12-Ora-55-PM R6.4/10.3
EA: 12-0J3400
Project ID: 1200020328 PPNO 3470
20.10.800.100 – Quality Management on
Locally Implemented Projects- Support Only
March 2017

SUPPLEMENTAL
DRAFT PROJECT REPORT
To Authorize Public Release of the Supplemental Draft Environmental Document

On Route 55 from 0.4 Mile North Of Route 55/405 Separation in Irvine to 0.1 Mile South of Route 5/55 Separation in Tustin

I have reviewed the right-of-way information contained in this report and the Right-of-Way Data Sheet attached hereto, completed by Orange County Transportation Authority and its consultant, and find the data to be complete, current and accurate.

3-30-17

Ricky Rodriguez *Date*
Office Chief, Office of Right of Way and Land Surveys

APPROVAL RECOMMENDED:

3-30-2017

Bob Bazargan *Date*
Project Manager

PROJECT APPROVED:

Adnan Maiah 3-30-2017

TN ***Adnan Maiah*** *Date*
Deputy District Director
Capital Outlay Program/Single Focal Point

Vicinity Map

This Supplemental Draft 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.

3/30/2017

Camilo A. Rocha Jr., P.E. Date
Registered Civil Engineer

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List of Acronyms

3M	3 Modified
AC	Asphalt Concrete
ADL	Aerially Deposited Lead
Alt	Alternative
APN	Assessor's Parcel Number
Caltrans	California Department of Transportation District 12
CEQA	California Environmental Quality Act
CHP	California Highway Patrol
dBA	A-weighted Decibels
DED	Draft Environmental Document
DPR	Draft Project Report
E.	East
EA	Environmental Assessment or Expenditure Authorization
EOS	Edge of Shoulder
FONSI	Finding of No Significant Impacts
Ft	Feet
HDM	Highway Design Manual
HOV	High Occupancy Vehicle
IS	Initial Study
ISA	Initial Site Assessment
LHS	Location Hydraulic Study
LOS	Levels of Service
LUST	Leaking Underground Storage Tanks
MGS	Midwest Guardrail System
MND	Mitigated Negative Declaration
MOE	Measures of Effectiveness
MPH	Miles per Hour
N/A	Not Applicable
NADR	Noise Abatement Decision Report
NB	Northbound or Noise Barrier
NEPA	National Environmental Policy Act
OCTA	Orange County Transportation Authority
OH	Overhead
PL	Property Line
Red.	Reduced
ROW	Right of Way
RTL	Ready to List
S.	South
SB	Southbound
SF	Square Feet
SHOPP	State Highway Operation and Protection Program
SR	State Route
SSD	Stopping Sight Distance
STBG	Surface Transportation Block Grant
SWDR	Storm Water Data Report
TCE	Temporary Construction Easement
TCWG	Transportation Conformity Working
TMP	Transportation Management Plan
UC	Undercrossing
VA	Value Analysis
VOC	Volatile Organic Compounds

1. INTRODUCTION

The California Department of Transportation District 12 (Caltrans), in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen State Route 55 (SR-55) in both directions from 0.4 mile north of Route55/405 separation in Irvine to 0.1 mile south of Route 5/55 separation in Tustin between post mile R6.4 and post mile 10.3 in the cities of Santa Ana, Tustin, and Irvine in Orange County, California (see Attachment A). This project segment of SR-55, which is one of the most congested freeway segments in Orange County, currently operates at unacceptable levels of service (LOS) during peak periods. The purpose of the proposed project is to reduce traffic congestion and improve mobility and traffic operations in the project study area. Caltrans is the lead agency for the project under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The project is being funded through OCTA's M2 Freeway Program and State Highway Operation and Protection Program (SHOPP). This project has been assigned the Project Development Processing Category 4A because it will increase traffic capacity and require substantial new right of way. A summary of the project and its costs are included in Table 1-1 below:

Table 1-1 – Project Summary

Project Limits	12-ORA-55, PM R6.4/10.3
Number of Alternatives	6 (including No-Build Alternative)
Current Capital Outlay Support Estimate	$47.7 million
Current Capital Outlay Construction Estimate (Including 3 year Escalation)	$75.1 million to $150.2 million
Current Capital Outlay Right-of-Way Estimate	$52.0 million to $106.3 million
Funding Source	20.10.800.100
Funding Year	2019/2020
Type of Facility	Freeway (10 lanes, one high occupancy vehicle and four general purpose lanes in each direction)
Number of Structures	5
Environmental Determination or Document	Initial Study/Environmental Assessment (IS/EA) leading to a Mitigated Negative Declaration/Finding of No Significant Impacts (MND/FONSI)
Legal Description	In Orange County on Route 55 from 0.4 Mile North of Route 55/405 Separation in Irvine to 0.1 Mile South of Route 5/55 Separation in Tustin
Project Development Category	4A

A No-Build Alternative and four build alternatives were analyzed as part of the Draft Project Report (November 2015). The purpose of this Supplemental Draft Project Report is to evaluate an additional build alternative, Alternative 3 Modified (3M). Engineering drawings of Alternative 3M is provided in Attachment B.

Alternative 3M: Alternative 3M proposes an additional High Occupancy Vehicle (HOV) and a general purpose lane in each direction within the project limits, replaces existing auxiliary lanes, and proposes new auxiliary lanes at specific locations.

Specifically, the restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound I-5 connector and the northbound McFadden on-ramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden on-ramp to northbound SR-55 and southbound I-5 would be eliminated.

2. RECOMMENDATION

It is recommended that this Project be approved to publicly circulate the Supplemental Draft Environmental Document (DED) and to schedule a public hearing.

3. BACKGROUND

3A. Project History

No changes have occurred to this section since the approval of the Draft Project Report. The Project History section of the approved Draft Project Report is still valid.

3B. Community Interaction

No changes have occurred to this section since the approval of the Draft Project Report. The Community Interaction section of the approved Draft Project Report is still valid.

3C. Existing Facility

No changes have occurred to this section since the approval of the Draft Project Report. The Existing Facility section of the approved Draft Project Report is still valid.

4. PURPOSE AND NEED

4A. Problem, Deficiencies, Justification

The project purpose is a set of objectives the project intends to meet. The project need is the transportation deficiency that the project was initiated to address.

The purpose of the proposed action is to:

- Improve mobility and reduce congestion
- Improve traffic operations; and
- Increase capacity

Current deficiencies of SR-55 within the project limits are as follows:

- Limited available lane capacity during peak periods
- Inadequate merging distances as a result of closely spaced on- and off-ramps along the freeway mainline; and
- Nonstandard lane and shoulder widths at various locations within the Project limits.

4B. Regional and System Planning

No changes have occurred to this section since the approval of the Draft Project Report. The Regional and System Planning section of the approved Draft Project Report is still valid.

4C. Traffic

4C.1- Current and Forecasted Traffic

No changes have occurred to this section since the approval of the Draft Project Report. The Current and Forecasted Traffic section of the approved Draft Project Report is still valid.

4C.2- Collision Analysis Summary

No changes have occurred to this section since the approval of the Draft Project Report. The Collision Analysis Summary section of the approved Draft Project Report is still valid.

4C.3- Mainline Accident Analysis Summary

No changes have occurred to this section since the approval of the Draft Project Report. The Mainline Accident Analysis Summary section of the approved Draft Project Report is still valid.

4C.4- Ramp Accident Analysis Summary

No changes have occurred to this section since the approval of the Draft Project Report. The Ramp Accident Analysis Summary section of the approved Draft Project Report is still valid.

5. ALTERNATIVES

5A. Viable Alternatives

In addition to the alternatives under consideration as part of the Draft Project Report (approved in November 2015), this Supplemental Draft Project Report is adding Alternative 3M to the build alternative considerations. Approval of this Supplemental Draft Project Report does not constitute approval of the proposed alternative or any preferred or recommended alternative. A preferred alternative will be selected by the Project Development Team (PDT) after the public circulation process has taken place. A brief description of Alternative 3M is provided below. Engineered drawings of the build alternatives are provided in Attachment B.

5A.1- Alternative 3 Modified (3M) (New General Purpose Lane, new HOV Lane, and Aditional Auxiliary Lanes)

Alternative 3M proposes to add one general-purpose lane each in the northbound and southbound directions and a second HOV lane in each direction between the 55-405 HOV Connector and 55-5 HOV Connector. Additionally, in the northbound direction, auxiliary lanes will be constructed at two locations:

- between the MacArthur Boulevard and Dyer Road interchanges
- between the Dyer Road and Edinger Avenue interchanges

The restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound I-5 connector and the northbound McFadden on-ramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden on-ramp to northbound SR-55 and southbound I-5 would be eliminated.

In the southbound direction, the existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored to match the existing condition.

5A.1.1- Proposed Engineering Features

Typical Sections, Layout and Profiles for Alternative 3M are provided in Attachment B and depict the detailed engineering features. Brief descriptions with respect to the typical sections, horizontal and vertical alignment, right of way widths, access control requirements, general geometrics of the interchanges and intersections, structural section requirements, drainage structures and other appropriate information including bridge structures, frontage roads, parking, electrical, and a traffic analysis of the alternative is provided below.

5A.1.1.1- Proposed Typical Sections

For the build Alternative 3M, the Project proposes to widen the freeway to the outside in order to accommodate the proposed additional lanes as described. Non-standard 11-foot wide lanes, 4-foot inside shoulder, and standard 10-foot outside shoulder will be provided in order to accommodate for the addition of the second HOV lane as part of Alternative 3M. The existing outside shoulders would be removed to provide full structural sections. A minimum sawcut of two feet into the adjacent existing roadway would be required; however, if this longitudinal joint

is located on a vehicle wheel path other designs may be considered. The proposed cross grade will be 2%. Retaining walls will be provided where required.

For the proposed ramps, standard 12-foot wide lanes and standard shoulder widths will be provided. Loop ramp lane widths are designed in accordance with the Highway Design Manual (HDM) to accommodate for the large truck wheel path.

Table 5-1 provides a summary of the approximate widths of the typical section widening proposed between each interchange. Specific information as to the limits of the improvements included as part of the widening is included in the typical sections for Alternative 3M in Attachment B.

Table 5-1 – Summary of Typical Section Width Widening

Location	Alt 3M	
	NB	SB
I-405 to MacArthur Blvd	12'	0'
MacArthur Blvd to Dyer Rd	36’	22’
Dyer Rd to Edinger Ave	34’	24’
Edinger Ave to McFadden Ave	12’	24’
McFadden Ave to I-5	2.5'	0'

5A.1.1.2- Structural Section Requirements

No changes have occurred to this section since the approval of the Draft Project Report. The Structural Section Requirements section of the approved Draft Project Report is still valid.

5A.1.1.3- Horizontal and Vertical Alignment Summary

The Horizontal and Vertical Alignment Summary section for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. Table 5-2 summarizes the number of ramp realignments for each alternative.

Table 5-2 – Summary of Ramp Realignments

Alternative #	Number of Ramp Realignments
Alternative 3M	20

5A.1.1.4- Right of Way Widths

The Right of Way Widths section for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. Table 5-3 provides the approximate existing right of way widths and a summary of the approximate increases in widths between each of the interchanges and at specific ramp locations.

Table 5-3 – Summary of Right of Way Width Widening

Location	Existing Width	Alt 3M	
		NB	SB
I-405 to MacArthur Blvd	284' - 318'	20.5'	0'
MacArthur Blvd to Dyer Rd	214'	0'-12.8'	0'-12.8'
Dyer Rd to Edinger Ave	214'	0’-24.3’	0’-8’
Edinger Ave to McFadden Ave	295' - 318'	0'	12.5’ max
McFadden Ave to I-5	239'- 266'	0'	0'
SB SR-55 Off-Ramp to MacArthur	__	10' notch required for ramp widening.	
EB Dyer Rd at EB On-Ramp to SR-55	__	18’ ROW widening to accommodate RT pocket lane	
McFadden SB On-Ramp	__	0’-25’ notch required.	
Under McFadden Overcrossing	__	0’-18’notch required.	

For detailed right of way information for Alternative 3M see Right of Way Data Sheets (Attachment E) and Right of Way Acquisition Mapping (Attachment J).

5A.1.1.5- Access Control Requirements

No changes have occurred to this section since the approval of the Draft Project Report. The Access Control Requirements section of the approved Draft Project Report is still valid.

5A.1.1.6- General Geometrics of the Interchanges and Intersections

The General Geometrics of the Interchanges and Intersections for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report.

The intersections modified as part of the build alternatives is listed in Table 5.4 below (See sheet L-3, 4, and 9 of Alternative 3M in Attachment B).

Table 5-4 – Modified Right Angle Intersection

Location	Alt 3M
EB Dyer Road to NB SR-55 loop on-ramp ("DY-5" Line)	x
EB MacArthur Boulevard to NB SR-55 loop on-ramp ("MA-5" Line)	x
WB MacArthur Boulevard to SB SR-55 loop on-ramp ("MA-2" Line).	x

5A.1.1.7- Drainage

A Supplemental Preliminary Drainage technical memorandum for Alternative 3M has been completed for this phase of the Project. According to the supplemental preliminary assessment, onsite and local drainage improvements/retrofits are feasible and can accommodate the proposed freeway widening. Proposed drainage improvements to regional facilities are also feasible, which may include lengthening, modification or re-alignment of culverts.

There are several existing storm drain facilities throughout the SR-55 corridor, many of which are impacted by the Project. The improvements to impacted drainage facilities as a result of the Alternative 3M includes relocation, extension, and/or adjustment of the existing drainage systems; additional inlets, down drains, and/or oversight drains; and abandonment and/or removal of system components that are no longer serviceable. Existing major storm drain systems that would fall under the widened roadway must be relocated. Table 5-5 lists the proposed relocations for the major onsite facilities for Alternative 3M as a result of this requirement.

Potential of hydroplaning may exist within the travel lanes when both speed of 65 mph and dense grade AC pavements occur. The following remedial measures are recommended to minimize the risk and potential hydroplaning:

- Use of graded course (open grade AC or porous pavements)
- Decrease the speed limit
- Maximize the transverse slope
- Maximize pavement roughness (e.g., high friction surface treatment)

See technical memorandum to the Preliminary Drainage Report for more information on hydroplaning analysis.

Table 5-5 – Proposed Relocated Storm Drain Facilities

Approximate limits (Station)	Size and Type of Facility	Description of Location	Proposed Design
344+00 - 361+00	53”RCP; 64”X40” RCPA; 30”RCP; 24”RCP	Parallel to the east side SR-55; north of Main Street and south of MacArthur Boulevard	To be relocated further east due to widening
344+00 – 357+00	24”AP	Parallel to the east side SR-55; north of Main Street and south of MacArthur Boulevard	To be relocated further east due to widening
419+00 – 483+00	66”APC; 8’X4’RCB; 63”APC; 60”APC; 54”APC	Parallel to the west side SR-55 from north of Dyer Road to south of Edinger Avenue	To be relocated further west and join existing 54”APC
431+00 – 466+00	18” Slotted corrugate pipe and inlets at average 100’ spacing	Parallel to the east side of SR-55 from north of Dyer Road to Bell Avenue; 4’ shoulder area	Proposed
434+60 – 461+00	Inlets at 80’-150’ spacing	Along west side of SR-55 from north of Grand Avenue ramp to Newport Circle; 8’ shoulder area	Proposed
481+00 – 520+00	Grated Line Drain	At median from north of Del Amo Avenue and to south of McFadden Avenue	Proposed
443+00 – 480+00	30”APC	Parallel to the east side SR-55; south of Warner Avenue to Valencia Avenue	To be relocated further east due to widening

Table 5-5 – Proposed Relocated Storm Drain Facilities

Approximate limits (Station)	Size and Type of Facility	Description of Location	Proposed Design
504+00 – 532+00	54”APC; 48”APC; 42”RCP; 36”APC	Parallel to the west side SR-55; from north of Edinger Avenue to north of McFadden Avenue	To be relocated further west and join existing 24”APC
520+00 – 532+00	8’X4’RCB	Parallel to the east side SR-55; from south of McFadden Avenue to north of McFadden Avenue	To be relocated further east and join existing 8’X4’ RCB

5A.1.1.8- Bridge Structures

The proposed widening and vertical clearance of the bridge structures at MacArthur Blvd UC, Edinger Avenue UC, and South Tustin OH for Alternative 3M remains the same as Alternative 3 since the approval of the Draft Project Report. A technical memorandum to evaluate the Dyer Road UC Bridge impacts associated with implementation of Alternative 3M was prepared and approved. See Attachment D for Dyer Road UC Planning Study.

Table 5-6 summarizes the proposed widening and vertical clearance of the bridge structures for Alternative 3M.

Table 5-6 – Summary of Bridge Structures

Bridge Name	Bridge #	Proposed Widening	Proposed Vertical Clearance
		Alt 3M	
MacArthur Blvd UC	55-410	NB 11'-0" and varies SB 10'-5" and varies	All Alternatives 15'-2"
Dyer Road UC	55-0409	NB 21'-8¾" to 26'-5¼" SB 12'-6"	Alt 1 15'- 5½" Alt 2 15'- 4¼" Alt 3 15'- 3½" Al3 3M 15'- 3½" Alt 4 15'- 3½"
Edinger Avenue UC	55-393	SB 51'-1" to 54'-6 ¾"	All Alternatives 21'-4 $\frac{7}{8}$"
South Tustin OH	55-0026	SB 32'-3$\frac{7}{8}$" to 40'-4 ¾" NB 12'-9"	All Alternatives 22'-4 ½"

No changes have occurred to the tieback wall location at Warner Avenue Overcrossing since the approval of Draft Project Report.

5A.1.1.9- Retaining Walls and Barriers

Table 5-7 summarizes the proposed retaining wall description per Alternative 3M within the Project limits.

Table 5-7 – Alternative 3M, Summary of Retaining Walls

Retaining Wall No.	Location along SR-55	Length of proposed wall (LF)	Minimum Height (FT)	Maximum Height (FT)
350	NB	2655	4	16
373	NB	305	4	10
74	NB	325	4	8
388	NB	1288	4	8
403	NB	415	4	8
418	NB	633	6	16
22	NB	529	4	10
496	NB	764	16	22
500	NB	252	18	22
508	NB	836	4	26
353	SB	2258	4	14
417	SB	781	8	14
501	SB	274	20	24
511	SB	839	4	20

Type 60C concrete barriers are used at various locations along the right edge of shoulder and median (at the potential CHP observation area) within the project limits. These limits are summarized in Table 5-8 below:

Table 5-8 – Location of Proposed Type 60C Concrete Barrier

		Begin Station	End Station
Alternative 3M	NB	381+10	405+00
		424+62	447+56
		449+34	477+00
	SB	433+85	446+79
		448+21	482+12
		A519+00	A535+00
	Median	428+00	470+00

5A.1.1.10- Frontage Roads

The Frontage Road impacts for Alternative 3M are the same as the Alternative 3 section of the approved Draft Project Report. The impacted adjacent frontage roads, due to the mainline widening, are noted in Table 5-9 (See sheets L-1 and L-2, L-5 and L-6, L-10 to L-13, and relevant PS sheets in Attachment B).

Table 5-9 – Summary of Frontage Roads Impacted

Alternative	Frontage Road Impacted by the SR-55 Widening
3M	Cowan Street, South Pullman Street, Pullman Street, Ritchey Street, and Valencia Avenue

5A.1.1.11- Parking

The Parking section for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. Conceptual replacement parking designs were prepared for the ten properties impacted and are shown on the Alternative 3M layout plans in Attachment B and summarized in Table 5-10.

Table 5-10 – Summary of Parking Impacts

APN	Address	Business Name(s)	Existing Land Use	Parking Stalls				Build Alternatives
				Existing	Required	Proposed	Diff.	Alt 3M
402-101-07 402-101-39 402-101-45	2101 E. Edinger Avenue Santa Ana, CA 92705	Freeway Honda	Commercial	421	325	413	-8	●
402-111-24	1411 Village Way Santa Ana, CA 92705	Several	Industrial	682	931	706	+24	●
403-041-07	1969 S. Ritchey Street Santa Ana, CA 92705	Several	Industrial	118	122	118	0	●
403-041-08	2061 S. Ritchey	O'Neil Storage	Industrial	12	3	12	0	●
427-262-06	17781 Cowan Street Irvine, CA 92614	Several	Commercial	218	262	223	+5	●
427-282-14 427-282-15	17952 Cowan Street Irvine, CA 92614	Assemblies of God	Commercial	89	126	94	+5	●
430-012-04	2350 Pullman Street Santa Ana, CA 92705	Aryzta	Industrial	66	79	89	+23	●

Table 5-10 – Summary of Parking Impacts

APN	Address	Business Name(s)	Existing Land Use	Parking Stalls				Build Alternatives
				Existing	Required	Proposed	Diff.	Alt 3M
430-031-09	1717 E. Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	177	190	187	+10	●
430-115-01	1021 Duryea Avenue Irvine, CA 92614	Cabinets Plus	Industrial	46	44	46	0	●
430-241-07	1100 Valencia Avenue Tustin, CA 92780	RICOH	Industrial	643	582	631	-12	●

Source: *Off-Street Parking Study* (2014).
●= Parking impact occurs for Build Alternative
Alt = Alternative
APN = Assessor's Parcel Number
E. = East
S. = South
N/A = Not applicable.

5A.1.1.12- Electrical and Communications Systems

The Electrical and Communications System section for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. Table 5-11 provides a summary of the electrical and communications systems that would be impacted for each alternative.

Table 5-11 – Summary of Electrical and Communication System Impacts

System	Alt 3M
Lighting (# of poles)	110
Signal and Lighting (# of intersections)	14
Ramp Meter (# of systems)	11
CMS Signs	3
CCTV poles	3

5A.1.1.13- Overhead Sign Structures

The Overhead Sign Structures section for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. Table 5-12 provides a summary of the impacted overhead sign structures.

Table 5-12 – Summary of Overhead Sign Structure Impacts

Station - Type	Alt 3M
345+00 Single Post	Relocate
351+00 Double Post	Protect-in-Place
356+00 Single Post	Relocate
359+00 Single Post	Protect-in-Place
366+00 Single Post	Protect-in-Place
367+00 Single Post	Protect-in-Place
374+00 Double Post	Replace/Relocate
381+00 Double Post	Replace/Relocate
393+00 Single Post HOV	Protect-in-Place
396+00 Single Post	Relocate
399+00 Single Post	Relocate

Table 5-12 – Summary of Overhead Sign Structure Impacts

Station - Type	Alt 3M
407+00 Single Post	Protect-in-Place
415+00 Single Post	Relocate
417+00 Single Post	Relocate
419+00 Single Post HOV	Protect-in-Place
433+00 Single Post	Relocate
434+50 Single Post	Relocate
447+50 Bridge Mounted	Protect-in-Place
448+00 Bridge Mounted	Protect-in-Place
455+00 Single Post	Relocate
461+50 Single Post HOV	Protect-in-Place
465+50 Single Post	Relocate
475+50 Single Post	Relocate
484+50 Single Post HOV	Protect-in-Place
491+00 Single Post	Protect-in-Place
491+00 Single Post CMS	Install
495+00 Single Post	Relocate
496+00 Single Post	Protect-in-Place
500+00 Single Post	Protect-in-Place
502+50 Single Post	Install
504+00 Double Post	Replace/Relocate
514+50 Single Post	Protect-in-Place
517+50 Single Post	Protect-in-Place
A520+00 Single Post	Protect-in-Place
A526+00 Bridge Mounted	Protect-in-Place
A527+00 Bridge Mounted	Protect-in-Place
A531+50 Single Post	Protect-in-Place

Table 5-12 – Summary of Overhead Sign Structure Impacts

Station - Type	Alt 3M
A535+00 Single Post	Protect-in-Place
A541+00 Single Post	Protect-in-Place

5A.1.1.14- Miscellaneous Work Items

All roadside signs, pavement delineation, Midwest Guardrail System (MGS) and miscellaneous items that are affected by the proposed improvements would be removed and replaced with corresponding items meeting the latest Caltrans standards.

5A.1.1.15- Traffic Analysis

An updated traffic analysis (to include Alternative 3M) has been completed for this Project and is documented in the *Revised Traffic Operations Report – State Route 55 (I-5 to I-405) PR/ED* for the Project. This section summarizes the design year (2040) conditions in order to evaluate the long term operations of Alternative 3M. For Alternative 3M, traffic operations are evaluated using peak-hour density, LOS, speed, travel time and other system-wide Measures of Effectiveness (MOE's).

During AM Peak Hour, under the No Build Alternative, northbound SR-55 would operate at LOS F conditions at the Paularino Avenue on-ramp. Traffic congestion at those locations would meter traffic getting downstream, resulting in LOS D or better conditions on northbound SR-55 north of I-405 in the AM peak hour, except for the weaving section between McFadden Avenue on-ramp and northbound I-5 off-ramp, which would operate at LOS E under 2040 conditions. During PM Peak Hour, under all the project alternatives, all the study locations on northbound SR-55 would experience severe congestion and operate at LOS F conditions under 2040 conditions. Vehicle queue on northbound SR-55 extend from Irvine Boulevard/I-5 back to south of Paularino Avenue. According to the 2040 analysis results, the two bottlenecks identified in northbound SR-55 would be Dyer Road on-ramp and McFadden on-ramp. The only exception is that the limited access at McFadden Avenue on-ramp would significantly improve operations at this on-ramp from LOS F to D or better conditions under Alternatives 3, 3M, and 4.

During AM Peak Hour, in the southbound direction, heavy congestion and vehicle queue would extend from Edinger on-ramp back to 4th Street and beyond, resulting in LOS E or F conditions under the No Build Alternative. In addition, the segment between Dyer Road on-ramp and MacArthur Boulevard off-ramp would operate at LOS E or F conditions during the AM peak hour. During PM Peak Hour, in the southbound direction, most study locations operate at LOS E or worse under the No Build Alternative under 2040 conditions, with the exception of the segments south of MacArthur Boulevard onramp.

The average travel speeds in 2040 for the study area for Alternative 3M are shown in Tables 5-13 and 5-14.

5A.1.1.16- Alternatives Analysis

Alternative 3M improves the existing bottlenecks at the entry points (NB SR-55 at I-405, and SB SR-55 at I-5). As a result of this increased capacity, more vehicles are allowed into the system. This creates more traffic at downstream locations from these entry points. As a result, more vehicles are serviced, and the overall delay experienced by the public is reduced. However, because the downstream locations have more vehicles, there are higher densities and more locations where the LOS is E or F. This is shown in the tables below, which provide the traffic operations for Alternative 3M.

Tables 5-13 and 5-14 provides the analysis results of Alternative 3M under the design year (2040) conditions for both the AM and PM peak periods. The analysis was performed from the traffic operations point of view to identify either marginal or significant operational differences between the Project alternatives.

Table 5-13 –AM Peak Hour Traffic Operations Comparison – 2040 Conditions

MOE		Alt 3M
Number of Study Freeway Locations	LOS D or Better	27
	LOS E or F	9
Number of Study HOV Locations	LOS D or Better	10
	LOS E or F	0
Number of Study Intersections	LOS D or Better	13
	LOS E or F	1
NB SR-55 Peak Hour Travel Time Changes (Compared to No Build Alternative)		-9%
SB SR-55 Peak Hour Travel Time Changes (Compared to No Build Alternative)		-12%
NB SR-55 Peak Hour Travel Time Changes for HOV Lanes (Compared to No Build Alternative)		-2%
SB SR-55 Peak Hour Travel Time Changes for HOV Lanes (Compared to No Build Alternative)		-39%
Peak Period Number of People Served Changes (Compared to No Build Alternative)		+4%
Peak Period Vehicle Mile Traveled Changes (Compared to No Build Alternative)		+6%
Peak Period Vehicle Hours Delay Changes (Compared to No Build Alternative)		-41%

The 2040 AM peak period traffic operations benefits under Alternative 3M is summarized below.

Alternative 3M would improve traffic operational service level from LOS E or F to acceptable LOS D or better at one HOV segment and 5 freeway segments. Compared to the No Build Alternative, Alternative 3M would reduce northbound and southbound SR-55 travel time for general purpose lanes by 9 and 12 percent, slightly reduce northbound SR-55 travel time for HOV lanes by 2 percent, significantly reduce southbound SR-55 travel time for HOV lanes by 39 percent, and significantly reduce the network vehicle hours of delay by 41 percent while serving 4 percent more people through the network.

Overall, Alternative 3M would generate the most operational benefits with serving the most people with the least delay among the five project alternatives during the AM peak period in 2040.

Table 5-14 – PM Peak Hour Traffic Operations Comparison – 2040 Conditions

MOE		Alt 3M
Number of Study Freeway Locations	LOS D or Better	8
	LOS E or F	28
Number of Study HOV Locations	LOS D or Better	10
	LOS E or F	0
Number of Study Intersections	LOS D or Better	9
	LOS E or F	5
NB SR-55 Peak Hour Travel Time Changes (Compared to No Build Alternative)		-7%
SB SR-55 Peak Hour Travel Time Changes (Compared to No Build Alternative)		-34%
NB SR-55 Peak Hour Travel Time Changes for HOV Lanes (Compared to No Build Alternative)		-16%
SB SR-55 Peak Hour Travel Time Changes for HOV Lanes (Compared to No Build Alternative)		-20%
Peak Period Number of People Served Changes (Compared to No Build Alternative)		+4%
Peak Period Vehicle Mile Traveled Changes (Compared to No Build Alternative)		+6%
Peak Period Vehicle Hours Delay Changes (Compared to No Build Alternative)		-41%

Note: "+" indicates an increase and "-" indicates a decrease.

Source: Fehr & Peers, , Traffic Operation Report (December 2016)

The 2040 PM peak period traffic operations benefits under Alternative 3M is summarized below.

Alternative 3M would improve traffic operational service level from LOS E or F to acceptable LOS D or better at 2 HOV segments and 4 freeway segments. Compared to the No Build Alternative, Alternative 3M would reduce northbound and southbound SR-55 travel time for general purpose lanes by 7 and 34 percent, reduce northbound and southbound SR-55 travel time for HOV lanes by 16 and 20 percent, and significantly reduce the network vehicle hours of delay by 41 percent while serving 4 percent more people through the network.

Overall, Alternative 3M would generate the most operational benefits with serving the most people with the least delay among the five project alternatives during the PM peak period in 2040.

5A.1.1.17- Findings of Comparison Analysis

The findings of the comparison analysis of the proposed Project Alternative 3M are summarized below:

- Alternative 3M would provide significant benefits on both southbound and northbound SR-55. Compared to the No Build Alternative, Alternative 3M would serve 7,650 and 19,350 more people getting through the corridor during the peak periods (AM and PM combined) in 2020 and 2040, respectively.

  Alternative 4 and 3M would enable all the HOV segments in the study corridor to operate at LOS D or better during both AM and PM peak hours.

- In terms of Design Year 2040 peak hour travel time for general purpose lanes, Alternatives 2, 3, 4, and 3M would result in similar travel time savings in the southbound direction during the AM peak hour, which is approximately half a minute or 6 percent less than the No Build Alternative. During the PM peak hour, due to the projected peak hour traffic demand exceeding the capacity of the I-5/SR-55 bottleneck, the peak hour travel times are similar between alternatives with a variation of 3% or lower. Therefore, the performance matrices measured during the 4-hour peak periods are presented to provide a better understanding of operational benefits between project alternatives.

- In terms of Design Year 2040 peak hour travel time for HOV lanes, Alternatives 4 and 3M would result in significant travel time savings in the southbound directions during the AM peak hour, which is over 2 minutes or 36 percent less than the No Build Alternative. Similarly during the PM peak hour, Alternatives 4 and 3M would result in noticeable travel time savings in the northbound directions, which is approximately 1 minute or 15 percent less than the No Build Alternative.

- From system-wide operational performance perspective, Alternative 3M would result in the most operational benefits by serving the most people traveling through the corridor with the least delay among the five project alternatives during both AM and PM peak periods under both 2020 and 2040 conditions.

- Under Alternatives 3, 4, and 3M, one local intersection (Northbound I-5 On-ramp/Newport Avenue) has been identified to be significantly impacted by traffic diversion resulted from the limited access at McFadden Avenue on-ramp under 2020 and 2040 conditions. Mitigation measure of installation of a traffic signal is recommended at this intersection, which would adequately mitigate the traffic impacts within the existing ROW.

5A.1.2- Nonstandard Mandatory and Advisory Design Features

The Nonstandard Mandatory and Advisory Design Features for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. A summary of the nonstandard features for build Alternative 3M is presented in Tables 5-15 and 5-16.

Table 5-15 – Mandatory Design Standard Risk Assessment - Alternative 3M

HDM Index #	Description	Probability of Design Exception Approval (None, Low, Medium, High,)	Justification for Probability Rating
201.1	Table 201.1 shows the standards for stopping sight distance related to design speed, and these shall be the minimum values used in design.	Low	Need to demonstrate less than standard design constrained conditions. SSD is critical design issue.
202.2	Based on an Emax selected by the designer for one of the conditions, superelevation rates from Table 202.2 shall be used within the given range of curve radii. If less than standard superelevation rates are approved (see Index 82.1), Figure 202.2 shall be used to determine superelevation based on the curve radius and maximum comfortable speed.	Medium	Potential truck movements/operations need to be fully defined.
203.1	Horizontal alignment shall provide at least the minimum stopping sight distance for the chosen design speed at all points on the highway, as given in Table 201.1 and explained in Index 201.3.	Low	Need to demonstrate less than standard design constrained conditions. SSD is critical design issue.
203.2	Table 203.2 shall be the minimum radius of curve for specific design speeds on highways.	Low - Medium	Exception is very location specific. More detail is needed to assess impacts.
301.1	The minimum lane width on two-lane and multilane highways, ramps, collector roads, and other appurtenant roadways shall be 12 feet.	Low	Need to demonstrate significant restrictive conditions.
302.1 & 309.1(3)(a)	The shoulder widths given in Table 302.1 shall be the minimum continuous useable width of paved shoulder. The minimum horizontal clearance to all objects, such as bridge rails and	Low	Need to demonstrate less than standard design constrained conditions. Shoulder width is critical design issue.

Table 5-15 – Mandatory Design Standard Risk Assessment - Alternative 3M

HDM Index #	Description	Probability of Design Exception Approval (None, Low, Medium, High,)	Justification for Probability Rating
	safety-shaped concrete barriers, as well as sand-filled barrels, metal beam guardrail, etc., on all freeways and expressway facilities including auxiliary lanes, ramps, and collector roads, shall be equal to the standard shoulder width of the highway facility as stated in Table 302.1		
305.1(2)	In areas where restrictive conditions prevail the minimum median width shall be 22 feet.	Medium	Determine future cross section needs and median shoulder width. This is a minimum standard under restrictive conditions. Need clear justification.
501.3	The minimum interchange spacing shall be one mile in urban areas, two miles in rural areas, and two miles between freeway-to-freeway interchanges and other interchanges. The minimum interchange spacing on Interstates outside of a Transportation Management Area shall be three miles.	Medium - High	Exception is very location specific. Need to provide mitigation or design alternatives for operational and safety improvements.
504.7	The minimum weaving length, measured as shown on Figures 504.2A and 504.2B shall be 2,000 feet in urban areas, 5,000 feet in rural areas, and 5,000 feet between freeway-to freeway interchanges and other interchanges.	Low	Exception is very location specific. Need to provide mitigation or design alternatives for operational and safety improvements. Need to consider incremental improvements.

Table 5-16 – Advisory Design Standard Risk Assessment - Alternative 3M

Index #	Description	Probability of Design Exception Approval (None, Low, Medium, High,)	Justification for Probability Rating
201.7 & 504.2(4)(a)	On freeways and expressways the decision sight distance values in Table 201.7 should be used at lane drops and at off-ramp noses to interchanges, branch connections, roadside rests, vista points, and inspection stations. Decision sight distance given in Table 201.7 should be provided at freeway exits and branch connectors. At secondary exits on collector-distributor roads, a minimum of 600 feet of decision sight distance should be provided.	Medium	Insufficient Information
202.5(1)	A superelevation transition should be designed in accordance with the diagram and tabular data shown in Figure 202.5A to satisfy the requirements of safety, comfort and pleasing appearance.	Medium	Insufficient Information
202.5(2)	Two-thirds of the superelevation runoff should be on the tangent and one-third within the curve.	Medium	Insufficient Information
202.6	Superelevation of compound curves should follow the procedure as shown in Figure 202.6. Where feasible, the criteria in Index 202.5 should apply.	Medium	Insufficient Information
204.3	Minimum grades should be 0.5 percent in snow country and 0.3 percent at other locations.	Medium	Insufficient Information
304.1	For new construction, widening, or where slopes are otherwise being modified, embankment (fill) slopes should be 4:1 or flatter.	Medium	Insufficient Information

Table 5-16 – Advisory Design Standard Risk Assessment - Alternative 3M

Index #	Description	Probability of Design Exception Approval (None, Low, Medium, High,)	Justification for Probability Rating
305.1(1)(a)	The minimum median width for freeways and expressways in urban areas should be 36 feet.	Medium	Insufficient Information
309.5	Minimum of 23 feet 4 inches should be used in design to allow for reballasting and normal maintenance of track. Railroads on which freight cars are not operated, should have a minimum vertical clearance of 19 feet.	Medium	Insufficient Information
310.2	In urban areas and in mountainous terrain, the width of the outer separation should be a minimum of 26 feet from edge of traveled way to edge of traveled way.	Medium	Insufficient Information
403.6	Optional right-turn lanes should not be used in combination with right-turn-only lanes on roads where bicycle travel is permitted.	Medium	Insufficient Information
504.2(2)	Design of freeway entrances and exits should conform to the standard designs illustrated in Figure 504.2A-B (single lane), and Figure 504.3L (two-lane entrances and exits) and/or Figure 504.4 (diverging branch connections), as appropriate.	Medium	Insufficient Information
504.2(5)	Where adjacent lanes or lanes and paved gore areas at freeway entrances and exits are not in the same plane, the algebraic difference in pavement cross slope should not exceed 5 percent (see Index 301.2).	Medium	Insufficient Information

Table 5-16 – Advisory Design Standard Risk Assessment - Alternative 3M

Index #	Description	Probability of Design Exception Approval (None, Low, Medium, High,)	Justification for Probability Rating
504.3(2)(b)	Depending on approach geometry and speed, the lane drop transition between the limit line and the 6-foot separation point should be accomplished with a taper of between 30:1 and 50:1 (longitudinal to lateral)	Medium	Insufficient Information
504.3(6)	An auxiliary lane approximately 1,300 feet long should be provided in advance of a 2-lane exit.	Medium	Insufficient Information
504.3(9)	This distance should be about 1,000 feet unless the upstream ramp adds an auxiliary lane in which case the downstream ramp should merge with the auxiliary lane in a standard 50:1 (longitudinal to lateral) convergence.	Medium	Insufficient Information
504.6	The basic number of mainline lanes should not be dropped through a local service interchange.	Medium	Insufficient Information

In summary, there are 8 mandatory and 12 advisory design standards common to all alternatives that would require design exceptions at one or more locations along the project.

In addition to the design exceptions common to all the Build Alternatives, Alternative 3M would require 1 mandatory and 5 advisory design standards that would require design exceptions at one or more locations along the alignment of this alternative.

5A.1.3- High Occupancy Vehicle (HOV) Lanes

The existing NB and SB HOV lanes would be maintained under all alternatives. Alternative 3M proposes an additional 11-foot wide HOV lane in each direction from the I-405 to I-5 Direct Connectors. The additional lane would be added in the northbound direction just north of the MacArthur Boulevard Undercrossing where the HOV lane currently merges into one lane and would continue to the southbound McFadden Avenue ramps. The additional HOV lane would be added in the southbound direction just south of the McFadden Avenue Overcrossing where the HOV lane currently merges into one lane and would continue to just north of the MacArthur Boulevard undercrossing, where two lanes are currently provided.

Currently, there is continuous access striping for existing HOV lanes along SR-55 within the project limits with the exception of the approaches to the I-5 and I-405 interchanges. This striping would be maintained in Alternative 3M. A statewide HOV degradation review program is being conducted to determine the effectiveness of HOV lanes throughout the state. HOV facilities within the Project may have to be consistent with this program. Recommendations from this program may be incorporated in the project as part of final design.

5A.1.4- Ramp Metering

No changes have occurred to this section since the approval of the Draft Project Report. The Ramp Metering section of the approved Draft Project Report is still valid.

5A.1.5- California Highway Patrol (CHP) Enforcement Area

CHP enforcement areas are proposed for the five build alternatives on all modified on-ramps that have ramp metering facilities.

Per the Traffic Operations Policy Directive, an observation area is being considered on the median shoulder at Warner UC (See sheets X-5 and L-10 to L-13 in Attachment B).

5A.1.6- Park and Ride Facilities

No changes have occurred to this section since the approval of the Draft Project Report. The Park and Ride Facilities section of the approved Draft Project Report is still valid.

5A.1.7- Utility Owner and Other Owner Involvement

The Utility Owner and Other Owner Involvement section for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. A summary of all utility involvements that may affect project scheduling and/or costs for each alternative is provided in the Table 5-17.

Table 5-17 – Potential Effects on Utility Facilities During Construction

Utility Provider	Description of Facility	Project Effect (Removal, Relocation or Protection in Place)	Station Sheet Number	Alt 3M
City of Santa Ana	12" water line in 20" casing	Existing water line is in conflict with the proposed mainline improvements. SR-55 crossing would be relocated (jack and bore)	"A" 450+39 Sheet U-12	•
	24" water line in 30" casing	Existing water line is in conflict with the proposed mainline improvements. SR-55 crossing would be relocated (jack and bore)	"A" 450+51 Sheet U-12	•
	Pressure reducing facility	Existing facility is in conflict with the proposed mainline improvements. Would be reconstructed on-site.	"A" 450+51 Sheet U-12	•
	3 fire hydrants, 3 water service lines, 3 fire service lines, and 5 valve cans	Existing facilities is in conflict with the proposed Pullman St improvements. Would be relocated along Pullman Street between Dyer Road and Warner Avenue	"A" 433+50 to "A" 442+80 Right of NB SR-55 Sheet U-11	•
	24" water line	Existing water line is in conflict with the proposed Ritchey St improvements. Would be relocated along Ritchey Street on the west side of SR-55	"A" 449+64 to "A" 465+30 Left of SB SR-55 Sheet U-12 & 13	•
Irvine Ranch Water District	8" vitrified clay pipe sewer	Existing Sewer line and manholes are in conflict with the proposed mainline widening and the retaining wall along the edge of shoulder. Would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard, with a new manhole	"A" 343+85 to "A" 355+05 Right of NB SR-55 Sheet U-1 & 2	•
	5 fire hydrants, 6 water service lines, 6 fire service lines, and 10 valve cans	Existing facilities are in conflict with the proposed mainline widening and Cowan St improvements. Would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard	"A" 345+19 to "A" 357+58 Right of NB SR-55 Sheet U-2	•

Table 5-17 – Potential Effects on Utility Facilities During Construction

Utility Provider	Description of Facility	Project Effect (Removal, Relocation or Protection in Place)	Station Sheet Number	Alt 3M
Orange County Sanitation District	Sewer manhole	Existing sewer manhole is in conflict with the proposed mainline improvements. Would be removed from NB SR-55. install a new manhole on the east side of NB SR-55	"A" 447+44 to "A" 447+54 Right of NB SR-55 Sheet U-11	•
	24" vitrified clay pipe sewer in 54" Casing	Casing to get extended due to proposed mainline widening. Casing for the sewer line crossing would be extended east of SR-55	"A" 447+09 Sheet U-11	•
	15" vitrified clay pipe sewer	Existing sewer line is in conflict with the proposed mainline improvements and proposed Edinger Bridge. Would be relocated along the west side of SB SR-55	"A" 498+23 to "A" 503+12 Left of SB SR-55 Sheet U-16	•
	15" vitrified clay pipe sewer	Existing sewer line is in conflict with the proposed Ritchey St improvements. Would be relocated along Ritchey Street on the west side of SR-55	"A" 451+30 to "A" 452+88 Left of SB SR-55 Sheet U-12	•
Southern California Edison (electricity)	Overhead 66 kV transmission line	Existing SCE line is in conflict with the proposed Cowan St improvements. Longitudinal Encroachment Permit conflict. Would be relocated underground along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard	"A" 343+50 to "A" 348+00 U-1 & 2	•
	Overhead 66 kV transmission line	Longitudinal Encroachment Permit conflict. Would be relocated along the north and south side of MacArthur Boulevard on the east side of SR-55	"A" 354+00 to "A"368+00 U-2, 4, & 20	•
	Overhead 66 kV transmission line	Longitudinal Encroachment Permit conflict. Would be relocated with four steel and two wood poles along Pullman Street on the east side of SR-55 between MacArthur Boulevard and McGaw Avenue	"A" 368+00 to "A" 373+50 Sheet U-4, 5, & 20	•

Table 5-17 – Potential Effects on Utility Facilities During Construction

Utility Provider	Description of Facility	Project Effect (Removal, Relocation or Protection in Place)	Station Sheet Number	Alt 3M
Southern California Edison (electricity)	Overhead 66 kV transmission line	Longitudinal Encroachment Permit conflict. Would be relocated underground along Pullman Street on the east side of SR-55 between Garry Avenue and Carnegie Avenue	"A" 403+50 to "A" 424+50 Sheet U-8 through U-10	●
	Overhead 66 kV transmission lines	Existing SCE line is in conflict with the proposed mainline improvements. Longitudinal Encroachment Permit conflict. Would be relocated underground along Pullman Street on the east side of SR-55 and Warner Avenue	"A" 431+20 to "A" 436+00 Sheet U-10 &11	●
	Overhead distribution line	Existing SCE line is in conflict with the proposed mainline improvements. Longitudinal Encroachment Permit conflict. Would be relocated underground at the corner of Pullman Street and Carnegie Avenue	"A" 436+00 to "A"447+00 Sheet U-11, 12, & 22	●
	Overhead 66 kV transmission line	Existing SCE line is in conflict with the proposed mainline improvements. Longitudinal Encroachment Permit conflict. Would be relocated along Ritchey Street on the west	"A" 447+00 to "A" 475+80 Sheet U-11 through U-13 & U-22	●
	Underground line	Existing SCE line is in conflict with the proposed mainline improvements and proposed Edinger Bridge. Would be relocated along the west side of SB SR-55	"A" 499+00 to "A" 501+00 Sheet U-16	●
	Overhead line	Existing SCE line is in conflict with the proposed mainline improvements and proposed Edinger Bridge. Would be relocated with two wood poles along the west side of SB SR-55	"A" 501+00 to "A" 503+00 Sheet U-16	●
	Overhead 66 kV transmission line	Existing SCE line is in conflict with the proposed mainline improvements Would be relocated	"A" 343+50 Sheet U-1	●

Table 5-17 – Potential Effects on Utility Facilities During Construction

Utility Provider	Description of Facility	Project Effect (Removal, Relocation or Protection in Place)	Station Sheet Number	Alt 3M
Southern California Edison (electricity)	Overhead steel pole	Existing SCE line is in conflict with the proposed mainline improvements. Would be relocated on the east side of SR-55	"A" 343+50 Sheet U-1	●
	Overhead 66 kV transmission line	Existing SCE line is in conflict with the proposed mainline improvements. Would be relocated with one wood pole along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard	"A" 343+50 to "A" 346+50 Sheet U-1 &2	●
	Underground 12 kV distribution line	Existing SCE line is in conflict with the proposed Cowan St improvements. Would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard	"A" 345+50 to "A" 357+50 Right of NB SR-55 Sheet U-2	●
	Pole anchor	Anchor pole is in conflict with the proposed mainline improvements. Would be removed	"A" 384+70 Right of NB SR-55 Sheet U-6	●
	Wood pole	Anchor pole is in conflict with the proposed mainline improvements. Would be replaced with a steel pole	"A" 384+70 Right of NB SR-55 Sheet U-6	●
	Pole anchor	Anchor pole is in conflict with the proposed mainline improvements. Would be removed	"A" 399+22 Right of NB SR-55 Sheet U-8	●
	Wood pole	Anchor pole is in conflict with the proposed mainline improvements. Would be replaced with a steel pole	"A" 399+22 Right of NB SR-55 Sheet U-8	●

Table 5-17 – Potential Effects on Utility Facilities During Construction

Utility Provider	Description of Facility	Project Effect (Removal, Relocation or Protection in Place)	Station Sheet Number	Alt 3M
Southern California Gas Company (natural gas)	30" high-pressure gas main	Existing gas line is in conflict with the proposed Pullman St improvements. Casing for the gas line crossing would be extended east of SR-55	"A" 423+00 Sheet U-10	●
	4" gas line	Existing gas line is in conflict with the proposed mainline improvements, retaining wall, and Pullman St improvements. Would be relocated along Pullman Street on the east side of SR-55 between Dyer Road and Warner Avenue	“A” 431+04 to “A” 441+20 Sheet U-10 &11	●
	30" high-pressure gas main	Existing gas line is in conflict with the proposed mainline improvements and Proposed Edinger Bridge. Would be relocated along the west side of SB SR-55	“A” 498+67 to “A” 500+65 Left of SB SR-55 Sheet U-16	●
	2" gas line	Existing gas line is in conflict with the proposed mainline retaining wall and Cowan St improvements. Would be relocated along Cowan Street on the east	"A" 345+50 to "A" 357+40 Right of NB SR-55 Sheet U-2	●
	3" gas line	Existing gas line is in conflict with the proposed Pullman St improvements. Would be relocated along Pullman Street on the east side of SR-55 between McGaw Avenue and Duryea Avenue	"A" 383+00 to "A" 392+94 Right of NB SR-55 Sheet U-5 & 6	●
Metropolitan Water District	18” Water	Existing water line is in conflict with the proposed mainline improvements. Jack and bore casing and relocate line.	“A” 449+06 Sheet U-11 &12	●

Table 5-17 – Potential Effects on Utility Facilities During Construction

Utility Provider	Description of Facility	Project Effect (Removal, Relocation or Protection in Place)	Station Sheet Number	Alt 3M
Time Warner	Telecom cables	Existing Time Warner Cable line is in conflict with the proposed mainline improvements. Would be relocated.	"A" 448+82 & "A" 448+96 & "A" 450+00 to "A" 458+50 Sheet U-12 &22	•
	4" cable line	Extend cable line casing due to proposed mainline widening. Casing for the cable line crossing would be extended east and west of SR-55	"A" 396+61 Sheet U-6	•
AT&T	Underground conduits	Existing AT&T underground line is in conflict with the proposed Cowan St improvements. Would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard	"A" 344+95 to "A"347+20 and "A" 351+17 to "A"357+73 Right of NB SR-55 Sheet U-2	•
	Underground conduits	Existing AT&T underground line is in conflict with the proposed Pullman St improvements. Would be relocated along Pullman Street on the east side of SR-55	"A" 434+54 to "A"437+31 Right of NB SR-55	•

5A.1.8- Railroad Involvement

No changes have occurred to this section since the approval of the Draft Project Report. The Railroad Involvement section of the approved Draft Project Report is still valid.

5A.1.9- Highway Planting

No changes have occurred to this section since the approval of the Draft Project Report. The Highway Planting section of the approved Draft Project Report is still valid.

5A.1.10- Erosion Control

The Erosion control section for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. Table 5-18 provides the area of estimated erosion control for each alternative. An allowance for these erosion control measures is included in the Project cost estimate. See technical memorandum to the Storm Water Data Report (SWDR) in Attachment F for more information. Specific erosion control measures will be coordinated with Caltrans staff during the final design phase.

Table 5-18 – Erosion Control Area

Alternative	Erosion Control Area (SF)
Alternative 1	335,700
Alternative 2	458,500
Alternative 3/3M	603,380
Alternative 4	814,460

5A.1.11- Noise Barriers

The Noise Abatement Decision Report (NADR) completed as part of previously approved Draft Project Report is still valid. A Supplemental technical memorandum to the NADR has been completed for Alternative 3M and is included as Attachment I. The NADR and Noise Study Report is summarized in Section 6H.

5A.1.12- Nonmotorized and Pedestrian Features

No changes have occurred to this section since the approval of the Draft Project Report. The Nonmotorized and Pedestrian Features section of the approved Draft Project Report is still valid.

5A.1.13- Needed Roadway Rehabilitation and Upgrading

No changes have occurred to this section since the approval of the Draft Project Report. The Needed Roadway Rehabilitation and Upgrading section of the approved Draft Project Report is still valid.

5A.1.14- Needed Structure Rehabilitation and Upgrading

No changes have occurred to this section since the approval of the Draft Project Report. The Needed Structure Rehabilitation and Upgrading section of the approved Draft Project Report is still valid.

5A.1.15- Cost Estimate

The cost estimates for the five build alternatives are provided in Table 5-19. Attachment C provides a detailed breakdown of the project construction cost elements for Alternative 3M. Estimated capital outlay support costs are provided in Section 8 of this report. These estimates only include roadway, structure and right of way costs. Alternatives 1, 2, 3, and 4 Total Project Construction Cost provided in table 5-19 remains the same as the approved Draft Project Report (November 2015). The alternative costs for Alternatives 1, 2, 3, and 4 are shown below for information only.

Table 5-19 – Cost Estimate for Build Alternatives

Estimate	Alternative 1	Alternative 2	Alternative 3	Alternative 3M	Alternative 4
Roadway Items	$67,400,000	$114,900,000	$129,900,000	$134,500,000	$110,700,000
Structure Items	$4,028,000	$8,010,000	$9,366,000	$9,377,000	$7,494,000
Subtotal Construction Cost	$71,428,000	$122,910,000	$139,266,000	$143,977,000	$118,194,000
Subtotal Construction Cost (Including 3 year Escalation)	**$75,128,300**	**$128,710,000**	**$145,466,100**	**$150,177,800**	**$123,794,800**
Right of Way	$51,978,700	$69,320,000	$105,293,900	$106,279,200	$92,724,200
Total Project Construction Costs*	$123,407,000	$192,230,000	$244,560,000	$250,257,000	$210,919,000
Total Project Construction Costs (Including 3 year Escalation)	**$127,107,000**	**$198,030,000**	**$250,760,000**	**$256,457,000**	**$216,519,000**

* The Total Project Construction Costs is rounded up per the Cost Estimate break-down Guidelines (Attachment C)

Note: The Right of Way and Construction Cost shown above is based on the 2013 cost estimating data for Alternative 3M, in order to maintain consistency with the unit cost used for Alternatives 1, 2, 3, and 4. A 3 year escalation was used for Alternative 3M to be consistent with the Ready To List (RTL) date of 2016 used for Alternative 1, 2, 3, and 4.

5A.1.16- Right of Way Cost Data

Right of way and utility relocation cost estimates for Alternative 3M is reported in the Right of Way Data Sheets and Utility Information Sheets in Attachment E. Costs are summarized in Table 5-19. More Right of Way information is provided in Section 6D - Right of Way Issues. Right of Way Acquisition for Alternative 3M is provided in Attachment J.

5A.1.17- Effects of Projects-Funded-by-Others on State Highways

This project is funded through OCTA's M2 Freeway Program and State Highway Operation and Protection Program (SHOPP). Any effects that this project has on the State Highway System have been thoroughly coordinated with the appropriate agencies and stakeholders. Existing and forecasted traffic is discussed in Section 4C. A traffic analysis has been completed for this Project and is documented in the *Revised Traffic Operations Report – State Route 55 (I-5 to I-405) PR/ED* for the Project.

5A.2- No-Build Alternative

No changes have occurred to this section since the approval of the Draft Project Report. The No-Build Alternative section of the approved Draft Project Report is still valid.

5B. Rejected Alternatives

5B.1- PSR/PDS Build Alternative 4

No changes have occurred to this section since the approval of the Draft Project Report. The PSR/PDS Build Alternative 4 section of the approved Draft Project Report is still valid.

5B.2- Closure of McFadden Avenue Northbound On- and Off-Ramps

No changes have occurred to this section since the approval of the Draft Project Report. The Closure of McFadden Avenue Northbound On- and Off-Ramps section of the approved Draft Project Report is still valid.

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. Hazardous Waste

The Hazardous Waste section for Alternative 3M is the same as the Alternative 3 section of the approved Draft Project Report. The Initial Site Assessment (ISA) previously performed is still valid. A technical memorandum to ISA for Alternative 3M was prepared and concluded these revisions do not change the findings and recommendations presented in the approved ISA report. The conclusions and recommendations of the ISA are provided below and summarized in Tables 6-1 and 6-2.

Table 6-1 – Summary of Hazardous Waste Impacts – Acquisition Properties

APN	Location	Type	Alt 3M
427-261-08	17842 Cowan St., Irvine	Hydrocarbons and VOCs, Soil and ground water contamination	x
430-012-03	2400 S. Pullman St., Santa Ana	Hydrocarbons and VOCs, Soil and ground water contamination	x

430-241-12	1123 Warner Ave., Santa Ana	LUST groundwater contamination	x
403-072-01	S. Ritchey St., Santa Ana	Pesticides, Soil contamination	x
403-072-02	S. Ritchey St., Santa Ana	Pesticides, Soil contamination	x
403-041-07	1981, 1999, and 2011 S. Ritchey St., Santa Ana	VOCs, Soil and ground water contamination	x
402-111-24	1411 Village Way, Santa Ana	VOCs, Soil and ground water contamination	x

APN: Assessor's Parcel Number, VOC: Volatile Organic Compounds, LUST: Leaking Underground Storage Tanks

Table 6-2 – Summary of Hazardous Waste Impacts – Non-Acquisition Properties

APN	Location	Type	Alt 3M
411-141-12	666 East Dyer Road, Santa Ana	VOCs, Soil and ground water contamination	x
430-012-02	2344 Pullman St., Santa Ana	VOCs, Soil and ground water contamination	x
403-042-02	1831 South Ritchey St., Santa Ana	VOCs, Soil and ground water contamination	x
Asbestos Survey	Existing Bridge Structures	Asbestos containing material	x
Yellow Striping Sampling	Entire Corridor	Lead Based Paint	x
ADL	Entire Corridor	Aerially Deposited Lead (ADL)	x
Ground water	Entire Corridor	Tetrachloroethene, trichloroethene, and 1,4-dioxane	x

APN: Assessor's Parcel Number, VOC: Volatile Organic Compounds, LUST: Leaking Underground Storage Tanks

6A.1- Acquisition Properties

No changes have occurred to this section since the approval of the Draft Project Report. The Acquisition Properties section of the approved Draft Project Report is still valid.

6A.2- Non-acquisition Properties

No changes have occurred to this section since the approval of the Draft Project Report. The Non-acquisition Properties section of the approved Draft Project Report is still valid.

6B. Value Analysis (VA)

No changes have occurred to this section since the approval of the Draft Project Report. The Value Analysis (VA) section of the approved Draft Project Report is still valid.

6C. Resource Conservation

No changes have occurred to this section since the approval of the Draft Project Report. The Resource Conservation section of the approved Draft Project Report is still valid.

6D. Right of Way Issues

Right-of-Way Required

The Right of Way Data Sheets, which provide detailed information and right of way costs for Alternative 3M is included in Attachment E. A discussion of the proposed utilities impacts is provided in Section 5A under the "Utility Owner and Other Owner Involvement" and "Railroad Involvement" sections. Right of Way impacts for each of the build alternatives are included as Attachment J. Table 6-3 summarizes the Right of Way impacts on the project.

The definition of a larger parcel found in The Real Estate Dictionary, Eighth Edition, is as follows: A term used in eminent domain proceedings, signifying that the parcel acquired is not a complete parcel but part of a 'larger parcel'; the owner, therefore is entitled to damages from the severance as well as the value of the parcel acquired. Unity of ownership, use, and contiguity must be present, although federal courts and some states do not require contiguity where there is a strong unity of use.

The total number of APNs that will be impacted by Alternative 3M is 70 (including Utility Easements); however, there are 55 larger parcels, 6 full acquisitions and 49 partial acquisitions and TCEs. There are a total of 8 larger parcels that will be impacted by permanent/fee acquisitions without TCEs, 30 larger parcels that will be impacted by permanent/fee acquisitions with TCEs, and 17 larger parcels impacted by TCEs only.

Table 6-3 – Summary of Right of Way Impacts

Alternative	# of Larger Parcels Impacted	Acquisitions		# of Business Relocations	Involvements	
		Full	Partial and TCE		# of Utility	Railroad
3M	55	6	49	4	34	Yes

Relocation Impact Studies

The Draft Relocation Impact Statement completed as part of previously approved Draft Project Report is still valid. A Draft Relocation Impact-Alternative 3M memorandum has been completed. As shown in Table 6-4, Alternative 3M would fully acquire eight nonresidential parcels in the City of Santa Ana, including 5 vacant unimproved parcels, 1 public facility and 2 improved parcels with occupied business offices. Displacements of these 2 improved parcels would lead to displacement of a total of approximately 90 employees. In addition, Alternative 3M would result in the partial acquisition affecting an occupied warehouse building. In total, Alternative 3M would result in the displacement of four businesses and approximately 110 employees.

Table 6-4 – Acquisitions and Relocations under Alternatives 3M

APN	Address, City	Business Names	Land Use	Acquisitions		
				Type	Area (sf)	Relocation
016-221-12	Brookhollow Drive Santa Ana, CA 92705	N/A	Commercial	Partial	6,813	No
016-221-13	Brookhollow Drive Santa Ana, CA 92705	N/A	Commercial	Partial	3,818	No
016-221-14	Brookhollow Drive Santa Ana, CA 92705	N/A	Commercial	Partial	1,045	No
402-101-45	2101 E. Edinger Avenue Santa Ana, CA 92705	Freeway Honda	Commercial	Partial	1,480	No
402-111-24	1411 Village Way, Santa Ana	Advanced Office Services, The Baseball Academy, Calumet Photographic, CubeKing, Enterprise Fleet Services, iquid Handling, Monkeysports, Motorvac Technologies, Roger Dunn Golf Shop, Sender One	Commercial	Partial	32,769	Yes 20 [1] Employees

Table 6-4 – Acquisitions and Relocations under Alternatives 3M

APN	Address, City	Business Names	Land Use	Acquisitions		
				Type	Area (sf)	Relocation
		Climbing, The Wine Club, Worldwide Golf Enterprises, Rockin' Jump[2]				
403-041-04	1929 E. St. Andrew Place Santa Ana, CA 92705	N/A	Industrial	Partial	3,258	No
403-041-07	1969 S. Ritchey Street Santa Ana, CA 92705	A-1 Shower Door, Andrade's, Applied Flow Technologies, Berry Sheet Metal, CPS Solutions, Fred's Custom Draperies, GD Designs, H&R Upholstery, J.E. Steel Rule Die, Junk Monster, Monarch Precision Deburring, Olama Products, Serena D'Italia, Speedway, tedco Engineering, Sunny Hills Cleans, Water Jetting Equipment	Industrial	Partial	3,546	No
403-041-08	2061 S. Ritchey Street Santa Ana, CA 92705	O'Neil Storage	Industrial	Partial	4,076	No
411-141-05	Orange County Flood Control District (OCFCD)	N/A	Lane Channel	Partial	20,158	No
427-261-05	17942 Cowan Irvine, CA 92614	N/A	Commercial	Partial	2,177	No
427-261-06	17912 Cowan Irvine, CA 92614	N/A	Industrial	Partial	2,763	No
427-261-07	17872 Cowan Irvine, CA 92614	N/A	Industrial	Partial	3,010	No
427-261-08	17842 Cowan Irvine, CA 92614	N/A	Industrial	Partial	3,000	No
427-261-09	17792 Cowan B Irvine, CA 92614	N/A	Industrial	Partial	3,204	No
427-261-10	17792 Cowan A Irvine, CA 92614	N/A	Industrial	Partial	4,503	No
427-262-06	17781 Cowan Irvine, CA	ALG, Alzheimer's Association of Orange	Commercial	Partial	4,988	No

Table 6-4 – Acquisitions and Relocations under Alternatives 3M

APN	Address, City	Business Names	Land Use	Acquisitions		
				Type	Area (sf)	Relocation
	92614	County, AnnexCore Marketing Agency, Caliber Collision Centers, Chrome Data, nviroPacifica, Gradient Engineers, Home Buyer's Guide, Leighton, Terratest Labs, Vista Gardens Memory Care				
427-282-14	17952 Cowan Irvine, CA 92614	Assemblies of God	Commercial	Partial	1,141	No
427-282-15	17952 Cowan Irvine, CA 92614	Assemblies of God	Commercial	Partial	3,684	No
430-011-03	2441 S. Pullman Street Santa Ana, CA 92705	N/A	Industrial	Partial	3,086	No
430-011-04	2401 S. Pullman Street Santa Ana, CA 92705	N/A	Industrial	Partial	622	No
430-012-04	2350 Pullman Street Santa Ana, CA 92705	Aryzta	Industrial	Partial	9,478	No
430-031-09	1717 E. Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	Partial	4,155	No
430-032-10	2501 S. Pullman Street A Santa Ana, CA 92705	N/A	Commercial	Partial	458	No
430-112-04	17132 Pullman Street Irvine, CA 92614	N/A	Industrial	Partial	645	No
430-112-05	17132 Pullman Street Irvine, CA 92614	N/A	Industrial	Partial	644	No
430-112-06	17092 Pullman Street Irvine, CA	N/A	Industrial	Partial	559	No

Table 6-4 – Acquisitions and Relocations under Alternatives 3M

APN	Address, City	Business Names	Land Use	Acquisitions		
				Type	Area (sf)	Relocation
	92614					
430-112-12	1063 McGaw Avenue Irvine, CA 92614	A-Mark Precious Metals, Collateral Finance Corporation, H.R. Harmer, Spectrum Group International, Spectrum Numismatics international, Spectrum Wine Auctions, Stack's Bowers, Teletrade	Commercial	Partial	1,071	No
430-115-01	1021 Duryea Avenue Irvine, CA 92614	Cabinets Plus	Industrial	Partial	3,072	No
430-171-07	1740 E. Garry Avenue Santa Ana, CA 92705	Advanced Plant Engineering Contractors, American Senior Living, Borazzi International, California MHP Management, Carson & Company, CHC Consulting, Cocojojo, Creative Integrated Systems, Creative Transportation, Diamond Roofing, Drink Pass, EFC Foundation, Elite Nursing Services, Energy Data Surveys Vinyl Windows, Gina Skin Care, Global Life Center, Gracorp, Hartley & Associates, HEC Services, Integrated Technology Systems, JTL Design Engineering, Kelsurveys, Inc., Lamaison Construction, Motion Analysis, OBM Global Technology, Powers Marketing Group, PMG/Zoom Western/SMD, Precision Payroll, Quality Professionals, Quick Processing – Bamma USA, Readwrite Solutions, Raybit Systems, RK Solutions, Rotary Lift, RVM Engineering, Safe Realty Property Management, Sandwich Express, Secret Garden, SEOP, Inc., Shoshin USA, SIG Technologies, South District Patrol, Southwest Express, SWC, Title XI	Commercial	Partial	3,107	No

Table 6-4 – Acquisitions and Relocations under Alternatives 3M

APN	Address, City	Business Names	Land Use	Acquisitions		
				Type	Area (sf)	Relocation
430-241-07	1100 Valencia Avenue Tustin, CA 92780	RICOH	Industrial	Partial	31,185	No
430-241-12	1123 Warner Avenue Tustin, CA 92780	N/A	Industrial	Partial	30,875	No
016-221-27 016-221-28 016-221-29	1580 E. Warner Ave., Santa Ana	Vacant	Commercial	Full	76,760	No
	Brookhollow Drive, Santa Ana	Vacant			37,426	No
	S. Grand Ave., Santa Ana	Vacant			9,055	No
403-072-01	S. Ritchey Street Santa Ana, CA 92705	Vacant	Commercial	Full	1,086	No
403-072-02	S. Ritchey Street Santa Ana, CA 92705	Public Facility	Public/ Exempt	Full	3,818	No
403-072-03	2201 S. Ritchey Street Santa Ana, CA 92705	Western Exterminator	Industrial	Full	35,611	Yes 50 Employees
411-141-06	No Address, Santa Ana	Vacant	Industrial	Full	6,547	No
430-012-03	2400 S. Pullman Street Santa Ana, CA 92705	Above & Beyond, Inc. And Hand & Hand Patient Care	Industrial	Full	69,260	Yes 40[3] Employees

Source: Community Impact Assessment (2015) and Supplemental Community Impact Assessment (2017).
1 Partial acquisition would require the demolition of a commercial building.
2 Rockin' Jump will be displaced as part of the partial acquisition, resulting in relocation of 20 Employees.
3 20 Employees for Above & Beyond, Inc. and 20 Employees for Hand & Hand Patient Care
E. = East S. = South
N/A = Not Applicable sf = square feet

Airspace Lease Area

No changes have occurred to this section since the approval of the Draft Project Report. The Airspace Lease Area section of the approved Draft Project Report is still valid.

6E. Environmental Compliance

Environmental issues are based on the impacts of Alternative 3M and the supplemental environmental technical studies completed and summarized in the SR-55 Improvement project Supplemental Draft Initial Study/Environmental Assessment. Full discussions of the environmental issues are provided in these reports. A Proposed Mitigated Negative Declaration (MND)/Finding of No Significant Impacts (FONSI) with the Supplemental Draft Initial Study/Environmental Assessment has been prepared in accordance with Caltrans environmental procedures, as well as State and Federal Environmental Regulations. The attached Proposed Mitigated Negative Declaration/FONSI is the appropriate document for this proposal. See Attachment M.

Wetlands and Floodplains

A Location Hydraulic Report was completed for this project which evaluated locations where the project may impact regulatory floodplains and assesses the environmental impact risks associated with the proposed project. Two regulatory floodplains exist within the limits of the proposed project - Lane Channel and the Santa Ana/Santa Fe Channel. A technical memorandum to the Location Hydraulic Study (LHS) Report for Alternative 3M has been completed and concluded that the additional impervious area for Alternative 3M tributary to Santa Ana-Santa Fe Channel is equal to the additional impervious area for Alternative 3, which was originally used in the approved LHS. The amount of increase in flow for both Alternative 3 and 3M remains equal. Therefore, the recommendations presented in the approved LHS remains the same.

6F. Air Quality Conformity

A technical memorandum to the Air Quality Assessment Report for Alternative 3M has been completed for this phase of the Project. Each project alternative is fully compatible with the design concept and scope described in the current Regional Transportation Plan (RTP)

A carbon monoxide screening analysis was performed to determine if a carbon monoxide hot-spot analysis would be required. Based upon this screening, the Project is not expected to result in any concentrations exceeding the 1-hour or 8-hour carbon monoxide standards; therefore, a detailed carbon monoxide hot-spot analysis was not required.

Because the Project is located within a nonattainment area, and because it was determined to be a project of air quality concern, a particulate matter conformity hot-spot analysis was required for particulate matter less than 2.5 microns in diameter (PM2.5) and particulate matter less than 10 microns in diameter (PM10). At the December 3, 2013, SCAG meeting, the Transportation Conformity Working Group (TCWG) determined that the detailed analysis was acceptable for National Environmental Policy Act (NEPA) circulation. Subsequent to TCWG approval, the forecast SR-55 traffic volumes were updated. On August 23, 2016 the TCWG determined the

Alternative 3M SR-55 traffic volumes would not affect the conclusions of the qualitative PM hot-spot analysis and reaffirmed that the analysis was acceptable for the NEPA circulation.

Title VI Considerations:

A technical memorandum to the Community Impact Assessment for Alternative 3M has been completed for this phase of the Project. The Community Impacts for Alternative 3M would be similar to the other Build Alternatives and would not cause disproportionately high and adverse effects on any minority or low income populations. The Title VI Considerations section of the approved Draft Project Report is still valid.

6G. Noise Abatement Decision Report

A technical memorandum to the Noise Abatement Decision Report (NADR) has been completed for Alternative 3M and is included as Attachment I. The technical memorandum to the NADR presented here will be included in the Supplemental Draft Environmental Document, which will be circulated for public review (see Attachment I).

This section represents the technical memorandum to the NADR which:

- Is an evaluation of the reasonableness and feasibility of incorporating noise abatement measures into this Project;
- Constitutes the preliminary decision on noise abatement measures to be incorporated into the Supplemental Draft Environmental Document (DED); and
- Is required for Caltrans to meet the conditions of Title 23 Code of Federal Regulations, Part 722 in accordance with the Federal Highway Administration noise standards.

The technical memorandum to the noise abatement decision report does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best available information at the time the draft environmental document is published. If a project is subject to federal review, but does not have a circulated environmental document, the noise abatement decision report section documents the final noise abatement decision.

The technical memorandum to the noise abatement decision report does not address noise barriers or other noise-reducing treatments required as mitigation for significant environmental effects identified under CEQA.

The technical memorandum to the NADR concludes that the noise barriers identified under Alternative 4, given that it is a worst-case scenario, would be sufficient for identifying noise barriers for all other alternatives.

Results of the Noise Study Report

The Noise Study Report for this project was prepared by JT Stephens on 3/27/2013 and approved by Reza Aurasteh on 4/2/2013. A supplemental Noise Study Report has been completed on February 2017.

As determined in the Noise Study Report, of the 145 modeled receptors throughout the corridor, one receptor (representing the swimming pool at the Double Tree Hotel by Hilton) approached or exceeded the noise level criteria for a hotel and similar types of property. In addition, 29 receptors would approach or exceed the noise level criteria for residential properties.

Noise abatement measures were evaluated for these receptors. A total of seven noise barriers (all walls) were evaluated along the State right-of-way and private property lines under all five build alternatives. Noise barriers that were evaluated under all alternatives were designed to shield only impacted receptors. For the purposes of this analysis, the noise barriers were analyzed under Alternative 4 as a worst-case scenario. It is assumed that the noise barriers identified under Alternative 4 would be sufficient for identifying noise barriers for all other alternatives.

A summary of the barrier evaluation from the Noise Study Report is provided in Table 6-5. This table lists all the feasible noise barriers studied. All of the barriers studied were considered feasible. This would be the case for all alternatives.

Table 6-5 – Summary of Barrier Evaluation from Noise Study Report

Barrier	Location	Station		Height (ft)	Approx Length (ft)	Noise Attenuation Range (dBA)	# of Benefitted Units/Receptors	Reasonable Allowance per Residence	Total Reasonable Allowance
		Begin	End						
NB-1	Property Line	357+60	358+65	10	236	5.8	1	$80,000	$80,000
				12		7.4			$80,000
				14		9.0			$80,000
				16		9.8			$80,000
				18		10.8			$80,000
NB-2	Edge of Shoulder	356+45	362+90	12	643	6.2	1	$80,000	$80,000
				14		7.1			$80,000
				16		7.8			$80,000
				18		8.4			$80,000
NB-3	Right of Way/Property Line	508+90	516+50	16	1,021	5.6 to 7.1	12	$80,000	$960,000
				18		5.5 to 9.1	19		$1,520,000
				20		6.0 to 10.5	19		$1,520,000
				22		5.1 to 11.6	24		$1,920,000
NB-3 Red. &NB - 4	Edge of Shoulder / Right of Way / Property Line	510+80 & 506+00	516+50 & 511+25	10	766 & 478	5.1 to 11.2	17	$80,000	$1,360,000
				12		5.0 to 12.2	19		$1,520,000
				14		5.0 to 12.9	19		$1,520,000
				16		5.3 to 14.0	34		$2,720,000
				18		5.6 to 14.1	38		$3,040,000
				20		5.7 to 15.5	38		$3,040,000
				22		5.9 to 15.6	38		$3,040,000
NB-5	Right of Way	516+50	525+90	18	959	5.6 to 5.9	8	$80,000	$640,000
				20		6.9 to 7.5	8		$640,000
				22		5.0 to 8.6	13		$1,040,000

Table 6-5 – Summary of Barrier Evaluation from Noise Study Report

Barrier	Location	Station		Height (ft)	Approx Length (ft)	Noise Attenuation Range (dBA)	# of Benefitted Units/Receptors	Reasonable Allowance per Residence	Total Reasonable Allowance
		Begin	End						
NB-6	Right of Way	527+50	543+95	16	1,754	5.1 to 7.3	2	$80,000	$160,000
				18		5.3 to 8.9	3		$240,000
				20		5.7 to 10.0	7		$560,000
				22		5.2 to 11.1	8		$640,000
NB-7	Right of Way	543+95	546+85	18	614	5.1	4	$80,000	$320,000
				20		6.9	4		$320,000
				22		8.6	4		$320,000

Source: NADR, February 2017.

dBA = A-weighted decibels
ft = feet
Red. = Reduced

Factors in the Noise Abatement Decision Report

The technical memorandum to the Noise Abatement Decision Report (NADR) is included as Attachment I.

Table 6-6 provides a summary of the noise abatement key information. For a noise barrier to be considered reasonable, the noise level reduction design goal of 7 dBA must be achieved at one or more of the benefited receptors. For any noise barrier to be considered reasonable from a cost perspective, the estimated construction cost of the noise barrier would be equal to or less than the total cost allowance calculated for the barrier. The total reasonable allowance was determined based on the number of benefited receptors multiplied by the reasonable allowance per residence. Two scenarios were considered: 1) both the construction cost of the noise barrier and the ROW cost and 2) only the construction cost of the noise barrier. If the estimated noise barrier construction cost exceeds the total reasonable allowance, the noise barrier is determined to be not reasonable. However, if the estimated noise barrier construction cost is within the total reasonable allowance, the noise barrier is determined to be reasonable.

Table 6-6 – Summary of Abatement Key Information

Barrier	Height (ft)	Acoustically Feasible?	Number of Benefitted Units/ Receptors	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
					Estimated Construction Cost	Reasonable?*	Estimated Construction Cost	Reasonable?*
NB-1	10	Yes	1	$80,000	-	No	-	No
	12	Yes	1	$80,000	$120,402	No	$104,826	No
	14	Yes	1	$80,000	$137,225	No	$121,649	No
	16	Yes	1	$80,000	$154,047	No	$138,471	No
	18	Yes	1	$80,000	$221,335	No	$205,759	No
NB-2	12	Yes	1	$80,000	-	No	-	No
	14	Yes	1	$80,000	$320,831	No	$320,831	No
	16	Yes	1	$80,000	$366,664	No	$366,664	No
	18	Yes	1	$80,000	$549,996	No	$549,996	No
NB-3	16	Yes	12	$960,000	$941,167	Yes	$803,007	Yes
	18	Yes	19	$1,520,000	$1,232,275	Yes	$1,094,115	Yes
	20	Yes	19	$ 1,520,000	$1,329,310	Yes	$1,191,150	Yes
	22	Yes	24	$1,920,000	$1,426,346	Yes	$1,288,186	Yes
NB-3 Red. & NB 4	10	Yes	17	$1,360,000	$821,661	Yes	$683,501	Yes
	12	Yes	19	$1,520,000	$910,333	Yes	$772,173	Yes
	14	Yes	19	$1,520,000	$999,005	Yes	$860,845	Yes
	16	Yes	34	$2,720,000	$1,087,678	Yes	$949,518	Yes
	18	Yes	38	$3,040,000	$1,425,331	Yes	$1,287,171	Yes
	20	Yes	38	$3,040,000	$1,543,561	Yes	$1,405,401	Yes
	22	Yes	38	$3,040,000	$1,661,791	Yes	$1,523,631	Yes
NB-5	16	Yes	0	-	-	No	-	No
	18	Yes	8	$640,000	-	No	-	No
	20	Yes	8	$640,000	$1,104,939	No	$1,059,359	No
	22	Yes	13	$1,040,000	$1,196,082	No	$1,150,503	No
NB-6	14	Yes	0	-	-	No	-	No
	16	Yes	2	$160,000	$1,322,216	No	$1,196,255	No
	18	Yes	3	$240,000	$2,274,054	No	$2,148,093	No
	20	Yes	7	$560,000	$2,440,754	No	$2,314,793	No
	22	Yes	8	$640,000	$2,607,455	No	$2,481,494	No
NB-7	18	Yes	4	$320,000	-	No	-	No
	20	Yes	4	$320,000	-	No	-	No
	22	Yes	4	$320,000	$662,162	No	$662,162	No

Source: NADR, February 2017.
* A soundwall is considered reasonable if the construction costs are less than the reasonable allowance.
Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7dBA or more.
dBA = A-weighted decibels; EOS = edge of shoulder; ft = feet; PL = property line; ROW = right of way; Red. = Reduced

Nonacoustical Factors Relating to Feasibility

No changes have occurred to this section since the approval of the Draft Project Report. The Nonacoustical Factors Relating to Feasibility section of the approved Draft Project Report is still valid.

Preliminary Noise Abatement Decision

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change. As such, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final Project design, the preliminary noise abatement decision may be changed or eliminated from the final Project design. A final decision to construct noise abatement will be made upon completion of the Project design and public input.

As part of the public review period for the Project, the property owners and non-owner occupants of the benefitted receptors will be sent a sound wall survey letter to request each owner or occupant's opinion on whether or not they would prefer a sound wall; and if so, what wall height they would prefer based on the range of reasonable and feasible heights listed in Table 6-6. Additionally, for new walls replacing an existing wall, the newly constructed wall must have a top-of-wall elevation that is equal to or greater than the existing wall.

Secondary Effects of Abatement

No changes have occurred to this section since the approval of the Draft Project Report. The Secondary Effects of Abatement section of the approved Draft Project Report is still valid.

6H. NPDES Permit Compliance

This Project is located within the jurisdiction of the Santa Ana Regional Water Quality Control Board (SARWQCB). The two receiving water bodies in the vicinity of this project include the Santa Ana/Santa Fe Channel and the Lane Channel. The Santa Ana/Santa Fe Channel discharges into the Peters Canyon Channel, which is a tributary to the San Diego Creek Channel, Reach 1. The Lane Channel discharges directly into the San Diego Creek Channel. The San Diego Creek Channel discharges into the Upper Newport Bay, then into the Lower Newport Bay and eventually into the Pacific Ocean.

The project shall conform to the requirements of the Department's Statewide National Pollutant Discharge Elimination System (NPDES) Permit, Order No. 2012-0011-DWQ, NPDES No. CAS000003, and the California Statewide General NPDES Permit for Construction activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002, and the Caltrans Storm Water Management Plan (July 2026 or subsequent SWMP), and any subsequent revisions and/or additional requirements at the time of construction.

