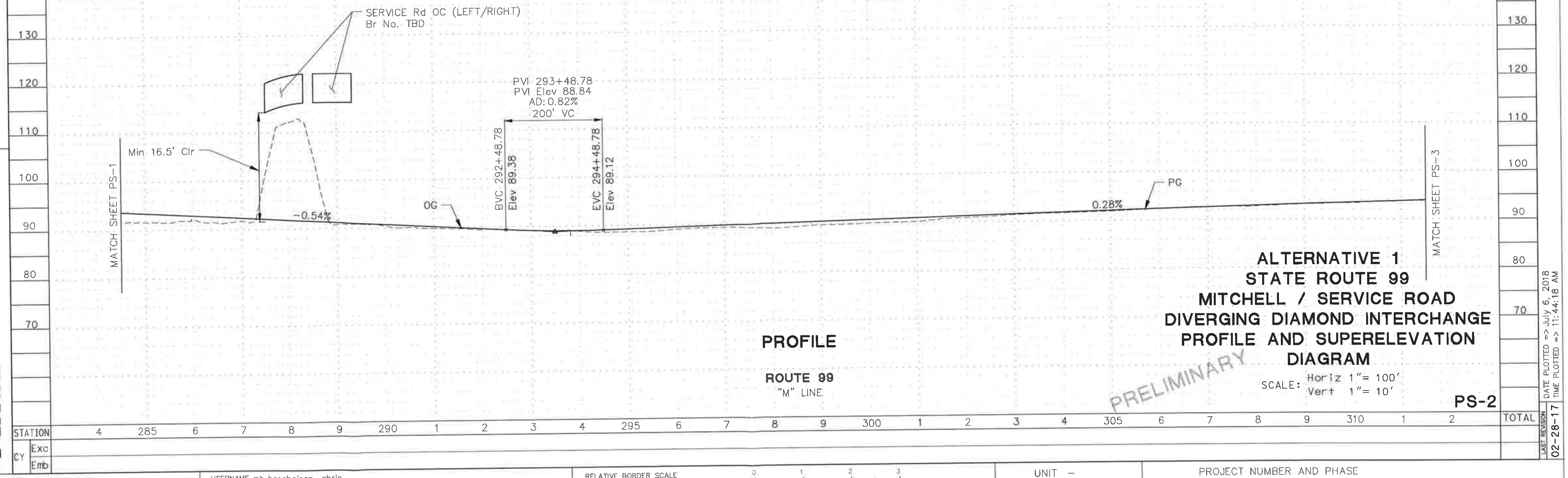
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

SUPERELEVATION DIAGRAM





PROFILE

ROUTE 99
"M" LINE

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

PS-2

TOTAL

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_profile sheets

LAST REVISION 02-28-17
DATE PLOTTED => July 6, 2018
TIME PLOTTED => 11:44:18 AM

BORDER LAST REVISED 7/2/2010
USERNAME => brecheisen, chris
DGN FILE => ps-2
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

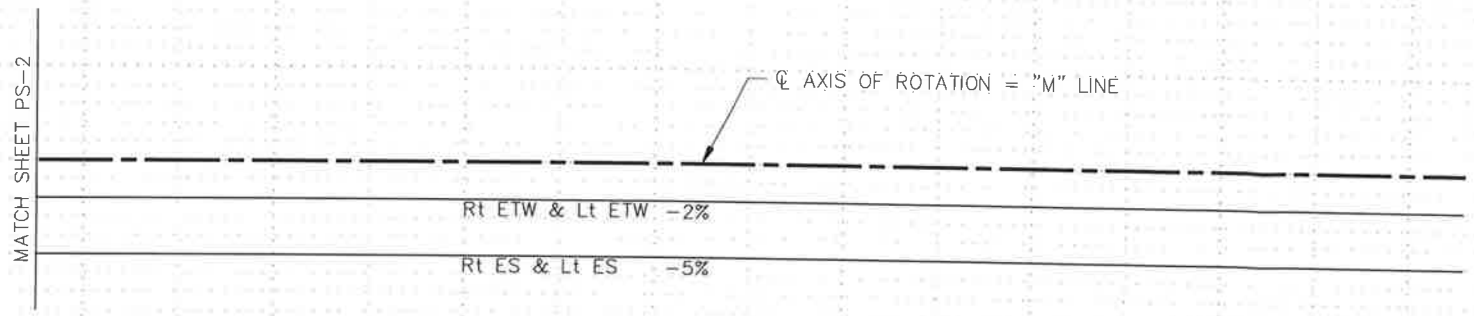
PLANS APPROVAL DATE

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

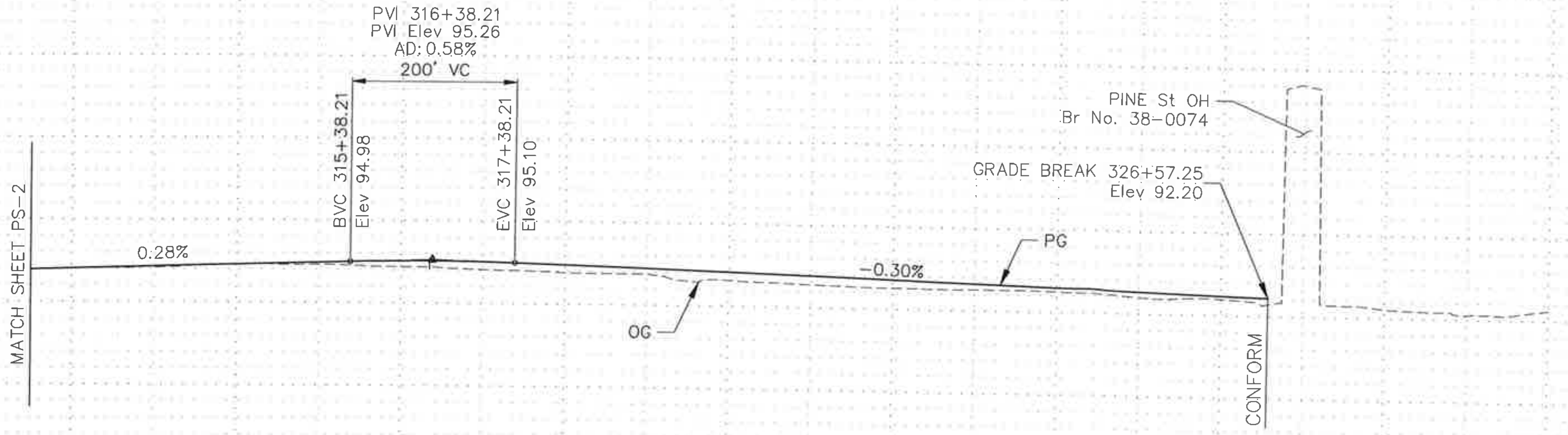
REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

ROUTE 99
"M" LINE

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

PS-3

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

DATE PLOTTED => July 6, 2018
TIME PLOTTED => 12:15:36 PM

LAST REVISION 02-28-17

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_profile sheets

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

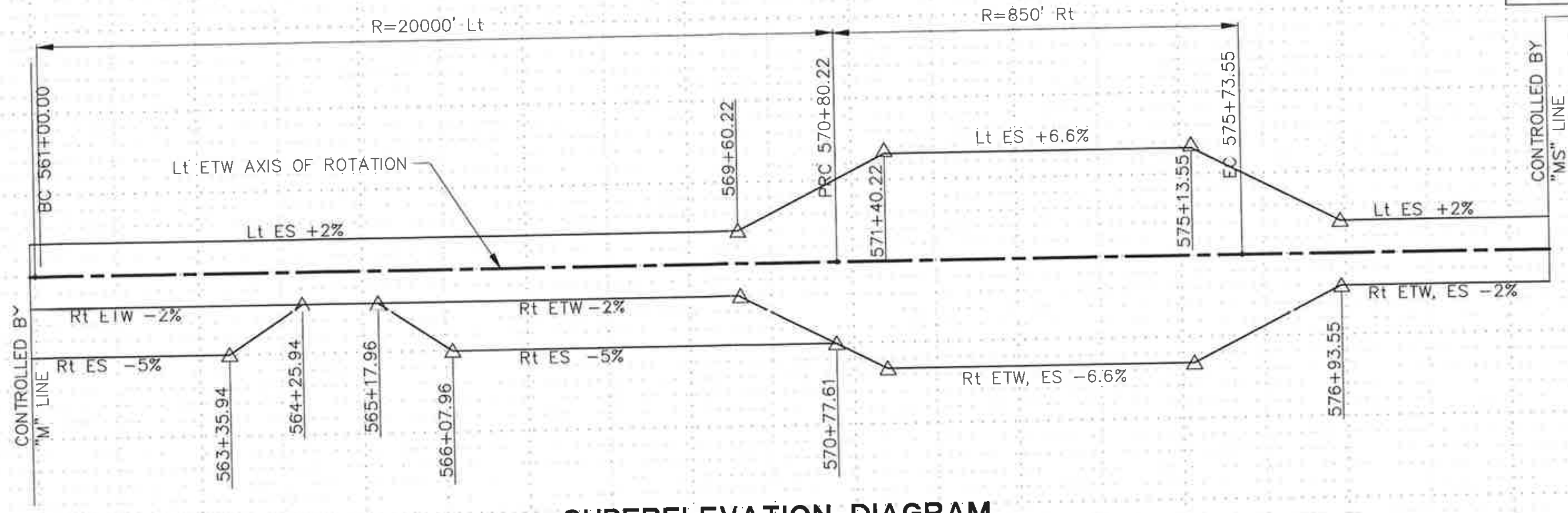
PLANS APPROVAL DATE

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

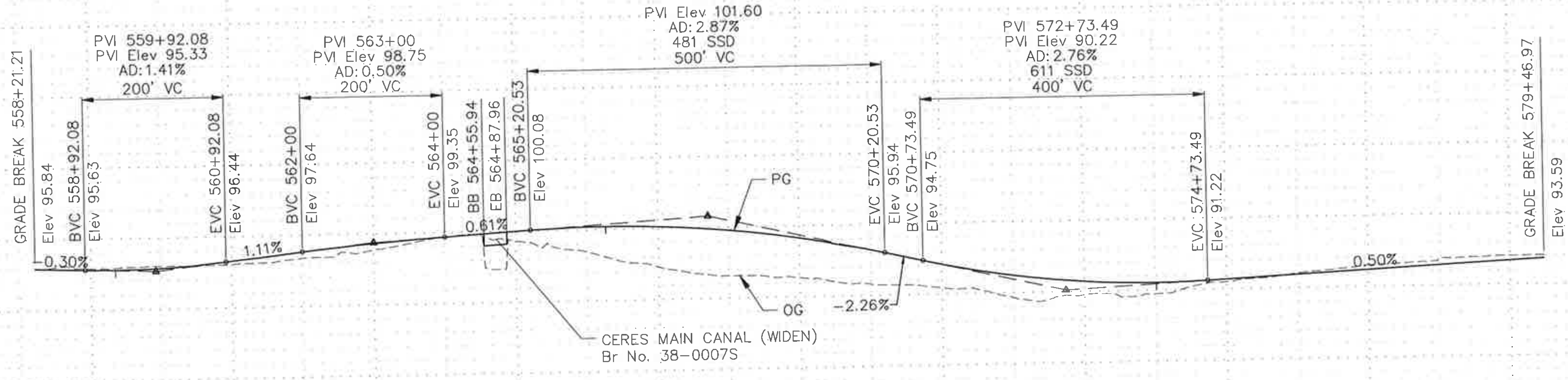
REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND OFF RAMP TO MITCHELL ROAD
"MN" LINE

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PS-4

TOTAL

CY Exc
Emb

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED

PATH => k:\boy_x_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_profile sheets

DATE PLOTTED => August 21, 2017
TIME PLOTTED => 4:15:02 PM

LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => ps-4

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

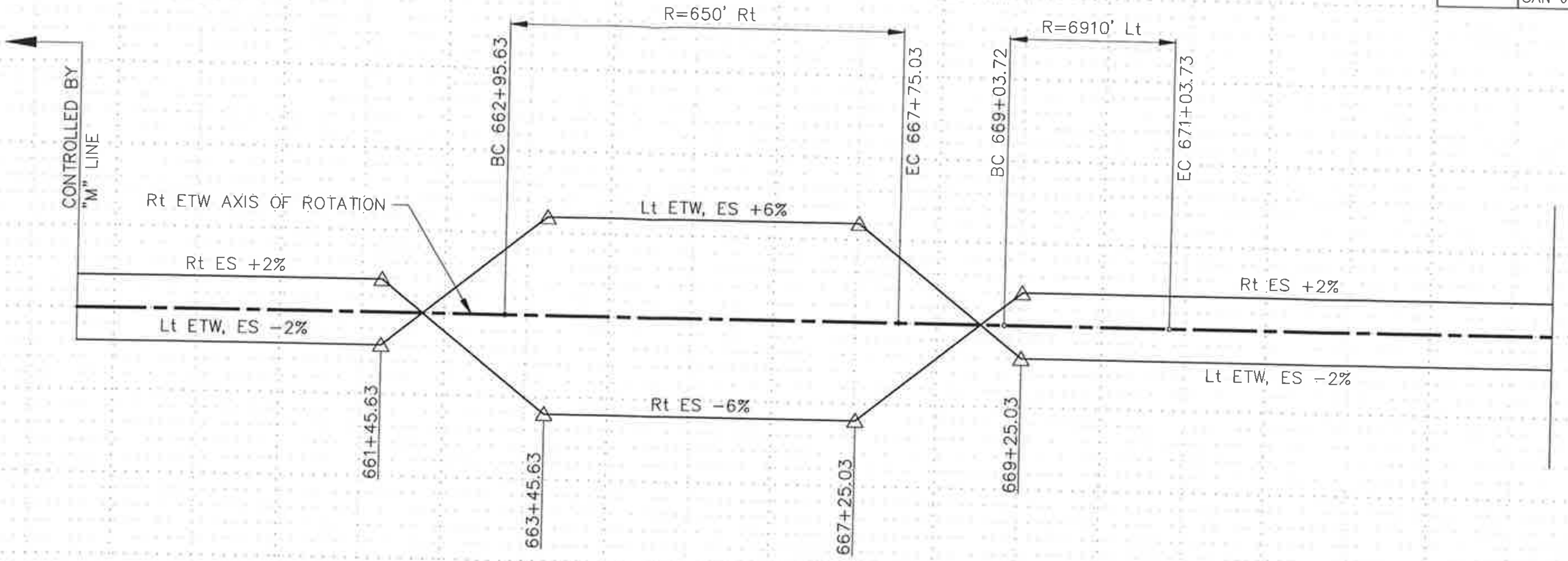
REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

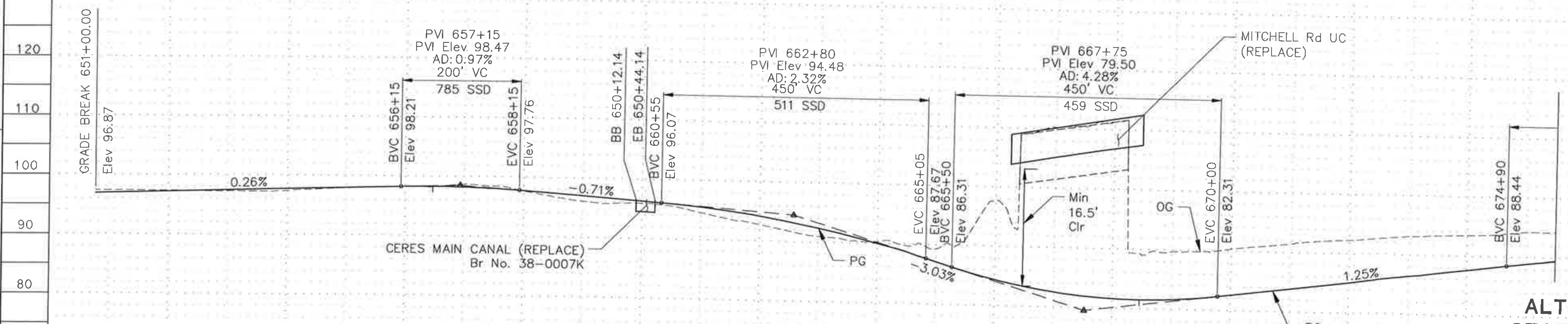
NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND ON RAMP FROM MITCHELL ROAD

"MS" LINE

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD DIVERGING DIAMOND INTERCHANGE PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

PS-5

STATION	9	650	1	2	3	4	655	6	7	8	9	660	1	2	3	4	665	6	7	8	9	670	1	2	3	4	675	6	7	
CY Exc																														TOTAL
CY Emb																														

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_profile sheets

DATE PLOTTED => July 5, 2018
TIME PLOTTED => 6:12:36 PM
LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => ps-5

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

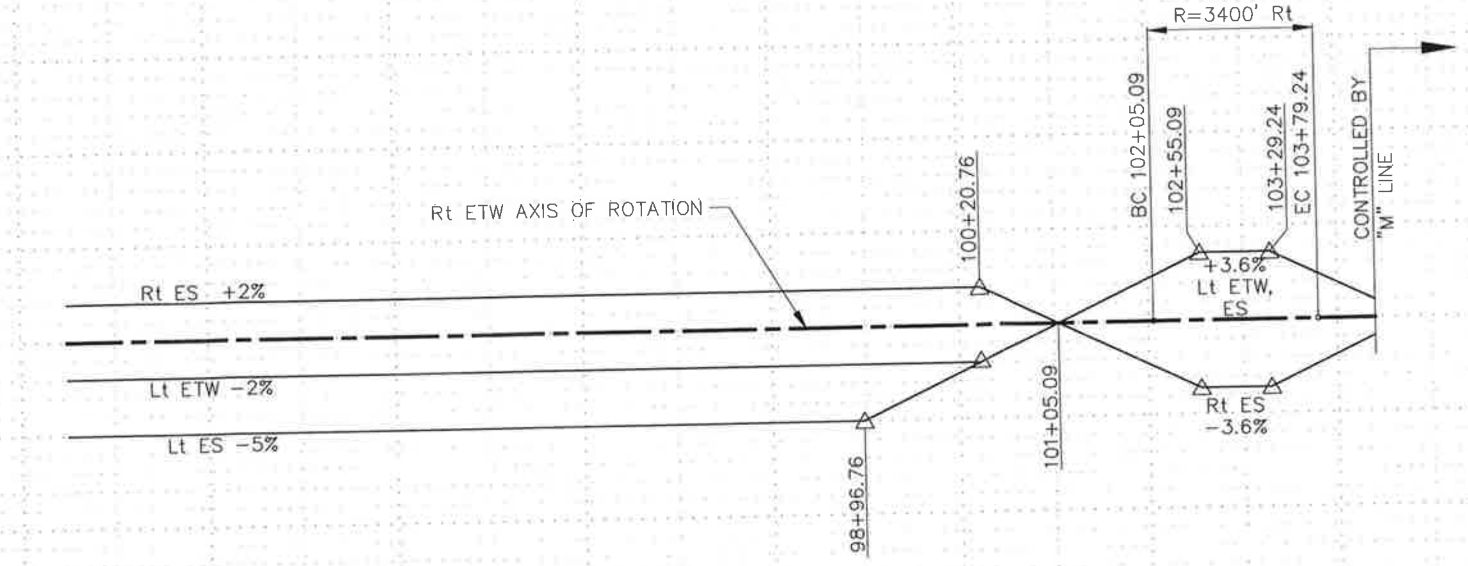
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

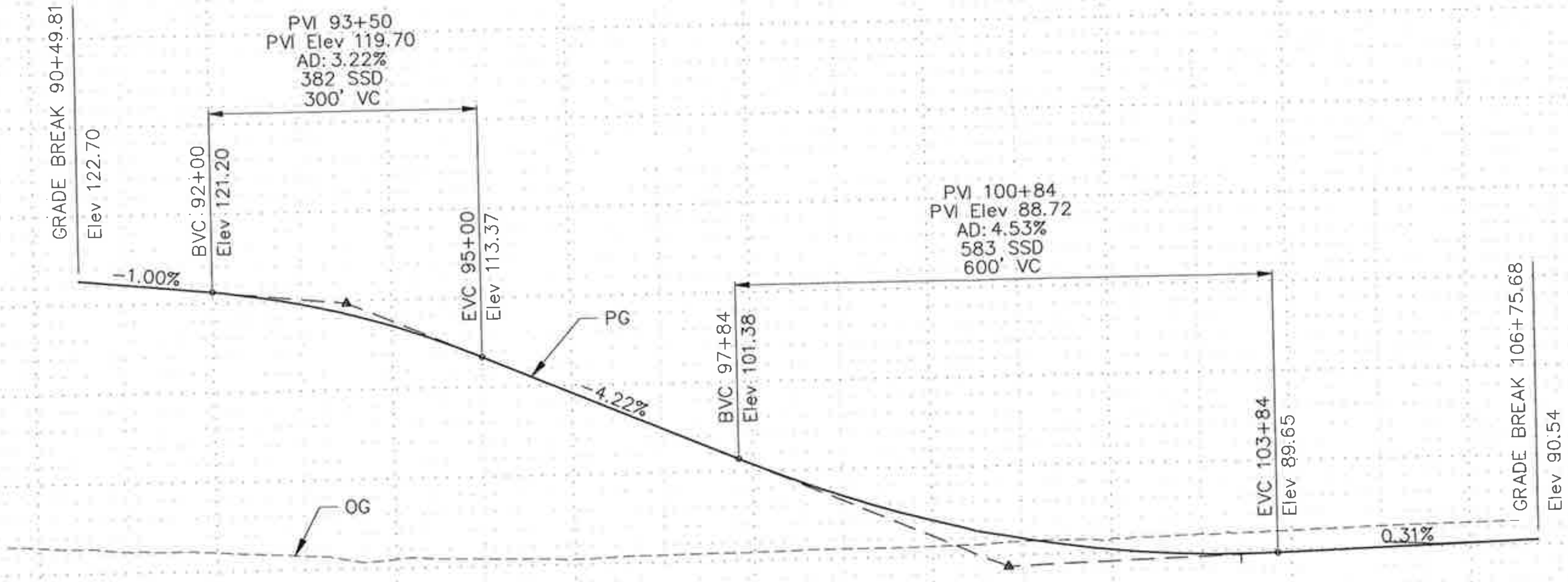
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND OFF RAMP TO SERVICE ROAD

"SR1" LINE

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PS-6

TOTAL

CY Exc
Emb

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_profile sheets

LAST REVISION 02-28-17
DATE PLOTTED => August 21, 2017
TIME PLOTTED => 4:15:20 PM

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => ps-7

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

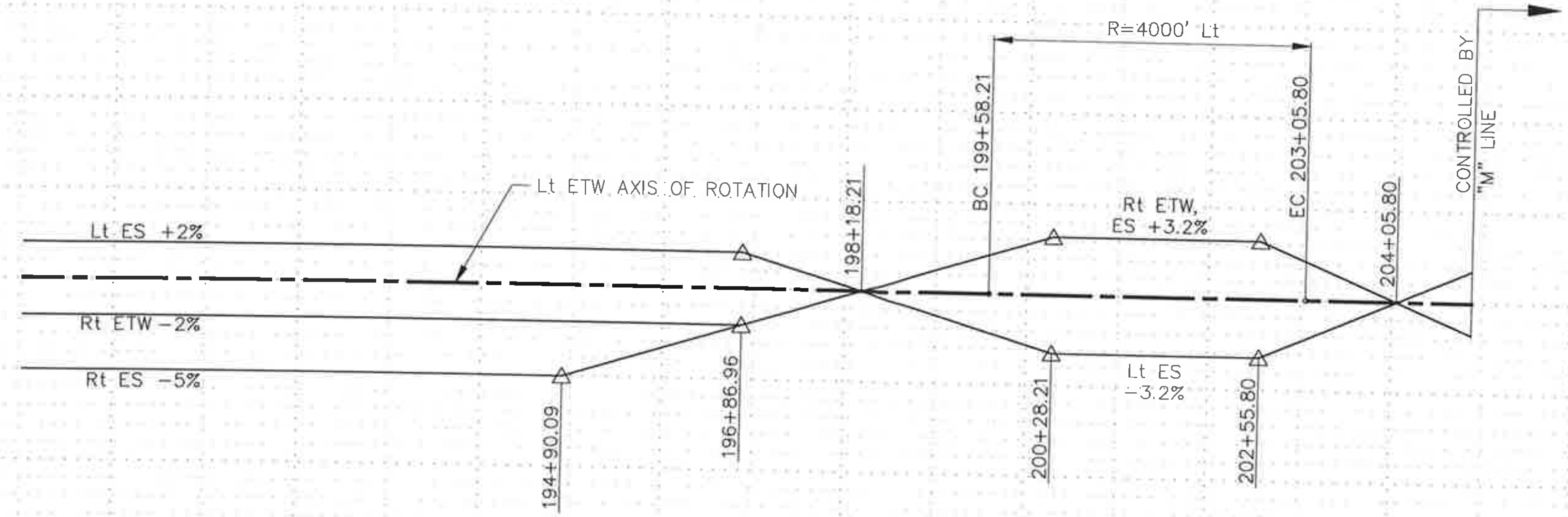
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

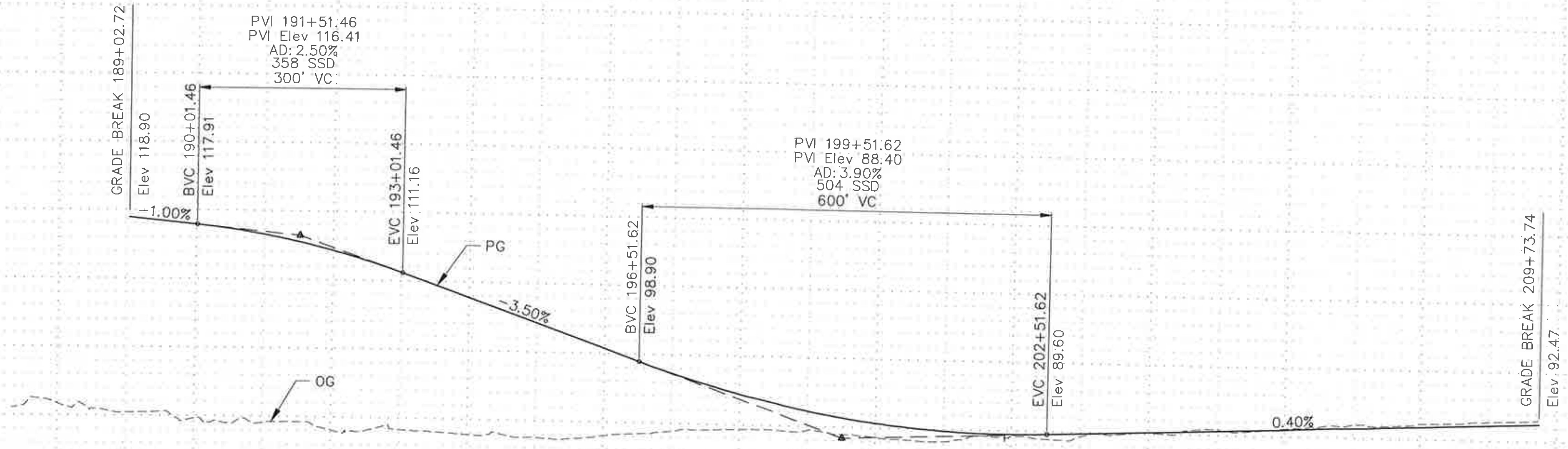
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND ON RAMP FROM SERVICE ROAD
"SR2" LINE

STATION	185	6	7	8	9	190	1	2	3	4	195	6	7	8	9	200	1	2	3	4	205	6	7	8	9	210	1	2	3
CY Exc																													
CY Emb																													

TOTAL

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

PRELIMINARY

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PS-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED

PATH => k:\boy_x\dwy\097279002 - sr 99mitchell rd ic poed\engineering\cad\dpr_profile sheets

DATE PLOTTED => August 21, 2017
TIME PLOTTED => 4:15:35 PM
LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => ps-8

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT -

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE –

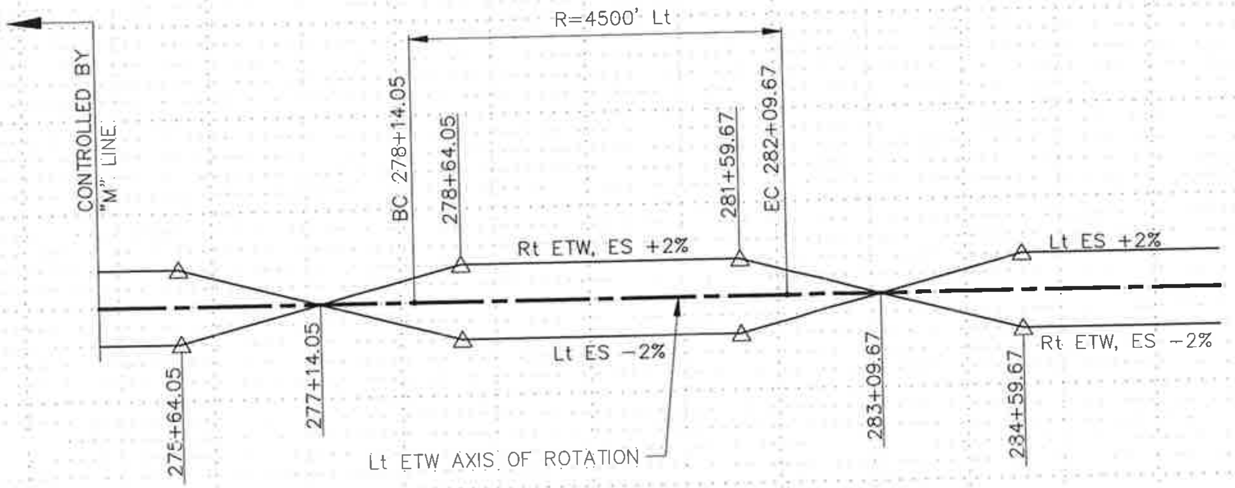
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

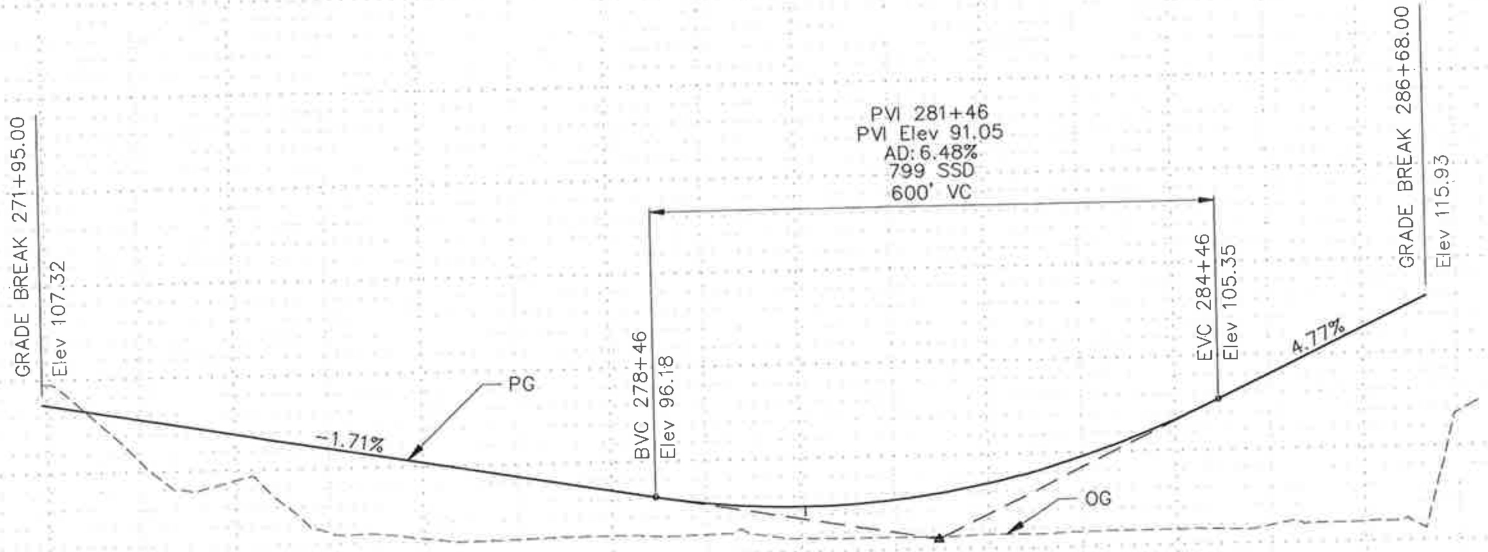
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND OFF RAMP TO SERVICE ROAD
"SR3" LINE

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

PS-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR	–	
CALCULATED-DESIGNED BY	CHECKED BY	
–	–	
REVISED BY	DATE REVISED	

CY Exc
Emb

PATH => k:\bay_x_rdwy\097279002 – sr 99mitchell rd ic paed\engineering\cad\dpr_profile sheets

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => ps-9

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

LAST REVISION 02-28-17

DATE PLOTTED => August 21, 2017
TIME PLOTTED => 4:15:49 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

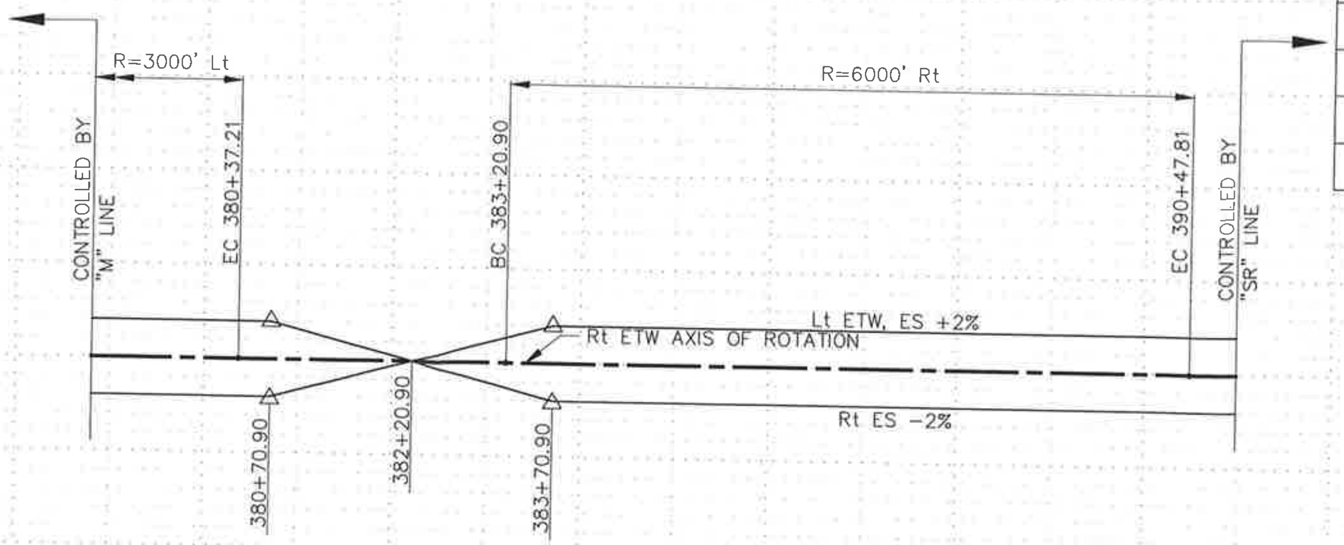
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

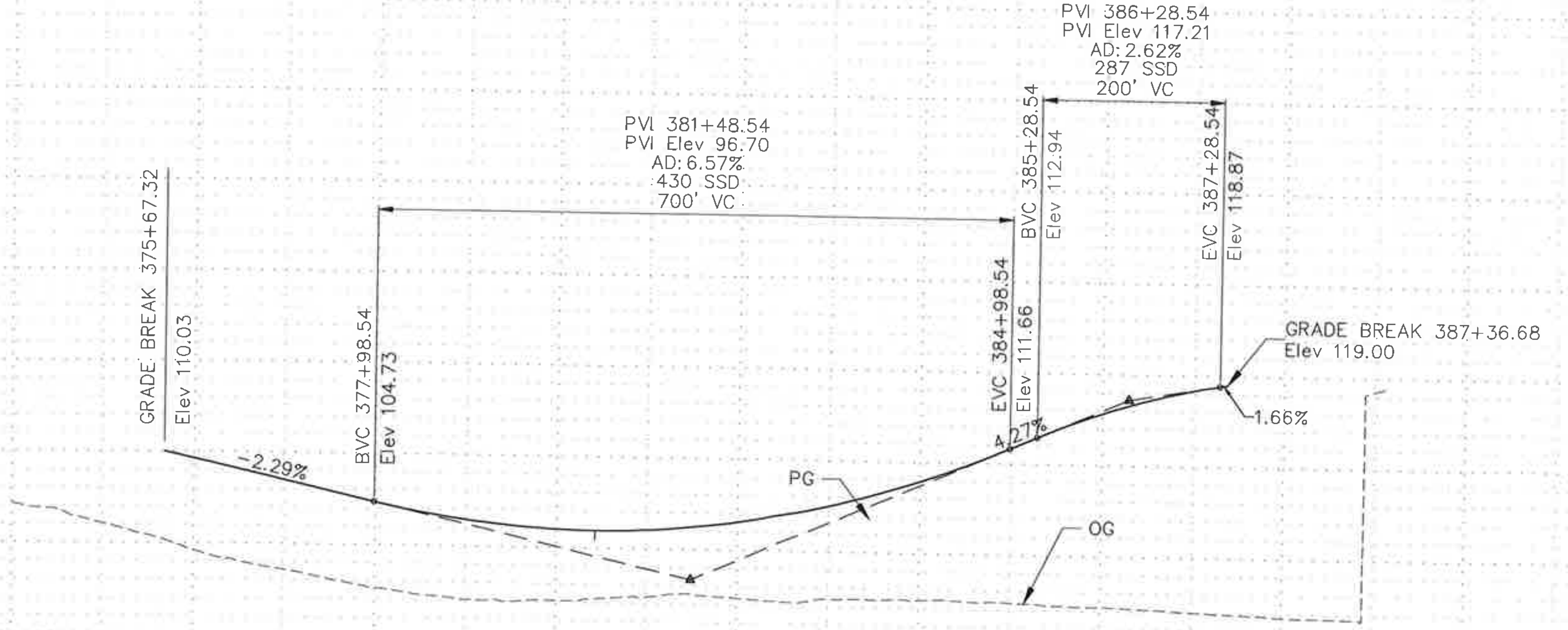
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND ON RAMP FROM SERVICE ROAD

"SR4" LINE

PRELIMINARY

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PS-9

STATION	9	370	1	2	3	4	375	6	7	8	9	380	1	2	3	4	385	6	7	8	9	390	1	2	3	4	395	6	7	TOTAL
CY Exc																														
CY Emb																														

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR –
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY –
DATE REVISED –

PATH => k:\boy_rdwy\097279002 - sr 99mitchell rd ic paed\engineering\cad\dpr_profile sheets

DATE PLOTTED => August 21, 2017
TIME PLOTTED => 4:16:18 PM
LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => brecheisen, chris
DGN FILE => ps-10

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

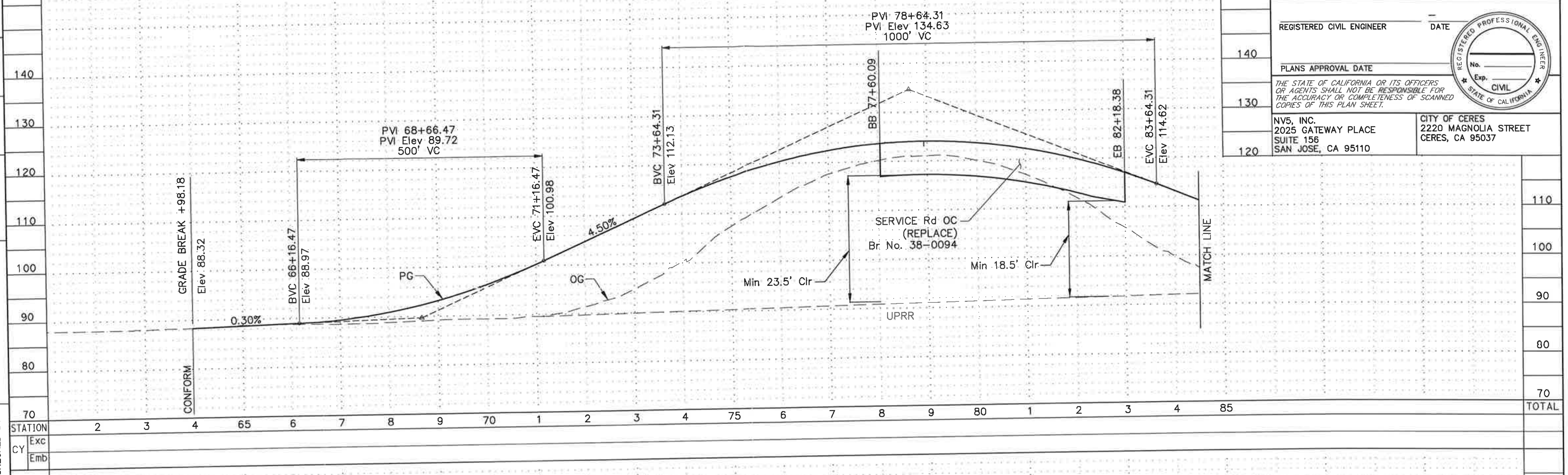
REGISTERED CIVIL ENGINEER DATE

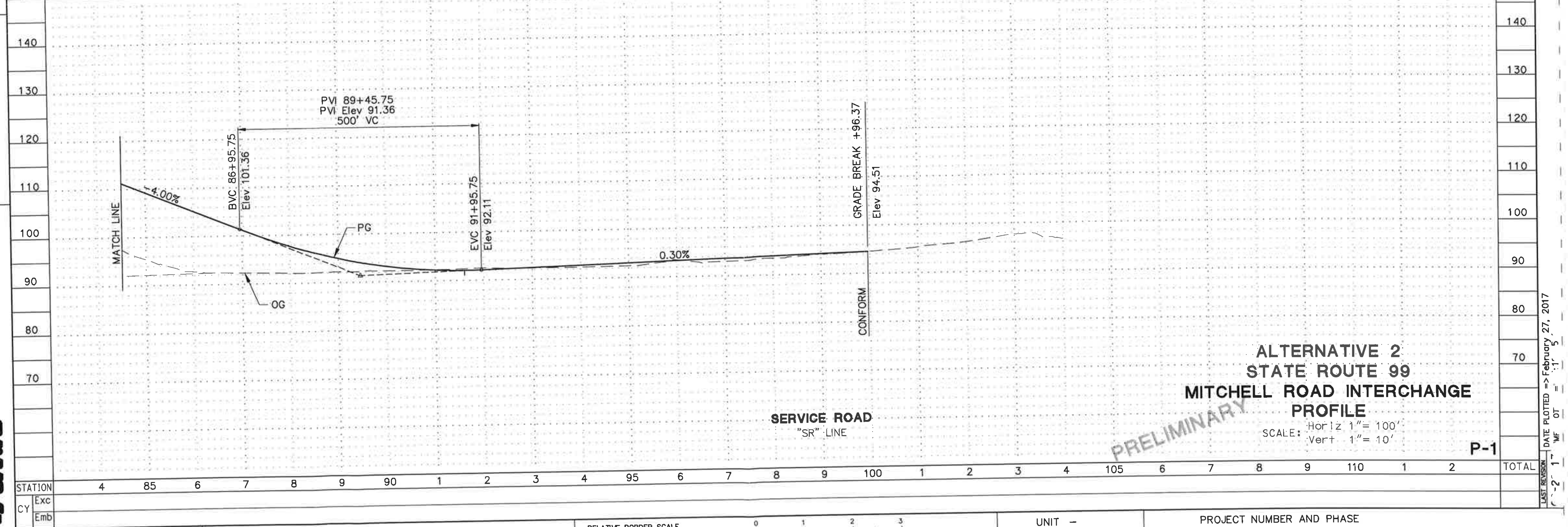
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037





SERVICE ROAD
"SR" LINE

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

P-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED

PATH => u:\m0043202\cadd\civil\profiles\alt 2

BORDER LAST REVISED 7/2/2010
USERNAME => phillip reuss
DGN FILE => p-1
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE
DATE PLOTTED => February 27, 2017
LAST REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

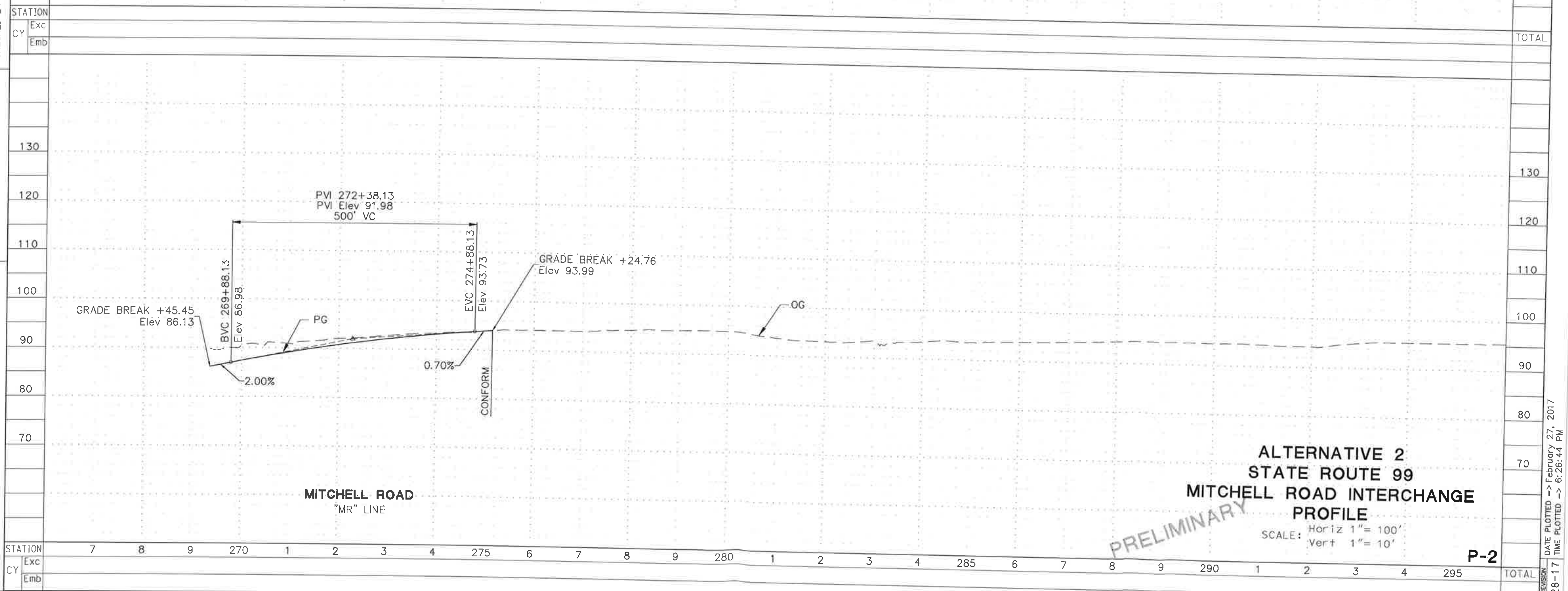
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans



ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

P-2

DATE PLOTTED => February 27, 2017
TIME PLOTTED => 6:26:44 PM
LAST REVISION 02-28-17

PATH => u:\mt0043202\cadd\civil\profiles\alt 2

BORDER LAST REVISED 7/2/2010
USERNAME => phillip reuss
DGN FILE => p-2
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT –
PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

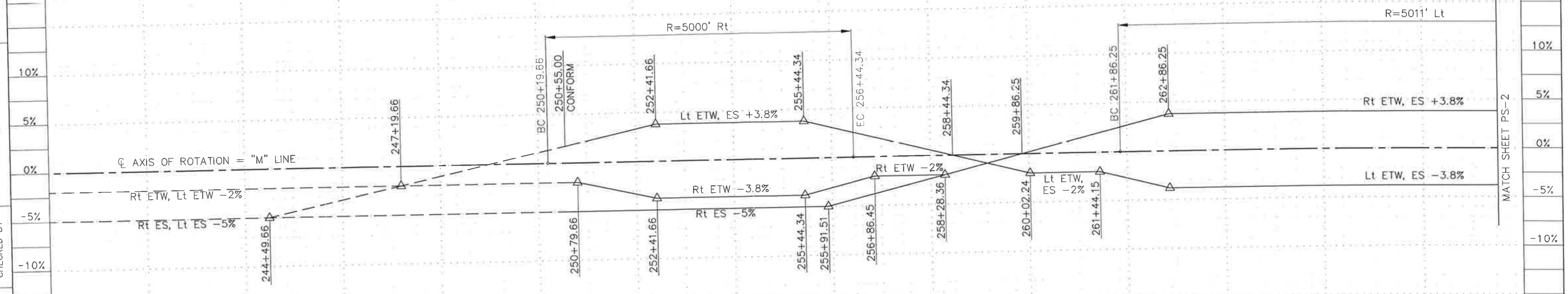
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

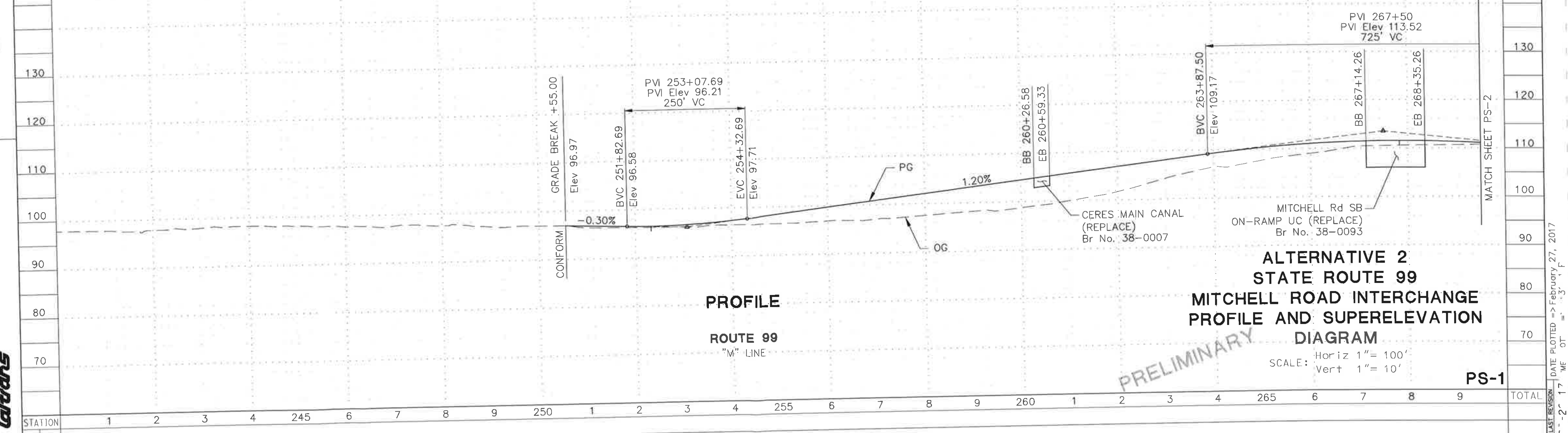
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

ROUTE 99
"M" LINE

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

PS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\profiles\alt 2

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

DATE PLOTTED => February 27, 2017

LAST REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

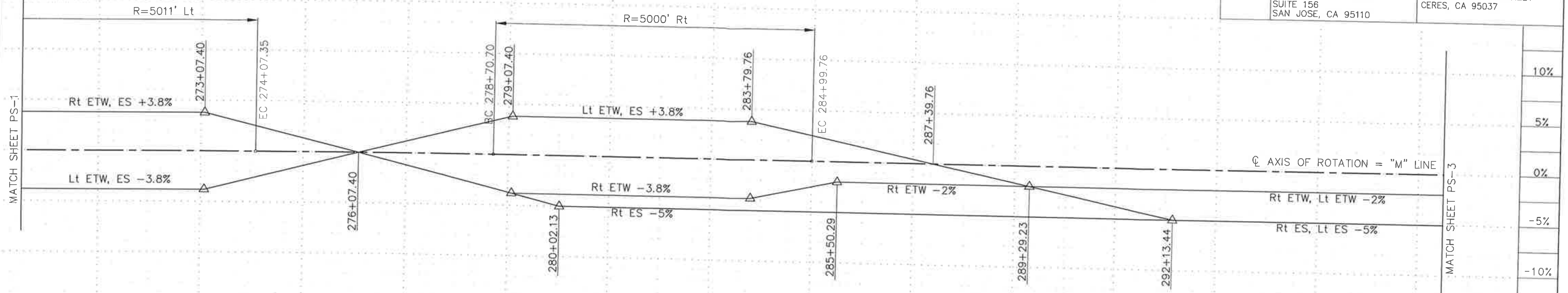
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM

PROFILE

ROUTE 99
"M" LINE

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PS-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\profiles\alt 2

DATE PLOTTED => February 27, 2017
TIME PLOTTED => 6:34:51 PM

LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => ps-2

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT -

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER DATE

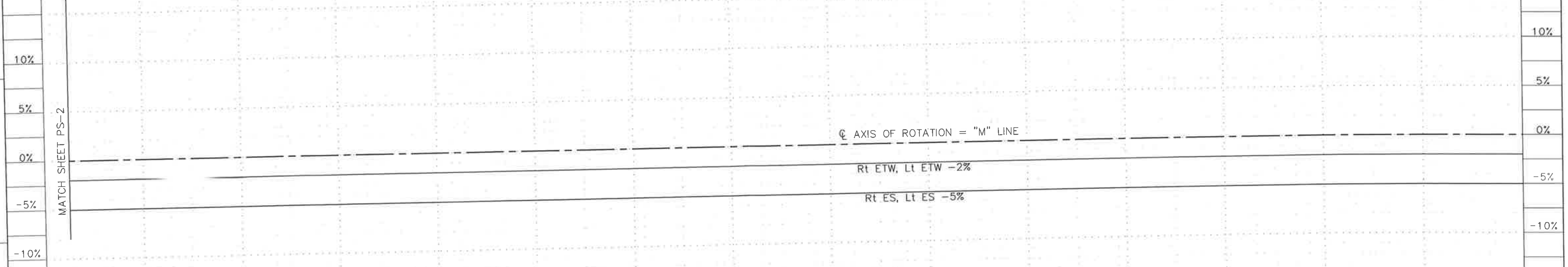
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

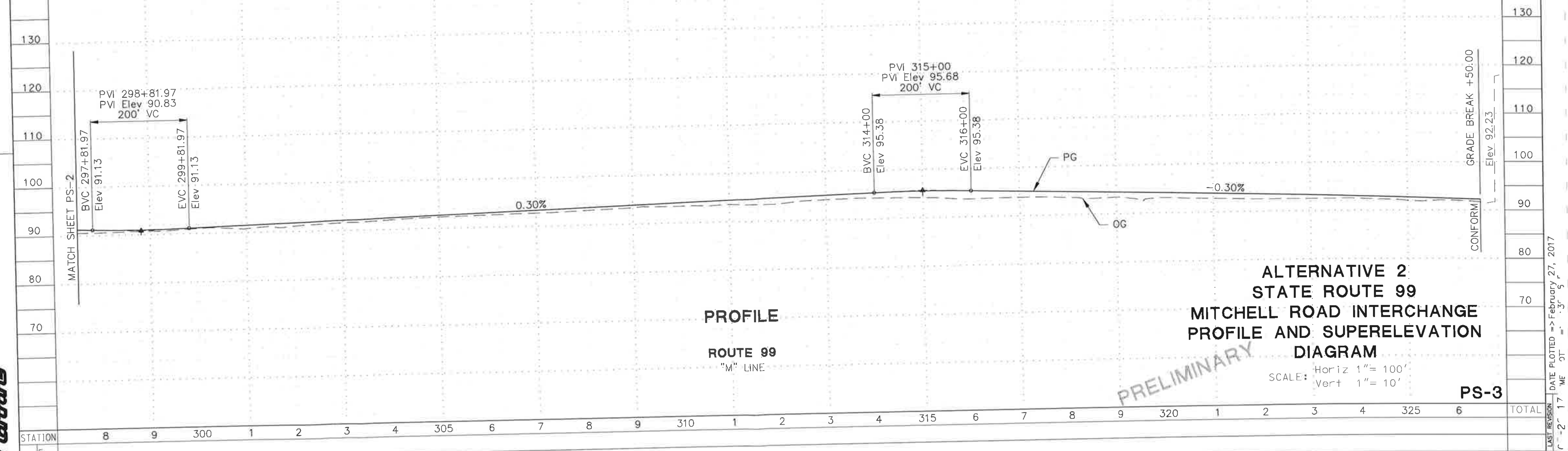
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

ROUTE 99
"M" LINE

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

PS-3

CY Exc
Emb

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\profiles\alt 2

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => PS-3

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

DATE PLOTTED => February 27, 2017

LAST REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

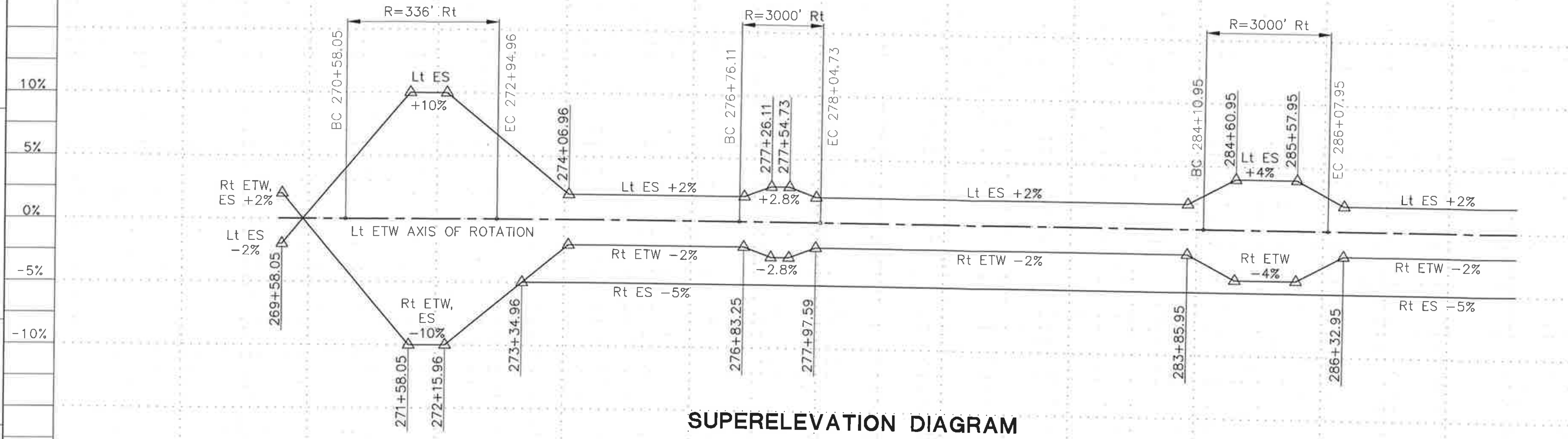
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

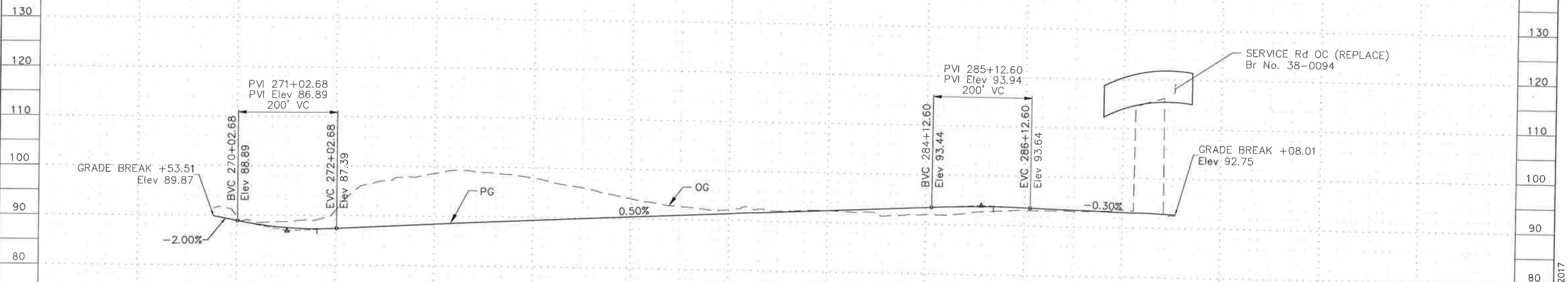
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND ON RAMP FROM MITCHELL ROAD

"MR1" LINE

STATION	7	8	9	270	1	2	3	4	275	6	7	8	9	280	1	2	3	4	285	6	7	8	9	290	1	2	3	4	295
CY Exc																													
CY Emb																													

TOTAL

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

PS-4

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

PATH => u:\mt0043202\cadd\civil\profiles\alt 2

DATE PLOTTED => February 27, 2017
TIME PLOTTED => 6:42:56 PM
LAST REVISION 02-28-17

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => ps-4

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.1		–

REGISTERED CIVIL ENGINEER — DATE

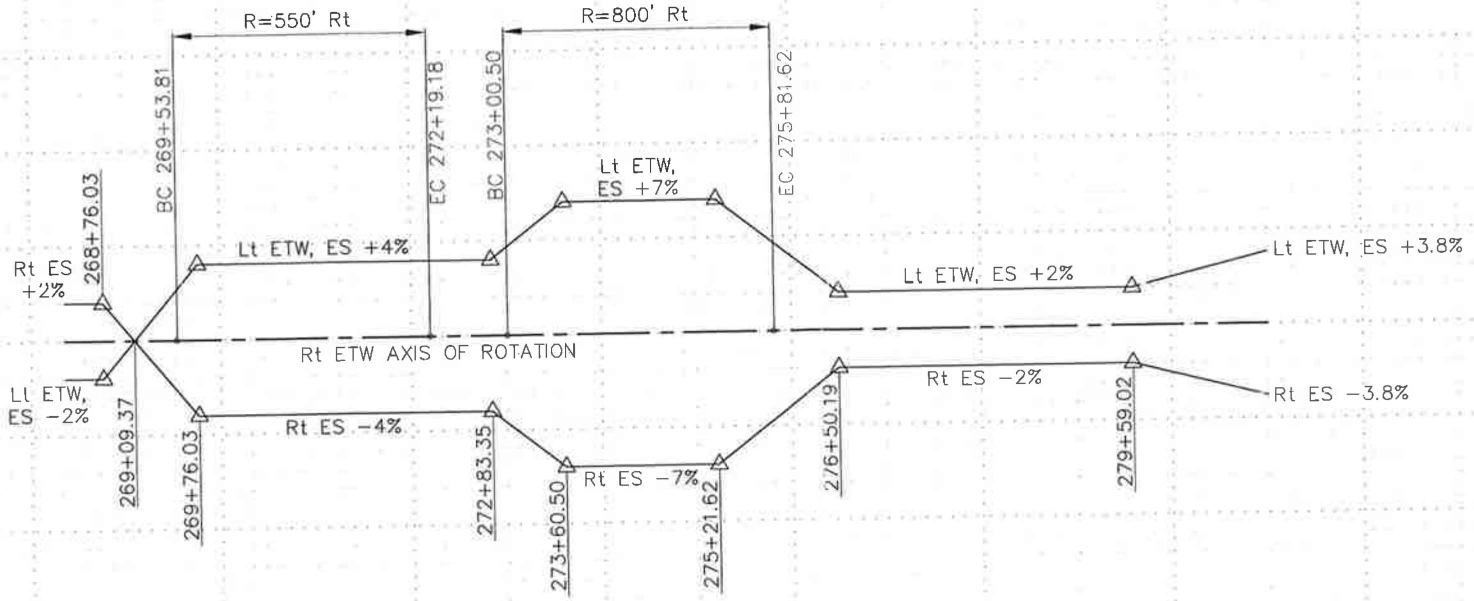
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

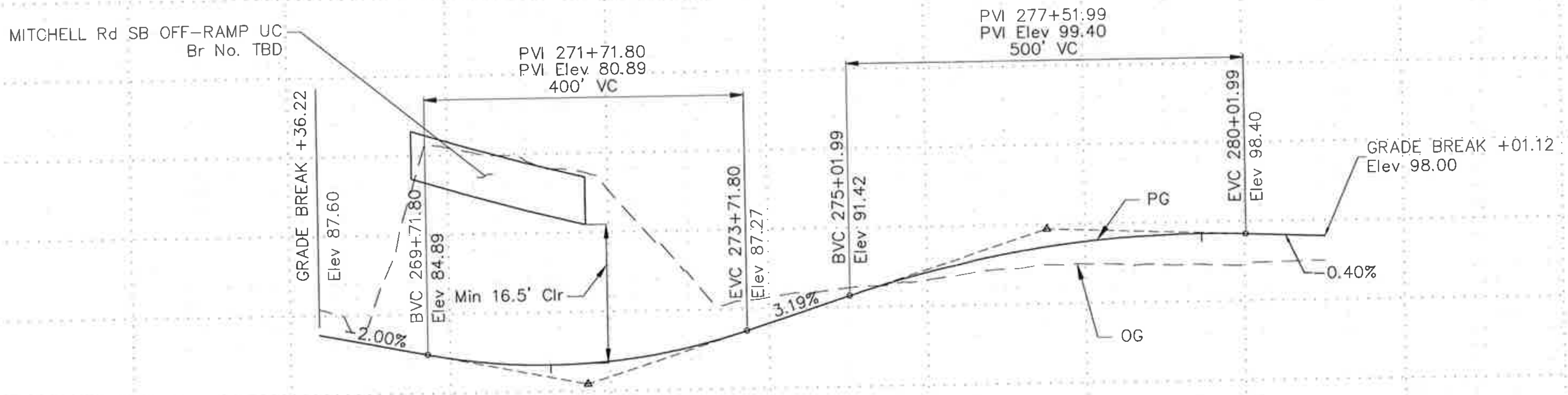
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND OFF RAMP TO MITCHELL ROAD

"MR2" LINE

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PS-5

STATION	3	4	265	6	7	8	9	270	1	2	3	4	275	6	7	8	9	280	1	2	3	4	285	6	7	8	9	290	1	TOTAL
CY Exc																														
CY Emb																														

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

UNIT –

PROJECT NUMBER AND PHASE

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => ps-5

PATH => u:\mt0043202\cadd\civil\profiles\alt 2

DATE PLOTTED => February 27, 2017

LAST REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

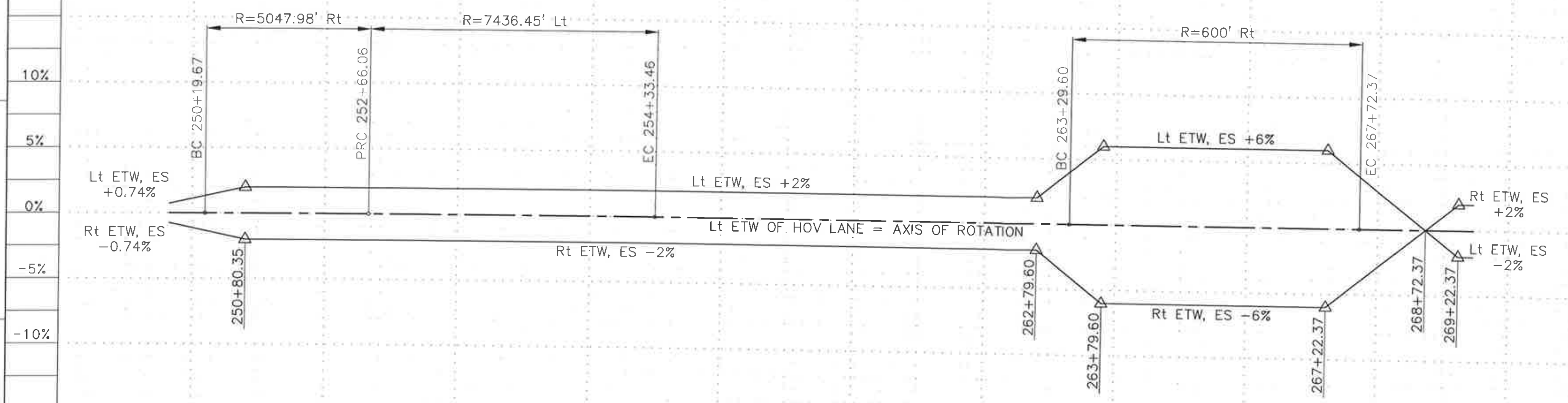
PLANS APPROVAL DATE

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

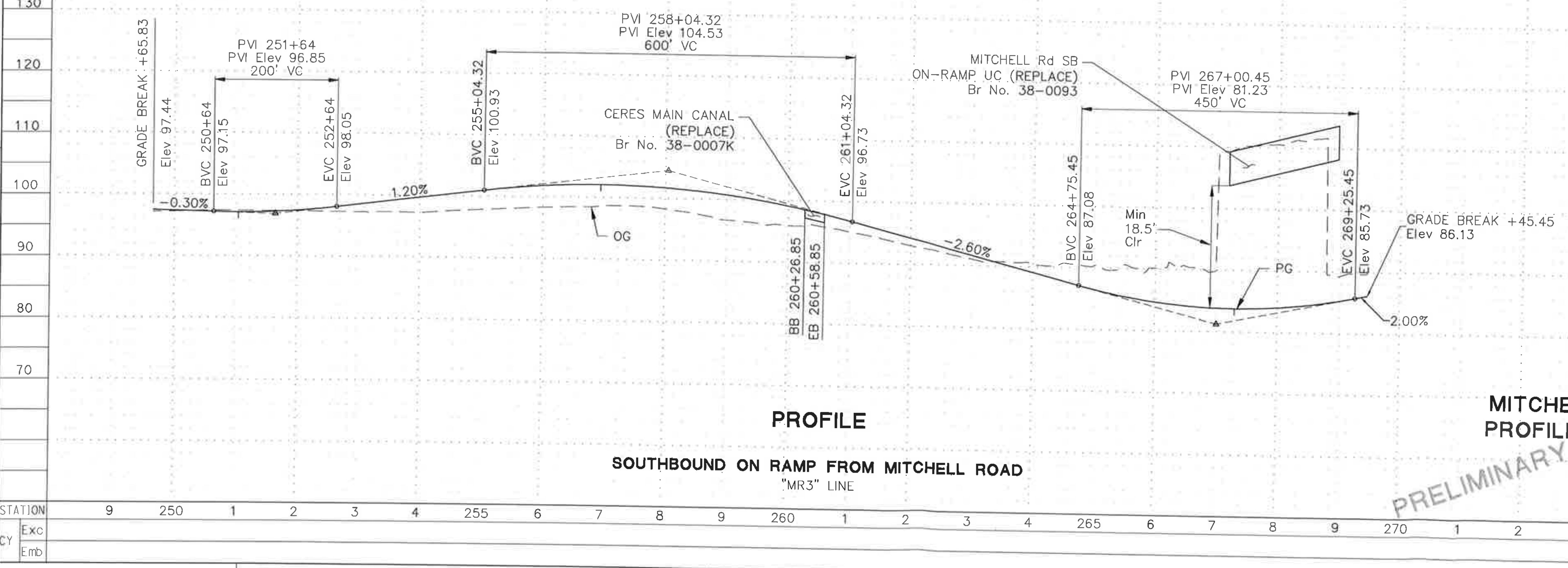
REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND ON RAMP FROM MITCHELL ROAD
"MR3" LINE

PRELIMINARY

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PS-6

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

DATE PLOTTED => February 27, 2017
TIME PLOTTED => 6:50:05 PM

LAST REVISION 02-28-17

PATH => u:\mt043202\cadd\civil\profiles\alt 2

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => ps-6

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT –

PROJECT NUMBER AND PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		–

REGISTERED CIVIL ENGINEER — DATE

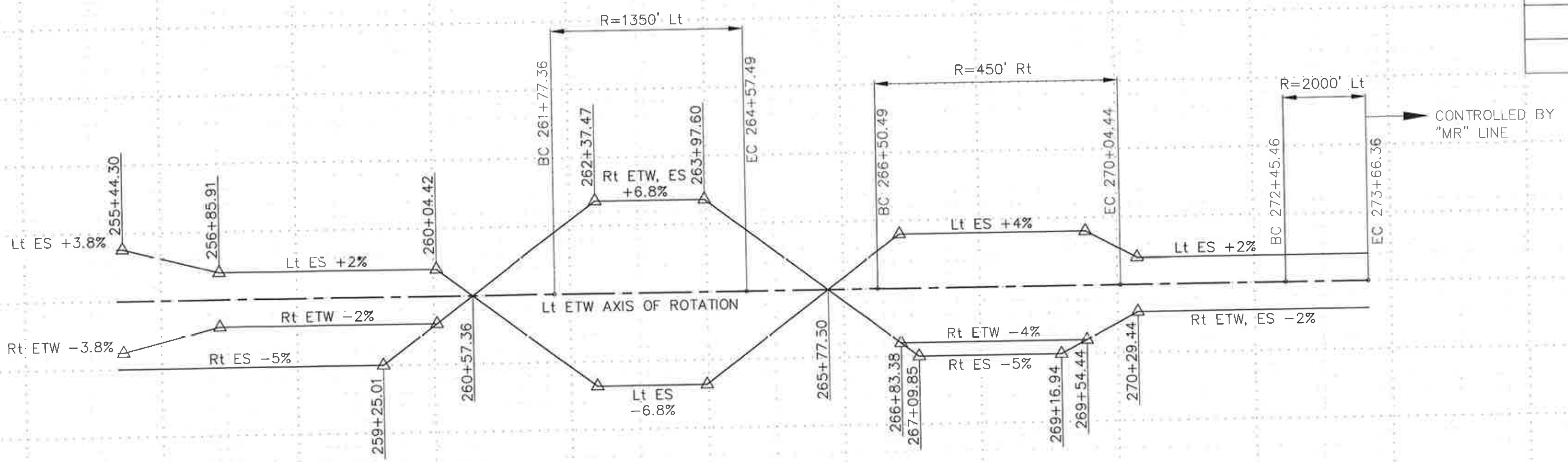
PLANS APPROVAL DATE

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

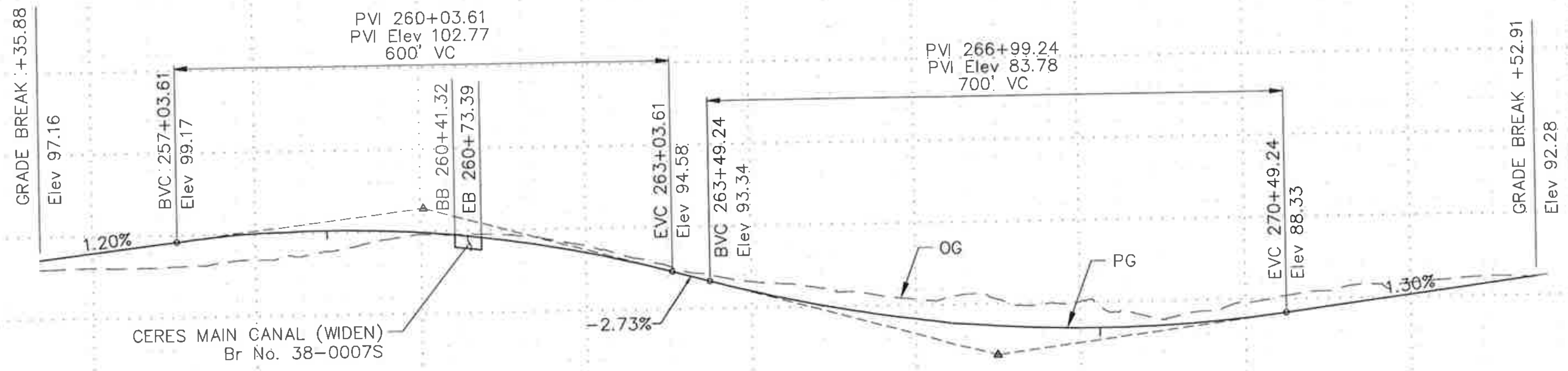
REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

NV5, INC.
2025 GATEWAY PLACE
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND OFF RAMP TO MITCHELL ROAD

"MR4" LINE

STATION	3	4	255	6	7	8	9	260	1	2	3	4	265	6	7	8	9	270	1	2	3	4	275	6	7	8	9	280	1	TOTAL
CY Exc																														
CY Emb																														

ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1"= 100'
Vert 1"= 10'

PRELIMINARY

PS-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

PATH => u:\mt0043202\cadd\civil\profiles\alt 2

BORDER LAST REVISED 7/2/2010

USERNAME => phillip reuss
DGN FILE => ps-7

RELATIVE BORDER SCALE IS IN INCHES

UNIT –

PROJECT NUMBER AND PHASE

DATE PLOTTED => February 27, 2017

LAST REVISION

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT E

DRAFT PROJECT REPORT COST ESTIMATE

PRELIMINARY
PROJECT COST ESTIMATE

Preliminary Cost Estimate

Project ID: 1000000375

Type of Estimate :	Preliminary
Program Code :	20.XX.400.100
Project Limits :	.7 Miles south of Mitchell Road to .1 Mile north of the Pine Street Overcrossing
Description:	Mitchell Road Interchange
Scope :	Reconstruct freeway, reconstruct interchange at Mitchell Road, construct new interchange at Service Road, construct auxiliary lanes and realign local streets
Alternative :	Alternative #1

	Current Cost 2017	Escalated Cost 2021
ROADWAY ITEMS	**$ 58,570,000**	**$67,211,000**
STRUCTURE ITEMS	**$ 28,090,000**	**$32,234,000**
SUBTOTAL CONSTRUCTION COST	**$ 86,660,000**	**$99,445,000**
RIGHT OF WAY	**$ 9,616,000**	**$10,122,000**
TOTAL CAPITAL OUTLAY COST	**$ 96,276,000**	**$ 109,567,000**
PR/ED SUPPORT	**$2,600,000**	**$ 2,700,000**
PS&E SUPPORT	**$9,500,000**	**$ 10,800,000**
RIGHT OF WAY SUPPORT	**$460,000**	**$ 500,000**
CONSTRUCTION SUPPORT	**$8,500,000**	**$ 10,000,000**
OTAL CAPITAL OUTLAY SUPPORT COST*	**$ 21,060,000**	**$ 24,000,000**
TOTAL PROJECT COST	**$ 118,000,000**	**$ 134,000,000**

If Project has been programmed enter Programmed Amount $ 36,800,000

	Month / Year	
Date of Estimate (Month/Year)	12 / 2018	
Estimated Date of Construction Start (Month/Year)	7 / 2021	
Number of Working Days	660	Working Days
	Month / Year	
Estimated Mid-Point of Construction (Month/Year)	10	2022
Number of Plant Establishment Days		Days

Estimated Project Schedule

PID Approval		
PA/ED Approval	12	2018
PS&E	3	2021
RTL	4	2021
Begin Construction	7	2021

Approved by Project Sponsor	City of Ceres (Project Sponsor)	12/07/2018 Date	(209) 538-5751 Phone
Approved by Project Manager	Project Manager	12/07/2018 Date	(925) 965-7703 Phone

I. ROADWAY ITEMS SUMMARY

	Section	Cost
1	Earthwork	$ 3,232,500
2	Pavement Structural Section	$ 16,314,500
3	Drainage	$ 5,473,300
4	Specialty Items	$ 11,245,400
5	Environmental	$ 500,000
6	Traffic Items	$ 4,827,300
7	Detours	$ 250,000
8	Minor Items	$ 2,092,200
9	Roadway Mobilization	$ 2,196,800
10	Supplemental Work	$ 2,675,800
11	State Furnished	$ -
12	Contingencies	$ 9,761,600
13	Overhead	$ -
	TOTAL ROADWAY ITEMS	**$ 58,569,400**

		Date	Phone
Estimate Prepared By	Prasanna Muthireddy, Project Engineer	12/07/2018	(925) 398-4855
Estimate Reviewed By	Alan Nickz, Senior Engineer	12/07/2018	(925) 398-4868

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
160101	Clearing & Grubbing	LS	1	x	30,000.00	=	$	30,000
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY	121,000	x	20.00	=	$	2,420,000
190103	Roadway Excavation (Type Y) ADL	CY	10,600	x	25.00	=	$	265,000
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Impored Borrow	CY	34,500	x	15.00	=	$	517,500
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS $ 3,232,500

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150860	Remove Base and Surfacing	SY	26,400	x	10.00	=	$	264,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
150846	Remove Concrete Pavement	SY	47,400	x	10.00	=	$	474,000
250201	Class 2 Aggregate Subbase	CY	32,176	x	30.00	=	$	965,280
260201	Class 2 Aggregate Base	CY	32,024	x	45.00	=	$	1,441,080
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	61,270	x	75.00	=	$	4,595,250
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Inden*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY	37,282	x	230.00	=	$	8,574,860
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS $ 16,314,500

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Project Drainage	LS	1	x	3,561,970.00	=	$	3,561,970
XXXXXX	Stormwater Management	LS	1	x	1,911,291.00	=	$	1,911,291

TOTAL DRAINAGE ITEMS $ 5,473,300

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier *(Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS	1	x	5,000.00	=	$	5,000
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510501	Minor Concrete	CY	1,900	x	555.00	=	$	1,054,500
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)(H=12')	LF	3,900	x	370.00	=	$	1,443,000
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
731530	Minor Concrete (Textured Paving)	CY	480		700.00	=	$	336,000
80XXXX	Fence *(Insert Type)*	LF		x		=	$	-
832005	Midwest Guardrail System	LF	5,500	x	20.00	=	$	110,000
832070	Vegetation Control (Minor Concrete)	SQYD	2,140	x	70.00	=	$	149,800
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly *(Insert Type)*	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839701	Concrete Barrier (Type 60)	LF	6,750	x	50.00	=	$	337,500
XXXXXX	Retaining Walls (MSE)	SF	120,000	x	57.00	=	$	6,840,000
XXXXXX	Retaining Walls (Type 1)	SF	5,920	x	130.00	=	$	769,600
XXXXXX	Retaining Walls (Type 5)	SF		x		=	$	-
XXXXXX	Utility Protection	LS	1	x	200,000.00	=	$	200,000

TOTAL SPECIALTY ITEMS $ 11,245,400

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS	1	x	200,000.00	=	$	200,000
071325	TEMPORARY REINFORCED SILT FENCE	LF		x		=	$	-
071325	Temporary Fence (Type ESA)							

Subtotal Environmental *$* *200,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS		x		=	$	-
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS	1	x	100,000.00	=	$	100,000
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
210260	Erosion Control (Jute Mesh)	LS	1	x	200,000.00	=	$	200,000

Subtotal Landscape and Irrigation *$* *300,000*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS		x		=	$	-
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Some Item							

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

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							

Subtotal NPDES (Without Supplemental Work) *$* -

*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.

