

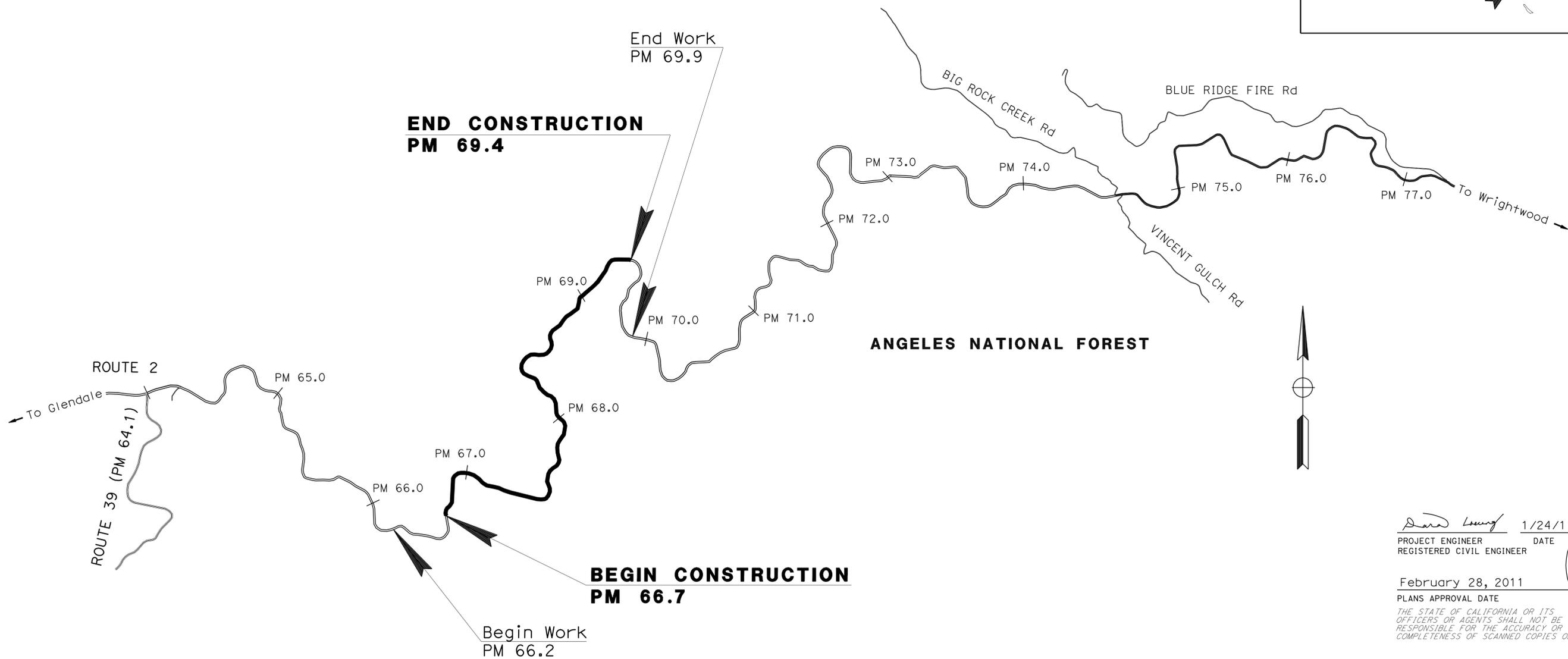
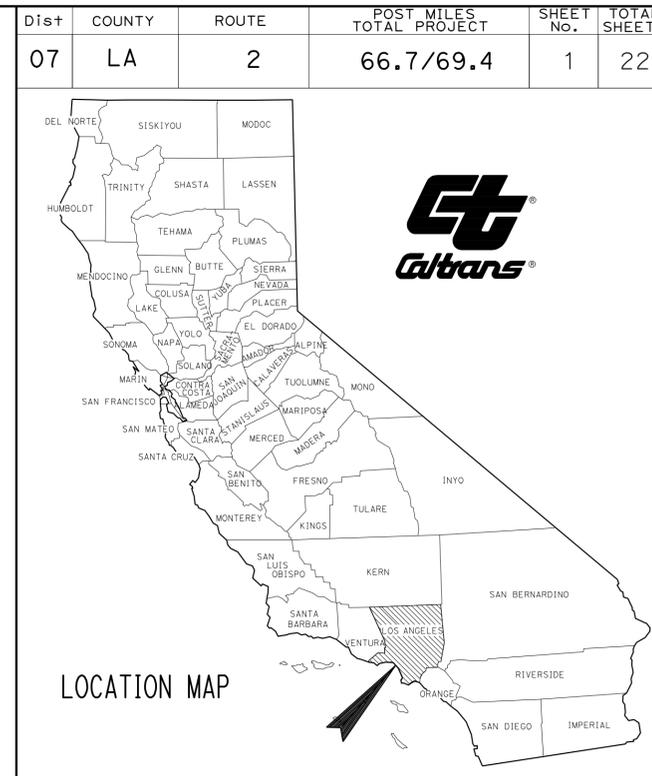
INDEX OF PLANS

SHEET No	DESCRIPTION
1	TITLE AND LOCATION MAP
2-12	CONSTRUCTION DETAILS
13	CONSTRUCTION AREA SIGNS
14	SUMMARY OF QUANTITIES
15-22	REVISED STANDARD PLANS

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

STATE OF CALIFORNIA ACHSSTPG-P002(037)E  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN LOS ANGELES COUNTY**  
**IN LOS ANGELES**  
**FROM 2.6 MILES EAST OF ROUTE 39**  
**TO 5.4 MILES WEST OF VINCENT GULCH ROAD**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



*Dara Loeng* 1/24/11  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER

February 28, 2011  
 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.



PROJECT MANAGER  
**ERIC WANG**  
  
DESIGN ENGINEER  
**DARA LOEUNG**

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

NO SCALE

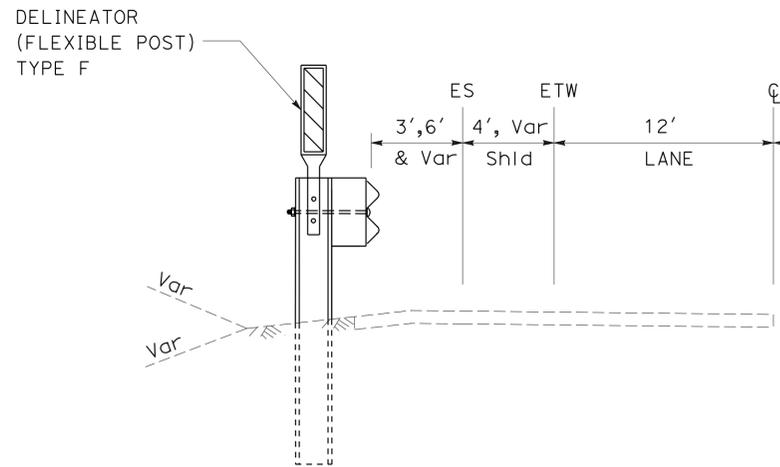
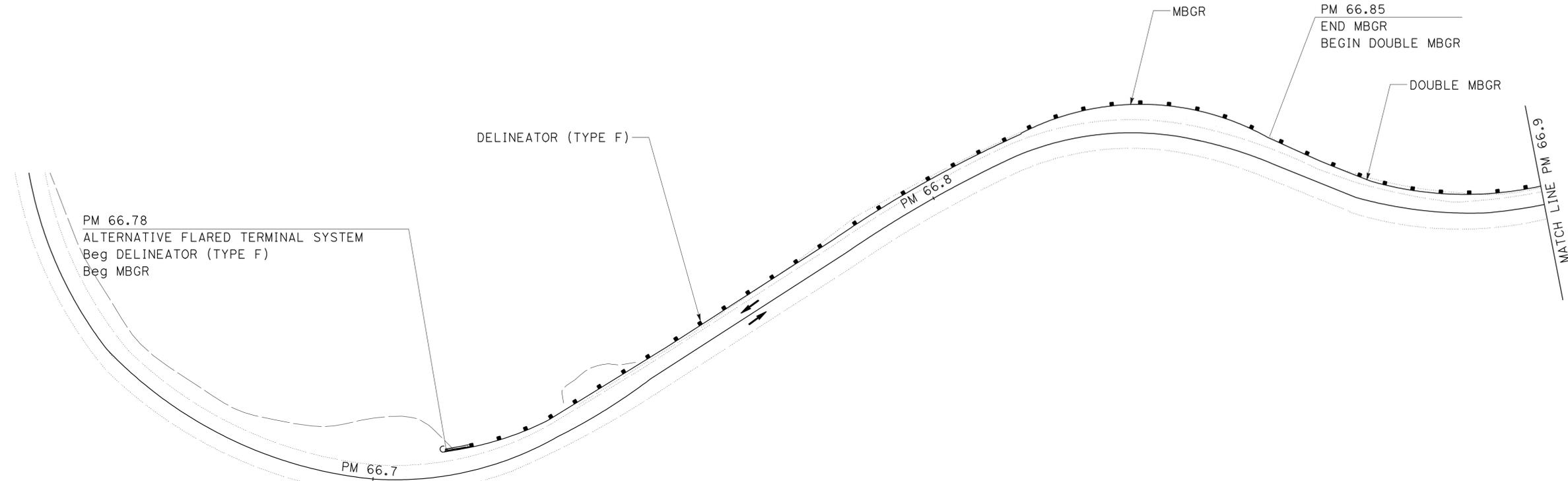
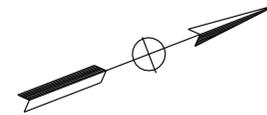
CONTRACT No. **07-4T2704**  
 PROJECT ID **0700001868**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	2	22
			1/24/11	DATE	
REGISTERED CIVIL ENGINEER			DARA LOEUNG No. 65470 Exp. 9/30/11 CIVIL		
2/28/11 PLANS APPROVAL DATE			THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.		

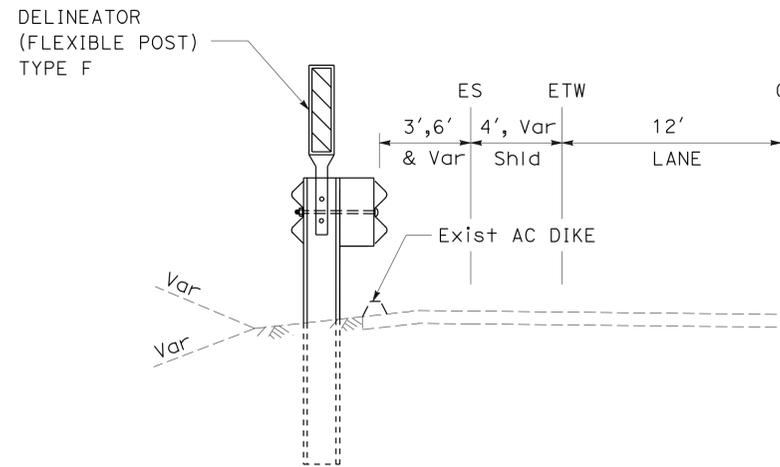
**NOTES:**

1. INSTALL DELINEATOR (FLEXIBLE POST) TYPE F AT 100'-0" Max SPACING.
2. SEE CONSTRUCTION DETAIL SHEET C-11 FOR DOUBLE MBGR DETAIL.
3. INSTALL DOUBLE MBGR 6'-3" Min BEFORE & AFTER EXISTING AC DIKE. AC DIKE SHOWN ON CROSS-SECTION ARE APPROXIMATE ONLY, EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD.
4. EXISTING UTILITY FACILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.