A Storm Water Data Report (SWDR) for the PA/ED Phase of this project has been prepared as per the Caltrans Project Planning and Design Guide (PPDG). The original SWDR, signed on March 4, 2013, is included in the Project Binder with the District Project Engineer and a copy is also available with the District Storm Water Coordinator. A Technical Memorandum which

proposes a new alternative (Alternative 3 Modified) was prepared and approved on 3/16/17, and this document is included as Attachment F in this Supplemental Project Report.

A Notice of Intent (NOI) shall be submitted to the SARWQCB thirty days prior to the start of construction. The Contractor and/or the Resident Engineer shall submit the SWDR attachment for SMARTS Input prior to the start of construction and shall submit the same electronically to the Santa Ana Regional Water Quality Control Board.

The total disturbed soil area (DSA) for this project has been estimated to be 77 acres approximately. As the DSA is greater than 1.0 acre, a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared by the Contractor, subject to review and approval by the Caltrans Construction Storm Water Coordinator prior to start of construction.

The subject project may increase the magnitude as well as quantity of surface runoff as a result of additional paved areas. The existing drainage facilities shall be checked for their adequacy to pass this excess runoff and will be upgraded if additional capacity is needed. In addition, the SARWQCB and other related agencies shall be contacted to determine if this project must comply with any other special requirements.

The receiving water bodies mentioned above are listed in the 2010 Santa Ana Region 303(d) List of Water Quality Limited Segments, as impaired water bodies. The pollutants of concern of these water bodies are listed in the SWDR. During PS&E Phase, appropriate Treatment BMPs shall be designed and implemented to treat any pollutants of concern from the highway runoff due to the proposed project improvements.

During construction, appropriate Construction Site Best Management Practices (BMPs) shall be implemented for soil stabilization, sediment control and pollution prevention from construction activities. Upon completion of the project, a maintenance program shall be prepared and implemented throughout the life of the project.

7. OTHER CONSIDERATIONS AS APPROPRIATE

Public Meeting Process

It is recommended that a public meeting be scheduled during the circulation of the Supplemental DED to present the developed viable Alternative 3M for public comment.

Route Matters

No changes have occurred to this section since the approval of the Draft Project Report. The Route Matters section of the approved Draft Project Report is still valid.

Permits

No changes have occurred to this section since the approval of the Draft Project Report. The Permits section of the approved Draft Project Report is still valid.

Cooperative Agreements

No changes have occurred to this section since the approval of the Draft Project Report. The Cooperative Agreement section of the approved Draft Project Report is still valid.

Other Agreements

No changes have occurred to this section since the approval of the Draft Project Report. The Other Agreements section of the approved Draft Project Report is still valid.

Transportation Management Plan (TMP) for Use During Construction

No changes have occurred to this section since the approval of the Draft Project Report. The Transportation Management Plan (TMP) for Use During Construction section of the approved Draft Project Report is still valid.

Stage Construction

It is anticipated that there will be no reduction in the number of mainline traveled lanes during peak hour period. Mainline closures may be required for the erection of bridge falsework overnight (10:00 PM to 5:00 AM) at the roadway undercrossings. Local overnight roadway closures also may be required for the construction and removal of bridge falsework. To make improvements on the ramp their closures may also be required. During these closures detour routes will be provided. Temporary lane closures are expected to be required when barriers are being moved into position, when lanes are being restriped, and when the freeway is being restored to its completed condition. These temporary closures would be limited to off-peak hours, and adequate notification would be provided to the public and appropriate service purveyors.

On a conceptual basis, the Project is anticipated to be constructed in three stages for Alternative 3M. For Stage 1, the widened areas of the freeway and ramps will be constructed by shifting the lanes to the center and providing Temporary Railing (Type K) as protection from the work area. Retaining walls, bridges and drainage structures will be constructed in this stage as appropriate. For Stage 2, the ramp gore areas will typically be constructed by placing ramp traffic on the portion of the roadway widened in Stage 1. For Stage 3, the areas that were not constructed in the previous stages would be constructed. See attachment L for Alternative 3M Stage Construction Plans.

Accommodation of Oversize Loads

No changes have occurred to this section since the approval of the Draft Project Report. The Accommodation of Oversize Loads section of the approved Draft Project Report is still valid.

Graffiti Control

No changes have occurred to this section since the approval of the Draft Project Report. The Graffiti Control section of the approved Draft Project Report is still valid.

8. FUNDING/PROGRAMMING

Funding

It has been determined that this project is eligible for Federal-aid funding. This project is currently funded through construction (including right of way costs) by OCTA's Measure M2 Program and State Highway Operation and Protection Program (SHOPP). $12 million has been allocated for the next phase by federal Surface Transportation Block Grant (STBG) for fiscal year 2019/2020.

Programming

Table 8-1 provides the estimated Capital Outlay Support Costs and Project Construction and Right of Way estimated costs. Table 8-2 provides the updated Project Schedule for the completion of PA & ED, PS&E, and construction phase.

Support Cost Ratio:

The support cost ratio is 23 percent based on Alternative 3M. See Table 8-1 for Capital Outlay Support and Project Estimates for Alternative 3M.

Table 8-1 – Capital Outlay Support and Project Estimates

Fund Source	Fiscal Year Estimate			
N/A	Prior	2017/18	Future	Total
Component	In thousands of dollars ($1,000)			
PA&ED Support	6,532			6,532
PS&E Support		17,500		17,500
Right-of-Way Support		12,200		12,200
Construction Support			22,800	22,800
Right-of-Way			106,300	106,300
Construction			150,200	150,200
Total	6,532	29,700	279,300	315,532

Combined Projects:

OCTA and Caltrans are finalizing an agreement in which it is proposed to combine EA 0G950 (additional Northbound Auxiliary lane from Dyer Road on ramp to Edinger Avenue off ramp) with the proposed Project. By combining the two projects, OCTA and Caltrans can achieve their goals for improvement of the corridor while minimizing disturbance and impacts to the traveling public; and eliminating potential conflict between the two contractors working within the same project limits. The total contribution of $46,800,000 from EA 0G950 to the project will cover the cost of the SHOPP funded auxiliary lane in the NB direction from Dyer to Edinger.

9. DELIVERY SCHEDULE

Table 9-1 – Project Schedule

Project Milestones		Milestone Date (Month/Year)
PROGRAM PROJECT	M015	November 2008
BEGIN ENVIRONMENTAL	M020	May 2011
CIRCULATE DED EXTERNALLY	M120	November 2015
CIRCULATE SUPPLEMENTAL DED EXTERNALLY	N/A	March 2017
PA & ED	M200	September 2017
PS&E TO DOE (District Office Engineer)	M377	August 2020
DRAFT STRUCTURES PS&E	M378	August 2020
RIGHT OF WAY CERTIFICATION	M410	June 2020
READY TO LIST	M460	June 2020
FUND ALLOCATION	M470	September 2020
HEADQUARTERS ADVERTISE	M480	October 2020
AWARD	M495	December 2020
APPROVE CONTRACT	M500	January 2021
CONTRACT ACCEPTANCE	M600	January 2025
END PROJECT	M800	July 2026

10. RISKS

A Risk Register has been developed for the Project. The Risk Register is monitored on a monthly basis and is reported at the monthly PDT meetings. The following list provides a summary of the active risks being monitored (see attachment K for more details).

Table 10-1 – Risk Register Summary

Risk	Summary
Changes in design features that were not recognized at the level of detail of the PSR phase	Changes in design features that are different than the general scope of the PR occur at various times causing possible cost increases and schedule impacts. (i.e. HOV preferential lanes will not be located at some locations; an exception for this must be approved by Caltrans.) This is a broad risk that is continuously monitored. Changes to lane configuration will trigger changes to VMT/VHT data which in turn will require the project to be re-evaluated by TCWG. TCWG has already noted that another revision would trigger quantitative analysis
Obtaining Stakeholder Consensus	The McFadden NB On-Ramp has been redesigned to restrict traffic access to NB I-5 only. Team to work with the Cities to make sure any concerns with Alternative 3M are addressed. All right of way modifications occur with-in existing footprint
MDL not correctly defined due to full SCE relocation impacts not fully recognized	If the MDL is not correctly defined as a result of SCE relocations impacts, this would delay the schedule as additional technical surveys would be needed and existing studies/surveys would need to be revised. The PDT has developed conceptual solutions for SCE relocations and has met with SCE to achieve concurrence.
Highway Design Manual (HDM) revisions	The HDM was updated on December 2016 as the geometrics were developed and Supplemental Draft Project Report was being finalized. Team to have focus meeting to discuss approach to address December 16 HDM revisions. The HDM was updated on 5/7/12 as geometrics were being developed. The design team has coordinated with Caltrans to adjust design to meet updated design standards.
Lane Channel relocation/realignment	Not identified in the PSR, this option was identified in the PA/ED phase. Discussions have been held at PDT meetings. A conceptual design has been developed and incorporated into a Location Hydraulics Study (approved) and a Drainage Report.
Changes in Environmental Regulations and Reviews	Includes any changes due to new regulatory policies. This is a broad risk that is continuously monitored. Specifically, changes in the noise protocol and ISA requirements were updated. These changes have been clarified with meetings between PDT members.

Table 10-1 – Risk Register Summary

Risk	Summary
Changes in Environmental Regulations and Reviews due to new regulatory policies	PDT acknowledges changes in noise protocol that need to be clarified. Tech studies have to be revised and resubmitted which trigger the schedule to be delayed. AB52 consultation is performed by Caltrans. Qualitative versus Quantitative Analysis (Dispersion Modeling): Delay in approval of Final Environmental Document by November 2017 will trigger the need to perform Quantitative Air Quality Analysis
RTP and FTIP description to be correctly stated	If project information included in the RTP and FTIP is not consistent, the FHWA Air Quality Conformity determination could be delayed for up to one year. PDT members have been coordinating to ensure that the descriptions are consistent.
Right of Way Impacts not fully developed at Critical/Constrained Right of Way Locations	Every effort has been exercised to assess the full impacts of R/W at critical/constrained locations and reduce this risk
Unknown utilities or unknown utility location	Information provided by utility companies may be incomplete. Communications and coordination with utility representatives continues. As-built research, field observations and potholing are mitigating measures that will continue throughout project development.
Discovery of unknown hazardous waste material or other unforeseen site conditions	Unforeseen conditions not evident during preliminary design phase could cause project delays. As preliminary design phase progresses, additional site design information will be available to reassess the risk.
PDT member change	Members of the PDT are re-assigned or leave the team for various reasons throughout the course of the project development. This could be mitigated by conducting PDT meetings to inform team members of project status and progress, to announce new PDT members as they join the team, Maintain a running status of the project which will document project progress, and Document all PDT and coordination meetings, including key project design decisions and action items.
Buy America Provisions (SCE)	MAP21 Buy America Provisions requires that projects that are federally funded comply with provisions that mandate the use of American made products whenever possible.
Alternative 3M Incorporation into the Project Report	PDT agreed to develop technical memos to technical studies to address the addition of Alternative 3M

Table 10-1 – Risk Register Summary

Risk	Summary
Design Exception Approvals	Fact sheets will be finalized and submitted once the preferred alternative is selected. Introduction of new design exceptions with Alternative 3M could impact schedule.
Visual Impact Assessment (VIA) scope adjustment (Retired)	The Project is on the threshold between needing an abbreviated/minor VIA and a moderate/fully developed VIA. Caltrans notified us that we need to provided a moderate/fully developed VIA.
Adoption of Value Analysis Recommendations (Retired)	Implementation of Value Analysis Recommendations may take longer than defined on the schedule. To mitigate, the PDT has met to develop a plan for implementation of the recommendations. Less critical items may be deferred to PS&E
Need to obtain rights to walk properties to conduct cultural surveys (Retired)	Developing the study without this information could possibly cause delay in schedule, increased scope and cost if later it is found that these parcels are within the revised APE.

11. FHWA COORDINATION

No changes have occurred to this section since the approval of the Draft Project Report. The FHWA Coordination section of the approved Draft Project Report is still valid.

12. PROJECT REVIEWS

District Design Liaison *Christopher Le* Date 3/3/2017
Traffic Operations Area Engineer *Bartolome Rivera* Date 3/3/2017

13. PROJECT PERSONNEL

Orange County Transportation Authority
Steven King, Project Manager (714) 560-5874

Caltrans District 12
Bob Bazargan, Project Manager (657) 328-6298
Grace Wang, Design Oversight Engineer (657) 328-6099
Son Nguyen, Design Oversight Branch Chief (657) 328-6098
Charles Baker, Environmental Planning Branch Chief (657) 328-6139
Brian Liu, Environmental Planner (657) 328-6135
Evangelina Washington, Right of Way Project Coordinator (657) 328-6349

<u>City of Tustin</u>
Eric Johnson, City Representative (714) 573-3320

<u>City of Irvine</u>
Jaimee Bourgesis, City Representative (949) 724-6369

<u>City of Santa Ana</u>
Kenny Nguyen, City Representative (714) 647-5632

<u>HDR Engineering</u>
Camilo Rocha, Project Manager (714) 730-2339
Shiva Wooton, Design Lead (714) 730-2306
Steve Crouch, Project Report Task Lead (714) 730-2369
Eric Johnson, Structures Lead (714) 368-5664

<u>LSA</u>
Deborah Pracilio, Environmental Project Manager (949) 553-8076
Nicole West, Environmental Lead (949) 553-0666

<u>Fehrs & Peers</u>
Anna Luo (714) 941-8770

14. ATTACHMENTS (151)

Attachment A –Location Map (1)
Attachment B –Engineering Plans for Alternative 3M (80)
- Typical Sections
- Key Map and Line Index
- Layout
- Profiles and Superelevation Diagrams
- Existing Utility Plans

Attachment C – Project Cost Summary for Alternative 3M (7)
Attachment D – Advanced Planning Studies for Alternative 3M (1)
Attachment E – Right of Way Data Sheets (11)
Attachment F – Technical Memorandum to Storm Water Data Report (SWDR) (2)
Attachment G – Traffic Management Plan Data Sheet (3)
Attachment H – Traffic Data (4)
Attachment I –Noise Abatement Decision Report (NADR) (8)
Attachment J – Right of Way Acquisition Mapping (6)
Attachment K – Risk Register (9)
Attachment L – Stage Construction Plans (19)
Attachment M – Supplemental Draft Environmental Document (under separate cover)

Attachment A –Location Map

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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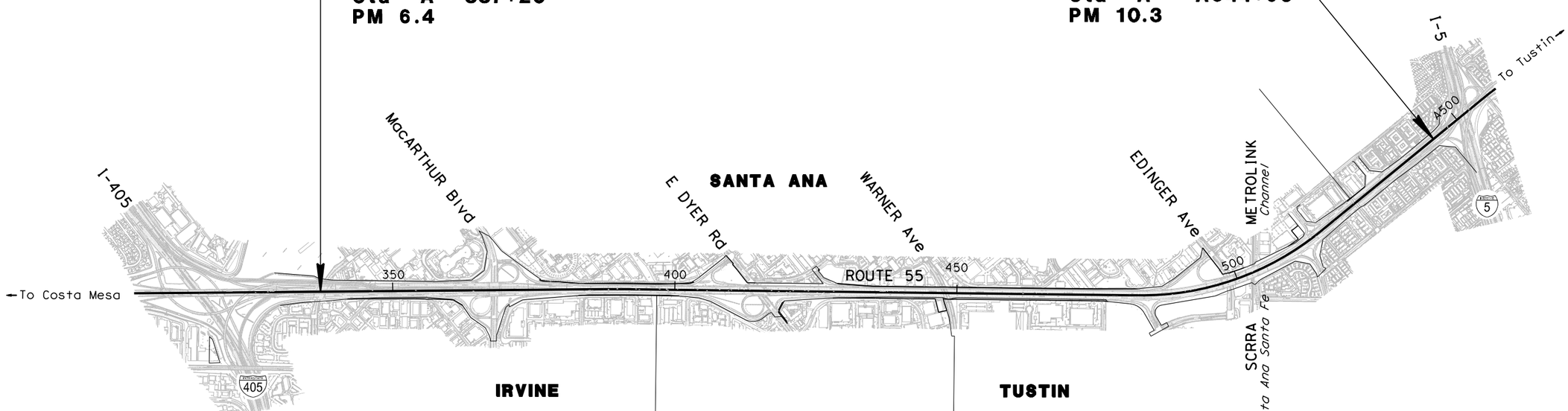
DEPARTMENT OF TRANSPORTATION

IN ORANGE COUNTY
ON ROUTE 55 BETWEEN I-405 AND I-5
IN SANTA ANA, IRVINE & TUSTIN

BEGIN CONSTRUCTION
Sta "A" 337+20
PM 6.4

END CONSTRUCTION
Sta "A" A544+60
PM 10.3



LOCATION MAP
NO SCALE

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

NOT FOR CONSTRUCTION

APPROVED AS TO IMPACT ON STATE FACILITIES AND CONFORMANCE WITH APPLICABLE STATE STANDARDS AND PRACTICES AND THAT TECHNICAL OVERSIGHT WAS PERFORMED.

CONSULTANT DESIGN ENGINEER	CALTRANS DESIGN OVERSIGHT APPROVAL	REGISTRATION No.	LICENSE Exp DATE	DATE SIGNED
CAMILO ROCHA	X	X	X	

LAST REVISION XX-XX-XX
DATE PLOTTED => 1/8/2014
TIME PLOTTED => 1:25:38 PM

Attachment B – Engineering Plans

Alternative 3M

Typical Sections
Key Map and Line Index
Layout
Profiles and Superelevation Diagrams
Existing Utility Plans

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NOTES:

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATIONS AS SHOWN OR AS DIRECTED BY THE ENGINEER.
3. SEE LAYOUTS FOR CONCRETE BARRIER, FENCING AND MBGR; LOCATIONS, LAYOUT AND TYPE.

TYPICAL STRUCTURAL SECTIONS:

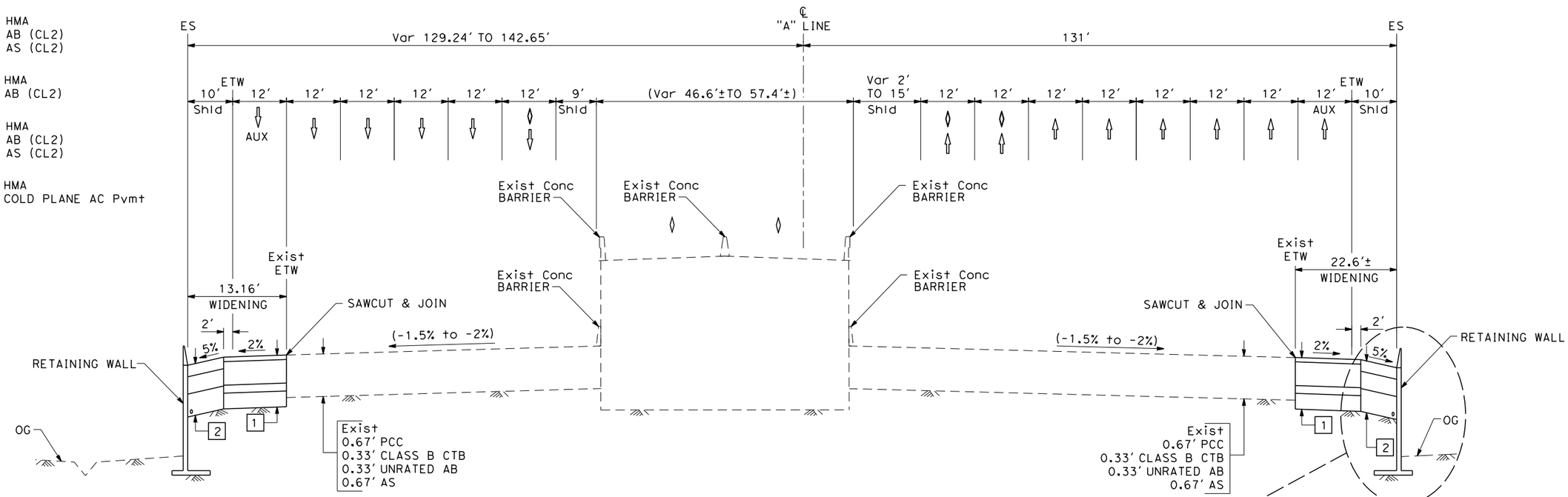
1
- 0.2′ RHMA-G
- 1.05′ JPCP
- 0.35′ LCB
- 0.70′ AS (CL2)

2
- 0.50′ HMA
- 0.75′ AB (CL2)
- 1.00′ AS (CL2)

3
- 0.33′ HMA
- 1.20′ AB (CL2)

4
- 0.60′ HMA
- 1.00′ AB (CL2)
- 1.35′ AS (CL2)

5
- 0.20′ HMA
- 0.20′ COLD PLANE AC Pvmt



ROUTE 55

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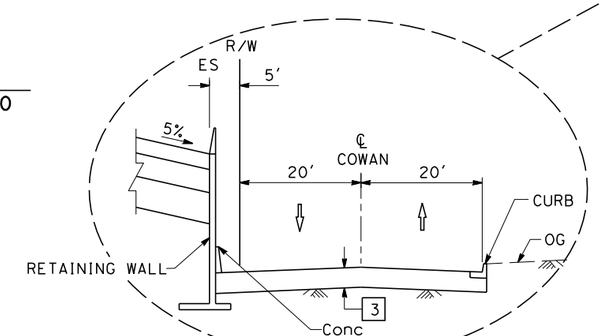

Sta 337+18.37 TO Sta 355+53.74

ABBREVIATIONS

AUX AUXILIARY LANE

NOT FOR CONSTRUCTION

ALTERNATIVE 3M

TYPICAL CROSS SECTIONS

NO SCALE

X-1

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Caltrans

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CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

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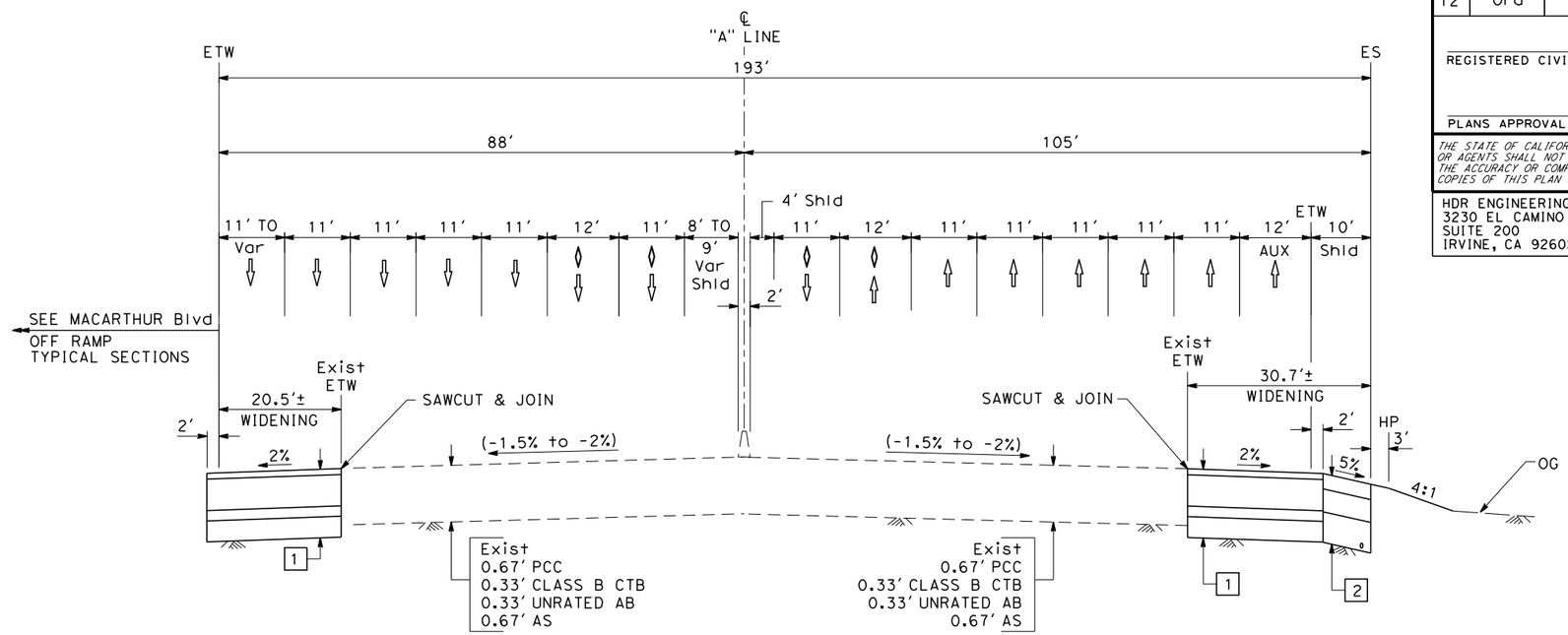
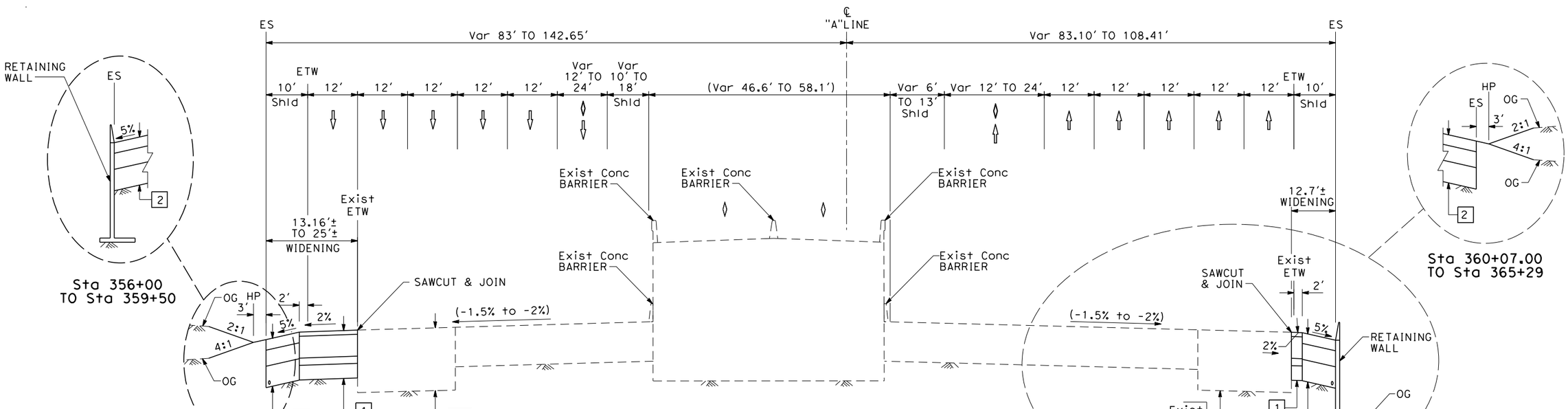


ROUTE 55

Sta 380+20 TO Sta 380+58.04



ROUTE 55

Sta 356+00 TO Sta 380+20

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ALTERNATIVE 3M
TYPICAL CROSS SECTIONS

NO SCALE

X-2

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12	Ora	55	6.4/10.3		

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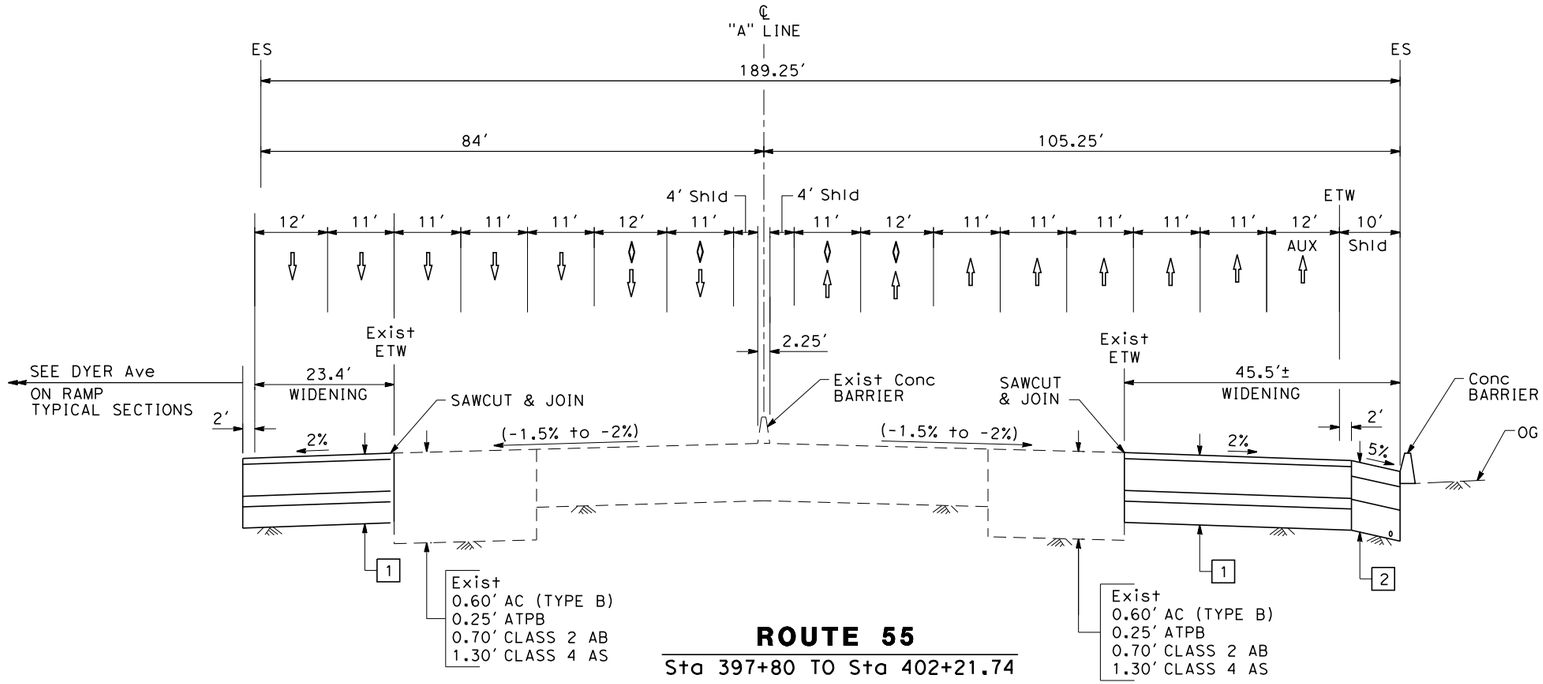

ROUTE 55

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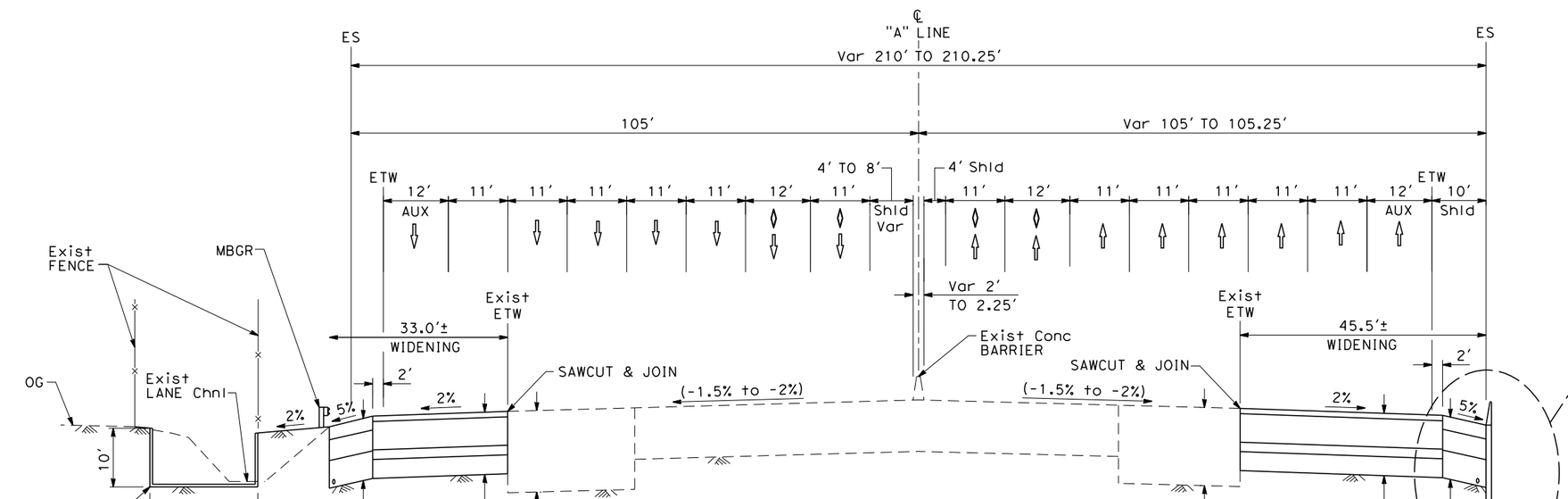

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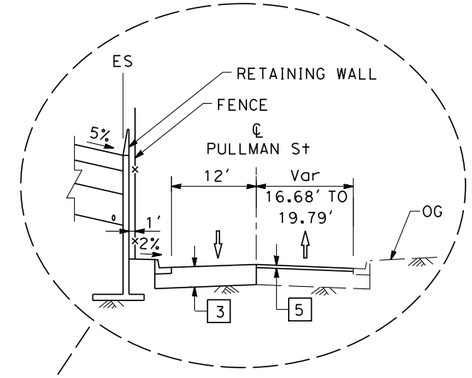
ROUTE 55

Sta 380+58.04 Sta 397+80



Sta 381+020 TO Sta 392+89

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
TYPICAL CROSS SECTIONS
NO SCALE

X-3

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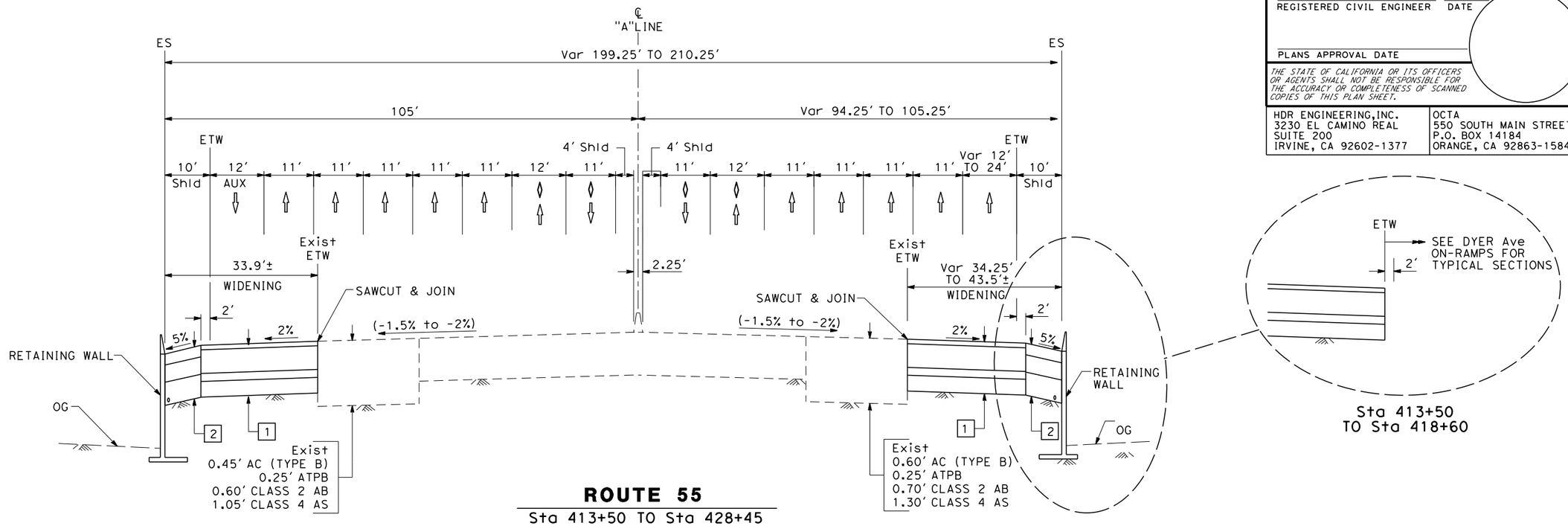

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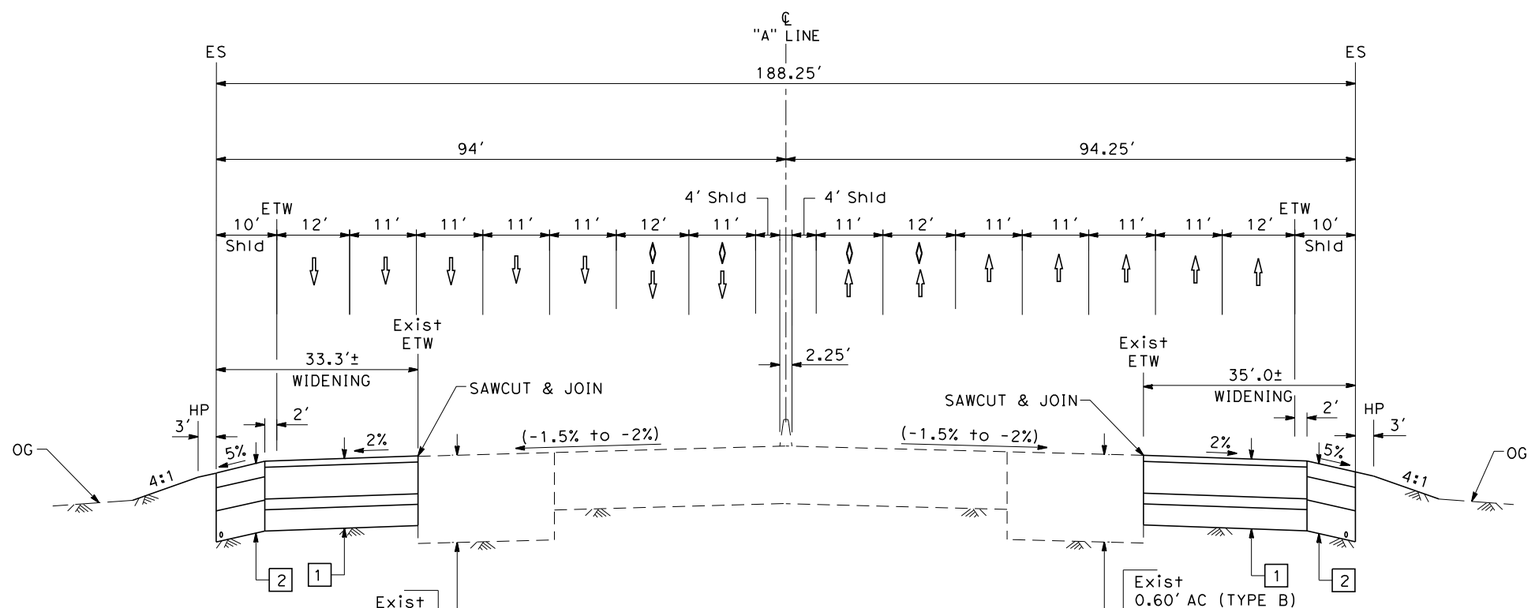

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TYPICAL CROSS SECTIONS
NO SCALE

X-4

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DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:40:19 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

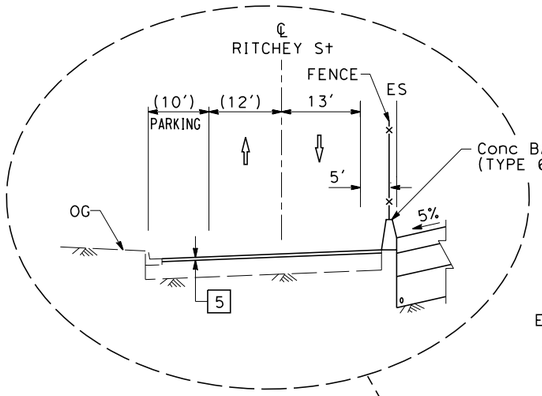
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

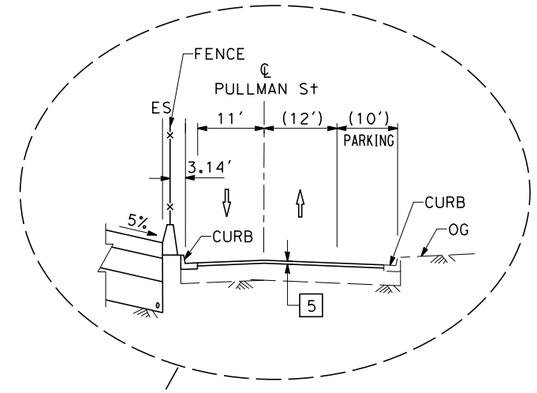
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

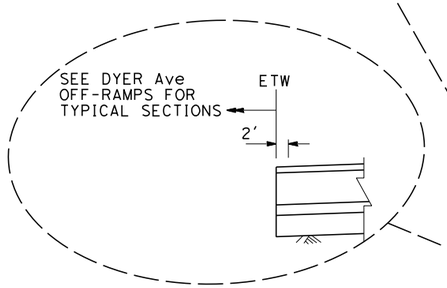
OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



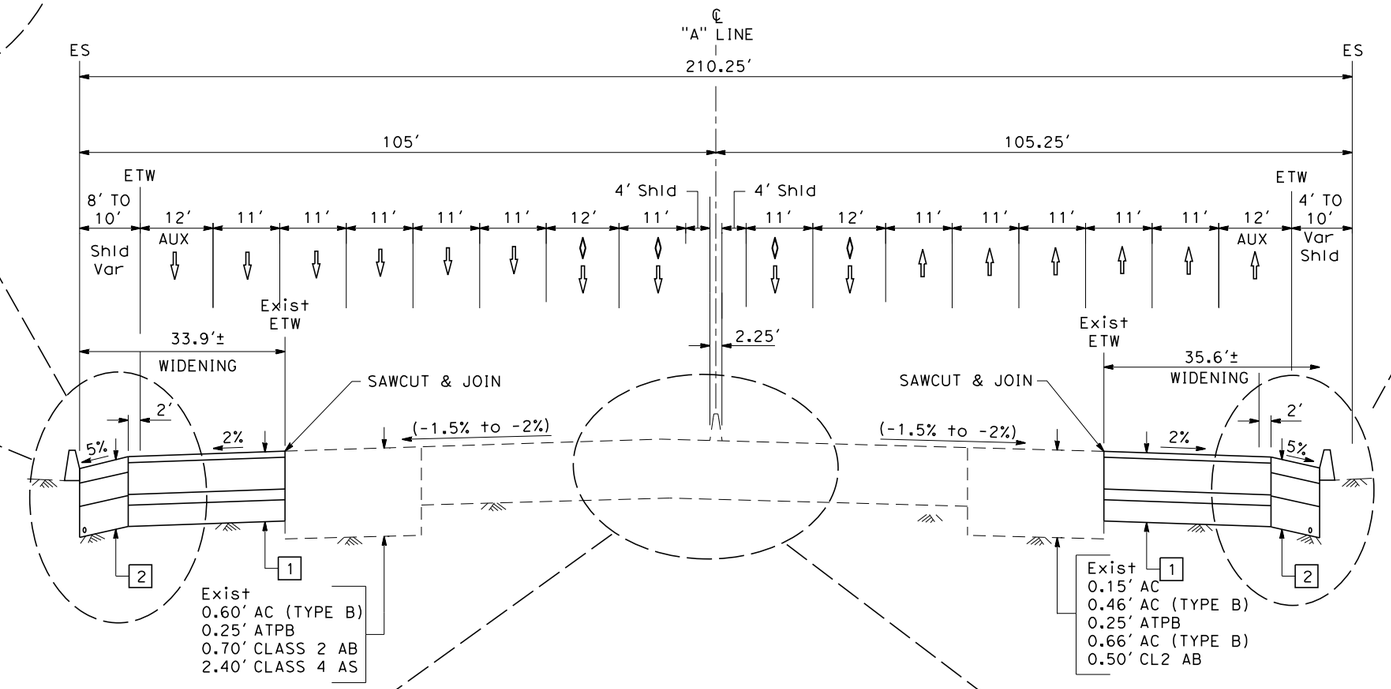
Sta 453+66.57
TO Sta 464+55.37

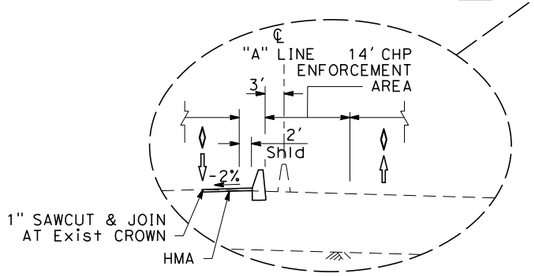


Sta 434+53.72
TO Sta 440+08.67

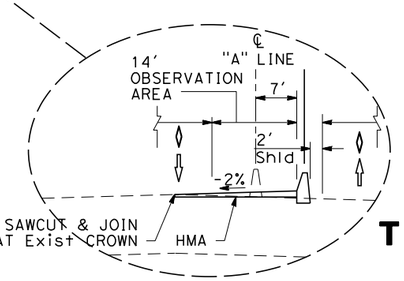


Sta 428+45
TO Sta 432+30





Sta 449+00 TO Sta 461+24



Sta 430+00 TO Sta 446+90

ROUTE 55

Sta 428+45 TO Sta 477+00

NOT FOR CONSTRUCTION

ALTERNATIVE 3M

TYPICAL CROSS SECTIONS

NO SCALE

X-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION: XX-XX-XX

DATE PLOTTED => 3/27/2017
TIME PLOTTED => 3:57:32 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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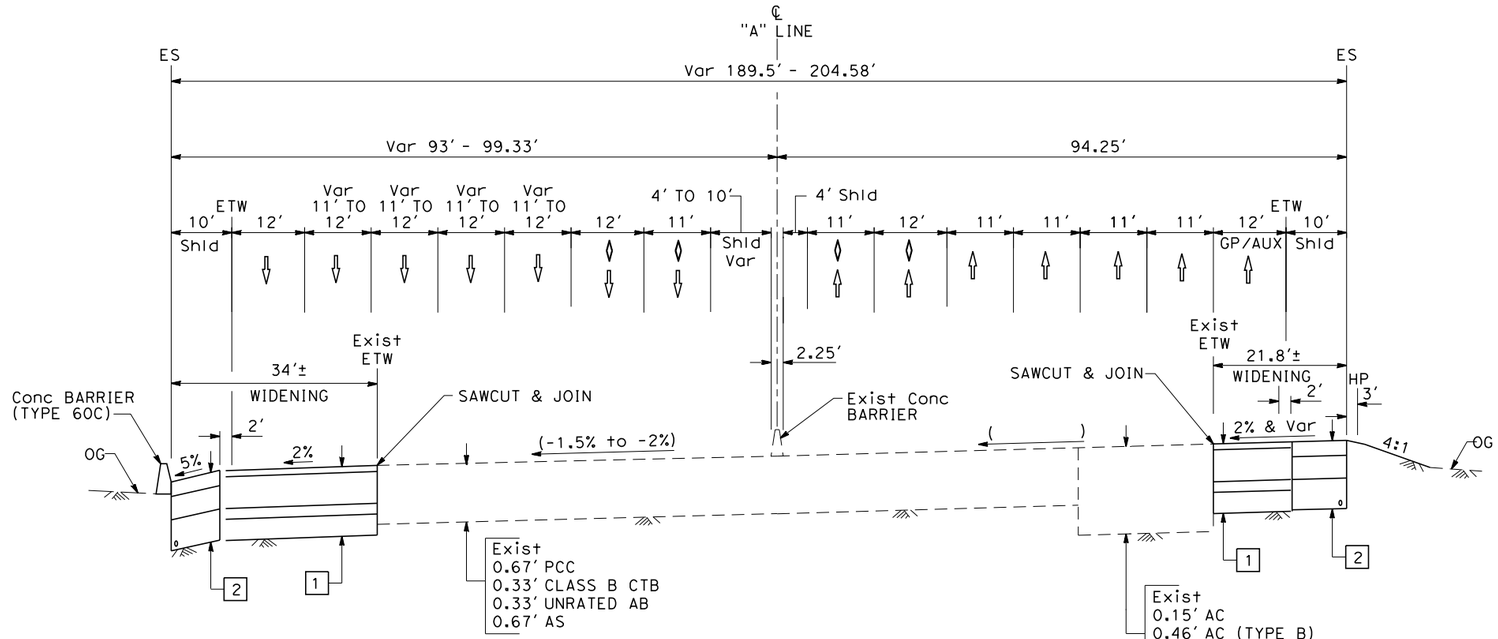
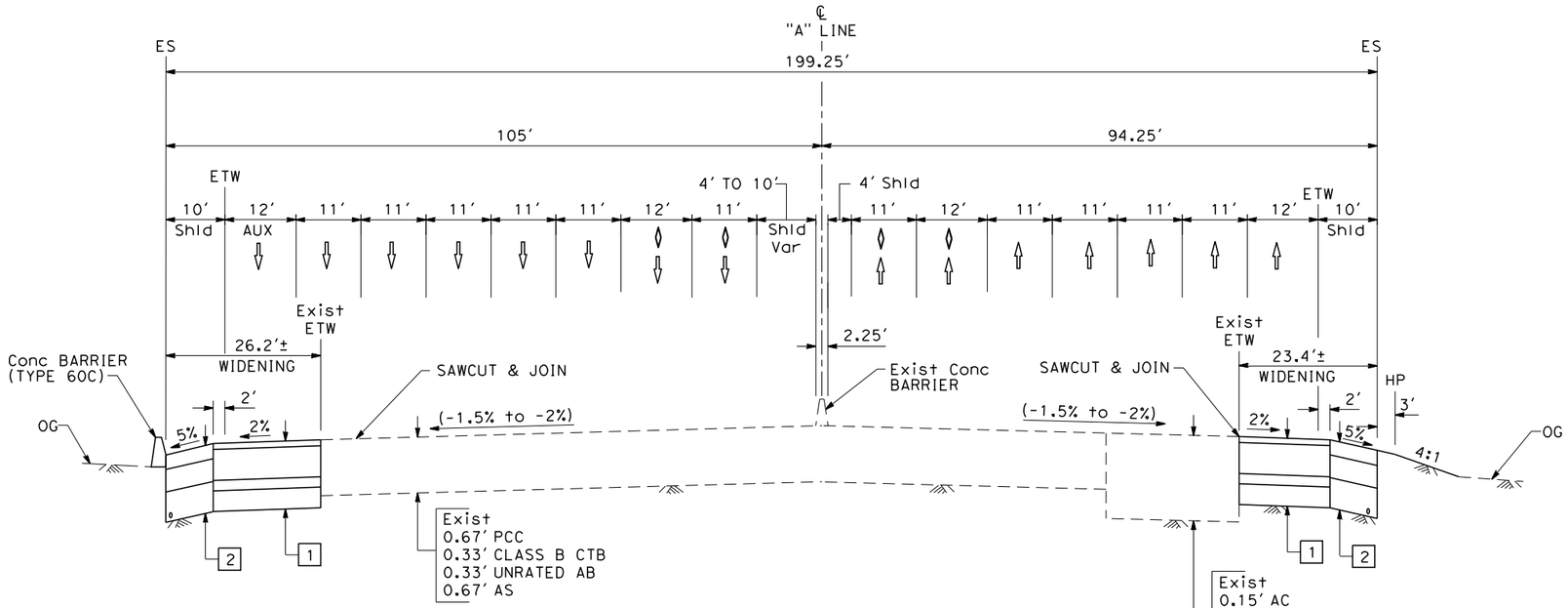
ORANGE, CA 92863-1584



ROUTE 55

Sta 482+12.24 TO Sta 492+70



ROUTE 55

Sta 477+00 TO Sta 482+12.24

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
TYPICAL CROSS SECTIONS

NO SCALE

X-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:41:08 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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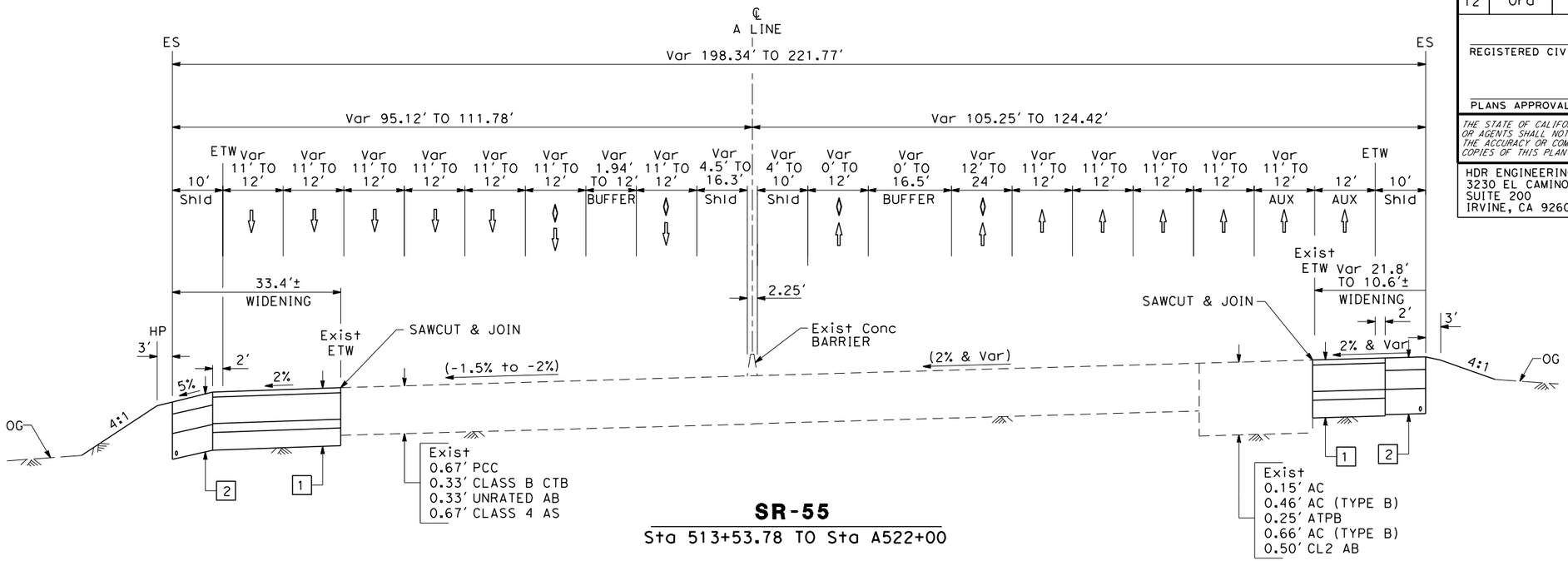
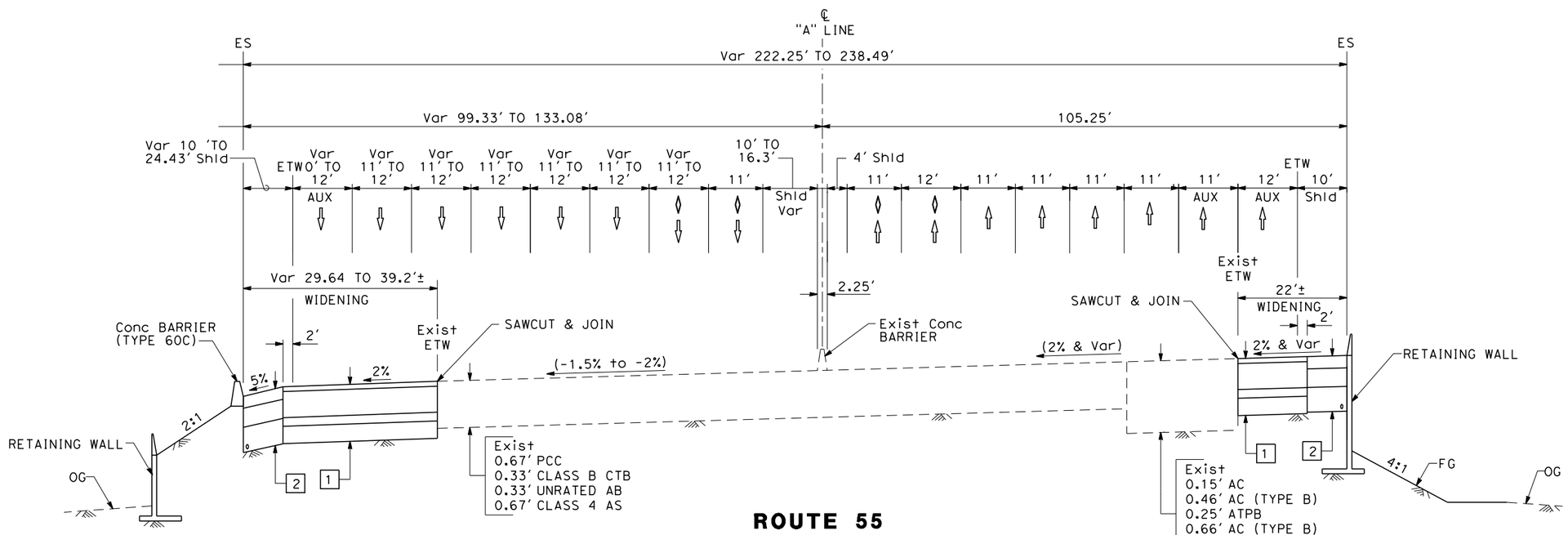


SR-55

Sta 513+53.78 TO Sta A522+00



ROUTE 55

Sta 492+70 TO Sta 513+53.78

NOT FOR CONSTRUCTION

ALTERNATIVE 3M

TYPICAL CROSS SECTIONS

NO SCALE

X-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:41:39 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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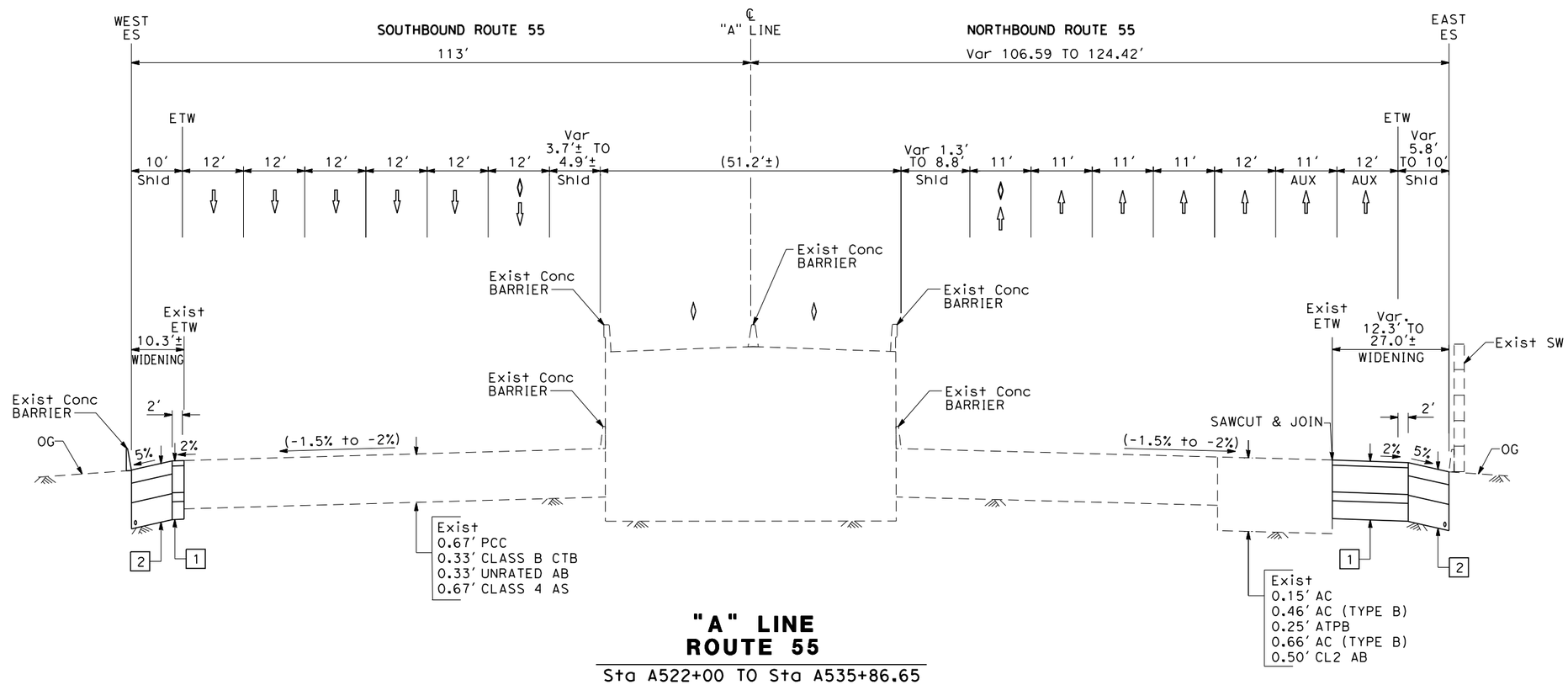
ORANGE, CA 92863-1584



"A" LINE
ROUTE 55

Sta A522+00 TO Sta A535+86.65

NOT FOR CONSTRUCTION

ALTERNATIVE 3M

TYPICAL CROSS SECTIONS

NO SCALE

X-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

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LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:41:54 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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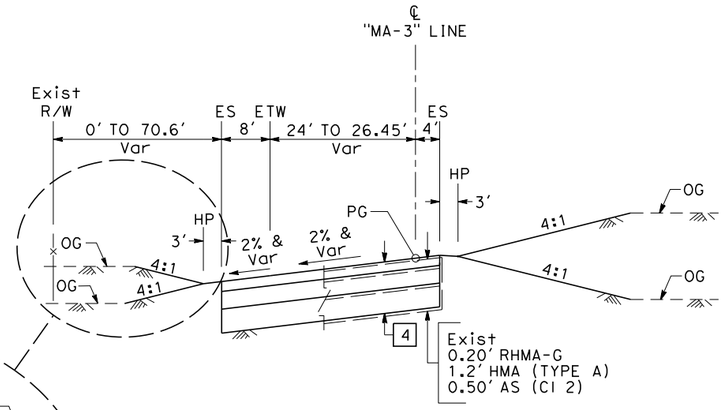
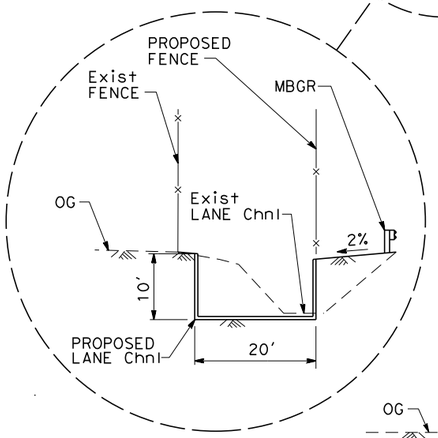
ORANGE, CA 92863-1584

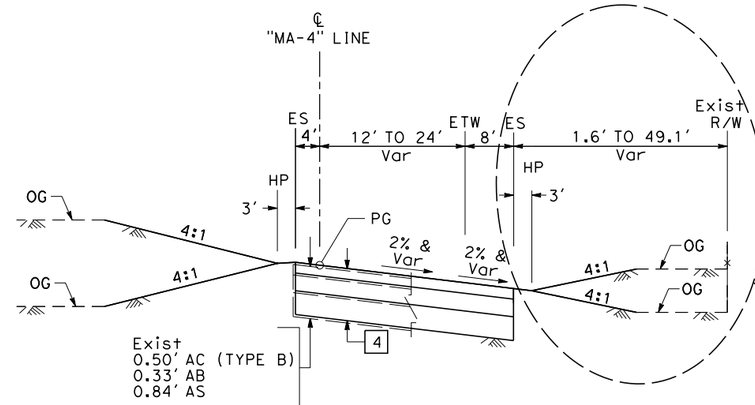




Sta 376+29.79 TO
Sta 380+58.04

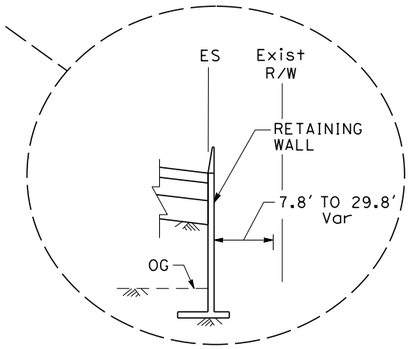
"MA-3" LINE
MACARTHUR Blvd
SB EXIT RAMP

371+00.89 TO 380+58.04

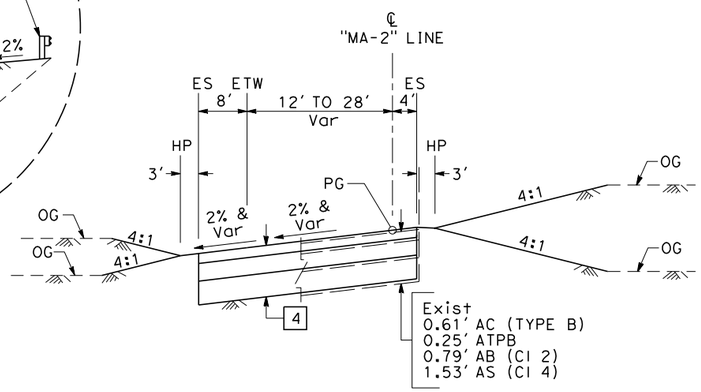


"MA-4" LINE
MACARTHUR Blvd
NB ENTRANCE RAMP

Sta 65+29.10 TO 80+20

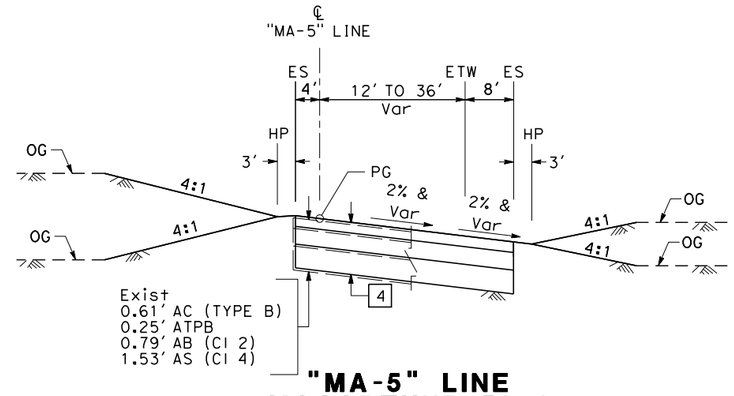


72+22.76 TO 757+49.71



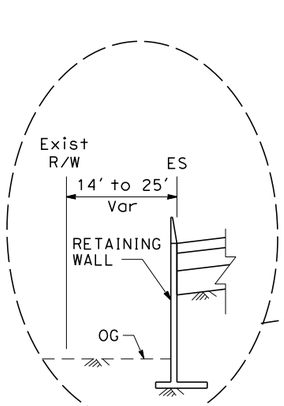
"MA-2" LINE
MACARTHUR Blvd
SB LOOP ENTRANCE RAMP

67+00 TO 78+13.50

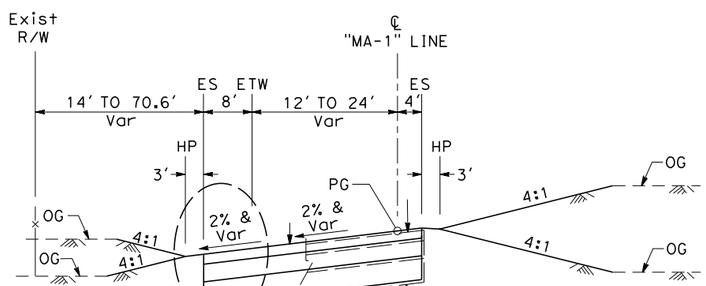


"MA-5" LINE
MACARTHUR Blvd
NB LOOP ENTRANCE RAMP

Sta 58+15.40 TO 70+20

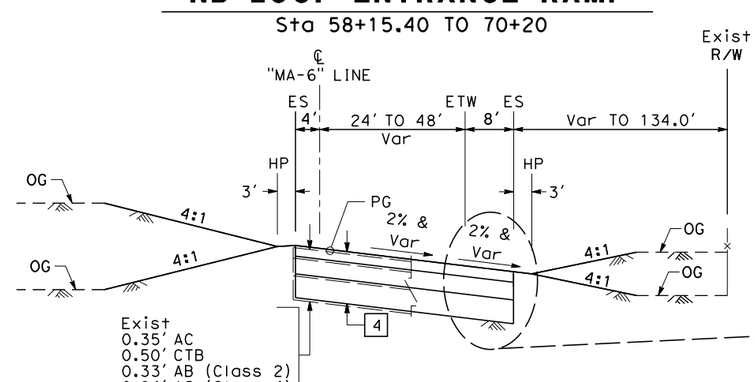


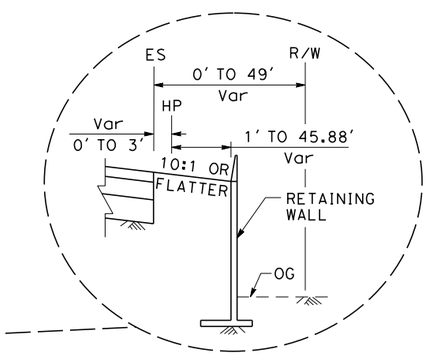
59+50 TO 65+39.63



"MA-1" LINE
MACARTHUR Blvd
SB ENTRANCE RAMP

59+50 TO 71+08.25





56+00 TO 66+68.25

"MA-6" LINE
MACARTHUR Blvd
NB EXIT RAMP

56+00 TO 68+85.53

ALTERNATIVE 3M
TYPICAL CROSS SECTIONS
NO SCALE

X-9

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:42:04 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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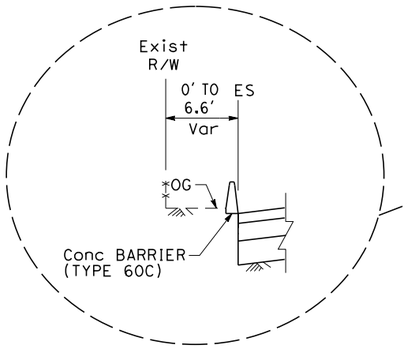
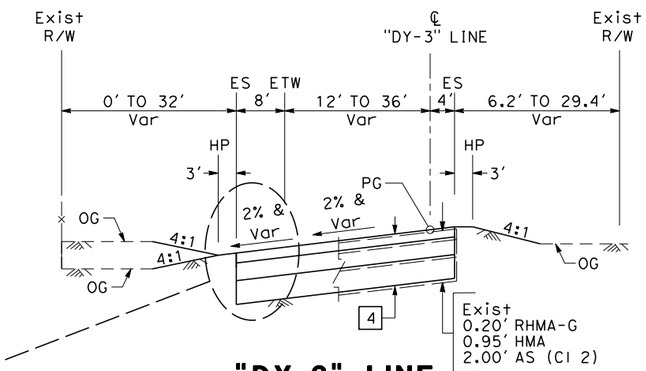
HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

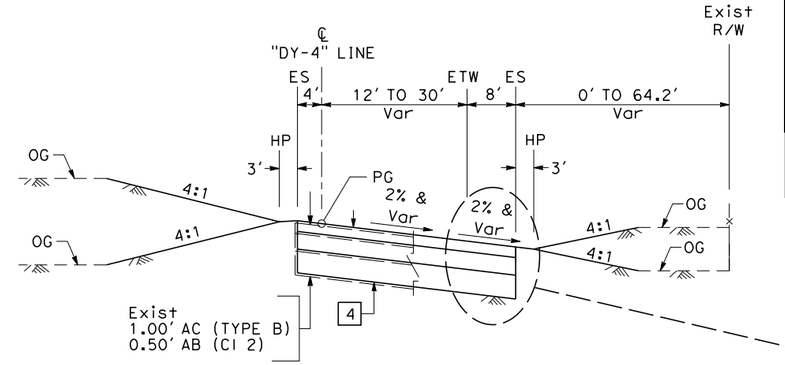


Sta 428+71.65 TO Sta 432+30



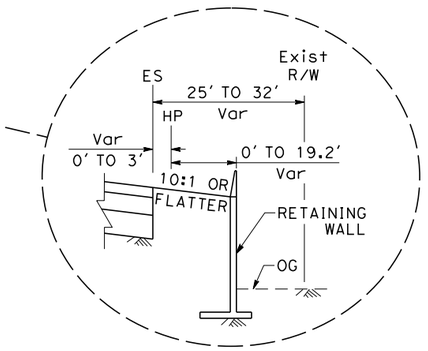
"DY-3" LINE DYER Rd SB EXIT RAMP

425+52.62 TO 432+30

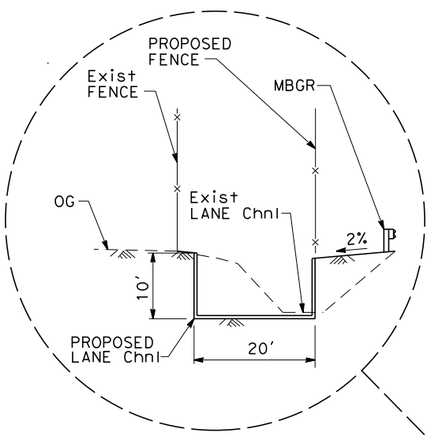


"DY-4" LINE DYER Rd NB ENTRANCE RAMP

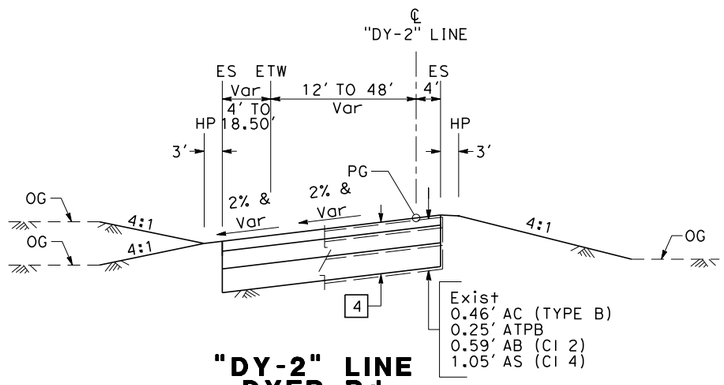
416+47.06 TO 428+45



419+20.41 TO 428+45

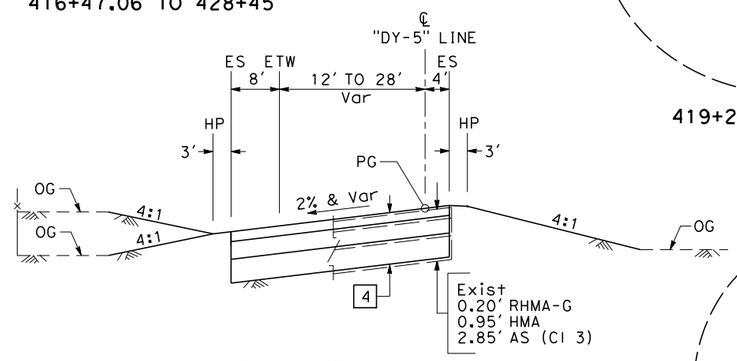


Sta 97+80 TO Sta 103+24.21



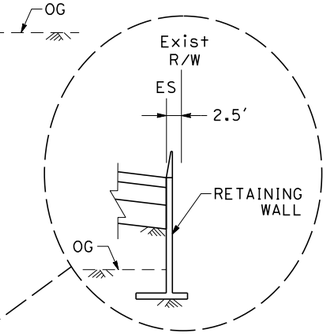
"DY-2" LINE DYER Rd SB LOOP EXIT RAMP

403+32.29 TO 413+50

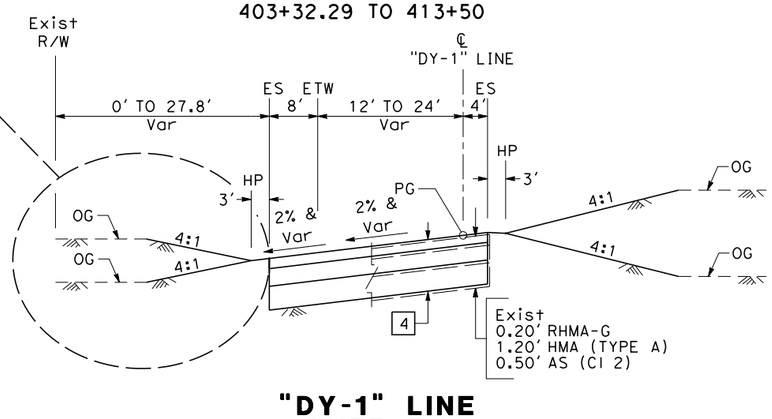


"DY-5" LINE DYER Rd NB LOOP ENTRANCE RAMP

405+25.11 to 418+60

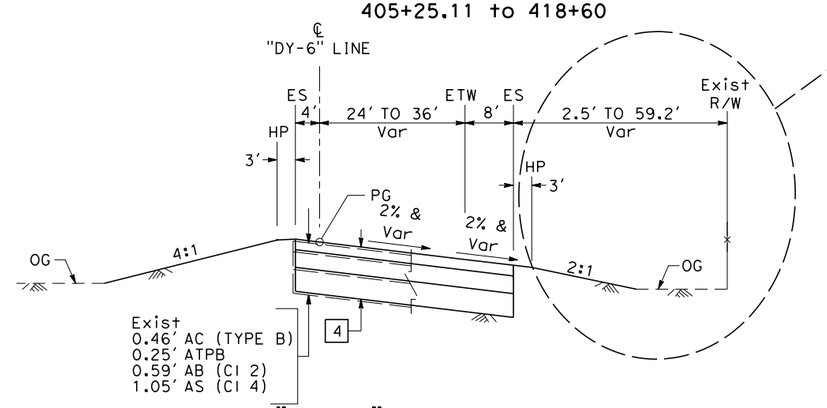


402+21.74 TO 405+06.55



"DY-1" LINE DYER Rd SB ENTRANCE RAMP

97+80 TO 106+99.61



"DY-6" LINE DYER Rd NB EXIT RAMP

402+21.74 TO 418+14.35

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
TYPICAL CROSS SECTIONS
NO SCALE

X-10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:42:18 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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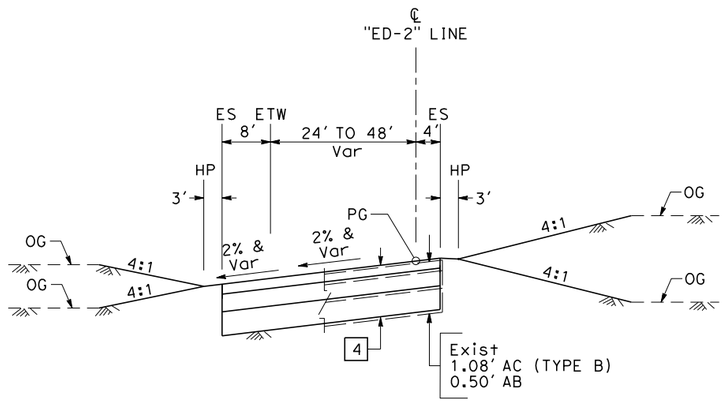
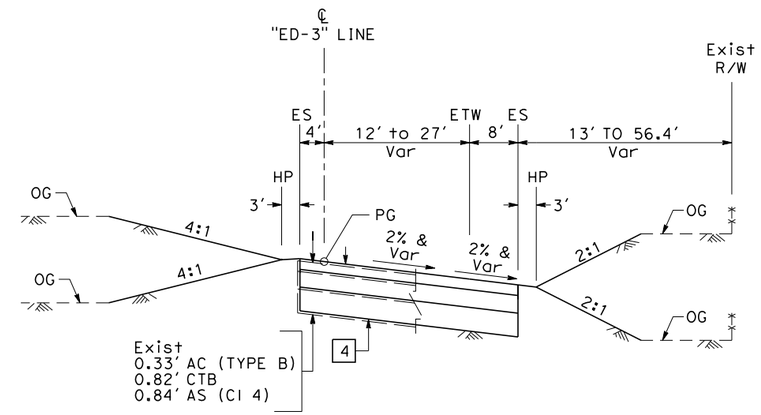
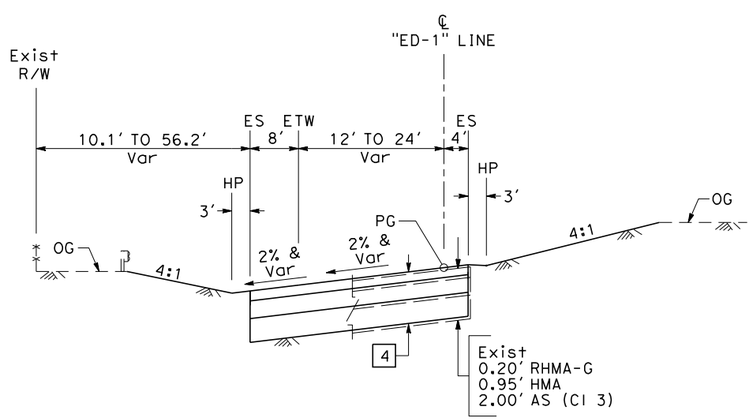


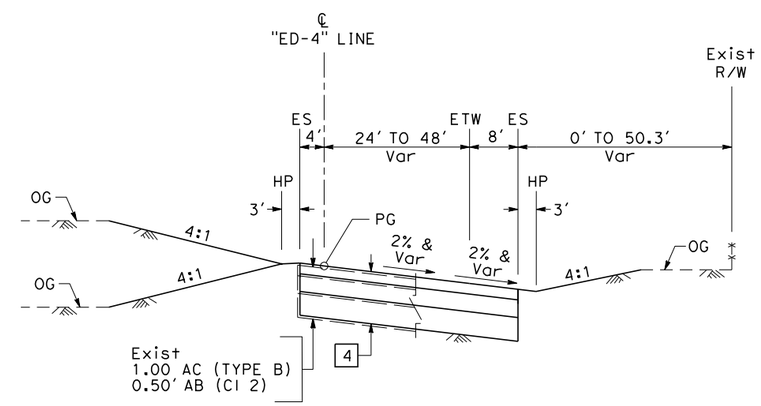
"ED-2" LINE
EDINGER Ave
SB LOOP EXIT RAMP
489+61.95 TO 501+10.00



