Oversight / NHS	
FHWA PROJECTS OF DIVISION INTEREST (PoDI) OVERSIGHT?	■ NO □ YES
NATIONAL HIGHWAY SYSTEM?	■ NO □ YES

DEPARTMENT OF TRANSPORTATION
STATE OF COLORADO

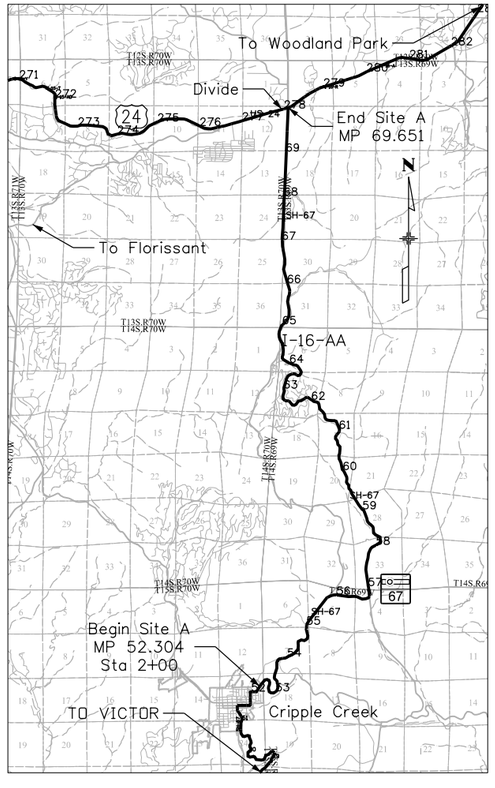
HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED
FEDERAL AID PROJECT NO. STA 067A-039
STATE HIGHWAY NO. 67
DOUGLAS & TELLER COUNTIES
CONSTRUCTION PROJECT CODE NO. 21254

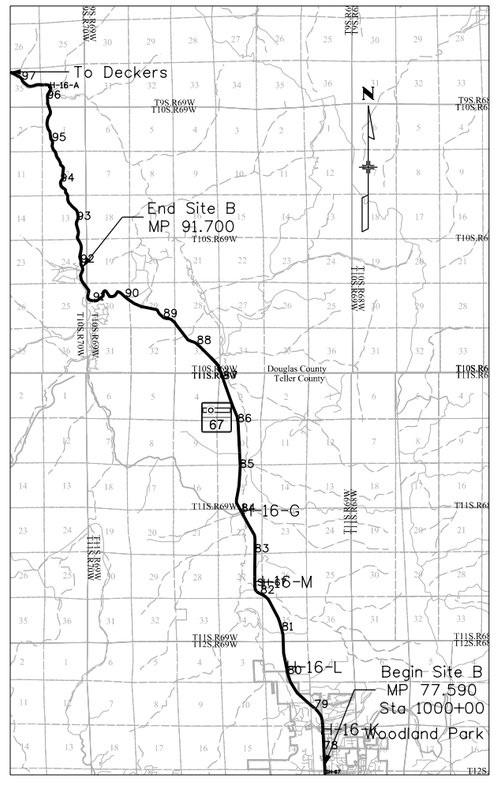
Related Projects:
P. E. UNDER PROJECT: STM R200-231
Project Number
Project Code: 21393

TABULATION OF LENGTH & DESIGN DATA

STATION	FEET ROADWAY SH 67	FEET MAJOR STR.
APPROACH TO PROJECT		
STA 2+00.00		
STR 067A-039		
BEGIN Site A STA 2+00.00 = MP 52.304	93789	
STA 713+85 STRUCTURE I-16-AA		24'-0"
END SITE A STA 939+89 = MP 69.651		
BEGIN SITE B STA 1000+00.00 = MP 77.590	75066	
STA 1029+62 STRUCTURE H-16-L		37'-9"
STA 1136+86 STRUCTURE H-16-M		46'-0"
STA 1225+09 STRUCTURE H-16-I		90'-6"
END SITE STA 1750+66 = MP 91.700		
TOTAL	168855	0
SUMMARY OF PROJECT LENGTH	FEET	MILES
MAJOR STRUCTURE	0	0.000
PROJECT GROSS LENGTH	168855	31.980

DESIGN DATA	S.H. 67
SITE A (South)	
2035 DESIGN TRAFFIC	ADT = 5,700
DHV TRUCK %	5.60%
CONSTRUCTION CLEAR ZONE SPEED REDUCTION OF 15 MP	18 FT.
CONSTRUCTION CLEAR ZONE NO SPEED REDUCTION	30 FT.
Site B (North)	
2035 DESIGN TRAFFIC	ADT = 14,700
DHV TRUCK %	9.30%
CONSTRUCTION CLEAR ZONE SPEED REDUCTION OF 15 MP	26 FT.
CONSTRUCTION CLEAR ZONE NO SPEED REDUCTION	40 FT.





PROJECT LOCATION MAP

0' 9000' 18000' 36000'

INDEX OF SHEETS

Project Description:

The Site A project limits are from Cripple Creek to Divide. The Site B project limits are from Woodland Park to Westcreek. Site A activities include a full length and width 4" CIPR, and 1.5" overlay. Site B activities include a full length and width 1.5" overlay. Project activities also include shouldering, guardrail adjustment and hardware replacement, bridge rail replacement, additional approach and departure guardrail for bridges, temporary erosion control, centerline rumble strips, and delineator replacement and installation.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_TitleSht.dgn	Date: Comments: Init.	1480 Quail Lake Loop, Suite A	No Revisions:
Horiz. Scale: 1:1 Vert. Scale: As Noted		Colorado Springs, CO 80906	Revised:
Unit Information Unit Leader Initials		Phone: 719-227-3231 FAX: 719-227-3298	Void:
		Region 2 DLH	

Contract Information	Project No./Code
Contractor:	STA 067A-039
Resident Engineer:	21254
Project Engineer:	Sheet Number 1
PROJECT STARTED: / / ACCEPTED: / /	
Comments:	

gilberta 9:54:40 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_TitleSht.dgn

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-100-1		STANDARD SYMBOLS (3 SHEETS)	1-3
M-100-2		ACRONYMS AND ABBREVIATIONS (4 SHEETS)	4-7
M-203-1	■	APPROACH ROADS (REVISED ON JULY 08, 2013)	~~8~~
M-203-2		DITCH TYPES	9
M-203-11		SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)	10-12
M-203-12		SUPERELEVATION STREETS (2 SHEETS)	13-14
M-206-1		EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	15-16
M-206-2		EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)	17-18
M-208-1	■	TEMPORARY EROSION CONTROL (11 SHEETS) (REVISED ON MARCH 29, 2016)	~~19-30~~
M-210-1		MAILBOX SUPPORTS (2 SHEETS)	31-32
M-214-1		PLANTING DETAILS	33
M-216-1	■	SOIL RETENTION COVERING (2 SHEETS) (NEW ON JULY 16, 2015)	
M-412-1	▭	CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012)	~~34-38~~
M-510-1		STRUCTURAL PLATE PIPE H-20 LOADING	39
M-601-1	▭	SINGLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	~~40-41~~
M-601-2	▭	DOUBLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	~~42-43~~
M-601-3	▭	TRIPLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	~~44-45~~
M-601-10		HEADWALL FOR PIPES	46
M-601-11		TYPE "S" SADDLE HEADWALLS FOR PIPE	47
M-601-12		HEADWALLS AND PIPE OUTLET PAVING	48
M-601-20		WINGWALLS FOR PIPE OR BOX CULVERTS	49
M-603-1	▭	METAL PIPE (4 SHEETS). (REVISED ON OCTOBER 02, 2014)	~~50-53~~
M-603-2	▭	REINFORCED CONCRETE PIPE. (REVISED ON OCTOBER 02, 2014)	~~54~~
M-603-3		PRECAST CONCRETE BOX CULVERT	55
M-603-4	▭	CORRUGATED POLYETHYLENE PIPE (AASHTO M294) (REVISED ON OCT. 02, 2014).	~~56~~
M-603-5	▭	POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304). (REVISED ON OCT. 02, 2014).	~~57~~
M-603-6	▭	STEEL REINFORCED POLYETHYLENE RIBBED PIPE (AASHTO MP 20) (NEW ON APRIL 30, 2015)	
M-603-10		CONCRETE AND METAL END SECTIONS (2 SHEETS)	58-59
M-604-10		INLET, TYPE C	60
M-604-11		INLET, TYPE D	61
M-604-12		CURB INLET TYPE R (2 SHEETS)	62-63
M-604-13		CONCRETE INLET TYPE 13	64
M-604-20		MANHOLES (3 SHEETS)	65-67
M-604-25		VANE GRATE INLET (5 SHEETS)	68-72
M-605-1		SUBSURFACE DRAINS	73
M-606-1	■	GUARDRAIL TYPE 3 W-BEAM (20 SHEETS) (REVISED ON OCTOBER 27, 2014)	~~74-92~~
M-606-1	■	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES (20 SHEETS) (REVISED ON DECEMBER 29, 2015)	
M-606-13	▭	GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS) (REVISED ON AUGUST 30, 2013)	~~93-96~~
M-606-14		PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS)	97-99

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-607-1		WIRE FENCES AND GATES (3 SHEETS)	100-102
M-607-2		CHAIN LINK FENCE (3 SHEETS)	103-105
M-607-3		BARRIER FENCE	106
M-607-4	▭	DEER FENCE, GATES, AND GAME RAMPS (5 SHEETS) (REVISED ON APRIL 30, 2015)	~~107-109~~
M-607-10		PICKET SNOW FENCE	110
M-607-15		ROAD CLOSURE GATE (9 SHEETS)	111-119
M-608-1	■	CURB RAMPS (10 SHEETS) (REVISED ON FEBRUARY 23, 2017)	~~120-125~~
M-609-1	■	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012).	~~126-129~~
M-611-1		CATTLE GUARD (2 SHEETS)	130-131
M-611-2	▭	DEER GUARD (2 SHEETS) (NEW ON APRIL 30, 2015)	
M-613-1		ROADWAY LIGHTING (4 SHEETS)	132-135
M-614-1		RUMBLE STRIPS (3 SHEETS)	136-138
M-614-2		SAND BARREL ARRAYS (2 SHEETS)	139-140
M-615-1		EMBANKMENT PROTECTOR TYPE 3	141
M-615-2		EMBANKMENT PROTECTOR TYPE 5	142
M-616-1		INVERTED SIPHON	143
M-620-1		FIELD LABORATORY CLASS 1	144
M-620-2		FIELD LABORATORY CLASS 2 (2 SHEETS)	145-146
M-620-11		FIELD OFFICE CLASS 1	147
M-620-12		FIELD OFFICE CLASS 2	148
M-629-1		SURVEY MONUMENTS (2 SHEETS)	149-150

COLORADO
DEPARTMENT OF TRANSPORTATION

M&S STANDARDS PLANS LIST

July 04, 2012

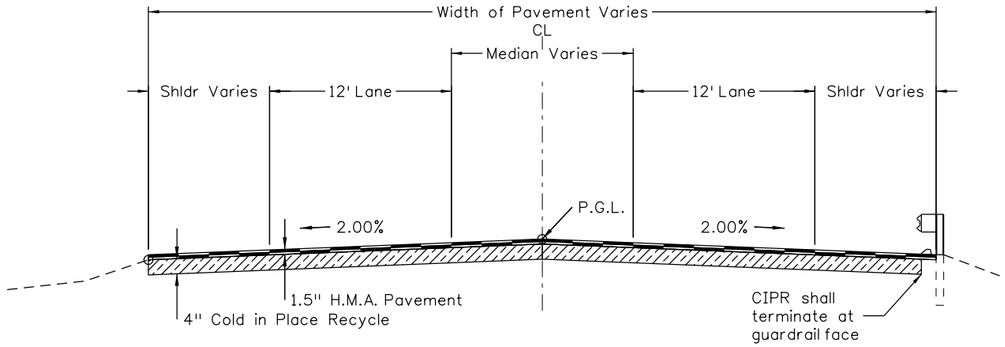
Revised on February 23, 2017

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

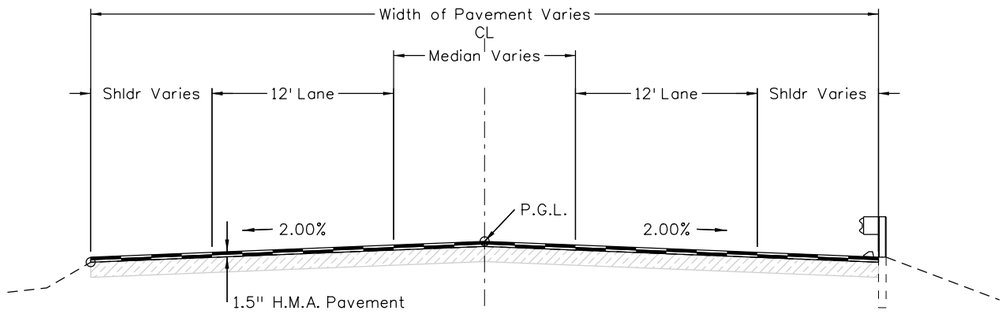
NEW OR REVISED STANDARD PLAN SHEETS APPLICABLE TO THIS PROJECT, INDICATED BY A MARKED BOX ■, WILL BE ATTACHED TO THE PLANS.

PLAN NUMBER	NEW OR REVISED	S STANDARD TITLE	PAGE NUMBER
S-612-1	■	DELINEATOR INSTALLATIONS (7 SHEETS) (REVISED ON DEC. 1, 2016).	~~151-157~~
S-614-1	■	GROUND SIGN PLACEMENT (2 SHEETS) (REVISED ON DECEMBER 12, 2014).	~~158-159~~
S-614-2	■	CLASS I SIGNS (REVISED ON JUNE 24, 2016)	~~160~~
S-614-3		CLASS II SIGNS	161
S-614-4	■	CLASS III SIGNS (3 SHEETS) (REVISED ON DECEMBER 17, 2014)	~~162-164~~
S-614-5	■	BREAK-AWAY SIGN SUPPORT DETAILS (REVISED ON FEBRUARY 8, 2017) FOR GROUND SIGNS (2 SHEETS)	~~165-166~~
S-614-6	▭	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS) (REVISED ON SEPTEMBER 16, 2013)	~~167-168~~
S-614-8	■	TUBULAR STEEL SIGN SUPPORT DETAILS (6 SHEETS) (REVISED ON DECEMBER 1, 2016)	~~169-173~~
S-614-9	▭	PEDESTRIAN PUSH BUTTON POST ASSEMBLY (REVISED ON MAY 24, 2016)	~~174~~
S-614-10		MARKER ASSEMBLY INSTALLATIONS	175
S-614-11		MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS	176
S-614-12		STRUCTURE NUMBER INSTALLATION	177
S-614-14		FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS)	178-180
S-614-20		TYPICAL POLE MOUNT SIGN INSTALLATIONS	181
S-614-21	▭	CONCRETE BARRIER SIGN POST INSTALLATIONS (REVISED ON MAY 24, 2016)	~~182~~
S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS	183
S-614-40	▭	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS) (REVISED ON JUNE 17, 2016)	~~184-188~~
S-614-40A	▭	ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS (4 SHEETS) (REVISED ON JUNE 17, 2016)	~~189-192~~
S-614-41	▭	TEMPORARY SPAN WIRE SIGNALS (REVISED ON APRIL 2, 2015)	~~193~~
S-614-42		CABINET FOUNDATION DETAIL (4 SHEETS)	194-197
S-614-43		TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS (10 SHEETS)	198-207
S-614-44	▭	PEDESTAL POLE SIGNALS (2 SHEETS) (REVISED ON JUNE 17, 2016)	
S-614-50	▭	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS) (REVISED ON JUNE 17, 2016)	~~208-219~~
S-614-60	▭	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS) (REVISED ON JUNE 17, 2016)	~~220-233~~
S-627-1	■	PAVEMENT MARKINGS (8 SHEETS) (REVISED ON FEBRUARY 8, 2017).	~~234-238~~
S-630-1	■	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (24 SHEETS) (REVISED ON JUNE 23, 2016)	~~239-258~~
S-630-2	■	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP). AND VERTICAL PANELS (REVISED ON JUNE 23, 2016)	~~259~~
S-630-3		FLASHING BEACON (PORTABLE) DETAILS	260
S-630-4		STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION. DETAILS (2 SHEETS)	261-262
S-630-5	▭	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS) (REVISED ON AUGUST 13, 2015)	~~263-264~~
S-630-6		EMERGENCY PULL-OFF AREA (TEMPORARY)	265
S-630-7		ROLLING ROADBLOCKS FOR TRAFFIC CONTROL (3 SHEETS)	266-268

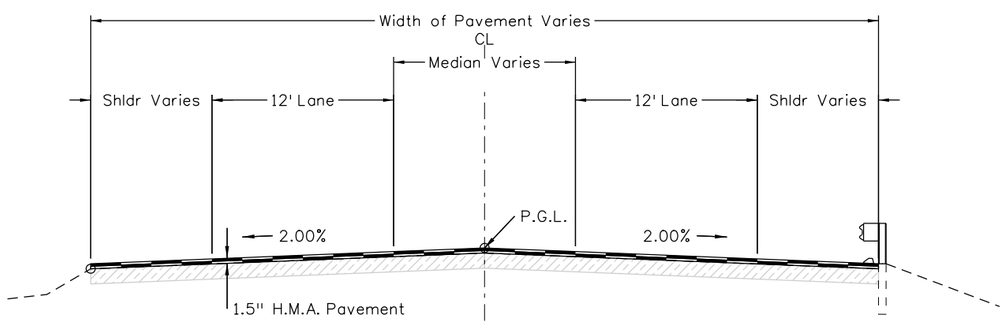
4" Cold In-place Recycle and 1.5" HMA ST 75 PG 58-28 Overlay
STA 2+00 (Begin Site A) to 926+69 (Hybrook Road S)



2" HMA ST 75 PG 58-28 Overlay
STA 926+69 (Hybrook Road S) to STA 939+89 (End Site A)



1.5" HMA ST 75 PG 58-28 Overlay
STA 1000+00 (Begin Site B) to 1750+66 (End Site B)



STA 067A-039 (21254)		
Design Parameters		
	SH 67F	SH 67D
Design Life (Years)	20	10
18-Kip ESALS:	857,000	246,000
Heavy Trucks (Cumulative):	1,707,710	351,723
Operational Speed (MPH):	55	55
Effective Binder Content (%):	10.7	10.7
Voids (%):	5.5	5.5
Reconstruction Pavement Thickness (in):	----	----
CIP Thickness (in):	4	0
Overlay Thickness (in):	2	1.5
HMA Grading:	ST	ST
HMA Design Gyrations:	75	75
HMA Grading (top lift)	PG 58-28	PG 58-28
HMA Grading (bottom lifts)	----	----

Distress Prediction Summary				
	Target	Predicted	Target	Predicted
Terminal IRI (in/mile):	200	124.01	200	93.27
Reliability (%):	90	100	90	100
Permanent Deformation (in):	0.8	0.21	0.8	0.18
Reliability (%):	90	100	90	100
AC Total Fatigue Cracking(%)	35	1.59	35	1.63
Reliability (%):	90	100	90	100
AC Total Transverse Cracking (ft/mile):	2500	188.35	2500	205.53
Reliability (%):	90	100	90	100
Permanent Deformation - AC Only (in):	0.65	0.15	0.65	0.12
Reliability (%):	90	100	90	100
AC Bottom-Up Fatigue Cracking (%)	25	0	25	0
Reliability (%):	90	100	90	100
AC Thermal Cracking (ft/mile)	1500	0.53	1500	1
Reliability (%):	90	99.96	90	100
AC Top-Down Fatigue Cracking (ft/mile):	3000	280.06	3000	660.19
Reliability (%):	90	100	90	100

Print Date: 2/27/2017
File Name: 21254DES_TyplSect01.dgn
Horiz. Scale: 1:10 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions

Date:	Comments	Init.

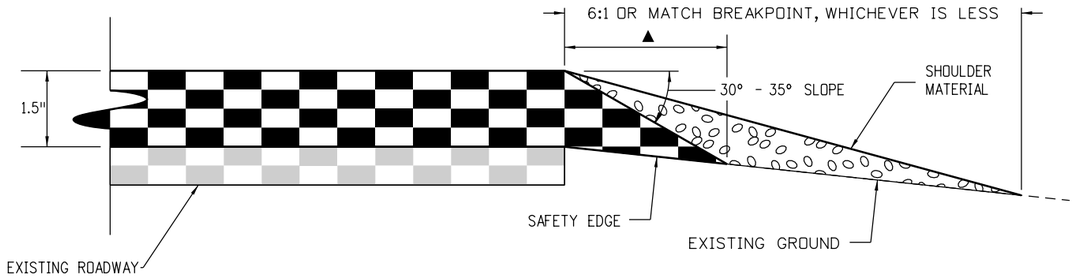
Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

TYPICAL SECTION SHEET

Designer: AWG
Detailer:
Sheet Subset: TypSec
Structure Numbers:
Subset Sheets: 1 of 2

Project No./Code
STA 067A-039
21254
Sheet Number 3



SAFETY EDGE DETAIL FOR 1.5" HMA OVERLAY (NOT TO SCALE)

GENERAL NOTES

1. THE SAFETY EDGE WILL BE CONSTRUCTED AS PART OF THE ROADWAY PAVEMENT. A SHOULDER WEDGE DEVICE WILL BE ADDED TO THE SCREED OF THE PAVING MACHINE.
2. THE CONTRACTOR MAY USE A SHOULDER WEDGE MAKER OR A SIMILAR DEVICE THAT PRODUCES THE SAME COMPACTION RESULTS.
3. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS AND TURNOUTS.
4. SITE PREPARATION AND ADDITIONAL EARTHWORK REQUIRED TO CONSTRUCT THE SAFETY EDGE WILL NOT PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.

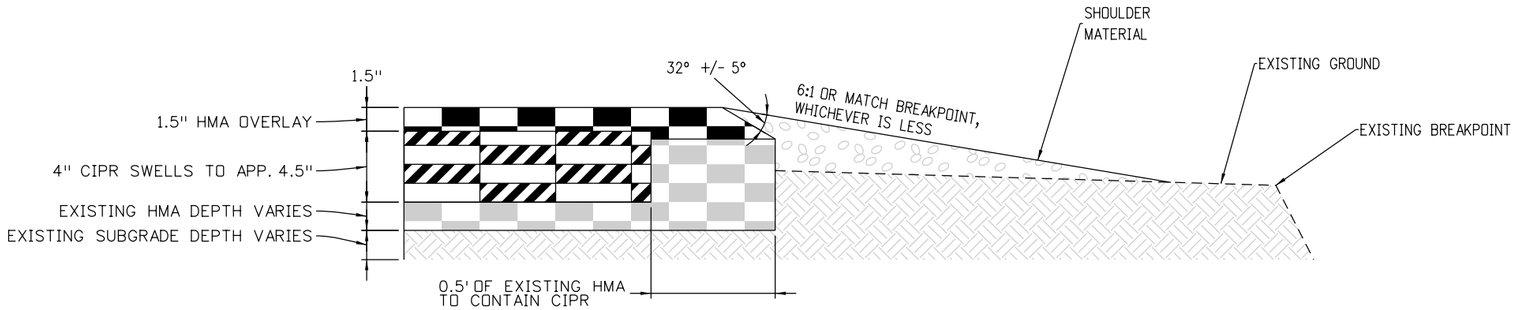
LEGEND

▲ - SAFETY EDGE WITH A 30°-35° SLOPE AND SHOULDER MATERIAL (SEE SAFETY EDGE DETAILS).

T - TOTAL THICKNESS OF THE PAVEMENT STRUCTURE FROM TOP OF PAVEMENT TO TOP OF SUBGRADE.

— SUBGRADE Z SLOPE 50:1 OR STEEPER. (2%)

— MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE.



SAFETY EDGE DETAIL FOR OVERLAY AND COLD-IN PLACE RECYCLE (NOT TO SCALE)

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	TYPICAL SECTION SHEET	Project No./Code
File Name: 21254DES_TyplSect02.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:1 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer: / Sheet Subset: TypSec	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Structure Numbers / Subset Sheets: 2 of 2	Sheet Number 4

GENERAL NOTES

1. For preliminary plan quantities of pavement material, the following rates of application were used:

Hydrated Lime	@ 6.6 Lbs. / SY CIPR
Recycling Agent	@ 1.85 Gal / SY CIPR
Hot Mix Asphalt (Grading 75 ST)	@ 110 Lbs. / (SY Inch)
Tack Coat Undiluted Emul. Asphalt (Slow Settings)	@ 0.05 Gal. / SY (Undiluted)
Aggregate Base Course (Class 6)	@ 133 Lbs. / CF

2. Diluted emulsified asphalt for tack coat shall consist of 1 part water and 1 part emulsified asphalt. Rates of application shall be determined by the Engineer at the time of application.

3. The following shall be furnished with each bituminous paver.
   A. A ski type device at least 30 feet in length.
   B. A short ski or shoe.
   C. 6 inch shoe is required

4. All measurements were developed using the existing location of MP **52** for site A and MP **77** for site B as the origin. Stationing is approximate and was measured by a vehicle distance meter calibrated to 1000 LF.

5. It is estimated that 35 tons of Hot Mix Asphalt (Patching) (Asphalt) will be required for miscellaneous cracks, potholes and normal wear throughout the project. Locations will be determined by the Engineer in the field. It is estimated that 70 tons of hot mix asphalt (patching) will be required for paving the flared end section guardrail treatments. The total estimated amount of Hot Mix Asphalt (Patching) (Asphalt) is 105 tons.

6. Construction survey shall include staking the length of the project with location markings adjacent to the roadway every 500 feet to accommodate collection of delivery tickets and to record sample locations.

7. The Contractor shall maintain access to affected property owners at all times during construction.

8. The Contractor shall ensure that all work is performed within the existing right of way of the project.

9. Shoulder gravel shall not be dumped on the asphalt pavement and bladed to the shoulders. Gravel shall be dumped on the shoulder by side-dump equipment or other methods approved by the Engineer

10. The Contractor shall log the type, size, color and location of existing lane marking for duplication. The Contractor shall lay out all lane marking on the new surface as logged for final striping. This work will not be measured and paid for separately, but will be included in bid item 627 - Modified Epoxy Pavement Marking (Inlaid).

11. Contractor shall contact Traffic Operations – Eric Lundberg 719-546-5405 10 days prior to laying out new pavement markings to verify.

12. It is estimated that 5340 gals (2671 gallons yellow and 2669 gallons white) of Pavement Marking Paint (Waterborne) will be required. Full compliance striping shall be in place at the end of each day.

13. It is estimated that 2494 gals (1169 gallons yellow and 1325 gallons white) of Modified Epoxy Pavement marking (inlaid) will be required. The final striping shall begin at a point that matches the adjacent striping location and spacing.

14. Mobile pavement marking zone requirements apply only to the final striping Modified Epoxy Pavement Marking (Inlaid) application.

15. Where it is required to cut existing asphalt the cutting shall be done to a neat work line with a saw as approved by the Engineer. This work will not be paid for separately but shall be included in the cost of the work.

16. Excavation, compaction, and blading required to complete the approaches and pullouts shall not be paid for separately, but shall be included in the work.

17. The pavement smoothness category is MRI Cat I.

18. It is estimated that the following items will be required for this project:

Potholing	(203-01597)	40 Hours
Field Office (Class 2)	(620-00002)	1 Each
Field Laboratory (Class 2)	(620-00012)	1 Each
Sanitary Facility	(620-00020)	1 Each
Construction Surveying	(625-00000)	1 Lump sum
Mobilization	(626-00000)	1 Lump sum
Mobile pavement marking	(630-80510)	1 Lump sum
Impact attenuator (temporary)	(630-85011)	100 Days

19. This is a non-significant project.

20. All Type 3 Guardrail shall be 10 gauge weathering steel in USFS areas and shall be included in the cost of the work.

21. The Contractor shall use items 211-00100 Drilling Hole and 211-02275 Cement Grout to fill voids in the subgrade as approved by the Engineer.

22. All material from Unclassified Excavation (CIP) shall become property of the Contractor.

23. 80% of all milling material shall be stockpiled at MP 58.32 for Site A and MP 85 for Site B, unless otherwise approved by the Engineer. This shall be in accordance with Revision of Section 202 – Removal of Asphalt Mat (Planing). All costs associated with stockpiling the material shall be incidental to the work.

24. Contractor shall not perform night work unless approved by the Engineer. Engineer shall contact CDOT Environmental Craig Clark for coordination.

Note for projects without CDPS permits:

A CDPS stormwater permit has not been acquired for this project since the anticipated disturbance area is under 1-acre. The Contractor shall submit a stormwater method statement detailing disturbance activities (e.g. blading, ditch work, staging on vegetation, exposure of roadway sub-base, etc.) Associated with the project at least 10-days prior to the pre-construction meeting. If the Contractor anticipates or exceeds 1-acre of disturbance, no earth disturbing activities will be authorized until a permit is acquired by CDOT. Additional costs or delays due to Contractor negligence or oversight are included in the cost of the work. In order to complete this project without a CDPS permit the following conditions apply:

1. Shouldering material shall be compacted immediately after placement.
2. Staging and overnight parking areas will occur on pre-existing pull-outs areas as practical and be pre-approved by the CDOT.
3. State waters and wetlands will be flagged prior to construction and the Contractor will not to shoulder adjacent to these areas.

BMPs will be implemented and maintained to protect state waters and sensitive areas from pollutant sources.

Know what's **below.** **Call** before you dig.

Print Date: 2/27/2017	Sheet Revisions			Colorado Department of Transportation	As Constructed	GENERAL NOTES	Project No./Code
File Name: 21254DES_GenlNote01.dgn	Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:1 Vert. Scale: As Noted					Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials				Region 2 DLH	Void:	Sheet Subset: GenNote / Structure Numbers / Subset Sheets: 1 of 1	Sheet Number 5

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				STRUCTURES				STRUCTURES				STRUCTURES				STRUCTURES		PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.	PLAN	AS CONST.
			202-00090	Removal of Delineator	EACH	1,126																		1,126	
			202-00206	Removal of Concrete Curb Ramp	SY	1.8																		1.8	
			202-00226	Removal of Asphalt Mat (Special)	SY	35																		35	
			202-00240	Removal of Asphalt Mat (Planing)	SY	4,208																		4,208	
			202-00425	Removal of Bridge Railing	LF					216														216	
			202-00810	Removal of Ground Sign	EACH	97																		97	
			202-00821	Removal of Sign Panel	EACH	27																		27	
			202-01130	Removal of Guardrail Type 3	LF	9,931																		9,931	
			202-01300	Removal of End Anchorage	EACH	32																		32	
			203-00010	Unclassified Excavation (Complete In Place)	CY	600																		600	
			203-00060	Embankment Material (Complete In Place)	CY	585																		585	
			203-01597	Potholing	HOUR	40																		40	
			208-00002	Erosion Log Type 1 (12 Inch)	LF	2,000																		2,000	
			208-00035	Aggregate Bag	LF	30																		30	
			208-00045	Concrete Washout Structure	EACH	1																		1	
			208-00103	Removal and Disposal of Sediment (Labor)	HOUR	20																		20	
			208-00105	Removal and Disposal of Sediment (Equipment)	HOUR	20																		20	
			208-00106	Sweeping (Sediment Removal)	HOUR	100																		100	
			210-04035	Modify Guardrail (Special)	LF	11,977																		11,977	
			211-00100	Drilling Hole	LF	240																		240	
			211-02275	Cement Grout	CY	20																		20	
			240-00000	Wildlife Biologist	HOUR	5																		5	
			240-00010	Removal of Nests	HOUR	10																		10	
			304-06000	Aggregate Base Course (Class 6)	TON	400																		400	
			304-08000	Aggregate Base Course (Shoulder Material)	TON	3,851																		3,851	
			307-00000	Hydrated Lime	TON	1,149																		1,149	
			403-00720	Hot Mix Asphalt (Patching) (Asphalt)	TON	105																		105	
			403-36721	Hot Mix Asphalt (Grading ST)(75)(PG 58-28)	TON	50,228																		50,228	
			406-09500	Cold Bituminous Pavement (Recycle)	SY	348,032																		348,032	
			411-10255	Emulsified Asphalt (Slow-Setting)	GAL	30,271																		30,271	
			411-90040	Recycling Agent	GAL	644,110																		644,110	
			518-03000	Sawing and Sealing Bridge Joint	LF					241														241	
			606-00301	Guardrail Type 3 (6-3 Post Spacing) (31" MGS)	LF	13,187																		13,187	

Print Date: 2/27/2017	Sheet Revisions		
File Name: 21254DES_SAQ01.dgn	Date:	Comments	Init.
Horiz. Scale: 1:1 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SUMMARY OF APPROXIMATE QUANTITIES

Designer: AWG
Detailer:
Sheet Subset: SAQ
Structure Numbers:
Subset Sheets: 1 of 3

Project No./Code
STA 067A-039
21254
Sheet Number 6

gilberta 11:04:35 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_SAQ01.dgn

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				STRUCTURES				STRUCTURES				STRUCTURES				STRUCTURES		PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.	PLAN	AS CONST.
			606-01370	Transition Type 3G (31" MGS)	EACH	13																		13	
			606-01385	Transition Type 3J (31" MGS)	EACH	1																		1	
			606-01390	End Anchorage Type 3K (31" MGS)	EACH	1																		1	
			606-02003	End Anchorage (Nonflared) (31" MGS)	EACH	18																		18	
			606-02005	End Anchorage (Flared) (31" MGS)	EACH	24																		24	
			606-11010	Bridge Rail Type 10R	LF					216														216	
			608-00015	Detectable Warnings	SF	176																		176	
			612-00036	Delineator (Flexible) (Square Base)	EACH	1,126																		1,126	
			614-00011	Sign Panel (Class I)	SF	447																		447	
			614-00012	Sign Panel (Class II)	SF	838																		838	
			614-00013	Sign Panel (Class III)	SF	66																		66	
			614-01503	Steel Sign Support (2-Inch Round)(Post and Socket)	EACH	48																		48	
			614-01573	Steel Sign Support (2-1/2 Inch Round NP-40)(Post & Slipbase)	EACH	64																		64	
			614-80001	Flashing Beacon (Solar Powered)	EACH	3																		3	
			614-80385	Rumble Strip	LF	135,084																		135,084	
			620-00002	Field Office (Class 2)	EACH	1																		1	
			620-00012	Field Laboratory (Class 2)	EACH	1																		1	
			620-00020	Sanitary Facility	EACH	1																		1	
			625-00000	Construction Surveying	L S	1																		1	
			626-00000	Mobilization	L S	1																		1	
			627-00009	Modified Epoxy Pavement Marking(Inlaid)	GAL	2,494																		2,494	
			627-00011	Pavement Marking Paint (Waterborne)	GAL	5,340																		5,340	
			627-30405	Preformed Thermoplastic Pavement Marking (Word-Symbol)	SF	655																		655	
			627-30410	Preformed Thermoplastic Pavement Marking (Xwalk-Stop Line)	SF	426																		426	
			630-00000	Flagging	HOUR	3,636																		3,636	
			630-00001	Pilot Car Operation	HOUR	800																		800	
			630-00007	Traffic Control Inspection	DAY	78																		78	
			630-00012	Traffic Control Management	DAY	101																		101	
			630-80001	Flashing Beacon (Portable)	EACH	2																		2	
			630-80341	Construction Traffic Sign (Panel Size A)	EACH	38																		38	
			630-80342	Construction Traffic Sign (Panel Size B)	EACH	75																		75	

Print Date: 2/27/2017
File Name: 21254DES_SAQ02.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SUMMARY OF APPROXIMATE QUANTITIES

Designer: awg
Detailer:
Sheet Subset: saq
Structure Numbers
Subset Sheets: 2 of 3

Project No./Code
STA 067A-039
21254
Sheet Number 7

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				STRUCTURES				STRUCTURES				STRUCTURES				STRUCTURES		PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.			PLAN	AS CONST.	PLAN	AS CONST.
			630-80343	Construction Traffic Sign (Panel Size C)	EACH	24																		24	
			630-80344	Construction Traffic Sign (Special)	SF	192																		192	
			630-80355	Portable Message Sign Panel	EACH	6																		6	
			630-80360	Drum Channelizing Device	EACH	100																		100	
			630-80363	Drum Channelizing Device (With Light) (Flashing)	EACH	10																		10	
			630-80364	Drum Channelizing Device (With Light) (Steady Burn)	EACH	20																		20	
			630-80380	Traffic Cone	EACH	200																		200	
			630-80510	Mobile Pavement Marking Zone	L S	1																		1	
			630-85011	Impact Attenuator (Temporary)	DAY	100																		100	
				FORCE ACCOUNT																					
				==========																					
			700-70010	F/A Minor Contract Revisions	F A	1																		1	
			700-70011	F/A Partnering	F A	1																		1	
			700-70016	F/A Fuel Cost Adjustment	F A	1																		1	
			700-70018	F/A Roadway Smoothness Incentive	F A	1																		1	
			700-70019	F/A Asphalt Cement Cost Adjustment	F A	1																		1	
			700-70023	F/A On-The-Job Trainee	F A	1,920																		1,920	
			700-70025	F/A Quality Incentive Payment	F A	1																		1	
			700-70380	F/A Erosion Control	F A	1																		1	

Print Date: 2/27/2017	Sheet Revisions		
File Name: 21254DES_SAQ03.dgn	Date:	Comments	Init.
Horiz. Scale: 1:1 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SUMMARY OF APPROXIMATE QUANTITIES

Designer: AWG
Detailer:
Sheet Subset: SAQ
Structure Numbers
Subset Sheets: 3 of 3

Project No./Code
STA 067A-039
21254
Sheet Number 8

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hydrated Lime		Cold Bituminous Pavement (Recycle)		Recycling Agent		HOT MIX ASPHALT (GRADING ST) (75)		Emulsified Asphalt (Slow-Setting)		Aggregate Base Course (Shoulder Material)	
							307-00000	As-Built	406-09500	As-Built	411-90040	As-Built	403-36721	As-Built	411-10255	As-Built	304-08000	As-Built
		LF	LF	LF	LF	SY	Ton	Ton	SY	SY	GAL	GAL	TONS	TONS	GAL	GAL	TONS	TONS
2+00	7+02	501.6	27.8	26.5	27.2	1513.2	5.0		1513.2		2800.4		124.8		75.7		11.1	
7+02	12+35	533.3	26.5	27.2	26.9	1591.0	5.3		1591.0		2944.4		131.3		79.5		11.8	
12+35	17+68	533.3	27.2	27.8	27.5	1629.5	5.4		1629.5		3015.7		134.4		81.5		11.8	
17+68	22+91	522.7	27.8	26.3	27.1	1571.1	5.2		1571.1		2907.6		129.6		78.6		11.6	
22+91	28+19	528.0	26.3	25.7	26.0	1525.3	5.0		1525.3		2823.0		125.8		76.3		11.7	
28+19	33+47	528.0	25.7	25.5	25.6	1501.9	5.0		1501.9		2779.5		123.9		75.1		11.7	
33+47	38+80	533.3	25.5	27.0	26.3	1555.4	5.1		1555.4		2878.6		128.3		77.8		11.8	
38+80	41+12	232.3	27.0	40.0	33.5	864.7	2.9		864.7		1600.4		71.3		43.2		5.1	
41+12	41+81	68.6	40.0	52.0	46.0	350.8	1.2		350.8		649.3		28.9		17.5		1.5	
41+81	42+13	31.7	52.0	52.0	52.0	183.0	0.6		183.0		338.8		15.1		9.2		0.7	
42+13	45+03	290.4	52.0	28.0	40.0	1290.7	4.3		1290.7		2388.7		106.5		64.5		6.4	
45+03	49+36	433.0	28.0	28.5	28.3	1359.0	4.5		1359.0		2515.2		112.1		68.0		9.6	
49+36	54+59	522.7	28.5	27.4	28.0	1623.3	5.4		1623.3		3004.3		133.9		81.2		11.6	
54+59	59+87	528.0	27.4	25.7	26.6	1557.6	5.1		1557.6		2882.7		128.5		77.9		11.7	
59+87	65+25	538.6	25.7	25.5	25.6	1531.9	5.1		1531.9		2835.1		126.4		76.6		11.9	
65+25	65+99	73.9	25.5	26.8	26.2	214.8	0.7		214.8		397.5		17.7		10.7		1.6	
65+99	69+64	364.3	26.8	26.8	26.8	1084.9	3.6		1084.9		2007.8		89.5		54.2		8.1	
69+64	75+97	633.6	26.8	28.0	27.4	1929.0	6.4		1929.0		3570.0		159.1		96.4		14.0	
75+97	77+24	126.7	28.0	37.7	32.9	462.5	1.5		462.5		856.0		38.2		23.1		2.8	
77+24	78+72	147.8	37.7	44.6	41.2	676.0	2.2		676.0		1251.0		55.8		33.8		3.3	
78+72	81+46	274.6	44.6	57.1	50.9	1551.3	5.1		1551.3		2871.0		128.0		77.6		6.1	
81+46	85+11	364.3	57.1	57.1	57.1	2311.4	7.6		2311.4		4277.8		190.7		115.6		8.1	
85+11	88+59	348.5	57.1	26.0	41.6	1608.8	5.3		1608.8		2977.5		132.7		80.4		7.7	
88+59	92+29	369.6	26.0	24.5	25.3	1036.9	3.4		1036.9		1919.1		85.5		51.8		8.2	
92+29	96+78	448.8	24.5	26.6	25.6	1274.1	4.2		1274.1		2358.0		105.1		63.7		9.9	
96+78	102+16	538.6	26.6	25.0	25.8	1543.9	5.1		1543.9		2857.3		127.4		77.2		11.9	
102+16	107+39	522.7	25.0	26.0	25.5	1481.0	4.9		1481.0		2741.0		122.2		74.1		11.6	
107+39	112+72	533.3	26.0	27.7	26.9	1591.0	5.3		1591.0		2944.4		131.3		79.5		11.8	
112+72	117+90	517.4	27.7	27.5	27.6	1586.8	5.2		1586.8		2936.8		130.9		79.3		11.5	
117+90	121+54	364.3	27.5	35.0	31.3	1265.0	4.2		1265.0		2341.2		104.4		63.2		8.1	
121+54	125+55	401.3	35.0	39.5	37.3	1660.9	5.5		1660.9		3073.8		137.0		83.0		8.9	
125+55	129+93	438.2	39.5	37.0	38.3	1862.5	6.1		1862.5		3447.0		153.7		93.1		9.7	
129+93	129+99	5.3	37.0	24.5	30.8	18.0	0.1		18.0		33.4		1.5		0.9		0.1	
129+99	134+26	427.7	24.5	26.0	25.3	1199.9	4.0		1199.9		2220.6		99.0		60.0		9.5	
134+26	139+07	480.5	26.0	26.9	26.5	1412.1	4.7		1412.1		2613.4		116.5		70.6		10.7	
139+07	144+35	528.0	26.9	25.7	26.3	1542.9	5.1		1542.9		2855.5		127.3		77.1		11.7	
144+35	149+63	528.0	25.7	26.0	25.9	1516.5	5.0		1516.5		2806.7		125.1		75.8		11.7	
149+63	154+91	528.0	26.0	28.0	27.0	1584.0	5.2		1584.0		2931.5		130.7		79.2		11.7	
154+91	160+19	528.0	28.0	26.0	27.0	1584.0	5.2		1584.0		2931.5		130.7		79.2		11.7	
160+19	165+47	528.0	26.0	26.2	26.1	1531.2	5.1		1531.2		2833.8		126.3		76.6		11.7	
165+47	170+75	528.0	26.2	25.7	26.0	1522.4	5.0		1522.4		2817.5		125.6		76.1		11.7	
SUBTOTALS							180.5		54700.1		101234.5		4512.8		2735.0		374.1	

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hydrated Lime		Cold Bituminous Pavement (Recycle)		Recycling Agent		HOT MIX ASPHALT (GRADING ST) (75)		EMULSIFIED ASPHALT (SLOW-SETTING)		Aggregate Base Course (Shoulder Material)	
							307-00000	As-Built	406-09500	As-Built	411-90040	As-Built	403-36721	AS-BUILT	411-10255	AS-BUILT	304-08000	AS-BUILT
		LF	LF	LF	LF	SY	Ton	Ton	SY	SY	GAL	GAL	TONS	TONS	GAL	GAL	TONS	TONS
170+75	176+08	533.3	25.7	25.4	25.6	1513.9	5.0		1513.9		2801.8		124.9		75.7		11.8	
176+08	181+31	522.7	25.4	25.9	25.7	1489.8	4.9		1489.8		2757.1		122.9		74.5		11.6	
181+31	183+84	253.4	25.9	29.8	27.9	784.3	2.6		784.3		1451.4		64.7		39.2		5.6	
183+84	187+17	332.6	29.8	28.4	29.1	1075.5	3.5		1075.5		1990.5		88.7		53.8		7.4	
187+17	191+87	469.9	28.4	26.5	27.5	1433.3	4.7		1433.3		2652.6		118.2		71.7		10.4	
191+87	197+31	543.8	26.5	28.7	27.6	1667.8	5.5		1667.8		3086.6		137.6		83.4		12.1	
197+31	202+43	512.2	28.7	28.5	28.6	1627.5	5.4		1627.5		3012.1		134.3		81.4		11.4	
202+43	207+71	528.0	28.5	29.2	28.9	1692.5	5.6		1692.5		3132.4		139.6		84.6		11.7	
207+71	213+25	554.4	29.2	29.5	29.4	1808.0	6.0		1808.0		3346.0		149.2		90.4		12.3	
213+25	218+27	501.6	29.5	29.9	29.7	1655.3	5.5		1655.3		3063.5		136.6		82.8		11.1	
218+27	222+81	454.1	29.9	28.9	29.4	1483.3	4.9		1483.3		2745.2		122.4		74.2		10.1	
222+81	225+40	258.7	28.9	31.4	30.2	866.7	2.9		866.7		1604.0		71.5		43.3		5.7	
225+40	229+36	396.0	31.4	32.5	32.0	1405.8	4.6		1405.8		2601.7		116.0		70.3		8.8	
229+36	230+04	68.6	32.5	28.4	30.5	232.2	0.8		232.2		429.8		19.2		11.6		1.5	
230+04	231+20	116.2	28.4	36.0	32.2	415.6	1.4		415.6		769.1		34.3		20.8		2.6	
231+20	233+05	184.8	36.0	53.4	44.7	917.8	3.0		917.8		1698.7		75.7		45.9		4.1	
233+05	234+16	110.9	53.4	60.1	56.8	699.2	2.3		699.2		1293.9		57.7		35.0		2.5	
234+16	235+32	116.2	60.1	66.0	63.1	813.8	2.7		813.8		1506.1		67.1		40.7		2.6	
235+32	239+65	433.0	66.0	64.5	65.3	3139.0	10.4		3139.0		5809.3		259.0		156.9		9.6	
239+65	245+14	549.1	64.5	45.6	55.1	3358.8	11.1		3358.8		6216.2		277.1		167.9		12.2	
245+14	250+32	517.4	45.6	42.8	44.2	2541.2	8.4		2541.2		4703.1		209.6		127.1		11.5	
250+32	252+91	258.7	42.8	37.6	40.2	1155.6	3.8		1155.6		2138.7		95.3		57.8		5.7	
252+91	252+96	5.3	37.6	27.6	32.6	19.1	0.1		19.1		35.4		1.6		1.0		0.1	
252+96	260+51	755.0	27.6	27.6	27.6	2315.5	7.6		2315.5		4285.3		191.0		115.8		16.7	
260+51	265+89	538.6	27.6	27.9	27.8	1660.6	5.5		1660.6		3073.2		137.0		83.0		11.9	
265+89	271+12	522.7	27.9	28.5	28.2	1637.9	5.4		1637.9		3031.2		135.1		81.9		11.6	
271+12	275+35	422.4	28.5	29.0	28.8	1349.3	4.5		1349.3		2497.2		111.3		67.5		9.4	
275+35	281+63	628.3	29.0	28.9	29.0	2021.1	6.7		2021.1		3740.5		166.7		101.1		13.9	
281+63	287+01	538.6	28.9	28.5	28.7	1717.4	5.7		1717.4		3178.4		141.7		85.9		11.9	
287+01	292+19	517.4	28.5	28.6	28.6	1641.4	5.4		1641.4		3037.8		135.4		82.1		11.5	
292+19	297+52	533.3	28.6	28.3	28.5	1685.8	5.6		1685.8		3119.9		139.1		84.3		11.8	
297+52	302+75	522.7	28.3	27.2	27.8	1611.7	5.3		1611.7		2982.8		133.0		80.6		11.6	
302+75	306+23	348.5	27.2	29.9	28.6	1105.5	3.6		1105.5		2045.9		91.2		55.3		7.7	
306+23	311+46	522.7	29.9	31.8	30.9	1791.8	5.9		1791.8		3316.1		147.8		89.6		11.6	
311+46	311+88	42.2	31.8	28.5	30.2	141.5	0.5		141.5		261.9		11.7		7.1		0.9	
311+88	315+53	364.3	28.5	27.9	28.2	1141.5	3.8		1141.5		2112.7		94.2		57.1		8.1	
315+53	322+97	744.5	27.9	28.0	28.0	2312.0	7.6		2312.0		4278.9		190.7		115.6		16.5	
322+97	328+67	570.2	28.0	27.9	28.0	1770.9	5.8		1770.9		3277.5		146.1		88.5		12.6	
328+67	333+06	438.2	27.9	29.6	28.8	1399.9	4.6		1399.9		2590.9		115.5		70.0		9.7	
333+06	343+25	1019.0	29.6	29.6	29.6	3351.5	11.1		3351.5		6202.7		276.5		167.6		22.6	
343+25	349+69	644.2	29.6	29.2	29.4	2104.3	6.9		2104.3		3894.4		173.6		105.2		14.3	
SUBTOTALS							206.4		62555.44533		115772.5778		5160.8		3127.8		396.6	

Print Date: 2/27/2017	
File Name: 21254DES_Surf02.dgn	
Horiz. Scale: 1:1	Vert. Scale: As Noted
Unit Information	Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed	
No Revisions:	
Revised:	
Void:	

Tabulation of Resurfacing (Site A)			
Designer:	AWG	Structure Numbers	
Detailer:			
Sheet Subset:	Surf	Subset Sheets:	2 of 9

Project No./Code	
STA 067A-039	
21254	
Sheet Number	10

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hydrated Lime		Cold Bituminous Pavement (Recycle)		Recycling Agent		HOT MIX ASPHALT (GRADING ST) (75)		EMULSIFIED ASPHALT (SLOW-SETTING)		Aggregate Base Course (Shoulder Material)	
							307-00000	As-Built	406-09500	As-Built	411-90040	As-Built	403-36721	AS-BUILT	411-10255	AS-BUILT	304-08000	AS-BUILT
		LF	LF	LF	LF	SY	Ton	Ton	SY	SY	GAL	GAL	TONS	TONS	GAL	GAL	TONS	TONS
349+69	353+44	374.9	29.2	30.0	29.6	1232.9	4.1		1232.9		2281.8		101.7		61.6		8.3	
353+44	363+47	1003.2	30.0	28.0	29.0	3232.5	10.7		3232.5		5982.5		266.7		161.6		22.2	
363+47	372+29	881.8	28.0	32.0	30.0	2939.2	9.7		2939.2		5439.6		242.5		147.0		19.5	
372+29	384+48	1219.7	32.0	31.0	31.5	4268.9	14.1		4268.9		7900.5		352.2		213.4		27.0	
384+48	393+14	865.9	31.0	29.0	30.0	2886.4	9.5		2886.4		5341.9		238.1		144.3		19.2	
393+14	397+21	406.6	29.0	29.0	29.0	1310.0	4.3		1310.0		2424.5		108.1		65.5		9.0	
397+21	399+53	232.3	29.0	41.0	35.0	903.5	3.0		903.5		1672.1		74.5		45.2		5.1	
399+53	403+07	353.8	41.0	41.0	41.0	1611.6	5.3		1611.6		2982.6		133.0		80.6		7.8	
403+07	403+12	5.3	41.0	27.0	34.0	19.9	0.1		19.9		36.9		1.6		1.0		0.1	
403+12	404+65	153.1	27.0	27.0	27.0	459.4	1.5		459.4		850.1		37.9		23.0		3.4	
404+65	408+35	369.6	27.0	27.7	27.4	1123.2	3.7		1123.2		2078.7		92.7		56.2		8.2	
408+35	414+00	565.0	27.7	27.0	27.4	1716.9	5.7		1716.9		3177.4		141.6		85.8		12.5	
414+00	418+96	496.3	27.0	26.8	26.9	1483.4	4.9		1483.4		2745.4		122.4		74.2		11.0	
418+96	424+24	528.0	26.8	26.5	26.7	1563.5	5.2		1563.5		2893.5		129.0		78.2		11.7	
424+24	429+52	528.0	26.5	26.5	26.5	1554.7	5.1		1554.7		2877.3		128.3		77.7		11.7	
429+52	434+75	522.7	26.5	26.3	26.4	1533.3	5.1		1533.3		2837.7		126.5		76.7		11.6	
434+75	440+24	549.1	26.3	27.7	27.0	1647.4	5.4		1647.4		3048.8		135.9		82.4		12.2	
440+24	445+36	512.2	27.7	28.1	27.9	1587.7	5.2		1587.7		2938.4		131.0		79.4		11.4	
445+36	447+21	184.8	28.1	28.1	28.1	577.0	1.9		577.0		1067.8		47.6		28.8		4.1	
447+21	450+64	343.2	28.1	27.7	27.9	1063.9	3.5		1063.9		1969.0		87.8		53.2		7.6	
450+64	458+35	770.9	27.7	31.7	29.7	2543.9	8.4		2543.9		4708.1		209.9		127.2		17.1	
458+35	466+48	813.1	31.7	30.4	31.1	2805.3	9.3		2805.3		5191.8		231.4		140.3		18.0	
466+48	472+40	591.4	30.4	31.0	30.7	2017.2	6.7		2017.2		3733.3		166.4		100.9		13.1	
472+40	477+04	464.6	31.0	30.4	30.7	1584.9	5.2		1584.9		2933.3		130.8		79.2		10.3	
477+04	482+48	543.8	30.4	28.3	29.4	1773.5	5.9		1773.5		3282.3		146.3		88.7		12.1	
482+48	487+81	533.3	28.3	26.6	27.5	1626.5	5.4		1626.5		3010.2		134.2		81.3		11.8	
487+81	493+46	565.0	26.6	26.7	26.7	1672.9	5.5		1672.9		3096.1		138.0		83.6		12.5	
493+46	498+11	464.6	26.7	28.6	27.7	1427.5	4.7		1427.5		2641.9		117.8		71.4		10.3	
498+11	504+44	633.6	28.6	29.3	29.0	2038.1	6.7		2038.1		3771.9		168.1		101.9		14.0	
504+44	508+77	433.0	29.3	30.7	30.0	1443.2	4.8		1443.2		2671.0		119.1		72.2		9.6	
508+77	514+69	591.4	30.7	29.0	29.9	1961.3	6.5		1961.3		3629.9		161.8		98.1		13.1	
514+69	520+55	586.1	29.0	27.0	28.0	1823.4	6.0		1823.4		3374.5		150.4		91.2		13.0	
520+55	525+72	517.4	27.0	27.3	27.2	1560.9	5.2		1560.9		2888.9		128.8		78.0		11.5	
525+72	530+84	512.2	27.3	26.6	27.0	1533.6	5.1		1533.6		2838.3		126.5		76.7		11.4	
530+84	536+76	591.4	26.6	27.5	27.1	1777.4	5.9		1777.4		3289.4		146.6		88.9		13.1	
536+76	540+30	353.8	27.5	27.5	27.5	1080.9	3.6		1080.9		2000.5		89.2		54.0		7.8	
540+30	546+84	654.7	27.5	28.7	28.1	2044.2	6.7		2044.2		3783.2		168.6		102.2		14.5	
546+84	551+81	496.3	28.7	29.5	29.1	1604.8	5.3		1604.8		2970.0		132.4		80.2		11.0	
551+81	556+93	512.2	29.5	28.0	28.8	1636.1	5.4		1636.1		3027.9		135.0		81.8		11.4	
556+93	561+68	475.2	28.0	27.7	27.9	1470.5	4.9		1470.5		2721.4		121.3		73.5		10.5	
561+68	567+80	612.5	27.7	26.8	27.3	1854.5	6.1		1854.5		3432.1		153.0		92.7		13.6	
SUBTOTALS							231.0		69995.7		129542.5		5774.6		3499.8		483.5	

Print Date: 2/27/2017	Sheet Revisions		
File Name: 21254DES_Surf03.dgn	Date:	Comments	Init.
Horiz. Scale: 1:1 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Tabulation of Resurfacing (Site A)

Designer:	AWG	Structure Numbers	
Detailer:			
Sheet Subset:	Surf	Subset Sheets:	3 of 9

Project No./Code
STA 067A-039
21254
Sheet Number 11

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hydrated Lime		Cold Bituminous Pavement (Recycle)		Recycling Agent		HOT MIX ASPHALT (GRADING ST) (75)		EMULSIFIED ASPHALT (SLOW-SETTING)		Aggregate Base Course (Shoulder Material)	
							307-00000	As-Built	406-09500	As-Built	411-90040	As-Built	403-36721	AS-BUILT	411-10255	AS-BUILT	304-08000	AS-BUILT
		LF	LF	LF	LF	SY	Ton	Ton	SY	SY	GAL	GAL	TONS	TONS	GAL	GAL	TONS	TONS
567+80	572+87	506.9	26.8	27.8	27.3	1537.5	5.1		1537.5		2845.5		126.8		76.9		11.2	
572+87	579+58	670.6	27.8	26.5	27.2	2022.9	6.7		2022.9		3743.7		166.9		101.1		14.9	
579+58	583+80	422.4	26.5	27.0	26.8	1255.5	4.1		1255.5		2323.5		103.6		62.8		9.4	
583+80	591+04	723.4	27.0	27.1	27.1	2174.1	7.2		2174.1		4023.6		179.4		108.7		16.0	
591+04	598+43	739.2	27.1	27.0	27.1	2221.7	7.3		2221.7		4111.8		183.3		111.1		16.4	
598+43	605+98	755.0	27.0	29.9	28.5	2386.8	7.9		2386.8		4417.2		196.9		119.3		16.7	
605+98	609+04	306.2	29.9	27.0	28.5	968.1	3.2		968.1		1791.6		79.9		48.4		6.8	
609+04	615+43	638.9	27.0	27.5	27.3	1934.4	6.4		1934.4		3580.0		159.6		96.7		14.2	
615+43	620+18	475.2	27.5	29.0	28.3	1491.6	4.9		1491.6		2760.5		123.1		74.6		10.5	
620+18	627+42	723.4	29.0	28.7	28.9	2318.8	7.7		2318.8		4291.4		191.3		115.9		16.0	
627+42	631+06	364.3	28.7	29.3	29.0	1173.9	3.9		1173.9		2172.6		96.8		58.7		8.1	
631+06	635+86	480.5	29.3	29.7	29.5	1574.9	5.2		1574.9		2914.7		129.9		78.7		10.7	
635+86	640+67	480.5	29.7	28.8	29.3	1561.6	5.2		1561.6		2890.0		128.8		78.1		10.7	
640+67	647+16	649.4	28.8	28.7	28.8	2074.6	6.8		2074.6		3839.5		171.2		103.7		14.4	
647+16	657+09	992.6	28.7	28.1	28.4	3132.3	10.3		3132.3		5797.1		258.4		156.6		22.0	
657+09	661+74	464.6	28.1	28.1	28.1	1450.7	4.8		1450.7		2684.9		119.7		72.5		10.3	
661+74	667+23	549.1	28.1	28.0	28.1	1711.4	5.6		1711.4		3167.4		141.2		85.6		12.2	
667+23	672+56	533.3	28.0	28.7	28.4	1679.8	5.5		1679.8		3108.9		138.6		84.0		11.8	
672+56	677+84	528.0	28.7	27.8	28.3	1657.3	5.5		1657.3		3067.3		136.7		82.9		11.7	
677+84	682+91	506.9	27.8	30.4	29.1	1638.9	5.4		1638.9		3033.2		135.2		81.9		11.2	
682+91	688+19	528.0	30.4	30.4	30.4	1783.5	5.9		1783.5		3300.7		147.1		89.2		11.7	
688+19	692+41	422.4	30.4	30.4	30.4	1426.8	4.7		1426.8		2640.6		117.7		71.3		9.4	
692+41	698+80	638.9	30.4	31.0	30.7	2179.3	7.2		2179.3		4033.3		179.8		109.0		14.2	
698+80	704+13	533.3	31.0	30.3	30.7	1816.1	6.0		1816.1		3361.1		149.8		90.8		11.8	
704+13	712+21	807.8	30.3	28.3	29.3	2630.0	8.7		2630.0		4867.3		217.0		131.5		17.9	
712+21	714+80	258.7	28.3	28.1	28.2	810.7	2.7		810.7		1500.3		66.9		40.5		5.7	
714+80	721+19	638.9	28.1	28.5	28.3	2008.9	6.6		2008.9		3718.0		165.7		100.4		14.2	
721+19	727+84	665.3	28.5	42.5	35.5	2624.2	8.7		2624.2		4856.6		216.5		131.2		14.7	
727+84	730+48	264.0	42.5	46.0	44.3	1298.0	4.3		1298.0		2402.2		107.1		64.9		5.9	
730+48	733+91	343.2	46.0	60.0	53.0	2021.1	6.7		2021.1		3740.4		166.7		101.1		7.6	
733+91	738+98	506.9	60.0	59.3	59.7	3359.5	11.1		3359.5		6217.5		277.2		168.0		11.2	
738+98	741+57	258.7	59.3	49.9	54.6	1569.6	5.2		1569.6		2904.8		129.5		78.5		5.7	
741+57	748+38	681.1	49.9	32.6	41.3	3121.8	10.3		3121.8		5777.6		257.5		156.1		15.1	
748+38	756+83	844.8	32.6	28.9	30.8	2886.4	9.5		2886.4		5341.9		238.1		144.3		18.7	
756+83	762+37	554.4	28.9	29.0	29.0	1783.3	5.9		1783.3		3300.4		147.1		89.2		12.3	
762+37	767+86	549.1	29.0	29.6	29.3	1787.7	5.9		1787.7		3308.5		147.5		89.4		12.2	
767+86	773+14	528.0	29.6	28.9	29.3	1716.0	5.7		1716.0		3175.8		141.6		85.8		11.7	
773+14	781+64	850.1	28.9	27.8	28.4	2677.8	8.8		2677.8		4955.8		220.9		133.9		18.8	
781+64	788+93	728.6	27.8	29.0	28.4	2299.3	7.6		2299.3		4255.3		189.7		115.0		16.2	
788+93	794+37	543.8	29.0	28.7	28.9	1743.3	5.8		1743.3		3226.4		143.8		87.2		12.1	
794+37	803+35	897.6	28.7	28.5	28.6	2852.4	9.4		2852.4		5278.9		235.3		142.6		79.0	
SUBTOTALS							265.2		80362.2		148727.8		6629.9		4018.1		581.2	

Print Date: 2/27/2017	
File Name: 21254DES_Surf04.dgn	
Horiz. Scale: 1:1	Vert. Scale: As Noted
Unit Information	Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed	
No Revisions:	
Revised:	
Void:	

Tabulation of Resurfacing (Site A)			
Designer:	AWG	Structure Numbers	
Detailer:			
Sheet Subset:	Surf	Subset Sheets:	4 of 9

Project No./Code	
STA 067A-039	
21254	
Sheet Number	12

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hydrated Lime		Cold Bituminous Pavement (Recycle)		Recycling Agent		HOT MIX ASPHALT (GRADING ST) (75)		EMULSIFIED ASPHALT (SLOW-SETTING)		Aggregate Base Course (Shoulder Material)	
							307-00000	As-Built	406-09500	As-Built	411-90040	As-Built	403-36721	AS-BUILT	411-10255	AS-BUILT	304-08000	AS-BUILT
		LF	LF	LF	LF	SY	Ton	Ton	SY	SY	GAL	GAL	TONS	TONS	GAL	GAL	TONS	TONS
803+35	810+42	707.5	28.5	28.8	28.7	2252.3	7.4		2252.3		4168.3		185.8		112.6		15.7	
810+42	817+65	723.4	28.8	28.3	28.6	2294.7	7.6		2294.7		4246.8		189.3		114.7		16.0	
817+65	827+37	971.5	28.3	28.5	28.4	3065.7	10.1		3065.7		5673.7		252.9		153.3		21.5	
827+37	830+91	353.8	28.5	28.3	28.4	1116.3	3.7		1116.3		2066.0		92.1		55.8		7.8	
830+91	836+77	586.1	28.3	29.4	28.9	1878.7	6.2		1878.7		3477.0		155.0		93.9		13.0	
836+77	841+36	459.4	29.4	28.5	29.0	1477.6	4.9		1477.6		2734.6		121.9		73.9		10.2	
841+36	846+80	543.8	28.5	28.5	28.5	1722.2	5.7		1722.2		3187.2		142.1		86.1		12.1	
846+80	852+13	533.3	28.5	28.0	28.3	1673.9	5.5		1673.9		3097.9		138.1		83.7		11.8	
852+13	862+27	1013.8	28.0	29.9	29.0	3260.9	10.8		3260.9		6035.1		269.0		163.0		22.5	
862+27	868+24	596.6	29.9	28.3	29.1	1929.1	6.4		1929.1		3570.3		159.2		96.5		13.2	
868+24	878+69	1045.4	28.3	28.2	28.3	3281.5	10.8		3281.5		6073.2		270.7		164.1		23.2	
878+69	884+13	543.8	28.2	28.2	28.2	1704.0	5.6		1704.0		3153.7		140.6		85.2		12.1	
884+13	891+31	718.1	28.2	29.2	28.7	2289.9	7.6		2289.9		4237.9		188.9		114.5		15.9	
891+31	899+44	813.1	29.2	28.7	29.0	2615.5	8.6		2615.5		4840.6		215.8		130.8		18.0	
899+44	904+72	528.0	28.7	29.0	28.9	1692.5	5.6		1692.5		3132.4		139.6		84.6		11.7	
904+72	912+11	739.2	29.0	28.2	28.6	2349.0	7.8		2349.0		4347.4		193.8		117.5		16.4	
912+11	916+02	390.7	28.2	28.8	28.5	1237.3	4.1		1237.3		2289.9		102.1		61.9		8.7	
916+02	920+83	480.5	28.8	28.5	28.7	1529.5	5.0		1529.5		2830.7		126.2		76.5		10.7	
920+83	922+67	184.8	28.5	28.5	28.5	585.2	1.9		585.2		1083.0		48.3		29.3		4.1	
922+67	922+73	5.3	28.5	56.1	42.3	24.8	0.1		24.8		45.9		2.0		1.2		0.1	
922+73	926+69	396.0	56.1	48.4	52.3	2299.0	7.6		2299.0		4254.8		189.7		114.9		8.8	
926+69	927+16	47.5	48.4	48.4	48.4	255.6	0.8		255.6		473.0		28.1		12.8		1.1	
927+16	929+06	190.1	48.4	56.5	52.5	1107.7	3.7		1107.7		2050.1		121.9		55.4		4.2	
929+06	931+39	232.3	56.5	57.2	56.9	1467.5	4.8		1467.5		2715.9		161.4		73.4		5.1	
931+39	931+76	37.0	57.2	57.7	57.5	235.9	0.8		235.9		436.6		26.0		11.8		0.8	
931+76	932+81	105.6	57.7	59.0	58.4	684.6	2.3		684.6		1267.1		75.3		34.2		2.3	
932+81	933+50	68.6	59.0	63.0	61.0	465.2	1.5		465.2		861.0		51.2		23.3		1.5	
933+50	936+14	264.0	63.0	62.9	63.0	1846.5	6.1		1846.5		3417.4		203.1		92.3		5.9	
936+14	936+93	79.2	62.9	61.8	62.4	548.7	1.8		548.7		1015.5		60.4		27.4		1.8	
936+93	937+88	95.0	61.8	68.6	65.2	688.5	2.3		688.5		1274.2		75.7		34.4		2.1	
937+88	938+57	68.6	68.6	73.3	71.0	541.1	1.8		541.1		1001.4		59.5		27.1		1.5	
938+57	939+04	47.5	73.3	72.0	72.7	383.6	1.3		383.6		709.9		42.2		19.2		1.1	
939+04	939+46	42.2	72.0	45.0	58.5	274.6	0.9		274.6		508.1		30.2		13.7		0.9	
939+46	939+89	42.2	45.0	45.0	45.0	211.2	0.7		211.2		390.9		23.2		10.6		0.9	
SUBTOTALS							161.0		48779.3		90276.8		4258.0		2439.0		302.7	
SITE A FULL-WIDTH OVERLAY QUANTITIES						316392.7	1044.1		316392.7		585554.1		26336.1		15819.6		2138.1	
SITE A GUARDRAIL TOTALS																		
SITE A ROAD APPROACH TOTALS*						N/A							1267.0		742.5			
SITE A IRREGULARITIES: 10.0%						N/A	104.4		31639.3		58555.4		552.1		331.2			
TOTAL						**316,393**	**1,149**		**348,032**		**644,110**		**28,156**		**16,894**		**2,139**	
AS CONSTRUCTED						**N/A**												

NOTES:
1. ABC CLASS 6 (SHOULDER MATERIAL) QUANTITIES WERE CALCULATED USING 2 - 2' X 2" TRIANGLES.
2. SITE A TOTALS CARRIED TO SITE B TABULATION

* ROAD APPROACH QUANTITIES CARRIED FROM TABULATION OF ROAD APPROACHES.

gilberta 9:55:20 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Surf05.dgn

Print Date: 2/27/2017	Sheet Revisions			Colorado Department of Transportation
File Name: 21254DES_Surf05.dgn	Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298
Horiz. Scale: 1:1 Vert. Scale: As Noted				Region 2 DLH
Unit Information Unit Leader Initials				

As Constructed	Tabulation of Resurfacing (Site A)			Project No./Code
No Revisions:				STA 067A-039
Revised:	Designer: AWG	Structure Numbers		21254
Void:	Detailer:			
	Sheet Subset: Surf	Subset Sheets: 5 of 9		Sheet Number 13

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hot Mix Asphalt (Grading ST)(75)(PG 58-		Emulsified Asphalt (Slow-Setting)		Aggregate Base Course (Shoulder Material)	
							403-36721	AS-BUILT	411-10255	AS-BUILT	304-08000	AS-BUILT
		LF	LF	LF	LF	SY	TONS	TONS	GAL	GAL	TONS	TONS
1000+00	1012+09	1209.1	35.0	27.0	31.0	4164.7	343.6		208.2		26.8	
1012+09	1013+15	105.6	27.1	35.2	31.2	365.5	30.2		18.3		26.8	
1013+15	1014+15	100.3	35.2	40.8	38.0	423.6	34.9		21.2		2.3	
1014+15	1015+36	121.4	40.8	58.0	49.4	666.6	55.0		33.3		2.2	
1015+36	1016+16	79.2	58.0	55.1	56.6	497.6	41.1		24.9		2.7	
1016+16	1016+79	63.4	55.1	58.0	56.6	398.1	32.8		19.9		1.8	
1016+79	1017+69	89.8	58.0	66.9	62.5	622.8	51.4		31.1		1.4	
1017+69	1017+90	21.1	66.9	64.9	65.9	154.6	12.8		7.7		2.0	
1017+90	1021+12	322.1	64.9	65.2	65.1	2327.9	192.1		116.4		0.5	
1021+12	1022+23	110.9	65.2	52.4	58.8	724.4	59.8		36.2		7.1	
1022+23	1024+87	264.0	52.4	52.0	52.2	1531.2	126.3		76.6		2.5	
1024+87	1026+72	184.8	52.0	40.1	46.1	945.6	78.0		47.3		5.9	
1026+72	1026+88	15.8	40.1	42.0	41.1	72.2	6.0		3.6		4.1	
1026+88	1027+72	84.5	42.0	39.4	40.7	382.0	31.5		19.1		0.4	
1027+72	1027+83	10.6	39.4	41.4	40.4	47.4	3.9		2.4		1.9	
1027+83	1031+20	337.9	41.4	26.9	34.2	1282.2	105.8		64.1		0.2	
1031+20	1033+58	237.6	26.9	26.4	26.7	703.6	58.0		35.2		7.5	
1033+58	1036+48	290.4	26.4	36.3	31.4	1011.6	83.5		50.6		5.3	
1036+48	1038+17	169.0	36.3	38.0	37.2	697.4	57.5		34.9		6.4	
1038+17	1038+54	37.0	38.0	40.4	39.2	161.0	13.3		8.0		3.7	
1038+54	1039+39	84.5	40.4	38.4	39.4	369.8	30.5		18.5		0.8	
1039+39	1040+44	105.6	38.4	41.9	40.2	471.1	38.9		23.6		1.9	
1040+44	1040+92	47.5	41.9	42.1	42.0	221.8	18.3		11.1		2.3	
1040+92	1043+30	237.6	42.1	29.7	35.9	947.8	78.2		47.4		1.1	
1043+30	1043+77	47.5	29.7	27.5	28.6	151.0	12.5		7.6		5.3	
1043+77	1045+36	158.4	27.5	27.3	27.4	482.2	39.8		24.1		1.1	
1045+36	1046+89	153.1	27.3	27.0	27.2	461.9	38.1		23.1		3.5	
1046+89	1048+10	121.4	27.0	27.0	27.0	364.3	30.1		18.2		3.4	
1048+10	1048+21	10.6	27.0	31.8	29.4	34.5	2.8		1.7		2.7	
1048+21	1049+68	147.8	31.8	31.8	31.8	522.4	43.1		26.1		0.2	
1049+68	1049+84	15.8	31.8	42.4	37.1	65.3	5.4		3.3		3.3	
1049+84	1049+90	5.3	42.4	38.9	40.7	23.8	2.0		1.2		0.4	
1049+90	1051+64	174.2	38.9	33.5	36.2	700.8	57.8		35.0		0.1	
1051+64	1052+11	47.5	33.5	38.9	36.2	191.1	15.8		9.6		3.9	
1052+11	1052+27	15.8	38.9	26.5	32.7	57.6	4.7		2.9		1.1	
1052+27	1058+77	649.4	26.5	31.5	29.0	2092.6	172.6		104.6		0.4	
1058+77	1060+09	132.0	31.5	28.0	29.8	436.3	36.0		21.8		14.4	
1060+09	1065+68	559.7	28.0	31.6	29.8	1853.2	152.9		92.7		2.9	
1065+68	1067+27	158.4	31.6	30.3	31.0	544.7	44.9		27.2		12.4	
1067+27	1068+11	84.5	30.3	29.0	29.7	278.3	23.0		13.9		3.5	
1068+11	1069+96	184.8	29.0	36.3	32.7	670.4	55.3		33.5		26.8	
SUBTOTALS							2320.0		1406.1		202.7	

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Surf06.dgn	Date: / Comments / Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:1 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

Tabulation of Resurfacing (Site B)			Project No./Code
Designer: AWG	Structure Numbers		STA 067A-039
Detailer:			21254
Sheet Subset: Surf	Subset Sheets: 6 of 9		Sheet Number 14

