Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	1	43

STATE OF CALIFORNIA **ACHSSTPH-X065(090)E**

DEPARTMENT OF TRANSPORTATION

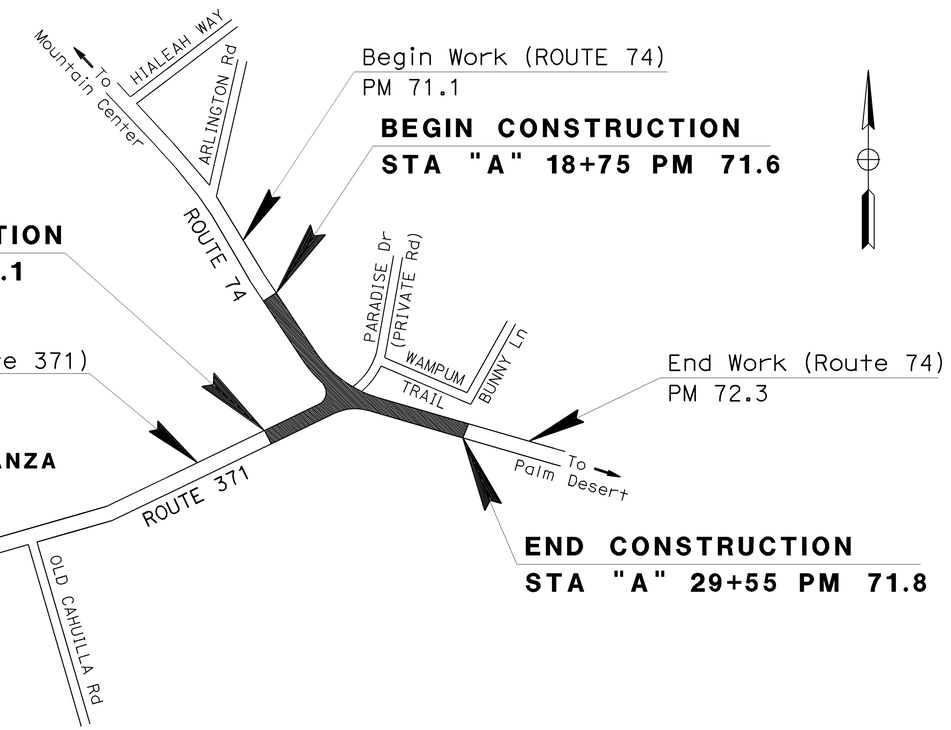
PROJECT PLANS FOR CONSTRUCTION ON

STATE HIGHWAY

IN RIVERSIDE COUNTY
NEAR ANZA
ON ROUTE 74
FROM 1.5 MILES SOUTH OF BULL CANYON ROAD
TO 2.1 MILES NORTH OF THOMAS MOUNTAIN ROAD
AND ON ROUTE 371
AT THE ROUTE 74/371 JUNCTION

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

LOCATION MAP



NO SCALE

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-4	TYPICAL CROSS SECTIONS
5	LAYOUT PLAN
6	CONSTRUCTION DETAILS
7	TEMPORARY WATER POLLUTION CONTROL PLAN
8	EROSION CONTROL PLAN
9	CONTOUR GRADING PLAN
10	DRAINAGE PLAN
11	DRAINAGE PROFILES
12-15	DRAINAGE DETAILS
16	DRAINAGE QUANTITIES
17	UTILITY PLAN
18	CONSTRUCTION AREA SIGNS
19-26	STAGE CONSTRUCTION AND TRAFFIC HANDLING PLANS
27	STAGE CONSTRUCTION AND TRAFFIC HANDLING QUANTITIES
28-30	PAVEMENT DELINEATION PLANS
31	PAVEMENT DELINEATION QUANTITIES
32	SIGN PLAN
33-34	SIGN QUANTITIES
35	SUMMARY OF QUANTITIES
36-43	REVISED STANDARD PLANS

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

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

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

CONSULTANT DESIGN ENGINEER: WILLIAM NASCIMENTO — REGISTRATION No.: C56288 — LICENSE EXP. DATE: 12/31/2010 — DATE SIGNED:

CALTRANS DESIGN OVERSIGHT APPROVAL: HAISSAM YAHYA

12-17-09
PROJECT ENGINEER DATE
REGISTERED CIVIL ENGINEER

March 01, 2010
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — MARK GONZALEZ — No. 73897 — Exp. 6-30-11 — 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.

LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

CONTRACT No. **08-0L7804**

LAST REVISION: 12-17-09
DATE PLOTTED => 25-FEB-2010
TIME PLOTTED => 11:22

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	2	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ No. 73897 Exp. 6-30-11 CIVIL
REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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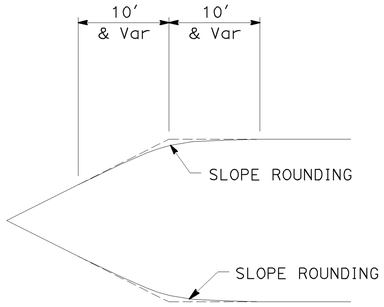
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTES:

1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY ENGINEER.



SLOPE ROUNDING DETAIL
(TYPICAL)

PAVEMENT STRUCTURAL SECTIONS

A
0.50′ HMA (TYPE A)
0.85′ CLASS 2 AB

B
0.15′ COLD PLANE ASPHALT CONCRETE
0.15′ HMA (TYPE A) OVERLAY

1
Exist
0.42′ AC
0.50′ CLASS 2 AB

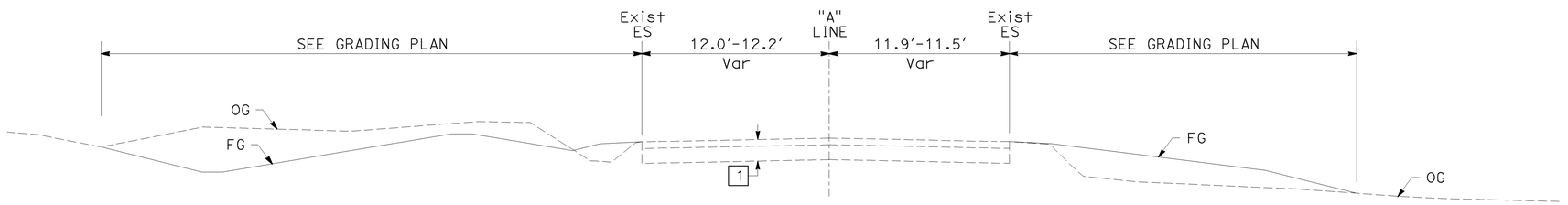
2
Exist
0.10′ RHMA-O
0.36′ AC
0.50′ CLASS 2 AB

DESIGN DESIGNATION (ROUTE 74)

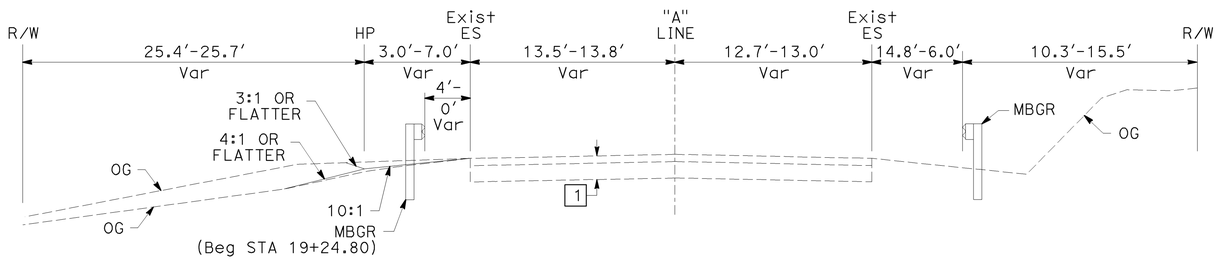
ADT (2008)	3,600	D	80%
ADT (2028)	6,600	T	3%
DHV	650	V	60 mph
ESAL	644,073	TI_{20}	8.5

DESIGN DESIGNATION (ROUTE 371)

ADT (2008)	3,900	D	72%
ADT (2028)	7,200	T	3%
DHV	860	V	60 mph
ESAL	605,485	TI_{20}	8.5



ROUTE 74
STA "A" 29+25.00 TO 29+55.00



WB ROUTE 74
STA "A" 18+90.66 TO 20+00.00

EB ROUTE 74
STA "A" 18+75.73 TO 20+00.00

TYPICAL CROSS SECTIONS

NO SCALE

X-1

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:22

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: MARK GONZALEZ
CHECKED BY: KEEN POONG
REVISED BY | DATE REVISED

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780ca001.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	3	43

12-17-09
REGISTERED CIVIL ENGINEER — DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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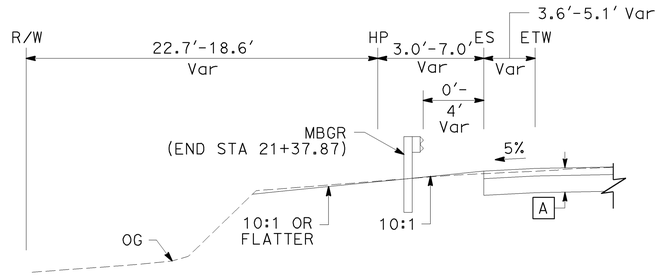
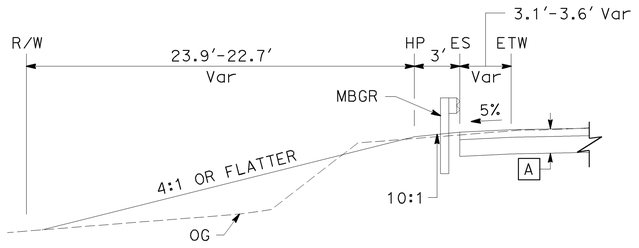
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408



STA "A" 20+77.00 TO 21+72.05



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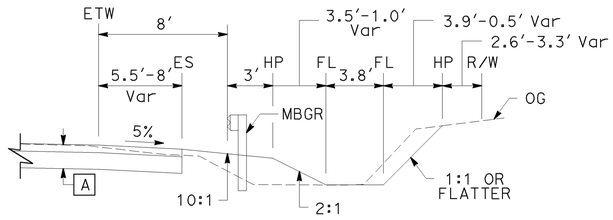

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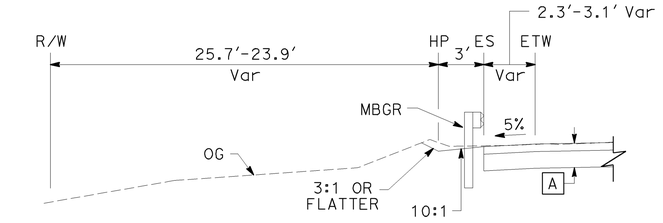

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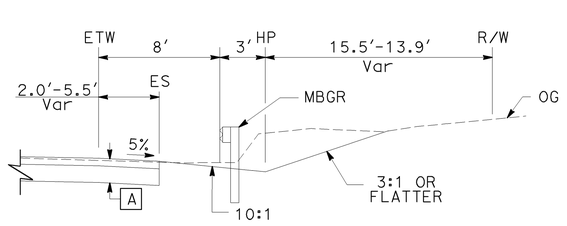

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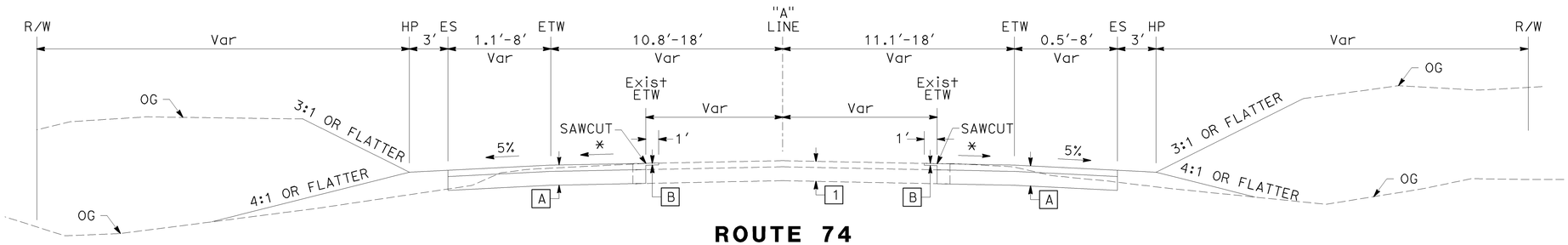

ROUTE 74

STA "A" 20+00.00 TO 29+25.00 **

* 2% OR MATCH SUPERELEVATION

** SEE SECTIONS ABOVE FOR VARYING END CONDITIONS AND CORRESPONDING STATION LIMITS

TYPICAL CROSS SECTIONS

NO SCALE

X-2

REVISED BY | DATE REVISED
MARK GONZALEZ | KEEN POONG
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR | MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:22

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	4	43

REGISTERED CIVIL ENGINEER — DATE 12-17-09

03-01-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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1887 BUSINESS CENTER DR
SUITE 6
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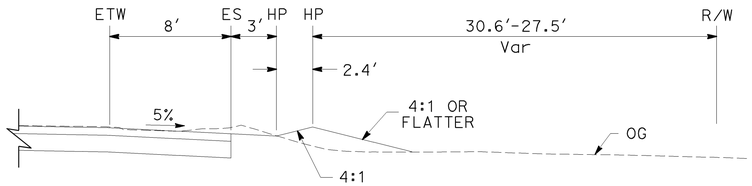
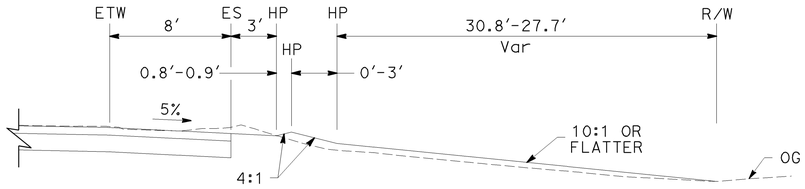
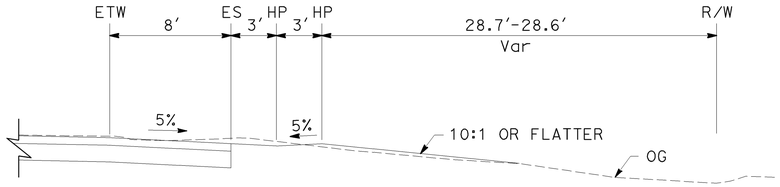


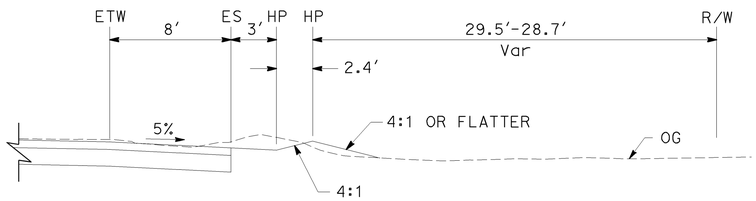
STA "B" 53+50.00 TO 55+05.00



STA "B" 53+15.00 TO 53+50.00



STA "B" 52+85.00 TO 53+15.00



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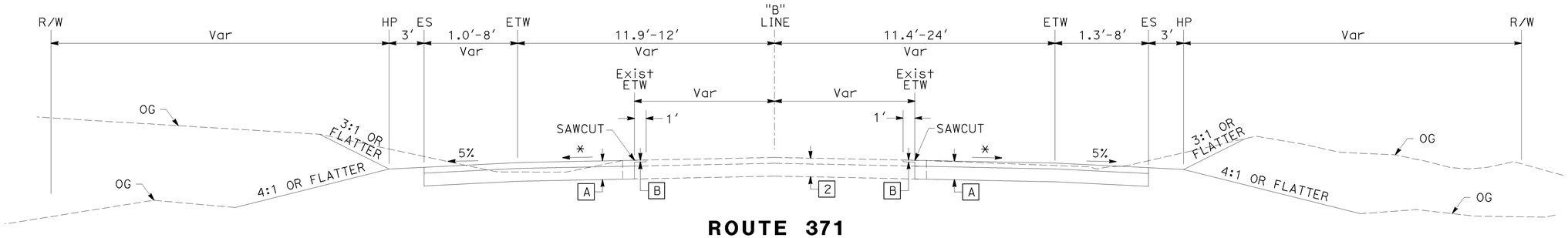

ROUTE 371

STA "B" 50+00.00 TO 56+16.25 **

* 2% OR MATCH SUPERELEVATION

** SEE SECTIONS ABOVE FOR VARYING END CONDITIONS AND CORRESPONDING STATION LIMITS

TYPICAL CROSS SECTIONS

NO SCALE

X-3

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12-17-09 | TIME PLOTTED => 11:22

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Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: MARK GONZALEZ
CHECKED BY: KEEN POONG

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => dmcbride
DGN FILE => 80L780ca003.dgn

CU 08367

EA 0L7801

NOTE:

FOR COMPLETE RIGHT OF WAY DATA,
SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

LEGEND

NEW ASPHALT PAVEMENT

NEW CONCRETE CROSS GUTTER

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	5	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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1887 BUSINESS CENTER DR
SUITE 6
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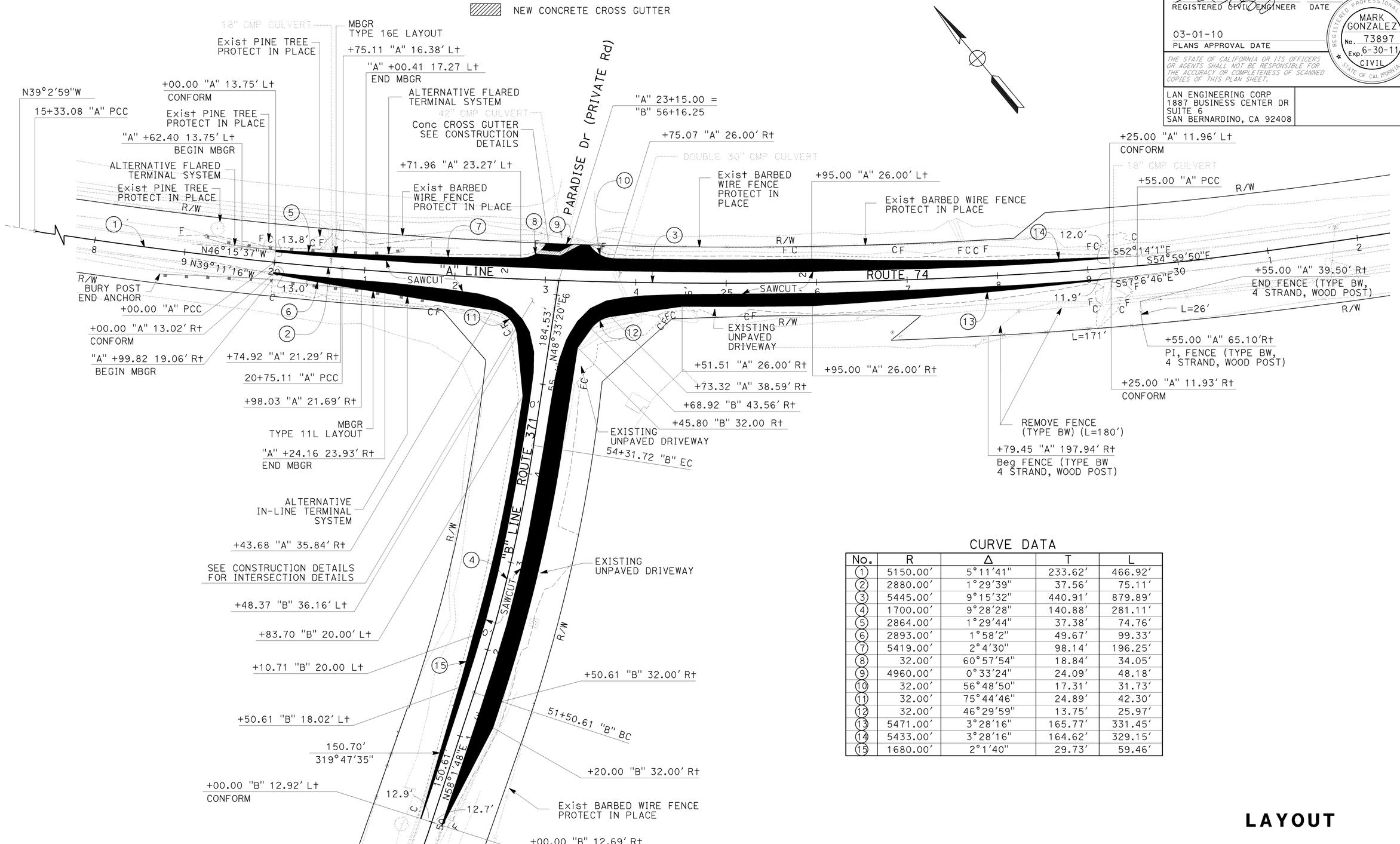

CURVE DATA

No.	R	Δ	T	L
1	5150.00'	5°11'41"	233.62'	466.92'
2	2880.00'	1°29'39"	37.56'	75.11'
3	5445.00'	9°15'32"	440.91'	879.89'
4	1700.00'	9°28'28"	140.88'	281.11'
5	2864.00'	1°29'44"	37.38'	74.76'
6	2893.00'	1°58'2"	49.67'	99.33'
7	5419.00'	2°4'30"	98.14'	196.25'
8	32.00'	60°57'54"	18.84'	34.05'
9	4960.00'	0°33'24"	24.09'	48.18'
10	32.00'	56°48'50"	17.31'	31.73'
11	32.00'	75°44'46"	24.89'	42.30'
12	32.00'	46°29'59"	13.75'	25.97'
13	5471.00'	3°28'16"	165.77'	331.45'
14	5433.00'	3°28'16"	164.62'	329.15'
15	1680.00'	2°1'40"	29.73'	59.46'

LAYOUT

SCALE: 1"=50'

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: KEEN POONG
CHECKED BY: MARK GONZALEZ
REVISED BY
DATE REVISED

LAST REVISION
DATE PLOTTED => 25-FEB-2010
TIME PLOTTED => 11:22
12-17-09

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780ea001.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	6	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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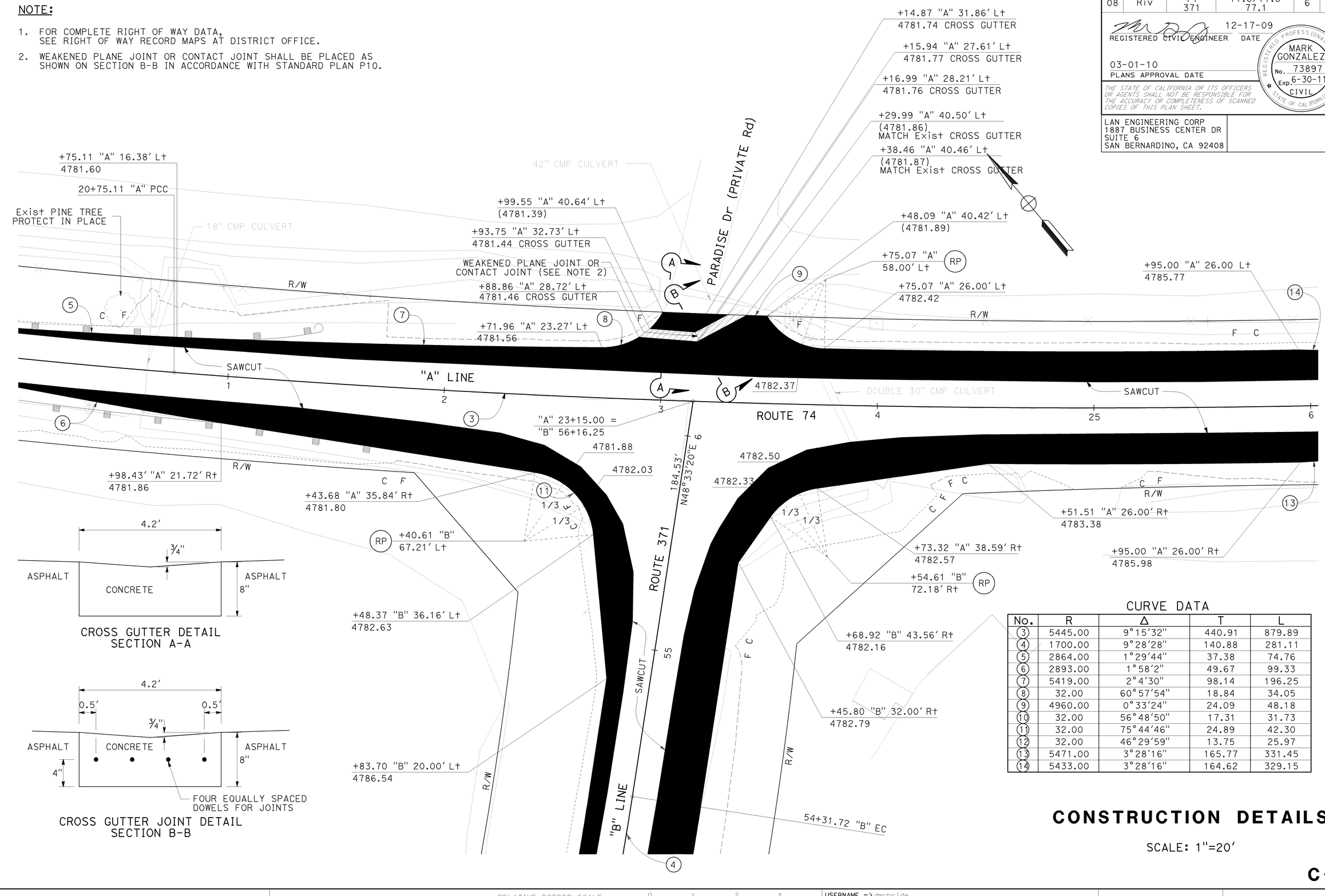
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTE:

1. FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
2. WEAKENED PLANE JOINT OR CONTACT JOINT SHALL BE PLACED AS SHOWN ON SECTION B-B IN ACCORDANCE WITH STANDARD PLAN P10.