"ED-3" LINE
EDINGER Ave
NB ENTRANCE RAMP
480+61.23 TO 492+70.00



"ED-1" LINE
EDINGER Ave
SB ENTRANCE RAMP
82+12.24 TO 91+30.98



"ED-4" LINE
EDINGER Ave
NB EXIT RAMP
477+00.00 TO 486+48.91

ALTERNATIVE 3M

TYPICAL CROSS SECTIONS

NO SCALE

X-11

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:42:29 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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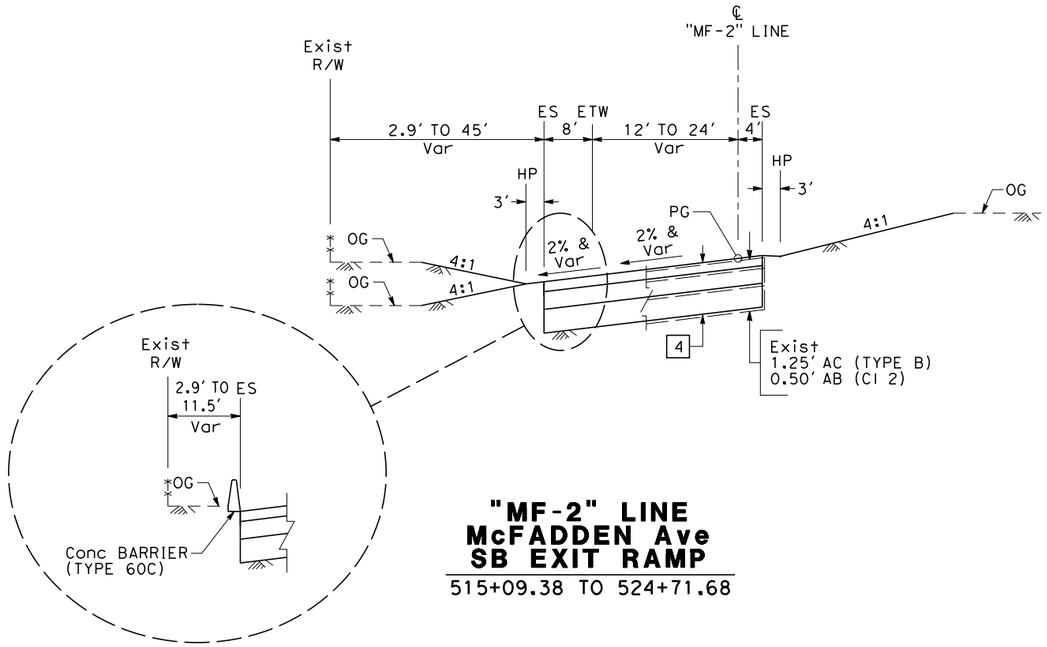
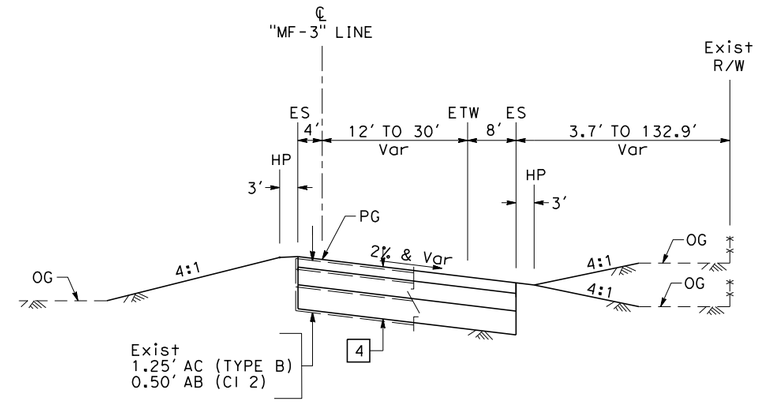
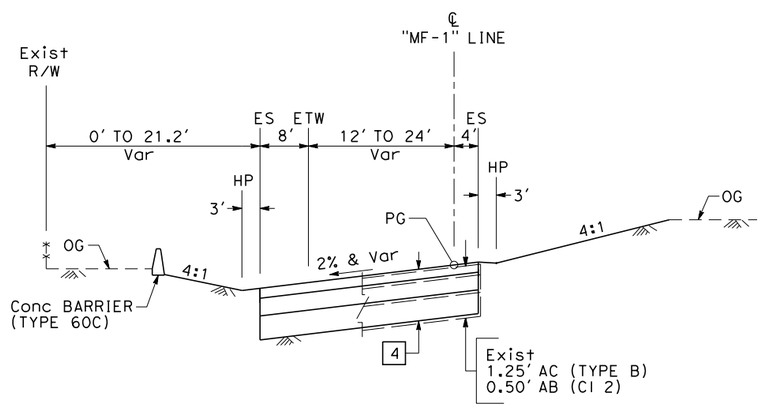


"MF-2" LINE
McFADDEN Ave
SB EXIT RAMP
515+09.38 TO 524+71.68

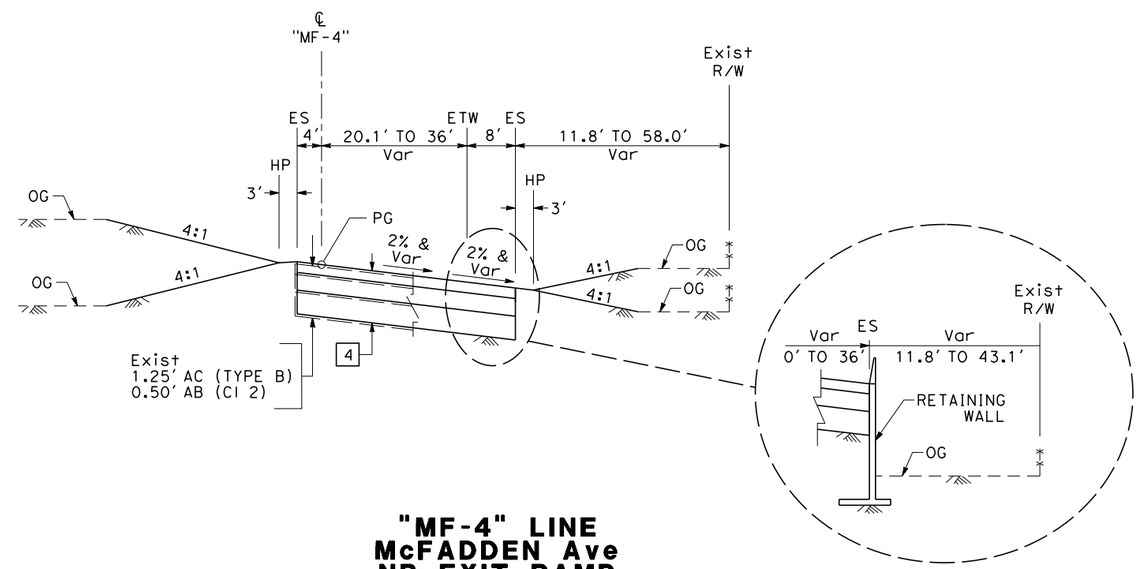
518+92.53 TO 524+71.68



"MF-3" LINE
McFADDEN Ave
NB ENTRANCE RAMP
512+19.22 TO 521+10.00



"MF-1" LINE
McFADDEN Ave
SB ENTRANCE RAMP
509+30.00 TO 516+52.62



"MF-4" LINE
McFADDEN Ave
NB EXIT RAMP
506+00.00 TO 515+40.35

506+00.00 TO 511+78.10

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
TYPICAL CROSS SECTIONS
NO SCALE

X-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
REVISED BY
DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:42:41 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

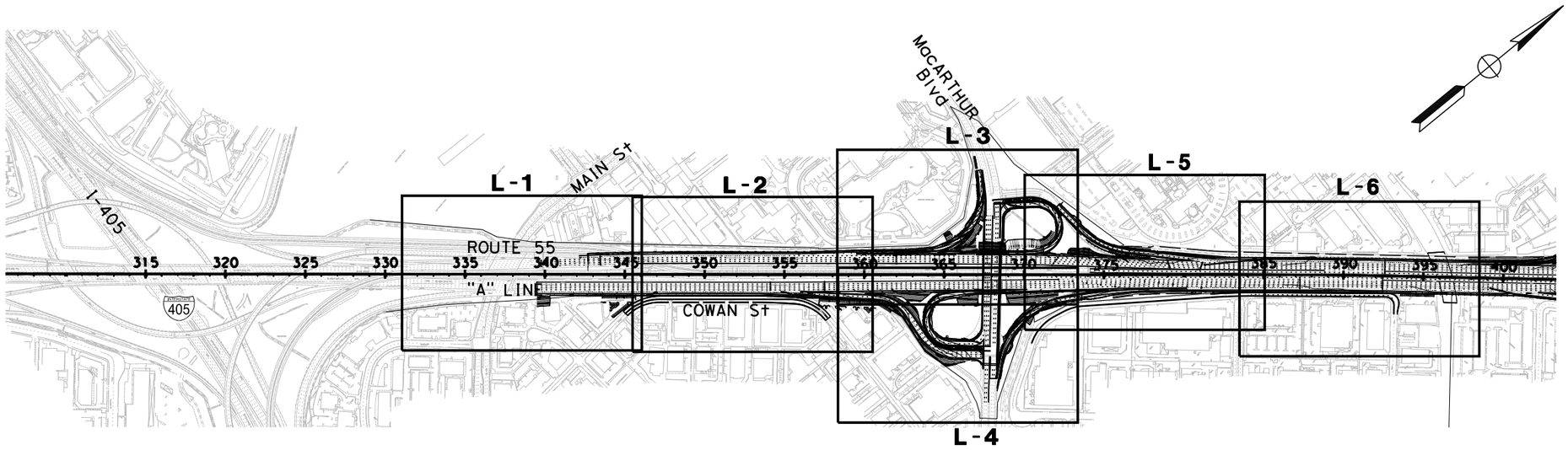
REGISTERED CIVIL ENGINEER DATE

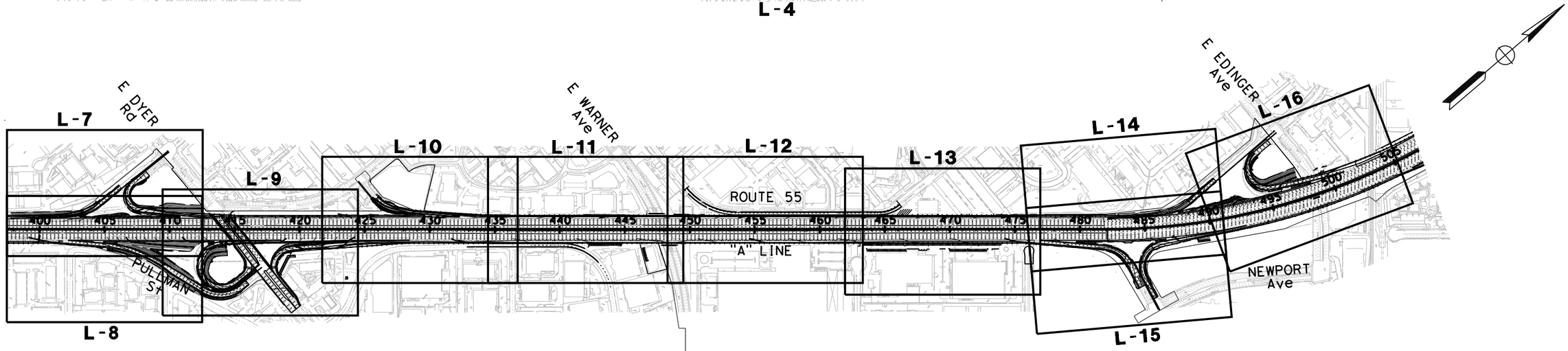
PLANS APPROVAL DATE

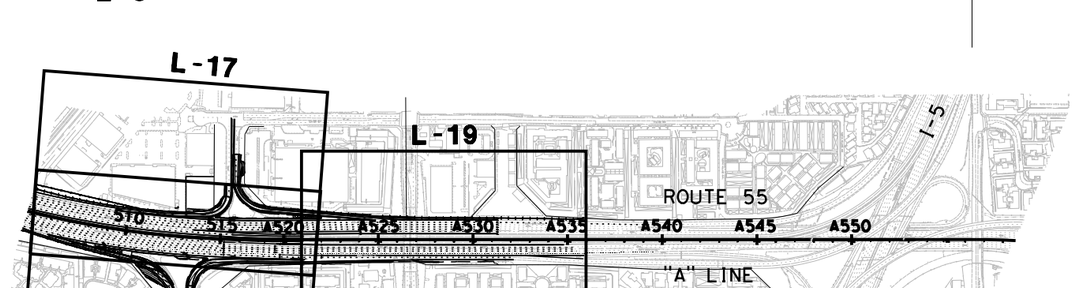
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584







NOT FOR CONSTRUCTION

ALTERNATIVE 3M

KEY MAP AND LINE INDEX

NO SCALE

K-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/9/2017
TIME PLOTTED => 10:06:27 AM

BORDER LAST REVISED 7/2/2010

USERNAME => untitled
DGN FILE => c:\pwworking\sac\d0864082\12XXXXda001_Alt-3M.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 12-XXXX

PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

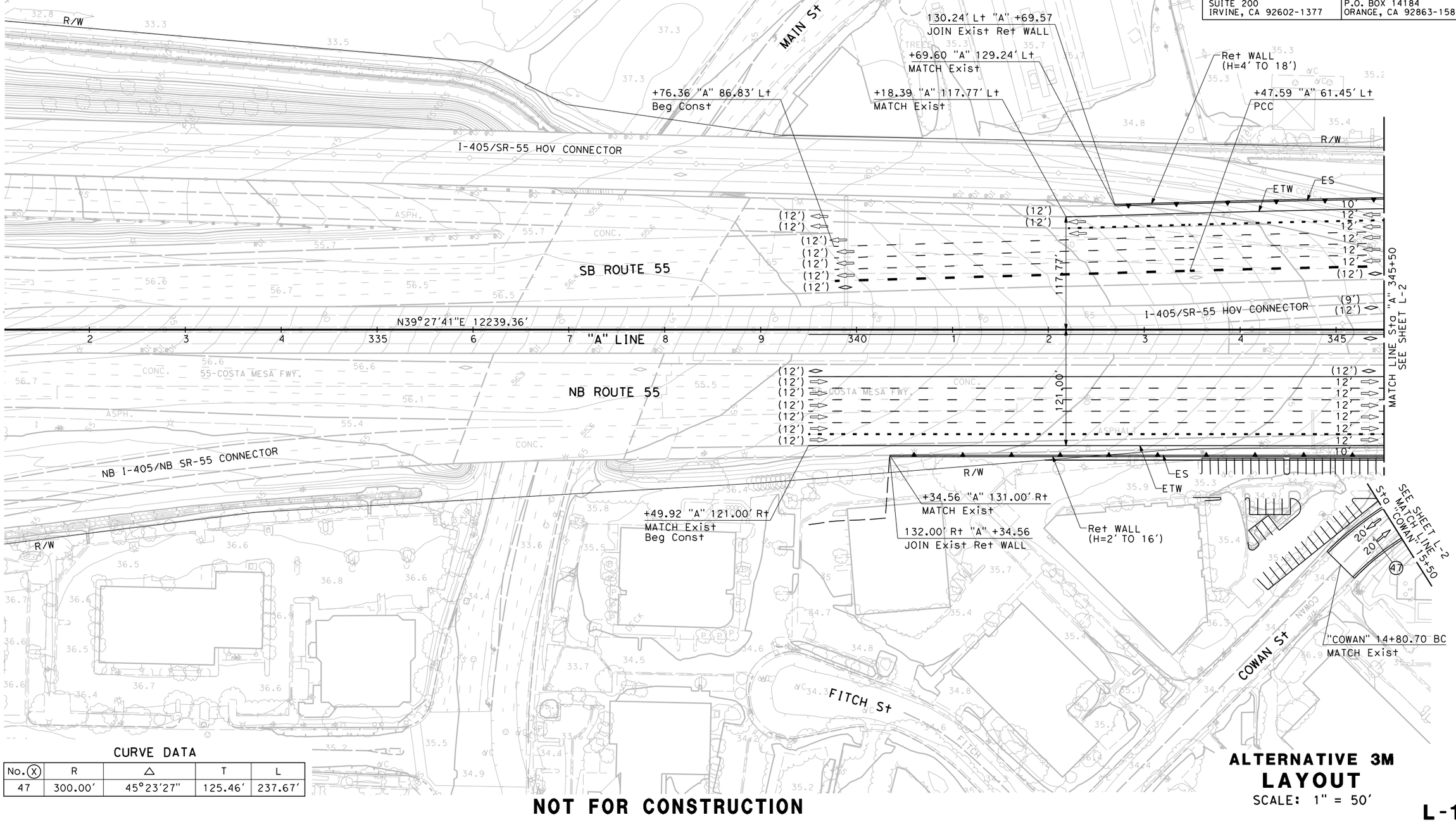
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

ABBREVIATIONS:

CHP CALIFORNIA HIGHWAY PATROL
POB POINT OF BEGINNING
POE POINT OF ENDING

LEGEND:

FILL LIMIT
CUT LIMIT
DIRECTION OF TRAVEL
HOV DIAMOND LANE
CURVE DATA NUMBERS



CURVE DATA

No. (X)	R	Δ	T	L
47	300.00'	45°23'27"	125.46'	237.67'

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

NOT FOR CONSTRUCTION

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
REVISED BY
DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:02:43 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

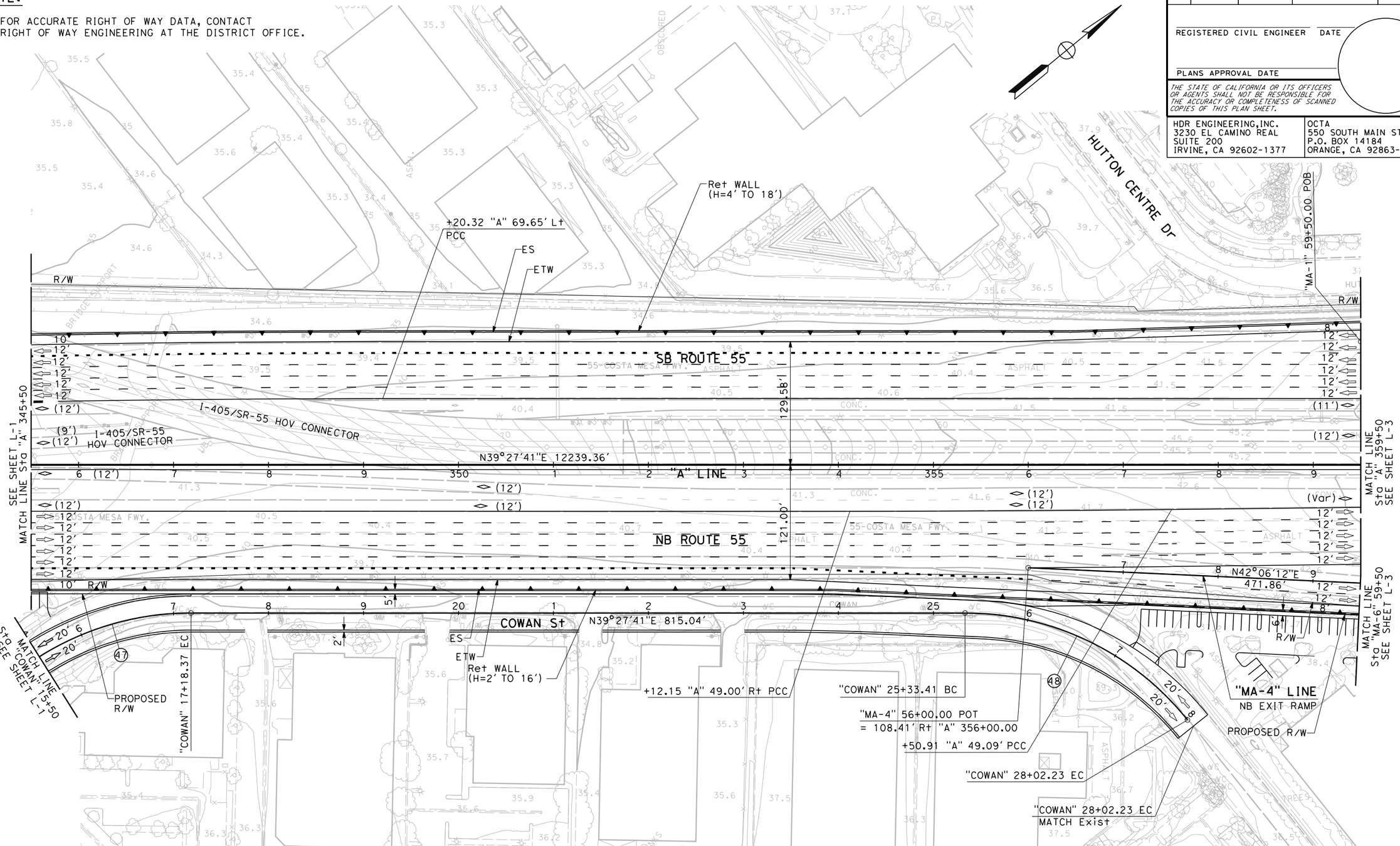
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	Δ	T	L
47	300.00'	45°23'27"	125.46'	237.67'
48	300.00'	51°20'30"	144.19'	268.82'

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

NOT FOR CONSTRUCTION

L-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: SHIVA WOOTON

CHECKED BY: JESSICA SLATER

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:03:59 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

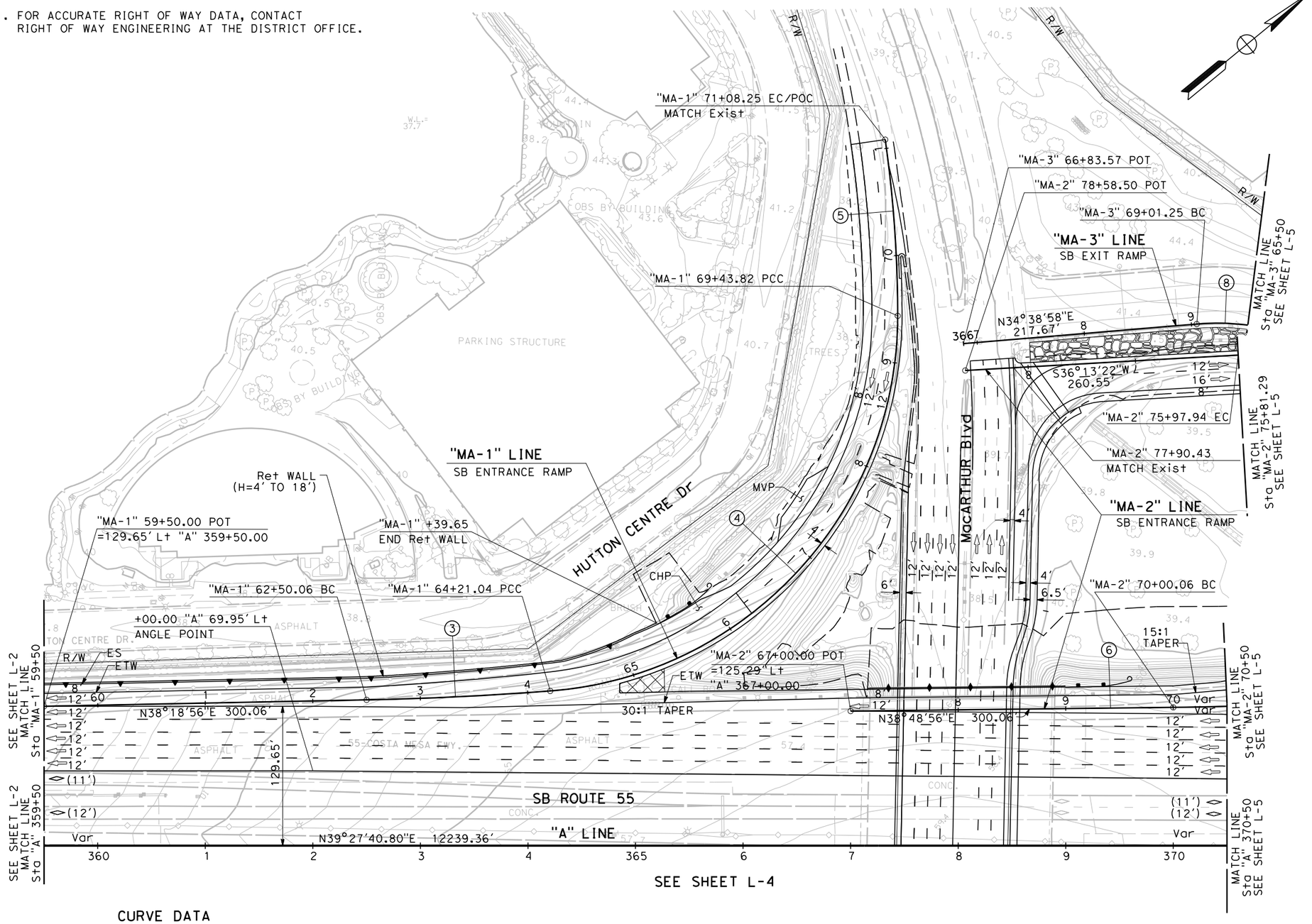
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	△	T	L
3	3000.00'	03°15'56"	85.51'	170.98'
4	350.00'	85°34'52"	324.00'	522.78'
5	1155.97'	08°09'00"	82.35'	164.43'
6	3000.00'	01°34'17"	41.14'	82.28'
8	226.38'	49°35'51"	104.60'	195.96'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

JESSICA SLATER | SHIVA WOOTON

CALCULATED-DESIGNED BY | CHECKED BY

REVISED BY | DATE REVISED

LAST REVISION XX-XX-XX | DATE PLOTTED => 3/29/2017 TIME PLOTTED => 5:05:05 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => untitled DGN FILE => c:\pwworking\sac\d0864083\12xxxxea003_Alt-3M.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 12-XXXX | PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

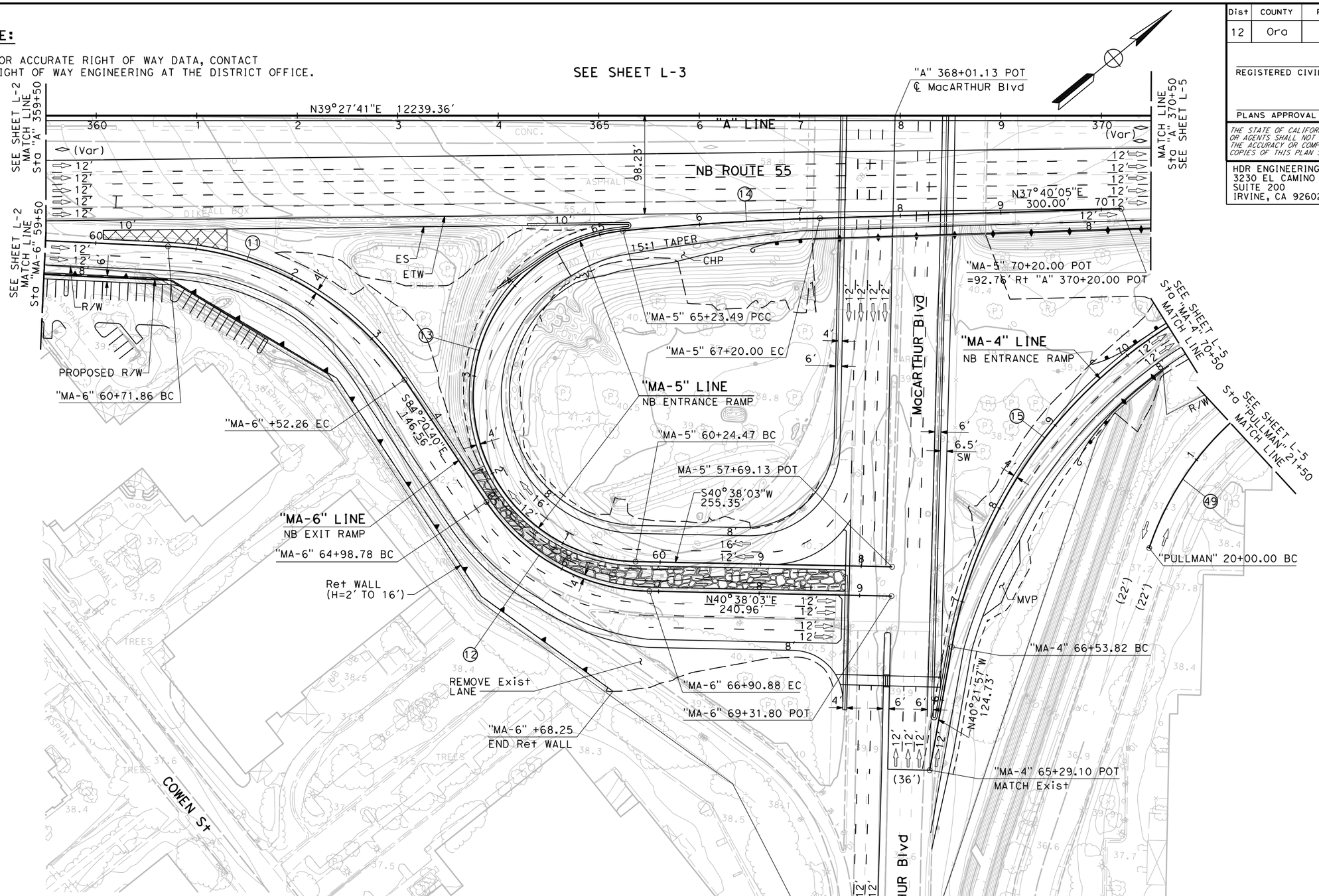
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	△	T	L
11	300.00'	53°33'08"	151.38'	280.40'
12	200.00'	55°01'16"	104.16'	192.06'
13	165.00'	173°16'52"	2810.84'	499.01'
14	3000.00'	03°45'11"	98.29'	196.51'
15	475.00'	68°37'35"	324.18'	568.93'
49	300.00'	43°52'03"	120.80'	229.69'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:06:13 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

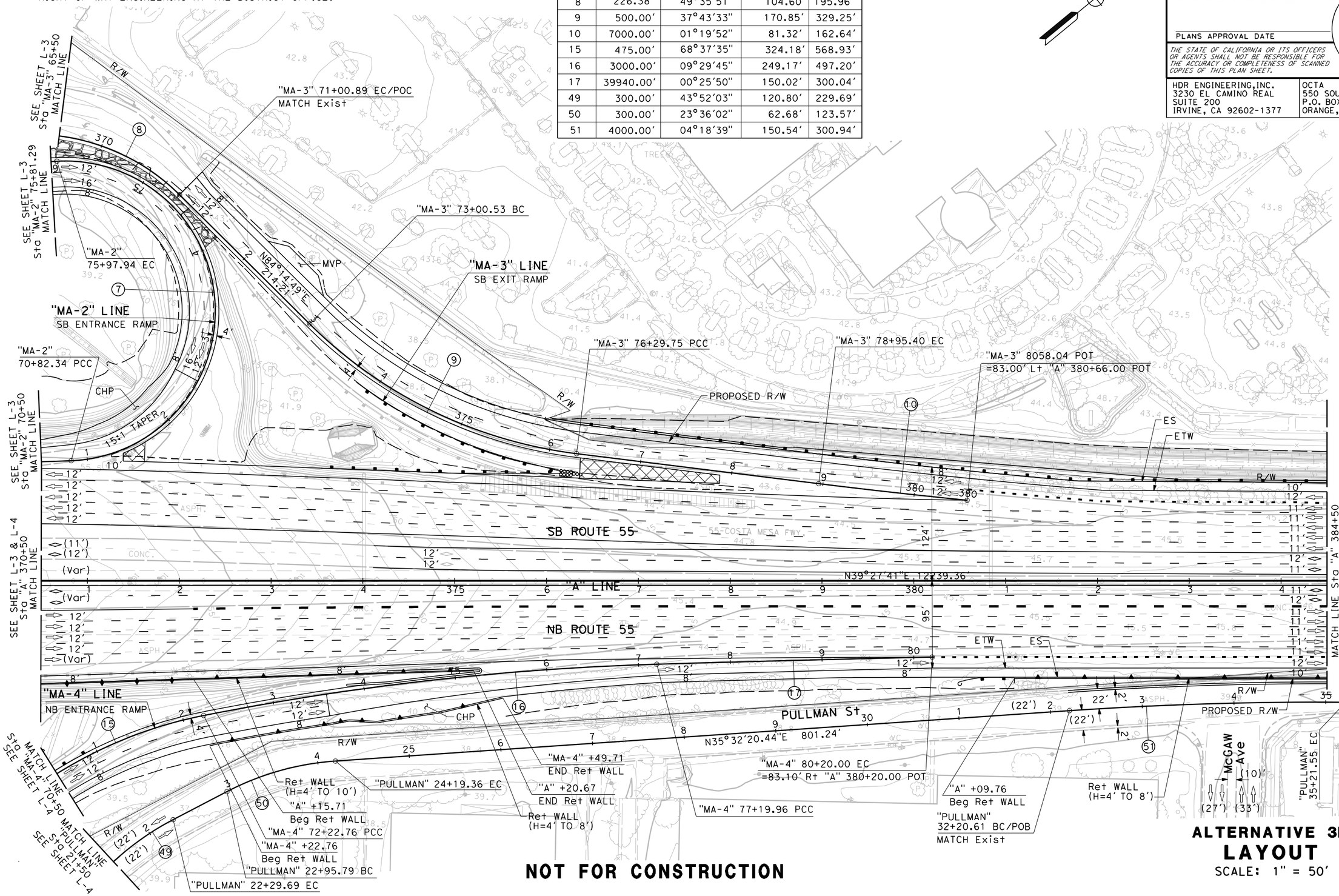
OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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

CURVE DATA

No. (X)	R	Δ	T	L
7	163.20′	181°01′17"	18310.60′	515.61′
8	226.38′	49°35′51"	104.60′	195.96′
9	500.00′	37°43′33"	170.85′	329.25′
10	7000.00′	01°19′52"	81.32′	162.64′
15	475.00′	68°37′35"	324.18′	568.93′
16	3000.00′	09°29′45"	249.17′	497.20′
17	39940.00′	00°25′50"	150.02′	300.04′
49	300.00′	43°52′03"	120.80′	229.69′
50	300.00′	23°36′02"	62.68′	123.57′
51	4000.00′	04°18′39"	150.54′	300.94′



NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50′

L-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
REVISED BY
DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:07:04 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

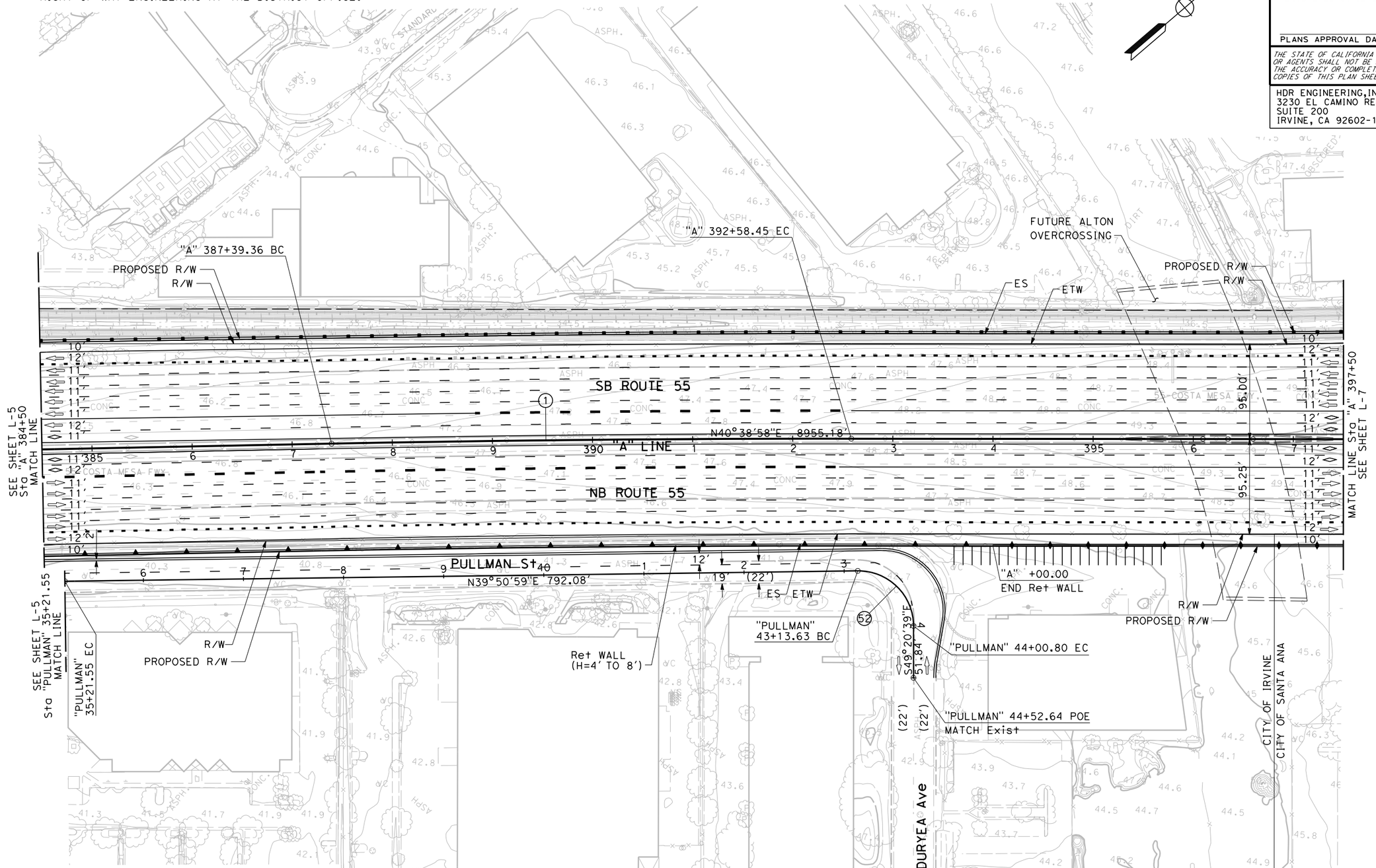
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	Δ	T	L
1	25032.80'	01°11'17"	259.55'	519.09'
52	62.00'	100°42'26"	74.82'	108.98'

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

NOT FOR CONSTRUCTION

L-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:08:16 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

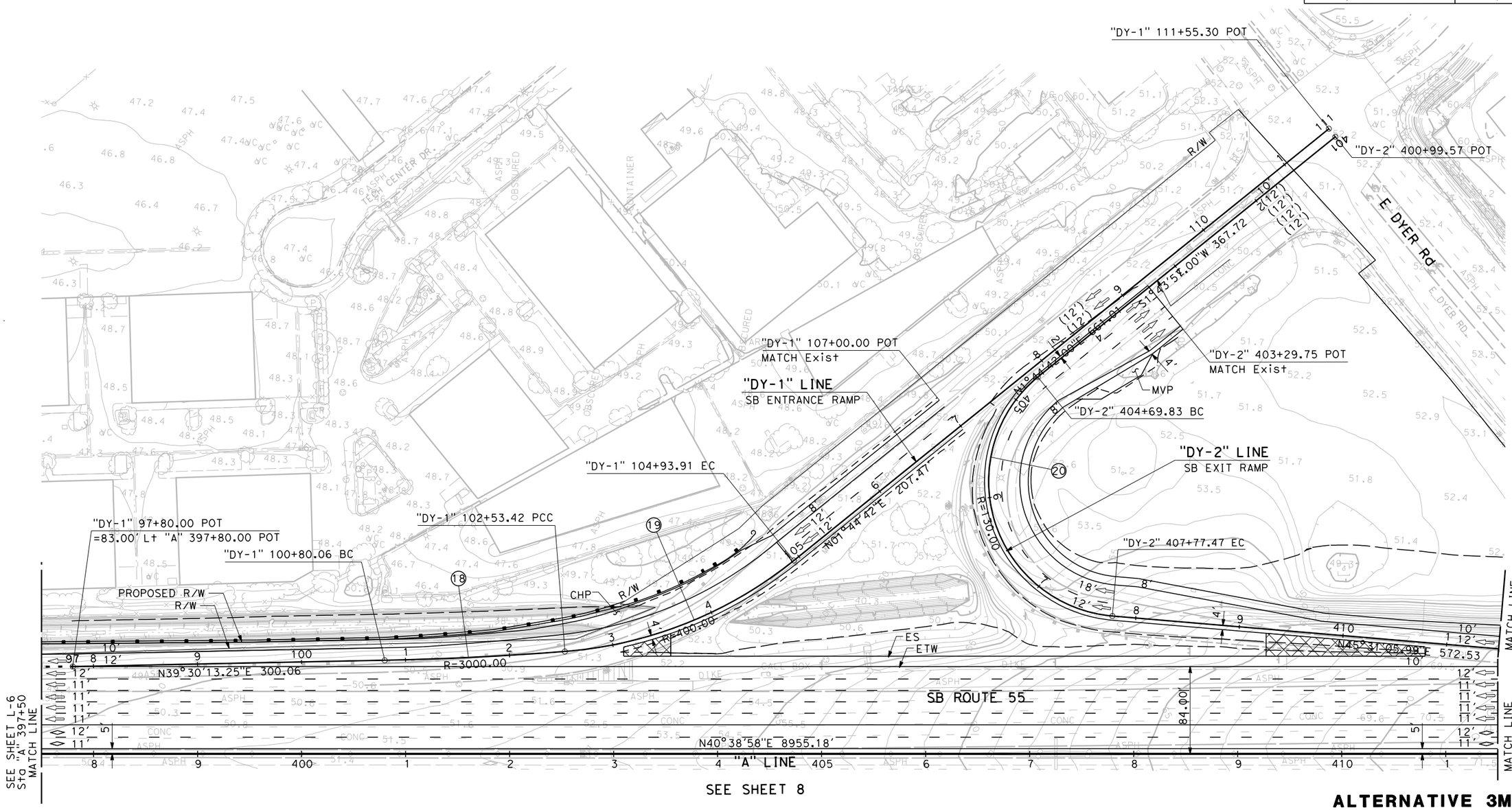
OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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

CURVE DATA

No. (X)	R	△	T	L
18	3000.00′	03°18′03″	86.70′	173.36′
19	400.00′	34°26′52″	124.00′	240.49′
20	130.00′	135°35′20″	318.47′	307.64′



ALTERNATIVE 3M

LAYOUT

SCALE: 1" = 50′

NOT FOR CONSTRUCTION

L-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION: XX-XX-XX

DATE PLOTTED => 3/29/2017

TIME PLOTTED => 5:11:29 PM

BORDER LAST REVISED 7/2/2010

USERNAME => untitled

DGN FILE => c:\pwworking\sac\d0864083\12xxxxea007_Alt-3M.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 12-XXXX

PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

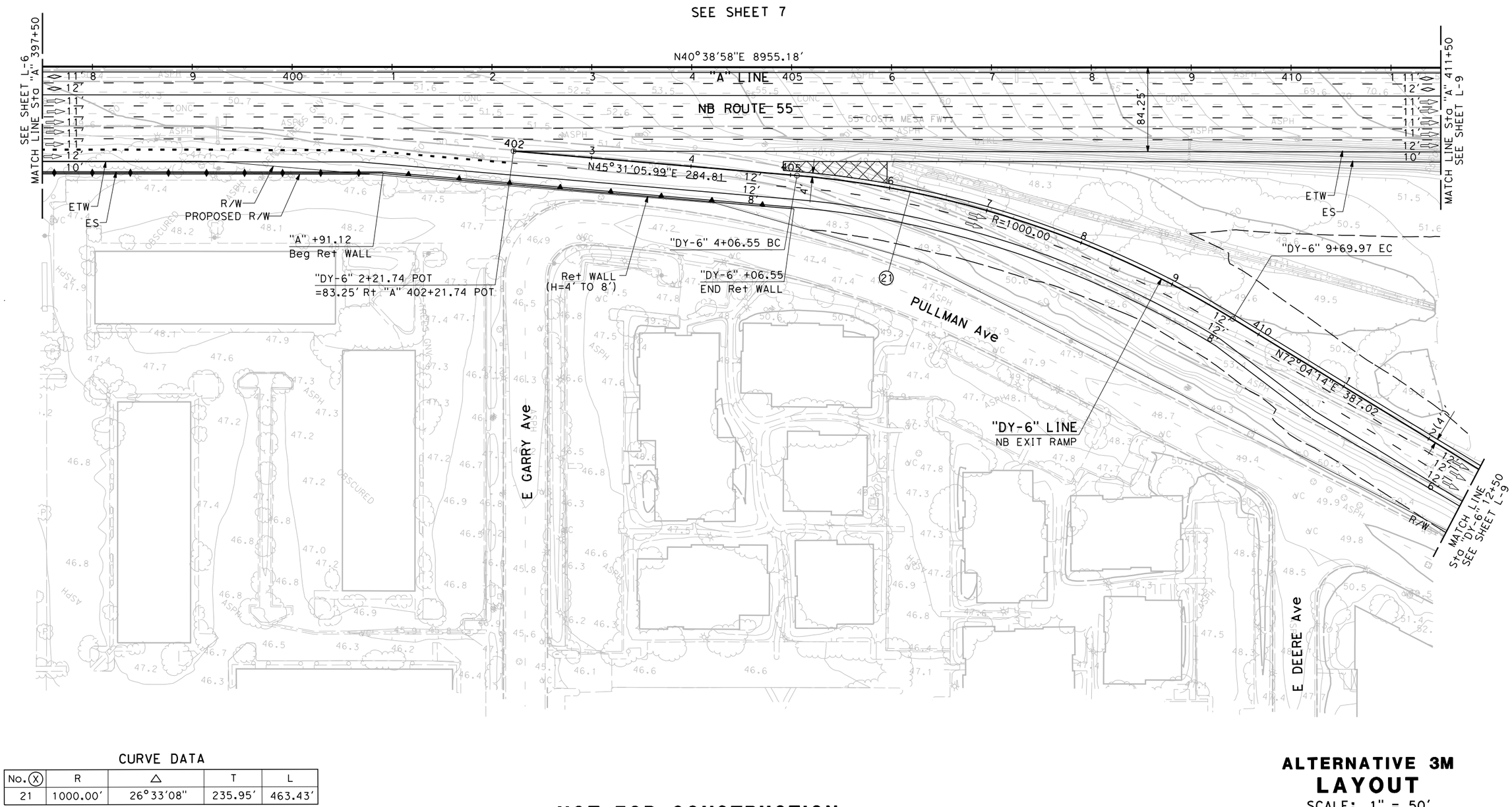
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	Δ	T	L
21	1000.00'	26°33'08"	235.95'	463.43'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
REVISED BY
DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:12:19 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

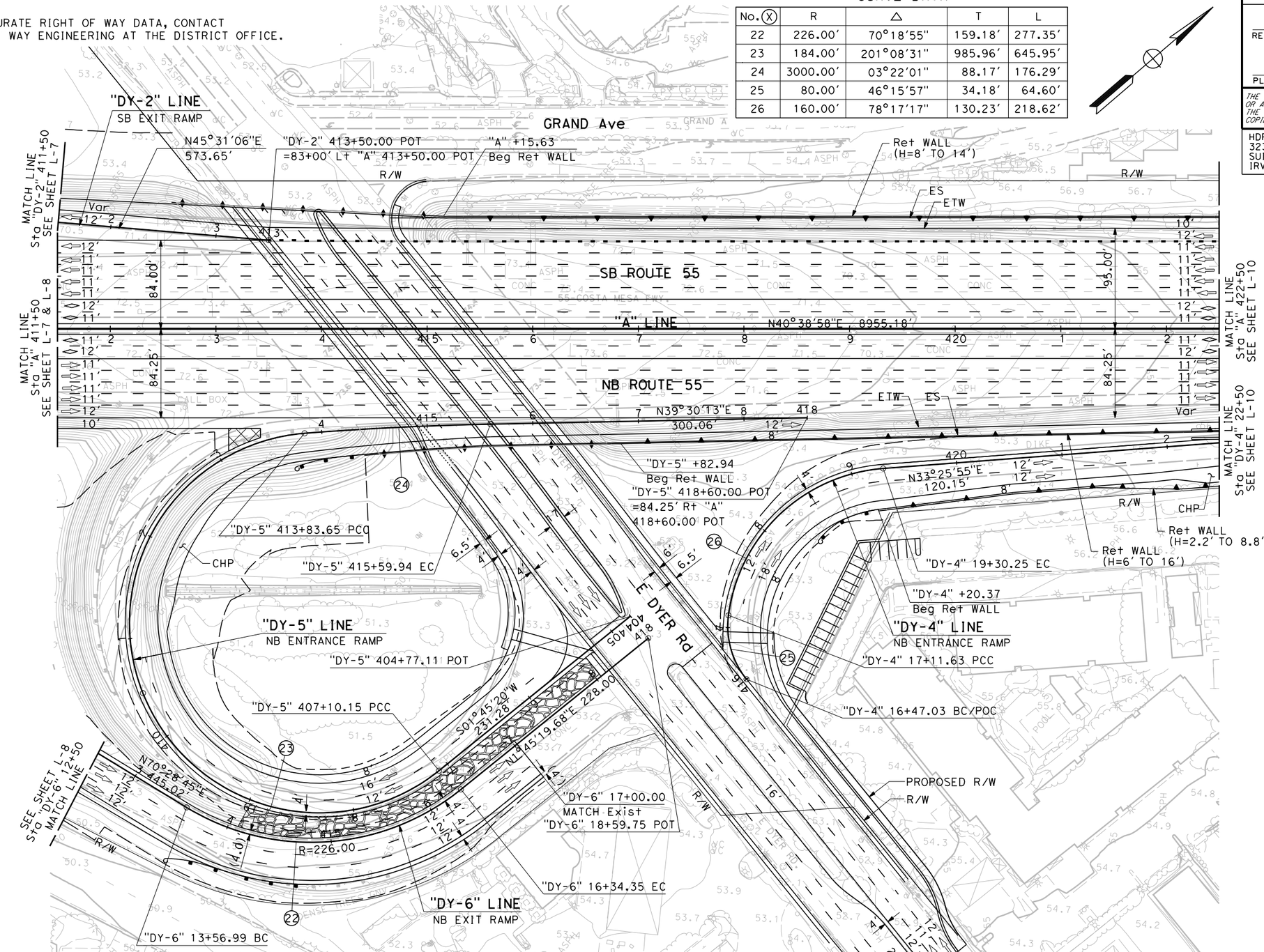
OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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

CURVE DATA

No. (X)	R	Δ	T	L
22	226.00′	70°18′55"	159.18′	277.35′
23	184.00′	201°08′31"	985.96′	645.95′
24	3000.00′	03°22′01"	88.17′	176.29′
25	80.00′	46°15′57"	34.18′	64.60′
26	160.00′	78°17′17"	130.23′	218.62′



NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50′

L-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER | CHECKED BY: SHIVA WOOTON | REVISED BY | DATE REVISED

LAST REVISION XX-XX-XX | DATE PLOTTED => 3/29/2017 | TIME PLOTTED => 5:13:06 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

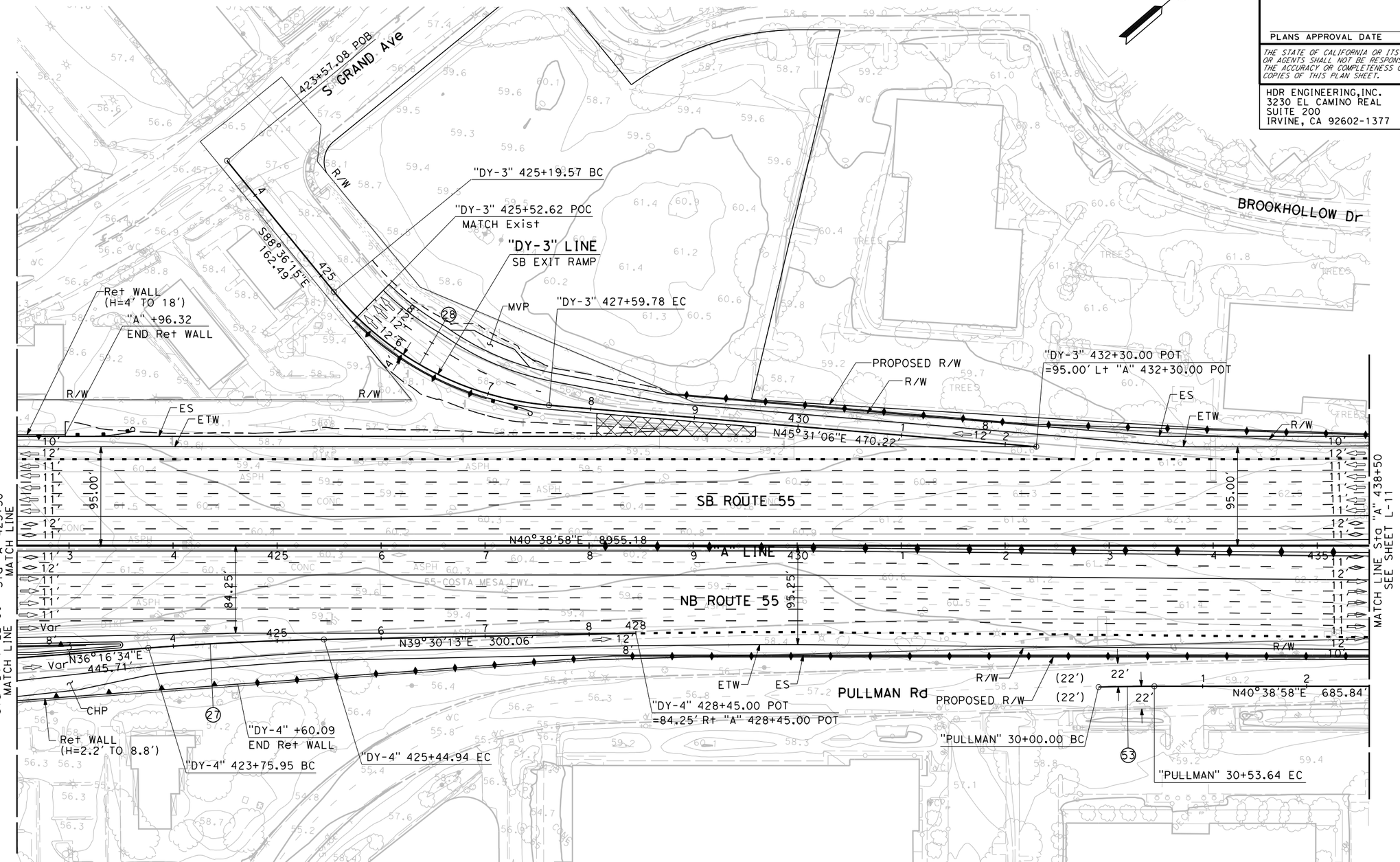
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	Δ	T	L
27	3000.00'	03°13'39"	84.52'	168.99'
28	300.00'	45°52'39"	126.96'	240.21'
49	2000.00'	01°23'25"	24.27'	48.53'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:13:48 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

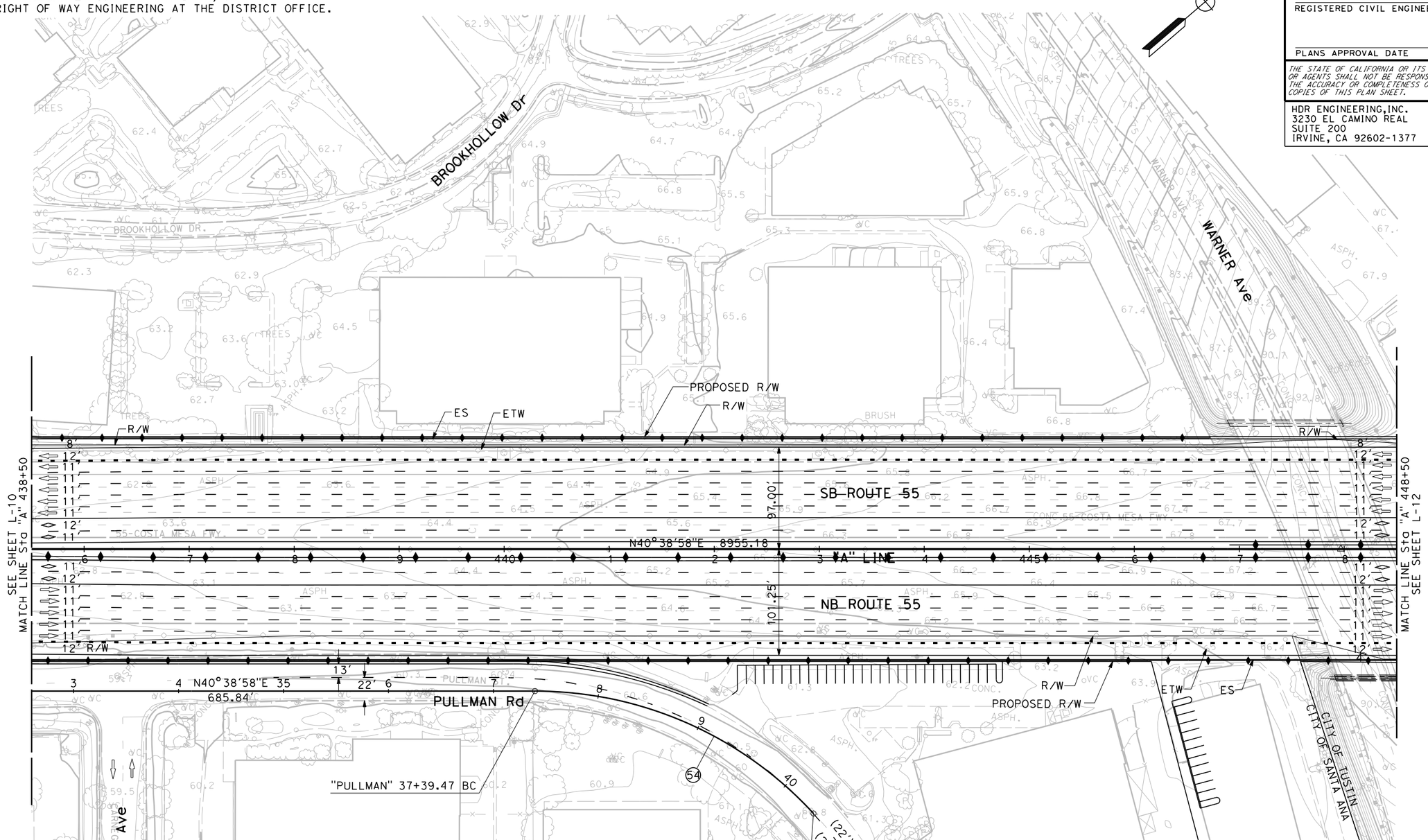
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	Δ	T	L
54	360.00'	47°27'28"	158.25'	298.19'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M

LAYOUT

SCALE: 1" = 50'

L-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017

TIME PLOTTED => 5:14:45 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

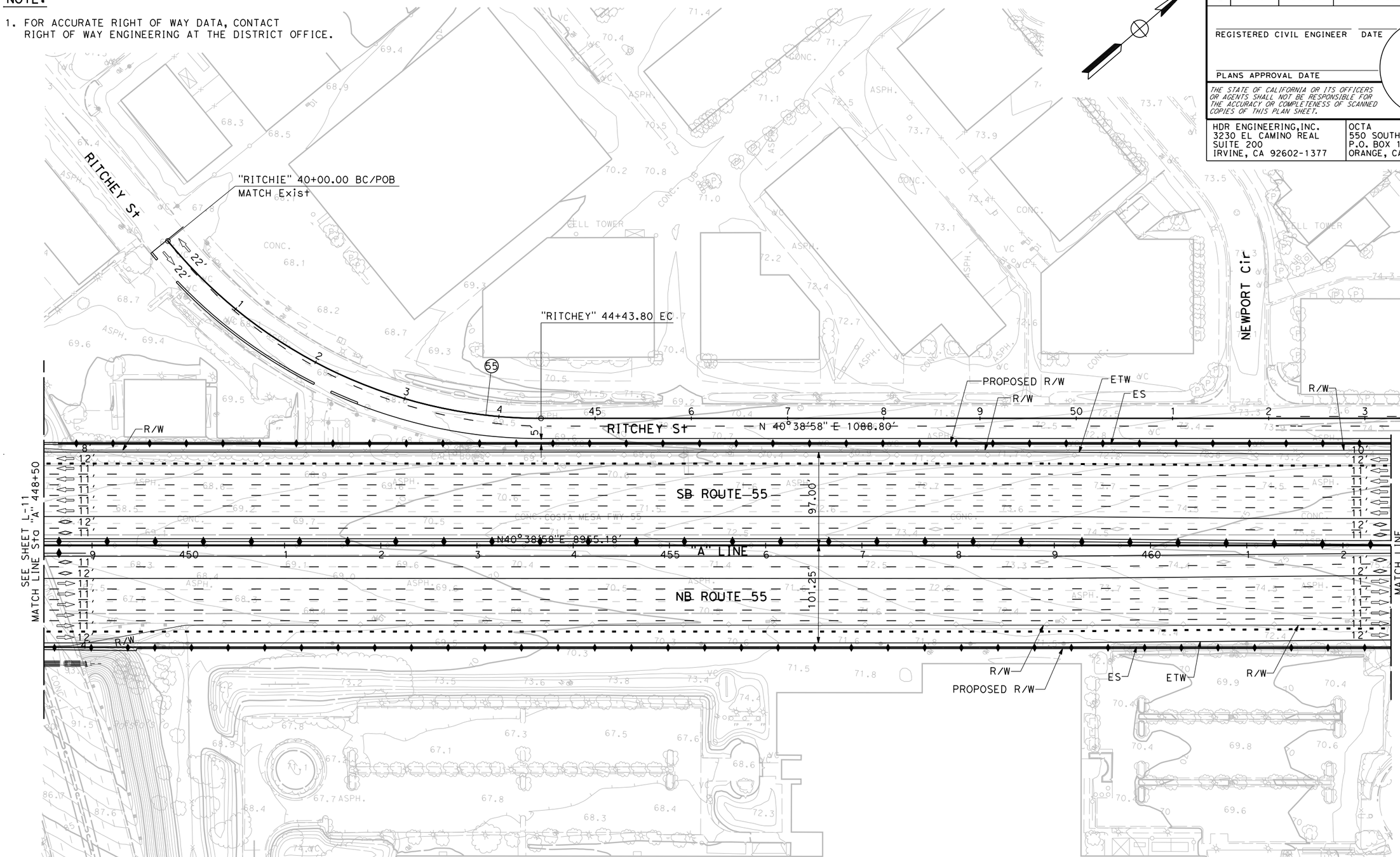
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	△	T	L
55	500.00'	50°51'20"	237.71'	443.80'

ALTERNATIVE 3M

LAYOUT

SCALE: 1" = 50'

NOT FOR CONSTRUCTION

L-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017

TIME PLOTTED => 5:16:04 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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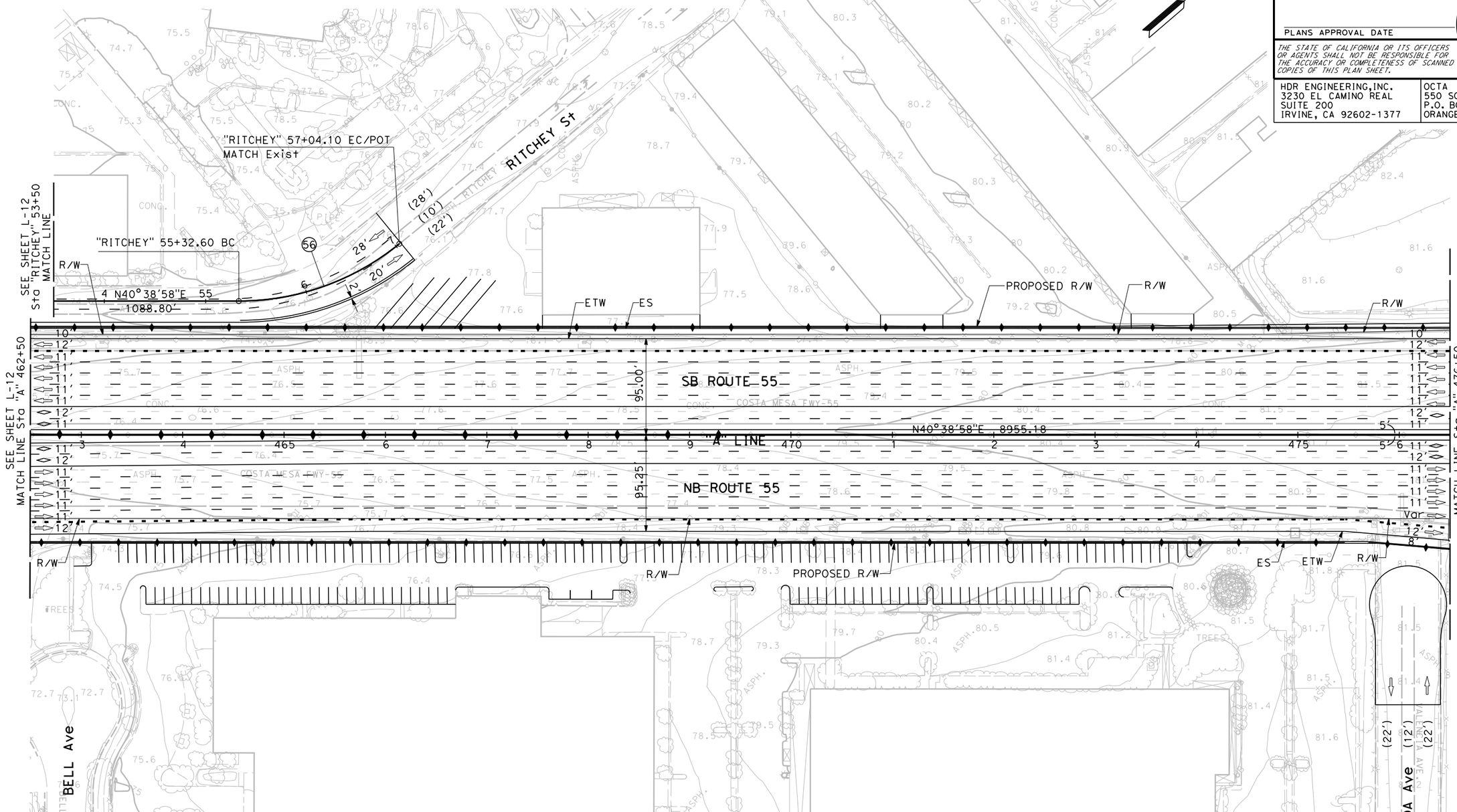

CURVE DATA

No. (X)	R	Δ	T	L
56	250.00'	39°18'12"	89.28'	171.49'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:17:42 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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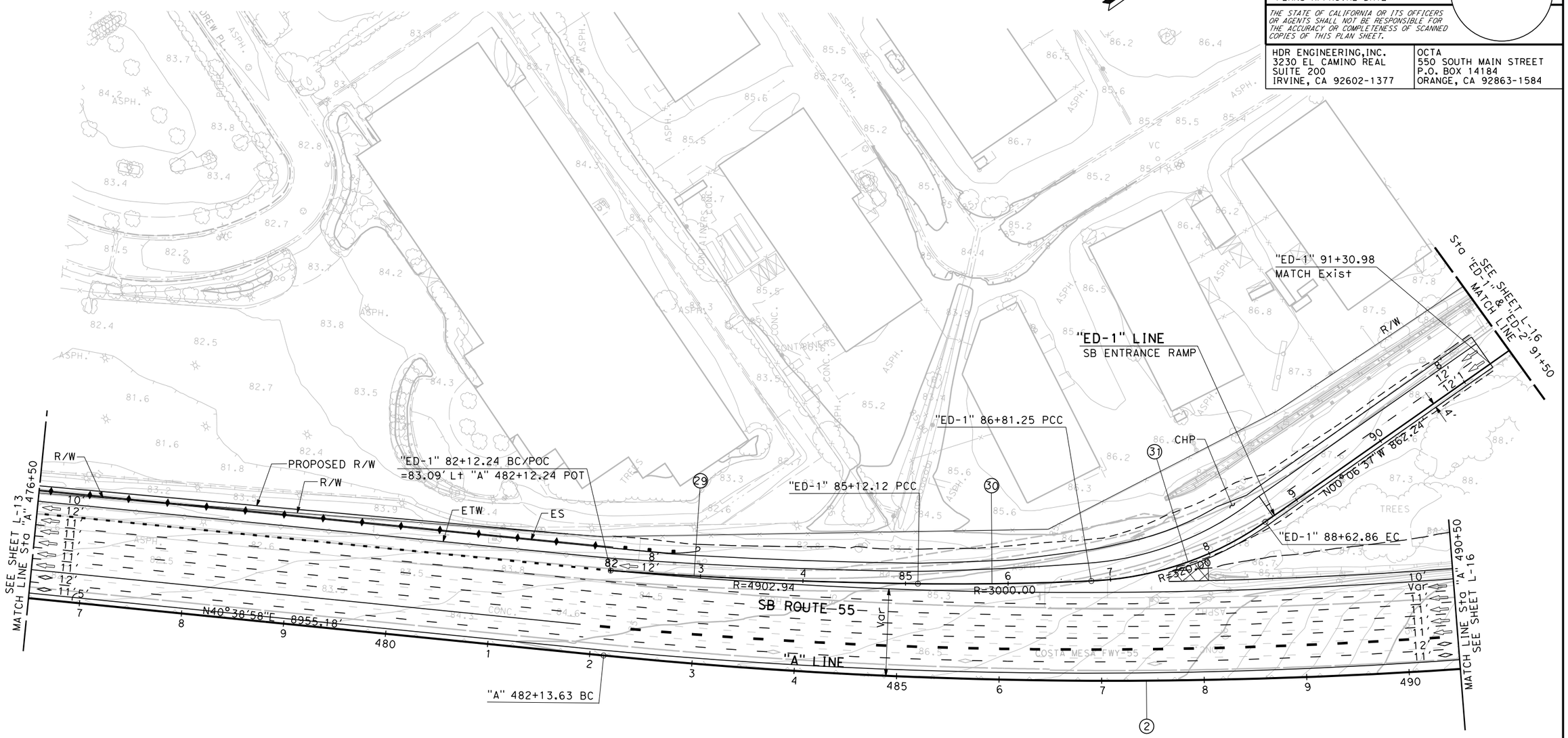

SEE SHEET 15

CURVE DATA

No. (X)	R	Δ	T	L
2	5000.00'	39°58'14"	1818.39'	3488.07'
29	4902.94'	03°30'16"	149.98'	299.88'
30	3000.00'	03°13'48"	84.59'	169.13'
31	320.00'	32°31'04"	93.33'	181.61'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-14

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

JESSICA SLATER | SHIVA WOOTON

CALCULATED-DESIGNED BY | CHECKED BY

REVISED BY | DATE REVISED

LAST REVISION XX-XX-XX | DATE PLOTTED => 3/29/2017 | TIME PLOTTED => 5:19:31 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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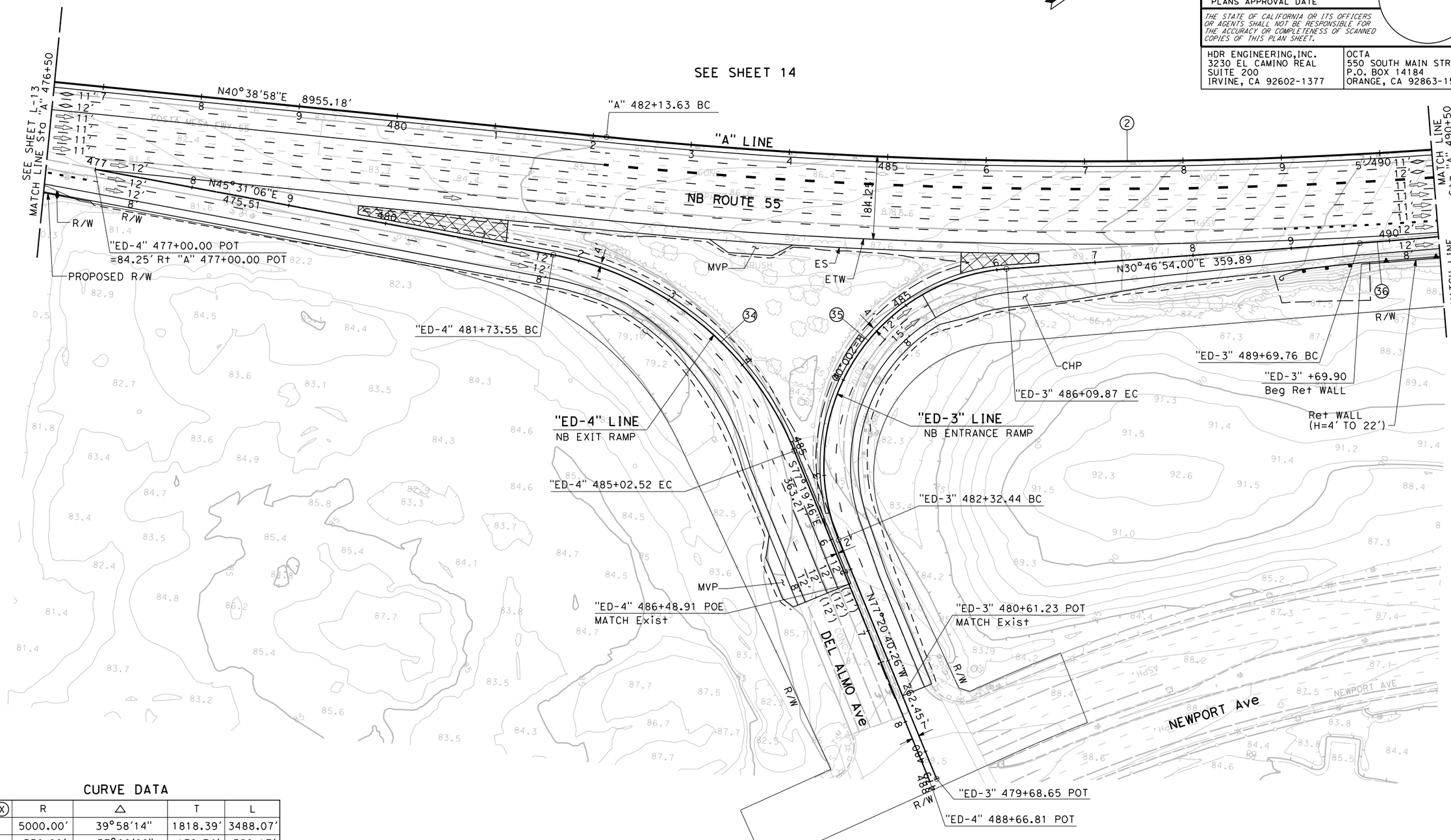
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	△	T	L
2	5000.00'	39°58'14"	1818.39'	3488.07'
34	330.00'	57°09'08"	179.74'	329.17'
35	200.00'	108°07'34"	275.92'	377.43'
36	5083.25'	03°23'03"	150.16'	300.24'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-15

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: SHIVA WOOTON
CHECKED BY
REVISED BY: JESSICA SLATER
DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:20:20 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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ORANGE, CA 92863-1584

NOTE:

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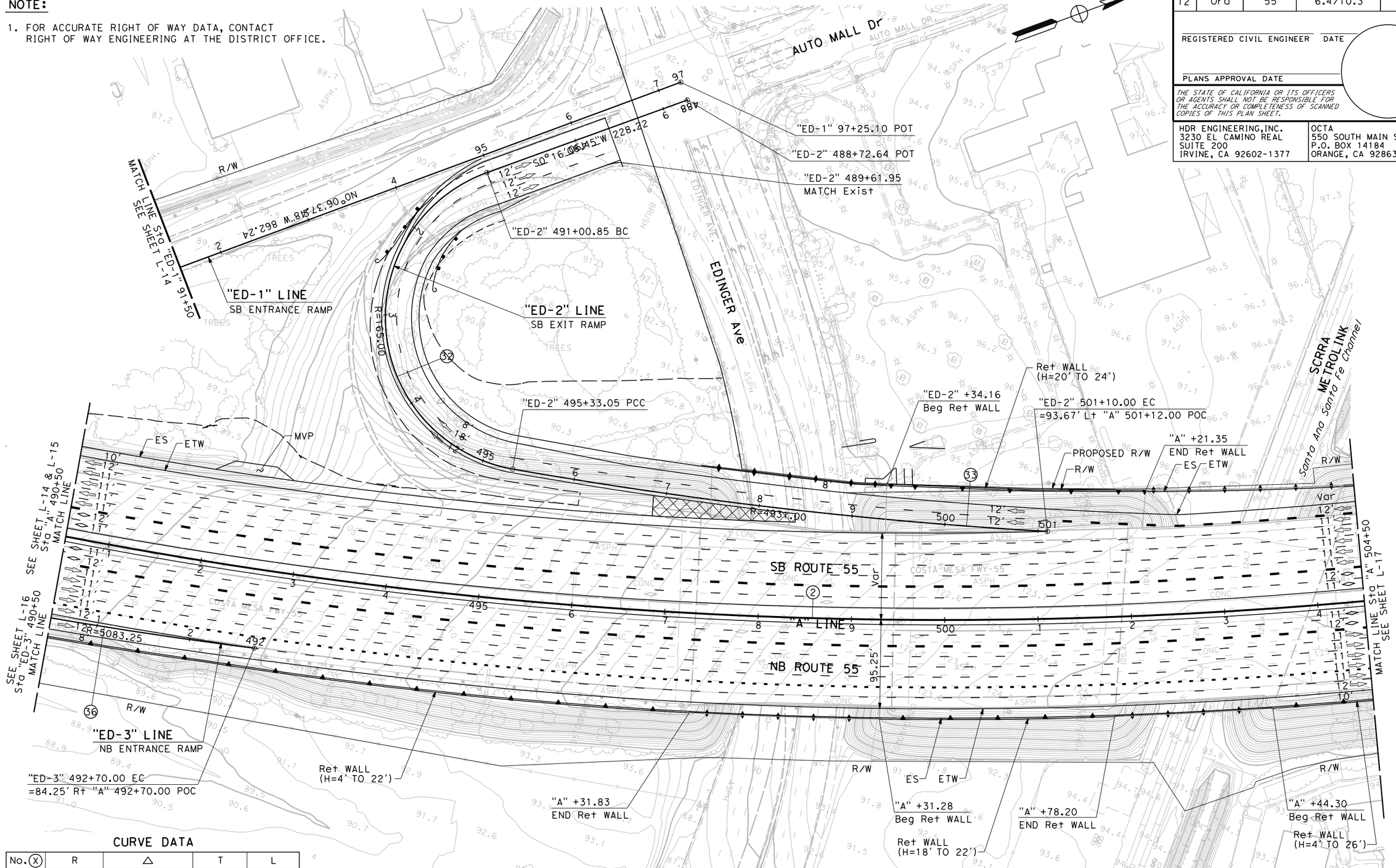

CURVE DATA

No. (X)	R	Δ	T	L
2	5000.00′	39°58′14″	1818.39′	3488.07′
32	165.00′	150°04′42″	617.49′	432.20′
33	4931.00′	06°42′14″	288.81′	576.95′
36	5083.25′	03°23′03″	150.16′	300.24′

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50′

L-16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:21:34 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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SUITE 200
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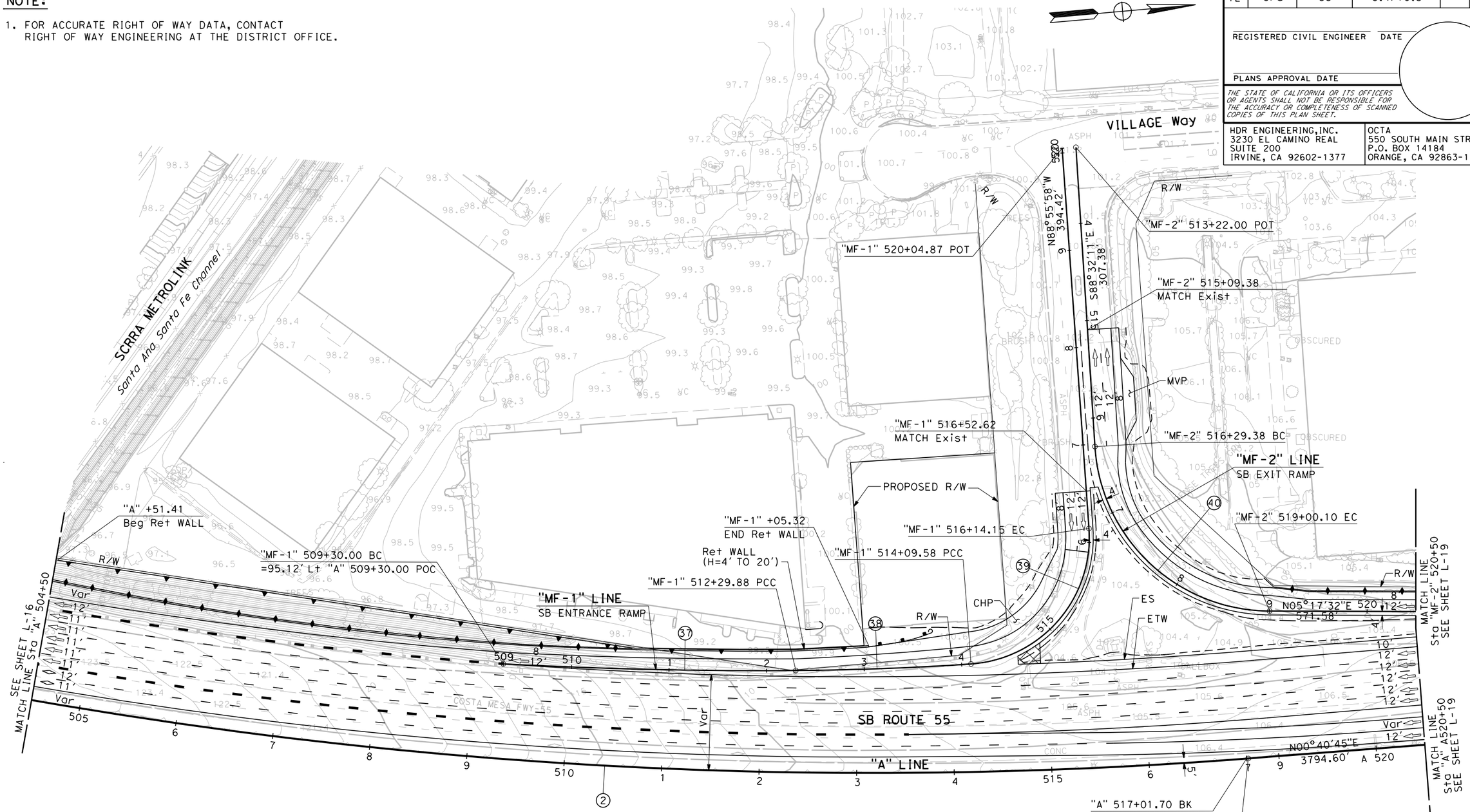
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	Δ	T	L
2	5000.00'	39°58'14"	1818.39'	3488.07'
37	4931.00'	03°29'04"	149.99'	299.88'
38	3000.00'	03°25'55"	89.88'	179.70'
39	130.00'	90°09'51"	130.37'	204.58'
40	180.00'	86°10'18"	168.36'	270.72'