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hot Mix Asphalt (Grading ST)(75)(PG 58-		Emulsified Asphalt (Slow-Setting)		Aggregate Base Course (Shoulder Material)	
							403-36721	AS-BUILT	411-10255	AS-BUILT	304-08000	AS-BUILT
		LF	LF	LF	LF	SY	TONS	TONS	GAL	GAL	TONS	TONS
1069+96	1072+39	242.9	36.3	40.1	38.2	1030.9	85.0		51.5		5.4	
1072+39	1074+08	169.0	40.1	35.4	37.8	708.7	58.5		35.4		3.7	
1074+08	1074+18	10.6	35.4	27.2	31.3	36.7	3.0		1.8		0.2	
1074+18	1076+82	264.0	27.2	26.5	26.9	787.6	65.0		39.4		5.9	
1076+82	1076+88	5.3	26.5	26.5	26.5	15.5	1.3		0.8		0.1	
1076+88	1081+15	427.7	26.5	26.4	26.5	1256.9	103.7		62.8		9.5	
1081+15	1087+49	633.6	26.4	26.4	26.4	1858.6	153.3		92.9		14.0	
1087+49	1087+23	-26.4	26.4	26.8	26.6	-78.0	-6.4		-3.9		-0.6	
1087+23	1088+55	132.0	26.8	43.5	35.2	515.5	42.5		25.8		2.9	
1088+55	1089+55	100.3	43.5	47.5	45.5	507.2	41.8		25.4		2.2	
1089+55	1095+15	559.7	47.5	65.4	56.5	3510.4	289.6		175.5		12.4	
1095+15	1100+00	485.8	65.4	66.5	66.0	3559.5	293.7		178.0		10.8	
1100+00	1100+37	37.0	66.5	57.0	61.8	253.6	20.9		12.7		0.8	
1100+37	1104+91	454.1	57.0	27.4	42.2	2129.1	175.7		106.5		10.1	
1104+91	1112+09	718.1	27.4	27.2	27.3	2178.2	179.7		108.9		15.9	
1112+09	1117+27	517.4	27.2	27.5	27.4	1572.4	129.7		78.6		11.5	
1117+27	1123+24	596.6	27.5	27.4	27.5	1819.8	150.1		91.0		13.2	
1123+24	1127+83	459.4	27.4	27.0	27.2	1388.3	114.5		69.4		10.2	
1127+83	1133+11	528.0	27.0	26.5	26.8	1569.3	129.5		78.5		11.7	
1133+11	1138+44	533.3	26.5	26.8	26.7	1579.1	130.3		79.0		11.8	
1138+44	1143+67	522.7	26.8	26.7	26.8	1553.6	128.2		77.7		11.6	
1143+67	1149+69	601.9	26.7	26.1	26.4	1765.6	145.7		88.3		13.3	
1149+69	1154+81	512.2	26.1	26.5	26.3	1496.6	123.5		74.8		11.4	
1154+81	1166+00	1119.4	26.5	27.1	26.8	3333.2	275.0		166.7		24.8	
1166+00	1173+82	781.4	27.1	26.8	27.0	2340.0	193.0		117.0		17.3	
1173+82	1183+80	997.9	26.8	27.5	27.2	3010.4	248.4		150.5		22.1	
1183+80	1192+40	860.6	27.5	26.1	26.8	2562.8	211.4		128.1		19.1	
1192+40	1198+48	607.2	26.1	26.1	26.1	1760.9	145.3		88.0		13.5	
1198+48	1207+82	934.6	26.1	26.3	26.2	2720.6	224.5		136.0		20.7	
1207+82	1215+42	760.3	26.3	26.1	26.2	2213.4	182.6		110.7		16.9	
1215+42	1225+51	1008.5	26.1	26.7	26.4	2958.2	244.1		147.9		22.4	
1225+51	1235+33	982.1	26.7	29.6	28.2	3071.7	253.4		153.6		21.8	
1235+33	1247+37	1203.8	29.6	25.5	27.6	3685.1	304.0		184.3		26.7	
1247+37	1255+82	844.8	25.5	24.6	25.1	2351.4	194.0		117.6		18.7	
1255+82	1263+89	807.8	24.6	25.6	25.1	2253.0	185.9		112.6		17.9	
1263+89	1270+12	623.0	25.6	24.8	25.2	1744.5	143.9		87.2		13.8	
1270+12	1276+57	644.2	24.8	24.8	24.8	1775.0	146.4		88.8		14.3	
1276+57	1282+32	575.5	24.8	24.6	24.7	1579.5	130.3		79.0		12.8	
1282+32	1287+76	543.8	24.6	25.4	25.0	1510.7	124.6		75.5		12.1	
1287+76	1294+62	686.4	25.4	25.5	25.5	1941.0	160.1		97.0		15.2	
1294+62	1302+86	823.7	25.5	25.0	25.3	2310.9	190.6		115.5		18.3	
SUBTOTALS							6116.3		3706.9		516.3	

Print Date: 2/27/2017
File Name: 21254DES_Surf07.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Tabulation of Resurfacing (Site B)
Designer: AWG
Detailer:
Sheet Subset: Surf
Structure Numbers
Subset Sheets: 7 of 9

Project No./Code
STA 067A-039
21254
Sheet Number 15

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hot Mix Asphalt (Grading ST)(75)(PG 58-		Emulsified Asphalt (Slow-Setting)		Aggregate Base Course (Shoulder Material)	
							403-36721	AS-BUILT	411-10255	AS-BUILT	304-08000	AS-BUILT
		LF	LF	LF	LF	SY	TONS	TONS	GAL	GAL	TONS	TONS
1302+86	1310+94	807.8	26.0	25.6	25.8	2315.8	191.1		115.8		17.9	
1310+94	1319+28	834.2	25.6	27.0	26.3	2437.8	201.1		121.9		18.5	
1319+28	1321+76	248.2	27.0	26.6	26.8	739.0	61.0		36.9		5.5	
1321+76	1322+66	89.8	26.6	41.0	33.8	337.1	27.8		16.9		2.0	
1322+66	1327+31	464.6	41.0	41.0	41.0	2116.7	174.6		105.8		10.3	
1327+31	1328+05	73.9	41.0	44.0	42.5	349.1	28.8		17.5		1.6	
1328+05	1335+70	765.6	44.0	44.7	44.4	3772.7	311.2		188.6		17.0	
1335+70	1336+76	105.6	44.7	43.0	43.9	514.5	42.4		25.7		2.3	
1336+76	1342+57	580.8	43.0	40.4	41.7	2691.0	222.0		134.6		12.9	
1342+57	1344+41	184.8	40.4	26.0	33.2	681.7	56.2		34.1		4.1	
1344+41	1350+54	612.5	26.0	25.7	25.9	1759.2	145.1		88.0		13.6	
1350+54	1358+14	760.3	25.7	25.7	25.7	2171.1	179.1		108.6		16.9	
1358+14	1369+07	1093.0	25.7	25.7	25.7	3121.0	257.5		156.1		24.2	
1369+07	1375+41	633.6	25.7	25.3	25.5	1795.2	148.1		89.8		14.0	
1375+41	1382+17	675.8	25.3	25.5	25.4	1907.4	157.4		95.4		15.0	
1382+17	1388+40	623.0	25.5	25.5	25.5	1765.3	145.6		88.3		13.8	
1388+40	1398+22	982.1	25.5	25.6	25.6	2788.0	230.0		139.4		21.8	
1398+22	1404+45	623.0	25.6	25.6	25.6	1772.2	146.2		88.6		13.8	
1404+45	1413+21	876.5	26.1	25.6	25.9	2517.4	207.7		125.9		19.4	
1413+21	1418+65	543.8	25.7	25.6	25.7	1549.9	127.9		77.5		12.1	
1418+65	1425+25	660.0	25.8	25.6	25.7	1884.7	155.5		94.2		14.6	
1425+25	1431+64	638.9	24.9	25.6	25.3	1792.4	147.9		89.6		14.2	
1431+64	1439+51	786.7	25.5	25.6	25.6	2233.4	184.3		111.7		17.4	
1439+51	1445+42	591.4	24.6	25.6	25.1	1649.2	136.1		82.5		13.1	
1445+42	1451+76	633.6	24.8	25.6	25.2	1774.1	146.4		88.7		14.0	
1451+76	1458+94	718.1	25.1	25.6	25.4	2022.6	166.9		101.1		15.9	
1458+94	1466+33	739.2	25.8	25.6	25.7	2110.8	174.1		105.5		16.4	
1466+33	1471+03	469.9	24.0	25.6	24.8	1294.9	106.8		64.7		10.4	
1471+03	1477+73	670.6	26.6	25.6	26.1	1944.6	160.4		97.2		14.9	
1477+73	1487+40	966.2	26.0	25.6	25.8	2769.9	228.5		138.5		21.4	
1487+40	1492+57	517.4	26.7	25.6	26.2	1503.5	124.0		75.2		11.5	
1492+57	1497+38	480.5	26.5	25.6	26.1	1390.7	114.7		69.5		10.7	
1497+38	1506+46	908.2	26.5	25.6	26.1	2628.6	216.9		131.4		20.1	
1506+46	1513+37	691.7	29.0	25.6	27.3	2098.1	173.1		104.9		15.3	
1513+37	1521+03	765.6	26.0	25.6	25.8	2194.7	181.1		109.7		17.0	
1521+03	1528+32	728.6	25.8	25.6	25.7	2080.7	171.7		104.0		16.2	
1528+32	1534+39	607.2	25.6	25.6	25.6	1727.1	142.5		86.4		13.5	
1534+39	1540+51	612.5	25.6	25.6	25.6	1742.2	143.7		87.1		13.6	
1540+51	1545+79	528.0	25.0	25.6	25.3	1484.3	122.5		74.2		11.7	
1545+79	1570+77	2497.4	25.2	25.6	25.4	7048.3	581.5		352.4		55.4	
1570+77	1576+73	596.6	25.5	25.6	25.6	1693.8	139.7		84.7		13.2	
SUBTOTALS							6779.1		4108.5		607.1	

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation
File Name: 21254DES_Surf08.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298
Horiz. Scale: 1:1 Vert. Scale: As Noted					Region 2 DLH
Unit Information Unit Leader Initials					

As Constructed	Tabulation of Resurfacing (Site B)			Project No./Code
No Revisions:				STA 067A-039
Revised:	Designer: AWG	Structure Numbers		21254
Void:	Detailer:			
	Sheet Subset: Surf	Subset Sheets: 8 of 9		Sheet Number 16

SH 67 Surface Quantities

BEGIN STATION	END STATION	LENGTH	BEGIN WIDTH	END WIDTH	AVG. WIDTH	AREA	Hot Mix Asphalt (Grading ST)(75)(PG 58-28)		Emulsified Asphalt (Slow-Setting)		Aggregate Base Course (Shoulder Material)	
							403-36721	AS-BUILT	411-10255	AS-BUILT	304-08000	AS-BUILT
		LF	LF	LF	LF	SY	TONS	TONS	GAL	GAL	TONS	TONS
1576+73	1584+65	792.0	24.9	25.0	25.0	2195.6	181.1		109.8		17.6	
1584+65	1591+36	670.6	25.0	25.1	25.1	1866.4	154.0		93.3		14.9	
1591+36	1596+90	554.4	25.1	24.9	25.0	1540.0	127.1		77.0		12.3	
1596+90	1604+67	776.2	24.9	26.0	25.5	2194.8	181.1		109.7		17.2	
1604+67	1611+58	691.7	26.0	25.0	25.5	1959.8	161.7		98.0		15.3	
1611+58	1619+82	823.7	25.0	26.2	25.6	2342.9	193.3		117.1		18.3	
1619+82	1629+27	945.1	26.2	25.5	25.9	2714.6	224.0		135.7		21.0	
1629+27	1635+71	644.2	25.5	24.0	24.8	1771.4	146.1		88.6		14.3	
1635+71	1642+15	644.2	24.0	24.5	24.3	1735.7	143.2		86.8		14.3	
1642+15	1648+23	607.2	24.5	26.0	25.3	1703.5	140.5		85.2		13.5	
1648+23	1656+30	807.8	26.0	24.5	25.3	2266.4	187.0		113.3		17.9	
1656+30	1661+32	501.6	24.5	27.5	26.0	1449.1	119.5		72.5		11.1	
1661+32	1667+34	601.9	27.5	26.5	27.0	1805.8	149.0		90.3		13.3	
1667+34	1673+68	633.6	26.5	24.4	25.5	1791.7	147.8		89.6		14.0	
1673+68	1683+87	1019.0	24.4	23.2	23.8	2694.8	222.3		134.7		22.6	
1683+87	1690+99	712.8	23.2	24.6	23.9	1892.9	156.2		94.6		15.8	
1690+99	1695+85	485.8	24.6	26.1	25.4	1368.2	112.9		68.4		10.8	
1695+85	1700+81	496.3	26.1	25.9	26.0	1433.8	118.3		71.7		11.0	
1700+81	1708+10	728.6	25.9	26.4	26.2	2117.1	174.7		105.9		16.2	
1708+10	1719+24	1114.1	26.4	26.0	26.2	3243.2	267.6		162.2		24.7	
1719+24	1723+89	464.6	26.0	25.9	26.0	1339.7	110.5		67.0		10.3	
1723+89	1730+12	623.0	25.9	28.5	27.2	1883.0	155.3		94.1		13.8	
1730+12	1737+30	718.1	28.5	25.4	27.0	2150.3	177.4		107.5		15.9	
1737+30	1744+59	728.6	25.4	28.9	27.2	2198.1	181.3		109.9		16.2	
1744+59	1750+66	607.2	28.9	28.7	28.8	1943.0	160.3		97.2		13.5	
SUBTOTALS							4092.1		2480.1		385.5	

SITE B FULL-WIDTH OVERLAY QUANTITIES	234031.2	19307.6		11701.6		1711.6	
SITE B GUARDRAIL TOTALS							
SITE B ROAD APPROACH TOTALS*	0.0	757.5		459.1			
SITE B IRREGULARITIES: 10.0%	N/A	2006.5		1216.1			
SITE A TOTAL	**316392.7**	**28,156**		**16,894**		**2,139**	
SITE B TOTAL	**234,032**	**22,072**		**13,377**		**1,712**	
PROJECT TOTALS	**550,425**	**50,228**		**30,271**		**3,851**	
AS CONSTRUCTED	**N/A**						

NOTES:

1. ABC CLASS 6 (SHOULDER MATERIAL) QUANTITIES WERE CALCULATED USING 2 - 2' X 2" TRIANGLES.
* ROAD APPROACH QUANTITIES CARRIED FROM TABULATION OF ROAD APPROACHES.

Print Date: 2/27/2017	
File Name: 21254DES_Surf09.dgn	
Horiz. Scale: 1:1	Vert. Scale: As Noted
Unit Information	Unit Leader Initials

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed

No Revisions:	
Revised:	
Void:	

Tabulation of Resurfacing (Site B)

Designer:	AWG	Structure Numbers	
Detailer:			
Sheet Subset:	Surf	Subset Sheets:	9 of 9

Project No./Code	
STA 067A-039	
21254	
Sheet Number	17

STATION		TYPE	Avg Width	Length	Area	Hot Mix Asphalt (ST) (75) (Tons)		Emulsified Asphalt (Slow Setting) (Gal.)		Current	Description
			Ft	Ft	SY	403-36721	As-Const.	411-10255	As-Const.	Surface	
46+35	LT	Business	0.0	0.0	0.0	0.0		0.0		Paved	0
46+35	RT	Field Approach	0.0	0.0	0.0	0.0		0.0		Gravel	Heritage Center - Pave to Existing Joint
51+42	RT	County Road	0.0	0.0	0.0	0.0		0.0		Gravel	Teller County Road 82
83+36	RT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
83+79	LT	County Road	24.0	4.0	10.7	0.9		0.5		Gravel	Old SH 67 Alignment, NO CR#
85+95	RT	County Road	0.0	0.0	0.0	0.0		0.0		Paved	TCR 821 - Pave to existing Joint
126+19	RT	Residential	94.0	50.0	522.2	43.1		26.1		Gravel	Multiple Homes
132+31	RT	Residential	52.0	20.0	115.6	9.5		5.8		Gravel	Multiple Homes
137+59	LT	Residential	48.5	4.0	21.6	1.8		1.1		Gravel	Single Residence
142+87	LT	Residential	0.0	0.0	0.0	0.0		0.0		Gravel	Discuss with R2 Access Unit
146+36	LT	Residential	70.5	42.0	329.0	27.1		16.5		Gravel	0
150+42	RT	Residential	46.5	36.0	186.0	15.3		9.3		Gravel	0
150+74	LT	Residential	52.0	50.0	288.9	23.8		14.4		Gravel	Multiple Homes
153+27	LT	Residential	44.0	50.0	244.4	20.2		12.2		Gravel	0
155+70	RT	Residential	39.0	41.0	177.7	14.7		8.9		Gravel	0
159+08	RT	Residential	39.5	39.0	171.2	14.1		8.6		Gravel	Multiple Homes
159+29	LT	Residential	99.0	50.0	550.0	45.4		27.5		Gravel	0
168+69	LT	Residential	38.5	50.0	213.9	17.6		10.7		Gravel	0
173+34	RT	Residential	38.5	50.0	213.9	17.6		10.7		Gravel	0
174+29	LT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
176+66	RT	Residential	46.5	48.0	248.0	20.5		12.4		Gravel	0
177+72	LT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
181+84	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
183+74	LT	Residential	41.5	50.0	230.6	19.0		11.5		Gravel	0
185+11	RT	Residential	39.0	50.0	216.7	17.9		10.8		Gravel	0
186+85	LT	County Road	0.0	0.0	0.0	0.0		0.0		Paved	TCR 61 - See Drawing
193+72	RT	Residential	39.0	50.0	216.7	17.9		10.8		Gravel	0
202+64	RT	Residential	51.5	50.0	286.1	23.6		14.3		Gravel	0
207+97	RT	Residential	42.0	50.0	233.3	19.3		11.7		Gravel	0
215+36	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
223+13	RT	Residential	0.0	0.0	0.0	0.0		0.0		Gravel	0
235+01	LT	Residential	39.0	50.0	216.7	17.9		10.8		Paved	0
236+54	LT	Residential	40.0	50.0	222.2	18.3		11.1		Paved	0
239+34	RT	County Road	86.0	50.0	477.8	39.4		23.9		Paved	TCR 64 / 81
244+56	LT	Residential	38.0	30.0	126.7	10.5		6.3		Paved	0
262+36	LT	Residential	45.5	38.0	192.1	15.8		9.6		Paved	Multiple Homes
276+98	LT	Residential	58.5	25.0	162.5	13.4		8.1		Gravel	0
288+65	LT	Residential	43.0	29.0	138.6	11.4		6.9		Gravel	0
291+66	RT	Residential	42.5	26.0	122.8	10.1		6.1		Gravel	0
293+40	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
300+69	LT	County Road	68.0	38.0	287.1	23.7		14.4		Gravel	Castle Ridge View
301+59	RT	Residential	85.0	16.0	151.1	12.5		7.6		Gravel	0
303+96	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
319+70	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
333+00	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
336+65	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
402+38	LT	Residential	0.0	0.0	0.0	0.0		0.0		Gravel	0
423+29	RT	Residential	66.0	4.0	29.3	2.4		1.5		Concrete	0
425+61	LT	Residential	70.5	50.0	391.7	32.3		19.6		Gravel	Thousand Pines
433+01	LT	Residential	67.0	50.0	372.2	30.7		18.6		Gravel	0
439+66	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
					Subtotal A	629.8		381.7			

Print Date: 2/27/2017
File Name: 21254DES_Approach01.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Tabulation of Approaches

Designer: AWG
Detailer:
Sheet Subset: Approach
Structure Numbers:
Subset Sheets: 1 of 4

Project No./Code
STA 067A-039
21254
Sheet Number 18

STATION		TYPE	Avg Width	Length	Area	Hot Mix Asphalt (ST) (75) (Tons)		Emulsified Asphalt (Slow Setting) (Gal.)		Current	Description
			Ft	Ft	SY	403-36721	As-Const.	411-10255	As-Const.	Surface	
455+87	LT	Residential	41.5	20.0	92.2	7.6		4.6		Gravel	0
527+84	RT	County Road	44.5	50.0	247.2	20.4		12.4		Gravel	Calcite Drive
531+00	LT	County Road	88.5	50.0	491.7	40.6		24.6		Gravel	Pikes Peak Drive
533+91	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
547+64	LT	County Road	66.0	4.0	29.3	2.4		1.5		Gravel	Lupine Court
554+55	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
558+56	LT	County Road	74.5	30.0	248.3	20.5		12.4		Gravel	Horseshoe Drive
562+63	RT	County Road	66.0	4.0	29.3	2.4		1.5		Gravel	Primrcse Lane
563+11	LT	County Road	107.5	50.0	597.2	49.3		29.9		Gravel	Willow Road
591+67	RT	County Road	66.0	4.0	29.3	2.4		1.5		Gravel	Hematite Lane
591+83	LT	0	62.0	50.0	344.4	28.4		17.2		Gravel	Firehouse
598+06	LT	County Road	74.0	38.0	312.4	25.8		15.6		Gravel	Sportsmans Lane
602+76	RT	County Road	0.0	0.0	0.0	0.0		0.0		Gravel	Kernite Lane
609+31	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
618+65	RT	Residential	40.0	20.0	88.9	7.3		4.4		Gravel	0
620+18	RT	Residential	0.0	0.0	0.0	0.0		0.0		Gravel	Consult with Access Unit
638+19	LT	County Road	81.0	50.0	450.0	37.1		22.5		Gravel	Timberridge Road
643+73	RT	Residential	43.0	20.0	95.6	7.9		4.8		Gravel	0
661+26	LT	County Road	0.0	0.0	0.0	0.0		0.0		Paved	TCR 61
671+19	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
672+01	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
679+48	RT	Residential	22.5	24.0	60.0	5.0		3.0		Gravel	0
682+33	LT	Residential	45.5	20.0	101.1	8.3		5.1		Gravel	0
683+33	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
698+85	LT	Field Approach	0.0	0.0	0.0	0.0		0.0		Gravel	0
712+27	LT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
715+80	RT	County Road	26.0	264.0	762.7	167.8		76.3		Gravel	Crags Road
718+76	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
730+43	LT	Residential	39.5	23.0	100.9	8.3		5.0		Gravel	Meuller State Park
737+03	LT	Business	0.0	0.0	0.0	0.0		0.0		Paved	Gravel Pit
739+40	RT	Business	0.0	0.0	0.0	0.0		0.0		Gravel	0
748+38	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
753+03	LT	Residential	0.0	0.0	0.0	0.0		0.0		Paved	0
763+80	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
799+44	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
800+65	LT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
835+50	RT	County Road	80.5	50.0	447.2	36.9		22.4		Gravel	Divide South Drive
840+83	RT	County Road	47.0	37.0	193.2	15.9		9.7		Gravel	Cantiberry Road
843+05	LT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	Meuller State Park - Gate 36
856+41	RT	Residential	39.5	20.0	87.8	7.2		4.4		Gravel	0
864+65	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
866+02	RT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
873+78	RT	Residential	86.5	20.0	192.2	15.9		9.6		Paved	Elk Valley Road
875+58	LT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
881+01	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
889+30	LT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
894+85	RT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
918+92	RT	Residential	66.0	4.0	29.3	2.4		1.5		Gravel	0
926+69	RT	County Road	69.0	16.0	122.7	10.1		6.1		Gravel	Hybrook Road South
926+69	LT	County Road	48.0	39.0	208.0	17.2		10.4		Paved	Existing 5'x35' Concrete Ditch Pan
936+45	LT	County Road	68.0	44.0	332.4	27.4		16.6		Paved	Pave to Longitudinal Joint
936+45	RT	County Road	60.5	42.0	282.3	23.3		14.1		Paved	Pave to Longitudinal Joint
941+73	LT	Business	46.0	20.0	102.2	8.4		5.1		Paved	Pave to Longitudinal Joint
					Subtotal B	637.3		360.8			

Print Date: 2/27/2017
File Name: 21254DES_Approach02.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Tabulation of Approaches

Designer: AWG
Detailer:
Sheet Subset: Approach
Structure Numbers
Subset Sheets: 2 of 2

Project No./Code
STA 067A-039
21254
Sheet Number 19

STATION		TYPE	Avg Width	Length	Area	Hot Mix Asphalt (ST) (75) (Tons)		Emulsified Asphalt (Slow Setting) (Gal.)		Current	Description
			Ft	Ft	SY	403-36721	As-Const.	411-10255	As-Const.	Surface	
1100+06	LT	County Road	49.0	36.0	196.0	16.2		9.8		Paved	Lucky Lady Drive
1106+66	RT	Business	72.0	50.0	400.0	33.0		20.0		Paved	0
1109+40	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
1116+27	RT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
1119+70	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
1119+70	RT	Residential	37.0	32.0	131.6	10.9		6.6		Paved	0
1123+29	LT	Business	43.0	50.0	238.9	19.7		11.9		Gravel	0
1123+29	RT	County Road	59.5	48.0	317.3	26.2		15.9		Gravel	Triple B Ranch Road
1125+14	LT	Business	42.5	50.0	236.1	19.5		11.8		Gravel	0
1127+78	LT	Business	43.5	50.0	241.7	19.9		12.1		Gravel	0
1140+98	LT	County Road	33.5	50.0	186.1	15.4		9.3		Paved	Zuni Point
1141+19	RT	Residential	27.0	29.0	87.0	7.2		4.4		Paved	0
1147+21	RT	Residential	27.0	29.0	87.0	7.2		4.4		Gravel	0
1150+74	RT	Residential	24.5	30.0	81.7	6.7		4.1		Gravel	0
1151+06	RT	Residential	29.5	28.0	91.8	7.6		4.6		Gravel	0
1159+30	RT	Residential	28.0	50.0	155.6	12.8		7.8		Gravel	0
1165+42	RT	Residential	31.0	24.0	82.7	6.8		4.1		Gravel	0
1173+50	RT	Forest Service	102.5	37.0	421.4	34.8		21.1		Gravel	FS 335
1173+50	LT	Forest Service	45.5	50.0	252.8	20.9		12.6		Paved	FS 342
1227+94	LT	Forest Service	37.5	50.0	208.3	17.2		10.4		Gravel	FS 339
1234+96	LT	Residential	33.5	50.0	186.1	15.4		9.3		Gravel	0
1246+42	RT	Residential	42.0	50.0	233.3	19.3		11.7		Gravel	0
1257+08	LT	Forest Service	88.5	25.0	245.8	20.3		12.3		Paved	Quaker Ridge
1262+52	RT	Forest Service	38.5	50.0	213.9	17.6		10.7		Paved	Sky High Ranch
1305+50	RT	County Road	36.5	46.0	186.6	15.4		9.3		Gravel	Colorado Campground
1306+87	LT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
1318+81	RT	Forest Service	54.5	50.0	302.8	25.0		15.1		Paved	0
1336+49	LT	0	52.5	50.0	291.7	24.1		14.6		Paved	0
1359+62	RT	Forest Service	45.5	50.0	252.8	20.9		12.6		Paved	Manitou Campground
1392+78	RT	County Road	62.5	50.0	347.2	28.6		17.4		Paved	Spruce Road / TCR 79
1407+83	LT	Forest Service	0.0	0.0	0.0	0.0		0.0		Gravel	FS 391
1464+75	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
1465+59	RT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	Forest Service Approach
1486+92	RT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
1518+02	LT	Field Approach	24.0	4.0	10.7	0.9		0.5		Gravel	0
1525+68	RT	County Road	45.0	50.0	250.0	20.6		12.5		Paved	Douglas County Road 49
1543+36	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
1553+19	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel / Pave	0
1569+13	RT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
1569+13	LT	Field Approach	16.0	4.0	7.1	0.6		0.4		Gravel	0
1582+12	LT	Forest Service	65.5	50.0	363.9	30.0		18.2		Gravel	Forest Service - Shooting Range
1582+75	LT										
1592+79	LT	Forest Service	177.0	16.0	314.7	26.0		15.7		Gravel	0
1604+98	RT	Forest Service	50.5	50.0	280.6	23.1		14.0		Gravel	0
1642+05	RT	Forest Service	16.0	4.0	7.1	0.6		0.4		Gravel	Field Approach
					Subtotal C	576.8		349.6			

Print Date: 2/27/2017
File Name: 21254DES_Approach04.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Tabulation of Approaches

Designer: AWG
Detailer:
Sheet Subset: Approach
Structure Numbers
Subset Sheets: 1 of 4

Project No./Code
STA 067A-039
21254
Sheet Number 20

STATION		TYPE	Avg Width	Length	Area	Hot Mix Asphalt (ST) (75) (Tons)		Emulsified Asphalt (Slow Setting) (Gal.)		Current	Description
			Ft	Ft	SY	403-36721	As-Const.	411-10255	As-Const.	Surface	
1659+74	RT	County Road	57.0	50.0	316.7	26.1		15.8		Paved	Trout Creek Road
1671+14	LT	Residential	105.0	50.0	583.3	48.1		29.2		Gravel	Multiple Residences
1674+63	RT	Business	37.0	50.0	205.6	17.0		10.3		Gravel	Westcreek Cemetery
1689+88	LT	Residential	85.0	13.0	122.8	10.1		6.1		Gravel	Multiple Residences
1719+24	LT	County Road	80.5	50.0	447.2	36.9		22.4		Paved	Abbey Ave
1728+53	RT	Pulloff	88.0	29.0	283.6	23.4		14.2		Gravel	0
1736+82	LT	County Road	41.5	50.0	230.6	19.0		11.5		Paved	Westcreek Road
					Subtotal D	180.6		109.5			
					Total	2024.5		1202			

1. QUANTITIES HAVE BEEN CARRIED FORWARD TO TABULATION OF RESURFACING SITES A AND B.
2. APPROACH WORK MAY BE ADDED OR REMOVED AS DETERMINED BY THE ENGINEER IN THE FIELD.
3. PULL-OFFS SHALL REMAIN UNPAVED.

gilberta 9:55:57 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Approach05.dgn

Print Date: 2/27/2017
File Name: 21254DES_Approach05.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

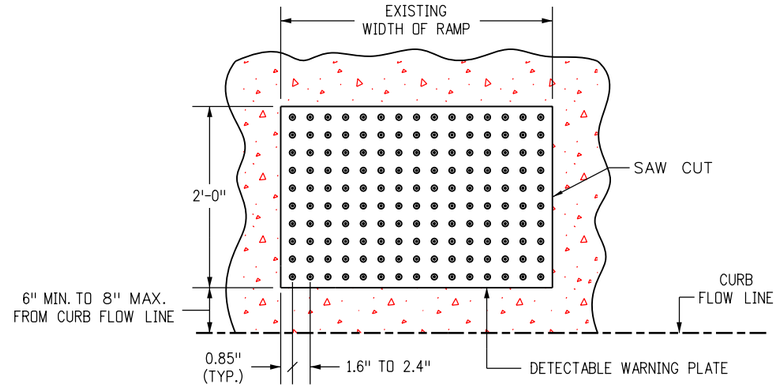
Tabulation of Approaches

Designer: AWG
Detailer:
Sheet Subset: Approach
Structure Numbers:
Subset Sheets: 1 of 4

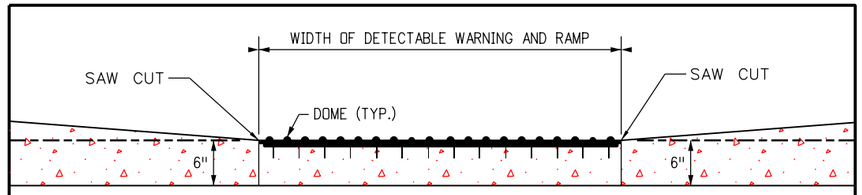
Project No./Code
STA 067A-039
21254
Sheet Number 21

Approximate Station	Side	Site	Dimensions	Detectable Warning Type	202-00206 Removal of Concrete Curb Ramp AREA (SY)	As Built	202-00226 Removal of Asphalt Mat (Special) Area (SY)	As Built	608-00015 Detectable Warnings SF	As Built	Info / Remarks
Divide Intersection											
939+50		A	24" x 48"	Cast Iron Plate	0.89				8.00		
939+50		B	24" x 48"	Cast Iron Plate	0.89				8.00		
Woodland Park Trail											
1007+13.86	RT	G	24" x 60"	Cast Iron Plate			1.11		10.00		Red Feather Lane
1007+60.89	RT	H	24" x 60"	Cast Iron Plate			1.11		5.00		Red Feather Lane
1021+37.60	RT	I	24" x 60"	Cast Iron Plate			1.11		5.00		West Kelly Rd
1021+87.07	RT	J	24" x 120"	Cast Iron Plate			2.22		10.00		West Kelly Rd
1038+46.51	RT	K	24" x 60"	Cast Iron Plate			1.11		5.00		Valley View Drive
1039+04.71	RT	L	24" x 60"	Cast Iron Plate			1.11		5.00		Valley View Drive
1045+55.84	RT	M	24" x 60"	Cast Iron Plate			1.11		5.00		Apache Trail
1045+91.10	RT	N	24" x 60"	Cast Iron Plate			1.11		5.00		Apache Trail
1050+45.46	RT	O	24" x 60"	Cast Iron Plate			1.11		5.00		Sunnywooc Lane
1050+77.15	RT	P	24" x 60"	Cast Iron Plate			1.11		5.00		Sunnywooc Lane
1055+04.64	RT	Q	24" x 60"	Cast Iron Plate			1.11		5.00		Lovell Gulch Road
1055+55.92	RT	R	24" x 60"	Cast Iron Plate			1.11		5.00		Lovell Gulch Road
1071+94.29	RT	S	24" x 60"	Cast Iron Plate			1.11		5.00		Regent Drive
1073+52.69	RT	T	24" x 60"	Cast Iron Plate			1.11		5.00		Regent Drive
1081+47.68	RT	U	24" x 60"	Cast Iron Plate			1.11		5.00		Fairfield Lane
1081+96.53	RT	V	24" x 60"	Cast Iron Plate			1.11		5.00		Fairfield Lane
1106+08.92	RT	W	24" x 60"	Cast Iron Plate			1.11		5.00		Impact Church
1106+66.87	RT	X	24" x 60"	Cast Iron Plate			1.11		5.00		Impact Church
1122+74.69	RT	Y	24" x 60"	Cast Iron Plate			1.11		5.00		Triple B Road
1123+37.51	RT	Z	24" x 60"	Cast Iron Plate			1.11		5.00		Triple B Road
1150+00.47	RT	AA	24" x 60"	Cast Iron Plate			1.11		5.00		Private Access
1150+67.37	RT	AB	24" x 60"	Cast Iron Plate			1.11		5.00		Private Access
1172+97.00	RT	AC	24" x 60"	Cast Iron Plate			1.11		5.00		Red Rock View
1173+65.18	RT	AD	24" x 60"	Cast Iron Plate			1.11		5.00		Red Rock View
1256+18.53	LT	AE	24" x 60"	Cast Iron Plate			1.11		5.00		South Meadows
1256+55.08	LT	AF	24" x 60"	Cast Iron Plate			1.11		5.00		South Meadows
1321+74.82	LT	AG	24" x 60"	Cast Iron Plate			1.11		5.00		Path joins roadway
1337+29.08	LT	AH	24" x 60"	Cast Iron Plate			1.11		5.00		Path joins roadway
1359+15.94	LT	AI	24" x 60"	Cast Iron Plate			1.11		5.00		Manitou Lake Picnic Area
1359+24.20	RT	AJ	24" x 60"	Cast Iron Plate			1.11		5.00		Manitou Lake Picnic Area
					1.80		35.00		176.00		

1. Woodland Park Trail detectable warnings are located within the plan sheets for approximate locations
2. Areas of concrete curb ramp removal and asphalt removal special shall be done in a neat line using a saw cut
3. Areas of concrete curb ramp removal and asphalt removal special shall only large enough to place cast iron plates indicated
4. Sawcutting of asphalt and concrete for detectable warnings shall be included in the cost of the work



PLAN VIEW OF
DETECTABLE WARNING



FRONT SECTION VIEW OF
DETECTABLE WARNING, CURB, AND GUTTER

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_ADA.dgn	Date: / Comments / Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:1 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

TABULATION OF DETECTABLE WARNINGS				Project No./Code
				STA 067A-039
Designer: AWG	Structure Numbers			21254
Detailer:				
Sheet Subset: ADA	Subset Sheets: 1 of 1			Sheet Number 22

Begin Station	End Station	Side	202-01130 Removal of Guardrail Type 3		202-01300 Removal of End Anchorage		203-00060 Embankment Material (Complete in		210-04035 Modify Guardrail (Special) †		304-06000 AGGREGATE BASE COURSE (CLASS 6)		606-00301 Guardrail TYPE 3 (6-3 Post Spacing) 31" MGS		606-01370 Transition TYPE 3G 31" MGS		606-01385 Transition Type 3J 31" MGS		606-01390 End Anchorage Type 3K 31" MGS		606-02003 End Anchorage (Nonflared) 31" MGS		606-02005 End Anchorage (Flared) 31" MGS	
			LF		EACH		CY		LF		CY		LF		Each		Each		Each		Each		Each	
			Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.
1+74	9+08	RT	0.00		0		0		500				0.00		0		0		0		0		0	
12+30	15+99	LT	0.00		0		0		200				0.00		0		0		0		0		0	
19+69	21+22	LT	0.00		0		0		0				0.00		0		0		0		0		0	
23+38	30+62	RT	200.00		1		0		300				200.00		0		0		0		0		1	
34+95	45+72	RT	0.00		0		0		800				0.00		0		0		0		0		0	
42+71	45+35	LT	175.00		1		0		0				175.00		0		0		0		1		0	
45+88	48+68	LT	175.00		1		0		0				175.00		0		0		0		1		0	
46+99	50+73	RT	0.00		0		0		375				0.00		0		0		0		0		0	
50+52	62+40	LT	0.00		0		0		300				0.00		0		0		0		0		0	
68+63	79+72	LT	100.00		1		0		600				100.00		0		0		0		1		0	
85+21	91+76	LT	0.00		0		0		656				0.00		0		0		0		0		0	
115+36	125+08	LT	0.00		0		0		200				0.00		0		0		0		0		0	
228+78	232+74	LT	0.00		0		0		0				0.00		0		0		0		0		0	
308+72	313+63	LT	100.00		1		0		344				100.00		0		0		0		1		0	
315+37	325+35	LT	0.00		0		0		300				0.00		0		0		0		0		0	
335+43	345+73	LT	931.25		0		0		0				931.25		0		0		0		0		0	
354+70	399+69	LT	200.00		0		0		2900				200.00		0		0		0		0		0	
460+09	471+44	LT	100.00		1		0		400				100.00		0		0		0		1		0	
460+30	463+74	RT	243.75		2		0		0				243.75		0		0		0		2		0	
474+08	485+23	LT	0.00		0		0		200				0.00		0		0		0		0		0	
506+50	521+87	LT	0.00		0		0		400				0.00		0		0		0		0		0	
550+28	557+35	LT	0.00		1		0		200				0.00		0		0		0		0		1	
603+60	608+20	RT	200.00		1		0		200				200.00		0		0		0		0		0	
603+71	609+94	LT	0.00		0		0		200				0.00		0		0		0		0		0	
622+14	635+07	LT	1193.75		2		0		0				1193.75		0		0		0		2		0	
639+61	643+10	RT	100.00		1		0		200				100.00		0		0		0		1		0	
644+89	649+89	RT	0.00		2		90		0				600.00		1		0		0		0		2	
654+40	656+19	RT	100.00		2		0		0				100.00		0		0		0		0		2	
686+87	713+96	RT	2605.25		2		0		0				2606.25		0		0		0		2		0	
719+08	722+98	RT	293.75		2		0		0				293.75		0		0		0		2		0	
727+05	738+67	RT	1087.50		2		0		0				1087.50		0		0		0		0		2	
740+57	751+18	RT	987.50		2		0		0				987.50		0		0		0		0		2	
744+21	760+37	LT	0.00		0		0		500				0.00		0		0		0		0		0	
745+58	748+01	LT	168.75		2		0		0				168.75		0		0		0		0		2	
748+17	750+70	LT	150.00		2		0		0				150.00		0		0		0		2		0	
931+97	934+13	RT	0.00		0		0		219				0.00		0		0		0		0		0	
934+76	935+56	LT	0.00		0		0		75				0.00		0		0		0		0		0	
935+56	935+87	LT	0.00		0		0		38				0.00		0		0		0		0		0	
1089+76	1104+70	RT	0.00		0		0		800				0.00		0		0		0		0		0	
1091+24	1092+82	LT	0.00		0		0		80				0.00		0		0		0		0		0	
1129+94	1130+47	LT	0.00		0		0		0				0.00		0		0		0		0		0	
1129+94	1130+47	RT	0.00		0		0		0				0.00		0		0		0		0		0	
1243+67	1244+20	LT	0.00		0		0		0				0.00		0		0		0		0		0	
1243+67	1244+20	RT	0.00		0		0		0				0.00		0		0		0		0		0	
1322+50	1331+95	RT	0.00		0		0		75				0.00		0		0		0		0		0	
1327+62	1331+95	LT	0.00		0		0		0				0.00		0		0		0		0		0	
1331+95	1333+01	RT	0.00		0		0		0				0.00		0		0		0		0		0	
1331+95	1333+01	LT	0.00		0		0		0				0.00		0		0		0		0		0	
1333+01	1335+23	RT	0.00		0		0		0				0.00		0		0		0		0		0	
1333+01	1335+65	RT	0.00		0		0		90				0.00		0		0		0		0		0	
1335+65	1335+86	LT	0.00		0		0		0				0.00		0		0		0		0		0	
1678+00	1686+24	LT	0.00		0		0		825				0.00		0		0		0		0		0	
1703+61	1712+80	LT	818.75		2		0		0				818.75		0		0		0		2		0	
	Subtotal A		9931.25		31.00		90.00		11976.25		0.00	0.00	10531.25		1		0		0		18		12	

Print Date: 2/27/2017
File Name: 21254DES_Grail01.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Tabulation of Guardrail & Roadside

Designer: AWG
Detailer:
Sheet Subset: GRAIL
Structure Numbers:
Subset Sheets: 1 of 2

Project No./Code
STA 067A-039
21254
Sheet Number 23

Begin MP	End MP	Begin Station	End Station	Side	202-01130 Removal of Guardrail Type 3 LF		202-01300 Removal of End Anchorage EACH		203-00060 Embankment Material Complete in CY		210-04035 Modify Guardrail (Special) † LF		304-06000 AGGREGATE BASE COURSE (CLASS 6) CY		606-00301 Guardrail TYPE 3 (6-3 Post Spacing) 31" MGS LF		606-01370 Transition TYPE 3G 31" MGS Each		606-01385 Transition Type 3J 31" MGS Each		606-01390 Transition Type 3K 31" MGS Each		606-02003 End Anchorage (Nonflared) 31" MGS Each		606-02005 End Anchorage (Flared) 31" MGS Each	
					Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.
Pull Off																										
63.818	64.017	609+94	620+45	LT	0.00		1				0		400.0		1062.50		0		0		0		0		1	
I-16-AA		APPROACH		LT	0.00		0		45		0				21.75		1		0		0		0		1	
		DEPARTURE		LT	0.00		0		45		0				12.50		1		0		0		0		1	
64.441		APPROACH		RT	0.00		0		45		0				21.75		1		0		0		0		1	
		DEPARTURE		RT	0.00		0		45		0				12.50		1		0		0		0		1	
H-16-L		APPROACH		LT	0.00		0		45		0				162.50		1		0		0		0		1	
		DEPARTURE		LT	0.00		0		45		0				12.50		1		0		0		0		1	
80.145		APPROACH		RT	0.00		0		45		0				162.50		1		0		0		0		1	
		DEPARTURE		RT	0.00		0		45		0				12.50		1		0		0		0		1	
H-16-M		APPROACH		LT	0.00		0		45		0				187.50		1		0		0		0		1	
		DEPARTURE		LT	0.00		0		45		0				450.00		1		0		0		0		1	
82.137		APPROACH		RT	0.00		0		45		0				400.00		1		0		0		0		1	
		DEPARTURE		RT	0.00		0		0		0				137.50		1		1		1		0		0	
				Total	9931		32		585		11977		400		13187		13		1		1		18		24	

Note:
1. Unclassified excavation is for sand clean up under and behind the guardrail.
2. Unclassified excavation quantity is approximate and removal shall leave at a minimum of 1" of sand on the surface as to not create disturbance of native soil.
3. All guardrail posts shall be 7 ft., wooden and post holes shall be hammer driven
4. Contractor shall re-use metal or wooden curb, if in good condition, in-kind and in-place. If wood or metal curb is not salvageable, Contractor shall replace with new in-kind and in-place materials. This shall be inlcuded in the cost of the work.

† Item is for raising w-beam to next highest bolt hole on steel posts

Delineator Replacement (Per M Standard 612)

Begin Station	End Station	Side	202-00090 Removal of Delineator EA		612-00036 Delineator (Flexible) (Square Base) Each	
			Plan	As Const.	Plan	As Const.
2+00	939+89		629		629	
1000+00	1741+35		497		497	
Total			1126		1126	

Rumble Strip

Begin Station	End Station	614-80385 Rumble Strip LF							
		Left Travel Lane		Centerline		Right Travel Lane		Total	As Const.
		Plan	As Const.	Plan	As Const.	Plan	As Const.		
2+00	939+46	0		74997		0		74997	
1000+00	1750+66	0		60053		0		60053	
1662+50	RT					11.3		11	
1661+50	RT					11.3		11	
1659+50	RT					11.3		11	
Total				135050		34.0		**135084**	

Note: Replace all type I delineators in place with Delineator (Flexible) (Square Base) (White), which can seasonally extend from 4' to 8' to accommodate snow depth at Tenderfoot Pass
Replace all type III delineators in place with Delineator (Flexible) (Square Base) (Yellow), which can seasonally extend from 4' to 8' to accommodate snow depth at Tenderfoot Pass

Print Date: 2/27/2017
File Name: 21254DES_Grail02.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Tabulation of Guardrail & Roadside

Designer: AWG
Detailer:
Sheet Subset: GRAIL
Structure Numbers
Subset Sheets: 2 of 2

Project No./Code
STA 067A-039
21254
Sheet Number 24

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions		
File Name: 21254DES_STA_610_Guardrail.dgn		Date:	Comments	Init.
Horiz. Scale: 1:100 Vert. Scale: As Noted				
Unit Information Unit Leader Initials				

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Guardrail Detail

Designer: AWG
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets:

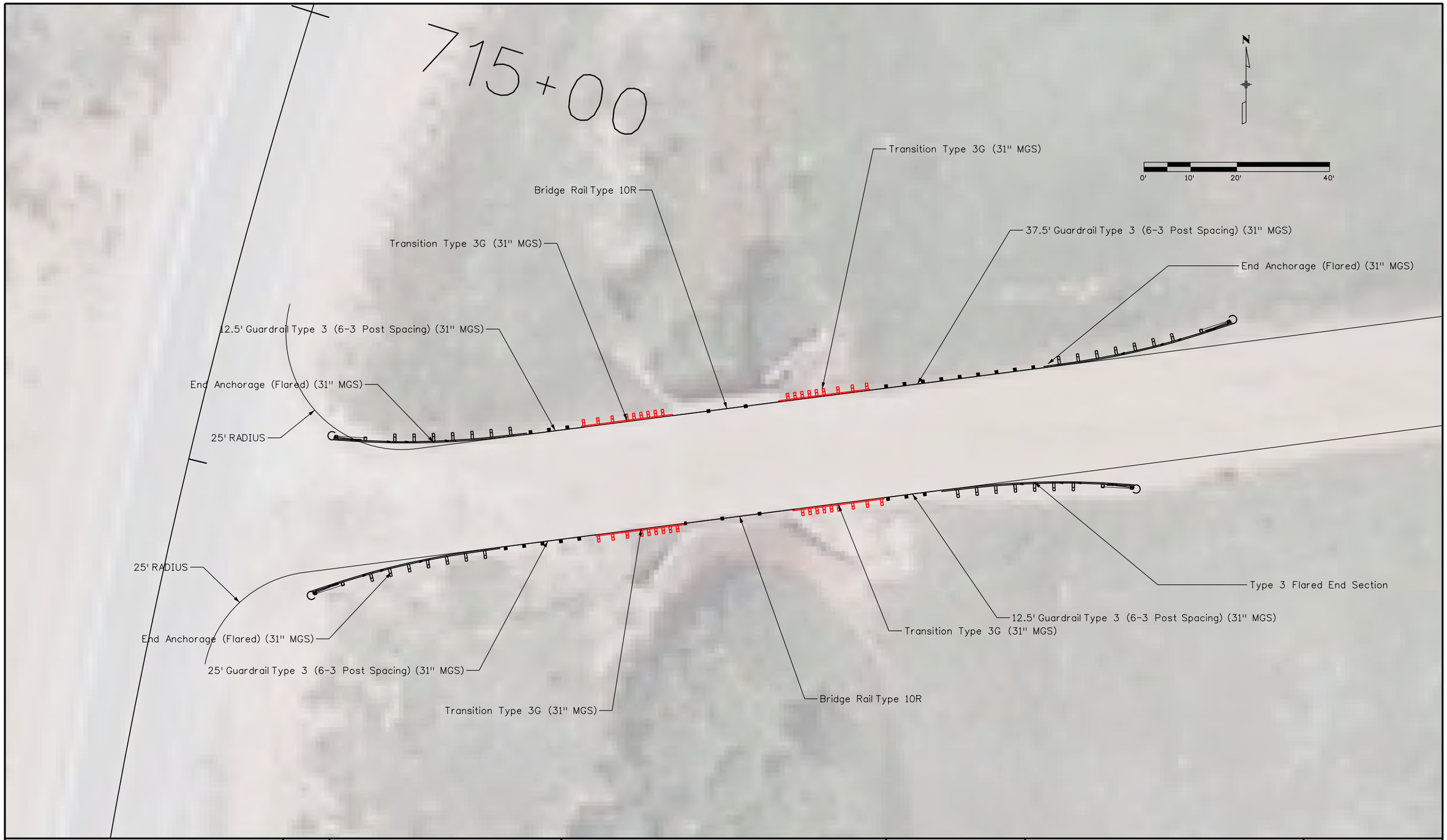
Project No./Code
STA 067A-039
21254
Sheet Number 25

gilberta 9:56:15 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_STA_610_Guardrail.dgn

gilberta 9:56:21 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_STA_675_Guardrail.dgn

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_STA_675_Guardrail.dgn	Date: / Comments / Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:50 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

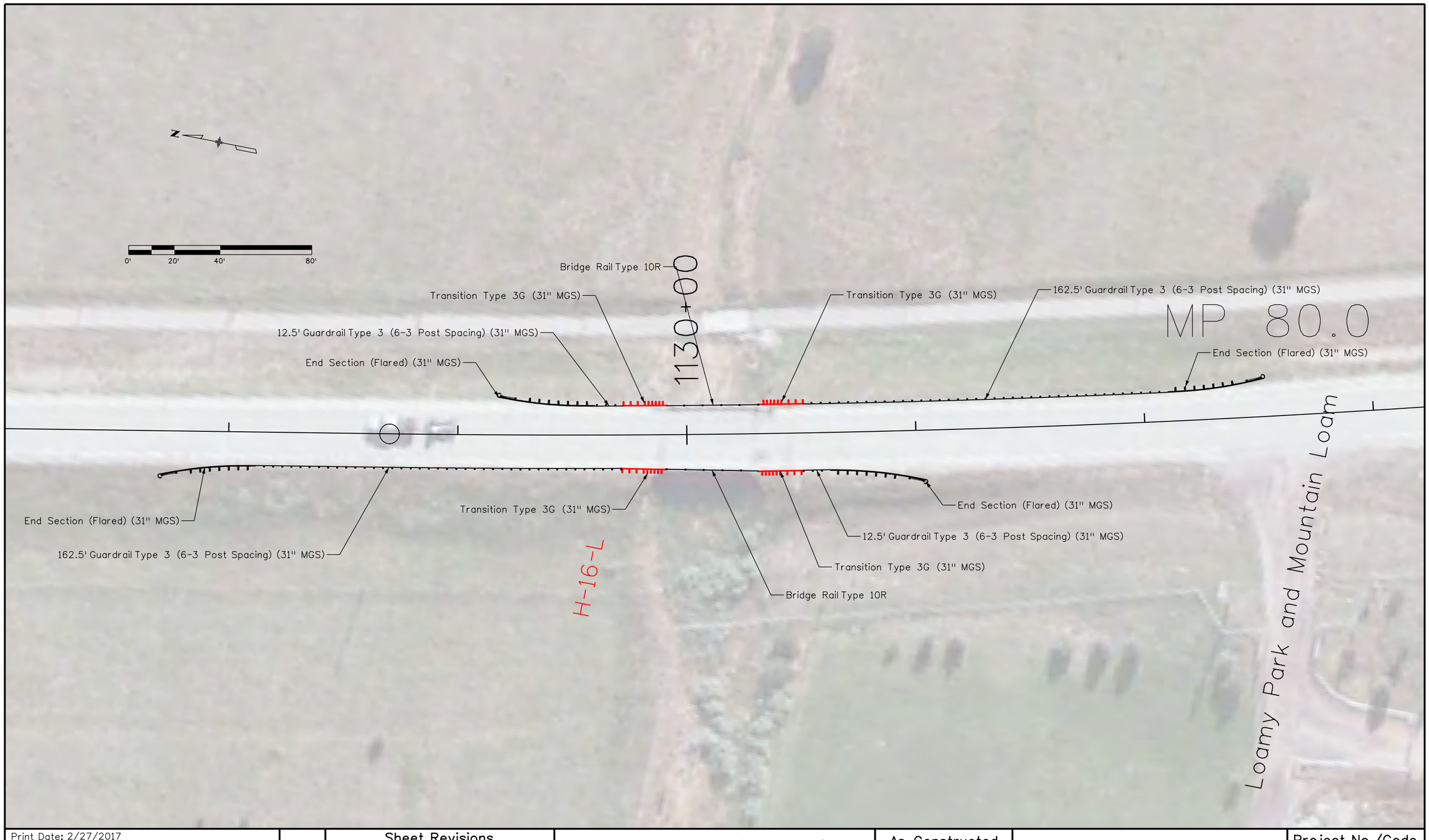
Guardrail Detail			Project No./Code
Designer: AWG	Structure Numbers		STA 067A-039
Detailer:			21254
Sheet Subset:	Subset Sheets:		Sheet Number 26



gilberta 9:56:26 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_I-16-AA .dgn

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation
File Name: 21254DES_I-16-AA .dgn	Date: / Comments / Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298
Horiz. Scale: 1:20 Vert. Scale: As Noted		Region 2 DLH
Unit Information Unit Leader Initials		

As Constructed	Guardrail Detail			Project No./Code
No Revisions:				STA 067A-039
Revised:	Designer: AWG	Structure Numbers	I-16-AA	21254
Void:	Detailer:			Sheet Number 27
	Sheet Subset:	Subset Sheets:		

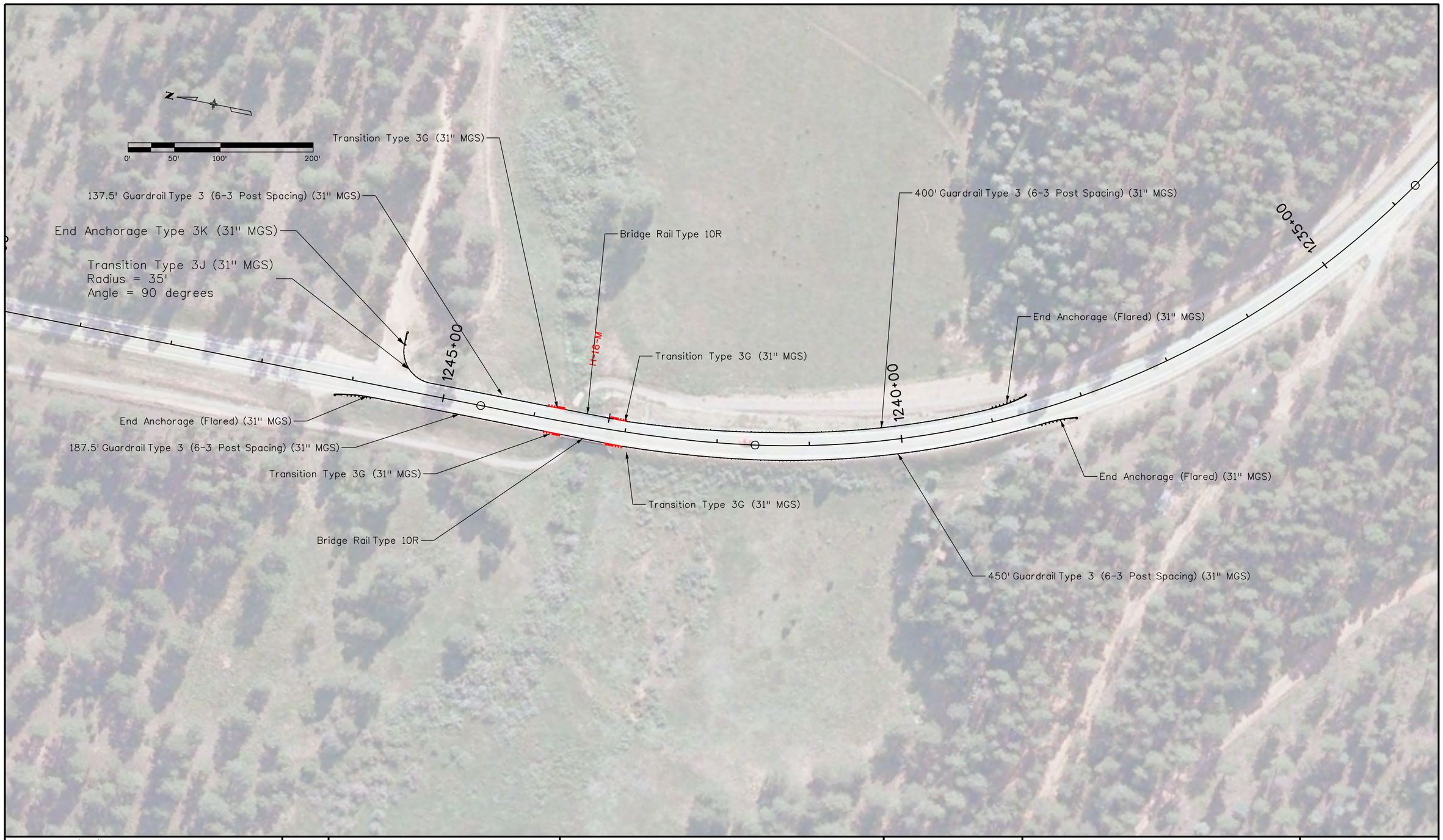


gilberta 9:56:38 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_H-16-L.dgn

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_H-16-L.dgn	Date: / Comments / Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:40 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

Guardrail Detail			
Designer: AWG	Structure Numbers	H-16-L	
Detailer:			
Sheet Subset:	Subset Sheets:		

Project No./Code	
STA 067A-039	
21254	
Sheet Number	28



gilberta 9:56:45 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_H-16-M.dgn

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_H-16-M.dgn	Date: / Comments / Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:100 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

Guardrail Detail			Project No./Code
Designer: AWG	Structure Numbers	H-16-L	STA 067A-039
Detailer:			21254
Sheet Subset:	Subset Sheets:		Sheet Number 29

TABULATION OF CONSTRUCTION TRAFFIC CONTROL DEVICES

Sign Code	Legend	Dimension	Panel Size and Quantity (Each) A		B		C	
60 G20-1	ROAD / WORK / NEXT / 9 MILES	60 x 48					2	
48 W20-1	ROAD / WORK / ONE MILE	48 x 48			3			
48 W20-1	ROAD / WORK / 1/2 MILE	48 x 48			3			
48 W20-1	ROAD / WORK / 1500 FT	48 x 48			3			
48 W20-1	ROAD WORK AHEAD	48 x 48			3			
48 R2-1(35)	SPEED / LIMIT / 35	48 x 60					8	
48 R2-1(45)	SPEED / LIMIT / 45	48 x 60					2	
48 R2-1(55)	SPEED / LIMIT / 55	48 x 60					2	
48 R2-1(65)	SPEED / LIMIT / 65	48 x 60					2	
48 R2-5A	REDUCE/SPEED/AHEAD	48 x 48			2			
48 W3-4	BE PREPARED TO STOP	48 x 48			6			
36 G20-5	WORK ZONE	48 x 48			28			
24 R2-6	FINES DOUBLE	24 x 24	12					
36 W6-1	BUMP	36 x 36	6					
48 W20-4	ONE / LANE ROAD / AHEAD	48 x 48			2			
48 W20-7A	FLAGGER SYMBOL	48 x 48			8			
24 W21-1A	WORKERS (SYMBOL)	24 x 24	2					
36 W21-13R	UNEVEN LANES SYMBOL	36 x 36	6					
60 G20-10	THANK YOU / CONTRACTOR'S NAME / TELEPHONE #	60 x 24			3			
60 G20-11	PUBLIC INFORMATION SIGN	60 X 36					2	
48 R52-6A	BEGIN / FINES / DOUBLE / IN WORK / ZONE	48 x 60					3	
48 R52-6B	END / FINES / DOUBLE / IN WORK / ZONE	48 x 60					3	
36 W21-1R	SHOULDER DROP OFF	36 x 36	8					
36 W21-5	SHOULDER / WORK	36 x 36	4					
36 R4-2	PASS / WITH / CARE	35 x 48			4			
W20-52	GROOVED PAVEMENT AHEAD	48 x 48			6			
36 R4-1	DO NOT PASS	36 x 48			4			
	Sign TOTALS		38		75		24	

Item Number	Construction Traffic Sign (Special)	Dimension	Size (SF) Plan	Size (SF) As Built	Quantity (Each) Plan	Quantity (Each) As Built	Quantity (SF) Plan	Quantity (SF) As Built
630-80344	WIDE LOADS (Description to be determined by Engineer)	96 x 96	64		3		192	
630-80344	TOTAL						192	

Item Number	Channelizing and Warning Devices			
630-00000	FLAGGING	Hour	3636	
630-00001	PILOT CAR OPERATION	Hour	800	
630-00007	TRAFFIC CONTROL INSPECTION	Day	78	
630-00012	TRAFFIC CONTROL MANAGEMENT	Day	101	
630-80001	FLASHING BEACON (PORTABLE)	Each	2	
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	Each	38	
630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	Each	75	
630-80343	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE C)	Each	24	
630-80355	PORTABLE MESSAGE SIGN PANEL	Each	6	
630-80360	DRUM CHANNELIZING DEVICE	Each	100	
630-80363	DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING)	Each	10	
630-80364	DRUM CHANNELIZING DEVICE (WITH LIGHT) (STEADY BURN)	Each	20	
630-80380	TRAFFIC CONE	Each	200	

* Posts necessary for the placement of construction signing shall be included in the cost of the signs.

SWMP TEMPLATE TEXT FOR PROJECTS WITH LESS THAN 1 ACRE OF DISTURBANCE

1. SITE DESCRIPTION

A. PROJECT SITE LOCATION: The project is located on State Highway 67 in two discontinuous project sites, Site A between mileposts 52.304-69.651 from Cripple Creek to Divide in Teller County, and Site B between mileposts 77.59-92.7 from Woodland Park in Teller County to north of Westcreek in Douglas County.

B. PROJECT SITE DESCRIPTION: Site A activities include a full length and width 4" CIPR, and 1.5" overlay. Site B activities include a full length and width 1.5" overlay. Project activities also include shouldering, guardrail adjustment and hardware replacement, bridge rail replacement, additional approach and departure guardrail for bridges, temporary erosion control, centerline rumble strips, and delineator replacement and installation.

C. ACRES OF DISTURBANCE:
1. Total area of construction site (LOC): 100 acres
2. Total area of disturbance (LDA): 0.82 acres
3. Acreage of seeding: 0.8 acres

D. RECEIVING WATER:
1. Outfall locations:

MP 57.61	Oil Creek
MP 60.50	Unknown
MP 63.54	Putney Gulch
MP 63.95	Unknown
MP 64.45	Fourmile Creek
MP 67.48	Rule Creek
MP 78.38	Loy Gulch
MP 78.65	Lovell Gulch
MP 82.16	Long Gulch
MP 83.93	Trout Creek
MP 88.46	Uknown (Trout Creek)
MP 89.69	Uknown (Trout Creek)

2. Ultimate receiving water: South Platte River, Arkansas River

E. EXISTING SOIL DATA: Gravelly Loam

F. EXISTING VEGETATION, INCLUDING PERCENT COVER:
Vegetative transects are *not required,* by permit, on projects with under an acre of disturbance. However, it is advised that transects be completed prior to construction, as a quality control for post construction revegetation assessment. If transects are not completed on a project, at a minimum describe the quality of the existing vegetation.

2. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. POTENTIAL POLLUTANT SOURCES
1. Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place any BMPs/Control Measures required to contain potential pollutants.

B. OFFSITE DRAINAGE (RUN ON WATER)
1. Place BMPs/Control Measures to address run-on water in accordance with subsection 208.03.

E. PERIMETER CONTROL
1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.
2. Perimeter control may consist of vegetation buffers, berms, silt fence, erosion logs, existing landforms, or other BMPs/Control Measures as approved.
3. Perimeter control shall be in accordance with subsection 208.04.

3. SWMP ADMINISTRATOR:

A. SWMP ADMINISTRATOR FOR DESIGN:

Name/Title	Contact Information	
Austin Gilbert	719.227.3256	austin.gilbert@state.co.us

B. SWMP ADMINISTRATOR FOR CONSTRUCTION: (See Subsection 208 Under an Acre Specification) The Contractor shall designate a SWMP Administrator for Construction upon ownership of the SWMP. The SWMP Administrator shall become the owner/operator and assume responsibility for all design changes to the SWMP implementation and maintenance in accordance to 208.03. The SWMP Administrator shall be responsible for implementing, maintaining and revising SWMP, including the title and contact information. The activities and responsibilities of the SWMP administrator shall address all aspects of the projects SWMP. (Update the information below for each new SWMP Administrator) (Copy of TECS Certification must also be included in the SWMP Notebook.) ***The SWMP Administration for construction is not a separate pay item but is included in the cost of the work.***

Name/Title	Contact Information	Certification #	Start Date	Engineer Appro

4. DURING CONSTRUCTION

The SWMP should be considered a "living document" that is continuously reviewed and modified. During construction, the following items shall be added, updated, or amended as needed by the Contractor in accordance with Section 208

A. MATERIALS HANDLING AND SPILL PREVENTION: prior to construction commencing the Contractor shall submit a Spill Prevention, Control and Countermeasure Plan, see subsection 208.06. Materials handling shall be in accordance with subsection 208.06.

B. STOCKPILE MANAGEMENT: shall be done in accordance with subsection 107.25 and 208.07

C. CONCRETE WASHOUT: Concrete wash out water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.

D. SAW CUTTING: shall be done in accordance with subsection 107.25, 208.04, 208.05

E. STREET SWEEPING: shall be done in accordance with subsection 208.04

5. BMP/CONTROL MEASURE MAINTENANCE

A. Maintenance shall be in accordance with subsection 208.04 (f).

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	Stormwater Management Plan	Project No./Code
File Name: 21254DES_SWMP01.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:1 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: SWMP / Subset Sheets: 1 of 3	Sheet Number 31

6. INTERIM AND FINAL STABILIZATION

A. SEEDING PLAN

Soil preparation, soil conditioning or topsoil, seeding (native), mulching (weed free) and mulch tackifier will be required for an estimated 0.8 acres of disturbed area within the right-of-way limits which are not surfaced. The following types and rates shall be used:

Common Name	Scientific/Botanical Name	Pounds of Pure Live Seed (PLS) per Acre
Arizona Fescue	*Festuca arizonica*	6
mountain muhly	*Muhlenbergia montana*	3
Little bluestem	*Schizachyrium scoparium*	5
Sandberg bluegrass	*Poa secunda v. sandbergii*	4
Mountain brome #	*Bromus marginatus*	4
Western wheatgrass #	*Pascopyrum smithii v. Arriba*	4
Blue flax	*Linum perenne v. Appar*	2
Side-cats grama #	*Boutelous curtipendula*	2
Scarlet gilia	*Ipomopsis aggregata*	2
Cover/Nurse Crop Oats or	Avena sativa (Spring)	2
	TOTAL	34

B. SEEDING APPLICATION: Drill seed 0.25 inch to 0.5 inch into the soil. In small areas not accessible to a drill, hand broadcast at double the rate and rake 0.25 inch to 0.5 inch into the soil.

C. MULCHING APPLICATION: Apply a minimum of 2 tons of certified weed free straw or 2 tons of certified weed free straw per acre and in accordance with Section 213, and mechanically crimp it into the soil in combination with an organic mulch tackifier.

D. SPECIAL REQUIREMENTS:

A. Due to steep slopes (>2:1), hydroseeding will be allowed on this project for permanent stabilization. Hydroseeding rate shall be at double the seeding rate. Hydroseed shall be applied in two applications. The first application is a slurry which contains seed, organic amendment and fertilizer. The second application is a slurry of mulch and tackifier. Both slurry applications shall be applied from top of slope downward, in 50' vertical lifts, unless otherwise approved by the Engineer. [Elevation: (10,000) feet]

B. SOIL CONDITIONING AND FERTILIZER REQUIREMENTS: Minimum requirements for all disturbances to receive seeding (native).

Soil conditioner paid for as Item 212- Soil Conditioning (Acre)		
Biological nutrient organic based fertilizer (lbs/acre)*	Humate (lbs/acre)	Spray on Amendment (lbs/acre) **>2:1 slopes only**
300	200	3500

*Biological nutrient shall not exceed 8-8-8 (N-P-K).

Humate based material shall be in accordance to Standard Special Provision 212 and compost shall be in accordance to Standard Special Provision 212.

F. BLANKET APPLICATION: On slopes and ditches requiring a blanket, the blanket shall be placed in lieu of mulch and mulch tackifier.

7. PRIOR TO FINAL ACCEPTANCE

A. Partial Acceptance shall be in accordance with subsection 107.25 (d) and 208.10 At the Partial Acceptance of the project, it shall be determined by the SWMP Administrator and the Engineer which temporary BMPs/Control Measures shall remain until 70% reestablishment or which shall be removed.

B. At the end of the project, all ditch checks shall either consist of temporary erosion logs (or equivalent) or permanent rip-rap.

8. NARRATIVES:

A. ADDITIONAL BMPS/CONTROL MEASURES AND NARRATIVES:

BMP/Control Measure details and narratives not covered by the SWMP or Standard Plan M-208, M-216 shall be added to the SWMP notebook by the SWMP Administrator.**BMP Matrix:**

1. M-Standards have been included along with standard BMP narratives. If a Non-Standard BMP will be used or the standard narrative does not apply, the SWMP Administrator shall write a Non-Standard BMP narrative, place an "X" in the column and complete a Non-Standard BMP Specification and Narrative for the SWMP notebook.
2. The SWMP Administrator shall place an "X" in the column In Use on Site when the BMP/Control Measure has been installed.
3. Place an "X" in the column BMP/Control Measure to be located by SWMP Administrator if the SWMP Administrator shall locate the BMP/Control Measure during construction. These BMP/Control Measures are not currently located on SWMP Plans but are anticipated to be used during construction (i.e. Vehicle Tracking Pad, Batch Plants, etc.). The SWMP Administrator shall locate these prior to or during construction and reflect on SWMP Map.
4. Place an "X" in the column Installation BMP/Control Measure Pre-Construction if the BMP/Control Measure is to be installed prior to construction activity.

STRUCTURAL BMPs/Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:

APPLICATION, BMP	NARRATIVE	BMP AS DESIGNED	IN USE ON SITE	BMP PHASING		
				FIRST/INITIAL CONSTRUCTION ACTIVITIES	INTERIM CONSTRUCTION ACTIVITIES	FINAL STABILIZATION
CULVERT INLET/OUTLET PROTECTION Erosion logs, aggregate bags	Placed at mouth of culvert inlets and over top of culvert at inlet and outlet where disturbance may be occurring adjacent :o pipe to prevent sediment laden water from entering pipe or drainage. Place prior to start of construction disturbances.	X		X	X	X
STOCKPILE PROTECTION Earth berm, erosion logs, aggregate bags*	Placed within specified distance from toe to contain sediment around stockpile. *Aggregate bags are easily moved and replaced for access during the work day. Place prior to start of stock pile, increase control as stock pile increases size.	X			X	
PERIMETER CONTROL Erosion logs, silt fence, earth berm, topsoil windrow*	Placed prior to construction commencing to address potential run-on water from off site, and to divert around disturbed area			X	X	
CONCRETE WASHOUT In-ground or fabricated	Construction control, used for waste management of concrete and concrete equipment cleaning. Place prior to start of concrete activities.	X		X	X	

NON-STRUCTURAL BMPs/Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:
Erosion control devices are used to limit the amount of soil loss on site
Sediment control devices are designed to capture sediment on the project site.
Construction controls are BMPs/Control Measures related to construction access and staging.
BMP/Control Measure locations are indicated on the SWMP site map.

APPLICATION, BMP	NARRATIVE	BMP AS DESIGNED	IN USE ON SITE	BMP PHASING		
				FIRST/INITIAL CONSTRUCTION ACTIVITIES	INTERIM CONSTRUCTION ACTIVITIES	FINAL STABILIZATION
SWEEPING	Source control, used to remove sediment tracked onto paved surfaces and to prevent from entering drainage system. Sweep daily and at the end of the construction shift as needed.	X		X	X	

9. TABULATION OF STORMWATER QUANTITIES

A. BMP/Control Measure sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Equipment) and 208 Removal and Disposal of Sediment (Labor). All other BMP/Control Measure maintenance shall be included in the cost of the BMP/Control Measure.

B. Establishment of seeded areas shall be paid for as: This shall include mowing, weed control, reseeding/mulch/tackifier.

Pay Item	Description	Pay Unit	Initial Const.	Interim Const.	Permanent Stabilizatio
208-00002	Erosion Log Type 1 (12 inch)	LF		2000	
208-00035	Aggregate Bag	LF	30		
208-00045	Concrete Washout Structure	Each		1	
208-00103	Removal and Disposal of Sediment (Labor)	Hour		20	
208-00105	Removal and Disposal of Sediment (Equipment)	Hour		20	
208-00106	Sweeping (Sediment Removal)	Hour		100	
240-00000	Wildlife Biologist	Hour	5		
240-00010	Removal of Nests	Hour	10		
700-70380	F/A Erosion Control	LS			

*It is anticipated that additional BMPs/Control Measures and BMP/Control Measure quantities not shown on the SWMP Site Maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsection 208.03 and 208.04. **Quantities for all BMPs/Control Measures shown above are estimated, and have been increased for unforeseen conditions and normal BMP/Control Measure life expectancy.** Quantities shall be adjusted according to the conditions encountered in the field as directed and approved by the Engineer. Payment shall be for the actual work completed and material used.

10. BIOLOGIC IMPACTS

A. ENVIRONMENTAL IMPACTS:
1. Wetland Impacts: YES NO
2. Stream Impacts: YES NO
3. Threatened and Endangered Species: NO

11. Notes

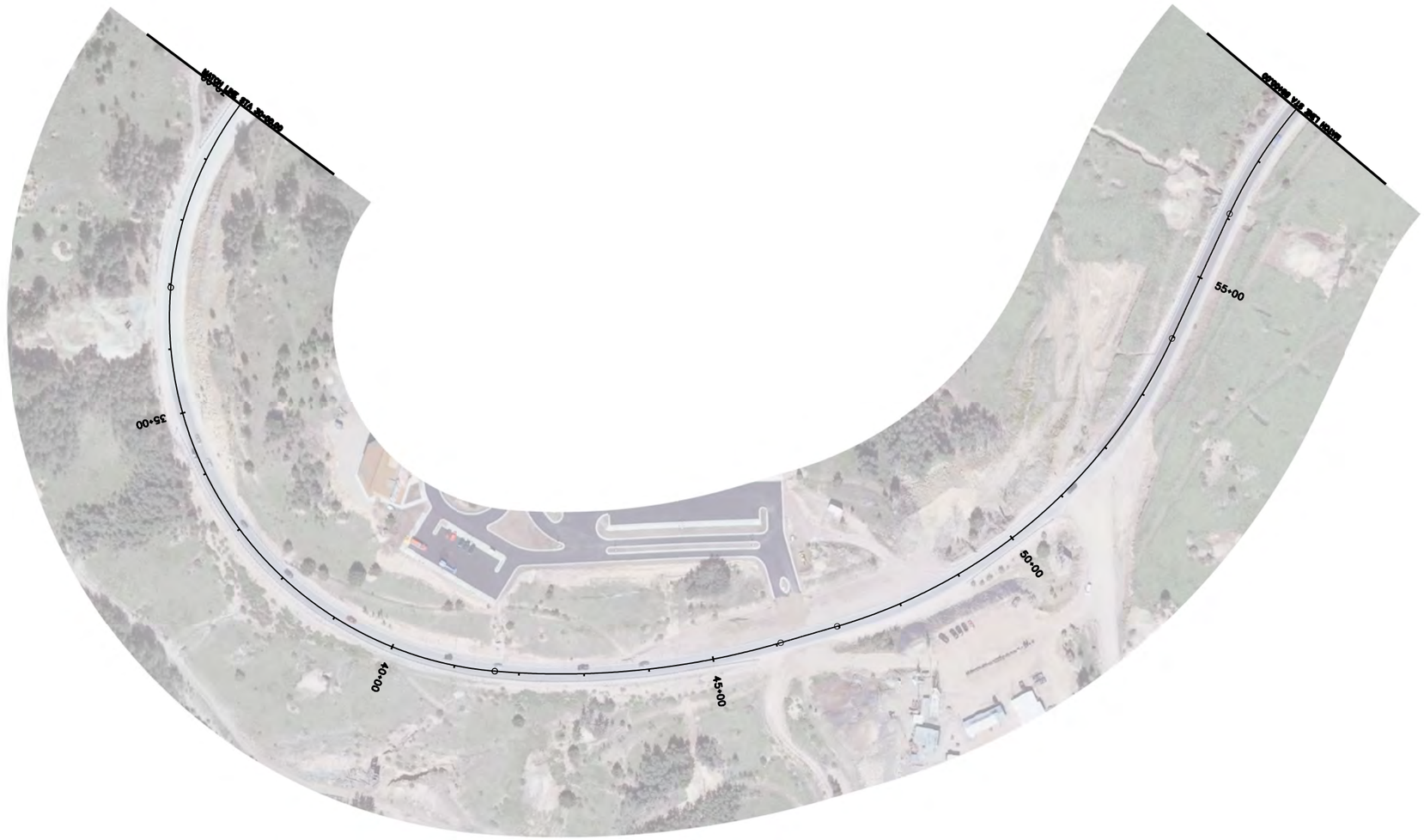
ECM (or SWMP Administrator For Construction or Erosion Control Inspector) is included in the cost of the work.