CURVE DATA

No.	R	Δ	T	L
3	5445.00	9°15'32"	440.91	879.89
4	1700.00	9°28'28"	140.88	281.11
5	2864.00	1°29'44"	37.38	74.76
6	2893.00	1°58'2"	49.67	99.33
7	5419.00	2°4'30"	98.14	196.25
8	32.00	60°57'54"	18.84	34.05
9	4960.00	0°33'24"	24.09	48.18
10	32.00	56°48'50"	17.31	31.73
11	32.00	75°44'46"	24.89	42.30
12	32.00	46°29'59"	13.75	25.97
13	5471.00	3°28'16"	165.77	331.45
14	5433.00	3°28'16"	164.62	329.15

CONSTRUCTION DETAILS

SCALE: 1"=20'

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: MARK GONZALEZ
CHECKED BY: KEEN POONG
REVISED BY
DATE REVISED

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:22

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780ga001.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	7	43

REGISTERED CIVIL ENGINEER — DATE 12-17-09

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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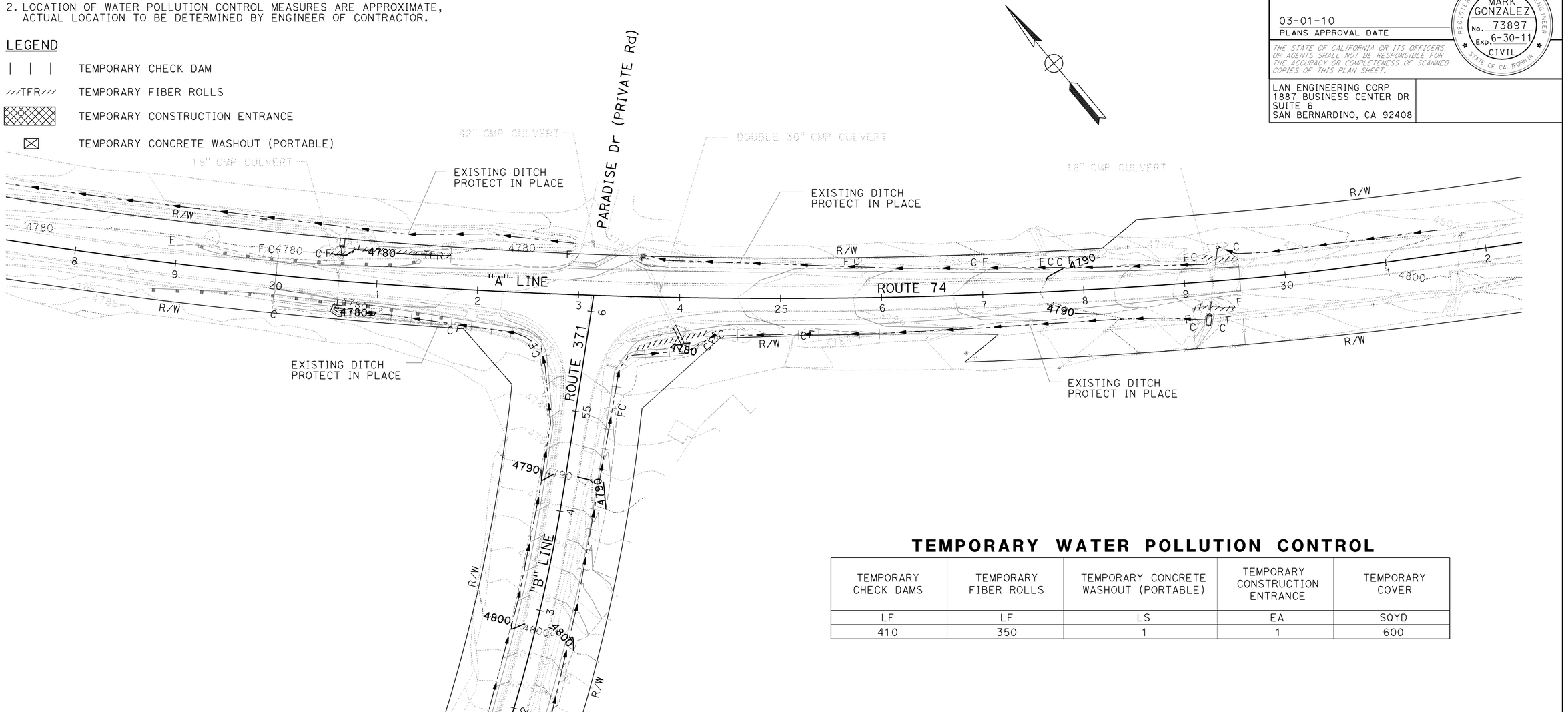
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTES:

1. FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
2. LOCATION OF WATER POLLUTION CONTROL MEASURES ARE APPROXIMATE, ACTUAL LOCATION TO BE DETERMINED BY ENGINEER OF CONTRACTOR.

LEGEND

| | |	TEMPORARY CHECK DAM
///TFR///	TEMPORARY FIBER ROLLS
	TEMPORARY CONSTRUCTION ENTRANCE
⊠	TEMPORARY CONCRETE WASHOUT (PORTABLE)



TEMPORARY WATER POLLUTION CONTROL

TEMPORARY CHECK DAMS	TEMPORARY FIBER ROLLS	TEMPORARY CONCRETE WASHOUT (PORTABLE)	TEMPORARY CONSTRUCTION ENTRANCE	TEMPORARY COVER
LF	LF	LS	EA	SQYD
410	350	1	1	600

TEMPORARY WATER POLLUTION CONTROL PLAN

SCALE: 1"=50'

WPC-1

REVISED BY | DATE REVISED
HENG CHOW | ROBERT WONG
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010 | TIME PLOTTED => 11:22
12-17-09

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => dmcbride | DGN FILE => 80L780gb001.dgn | CU 08367 | EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	8	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
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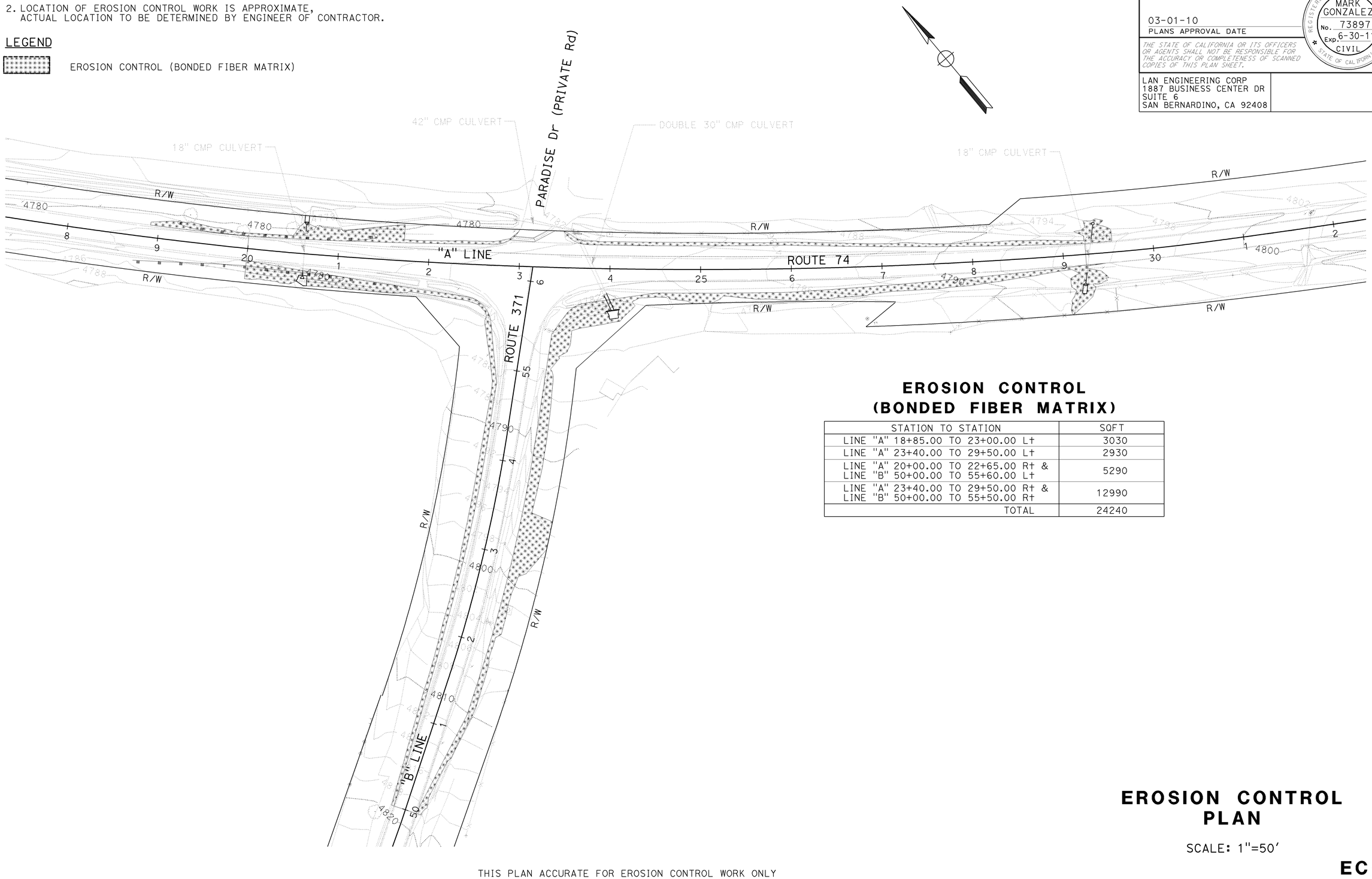
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTES:

1. FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
2. LOCATION OF EROSION CONTROL WORK IS APPROXIMATE, ACTUAL LOCATION TO BE DETERMINED BY ENGINEER OF CONTRACTOR.

LEGEND

EROSION CONTROL (BONDED FIBER MATRIX)



EROSION CONTROL (BONDED FIBER MATRIX)

STATION TO STATION	SQFT
LINE "A" 18+85.00 TO 23+00.00 Lt	3030
LINE "A" 23+40.00 TO 29+50.00 Lt	2930
LINE "A" 20+00.00 TO 22+65.00 Rt & LINE "B" 50+00.00 TO 55+60.00 Lt	5290
LINE "A" 23+40.00 TO 29+50.00 Rt & LINE "B" 50+00.00 TO 55+50.00 Rt	12990
TOTAL	24240

EROSION CONTROL PLAN

SCALE: 1"=50'

EC-1

THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY

REVISED BY | DATE REVISED
HENG CHOW | ROBERT WONG
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:22

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780ge001.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	9	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
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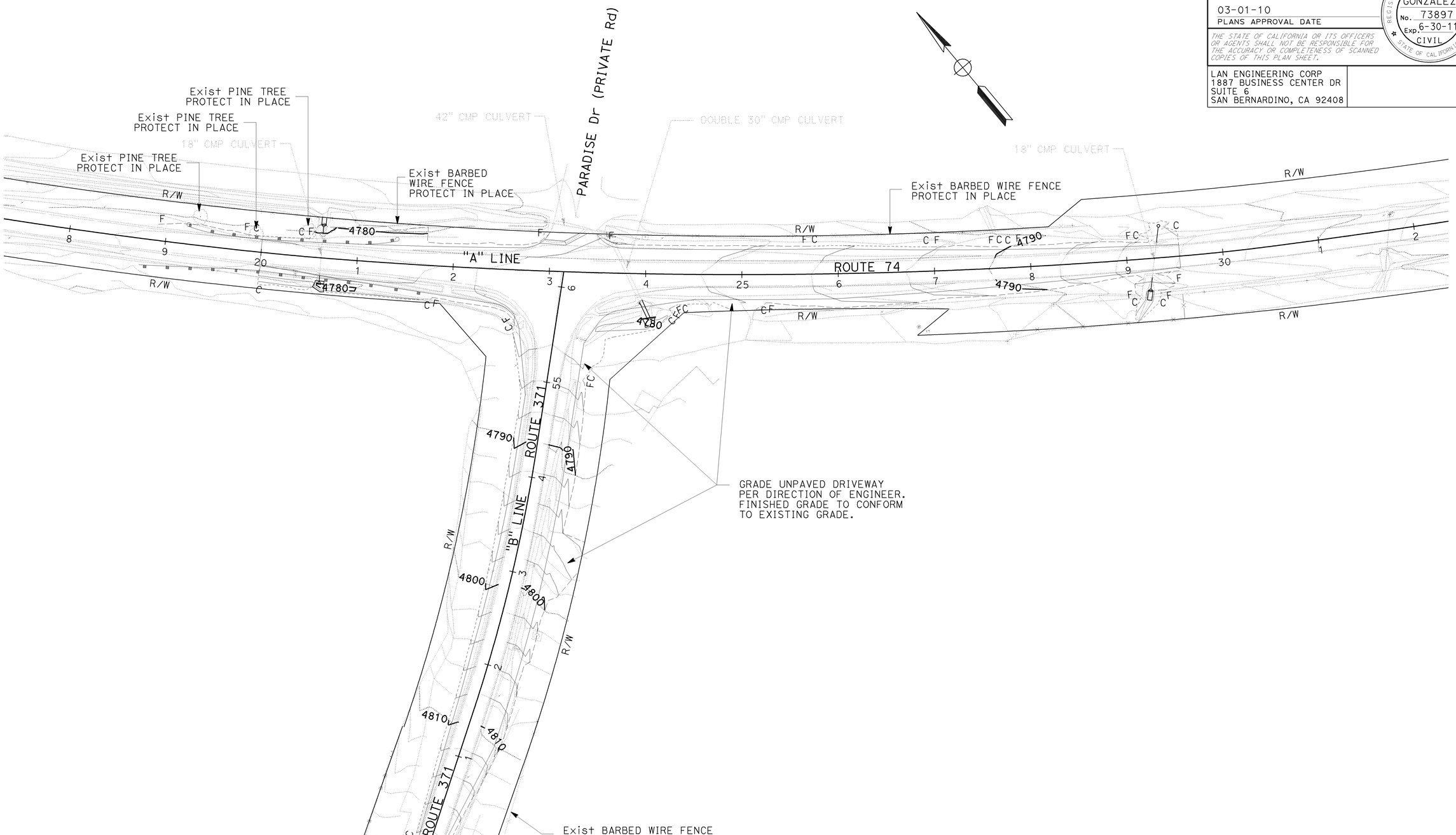
NOTE:

FOR COMPLETE RIGHT OF WAY DATA,
SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



CONTOUR GRADING

SCALE: 1"=50'

THIS PLAN ACCURATE FOR CONTOUR GRADING WORK ONLY

G-1

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CHECKED BY: KEEN POONG
REVISED BY: MARK GONZALEZ
DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	10	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

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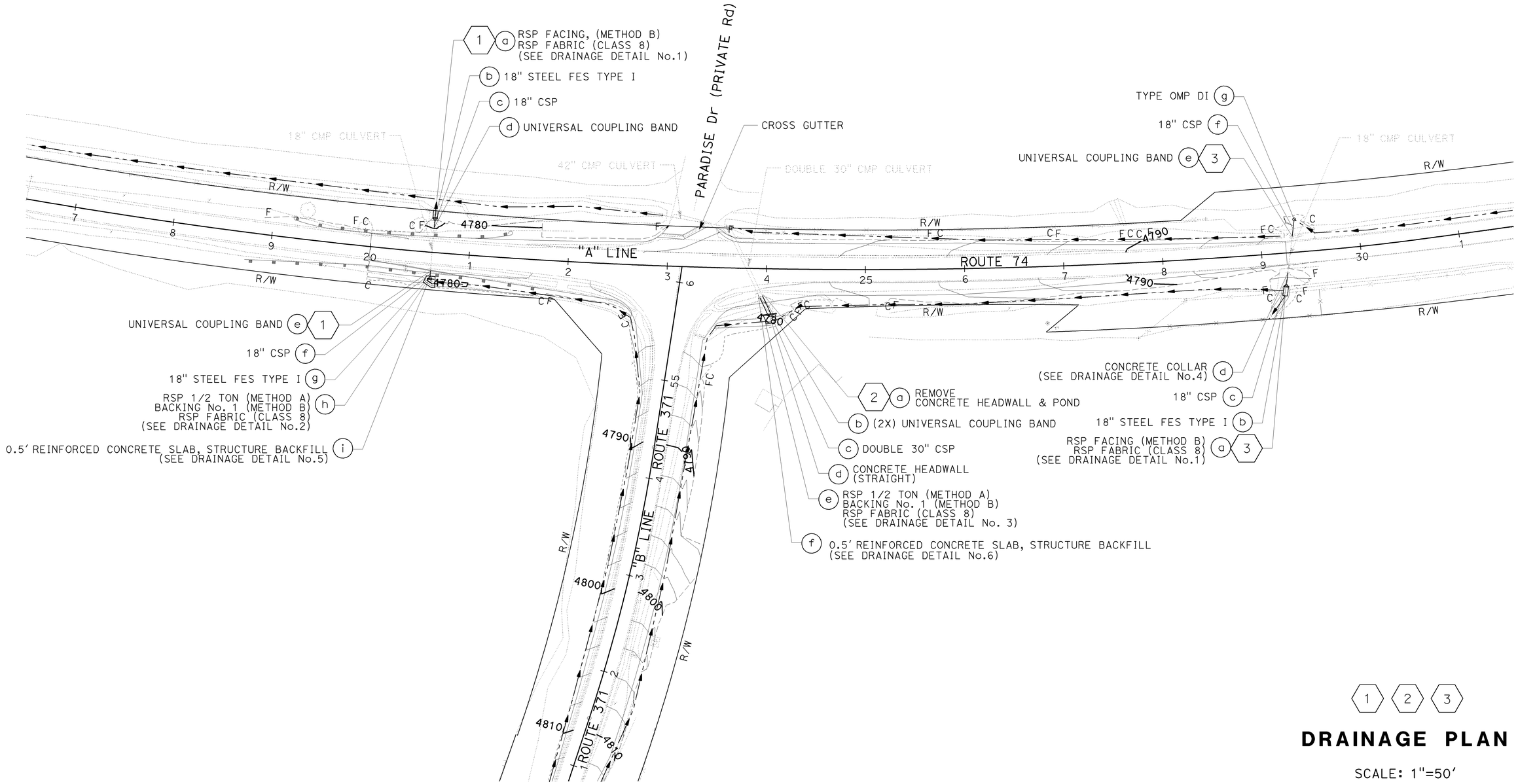
LEGEND

X — DRAINAGE SYSTEM No.

(x) — DRAINAGE UNIT No.

FLOW LINE



1 2 3

DRAINAGE PLAN

SCALE: 1"=50'

D-1

THIS PLAN ACCURATE FOR DRAINAGE WORK ONLY

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CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
MAHMOUD KHODR
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	11	43

REGISTERED CIVIL ENGINEER — DATE 12-17-09

MARK GONZALEZ No. 73897 Exp. 6-30-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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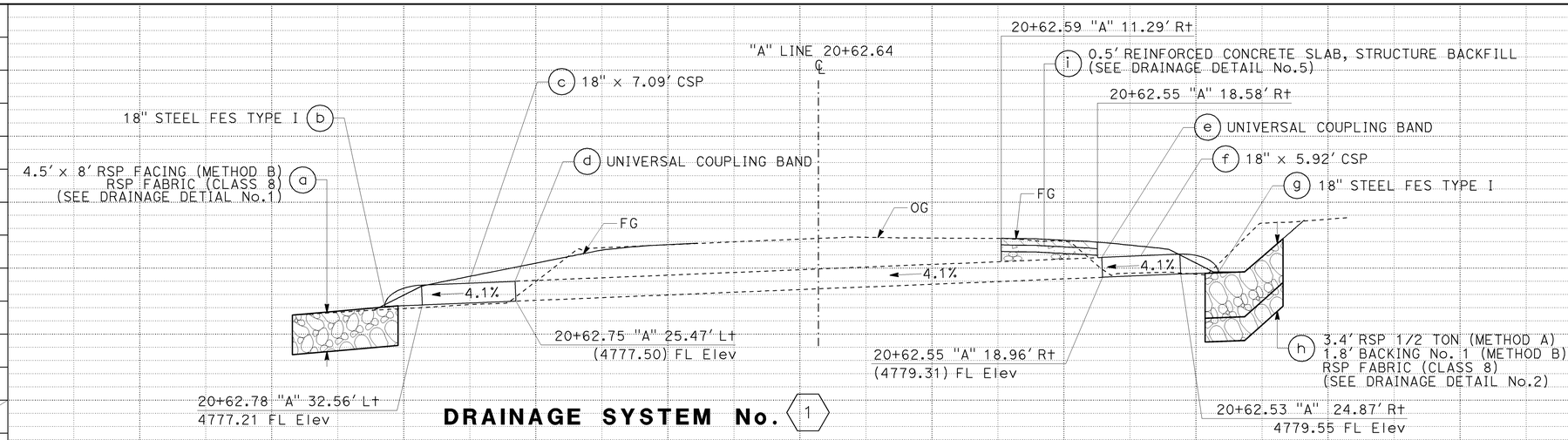
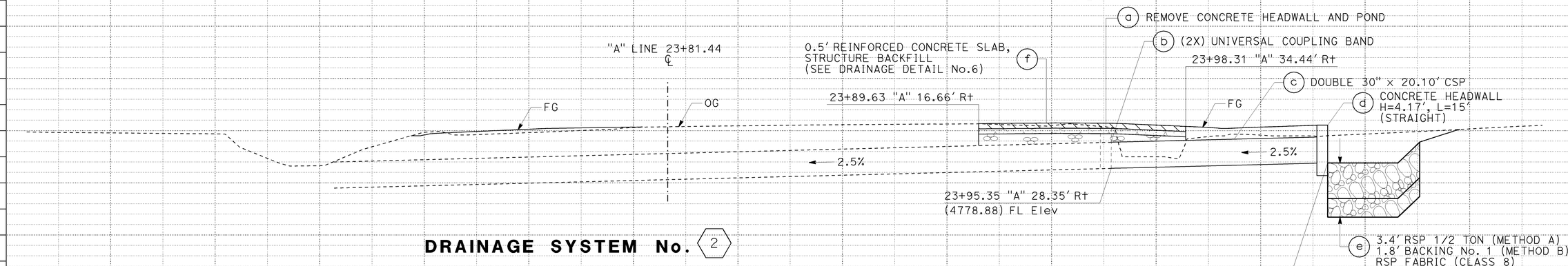


DRAINAGE SYSTEM No. 1



DRAINAGE SYSTEM No. 2

DRAINAGE SYSTEM No. 3

DRAINAGE PROFILES

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

DP-1

STATION		TOTAL
CY	Exc	
	Emb	

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CU 08367
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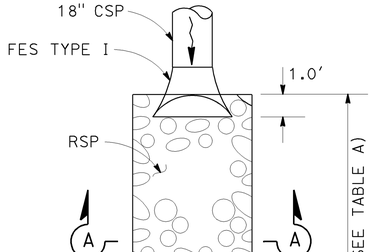
NOTE:

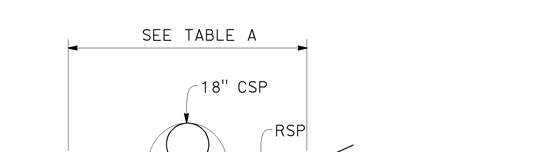
1. RSP FABRIC SHALL NOT PROTUDE ABOVE GROUND. TRIM FABRIC BELOW GROUND TO NO MORE THAN TWO INCHES BELOW GROUND SURFACE.