TOTAL ENVIRONMENTAL $ 500,000

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
560204	Install Sign Structure	LS	1	x	920,000.00	=	$	920,000
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS		x		=	$	-
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860300	Signals & Lighting	LS	1	x	2,270,000.00	=	$	2,270,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 3,190,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS		x		=	$	-
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	LS	1	x	25,000.00	=	$	25,000
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
840666	Permanent Pavement Delineation	LS	1	x	232,300.00	=	$	232,300

Subtotal Traffic Signing and Striping *$ 257,300*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	920,000.00	=	$	920,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF	23,000	x	20.00	=	$	460,000
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 1,380,000*

TOTAL TRAFFIC ITEMS $ 4,827,300

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Temporary Detour Road	LS	1	x	250,000.00	=	$ 250,000

TOTAL DETOURS $ 250,000

SUBTOTAL SECTIONS 1-7 $ 41,843,000

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items					
ADA Items			0.0%		$ -
8B - Bike Path Items					
Bike Path Items			0.0%		$ -
8C - Other Minor Items					
Other Minor Items			5.0%		$ 2,092,150
Total of Section 1-7	$ 41,843,000	x	5.0%	=	$ 2,092,150

TOTAL MINOR ITEMS $ 2,092,200

SECTIONS 9: MOBILIZATION

Item code						
999990	Total Section 1-8	$ 43,935,200	x	5%	=	$ 2,196,760

TOTAL MOBILIZATION $ 2,196,800

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informatio	LS	1	x	1,000,000.00	=	$ 1,000,000
066090	Maintain Traffic	LS	1	x	462,000.00	=	$ 462,000
066094	Value Analysis	LS	1	x	10,000.00	=	$ 10,000
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	205,000.00	=	$ 205,000
066700	Partnering	LS	1	x	90,000.00	=	$ 90,000
066866	Operation of Existing Traffic Management S	LS		x		=	$ -
066920	Dispute Review Board	LS	1	x	30,000.00	=	$ 30,000
XXXXXX	Supplemental Work	LS		x		=	$ -

Cost of ***NPDES*** *Supplemental Work specified in Section 5C* = $ -

Total Section 1-8 $ 43,935,200 2% = $ 878,704

TOTAL SUPPLEMENTAL WORK $ 2,675,800

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS		x		=	$0
066105	RE Office	LS		x		=	$0
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS		x		=	$0
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						
	Total Section 1-8	$	43,935,200		0%	=	$ -

TOTAL STATE FURNISHED **$0**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	660	X	0	=	

TOTAL TIME-RELATED OVERHEAD

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	48,807,800	x	20%	=	$9,761,560

TOTAL CONTINGENCY **$9,761,600**

II. STRUCTURE ITEMS

DATE OF ESTIMATE	01/27/17	01/27/17	01/27/17
Name	Ceres Main Canal (Replace)	Ceres Main Canal (Replace)	Service Road Overhead
Bridge Number	0007(K)	0007(S)	
Structure Type	CIP MS RC Slab	CIP MS RC Slab	CIP PS Conc Box
Width (Feet) [out to out]	34.88 LF	39.44 LF	111.05 LF
Total Length (Feet)	32.02 LF	32.02 LF	342.23 LF
Total Area (Square Feet)	1117 SQFT	1263 SQFT	38005 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	Pile	Pile	Pile
Cost Per Square Foot	$321.73	$317.00	$250.12
COST OF EACH STRUCTURE	**$360,000.00**	**$401,000.00**	**$9,506,000.00**

DATE OF ESTIMATE	01/27/17	01/27/17	01/27/17
Name	Service Road Overcrossing (Lt	Service Road Overcrossing (Rt	Service Rd - S99 Connector OH (S) (on-ramp)
Bridge Number			
Structure Type	RC Box Girder	RC Box Girder	CIP PS Conc Box
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	11423 SQFT	13240 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	Pile	Pile	
Cost Per Square Foot	$318.00	$363.00	$217.31
COST OF EACH STRUCTURE	**$3,633,000.00**	**$4,807,000.00**	**$0.00**

DATE OF ESTIMATE	07/17/17	07/17/17	11/14/16
Name	Mitchell Rd UC	Mitchell Rd Bridge Removal	Temp Bridge, Bridge Removal & Railroad
Bridge Number			
Structure Type	CIP Conc Box Girder		
Width (Feet) [out to out]	141.50 LF	0.00 LF	0.00 LF
Total Length (Feet)	218.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	30847.0 SQFT	0.0 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)			
Cost Per Square Foot	$270.00	$0.00	$0.00
COST OF EACH STRUCTURE	**$8,329,000.00**	**$310,000.00**	**$744,000.00**

TOTAL COST OF BRIDGES	**$28,090,000.00**
TOTAL COST OF BUILDINGS	**$0.00**

TOTAL COST OF STRUCTURES[1]	**$28,090,000.00**

Estimate Prepared By ______________________________

XXXXXXXXXXXXXXXXX ----- Division of Structures

____
Date

---

[1] Structure's Estimate includes Overhead and Mobilization.

Add more sheets if needed. Call them 9a, 9b, 9c, ..., etc

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,		$	6,609,024
	A2)	SB-1210		$	0
B)		Acquisition of Offsite Mitigation		$	0
C)	C1)	Utility Relocation (State Share)		$	1,332,500
	C2)	Potholing (Design Phase)		$	0
D)		Railroad Acquisition		$	0
E)		Clearance / Demolition		$	780,000
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	1,250,000
G)		Title and Escrow		$	150,000
H)		Environmental Review		$	0
I)		Condemnation Settlements (Items G & H applied to items A + B)	0%	$	0
J)		Design Appreciation Factor	0%	$	0
K)		Utility Relocation (Construction Cost)		$	0

L) **TOTAL RIGHT OF WAY ESTIMATE** **$10,121,524**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$0**

N) **Right of Way Support** **$** **500,000**

Support Cost Estimate Prepared By	Phillip Ruess, PE Project Coordinator[1]	(858) 385-2233 Phone
Utility Estimate Prepared By	Phillip Ruess, PE Utiliy Coordinator[2]	(858) 385-2233 Phone
R/W Acquistion Estimate Prepared By	Phillip Ruess, PE Right of Way Estimator[3]	(858) 385-2233 Phone

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

PRELIMINARY
PROJECT COST ESTIMATE

Preliminary Cost Estimate

Project ID: 1000000375

Type of Estimate : Preliminary
Program Code : 20.XX.400.100
Project Limits : .7 Miles south of Mitchell Road to .1 Mile north of the Pine Street Overcrossing
Description: Mitchell Road Interchange
Scope : Reconstruct freeway, reconstruct interchange at Mitchell Road, construct auxiliary lanes and realign local streets
Alternative : Alternative #2

	Current Cost 2017	Escalated Cost 2021
ROADWAY ITEMS	$ 60,344,000	$ 69,246,128
STRUCTURE ITEMS	$ 33,180,000	$ 38,074,813
SUBTOTAL CONSTRUCTION COST	$ 93,524,000	$ 107,321,000
RIGHT OF WAY	$ 4,215,000	$ 4,436,000
TOTAL CAPITAL OUTLAY COST	**$ 97,739,000**	**$ 111,757,000**
PR/ED SUPPORT	$ 2,600,000	$ 2,700,000
PS&E SUPPORT	$ 8,800,000	$ 10,000,000
RIGHT OF WAY SUPPORT	$ 460,000	$ 500,000
CONSTRUCTION SUPPORT	$ 10,200,000	$ 12,000,000
OTAL CAPITAL OUTLAY SUPPORT COST*	**$ 22,060,000**	**$ 25,200,000**
TOTAL PROJECT COST	**$ 120,000,000**	**$ 137,000,000**

If Project has been programmed enter Programmed Amount $ 36,800,000

	Month / Year
Date of Estimate (Month/Year)	12 / 2018
Estimated Date of Construction Start (Month/Year)	6 / 2021
Number of Working Days	620 Working Days
Estimated Mid-Point of Construction (Month/Year)	9 2022
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval		
PA/ED Approval	12	2018
PS&E	3	2021
RTL	4	2021
Begin Construction	6	2021

Approved by Project Sponsor
City of Ceres (Project Sponsor) — **Date** 12/07/2018 — **Phone** (209) 538-5751

Approved by Project Manager
Project Manager — **Date** 12/07/2018 — **Phone** (925) 965-7703

I. ROADWAY ITEMS SUMMARY

	Section	Cost
1	Earthwork	$ 3,372,500
2	Pavement Structural Section	$ 16,577,200
3	Drainage	$ 5,758,600
4	Specialty Items	$ 11,824,300
5	Environmental	$ 500,000
6	Traffic Items	$ 4,865,600
7	Detours	$ 250,000
8	Minor Items	$ 2,157,500
9	Roadway Mobilization	$ 2,265,300
10	Supplemental Work	$ 2,715,200
11	State Furnished	$ -
12	Contingencies	$ 10,057,300
13	Overhead	$ -

TOTAL ROADWAY ITEMS $ 60,343,500

Estimate Prepared By	Prasanna Muthireddy, Project Engineer	12/07/2018 Date	(925) 398-4855 Phone
Estimate Reviewed By	Alan Nickz, Senior Engineer	12/07/2018 Date	(925) 398-4868 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
160101	Clearing & Grubbing	LS	1	x	30,000.00	=	$	30,000
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY	149,000	x	20.00	=	$	2,980,000
190103	Roadway Excavation (Type Y-1 bury-able) ADL	CY	14,500	x	25.00	=	$	362,500
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY		x		=	$	-
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS $ 3,372,500

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150860	Remove Base and Surfacing	SQYD	1,770	x	10.00	=	$	17,700
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
150846	Remove Concrete Pavement	SQYD	60,800	x	10.00	=	$	608,000
250201	Class 2 Aggregate Subbase	CY	27,300	x	30.00	=	$	819,000
260201	Class 2 Aggregate Base	CY	54,000	x	45.00	=	$	2,430,000
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	88,100	x	75.00	=	$	6,607,500
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Inden*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY	26,500	x	230.00	=	$	6,095,000
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS $ 16,577,200

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)		Cost
150206	Abandon Culvert	LF		x		=	$ -
150805	Remove Culvert	LF		x		=	$ -
150820	Modify Inlet	EA		x		=	$ -
152430	Adjust Inlet	LF		x		=	$ -
155003	Cap Inlet	EA		x		=	$ -
193114	Sand Backfill	CY		x		=	$ -
510502	Minor Concrete (Minor Structure)	CY		x		=	$ -
510512	Minor Concrete (Box Culvert)	CY		x		=	$ -
62XXXX	XXX" APC Pipe	LF		x		=	$ -
64XXXX	XXX" Plastic Pipe	LF		x		=	$ -
65XXXX	XXX" RCP Pipe	LF		x		=	$ -
66XXXX	XXX" CSP Pipe	LF		x		=	$ -
68XXXX	Edge Drain	LF		x		=	$ -
69XXXX	XXX" Pipe Downdrain	LF		x		=	$ -
70XXXX	XXX" Pipe Inlet	LF		x		=	$ -
70XXXX	XXX" Pipe Riser	LF		x		=	$ -
70XXXX	XXX" Flared End Section	EA		x		=	$ -
703233	Grated Line Drain	LF		x		=	$ -
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$ -
721420	Concrete (Ditch Lining)	CY		x		=	$ -
721430	Concrete (Channel Lining)	CY		x		=	$ -
729010	Rock Slope Protection Fabric	SQYD		x		=	$ -
750001	Miscellaneous Iron and Steel	LB		x		=	$ -
XXXXXX	Project Drainage	LS	1	x	3,663,960.00	=	$ 3,663,960
XXXXXX	Stormwater Management	LS	1	x	2,094,588.00	=	$ 2,094,588

TOTAL DRAINAGE ITEMS $ 5,758,600

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)		Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$ -
150662	Remove Metal Beam Guard Railing	LF		x		=	$ -
150668	Remove Terminal Systems	EA		x		=	$ -
1532XX	Remove Barrier (*Insert Type*)	LF		x		=	$ -
153250	Remove Sound Wall	SQFT		x		=	$ -
190110	Lead Compliance Plan	LS	1	x	5,000.00	=	$ 5,000
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	
510060	Structural Concrete (Retaining Wall)	CY		x		=	$ -
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$ -
510501	Minor Concrete	CY	1,450	x	555.00	=	$ 804,750
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$ -
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$ -
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$ -
518002	Sound Wall (H=12')	LF	3,680	x	370.00	=	$ 1,361,600
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$ -
731530	Minor Concrete (Textured Paving)	CY	310	x	700.00	=	$ 217,000
80XXXX	Fence (*Insert Type*)	LF		x		=	$ -
832005	Midwest Guard Railing	LF	5,840	x	20.00	=	$ 116,800
832070	Vegetation Control (Minor Concrete)	SQYD	2,270	x	70.00	=	$ 158,900
839310	Double Thrie Beam Barrier	LF		x		=	$ -
839521	Cable Railing	LF		x		=	$ -
83954X	Transition Railing *(Insert Type)*	EA		x		=	$ -
8395XX	Terminal System (Type CAT)	EA		x		=	$ -
8395XX	Alternative Flared Terminal System	EA		x		=	$ -
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$ -
839561	Rail Tensioning Assembly	EA		x		=	$ -
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$ -
83XXXX	Concrete Barrier (Type 60X)	LF	10,600	x	50.00	=	$ 530,000
XXXXXX	Retaining Walls (MSE)	SF	52,100	x	57.00	=	$ 2,969,700
XXXXXX	Retaining Walls (Type 1)	SF	29,000	x	130.00	=	$ 3,770,000
XXXXXX	Retaining Walls (Type 5)	SF	19,900	x	95.00	=	$ 1,890,500
XXXXXX	Utility Protection	LS	1	x	200,000.00		$ 200,000

TOTAL SPECIALTY ITEMS $ 11,824,300

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS	1	x	200,000.00	=	$	200,000
071325	TEMPORARY REINFORCED SILT FENCE	LF		x		=	$	-
071325	Temporary Fence (Type ESA)							

Subtotal Environmental *$ 200,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS		x		=	$	-
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS	1	x	100,000.00	=	$	100,000
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
210260	Erosion Control (Jute Mesh)	LS	1	x	200,000.00	=	$	200,000

Subtotal Landscape and Irrigation *$ 300,000*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS		x		=	$	-
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Some Item							

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharinc	LS		x		=	$	-
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS		x		=	$	-
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ -*

*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.

TOTAL ENVIRONMENTAL $ 500,000

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)		Cost
150760	Remove Sign Structure	EA		x		=	$ -
151581	Reconstruct Sign Structure	EA		x		=	$ -
152641	Modify Sign Structure	EA		x		=	$ -
5602XX	Furnish Sign Structure	LB		x		=	$ -
560204	Install Sign Structure	LS	1	x	820,000.00	=	$ 820,000
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$ -
860090	Maintain Existing Traffic Management	LS		x		=	$ -
860810	Inductive Loop Detectors	EA		x		=	$ -
86055X	Lighting & Sign Illumination	LS		x		=	$ -
8607XX	Interconnection Facilities	LS		x		=	$ -
8609XX	Traffic Monitoring Stations	LS		x		=	$ -
860XXX	Signals & Lighting	LS	1	x	2,170,000.00	=	$ 2,170,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$ -
8611XX	Ramp Metering System (Location X)	LS		x		=	$ -
86XXXX	Fiber Optic Conduit System	LS		x		=	$ -
XXXXX	Some Item						

Subtotal Traffic Electrical *$ 2,990,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)		Cost
120090	Construction Area Signs	LS		x		=	$ -
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$ -
150710	Remove Traffic Stripe	LF		x		=	$ -
150713	Remove Pavement Marking	SQFT		x		=	$ -
150742	Remove Roadside Sign	EA		x		=	$ -
152320	Reset Roadside Sign	EA		x		=	$ -
152390	Relocate Roadside Sign	EA		x		=	$ -
566011	Roadside Sign (One Post)	LS	1	x	25,000.00	=	$ 25,000
566012	Roadside Sign (Two Post)	EA		x		=	$ -
560XXX	Furnish Sign Panels	SQFT		x		=	$ -
560XXX	Install Sign Panels	SQFT		x		=	$ -
82010X	Delineator (Class X)	EA		x		=	$ -
840666	Permanent Pavement Delineation	LS	1	x	250,600.00	=	$ 250,600

Subtotal Traffic Signing and Striping *$ 275,600*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)		Cost
120100	Traffic Control System	LS	1	x	1,230,000.00	=	$ 1,230,000
120120	Type III Barricade	EA		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
12016X	Channelizer	EA		x		=	$ -
128650	Portable Changeable Message Signs	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF	18,500	x	20.00	=	$ 370,000
129100	Temp. Crash Cushion Module	EA		x		=	$ -
129099A	Traffic Plastic Drum	EA		x		=	$ -
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$ -
XXXXXX	Some Item						

Subtotal Stage Construction and Traffic Handling *$ 1,600,000*

TOTAL TRAFFIC ITEMS $ 4,865,600

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Temporary Detour Road	LS	1	x	250,000.00	=	$ 250,000

TOTAL DETOURS $ 250,000

SUBTOTAL SECTIONS 1-7 $ 43,148,200

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items				
ADA Items			0.0%	$ -
8B - Bike Path Items				
Bike Path Items			0.0%	$ -
8C - Other Minor Items				
Other Minor Items		35,229,274	5.0%	$ 2,157,410

Total of Section 1-7 $ 43,148,200 x 5.0% = $ 2,157,410

TOTAL MINOR ITEMS $ 2,157,500

SECTIONS 9: MOBILIZATION

Item code						
999990	Total Section 1-8	$ 45,305,700	x	5%	=	$ 2,265,285

TOTAL MOBILIZATION $ 2,265,300

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan	LS	1	x	1,000,000.00	=	$ 1,000,000
066090	Maintain Traffic	LS	1	x	462,000.00	=	$ 462,000
066094	Value Analysis	LS	1	x	10,000.00	=	$ 10,000
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	217,000.00	=	$ 217,000
066700	Partnering	LS	1	x	90,000.00	=	$ 90,000
066866	Operation of Existing Traffic Management S	LS		x		=	$ -
066920	Dispute Review Board	LS	1	x	30,000.00	=	$ 30,000
XXXXXX	Supplemental Work	LS		x		=	$ -

*Cost of **NPDES** Supplemental Work specified in Section 5C* = $ -

Total Section 1-8 $ 45,305,700 2% = $ 906,114

TOTAL SUPPLEMENTAL WORK $ 2,715,200

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS		x		=	$0
066105	RE Office	LS		x		=	$0
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS		x		=	$0
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						
	Total Section 1-8	$	45,305,700		0%	=	$ -

TOTAL STATE FURNISHED **$0**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	620	X	0	=	

TOTAL TIME-RELATED OVERHEAD **$0**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	50,286,200	x	20%	=	$10,057,240

TOTAL CONTINGENCY **$10,057,300**

II. STRUCTURE ITEMS

DATE OF ESTIMATE	01/27/17	01/27/17	01/27/17
Name	Ceres Main Canal (Replace)	Ceres Main Canal (Replace)	Ceres Main Canal (Widen)
Bridge Number	38-0007	38-0007K	38-0007S
Structure Type	CIP Conc Slab	CIP Conc Slab	CIP Conc Slab
Width (Feet) [out to out]	140.83 LF	48.56 LF	16.08 LF
Total Length (Feet)	32.75 LF	32.00 LF	32.08 LF
Total Area (Square Feet)	4612 SQFT	1554 SQFT	516 SQFT
Structure Depth (Feet)	LF	LF	LF
Footing Type (pile or spread)	Pile	Pile	Pile
Cost Per Square Foot	$313.29	$321.73	$360.32
COST OF EACH STRUCTURE	**$1,445,000**	**$500,000**	**$186,000**

DATE OF ESTIMATE	01/27/17	01/27/17	01/27/17	01/27/17
Name	Service Road OC (Replace)	tchell Rd SB On-Ramp UC (Replac	Mitchell Road SB Off-ramp UC	Bridge Removal & Railroad
Bridge Number	38-0094	38-0093	TBD	
Structure Type	RC Box Girder	CIP/PS Box Girder	CIP/PS Box Girder	
Width (Feet) [out to out]	132.00 LF	141.50 LF	140.83 LF	0.00 LF
Total Length (Feet)	458.29 LF	218.00 LF	131.67 LF	0.00 LF
Total Area (Square Feet)	60494 SQFT	30847 SQFT	18543 SQFT	0.0 SQFT
Structure Depth (Feet)	LF	LF	LF	0.00 LF
Footing Type (pile or spread)	Pile	Pile	Pile	
Cost Per Square Foot	$181.49	$270.00	$415.88	$0.00
COST OF EACH STRUCTURE	**$10,980,000**	**$11,329,000**	**$7,712,000**	**$1,028,000**

TOTAL COST OF BRIDGES	**$33,180,000**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$33,180,000**

Estimate Prepared By: XXXXXXXXXXXXXXXXX ------ Division of Structures

Date

---

[1] Structure's Estimate includes Overhead and Mobilization.

Add more sheets if needed. Call them 9a, 9b, 9c, ..., etc

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,		4,031,771.00	0
	A2) SB-1210		$	0
B)	Acquisition of Offsite Mitigation		$	0
C)	C1) Utility Relocation (State Share)			0
	C2) Potholing (Design Phase)		$	0
D)	Railroad Acquisition		$	0
E)	Clearance / Demolition		180,000.00	0
F)	Relocation Assistance (RAP and/or Last Resort Housing Costs)		200,000.00	0
G)	Title and Escrow		24,000.00	0
H)	Environmental Review		$	0
I)	Condemnation Settlements (Items G & H applied to items A + B)	0%	$	0
J)	Design Appreciation Factor	0%	$	0
K)	Utility Relocation (Construction Cost)		$	0

L) **TOTAL RIGHT OF WAY ESTIMATE** **$4,435,771**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$0**

N) **Right of Way Support** **$** **500,000**

Support Cost Estimate Prepared By	Phillip Ruess, PE Project Coordinator[1]	(858) 385-2233 Phone
Utility Estimate Prepared By	Phillip Ruess, PE Utiliy Coordinator[2]	(858) 385-2233 Phone
R/W Acquisition Estimate Prepared By	Phillip Ruess, PE Right of Way Estimator[3]	(858) 385-2233 Phone

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

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT F

TMP CHECKLIST

State of California **Business, Transportation and Housing Agency**

D-10 TRANSPORTATION MANAGEMENT PLAN CHECKLIST

District - Project No: 10-1A690
Date Prepared: April 20, 2016
Prepared By: Wuthy Seng
Requested By: Phillip Reuss/Mason Leung

Co.-Rte.-P.M. STA-99-9.5/R11.4
Location: In and near Ceres from 0.7 mile south of Mitchell Road Undercrossing to 0.1 mile north of Pine Street Overcrossing
Alternative No. 1

Stage of Project (X box) ☐ **PID** ☐ **PSR** ☒ **PR** ☐ **PS&E**

Description:

Date Signed | Date Signed | Date Signed | Date Signed

	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
1.0 Public Information Strategies							
1.1 Brochures and Mailers	X				RE to hand-deliver to business/residences.		
1.2 Media Releases (& minority media sources)	X						
1.3 Paid Advertising			X				
1.4 Public Information Center		X			See comments below.		
1.5 Public Meetings/Speakers Bureau		X		066063	Designer to add to budget if public meeting is added.		
1.6 Project Telephone Hotline			X				
1.7 Internet, E-Mail			X				
1.8 Local cable TV and News		X					
1.9 Notification to Impacted groups (i.e. bicycle users, pedestrians with disabilities, others)	X				Designer to verify impacted groups.		
1.10 Project Web Page		X			Web page could be linked to local City page.		
1.11 Caltrans Public Information Office	X			066063	Items 1.1 to 1.11 to be handled by CT PIO.	$200K	
1.12 Consultant Public Information Office			X				
1.13 Other items			X				
2.0 Traveler Information Strategies							
2.1 Changeable Message Signs (permanent)		X			Utilize existing units.		X
2.2 Changeable Message Signs (portable)	X			128652	See comments below	$240K	X
2.3 Special Construction Signs			X	120690			
2.4 Traveler Information Systems (CHIN/Internet)		X		861985	As required.		
2.5 Highway Advisory Radio "HAR" (fixed or mobile)		X		860520			
2.6 Radar Speed Sign	X			066064	As need per the construction stages		X
2.7 Traffic Management Team			X				
2.8 Revised Transit Schedules/ Maps			X				
2.9 Bicycle community information	X				Same as Item 1.9.		
2.10 Other items			X				
3.0 Incident Management							
3.1 COZEEP	X			066062	See comments below	$200K	
3.2 Freeway Service Patrol (tow truck service patrol)		X		066065	$116/hr includes 1 tow truck and one service truck	$77K	
3.3 Traffic Surveillance Stations (loops or CCTV)	X			066876	Existing to remain &/or provide new stations.		
3.4 Transportation Management Center	X						
3.5 Traffic Control Inspector (Caltrans)		X					
3.6 Traffic Management Team		X			As needed.		
3.7 On-site Traffic Advisor (contractor)		X					
3.8 Other Items			X				
4.0 Construction Strategies							
4.1 Delay damage clause	X				To be included in PS&E		X
4.2 Night work	X				Lane closure charts to be provided in PS&E phase		X
4.3 Weekend Work			X				
4.4 Extended Weekend Closures			X				
4.5 Planned Lane Closures	X				Lane closure charts to be provided in PS&E phase		X
4.6 Planned Ramp Closures/Connector Closure	X				Ramp closure charts to be provided in PS&E phase		X
4.7 Total Facility Closure	X				Lane closure charts to be provided in PS&E phase		X
4.8 Project Phasing	X				As per stage construction		X
4.9 Truck Traffic Restrictions			X				
4.10 Reduced Lane Widths	X				As per stage construction		X
4.11 Temporary K-Rail	X			129000	$18.00/LF		X
4.12 Temporary Traffic Screens	X			129150	$ 7.50/Meter		X
4.13 Regulatory Temporary Traffic Control Speed Zone			X		No request submitted		
4.14 Traffic Control Improvements	X				As necessary.		

	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
4.0 Construction Strategies (Continued)							
4.15 Contingency Plans	X				Construction to determine items 4.15.1 thru. 4.15.9		X
4.15.1 Material Plant on standby							
4.15.2 Extra Critical Equipment on site	X						
4.15.3 Material Testing Plan	X						
4.15.4 Alternate Material on site (In case of failure or major delays)							
4.15.5 Emergency Detour Plan	X						
4.15.6 Emergency Notification Plan	X						
4.15.7 Weather Conditions Plan			X				
4.15.8 Delay Timing and Documentation Plan	X						
4.15.9 Late Closure Reopening Notification	X						
4.16 Signal timing modification			X				
4.17 Coordination with adjacent construction	X				RE to confirm prior to scheduling of closures.		X
4.18 Double Fine Zone (signs)	X						X
4.19 Right of Way Delay	X					TBD	X
4.20 ADA access to Pedestrian Facilities	X				See comments below.		X
4.21 Structure Strategies for Traffic Handling Constraints	X						
4.22 Other Items		X			See comments below.		
5.0 Demand Management							
5.1 HOV Lanes/Ramps			X				
5.2 Ramp metering			X				
5.3 Park-and-Ride Lots			X				
5.4 Parking Management/Pricing			X				
5.5 Rideshare Incentives			X				
5.6 Rideshare Marketing			X	066069			
5.7 Transit, Train, or Light-Rail Incentives			X	066066			
5.8 Transit Service Modification			X				
5.9 Variable Work Hours			X				
5.10 Telecommute			X				
5.11 Other Items			X				
6.0 Alternate Route Strategies							
6.1 Ramp Closures	X				As per stage construction		X
6.2 Street Improvements		X					
6.3 Reversible Lanes			X				
6.4 Temporary Lanes or Shoulders Use	X						X
6.5 Freeway to freeway connector closures			X				
6.6 Other Items			X				
7.0 Other Strategies							
7.1 Application of new technology			X				
7.2 District Lane Closure Review Committee (LCRC)			X		No request submitted		
7.3 SHOPP 315 Program: Construct ITS Elements			X				
7.3.1 Changeable Message Sign (CMS)			X				
7.3.2 Closed-Circuit Television (CCTV)	X				Relocate one at Service Rd. and install new one	$100K	
7.3.3 Extinguishable Message Sign (EMS)			X				
7.3.4 Highway Advisory Radio (HAR) & Signs			X				
7.3.5 Ramp Metering	X				1 ramp at Mitchell Rd. IC & 2 ramps at Service Rd. IC	$900K	
7.3.6 Traffic Monitoring Station (TMS)	X				$30k/EA x 8 TMS locations	$240K	
7.3.7 Weather Station (RWIS)	X				$60k/EA	$60K	
7.4 Anti-Theft Prevention Strategies	X				See Guidelines of Effective & Practical Wire Theft Prevention Strategies		
7.5 Other Items			X				

Comments:

1.4 Plan, progress/completion information should be available at Local Public Works, Chamber of Commerce Offices, and CT Maintenance Offices.

1.9 Impacted groups need to be notified and informed about upcoming construction. During construction, access across job site will be needed.

1.11 PIO estimate: 33 months (660 days) x $6k/month = $198K ==> Say $200 K

2.2 PCMS estimate: 1 pair per direction on SR-99 x 33 months x $5k/mo. + 1 pair for local roads x 15 months x $5k/mo = $240K

3.1 COZEEP estimates: 1 pair of CHP x 100 days x $2k/mo. = $200K

4.20 Ensure that temporary routes, which are provided around and through construction along pedestrian facilities under Caltrans jurisdiction, are accessible to persons with disabilities when provided.

4.22 RE/Inspector shall maintain access to all business & residences at all times.

Approved by:

For WILMAR KUHL, P.E. - TMP MANAGER

4/20/2016

DATE

D-10 TRANSPORTATION MANAGEMENT PLAN CHECKLIST

District - Project No: 10-1A690
Date Prepared: April 20, 2016
Prepared By: Wuthy Seng
Requested By: Phillip Reuss/Mason Leung
Stage of Project (X box) ☐ PID ☐ PSR ☒ PR ☐ PS&E

Date Signed
Date Signed
Date Signed
Date Signed

Co.-Rte.-P.M. STA-99-9.5/R11.4
Location: In and near Ceres from 0.7 mile south of Mitchell Road Undercrossing to 0.1 mile north of Pine Street Overcrossing
Alternative No. 2
Description:

	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
1.0 Public Information Strategies							
1.1 Brochures and Mailers	X				RE to hand-deliver to business/residences.		
1.2 Media Releases (& minority media sources)	X						
1.3 Paid Advertising			X				
1.4 Public Information Center		X			See comments below.		
1.5 Public Meetings/Speakers Bureau		X		066063	Designer to add to budget if public meeting is added.		
1.6 Project Telephone Hotline			X				
1.7 Internet, E-Mail			X				
1.8 Local cable TV and News		X					
1.9 Notification to Impacted groups (i.e. bicycle users, pedestrians with disabilities, others)	X				Designer to verify impacted groups.		
1.10 Project Web Page		X			Web page could be linked to local City page.		
1.11 Caltrans Public Information Office	X			066063	Items 1.1 to 1.11 to be handled by CT PIO.	$190K	
1.12 Consultant Public Information Office			X				
1.13 Other items			X				
2.0 Traveler Information Strategies							
2.1 Changeable Message Signs (permanent)		X			Utilize existing units.		X
2.2 Changeable Message Signs (portable)	X			128652	See comments below	$215K	X
2.3 Special Construction Signs			X	120690			
2.4 Traveler Information Systems (CHIN/Internet)		X		861985	As required.		
2.5 Highway Advisory Radio "HAR" (fixed or mobile)		X		860520			
2.6 Radar Speed Sign	X			066064	As need per the construction stages		X
2.7 Traffic Management Team			X				
2.8 Revised Transit Schedules/ Maps			X				
2.9 Bicycle community information	X				Same as Item 1.9.		
2.10 Other items			X				
3.0 Incident Management							
3.1 COZEEP	X			066062	See comments below	$160K	
3.2 Freeway Service Patrol (tow truck service patrol)		X		066065	$116/hr includes 1 tow truck and one service truck	$72K	
3.3 Traffic Surveillance Stations (loops or CCTV)	X			066876	Existing to remain &/or provide new stations.		
3.4 Transportation Management Center	X						
3.5 Traffic Control Inspector (Caltrans)		X					
3.6 Traffic Management Team		X			As needed.		
3.7 On-site Traffic Advisor (contractor)		X					
3.8 Other Items			X				
4.0 Construction Strategies							
4.1 Delay damage clause	X				To be included in PS&E		X
4.2 Night work	X				Lane closure charts to be provided in PS&E phase		X
4.3 Weekend Work			X				
4.4 Extended Weekend Closures			X				
4.5 Planned Lane Closures	X				Lane closure charts to be provided in PS&E phase		X
4.6 Planned Ramp Closures/Connector Closure	X				Ramp closure charts to be provided in PS&E phase		X
4.7 Total Facility Closure	X				Lane closure charts to be provided in PS&E phase		X
4.8 Project Phasing	X				As per stage construction		X
4.9 Truck Traffic Restrictions			X				
4.10 Reduced Lane Widths	X				As per stage construction		X
4.11 Temporary K-Rail	X			129000	$18.00/LF		X
4.12 Temporary Traffic Screens	X			129150	$ 7.50/Meter		X
4.13 Regulatory Temporary Traffic Control Speed Zone			X		No request submitted		
4.14 Traffic Control Improvements	X				As necessary.		

4.0 Construction Strategies (Continued)

	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
4.15 Contingency Plans	X				Construction to determine items 4.15.1 thru. 4.15.9		X
4.15.1 Material Plant on standby							
4.15.2 Extra Critical Equipment on site	X						
4.15.3 Material Testing Plan	X						
4.15.4 Alternate Material on site (In case of failure or major delays)							
4.15.5 Emergency Detour Plan	X						
4.15.6 Emergency Notification Plan	X						
4.15.7 Weather Conditions Plan			X				
4.15.8 Delay Timing and Documentation Plan	X						
4.15.9 Late Closure Reopening Notification	X						
4.16 Signal timing modification			X				
4.17 Coordination with adjacent construction	X				RE to confirm prior to scheduling of closures.		X
4.18 Double Fine Zone (signs)	X						X
4.19 Right of Way Delay	X					TBD	X
4.20 ADA access to Pedestrian Facilities	X				See comments below.		X
4.21 Structure Strategies for Traffic Handling Constraints	X						
4.22 Other Items		X			See comments below.		

5.0 Demand Management

	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
5.1 HOV Lanes/Ramps			X				
5.2 Ramp metering			X				
5.3 Park-and-Ride Lots			X				
5.4 Parking Management/Pricing			X				
5.5 Rideshare Incentives			X				
5.6 Rideshare Marketing			X	066069			
5.7 Transit, Train, or Light-Rail Incentives			X	066066			
5.8 Transit Service Modification			X				
5.9 Variable Work Hours			X				
5.10 Telecommute			X				
5.11 Other Items			X				

6.0 Alternate Route Strategies

	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
6.1 Ramp Closures	X				As per stage construction		X
6.2 Street Improvements		X					
6.3 Reversible Lanes			X				
6.4 Temporary Lanes or Shoulders Use	X						X
6.5 Freeway to freeway connector closures			X				
6.6 Other Items			X				

7.0 Other Strategies

	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
7.1 Application of new technology			X				
7.2 District Lane Closure Review Committee (LCRC)			X		No request submitted		
7.3 SHOPP 315 Program: Construct ITS Elements			X				
7.3.1 Changeable Message Sign (CMS)			X		$300/EA	$300K	
7.3.2 Closed-Circuit Television (CCTV)	X				Relocate one at Service Rd. and install new one	$100K	
7.3.3 Extinguishable Message Sign (EMS)			X				
7.3.4 Highway Advisory Radio (HAR) & Signs			X				
7.3.5 Ramp Metering	X				2 ramps at Mitchell Rd. IC	$600K	
7.3.6 Traffic Monitoring Station (TMS)	X				$30k/EA x 6 TMS locations	$180K	
7.3.7 Weather Station (RWIS)	X				$60k/EA	$60K	
7.4 Anti-Theft Prevention Strategies	X				See Guidelines of Effective & Practical Wire Theft Prevention Strategies		
7.5 Other Items			X				

Comments:

1.4 Plan, progress/completion information should be available at Local Public Works, Chamber of Commerce Offices, and CT Maintenance Offices.
1.9 Impacted groups need to be notified and informed about upcoming construction. During construction, access across job site will be needed.
1.11 PIO estimate: 31 months (620 days) x $6k/month = $186K ==> Say $190 K
2.2 PCMS estimate: 1 pair per direction on SR-99 x 31 months x $5k/mo. + 1 pair for local roads x 12 months x $5k/mo = $215K
3.1 COZEEP estimates: 1 pair of CHP x 80 days x $2k/mo. = $160K
4.20 Ensure that temporary routes, which are provided around and through construction along pedestrian facilities under Caltrans jurisdiction, are accessible to persons with disabilities when provided.
4.22 RE/Inspector shall maintain access to all business & residences at all times.

Approved by:

For WILMAR KUHL, P.E. - TMP MANAGER

4/20/2016
DATE

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT G

STORM WATER DATA REPORT COVER

Caltrans

Dist-County-Route: 10-Sta-99
Post Mile Limits: PM 9.5/R11.4
Type of Work: Interchange, Auxiliary Lanes
Project ID (EA): EA 10-1A690 (ID 1000000375)
Program Identification: __________
Phase: ☐ PID ☒ PA/ED ☐ PS&E

2018 NOV -~~8~~ 5 AM 8:38
MAILROOM

Regional Water Quality Control Board(s): Central Valley (Region 5)
Total Disturbed Soil Area: 30.7 acres PCTA: 35.4 acres
Alternative Compliance (acres): N/A ATA 2 (50% Rule)? Yes ☐ No ☒
Estimated Const. Start Date: TBD Estimated Const. Completion Date: TBD
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): __________
Notification of ADL reuse (if yes, provide date): Yes ☒ Date: TBD 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.

10/18/18
Phillip Reuss, Registered Project Engineer/Landscape Architect Date

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

11/5/2018
Sinarath Pheng, Project Manager Date

Kenneth Thomson 11/6/18
Ken Thomson, Designated Maintenance Representative Date

David D Troop 11/08/18
David Troop, Construction Storm Water Coordinator Date

FOR Jarret R. Martin 11/8/18
Brad Cole, Designated Landscape Architect Representative Date

For 11/8/18
[Stamp Required at PS&E only] *James Espinosa, District/Regional Design SW Coordinator or Designee* Date

STORMWATER DATA INFORMATION

1. Project Description

The City of Ceres proposes to reconstruct the Mitchell Road Interchange on State Route 99 to reduce current peak-hour congestion at Mitchell Road, provide capacity for forecast traffic volumes along both Service and Mitchell Roads, improve local traffic circulation and improve access between Route 99 and areas to its west, which is currently constrained by the Union Pacific Railroad.

The preferred project alternative would construct a new type of interchange, called a diverging diamond, at Service Road on Route 99. The existing interchange at Mitchell Road would be converted to a partial interchange, with a northbound off-ramp and a southbound on-ramp. To accommodate the new interchange ramps at Service Road, the Route 99 mainline will be shifted up to 92 feet to the northeast, and a new roadway alignment will be constructed between the Mitchell Road Undercrossing and the Pine Street Overcrossing. This alternative also includes an extended deceleration lane at the northbound off-ramp to Mitchell Road, auxiliary lanes between the Service Road interchange and the Fourth Street ramps, replacement of the Mitchell Road Undercrossing and Service Road Overcrossing, and various local road improvements.

Disturbed Soil Area and Net Additional Impervious Area

In the state right-of-way, the total disturbed soil area (DSA) is estimated to be 30.7 acres. In the local right-of-way, the DSA is estimated to be 15.9 acres. The disruption of soils is anticipated within the extent of the project limits due to the removal of existing pavement, the addition of new pavement, construction of retaining walls, and earthwork for roadway cut and fill sections. The DSA was calculated from the proposed project planimetric CAD files between the limits of the project construction area and the existing impervious areas.

The post construction treatment area (PCTA) for the project is estimated to be 35.4 acres in the state right-of-way and 13.0 acres in the local right-of-way. The area was estimated using the project impervious areas obtained from the project CAD files and survey data, summarized in Tables 1 and 2 below.

Table 1: PCTA Calculations (State Right-of-Way)

Impervious Areas	Acres
Post-project impervious area[1]	39.5
Pre-project impervious area[1]	26.1
Excluded impervious areas[2]	1.0
NNI[3]	12.4
NNI to post-project impervious area	31%
RIS[4]	23.0

---

[1] *Within project limits*

[2] *Areas to be subtracted from NNI for this project include: area of intersection of new bridges over impervious area, sidewalks, pedestrian ramps, and bike lanes (see 2017 PPDG Table 4-1)*

[3] *NNI (Net new impervious) = Post-project impervious area - pre-project impervious area - excluded impervious areas*

[4] *RIS (Replaced Impervious Area); includes estimated existing impervious areas replaced (see 2017 PPDG 4.3 Step 7)*

NIS[5]	35.4
ATA #1[6]	0.0
ATA #2[7]	0.0
PCTA[8]	35.4

Table 2: PCTA Calculations (Local Right-of-Way)

Impervious Areas	Acres
Post-project impervious area	21.4
Pre-project impervious area	16.4
Excluded impervious areas	2.4
NNI	2.6
NNI to post-project impervious area	12%
RIS	10.4
NIS	13.0
ATA #1	0.0
ATA #2	0.0
PCTA	13.0

Treatment Best Management Practices (BMPs) will be considered to meet Permit Post Construction Treatment requirements. The treated areas are shown on the Treatment BMP Location Maps included in the Supplemental Attachments. There are no additional right-of-way costs associated with the proposed Treatment BMPs. There are no existing Treatment BMPs within the project limits.

Urban MS4 Areas

The project is located within the Modesto urbanized area within Region 5 of the Regional Water Quality Control Board (Central Valley Region). The project area includes parts of the City of Ceres and Stanislaus County Phase II small MS4 areas.

2. Site Data and Stormwater Quality Design Issues

The Project is located within the jurisdiction of Caltrans District 10 and the Central Valley Regional Water Quality Control Board (RWQCB) – Region 5 Sacramento office. The construction contract will be administered by the City of Ceres, with Caltrans design oversight.

Hydrologic Units

The entire project is within the San Joaquin Valley Floor hydrologic unit. It falls within the Turlock Hydrologic Area, and the Hydrologic Sub Area number is 535.50. This area is part of the Turlock Lake subwatershed of the Salado Creek-San Joaquin River watershed.

---

[5] *NIS (New Impervious Surface) = NNI + RIS*

[6] *ATA (Additional Treated Area) #1; removed or modified existing TBMP impervious area that must be treated*

[7] *ATA (Additional Treated Area) #2; all existing impervious area within the project limits less any RIS, but only if the percent of NNI to post-project impervious area is 50% or more*

[8] *PCTA (Post Construction Treatment Area) = NIS + ATA #1 + ATA #2; if less than 1 acres for highway projects (5,000 ft^2 for non-highway) PCTA is 0. PCTA is the mandatory impervious area to be treated.*

Receiving Water Body

A portion of the runoff from within the state right-of-way will be directed to the Turlock Irrigation District's (TID) Ceres Main Canal. This facility runs directly through the project area, crossing under Route 99 approximately 700 feet south of the Mitchell Road interchange. Waters from the canal provide irrigation to rural areas throughout Stanislaus County, with excess runoff conveyed through several lateral canals that generally run westerly and eventually discharge to the San Joaquin River, approximately 12 miles to the west of the project location. This reach of the San Joaquin River is located between the Merced River and the Tuolumne River. There is an existing agreement between Caltrans and the TID, dated March 1961 that allows Caltrans to discharge its runoff to the TID canal. This agreement states that "the State will not permit trash, leaves or refuse to be emptied into this canal through the State pumping plant and discharge point", and regarding maximum discharge, "[TID] will accept any and all waters up to 22 sec. feet (sic, understood to be cubic feet per second) into said Ceres Main Canal from the freeway right-of-way...from the State pumping plant". A copy of this agreement is included in the Supplemental Attachments of this report. As detailed in this report, Treatment BMPs are proposed to address the required PCTA for the project site.

The remaining portion of stormwater runoff from the project area, from state right-of-way and local right-of-way, will be retained on-site and will not discharge to a water body of the US.

2010 Clean Water Act 303(d) List

The RWQCB has listed the San Joaquin River (Merced River to Tuolumne River reach) as an impaired water body for the following pollutants: alpha.-BHC, boron, chlorpyrifos, DDE, DDT, electrical conductivity, group A pesticides, mercury, temperature/water, and unknown toxicity. The San Joaquin River is located 10 miles to the west of the project location. The Ceres Main Canal is the only waterway in the project limits.

Total Maximum Daily Loads

TMDLs have been approved by the United States Environmental Protection Agency (EPA) for boron and chlorpyrifos for San Joaquin River on February 8, 2007 and January 1, 2007, respectively. Agriculture is indicated as the source of impairment for both of these pollutants per the 303(d) list.

Beneficial Uses

The RWQCB Basin Plan lists the identified beneficial uses of inland surface waters for the project's receiving water body as follows:

- San Joaquin River, mouth of Merced River to Vernalis: Municipal Domestic Supply (potential beneficial use), Agriculture, Process Industry, Recreation (Contact, Canoeing and Rafting, and Other Non-Contact), Warm Freshwater Habitat, Migration (Warm and Cold), Spawning (Warm), and Wildlife Habitat.

CWA Section 401 Water Quality Certification

The only waterway in the vicinity of the project is the Ceres Main Canal. This waterway is regulated by the Turlock Irrigation District. A discharge permit between Caltrans and the District exists. It is anticipated that 401 Certification for this project will be required, and an application will be submitted after Notice of Determination.

Sensitive Issues

The City of Ceres obtains all of its drinking water from wells located throughout the city. Based upon information from other projects, the depth to groundwater is estimated to be at least 20 feet deep. A Phase 1 Environmental Assessment was prepared for the project by Nelson Environmental in October 2006. Site reconnaissance did not identify any land uses that may contribute environmental hazards in the project corridor, and the database review revealed little or no potential for preexisting hazardous waste sites to affect the project. Because of the age of the highway, the project site has the potential to be contaminated with aerially deposited lead (ADL). Testing for ADL, hydrocarbons and other contaminants will be conducted during design. Caltrans Hazardous Materials Unit has had the opportunity to review all studies completed for the Environmental Document.

Local Agency Requirements/Concerns

Storm water discharges from the state right-of-way to the Ceres Main Canal are regulated by an agreement between the TID and the state's Department of Public Works dated 1961. A copy of this agreement is provided in the Supplemental Attachments of this report. Current conditions of the agreement are as follows:

- State will upon 24-hours notice from TID refrain from pumping or diverting any water into the canal when such is necessary for the purpose of repair, construction, reconstruction, or alteration.
- The State shall not permit trash, leaves, or refuse to be emptied into this said canal through the State pumping plant and discharge point.
- TID will accept any and all waters up to 22 sec. feet (sic, understood to be cubic feet per second) and no change in the discharge point or in the maximum amount of discharge which affects the rights of the State shall be made except by mutual agreement.
- TID agrees that in the event transfer of assignment of its title or interest to the Ceres Main Canal to third party or successor to the TID that the transfer or assignment will be subject to the acceptance into said canal the quantities of water from the State as set forth in the agreement.

There are no other known concerns at this time. There could be potential concerns with TID with respect to the operation of the canal, including restrictions on construction due to growing seasons/rainy seasons, etc. Further coordination with TID will occur as the project progresses.

Climate

The climate is a typical Mediterranean climate in the Central Valley with hot, dry summers and cool, wet winters. Specific site data is based on records from the nearest climate station, the Modesto City-County Airport. The average annual temperature ranges from 51° F to 75° F. The average high temperature in July is 94° F and the average low temperature in December is 39° F. Temperatures may rise above 100° F in the summer and may fall below 32° F in the winter. The average annual precipitation is about 13 inches, and the rainy season is from October 15 to April 15. Extreme weather conditions, such as thunderstorms and snowfalls, are rare. Rainfall intensity-distribution-frequency data specific to the project area is provided in the Supplemental Attachments.

Topography

The general site topography is typical of the Central Valley floor, with mostly flat ground. The area slopes gently at approximately 0.1% in a southwesterly direction towards the San Joaquin River.

Roadway embankments with artificial fill exist for the approaches to the Service Road and Pine Street Overcrossings over Route 99 and the UPRR tracks, and for Route 99 at the Mitchell Road Undercrossing. These embankment areas are up to 30 feet in height and generally have 2:1 (horizontal:vertical) slopes.

Soil Characteristics

According to the Web Soil Survey by the Natural Resources Conservation Service (NRCS) (http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx) and the soil map for Eastern Stanislaus County, CA, the predominant soil types within the project area are Hanford sandy loam (HdpA, HdA), Tujunga loamy sand (TuA), and Dinuba sandy loam (DwA). The soil map for the project area with the soil type descriptions from the Web Soil Survey is provided in the Supplemental Attachments. A summary of the soil types, their corresponding hydrologic soil group, and the estimated permeability rate (based on the limiting layer to transmit water) is provided in Table 3 below.

Table 3: NRCS Soil Classification

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group	Permeability (in/hr)	Approx. Percent of Project Area
DwA	Dinuba sandy loam, slightly saline-alkali, 0 to 1 percent slopes	C	0.06 - 0.20	2.0%
HdA	Hanford sandy loam, 0 to 3 percent slopes	A	1.98 - 5.95	12.8%
HdpA	Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes	C	0.20 - 0.57	71.3%
TuA	Tujunga loamy sand, 0 to 3 percent slopes	A	5.95 - 19.98	13.8%

Additionally, field explorations were conducted in September and October 2017, and these are summarized in the Preliminary Geotechnical Design & Materials Report, prepared by NV5 West, Inc., dated February 2018. The near surface soils at the proposed basin locations in the project area generally consist of silty sand and poorly graded sand. Infiltration rates of the native soils were tested within the upper 10 feet at proposed basin sites in the project area, and were found to be in excess of 4 inches per hour. According to the U.S. Geological Survey report titled "Hydrogeologic Characterization of the Modesto Area, San Joaquin Valley, California", soil percolation rates in the project area are characterized as either "rapid" (5 to 10 in/hr) or "very rapid" (greater than 10 in/hr). Thus, near surface soils throughout the project area are considered to be highly permeable. The field percolation test results are provided in Table 4 below.

Table 4: Summary of Field Percolation Test Results

Basin ID	Test Hole No.	Ground Surface Elevation (ft, MSL)	Soil Type (USCS)	Estimated Infiltration Rate (in/hr)
1	D-17-059	94.5	SM (0-5') CL (5'-6.5') SP (6.5'-10')	> 4
2	D-17-057	91.2	ML/SM (0-4') SP (4'-10')	> 4
3	D-17-039	88.2	SM (0-9.5') SP (9.5'-10')	> 4
4	D-17-038	92.0	SM (0-10')	> 4*
5	D-17-050	89.2	SM (0.5'-10')	> 4
6	D-17-058	89.6	SM (0-7.5') SP (7.5'-10')	> 4
7	D-17-040	88.6	SM (0-7.5') SP (7.5'-10')	> 4

*Note: Percolation testing could not be performed due to access constraint. Infiltration rate in Basin #4 may be estimated using the percolation test data from nearby Basins #3 and #5.

Aerially Deposited Lead (ADL)

It is assumed that the project will involve re-use of soil containing Aerially Deposited Lead (ADL) due to the proximity of the UPRR tracks and the fact that the project involves work on and around Route 99. ADL testing was performed in the project area to determine if contaminated soils are present. Results of this investigation are summarized in the Preliminary Site Investigation (PSI) Report, prepared by Geocon Consultants, Inc., dated December 2016. Caltrans Hazardous Materials Unit has had the opportunity to review this study. Per the PSI Report, soils up to a depth of 1 ft adjacent to the existing freeway shoulder contain ADL, and it is recommended that excavated soils containing ADL may be placed in areas of fill within the project limits and covered with a minimum 1 ft layer of non-hazardous soil or pavement. Re-use of soil containing ADL on site will be managed according to the Department of Toxic Substances Control Agreement (currently in draft status). A Notification of ADL Reuse will be prepared during the PS&E phase of the project.

Groundwater Information

Information concerning the groundwater table at the site has been gathered from available regional information and site-specific geotechnical investigations. The GIS mapping application on the California Department of Water Resources' (DWR) Groundwater Information Center website shows the approximate depth to groundwater varies between 30 and 40 feet within the project limits, based on water level measurements collected from local wells in the spring of 2014. Additionally, field explorations were conducted in September and October 2017, and these are summarized in the Preliminary Geotechnical Design & Materials Report (PGDMR), prepared by NV5 West, Inc., dated February 2018. The geotechnical investigations found that the depth to groundwater varies from 35.7 feet to 48.0 feet within the project site. Thus, it is assumed that the depth to groundwater is at least 30 feet within the project area.

Erosion Potential

From the preliminary information pertaining to the soils in the project area, slope stabilization is not a concern. Per current Caltrans design criteria, slopes will be 4:1 maximum where practicable, providing stable, erosion-resistant slopes. Where a 4:1 slope is not achievable, 2:1 slopes and retaining walls will be used with approval of the District Landscape Architect and Maintenance unit. A Fact Sheet for Exception to Advisory Design Standard has been prepared for concurrence with the proposed 2:1 slopes. Per the PGDRM, fill slopes of up to 2:1 are feasible from a geotechnical standpoint. New or modified slopes will be vegetated or otherwise stabilized to prevent erosion. During the PS&E phase, Erosion Control plans will be prepared for review and approval by the District Landscape functional unit.

Risk Assessment

The Risk Determination Worksheet provided by the California State Water Resources Control Board was utilized to determine the risk level for the project. The project risk level is a combination of two sub-scores, the "sediment risk" score and the "receiving water risk" score. The sediment risk score is calculated by finding the product of the R, K and LS factors. "R" is the rainfall factor, "K" is the soil erodibility factor, and "LS" is the topography factor. Using the Caltrans Water Quality Planning Tool, these factors were determined for the specific project site and entered into the Risk Determination Worksheet, and summarized in Table 5 below. The receiving water risk factor was found to be low, as the San Joaquin River is not a 303(d)-listed waterbody impaired by sediment and does not have a listed beneficial use for Cold spawning. The sediment risk factor was found to be low as well, based on the data from the Water Quality Planning Tool. According to the combined risk level matrix, a low sediment risk in conjunction with a low receiving water risk results in risk level 1 for the project. A copy of the Risk Determination Worksheet is provided in the Required Attachments of this report.

Table 5: Sediment Risk Factors

RUSLE Factor	Value	Source
R	71.03	US EPA Rainfall Erosivity Calculator for Small Construction Sites, https://www.epa.gov/npdes/rainfall-erosivity-factor-calculator-small-construction-sites
K	0.32	Caltrans Water Quality Planning Tool, http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx
LS	0.43	Caltrans Water Quality Planning Tool, http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx
Watershed Erosion Estimate	9.77 tons/acre	Caltrans Risk Level Determination Worksheet

Measures for Avoiding or Reducing Potential Storm Water Impacts

To avoid potential storm water impacts, temporary and permanent measures will be used to reduce or eliminate potential erosion or sedimentation within the project limits. Side slopes of 4:1 or flatter will be used wherever possible. Where this slope is not attainable, 2:1 slopes and retaining walls will be used to prevent erosion. Ditches and roadway side slopes will be vegetated with plant material compatible with the local climate. If required, slopes will be paved to prevent erosive conditions.

Land Use

Within the project limits, land uses generally consist of a mix of residential, commercial and industrial properties north of Service Road on either side of the freeway. South of Service Road, land uses are primarily agricultural in nature. In the future, planned development for the areas south of Service Road includes new residential zones on the west side of the freeway and commercial development on the east side.

Right-of-Way (R/W) Requirements

Right-of-way acquisition is anticipated for the construction of the preferred project alternative, and right-of-way certification will be required. All proposed project BMPs will be within the existing or acquired right-of-way, and no additional right-of-way acquisition is anticipated for implementation of BMPs.

Existing Treatment BMPs

There are no known existing Treatment BMPs within the project limits.

3. Construction Site BMPs to be used on Project

It is anticipated that the Temporary Construction Site BMP strategy for this project will consist of the following:

- Soil Stabilization Practices
- Sediment Control Practices
- Tracking Control Practices
- Wind Erosion Control
- Non-Stormwater Controls
- Waste Management and Material Pollution Controls

Soil stabilization and sediment control consists of placing linear sediment barriers such as silt fence at the toe of all excavation and embankment slopes. Slope interruption devices such as fiber rolls will be installed and soil stabilizer will be hydraulically applied. Wherever possible, early implementation of permanent erosion control seeding or landscape planting will be performed.

Storm drain inlet protection shall be deployed throughout the project.

The project has potential for wind erosion during construction activities; thus, it is anticipated that there will be several areas that need stabilized construction entrances and scheduled street sweeping to avoid off-site tracking of sediment.

Concrete work is anticipated for this project and shall be managed through the use of temporary concrete washout bins.

Various waste management, materials handling, and other housekeeping BMPs shall be used throughout the duration of the project. Stockpiles of various kinds are anticipated and shall be maintained with the appropriate BMPs.

The project has a risk level of 1, as per Caltrans Risk Level Determination guidelines. As such, planned monitoring locations and activities are not required for this project.

Preliminary investigations indicate that the groundwater table is a minimum of 30 feet deep within the project limits, and that driven piles are appropriate for use for deep structural foundations. As such, dewatering activities are not anticipated and a separate dewatering permit will not be required for this project. Further consideration will be made during the PS&E phase of the project.

It is not anticipated that active treatment systems will be necessary for this project, as the area has low sediment risk. Further consideration will be made during the PS&E phase of the project.

Caltrans District 10 Construction staff will be consulted for concurrence with the Construction Site BMP strategy. A copy of the Construction Site BMP Consideration Form will be attached to the SWDR at the PS&E phase of the project.

Table 6 below lists the types of construction site BMPs designated as separate bid line items that are anticipated for this project based on current information available for the preferred alternative. The final construction site BMPs and associated checklists will be completed and submitted during the PS&E phase of the project.

Table 6 – Quantities for Construction Site BMPs

BEES Item Code	BMP Description	Unit of Measurement
130100	Job Site Management	LS
130300	Prepare Storm Water Pollution Prevention Plan	LS
130505	Move-In/Move-Out (Temporary Erosion Control)	EA
130520	Temporary Hydraulic Mulch	SQYD
130570	Temporary Cover	SQYD
130620	Temporary Drainage Inlet Protection	EA
130640	Temporary Fiber Roll	LF
130680	Temporary Silt Fence	LF
130710	Temporary Construction Entrance	EA
130730	Street Sweeping	LS
130900	Temporary Concrete Washout	LS
066595	WPC Maintenance Sharing	LS
066596	Additional Water Pollution Control	LS
131103	Water Quality Sampling and Analysis	EA
131104	Water Quality Monitoring Report	EA
131105	Water Quality Annual Report	EA
130330	Storm Water Annual Report	EA

Project specific BMP measures will be specified and quantified during the design phase. Temporary construction BMPs have been estimated at 1.25% of the total project cost in accordance with the Project Initiation Cost Estimate Method, Appendix F.3.1, 2017 PPDG.

4. Maintenance BMPs

Drain inlet stenciling is anticipated to be required for this project because inlets will be placed in areas accessible to pedestrians and bicycle traffic. The stenciling detail provided in the Caltrans *Standard Plans* will be specified for drainage inlets within the state right-of-way. The quantities, details and specifications for the drain inlet stenciling will be provided during the PS&E phase of the project. Other types of maintenance BMPs, including placement of maintenance vehicle pullouts, will be considered during the design phase and coordinated with the Caltrans Maintenance Area Manager.

5. Other Water Quality Requirements and Agreements

This project will require notification to the Central Valley Regional Board via the Stormwater Multi-Application Report Tracking System (SMARTS). A Waste Discharge Identification (WDID) number will be assigned once the project registration documents are filed.

As of the PA&ED signature date no other agreements were negotiated with the RWQCB Sacramento office. If an ADL Waiver is used for this project, the RWQCB Sacramento must be informed.

6. Permanent BMPs_

Rapid Stability Assessment

Caltrans' Statewide MS4 Permit states that Caltrans "...shall ensure that all new development and redevelopment projects do not cause a decrease in lateral (bank) and vertical (channel bed) stability in receiving stream channels." Projects that create over 1 acre of NNIA must deploy a threshold based analysis determining what measures are to be taken to prevent decreases in channel stability. This project is not required to perform a Rapid Assessment of Channel Stability because the PID stage for this project was finalized before July 1, 2013.

Design Pollution Prevention (DPP) BMP Strategy

Design Pollution Prevention BMPs will be incorporated into the project where applicable to minimize impacts to water quality by preventing downstream erosion and stabilizing disturbed soil areas. These BMPs can provide water quality benefits including settling of solids and other pollutants and increasing detention time by incorporating and preserving vegetated surfaces.

Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

The project will result in an increase in impervious surface. The NNIA for the project is 12.4 acres in the state right-of-way and 2.6 acres in the local right-of-way for the preferred alternative. Consequently, the total volume of runoff is expected to increase. However, per the agreement between the TID and Caltrans and per the standards of the City of Ceres and Stanislaus County, an increase in flow cannot occur due to this project. Therefore, the offsite flow rate will be attenuated to less than or equal to existing through the use of onsite retention facilities. Thus, the velocity and volume of downstream flow will not be increased with this project.

Overall, the existing drainage pattern within and surrounding the project site flows from northeast to southwest, away from the Tuolumne River. Some off-site flows that could reach the project site based on overall topography are blocked by the existing, raised irrigation canals.

Other than the TID Ceres Main Canal, which conveys a controlled flow mainly from piped runoff discharge to the canal, there are no major drainage crossings within the project limits. Northeast of Route 99, off-site flows come from the City. The grading of Route 99 forms a drainage barrier immediately upstream of the drainage barrier created by the Union Pacific Railroad (UPRR) tracks. Due to this formation, the lack of piped crossings and the absence of floodplain issues, the general understanding about the area is that runoff draining toward Route 99 remains along the northeast boundary of Route 99 and percolates into the soil.

Southwest of Route 99, runoff flows away from the project site without the assistance of an improved storm drainage conveyance system or waterway. Within the project limits, the UPRR tracks are directly adjacent to the Route 99 right-of-way.

Within the project limits, overland release is based upon the grading of the roadway. The existing Route 99 is basically a crowned roadway with a depressed median that has areas of superelevation. Northbound (NB) Route 99 generally drains to the northeast, with runoff directed via sheet flow or overside drains to field inlets adjacent to the roadway. In areas that are not superelevated, southbound (SB) Route 99 drains toward the UPRR tracks and into ponding areas that are partially on state right-of-way and partially on the railroad right-of-way. In areas that are superelevated, southbound Route 99 drains toward the median, with runoff collected in drainage inlets that outfall either to the northeast or to the common ponding area along the UPRR right-of-way, depending upon local grading. These areas tend to pond and percolate into the soil.

Separate storm drain pipe systems existing within the project area for both the state and local right-of-way areas. Runoff within the state right-of-way is collected and conveyed in as piped drainage system that outfalls to the Ceres Main Canal and the runoff from the local right-of-way is collected by piped systems upstream of the state right-of-way or ponds and percolates into the soil. The Caltrans storm drainage runoff is removed from the site in one of two (2) ways: pumped to the Ceres Main Canal or by percolation into the soils adjacent to the roadway in common ponding areas that are shared between State and UPRR rights-of-way.

A series of retention basins adjacent to the highway mainline and ramps within the state right-of-way are proposed for the preferred alternative to contain a portion of runoff within the project area. Preliminary volume calculations indicate that the volume required is available within the proposed state right-of-way. Additionally, two infiltration basins are proposed to treat runoff from impervious surfaces in the state right-of way before discharging to the Ceres Main Canal. The basin design is further described in the Treatment BMP Strategy section below. Caltrans permit requires for all basins within Caltrans right-of-way that vector control is provided for storm water (design storm) that is not infiltrated within 96 hours. If required, the Mosquito Abatement District will be contacted regarding mosquito control.

For the local improvements, stormwater runoff will be collected through proposed roadway drainage systems and conveyed to either retention basins or underground French drains that are located outside of the state right-of-way. These storm drainage storage facilities will be designed to contain the runoff from a 100 year design storm for their respective contributing areas, per County standards.

The project discharge location, the Ceres Main Canal, is a concrete-lined channel. There are no issues with debris, sedimentation or scour control; hence, there is no significant potential for increased sediment loading. Storm water discharge to the Ceres Main Canal will not be increased beyond the limits of the agreement between the TID and Caltrans. The project will require replacement of the ramp bridges over the canal, but this work is not expected to create negative impacts to the operation or capacity of the canal, nor cause hydraulic changes to the channel. As described below, Treatment BMPs are proposed to address the required PCTA for the project site.

Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

It is anticipated that the project will create new slopes and/or modify existing slopes. It is also anticipated that vegetated slopes will be employed to slow runoff and prevent erosion. Appropriate landscaping and permanent erosion control, approved by the Caltrans District Landscape Architect, will be incorporated. In gore areas and under bridges, hardscape will be installed as recommended in the Highway Design Manual.

Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4

Concentrated flow conveyance systems, such as ditches, berms, dikes, swales, overside drains, flared end sections and outlet protection/velocity dissipation devices are considered for this project. Dikes are required in areas where roadside slopes will be too steep to allow for sheet flow and will route runoff to existing and proposed drainage inlets. Dikes will also be proposed to control runoff to inlets, where positive drainage to retention basins or swales will be conveyed through drainage pipes. Roadside ditches and swales will be proposed to convey runoff within the state right-of-way. Outlet protection/velocity dissipation BMPs will be placed at all outlets of drainage systems that discharge into earth-lined ditches or basins. Flared end sections and rock slope protection will be proposed at culvert inlets and outlets. The locations and design of these facilities will take place during the PS&E phase of the project.

Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

It is the goal of the project to maximize the protection of desirable existing vegetation for erosion and sediment control. Existing vegetation in the project area primarily consists of grassy side slopes with some areas of trees and oleander shrubs along the roadside within the state right-of-way. Outside of the state right-of-way, existing vegetation primarily consists of grasses in open agricultural areas. Existing vegetation to remain in place will be protected with temporary ESA fencing during construction.

Treatment BMP Strategy

Treatment BMP Strategy, Checklist T-1

The project is required to consider treatment BMPs because it involves major reconstruction with direct discharges to surface water bodies and the creation of more than one acre of new impervious surface area. The Ceres Main Canal is the only water body with a direct discharge. The San Joaquin River is located 10 miles west of the project location. The indirect discharge receiving water body, the San Joaquin River, is on the 303(d) list as an impaired water body for the following pollutants: alpha.-BHC, boron, chlorpyrifos, DDE, DDT, electrical conductivity, group A pesticides, mercury, temperature/water, and unknown toxicity. Of these pollutants, none are on the list of Targeted Design Constituents per Caltrans storm water quality guidelines. Thus, the Treatment BMP strategy for this project will be general purpose pollutant removal. Design Pollution Prevention (DPP) Infiltration Areas and Infiltration Devices have been identified as appropriate permanent Treatment BMPs to implement this strategy. Preliminary analysis indicates that there is sufficient space within the proposed state right-of-way to site these treatment BMPs to accommodate the PCTA for the project area. A summary of the post-project impervious areas and the amount of Water Quality Volume (WQV) treated by the proposed BMPs for the preferred alternative is presented in Table 7 below. Per Table E-1 below, the total area to be treated by the project, 36.6 acres, exceeds the PCTA of 35.4 acres.

Table 7: Treatment BMP Areas

Contributing Drainage Area	Impervious Area (acres)	Pervious Area (acres)	WQV (ft^3)
Basin No. 1	7.97	3.76	10,015
Basin No. 2	0.44	3.84	883
Basin No. 3/4	24.90	7.62	33,998
Basin No. 6	0.00	1.05	55
Basin No. 7	3.32	3.15	3,946
Total Area Treated	36.63	19.42	48,896
Flows to Existing Drainage Systems	1.91	0.00	N/A

Project specific permanent BMP measures will be specified and quantified during the design phase. Treatment BMPs have been estimated at $150,000 per lane mile (11.4 lane miles estimated) in accordance with the Project Initiation Cost Estimate Method, Appendix F.3.1, 2017 PPDG.

Infiltration Devices, Checklist T-1, Parts 1 and 2

A portion of the project area, including a segment of the Route 99 mainline as well as parts of the realigned northbound off-ramp and southbound on-ramp at Mitchell Road, will drain to the proposed Basin No. 6 and Basin No. 7, which will act as infiltration basins. An outlet structure will be provided, with an overflow discharge line that will connect back to the existing pump station for offsite discharge. The contributing drainage areas (CDA) and locations for these basins are shown in the Treatment BMP Location Map in the Supplemental Attachments. Preliminary calculations indicate that the proposed basins are adequately sized to capture the WQV and site conditions are favorable for the use of infiltration devices.

DPP Infiltration Areas, Checklist T-1, Parts 1 and 11

The proposed drainage patterns for the project area will maximize on-site retention of storm water runoff in a series of proposed retention basins. These are identified as Basin Nos. 1, 2, 3, and 4; their locations and CDAs are shown in the Treatment BMP Location Map in the Supplemental Attachments. Due to the limitation on discharge to the Ceres Main Canal and the lack of other feasible offsite discharge locations in the project area, these basins are sized to fully contain the design storm event for their CDAs. The proposed retention basins are vegetated areas that will maximize infiltration into the surrounding soils, and are thus considered as DPP Infiltration Areas. Preliminary calculations indicate that the proposed basins are adequately sized to capture the WQV and site conditions are favorable for the use of infiltration devices.