**TYPICAL SECTION**  
MBGR WITH NO DIKE

PM 66.78 TO PM 66.85	PM 68.14 TO PM 68.21
PM 66.92 TO PM 67.03	PM 68.29 TO PM 68.54
PM 67.06 TO PM 67.07	PM 68.57 TO PM 68.69
PM 67.29 TO PM 67.39	PM 68.81 TO PM 68.96
PM 67.45 TO PM 67.64	PM 69.28 TO PM 69.41
PM 67.62 TO PM 67.82	

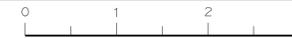


**TYPICAL SECTION**  
DOUBLE MBGR WITH DIKE

PM 66.85 TO PM 66.92	PM 68.21 TO PM 68.29
PM 67.07 TO PM 67.29	PM 68.69 TO PM 68.81
PM 67.39 TO PM 67.45	PM 68.96 TO PM 69.14
PM 67.83 TO PM 68.14	PM 69.13 TO PM 69.28

**CONSTRUCTION DETAILS**  
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: GRISH BICLIARIAN  
 CALCULATED/DESIGNED BY: DARA LOEUNG  
 CHECKED BY: DARA LOEUNG  
 REVISOR: EUGENE BRAVO  
 DATE: 1-24-11  
 REVISION: 1-24-11



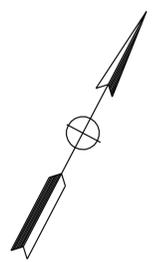
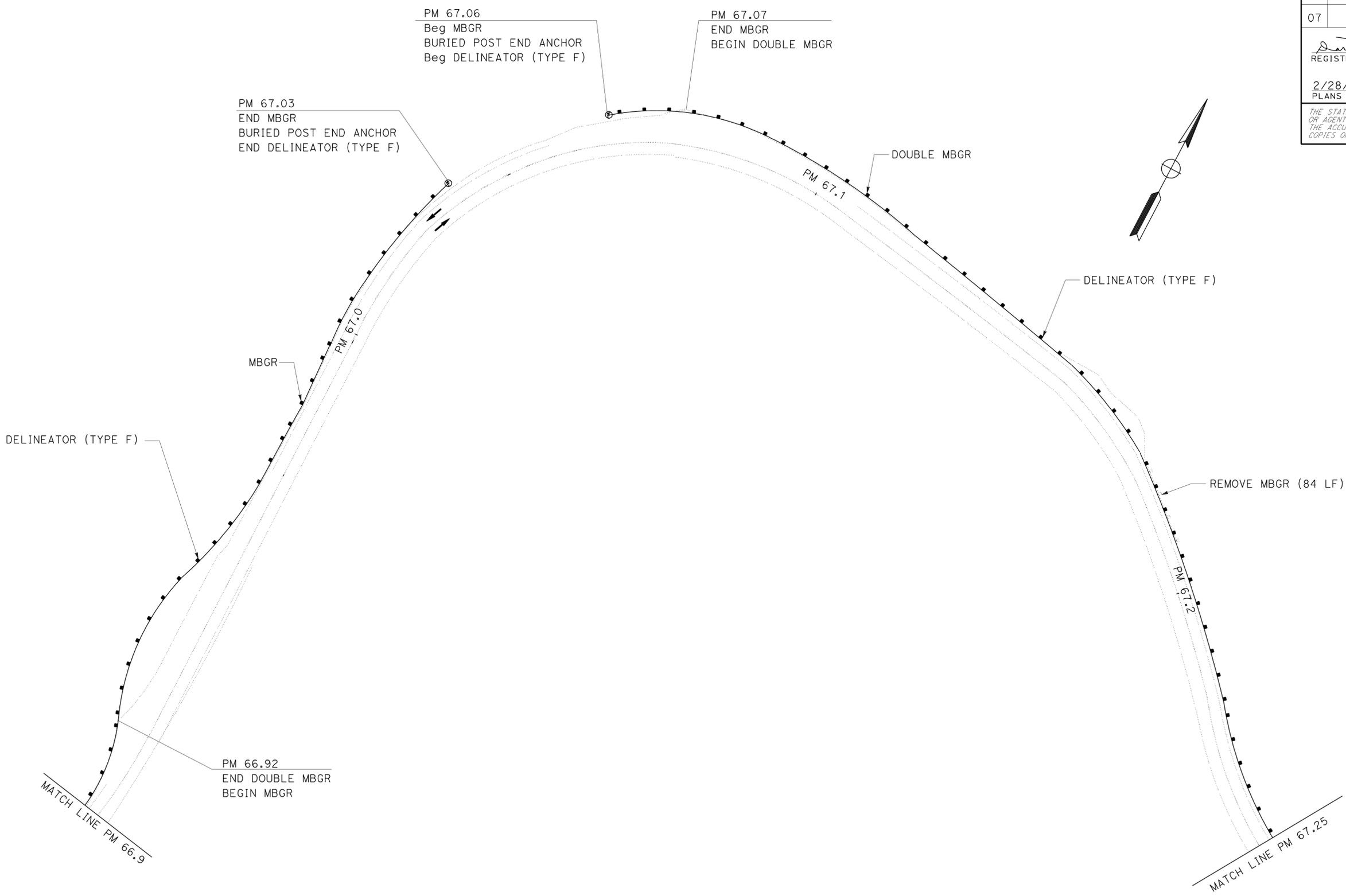
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION <b>Caltrans</b> TRAFFIC DESIGN	FUNCTIONAL SUPERVISOR	GRISH BICLARIAN
	CALCULATED/DESIGNED BY	CHECKED BY
	EUGENE BRAVO	DARA LOEUNG
	REVISED BY	DATE REVISED
1-24-11	1-24-11	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	3	22

DARA LOEUNG 1/24/11  
 REGISTERED CIVIL ENGINEER DATE  
 2/28/11  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 DARA LOEUNG  
 No. 65470  
 Exp. 9/30/11  
 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.



**CONSTRUCTION DETAILS**  
NO SCALE

LAST REVISION | DATE PLOTTED => 11-MAR-2011  
 00-00-00 | TIME PLOTTED => 14:24

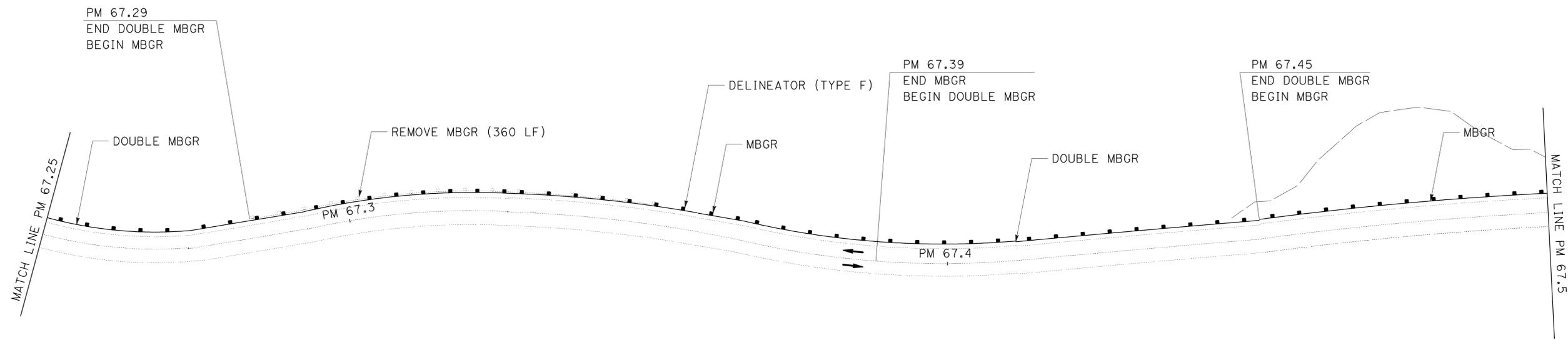
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION <b>Caltrans</b> TRAFFIC DESIGN	FUNCTIONAL SUPERVISOR GRISH BICLARIAN	CALCULATED/DESIGNED BY	EUGENE BRAVO	REVISED BY	1-24-11
		CHECKED BY	DARA LOEUNG	DATE REVISED	1-24-11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	4	22

DARA LOEUNG 1/24/11  
 REGISTERED CIVIL ENGINEER DATE  
 2/28/11  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 DARA LOEUNG  
 No. 65470  
 Exp. 9/30/11  
 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.



**CONSTRUCTION DETAILS**  
NO SCALE

**C-3**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	5	22

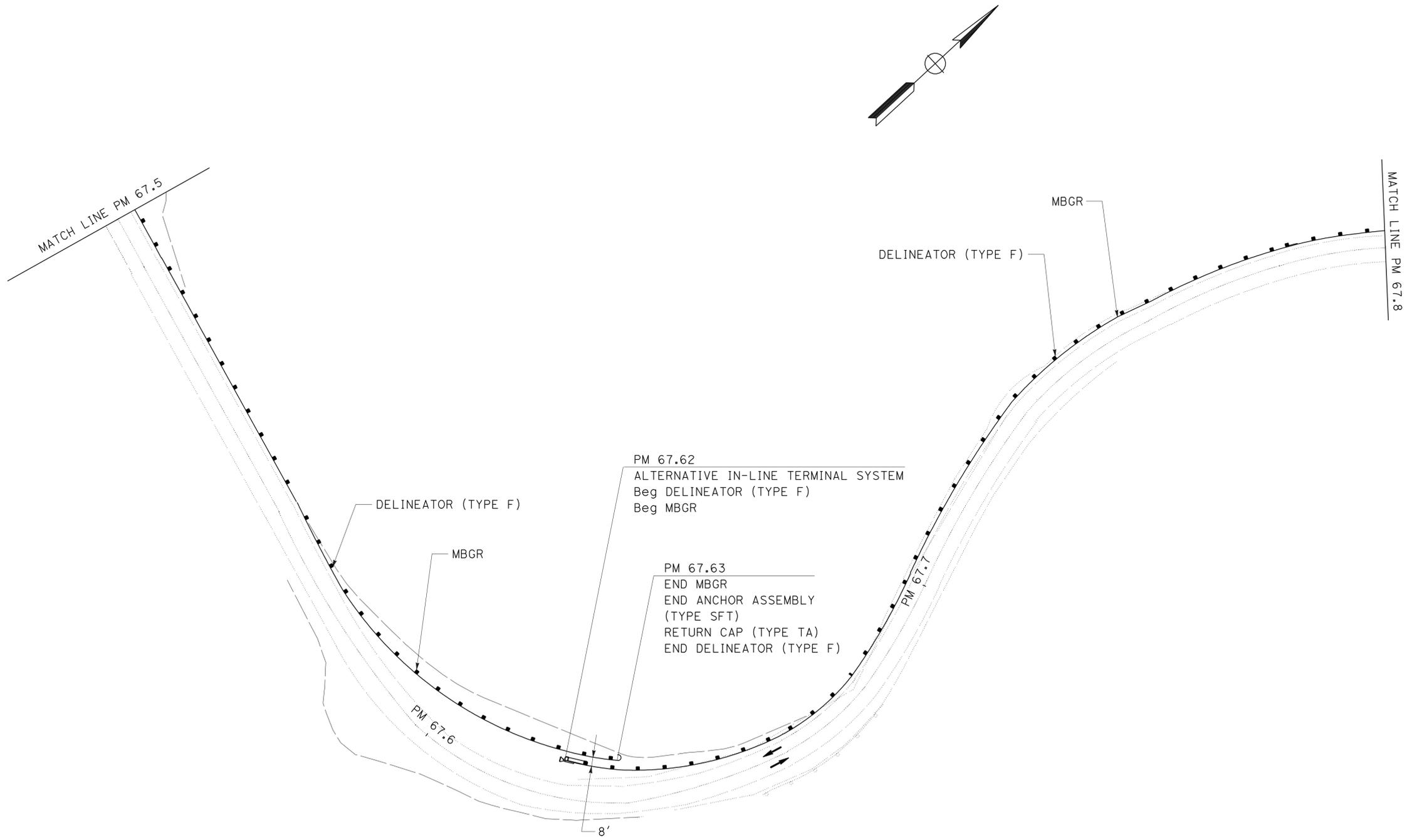
<i>Dara Loeng</i>	1/24/11
REGISTERED CIVIL ENGINEER	DATE
2/28/11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
DARA LOEUNG
No. 65470
Exp. 9/30/11
CIVIL
STATE OF CALIFORNIA

