

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2	LAYOUT
3	CONSTRUCTION AREA SIGNS
4-5	DETOUR PLANS
6-16	REVISED STANDARD PLANS

STRUCTURE PLANS

VINCENT THOMAS BRIDGE Br No. 53-1471

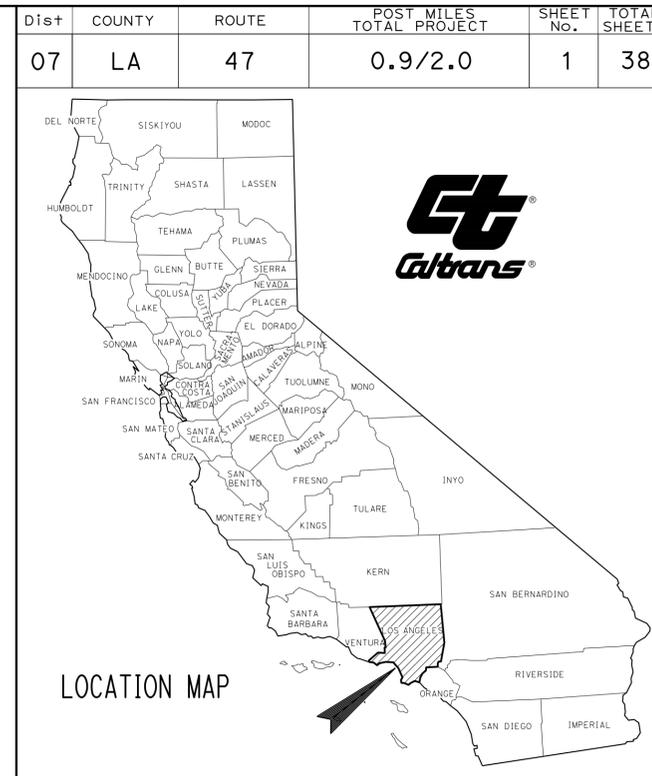
17	GENERAL PLAN
18	GENERAL NOTES
19	DAMPER AND BRB LOCATIONS
20-21	DAMPER BRACKET DETAILS
22-23	SIDE SPAN TRUSS FUSES
24	DAMPER/BRB DETAILS
25	DECK SHEAR CONNECTOR DETAILS
26-27	TRAVELER RAIL DETAILS
28-29	CABLE BENT EXPANSION JOINT DETAILS
30-31	TOWER EXPANSION JOINT DETAILS
32	M0-0 LEGENDS AND ABBREVIATIONS
33	M0-1 MECHANICAL SITE PLAN
34	M1-1 EAST AND WEST APPROACH TRAVELERS
35	M1-2 EAST AND WEST APPROACH TRAVELER SECTION
36	M1-3 MAIN, EAST SIDE, AND WEST SIDE SPAN TRAVELERS
37-38	DETAILS

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

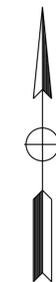
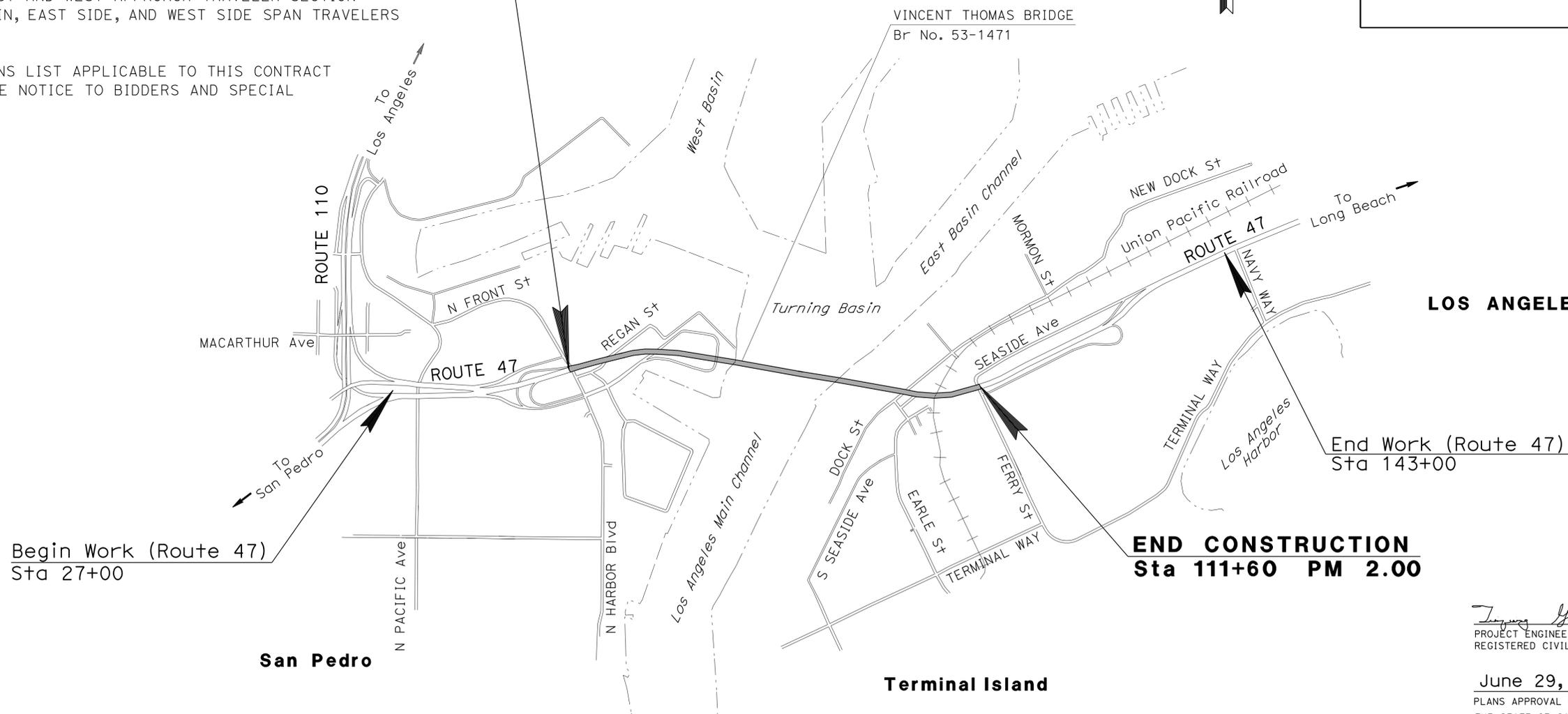
STATE OF CALIFORNIA ACNHP-P047(011)E
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY

IN LOS ANGELES COUNTY IN LOS ANGELES
FROM HARBOR BOULEVARD UNDERCROSSING
TO FERRY STREET UNDERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010



BEGIN CONSTRUCTION
Sta 51+50 PM 0.90

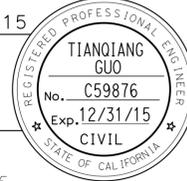


PROJECT MANAGER SHARAS BANGALORE	DESIGN MANAGER MARIO A. GUTIERREZ
-------------------------------------	--------------------------------------

3-17-15
 PROJECT ENGINEER DATE
 REGISTERED CIVIL ENGINEER

June 29, 2015
 PLANS APPROVAL DATE

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

NO SCALE



USERNAME => s125624
 DGN FILE => 729070ab001.dgn

CONTRACT No.	07-290704
PROJECT ID	0712000076

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

FUNCTIONAL SUPERVISOR
 MARIO A. GUTIERREZ

CALCULATED/DESIGNED BY
 CHECKED BY

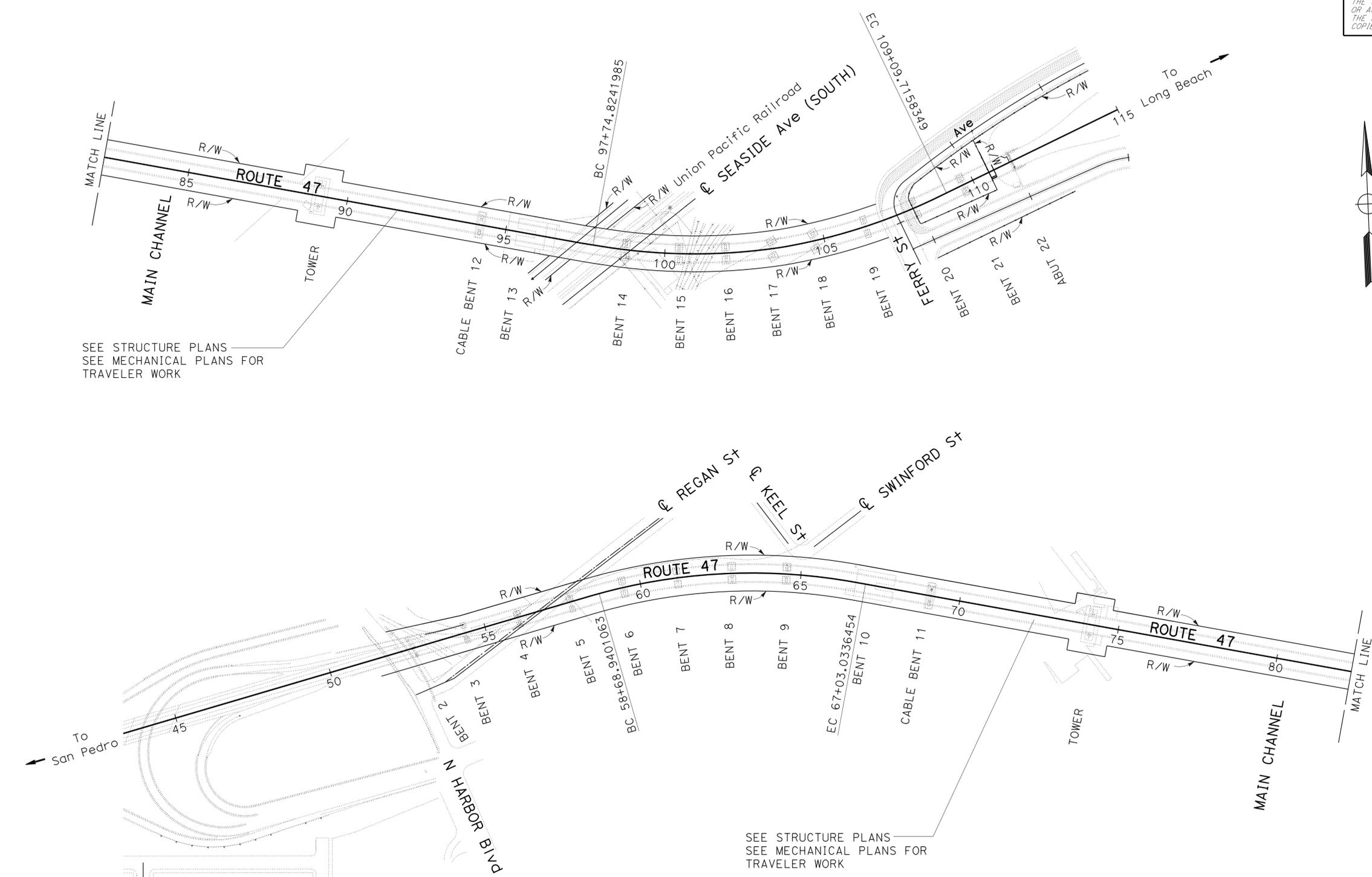
TIANGIANG GUO
 EDMUND SPIRAUSKAS

REVISED BY
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	2	38

REGISTERED CIVIL ENGINEER DATE 3-17-15
 TIANJIANG GUO
 No. C59876
 Exp. 12/31/15
 CIVIL
 PLANS APPROVAL DATE 6-29-15

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LAYOUT
 NO SCALE

L-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	3	38

REGISTERED CIVIL ENGINEER: *Tianqiang Guo* 3-17-15
 DATE: 3-17-15
 No. C59876
 Exp. 12/31/15
 CIVIL
 PLANS APPROVAL DATE: 6-29-15

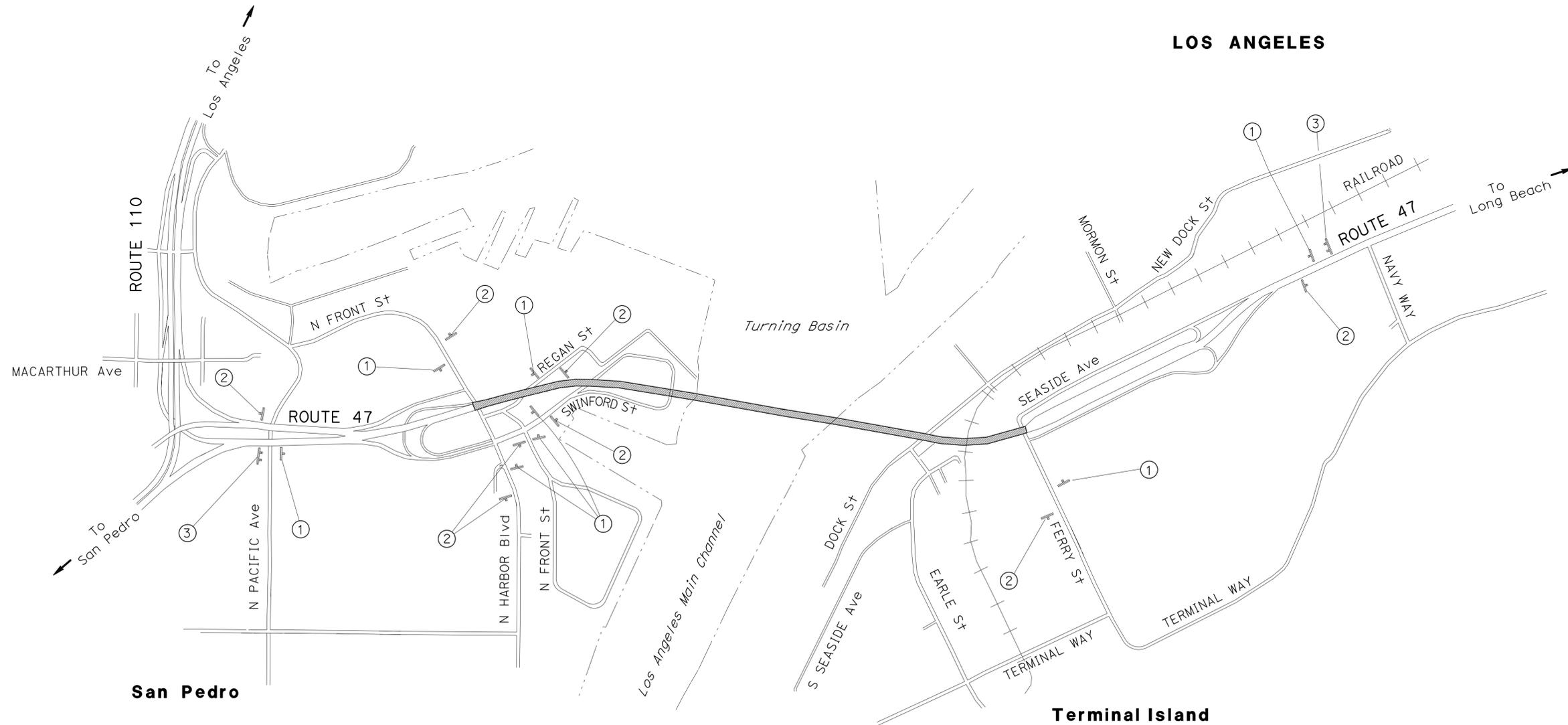
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

- SIGN LOCATIONS SHOWN ARE APPROXIMATE ONLY. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
- FOR ADDITIONAL SIGNS, REFER TO DETOUR PLANS.

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No. (X)	SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF POSTS AND SIZE	NUMBER OF SIGNS
	FEDERAL	CALIFORNIA				
1	W20-1		36" x 36"	ROAD WORK AHEAD	1 - 4" x 4"	8
2	G20-2		36" x 18"	END ROAD WORK	1 - 4" x 4"	8
3		C40 (CA)	108" x 42"	TRAFFIC FINES DOUBLED IN WORK ZONES	2 - 6" x 6"	2



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN
 Caltrans®
 FUNCTIONAL SUPERVISOR: MARIO A. GUTIERREZ
 CALCULATED/DESIGNED BY: TIANQIANG GUO
 CHECKED BY: EDMUND SPIRAUSKAS
 REVISED BY: DATE REVISOR

CONSTRUCTION AREA SIGNS

NO SCALE

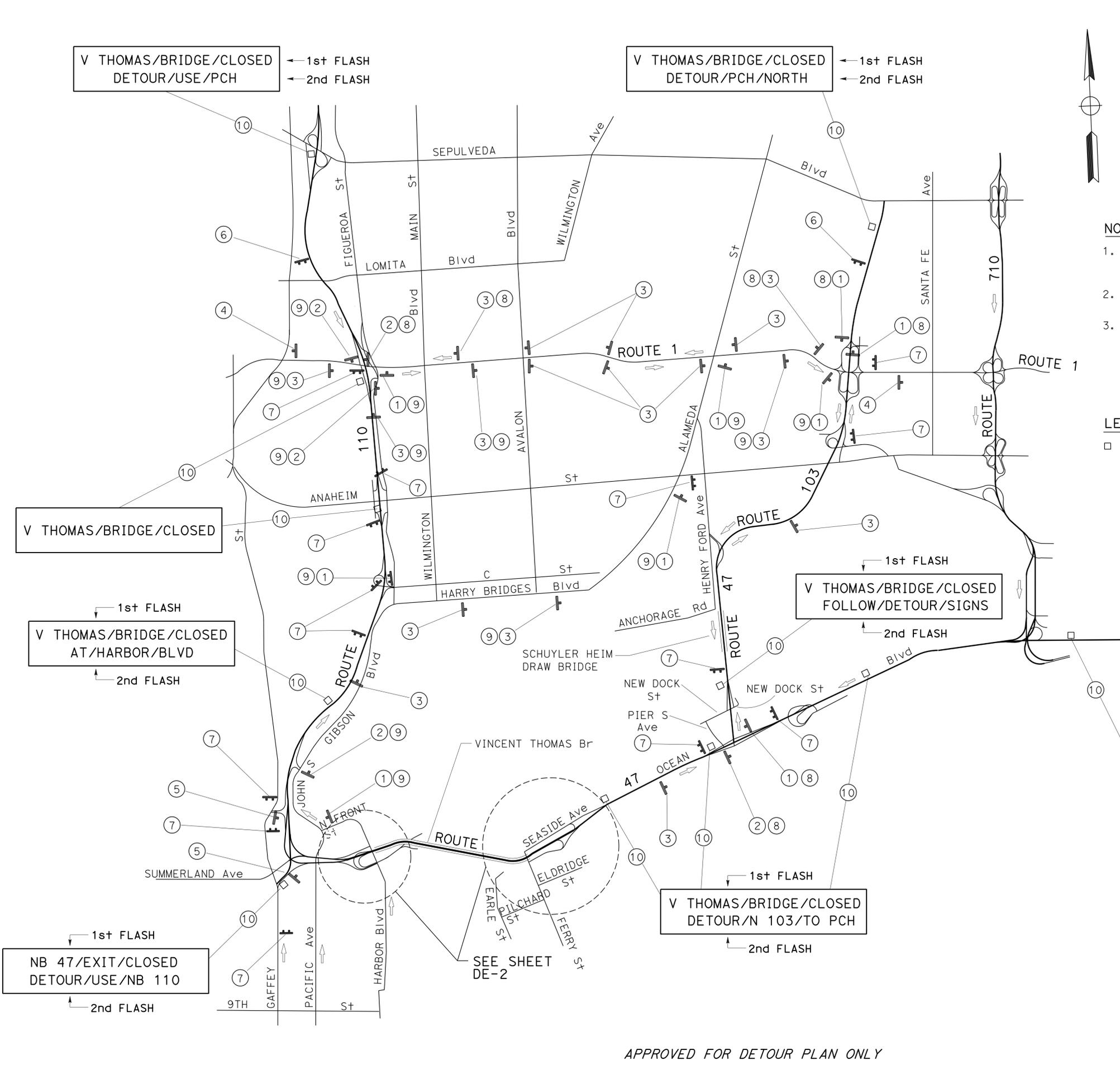
APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

CS-1



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

FUNCTIONAL SUPERVISOR: MARIO A. GUTIERREZ
 CALCULATED/DESIGNED BY: TIANQIANG GUO
 CHECKED BY: EDMUND SPIRAUSKAS
 REVISED BY: [] DATE REVISED: []



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	4	38

REGISTERED CIVIL ENGINEER: TIANQIANG GUO
 No. C59876
 Exp. 12/31/15
 DATE: 3-17-15
 PLANS APPROVAL DATE: 6-29-15

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

NOTES:

1. LOCATIONS OF DETOUR AND CONSTRUCTION AREA SIGNS SHOWN ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
2. SIGNS MAY BE ATTACHED TO STANDARDS OR NEW POSTS AS APPROVED BY THE ENGINEER.
3. DETOUR SIGNS MUST BE COVERED AT ALL TIMES EXCEPT DURING DETOUR HOURS.

LEGEND:

□ PCMS

DETOUR PLAN
NO SCALE

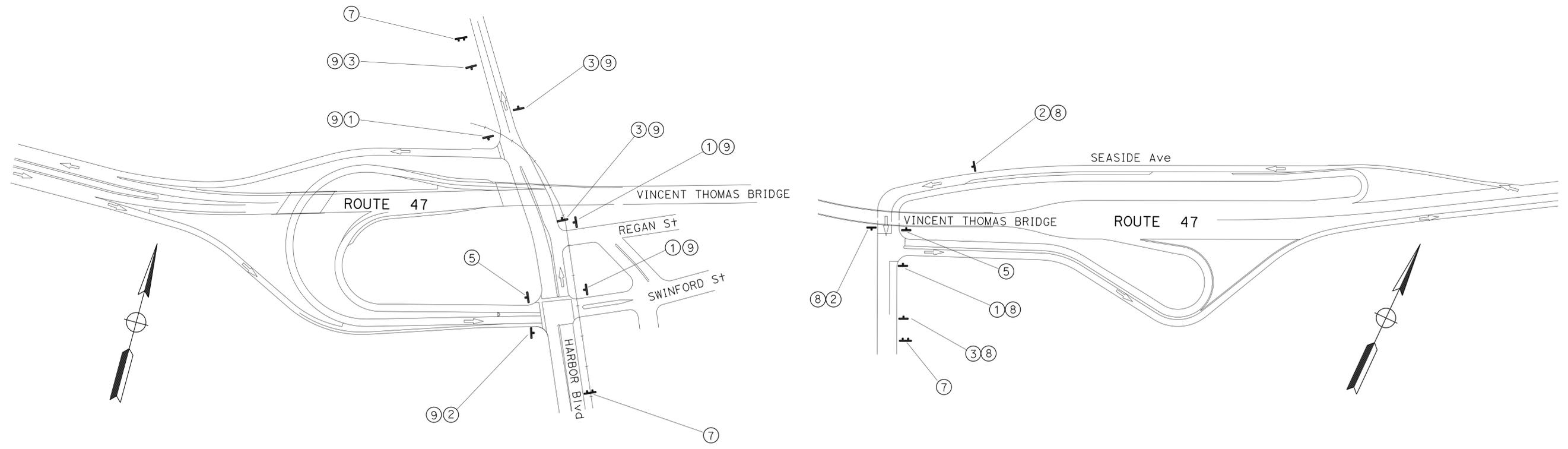
DE-1

APPROVED FOR DETOUR PLAN ONLY



DETOUR SIGN QUANTITIES

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	NUMBER OF POSTS AND SIZE	NUMBER OF SIGNS
1	M4-10	36" x 18"	→	1 - 4" x 4"	13
2	M4-10(LT)	36" x 18"	←	1 - 4" x 4"	8
3	SP-2	36" x 36"	FWY DETOUR	1 - 4" x 4"	21
4	M4-8a	36" x 18"	DETOUR	1 - 4" x 4"	2
5	W20-3	36" x 36"	RAMP CLOSED	1 - 4" x 4"	4
6	SP-7A	144" x 72"	VINCENT THOMAS BR SUBJECT TO CLOSURE	2 - 6" x 6"	2
7	SP-7B	60" x 48"	VINCENT THOMAS BR SUBJECT TO CLOSURE	2 - 4" x 4"	16
8	SPECIAL SIGN	48" x 18"	TO SAN PEDRO	1 - 4" x 4"	11
9	SPECIAL SIGN	48" x 18"	TO TERMINAL ISLAND	1 - 4" x 4"	21
10	PCMS	—	—	—	11



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR: MARIO A. GUTIERREZ
 CALCULATED/DESIGNED BY: [blank] CHECKED BY: [blank]
 TIANQIANG GUO
 EDMUND SPIRAUSKAS
 REVISED BY: [blank] DATE REVISED: [blank]

APPROVED FOR DETOUR PLAN ONLY

DETOUR PLAN
NO SCALE

DE-2

LAST REVISION | DATE PLOTTED => 16-JUL-2015
 05-15-15 | TIME PLOTTED => 10:53

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	6	38

Grace M. Tsushima
REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

Grace M. Tsushima
No. C49814
Exp. 9-30-14
CIVIL
STATE OF CALIFORNIA

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

TO ACCOMPANY PLANS DATED 6-29-15

UNIT OF MEASUREMENT SYMBOLS:

Some of the symbols used in the project plan quantity tables and in the Bid Item List are:

TABLE A

SYMBOL USED	DEFINITIONS
ACRE	ACRE
CF	CUBIC FOOT
CY	CUBIC YARD
EA	EACH
GAL	GALLON
LB	POUND
LF	LINEAR FOOT
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
STA	100 FEET
TAB	TABLET
TON	2,000 POUNDS

Some of the symbols used in the plans other than in the project plan quantity tables are:

TABLE B

SYMBOL USED	DEFINITIONS
ksi	KIPS PER SQUARE INCH
ksf	KIPS PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psf	POUNDS PER SQUARE FOOT
lb/ft ³ , pcf	POUNDS PER CUBIC FOOT
tsf	TONS PER SQUARE FOOT
mph, MPH *	MILES PER HOUR
∅	NOMINAL DIAMETER
oz	OUNCE
lb	POUND
kíp	1,000 POUNDS
cal	CALORIE
ft	FOOT OR FEET
gal	GALLON

* For use on a sign panel only

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ABBREVIATIONS
(SHEET 2 OF 2)**

NO SCALE

RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B
DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A10B

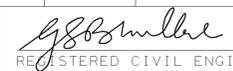
	M
Maint	MAINTENANCE
Max	MAXIMUM
MB	METAL BEAM
MBB	METAL BEAM BARRIER
MBGR	METAL BEAM GUARD RAILING
Med	MEDIAN
MGS	MIDWEST GUARDRAIL SYSTEM
MH	MANHOLE
Min	MINIMUM
Misc	MISCELLANEOUS
Misc I & S	MISCELLANEOUS IRON AND STEEL
Mkr	MARKER
Mod	MODIFIED, MODIFY
Mon	MONUMENT
MP	METAL PLATE
MPGR	METAL PLATE GUARD RAILING
MR	MOVEMENT RATING
MSE	MECHANICALLY STABILIZED EMBANKMENT
Mt	MOUNTAIN, MOUNT
MtI	MATERIAL
MVP	MAINTENANCE VEHICLE PULLOUT
	N
N	NORTH
NB	NORTHBOUND
No.	NUMBER (MUST HAVE PERIOD)
Nos.	NUMBERS (MUST HAVE PERIOD)
NPS	NOMINAL PIPE SIZE
NS	NEAR SIDE
NSP	NEW STANDARD PLAN
NTS	NOT TO SCALE
	O
Obir	OBLITERATE
OC	OVERCROSSING
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OG	ORIGINAL GROUND
OGAC	OPEN GRADED ASPHALT CONCRETE
OGFC	OPEN GRADED FRICTION COURSE
OH	OVERHEAD
OHWM	ORDINARY HIGH WATER MARK
O-O	OUT TO OUT
Opp	OPPOSITE
OSD	OVERSIDE DRAIN
	P
p	PAGE
PAP	PERFORATED ALUMINUM PIPE
PB	PULL BOX
PC	POINT OF CURVATURE, PRECAST
PCC	POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
PCP	PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE
PCVC	POINT OF COMPOUND VERTICAL CURVE
PEC	PERMIT TO ENTER AND CONSTRUCT
Ped	PEDESTRIAN
Ped OC	PEDESTRIAN OVERCROSSING
Ped UC	PEDESTRIAN UNDERCROSSING
Perm MtI	PERMEABLE MATERIAL

	P continued
PG	PROFILE GRADE
PI	POINT OF INTERSECTION
PJP	PARTIAL JOINT PENETRATION
Pkwy	PARKWAY
PL, PL	PLATE
P/L	PROPERTY LINE
PM	POST MILE, TIME FROM NOON TO MIDNIGHT
PN	PAVING NOTCH
POC	POINT OF HORIZONTAL CURVE
POT	POINT OF TANGENT
POVC	POINT OF VERTICAL CURVE
PP	PIPE PILE, PLASTIC PIPE, POWER POLE
PPL	PREFORMED PERMEABLE LINER
PPP	PERFORATED PLASTIC PIPE
PRC	POINT OF REVERSE CURVE
PRF	PAVEMENT REINFORCING FABRIC
PRVC	POINT OF REVERSE VERTICAL CURVE
PS&E	PLANS, SPECIFICATIONS AND ESTIMATES
PS, P/S	PRESTRESSED
PSP	PERFORATED STEEL PIPE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
Pvmt	PAVEMENT
	Q
Qty	QUANTITY
	R
R	RADIUS
R & D	REMOVE AND DISPOSE
R & S	REMOVE AND SALVAGE
R/C	RATE OF CHANGE
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RCPA	REINFORCED CONCRETE PIPE ARCH
Rd	ROAD
Reinf	REINFORCED, REINFORCEMENT, REINFORCING
Rel	RELOCATE
Repl	REPLACEMENT
Ret	RETAINING
Rev	REVISED, REVISION
Rdwy	ROADWAY
RHMA	RUBBERIZED HOT MIX ASPHALT
Riv	RIVER
RM	ROAD-MIXED
RP	RADIUS POINT, REFERENCE POINT
RR	RAILROAD
RSP	ROCK SLOPE PROTECTION, REVISED STANDARD PLAN
Rt	RIGHT
Rte	ROUTE
RW	REDWOOD, RETAINING WALL
R/W	RIGHT OF WAY
Rwy	RAILWAY

	S
S	SOUTH, SUPPLEMENT
SAE	STRUCTURE APPROACH EMBANKMENT
Salv	SALVAGE
SAPP	STRUCTURAL ALUMINUM PLATE PIPE
SB	SOUTHBOUND
SC	SAND CUSHION
SCSP	SLOTTED CORRUGATED STEEL PIPE
SD	STORM DRAIN
Sec	SECOND, SECTION
Sep	SEPARATION
SG	SUBGRADE
Shld	SHOULDER
Sht	SHEET
Sim	SIMILAR
⊥	STATION LINE
SM	SELECTED MATERIAL
Spec	SPECIAL, SPECIFICATIONS
SPP	SLOTTED PLASTIC PIPE
SS	SLOPE STAKE
SSBM	STRAP AND SADDLE BRACKET METHOD
SSD	STRUCTURAL SECTION DRAIN
SSPA	STRUCTURAL STEEL PLATE ARCH
SSPP	STRUCTURAL STEEL PLATE PIPE
SSPPA	STRUCTURAL STEEL PLATE PIPE ARCH
SSRP	STEEL SPIRAL RIB PIPE
St	STREET
Sta	STATION
STBB	SINGLE THRIE BEAM BARRIER
Std	STANDARD
Str	STRUCTURE
Surf	SURFACING
SW	SIDEWALK, SOUND WALL
Swr	SEWER
Sym	SYMMETRICAL
S4S	SURFACE 4 SIDES
	T
T	SEMI-TANGENT
Tan	TANGENT
TBB	THRIE BEAM BARRIER
Tbr	TIMBER
TC	TOP OF CURB
TCB	TRAFFIC CONTROL BOX
TCE	TEMPORARY CONSTRUCTION EASEMENT
TeI	TELEPHONE
Temp	TEMPORARY
TG	TOP OF GRADE
Tot	TOTAL
TP	TELEPHONE POLE
TPB	TREATED PERMEABLE BASE
TPM	TREATED PERMEABLE MATERIAL
Trans	TRANSITION

	T continued
TS	TRANSVERSE, TRAFFIC SIGNAL, TUBULAR STEEL
Typ	TYPICAL
	U
UC	UNDERCROSSING
UD	UNDERDRAIN
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UP	UNDERPASS
	V
V	VALVE, DESIGN SPEED
Var	VARIABLE, VARIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
Vert	VERTICAL
Via	VIADUCT
Vol	VOLUME
	W
W	WEST, WIDTH
WB	WESTBOUND
WH	WEEP HOLE
WM	WIRE MESH
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
Wt	WEIGHT
WV	WATER VALVE
WW	WINGWALL
WWLOL	WINGWALL LAYOUT LINE
	X
X Sec	CROSS SECTION
Xing	CROSSING
	Y
Yr	YEAR
Yrs	YEARS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	7	38


 REGISTERED CIVIL ENGINEER
 July 19, 2013
 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.