Print Date: 2/27/2017	Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_SWMP03.dgn	Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:1 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials				Region 2 DLH	Void:

Stormwater Management Plan				Project No./Code
				STA 067A-039
Designer: AWG	Structure Numbers			21254
Detailer:				
Sheet Subset: SWMP	Subset Sheets:	3 of 3		Sheet Number 33

Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan01.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer: / Sheet Subset: PLAN	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Structure Numbers / Subset Sheets: of	Sheet Number 34



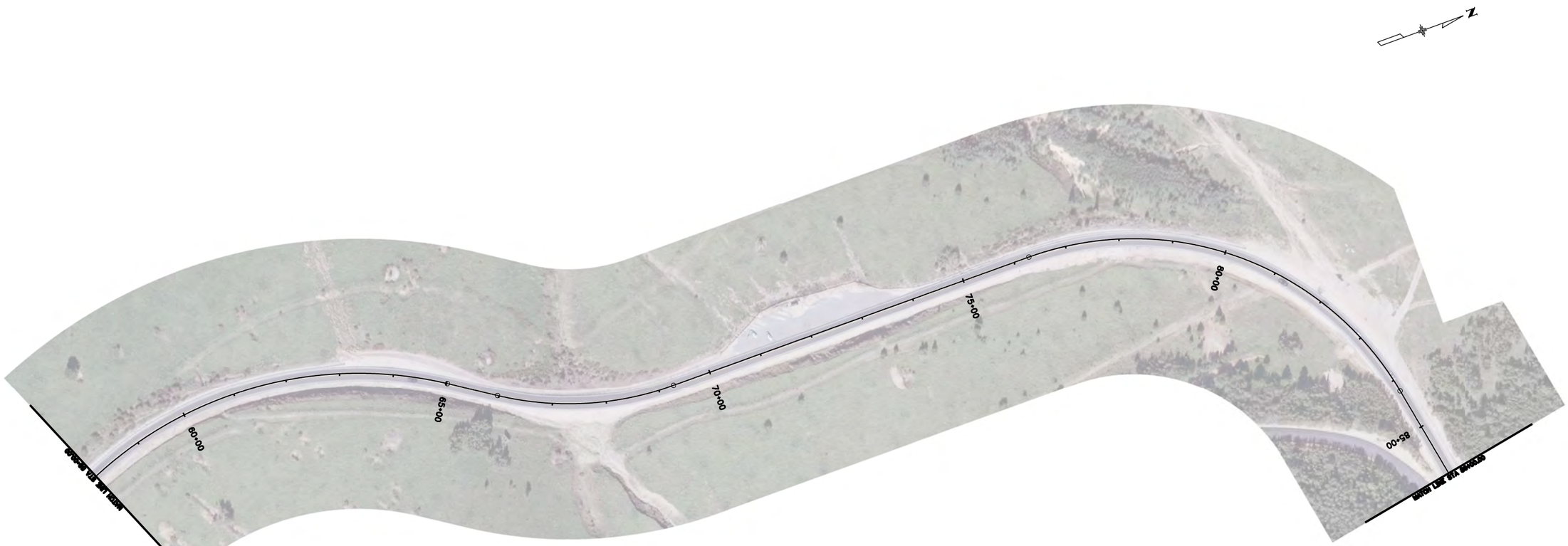
Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan02.dgn	Date: / Comments / Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

PLAN SHEET

Designer:	AWG	Structure Numbers	
Detailer:			
Sheet Subset:	PLAN	Subset Sheets:	of

Project No./Code	
STA 067A-039	
21254	
Sheet Number	35



Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan03.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials							Detailer:	
					Region 2 DLH	Void:	Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 36

gilberta 9:57:30 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan03.dgn

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan04.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 37

gilberta 9:57:36 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan04.dgn

Know what's below. Call before you dig.

Print Date: 2/27/2017	Sheet Revisions		
File Name: 21254DES_Plan05.dgn	Date:	Comments	Init.
Horiz. Scale: 1:200 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

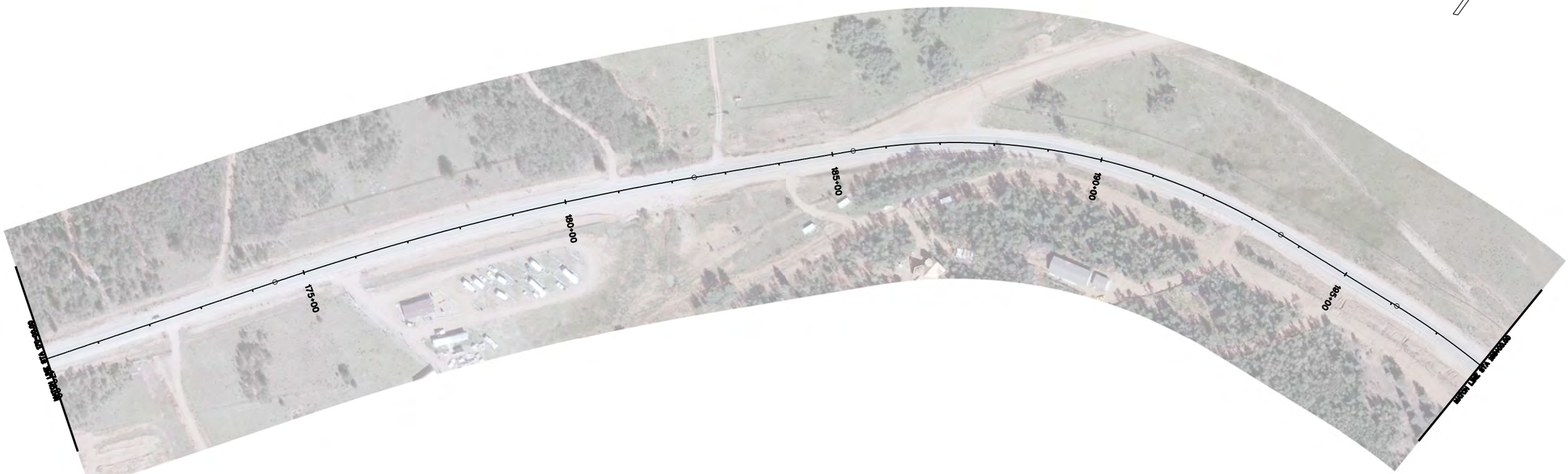
As Constructed	PLAN SHEET		Project No./Code
No Revisions:			STA 067A-039
Revised:	Designer: AWG	Structure Numbers	21254
Void:	Detailer:		Sheet Number 38
	Sheet Subset: PLAN	Subset Sheets: of	

gilberta 9:57:43 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan05.dgn

Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET		Project No./Code
File Name: 21254DES_Plan06.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:			STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:		Sheet Number 39
							Sheet Subset: PLAN	Subset Sheets: of	

gilberta 9:57:50 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan06.dgn



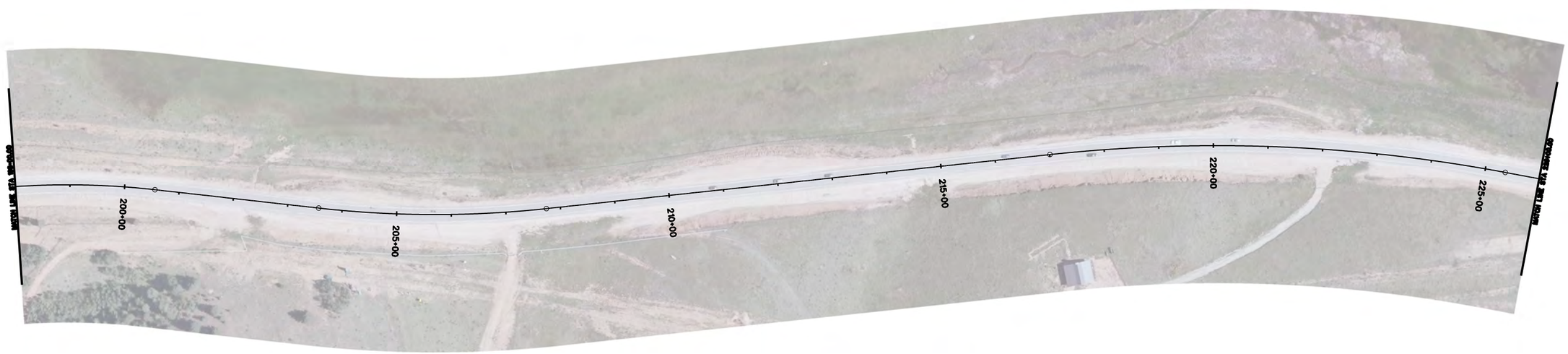
Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions		
File Name: 21254DES_Plan07.dgn	Date:	Comments	Init.
Horiz. Scale: 1:200 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

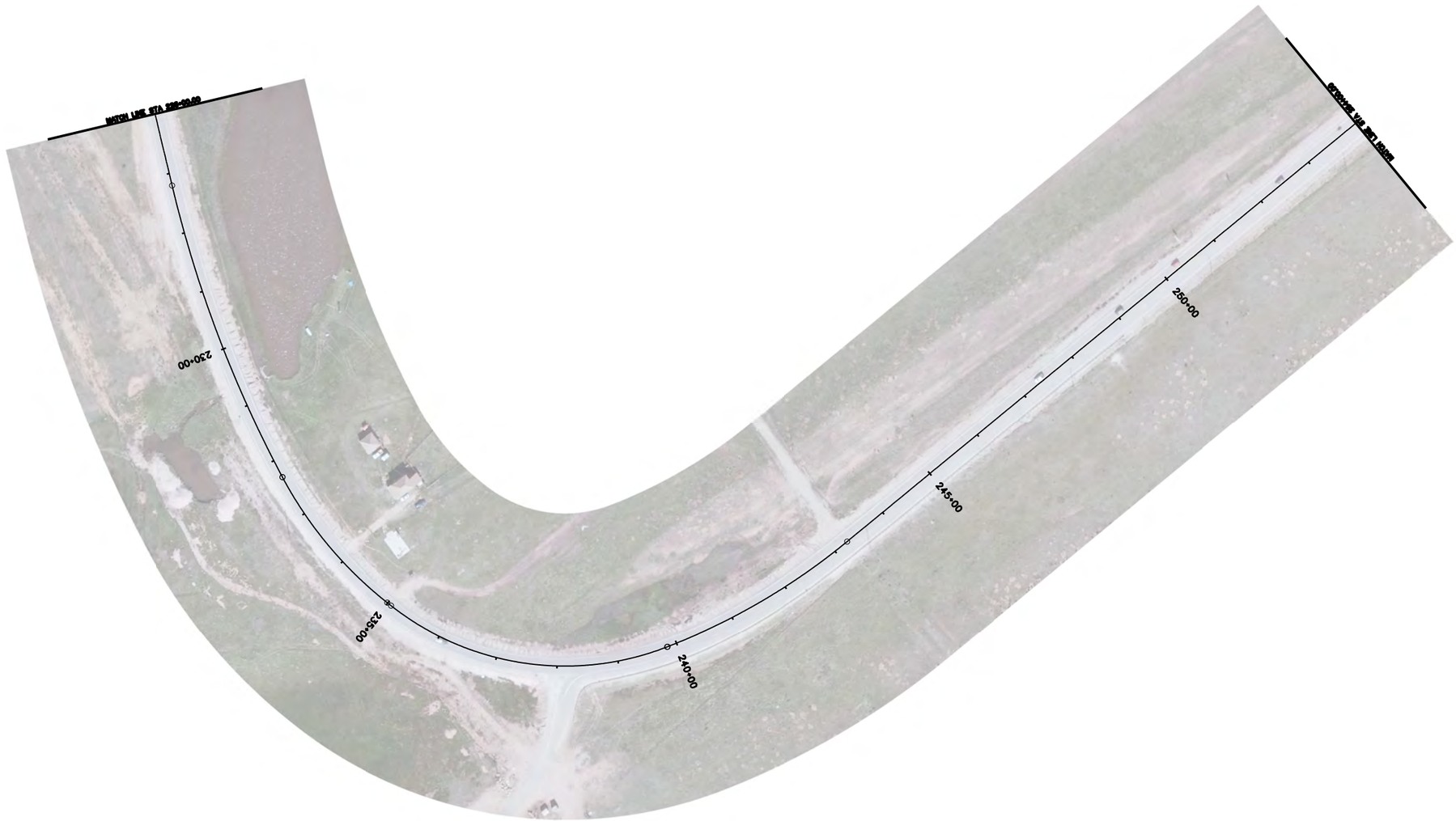
As Constructed	PLAN SHEET			Project No./Code
No Revisions:				STA 067A-039
Revised:	Designer: AWG	Structure Numbers		21254
Void:	Detailer:			Sheet Number 40
	Sheet Subset: PLAN	Subset Sheets: of		

gilberta 9:57:57 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan07.dgn



Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan08.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 41

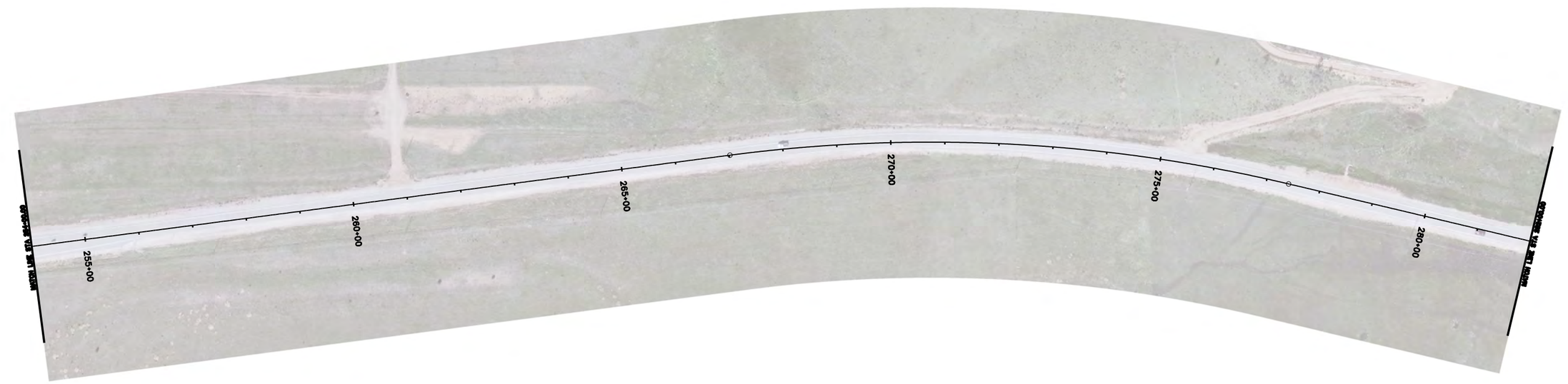
gilberta 9:56:04 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan08.dgn



N

811
Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan09.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer: / Sheet Subset: PLAN / Structure Numbers / Subset Sheets: of	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:		Sheet Number 42



Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan10.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:
Unit Information Unit Leader Initials					Region 2 DLH	Void:

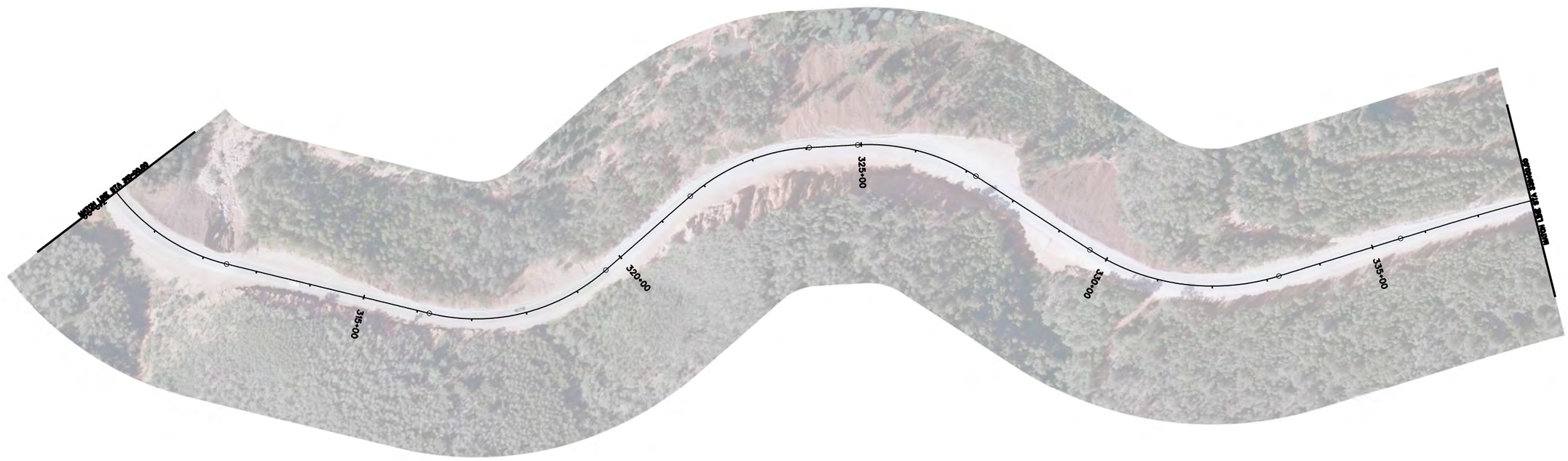
PLAN SHEET				Project No./Code
				STA 067A-039
Designer: AWG	Structure Numbers			21254
Detailer:				
Sheet Subset: PLAN	Subset Sheets: of			Sheet Number 43

Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan11.dgn	Date: Comments Init.	1480 Quail Lake Loop, Suite A	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Colorado Springs, CO 80906	Revised:
Unit Information Unit Leader Initials		Phone: 719-227-3231 FAX: 719-227-3298	Void:
		Region 2 DLH	

PLAN SHEET			
Designer: AWG	Structure Numbers		Project No./Code
Detailer:			STA 067A-039
Sheet Subset: PLAN	Subset Sheets: of		21254
			Sheet Number 44

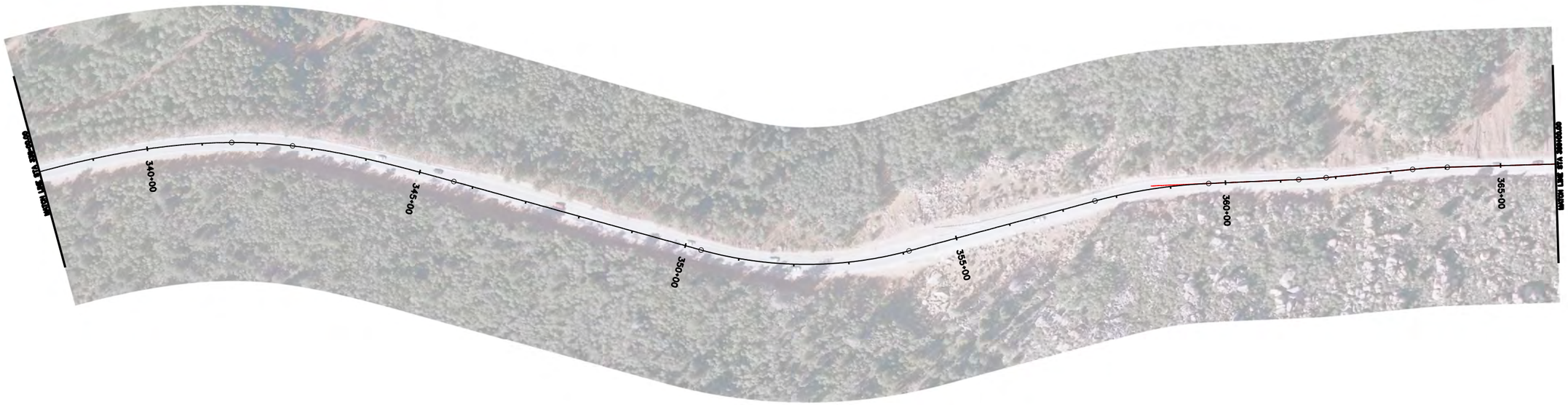
gilberta 9:58:22 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan11.dgn



Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan12.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 45

gilberta 9:58:29 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan12.dgn

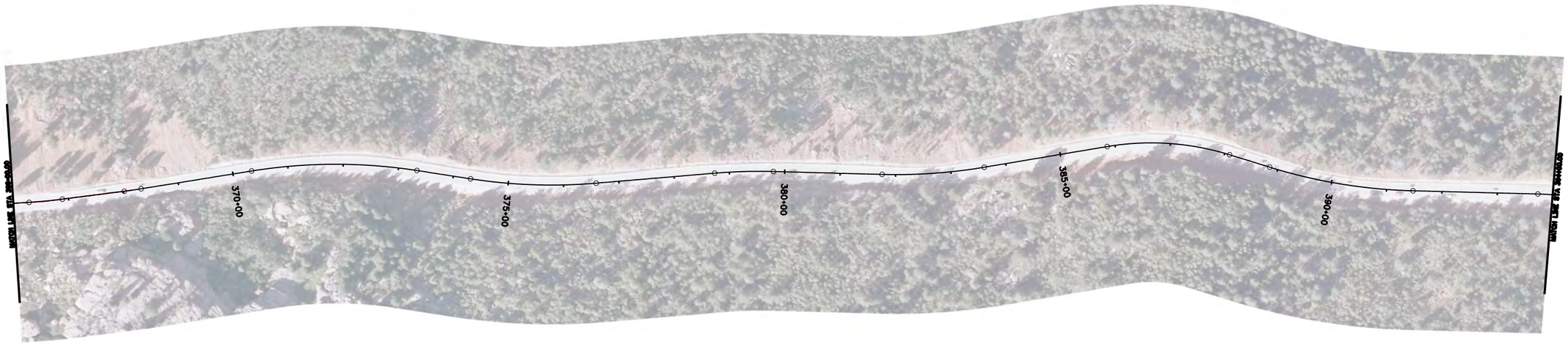


Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan13.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:
Unit Information Unit Leader Initials					Region 2 DLH	Void:

PLAN SHEET			Project No./Code
			STA 067A-039
Designer: AWG	Structure Numbers		21254
Detailer:			Sheet Number 46
Sheet Subset: PLAN	Subset Sheets: of		

gilberta 9:58:35 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan13.dgn



Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan14.dgn	Date: Comments Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

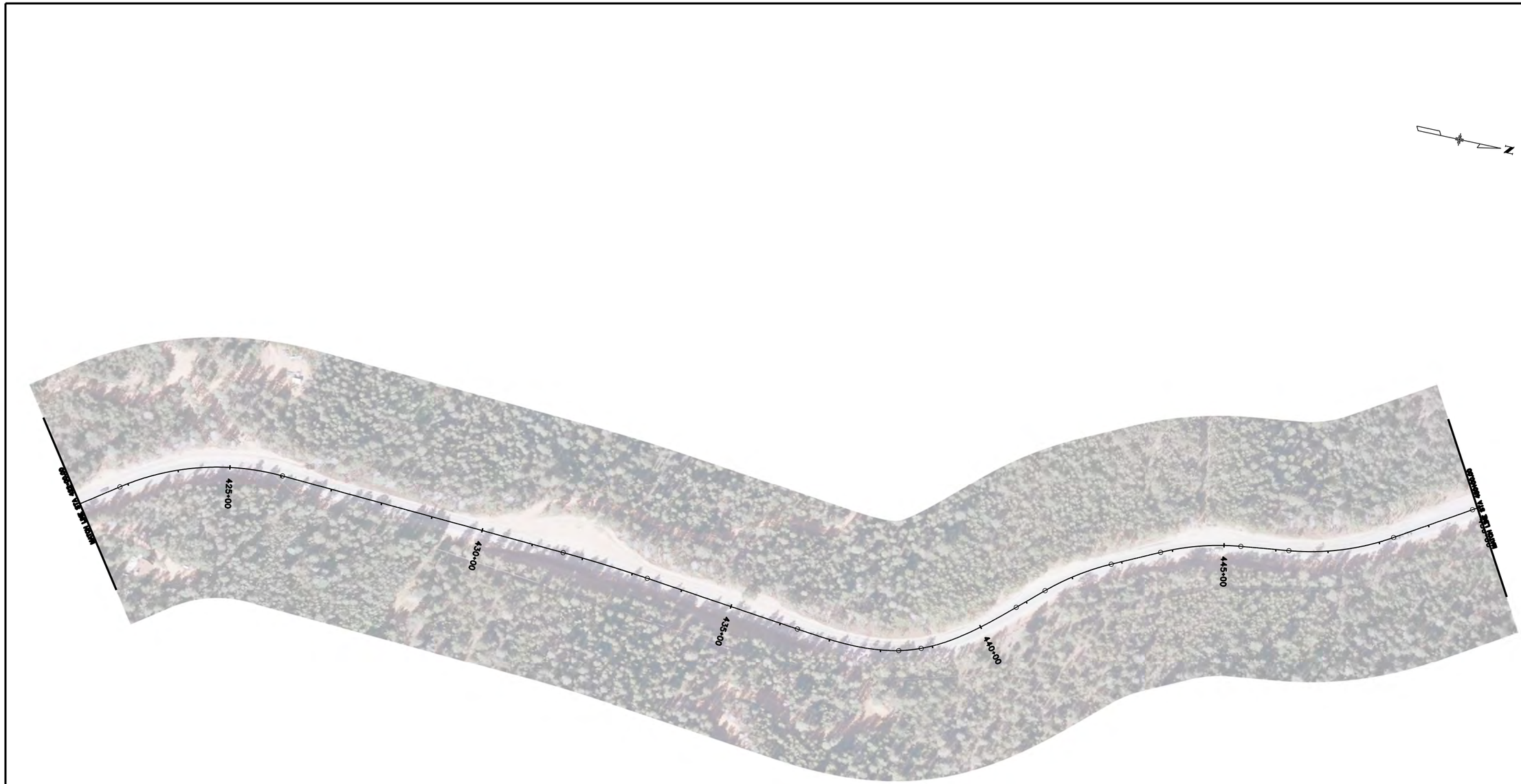
PLAN SHEET			Project No./Code
			STA 067A-039
Designer: AWG	Structure Numbers		21254
Detailer:			
Sheet Subset: PLAN	Subset Sheets: of		Sheet Number 47

gilberta 9:58:42 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan14.dgn

Know what's below.
Call before you dig.

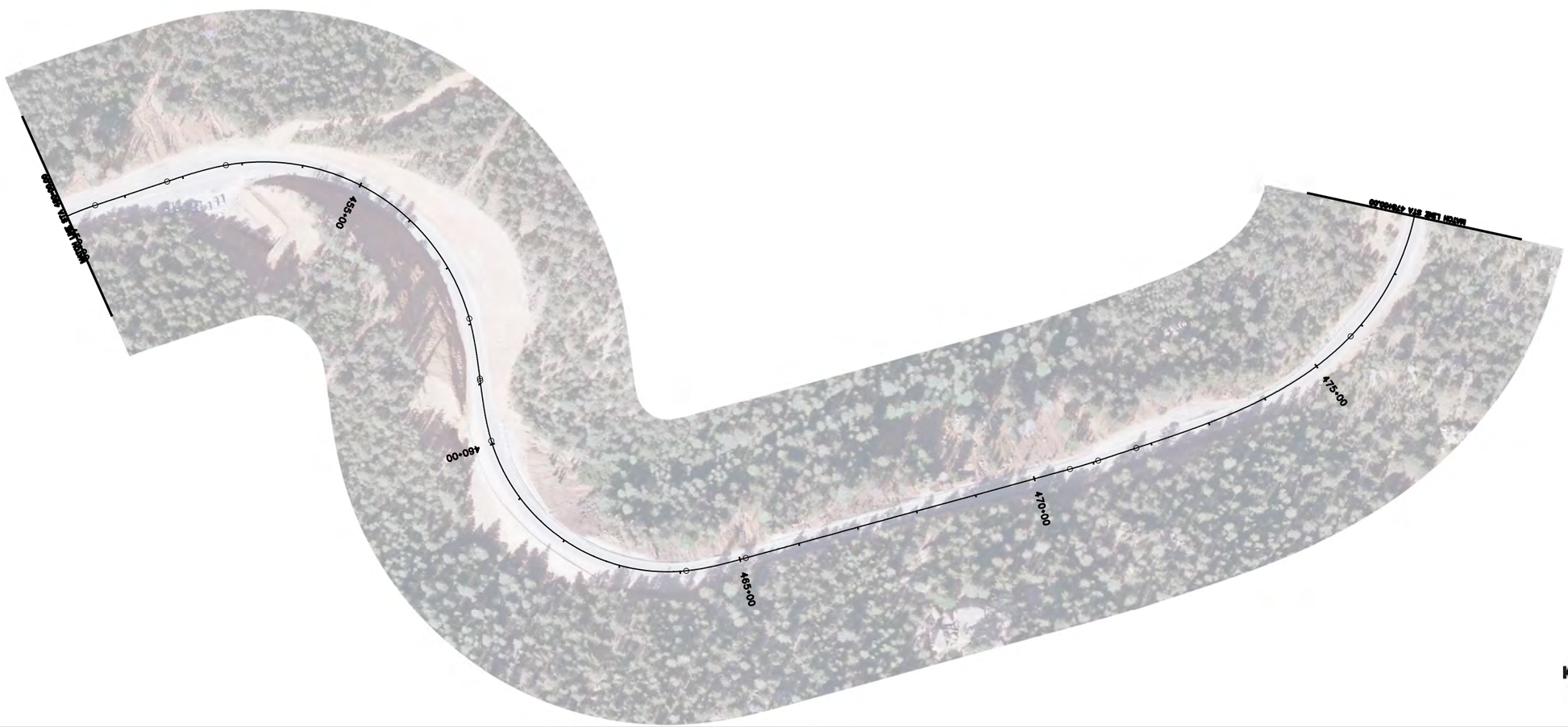
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan15.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN / Structure Numbers / Subset Sheets: of	Sheet Number 48

gilberta 9:58:49 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan15.dgn



Know what's **below.**
Call before you dig.

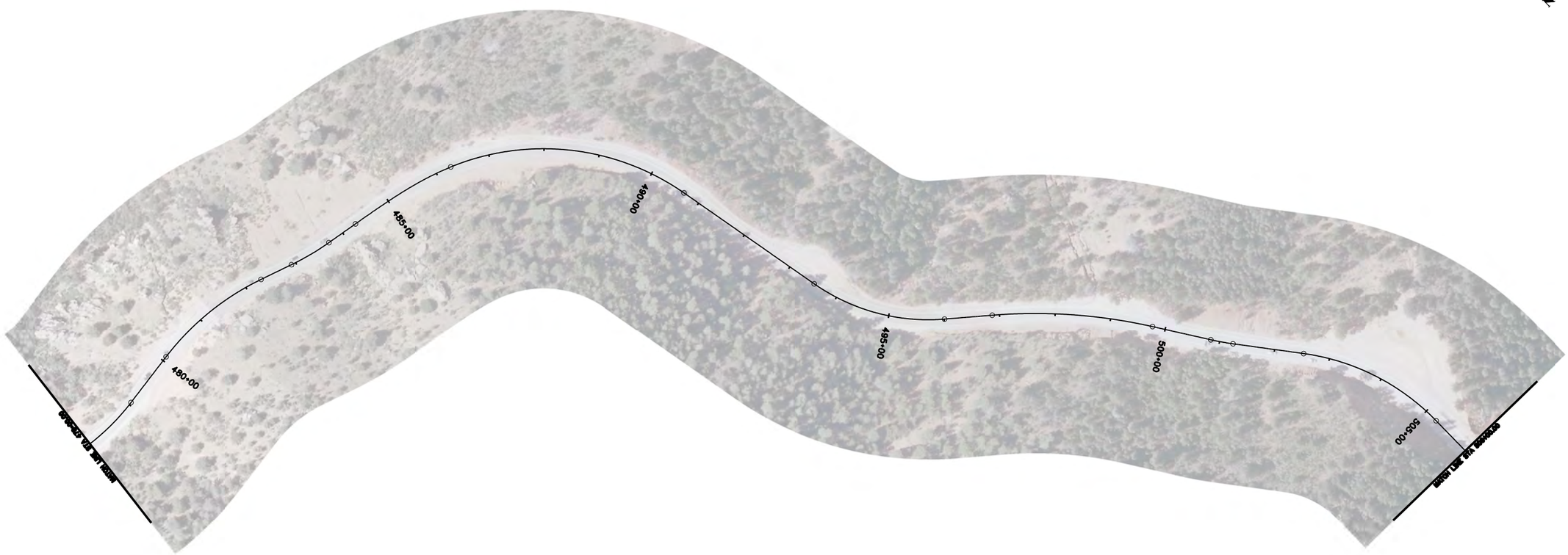
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET		Project No./Code
File Name: 21254DES_Plan16.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:			STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:		Sheet Number 49
							Sheet Subset: PLAN	Subset Sheets: of	



Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan17.dgn	Date: Comments: Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

PLAN SHEET			Project No./Code
			STA 067A-039
Designer: AWG	Structure Numbers		21254
Detailer:			
Sheet Subset: PLAN	Subset Sheets: of		Sheet Number 50

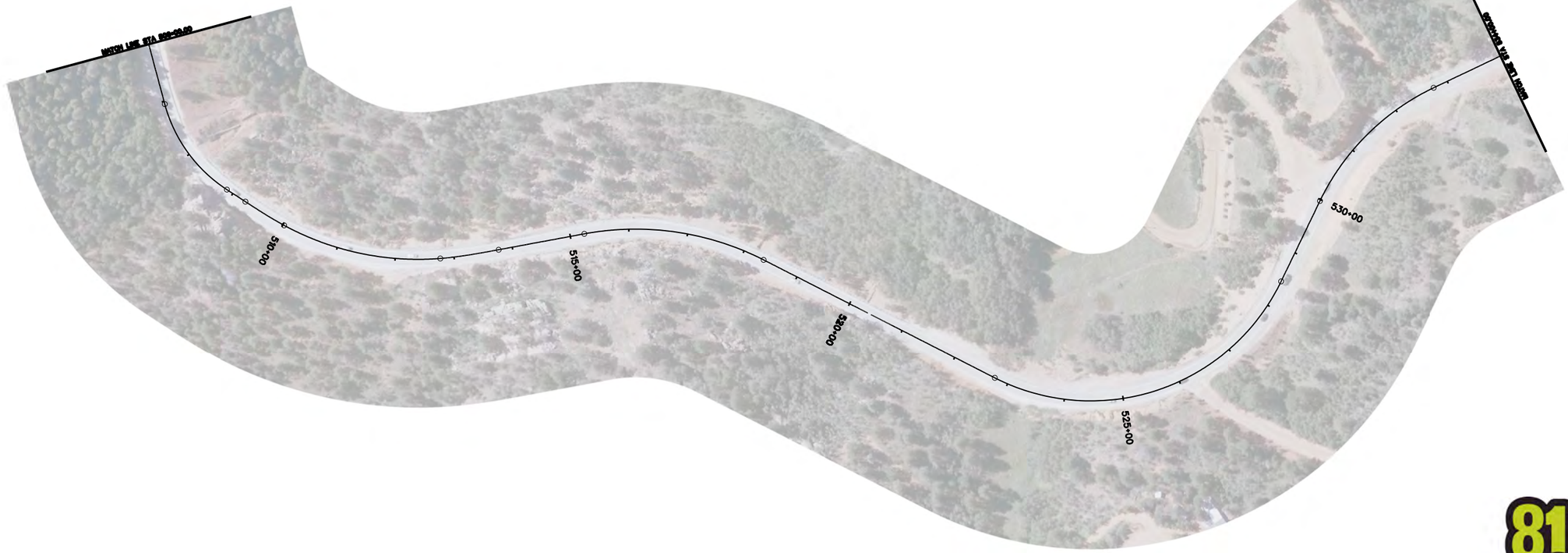


Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan18.dgn	Date: Comments: Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

PLAN SHEET			Project No./Code
			STA 067A-039
Designer: AWG	Structure Numbers		21254
Detailer:			
Sheet Subset: PLAN	Subset Sheets: of		Sheet Number 51

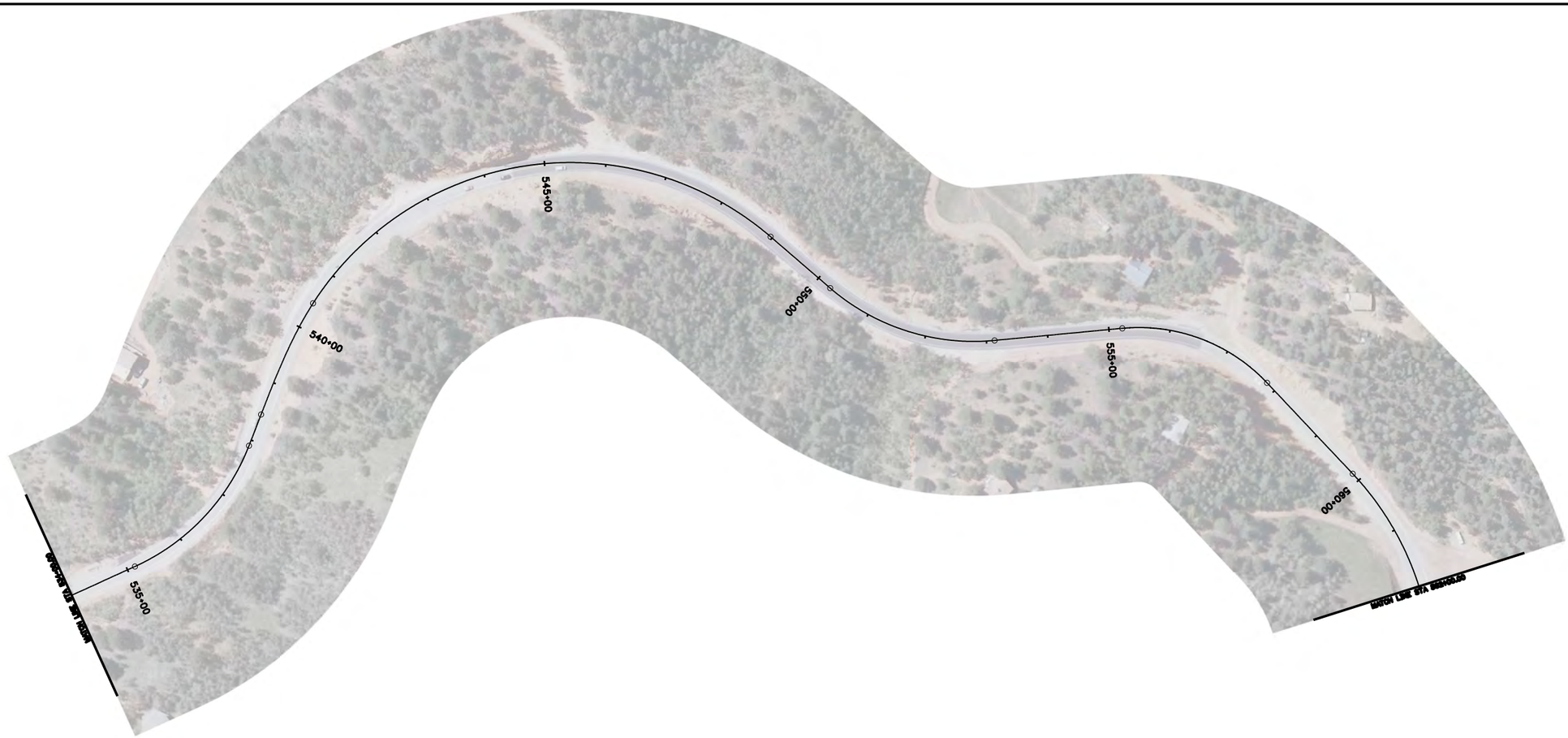
gilberta 9:59:08 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan18.dgn



Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET		Project No./Code
File Name: 21254DES_Plan19.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:			STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:		Sheet Number 52
							Sheet Subset: PLAN	Subset Sheets: of	

gilberta 9:59:15 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan19.dgn



Know what's below. Call before you dig.

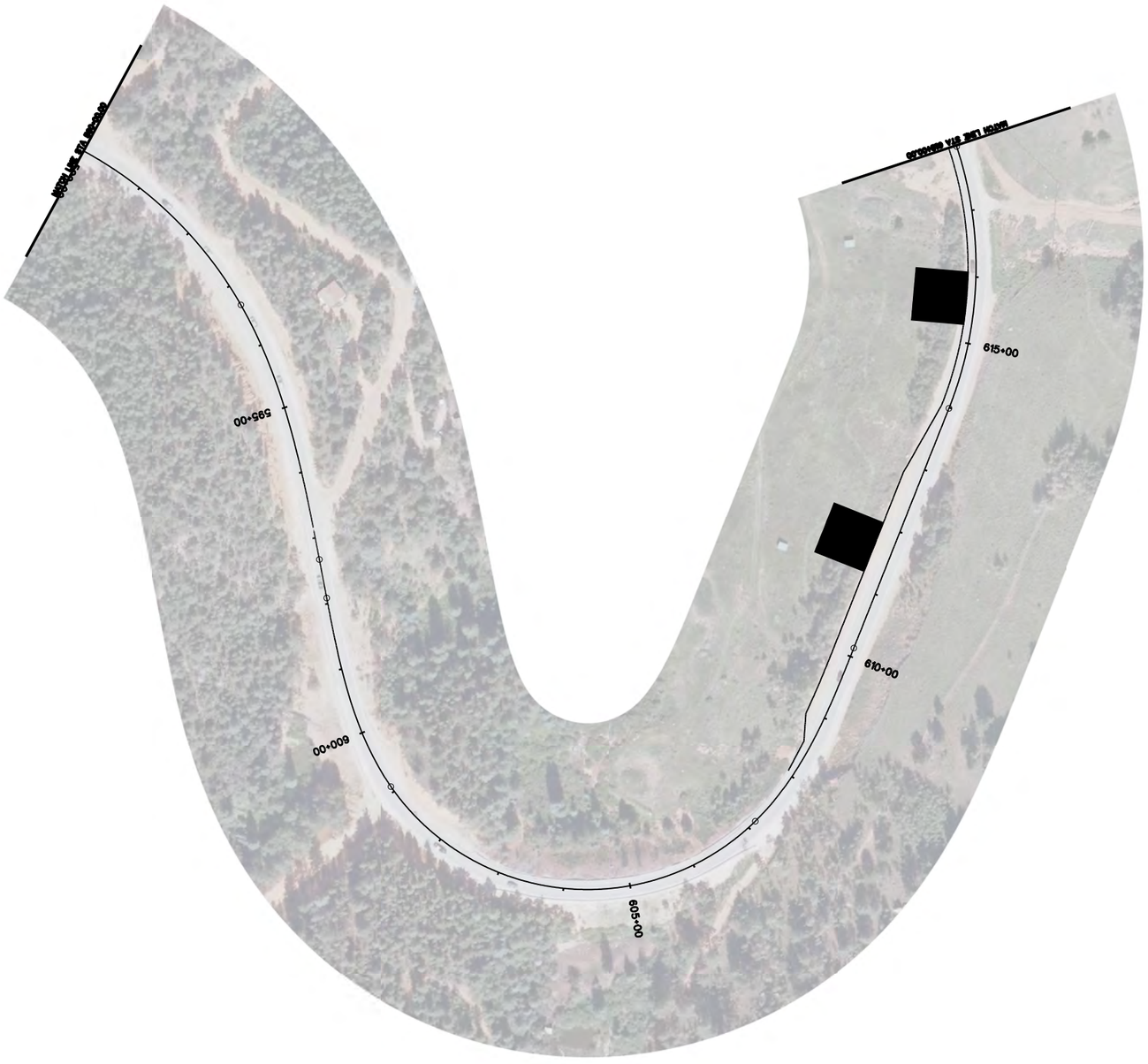
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan20.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN	Sheet Number 53
							Structure Numbers / Subset Sheets: of	

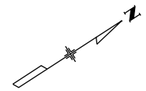
Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation
File Name: 21254DES_Plan21.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298
Horiz. Scale: 1:200 Vert. Scale: As Noted					Region 2 DLH
Unit Information Unit Leader Initials					

As Constructed	PLAN SHEET			Project No./Code
No Revisions:				STA 067A-039
Revised:	Designer: AWG	Structure Numbers		21254
Void:	Detailer:			Sheet Number 54
	Sheet Subset: PLAN	Subset Sheets: of		

gilberta 9:59:30 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan21.dgn



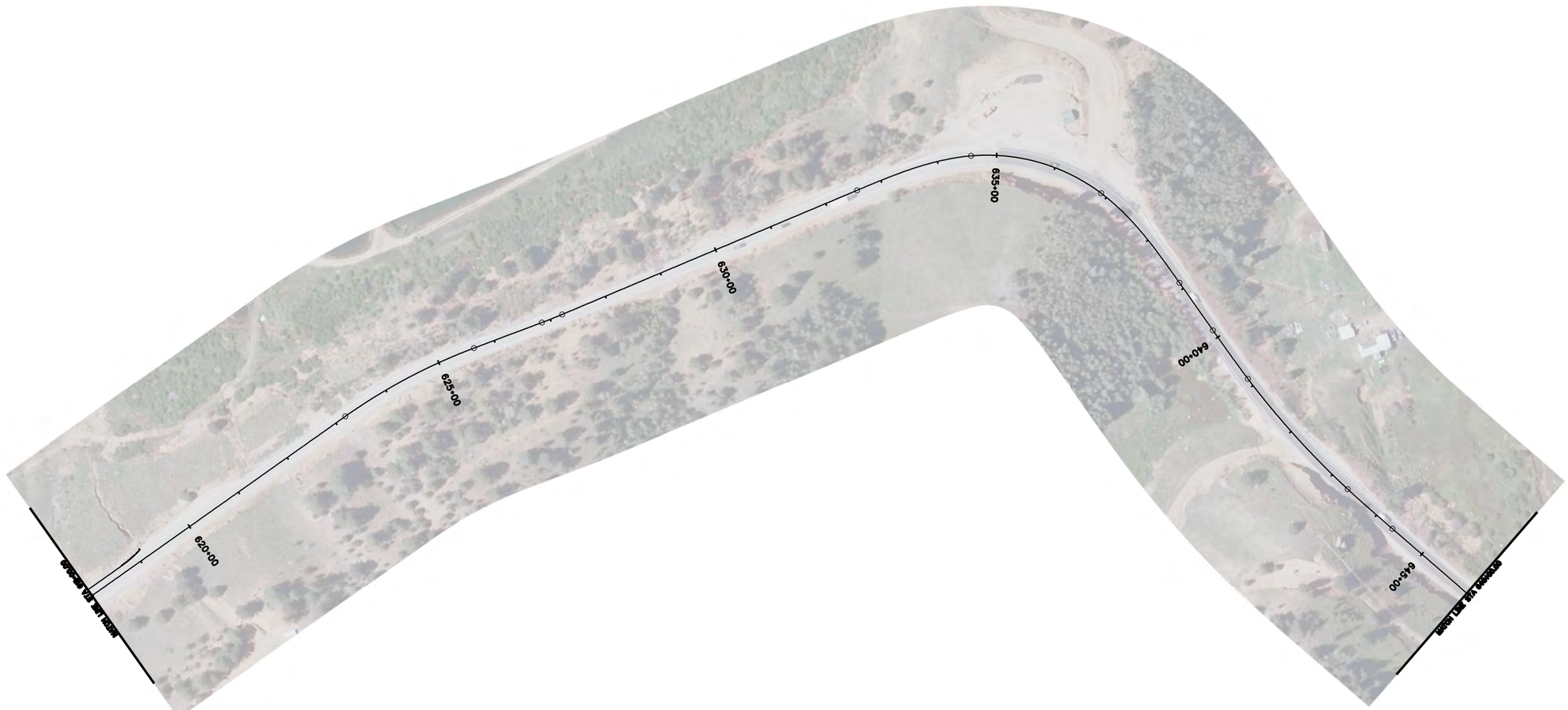


Know what's **below.**
Call before you dig.

gilberta 9:59:37 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan22.dgn

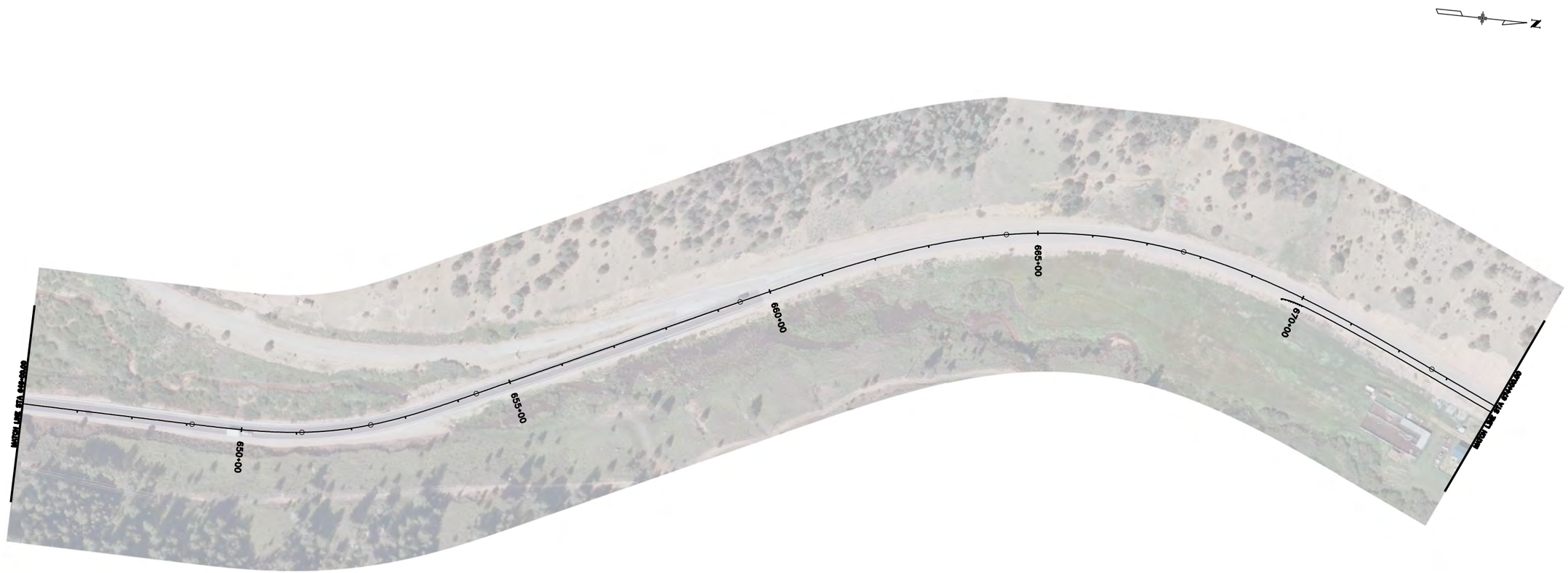
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan22.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:
Unit Information Unit Leader Initials					Region 2 DLH	Void:

PLAN SHEET				Project No./Code
				STA 067A-039
Designer: AWG	Structure Numbers			21254
Detailer:				
Sheet Subset: PLAN	Subset Sheets:	of		Sheet Number 55



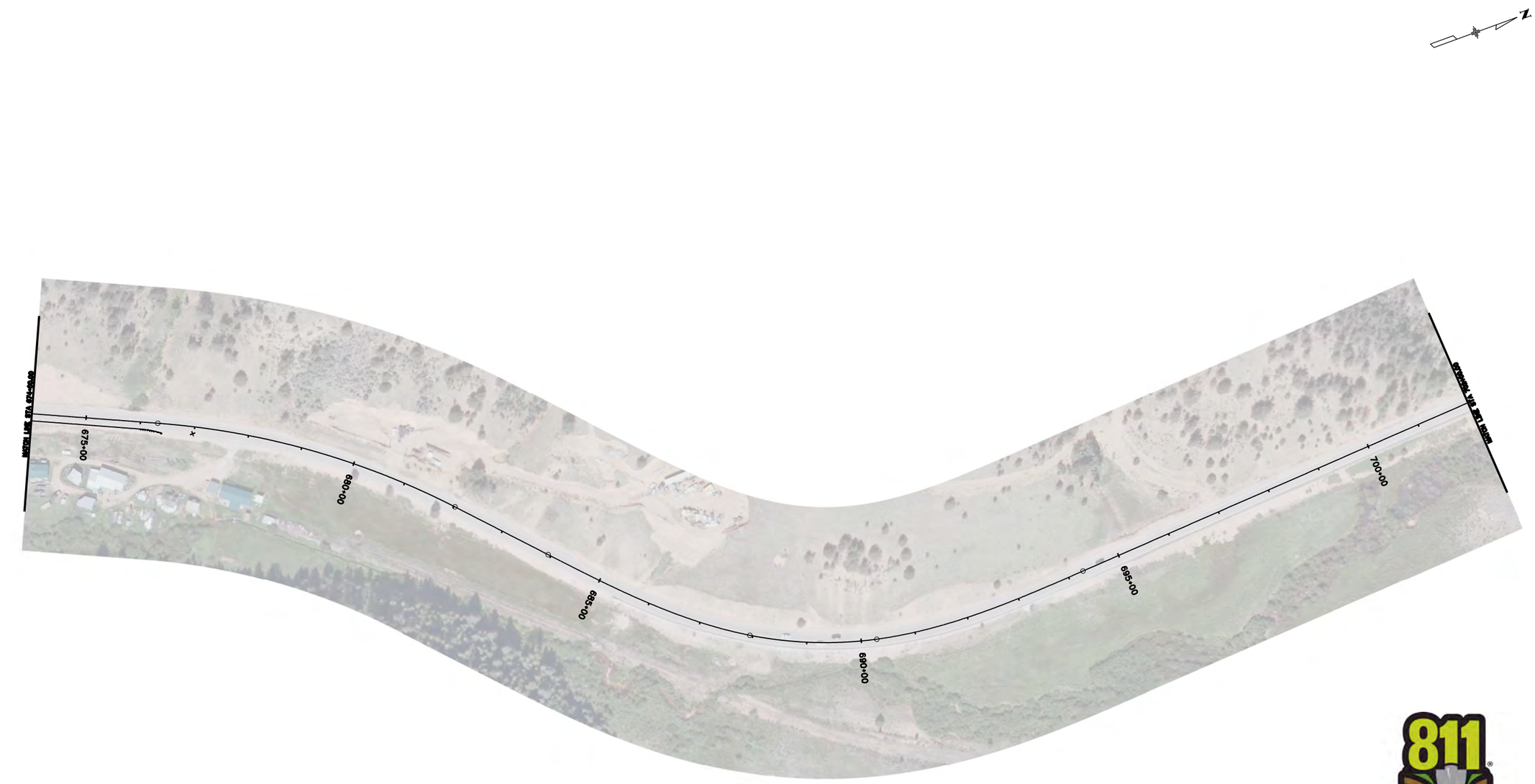
Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET		Project No./Code
File Name: 21254DES_Plan23.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:			STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:		Sheet Number 56
							Sheet Subset: PLAN	Subset Sheets: of	



Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan24.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer: / Sheet Subset: PLAN / Structure Numbers: / Subset Sheets: of	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:		Sheet Number 57

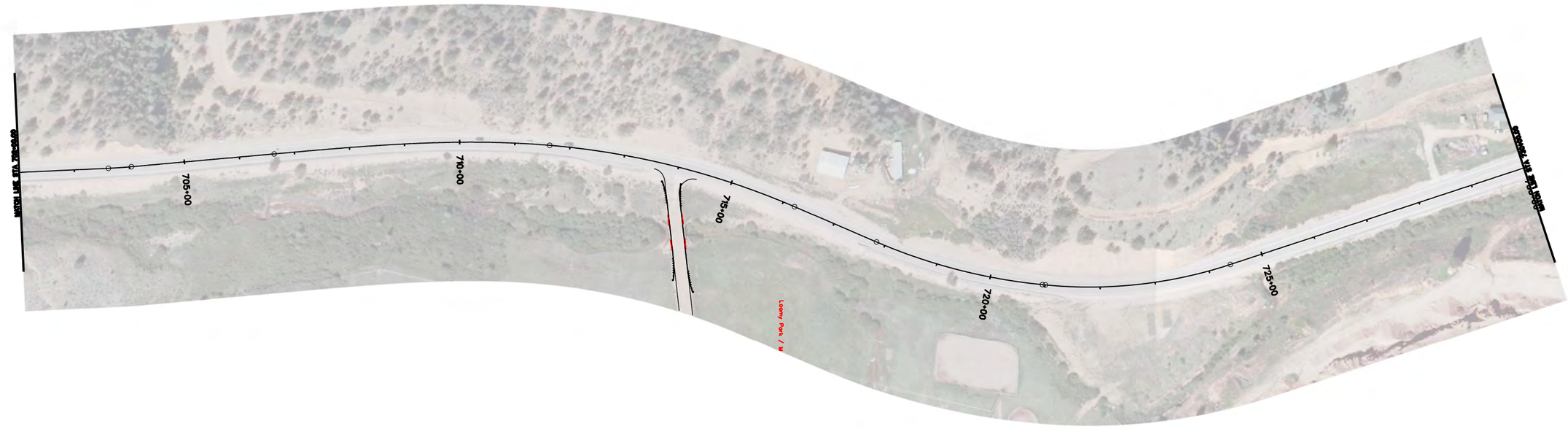


Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan25.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:
Unit Information Unit Leader Initials					Region 2 DLH	Void:

PLAN SHEET			Project No./Code
			STA 067A-039
Designer: AWG	Structure Numbers		21254
Detailer:			
Sheet Subset: PLAN	Subset Sheets: of		Sheet Number 58

gilberta 9:59:58 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan25.dgn



Know what's below. Call before you dig.

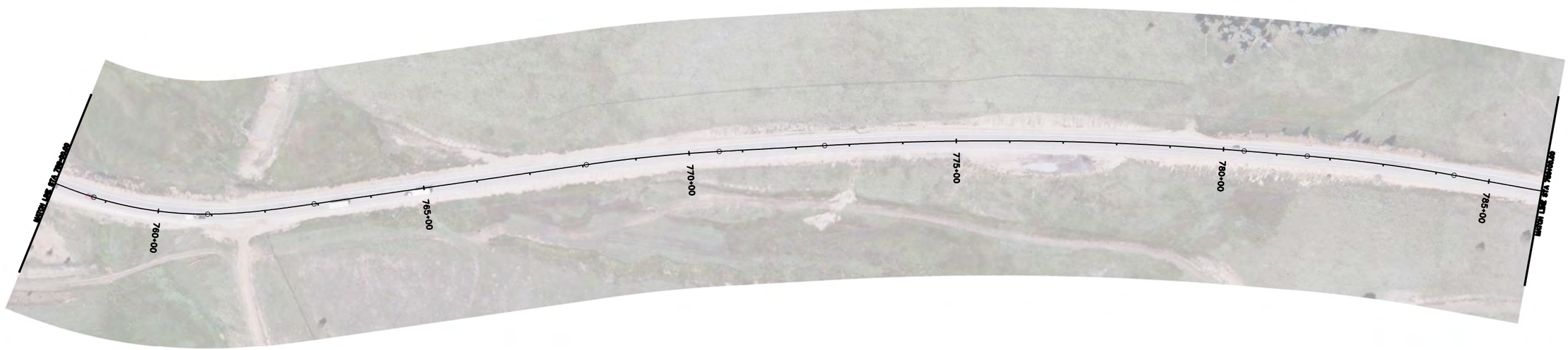
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan26.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted					Region 2 DLH	Revised:
Unit Information Unit Leader Initials						Void:

PLAN SHEET			Project No./Code
Designer: AWG	Structure Numbers		STA 067A-039
Detailer:			21254
Sheet Subset: PLAN	Subset Sheets: of		Sheet Number 59

gilberta 10:00:04 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan26.dgn

Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET			Project No./Code
File Name: 21254DES_Plan27.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:				STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	Structure Numbers		21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:			Sheet Number 60
							Sheet Subset: PLAN	Subset Sheets: of		



Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan28.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:
Unit Information Unit Leader Initials					Region 2 DLH	Void:

PLAN SHEET			Project No./Code
			STA 067A-039
Designer: AWG	Structure Numbers		21254
Detailer:			
Sheet Subset: PLAN	Subset Sheets: of		Sheet Number 61

gilberta 10:00:18 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan28.dgn

N

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan29.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:	Designer: AWG	STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN	Sheet Number 62
							Structure Numbers / Subset Sheets: of	

gilberta 10:00:25 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan29.dgn

Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan30.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN / Structure Numbers: / Subset Sheets: of	Sheet Number 63

gilberta 10:00:31 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan30.dgn

Know what's **below.**
Call before you dig.

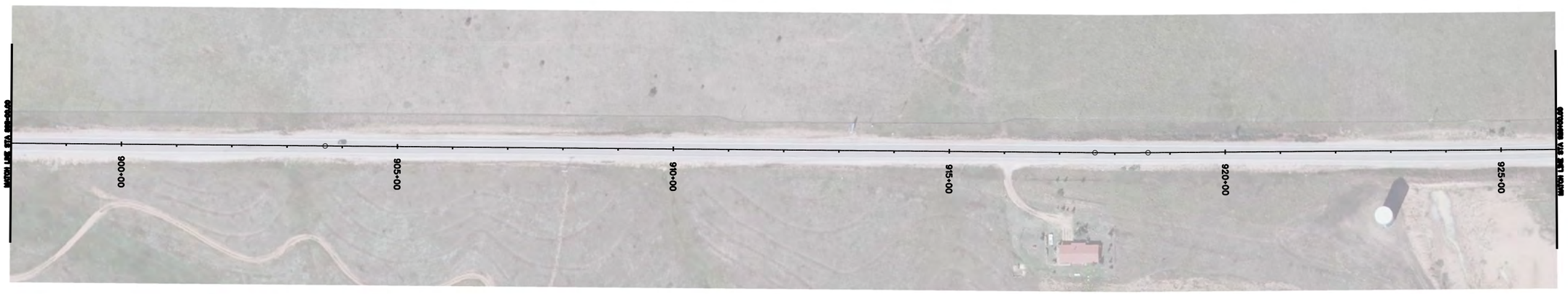
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan31.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 64

gilberta 10:00:37 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan31.dgn

Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan32.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN / Structure Numbers: / Subset Sheets: of	Sheet Number 65

gilberta 10:00:43 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan32.dgn



Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions		
File Name: 21254DES_Plan33.dgn	Date:	Comments	Init.
Horiz. Scale: 1:200 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			

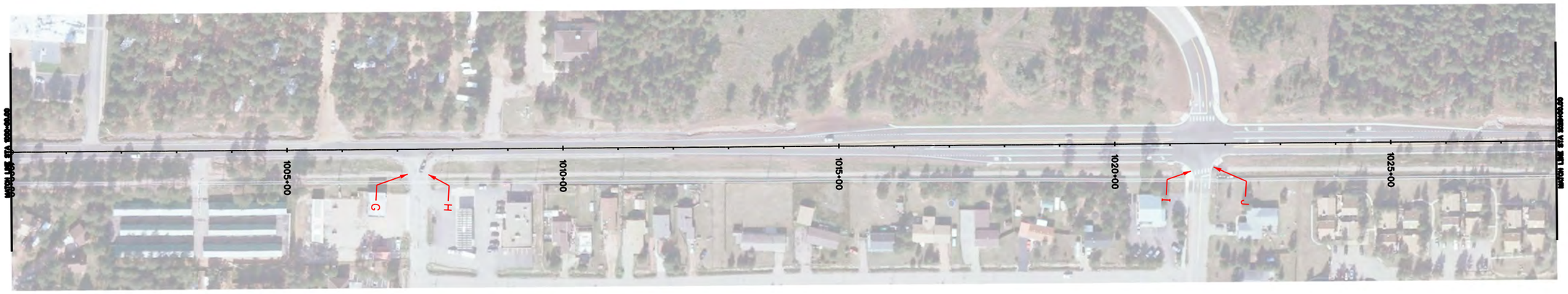
Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed	PLAN SHEET			Project No./Code
No Revisions:				STA 067A-039
Revised:	Designer: AWG	Structure Numbers		21254
Void:	Detailer:			Sheet Number 66
	Sheet Subset: PLAN	Subset Sheets: of		

Print Date: 2/27/2017	Sheet Revisions		
File Name: 21254DES_Plan34.dgn	Date:	Comments	Init.
Horiz. Scale: 1:200 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed	PLAN SHEET			Project No./Code
No Revisions:				STA 067A-039
Revised:	Designer: AWG	Structure Numbers		21254
Void:	Detailer:			Sheet Number 67
	Sheet Subset: PLAN	Subset Sheets: of		

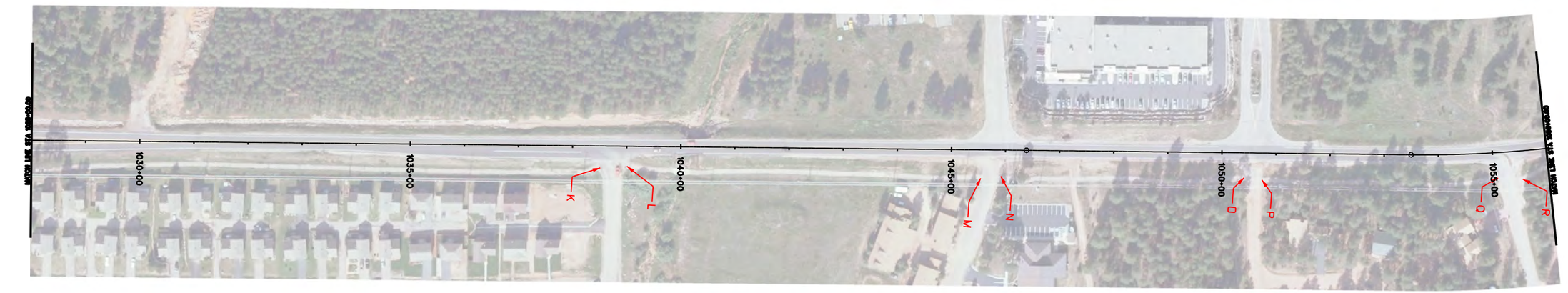


N

Know what's below.
Call before you dig.

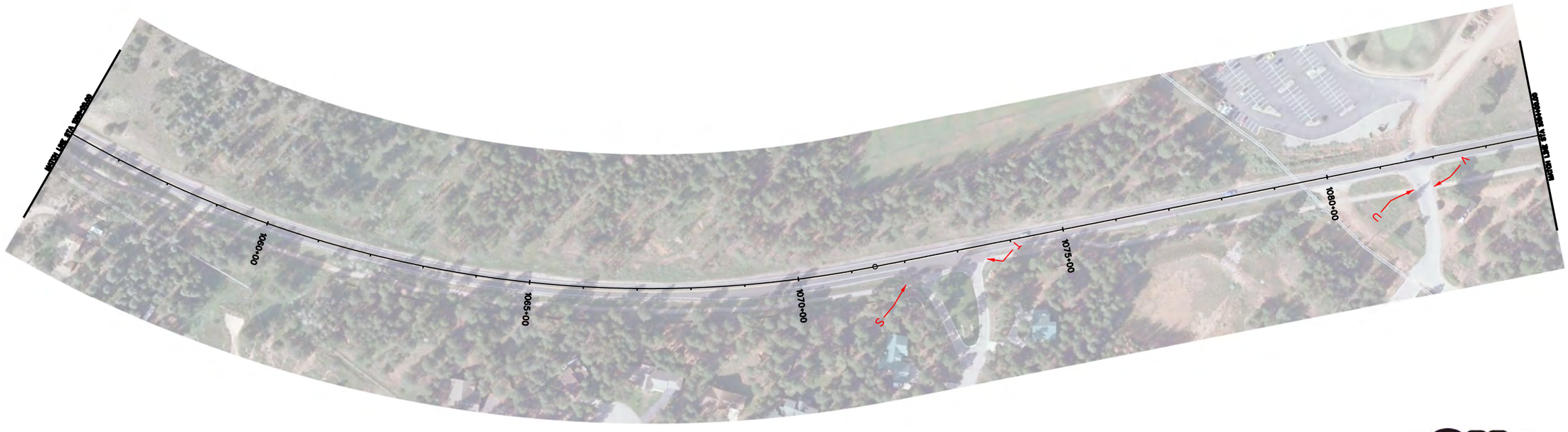
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan35.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 68

gilberta 10:00:58 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan35.dgn



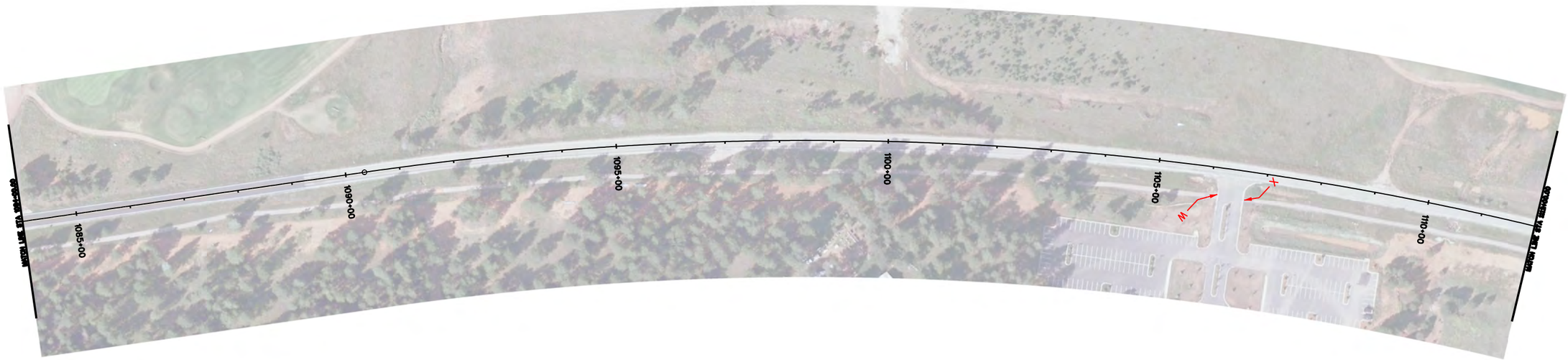
Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET		Project No./Code
File Name: 21254DES_Plan36.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:			STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:		Sheet Number 69
							Sheet Subset: PLAN	Subset Sheets: of	



Know what's below.
Call before you dig.

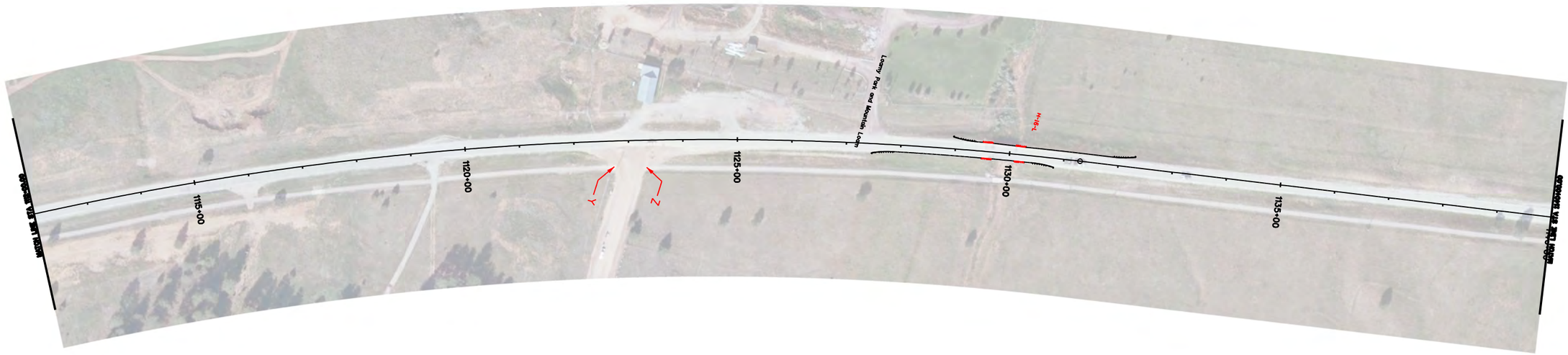
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan37.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 70



Know what's below.
Call before you dig.