Table E-1. Overall Project Treatment Summary Table

	PCTA (ac)	35.4
Total Area to be Treated	Treated Impervious Area (CT RW) (ac)	36.6
	Treated Impervious Area (Outside CT RW) (ac)	0
	PCTA Balance (ac)	1.2

Required Attachments

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

Supplemental Attachments

- Checklist SW-1, Site Data Sources
- Checklist SW-2, Stormwater Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Stormwater Impacts
- Checklist DPP-1, Parts 1–5 (Design Pollution Prevention BMPs)
- Checklist T-1, Part 1 (Treatment BMPs)
- Checklist T-1, Part 2 and 11 (Treatment BMPs)
- Treatment BMP Location Map
- Profiles and Superelevation Diagrams
- TID Canal Discharge Agreement
- Precipitation Frequency Data
- NRCS Soil Map
- SWDR Summary Spreadsheets

Attachment 1

Vicinity Map

Attachment 1
Vicinity Map

Attachment 2

Evaluation Documentation Form (EDF)

10-Sta-99, 9.5/R11.4
EA 10-1A690

Evaluation Documentation Form
October 2018

DATE: ____10/18/2018________

Project ID (EA): ___10-1A690___________

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.		

Attachment 3

Risk Level Determination Documentation

	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**		71.03
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**		0.43
14			
15	**Watershed Erosion Estimate (=RxKxLS) in tons/acre**	9.773728	
16	**Site Sediment Risk Factor**	**Low**	
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 **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	**no**	**Low**

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

<table>
<tr><th></th><th></th><th colspan="3">Sediment Risk</th></tr>
<tr><th></th><th></th><th>Low</th><th>Medium</th><th>High</th></tr>
<tr><th rowspan="2">Receiving Water Risk</th><th>Low</th><td>Level 1</td><td colspan="2">Level 2</td></tr>
<tr><th>High</th><td colspan="2">Level 2</td><td>Level 3</td></tr>
</table>

Project Sediment Risk: Low

Project RW Risk: Low

Project Combined Risk: Level 1

Attachment 4

Checklist SW-1, Site Data Sources

Checklist SW-1, Site Data Sources

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM: 9.5/R11.4 Project ID (or EA): 10-1A690 RWQCB: Central Valley (Region 5)

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect available project reports and any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 6.4.3.2. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Water Quality	
• 2010 CWA Section 303(d) list of Water Quality Limited Segment (Central Valley RWQCB)	03/2015
• Water Quality Planning Tool (n.d.) Retrieved from http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx	03/2018
• Storm Water Management Program For Stanislaus County, Report of Waste Discharge	05/2004
• 2011 Guidance Manual for Development Stormwater Quality Control Measures, City of Modesto Stormwater Management Program	05/2011
• Post-Development Storm Water Quality Design Manual, Stanislaus County	09/2011
• Statewide Storm Water Management Plan, California Department of Transportation, Division of Environmental Analysis	05/2003
• The Water Quality Control Plan (Basin Plan) For the California Regional Water Quality Control Board Central Valley Region - The Sacramento River Basin and the San Joaquin River Basin	10/2011
Geotechnical	
• Soil Survey of Eastern Stanislaus Area-Web Soil Survey (NCSS) snap shot of area	02/2015
• Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. (n.d.) Retrieved from https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx	02/2015
• Preliminary Geotechnical Design & Materials Report - Proposed Interchange and Local Road Improvements, SR 99/Mitchell Rd/Service Rd Interchange Project, Ceres, Stanislaus County, California	02/2018
• Hydrogeologic Characterization of the Modesto Area, San Joaquin Valley, California; U.S. Geological Survey	2004

Topographic	
• UGSS quad sheet - Ceres quadrangle	2012
• Project aerial topography and survey data	09/2017
• Water Quality Planning Tool (n.d.) Retrieved from http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx	03/2018
Hydraulic	
• Preliminary Drainage Report - SR 99\Service Rd - Mitchell Rd I/C Project	06/2017
Climatic	
• Preliminary Drainage Report - SR 99\Service Rd - Mitchell Rd I/C Project	06/2017
• NOAA Atlas 14 Point Precipitation Frequency Estimates: CA, National Oceanic and Atmospheric Administration, National Weather Service. Retrieved from https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca	05/2015
• Monthly Station Climate Summaries, 1971-2000, National Oceanic and Atmospheric Administration	02/2004
Other Data Categories	
• Improvement Standards, City of Ceres	09/1997
• Standards and Specifications 2014 Edition, Stanislaus County Department of Public Works	2014

Attachment 5

Checklist SW-2, Storm Water Quality Issues Summary

Checklist SW-2, Stormwater Quality Issues Summary

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID/EA: 10-1A690 RWQCB: Central Valley (Region 5)

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Consult other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Design Stormwater Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR; do not discuss items identified as not applicable.

1.	Determine the receiving waters for the project	☒Complete	☐NA
2.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	☒Complete	☐NA
3.	Determine if there are any municipal or domestic water supply reservoirs or groundwater percolation facilities within the project limits, as shown by DWP.	☒Complete	☐NA
4.	Determine the RWQCB special requirements, including TMDLs, effluent limits, etc. ***TBD***	☐Complete	☐NA
5.	Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies. ***TBD***	☐Complete	☐NA
6.	Determine if a 401 certification will be required.	☒Complete	☐NA
7.	Identify rainy season.	☒Complete	☐NA
8.	If applicable, determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	☒Complete	☐NA
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility and depth to groundwater.	☒Complete	☐NA
10.	Determine contaminated soils within the project area.	☒Complete	☐NA
11.	Determine the total disturbed soil area of the project.	☒Complete	☐NA
12.	Describe the topography of the project site.	☒Complete	☐NA
13.	List any areas outside of the Caltrans right-of-way that will be included in the project (e.g., contractor's staging yard, work from barges, easements for staging).	☒Complete	☐NA
14.	Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction and maintenance of BMPs. If so, how much?	☒Complete	☐NA
15.	Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches.	☐Complete	☒NA
16.	Determine if project area has any slope stabilization concerns.	☒Complete	☐NA
17.	Describe the local land use within the project area and adjacent areas.	☒Complete	☐NA
18.	Evaluate the presence of dry weather flow.	☒Complete	☐NA

Attachment 6

Checklist SW-3, Measures for Avoiding or Reducing Potential Stormwater Impacts

Checklist SW-3, Measures for Avoiding or Reducing Potential Stormwater Impacts

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID/EA: 10-1A690 RWQCB: Central Valley (Region 5)

The PE should confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR; do not discuss items identified as not applicable.

Options for avoiding or reducing potential impacts during project planning include the following:

1. Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions? ☐Yes ☒No ☐NA
2. Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts? ☒Yes ☐No ☐NA
3. Can any of the following methods be utilized to minimize erosion from slopes:
   a. Disturbing existing slopes only when necessary? ☒Yes ☐No ☐NA
   b. Minimizing cut and fill areas to reduce slope lengths? ☒Yes ☐No ☐NA
   c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes? ☒Yes ☐No ☐NA
   d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes? ☐Yes ☒No ☐NA
   e. Avoiding soils or formations that will be particularly difficult to re-stabilize? ☐Yes ☐No ☒NA
   f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates? ☒Yes ☐No ☐NA
   g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows? ☐Yes ☐No ☒NA
   h. Rounding and shaping slopes to reduce concentrated flow? ☒Yes ☐No ☐NA
   i. Collecting concentrated flows in stabilized drains and channels? ☒Yes ☐No ☐NA
4. Does the project design allow for the ease of maintaining all BMPs? ☒Yes ☐No
5. Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season? ☒Yes ☐No
6. Can permanent stormwater pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction stormwater impacts? ☒Yes ☐No ☐NA

Attachment 7

Checklists DPP-1, Parts 1-5 (Design Pollution Prevention BMPs)

Design Pollution Prevention BMPs
Checklist DPP-1, Part 1

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID/EA: 10-1A690 RWQCB: Central Valley (Region 5)

Consideration of Design Pollution Prevention BMPs

Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]

Will the project increase velocity or volume of downstream flow? ☐Yes ☒No ☐NA

Will the project discharge to unlined channels? ☐Yes ☒No ☐NA

Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability? ☒Yes ☐No ☐NA

If Yes was answered to any of the above questions, consider ***Downstream Effects Related to Potentially Increased Flow***, complete the Checklist DPP-1, Part 2.

Slope/Surface Protection Systems

Will the project create new slopes or modify existing slopes? ☒Yes ☐No ☐NA

If Yes was answered to the above question, consider ***Slope/Surface Protection Systems***, complete the Checklist DPP-1, Part 3.

Concentrated Flow Conveyance Systems

Will the project create or modify ditches, dikes, berms, or swales? ☒Yes ☐No ☐NA

Will project create new slopes or modify existing slopes? ☒Yes ☐No ☐NA

Will it be necessary to direct or intercept surface runoff? ☒Yes ☐No ☐NA

Will cross drains be modified? ☒Yes ☐No ☐NA

If Yes was answered to any of the above questions, consider ***Concentrated Flow Conveyance Systems***; complete the Checklist DPP-1, Part 4.

Preservation of Existing Vegetation, Soils, and Stream Buffer Areas

It is the goal of the Stormwater Program to maximize the protection of desirable existing vegetation, soils, and stream buffer areas to provide erosion and sediment control benefits on all projects. ☒Complete

Consider ***Preservation of Existing Vegetation, soils, and stream buffer areas***, complete the Checklist DPP-1, Part 5.

Design Pollution Prevention BMPs

Checklist DPP-1, Part 2

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID/EA: 10-1A690 RWQCB: Central Valley (Region 5)

Note: Checklist to be completed during the PS&E phase

Downstream Effects Related to Potentially Increased Flow

1. Review total paved area and reduce to the maximum extent practicable. ☐Complete
2. Review channel lining materials and design for stream bank erosion control. ☐Complete
    - (a) See Chapters 860 and 870 of the HDM. ☐Complete
    - (b) Consider channel erosion control measures within the construction limits as well as downstream. Consider scour velocity. If erosion control measures are required downstream of construction limits obtain the appropriate permits and right of way documents to include work within the construction limits. ☐Complete
3. Include, where appropriate, energy dissipation devices at culvert outlets. ☐Complete
4. Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour. ☐Complete
5. Include, if appropriate, peak flow attenuation basins or devices to reduce peak discharges. ☐Complete
6. Calculate the water quality volume infiltrated within the project limits. These calculations will be used in the Checklist T-1, Part 1. ☐Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 3

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID/EA: 10-1A690 RWQCB: Central Valley (Region 5)

Note: Checklist to be completed during the PS&E phase

Slope / Surface Protection Systems

1. What are the proposed areas of cut and fill? (attach plan or map) ☐Complete
2. Were benches or terraces provided on high cut and fill slopes to shorten slope length? ☐Yes ☐No
3. Were concentrated flows collected in stabilized drains or channels? ☐Yes ☐No
4. Are new or disturbed slopes > 4:1 horizontal:vertical (h:v)? ☐Yes ☐No

   If Yes, District Landscape Architect is responsible for an erosion control strategy and may prepare an erosion control plan.
5. Are new or disturbed slopes > 2:1 (h:v)? ☐Yes ☐No

   If Yes, DES Geotechnical Design unit must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Stormwater Coordinator for slopes steeper than 2:1 (h:v).

VEGETATED SURFACES

1. Identify existing vegetation. ☐Complete
2. Evaluate site to determine soil types, appropriate vegetation and planting strategies. ☐Complete
3. How long will it take for permanent vegetation to establish? ☐Complete
4. Plan transition BMPs from construction to permanent establishment. ☐Complete
5. Have vegetated areas and supporting permanent irrigation systems been designed to comply with the Model Water Efficient Landscape Ordinance (MWELO)? ☐Yes ☐No
6. Minimize overland and concentrated flow depths and velocities. ☐Complete

HARD SURFACES

1. Are hard surfaces minimized? ☐Yes ☐No

   Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems. ☐Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 4

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID/EA: 10-1A690 RWQCB: Central Valley (Region 5)

Note: Checklist to be completed during the PS&E phase

Concentrated Flow Conveyance Systems

Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Topics 813, 834.3, 835, and Chapter 860 of the HDM. ☐Complete
2. Review existing and proposed conditions to remove any dike not required for slope stability, erosion control, and water conveyance. ☐Complete
3. Evaluate risks due to erosion, overtopping, flow backups or washout. ☐Complete
4. Consider outlet protection where localized scour is anticipated. ☐Complete
5. Examine the site for run-on from off-site sources. ☐Complete
6. Consider permissible shear and velocity when selecting lining material (See Table 865.2 in the HDM). ☐Complete

Overside Drains

1. Consider downdrains, as per Index 834.4 of the HDM. ☐Complete
2. Consider paved spillways for side slopes flatter than 4:1 h:v. ☐Complete

Flared Culvert End Sections

1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM. ☐Complete

Outlet Protection/Velocity Dissipation Devices

1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM. ☐Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems. ☐Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 5

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID/EA: 10-1A690 RWQCB: Central Valley (Region 5)

Note: Checklist to be completed during the PS&E phase

Preservation of Existing Vegetation, Soils, and Stream Buffer Areas

1. Review Preservation of Property, (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation, soils, and stream buffer areas. ☐Complete
2. Has all vegetation, soils, and stream buffer areas to be retained been coordinated with Environmental, and identified and defined in the contract plans? ☐Yes ☐No
3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling? ☐Complete
4. Have impacts to preserved vegetation, soils, and stream buffer areas been considered while work is occurring in disturbed areas? ☐Yes ☐No
5. Are all areas to be preserved delineated on the plans? ☐Yes ☐No

Attachment 8

Checklists T-1, Part 1 (Treatment BMPs)

Treatment BMPs
Checklist T-1, Part 1

Prepared by: P. Reuss ______ Date: 10/18/2018 ______ District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 ______ Project ID (or EA): 10-1A690 ______ RWQCB: Central Valley (Region 5)

Consideration of Treatment BMPs

This checklist is used for projects that require the consideration of Approved Treatment BMPs, as determined from the process described in Section 4 (Treatment Consideration) and the Evaluation Documentation Form (EDF). This checklist will be used to determine which Treatment BMPs should be considered for each BMP contributing drainage area within the project. Supplemental data will be needed to verify siting and design applicability for final incorporation into a project.

Complete this checklist for each phase of the project. This will help to determine if any changes to the BMP strategy are necessary, based on site specific information gathered during later phases. Use the responses to the questions as the basis of developing the narrative in Section 6 of the Stormwater Data Report to document that Treatment BMPs have been appropriately considered and/or incorporated.

Before evaluating an area for treatment capabilities or to incorporate a Treatment BMP, calculate the numeric sizing requirement for each contributing drainage area (WQV from the 85th percentile 24-hour storm event or WQF rate). Soil and geometric information for the project area will be necessary to use this Checklist.

Identify the overall project PCTA

Refer to Section 4.4 Treatment Areas for more information on defining these areas.

PCTA = NNI + RIS + ATA (1 Impervious) + ATA (2)

NNI = Net New Impervious Area

RIS = Replaced Impervious Surface

ATA (1 Impervious) = Additional Treatment Area required for existing Treatment BMPs that were removed or modified as part of the project

ATA (2) = Additional Treatment Area required when NNI is 50 percent or greater than total project impervious

What is the PCTA for the project? 35.4 ______ **Acres** (A in Table E-1)

The PCTA is the impervious area required to be treated by the project. The PE is to incorporate BMPs until the summation of the treated impervious area of all the BMPs is equivalent to the PCTA for the Project.

Once this area and any ATA 1 (Pervious) has been treated, the project is in compliance with the post construction treatment requirement.

Total Maximum Daily Load (TMDL) Retrofit Projects

If the project is installing Treatment BMPs to only address TMDL requirements, then there is no required PCTA. The Treatment BMPs for a TMDL retrofit project should be designed to treat the impervious and pervious contributing drainage areas, as they are both eligible for compliance unit (CU) credits.

Overall Project Evaluation

Answer all questions, unless otherwise directed.

A. Overall Project Consideration

1. Is the project in a watershed with prescriptive Treatment BMP requirements in an adopted TMDL implementation plan or are there any other requirements for project area (e.g., District, Regional Board, Lawsuit)? ☐ Yes ☒ No

   If Yes, consult the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to determine if there are written agreements related to specific Treatment BMPs. In this case, determine if the rest of this checklist needs to be followed to address other post construction requirements. If not, document BMP(s) in the Individual Treatment BMP Summary Table, provide information on the basis of the BMP requirement and any regulatory coordination in the SWDR narrative, and complete Table E-2. Otherwise, continue.

   If No, continue.

2. Does the receiving water have a TMDL for litter/trash, or is there a region specific requirement related to trash? ☐ Yes ☒ No

   If Yes, first evaluate BMPs that can treat other pollutants and are considered to be full capture devices (GSRDs or other) for litter/trash. If other BMPs cannot be sited, consult with the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to determine if standalone full capture devices (GSRDs or other) are required to be incorporated. If standalone devices are required and no other Treatment BMPs are being considered, go to question 6 of "Individual BMP Evaluation".

   If No, continue.

3. Is the project located in an area that uses traction sand more than twice a year? ☐ Yes ☒ No

   If Yes, first consider BMPs that can treat other pollutants and can capture traction sand. If other BMPs cannot be sited, consult the District/Regional Design Stormwater Coordinator to determine if standalone traction sand trap devices should be incorporated.

   If standalone devices are required and no other Treatment BMPs are being considered, go to question 6 of "Individual BMP Evaluation". Otherwise, continue with this checklist to identify Treatment BMPs that provide traction sand and other pollutant removal, or to design Treatment BMPs in series.

   If No, continue.

B. Dual Purpose Facilities

Does the project have (or propose to include) any dual purpose facilities that could meet treatment requirements (e.g., Dry Weather Flow Diversion, flood control basins, etc.)? ☐ Yes ☒ No

If Yes and 100 percent of the PCTA and ATA 1 (Pervious) will be treated by the dual purpose facility, go to question 6 of "Individual BMP Evaluation".

If Yes, but 100 percent of the PCTA and ATA 1 (Pervious) has not been addressed, continue.

If No, continue.

C. Evaluate overall project area for infiltration opportunities using existing and proposed roadside surfaces (DPP Infiltration Areas). Assure the DPP Infiltration Area is stabilized to handle highway drainage design flows, for both sheet and concentrated flows (See HDM Section 800).

Document DPP Infiltration Areas on the "Individual Treatment BMP Summary Table" located at the end of this checklist.

1. Based on site conditions, do the DPP Infiltration Areas infiltrate 100 percent of the WQV generated by the PCTA and ATA 1 (Pervious) for the project? ☐ Yes ☒ No

   Yes, go to question 6 of "Individual BMP Evaluation".

   If No, account for area infiltrated and continue.

2. Can infiltration for these areas be increased by using soil amendments or other means? ☐ Yes ☒ No

   If Yes, and 100 percent of the WQV generated by the PCTA and ATA 1 (Pervious) is infiltrated, go to question 6 of "Individual BMP Evaluation".

   If Yes, but 100 percent of the WQV generated by the PCTA and ATA 1 (Pervious) is not infiltrated, continue with this checklist to identify Treatment BMPs that will treat the remaining PCTA and ATA 1 (Pervious).

   If No, continue.

Individual BMP Evaluation

Answer the following questions for each Treatment BMP location being considered. The following process must be followed until the PCTA and ATA 1 (Pervious) or desired treatment area (Alternative Compliance or TMDL CUs) has been achieved; for TMDL CUs, consider both impervious and pervious contributing drainage areas. Use the Individual Treatment BMP Summary Table at the end of the checklist to summarize the selected BMP(s) based on the findings of the following questions for each BMP contributing drainage area.

1. Infiltration Devices (Infiltration Basin, Trench, or other device)

   a. Can 100 percent of the BMP contributing drainage area WQV (or remaining WQV, if in series with a DPP Infiltration Area or other BMP) be infiltrated? ☒ Yes ☐ No

      If Yes, go to question 6.

      If No, continue.

2. Biofiltration Devices (Biofiltration Strips and Swales)

   a. Is this a TMDL retrofit project or is the project within a TMDL watershed or 303(d) impaired receiving water body area? ☐ Yes ☐ No

      If Yes, when designing the biofiltration device, determine the percent WQV infiltrated from both the impervious and pervious BMP contributing drainage areas. Consider using existing or amended soils:

      i. If infiltration is >50 percent, continue to b.

      ii. If infiltration is ≤50 percent, go to question 3.

      If No, continue to b.

   b. Can biofiltration devices be designed to: ☐ Yes ☐ No

      i. Treat 100 percent of the WQF/WQV (or remainder, if in series with a DPP Infiltration Area or other BMP) from the BMP contributing drainage area, and

      ii. Meet the siting and design criteria of the Caltrans biofiltration device design guidance.

      If Yes, continue to c.

      If No, go to question 3.

   c. Biofiltration devices are considered to be an effective method of treatment, go to question 6.

3. Earthen type BMPs (Detention Devices, Media Filters, or other devices)

   a. Is this a TMDL retrofit project or is the project within a TMDL watershed or 303(d) impaired receiving water body area? ☐ Yes ☐ No

   If Yes, when designing the earthen type BMP, determine the percent WQV infiltrated from both the impervious and pervious BMP contributing drainage area. Consider using existing or amended soils:

      i. If infiltration is >50 percent, continue to b.

      ii. If infiltration is ≤50 percent, go to question 4.

   If No, continue to b.

   b. Can earthen type BMPs (standalone or in series with other approved Treatment BMPs) be designed to: ☐ Yes ☐ No

      iii. Treat 100 percent of the WQV (or remainder, if in series with a DPP Infiltration Area or other BMP) from the BMP contributing drainage area, and

      iv. Meet the criteria of the Caltrans design guidance for the treatment device being considered.

   If Yes, continue to c.

   If No, go to question 4.

   c. Earthen type BMPs are considered to be an effective method of treatment, go to question 6.

4. Targeted Design Constituent (TDC)

This approach will compare the effectiveness of individual BMPs and allow the PE to use judgment when evaluating BMP feasibility (site constraints, safety, maintenance requirements, life-cycle costs, etc.).

a. Does the project discharge to a 303(d) impaired receiving water or a receiving water in a TMDL watershed where Caltrans is a named stakeholder? ☐ Yes ☐ No

If Yes, is the identified pollutant(s) considered to be a TDC (check all that apply below)? Continue to b. ☐ Yes ☐ No

☐ sediments
☐ phosphorus
☐ nitrogen

☐ copper (dissolved or total)
☐ lead (dissolved or total)
☐ zinc (dissolved or total)
☐ general metals (dissolved or total)[1]

If No or if no TDC is identified, use Matrix A to select BMPs and go to question 5.

b. Treating Only Sediment. Is sediment a TDC? ☐ Yes ☐ No

If Yes, use Matrix A to select BMPs and go to question 5.

If No, continue to c.

c. Treating Only Metals. Are copper, lead, zinc, or general metals listed TDCs? ☐ Yes ☐ No

If Yes, use Matrix B to select BMPs, and go to question 5.

If No, continue to d.

d. Treating Only Nutrients. Are nitrogen and/or phosphorus listed TDCs? ☐ Yes ☐ No

If Yes, use Matrix C to select BMPs, and go to question 5.

If No, continue e.

e. Treating both Metals and Nutrients. Is copper, lead, zinc, or general metals AND nitrogen or phosphorous a TDC? ☐ Yes ☐ No

If yes, use Matrix D to select BMPs, and go to question 5.

If No, continue.

---

[1] General metals is a designation used by Regional Water Boards when specific metals have not yet been identified as causing the impairment.

BMP Selection Matrix A: General Purpose Pollutant Removal

Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.

	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Strip: HRT > 5 Austin filter (concrete) Austin filter (earthen) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Swale	Austin filter (concrete) Delaware filter

HRT = hydraulic residence time (min)

All BMPs shown are considered to be effective, but some more than others. The PE should use professional judgment when selecting BMPs based on overall feasibility.

All BMPs are shown to demonstrate equivalent effectiveness.

BMP Selection Matrix B: Any metal is the TDC, but not nitrogen or phosphorous

Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.

	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT > 5 Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter

HRT = hydraulic residence time (min)

All BMPs shown are considered to be effective, but some more than others. The PE should use professional judgment when selecting BMPs based on overall feasibility.

All BMPs are shown to demonstrate equivalent effectiveness.

BMP Selection Matrix C: Phosphorous and / or nitrogen is the TDC, but no metals are the TDC

Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.

	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter*	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter

All BMPs shown are considered to be effective, but some more than others. The PE should use professional judgment when selecting BMPs based on overall feasibility.
All BMPs are shown to demonstrate equivalent effectiveness.

*Delaware filters would be ranked in Tier 2 if the TDC is nitrogen only, as opposed to phosphorous only or both nitrogen and phosphorous.

BMP Selection Matrix D: Any metal, plus phosphorous and / or nitrogen are the TDCs

Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.

	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter*	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter

All BMPs shown are considered to be effective, but some more than others. The PE should use professional judgment when selecting BMPs based on overall feasibility.
All BMPs are shown to demonstrate equivalent effectiveness.

*In cases where earthen BMPs also infiltrate, Delaware filters are ranked in Tier 2 if the TDC is nitrogen only, but they are Tier 1 for phosphorous only or both nitrogen and phosphorous.

5. Does the project discharge to a 303(d) receiving water that is listed for mercury or low dissolved oxygen? ☐ Yes ☐ No

   If Yes, contact the District/Regional NPDES Coordinator to determine if standing water in a Delaware Media Filter or Wet Basin would be a risk to downstream water quality. Continue to question 6.

   If No, continue to question 6.

6. Identify the Treatment BMPs being considered and complete the Individual Treatment BMP Summary Table and Overall Project Treatment Summary Table on the following pages. Refer to Appendix B of the PPDG and review the checklists identified below for every Treatment BMP under consideration. ☒ Complete

   Document the basis of design in the SWDR narrative and complete Table E-2.

   __X__ DPP Infiltration Areas: Checklist T-1, Part 11

   __X__ Infiltration Devices: Checklist T-1, Part 2

   ____ Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 3

   ____ Detention Devices: Checklist T-1, Part 4

   ____ Traction Sand Traps: Checklist T-1, Part 5

   ____ Dry Weather Diversion: Checklist T-1, Part 6

   ____ GSRDs: Checklist T-1, Part 7

   ____ Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8

   Note:

   Multi-Chamber Treatment Train (MCTT) is not listed here because Caltrans has found that other approved BMPs are equally effective and more sustainable due to lower life cycle costs.

   Wet Basins are not listed here due to feasibility issues due to site feasibility and issues with long term operation and maintenance.

   MCTT and Wet Basins may be considered or implemented upon the recommendation of the District/Regional Design Stormwater Coordinator.

7. Prepare cost estimate, including right-of-way, and identify any pertinent site specific determination of feasibility for selected Treatment BMPs and include in the SWDR for approval. ☒ Complete

Individual Treatment BMP Summary Table

☒ Complete

List the selected BMPs based on the findings of this checklist and the treated areas associated with each BMP in Table E-2. For projects with multiple BMPs, add rows (if needed), or attach a separate sheet displaying the following information.

Each BMP must be tracked in Table E-2. Districts may use a modified table based upon their needs. See Section 6.6 for additional information.

Table E-2. Individual Treatment BMP Summary Table[1]

BMP Identifier-Number	BMP Type	Treated Impervious Area (CT RW) (ac)	Treated Impervious Area (Outside CT RW) (ac)	Treated Pervious Area (CT RW) (ac)	Treated Pervious Area (Outside CT RW) (ac)	Treated WQV/WQF (%)
1 (Basin No. 1)	DPP Infiltration Area	7.97	0	3.76	0	100
2 (Basin No. 2)	DPP Infiltration Area	0.44	0	3.84	0	100
3 (Basin No. 3/4)	DPP Infiltration Area	24.90	0	7.62	0	100
4 (Basin No. 6)	Infiltration Basin	0	0	1.05	0	100
5 (Basin No. 7)	Infiltration Basin	3.32	0	3.15	0	100
Total Area to be Treated (acre)		36.6	0			

[1] The treated areas identified in this table are a product of the BMP CDA and Treated WQV/WQF (%).

Attachment 9

Checklists T-1, Part 2 and 11 (Treatment BMPs)

Treatment BMPs

Checklist T-1, Part 2

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID (or EA): 10-1A690 RWQCB: Central Valley (Region 5)

Infiltration Devices

Feasibility

1. Does local Basin Plan or other local ordinance provide influent limits on quality of water that can be infiltrated, and would infiltration pose a threat to groundwater quality? ☐Yes ☒No
2. Does infiltration at the site compromise the integrity of any slopes in the area? ☐Yes ☒No
3. Is site located over a previously identified contaminated groundwater plume? ☐Yes ☒No

   If "Yes" to any question above, Infiltration Devices are not feasible; stop here and consider other approved Treatment BMPs.

4. At the invert, does the soil type classify as NRCS Hydrologic Soil Group (HSG) D, or does the soil have an infiltration rate < 0.5 inches/hr? ☐Yes ☒No

   If "Yes", the location can only be considered if vector control has been addressed (e.g., underground).

5. (a) Does site have groundwater within 5 ft of basin invert? ☐Yes ☒No

   (b) Does site investigation indicate that the infiltration rate is significantly greater than 2.5 inches/hr? ☒Yes ☐No

   If "Yes" to either part of Question 5, adequate groundwater information must be available or contact RWQCB for concurrence before approving the site for infiltration.

6. Does adequate area exist within the RW to place Infiltration Device(s)? ☒Yes ☐No
   If "Yes", continue to Design Elements sections. If "No", continue to Question 7.
7. If adequate area does not exist within RW, can suitable, additional RW be acquired to site Infiltration Devices and how much RW would be needed to treat WQV, or a portion thereof? _________ acres ☐Yes ☐No

   If Yes, continue to Design Elements section.

   If No, continue to Question 8.
8. If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

Design Elements – Infiltration Basin

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Has an investigation been conducted, including subsurface soil investigation, in-hole conductivity testing and groundwater elevation determination? (This report must be completed for PS&E level design.) * ☒Yes ☐No
2. Has an upstream bypass or overflow spillway with scour protection been provided? * ☒Yes ☐No
3. Is the Infiltration Basin size sufficient to capture the WQV, or portion thereof, with a maximum 96-hour drawdown time? Longer drawdown times may be allowable if vector controls have been implemented (e.g., underground chamber with flap gates) and coordinated with the District/Regional Design Stormwater Coordinator.* ☒Yes ☐No
4. Can access be provided to the invert of the Infiltration Basin? * ☒Yes ☐No
5. Can the Infiltration Basin accommodate the freeboard above the overflow event elevation (reference Appendix B.1.5.1)? * ☒Yes ☐No
6. Can the Infiltration Basin be designed with interior side slopes no steeper than 4:1 (h:v) (may be 3:1 [h:v] with approval by District Maintenance)? * ☒Yes ☐No
7. Can vegetation be established in an earthen basin at the invert and on the side slopes for erosion control and to minimize re-suspension? If No, consider rock or similar protective system. Note: Infiltration Basins may be lined, in which case no vegetation would be required for lined areas.** ☒Yes ☐No
8. Can diversion be designed, constructed, and maintained to bypass flows exceeding the WQV? ** ☒Yes ☐No
9. Can a gravity-fed maintenance drain be placed? ** ☐Yes ☒No

Design Elements – Infiltration Trench

1. Has an investigation been conducted, including subsurface soil investigation, in-hole conductivity testing and groundwater elevation determination? (This report must be completed for PS&E level design.) * ☐Yes ☐No
2. Is the surrounding soil within Hydrologic Soil Groups (HSG) Types A, B, and C while preserving an acceptable infiltration rate? * ☐Yes ☐No
3. Is the Infiltration Trench size sufficient to capture the WQV, or portion thereof, with a maximum 96-hour drawdown time? Longer drawdown times may be allowable, coordinate with the District/Regional Design Stormwater Coordinator.* ☐Yes ☐No
4. Is the depth of the Infiltration Trench ≤ 13 ft? * ☐Yes ☐No
5. Can an observation well be placed in the trench? ** ☐Yes ☐No
6. Can access be provided to the Infiltration Trench? * ☐Yes ☐No
7. Can pretreatment be provided to capture sediment in the runoff (such as using vegetation or a flow splitter with a sump)? ** ☐Yes ☐No
8. Can flow diversion be designed, constructed, and maintained to bypass flows exceeding the Water Quality event? ** ☐Yes ☐No
9. Does a perimeter curb or similar device need to be provided (to limit wheel loads upon the trench)? ** ☐Yes ☐No

Treatment BMPs

Checklist T-1, Part 11

Prepared by: P. Reuss Date: 10/18/2018 District-Co-Route: 10-Sta-99

PM : 9.5/R11.4 Project ID/EA: 10-1A690 RWQCB: Central Valley (Region 5)

DPP Infiltration Areas

Feasibility[1]

1. Does local Basin Plan or other local ordinance provide influent limits on quality of water that can be infiltrated, and would infiltration pose a threat to groundwater quality? ☐Yes ☒No
2. Does infiltration at the site compromise the integrity of any slopes in the area? ☐Yes ☒No

If "Yes" to any question above, DPP Infiltration Areas are not feasible; stop here and consider other approved Treatment BMPs.

3. Are DPP Infiltration Areas proposed at sites where known contaminated soils or groundwater plumes exist? ☐Yes ☒No
If "Yes", consult with District/Regional NPDES Coordinator about how to proceed.
4. If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of these Treatment BMPs into the project. ☒Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Has native soil gradation and infiltration rate been determined (see Design Guidance for more detail)? (Must be completed for PS&E level design.) * ☒Yes ☐No
2. Has the infiltration rate of the DPP Infiltration Area been calculated and maximized through amendments where appropriate? ** ☒Yes ☐No
3. Is the DPP Infiltration Area capacity sufficient to capture the WQV, or portion thereof? ** ☒Yes ☐No

If "No", document the percentage and amount of the WQV captured. ☐ Complete

4. Is a surface reinforcing material required? ☐Yes ☒No

If "Yes", select material based on the permissible shear and velocity (refer to HDM Chapter 860 and Table 865.2).* ☐ Complete

---

[1] *This feasibility evaluation is applicable to areas that are being modified for infiltration as part of the project treatment strategy. For existing areas within the project limits that are being delineated as DPP Infiltration Areas, proceed to the Design Elements section.*

Attachment 10

Treatment BMP Location Map

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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.

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

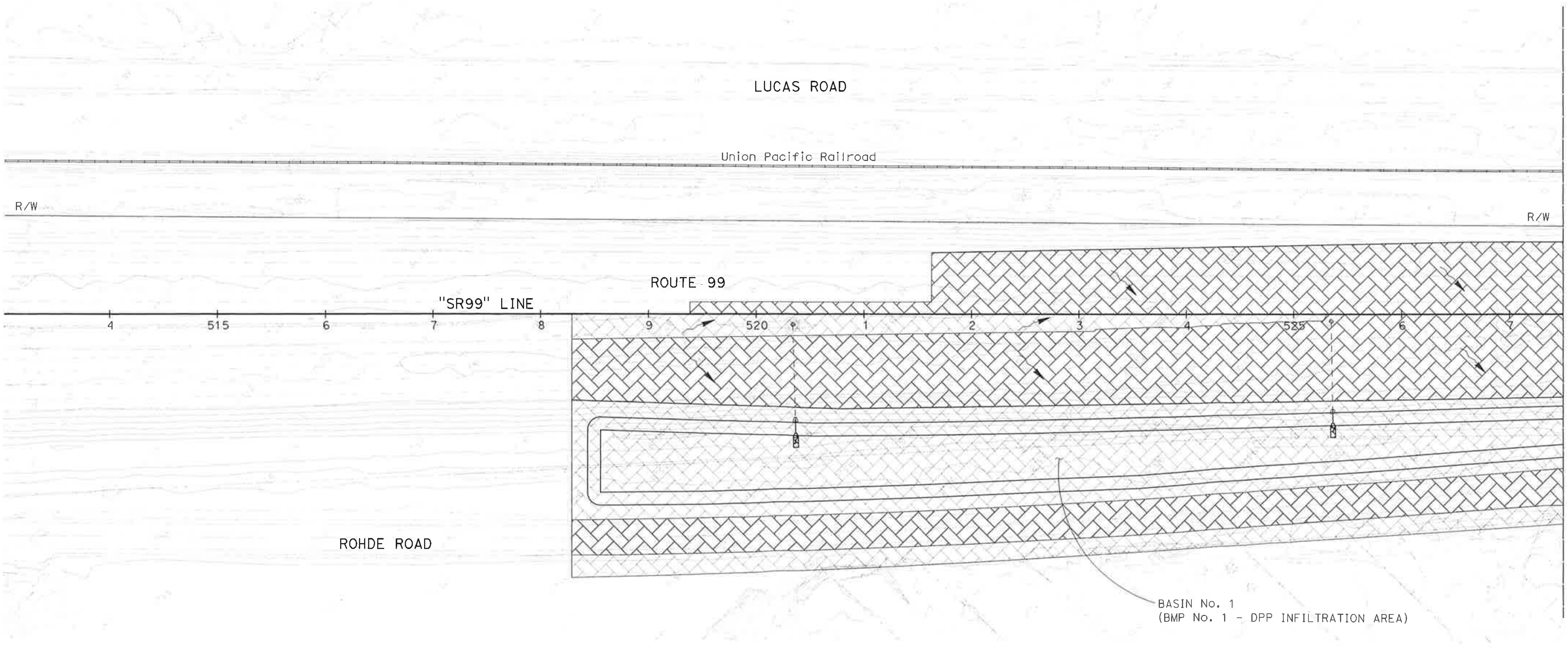
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

LEGEND:

IMPERVIOUS	PERVIOUS	
▨	▨	CDA FOR BASIN No. 1
▨	▨	CDA FOR BASIN No. 2
▨	▨	CDA FOR BASIN No. 3/4
▨	☐	CDA FOR BASIN No. 6
▨	▨	CDA FOR BASIN No. 7
▨	▨	CDA FLOWS TO EXISTING DRAINAGE SYSTEMS
	⤳	WATERSHED FLOW DIRECTION
	—▪	INLET AND PIPE CONNECTING TO BASIN/BMP

ABBREVIATIONS:

BMP	BEST MANAGEMENT PRACTICE
CDA	CONTRIBUTING DRAINAGE AREA
DPP	DESIGN POLLUTION PREVENTION



TREATMENT BMP LOCATION MAP

SCALE: 1′ = 50′

BMP-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED =₵13-Apr-18
TIME PLOTTED =₵09:56

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

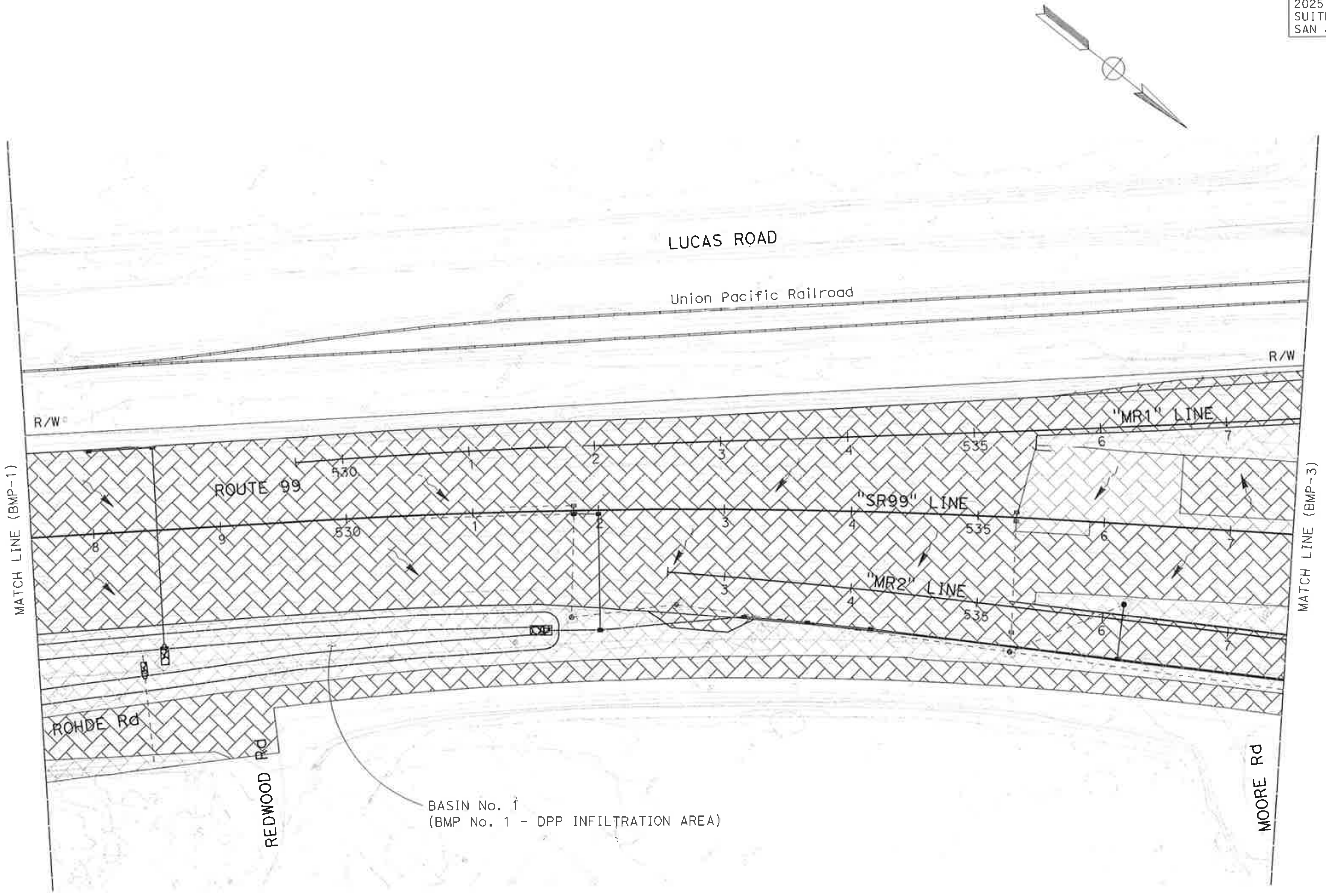
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NOTE:

FOR ABBREVIATIONS AND LEGEND, SEE SHEET BMP-1



BASIN No. 1
(BMP No. 1 - DPP INFILTRATION AREA)

TREATMENT BMP LOCATION MAP

SCALE: 1' = 50'

BMP-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

DATE PLOTTED => 13-Apr-18

LAST REVISION

BORDER LAST REVISED 7/2/2010

USERNAME =>

DGN FILE => BMP-2

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE

10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

No.
Exp.
CIVIL

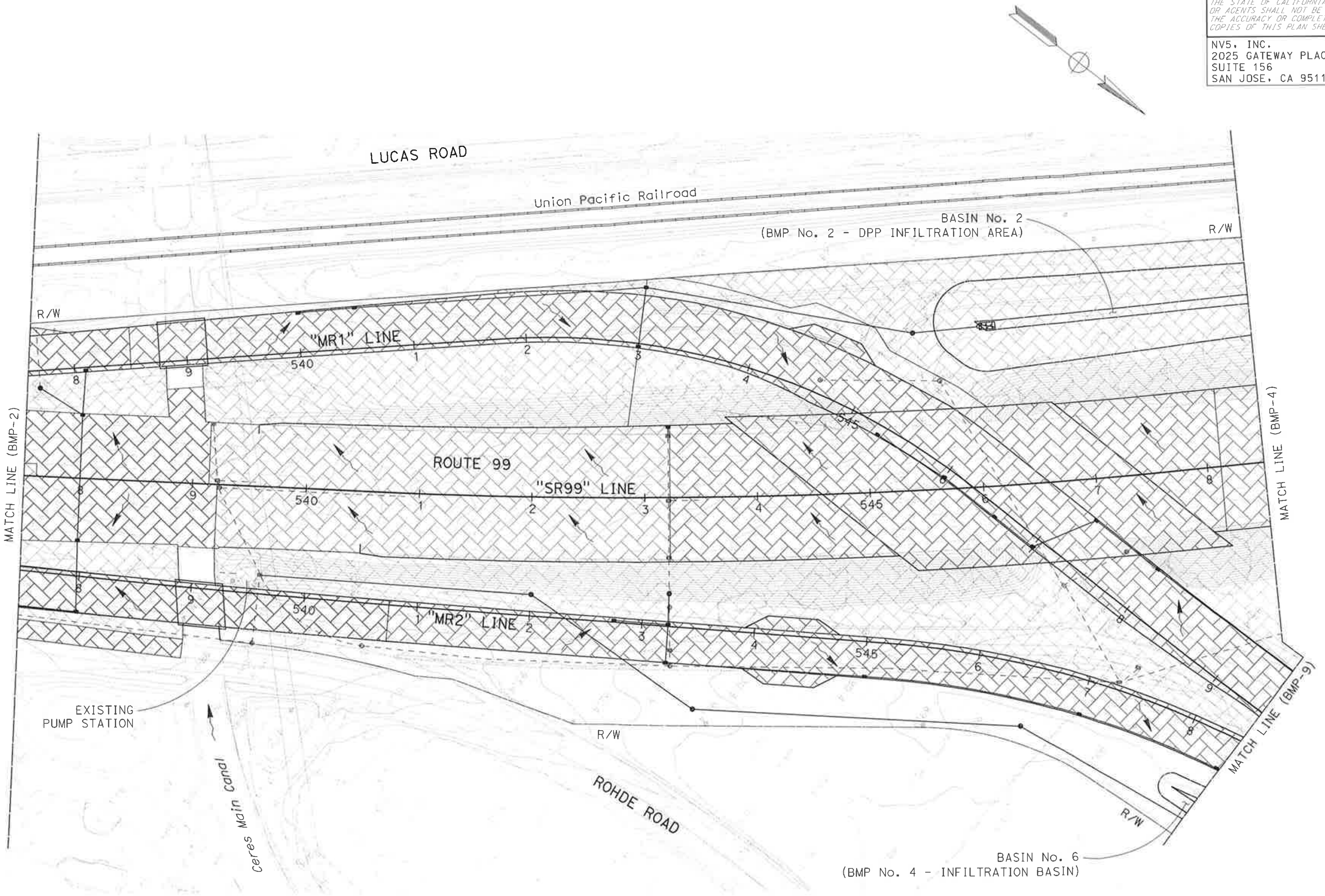
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NOTE:

FOR ABBREVIATIONS AND LEGEND, SEE SHEET BMP-1



TREATMENT BMP LOCATION MAP

SCALE: 1′ = 50′

BMP-3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 13-Apr-18

TIME PLOTTED => 10:04

BORDER LAST REVISED 7/2/2010

USERNAME => ----
DGN FILE => BMP-3

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

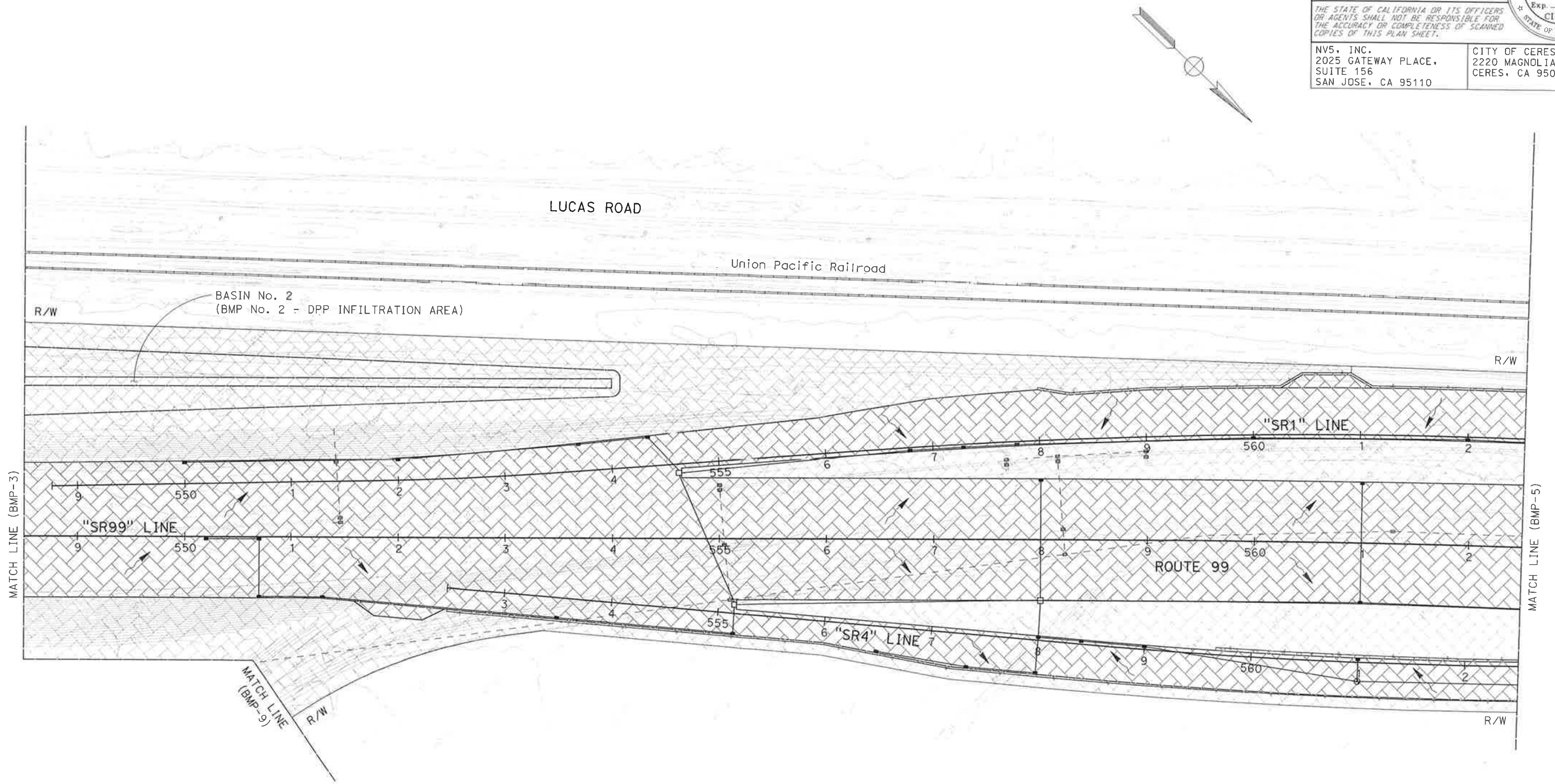
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NOTE:

FOR ABBREVIATIONS AND LEGEND, SEE SHEET BMP-1



TREATMENT BMP LOCATION MAP

SCALE: 1′ = 50′

BMP-4

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

BORDER LAST REVISED 7/2/2010
USERNAME =₵----
DGN FILE =₵BMP-4
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE
10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

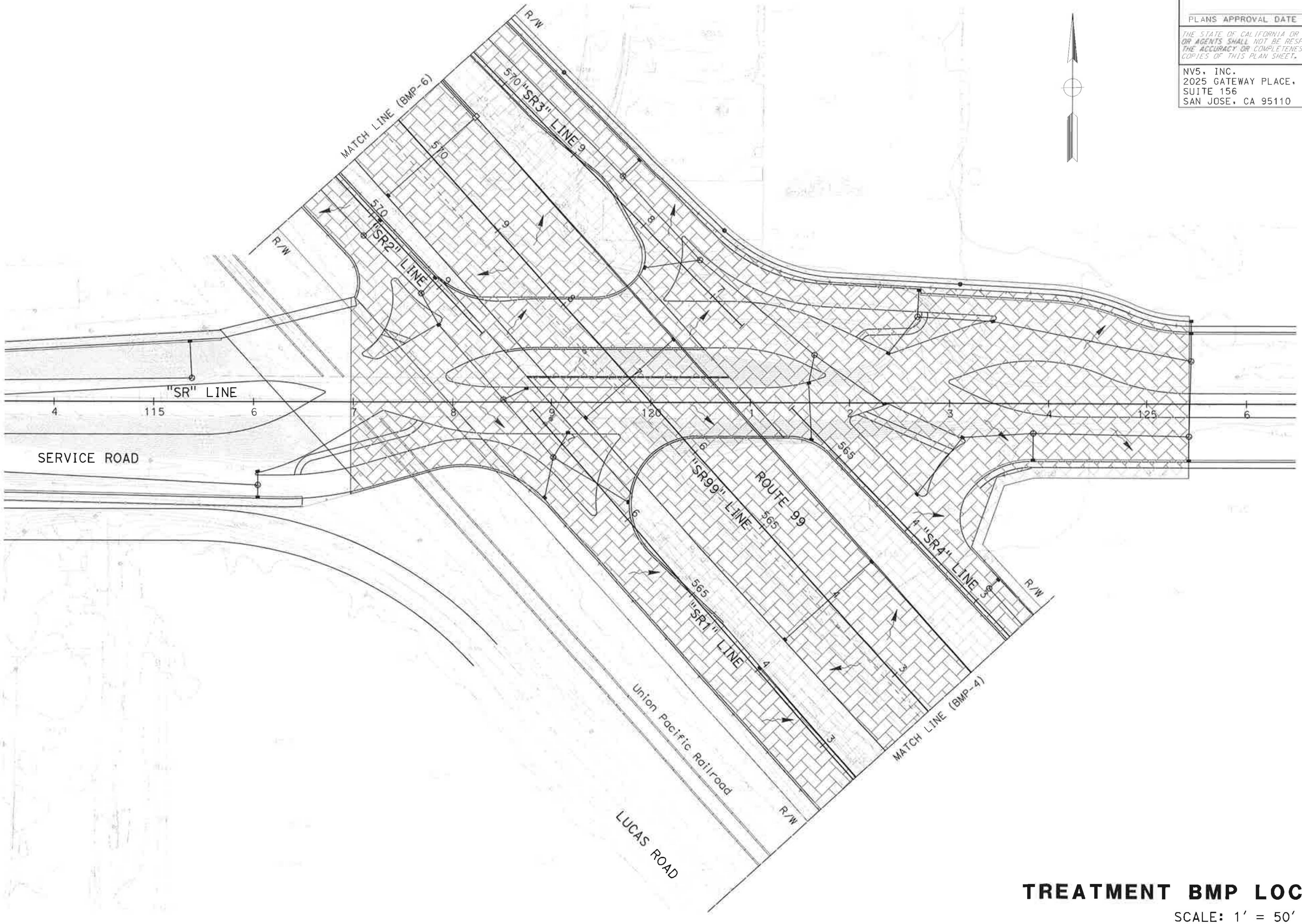
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NOTE:

FOR ABBREVIATIONS AND LEGEND, SEE SHEET BMP-1



TREATMENT BMP LOCATION MAP

SCALE: 1′ = 50′

BMP-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans®

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 12-Apr-18

TIME PLOTTED => 10:05

BORDER LAST REVISED 7/2/2010

USERNAME => ----

DGN FILE => BMP-5

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE

10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

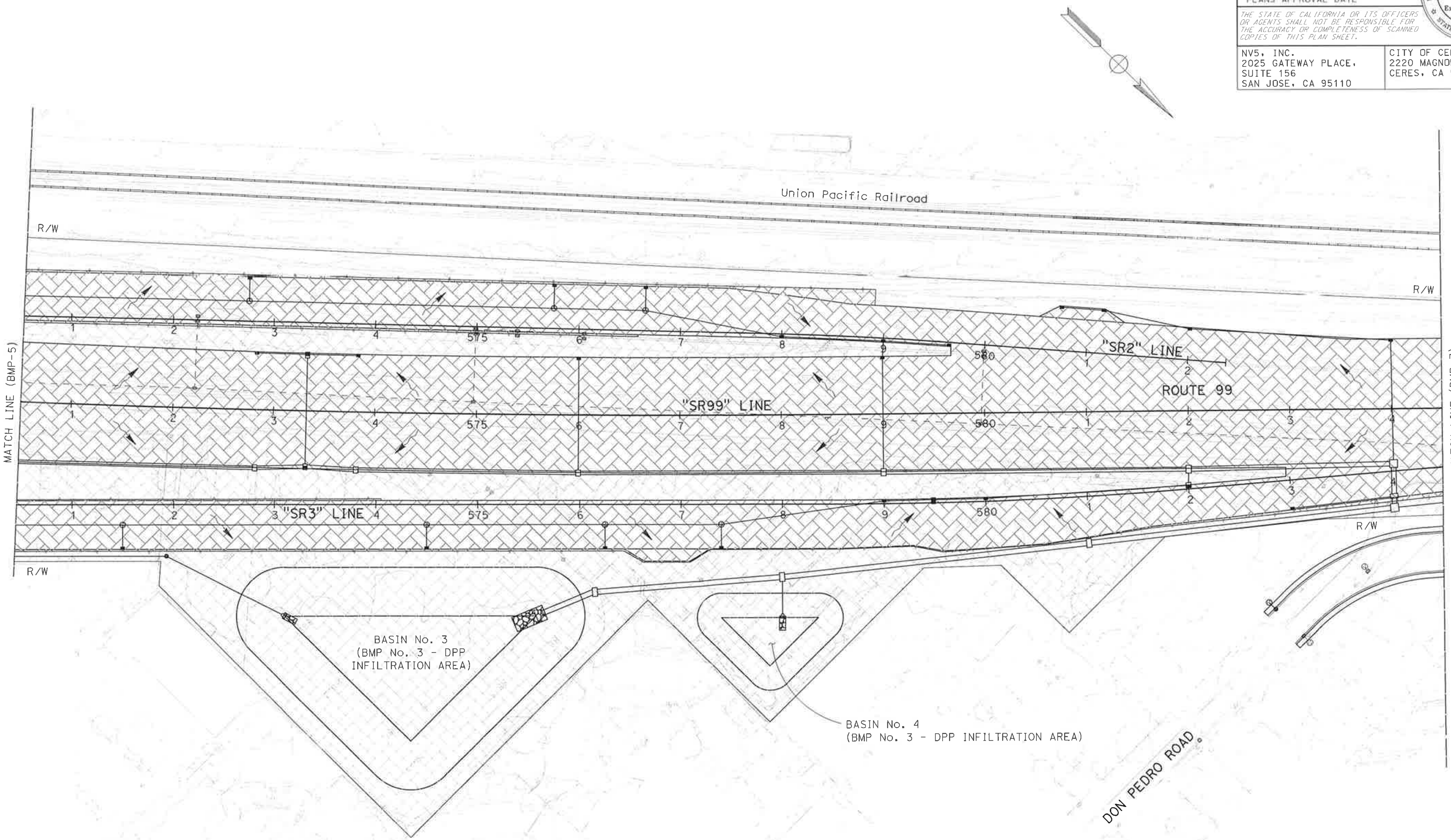
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NOTE:

FOR ABBREVIATIONS AND LEGEND, SEE SHEET BMP-1



TREATMENT BMP LOCATION MAP

SCALE: 1' = 50'

BMP-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED

LAST REVISION
DATE PLOTTED => 13-Apr-18
TIME PLOTTED => 10

BORDER LAST REVISED 7/2/2010
USERNAME => ----
DGN FILE => BMP-6
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE
10000003751

NOTE:

FOR ABBREVIATIONS AND LEGEND, SEE SHEET BMP-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

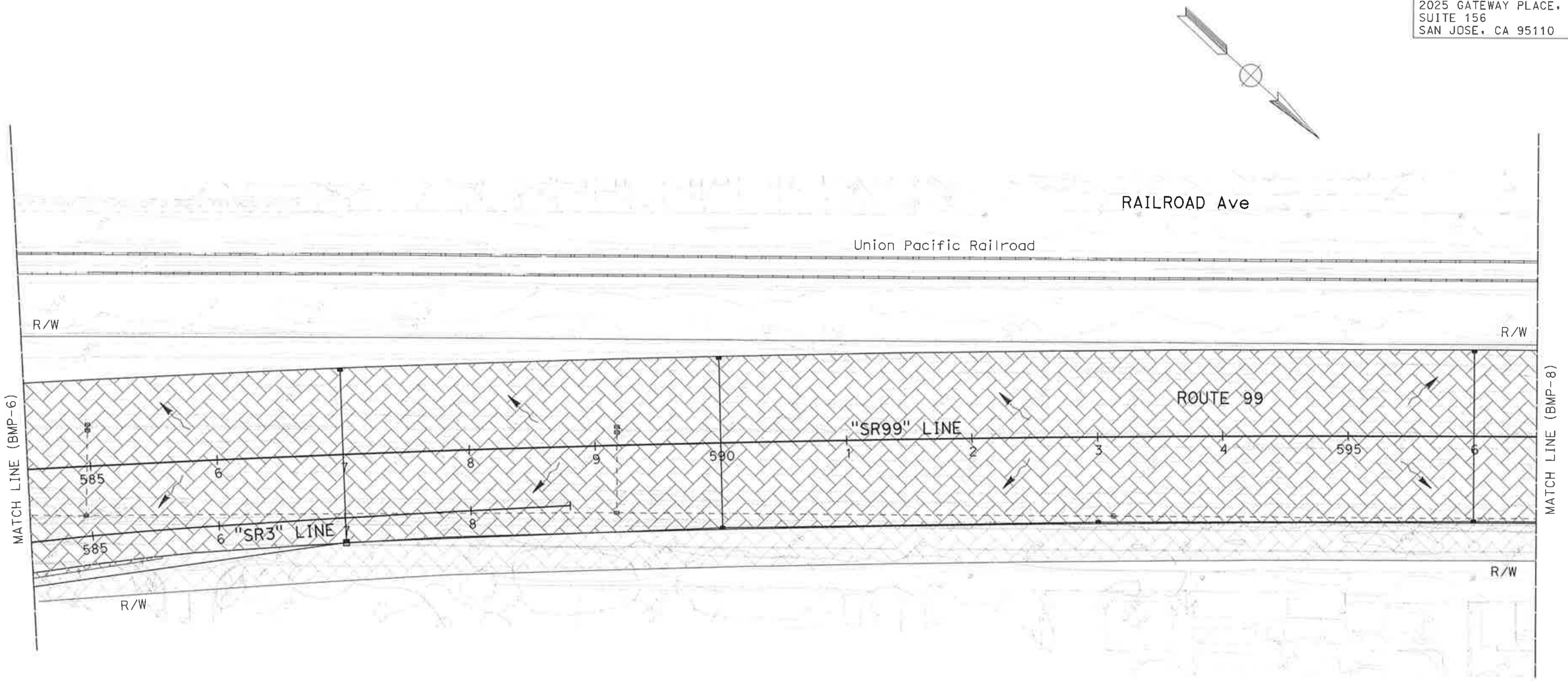
PLANS APPROVAL DATE

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

No.
Exp.
CIVIL

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



TREATMENT BMP LOCATION MAP

SCALE: 1' = 50'

BMP-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => ----
DGN FILE => BMP-7

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

LAST REVISION 00-00-00

DATE PLOTTED => 12-Apr-18
TIME PLOTTED => 10:26

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

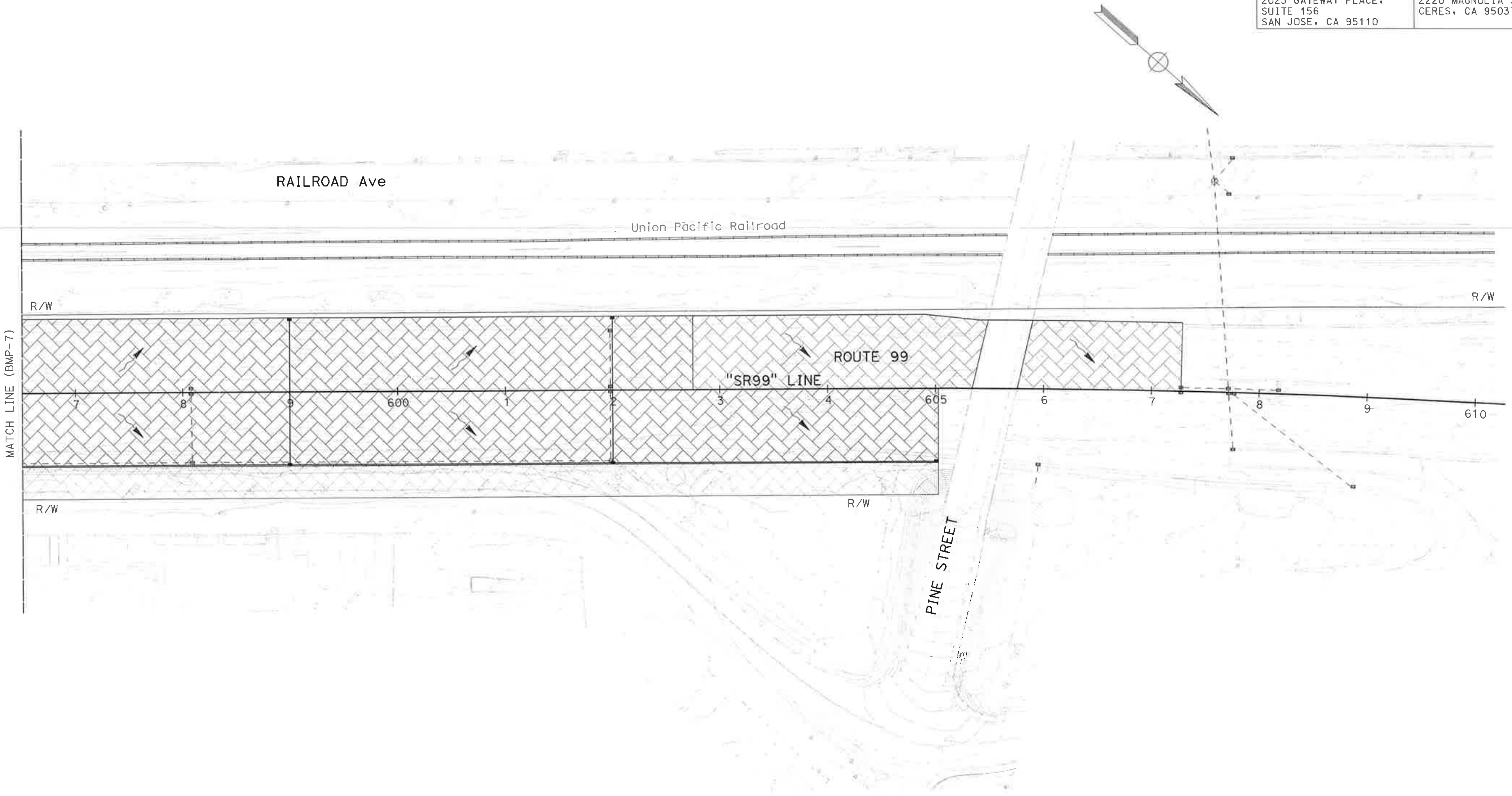
CHECKED BY

REVISED BY

DATE REVISED

NOTE:

FOR ABBREVIATIONS AND LEGEND, SEE SHEET BMP 1



TREATMENT BMP LOCATION MAP

SCALE: 1' = 50'

BMP-8

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

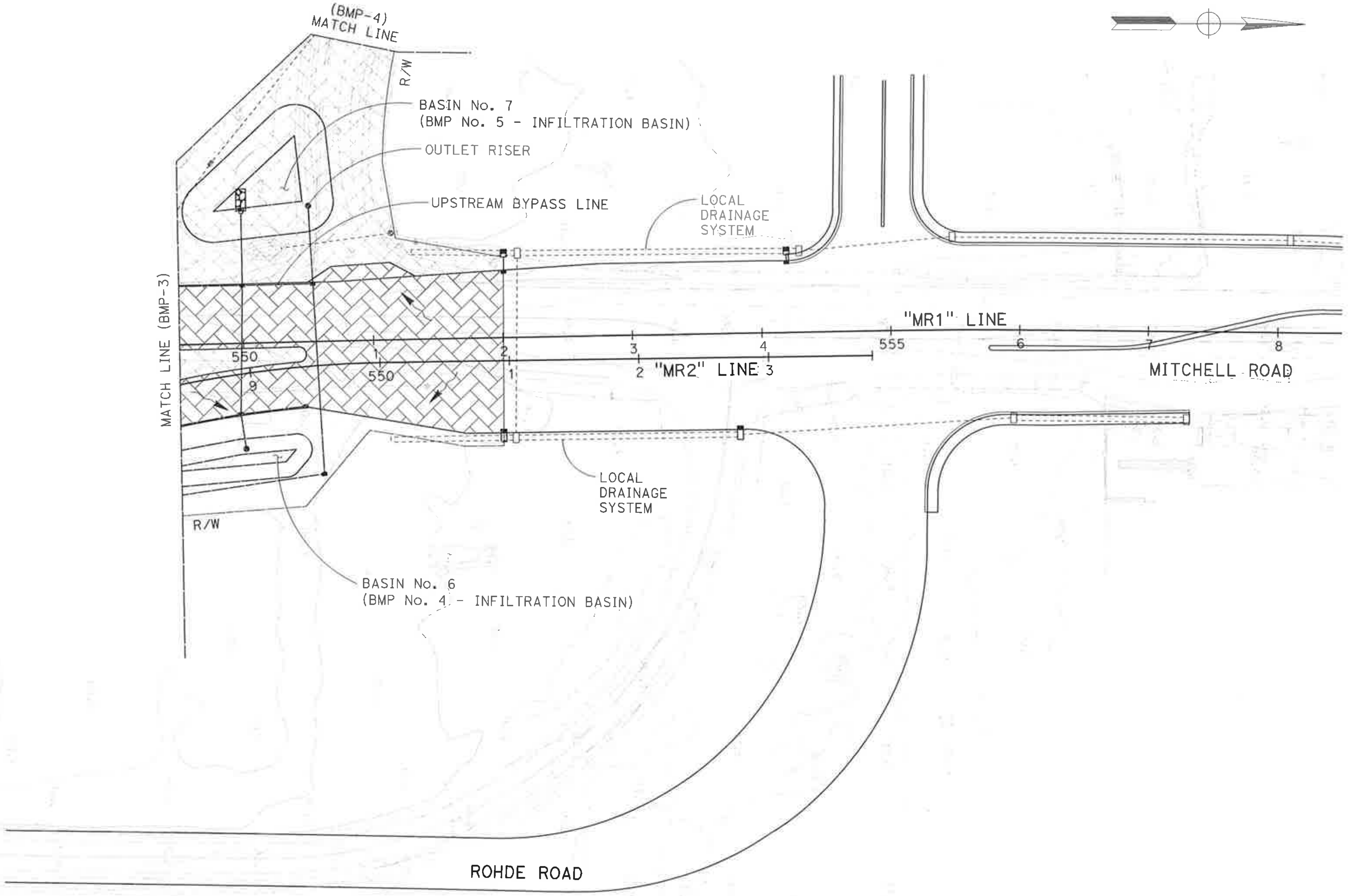
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NV5, INC.
2025 GATEWAY PLACE,
SUITE 156
SAN JOSE, CA 95110

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NOTE:

FOR ABBREVIATIONS AND LEGEND, SEE SHEET BMP-1



TREATMENT BMP LOCATION MAP

SCALE: 1′ = 50′

BMP-9

REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 13-Apr-18
TIME PLOTTED => 10:17

Attachment 11

Profiles and Superelevation Diagrams

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

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.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

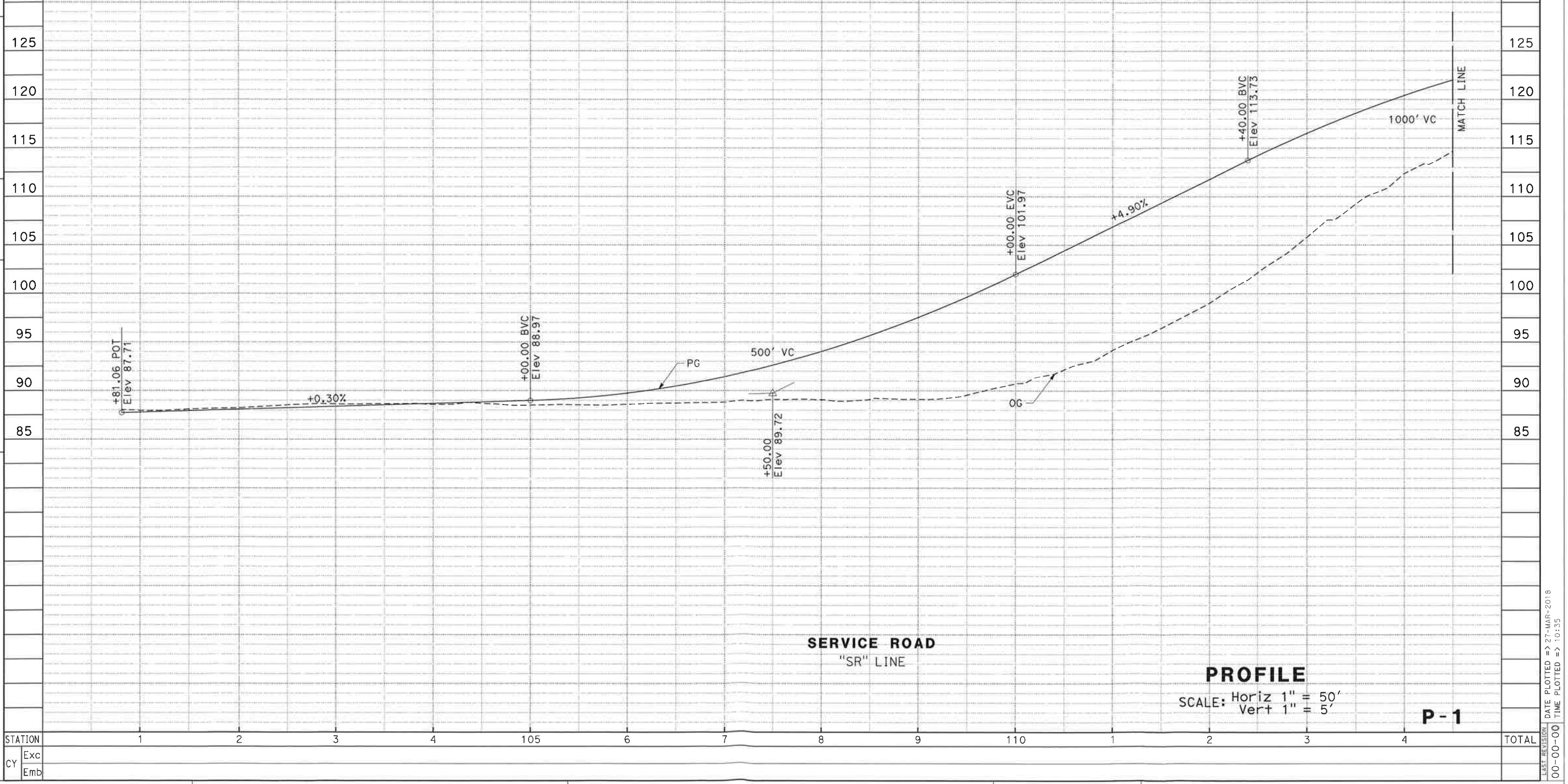
CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

CALCULATED-DESIGNED BY: CHRIS BRECHEISEN

CHECKED BY: ALAN F. NICKZ

REVISED BY

DATE REVISED



SERVICE ROAD

"SR" LINE

PROFILE

SCALE: Horiz 1" = 50'
Vert 1" = 5'