TO ACCOMPANY PLANS DATED 6-29-15

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING							
SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	X	Y	Z **
					TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	55	110	27
60	1440	720	360	240	60	120	30
65	1560	780	390	260	65	130	32
70	1680	840	420	280	70	140	35

* - For other offsets, use the following merging taper length formula for L:
 For speed of 40 mph or less, $L = WS^2/60$
 For speed of 45 mph or more, $L = WS$

Where: L = Taper length in feet
 W = Width of offset in feet
 S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING				
SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
		ft	ft	ft
mph	ft	ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891

* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph
 ** - Longitudinal buffer space or flagger station spacing
 *** - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING			
ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**TRAFFIC CONTROL SYSTEM TABLES
 FOR LANE AND RAMP CLOSURES**
 NO SCALE

RSP T9 DATED JULY 19, 2013 SUPERSEDES RSP T9 DATED APRIL 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T9

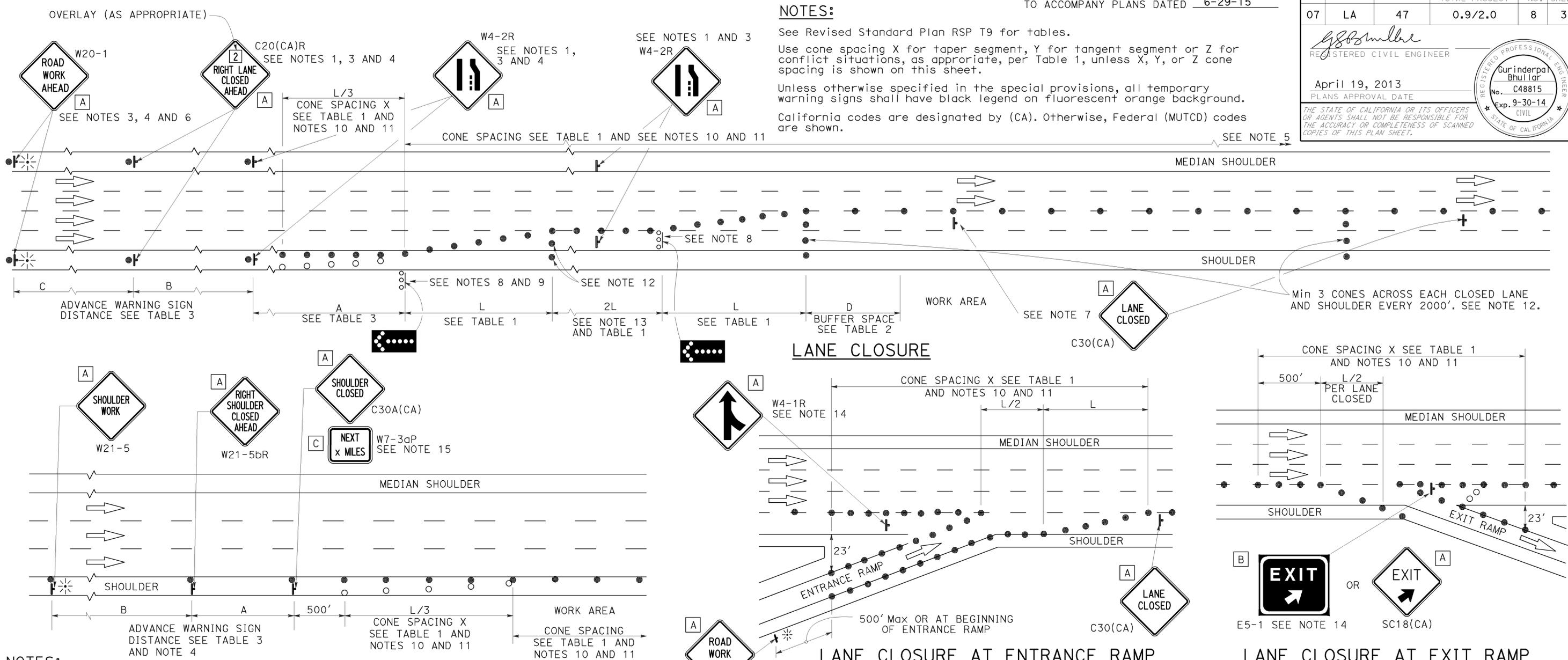
2010 REVISED STANDARD PLAN RSP T9

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	8	38

REGISTERED CIVIL ENGINEER
 April 19, 2013
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 Gurinderpal Bhullar
 No. C48815
 Exp. 9-30-14
 CIVIL
 STATE OF CALIFORNIA

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



- NOTES:**
1. Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
 2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
 3. Duplicate sign installations are not required:
 - a) On opposite shoulder if at least one-half of the available lanes remain open to traffic.
 - b) In the median if the width of the median shoulder is less than 8' and the outside lanes are to be closed.
 4. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
 5. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.

6. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT _____ MILES", use a C20(CA)L and W4-2L signs shall be used.
7. Place a C30(CA) sign every 2000' throughout length of lane closure.
8. One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
9. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at top of crest vertical curve or on a horizontal curve.
10. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
11. Portable delineators, placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.

12. Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
13. Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
14. Unless otherwise specified in the special provisions, the E5-1 or SC18(CA) and W4-1 signs shall be used as shown.
15. A W7-3aP "NEXT _____ MILES" plaque must be used if the shoulder closure extends beyond the distance that can be perceived by road users.

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- † TEMPORARY TRAFFIC CONTROL SIGN
- ⬢ FLASHING ARROW SIGN (FAS)
- ⬢ FAS SUPPORT OR TRAILER
- ⚡ PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 72" x 60"
- C 36" x 30"

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS

NO SCALE

RSP T10 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10 DATED MAY 20, 2011 - PAGE 237 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T10

2010 REVISED STANDARD PLAN RSP T10

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	47	0.9/2.0	9	38

REGISTERED CIVIL ENGINEER
 Gurinderpal Bhullar
 No. C48815
 Exp. 9-30-14
 CIVIL
 STATE OF CALIFORNIA

April 19, 2013
 PLANS APPROVAL DATE

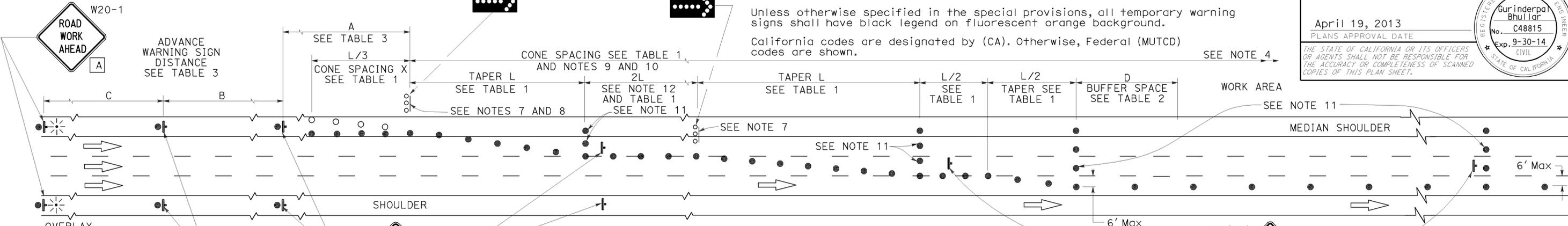
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES: See Revised Standard Plan RSP T9 for tables.
 Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

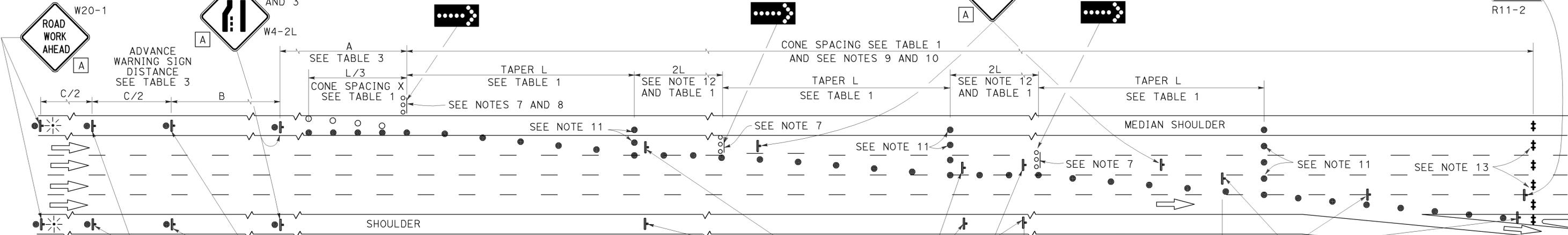
California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

SEE NOTES 3 AND 5



LANE CLOSURE WITH PARTIAL SHOULDER USE

SEE NOTES 3 AND 5



COMPLETE CLOSURE

NOTES:

- Lane closures on the right side using partial median shoulder as a traffic lane shall conform to the details as shown except that C20(CA)R and W4-2R signs shall be used.
- At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
- Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" X 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
- A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.
- If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT ___ MILES", use a C20(CA) sign for the first advance warning sign.
- Place a C30(CA) sign every 2000' throughout length of lane closure.
- One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
- A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
- All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
- Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure With Partial Shoulder Use" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.

- Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
- A minimum of Two Type II or III barricades shall be placed across each closed lane and shoulder at the location shown and every 2000' within the complete closure area. Within the complete closure area, the transverse alignment of the barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
- When specified in the special provisions, a W20-2 "DETOUR AHEAD" sign is to be used in place of the W20-3 "FREEWAY CLOSED AHEAD" sign.

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 48" x 18"
- C 48" x 30"

LEGEND

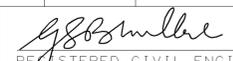
- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- † TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- ⚡ PORTABLE FLASHING BEACON

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURES ON FREEWAYS AND EXPRESSWAYS
 NO SCALE

RSP T10A DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10A DATED MAY 20, 2011 - PAGE 238 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T10A

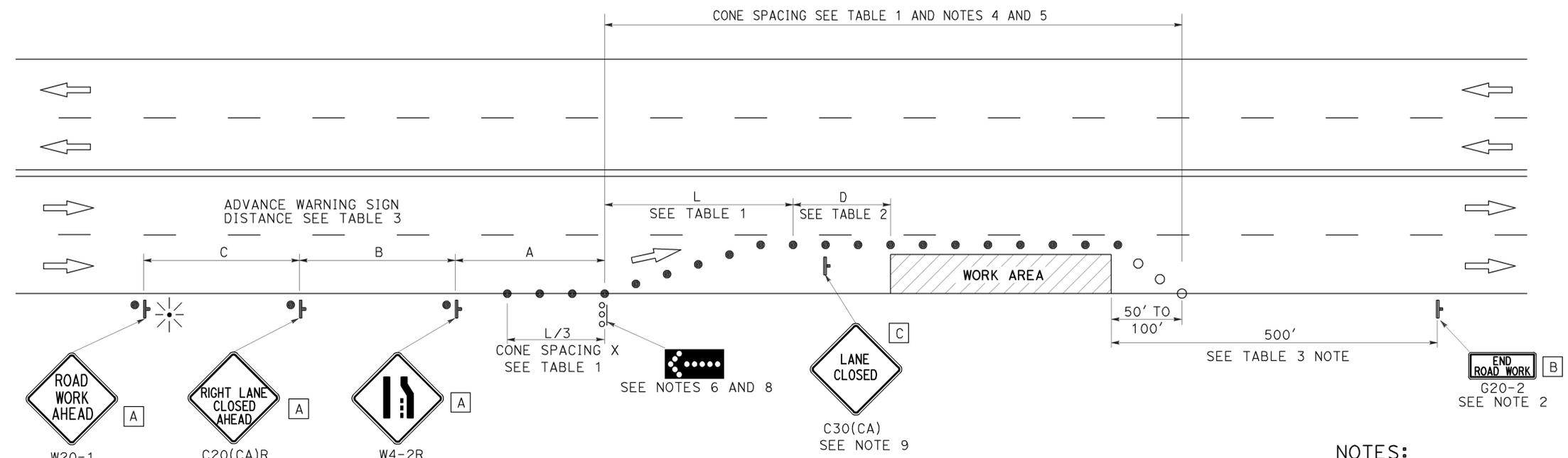
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	10	38


 REGISTERED CIVIL ENGINEER
 April 19, 2013
 PLANS APPROVAL DATE



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TO ACCOMPANY PLANS DATED 6-29-15



TYPICAL LANE CLOSURE

NOTES:

See Revised Standard Plan RSP T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

NOTES:

- Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
- A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious, or ends within a larger project's limits.
- If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT _____ MILES", use a C20(CA) sign for the first advance warning sign.
- All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
- Flashing arrow sign shall be either Type I or Type II.
- For approach speeds over 50 mph, use the "Traffic Control System for Lane Closure On Freeways And Expressways" plan for lane closure details and requirements.
- A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
- Place a C30(CA) sign every 2000' throughout length of lane closure.
- Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
- At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closure unless, otherwise directed by the Engineer.

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- ⌋ TEMPORARY TRAFFIC CONTROL SIGN
-  FLASHING ARROW SIGN (FAS)
-  FAS SUPPORT OR TRAILER
-  PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 36" x 18"
- C 30" x 30"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM
FOR LANE CLOSURE ON
MULTILANE CONVENTIONAL
HIGHWAYS**

NO SCALE

RSP T11 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T11
DATED MAY 20, 2011 - PAGE 239 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T11

2010 REVISED STANDARD PLAN RSP T11

TYPICAL RAMP CLOSURES

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 48" x 30"
- C 36" x 36"
- D 48" x 36"

LEGEND

- TRAFFIC CONE
- † TEMPORARY TRAFFIC CONTROL SIGN
- ‡ BARRICADES
- ⚡ PORTABLE FLASHING BEACON

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	11	38

Gurinderpal Bhullar
 REGISTERED CIVIL ENGINEER
 April 19, 2013
 PLANS APPROVAL DATE

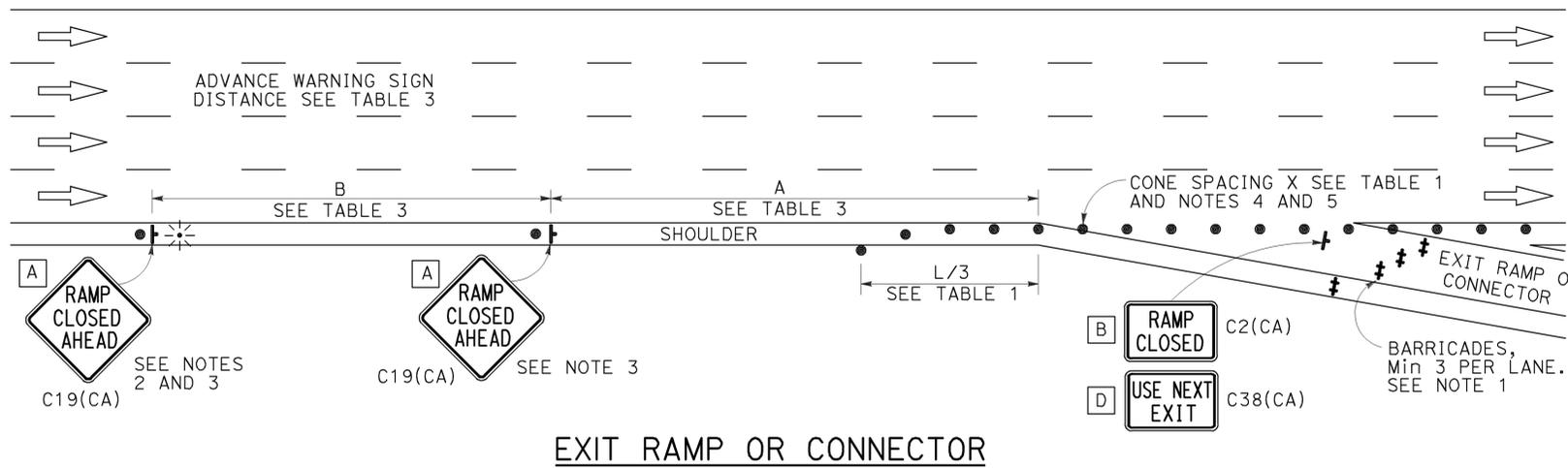
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 Gurinderpal Bhullar
 No. C48815
 Exp. 9-30-14
 CIVIL
 STATE OF CALIFORNIA

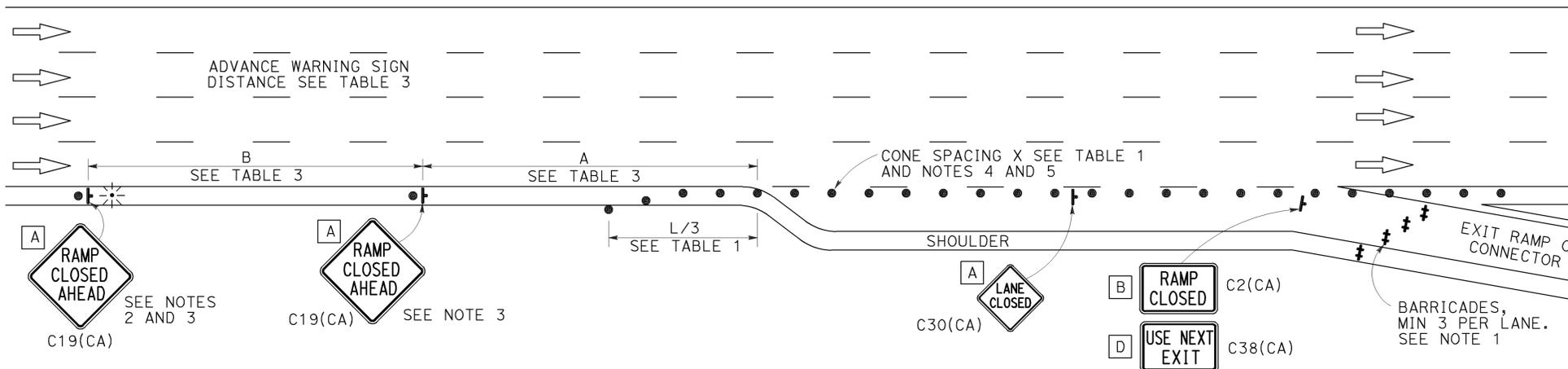
TO ACCOMPANY PLANS DATED 6-29-15

NOTES:

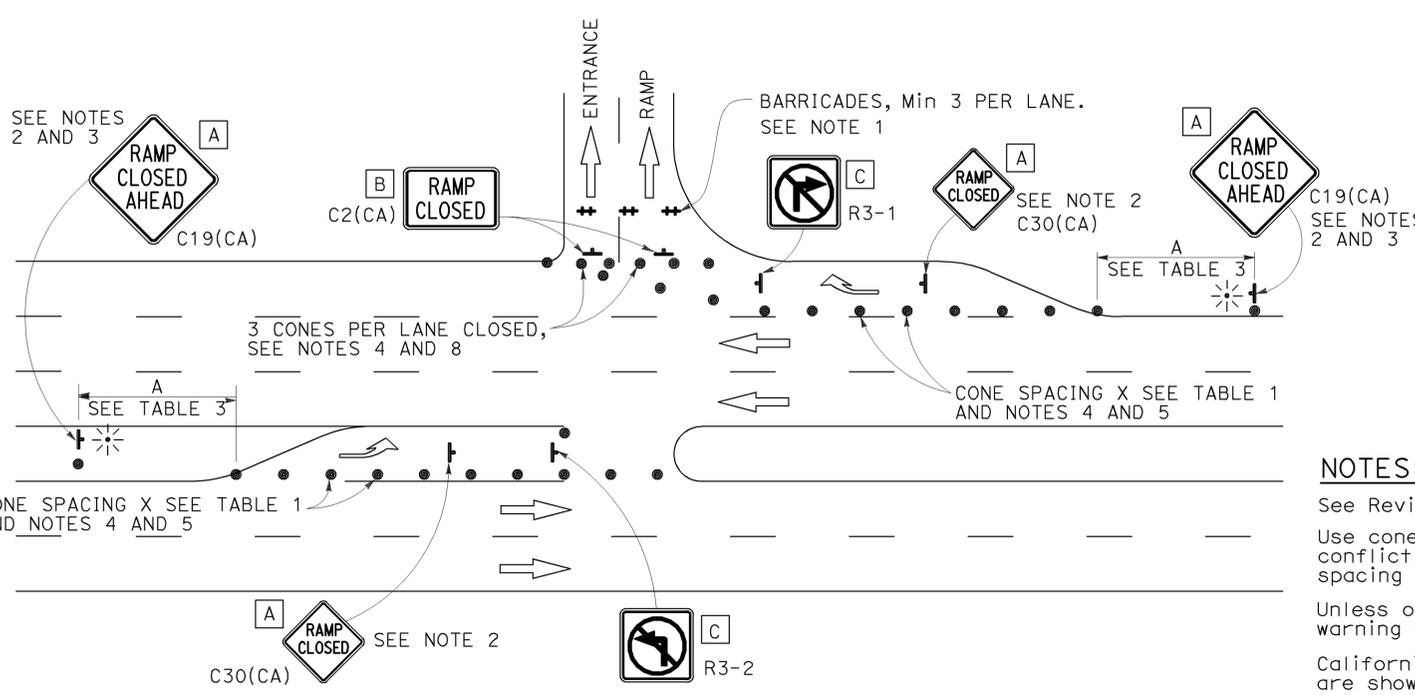
- Barricades shall be Type I, II, or III for closures lasting one week or less and Type III for closures lasting longer than one week.
- In addition to placing the C19(CA) "RAMP CLOSED AHEAD" and C30(CA) "RAMP CLOSED" signs, black on orange overlay plates with the word "CLOSED" may be mounted, as directed by the Engineer, on all guide signs that refer to the closed ramp. The letter size on the overlay shall be the same as the guide sign.
- Each advance C19(CA) "RAMP CLOSED AHEAD" sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. A flashing beacon shall be placed on top of the first C19(CA) sign during hours of darkness.
- All cones used for ramp closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime ramp closures only.
- At least one person shall be assigned to provide full time maintenance of traffic control devices, unless otherwise directed by the Engineer.
- The existing "EXIT" signs shall be covered during ramp closures.
- A minimum of 3 cones shall be placed transversely across each closed lane and shoulder.



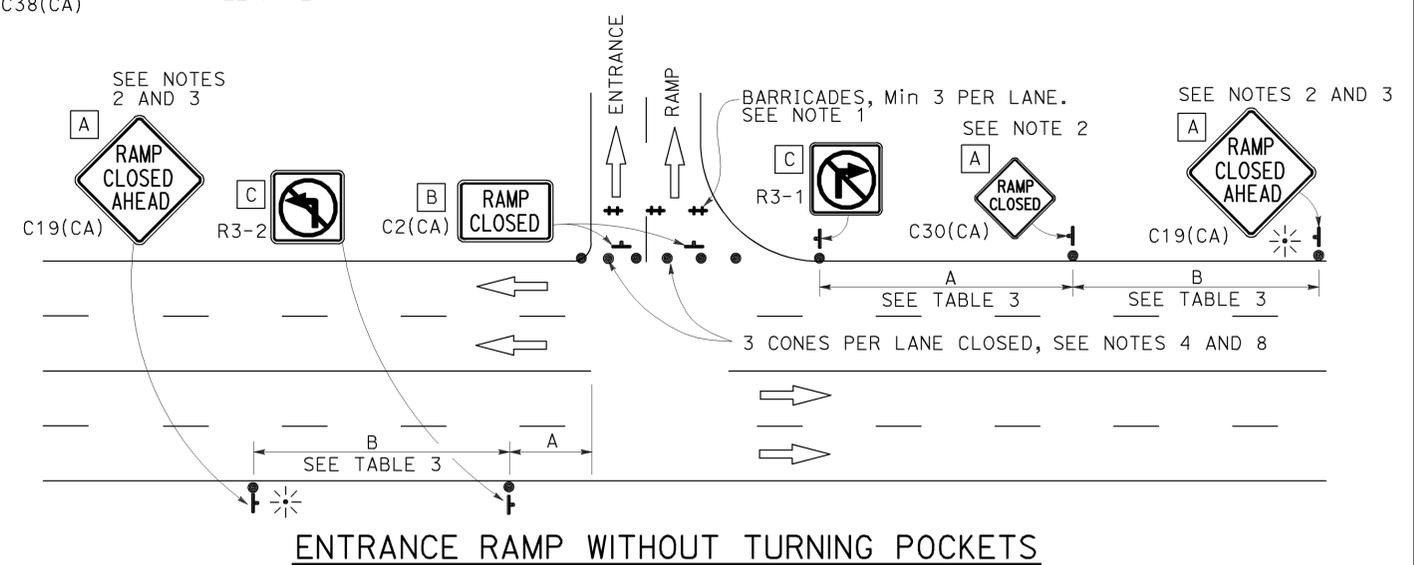
EXIT RAMP OR CONNECTOR



EXIT RAMP OR CONNECTOR WITH ADDITIONAL LANE



ENTRANCE RAMP WITH TURNING POCKETS



ENTRANCE RAMP WITHOUT TURNING POCKETS

NOTES:

- See Revised Standard Plan RSP T9 for tables.
- Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.
- Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.
- California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

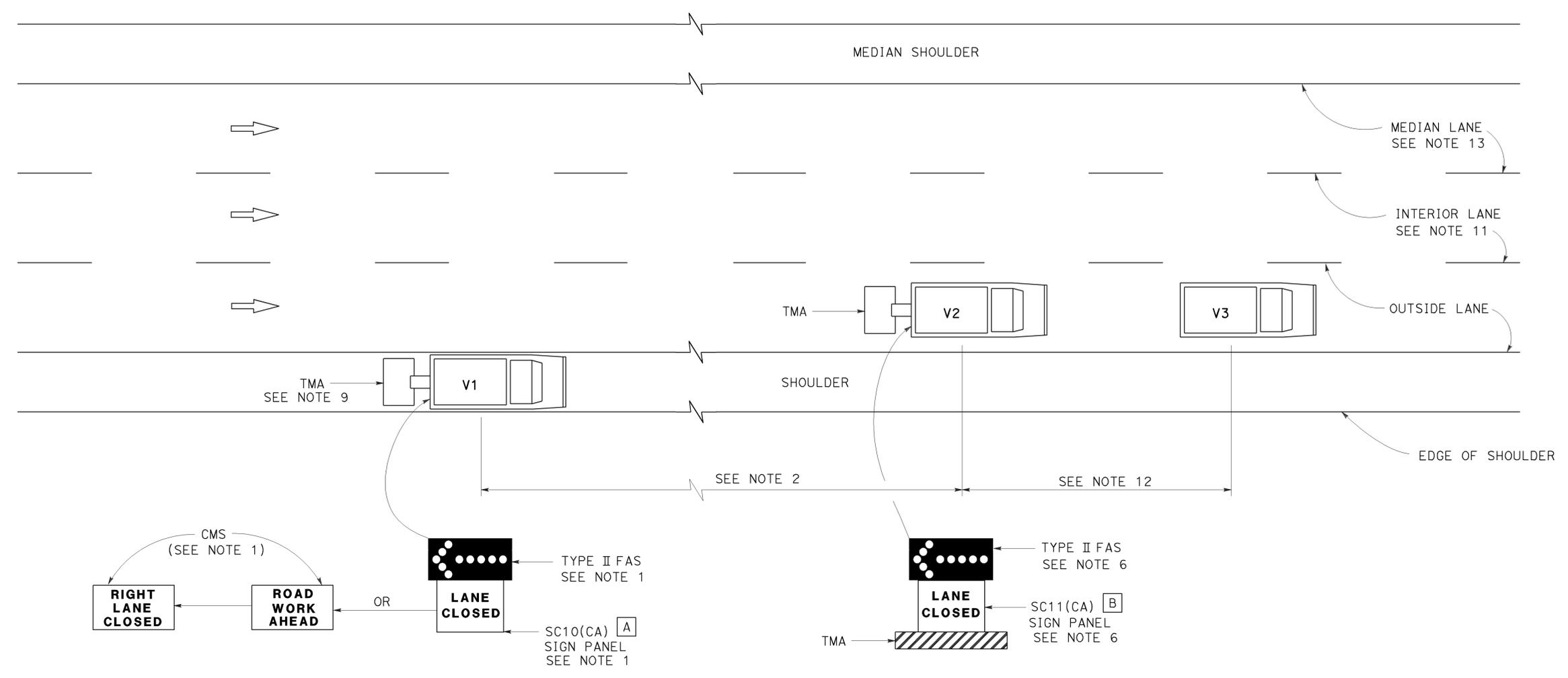
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**TRAFFIC CONTROL SYSTEM
 FOR RAMP CLOSURE**
 NO SCALE

RSP T14 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T14
 DATED MAY 20, 2011 - PAGE 242 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T14

2010 REVISED STANDARD PLAN RSP T14

TO ACCOMPANY PLANS DATED 6-29-15



SIGN PANEL SIZE (Min)

- A 66" x 36"
- B 54" x 42"

LEGEND

- V1 SIGN VEHICLE
- V2 SHADOW VEHICLE
- V3 WORK/APPLICATION VEHICLE
-  FLASHING ARROW SIGN (FAS)
- CMS CHANGEABLE MESSAGE SIGN
- TMA TRUCK-MOUNTED ATTENUATOR

**MOVING LANE CLOSURE ON MEDIAN LANE OR
OUTSIDE LANE OF MULTILANE HIGHWAYS**

NOTES:

1. Either a changeable message sign or a SC10(CA) sign panel and a Type II flashing arrow sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "ROAD WORK AHEAD" message first, followed by the "RIGHT LANE CLOSED" message. For median lane closure, the flashing arrow symbol shall be reversed with the arrowhead on the right and the changeable message sign shall show "LEFT LANE CLOSED".
2. If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue. Sign vehicle V1 shall be positioned where highly visible when shoulders are not available.
3. A minimum sight distance of 1500' should be provided in advance of sign vehicle V1.
4. Sign vehicle V1 should remain at the beginning of horizontal or vertical curves until the other vehicles (V2 and V3) are far enough beyond the curve to resume the minimum sight distance of 1500'.
5. Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.
6. Shadow vehicle V2 shall be equipped with a truck-mounted attenuator. The sign panel shown and a Type II flashing arrow sign shall be mounted on the rear of shadow vehicle V2. For median lane closure the flashing arrow sign symbol shall be displayed with the arrowhead on the right.
7. All vehicles used for lane closures shall be equipped with two-way radios, and the vehicle operators shall maintain communication during the work or application operation.
8. All vehicles shall be equipped with flashing or rotating amber lights.
9. If sign vehicle V1 encroaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay as close to the edge of shoulder as practicable.
10. Where workers would be on foot in the work area, a stationary type lane closure (Revised Standard Plan T10, T11, etc., as applicable) shall be used instead of this plan.
11. For moving lane closure on interior lane of multilane highways, use Revised Standard Plan T16.
12. The spacing between work vehicle(s) and the shadow vehicles, and between each shadow vehicle should be minimized to deter road users from driving in between.
13. When the work/application vehicle V3 occupies the median lane, sign vehicle V1 should drive in the median shoulder and indicate left lane closed ahead.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM
FOR MOVING LANE CLOSURE
ON MULTILANE HIGHWAYS**
NO SCALE

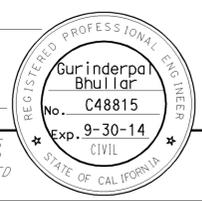
RSP T15 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T15
DATED MAY 20, 2011 - PAGE 243 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T15