SEE SHEET 18

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-17

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:22:30 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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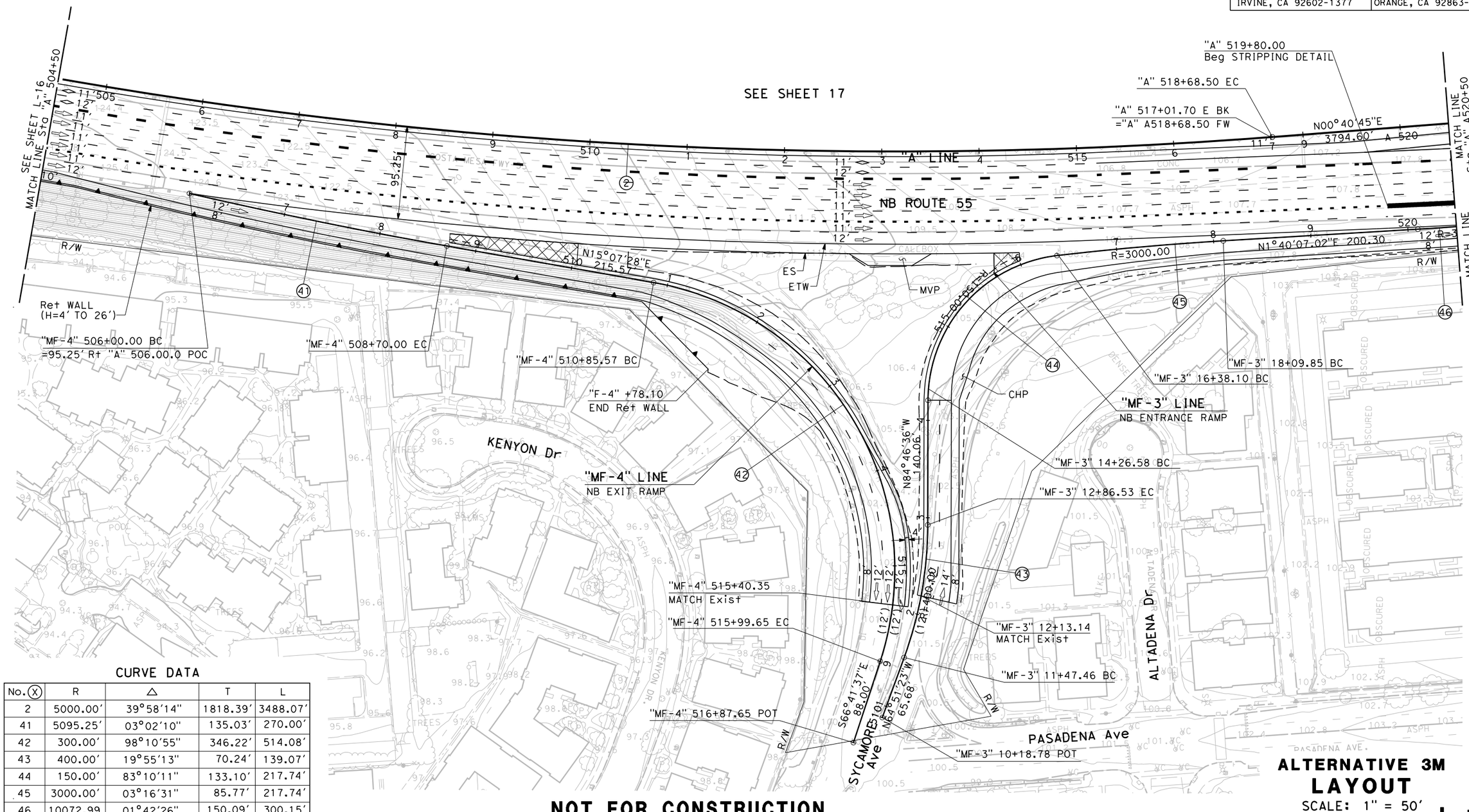
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	△	T	L
2	5000.00'	39°58'14"	1818.39'	3488.07'
41	5095.25'	03°02'10"	135.03'	270.00'
42	300.00'	98°10'55"	346.22'	514.08'
43	400.00'	19°55'13"	70.24'	139.07'
44	150.00'	83°10'11"	133.10'	217.74'
45	3000.00'	03°16'31"	85.77'	217.74'
46	10072.99	01°42'26"	150.09'	300.15'

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
LAYOUT
SCALE: 1" = 50'

L-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017
TIME PLOTTED => 5:23:05 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
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550 SOUTH MAIN STREET
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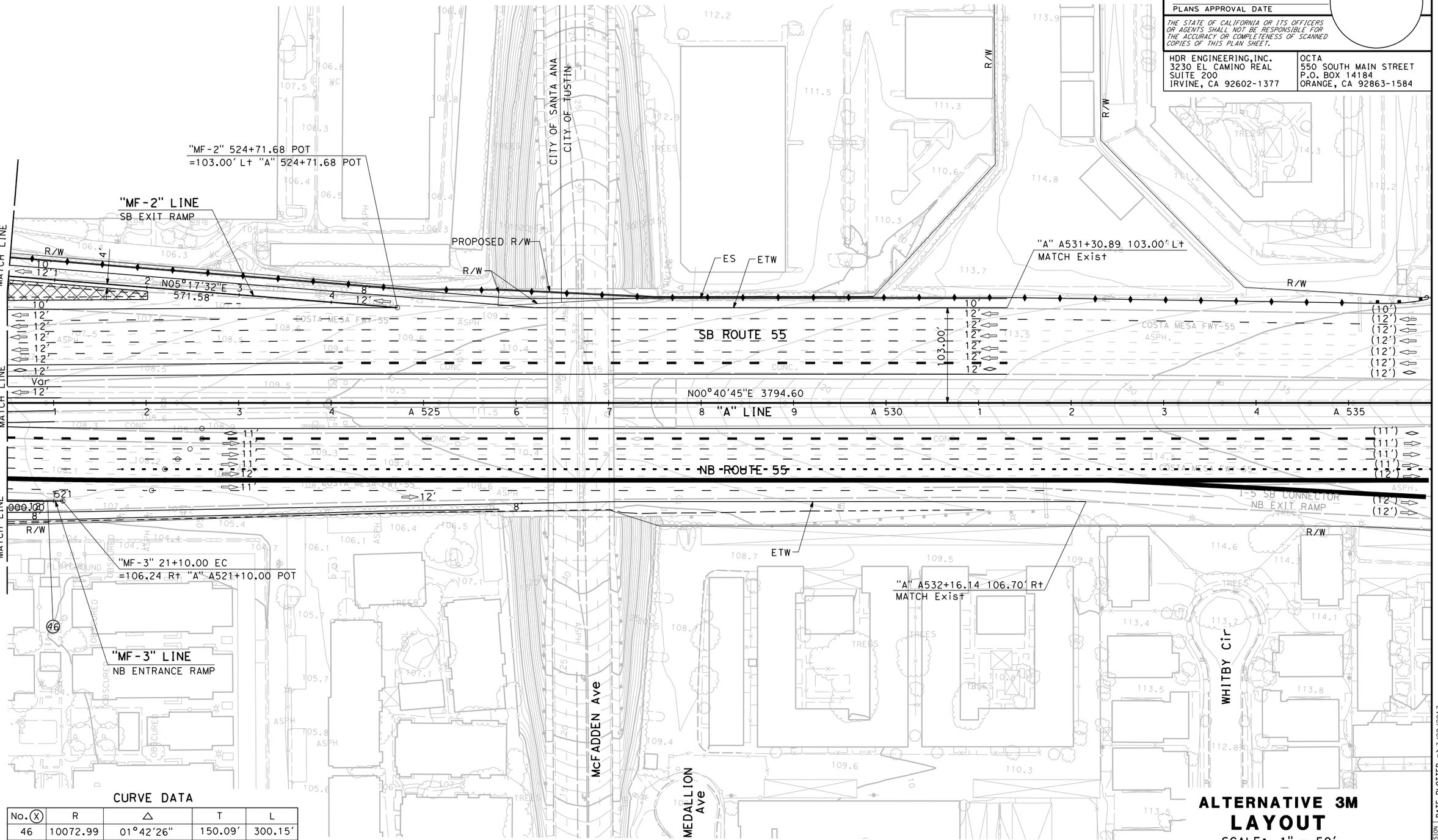
ORANGE, CA 92863-1584

NOTE:

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



CURVE DATA

No. (X)	R	Δ	T	L
46	10072.99	01°42'26"	150.09'	300.15'

ALTERNATIVE 3M

LAYOUT

SCALE: 1" = 50'

NOT FOR CONSTRUCTION

L-19

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/29/2017

TIME PLOTTED => 5:24:01 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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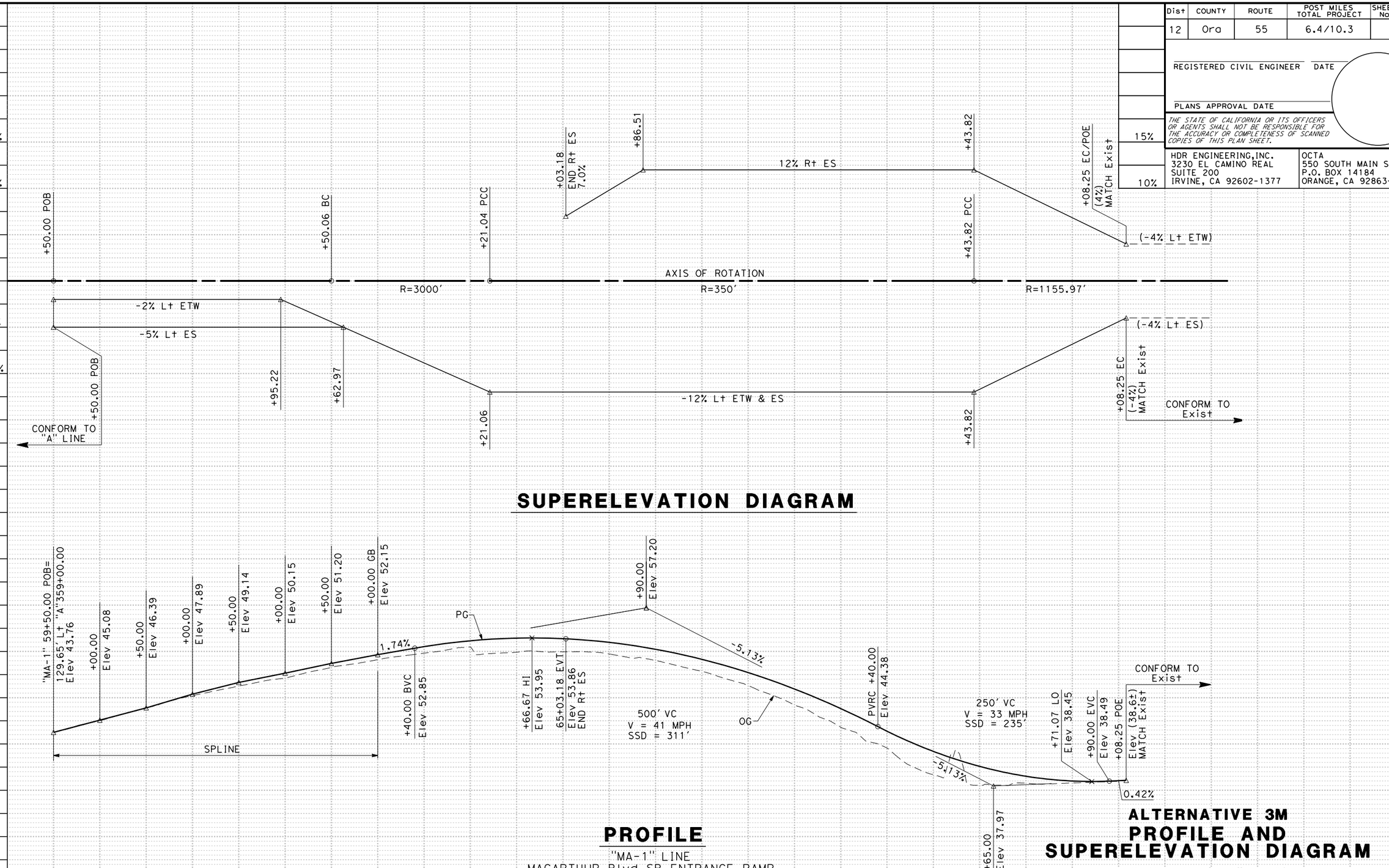

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

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DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:47:01 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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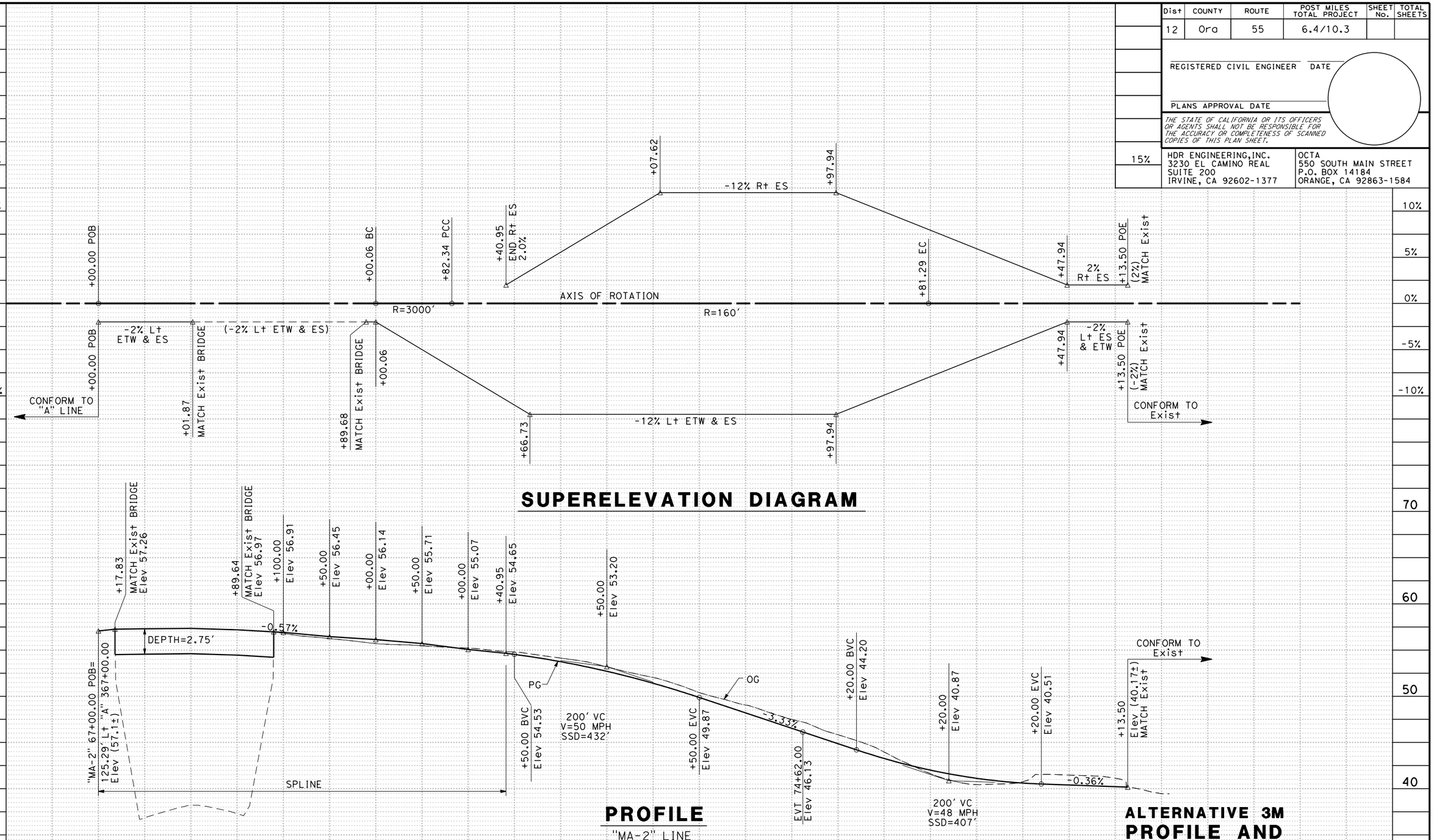

SUPERELEVATION DIAGRAM

PROFILE

"MA-2" LINE
MACARTHUR Blvd SB LOOP ENTRANCE RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-2

STATION	67	68	69	70	71	72	74	74	75	76	77	78	79	TOTAL
CY Exc														

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:47:17 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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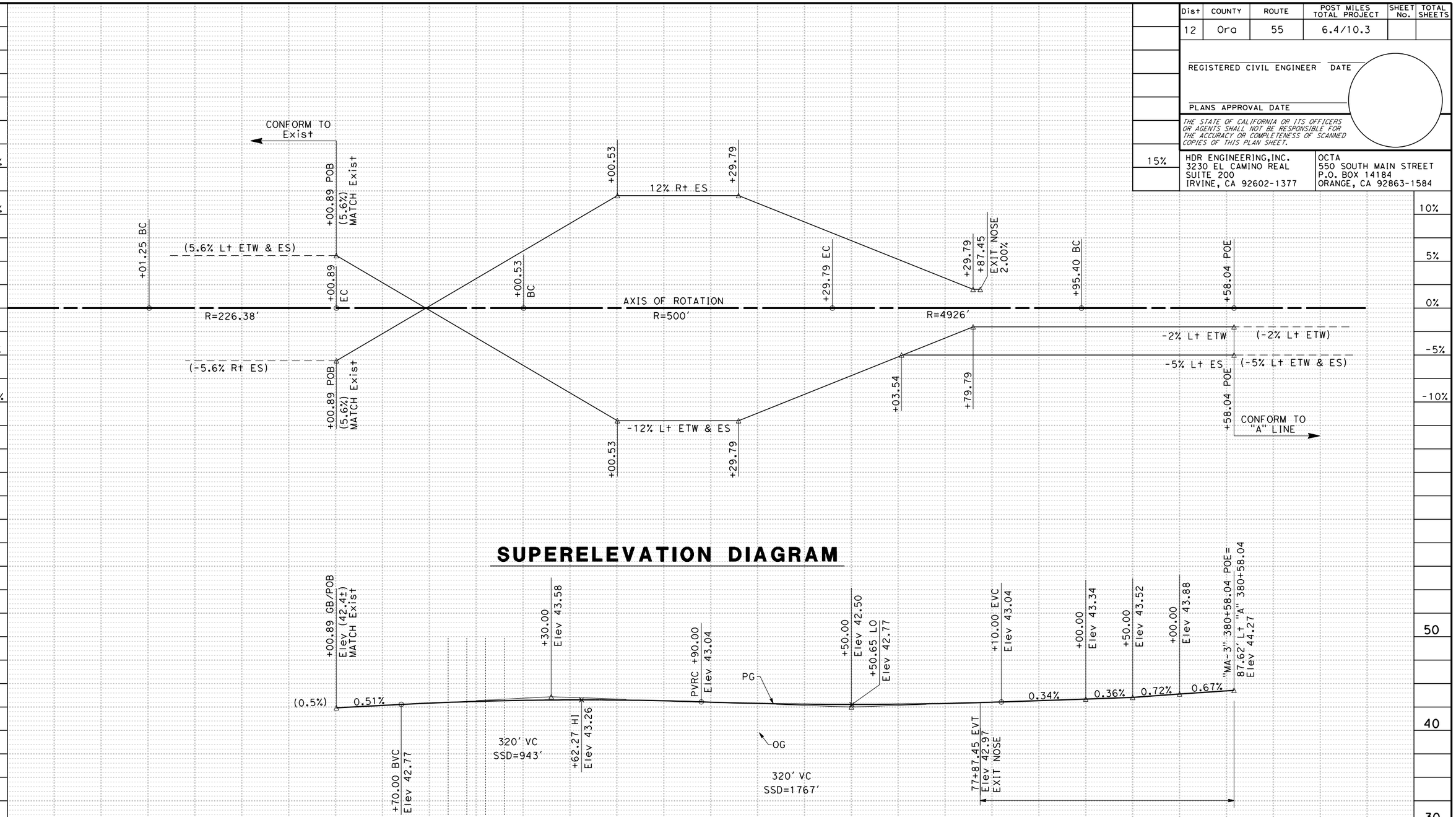

ALTERNATIVE 3M

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-3

REVISED BY	DATE REVISED
JESSICA SLATER	SHIVA WOOTON

CALCULATED-DESIGNED BY / CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:47:47 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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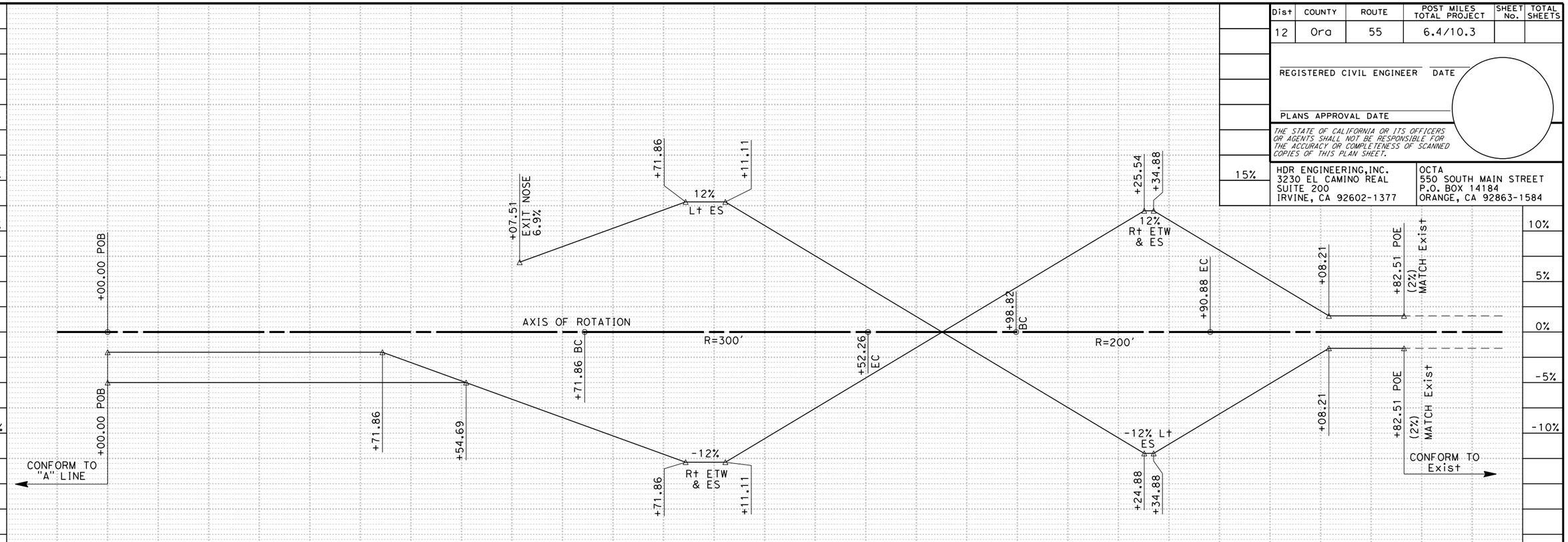
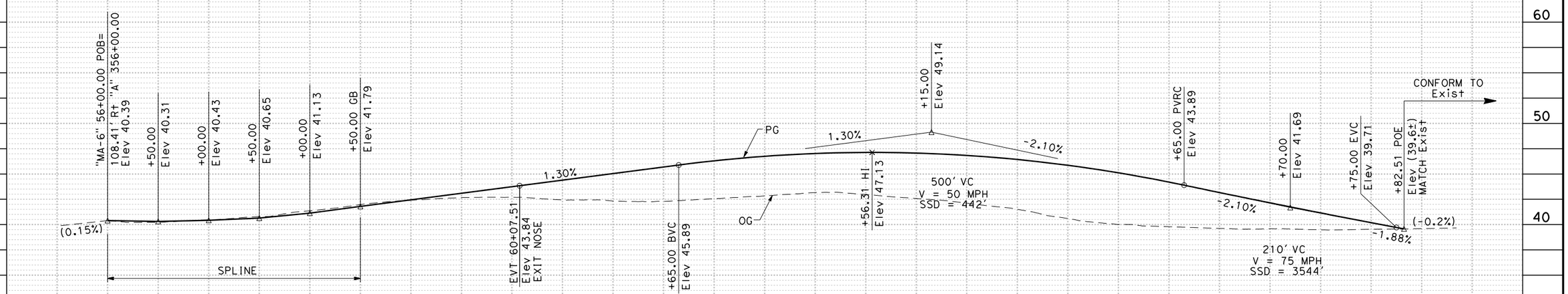


SUPERELEVATION DIAGRAM



PROFILE

"MA-6" LINE
MACARTHUR Blvd NB EXIT RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-4

STATION	56	57	58	59	60	61	62	63	64	65	66	67	68	69	TOTAL
CY Exc															

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY | DATE REVISED

LAST REVISION XX-XX-XX | DATE PLOTTED => 2/2/2017 | TIME PLOTTED => 2:48:05 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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IRVINE, CA 92602-1377

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550 SOUTH MAIN STREET
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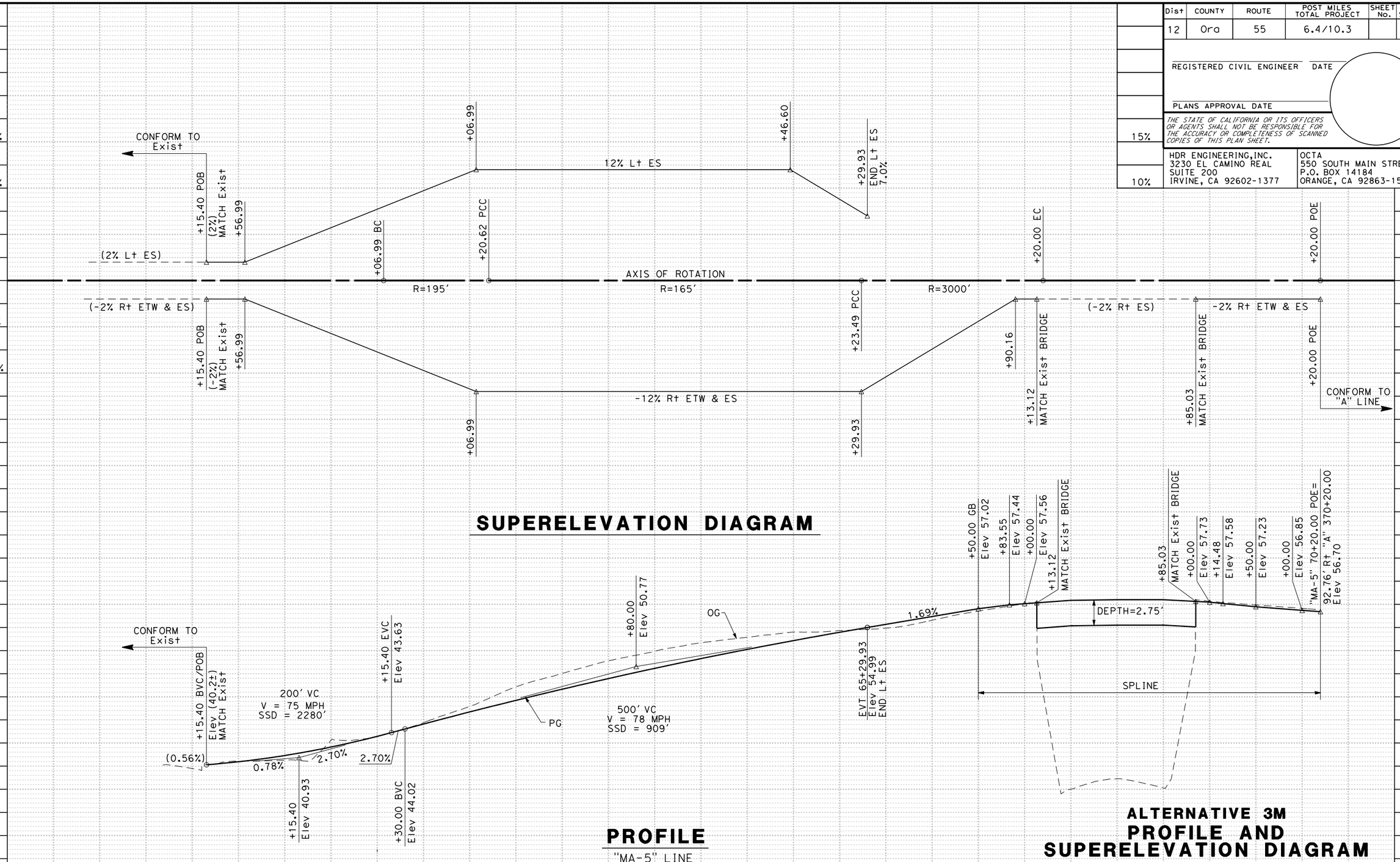
ORANGE, CA 92863-1584



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017

TIME PLOTTED => 2:48:18 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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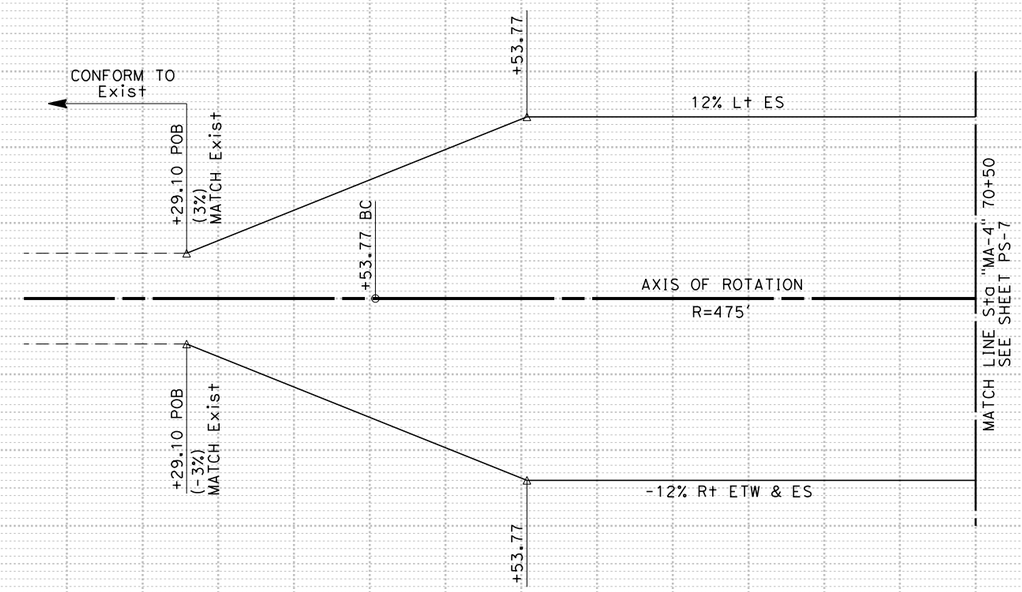
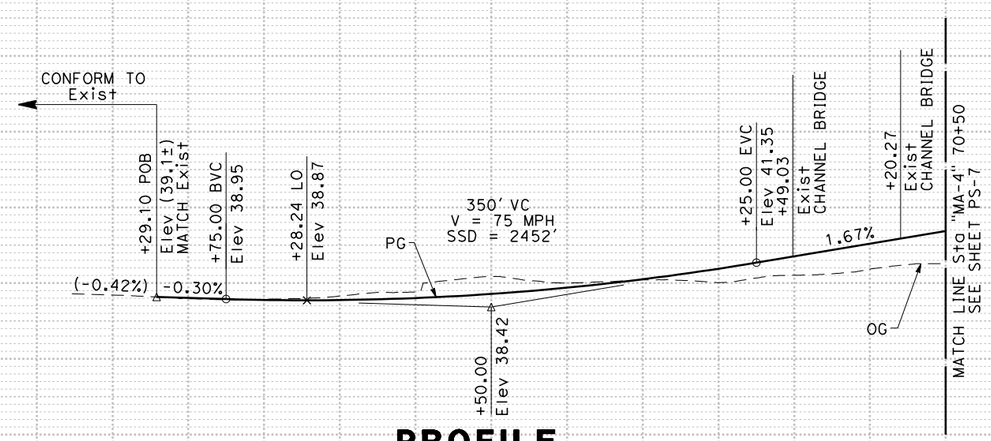


SUPERELEVATION DIAGRAM



PROFILE

"MA-4" LINE
MACARTHUR Blvd NB ENTRANCE RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-6

STATION 64 65 66 67 68 69 70 TOTAL

CY Exc

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:48:30 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

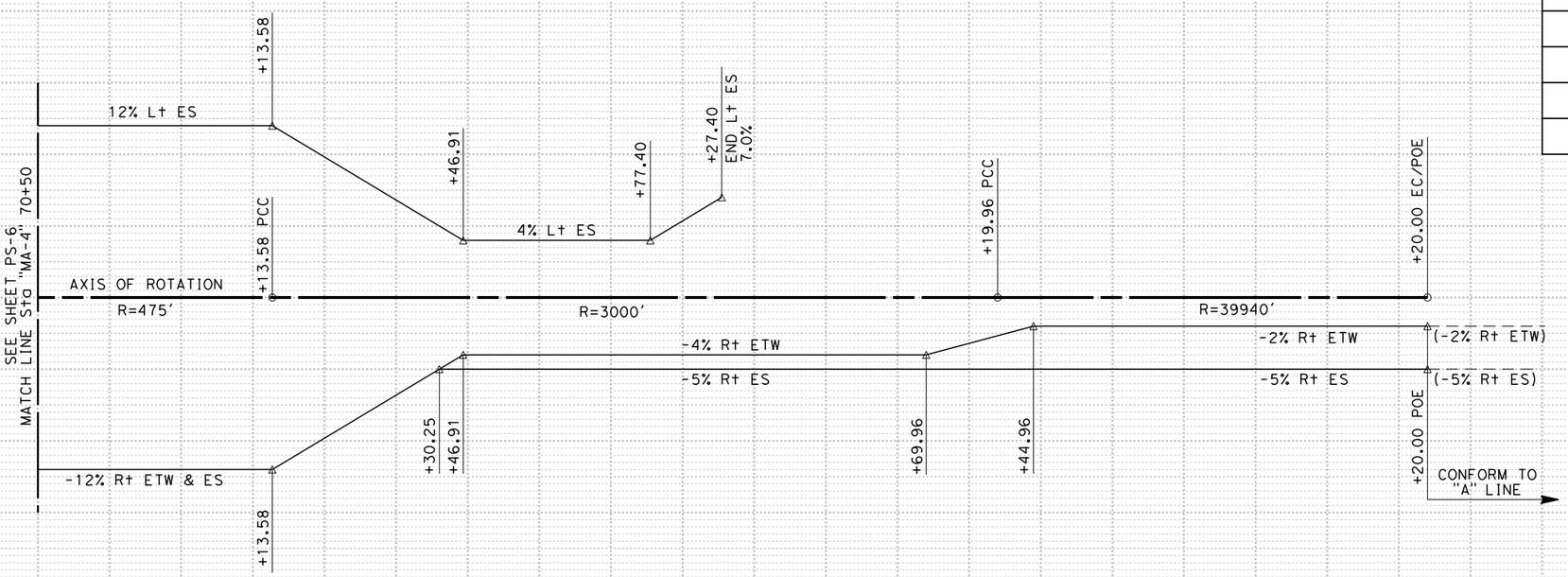
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

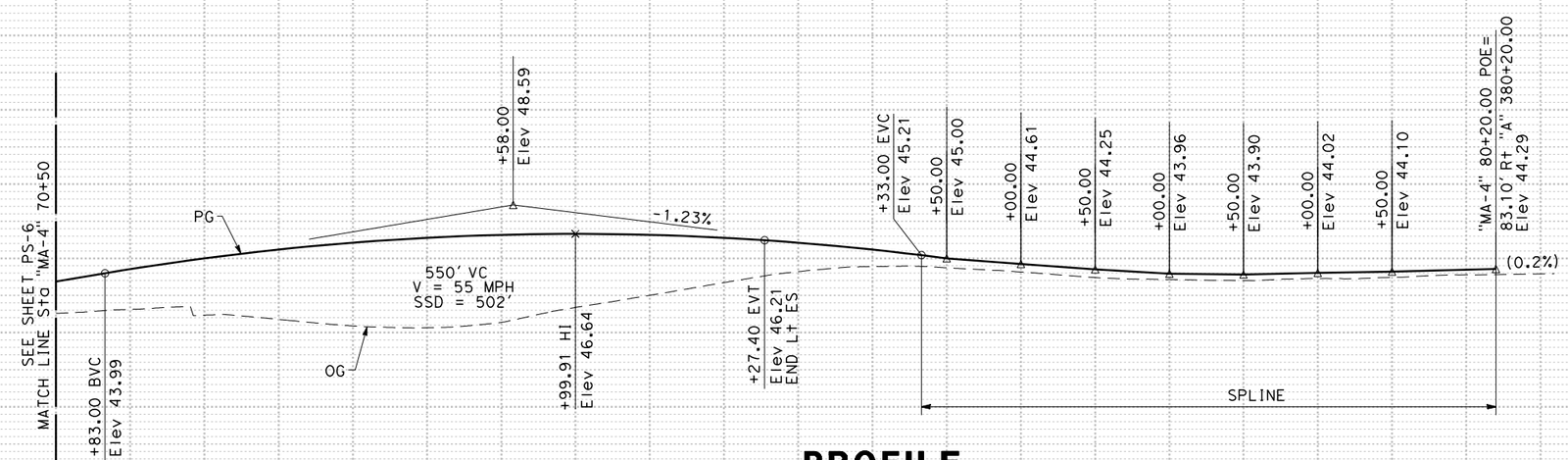
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



SUPERELEVATION DIAGRAM



PROFILE

"MA-4" LINE
MACARTHUR Blvd NB ENTRANCE RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-7

STATION	71	72	73	74	75	76	77	78	79	80	81	TOTAL
CY Exc												

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:48:42 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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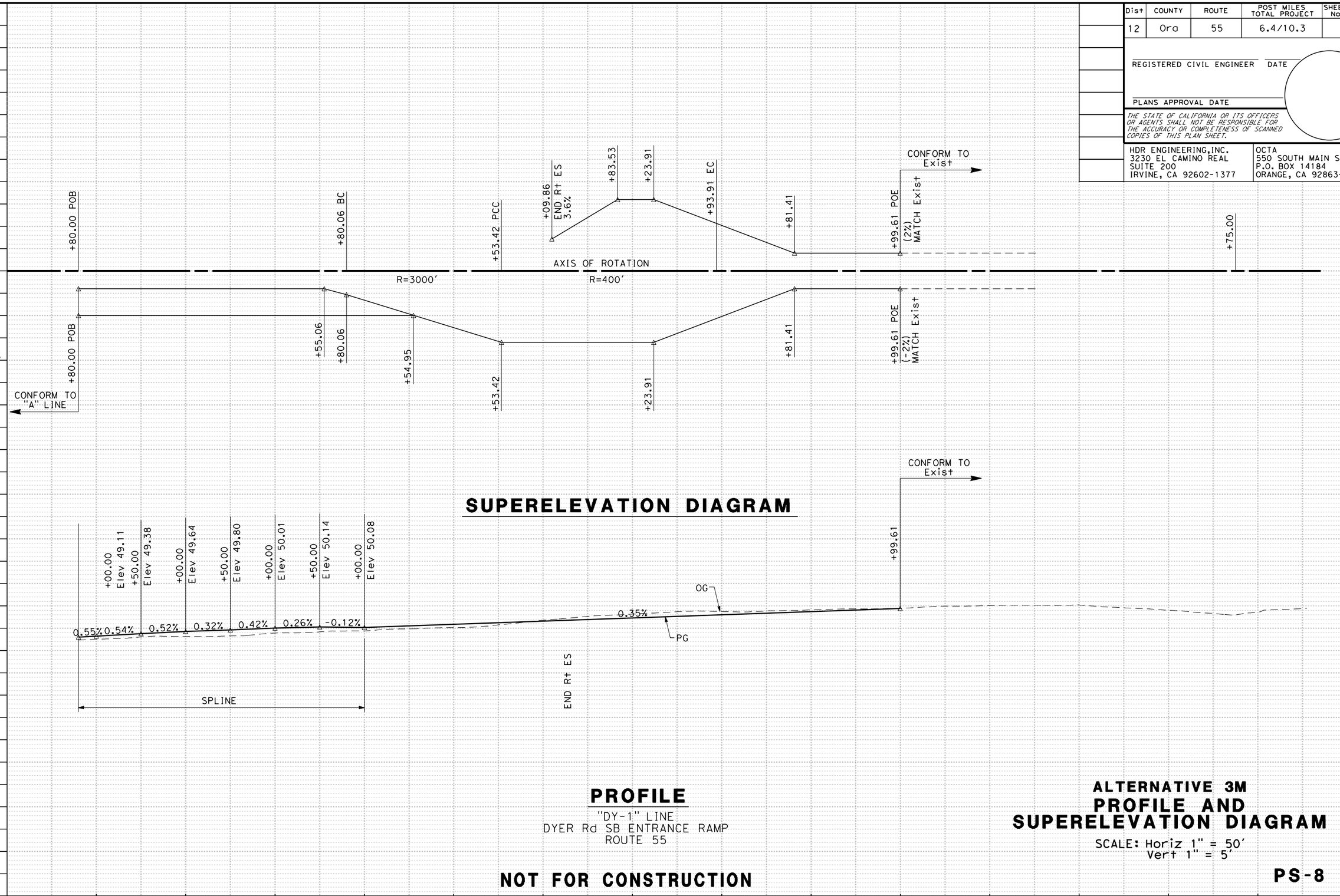
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



PROFILE

"DY-1" LINE
DYER Rd SB ENTRANCE RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:48:56 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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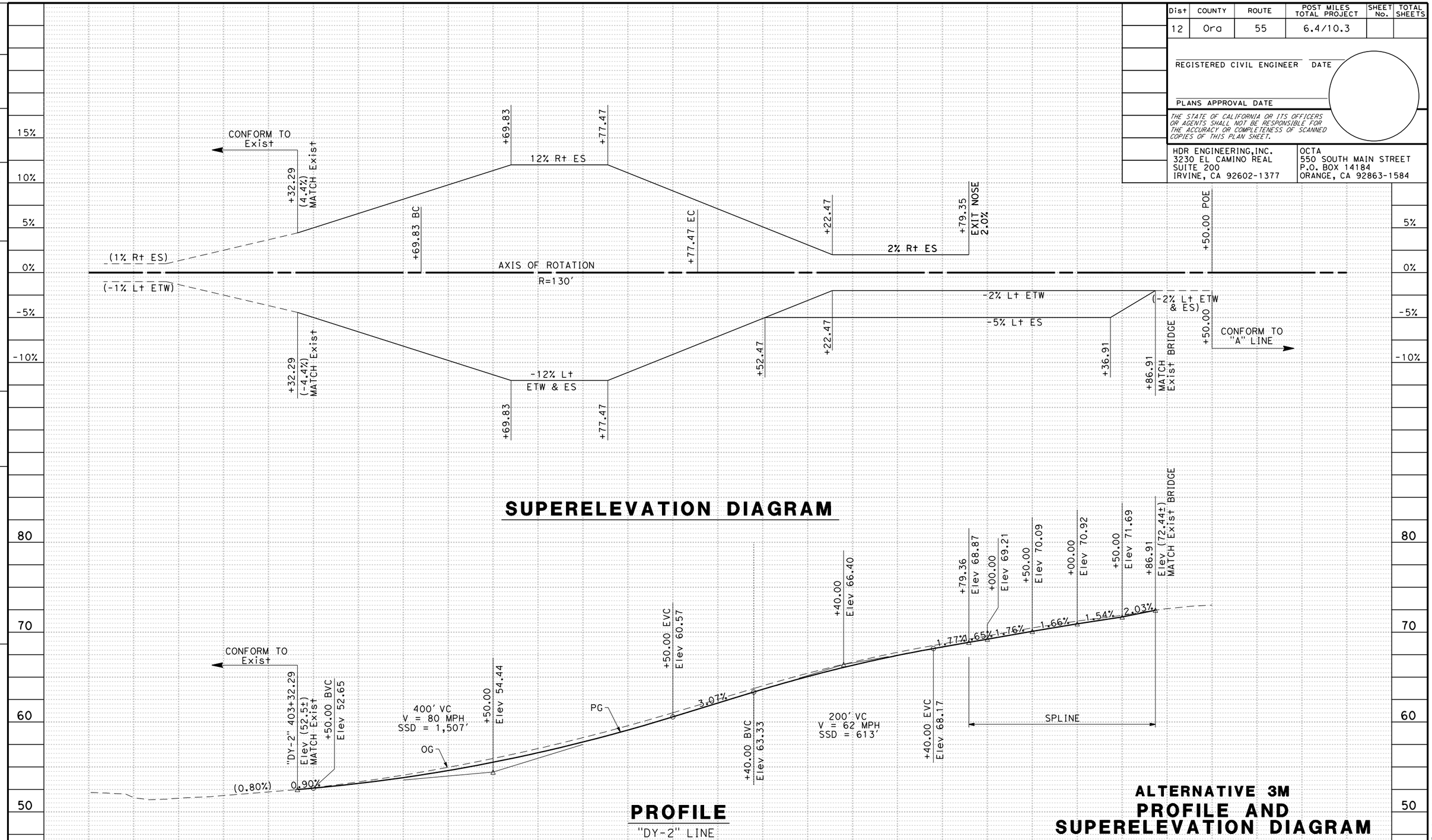
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:49:07 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
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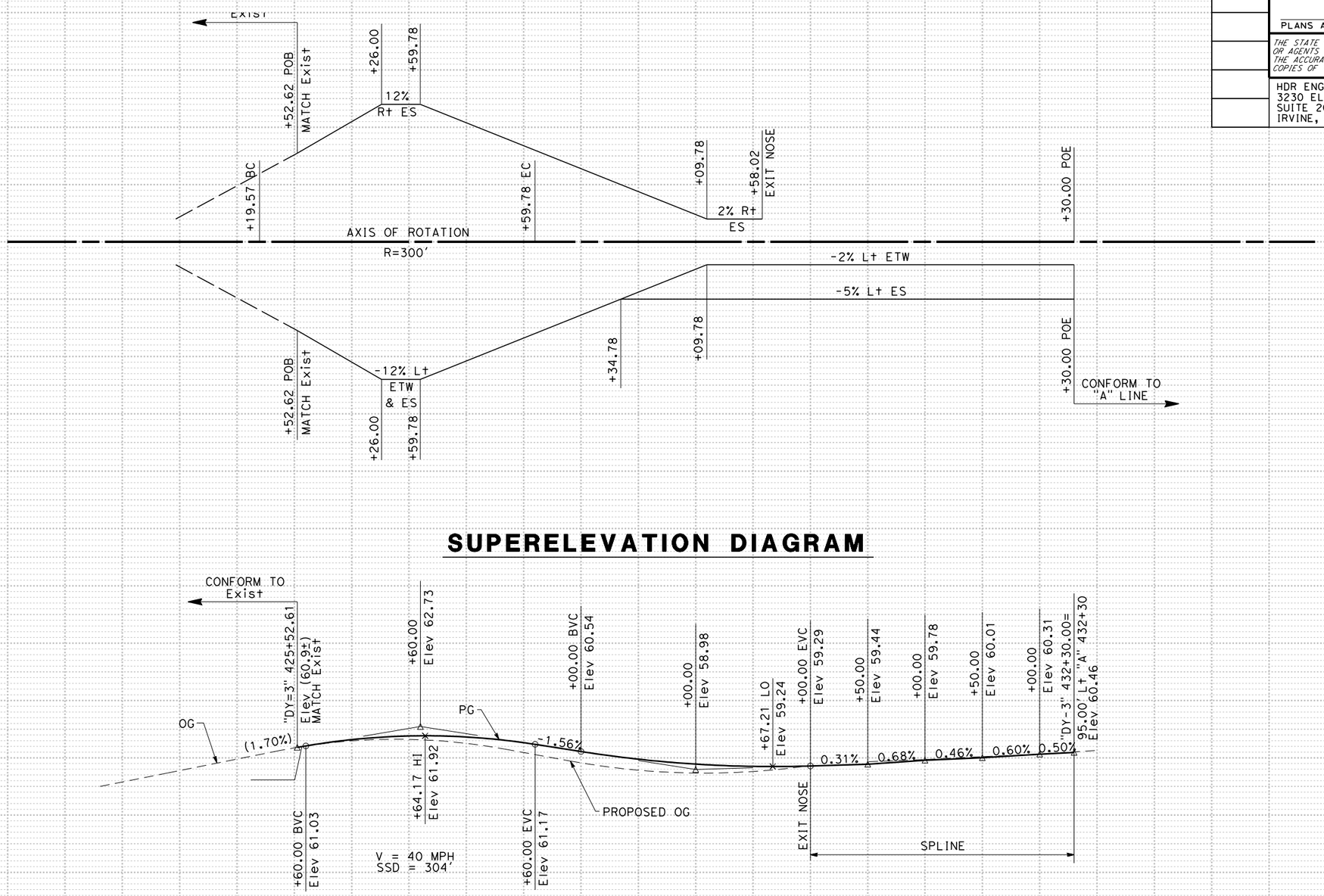
ORANGE, CA 92863-1584



SUPERELEVATION DIAGRAM

PROFILE

"DY-3" LINE
DYER Rd SB EXIT RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-10

STATION	423	424	425	426	427	428	429	430	431	432	433	434	414	415	TOTAL
CY Exc															

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:49:20 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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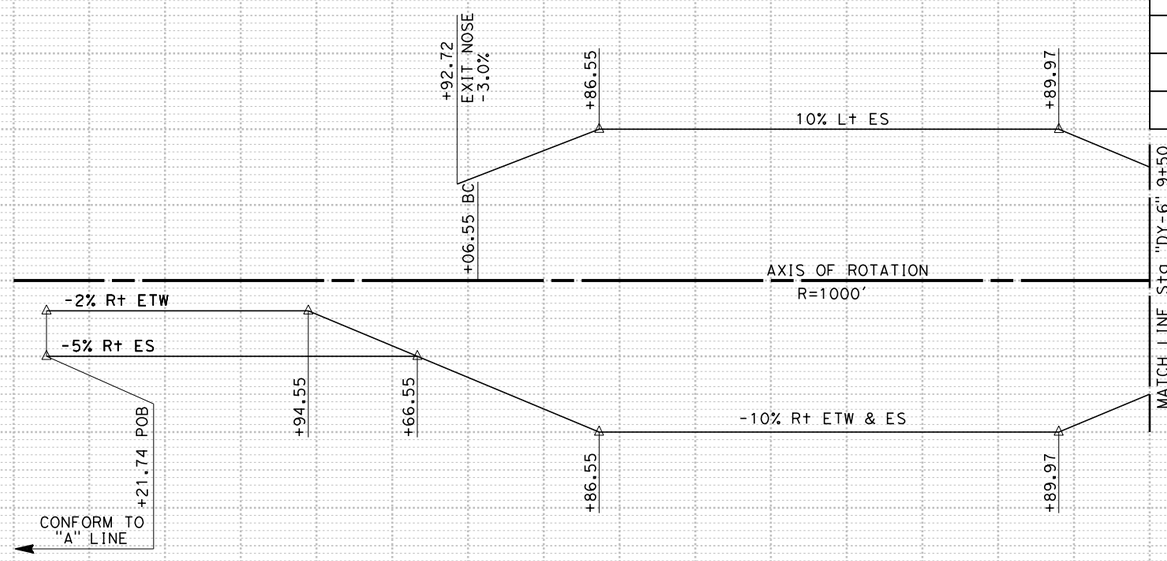
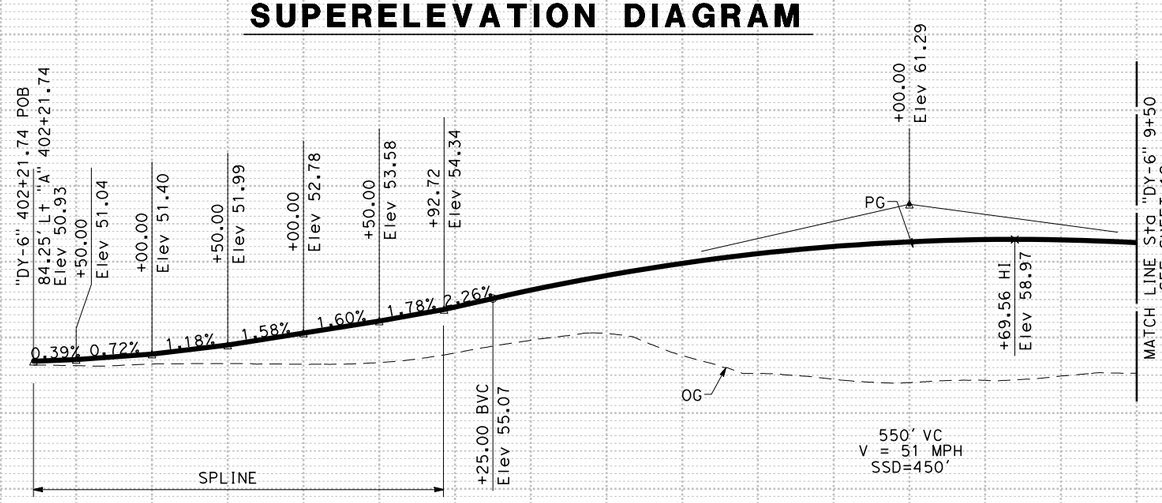
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



SUPERELEVATION DIAGRAM



PROFILE

"DY-6" LINE
DYER Rd NB EXIT RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-11

STATION 401 402 403 404 405 406 407 408 409 410 TOTAL

CY Exc

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017

TIME PLOTTED => 2:49:31 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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IRVINE, CA 92602-1377

OCTA
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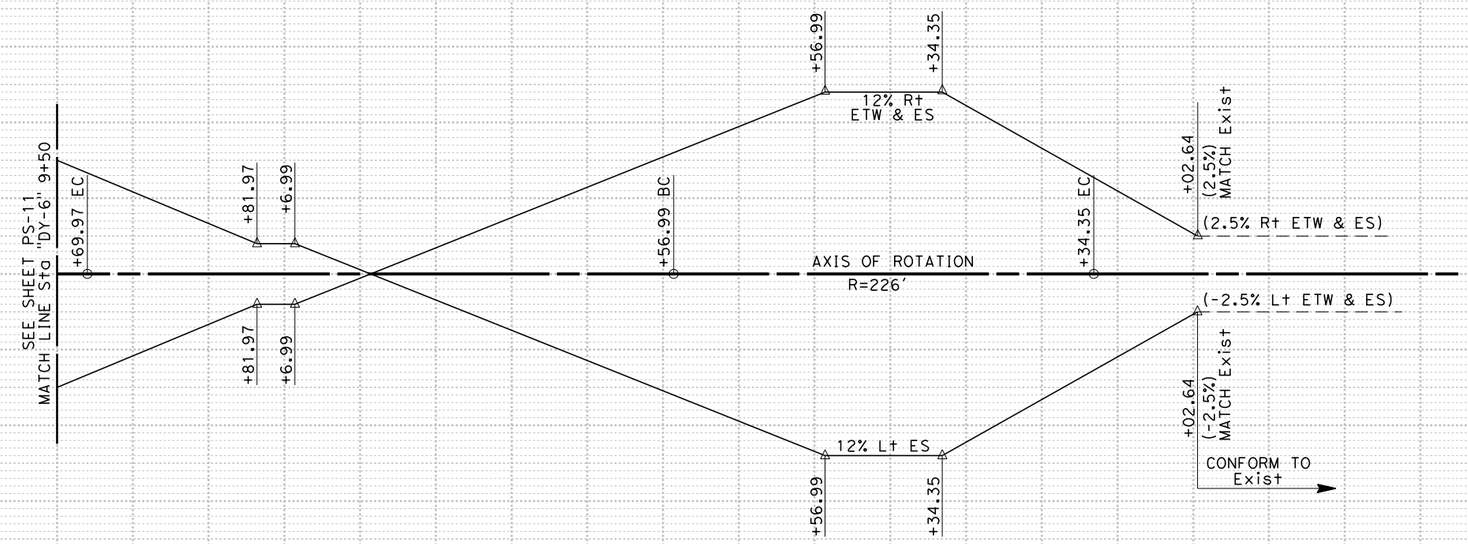
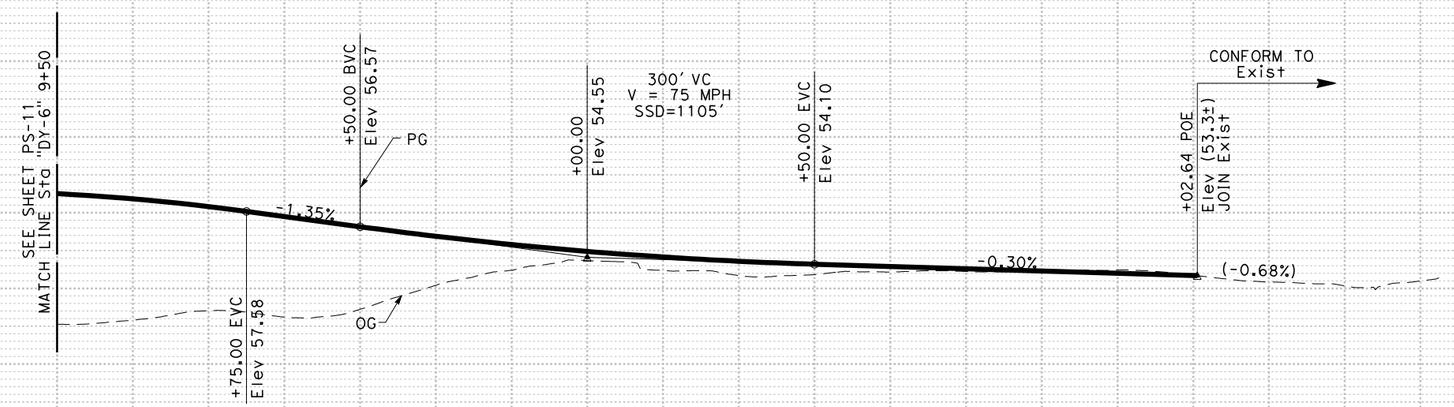
ORANGE, CA 92863-1584



SUPERELEVATION DIAGRAM



PROFILE

"DY-6" LINE
DYER Rd NB EXIT RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-12

STATION	409	410	411	412	413	414	415	416	417	418	419	TOTAL
CY Exc												

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:50:01 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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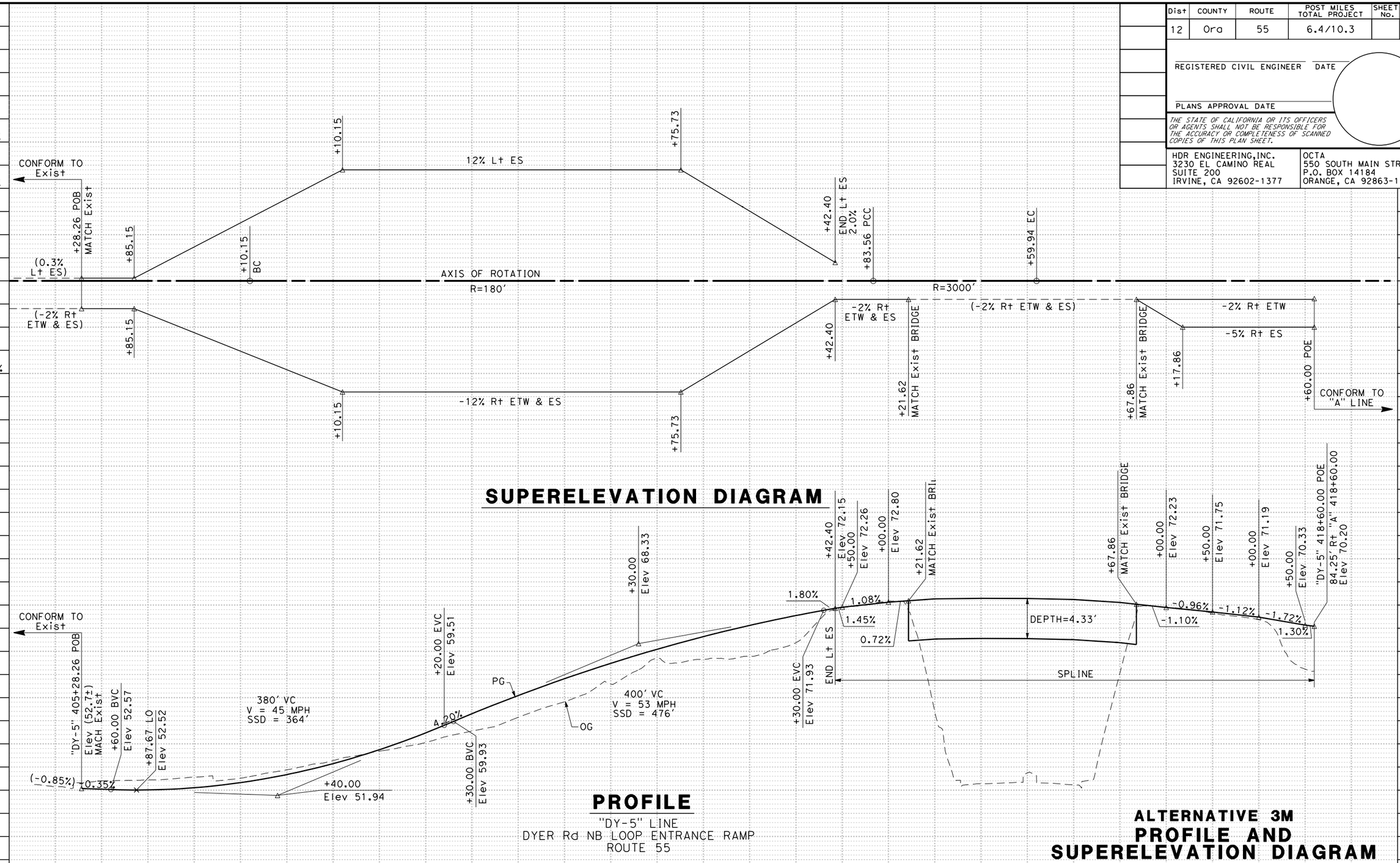
OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

NOT FOR CONSTRUCTION

PS-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:50:13 PM

BORDER LAST REVISED 7/2/2010

USERNAME => untitled
DGN FILE => c:\pwworking\sac\d0864083\12XXXXfb013_Alt-3M.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 12-XXXX

PROJECT NUMBER & PHASE 1200000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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SUITE 200
IRVINE, CA 92602-1377

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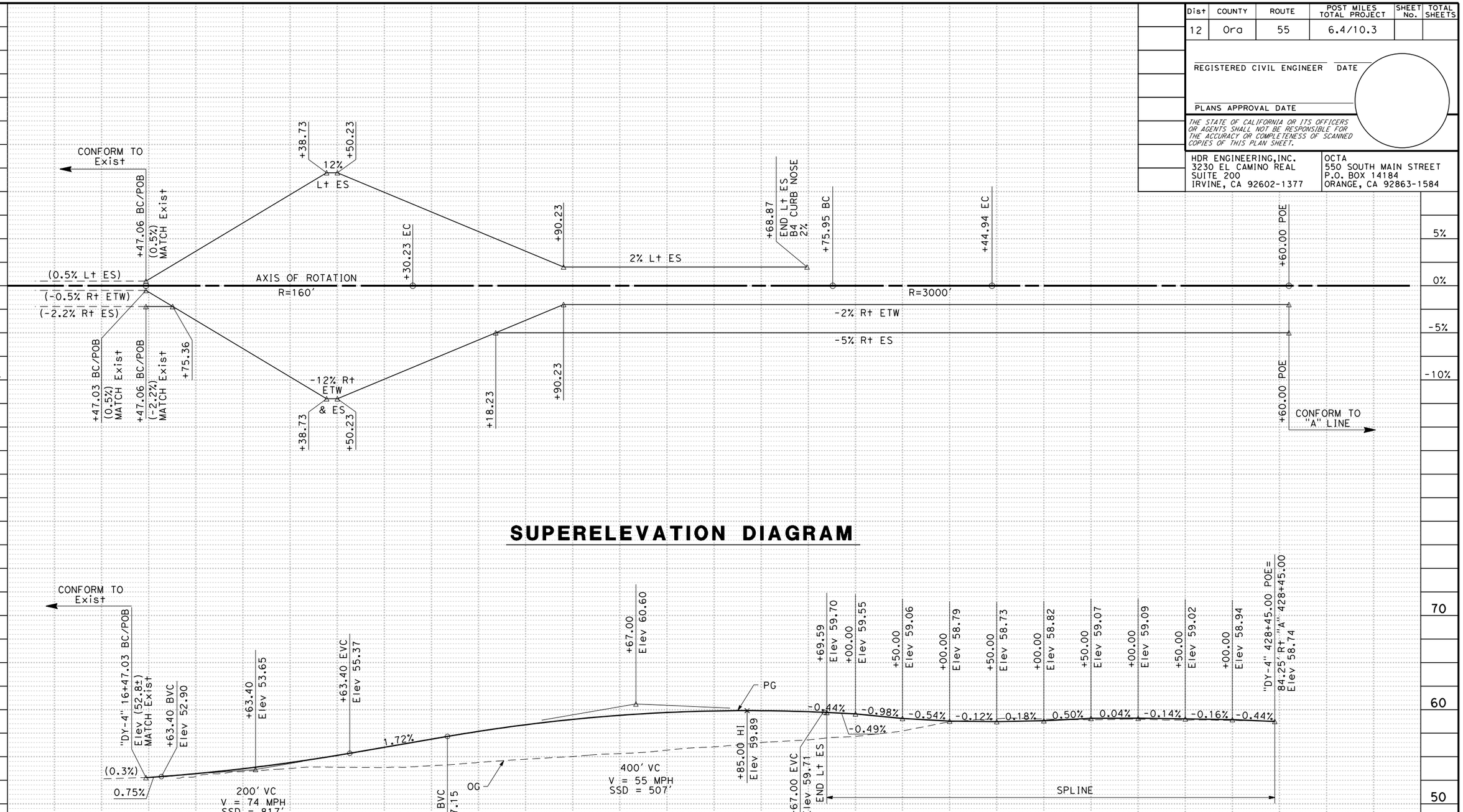
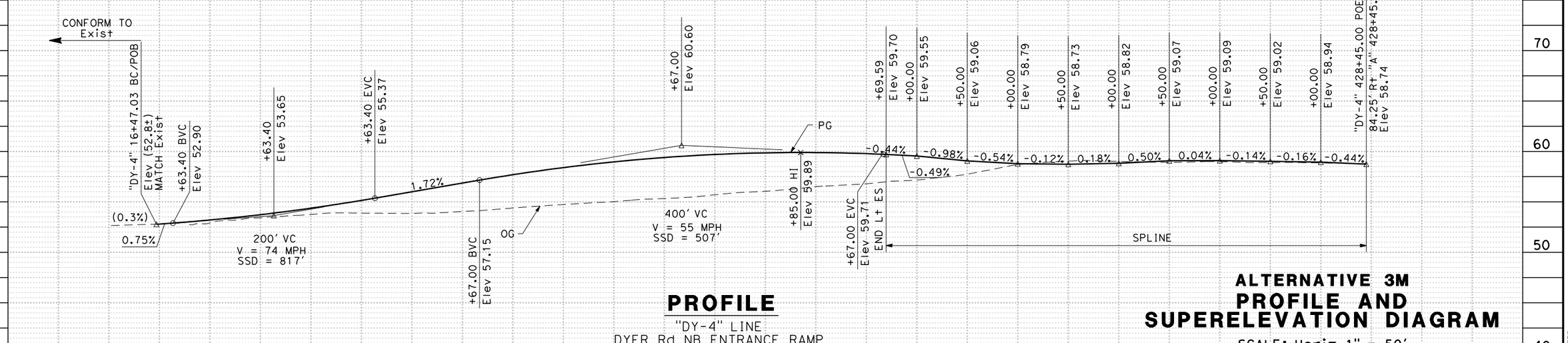
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584





PROFILE

"DY-4" LINE
DYER Rd NB ENTRANCE RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-14

STATION	416	417	418	419	420	421	422	423	424	425	426	427	428	429	TOTAL
CY Exc															

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:50:54 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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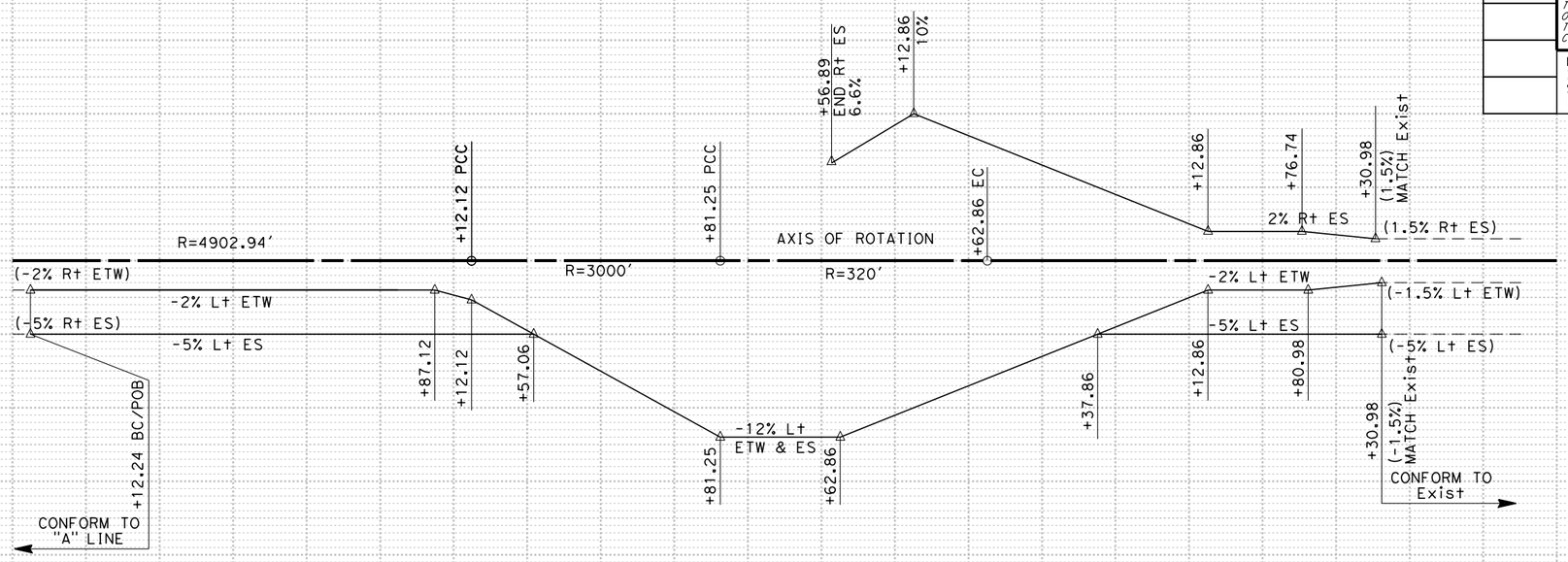
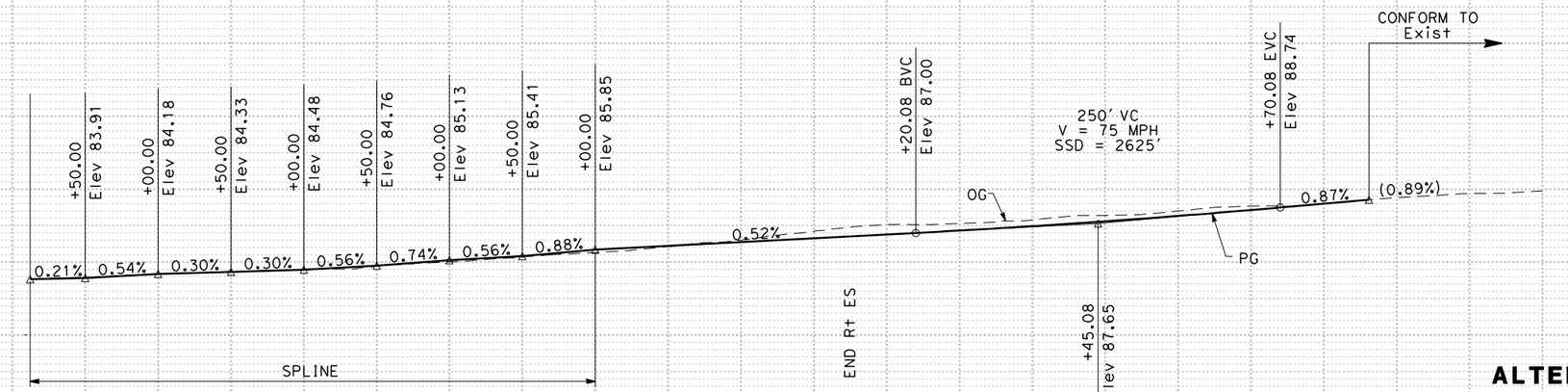
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



SUPERELEVATION DIAGRAM



PROFILE

"ED-1" LINE
EDINGER Ave SB ENTRANCE RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-15

STATION	82	83	84	85	86	87	88	89	90	91	92	TOTAL
CY Exc												

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:51:09 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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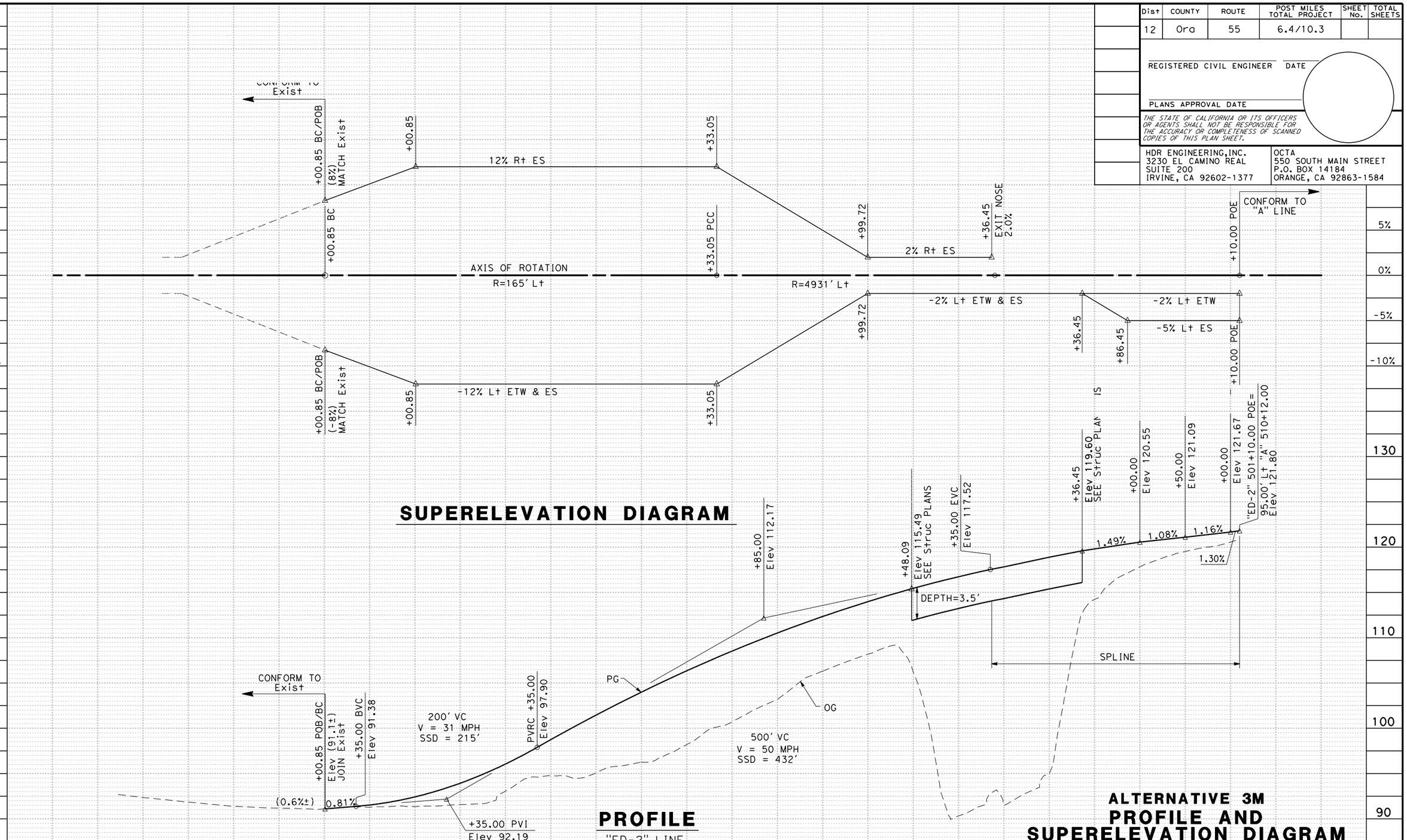
P.O. BOX 14184
ORANGE, CA 92863-1584



STATION	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	TOTAL
CY Exc																

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:51:24 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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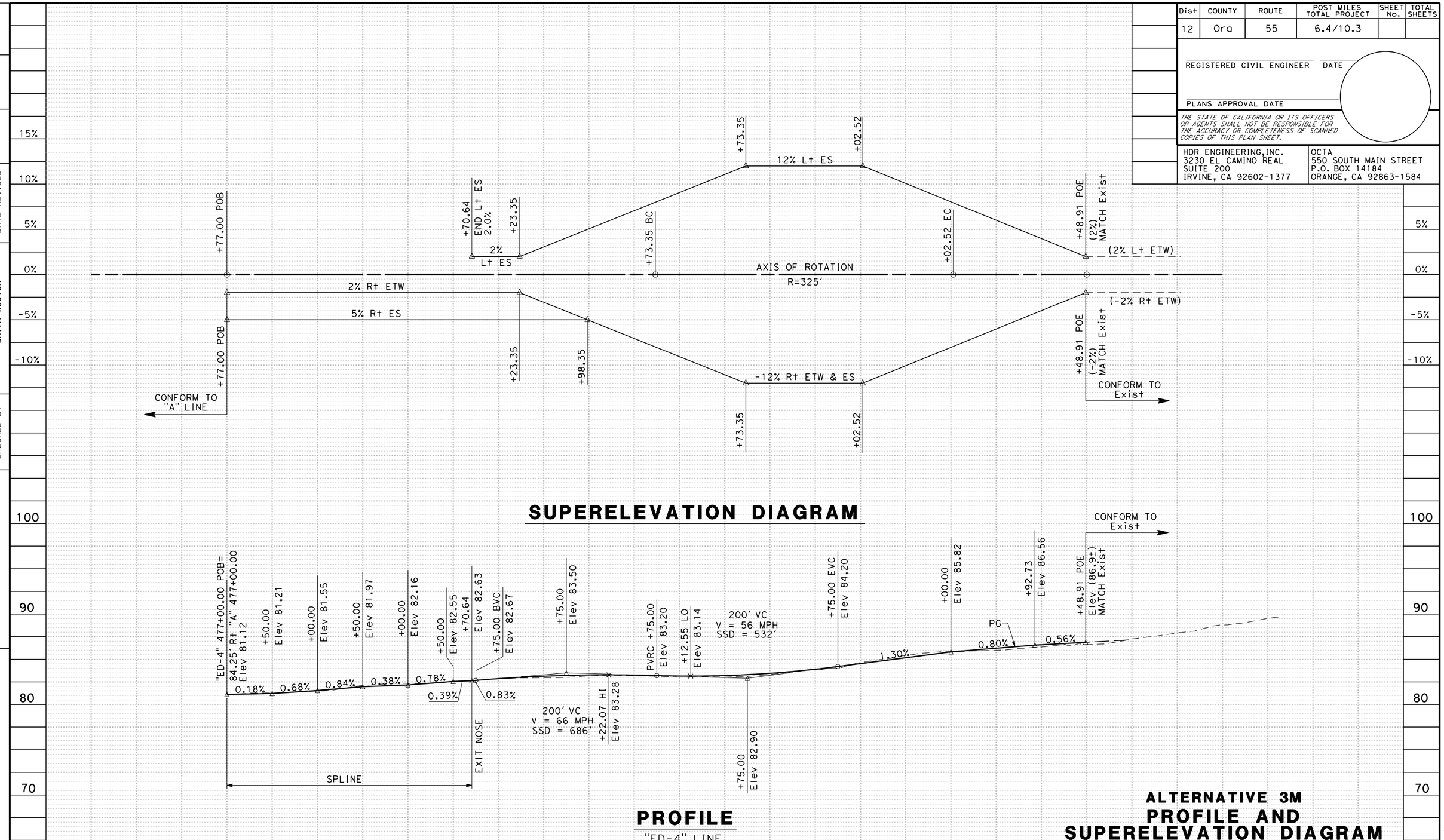
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



PROFILE

"ED-4" LINE
EDINGER Ave NB EXIT RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-17

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:51:51 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