TABLE A

RSP SUMMARY				
DRAINAGE SYSTEM No. /ELEMENT	W LF	L LF	ROCK SIZE	RSP DEPTH LF
1a	4.5	8	FACING	1.8
3a	4.5	10	FACING	1.8

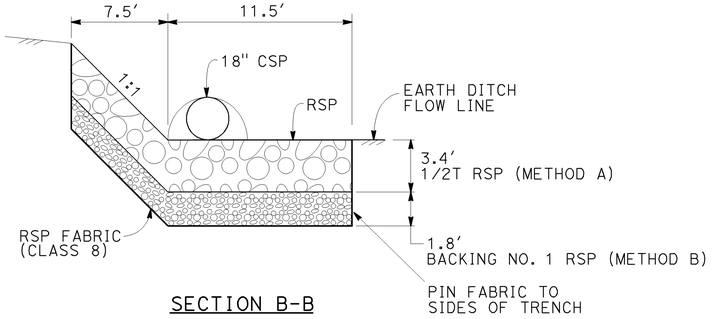


PLAN

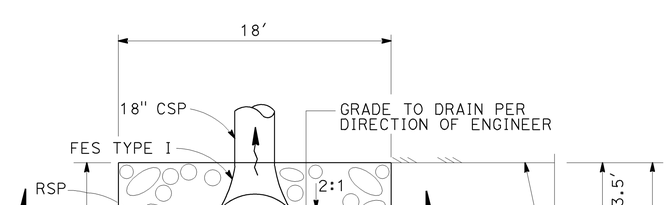


SECTION A-A

ROCK SLOPE PROTECTION DETAILS
DRAINAGE DETAIL No.1



SECTION B-B



PLAN

ROCK SLOPE PROTECTION DETAILS
DRAINAGE DETAIL No.2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	12	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

03-01-10
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DRAINAGE DETAILS

NO SCALE

DD-1

REVISED BY	DATE REVISED
BRIAN DONG	
ROBERT WONG	

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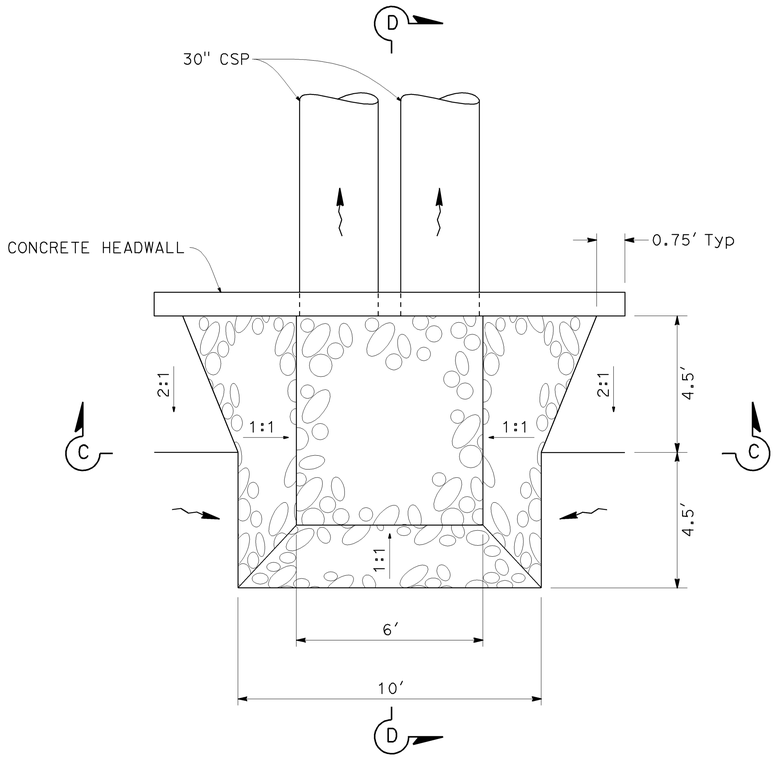
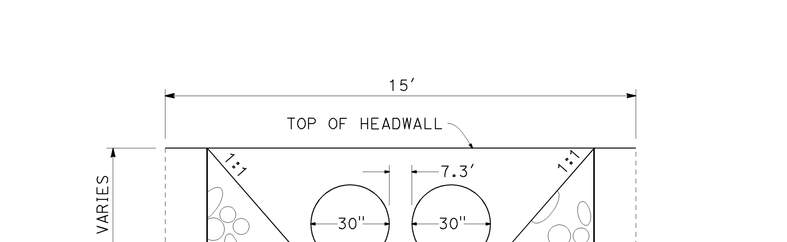
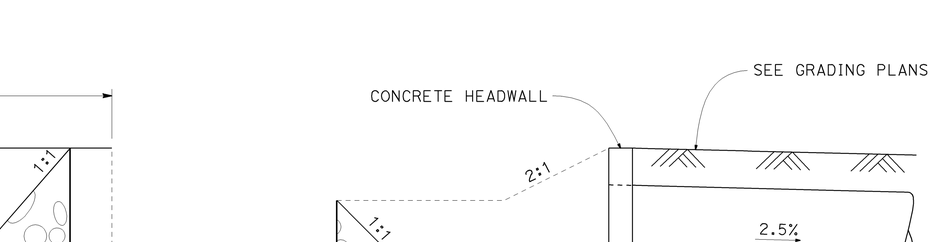


PLAN



SECTION C-C



SECTION D-D

DRAINAGE SYSTEM No.2 INLET DETAILS
DRAINAGE DETAIL No.3

DRAINAGE DETAILS

NO SCALE

DD-2

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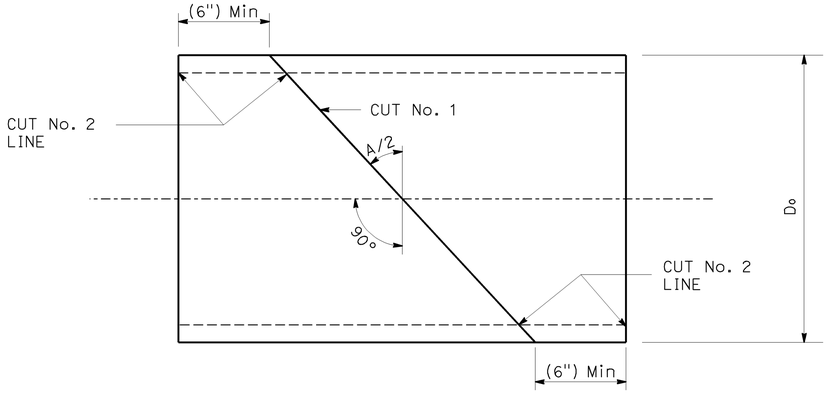
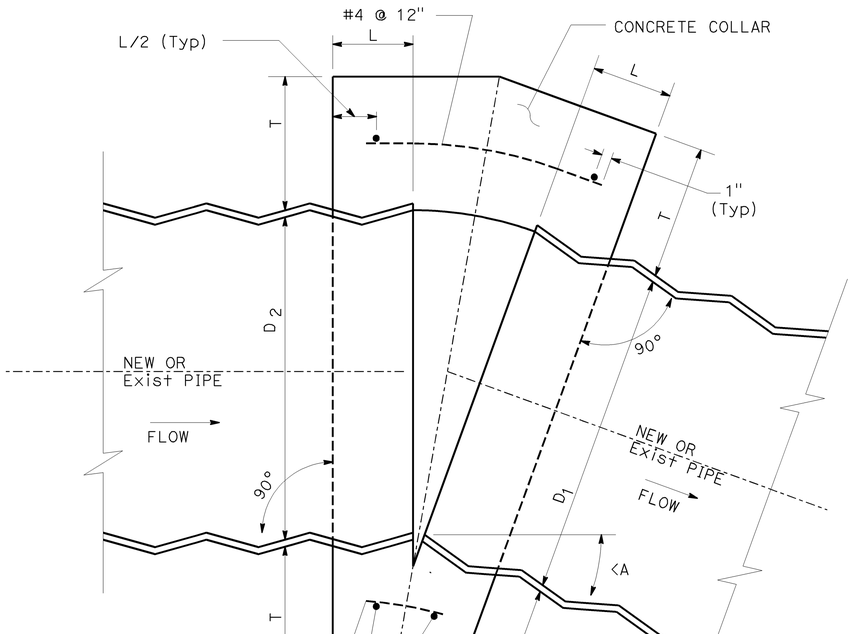


DETAIL A (SEE NOTE 8)

SONO-TUBE, OR EQUAL, INTERIOR FORM

CUT No. 1: SAW THE TUBE AT AN ANGLE OF A/2 WITH THE TRANSVERSE PLANE. REVERSE ONE SECTION AND TAPE BOTH SECTONS TOGETHER FORMING THE DEFLECTION ANGLE A.

CUT No. 2: SAW THE TUBE LONGITUDINALLY REMOVING A STRIP 3.14 (D_o -D) WIDE ON THE SIDE OPPOSITE THE OPEN JOINT. BEND THE ENDS OF THE CUT TOGETHER AND INSERT THE TUBE IN THE PIPE.



NOTES:

1. A CONCRETE COLLAR IS REQUIRED WHERE THE CHANGE IN GRADE EXCEEDS 10%.

2. CONNECTOR PIPES
   A. WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR, L AND T SHALL BE THOSE OF THE LARGER PIPE . D=D_1 OR D_2, WHICHEVER IS GREATER.
   B. WHEN D_1 IS EQUAL TO OR LESS THAN D_2, JOIN INVERTS AND WHEN D_1 IS GREATER THAN D_2, JOIN SOFFITS.

3. FOR PIPE LARGER THAN 72" SPECIAL COLLAR DETAILS ARE REQUIRED.

4. FOR PIPE SIZE NOT LISTED USE NEXT SIZE LARGER.

5. REINFORCEMENT SHALL CONFORM TO ASTM A 615 GRADE 40.

6. WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE D+(2X WALL THICKNESS) + T.

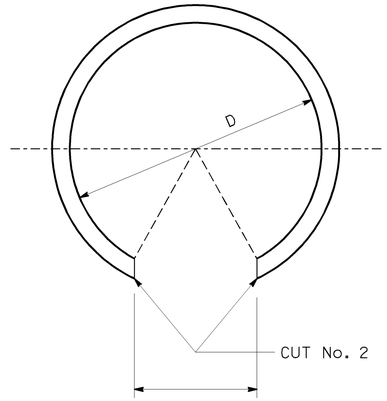
7. REIFORCING SHALL BE USED WHERE THE PIPE DIAMETER IS GREATER THAN 21" AND ON ALL PIPES WHERE THE SPACES BETWEEN THE EXTREME OUTER ENDS IS 3" OR LARGER.

   CIRCULAR TIES

PIPE DIAMETER	No. OF CIRCULAR TIES
21" OR LESS	3
24" TO 30"	3
33" TO 57"	4
60" TO 72"	5

   WHERE THE SPACE BETWEEN PIPE ENDS EXCEEDS 3" THE NUMBER OF CIRCULAR TIES SHALL BE INCREASED TO MAINTAIN AN APPROXIMATE SPACING OF 6" O.C.

8. WHERE THE PIPE IS 21" OR LESS IN DIAMETER AN INTERIOR FORM OF UNSEALED SONO-TUBE OR EQUAL SHALL BE USED TO PROVIDE A SMOOTH INTERIOR JOINT.THE PAPER FORM MAY BE LEFT IN PLACE (SEE DETAIL A). WHEN THE PIPE IS 24" OR LARGER A REMOVABLE INTERIOR FORM SHALL BE USED OR THE INTERIOR JOINT SHALL BE COMPLETELY FILLED WITH MORTAR AND NEATLY POINTED.



D	L	T
12"	12"	4"
18"	12"	5"
24"	12"	6"
30"	18"	7"
36"	18"	9"
42"	18"	9"
48"	18"	10"
57"	18"	10"
60"	21"	11"
66"	21"	11"
72"	24"	12"

CONCRETE COLLAR FOR CSP
DRAINAGE DETAIL No.4

DRAINAGE DETAILS

NO SCALE

DD-3

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CU 08367
EA 0L7801

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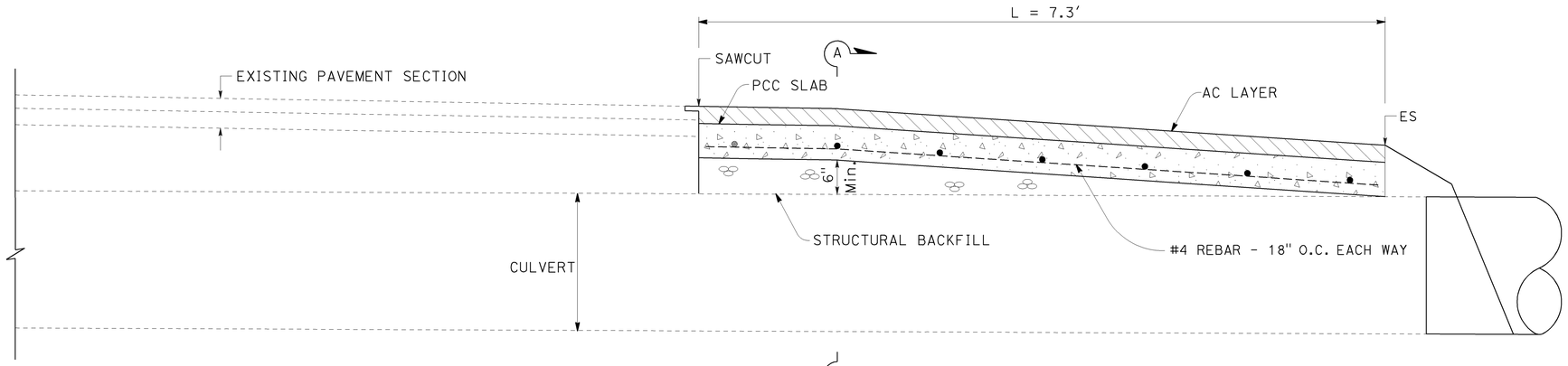
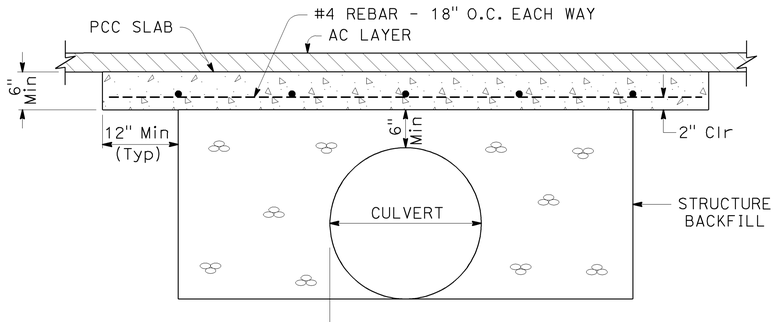


DRAINAGE DETAIL No.5

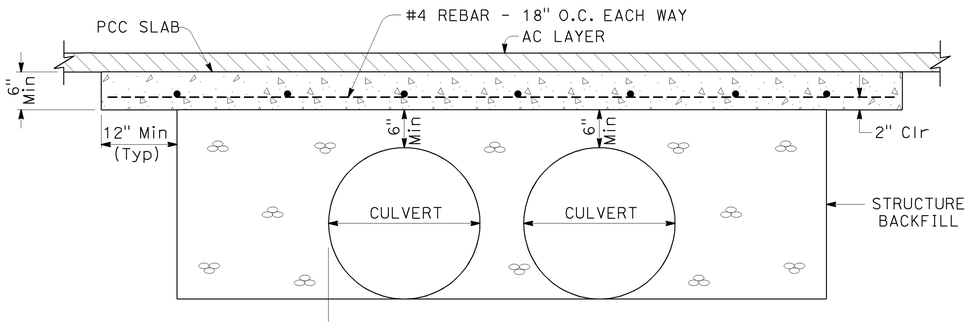
DRAINAGE SYSTEM 1 PROFILE

LEGEND

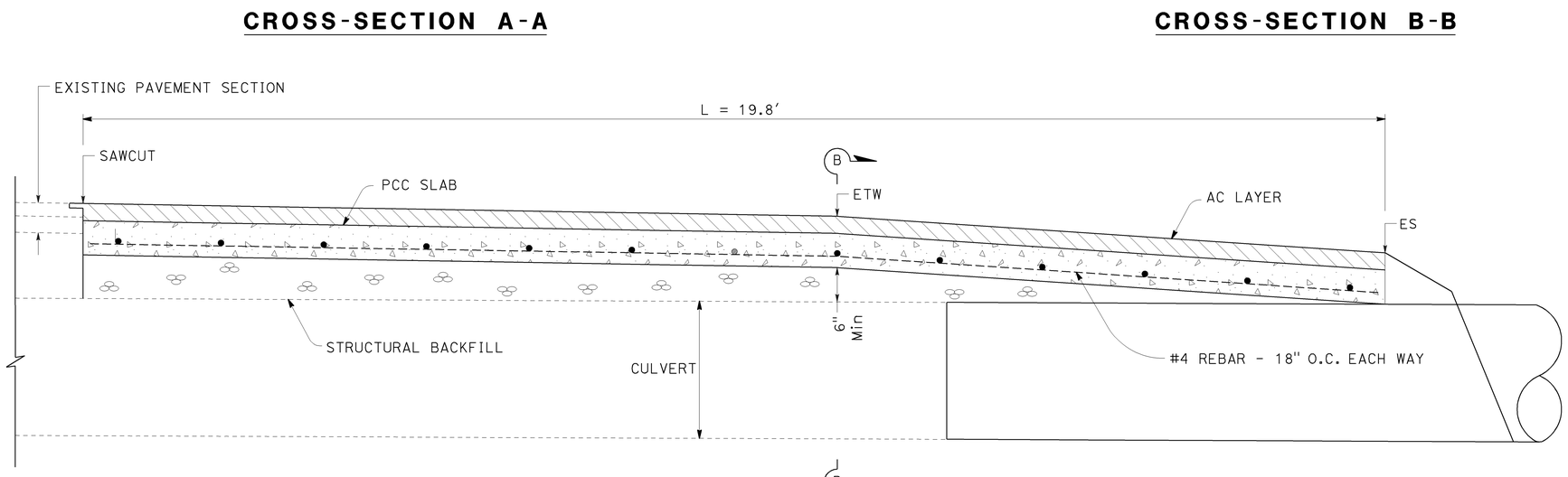
- MINOR CONCRETE
- ASPHALT CONCRETE
- STRUCTURE BACKFILL



CROSS-SECTION A-A



CROSS-SECTION B-B



DRAINAGE DETAIL No.6

Drainage System 2 Profile

DRAINAGE DETAILS

NO SCALE

DD-4

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SUITE 6
SAN BERNARDINO, CA 92408

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	DRAINAGE SYSTEM No. ⬡	DRAINAGE UNIT ○	REMOVE HEADWALL	18" CORRUGATED STEEL PIPE (0.079in, ANNULAR)	30" CORRUGATED STEEL PIPE (0.079in, ANNULAR)	36" CORRUGATED STEEL PIPE INLET (0.109in THICK)	18" STEEL FLARED END SECTION	MINOR CONCRETE (MINOR STRUCTURE)	(N) STRUCTURE BACKFILL	Misc IRON AND STEEL	(N) UNIVERSAL COUPLING BAND	RSP FABRIC (CLASS 8)	RSP FACING (METHOD B)	RSP 1/2 TON (METHOD A)	RSP BACKING No. 1 (METHOD B)	HEIGHT OF INLET	PIPE JOINT CLASSIFICATION	DESCRIPTION	STATION	DRAINAGE PLAN SHEET No.	DRAINAGE SYSTEM No. ⬡	DRAINAGE UNIT ○
			EA	LF	LF	LF	EA	CY	CY	LB	EA	SQYD	CY	CY	CY	LF					
D-1	1	a										9.0	2.4					RSP FACING (METHOD B), FABRIC (CLASS 8)	"A" 20+62.64	D-1	1	a
		b					1											18" STEEL FLARED END SECTION				b
		c		7.09														18" CORRUGATED STEEL PIPE				c
		d									1						S	UNIVERSAL COUPLING BAND				d
		e									1						S	UNIVERSAL COUPLING BAND				e
		f		5.92														18" CORRUGATED STEEL PIPE				f
		g					1											18" STEEL FLARED END SECTION				g
		h										51.62		22.29	11.80			RSP 1/2 TON (METHOD A), BACKING No. 1 (METHOD B), FABRIC (CLASS 8)				h
		i						1.01	2.47									0.5' REINFORCED CONCRETE SLAB, STRUCTURE BACKFILL				i
D-1	2	a	1															REMOVE CONCRETE HEADWALL & POND	"A" 23+81.44	D-1	2	a
		b									2						S	UNIVERSAL COUPLING BAND				b
		c			40.20													30" CORRUGATED STEEL PIPE				c
		d						2.21										CONCRETE HEADWALL (STRAIGHT)				d
		e										34.57		11.52	6.10			RSP 1/2 TON (METHOD A), BACKING No. 1 (METHOD B), FABRIC (CLASS 8)				e
		f						4.30	16.58									0.5' REINFORCED CONCRETE SLAB, STRUCTURE BACKFILL				f
D-1	3	a										10.8	3.0					RSP FACING (METHOD B), FABRIC (CLASS 8)	"A" 29+28.91	D-1	3	a
		b					1											18" STEEL FLARED END SECTION				b
		c		11.88														18" CORRUGATED STEEL PIPE				c
		d						0.10										CONCRETE COLLAR				d
		e									1						S	UNIVERSAL COUPLING BAND				e
		f		15.61														18" CORRUGATED STEEL PIPE				f
		g				3.0		0.33		177						3.0		TYPE OMP INLET (1/4" CHECKERED PLATE)				g
TOTAL			1	40.50	40.20	3.0	3	7.95	19.08	177	5	106.0	5.4	33.81	17.90							

S - STANDARD JOINT
(N)- NOT A SEPARATE PAY ITEM; FOR INFORMATION ONLY.

DRAINAGE QUANTITIES

DQ-1

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Caltrans

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CALCULATED-DESIGNED BY
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EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	17	43

REGISTERED CIVIL ENGINEER — DATE 12-17-09

03-01-10
PLANS APPROVAL DATE

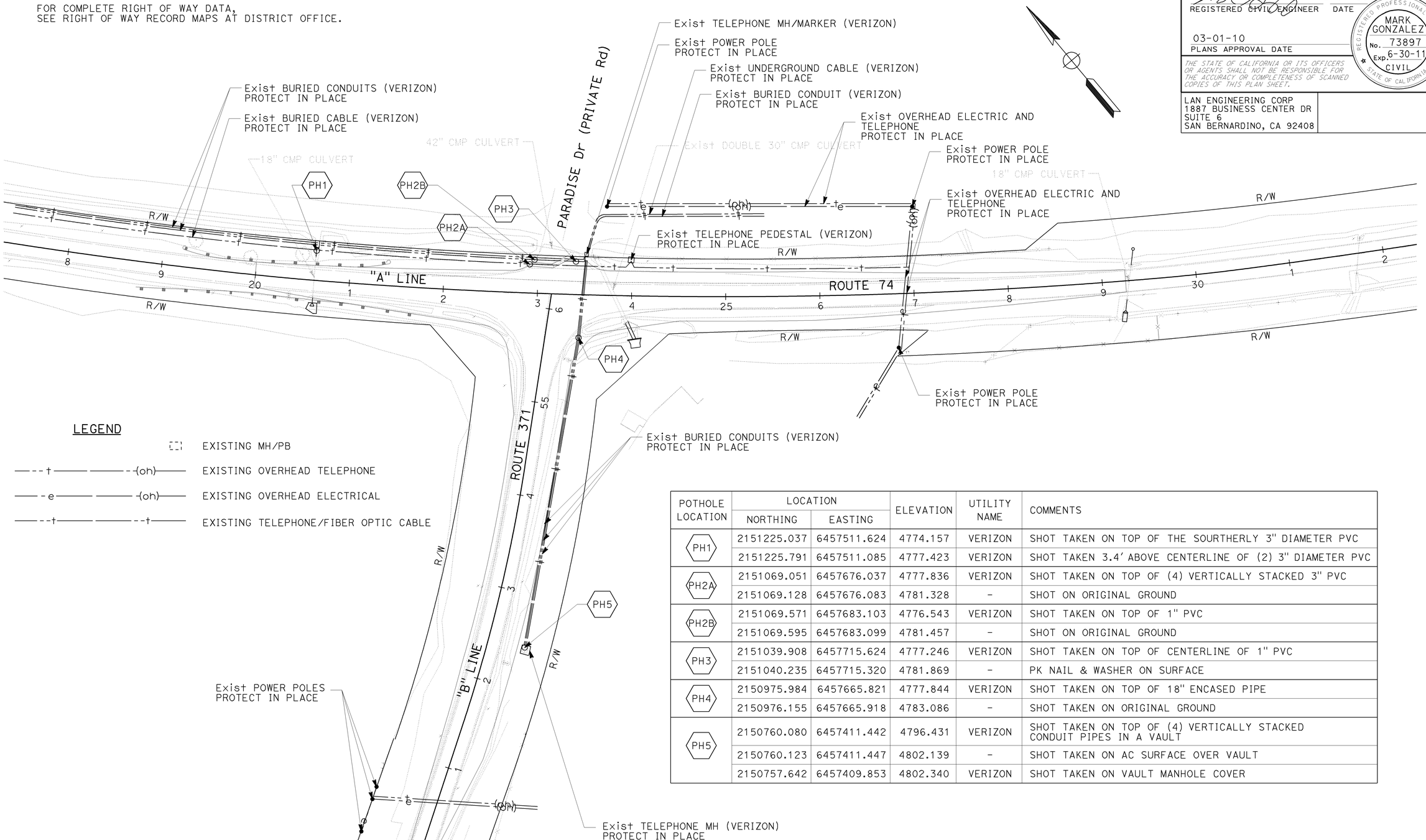
REGISTERED PROFESSIONAL ENGINEER — MARK GONZALEZ — No. 73897 — Exp. 6-30-11 — CIVIL — STATE OF CALIFORNIA

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.

LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTE:

FOR COMPLETE RIGHT OF WAY DATA,
SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



LEGEND

- EXISTING MH/PB
- EXISTING OVERHEAD TELEPHONE
- EXISTING OVERHEAD ELECTRICAL
- EXISTING TELEPHONE/FIBER OPTIC CABLE

POTHOLE LOCATION	LOCATION NORTHING	LOCATION EASTING	ELEVATION	UTILITY NAME	COMMENTS
PH1	2151225.037	6457511.624	4774.157	VERIZON	SHOT TAKEN ON TOP OF THE SOURTHERLY 3" DIAMETER PVC
	2151225.791	6457511.085	4777.423	VERIZON	SHOT TAKEN 3.4' ABOVE CENTERLINE OF (2) 3" DIAMETER PVC
PH2A	2151069.051	6457676.037	4777.836	VERIZON	SHOT TAKEN ON TOP OF (4) VERTICALLY STACKED 3" PVC
	2151069.128	6457676.083	4781.328	-	SHOT ON ORIGINAL GROUND
PH2B	2151069.571	6457683.103	4776.543	VERIZON	SHOT TAKEN ON TOP OF 1" PVC
	2151069.595	6457683.099	4781.457	-	SHOT ON ORIGINAL GROUND
PH3	2151039.908	6457715.624	4777.246	VERIZON	SHOT TAKEN ON TOP OF CENTERLINE OF 1" PVC
	2151040.235	6457715.320	4781.869	-	PK NAIL & WASHER ON SURFACE
PH4	2150975.984	6457665.821	4777.844	VERIZON	SHOT TAKEN ON TOP OF 18" ENCASED PIPE
	2150976.155	6457665.918	4783.086	-	SHOT TAKEN ON ORIGINAL GROUND
PH5	2150760.080	6457411.442	4796.431	VERIZON	SHOT TAKEN ON TOP OF (4) VERTICALLY STACKED CONDUIT PIPES IN A VAULT
	2150760.123	6457411.447	4802.139	-	SHOT TAKEN ON AC SURFACE OVER VAULT
	2150757.642	6457409.853	4802.340	VERIZON	SHOT TAKEN ON VAULT MANHOLE COVER

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1"=50'

U-1

REVISED BY | DATE REVISED
MARK GONZALEZ | KEEN POONG
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHOOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:23

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => dmcbride | DGN FILE => 80L780ka001.dgn | CU 08367 | EA 0L7801

NOTES:

1. EXACT SIGN LOCATION AND POSITION OF CONSTRUCTION AREA SIGNS TO BE DETERMINED BY THE ENGINEER.
2. SEE ADDITIONAL CONSTRUCTION AREA SIGNS ON STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN SHEETS.

LEGEND

(X) CONSTRUCTION AREA SIGN

ONE POST SIGN

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POST(S) AND SIZE	No. OF SIGNS (N) (EA)
(A)	C40 (CA)	72" X 36"	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	2 - 4" X 4"	3
(B)	W20-1	48" X 48"	ROAD WORK AHEAD	1 - 6" X 6"	4
(C)	G20-2	36" X 18"	END ROAD WORK	1 - 4" X 4"	4
			TOTAL		11

(N) - NOT A SEPARATE PAY ITEM; FOR INFORMATION ONLY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	18	43

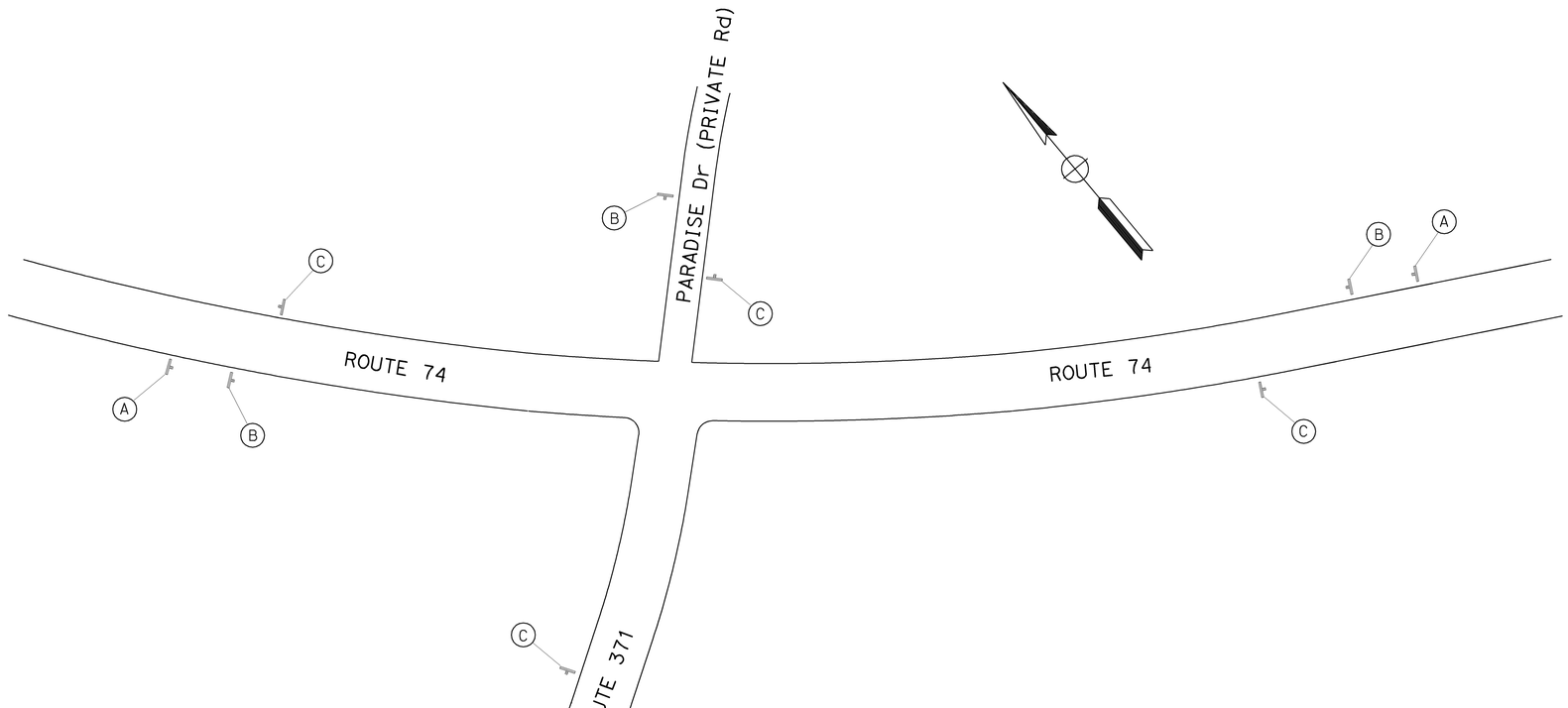
12-17-09
REGISTERED CIVIL ENGINEER DATE

03-01-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MARK GONZALEZ
No. 73897
Exp. 6-30-11
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.

LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408



THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY

CONSTRUCTION AREA SIGNS
ALL STAGES

NO SCALE

CS-1

REVISED BY | DATE REVISED
YOUICHI NAKAGAWA | MARK GONZALEZ
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:23

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => dmcbride | DGN FILE => 80L7801a001.dgn | CU 08367 | EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	19	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ No. 73897 Exp. 6-30-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

CONSTRUCTION NOTES:

1. SAWCUT AND CONSTRUCT LANE WIDENING
2. LAST ORDER OF WORK.
   SAWCUT AND CONSTRUCT LANE WIDENING WHILE KEEPING ACCESS TO PARADISE Dr.

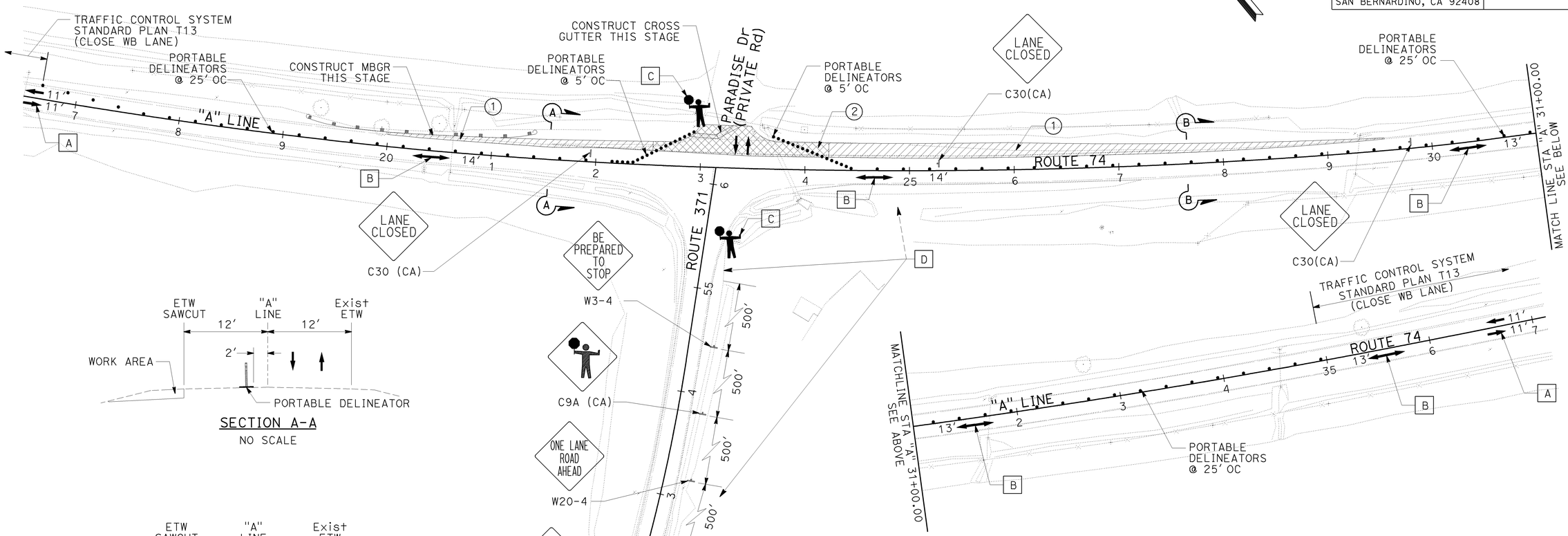
TRAFFIC HANDLING NOTES:

A. TRAFFIC REMAINS IN THE EXISTING CONFIGURATION.

B. ONE LANE, TWO WAY TRAFFIC CONTROL AS DIRECTED BY FLAGGERS.

C. FLAGGERS SHOULD STAND IN A CONSPICUOUS PLACE, BE VISIBLE TO APPROACHING TRAFFIC AS WELL AS APPROACHING VEHICLES AFTER THE FIRST VEHICLE HAS STOPPED. DURING THE HOURS OF DARKNESS, THE FLAGGING-STATION AND FLAGGER SHALL BE ILLUMINATED AND CLEARLY VISIBLE TO APPROACHING TRAFFIC. THE ILLUMINATION FOOTPRINT OF THE LIGHTING ON THE GROUND SHALL BE AT LEAST, 20' IN DIAMETER. PLACE A MINIMUM OF FOUR CONES AT 50' INTERVALS IN ADVANCE OF FLAGGER STATION.

D. DRIVEWAY ALONG ROUTE 74 TO BE CLOSED. TRAFFIC TO USE DRIVEWAYS ALONG ROUTE 371.



SECTION A-A
NO SCALE

SECTION B-B
NO SCALE

LEGEND

- CONSTRUCT THIS STAGE (DAY TIME)
- CONSTRUCT WHILE KEEPING ACCESS OPEN
- CONSTRUCTED IN PREVIOUS STAGE
- PORTABLE DELINEATOR
- STATIONARY MOUNTED CONSTRUCTION AREA SIGN
- BARRICADE MOUNTED CONSTRUCTION AREA SIGN
- FLAGGER
- DIRECTION OF TRAFFIC

GENERAL NOTES (ALL STAGES):

1. ALL CONFLICTING SIGNING, STRIPING, REFLECTOR AND PAVEMENT MARKINGS SHALL BE REMOVED PRIOR TO STARTING WORK ON EACH STAGE.
2. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS REGARDING THE USE OF PORTABLE CHANGEABLE MESSAGE SIGNS.
3. CONTRACTOR TO TREAT ANY EXCAVATION DEEPER THAN FIVE FEET, WHERE PEOPLE ARE EXPECTED TO ENTER, AS A CONFINED SPACE PER STATE STANDARD SPECIFICATIONS.
4. EXACT LOCATION FOR CONSTRUCTION AREA SIGNS TO BE APPROVED BY ENGINEER.

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

STAGE 1 DAY TIME

SCALE: 1"=50'

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

SC-1

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
YOUICHI NAKAGAWA | MARK GONZALEZ
CONSULTANT FUNCTIONAL SUPERVISOR | MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010 | TIME PLOTTED => 11:23
12-17-09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	20	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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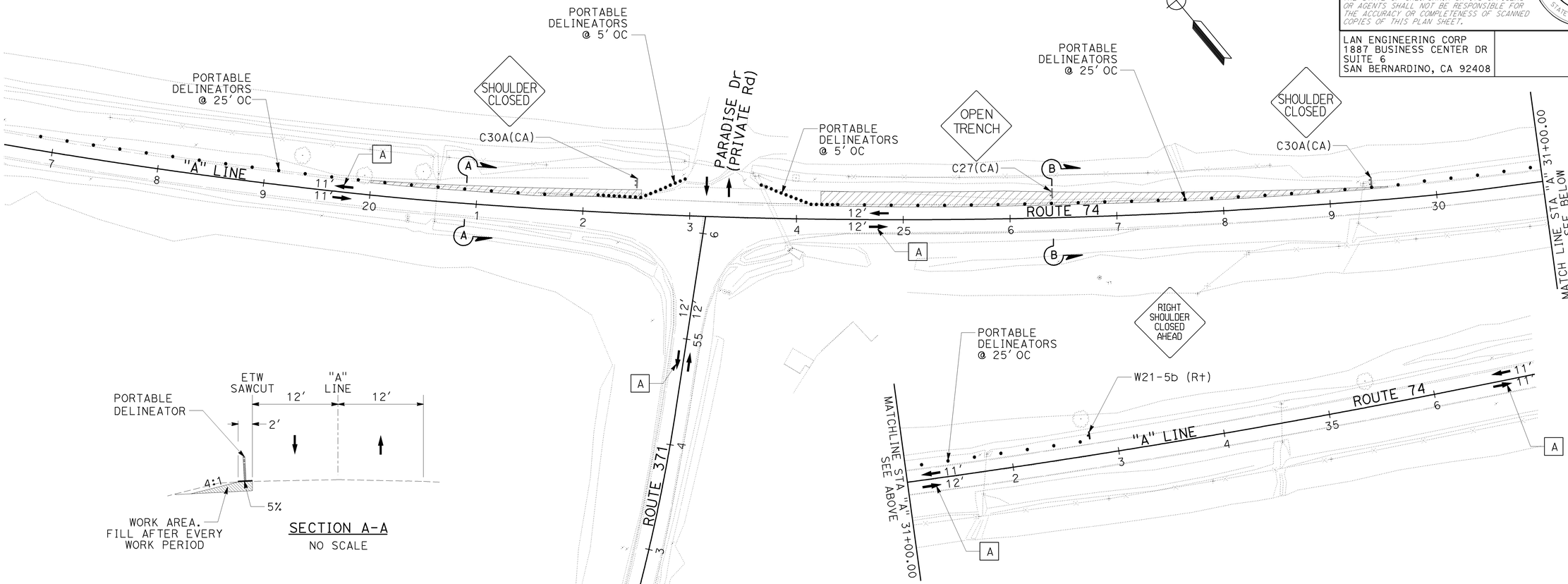
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

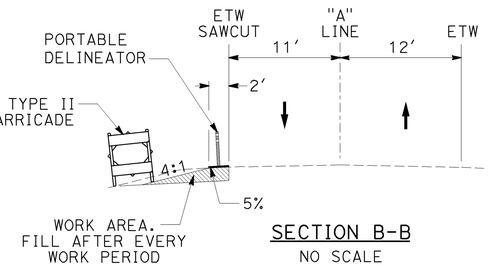
NOTE:

1. FOR SITE CONFIGURATION INFORMATION ONLY (NO WORK TO BE PERFORMED DURING NIGHT TIME STAGE). CONTRACTOR SHALL CONFIGURE SITE AS SHOWN AT THE COMPLETION OF EACH DAY TIME OPERATION.

TRAFFIC HANDLING NOTE:

[A] TRAFFIC REMAINS IN THE EXISTING CONFIGURATION.





SECTION A-A
NO SCALE

SECTION B-B
NO SCALE

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE (INCH)	SIGN MESSAGE	No. OF POST(S) AND SIZE (INCH)	No. OF SIGNS
W21-5b (R+)	36" X 36"	RIGHT SHOULDER CLOSED AHEAD	1 - 4" X 6"	1
			TOTAL	1

BARRICADE MOUNTED CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE (INCH)	SIGN MESSAGE	BARRICADE TYPE	No. OF SIGNS
C27(CA)	36" X 36"	OPEN TRENCH	TYPE II	1
C30A(CA)	36" X 36"	SHOULDER CLOSED	TYPE II	2
			TOTAL	3

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

STAGE 1 NIGHT TIME

SCALE: 1"=50'

SC-2

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:23

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
REVISED BY | DATE REVISED

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => dmcbride | DGN FILE => 80L780ma002.dgn | CU 08367 | EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	21	43

REGISTERED CIVIL ENGINEER — DATE 12-17-09

MARK GONZALEZ No. 73897 Exp. 6-30-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

CONSTRUCTION NOTES:

(1) SAWCUT AND CONSTRUCT LANE WIDENING

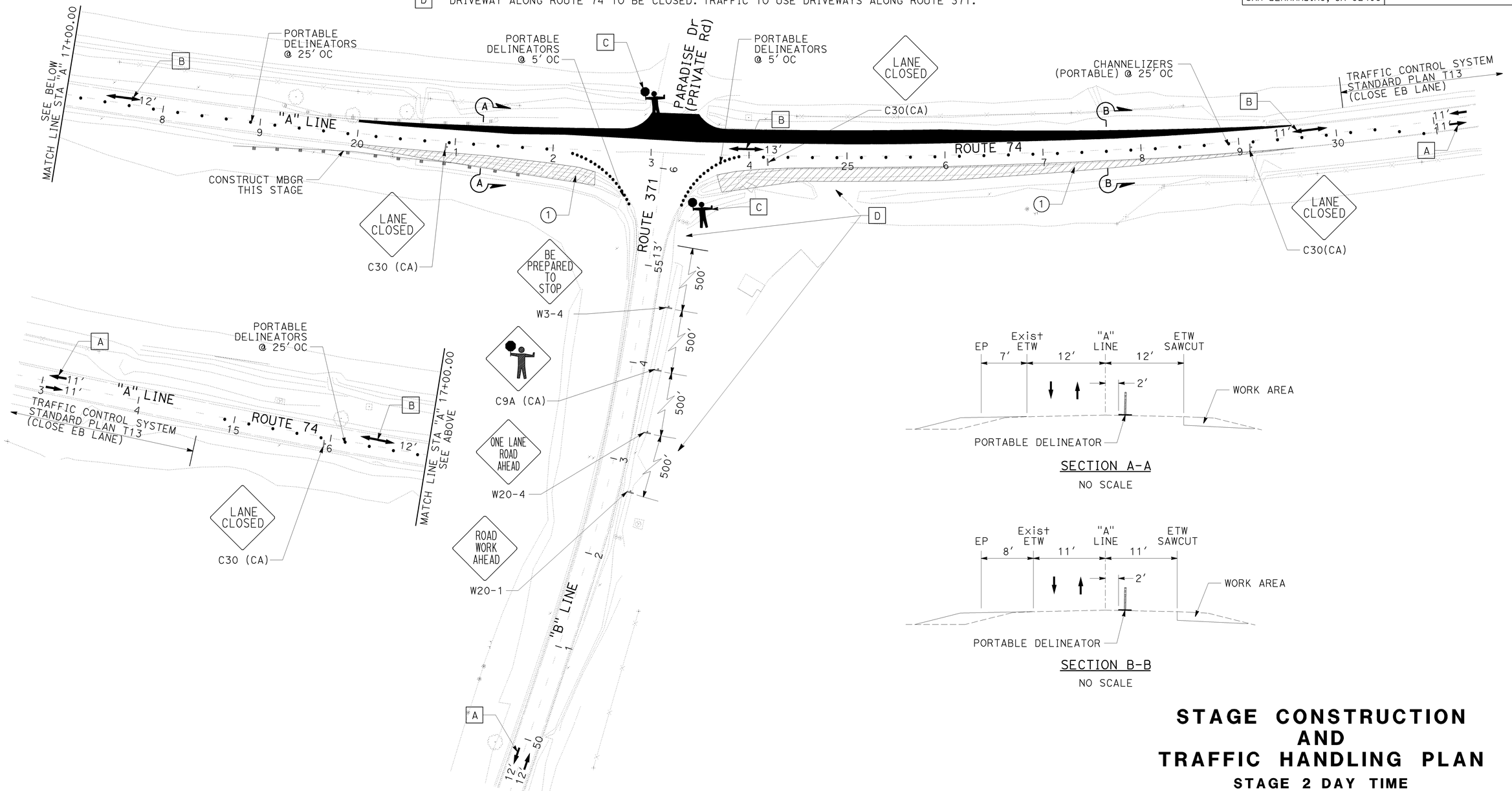
TRAFFIC HANDLING NOTES:

[A] TRAFFIC REMAINS IN THE EXISTING CONFIGURATION.

[B] ONE LANE, TWO WAY TRAFFIC CONTROL AS DIRECTED BY FLAGGERS.

[C] FLAGGERS SHOULD STAND IN A CONSPICUOUS PLACE, BE VISIBLE TO APPROACHING TRAFFIC AS WELL AS APPROACHING VEHICLES AFTER THE FIRST VEHICLE HAS STOPPED. DURING THE HOURS OF DARKNESS, THE FLAGGING-STATION AND FLAGGER SHALL BE ILLUMINATED AND CLEARLY VISIBLE TO APPROACHING TRAFFIC. THE ILLUMINATION FOOTPRINT OF THE LIGHTING ON THE GROUND SHALL BE AT LEAST, 20' IN DIAMETER. PLACE A MINIMUM OF FOUR CONES AT 50' INTERVALS IN ADVANCE OF FLAGGER STATION.

[D] DRIVEWAY ALONG ROUTE 74 TO BE CLOSED. TRAFFIC TO USE DRIVEWAYS ALONG ROUTE 371.