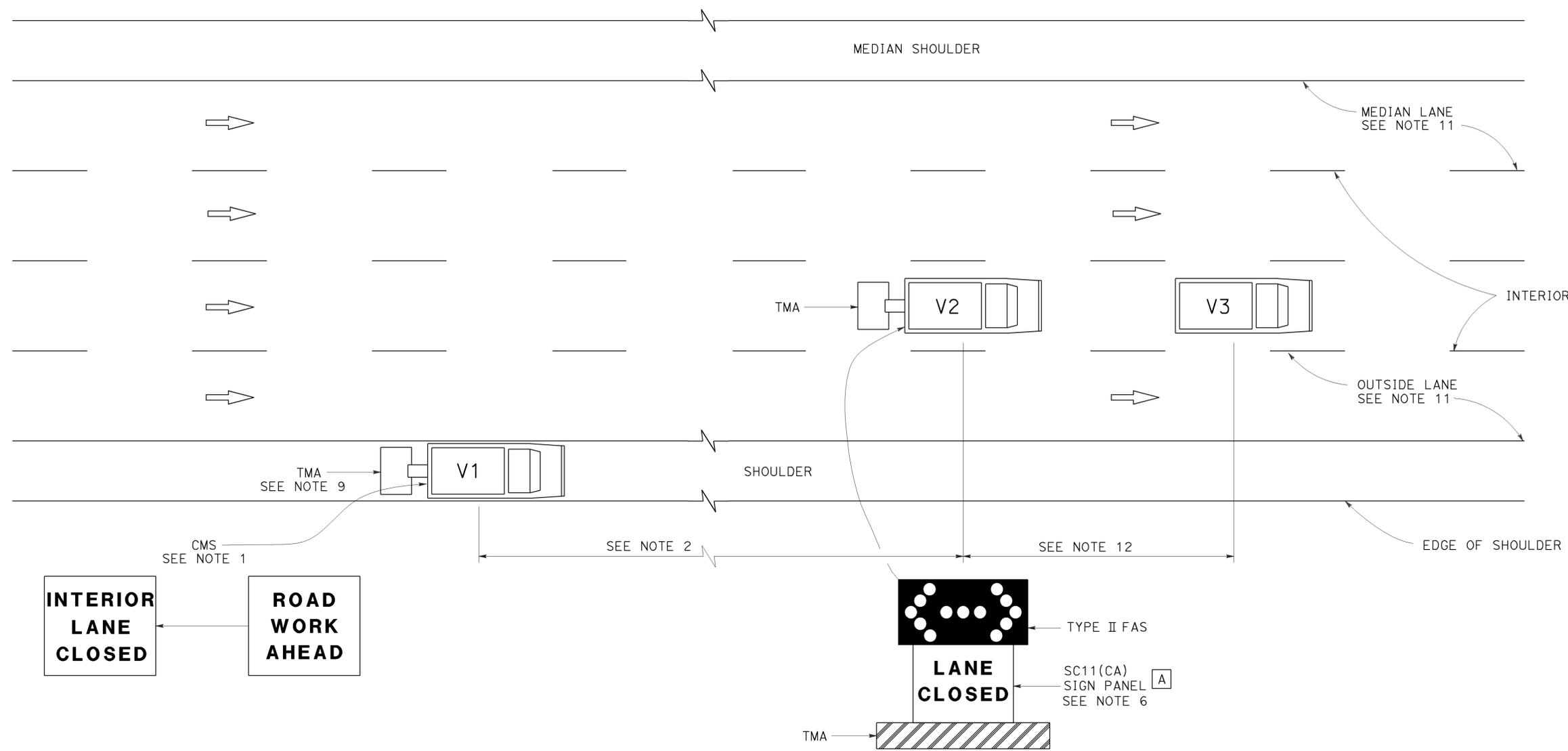
2010 REVISED STANDARD PLAN RSP T15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	13	38

Registered Civil Engineer
 April 19, 2013
 PLANS APPROVAL DATE
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TO ACCOMPANY PLANS DATED 6-29-15



SIGN PANEL SIZE (Min)

A 54" x 42"

LEGEND

- V1 SIGN VEHICLE
- V2 SHADOW VEHICLE
- V3 WORK/APPLICATION VEHICLE
- FLASHING ARROW SIGN (FAS) IN FLASHING DOUBLE ARROW MODE
- CMS CHANGEABLE MESSAGE SIGN
- TMA TRUCK-MOUNTED ATTENUATOR

MOVING LANE CLOSURE ON INTERIOR LANE OF MULTILANE HIGHWAYS

NOTES:

1. A changeable message sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "ROAD WORK AHEAD" message first, followed by the "INTERIOR LANE CLOSED" message. The message "CENTER LANE CLOSED" may be used in place of the "INTERIOR LANE CLOSED" message.
2. If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue. Sign vehicle V1 shall be positioned where highly visible when shoulders are not available.
3. A minimum sight distance of 1500' should be provided in advance of sign vehicle V1.
4. Sign vehicle V1 should remain at the beginning of horizontal or vertical curves until the other vehicles (V2 and V3) are far enough beyond the curve to resume the minimum sight distance of 1500'.
5. Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.
6. Shadow vehicle V2 shall be equipped with a truck-mounted attenuator. The sign panel shown and a Type II flashing arrow sign shall be mounted on the rear of shadow vehicle V2.
7. All vehicles used for lane closures shall be equipped with two-way radios, and the vehicle operators shall maintain communication during the work or application operation.
8. All vehicles shall be equipped with flashing or rotating amber lights.
9. If sign vehicle V1 encroaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay as close to the edge of shoulder as practicable.
10. Where workers would be on foot in the work area, a stationary type lane closure (Revised Standard Plan T10, T11 etc., as applicable) shall be used instead of this plan.
11. For moving lane closure on median lane or outside lane of multilane highways, use Revised Standard Plan T15.
12. The spacing between work vehicle(s) and the shadow vehicles, and between each shadow vehicle should be minimized to deter road users from driving in between.

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**TRAFFIC CONTROL SYSTEM
 FOR MOVING LANE CLOSURE
 ON MULTILANE HIGHWAYS**
 NO SCALE

RSP T16 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T16 DATED MAY 20, 2011 - PAGE 244 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T16

2010 REVISED STANDARD PLAN RSP T16

LEGEND:

AB	ABANDON. IF APPLIED TO CONDUIT, REMOVE CONDUCTORS
BC	INSTALL PULL BOX IN EXISTING CONDUIT RUN
BP	PEDESTRIAN BARRICADE, TYPE AS INDICATED ON PLAN
CB	INSTALL CONDUIT INTO EXISTING PULL BOX
CC	CONNECT NEW AND EXISTING CONDUIT. REMOVE EXISTING CONDUCTORS AND INSTALL CONDUCTORS AS INDICATED
CF	CONDUIT TO REMAIN FOR FUTURE USE. REMOVE CONDUCTORS. INSTALL PULL TAPE
DH	DETECTOR HANDHOLE
FA	FOUNDATION TO BE ABANDONED
IS	INSTALL SIGN ON SIGNAL MAST ARM
NS	NO SLIP BASE ON STANDARD
PEC	PHOTOELECTRIC CONTROL
PEU	PHOTOELECTRIC UNIT
RC	EQUIPMENT OR MATERIAL TO BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR
RE	REMOVE ELECTROLIER, FUSES AND BALLAST. TAPE ENDS OF CONDUCTORS
RL	RELOCATE EQUIPMENT
RR	REMOVE AND REUSE EQUIPMENT
RS	REMOVE AND SALVAGE EQUIPMENT
SC	SPLICE NEW TO EXISTING CONDUCTORS
SD	SERVICE DISCONNECT
TSP	TELEPHONE SERVICE POINT

ABBREVIATIONS

APS	ACCESSIBLE PEDESTRIAN SIGNAL	M/M	MULTIPLE TO MULTIPLE TRANSFORMER
BBS	BATTERY BACKUP SYSTEM	Mtg	MOUNTING
BC	BOLT CIRCLE	MV	MERCURY VAPOR LIGHTING FIXTURE
BPB	BICYCLE PUSH BUTTON	MVDS	MICROWAVE VEHICLE DETECTION SYSTEM
C	CONDUIT	N	NEUTRAL (GROUNDED CONDUCTOR)
CB	CIRCUIT BREAKER	NB	NEUTRAL BUS
CCTV	CLOSED CIRCUIT TELEVISION	NC	NORMALLY CLOSE
Ck+	CIRCUIT	NO	NORMALLY OPEN
CMS	CHANGEABLE MESSAGE SIGN	P	CIRCUIT BREAKER'S POLE
Ctid	CALTRANS IDENTIFICATION	PB	PULL BOX
Comm	COMMUNICATION	PBA	PUSH BUTTON ASSEMBLY
DLC	LOOP DETECTOR LEAD-IN CABLE	PEC	PHOTOELECTRIC CONTROL
EMS	EXTINGUISHABLE MESSAGE SIGN	Ped	PEDESTRIAN
EVUC	EMERGENCY VEHICLE UNIT CABLE	PEU	PHOTOELECTRIC UNIT
EVUD	EMERGENCY VEHICLE UNIT DETECTOR	PT	CONDUIT WITH PULL TAPE
FB	FLASHING BEACON	RE	RELOCATED EQUIPMENT
FBCA	FLASHING BEACON CONTROL ASSEMBLY	RM	RAMP METERING
FBS	FLASHING BEACON WITH SLIP BASE	RWIS	ROADSIDE WEATHER INFORMATION SYSTEM
FO	FIBER OPTIC	SB	SLIP BASE
G	EQUIPMENT GROUNDING CONDUCTOR	SIC	SIGNAL INTERCONNECT CABLE
GB	GROUND BUS	Sig	SIGNAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SMA	SIGNAL MAST ARM
HAR	HIGHWAY ADVISORY RADIO	SNS	STREET NAME SIGN
Hex	HEXAGONAL	SP	SERVICE POINT
HPS	HIGH PRESSURE SODIUM	TDC	TELEPHONE DEMARCATION CABINET
IISNS	INTERNALLY ILLUMINATED STREET NAME SIGN	TMS	TRAFFIC MONITORING STATION
ISL	INDUCTION SIGN LIGHTING	TOS	TRAFFIC OPERATIONS SYSTEM
LED	LIGHT EMITTING DIODE	Veh	VEHICLE
LMA	LUMINAIRE MAST ARM	VIVDS	VIDEO IMAGE VEHICLE DETECTION SYSTEM
LPS	LOW PRESSURE SODIUM	WIM	WEIGH-IN-MOTION
Ltg	LIGHTING	Xfmr	TRANSFORMER
Lum	LUMINAIRE		
M	METERED		
MAT	MAST ARM MOUNTING TOP ATTACHMENT		
MAS	MAST ARM MOUNTING SIDE ATTACHMENT		

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	14	38

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

Theresa
Aziz Gabriel
No. E15129
Exp. 6-30-14
ELECTRICAL
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 6-29-15

SOFFIT AND WALL MOUNTED LUMINAIRES

- PENDANT, 70 W HPS UNLESS OTHERWISE SPECIFIED
- FLUSH, 70 W HPS UNLESS OTHERWISE SPECIFIED
- WALL SURFACE, 70 W HPS UNLESS OTHERWISE SPECIFIED
- EXISTING SOFFIT OR WALL LUMINAIRE TO REMAIN UNMODIFIED
- EXISTING SOFFIT OR WALL LUMINAIRE TO BE MODIFIED AS SPECIFIED

NOTE:
Arrow indicates "street side" of luminaire.

COMMONLY USED SYMBOLS FOR UNITED STATES CUSTOMARY UNITS OF MEASUREMENT:

SYMBOL USED	DEFINITIONS
Ω	OHMS
min	MINUTE
s	SECOND
bps	BITS PER SECOND
Bps	BYTES PER SECOND
A	AMPERE
V	VOLT
V(dc)	VOLT (DIRECT CURRENT)
V(ac)	VOLT (ALTERNATING CURRENT)
FC	FOOT - CANDLE
W	WATTS
VA	VOLT-AMPERE
M	MEGA
k	KILO
m	MILLI
μ	MICRO
P	PICO
HZ	HERTZ

MISCELLANEOUS ELECTROLIERS

NEW	EXISTING	
		LUMINAIRE ON WOOD POLE
		NON-STANDARD ELECTROLIER (SEE PROJECT NOTES OR PROJECT PLANS)
		CITY ELECTROLIER
		ELECTROLIER FOUNDATION (FUTURE INSTALLATION)

- NOTES:**
- HPS luminaires shall be 310 W HPS when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. HPS luminaires shall be 200 W when installed on other type standards or poles, unless otherwise specified.
 - LED luminaires shall be 235 W when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. LED luminaires shall be 165 W when installed on other type standards or poles, unless otherwise specified.
 - Luminaires shall be the cutoff type, ANSI Type III medium cutoff lighting distribution, unless otherwise specified.

STANDARD ELECTROLIER

NEW	EXISTING	STANDARD TYPE
		15
		15D
		15 STRUCTURE
		15D STRUCTURE
		21
		21D
		21 STRUCTURE
		21D STRUCTURE
		30
		31
		32

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(LEGEND AND ABBREVIATIONS)**

NO SCALE

RSP ES-1A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 20, 2011 - PAGE 425 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-1A

2010 REVISED STANDARD PLAN RSP ES-1A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	15	38

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

Theresa Aziz Gabriel
No. E15129
Exp. 6-30-14
ELECTRICAL
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 6-29-15

CONDUIT

SIGNAL EQUIPMENT

NEW	EXISTING	
---	---	LIGHTING CONDUIT, UNLESS OTHERWISE INDICATED OR NOTED
---	---	TRAFFIC SIGNAL CONDUIT
---C---	---c---	COMMUNICATION CONDUIT
---T---	---t---	TELEPHONE CONDUIT
---F---	---f---	FIRE ALARM CONDUIT
---FO---	---fo---	FIBER OPTIC CONDUIT
---	---	CONDUIT TERMINATION
		CONDUIT RISER ATTACHED TO THE STRUCTURE OR SERVICE POLE

NEW	EXISTING	
		PEDESTRIAN SIGNAL HEAD "C" INDICATES COUNTDOWN PEDESTRIAN HEAD
		PUSH BUTTON ASSEMBLY POST
		PEDESTRIAN BARRICADE
		VEHICLE SIGNAL HEAD (WITH BACKPLATE AND 3-SECTIONS: RED, YELLOW AND GREEN)
		VEHICLE SIGNAL HEAD WITH ANGLE VISOR
		MODIFICATIONS OF BASIC SYMBOL: "L" INDICATES ALL NON-ARROW SECTIONS LOUVERED "LG" INDICATES LOUVERED GREEN SECTION ONLY "PV" INDICATES ALL 12" SECTIONS PROGRAMMED VISIBILITY "8" INDICATES ALL 8" SECTIONS (ONLY WHEN SPECIFIED)

SIGNAL EQUIPMENT Cont

NEW	EXISTING	
		GUARD POST
		TYPE 1 STANDARD WITH RAMP METERING SIGN
		OPTICAL DETECTOR FOR THE EMERGENCY VEHICLE DETECTION SYSTEM

SERVICE EQUIPMENT

NEW	EXISTING	
---OH---	---oh---	OVERHEAD LINES
		WOOD POLE, "U" INDICATES UTILITY OWNED
		POLE GUY WITH ANCHOR
		UTILITY TRANSFORMER - GROUND MOUNTED
		SERVICE EQUIPMENT ENCLOSURE TYPE. DOOR INDICATES FRONT OF ENCLOSURE
		TELEPHONE DEMARCATION CABINET

		VEHICLE SIGNAL HEAD CONSISTING OF RED, YELLOW AND GREEN LEFT ARROW SECTIONS
		VEHICLE SIGNAL HEAD CONSISTING OF RED AND YELLOW SECTIONS WITH AN UP GREEN ARROW SECTION
		VEHICLE SIGNAL HEAD (5 SECTION) CONSISTING OF RED, YELLOW AND GREEN SECTIONS WITH YELLOW AND GREEN RIGHT ARROW SECTIONS
		TYPE 15TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		TYPE 21TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		STANDARD WITH LUMINAIRE AND SIGNAL MAST ARMS AND ATTACHED VEHICLE SIGNAL HEADS
		TYPE 1 STANDARD WITH ATTACHED VEHICLE SIGNAL HEADS
		STANDARD WITH A SIGNAL MAST ARM, ATTACHED VEHICLE SIGNAL HEADS AND INTERNALLY ILLUMINATED STREET NAME SIGN
		CONTROLLER ASSEMBLY. DOOR INDICATES FRONT OF CABINET

NOTES:

- All signal sections shall be 12" unless shown otherwise.
- Signal heads shall be provided with backplates unless shown otherwise.

POLE-MOUNTED SERVICE DESIGNATION

	TYPE H SERVICE, 28'-10"	TYPE OF INSTALLATION AND POLE HEIGHT ABOVE GRADE
--	-------------------------	--------------------------------------------------

FLASHING BEACON

NEW	EXISTING	
		FLASHING BEACON (ONE VEHICLE SIGNAL HEAD WITH BACKPLATE AND VISOR) "R" INDICATES RED INDICATION, "Y" INDICATES YELLOW INDICATION
		FLASHING BEACON WITH TYPE 15-FBS STANDARD AND A SIGN.
		FLASHING BEACON WITH TYPES 9, 9A OR 9B SIGN UNLESS OTHERWISE SPECIFIED OR INDICATED

ILLUMINATED OVERHEAD SIGN

NEW	EXISTING	
		SINGLE POST, SINGLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, DOUBLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, SINGLE ILLUMINATED SIGN, FULL CANTILEVER
		DOUBLE POST, SINGLE ILLUMINATED SIGN
		SINGLE ILLUMINATED SIGN MOUNTED ON STRUCTURE
		DOUBLE POST, SINGLE ILLUMINATED SIGN WITH ELECTROLIER

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(LEGEND AND ABBREVIATIONS)**

NO SCALE

RSP ES-1B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1B DATED MAY 20, 2011 - PAGE 426 OF THE STANDARD PLANS BOOK DATED 2010.

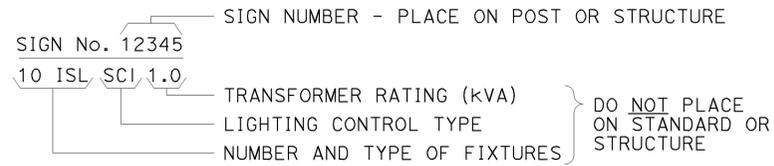
REVISED STANDARD PLAN RSP ES-1B

2010 REVISED STANDARD PLAN RSP ES-1B

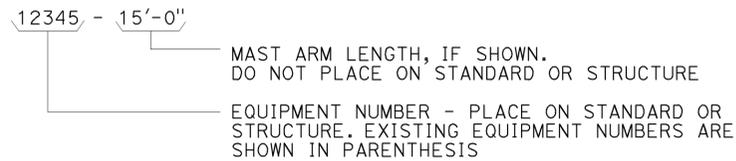
TO ACCOMPANY PLANS DATED 6-29-15

EQUIPMENT IDENTIFICATION

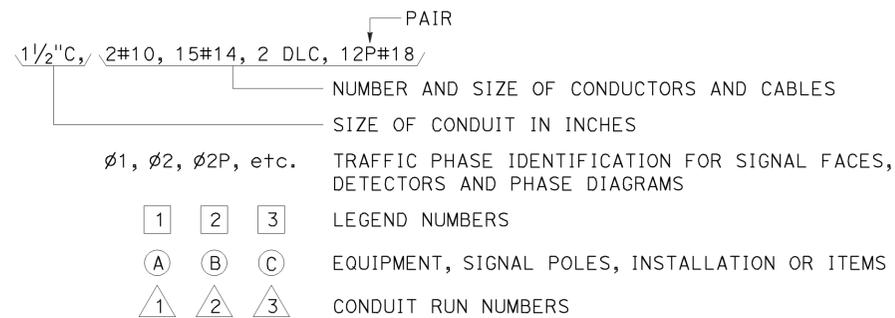
ILLUMINATED SIGN IDENTIFICATION NUMBER:



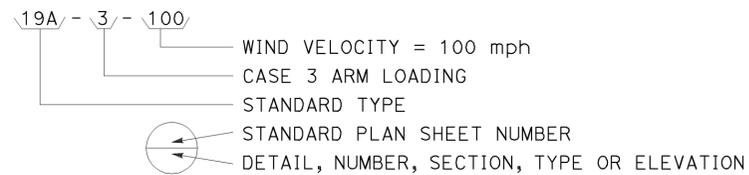
ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



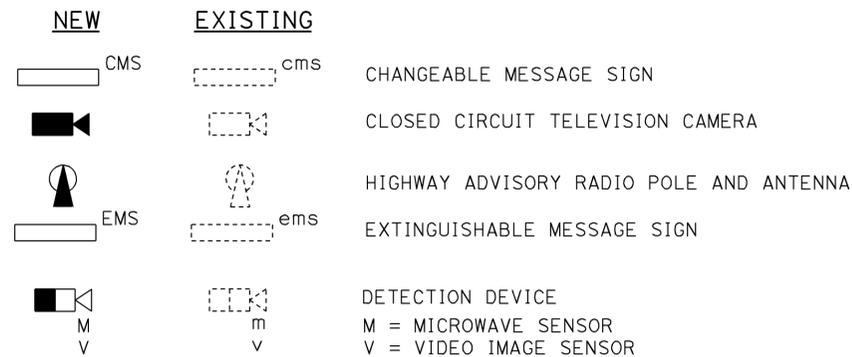
CONDUIT AND CONDUCTOR IDENTIFICATION:



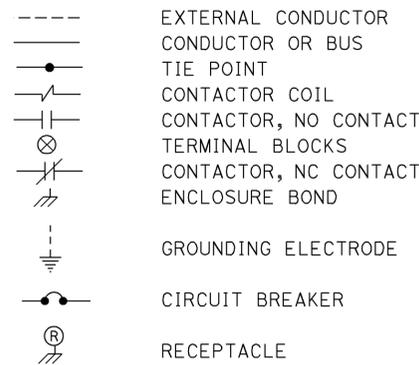
SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



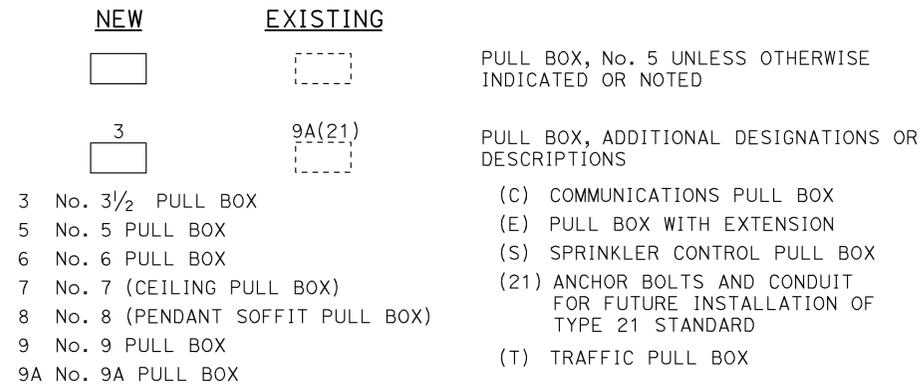
MISCELLANEOUS EQUIPMENT



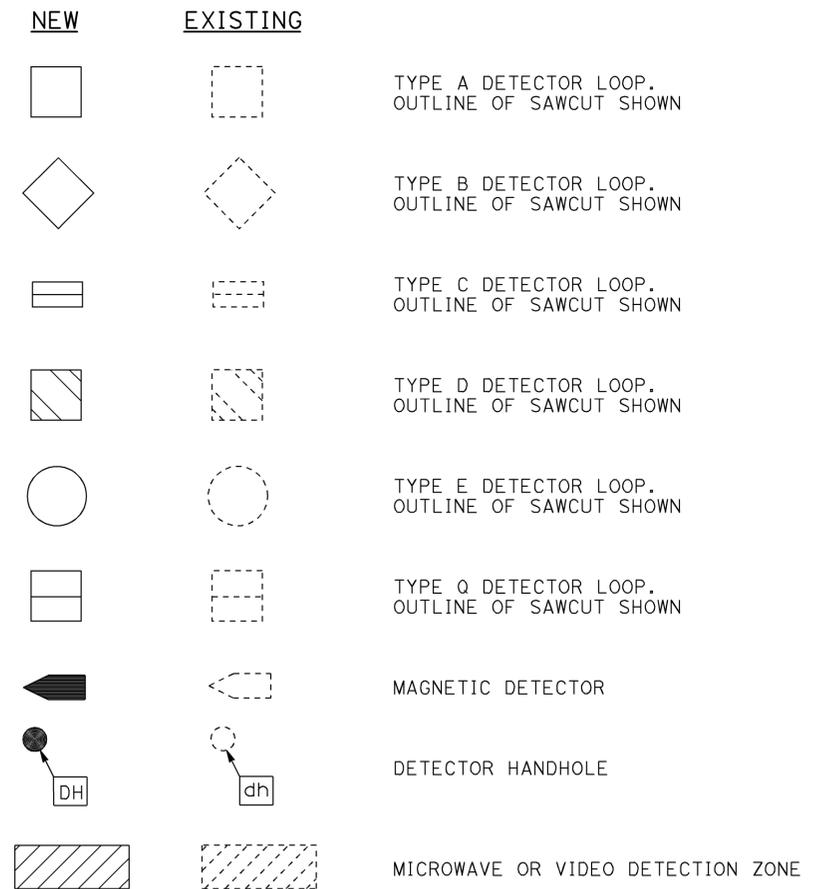
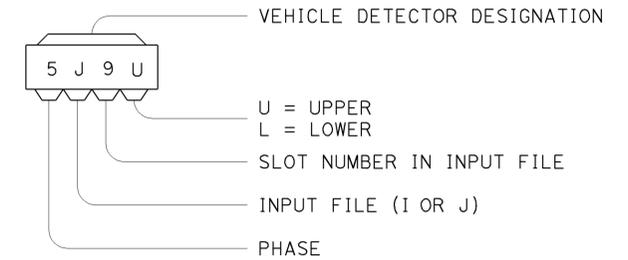
WIRING DIAGRAM LEGEND



PULL BOXES



VEHICLE DETECTORS



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1C
DATED MAY 20, 2011 - PAGE 427 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-1C

2010 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	17	38

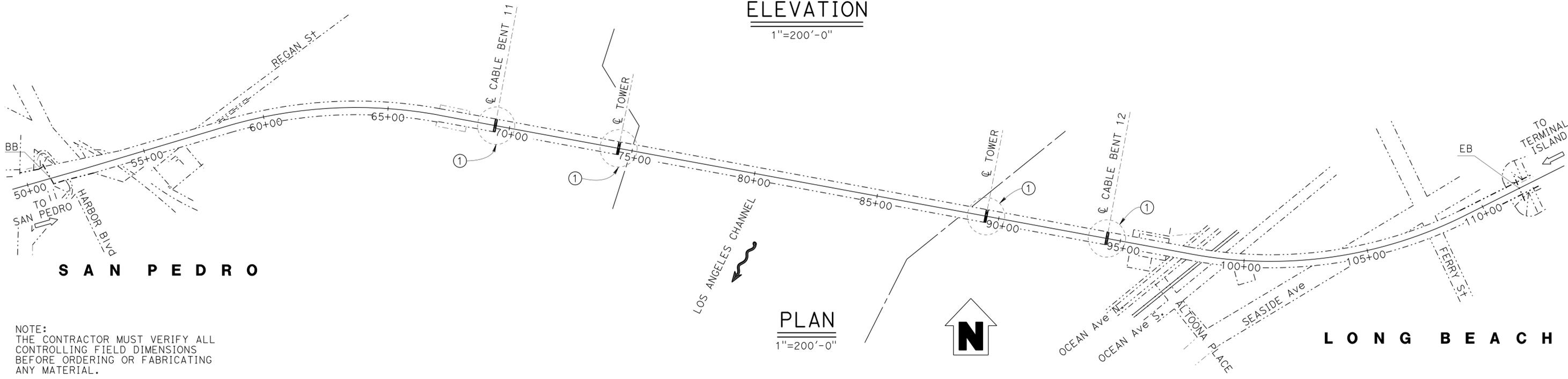
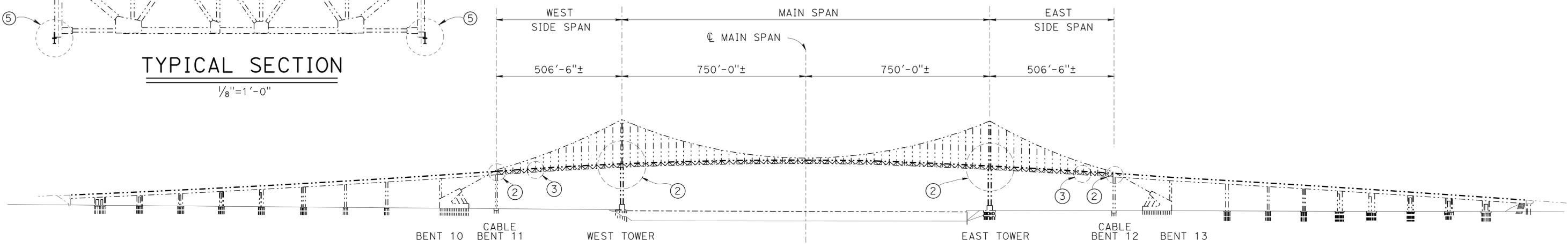
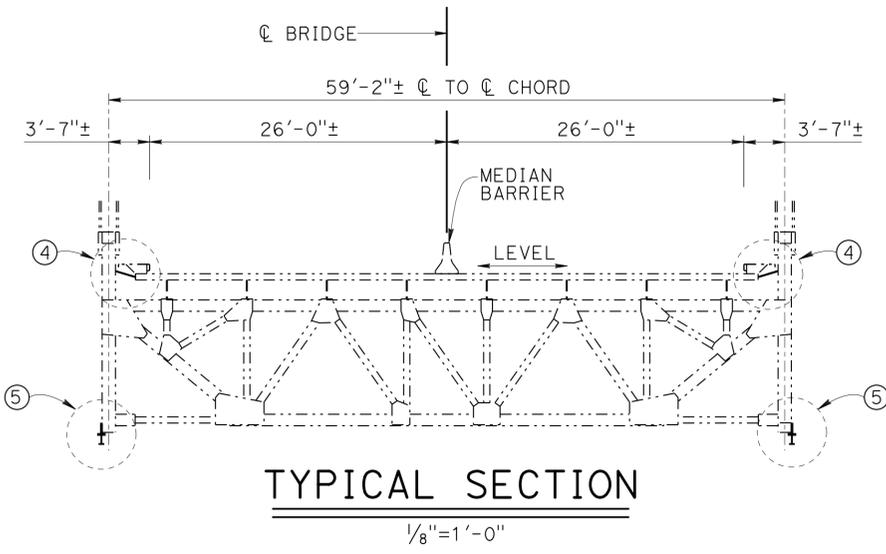
Foued Zayati 2-6-15
REGISTERED CIVIL ENGINEER DATE

6-29-15
PLANS APPROVAL DATE

Foued Zayati
REGISTERED PROFESSIONAL ENGINEER
No. 57046
Exp. 6/30/17
CIVIL
STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.

- NOTES:
- ① Retrofit Exist Expansion Joint
 - ② Replace Exist dampers
 - ③ Replace Exist dampers with Buckling Restrained Braces(BRB)
 - ④ Modify Exist deck shear connectors
 - ⑤ Repair Exist traveler rail



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

<i>Foued Zayati</i> DESIGN ENGINEER	DESIGN	BY M. Okimura	CHECKED B. Addlespurger	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 14	BRIDGE NO.	53-1471	VINCENT THOMAS BRIDGE RETROFIT GENERAL PLAN	
	DETAILS	BY T. Bittermann	CHECKED B. Addlespurger	LAYOUT	BY M. Okimura			CHECKED B. Addlespurger	POST MILE		0.86
	QUANTITIES	BY J. Peterson	CHECKED P. Peterson	SPECIFICATIONS	BY K. Ellingson			PLANS AND SPECS COMPARED K. Ellingson	UNIT: 3613 PROJECT NUMBER & PHASE: 07120000761 CONTRACT NO.: 07-290704		
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS										REVISION DATES	SHEET 1 OF 22

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	18	38

Foued Zayat 2-6-15
 REGISTERED CIVIL ENGINEER DATE
 6-29-15
 PLANS APPROVAL DATE
 No. 57046
 Exp. 6/30/17
 CIVIL
 STATE OF CALIFORNIA
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.

GENERAL NOTES LOAD AND RESISTANCE FACTOR DESIGN

DESIGN CRITERIA:

Vincent Thomas Bridge Design Criteria Dated February 20, 1996 and Subsequent Revisions.

DESIGN:

AASHTO LRFD Bridge Design Specifications, Sixth Edition and the California Amendments, preface dated January 2014

LIVE LOADING:

HL93 and permit design load.

SEISMIC LOADING:

Site Specific Ground Motion Time Histories For The Safety Evaluation Earthquake (Refer Design Criteria).