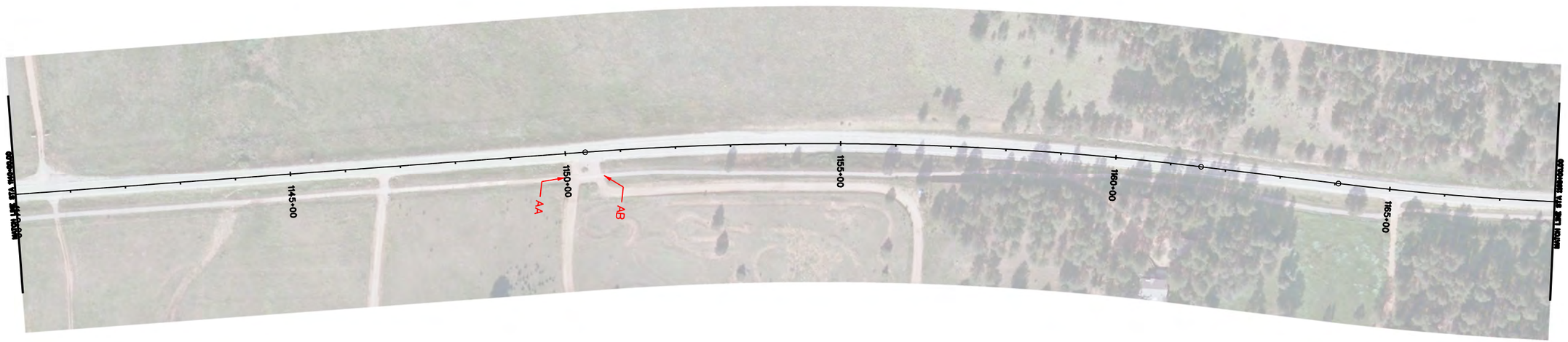
Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan38.dgn	Date: Comments Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

PLAN SHEET			
Designer: AWG	Structure Numbers		Project No./Code
Detailer:			STA 067A-039
Sheet Subset: PLAN	Subset Sheets: of		21254
			Sheet Number 71



Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan39.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 72



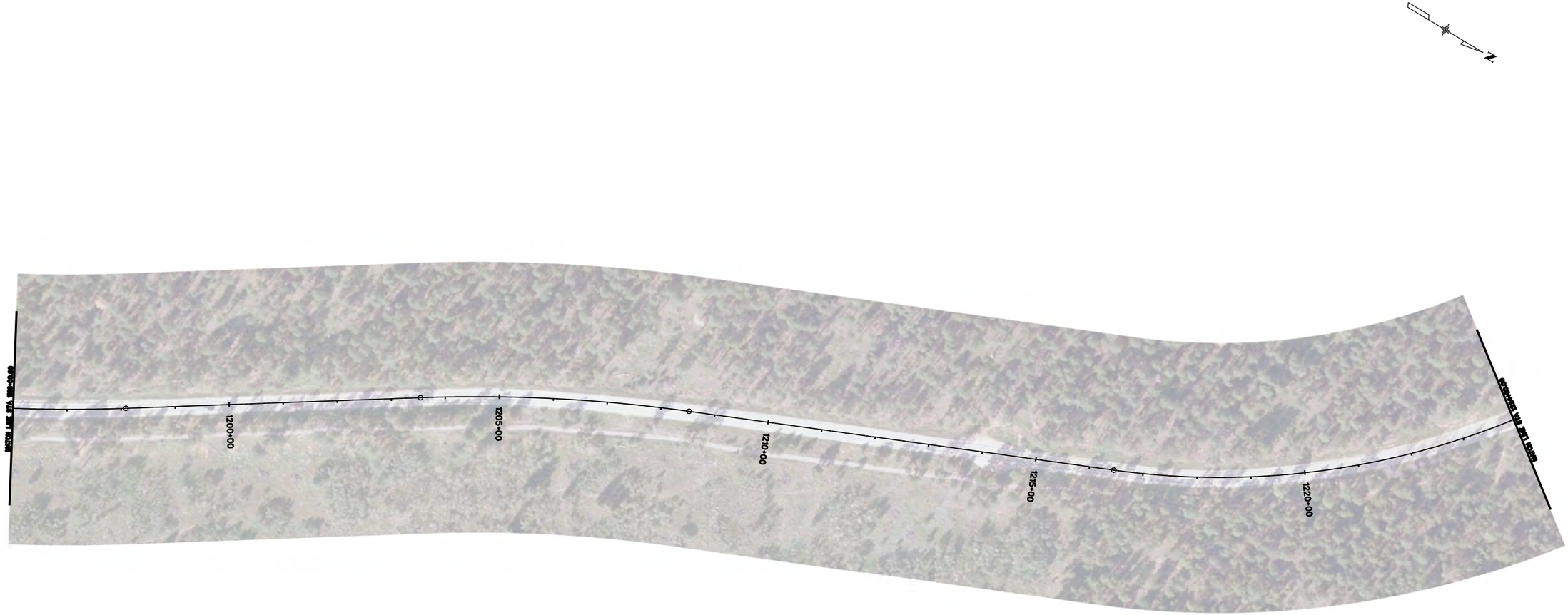
Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan40.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 73

Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan41.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:	Sheet Number 74
							Sheet Subset: PLAN	Subset Sheets: of

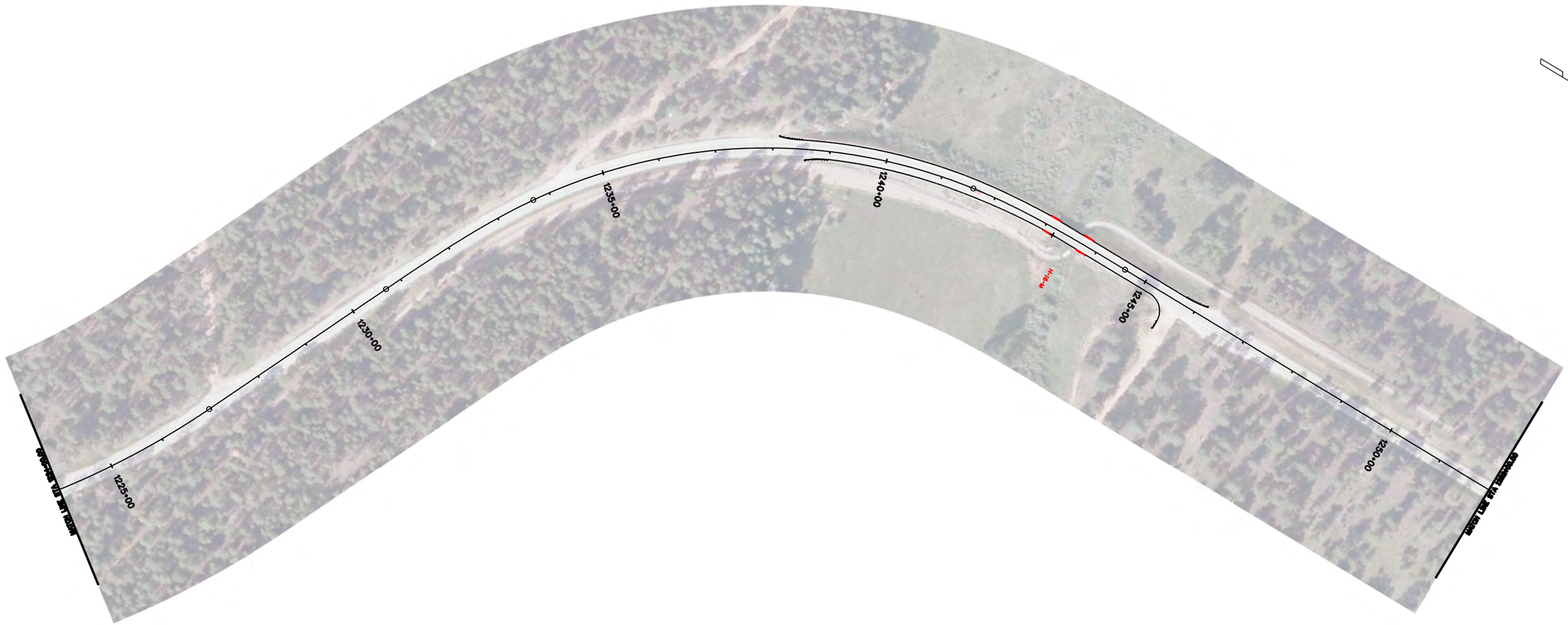
gilberta 10:01:37 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan41.dgn



Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan42.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted					Region 2 DLH	Revised:
Unit Information Unit Leader Initials						Void:

PLAN SHEET			Project No./Code
			STA 067A-039
Designer: AWG	Structure Numbers		21254
Detailer:			Sheet Number 75
Sheet Subset: PLAN	Subset Sheets: of		



Know what's below. Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan43.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:	Sheet Number 76
							Sheet Subset: PLAN	Subset Sheets: of

Structure Numbers

gilberta 10:01:50 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan43.dgn

Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan44.dgn	Date: Comments Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

PLAN SHEET

Designer:	AWG	Structure Numbers	
Detailer:			
Sheet Subset:	PLAN	Subset Sheets:	of

Project No./Code
STA 067A-039
21254
Sheet Number 77

811
Know what's below.
Call before you dig.

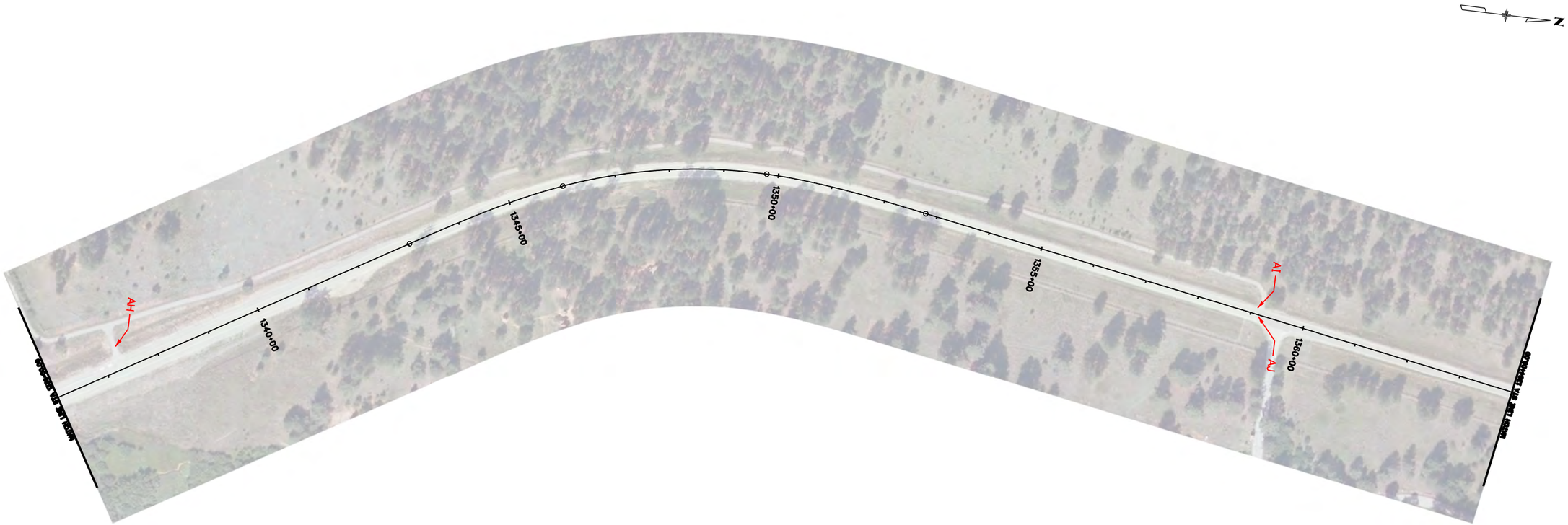
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan45.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 78

811
Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan46.dgn		Date:	Comments	Init.	CDOT 1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted					Region 2 DLH	Revised:
Unit Information Unit Leader Initials						Void:

PLAN SHEET			
Designer: AWG	Structure Numbers		
Detailer:			
Sheet Subset: PLAN	Subset Sheets: of		

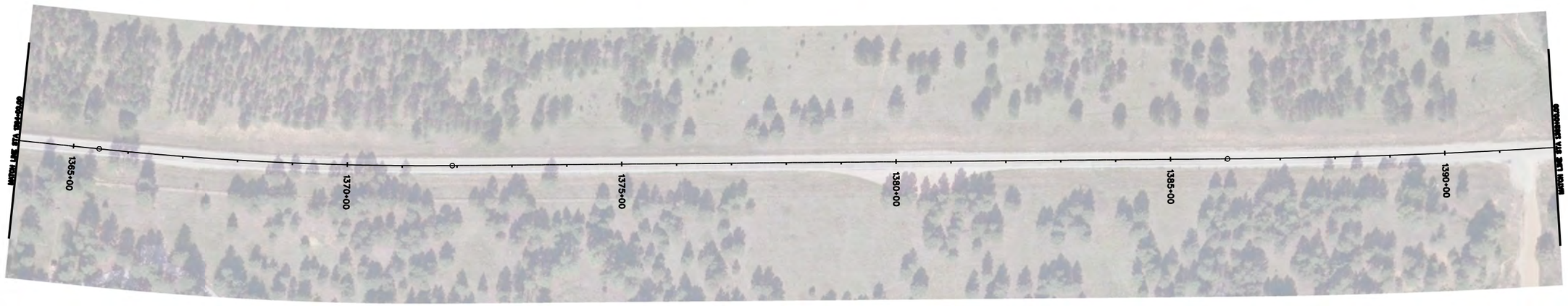
Project No./Code
STA 067A-039
21254
Sheet Number 79



Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan47.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 80

gilberta 10:02:15 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan47.dgn



Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan48.dgn	Date: Comments Init.	1480 Quail Lake Loop, Suite A	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Colorado Springs, CO 80906	Revised:
Unit Information Unit Leader Initials		Phone: 719-227-3231 FAX: 719-227-3298	Void:
		Region 2 DLH	

PLAN SHEET			
Designer: AWG	Structure Numbers		Project No./Code
Detailer:			STA 067A-039
Sheet Subset: PLAN	Subset Sheets: of		21254
			Sheet Number 81

gilberta 10:02:21 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan48.dgn

Know what's below. Call before you dig.

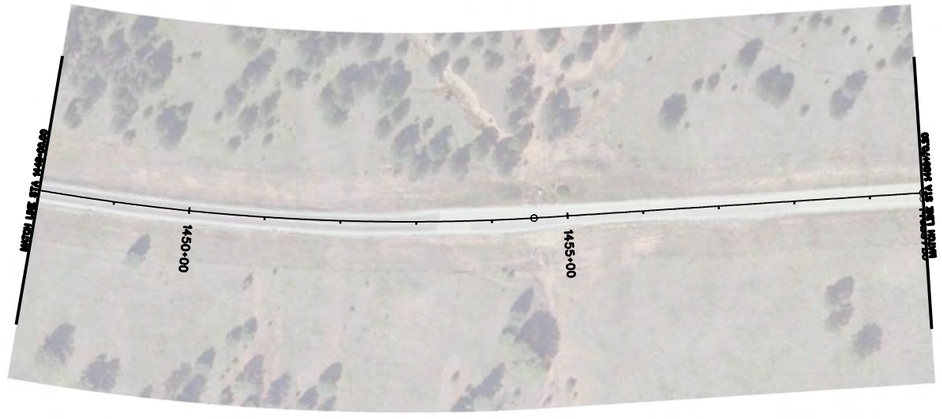
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan49.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN / Structure Numbers / Subset Sheets: of	Sheet Number 82

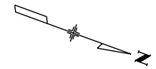
gilberta 10:02:27 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan49.dgn

Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan50.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer: / Sheet Subset: PLAN	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Structure Numbers / Subset Sheets: of	Sheet Number 83

gilberta 10:02:33 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan50.dgn





811
Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan51.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 84

gilberta 10:02:39 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan51.dgn

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan52.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer: / Sheet Subset: PLAN	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Structure Numbers / Subset Sheets: of	Sheet Number 85

gilberta 10:02:46 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\212540ES_Plan52.dgn

Know what's below.
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan53.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 86

gilberta 10:02:54 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan53.dgn

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan54.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer: / Sheet Subset: PLAN / Subset Sheets: of	Sheet Number 87

gilberta 10:03:01 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan54.dgn

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET		Project No./Code
File Name: 21254DES_Plan55.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:			STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:		Sheet Number 88
							Sheet Subset: PLAN	Subset Sheets: of	

gilberta 10:03:08 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan55.dgn

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan56.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer:	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Sheet Subset: PLAN / Structure Numbers / Subset Sheets: of	Sheet Number 89

gilberta 10:03:16 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan56.dgn

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan57.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer: / Sheet Subset: PLAN	Structure Numbers: 21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Subset Sheets: of	Sheet Number 90

gilberta 10:03:23 AM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Design\Drawings\21254DES_Plan57.dgn

Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan58.dgn	Date: Comments Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted		Region 2 DLH	Revised:
Unit Information Unit Leader Initials			Void:

PLAN SHEET			Project No./Code
			STA 067A-039
Designer: AWG	Structure Numbers		21254
Detailer:			
Sheet Subset: PLAN	Subset Sheets: of		Sheet Number 91

Know what's below. Call before you dig.

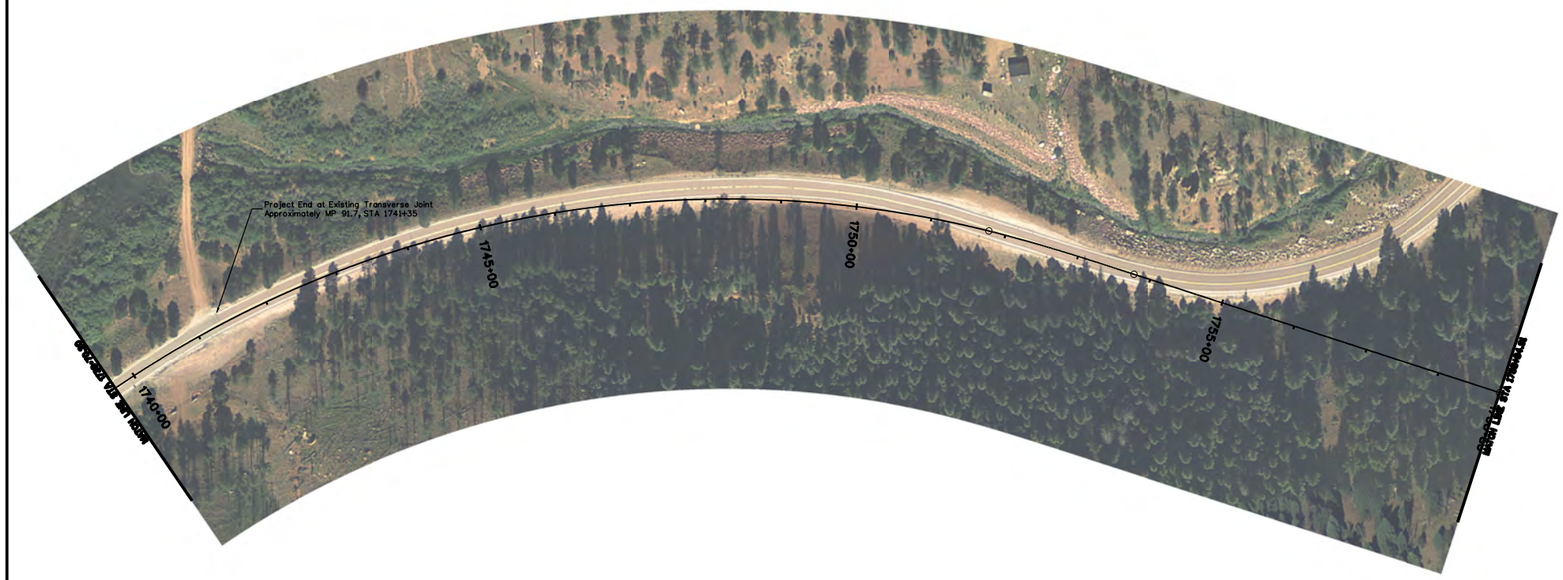
Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET	Project No./Code
File Name: 21254DES_Plan59.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:		STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG / Detailer: / Sheet Subset: PLAN	Structure Numbers: 21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Subset Sheets: of	Sheet Number 92

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET			Project No./Code
File Name: 21254DES_Plan60.dgn		Date:	Comments	Init.	CDOT	No Revisions:				STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted					1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	Revised:	Designer: AWG	Structure Numbers		21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:			
							Sheet Subset: PLAN	Subset Sheets: of		Sheet Number 93

Know what's **below.**
Call before you dig.

Print Date: 2/27/2017		Sheet Revisions			Colorado Department of Transportation	As Constructed	PLAN SHEET		Project No./Code
File Name: 21254DES_Plan61.dgn		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:			STA 067A-039
Horiz. Scale: 1:200 Vert. Scale: As Noted						Revised:	Designer: AWG	Structure Numbers	21254
Unit Information Unit Leader Initials					Region 2 DLH	Void:	Detailer:		Sheet Number 94
							Sheet Subset: PLAN	Subset Sheets: of	



N

Know what's below.
Call before you dig.

Print Date: 2/27/2017	Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: 21254DES_Plan62.dgn	Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3231 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:200 Vert. Scale: As Noted				Region 2 DLH	Revised:
Unit Information Unit Leader Initials					Void:

PLAN SHEET			
Designer: AWG	Structure Numbers		
Detailer:			
Sheet Subset: PLAN	Subset Sheets: of		

Project No./Code
STA 067A-039
21254
Sheet Number 95

Sign Number		Highway	Milepost	Direction	Location	Sign	Panel Size (in.) W	x	H	Background Color	Legend	202-00810 remove sign	202-00821 remove panel	614-00011 class 1 sf	614-00012 class 2 sf	614-00013 class 3 sf	614-01503 P	*	614-01573 P1	*	614-80001 Flashing Beacon (Solar Powered)
SH 67F - Northbound																					
1	a	67F	52.30	NB	RT	M3-1	24	x	12	WHT	NORTH			2							
	x	67F	52.30	NB	RT	M3-1	REMOVE			BLU	NORTH		1								
2	x	67F	53.14	NB	RT	W6-3	REMOVE			YEL	[two-way traffic]	1									
3	a	67F	54.38	NB	RT	S3-1	36	x	36	FYG	[school bus stop ahead symbol]				9						
	x	67F	54.38	NB	RT	S3-1	REMOVE			FYG	SCHOOL BUS STOP AHEAD		1								
4	x	67F	56.01	NB	RT	Special	REMOVE			WHT	PASSING LANE 500 FEET	1									
5	a	67F	56.04	NB	RT	D1-1a	60	x	18	GRN	Victor 7 ->**				7.5						
	x	67F	56.04	NB	RT	D1-1a	REMOVE			GRN	VICTOR 7 -->		1								
6	x	67F	56.19	NB	RT	Special	REMOVE			WHT	PASSING LANE 500 FT	1									
7	x	67F	56.31	NB	RT	R4-3	REMOVE			WHT	SLOWER TRAFFIC KEEP RIGHT	1									
8	a	67F	56.35	NB	RT	W9-1R	36	x	36	YEL	RIGHT LANE ENDS				9				1		
9	a	67F	56.43	NB	RT	W4-2R	36	x	36	YEL	[right lane ends]				9				1		
	x	67F	56.43	NB	RT	W9-1R	REMOVE			YEL	RIGHT LANE ENDS	1									
10	x	67F	56.51	NB	RT	W4-2R	REMOVE			YEL	[right lane ends]	1									
11	x	67F	57.37	NB	RT	Special	REMOVE			YEL	GROOVED CENTERLINE	1									
	y	67F	57.37	NB	RT	W7-3aP	REMOVE			YEL	NEXT 6 MILES										
12	x	67F	57.51	NB	RT	W8-52	REMOVE			YEL	FALLING ROCK	1									
13	a	67F	57.52	NB	RT	W8-14	36	x	36	YEL	FALLEN ROCKS				9				1		
14	x	67F	58.83	NB	RT	W1-5R	REMOVE			YEL	[winding road]	1									
	y	67F	58.83	NB	RT	W13-1P(30)	REMOVE			YEL	30 M.P.H.										
15	x	67F	59.44	NB	RT	Special	REMOVE			WHT	ENTERING DIVIDE FIRE PROTECTION DISTRICT	1									
16	a	67F	59.45	NB	RT	W8-14	36	x	36	YEL	FALLEN ROCKS				9				1		
	x	67F	59.45	NB	RT	W8-52	REMOVE			YEL	FALLING ROCK	1									
17	a	67F	62.04	NB	RT	W8-14	36	x	36	YEL	FALLEN ROCKS				9				1		
18	x	67F	62.05	NB	RT	W8-52	REMOVE			YEL	FALLING ROCK	1									
19	a	67F	62.15	NB	RT	W1-5R	36	x	36	YEL	[winding road]				9						
	x	67F	62.15	NB	RT	W1-5L	REMOVE			YEL	[winding road]		1								
20	a	67F	62.17	NB	RT	W12-55	36	x	36	YEL	MOTORCYCLES USE EXTREME CAUTION				9				1		
	b	67F	62.17	NB	RT	W7-3aP(2)	24	x	18	YEL	NEXT 2 MILES				3						
21	x	67F	62.71	NB	RT	Special	REMOVE			YEL	EMERGENCY VEHICLES AND TRUCKS ENTERING HIGHWAY	1									
22	a	67F	62.87	NB	RT	W11-8	36	x	36	YEL	[emergency vehicle]				9				1		
23	x	67F	64.24	NB	RT	W8-52	REMOVE			YEL	FALLING ROCK	1									
24	x	67F	64.63	NB	RT	W1-2L	REMOVE			YEL	[curve symbol]	1									
	y	67F	64.63	NB	RT	W13-1P(40)	REMOVE			YEL	40 M.P.H.										
25	a	67F	64.73	NB	RT	W1-2L	36	x	36	YEL	[curve symbol]				9				1		
	b	67F	64.73	NB	RT	W13-1P(40)	24	x	24	YEL	40 MPH				4						
26	x	67F	65.28	NB	RT	Special	REMOVE			GRN	ROCKY MOUNTAIN CAMP ->	1									
27	a	67F	65.32	WB	RT	R1-1	36	x	36	RED	STOP				9				1		
	b	67F	65.32	NB	RT	D3-1	30	x	12	GRN	CR 62**				2.5					T	
	c	67F	65.32	SB	LT	D3-1	30	x	12	GRN	CR 62**				2.5						
	x	67F	65.32	WB	RT	R1-1	REMOVE			RED	STOP	1									
28	a	67F	65.62	NB	RT	W2-7L	36	x	36	YEL	[offset side road]				9				1		
	x	67F	65.62	NB	RT	R3-7L	REMOVE			WHT	LEFT LANE MUST TURN LEFT	1									
29	a	67F	65.66	NB	RT	R3-7L	36	x	36	WHT	LEFT LANE MUST TURN LEFT				9				1		
	x	67F	65.66	NB	RT	W12-54	REMOVE			YEL	TRUCKS ENTERING HIGHWAY	1									
	y	67F	65.66	NB	RT	W16-2aP(500)	REMOVE			YEL	500 FT										
30	x	67F	65.71	NB	RT	W12-54	REMOVE			YEL	TRUCKS ENTERING HIGHWAY	1									
	y	67F	65.71	NB	RT	W16-2aP(250)	REMOVE			YEL	250 FT										
31	x	67F	65.91	NB	RT	Special	REMOVE			YEL	GROOVED CENTERLINE	1									
	y	67F	65.91	NB	RT	W7-3aP	REMOVE			YEL	NEXT 1 MILE										

Print Date: 2/9/2017
File Name: 21254_SignTab1.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information MJ

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SH 67F - Northbound
Sign Tabulation

Designer: EJL
Detailer: EJL
Sheet Subset: Sign
Structure Numbers: .
.
Subset Sheets: 1 of 8

Project No./Code
STA 067A-039
21254
Sheet Number 96

Sign Number		Highway	Milepost	Direction	Location	Sign	Panel Size (in.) W	x	H	Background Color	Legend	202-00810 remove sign	202-00821 remove panel	614-00011 class 1 sf	614-00012 class 2 sf	614-00013 class 3 sf	614-01503 P	*	614-01573 P1	*	614-80001 Flashing Beacon (Solar Powered)
SH 67F - Southbound																					
32	x	67F	52.34	SB	RT	Special	REMOVE			WHT	UNLESS OTHERWISE POSTED		1								
33	a	67F	52.35	SB	RT	D50-3	72	x	30	GRN	Cripple Creek CITY LIMIT ELEV 9494 FT**				15						
	x	67F	52.35	SB	RT	D50-3	REMOVE			GRN	Cripple Creek City Limit Elev 9494 Ft		1								
34	x	67F	53.07	SB	RT	W6-3	REMOVE			YEL	[two-way traffic]	1									
35	a	67F	54.24	SB	RT	W1-4R	36	x	36	YEL	[reverse curve]				9						
	b	67F	54.24	SB	RT	W13-1P(35)	24	x	24	YEL	35 MPH				4						
	x	67F	54.24	SB	RT	W1-3R	REMOVE			YEL	[reverse turn]		1								
	y	67F	54.24	SB	RT	W13-1P(35)	REMOVE			YEL	35 M.P.H.		1								
36	a	67F	56.30	SB	RT	R3-7L	36	x	36	WHT	LEFT LANE MUST TURN LEFT				9				1		
37	x	67F	56.34	SB	RT	R3-8	REMOVE			WHT	[left only, straight]	1									
38	a	67F	56.48	SB	RT	Special	132	x	72	GRN	CR 81 Victor \, SH 67 Cripple Creek Victor /**					66					
	x	67F	56.48	SB	RT	Special	REMOVE			GRN	CR 81 VICTOR \, SH 67 CRIPPLE CREEK VICTOR /		1								
39	a	67F	59.30	SB	RT	W1-5R	36	x	36	YEL	[winding road]				9						
	b	67F	59.30	SB	RT	W13-1P(30)	24	x	24	YEL	30 MPH				4						
	x	67F	59.30	SB	RT	W1-5L	REMOVE			YEL	[winding road]		1								
	y	67F	59.30	SB	RT	W13-1P(30)	REMOVE			YEL	30 M.P.H.		1								
40	a	67F	59.45	SB	RT	R4-14	30	x	42	WHT	SLOW VEHICLES MUST TURN OUT /				8.75				1		
41	x	67F	59.62	SB	RT	Special	REMOVE			YEL	SLOW VEHICLE PULLOUT 1000 FT	1									
42	a	67F	59.79	SB	RT	R4-12	42	x	24	WHT	SLOW VEHICLES WITH 5 OR MORE FOLLOWING VEHICLES MUST USE TURN-OUT				7				1		
43	a	67F	59.89	SB	RT	S3-1	36	x	36	FYG	[school bus stop ahead symbol]				9						
	x	67F	59.89	SB	RT	S3-1	REMOVE			FYG	SCHOOL BUS STOP AHEAD		1								
44	a	67F	59.96	SB	RT	D17-2	72	x	42	GRN	SLOW VEHICLE TURN OUT 1/2 MILE**				21				2		
45	a	67F	61.54	SB	RT	W8-14	36	x	36	YEL	FALLEN ROCKS			9							
	x	67F	61.54	SB	RT	W8-52	REMOVE			YEL	FALLING ROCK		1								
46	a	67F	63.06	SB	RT	W11-8	36	x	36	YEL	[emergency vehicle]				9				1		
47	x	67F	63.31	SB	RT	Special	REMOVE			YEL	EMERGENCY VEHICLES AND TRUCKS ENTERING HIGHWAY	1									
48	a	67F	63.33	SB	RT	W1-11R	36	x	36	YEL	[hairpin curve]				9				1		
	b	67F	63.33	SB	RT	W13-1P(30)	24	x	24	YEL	30 MPH				4						
49	a	67F	63.48	SB	RT	R4-14	30	x	42	WHT	SLOW VEHICLES MUST TURN OUT /				8.75				1		
50	a	67F	63.51	SB	RT	W1-2R	36	x	36	YEL	[curve symbol]				9						
	x	67F	63.51	SB	RT	W1-11R	REMOVE			YEL	[hairpin curve]		1								
	y	67F	63.51	SB	RT	W13-1P(30)	REMOVE			YEL	30 M.P.H.		1								
51	a	67F	63.79	SB	RT	R4-12	42	x	24	WHT	SLOW VEHICLES WITH 5 OR MORE FOLLOWING VEHICLES MUST USE TURN-OUT				7				1		
52	a	67F	63.89	SB	RT	D17-2	72	x	42	GRN	SLOW VEHICLE TURN OUT 1/2 MILE**				21				2		
53	a	67F	64.04	SB	RT	W12-55	36	x	36	YEL	MOTORCYCLES USE EXTREME CAUTION				9				1		
	b	67F	64.04	SB	RT	W7-3aP(2)	24	x	18	YEL	NEXT 2 MILES				3						
54	x	67F	64.14	SB	RT	W8-52	REMOVE			YEL	FALLING ROCK	1									
55	x	67F	64.20	SB	RT	Special	REMOVE			YEL	GROOVED CENTERLINE	1									
	y	67F	64.20	SB	RT	W7-3aP	REMOVE			YEL	NEXT 6 MILES										
56	a	67F	64.24	SB	RT	M6-2L	21	x	15	WHT	\			2.19							
	x	67F	64.24	SB	RT	M6-1L	REMOVE			WHT	<-		1								
57	x	67F	65.36	SB	RT	Special	REMOVE			BRN	ROCKY MOUNTAIN CAMP <-	1									
58	a	67F	65.39	SB	RT	W2-2L	36	x	36	YEL	[side road symbol]				9				1		
	b	67F	65.39	SB	RT	W16-8P	30	x	12	YEL	CR 62**				2.5						
59	x	67F	65.52	SB	RT	W8-52	REMOVE			YEL	FALLING ROCK	1									
60	x	67F	65.79	SB	RT	W12-54	REMOVE			YEL	TRUCKS ENTERING HIGHWAY	1									
	y	67F	65.79	SB	RT	W16-2aP(250)	REMOVE			YEL	250 FEET										
61	x	67F	65.82	SB	RT	Special	REMOVE			BRN	PARK ENTRANCE 500 FEET	1									
62	a	67F	65.83	SB	RT	W2-7L	36	x	36	YEL	[offset side road]				9				1		
	x	67F	65.83	SB	RT	W12-54	REMOVE			YEL	TRUCKS ENTERING HIGHWAY	1									
	y	67F	65.83	SB	RT	W16-2aP(500)	REMOVE			YEL	500 FEET										
63	x	67F	65.84	SB	RT	R3-7R	REMOVE			WHT	RIGHT LANE MUST TURN RIGHT	1									
64	x	67F	67.31	SB	RT	Special	REMOVE			YEL	GROOVED CENTERLINE	1									
	y	67F	67.31	SB	RT	W7-3aP	REMOVE			YEL	NEXT 1 MILE										

Sign Number		Highway	Milepost	Direction	Location	Sign	Panel Size (in.) W	x	H	Background Color	Legend	202-00810 remove sign	202-00821 remove panel	614-00011 class 1 sf	614-00012 class 2 sf	614-00013 class 3 sf	614-01503 P	*	614-01573 P1	*	614-80001 Flashing Beacon (Solar Powered)
SH 67D - Northbound																					
65	a	67D	77.94	NB	RT	R3-7R	30	x	30	WHT	RIGHT LANE MUST TURN RIGHT				6.25						
	x	67D	77.94	NB	RT	R3-5R	REMOVE			WHT	[right arrow] ONLY		1								
66	a	67D	78.00	NB	RT	R3-7R	30	x	30	WHT	RIGHT LANE MUST TURN RIGHT				6.25						
	x	67D	78.00	NB	RT	R3-5R	REMOVE			WHT	[right arrow] ONLY		1								
67	x	67D	79.54	NB	RT	Special	REMOVE			YEL	Caution Driveways Ahead	1									
68	a	67D	80.14	NB	RT	StrID	12	x	18	WHT	H 16 L 80.14			1.5			1				
	x	67D	80.14	NB	RT	StrID	REMOVE			WHT	H 16 L	1									
69	x	67D	80.88	NB	RT	W11-3	REMOVE			YEL	[deer]	1									
70	a	67D	80.94	NB	RT	RS-034	24	x	24	BRN	P			4			1				
	b	67D	80.94	NB	RT	M6-1R	21		15	BRN	->			2.19							
	x	67D	80.94	NB	RT	Special	REMOVE			WHT	P	1									
	y	67D	80.94	NB	RT	M6-1R	REMOVE			WHT	->										
71	x	67D	81.84	NB	RT	W1-2R	REMOVE			YEL	[curve symbol]	1									
72	a	67D	81.89	NB	RT	W1-2R	36	x	36	YEL	[curve symbol]				9				1		
73	a	67D	82.13	NB	RT	StrID	12	x	18	WHT	H 16 M 82.13			1.5			1				
	x	67D	82.13	NB	RT	StrID	REMOVE			WHT	H 16 M	1									
74	x	67D	83.33	NB	RT	W11-1	REMOVE			FYG	[bicycle]	1									
	y	67D	83.33	NB	RT	W16-7PL	REMOVE			FYG	[downward diagonal arrow]										
75	x	67D	83.59	NB	RT	W11-1	REMOVE			FYG	[bicycle]	1									
	y	67D	83.59	NB	RT	W16-1P	REMOVE			FYG	SHARE THE ROAD										
76	a	67D	83.64	NB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	83.64	NB	RT	W16-9P	24	x	12	FYG	AHEAD				2						
77	a	67D	83.71	NB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	83.71	NB	RT	W16-7PL	24	x	12	FYG	[downward diagonal arrow]				2						
78	a	67D	83.90	NB	RT	StrID	12	x	18	WHT	H 16 I 83.87			1.5			1				
	x	67D	83.90	NB	RT	StrID	REMOVE			WHT	H 16 I	1									
79	a	67D	84.01	NB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	84.01	NB	RT	W16-9P	24	x	12	FYG	AHEAD				2						
80	a	67D	84.08	NB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	84.08	NB	RT	W16-7PL	24	x	12	FYG	[downward diagonal arrow]				2						
81	a	67D	84.39	NB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	84.39	NB	RT	W16-9P	24	x	12	FYG	AHEAD				2						
82	x	67D	84.40	NB	RT	W11-3	REMOVE			YEL	[deer]	1									
83	x	67D	84.44	NB	RT	W11-1	REMOVE			FYG	[bicycle]	1									
	y	67D	84.44	NB	RT	W16-7PL	REMOVE			FYG	[downward diagonal arrow]										
84	a	67D	84.46	NB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	84.46	NB	RT	W16-7PL	24	x	12	FYG	[downward diagonal arrow]				2						
85	a	67D	84.50	NB	RT	W11-1	36	x	36	FYG	[bicycle]				9				1		
	x	67D	84.50	NB	RT	W16-1P	24	x	30	FYG	SHARE THE ROAD				5						
86	a	67D	87.15	NB	RT	I-2	48	x	30	GRN	Douglas County**				10				1		
	x	67D	87.15	NB	RT	I-2	REMOVE			GRN	DOUGLAS COUNTY	1									
87	x	67D	87.24	NB	RT	W1-2L	REMOVE			YEL	[curve symbol]	1									
88	a	67D	87.33	NB	RT	W1-2L	36	x	36	YEL	[curve symbol]				9				1		
89	a	67D	87.60	NB	RT	Special	60	x	48	GRN	CLIMB TO SAFETY! IN CASE OF A FLASH FLOOD**				20				1		
	x	67D	87.60	NB	RT	Special	REMOVE			YEL	WARNING IN CASE OF FLOODING CLIMB TO HIGHER GROUND IMMEDIATELY DO NOT ATTEMPT	1									

Print Date: 2/9/2017
File Name: 21254_SignTab3.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information MJ

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SH 67D - Northbound
Sign Tabulation

Designer: EJL
Detailer: EJL
Sheet Subset: Sign
Structure Numbers: .
Subset Sheets: 3 of 8

Project No./Code
STA 067A-039
21254
Sheet Number 98

Sign Number		Highway	Milepost	Direction	Location	Sign	Panel Size (in.) W	x	H	Background Color	Legend	202-00810 remove sign	202-00821 remove panel	614-00011 class 1 sf	614-00012 class 2 sf	614-00013 class 3 sf	614-01503 P	*	614-01573 P1	*	614-80001 Flashing Beacon (Solar Powered)
SH 67D - Northbound																					
90	x	67D	87.95	NB	RT	W1-2L	REMOVE			YEL	[curve symbol]	1									
91	a	67D	87.96	NB	RT	R2-1(50)	36	x	48	WHT	SPEED LIMIT 50				12				1		
92	x	67D	87.98	NB	RT	R2-1(50)	REMOVE			WHT	SPEED LIMIT 50	1									
93	a	67D	87.99	NB	RT	W1-4L	36	x	36	YEL	[reverse curve]				9				1		
94	x	67D	88.23	NB	RT	W1-2R	REMOVE			YEL	[curve symbol]	1									
95	x	67D	90.04	NB	RT	Special	REMOVE			GRN	TROUT CREEK ROAD ->	1									
96	a	67D	90.06	NB	RT	W2-2R	36	x	36	YEL	[side road symbol]				9				1		
	x	67D	90.06	NB	RT	W16-8P	48	x	12	YEL	Trout Creek Rd**				4						
97	x	67D	90.18	NB	RT	W8-52	REMOVE			YEL	FALLING ROCK	1									
98	a	67D	90.22	NB	RT	W12-55	36	x	36	YEL	MOTORCYCLES USE EXTREME CAUTION				9				1		1
	b	67D	90.22	NB	RT	W7-3aP(2)	24	x	18	YEL	NEXT 2 MILES				3						
	x	67D	90.22	NB	RT	W12-55	REMOVE			YEL	MOTOR CYCLES USE EXTREME CAUTION	1									
99	a	67D	90.29	NB	RT	W1-8L	24	x	30	YEL	[chevron] (install chevrons at 80-foot spacings)			5			1				
	b	67D	90.29	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
100	x	67D	90.30	NB	RT	W1-8L	REMOVE			YEL	[chevron]	1									
	y	67D	90.30	SB	LT	W1-8R	REMOVE			YEL	[chevron]										
101	a	67D	90.305	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.305	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
102	a	67D	90.32	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.32	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
	x	67D	90.32	NB	RT	W1-8L	REMOVE			YEL	[chevron]	1									
	y	67D	90.32	SB	LT	W1-8R	REMOVE			YEL	[chevron]										
103	a	67D	90.335	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.335	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
104	x	67D	90.34	NB	RT	W1-8L	REMOVE			YEL	[chevron]	1									
	y	67D	90.34	SB	LT	W1-8R	REMOVE			YEL	[chevron]										
105	a	67D	90.35	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.35	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
106	x	67D	90.36	NB	RT	W1-8L	REMOVE			YEL	[chevron]	1									
	y	67D	90.36	SB	LT	W1-8R	REMOVE			YEL	[chevron]										
107	a	67D	90.365	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.365	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
108	a	67D	90.68	NB	RT	W1-11L	36	x	36	YEL	[hairpin curve]				9				1		
	b	67D	90.68	NB	RT	W13-1P(25)	24	x	24	YEL	25 MPH				4						
	x	67D	90.68	NB	RT	W1-3L	REMOVE			YEL	[reverse turn]	1									
	y	67D	90.68	NB	RT	W13-1P(25)	REMOVE			YEL	25 M.P.H.										
109	a	67D	90.695	NB	RT	W1-8L	24	x	30	YEL	[chevron] (install chevrons at 80-foot spacings)			5			1				
	b	67D	90.695	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
110	x	67D	90.70	NB	RT	W1-8L	REMOVE			YEL	[chevron]	1									
	y	67D	90.70	SB	LT	W1-8R	REMOVE			YEL	[chevron]										
111	a	67D	90.71	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.71	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
112	a	67D	90.725	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.725	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
	x	67D	90.725	NB	RT	W1-8L	REMOVE			YEL	[chevron]	1									
	y	67D	90.725	SB	LT	W1-8R	REMOVE			YEL	[chevron]										

Sign Number		Highway	Milepost	Direction	Location	Sign	Panel Size (in.) W	x	H	Background Color	Legend	202-00810 remove sign	202-00821 remove panel	614-00011 class 1 sf	614-00012 class 2 sf	614-00013 class 3 sf	614-01503 P	*	614-01573 P1	*	614-80001 Flashing Beacon (Solar Powered)
SH 67D - Northbound																					
113	a	67D	90.74	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.74	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
114	x	67D	90.745	NB	RT	W1-8L	REMOVE			YEL	[chevron]	1									
	y	67D	90.745	SB	LT	W1-8R	REMOVE			YEL	[chevron]										
115	a	67D	90.755	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.755	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
116	x	67D	90.765	NB	RT	W1-8L	REMOVE			YEL	[chevron]	1									
	y	67D	90.765	SB	LT	W1-8R	REMOVE			YEL	[chevron]										
117	a	67D	90.77	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.77	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
118	a	67D	90.785	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.785	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
119	a	67D	90.80	NB	RT	W1-1R	36	x	36	YEL	[turn symbol]				9				1		
	b	67D	90.80	NB	RT	W13-1P(30)	24	x	24	YEL	30 MPH				4						
120	x	67D	90.88	NB	RT	W11-8	REMOVE			YEL	[emergency vehicle]	1									
121	a	67D	91.14	NB	RT	W11-8	36	x	36	YEL	[emergency vehicle]				9				1		
122	x	67D	91.73	NB	RT	W12-55	REMOVE			YEL	MOTOR CYCLES USE EXTREME CAUTION	1									
123	a	67D	91.82	NB	RT	W12-55	36	x	36	YEL	MOTORCYCLES USE EXTREME CAUTION				9				1		1
	b	67D	91.82	NB	RT	W7-3aP(1/2)	24	x	18	YEL	NEXT 1/2 MILE				3						
124	a	67D	91.92	NB	RT	special	60	x	48	GRN	CLIMB TO SAFETY! IN CASE OF A FLASH FLOOD**				20				1		
	x	67D	91.92	NB	RT	special	REMOVE			GRN	CLIMB TO SAFETY IN CASE OF FLASH FLOOD	1									
125	a	67D	91.94	NB	RT	W1-8L	24	x	30	YEL	[chevron] (install chevrons at 80-foot spacings)			5			1				
	b	67D	91.94	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
126	a	67D	91.955	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	91.955	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
127	a	67D	91.97	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	91.97	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
128	a	67D	91.985	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	91.985	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
129	a	67D	92.00	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.00	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
130	a	67D	92.015	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.015	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
131	a	67D	92.16	NB	RT	W1-8L	24	x	30	YEL	[chevron] (install chevrons at 80-foot spacings)			5			1				
	b	67D	92.16	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
132	a	67D	92.175	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.175	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
133	a	67D	92.19	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.19	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
134	a	67D	92.205	NB	RT	W1-8L	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.205	SB	LT	W1-8R	24	x	30	YEL	[chevron]			5							
135	a	67D	92.34	NB	RT	W1-2L	36	x	36	YEL	[curve symbol]				9						
	x	67D	92.34	NB	RT	W1-5L	REMOVE			YEL	[winding road]		1								
	y	67D	92.34	NB	RT	W13-1P(30)	REMOVE			YEL	30 M.P.H.		1								

Print Date: 2/9/2017
File Name: 21254_SignTab5.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information MJ

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SH 67D - Northbound
Sign Tabulation

Designer: EJL
Detailer: EJL
Sheet Subset: Sign
Structure Numbers: .
.
Subset Sheets: 5 of 8

Project No./Code
STA 067A-039
21254
Sheet Number 100

Sign Number		Highway	Milepost	Direction	Location	Sign	Panel Size (in.) W	x	H	Background Color	Legend	202-00810 remove sign	202-00821 remove panel	614-00011 class 1 sf	614-00012 class 2 sf	614-00013 class 3 sf	614-01503 P	*	614-01573 P1	*	614-80001 Flashing Beacon (Solar Powered)
SH 67D - Southbound																					
136	a	67D	78.03	SB	RT	R3-7R	30	x	30	WHT	RIGHT LANE MUST TURN RIGHT				6.25						
	x	67D	78.03	SB	RT	R3-5R	REMOVE			WHT	[right arrow] ONLY		1								
137	a	67D	78.08	SB	RT	R3-7R	30	x	30	WHT	RIGHT LANE MUST TURN RIGHT				6.25						
	x	67D	78.08	SB	RT	R3-5R	REMOVE			WHT	[right arrow] ONLY		1								
138	a	67D	79.01	SB	RT	W7-3aP(2)	24	x	18	YEL	NEXT 2 MILES			3							
	x	67D	79.01	SB	RT	W16-3aP	REMOVE			YEL	2 MILES		1								
139	a	67D	80.14	SB	RT	D50-3	84	x	30	GRN	Woodland Park CITY LIMIT ELEV 8465 FT**				17.5				2		
	x	67D	80.14	SB	RT	D50-3	REMOVE			GRN	WOODLAND PARK CITY LIMIT ELEV 8465 FT	1									
140	a	67D	80.15	SB	RT	StrID	12	x	18	WHT	H 16 L 80.14			1.5			1				
	x	67D	80.15	SB	RT	StrID	REMOVE			WHT	H 16 L	1									
141	x	67D	80.23	SB	RT	Special	REMOVE			YEL	Caution Driveways Ahead	1									
142	a	67D	81.08	SB	RT	RS-034	24	x	24	BRN	P			4			1				
	b	67D	81.08	SB	RT	M6-1L	21		15	BRN	<-			2.19							
143	x	67D	81.12	SB	RT	Special	REMOVE			WHT	P	1									
	y	67D	81.12	SB	RT	M6-1R	REMOVE			WHT	<-										
144	x	67D	82.01	SB	RT	W11-3	REMOVE			YEL	[deer]	1									
145	a	67D	82.14	SB	RT	StrID	12	x	18	WHT	H 16 M 82.13			1.5			1				
	x	67D	82.14	SB	RT	StrID	REMOVE			WHT	H 16 M	1									
146	a	67D	82.15	SB	RT	W1-4L	36	x	36	YEL	[reverse curve]				9				1		
147	a	67D	82.30	SB	RT	W1-4L	REMOVE			YEL	[reverse curve]	1									
148	x	67D	83.50	SB	RT	W11-1	REMOVE			FYG	[bicycle]	1									
	y	67D	83.50	SB	RT	W16-7PL	REMOVE			FYG	[downward diagonal arrow]										
149	a	67D	83.71	SB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	83.71	SB	RT	W16-7PL	24	x	12	FYG	[downward diagonal arrow]				2						
150	x	67D	83.78	SB	RT	W11-1	REMOVE			FYG	[bicycle]	1									
	y	67D	83.78	SB	RT	W16-7PL	REMOVE			FYG	[downward diagonal arrow]										
151	x	67D	83.86	SB	RT	W11-1	REMOVE			FYG	[bicycle]	1									
152	a	67D	83.92	SB	RT	StrID	12	x	18	WHT	H 16 I 83.87			1.5			1				
	x	67D	83.92	SB	RT	StrID	REMOVE			WHT	H 16 I	1									
153	a	67D	84.08	SB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	84.08	SB	RT	W16-7PL	24	x	12	FYG	[downward diagonal arrow]				2						
154	x	67D	84.09	SB	RT	W11-1	REMOVE			FYG	[bicycle]	1									
	y	67D	84.09	SB	RT	W16-7PL	REMOVE			FYG	[downward diagonal arrow]										
155	a	67D	84.14	SB	RT	W2-2R	36	x	36	YEL	[side road symbol]				9				1		
156	a	67D	84.17	SB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	84.17	SB	RT	W16-9P	24	x	12	FYG	AHEAD				2						
157	x	67D	84.21	SB	RT	W2-2R	REMOVE			YEL	[side road symbol]	1									
158	a	67D	84.34	SB	RT	W1-2L	36	x	36	YEL	[curve symbol]				9				1		
	b	67D	84.34	SB	RT	W13-1P(55)	24	x	24	YEL	55 MPH				4						
159	x	67D	84.41	SB	RT	W1-2L	REMOVE			YEL	[curve symbol]	1									
	y	67D	84.41	SB	RT	W13-1P(55)	REMOVE			YEL	55 M.P.H.										
160	a	67D	84.46	SB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	84.46	SB	RT	W16-7PL	24	x	12	FYG	[downward diagonal arrow]				2						

Print Date: 2/9/2017
File Name: 21254_SignTab6.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information MJ

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SH 67D - Southbound
Sign Tabulation

Designer: EJL
Detailer: EJL
Sheet Subset: Sign
Structure Numbers: .
.
Subset Sheets: 6 of 8

Project No./Code
STA 067A-039
21254
Sheet Number 101

Sign Number		Highway	Milepost	Direction	Location	Sign	Panel Size (in.) W	x	H	Background Color	Legend	202-00810 remove sign	202-00821 remove panel	614-00011 class 1 sf	614-00012 class 2 sf	614-00013 class 3 sf	614-01503 P	*	614-01573 P1	*	614-80001 Flashing Beacon (Solar Powered)
SH 67D - Southbound																					
161	x	67D	84.50	SB	RT	W11-1	REMOVE			FYG	[bicycle]	1									
	y	67D	84.50	SB	RT	W16-7PL	REMOVE			FYG	[downward diagonal arrow]										
162	a	67D	84.53	SB	RT	W11-15	36	x	36	FYG	[bicycle/pedestrian]				9				1		
	x	67D	84.53	SB	RT	W16-9P	24	x	12	FYG	AHEAD				2						
163	x	67D	84.63	SB	RT	W11-3	REMOVE			YEL	[deer]	1									
164	x	67D	86.46	SB	RT	W11-3	REMOVE			YEL	[deer]	1									
165	x	67D	87.14	SB	RT	Special	REMOVE			WHT	ENTERING NE TELLER COUNTY FIRE PROTECTION DISTRICT	1									
166	a	67D	87.15	SB	RT	I-2	48	x	30	GRN	Teller County**				10				1		
	x	67D	87.15	SB	RT	I-2	REMOVE			GRN	TELLER COUNTY	1									
167	a	67D	87.55	SB	RT	W1-2R	36	x	36	YEL	[curve symbol]				9				1		
168	x	67D	87.69	SB	RT	W1-2R	REMOVE			YEL	[curve symbol]	1									
169	x	67D	90.16	SB	RT	Special	REMOVE			GRN	TROUT CREEK ROAD <-	1									
170	a	67D	90.17	SB	RT	W2-2L	36	x	36	YEL	[side road symbol]				9				1		
	x	67D	90.17	SB	RT	W16-8P	48	x	12	YEL	Trout Creek Rd**				4						
171	a	67D	90.27	SB	RT	W1-2L	36	x	36	YEL	[curve symbol]				9				1		
	b	67D	90.27	SB	RT	W13-1P(40)	24	x	24	YEL	40 MPH				4						
172	x	67D	90.29	SB	RT	W1-2L	REMOVE			YEL	[curve symbol]	1									
	y	67D	90.29	SB	RT	W13-1P(40)	REMOVE			YEL	40 M.P.H.										
173	x	67D	90.42	SB	RT	W1-1aR(30)	REMOVE			YEL	[turn symbol] 30	1									
174	a	67D	90.43	NB	LT	W1-8R	24	x	30	YEL	[chevron] (install chevrons at 80-foot spacings)			5			1				
	b	67D	90.43	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
175	a	67D	90.445	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.445	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
176	a	67D	90.46	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.46	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
177	a	67D	90.50	NB	LT	W1-8R	24	x	30	YEL	[chevron] (install chevrons at 80-foot spacings)			5			1				
	b	67D	90.50	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
	x	67D	90.50	NB	LT	W1-8R	REMOVE			YEL	[chevron]	1									
	y	67D	90.50	SB	RT	W1-8L	REMOVE			YEL	[chevron]										
178	a	67D	90.515	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.515	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
179	x	67D	90.525	NB	LT	W1-8R	REMOVE			YEL	[chevron]	1									
	y	67D	90.525	SB	RT	W1-8L	REMOVE			YEL	[chevron]										
180	a	67D	90.53	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.53	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
181	a	67D	90.545	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.545	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
	x	67D	90.545	NB	LT	W1-8R	REMOVE			YEL	[chevron]	1									
	y	67D	90.545	SB	RT	W1-8L	REMOVE			YEL	[chevron]										
182	a	67D	90.56	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.56	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
183	a	67D	90.575	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	90.575	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							

Print Date: 2/9/2017
File Name: 21254_SignTab7.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information MJ

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SH 67D - Southbound
Sign Tabulation

Designer: EJL
Detailer: EJL
Sheet Subset: Sign
Structure Numbers: .
Subset Sheets: 7 of 8

Project No./Code
STA 067A-039
21254
Sheet Number 102

Sign Number		Highway	Milepost	Direction	Location	Sign	Panel Size (in.) W	x	H	Background Color	Legend	202-00810 remove sign	202-00821 remove panel	614-00011 class 1 sf	614-00012 class 2 sf	614-00013 class 3 sf	614-01503 P	*	614-01573 P1	*	614-80001 Flashing Beacon (Solar Powered)
SH 67D - Southbound																					
184	a	67D	90.59	SB	RT	W1-3L	36	x	36	YEL	[reverse turn]				9				1		
	b	67D	90.59	SB	RT	W13-1P(30)	24	x	24	YEL	30 MPH				4						
185	a	67D	90.81	SB	RT	W1-11R	36	x	36	YEL	[hairpin curve]				9				1		
	b	67D	90.81	SB	RT	W13-1P(30)	24	x	24	YEL	30 MPH				4						
186	x	67D	90.83	SB	RT	W1-1aR(30)	REMOVE			YEL	[turn symbol] 30	1									
187	a	67D	90.90	SB	RT	W1-1L	36	x	36	YEL	[turn symbol]			9							
	x	67D	90.90	SB	RT	W1-3L	REMOVE			YEL	[reverse turn]		1								
188	a	67D	91.26	SB	RT	D1-1	60	x	30	GRN	**West Creek ->**				12.5				1		
	x	67D	91.26	SB	RT	D1-1	REMOVE			GRN	WEST CREEK ->	1									
189	a	67D	91.32	SB	RT	W11-8	36	x	36	YEL	[emergency vehicle]				9						
	x	67D	91.32	SB	RT	special	REMOVE			FYG	SCHOOL BUS ENTRANCE		1								
190	x	67D	91.44	SB	RT	W1-4R	REMOVE			YEL	[reverse curve]	1									
	y	67D	91.44	SB	RT	W13-1P(40)	REMOVE			YEL	40 M.P.H.										
191	a	67D	91.51	SB	RT	W1-4R	36	x	36	YEL	[reverse curve]				9						
	b	67D	91.51	SB	RT	W13-1P(40)	24	x	24	YEL	40 MPH				4						
	x	67D	91.51	SB	RT	W11-8	REMOVE			YEL	[emergency vehicle]		1								
	y	67D	91.51	SB	RT	W16-2aP(1500)	REMOVE			YEL	1500 FEET		1								
192	a	67D	91.54	SB	RT	W12-55	36	x	36	YEL	MOTORCYCLES USE EXTREME CAUTION				9				1		1
	b	67D	91.54	SB	RT	W7-3aP(3)	24	x	18	YEL	NEXT 3 MILES				3						
193	a	67D	92.055	NB	LT	W1-8R	24	x	30	YEL	[chevron] (install chevrons at 80-foot spacings)			5			1				
	b	67D	92.055	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
194	a	67D	92.07	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.07	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
195	a	67D	92.085	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.085	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
196	x	67D	92.09	SB	RT	W8-52	REMOVE			YEL	FALLING ROCK	1									
197	a	67D	92.10	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.10	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
198	a	67D	92.255	NB	LT	W1-8R	24	x	30	YEL	[chevron] (install chevrons at 80-foot spacings)			5			1				
	b	67D	92.255	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
199	a	67D	92.27	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.27	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
200	a	67D	92.285	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.285	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
201	a	67D	92.30	NB	LT	W1-8R	24	x	30	YEL	[chevron]			5			1				
	b	67D	92.30	SB	RT	W1-8L	24	x	30	YEL	[chevron]			5							
202	x	67D	92.38	SB	RT	W1-2L	REMOVE			YEL	[curve symbol]	1									
203	a	67D	92.64	SB	RT	W1-2R	36	x	36	YEL	[curve symbol]				9				1		
											PROJECT TOTALS (67F & 67D):	97	27	447	838	66	48		64		3

**Boldface indicates special layout

Direction EB: Eastbound
Direction WB: Westbound
Direction NB: Northbound
Direction SB: Southbound
Location RT: Right side of road
Location LT: Left side of road
Location T: Far side of T intersection

Print Date: 2/9/2017
File Name: 21254_SignTab8.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information MJ

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

SH 67D - Southbound
Sign Tabulation

Designer: EJL
Detailer: EJL
Sheet Subset: Sign
Structure Numbers: .
.
Subset Sheets: 8 of 8

Project No./Code
STA 067A-039
21254
Sheet Number 103

TABULATION OF PREFORMED THERMOPLASTIC PAVEMENT MARKINGS

Milepost	Location	Direction	627-30405 (Word-Symbol) Left Arrow	Right Arrow	Thru/Left Arrow	Lane Reduction Arrow	627-30410 (Xwalk-Stop Line) Stop Bar	Xwalk
			EA	EA	EA	EA	LF	Bars
SH 67F								
53.11	Cripple Creek Heritage Ctr	NB	1					
53.13	Cripple Creek Heritage Ctr	SB		1				
53.16	Cripple Creek Heritage Ctr	SB		1				
53.89	CR 821	SB	1					
53.94	CR 821	SB	1					
56.19	CR 81	NB		1				
56.22	CR 81	NB		1				
56.23	CR 81	WB					34	
56.24	CR 81	SB	1					
56.29	CR 81	SB	1					
56.45	lane reduction north of CR 81	NB				1		
56.52	lane reduction north of CR 81	NB				1		
65.65	Mueller State Park	NB	1					
65.69	Mueller State Park	NB	1					
65.70	Mueller State Park	EB	1	1			25	
65.72	Mueller State Park	SB		1				
65.77	Mueller State Park	SB		1				
65.82	Mueller State Park	SB		1				
SH 67D								
77.90	Kelly's Rd/Stone Ridge Dr	NB	1					
77.93	Kelly's Rd/Stone Ridge Dr	NB		1				
77.95	Kelly's Rd/Stone Ridge Dr	NB	1					
78.01	Kelly's Rd/Stone Ridge Dr	NB	1	1				
78.02	Kelly's Rd/Stone Ridge Dr	EB		1	1		29	
78.02	Kelly's Rd/Stone Ridge Dr	WB					13	
78.03	Kelly's Rd/Stone Ridge Dr	SB	1	1				
78.09	Kelly's Rd/Stone Ridge Dr	SB	1	1				
78.29	Valley View Dr	NB		1				
78.33	Valley View Dr	NB		1				
79.02	Regent Dr	NB		1				
79.08	Regent Dr	NB		1				
79.50	Lucky Lady Dr	NB	1					
79.55	Lucky Lady Dr	NB	1					
79.60	Lucky Lady Dr	NB	1					
83.71	trail crossing	EB/WB						7
84.08	trail crossing	EB/WB						7

TOTAL	16	17	1	2	101	14
SQUARE-FOOTAGE MULTIPLIER	15.5	15.5	27.5	58	2	16
TOTAL SQUARE-FOOTAGE	248	263.5	27.5	116	202	224
627-30405 TOTAL (SF)	655					
627-30410 TOTAL (SF)					426	

Print Date: 2/9/2017
File Name: 21254_ThermoplasticTab.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information MJ

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

Thermoplastic Pavement Marking Tabulation

Designer: EJL
Detailer: EJL
Sheet Subset: Markings
Structure Numbers: . / .
Subset Sheets: 1 of 1

Project No./Code
STA 067A-039
21254
Sheet Number 104

gilberta 9:35:40 PM C:\Projects\21254 - SH 67 Cripple Creek to Westcreek\Traffic_ITS\Drawings\21254_ThermoplasticTab.dgn

GENERAL NOTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

ALL LONGITUDINAL AND TRANSVERSE DIMENSIONS ARE MEASURED HORIZONTALLY AND INCLUDE NO CORRECTION FOR GRADE.

UNLESS NOTED OTHERWISE ON THE PLANS, THE PROPOSED OVERLAY SHALL BE PLACED TO THE GRADE AND CROSS SLOPE OF THE EXISTING CONCRETE DECK.

DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM THE "AS CONSTRUCTED PLANS". DIMENSIONS MAY BE ADJUSTED TO MEET THE EXISTING STRUCTURE.

THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THERE OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL CONTACT THE UTILITIES NOTIFICATION CENTER OF COLORADO AT 811 (1-800-922-1987) AT LEAST 3 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.

DESIGN DATA

AASHTO, SEVENTH EDITION LRFD

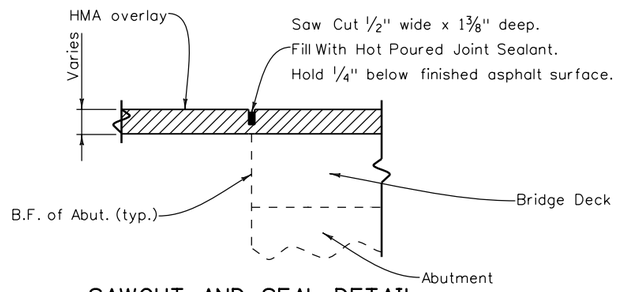
DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN

LIVE LOAD: HL-93 DESIGN TRUCK OR TANDEM, AND DESIGN LANE LOAD).
DEAD LOAD: ASSUMES 36 LBS. PER SQ.FT. FOR BRIDGE DECK OVERLAY

INDEX OF DRAWINGS

SUMMARY OF QUANTITIES

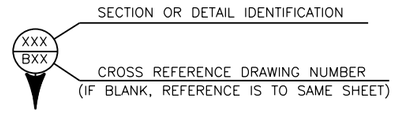
ITEM NO.	DESCRIPTON	Unit	I-16-AA	H-16-L	H-16-M	H-16-I	TOTAL
202-00240	Removal of Asphalt Mat (Planing)	SY	-	110	133	403	646
202-00425	Removal of Bridge Railing	LF	48	76	92	-	216
403-36721	Hot Mix Asphalt (Grading ST) (75) (PG 58-28)	TON	8	12	15	45	80
518-03000	Sawing and Sealing Bridge Joint	LF	52	55	54	80	241
606-11010	Bridge Rail Type 10R	LF	48	76	92	-	216



SAWCUT AND SEAL DETAIL

Paid for under Item 518 Sawing and Sealing Bridge Joint

Joint at BF of Abutment. Typical Detail for all structures



FOR BURIED UTILITY INFORMATION
THREE (3) BUSINESS DAYS BEFORE YOU DIG
CALL 811
(or 1-800-922-1987)
UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)
www.uncc.org

Quantities						
	INITIAL	DATE		INITIAL	DATE
Designed By	JEB	11-16	Detailed By	JEB	11-16
Checked By	JBE	11-16	Checked By	JBE	11-16
			Quantities By	JEB	11-16
			Checked By	JBE	11-16

c:\projectwise\pw working\dlh29894\20951 01 General Information.dgn
bjorkquistj 7:48:06 AM

Print Date: 2/13/2017	Sheet Revisions		
File Name: 20951 01 General Information.dgn	Date:	Comments	Init.
Horiz. Scale: NTS Vert. Scale: As Noted			
Staff Bridge Branch - Unit 0226 Unit Leader DDG			

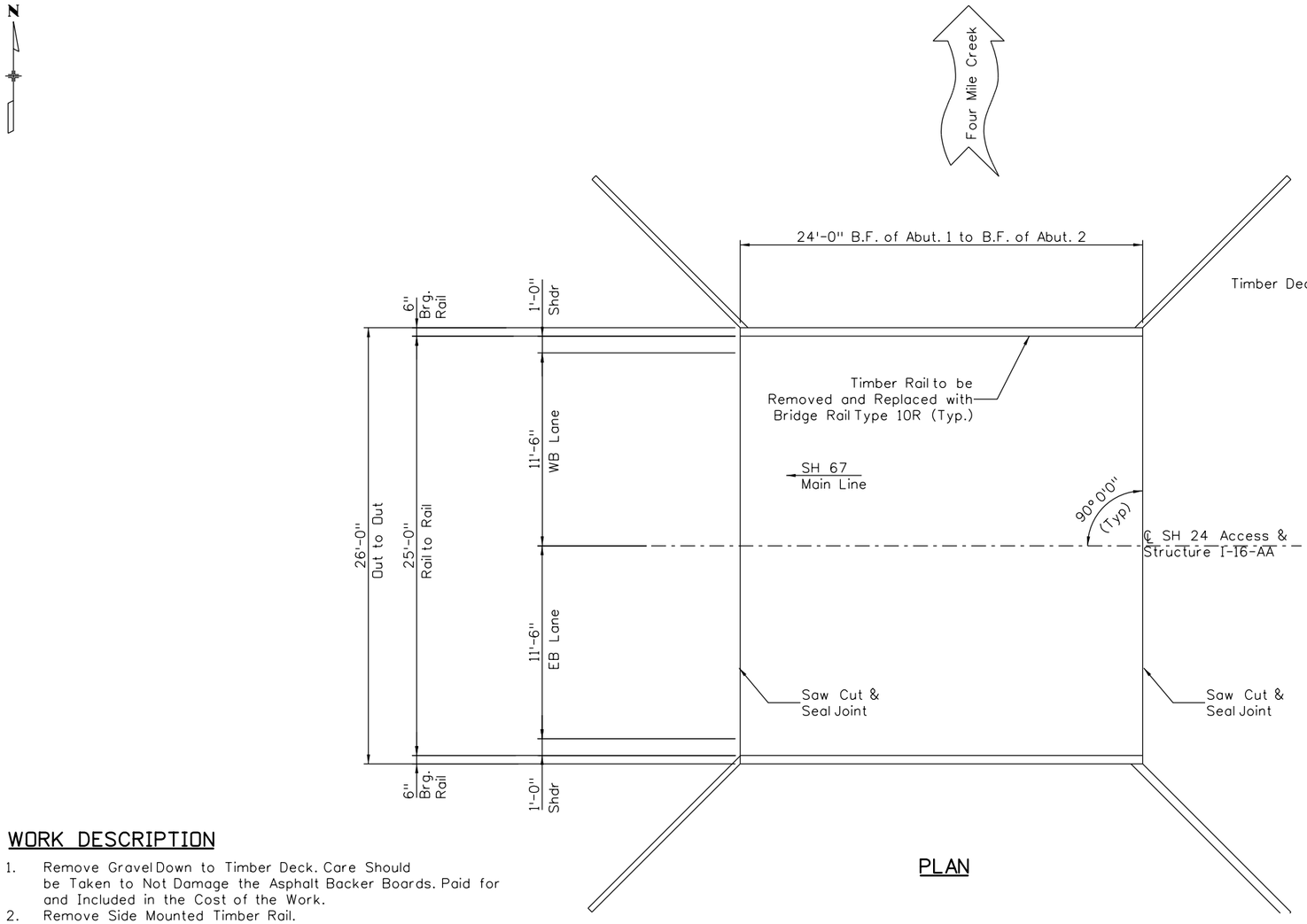
Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

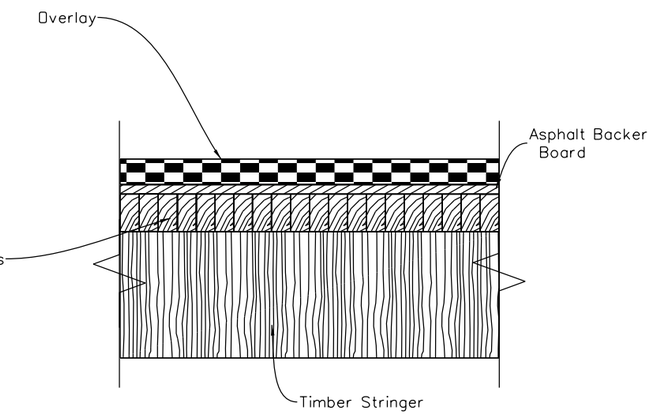
GENERAL INFORMATION & SUMMARY OF QUANTITY

Designer:	J. Bjorkquist	Structure Numbers	Various
Detailer:	J. Bjorkquist		
Sheet Subset:	Bridge	Subset Sheets:	B1 of 7

Project No./Code
STR 067A - 037 & STA 067A - 039
21254
Sheet Number 105



PLAN



PROPOSED DECK DETAIL

WORK DESCRIPTION

1. Remove Gravel Down to Timber Deck. Care Should be Taken to Not Damage the Asphalt Backer Boards. Paid for and Included in the Cost of the Work.
2. Remove Side Mounted Timber Rail.
3. Install New Side Mounted Type 10R Bridge Rail.
4. Fill Timber Deck Cracks with Hot Poured Asphalt Joint Filler.
5. Place a 2" HMA Overlay across Bridge.
6. Saw Cut and Seal Joints at Abutment Back Faces.

BRIDGE DESCRIPTIONS

Structure Number	I-16-AA
Year Built	1937
Mile Marker	65.786
Spans	1 span
Structure Type	TTS Timber Stringer
Sufficiency Rating	92.7
Deck Rating	7 (good)
Deck Thickness	Timber deck
Gravel Thickness	4.0 Inches
Expansion Joints Type	None
Expansion Joint Locations	NA
Sawcut and Seal Joint Locations	Abut. 1 & 2
Deck Protection	None
Bridge Rail	Timber

Design			Detail			Quantities		
	INITIAL	DATE		INITIAL	DATE		INITIAL	DATE
Designed By	JEB	11-16	Detailed By	JEB	11-16	Quantities By	JEB	11-16
Checked By	JBE	11-16	Checked By	JBE	11-16	Checked By	JBE	11-16

Print Date: 2/13/2017	
File Name: 20951 02 Plan Str I-16-AA.dgn	
Horiz. Scale: NTS	Vert. Scale: As Noted
Staff Bridge Branch - Unit 0226	Unit Leader DDG

Sheet Revisions		
Date:	Comments	Init.

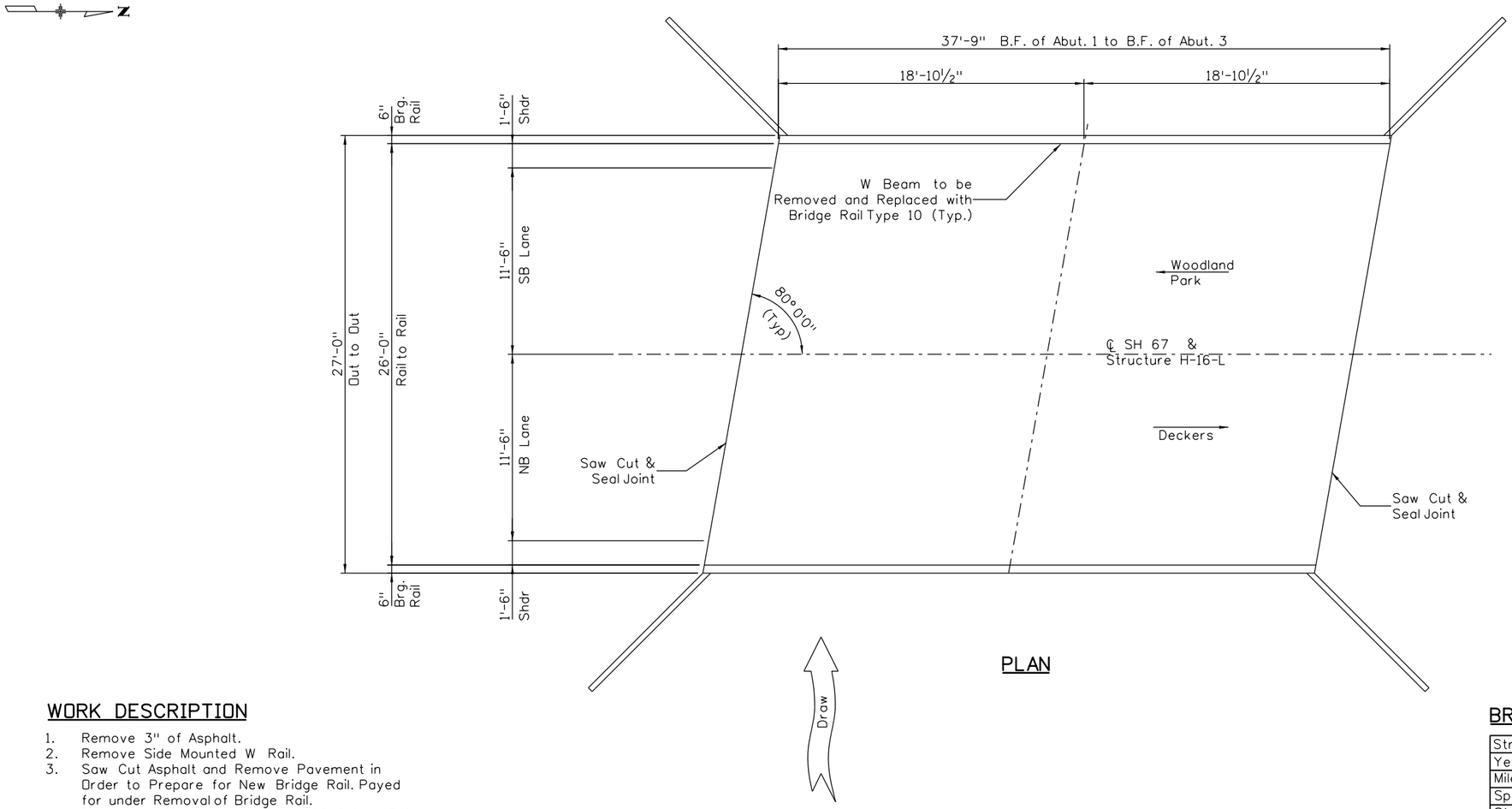
Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed	
No Revisions:	
Revised:	
Void:	

PLAN STRUCTURE I-16-AA

Designer:	J. Bjorkquist	Structure Numbers	I-16-AA
Detailer:	J. Bjorkquist		
Sheet Subset:	Bridge	Subset Sheets:	B2 of 7

Project No./Code	
STR 067A - 037 & STA 067A - 039	
21254	
Sheet Number	106



PLAN

WORK DESCRIPTION

1. Remove 3" of Asphalt.
2. Remove Side Mounted W Rail.
3. Saw Cut Asphalt and Remove Pavement in Order to Prepare for New Bridge Rail. Payed for under Removal of Bridge Rail.
4. Install New Side Mounted Type 10R Bridge Rail.
5. Replace Removed Pavement with Hot Mix Asphalt (Patching) (Asphalt) see Roadway Quantities.
6. Install 2" HMA Overlay.
7. Saw Cut and Seal Joints at Abutment Back Faces.

BRIDGE DESCRIPTIONS

Structure Number	H-16-L
Year Built	1939
Mile Marker	80.061
Spans	2 span
Structure Type	TTS Timber Stringer
Sufficiency Rating	62.7 (FO)
Deck Rating	6 (satisfactory)
Deck Thickness	Timber deck
Asphalt Thickness	5.0 Inches
Expansion Joints Type	None
Expansion Joint Locations	NA
Sawcut and Seal Joint Locations	Abut. 1 & 3
Deck Protection	NA Timber Deck
Bridge Rail	W beam

NOTES:

For Informational Use Only. Contractor Shall Independently Verify the Asphalt Thickness Across the Bridge

Design			Detail			Quantities		
	INITIAL	DATE		INITIAL	DATE		INITIAL	DATE
Designed By	JEB	3-16	Detailed By	JEB	3-16	Quantities By	JEB	3-16
Checked By	JBE	4-16	Checked By	JBE	4-16	Checked By	JBE	4-16

bjorkquist 7:48:09 AM c:\projectwise\pwz_working\d1629894\20951 03 Plan Str H-16-L.dgn

Print Date: 2/13/2017
File Name: 20951 03 Plan Str H-16-L.dgn
Horiz. Scale: NTS Vert. Scale: As Noted
Staff Bridge Branch - Unit 0226 Unit Leader DDG

Sheet Revisions		
Date:	Comments	Init.

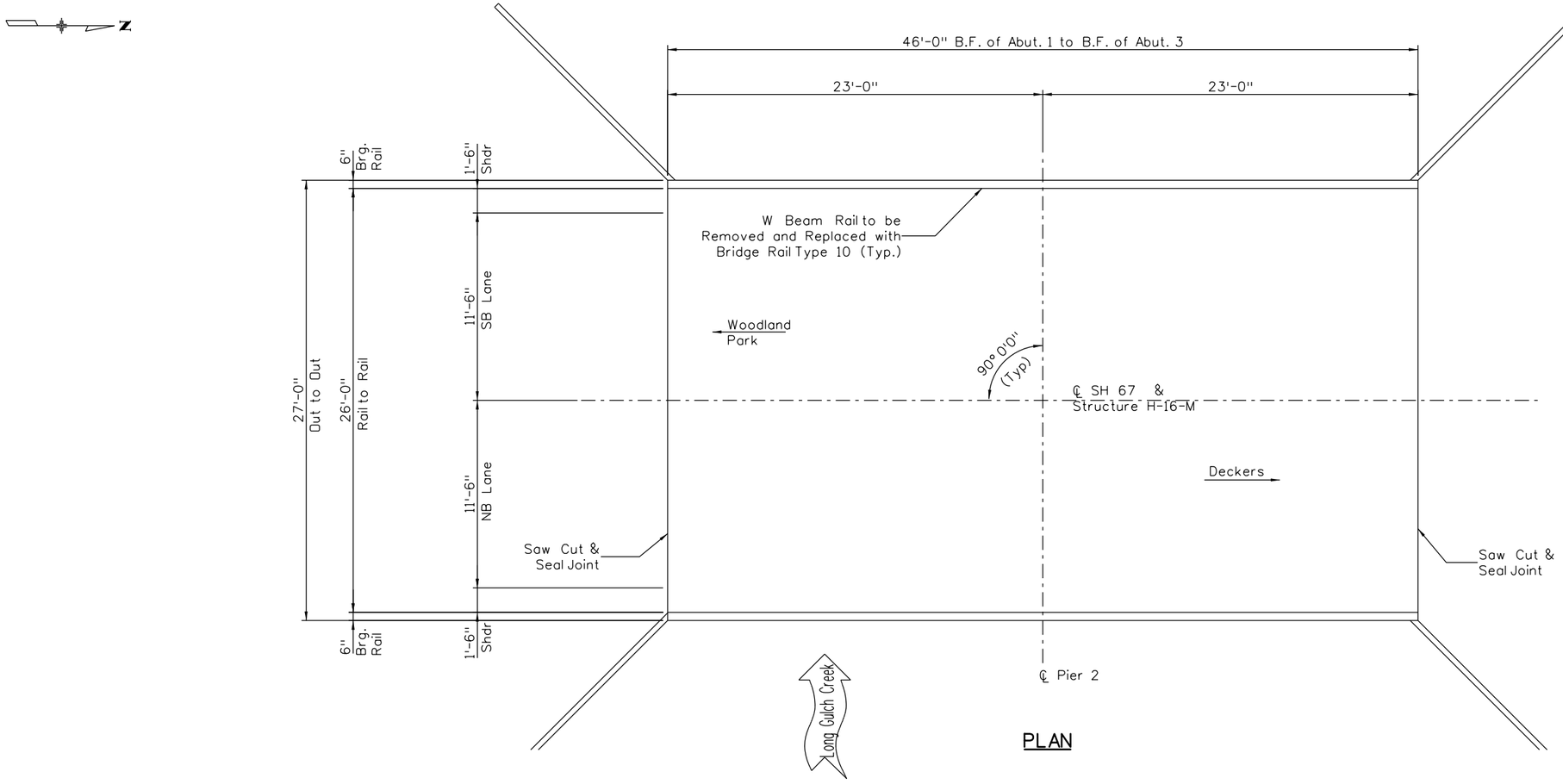
Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

PLAN STRUCTURE H-16-L

Designer: J. Bjorkquist
Detailer: J. Bjorkquist
Sheet Subset: Bridge
Structure Numbers: H-16-L
Subset Sheets: B3 of 7

Project No./Code
STR 067A - 037 & STA 067A - 039
21254
Sheet Number 107



PLAN

WORK DESCRIPTION

1. Remove 1" of Asphalt.
2. Remove Side Mounted W Rail.
3. Saw Cut Asphalt and Remove Pavement in Order to Prepare for New Bridge Rail. Payed for under Removal of Bridge Rail.
4. Install New Side Mounted Type 10R Bridge Rail.
5. Replace Removed Pavement with Hot Mix Asphalt (Patching) (Asphalt) see Roadway Quantities.
6. Install 2" HMA Overlay.
7. Saw Cut and Seal Joints at Abutment Back Faces.