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b> TRAFFIC DESIGN
FUNCTIONAL SUPERVISOR
GRISH BICLARIAN
CALCULATED/DESIGNED BY
CHECKED BY
EUGENE BRAVO
DARA LOEUNG
REVISED BY
DATE REVISED
1-24-11
1-24-11



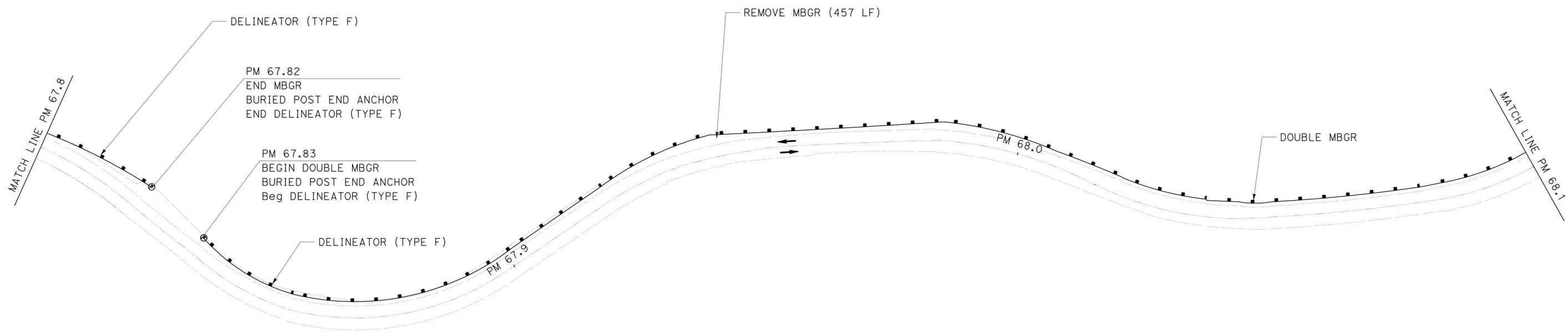
**CONSTRUCTION DETAILS**  
NO SCALE

**C-4**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	6	22
		<i>Dara Loeng</i> 1/24/11 REGISTERED CIVIL ENGINEER DATE			
		2/28/11 PLANS APPROVAL DATE			
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



DESIGNED BY	1-24-11
REVISOR	1-24-11
DESIGNED BY	EUGENE BRAVO
CHECKED BY	DARA LOEUNG
DESIGNED BY	CALCULATED/DESIGNED BY
CHECKED BY	
FUNCTIONAL SUPERVISOR	GRISH BIGLARIAN
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	<b>TRAFFIC DESIGN</b>



**CONSTRUCTION DETAILS**  
NO SCALE

**C-5**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	7	22

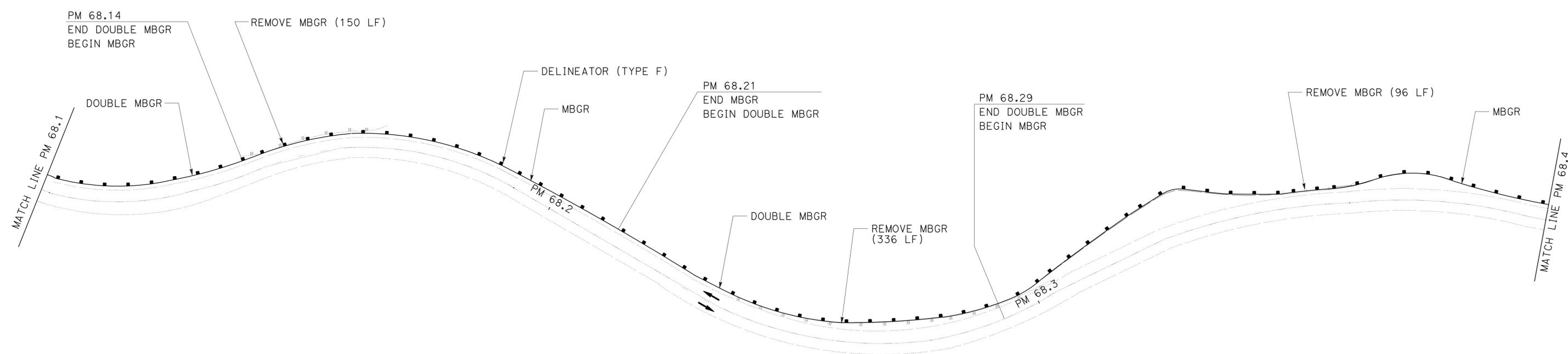
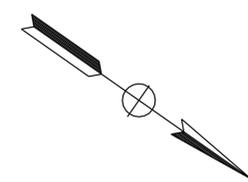
  

<i>Dara Loeng</i>	1/24/11
REGISTERED CIVIL ENGINEER	DATE
2/28/11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
DARA LOEUNG
No. 65470
Exp. 9/30/11
CIVIL

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



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b> TRAFFIC DESIGN
FUNCTIONAL SUPERVISOR GRISH BICLARIAN
CALCULATED/DESIGNED BY CHECKED BY
EUGENE BRAVO DARA LOEUNG
REVISED BY DATE REVISED
1-24-11 1-24-11

**CONSTRUCTION DETAILS**  
NO SCALE

**C-6**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	8	22

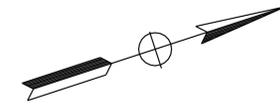
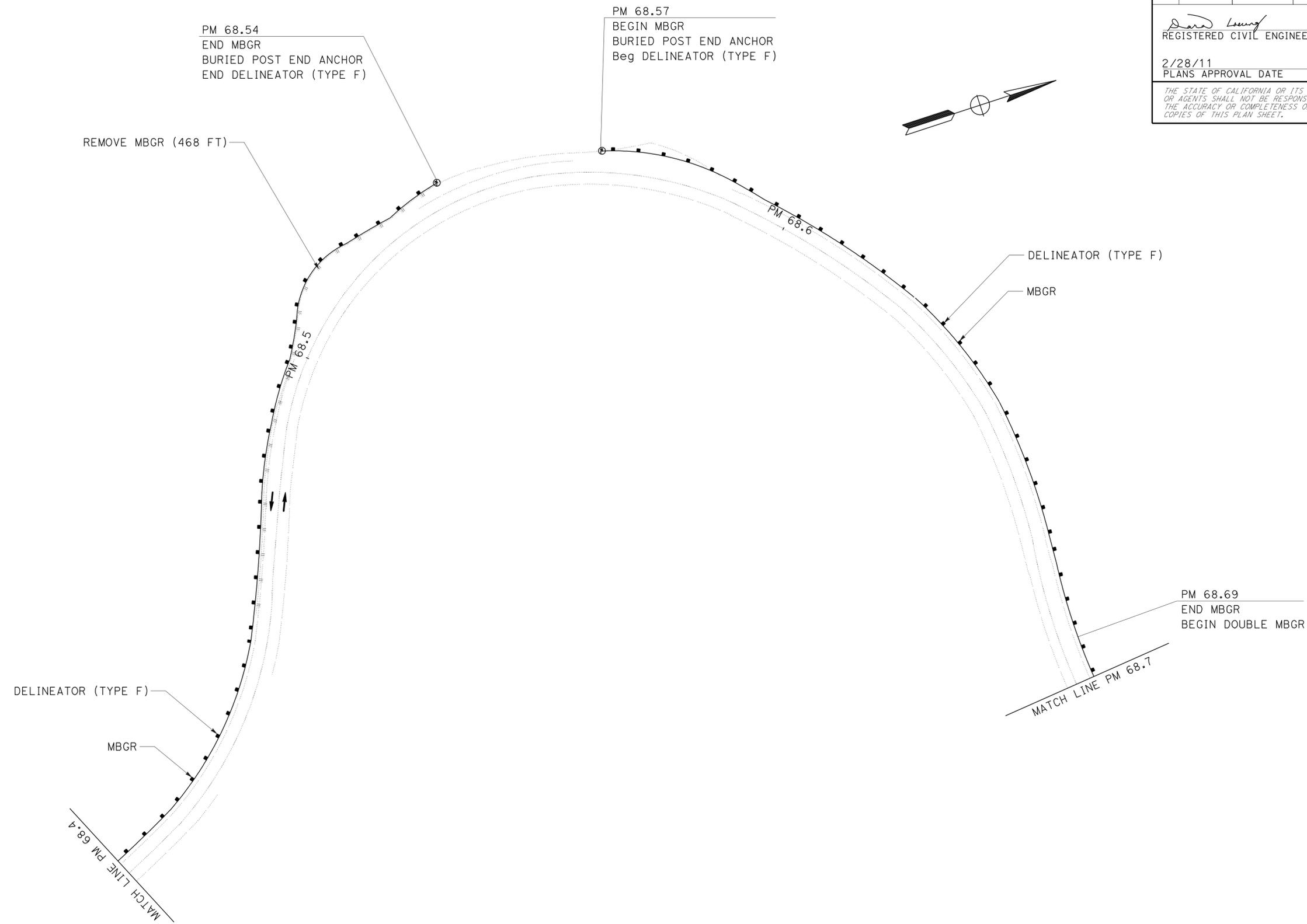
<i>Dara Loeng</i>	1/24/11
REGISTERED CIVIL ENGINEER	DATE
2/28/11	PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DARA LOEUNG
No. 65470
Exp. 9/30/11
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.

1-24-11	REVISOR	EUGENE BRAVO	FUNCTIONAL SUPERVISOR	GRISH BIGLARIAN
1-24-11	DATE REVISED	DARA LOEUNG	CHECKED BY	
	CALCULATED/DESIGNED BY			



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN

**CONSTRUCTION DETAILS**  
 NO SCALE

**C-7**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR  
 GRISH BICLARIAN

CALCULATED/DESIGNED BY  
 CHECKED BY

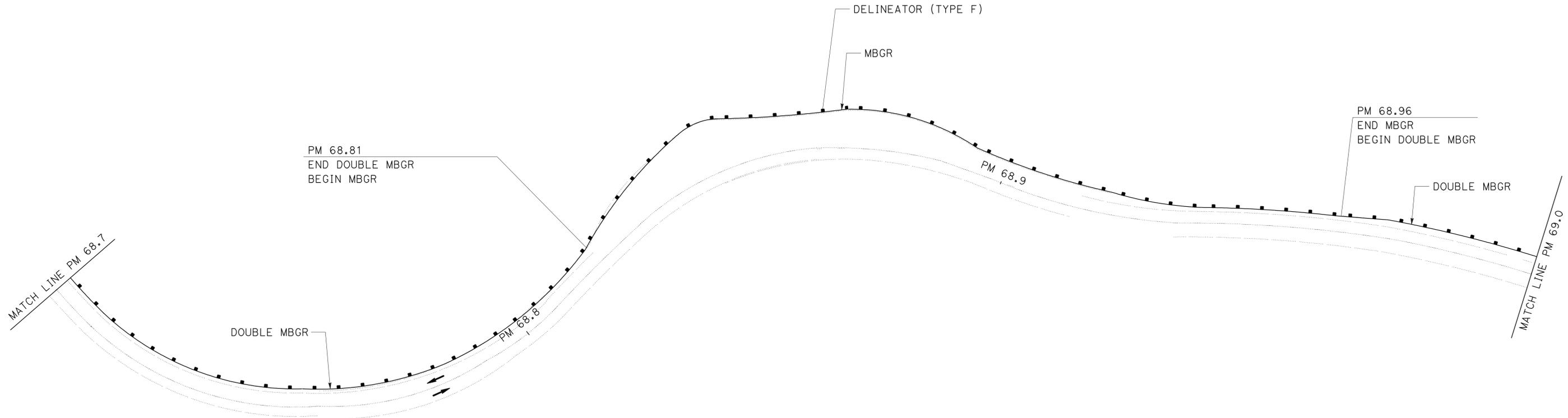
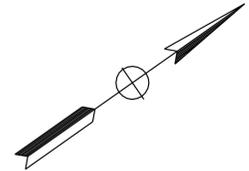
EUGENE BRAVO  
 DARA LOEUNG

REVISED BY  
 DATE REVISED

1-24-11  
 1-24-11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	9	22

*Dara Loeng* 1/24/11  
 REGISTERED CIVIL ENGINEER DATE  
 2/28/11  
 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.