STRUCTURAL STEEL (new construction):

All structural steel shall be galvanized.
ASTM A709 Grade 50 Fy = 50 ksi

BUCKLING RESTRAINED BRACE (BRB):

Brace Core ASTM A1010 Grade 50 Fy = 50 ksi

FASTENERS (new construction):

All fasteners shall be galvanized.
Minimum bolt edge distance is 1/2" unless otherwise shown.

Bolts

ASTM A325

Threaded rods

ASTM A722 Type II Fu = 150 ksi

RECESSED PINS:

Side Span At Towers:

ASTM A564-Type 630, Condition H1150,
Fy= 105 ksi; Supplied with Spacers, Nuts and washers.

Side Span at Cable Bents, and Main Span at Towers:

ASTM A564-Type 630, Condition H1075,
Fy= 125 ksi; Supplied with Spacers, Nuts and washers.

Side Span Fuse:

ASTM A564-Type 630, Condition H1025,
Fy= 145 ksi; Supplied with Spacers, Nuts and washers.

MISCELLANEOUS METAL:

ASTM A709 Grade 50 Fy = 50 ksi

ABBREVIATIONS:

BRB Buckling Restrained Brace
EDC Energy Dissipation Capacity

INDEX TO PLANS

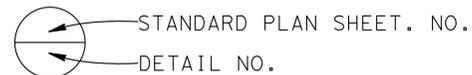
SHEET No.	TITLE
1.	GENERAL PLAN
2.	GENERAL NOTES
3.	DAMPER AND BRB LOCATIONS
4.	DAMPER BRACKET DETAILS NO. 1
5.	DAMPER BRACKET DETAILS NO. 2
6.	SIDE SPAN TRUSS FUSE NO. 1
7.	SIDE SPAN TRUSS FUSE NO. 2
8.	DAMPER/BRB DETAILS
9.	DECK SHEAR CONNECTOR DETAILS
10.	TRAVELER RAIL DETAILS NO. 1
11.	TRAVELER RAIL DETAILS NO. 2
12.	CABLE BENT EXPANSION JOINT DETAILS NO. 1
13.	CABLE BENT EXPANSION JOINT DETAILS NO. 2
14.	TOWER EXPANSION JOINT DETAILS NO. 1
15.	TOWER EXPANSION JOINT DETAILS NO. 2
16.	M0-0 LEGENDS AND ABBREVIATIONS
17.	M0-1 MECHANICAL SITE PLAN
18.	M0-2 TRAVELER WORK SCHEDULE
19.	M1-1 EAST AND WEST APPROACH TRAVELERS
20.	M1-2 EAST AND WEST APPROACH TRAVELER SECTION
21.	M1-3 MAIN, EAST SIDE, AND WEST SIDE SPAN TRAVELERS
22.	M1-4 MECHANICAL DETAILS

QUANTITIES

DESCRIPTION	UNIT	SUM
BRIDGE REMOVAL (PORTION)	LUMP	SUM
FURNISH STRUCTURAL STEEL (BRIDGE)	46,400	LB
ERECT STRUCTURAL STEEL (BRIDGE)	46,400	LB
WELD EXISTING SPLICE PLATES	860	LF
REPLACE VISCOUS DAMPERS	40	EA
FURNISH AND INSTALL BUCKLING RESTRAINED BRACES	8	EA
CLEAN STRUCTURAL STEEL (EXISTING BRIDGE)	LUMP	SUM
PAINT STRUCTURAL STEEL (EXISTING BRIDGE)	LUMP	SUM
CLEAN AND PAINT STRUCTURAL STEEL	LUMP	SUM
SPOT BLAST CLEAN AND PAINT UNDERCOAT	7,000	SQFT
MISCELLANEOUS METAL (BRIDGE)	80,000	LB
MECHANICAL WORK	LUMP	SUM

STANDARD PLANS DATED JULY 2010

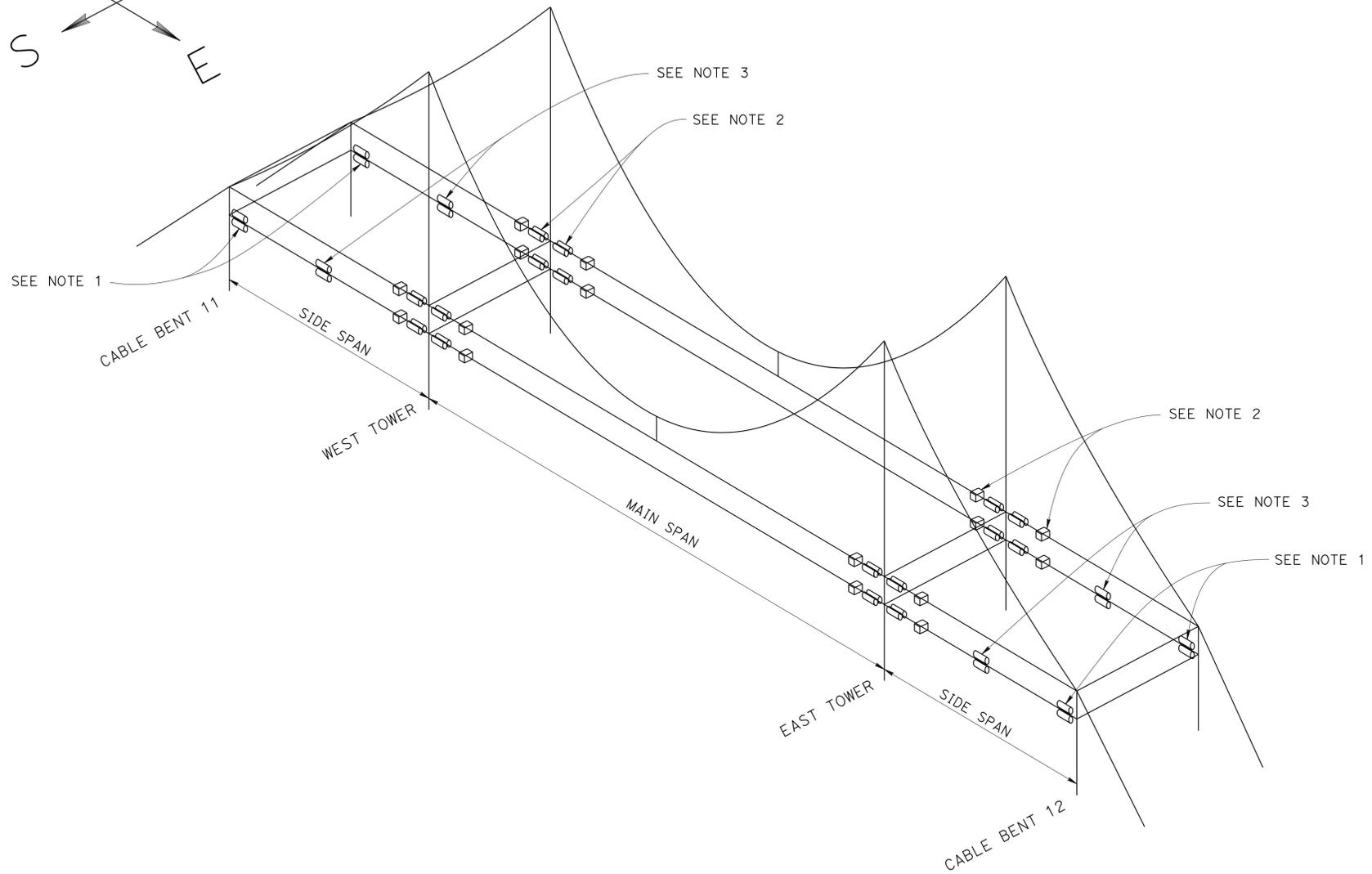
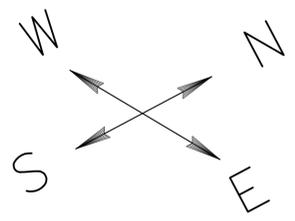
RSP A10A	ABBREVIATIONS (SHEET 1 OF 2)
A10B	ABBREVIATIONS (SHEET 2 OF 2)
A10C	LINES AND SYMBOLS (SHEET 1 OF 3)
A10D	LINES AND SYMBOLS (SHEET 2 OF 3)
A10E	LINES AND SYMBOLS (SHEET 3 OF 3)
B0-5	BRIDGE DETAILS



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

DESIGN	BY	M. Okimura	CHECKED	B. Addiespurger	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 14	BRIDGE NO.	53-1471	VINCENT THOMAS BRIDGE RETROFIT GENERAL NOTES						
	DETAILS	BY	L. Goldthwait	CHECKED			B. Addiespurger	POST MILE		0.86					
	QUANTITIES	BY	J. Peterson	CHECKED			P. Peterson								
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)					ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	UNIT: 3613 PROJECT NUMBER & PHASE: 07120000761	CONTRACT NO.: 07-290704	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF			
										12-08-14	12-08-14	1-3-15	3-4-15	2	22

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	19	38
			<i>Foued Zayati</i> REGISTERED CIVIL ENGINEER	2-6-15 DATE	
			6-29-15 PLANS APPROVAL DATE		
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.</small>					



- NOTES:
1. Replace Dampers and damper pins, total 4 per cable bent. See "DAMPER/BRB DETAILS" sheet.
 2. Replace Dampers and damper pins, total 16 per tower and replace Damper Brackets, total 8 per tower. See "DAMPER/BRB DETAILS" AND "DAMPER BRACKET DETAILS NO. 1" and "DAMPER BRACKET DETAILS NO. 2" sheets.
 3. Replace Truss Fuse Dampers with BRB's, total 4 per side span. See "DAMPER/BRB DETAILS" and "SIDE SPAN TRUSS FUSE NO. 1" and "SIDE SPAN TRUSS FUSE NO. 2" sheets

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

NO SCALE

DESIGN	BY M. Okimura	CHECKED B. Addlespurger
DETAILS	BY P. Tong	CHECKED B. Addlespurger
QUANTITIES	BY J. Peterson	CHECKED P. Peterson

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 14

BRIDGE NO.	53-1471
POST MILE	0.86

VINCENT THOMAS BRIDGE RETROFIT
 DAMPER AND BRB LOCATIONS



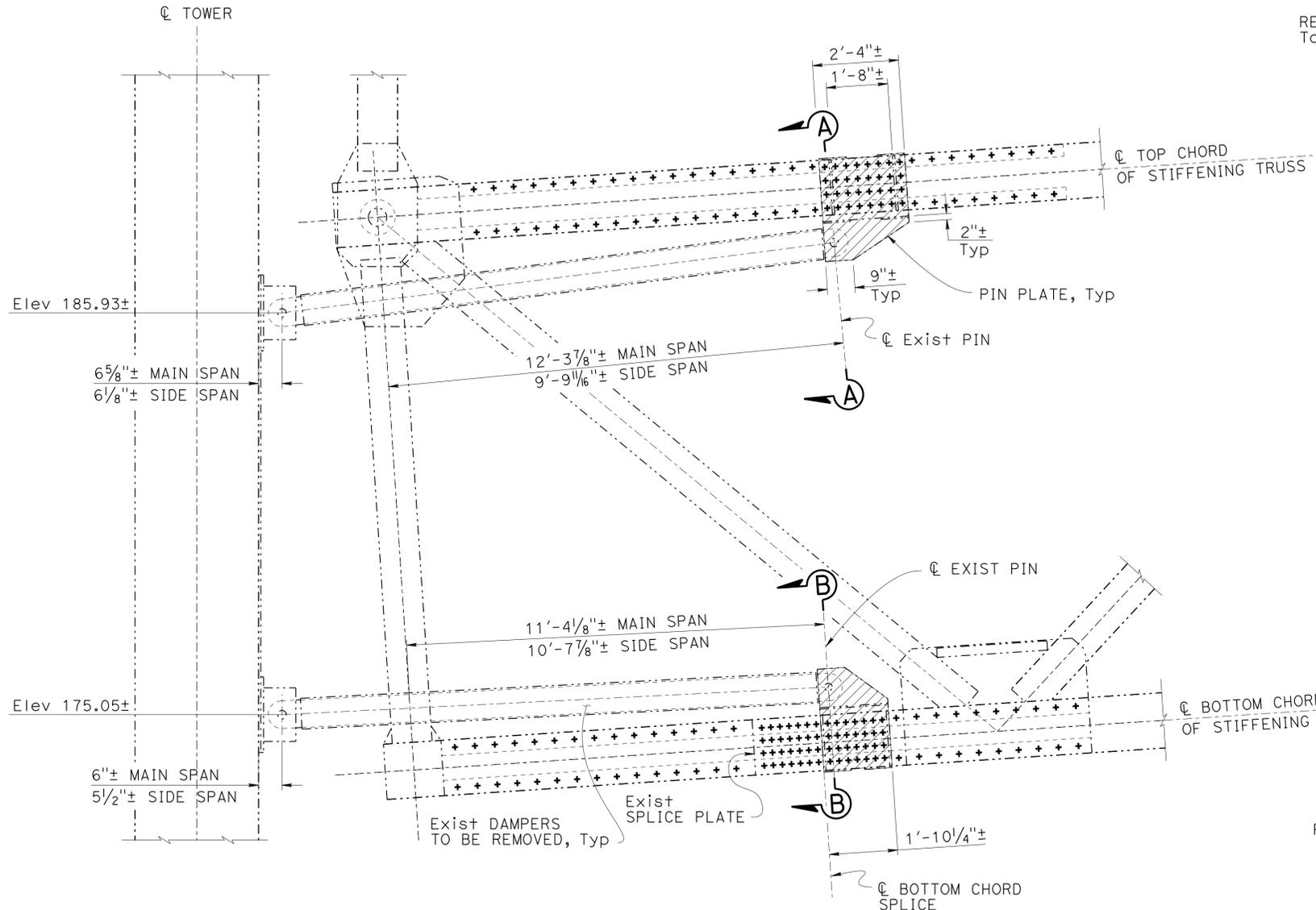
REVISION DATES	SHEET	OF
8-18-14 12-08-14 1-28-15 3-5-15	3	22

USERNAME => s125624 DATE PLOTTED => 16-JUL-2015 TIME PLOTTED => 10:54

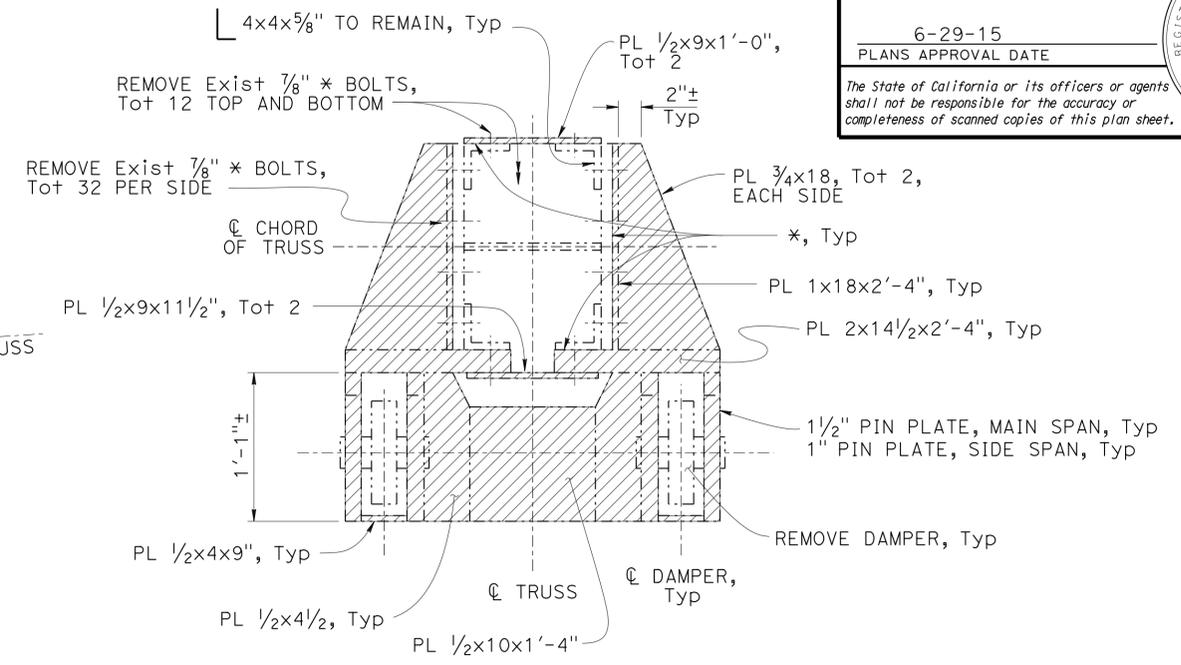
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	20	38
<i>Foued Zayati</i> REGISTERED CIVIL ENGINEER			2-6-15 DATE		
6-29-15 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.</small>					

LEGEND:

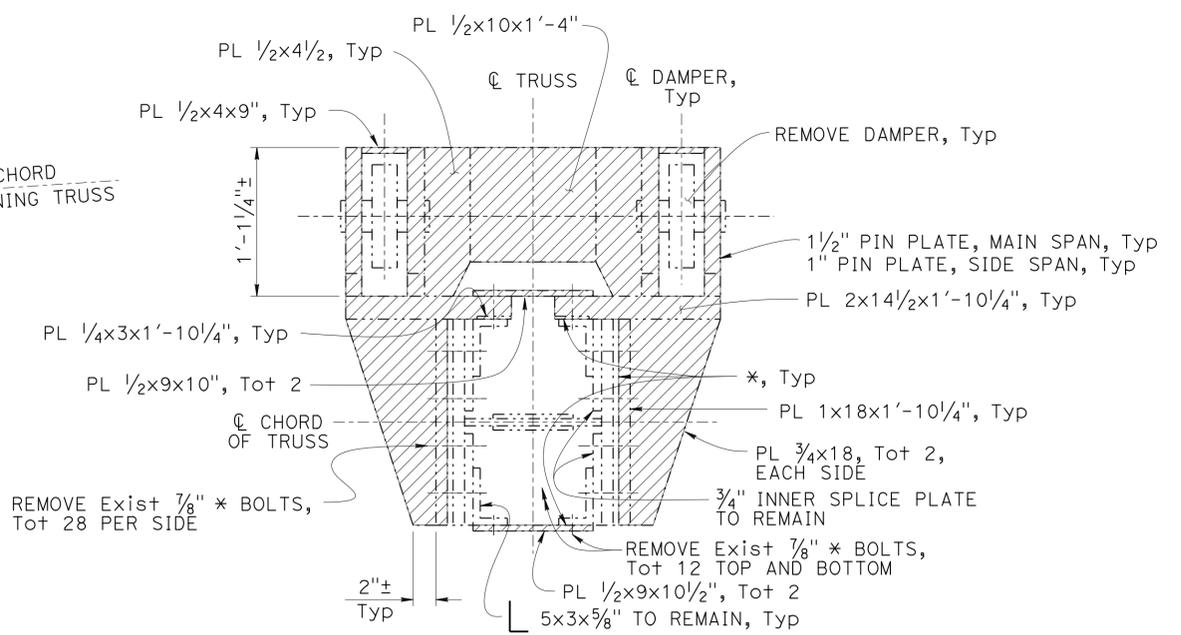
- Indicates bridge removal, portion
- Indicates existing structure
- * Spot blast clean and paint undercoat all contact surfaces of existing steel to new steel



DAMPER & DAMPER BRACKET REMOVAL AT TOWERS
 1/2" = 1'-0"



SECTION A-A
Exist BRACKET
 1/2" = 1'-0"



SECTION B-B
Exist BRACKET
 1/2" = 1'-0"

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

DESIGN	BY M. Okimura	CHECKED B. Addiespurger
DETAILS	BY P. Tong	CHECKED B. Addiespurger
QUANTITIES	BY J. Peterson	CHECKED P. Peterson

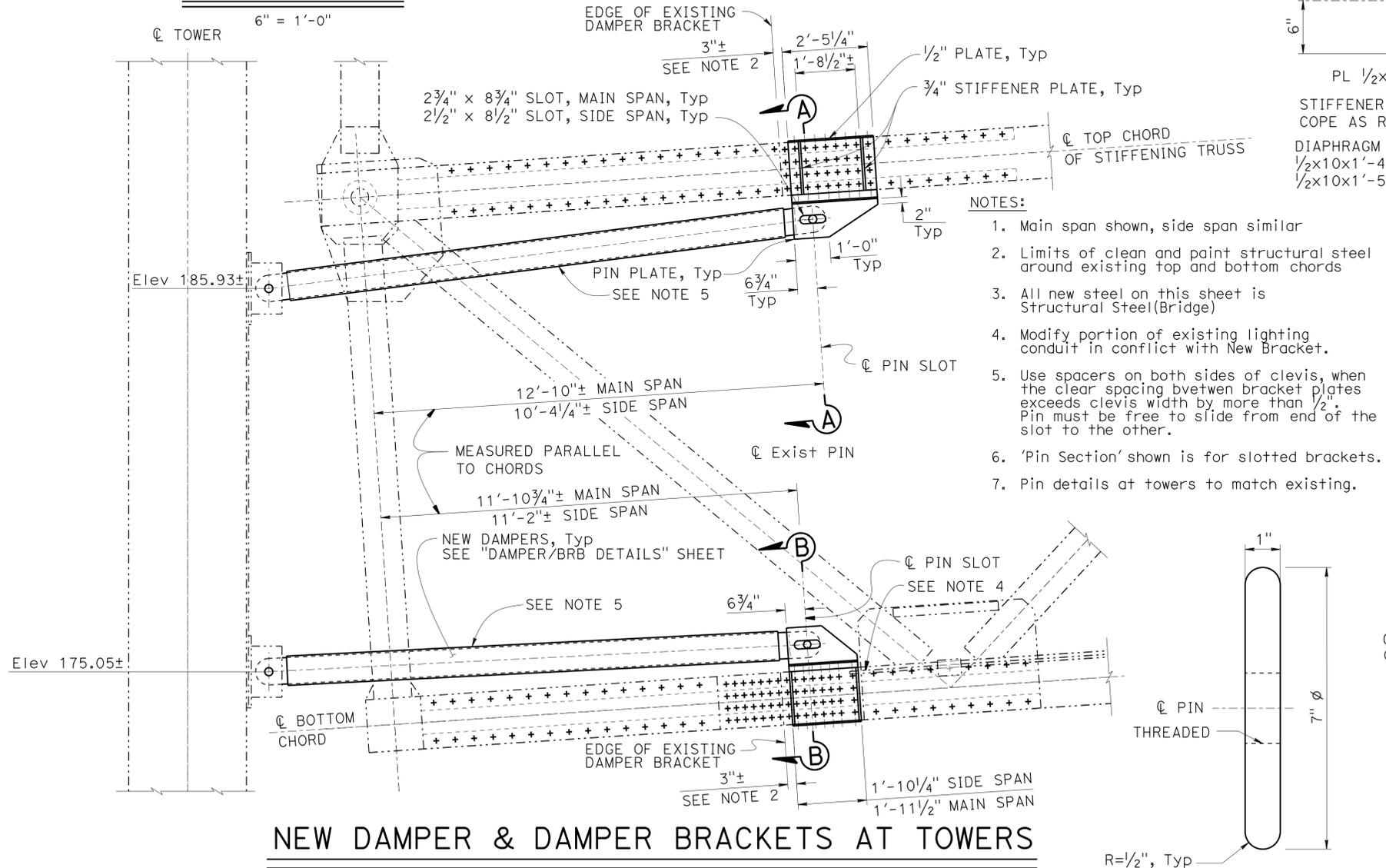
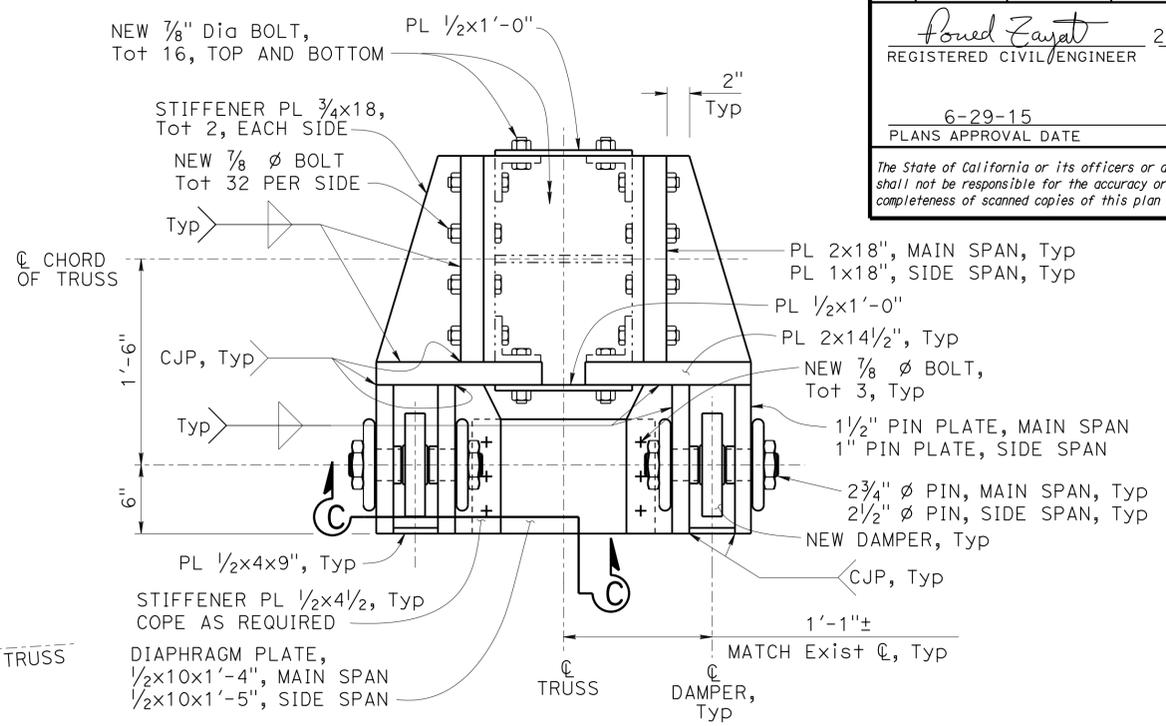
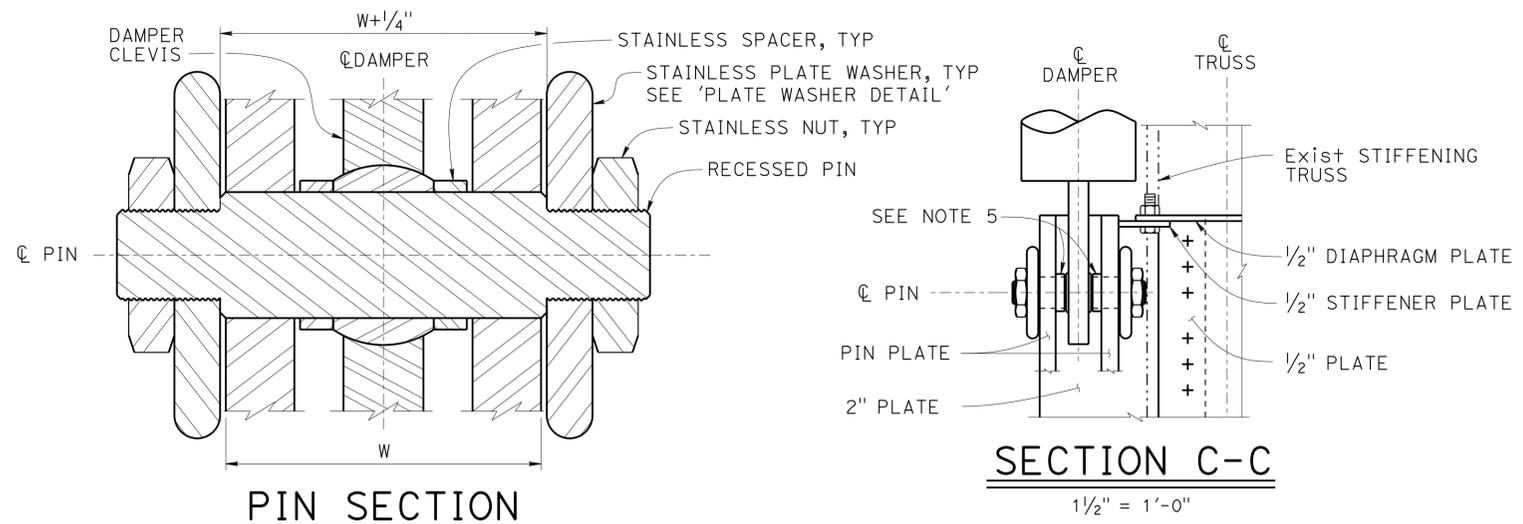
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 14

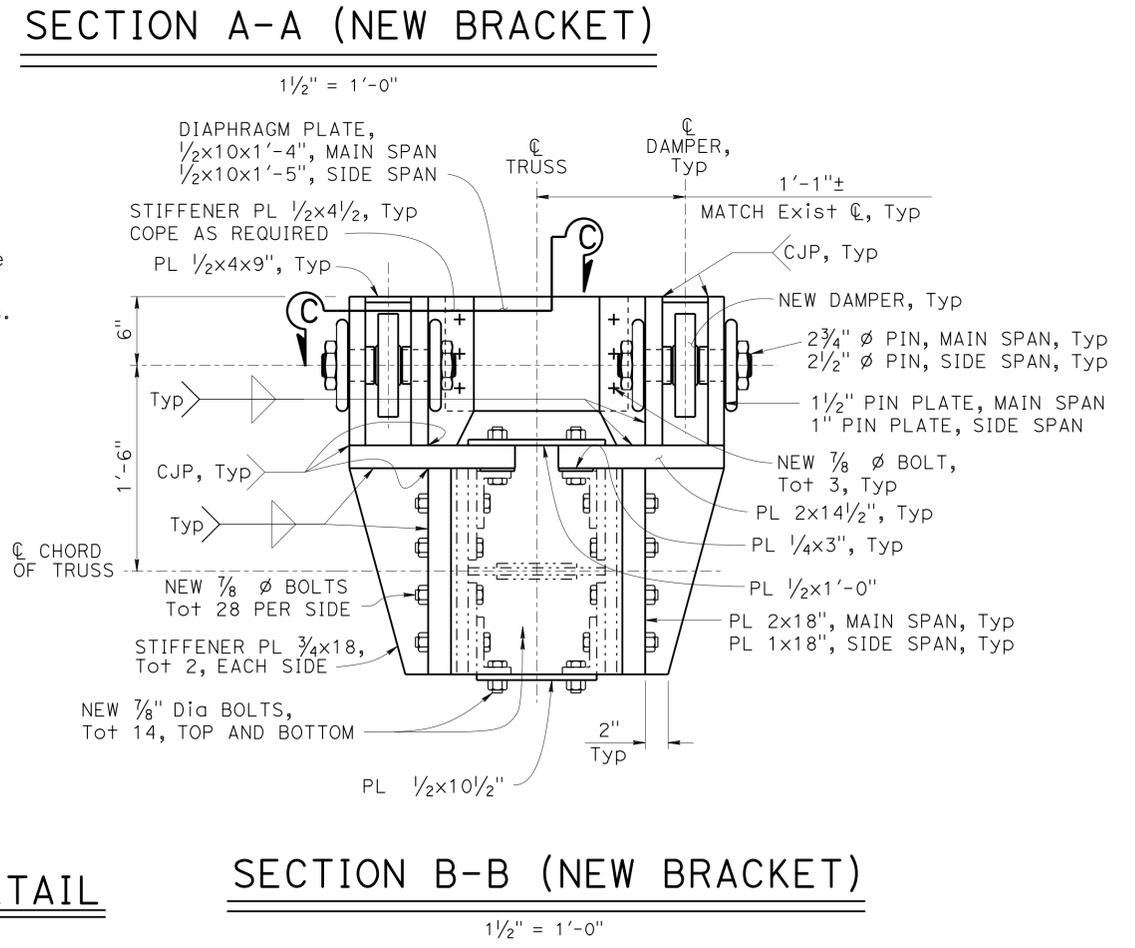
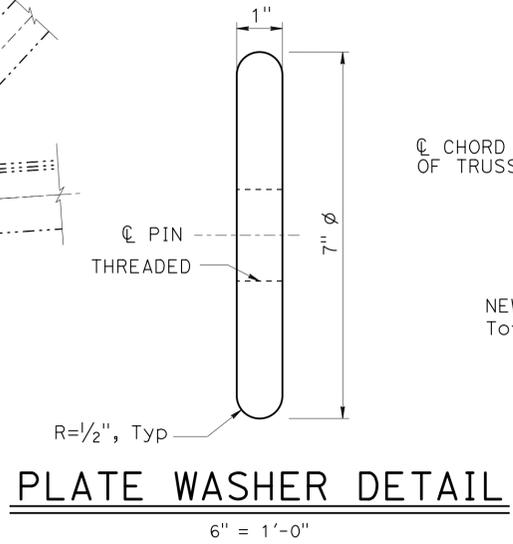
BRIDGE NO. 53-1471
 POST MILE 0.86

VINCENT THOMAS BRIDGE RETROFIT
DAMPER BRACKET DETAILS NO. 1

DATE PLOTTED => 16-JUL-2015 10:54



- NOTES:**
1. Main span shown, side span similar
 2. Limits of clean and paint structural steel around existing top and bottom chords
 3. All new steel on this sheet is Structural Steel(Bridge)
 4. Modify portion of existing lighting conduit in conflict with New Bracket.
 5. Use spacers on both sides of clevis, when the clear spacing between bracket plates exceeds clevis width by more than 1/2". Pin must be free to slide from end of the slot to the other.
 6. 'Pin Section' shown is for slotted brackets.
 7. Pin details at towers to match existing.