SECTION A-A

NO SCALE

SECTION B-B

NO SCALE

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

STAGE 2 DAY TIME

SCALE: 1"=50'

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

SC-3

LAST REVISION DATE PLOTTED => 25-FEB-2010
12-17-09 TIME PLOTTED => 11:23

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
REVISED BY
DATE REVISED

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => dmcbride
DGN FILE => 80L780ma003.dgn

CU 08367

EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	22	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ No. 73897 Exp. 6-30-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

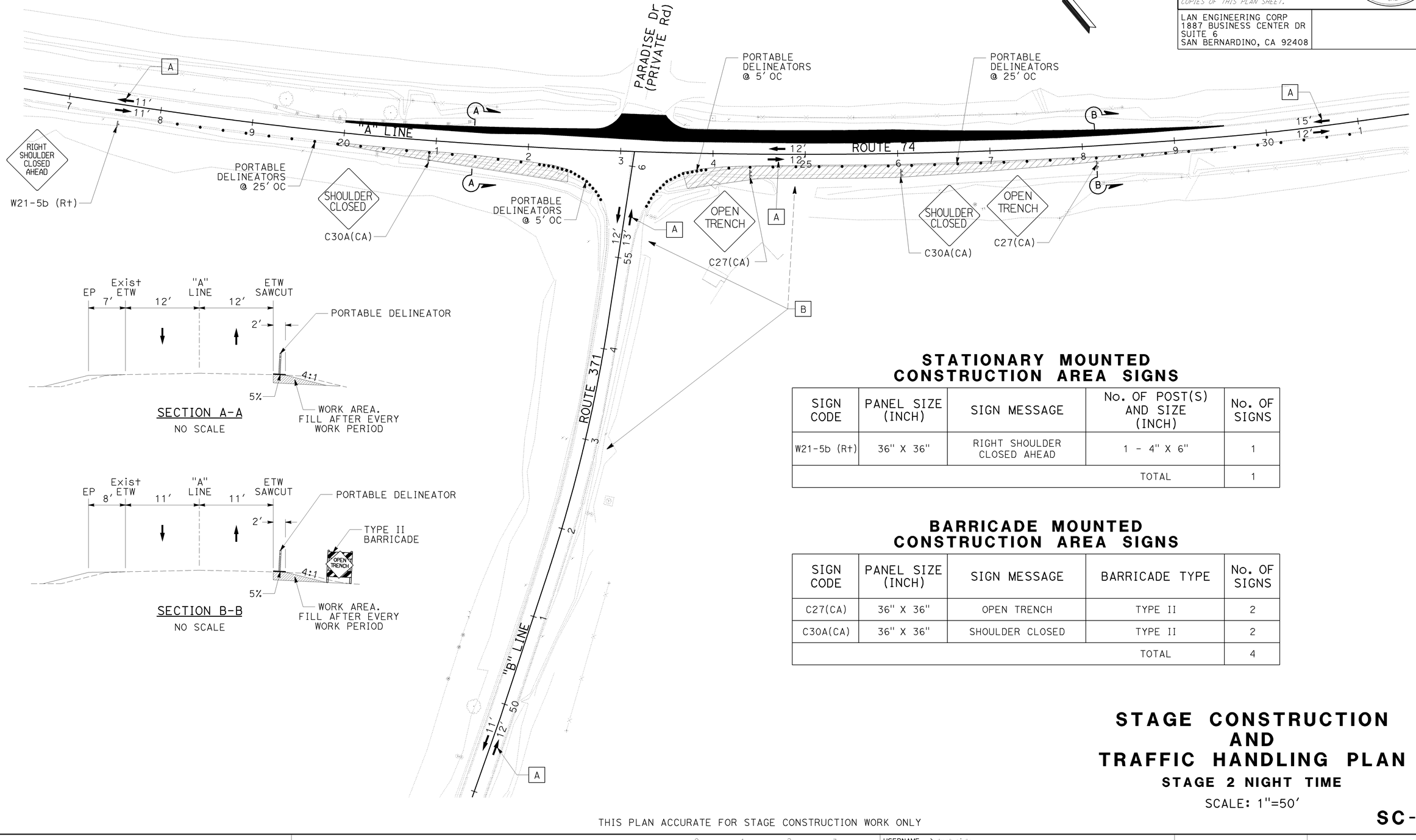
NOTE:

1. FOR SITE CONFIGURATION INFORMATION ONLY (NO WORK TO BE PERFORMED DURING NIGHT TIME STAGE). CONTRACTOR SHALL CONFIGURE SITE AS SHOWN AT THE COMPLETION OF EACH DAY TIME OPERATION.

TRAFFIC HANDLING NOTE:

A TRAFFIC REMAINS IN THE EXISTING CONFIGURATION.

B DRIVEWAY ALONG ROUTE 74 TO BE CLOSED.
TRAFFIC TO USE DRIVEWAYS ALONG ROUTE 371.



SECTION A-A
NO SCALE

SECTION B-B
NO SCALE

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE (INCH)	SIGN MESSAGE	No. OF POST(S) AND SIZE (INCH)	No. OF SIGNS
W21-5b (Rt)	36" X 36"	RIGHT SHOULDER CLOSED AHEAD	1 - 4" X 6"	1
			TOTAL	1

BARRICADE MOUNTED CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE (INCH)	SIGN MESSAGE	BARRICADE TYPE	No. OF SIGNS
C27(CA)	36" X 36"	OPEN TRENCH	TYPE II	2
C30A(CA)	36" X 36"	SHOULDER CLOSED	TYPE II	2
			TOTAL	4

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

STAGE 2 NIGHT TIME

SCALE: 1"=50'

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

SC-4

REVISED BY | DATE REVISED
YOUICHI NAKAGAWA | MARK GONZALEZ
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION DATE PLOTTED => 25-FEB-2010
12-17-09 TIME PLOTTED => 11:23

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => dmcbride | DGN FILE => 80L780ma004.dgn | CU 08367 | EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	23	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ No. 73897 Exp. 6-30-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

CONSTRUCTION NOTES:

(1) SAWCUT AND CONSTRUCT LANE WIDENING

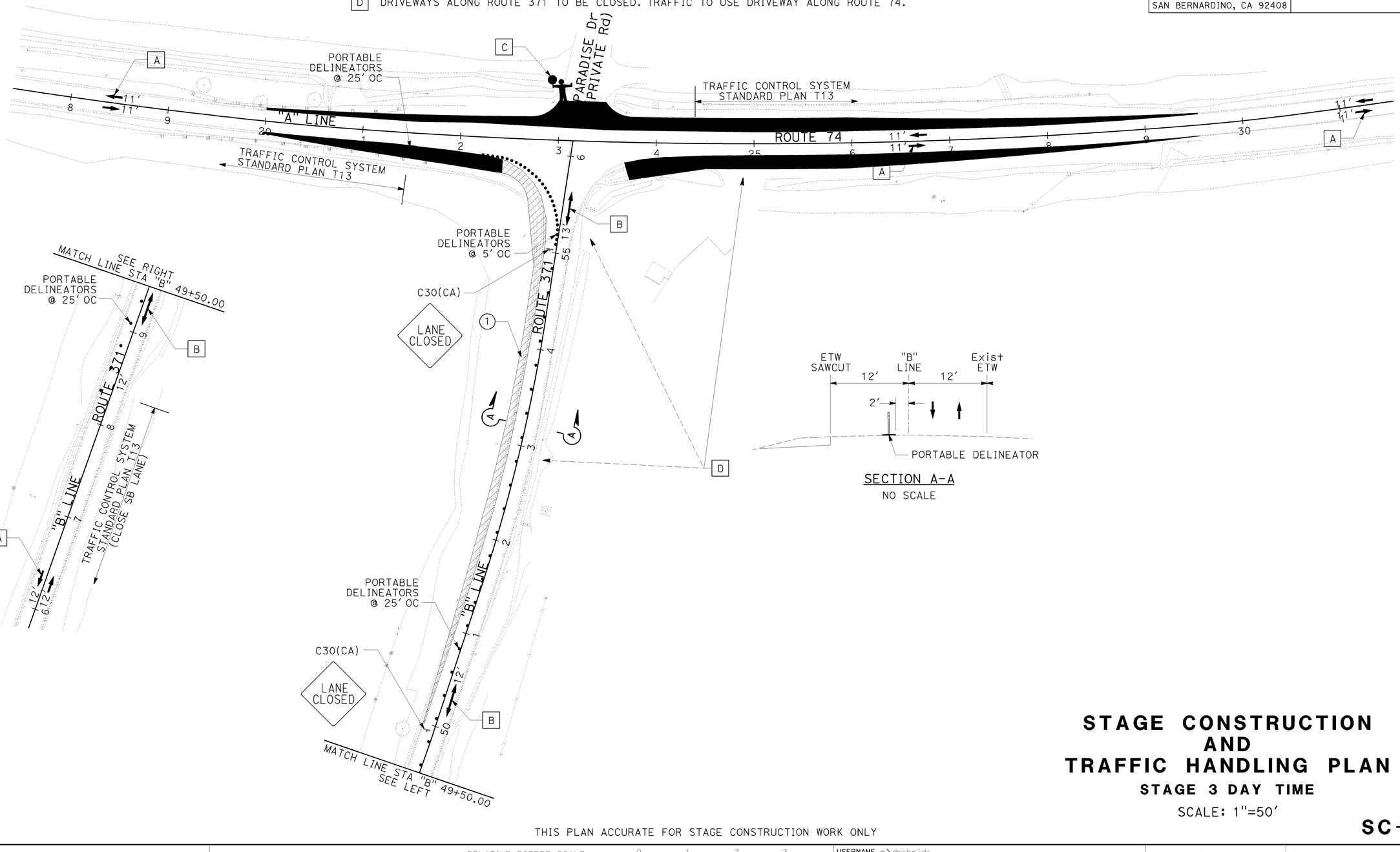
TRAFFIC HANDLING NOTE:

A TRAFFIC REMAINS IN THE EXISTING CONFIGURATION.

B ONE LANE, TWO WAY TRAFFIC CONTROL AS DIRECTED BY FLAGGERS.

C FLAGGERS SHOULD STAND IN A CONSPICUOUS PLACE, BE VISIBLE TO APPROACHING TRAFFIC AS WELL AS APPROACHING VEHICLES AFTER THE FIRST VEHICLE HAS STOPPED. DURING THE HOURS OF DARKNESS, THE FLAGGING-STATION AND FLAGGER SHALL BE ILLUMINATED AND CLEARLY VISIBLE TO APPROACHING TRAFFIC. THE ILLUMINATION FOOTPRINT OF THE LIGHTING ON THE GROUND SHALL BE AT LEAST, 20' IN DIAMETER. PLACE A MINIMUM OF FOUR CONES AT 50' INTERVALS IN ADVANCE OF FLAGGER STATION.

D DRIVEWAYS ALONG ROUTE 371 TO BE CLOSED. TRAFFIC TO USE DRIVEWAY ALONG ROUTE 74.



SECTION A-A
NO SCALE

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

STAGE 3 DAY TIME

SCALE: 1"=50'

SC-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
REVISED BY
DATE REVISED

LAST REVISION DATE PLOTTED => 25-FEB-2010
12-17-09 TIME PLOTTED => 11:23

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780ma005.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	24	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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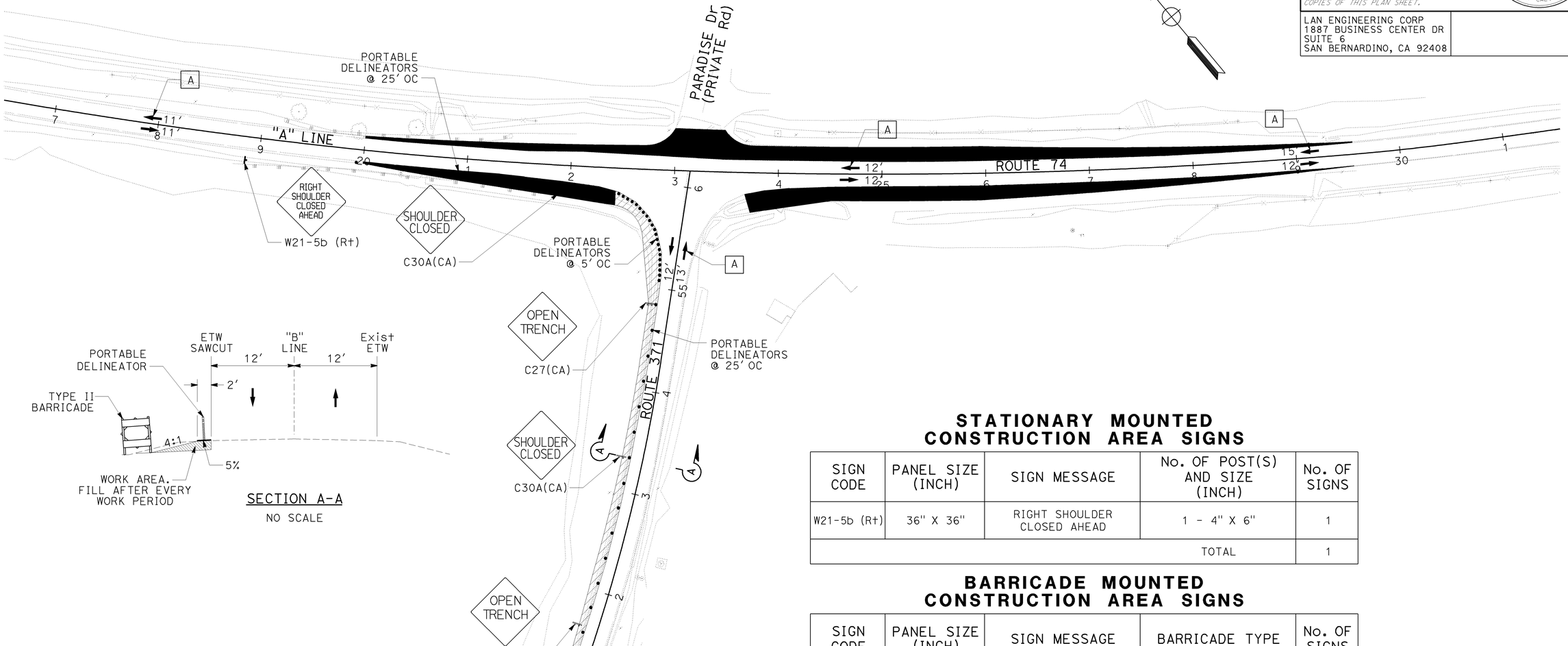
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTE:

1. FOR SITE CONFIGURATION INFORMATION ONLY (NO WORK TO BE PERFORMED DURING NIGHT TIME STAGE). CONTRACTOR SHALL CONFIGURE SITE AS SHOWN AT THE COMPLETION OF EACH DAY TIME OPERATION.

TRAFFIC HANDLING NOTE:

[A] TRAFFIC REMAINS IN THE EXISTING CONFIGURATION.



SECTION A-A
NO SCALE

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE (INCH)	SIGN MESSAGE	No. OF POST(S) AND SIZE (INCH)	No. OF SIGNS
W21-5b (Rt)	36" X 36"	RIGHT SHOULDER CLOSED AHEAD	1 - 4" X 6"	1
			TOTAL	1

BARRICADE MOUNTED CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE (INCH)	SIGN MESSAGE	BARRICADE TYPE	No. OF SIGNS
C27(CA)	36" X 36"	OPEN TRENCH	TYPE II	2
C30A(CA)	36" X 36"	SHOULDER CLOSED	TYPE II	2
			TOTAL	4

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

STAGE 3 NIGHT TIME

SCALE: 1"=50'

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

SC-6

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 25-FEB-2010
12-17-09 TIME PLOTTED => 11:23

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780ma006.dgn
CU 08367
EA 0L7801

CONSTRUCTION NOTES:

(1) SAWCUT AND CONSTRUCT LANE WIDENING

TRAFFIC HANDLING NOTES:

[A] TRAFFIC REMAINS IN THE EXISTING CONFIGURATION.

[B] ONE LANE, TWO WAY TRAFFIC CONTROL AS DIRECTED BY FLAGGERS.

[C] FLAGGERS SHOULD STAND IN A CONSPICUOUS PLACE, BE VISIBLE TO APPROACHING TRAFFIC AS WELL AS APPROACHING VEHICLES AFTER THE FIRST VEHICLE HAS STOPPED. DURING THE HOURS OF DARKNESS, THE FLAGGING-STATION AND FLAGGER SHALL BE ILLUMINATED AND CLEARLY VISIBLE TO APPROACHING TRAFFIC. THE ILLUMINATION FOOTPRINT OF THE LIGHTING ON THE GROUND SHALL BE AT LEAST, 20' IN DIAMETER. PLACE A MINIMUM OF FOUR CONES AT 50' INTERVALS IN ADVANCE OF FLAGGER STATION.

[D] DRIVEWAYS ALONG ROUTE 371 TO BE CLOSED. TRAFFIC TO USE DRIVEWAY ALONG ROUTE 74.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	25	43

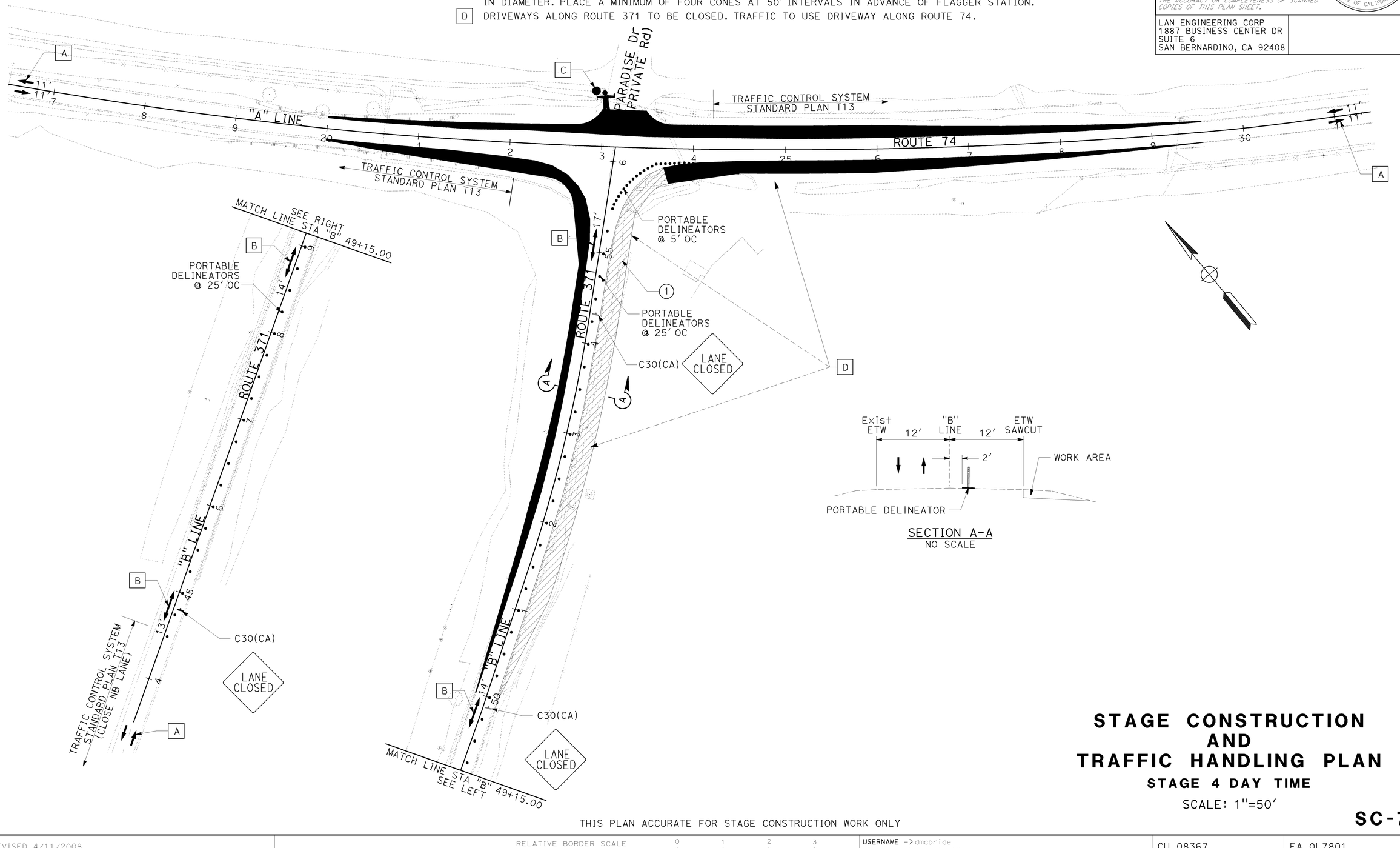
12-17-09
REGISTERED CIVIL ENGINEER — DATE

MARK GONZALEZ No. 73897 Exp. 6-30-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

03-01-10
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.

LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408



SECTION A-A
NO SCALE

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

STAGE 4 DAY TIME

SCALE: 1"=50'

SC-7

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY:
CHECKED BY:
REVISED BY: YOUICHI NAKAGAWA
DATE REVISED: MARK GONZALEZ

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:23

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780ma007.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	26	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
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.

LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

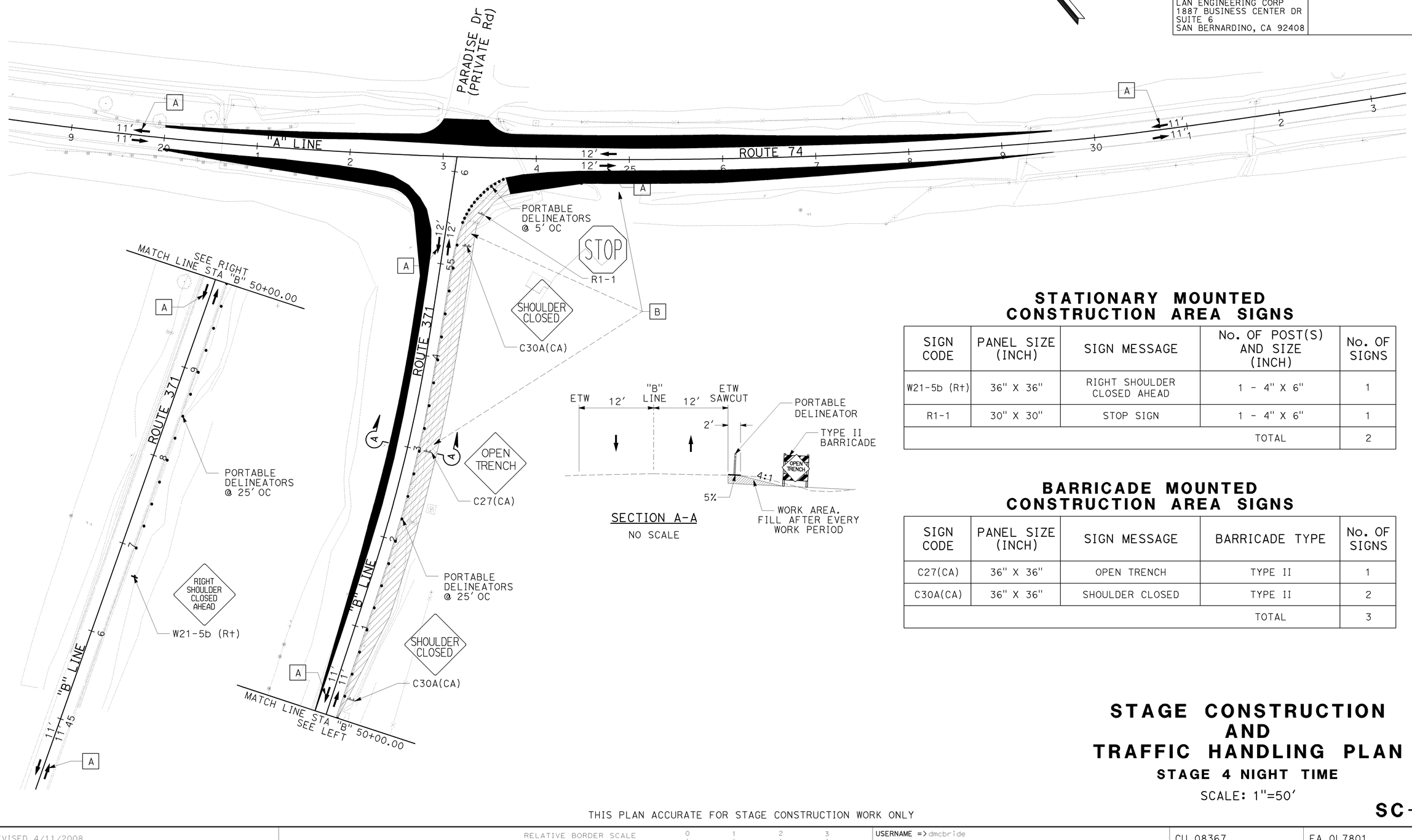
NOTE:

1. FOR SITE CONFIGURATION INFORMATION ONLY (NO WORK TO BE PERFORMED DURING NIGHT TIME STAGE). CONTRACTOR SHALL CONFIGURE SITE AS SHOWN AT THE COMPLETION OF EACH DAY TIME OPERATION.

TRAFFIC HANDLING NOTE:

[A] TRAFFIC REMAINS IN THE EXISTING CONFIGURATION.

[B] DRIVEWAYS ALONG ROUTE 371 TO BE CLOSED. TRAFFIC TO USE DRIVEWAY ALONG ROUTE 74.



STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE (INCH)	SIGN MESSAGE	No. OF POST(S) AND SIZE (INCH)	No. OF SIGNS
W21-5b (Rt)	36" X 36"	RIGHT SHOULDER CLOSED AHEAD	1 - 4" X 6"	1
R1-1	30" X 30"	STOP SIGN	1 - 4" X 6"	1
			TOTAL	2

BARRICADE MOUNTED CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE (INCH)	SIGN MESSAGE	BARRICADE TYPE	No. OF SIGNS
C27(CA)	36" X 36"	OPEN TRENCH	TYPE II	1
C30A(CA)	36" X 36"	SHOULDER CLOSED	TYPE II	2
			TOTAL	3

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

STAGE 4 NIGHT TIME

SCALE: 1"=50'

SC-8

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
REVISED BY
DATE REVISED

LAST REVISION DATE PLOTTED => 25-FEB-2010
12-17-09 TIME PLOTTED => 11:23

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780ma008.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	27	43

REGISTERED CIVIL ENGINEER — DATE: 12-17-09

REGISTERED PROFESSIONAL ENGINEER
MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

03-01-10
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.

LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

PORTABLE DELINEATORS

STAGE	PLAN SHEET No.	PORTABLE DELINEATORS	TYPE II BARRICADES	RESET BARRICADES
		EA	EA	EA
STAGE 1, DAY TIME	SC-1	99	—	—
STAGE 1, NIGHT TIME	SC-2	—	3	—
STAGE 2, NIGHT TIME	SC-4	—	1	3
STAGE 3, NIGHT TIME	SC-6	—	—	4
STAGE 4, NIGHT TIME	SC-8	—	—	3
	TOTAL	99	4	10

STAGE CONSTRUCTION AND TRAFFIC HANDLING QUANTITIES

SCQ-1

CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
REVISED BY
DATE REVISED
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 25-FEB-2010; TIME PLOTTED => 11:24; 12-17-09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	28	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

03-01-10
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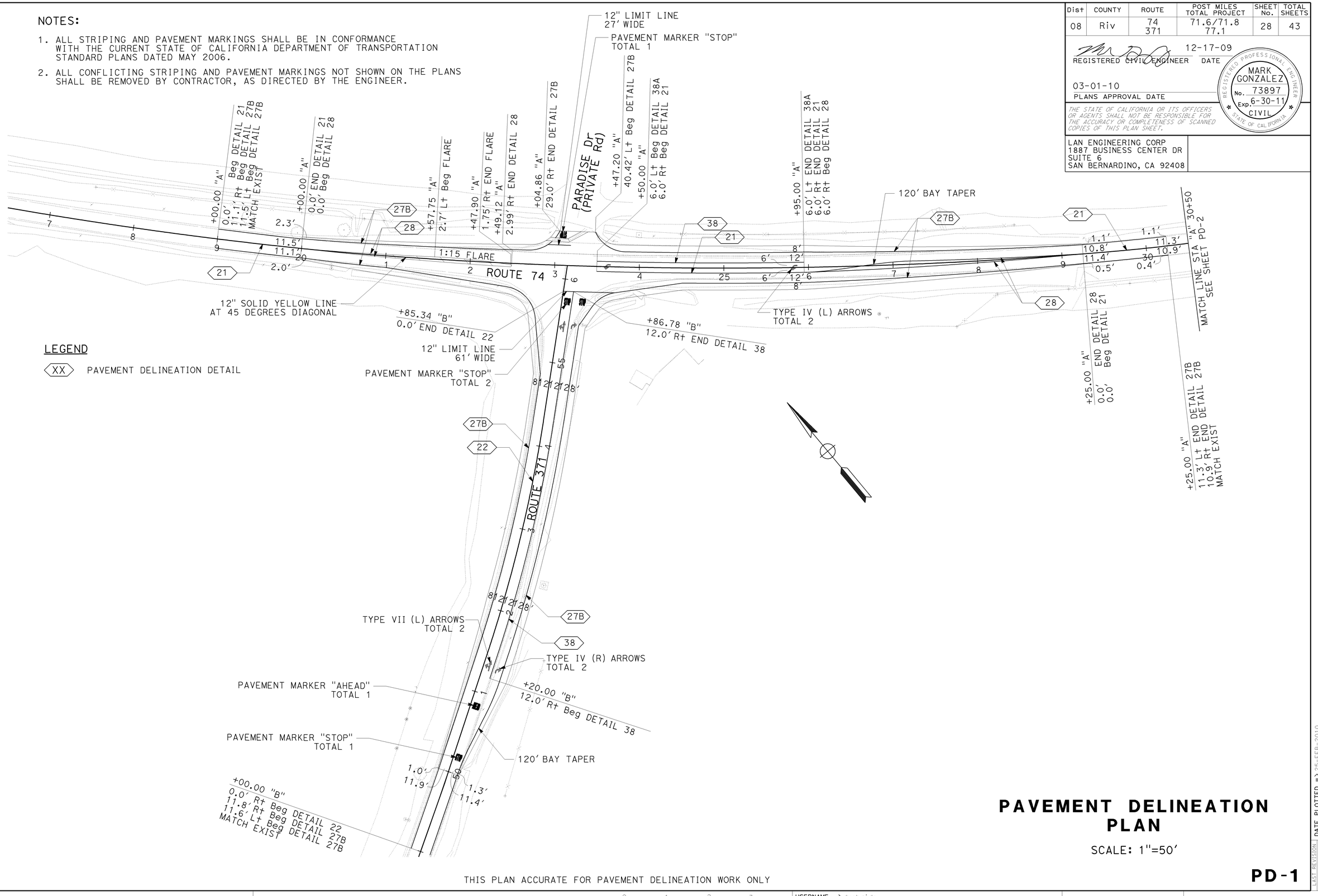
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTES:

1. ALL STRIPING AND PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THE CURRENT STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2006.
2. ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS NOT SHOWN ON THE PLANS SHALL BE REMOVED BY CONTRACTOR, AS DIRECTED BY THE ENGINEER.

LEGEND

XX PAVEMENT DELINEATION DETAIL



PAVEMENT DELINEATION PLAN

SCALE: 1"=50'

PD-1

THIS PLAN ACCURATE FOR PAVEMENT DELINEATION WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHOOR
CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
REVISED BY
DATE REVISED

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:25

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780na001.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	29	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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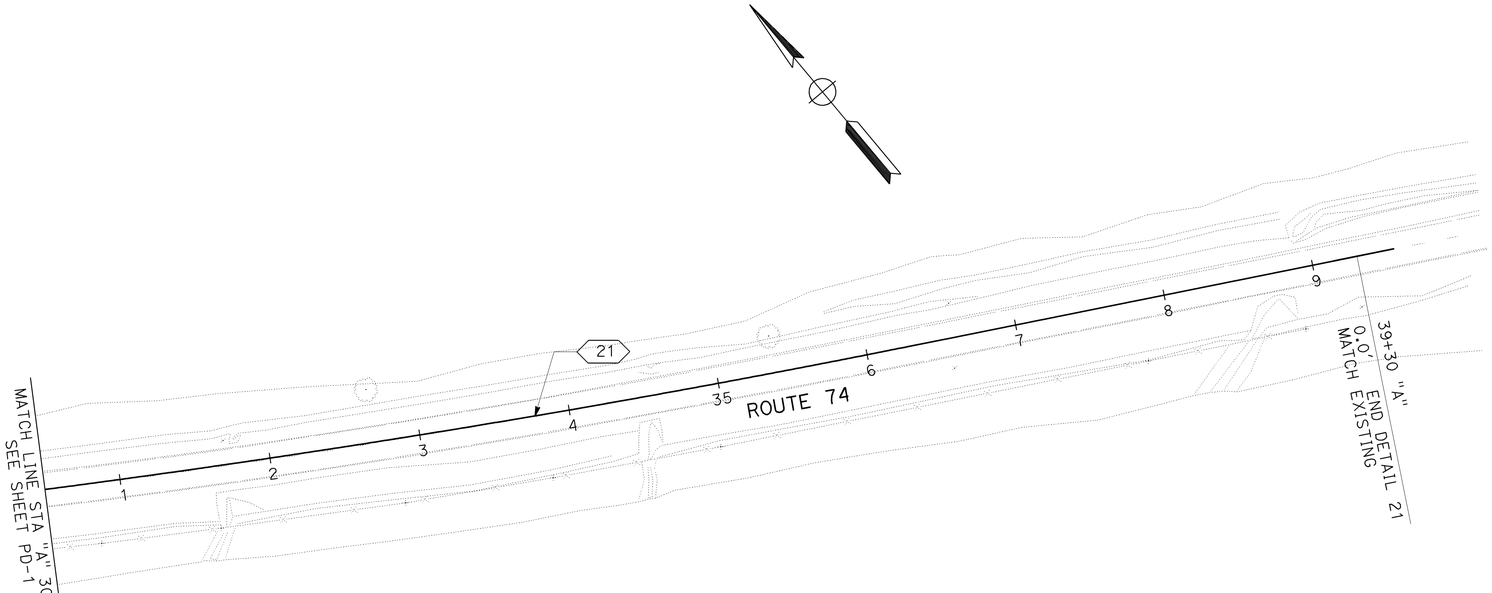
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTES:

1. ALL STRIPING AND PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THE CURRENT STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2006.
2. ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS NOT SHOWN ON THE PLANS SHALL BE REMOVED BY CONTRACTOR, AS DIRECTED BY THE ENGINEER.

LEGEND

XX PAVEMENT DELINEATION DETAIL



PAVEMENT DELINEATION PLAN

SCALE: 1"=50'

PD-2

THIS PLAN ACCURATE FOR PAVEMENT DELINEATION WORK ONLY

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY
CHECKED BY

YOUICHI NAKAGAWA
MARK GONZALEZ

CONSULTANT FUNCTIONAL SUPERVISOR
MAHMOUD KHODR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 25-FEB-2010
TIME PLOTTED => 11:26
12-17-09

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => dmcbride
DGN FILE => 80L780na002.dgn

CU 08367

EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	30	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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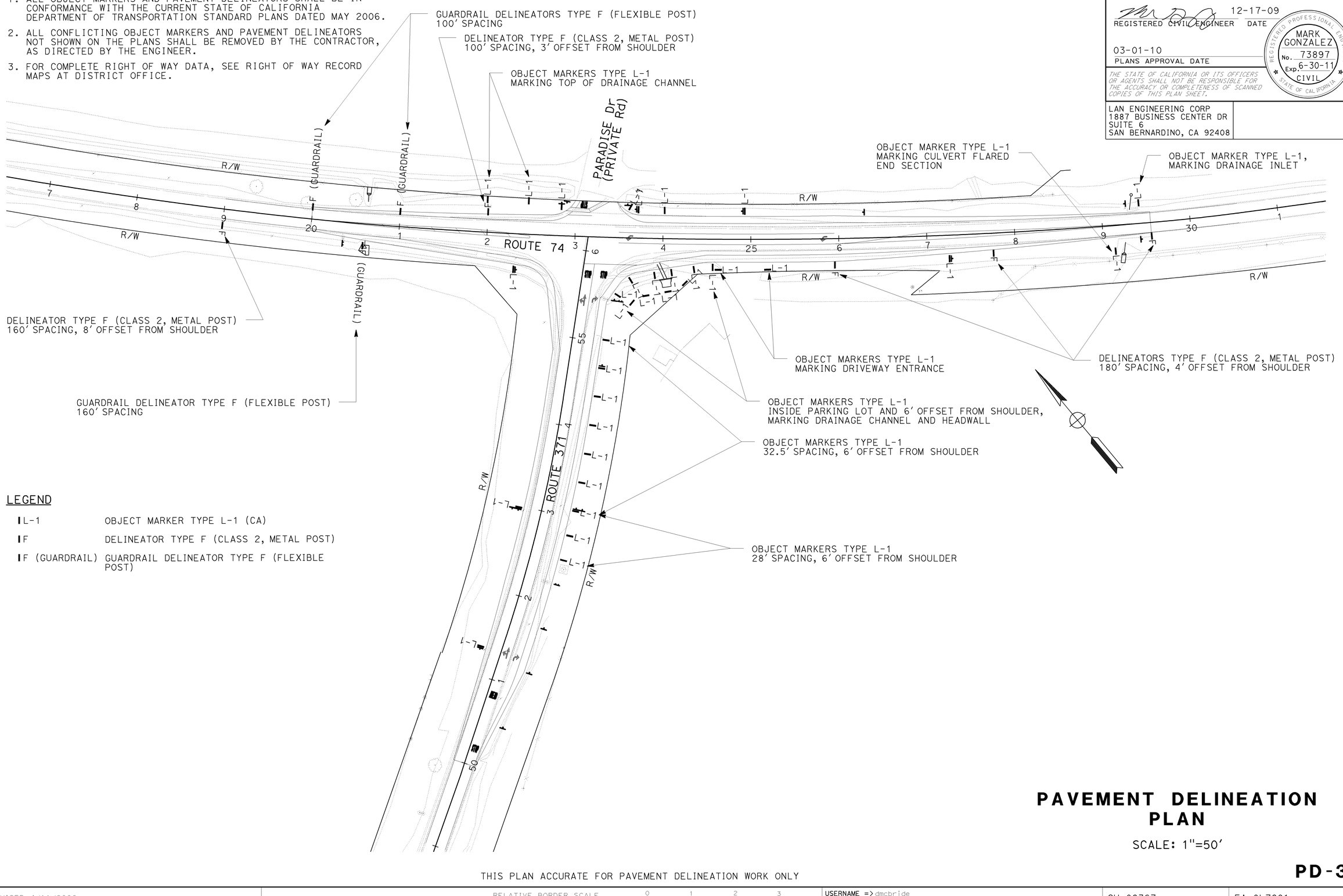
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTES:

1. ALL OBJECT MARKERS AND PAVEMENT DELINEATORS SHALL BE IN CONFORMANCE WITH THE CURRENT STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2006.
2. ALL CONFLICTING OBJECT MARKERS AND PAVEMENT DELINEATORS NOT SHOWN ON THE PLANS SHALL BE REMOVED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER.
3. FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



LEGEND

L-1	OBJECT MARKER TYPE L-1 (CA)
F	DELINEATOR TYPE F (CLASS 2, METAL POST)
F (GUARDRAIL)	GUARDRAIL DELINEATOR TYPE F (FLEXIBLE POST)

THIS PLAN ACCURATE FOR PAVEMENT DELINEATION WORK ONLY

PAVEMENT DELINEATION PLAN

SCALE: 1"=50'

PD-3

REVISED BY | DATE REVISED
YOUICHI NAKAGAWA | MARK GONZALEZ
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:26

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => dmcbride | DGN FILE => 80L780na003.dgn | CU 08367 | EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	31	43

REGISTERED CIVIL ENGINEER — DATE 12-17-09

MARK GONZALEZ No. 73897 Exp. 6-30-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE) AND PAVEMENT MARKERS

SHEET No.	STATION LIMITS	LOCATION	DETAIL No. OR PAVEMENT MARKING	PAVEMENT MARKER RETROREFLECTIVE-RECESSED TYPE D (EA)	PAVEMENT MARKER RETROREFLECTIVE-RECESSED TYPE G (EA)	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE) 4" YELLOW (LF)	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE) 4" WHITE (LF)	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE) 8" WHITE (LF)
PD-1	"A" 19+00.00 TO 20+00.00	CL	21			100		
	"A" 19+00.00 TO 23+04.86	WB	27B				409	
	"A" 19+00.00 TO 22+44.55	EB	27B				347	
	"A" 20+00.00 TO 22+49.12	WB	28			250		
		EB	28			250		
	"A" 23+50.00 TO 25+95.00	WB	38		11			245
		EB	21			246		
PD-1,PD-2	"A" 23+47.20 TO 30+25.00	WB	27B				685	
	"A" 23+72.01 TO 30+25.00	EB	27B				657	
PD-1	"A" 25+95.00 TO 29+25.00	WB	28			331		
		EB	28			331		
PD-1,PD-2	"A" 29+25.00 TO 39+30.00	CL	21			1005		
PD-1	"B" 49+00.00 TO 55+80.61	SB	27B				703	
	"B" 49+00.00 TO 55+85.34	CL	22	58		686		
	"B" 49+00.00 TO 55+92.88	NB	27B				714	
	"B" 51+20.00 TO 55+86.78	NB	38		20			469
TOTAL				58	31	3199	3515	714

PAVEMENT DELINEATION REMOVAL

SHEET No.	STATION LIMITS	LOCATION	DETAIL No. OR PAVEMENT MARKING	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (LF)	REMOVE PAVEMENT MARKER (EA)	REMOVE THERMOPLASTIC PAVEMENT MARKING (SF)
PD-1, PD-2	"A" 19+00.00 TO 30+25.00	CL	21	2250		
	"A" 30+25.00 TO 39+30.00	CL	18	1810		
	"B" 49+00.00 TO 55+70.00	CL	22	1340	56	
	"B" 50+50.00	NB	"STOP"			22
	"B" 51+14.00	NB	"AHEAD"			31
	"B" 55+50.00	NB	"STOP"			22
	"B" 55+70.00	NB	LIMIT LINE			24
TOTAL				5400	56	99

DELINEATORS

SHEET No.	STATION LIMITS	LOCATION	CLASS 2 (METAL POST) TYPE F (EA)	GUARD RAILING DELINEATOR (FLEXIBLE POST) TYPE F (EA)
PD-3	"A" 19+00.00 TO 29+25.00	EB	4	1
	"A" 19+00.00 TO 29+25.00	WB	1	2
	TOTAL		5	3

THERMOPLASTIC PAVEMENT MARKING

SHEET No.	STATION LIMITS	LOCATION	DETAIL No. OR PAVEMENT MARKING	THERMOPLASTIC PAVEMENT MARKING EA	THERMOPLASTIC PAVEMENT MARKING SF
PD-1	"A" 23+50.00 TO 24+95.00	WB	TYPE IV(L)	2	30
	"A" 20+00.00 TO 22+49.12	CL	12" SOLID YELLOW AT 45° DIAGONAL		50
	PARADISE DRIVE ("A" 22+91.34 TO 23+18.46)	SB	12" WHITE LIMIT LINE		27
	PARADISE DRIVE	SB	"STOP"	1	22
	"B" 50+20.00	NB	"STOP"	1	22
	"B" 50+84.00	NB	"AHEAD"	1	31
	"B" 51+20.00 TO 55+86.78	NB	TYPE IV(R)	2	30
		NB	TYPE VII(L)	2	54
	"B" 55+75.00	NB	"STOP"	2	44
	ROUTE 371 ("A" 23+11.35 TO 23+72.01)	NB	12" WHITE LIMIT LINE		61
			TOTAL		371

OBJECT MARKERS

SHEET No.	STATION LIMITS	LOCATION	TYPE L-1(CA) EA
PD-3	"A" 19+00.00 TO 29+55.00	EB	15
	"A" 19+00.00 TO 29+55.00	WB	8
	"B" 50+00.00 TO 55+00.00	SB	2
	"B" 50+00.00 TO 55+00.00	NB	9
		TOTAL	34

PAVEMENT DELINEATION QUANTITIES

PDQ-1

REVISED BY | DATE REVISED
YOUICHI NAKAGAWA | MARK GONZALEZ
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010 | TIME PLOTTED => 11:26
12-17-09

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => dmcbride | DGN FILE => 80L780nc001.dgn | CU 08367 | EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	32	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
PLANS APPROVAL DATE

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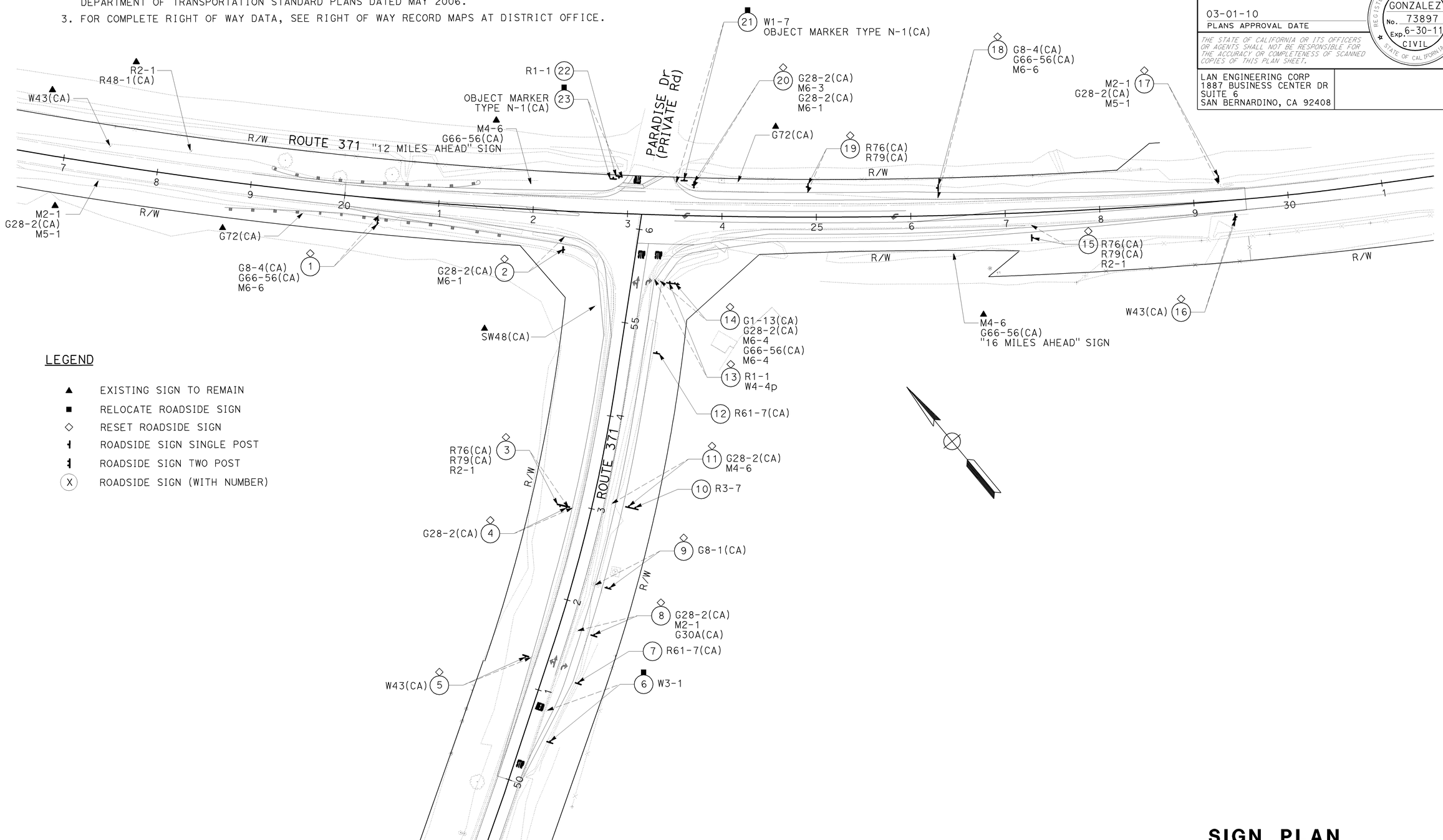
LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTES:

1. EXACT SIGN LOCATION TO BE APPROVED BY THE ENGINEER.
2. ALL SIGNING SHALL BE IN CONFORMANCE WITH THE CURRENT STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2006.
3. FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



LEGEND

- ▲ EXISTING SIGN TO REMAIN
- ■ RELOCATE ROADSIDE SIGN
- ◇ RESET ROADSIDE SIGN
- ROADSIDE SIGN SINGLE POST
- ROADSIDE SIGN TWO POST
- (X) ROADSIDE SIGN (WITH NUMBER)

THIS PLAN ACCURATE FOR SIGN WORK ONLY

SIGN PLAN

SCALE: 1"=50'

S-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
REVISED BY
DATE REVISED

LAST REVISION DATE PLOTTED => 25-FEB-2010
12-17-09 TIME PLOTTED => 11:26

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780oa001.dgn
CU 08367
EA 0L7801