**CONSTRUCTION DETAILS**  
 NO SCALE

**C-8**

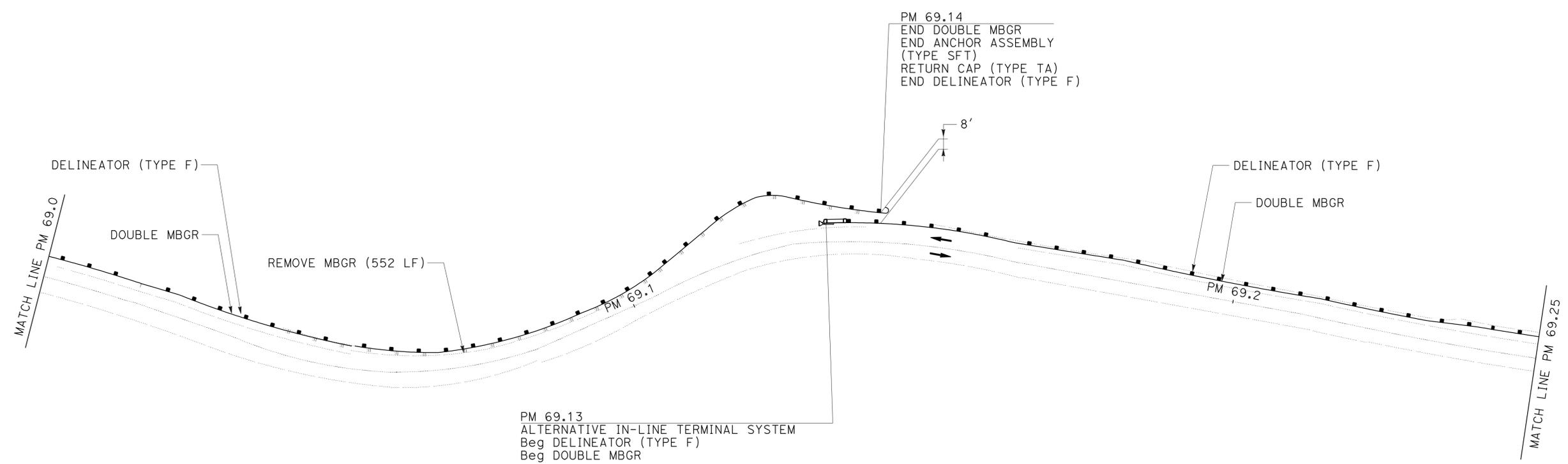
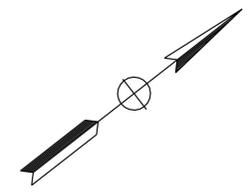
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR	DATE
<b>Caltrans</b> TRAFFIC DESIGN	GRISH BICLARIAN	DESIGNED BY	EUGENE BRAVO	1-24-11
		CHECKED BY	DARA LOEUNG	1-24-11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	10	22

DARA LOEUNG 1/24/11  
 REGISTERED CIVIL ENGINEER DATE  
 2/28/11  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 DARA LOEUNG  
 No. 65470  
 Exp. 9/30/11  
 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.



**CONSTRUCTION DETAILS**  
NO SCALE

**C-9**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	EUGENE BRAVO	REVISED BY	1-24-11
<b>Caltrans</b> TRAFFIC DESIGN	GRISH BIGLARIAN	CHECKED BY	DARA LOEUNG	DATE REVISED	1-24-11

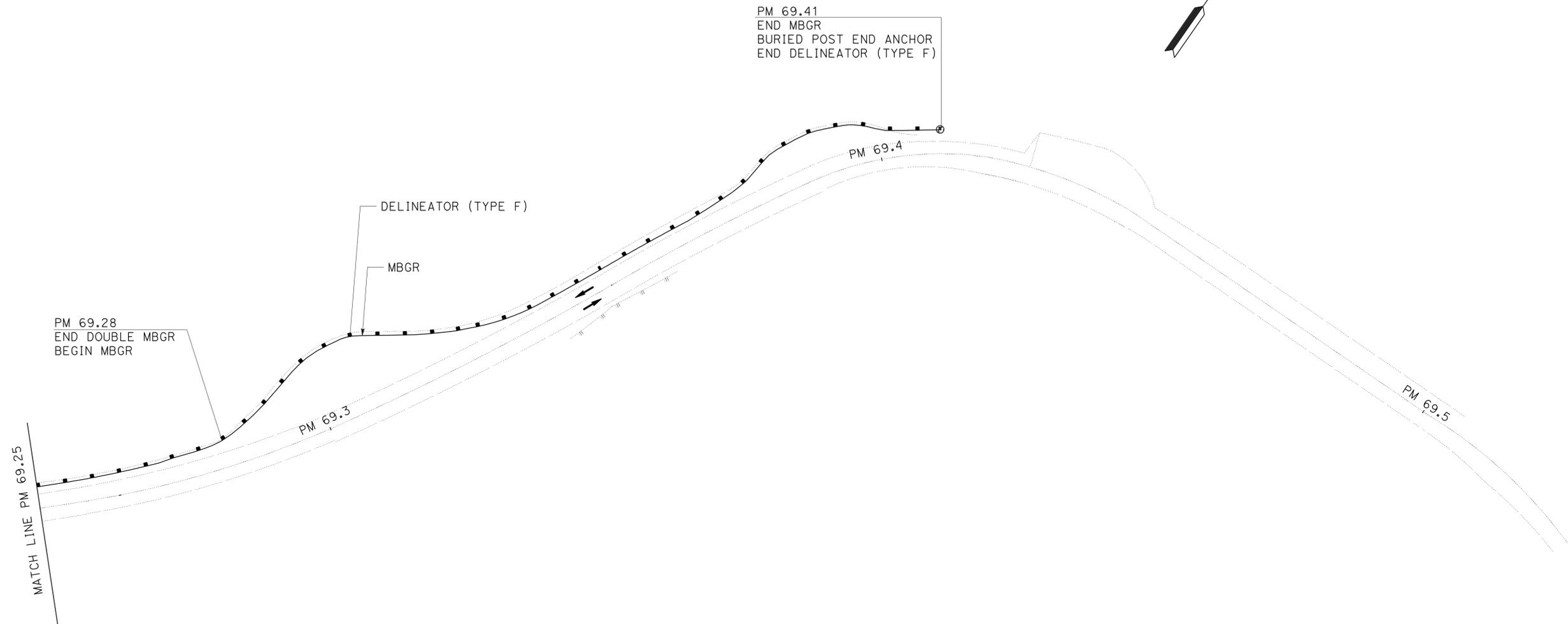
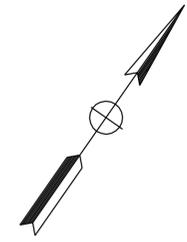
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	11	22

*Dara Loeng* 1/24/11  
 REGISTERED CIVIL ENGINEER DATE

2/28/11  
 PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER  
**DARA LOEUNG**  
 No. 65470  
 Exp. 9/30/11  
 CIVIL  
 STATE OF CALIFORNIA



**CONSTRUCTION DETAILS**  
NO SCALE

**C-10**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	12	22

<i>Dara Loeng</i>	1/24/11
REGISTERED CIVIL ENGINEER	DATE
2/28/11	
PLANS APPROVAL DATE	

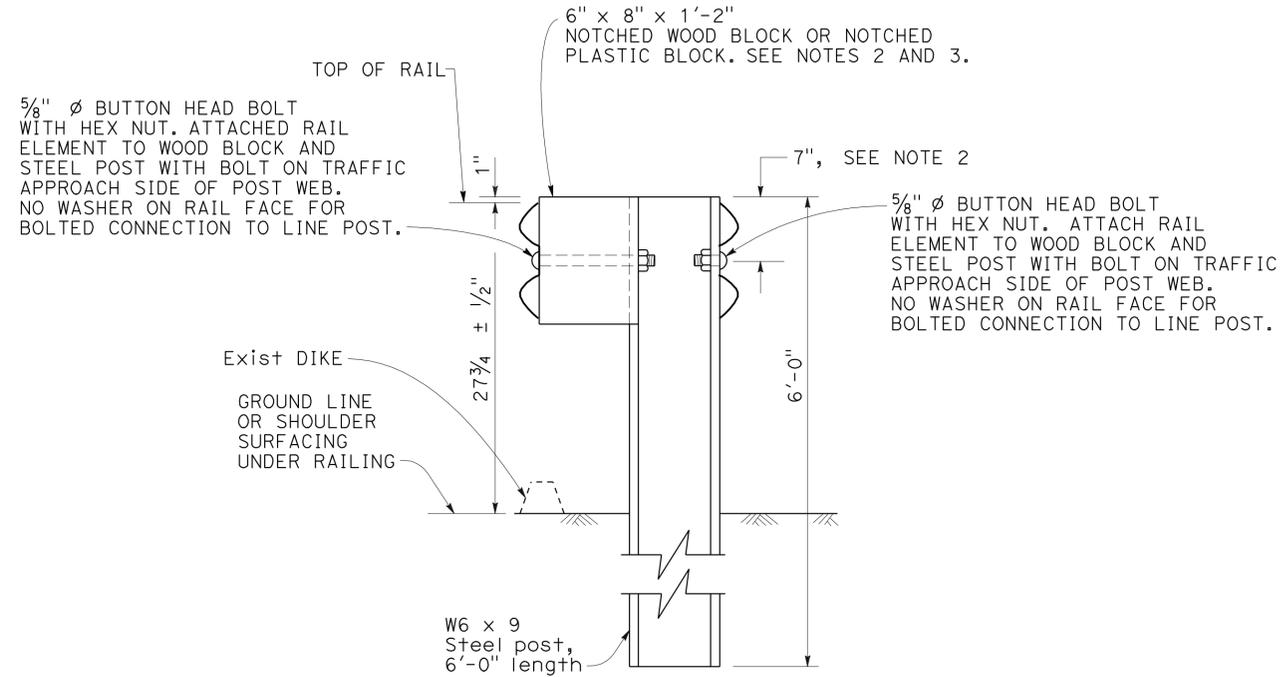
REGISTERED PROFESSIONAL ENGINEER
DARA LOEUNG
No. 65470
Exp. 9/30/11
CIVIL
STATE OF CALIFORNIA

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.