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

DESIGN	BY M. Okimura	CHECKED B. Addiespurger
DETAILS	BY P. Tong	CHECKED B. Addiespurger
QUANTITIES	BY J. Peterson	CHECKED P. Peterson

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 14

BRIDGE NO. 53-1471
POST MILE 0.86
VINCENT THOMAS BRIDGE RETROFIT
DAMPER BRACKET DETAILS NO. 2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	22	38

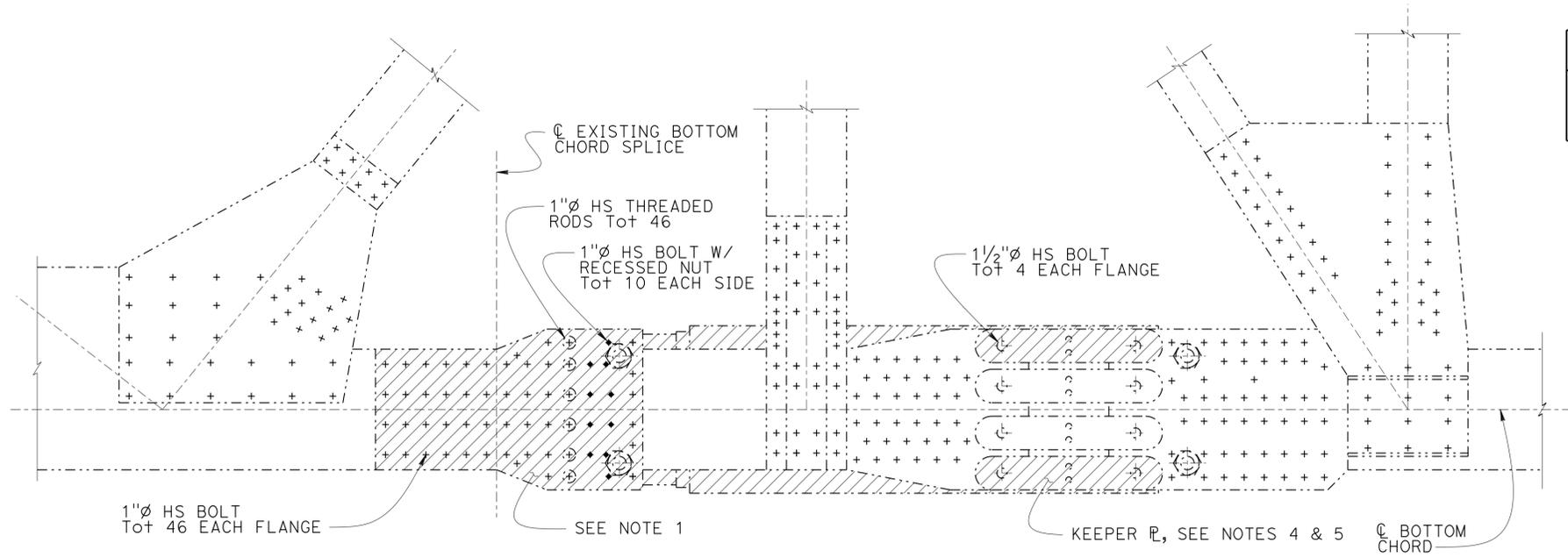
Foued Zayati
 REGISTERED CIVIL ENGINEER
 DATE: 2-6-15
 PLANS APPROVAL DATE: 6-29-15
 No. 57046
 Exp. 6/30/17
 CIVIL
 STATE OF CALIFORNIA

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TEMPORARY BRACING DESIGN LOADS

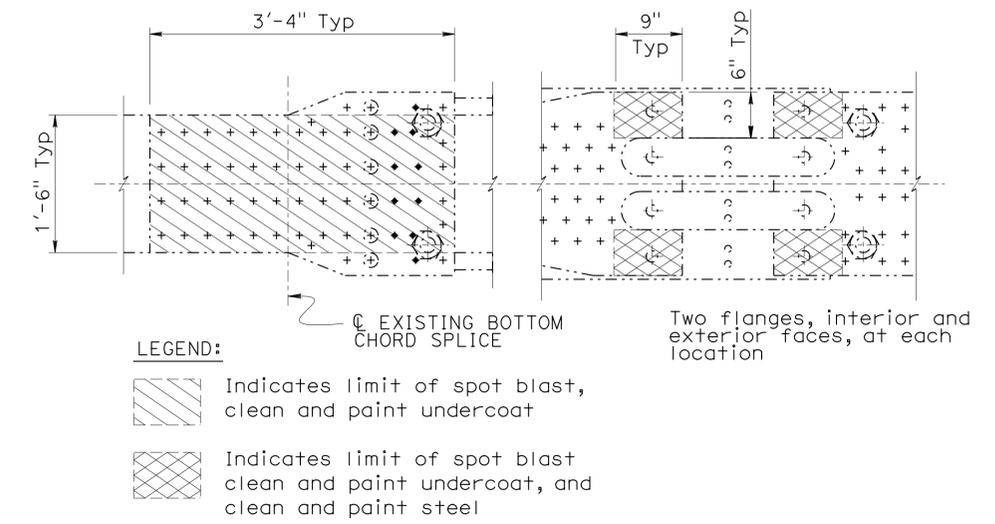
TENSION = 1075 KIPS

COMPRESSION = 625 KIPS



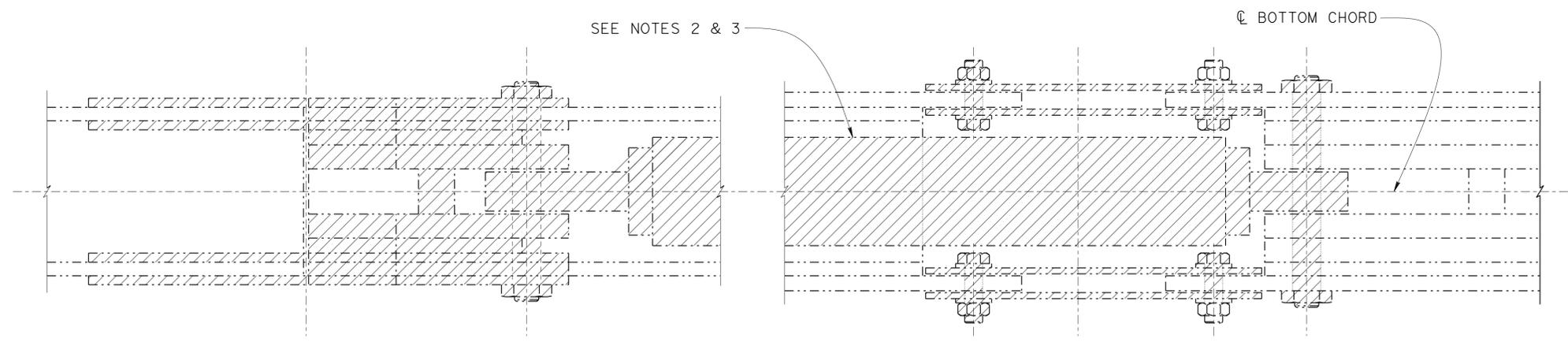
ELEVATION-REMOVAL LIMITS AT FUSE DAMPERS

1"=1'-0"



LIMITS OF SPOT BLAST, CLEAN AND PAINT

NTS



PLAN - REMOVAL LIMITS AT FUSE DAMPERS

2"=1'-0"

- NOTES:
- Install temporary bracing to preserve bottom chord continuity prior to removing the chord splice.
 - Temporary bracing at each chord must be designed for the service loads shown.
 - Remove existing splice plates, filler plates, and pin plates.
 - Remove existing dampers and damper pins.
 - Existing dampers may be removed prior to installation of temporary bracing.
 - Remove existing keeper plates as shown, on both chord flanges.
 - Do not remove keeper plates prior to completion of BRB installation.
- Indicates existing structure
- Indicates bridge removal, portion

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

DESIGN	BY F. Zayati	CHECKED B. Addlespurger
DETAILS	BY F. Zayati	CHECKED B. Addlespurger
QUANTITIES	BY J. Peterson	CHECKED P. Peterson

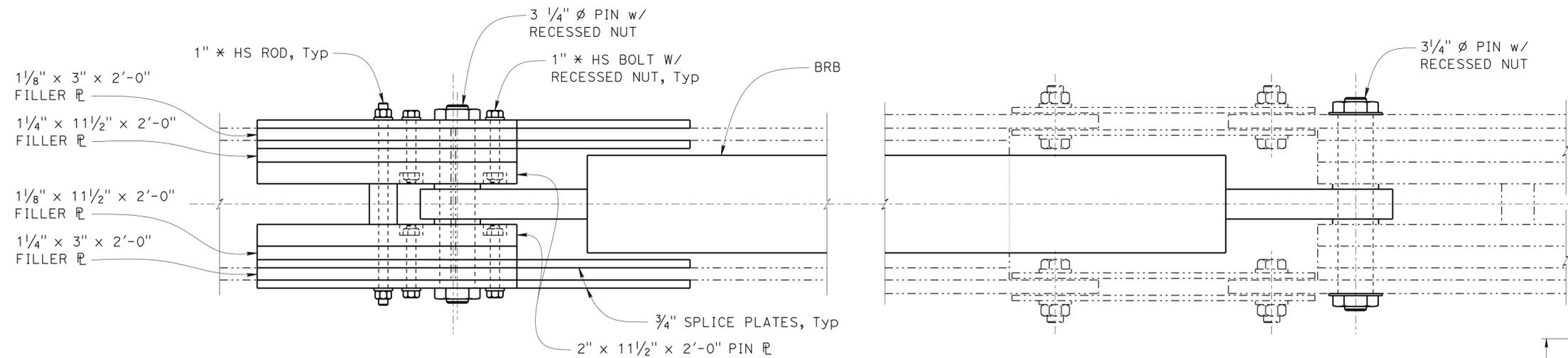
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 14

BRIDGE NO.	53-1471
POST MILE	0.86

VINCENT THOMAS BRIDGE RETROFIT
SIDE SPAN TRUSS FUSE NO. 1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	23	38
<i>Foued Zayati</i> REGISTERED CIVIL ENGINEER			2-6-15 DATE		
6-29-15 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.</small>					



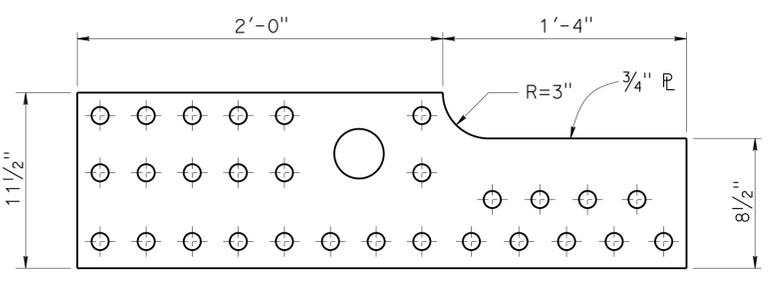
PLAN - BRB CONNECTION TO BOTTOM CHORD

2"=1'-0"

NOTES:

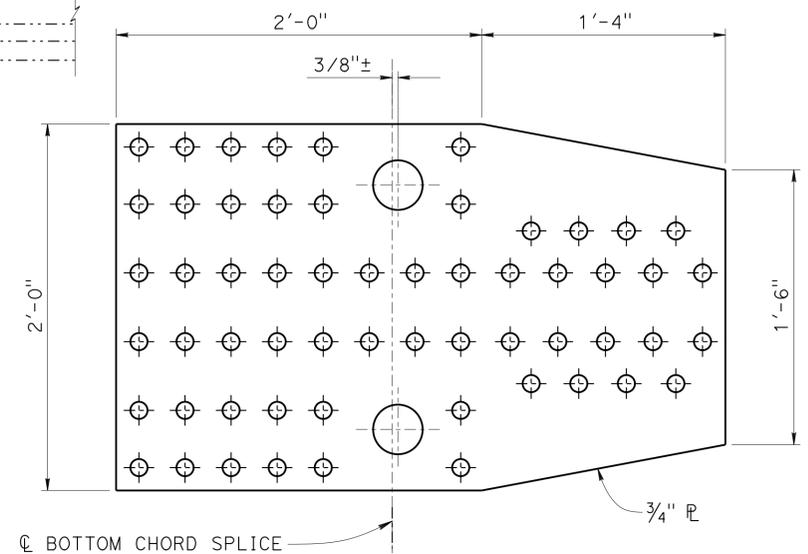
- All new steel on this sheet is 'Structural Steel Bridge'.
- Filler plate thickness may be adjusted to accommodate the BRB clevis.
- BRB length is measured between center line of pins. Location of pin holes on the pin, filler, and splice plates must be field verified prior to fabrication.
- Use spacers to center BRB clevis between pin plates, when the gap between pin plates exceeds clevis width by more than 1/4 inch.

— Indicates new construction
 - - - - - Indicates existing structure



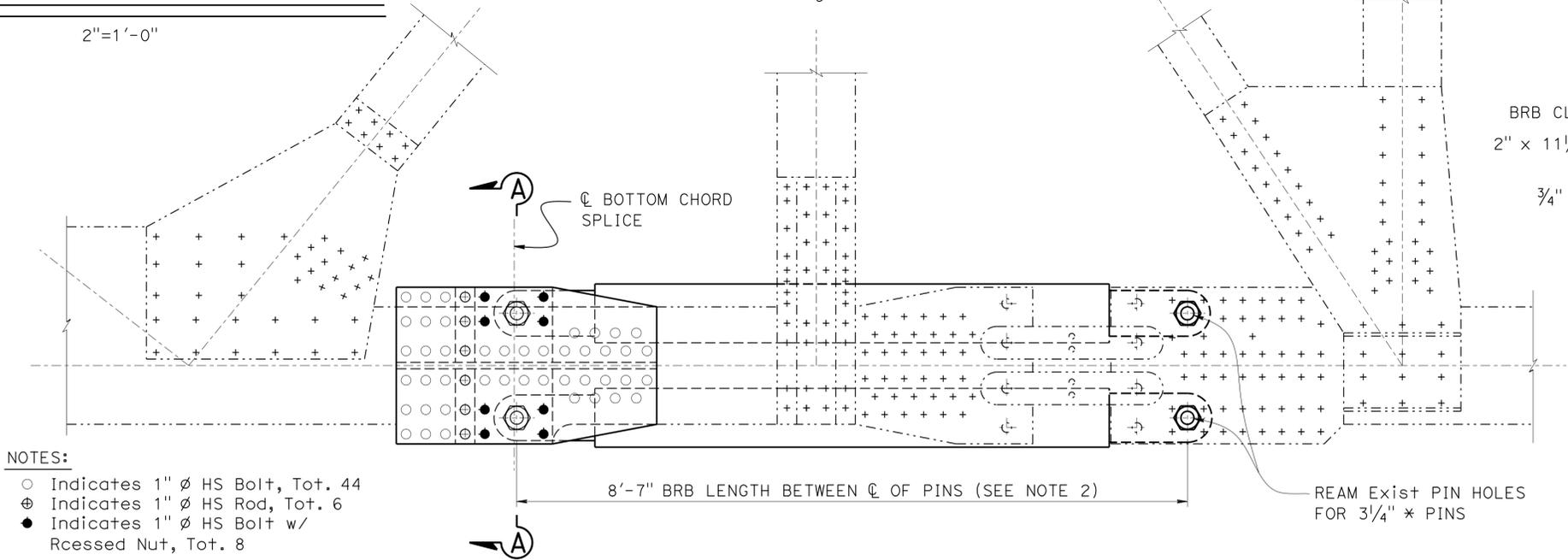
INTERIOR SPLICE PL DETAIL

2"=1'-0"



EXTERIOR SPLICE PL DETAIL

2"=1'-0"



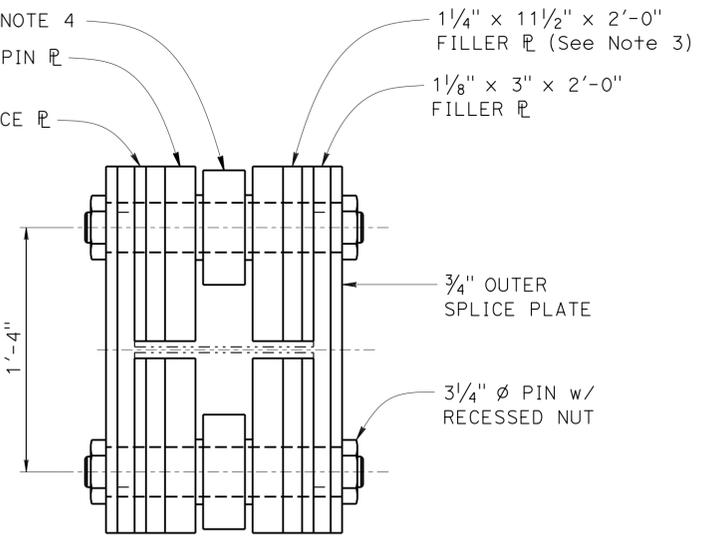
ELEVATION-INSIDE FACE OF STIFFENING TRUSS

1"=1'-0"

NOTES:

- Indicates 1" Ø HS Bolt, Tot. 44
- ⊕ Indicates 1" Ø HS Rod, Tot. 6
- Indicates 1" Ø HS Bolt w/ Recessed Nut, Tot. 8

NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATION ANY MATERIALS.



SECTION A-A

2"=1'-0"

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY F. Zayati	CHECKED B. Addlespurger	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 14	BRIDGE NO.	53-1471	VINCENT THOMAS BRIDGE RETROFIT SIDE SPAN TRUSS FUSE NO. 2		
	DETAILS	BY F. Zayati	CHECKED B. Addlespurger			POST MILE	0.86			
	QUANTITIES	BY J. Peterson	CHECKED P. Peterson			UNIT: 3613	PROJECT NUMBER & PHASE: 07120000761		CONTRACT NO.: 07-290704	DISREGARD PRINTS BEARING EARLIER REVISION DATES
									7	22

NOTES:

1. Dampers must be fitted with friction locks that will resist the "Maximum Friction Force" with no displacement. Friction locks must maintain their capacity during damper stroking.
2. Dampers with internal static pressure in excess of 100 psi are not allowed.
3. Metal shield and attachment hardware must be galvanized.
4. Cable bent dampers must be replaced in pairs.
5. A temporary strut with a service axial capacity of at least 200 kips in tension and compression must connect the bottom chord to the cable bent before the dampers at that chord are removed. Temporary struts must remain in place until new dampers are installed.
6. No more than 4 tower dampers may be removed and replaced at one time, at the same tower. These 4 dampers must be either top chord or bottom chord dampers within the same span.
7. Each Damper must be equipped with one fill port, and one integral fluid level indicator. Fluid level indicator must be visible to the naked eye from a distance of at least 36 inches. Location and orientation of fill port and fluid level indicator shall be as approved by the Engineer.
8. BRB clevises must be fitted with spherical bearings with $\pm 5\%$ maximum transverse rotation capacity.
9. BRB casing must be galvanized.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	24	38

Foued Zayati
 REGISTERED CIVIL ENGINEER 2-6-15 DATE
 6-29-15
 PLANS APPROVAL DATE

Foued Zayati
 No. 57046
 Exp. 6/30/17
 CIVIL
 STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.

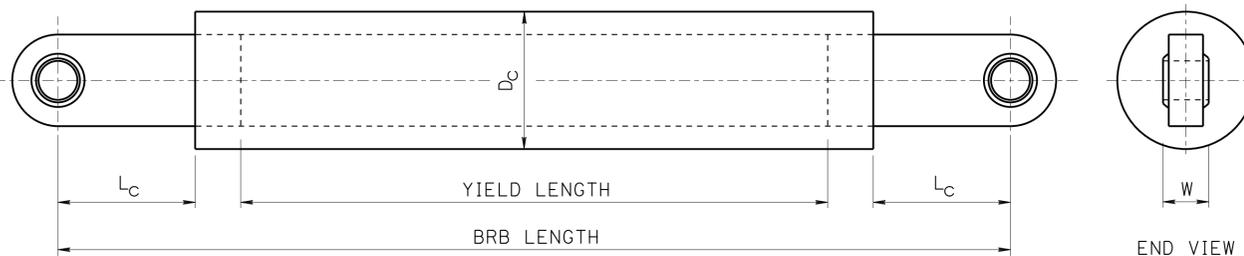
VISCOUS DAMPERS PROPERTIES

Location	Damper Type	Total Stroke (in)	Mid-Stroke Length (in)	Maximum Velocity Vmax (in/sec)	Maximum Friction Force (Kips)	Maximum Damping Force F _{Dmax} (Kips)	Dimensions					Velocity Exponent b ($F_D = CV^b$)	Total Number of Units	EDC* kip.in	
							Max D _s (in)	Pin ϕ (in)	Max R (in)	Clevis W (in)	Min L _{c1} (in)				Min L _{c2} (in)
Side Span at Cable Bent	A	48	170	86	100	165	12	2 3/4	4 1/2	2 - 3 1/2	4 1/4	4 1/4	1.0	8	12400
Side Span at Tower	B	44	160 1/2	60	10	75	8.5	2 1/2	3 3/8	2 - 3 1/2	4 1/4	10 1/4	1.0	16	5180
Main Span at Tower	C	52	187	96	10	260	10	2 3/4	4 1/2	2 - 3 1/2	4 1/4	10 1/4	0.3	16	24800

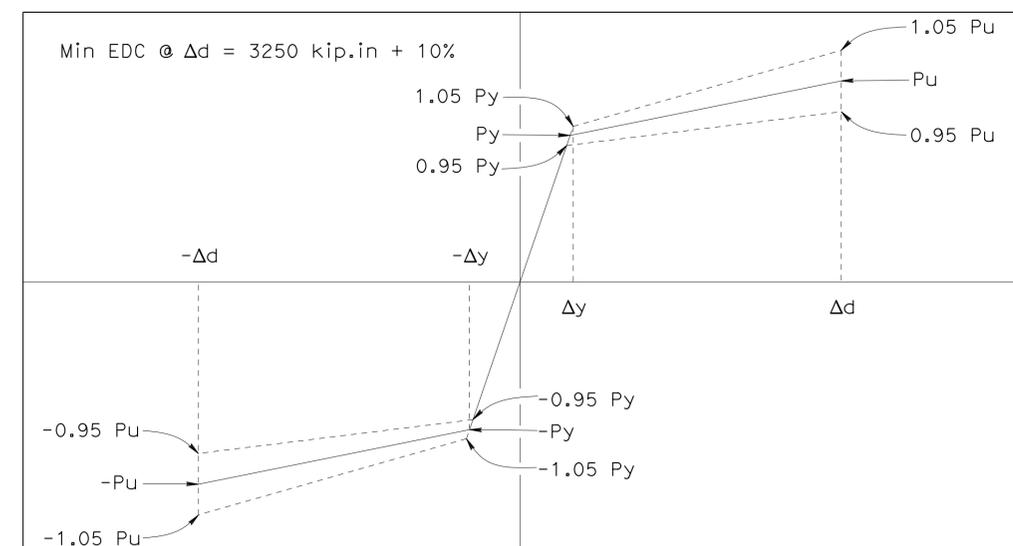
*EDC is based on total damper stroke and maximum velocity.

BRB PROPERTIES

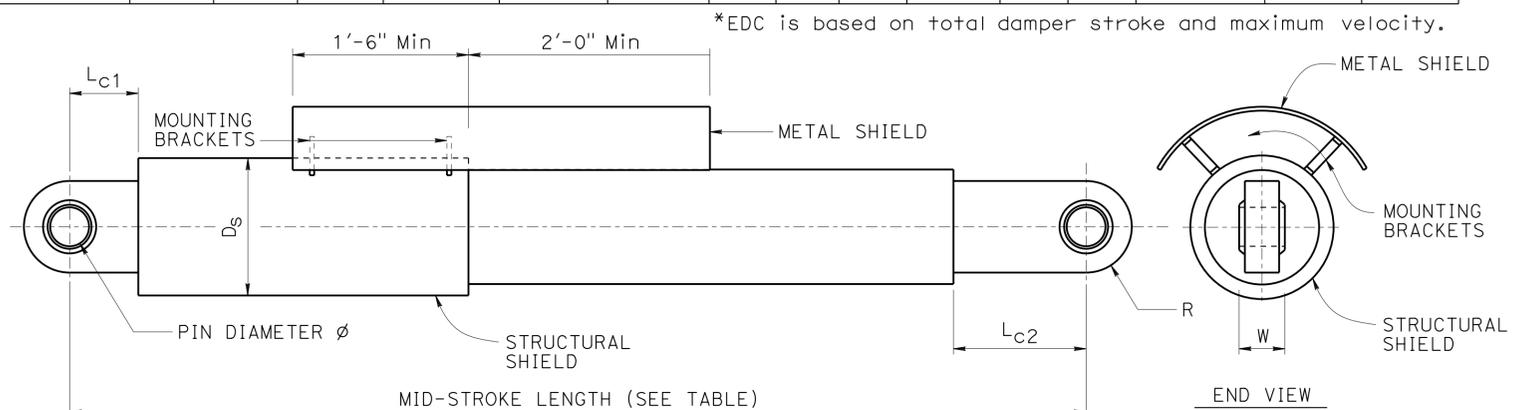
BRB Length (in)	Yield Length (in)	Min Clear Distance L _c (in)	Maximum BRB Diameter D _c (in)	Elongations		Forces		Min L _c (in)	Clevis W (in)	Total Number of Units
				Yield Δy (in)	Design Δd (in)	Yield P _y (kip)	Design P _u (kip)			
103"	75	9 1/2	9.0	0.117	2.85	300	500	10.0	2 3/4 - 3 1/2	8



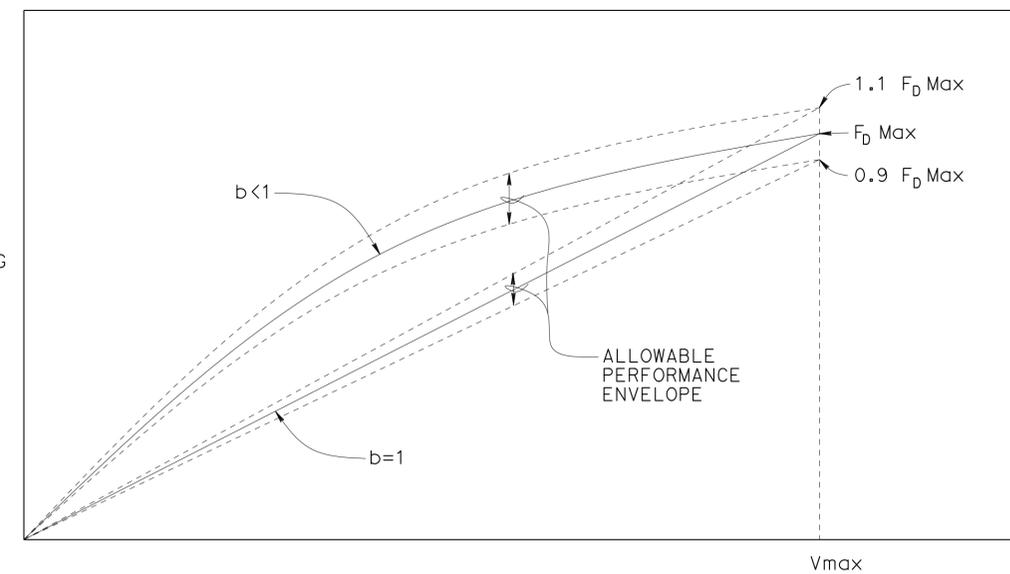
TYPICAL BUCKLING RESTRAINED BRACE (BRB)



BRB PERFORMANCE



TYPICAL DAMPER



VISCOUS DAMPER PERFORMANCE

NO SCALE

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

DESIGN	BY F. Zayati	CHECKED D. Lee/M. Okimura
DETAILS	BY F. Zayati	CHECKED D. Lee/M. Okimura
QUANTITIES	BY J. Peterson	CHECKED P. Peterson

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 14

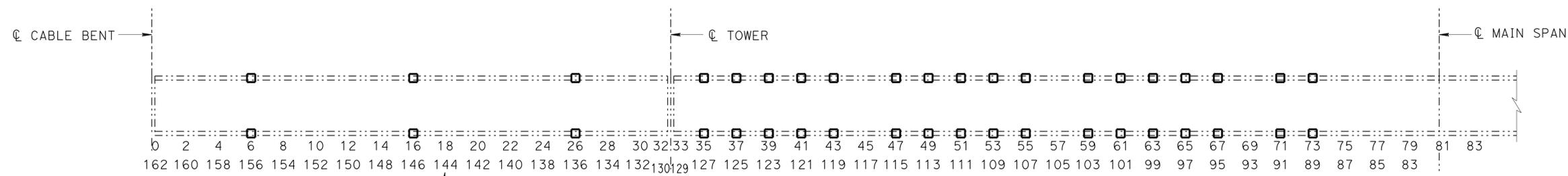
BRIDGE NO.	53-1471
POST MILE	0.86

VINCENT THOMAS BRIDGE RETROFIT
DAMPER/BRB DETAILS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	25	38

Foued Zayati
 REGISTERED CIVIL ENGINEER
 DATE: 2-6-15
 PLANS APPROVAL DATE: 6-29-15
 No. 57046
 Exp. 6/30/17
 CIVIL
 STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.



PANEL POINTS, Typ
SEE NOTE 4

PARTIAL PLAN - DECK SHEAR CONNECTOR RETROFIT

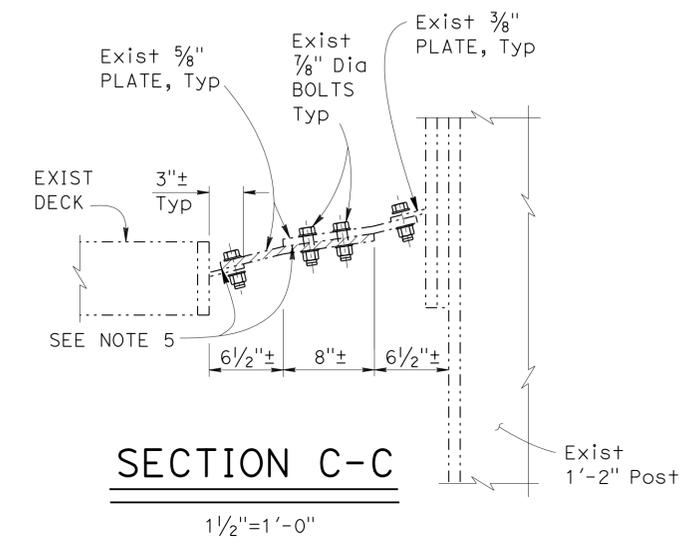
NO SCALE

LEGEND:

□ Indicates Modify Type "A" Deck Shear Connector, total 80, see note 8

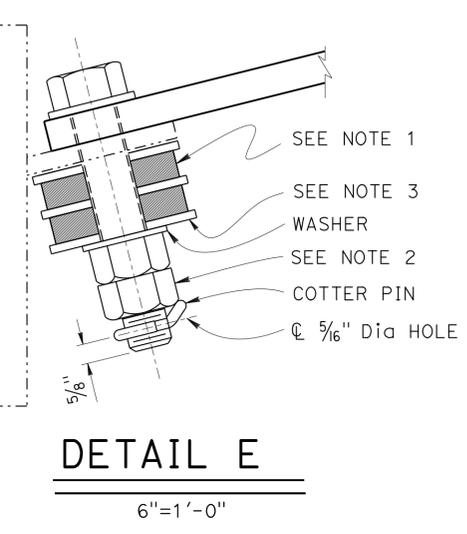
NOTES:

- 3/4" x 2 3/4" x 29 3/4" elastomer (Durometer 60) with 1/16" Dia holes, Tot 2 layers bonded to 1/4" plates
- 7/8" Dia x 6 1/4" bolts with cotter pins and double nuts through holes or equal. Tighten nuts to remove slack within the system, then turn each nut an additional quarter turn
- 1/4" x 3" x 30" galvanized plate with 1/16" Dia holes, Tot 3
- "PARTIAL PLAN - DECK SHEAR CONNECTOR RETROFIT" detail and the 2nd row of panel points are mirrored about C main span
- Spot blast clean and paint undercoat all contact surfaces of existing steel to new steel
- Bend in new 5/8" bent shear plate, holes, and bolts to match exist.
- All new steel on this sheet is Miscellaneous Metal (Bridge)
- Only 2 side span shear connectors may be disassembled at any time. Removal of connector plates at other locations shall not begin until new plates are installed at the location of previously removed plates.
- Only 4 main span shear connectors may be disassembled at any time. Removal of connector plates at other locations shall not begin until new plates are installed at the location of previously removed plates.