P-1

DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35
LAST REVISION 00-00-00

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL
STATE OF CALIFORNIA

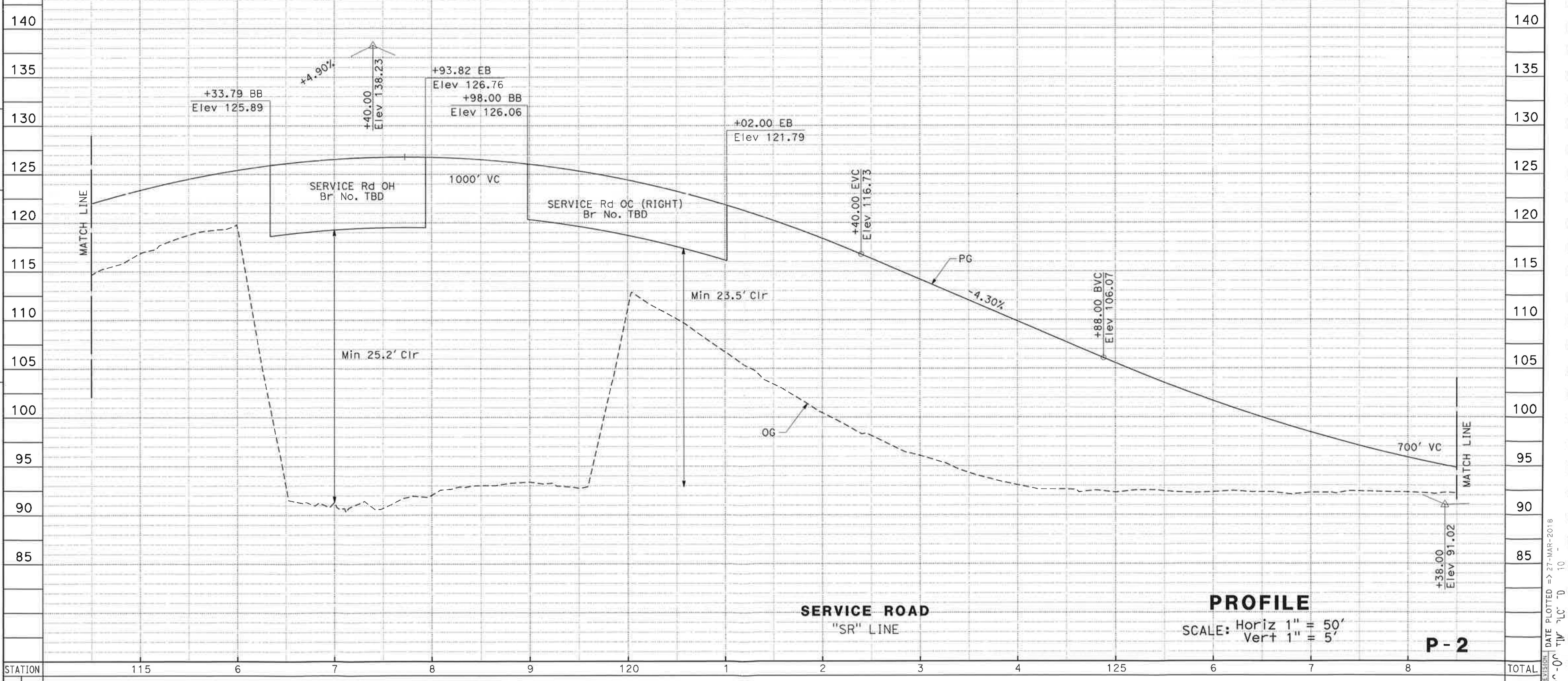
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA
CALCULATED-DESIGNED BY: CHRIS BRECHEISEN
CHECKED BY: ALAN F. NICKZ
REVISED BY
DATE REVISED



SERVICE ROAD
"SR" LINE

PROFILE
SCALE: Horiz 1" = 50'
Vert 1" = 5'

P-2

STATION	115	6	7	8	9	120	1	2	3	4	125	6	7	8	TOTAL
CY Exc															
CY Emb															

DATE PLOTTED => 27-MAR-2018
LAST REVISION

BORDER LAST REVISED 7/2/2010
USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fa002.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

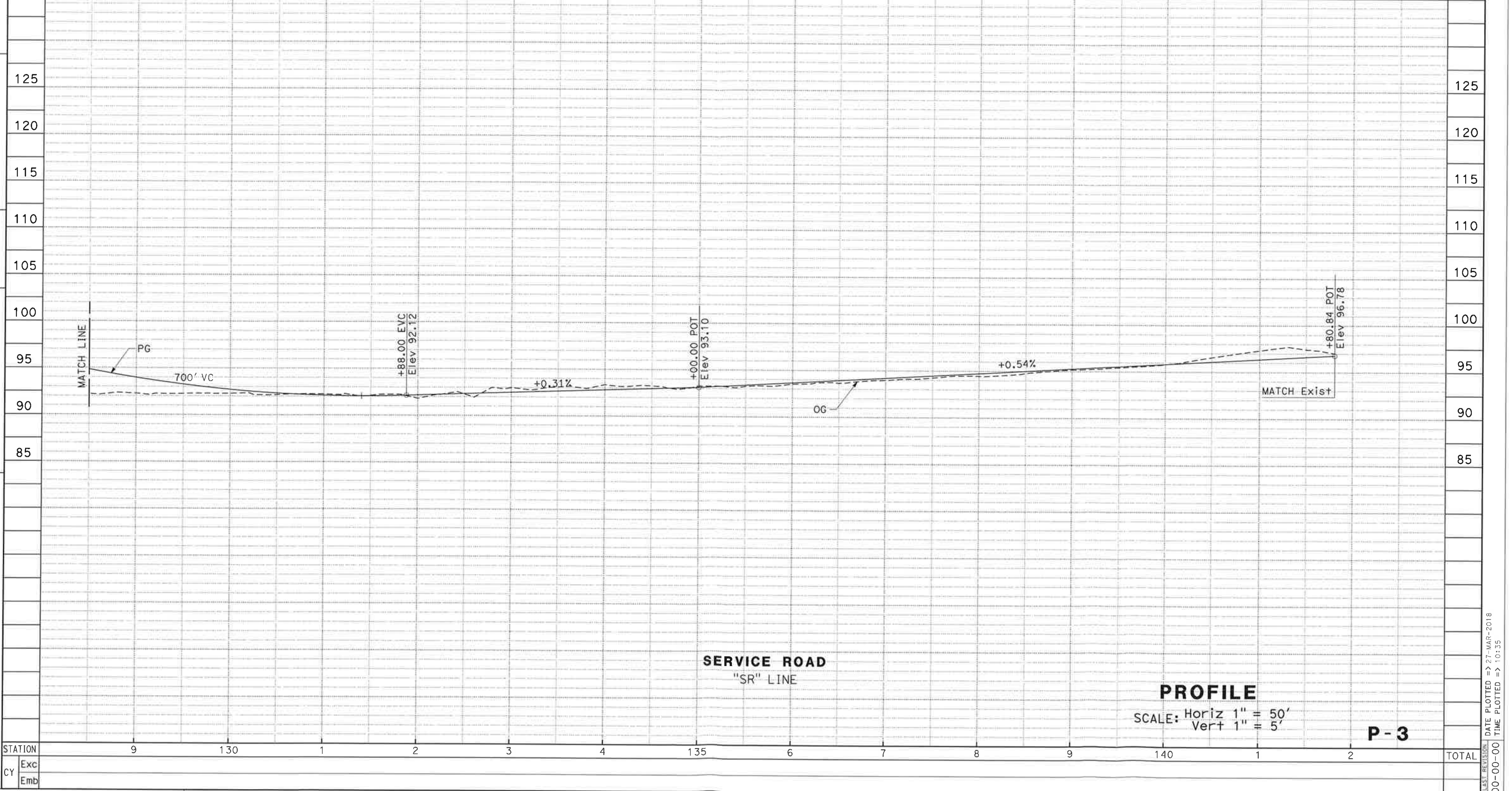
PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

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.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SERVICE ROAD
"SR" LINE

PROFILE

SCALE: Horiz 1" = 50'
Vert 1" = 5'

P-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans®

CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

CALCULATED-DESIGNED BY
CHRIS BRECHEISEN

CHECKED BY
ALAN F. NICKZ

REVISED BY
DATE REVISED

DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35

LAST REVISION
00-00-00

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fa003.dgn

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

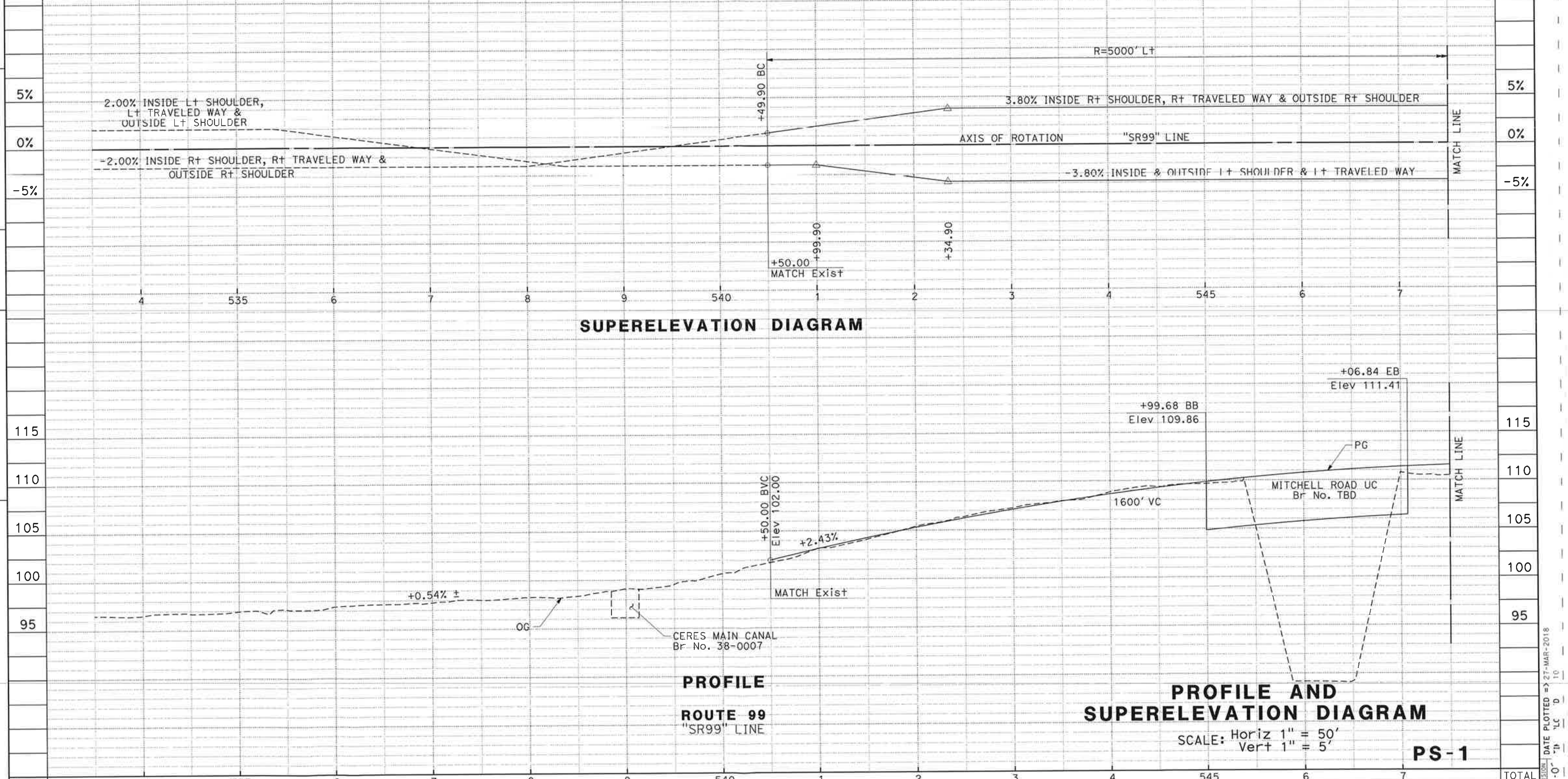
ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

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.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM

PROFILE

ROUTE 99
"SR99" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-1

STATION	4	535	6	7	8	9	540	1	2	3	4	545	6	7	TOTAL
CY Exc															
CY Emb															

REVISED BY
DATE REVISED
CHRIS BRECHEISEN
ALAN F. NICKZ
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00 DATE PLOTTED => 27-MAR-2018 TIME PLOTTED => 10

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL
STATE OF CALIFORNIA

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

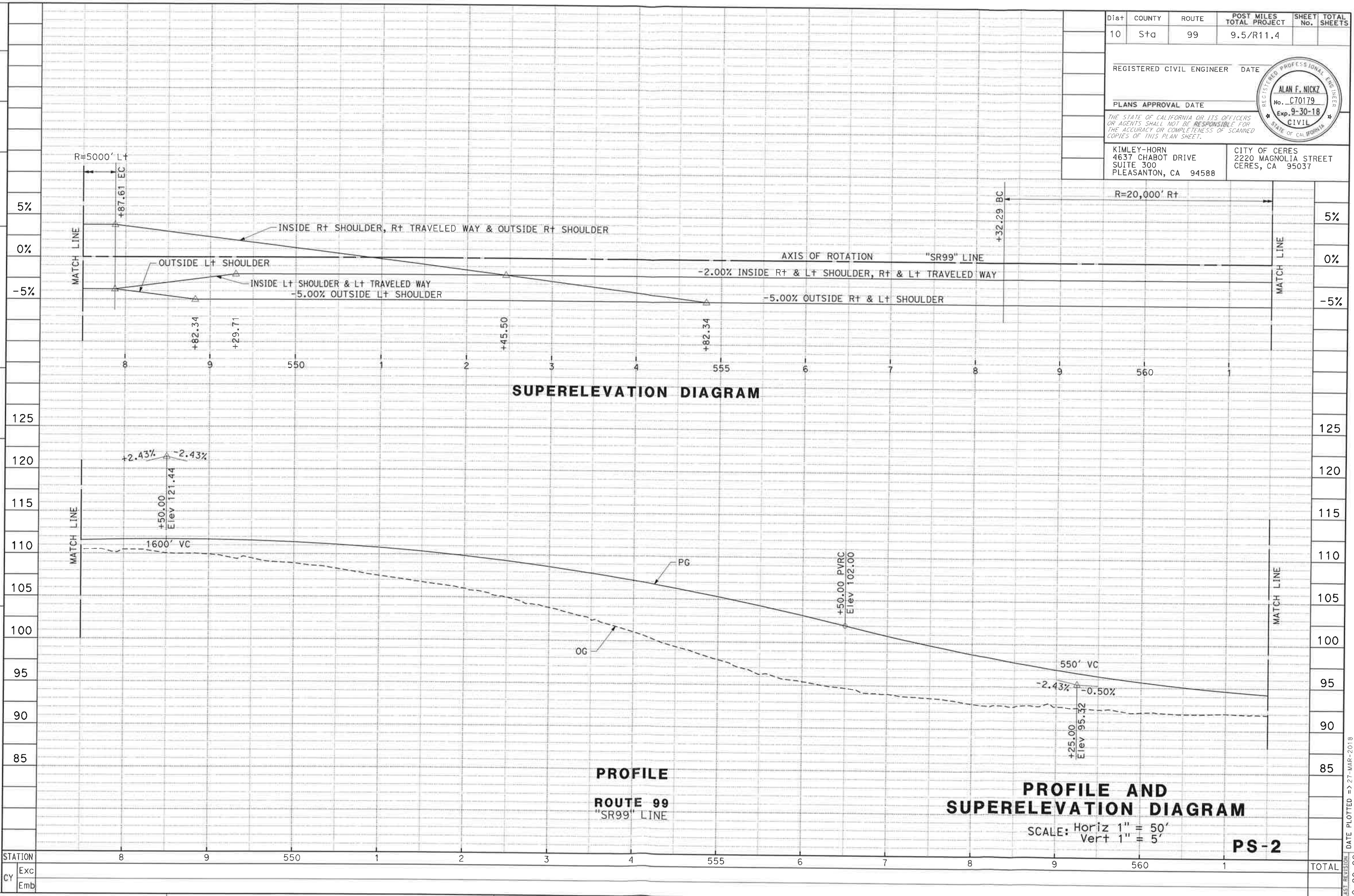
CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

CALCULATED-DESIGNED BY
CHRIS BRECHEISEN

CHECKED BY
ALAN F. NICKZ

REVISED BY

DATE REVISED



PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-2

DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35

LAST REVISION 00-00-00

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb002.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

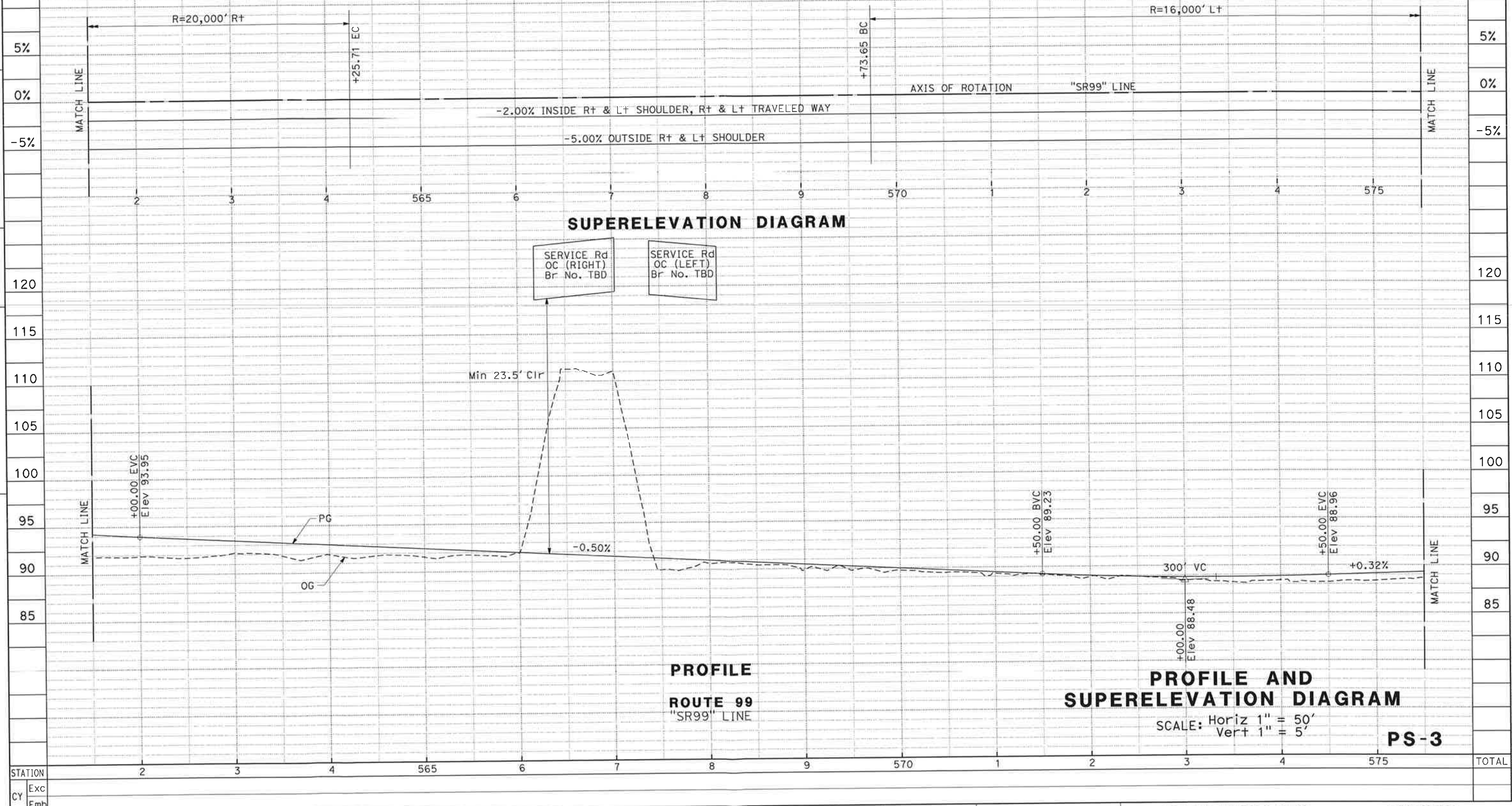
PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

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.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR PARAG G. MEHTA

CALCULATED-DESIGNED BY CHRIS BRECHEISEN

CHECKED BY ALAN F. NICKZ

REVISED BY

DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb003.dgn

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

LAST REVISION

DATE PLOTTED => 27-MAR-2018

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

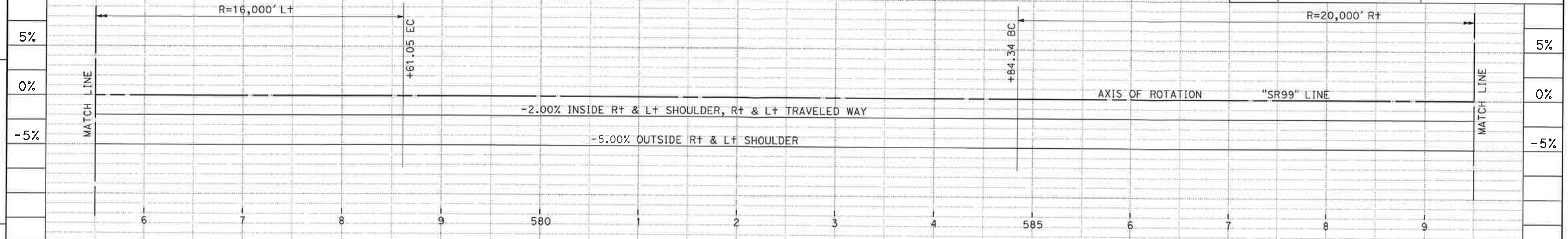
PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

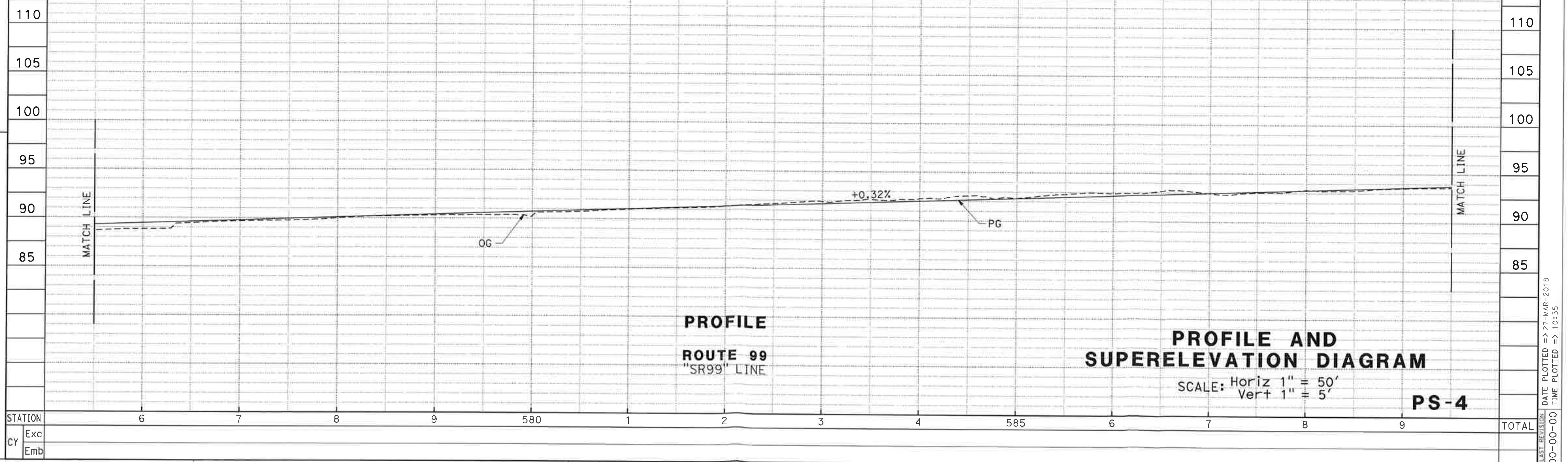
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

ROUTE 99
"SR99" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50′
Vert 1" = 5′

PS-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

CALCULATED-DESIGNED BY: CHRIS BRECHEISEN

CHECKED BY: ALAN F. NICKZ

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brechelsen
DGN FILE => 1000000375fb004.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

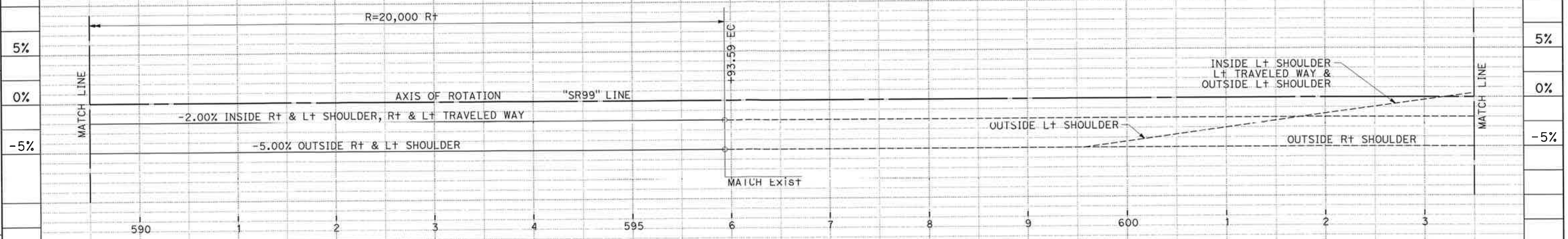
ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

PLANS APPROVAL DATE

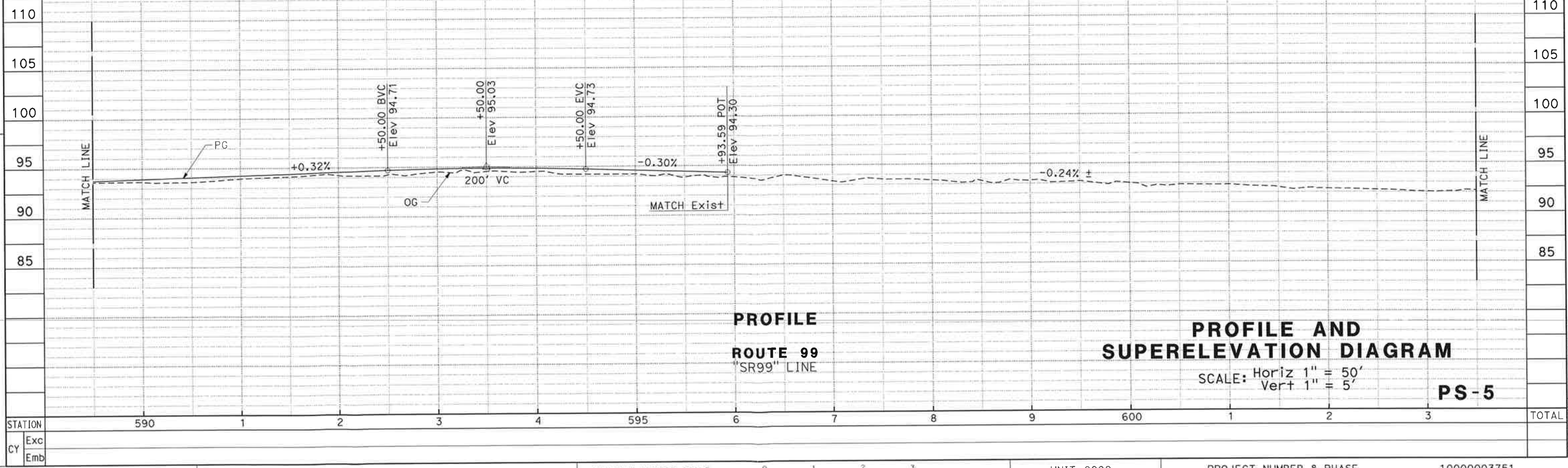
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

ROUTE 99
"SR99" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

CALCULATED-DESIGNED BY
CHRIS BRECHEISEN

CHECKED BY
ALAN F. NICKZ

REVISED BY

DATE REVISED

LAST REVISION

DATE PLOTTED => 27-MAR-2018

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb005.dgn

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans®

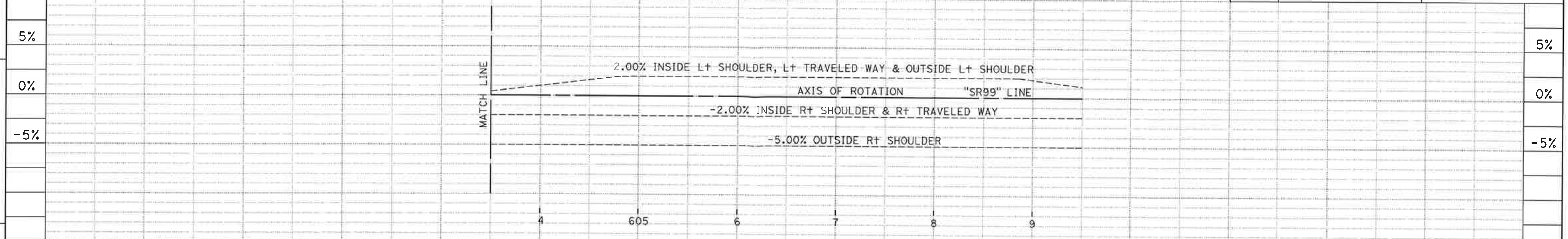
CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

CALCULATED-DESIGNED BY
CHRIS BRECHEISEN

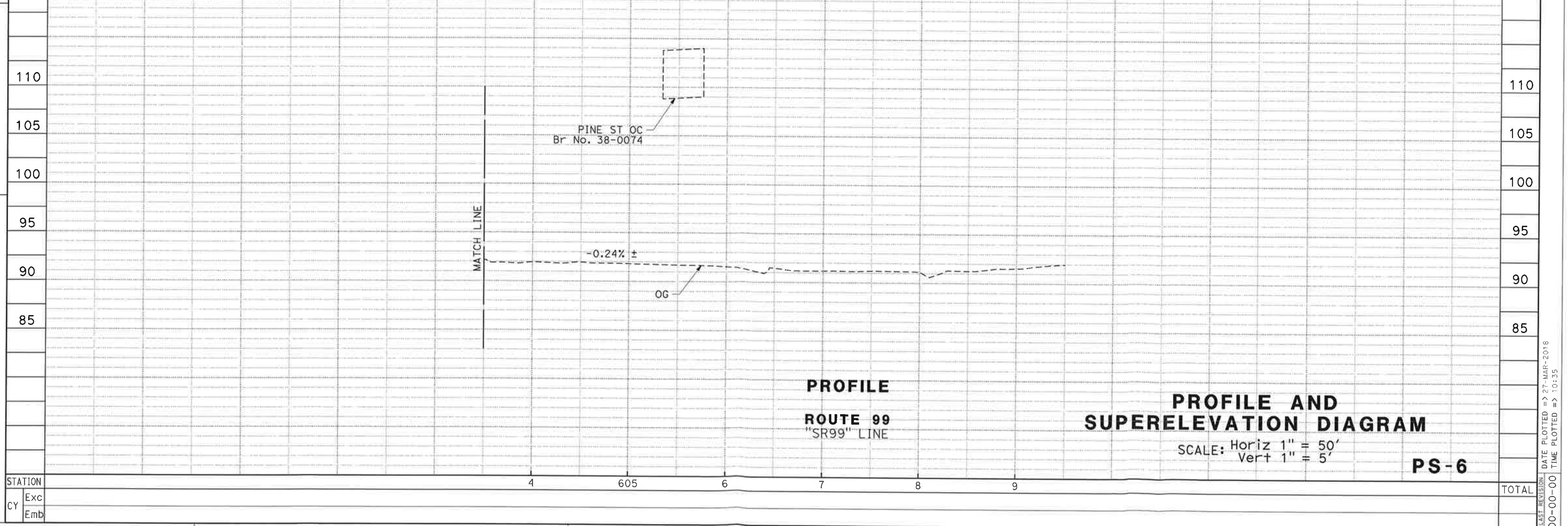
CHECKED BY
ALAN F. NICKZ

REVISED BY

DATE REVISED



SUPERELEVATION DIAGRAM



PROFILE

ROUTE 99
"SR99" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-6

DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35
LAST REVISION 00-00-00

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb006.dgn

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

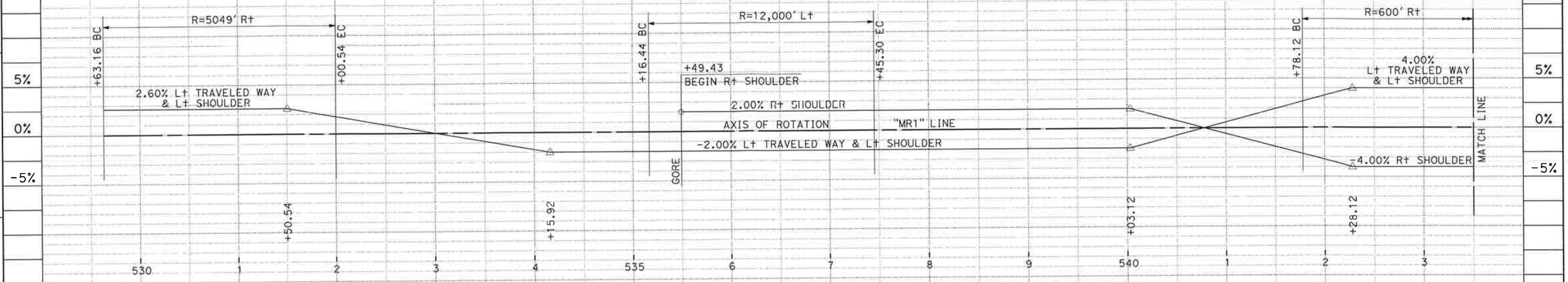
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

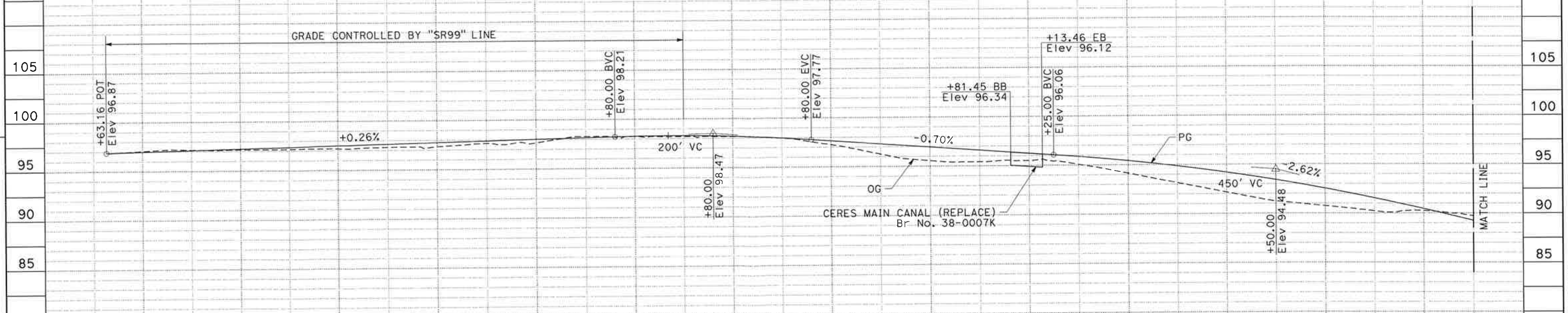
ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND ON RAMP FROM MITCHELL ROAD

"MR1" LINE

STATION	530	1	2	3	4	535	6	7	8	9	540	1	2	3	TOTAL
CY Exc															
CY Emb															

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-7

REVISED BY
DATE REVISED
CHRIS BRECHEISEN
ALAN F. NICKZ
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION
DATE PLOTTED => 27-MAR-2018 10:10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

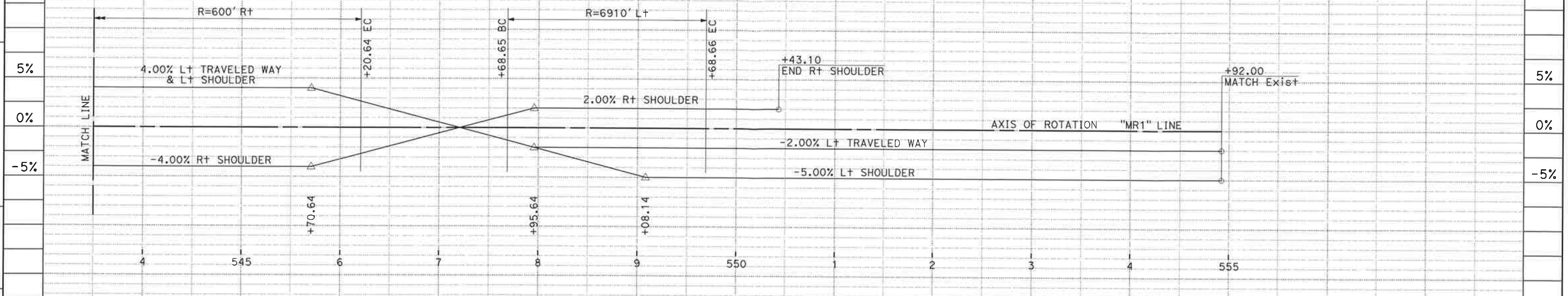
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

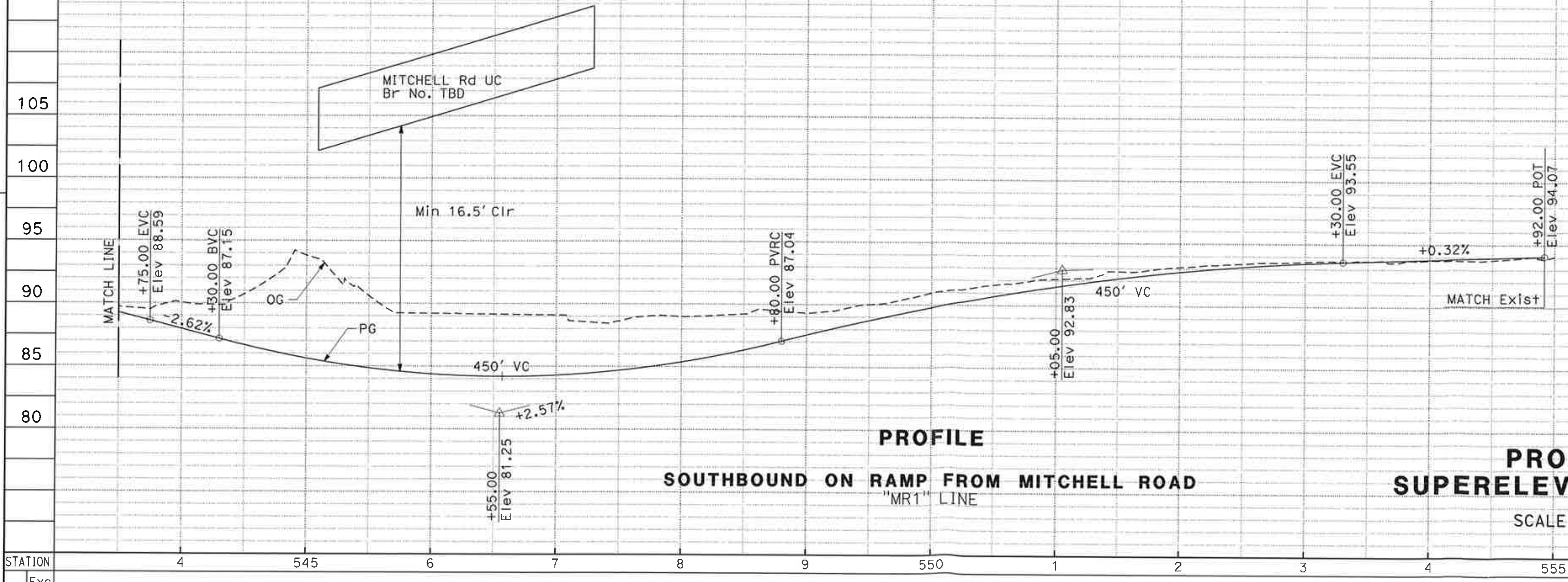
ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND ON RAMP FROM MITCHELL ROAD
"MR1" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-8

CY Exc
Emb

TOTAL

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

CALCULATED-DESIGNED BY
CHRIS BRECHEISEN

CHECKED BY
ALAN F. NICKZ

REVISED BY

DATE REVISED

LAST REVISION
00-00-00

DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb008.dgn

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

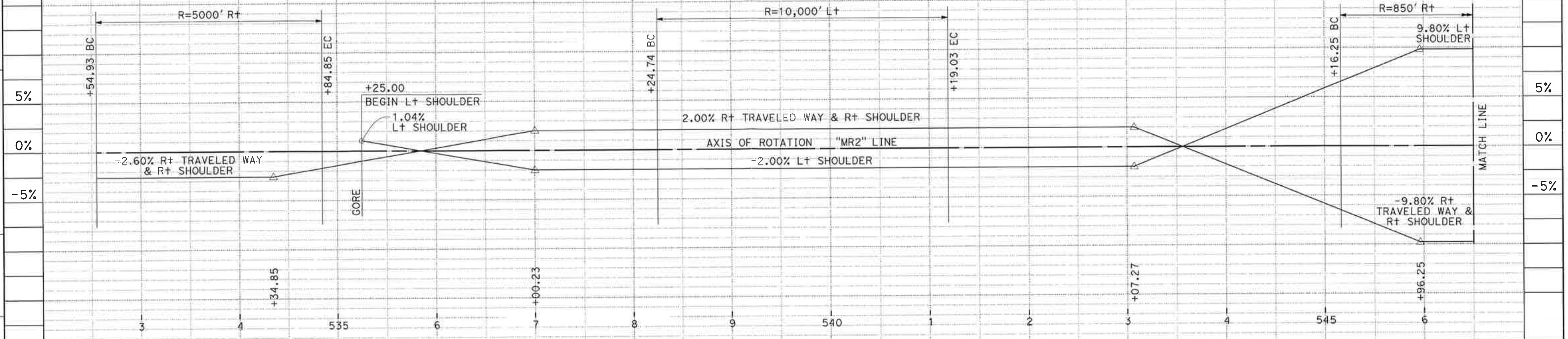
PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

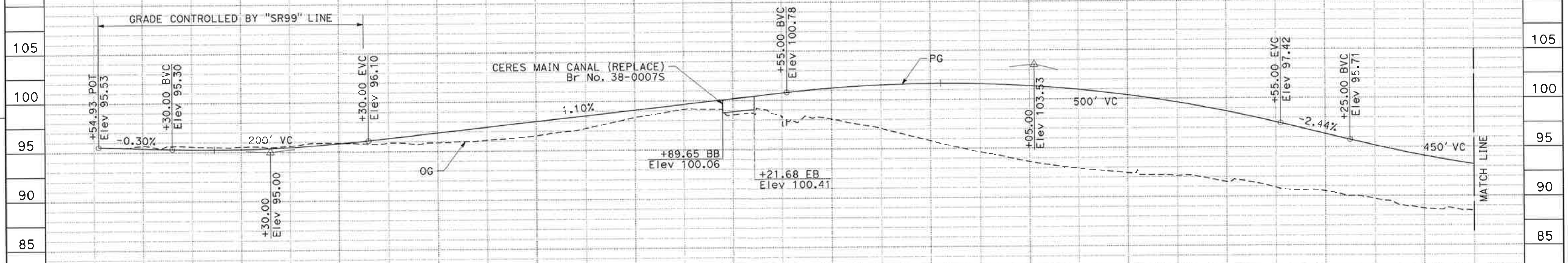
KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

REVISED BY
DATE REVISED
CHRIS BRECHEISEN
ALAN F. NICKZ
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND OFF RAMP TO MITCHELL ROAD
"MR2" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-9

STATION	3	4	535	6	7	8	9	540	1	2	3	4	545	6	TOTAL
CY Exc															
CY Emb															

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION
DATE PLOTTED => 27-MAR-2018

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL
STATE OF CALIFORNIA

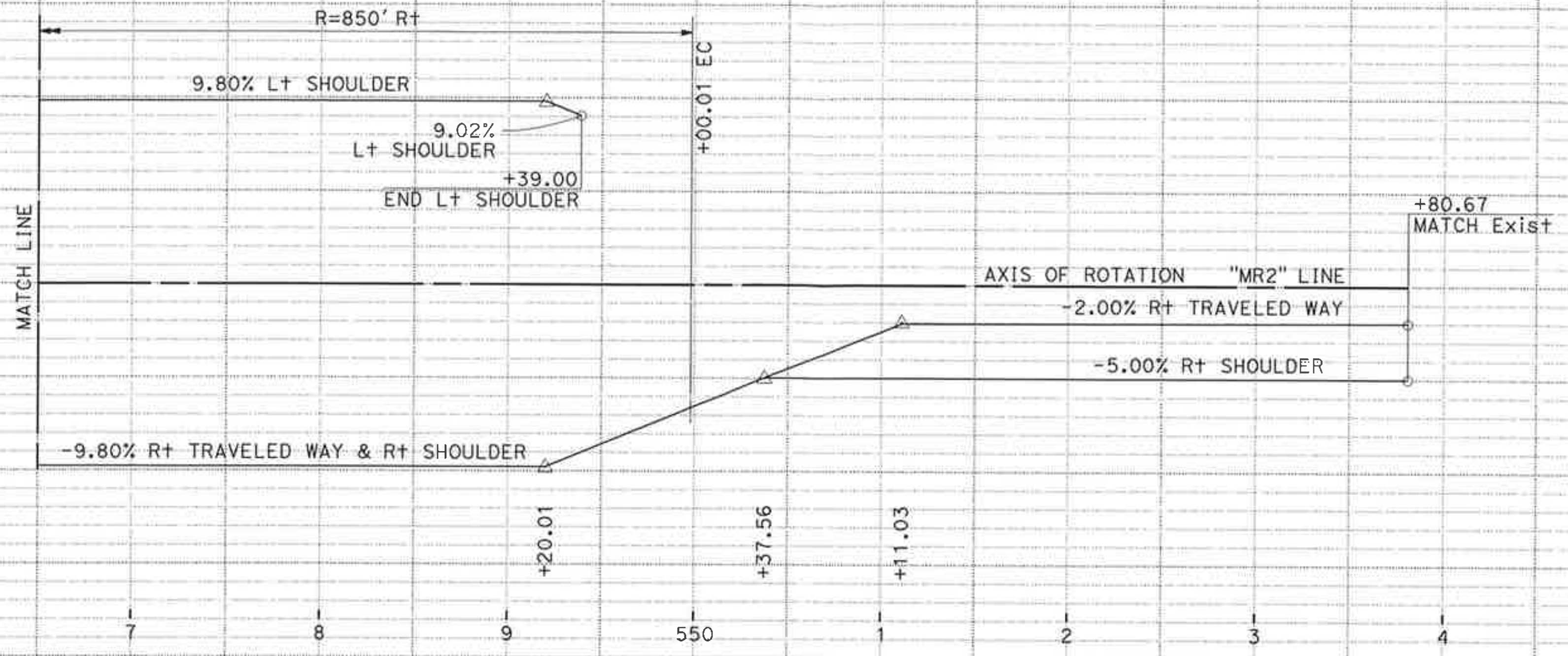
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

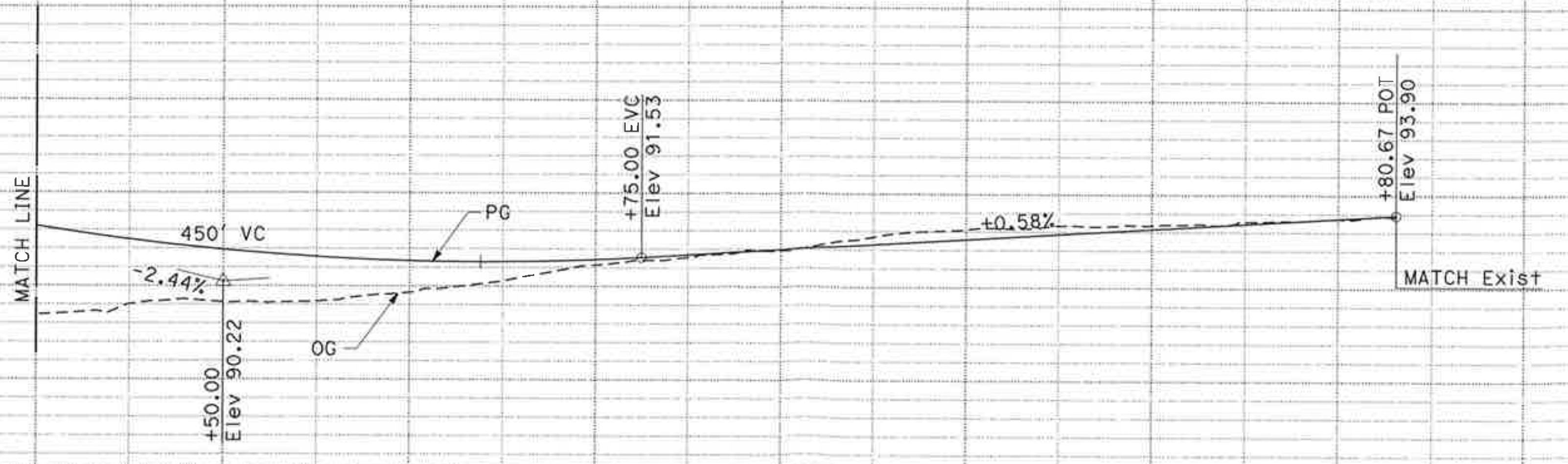
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA
CALCULATED-DESIGNED BY: CHRIS BRECHEISEN
CHECKED BY: ALAN F. NICKZ
REVISED BY
DATE REVISED



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND OFF RAMP TO MITCHELL ROAD

"MR2" LINE

STATION	7	8	9	550	1	2	3	4	TOTAL
CY Exc									
CY Emb									

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-10

LAST REVISION 00-00-00
DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb010.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

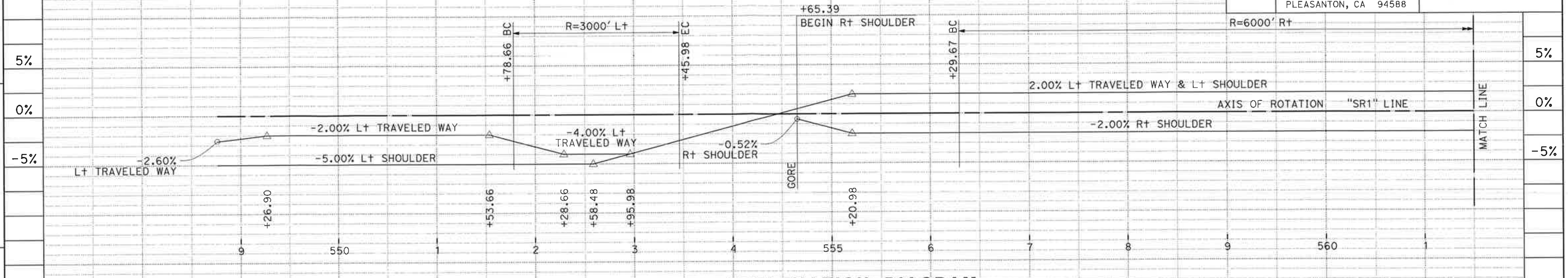
CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

CALCULATED-DESIGNED BY
CHRIS BRECHEISEN

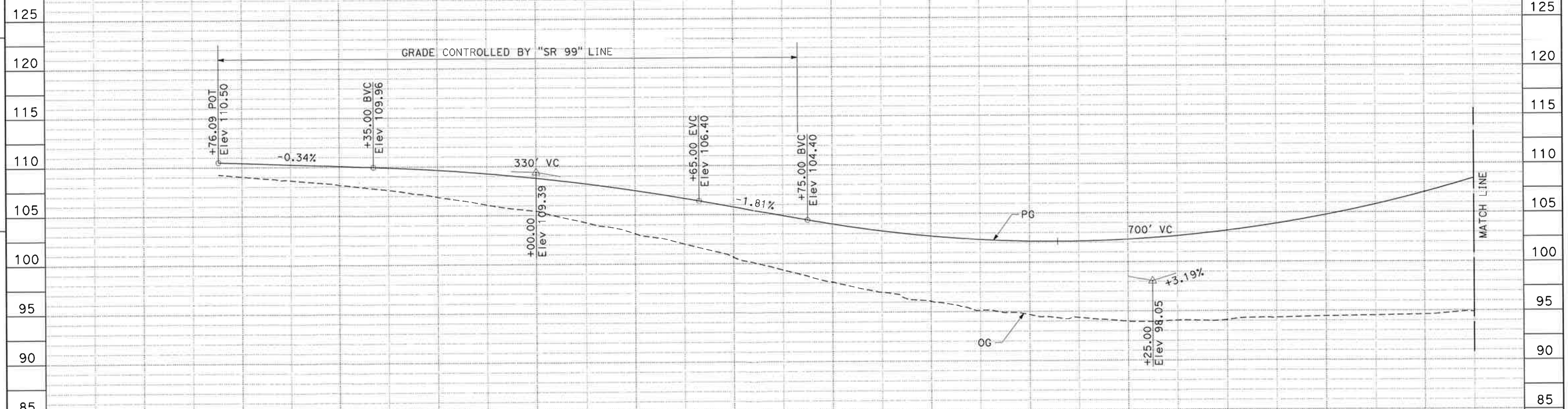
CHECKED BY
ALAN F. NICKZ

REVISED BY

DATE REVISED



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND ON RAMP FROM SERVICE ROAD
"SR1" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50′
Vert 1" = 5′

PS-11

STATION	8	9	550	1	2	3	4	555	6	7	8	9	560	1	TOTAL
CY Exc															
CY Emb															

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

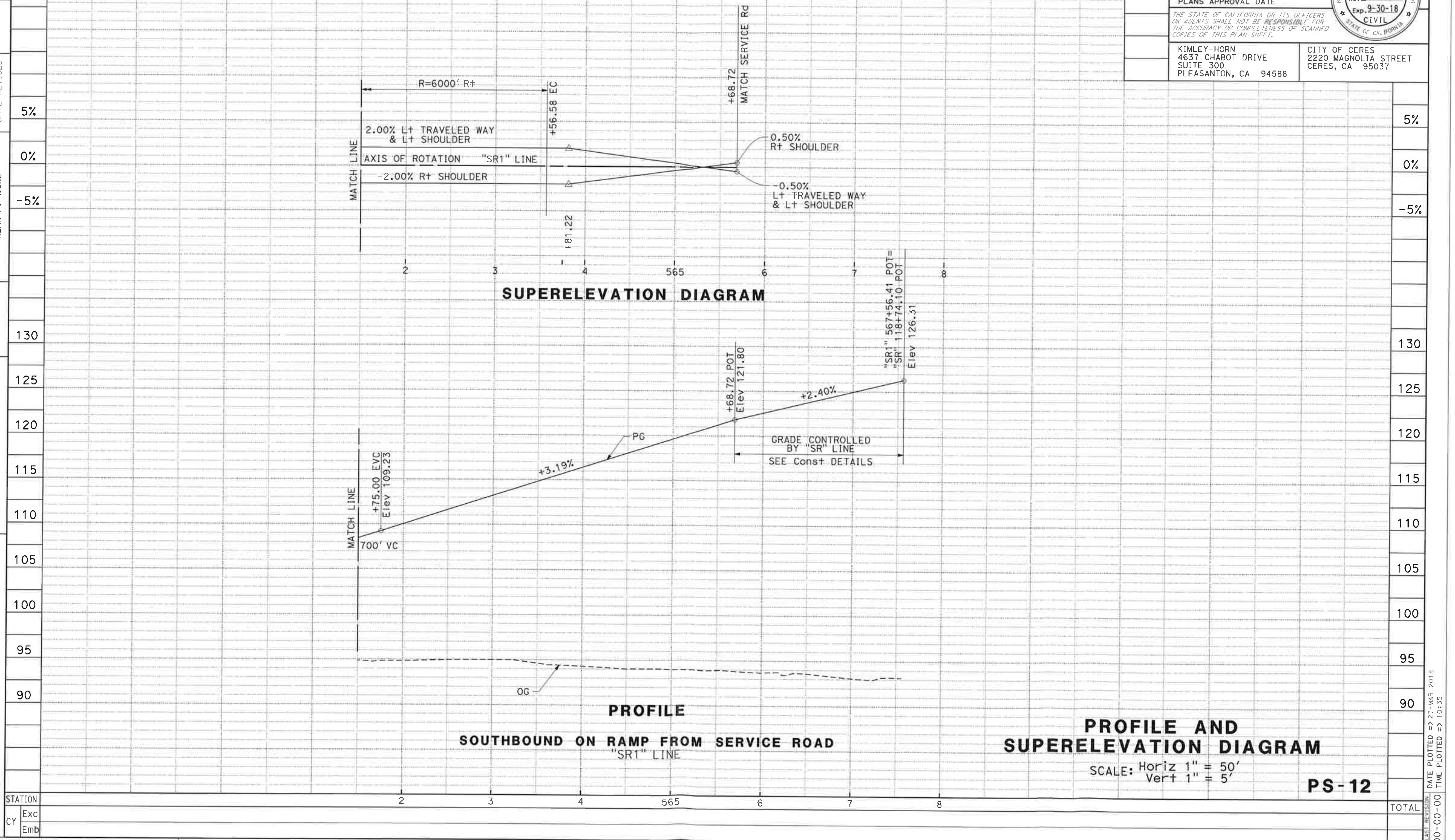
REGISTERED CIVIL ENGINEER DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

PLANS APPROVAL DATE

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM

PROFILE

SOUTHBOUND ON RAMP FROM SERVICE ROAD

"SR1" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA
CALCULATED-DESIGNED BY
CHRIS BRECHEISEN
CHECKED BY
ALAN F. NICKZ
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010
USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb012.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE 10000003751

LAST REVISION 00-00-00
DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

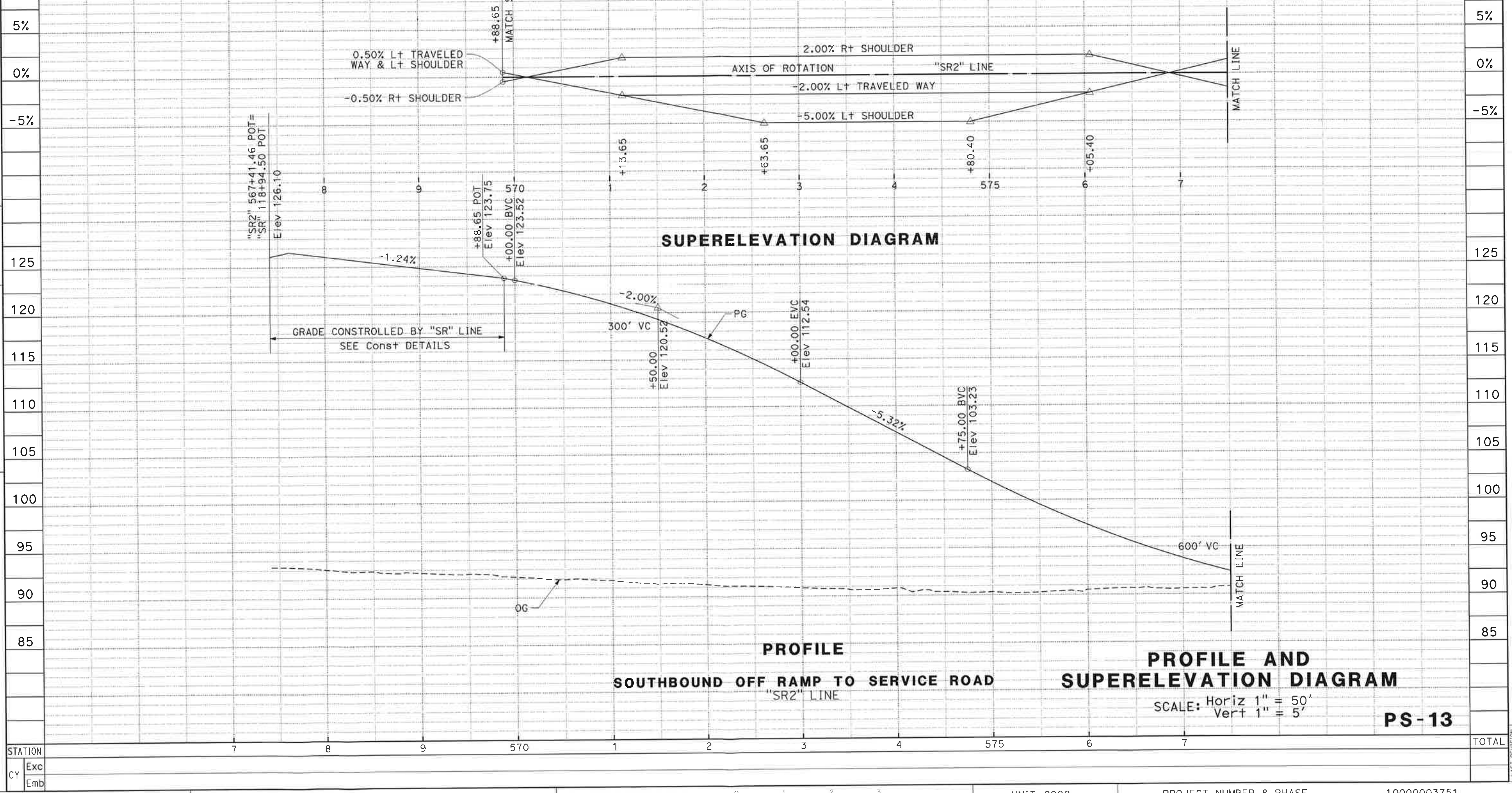
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM

PROFILE

SOUTHBOUND OFF RAMP TO SERVICE ROAD
"SR2" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR	PARAG G. MEHTA
CALCULATED-DESIGNED BY	CHRIS BRECHEISEN
CHECKED BY	ALAN F. NICKZ
REVISED BY	
DATE REVISED	

LAST REVISION 00-00-00
DATE PLOTTED => 27-MAR-2018

BORDER LAST REVISED 7/2/2010
USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb013.dgn
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

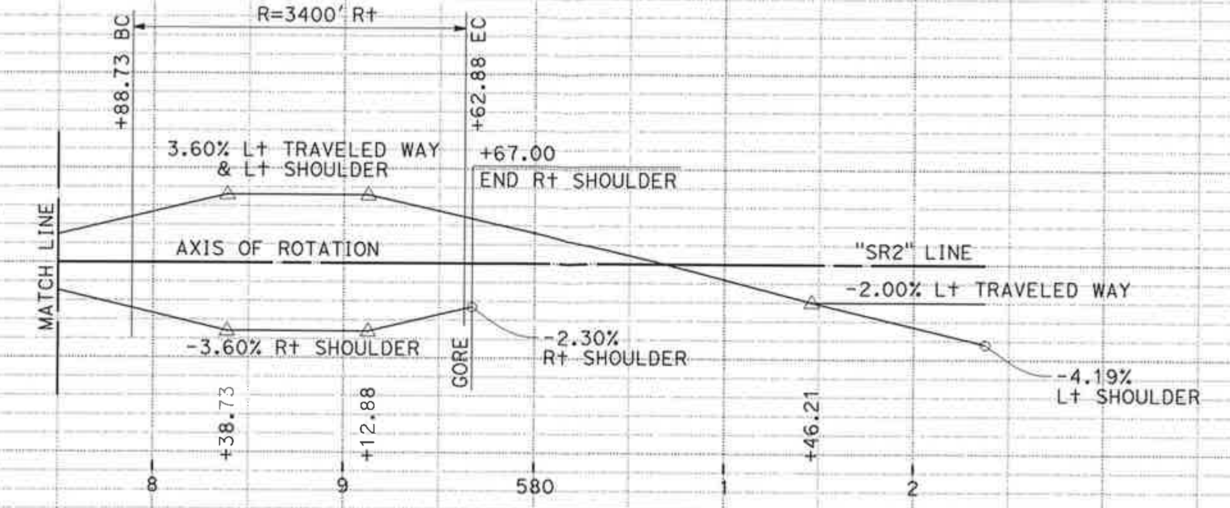
CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

CALCULATED-DESIGNED BY: CHRIS BRECHEISEN

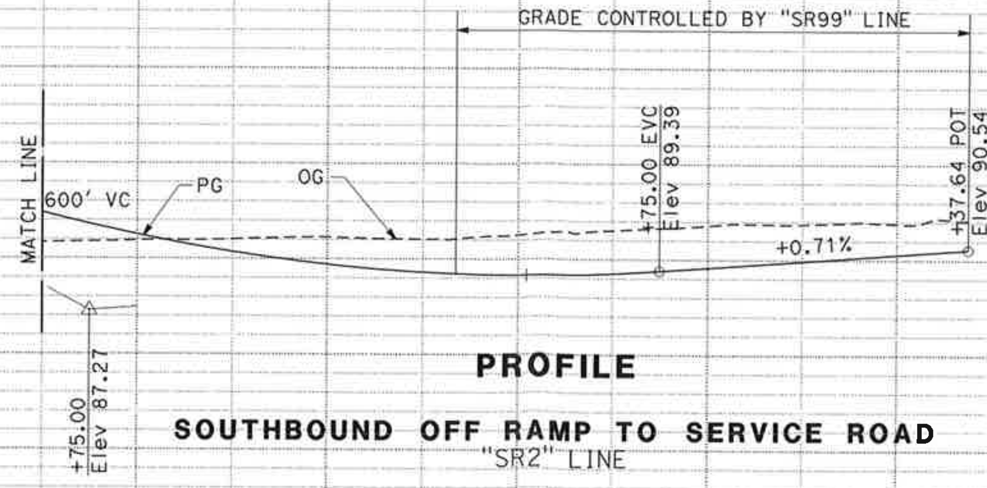
CHECKED BY: ALAN F. NICKZ

REVISED BY

DATE REVISED



SUPERELEVATION DIAGRAM



PROFILE

SOUTHBOUND OFF RAMP TO SERVICE ROAD

"SR2" LINE

STATION	8	9	580	1	2	TOTAL
CY Exc						
CY Emb						

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-14

LAST REVISION 00-00-00
DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb014.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

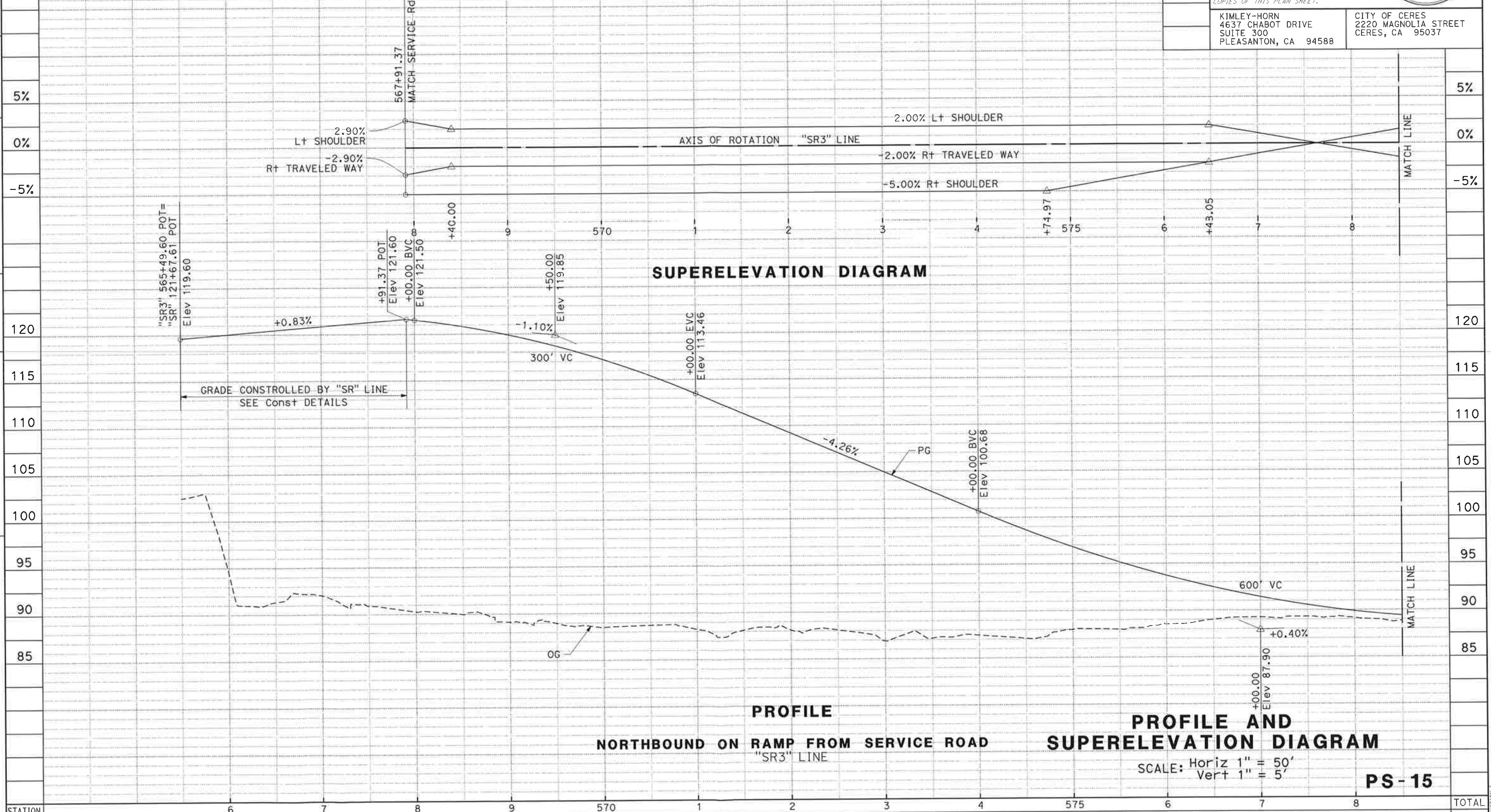
PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

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.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-15

STATION	6	7	8	9	570	1	2	3	4	575	6	7	8	TOTAL
CY Exc														
CY Emb														

REVISED BY
DATE REVISED
CHRIS BRECHEISEN
ALAN F. NICKZ
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 27-MAR-2018

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb015.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

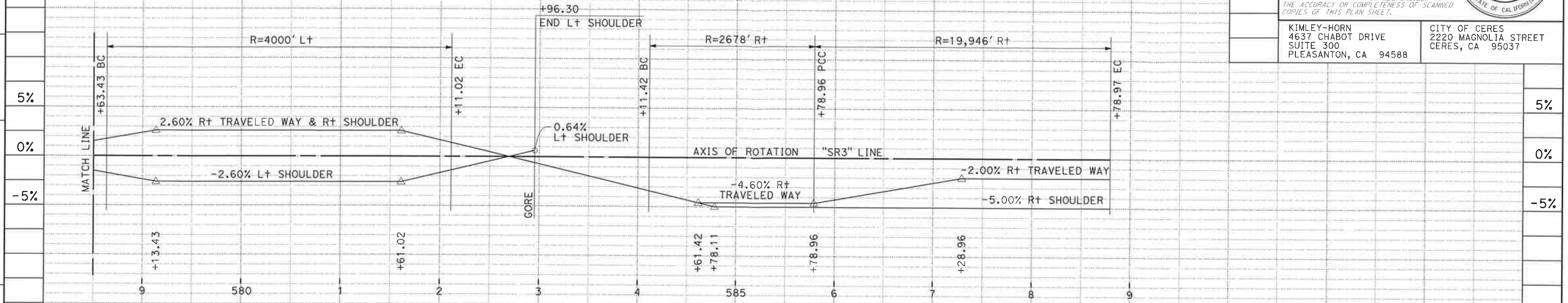
PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

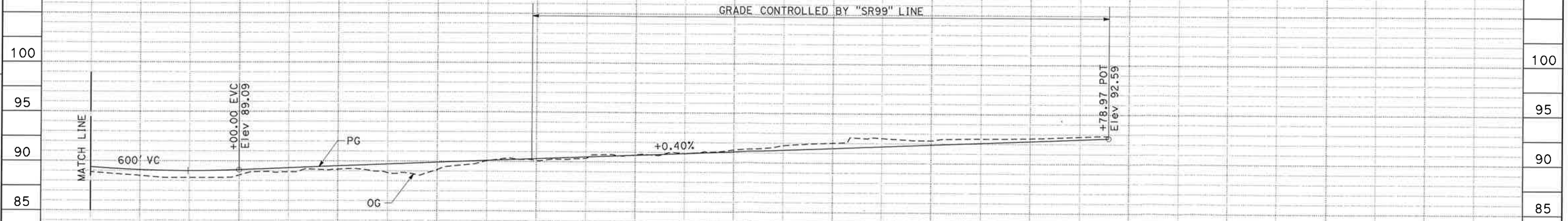
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND ON RAMP FROM SERVICE ROAD
"SR3" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-16

STATION	9	580	1	2	3	4	585	6	7	8	9	TOTAL
CY Exc												
CY Emb												

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

CALCULATED-DESIGNED BY
CHRIS BRECHEISEN

CHECKED BY
ALAN F. NICKZ

REVISED BY
DATE REVISED

DATE PLOTTED => 27-MAR-2018
TIME PLOTTED => 10:35
LAST REVISION 00-00-00

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb016.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Sta	99	9.5/R11.4		

REGISTERED CIVIL ENGINEER DATE

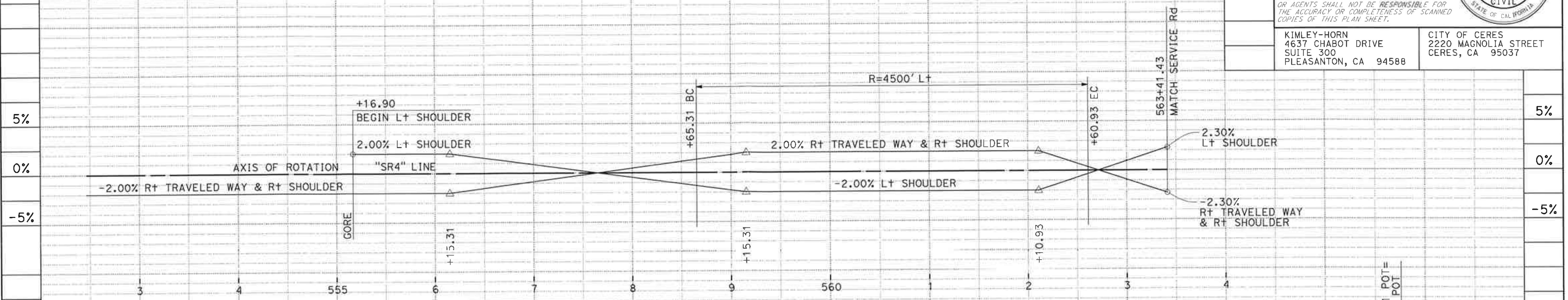
PLANS APPROVAL DATE

ALAN F. NICKZ
No. C70179
Exp. 9-30-18
CIVIL

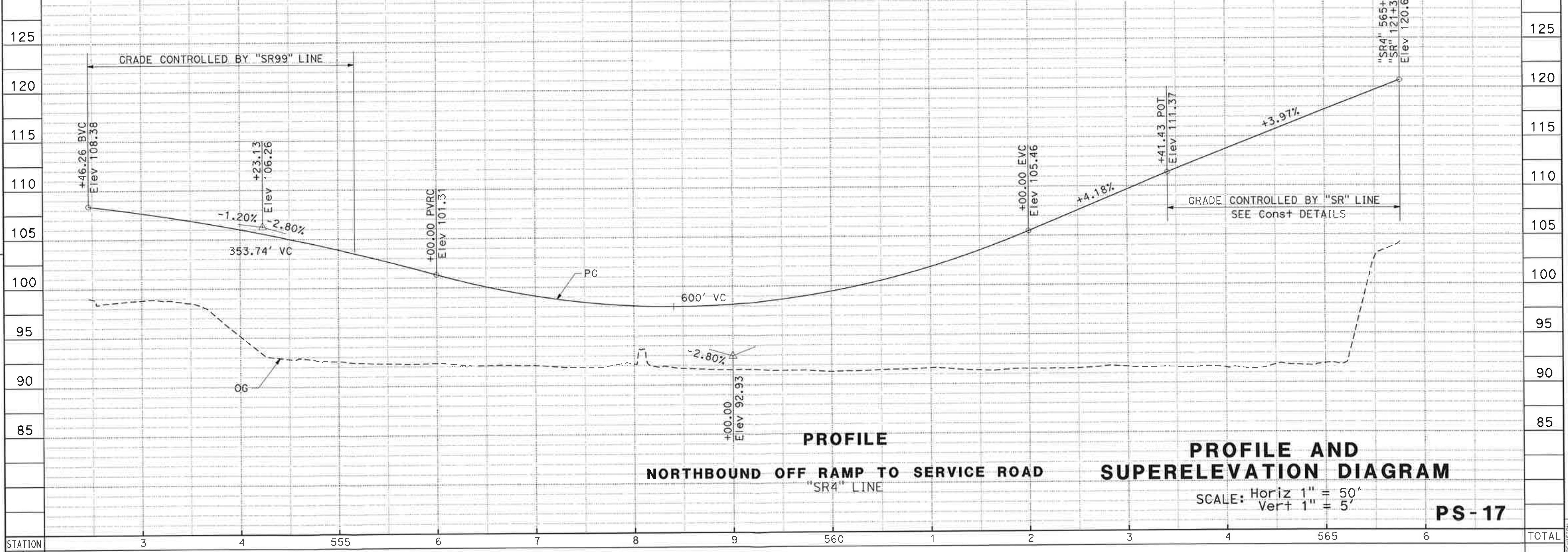
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037



SUPERELEVATION DIAGRAM



PROFILE

NORTHBOUND OFF RAMP TO SERVICE ROAD
"SR4" LINE

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-17

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

CALCULATED-DESIGNED BY
CHRIS BRECHEISEN

CHECKED BY
ALAN F. NICKZ

REVISED BY

DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => Chris.Brecheisen
DGN FILE => 1000000375fb017.dgn

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 10000003751

LAST REVISION
DATE PLOTTED => 27-MAR-2018

Attachment 12

TID Canal Discharge Agreement

4001

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
DISTRICT X
1070 EAST CHARTER WAY
STOCKTON 5, CALIFORNIA

ADDRESS ALL COMMUNICATIONS TO
P. O. BOX 2048, STOCKTON 1

PLEASE REFER
TO FILE NO.