BRIDGE DESCRIPTIONS

Structure Number	H-16-M
Year Built	1939
Mile Marker	82.092
Spans	2 span
Structure Type	TTS Timber Stringer
Sufficiency Rating	61.0
Deck Rating	6 (satisfactory)
Deck Thickness	Timber deck
Asphalt Thickness	3.0 Inches
Expansion Joints Type	None
Expansion Joint Locations	NA
Sawcut and Seal Joint Locations	Abut. 1 & 3
Deck Protection	NA Timber Deck
Bridge Rail	W beam

NOTES:

For Informational Use Only. Contractor Shall Independently Verify the Asphalt Thickness Across the Bridge

Design			Detail			Quantities		
	INITIAL	DATE		INITIAL	DATE		INITIAL	DATE
Designed By	JEB	3-16	Detailed By	JEB	3-16	Quantities By	JEB	3-16
Checked By	JBE	4-16	Checked By	JBE	4-16	Checked By	JBE	4-16

bjorkquistj 7:48:10 AM c:\projectwise\pwz_working\d1629894\20951 04 Plan Str H-16-M.dgn

Print Date: 2/13/2017
File Name: 20951 04 Plan Str H-16-M.dgn
Horiz. Scale: NTS Vert. Scale: As Noted
Staff Bridge Branch - Unit 0226 Unit Leader DDG

Sheet Revisions		
Date:	Comments	Init.

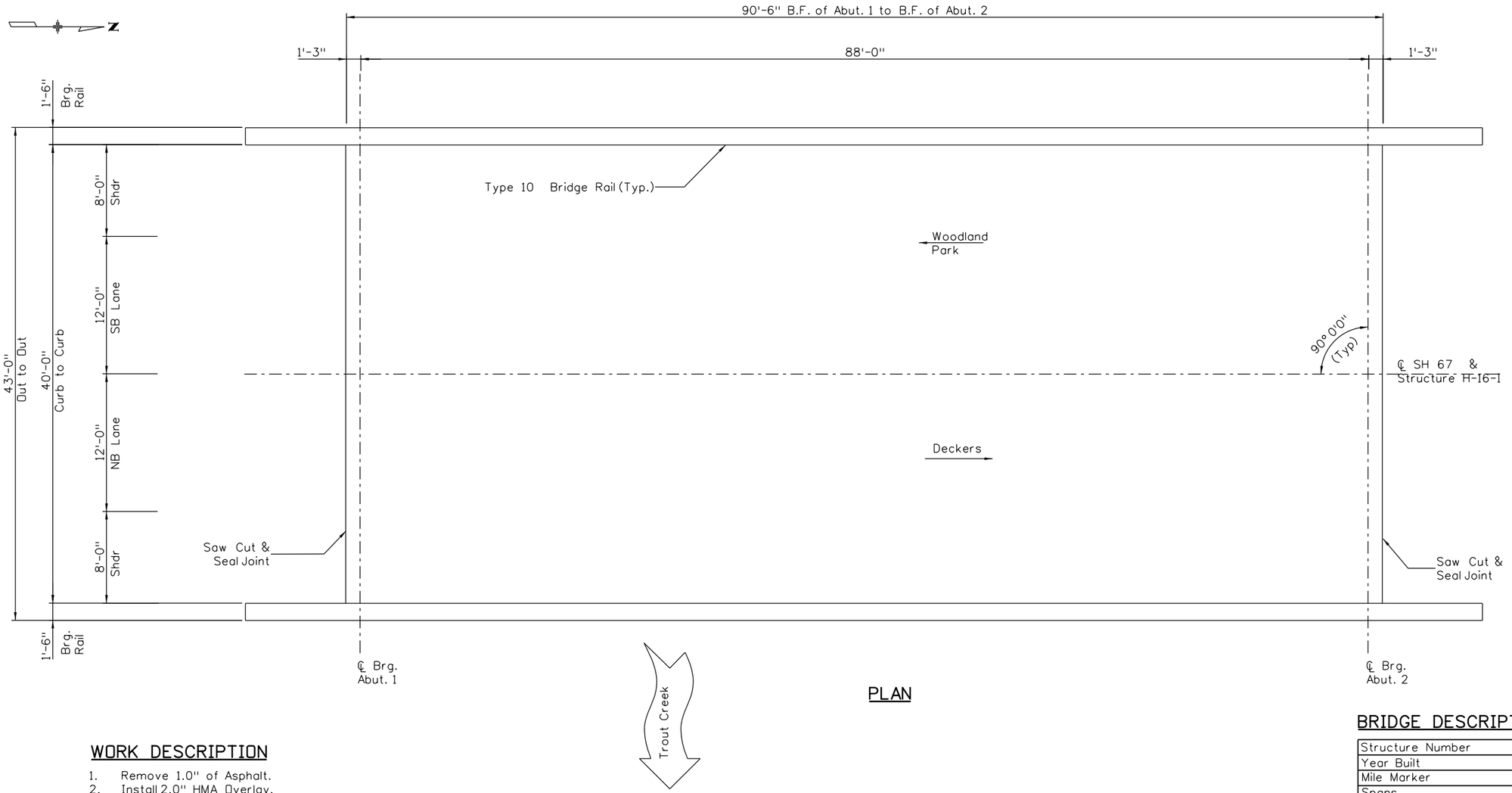
Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

PLAN STRUCTURE H-16-M

Designer: J. Bjorkquist
Detailer: J. Bjorkquist
Sheet Subset: Bridge
Structure Numbers: H-16-M
Subset Sheets: B4 of 7

Project No./Code
STR 067A - 037 & STA 067A - 039
21254
Sheet Number 108



PLAN

WORK DESCRIPTION

1. Remove 1.0" of Asphalt.
2. Install 2.0" HMA Overlay.
3. Saw Cut and Seal Joints at Abutment Back Faces.

BRIDGE DESCRIPTIONS

Structure Number	H-16-I
Year Built	2000
Mile Marker	83.763
Spans	1 span
Structure Type	CBBG
Sufficiency Rating	97.1
Deck Rating	8 (Excellent)
Deck Thickness	N/A Box Girder
Asphalt Thickness	2.0 Inches
Expansion Joints Type	None
Expansion Joint Locations	NA
Sawcut and Seal Joint Locations	Abut. 1 & 2
Deck Protection	Waterproofing Membrane
Bridge Rail	Type 10

NOTES:

For Informational Use Only. Contractor Shall Independently Verify the Asphalt Thickness Across the Bridge

Design			Detail			Quantities		
	INITIAL	DATE		INITIAL	DATE		INITIAL	DATE
Designed By	JEB	3-16	Detailed By	JEB	3-16	Quantities By	JEB	3-16
Checked By	JBE	4-16	Checked By	JBE	4-16	Checked By	JBE	4-16

Print Date: 2/13/2017
File Name: 20951 05 Plan Str H-16-I.dgn
Horiz. Scale: NTS Vert. Scale: As Noted
Staff Bridge Branch - Unit 0226 Unit Leader DDG

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

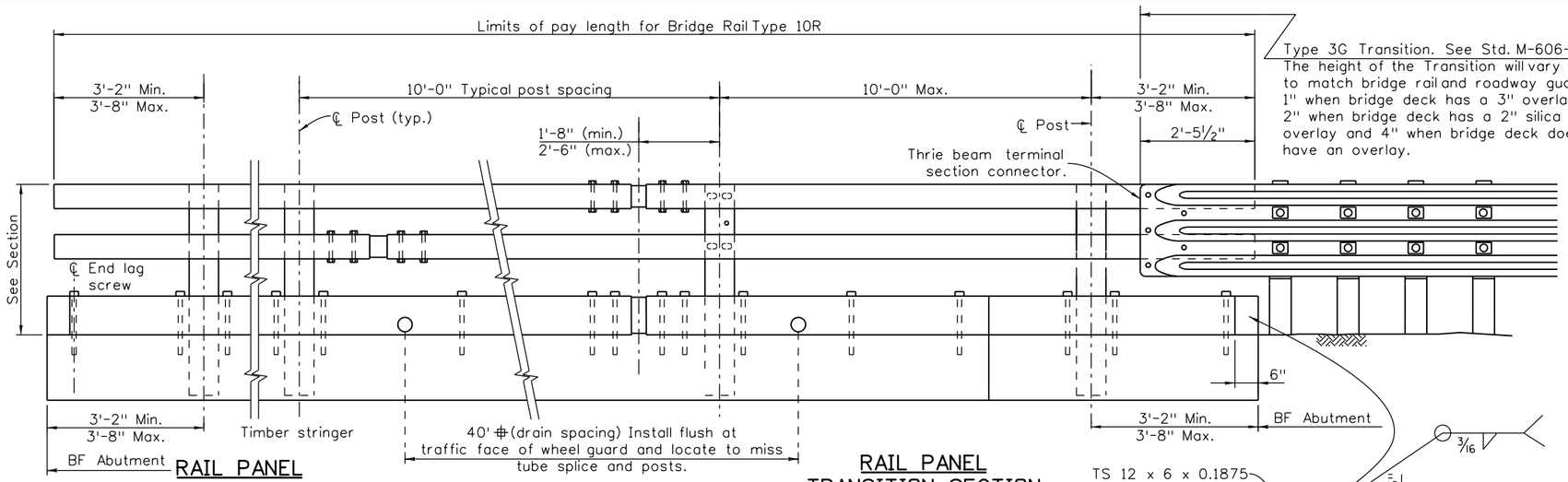
As Constructed
No Revisions:
Revised:
Void:

PLAN STRUCTURE H-16-I

Designer: J. Bjorkquist
Detailer: J. Bjorkquist
Sheet Subset: Bridge
Structure Numbers: H-16-I
Subset Sheets: B5 of 7

Project No./Code
STR 067A - 037 & STA 067A - 039
21254
Sheet Number 109

bjorkquistj 7:48:11 AM c:\projectwise\pwz_working\d1629894\20951 05 Plan Str H-16-I.dgn

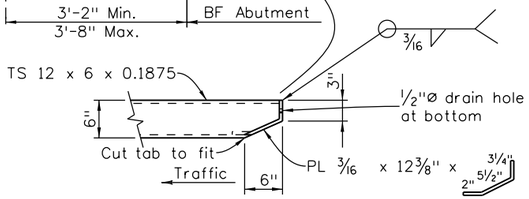


RAIL PANEL TERMINAL SECTION

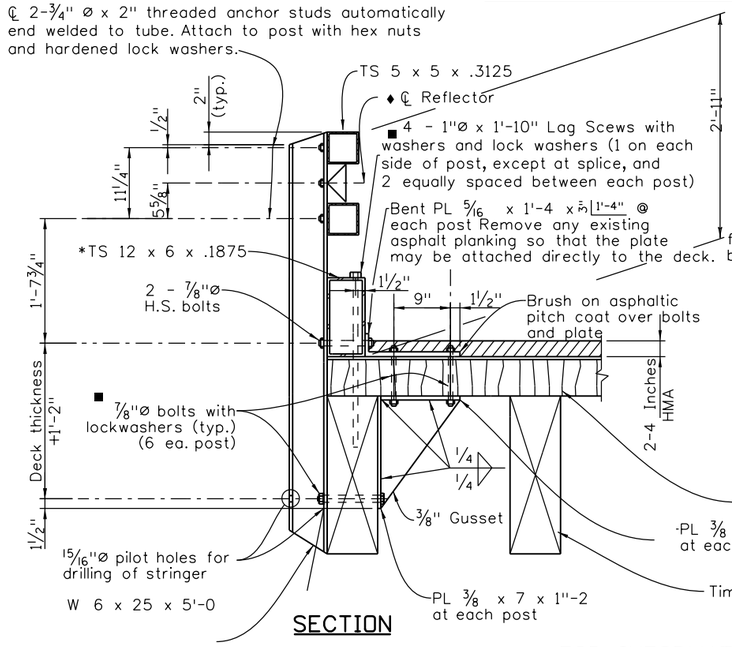
(See Roadway plans for ends not attached to Guardrail)

RAIL PANEL TRANSITION SECTION

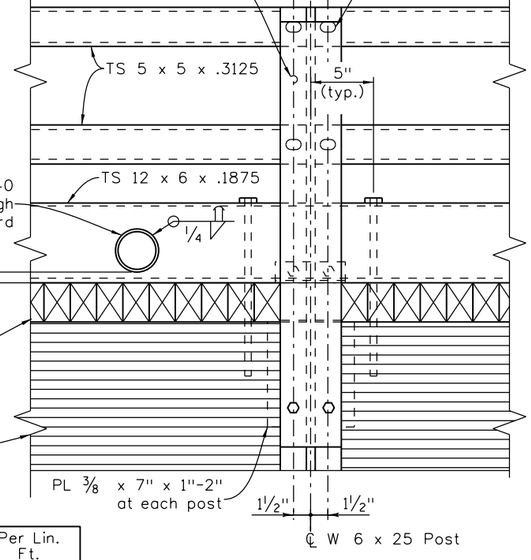
(See Roadway plans for ends requiring attachment to Guardrail)



ELEVATION - BRIDGE RAIL



SECTION



ELEVATION

♦ See M-606-1 for details - attach to post with ⅝"Ø bolt with hex nut and lock washer

* Existing timber wheel guard shall be removed.

FOR INFORMATION ONLY

Description	Unit	Per Lin. Ft.
Structural Steel (Galvanized)	Lb	81.3

NOTES:

All tubes shall be fabricated from ASTM A-500 Grade B. All posts and tube splices shall be fabricated from ASTM A-572 Grade 50 or ASTM-A588 steel. All miscellaneous steel shall be fabricated from ASTM A-36 steel.

The above material, except as noted, and all anchor bolts and miscellaneous bolts, nuts and washers shall be galvanized after fabrication in accordance with Section 509. Structural steel elements shall conform to the requirements of Section 509.

Tubes shall be continuous over not less than two posts. No welded butt splices will be allowed in the tube sections.

All bolts that have lock washers shall be tightened to snug only.

Posts shall be perpendicular to the grade of the deck.

Posts, backing plates, miscellaneous plates, angles, lag screws, miscellaneous bolts, nuts, washers, tubes, tube splices, end plates, reflector tabs, galvanizing and painting needed to install the bridge rail shall be included in Item 606 - Bridge Rail Type 10R.

Field modifications to the steel rail component or existing timber structure may be needed and shall be included in the cost of Bridge Rail Type 10R

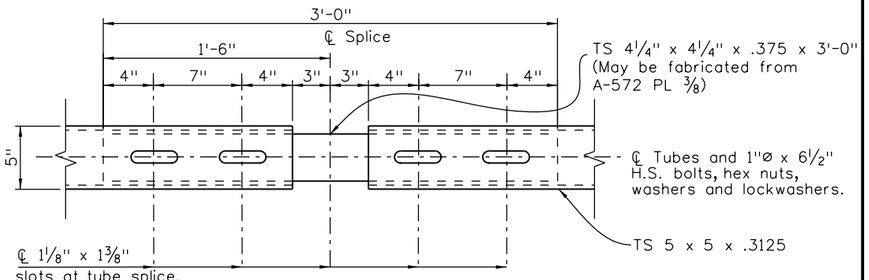
Prior to fabrication of this item, three sets of working drawings shall be submitted to the Engineer for information only.

■ Treat all bolt holes in timber with an acceptable timber treatment (preservative).

Strucural Steel:

AASHTO M-222 (ASTM A-588) or AASHTO M-223 (ASTM A-572)	f_y = 50,000 psi
AASHTO M-183 (ASTM A-36)	f_y = 36,000 psi
Cold formed ASTM A-500 Grade B	f_y = 46,000 psi

For additional details see next rail sheets



PLAN - TUBE SPLICE

Use similar detail at 1' X 6" wheel guard tubing, using a fabricated splice tube of 11½" x 5½" x 3/16". Vertically center 1" x 1'-10" lag screws in slotted holes in tube splices. Screws must go through deck and into stringer.

Revision Dates (Preliminary Stage Only)						
3/99	11/99	5/00	4/02	3/07	10/13	

Design			Detail			Quantities		
	INITIAL	DATE		INITIAL	DATE		INITIAL	DATE
Designed By	JEB	3-16	Detailed By	JEB	3-16	Quantities By	JEB	3-16
Checked By	JBE	4-16	Checked By	JBE	4-16	Checked By	JBE	4-16

Print Date: 2/13/2017			
File Name: 20951 06 Bridge Rail Type 10T (1 of 2).dgn			
Horiz. Scale: NTS	Vert. Scale: As Noted		
Staff Bridge Branch - Unit 0226	Unit Leader DDG		

Sheet Revisions		
Date:	Comments	Init.

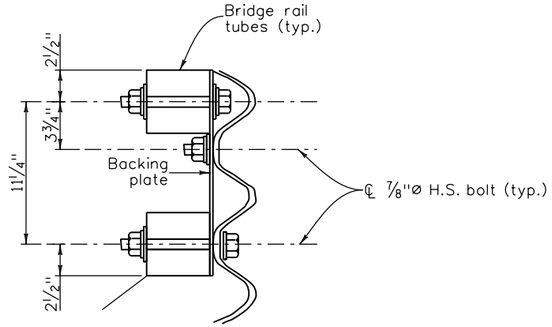
Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed	
No Revisions:	
Revised:	
Void:	

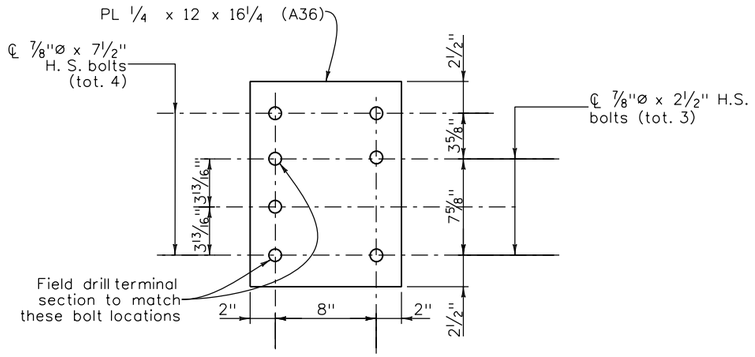
BRIDGE RAIL TYPE 10R
(1 of 2)

Designer:	J. Bjorkquist	Structure Numbers	I-16-AA
Detailer:	J. Bjorkquist		H-16-L, M
Sheet Subset:	Bridge	Subset Sheets:	B6 of 7

Project No./Code	
STR 067A - 037 & STA 067A - 039	
21254	
Sheet Number	110

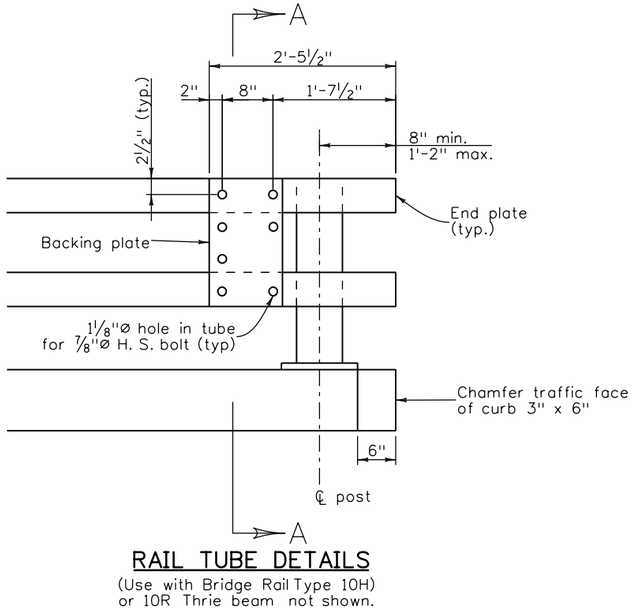


SECTION A-A



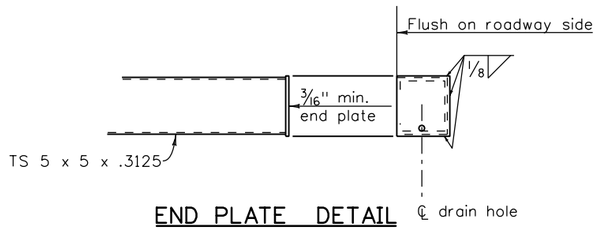
BACKING PLATE

Holes are 1⅛"ø for ⅞"ø H. S. bolts with hex nuts, 2 PL washers, and 1 lock washer



RAIL TUBE DETAILS

(Use with Bridge Rail Type 10H) or 10R Thrie beam not shown.



END PLATE DETAIL

Design				Detail				Quantities			
	INITIAL	DATE			INITIAL	DATE		INITIAL	DATE
Designed By	JEB	3-16	Detailed By	JEB	3-16	Quantities By	JEB	3-16
Checked By	JBE	4-16	Checked By	JBE	4-16	Checked By	JBE	4-16

bjorkquist| 7:48:14 AM c:\projectwise\pwz_working\d1629894\20951 07 Bridge Rail Type 10T (2 of 2).dgn

Print Date: 2/13/2017
File Name: 20951 07 Bridge Rail Type 10T (2 of 2).dgn
Horiz. Scale: NTS Vert. Scale: As Noted
Staff Bridge Branch - Unit 0226 Unit Leader DDG

Sheet Revisions

Date:	Comments	Init.

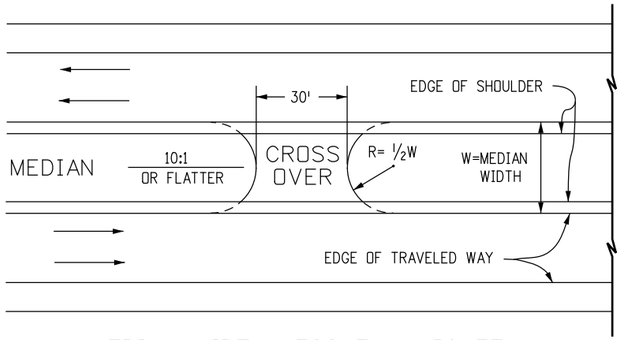
Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone: 719-227-3231 FAX: 719-227-3298
Region 2 DLH

As Constructed
No Revisions:
Revised:
Void:

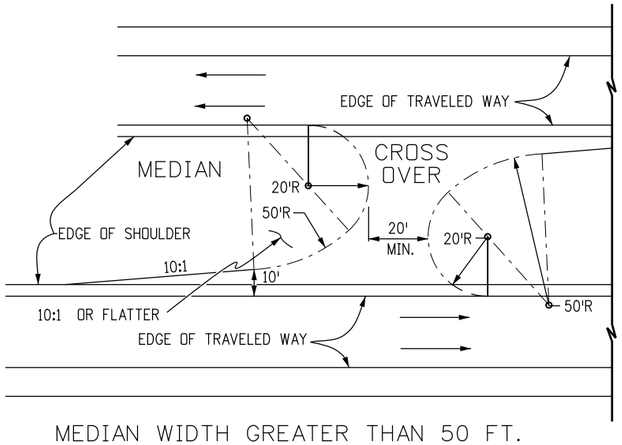
BRIDGE RAIL TYPE 10R
(2 OF 2)

Designer: J. Bjorkquist
Detailer: J. Bjorkquist
Sheet Subset: Bridge
Structure Numbers: I-16-AA, H-16-L, M
Subset Sheets: B7 of 7

Project No./Code
STR 067A - 037 & STA 067A - 039
21254
Sheet Number 111



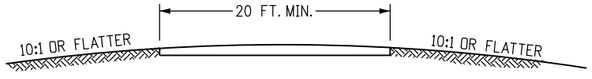
MEDIAN WIDTH LESS THAN 50 FT.



MEDIAN WIDTH GREATER THAN 50 FT.

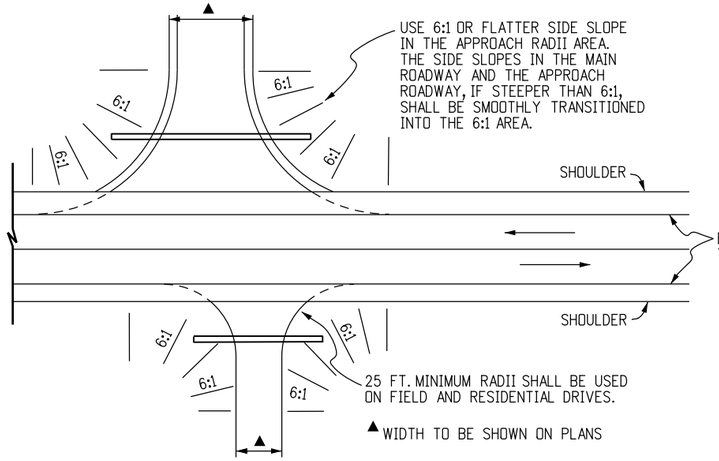
TYPICAL PLANS FOR EMERGENCY MEDIAN CROSS OVER

LOCATION OF RADIUS POINTS MAY BE ADJUSTED FOR BEST FIT



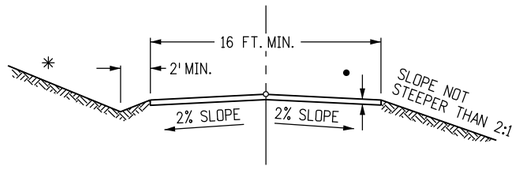
TYPICAL SECTION FOR MEDIAN CROSS OVER

ANY REQUIRED PIPE OR INLET FOR MEDIAN DRAINAGE SHALL HAVE A TRAVERSABLE DESIGN AS SPECIFIED ON THE PLANS



SIDE DRAINS SHALL BE LOCATED BEYOND THE CLEAR ZONE, OR WHEN WITHIN THE CLEAR ZONE, THEY SHALL BE INSTALLED WITH END SECTIONS CONFORMING TO A 6:1 SLOPE. FIFTY FT. RADII SHALL BE USED ON INTERSECTING ROADS, EXCEPT FOR FIELD AND RESIDENTIAL DRIVES OR UNLESS OTHERWISE SPECIFIED ON PLANS. RADII MAY BE VARIED TO SUIT FIELD CONDITIONS.

TYPICAL PLANS FOR SIDE APPROACH ROAD

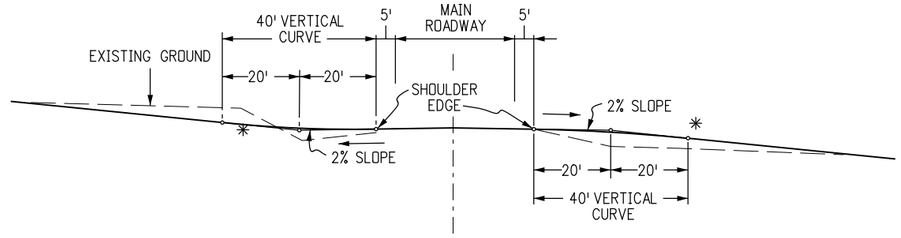


1/2 CUT SECTION 1/2 FILL SECTION

TYPICAL SECTION FOR APPROACH (ACCESS) ROAD

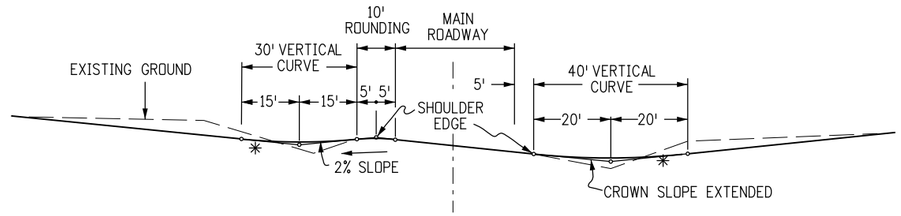
NOTE: ROAD APPROACHES WHICH REQUIRE HMA (ASPHALT) PAVEMENT SHALL BE PLACED AT THE FOLLOWING DISTANCES BACK FROM THE ROADWAY EDGE OF PAVEMENT:

1. RESIDENTIAL OR AGRICULTURAL FIELD ENTRANCES - PAVE 4 FEET BACK.
2. THREE OR MORE RESIDENCES OR COMMERCIAL PROPERTY - PAVE 20 FEET BACK OR TO ROW LINE, WHICHEVER IS LESS.
3. PUBLIC STREET - PAVE 50 FEET BACK OR TO ROW LINE, WHICHEVER IS LESS.
4. IF EXISTING ACCESS IS PAVED, THEN FEATHER NEW ASPHALT OVERLAY A MINIMUM OF 2 FEET BACK OR AS DIRECTED BY THE ENGINEER.

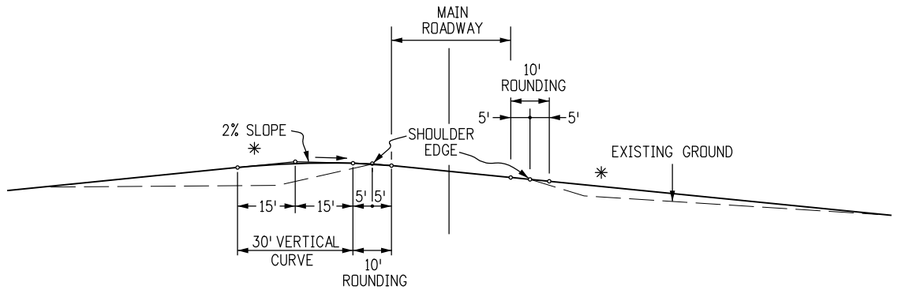


1/2 CUT SECTION 1/2 FILL SECTION

STANDARD CROWNED SECTION



SUPERELEVATED CUT SECTION



SUPERELEVATED FILL SECTION

VERTICAL ALIGNMENT SIDE APPROACH ROADS INTERSECTING MAIN ROADWAY

* TANGENT SLOPE NOT STEEPER THAN 8% BEYOND THE VERTICAL CURVE. THE SLOPE MAY BE STEEPER, IF REQUIRED, TO MEET EXISTING APPROACH SLOPE. HOWEVER, APPROACH ROAD SLOPE SHOULD NOT BE STEEPER THAN EXISTING SLOPE.

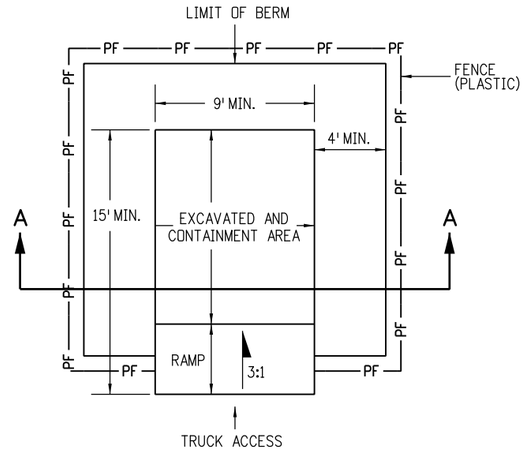
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DD		Date:	Comments
Last Modification Date: 07/08/13 Initials: LTA	(R-X)	07/08/13	Added notes to Approach Road Typ. Sec. detail.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 203010101.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

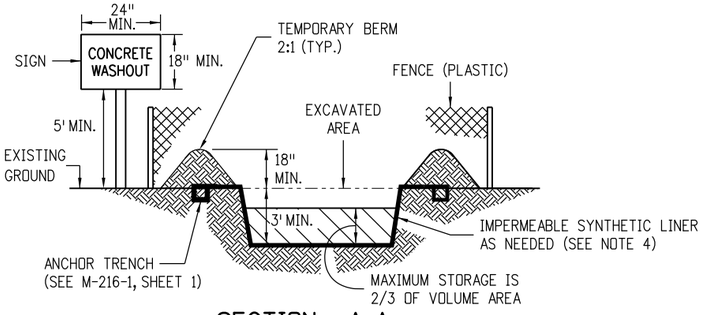
APPROACH ROADS

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-203-1
Sheet No. 1 of 1



PLAN VIEW



SECTION A-A

NOTES:

1. A FENCE (PLASTIC) CONFORMING TO SECTION 607 SHALL BE INSTALLED AROUND THE CONCRETE WASHOUT AREA, EXCEPT AT THE OPENING.

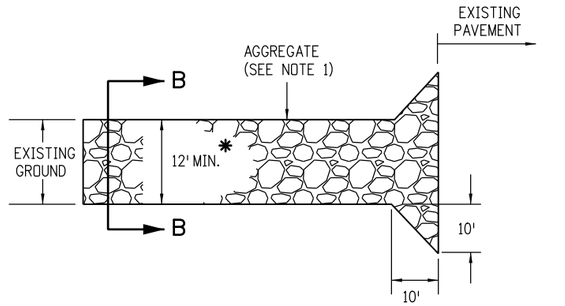
2. THE CONCRETE WASHOUT SIGN SHALL HAVE LETTERS AT LEAST 3 INCHES HIGH AND CONFORM TO SUBSECTION 630.02.

3. ALL MATERIALS AND LABOR TO COMPLETE THE CONCRETE WASHOUT STRUCTURE SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.

4. THE BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF FIVE FEET ABOVE GROUND WATER. IF NOT, IT SHALL BE LINED WITH AN IMPERMEABLE SYNTHETIC LINER THAT IS DESIGNED TO CONTROL SEEPAGE AT A MAXIMUM RATE OF 6 TO 10 CENTIMETERS PER SECOND.

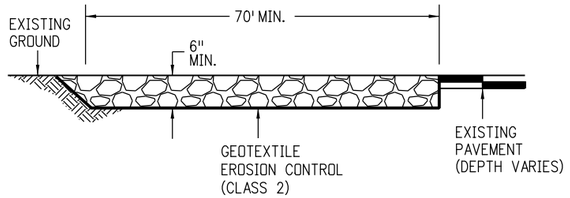
5. THE PAY ITEM NUMBER FOR CONCRETE WASHOUT STRUCTURE (EACH) IS 208-00045.

CONCRETE WASHOUT STRUCTURE

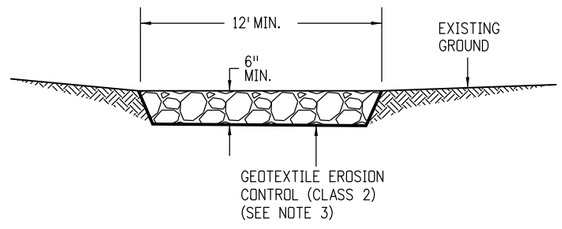


PLAN VIEW

* SHALL EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION.



ELEVATION SECTION



SECTION B-B

NOTES:

1. AGGREGATE SHALL CONFORM TO SUBSECTION 208.02 (K).

2. THE CONTRACTOR SHALL PROTECT CURB AND GUTTER THAT CROSSES THE ENTRANCE FROM DAMAGE. PROTECTION OF THE CURB AND GUTTER SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.

3. GEOTEXTILE SHALL CONFORM TO SUBSECTION 712.08.

4. ALL MATERIALS AND LABOR TO COMPLETE THE VEHICLE TRACKING PAD SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.

5. THE PAY ITEM NUMBER FOR VEHICLE TRACKING PAD (EACH) IS 208-00070.

VEHICLE TRACKING PAD

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	07/16/15	Deleted the two Soil Retention Blanket detail sheets. They are now standard M-216-1 Soil Retention Covering.
Full Path: www.coloradodot.info/business/designsupport	(R-X)	03/29/16	Minor revisions to some dimensions and General Notes.
Drawing File Name: 2080101011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

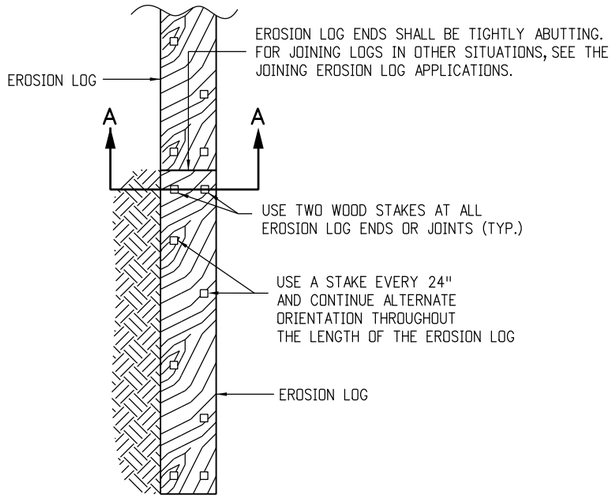
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

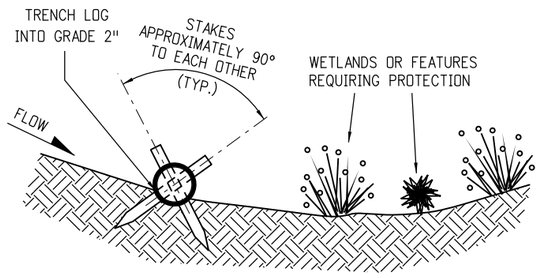
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.

M-208-1



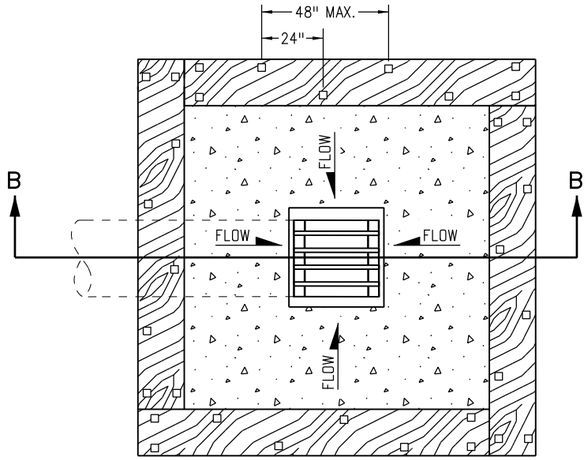
PLAN VIEW



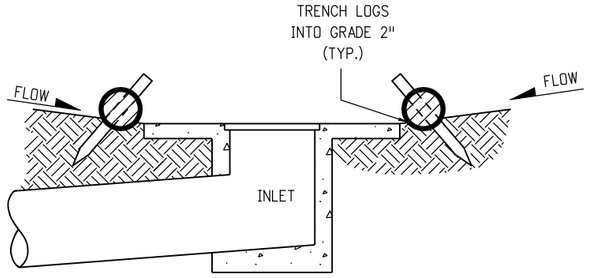
SECTION A-A

TYPICAL STAKE INSTALLATION

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9")
208-00002	TYPE 1 (12")
208-00013	TYPE 1 (20")
208-00007	TYPE 2 (8")
208-00008	TYPE 2 (12")
208-00009	TYPE 2 (18")



PLAN VIEW



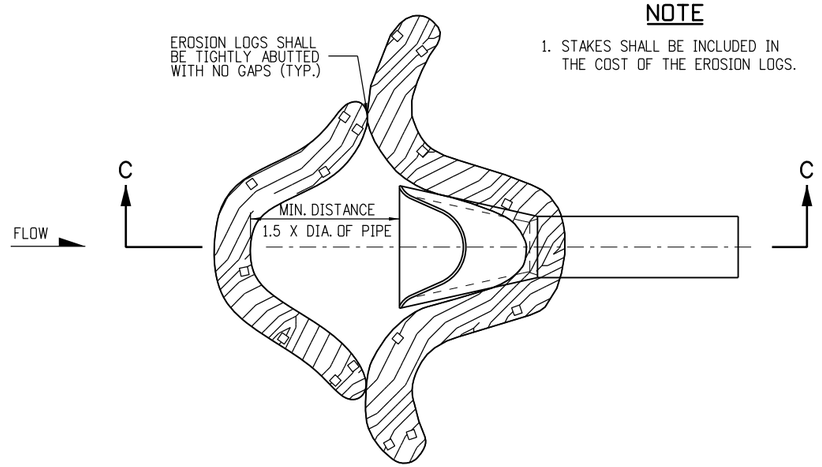
SECTION B-B

NOTE: LOCATE EROSION LOGS AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

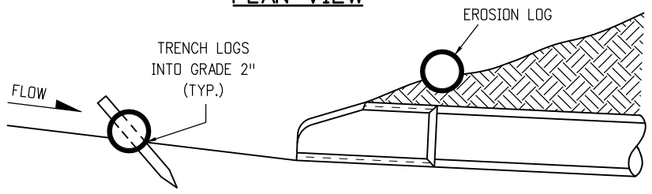
EROSION LOG FILTER AT DROP INLET

NOTE

1. STAKES SHALL BE INCLUDED IN THE COST OF THE EROSION LOGS.



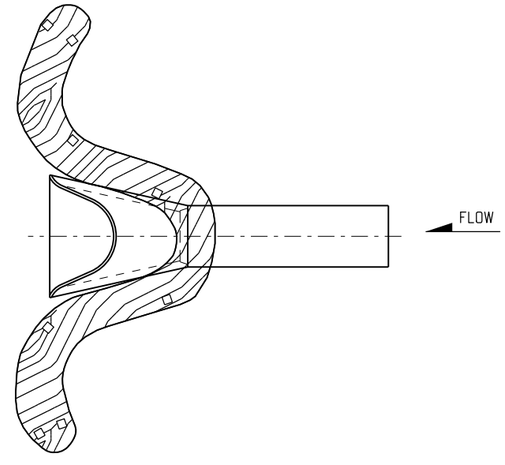
PLAN VIEW



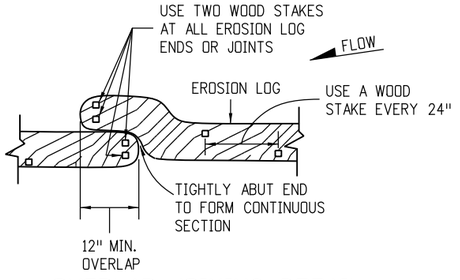
SECTION C-C

(NOT ALL LOGS SHOWN)

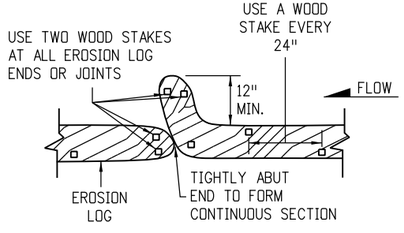
EROSION LOG CULVERT INLET PROTECTION



EROSION LOG CULVERT OUTLET PROTECTION



OVERLAP JOINING DETAIL



J-HOOK JOINING DETAIL

JOINING EROSION LOG APPLICATIONS

EROSION LOG APPLICATIONS

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	03/29/16	Minor revisions to some dimensions. Added Erosion Logs Pay Item table.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 2080102011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

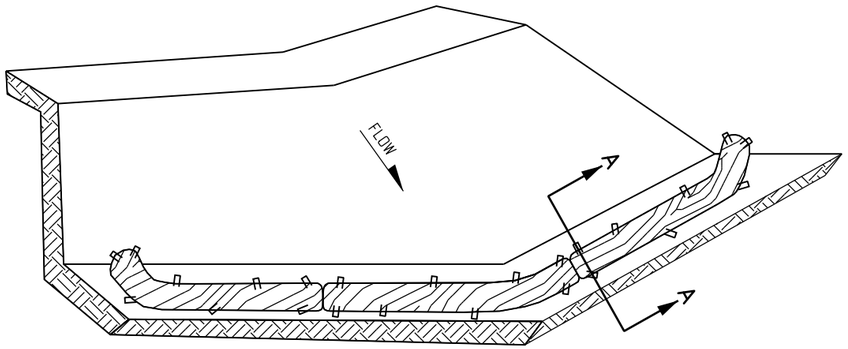
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

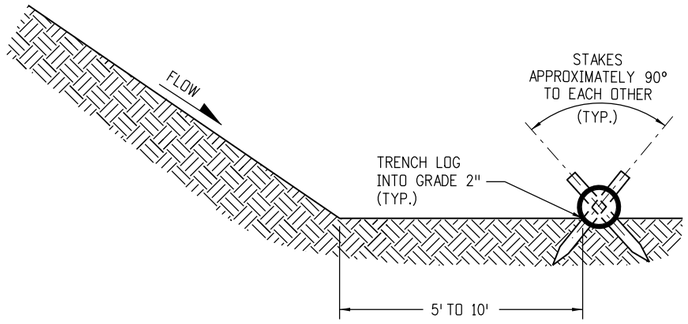
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.

M-208-1



ISOMETRIC VIEW



SECTION A-A

NOTES:

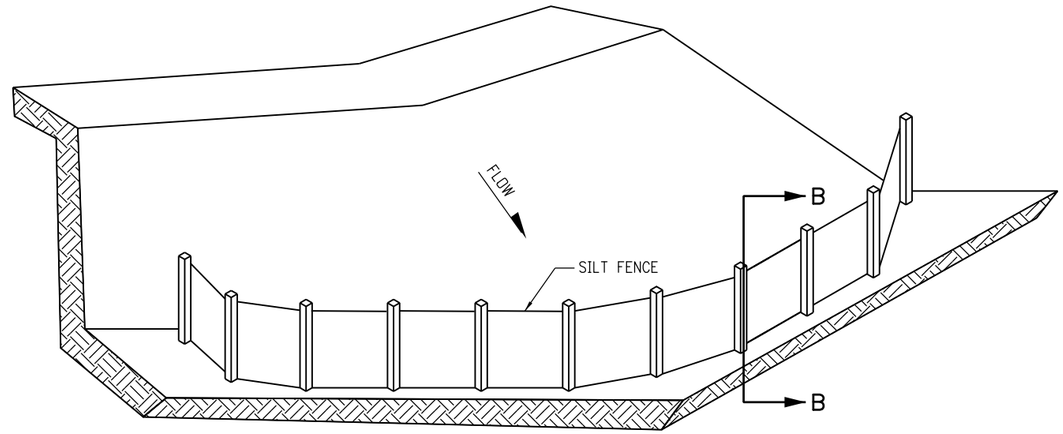
1. EROSION LOGS USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
2. EROSION LOGS SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
3. SEE SHEET 2 OF 11 FOR JOINING LOGS DETAIL.

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9")
208-00002	TYPE 1 (12")
208-00013	TYPE 1 (20")
208-00007	TYPE 2 (8")
208-00008	TYPE 2 (12")
208-00009	TYPE 2 (18")

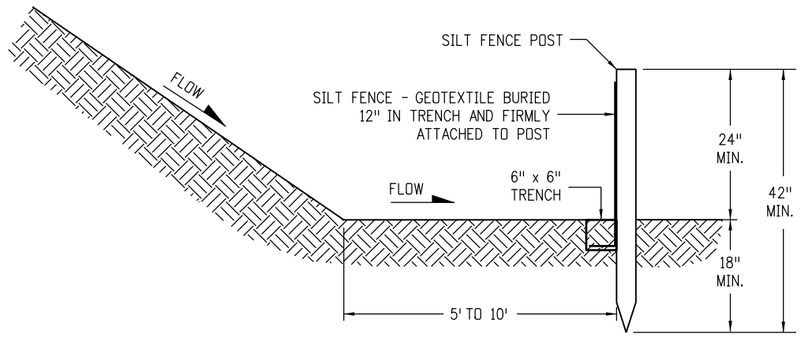
EROSION LOG TOE OF SLOPE PROTECTION

NOTES

1. SILT FENCE SHALL HAVE A MAXIMUM DRAINAGE AREA OF ONE-QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; MAXIMUM SLOPE LENGTH BEHIND BARRIER IS 100 FEET; MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1.
2. SILT FENCE USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
3. SILT FENCE SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
4. THE MAXIMUM LENGTH OF EROSION LOGS OR SILT FENCES WITHOUT A FLARED END TURNING UPSLOPE IS 150 FEET.



ISOMETRIC VIEW



SECTION B-B

SILT FENCE TOE OF SLOPE PROTECTION

NOTE: THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.

TOE OF SLOPE PROTECTION APPLICATIONS

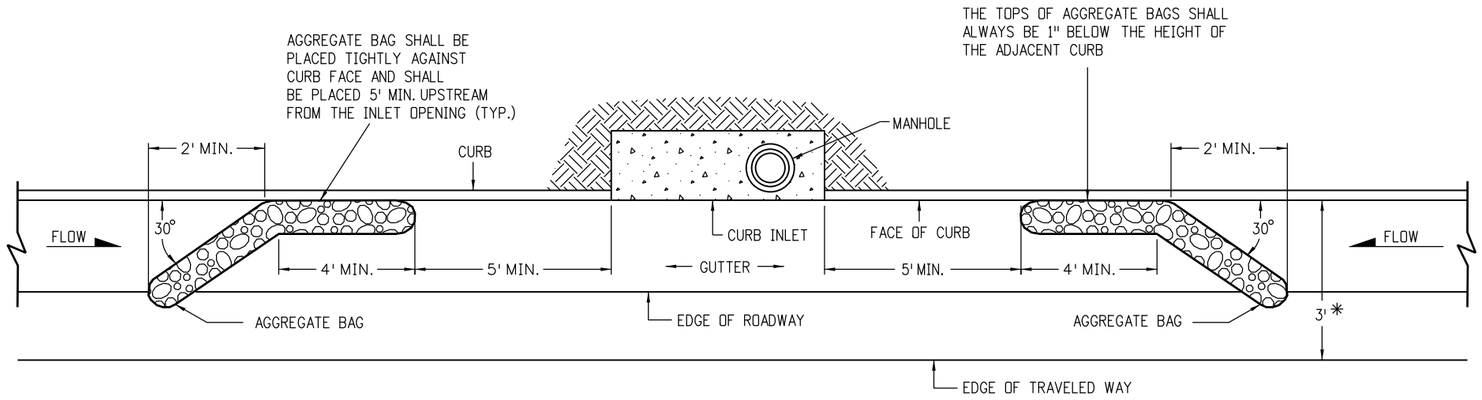
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	R-X	03/29/16	Minor revisions to some dimensions. Added Erosion Logs Pay Item table.
Full Path: www.coloradodot.info/business/designsupport	R-X		
Drawing File Name: 2080103011.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-208-1
Sheet No. 3 of 11

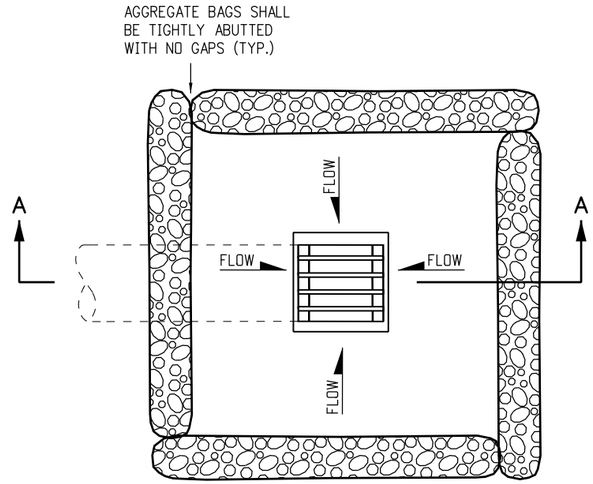


PLAN VIEW

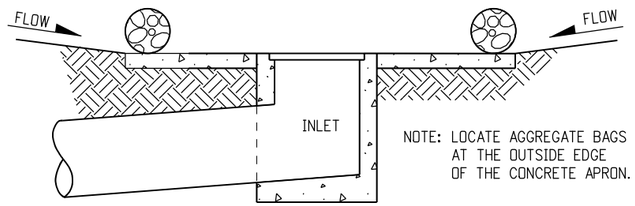
* NOTE: USE AGGREGATE BAGS ONLY WHEN THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB.

LENGTH OF INLET (L)	NUMBER OF AGGREGATE BAGS UPSTREAM OF INLET
0' - 5'	1
6' -10'	2
L > 10'	3

AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I)



PLAN VIEW



SECTION A-A

AGGREGATE BAGS AT DROP INLET

AGGREGATE BAG APPLICATIONS

NOTE: THE PAY ITEM NUMBER FOR AGGREGATE BAG (LF) IS 208-00035

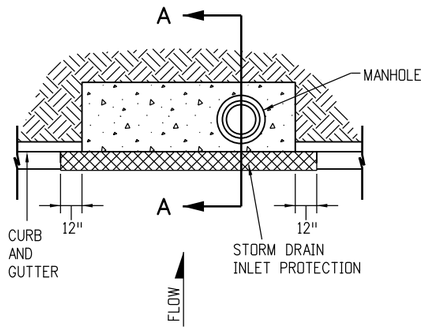
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	03/29/16	Added some dimensions and Note.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 2080104011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

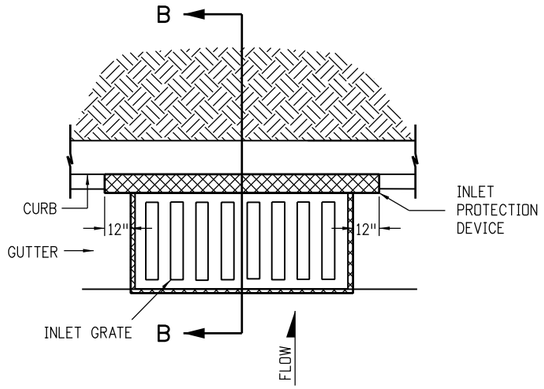
TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

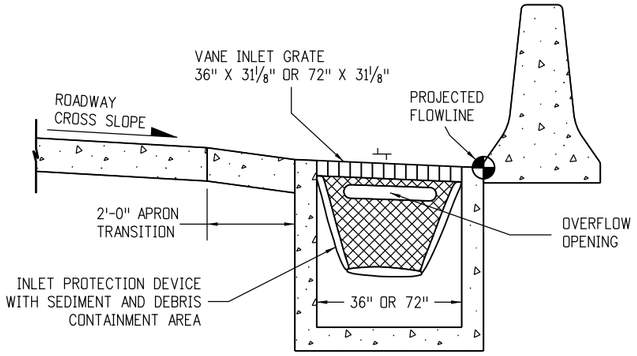
STANDARD PLAN NO.
M-208-1



PLAN VIEW

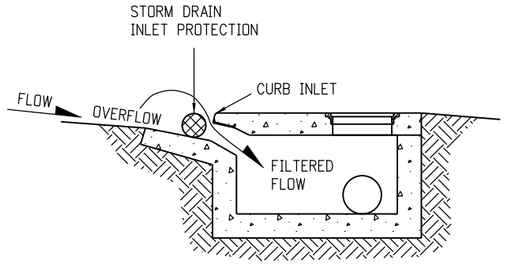


PLAN VIEW



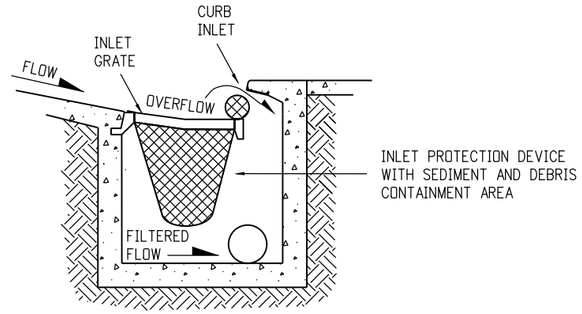
OPTION A

STORM DRAIN INLET PROTECTION (TYPE III)



SECTION A-A

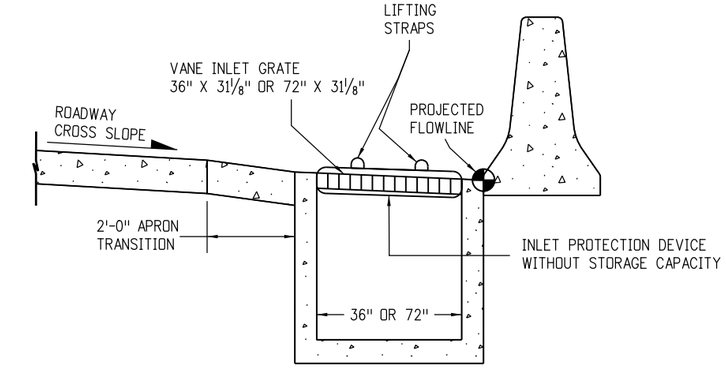
STORM DRAIN INLET PROTECTION (TYPE I)



SECTION B-B

OPTION A

STORM DRAIN INLET PROTECTION (TYPE II)



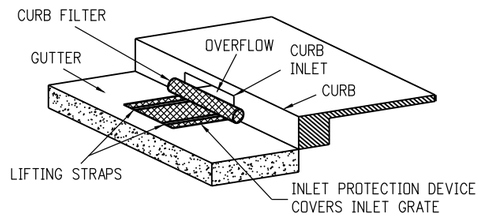
OPTION B

STORM DRAIN INLET PROTECTION (TYPE III)

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE III) (EACH) IS 208-00056.

NOTES

1. INLET PROTECTION DEVICE SHALL EXTEND 12 INCHES PAST EACH END OF THE INLET.
2. THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE I) (EACH) IS 208-00051.
3. FOR STORM DRAIN INLET TYPES I AND II, IF THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB, USE THE AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I) DETAIL ON SHEET 4 INSTEAD.



ISOMETRIC VIEW

OPTION B

STORM DRAIN INLET PROTECTION (TYPE II)

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE II) (EACH) IS 208-00052.

STORM DRAIN INLET PROTECTION TYPES

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	03/29/16	Added Note 3.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 2080105011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

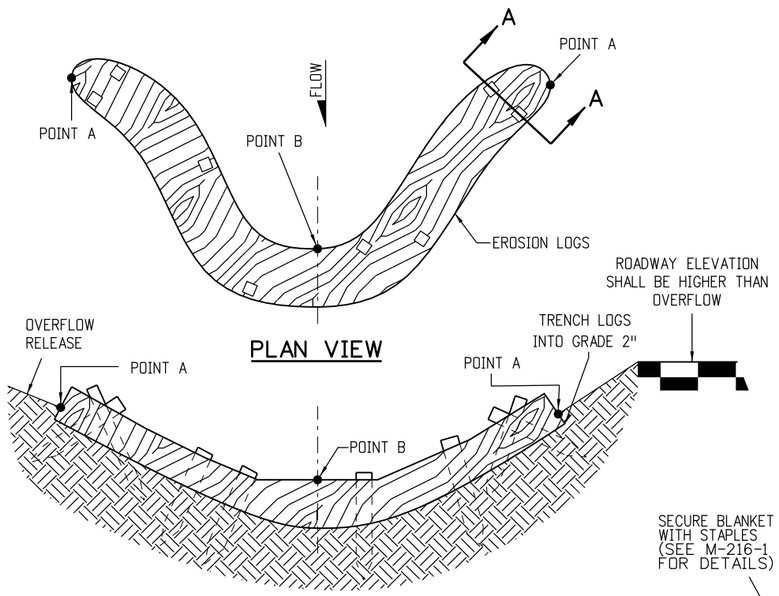
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.

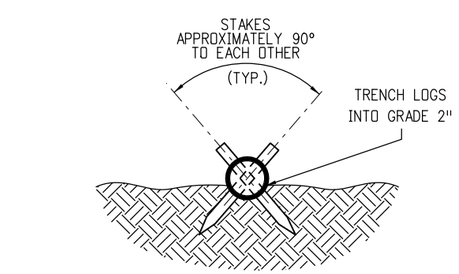
M-208-1



PLAN VIEW

NOTE: POINTS "A" SHALL BE A MINIMUM 4" HIGHER THAN POINT "B".

ELEVATION

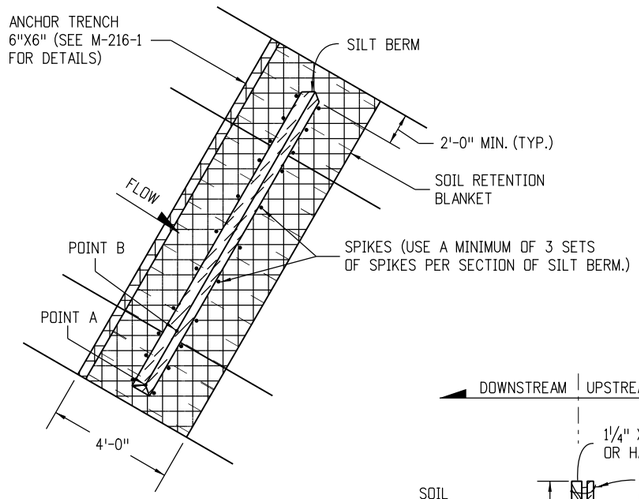


SECTION A-A

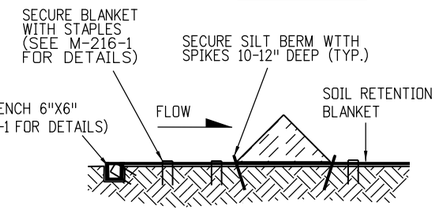
NOTES

1. EROSION LOGS SHALL BE EMBEDDED 2 INCHES INTO THE SOIL.
2. STAKES SHALL BE EMBEDDED TO A MINIMUM DEPTH OF 12 INCHES.
3. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
4. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHAL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.

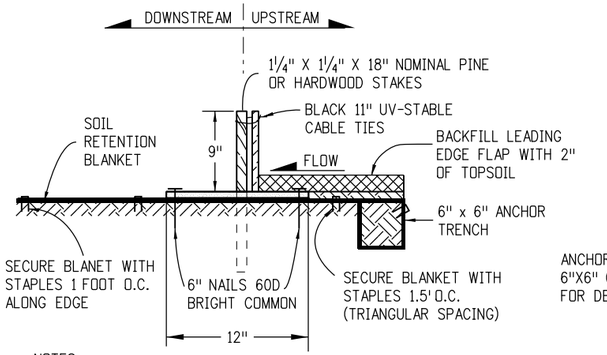
EROSION LOG INSTALLATION



PLAN VIEW



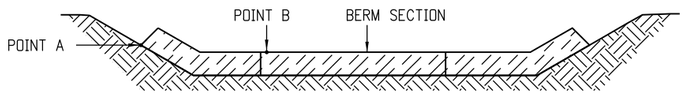
SILT BERM (1) SECTION VIEW



NOTES:

1. MINIMUM 4 NAILS PER SEGMENT (UPSTREAM).
2. MINIMUM 2 NAILS PER SEGMENT (DOWNSTREAM).

SILT BERM (2) SECTION VIEW



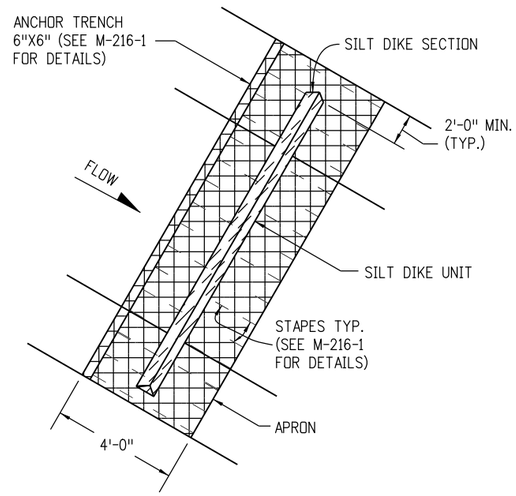
POINT "A" SHALL BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE BERM AND NOT AROUND THE ENDS.

FRONT VIEW

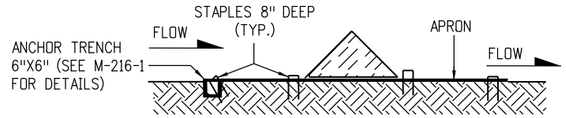
NOTES

1. ANCHOR SOIL RETENTION BLANKET INTO TRENCH WITH 8 INCHES MIN. STAPLES PLACED AT 1 FOOT INTERVALS ALONG EDGE.
2. FILL AND COMPACT TRENCH.
3. SECTIONS OF THE SILT BERM SHALL BE OVERLAPPED WITH NO GAPS.
4. FOR SLOPE AND CHANNEL SPACING SEE THE "SECTION VIEW ALONG DITCH FLOWLINE" DETAIL ON SHEET 11 OF 11.
5. SOIL RETENTION BLANKET SHALL ALWAYS BE REQUIRED.
6. THE PAY ITEM NUMBER FOR SILT BERM (LF) IS 208-00004.

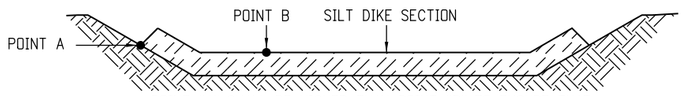
SILT BERM INSTALLATION



PLAN VIEW



TYPICAL SECTION



POINT "A" SHALL BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

FRONT VIEW

NOTES

1. ANCHOR APRON INTO TRENCH WITH 8 INCH MINIMUM STAPLES PLACED AT 1 FOOT INTERVALS ALONG EDGE.
2. FILL AND COMPACT TRENCH.
3. THE APRON SHALL EXTEND A MINIMUM OF 2 FEET BEYOND EACH SIDE OF THE TRIANGLE.
4. FOR SLOPE AND CHANNEL SPACING SEE THE "SECTION VIEW ALONG DITCH FLOWLINE" DETAIL ON SHEET 11 OF 11.
5. THE PAY ITEM NUMBER FOR SILT DIKE (LF) IS 208-00001.

SILT DIKE INSTALLATION

DRAINAGE DITCH APPLICATIONS

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 2080106011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

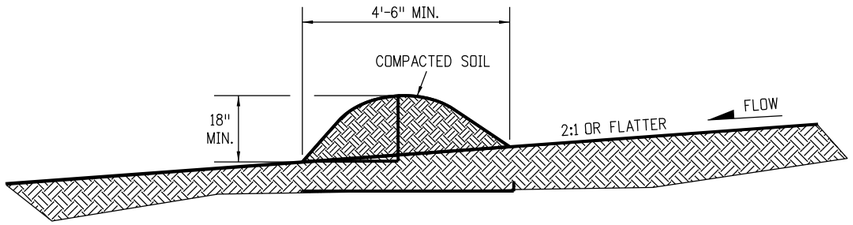
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.

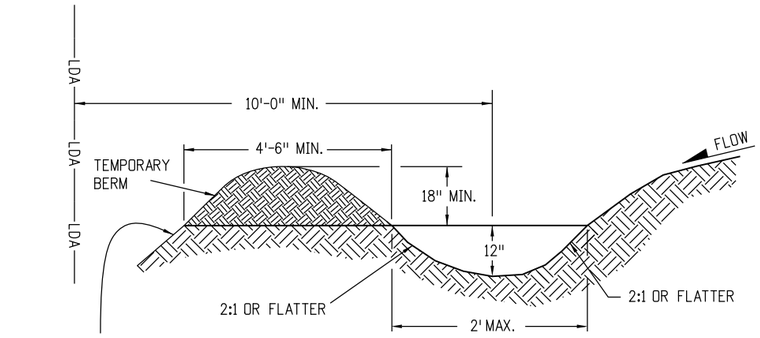
M-208-1



NOTES:

1. BERMS SHALL HAVE A HEIGHT OF 18 INCHES, SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM BASE WIDTH OF 4'-6" FEET.
2. BERMS SHALL BE USED TO INTERCEPT AND DIVERT DRAINAGE TO A DESIGNATED OUTLET.
3. BERMS SHALL NOT BE USED WHERE DRAINAGE AREA EXCEEDS 10 ACRES.
4. BERMS SHALL BE CONSTRUCTED OUT OF MATERIAL COMPACTED WITH AT LEAST A MINIMUM OF ONE WHEEL ROLLED COMPACTION.
5. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.
6. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.

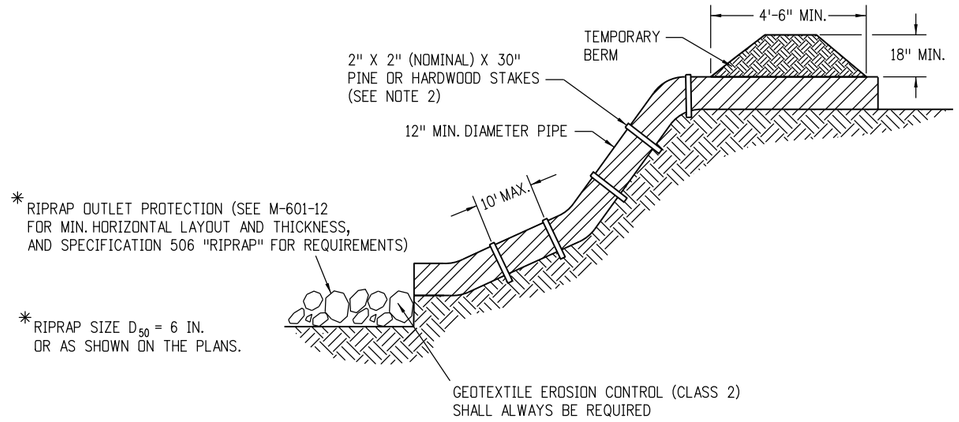
TEMPORARY BERM



NOTES

1. TEMPORARY DIVERSION DITCHES SHALL BE CONSTRUCTED ACROSS THE SLOPE TO INTERCEPT RUNOFF AND DIRECT IT TO A STABLE OUTLET OR SEDIMENT TRAP.
2. USE THE TEMPORARY DIVERSION DITCH IMMEDIATELY ABOVE A NEW CUT, FILL SLOPE, OR AROUND THE PERIMETER OF A DISTURBED AREA.
3. THE GRADIENT ALONG THE FLOW PATH SHALL HAVE A POSITIVE GRADE TO ASSURE DRAINAGE, BUT SHALL NOT BE SO STEEP AS TO RESULT IN EROSION DUE TO HIGH VELOCITY.
4. THE DIVERSION FLOWLINE SHALL ALWAYS BE LOCATED A MINIMUM 10 FEET FROM THE OUTSIDE LIMITS OF DISTURBED AREA BOUNDARY.
5. THE PAY ITEM NUMBER FOR TEMPORARY DIVERSION (LF) IS 208-00301.

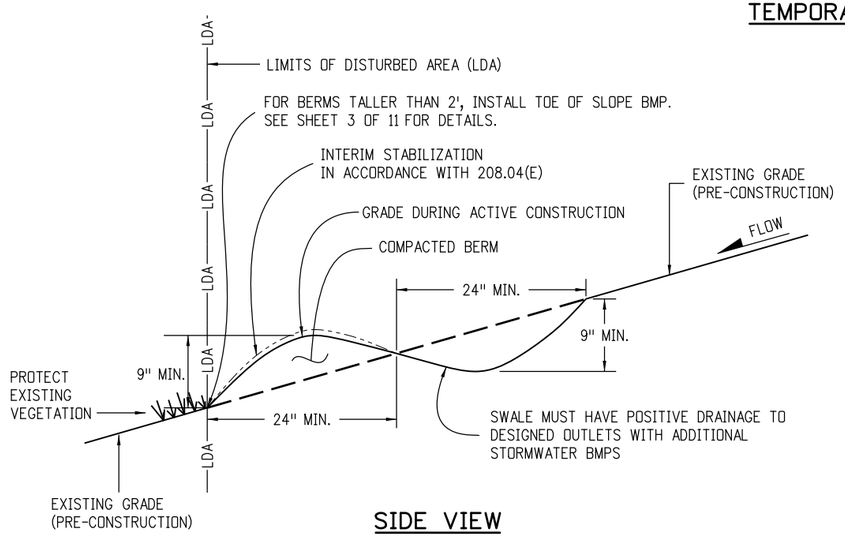
TEMPORARY DIVERSION



NOTES

1. ANCHOR SIZE VARIES ACCORDING TO PIPE SIZE
2. TO SECURE THE PIPE, DRIVE STAKES INTO GROUND, THEN TIE A 12 GUAGE WIRE BETWEEN THEM ABOVE AND ACROSS THE PIPE'S WIDTH.
3. THE OUTLET SHALL BE ALIGNED WITH THE FLOW DIRECTION OF THE EXISTING GRADE. PERPENDICULAR DISCHARGE TO A CHANNEL SHALL NOT BE ACCEPTABLE.
4. THE GRADE AROUND THE INLET TO THE PIPE SHALL BE COMPACTED.
5. THE PAY ITEM NUMBER FOR TEMPORARY SLOPE DRAINS (LF) IS 208-00060.

TEMPORARY SLOPE DRAINS



SIDE VIEW

NOTES:

1. BERMS CAN ONLY BE USED IF CONDITIONS ALLOW UNINTERRUPTED POSITIVE GRADE (MAXIMUM GRADIENT 3%) TO AN OUTLET PROTECTED WITH ADDITIONAL BMPS.
2. MAXIMUM DRAINAGE AREA FOR EACH OUTLET FROM THE SWALE SHALL BE LIMITED TO 2 ACRES.
3. CONTRACTOR SHALL SALVAGE TOPSOIL AND PLACE AFTER BERM IS REMOVED FOR FINAL SEEDING OF ALL DISTURBED AREAS.
4. ALL ACTIVITIES REQUIRED TO ACCOMPLISH TEMPORARY BERM (EXCLUDING SURFACE MULCHING) SHALL BE INCLUDED IN THE COST OF WORK AND WILL NOT BE PAID FOR SEPARATELY.
5. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.
6. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.

TEMPORARY BERM (AT EDGE OF DISTURBANCE)

GRADING APPLICATIONS

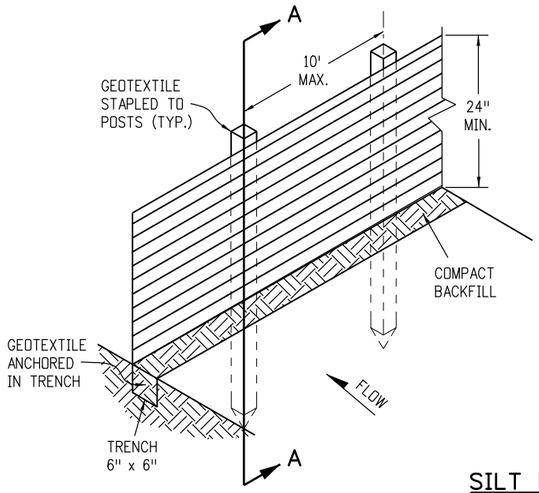
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	03/29/16	Revisions to some dimensions and Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 2080107011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

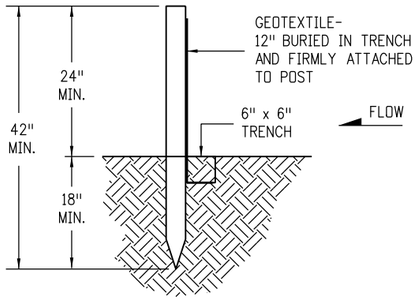
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-208-1
Sheet No. 7 of 11



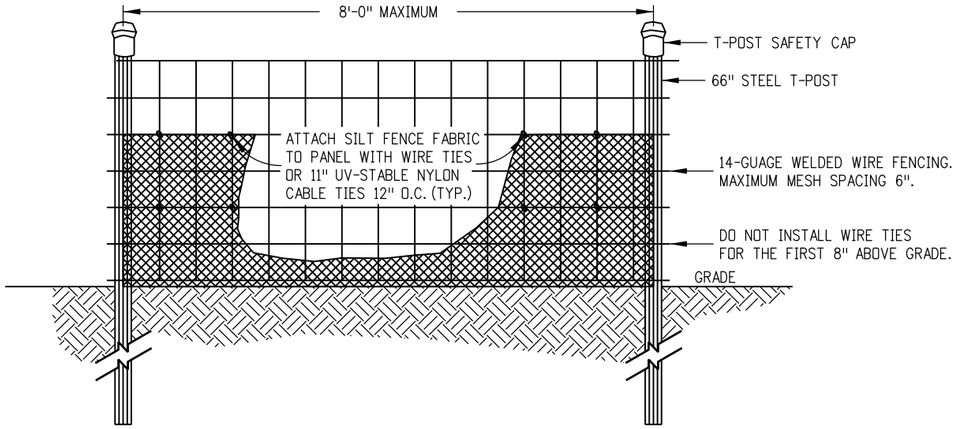


SECTION A-A

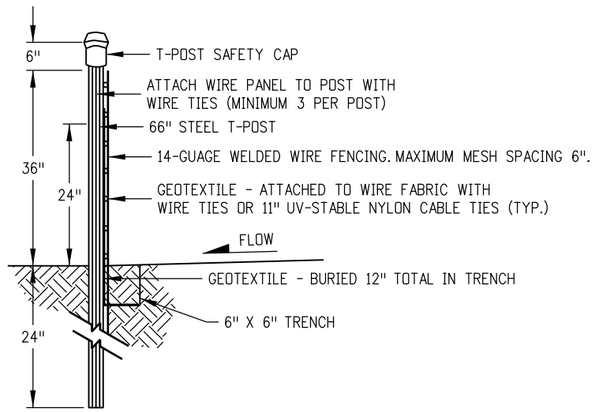
SILT FENCE

NOTES

1. GEOTEXTILE SHALL BE ATTACHED TO WOOD POSTS WITH THREE OR MORE STAPLES PER POST. STAPLES SHALL BE HEAVY DUTY WIRE AND AT LEAST 1" INCH LONG
2. WOOD POST SHALL BE 1½" X 1½" NOMINAL.
3. THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.
4. THE SILT FENCE SHALL BE PLACED ON THE CONTOUR (AT THE SAME ELEVATION ±6"). THE ENDS SHALL BE FLARED UP SLOPE (MINIMUM ELEVATION GAIN OF 18").