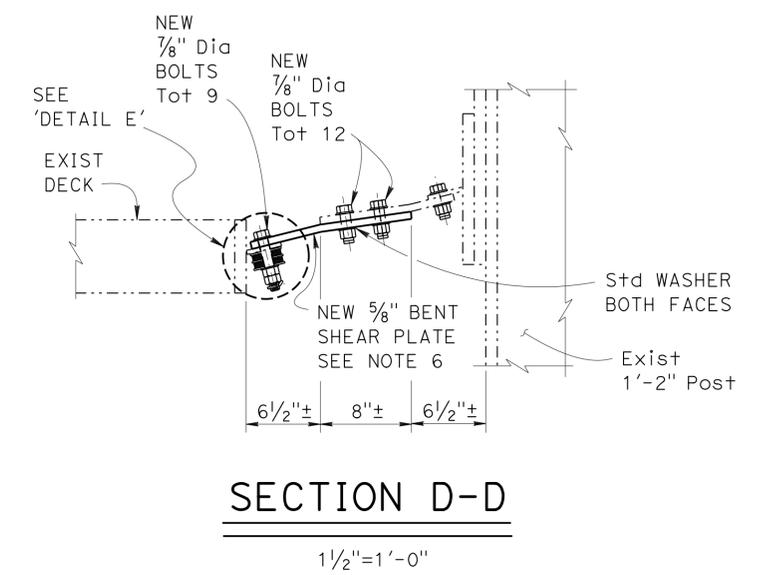
SECTION C-C

1/2"=1'-0"



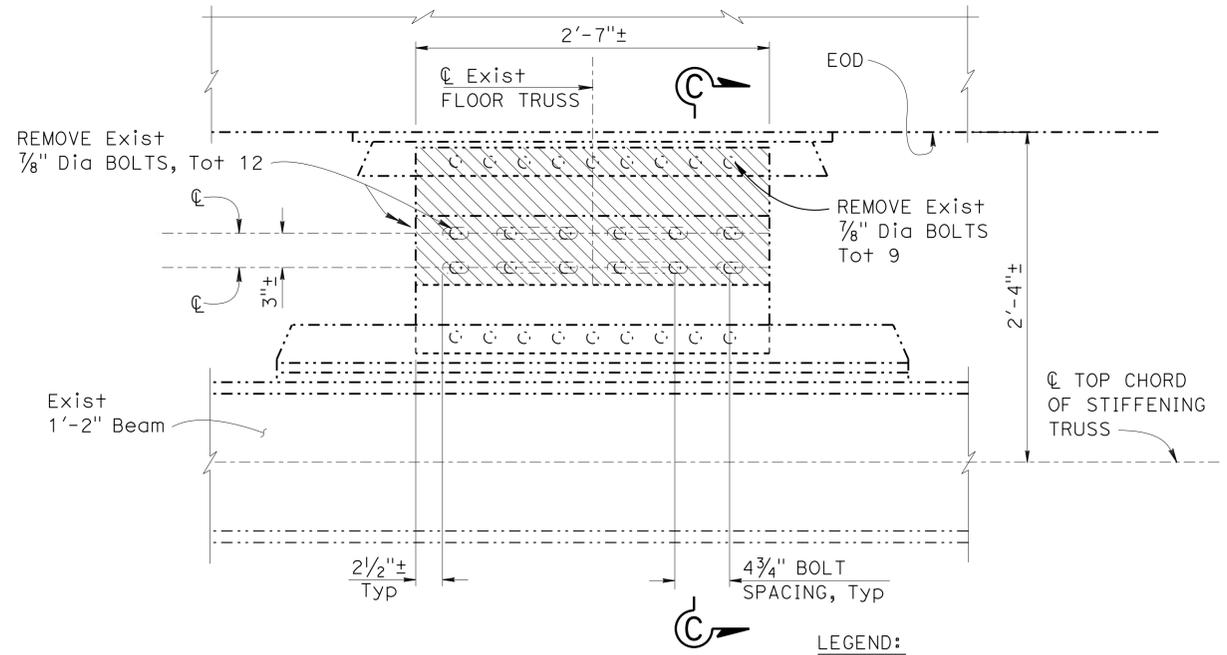
DETAIL E

6"=1'-0"



SECTION D-D

1/2"=1'-0"

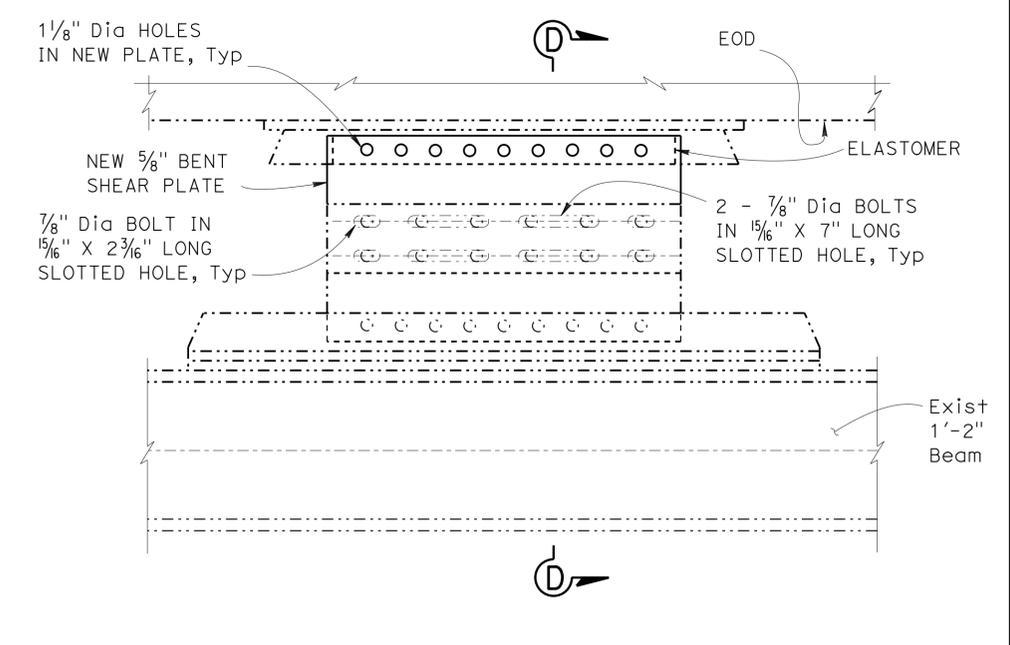


PLAN - EXIST

1/2"=1'-0"

LEGEND:

- Indicates Bridge Removal (portion)
- Indicates Existing Structure



PLAN - NEW

1/2"=1'-0"

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

DESIGN	BY M. Okimura	CHECKED B. Addlespurger
DETAILS	BY L. Goldthwait	CHECKED B. Addlespurger
QUANTITIES	BY J. Peterson	CHECKED P. Peterson

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 14

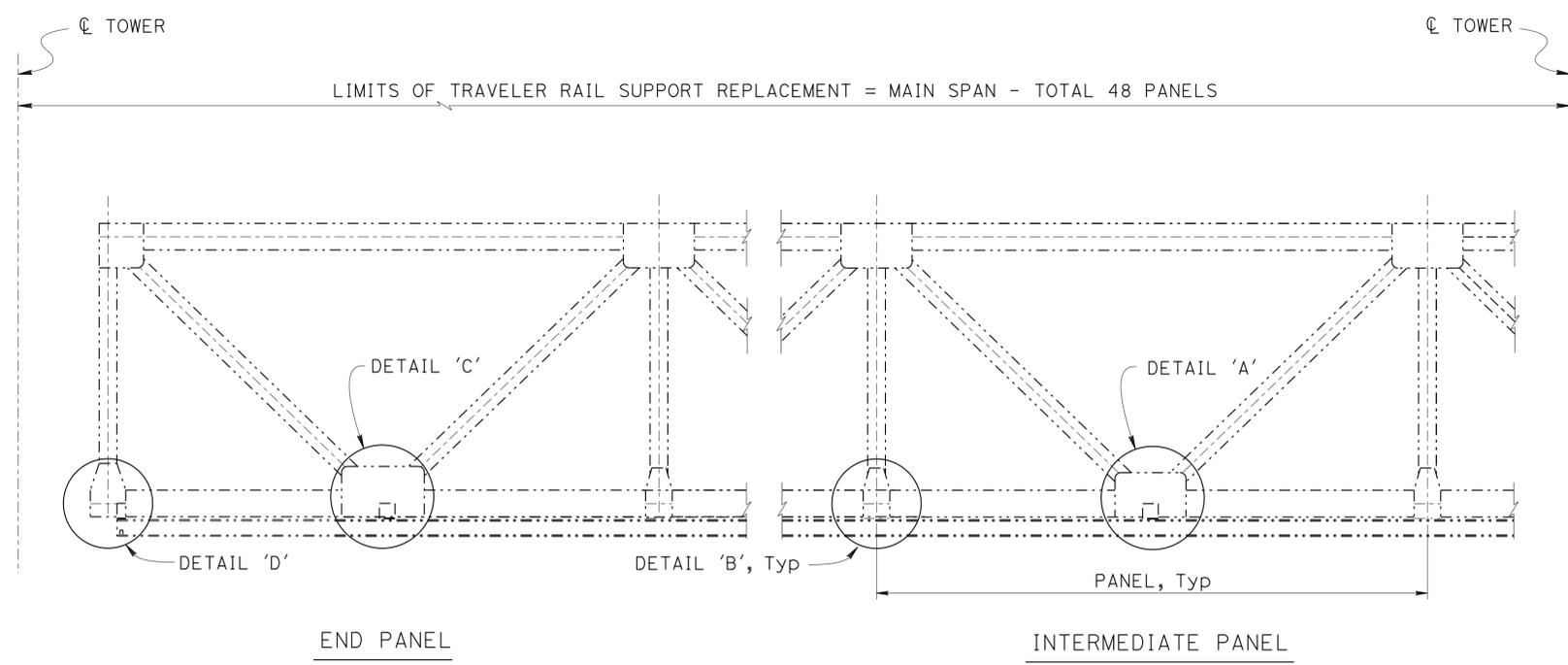
BRIDGE NO.	53-1471
POST MILE	0.86

VINCENT THOMAS BRIDGE RETROFIT
DECK SHEAR CONNECTOR DETAILS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	26	38

<i>Foued Zayati</i> REGISTERED CIVIL ENGINEER		2-6-15 DATE
6-29-15 PLANS APPROVAL DATE		

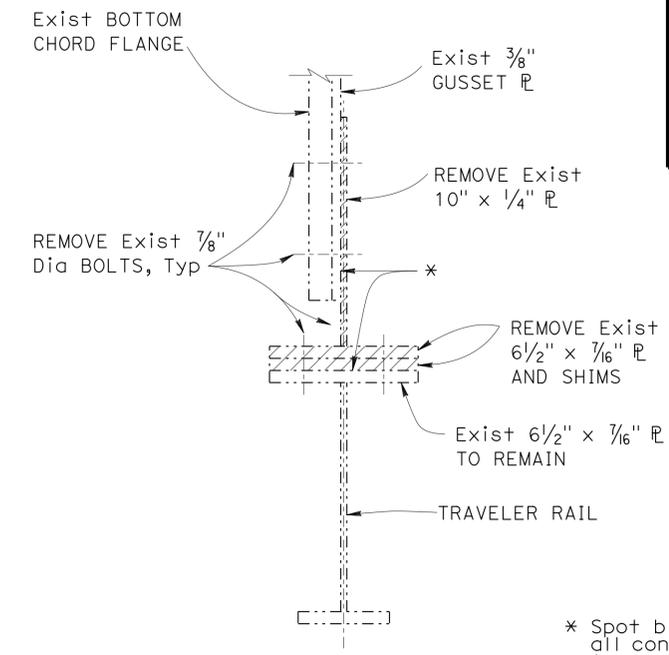
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TRAVELER RAIL ELEVATION

1"=5'-0"

NOTE:
Existing removal shown. For Details 'A' through 'D' new construction, see "TRAVELER RAIL DETAILS No. 2" sheet

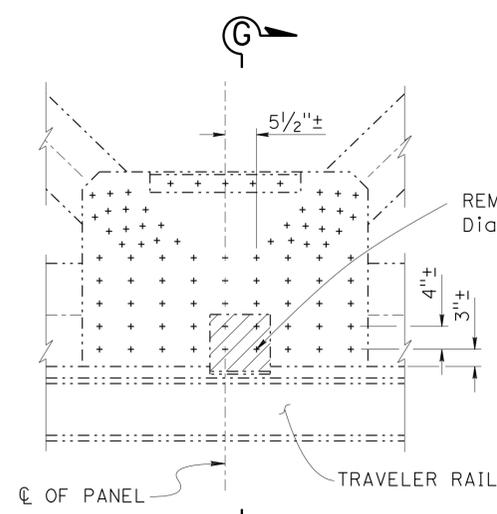


SECTION G-G

3"=1'-0"

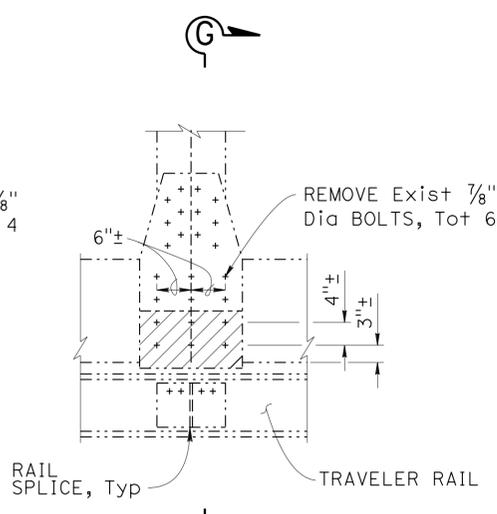
* Spot blast clean and paint undercoat all contact surfaces of existing steel to new steel

LEGEND:
 Indicates Bridge Removal, Portion



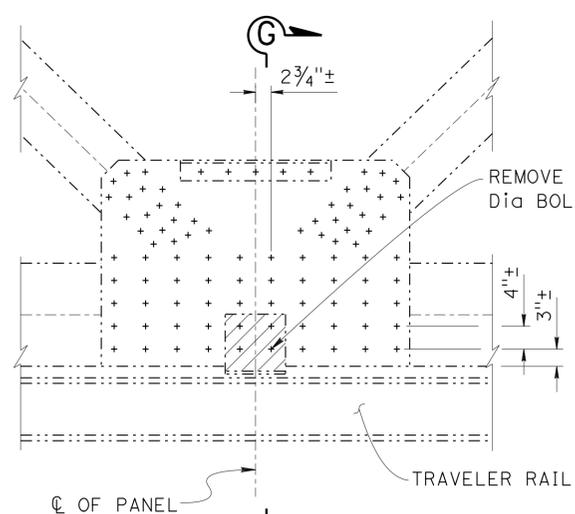
DETAIL 'A'-Exist

3/4"=1'-0"



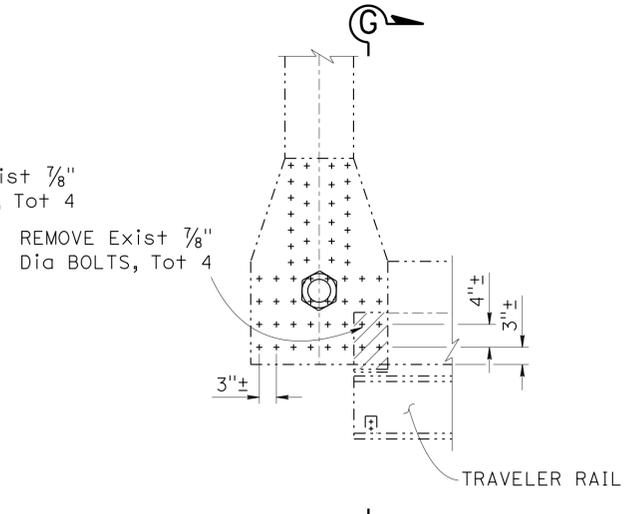
DETAIL 'B'-Exist

3/4"=1'-0"



DETAIL 'C'-Exist

3/4"=1'-0"



DETAIL 'D'-Exist

3/4"=1'-0"

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

DESIGN	BY M. Okimura	CHECKED B. Addlespurger
DETAILS	BY L. Goldthwait	CHECKED B. Addlespurger
QUANTITIES	BY J. Peterson	CHECKED P. Peterson

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 14

BRIDGE NO.
53-1471
POST MILE
0.86

VINCENT THOMAS BRIDGE RETROFIT TRAVELER RAIL DETAILS NO. 1

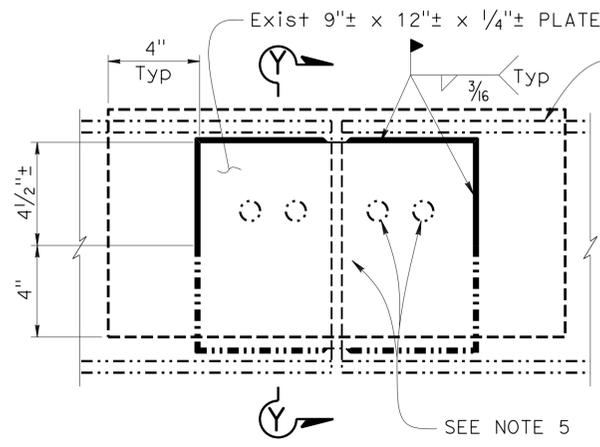
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	27	38
		2-6-15 DATE REGISTERED CIVIL ENGINEER PLANS APPROVAL DATE 6-29-15 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.			

NOTES:

1. Outside face of rail shown, inside face similar. Total 2 plates per joint.
2. Weld splice plates on both sides of rail web.
3. Total 47 splices per traveler rail in main span.
4. Total 15 splices per traveler rail in each side span.
5. Remove existing bolts after welding and prior to Spot clean and paint steel.

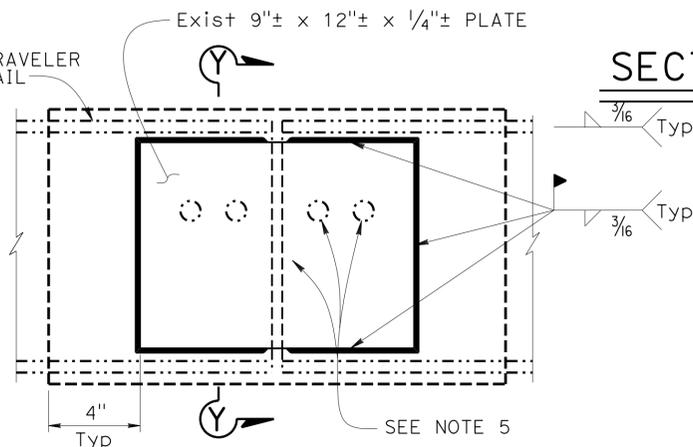
LEGEND:

- Indicates New Weld
- - - - - Indicates Exist Weld
- - - - - Indicates limits of spot blast clean and paint undercoat and clean and paint steel



DETAIL 'W'-SIDE SPAN

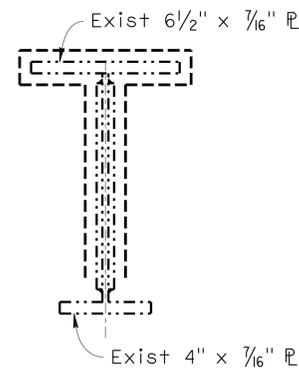
3"=1'-0"



DETAIL 'W'-MAIN SPAN

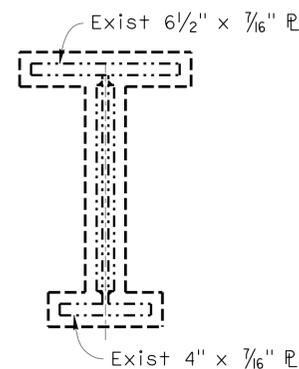
3"=1'-0"

SECTION Y-Y SIDE SPAN



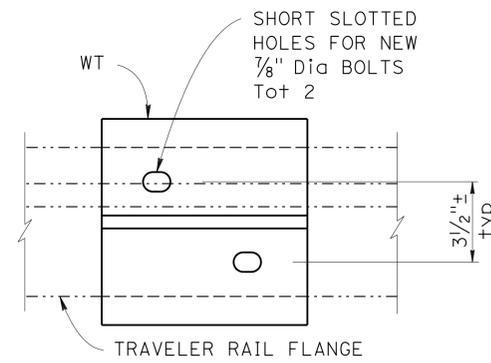
3"=1'-0"

SECTION Y-Y MAIN SPAN



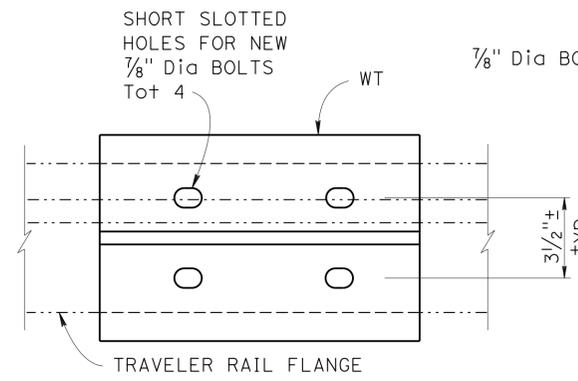
3"=1'-0"

SECTION L-L



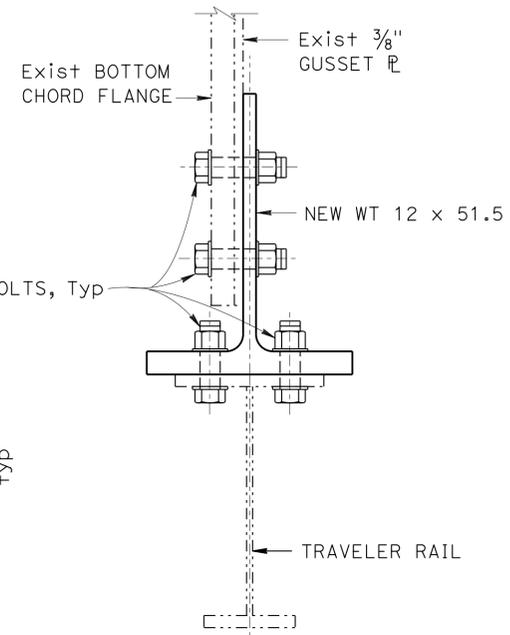
3"=1'-0"

SECTION K-K



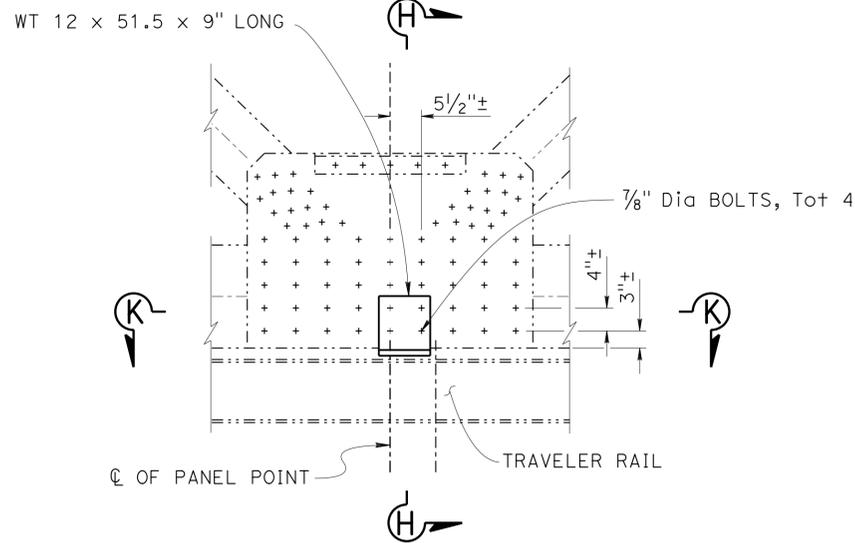
3"=1'-0"

SECTION H-H



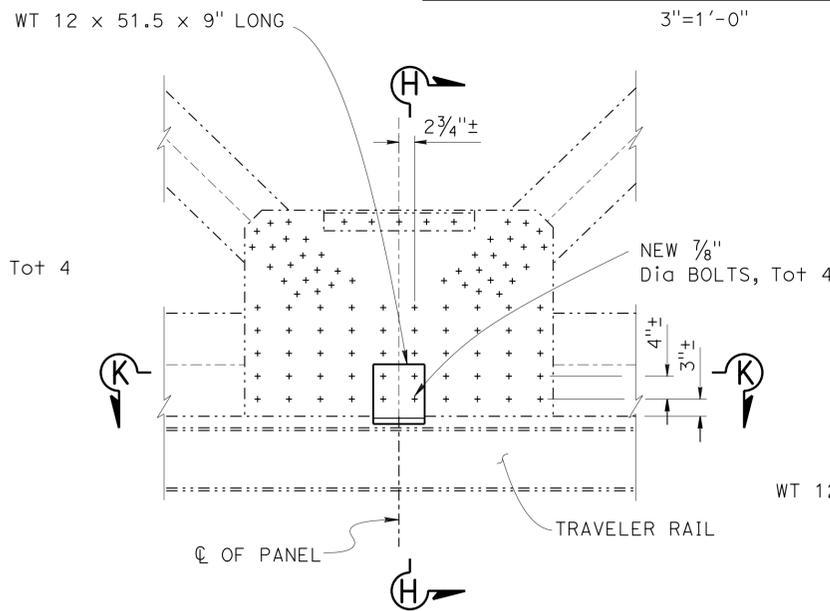
3"=1'-0"

NOTE: All new steel on this sheet is Miscellaneous Metal (Bridge)



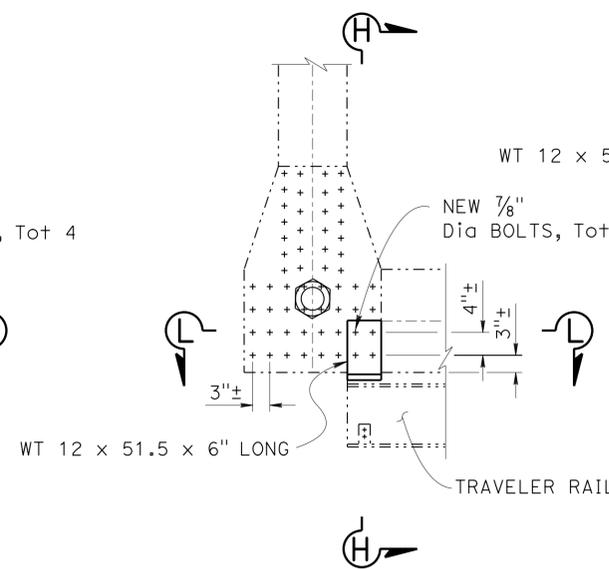
DETAIL 'A'-NEW

3/4"=1'-0"



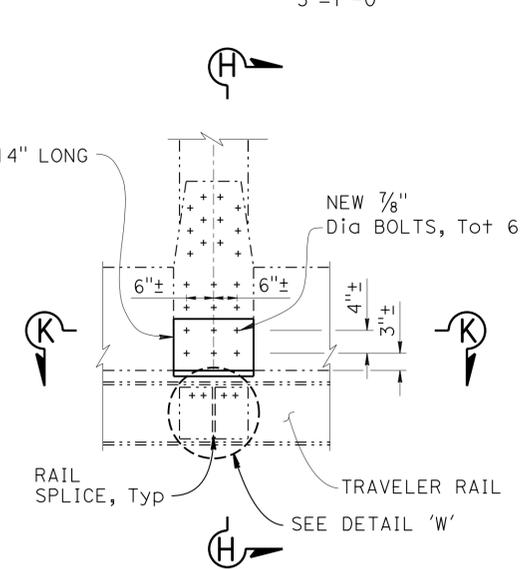
DETAIL 'C'-NEW

3/4"=1'-0"



DETAIL 'D'-NEW

3/4"=1'-0"



DETAIL 'B'-NEW

3/4"=1'-0"

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

DESIGN	BY M. Okimura	CHECKED B. Addiespurger	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 14	BRIDGE NO.	VINCENT THOMAS BRIDGE RETROFIT TRAVELER RAIL DETAILS NO. 2
DETAILS	BY L. Goldthwait	CHECKED B. Addiespurger			53-1471	
QUANTITIES	BY J. Peterson	CHECKED P. Peterson			POST MILE 0.86	

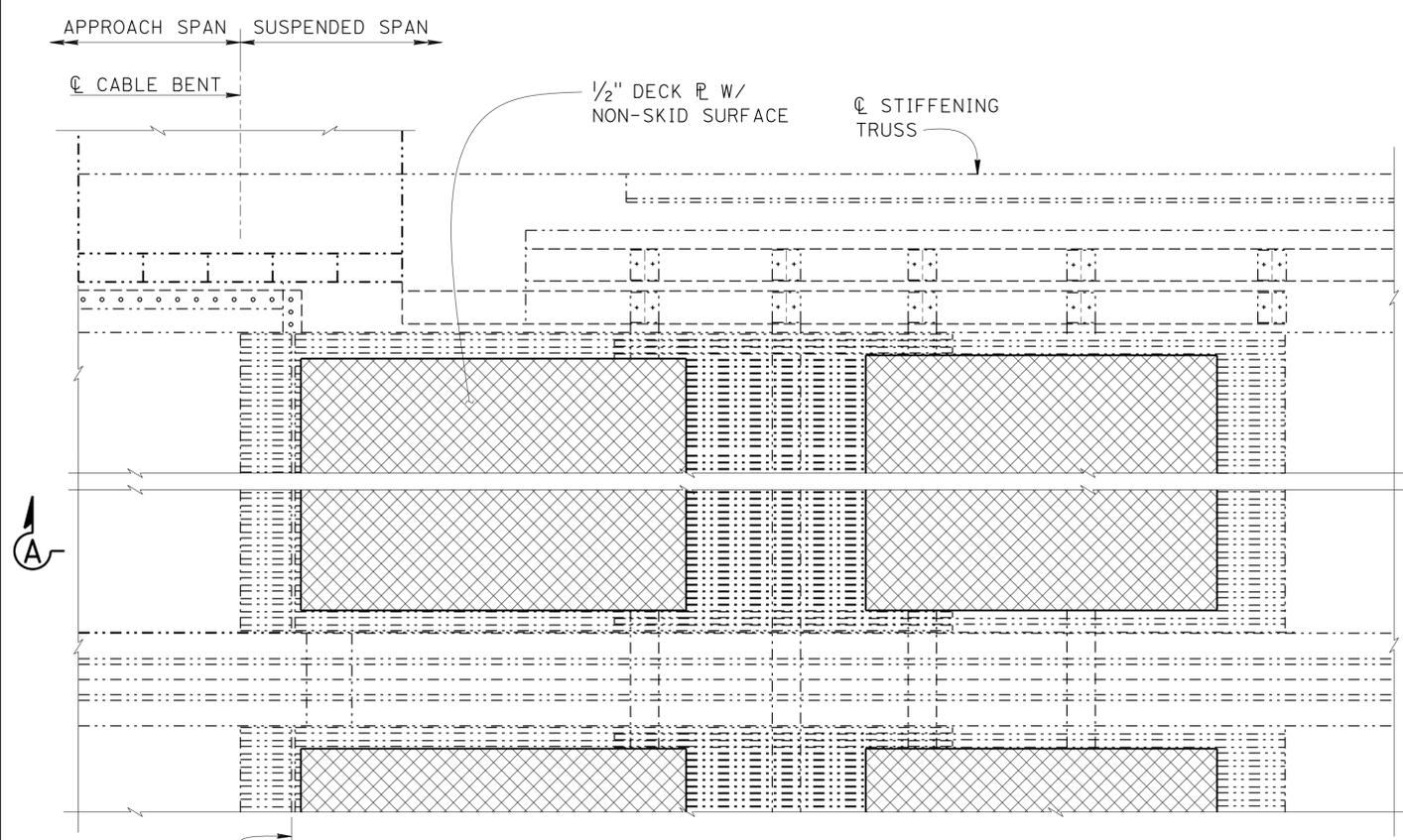
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	28	38