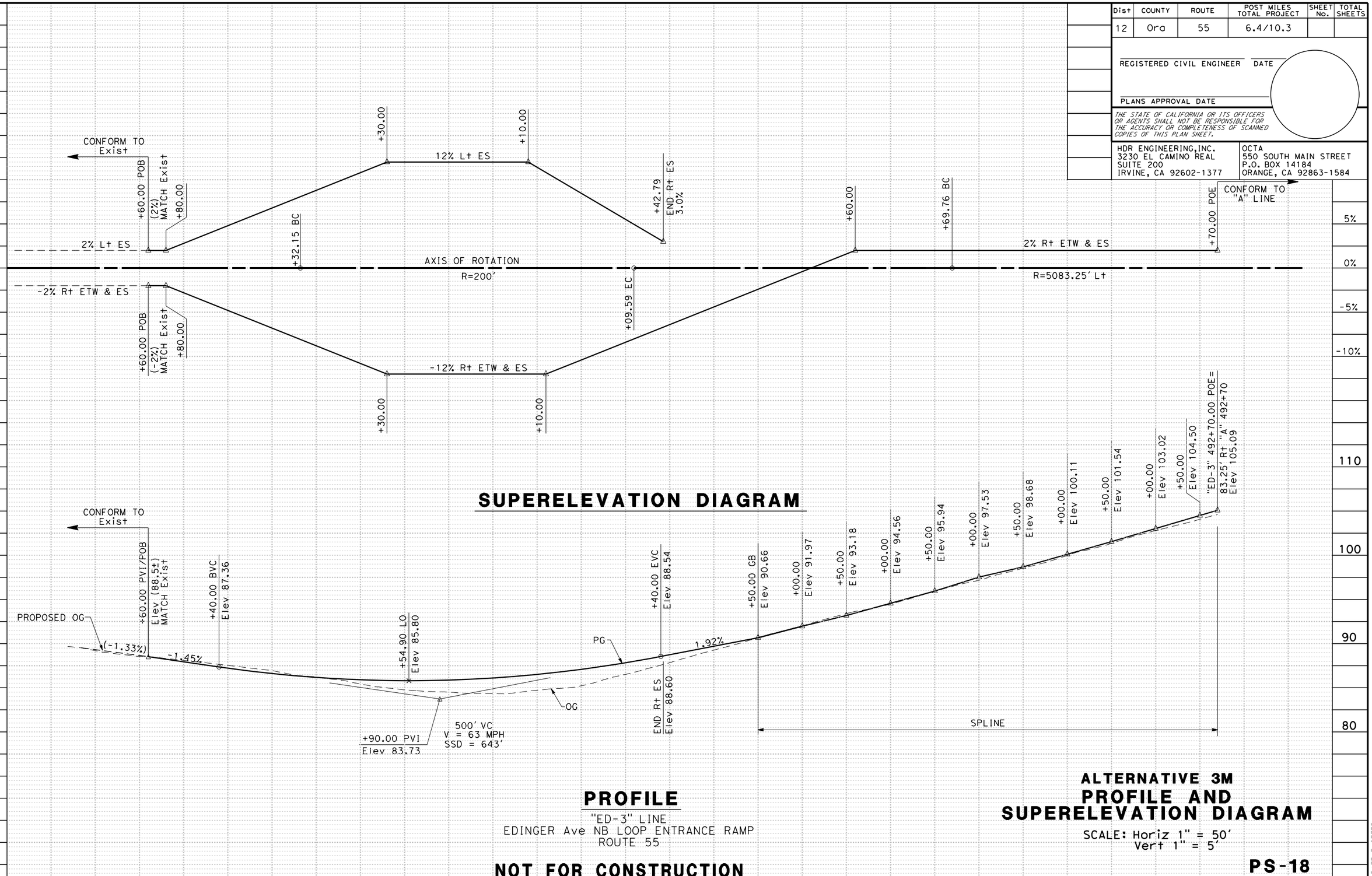
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



PROFILE

"ED-3" LINE
EDINGER Ave NB LOOP ENTRANCE RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY | DATE REVISED

LAST REVISION: XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:52:04 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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SUITE 200
IRVINE, CA 92602-1377

OCTA
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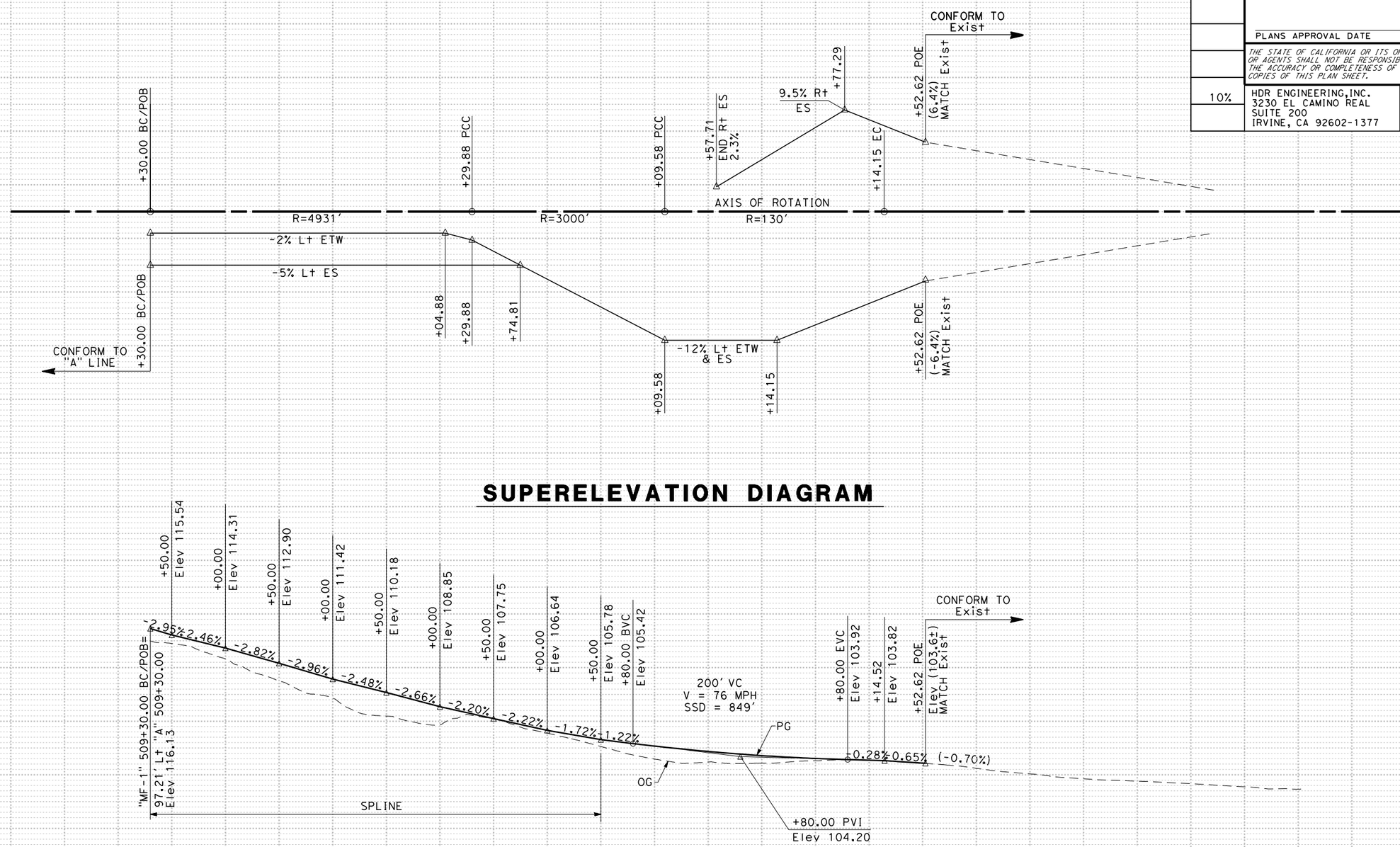
P.O. BOX 14184
ORANGE, CA 92863-1584



SUPERELEVATION DIAGRAM

PROFILE

"MF-1" LINE
McFADDEN Ave SB ENTRANCE RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-19

STATION	508	509	510	511	512	513	514	515	516	517	518	519	520	521	TOTAL
CY Exc															

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:52:27 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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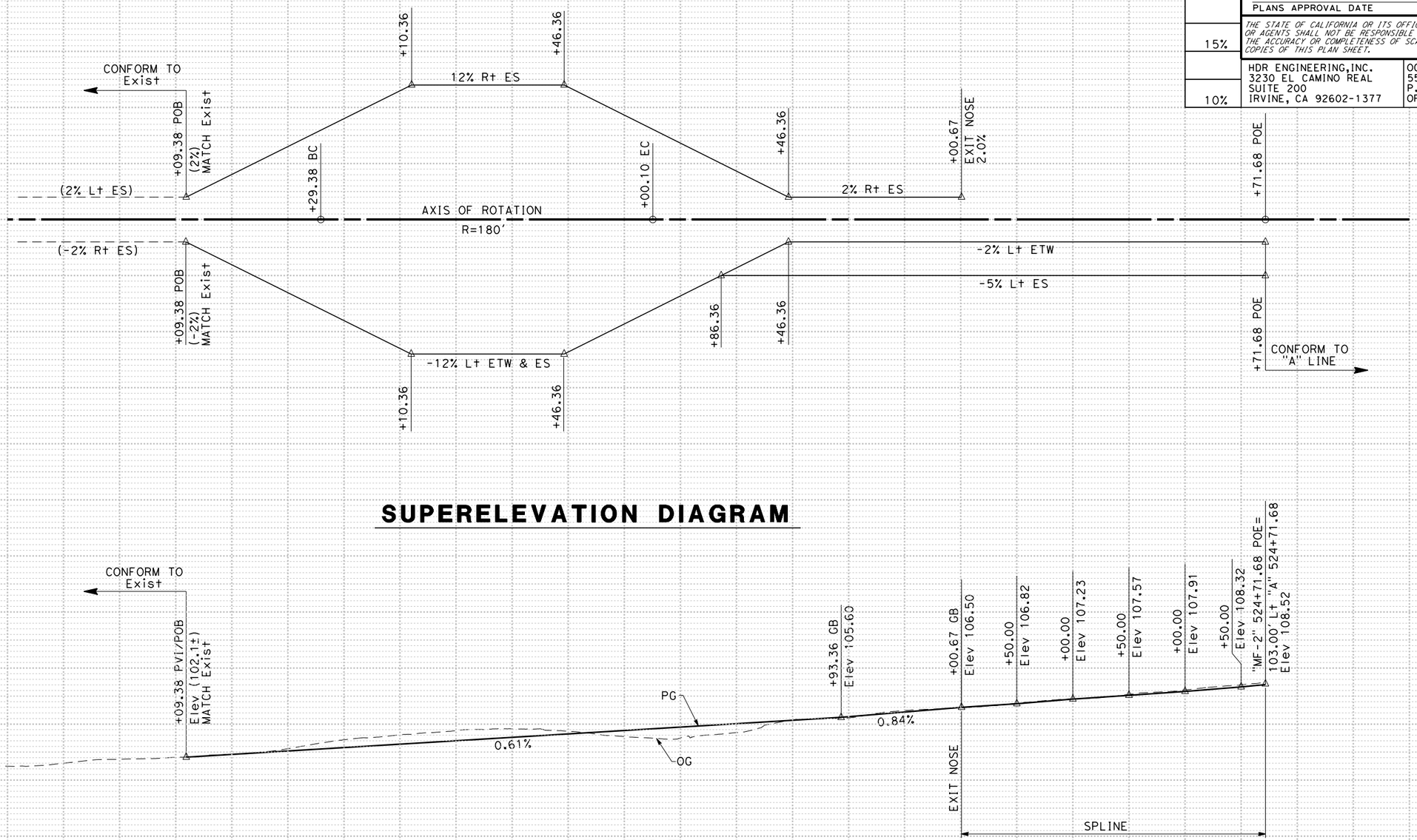
HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



SUPERELEVATION DIAGRAM

PROFILE

"MF-2" LINE
McFADDEN Ave SB EXIT RAMP
ROUTE 55

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-20

NOT FOR CONSTRUCTION

STATION	513	514	515	516	517	518	519	520	521	522	523	524	525	526	TOTAL
CY Exc															

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY / DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 3:00:44 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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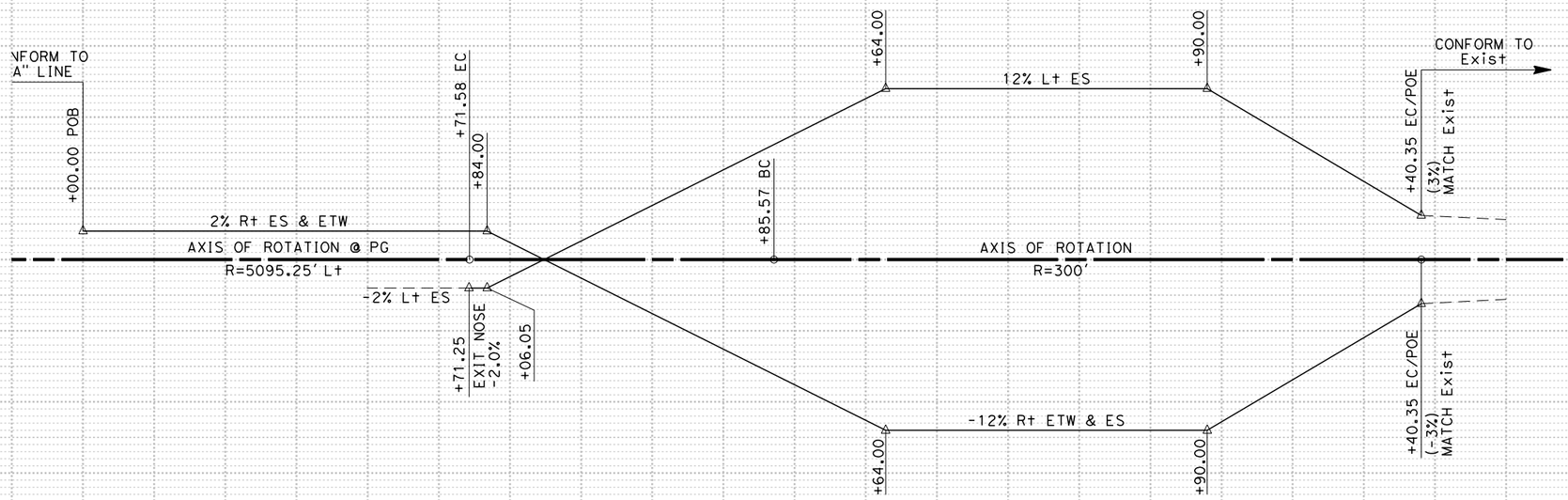
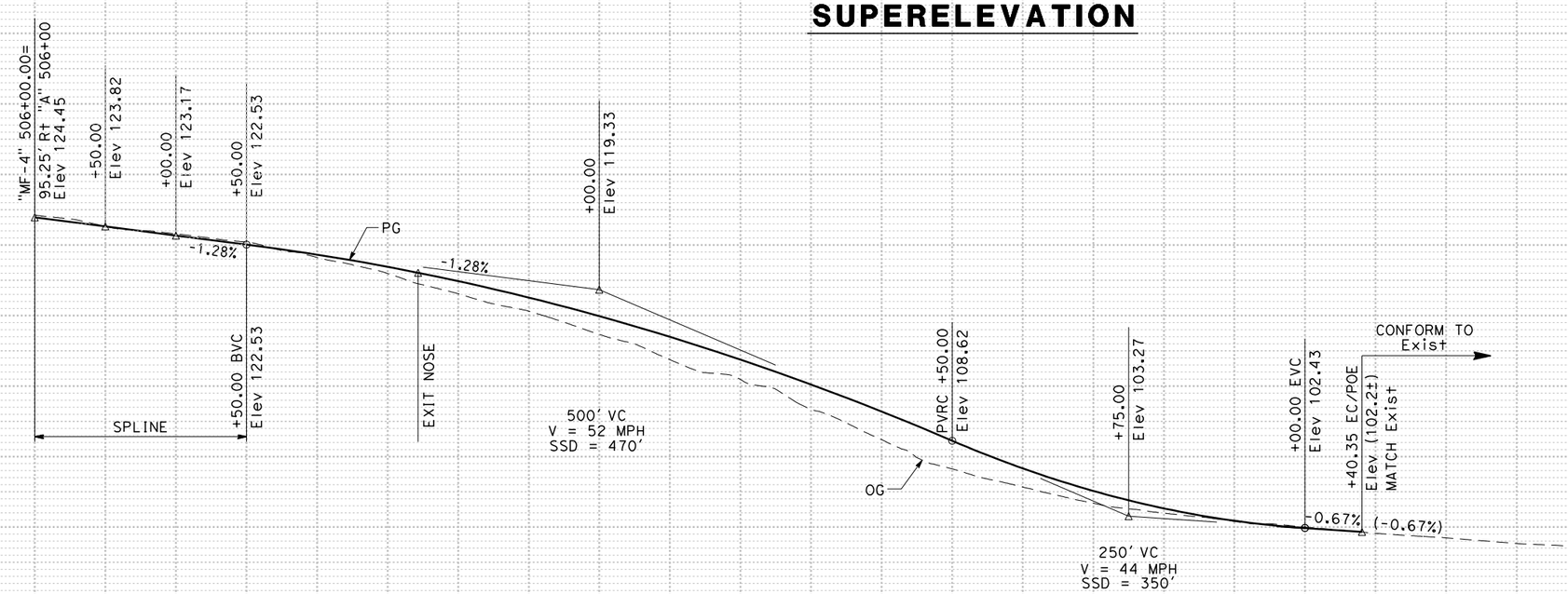


SUPERELEVATION



PROFILE

"MF-4" LINE
McFADDEN Ave NB EXIT RAMP
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-21

STATION	506	507	507	509	510	511	512	513	514	515	516	517	TOTAL
CY Exc													

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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IRVINE, CA 92602-1377

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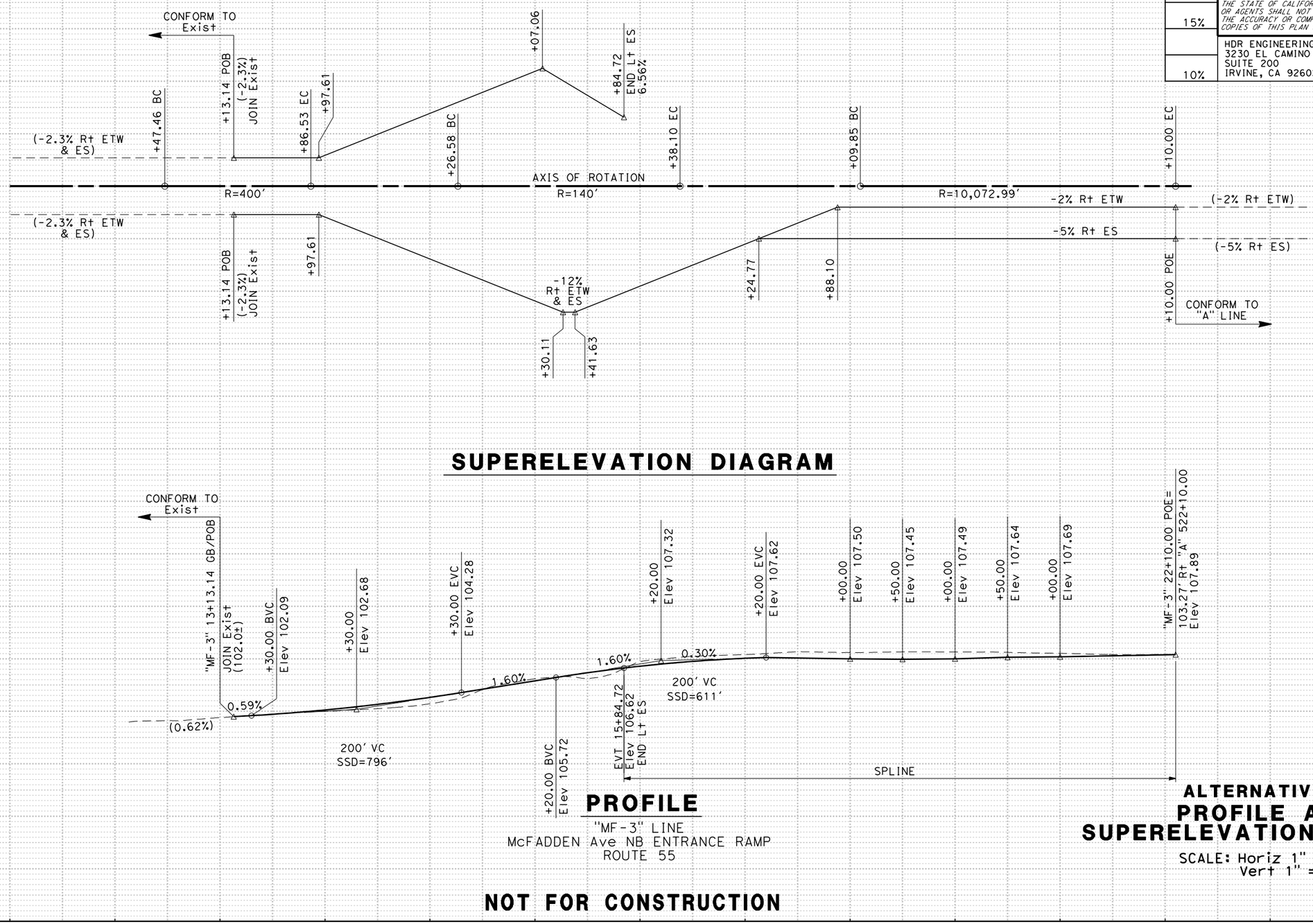

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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TIME PLOTTED => 2:53:00 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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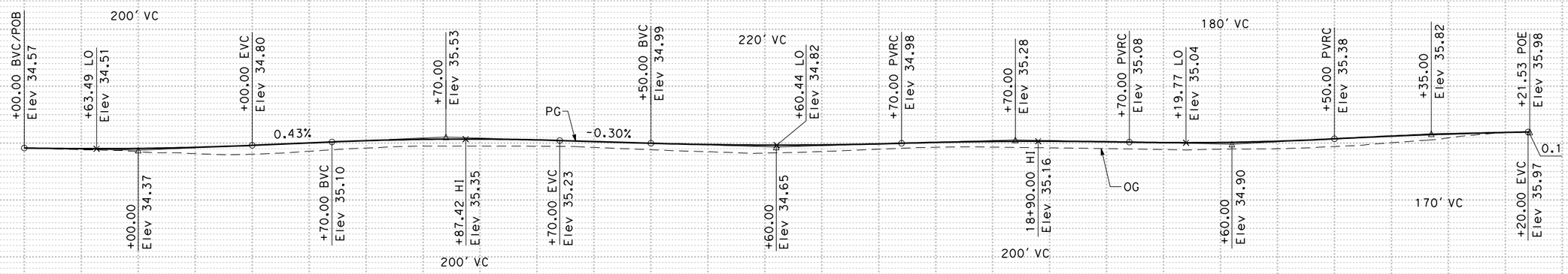

PROFILE

"COWAN" LINE
Cowan
ROUTE 55

ALTERNATIVE 3M

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

NOT FOR CONSTRUCTION

PS-23

STATION	10	11	12	13	14	15	16	17	18	19	20	21	22	23	TOTAL
CY Exc															

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Caltrans

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REVISED BY

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LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:53:10 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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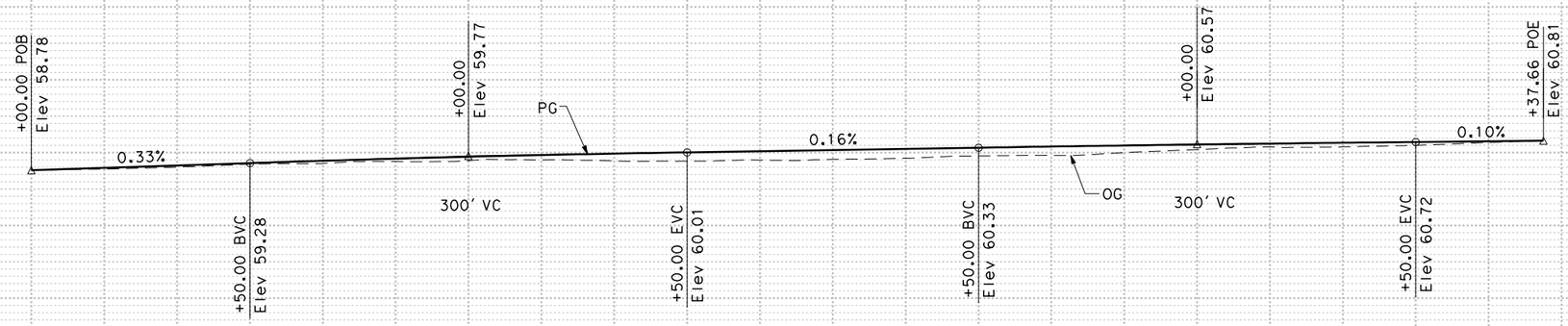
PROFILE

"PULLMAN-1" LINE
Pullman St
ROUTE 55



PROFILE

"PULLMAN-2" LINE
Pullman St
ROUTE 55

NOT FOR CONSTRUCTION

ALTERNATIVE 3M
PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-24

STATION	29	30	31	32	33	34	35	36	37	38	39	40	41	TOTAL
CY Exc														

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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REVISED BY
DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:53:21 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

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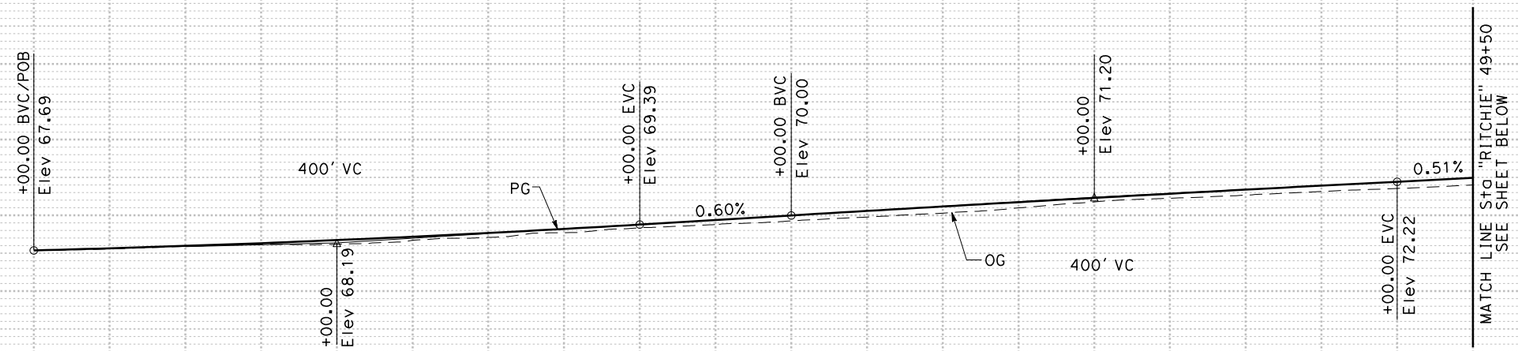
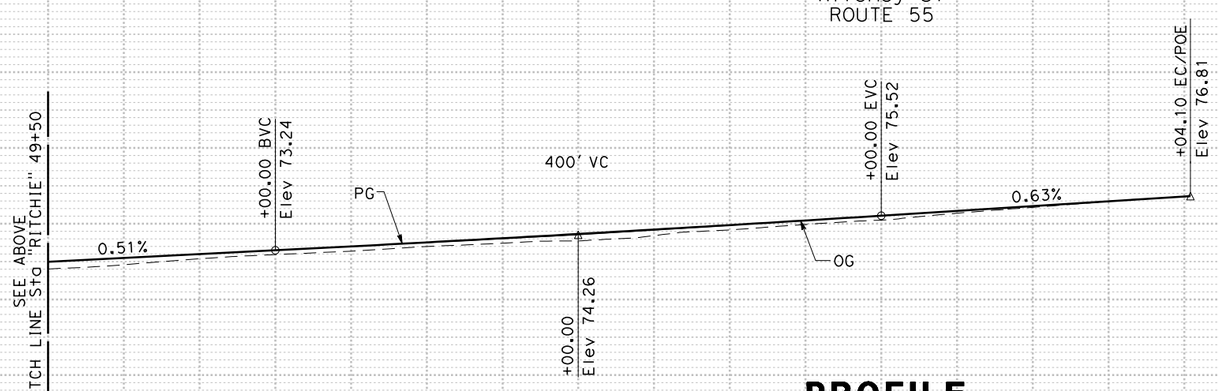


PROFILE

"RITCHEY" LINE
Ritchey St
ROUTE 55



PROFILE

"RITCHEY" LINE
Ritchey St
ROUTE 55

ALTERNATIVE 3M

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

PS-25

NOT FOR CONSTRUCTION

STATION	49	50	51	52	53	54	55	56	57	58	TOTAL
CY Exc											

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

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CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:53:30 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

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SUITE 1250
SANTA ANA, CA 92707

OCTA
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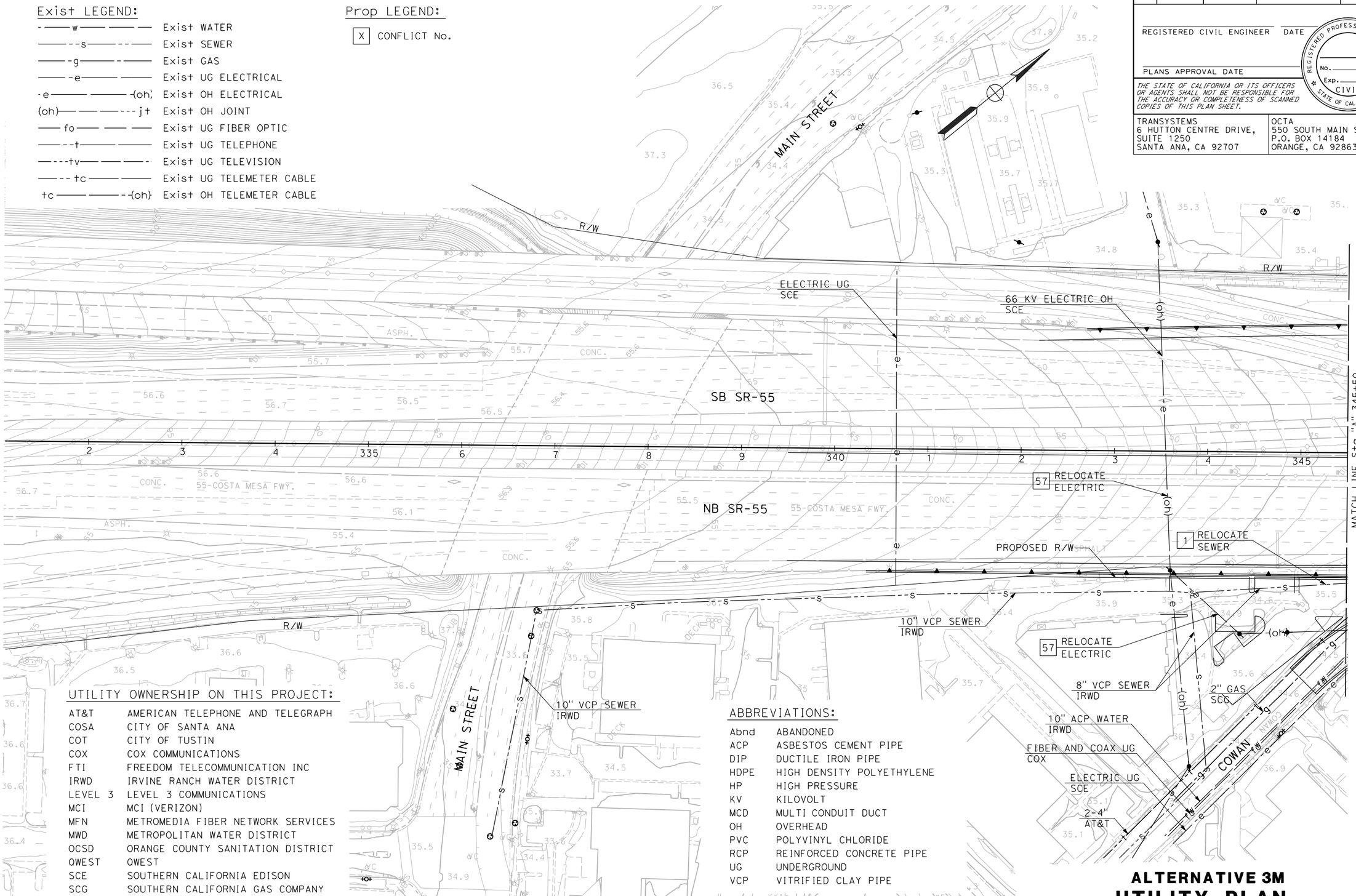
ORANGE, CA 92863-1584

Exist LEGEND:

- Exist WATER
- Exist SEWER
- Exist GAS
- Exist UG ELECTRICAL
- Exist OH ELECTRICAL
- Exist OH JOINT
- Exist UG FIBER OPTIC
- Exist UG TELEPHONE
- Exist UG TELEVISION
- Exist UG TELEMETER CABLE
- Exist OH TELEMETER CABLE

Prop LEGEND:

X CONFLICT No.



UTILITY OWNERSHIP ON THIS PROJECT:

AT&T	AMERICAN TELEPHONE AND TELEGRAPH
COSA	CITY OF SANTA ANA
COT	CITY OF TUSTIN
COX	COX COMMUNICATIONS
FTI	FREEDOM TELECOMMUNICATION INC
IRWD	IRVINE RANCH WATER DISTRICT
LEVEL 3	LEVEL 3 COMMUNICATIONS
MCI	MCI (VERIZON)
MFN	METROMEDIA FIBER NETWORK SERVICES
MWD	METROPOLITAN WATER DISTRICT
OCSD	ORANGE COUNTY SANITATION DISTRICT
QWEST	QWEST
SCE	SOUTHERN CALIFORNIA EDISON
SCG	SOUTHERN CALIFORNIA GAS COMPANY
TWC	TIME WARNER CABLE

ABBREVIATIONS:

Abnd	ABANDONED
ACP	ASBESTOS CEMENT PIPE
DIP	DUCTILE IRON PIPE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH PRESSURE
KV	KILOVOLT
MCD	MULTI CONDUIT DUCT
OH	OVERHEAD
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
UG	UNDERGROUND
VCP	VITRIFIED CLAY PIPE

ALTERNATIVE 3M
UTILITY PLAN

SCALE: 1" = 50'

U-1

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION XX-XX-XX | DATE PLOTTED => 3/20/2017 | TIME PLOTTED => 10:52:00 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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TRANSYSTEMS
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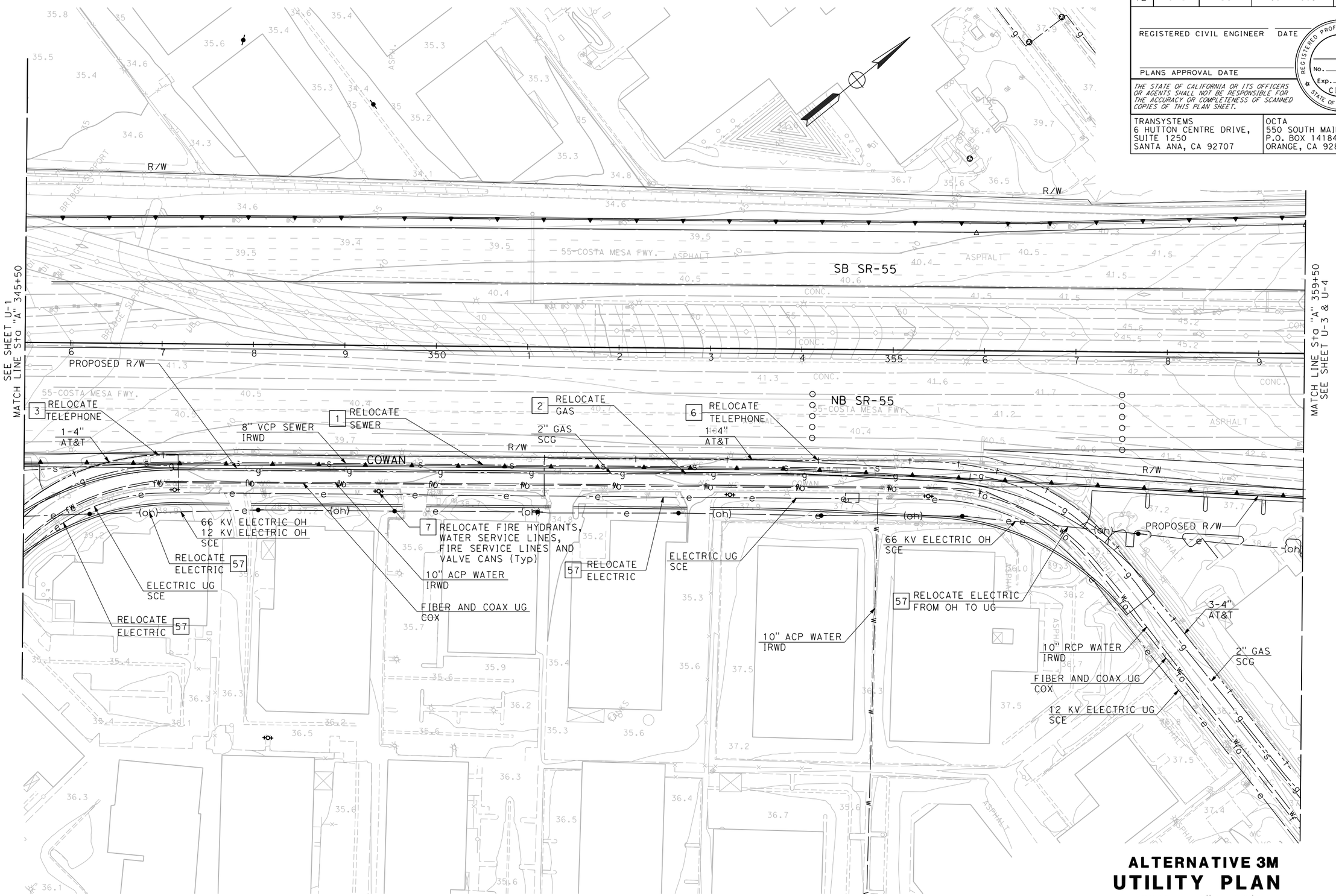
SUITE 1250
SANTA ANA, CA 92707

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



ALTERNATIVE 3M
UTILITY PLAN
SCALE: 1" = 50'

U-2

REVISED BY	DATE REVISED

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CONSULTANT FUNCTIONAL SUPERVISOR

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LAST REVISION XX-XX-XX | DATE PLOTTED => 3/20/2017 | TIME PLOTTED => 10:13:51 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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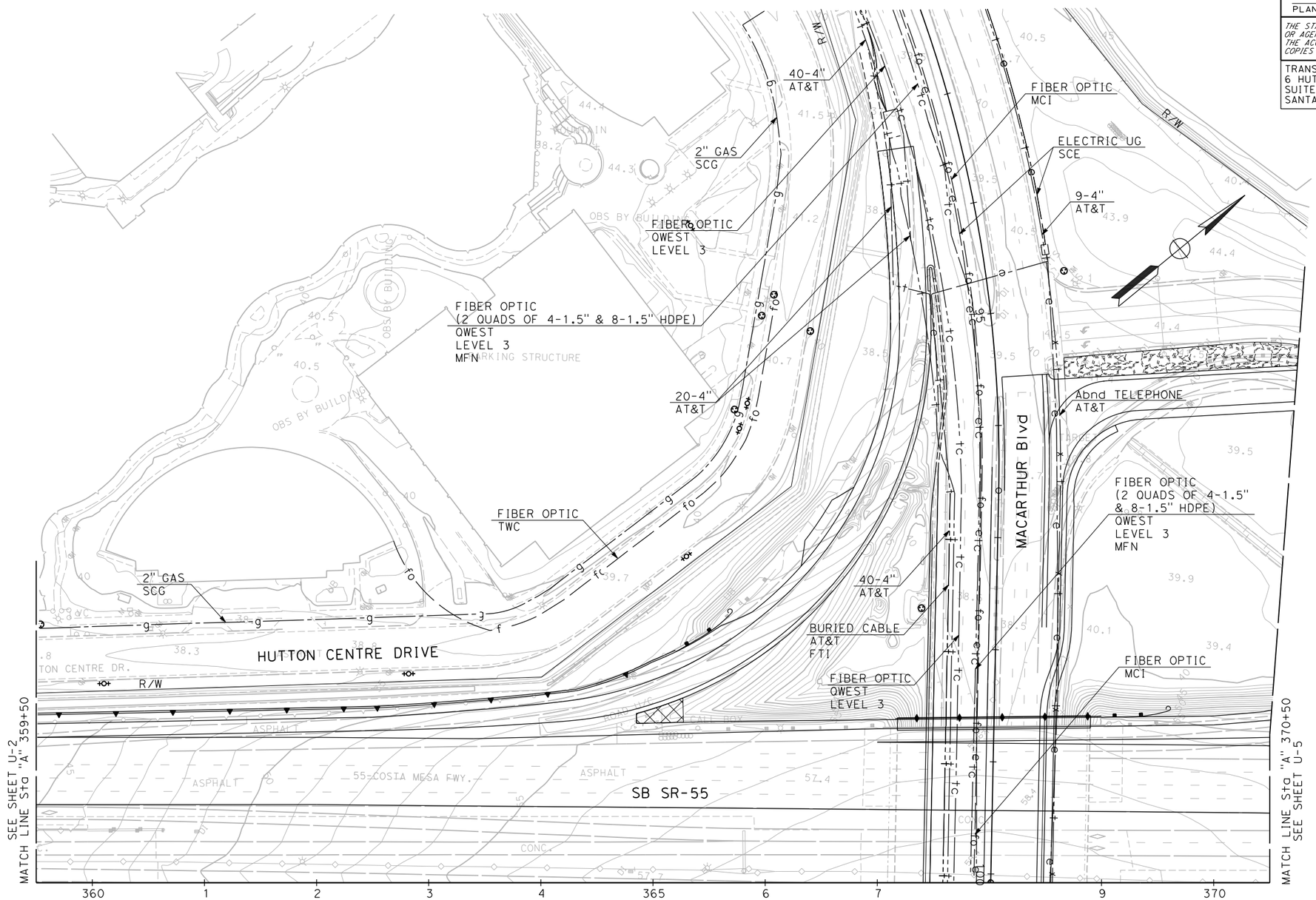
SUITE 1250
SANTA ANA, CA 92707

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



NO UTILITY RELOCATION THIS SHEET.

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

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DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/20/2017
TIME PLOTTED => 10:13:53 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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SUITE 1250
SANTA ANA, CA 92707

OCTA
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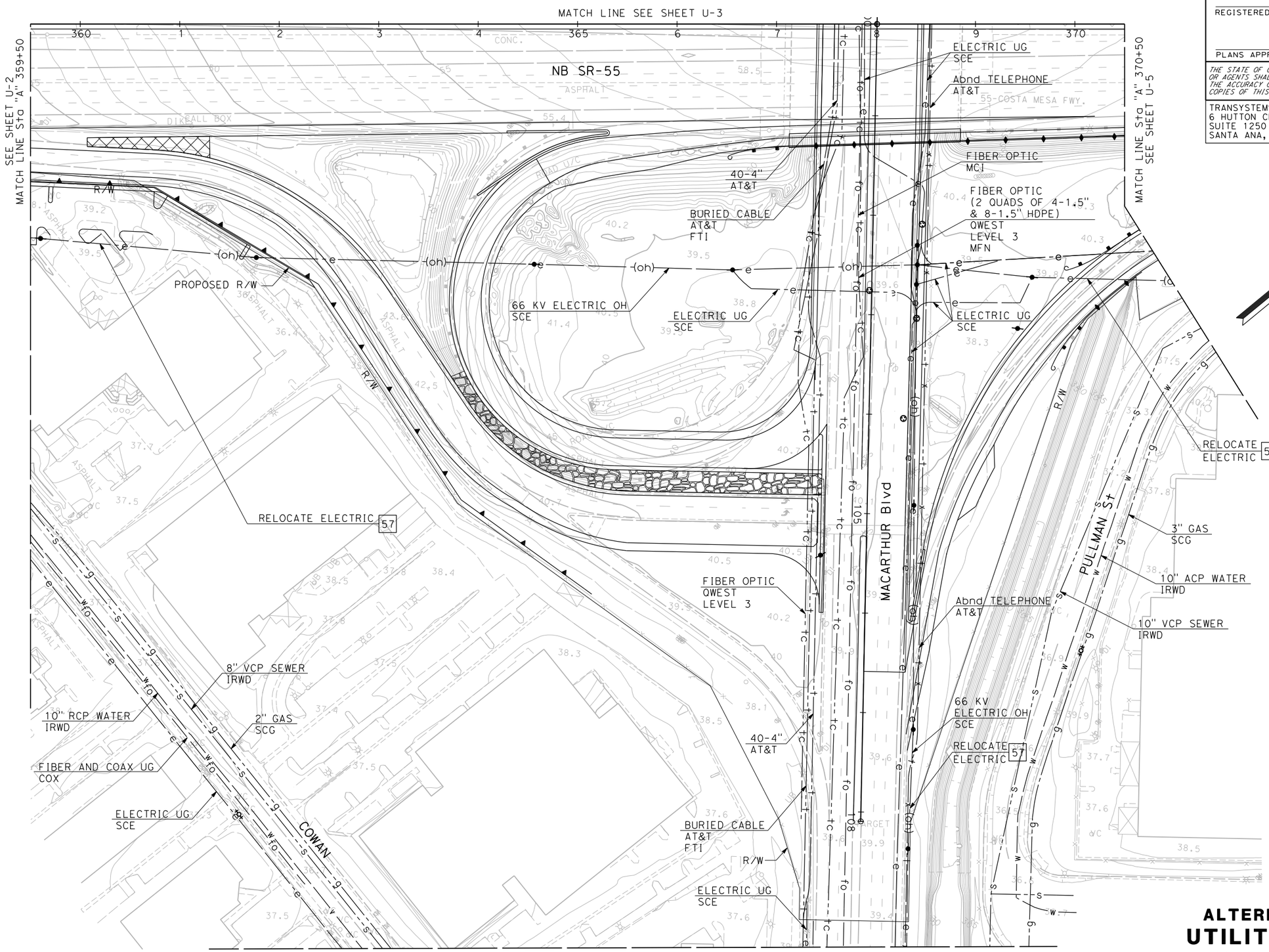
ORANGE, CA 92863-1584



ALTERNATIVE 3M
UTILITY PLAN

SCALE: 1" = 50'

U-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/20/2017
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BORDER LAST REVISED 7/2/2010

USERNAME =>
DGN FILE => ...\Alternative-3M\U-4.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 12-XXXX

PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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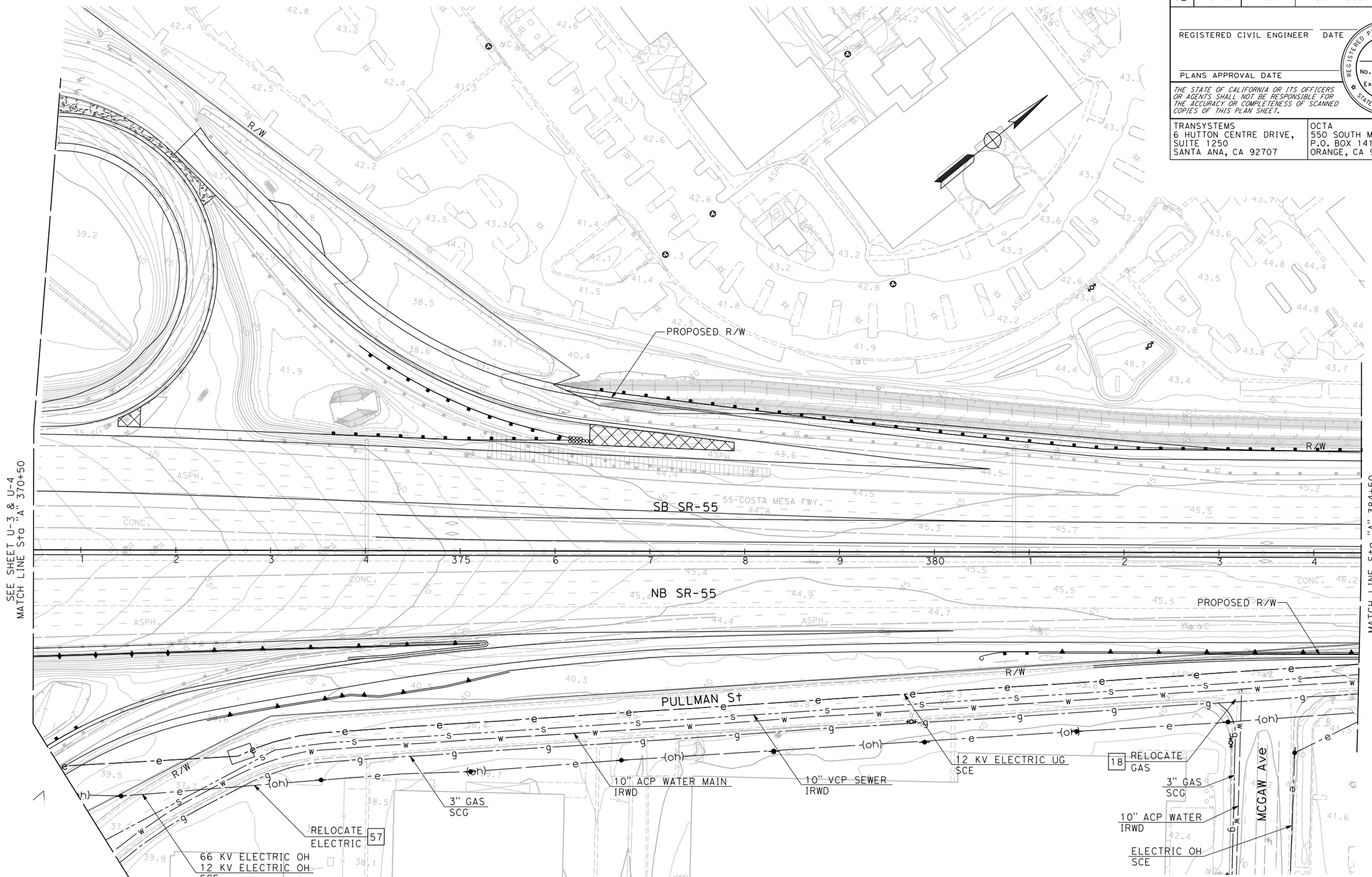
SUITE 1250
SANTA ANA, CA 92707

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584



ALTERNATIVE 3M
UTILITY PLAN
SCALE: 1" = 50'

U-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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DATE REVISED

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TIME PLOTTED => 10:13:57 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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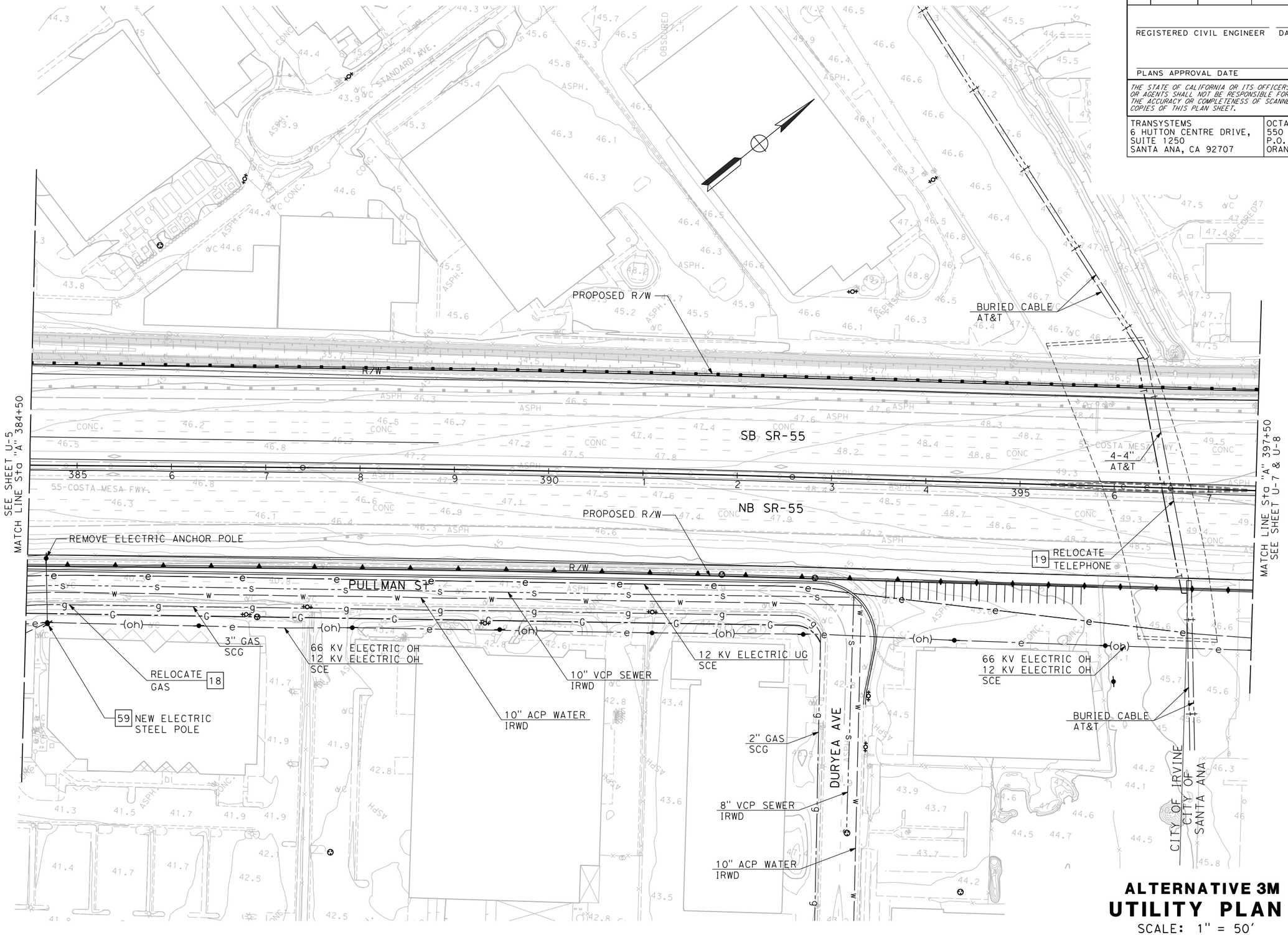
ORANGE, CA 92863-1584



ALTERNATIVE 3M
UTILITY PLAN
SCALE: 1" = 50'

U-6

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY

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CONSULTANT FUNCTIONAL SUPERVISOR

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Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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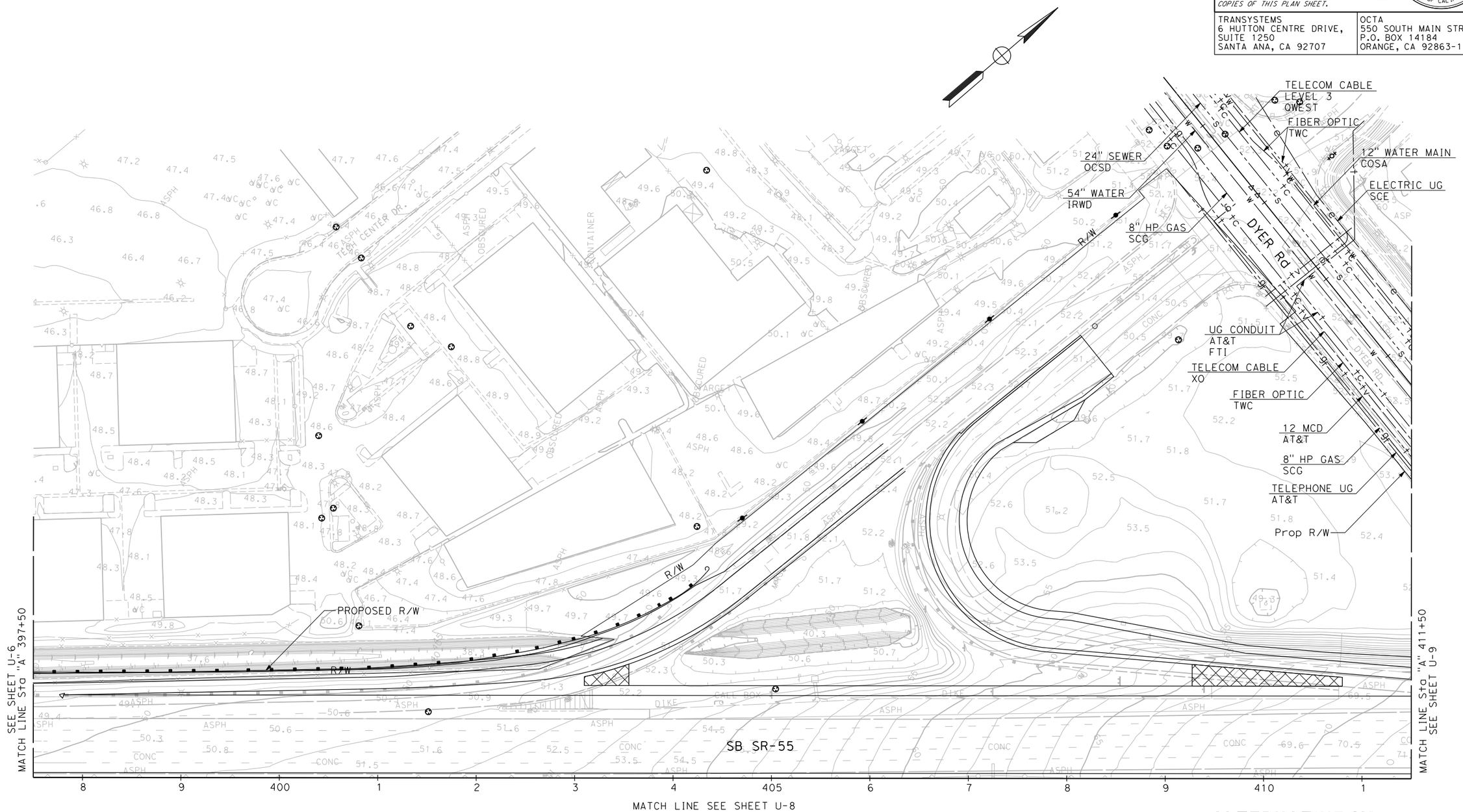
ORANGE, CA 92863-1584



NO UTILITY RELOCATION THIS SHEET.

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

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DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/20/2017
TIME PLOTTED => 10:14:01 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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SANTA ANA, CA 92707

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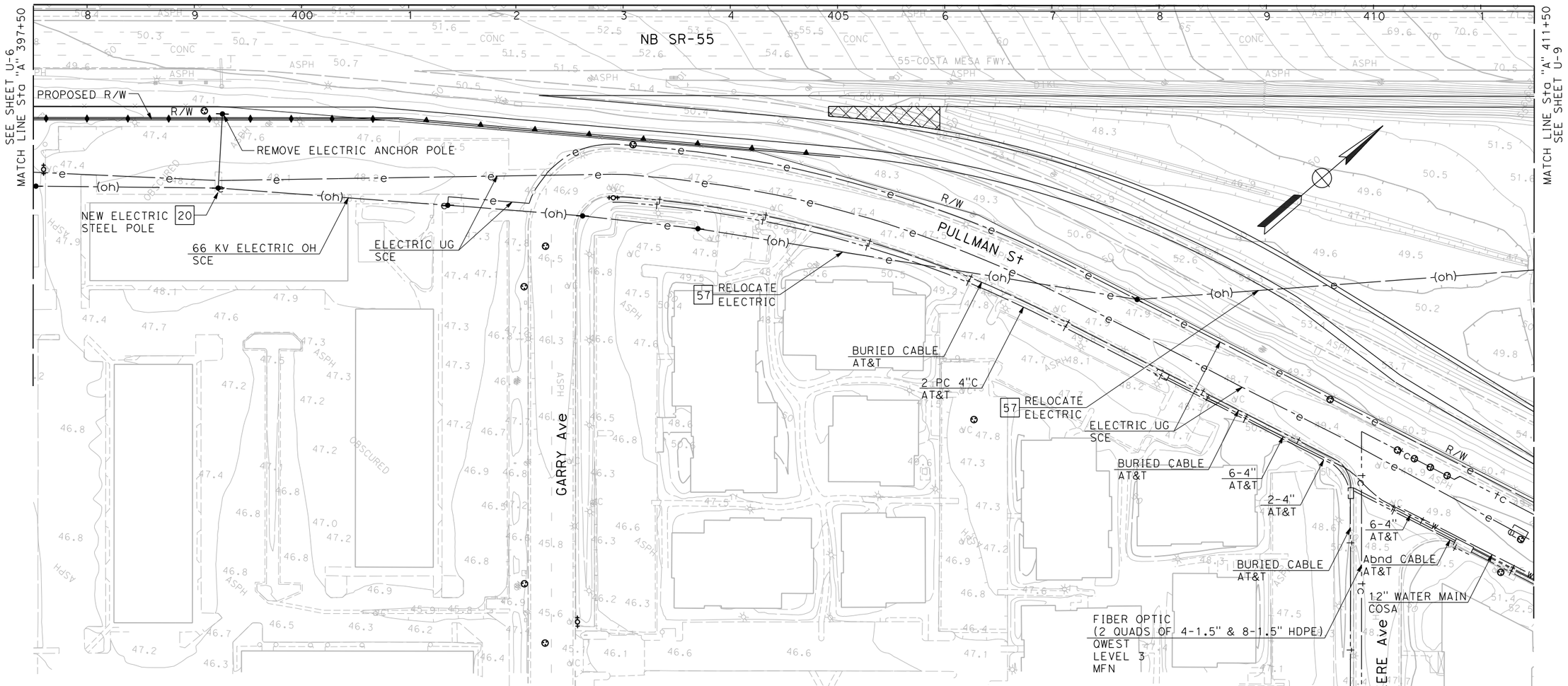
ORANGE, CA 92863-1584

MATCH LINE SEE SHEET U-7



ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 3/20/2017
TIME PLOTTED => 10:14:03 AM

BORDER LAST REVISED 7/2/2010

USERNAME =>
DGN FILE => ...\Alternative-3M\U-8.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 12-XXXX

PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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SUITE 1250
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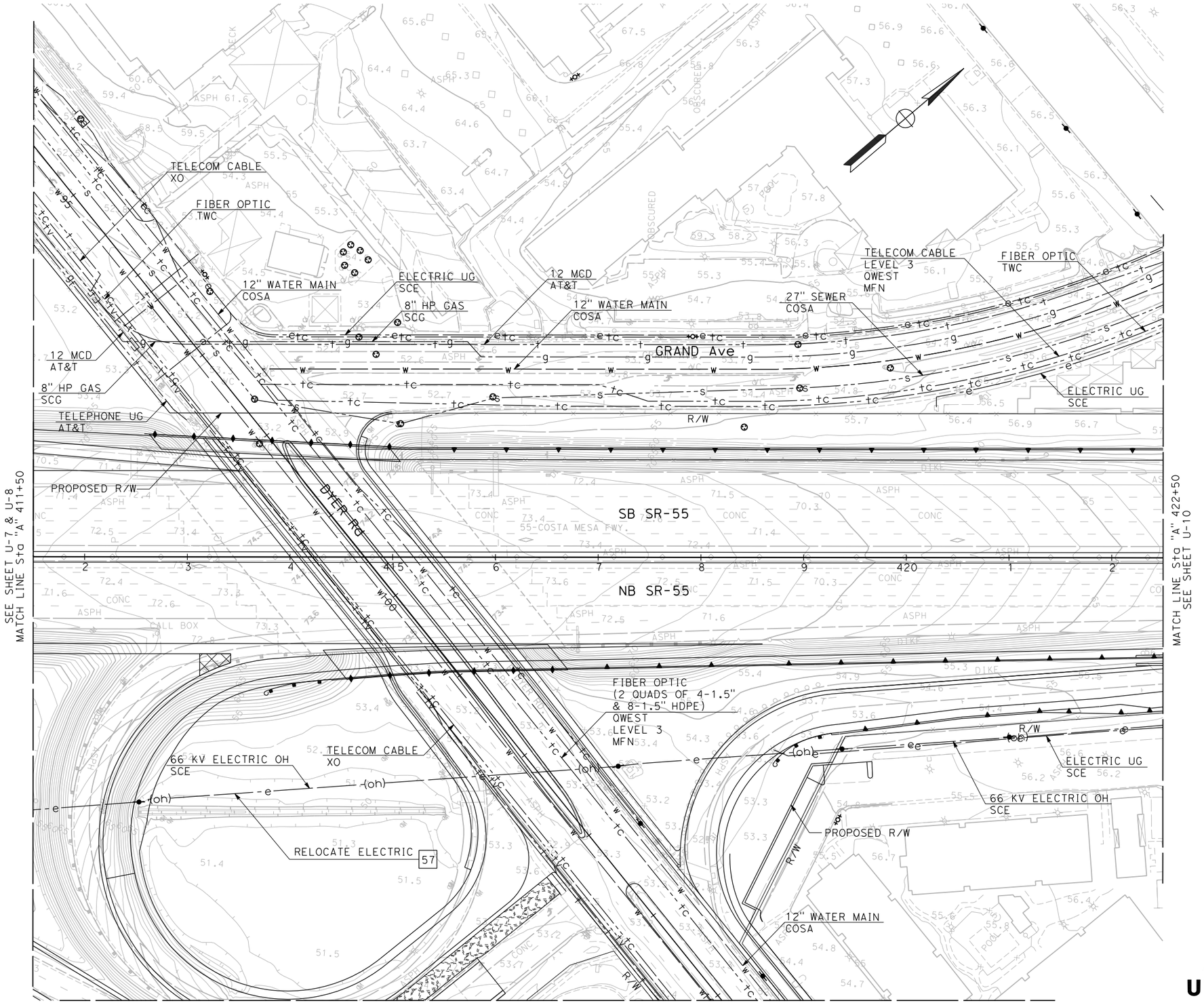

ALTERNATIVE 3M
UTILITY PLAN

SCALE: 1" = 50'

U-9

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BORDER LAST REVISED 7/2/2010 | USERNAME => | DGN FILE => ...\Alternative-3M\U-9.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 12-XXXX | PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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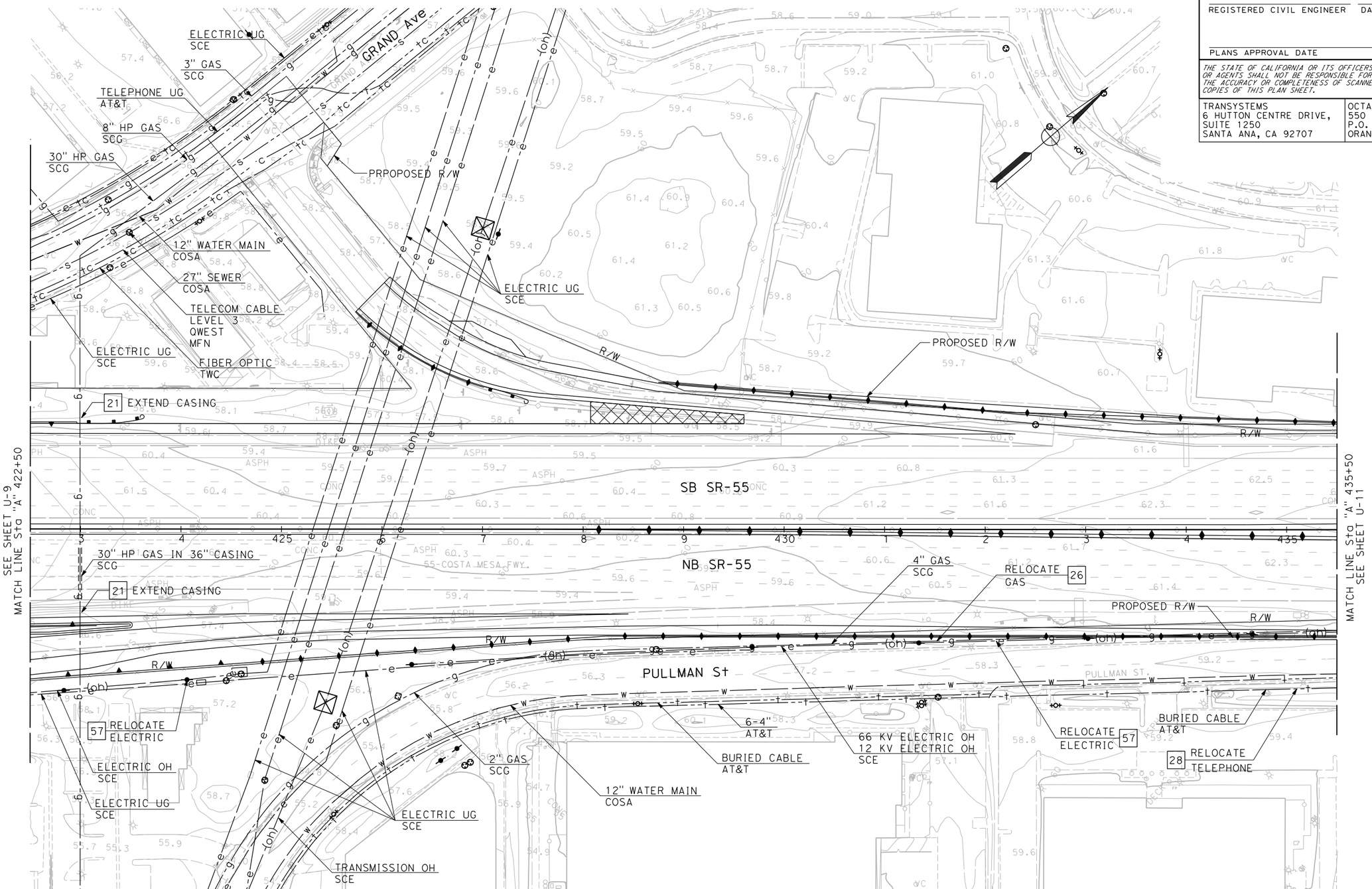

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-10

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 12-XXXX

PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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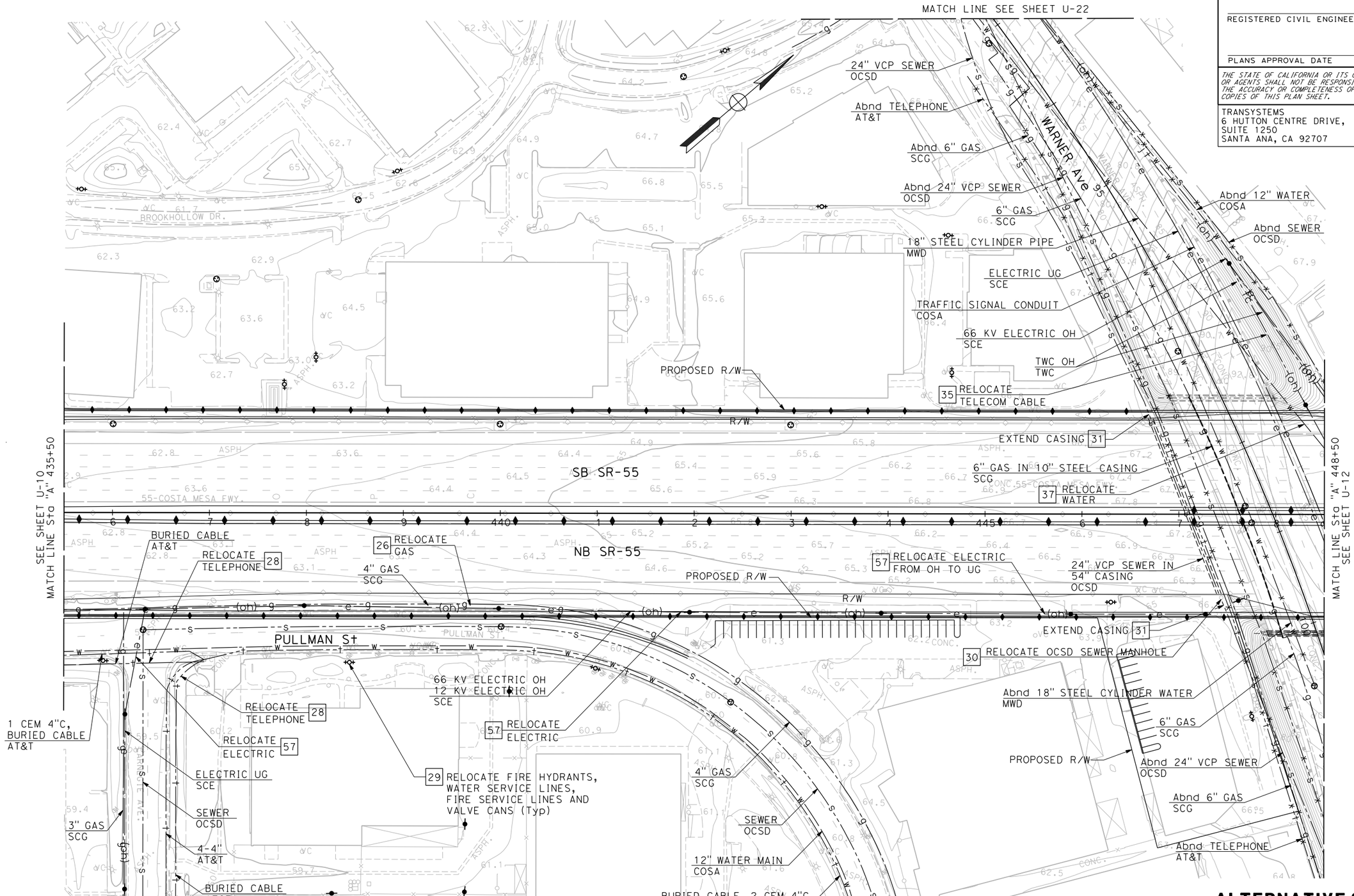

ALTERNATIVE 3M
UTILITY PLAN
SCALE: 1" = 50'

U-11

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12	Ora	55	6.4/10.3		

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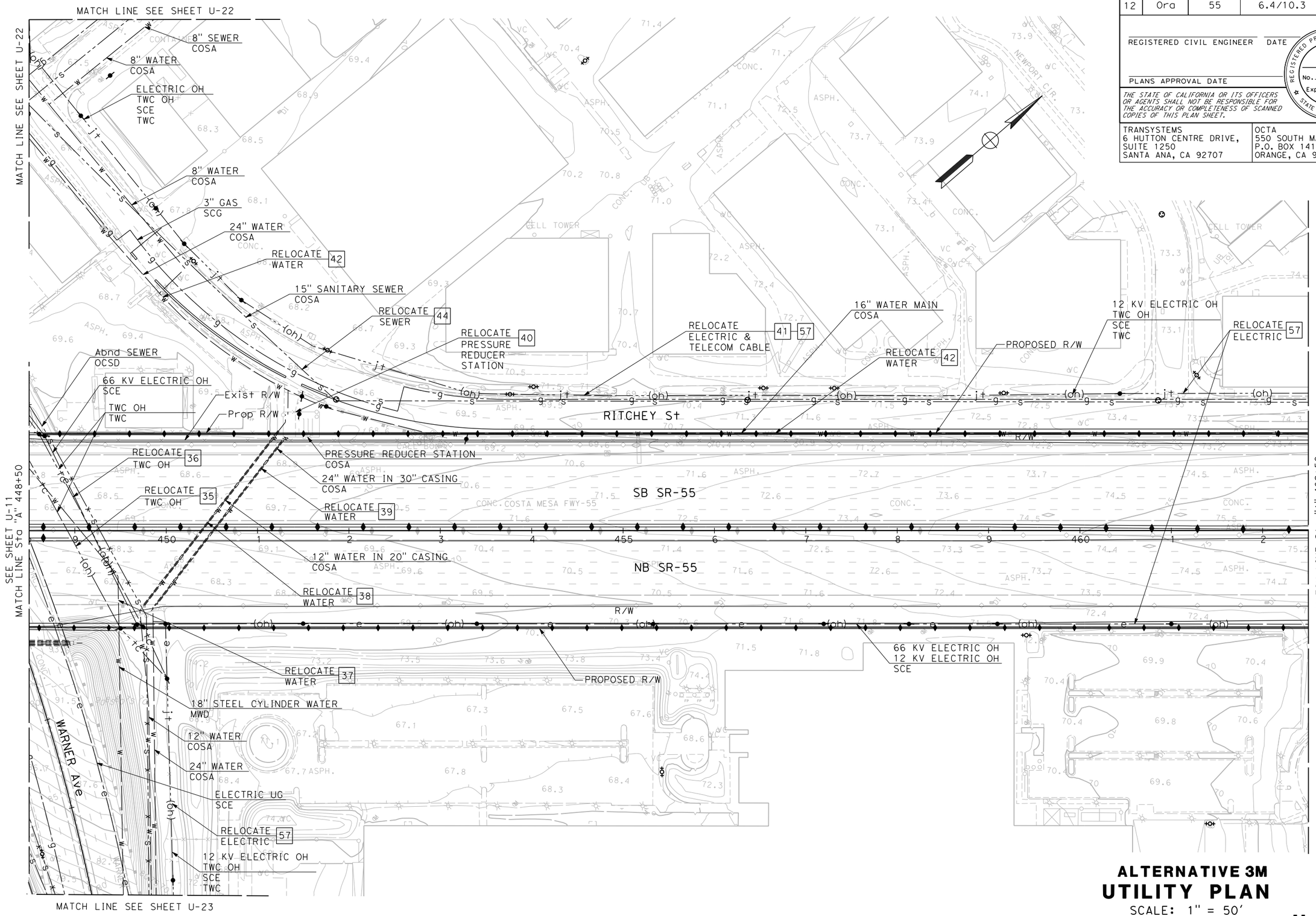

ALTERNATIVE 3M
UTILITY PLAN
SCALE: 1" = 50'

U-12

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12	Ora	55	6.4/10.3		

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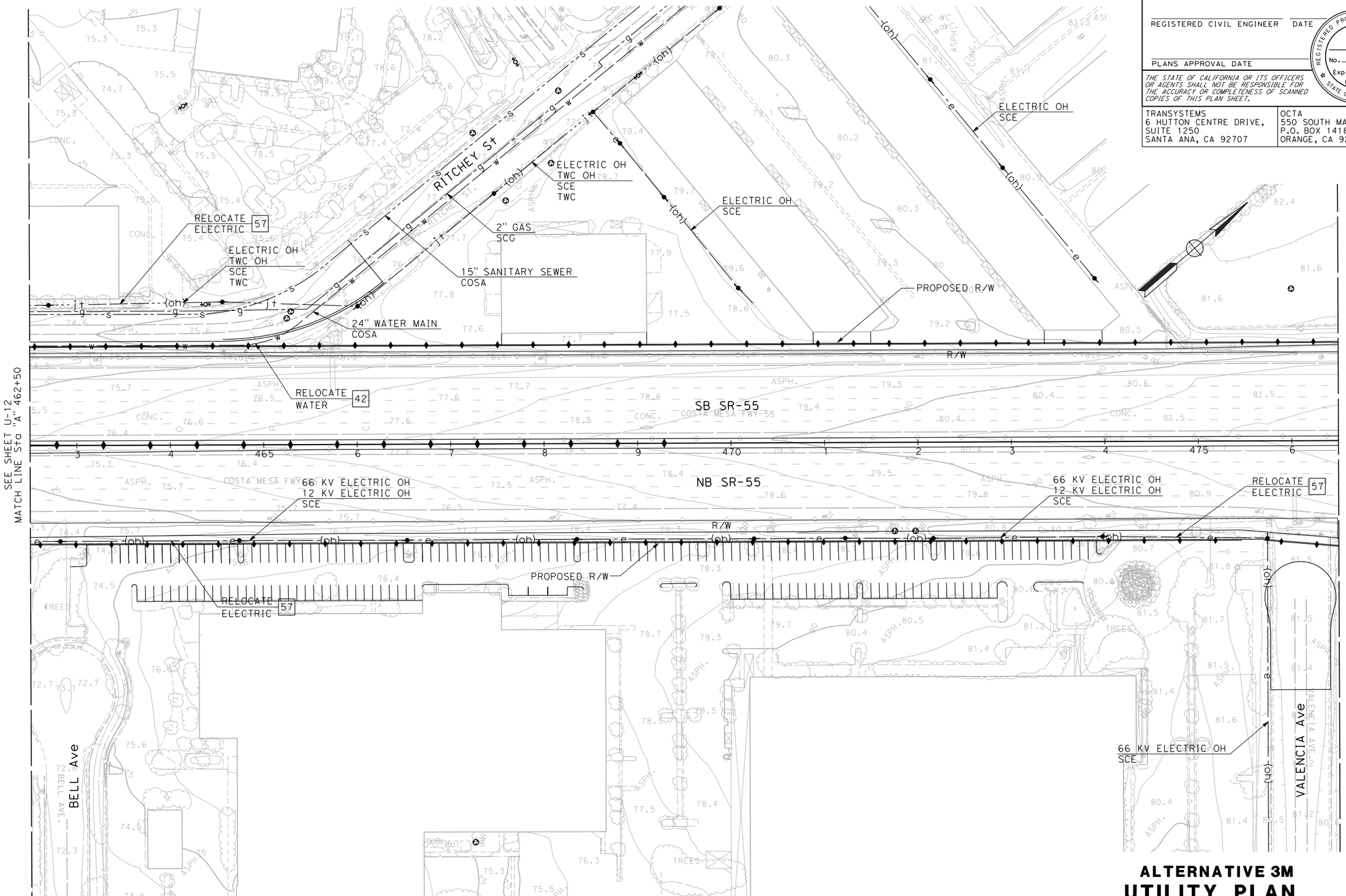

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

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UNIT 12-XXXX

PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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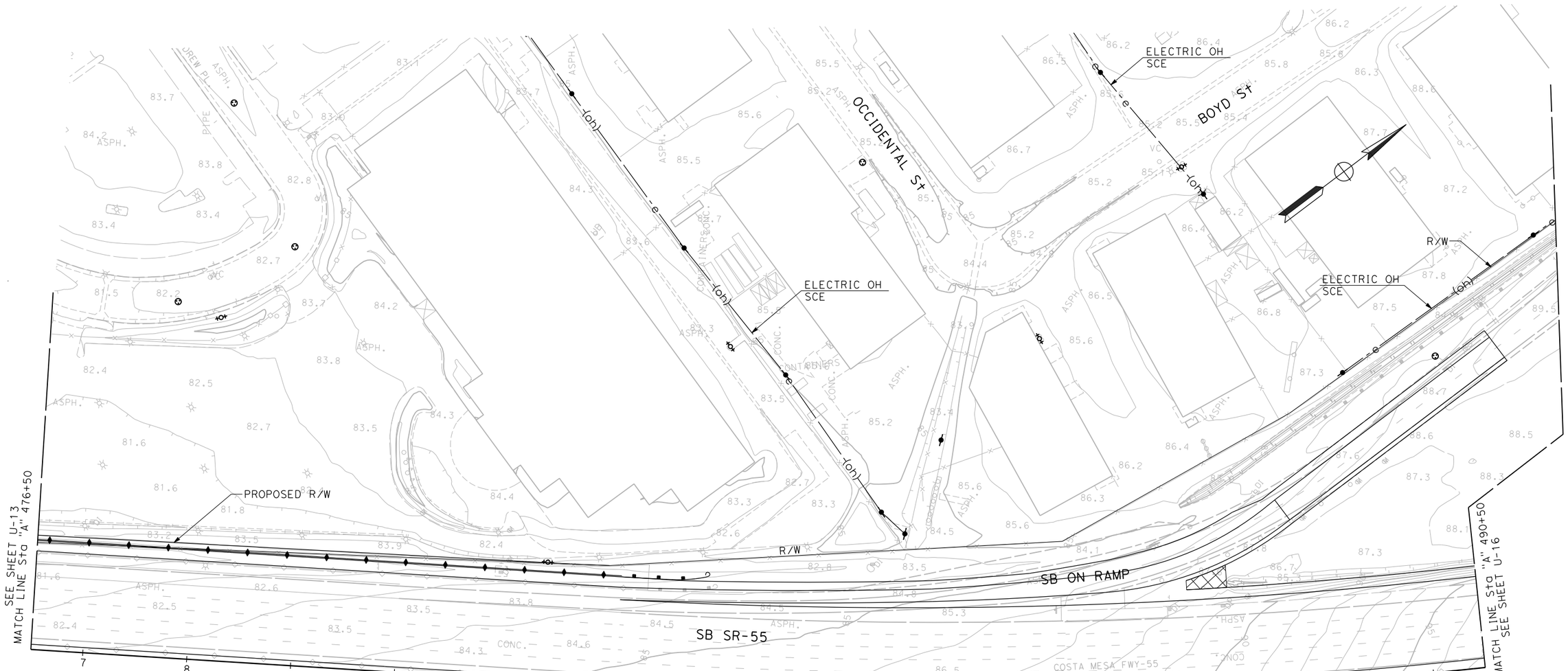

NO UTILITY RELOCATION THIS SHEET.