ELEVATION VIEW

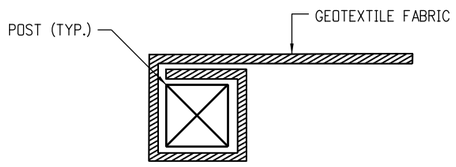


SIDE VIEW

NOTES

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. SILT FENCES SHALL NOT BE USED FOR CHECK DAMS.
3. THE PAY ITEM NUMBER FOR SILT FENCE (REINFORCED) (LF) IS 208-00021.

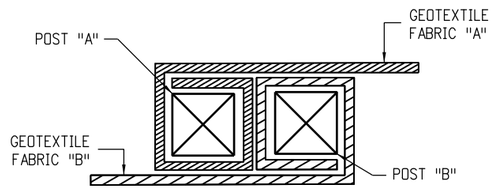
SILT FENCE (REINFORCED)



END SECTION DETAIL (PLAN VIEW)

NOTE

1. THE END OF THE SILT FENCE FABRIC SHALL BE WRAPPED APPROX. 6 INCHES AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.



JOINING SECTION DETAIL (PLAN VIEW)

NOTES

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.

SILT FENCE APPLICATIONS

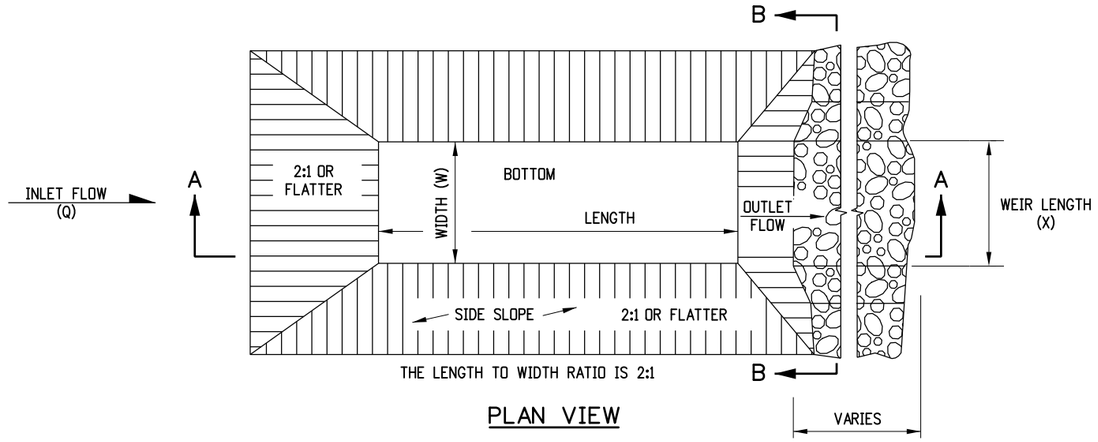
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	03/29/16	Minor revisions to some dimensions and Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 2080108011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

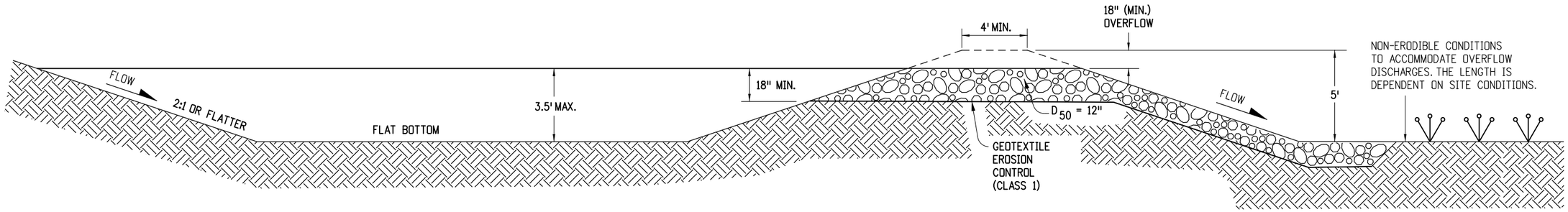
STANDARD PLAN NO.
M-208-1



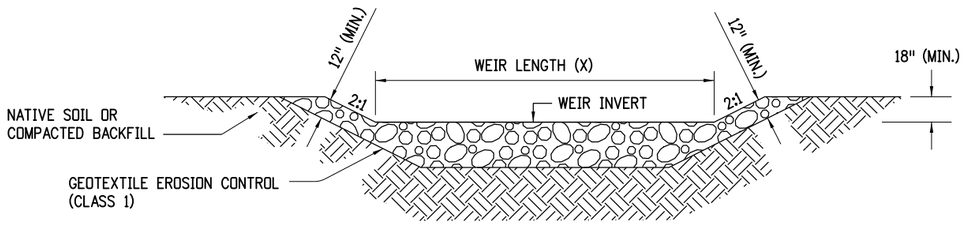
PLAN VIEW

NOTES

1. THE MAXIMUM DRAINAGE AREA IS 5 ACRES.
2. THE MAXIMUM STRUCTURE LIFE IS 2 YEARS.
3. THE STORAGE AREA IS 1800 CUBIC FEET PER ACRE.
4. THE MAXIMUM EMBANKMENT HEIGHT SHALL BE 5 FT. MEASURED ON THE DOWNSTREAM SIDE.
5. THE LENGTH/WIDTH RATIO MAY BE ADJUSTED TO MEET SITE CONDITIONS WHEN APPROVED BY THE ENGINEER.
6. WIDTH (W) OF SEDIMENT TRAP IS APPROXIMATELY EQUAL TO THE WEIR LENGTH (X).
7. SEDIMENT TRAP DESIGN SHALL BE APPROVED BY THE ENGINEER.
8. THE DOWN GRADE FROM WEIR SHALL BE STABLE AND NON-ERODIABLE.
9. THE PAY ITEM NUMBER FOR SEDIMENT TRAP (LF) IS 208-00033.



SECTION A-A



SECTION B-B

DRAINAGE AREA (ACRES)	WEIR LENGTH (FEET)
1	4
2	6
3	8
4	10
5	12

WEIR LENGTH TABLE

SEDIMENT TRAP

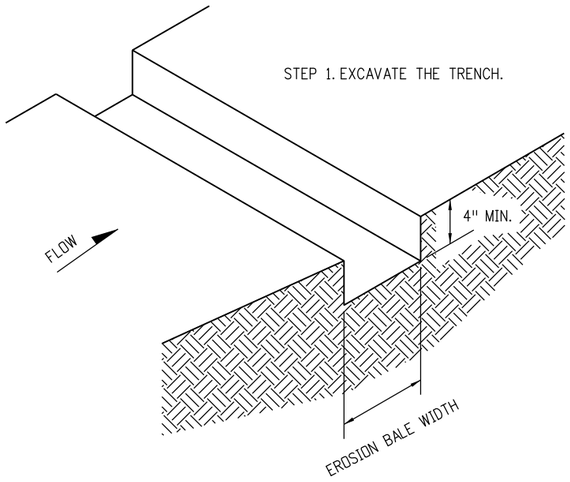
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	03/29/16	Minor revisions to some dimensions.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 2080109010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

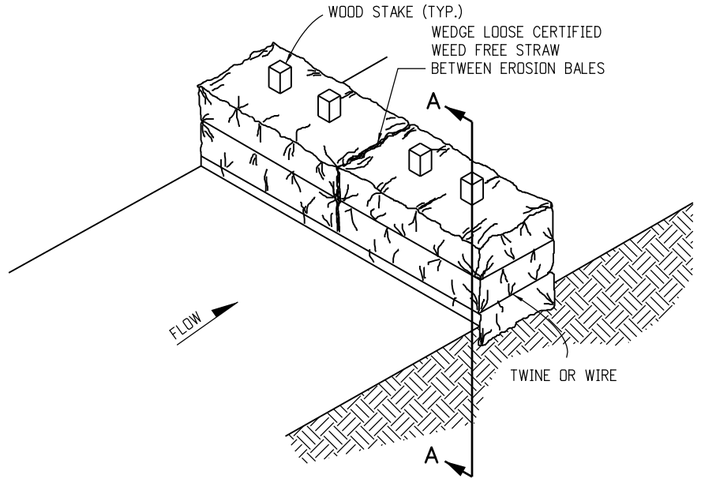
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

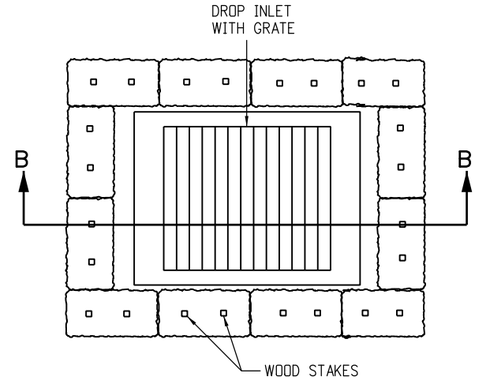
STANDARD PLAN NO.
M-208-1



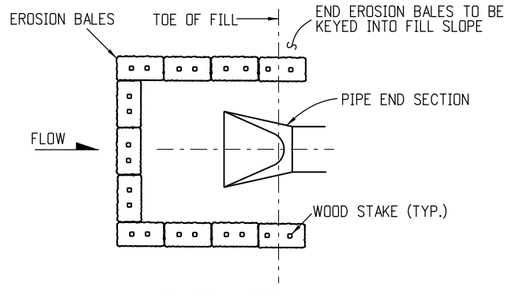


NOTES

1. STAKES SHALL BE WOOD AND SHALL BE 2" X 2" X 30" NOMINAL.
2. EROSION BALES SHALL BE 18" X 18" X 36".
3. EROSION BALES SHALL BE ENTRENCHED 4 IN. MINIMUM INTO THE SOIL, THIGHTLY ABUTTED WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER.
4. EROSION BALES CANNOT BE USED FOR CHECK DAMS.
5. THE PAY ITEM NUMBER FOR EROSION BALES (WEED FREE) (EA) IS 208-00011.

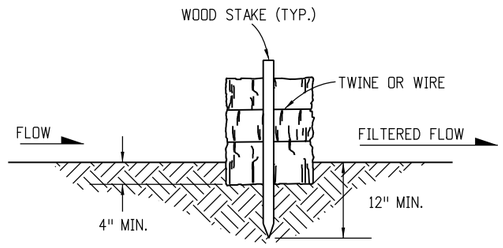


PLAN VIEW



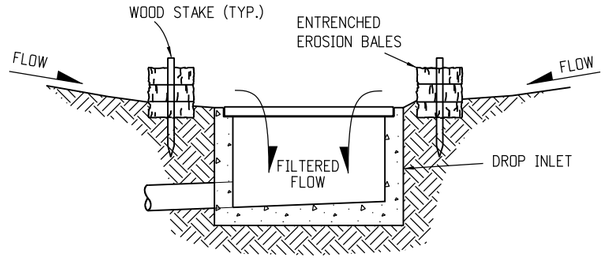
PLAN VIEW

EROSION BALE CULVERT INLET PROTECTION



SECTION A-A

EROSION BALE TRENCHING AND STAKING



SECTION B-B

EROSION BALE FILTER AT DROP INLET

EROSION BALE APPLICATIONS

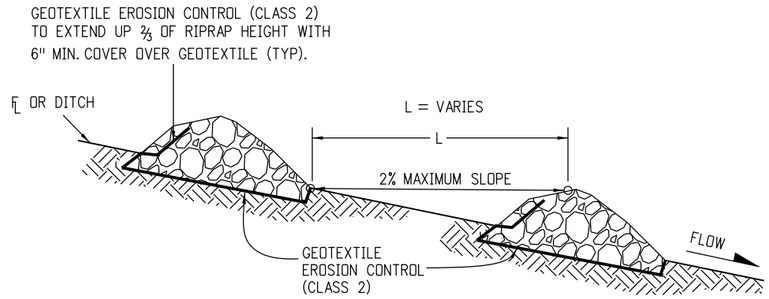
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	03/29/16	Minor revisions to some dimensions.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 20801010011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

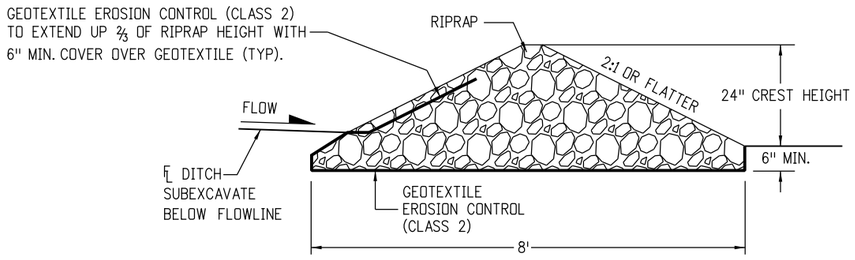
TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-208-1
Sheet No. 10 of 11



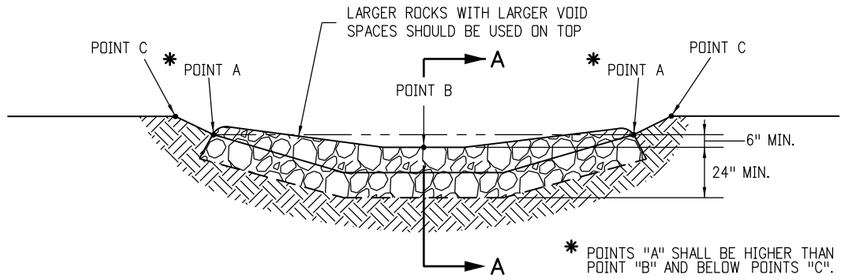
SECTION VIEW ALONG DITCH FLOWLINE



SECTION A-A

NOTES:

1. RIPRAP SIZE D_{50} = 6" OR AS SHOWN ON THE PLANS.
2. THE GEOTEXTILE EROSION CONTROL SHALL BE CLASS 2 AND CONFORM TO THE REQUIREMENTS OF SUBSECTION 712.08.
3. THE ENDS OF RIPRAP CHECK DAM SHALL BE A MINIMUM OF 6 IN. HIGHER THAN CENTER OF CHECK DAM.
4. FOR USE AS TEMPORARY CHECK DAMS ONLY AND NOT FOR PERMANENT INSTALLATIONS.
5. THE PAY ITEM NUMBER FOR ROCK CHECK DAM (EA) IS 208-00041.



TYPICAL SECTION VIEW

ROCK CHECK DAM

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 03/29/16 Initials: LTA	(R-X)	03/29/16	Minor revisions to some Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 20801011011.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

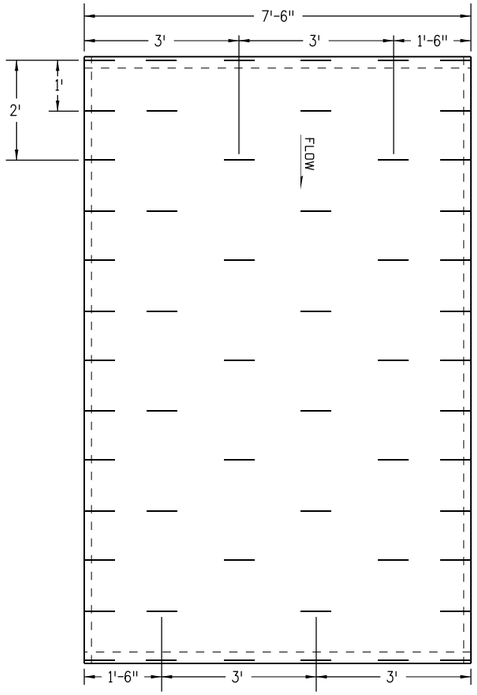
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support JBK/LTA

TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

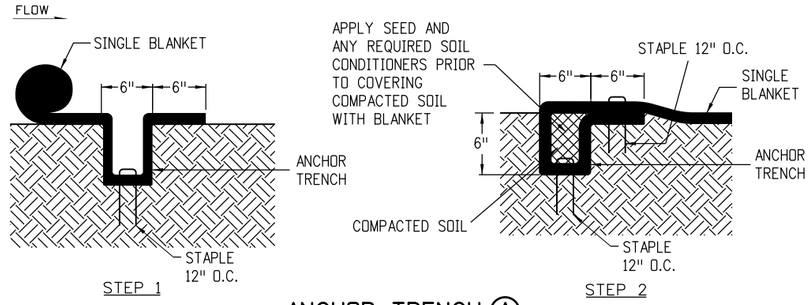
STANDARD PLAN NO.

M-208-1



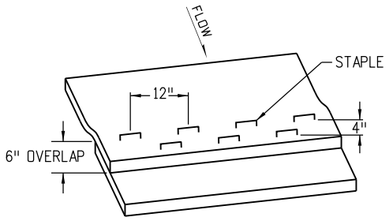
TYPICAL STAPLE PATTERN FOR CHANNEL APPLICATION

SEE SUBSECTION 216.05.



ANCHOR TRENCH (A)

TO BE USED AT THE BEGINNING AND END OF THE CHANNEL ACROSS IT'S ENTIRE WIDTH.

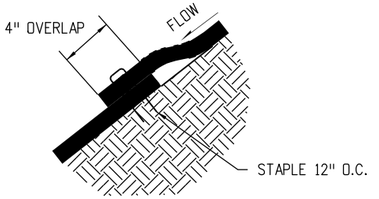


CONSECUTIVE ROLL OVERLAP (B)

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH UPSTREAM BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNSTREAM SIDE.

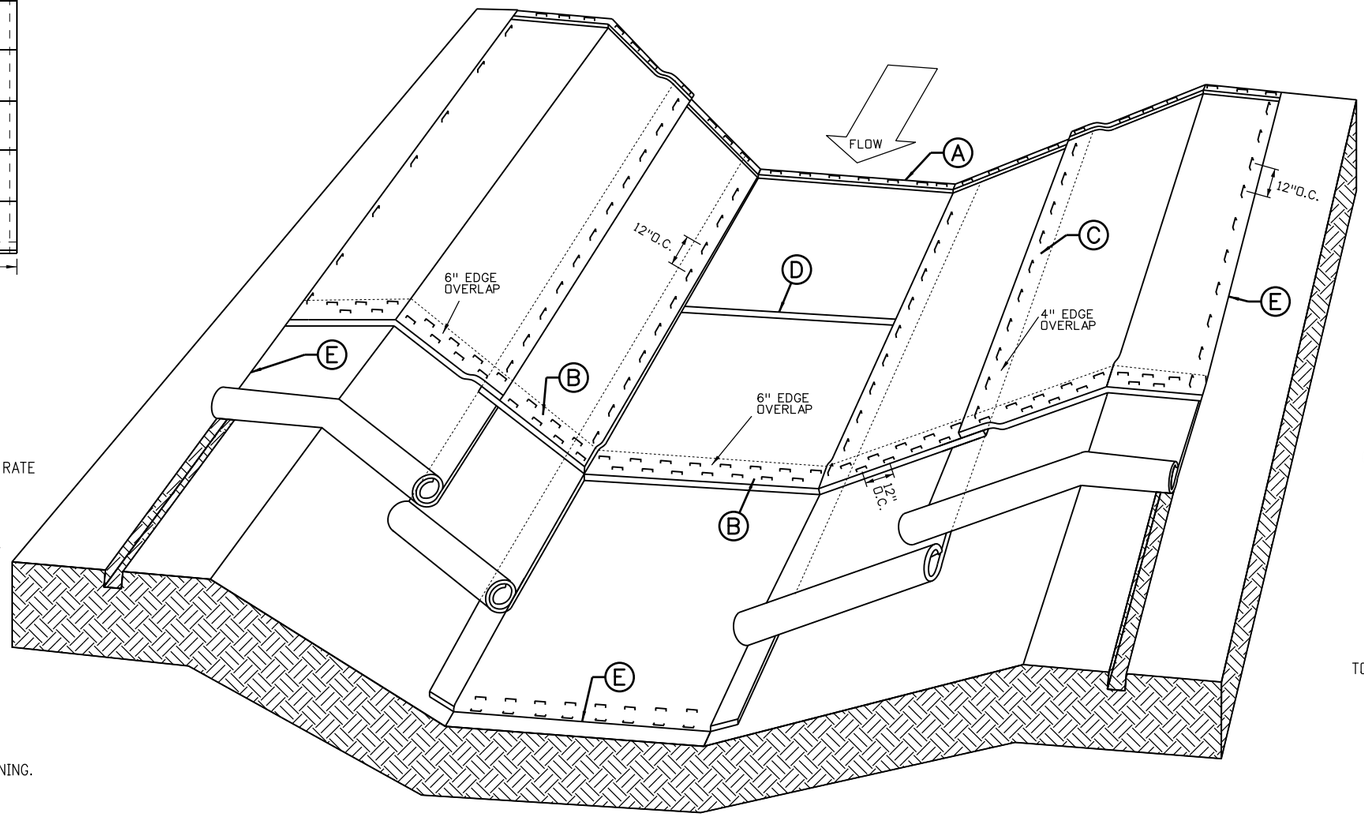
GENERAL NOTES

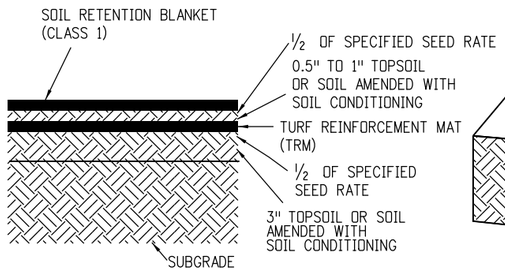
1. Z SHAPED FOLD TO BE USED ON SLOPE EVERY 35 FEET MAXIMUM.
2. STAPLE CHECK LOCATIONS SHOULD BE AT LEAST 15 FEET FROM THE BOTTOM OF SLOPE.



SIDE SEAM OVERLAP (C)

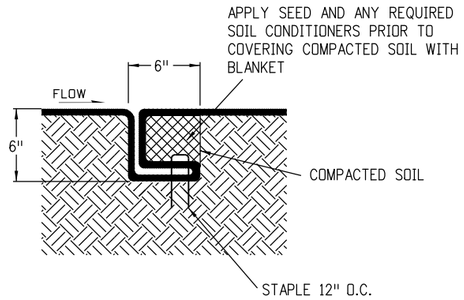
TO BE USED FOR OVERLAP WHEN 2 WIDTHS OF BLANKET ARE APPLIED SIDE BY SIDE WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.





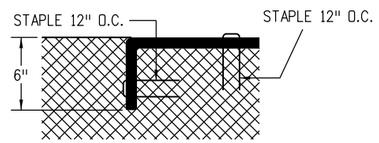
SOIL FILLED TRM APPLICATION

1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
2. APPLY SEED AND RAKE INTO SOIL.
3. INSTALL TRM.
4. PLACE 0.5" TO 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
5. APPLY SEED AND RAKE INTO SOIL.
6. INSTALL SOIL RETENTION BLANKET (CLASS 1).



CHANNEL CHECK SLOT (D)

TO BE USED AT 30' INTERVALS IN CHANNEL FLOWLINE.



TERMINATION OF CHANNEL (E)

SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM) CHANNEL APPLICATION

IN ACCORDANCE WITH SECTION 216.

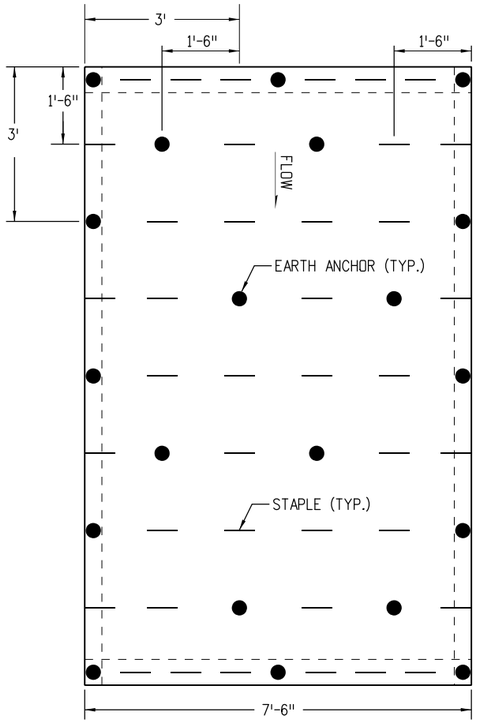
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 07/16/15 Initials: LTA	R-X		
Full Path: www.coloradodot.info/business/designsupport	R-X		
Drawing File Name: 2016010102.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

SOIL RETENTION COVERING

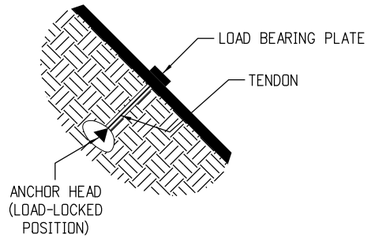
Issued By: Project Development Branch on July 16, 2015

STANDARD PLAN NO.
M-216-1
Sheet No. 1 of 2



TYPICAL STAPLE OR EARTH ANCHOR PATTERN FOR SLOPE APPLICATION

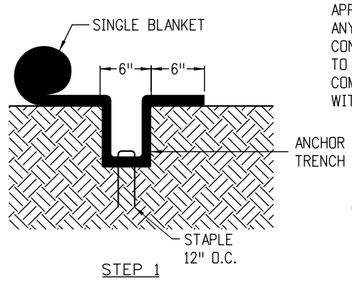
IF EARTH ANCHORS ARE NOT SPECIFIED ON THE PLANS, ONLY STAPLES SHALL BE USED.
SEE SUBSECTION 216.04



EARTH ANCHOR

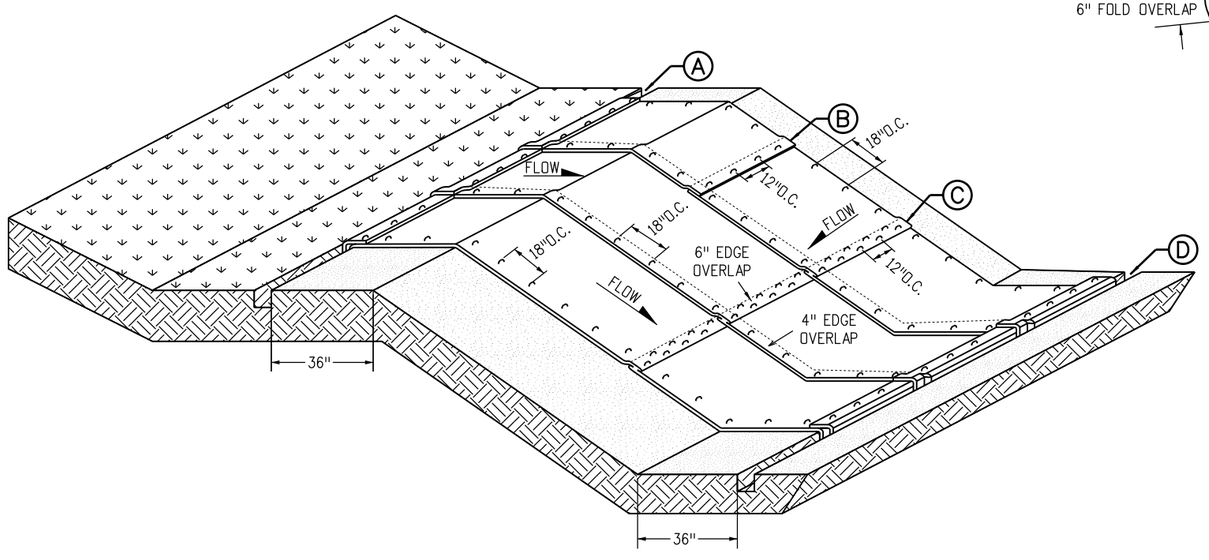
NOTES: 1. EARTH ANCHORS WILL BE USED INSTEAD OF STAPLES WHEN SPECIFIED IN THE PLANS.

2. EARTH ANCHORS SHALL BE PAID FOR SEPERATLY AS SPECIFIED IN SECTION 216.



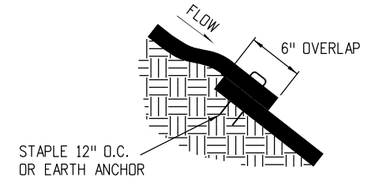
ANCHOR TRENCH (A)

TO BE USED AT THE UPSLOPE AND DOWNSLOPE ENDS OF BLANKET ACROSS THE ENTIRE WIDTH OF SLOPE UNLESS SLOPE RUNS INTO RECEIVING WATER. (SEE DOWNSLOPE END STAPLE CHECK).



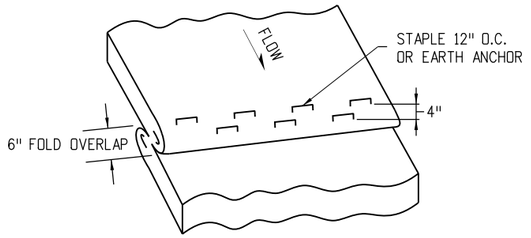
SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM) SLOPE APPLICATION

IN ACCORDANCE WITH SECTION 216.

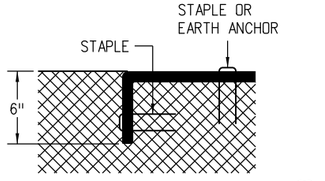


CONSECUTIVE ROLL OVERLAP (B)

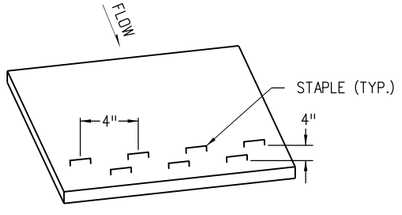
TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



STAPLE CHECK (C)



TERMINATION OF CHANNEL (D)



DOWNSLOPE END STAPLE CHECK

TO BE USED WHEN SLOPE RUNS INTO A RECEIVING WATER AND CANNOT BE EXTENDED 3 FEET BEYOND SLOPE.

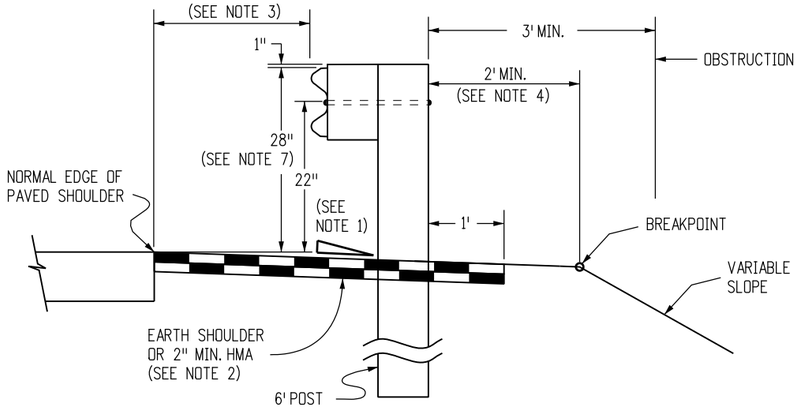
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 07/16/15 Initials: LTA	R-X		
Full Path: www.coloradodot.info/business/designsupport	R-X		
Drawing File Name: 2016010202.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

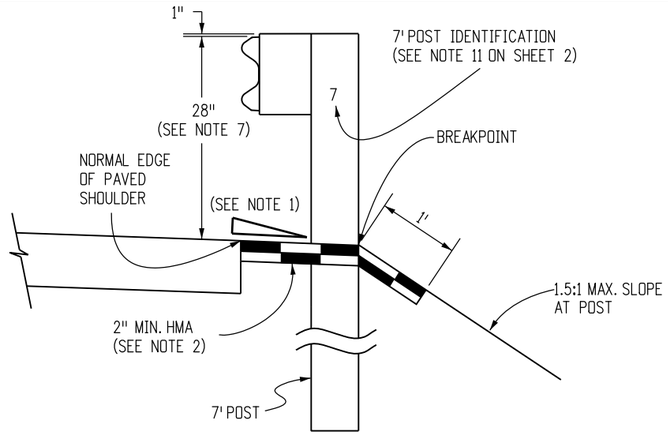
SOIL RETENTION COVERING

Issued By: Project Development Branch on July 16, 2015

STANDARD PLAN NO.
M-216-1
Sheet No. 2 of 2

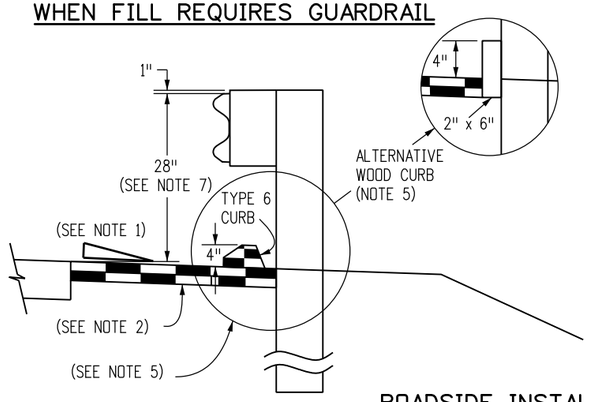


NORMAL ROADSIDE INSTALLATION WHEN FILL REQUIRES GUARDRAIL

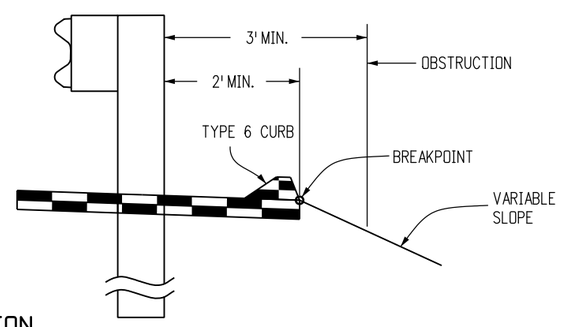


RESTRICTIVE ROADSIDE INSTALLATION WITH 7 FOOT GUARDRAIL POSTS

(SEE NOTE 4)

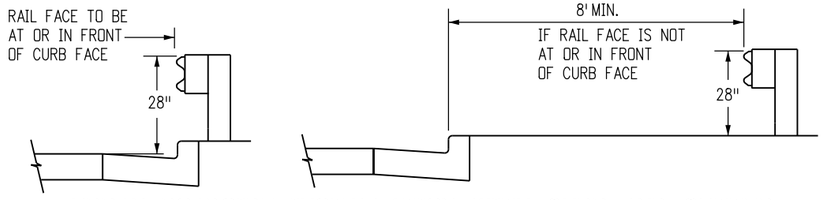


OPTION A



OPTION B

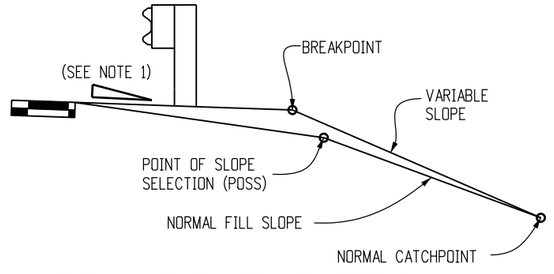
ROADSIDE INSTALLATION WITH EROSION CONTROL CURB



URBAN ROADSIDE INSTALLATION WITH CURB AND GUTTER

LOCATION	SPACING
ALL LOCATIONS EXCEPT BRIDGE RAIL LOCATIONS	6'-3"
BRIDGE OR STRUCTURE APPROACH	SEE SHEETS 12 & 20

NORMAL CENTER-TO-CENTER POST SPACING



EMBANKMENT WITH GUARDRAIL

(NOTE: THE CATCHPOINT REMAINS THE SAME AS THAT FOR "NORMAL" FILL SLOPE. FOR THE WIDER "Z" DISTANCES, THE VARIABLE SLOPE MAY "CATCH" AT THE POSS.)

GENERAL NOTES

1. RATE OF SLOPE DEPENDS ON GUARDRAIL LOCATION:
   A. FOR GUARDRAIL FACE 2 FT. OR LESS FROM THE NORMAL EDGE OF PAVED SHOULDER, CONTINUE THE RATE OF SLOPE OF THE NORMAL PAVED SHOULDER TO THE BREAKPOINT.
   B. FOR GUARDRAIL FACE MORE THAN 2 FT. FROM THE NORMAL EDGE OF THE PAVED SHOULDER, THE SLOPE SHALL BE 10:1 OR FLATTER.
2. WHEN SPECIFIED ON THE PLANS, EXTEND A 2 IN. MINIMUM THICKNESS PAVED SURFACE TO 1 FT. BEHIND THE GUARDRAIL POSTS OR TO THE EROSION CONTROL CURB AS SHOWN ON PLANS. ASPHALT CUTTING & PATCHING OR OTHER APPROVED METHOD SHALL BE USED TO MINIMIZE DAMAGE TO ALL PAVED SURFACES UNDER GUARDRAIL INSTALLATIONS. ALL REPAIRS TO THE PAVED AREA WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK. A MINIMUM 3 IN. THICK FIBER REINFORCED CONCRETE PAVEMENT MAY ALSO BE USED FOR PAVING BENEATH THE GUARDRAIL. INSTALL THE POST IN A $\frac{1}{2}$ IN. OVERSIZED FORMED HOLE FOR GUARDRAIL RUNS AND TERMINALS AS DIRECTED. PAYMENT FOR THIS PAVED SURFACE WILL BE MADE UNDER A PAVEMENT OR CONCRETE PAY ITEM WITH QUANTITIES SHOWN ON THE PLANS.
3. THE MINIMUM GUARDRAIL OFFSET FROM PAVED SHOULDER EDGE SHALL BE:
   0 FT. FOR SHOULDERS 8 FT. OR WIDER
   2 FT. FOR SHOULDERS 6 FT. OR LESS

   THE GUARDRAIL OFFSET FROM PAVED INSIDE SHOULDER EDGE OF A DIVIDED HIGHWAY SHALL BE;
   0 FT. MINIMUM FOR SHOULDERS 6 FT. OR WIDER
   2 FT. DESIRABLE FOR 4 FT. SHOULDERS

   THE ABOVE 2 FT. GUARDRAIL TO SHOULDER OFFSET IS DESIRABLE BUT NOT REQUIRED FOR:
   A. FOR AN EXISTING HIGHWAY WITH A DESIGN SPEED LESS THAN 50 MPH, THE MINIMUM OFFSET IS 4 FT. FROM THE TRAVELED WAY.
   B. FOR A ONE-WAY ONE-LANE RAMP, AND WHERE ONE OR MORE OF THE FOLLOWING ARE TRUE:
      (1) THE NON-OFFSET GUARDRAIL BEGINS AT LEAST 100 FT. BEYOND RAMP NOSE.
      (2) THE NON-OFFSET GUARDRAIL IS NOT LOCATED ON THE RAMP EXIT OR ENTRANCE CURVE CONNECTION TO THE MAJOR HIGHWAY.
      (3) THE RAMP SHOULDERS ARE 4 FT. OR WIDER.

   USE OF GREATER THAN MINIMUM OFFSET DIMENSIONS IS ENCOURAGED TO MEET THE DESIRABLE GOAL OF PLACING THE GUARDRAIL AS FAR AS POSSIBLE FROM THE TRAVEL WAY, EVEN FOR SHORT DISTANCES, WHILE PROVIDING A SMOOTH CHANGE IN GUARDRAIL ALIGNMENT.
4. IF 2 FT. CANNOT BE PROVIDED BETWEEN THE BACK OF THE GUARDRAIL POST AND THE BREAKPOINT, USE 7 FT. GUARDRAIL POSTS. REFER TO THE "RESTRICTIVE ROADSIDE INSTALLATION" DETAIL.
5. WHEN SPECIFIED ON THE PLANS, INSTALL 4 IN. HIGH TYPE 6 CURB WITH ITS FACE AT OR BEHIND THE RAIL FACE. AS AN ALTERNATIVE WHEN SPECIFIED ON THE PLANS, INSTALL A 2 IN. x 6 IN. TREATED (AASHTO M 133) WOOD CURB. FASTEN WITH A 4 IN. LAG BOLT AND WASHER AT EACH WOOD POST, OR WITH A $\frac{1}{4}$ IN. DIA. BOLT WITH WASHER AND NUT AT EACH STEEL POST. IF THE 2 IN. x 6 IN. WOOD CURB IS SPECIFIED, IT WILL BE INCLUDED IN THE COST OF THE GUARDRAIL. IF APPROVED BY THE ENGINEER, A 2 IN. x 4 IN. TREATED WOOD CURB MAY BE SUBSTITUTED FOR THE 2 IN. x 6 IN. CURB AND SET ON TOP OF PAVEMENT SURFACE AND ATTACHED AS DESCRIBED ABOVE. NO SPLICING SHALL BE ALLOWED IN WOOD CURBS. ADJACENT BOARDS SHALL BE BUTTED TOGETHER AND BOLTED AT A POST LOCATION. JOINTS SHALL BE LOCATED AT THE POSTS.
6. SEE SHEET 7 FOR CURB TREATMENTS AT GUARDRAIL TERMINALS.
7. RESET GUARDRAIL IF THIS DIMENSION WILL BE LESS THAN 25 IN.
8. ALL W-BEAM SPLICES, AND SPLICES OF TERMINAL CONNECTORS TO W-BEAM SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC UNLESS OTHERWISE NOTED.
9. MATERIAL TYPE AND SHAPE OF POSTS AND BLOCKS SHALL BE THE SAME THROUGHOUT THE PROJECT EXCEPT WHEN SPECIFIC POSTS AND BLOCKS ARE SPECIFIED, i.e. AT END ANCHORAGES AND BOX CULVERTS.
10. CONCRETE MAY BE READY-MIXED OR FIELD-MIXED AND SHALL CONSIST OF A MINIMUM OF 1 PART CEMENT TO 6 PARTS AGGREGATE BY VOLUME.

THE GENERAL NOTES ARE CONTINUED ON SHEET 2.

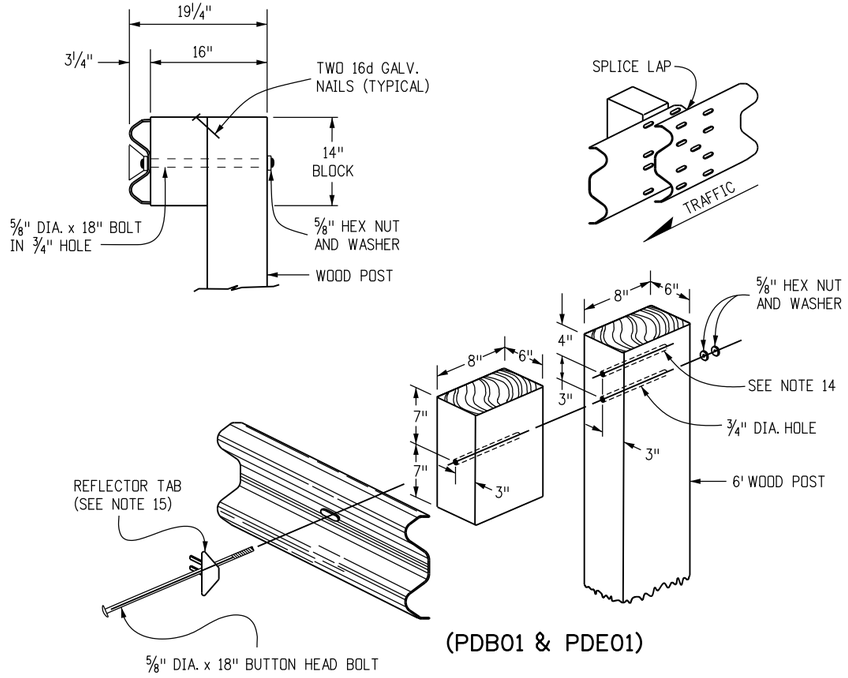
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/27/14 Initials: LTA	(R-X)	10/09/14	Added details of the X-Lite flared and non-flared end terminals to sheets 6 and 8.
Full Path: www.coloradodot.info/business/designsupport	(R-X)	10/27/14	Removed the Et-Plus End Anchorage (non-flared) from sheet 8.
Drawing File Name: 6010101020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

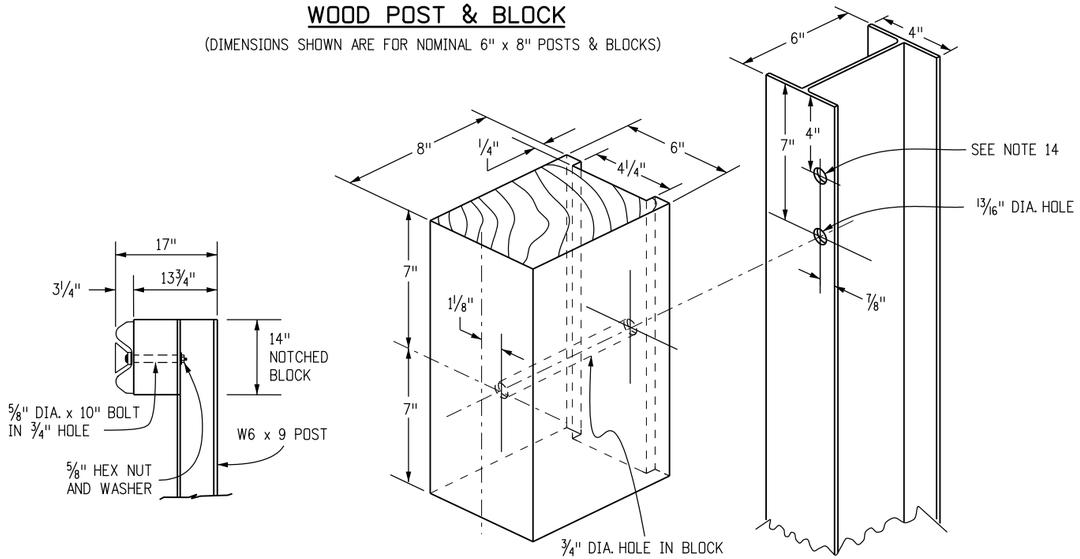
STANDARD PLAN NO.
M-606-1



(PDB01 & PDE01)

WOOD POST & BLOCK

(DIMENSIONS SHOWN ARE FOR NOMINAL 6" x 8" POSTS & BLOCKS)



STEEL POST & NOTCHED BLOCK

(NOMINAL DIMENSIONS ARE SHOWN FOR THE POSTS & BLOCKS)

(PWE01)

GENERAL NOTES (CONTINUED FROM SHEET 1)

11. WHEN SPECIFIED IN THE CONTRACT, 7 FT. POSTS SHALL BE INSTALLED INSTEAD OF THE STANDARD 6 FT. POSTS. THE 7 FT. POSTS SHALL BE MARKED WITH THE NUMBER 7 TO ENSURE PERMANENT INDENTIFICATION. STEEL POSTS SHALL BE STAMPED PRIOR TO GALVANIZING. THE NUMBER 7 SHALL BE A MINIMUM 2 IN. TALL AND LOCATED AS SHOWN ON THE ELEVATION VIEW ON SHEET 1.

12. THE STANDARD 3 IN. X 1¾ IN. X 3/16 IN. RECTANGULAR WASHER USED UNDER POST BOLT HEADS IN THE PAST MAY REMAIN IN EXISTING INSTALLATIONS BUT SHALL NOT BE USED IN NEW CONSTRUCTION, REPAIRS, OR RESETTING OF RAIL, EXCEPT WHEN SPECIFICALLY IDENTIFIED ON THE STANDARD PLAN.

13. STANDARD GALVANIZED ROUND STEEL WASHERS SHALL BE USED UNDER ALL NUTS IN CONTACT WITH WOOD POSTS.

14. AN ADDITIONAL HOLE SHALL BE PROVIDED IN THE POSTS TO FACILITATE FUTURE RAISING OF THE RAIL ELEMENTS AND BLOCKS FOR OVERLAYS.

15. RETROREFLECTOR TABS SHALL BE INSTALLED AT 25 FT. INTERVALS (SEE SHEETS 6 AND 8 FOR EXCEPTIONS). RETROREFLECTOR TABS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK. THE TABS SHALL BE MOUNTED SO THE BOLT SLOT FACES AWAY FROM TRAFFIC, AND THE RETROREFLECTOR SURFACE FACES THE APPROACHING TRAFFIC FOR ONE-WAY ROADS. FOR TWO-WAY ROADS, BOTH SIDES OF THE TABS SHALL BE RETROREFLECTIVE, SO THAT DELINEATION IS PROVIDED FOR BOTH DIRECTIONS OF TRAVEL. THE RETROREFLECTIVE SHEETING COLOR SHALL MATCH THE COLOR OF THE ADJACENT TRAVEL WAY EDGE LINE. SEE THE RETROREFLECTOR TAB DETAIL ON SHEET 3.

16. AT THE TIME OF INSTALLATION, WOOD POSTS OR BLOCKS WITH SEASONING CHECKS GREATER THAN ¼ IN. SHALL NOT BE USED WHEN THE CHECK EXTENDS THE FULL LENGTH OF THE PIECE.

17. WOOD BLOCKS SHALL BE CUT FROM THE SAME CROSS-SECTION, SPECIES, AND GRADE, AND SHALL RECEIVE THE SAME PRESERVATIVE TREATMENT AS THE POSTS WHEN WOOD POSTS ARE USED.

18. REFERENCES SUCH AS 00PDB01", 00PDE01", AND 00PWE01" IN THIS STANDARD PLAN SPECIFY HARDWARE DETAILS FROM 00A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE" PREPARED BY THE AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.

19. NOTCHED RAIL BLOCKS MANUFACTURED FROM SYNTHETIC MATERIAL WILL BE ACCEPTED AS ALTERNATIVES TO WOOD NOTCHED BLOCKS FOR USE WITH STEEL POSTS PROVIDED THAT THE BLOCKS HAVE RECEIVED FHWA APPROVAL AND ARE CERTIFIED AS IDENTICAL TO THE SPECIMENS USED FOR TESTING AND APPROVAL.

20. WOOD POSTS SHALL BE MADE OF TIMBER WITH AN EXTREME FIBER STRESS IN BENDING OF 1200 PSI STRESS GRADING AND POST DIMENSIONS SHALL CONFORM WITH THE RULES OF THE WEST COAST INSPECTION BUREAU, OR THE SOUTHERN PINE BUREAU, OR THE WESTERN WOOD PRODUCTS ASSOCIATION. TIMBER FOR POSTS SHALL BE EITHER ROUGH SAWN (UNPLANED) OR S4S (SURFACED FOUR SIDES) WITH NOMINAL DIMENSIONS INDICATED. ONLY ONE TYPE OF SURFACE FINISH SHALL BE USED FOR POSTS AND BLOCKS IN ANY ONE CONTINUOUS LENGTH OF GUARDRAIL.

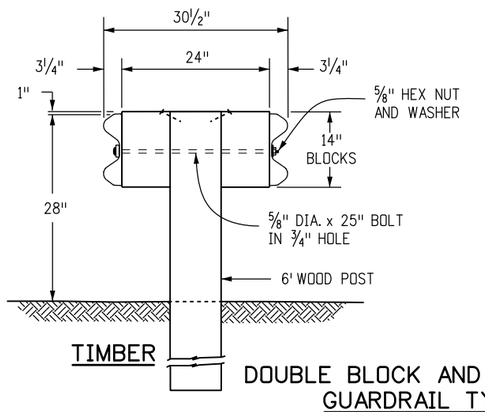
21. GLULAM POSTS AND BLOCKS WILL BE ACCEPTED AS ALTERNATIVES PROVIDED THAT THE SUPPLIED MATERIALS HAVE RECEIVED FHWA APPROVAL AND ARE CERTIFIED AS IDENTICAL TO THE SPECIMENS USED FOR TESTING AND APPROVAL.

22. PRESSURE TREATMENT OF POSTS AND BLOCKS SHALL CONFORM TO AASHTO M 133 EXCEPT THAT BLOCKS NEED NOT BE INCISED. PRESERVATION ASSAY RETENTION REPORTS SHALL BE SUBMITTED TO THE ENGINEER. THE CONTRACTOR SHALL CERTIFY THAT THE SPECIES AND GRADE MEET THE REQUIREMENTS OF THE CONTRACT.

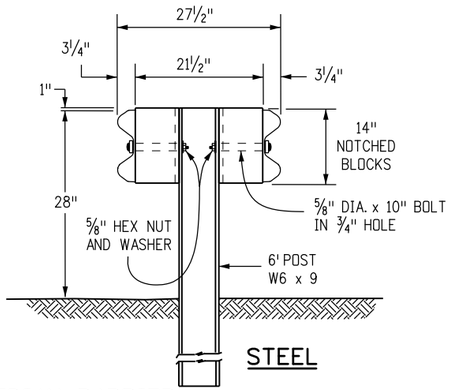
23. W-BEAM AND THRIE-BEAM GUARDRAIL POSTS SHALL BE MANUFACTURED USING AASHTO M 270 (ASTM A 709) GRADE 36 STEEL UNLESS CORROSION RESISTANT STEEL IS REQUIRED, IN WHICH CASE THE POST SHALL BE MANUFACTURED FROM AASHTO M 270 (ASTM A 709) GRADE 50W STEEL. THE DIMENSIONS OF THE CROSS-SECTION SHALL CONFORM TO A W6 X 9 SECTION AS DEFINED IN AASHTO M 160 (ASTM A 6). W6 X 8.5 WIDE FLANGE STEEL POSTS ARE AN ACCEPTABLE ALTERNATIVE TO THE W6 X 9.

24. AFTER THE SECTION IS CUT AND ALL HOLES ARE DRILLED OR PUNCHED THE COMPONENT SHALL BE ZINC-COATED CONFORMING TO AASHTO M 111 (ASTM A 123) UNLESS CORROSION-RESISTANT STEEL IS USED. WHEN CORROSION-RESISTANT STEEL IS USED THE PORTION OF THE POST TO BE EMBEDDED IN SOIL SHALL BE ZINC-COATED CONFORMING TO AASHTO M 111 (ASTM A 123) AND THE PORTION ABOVE THE SOIL SHALL NOT BE ZINC-COATED, PAINTED OR OTHERWISE TREATED.

25. FIELD MODIFICATION TO RAIL ELEMENTS ONLY IS ALLOWED BY SAWING AND DRILLING OF HOLES. FLAME CUTTING IS NOT PERMITTED. POSTS SHALL NOT BE MODIFIED. COMPONENTS ON WHICH THE SPELTER COATING HAS BEEN DAMAGED SHALL BE EITHER REGALVANIZED OR RECOATED IN CONFORMANCE WITH AASHTO M 36, OR PAINTED WITH ONE FULL BRUSH COAT OF ZINC RICH PAINT CONFORMING TO MILITARY SPECIFICATION DOD-P-21035A.



TIMBER



STEEL

DOUBLE BLOCK AND RAIL MEDIAN BARRIER
GUARDRAIL TYPE 3 (DOUBLE)

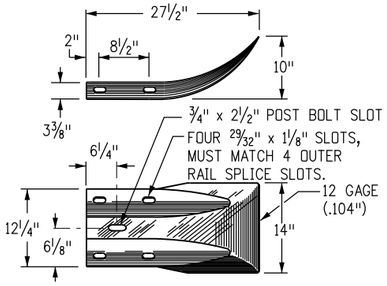
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6060102020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

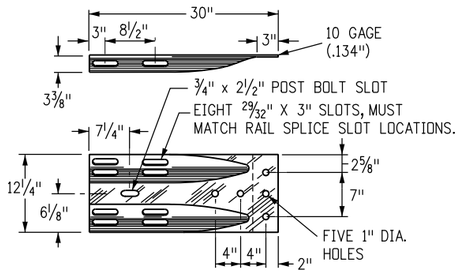
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1

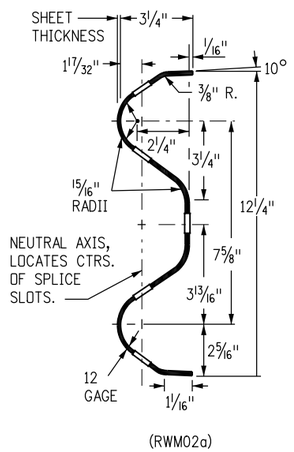


(RWE01a)

TERMINAL SECTION (FLARED)

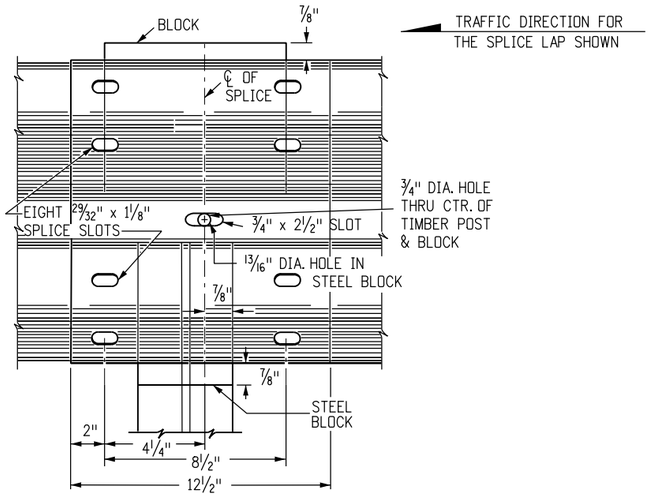


TERMINAL SECTION (CONNECTOR)

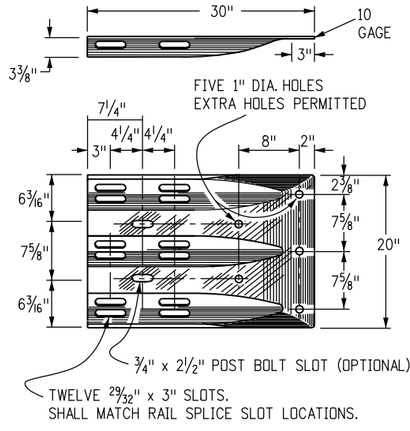


(RWM02a)

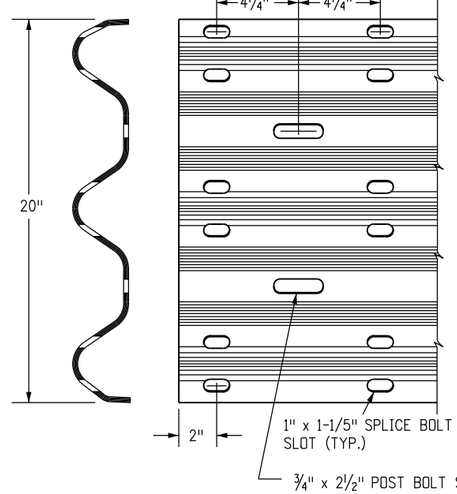
W-BEAM RAIL SECTION



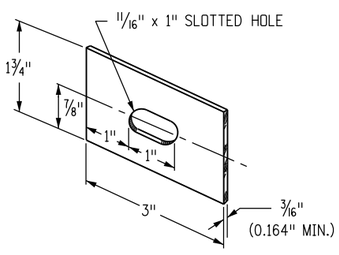
RAIL SPLICE



THRIE BEAM TERMINAL SECTION (CONNECTOR)



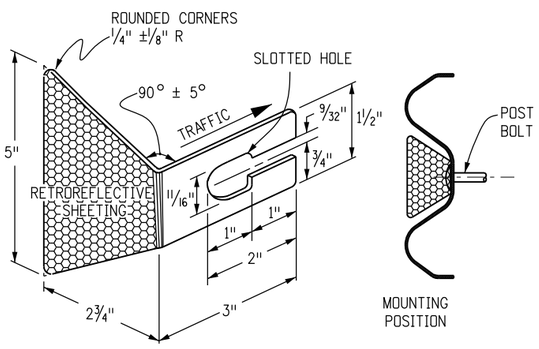
THRIE BEAM DETAIL



(FWR03)

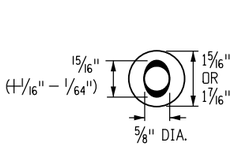
RECTANGULAR WASHER

(TO BE USED ONLY WHERE SPECIFIED.)

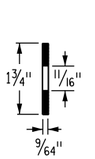


RETROREFLECTOR TAB

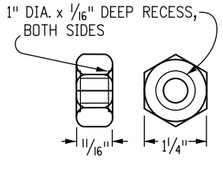
RETROREFLECTOR TABS SHALL BE MANUFACTURED FROM 12 TO 14 GAUGE STEEL. RETROREFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956 TYPE III. SEE NOTE 7 ON SHEET 6.



BUTTON HEAD BOLT WITH OVAL SHOULDER



WASHER



HEX NUT

PART	MATERIAL SPEC.	GALVANIZING SPEC.	CORROSION-RESISTANT SPEC.
W-BEAM RAIL & TERMINAL SECTIONS	AASHTO M 180, CLASS A OR B	AASHTO M 180, TYPE 1 OR 2	AASHTO M 180, TYPE 4
BASE PLATE	ASTM A 36	AASHTO M 111	N.A.
NUTS, BOLTS & STUDS FOR GENERAL USE	ASTM A 307	AASHTO M 232, CLASS C OR ASTM B 695 CLASS 50 TYPE 1	
HIGH STRENGTH BOLTS & NUTS	ASTM A 325		
HIGH STRENGTH STUDS & NUTS	ASTM A 449		
ROUND STEEL WASHERS	ASTM F 436		
RECTANGULAR WASHERS	AASHTO M 180		
OTHER FITTINGS	ASTM A 36	AASHTO M 111	

THE TABULATION OF GUARDRAIL WILL SPECIFY THE TYPE OF CORROSION PROTECTION: GALVANIZED OR CORROSION - RESISTANT STEEL.

STEEL POSTS SHALL HAVE THE SAME CORROSION PROTECTION AS SPECIFIED FOR THE METAL BEAM RAIL. PUNCHING, DRILLING, CUTTING, OR WELDING OF POSTS WILL NOT BE PERMITTED AFTER GALVANIZING.

DIAMETER & TYPE (INCHES)	LENGTH L (INCHES)	THREAD LENGTH (INCHES)	INTENDED USE	AASHTO-AGC-ARTBA STANDARD NUMBER	NO. BOLTS, NUTS & WASHERS
⅝ BUTTON HEAD	1¼	FULL (1 1/32)	ALL RAIL SPLICES	FBB01	8 PER SPLICE*
OVAL	18	MIN. 2½	SINGLE BLOCK & POST (TIMBER)	FBB04	1 PER POST
SHLDR.	25	MIN. 2	DOUBLE BLOCK & POST (TIMBER)	FBB05	1 PER POST
	10	MIN. 2	FASTEN NOTCHED BLOCK TO STEEL POST	FBB03	1 PER BLOCK

* WASHERS NOT USED AT RAIL SPLICES

Computer File Information		
Creation Date: 07/04/12	Initials: DLM	
Last Modification Date: 10/09/14	Initials: LTA	(R-X)
Full Path: www.coloradodot.info/business/designsupport		(R-X)
Drawing File Name: 6060103020.dgn		(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)

Sheet Revisions	
Date:	Comments

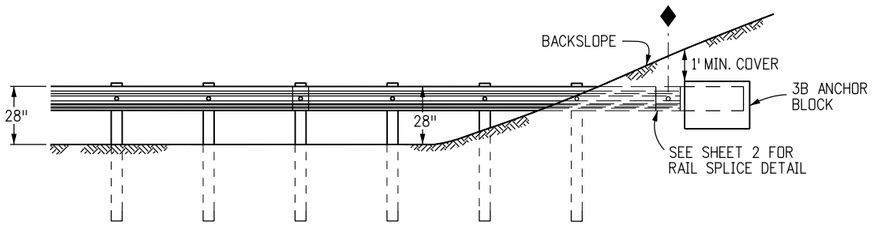
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

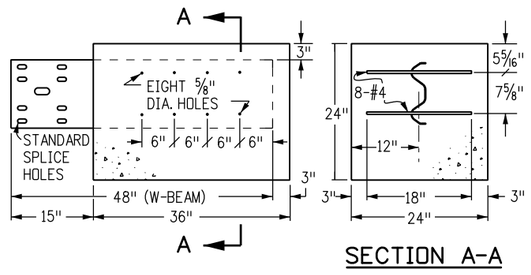
STANDARD PLAN NO.

M-606-1



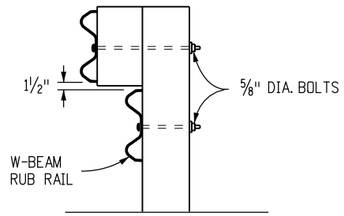
SEE TYPE 3B (RUB RAIL) PLAN VIEW FOR ALIGNMENT. THE 100 FT. FLARE LENGTH MAY BE SHORTENED IF THE SLOPE IS LESS THAN 8 FT. WIDE.

END ANCHORAGE TYPE 3B
(WITHOUT ROADSIDE DITCH AT GUARDRAIL)



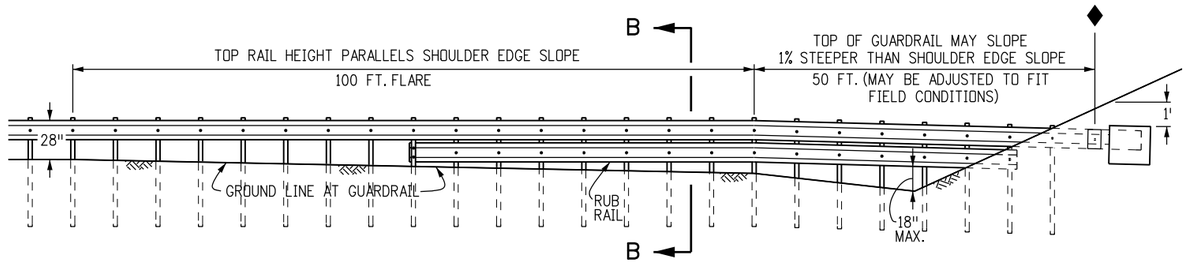
SECTION A-A

TYPE 3B ANCHOR BLOCK DETAIL

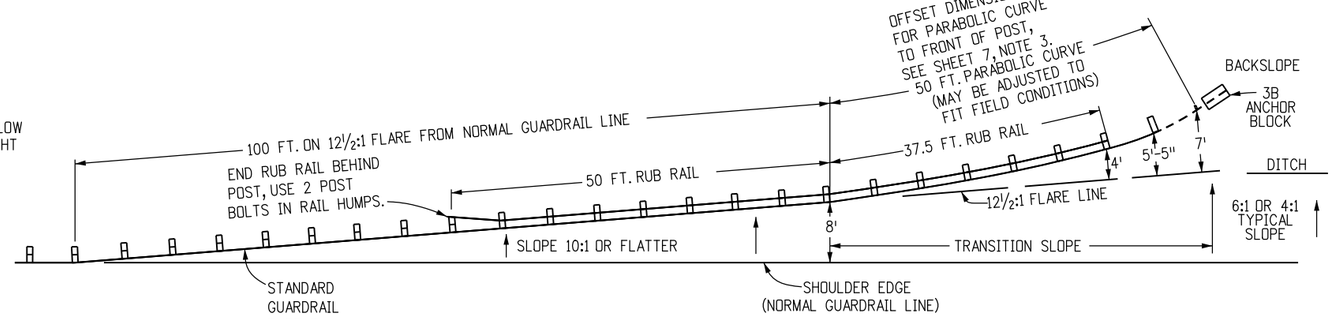


SECTION B-B

MOUNT A W-BEAM RUB RAIL 1-1/2 IN. BELOW THE TOP RAIL WHEN THE TOP RAIL HEIGHT EXCEEDS 30 IN. ABOVE THE GROUND



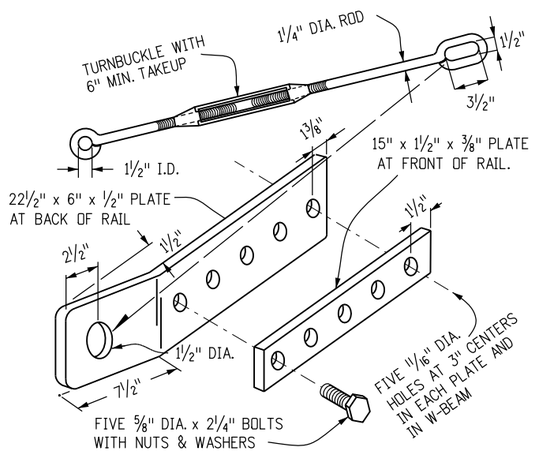
ELEVATION VIEW



PLAN VIEW

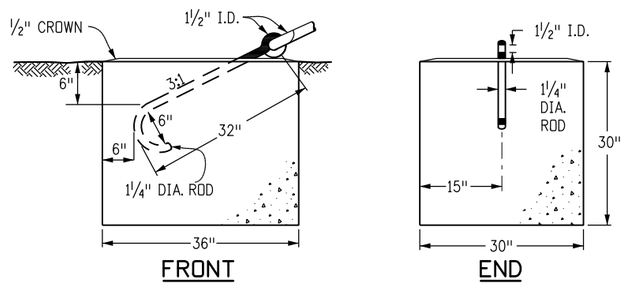
◆ END OF GUARDRAIL PAY LENGTH

END ANCHORAGE TYPE 3B (RUB RAIL)
(WITH ROADSIDE DITCH AT GUARDRAIL)



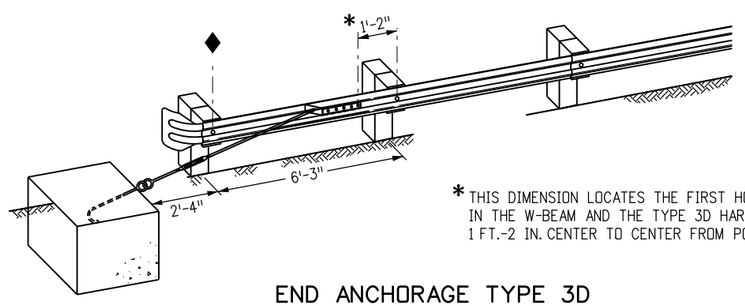
TYPE 3D HARDWARE DETAILS

NOTE: ALL PARTS SHALL BE GALVANIZED



FRONT END

TYPE 3D ANCHOR BLOCK DETAIL



* THIS DIMENSION LOCATES THE FIRST HOLE IN THE W-BEAM AND THE TYPE 3D HARDWARE. 1 FT.-2 IN. CENTER TO CENTER FROM POST BOLT HOLE.

END ANCHORAGE TYPE 3D DEPARTURE TERMINAL

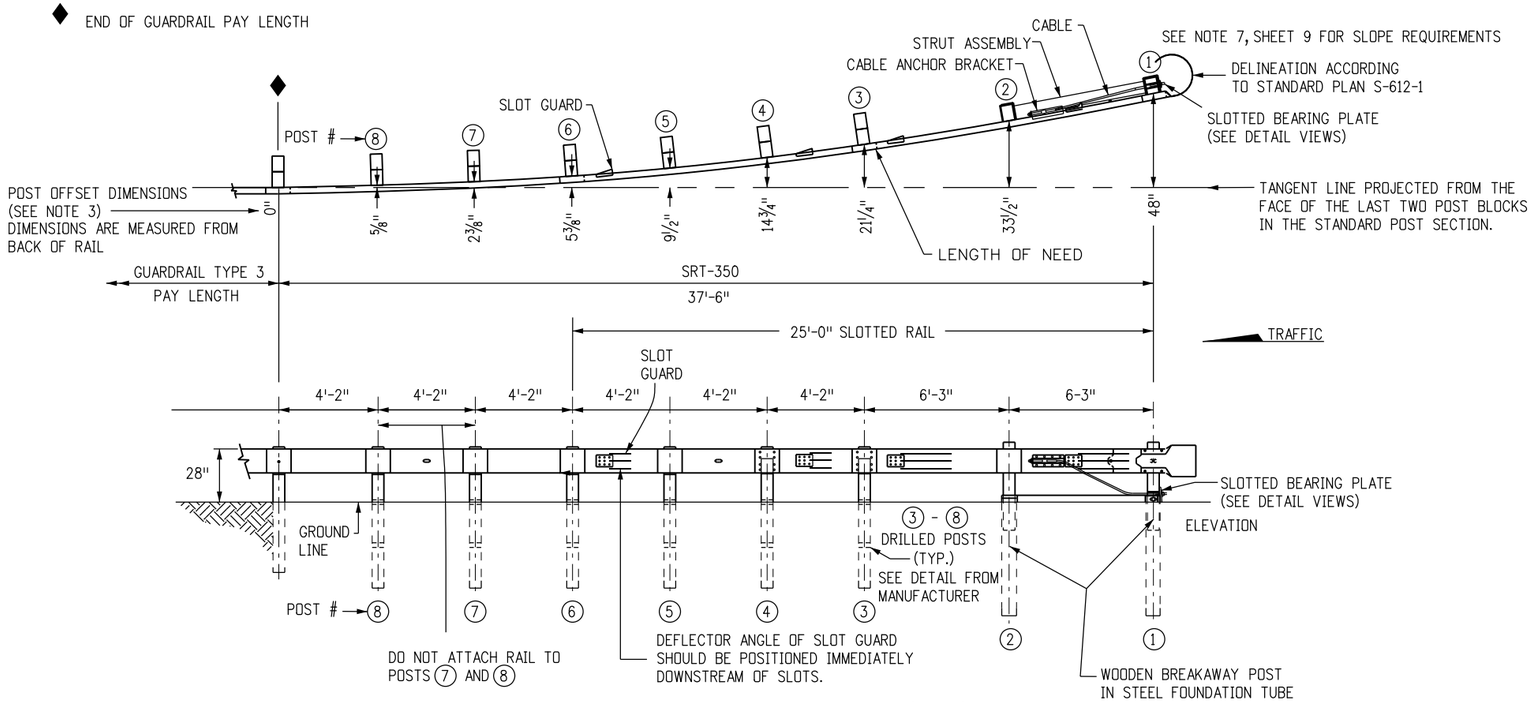
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6060104020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

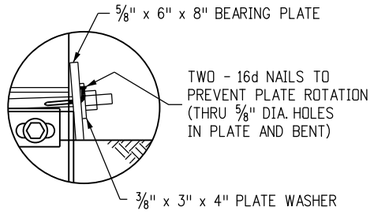
GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

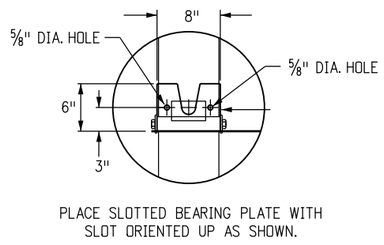
STANDARD PLAN NO.
M-606-1
Sheet No. 4 of 20



SLOTTED RAIL TERMINAL (SRT)



SRT DETAIL VIEW



SRT FRONT VIEW

SLOTTED BEARING PLATE DETAIL

NOTES FOR FLARED

1. THE END ANCHORAGE (FLARED) SHALL EITHER BE THE SLOTTED RAIL TERMINAL (SRT-350), AS MANUFACTURED BY TRINITY INDUSTRIES, INC. (TELEPHONE #: 800-772-7976), THE FLEAT-350, AS MANUFACTURED BY ROAD SYSTEMS INC. (TELEPHONE #: 432-263-2435), OR THE X-LITE AS MANUFACTURED BY BARRIER SYSTEMS, INC. (TELEPHONE #: 888-800-3691). ONE END ANCHORAGE (FLARED) SHALL INCLUDE ALL POST, RAIL, AND ALL HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE END ANCHORAGE (FLARES) SHALL BE INSTALLED CONFORMING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LIST TO THE ENGINEER PRIOR TO INSTALLATION OF THE DEVICE.
2. IN HEAVY SNOW LOCATIONS, TRIM POSTS 1 AND 2 FLUSH WITH RAIL TOP AND TREAT END WITH SEALANT, IN CONFORMANCE WITH AASHTO M 133.
3. THE POST OFFSET DIMENSIONS ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF THE BLOCKOUTS FROM THE PROJECTED RAIL TANGENT LINE, EXCEPT AT THE FIRST TWO POSTS WHERE THE DIMENSION IS TO THE CENTER OF THE TRAFFIC FACE OF THE POST. OFFSET POINTS SHALL BE LOCATED BY CHORD MEASUREMENTS AT THE BACK OF THE RAIL AND BE EQUAL TO THE NOMINAL POST SPACINGS SHOWN. POSTS ARE TO BE SET APPROXIMATELY RADIAL TO THE RAILING AT EACH POST LOCATION.
4. THE SRT SLOTTED BEARING PLATE SHALL BE INSTALLED WITH THE SLOT FACING UP.
5. POSTS SHALL BE DRILLED FOR BREAKAWAY ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
6. SEE SHEETS 1, 3 AND 4 FOR STANDARD GUARDRAIL TYPE 3 AND INSTALLATION DETAILS.
7. RETROREFLECTOR TABS SHALL NOT BE USED ON POSTS 1 THROUGH 8.
8. SRT PANELS SHALL BE SUPPLIED IN EITHER THREE 12 FT. - 6 IN. RAIL PANELS, OR ONE 25 FT. - 0 IN. AND ONE 12 FT. - 6 IN. RAIL PANELS.
9. SRT - STRAIGHT FLARED OPTION. SEE MANUFACTURER'S DETAILS.
10. HINGED BREAK AWAY (HBA) STEEL POSTS MAY BE USED AS AN ALTERNATIVE ON THE SRT FOR POSTS 2 THRU 8. SEE MANUFACTURER'S DETAILS.
11. HINGED BREAK AWAY (HBA) STEEL POSTS OR WELDED POSTS (PW) MAY BE USED AS AN ALTERNATIVE ON THE FLEAT FOR POSTS 3 THRU 7. SEE MANUFACTURER'S DETAILS.
12. USE MANUFACTURE'S SUPPLIED POSTS FOR X-LITE END ANCHORAGE AS FOLLOWS:
    POST 1 - X-LITE, CRIMPED POST SLOTS, GALVANIZED.
    POST 2 - X-LITE, POST II, GALVANIZED.
    POSTS 3 THRU 6 - X-LITE, CRIMPED POST HOLES, GALVANIZED.
13. DELINEATION SHALL BE APPLIED TO THE END PIECE, AND SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.