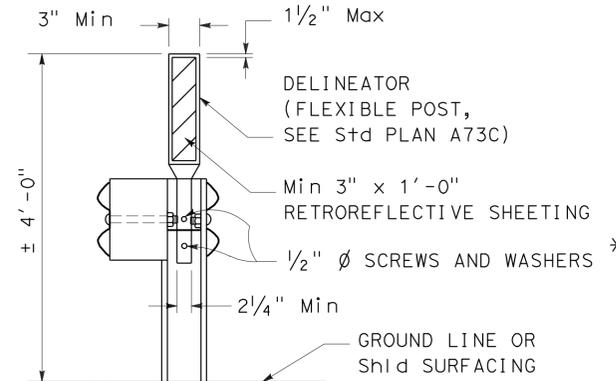
**NOTES:**

- FOR DETAILS OF STEEL POST, WOOD BLOCKS AND PLASTIC BLOCKS USED TO CONSTRUCT GUARD RAILING, SEE STANDARD PLAN A77C2.
- NOTCHED FACE OF BLOCK FACES STEEL POST.
- FOR ADDITIONAL INSTALLATION DETAILS, SEE STANDARD PLANS A77A2 & A77C3.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR GRISH BICLARIAN  
 CALCULATED/DESIGNED BY CHECKED BY  
 EUGENE BRAVO DARA LOEUNG  
 REVISED BY DATE  
 1-24-11 1-24-11



DOUBLE MBGR TYPICAL STEEL LINE POST  
INSTALLATION @ EXISTING AC DIKE



FOR NEW MBGR WITH STEEL POST  
\* SUBJECT TO APPROVAL OF ENGINEER.

GUARD RAILING DELINEATOR

**CONSTRUCTION DETAILS**  
NO SCALE

THIS PLAN ACCURATE FOR CONSTRUCTION DETAIL ONLY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	22	66.7/69.4	13	22

DARA LOEUNG 1/24/11  
 REGISTERED CIVIL ENGINEER DATE

2/28/11  
 PLANS APPROVAL DATE

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

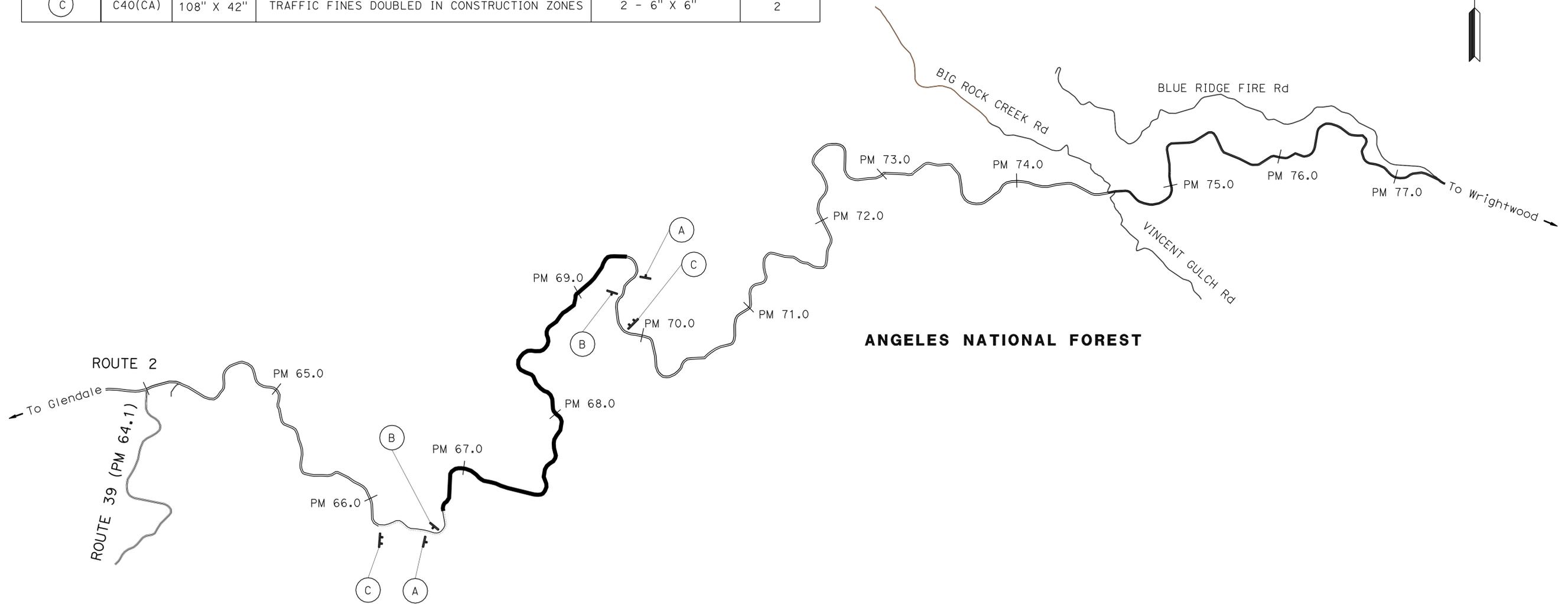
REGISTERED PROFESSIONAL ENGINEER  
 DARA LOEUNG  
 No. 65470  
 Exp. 9/30/11  
 CIVIL  
 STATE OF CALIFORNIA

**NOTES:**

1. LOCATIONS OF CONSTRUCTION AREA SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
2. "TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES" SIGNS SHALL BE PLACED APPROXIMATELY 500 FEET IN ADVANCE OF "ROAD WORK AHEAD" SIGNS OR AS DETERMINED BY THE ENGINEER.
3. XX-X : MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD DESIGNATIONS)
4. XX(CA) : CALIFORNIA DESIGNATION

**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN NUMBER	SIGN CODE	PANEL SIZE	SIGN MESSAGE	NUMBER OF POSTS AND SIZE	No. OF SIGNS
(A)	W20-1	48" x 48"	ROAD WORK AHEAD	1 - 6" X 6"	2
(B)	G20-2	48" X 24"	END ROAD WORK	1 - 4" X 6"	2
(C)	C40(CA)	108" X 42"	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	2 - 6" X 6"	2



**CONSTRUCTION AREA SIGNS**  
NO SCALE

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

**CS-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: GRISH, BIGLARIAN  
 CALCULATED/DESIGNED BY: EUGENE BRAVO  
 CHECKED BY: DARA LOEUNG  
 REVISED BY: 1-24-11  
 DATE REVISED: 1-24-11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	2	66.7/69.4	14	22

*Dara Loeng* 1/24/11  
REGISTERED CIVIL ENGINEER DATE

2/28/11  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
**DARA LOEUNG**  
No. 65470  
Exp. 9/30/11  
CIVIL  
STATE OF CALIFORNIA

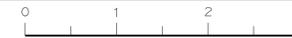
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

ROADWAY QUANTITIES

REFERENCE SHEET No.	REMOVE METAL BEAM GUARD RAILING	METAL BEAM GUARD RAILING (STEEL POST)	DOUBLE METAL BEAM GUARD RAILING (STEEL POST)	ALTERNATIVE FLARED TERMINAL SYSTEM	ALTERNATIVE IN-LINE TERMINAL SYSTEM	TERMINAL ANCHOR ASSEMBLY (TYPE SFT)	RETURN CAP (TYPE TA)	DELINEATOR (CLASS 1)
	LF	LF	LF	EA	EA	EA	EA	LF
C-1		337.5	262.5	1				7
C-2	84	625.0	1,062.5					18
C-3	360	787.5	537.5					13
C-4		1,587.5			1	1	1	18
C-5	457	112.5	1,425.0					16
C-6	486	950.0	637.5					16
C-7	468	1,375.0	62.5					15
C-8		787.5	787.5					16
C-9	552		1,325.0		1	1	1	14
C-10		687.5	162.5					9
TOTAL	2,407	7,250.0	6,262.5	1	2	2	2	142

SUMMARY OF QUANTITES

Q-1

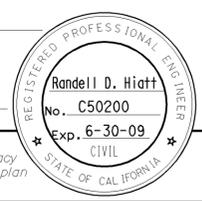


DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	2	66.7/69.4	15	22

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

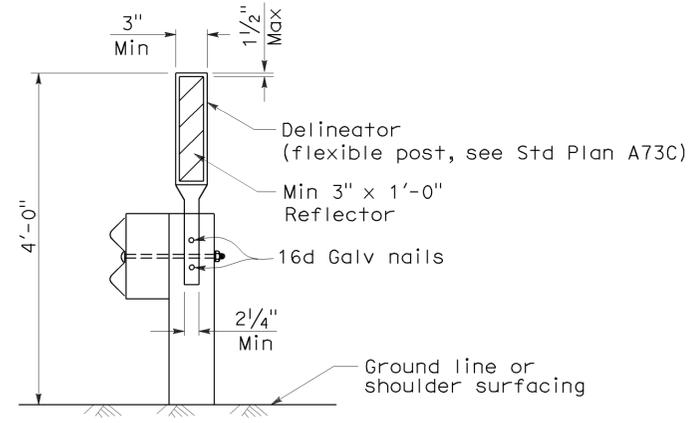
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*



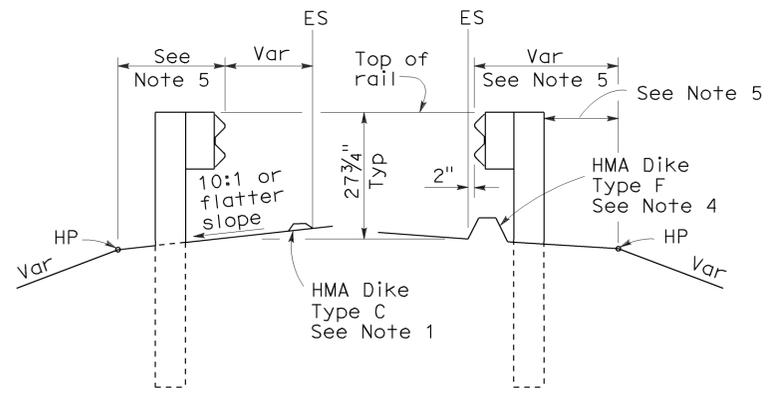
To accompany plans dated 2-28-11

**NOTES:**

1. When necessary to place dike in front of face of guard railing, only Type C dike may be used. For dike details, see Standard Plan A87B.
2. For standard railing post embedment, see Standard Plans A77C3.
3. Guard railing delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under guard railing, the maximum height of the dike or curb shall be 4". Mountable dike should not be used. For dike and curb details, see Revised Standard Plans RSP A87A and Standard Plan A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.