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-14

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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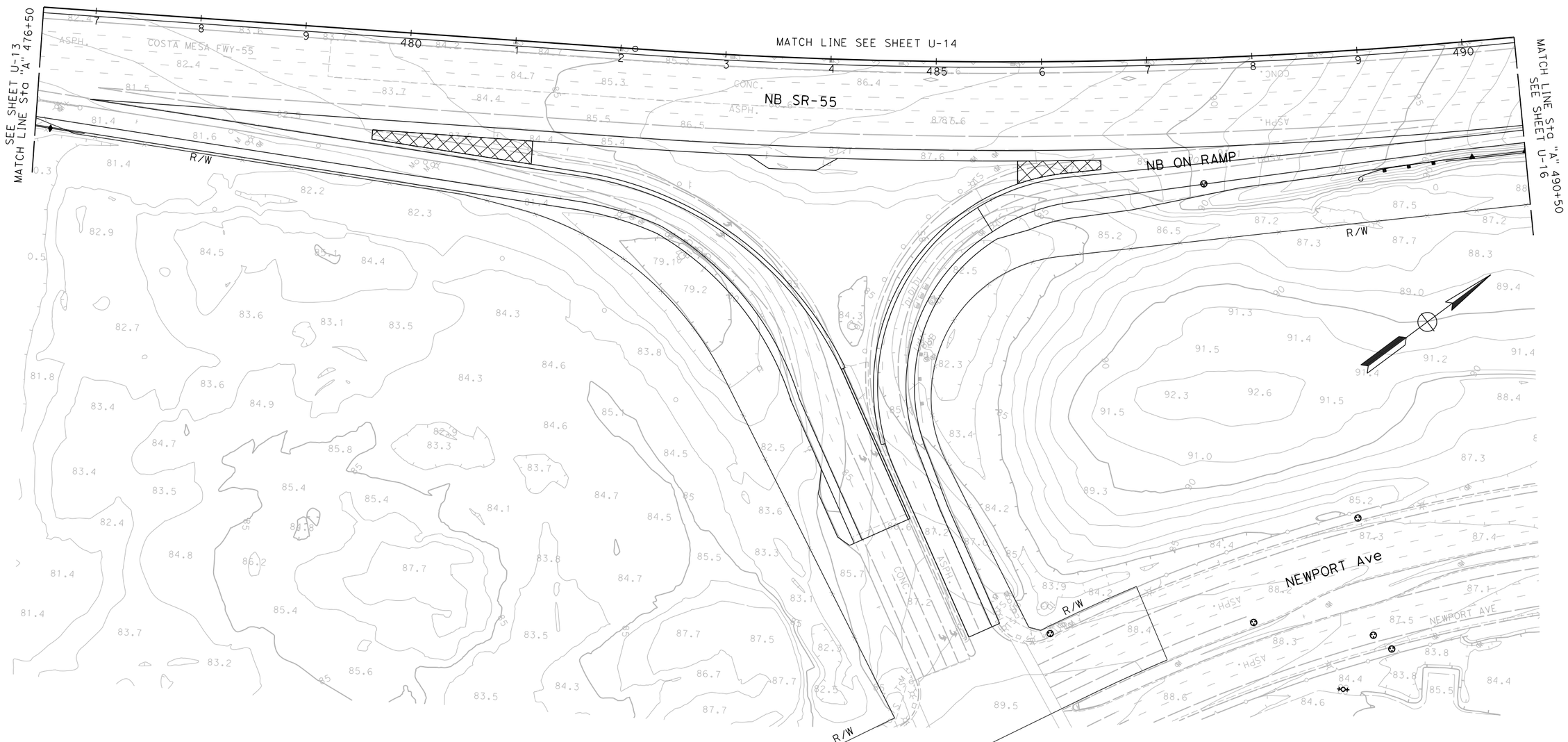

NO UTILITY RELOCATION THIS SHEET.

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

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12	Ora	55	6.4/10.3		

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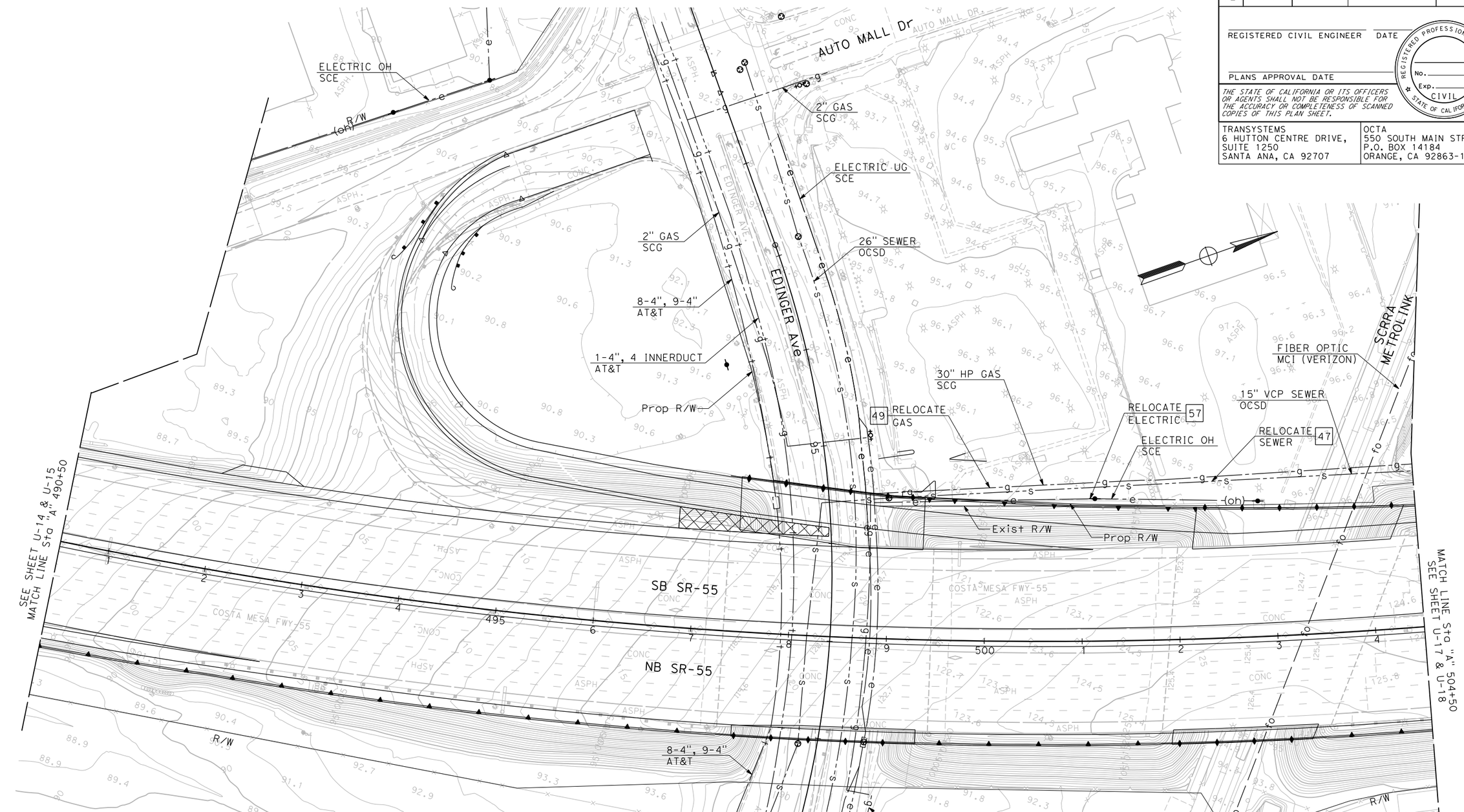

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-16

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12	Ora	55	6.4/10.3		

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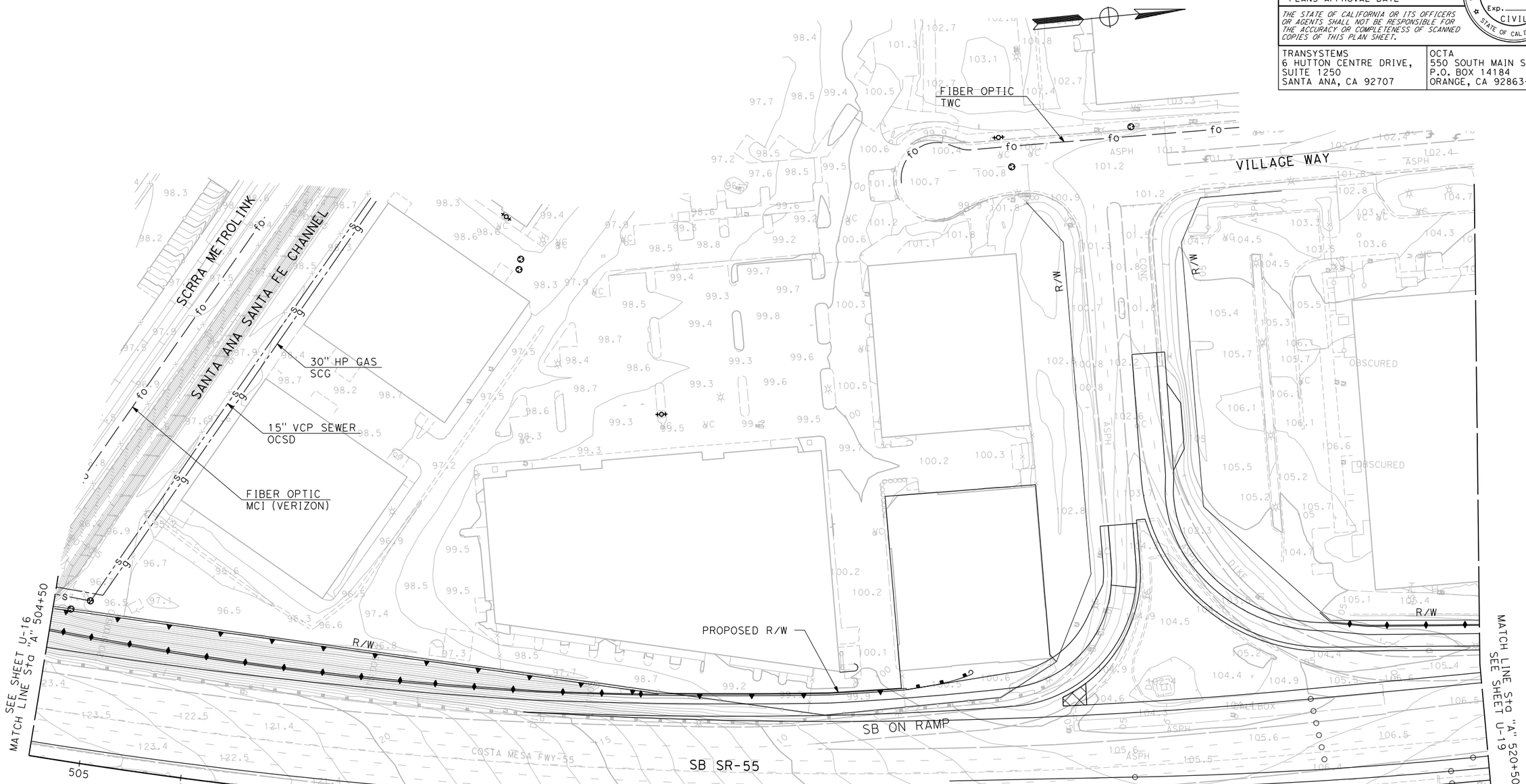

NO UTILITY RELOCATION THIS SHEET.

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-17

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TIME PLOTTED => 10:14:20 AM

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12	Ora	55	6.4/10.3		

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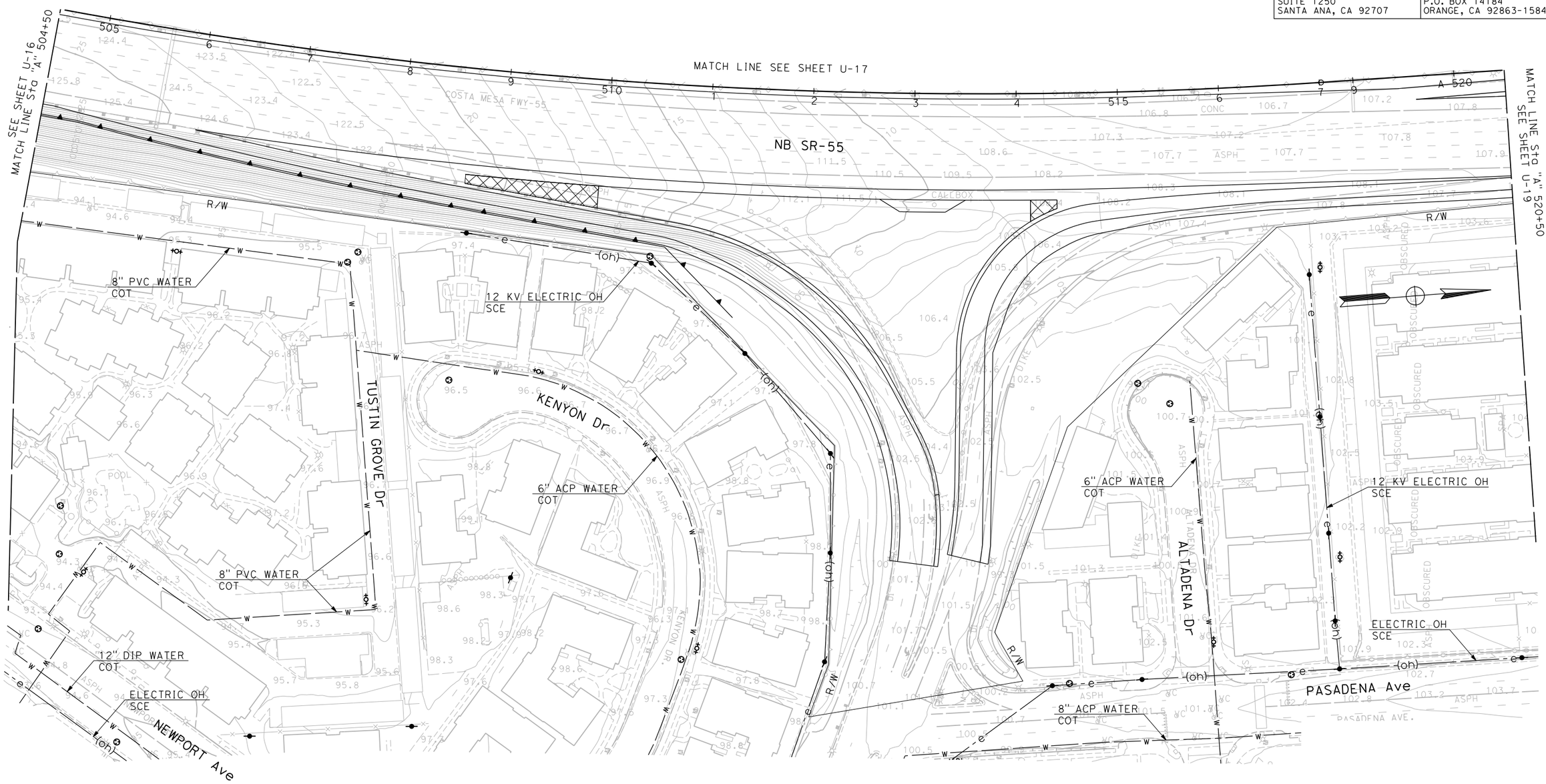

NO UTILITY RELOCATION THIS SHEET.

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-18

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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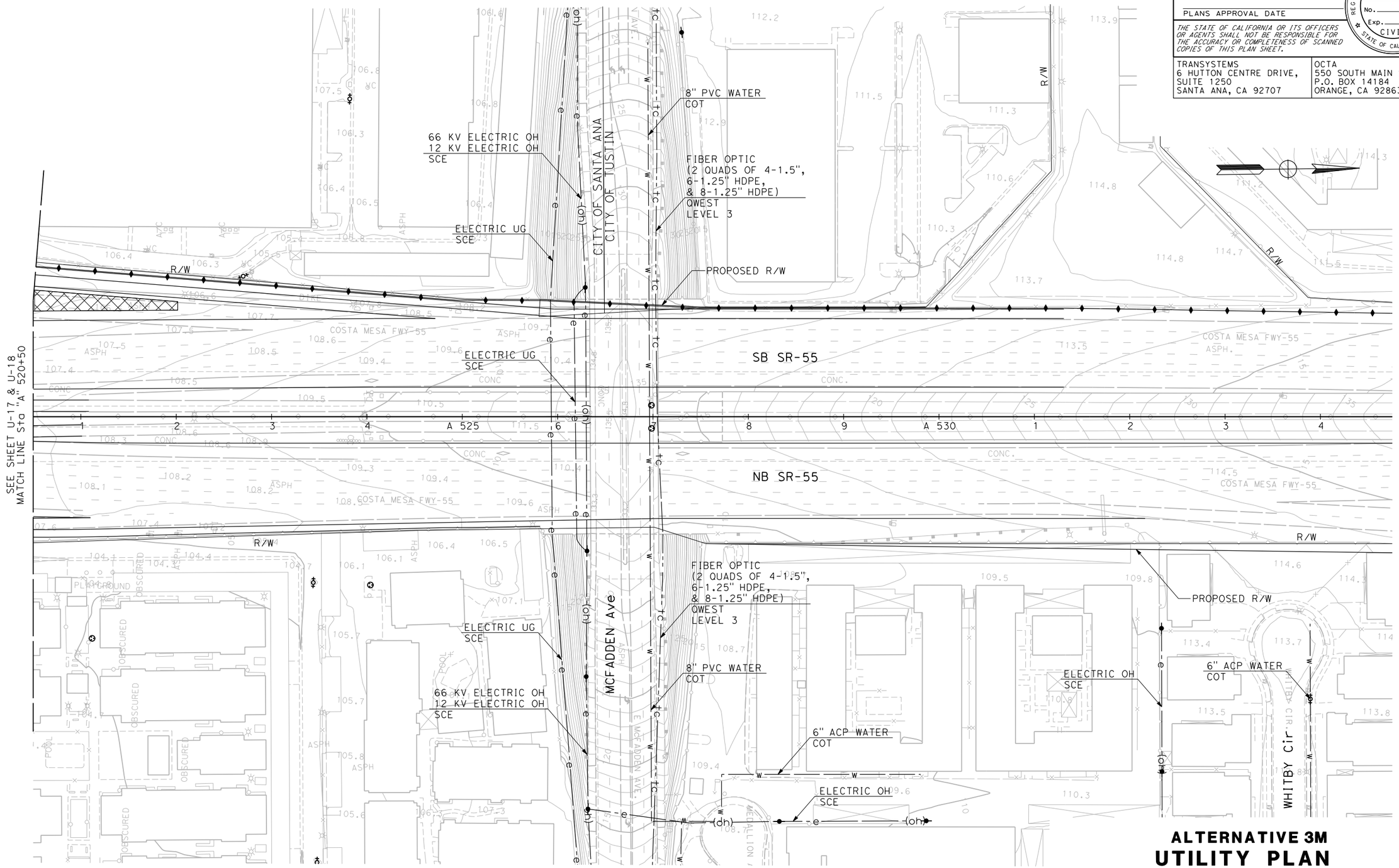

NO UTILITY RELOCATION THIS SHEET.

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

U-19

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

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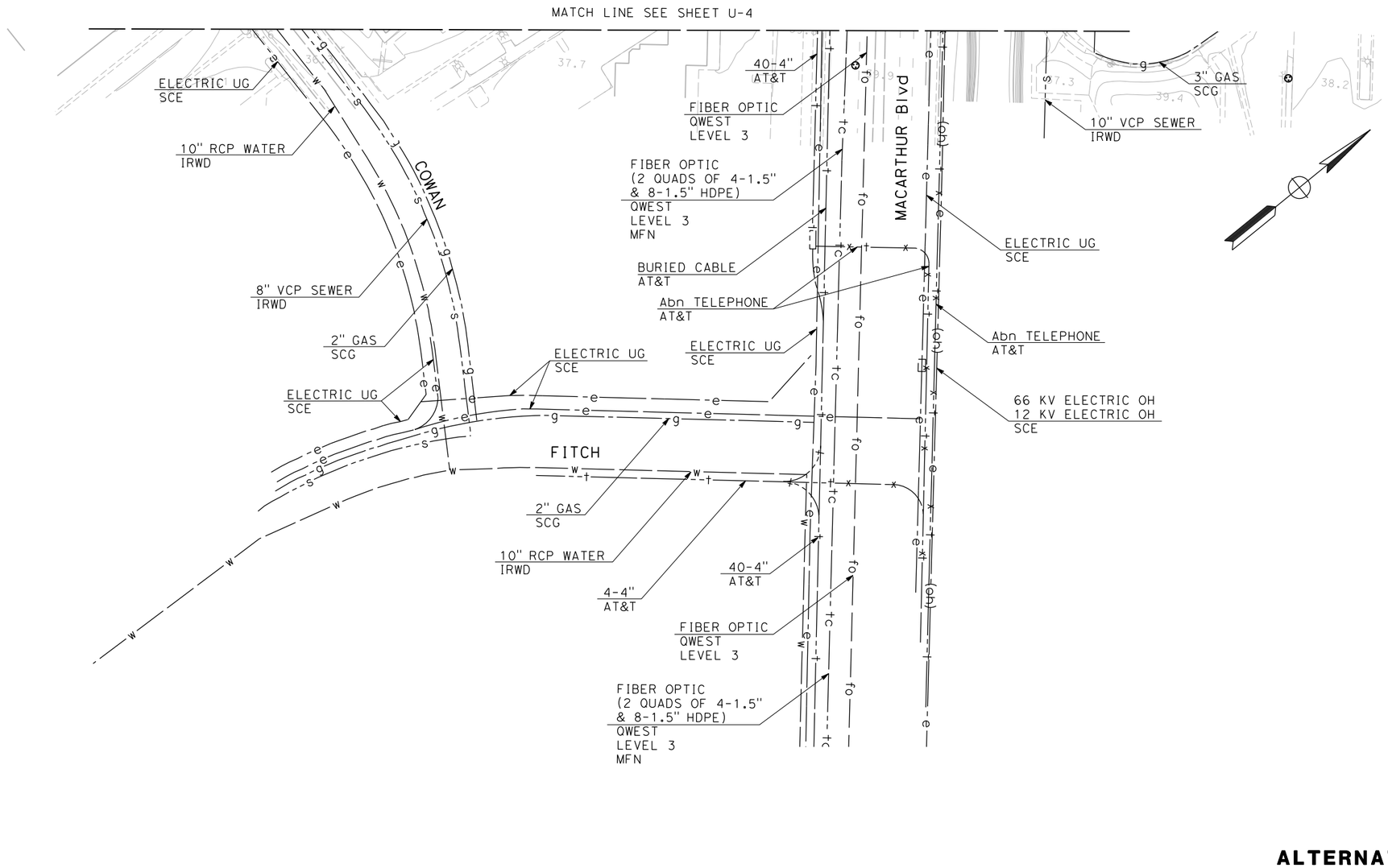

ALTERNATIVE 3M
UTILITY PLAN
SCALE: 1" = 50'

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12	Ora	55	6.4/10.3		

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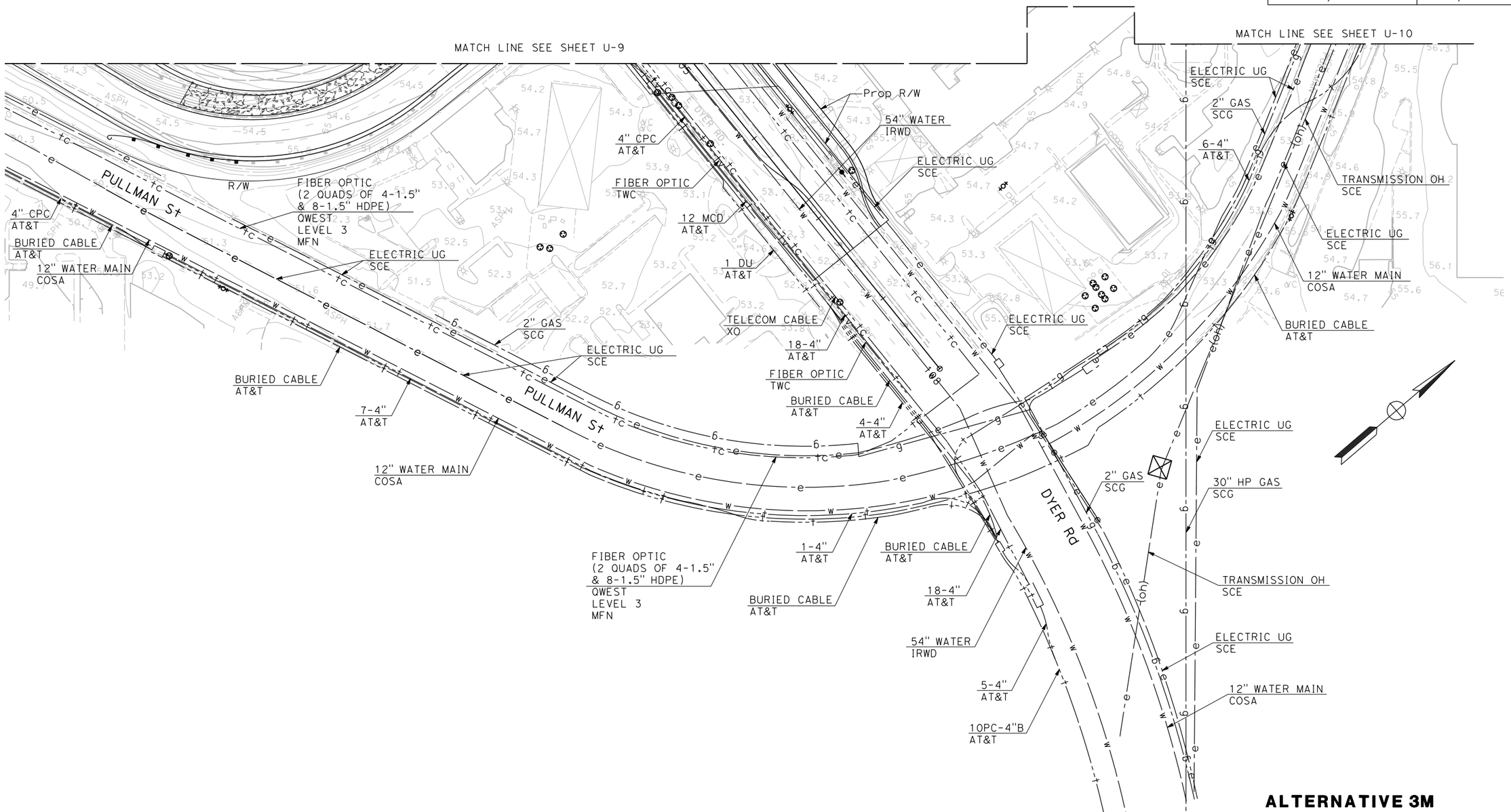

ALTERNATIVE 3M
UTILITY PLAN
SCALE: 1" = 50'

U-21

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12	Ora	55	6.4/10.3		

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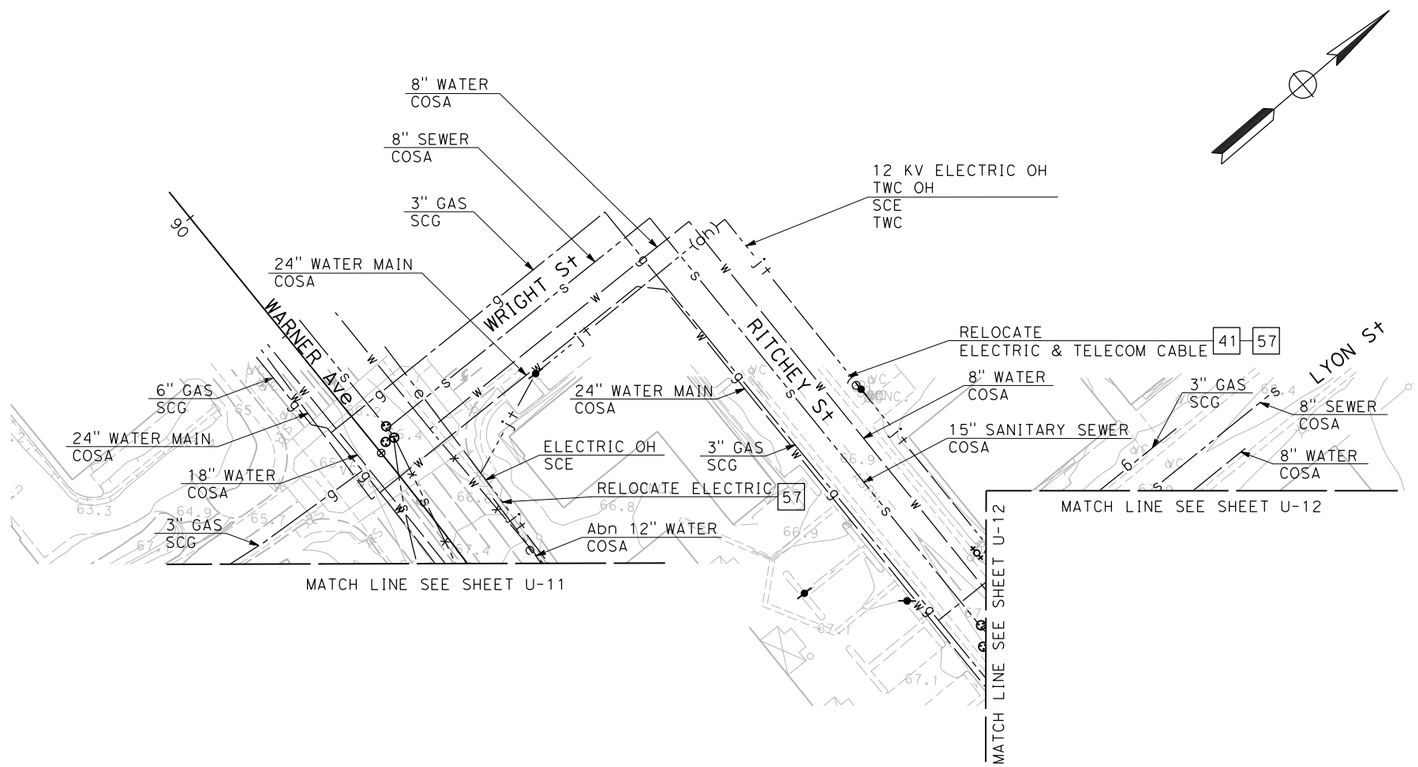

ALTERNATIVE 3M
UTILITY PLAN

SCALE: 1" = 50'

U-22

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12	Ora	55	6.4/10.3		

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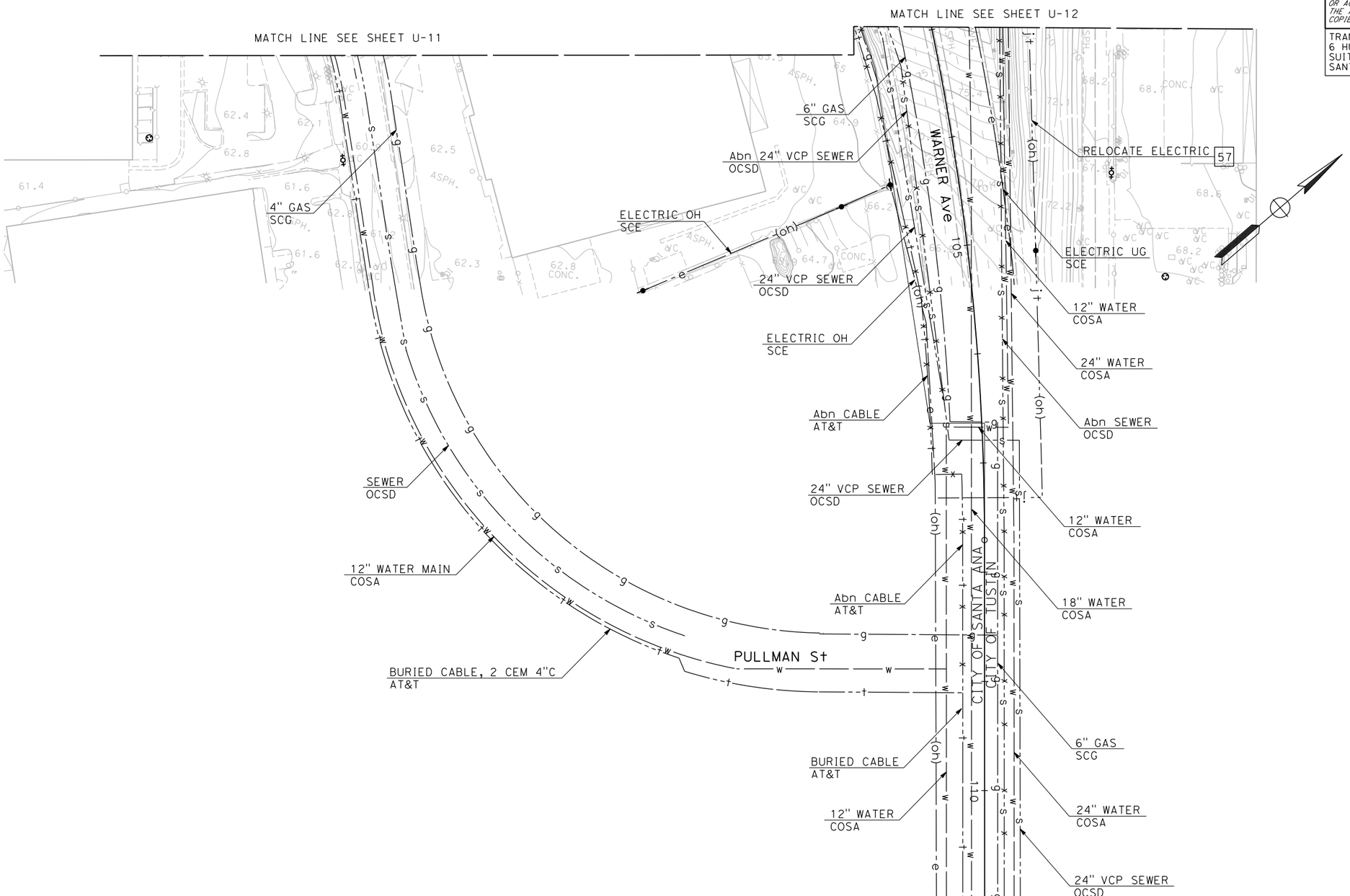

ALTERNATIVE 3M

UTILITY PLAN

SCALE: 1" = 50'

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Attachment C – Project Cost Summary for Alternative 3M

PRELIMINARY CONSTRUCTION COST ESTIMATE

DIST-CO-RTE	12-ORA-55
PM	R6.4 to 10.3
EA	0J3400
Program Code:	20.10.800.100

Project Description:

Limits: On Route 55 from 0.4 Mile North of Route 55/405 Separation in Irvine to 0.1 Mile South of Route 5/55 Separation in Tustin

Proposed Improvement (Scope):

Alternative 3Mod proposes to add one general-purpose lane in the northbound and southbound directions and a second HOV lane in each direction between the 55-405 HOV Connector and 55-5 HOV Connector. Additionally, in the northbound direction, auxiliary lanes will be constructed at two locations:

- between the MacArthur Boulevard and Dyer Road interchanges
- between the Dyer Road and Edinger Avenue interchanges

The restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound I-5 connector and the northbound McFadden on-ramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden on-ramp to northbound SR-55 and southbound I-5 would be eliminated.

In the southbound direction, the existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored to match the existing condition.

Alternative: 3M

TOTAL ROADWAY ITEMS	$	135,300,000
TOTAL STRUCTURE ITEMS	$	9,377,000
SUBTOTAL CONSTRUCTION COSTS	**$**	**144,677,000**
RIGHT OF WAY ITEMS	$	106,279,200
TOTAL PROJECT CAPITAL OUTLAY COSTS	$	250,956,200
USE	$	**250,957,000**

Reviewed by Project Manager	Signature	Camilo Rocha	Project Manager	2/1/2017
Approved by Manager of Projects	Signature	Camilo Rocha	Project Manager	2/2/2017

DIST-CO-RTE	12-ORA-55
PM	R6.4 to 10.3
EA	0J3400

I. ROADWAY ITEMS

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost	Section Cost
Roadway Excavation	103,103	CY	$20	$2,062,100	
Imported Borrow	57,231	CY	$25	$1,430,800	
Clearing & Grubbing	1	LS	$180,000	$180,000	
Develop Water Supply	1	LS	$110,000	$110,000	
				Subtotal Earthwork	$3,782,900

Section 2 Pavement Structural Section	Quantity	Unit	Unit Price	Item Cost	
PCC Pavement (1.05' Depth)	37,000	CY	$150.00	$5,550,000	
Asphalt Concrete	39,100	TONS	$75.00	$2,932,500	
Lean Concrete Base	12,400	CY	$105	$1,302,000	
Aggregate Base (CL2)	30,470	CY	$25	$761,800	
Aggregate Subbase (CL2)	75,560	CY	$25	$1,889,000	
Edge Drains	1	LS	$32,000	$32,000	
Asphalt Concrete (RHMA-G)	11,250	TONS	$95.00	$1,068,800	
				Subtotal Pavement Structural Section	$13,536,100
				SUBTOTAL SECTIONS 1-2	**$17,319,000**

Section 3 Drainage Items	Quantity	Unit	Unit Price	Item Cost	
Structural Concrete	8,279	CY	$650	$5,381,350	
Bar Reinforcing Steel	969,133	LB	$1	$1,211,416	
18" Reinforced Concrete Pipe	2,103	LF	$150	$315,450	
24" Reinforced Concrete Pipe	11,359	LF	$175	$1,987,825	
30" Reinforced Concrete Pipe	4,296	LF	$180	$773,280	
36" Reinforced Concrete Pipe	492	LF	$200	$98,400	
42" Reinforced Concrete Pipe	1,131	LF	$250	$282,750	
48" Reinforced Concrete Pipe	905	LF	$300	$271,500	
54" Reinforced Concrete Pipe	1,605	LF	$350	$561,750	
60" Reinforced Concrete Pipe	1,143	LF	$400	$457,200	
66" Reinforced Concrete Pipe	3,355	LF	$450	$1,509,750	
Drainage Inlet	273	EA	$3,000	$819,000	
Manhole	13	EA	$5,000	$65,000	
Concrete V-Ditch	1,470	LF	$40	$58,800	
Graded Swale	2,777	LF	$25	$69,425	
Grated Line Drain	3,540	LF	$125	$442,500	
Slotted Drain	3,362	LF	$126	$423,612	
				Subtotal Drainage Items	$14,729,008
				SUBTOTAL SECTIONS 1-3	**$32,048,008**

DIST-CO-RTE	12-ORA-55
PM	R6.4 to 10.3
EA	0J3400

Section 4 Specialty Items	Quantity	Unit	Unit Price	Item Cost
Retaining Walls	12,154	LF	$690	$8,386,300
Noise Barriers	33,186	SQFT	$80	$2,654,900
Guardrails and Terminal Systems	6,117	LF	$55	$336,500
Concrete Barriers	13,518	LF	$80	$1,081,500
Water Pollution Control	1	LS	$3,960,000	$3,960,000
Hazardous Waste Mitigation Work	1	LS	$1,000,000	$1,000,000
Environmental Compliance	1	LS	$1,000,000	$1,000,000
Resident Engineer Office Space	750	WDAY	$500	$375,000
Fiber Optic	37,738	LF	$50	$1,886,900
Temporary Fiber Optic	37,738	LF	$25	$943,500

Subtotal Specialty Items	$21,624,600
SUBTOTAL SECTIONS 1-4	**$53,672,608**

Section 5 Traffic Items	Quantity	Unit	Unit Price	Item Cost
Lighting	110	EA	$8,000	$880,000
Traffic Delineation Items	1	LS	$550,000	$550,000
Traffic Signals	14	EA	$180,000	$2,520,000
Overhead Sign Structures	1	LS	$3,500,000	$3,500,000
Roadside Signs	1	LS	$50,000	$50,000
Traffic Control Systems	1	LS	$17,500,000	$17,500,000
Transportation Management Plan	1	LS	$3,500,000	$3,500,000
Changeable Message Signs	3	EA	$350,000	$1,050,000
Ramp Metering System	10	LS	$50,000	$500,000
Temporary Lighting	1	LS	$100,000	$100,000
Temporary Traffic Management System	1	LS	$800,000	$800,000

Subtotal Traffic Items	$30,950,000
SUBTOTAL SECTIONS 1-5	**$84,622,608**

DIST-CO-RTE	12-ORA-55
PM	R6.4 to 10.3
EA	0J3400

Section 6 Planting and Irrigation	Quantity	Unit	Unit Price	Item Cost
Highway Planting	1	LS	$1,290,000	$1,290,000
Replacement Planting	1	LS		
Irrigation Modification	1	LS	$650,000	$650,000
Relocate Existing Irrigation Facilities	1	LS		
Irrigation Crossovers	1	LS		

Subtotal Traffic Items	$1,940,000
SUBTOTAL SECTIONS 1-6	**$86,562,608**

Section 7 Roadside Management and Safety Section	Quantity	Unit	Unit Price	Item Cost
Vegetation Control Treatments	4,000	SY	$55	$220,000
Pavement Beyond the Gore Area	32,720	SF	$7	$229,100
Erosion Control	603,380	SF	$1	$603,400
Maintenance Vehicle Pullouts Off-Freeway Access	9	EA	$20,000	$180,000
Slope Protection				
Relocating roadside facilities/features				
NPDES				

Subtotal Traffic Items	$1,232,500
SUBTOTAL SECTIONS 1-7	**$87,795,108**

				DIST-CO-RTE	12-ORA-55
				PM	R6.4 to 10.3
				EA	0J3400
Section 8 Minor Items				Item Cost	Section Cost
Subtotal Sections 1-7	$87,795,108	X	10.00%	$8,779,511	
				Subtotal Minor Items	$8,779,511
				SUBTOTAL SECTIONS 1-8	**$96,574,619**
Section 9 Roadway Mobilization				Item Cost	
Subtotal Sections 1-8	$96,574,619	X	10.00%	$9,657,462	
				Subtotal Roadway Mobilization	$9,657,462
				SUBTOTAL SECTIONS 1-9	**$106,232,081**
Section 10 Roadway Additions					
Supplemental Work					
Subtotal Sections 1-8	$96,574,619	X	10.00%	$9,657,462	
Contingencies					
Subtotal Sections 1-8	$96,574,619	X	20.00%	$19,314,924	
				Total Roadway Additions	$28,972,386
				TOTAL ROADWAY ITEMS (Total of sections 1-10)	**$135,204,467**
				USE	**$135,300,000**

Estimate Prepared By	Shiva Wooton	Project Engineer	2/1/2017
Estimate Checked By	Camilo Rocha	Project Manager	2/2/2017

DIST-CO-RTE	12-ORA-55
PM	R6.4 to 10.3
EA	0J3400

II. STRUCTURES ITEMS

	STRUCTURE No. 1	STRUCTURE No. 2	STRUCTURE No. 3	STRUCTURE No. 4	STRUCTURE No. 5
Bridge Name	South Tustin OH	55-393 R/L - Edinger UC	Warner Ave OC	55-409 R/L - Dyer Road UC	MacArthur Blvd UC
Structure Type	CIP/PS & CIP Box Girder	CIP/PS Box Girder	Tieback Wall	PC/PS I Girder & PC/PS Box Girder	PC/ PS Box Girder
Width (out to out) - ft	53'-3 1/2"	65' - 0 5/8"	1'-8"	36'-10"	21'-6 1/2"
Span Lengths - (ft)	175'-3 1/2"	188'-1"	377'-4"	223'-1"	172'-0"
Total Area - (ft^2)	9,341	12,236	4,516	8,119	5,000
Footing Type (Pile/Spread)	Piles	Piles	N/A	Pile	Piles
Cost Per ft^2 of Bridge Deck	$142	$168	$155	$219	$224
Total Cost of Bridge Construction	$1,771,000	$2,592,000	$889,000	$2,253,000	$1,872,000

SUBTOTAL STRUCTURES ITEMS	**$9,377,000**
Railroad Related Costs	
SUBTOTAL RAILROAD ITEMS	
TOTAL STRUCTURES ITEMS	**$9,377,000**
USE	**$9,377,000**

Estimate Prepared By	Eric Johnson	Project Engineer	1/17/2017

DIST-CO-RTE	12-ORA-55
PM	R6.4 to 10.3
EA	0J3400

III. RIGHT OF WAY ***(ONLY WITHIN CALTRANS R/W)***

	Estimate	Total
A. Permanent or Fee Only	$17,586,031	
B. Permanent/Fee + Temporary Easements	$41,912,742	
C. Temporary Easements Only	$1,473,117	
D. Title / Escrow	$526,719	
Total Acquisition Cost		**$61,498,609**
Permit Fees	$100,000	
Total (Including Permits)		**$61,598,609**
E. Relocation Assistance	$3,544,069	**$3,544,069**
B. Utility Relocation	$40,453,650	**$40,453,650**
D. Clearance/Demolition	$682,830	**$682,830**

TOTAL RIGHT OF WAY (CURRENT VALUES)**	**TOT. ESC. R/W**	$106,279,158
Use		**$106,279,200**

*Escalated to assumed year of advertising of	
**Current total value for use on sheet 1	$106,279,200

Estimate Prepared By	Michele Chan	Real Estate Services	1/17/2017

(If appropriate, attach additional pages and backup)

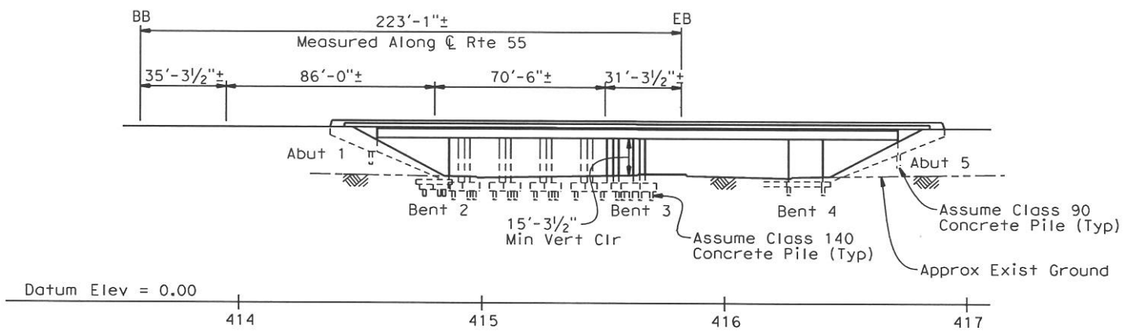
Attachment D – Advanced Planning Studies for Alternative 3M

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
12	ORA	55	6.29/10.32

OCTA
550 S. MAIN STREET
ORANGE, CA 92863

HDR ENGINEERING, INC.
3230 EL CAMINO REAL, SUITE 200
IRVINE, CA 92602-1377



ELEVATION

1" = 30'-0"

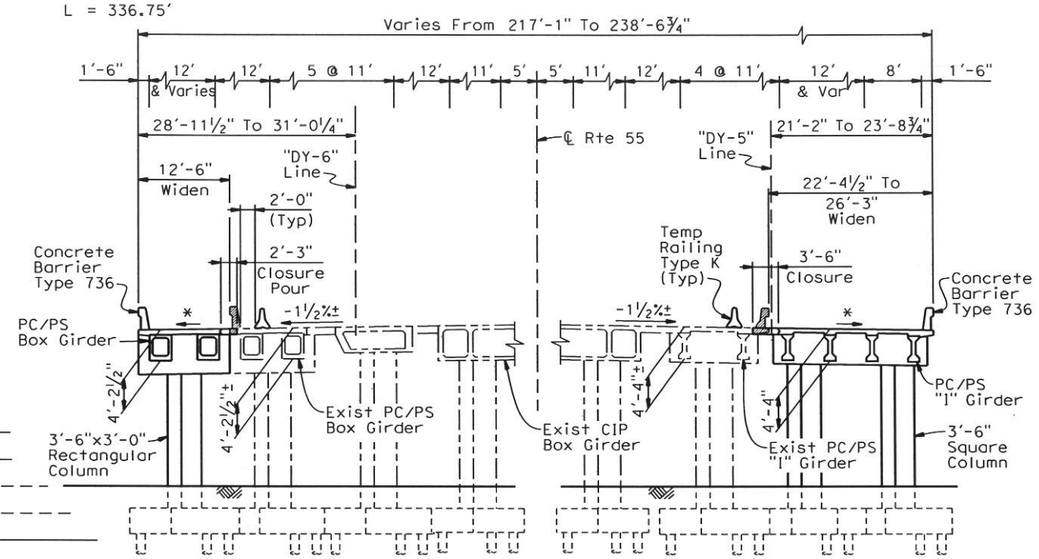
CURVE DATA

(1) "DY-5" Line
R = 3000.00'
Δ = 3°22'01"
T = 88.17'
L = 176.29'

(2) "DY-5" Line
R = 180.00'
Δ = 107°11'27"
T = 244.10'
L = 336.75'

NOTES:

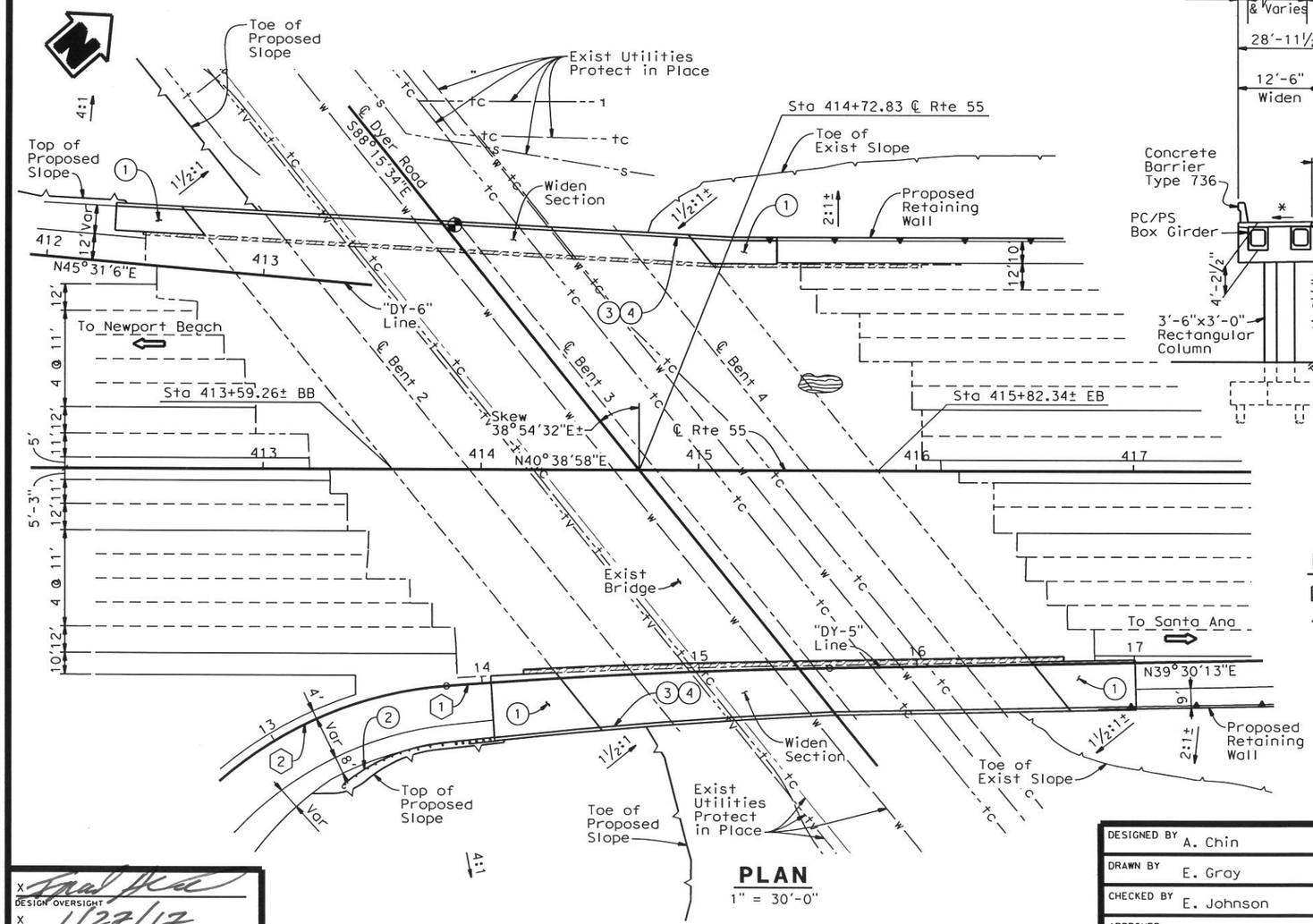
(1) Structure Approach Type N(30S).
(2) Metal Beam Guard Railing, See "Road Plans".
(3) Paint "BR 55-0409" And Year Constructed.
(4) Paint "DYER ROAD UC".



TYPICAL SECTION

1" = 10'-0"

* Match Existing Grade And Cross Slope



PLAN

1" = 30'-0"

LEGEND

- Indicates Existing Bridge Removal
- Indicates New Construction
- Indicates Existing Structure
- Indicates Min Vert Clearance 15'-3½" (Structure)
- Indicates Direction Of Traffic
- Indicates Removal Of Unsound Concrete And Place Rapid Setting Concrete Patch

Date of Estimate:	1/12/2017
Structure Depth (Average)	4'-3¼"
Length	223'-1" Average
Width	36'-9¾" Average Total
Area	8,119 SF
* Cost/SF including	
10% Time Related Overhead	
10% Mobilization	
25% Contingency	$218.66
* Bridge Removal Not Included In Cost/SF	
Total Cost	$2,253,000

ALTERNATIVE 3M

X Final Check
DESIGN OVERSIGHT
X 1/27/17
SIGN OFF DATE

DESIGNED BY	A. Chin	DATE
DRAWN BY	E. Gray	DATE
CHECKED BY	E. Johnson	DATE
APPROVED	E. Johnson	DATE

Eric A. Johnson
PROJECT ENGINEER

PLANNING STUDY
DYER ROAD UC

BRIDGE NO. 55-0409	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE: EA 0J3400

CONTRACT NO.:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => c:\pwworking\sac\d0864085\12XXXX_55-0409-a-gp03M.dgn

USERNAME => user
DATE PLOTTED => 1/27/2017
TIME PLOTTED => 4:03:33 PM

Attachment E – Right of Way Data Sheet

To: Ricky Rodriguez
Caltrans District 12
Office of Right of Way and Land Surveys

Date: January 25, 2017

Co. Ora Rte. 55
Expense Authorization 0J3400

Attention: Evy Washington, Branch Chief
R/W Planning & Management/
Project Coordination/Acquisition & Railroad

Subject: **RIGHT OF WAY DATA SHEET - LOCAL PUBLIC AGENCIES**

Project Description:

Alternative 3 Modified (3M) (New General Purpose Lane, new HOV Lane, and Additional Auxiliary Lanes)

Alternative 3Mod proposes to add one general-purpose lane in the northbound and southbound directions and a second HOV lane in each direction between the I-405 and I-5 HOV direct connectors. Additionally, in the northbound direction, auxiliary lanes will be constructed at two locations:

- between the MacArthur Boulevard and Dyer Road interchanges
- between the Dyer Road and Edinger Avenue interchanges

The restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound I-5 connector and the northbound McFadden on-ramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden on-ramp to northbound SR-55 and southbound I-5 would be eliminated.

In the southbound direction, the existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored to match the existing condition.

The information in this data sheet was developed by HDR, Inc. in collaboration with TranSystems and approved by OCTA.

I. ***Right of Way Engineering***

Will Right of Way Engineering be required for this project?

- No _____
- Yes __X__
  - Hard copy (base map) X
  - Appraisal map X
  - Acquisition Documents X
  - Property Transfer Documents X
  - R/W Record Map X
  - Record of Survey X

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	3	3	$8,055,183
B. Number of Single Family Residential Units	0	0	$0
C. Number of Multifamily Residential Units	3	0	$267,321
D. Number of Commercial/Industrial Parcels	38	2	$49,389,616
E. Number of Farm/Agricultural Parcels	0	0	$0
F. Other Parcels (define in "Remarks" section)	5	1	$3,259,771
G. Title / Escrow	N/A	N/A	$526,719
Total Acquisition Cost	N/A	N/A	**$61,498,610**
Permit Fees	N/A	N/A	$100,000
TOTAL	**49**	**6**	**$61,598,610**

**The total number of APN's that will be impacted by this alternative is 70; however, there are 55 larger parcels. The total number of APN's was used to determine title / escrow fees; however, the number of larger parcels should be used to estimate appraisal costs and right of way support costs.*

***Costs include 5% escalation for 3 years.*

Summary of A through F above, by Type of Interest Required

	Part Take*	Full Take*	Estimate**
A. Permanent or Fee Only	2	6	$17,586,031
B. Permanent/Fee + Temporary Easements	30	0	$41,912,742
C. Temporary Easements Only	17	0	$1,473,117
D. Title / Escrow	N/A	N/A	$526,719
Total Acquisition Cost	N/A	N/A	**$61,498,610**
Permit Fees	N/A	N/A	$100,000
TOTAL	**49**	**6**	**$61,598,610**

Provide a general description of the right of way and excess lands required (zoning, use, improvements, critical, or sensitive parcels, etc.).

**The total number of APN's that will be impacted by this alternative is 70; however, there are 55 larger parcels. The total number of APN's was used to determine title / escrow fees; however, the number of larger parcels should be used to estimate appraisal costs and right of way support costs.*

***Costs include 5% escalation for 3 years.*

Full and partial fee acquisitions including permanent utility easements, as well as temporary construction easements (TCE's), will be required for the construction of one additional HOV lane, one general purpose lane, and Auxiliary lanes along the SR-55 mainline. There are a total of 8 larger parcels that will be impacted by permanent/fee acquisitions without TCE's, 30 larger parcels that will be impacted by permanent/fee acquisitions with TCE's, and 17 larger parcels impacted by TCE's only. These acquisitions will be required adjacent to the SR-55 to accommodate the widening of the freeway.

Excess Land will be involved for parcels 430-012-03, 403-072-02, 403-072-01, 411-141-06, 016-221-29, 016-221-28, and 016-221-27 due to the required full acquisitions.

IV. ***Dedications***

Are there any property rights which have been acquired, or anticipate will be acquired, through the "dedication" process for the Project?

No _X_ Yes ___ (Complete the following.)

Number of dedicated parcels _0_

Have the dedication parcel(s) been accepted by the municipality involved?

V. ***Excess Lands / Relinquishments***

Are there Caltrans property rights which may become excess lands or potential relinquishment areas?

No _____ Yes __X__

Any excess land resulting from the project will be handled in accordance with the cooperative agreement to be executed between OCTA and Caltrans.

VI. ***Relocation Information***

Are relocation displacements anticipated?

No _____ Yes __X__ (Complete the following.)

	No. of Larger Parcels	Relocation Estimate*
A. Number of Single Family Residential Units Estimated RAP Payments	0	$0
B. Number of Multifamily Residential Units Estimated RAP Payments	0	$0
C. Number of Business/Nonprofit Estimated RAP Payments	3**	$3,544,069
D. Number of Farms Estimated RAP Payments	0	$0
E. Other (define in the "Remarks" section) Estimated RAP Payments	0	$0
TOTALS	**3**	**$3,544,069**

**Costs include 5% escalation for 3 years.*
***One of the larger parcels has two businesses that will be relocated.*

VII. ***Utility Relocation Information***

Do you anticipate any utility facilities or utility rights of way to be affected?

No _____ Yes __X__ (Complete the following.)

Refer to the attached Utility Information Sheet for detailed breakdown of facilities.

Estimated Relocation Expenses		
	Local Obligation	Utility Owner Obligation
Totals	$ 40,453,650	$

Amounts above reflect a 5% escalation based on 2015 data for a 4 year duration.

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
OCTA (SCRRA Operator)	Tustin Overhead	N/A

A TCE will be required for the project. A service contract and a construction and maintenance agreement will be executed with SCRRA.

IX. ***Clearance Information***

Are there improvements that require clearance?

No _____ Yes _X_ (Complete the following.)

A. Number of Structures to be Demolished
Estimated Cost of Demolition 3 $ 682,830

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 _____ Yes _X_ (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 _____ Yes _X_ (Explain in the "Remarks" section.)

XI. ***Project Scheduling***

	Proposed lead time*	Completion date
Preliminary Engineering, Surveys	3 (months)	August 2018
R/W Engineering Submittals	6 (months)	February 2019
R/W Appraisals/Acquisition	13 (months)	June 2020
Proposed Environmental Clearance	- (months)	September 2017
Proposed R/W Certification	3 (months)	July 2020

XII. ***Proposed Funding***

	Local	State	Federal	Other
Acquisition	X			
Utilities	X			
Relocation Assistance Program	X			
R/W Support	X			

XIII. ***Remarks***

- **III. Parcel Information Other Parcels** – All parcels with land uses classified as City / Public Use, Railroad, and Flood Control Channel / OCFCD.
- **X. Hazardous Materials/Waste** – Phase I Environmental Testing has been completed, which revealed evidence of Recognized Environmental Conditions (RECs) in connection with the proposed alignment for several acquisition properties. Phase II Environmental Testing is currently in progress for APN's 427-261-08, 430-012-03, 430-241-12, 403-072-01, 403-072-02, 403-041-07, and 402-111-24.

Project Sponsor Consultant
Prepared by:

Michele Chan, Real Estate Services PM
HDR

1/25/17
Date

Project Sponsor
Reviewed and Approved by:

Joe Gallardo, Manager
Orange County Transportation Authority
Real Property Department

2-2-17
Date

Caltrans
Reviewed and accepted based on information provided to date:

for Signature

3/22/17
Date

Name Evangeline Washington for Ricky Rodriguez

Title: Office Chief, Office of R/W & Land Surveys District 12

SR-55 Widening Project from I-405 to I-5 (EA 12-0J3400)

PROPOSED RIGHT-OF-WAY ACQUISITIONS –Alternative 3Mod

APN	Acquisition Type
427-282-14, 427-282-15	Partial/TCE/Permanent Easement
427-261-05	Partial/TCE/Permanent Easement
427-261-06	Partial/TCE
427-261-07	Partial/TCE
427-261-08	Partial/TCE
427-261-09, 427-261-10	Partial/TCE/Permanent Easement
427-262-06	Partial/TCE
427-262-02	TCE
430-113-01	Permanent Easement
430-111-20, 430-111-01	Permanent Easement
430-111-18, 430-111-08	TCE
430-112-12	Partial/TCE/Permanent Easement
430-112-04, 430-112-05	Partial/TCE/Permanent Easement
430-112-06	Partial/TCE/Permanent Easement
430-115-01	Partial/TCE
430-171-07	Partial/TCE
430-031-09, 430-031-03	Partial/TCE/Permanent Easement
430-032-10	Partial/TCE/Permanent Easement
430-011-03	Partial/TCE/Permanent Easement
430-011-04	Partial/TCE
430-012-04	Partial/TCE
430-012-03	Full
430-241-12	Partial/TCE/Permanent Easement
430-241-07	Partial/TCE/Permanent Easement
430-251-22	TCE
430-251-35	TCE
430-251-14, 430-251-15	TCE
430-252-02, 430-252-10	TCE
SBE 804-30-12D-9	TCE
N/A	TCE
402-142-24	TCE
402-142-10	TCE
402-142-11, 402-142-12, 402-142-13	TCE
411-141-05	Partial/Permanent Easement/TCE
411-141-06	Full Take
016-221-29, 016-221-28, 016-221-27	Full Take
016-221-14	Partial/TCE
016-221-13	Partial/TCE
016-221-12	Partial/TCE

403-072-03	Full Take
403-072-02	Full Take
403-072-01	Full Take
403-071-16	TCE
403-071-19, 403-071-18, 403-071-17	TCE
403-071-13	TCE
403-041-08	Partial/TCE
403-041-07	Partial/TCE
403-041-04	Partial/TCE
SBE 804-30-120-POT	TCE
N/A	TCE
402-101-07, 402-101-39	TCE/Permanent Easement
402-101-45	Partial/TCE/Permanent Easement
402-111-24	Partial/TCE
402-111-41	TCE
402-251-07	TCE

Alternative 3M

1. Name of utility companies involved in project:
   - **AT&T**
   - **CITY OF SANTA ANA (COSA)**
   - **COX COMMUNICATIONS (COX)**
   - **IRVINE RANCH WATER DISTRICT (IRWD)**
   - **METROPOLITAN WATER DISTRICT (MWD)**
   - **ORANGE COUNTY SANITATION DISTRICT (OCSD)**
   - **SOUTHERN CALIFORNIA EDISON (SCE)**
   - **SOUTHERN CALIFORNIA GAS COMPANY (SCG)**
   - **TIME WARNER CABLE (TWC)**

2. Types of facilities and agreements required:

SR-55 Crossings:

- **Notice to owner or utility agreement to relocate SCE electrical lines per utility plans at various locations throughout the project limits from stations 340+00 to 475+50.**
- **Notice to owner or utility agreement to install new SCE steel pole at right of NB SR-55 at station 384+70.**
- **Notice to owner or utility agreement to relocate, jack and bore casing for AT&T telephone line that crosses SR-55 at station 396+61.**
- **Notice to owner or utility agreement to install new SCE steel pole at right of NB SR-55 at station 399+22.**
- **Notice to owner or utility agreement to extend casing on NB side of freeway and install new casing on SB side of freeway for 30" high pressure SCG gas line that crosses SR-55 at station 423+00.**
- **Notice to owner or utility agreement to pothole and encase (if necessary) an underground SCE electrical line that crosses SR-55 at station 425+32.**
- **Notice to owner or utility agreement to pothole and encase (if necessary) an underground SCE electrical line that crosses SR-55 at station 425+47.**
- **Notice to owner or utility agreement to pothole and encase (if necessary) an underground SCE electrical line that crosses SR-55 at station 425+63.**
- **Notice to owner or utility agreement to pothole and encase (if necessary) an underground SCE electrical line that crosses SR-55 at station 426+18.**
- **Notice to owner or utility agreement to relocate OCSD sewer manhole that is located right of NB SR-55 at station 447+44.**
- **Notice to owner or utility agreement to extend 54" casing for 24" OCSD sewer line that crosses SR-55 at station 447+09.**
- **Notice to owner or utility agreement to pothole and protect 6" SCG gas in 10" steel casing that crosses SR-55 at station 447+63.**
- **Notice to owner or utility agreement to relocate overhead TWC telecommunication line that crosses SR-55 at station 448+82.**
- **Notice to owner or utility agreement to relocate overhead TWC telecommunication line that crosses SR-55 at station 448+96.**
- **Notice to owner or utility agreement to relocate, jack and bore casing for 18" MWD water line that crosses SR-55 at station 449+06.**
- **Notice to owner or utility agreement to relocate, jack and bore casing for 12" COSA water line that crosses SR-55 at station 450+39.**
- **Notice to owner or utility agreement to relocate, jack and bore casing for 24" COSA water line that crosses SR-55 at station 450+51.**
- **Notice to owner or utility agreement to relocate COSA pressure reducer station that is located left of SB SR-55 at station 451+50.**
- **Notice to owner or utility agreement to relocate 15" OCSD sewer that runs parallel to SB SR-55 from station 498+23 to 503+12.**
- **Notice to owner or utility agreement to relocate 30" high pressure SCG gas line that runs parallel to SB SR-55 from station 498+67 to 500+55.**

- **Notice to owner or utility agreement to pothole and encase (if necessary) an underground SCE electrical line that crosses SR-55 at station 525+93.**
- **Notice to owner or utility agreement to pothole and encase (if necessary) an underground SCE electrical line that crosses SR-55 at station 526+19.**

Cowan (Right of NB SR-55 from station 345+00 to 358+00):
- **Notice to owner or utility agreement to relocate 8" IRWD sewer**
- **Notice to owner or utility agreement to relocate 2" SCG gas**
- **Notice to owner or utility agreement to relocate an underground AT&T telephone line**
- **Notice to owner or utility agreement to relocate an underground AT&T telephone line**
- **Notice to owner or utility agreement to relocate IRWD fire hydrants, water service lines, fire service lines, and valve cans.**

Pullman Street (Right of NB SR-55 from station 381+50 to 393+50):
- **Notice to owner or utility agreement to relocate 3" SCG gas**

Pullman Street (Right of NB SR-55 from station 402+00 to 443+00):
- **Notice to owner or utility agreement to relocate 4" SCG gas**
- **Notice to owner or utility agreement to relocate an underground AT&T telephone line**
- **Notice to owner or utility agreement to relocate COSA fire hydrants, water service lines, fire service lines and valve cans.**

Ritchey Street (Left of SB SR-55 from station 445+00 to 466+50):
- **Notice to owner or utility agreement to relocate an overhead TWC telecommunication line**
- **Notice to owner or utility agreement to relocate 24" COSA water**
- **Notice to owner or utility agreement to relocate 15" OCSD sewer**

3. Is any facility a longitudinal encroachment in existing or proposed access controlled right of way?
Yes, there are facilities that are longitudinally encroached in existing or proposed access controlled right of way.

Disposition of longitudinal encroachment(s):
☒ Relocation required.
☐ Exception to policy needed.
☐ Other. Explain.

4. Additional information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons (no transmission tower relocations in summer).

- Edison relocations will require the ordering and fabrication of new steel poles. It is estimated the fabrication of these steel poles will take 12 to 18 months. (Note: Lead-time starts for relocation of utilities from the date of notice to owners).

- This project will require some Edison transmission facilities to be relocated. Due to the high demand for electrical use during the summer months, relocations of transmission facilities should not be performed during the summer months, unless agreed to by Edison.

- Relocation of the City of Santa Ana Pressure Reducer Station will require at least six months.

5. PMCS Input Information
Total estimated cost of obligation for utility relocation on this project:

$ 38,613,000

Note: Total estimated cost to include any Department obligation to relocate longitudinal encroachments in access controlled right of way and acquire any necessary utility easements.

Utility Involvements

U4-1		U5-7	0
-2		-8	
-3	34	-9	34
-4			

Prepared By:

3/8/2017

Michele Chan
Right of Way Utility Coordinator

Date

Attachment F – Technical Memorandum to Storm Water Data Report

Technical Memorandum

DATE: January 25, 2017

TO: Grace Pina-Garrett, California Department of Transportation District 12, NPDES Coordinator

FROM: Joe Sawtelle, TranSystems

SUBJECT: State Route 55 Improvement Project Between Interstate 405 and Interstate 5 Project – Supplemental Storm Water Data Report (March 2013) (12-0RA- 55-PM 6.4/10.3, EA OJ3400/EF IS 1200020328)

This memorandum is to supplement the approved Storm Water Data Report (SWDR) that was approved in March of 2013. The proposed project has added a new Alternative, Alternative 3 Modified (3M). Alternative 3M has the same proposed pavement area as Alternative 3. These revisions do not change the recommendations presented in the approved SWDR.

Under the project description, the following description of the additional alternative is added:

Alternative 3M: Would add one general-purpose lane in the northbound and southbound directions and a second high-occupancy vehicle (HOV) lane in each direction between the Interstate 405 (1-405) and Interstate 5 (1-5) HOV direct connectors. Additionally, in the northbound direction, auxiliary lanes will be constructed at two locations:

- Between the MacArthur Boulevard and Dyer Road interchanges
- Between the Dyer Road and Edinger Avenue interchanges

The restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound 1-5 connector and the northbound McFadden Avenue on-ramp would be restricted to the northbound 1-5 connector only. As a result, access from the McFadden Avenue on-ramp to northbound State Route (SR-55) and southbound 1-5 would be eliminated. In the southbound direction, the existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored to match the existing condition.

Alternative 3M is similar to Alternative 3 and does not add any additional new impervious area or increase the soil disturbance limits.

Currently, the SWDR shows the following:

Disturbed Soil Area: The Disturbed Soil Area (DSA) for the project will be as follows for each alternative:

- Alternative 1: 38.86 ac
- Alternative 2: 70.33 ac
- Alternative 3: 77.16 ac
- Alternative 4: 64.89 ac

Existing Impervious Surface: The existing impervious surface area within the project limits is 122.9 ac. The new impervious area, net increase in impervious area, and total impervious area under each alternative is listed below:

Table 1-1 Impervious Surface Area

	New Impervious Area	Total Impervious Area
Alternative 1	7.25	130.15
Alternative 2	11.32	134.22
Alternative 3	15.28	138.18
Alternative 4	15.02	137.92

A SWDR must be prepared for the PS&E phase for the selected alternative. Alternative 3M is using the same paved cross section as Alternative 3 and has the same new impervious area and disturbed soil area. It is anticipated that the Treatment BMP Strategies would remain the same and that the cost estimate for Alternative 3 and 3M would be similar. It is also anticipated that the Risk Level 2 will remain the same. It is recommended that this memo serve as a supplement to the approved SWDR from March of 2013 and no further studies are required for the PA/ED phase.