ROADSIDE SIGN QUANTITIES

SHEET No.	POST No.	CODE	DESCRIPTION	PANEL SIZE Horiz	PANEL SIZE Vert	POST SIZE	ROADSIDE SIGN RESET ONE POST	RESET TWO POST	RELOCATE ONE POST	RELOCATE TWO POST	NEW ONE POST	NEW TWO POST
				INCH	INCH	INCH	EA	EA	EA	EA	EA	EA
S-1	1	G8-4(CA)	Anza San Diego →	EXISTING								
		G66-56(CA)	STAA TRUCK TERMINAL ACCESS	EXISTING		EXISTING		1				
		M6-6	↑→	EXISTING								
	2	G28-2(CA)	CALIFORNIA 371	EXISTING		EXISTING	1					
		M6-1	→	EXISTING								
	3	R76(CA)	CHAINS REQUIRED	EXISTING		EXISTING	1					
		R79(CA)	AUTOS & PICKUPS SNOW TIRES OK CARRY CHAINS	EXISTING								
		R2-1	SPEED LIMIT 25	EXISTING								
	4	G28-2(CA)	CALIFORNIA 371	EXISTING		EXISTING	1					
	5	W43(CA)	ICY	EXISTING		EXISTING	1					
	6	W3-1	STOP SIGN AHEAD (SYMBOL)	EXISTING		EXISTING			1			
	7	R61-7(CA)	INTERSECTION LANE CONTROL (SYMBOL)	36	30	4 x 6					1	
	8	G28-2(CA)	CALIFORNIA 74	EXISTING		EXISTING	1					
		M2-1	JCT	EXISTING								
		G30A(CA)	SCENIC ROUTE (SYMBOL)	EXISTING								
	9	G8-1(CA)	Palm Desert →	EXISTING		EXISTING		1				
	10	R3-7	RIGHT LANE MUST TURN RIGHT	30	30	4 x 6					1	
	11	G28-2(CA)	CALIFORNIA 371	EXISTING		EXISTING	1					
		M4-6	END	EXISTING								
	12	R61-7(CA)	INTERSECTION LANE CONTROL (SYMBOL)	36	30	4 x 6					1	
	13	R1-1	STOP	EXISTING		EXISTING	1					
		W4-4p	CROSS TRAFFIC DOES NOT STOP	EXISTING								
	14	G1-13(CA)	← Idyllwild 17 Hemet 31 Indio 34 →	EXISTING		EXISTING		1				
		G28-2(CA)	CALIFORNIA 74	EXISTING								
		M6-4	←→	EXISTING								
		G66-56(CA)	STAA TRUCK TERMINAL ACCESS	EXISTING								
		M6-4	←→	EXISTING								
	15	R76(CA)	CHAINS REQUIRED	EXISTING		EXISTING	1					
		R79(CA)	AUTOS & PICKUPS SNOW TIRES OK CARRY CHAINS	EXISTING								
		R2-1	SPEED LIMIT 25	EXISTING								
	16	W43(CA)	ICY	EXISTING		EXISTING	1					
	17	M2-1	JCT	EXISTING		EXISTING	1					
		G28-2(CA)	CALIFORNIA 371	EXISTING								
		M5-1	←┐	EXISTING								
	18	G8-4(CA)	← Anza San Diego	EXISTING		EXISTING	1					
		G66-56(CA)	STAA TRUCK TERMINAL ACCESS	EXISTING								
		M6-6	↓←	EXISTING								
	19	R76(CA)	CHAINS REQUIRED	EXISTING		EXISTING	1					
		R79(CA)	AUTOS & PICKUPS SNOW TIRES OK CARRY CHAINS	EXISTING								
						TOTAL	12	3	1	0	3	0

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	33	43

12-17-09
REGISTERED CIVIL ENGINEER — DATE

MARK GONZALEZ
No. 73897
Exp. 6-30-11
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REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTE:

1. CALIFORNIA SIGN CODES ARE DESIGNATED BY (CA). OTHERWISE, FEDERAL SIGN CODES ARE SHOWN.

ROADSIDE SIGN QUANTITIES (CONTINUED)

SHEET No.	POST No.	CODE	DESCRIPTION	PANEL SIZE Horiz	PANEL SIZE Vert	POST SIZE	ROADSIDE SIGN RESET ONE POST	RESET TWO POST	RELOCATE ONE POST	RELOCATE TWO POST	NEW ONE POST	NEW TWO POST
				INCH	INCH	INCH	EA	EA	EA	EA	EA	EA
S-1	20	G28-2(CA)	CALIFORNIA 74	EXISTING		EXISTING	1					
		M6-3	↑	EXISTING								
		G28-2(CA)	CALIFORNIA 371	EXISTING								
		M6-1	←	EXISTING								
	21	W1-7	←→	EXISTING		EXISTING			1			
		OBJECT MARKER TYPE N-1(CA)	◆	EXISTING								
	22	R1-1	STOP	30	30	4 x 6					1	
	23	OBJECT MARKER TYPE N-1(CA)	◆	EXISTING		EXISTING			1			
						TOTAL	1	0	2	0	1	0
						GRAND TOTAL	13	3	3	0	4	0

SIGN QUANTITIES

SQ-1

REVISED BY | DATE REVISED
YOUICHI NAKAGAWA | MARK GONZALEZ
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 25-FEB-2010
12-17-09 | TIME PLOTTED => 11:26

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => dmcbride | DGN FILE => 80L780oc001.dgn | CU 08367 | EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	34	43

12-17-09
REGISTERED CIVIL ENGINEER DATE

03-01-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MARK GONZALEZ
No. 73897
Exp. 6-30-11
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.

LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

NOTE:

1. CALIFORNIA SIGN CODES ARE DESIGNATED BY (CA). OTHERWISE, FEDERAL SIGN CODES ARE SHOWN.

SIGN PANEL MATERIAL QUANTITIES

SHEET No.	POST No.	CODE	DESCRIPTION	PANEL SIZE		FURNISH PANEL SIGN					SINGLE FACED	DOUBLE FACED	BACKGROUND		LEGEND		GRAFFITI FILM		ROADSIDE									
						SINGLE SHEET ALUMINUM (0.063"-UNFRAMED)	SINGLE SHEET ALUMINUM (0.063"-FRAMED)	SINGLE SHEET ALUMINUM (0.080"-UNFRAMED)	SINGLE SHEET ALUMINUM (0.080"-FRAMED)	SINGLE SHEET ALUMINUM (0.125"-UNFRAMED)									SINGLE - SHEET						LAMINATED			ROADSIDE FORMED
																			FRP	FRAMED ALUMINUM		UNFRAMED ALUMINUM						
				Horiz	Vert								SHEETING COLOR	RETROFLECTIVE ASTM TYPE	SHEETING COLOR	RETROFLECTIVE ASTM TYPE	STANDARD	PREMIUM	0.135"	0.063"	0.080"	0.063"	0.080"	0.125"	1" TYPE B	2.5" TYPE B	2.5" TYPE H	
				INCH	INCH	SQFT	SQFT	SQFT	SQFT	SQFT																		
S-1	7	R61-7(CA)	INTERSECTION LANE CONTROL (SYMBOL)	36	30	7.50	-	-	-	-	X	-	WHITE	VII	BLACK	-	-	X	-	-	-	X	-	-	-	-	-	-
	10	R3-7	RIGHT LANE MUST TURN RIGHT	30	30	6.25	-	-	-	-	X	-	WHITE	VII	BLACK	-	-	X	-	-	-	X	-	-	-	-	-	-
	12	R61-7(CA)	INTERSECTION LANE CONTROL (SYMBOL)	36	30	7.50	-	-	-	-	X	-	WHITE	VII	BLACK	-	-	X	-	-	-	X	-	-	-	-	-	-
	22	R1-1	STOP	30	30	6.25	-	-	-	-	X	-	RED	VII	WHITE	VII	-	X	-	-	-	X	-	-	-	-	-	-
					TOTAL	27.50																						

FRP = FIBERGLASS REINFORCED PLASTIC

SIGN QUANTITIES

SQ-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
REVISED BY
DATE REVISED

LAST REVISION DATE PLOTTED => 25-FEB-2010
12-17-09 TIME PLOTTED => 11:26

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780oc002.dgn
CU 08367
EA 0L7801

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv	74 371	71.6/71.8 77.1	35	43

REGISTERED CIVIL ENGINEER — DATE 12-17-09

MARK GONZALEZ
No. 73897
Exp. 6-30-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

03-01-10
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.

LAN ENGINEERING CORP
1887 BUSINESS CENTER DR
SUITE 6
SAN BERNARDINO, CA 92408

ROADBED

PLAN SHEET No.	STATION	CLASS 2 AGGREGATE BASE	HOT MIX ASPHALT (TYPE A)	COLD PLANE ASPHALT CONCRETE
		CY	TON	SQYD
L-1	"A" 18+75.73 TO 29+55.00 "B" 50+00.00 TO 56+16.25	1062	1299	329
	TOTAL	1062	1299	329

METAL BEAM GUARD RAILING

PLAN SHEET No.	STATION	MBGR (STEEL POST)	ALTERNATIVE FLARED TERMINAL SYSTEM	ALTERNATIVE IN-LINE TERMINAL SYSTEM	(N) BURIED POST ANCHOR
		LF	EA	EA	EA
L-1	"A" 19+62.40 TO 21+00.41 L†	137.5	2		
L-1	"A" 19+99.82 TO 21+24.16 R†	250		1	1
	TOTAL	387.5	2	1	1

(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

MINOR CONCRETE (GUTTER)

PLAN SHEET No.	STATION	CROSS GUTTER
		LF
C-1	"A" 22+88.86 TO 23+38.46	52.8
	TOTAL	52.8

REMOVE FENCE (TYPE BW)

PLAN SHEET No.	STATION	LF
L-1	"A" 27+79.45 TO 29+55.00	180
	TOTAL	180

FENCE (TYPE BW, 4 STRAND, WOOD POST)

PLAN SHEET No.	STATION	LF
L-1	"A" 27+79.45 TO 29+55.00	200
	TOTAL	200

EARTHWORK

PLAN SHEET No.	STATION	ROADWAY EXCAVATION	(N) EMBANKMENT	IMPORTED BORROW
		CY		
L-1	"A" 18+75.73 TO 29+55.00 "B" 50+00.00 TO 56+16.25	280	510	230
	TOTAL	280	510	230

(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

SUMMARY OF QUANTITIES

Q-1

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: YOUICHI NAKAGAWA
CHECKED BY: MARK GONZALEZ
CONSULTANT FUNCTIONAL SUPERVISOR: MAHMOUD KHODR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 25-FEB-2010
12-17-09 TIME PLOTTED => 11:26

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => dmcbride
DGN FILE => 80L780pa001.dgn
CU 08367
EA 0L7801

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	36	43

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Randell D. Hiatt No. C50200 Exp. 6-30-09 CIVIL — STATE OF CALIFORNIA

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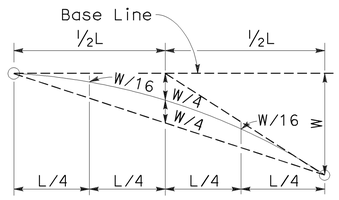
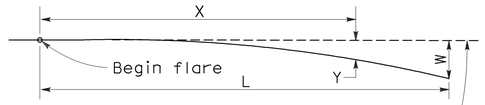
To accompany plans dated March 01, 2010



TYPICAL PARABOLIC LAYOUT

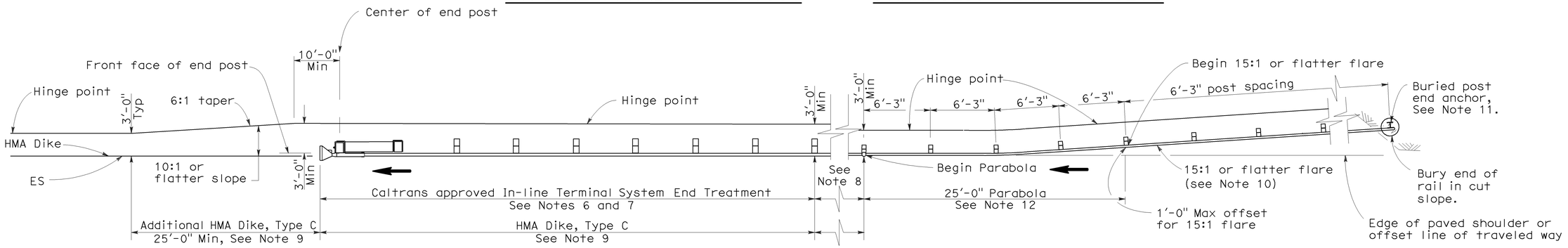


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

$$Y = \frac{WX^2}{L^2}$$

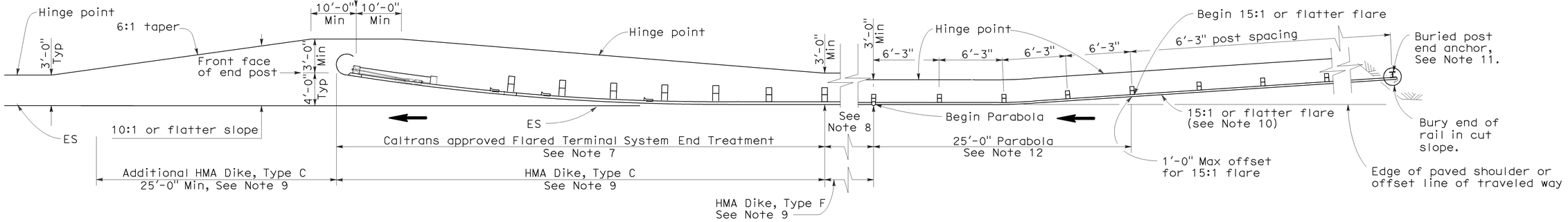
Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

PARABOLIC FLARE OFFSETS



TYPE 11K LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AND AN IN-LINE END TREATMENT AT THE ENDS OF RAILING)
See Note 5



TYPE 11L LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AND A FLARED END TREATMENT AT THE ENDS OF RAILING)
See Note 5

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ➔.
5. Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embamkment slopes and a crashworthy end treatment is required for both directions of traffic.
6. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
7. The type of terminal system end treatment to be used will be shown on the Project Plans.
8. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
9. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
10. The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
11. For details of the buried post end anchor used with Type 11K and 11L Layouts, see Standard Plan A77I2.
12. For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

RSP A77E6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E6
DATED MAY 1, 2006 - PAGE 53 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E6

2006 REVISED STANDARD PLAN RSP A77E6

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	37	43

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

June 6, 2008
PLANS APPROVAL DATE

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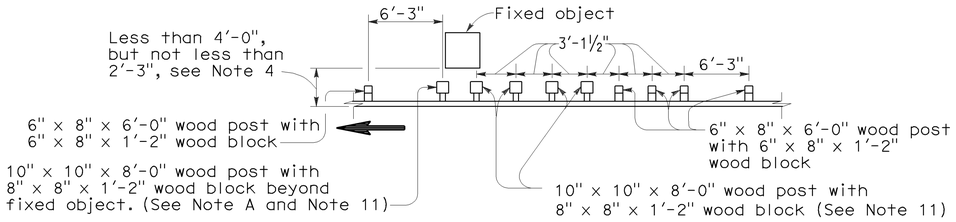
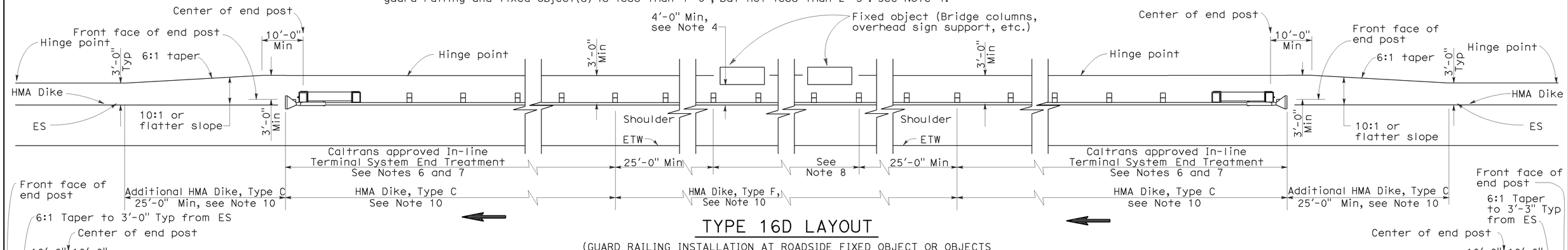
To accompany plans dated March 01, 2010



NOTE A: For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1½" center to center spacing are to be used between fixed object(s).

STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT

Use strengthened railing sections with Layout Types 16D or 16E where minimum clearance between the guard railing and fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4.



TYPE 16D LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AT EACH END OF RAILING)
See Note 9

TYPE 16E LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AT EACH END OF RAILING)
See Note 9

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
5. Direction of adjacent traffic indicated by ➡.
6. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
7. The type of terminal system to be used will be shown on the Project Plans.
8. As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
9. Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans, are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
10. Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
11. W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail."

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE

RSP A77G4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G4
DATED MAY 1, 2006 - PAGE 62 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77G4

2006 REVISED STANDARD PLAN RSP A77G4

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	38	43

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

January 18, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Raymond Don Tsztoo — No. C37332 — Exp. 6-30-08 — CIVIL — STATE OF CALIFORNIA

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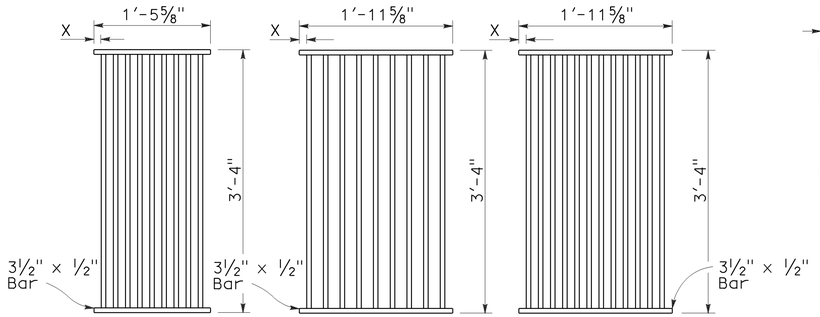
To accompany plans dated March 01, 2010



TYPE 18-9

1⅜" Clear spacing. Use within the roadbed on highways where bicycles and pedestrians are excluded.

TYPE 24-9

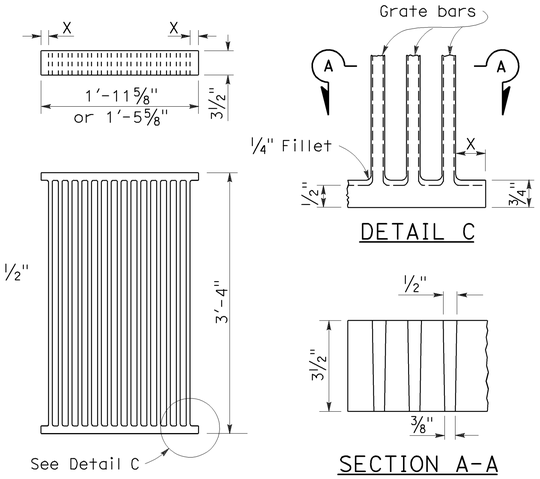
2" Clear spacing. Use in locations off the roadbed on all types of highways.

TYPE 24-12

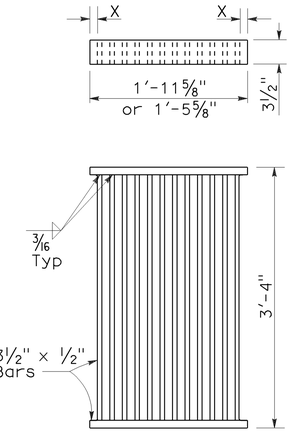
1⅜" Clear spacing. Use within the roadbed on highways where bicycles and pedestrians are excluded.

RECTANGULAR GRATE DETAILS

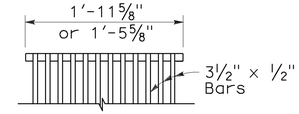
(See table below)



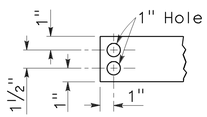
ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE



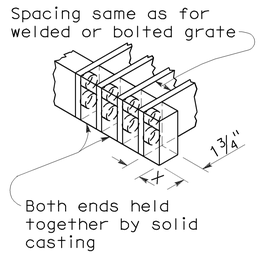
ALTERNATIVE WELDED GRATE



CAST END BLOCK



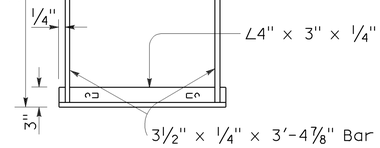
END OF BAR



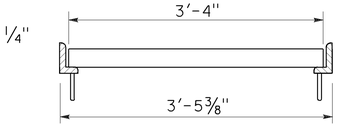
ALTERNATIVE CAST NODULAR IRON OR CAST STEEL END BLOCK GRATE

NOTES:

1. Grate type numbers refer to approximate width of grate in inches and number of bars, respectively.
2. Contractor has the option of using cast nodular iron, cast steel, welded, bolted, or cast end block grate.
3. See Special Provisions for requirements pertaining to galvanizing or asphalt dipping of grates and frames.
4. Rounded top of bars optional on all grates.
5. Pipe inlets with a grate shall be placed so that bars parallel direction of principle surface flow.
6. Full penetration butt welds may be substituted for the fillet welds on all anchors.
7. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
8. Grate and frame weights are based on welded grates (weights of face angles, steps, protection bars, etc. are not included).

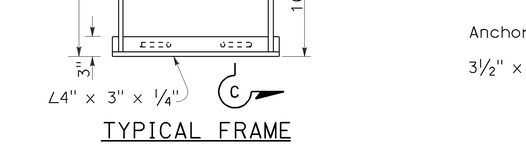


TYPICAL FRAME

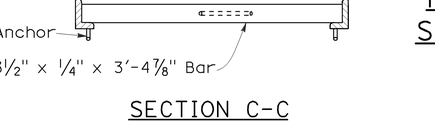


CROSS SECTION
(Thru frame)

LONGITUDINAL SECTION
(Thru frame and grate)



TYPICAL FRAME



SECTION B-B

SECTION C-C

ALTERNATIVE ANCHOR FOR RECTANGULAR FRAME

(For details not shown, See Rectangular Frame Details)

RECTANGULAR FRAME DETAILS

(For all rectangular grates)

GRATE BAR SPACING TABLE

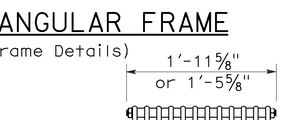
TYPE	No. OF BARS	CLEAR BAR SPACING	X
18-9	9	1⅜"	1 1⁄16"
24-9	9	2"	1 9⁄16"
24-12	12	1⅜"	1¼"

INLET TYPE	COVER TYPE	WEIGHT LB
OS	PLATE	174
OL-7	PLATE	170
OL-10	PLATE	170
OL-14	PLATE	170
OL-21	PLATE	170
OCP	PLATE	112
OCPI	PLATE	112
OCPI	REDWOOD	42
OMP	PLATE	177
OMPI	PLATE	177

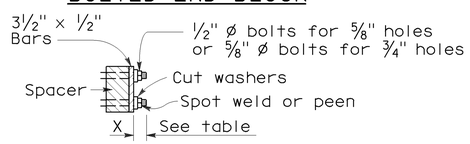
INLET TYPE	GRATE TYPE	No. OF GRATES	WEIGHT LB
GDO	24-12	2	634
GOL-7	24-12	1	326
GOL-10	24-12	1	326
GO,G1,G2,G3,G4 (TYPE 24)	24-9	1	263
	24-12	1	326
G4 (TYPE 18),G5,G6	18-9	1	249
GT1	18-9	2	498
GT2	18-9	2	498
GT3	24-12	2	652
GT4	24-12	2	652
TRASH RACK			22

BASIS FOR MISC IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS

(See General Notes, No 8)

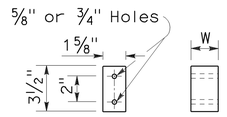


BOLTED END BLOCK

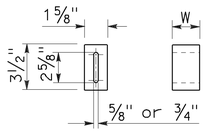


BOLTING DETAIL

ALTERNATIVE BOLTED GRATE



BAR SPACER



ALTERNATIVE SPACER
W = 1⅜" or 2"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

GRATE DETAILS

NO SCALE

RSP D77A DATED JANUARY 18, 2008 SUPERSEDES STANDARD PLAN D77A DATED MAY 1, 2006 - PAGE 155 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D77A

12-14-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	39	43

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Raymond Don Tsztoo No. C37332 Exp. 6-30-08 CIVIL — STATE OF CALIFORNIA

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ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS		BAND THICKNESS		BAR AND STRAP (CSP ONLY)				ANGLE						
												DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				CSP	CAP	CSP	CAP	STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	CSP	CAP	CSP	CAP	CSP	CAP	CSP
TWO PIECE INTEGRAL FLANGE	1½′ × ¼"	6"-10"	7"	0.052"-0.079"	0.048"-0.060"	0.052"	0.060"							2-⅜"	2-⅜"			
		12"-18"	7"	0.052"-0.079"		0.064"								2-½"				
	2⅔" × ½"	12"-24"	7"	0.052"-0.079"	0.060"-0.105"	0.064"	0.060"							2-½"	2-½"			
UNIVERSAL	2⅔" × ½"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
		42"-60"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		THROUGH 72"	12"	0.052"-0.168"	0.164"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	16¼"	0.168"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
ANNULAR	2⅔" × ½"	THROUGH 36"	7"	0.064"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	2-½"	2-½"	3-⅜"	3-⅜"	3-½"
		42"-72"	12"	0.064"-0.168"	0.075"-0.164"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	12"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
	3" × 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		4-⅜"		
		42"-108"	14"		0.060"-0.135"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
HELICAL	2⅔" × ½"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	12"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
	3" × 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		4-⅜"		
		42"-108"	14"		0.060"-0.135"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
HUGGER	2⅔" × ½" REROLLED END	12"-54"	4"	0.052"-0.109"		0.052"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		60"-66"	4"	0.109"		0.064"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		36"-48"	4"	0.138"		0.064"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		THROUGH 72"	10½"	0.052"-0.168"		0.052"		0.079"	½"	⅞"	32 ksi							
		78"-84"	10½"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi							
	3" × 1" REROLLED END	48"-90"	10½"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi							
		96"-120"	10½"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi							
	5" × 1" REROLLED END	48"-66"	7½"	0.064"-0.109"		0.064"		0.079"	½"	⅞"	32 ksi	2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		72"-90"	7½"	0.064"-0.079"		0.064"		0.079"	½"	⅞"	32 ksi	2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		48"-90"	7½"	0.064"-0.138"		0.064"		0.079"	½"	⅞"	32 ksi							
		48"-120"	12" SEE NOTE 11	0.064"-0.109"		0.064"		0.079"	½"	⅞"	32 ksi							
		48"-84"	12" SEE NOTE 11	0.138"		0.064"		0.079"	½"	⅞"	32 ksi							
		90"-120"	12" SEE NOTE 11	0.138"		0.064"		DOUBLE 0.079"	½"	⅞"	32 ksi							

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS		BAND THICKNESS		BAR AND STRAP (SSRP ONLY)				ANGLE						
												DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP	STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP
ANNULAR	2⅔" × ½" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.064"-0.109"	0.075"-0.105"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		66"-72"	12"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-114"	12"	0.079"-0.109"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
HUGGER	2⅔" × ½" * REROLLED END	24"-72"	10½"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi							
		78"-84"	10½"	0.109"		0.079"		0.109"	½"	⅞"	45 ksi							

* See Note 14.