**GUARD RAILING DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL RAILING DELINEATION  
AND DIKE POSITIONING DETAILS**

NO SCALE

RSP A77C4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77C4  
DATED MAY 1, 2006 - PAGE 47 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77C4**

2006 REVISED STANDARD PLAN RSP A77C4

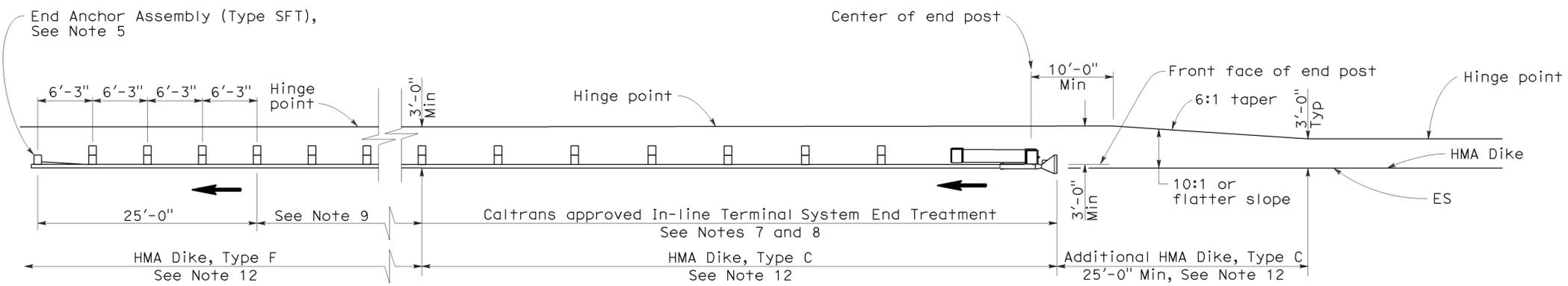
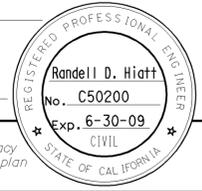
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	2	66.7/69.4	16	22

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

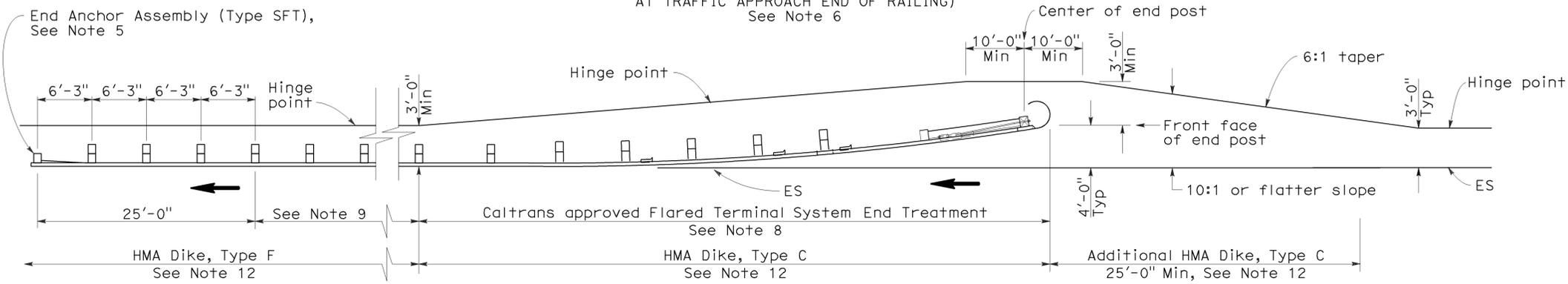
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To accompany plans dated 2-28-11



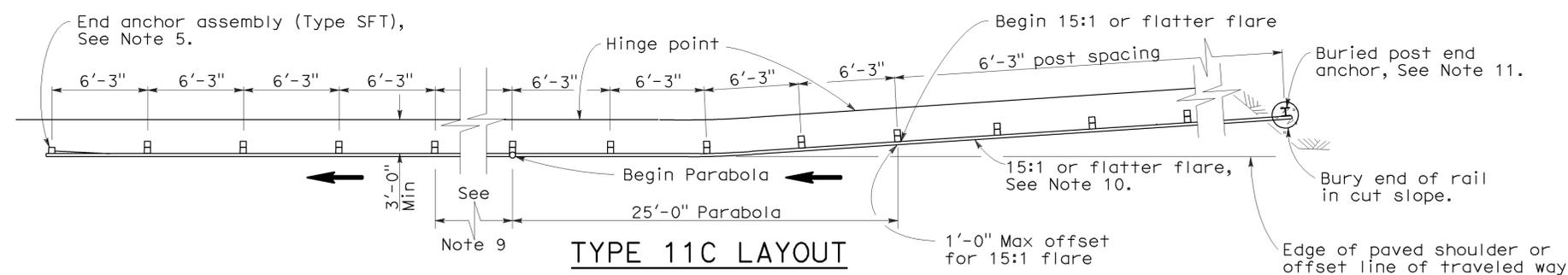
**TYPE 11A LAYOUT**

(EMBANKMENT GUARD INSTALLATION WITH IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING) See Note 6



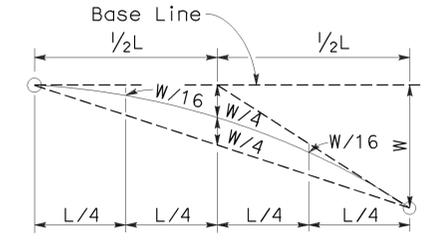
**TYPE 11B LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING) See Note 6

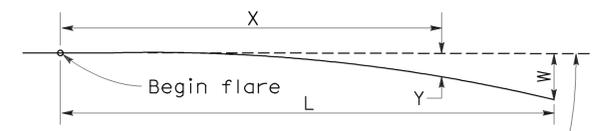


**TYPE 11C LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING) See Notes 6 and 12



**TYPICAL PARABOLIC LAYOUT**

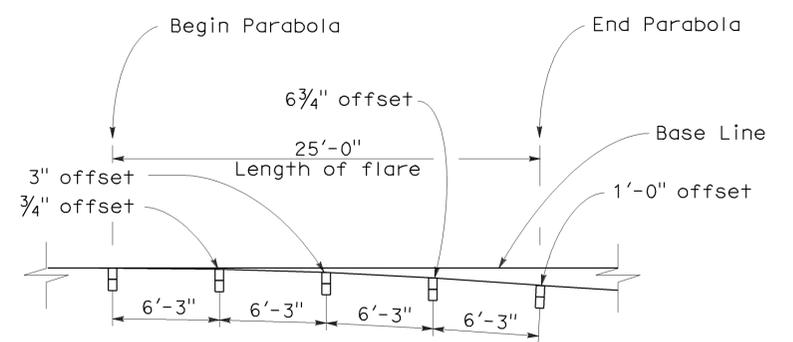


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

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

**PARABOLIC FLARE OFFSETS**



**TYPICAL FLARE OFFSETS FOR 1 FOOT MAX END OFFSET**

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1, and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- 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 recycled 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.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- Layout Types 11A, 11B or 11C are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for only one direction of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- 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.
- 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".
- For details of the buried post end anchor used with Type 11C Layout, see Standard Plan A77I2.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING**  
**TYPICAL LAYOUTS FOR EMBANKMENTS**  
NO SCALE

RSP A77E1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E1 DATED MAY 1, 2006 - PAGE 48 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77E1**

2006 REVISED STANDARD PLAN RSP A77E1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	2	66.7/69.4	17	22

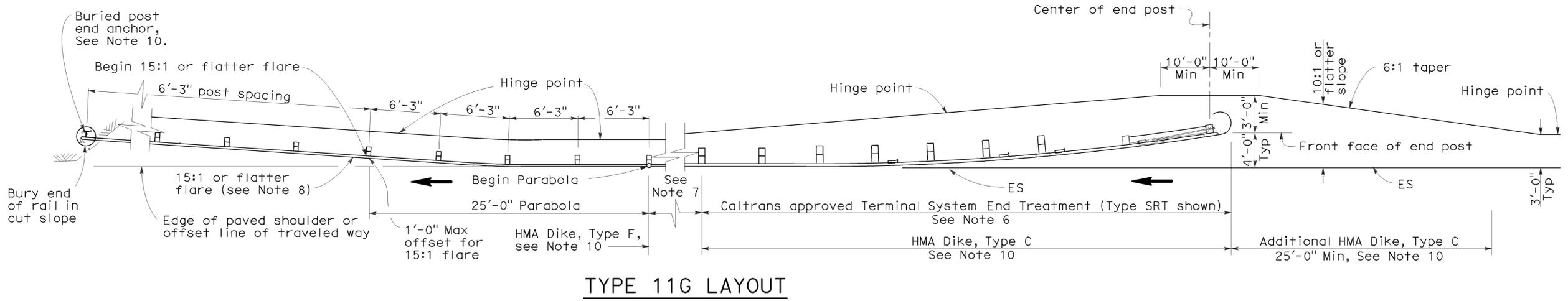
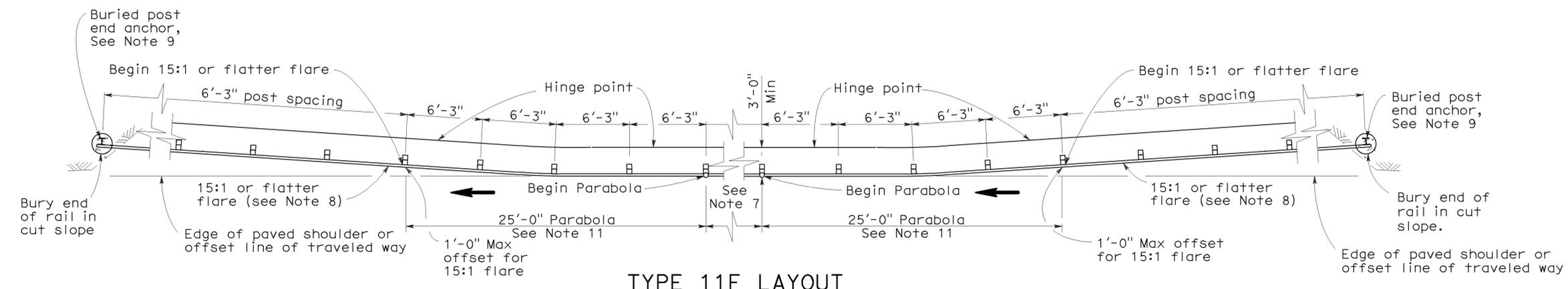
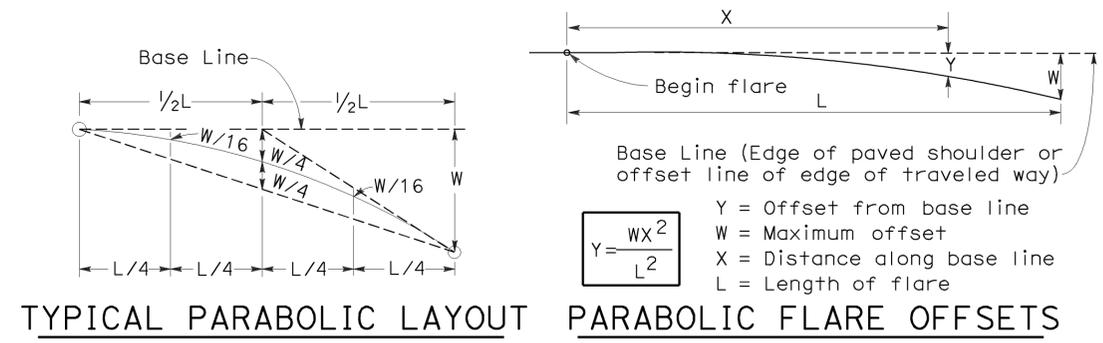
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

To accompany plans dated 2-28-11



**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- 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.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- 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.
- 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".
- For details of the buried post end anchor used with Type 11F and 11G Layouts, see Standard Plan A77I2.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- 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 A77E3 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E3  
DATED MAY 1, 2006 - PAGE 50 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77E3**

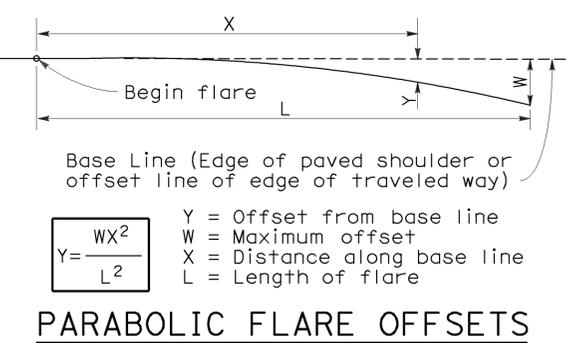
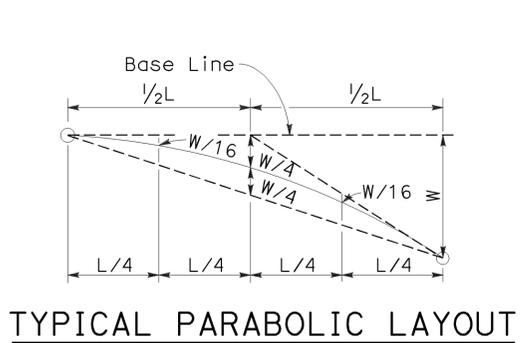
2006 REVISED STANDARD PLAN RSP A77E3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	2	66.7/69.4	18	22