April 26, 1961

X-Sta-4-A,Cer
File: UN10-655

TURLOCK IRRIGATION DISTRICT
333 East Canal Drive
Turlock, California

Attention: Mr. R. V. Meikle,
Chief Engineer

Subject: Agreement with State to accept storm water in the Ceres Main Canal.

Gentlemen:

Attached is your fully executed copy of the Agreement between the State and the Turlock Irrigation District pertaining to the disposal of storm water into the Ceres Main Canal.

We wish to thank you for the cooperation which has been given us on this matter. You will be notified as far in advance as possible when your work under this Agreement will be needed.

Very truly yours,

JACK J. TEMBY
R/W Clearance Agent

Attach.

27 March, 1961 M.B. 37 Page 28

4001 (V)

RESOLUTION

IT IS HEREBY RESOLVED by the Board of Directors of the Turlock Irrigation District that the President be, and he is, hereby authorized to execute on behalf of the Turlock Irrigation District, Agreement and License: RE: Disposal of Storm Waters and Waters that are accumulating on Freeway in Sections 23, 24, 25, Township 4 South, Range 9 East, into Ceres Main Canal, dated March 27th, 1961, between the STATE OF CALIFORNIA, Department of Public Works, and the TURLOCK IRRIGATION DISTRICT, a public corporation.

Moved by Director Clark, seconded by Director Fernandes, that the foregoing resolution be adopted.

Upon Roll Call the following vote was had:

Ayes: Directors Crowell, Clark, Fernandes, Tomlinson, Krohberg

Noes: Directors None Absent: Directors None

I, R. S. Tillner, Secretary of the Board of Directors of the TURLOCK IRRIGATION DISTRICT, do hereby CERTIFY that the foregoing is a full, true, and correct copy of a resolution duly adopted at a regular adjourned meeting of the said Board of Directors held the 27th day of March, 1961.

R. S. Tillner

Secretary of the Board of Directors
of the Turlock Irrigation District.

4001

AGREEMENT AND LICENSE: Re: Disposal of Storm Waters and Waters that are Accumulating on Freeway in Sections 23, 24, 25, Township 4, S.R. 9 E., into Ceres Main Canal.

This Agreement made and entered into the 27th day of March, 1961, by and between the Turlock Irrigation District, hereinafter called "District" and the State of California, Department of Public Works, hereinafter called "State"

W I T N E S S E T H:

WHEREAS, the State proposes to construct a freeway on Road X-Sta-4-A, Ceres from 1.5 miles south of Ceres City limits to 0.9 miles north of the Ceres City limits; and

WHEREAS, said construction will require, among other things, the removal of waters and storm waters from within the aforesaid freeway right of way; and

WHEREAS, the State desires the District to accept such waters into the Ceres Main Canal; and

WHEREAS, the District in consideration that if the waters were not carried in the manner contemplated by this Agreement that it would seep into the soil and tend to increase the level of the underground waters to the detriment of the District;

NOW, THEREFORE, IT IS AGREED:

1. State will pay to the District the sum of $710.00 for the acceptance of the waters and storm waters as set forth herein and for the cost of installing a 24-inch discharge line and risers from the State pumping plant to the Ceres Main Canal

as set forth in the plans, marked Exhibit "A", which are attached hereto and made a part hereof. Said payment shall be made to the District upon the completion of the construction and installation of said discharge line as set forth in the said plans.

2. The State will upon 24-hour notice from the District refrain from pumping or diverting any waters into the canal when such is necessary for the purpose of repair, construction, reconstruction or alteration by the District of Ceres Main Canal.

3. The State will not permit trash, leaves or refuse to be emptied into this canal through the State pumping plant and discharge point.

4. The District will accept any and all waters up to 22 sec. feet into said Ceres Main Canal from the freeway right of way from 1.5 miles south of the Ceres City limits to 0.9 miles north of the Ceres City limits, which waters will be discharged into the Ceres Main Canal from the State pumping plant set forth in Exhibit "A" hereof.

5. The District has reviewed the plans as shown on Exhibit "A" hereof and approves of such plans and adequacy of protection and point of discharge.

6. The District agrees that no change in the discharge point or in the amount of the maximum discharge which affects the rights of the State shall be made except by mutual agreement of both the District and the State.

7. District agrees that the State's obligation to make the payment of the $710.00 is full satisfaction for the right to flow the above-described waters into said Ceres Main Canal.

8. District agrees that in the event transfer or assignment of its title or interest to the Ceres Main Canal to any third party or successor to the District that said transfer or assignment will be subject to the acceptance into said canal the quantities of water from State as hereinabove set forth and also subject to the terms and conditions set forth hereinabove.

The District and the State mutually agree that the right to flow water into the Ceres Main Canal as provided herein does not give to the State any easement, right, title or interest in or to the District's canal and the State's rights to dischargewaters into said canal can be terminated by the District upon a one-year notice in writing to the State.

IN WITNESS WHEREOF, the parties hereunto have set their hands and seals the day and year first above written.

TURLOCK IRRIGATION DISTRICT

By ______________________
President

STATE OF CALIFORNIA
Department of Public Works
Division of Highways

J. C. WOMACK
State Highway Engineer

Attachment 13

Precipitation Frequency Data

NOAA Atlas 14, Volume 6, Version 2
Location name: Ceres, California, US*
Latitude: 37.6005°, Longitude: -120.9523°
Elevation: 98 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.27 (1.08-1.51)	1.69 (1.43-2.00)	2.26 (1.91-2.69)	2.74 (2.29-3.29)	3.42 (2.76-4.28)	3.96 (3.12-5.09)	4.55 (3.47-6.00)	5.16 (3.82-7.04)	6.04 (4.26-8.65)	6.76 (4.58-10.1)
10-min	0.912 (0.774-1.08)	1.21 (1.03-1.44)	1.61 (1.37-1.93)	1.96 (1.64-2.36)	2.45 (1.97-3.07)	2.84 (2.24-3.65)	3.26 (2.49-4.30)	3.70 (2.74-5.05)	4.33 (3.05-6.20)	4.84 (3.28-7.22)
15-min	0.736 (0.624-0.872)	0.976 (0.828-1.16)	1.30 (1.10-1.55)	1.58 (1.32-1.90)	1.97 (1.59-2.47)	2.29 (1.80-2.94)	2.62 (2.01-3.47)	2.98 (2.21-4.07)	3.49 (2.46-5.00)	3.90 (2.64-5.82)
30-min	0.532 (0.454-0.632)	0.706 (0.600-0.840)	0.944 (0.798-1.12)	1.14 (0.960-1.38)	1.43 (1.15-1.79)	1.66 (1.31-2.13)	1.90 (1.45-2.51)	2.16 (1.60-2.95)	2.53 (1.78-3.62)	2.83 (1.92-4.22)
60-min	0.317 (0.270-0.377)	0.421 (0.358-0.500)	0.562 (0.476-0.670)	0.682 (0.572-0.821)	0.852 (0.687-1.07)	0.989 (0.778-1.27)	1.13 (0.866-1.50)	1.29 (0.953-1.76)	1.51 (1.06-2.16)	1.69 (1.14-2.51)
2-hr	0.237 (0.202-0.281)	0.296 (0.251-0.351)	0.377 (0.320-0.450)	0.447 (0.375-0.538)	0.548 (0.442-0.687)	0.632 (0.497-0.811)	0.720 (0.551-0.952)	0.818 (0.605-1.12)	0.958 (0.676-1.37)	1.07 (0.728-1.60)
3-hr	0.188 (0.160-0.223)	0.230 (0.196-0.274)	0.289 (0.245-0.345)	0.340 (0.285-0.409)	0.414 (0.334-0.518)	0.474 (0.373-0.609)	0.539 (0.412-0.712)	0.610 (0.451-0.833)	0.713 (0.502-1.02)	0.798 (0.540-1.19)
6-hr	0.123 (0.104-0.146)	0.148 (0.126-0.176)	0.183 (0.155-0.218)	0.213 (0.178-0.256)	0.256 (0.206-0.320)	0.290 (0.228-0.373)	0.327 (0.250-0.432)	0.367 (0.272-0.501)	0.425 (0.299-0.608)	0.471 (0.319-0.703)
12-hr	0.078 (0.066-0.092)	0.095 (0.080-0.112)	0.117 (0.099-0.140)	0.136 (0.114-0.164)	0.162 (0.131-0.203)	0.183 (0.144-0.235)	0.204 (0.156-0.270)	0.226 (0.167-0.309)	0.257 (0.181-0.368)	0.281 (0.190-0.419)
24-hr	0.049 (0.045-0.054)	0.061 (0.056-0.067)	0.076 (0.070-0.084)	0.088 (0.081-0.099)	0.105 (0.092-0.121)	0.117 (0.101-0.138)	0.130 (0.110-0.157)	0.143 (0.117-0.177)	0.160 (0.126-0.207)	0.173 (0.131-0.231)
2-day	0.030 (0.028-0.033)	0.038 (0.035-0.042)	0.047 (0.043-0.052)	0.054 (0.049-0.060)	0.064 (0.056-0.074)	0.071 (0.061-0.084)	0.078 (0.066-0.094)	0.085 (0.070-0.106)	0.095 (0.075-0.123)	0.102 (0.078-0.137)
3-day	0.023 (0.021-0.025)	0.028 (0.026-0.031)	0.035 (0.032-0.039)	0.040 (0.037-0.045)	0.047 (0.042-0.054)	0.052 (0.045-0.062)	0.057 (0.048-0.070)	0.063 (0.051-0.078)	0.069 (0.055-0.090)	0.075 (0.057-0.100)
4-day	0.019 (0.017-0.021)	0.023 (0.021-0.026)	0.029 (0.026-0.032)	0.033 (0.030-0.037)	0.039 (0.034-0.045)	0.043 (0.037-0.051)	0.047 (0.040-0.057)	0.051 (0.042-0.064)	0.057 (0.045-0.074)	0.061 (0.047-0.082)
7-day	0.013 (0.012-0.014)	0.016 (0.015-0.018)	0.020 (0.018-0.022)	0.023 (0.021-0.026)	0.027 (0.024-0.031)	0.030 (0.026-0.035)	0.033 (0.028-0.040)	0.036 (0.029-0.044)	0.039 (0.031-0.051)	0.042 (0.032-0.057)
10-day	0.010 (0.009-0.011)	0.013 (0.012-0.014)	0.016 (0.014-0.017)	0.018 (0.016-0.020)	0.021 (0.019-0.024)	0.023 (0.020-0.027)	0.025 (0.021-0.031)	0.028 (0.023-0.034)	0.031 (0.024-0.040)	0.033 (0.025-0.044)
20-day	0.007 (0.006-0.007)	0.008 (0.008-0.009)	0.010 (0.009-0.011)	0.012 (0.011-0.013)	0.014 (0.012-0.016)	0.015 (0.013-0.018)	0.017 (0.014-0.020)	0.018 (0.015-0.022)	0.020 (0.016-0.026)	0.021 (0.016-0.028)
30-day	0.005 (0.005-0.006)	0.007 (0.006-0.007)	0.008 (0.008-0.009)	0.009 (0.009-0.011)	0.011 (0.010-0.013)	0.012 (0.011-0.014)	0.013 (0.011-0.016)	0.014 (0.012-0.018)	0.016 (0.012-0.020)	0.017 (0.013-0.022)
45-day	0.004 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.011)	0.010 (0.009-0.012)	0.011 (0.009-0.013)	0.012 (0.010-0.015)	0.013 (0.010-0.017)	0.014 (0.010-0.018)
60-day	0.004 (0.004-0.004)	0.005 (0.005-0.005)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.011)	0.010 (0.008-0.012)	0.010 (0.009-0.013)	0.011 (0.009-0.015)	0.012 (0.009-0.016)

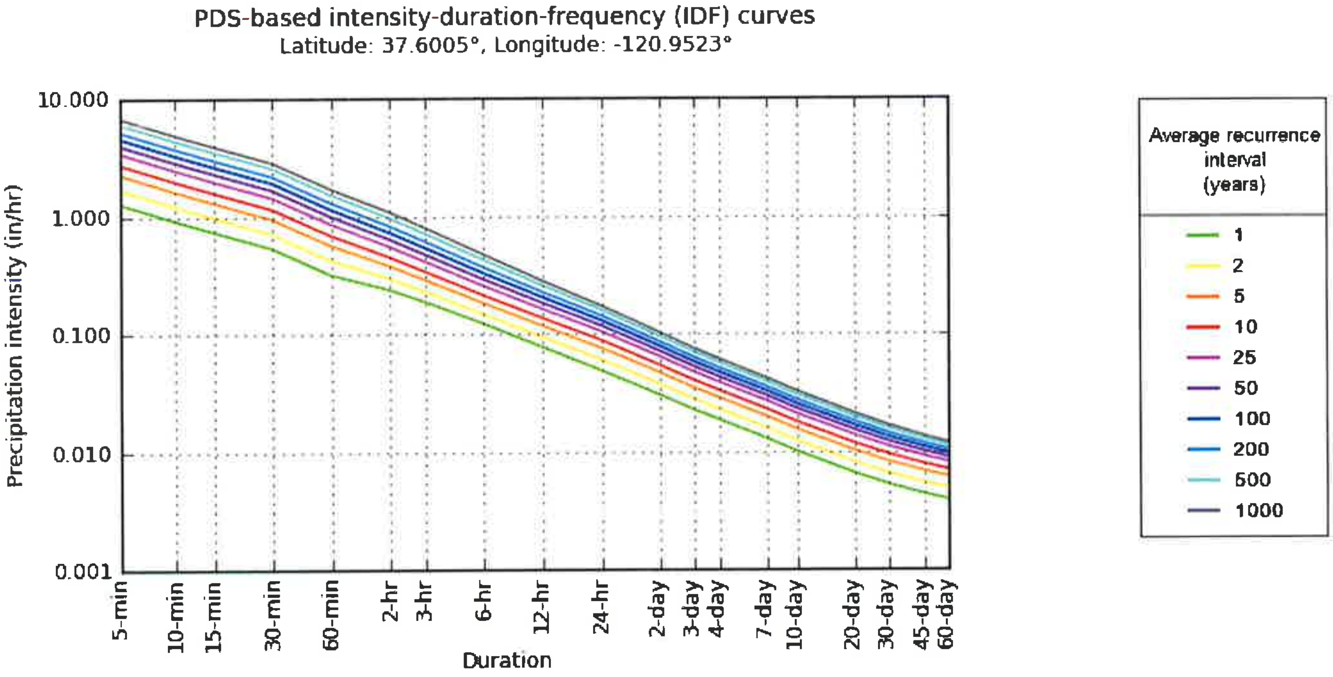
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

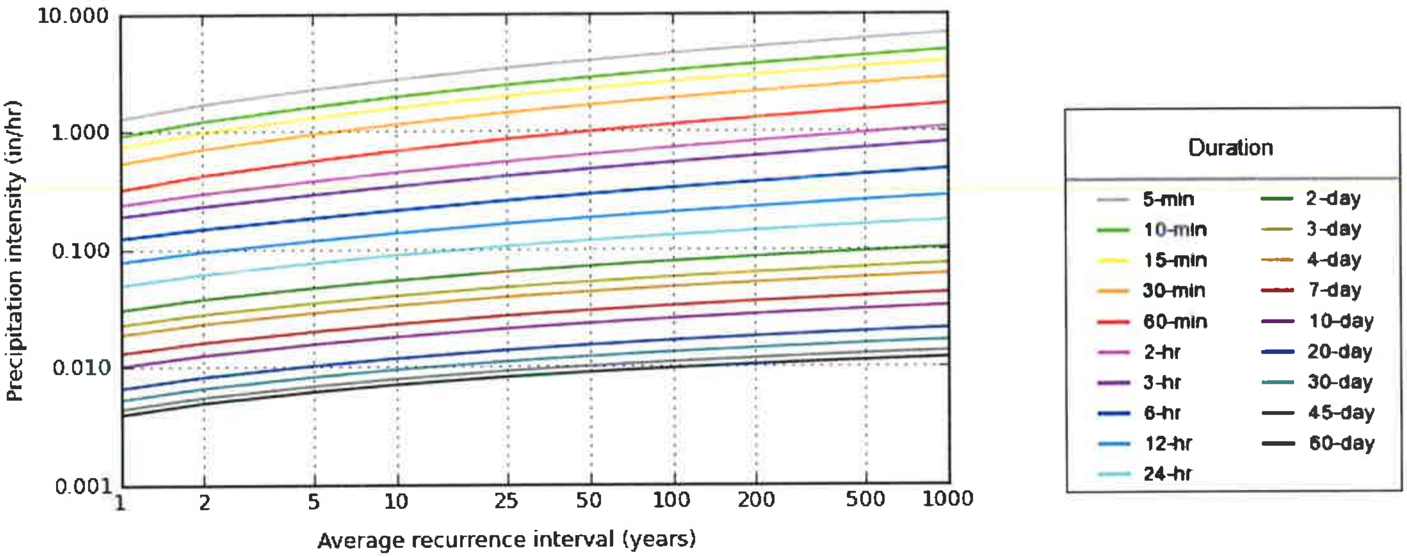
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical


PDS-based intensity-duration-frequency (IDF) curves
Latitude: 37.6005°, Longitude: -120.9523°



NOAA Atlas 14, Volume 6, Version 2

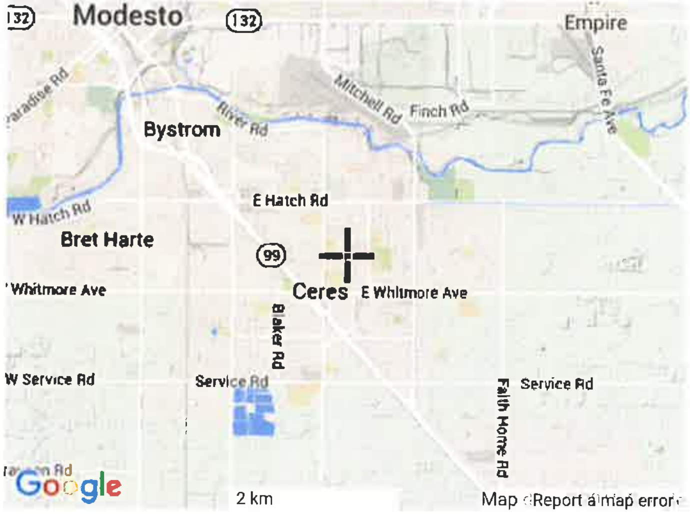
Created (GMT): Mon Dec 14 23:57:40 2015

Back to Top

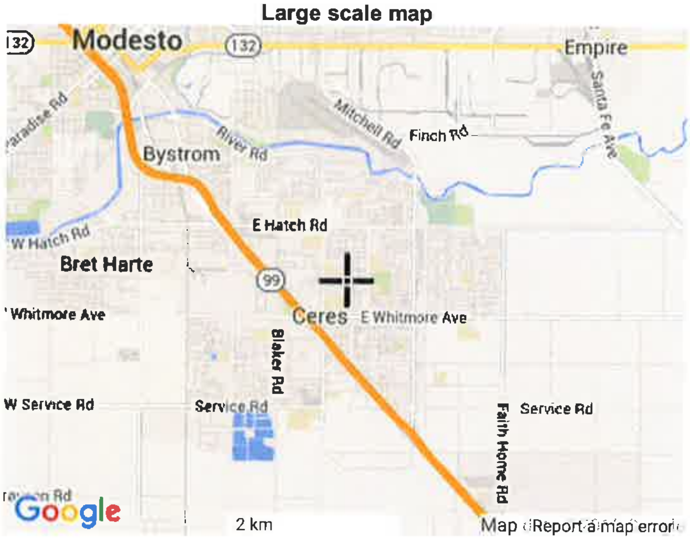
Maps & aerials

Small scale terrain

Large scale terrain



Large scale map



Large scale aerial

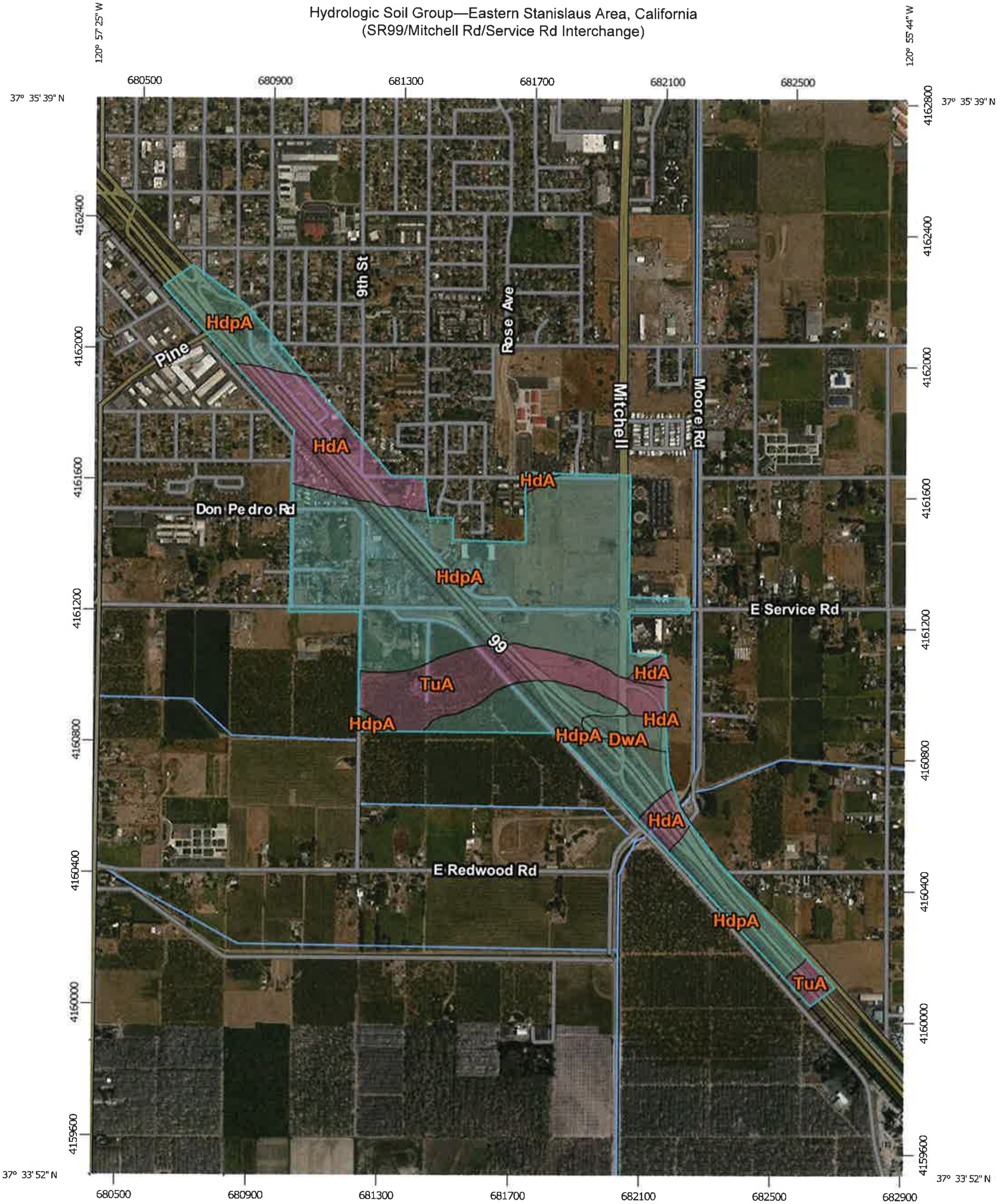
Back to Top

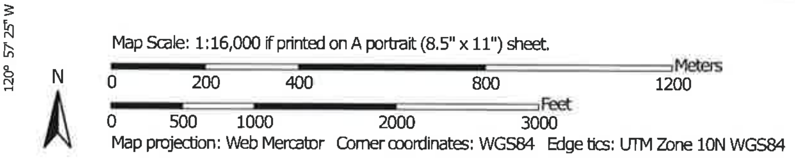
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Attachment 14

NRCS Soil Map

Hydrologic Soil Group—Eastern Stanislaus Area, California
(SR99/Mitchell Rd/Service Rd Interchange)





Map Scale: 1:16,000 if printed on A portrait (8.5" x 11") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- ☐ Area of Interest (AOI)

Soils

Soil Rating Polygons

- 🟪 A
- 🟩 A/D
- 🟦 B
- 🟫 B/D
- ▨ C
- 🟨 C/D
- 🟧 D
- ☐ Not rated or not available

Soil Rating Lines

- 〰 A
- 〰 A/D
- 〰 B
- 〰 B/D
- 〰 C
- 〰 C/D
- 〰 D
- ╌ Not rated or not available

Soil Rating Points

- ■ A
- ■ A/D
- ■ B
- ■ B/D
- ■ C
- ■ C/D
- ■ D
- ▣ Not rated or not available

Water Features

- 〰 Streams and Canals

Transportation

- ┿┿ Rails
- 〰 Interstate Highways
- 〰 US Routes
- 〰 Major Roads
- 〰 Local Roads

Background

- ■ Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eastern Stanislaus Area, California
Survey Area Data: Version 9, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 11, 2011—Jul 25, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayec on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Eastern Stanislaus Area, California (CA644)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DwA	Dinuba sandy loam, slightly saline-alkali, 0 to 1 percent slopes	C	4.8	2.0%
HdA	Hanford sandy loam, 0 to 3 percent slopes	A	30.9	12.8%
HdpA	Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes	C	171.7	71.3%
TuA	Tujunga loamy sand, 0 to 3 percent slopes	A	33.3	13.8%
Totals for Area of Interest			**240.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

Attachment 15

SWDR Summary Spreadsheets

SWDR Signed Date	District	EA/Project ID	County	Route	Beg_PM	End_PM	Project Description	Project Phase	Long SWDR	Risk Level	DSA (ac)	TMDL Waterbody	Biofiltration Strips and Swales	Detention	Infiltration Devices	GSRD	TST	MedFilter	DPPIA	SA	Other BMP	Est. Const_Start	Est_Const _Comp	Net New Impervious area (NNI)	Replaced Impervious Surface (RIS)	Additional Treatment Area (ATA)	Post Const Treatment Area (ac)
	10	10-1A690	STA	99	9.50	11.40	Reconstruct Interchange	PAED	Yes	RL1	30.7	No	0	0	2	0	0	0	3	0	0			12.40	23.00	0.00	35.40

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT H

FINAL ENVIRONMENTAL DOCUMENT COVER

State Route 99/Service Road/ Mitchell Road Interchange Project

On State Route 99 at Mitchell Road in the City of Ceres
Stanislaus County, California
10-STA-99-PM 9.5/11.4
Project ID 1000000375/EA 10-1A690
SCH No. 2017112057

Initial Study with Mitigated Negative Declaration~~/~~ ~~Environmental Assessment with Finding of No Significant Impact~~

Prepared by the
State of California Department of Transportation
and the City of Ceres

~~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 U.S.C. 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.~~

October 2018

Caltrans

General Information about This Document

~~The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study with Mitigated Negative Declaration/Environmental Assessment for the proposed project located in Stanislaus County, California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA).~~ Caltrans is the lead agency under the California Environmental Quality Act (CEQA). The document tells you why the project is being proposed, what alternatives have been considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

The Draft Initial Study/Environmental Assessment circulated for public review and comment for 30 days between November 22, 2017 and December 22, 2017. Comments received during this period are included in Appendix H. Elsewhere throughout this document, a vertical line in the margin indicates where a change has been made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated.

Additional copies of this document and the related technical studies are available for review at the Caltrans District 10 office (1976 E. Dr. Martin Luther King Jr. Boulevard in Stockton) and the Ceres Public Library (2250 Magnolia Street in Ceres). This document may be downloaded at the following Caltrans website: http://www.dot.ca.gov/d10/x-project-sr99mitchell.html.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please write to or call Caltrans, Attn: Jennifer Lugo, Senior Environmental Planner, 855 M Street, Suite 200, Fresno, CA 93721; (559) 445-6172 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice), or 711.

SCH No. 2017112057
10-STA-99-PM9.5/R11.4
10-0000-0375
10-1A690

Improve the State Route 99/Service Road/Mitchell Road interchange
from post miles 9.5 to R11.4 in the City of Ceres in Stanislaus County, California

Initial Study with Mitigated Negative Declaration~~/~~
~~Environmental Assessment with Finding of No Significant Impact~~

Submitted Pursuant to: (State) Division 13, California Public Resources Code
~~(Federal) 42 USC 4332(2)(C), 49 USC 303, and/or 23 USC 138~~

THE STATE OF CALIFORNIA
Department of Transportation
and
City of Ceres

10/26/2018
Date of Approval

Shane Gunn
Acting Environmental Office Chief
California Department of Transportation
~~NEPA and~~ CEQA Lead Agency

The following person may be contacted for more information about this document:

Jennifer Lugo, Senior Environmental Planner
California Department of Transportation
855 M Street, Suite 200
Fresno, CA 93721
(559) 445-6172

ATTACHMENT I

RIGHT-OF-WAY DATA SHEET

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES

(Form #)

EXHIBIT
17-EX-21 (NEW 12/2007)

To: District Division Chief
Division of Right of Way and Land Surveys

Date: 06/29/2017

Co. Sta Rte. 99
Expense Authorization 10-1A690

Attention: District Branch Chief
R/W Local Programs

Subject: **RIGHT OF WAY DATA SHEET - LOCAL PUBLIC AGENCIES**

Project Description:

ALTERNATIVE 1 – Realign freeway, construct new interchange at Service Road, reconstruct interchange at Mitchell Road, construct auxiliary lanes, and realign local streets.

Right of way necessary for the subject project will be the responsibility of the City of Ceres.

The information in this data sheet was developed by NV5, Inc..

I. *Right of Way Engineering*

Will Right of Way Engineering be required for this project?

- No _____
- Yes X
  - Hard copy (base map) _____
  - Appraisal map _____
  - Acquisition Documents _____
  - Property Transfer Documents _____
  - R/W Record Map _____
  - Record of Survey _____

II. *Engineering Surveys*

1. Is any surveying or photogrammetric mapping required?

   No _____ Yes X (Complete the following.)

2. Datum Requirements

   Yes X Project will adhere to the following criteria:
   - Horizontal - datum policy is NAD 83, CA-HPGN, EPOCH 1991.35 and English system of units and measures.
   - Vertical - datum policy is NAVD 88.
   - Units - metric is not required.

   No _____ Provide an explanation on additional page.

3. Will land survey monument perpetuation be scoped into the project, if required?

   Yes X

   No _____ Provide explanation on additional page.

R/W Data Sheet - Local Public Agencies
Page 2 of 6

III. *Parcel Information (Land and Improvements)*

Are there any property rights required within the proposed project limits?

No _____ Yes X (Complete the following.)

	Part Take	Full Take	Estimate $
A. Number of Vacant Land Parcels	3	1	$ 0.67 M
B. Number of Single Family Residential Units	11	4	$ 2.60 M
C. Number of Multifamily Residential Units	1	2	$ 0.61 M
D. Number of Commercial/Industrial Parcels	10	5	$ 2.08 M
E. Number of Farm/Agricultural Parcels	2	0	$ 0.13 M
F. Permanent and/or Temporary Easements			$
G. Other Parcels (define in "Remarks" section)			$
Totals	27	12	$ 6.09 M

Provide a general description of the right of way and excess lands required (zoning, use, improvements, critical, or sensitive parcels, etc.).

Right of way acquisitions are required for the realignment of Route 99 and new interchange construction at Service Road, as well as for widening and realignments of various local roads. The existing zoning and land uses of the impacted parcels generally consists of a mix of commercial, industrial, and residential properties north of Service Road, with agricultural and vacant parcels south of Service Road.

IV. *Dedications*

Are there any property rights which have been acquired, or anticipate will be acquired, through the "dedication" process for the Project?

No _ Yes X (Complete the following.)

Number of dedicated parcels 6

Have the dedication parcel(s) been accepted by the municipality involved? No

V. *Excess Lands / Relinquishments*

Are there Caltrans property rights which may become excess lands or potential relinquishment areas?

No X Yes _____ (Provide an explanation on additional page.)

R/W Data Sheet - Local Public Agencies
Page 3 of 6

VI. ***Relocation Information***

Are relocation displacements anticipated?

No _____ Yes __X__ (Complete the following.)

A. Number of Single Family Residential Units	4		
Estimated RAP Payments		$	200,000
B. Number of Multifamily Residential Units	13		
Estimated RAP Payments		$	650,000
C. Number of Business/Nonprofit	4		
Estimated RAP Payments		$	200,000
D. Number of Farms	0		
Estimated RAP Payments		$	0
E. Other (define in the "Remarks" section)	0		
Estimated RAP Payments		$	0
Totals	21	$	1.05 M

VII. ***Utility Relocation Information***

Do you anticipate any utility facilities or utility rights of way to be affected?

No _____ Yes X (Complete the following.)

		Estimated Relocation Expense		
Facility	Owner	State Obligation	Local Obligation	Utility Owner Obligation
A. OH-Electrical (12 kV Primary)	TID	$0	$0	$630,000
B. UG-Telecom (Size unknown)	AT&T	$0	$0	$870,000
C. UG-CATV (Size unknown)	Charter	$0	$0	$300,000
D. Gas (2" & 3" main)	PG&E	$0	$122,500	$122,500
E. Water (8" & 24" main)	City of Ceres	$0	$960,000	$0
F. Sanitary Sewer (18" main)	City of Ceres	$0	$250,000	$0
Totals		$0 *	$1,332,500	$1,922,500
Number of facilities				

*This amount reflects the estimated total financial obligation by the State.

Any additional information concerning utility involvement on this project?

VIII. *Rail Information*

Are railroad facilities or railroad rights of way affected?

No _____ Yes X (Complete the following.)

Describe railroad facilities or railroad rights of way affected.

Owner's Name	Transverse Crossing	Longitudinal Encroachment
A. Union Pacific Railroad (UPRR)	X	
B. N/A		

Discuss types of agreements and rights required from the railroads. Are grade crossings that require services contracts, or grade separations that require construction and maintenance agreements involved? YES

The existing grade separation at the Service Road Overcrossing will be replaced with a new structure; existing construction and maintenance agreements to be modified.

IX. *Clearance Information*

Are there improvements that require clearance?

No _____ Yes X (Complete the following.)

A. Number of Structures to be Demolished 26
Estimated Cost of Demolition $ 780,000

X. *Hazardous Materials/Waste*

Are there any site(s) and/or improvements(s) in the Project Limits that are known to contain *hazardous materials*? None X Yes _____ (Explain in the "Remarks" section.)

Are there any site(s) and/or improvement(s) in the Project Limits that are suspected to contain *hazardous waste*? None X Yes _____ (Explain in the "Remarks" section.)

XI. *Project Scheduling*

	Proposed lead time	Completion date
* Preliminary Engineering, Surveys	6 (months)	12/01/2017
* R/W Engineering Submittals	6 (months)	06/01/2018
* R/W Appraisals/Acquisition	18 (months)	12/01/2019
Proposed Environmental Clearance		11/01/2017
Proposed R/W Certification		12/01/2019

XII. *Proposed Funding*

	Local	State	Federal	Other
Acquisition	$6.09 M			
Utilities	$1.34 M			
Relocation Assistance Program	$1.05 M			
R/W Support	$780,000			
Cost (Eng. Appraisals, etc.)	$126,000			

XIII. *Remarks*

Project Sponsor Consultant
Prepared by:

Phillip Reuss, P.E.
NV5, Inc.

7/12/2017
Date

Project Sponsor
Reviewed and Approved by:

Toby Wells, P.E.>
City Manager

7|13|17
Date

R/W Professional
Reviewed and Approved by:

Michael E. Lahodny
Bender Rosenthal Inc.
AG044258

7/12/2017
Date

Caltrans
Reviewed and approved based on information provided to date:

Caltrans District Branch Chief
Local Programs
Division of Right of Way

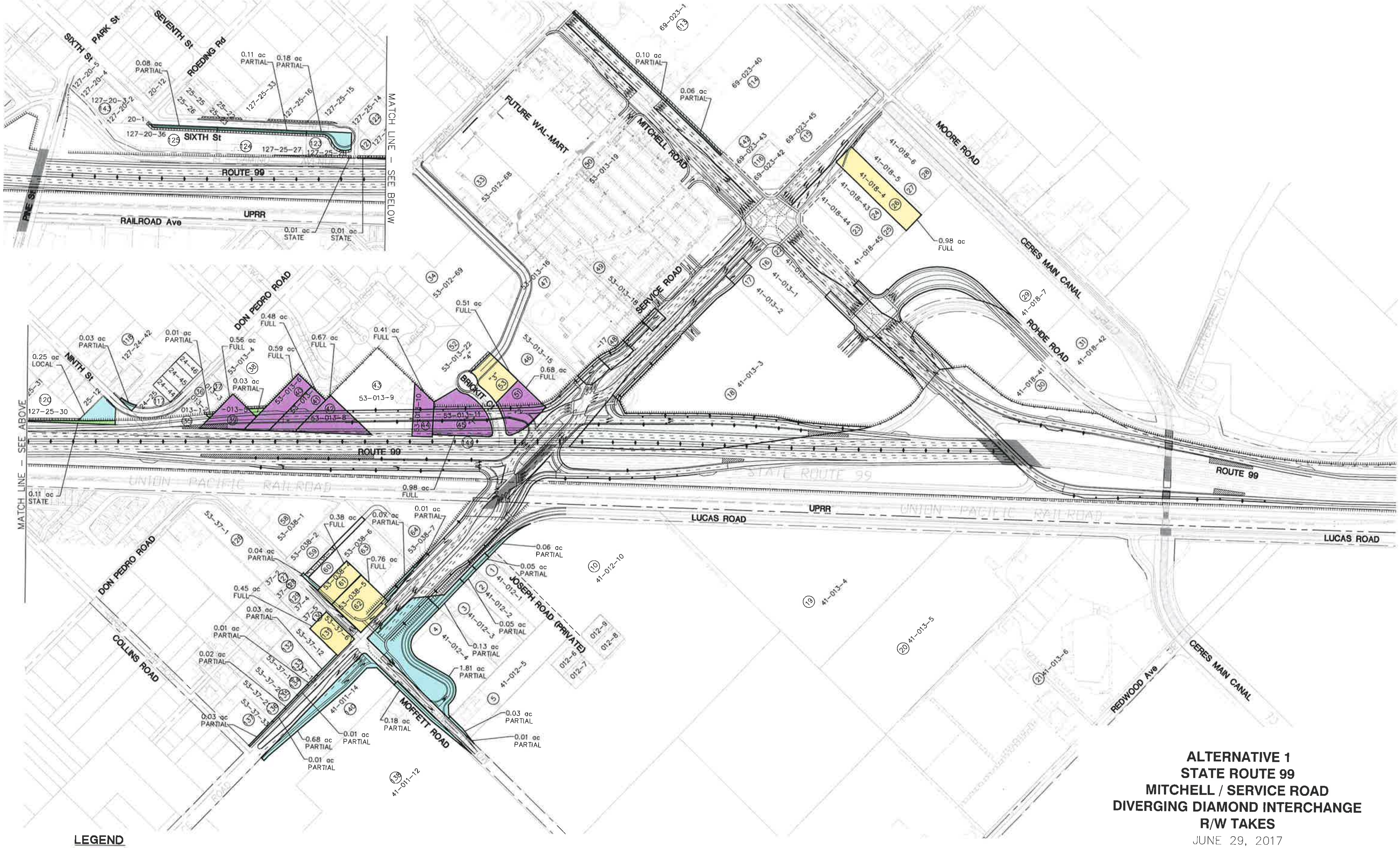
7-18-2017
Date

City of Ceres
SR 99 / Service Rd - Mitchell Rd Interchange Improvement Project
PA / ED Phase
R/W Acquisition Costs - ALTERNATIVE 1
June 29, 2017

								FULL TAKES						PARTIAL TAKES						LOCAL			STATE		
No.	APN	Recorded Acreage	No. of Buildings	Building Type		Full	Partial	FULL Take Count	VACANT	SFR	MFR	COM/IND	FARM/AGR	PARTIAL Take Count	VACANT	SFR	MFR	COM/IND	FARM/AGR	Take (Acres)	Cost	Number of Relocations	Take (Acres)	Cost	Number of Relocations
1	41-12-1	0.73	1	SFR			x	0						1		1				0.05	$ 25,273	-	-	$ -	-
2	41-12-2	0.73	1	SFR			x	0						1		1				0.05	$ 25,673	-	-	$ -	-
3	41-12-3	1.49	1	SFR			x	0						1		1				0.13	$ 70,202	-	-	$ -	-
4	41-12-4	3.64	1	SFR	[redacted]		x	0						1		1				1.81	$ 947,034	-	-	$ -	-
5	41-12-5	1.94	1	SFR			x	0						1		1				0.03	$ 14,885	-	-	$ -	-
10	41-12-10	24.20	-	FARM			x	0						1					1	0.07	$ 36,820	-	-	$ -	-
23	41-18-44	1.30	1	COM				0						0							$ -	-	-	$ -	-
25	41-18-45	0.85	1	COM	[redacted]			0						0							$ -	-	-	$ -	-
26	41-18-4	0.98	2	SFR		x		1		1				0						0.98	$ 512,266	1	-	$ -	-
36	53-13-2	0.23	-	VACANT			x	0						1	1						$ -	-	0.01	$ 3,657	-
38	53-13-4	1.68	1	SFR			x	0						1		1					$ -	-	0.03	$ 17,346	-
39	53-13-5	0.56	-	VACANT		x		1	1					0							$ -	-	0.56	$ 292,723	-
40	53-13-6	0.59	1	SFR	[redacted]	x		1		1				0							$ -	-	0.59	$ 308,405	1
41	53-13-7	0.48	5	MFR	[redacted]	x		1			1			0							$ -	-	0.48	$ 250,906	5
42	53-13-8	0.67	8	MFR		x		1			1			0							$ -	-	0.67	$ 350,222	8
44	53-13-10	0.41	1	COM		x		1				1		0							$ -	-	0.41	$ 214,315	1
45	53-13-11	0.98	1	COM		x		1				1		0							$ -	-	0.98	$ 512,266	1
51	53-13-21	0.68	1	COM		x		1				1		0							$ -	-	0.68	$ 355,450	1
53	53-13-23	0.51	-	COM		x		1				1		0						0.51	$ 266,587	-	-	$ -	-
60	53-38-3	0.42	-	COM			x	0						1				1		0.04	$ 19,145	-	-	$ -	-
61	53-38-4	0.38	1	IND		x		1				1		0						0.38	$ 198,634	1	-	$ -	-
62	53-38-5	0.76	1	SFR	[redacted]	x		1		1				0						0.76	$ 397,267	1	-	$ -	-
63	53-38-6	2.12	2	IND			x	0						1				1		0.07	$ 37,996	-	-	$ -	-
64	53-38-7	1.86	2	WAR			x	0						1				1		0.01	$ 4,368	-	-	$ -	-
113	69-23-1	8.85	7	MREL			x	0						1				1		0.10	$ 51,396	-	-	$ -	-
114	69-23-40	4.96	1	COM	[redacted]		x	0						1				1		0.06	$ 30,755	-	-	$ -	-
115	69-23-45	0.85	1	COM				0						0							$ -	-	-	$ -	-
116	69-23-42	0.91	1	COM	[redacted]			0						0							$ -	-	-	$ -	-
118	127-24-42	1.93	-	MFR			x	0						1			1			0.03	$ 16,773	-	-	$ -	-
120	127-25-30	1.01	-	COM	[redacted]		x	0						1				1		0.25	$ 130,053	-	0.11	$ 57,682	-
121	127-25-31	0.30	1	COM	[redacted]		x	0						1				1		-	$ -	-	0.01	$ 5,227	-
123	127-25-28	0.50	-	COM			x	0						1				1		0.18	$ 95,881	-	0.01	$ 5,227	-
124	127-25-27	1.00	-	COM	[redacted]		x	0						1				1		0.11	$ 57,816	-	-	$ -	-
125	127-20-36	1.13	2	COM			x	0						1				1		0.08	$ 42,406	-	-	$ -	-
131	53-37-6	0.45	2	SFR	[redacted]	x		1		1				0						0.45	$ 235,224	1	-	$ -	-

No.	APN	Recorded Acreage	No. of Buildings	Building Type		Full	Partial	FULL TAKES						PARTIAL TAKES						LOCAL			STATE		
								FULL Take Count	VACANT	SFR	MFR	COM/IND	FARM/AGR	PARTIAL Take Count	VACANT	SFR	MFR	COM/IND	FARM/AGR	Take (Acres)	Cost	Number of Relocations	Take (Acres)	Cost	Number of Relocations
132	53-37-12	0.82	1	SFR			x	0						1		1				0.03	$ 13,858	-	-	$ -	-
133	53-37-13	0.18	2	SFR			x	0						1		1				0.01	$ 6,296	-	-	$ -	-
134	53-37-19	0.32	1	SFR			x	0						1		1				0.01	$ 6,816	-	-	$ -	-
135	53-37-20	0.43	1	SFR			x	0						1		1				0.02	$ 7,913	-	-	$ -	-
136	53-37-21	0.43	1	SFR			x	0						1		1				0.01	$ 7,613	-	-	$ -	-
137	53-37-33	0.59	-	VACANT			x	0						1	1					0.03	$ 13,641	-	-	$ -	-
138	41-11-12	29.51	1	FARM			x	0						1					1	0.18	$ 91,554	-	-	$ -	-
140	41-11-14	6.19	-	VACANT			x	0						1	1					0.68	$ 356,023	-	-	$ -	-
142	69-23-43	0.50	1	COM				0						0							$ -	-	-	$ -	-
								12	1	4	2	5	0	27	3	11	1	10	2			4			17

R/W LOCAL	$ 3,720,168
R/W STATE	$ 2,373,426
RAP LOCAL	$ 200,000
RAP STATE	$ 350,000
DEMO LOCAL	$ 150,000
DEMO STATE	$ 530,000
TITLE AND ESCROW LOCAL	$ 24,000
TITLE AND ESCROW STATE	$ 102,000



LEGEND

🟩 PARTIAL TAKE – STATE R/W

🟦 PARTIAL TAKE – LOCAL R/W

🟨 FULL TAKE – LOCAL R/W

🟪 FULL TAKE – STATE R/W

▥ TEMPORARY CONSTRUCTION EASEMENT (10' OFFSET)

☐ ACCESS EASEMENT

☐ ROADWAY DEDICATION

ALTERNATIVE 1
STATE ROUTE 99
MITCHELL / SERVICE ROAD
DIVERGING DIAMOND INTERCHANGE
R/W TAKES

JUNE 29, 2017

SCALE: 1" = 400'

NV5

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES

(Form #)

EXHIBIT
17-EX-21 (NEW 12/2007)
Page 1 of 6

To: District Division Chief
Division of Right of Way and Land Surveys

Date: 06/29/2017

Co. Sta Rte. 99
Expense Authorization 10-1A690

Attention: District Branch Chief
R/W Local Programs

Subject: **RIGHT OF WAY DATA SHEET - LOCAL PUBLIC AGENCIES**

Project Description:

ALTERNATIVE 2 – Reconstruct freeway, reconstruct interchange at Mitchell Road, construct auxiliary lanes, and realign local streets.

Right of way necessary for the subject project will be the responsibility of the City of Ceres.

The information in this data sheet was developed by NV5, Inc..

I. *Right of Way Engineering*

Will Right of Way Engineering be required for this project?

- No _____
- Yes X

  - Hard copy (base map) _____
  - Appraisal map _____
  - Acquisition Documents _____
  - Property Transfer Documents _____
  - R/W Record Map _____
  - Record of Survey _____

II. *Engineering Surveys*

1. Is any surveying or photogrammetric mapping required?

No _____ Yes X (Complete the following.)

2. Datum Requirements

Yes X Project will adhere to the following criteria:

- Horizontal - datum policy is NAD 83, CA-HPGN, EPOCH 1991.35 and English system of units and measures.
- Vertical - datum policy is NAVD 88.
- Units - metric is not required.

No _____ Provide an explanation on additional page.

3. Will land survey monument perpetuation be scoped into the project, if required?

Yes X

No _____ Provide explanation on additional page.

III. *Parcel Information (Land and Improvements)*

Are there any property rights required within the proposed project limits?

No ____ Yes X (Complete the following.)

	Part Take	Full Take	Estimate $
A. Number of Vacant Land Parcels	2	1	$ 0.81 M
B. Number of Single Family Residential Units	8	3	$ 2.11 M
C. Number of Multifamily Residential Units	0	0	$ 0
D. Number of Commercial/Industrial Parcels	10	1	$ 0.70 M
E. Number of Farm/Agricultural Parcels	2	0	$ 96,000
F. Permanent and/or Temporary Easements	0	0	$ 0
G. Other Parcels (define in "Remarks" section)	0	0	$ 0
Totals	22	5	$ 3.72 M

Provide a general description of the right of way and excess lands required (zoning, use, improvements, critical, or sensitive parcels, etc.).

Right of way acquisitions are required for the realignment of the northbound on-ramp from Mitchell Road to Route 99 and for a drainage basin on the east side of Route 99 south of Mitchell Road. Local right of way acquisition is also required for widening and realignments of various local roads. The existing zoning and land uses of the impacted parcels generally consists of a mix of commercial, industrial, and residential properties north of Service Road, with agricultural and vacant parcels south of Service Road.

IV. *Dedications*

Are there any property rights which have been acquired, or anticipate will be acquired, through the "dedication" process for the Project?

No __ Yes X (Complete the following.)

Number of dedicated parcels 6

Have the dedication parcel(s) been accepted by the municipality involved? No

V. *Excess Lands / Relinquishments*

Are there Caltrans property rights which may become excess lands or potential relinquishment areas?

No X Yes ____ (Provide an explanation on additional page.)

VI. ***Relocation Information***

Are relocation displacements anticipated?

No _____ Yes __X__ (Complete the following.)

A. Number of Single Family Residential Units	3	
Estimated RAP Payments		$ 150,000
B. Number of Multifamily Residential Units	0	
Estimated RAP Payments		$ 0
C. Number of Business/Nonprofit	1	
Estimated RAP Payments		$ 50,000
D. Number of Farms	0	
Estimated RAP Payments		$ 0
E. Other (define in the "Remarks" section)	0	
Estimated RAP Payments		$ 0
Totals	4	$ 200,000

VII. *Utility Relocation Information*

Do you anticipate any utility facilities or utility rights of way to be affected?

No _____ Yes X (Complete the following.)

		Estimated Relocation Expense		
Facility	Owner	State Obligation	Local Obligation	Utility Owner Obligation
A. OH-Electrical (12 kV Primary)	TID	$0	$0	$240,000
B. UG-Telecom (Size unknown)	AT&T	$0	$0	$340,000
C. UG-CATV (Size unknown)	Charter	$0	$0	$110,000
D. Gas (2" main)	PG&E	$0	$50,000	$50,000
E. Water (24" main)	City of Ceres	$0	$660,000	$0
F.		$0	$0	$0
Totals		$0 *	$710,000	$740,000
Number of facilities		6		

*This amount reflects the estimated total financial obligation by the State.

Any additional information concerning utility involvement on this project?

VIII. *Rail Information*

Are railroad facilities or railroad rights of way affected?

No _____ Yes X (Complete the following.)

Describe railroad facilities or railroad rights of way affected.

Owner's Name	Transverse Crossing	Longitudinal Encroachment
A. Union Pacific Railroad (UPRR)	X	
B. N/A		

Discuss types of agreements and rights required from the railroads. Are grade crossings that require services contracts, or grade separations that require construction and maintenance agreements involved? YES

The existing grade separation at the Service Road Overcrossing will be replaced with a new structure; existing construction and maintenance agreements to be modified.

IX. *Clearance Information*

Are there improvements that require clearance?

No _____ Yes X (Complete the following.)

A. Number of Structures to be Demolished 6
Estimated Cost of Demolition $ 180,000

X. *Hazardous Materials/Waste*

Are there any site(s) and/or improvements(s) in the Project Limits that are known to contain *hazardous materials*? None X Yes _____ (Explain in the "Remarks" section.)

Are there any site(s) and/or improvement(s) in the Project Limits that are suspected to contain *hazardous waste*? None X Yes _____ (Explain in the "Remarks" section.)

XI. *Project Scheduling*

	Proposed lead time	Completion date
* Preliminary Engineering, Surveys	6 (months)	12/01/2017
* R/W Engineering Submittals	6 (months)	06/01/2018
* R/W Appraisals/Acquisition	18 (months)	12/01/2019
Proposed Environmental Clearance		11/01/2017
Proposed R/W Certification		12/01/2019

R/W Data Sheet - Local Public Agencies
Page 6 of 6

XII. *Proposed Funding*

	Local	State	Federal	Other
Acquisition	$3.72 M			
Utilities	$0.71 M			
Relocation Assistance Program	$200,000			
R/W Support	$180,000			
Cost (Eng. Appraisals, etc.)	$24,000			

XIII. *Remarks*

Project Sponsor Consultant
Prepared by:

Phillip Reuss, P.E.
NV5, Inc.

7/12/2017
Date

Project Sponsor
Reviewed and Approved by:

Toby Wells, P.E.>
City Manager

7/13/17
Date

R/W Professional
Reviewed and Approved by:

Michael E. Lahodny
Bender Rosenthal Inc.
AG044258

7/12/2017
Date

Caltrans
Reviewed and approved based on information provided to date.

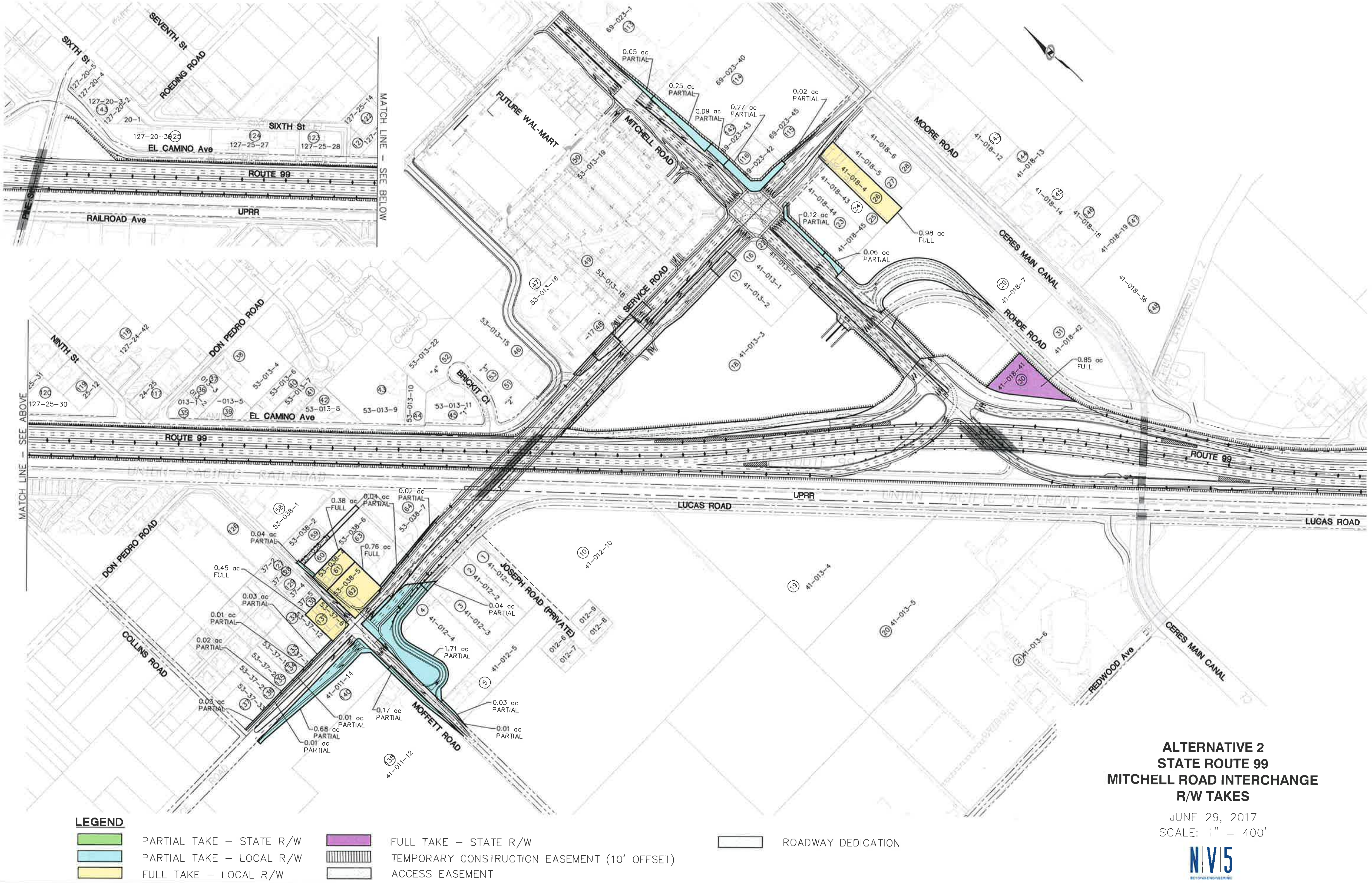
Caltrans District Branch Chief
Local Programs
Division of Right of Way

7-18-2017
Date

City of Ceres
SR 99 / Service Rd - Mitchell Rd Interchange Improvement Project
PA / ED Phase
R/W Acquisition Costs - ALTERNATIVE 2
June 29, 2017

								FULL TAKES						PARTIAL TAKES						LOCAL			STATE		
No.	APN	Recorded Acreage	No. of Buildings	Building Type		Full	Partial	FULL Take Count	VACANT	SFR	MFR	COM/IND	FARM/AGR	PARTIAL Take Count	VACANT	SFR	MFR	COM/IND	FARM/AGR	Take (Acres)	Cost	Number of Relocations	Take (Acres)	Cost	Number of Relocations
3	41-12-3	1.49	1	SFR			x	0						1		1				0.04	$ 18,978	-	-	$ -	-
4	41-12-4	3.64	1	SFR			x	0						1		1				1.71	$ 892,193	-	-	$ -	-
5	41-12-5	1.94	1	SFR			x	0						1		1				0.03	$ 14,889	-	-	$ -	-
10	41-12-10	24.20	-	FARM			x	0						1					1	0.01	$ 5,227	-	-	$ -	-
23	41-18-44	1.30	1	COM			x	0						1				1		0.12	$ 63,720	-	-	$ -	-
25	41-18-45	0.85	1	COM			x	0						1				1		0.06	$ 30,708	-	-	$ -	-
26	41-18-4	0.98	2	SFR		x		1		1				0						0.98	$ 512,266	1	-	$ -	-
30	41-18-41	0.85	-	VACANT		x		1	1					0						-	$ -	-	0.85	$ 444,312	-
60	53-38-3	0.42	-	COM			x	0						1				1		0.04	$ 19,145	-	-	$ -	-
61	53-38-4	0.38	1	IND		x		1				1		0						0.38	$ 198,634	1	-	$ -	-
62	53-38-5	0.76	1	SFR		x		1		1				0						0.76	$ 397,267	1	-	$ -	-
63	53-38-6	2.12	2	IND			x	0						1				1		0.04	$ 19,405	-	-	$ -	-
64	53-38-7	1.86	2	WAR			x	0						1				1		0.02	$ 12,875	-	-	$ -	-
113	69-23-1	8.85	7	COM			x	0						1				1		0.05	$ 28,584	-	-	$ -	-
114	69-23-40	4.96	1	COM			x	0						1				1		0.25	$ 129,612	-	-	$ -	-
115	69-23-45	0.85	1	COM			x	0						1				1		0.02	$ 10,188	-	-	$ -	-
116	69-23-42	0.91	1	COM			x	0						1				1		0.27	$ 142,236	-	-	$ -	-
131	53-37-6	0.45	2	SFR		x		1		1				0						0.45	$ 235,224	1	-	$ -	-
132	53-37-12	0.82	1	SFR			x	0						1		1				0.03	$ 13,858	-	-	$ -	-
133	53-37-13	0.18	2	SFR			x	0						1		1				0.01	$ 6,296	-	-	$ -	-
134	53-37-19	0.32	1	SFR			x	0						1		1				0.01	$ 6,816	-	-	$ -	-
135	53-37-20	0.43	1	SFR	[redacted]		x	0						1		1				0.02	$ 7,913	-	-	$ -	-
136	53-37-21	0.43	1	SFR			x	0						1		1				0.01	$ 7,613	-	-	$ -	-
137	53-37-33	0.59	-	VACANT			x	0						1	1					0.03	$ 13,641	-	-	$ -	-
138	41-11-12	29.51	1	FARM	[redacted]		x	0						1					1	0.17	$ 90,422	-	-	$ -	-
140	41-11-14	6.19	-	VACANT			x	0						1	1					0.68	$ 356,011	-	-	$ -	-
142	69-23-43	0.50	1	COM			x	0						1				1		0.09	$ 46,548	-	-	$ -	-
								5	1	3	0	1	0	22	2	8	0	10	2			4			0

R/W LOCAL	$ 3,280,269
R/W STATE	$ 444,312
RAP LOCAL	$ 200,000
RAP STATE	$ -
DEMO LOCAL	$ 180,000
DEMO STATE	$ -
TITLE AND ESCROW LOCAL	$ 24,000
TITLE AND ESCROW STATE	$ -



ALTERNATIVE 2
STATE ROUTE 99
MITCHELL ROAD INTERCHANGE
R/W TAKES

JUNE 29, 2017
SCALE: 1" = 400'

NV5

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT J

RISK MANAGEMENT PLAN

Dist - E.A 10-1A690

Project Name SR 99/Service Road/Mitchell Road Interchange Project

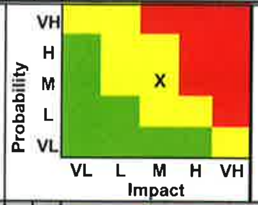
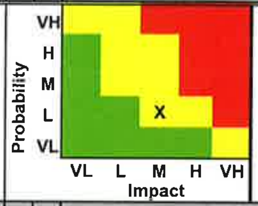
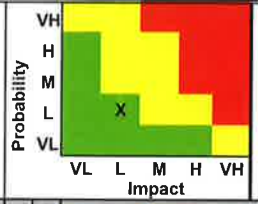
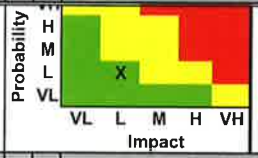
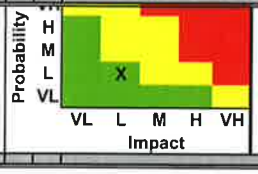
Co-Rte-PM STA-99-9.5/R11.4

Date 11/30/2018

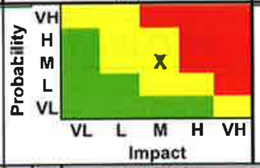
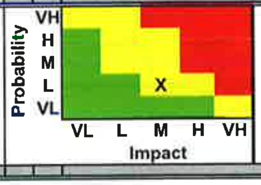
Proj Mngr Parag Mehta

Telephone Number 925-965-7703

PROJECT RISK MANAGEMENT PLAN

	Identification						Qualitative Analysis				Response Strategy		Monitoring and Control	
Priority (1)	Status (2)	ID # (3)	Date Identified Project Phase (4)	Functional Assignment (5)	Threat/Opportunity Event (6)	Risk Trigger (7)	Type (8)	Probability (9)	Impact (10)	Risk Matrix (11)	Strategy (15)	Response Actions including advantages and disadvantages (16)	Responsibility (Task Manager) (17)	Last date changes made to risk and Comments (18)
	Active		8/20/2014 PA&ED	Planning	Project not fully funded	StanCOG RTP currently has the project under constrained funding.	**Schedule**	Moderate	moderate		Acceptance	StanCOG Measure L passed, opening up opportunity for the project funding.	City	2/28/2017
	Active		11/19/2014 PA&ED	Design	Caltrans maintenance requirements increase project costs	Maintenance review of PS&E	**Cost**	Low	Moderate		Acceptance	Get early review by Caltrans Maintenance	Parag Mehta	12/17/2015
	Dormant		7/23/2015 PA&ED	R/W	Utility and railroad agreements fall behind schedule	Utility and railroad agreements not finished for RTL checklist	**Schedule**	low	low		Avoidance	Work with utility owner and railroad to keep schedule--confirm early the PG&E has what it needs to move forward-correct forms, agreements, letters, etc.	Parag Mehta	6/30/2017
	Active		11/3/2017 PA&ED	Design	PS&E Coop does not include City completing 100% of all the survey activity.	PS&E Survey Schedule	**Schedule**	Low	Low		Avoidance	City to work with Caltrans to set up Coop for PS&E before which City will complete 100% of all survey activities.	Parag Mehta	11/3/2017
	Active		11/3/2017 PA&ED	R/W	Requiring additional right-of-way for utility relocation.	Design and right-of-way needs	**Cost**	Low	Low		Avoidance	Coordination with utilities in the PS&E phase to include utilities within the proposed project right-of-way	Parag Mehta	11/16/2017

PROJECT RISK MANAGEMENT PLAN

	Identification						Qualitative Analysis				Response Strategy		Monitoring and Control	
Priority	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Responsibility (Task Manager)	Last date changes made to risk and Comments
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(15)	(16)	(17)	(18)
	Dormant		11/30/2018 PA&ED	R/W	Reduction in UPRR staffing has the potential to delay required RW agreements, resulting in schedule impacts.	During PS&E and Construction.	**Schedule**	Moderate	Moderate		Acceptance	Coordinate early and often with UPRR and provide a detailed schedule of deliverables to help keep UPRR input and reviews on track.	Parag Mehta	11/30/2018
	Dormant		12/10/2018 PA&ED	R/W	Late identified utility relocations and utility easements will result in a schedule delay.	During PS&E and Construction.	**Schedule**	Low	Moderate		Avoidance	Coordinate early and often with utility owners, perform utility potholing to identify impacts and mitigate during design.	Parag Mehta	12/11/2018

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT K

LIFE CYCLE COST ANALYSIS

SR 99 / SERVICE ROAD / MITCHELL ROAD INTERCHANGE PROJECT
Alternative No. 1 – Diverging Diamond at Service Road (Mainline)

Life Cycle Cost Analysis Form

Alternative 1 (Pavement alternative selected for programming *or* Preferred Alternative):

Rigid pavement 40 year life – 1.00' CRCP, 0.25' HMA (Type A) & 0.70' AS (Class 2)

Pavement Design Life: 40 Years

Initial Construction Cost:	$ 5,932	
Future Maintenance & Rehabilitation Cost:**	$ 50	
TOTAL AGENCY COST:		$ 5,982
TOTAL USER COST:		$ 0
TOTAL LIFE-CYCLE COST:		$ 5,982

Alternative 2:*

Flexible pavement 40 year life – 0.15' RHMA-O, 0.15' RHMA-G, 1.25' HMA (Type A) & 0.50' AB (Class 2)

Pavement Design Life: 40 Years

Initial Construction Cost:	$ 5,959	
Future Maintenance & Rehabilitation Cost:**	$ 2,816	
TOTAL AGENCY COST:		$ 8,775
TOTAL USER COST:		$ 5,067
TOTAL LIFE-CYCLE COST:		$ 13,842

Is the lowest life cycle cost option selected as the recommended alternative? If not, why?:

The lowest life cycle cost option is selected as the recommended alternative as it has the lower initial cost, future maintenance cost and user cost. The total life-cycle cost is 56.8% lower than the flexible pavement alternative.

NOTE: All costs are shown in $1000.

* Repeat as often as needed, with appropriate numbering, to cover all pavement alternatives investigated.

** Includes future maintenance, construction, and project support costs.

Probabilistic Life Cycle Cost Analysis Worksheet

INPUT WORKSHEET	
1. Economic Variables	
Value of Time for Passenger Cars ($/hour)	$13.00
Value of Time for Single Unit Trucks ($/hour)	$29.60
Value of Time for Combination Trucks ($/hour)	$29.60
2. Analysis Options	
Include User Costs in Analysis	Yes
Include User Cost Remaining Service Life Value	Yes
Use Differential User Costs	Yes
User Cost Computation Method	Calculated
Include Agency Cost Remaining Service Life Value	Yes
Traffic Direction	Both
Analysis Period (Years)	55
Beginning of Analysis Period	2020
Discount Rate (%)	4.0
Number of Alternatives	2
3. Project Details and Quantity Calculations	
State Route	SR 99
Project Type	New/Reconstruction/Widen
Project Name	SR 99/Service Road/Mitchell Road Interchange Project
Maintenance Service Level	1
Local Region	Inland Valley
County	Stanislaus - 9.5/R11.4
Climate Region	Inland Valley
Analyzed By	PR
Mileposts	
Begin	9.50
End	11.40
Length of Project (miles)	1.90
Comments	Alternative 1 - Compare Rigid Pavement vs. Flexible Pavement using 40-year design life (3 lanes in each direction)
4. Traffic Data	
AADT Construction Year (total for both directions)	113,500
Cars as Percentage of AADT (%)	87.6
Single Unit Trucks as Percentage of AADT (%)	3.0
Combination Trucks as Percentage of AADT (%)	9.4
Annual Growth Rate of Traffic (%)	3.0
Speed Limit Under Normal Operating Conditions (mph)	65
No of Lanes in Each Direction During Normal Conditions	3
Free Flow Capacity (vphpl)	2170
Queue Dissipation Capacity (vphpl)	1700
Maximum AADT (total for both directions)	322,638
Maximum Queue Length (miles)	5

5. Maintenance and Rehabilitation Sequence			
Alternative 1			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST CRCP (40YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	2.28		
Activity 1 Activity Service Life (Year)	55		
Activity 2 Name	CAPM HMA		
Activity 2 Year of Action	2075		
Activity 2 Annual Maintenance Cost ($1000)	1.65		
Activity 2 Activity Service Life (Year)	5		
Activity 3 Name	REHAB HMA (20 YR)		
Activity 3 Year of Action	2080		
Activity 3 Annual Maintenance Cost ($1000)	4.05		
Activity 3 Activity Service Life (Year)	18		
Activity 4 Name	CAPM HMA		
Activity 4 Year of Action	2098		
Activity 4 Annual Maintenance Cost ($1000)	1.65		
Activity 4 Activity Service Life (Year)	5		
Activity 5 Name	REHAB HMA (20YR)		
Activity 5 Year of Action	2103		
Activity 5 Annual Maintenance Cost ($1000)	4.05		
Activity 5 Activity Service Life (Year)	5		
Activity 6 Name			
Activity 6 Year of Action	2108		
Activity 6 Annual Maintenance Cost ($1000)	0		
Activity 6 Activity Service Life (Year)	0		
Alternative 2			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST HMA (40YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	72.96		
Activity 1 Activity Service Life (Year)	38.0		
Activity 2 Name	CAPM HMA W/ OGFC		
Activity 2 Year of Action	2058		
Activity 2 Annual Maintenance Cost ($1000)	38.76		
Activity 2 Activity Service Life (Year)	10.0		
Activity 3 Name	REHAB HMA W/ OGFC (20YR)		
Activity 3 Year of Action	2068		
Activity 3 Annual Maintenance Cost ($1000)	41.04		
Activity 3 Activity Service Life (Year)	20		
Activity 4 Name			
Activity 4 Year of Action	2088		
Activity 4 Annual Maintenance Cost ($1000)	0		
Activity 4 Activity Service Life (Year)	0		
Activity 5 Name			
Activity 5 Year of Action	2088		
Activity 5 Annual Maintenance Cost ($1000)	1		
Activity 5 Activity Service Life (Year)	0		
Activity 6 Name			
Activity 6 Year of Action	2088		
Activity 6 Annual Maintenance Cost ($1000)	0		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 6 Activity Service Life (Year)	0		

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 1	40-yr CRCP		
Number of Activities	1		
Activity 1	NEW/RECONST CRCP (40YR)		
Agency Construction Cost ($1000)	$5,932.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	0		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	55.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	2.28		
Work Zone Length (miles)	2.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Double-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure			
Second period of lane closure			
Third period of lane closure			
Outbound	Start	End	
First period of lane closure			
Second period of lane closure			
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 2	40-yr Flexible		
Number of Activities	3		
Activity 1	NEW/RECONST HMA (40YR)		
Agency Construction Cost ($1000)	$5,959.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	0		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	38.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	72.96		
Work Zone Length (miles)	2.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Double-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure			
Second period of lane closure			
Third period of lane closure			
Outbound	Start	End	
First period of lane closure			
Second period of lane closure			
Third period of lane closure			
Activity 2	CAPM HMA W/ OGFC		
Agency Construction Cost ($1000)	$1,835.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	38		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	10.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	38.76		
Work Zone Length (miles)	2.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Double-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	18	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	18	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 3	REHAB HMA W/ OGFC (20YR)		
Agency Construction Cost ($1000)	$11,789.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	82		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	20.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	41.04		
Work Zone Length (miles)	2.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Double-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	18	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	18	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Update Results

Total Cost

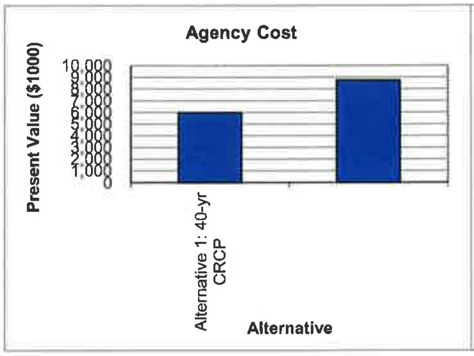
Total Cost	**Alternative 1: 40-yr CRCP**		**Alternative 2: 40-yr Flexible**		**Alternative 3: 40 year JPCP**		**Alternative 4:**	
	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)
Undiscounted Sum	*$6,055.11*	*$0.00*	*$15,214.74*	*$22,716.87*				
Present Value	**$5,982.14**	**$0.00**	**$8,774.68**	**$5,066.64**				
EUAC	$270.58	$0.00	$396.89	$229.17				

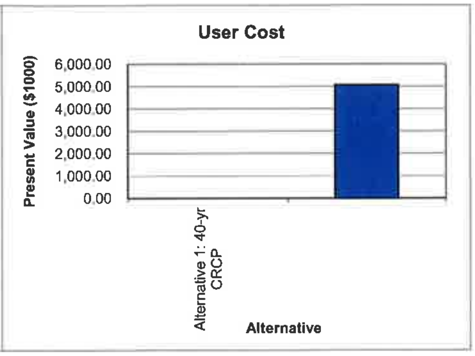
Lowest Present Value Agency Cost	**Alternative 1: 40-yr CRCP**
Lowest Present Value User Cost	**Alternative 1: 40-yr CRCP**

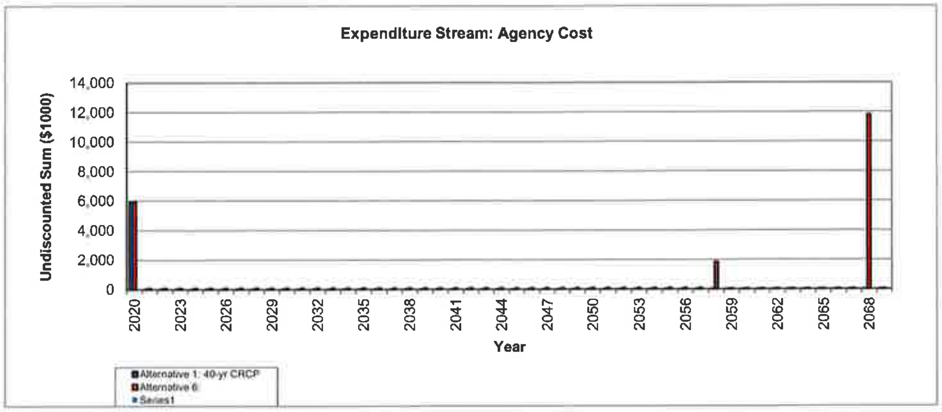
Expenditure Stream

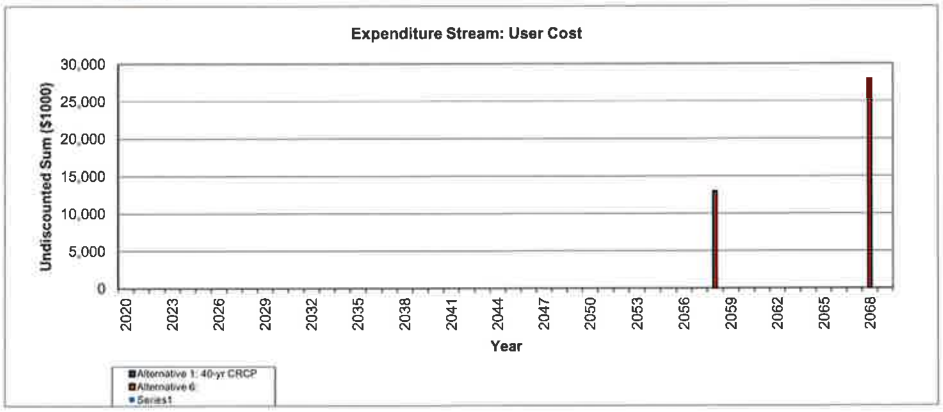
Year	**Alternative 1: 40-yr CRCP**		**Alternative 2: 40-yr Flexible**		**Alternative 3: 40 year JPCP**		**Alternative 4:**	
	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)
2020	$5,932.00		$5,959.00					
2021	$2.28		$72.96					
2022	$2.28		$72.96					
2023	$2.28		$72.96					
2024	$2.28		$72.96					
2025	$2.28		$72.96					
2026	$2.28		$72.96					
2027	$2.28		$72.96					
2028	$2.28		$72.96					
2029	$2.28		$72.96					
2030	$2.28		$72.96					
2031	$2.28		$72.96					
2032	$2.28		$72.96					
2033	$2.28		$72.96					
2034	$2.28		$72.96					
2035	$2.28		$72.96					
2036	$2.28		$72.96					
2037	$2.28		$72.96					
2038	$2.28		$72.96					
2039	$2.28		$72.96					
2040	$2.28		$72.96					
2041	$2.28		$72.96					
2042	$2.28		$72.96					
2043	$2.28		$72.96					
2044	$2.28		$72.96					
2045	$2.28		$72.96					
2046	$2.28		$72.96					
2047	$2.28		$72.96					
2048	$2.28		$72.96					
2049	$2.28		$72.96					
2050	$2.28		$72.96					
2051	$2.28		$72.96					
2052	$2.28		$72.96					
2053	$2.28		$72.96					
2054	$2.28		$72.96					
2055	$2.28		$72.96					
2056	$2.28		$72.96					
2057	$2.28		$72.96					
2058	$2.28		$1,835.00	$12,942.14				
2059	$2.28		$38.76					
2060	$2.28		$38.76					
2061	$2.28		$38.76					
2062	$2.28		$38.76					
2063	$2.28		$38.76					
2064	$2.28		$38.76					
2065	$2.28		$38.76					
2066	$2.28		$38.76					
2067	$2.28		$38.76					
2068	$2.28		$11,789.00	$27,927.79				
2069	$2.28		$41.04					
2070	$2.28		$41.04					
2071	$2.28		$41.04					
2072	$2.28		$41.04					
2073	$2.28		$41.04					
2074	$2.28		$41.04					
2075			($7,662.85)	($18,153.06)				

Probabilistic Life Cycle Cost Analysis Worksheet









SR 99/Mitchell Rd/Service Rd Interchange Project

Pavement Design for 40 year life

Pavement Area for Alternative 1 = 554,222 SF

ITEM NO.	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT COST	AMOUNT /$1,000
	40 Year Rigid (1.00' CRCP, 0.25' HMA, 0.70' AS)				
1	HOT MIX ASPHALT (TYPE A)	10,392	TON	$75	$779
2	RHMA-OPEN GRADED (OGFC)	0	TON	$130	$0
3	RHMA (GAP GRADED)	0	TON	$120	$0
4	CLASS 2 AGGREGATE BASE	0	CY	$45	$0
5	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	20,527	CY	$230	$4,721
6	CLASS 2 AGGREGATE SUBBASE	14,369	CY	$30	$431
7	ROADWAY EXCAVATION	0	CY	$20	$0
TOTAL					$5,932
				TOTAL DIRECT CONSTRUCTION COST =	$5,932
				RIGHT OF WAY COST =	
				TOTAL COST =	$5,932
				INITIAL SUPPORT COST (25%) =	
				TOTAL INITIAL AGENCY COST =	**$5,932**
	40 Year Flexible (0.15' RHMA-O, 0.15' RHMA-G, 1.25' HMA, 0.50' AB)				
1	HOT MIX ASPHALT (TYPE A)	51,958	TON	$75	$3,897
2	RHMA-OPEN GRADED (OGFC)	6,235	TON	$130	$811
3	RHMA (GAP GRADED)	6,235	TON	$120	$748
4	CLASS 2 AGGREGATE BASE	10,263	CY	$45	$462
5	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	0	CY	$230	$0
6	CLASS 2 AGGREGATE SUBBASE	0	CY	$30	$0
7	ROADWAY EXCAVATION	2,053	CY	$20	$41
TOTAL					$5,959
				TOTAL DIRECT CONSTRUCTION COST =	$5,959
				RIGHT OF WAY COST =	
				TOTAL COST =	$5,959
				INITIAL SUPPORT COST (25%) =	
				TOTAL INITIAL AGENCY COST =	**$5,959**

SR 99 / SERVICE ROAD / MITCHELL ROAD INTERCHANGE PROJECT
Alternative No. 2 – Mitchell Road Interchange Reconstruction (Mainline)

Life Cycle Cost Analysis Form

Alternative 1 (Pavement alternative selected for programming *or* Preferred Alternative):

Rigid pavement 40 year life – 1.00' CRCP, 0.25' HMA (Type A) & 0.70' AS (Class 2)

Pavement Design Life: 40 Years

Initial Construction Cost:	$ 7,646	
Future Maintenance & Rehabilitation Cost:**	$ 50	
TOTAL AGENCY COST:		$ 7,696
TOTAL USER COST:		$ 0
TOTAL LIFE-CYCLE COST:		$ 7,696

Alternative 2:*

Flexible pavement 40 year life – 0.15' RHMA-O, 0.15' RHMA-G, 1.25' HMA (Type A) & 0.50' AB (Class 2)

Pavement Design Life: 40 Years

Initial Construction Cost:	$ 7,680	
Future Maintenance & Rehabilitation Cost:**	$ 2,811	
TOTAL AGENCY COST:		$ 10,491
TOTAL USER COST:		$ 5,067
TOTAL LIFE-CYCLE COST:		$ 15,558

Is the lowest life cycle cost option selected as the recommended alternative? If not, why?:

The lowest life cycle cost option is selected as the recommended alternative as it has the lower initial cost, future maintenance cost and user cost. The total life-cycle cost is 50.5% lower than the flexible pavement alternative.