NOTES:

To accompany plans dated March 01, 2010

1. All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
2. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
3. Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
4. Use 1¼" gage line dimension on attached angle leg for rivets and spot welds.
5. Band thickness shall not be less than:
   a. 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
   b. 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
6. Dimensions, thicknesses and strengths shown are minimum.
7. For pipe arches use same width band as for round pipe of equal periphery.
8. Fillet welds of equivalent strenght may be substituted for spot welds or rivets.
9. Spot welds shall develop minimum required strength of strap.
10. Pipe with rerolled ends having at least two 2⅔" × ½" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2⅔" × ½" corrugations.
11. In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
12. Two piece bands are required for pipes greater than 42" diameter.
13. The 2¼" × 2" x 0.109" thick galvanized die-formed angle connector may be used in lieu of the 2" × 2" × 3/16" angle connector for standard joints only on pipes through 72" diameter.
14. All profiles of Spiral Rib Pipe (¾" × ¾" ribs at 7½" pitch and ¾" × 1" ribs at 11½" pitch in both steel and aluminum and ¾" × 1" ribs at 8½" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2⅔" × ½" annual corrugations with a minimum of two full corrugations at each end.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 5 STANDARD JOINT

NO SCALE

RSP D97E DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97E
DATED MAY 1, 2006 - PAGE 187 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97E

2006 REVISED STANDARD PLAN RSP D97E

4-2-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	40	43

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

Randell D. Hiatt No. C50200 Exp. 6-30-09 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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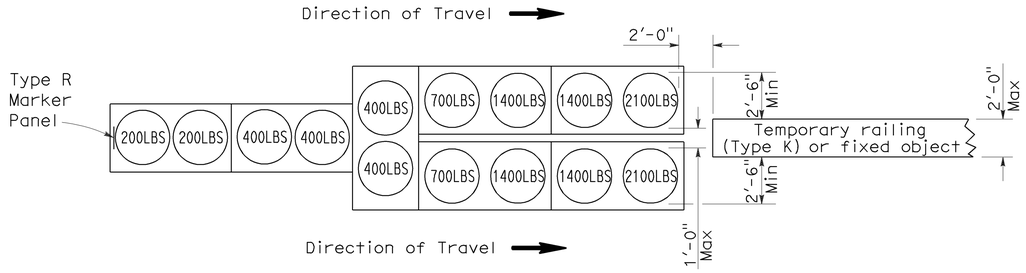
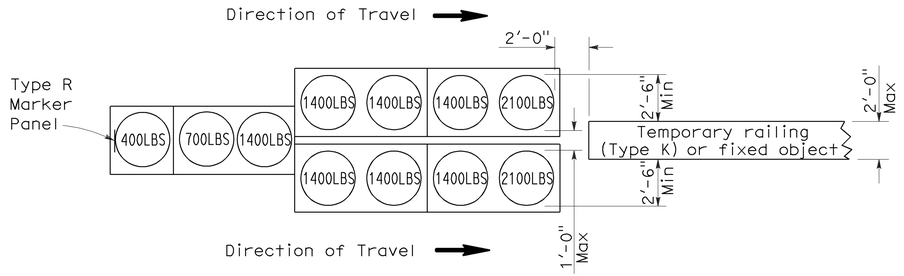
To accompany plans dated March 01, 2010



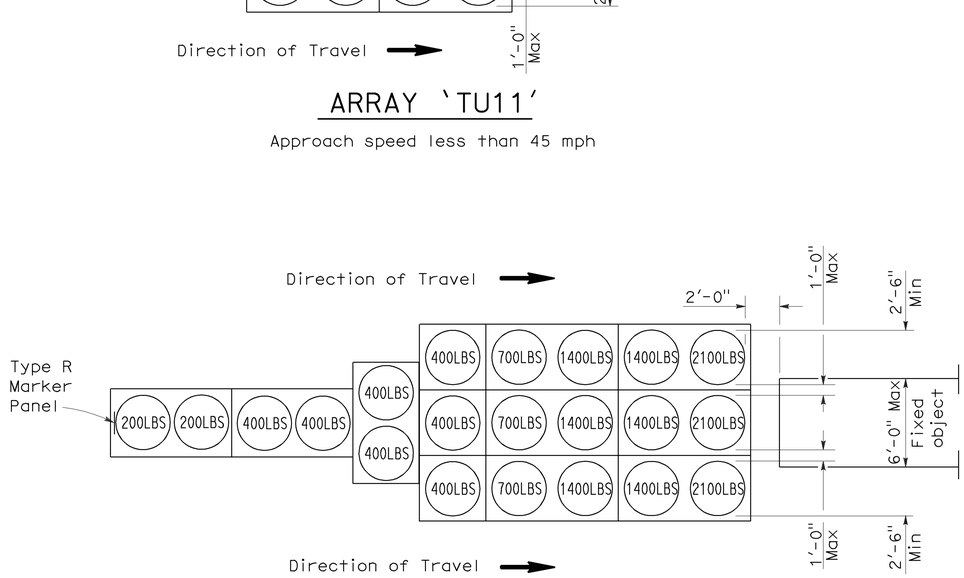
ARRAY 'TU14'

Approach speed 45 mph or more



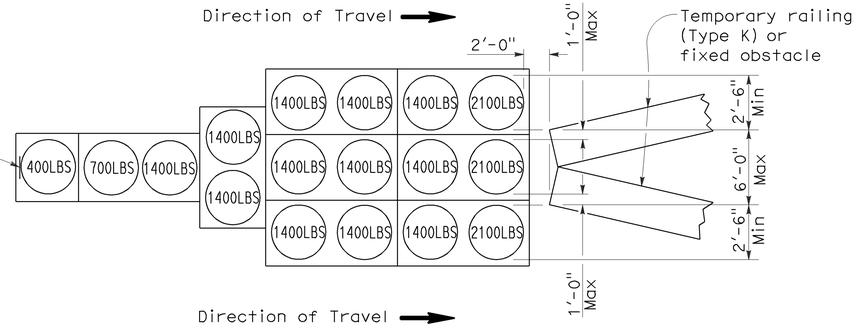
ARRAY 'TU11'

Approach speed less than 45 mph



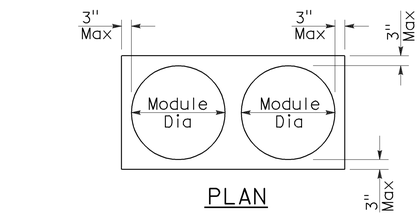
ARRAY 'TU21'

Approach speed 45 mph or more

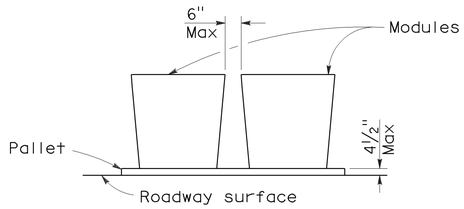


ARRAY 'TU17'

Approach speed less than 45 mph



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the top of Type R marker panel 1" below the module lid.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (UNIDIRECTIONAL)

NO SCALE

RSP T1A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1A
DATED MAY 1, 2006 - PAGE 211 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T1A

2006 REVISED STANDARD PLAN RSP T1A

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	41	43

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

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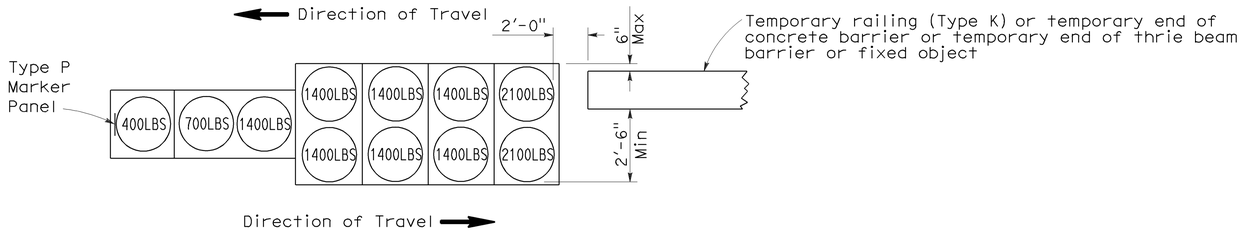
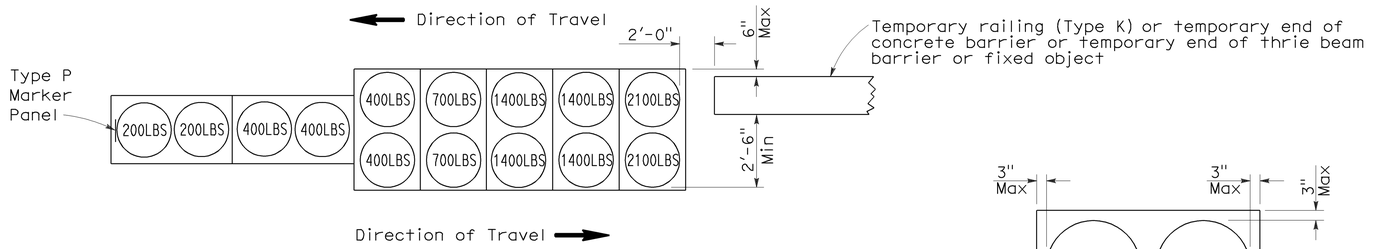
To accompany plans dated March 01, 2010



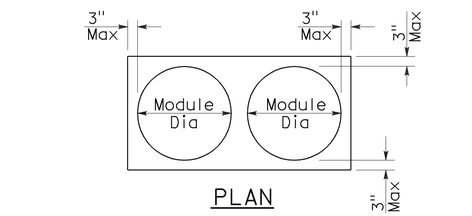
ARRAY 'TB11'

Approach speed less than 45 mph

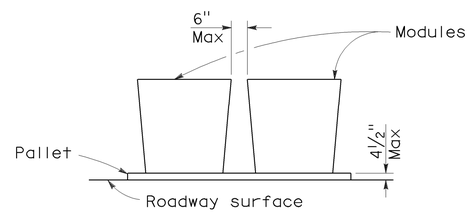


ARRAY 'TB14'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the Type P marker panel so that the bottom of the panel rests upon the pallet.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (BIDIRECTIONAL)

NO SCALE

RSP T1B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1B
DATED MAY 1, 2006 - PAGE 212 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T1B

2006 REVISED STANDARD PLAN RSP T1B

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	42	43

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Randell D. Hiatt — No. C50200 — Exp. 6-30-09 — CIVIL — STATE OF CALIFORNIA

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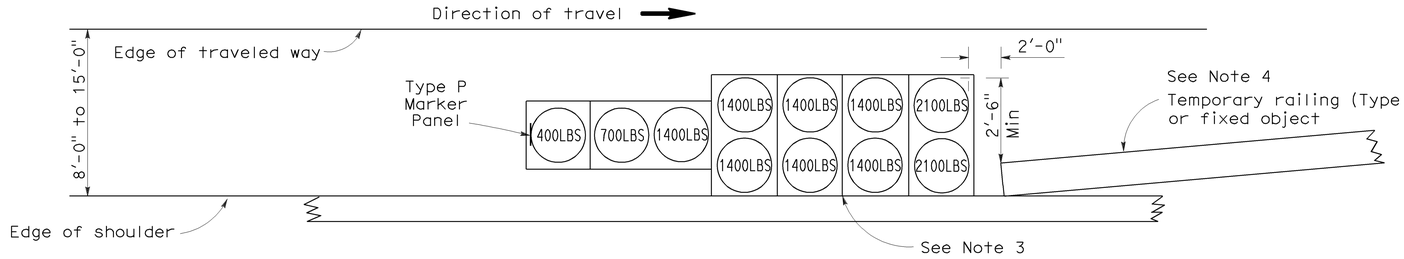
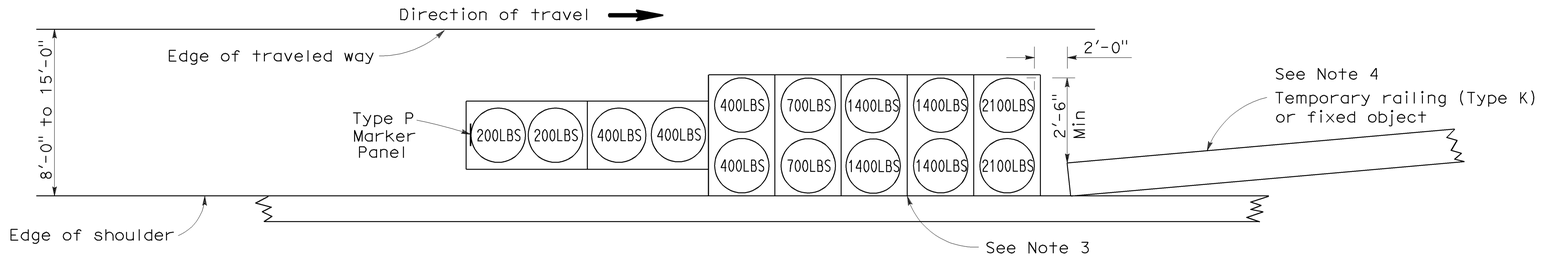
To accompany plans dated March 01, 2010



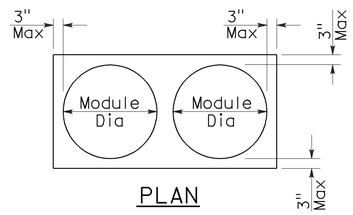
ARRAY 'TS11'

Approach speed less than 45 mph
See Note 9

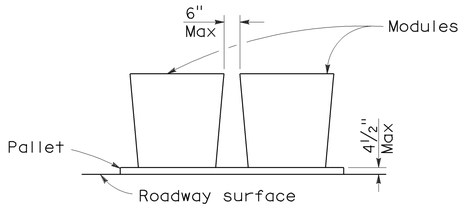


ARRAY 'TS14'

Approach speed 45 mph or more
See Note 9



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 11

NOTES:

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. The temporary crash cushion arrays shown on this plan shall be used only in locations where there will be traffic on one side of the temporary crash cushion array.
4. If the fixed object or approach end of the temporary railing is less than 15'-0" from the edge of traveled way, a temporary crash cushion is required in a construction or work zone.
5. Temporary crash cushion arrays shall not encroach on the traveled way.
6. Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
7. Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
8. Refer to Standard Plan A73B for marker details.
9. For shoulder widths less than 8'-0", appropriate approved crash cushion protection, other than sand filled modules, shall be provided at fixed objects and at approach ends of temporary railing. The specific type of crash cushion shall be as shown on the project plans or as specified in the Special Provisions, or if not shown on the project plans or specified in the Special Provisions, shall be as approved by the Engineer.
10. Approach speeds indicated conform to NCHRP 350 Report criteria.
11. Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (SHOULDER INSTALLATIONS)

NO SCALE

RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	74, 371	71.6/71.8 77.1	43	43

Robert B Schott
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3885 — 11-30-10 Renewal Date — 2-25-09 Date — STATE OF CALIFORNIA

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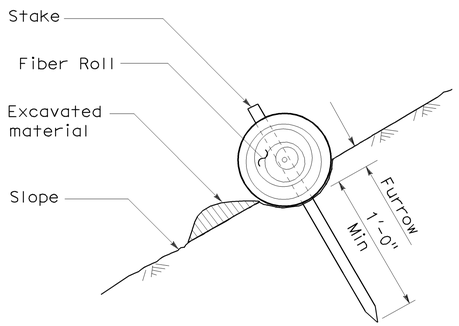
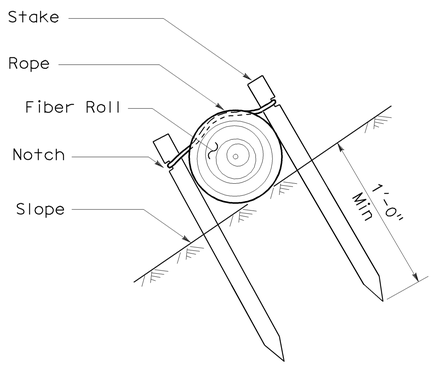
To accompany plans dated March 01, 2010

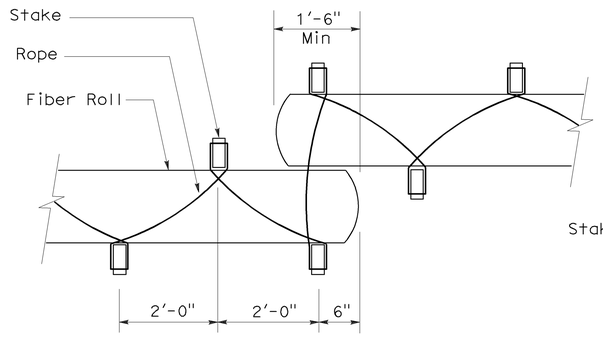


SECTION

TEMPORARY FIBER ROLL (TYPE 1)

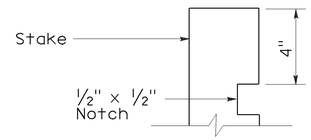


SECTION



PLAN

TEMPORARY FIBER ROLL (TYPE 2)

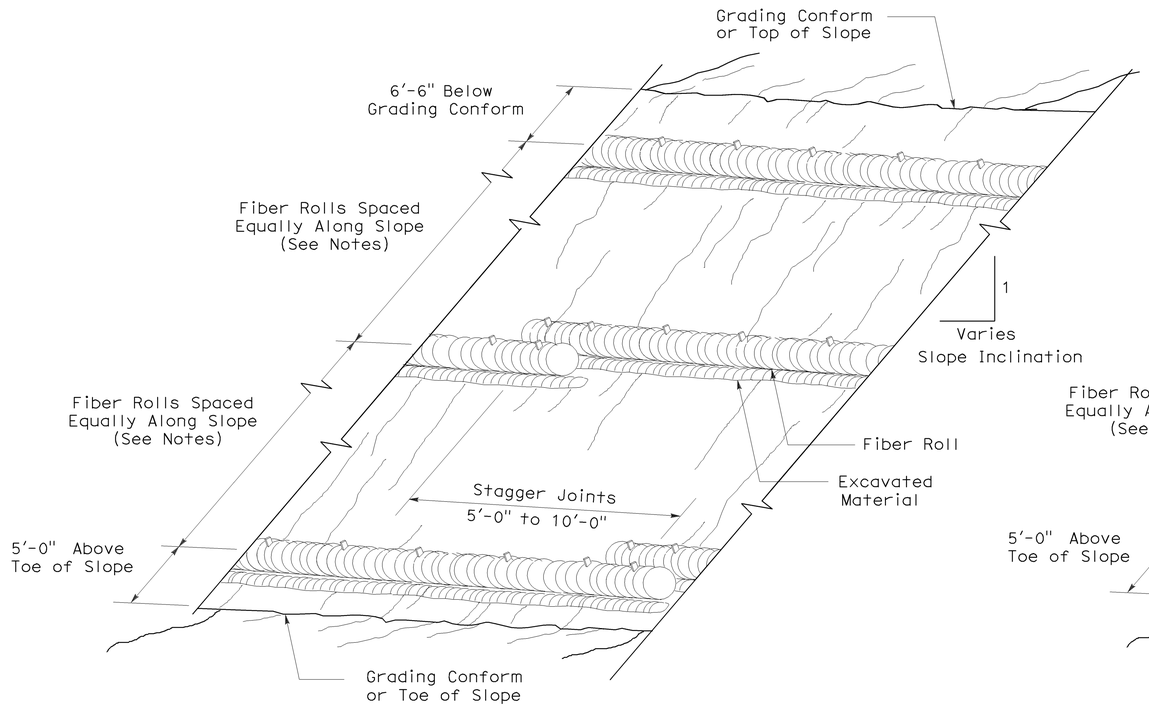


ELEVATION

STAKE NOTCH DETAIL

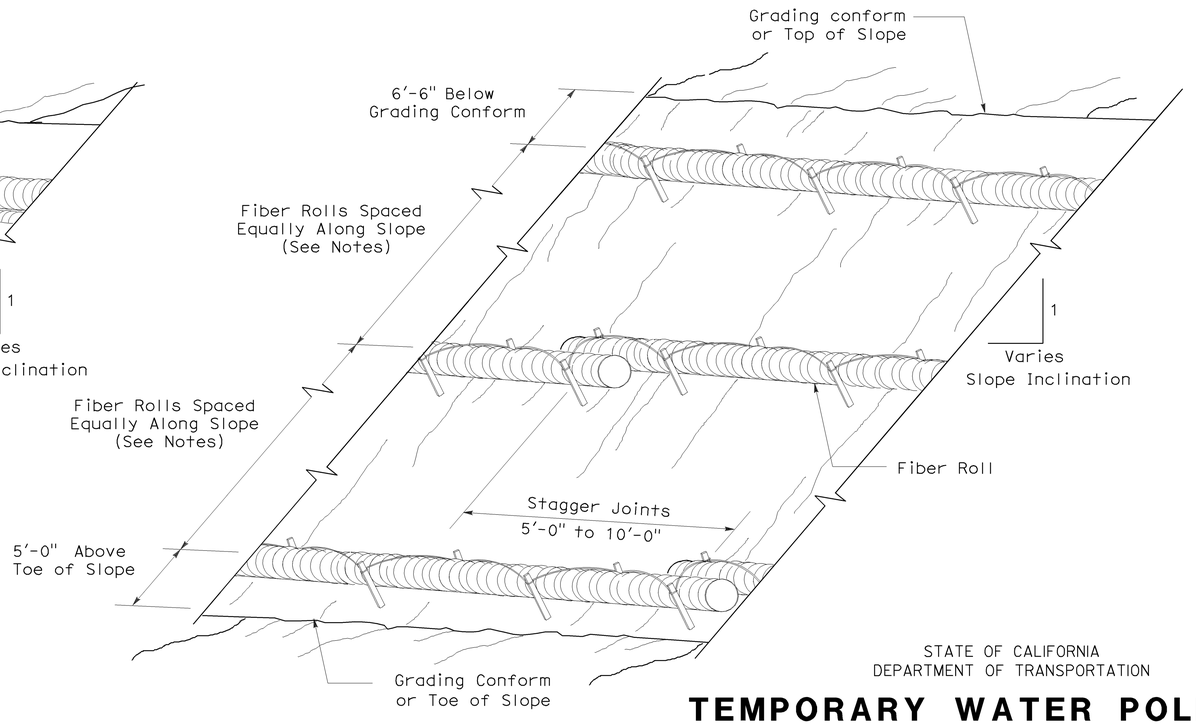
NOTES:

1. Temporary fiber roll spacing varies depending upon slope inclination.
2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



PERSPECTIVE

TEMPORARY FIBER ROLL (TYPE 1)



PERSPECTIVE

TEMPORARY FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLL)

NO SCALE

RSP T56 DATED APRIL 3, 2009 SUPERSEDES STANDARD PLAN T56
DATED MAY 1, 2006 - PAGE 232 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T56

2006 REVISED STANDARD PLAN RSP T56

2-23-09