END ANCHORAGE (FLARED)

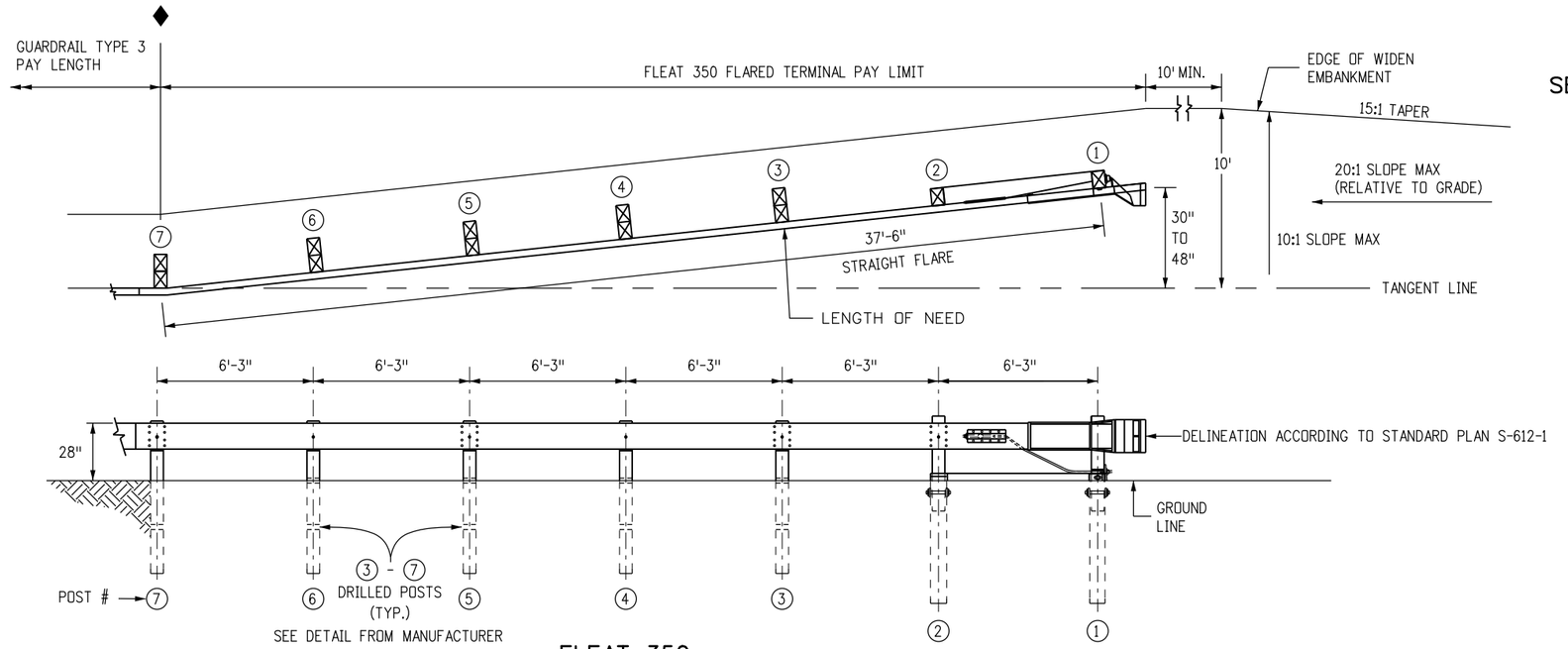
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)	10/09/14	Moved FLEAT 350 To Sheet 6.
Full Path: www.coloradodot.info/business/designsupport	(R-X)	10/09/14	Added Gen Note 12.
Drawing File Name: 6060105020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

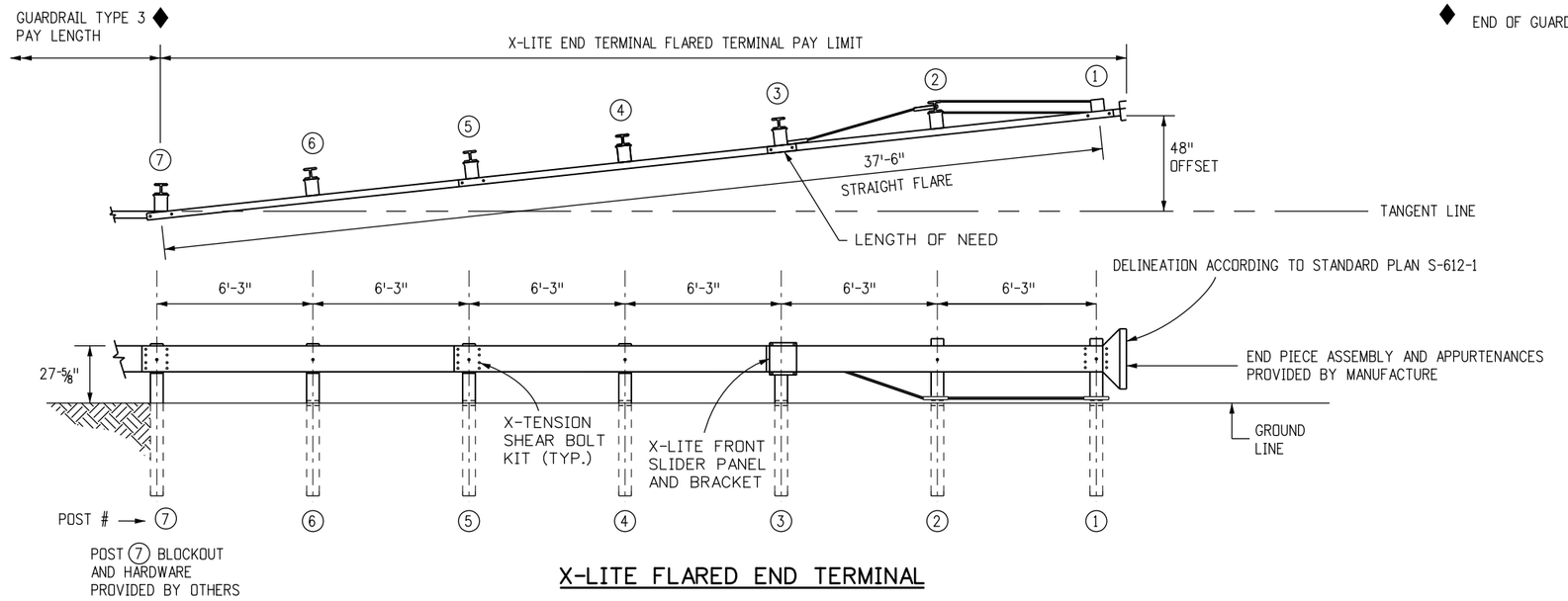
GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 5 of 20



FLEAT 350



X-LITE FLARED END TERMINAL

END ANCHORAGES (FLARED)

SEE M-606-1, SHEET 5 OF 20, FOR "NOTES".

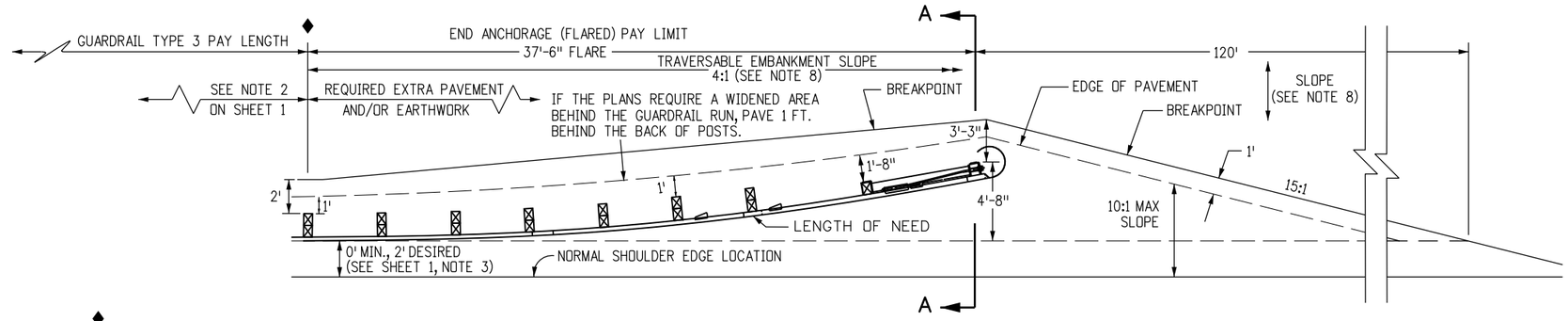
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	R-X	10/09/14	Added X-Lite End Terminal
Full Path: www.coloradodot.info/business/designsupport	R-X	10/09/14	Moved Notes to Sheet 5 of 20
Drawing File Name: 6060106020.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

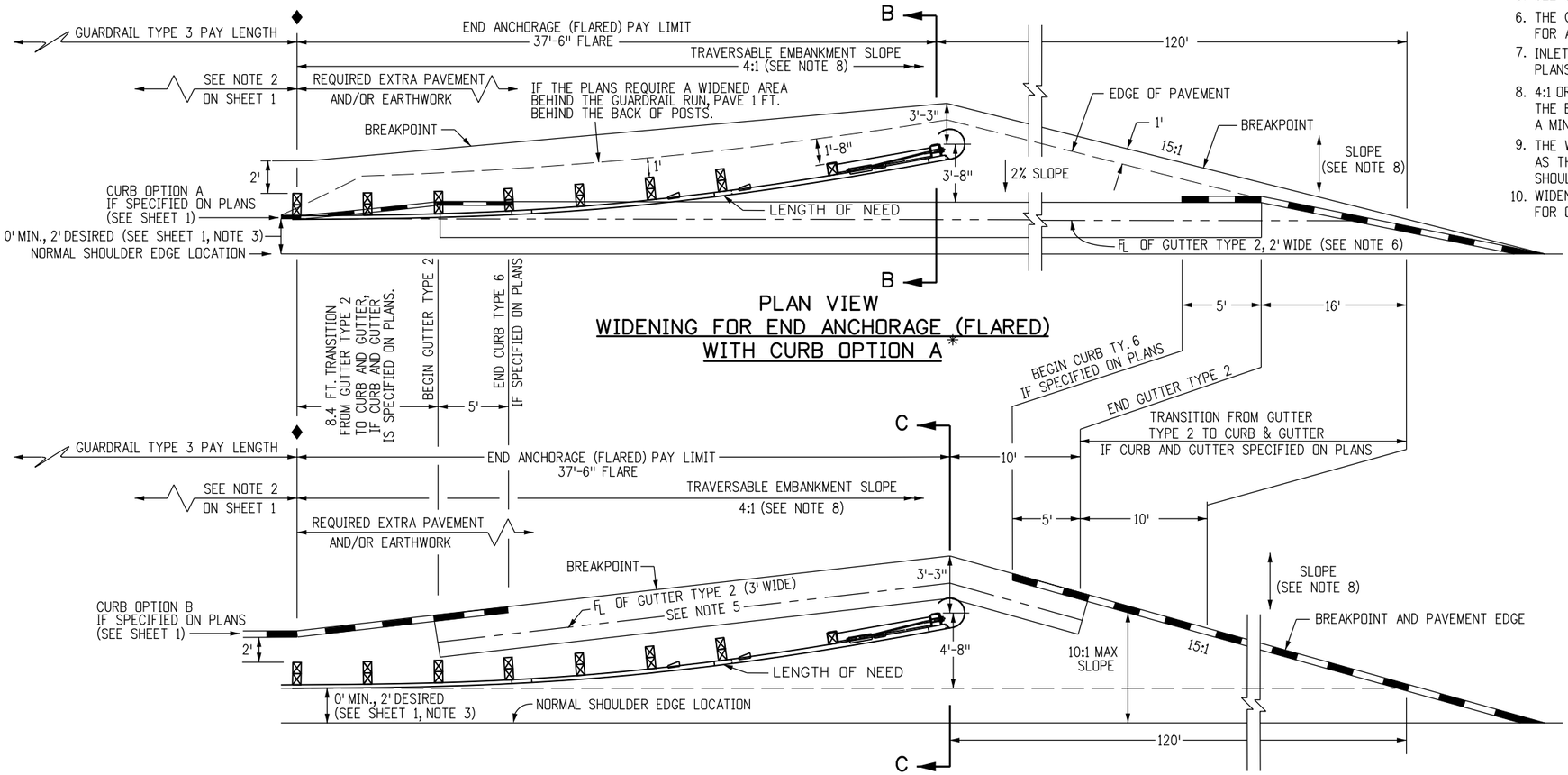
STANDARD PLAN NO.
M-606-1



◆ END OF GUARDRAIL PAY LENGTH

PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) *

* THIS PLAN VIEW SHOWS ONLY THE SRT. THE FLEAT-350 USES THE SAME WIDENING DETAILS.

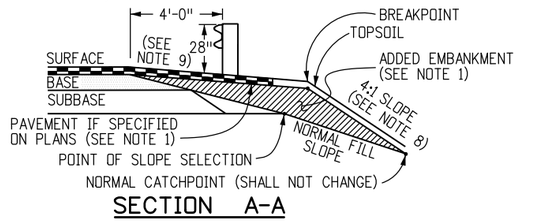


PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) WITH CURB OPTION A *

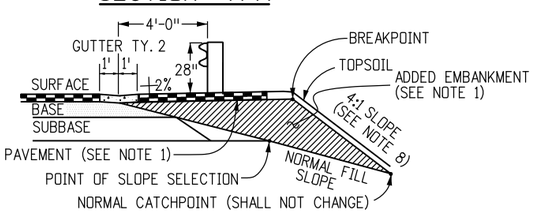
PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) WITH CURB OPTION B *

NOTES

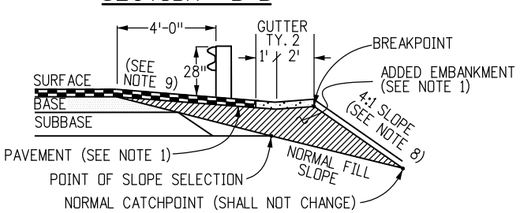
1. PAYMENT FOR THE ADDED EMBANKMENT (APPROXIMATELY 45 CU. YDS.) FOR THE FLARE SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 203 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 203
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (FLARED) WHEN THE CONTRACT PLANS DO NOT INCLUDE PAY ITEM 203. THE ADDED EMBANKMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH SUBSECTION 203.07, AASHTO T 99.
2. WHEN THE WIDENED AREA IS PAVED, PAYMENT FOR THE PAVEMENT (APPROX. 70 SQ. YDS.) SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 403 OR 412 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 403 OR 412
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (FLARED) WHEN THE CONTRACT PLAN DOES NOT INCLUDE PAY ITEM 403 OR 412 (SEE SHEET 1, NOTE 2 FOR PAVEMENT TYPES)
3. CONCRETE PAVED AREAS SHALL HAVE THEIR TAPERED ENDS SQUARED OFF AS DIRECTED BY THE ENGINEER.
4. WHEN OVERLAY PAVING, THE FINISHED SURFACE AT EACH POST SHALL NOT BE ABOVE THE TOP BREAKAWAY HOLE OR STRUT ASSEMBLY. THE WIDENED AREA AT THE FLARED END ANCHORAGE SHOULD NOT BE OVERLAYED UNLESS PAVEMENT CONDITIONS WARRANT IT BEING OVERLAYED. ANY OVERLAY PAVEMENT ABUTTING THE FLARED END ANCHORAGE SHALL BE TAPERED TO PREVENT A DROP IN THE PAVED SURFACE BELOW THE RAIL.
5. SEE SHEETS 1, 3 AND 4 FOR STANDARD TYPE 3 GUARDRAIL AND INSTALLATION DETAILS.
6. THE COST OF THE GUTTER WILL BE PAID FOR AS "GUTTER TYPE 2 (2 FT.)" FOR A LENGTH OF 134 FT. OR "GUTTER TY. 2 (3 FT.)" FOR A LENGTH OF 40 FT.
7. INLETS OR RUNDOWNS MAY BE USED INSTEAD OF THE GUTTER IF SPECIFIED ON THE PLANS. NO ADDITIONAL CURB SHALL BE ADDED IN THE VICINITY OF THE END ANCHORAGE.
8. 4:1 OR FLATTER SLOPES IN THE TRAVERSABLE AREA SHALL BE USED BEHIND THE END ANCHORAGE, AND IN ADVANCE OF POST (1). IF THIS IS NOT POSSIBLE, A MINIMUM 3:1 SLOPE MAY BE USED IF APPROVED BY THE ENGINEER.
9. THE WIDENED AREA, EXCEPT FOR CURB OPTION A, SHALL HAVE THE SAME GRADING AS THE ADJACENT GUARDRAIL: 10:1 OR FLATTER IF MORE THAN 2 FT. FROM SHOULDER OR SLOPE EQUAL TO ROADWAY SLOPE IF 2 FT. OR LESS FROM SHOULDER.
10. WIDENING FOR END ANCHORAGES SHALL BE PAVED ON INTERSTATES AND FREEWAYS. FOR OTHER HIGHWAYS, PAVING SHALL BE AS SHOWN ON THE PLANS.



SECTION A-A



SECTION B-B



SECTION C-C

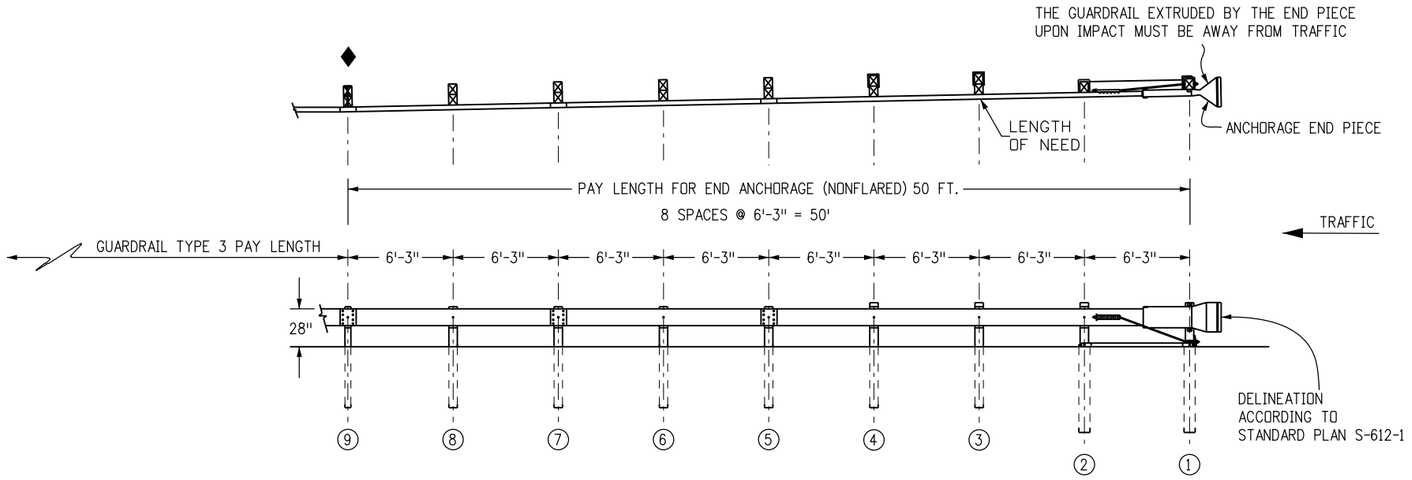
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6060107020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

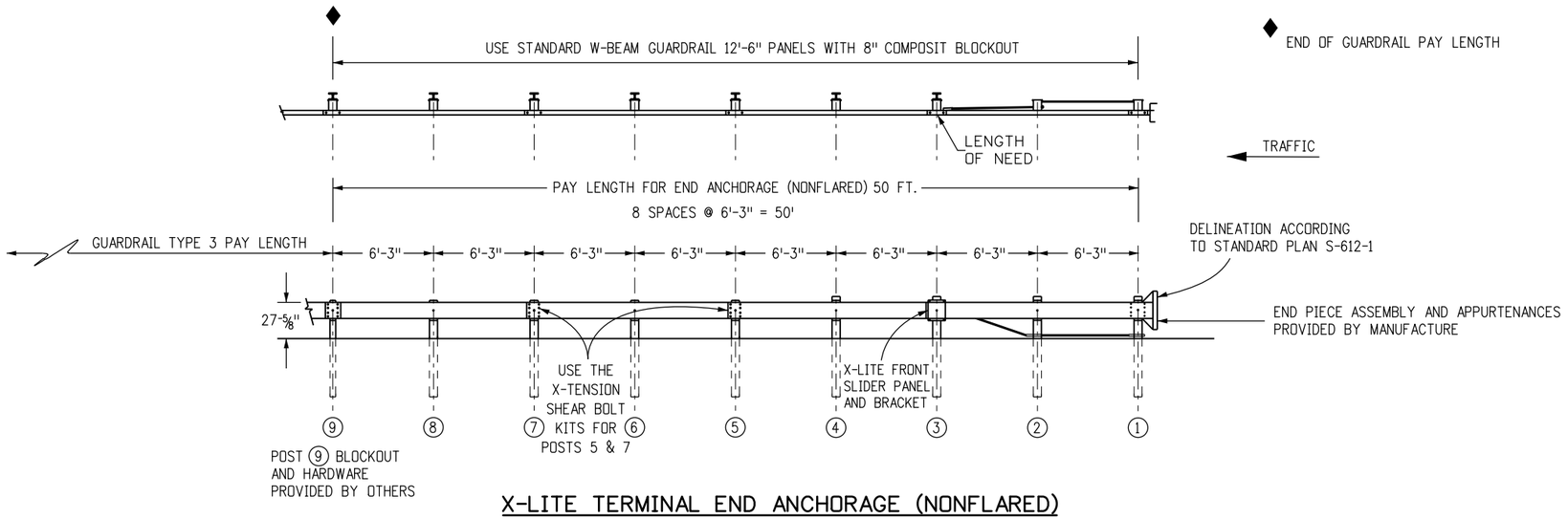
STANDARD PLAN NO.
M-606-1
Sheet No. 7 of 20



SKT END ANCHORAGE (NONFLARED)

NOTES FOR NONFLARED

1. THE END ANCHORAGE (NONFLARED) SHALL EITHER BE THE SKT GUARDRAIL AS MANUFACTURED BY ROAD SYSTEMS, INC. (TEL. #: 432-263-2435), OR THE X-LITE AS MANUFACTURED BY BARRIER SYSTEMS, INC. (TEL. #: 888-800-3691). THE END ANCHORAGE (NONFLARED) SHALL INCLUDE ALL POST, RAIL, AND HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE END ANCHORAGE (NONFLARED) SHALL BE INSTALLED CONFORMING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LIST TO THE ENGINEER PRIOR TO THE INSTALLATION OF THE DEVICE.
2. WOOD POSTS SHALL BE DRILLED FOR BREAKAWAY CONFORMING TO THE MANUFACTURER'S INSTRUCTIONS.
3. HINGED BREAK AWAY (HBA) STEEL POSTS MAY BE USED CONFORMING TO THE MANUFACTURER'S INSTRUCTIONS.
4. RETROREFLECTOR TABS SHALL NOT BE USED ON THE LAST SEVEN POSTS OF THE END ANCHORAGE (NONFLARED).
5. USE THE MANUFACTURER'S SPECIFIED STEEL FOUNDATION TUBE FOR POSTS (1) AND (2) FOR SKT END ANCHORAGES (NONFLARED).
6. USE THE MANUFACTURE'S SUPPLIED POSTS FOR X-LITE END ANCHORAGE AS FOLLOWS:
   POST 1 - X-LITE, CRIMPED POST SLOTS, GALVANIZED.
   POST 2 - X-LITE, POST II, GALVANIZED.
   POST 3 - X-LITE, CRIMPED POST HOLES, GALVANIZED.
   FOR POSTS 4 THRU 8 - USE STANDARD LINE POST, GALVANIZED.
7. DELINEATION SHALL BE APPLIED TO THE END PIECE AND SHALL NOT BE PAID FOR SEPARATELY BUT BE INCLUDED IN THE COST OF THE WORK. SEE STANDARD PLAN S-612-1.



X-LITE TERMINAL END ANCHORAGE (NONFLARED)

END ANCHORAGES (NONFLARED)

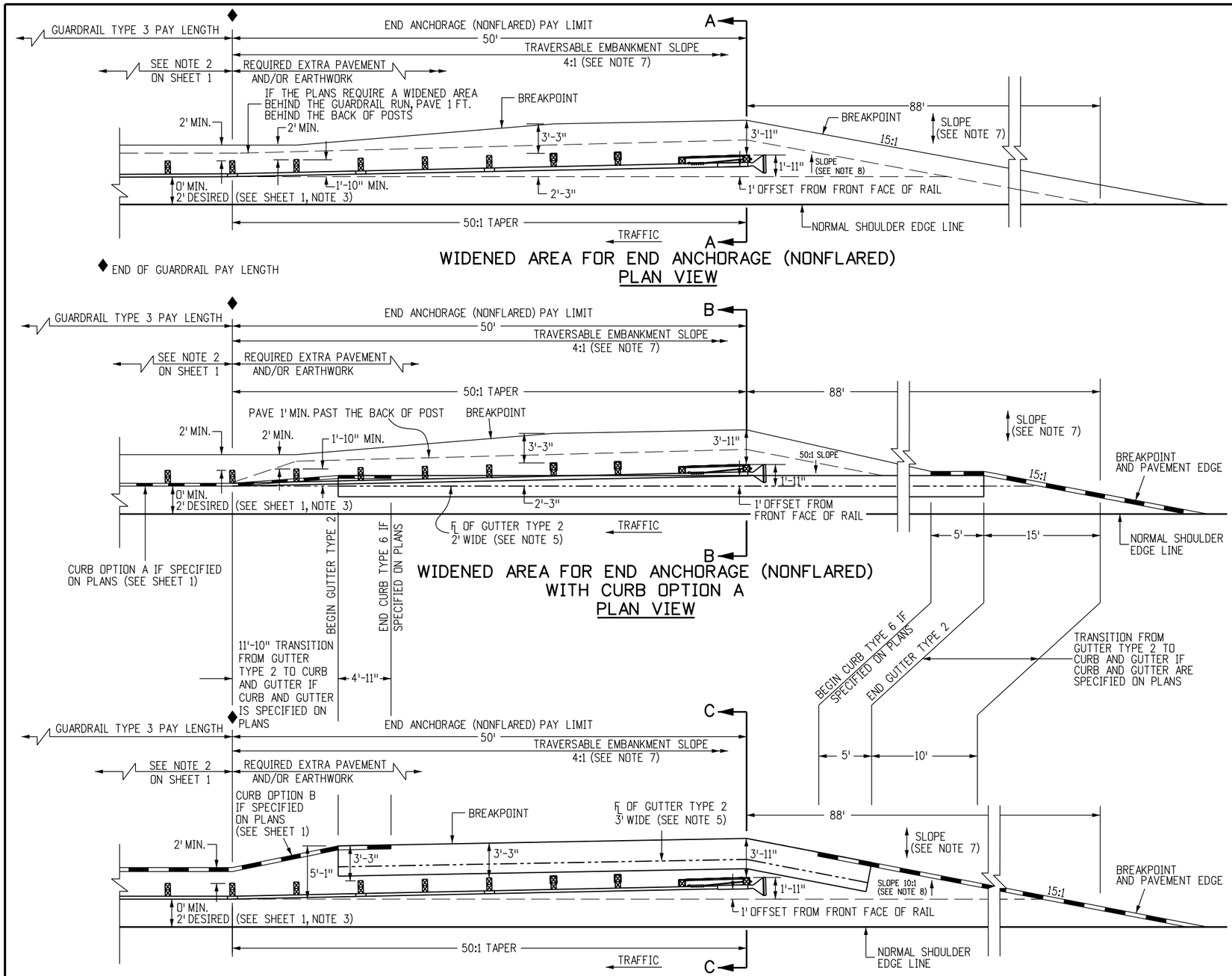
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/27/14 Initials: LTA	R-X	10/09/14	Added X-Lite End Terminal
Full Path: www.coloradodot.info/business/designsupport	R-X	10/09/14	Added Gen Note 6
Drawing File Name: 60600108020.dgn	R-X	10/27/14	Removed the ET-Plus End Anchorage (non-flared).
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

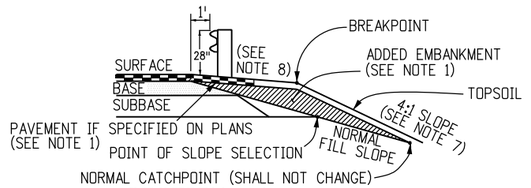
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 8 of 20

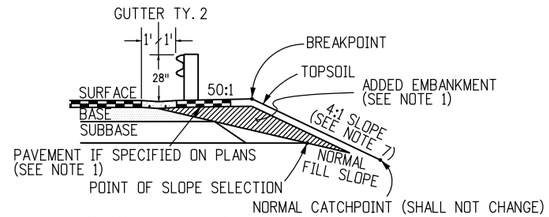


NOTES

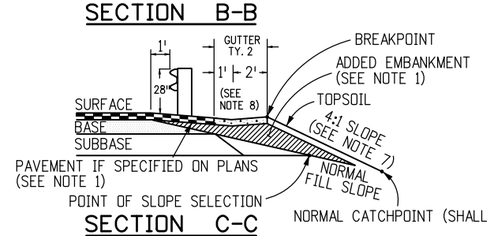
1. PAYMENT FOR THE ADDED EMBANKMENT (APPROXIMATELY 25 CU. YDS.) FOR THE FLARE SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 203 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 203.
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (NONFLARED) WHEN THE CONTRACT PLANS DOES NOT INCLUDE PAY ITEM 203. THE ADDED EMBANKMENT SHALL BE BE CONSTRUCTED IN ACCORDANCE WITH SUBSECTION 203.07, AASHTO T 99.
2. WHEN THE WIDENED AREA IS PAVED, PAYMENT FOR THE PAVEMENT (APPROX. 39 SQ. YDS.) SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 403 OR 412 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 403 OR 412.
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (NONFLARED) WHEN THE CONTRACT PLAN DOES NOT INCLUDE PAY ITEM 403 OR 412, (SEE SHEET 1, NOTE 2 FOR PAYMENT TYPES).
3. WHEN OVERLAY PAVING, THE FINISHED SURFACE AT EACH POST SHALL NOT BE ABOVE THE TOP BREAKWAY HOLE OR STRUT ASSEMBLY. THE WIDENED AREA AT THE END ANCHORAGE (NONFLARED) SHALL NOT BE OVERLAYED UNLESS PAVEMENT CONDITIONS WARRANT IT BEING OVERLAYED. ANY OVERLAY PAVEMENT ABUTTING THE END ANCHORAGE (NONFLARED) SHALL BE TAPERED TO PREVENT A DROP IN THE PAVED SURFACE BELOW THE RAIL.
4. SEE SHEETS 1, 2 AND 3 FOR STANDARD TYPE 3 GUARDRAIL AND INSTALLATIONS DETAILS.
5. THE COST OF THE GUTTER WILL BE PAID FOR AS "GUTTER TYPE 2 (2 FT.)" FOR A LENGTH OF 111 FT., OR "GUTTER TY. 2 (3 FT.)" FOR A LENGTH OF 50 FT.
6. INLETS OR RUNDOWNS MAY BE USED INSTEAD OF THE GUTTER IF SPECIFIED ON THE PLANS. NO ADDITIONAL CURB SHALL BE ADDED IN THE VICINITY OF THE END TREATMENT.
7. 4:1 OR FLATTER SLOPES IN THE TRAVERSABLE AREA SHALL BE USED BEHIND THE END ANCHORAGE AREA, AND IN ADVANCE OF POST (1). IF THIS IS NOT POSSIBLE A MINIMUM 3:1 SLOPE MAY BE USED IF APPROVED BY THE ENGINEER.
8. THE WIDENED AREA, EXCEPT FOR CURB OPTION A, SHALL HAVE THE SAME GRADING AS BENEATH THE ADJACENT GUARDRAIL: 10:1 OR FLATTER IF MORE THAN 2 FT. FROM SHOULDER, OR SLOPE EQUAL TO ROADWAY SLOPE IF 2 FT. OR LESS FROM SHOULDER.
9. WIDENING FOR END ANCHORAGES SHALL BE PAVED ON INTERSTATES AND FREEWAYS. FOR OTHER HIGHWAYS, PAVING SHALL BE AS SHOWN ON THE PLANS.
10. HINGED BREAK AWAY (HBA) STEEL POSTS MAY BE USED. SEE MANUFACTURER'S DETAILS.



SECTION A-A



SECTION B-B



SECTION C-C

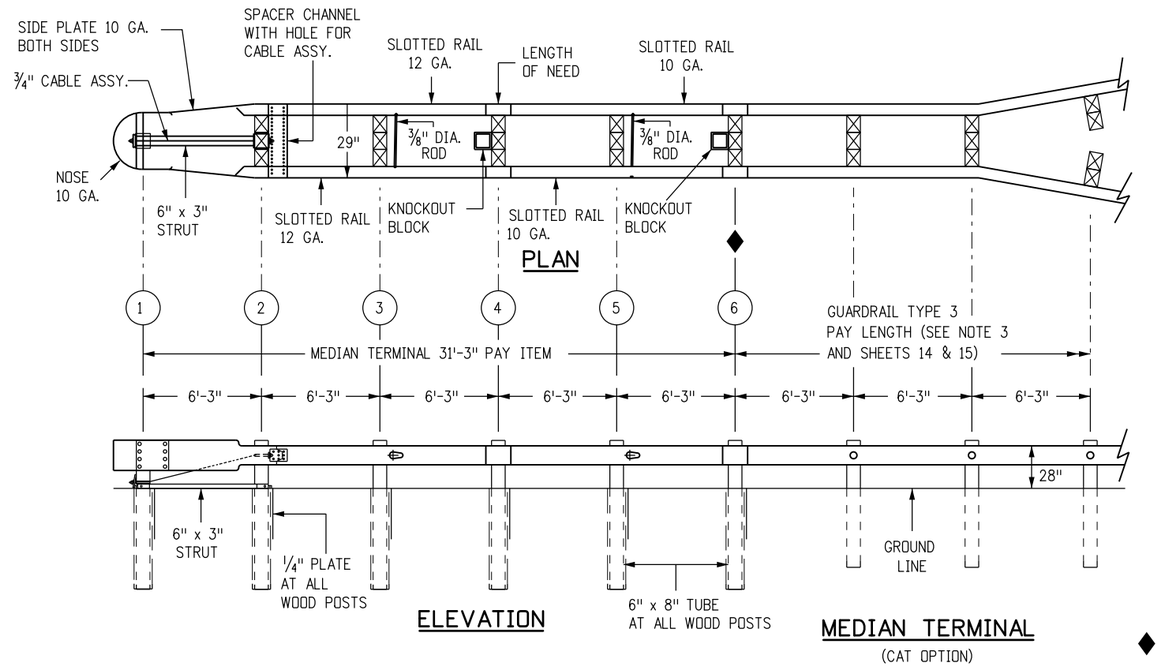
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6060109020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1



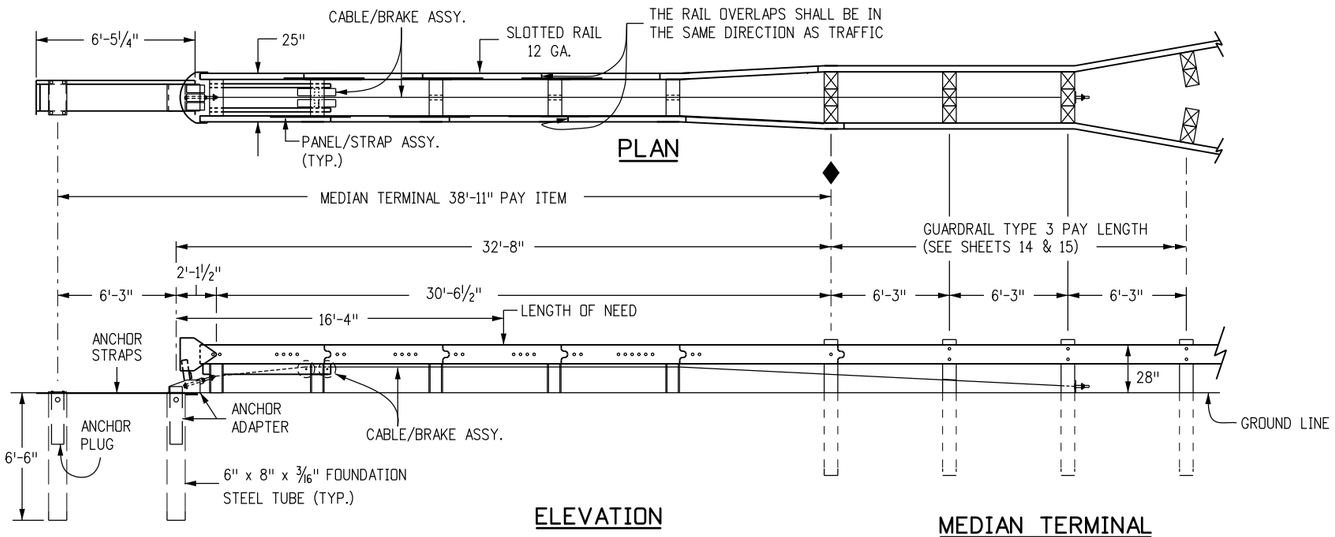
MEDIAN TERMINAL

(CAT OPTION)

◆ END OF GUARDRAIL PAY LENGTH

MEDIAN TERMINAL NOTES

1. THE MEDIAN TERMINAL SHALL BE THE CAT 350 AS MANUFACTURED BY TRINITY INDUSTRIES INC. (TEL #: 800-722-7976), OR THE BRAKEMASTER AS MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC. AS DISTRIBUTED BY INTERWEST SAFETY SUPPLY (TEL #: 303-733-8447), OR THE FLEAT-MT MEDIAN TERMINAL AS MANUFACTURED BY ROAD SYSTEM INC. (TEL. #: 432-263-2435).
2. ONE MEDIAN TERMINAL SHALL INCLUDE ALL POSTS, RAIL, AND HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE DEVICE SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LISTS TO THE ENGINEER PRIOR TO THE INSTALLATION OF THE DEVICE.
3. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE MEDIAN TERMINAL SHALL BE INSTALLED FOR BIDIRECTIONAL TRAFFIC APPLICATION.
4. MEDIAN GUARDRAIL POSTS MAY BE STEEL OR WOOD.
5. EACH INSTALLATION SHALL BE SUPERVISED AND CERTIFIED AS CORRECT UPON COMPLETION BY A REPRESENTATIVE OF THE DEVICE MANUFACTURER OR BY AN EMPLOYEE OF THE CONTRACTOR WHO IS A CERTIFIED INSTALLER. THE CERTIFIED INSTALLER SHALL HAVE COMPLETED DEVICE TRAINING AND SHALL BE REGISTERED WITH THE MANUFACTURER AS A CERTIFIED INSTALLER.
6. DELINEATION, IF REQUIRED, SHALL BE APPLIED TO THE END PIECE AND WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK. SEE STANDARD PLAN S-612-1.



MEDIAN TERMINAL

(BRAKEMASTER OPTION)

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 60601010020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

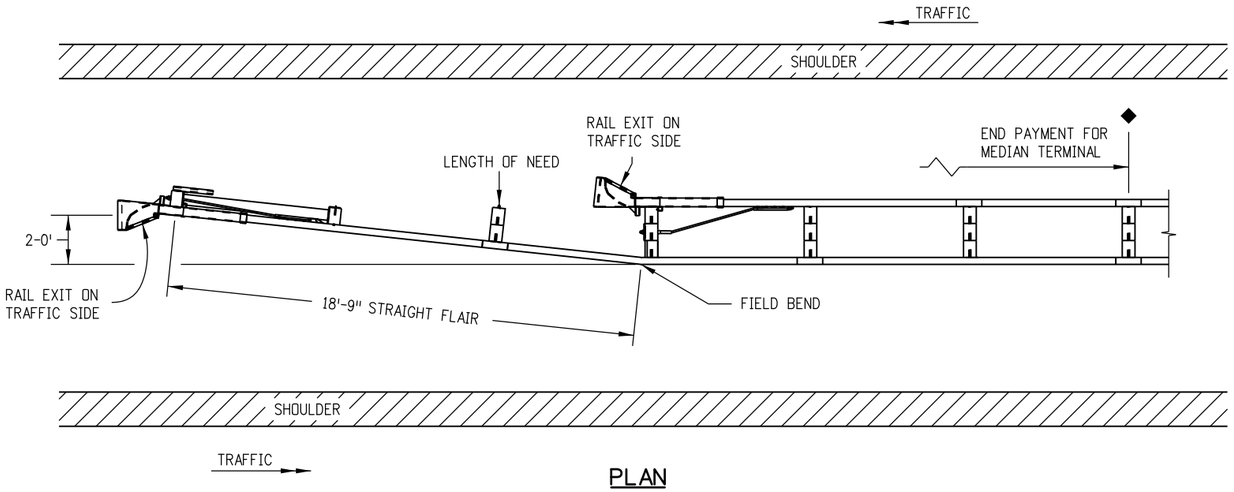
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

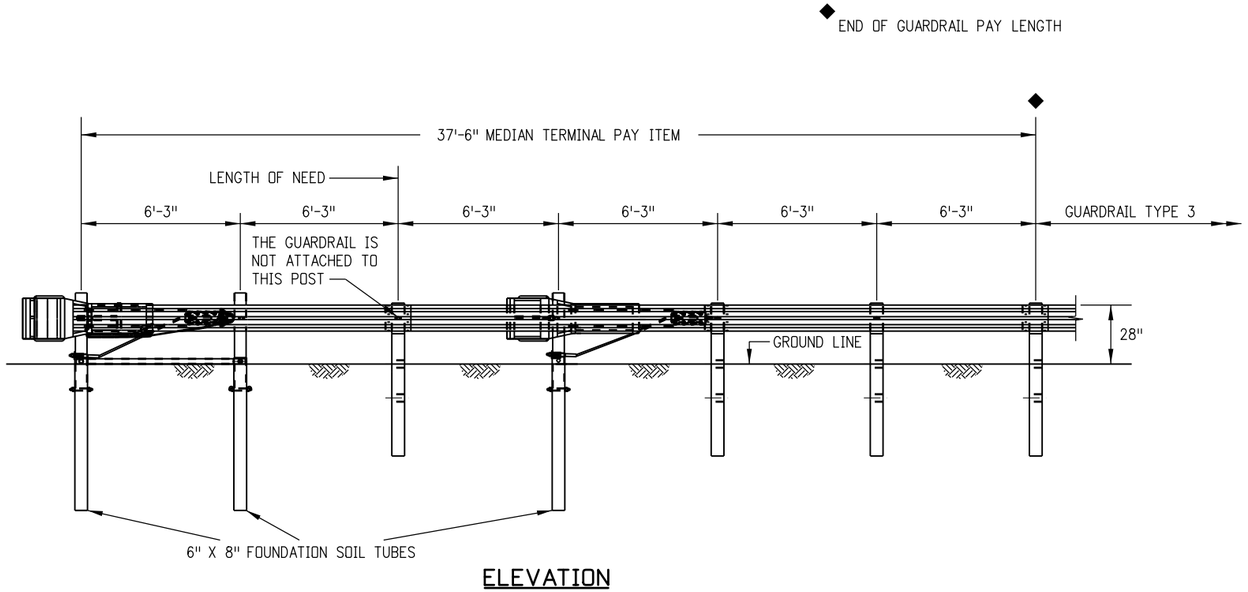
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.

M-606-1



PLAN



ELEVATION

MEDIAN TERMINAL
(FLEAT-MT OPTION)

FLEAT- MT NOTES

1. THE FLEAT-MT MAY BE SELECTED AS A MEDIAN TERMINAL UNLESS OTHERWISE SHOWN IN THE PLANS.
2. BREAKAWAY POSTS ARE REQUIRED WITH THE FLEAT-MT.
3. THE SOIL TUBES SHALL NOT PROTRUDE MORE THAN 4 INCHES ABOVE GROUND (MEASURED ALONG A 5 FEET CORD). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
4. THE SOIL TUBES SHALL BE DRIVEN WITH AN APPROVED DRIVING HEAD AND NOT BE DRIVEN WITH THE POST IN THE TUBE. IF THE TUBES ARE PLACED IN DRILLED HOLES, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
5. WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE, 20 INCH DEEP MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROX. 2½ INCH DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.
6. THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT. DO NOT TWIST THE CABLE WHEN TIGHTENING NUTS.

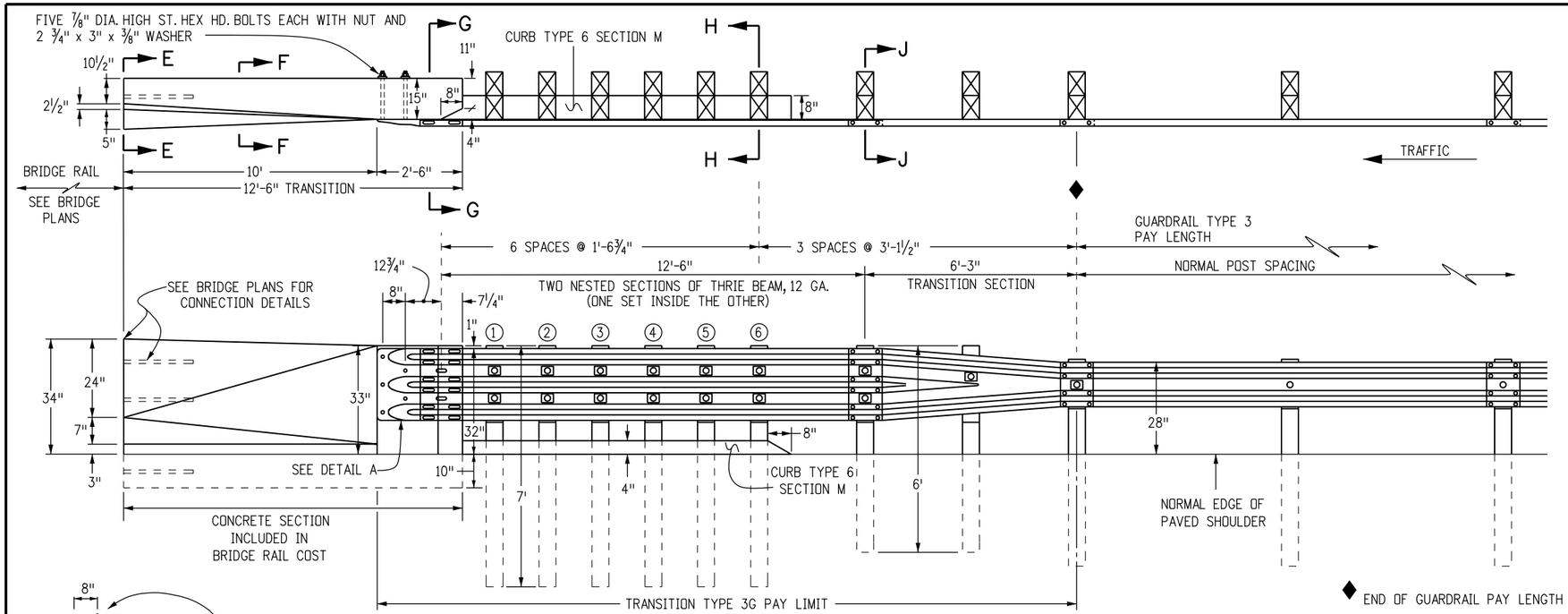
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 60601011020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

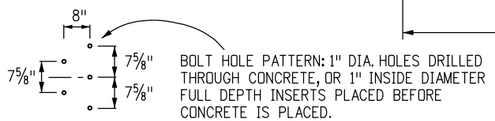
GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

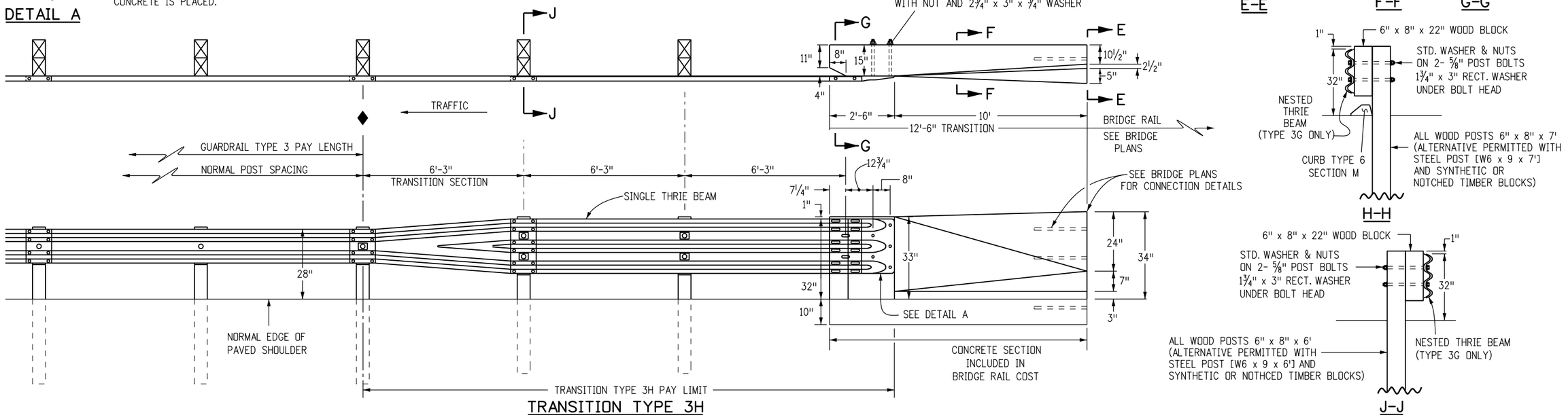
STANDARD PLAN NO.
M-606-1
Sheet No. 11 of 20



TRANSITION TYPE 3G



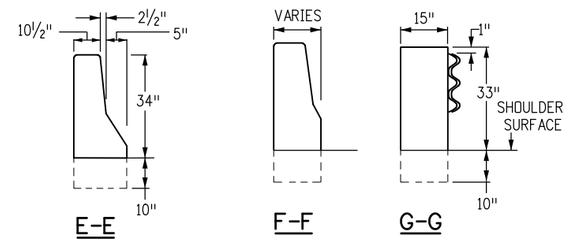
DETAIL A



TRANSITION TYPE 3H

NOTES

1. TRANSITION TYPE 3G IS FOR USE AT BOTH ENDS OF BRIDGES ON TWO-WAY HIGHWAYS AND AT THE APPROACH END OF BRIDGES ON ONE-WAY HIGHWAYS.
2. TRANSITION TYPE 3H IS FOR USE AT THE TRAILING END OF BRIDGES ON ONE-WAY HIGHWAYS.
3. THE THRIE BEAM SECTION IN TRANSITIONS TYPES 3G AND 3H MAY BE SHOP BENT TO FIT CURVES THAT ARE GREATER THAN OR EQUAL TO A 10 FT. RADIUS. HOWEVER, THE 6 FT.-3 IN. TRANSITION SECTION SHALL NOT BE BENT.
4. A 12 FT.-6 IN. CONCRETE TRANSITION IS REQUIRED BETWEEN THE TYPE 3G OR 3H AND TYPE 7 BRIDGE RAIL. SEE STANDARD PLAN M-606-13 FOR THE TRANSITION BETWEEN TYPE 3 GUARDRAIL AND TYPE 7 GUARDRAIL.
5. TRANSITIONS TYPE 3G AND TYPE 3H ARE ALSO USED TO CONNECT TO TYPE 8 AND TYPE 10 BRIDGE RAIL. SEE BRIDGE PLANS FOR CONNECTION DETAILS.
6. BACKUP PLATE IS NOT REQUIRED AT POSTS ON TYPE 3G AND 3H.
7. ⊡ THIS SYMBOL IN THE ELEVATION DRAWINGS SHOWS THE LOCATIONS WHERE A RECTANGULAR WASHER IS REQUIRED UNDER THE POST BOLT HEAD.
8. CURB TYPE 6 SECTION M, MAY BE ASPHALT OR CONCRETE. THE COST OF CURB IS INCLUDED IN THE WORK, UNLESS A SEPARATE PAY ITEM IS INCLUDED IN THE BID SCHEDULE.
9. POSTS ① THRU ⑥ ARE 7 FT. LONG. ALL OTHER POSTS SHALL BE STANDARD 6 FT. IN LENGTH UNLESS OTHERWISE SPECIFIED IN THE CONTRACT.
10. NOTCHED RAIL BLOCKS MANUFACTURED FROM SYNTHETIC MATERIAL WILL BE ACCEPTED AS ALTERNATIVES TO WOOD NOTCHED BLOCKS FOR USE WITH STEEL POSTS PROVIDED THAT THE BLOCKS HAVE RECEIVED FHWA APPROVAL AND ARE CERTIFIED AS IDENTICAL TO THE SPECIMENS USED FOR TESTING AND APPROVAL. STEEL BLOCKS ARE NOT ALLOWED.



Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 60601012020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

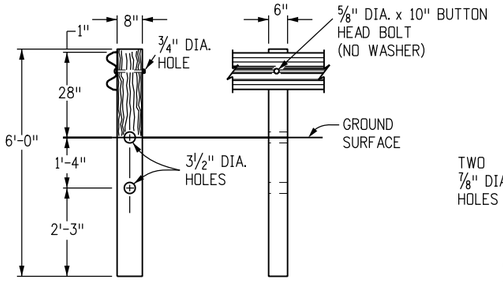
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

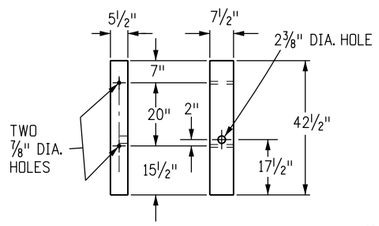
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.

M-606-1



CONTROLLED RELEASING TERMINAL (CRT) POST ①

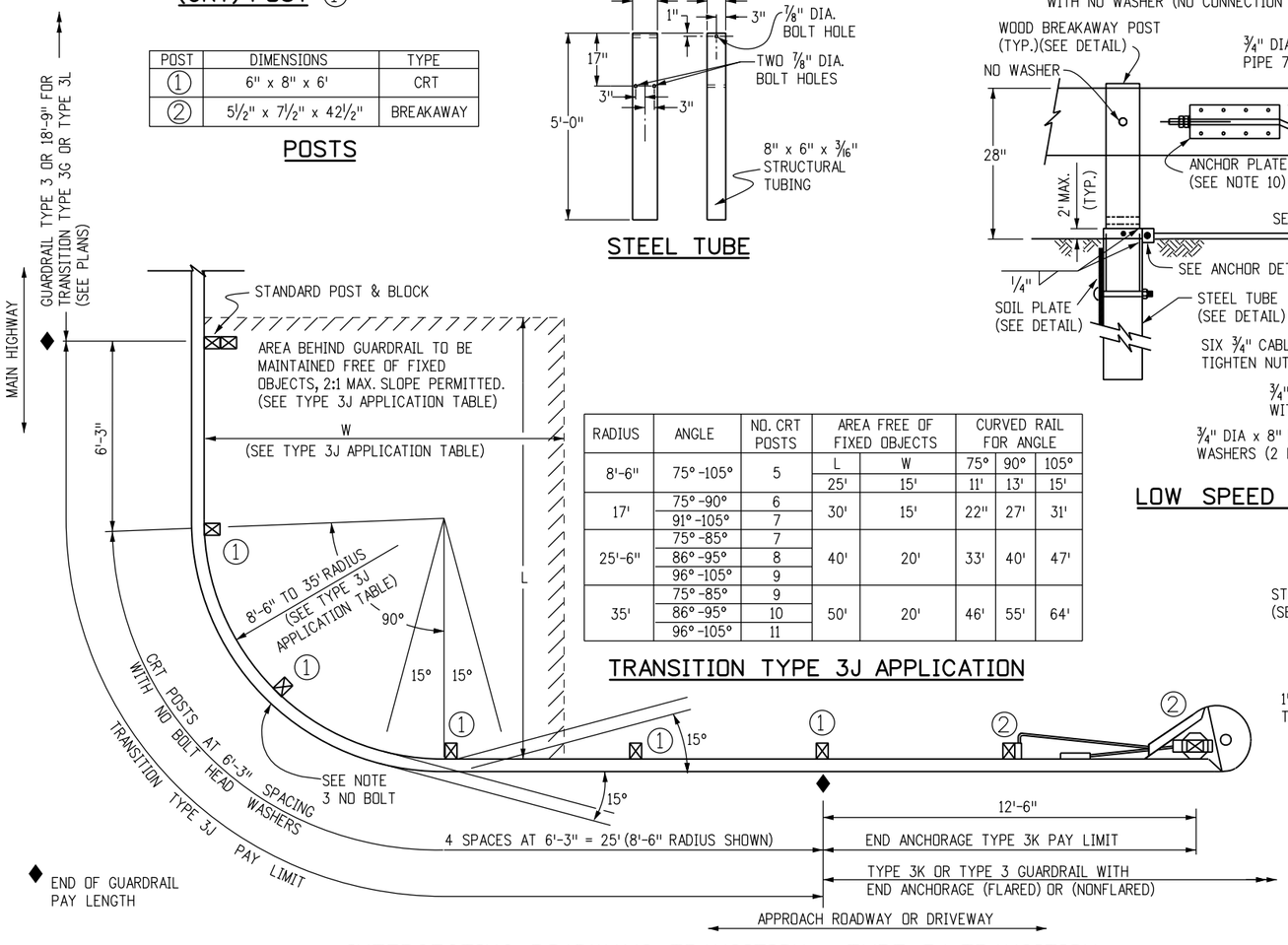


WOOD BREAKAWAY POST ②

POST	DIMENSIONS	TYPE
①	6" x 8" x 6'	CRT
②	5 1/2" x 7 1/2" x 42 1/2"	BREAKAWAY

POSTS

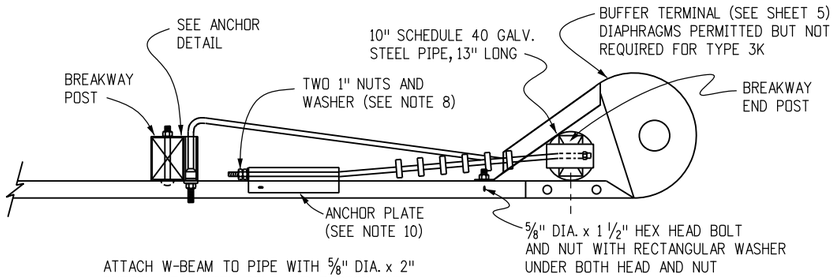
STEEL TUBE

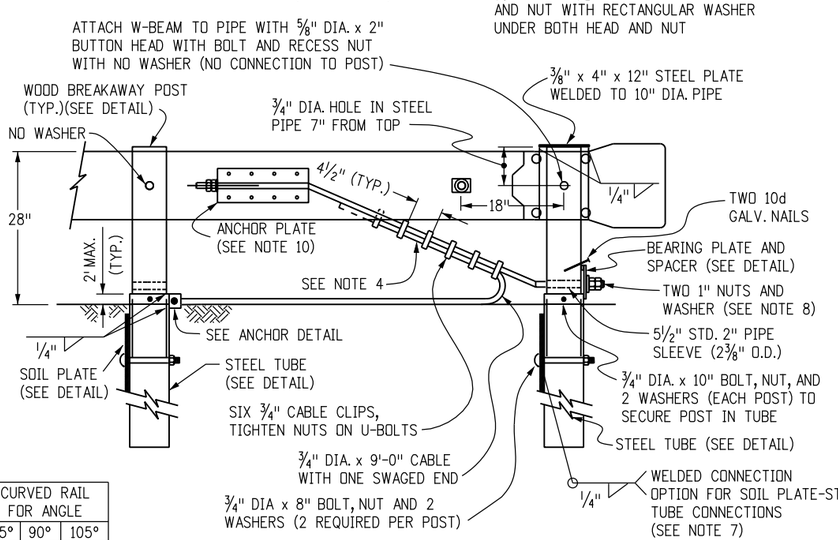


RADIUS	ANGLE	NO. CRT POSTS	AREA FREE OF FIXED OBJECTS		CURVED RAIL FOR ANGLE		
			L	W	75°	90°	105°
8'-6"	75°-105°	5	25'	15'	11'	13'	15'
17'	75°-90°	6	30'	15'	22"	27'	31'
	91°-105°	7					
25'-6"	75°-85°	7	40'	20'	33'	40'	47'
	86°-95°	8					
	96°-105°	9					
35'	75°-85°	9	50'	20'	46'	55'	64'
	86°-95°	10					
	96°-105°	11					

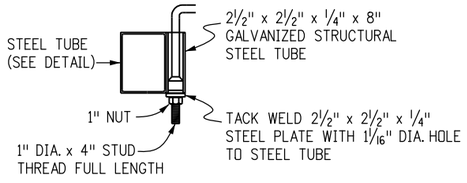
TRANSITION TYPE 3J APPLICATION

INTERSECTING ROADWAYS TRANSITION - TYPE 3J TRANSITION

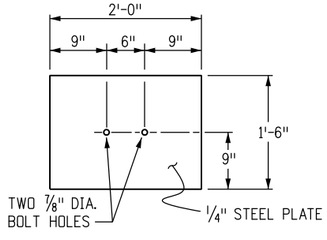




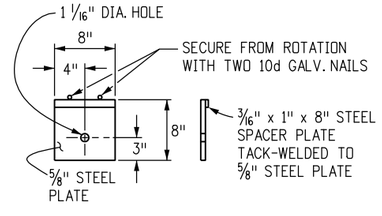
LOW SPEED TERMINAL - TYPE 3K



ANCHOR DETAIL



SOIL PLATE



BEARING PLATE FOR STEEL TUBE

NOTES

1. APPLICATION: THE TRANSITION TYPE 3J MAY BE USED TO SHIELD HAZARDS AT THE INTERSECTION OF TWO ROADWAYS. TYPICAL APPLICATIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
   A. CANAL SERVICE ROADS AT BRIDGE ENDS.
   B. INTERRUPTIONS IN GUARDRAIL RUNS BY INTERSECTING ROADWAYS, ETC..

   THE LOW SPEED (<45 MPH) END ANCHORAGE TYPE 3K SHALL BE USED ONLY ON DRIVEWAYS AND LOW SPEED SERVICE ROADS. WHEN AN APPROVED CRASH-TESTED END TREATMENT IS REQUIRED USE THE END ANCHORAGE (FLARED) OR (NONFLARED) WITH 37 FT.-6 IN. LENGTH.
2. GRADING AND PAVING FOR THE 3J & 3K SHALL MATCH THE GRADING AND PAVING OF THE GUARDRAIL TO WHICH THEY ARE ATTACHED, AND SHALL BE IN ACCORDANCE WITH SHEET ONE OF THIS STANDARD. MAXIMUM FILL SLOPE SHALL BE 2:1.
3. THE RAIL IS NOT BOLTED TO THE CRT POST AT THE CENTER OF THE CURVE FOR THE 8 FT.-6 IN., 17 FT., AND 25 FT.-6 IN. RADII. PLATES SHALL CONFORM TO ASTM A 36, AND THE STRUCTURAL TUBING TO ASTM A 500.
4. THE 3/4IN. GALVANIZED WIRE ROPE (CABLE) SHALL CONFORM TO AASHTO M 30 TYPE II.
5. PLATES SHALL CONFORM TO ASTM A 36, AND STRUCTURAL TUBING TO ASTM A 500. WELDING SHALL MEET ALL REQUIREMENTS OF THE AMERICAN WELDING SOCIETY.
6. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A 123. POSTS SHALL NOT BE PUNCHED, DRILLED, CUT, OR WELDED AFTER GALVANIZING.
7. WHEN THE SOIL PLATE WELDED OPTION IS SELECTED, SOIL PLATE CONNECTION BOLT HOLES ARE NOT REQUIRED.
8. OUTSIDE NUT SHALL BE TORQUED AGAINST INSIDE NUT WITH THE CABLE INSTALLED TAUT BETWEEN THE ANCHOR PLATE AND FIRST POST.
9. ALL CURVED GUARDRAIL SHALL BE SHOP BENT.
10. SEE SHEET 4 FOR ANCHOR PLATE AND OTHER DETAILS.
11. THE STEEL TUBE MAY BE DRIVEN WITH WOOD POST INSERTED IF NO DAMAGE OCCURS TO THE POST OR BOLTS.

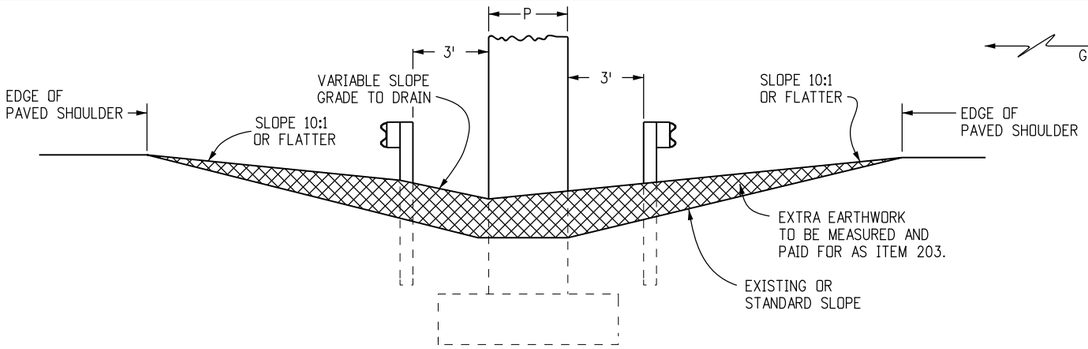
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 606010130 20.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

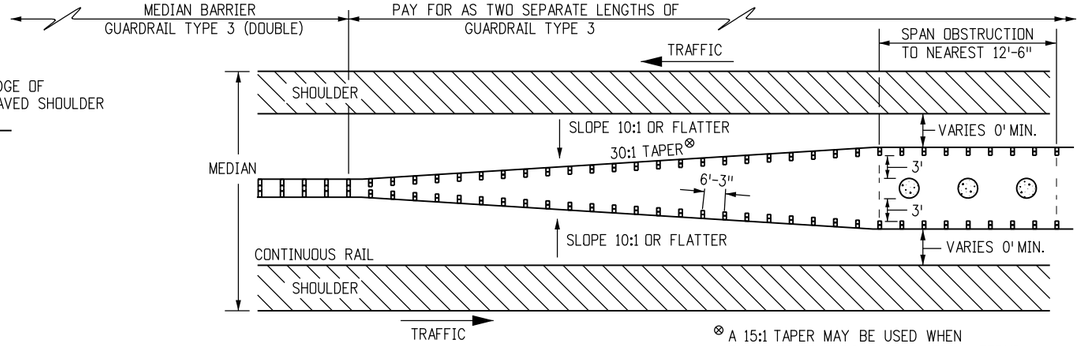
GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 13 of 20

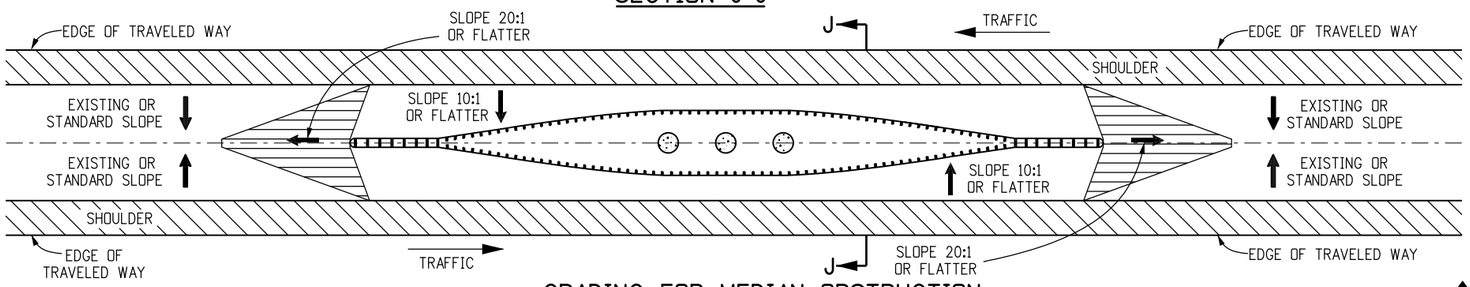


SECTION J-J

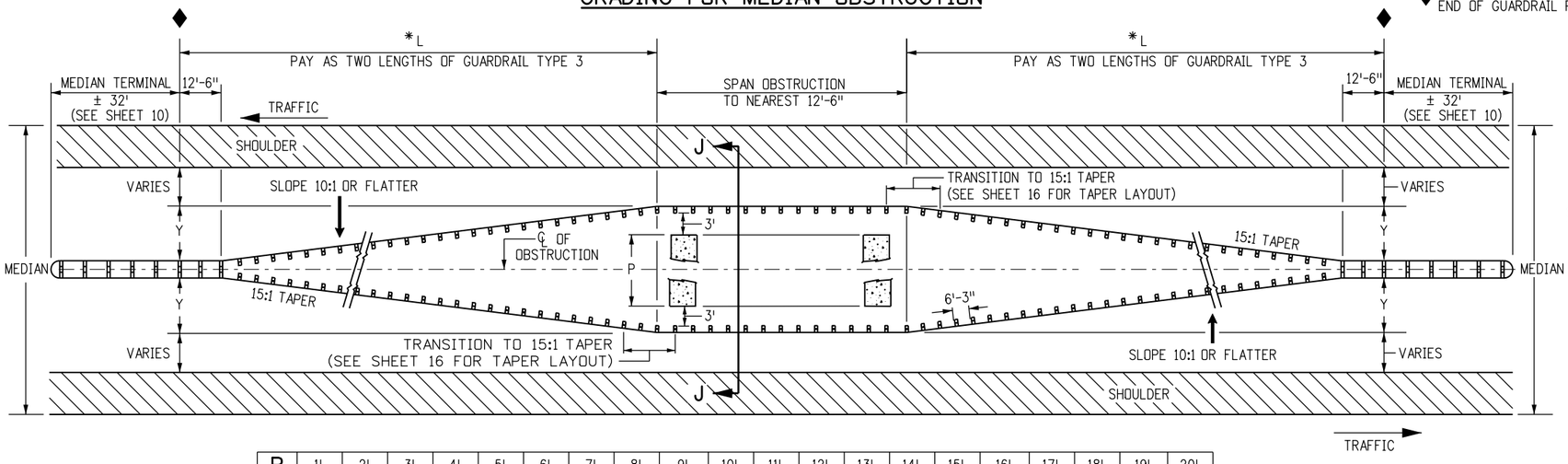


⊗ A 15:1 TAPER MAY BE USED WHEN THE BARRIER ENDS IN THE MEDIAN TERMINAL

OBSTRUCTION IN MEDIAN 30 FT. WIDE OR LESS



GRADING FOR MEDIAN OBSTRUCTION



◆ END OF GUARDRAIL PAY LENGTH

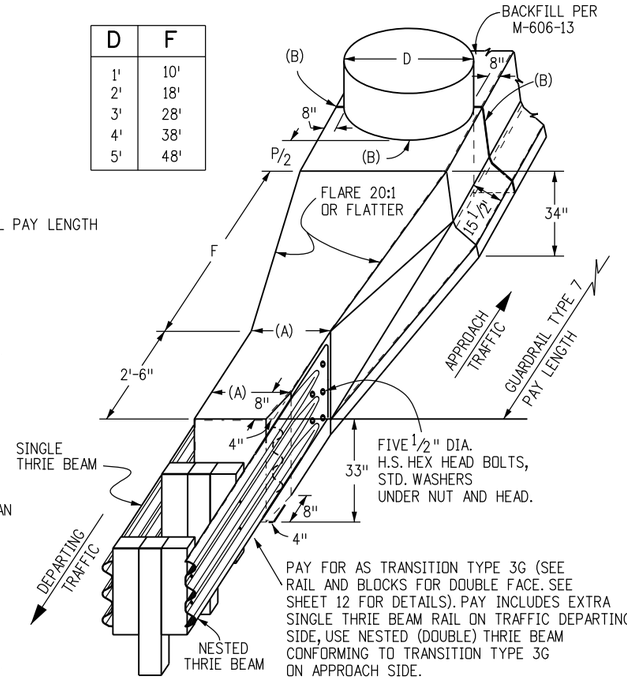
P	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	20'
Y	4'-1"	4'-7"	5'-1"	5'-7"	6'-1"	6'-7"	7'-1"	7'-7"	8'-1"	8'-7"	9'-1"	9'-7"	10'-1"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-1"	13'-7"
L	75'	87'-6"		100'	112'-6"		125'		137'-6"	150'		162'-6"		175'		187'-6"	200'		212'-6"	225'

*L IS MEASURED ALONG FACE OF GUARDRAIL

GUARDRAIL FOR OBSTRUCTION IN MEDIANS WIDER THAN 30 FT.

NOTE: FOR OBSTRUCTIONS (P) THAT ARE WIDER THAN 20 FT. IN MEDIANS USE SHEET 17.

D	F
1'	10'
2'	18'
3'	28'
4'	38'
5'	48'



(A). TIMBER POSTS 2 FT., STEEL POSTS 1 FT.-9½IN.

(B). ½ IN. PREFORMED JOINT MATERIAL

NARROW MEDIAN DETAIL

USUALLY LESS THAN 30 FT. WIDE MEDIAN WITH ALL PAVED SURFACE

OBSTRUCTIONS IN MEDIANS

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 60601014020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

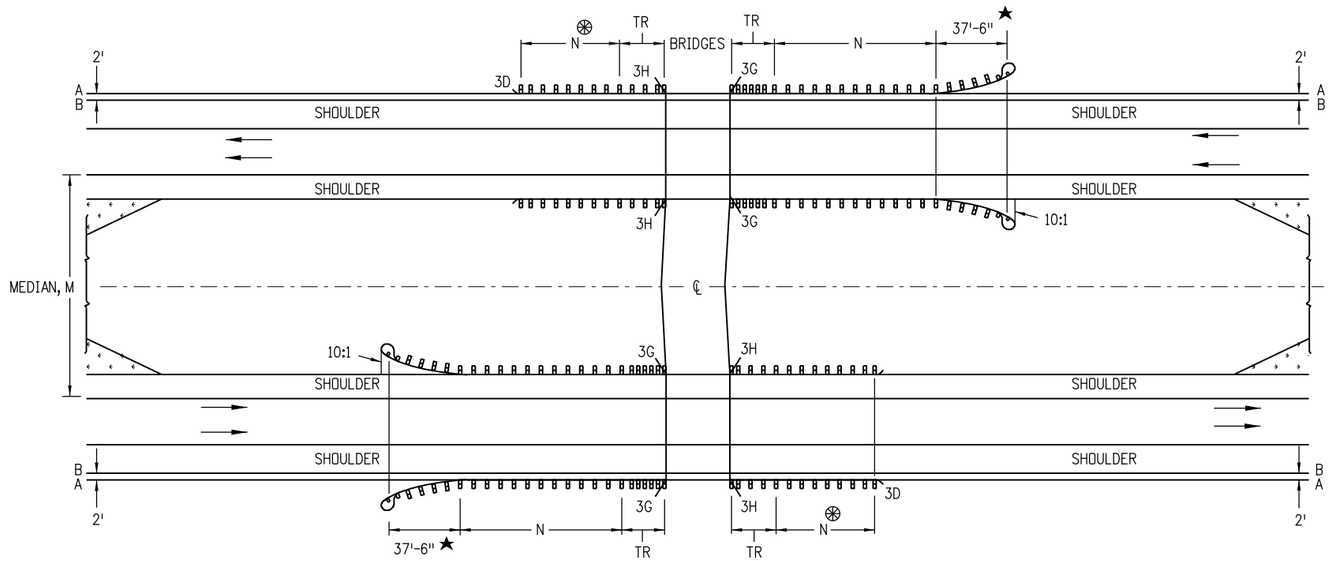
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.