<i>Foued Zayati</i> REGISTERED CIVIL ENGINEER		2-6-15 DATE
6-29-15 PLANS APPROVAL DATE		

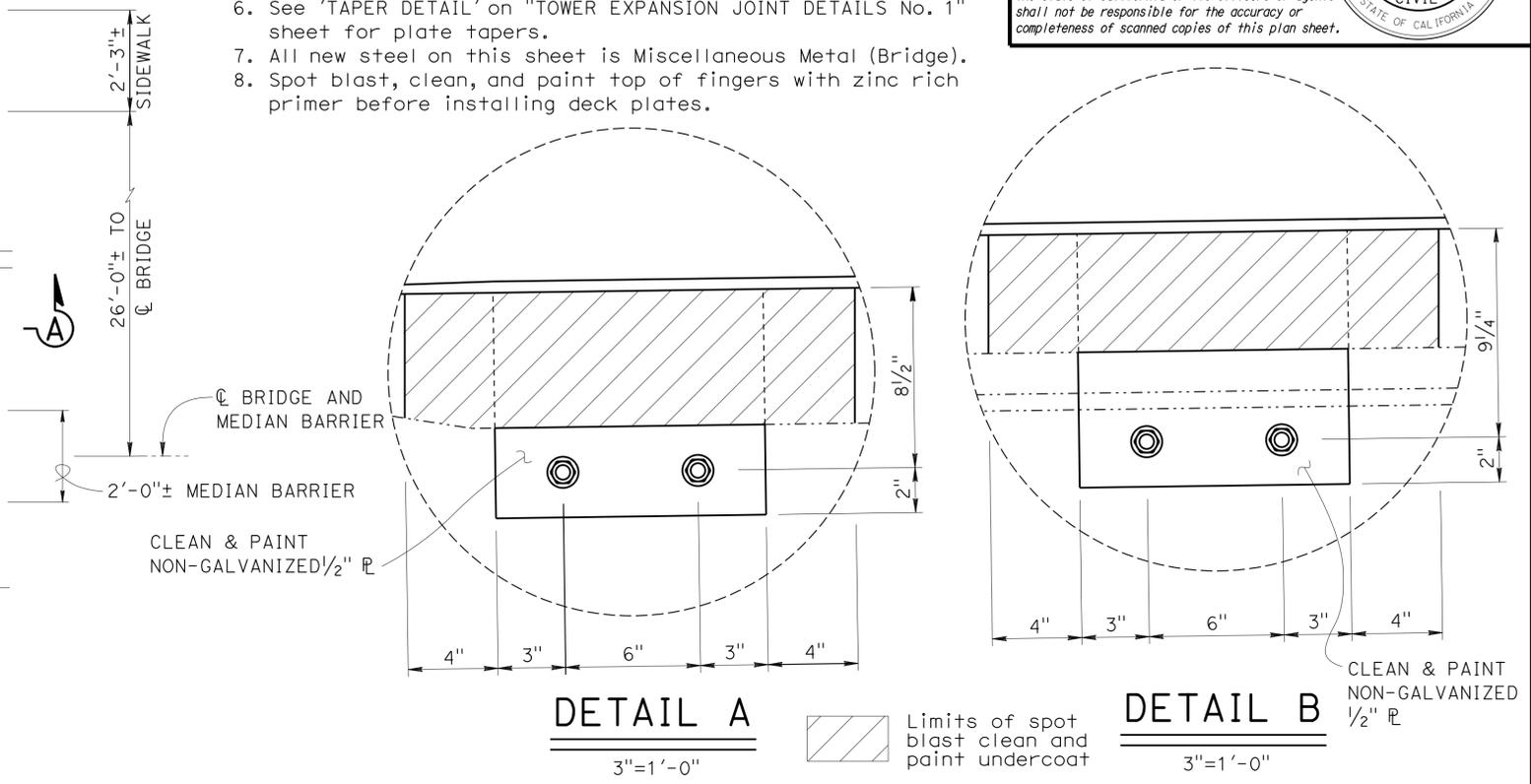
REGISTERED PROFESSIONAL ENGINEER No. 57046 Exp. 6/30/17 CIVIL STATE OF CALIFORNIA

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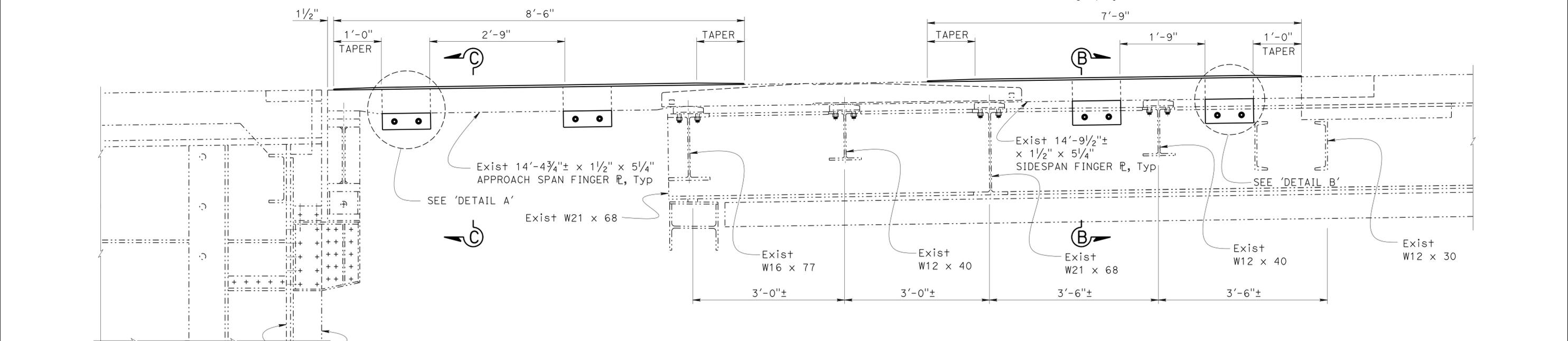
- NOTES:
- Cable Bent 11 shown, Cable Bent 12 similar.
 - Symmetric about \bar{C} Bridge.
 - Use $\frac{3}{8}$ " Tungsten-Carbide weld beads for deck plate non-skid surface.
 - Remove existing non-skid surface deformations on top of finger plates within new deck plate area.
 - For 'SECTION B-B' and 'SECTION C-C', see "CABLE BENT EXPANSION JOINT No. 2" sheet.
 - See 'TAPER DETAIL' on "TOWER EXPANSION JOINT DETAILS No. 1" sheet for plate tapers.
 - All new steel on this sheet is Miscellaneous Metal (Bridge).
 - Spot blast, clean, and paint top of fingers with zinc rich primer before installing deck plates.



EXPANSION JOINT - PARTIAL PLAN
 $\frac{1}{2}''=1'-0''$



DETAIL A $3''=1'-0''$
DETAIL B $3''=1'-0''$
 Limits of spot blast clean and paint undercoat
 CLEAN & PAINT NON-GALVANIZED $\frac{1}{2}''$ PL



SECTION A-A
 $1''=1'-0''$

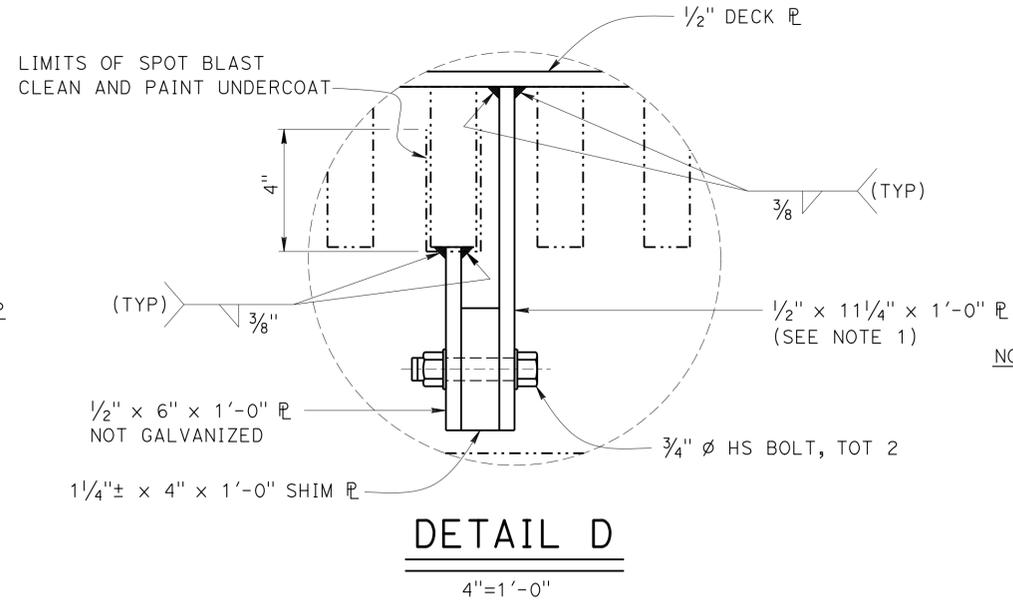
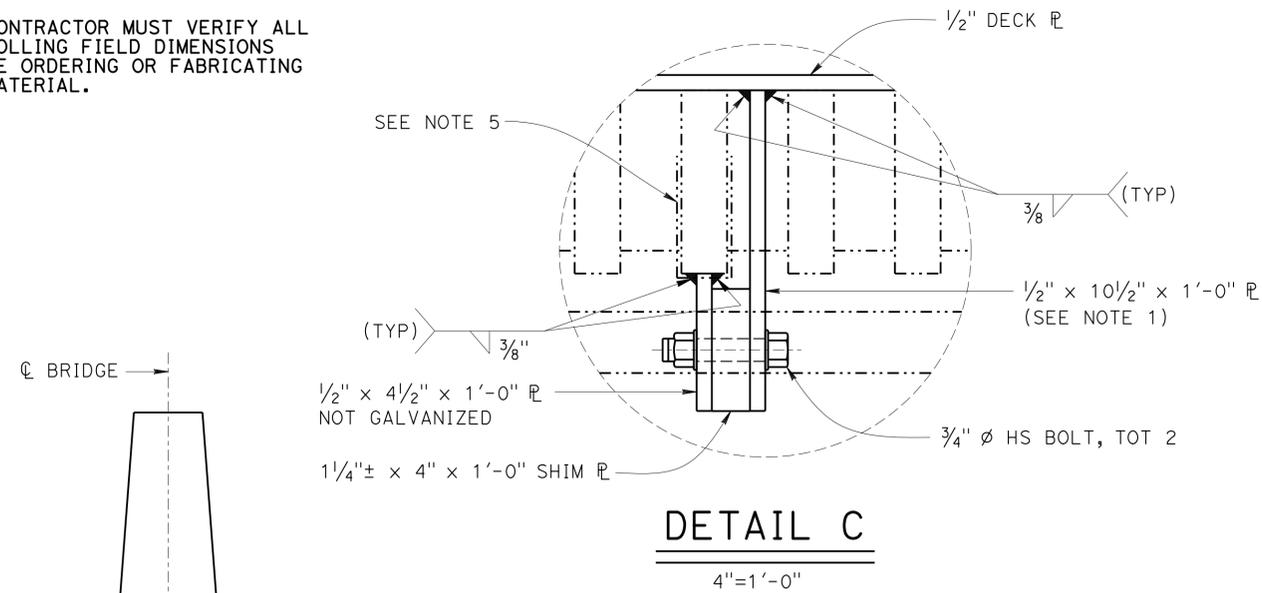
NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN BY F. Zayati CHECKED B. Addiespurger DETAILS BY F. Zayati CHECKED B. Addiespurger QUANTITIES BY F. Zayati CHECKED M. Okimura	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 14	BRIDGE NO. 53-1471	VINCENT THOMAS BRIDGE RETROFIT CABLE BENT EXPANSION JOINT DETAILS No. 1
			POST MILE 0.86	
			UNIT: 3613 PROJECT NUMBER & PHASE: 07120000761 CONTRACT NO.: 07-290704	

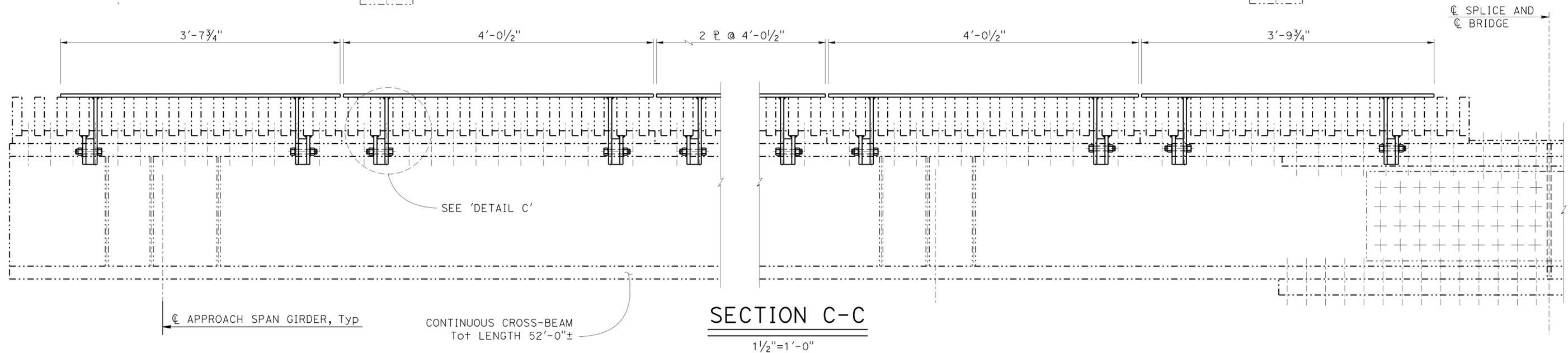
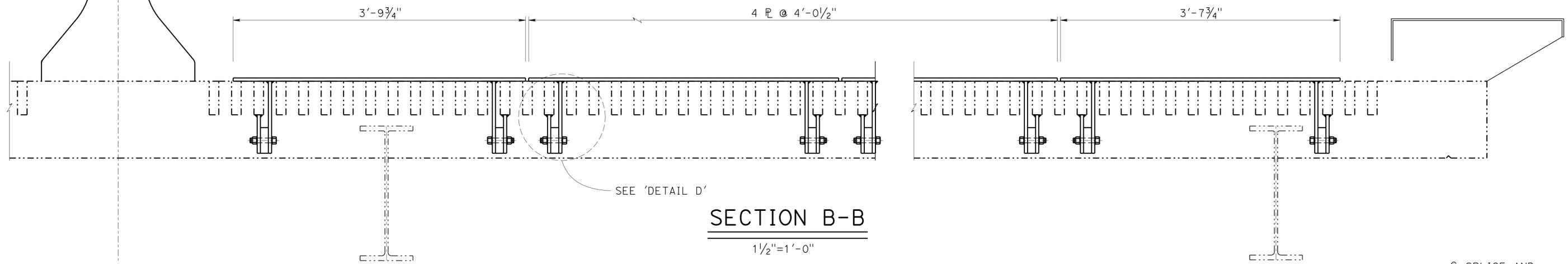
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3 1"=1'-0"	DISREGARD PRINTS BEARING EARLIER REVISION DATES REVISION DATES: 09-02-14, 03-05-15, 01-06-15, 01-13-15 SHEET 12 OF 22
----------------------------------------------------------	--------------------------------------------	---------------------	-----------------------------------------------------------------------------------------------------------------------------

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	29	38
<i>Foued Zayati</i> REGISTERED CIVIL ENGINEER			2-6-15 DATE		
6-29-15 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.</small>					



- NOTES:
1. Use long slotted holes, vertically slotted.
 2. Symmetric about C Bridge.
 3. For location of 'SECTION B-B' and 'SECTION C-C', see 'CABLE BENT EXPANSION JOINT No. 1' sheet.
 4. Location of deck plate breaks to match edges of finger joint units.
 5. For limits of spot blast clean and paint undercoat and clean and paint, see 'TOWER EXPANSION JOINT DETAILS No. 2' sheet



DESIGN	BY F. Zayati	CHECKED B. Addiespurger
DETAILS	BY F. Zayati	CHECKED B. Addiespurger
QUANTITIES	BY F. Zayati	CHECKED M. Okimura

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 14

BRIDGE NO.	53-1471
POST MILE	0.86

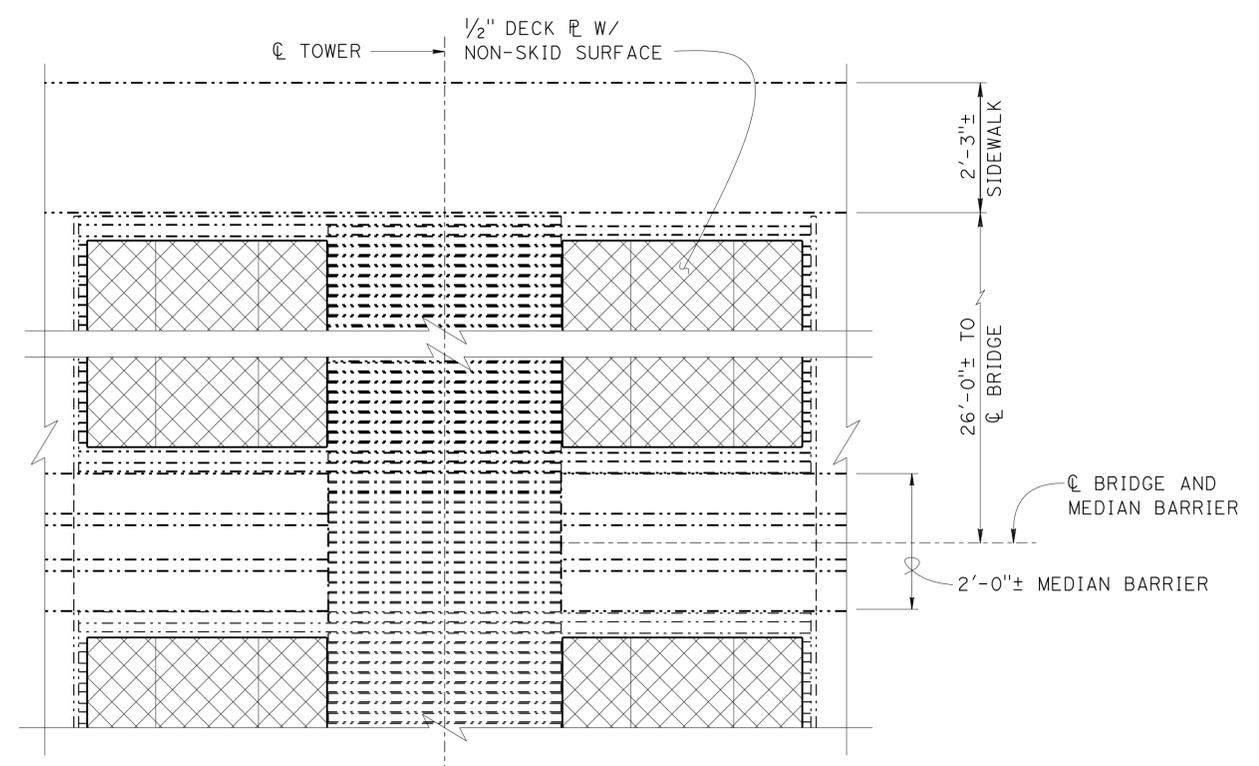
VINCENT THOMAS BRIDGE RETROFIT
CABLE BENT EXPANSION JOINT DETAILS No. 2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	30	38

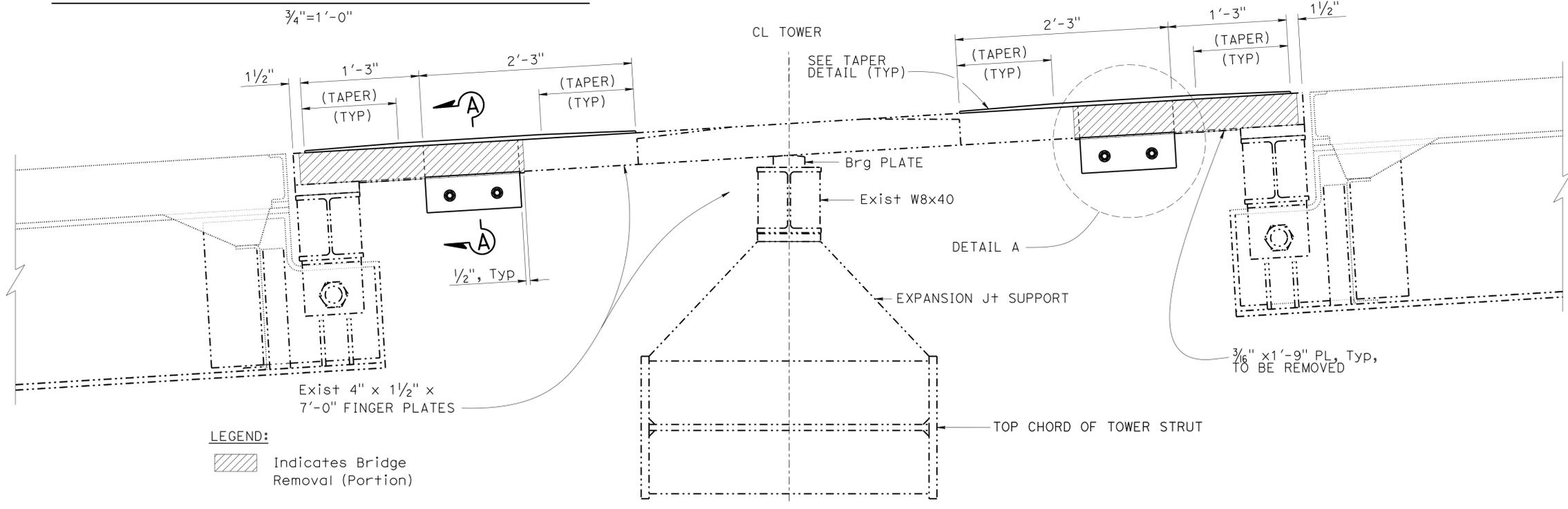
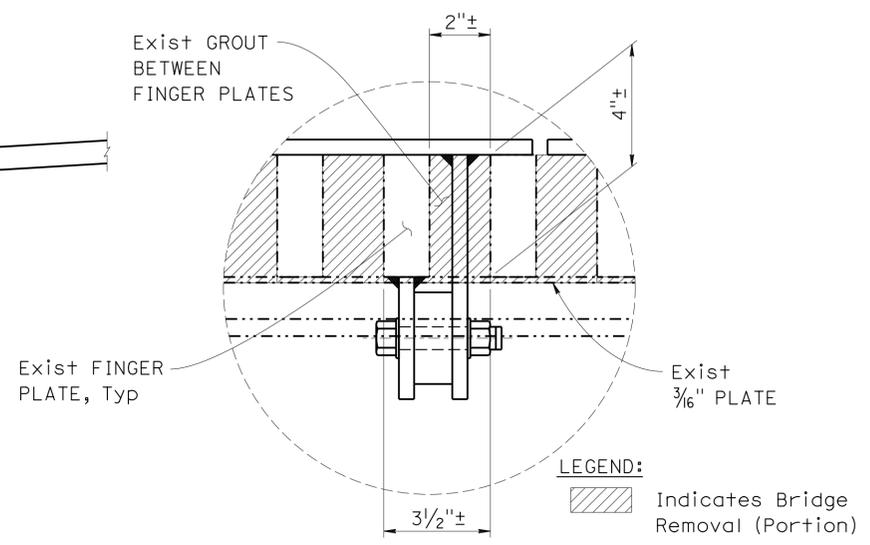
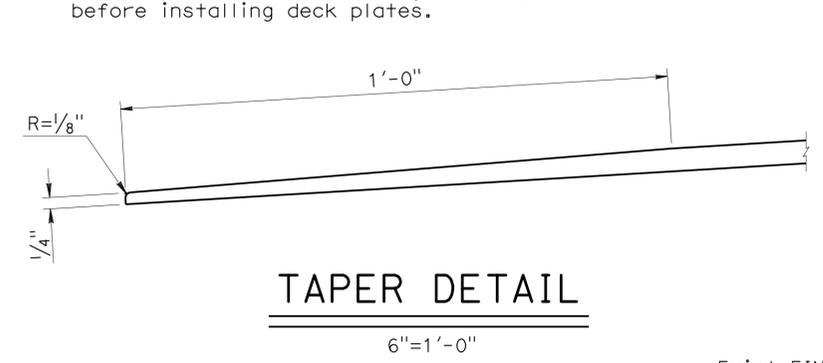
Foued Zayati
 REGISTERED CIVIL ENGINEER 2-6-15 DATE
 6-29-15
 PLANS APPROVAL DATE
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NOTES:

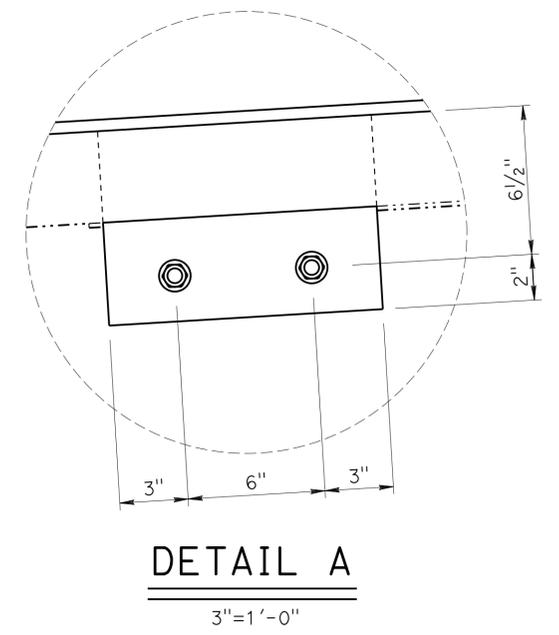
1. East Tower shown, West Tower similar.
2. Use 3/8" Tungsten-Carbide weld beads for deck plate non skid surface.
3. Remove existing non-skid surface deformations on top of fingers within new deck plate area.
4. For SECTION A-A, see "TOWER EXPANSION JOINT DETAILS NO. 2" sheet.
5. All new steel on this sheet is Miscellaneous Metal (Bridge).
6. Spot blast, clean and paint joint fingers with zinc rich primer, before installing deck plates.



EXPANSION JOINT - PARTIAL PLAN



EXPANSION JOINT - ELEVATION



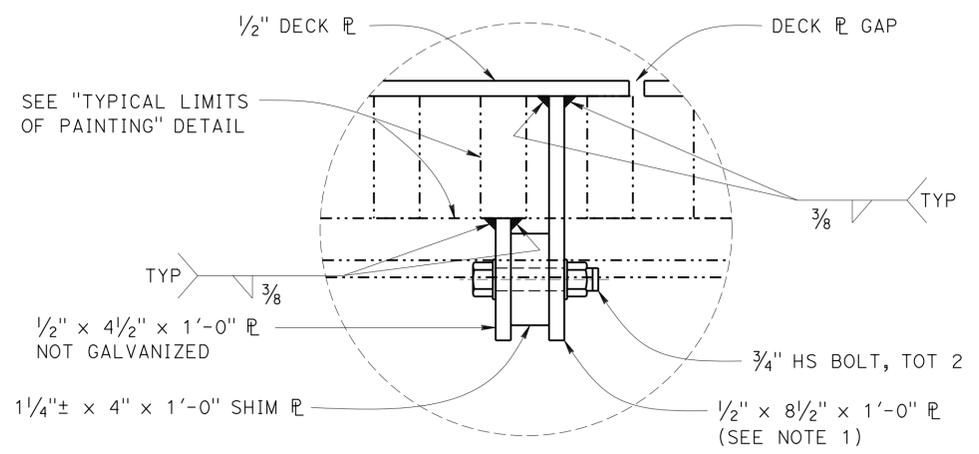
NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN BY F. Zayati	CHECKED B. Addiespurger	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 14	BRIDGE NO. 53-1471	VINCENT THOMAS BRIDGE RETROFIT TOWER EXPANSION JOINT DETAILS NO. 1
DETAILS BY F. Zayati	CHECKED B. Addiespurger			POST MILE 0.86	
QUANTITIES BY F. Zayati	CHECKED M. Okimura				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3 UNIT: 3613 PROJECT NUMBER & PHASE: 07120000761 CONTRACT NO.: 07-290704 DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
03-19-15 01-06-15 1-13-15 3-15-15	14	22

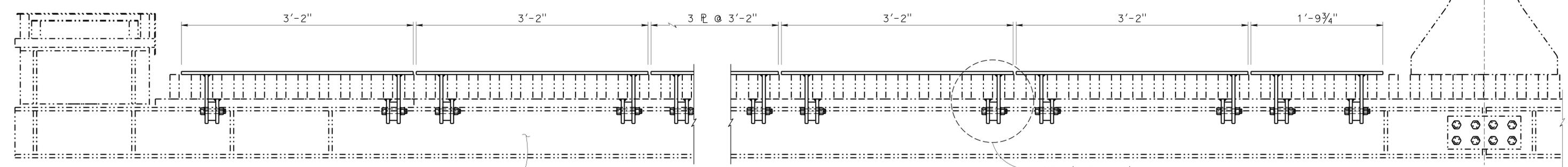
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	31	38
<i>Foued Zayati</i> REGISTERED CIVIL ENGINEER			2-6-15 DATE		
6-29-15 PLANS APPROVAL DATE			<i>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.</i>		



DETAIL B
4"=1'-0"

NOTES:

1. Use long slotted holes, vertically slotted.
2. Section A-A is symmetric about C Bridge.
3. For location of 'SECTION A-A', see "TOWER EXPANSION JOINT DETAILS No. 1" sheet.
4. Location of deck plate gaps to match edges of finger joint units.