PREPARED BY:

Joseph W. Sawtelle P.E. — 1/25/2017 Date

Joseph W. Sawtelle P.E.
TranSystems
6 Hutton Centre Drive, Suite 1250
Santa Ana, CA 92707

CONCURRED BY:

Grace Pina-Garrett. — 3/16/17 Date

Grace Pina-Garrett.
National Pollution Discharge
Elimination Coordinator (657) 328-6138
California Department of
Transportation District 12
1750 East 4th Street, Suite 100
Santa Ana, CA 92705

Attachment G – Traffic Management Plan Data Sheet

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

Co/Rte/MP Ora/55/ 6.29 to 10.32 EA 0J3400 Alternative No. 3M

Project Limit Between I-405 and I-5

Project Description SR-55 Widening Between the I-405 and I-5

Expected Construction Schedule 2017-2020

1) Public Information

☐	a. Brochures and Mailers	$
☐	b. Press Release	$
☐	c. Paid Advertising	$
☐	d. Public Information Center/Kiosk	$
☐	e. Public Meeting/Speakers Bureau	$
☐	f. Telephone Hotline	$
☐	g. Internet	$
☒	h. Others Public Outreach	$300,000

2) Motorists Information Strategies

☐	a. Changeable Message Signs (Fixed)	$
☒	b. Changeable Message Signs (Portable)	(in project cost)
☒	c. Ground Mounted Signs	(in project cost)
☒	d. Highway Advisory Radio	$ 0
☒	e. Caltrans Highway Information Network (CHIN)	$ 0
☐	f. Others	$

3) Incident Management

☒	a. Construction Zone Enhanced Enforcement Program (COZEEP)	$150,000
☒	b. Freeway Service Patrol	$190,000
☐	c. Traffic Management Team	$
☐	d. Helicopter Surveillance	$
☐	e. Traffic Surveillance Stations (Loop Detector and CCTV)	$
☒	f. Others Local Towing Services	$ 0

4) Construction Strategies

- [x] a. Lane Closure Chart $ 0
- [ ] b. Reversible Lanes $
- [ ] c. Total Facility Closure $
- [ ] d. Contra Flow $
- [ ] e. Truck Traffic Restrictions $
- [ ] f. Reduced Speed Zone $
- [ ] g. Connector and Ramp Closure $
- [ ] h. Incentive and Disincentive Clause $
- [ ] i. Moveable Barrier $
- [ ] j. Others _____ $

5) Demand Management

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

6) Alternative Route Strategies

- [ ] a. Add Capacity to Freeway Connector $
- [ ] b. Street Improvement (widening, traffic signal... etc) $
- [ ] c. Traffic Control Officers $
- [ ] d. Parking Restrictions
- [x] e. Others Detour Traffic (in project cost)

7) Other Strategies

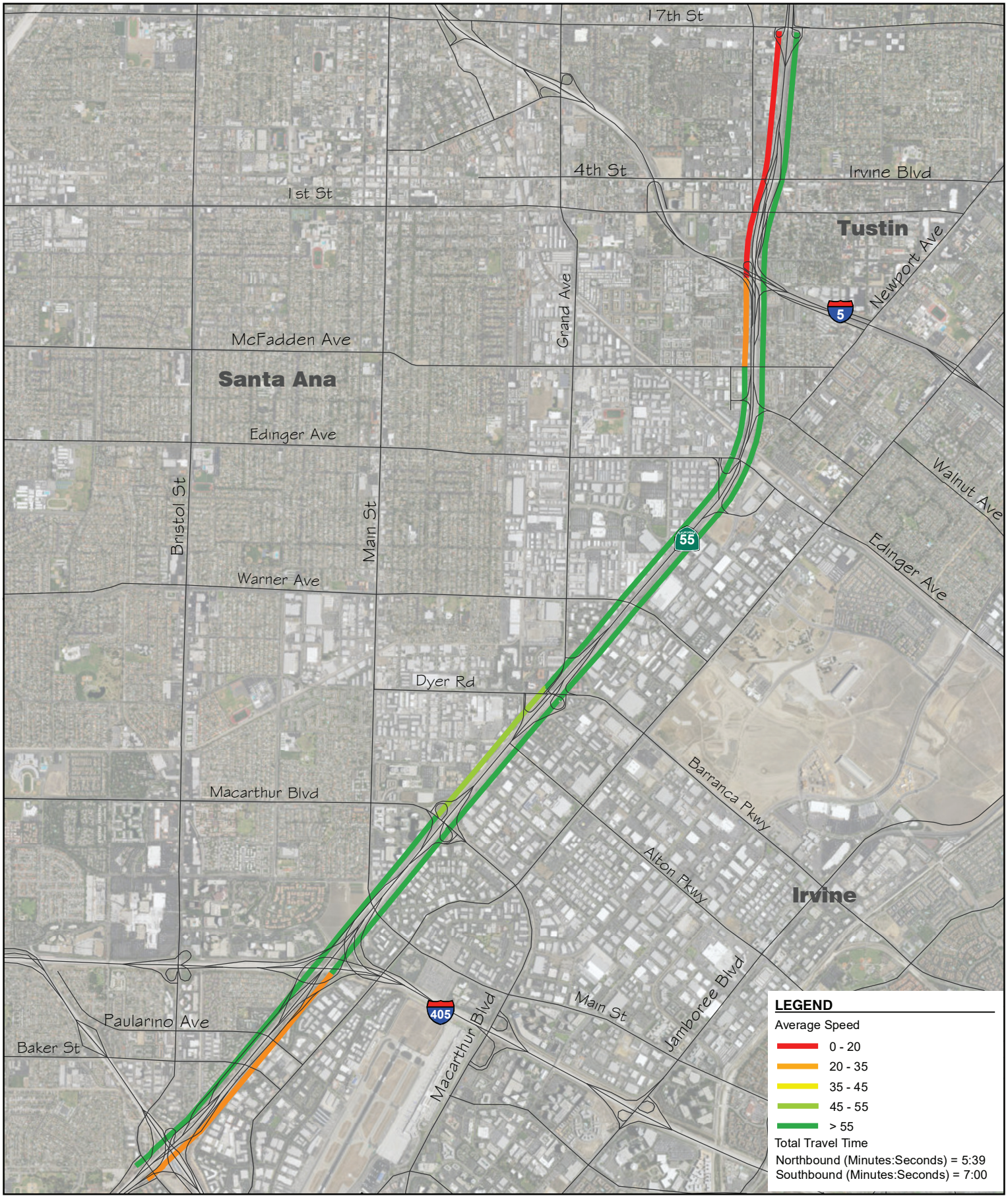
- [ ] a. Application of New Technology $
- [ ] b. Others _____ $

TOTAL ESTIMATED COST OF TMP ELEMENTS = $640,000

PREPARED BY _____ DATE _____

APPROVED BY _____ DATE _____

Attachment H – Traffic Data



N

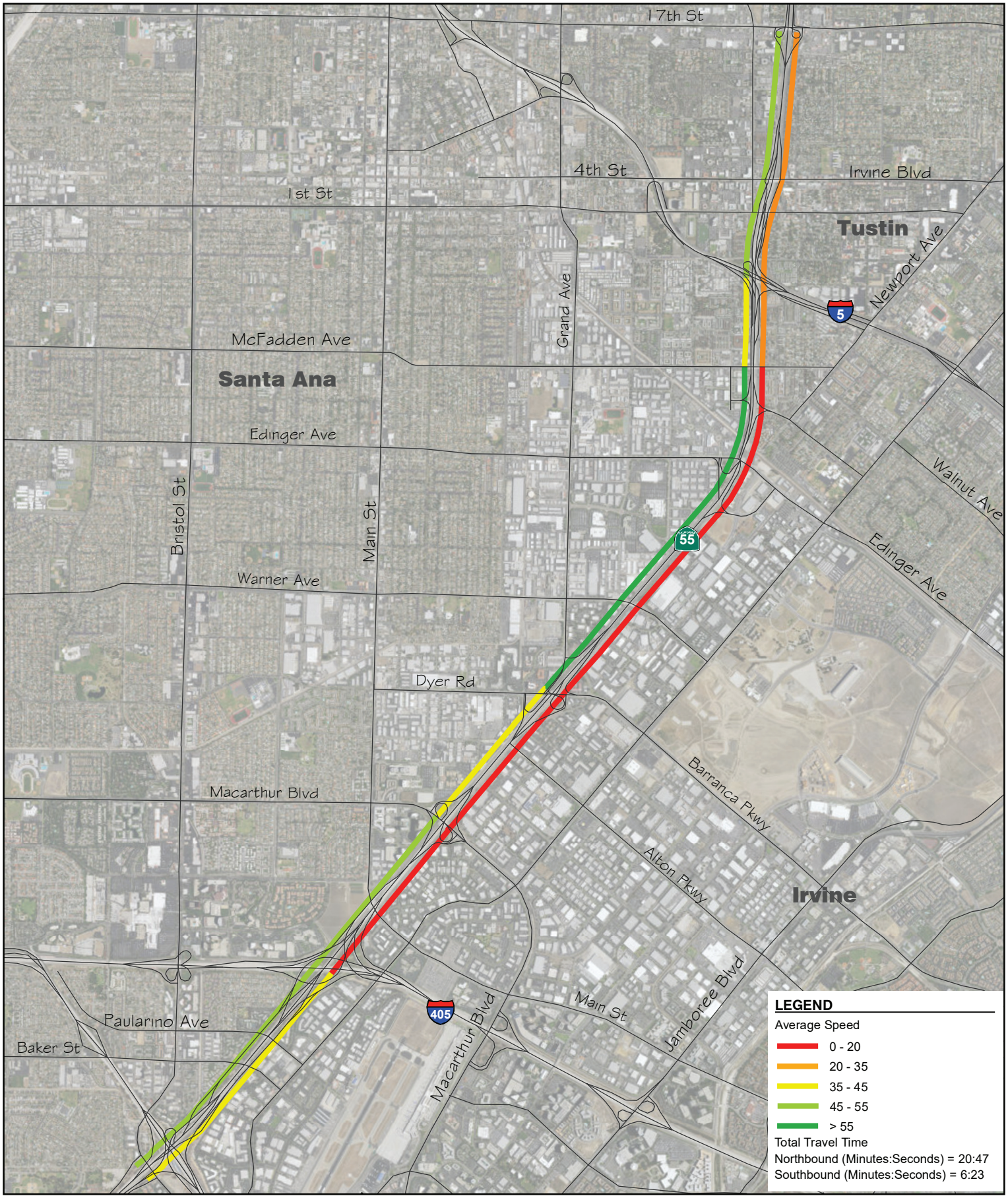
NOT TO SCALE

FEHR PEERS

CORRIDOR TRAVEL TIME AND SPEEDS
2040 BUILD ALTERNATIVE 3M AM PEAK HOUR

Document Path: N:\Jobs\Active\OC Jobs\OC11-0169\Graphics\GIS\MXD\F3_C_2040_ALT3M_AM.mxd

FIGURE 3-C-BUILD ALT3M-AM



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NOT TO SCALE

FEHR & PEERS

CORRIDOR TRAVEL TIME AND SPEEDS
2040 BUILD ALTERNATIVE 3M PM PEAK HOUR

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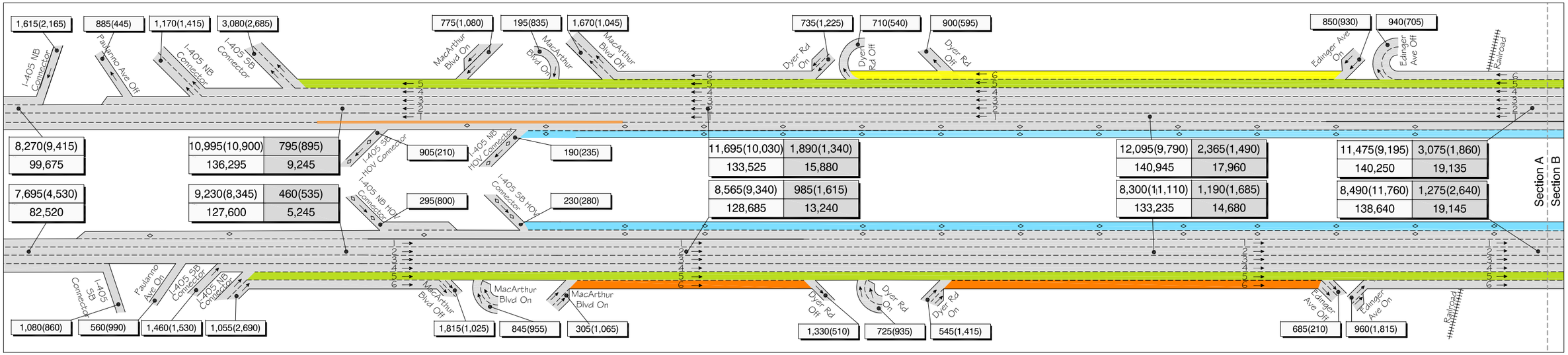
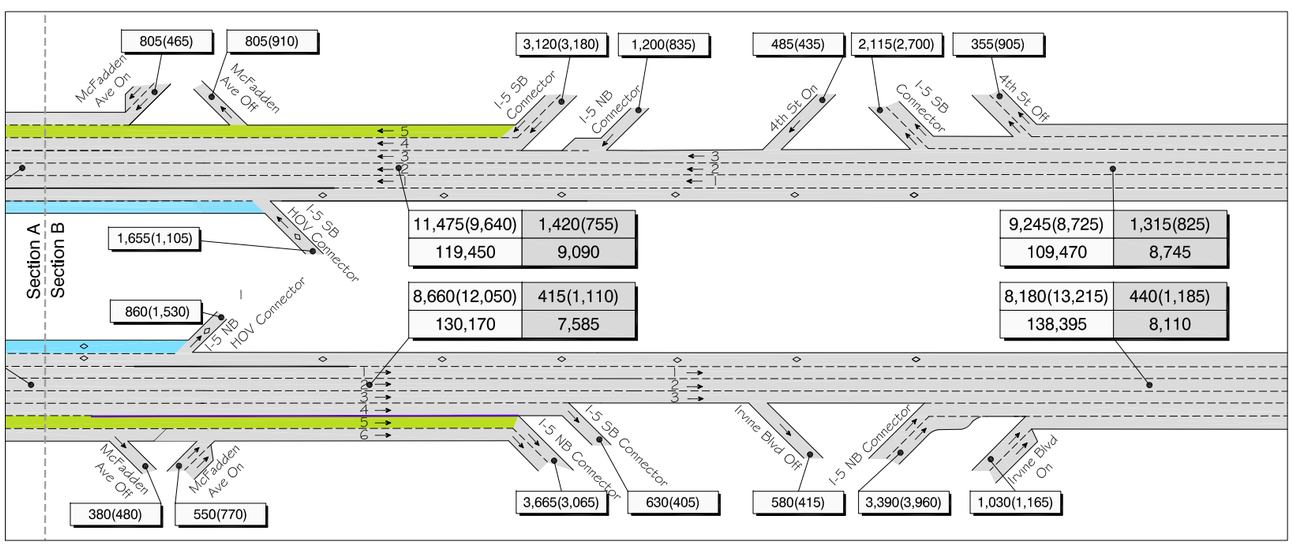
FIGURE 3-C-BUILD ALT3M-PM



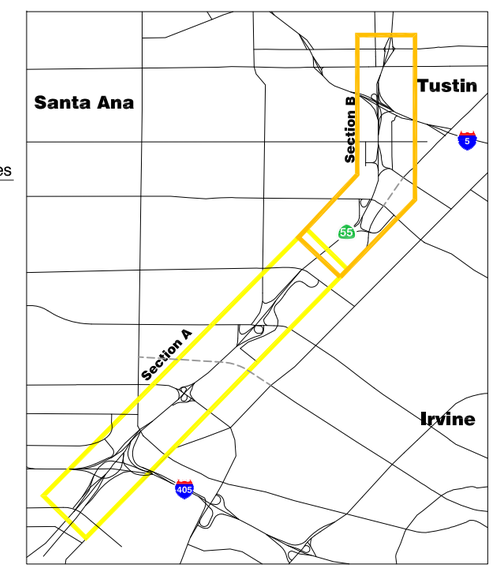


N

NOT TO SCALE

LEGEND

- → - General Purpose Lane
- ◇ - HOV Lane
- XXX(XXX) - Ramp AM(PM) Peak Hour Traffic Volumes
- XXX(XXX) / XXX - Freeway Mainline AM(PM) Peak Hour Traffic Volumes / Freeway Mainline ADT Traffic Volumes
- XXX(XXX) / XXX - Freeway HOV AM(PM) Peak Hour Traffic Volumes / Freeway HOV ADT Traffic Volumes
- Proposed General Purpose Lane
- Proposed Auxiliary Lane
- Proposed HOV Lane
- Separator
- Improvements by Other Project Completed in 2012
- HOV Limited Access

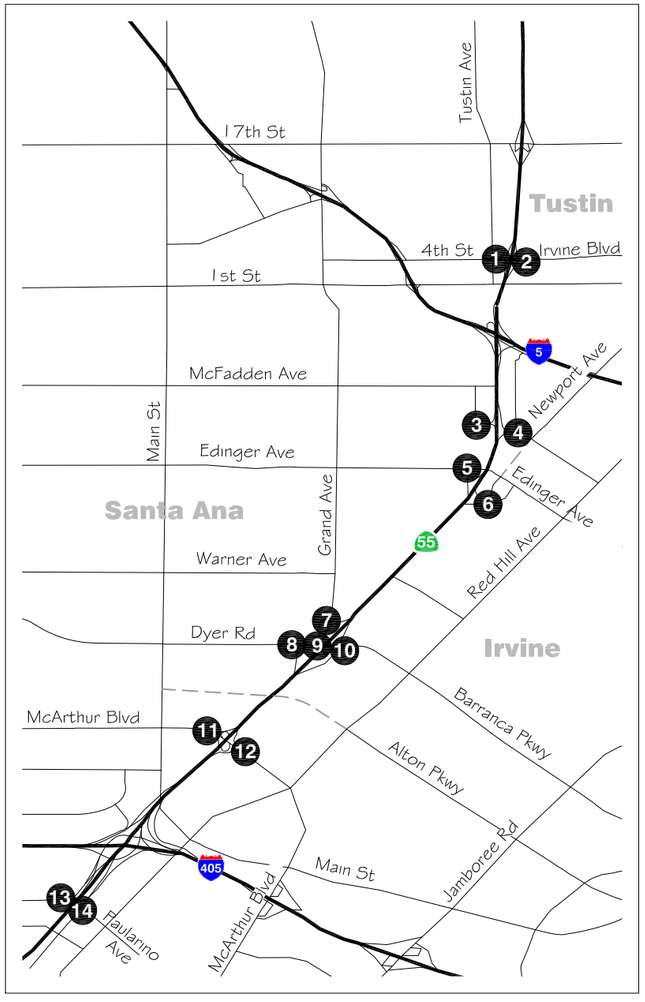


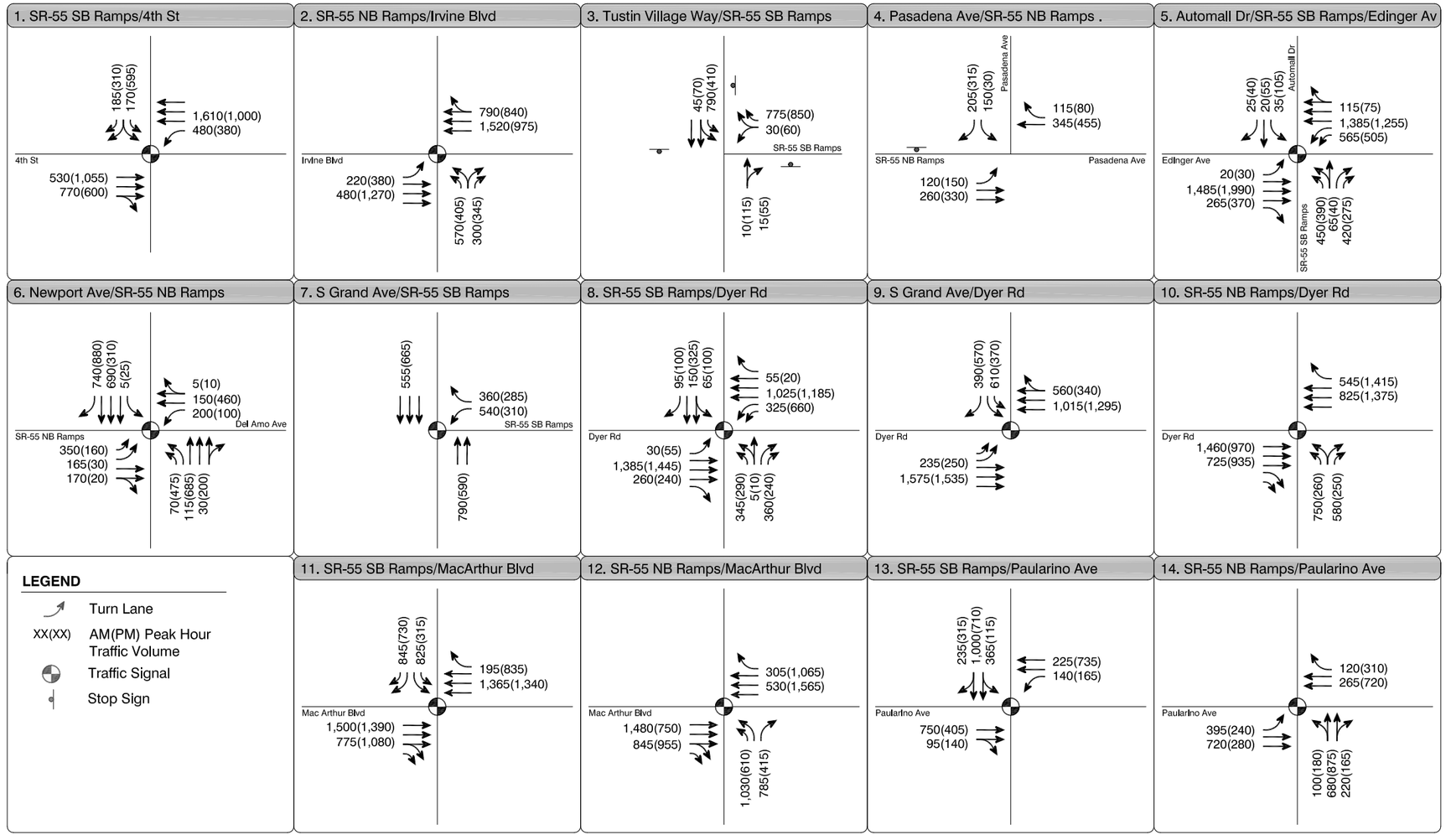
FEHR & PEERS

SR-55 (I-405 TO I-5) FREEWAY LANE CONFIGURATIONS AND PEAK HOUR AND DAILY TRAFFIC VOLUMES - DESIGN YEAR 2040 - BUILD ALTERNATIVE 3M

FIGURE 3-A-ALT 3M

Dec 05, 2016 MKAO
N:\Jobs\Active\OC Jobs\OC11-0169\Graphics\ACAD\FreewayVols\OpsReport\Dec052016\F3-A-Alt 3M-2040 BUILD ALT 3M\Figure 3-A-Alt 3M-2040 BUILD ALT 3M FreewayVol.dwg





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NOT TO SCALE

FEHR PEERS

SR-55 (I-405 TO I-5) INTERSECTION LANE CONFIGURATIONS AND PEAK HOUR TRAFFIC VOLUMES - DESIGN YEAR 2040 - BUILD ALTERNATIVE 3M

FIGURE 3-B-ALT 3M

Dec 05, 2016 MKAO
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Attachment I – Noise Abatement Decision Report (NADR)

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Modeled Receptor Locations
- Existing Walls
- Alternative 3M

0 100 200
FEET

SOURCE: Bing Maps (2015); ESRI (2008); TBM (2008)

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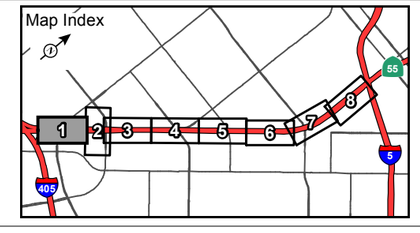


FIGURE 1

Sheet 1 of 8

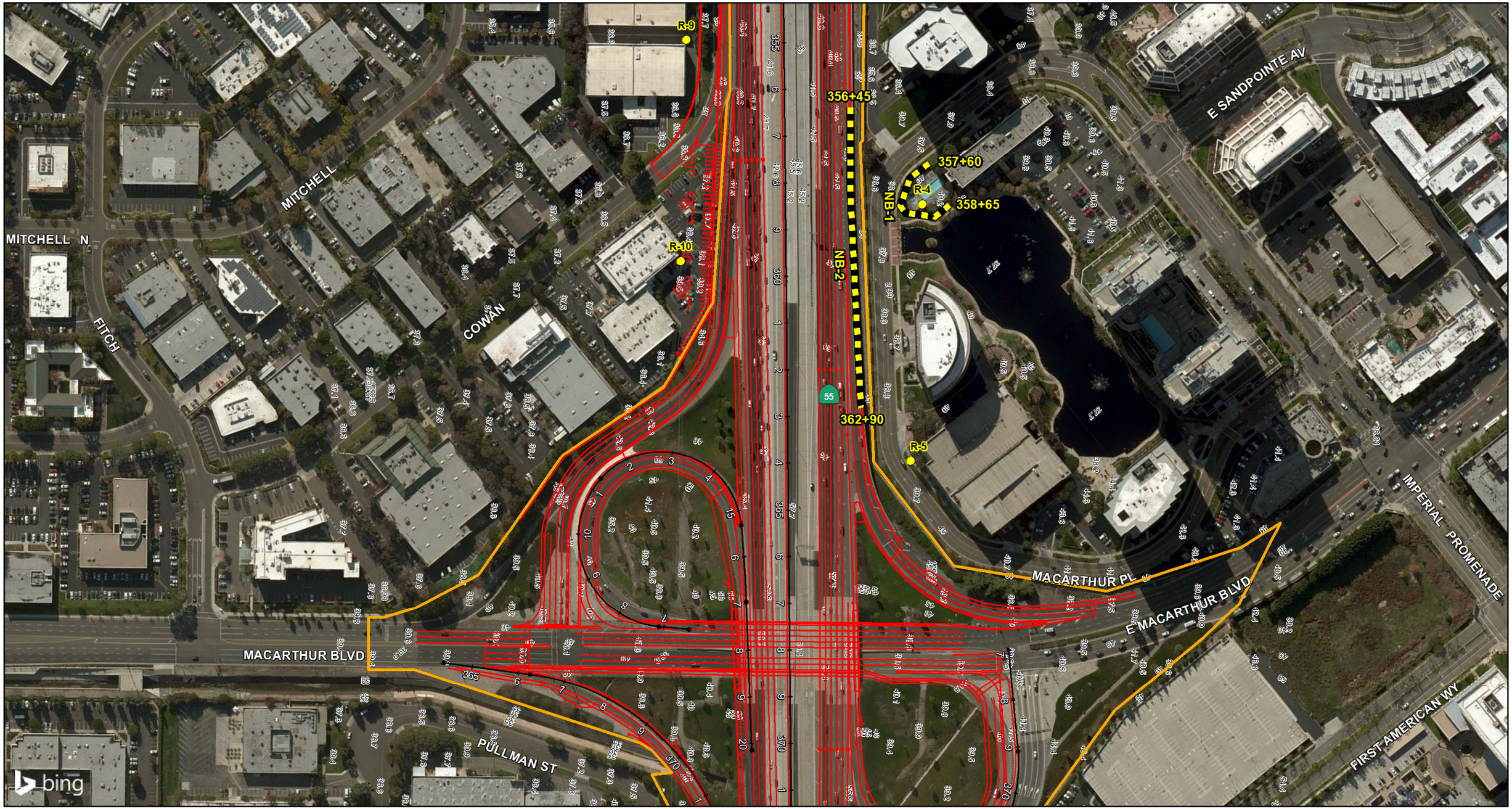
State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3

EA No. 0J3400



LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Modeled Receptor Locations
- Existing Walls
- Alternative 3M

0 100 200
FEET

SOURCE: Bing Maps (2015); ESRI (2008); TBM (2008)

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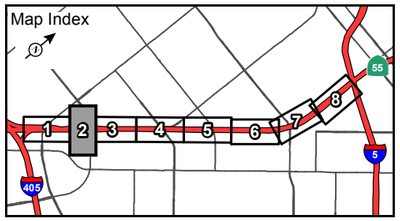

FIGURE 1

Sheet 2 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3

EA No. 0J3400

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Modeled Receptor Locations
- Existing Walls
- Alternative 3M

0 100 200
FEET

SOURCE: Bing Maps (2015); ESRI (2008); TBM (2008)

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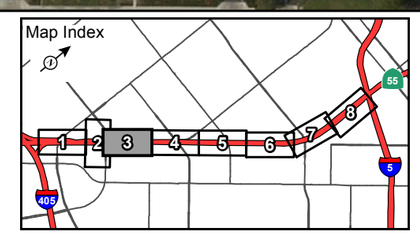

FIGURE 1

Sheet 3 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3

EA No. 0J3400

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Modeled Receptor Locations
- Existing Walls
- Alternative 3M

0 100 200
FEET

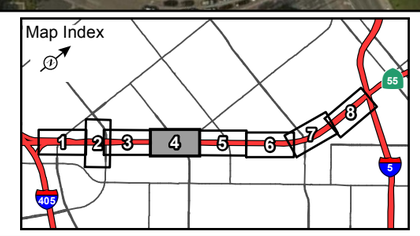

FIGURE 1
Sheet 4 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M
Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400

SOURCE: Bing Maps (2015); ESRI (2008); TBM (2008)

I:\HDR1102\GIS\Alt3M_Noise_Barrier_Locations.mxd (1/31/2017)

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Modeled Receptor Locations
- Existing Walls
- Alternative 3M

0 100 200
FEET

SOURCE: Bing Maps (2015); ESRI (2008); TBM (2008)

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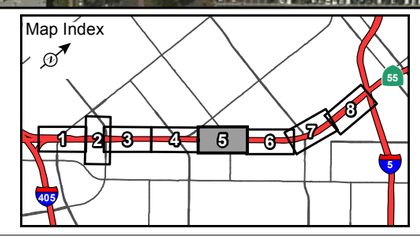

FIGURE 1

Sheet 5 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3

EA No. 0J3400

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Modeled Receptor Locations
- Existing Walls
- Alternative 3M

0 100 200
FEET

SOURCE: Bing Maps (2015); ESRI (2008); TBM (2008)

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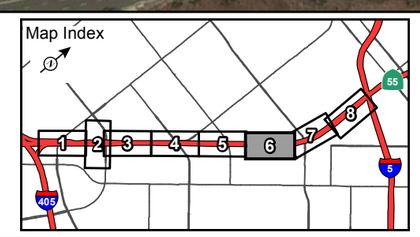

FIGURE 1

Sheet 6 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3

EA No. 0J3400

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Modeled Receptor Locations
- Existing Walls
- Alternative 3M

0 100 200
FEET

SOURCE: Bing Maps (2015); ESRI (2008); TBM (2008)

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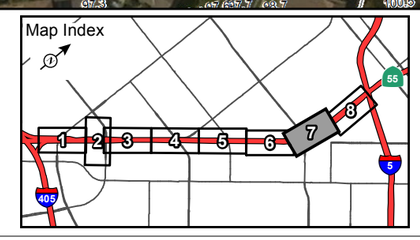


FIGURE 1

Sheet 7 of 8

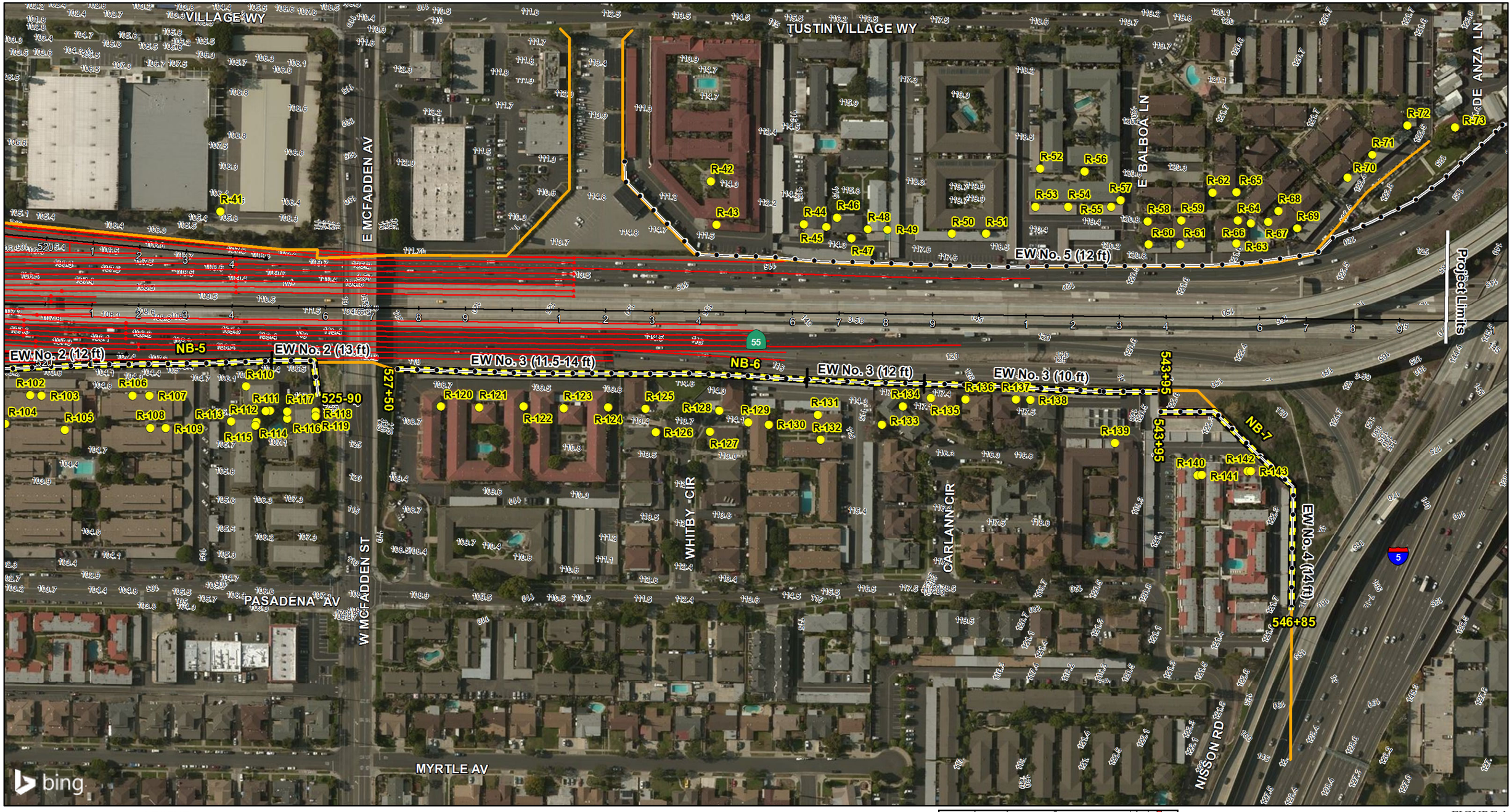
State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3

EA No. 0J3400



LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Modeled Receptor Locations
- Existing Walls
- Alternative 3M

0 100 200
FEET

SOURCE: Bing Maps (2015); ESRI (2008); TBM (2008)

I:\HDR1102\GIS\Alt3M_Noise_Barrier_Locations.mxd (1/31/2017)

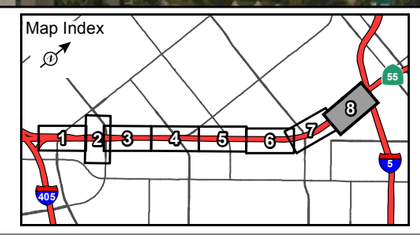


FIGURE 1

Sheet 8 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3

EA No. 0J3400

Attachment J – Right of Way Acquisition Mapping

Costa Mesa

Santa Ana

Unincorporated

Irvine

SUNFLOWER AVE

MAIN ST

S MAIN ST

E SANDPOINTE AVE

MACARTHUR PL

E MACARTHUR BLVD

COWAN

MCDURMOTT W

FITCH

MITCHELL

427-282-15

427-282-14

427-261-05

427-261-06

427-261-07

427-261-08

427-261-09

427-261-10

427-262-06

427-262-02

55

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

I:\HDR1102\GIS\Alt3M_ROW_Impacts_FigureB1.mxd (3/16/2017)

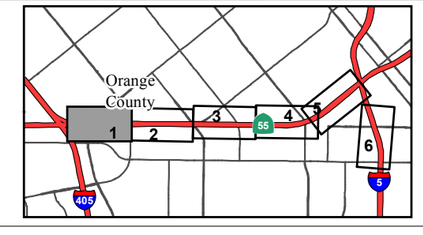


FIGURE 1

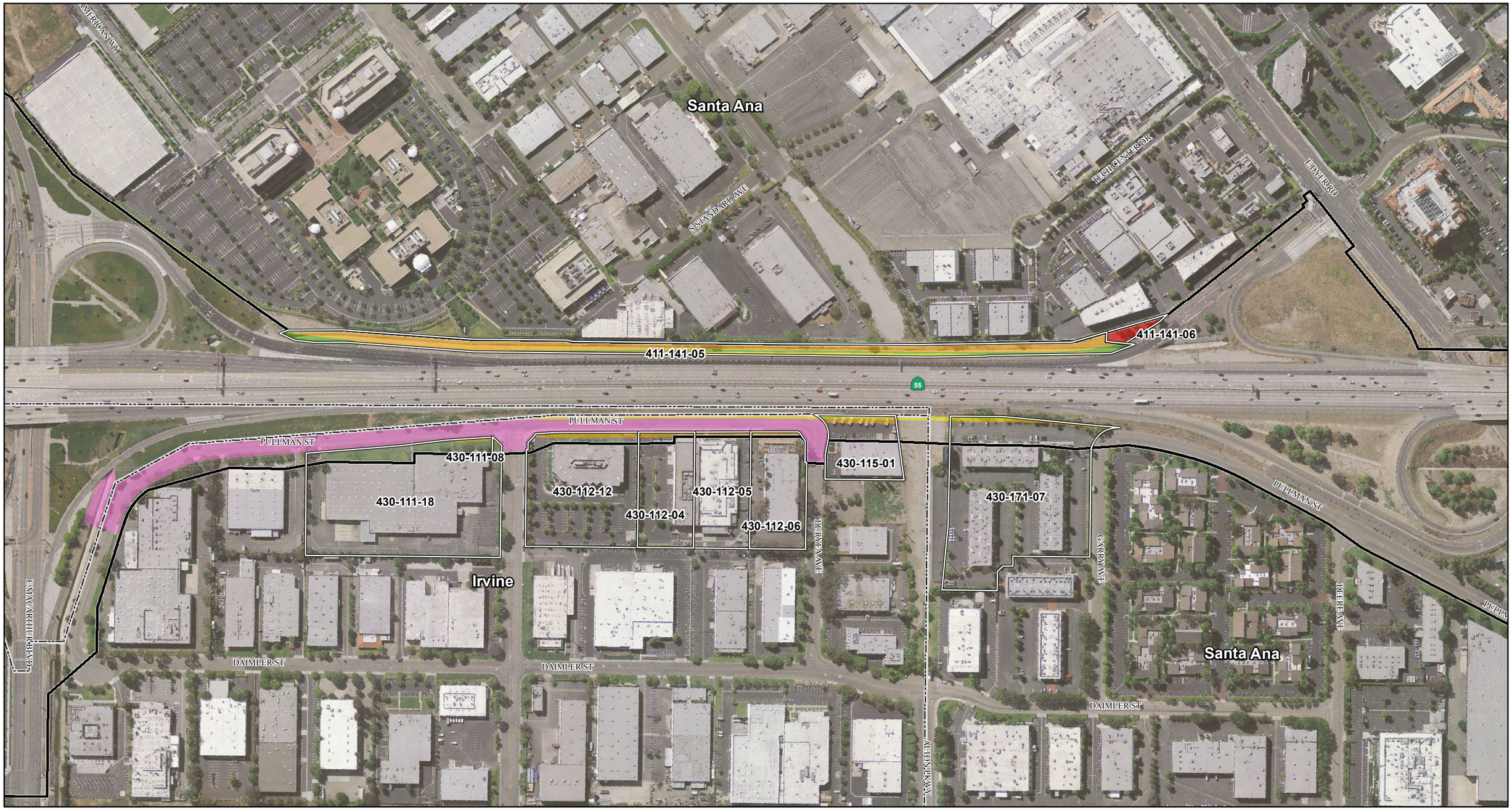
Sheet 1 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3

EA 0J3400



LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

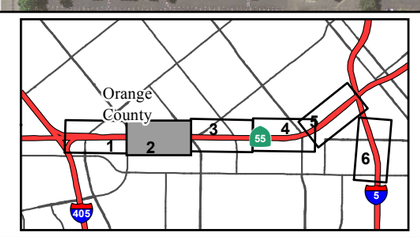


FIGURE 1
Sheet 2 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

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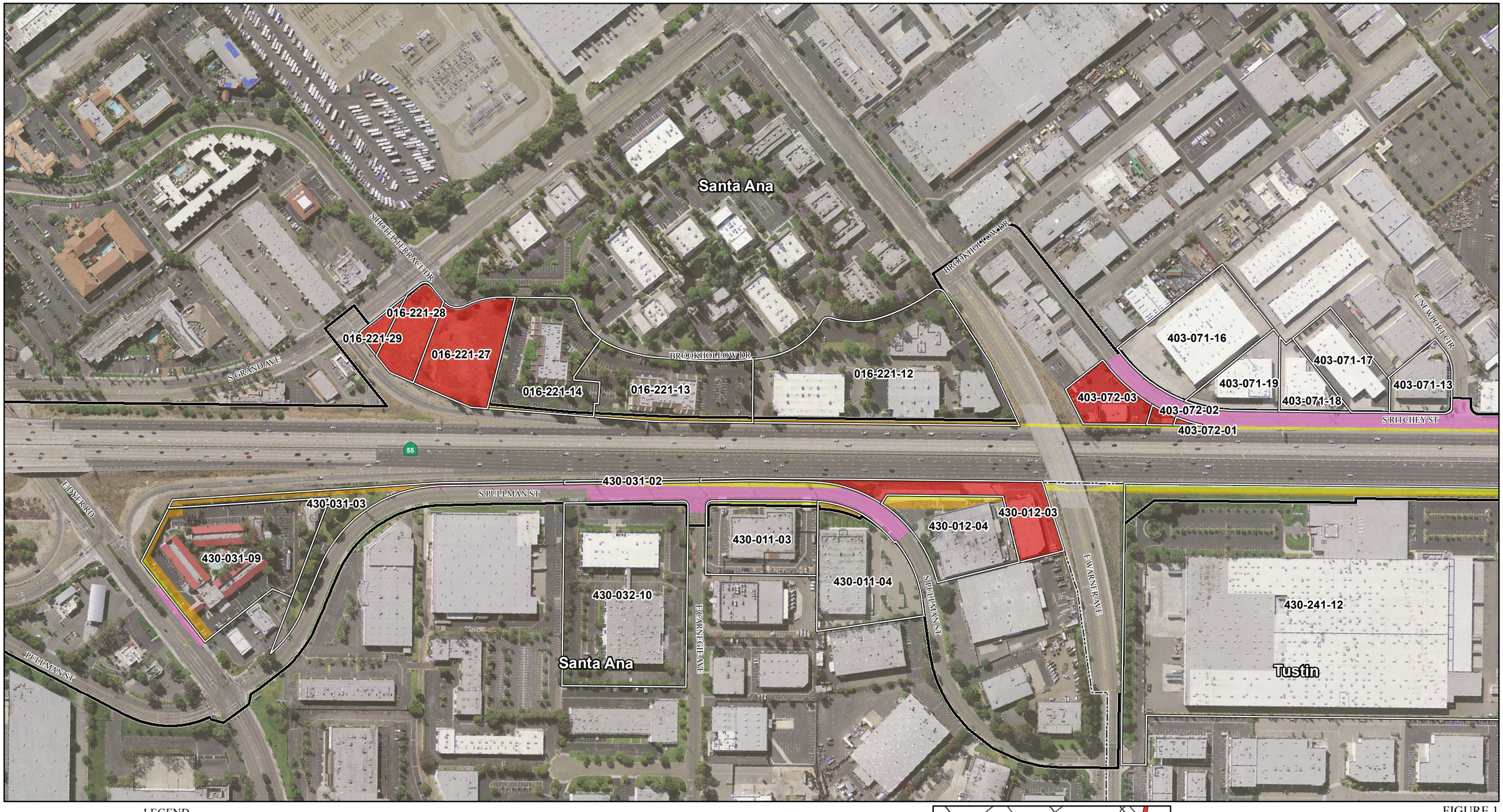


LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

I:\HDR1102\GIS\Alt3M_ROW_Impacts_FigureB1.mxd (3/16/2017)

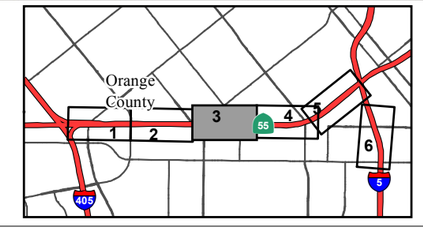


FIGURE 1
Sheet 3 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

Santa Ana
Tustin
EST ANDREWPL
RITCHEY ST
ST ANDREWPL
E OCCIDENTAL ST
E POMONA ST
BOND ST
E AUTOMALL DR
LOSSAN RAIL CORRIDOR
SANTA ANA/SANTA FE CHANNEL
NEWPORT AVE
ELDINGER AVE
DEL AMO AVE
VALENCIA AVE
BELL AVE
55
402-111-24
402-101-39
402-101-07
402-101-45
402-142
402-142-24
430-252-02
430-252-10
430-251-15
430-251-14
430-251-35
430-251-22
430-241-07
403-041-07
403-041-08
403-041-04

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

I:\HDR1102\GIS\Alt3M_ROW_Impacts_FigureB1.mxd (3/16/2017)

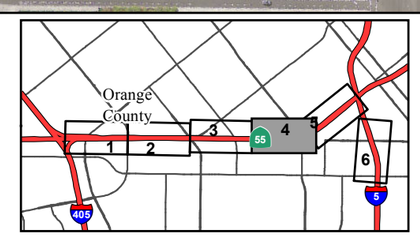


FIGURE 1
Sheet 4 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

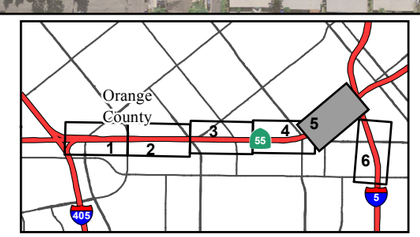


FIGURE 1
Sheet 5 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

I:\HDR1102\GIS\Alt3M_ROW_Impacts_FigureB1.mxd (3/16/2017)

Tustin

EL CAMINO REAL

6TH ST

NEWPORT AVE

MITCHELL AVE

RED HILL AVE

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

I:\HDR1102\GIS\Alt3M_ROW_Impacts_FigureB1.mxd (3/16/2017)

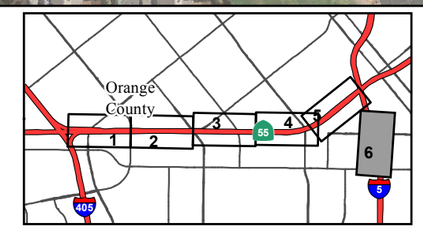


FIGURE 1
Sheet 6 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

Attachment K – Risk Register

Dist. - E.A 0J3400

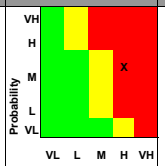
Co-Rte.-PM OCTA SR-55 I-405 to I-5

Date 2/8/2017

Project Manager Camilo Rocha **Telephone Number** (714) 730-2339

PROJECT RISK MANAGEMENT PLAN

PROJECT RISK MANAGEMENT REGISTER

	Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Priority	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	Active	17	8/11/2011 PA&ED	Design	**Changes in design features** that were not recognized at the level of detail of the PSR phase (the possibility of Closing the northbound McFadden Ramps)	Changes in design features that are different than the general scope of the PR occur at various times causing possible cost increases and schedule impacts	Caltrans advises team of desired or needed changes in design since the Project Study Report development. Design team identifies changes in design features from the PSR due to more advanced level of design.	**Schedule** **Scope**	Moderate	High		Mitigation	Hold policy direction meetings as needed to assess cost impacts of policy decisions and mitigate any potential schedule impacts.		Camilo Rocha; Steven King (OCTA); Bob Bazargan (CT12);	Monthly	Continuous: Since the initiation of the project the discussion of the ramps being closed has been discussed 3/21/12: PDT determines to continue forward with ramps open and revisit the issue once we have preliminary results of the traffic operations report and the possible implications with respect to the McFadden ramps 4/13/12: OCTA/Caltrans/HDR meet to discuss inclusion of Newport Extension in project study assumptions 5/16/12: Caltrans approves revised 2020 Traffic Volumes. These revised volumes to be incorporated into Traffic Operations Report. Traffic Operations Report results will guide team on determining next steps with regards to the ramps 7/16/12: Received Draft Traffic Operations Report. PDT to review results at 7/18/12 PDT 7/18/12: Results of Traffic Operations Report to be forwarded to team after Caltrans 1st review 8/2/12: HDR team met with OCTA to discuss possible solutions to McFadden Ramps Nov/Dec 2012: Conducted VA Study 12/18/12: Meeting with Caltrans District Design & HDQs to review CD Alternative Concept 1/15/13: Meeting #2 with Caltrans District Design & HDQs to review CD Alternative Concept 2/1313: Meeting with City of Tustin to discuss project progress, McFadden Ramps and CD Alternative Concept and conceptual operations results 2/20/13: preliminary/conceptual operations results of CD Alternative Concept are presented to the PDT 2/21/13: preliminary/conceptual operations results of CD Alternative Concept are presented to FHWA, Caltrans HDQs & District 3/18/13: Further studies to determine benefits/impacts are recommended as part of the final VA Study Presentation 4/03/13: HDR team internal meeting to discuss Value Analysis Implementation 6/3/13: Meeting with OCTA and Caltrans Management to discuss inclusion of access restrictions for northbound McFadden on-ramp 6/10/13: Draft Critical Path Schedule for inclusion of access restriction to northbound McFadden on-ramp is sent to OCTA 6/19/13: Caltrans/OCTA/HDR team meeting to discuss design variation implementation 6/26/13: OCTA/City of Tustin/HDR team meeting to discuss design variation and impacts to Tustin 7/10/13: 2nd Meeting with OCTA and Caltrans Management to discuss inclusion of access restrictions for northbound McFadden on-ramp 8/14/13: OCTA/Caltrans/HDR team meet to discuss revised schedule to incorporate McFadden restriction September 2013: Volume Counts are conducted for McFadden northbound on ramp and various intersections 10/15/13: OCTA/Caltrans/HDR team Meeting with the City of Tustin to discuss volume count results 11/9/13: Resubmitted PM Analysis to TCWG incorporating McFadden Restriction Modifications 12/3/13: Traffic Volumes Report incorporating the McFadden Restriction Modifications is approved by Caltrans January/February 2014: Revisions to the technical studies to incorporate the McFadden onramp restriction continue Feb/Mar 2014: Mitigation measures identified for McFadden ramp restriction and technical studies being revised to incorporate April 2, 2014: TCWG concurrence with revised project description and approval of Air Quality Report May 2015: Caltrans agrees to proceed with evaluations of the original 4 alternatives

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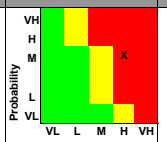
Co-Rte.-PM OCTA SR-55 I-405 to I-5

Date 2/8/2017

Project Manager Camilo Rocha **Telephone Number** (714) 730-2339

PROJECT RISK MANAGEMENT PLAN

PROJECT RISK MANAGEMENT REGISTER

	Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Priority	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
											Impact						January 2017: Delay in approval of Final Environmental Document by November 2017 will trigger the need to perform Quantitative Air Quality Analysis January 2017: Caltrans agrees to proceed with evaluations of the original 4 alternatives+1 new Alternative to evaluate addition of a second HOV by reducing the lane and shoulder widths.
2	Active	1	6/2/2011 PA&ED	design	Not being able to obtain **Stakeholder Consensus**. Standstill on critical decisions and not being able to obtain consensus on a acceptable solution	any delay in consensus on project issues will delay submittals and cause schedule delays	Submittals take longer to complete or review than scheduled.	**Schedule** **Cost**	Moderate	high	 Impact	Acceptance	Meet with Stakeholders to clearly identify key issues and concerns; Coordinate with Partnering/Team Building workshop and follow-ups to define project goals and objectives and define key issues that need to be resolved; Develop Resolution Process for Conflict Issues		Camilo Rocha, Steven King (OCTA); Risk Management Team	Monthly	6/2/2011; Initial Risk Management Meeting to identify key risk elements to project 7/11/2011; Team Building Partnering Workshop to create project mission statement, define goals and objectives and identify key issues and the process to resolve them December 2012: Received Letter of concern with regards to SCE Relocations Dec2012/Jan2013: VA Study Report and Recommendations being reviewed by stakeholders 2/1313: Meeting with City of Tustin to discuss project progress, McFadden Ramps and CD Alternative Concept and conceptual operations results 3/18/13: Final VA Recommendations Presentation to OCTA, Caltrans and Cities 4/17/13: Meeting scheduled with City of Santa Ana to discuss parking options along Ritchey 5/06/13: Copy of Administrative PR send to the Cities of Tustin, Santa Ana, and Irvine 5/31/13: Met with City of Irvine to discuss potential Right of Way and Utility impacts 6/26/13: OCTA/City of Tustin/HDR team meeting to discuss design variation and impacts to Tustin August 2013: CIA submitted to Caltrans and Cities for review 10/15/13: OCTA/Caltrans/HDR team Meeting with the City of Tustin to discuss volume count results 12/12/13: HDR team meeting with City of Irvine to discuss Cities DPR comments 1/28/14: HDR team meeting with City of Tustin to discuss results of Traffic Operations Analysis of McFadden on ramp restriction Feb/March: Cities provided comments on Longitudinal Encroachment Request Letter with respect to the SCE transmission lines April 2014: Cities are informed of Caltrans' new proposed alternative May 2015: Caltrans agrees to proceed with evaluations of the original 4 alternatives January 2017: Caltrans agrees to proceed with evaluations of the original 4 alternatives+1 new Alternative to evaluate addition of a second HOV by reducing the lane and shoulder widths. Work with the Cities to make sure any concerns with Alternative 3M are addressed

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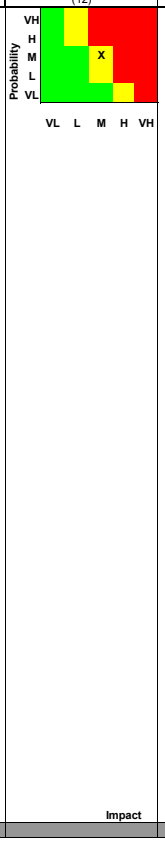
Co-Rte.-PM OCTA SR-55 I-405 to I-5

Date 2/8/2017

Project Manager Camilo Rocha **Telephone Number** (714) 730-2339

PROJECT RISK MANAGEMENT PLAN

PROJECT RISK MANAGEMENT REGISTER

	Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Priority	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
3	Active	12	8/11/2011 PA&ED	Design/ Environmental	**MDL not correctly defined due to full SCE relocation impacts not fully recognized**	MDL not correctly defined due to SCE relocation impacts not fully realized would delay the schedule because additional technical surveys would be needed and existing studies/surveys would need to be revised	identification of SCE relocations outside the defined MDL	Cost Schedule	Moderate	Moderate		Mitigation	Develop the geometrics as quickly as possible after receiving the topo map in Dec/Jan to refine the conservatively defined MDL		Camilo Rocha; Deborah Pracillio (LSA)	Monthly	12/21/11: Risk identified at the PDT 12/21/11: 1/2 the developed topo (Edinger to the 5/55) was delivered to the HDR team 1/11/12: the second 1/2 of the developed topo (405/55 to Edinger)was delivered to the HDR team 2/9/12: Met with TranSystems to finalize approximate MDL due to Utility Impacts 3/19/12: MDL finalized incorporating utility relocation inputs from TranSystems 4/17/12: Meeting with SCE is scheduled for May 1st to review impacts and relocation opportunities with defined alternatives 6/7/12: Meeting with SCE to discuss progress of relocation concepts. 6/19/12: Internal Team Meeting to discuss SCE general concepts and impacts to MDL 7/3/12: HDR met with OCFCD to obtain concurrence on proposed open channel design 7/11/12: HDR team and OCTA met with SCE to receive updated information on SCE conceptual relocations to adjust MDL (if needed) 8/17/12: HDR team and OCTA met with SCE to review progress and updated information on SCE conceptual relocations and adjust MDL if needed 9/27/12: Team is forwarded SCE's preliminary relocation schedule for review & comment 11/21/12: received initial estimate from SCE on relocations. Will provide breakdown soon 12/14/12: Received breakdown of SCE estimate for relocation 2/19/13: revised/updated SCE estimate is forwarded to Caltrans. Bob B. is investigating to see whether or not a longitudinal encroachment exception is feasible March 2013: Tentatively scheduled with SCE on 3/26/13 in the afternoon to review modifications to SCE relocations due to VA Recommendations 3/26/13: Met with SCE to review cost estimate and impacts of implementing VA recommendation 10/17/13: OCTA noted at the PDT that the HDR Team should pursue developing an Longitudinal Encroachment Exception Package November/December 2013: HDR team preparing application for Exception to a longitudinal encroachment Feb/March: Cities provided comments on Longitudinal Encroachment Request Letter with respect to the SCE transmission lines 4/7/14: Email from Caltrans noting that Longitudinal Exception request will not be reviewed until Alternative is selected

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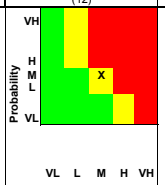
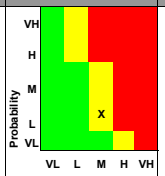
Co-Rte.-PM OCTA SR-55 I-405 to I-5

Date 2/8/2017

Project Manager Camilo Rocha **Telephone Number** (714) 730-2339

PROJECT RISK MANAGEMENT PLAN

PROJECT RISK MANAGEMENT REGISTER

	Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Priority	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
4	Active	18	5/16/2012 PA&ED	Design	**Changes in design criteria and design standards** (5/7/12 HDM Revisions)	New design criteria that changes the geometric design already completed	Having to re-evaluate design and concepts already discussed and concurred with Caltrans Design and Caltrans Headquarters	Schedule Scope	Moderate	moderate		Mitigation	HDR team evaluating impacts to scope and schedule		Camilo Rocha; Steven King (OCTA); Bob Bazargan (CT12); Son Nguyen(CT12)	Monthly	5/7/12: Caltrans revised HDM is released with significant changes to advisory and mandatory standards. HDR team to evaluate impacts to schedule and scope 5/16/12: PDT made aware of HDM revisions 6/19/12: HDR meeting with OCTA to discuss scope and schedule impacts 7/17/12: HDR team met with Caltrans Design and HDQs to receive concurrence on approach to address HDM revisions 7/19/12: HDR team met to discuss design consistency between alternatives being developed 9/10/12: Email was sent to Caltrans requesting clarification on design criteria for ramp design and issue was clarified 9/26/12: HDR Team met with Caltrans Design and HDQs to discuss design exceptions 9/28/12: Geometric Submittal to Caltrans For review 11/1/12: Received comments from Caltrans (D12)on Geometrics January 2013: multiple comment resolution meetings were held with District 12 Design to address comments 3/18/13: Exceptions to Mandatory Standard Fact Sheet submitted to Caltrans for review 3/28/13: Meeting to discuss Mandatory Standard Fact Sheet comments 4/10/13: Meeting with District and HDQs Design to discuss Fact Sheet format and approach 5/02/13: Meeting with District and HDQs Design to discuss Fact Sheet format and approach 7/18/13: HDR team is given a different direction by Caltrans to prepare a Fact Sheet for the highest risk alternative 10/16/13: OCTA/Caltrans/HDR Meeting to Present Mandatory Standards Exceptions for evaluation of Risk Table within the DPR 12/17/13: OCTA/Caltrans/HDR Meeting to Present Advisory Standards Exceptions for evaluation of Risk Table within the DPR 5/2014: Caltrans directs us to prepare Exceptions to Design Standards Fact Sheets to the Selected Alternative after circulation. January 2017: The HDM was updated on December 2017 as the geometrics were developed and Supplemental Draft Project Report was being finalized. Team to have focus meeting to discuss approach to address December 16 HDM revisions.
5	Active	15	8/11/2011 PA&ED	Design	**Changes in design features** that were not recognized at the level of detail of the PSR phase (Lane Channel relocation/realignment inclusion into Project)	Changes in design features that are different than the general scope of the PR occur at various times causing possible cost increases and schedule impacts	Caltrans advises team of desired or needed changes in design since the Project Study Report development. Design team identifies changes in design features from the PSR due to more advanced level of design.	Schedule Scope	Low	Moderate		Mitigation	Hold policy direction meetings as needed to assess cost impacts of policy decisions and mitigate any potential schedule impacts.		Camilo Rocha; Steven King (OCTA); Bob Bazargan (CT12);	Monthly	April 14, 2011 ; PDT is informed that HOV Drop Ramps will not be part of the Alton Project and SR55 Project should reflect that August 11, 2011; PDT informed that northbound SR 55 Aux Lane between Mac Arthur and Edinger will not be included in Phase 1 of Alton Project and should be incorporated into SR 55 Project 3/14/12: Meeting with Caltrans District 12 to address relocation of Lane Channel 3/21/12: PDT favors maintaining the lane channel/RCB box on southbound side. Will explore this option further 5/16/12: PDT is informed of HDR team's concept of maintaining Lane Channel as an open channel (rectangular) and on the same side of SR 55. This concept will be presented to OCFCD 7/3/12: Met with OCFCD to present HDR Team concept for Lane Channel. OCFCD concurred with the conceptual design 10/2/12: Location Hydraulic Study for Lane Channel and Santa Fe/Santa Ana Channel is submitted to Caltrans 10/4/12: Caltrans Environmental advises team that a more detail analysis is required even though Lane Channel does not encroach into the floodplain. Study should prove that

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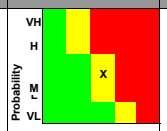
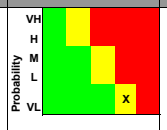
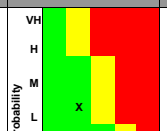
Co-Rte.-PM OCTA SR-55 I-405 to I-5

Date 2/8/2017

Project Manager Camilo Rocha **Telephone Number** (714) 730-2339

PROJECT RISK MANAGEMENT PLAN

PROJECT RISK MANAGEMENT REGISTER

	Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Priority	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
																	10/10/12: Discuss consistency issues with Caltrans NPDES and Drainage for LHS Nov/Dec 2012: preparing analysis for LHS and Drainage Report that is consistent with previous studies 01/16/13: LHS being submitted to Caltrans for review 2/14/13: Drainage Report comment resolution meeting with Caltrans D11 3/14/13: NPDES concurs with Electronic submittal of LHS and comment resolution conference call is held with Drainage (Majid) to resolve final comments 3/15/13: revised LHS is electronically submitted to Drainage (Majid) for final concurrence 3/22/13: LHS is approved by Caltrans NPDES and Drainage 5/2015: advanced plans will have to be discussed with OCFCD to obtain permit/easement to construct
6	Active	23	6/2/2011 PA&ED	Environmental (ISA)	Changes in **Environmental Regulations and Reviews** due to new regulatory policies	Changes in design features that are different than the general scope of the PR occur at various times causing possible cost increases and schedule impacts	Tech studies have to be revised and resubmitted which trigger the schedule to be delayed	Cost Scope	moderate	moderate		Mitigation	Hold policy direction meetings as needed to assess cost impacts of policy decisions and mitigate any potential schedule impacts.		Camilo Rocha; Steven King (OCTA); Deborah Pracillio (LSA); Bob Bazargan (CT12); Charles Baker(CT12)	Monthly	June 15, 2011 and July 20, 2011; PDT acknowledges changes in noise protocol that need to be clarified 12/20/12: ISA Comment Resolution Meeting and discussion of field reconnaissance and interview requirements 1/15/13: Letter sent out to business owners and Cities describing necessary field reconnaissance for ISA 1/25/13: Completion of field reconnaissance &interviews 10/15: ISA Phase 2 work cannot move forward until access to identified parcels is obtained. A cooperative agreement is needed to obtain acces and perform work
7	Active	13	8/11/2011 PA&ED	Design/ Environmental	**Project Information stated correctly in RTP and FTIP so there is no delay in receiving FHWA Air Quality Conformity for Project Approval**	If project Information does not match RTP and FTIP, FHWA Air Quality Conformity determination could be delayed which would delay the project up to one year	Project Information or Alternatives does not match current information in the RTP or FTIP	Cost Schedule	Very Low	High		Mitigation	Make sure that the current project information is reflected in the RTP and FTIP and any new updates be reflected and submitted when revisions are allowed		Camilo Rocha; Steven King (OCTA); Deborah Pracillio (LSA)	confirm deadline for revision submittals (Dec 2012)?	12/21/11 Risk Identified at the PDT 5/15/12: OCTA requests comments from HDR team for project description details 5/23/12: HDR team provides comments to project description for revisions to be submitted to SCAG for inclusion into 2013 FTIP 5/15/13: HDR team met with Caltrans District 12 to finalize project alternative descriptions 10/15: Team identified the need for an update to the project information in the RTP and FTIP February 2017: Team identified the need for an update to the project information in the RTP and FTIP per new Alternative 3M.
8	Active	9	8/17/2011 PA&ED	Design	**Right of Way Impacts not fully developed at Critical/Constrained Right of Way Locations**	Specifically, the Right of Way north of Edinger is not well defined. The PSR information and available information is old and may need to be updated	Developing the alternatives with this information may create quality issues, schedule delays and increased scope and cost if right of way information is later found to be different.	Schedule Cost	low	low		Mitigation	PDT is developing possible mitigation measures to ensure that the right of way information is accurate for preliminary engineering		Camilo Rocha; Steven King (OCTA); Bob Bazargan (CT12);	Monthly	8/17/11: Caltrans noted at the PDT Meeting that the right of way information north of Edinger is old and may not be accurate 10/17/11; HDR and Guida met to discuss the "gaps" in right of way information and what level of effort is needed to provide sufficient information for this project phase. Will present information to OCTA and team 11/13/11: HDR Team determined that to set the right of way in the northern portion of the project with some level of confidence would be to base it on existing monuments (field surveys, title reports) 1/4/12: HDR and Guida met to review right of way data developed for the area north of Edinger and the team determined that the information was sufficient for this phase of the project 1/18/12: Lowered the priority of the risk due to received information that clarified the right of way impacts 11/15: Extensive Right of Way Engineering needs to be performed in this area

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Date 2/8/2017

Project Manager Camilo Rocha **Telephone Number** (714) 730-2339

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PROJECT RISK MANAGEMENT REGISTER

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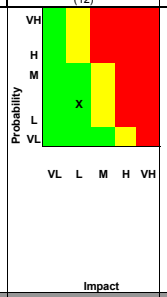
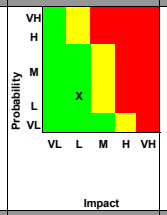
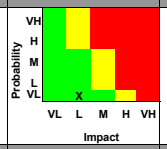
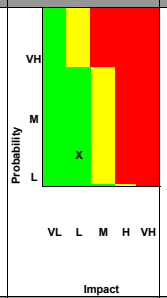
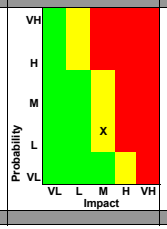
9	Active	3	6/2/2011 PA&ED	Environmental	Changes in **Environmental Regulations and Reviews** due to new regulatory policies	Changes in design features that are different than the general scope of the PR occur at various times causing possible cost increases and schedule impacts	Tech studies have to be revised and resubmitted which trigger the schedule to be delayed	Cost Scope	Low	Low		Mitigation	Hold policy direction meetings as needed to assess cost impacts of policy decisions and mitigate any potential schedule impacts.		Camilo Rocha; Steven King (OCTA); Deborah Pracillio (LSA); Bob Bazargan (CT12); Charles Baker(CT12)	Monthly	June 15, 2011 and July 20, 2011; PDT acknowledges changes in noise protocol that need to be clarified June 18, 2013: Received clarification from District (via email) that Dispersion Analysis (for Air Quality Report) will not e necessary for this project May 2015: Project restarts, need to evaluate new AB 52 requirements 10/15: Caltrans and LSA resolve AB52 requirements 11/15: need to circulate draft documents in November 2015 to avoid having to do quantitative analysis (dispersion modeling)
10	Active	4	8/11/2011 PA&ED	Design	**Changes in design features** that were not recognized at the level of detail of the PSR phase	Changes in design features that are different than the general scope of the PR occur at various times causing possible cost increases and schedule impacts	Caltrans advises team of desired or needed changes in design since the Project Study Report development. Design team identifies changes in design features from the PSR due to more advanced level of design.	Schedule Scope	Low	Low		Mitigation	Hold policy direction meetings as needed to assess cost impacts of policy decisions and mitigate any potential schedule impacts. Specifically with regards to HOV lane striping.		Camilo Rocha; Steven King (OCTA); Bob Bazargan (CT12)	Monthly	April 14, 2011 ; PDT is informed that HOV Drop Ramps will not be part of the Alton Project and SR55 Project should reflect that August 11, 2011; PDT informed that northbound SR 55 Aux Lane between Mac Arthur and Edinger will not be included in Phase 1 of Alton Project and should be incorporated into SR 55 Project 3/14/12: Meeting with Caltrans District 12 to address relocation of Lane Channel
11	Active	5	6/2/2011 PA&ED	Design	**Changes in design criteria and design standards** (e.g. continuous access HOV, ADA requirements, deficient existing cross drainage systems, noise considerations vs. construction methods, changes in standards)	Design criteria, design standards, or design direction, changes at different points throughout the project.	Design criteria, design standards, or design direction, changes at different points throughout the project through the project development process (meetings, deliverable reviews etc.) or formal new published policies	Schedule Scope	Low	Low		Mitigation	Hold design workshops, conference calls, PDT meetings and policy direction meetings as needed to determine scope, schedule and cost impacts of policy decisions. *Obtain clarification and written direction from reviewing agency		Camilo Rocha; Steven King (OCTA); Eric Johnson; Bob Bazargan (CT12); Son Nguyen(CT12)	Monthly	July 19, 2011; Reza Aurasteh from Environmental Engineering informs the HDR team that CT 12 will require a Noise Survey Study July 28, 2011; meeting with Gary Slater of Traffic Operations. Caltrans is requesting Design Failure Year Analysis
12	Active	6	8/11/2011 PA&ED	Design/ Environmental	**Unknown utilities** or unknown utility location	Information provided by utility companies is incomplete.	Unknown utilities or unknown utility location discovered late in the design process or during construction activities.	Cost Schedule	Low	Low		Mitigation	Meet with utility representatives to discuss possible discrepancies from as-built research, field observations, USA mark-out for potholing and potholing activities.		Camilo Rocha; Deborah Pracillio (LSA)	Monthly	5/2015: Request for Longitudianl Encroachment is held off until The preferred alternative is selected
13	Active	7	6/2/2011 PA&ED	Design/ Environmental	Discovery of **unknown hazardous waste material** or other unforeseen site conditions	Unforeseen conditions not evident during design phase could cause construction delays	Unforeseen conditions arise during construction	Schedule Scope	Low	Moderate		Mitigation	As the design progresses additional site design information will be available to reassess the risk.		Camilo Rocha, Steven King (OCTA); Deborah Pracilio(LSA), Djan Chandra(LA),	Monthly	January 2014: Team initiated ISA Phase 2 work Mar/Apr 2014: Leighton revising ISA to incorporate mitigation areas due to McFadden on-ramp restriction April 8, 2014: Recived comments from Caltrans on the Work Plan for Phase 2 work 10/15: Team cannot move forward with Phase 2 work until a cooperative agreement is executed

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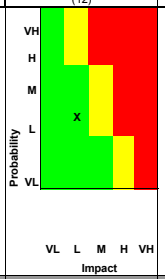
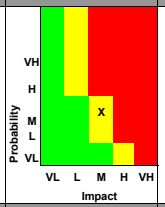
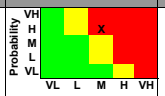
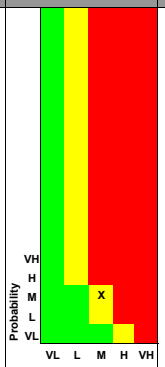
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
14	Active	8	7/1/2012 PA&ED	Design/ Environmental	**PDT member change**	Members of the PDT team are re-assigned or leave the team for personal reasons.	New PDT team members are assigned mid way through the project development process	Schedule Cost	Low	Low		Mitigation	Communicate status of project with PDT and identify back-up PDT representatives where appropriate. Maintain a running status of the project which will document project progress. Document all PDT and coordination meetings including key project design decisions and action items.		Camilo Rocha, Steven King (OCTA); Bob Bazargan (CT12)	Monthly	7/1/12: Doug Pekrul replaces Arshad Rashedi as OCTA PM 7/20/12: Doug Pekrul meets with HDR to discuss project goals and expectations November 2012: Steven King is appointed new OCTA PM for Project May 2013: Eric Loke has left the City of Tustin May 2015: Kryss Saldivar will be the Tustin representative at the PDT May2015: Mostafa Aliakbarzadeh, is the new oversight engineer
15	Active	25	5/16/2013 PS&E	Design/ Environmental	**Buy America Provisions (SCE)**	MAP21 Buy America Provisions requires that projects that are federally funded comply with provisions that mandate the use of American made products whenever possible	SCE will not comply with MAP21 By America Provisions	Schedule Cost	Moderate	Moderate		Mitigation	Begin early Dialogue with SCE to note impacts and any possible mitigation measures		Camilo Rocha, Steven King (OCTA); Bob Bazargan (CT12)	Monthly	May 2013: HDR discusses By America Provisions with SCE Project Manager. SCE is evaluating compliance versus non-compliance impacts
0	Retired	24	9/13/2012 PA&ED	Design/ Environmental	Adoption of **Value Analysis Recommendations**	Implementation of Value Analysis Recommendations takes longer than the defined schedule	Tech studies have to be revised and resubmitted which trigger the schedule to be delayed	Schedule Scope	High	Moderate		Mitigation	Hold meetings as needed to assess cost/schedule impacts of implementation plan and strategize to mitigate/minimize potential schedule impacts.		Camilo Rocha; Steven King (OCTA); Deborah Pracillio (LSA); Bob Bazargan (CT12); Charles Baker(CT12)	Monthly	3/18/13: Final VA Recommendations Presentation to OCTA, Caltrans and Cities March 2013: Will schedule meetings with design team, Caltrans and OCTA to assess & mitigate 4/5/13: Meeting with Brian Liu(CT-Environmental) to discuss schedule and VA recommendation April 2013: discussions/conference meeting to discuss schedule impacts, implementation options with CT,OCTA, and team April 17,2013: Present to PDT proposed VA recommendation implementation plan 4/03/13: HDR team internal meeting to discuss Value Analysis Implementation September 2013: HDR includes NB SR 55 Dyer Off-ramp Safety and VA Recommendations January 2014: Project Description to incorporate VA recommendations is still not agreed upon and can delay project February 7, 2014: Project Description is accepted by Caltrans April 2014: Value Analysis report to be updated using revised project description
0	Retired	21	8/30/2012	Environmental (VIA)	Changes in **Environmental Regulations and Reviews** due to new regulatory policies (The Project is on the threshold between needing an abbreviated/minor VIA and a moderate/fully developed VIA. Caltrans notified us that we need to provided a moderate/fully developed VIA)	Changes in design features that are different than the general scope of the PR occur at various times causing possible cost increases and schedule impacts	Tech studies have to be revised and resubmitted which trigger the schedule to be delayed	Schedule	Moderate	Moderate		Mitigation	Hold policy direction meetings as needed to assess cost impacts of policy decisions and mitigate any potential schedule impacts.		Camilo Rocha; Steven King (OCTA); Deborah Pracillio (LSA); Bob Bazargan (CT12); Charles Baker(CT12)	Monthly	8/30/12: LSA is notified that Caltrans has determined that a moderate/fully developed VIA will be required for this project 9/21/2012: Camilo met with Eric Dickson of Caltrans Landscape Architecture to view scoring and discuss the level of document needed. It was 10/15/2012: received revised Key views from LSA for review before incorporation into Abbreviated VIA 12/17/2012: Reviewed simulations and provided comments to LSA to incorporate before 3/14/13: Draft VIA forwarded to HDR for final review

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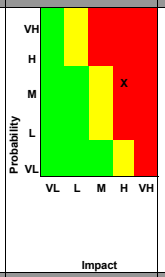
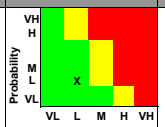
			PA&ED		developed VIA)			Scope			Impact						3/19/13: HDR forwards final VA comments to LSA 4/3/13: VIA Report submitted to Caltrans for review 4/29/13: original format of Admin. DPR submitted to landscape to facilitate review of VIA 5/29/13: Request meeting with Caltrans to discuss comments 6/5/13: Email request from Caltrans Landscape to respond to comments and submit before a 6/11/13: Response to comments is provided. Awaiting meeting to discuss 6/13/13: verbal discussion with Eric Dickson requesting meeting to discuss VIA 6/19/13: request at PDT for meeting with Landscape Architecture to discuss VIA 7/1/13: received Caltrans response to "response to comments" on VIA 8/9/13: HDR met with Eric Dickson to discuss Moderate VIA requirements and came to 12/3/13: Eric Dickson concurs with new view point to depict McFadden restriction design 1/27/14: Eric Dickson concurs with key view point simulations for revised Alternative 3 and 3 3/28/14: VIA 6 is submitted to Caltrans for review and approval 8/25/15: VIA is approved by Caltrans
0	Retired	22	8/15/2012 PA&ED	Design	**Changes in design criteria and design standards** (Removal of northbound Aux lane between Mac Arthur and Dyer from baseline and inclusion into the Alternatives)	change in baseline will impact noise and air quality studies	Having to re-evaluate noise and air quality models and update analysis	Schedule Scope	Moderate	High		Mitigation	HDR team evaluating impacts to scope and schedule		Camilo Rocha; Steven King (OCTA); Bob Bazargan (CT12); Son Nguyen(CT12)	Monthly	8/15/12: PDT and Traffic Operations Report comments note that Baseline should not include the northbound aux lane between MacArthur and Dyer. 9/19/12: PDT Team agreed that Volumes Report wouldn't change (thus Noise Study Report wouldn't change) and adjustment would be incorporated and analyzed in the 2nd submittal of the Traffic Operations Report October 2012: Baseline changed and Aux lane included with geometrics of Alternatives
0	Retired	11	11/1/2011 PA&ED	Environmental	**Need to obtain rights to walk properties to conduct cultural surveys**	delay in obtaining the rights, will delay the cultural surveys which will lead to a delay in the developing the technical study	Developing the study without this information could possibly cause delay in schedule, increased scope and cost if later it is found that these parcels are within the revised APE	Schedule Cost	low	low		Mitigation	HDR will provide team a list of parcels where access is needed. Need to obtain letter from OCTA requesting a right of entry. 2 of the parcels are believed to be owned by the City of Tustin and the team will work through the City's RDA to obtain access		Camilo Rocha; Doug Pekrul (OCTA)	Monthly	12/15/11: Need to obtain access to parcels was brought up at the Environmental kick-off meeting 12/21/11: Talk to Sam from the City of Tustin and will need to work through RDA to obtain access 1/5/12:Drafted letter and submitted to OCTA for review 1/9/12: Received comments from OCTA 1/13/12: obtained Consent to Enter Form 1/17/12: Sent Draft Letter to Caltrans Environmental fro review/concurrence 1/18/12: Received comments from Caltrans Environmental 2/9/12: Met with Transystems to finalize approximate MDL due to Utility Impacts 3/19/12: MDL is finalized and final addresses and letter are sent to OCTA 4/3/12: received verbal approval from City of Tustin to enter and survey properties adjacent to SR 55/Edinger ramps. Need to notify a few days before field survey is performed 4/18/12: Discussed the possibility of receiving verbal authorization from the Cities to enter the properties (with notice of when the field surveys would take place) 6/6/12: 2nd Letter sent (certified mail) to Moda Rentals to obtain access to perform technical survey walk 6/19/12: Jorge Stambuk (Agent for Moda Rentals) verbally agrees to provide access to the Crazy Horse Property. Need to contact Brookhollow Management Center adjacent to the property

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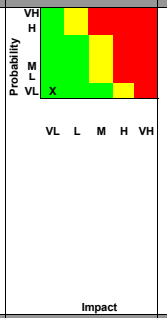
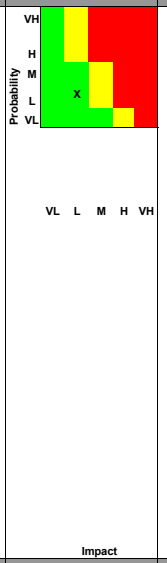
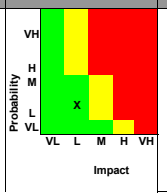
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
0	Retired	10	9/1/2011 PA&ED	engineering services	**Delay of Obtaining Flight Information and Survey Control Information to Develop Topographical Map**	Delay in the Development of the Topographical Map will delay the Design and the Establishment of the Project Footprint, and consequently, delay the beginning of the Technical Studies. This is a Critical Path Task	Not receiving the required information by September 1, 2011	**Schedule** **Cost**	very low	very low		Mitigation	AT Data was delivered to HDR on 11/16/11. Developing the topo will take approximately 4 to 6 weeks from this point. Based on latest information, and depending when the complete topo map is received, the HDR team will move to develop the Alternatives by end of February so the overall delay can be minimized to about two months.		Camilo Rocha; Steven King (OCTA); Bob Bazargan(CT12)	Monthly	8/11/2011; Distributed Baseline Schedule that has team approval 9/20/2011; Email from Caltrans noting that the digital images will be delivered on 9/21/11 at the PDT and a status update on field work 10/17/11; Meeting with OCTA, Caltrans, Guida Surveying, Lung and Associates, and HDR to resolve missing information and establish deadlines for delivery 11/3/11: Received email that information would be provided by 11/10/11 11/16/11: AT Data to develop the topo map is delivered to HDR 12/21/11: 1/2 the developed topo (Edinger to the 5/55) was delivered to the HDR team 1/11/12: the second 1/2 of the developed topo (405/55 to Edinger)was delivered to the HDR team 1/18/2012: Topo was obtained. Retired risk item
0	Retired	19	6/26/2011 PA&ED	Environmental	Changes in **Environmental Regulations and Reviews** due to new regulatory policies	TCWG criteria & determination for the project requiring a more detail analysis then anticipated	TCWG reviewing the Project PM Analysis and determining project to be of "Air Quality Significance"	**Schedule** **Scope**	Low	Low		Mitigation	Hold policy direction meetings as needed to assess cost impacts of policy decisions and mitigate any potential schedule impacts.		Camilo Rocha; Steven King (OCTA); Deborah Pracillio (LSA); Bob Bazargan (CT12); Charles Baker(CT12)	Monthly	06/26/12: TCWG reviewed the PM Analysis and determined project to be of Air Quality Significance. TCWG has requested a "Hot Spot Analysis" 08/14/12: LSA prepared the "Hot Spot Analysis" and submitted to Caltrans who forwarded to the August 2012 TCWG 08/28/12: TCWG Meeting. We have not received all the comments from this meeting but the indication is that they will require more detailed information (VMT/VHT) by corridor versus the whole county. This is the first time they have requested this. LSA seeking clarification to see if this detailed information may be needed from Fehr and Peers and OCTA modeling group 11/9/12: revised detail Hotspot Analysis resubmitted to Caltrans for Review and submittal to November 2012 TCWG 12/3/12: The SR-55 PM analysis has been determined to be acceptable for NEPA circulation. January 2017: Final Environmental Document needs to be approved by November 2017 to comply with the 2 year limit beyond the last federal action (Draft Environmental Document approval in November 2015). Delay in approval within this time frame will trigger at least a 18 month project delay January 2017: NEPA delegation has expired; anticipate renewal in February/March 2017. Delay could push September completion closer to critical November deadline January 2017: Changes to lane configuration will trigger changes to VMT/VHT data which in turn will require the project to be re-evaluated by TCWG. TCWG has already noted that another revision would trigger quantitative analysis
0	Retired	20	9/13/2012 PA&ED	Environmental (Noise Study)	Changes in **Environmental Regulations and Reviews** due to new regulatory policies (Caltrans has requested that we place 2nd story noise receptors and incorporate into our model which is different from the original direction)	Changes in design features that are different than the general scope of the PR occur at various times causing possible cost increases and schedule impacts	Tech studies have to be revised and resubmitted which trigger the schedule to be delayed	**Schedule** **Scope**	Low	Low		Mitigation	Hold policy direction meetings as needed to assess cost impacts of policy decisions and mitigate any potential schedule impacts.		Camilo Rocha; Steven King (OCTA); Deborah Pracillio (LSA); Bob Bazargan (CT12); Charles Baker(CT12)	Monthly	9/13/2012: Conference call was held to address clarification needed regarding noise report comments from Caltrans-D12. New requirements were stated. 10/15/2012: Team incorporated Caltrans request and resubmitted Noise Study Report with revisions November 2012: Noise Study is approved

Attachment L – Stage Construction Plans

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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SUITE 200
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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

GENERAL NOTES

UTILITY RELOCATIONS WILL BE COMPLETED PRIOR TO FREEWAY IMPROVEMENTS.

CONSTRUCTION NOTES:

1. CONSTRUCT MAINLINE FREEWAY IMPROVEMENTS
2. CONSTRUCT PORTION OF RAMP IMPROVEMENTS
3. RECONSTRUCT LANE CHANNEL/DRAINAGE SYSTEM
4. CONSTRUCT BRIDGE WIDENING
5. CONSTRUCT RETAINING WALL
6. CONSTRUCT LOCAL STREET WIDENING WHILE MAINTAINING ACCESS TO PROPERTIES

TRAFFIC HANDLING NOTES:

(A) RESTRIPE EXISTING NB OR SB SR-55 AND SHIFT TRAFFIC TOWARDS THE MEDIAN IN TEMPORARY LANES.