NOTE: All costs are shown in $1000.

* Repeat as often as needed, with appropriate numbering, to cover all pavement alternatives investigated.

** Includes future maintenance, construction, and project support costs.

Probabilistic Life Cycle Cost Analysis Worksheet

INPUT WORKSHEET			
1. Economic Variables			
Value of Time for Passenger Cars ($/hour)	$13.00		
Value of Time for Single Unit Trucks ($/hour)	$29.60		
Value of Time for Combination Trucks ($/hour)	$29.60		
2. Analysis Options			
Include User Costs in Analysis	Yes		
Include User Cost Remaining Service Life Value	Yes		
Use Differential User Costs	Yes		
User Cost Computation Method	Calculated		
Include Agency Cost Remaining Service Life Value	Yes		
Traffic Direction	Both		
Analysis Period (Years)	55		
Beginning of Analysis Period	2020		
Discount Rate (%)	4.0		
Number of Alternatives	2		
3. Project Details and Quantity Calculations			
State Route	SR 99		
Project Type	New/Reconstruction/Widen		
Project Name	SR 99/Service Road/Mitchell Road Interchange Project		
Maintenance Service Level	1		
Local Region	Inland Valley		
County	Stanislaus - 9.5/R11.4		
Climate Region	Inland Valley		
Analyzed By	PR		
Mileposts			
Begin	9.50		
End	11.40		
Length of Project (miles)	1.90		
Comments	Alternative 2 - Compare Rigid Pavement vs. Flexible Pavement using 40-year design life (3 lanes in each direction)		
4. Traffic Data			
AADT Construction Year (total for both directions)	125,500		
Cars as Percentage of AADT (%)	87.6		
Single Unit Trucks as Percentage of AADT (%)	3.0		
Combination Trucks as Percentage of AADT (%)	9.4		
Annual Growth Rate of Traffic (%)	3.0		
Speed Limit Under Normal Operating Conditions (mph)	65		
No of Lanes in Each Direction During Normal Conditions	3		
Free Flow Capacity (vphpl)	2170		
Queue Dissipation Capacity (vphpl)	1700		
Maximum AADT (total for both directions)	322,638		
Maximum Queue Length (miles)	5		

Probabilistic Life Cycle Cost Analysis Worksheet

5. Maintenance and Rehabilitation Sequence			
Alternative 1			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST CRCP (40YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	2.28		
Activity 1 Activity Service Life (Year)	55		
Activity 2 Name	CAPM HMA		
Activity 2 Year of Action	2075		
Activity 2 Annual Maintenance Cost ($1000)	1.65		
Activity 2 Activity Service Life (Year)	5		
Activity 3 Name	REHAB HMA (20 YR)		
Activity 3 Year of Action	2080		
Activity 3 Annual Maintenance Cost ($1000)	4.05		
Activity 3 Activity Service Life (Year)	18		
Activity 4 Name	CAPM HMA		
Activity 4 Year of Action	2098		
Activity 4 Annual Maintenance Cost ($1000)	1.65		
Activity 4 Activity Service Life (Year)	5		
Activity 5 Name	REHAB HMA (20YR)		
Activity 5 Year of Action	2103		
Activity 5 Annual Maintenance Cost ($1000)	4.05		
Activity 5 Activity Service Life (Year)	5		
Activity 6 Name			
Activity 6 Year of Action	2108		
Activity 6 Annual Maintenance Cost ($1000)	0		
Activity 6 Activity Service Life (Year)	0		
Alternative 2			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST HMA (40YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	72.96		
Activity 1 Activity Service Life (Year)	38.0		
Activity 2 Name	CAPM HMA W/ OGFC		
Activity 2 Year of Action	2058		
Activity 2 Annual Maintenance Cost ($1000)	38.76		
Activity 2 Activity Service Life (Year)	10.0		
Activity 3 Name	REHAB HMA W/ OGFC (20YR)		
Activity 3 Year of Action	2068		
Activity 3 Annual Maintenance Cost ($1000)	41.04		
Activity 3 Activity Service Life (Year)	20		
Activity 4 Name			
Activity 4 Year of Action	2088		
Activity 4 Annual Maintenance Cost ($1000)	0		
Activity 4 Activity Service Life (Year)	0		
Activity 5 Name			
Activity 5 Year of Action	2088		
Activity 5 Annual Maintenance Cost ($1000)	1		
Activity 5 Activity Service Life (Year)	0		
Activity 6 Name			
Activity 6 Year of Action	2088		
Activity 6 Annual Maintenance Cost ($1000)	0		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 6 Activity Service Life (Year)	0		

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 1	40-yr CRCP		
Number of Activities	1		
Activity 1	NEW/RECONST CRCP (40YR)		
Agency Construction Cost ($1000)	$7,646.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	0		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	55.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	2.28		
Work Zone Length (miles)	2.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Double-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure			
Second period of lane closure			
Third period of lane closure			
Outbound	Start	End	
First period of lane closure			
Second period of lane closure			
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 2	40-yr Flexible	
Number of Activities	3	
Activity 1	NEW/RECONST HMA (40YR)	
Agency Construction Cost ($1000)	$7,680.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	38.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	72.96	
Work Zone Length (miles)	2.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure		
Second period of lane closure		
Third period of lane closure		
Activity 2	CAPM HMA W/ OGFC	
Agency Construction Cost ($1000)	$2,302.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	38	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	38.76	
Work Zone Length (miles)	2.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Double-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	18	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	18	24
Third period of lane closure		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 3	REHAB HMA W/ OGFC (20YR)		
Agency Construction Cost ($1000)	$10,357.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	82		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	20.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	41.04		
Work Zone Length (miles)	2.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Double-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	18	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	18	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Update Results

Total Cost

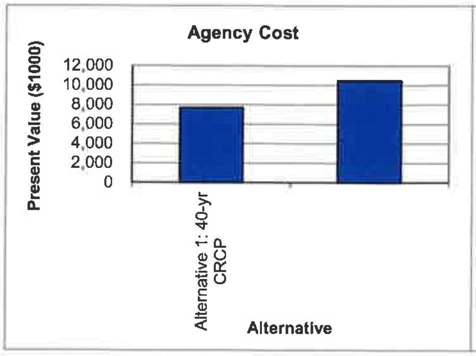
	Alternative 1: 40-yr CRCP		Alternative 2: 40-yr Flexible		Alternative 3: 40 year JPCP		Alternative 4:	
Total Cost	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)
Undiscounted Sum	*$7,769.11*	*$0.00*	*$16,901.54*	*$22,716.87*				
Present Value	**$7,696.14**	**$0.00**	**$10,490.60**	**$5,066.64**				
EUAC	$348.11	$0.00	$474.50	$229.17				

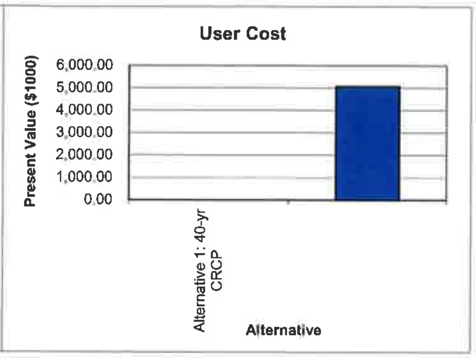
Lowest Present Value Agency Cost	**Alternative 1: 40-yr CRCP**
Lowest Present Value User Cost	**Alternative 1: 40-yr CRCP**

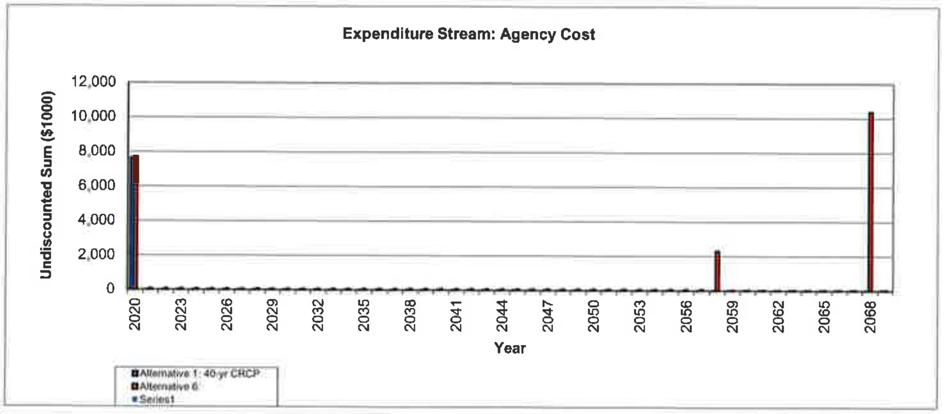
Expenditure Stream

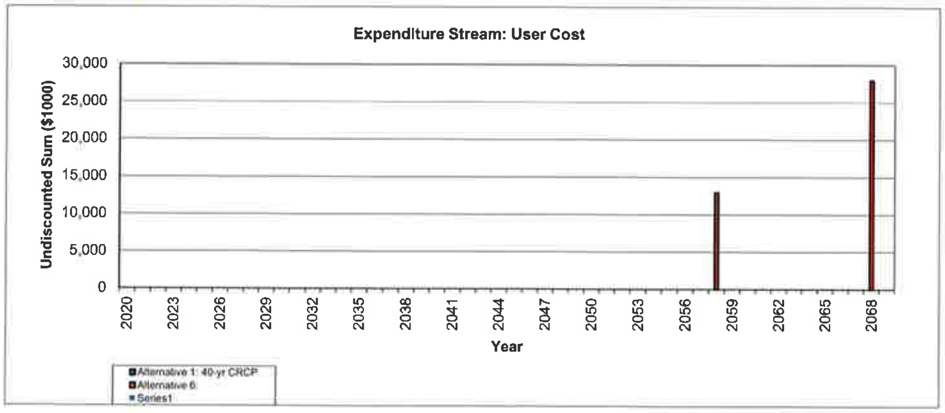
	Alternative 1: 40-yr CRCP		Alternative 2: 40-yr Flexible		Alternative 3: 40 year JPCP		Alternative 4:	
Year	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)
2020	$7,646.00		$7,680.00					
2021	$2.28		$72.96					
2022	$2.28		$72.96					
2023	$2.28		$72.96					
2024	$2.28		$72.96					
2025	$2.28		$72.96					
2026	$2.28		$72.96					
2027	$2.28		$72.96					
2028	$2.28		$72.96					
2029	$2.28		$72.96					
2030	$2.28		$72.96					
2031	$2.28		$72.96					
2032	$2.28		$72.96					
2033	$2.28		$72.96					
2034	$2.28		$72.96					
2035	$2.28		$72.96					
2036	$2.28		$72.96					
2037	$2.28		$72.96					
2038	$2.28		$72.96					
2039	$2.28		$72.96					
2040	$2.28		$72.96					
2041	$2.28		$72.96					
2042	$2.28		$72.96					
2043	$2.28		$72.96					
2044	$2.28		$72.96					
2045	$2.28		$72.96					
2046	$2.28		$72.96					
2047	$2.28		$72.96					
2048	$2.28		$72.96					
2049	$2.28		$72.96					
2050	$2.28		$72.96					
2051	$2.28		$72.96					
2052	$2.28		$72.96					
2053	$2.28		$72.96					
2054	$2.28		$72.96					
2055	$2.28		$72.96					
2056	$2.28		$72.96					
2057	$2.28		$72.96					
2058	$2.28		$2,302.00	$12,942.14				
2059	$2.28		$38.76					
2060	$2.28		$38.76					
2061	$2.28		$38.76					
2062	$2.28		$38.76					
2063	$2.28		$38.76					
2064	$2.28		$38.76					
2065	$2.28		$38.76					
2066	$2.28		$38.76					
2067	$2.28		$38.76					
2068	$2.28		$10,357.00	$27,927.79				
2069	$2.28		$41.04					
2070	$2.28		$41.04					
2071	$2.28		$41.04					
2072	$2.28		$41.04					
2073	$2.28		$41.04					
2074	$2.28		$41.04					
2075			($6,732.05)	($18,153.06)				

Probabilistic Life Cycle Cost Analysis Worksheet









SR 99/Mitchell Rd/Service Rd Interchange Project
Pavement Design for 40 year life
Pavement Area for Alternative 2 = 714,377 SF

ITEM NO.	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT COST	AMOUNT /$1,000
	40 Year Rigid (1.00' CRCP, 0.25' HMA, 0.70' AS)				
1	HOT MIX ASPHALT (TYPE A)	13,395	TON	$75	$1,005
2	RHMA-OPEN GRADED (OGFC)	0	TON	$130	$0
3	RHMA (GAP GRADED)	0	TON	$120	$0
4	CLASS 2 AGGREGATE BASE	0	CY	$45	$0
5	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	26,458	CY	$230	$6,085
6	CLASS 2 AGGREGATE SUBBASE	18,521	CY	$30	$556
7	ROADWAY EXCAVATION	0	CY	$20	$0
TOTAL					$7,646
	TOTAL DIRECT CONSTRUCTION COST =				$7,646
	RIGHT OF WAY COST =				
	TOTAL COST =				$7,646
	INITIAL SUPPORT COST (25%) =				
	TOTAL INITIAL AGENCY COST =				**$7,646**
	40 Year Flexible (0.15' RHMA-O, 0.15' RHMA-G, 1.25' HMA, 0.50' AB)				
1	HOT MIX ASPHALT (TYPE A)	66,973	TON	$75	$5,023
2	RHMA-OPEN GRADED (OGFC)	8,037	TON	$130	$1,045
3	RHMA (GAP GRADED)	8,037	TON	$120	$964
4	CLASS 2 AGGREGATE BASE	13,229	CY	$45	$595
5	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	0	CY	$230	$0
6	CLASS 2 AGGREGATE SUBBASE	0	CY	$30	$0
7	ROADWAY EXCAVATION	2,646	CY	$20	$53
TOTAL					$7,680
	TOTAL DIRECT CONSTRUCTION COST =				$7,680
	RIGHT OF WAY COST =				
	TOTAL COST =				$7,680
	INITIAL SUPPORT COST (25%) =				
	TOTAL INITIAL AGENCY COST =				**$7,680**

SR 99 / SERVICE ROAD / MITCHELL ROAD INTERCHANGE PROJECT
Alternative No. 1 – Diverging Diamond at Service Road (Ramps)

Life Cycle Cost Analysis Form

Alternative 1: *

Flexible pavement 20 year life – 0.95' HMA (Type A) & 1.80' AB (Class 2)

Pavement Design Life: 20 Years

Initial Construction Cost:	$ 411	
Future Maintenance & Rehabilitation Cost:**	$ 296	
TOTAL AGENCY COST:		$ 707
TOTAL USER COST:		$ 363
TOTAL LIFE-CYCLE COST:		$ 1,070

Alternative 2:*

Flexible pavement 40 year life – 0.15' RHMA-O, 0.15' RHMA-G, 1.65' HMA (Type A) & 0.50' AB (Class 2)

Pavement Design Life: 40 Years

Initial Construction Cost:	$ 645	
Future Maintenance & Rehabilitation Cost:**	$ 214	
TOTAL AGENCY COST:		$ 859
TOTAL USER COST:		$ 126
TOTAL LIFE-CYCLE COST:		$ 985

NOTE: All costs are shown in $1000.

* Repeat as often as needed, with appropriate numbering, to cover all pavement alternatives investigated.

** Includes future maintenance, construction, and project support costs.

NOTE: All costs are shown in $1000.

* Repeat as often as needed, with appropriate numbering, to cover all pavement alternatives investigated.

** Includes future maintenance, construction, and project support costs.

SR 99 / SERVICE ROAD / MITCHELL ROAD INTERCHANGE PROJECT
Alternative No. 1 – Diverging Diamond at Service Road (Ramps)

Alternative 3 (Pavement alternative selected for programming *or* Preferred Alternative)**:**

Rigid pavement 40 year life – 0.95' JPCP, 0.25' HMA (Type A) & 0.70' AS (Class 2)

Pavement Design Life: 40 Years

Initial Construction Cost:	$ 478	
Future Maintenance & Rehabilitation Cost:**	$ 28	
TOTAL AGENCY COST:		$ 506
TOTAL USER COST:		$ 68
TOTAL LIFE-CYCLE COST:		$ 574

Is the lowest life cycle cost option selected as the recommended alternative? If not, why?:

Yes, the lowest life cycle cost option is selected as the recommended alternative as it has the lowest total life-cycle cost. Alternative 1 has a lower initial construction cost, but due to the higher maintenance and rehabilitation costs and user costs, the total life-cycle cost is about 86.4% higher than the recommended alternative. The total life-cycle cost of Alternative 2 is about 71.6% higher than the recommended alternative.

INPUT WORKSHEET	
1. Economic Variables	
Value of Time for Passenger Cars ($/hour)	$13.00
Value of Time for Single Unit Trucks ($/hour)	$29.60
Value of Time for Combination Trucks ($/hour)	$29.60
2. Analysis Options	
Include User Costs in Analysis	Yes
Include User Cost Remaining Service Life Value	Yes
Use Differential User Costs	Yes
User Cost Computation Method	Calculated
Include Agency Cost Remaining Service Life Value	Yes
Traffic Direction	Outbound
Analysis Period (Years)	55
Beginning of Analysis Period	2020
Discount Rate (%)	4.0
Number of Alternatives	3
3. Project Details and Quantity Calculations	
State Route	SR 99
Project Type	New/Reconstruction/Widen
Project Name	SR 99/Service Road/Mitchell Road Interchange Project
Maintenance Service Level	1
Local Region	Inland Valley
County	Stanislaus - 9.5/R11.4
Climate Region	Inland Valley
Analyzed By	PR
Mileposts	
Begin	
End	
Length of Project (miles)	0.30
Comments	Alternative 1 - Compare 20-year Flexible Pavement, 40-year Flexible Pavement, and 40-Year JPCP for Ramps
4. Traffic Data	
AADT Construction Year (total for both directions)	129,700
Cars as Percentage of AADT (%)	87.6
Single Unit Trucks as Percentage of AADT (%)	3.0
Combination Trucks as Percentage of AADT (%)	9.4
Annual Growth Rate of Traffic (%)	3.0
Speed Limit Under Normal Operating Conditions (mph)	65
No of Lanes in Each Direction During Normal Conditions	4
Free Flow Capacity (vphpl)	2170
Queue Dissipation Capacity (vphpl)	1700
Maximum AADT (total for both directions)	322,638
Maximum Queue Length (miles)	5

Probabilistic Life Cycle Cost Analysis Worksheet

5. Maintenance and Rehabilitation Sequence			
Alternative 1			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST HMA (20YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	4.32		
Activity 1 Activity Service Life (Year)	18		
Activity 2 Name	CAPM HMA		
Activity 2 Year of Action	2038		
Activity 2 Annual Maintenance Cost ($1000)	1.32		
Activity 2 Activity Service Life (Year)	5		
Activity 3 Name	REHAB HMA (20 YR)		
Activity 3 Year of Action	2043		
Activity 3 Annual Maintenance Cost ($1000)	3.24		
Activity 3 Activity Service Life (Year)	18		
Activity 4 Name	CAPM HMA		
Activity 4 Year of Action	2061		
Activity 4 Annual Maintenance Cost ($1000)	1.32		
Activity 4 Activity Service Life (Year)	5		
Activity 5 Name	REHAB HMA (20YR)		
Activity 5 Year of Action	2066		
Activity 5 Annual Maintenance Cost ($1000)	3.24		
Activity 5 Activity Service Life (Year)	5		
Activity 6 Name			
Activity 6 Year of Action	2071		
Activity 6 Annual Maintenance Cost ($1000)	0		
Activity 6 Activity Service Life (Year)	0		
Alternative 2			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST HMA W/RHMA (40YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	8.64		
Activity 1 Activity Service Life (Year)	40.0		
Activity 2 Name	CAPM HMA W/ RHMA		
Activity 2 Year of Action	2060		
Activity 2 Annual Maintenance Cost ($1000)	4.44		
Activity 2 Activity Service Life (Year)	10.0		
Activity 3 Name	REHAB HMA W/ RHMA (20YR)		
Activity 3 Year of Action	2070		
Activity 3 Annual Maintenance Cost ($1000)	4.08		
Activity 3 Activity Service Life (Year)	21		
Activity 4 Name			
Activity 4 Year of Action	2091		
Activity 4 Annual Maintenance Cost ($1000)	0		
Activity 4 Activity Service Life (Year)	0		
Activity 5 Name			
Activity 5 Year of Action	2091		
Activity 5 Annual Maintenance Cost ($1000)	1		
Activity 5 Activity Service Life (Year)	0		
Activity 6 Name			
Activity 6 Year of Action	2091		
Activity 6 Annual Maintenance Cost ($1000)	0		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 6 Activity Service Life (Year)	0		
Alternative 3			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST JPCP (40YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	0.96		
Activity 1 Activity Service Life (Year)	45		
Activity 2 Name	CAPM (CPR C)		
Activity 2 Year of Action	2065		
Activity 2 Annual Maintenance Cost ($1000)	4		
Activity 2 Activity Service Life (Year)	5		
Activity 3 Name	CAPM (CPR B)		
Activity 3 Year of Action	2070		
Activity 3 Annual Maintenance Cost ($1000)	2		
Activity 3 Activity Service Life (Year)	10		
Activity 4 Name	CAPM (CPR A)		
Activity 4 Year of Action	2080		
Activity 4 Annual Maintenance Cost ($1000)	4		
Activity 4 Activity Service Life (Year)	5		
Activity 5 Name	Select lane replace option		
Activity 5 Year of Action	2085		
Activity 5 Annual Maintenance Cost ($1000)	0		
Activity 5 Activity Service Life (Year)	0		
Activity 6 Name			
Activity 6 Year of Action	2085		
Activity 6 Annual Maintenance Cost ($1000)	0		
Activity 6 Activity Service Life (Year)	0		

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 1	20-yr Flexible	
Number of Activities	5	
Activity 1	NEW/RECONST HMA (20YR)	
Agency Construction Cost ($1000)	$411.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	18.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	4.32	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	65	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Activity 2	CAPM HMA	
Agency Construction Cost ($1000)	$93.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	1.32	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 3	REHAB HMA (20 YR)	
Agency Construction Cost ($1000)	$305.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	4	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	18.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	3.24	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Activity 4	CAPM HMA	
Agency Construction Cost ($1000)	$93.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	1.32	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 5	REHAB HMA (20YR)		
Agency Construction Cost ($1000)	$305.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	4		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	18.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	3.24		
Work Zone Length (miles)	1.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Single-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 2	40-yr Flexible	
Number of Activities	3	
Activity 1	NEW/RECONST HMA W/RHMA (40YR)	
Agency Construction Cost ($1000)	$645.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	40.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	8.64	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	65	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Activity 2	CAPM HMA W/ RHMA	
Agency Construction Cost ($1000)	$93.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	10.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	4.44	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 3	REHAB HMA W/ RHMA (20YR)		
Agency Construction Cost ($1000)	$314.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	5		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	21.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	4.08		
Work Zone Length (miles)	1.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Single-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 3	40 year JPCP	
Number of Activities	3	
Activity 1	NEW/RECONST JPCP (40YR)	
Agency Construction Cost ($1000)	$478.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	45.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	0.96	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	65	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Activity 2	CAPM (CPR C)	
Agency Construction Cost ($1000)	$14.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	3.6	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Activity 3	CAPM (CPR B)	

Probabilistic Life Cycle Cost Analysis Worksheet

Agency Construction Cost ($1000)	$33.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	1		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	10.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	1.8		
Work Zone Length (miles)	1.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Single-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Update Results

Total Cost

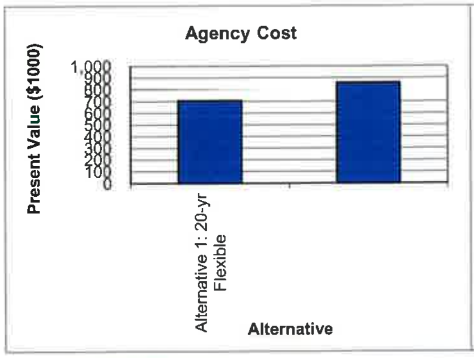
	Alternative 1: 20-yr Flexible		**Alternative 2: 40-yr Flexible**		**Alternative 3: 40 year JPCP**		**Alternative 4:**	
Total Cost	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)
Undiscounted Sum	*$1,219.50*	*$1,280.73*	*$1,206.00*	*$585.89*	*$572.34*	*$401.21*		
Present Value	**$707.31**	**$362.61**	**$859.06**	**$126.05**	**$506.02**	**$67.96**		
EUAC	$31.99	$16.40	$38.86	$5.70	$22.89	$3.07		

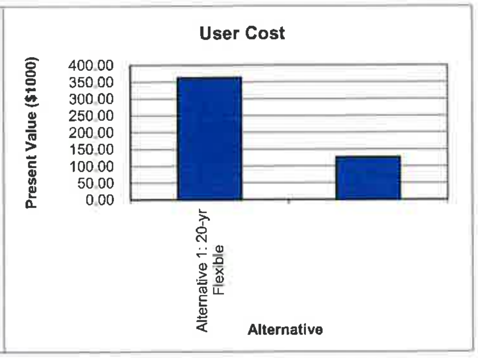
Lowest Present Value Agency Cost	**Alternative 3: 40 year JPCP**
Lowest Present Value User Cost	**Alternative 3: 40 year JPCP**

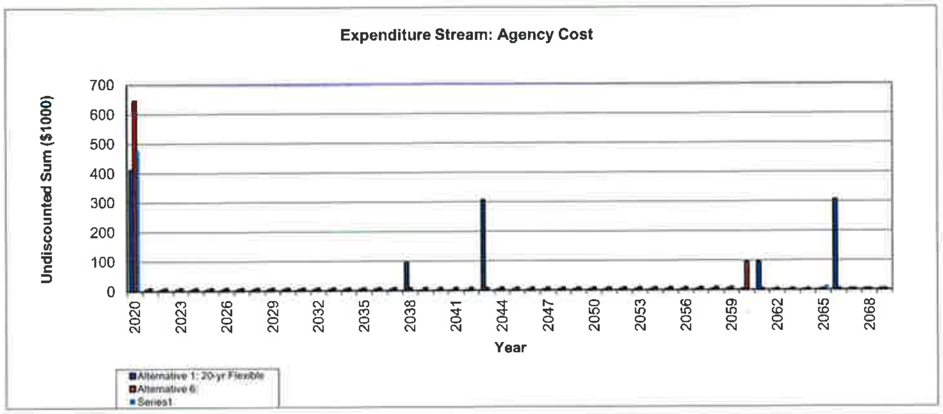
Expenditure Stream

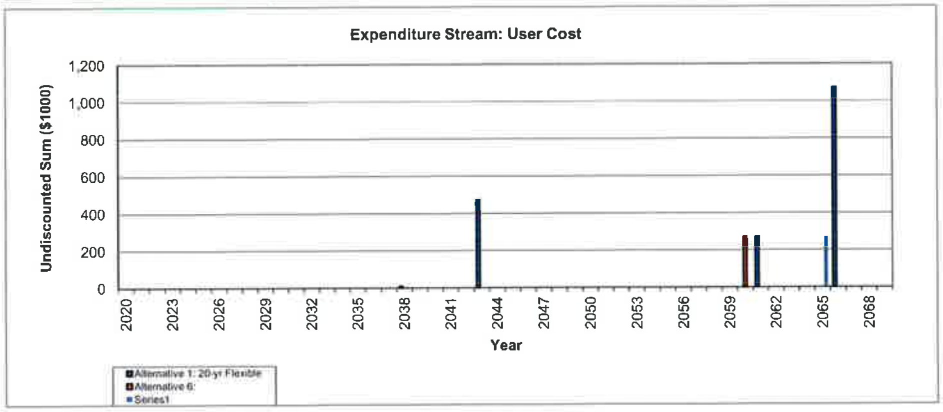
	Alternative 1: 20-yr Flexible		**Alternative 2: 40-yr Flexible**		**Alternative 3: 40 year JPCP**		**Alternative 4:**	
Year	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)
2020	$411.00		$645.00		$478.00			
2021	$4.32		$8.64		$0.96			
2022	$4.32		$8.64		$0.96			
2023	$4.32		$8.64		$0.96			
2024	$4.32		$8.64		$0.96			
2025	$4.32		$8.64		$0.96			
2026	$4.32		$8.64		$0.96			
2027	$4.32		$8.64		$0.96			
2028	$4.32		$8.64		$0.96			
2029	$4.32		$8.64		$0.96			
2030	$4.32		$8.64		$0.96			
2031	$4.32		$8.64		$0.96			
2032	$4.32		$8.64		$0.96			
2033	$4.32		$8.64		$0.96			
2034	$4.32		$8.64		$0.96			
2035	$4.32		$8.64		$0.96			
2036	$4.32		$8.64		$0.96			
2037	$4.32		$8.64		$0.96			
2038	$93.00	$8.27	$8.64		$0.96			
2039	$1.32		$8.64		$0.96			
2040	$1.32		$8.64		$0.96			
2041	$1.32		$8.64		$0.96			
2042	$1.32		$8.64		$0.96			
2043	$305.00	$470.04	$8.64		$0.96			
2044	$3.24		$8.64		$0.96			
2045	$3.24		$8.64		$0.96			
2046	$3.24		$8.64		$0.96			
2047	$3.24		$8.64		$0.96			
2048	$3.24		$8.64		$0.96			
2049	$3.24		$8.64		$0.96			
2050	$3.24		$8.64		$0.96			
2051	$3.24		$8.64		$0.96			
2052	$3.24		$8.64		$0.96			
2053	$3.24		$8.64		$0.96			
2054	$3.24		$8.64		$0.96			
2055	$3.24		$8.64		$0.96			
2056	$3.24		$8.64		$0.96			
2057	$3.24		$8.64		$0.96			
2058	$3.24		$8.64		$0.96			
2059	$3.24		$8.64		$0.96			
2060	$3.24		$93.00	$267.47	$0.96			
2061	$93.00	$267.47	$4.44		$0.96			
2062	$1.32		$4.44		$0.96			
2063	$1.32		$4.44		$0.96			
2064	$1.32		$4.44		$0.96			
2065	$1.32		$4.44		$14.00	$267.47		
2066	$305.00	$1,069.88	$4.44		$3.60			
2067	$3.24		$4.44		$3.60			
2068	$3.24		$4.44		$3.60			
2069	$3.24		$4.44		$3.60			
2070	$3.24		$314.00	$1,337.35	$33.00	$267.47		
2071	$3.24		$4.08		$1.80			
2072	$3.24		$4.08		$1.80			
2073	$3.24		$4.08		$1.80			
2074	$3.24		$4.08		$1.80			
2075	($152.50)	($534.94)	($239.24)	($1,018.94)	($16.50)	($133.74)		

Probabilistic Life Cycle Cost Analysis Worksheet









SR 99/Mitchell Rd/Service Rd Interchange Project

Pavement Area for Alternative 1 = 49,275 SF

ITEM NO.	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT COST	AMOUNT /$1,000
	20 Year Flexible (0.95' HMA, 1.80' AB)				
1	HOT MIX ASPHALT (TYPE A)	3,511	TON	$75	$263
2	RHMA-OPEN GRADED (OGFC)	0	TON	$130	$0
3	RHMA (GAP GRADED)	0	TON	$120	$0
4	CLASS 2 AGGREGATE BASE	3,285	CY	$45	$148
5	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	0	CY	$230	$0
6	CLASS 2 AGGREGATE SUBBASE	0	CY	$30	$0
7	IMPORTED BORROW	0	CY	$15	$0
TOTAL					$411
	TOTAL DIRECT CONSTRUCTION COST =				$411
	RIGHT OF WAY COST =				
	TOTAL COST =				$411
	INITIAL SUPPORT COST (25%) =				
	TOTAL INITIAL AGENCY COST =				**$411**
	40 Year Flexible (0.15' RHMA-O, 0.15' RHMA-G, 1.65' HMA, 0.50' AB)				
1	HOT MIX ASPHALT (TYPE A)	6,098	TON	$75	$457
2	RHMA-OPEN GRADED (OGFC)	554	TON	$130	$72
3	RHMA (GAP GRADED)	554	TON	$120	$67
4	CLASS 2 AGGREGATE BASE	913	CY	$45	$41
5	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	0	CY	$230	$0
6	CLASS 2 AGGREGATE SUBBASE	0	CY	$30	$0
7	IMPORTED BORROW	548	CY	$15	$8
TOTAL					$645
	TOTAL DIRECT CONSTRUCTION COST =				$645
	RIGHT OF WAY COST =				
	TOTAL COST =				$645
	INITIAL SUPPORT COST (25%) =				
	TOTAL INITIAL AGENCY COST =				**$645**
	40 Year JPCP (0.95' JPCP, 0.25' HMA, 0.70' AS)				
1	HOT MIX ASPHALT (TYPE A)	924	TON	$75	$69
2	RHMA-OPEN GRADED (OGFC)	0	TON	$130	$0
3	RHMA (GAP GRADED)	0	TON	$120	$0
4	CLASS 2 AGGREGATE BASE	0	CY	$45	$0
5	JOINTED PLAIN CONCRETE PAVEMENT	1,734	CY	$200	$347
6	CLASS 2 AGGREGATE SUBBASE	1,278	CY	$30	$38
7	IMPORTED BORROW	1,551	CY	$15	$23
TOTAL					$478
	TOTAL DIRECT CONSTRUCTION COST =				$478
	RIGHT OF WAY COST =				
	TOTAL COST =				$478
	INITIAL SUPPORT COST (25%) =				
	TOTAL INITIAL AGENCY COST =				**$478**

SR 99 / SERVICE ROAD / MITCHELL ROAD INTERCHANGE PROJECT
Alternative No. 2 – Mitchell Road Interchange Reconstruction (Ramps)

Life Cycle Cost Analysis Form

Alternative 1:*

Flexible pavement 20 year life – 0.95' HMA (Type A) & 1.80' AB (Class 2)

Pavement Design Life: 20 Years

Initial Construction Cost:	$ 708	
Future Maintenance & Rehabilitation Cost:**	$ 349	
TOTAL AGENCY COST:		$ 1,057
TOTAL USER COST:		$ 400
TOTAL LIFE-CYCLE COST:		$ 1,457

Alternative 2:*

Flexible pavement 40 year life – 0.15' RHMA-O, 0.15' RHMA-G, 1.65' HMA (Type A) & 0.50' AB (Class 2)

Pavement Design Life: 40 Years

Initial Construction Cost:	$ 1,111	
Future Maintenance & Rehabilitation Cost:**	$ 228	
TOTAL AGENCY COST:		$ 1,339
TOTAL USER COST:		$ 168
TOTAL LIFE-CYCLE COST:		$ 1,507

NOTE: All costs are shown in $1000.

* Repeat as often as needed, with appropriate numbering, to cover all pavement alternatives investigated.

** Includes future maintenance, construction, and project support costs.

NOTE: All costs are shown in $1000.

* Repeat as often as needed, with appropriate numbering, to cover all pavement alternatives investigated.

** Includes future maintenance, construction, and project support costs.

Alternative 3 (Pavement alternative selected for programming *or* Preferred Alternative):
Rigid pavement 40 year life – 0.95' JPCP, 0.25' HMA (Type A) & 0.70' AS (Class 2)

Pavement Design Life: 40 Years

Initial Construction Cost:	$ 823	
Future Maintenance & Rehabilitation Cost:**	$ 31	
TOTAL AGENCY COST:		$ 854
TOTAL USER COST:		$ 68
TOTAL LIFE-CYCLE COST:		$ 922

Is the lowest life cycle cost option selected as the recommended alternative? If not, why?:

Yes, the lowest life cycle cost option is selected as the recommended alternative as it has the lowest total life-cycle cost. Alternative 1 has a lower initial construction cost, but due to the higher maintenance and rehabilitation costs and user costs, the total life-cycle cost is about 58.0% higher than the recommended alternative. The total life-cycle cost of Alternative 2 is about 63.4% higher than the recommended alternative.

Probabilistic Life Cycle Cost Analysis Worksheet

INPUT WORKSHEET	
1. Economic Variables	
Value of Time for Passenger Cars ($/hour)	$13.00
Value of Time for Single Unit Trucks ($/hour)	$29.60
Value of Time for Combination Trucks ($/hour)	$29.60
2. Analysis Options	
Include User Costs in Analysis	Yes
Include User Cost Remaining Service Life Value	Yes
Use Differential User Costs	Yes
User Cost Computation Method	Calculated
Include Agency Cost Remaining Service Life Value	Yes
Traffic Direction	Outbound
Analysis Period (Years)	55
Beginning of Analysis Period	2020
Discount Rate (%)	4.0
Number of Alternatives	3
3. Project Details and Quantity Calculations	
State Route	SR 99
Project Type	New/Reconstruction/Widen
Project Name	SR 99/Service Road/Mitchell Road Interchange Project
Maintenance Service Level	1
Local Region	Inland Valley
County	Stanislaus - 9.5/R11.4
Climate Region	Inland Valley
Analyzed By	PR
Mileposts	
Begin	
End	
Length of Project (miles)	0.30
Comments	Alternative 2 - Compare 20-year Flexible Pavement, 40-year Flexible Pavement, and 40-Year JPCP for Ramps
4. Traffic Data	
AADT Construction Year (total for both directions)	147,700
Cars as Percentage of AADT (%)	87.6
Single Unit Trucks as Percentage of AADT (%)	3.0
Combination Trucks as Percentage of AADT (%)	9.4
Annual Growth Rate of Traffic (%)	3.0
Speed Limit Under Normal Operating Conditions (mph)	65
No of Lanes in Each Direction During Normal Conditions	4
Free Flow Capacity (vphpl)	2170
Queue Dissipation Capacity (vphpl)	1700
Maximum AADT (total for both directions)	322,638
Maximum Queue Length (miles)	5

Probabilistic Life Cycle Cost Analysis Worksheet

5. Maintenance and Rehabilitation Sequence			
Alternative 1			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST HMA (20YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	4.32		
Activity 1 Activity Service Life (Year)	18		
Activity 2 Name	CAPM HMA		
Activity 2 Year of Action	2038		
Activity 2 Annual Maintenance Cost ($1000)	1.32		
Activity 2 Activity Service Life (Year)	5		
Activity 3 Name	REHAB HMA (20 YR)		
Activity 3 Year of Action	2043		
Activity 3 Annual Maintenance Cost ($1000)	3.24		
Activity 3 Activity Service Life (Year)	18		
Activity 4 Name	CAPM HMA		
Activity 4 Year of Action	2061		
Activity 4 Annual Maintenance Cost ($1000)	1.32		
Activity 4 Activity Service Life (Year)	5		
Activity 5 Name	REHAB HMA (20YR)		
Activity 5 Year of Action	2066		
Activity 5 Annual Maintenance Cost ($1000)	3.24		
Activity 5 Activity Service Life (Year)	5		
Activity 6 Name			
Activity 6 Year of Action	2071		
Activity 6 Annual Maintenance Cost ($1000)	0		
Activity 6 Activity Service Life (Year)	0		
Alternative 2			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST HMA W/RHMA (40YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	8.64		
Activity 1 Activity Service Life (Year)	40.0		
Activity 2 Name	CAPM HMA W/ RHMA		
Activity 2 Year of Action	2060		
Activity 2 Annual Maintenance Cost ($1000)	4.44		
Activity 2 Activity Service Life (Year)	10.0		
Activity 3 Name	REHAB HMA W/ RHMA (20YR)		
Activity 3 Year of Action	2070		
Activity 3 Annual Maintenance Cost ($1000)	4.08		
Activity 3 Activity Service Life (Year)	21		
Activity 4 Name			
Activity 4 Year of Action	2091		
Activity 4 Annual Maintenance Cost ($1000)	0		
Activity 4 Activity Service Life (Year)	0		
Activity 5 Name			
Activity 5 Year of Action	2091		
Activity 5 Annual Maintenance Cost ($1000)	1		
Activity 5 Activity Service Life (Year)	0		
Activity 6 Name			
Activity 6 Year of Action	2091		
Activity 6 Annual Maintenance Cost ($1000)	0		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 6 Activity Service Life (Year)	0		
Alternative 3			
Final Pavement Surface			
Design Life			
Activity 1 Name	NEW/RECONST JPCP (40YR)		
Activity 1 Year of Action	2020		
Activity 1 Annual Maintenance Cost ($1000)	0.96		
Activity 1 Activity Service Life (Year)	45		
Activity 2 Name	CAPM (CPR C)		
Activity 2 Year of Action	2065		
Activity 2 Annual Maintenance Cost ($1000)	4		
Activity 2 Activity Service Life (Year)	5		
Activity 3 Name	CAPM (CPR B)		
Activity 3 Year of Action	2070		
Activity 3 Annual Maintenance Cost ($1000)	2		
Activity 3 Activity Service Life (Year)	10		
Activity 4 Name			
Activity 4 Year of Action	2080		
Activity 4 Annual Maintenance Cost ($1000)	0		
Activity 4 Activity Service Life (Year)	0		
Activity 5 Name			
Activity 5 Year of Action	2080		
Activity 5 Annual Maintenance Cost ($1000)	0		
Activity 5 Activity Service Life (Year)	0		
Activity 6 Name			
Activity 6 Year of Action	2080		
Activity 6 Annual Maintenance Cost ($1000)	0		
Activity 6 Activity Service Life (Year)	0		

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 1	20-yr Flexible	
Number of Activities	5	
Activity 1	NEW/RECONST HMA (20YR)	
Agency Construction Cost ($1000)	$708.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	18.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	4.32	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	65	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Activity 2	CAPM HMA	
Agency Construction Cost ($1000)	$184.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	1.32	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 3	REHAB HMA (20 YR)	
Agency Construction Cost ($1000)	$296.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	3	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	18.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	3.24	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Activity 4	CAPM HMA	
Agency Construction Cost ($1000)	$156.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	1.32	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 5	REHAB HMA (20YR)		
Agency Construction Cost ($1000)	$296.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	3		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	18.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	3.24		
Work Zone Length (miles)	1.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Single-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 2	40-yr Flexible		
Number of Activities	3		
Activity 1	NEW/RECONST HMA W/RHMA (40YR)		
Agency Construction Cost ($1000)	$1,111.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	0		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	40.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	8.64		
Work Zone Length (miles)	1.00		
Work Zone Speed Limit (mph)	65		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Single-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	24	
Second period of lane closure			
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	24	
Second period of lane closure			
Third period of lane closure			
Activity 2	CAPM HMA W/ RHMA		
Agency Construction Cost ($1000)	$162.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	2		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	10.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	4.44		
Work Zone Length (miles)	1.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Single-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Activity 3	REHAB HMA W/ RHMA (20YR)		
Agency Construction Cost ($1000)	$305.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	4		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	21.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	4.08		
Work Zone Length (miles)	1.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Single-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

Alternative 3	40 year JPCP	
Number of Activities	3	
Activity 1	NEW/RECONST JPCP (40YR)	
Agency Construction Cost ($1000)	$823.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	0	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	45.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	0.96	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	65	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	24
Second period of lane closure		
Third period of lane closure		
Activity 2	CAPM (CPR C)	
Agency Construction Cost ($1000)	$20.00	
User Work Zone Costs ($1000)		
Work Zone Duration (days)	1	
No of Lanes Open in Each Direction During Work Zone	3	
Activity Service Life (years)	5.0	
Activity Structural Life (years)		
Maintenance Frequency (years)	1	
Agency Maintenance Cost ($1000)	3.6	
Work Zone Length (miles)	1.00	
Work Zone Speed Limit (mph)	60	
Work Zone Capacity (vphpl)	1510	
Traffic Hourly Distribution	Weekday Single-Peak	
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)		
Inbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Outbound	Start	End
First period of lane closure	0	6
Second period of lane closure	21	24
Third period of lane closure		
Activity 3	CAPM (CPR B)	

Probabilistic Life Cycle Cost Analysis Worksheet

Agency Construction Cost ($1000)	$53.00		
User Work Zone Costs ($1000)			
Work Zone Duration (days)	1		
No of Lanes Open in Each Direction During Work Zone	3		
Activity Service Life (years)	10.0		
Activity Structural Life (years)			
Maintenance Frequency (years)	1		
Agency Maintenance Cost ($1000)	1.8		
Work Zone Length (miles)	1.00		
Work Zone Speed Limit (mph)	60		
Work Zone Capacity (vphpl)	1510		
Traffic Hourly Distribution	Weekday Single-Peak		
Time of Day of Lane Closures (use whole numbers based on a 24-hour clock)			
Inbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			
Outbound	Start	End	
First period of lane closure	0	6	
Second period of lane closure	21	24	
Third period of lane closure			

Probabilistic Life Cycle Cost Analysis Worksheet

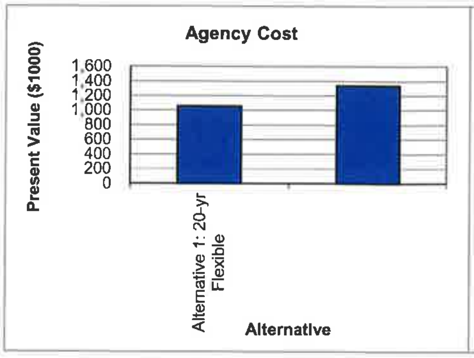
Update Results

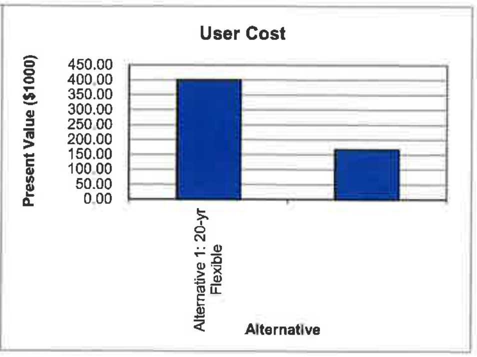
Total Cost								
	Alternative 1: 20-yr Flexible		Alternative 2: 40-yr Flexible		Alternative 3: 40 year JPCP		Alternative 4:	
Total Cost	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)
Undiscounted Sum	*$1,657.00*	*$1,293.03*	*$1,738.86*	*$789.68*	*$933.34*	*$401.21*		
Present Value	**$1,057.24**	**$400.29**	**$1,338.95**	**$167.69**	**$853.70**	**$67.96**		
EUAC	$47.82	$18.11	$60.56	$7.58	$38.61	$3.07		

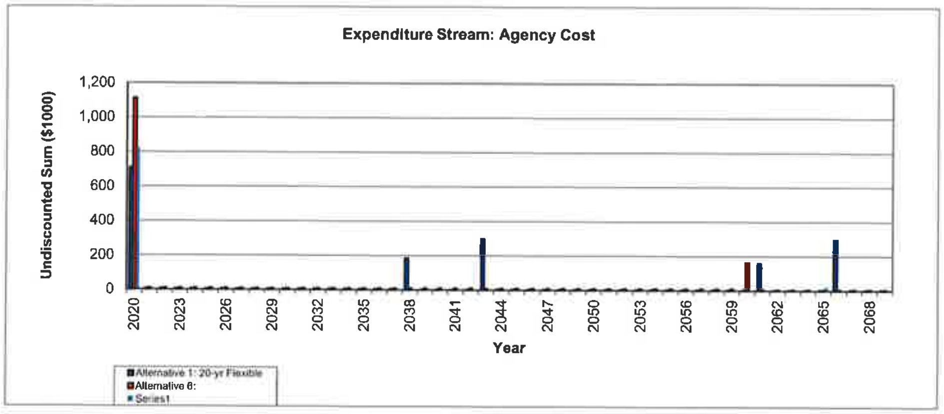
Lowest Present Value Agency Cost	**Alternative 3: 40 year JPCP**
Lowest Present Value User Cost	**Alternative 3: 40 year JPCP**

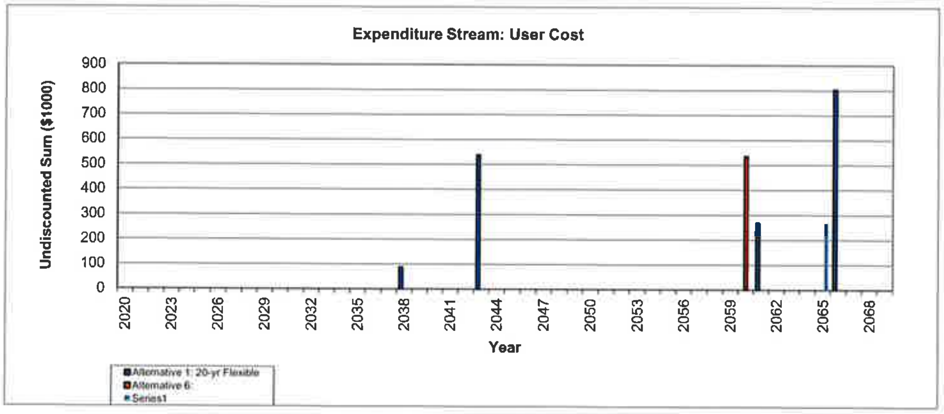
Expenditure Stream								
	Alternative 1: 20-yr Flexible		**Alternative 2: 40-yr Flexible**		**Alternative 3: 40 year JPCP**		**Alternative 4:**	
Year	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)	Agency Cost ($1000)	User Cost ($1000)
2020	$708.00		$1,111.00		$823.00			
2021	$4.32		$8.64		$0.96			
2022	$4.32		$8.64		$0.90			
2023	$4.32		$8.64		$0.96			
2024	$4.32		$8.64		$0.96			
2025	$4.32		$8.64		$0.96			
2026	$4.32		$8.64		$0.96			
2027	$4.32		$8.64		$0.96			
2028	$4.32		$8.64		$0.96			
2029	$4.32		$8.64		$0.96			
2030	$4.32		$0.64		$0.06			
2031	$4.32		$8.64		$0.96			
2032	$4.32		$8.64		$0.96			
2033	$4.32		$8.64		$0.96			
2034	$4.32		$8.64		$0.96			
2035	$4.32		$8.64		$0.96			
2036	$4.32		$8.64		$0.96			
2037	$4.32		$8.64		$0.96			
2038	$184.00	$87.83	$8.64		$0.96			
2039	$1.32		$8.64		$0.96			
2040	$1.32		$8.64		$0.96			
2041	$1.32		$8.64		$0.96			
2042	$1.32		$8.64		$0.96			
2043	$296.00	$536.52	$8.64		$0.96			
2044	$3.24		$8.64		$0.96			
2045	$3.24		$8.64		$0.96			
2046	$3.24		$8.64		$0.96			
2047	$3.24		$8.64		$0.96			
2048	$3.24		$8.64		$0.96			
2049	$3.24		$8.64		$0.96			
2050	$3.24		$8.64		$0.96			
2051	$3.24		$8.64		$0.96			
2052	$3.24		$8.64		$0.96			
2053	$3.24		$8.64		$0.96			
2054	$3.24		$8.64		$0.96			
2055	$3.24		$8.64		$0.96			
2056	$3.24		$8.64		$0.96			
2057	$3.24		$8.64		$0.96			
2058	$3.24		$8.64		$0.96			
2059	$3.24		$8.64		$0.96			
2060	$3.24		$162.00	$534.94	$0.96			
2061	$156.00	$267.47	$4.44		$0.96			
2062	$1.32		$4.44		$0.96			
2063	$1.32		$4.44		$0.96			
2064	$1.32		$4.44		$0.96			
2065	$1.32		$4.44		$20.00	$267.47		
2066	$296.00	$802.41	$4.44		$3.60			
2067	$3.24		$4.44		$3.60			
2068	$3.24		$4.44		$3.60			
2069	$3.24		$4.44		$3.60			
2070	$3.24		$305.00	$1,069.88	$53.00	$267.47		
2071	$3.24		$4.08		$1.80			
2072	$3.24		$4.08		$1.80			
2073	$3.24		$4.08		$1.80			
2074	$3.24		$4.08		$1.80			
2075	($148.00)	($401.21)	($232.38)	($815.15)	($26.50)	($133.74)		

Probabilistic Life Cycle Cost Analysis Worksheet









SR 99/Mitchell Rd/Service Rd Interchange Project

Pavement Area for Alternative 2 = 84,874 SF

ITEM NO.	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT COST	AMOUNT /$1,000
	20 Year Flexible (0.95' HMA, 1.80' AB)				
1	HOT MIX ASPHALT (TYPE A)	6,047	TON	$75	$454
2	RHMA-OPEN GRADED (OGFC)	0	TON	$130	$0
3	RHMA (GAP GRADED)	0	TON	$120	$0
4	CLASS 2 AGGREGATE BASE	5,658	CY	$45	$255
5	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	0	CY	$230	$0
6	CLASS 2 AGGREGATE SUBBASE	0	CY	$30	$0
7	IMPORTED BORROW	0	CY	$15	$0
TOTAL					$708
	TOTAL DIRECT CONSTRUCTION COST =				$708
	RIGHT OF WAY COST =				
	TOTAL COST =				$708
	INITIAL SUPPORT COST (25%) =				
	TOTAL INITIAL AGENCY COST =				**$708**
	40 Year Flexible (0.15' RHMA-O, 0.15' RHMA-G, 1.65' HMA, 0.50' AB)				
1	HOT MIX ASPHALT (TYPE A)	10,503	TON	$75	$788
2	RHMA-OPEN GRADED (OGFC)	955	TON	$130	$124
3	RHMA (GAP GRADED)	955	TON	$120	$115
4	CLASS 2 AGGREGATE BASE	1,572	CY	$45	$71
5	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	0	CY	$230	$0
6	CLASS 2 AGGREGATE SUBBASE	0	CY	$30	$0
7	IMPORTED BORROW	943	CY	$15	$14
TOTAL					$1,111
	TOTAL DIRECT CONSTRUCTION COST =				$1,111
	RIGHT OF WAY COST =				
	TOTAL COST =				$1,111
	INITIAL SUPPORT COST (25%) =				
	TOTAL INITIAL AGENCY COST =				**$1,111**
	40 Year JPCP (0.95' JPCP, 0.25' HMA, 0.70' AS)				
1	HOT MIX ASPHALT (TYPE A)	1,591	TON	$75	$119
2	RHMA-OPEN GRADED (OGFC)	0	TON	$130	$0
3	RHMA (GAP GRADED)	0	TON	$120	$0
4	CLASS 2 AGGREGATE BASE	0	CY	$45	$0
5	JOINTED PLAIN CONCRETE PAVEMENT	2,986	CY	$200	$597
6	CLASS 2 AGGREGATE SUBBASE	2,200	CY	$30	$66
7	IMPORTED BORROW	2,672	CY	$15	$40
TOTAL					$823
	TOTAL DIRECT CONSTRUCTION COST =				$823
	RIGHT OF WAY COST =				
	TOTAL COST =				$823
	INITIAL SUPPORT COST (25%) =				
	TOTAL INITIAL AGENCY COST =				**$823**

ATTACHMENT L

STRUCTURES ADVANCE PLANNING STUDY

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MICHAEL HUTCHISON – District 10 Design

Date: April 6, 2016

File: 10-Sta-99-PM 9.5/R11.4
SR 99 Service/Mitchell Rd IC
EA 10-1A6900
PID: 1000000375-0

Reza Erfan

From: REZA ERFANIAN
Structures Liaison Engineer
Office of Special Funded Projects, MS# 9-2/7G
Division of Engineering Services

Subject: Structures APS Approval Transmittal

The Division of Engineering Services (DES) has completed the review of the 2nd submittal of the Advanced Planning Studies (APS) received February 23, 2016, for the above referenced project prepared by the consultant (NV5) which consist of the following structures:

Alternative 1 :

Ceres Main Canal Bridge (Widen)	**Br. No. 38-0007K**	**CIP/RC Slab**
Service Rd OC (Replace) (L/R)	**Br. No. TBD**	**CIP/RC Box Girder**
Service Rd Overhead	**Br. No. TBD**	**PC/PS CA Wide Flange Girder**

Alternative 2:

Ceres Main Canal Bridge (Repl)	**Br. No. 38-0007K**	**CIP/RC Slab**
Service Rd OC (Replace) (L/R)	**Br. No. TBD**	**CIP/RC Box Girder**
Mitchell Rd SB On-Ramp UC(Repl)	**Br. No. 38-0093**	**PC/PS CA Box Girder**
Mitchell Rd SB Off-Ramp UC	**Br. No. 38-0093**	**PC/PS CA Box Girder**

Attached please find the electronic copy of signed APS for the structures above. No hard copy will follow. Please be advised that once the alternative is selected, bridge numbers need to be assigned to the structures. OSFP will facilitate the request from OSM&I prior to the Type Selection Meeting with coordination with the consultant.

The approval is with minor comments – not included here – which can be incorporated in the next stage (Type Selection Report).

Questions and comments may be directed to me at 916-227-8196.
Attachments: As shown above

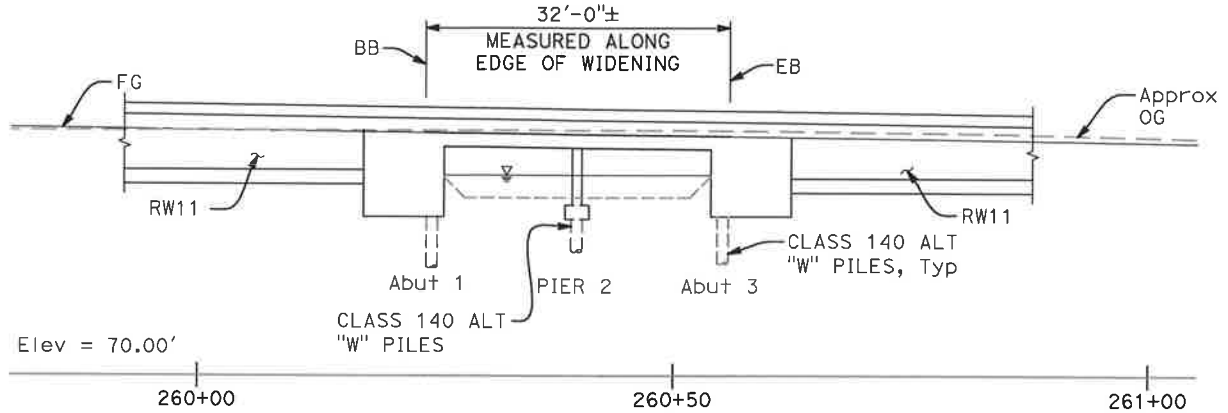
"Caltrans improves mobility across California"

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

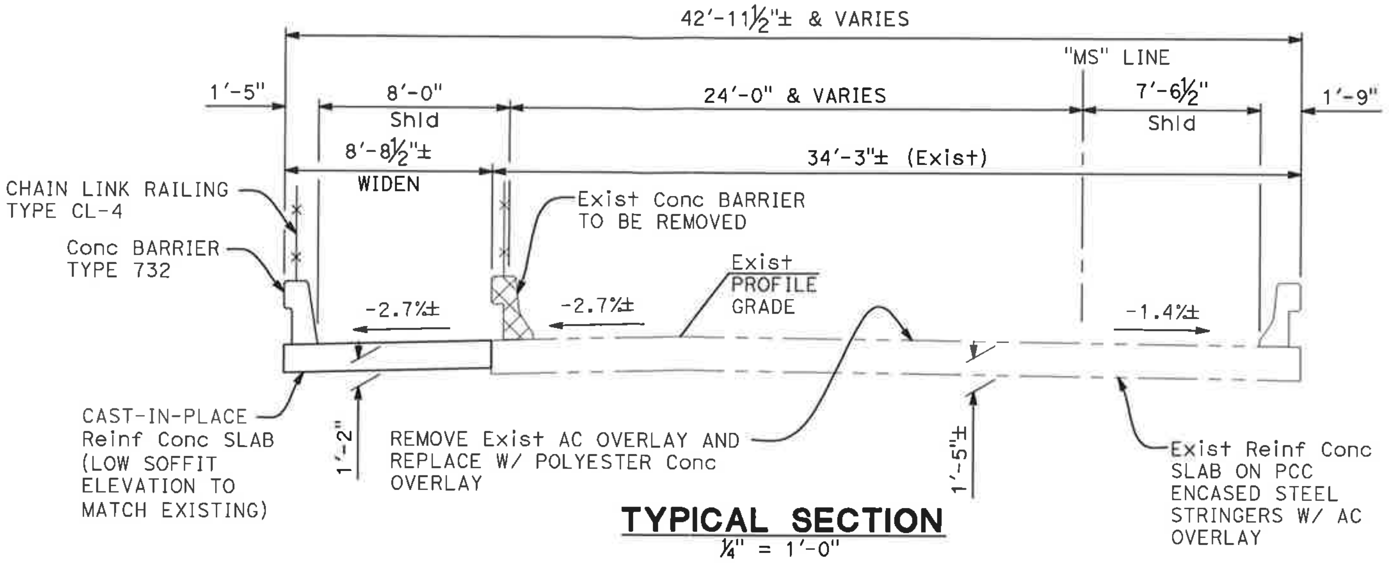
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



MIRRORED ELEVATION

1" = 10'



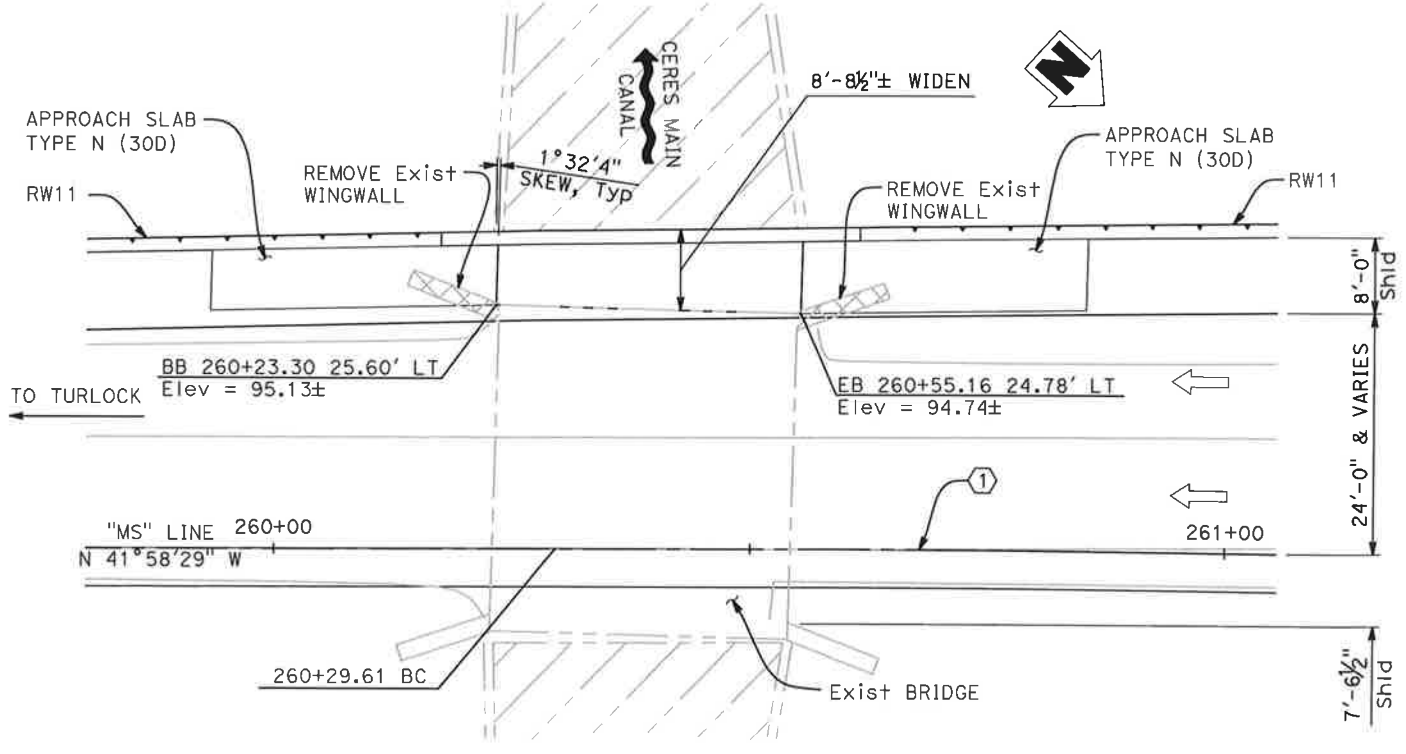
TYPICAL SECTION

¼" = 1'-0"

LEGEND:

- - - - INDICATES EXISTING STRUCTURE
——— INDICATES NEW STRUCTURE
▨ INDICATES BRIDGE REMOVAL

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 1'-2"
LENGTH = 32'-0"
WIDTH = 8'-8½"
AREA = 279 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $774/SQ FT
TOTAL COST = $216,000



PLAN

1" = 10'

① CURVE DATA
R = 5000.00'
Δ = 1°21'43"
T = 59.43'
L = 118.86'

VEHICULAR TRAFFIC
1. ____ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ____ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. _X_ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL NOT BE REQUIRED.
4. ____ TRAFFIC WILL PASS UNDER THE STRUCTURE ON ______
  A. ____ NO FALSEWORK ALLOWED OVER TRAFFIC.
  B. ____ FALSEWORK OPENING(S) REQUIRED.

		TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
____	BND	____	____
____	BND	____	____
____	TWO-WAY	____	____

DESIGN OVERSIGHT
SIGN OFF DATE

ALTERNATIVE 1

DESIGNED BY LLK	DATE 2/1/16	T. WALKER PROJECT ENGINEER	PLANNING STUDY
DRAWN BY LLK	DATE 2/1/16		CERES MAIN CANAL BRIDGE (WIDEN)
CHECKED BY TW	DATE 2/1/16		BRIDGE NO. 38-0007K CU --
APPROVED	DATE		SCALE: AS SHOWN EA 10-1A690

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 1 - CERES MAIN CANAL 38-0007K.DWG

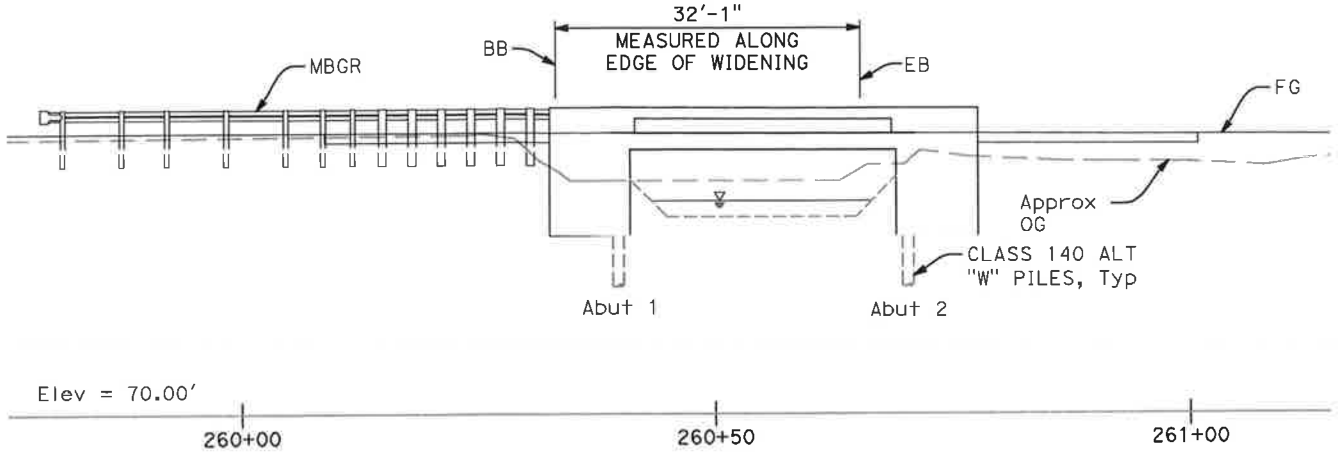
USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 2:52 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

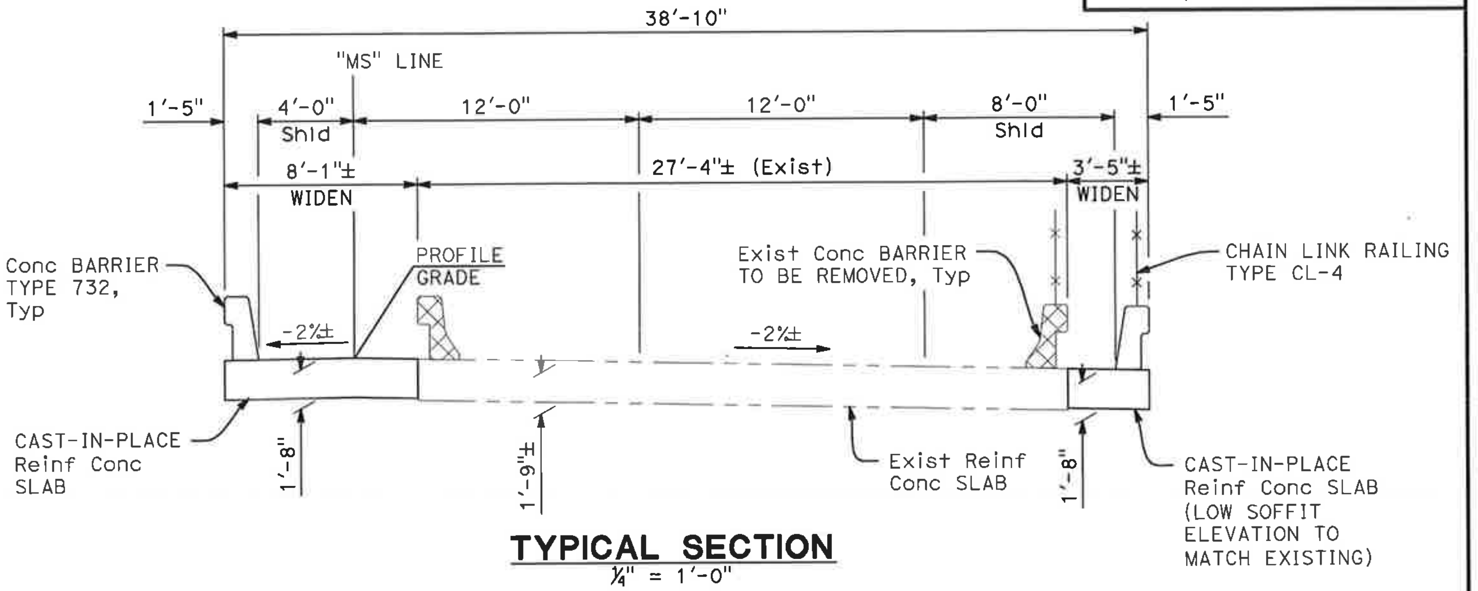
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



ELEVATION
1" = 10'

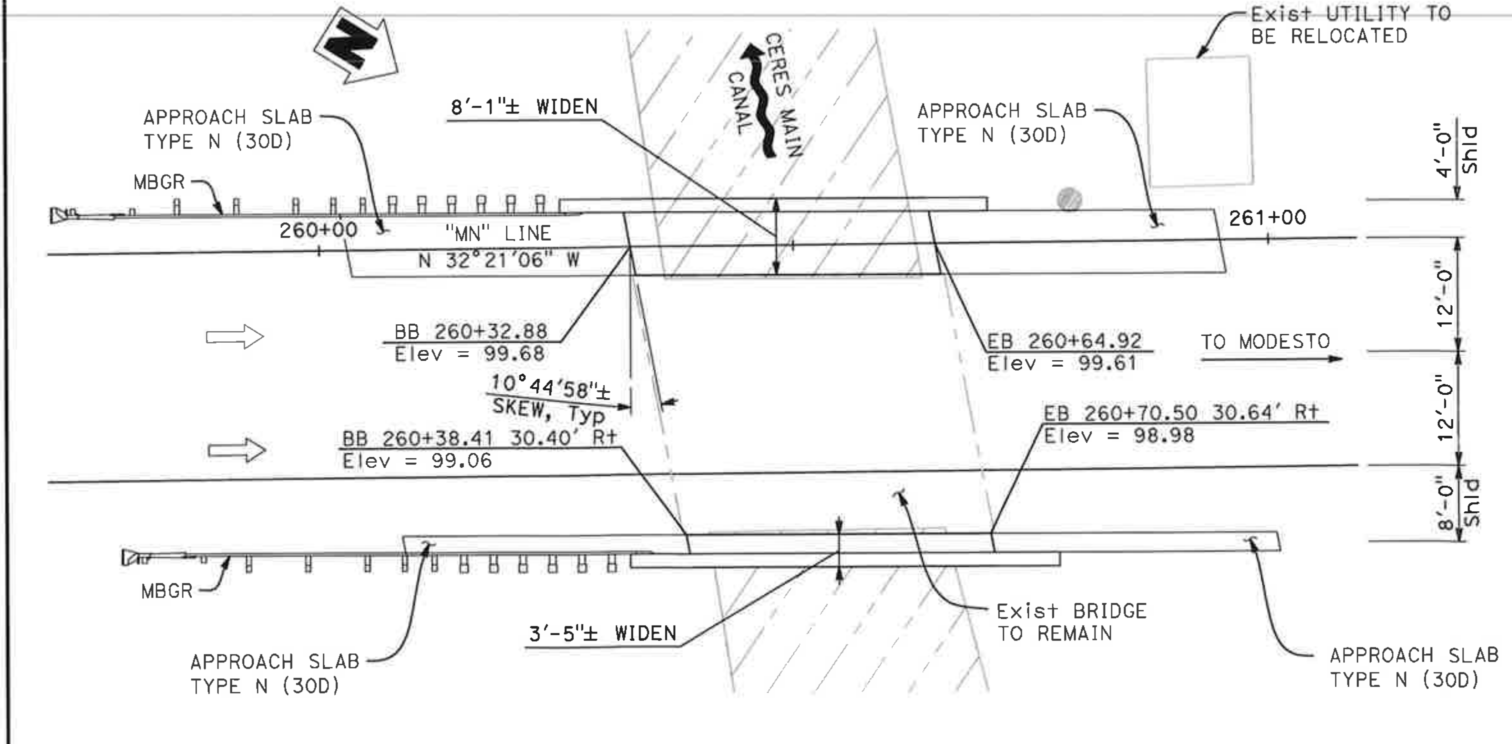


TYPICAL SECTION
¼" = 1'-0"

LEGEND:

— · — · —	INDICATES EXISTING STRUCTURE
———	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 1'-8"
LENGTH = 32'-1"
WIDTH = 11'-6"
AREA = 369 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $444/SQ FT
TOTAL COST = $164,000



PLAN
1" = 10'

VEHICULAR TRAFFIC

1. ____ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ____ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. _X_ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL NOT BE REQUIRED.
4. ____ TRAFFIC WILL PASS UNDER THE STRUCTURE ON ______
   - A.____ NO FALSEWORK ALLOWED OVER TRAFFIC.
   - B.____ FALSEWORK OPENING(S) REQUIRED.

		TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
____	BND	____	____
____	BND	____	____
____	TWO-WAY	____	____

DESIGN OVERSIGHT
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

ALTERNATIVE 1

DESIGNED BY	LLK	DATE	2/1/16
DRAWN BY	LLK	DATE	2/1/16
CHECKED BY	TW	DATE	2/1/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

PLANNING STUDY

CERES MAIN CANAL BRIDGE (WIDEN)

BRIDGE NO. 38-0007S
CU --
SCALE: AS SHOWN
EA 10-1A690

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 1 - CERES MAIN CANAL 38-0007S.DWG

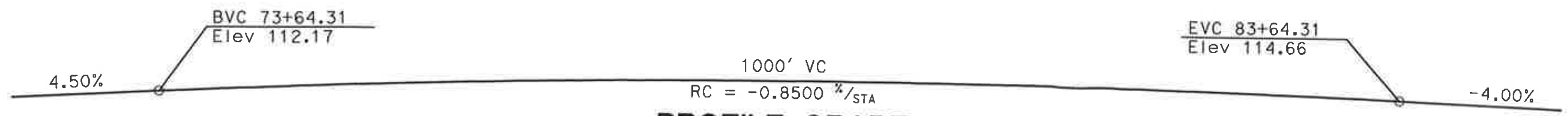
USERNAME => Kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 2:53 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

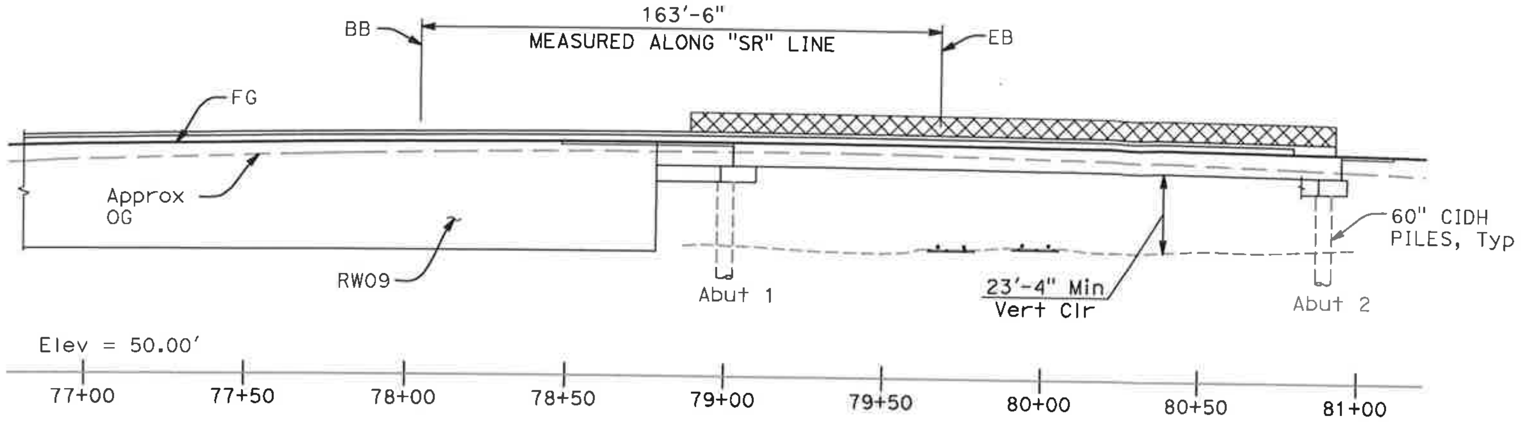
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



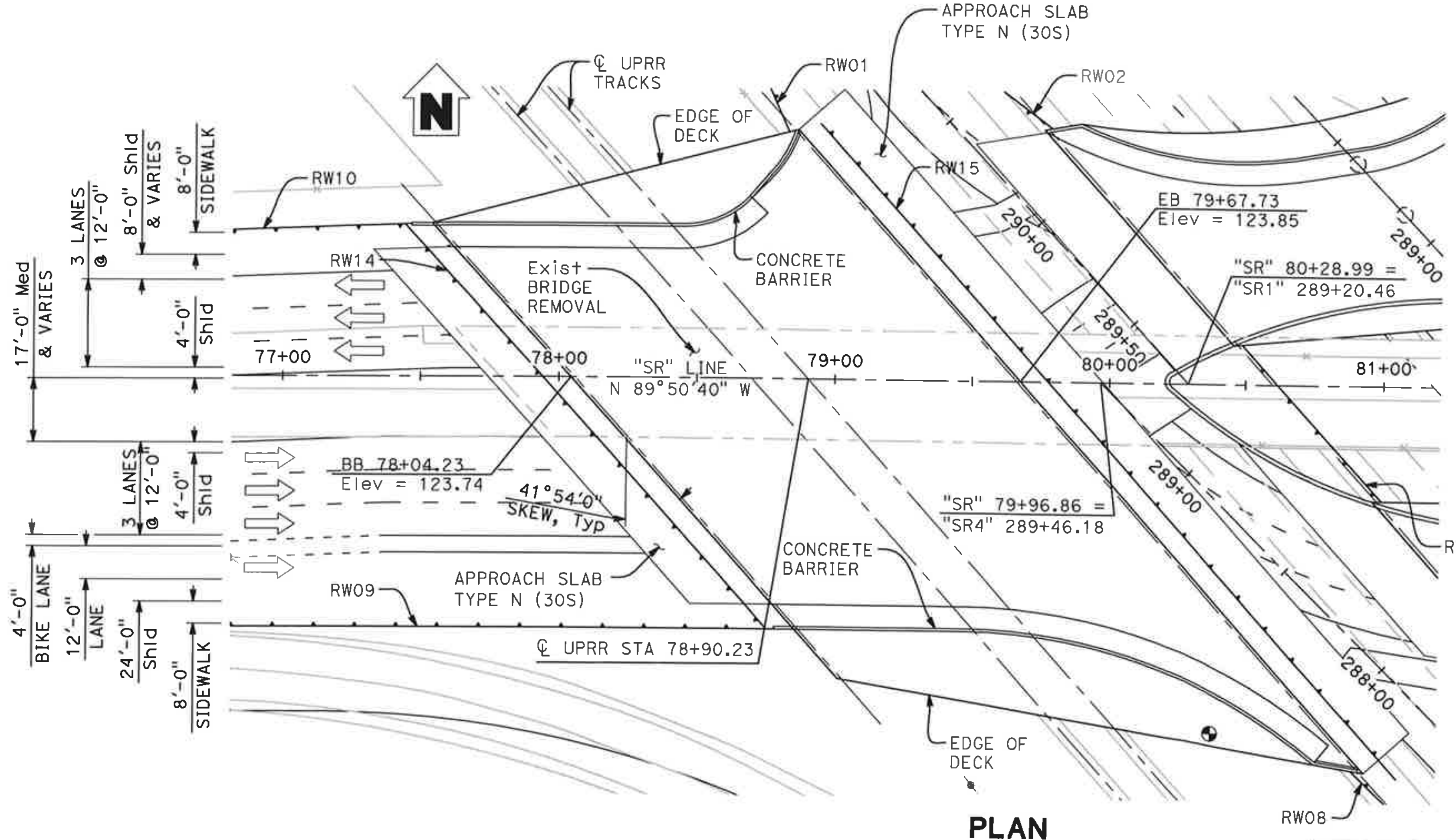
PROFILE GRADE
NO SCALE



ELEVATION
1" = 30'

DATE OF ESTIMATE	=	FEBRUARY 2016
STRUCTURE DEPTH	=	8'-6"
LENGTH	=	163'-6"
WIDTH	=	197'-9"
AREA	=	32337 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$280/SQ FT
BRIDGE REMOVAL	=	$344,000
TOTAL COST	=	$9,399,000

NOTE:
1. FOR CONSTRUCTION STAGING AND TYPICAL SECTION, SEE "SERVICE ROAD OH - STAGING" SHEET.



PLAN
1" = 30'

LEGEND:

— - —	INDICATES EXISTING STRUCTURE
———	INDICATES NEW STRUCTURE
●	LOCATION OF MINIMUM VERTICAL CLEARANCE

VEHICULAR TRAFFIC
1. ____ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ____ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. _X_ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL BE REQUIRED.
4. _X_ TRAFFIC WILL PASS UNDER THE STRUCTURE ON UPRR
    A. _X_ NO FALSEWORK ALLOWED OVER TRAFFIC.
    B. ____ FALSEWORK OPENING(S) REQUIRED.

	TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
____ BND		
____ BND		
____ TWO-WAY		

ALTERNATIVE 1

DESIGNED BY	LLK	DATE	2/11/16
DRAWN BY	LLK	DATE	2/11/16
CHECKED BY	TW	DATE	2/11/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

PLANNING STUDY
SERVICE ROAD OVERHEAD

BRIDGE NO.	TBD	CU	--
SCALE:	AS SHOWN	EA	10-1A690

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 1 - SERVICE ROAD OH.DWG

USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 2:54 PM

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

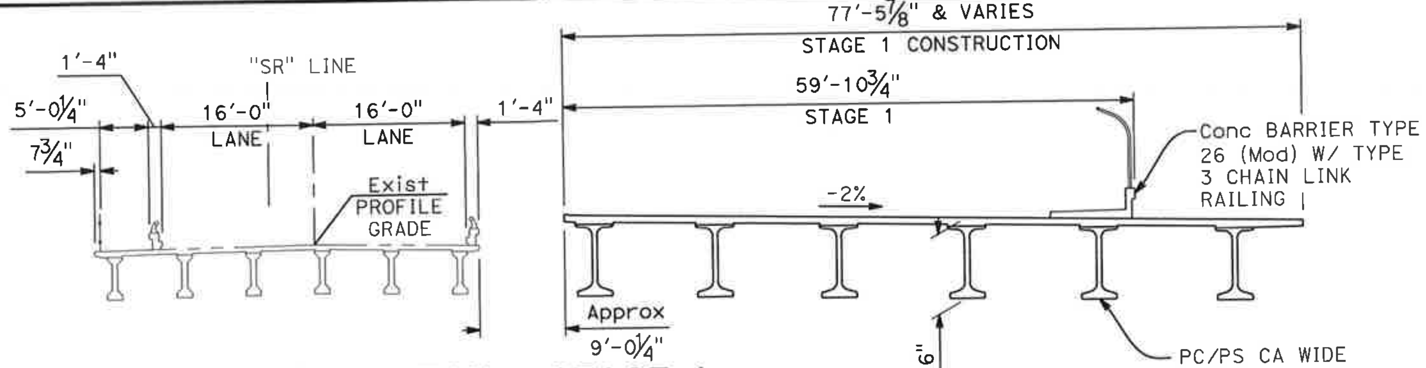
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

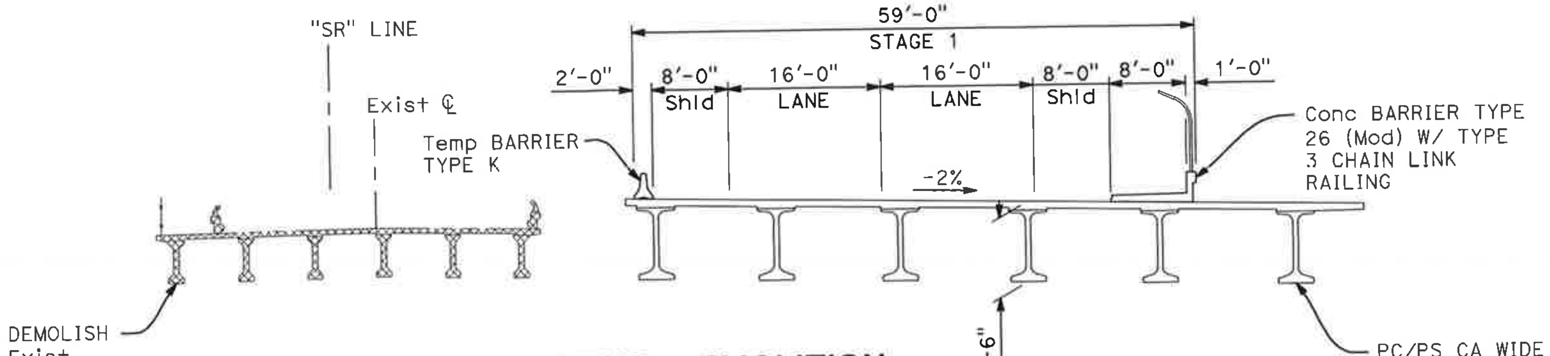
LEGEND:

— - — - —	INDICATES EXISTING STRUCTURE
———	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL



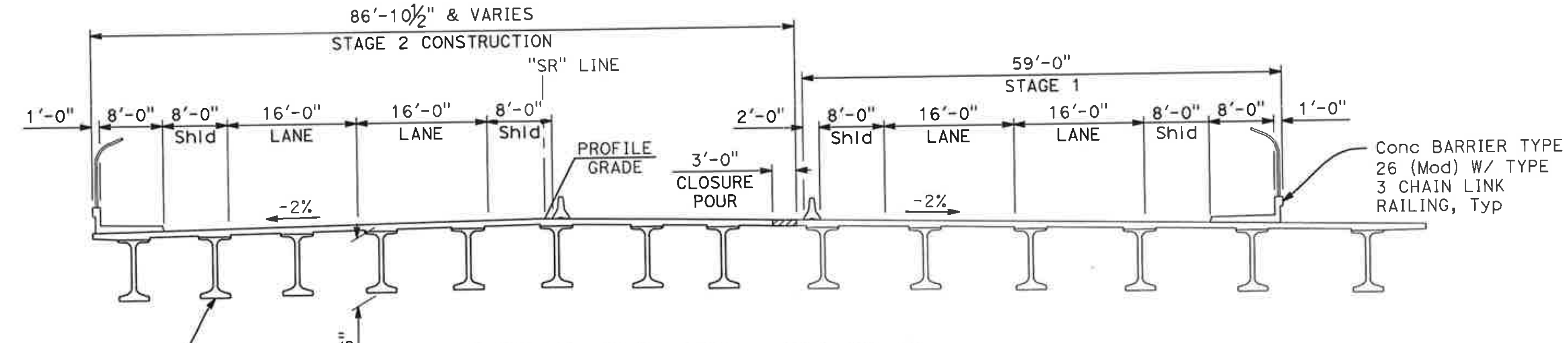
TYPICAL SECTION - STAGE 1

1" = 10'



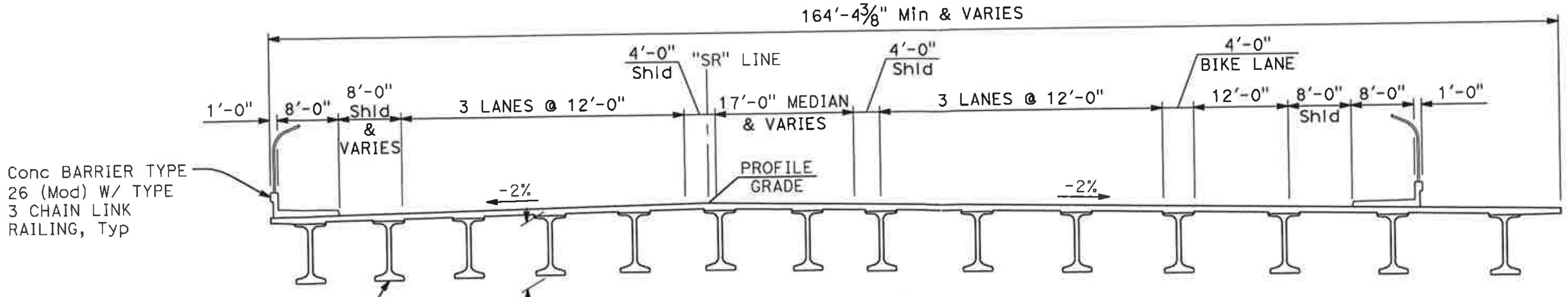
TYPICAL SECTION - EXISTING DEMOLITION

1" = 10'



TYPICAL SECTION - STAGE 2

1" = 10'



TYPICAL SECTION

1" = 10'

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

DESIGNED BY	LLK	DATE	2/1/16
DRAWN BY	LLK	DATE	2/1/16
CHECKED BY	TW	DATE	2/1/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

ALTERNATIVE 1

PLANNING STUDY

SERVICE ROAD OH - STAGING

BRIDGE NO.	CU --
SCALE: AS SHOWN	EA 10-1A690

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 1 - SERVICE ROAD OH STAGING.DWG

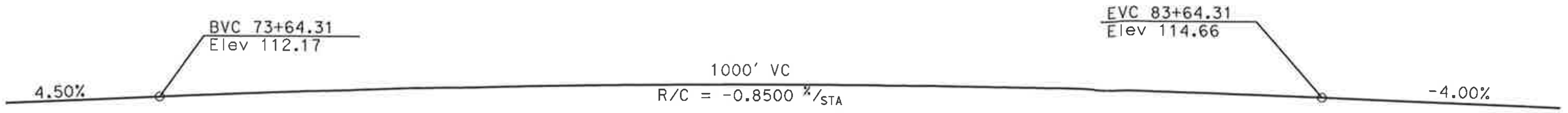
USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 2:54 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

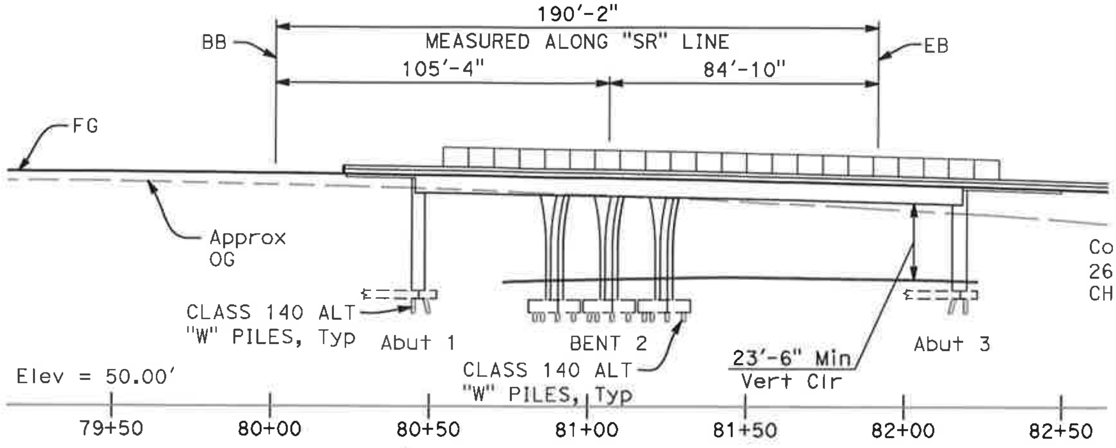
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

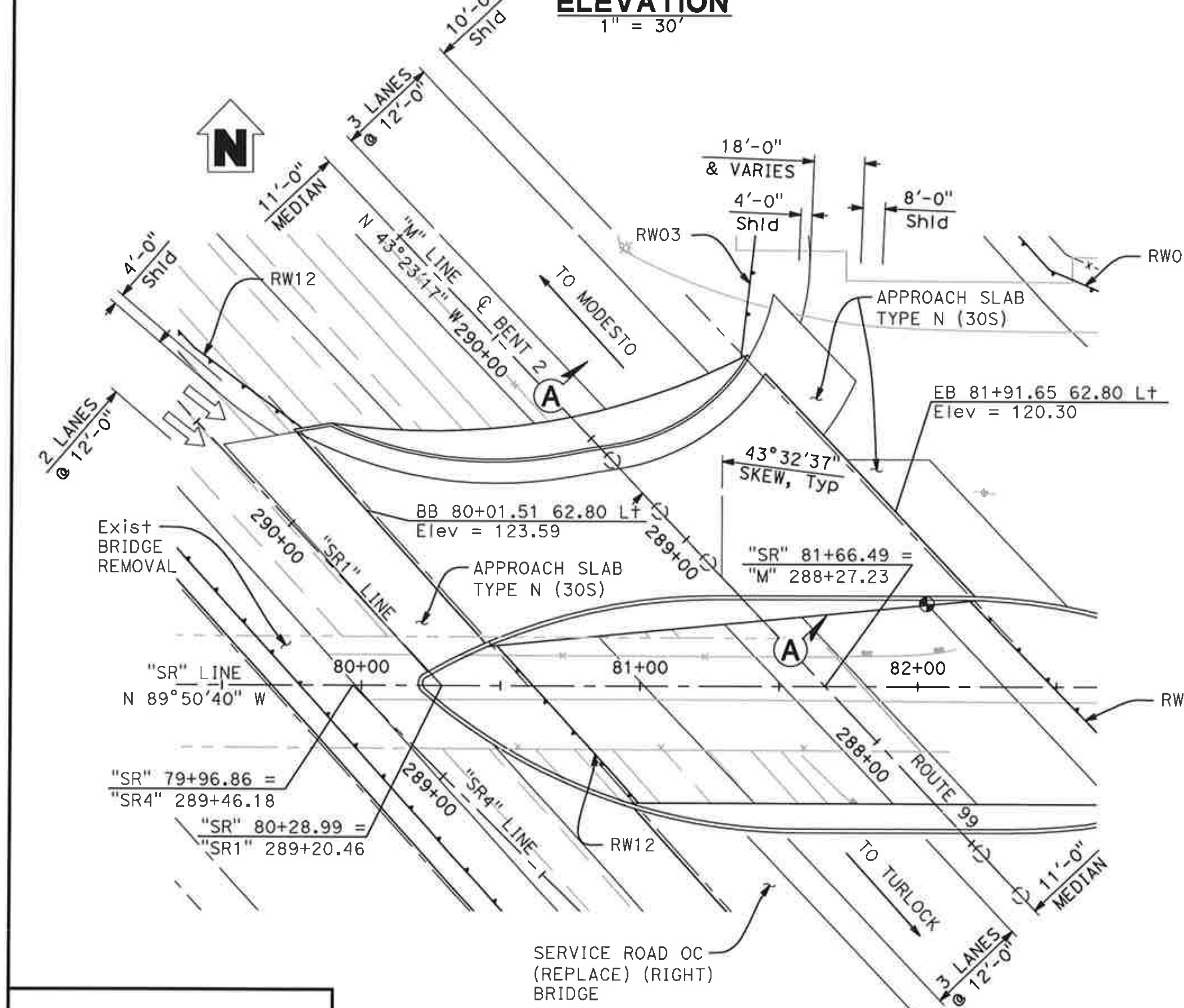
NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



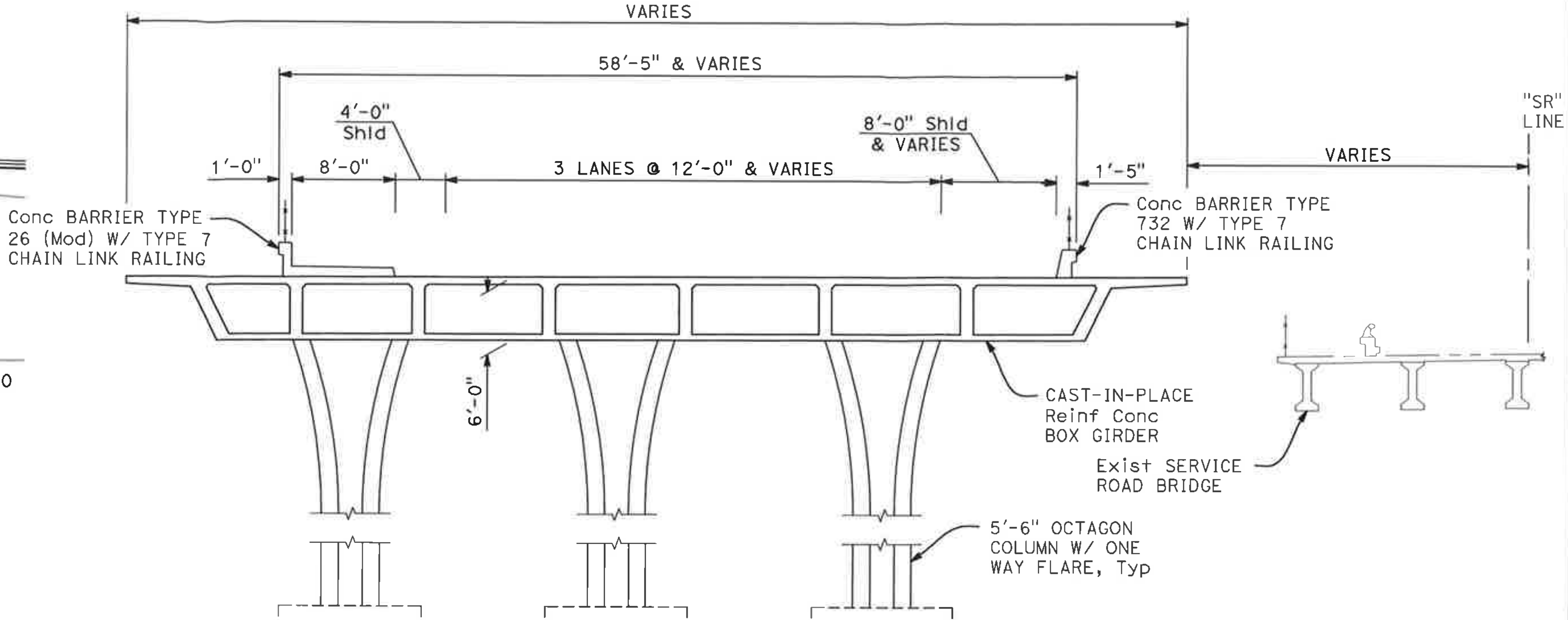
PROFILE GRADE
NO SCALE



ELEVATION
1" = 30'



PLAN
1" = 30'



TYPICAL SECTION A-A
⅛" = 1'-0"

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 6'-0"
LENGTH = 190'-2"
WIDTH = 58'-5" & VARIES
AREA = 14553 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $347/SQ FT
TOTAL COST = $5,051,000

LEGEND:

- - -	INDICATES EXISTING STRUCTURE
——	INDICATES NEW STRUCTURE
●	LOCATION OF MINIMUM VERTICAL CLEARANCE

VEHICULAR TRAFFIC
1. ____ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ____ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. ____ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL/WILL NOT BE REQUIRED.
4. X TRAFFIC WILL PASS UNDER THE STRUCTURE ON STATE ROUTE 99
A. ____ NO FALSEWORK ALLOWED OVER TRAFFIC.
B. X FALSEWORK OPENING(S) REQUIRED.

		TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
N	BND	15'-0" Min	45'-0"
	BND		
	TWO-WAY		

ALTERNATIVE 1

DESIGNED BY	LLK	DATE	2/1/16
DRAWN BY	LLK	DATE	2/1/16
CHECKED BY	TW	DATE	2/1/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

PLANNING STUDY

SERVICE ROAD OVERCROSSING (REPLACE) (LEFT)

BRIDGE NO. TBD
CU --
SCALE: AS SHOWN
EA 10-1A690

DESIGN OVERSIGHT
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 1 - SERVICE ROAD OC-LT.DWG

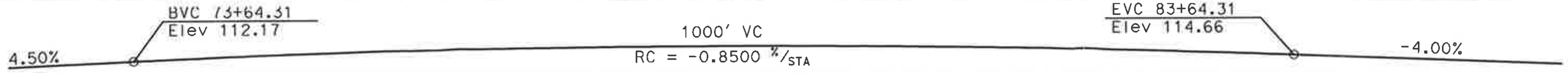
USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 2:55 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

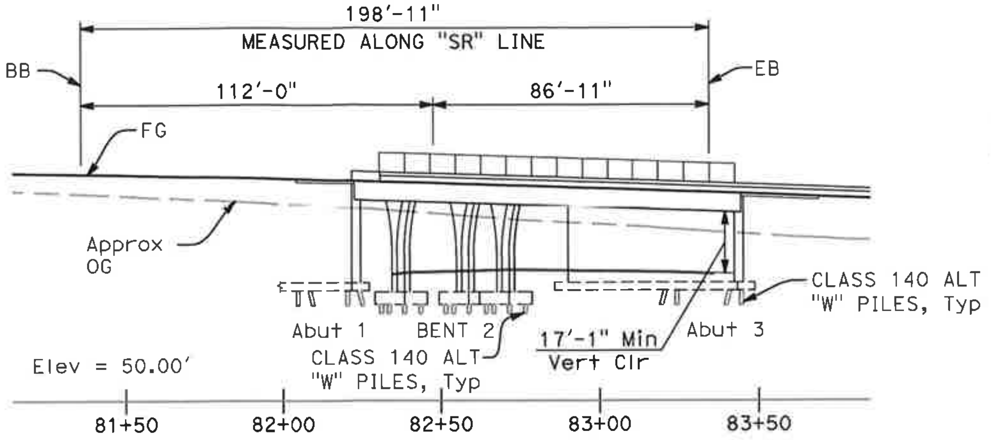
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



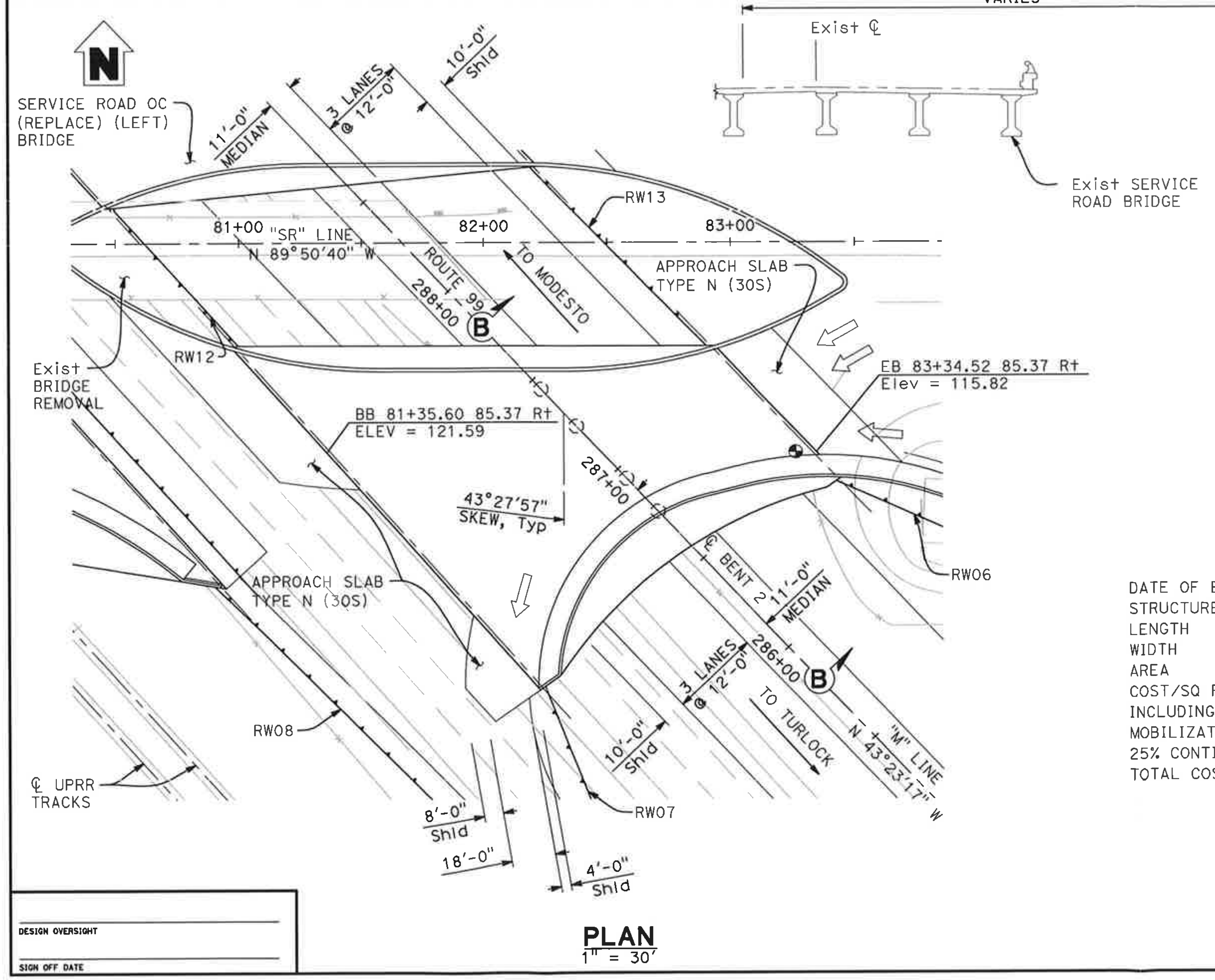
PROFILE GRADE
NO SCALE



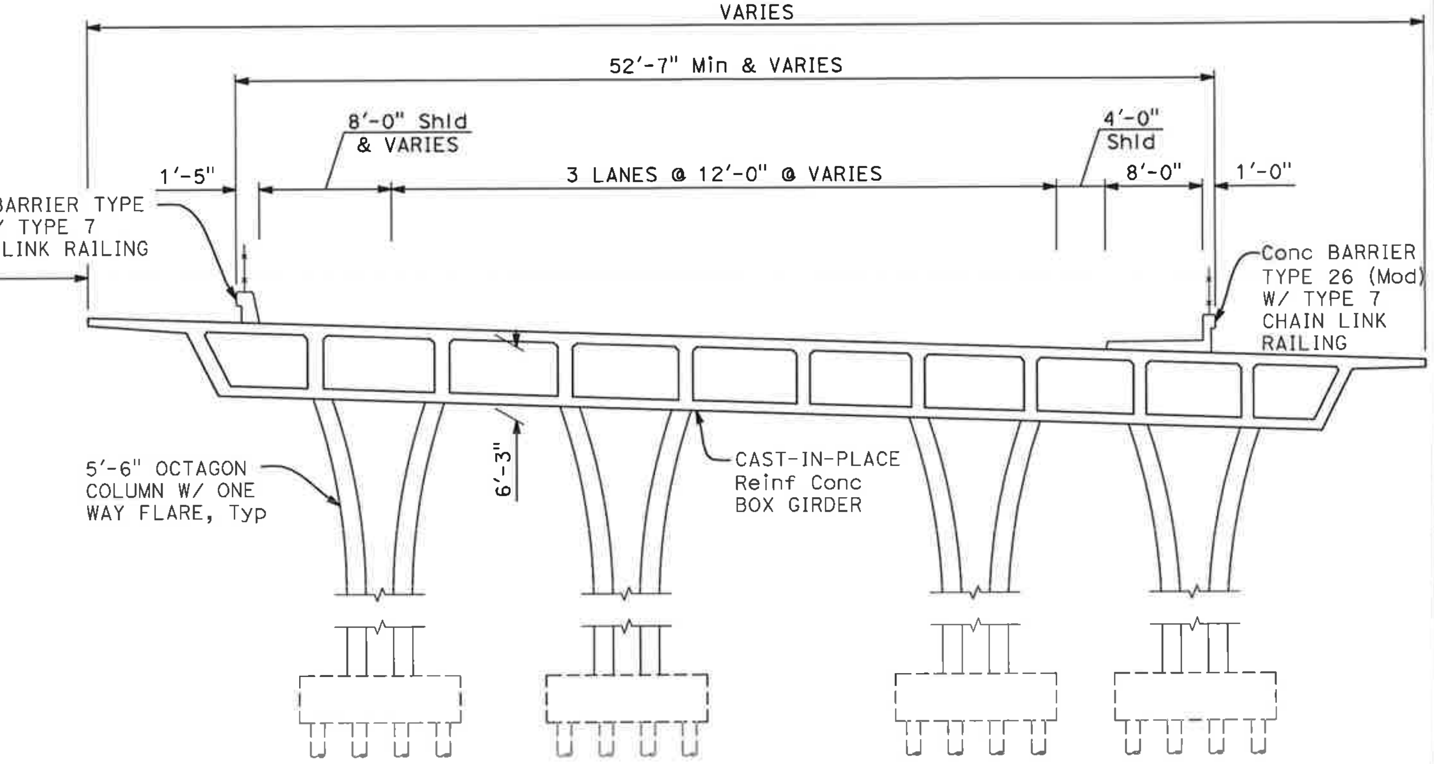
ELEVATION
1" = 30'

LEGEND:

- — - — INDICATES EXISTING STRUCTURE
- ——— INDICATES NEW STRUCTURE
- ● LOCATION OF MINIMUM VERTICAL CLEARANCE



PLAN
1" = 30'



TYPICAL SECTION B-B
⅛" = 1'-0"

VEHICULAR TRAFFIC

1. ____ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ____ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. ____ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL/WILL NOT BE REQUIRED.
4. _X_ TRAFFIC WILL PASS UNDER THE STRUCTURE ON STATE ROUTE 99
   - A. ____ NO FALSEWORK ALLOWED OVER TRAFFIC.
   - B. _X_ FALSEWORK OPENING(S) REQUIRED.

		TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
N	BND	15'-0" Min	45'-0"
	BND		
	TWO-WAY		

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 6'-3"
LENGTH = 198'-11"
WIDTH = 52'-7" & VARIES
AREA = 18118 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $365/SQ FT
TOTAL COST = $6,620,000

ALTERNATIVE 1

DESIGNED BY	LLK	DATE	2/1/16
DRAWN BY	LLK	DATE	2/1/16
CHECKED BY	TW	DATE	2/1/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

PLANNING STUDY

SERVICE ROAD OVERCROSSING (REPLACE) (RIGHT)

BRIDGE NO. TBD
CU --
SCALE: AS SHOWN
EA 10-1A690

DESIGN OVERSIGHT

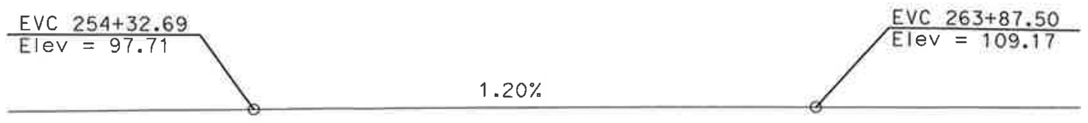
SIGN OFF DATE

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

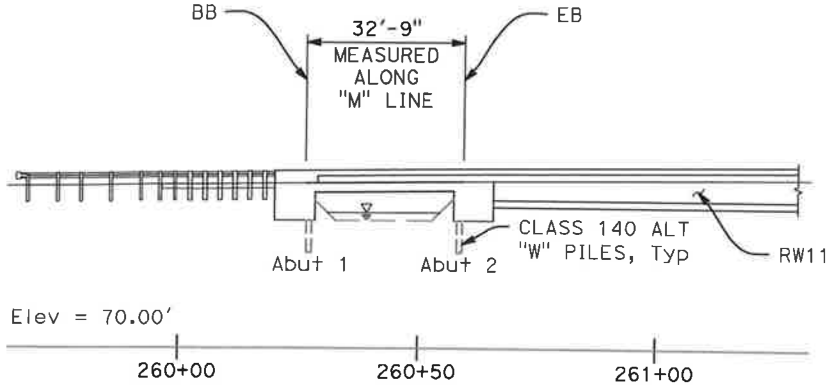
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

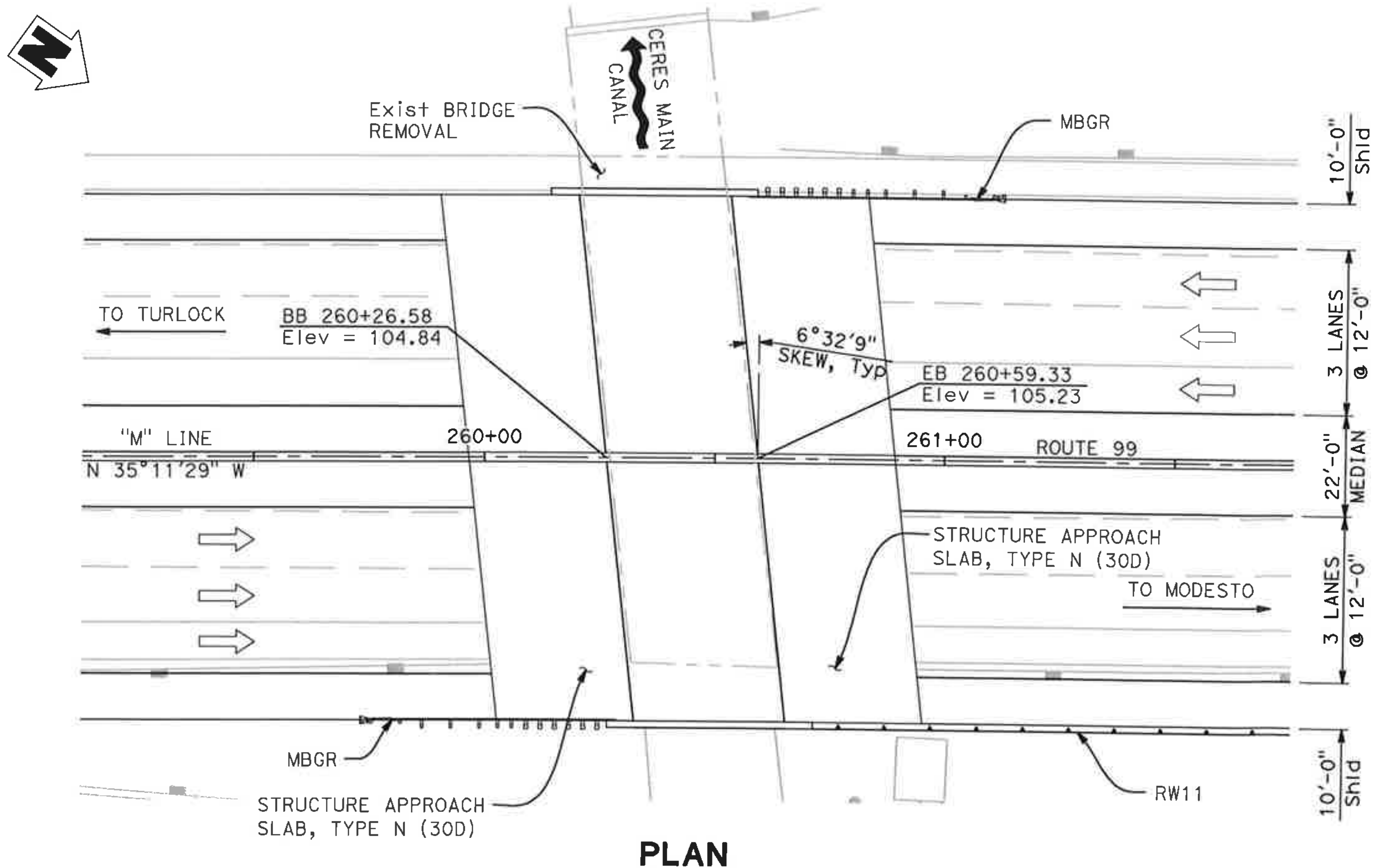
NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



PROFILE GRADE
NO SCALE



ELEVATION
1" = 20'



PLAN
1" = 20'

NOTE:

1. FOR CONSTRUCTION STAGING AND TYPICAL SECTION, SEE "CERES MAIN CANAL BRIDGE - STAGING" SHEET.

LEGEND:

— - - —	INDICATES EXISTING STRUCTURE
———	INDICATES NEW STRUCTURE

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 2'-0"
LENGTH = 32'-9"
WIDTH = 116'-10"
AREA = 3826 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $313/SQ FT
BRIDGE REMOVAL = $62,000
TOTAL COST = $1,261,000

VEHICULAR TRAFFIC

1. ___ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ___ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. _X_ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL NOT BE REQUIRED.
4. ___ TRAFFIC WILL PASS UNDER THE STRUCTURE ON ______
   - A. ___ NO FALSEWORK ALLOWED OVER TRAFFIC.
   - B. ___ FALSEWORK OPENING(S) REQUIRED.

		TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
___	BND	___	___
___	BND	___	___
___	TWO-WAY	___	___

DESIGN OVERSIGHT
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

DESIGNED BY	LLK	DATE	2/11/16
DRAWN BY	LLK	DATE	2/11/16
CHECKED BY	TW	DATE	2/11/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

ALTERNATIVE 2

PLANNING STUDY

CERES MAIN CANAL BRIDGE (REPLACE)

BRIDGE NO. 38-0007
CU --
SCALE: AS SHOWN
EA 10-1A690

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - CERES MAIN CANAL 38-0007.DWG

USERNAME => klnnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 2:59 PM

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

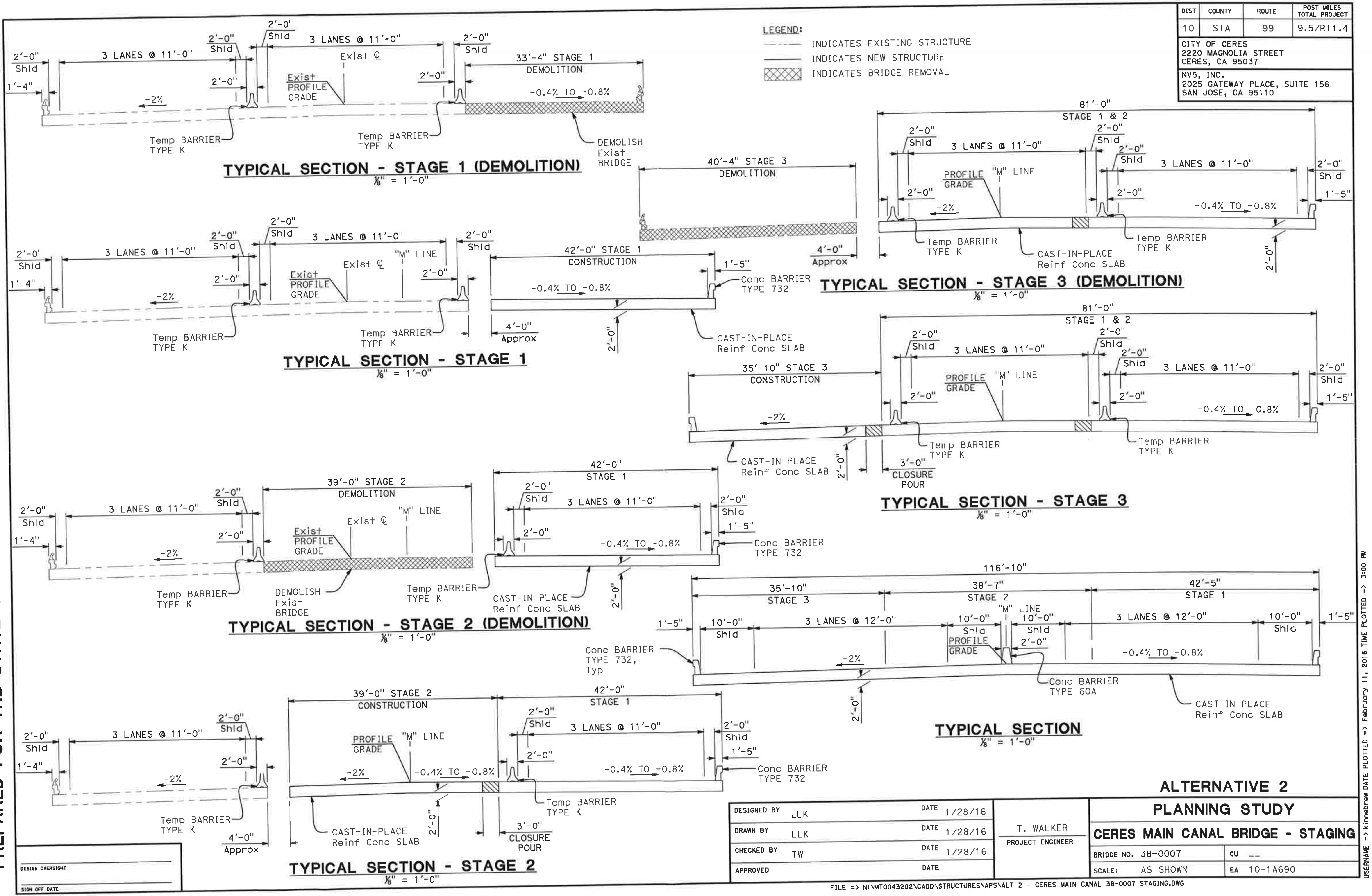
CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110

LEGEND:

- - - -	INDICATES EXISTING STRUCTURE
——	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



TYPICAL SECTION - STAGE 1 (DEMOLITION)
⅛" = 1'-0"

TYPICAL SECTION - STAGE 3 (DEMOLITION)
⅛" = 1'-0"

TYPICAL SECTION - STAGE 1
⅛" = 1'-0"

TYPICAL SECTION - STAGE 3
⅛" = 1'-0"

TYPICAL SECTION - STAGE 2 (DEMOLITION)
⅛" = 1'-0"

TYPICAL SECTION
⅛" = 1'-0"

TYPICAL SECTION - STAGE 2
⅛" = 1'-0"

DESIGN OVERSIGHT

SIGN OFF DATE

ALTERNATIVE 2

DESIGNED BY	LLK	DATE	1/28/16
DRAWN BY	LLK	DATE	1/28/16
CHECKED BY	TW	DATE	1/28/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

PLANNING STUDY

CERES MAIN CANAL BRIDGE - STAGING

BRIDGE NO.	38-0007	CU	--
SCALE:	AS SHOWN	EA	10-1A690

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - CERES MAIN CANAL 38-0007 STAGING.DWG

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:00 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

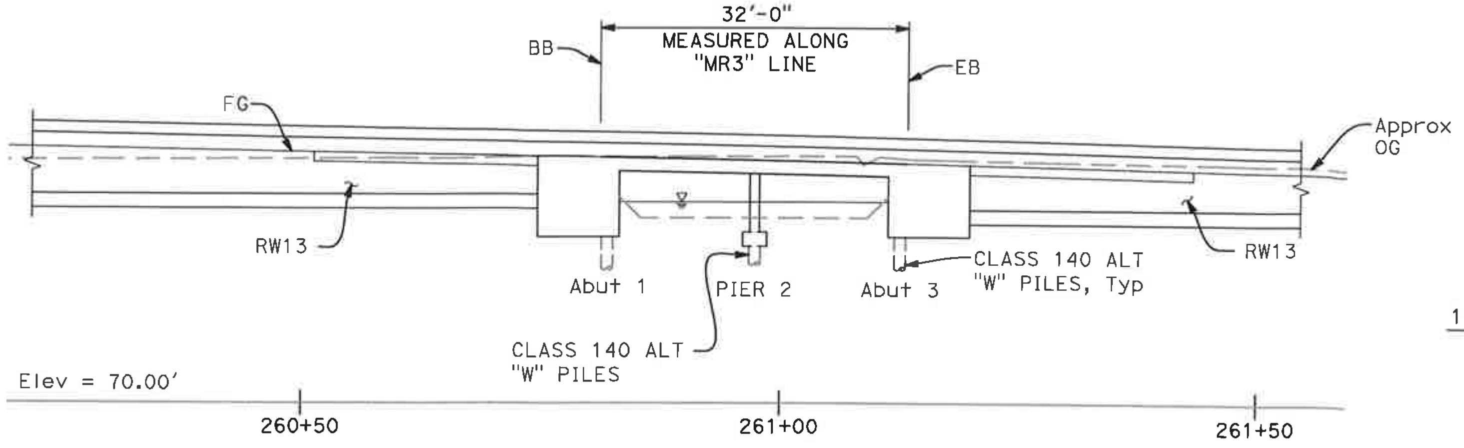
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

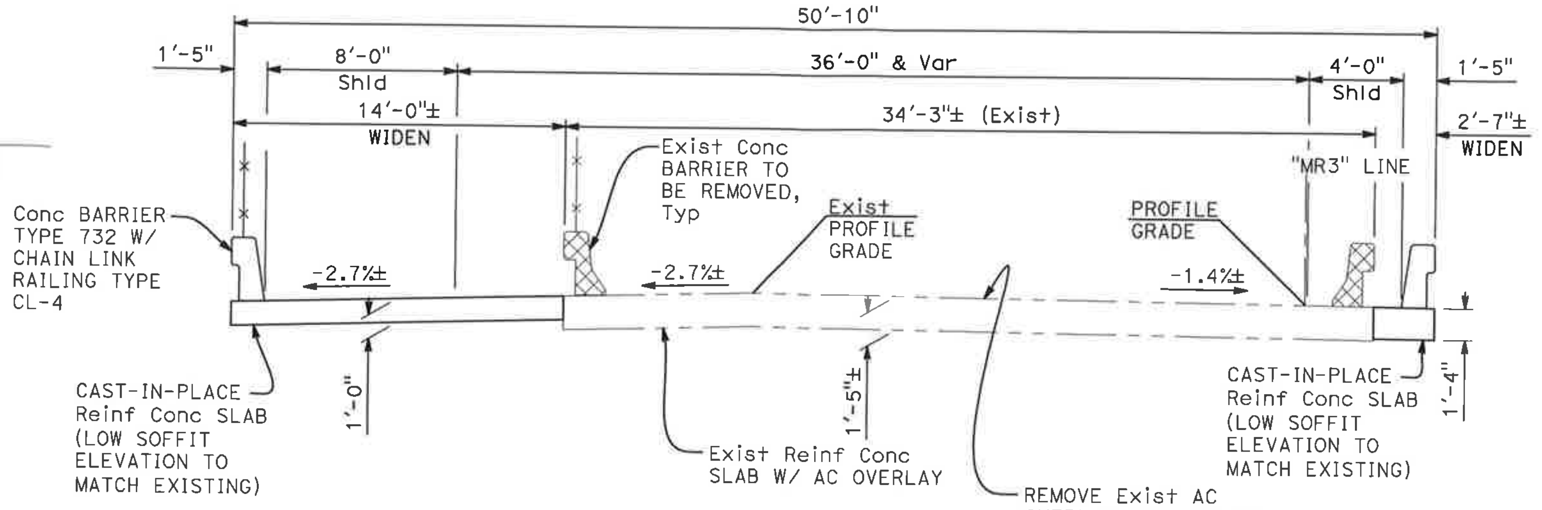
NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110

LEGEND:

— - —	INDICATES EXISTING STRUCTURE
——	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL

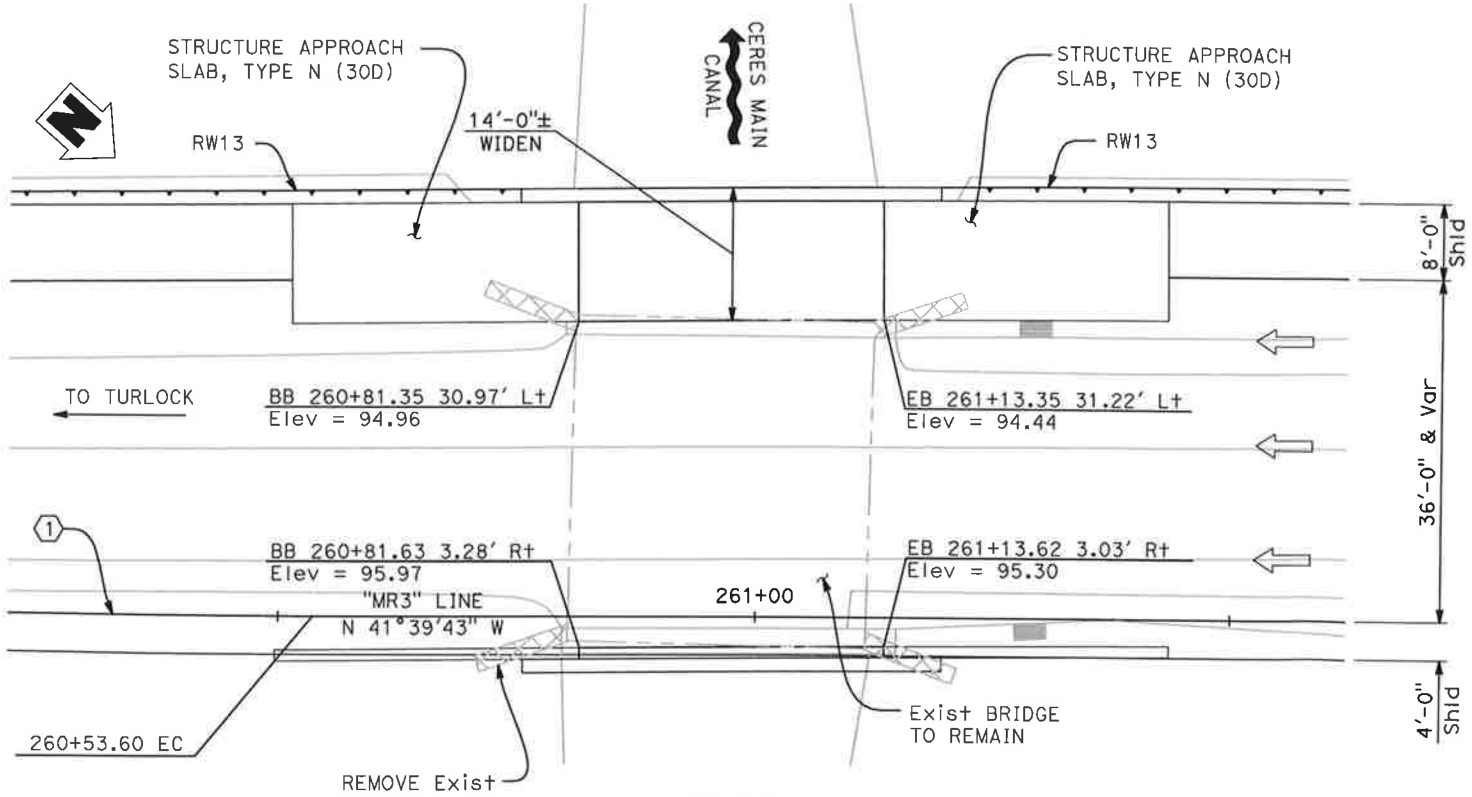


MIRRORED ELEVATION
1" = 10'



TYPICAL SECTION
¼" = 1'-0"

DATE OF ESTIMATE	=	FEBRUARY 2016
STRUCTURE DEPTH	=	1'-0" Min.
LENGTH	=	32'-0"
WIDTH	=	16'-7"
AREA	=	531 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$571/SQ FT
TOTAL COST	=	$303,000



PLAN
1" = 10'

① CURVE DATA
R = 2000.00'
Δ = 3°25'39"
T = 59.84'
L = 119.64'

VEHICULAR TRAFFIC
1. ___ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ___ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. _X_ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL NOT BE REQUIRED.
4. ___ TRAFFIC WILL PASS UNDER THE STRUCTURE ON ______
A. __ NO FALSEWORK ALLOWED OVER TRAFFIC.
B. __ FALSEWORK OPENING(S) REQUIRED.

	TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
___ BND		
___ BND		
___ TWO-WAY		

DESIGN OVERSIGHT
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

DESIGNED BY	LLK	DATE	2/10/16
DRAWN BY	LLK	DATE	2/10/16
CHECKED BY	TW	DATE	2/10/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
CERES MAIN CANAL BRIDGE (WIDEN)

BRIDGE NO. 38-0007K
CU --
SCALE: AS SHOWN
EA 10-1A690

FILE => N:\WT0043202\CADD\STRUCTURES\APS\ALT 2 - CERES MAIN CANAL 38-0007K.DWG

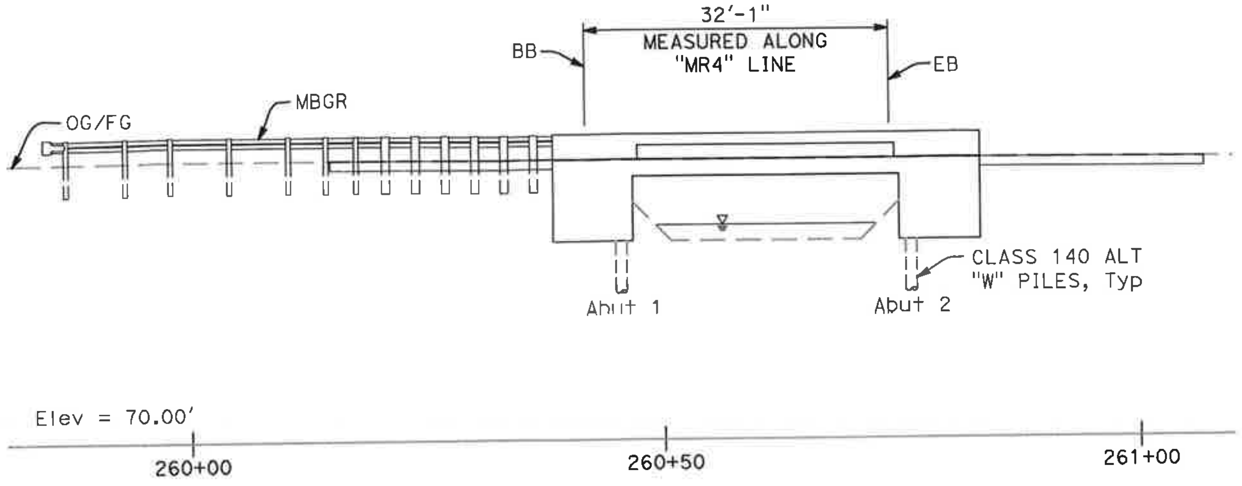
USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:00 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

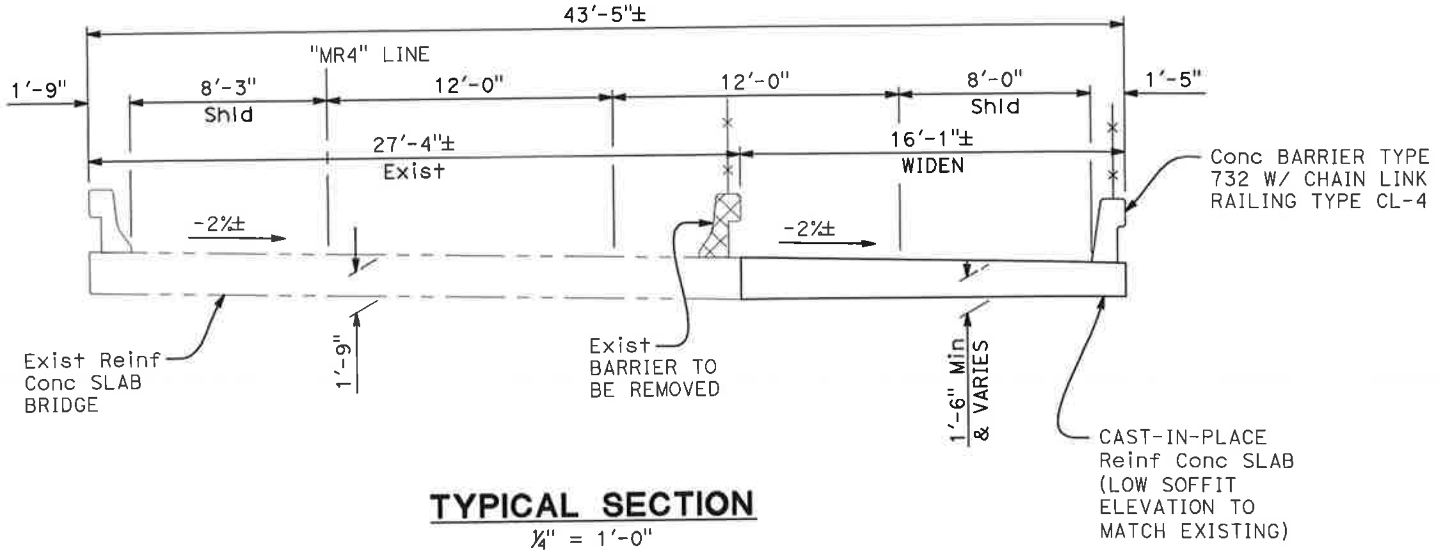
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



ELEVATION
1" = 10'

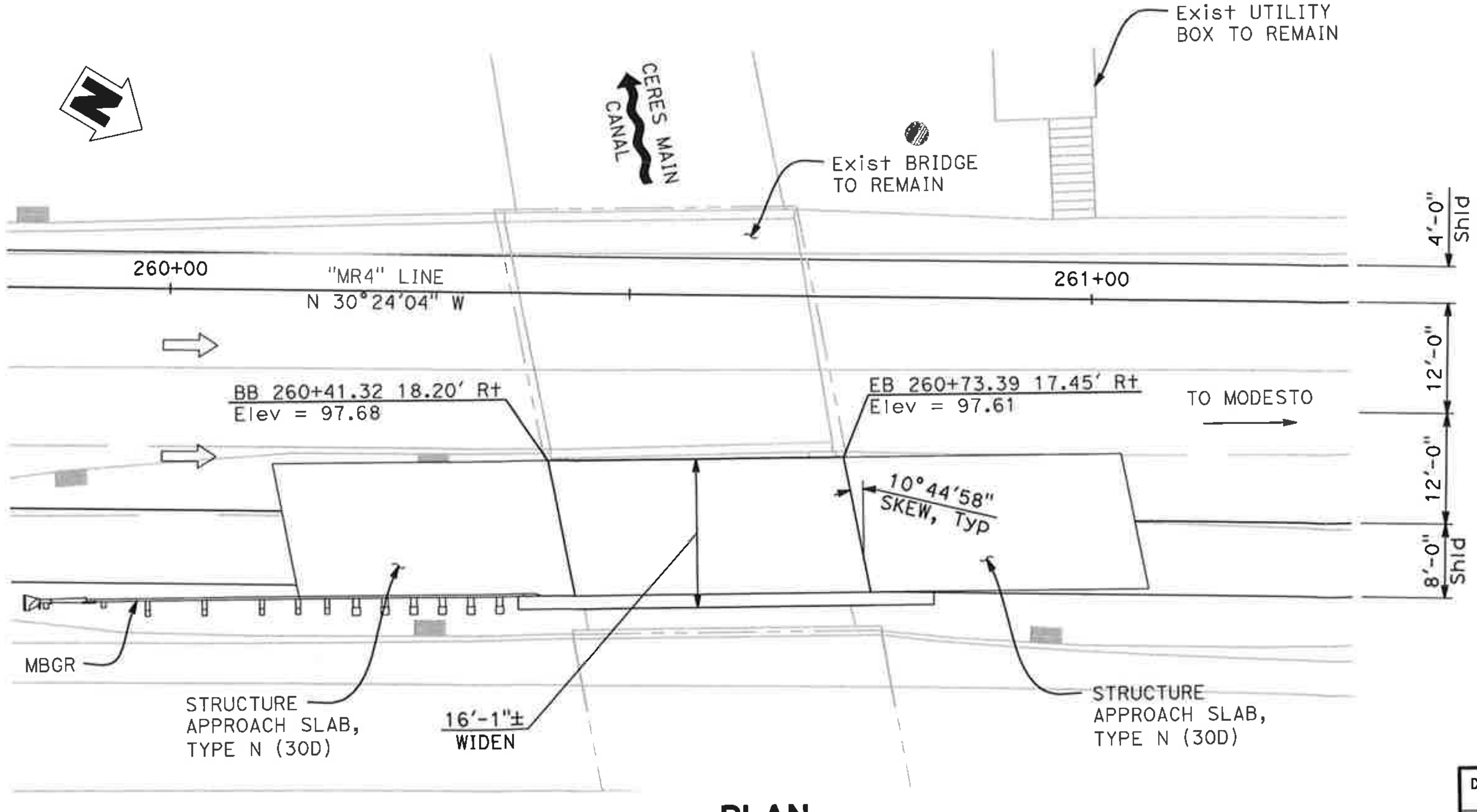


TYPICAL SECTION
¼" = 1'-0"

LEGEND:

— - —	INDICATES EXISTING STRUCTURE
——	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 1'-5"
LENGTH = 32'-1"
WIDTH = 16'-1"
AREA = 516 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $360/SQ FT
TOTAL COST = $186,000



PLAN
1" = 10'

VEHICULAR TRAFFIC

1. ___ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ___ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. _X_ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL NOT BE REQUIRED.
4. __ TRAFFIC WILL PASS UNDER THE STRUCTURE ON ______
   - A. __ NO FALSEWORK ALLOWED OVER TRAFFIC.
   - B. __ FALSEWORK OPENING(S) REQUIRED.

		TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
____	BND	____	____
____	BND	____	____
____	TWO-WAY	____	____

ALTERNATIVE 2

DESIGNED BY	LLK	DATE	2/10/16
DRAWN BY	LLK	DATE	2/10/16
CHECKED BY	TW	DATE	2/10/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

PLANNING STUDY

CERES MAIN CANAL BRIDGE (WIDEN)

BRIDGE NO.	38-0007S	CU	--
SCALE:	AS SHOWN	EA	10-1A690

DESIGN OVERSIGHT
SIGN OFF DATE

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - CERES MAIN CANAL 38-0007S.DWG

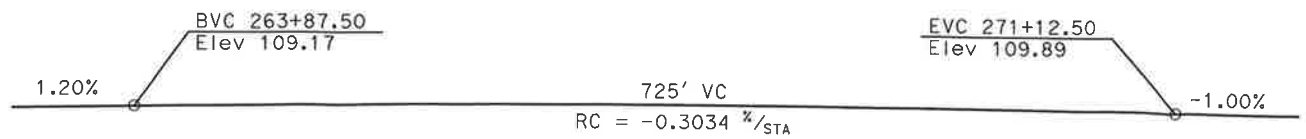
USERNAME => klinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:01 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

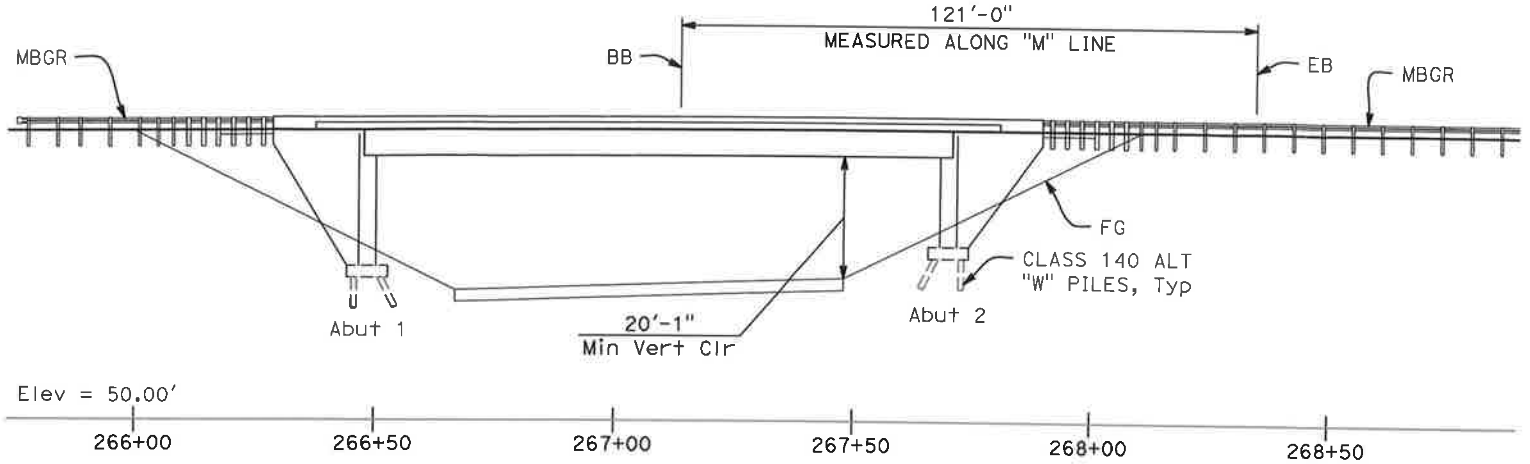
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

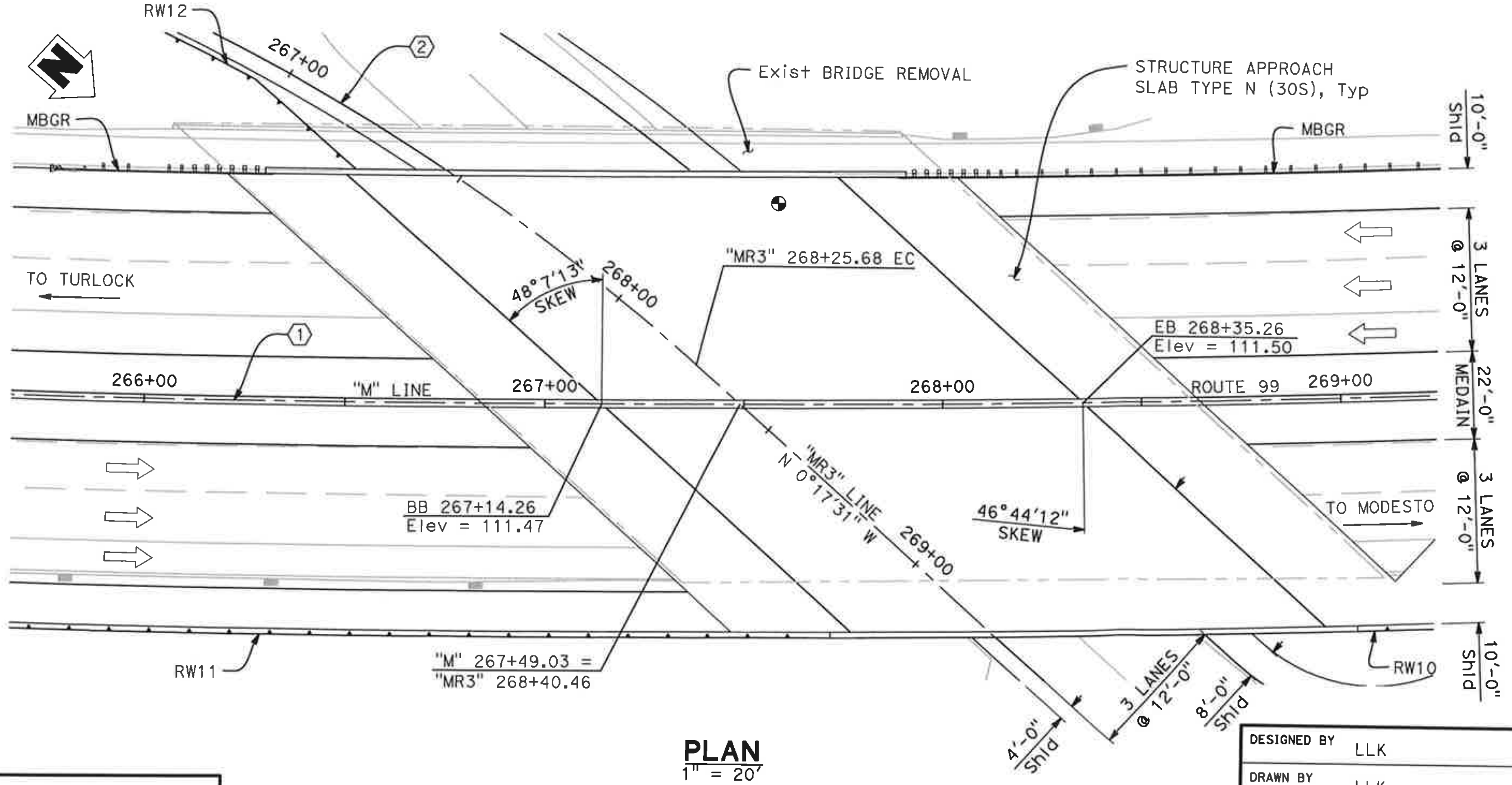
NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



PROFILE GRADE
NO SCALE



MIRRORED ELEVATION
1" = 20'



PLAN
1" = 20'

NOTE:
1. FOR CONSTRUCTION STAGING AND TYPICAL SECTION, SEE "MITCHELL ROAD SB ON-RAMP - STAGING" SHEET.

LEGEND:

— · —	INDICATES EXISTING STRUCTURE
——	INDICATES NEW STRUCTURE
●	LOCATION OF MINIMUM VERTICAL CLEARANCE

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 5'-6"
LENGTH = 121'-0"
WIDTH = 116'-10"
AREA = 14140 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $388/SQ FT
BRIDGE REMOVAL = $310,000
TOTAL COST = $5,799,000

① CURVE DATA
R = 5011.00'
Δ = 13°57'43"
T = 613.59'
L = 1221.09'

② CURVE DATA
R = 550.00'
Δ = 27°38'40"
T = 135.32'
L = 265.37'

VEHICULAR TRAFFIC
1. ___ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ___ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. _X_ TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL BE REQUIRED.
4. _X_ TRAFFIC WILL PASS UNDER THE STRUCTURE ON MITCHELL RD
   A. __ NO FALSEWORK ALLOWED OVER TRAFFIC.
   B. _X FALSEWORK OPENING(S) REQUIRED.

		TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
___	BND		
___	BND		
X	TWO-WAY	15'-0" Min	24'-0"

ALTERNATIVE 2

PLANNING STUDY

MITCHELL ROAD SB ON-RAMP UC (REPLACE)

DESIGNED BY	LLK	DATE	2/11/16
DRAWN BY	LLK	DATE	2/11/16
CHECKED BY	TW	DATE	2/11/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

BRIDGE NO. 38-0093
CU __
SCALE: AS SHOWN
EA 10-1A690

DESIGN OVERSIGHT
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - MITCHELL ON UC.DWG

USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:02 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

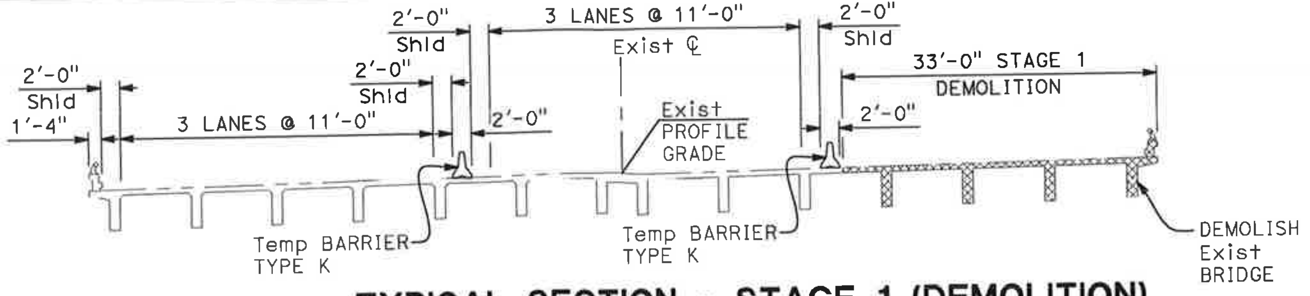
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110

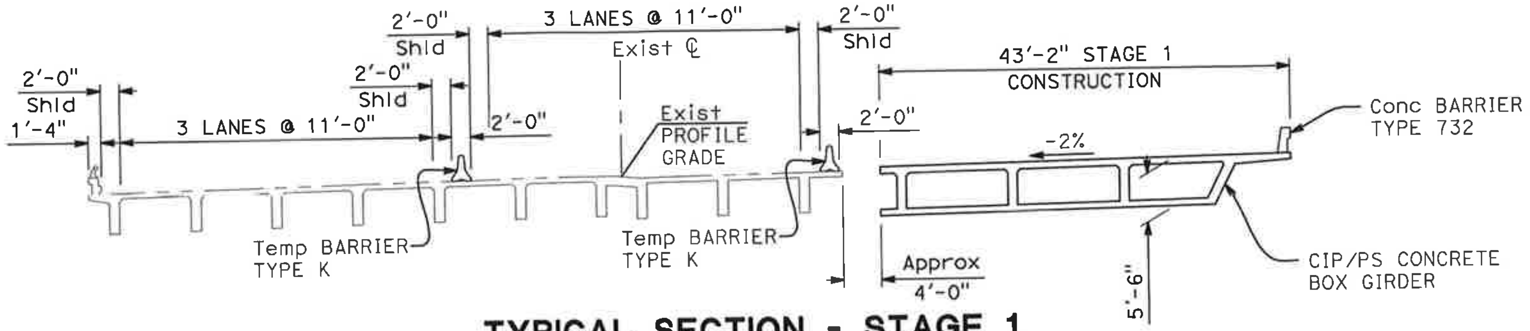
LEGEND:

- - -	INDICATES EXISTING STRUCTURE
———	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL



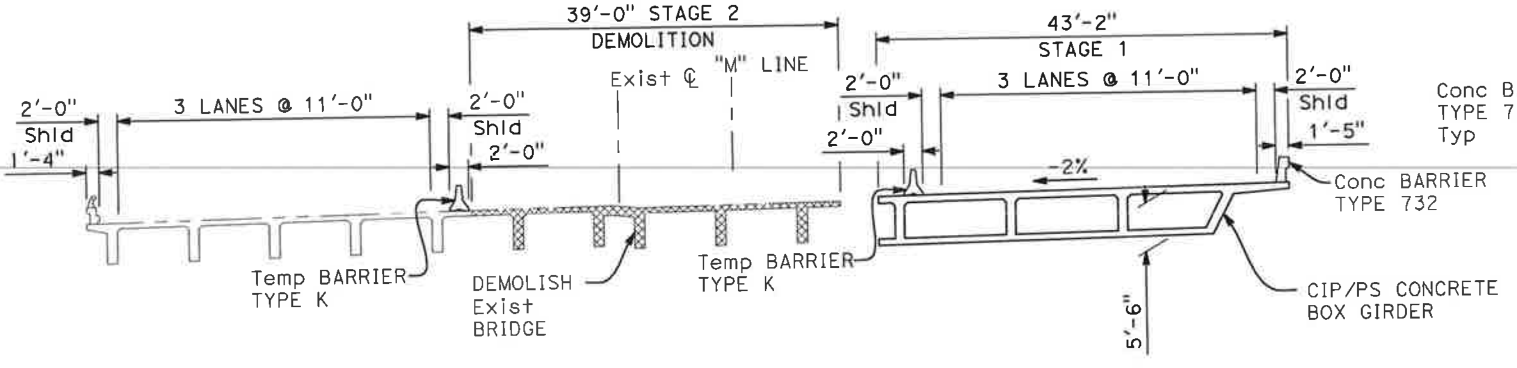
TYPICAL SECTION - STAGE 1 (DEMOLITION)

1" = 10'-0"



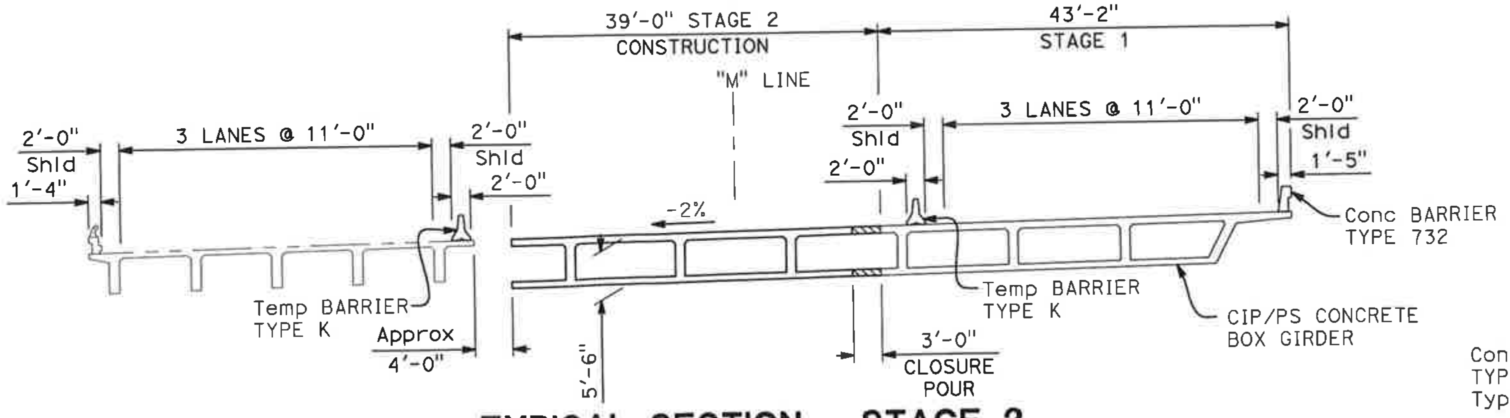
TYPICAL SECTION - STAGE 1

1" = 10'-0"



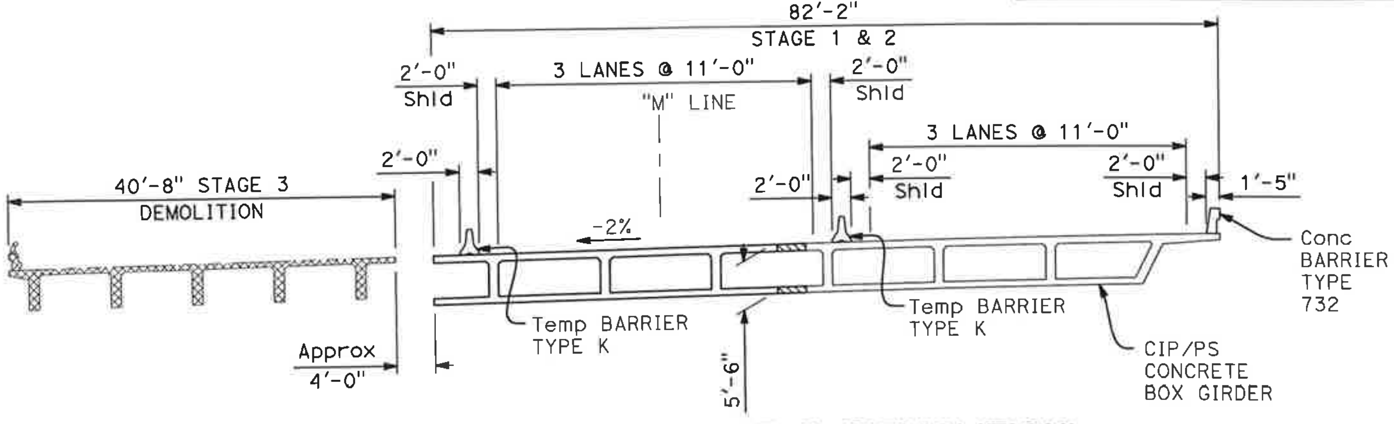
TYPICAL SECTION - STAGE 2 (DEMOLITION)

1" = 10'-0"



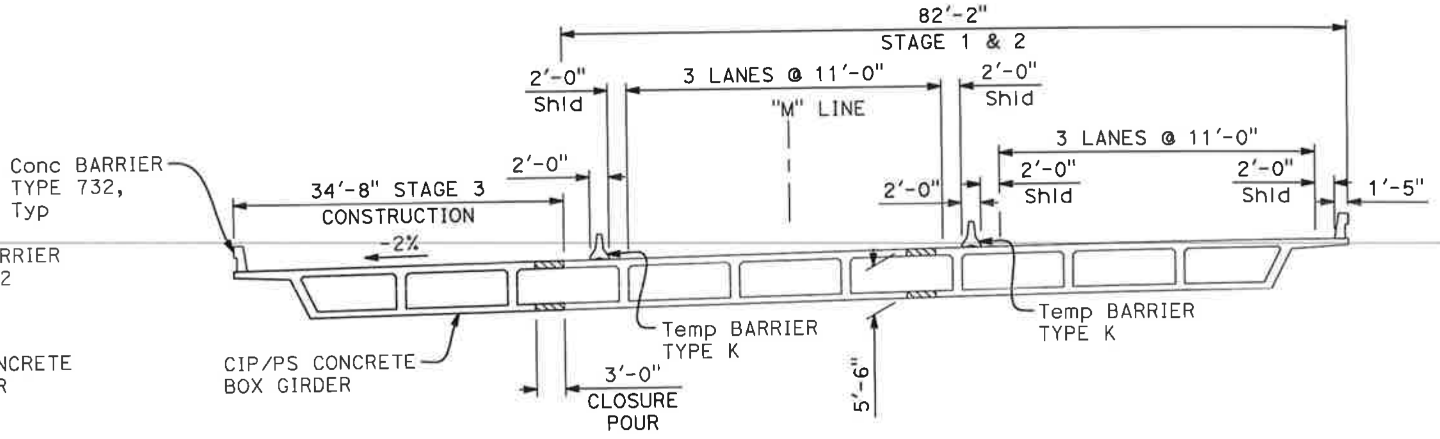
TYPICAL SECTION - STAGE 2

1" = 10'-0"



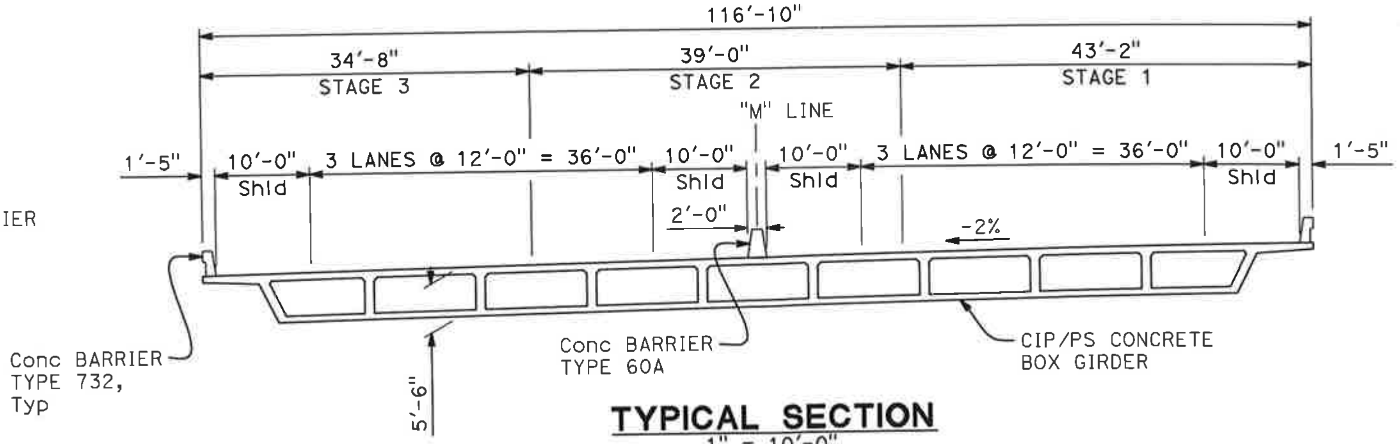
TYPICAL SECTION - STAGE 3 (DEMOLITION)

1" = 10'-0"



TYPICAL SECTION - STAGE 3

1" = 10'-0"



TYPICAL SECTION

1" = 10'-0"

ALTERNATIVE 2

DESIGNED BY	LLK	DATE	1/28/16	T. WALKER PROJECT ENGINEER
DRAWN BY	LLK	DATE	1/28/16	
CHECKED BY	TW	DATE	1/28/16	
APPROVED		DATE		

PLANNING STUDY

MITCHELL ROAD SB ON-RAMP - STAGING

BRIDGE NO. 38-0093
CU --
SCALE: AS SHOWN
EA 10-1A690

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - MITCHELL ON UC STAGING.DWG

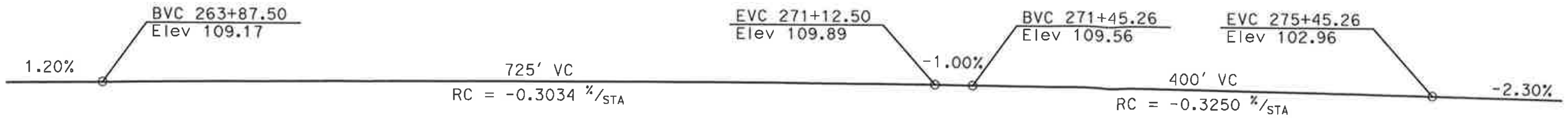
USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:02 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

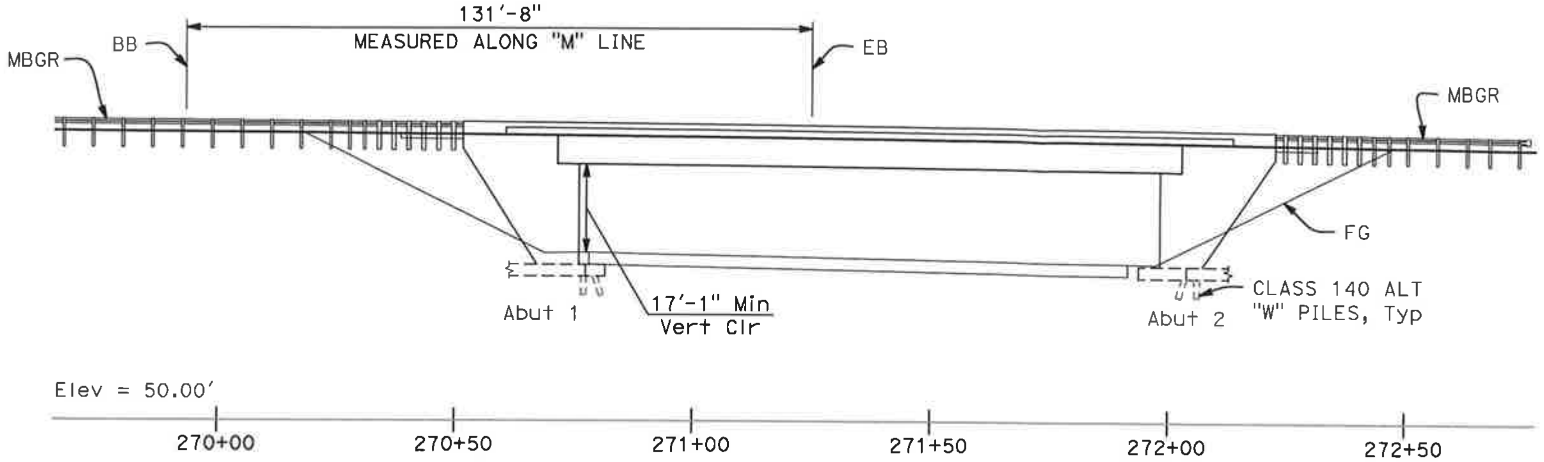
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

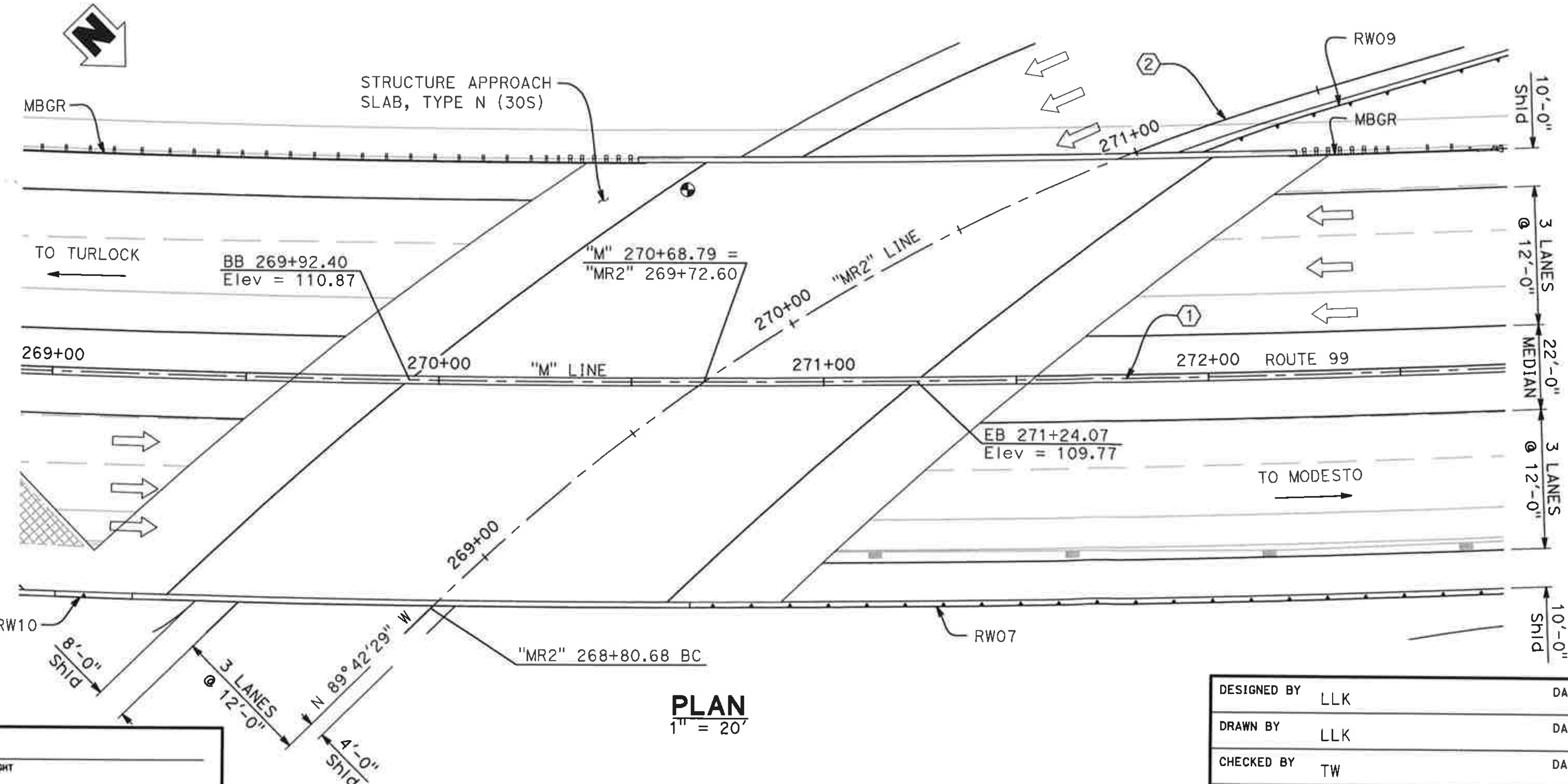
NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



PROFILE GRADE
NO SCALE



MIRRORED ELEVATION
1" = 20'



PLAN
1" = 20'

NOTE:
1. FOR CONSTRUCTION STAGING AND TYPICAL SECTION, SEE "MITCHELL ROAD SB OFF-RAMP - STAGING" SHEET.

LEGEND:

—·—·—	INDICATES EXISTING STRUCTURE
———	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL
●	LOCATION OF MINIMUM VERTICAL CLEARANCE

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 6'-0"
LENGTH = 131'-8"
WIDTH = 116'-10"
AREA = 15338 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $417/SQ FT
TOTAL COST = $6,398,000

VEHICULAR TRAFFIC
1. ___ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ___ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. X TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL BE REQUIRED.
4. ___ TRAFFIC WILL PASS UNDER THE STRUCTURE ON ______
   A. __ NO FALSEWORK ALLOWED OVER TRAFFIC.
   B. __ FALSEWORK OPENING(S) REQUIRED.

	TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
___ BND		
___ BND		
___ TWO-WAY		

① CURVE DATA
R = 5011.00'
Δ = 13°57'43"
T = 613.59'
L = 1221.09'

② CURVE DATA
R = 550.00'
Δ = 27°38'40"
T = 135.32'
L = 265.37'

DESIGN OVERSIGHT

SIGN OFF DATE

DESIGNED BY	LLK	DATE	2/1/16
DRAWN BY	LLK	DATE	2/1/16
CHECKED BY	TW	DATE	2/1/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

ALTERNATIVE 2

PLANNING STUDY

MITCHELL ROAD SB OFF-RAMP UC

BRIDGE NO. TBD
CU __
SCALE: AS SHOWN
EA 10-1A690

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

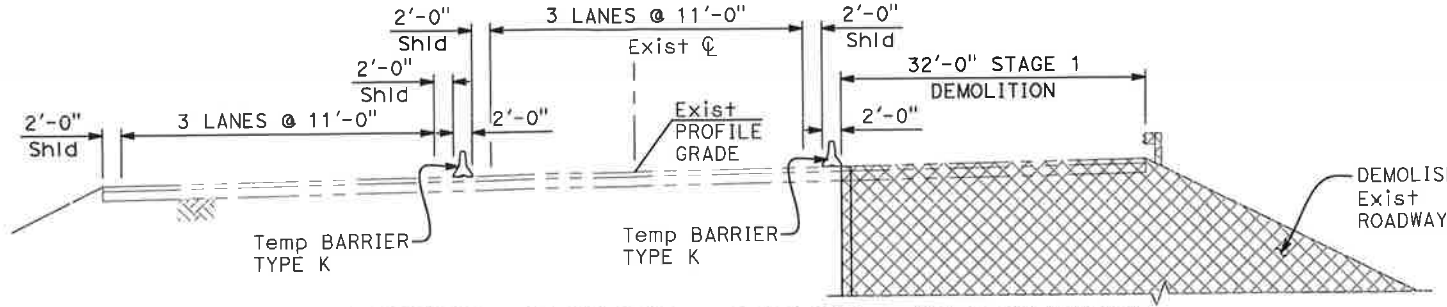
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

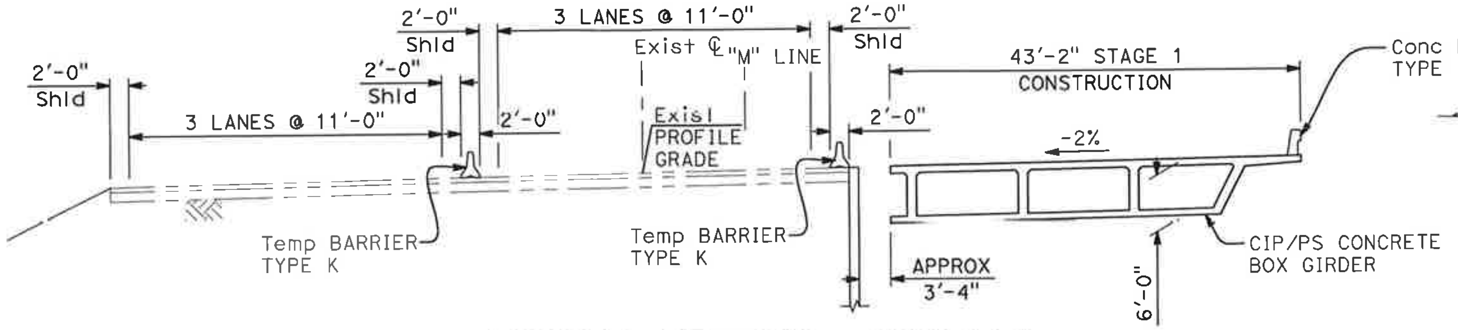
NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110

LEGEND:

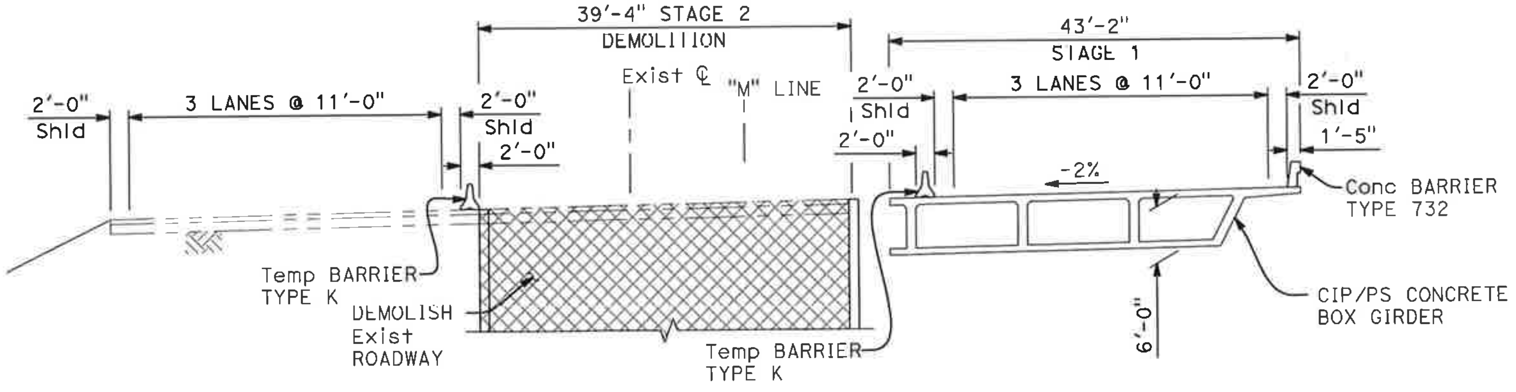
— · —	INDICATES EXISTING STRUCTURE
——	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL



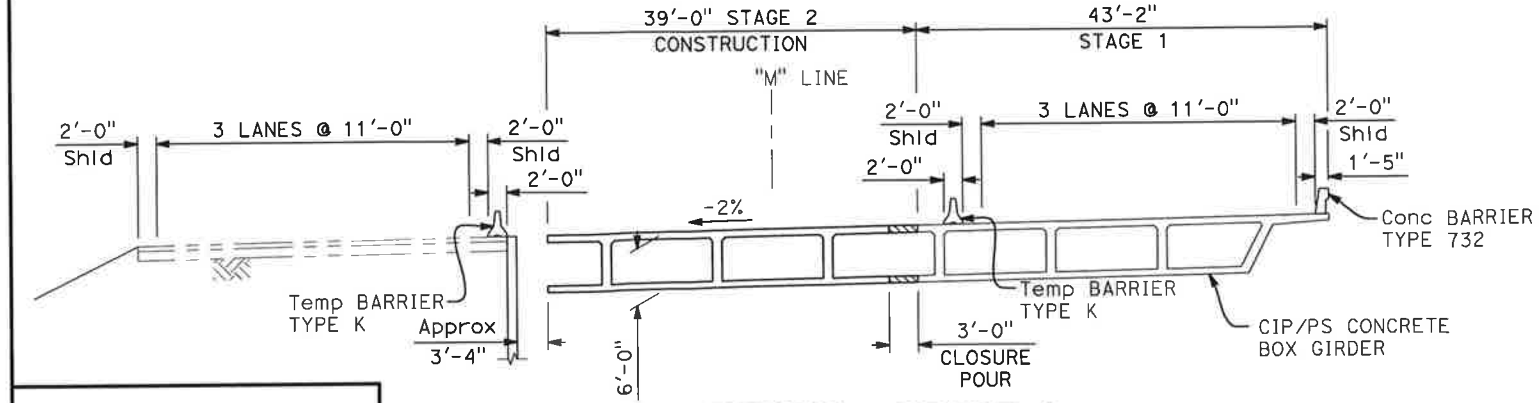
TYPICAL SECTION - STAGE 1 (DEMOLITION)
1" = 10'-0"



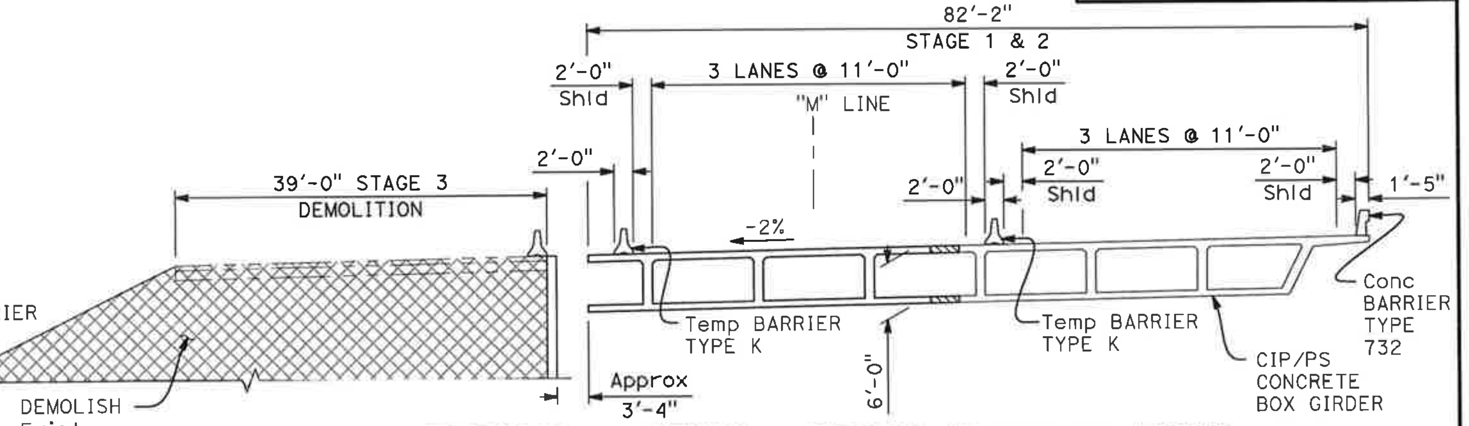
TYPICAL SECTION - STAGE 1
1" = 10'-0"



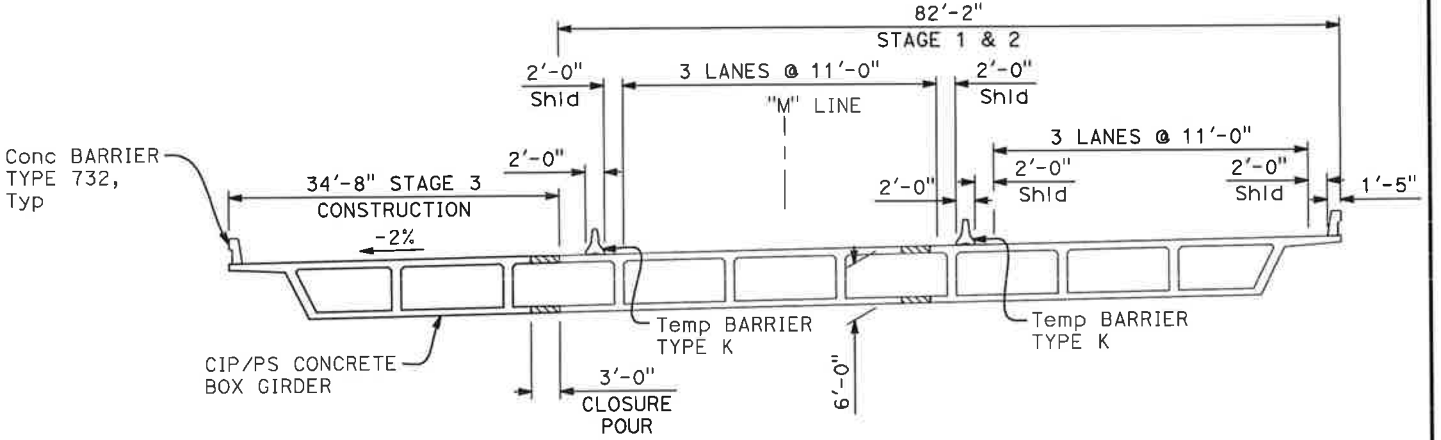
TYPICAL SECTION - STAGE 2 (DEMOLITION)
1" = 10'-0"



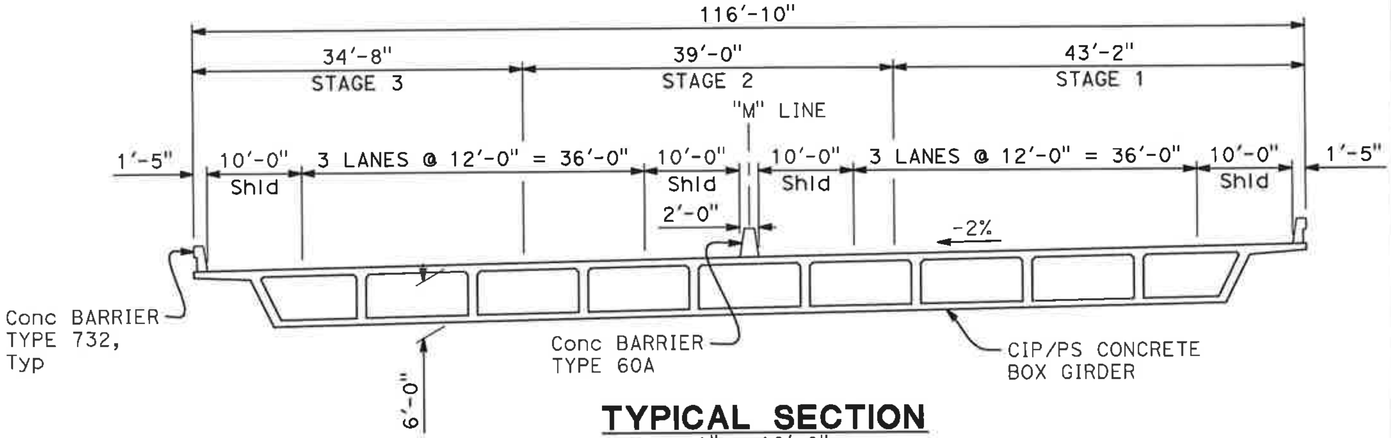
TYPICAL SECTION - STAGE 2
1" = 10'-0"



TYPICAL SECTION - STAGE 3 (DEMOLITION)
1" = 10'-0"



TYPICAL SECTION - STAGE 3
1" = 10'-0"



TYPICAL SECTION
1" = 10'-0"

ALTERNATIVE 2

PLANNING STUDY

MITCHELL ROAD SB OFF-RAMP - STAGING

DESIGNED BY	LLK	DATE	1/28/16
DRAWN BY	LLK	DATE	1/28/16
CHECKED BY	TW	DATE	1/28/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

BRIDGE NO.		CU	--
SCALE:	AS SHOWN	EA	10-1A690

DESIGN OVERSIGHT

SIGN OFF DATE

USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:04 PM

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - MITCHELL OFF UC STAGING.DWG

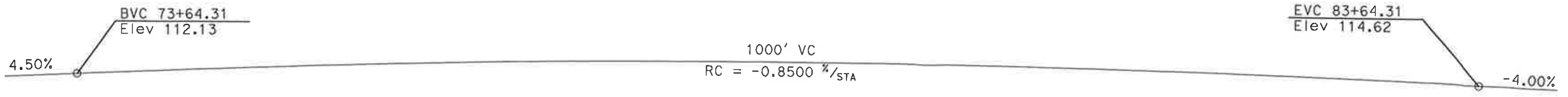
ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

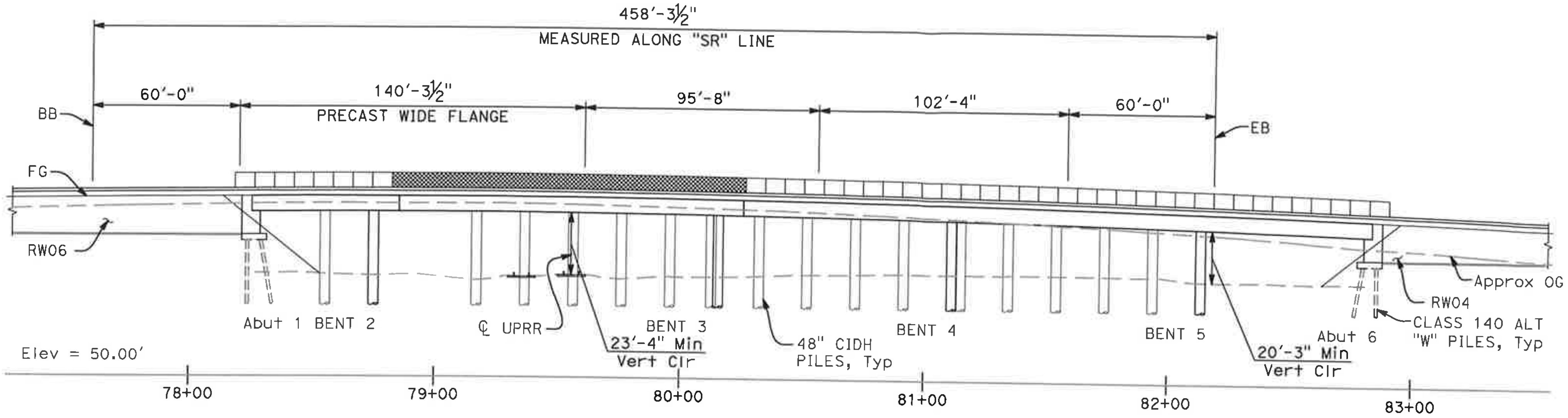
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



PROFILE GRADE
NO SCALE

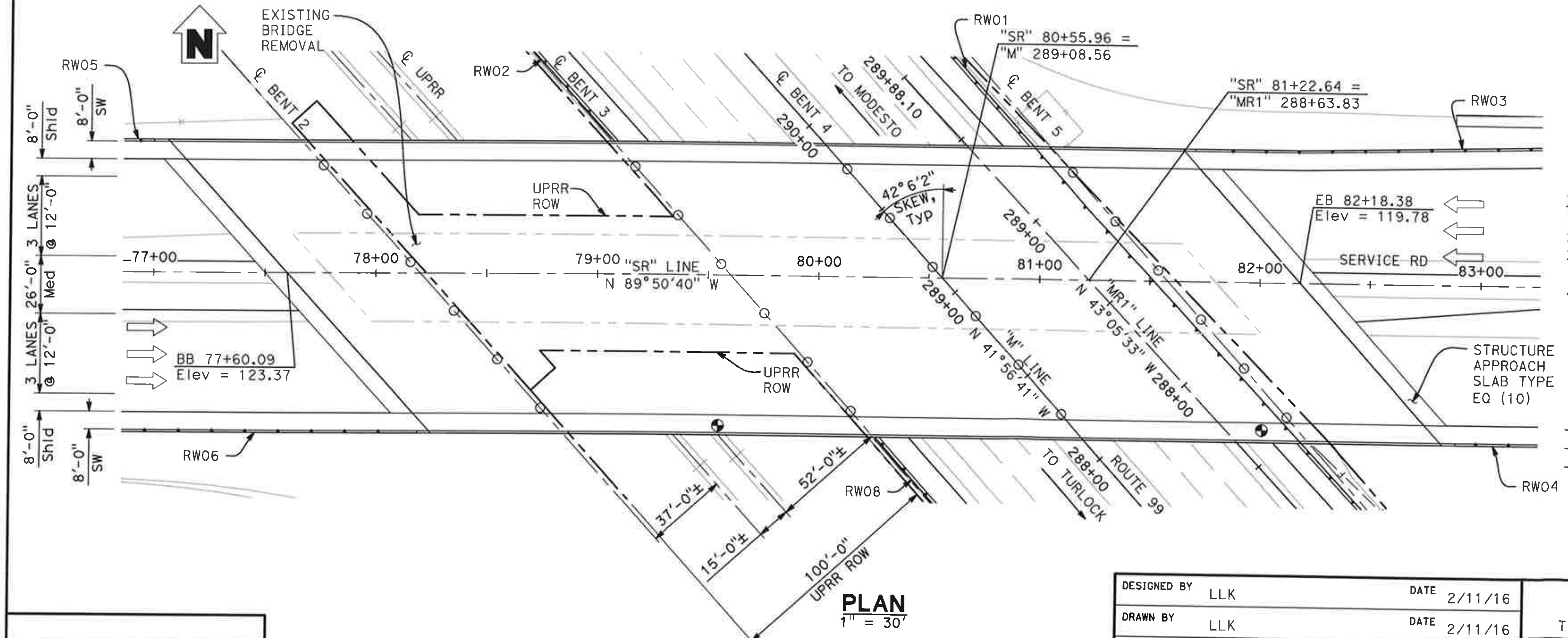


ELEVATION
1" = 30'

LEGEND:

— - —	INDICATES EXISTING STRUCTURE
———	INDICATES NEW STRUCTURE
●	LOCATION OF MINIMUM VERTICAL CLEARANCE

DATE OF ESTIMATE = FEBRUARY 2016
STRUCTURE DEPTH = 6'-6"
LENGTH = 458'-0"
WIDTH = 132'-0"
AREA = 60495 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY = $182/SQ FT
BRIDGE REMOVAL = $344,000
TOTAL COST = $11,324,000



PLAN
1" = 30'

VEHICULAR TRAFFIC
1. ___ NEW ALIGNMENT. NO TRAFFIC AT THE SITE.
2. ___ TRAFFIC WILL BE DETOURED AWAY FROM THE SITE.
3. X TRAFFIC WILL BE CARRIED ON THE STRUCTURE. STAGE CONSTRUCTION WILL BE REQUIRED.
4. X TRAFFIC WILL PASS UNDER THE STRUCTURE ON STATE ROUTE 99 AND UPRR
   A. X NO FALSEWORK ALLOWED OVER UPRR.
   B. X FALSEWORK OPENING(S) REQUIRED.

		TEMPORARY VERTICAL CLEARANCE	WIDTH OF TRAFFIC OPENING
___	BND		
___	BND		
X	TWO-WAY	15'-0" Min	45'-0"

DESIGN OVERSIGHT
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

DESIGNED BY	LLK	DATE	2/11/16
DRAWN BY	LLK	DATE	2/11/16
CHECKED BY	TW	DATE	2/11/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
SERVICE ROAD OC (REPLACE)

BRIDGE NO. 38-0094
CU --
SCALE: AS SHOWN
EA 10-1A690

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - SERVICE ROAD OC.DWG

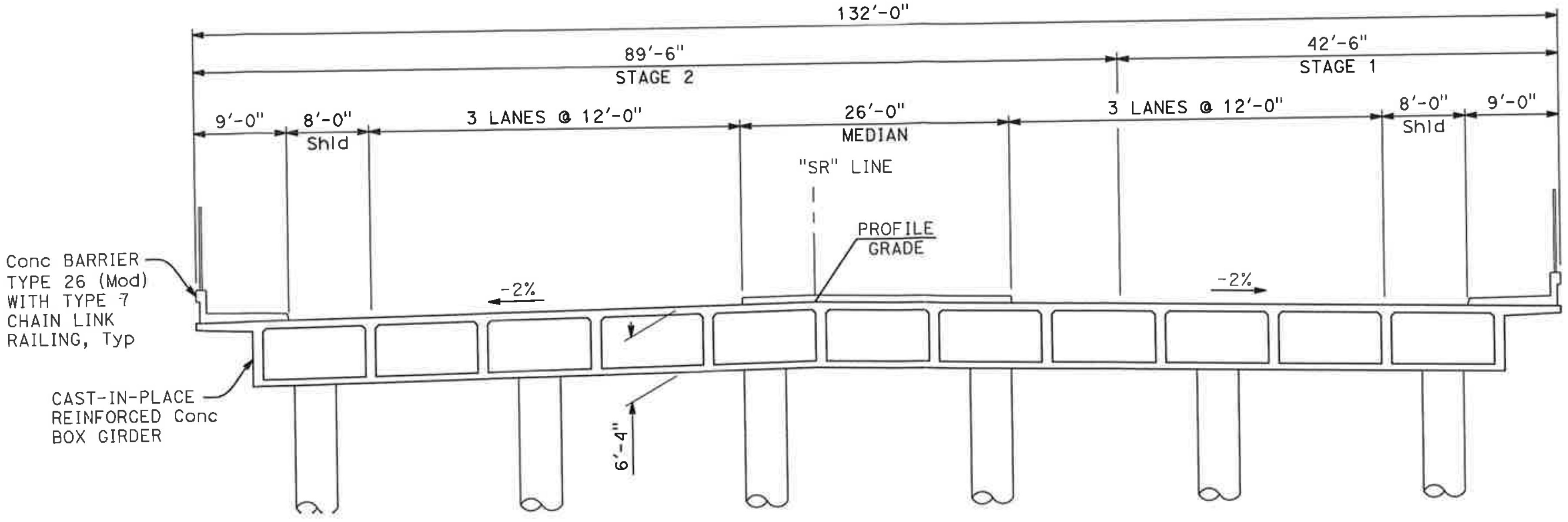
USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:04 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

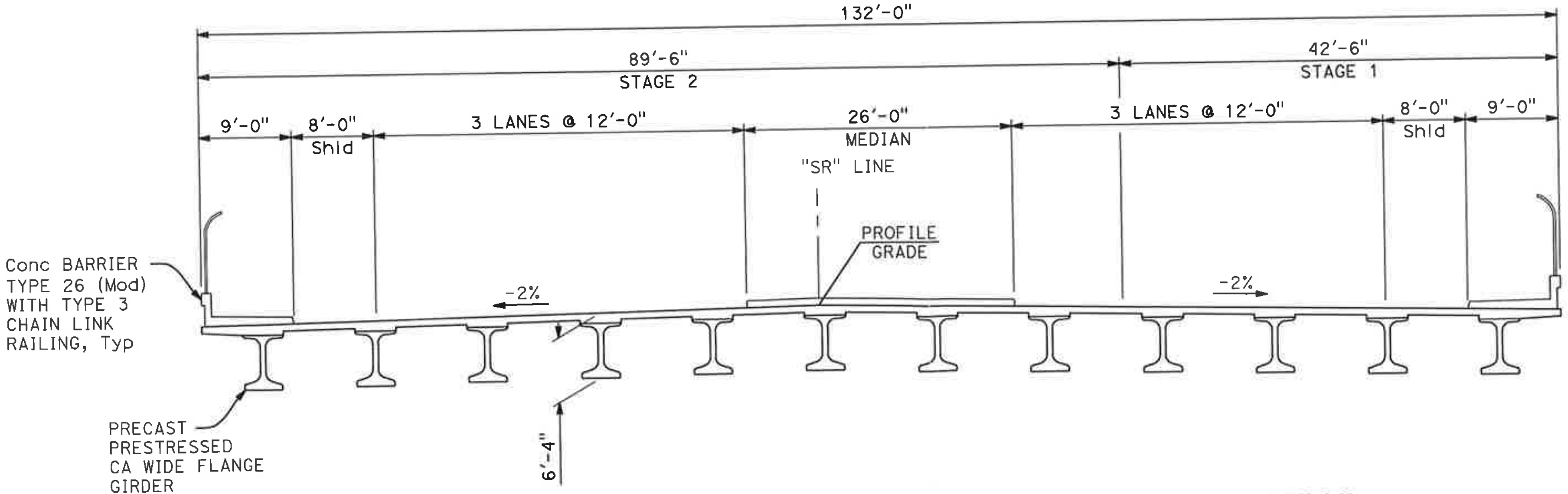
NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110



CAST-IN-PLACE TYPICAL SECTION

⅛" = 1'-0"

NOTE:
1. FOR STAGING, SEE "SERVICE ROAD OC - STAGING" DRAWING



PRECAST PRESTRESSED TYPICAL SECTION (SPAN 2 ONLY)

⅛" = 1'-0"

ALTERNATIVE 2

PLANNING STUDY

SERVICE ROAD OC TYPICAL SECTION

DESIGNED BY	LLK	DATE	1/28/16
DRAWN BY	LLK	DATE	1/28/16
CHECKED BY	TW	DATE	1/28/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

BRIDGE NO. 38-0094
CU --
SCALE: AS SHOWN
EA 10-1A690

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - SERVICE ROAD OC TS.DWG

USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:05 PM

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

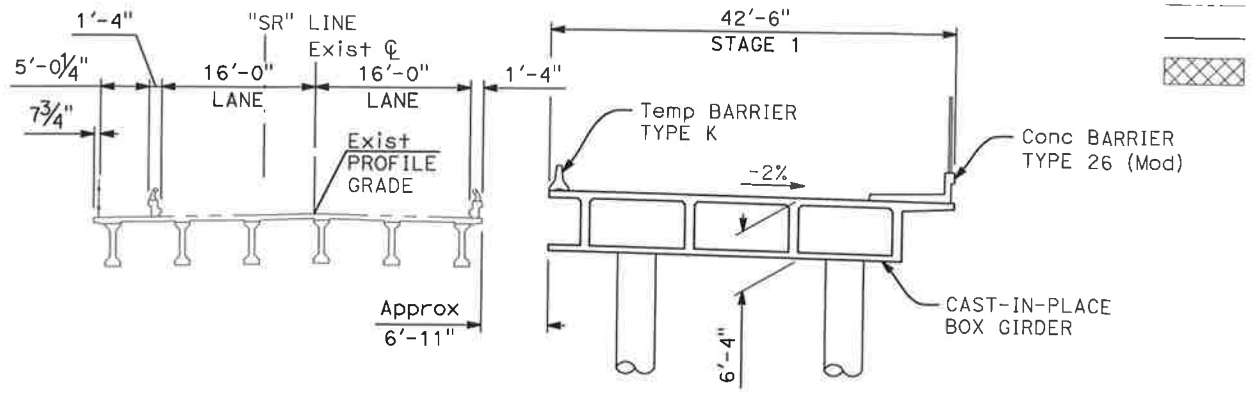
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
10	STA	99	9.5/R11.4

CITY OF CERES
2220 MAGNOLIA STREET
CERES, CA 95037

NV5, INC.
2025 GATEWAY PLACE, SUITE 156
SAN JOSE, CA 95110

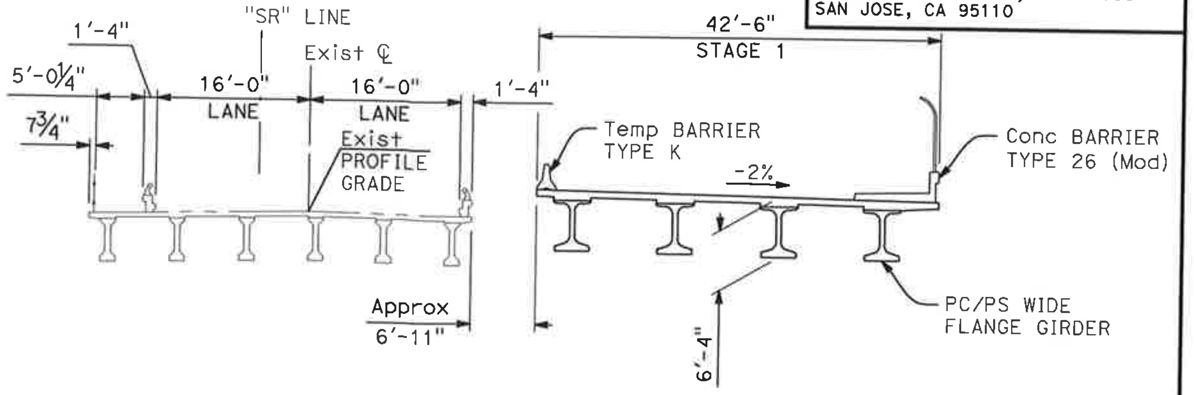
LEGEND:

------	INDICATES EXISTING STRUCTURE
——	INDICATES NEW STRUCTURE
▨	INDICATES BRIDGE REMOVAL



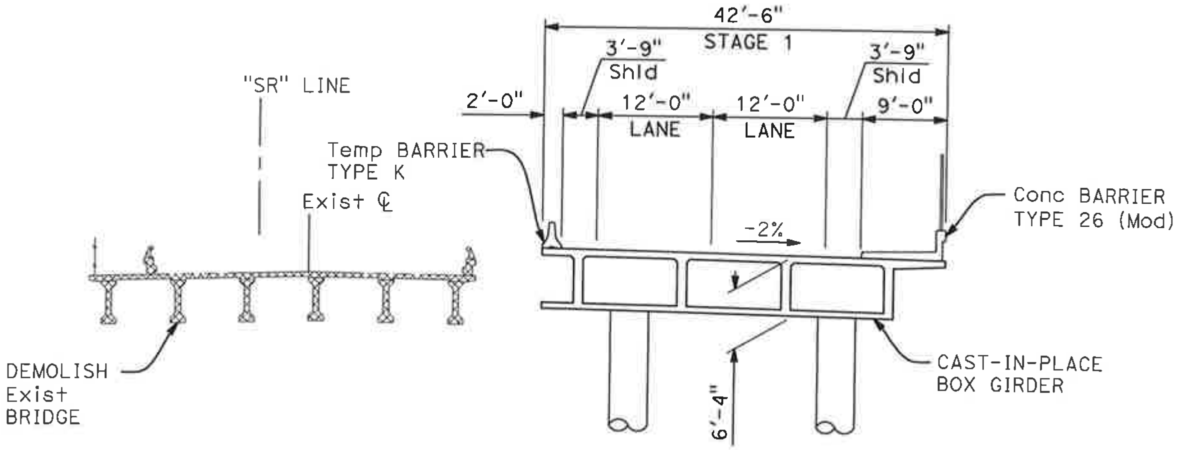
CIP TYPICAL SECTION - STAGE 1

1" = 10'-0"



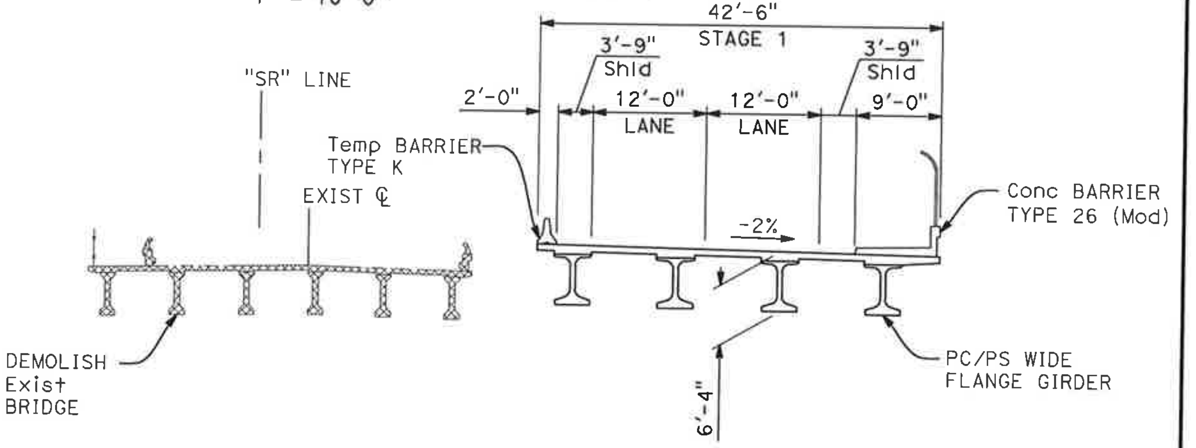
PC/PS TYPICAL SECTION - STAGE 1

1" = 10'-0"



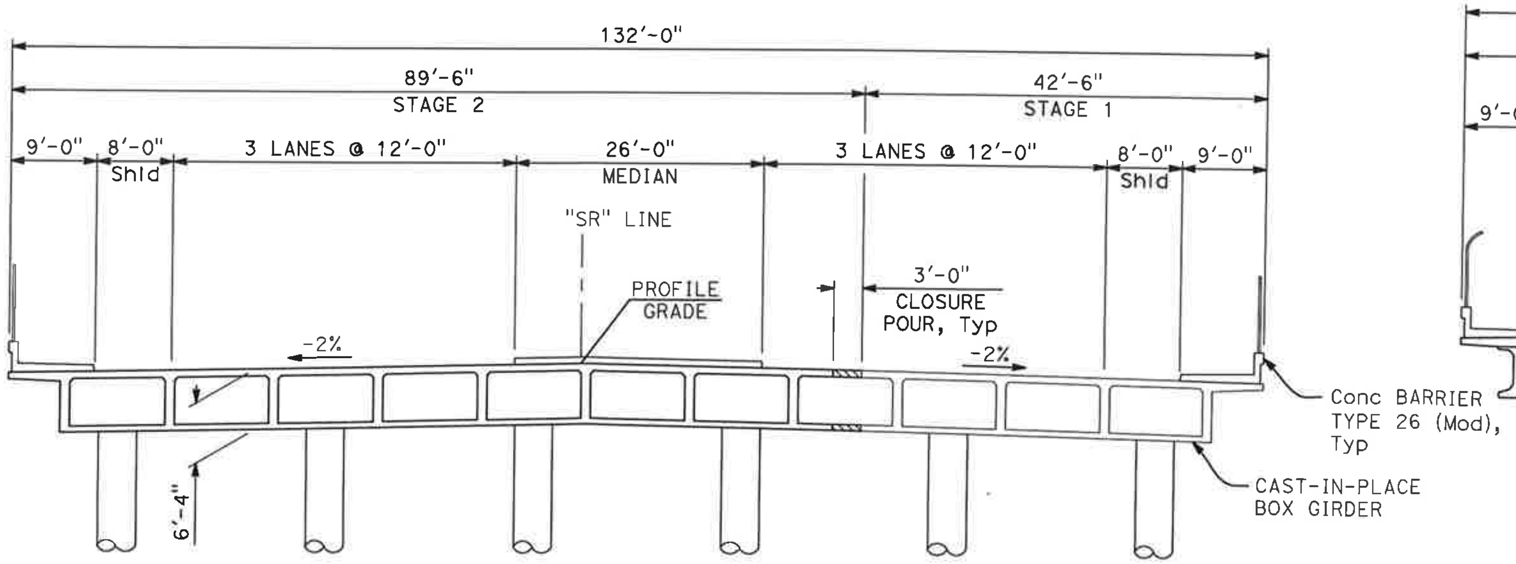
CIP TYPICAL SECTION - EXISTING DEMOLITION

1" = 10'-0"



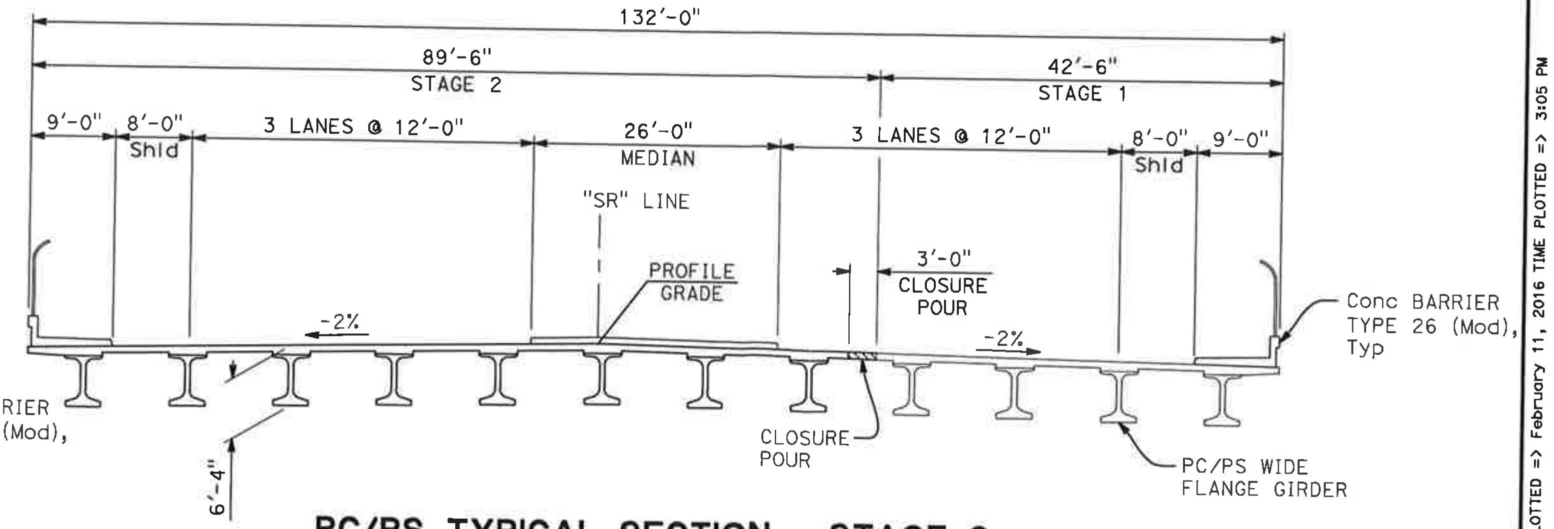
PC/PS TYPICAL SECTION - EXISTING DEMOLITION

1" = 10'-0"



CIP TYPICAL SECTION - STAGE 2

1" = 10'-0"



PC/PS TYPICAL SECTION - STAGE 2

1" = 10'-0"

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 06-01-09)

DESIGNED BY	LLK	DATE	2/1/16
DRAWN BY	LLK	DATE	2/1/16
CHECKED BY	TW	DATE	2/1/16
APPROVED		DATE	

T. WALKER
PROJECT ENGINEER

ALTERNATIVE 2

PLANNING STUDY

SERVICE ROAD OC - STAGING

BRIDGE NO. 38-0094
CU --
SCALE: AS SHOWN
EA 10-1A690

FILE => N:\MT0043202\CADD\STRUCTURES\APS\ALT 2 - SERVICE ROAD OC STAGING.DWG

USERNAME => kinnebrew DATE PLOTTED => February 11, 2016 TIME PLOTTED => 3:05 PM

10-STA-99-9.5/R11.4
EA 10-1A690 – Project ID 1000000375 – PPNO 9399
Program Code 20.XX.400.100 (Local)
November 2018

ATTACHMENT M

LOCAL PLANNING CIRCULATION DIAGRAMS

CITY OF CERES
GENERAL PLAN

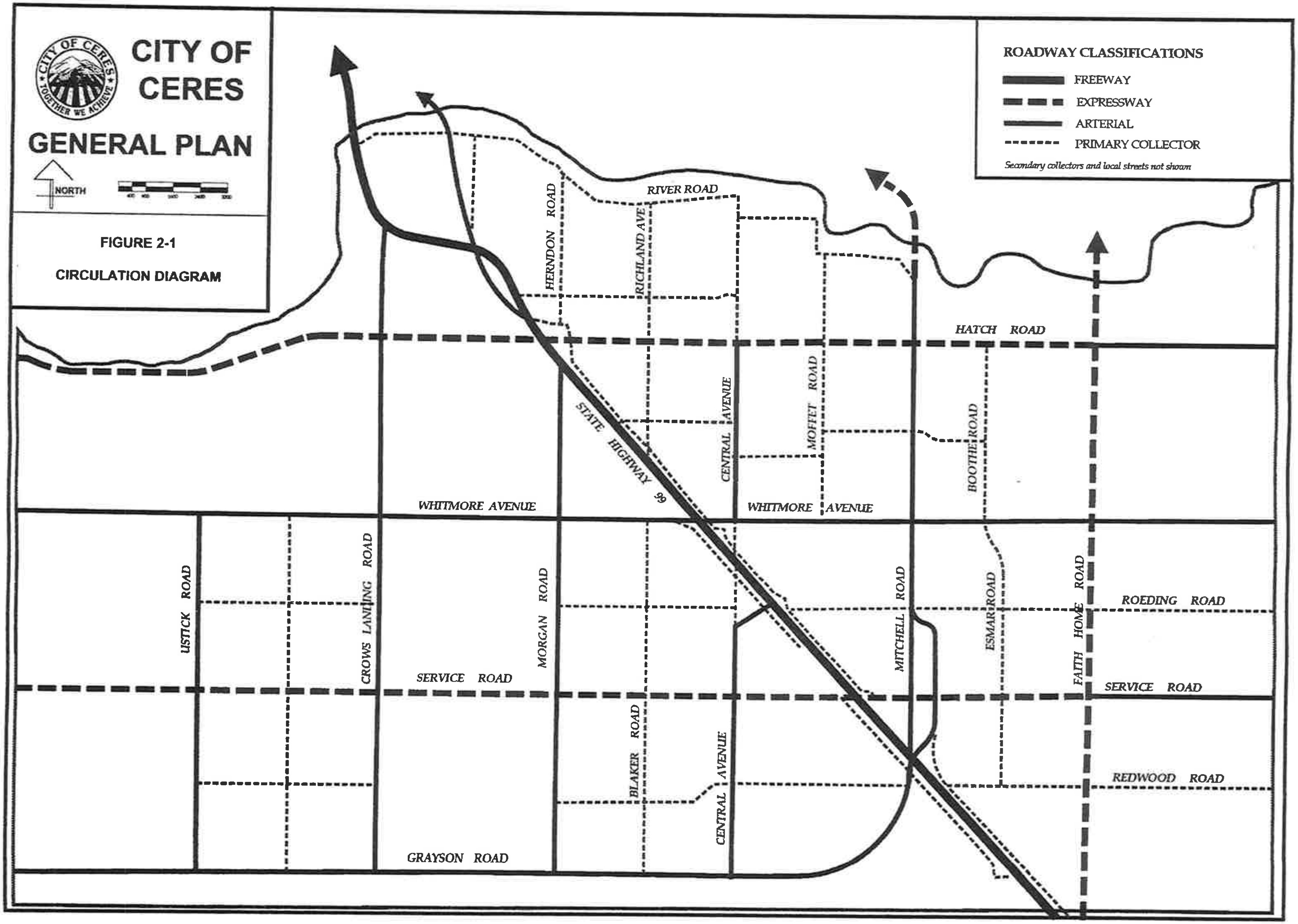


FIGURE 2-1

CIRCULATION DIAGRAM

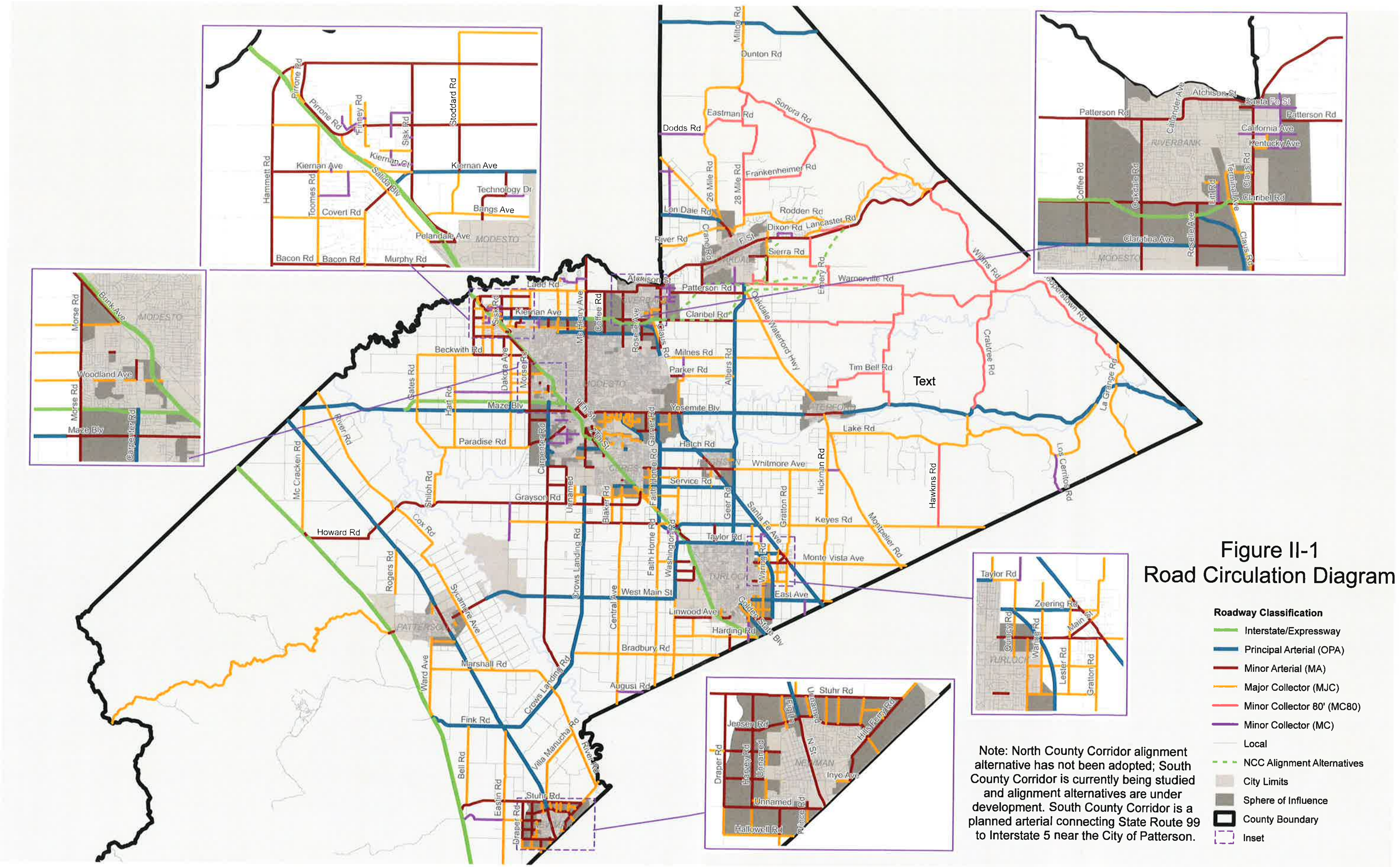


Figure II-1
Road Circulation Diagram

Note: North County Corridor alignment alternative has not been adopted; South County Corridor is currently being studied and alignment alternatives are under development. South County Corridor is a planned arterial connecting State Route 99 to Interstate 5 near the City of Patterson.