SECTION A-A
NO SCALE

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

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY F. Zayati	CHECKED B. Addlespurger	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 14	BRIDGE NO.	VINCENT THOMAS BRIDGE RETROFIT TOWER EXPANSION JOINT DETAILS NO. 2			
	DETAILS	BY F. Zayati	CHECKED B. Addlespurger			53-1471				
	QUANTITIES	BY F. Zayati	CHECKED F. Zayati			POST MILE 0.86				
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					UNIT: 3613 PROJECT NUMBER & PHASE: 07120000761	CONTRACT NO.: 07-290704	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 3-5-15, 01-06-15, 1-14-15	SHEET 15	OF 22

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	32	38

Christopher M. Faria 02-27-15
 REGISTERED MECHANICAL ENGINEER DATE

6-29-15
 PLANS APPROVAL DATE

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PLUMBING

	Cold water
	Compressed air
	GAS
	Equipment drain
	Fire water
	Hot water
	Hot water return
	Liquified petroleum gas
	Relief valve discharge pipe
	Sanitary sewer
	Sanitary sewer (above grade)
	Sanitary sewer (below grade)
	Sanitary sewer vent

PIPE FITTINGS AND VALVES

	Cap, threaded
	Elbow, turned down
	Elbow, turned up
	Reducer, concentric
	Pressure gauge (with valve and snubber)
	Strainer
	Union
	Union, insulating
	Valve, ball
	Valve, check
	Valve, gate
	Valve, safety relief
	Valve, pressure reducing
	Valve, pressure/temperature relief
	Water hammer arrestor

MECHANICAL ABBREVIATIONS

A/C	Air Conditioning	H	Height
ABS	Acrylonitrile Butadiene Styrene	HB	Hydrant Box
AC	Air Compressor	H/C	Hot Water, High Pressure Cleaner
AD	Air Drop	HF	Hose Faucet
AP	Alternative Pipe	HVAC	Heating, Ventilating And Air Conditioning
ATF	Automatic Transmission Fluid	HW	Hot Water
AWG	American Wire Gauge	HZ	Hertz
BH	Box Hydrant	ID	Inside Diameter
Bldg	Building	IE	Invert Elevation
BTU	British Thermal Unit	IN	Inch
BTUH	British Thermal Unit Per Hour	IVF	Industrial Ventilation Fan
BV	Balancing Valve	KS	Kitchen Sink
CHLF	Combination Heat/Light/Fan Unit	LAV	Lavatory
CFS	Cold Form Steel	LIRH	Low Intensity Radiant Heater
CFM	Cubic Feet Per Minute	MAX	Maximum
CI	Cast-Iron	MAN	Manhole
CO	Cleanout	MIN	Minimum
COTF	Cleanout Through Floor	NIC	Not In Contract
COTG	Cleanout Through Grade	NO	Number
COTW	Cleanout To Wall	NPT	National Pipe Thread
CV	Check Valve	NST	National Standard Thread
CW	Cold Water	OA	Outside Air
D	Depth	OC	On Center
DB	Dry Bulb	OD	Outside Diameter
DF	Drinking Fountain	OG	Original Ground
DH	Duct Heater	PCC	Portland Cement Concrete
Dia	Diameter	PH	Phase
(E)	Existing	PRV	Pressure Reducing Valve
EC	Evaporative Cooler	PSI	Pounds Per Square Inch
EEW	Emergency Eyewash And Shower	PVC	Polyvinyl Chloride
EF	Exhaust Fan	R	Radius
EI	Elevation	Reg	Register
EWC	Electric Water Cooler	RA	Return Air
EEHF	Exhaust Evacuation Hose Reel and Fan	RCP	Reinforced Concrete Pipe
FC	Flexible Connection	REG	Required
FD	Floor Drain	RH	Radiant Heater
FDC	Fire Department Connection	RV	Relief Valve
FE	Fire Extinguisher	S/S	Service Sink
FG	Finish Grade	SA	Supply Air
FH	Fire Hydrant	SCH	Schedule
FEF	Fume Exhaust Fan	SDS	Sanitary Dump Station
FOTC	Freestanding Overhead Travelling Crane	SF	Supply Fan
GA	Gauge	SHR	Shower
GALV	Galvanized	SP	Static Pressure
GLV	Globe Valve	SS	Sanitary Sewer
GPM	Gallons Per Minute	STA	Station
GSP	Galvanized Steel Pipe	STD	Standard
GV	Gate Valve		
GWH	Gas Water Heater		
GYP	Gypsum		

TCV	Temperature Control Valve
TOT	Total
TS	Time Switch
TYP	Typical
UH	Unit Heater
UR	Urinal
V	Volt
VAC	Voltage, Alternating Current
VR	Vent Riser
VTR	Vent Thru Roof
W	Width
W/	With
W/O	Without
WD	Water Drop
WC	Water Closet
W.C.	Water Column
WH	Water Heater
WHA	Water Hammer Arrestor
WLS	Water Level Switch
Wp	Weatherproof
WS	Wash Sink
WSP	Welded Steel Pipe

HEATING, VENTILATING AND AIR CONDITIONING

	Balance damper
	Flexible duct
	Exhaust air
	Outside air
	Return air
	Supply air
	Exhaust register
	Return register
	Supply diffuser
	Thermostat
	Time switch
	Motorized zone damper
	Three wire test station
	Exhaust fan
	Fire extinguisher

MISCELLANEOUS

L	Angle
Ⓞ	Centerline
∅	Diameter
	Section / elevation letter
	Sheet number
	Detail number
	Sheet number

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DESIGN BY	Chris Faria	CHECKED	Jack Wheeler	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE No.	53-1471	VINCENT THOMAS BRIDGE RETROFIT LEGENDS AND ABBREVIATIONS	SHEET	OF	
DETAILS BY	Angela Chen	CHECKED	Jack Wheeler			POST MILE	.86		REVISION DATES (PRELIMINARY STAGE ONLY) 10-28-14 2-23-15 2-27-15	16	22
QUANTITIES BY	Chris Faria	CHECKED	Jack Wheeler			UNIT: 3615 CONTRACT No.: 07-290704 PROJECT NUMBER & PHASE: 07120000761	DISREGARD PRINTS BEARING EARLIER REVISION DATES			16	22

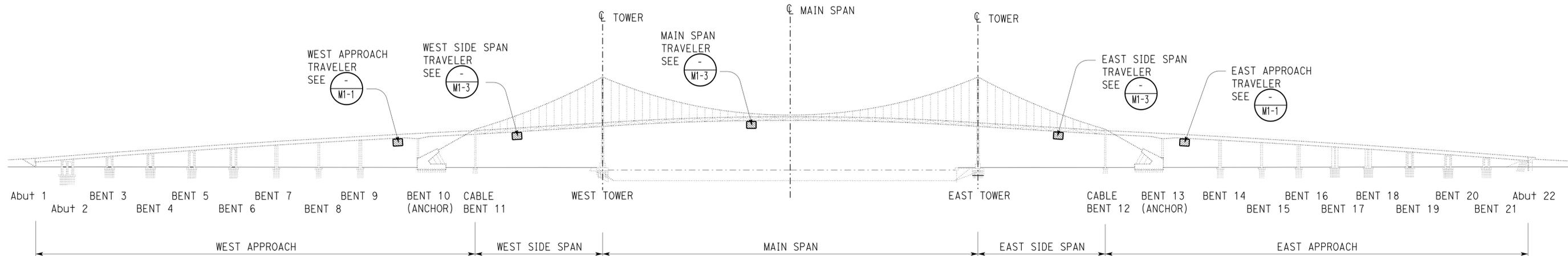
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	33	38

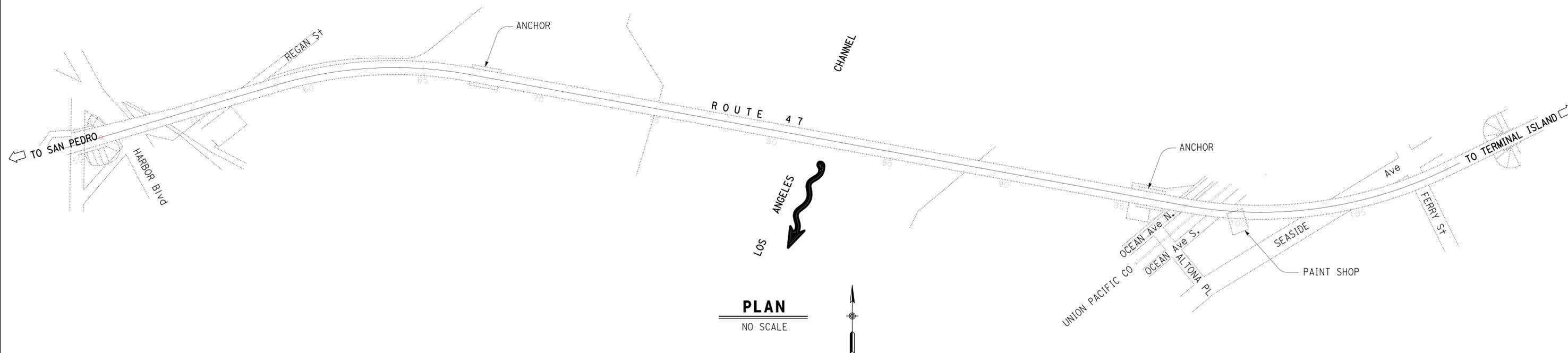
Christopher M. Faria 02-27-15
REGISTERED MECHANICAL ENGINEER DATE
6-29-15
PLANS APPROVAL DATE



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ELEVATION
NO SCALE



PLAN
NO SCALE

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 DESIGN SUPERVISOR DESIGN ENGINEER	DESIGN BY Chris Faria	CHECKED Jack Wheeler	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE No. 53-1471	VINCENT THOMAS BRIDGE RETROFIT MECHANICAL SITE PLAN	SHEET M0-1 OF 22
	DETAILS BY Angela Chen	CHECKED Jack Wheeler			POST MILE .86		
	QUANTITIES BY Chris Faria	CHECKED Jack Wheeler	UNIT: 3615 CONTRACT No.: 07-290704	PROJECT NUMBER & PHASE: 07120000761	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY) 10-28-14 2-23-15 2-27-15	SHEET 17 OF 22



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	34	38

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TRAVELLER	SERVICE DRIVE TROLLEY		REMOVE BRAKES		PROVIDE NEW BRAKES		REPLACE CONTROL ENCLOSURE		REPLACE CONTROL VALVES		REPLACE WINCH	
	ACTION	QUANTITY	ACTION	QUANTITY	ACTION	QUANTITY	ACTION	QUANTITY	ACTION	QUANTITY	ACTION	QUANTITY
MAIN SPAN	YES	4	YES	2	YES	4	YES	2	NO	-	NO	-
EAST SIDE SPAN	YES	4	YES	2	YES	4	YES	2	NO	-	NO	-
WEST SIDE SPAN	YES	4	NO	-	NO	-	YES	2	YES	4	NO	-
EAST APPROACH	YES	4	NO	-	NO	-	NO	-	NO	-	YES	2
WEST APPROACH	YES	4	NO	-	NO	-	NO	-	NO	-	YES	2

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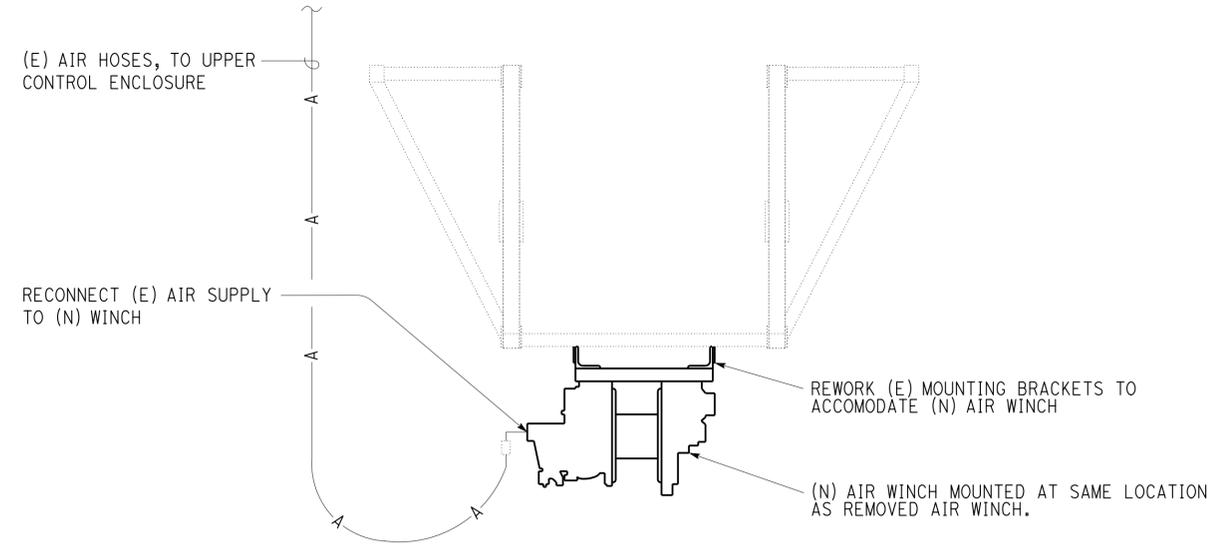
DESIGN BY Chris Faria CHECKED Jack Wheeler DETAILS BY Angela Chen CHECKED Jack Wheeler QUANTITIES BY Chris Faria CHECKED Jack Wheeler	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE No.	VINCENT THOMAS BRIDGE RETROFIT TRAVELER WORK SCHEDULE	SHEET M0-2
			53-1471		
			POST MILE .86		
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	UNIT: 3615 CONTRACT No.: 07-290704 PROJECT NUMBER & PHASE: 07120000761	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY) 10-28-14 2-23-15 2-27-15	SHEET OF 18 22	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	35	38

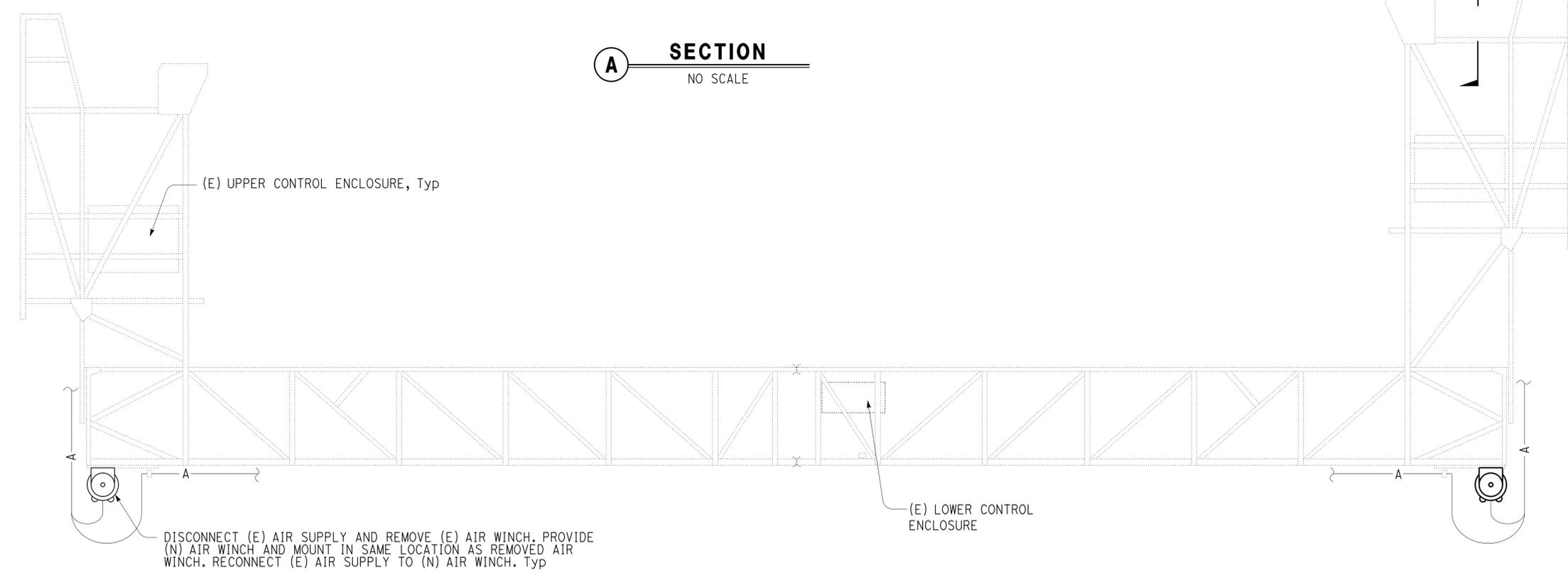
Christopher M. Faria 02-27-15
REGISTERED MECHANICAL ENGINEER DATE
6-29-15
PLANS APPROVAL DATE



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A SECTION
NO SCALE



ELEVATION
NO SCALE

Notes:

1. Refer to Traveler Work Schedule for work at each traveler.
2. The new air winch must be configured by the manufacturer for upside down mounting.

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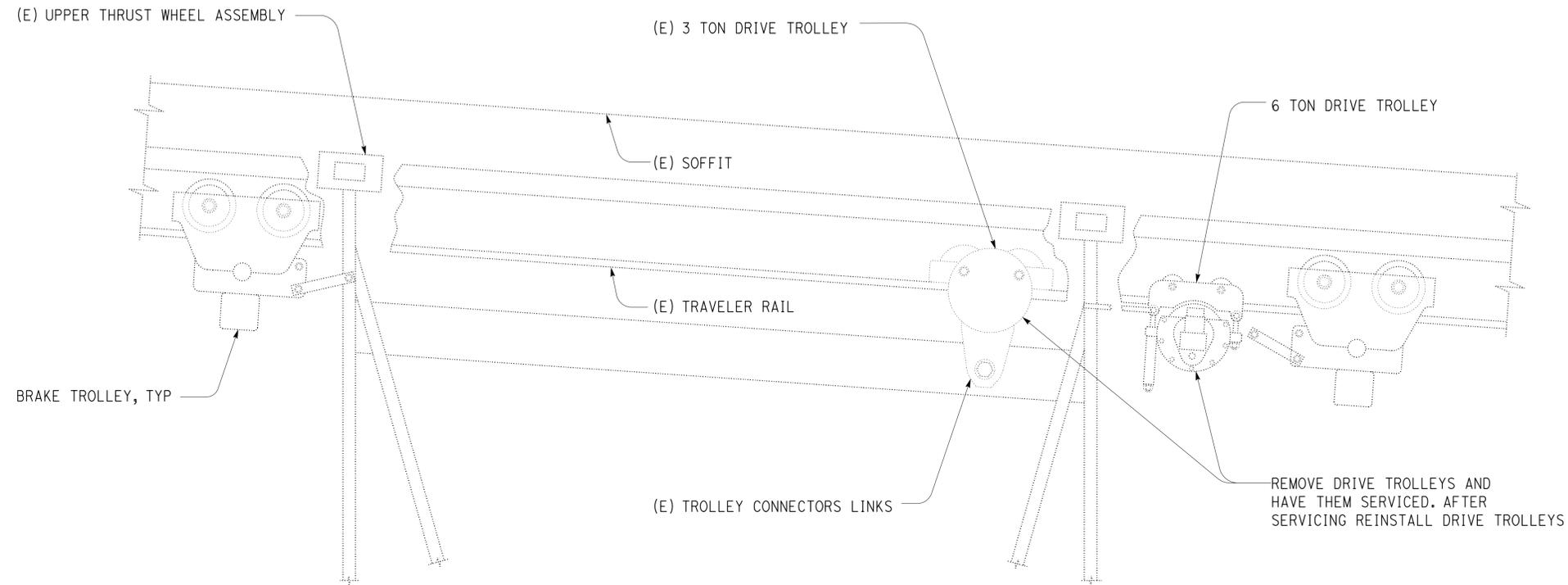
DESIGN BY Chris Faria	CHECKED Jack Wheeler	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE No.	VINCENT THOMAS BRIDGE RETROFIT	SHEET OF M1-1	
				53-1471			
				POST MILE .86			
DETAILS BY Angela Chen	CHECKED Jack Wheeler	UNIT: 3615 CONTRACT No.: 07-290704 PROJECT NUMBER & PHASE: 07120000761	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)			SHEET OF 19 22
QUANTITIES BY Chris Faria	CHECKED Jack Wheeler			10-28-14	2-23-15	2-27-15	
TAEWW Imperial - CCSC Rev. 01/13		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	C:\Users\vs122751\Desktop\Temp\53-1471_v_m1_1.dgn			

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	36	38

Christopher M. Faria 02-27-15
REGISTERED MECHANICAL ENGINEER DATE
6-29-15
PLANS APPROVAL DATE



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SECTION
NO SCALE

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DESIGN BY Chris Faria	CHECKED Jack Wheeler	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE No.	VINCENT THOMAS BRIDGE RETROFIT EAST AND WEST APPROACH TRAVELER SECTION	SHEET M1-2
				53-1471		
				POST MILE .86		
DETAILS BY Angela Chen	CHECKED Jack Wheeler	UNIT: 3615 CONTRACT No.: 07-290704	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY) 10-28-14 2-23-15 2-27-15		SHEET OF 20 22
QUANTITIES BY Chris Faria	CHECKED Jack Wheeler	PROJECT NUMBER & PHASE: 07120000761				

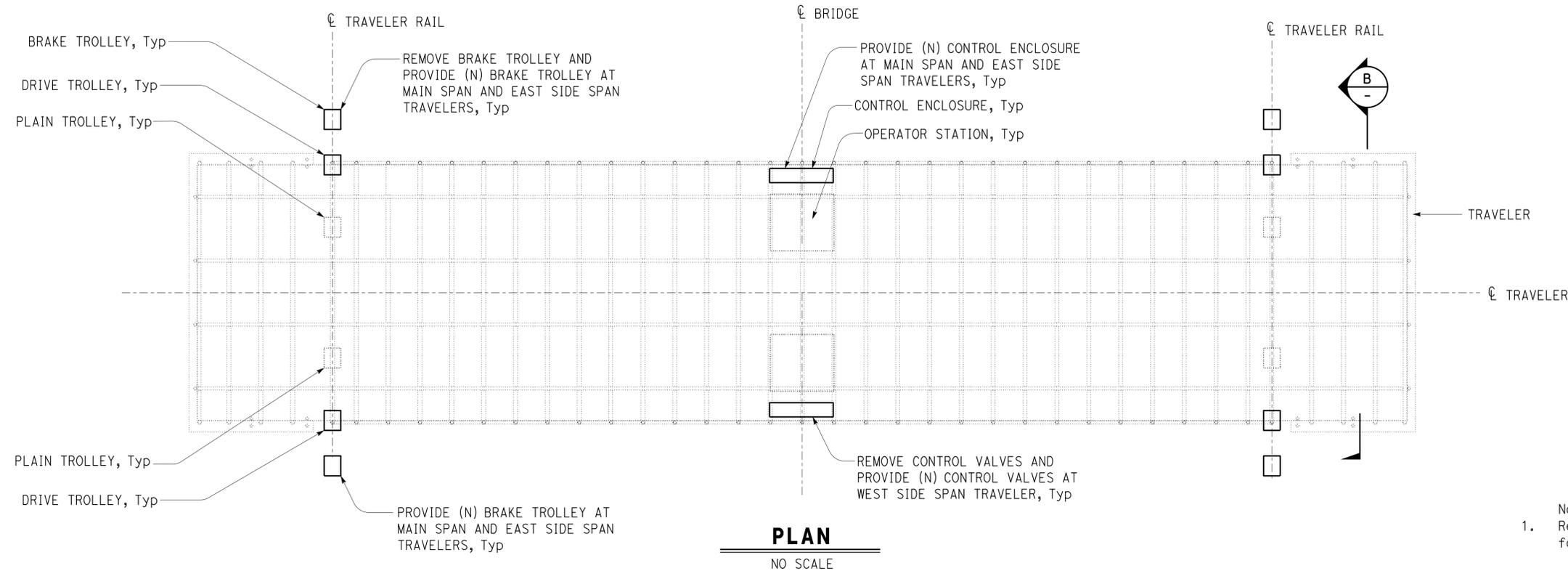


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	37	38

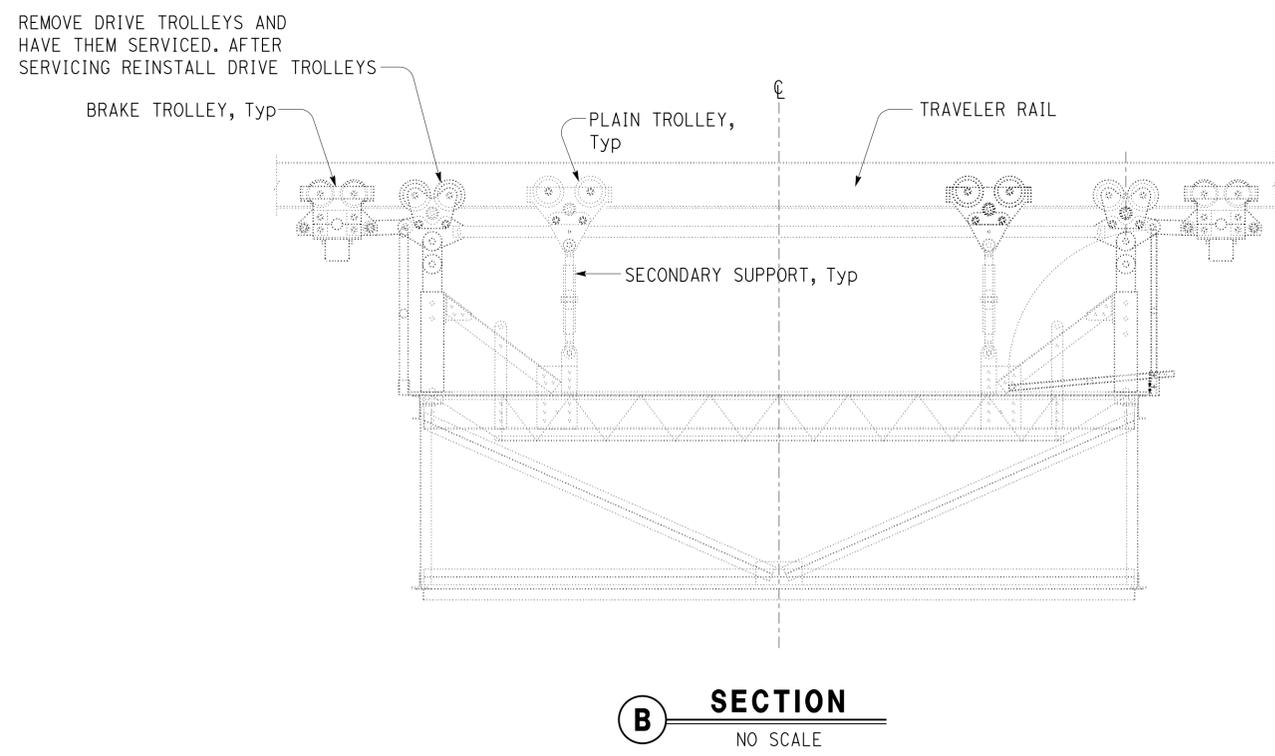
Christopher M. Faria 02-27-15
REGISTERED MECHANICAL ENGINEER DATE

6-29-15
PLANS APPROVAL DATE

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Note:
1. Refer to Traveler Work Schedule for work at each traveler.



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DESIGN BY Chris Faria	CHECKED Jack Wheeler	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE No. 53-1471	VINCENT THOMAS BRIDGE RETROFIT MAIN, EAST SIDE, AND WEST SIDE SPAN TRAVELERS	SHEET M1-3
				POST MILE .86		
DETAILS BY Angela Chen	CHECKED Jack Wheeler	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	UNIT: 3615 CONTRACT No.: 07-290704 PROJECT NUMBER & PHASE: 07120000761	DISREGARD PRINTS BEARING EARLIER REVISION DATES		SHEET OF 21 22
QUANTITIES BY Chris Faria	CHECKED Jack Wheeler			REVISION DATES (PRELIMINARY STAGE ONLY)	10-28-14	

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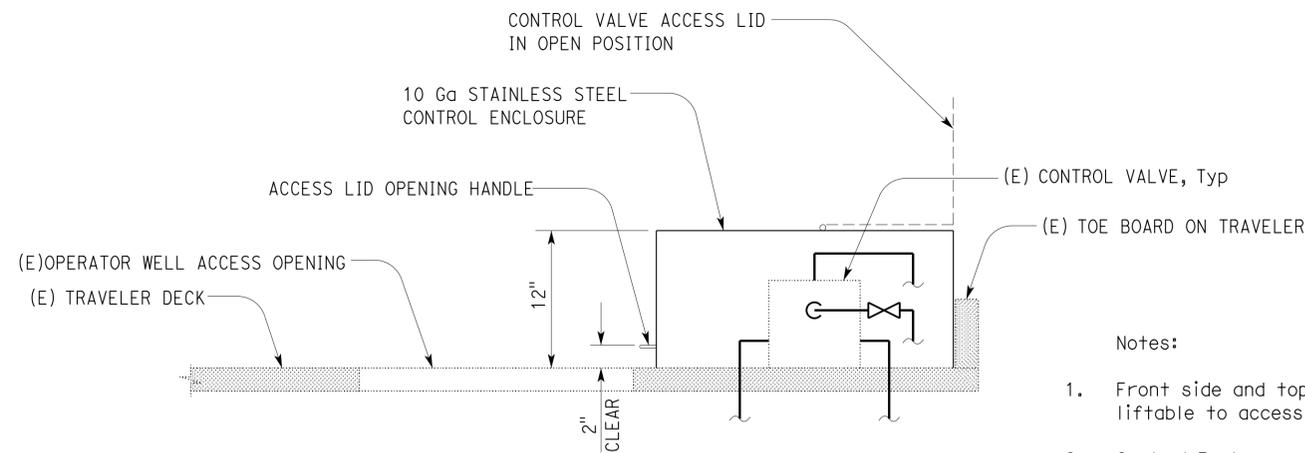
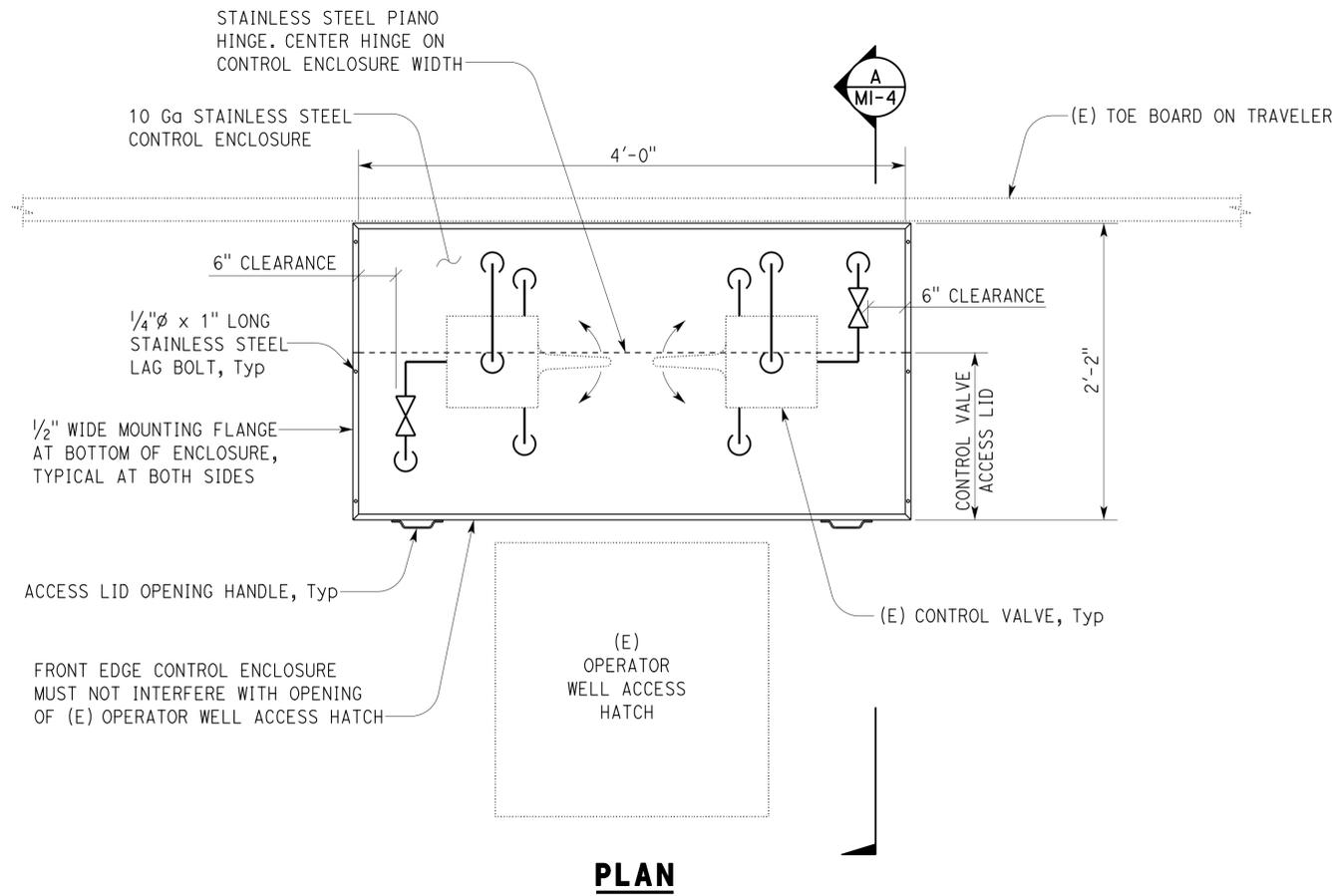
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	47	0.9/2.0	38	38

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A SECTION

CONTROL ENCLOSURE-EXISTING VALVES

1/2" = 1'-0"

Notes:

1. Front side and top of control enclosure (up to hinge) must be liftable to access control valves.
2. Control Enclosure dimensions are approximate. Verify dimensions at each control valve station.
3. Provide 1/2" edge on side of control valve access lid to cover top and front of enclosure sides when access lid is closed.

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DESIGN BY Chris Faria	CHECKED Jack Wheeler	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE No. 53-1471	VINCENT THOMAS BRIDGE RETROFIT	SHEET M1-4
				POST MILE .86		
DETAILS BY Angela Chen	CHECKED Jack Wheeler	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	UNIT: 3615 CONTRACT No.: 07-290704 PROJECT NUMBER & PHASE: 07120000761	DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES (PRELIMINARY STAGE ONLY)
QUANTITIES BY Chris Faria	CHECKED Jack Wheeler			10-28-14	2-23-15	2-27-15