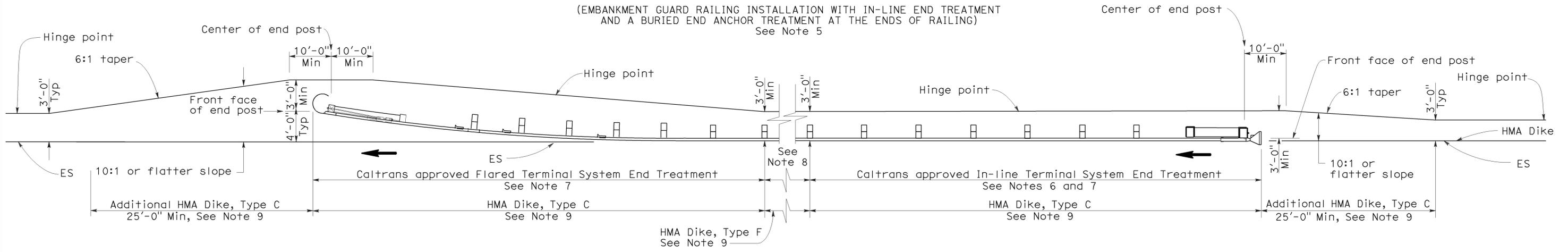
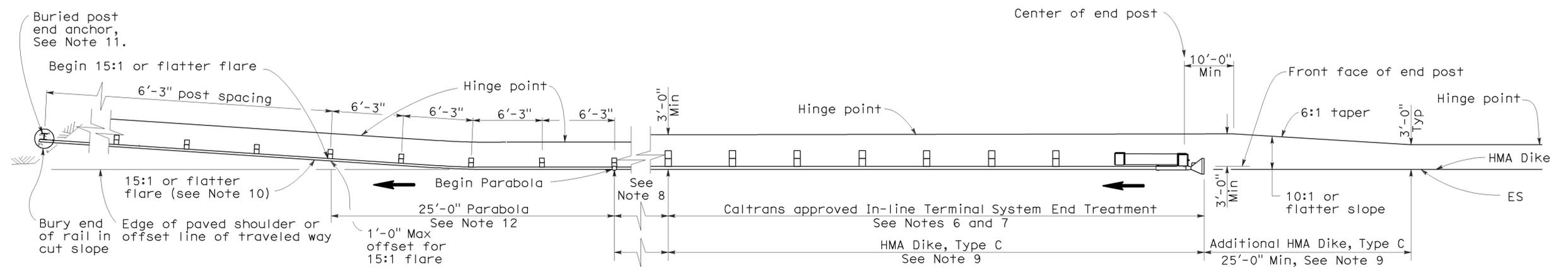
RANDALL D. HIATT  
 REGISTERED CIVIL ENGINEER  
 No. C50200  
 Exp. 6-30-09  
 CIVIL  
 STATE OF CALIFORNIA

June 6, 2008  
 PLANS APPROVAL DATE

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To accompany plans dated 2-28-11



**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- 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.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- 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.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- 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".
- For details of the buried post end anchor used with Type 11I Layout, see Standard Plan A77I2.
- 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 A77E5 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E5  
 DATED MAY 1, 2006 - PAGE 52 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77E5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	2	66.7/69.4	19	22

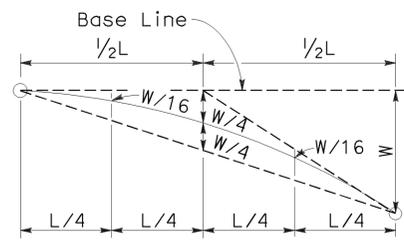
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

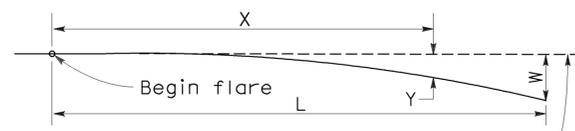
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 2-28-11



TYPICAL PARABOLIC LAYOUT

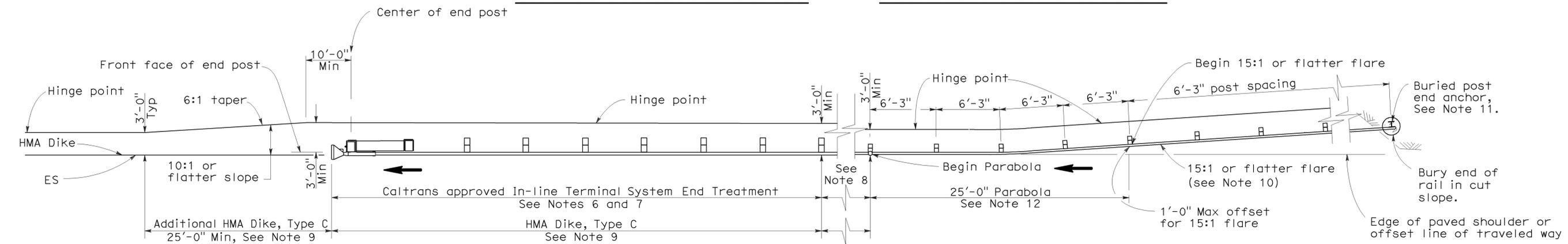


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

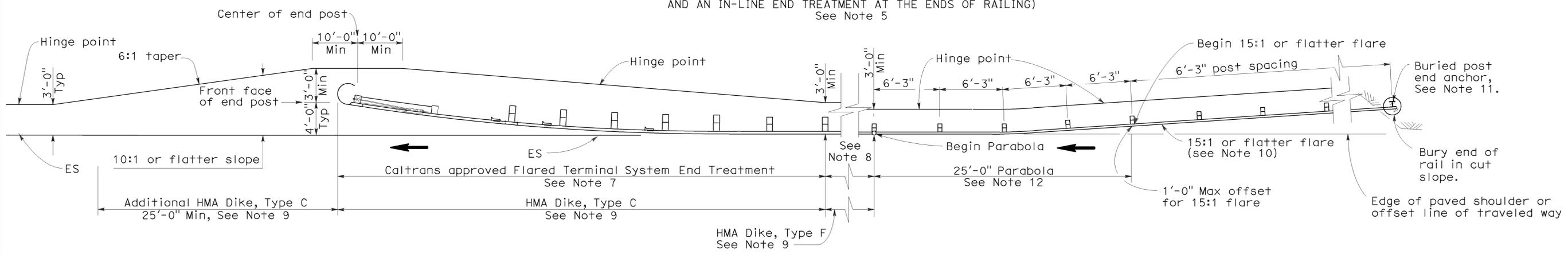
Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

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:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- 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.
- Direction of adjacent traffic indicated by →.
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- 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.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- 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".
- For details of the buried post end anchor used with Type 11K and 11L Layouts, see Standard Plan A77I2.
- 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

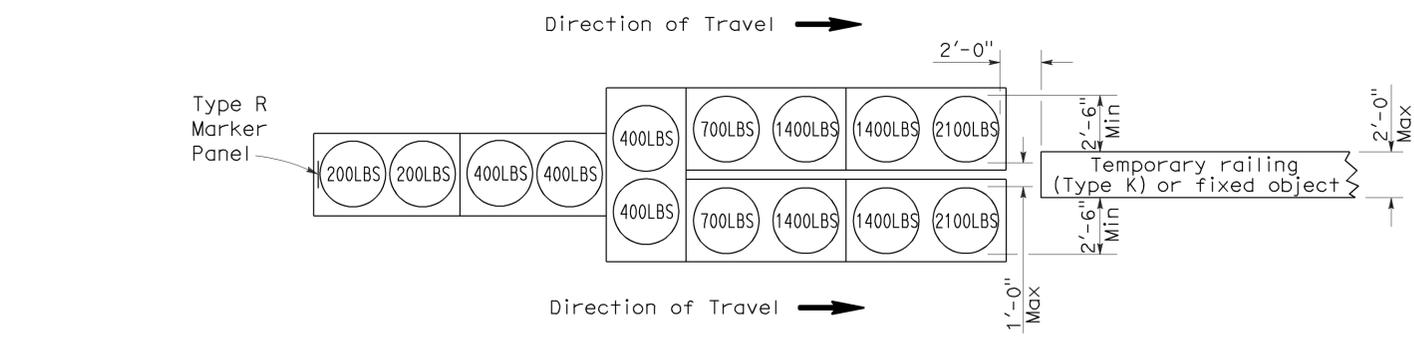
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	2	66.7/69.4	20	22

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

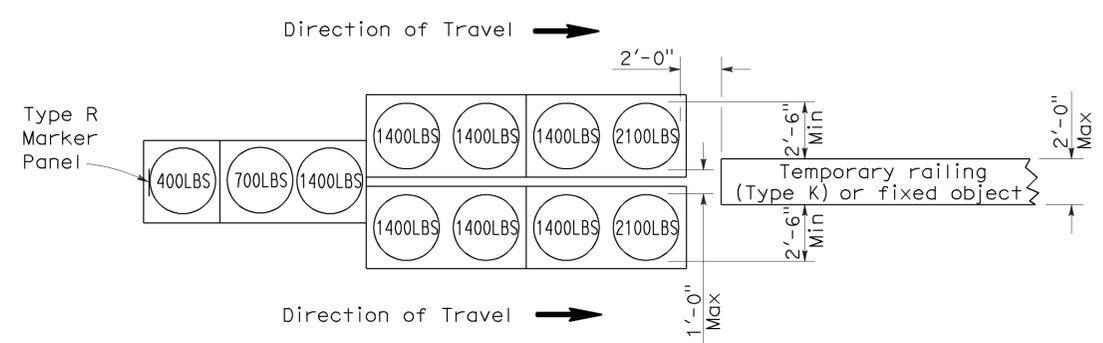
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To accompany plans dated 2-28-11