(B) RESTRIPE RAMP AND SHIFT TRAFFIC INTO TEMPORARY LANES

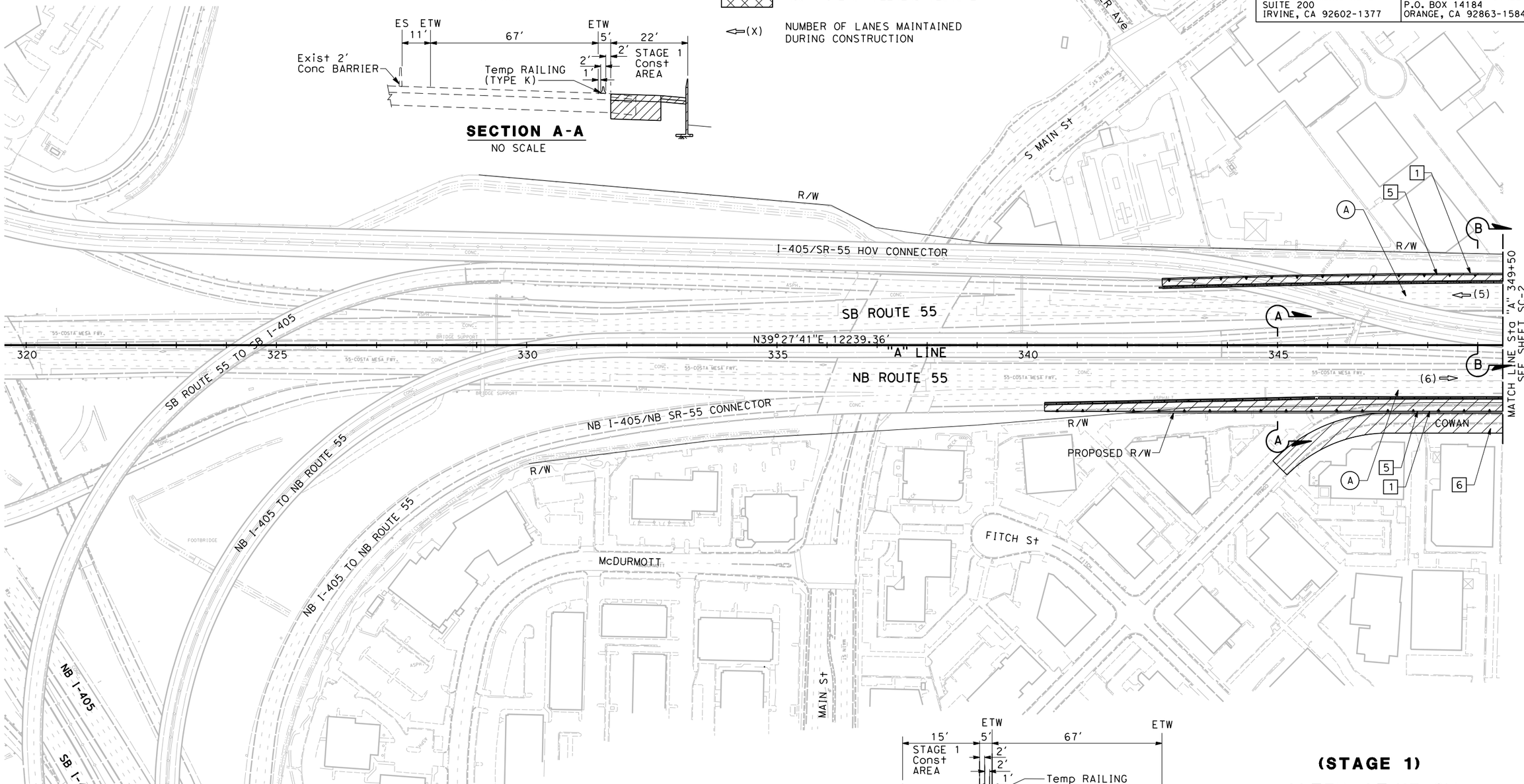
LEGEND

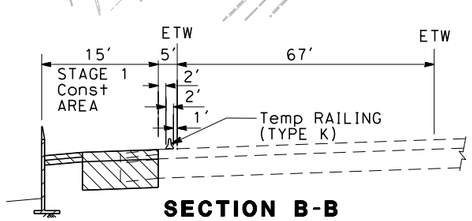
CONSTRUCTION AREA

NIGHTTIME OR WEEKEND CLOSURE

⇦(X) NUMBER OF LANES MAINTAINED DURING CONSTRUCTION

SECTION A-A
NO SCALE





SECTION B-B
NO SCALE

NOT FOR CONSTRUCTION

(STAGE 1)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:29:45 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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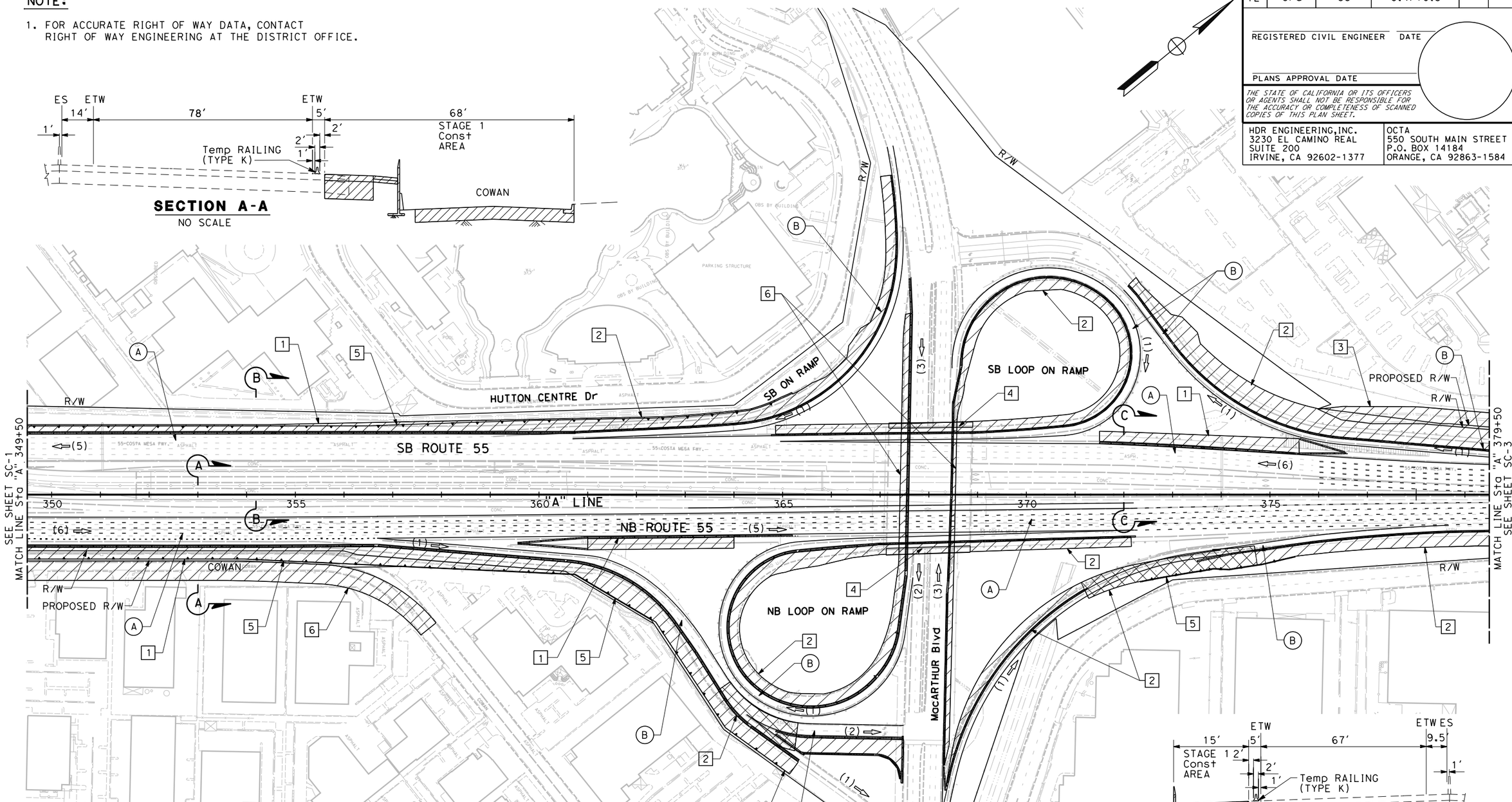
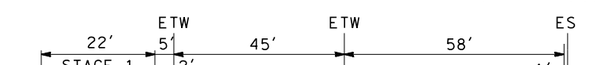
ORANGE, CA 92863-1584

NOTE:

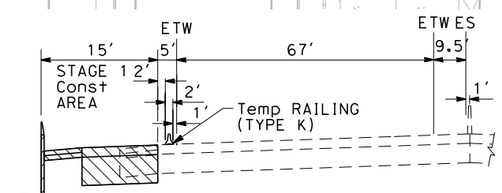
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

SECTION A-A
NO SCALE





SECTION C-C
NO SCALE



SECTION B-B
NO SCALE

(STAGE 1)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

NOT FOR CONSTRUCTION

SC-2

REVISED BY	JESSICA SLATER
DATE REVISED	SHIVA WOOTON
CALCULATED-DESIGNED BY	CONSULTANT FUNCTIONAL SUPERVISOR
CHECKED BY	CAMILO ROCHA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:30:02 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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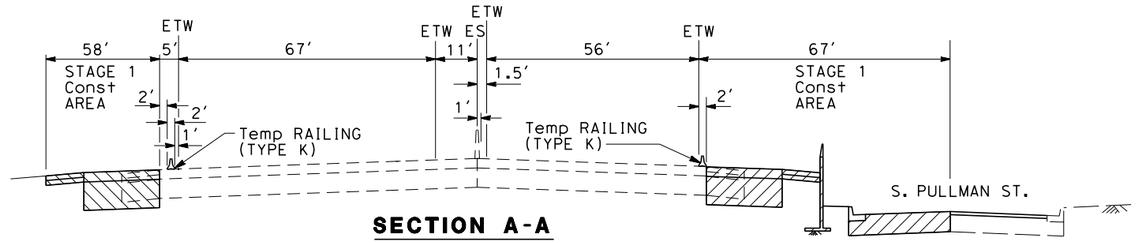
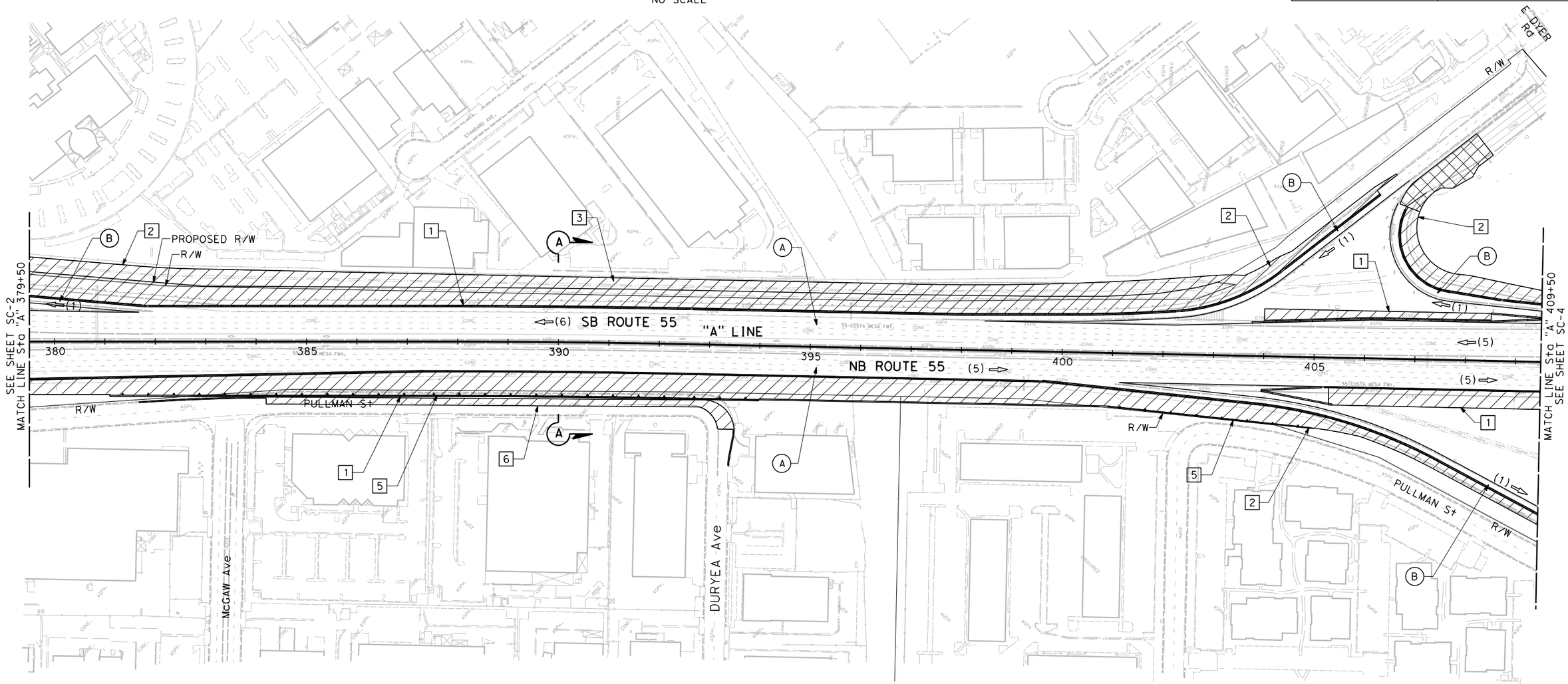
ORANGE, CA 92863-1584

NOTE:

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



SECTION A-A
NO SCALE



(STAGE 1)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-3

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:30:19 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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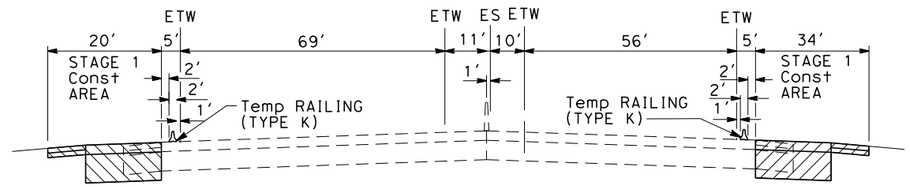
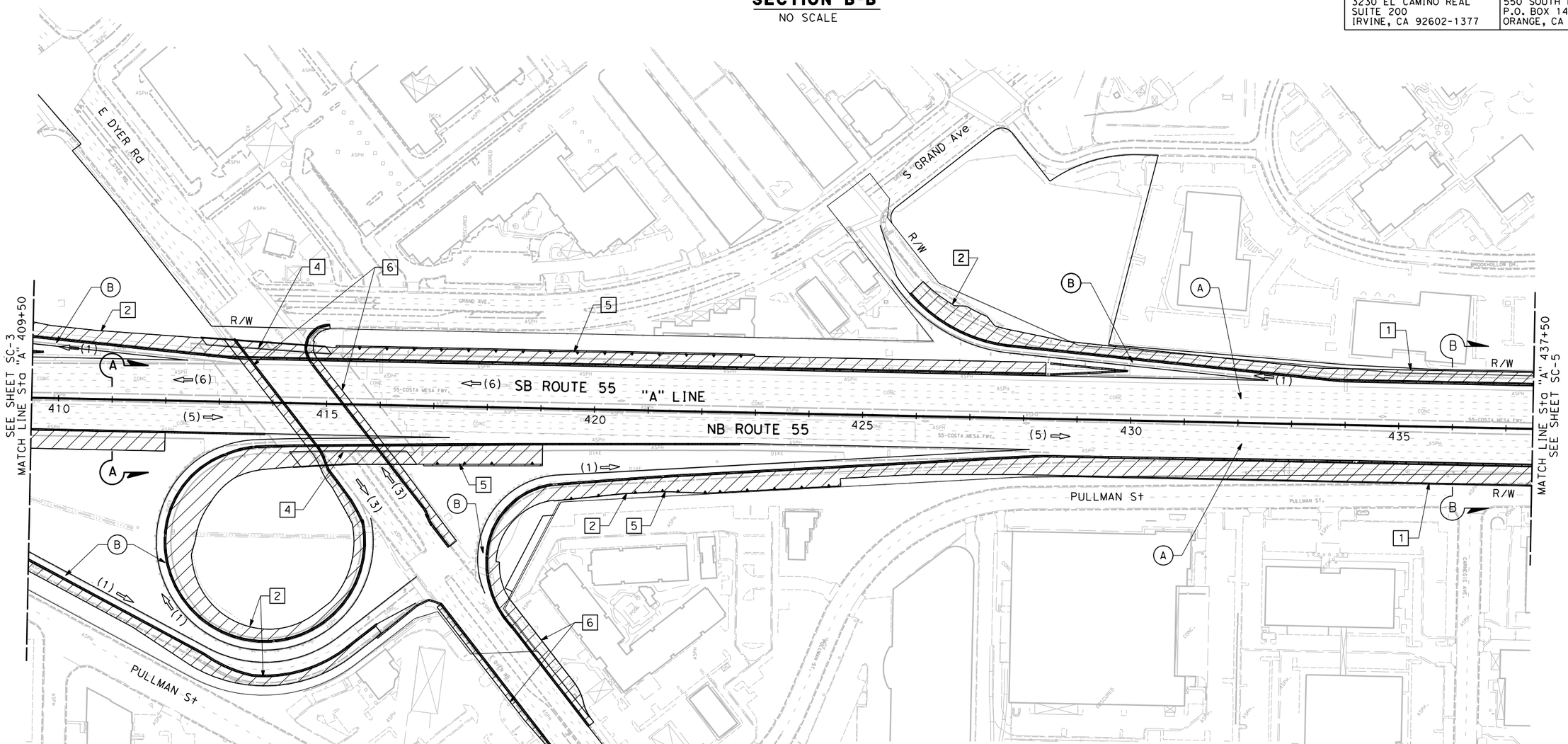
P.O. BOX 14184
ORANGE, CA 92863-1584

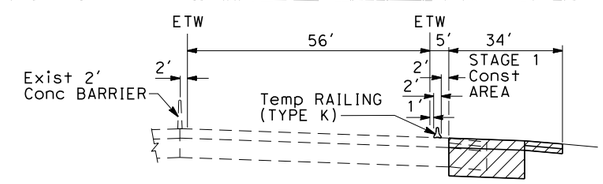
NOTE:

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



SECTION B-B
NO SCALE





SECTION A-A
NO SCALE

NOT FOR CONSTRUCTION

(STAGE 1)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100′

SC-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

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CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:30:33 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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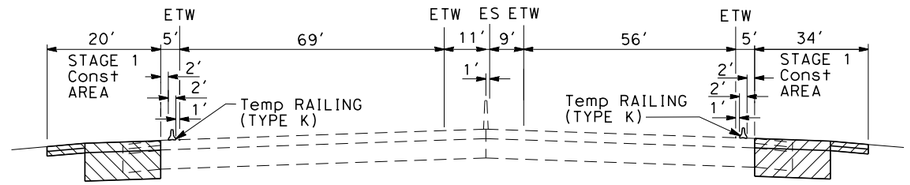
P.O. BOX 14184
ORANGE, CA 92863-1584

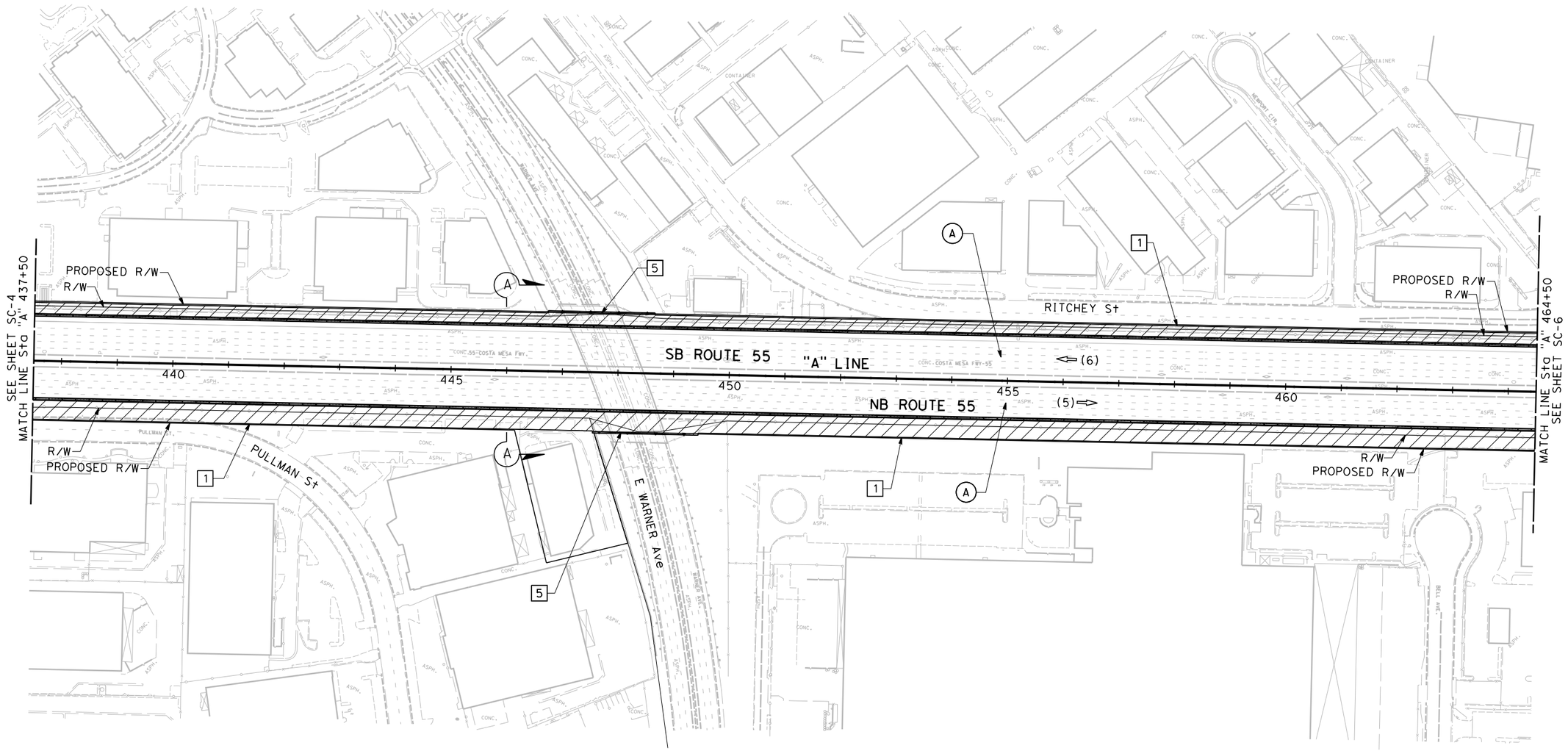
NOTE:

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



SECTION A-A

NO SCALE



(STAGE 1)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-5

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:30:50 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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ORANGE, CA 92863-1584

NOTE:

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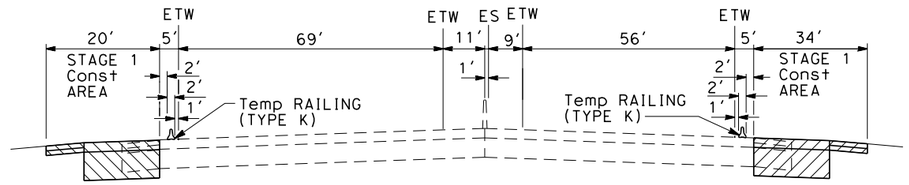
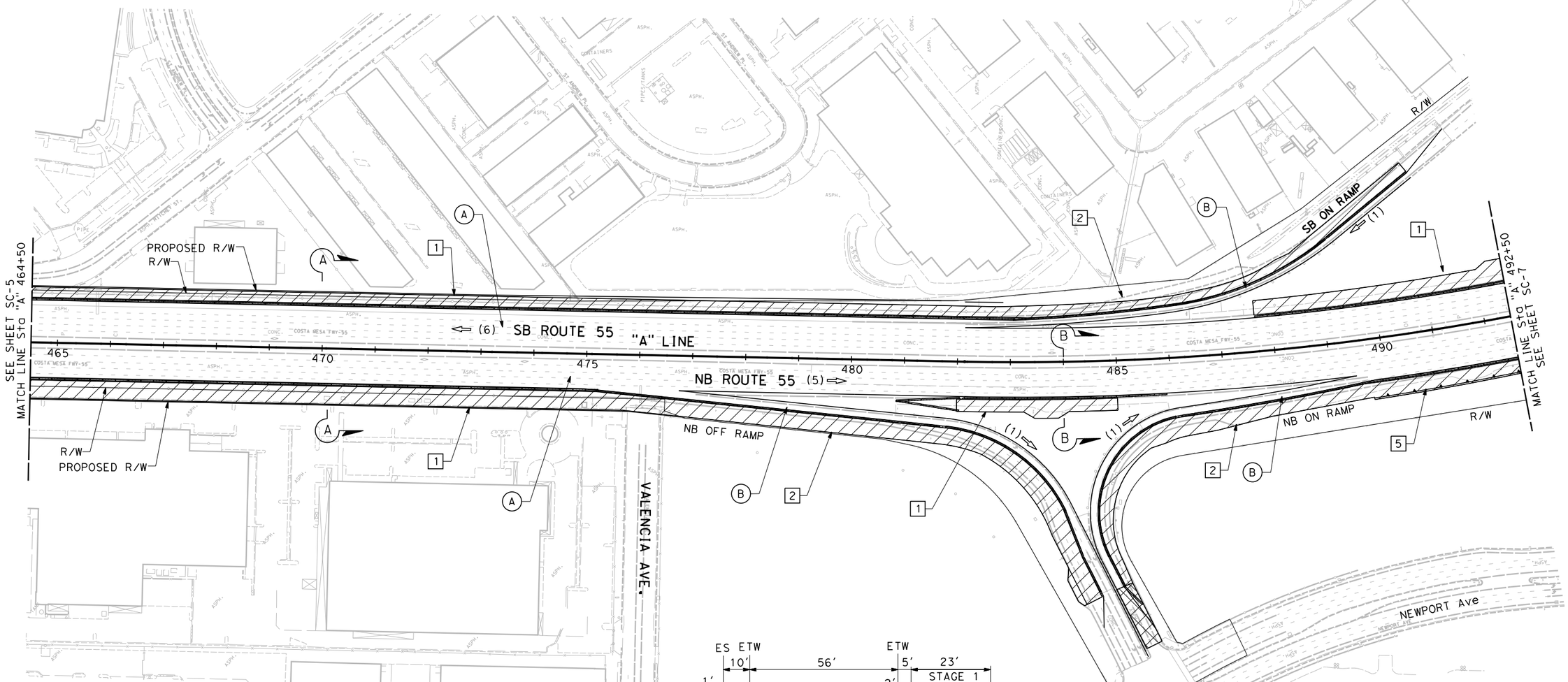
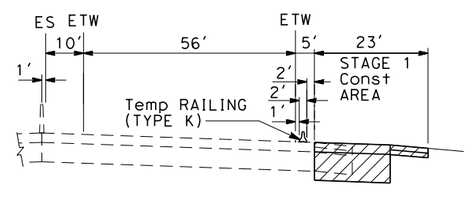


SECTION A-A
NO SCALE





SECTION B-B
NO SCALE

(STAGE 1)

ALTERNATIVE 3

STAGE CONSTRUCTION

SCALE: 1" = 100′

SC-6

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017

TIME PLOTTED => 2:31:08 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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ORANGE, CA 92863-1584

NOTE:

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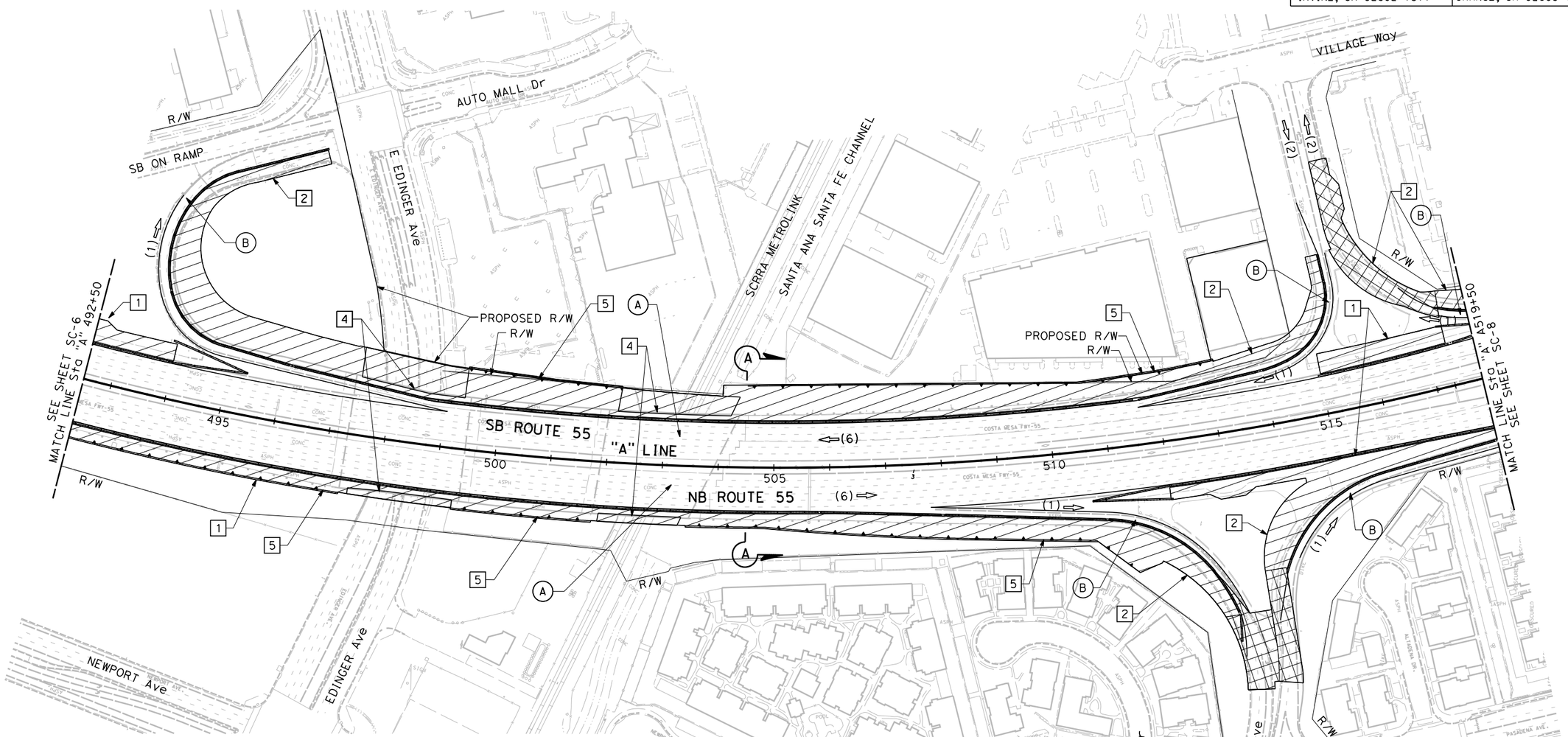

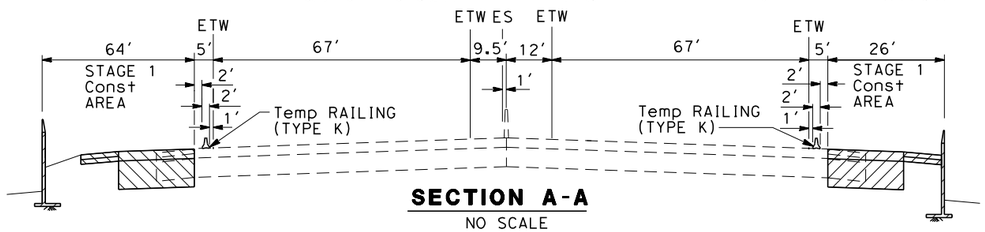

SECTION A-A
NO SCALE

(STAGE 1)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

NOT FOR CONSTRUCTION

SC-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 23:41 PM

BORDER LAST REVISED 7/2/2010

USERNAME => untitled
DGN FILE => c:\pwworking\sac\d0864088\12xxxxma007_Alt-3M_Stage-1.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 12-XXXX

PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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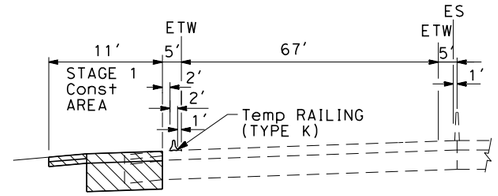
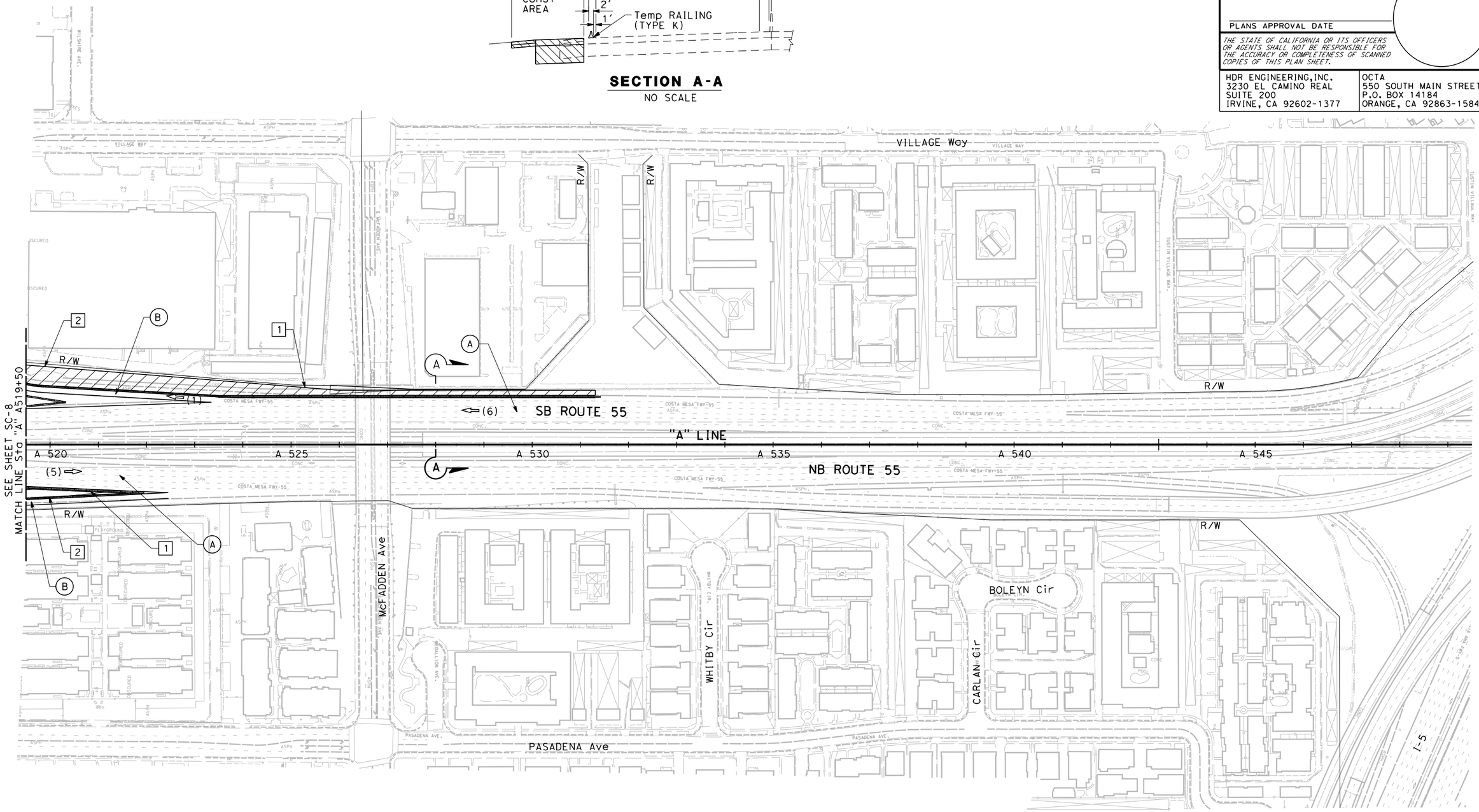


SECTION A-A
NO SCALE



(STAGE 1)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-8

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:31:57 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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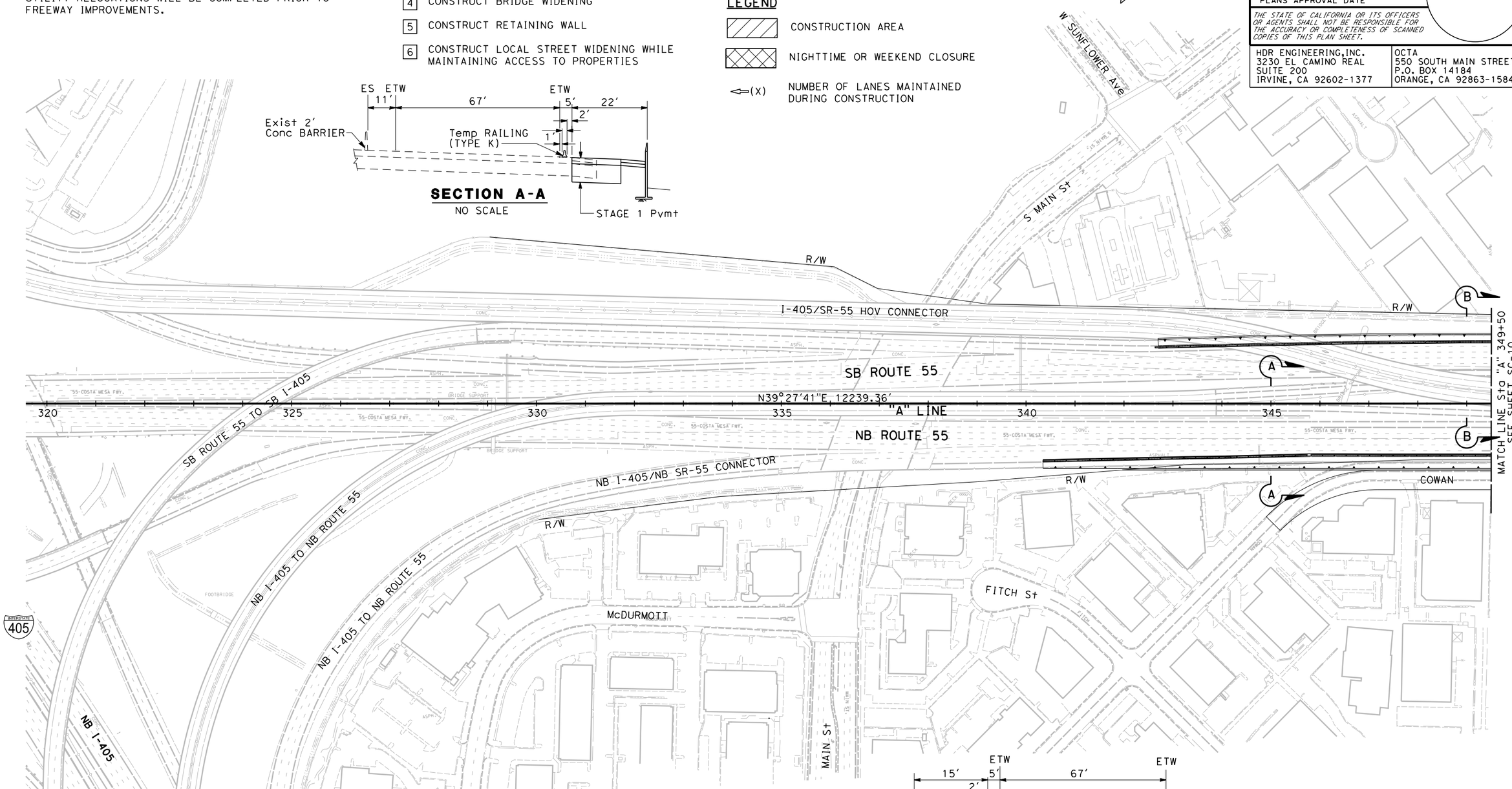
LEGEND

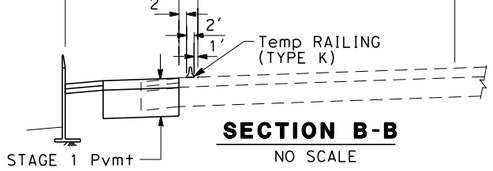
CONSTRUCTION AREA

NIGHTTIME OR WEEKEND CLOSURE

⇦(X) NUMBER OF LANES MAINTAINED DURING CONSTRUCTION

SECTION A-A
NO SCALE





SECTION B-B
NO SCALE

NOT FOR CONSTRUCTION

(STAGE 2)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100′

SC-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:26:59 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

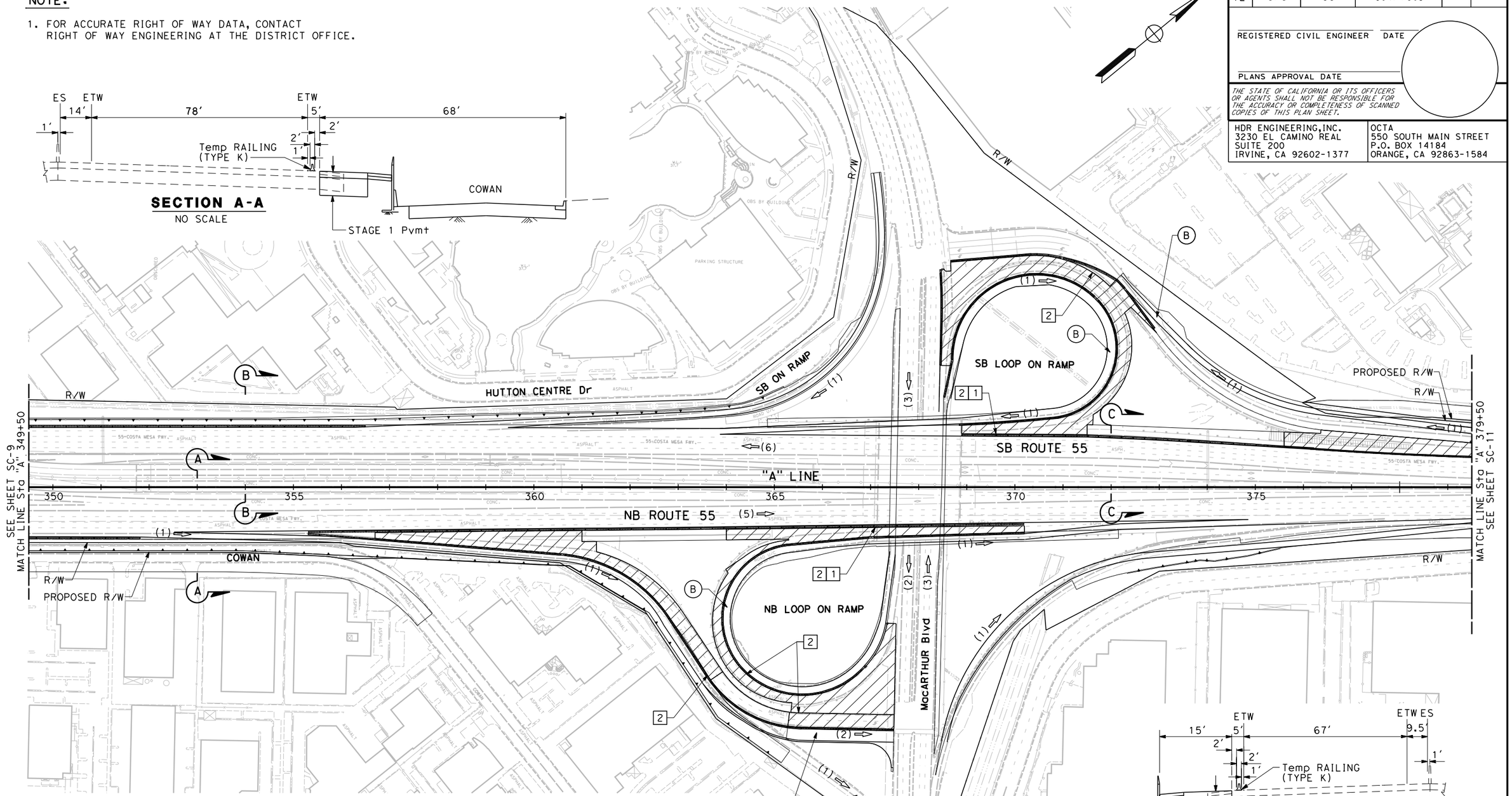
HDR ENGINEERING,INC.
3230 EL CAMINO REAL
SUITE 200
IRVINE, CA 92602-1377

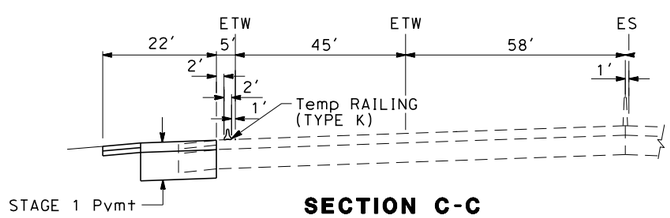
OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

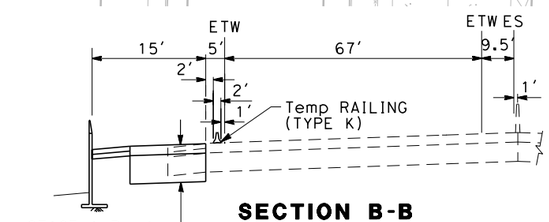
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

SECTION A-A
NO SCALE





SECTION C-C
NO SCALE



SECTION B-B
NO SCALE

(STAGE 2)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

NOT FOR CONSTRUCTION

SC-10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:27:21 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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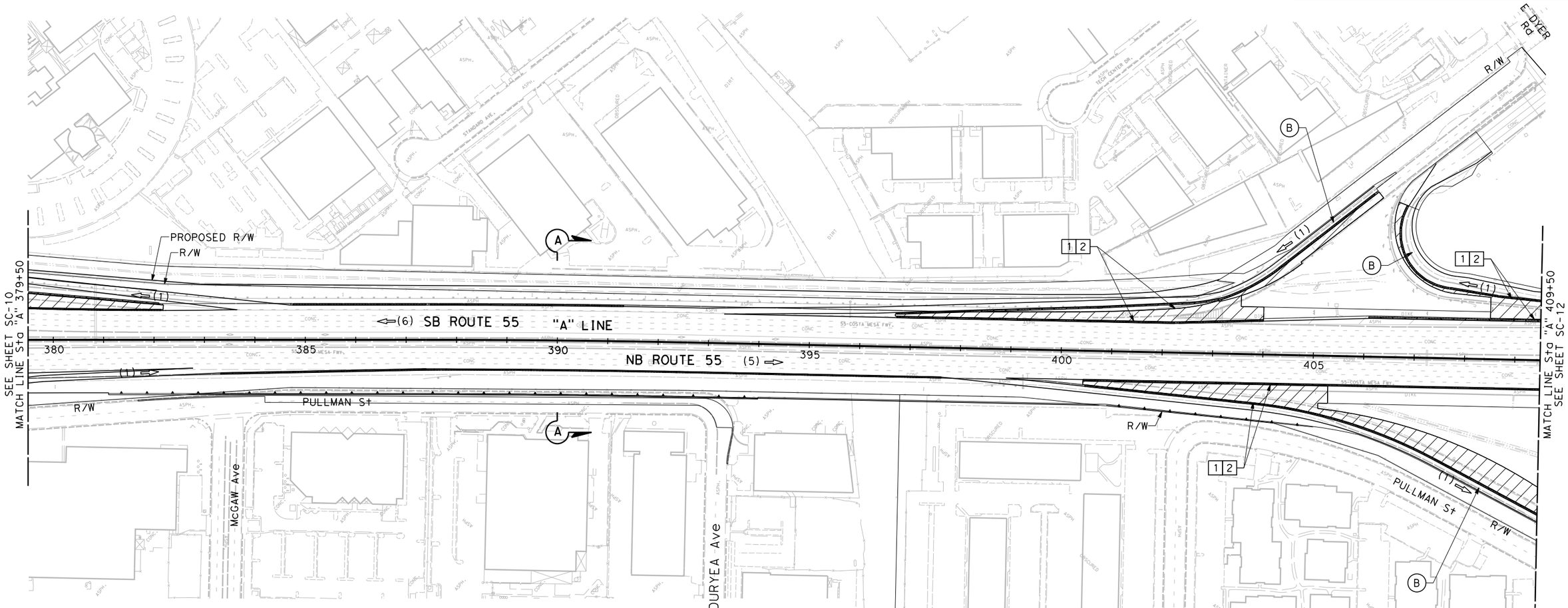
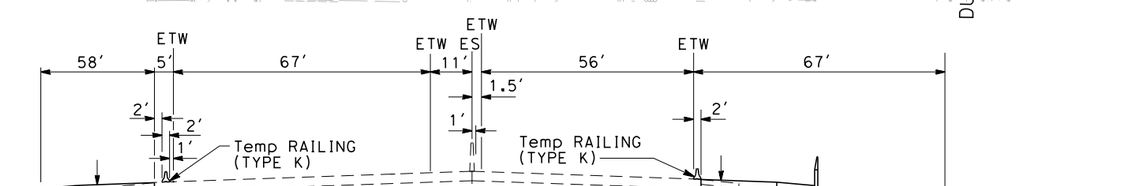
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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





SECTION A-A
NO SCALE

NOT FOR CONSTRUCTION

(STAGE 2)
ALTERNATIVE 3M
STAGE CONSTRUCTION
SCALE: 1" = 100'

SC-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
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DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:27:36 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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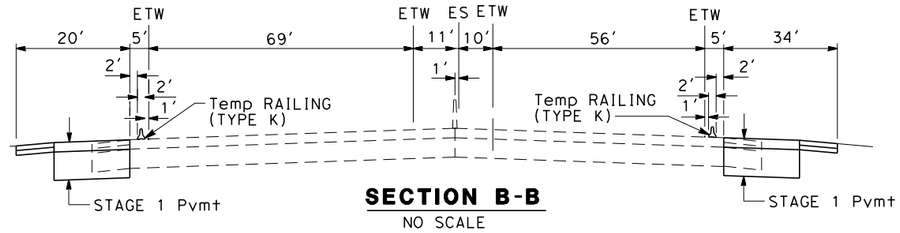
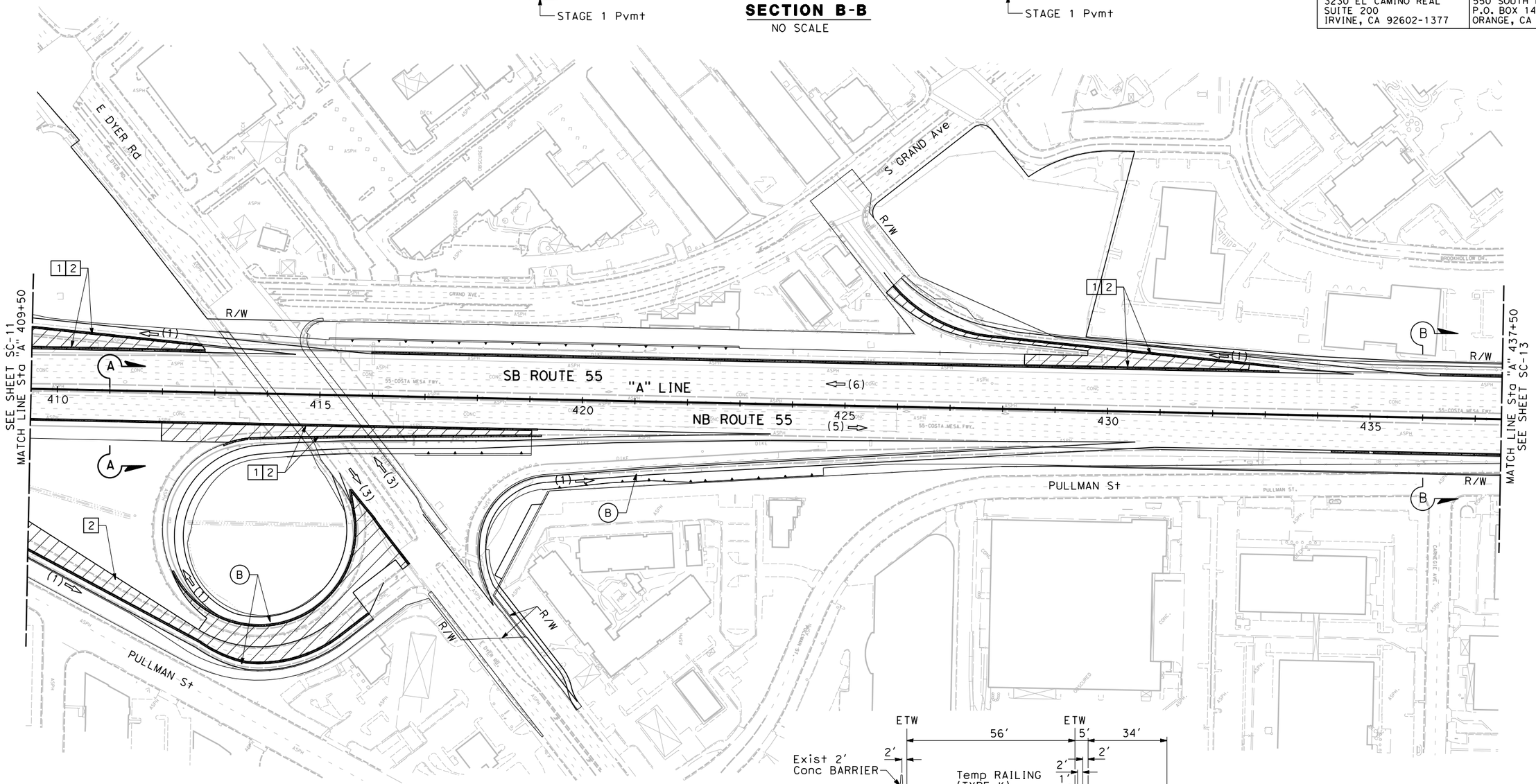
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

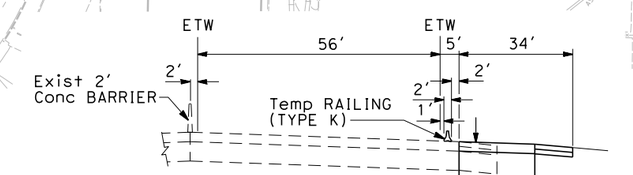
NOTE:

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



SECTION B-B
NO SCALE





SECTION A-A
NO SCALE

(STAGE 2)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100′

SC-12

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:28:09 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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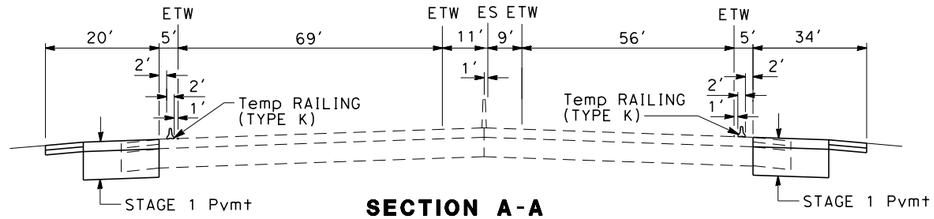
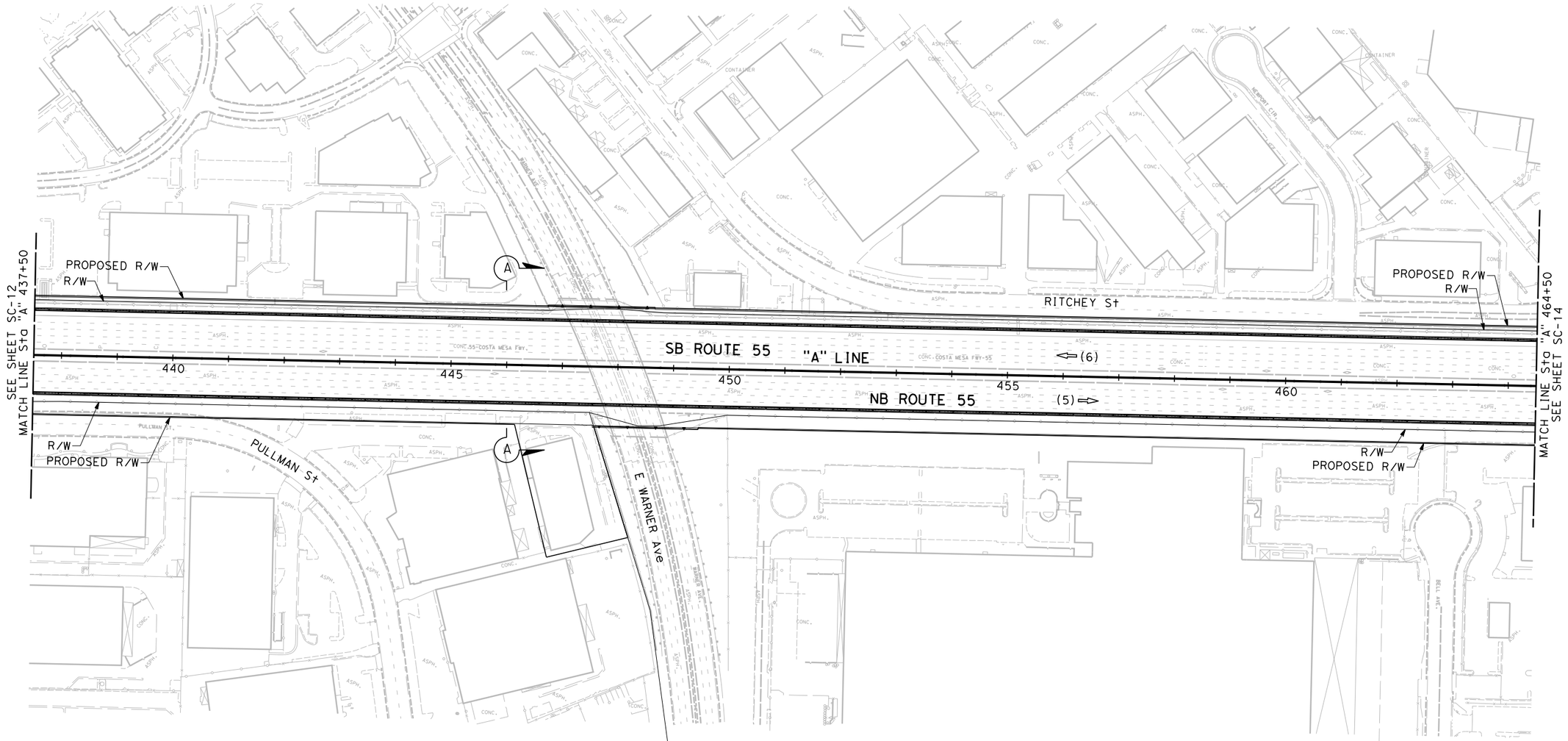
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



SECTION A-A
NO SCALE



NOT FOR CONSTRUCTION

(STAGE 2)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100′

SC-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:28:39 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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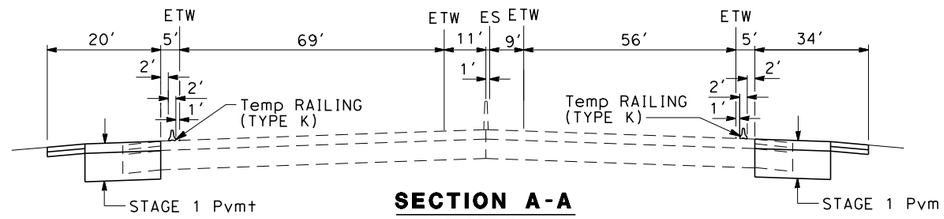
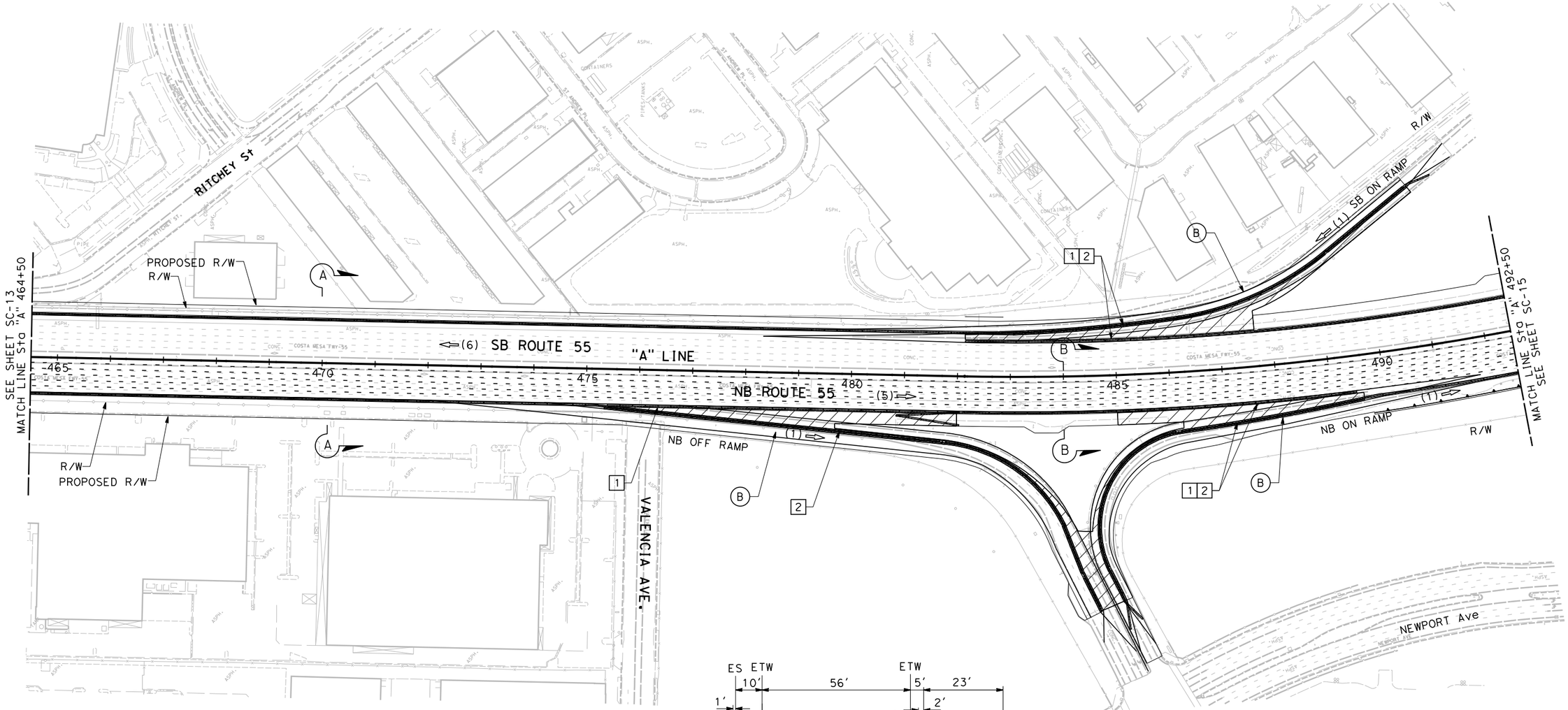
ORANGE, CA 92863-1584

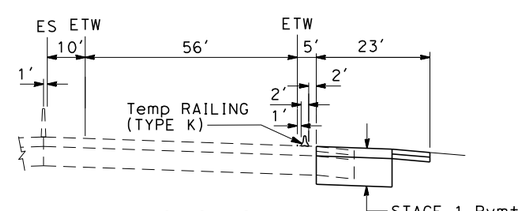
NOTE:

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



SECTION A-A
NO SCALE





SECTION B-B
NO SCALE

(STAGE 2)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100′

SC-14

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:28:59 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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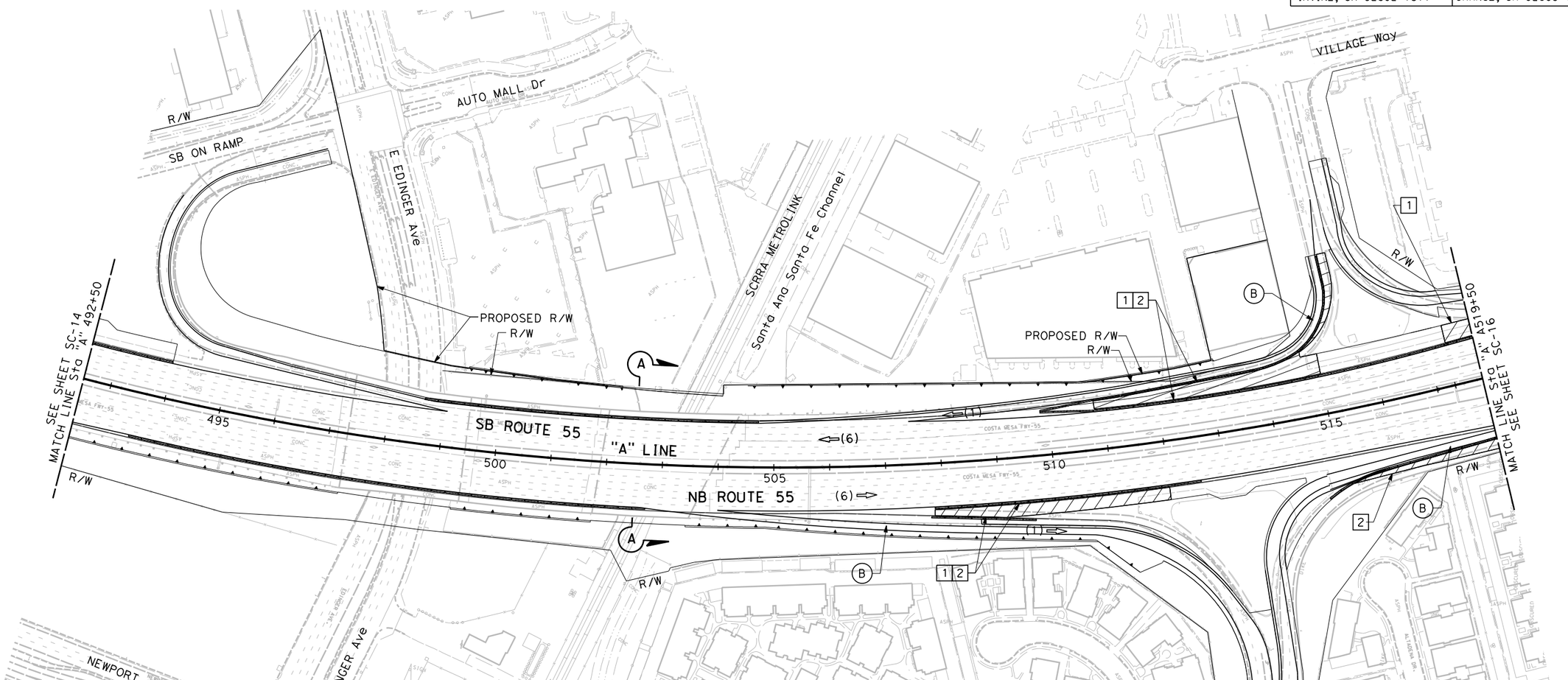
ORANGE, CA 92863-1584

NOTE:

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



SECTION A-A
NO SCALE

(STAGE 2)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-15

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA
CALCULATED-DESIGNED BY: JESSICA SLATER
CHECKED BY: SHIVA WOOTON
REVISED BY
DATE REVISED

LAST REVISION XX-XX-XX
DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:29:14 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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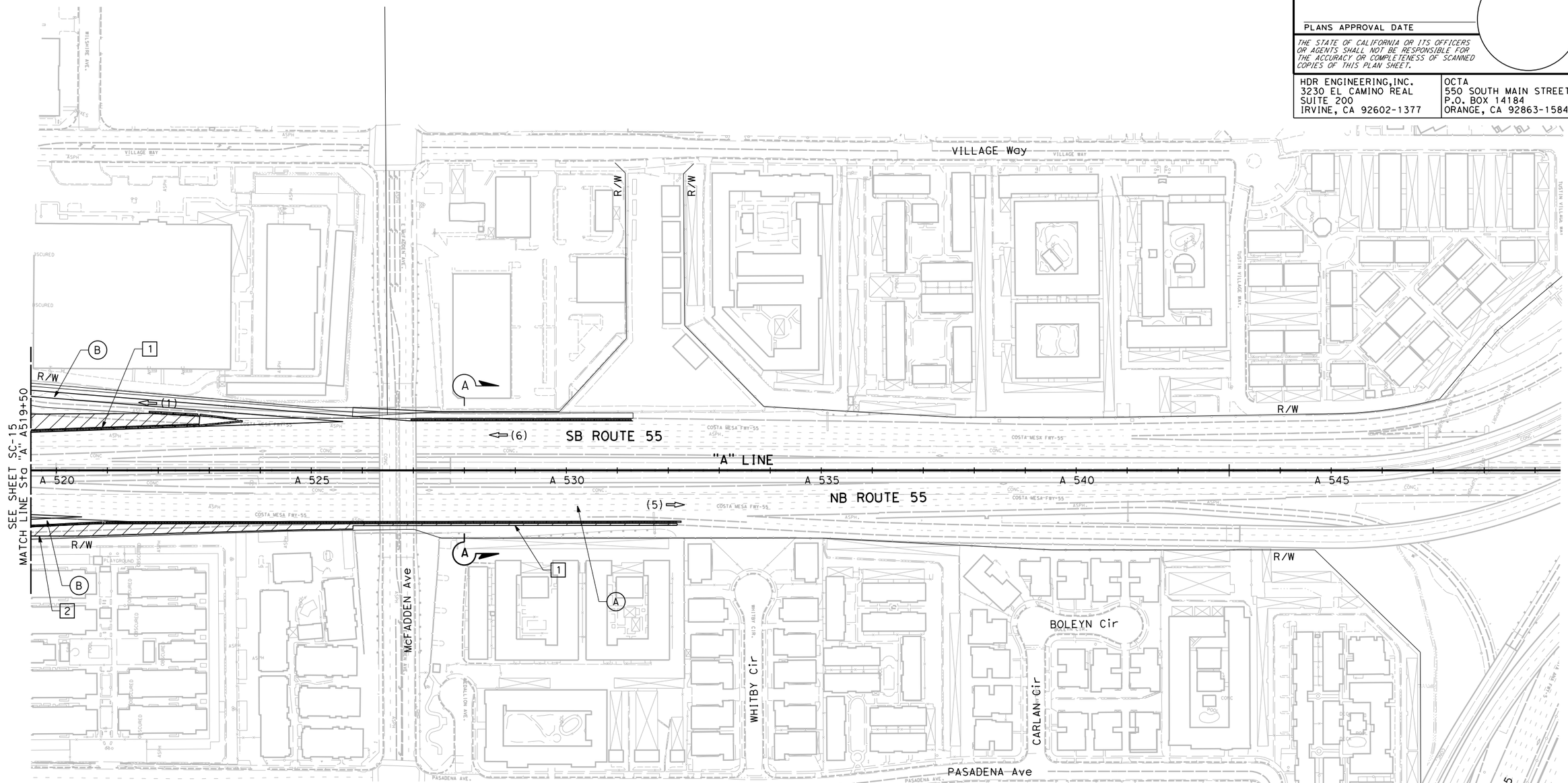
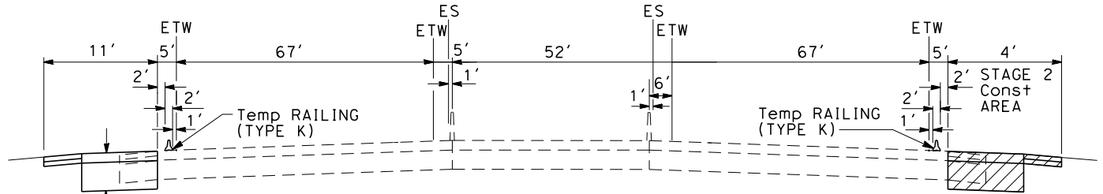
ORANGE, CA 92863-1584

NOTE:

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





SECTION A-A
NO SCALE

NOT FOR CONSTRUCTION

(STAGE 2)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:29:30 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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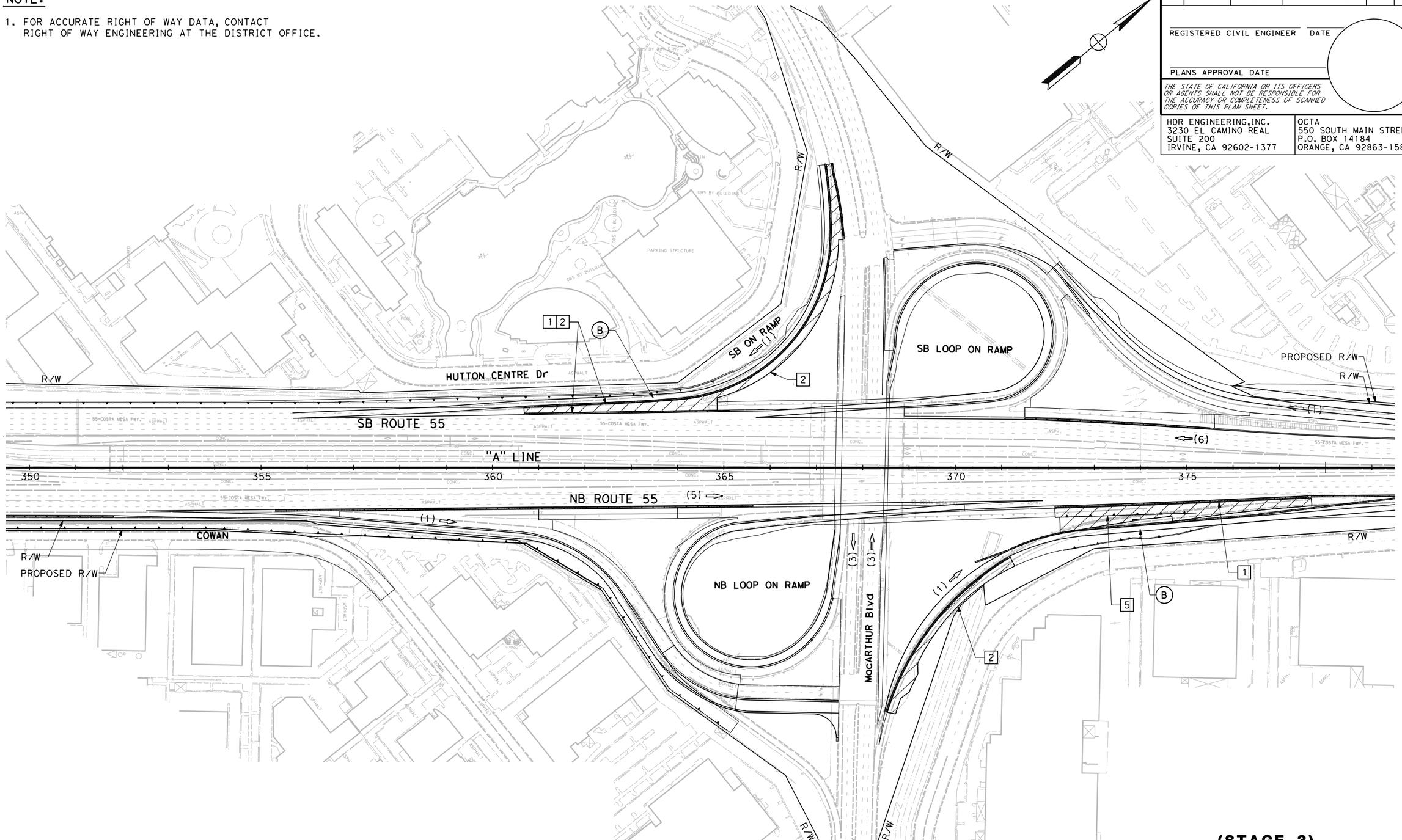
IRVINE, CA 92602-1377

OCTA
550 SOUTH MAIN STREET
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



(STAGE 3)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-17

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:32:14 PM

BORDER LAST REVISED 7/2/2010

USERNAME => untitled
DGN FILE => c:\pwworking\sac\d0864090\12xxxxma017_Alt-3M_Stage-3.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 12-XXXX

PROJECT NUMBER & PHASE 120000XXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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ORANGE, CA 92863-1584

NOTE:

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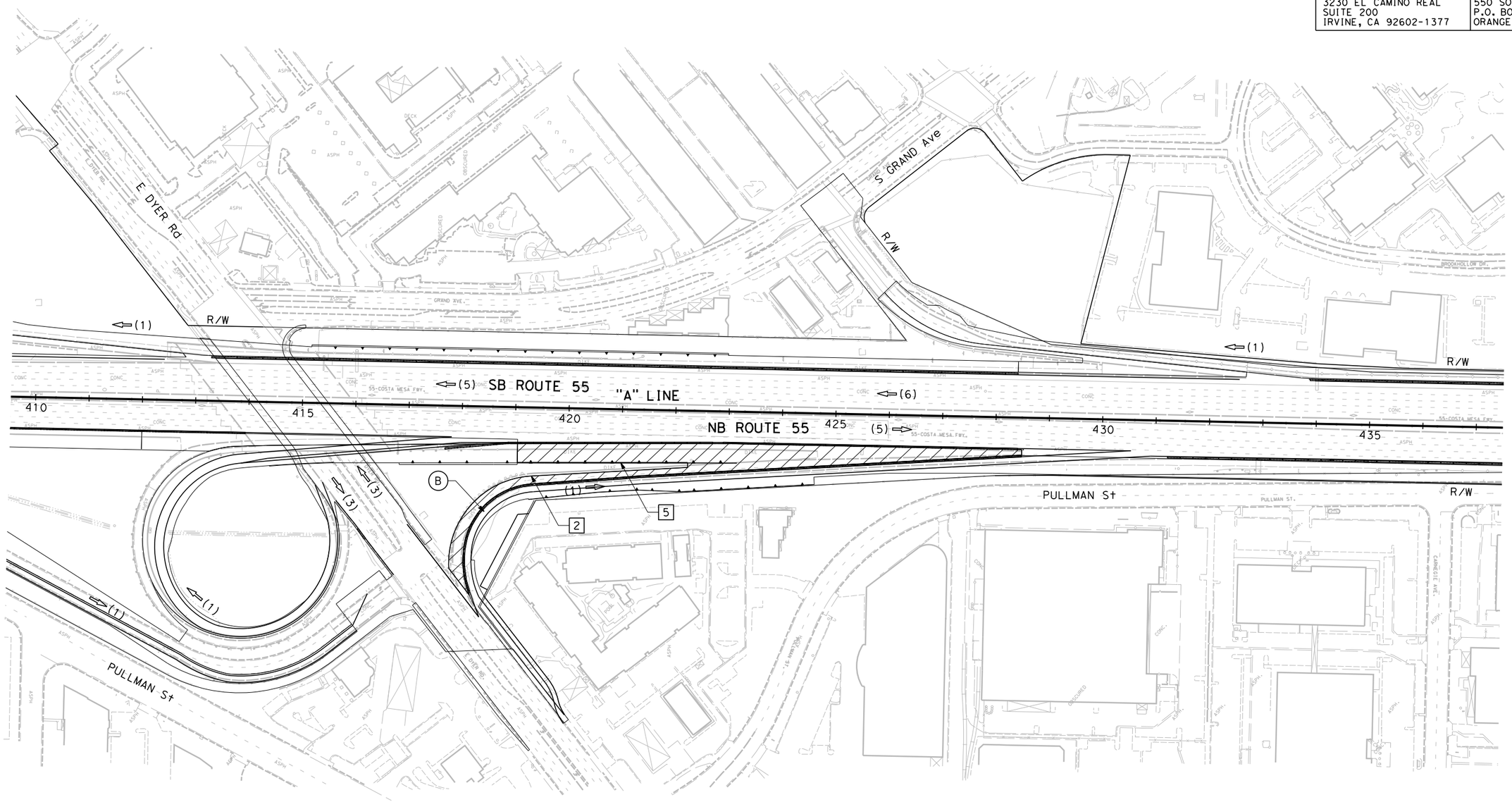

(STAGE 3)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-18

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017
TIME PLOTTED => 2:32:27 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	55	6.4/10.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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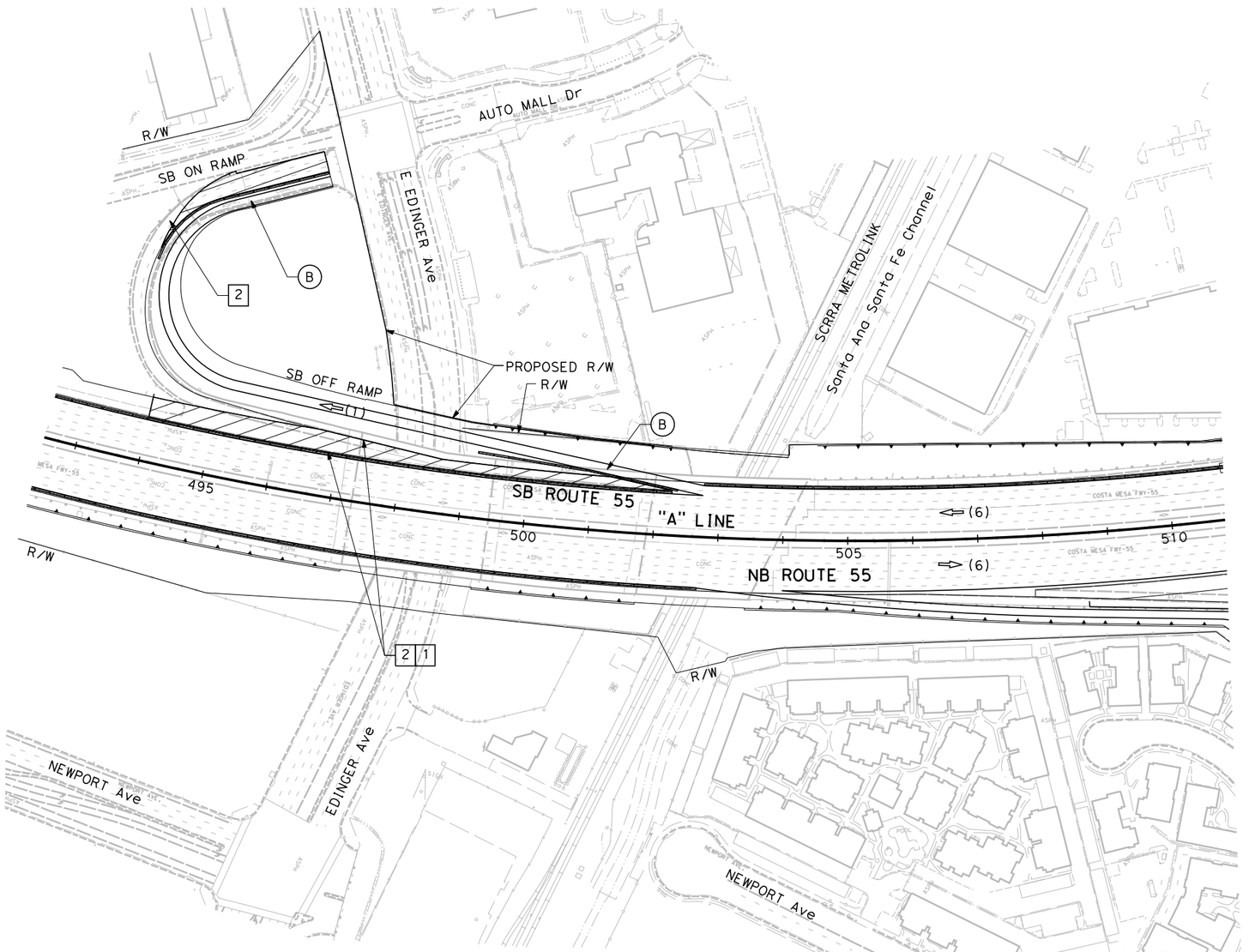
P.O. BOX 14184
ORANGE, CA 92863-1584

NOTE:

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



NOT FOR CONSTRUCTION

(STAGE 3)

ALTERNATIVE 3M

STAGE CONSTRUCTION

SCALE: 1" = 100'

SC-19

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: CAMILO ROCHA

CALCULATED-DESIGNED BY: JESSICA SLATER

CHECKED BY: SHIVA WOOTON

REVISED BY

DATE REVISED

LAST REVISION XX-XX-XX

DATE PLOTTED => 2/2/2017

TIME PLOTTED => 2:32:39 PM

Attachment M – Supplemental Draft Environmental Document (under separate cover)