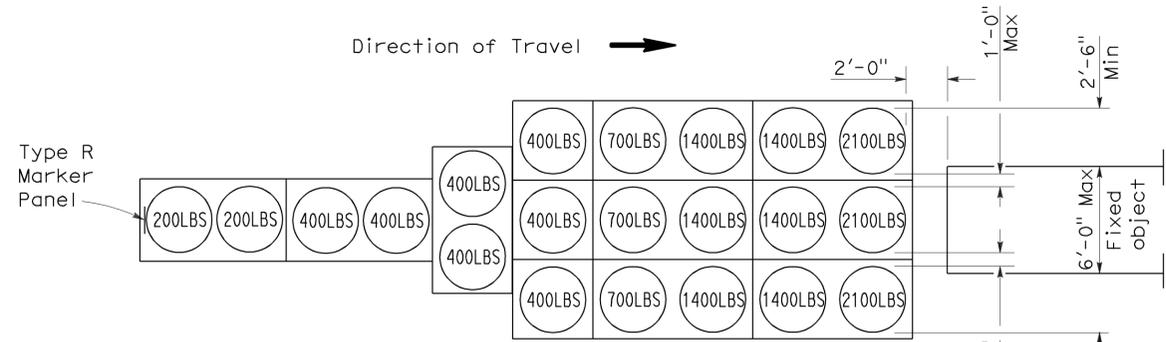
**ARRAY 'TU14'**

Approach speed 45 mph or more



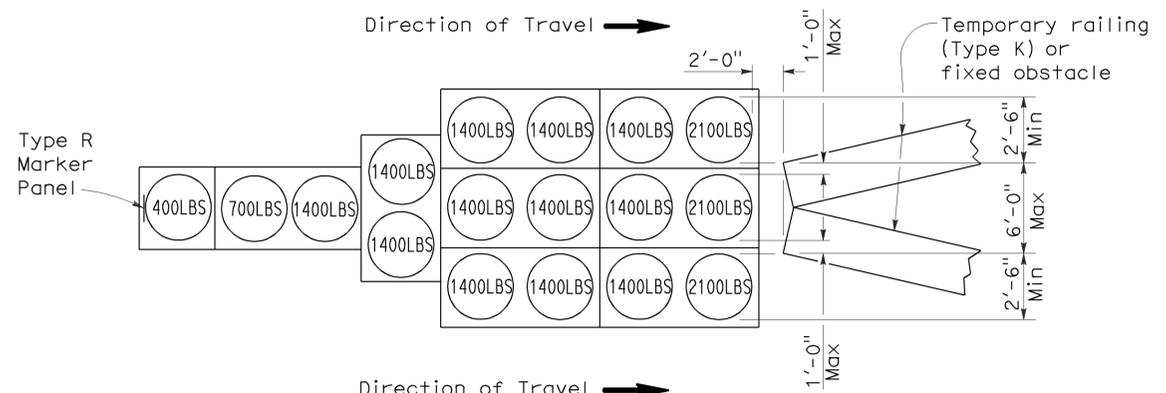
**ARRAY 'TU11'**

Approach speed less than 45 mph



**ARRAY 'TU21'**

Approach speed 45 mph or more

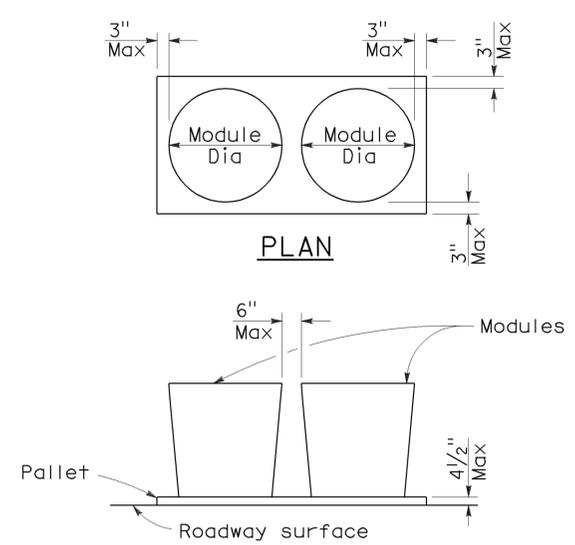


**ARRAY 'TU17'**

Approach speed less than 45 mph

**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.



**CRASH CUSHION PALLET DETAIL**  
See Note 7

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**

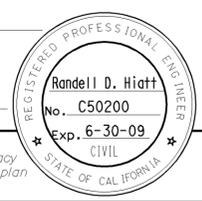
2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	2	66.7/69.4	21	22

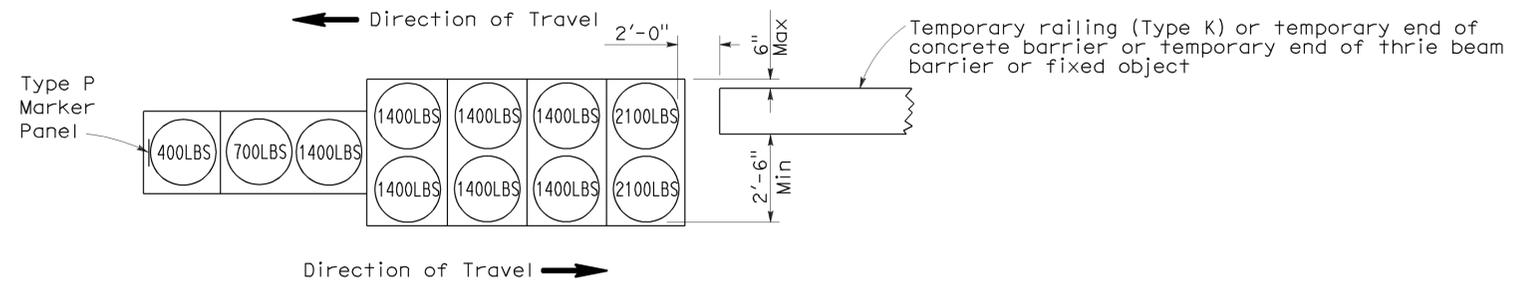
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

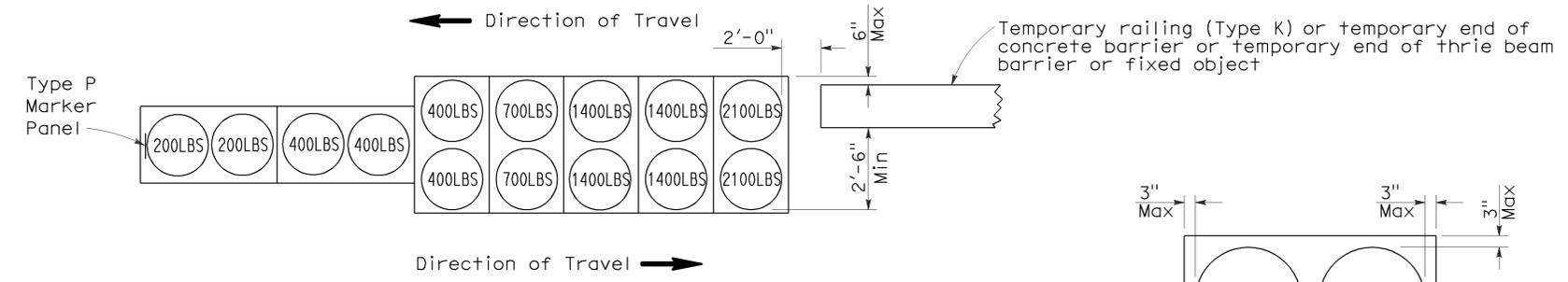
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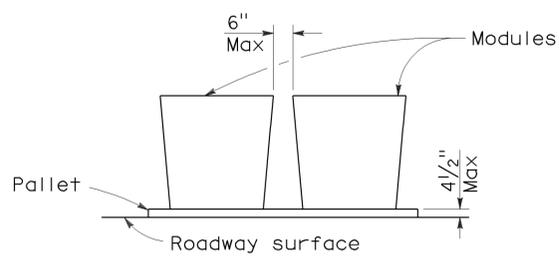
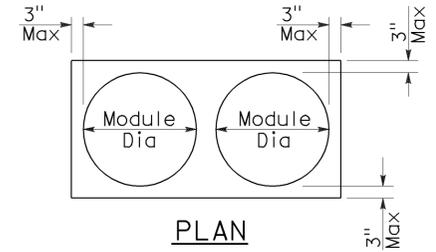
To accompany plans dated 2-28-11



**ARRAY 'TB11'**  
Approach speed less than 45 mph



**ARRAY 'TB14'**  
Approach speed 45 mph or more



**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

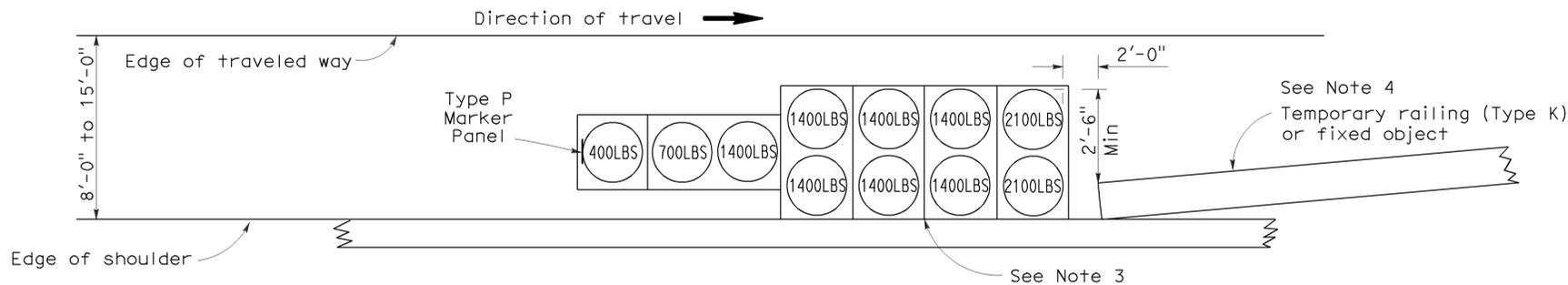
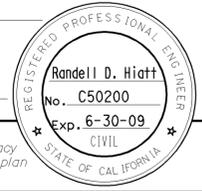
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	2	66.7/69.4	22	22

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

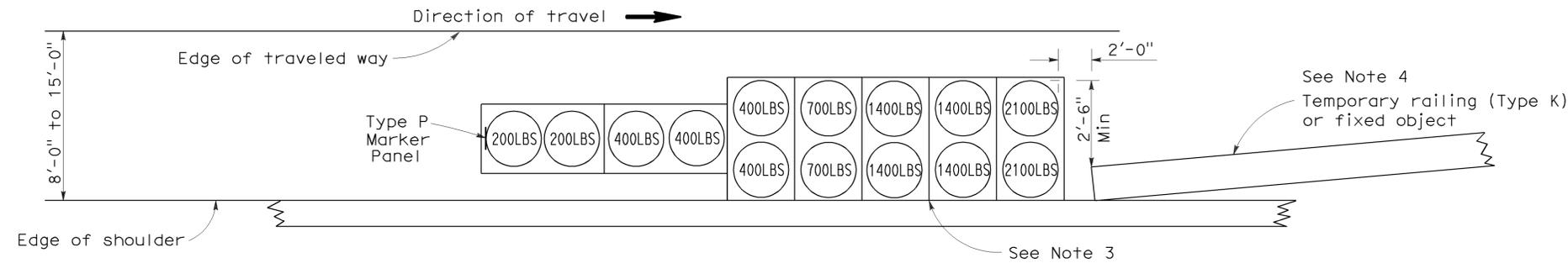
June 6, 2008  
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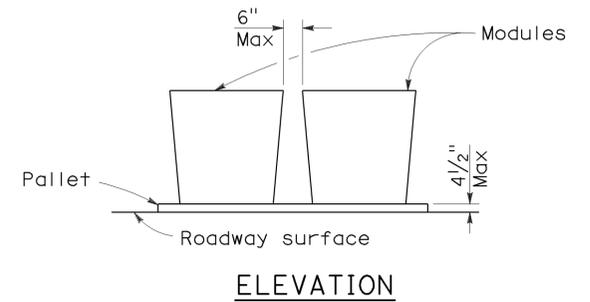
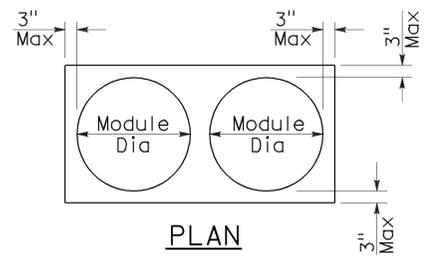
**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



**ARRAY 'TS14'**  
Approach speed 45 mph or more  
See Note 9

**NOTES:**

- (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.
- All sand weights are nominal.
- 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.
- 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.
- Temporary crash cushion arrays shall not encroach on the traveled way.
- Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
- Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
- Refer to Standard Plan A73B for marker details.
- 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.
- Approach speeds indicated conform to NCHRP 350 Report criteria.
- Use of pallets is optional.



**CRASH CUSHION PALLET DETAIL**  
See Note 11

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