M-606-1



MULTILANE DIVIDED HIGHWAYS FOR STEEP EMBANKMENTS IN MEDIAN

NOTES:

1. MEDIAN BARRIERS TANGENT TO THE ROADWAY MAY BE USED WHERE THE SHOULDER SLOPES IN THE MEDIAN ARE STEEP.
2. BARRIER LENGTHS SHALL BE INCREASED TO ACCOUNT FOR STEEP EMBANKMENTS OR OTHER HAZARDS WITHIN CLOSE PROXIMITY OF BRIDGES.

⊛ — DO NOT CONSTRUCT THE TR AND GUARDRAIL ON THE TRAILING BRIDGE ENDS IF SITE CONDITIONS DO NOT WARRANT THE USE OF GUARDRAIL.

N — SHOWN ON PLANS. LENGTH TO SHIELD ALL HAZARDS IS BASED ON GUARDRAIL'S LENGTH OF NEED COMPUTATION. SEE AASHTO ROADWAY DESIGN GUIDE. THE MINIMUM SHALL BE 12 FT. - 6 IN., WHERE SITE CONDITIONS ALLOW. THE TOTAL LENGTH OF NEED WILL INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT.

TR — 18 FT.-9 IN. FOR 3G AND 3H.

A — EDGE OF 8 FT. OR 10 FT. SHOULDER.

B — EDGE OF 6 FT. OR LESS SHOULDER.

★ — END ANCHORAGE CAN BE FLARED OR NONFLARED.

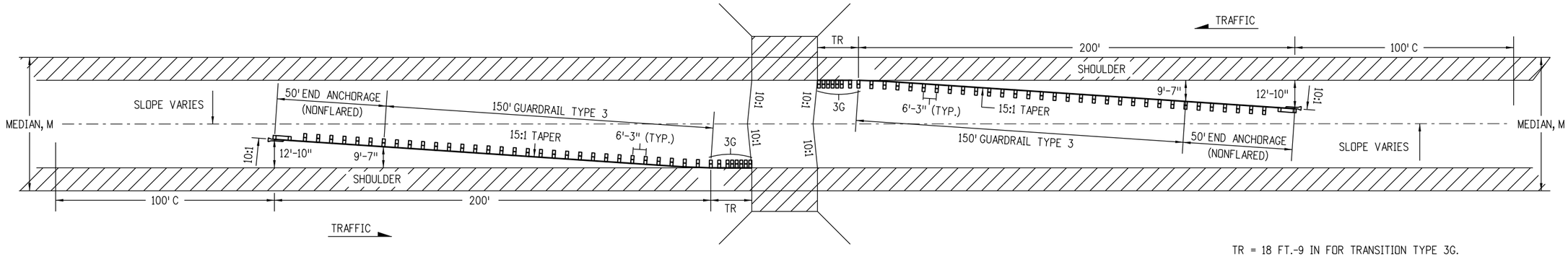
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 606010150 20.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

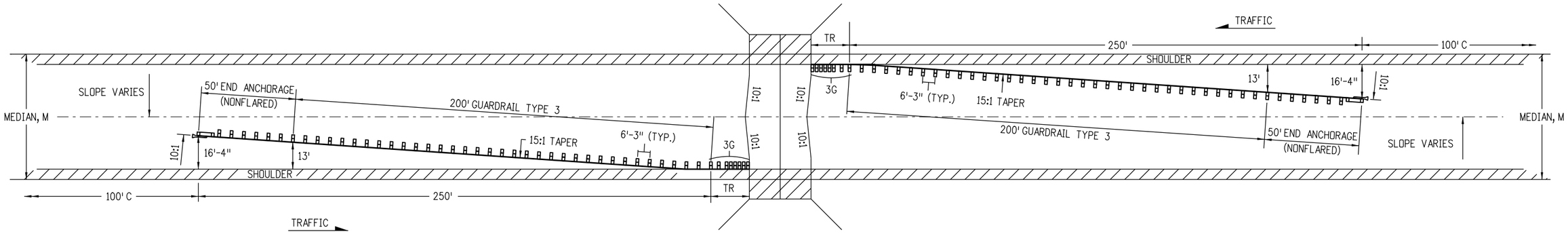
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 15 of 20

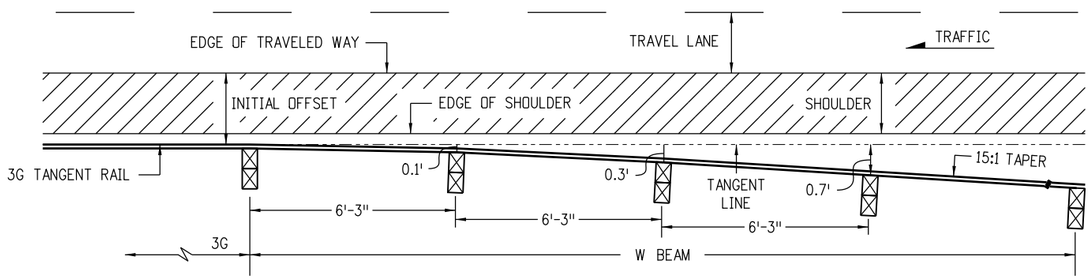


MEDIANS 60 FT. AND OVER WITH 10 FT. OR WIDER SHOULDERS.

TR = 18 FT.-9 IN FOR TRANSITION TYPE 3G.
C = CHANGE: 100 FT. TRANSITION TO NORMAL SLOPE.
M = WIDTH OF MEDIAN.



MEDIANS 60 FT. AND OVER WITH 4 to 8 FT. SHOULDERS.



TRANSITION TO TYPICAL 15:1 TAPER

NOTES:

1. GUARDRAIL TRANSITIONS FROM PARALLEL TO ROADWAY SHOULDER AT 3G SEGMENT TO 15:1 TAPER WITHIN 18'-9" BASED ON POST OFFSET DIMENSIONS SHOWN.
2. SEE SHEET 15 FOR THE RIGHT SHOULDER GUARDRAIL LAYOUT.

MULTILANE DIVIDED HIGHWAYS - (DEPRESSED MEDIANS, 60 FT. AND OVER WITH OPEN HAZARDS OR OBSTRUCTIONS)

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 606010160 20.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

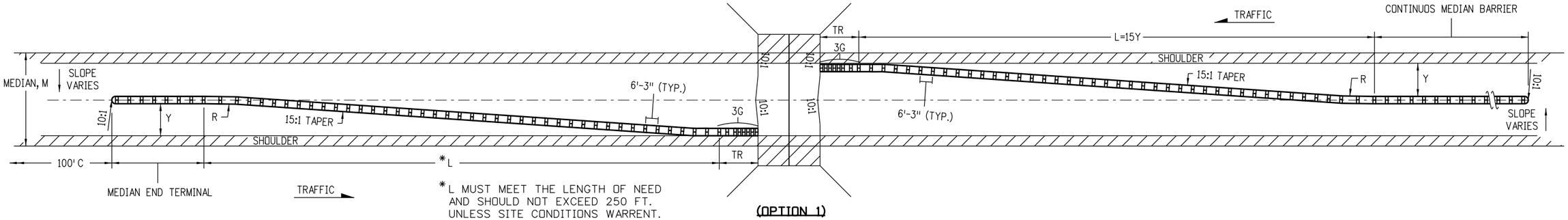
GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 16 of 20

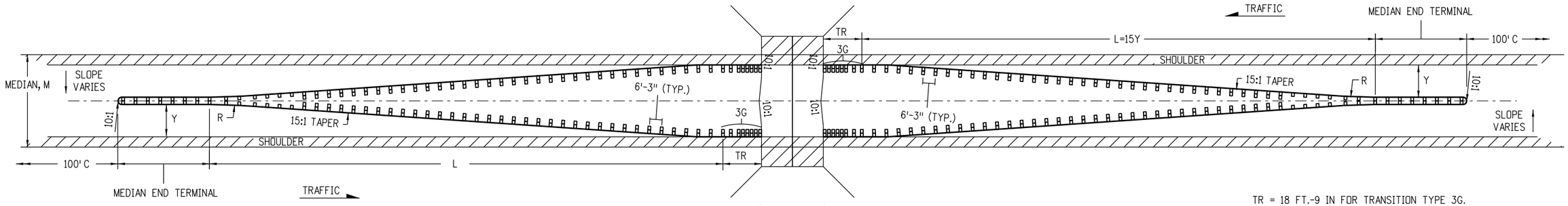
NOTES

1. GUARDRAIL TRANSITIONS FROM PARALLEL TO ROADWAY SHOULDER AT 3G SEGMENT TO 15:1 TAPER WITHIN 18'-9" BASED ON POST OFFSET DIMENSIONS SHOWN.
2. THE OPTION 1 LAYOUT SHALL BE USED WHEN "Y" EXCEEDS 16 FEET OR WHEN MEDIAN BARRIER IS CONTINUOUS.
3. THE OPTION 2 LAYOUT SHALL BE USED WHEN "Y" IS 16 FEET OR LESS.
4. SEE SHEET 15 FOR RIGHT SHOULDER GUARDRAIL LAYOUT.

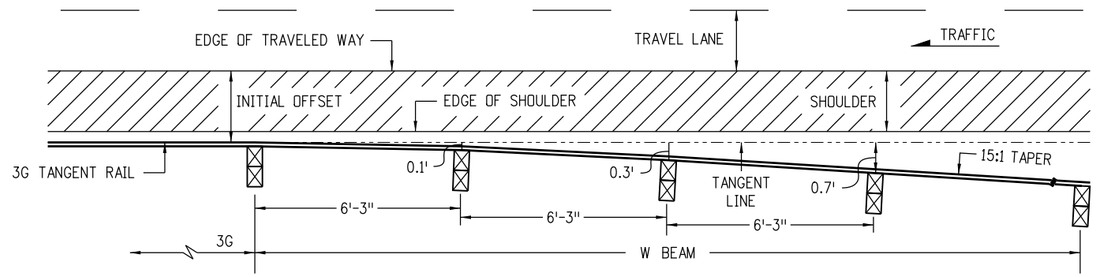


*L MUST MEET THE LENGTH OF NEED AND SHOULD NOT EXCEED 250 FT. UNLESS SITE CONDITIONS WARRENT.

(OPTION 1)



(OPTION 2)



TRANSITION TO TYPICAL 15:1 TAPER

TR = 18 FT.-9 IN FOR TRANSITION TYPE 3G.
C = CHANGE: 100 FT. TRANSITION TO NORMAL SLOPE.
M = WIDTH OF MEDIAN.
L = TOTAL LENGTH PAID AS GUARDRAIL TYPE 3.
Y = FINAL OFFSET AT END.

MULTILANE DIVIDED HIGHWAYS - (DEPRESSED MEDIANS, 21 - 59 FT. WITH OPEN HAZARDS OR OBSTRUCTIONS)

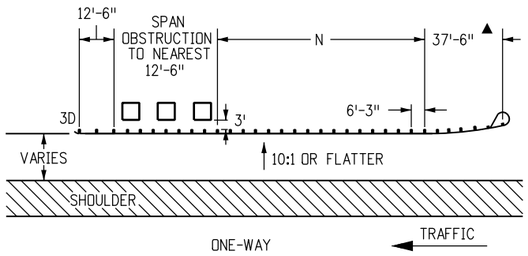
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.dot.state.co.us/DesignSupport/	(R-X)		
Drawing File Name: 60601017020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

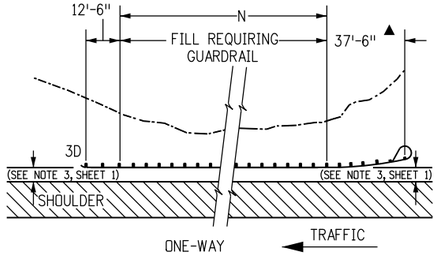
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

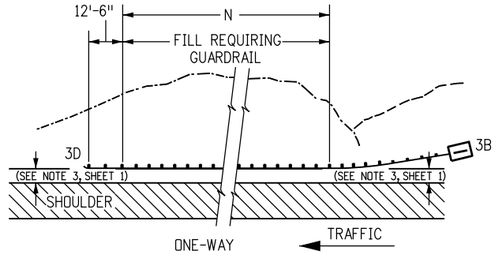
GUARDRAIL TYPE 3 W-BEAM

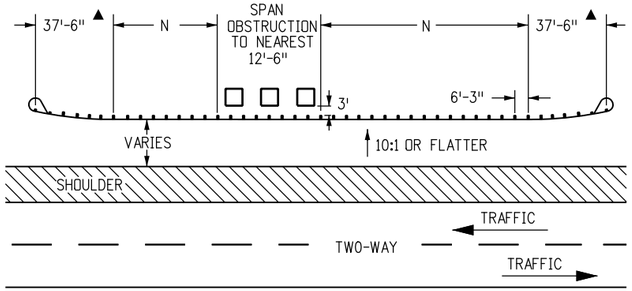
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1

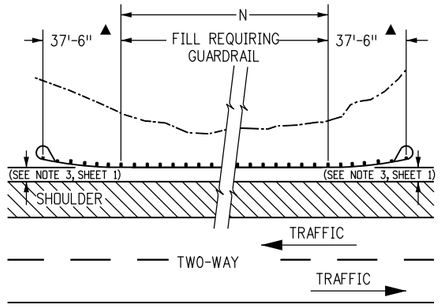




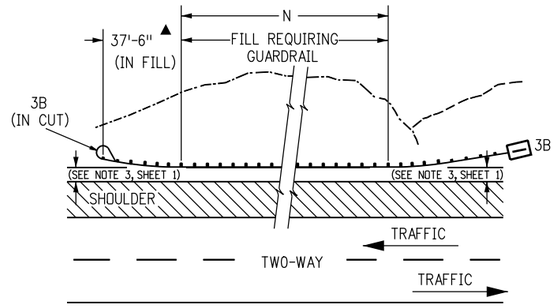




GUARDRAIL FOR ROADSIDE OBSTRUCTIONS



GUARDRAIL FOR ROADSIDE FILL CONSTRUCTION

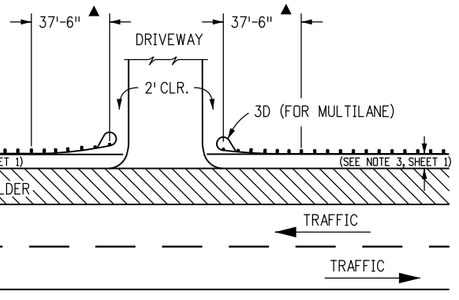


GUARDRAIL FOR ROADSIDE CUT-TO-FILL CONDITION

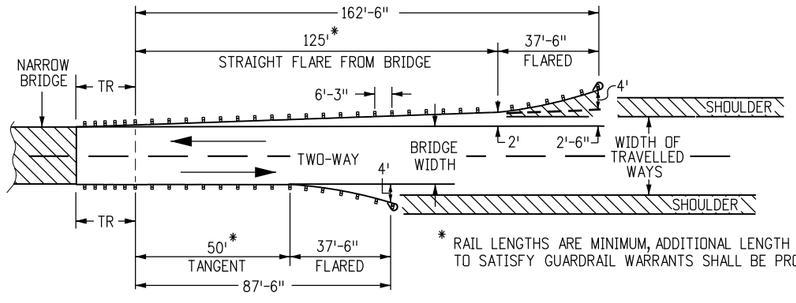
NOTES

1. THE TYPE 3G OR 3H TRANSITIONS (SEE SHEET 12) SHALL BE USED TO CONNECT A TYPE 3 W-BEAM TO TYPE 7 CONCRETE BARRIER OR TO A TYPE 7, 8, OR 10 BRIDGE RAIL. FOR A TRANSITION FROM A ROADWAY TYPE 3 W-BEAM TO A BRIDGE RAIL TYPE 3 WITH BACKING TUBES, THE TRANSITION TYPE 3L SHOWN ON SHEET 20 SHALL BE USED.
2. "TR" WILL BE 18 FT.-9 IN. FOR THE TRANSITIONS TYPE 3G AND 3H, AND 25 FT. FOR THE TRANSITION TYPE 3L.
3. THE GUARDRAIL LENGTH DIMENSION "N" IS THE LENGTH AS DETERMINED BY THE LENGTH OF NEED COMPUTATION AND IS SHOWN ON THE PLANS. THE MINIMUM IS 12 FT.-6 IN. WHERE SITE CONDITIONS ALLOW. THE OVERALL REQUIRED LENGTH OF NEED CAN INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT. A TRAVERSABLE SLOPE SHALL BE PROVIDED BEHIND THE TERMINAL TO DIMENSION "N" PRIOR TO THE OBSTRUCTION UNLESS OTHERWISE APPROVED BY THE ENGINEER.

▲ END ANCHORAGE CAN BE FLARED OR NONFLARED

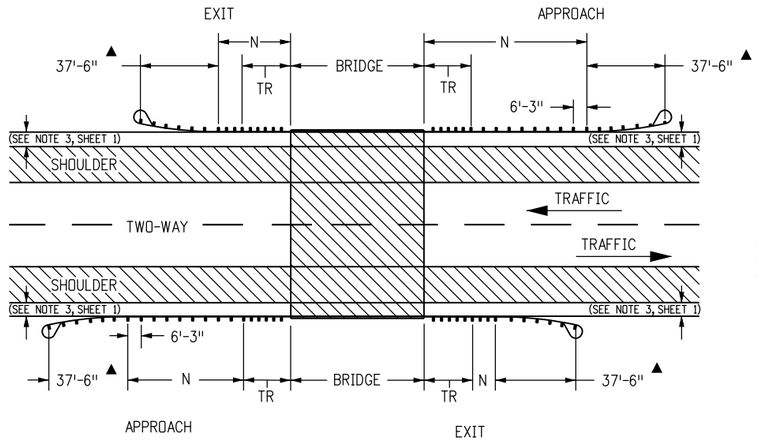


LAYOUT FOR DRIVEWAY APPROACH

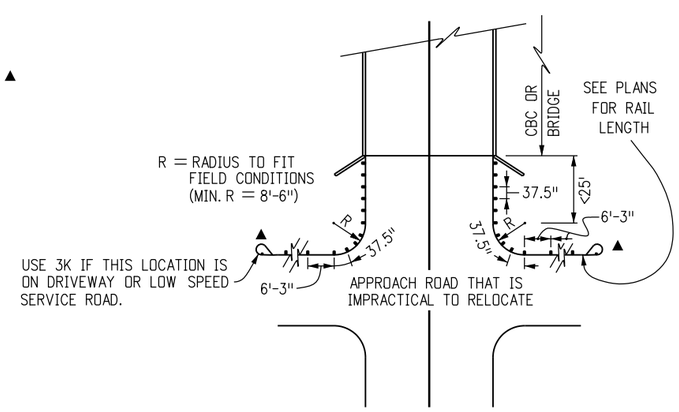


* RAIL LENGTHS ARE MINIMUM, ADDITIONAL LENGTH TO SATISFY GUARDRAIL WARRANTS SHALL BE PROVIDED

2-WAY NARROW APPLICATION



2-WAY NORMAL BRIDGE APPLICATION



GUARDRAIL TYPE 3 WITH BLOCKED OUT POSTS SPACED AT 3'-1½" FROM STRUCTURE AROUND CURVE.

INTERRUPTED STRUCTURE APPROACH

(USE TYPE 3J ON SHEET 13 WHEN PRACTICAL)

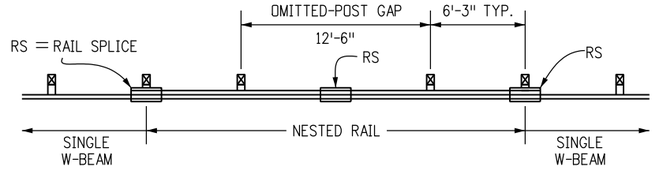
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 606010180 20.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

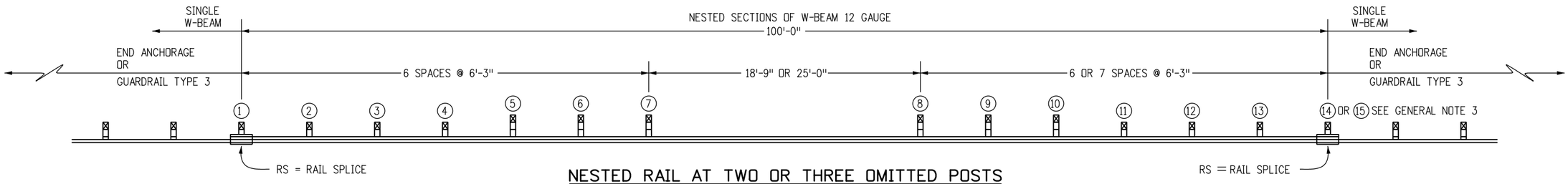
STANDARD PLAN NO.
M-606-1
Sheet No. 18 of 20



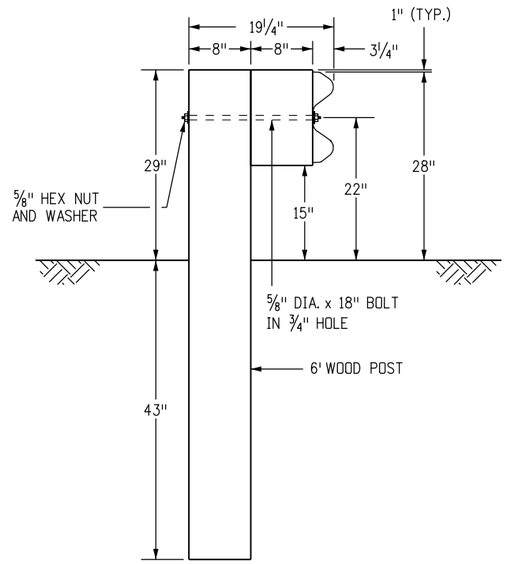
NESTED RAIL AT ONE OMITTED POST

NOTES

1. FOR ONE OMITTED POST IN THE GUARDRAIL RUN, i.e. AT A PIPE CULVERT WITH MINIMUM COVER, SEE THE "NESTED RAIL AT ONE OMITTED POST" DETAIL ON THIS SHEET. THE W-BEAM RAILS SPANNING THE OMITTED-POST GAP SHALL BE DOUBLED (ONE RAIL NESTED IN THE OTHER), AND SHALL EXTEND A MINIMUM OF 6 FT.-3 IN. ON EITHER SIDE OF THE GAP. USING 12 FT.-6 IN. SECTIONS OF RAIL, AND DEPENDING ON THE SPLICE LOCATION, ONE OMITTED POST SECTION REQUIRES EITHER 25 FT. OR 37 FT. - 6 IN. OF NESTED RAIL.
2. FOR TWO OR THREE OMITTED POSTS, SEE THE "NESTED RAIL AT TWO OR THREE OMITTED POSTS" DETAIL ON THIS SHEET. RAIL SPLICES IN THE 100 FT. NESTED SECTION MAY BE PLACED TO FACILITATE CONSTRUCTABILITY. HOWEVER ONLY ONE RAIL SPLICE MAY BE PLACED IN THE OMITTED POSTS SECTION, AND ONLY AT THE MIDPOINT OF THE 25 FT. LENGTH.
3. POST (15) REQUIRED WHEN TWO POSTS ARE OMITTED FOR THE 18 FT.-9 IN. LENGTH.
4. ONLY TIMBER POSTS AND BLOCKS ARE ALLOWED FOR WEAKENED POSTS 5 THROUGH 10.

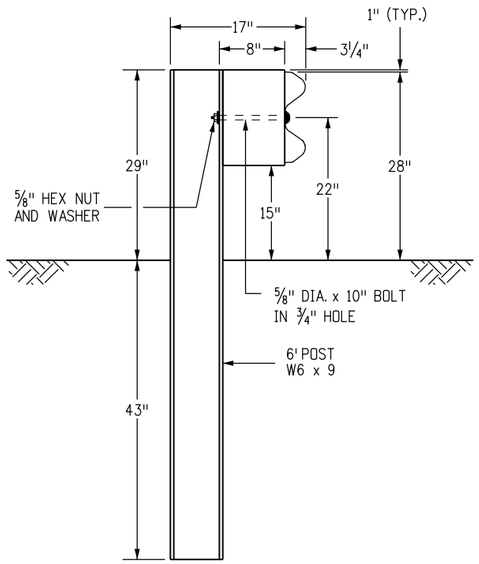


NESTED RAIL AT TWO OR THREE OMITTED POSTS



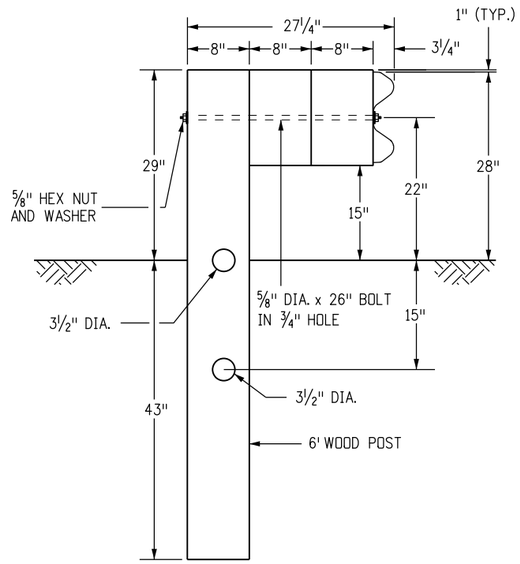
TIMBER

POSTS (1) - (4) AND (11) - (15)



STEEL

POSTS (1) - (4) AND (11) - (15)



TIMBER

POSTS (5) - (10)

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 60601019020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

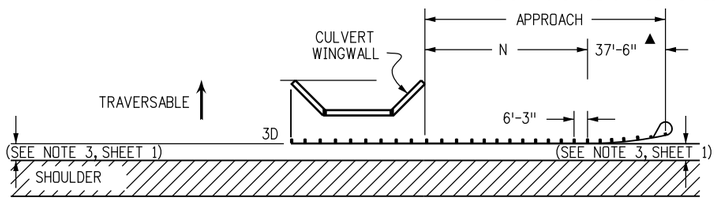
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

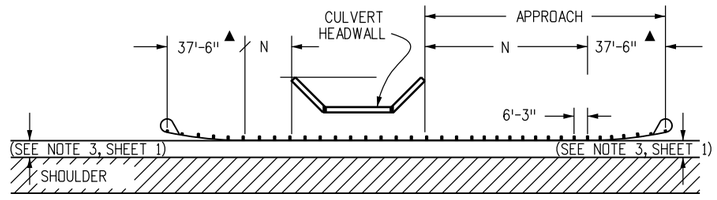
GUARDRAIL TYPE 3 W-BEAM

Issued By: Project Development Branch July 4, 2012

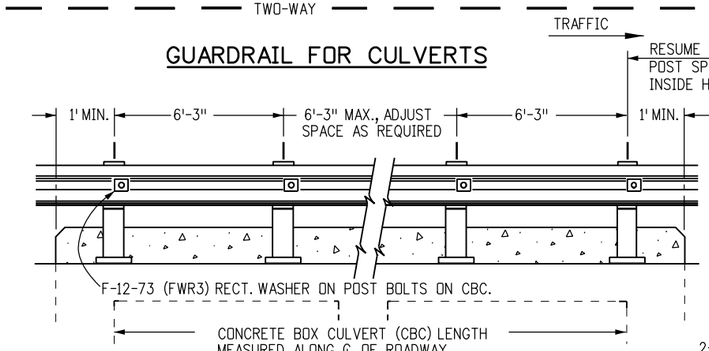
STANDARD PLAN NO.
M-606-1

▲ END ANCHORAGE CAN BE FLARED OR NONFLARED.



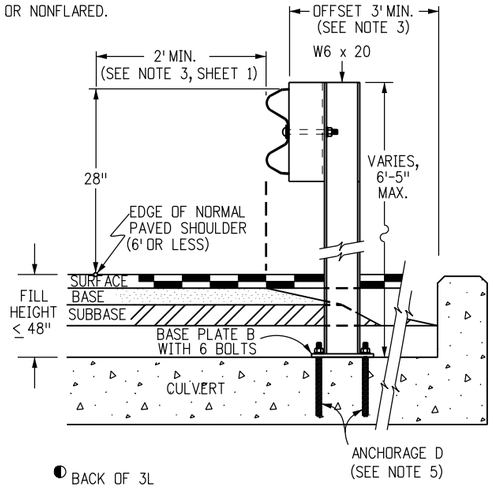


GUARDRAIL FOR CULVERTS



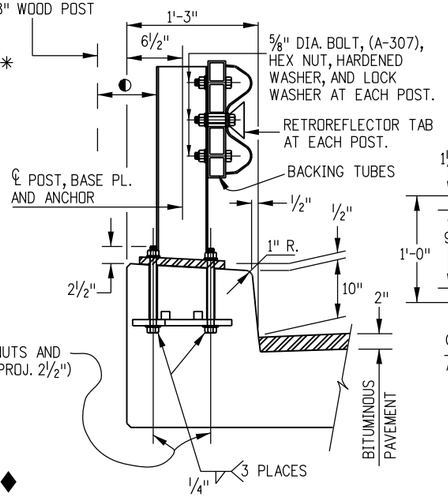
RAIL PLACEMENT FOR INSIDE OR HEADWALL MOUNT

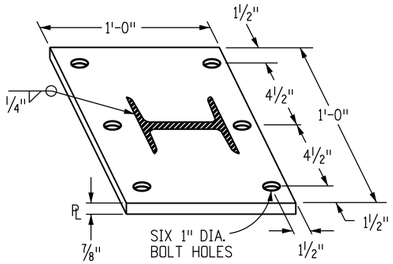
* USE 3L TRANSITION AT BOTH APPROACH AND EXIT ENDS OF BRIDGE RAIL TYPE 3 (HEADWALL MOUNT)



◐ BACK OF 3L TRANSITION POST 5.75" STEEL POST OR 8" WOOD POST

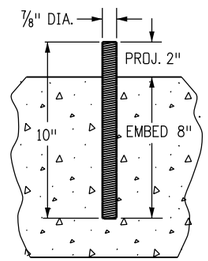
INSIDE MOUNT ON CBC





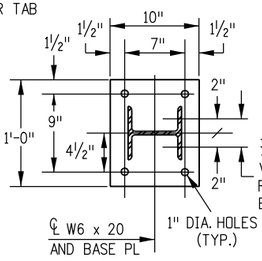
BASE PLATE B

(FOR INSIDE MOUNT)

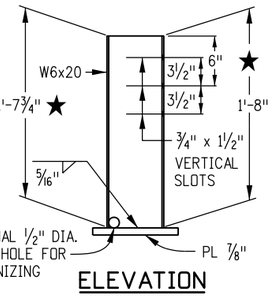


ANCHORAGE D

(FOR INSIDE MOUNT)

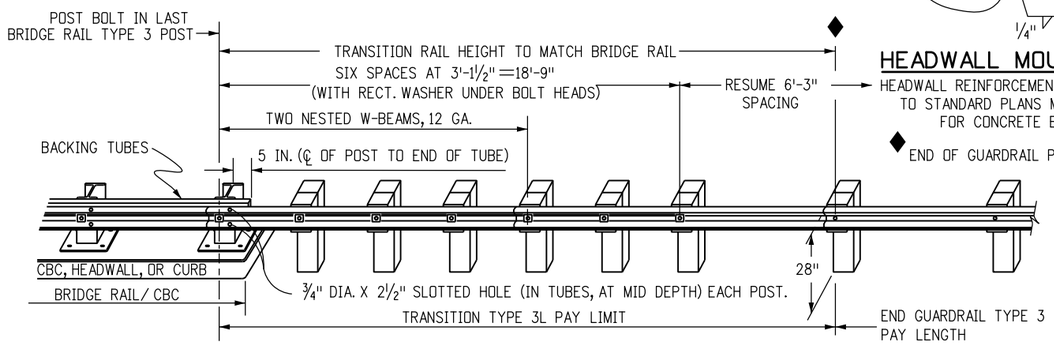


PLAN



ELEVATION

HEADWALL MOUNT POST DETAIL

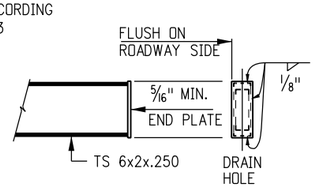


TRANSITION TYPE 3L AND GUARDRAIL TYPE 3 APPROACH

HEADWALL MOUNT ON CBC

HEADWALL REINFORCEMENT SHALL BE ACCORDING TO STANDARD PLANS M-601-1, 2, AND 3 FOR CONCRETE BOX CULVERTS.

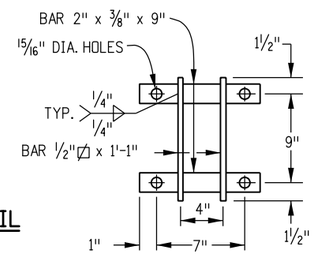
◆ END OF GUARDRAIL PAY LENGTH



BACKING TUBES END DETAIL

(FOR HEADWALL MOUNT)

TUBES SHALL BE CONTINUOUS. NEITHER BOLTED NOR WELDED SPLICES WILL BE ALLOWED.



● ANCHOR DETAIL

(FOR HEADWALL MOUNT)

NOTES

1. LOCATION AND LENGTH OF MEDIAN GUARDRAIL APPROACHES TO CULVERTS WITH FULL HEADWALL AND WINGWALLS SHALL BE AS SHOWN FOR BRIDGES ON SHEET 16. THE GUARDRAIL TYPE 3 SHALL CONTINUE ACROSS THE CULVERT AS SHOWN ON THIS SHEET.
2. RIGHT SHOULDER BOX CULVERT TREATMENT IS SHOWN ON THIS SHEET FOR CULVERTS 20 FT. OR LESS IN LENGTH.
3. GUARDRAIL ACROSS CULVERTS WITH A LENGTH OF 20 FT. OR LESS SHALL BE AS FOLLOWS:
   A. FILL HEIGHT AT GUARDRAIL POST 48 IN. OR GREATER: CONSTRUCTION AND PAYMENT WILL BE AS GUARDRAIL TYPE 3.
   B. FILL HEIGHT AT GUARDRAIL POST LESS THAN 48 IN. AND BLOCK FACE TO HEADWALL OFFSET OF 3 FT. OR GREATER: CONSTRUCTION AND PAYMENT AS GUARDRAIL TYPE 3.
   C. FILL HEIGHT AT GUARDRAIL POST 48 IN. OR LESS AND BLOCK FACE TO HEADWALL OFFSET LESS THAN 3 FT: CONSTRUCTION ACCORDING TO HEADWALL MOUNT DETAILS AND PAYMENT AS BRIDGE RAIL TYPE 3.
4. GUARDRAIL ACROSS CULVERTS WITH LENGTH GREATER THAN 20 FT. SHALL BE AS FOLLOWS:
   A. FILL HEIGHT AT GUARDRAIL POSTS 48 IN. OR GREATER: CONSTRUCTION AND PAYMENT WILL BE FOR STANDARD GUARDRAIL TYPE 3.
   B. FILL HEIGHT AT GUARDRAIL POSTS 48 IN. OR LESS: CONSTRUCTION AND PAYMENT IN ACCORDANCE WITH THE CONTRACT BRIDGE PLANS. WHEN BLOCK FACE TO HEADWALL OFFSET IS 3 FT. OR GREATER: CONSTRUCTION AND PAYMENT AS GUARDRAIL TYPE 3.
5. ANCHORAGE D: SIX BOLTS FOR BASE PLATE "B" WITH INSIDE MOUNT. THE BOLTS SHALL BE 7/8 IN. DIA X 10 IN. HIGH STRENGTH RODS THREADED FULL LENGTH AND ALL GALVANIZED. RODS SHALL BE CAST-IN-PLACE FOR A NEW STRUCTURE. FOR AN EXISTING STRUCTURE, THE RODS SHALL BE INSTALLED IN 1-1/4 IN. DIA HOLES WITH NON-SHRINK GROUT OR EPOXY CONFORMING TO ASTM C 881.
6. TYPE 3L POSTS SHALL BE STEEL OR WOOD TO MATCH POSTS USED ON THE APPROACH GUARDRAIL.
7. THE GUARDRAIL LENGTH DIMENSION "N" IS THE LENGTH AS DETERMINED BY THE LENGTH OF NEED COMPUTATION AND IS SHOWN ON THE PLANS. THE MINIMUM IS 12 FT.-6 IN. WHERE SITE CONDITIONS ALLOW. THE OVERALL REQUIRED LENGTH OF NEED CAN INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT.
8. ALL BRIDGE RAIL TYPE 3 BACKING TUBES SHALL BE FABRICATED FROM ASTM A 500 GRADE B. ALL POSTS, BASE PLATES, AND ANCHOR BOLTS SHALL BE FABRICATED FROM ASTM A 36 STEEL. THE ABOVE MATERIAL, W-BEAM, AND ALL ANCHOR BOLTS AND MISCELLANEOUS BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 509. CONCRETE, REINFORCING STEEL, AND STRUCTURAL STEEL ELEMENTS SHALL BE IN ACCORDANCE WITH SECTIONS 601, 602, AND 509, RESPECTIVELY.
9. POST ANCHORS, ENCASED IN CONCRETE, SHALL BE ASTM A 36 STEEL, AND NEED NOT BE GALVANIZED.
10. PRIOR TO FABRICATION OF BRIDGE RAIL, THREE SETS OF WORKING DRAWINGS WHICH COMPLY WITH THE REQUIREMENTS OF SECTION 105 SHALL BE SUBMITTED TO THE ENGINEER FOR INFORMATION ONLY.
11. IF HEADWALL MOUNT GUARDRAIL IS USED, SEE STANDARD PLAN M-601, AND NOTES BELOW:
    A. ALL ITEMS ABOVE TOP OF CBC HEADWALL WILL BE MEASURED AND PAID FOR AS LINEAR FEET OF BRIDGE RAIL TYPE 3.
    B. HEADWALL MOUNTING OF RAIL WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.

★ FOR STANDARD 12 IN. HEADWALL WITH NO PAVEMENT, THE POST HEIGHT SHALL BE 1 FT.- 6 IN. ADJUST POST HEIGHT FOR PAVEMENT THICKNESS.

● ONE ANCHOR ASSEMBLY SHALL BE PLACED FOR EACH RAIL POST.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 10/09/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 60601020020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

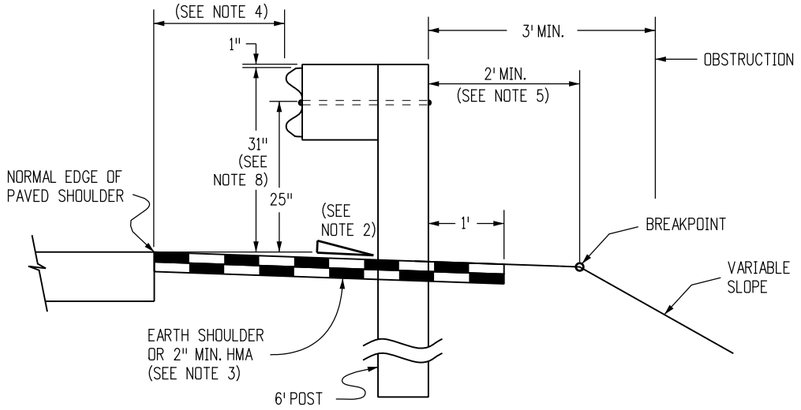
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

GUARDRAIL TYPE 3 W-BEAM

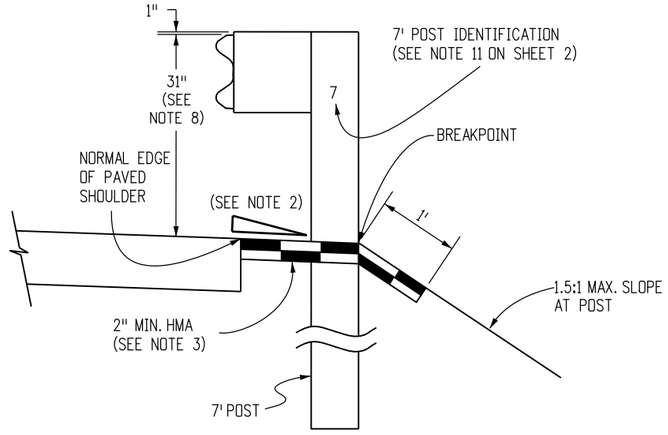
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.

M-606-1

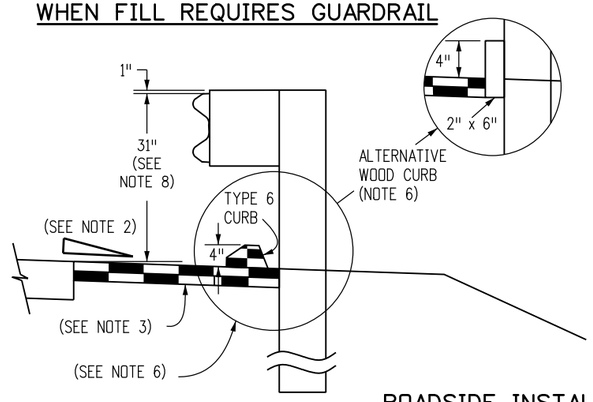


NORMAL ROADSIDE INSTALLATION WHEN FILL REQUIRES GUARDRAIL

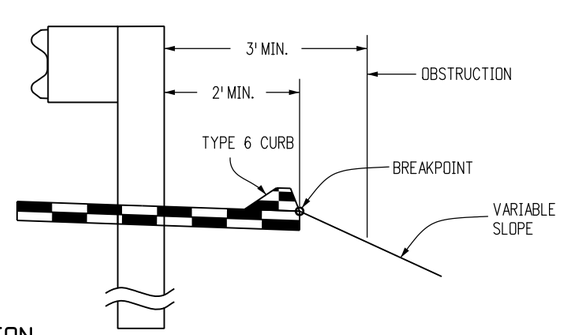


RESTRICTIVE ROADSIDE INSTALLATION WITH 7 FOOT GUARDRAIL POSTS

(SEE NOTE 5)

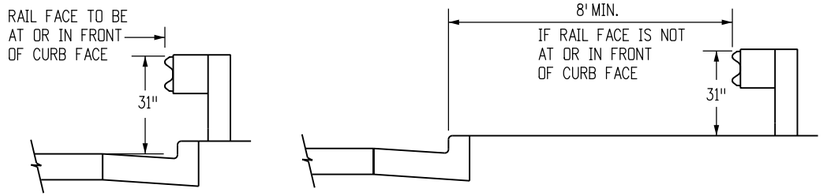


OPTION A



OPTION B

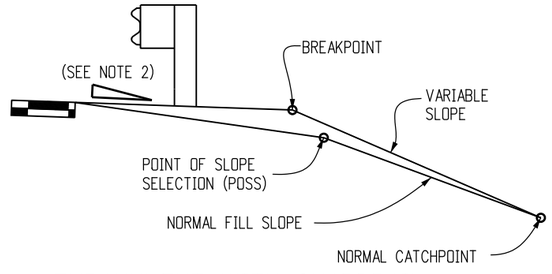
ROADSIDE INSTALLATION WITH EROSION CONTROL CURB



URBAN ROADSIDE INSTALLATION WITH CURB AND GUTTER

LOCATION	SPACING
ALL LOCATIONS EXCEPT BRIDGE RAIL LOCATIONS	6'-3"
BRIDGE OR STRUCTURE APPROACH	SEE SHEETS 12 & 20

NORMAL CENTER-TO-CENTER POST SPACING



EMBANKMENT WITH GUARDRAIL

(NOTE: THE CATCHPOINT REMAINS THE SAME AS THAT FOR "NORMAL" FILL SLOPE. FOR THE WIDER "Z" DISTANCES, THE VARIABLE SLOPE MAY "CATCH" AT THE POSS.)

GENERAL NOTES

1. TOLERANCE FOR TOP OF GUARDRAIL BEAM IS ±1 IN.
2. RATE OF SLOPE DEPENDS ON GUARDRAIL LOCATION:
   A. FOR GUARDRAIL FACE 2 FT. OR LESS FROM THE NORMAL EDGE OF PAVED SHOULDER, CONTINUE THE RATE OF SLOPE OF THE NORMAL PAVED SHOULDER TO THE BREAKPOINT.
   B. FOR GUARDRAIL FACE MORE THAN 2 FT. FROM THE NORMAL EDGE OF THE PAVED SHOULDER, THE SLOPE SHALL BE 10:1 OR FLATTER.
3. WHEN SPECIFIED ON THE PLANS, EXTEND A 2 IN. MINIMUM THICKNESS PAVED SURFACE TO 1 FT. BEHIND THE GUARDRAIL POSTS OR TO THE EROSION CONTROL CURB AS SHOWN ON PLANS. ASPHALT CUTTING & PATCHING OR OTHER APPROVED METHOD SHALL BE USED TO MINIMIZE DAMAGE TO ALL PAVED SURFACES UNDER GUARDRAIL INSTALLATIONS. ALL REPAIRS TO THE PAVED AREA WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK. A MINIMUM 3 IN. THICK FIBER REINFORCED CONCRETE PAVEMENT MAY ALSO BE USED FOR PAVING BENEATH THE GUARDRAIL. INSTALL THE POST IN A ½ IN. OVERSIZED FORMED HOLE FOR GUARDRAIL RUNS AND TERMINALS AS DIRECTED. PAYMENT FOR THIS PAVED SURFACE WILL BE MADE UNDER A PAVEMENT OR CONCRETE PAY ITEM WITH QUANTITIES SHOWN ON THE PLANS.
4. THE MINIMUM GUARDRAIL OFFSET FROM PAVED SHOULDER EDGE SHALL BE:
   0 FT. FOR SHOULDERS 8 FT. OR WIDER
   2 FT. FOR SHOULDERS 6 FT. OR LESS

   THE GUARDRAIL OFFSET FROM PAVED INSIDE SHOULDER EDGE OF A DIVIDED HIGHWAY SHALL BE;
   0 FT. MINIMUM FOR SHOULDERS 6 FT. OR WIDER
   2 FT. DESIRABLE FOR 4 FT. SHOULDERS

   THE ABOVE 2 FT. GUARDRAIL TO SHOULDER OFFSET IS DESIRABLE BUT NOT REQUIRED FOR:
   A. FOR AN EXISTING HIGHWAY WITH A DESIGN SPEED LESS THAN 50 MPH, THE MINIMUM OFFSET IS 4 FT. FROM THE TRAVELED WAY.
   B. FOR A ONE-WAY ONE-LANE RAMP, AND WHERE ONE OR MORE OF THE FOLLOWING ARE TRUE:
      (1) THE NON-OFFSET GUARDRAIL BEGINS AT LEAST 100 FT. BEYOND RAMP NOSE.
      (2) THE NON-OFFSET GUARDRAIL IS NOT LOCATED ON THE RAMP EXIT OR ENTRANCE CURVE CONNECTION TO THE MAJOR HIGHWAY.
      (3) THE RAMP SHOULDERS ARE 4 FT. OR WIDER.

   USE OF GREATER THAN MINIMUM OFFSET DIMENSIONS IS ENCOURAGED TO MEET THE DESIRABLE GOAL OF PLACING THE GUARDRAIL AS FAR AS POSSIBLE FROM THE TRAVEL WAY, EVEN FOR SHORT DISTANCES, WHILE PROVIDING A SMOOTH CHANGE IN GUARDRAIL ALIGNMENT.
5. IF 2 FT. CANNOT BE PROVIDED BETWEEN THE BACK OF THE GUARDRAIL POST AND THE BREAKPOINT, USE 7 FT. GUARDRAIL POSTS. REFER TO THE "RESTRICTIVE ROADSIDE INSTALLATION" DETAIL.
6. WHEN SPECIFIED ON THE PLANS, INSTALL 4 IN. HIGH TYPE 6 CURB WITH ITS FACE AT OR BEHIND THE RAIL FACE. AS AN ALTERNATIVE WHEN SPECIFIED ON THE PLANS, INSTALL A 2 IN. x 6 IN. TREATED (AASHTO M 133) WOOD CURB. FASTEN WITH A 4 IN. LAG BOLT AND WASHER AT EACH WOOD POST, OR WITH A ¼ IN. DIA. BOLT WITH WASHER AND NUT AT EACH STEEL POST. IF THE 2 IN. x 6 IN. WOOD CURB IS SPECIFIED, IT WILL BE INCLUDED IN THE COST OF THE GUARDRAIL. IF APPROVED BY THE ENGINEER, A 2 IN. x 4 IN. TREATED WOOD CURB MAY BE SUBSTITUTED FOR THE 2 IN. x 6 IN. CURB AND SET ON TOP OF PAVEMENT SURFACE AND ATTACHED AS DESCRIBED ABOVE. NO SPLICING SHALL BE ALLOWED IN WOOD CURBS. ADJACENT BOARDS SHALL BE BUTTED TOGETHER AND BOLTED AT A POST LOCATION. JOINTS SHALL BE LOCATED AT THE POSTS.
7. SEE SHEETS 7 AND 9 FOR CURB TREATMENTS AT GUARDRAIL TERMINALS.
8. IF THIS DIMENSION WILL BE LESS THAN 28 INCHES, RESET GUARDRAIL HEIGHT TO 28 INCHES OR ABOVE.
9. ALL W-BEAM SPLICES, AND SPLICES OF TERMINAL CONNECTORS TO W-BEAM SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC UNLESS OTHERWISE NOTED.
10. MATERIAL TYPE AND SHAPE OF POSTS AND BLOCKS SHALL BE THE SAME THROUGHOUT THE PROJECT EXCEPT WHEN SPECIFIC POSTS AND BLOCKS ARE SPECIFIED, i.e. AT END ANCHORAGES AND BOX CULVERTS.

THE GENERAL NOTES CONTINUE ON SHEET 2.

Computer File Information		
Creation Date: 08/19/15	Initials: DLM	
Last Modification Date: 12/29/15	Initials: LTA	(R-X)
Full Path: www.codot.gov/business/designsupport		(R-X)
Drawing File Name: 6010101020.dgn		(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English	(R-X)

Sheet Revisions	
Date:	Comments
12/29/15	Raised guardrail heights to 31" and revised general notes and details.

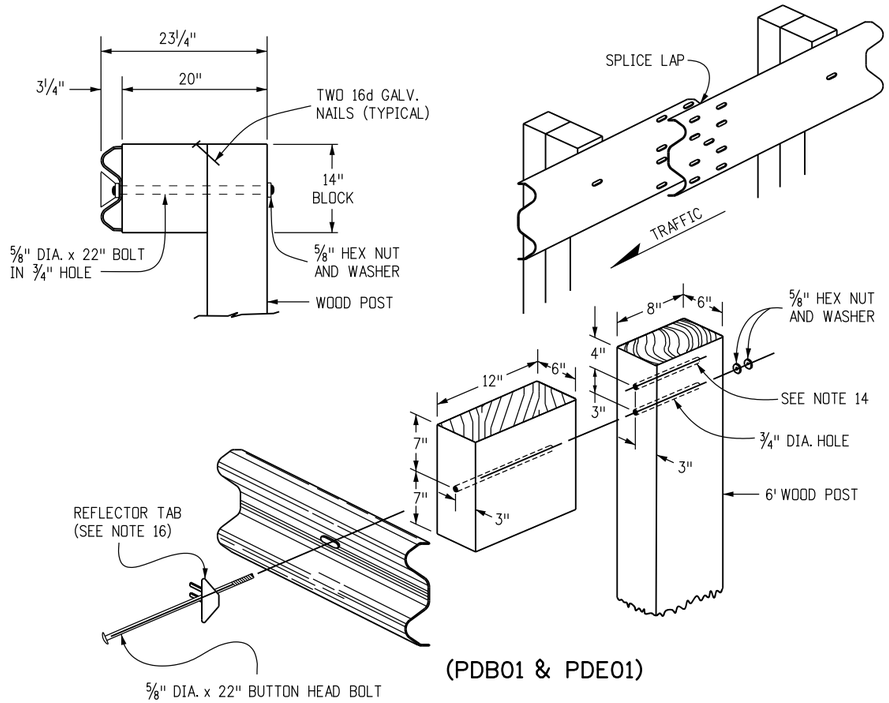
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.

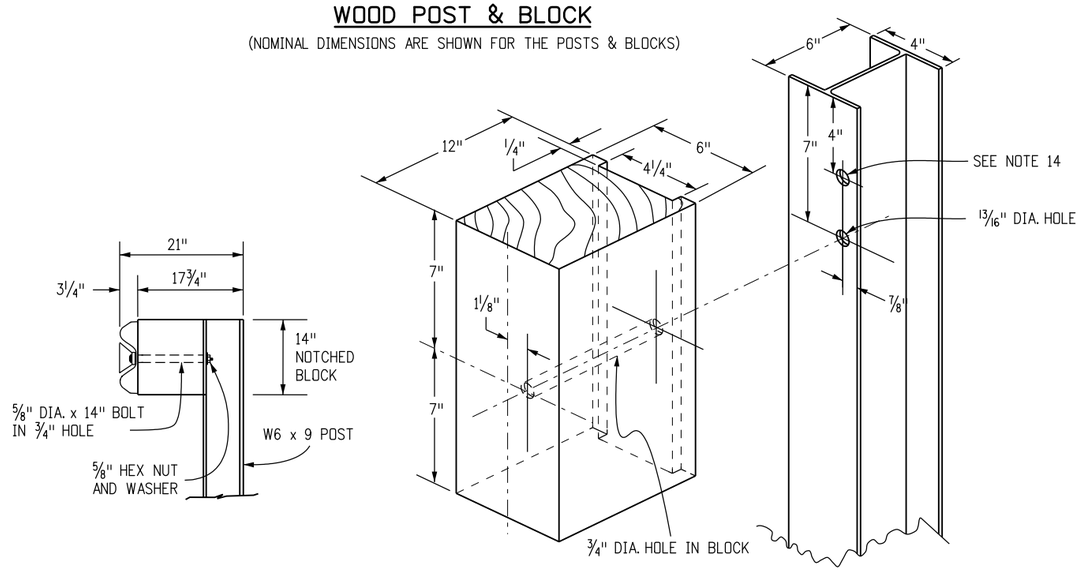
M-606-1



(PDB01 & PDE01)

WOOD POST & BLOCK

(NOMINAL DIMENSIONS ARE SHOWN FOR THE POSTS & BLOCKS)



STEEL POST & NOTCHED BLOCK

(NOMINAL DIMENSIONS ARE SHOWN FOR THE POSTS & BLOCKS)

(PWE01)

GENERAL NOTES (CONTINUED FROM SHEET 1)

11. WHEN SPECIFIED IN THE CONTRACT, 7 FT. POSTS SHALL BE INSTALLED INSTEAD OF THE STANDARD 6 FT. POSTS. THE 7 FT. POSTS SHALL BE MARKED WITH THE NUMBER 7 TO ENSURE PERMANENT INDENTIFICATION. STEEL POSTS SHALL BE STAMPED PRIOR TO GALVANIZING. THE NUMBER 7 SHALL BE A MINIMUM 2 IN. TALL AND LOCATED AS SHOWN ON THE ELEVATION VIEW ON SHEET 1.

12. THE STANDARD 3 IN. X 1¾ IN. X 3/16 IN. RECTANGULAR WASHER USED UNDER POST BOLT HEADS IN THE PAST MAY REMAIN IN EXISTING INSTALLATIONS BUT SHALL NOT BE USED IN NEW CONSTRUCTION, REPAIRS, OR RESETTING OF RAIL, EXCEPT WHEN SPECIFICALLY IDENTIFIED ON THE STANDARD PLAN.

13. STANDARD GALVANIZED ROUND STEEL WASHERS SHALL BE USED UNDER ALL NUTS IN CONTACT WITH WOOD POSTS.

14. AN ADDITIONAL HOLE SHALL BE PROVIDED IN THE POSTS TO FACILITATE FUTURE RAISING OF THE RAIL ELEMENTS AND BLOCKS FOR OVERLAYS.

15. RETROREFLECTOR TABS SHALL BE INSTALLED AT 25 FT. INTERVALS (SEE SHEETS 6 AND 8 FOR EXCEPTIONS). RETROREFLECTOR TABS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK. THE TABS SHALL BE MOUNTED SO THE BOLT SLOT FACES AWAY FROM TRAFFIC, AND THE RETROREFLECTOR SURFACE FACES THE APPROACHING TRAFFIC FOR ONE-WAY ROADS. FOR TWO-WAY ROADS, BOTH SIDES OF THE TABS SHALL BE RETROREFLECTIVE, SO THAT DELINEATION IS PROVIDED FOR BOTH DIRECTIONS OF TRAVEL. THE RETROREFLECTIVE SHEETING COLOR SHALL MATCH THE COLOR OF THE ADJACENT TRAVEL WAY EDGE LINE. SEE THE RETROREFLECTOR TAB DETAIL ON SHEET 3.

16. AT THE TIME OF INSTALLATION, WOOD POSTS OR BLOCKS WITH SEASONING CHECKS GREATER THAN ¼ IN. SHALL NOT BE USED WHEN THE CHECK EXTENDS THE FULL LENGTH OF THE PIECE.

17. WOOD BLOCKS SHALL BE CUT FROM THE SAME CROSS-SECTION, SPECIES, AND GRADE, AND SHALL RECEIVE THE SAME PRESERVATIVE TREATMENT AS THE POSTS WHEN WOOD POSTS ARE USED.

18. REFERENCES SUCH AS θθPDB01", θθPDE01", AND θθPWE01" IN THIS STANDARD PLAN SPECIFY HARDWARE DETAILS FROM θθA GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE" PREPARED BY THE AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.

19. NOTCHED RAIL BLOCKS MANUFACTURED FROM SYNTHETIC MATERIAL WILL BE ACCEPTED AS ALTERNATIVES TO WOOD NOTCHED BLOCKS FOR USE WITH STEEL POSTS PROVIDED THAT THE BLOCKS HAVE RECEIVED FHWA APPROVAL AND ARE CERTIFIED AS IDENTICAL TO THE SPECIMENS USED FOR TESTING AND APPROVAL.

20. WOOD POSTS SHALL BE MADE OF TIMBER WITH AN EXTREME FIBER STRESS IN BENDING OF 1200 PSI STRESS GRADING AND POST DIMENSIONS SHALL CONFORM WITH THE RULES OF THE WEST COAST INSPECTION BUREAU, OR THE SOUTHERN PINE BUREAU, OR THE WESTERN WOOD PRODUCTS ASSOCIATION. TIMBER FOR POSTS SHALL BE EITHER ROUGH SAWN (UNPLANED) OR S4S (SURFACED FOUR SIDES) WITH NOMINAL DIMENSIONS INDICATED. ONLY ONE TYPE OF SURFACE FINISH SHALL BE USED FOR POSTS AND BLOCKS IN ANY ONE CONTINUOUS LENGTH OF GUARDRAIL.

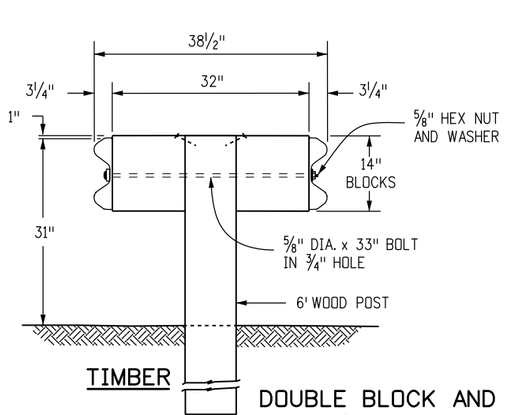
21. GLULAM POSTS AND BLOCKS WILL BE ACCEPTED AS ALTERNATIVES PROVIDED THAT THE SUPPLIED MATERIALS HAVE RECEIVED FHWA APPROVAL AND ARE CERTIFIED AS IDENTICAL TO THE SPECIMENS USED FOR TESTING AND APPROVAL.

22. PRESSURE TREATMENT OF POSTS AND BLOCKS SHALL CONFORM TO AASHTO M 133 EXCEPT THAT BLOCKS NEED NOT BE INCISED. PRESERVATION ASSAY RETENTION REPORTS SHALL BE SUBMITTED TO THE ENGINEER. THE CONTRACTOR SHALL CERTIFY THAT THE SPECIES AND GRADE MEET THE REQUIREMENTS OF THE CONTRACT.

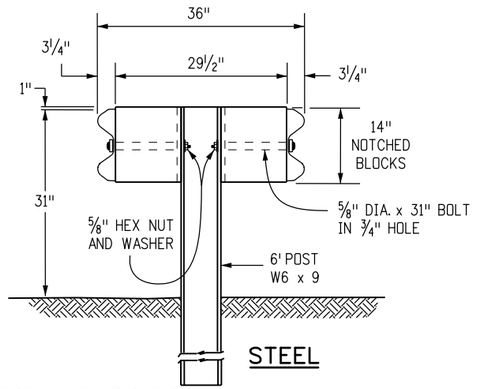
23. W-BEAM AND THRIE-BEAM GUARDRAIL POSTS SHALL BE MANUFACTURED USING AASHTO M 270 (ASTM A 709) GRADE 36 STEEL UNLESS CORROSION RESISTANT STEEL IS REQUIRED, IN WHICH CASE THE POST SHALL BE MANUFACTURED FROM AASHTO M 270 (ASTM A 709) GRADE 50W STEEL. THE DIMENSIONS OF THE CROSS-SECTION SHALL CONFORM TO A W6 X 9 SECTION AS DEFINED IN AASHTO M 160 (ASTM A 6). W6 X 8.5 WIDE FLANGE STEEL POSTS ARE AN ACCEPTABLE ALTERNATIVE TO THE W6 X 9.

24. AFTER THE SECTION IS CUT AND ALL HOLES ARE DRILLED OR PUNCHED THE COMPONENT SHALL BE ZINC-COATED CONFORMING TO AASHTO M 111 (ASTM A 123) UNLESS CORROSION-RESISTANT STEEL IS USED. WHEN CORROSION-RESISTANT STEEL IS USED THE PORTION OF THE POST TO BE EMBEDDED IN SOIL SHALL BE ZINC-COATED CONFORMING TO AASHTO M 111 (ASTM A 123) AND THE PORTION ABOVE THE SOIL SHALL NOT BE ZINC-COATED, PAINTED OR OTHERWISE TREATED.

25. FIELD MODIFICATION TO RAIL ELEMENTS ONLY IS ALLOWED BY SAWING AND DRILLING OF HOLES. FLAME CUTTING IS NOT PERMITTED. POSTS SHALL NOT BE MODIFIED. COMPONENTS ON WHICH THE SPELTER COATING HAS BEEN DAMAGED SHALL BE EITHER REGALVANIZED OR RECOATED IN CONFORMANCE WITH AASHTO M 36, OR PAINTED WITH ONE FULL BRUSH COAT OF ZINC RICH PAINT CONFORMING TO MILITARY SPECIFICATION DOD-P-21035A.



TIMBER



STEEL

DOUBLE BLOCK AND RAIL MEDIAN BARRIER
GUARDRAIL TYPE 3 (DOUBLE)

Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31". Increased offset blocks to 12". Renumbered Gen Notes.
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 6060102020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

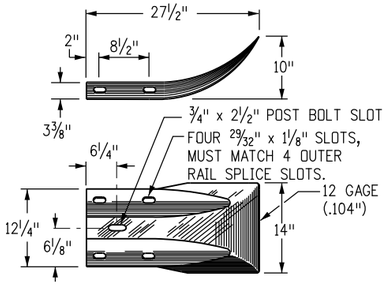
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

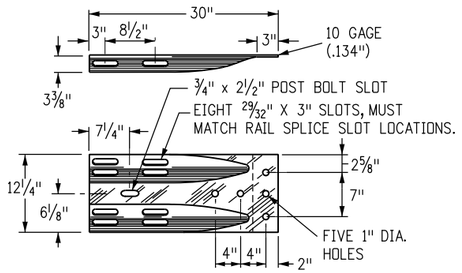
STANDARD PLAN NO.

M-606-1

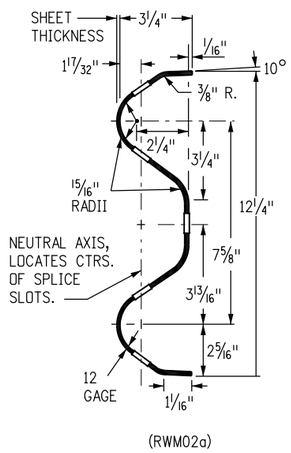


(RWE01a)

TERMINAL SECTION (FLARED)

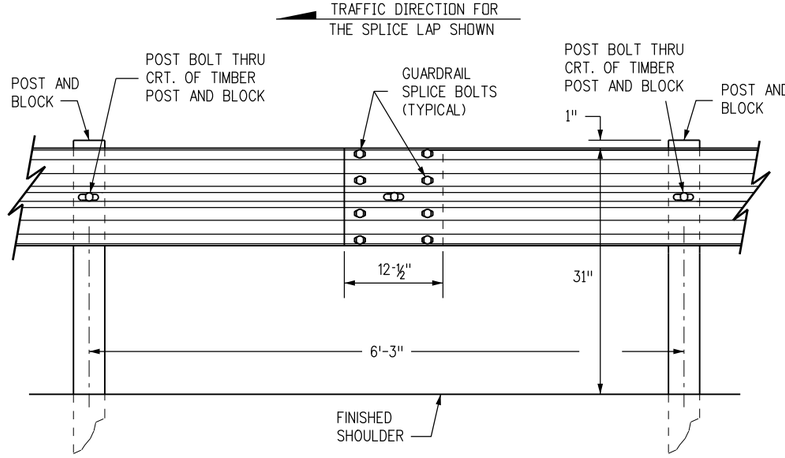


TERMINAL SECTION (CONNECTOR)



(RWM02a)

W-BEAM RAIL SECTION

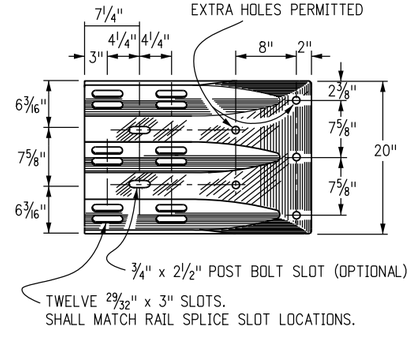


W-BEAM RAIL SPLICE

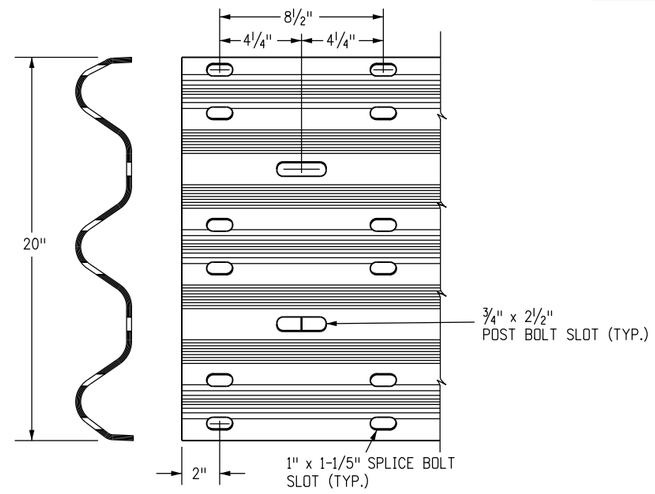
PART	MATERIAL SPEC.	GALVANIZING SPEC.	CORROSION-RESISTANT SPEC.
W-BEAM RAIL & TERMINAL SECTIONS	AASHTO M 180, CLASS A OR B	AASHTO M 180, TYPE 1 OR 2	AASHTO M 180, TYPE 4
BASE PLATE	ASTM A 36	AASHTO M 111	N.A.
NUTS, BOLTS & STUDS FOR GENERAL USE	ASTM A 307	AASHTO M 232, CLASS C OR ASTM B 695 CLASS 50 TYPE 1	
HIGH STRENGTH BOLTS & NUTS	ASTM A 325		
HIGH STRENGTH STUDS & NUTS	ASTM A 449		
ROUND STEEL WASHERS	ASTM F 436		
RECTANGULAR WASHERS	AASHTO M 180		
OTHER FITTINGS	ASTM A 36	AASHTO M 111	

THE TABULATION OF GUARDRAIL WILL SPECIFY THE TYPE OF CORROSION PROTECTION: GALVANIZED OR CORROSION - RESISTANT STEEL.

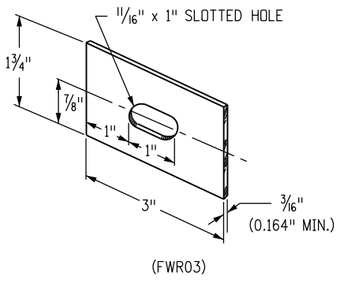
STEEL POSTS SHALL HAVE THE SAME CORROSION PROTECTION AS SPECIFIED FOR THE METAL BEAM RAIL. PUNCHING, DRILLING, CUTTING, OR WELDING OF POSTS WILL NOT BE PERMITTED AFTER GALVANIZING.



THRIE BEAM TERMINAL SECTION (CONNECTOR)



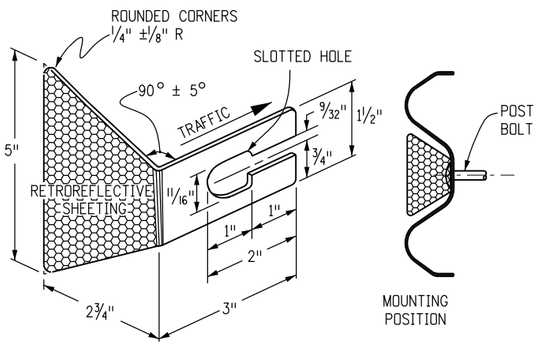
THRIE BEAM DETAIL



(FWR03)

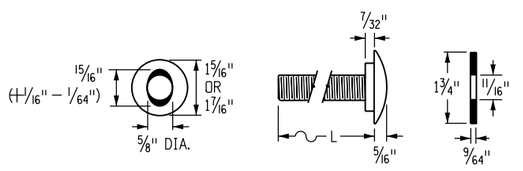
RECTANGULAR WASHER

(TO BE USED ONLY WHERE SPECIFIED.)



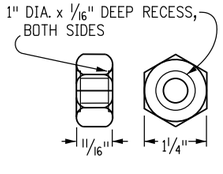
RETROREFLECTOR TAB

RETROREFLECTOR TABS SHALL BE MANUFACTURED FROM 12 TO 14 GAUGE STEEL. RETROREFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956 TYPE III. SEE NOTE 7 ON SHEET 5.



BUTTON HEAD BOLT WITH OVAL SHOULDER

WASHER



HEX NUT

DIAMETER & TYPE (INCHES)	12" BLOCKS L = LENGTH (INCHES)	THREAD LENGTH (INCHES)	INTENDED USE	AASHTO-AGC-ARTBA STANDARD NUMBER	NO. BOLTS, NUTS & WASHERS
⅝	1¼	FULL (1 1/32)	ALL RAIL SPLICES	FBB01	8 PER SPLICE*
BUTTONHEAD OVAL SHLDR.	22	MIN. 2½	SINGLE BLOCK & POST (TIMBER)	FBB04	1 PER POST
	33	MIN. 2	DOUBLE BLOCK & POST (TIMBER)	FBB05	1 PER POST
	14	MIN. 2	FASTEN NOTCHED BLOCK TO STEEL POST	FBB03	1 PER BLOCK
WASHERS NOT USED AT RAIL SPLICES					

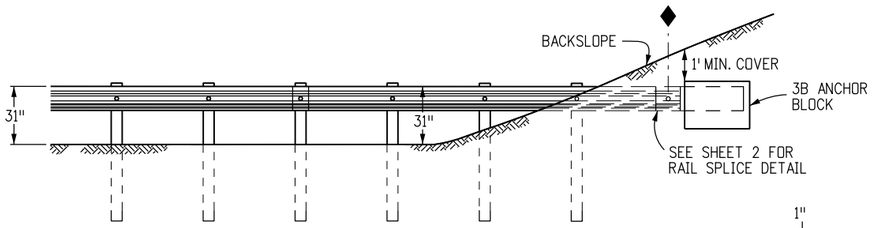
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail heights to 31" and changed splice to between posts.
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 6060103020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

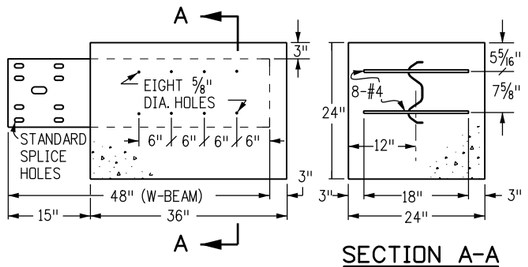
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 3 of 20



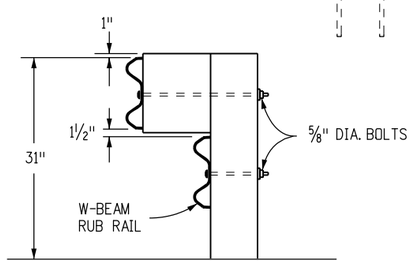
SEE TYPE 3B (RUB RAIL) PLAN VIEW FOR ALIGNMENT. THE 100 FT. FLARE LENGTH MAY BE SHORTENED IF THE SLOPE IS LESS THAN 8 FT. WIDE.

END ANCHORAGE TYPE 3B
(WITHOUT ROADSIDE DITCH AT GUARDRAIL)



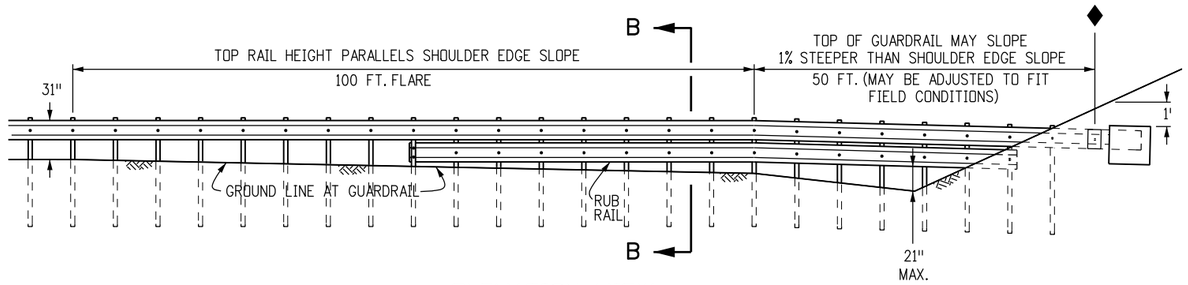
SECTION A-A

TYPE 3B ANCHOR BLOCK DETAIL

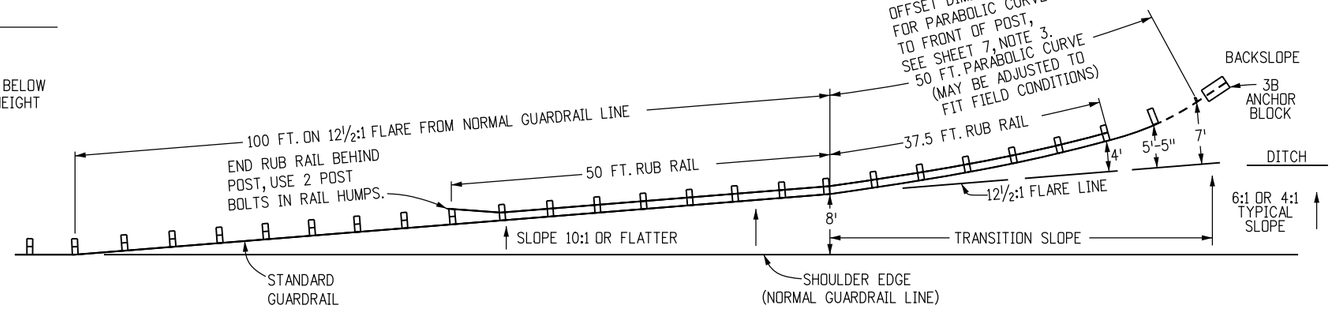


SECTION B-B

MOUNT A W-BEAM RUB RAIL 1-1/2 IN. BELOW THE TOP RAIL WHEN THE TOP RAIL HEIGHT EXCEEDS 33 IN. ABOVE THE GROUND



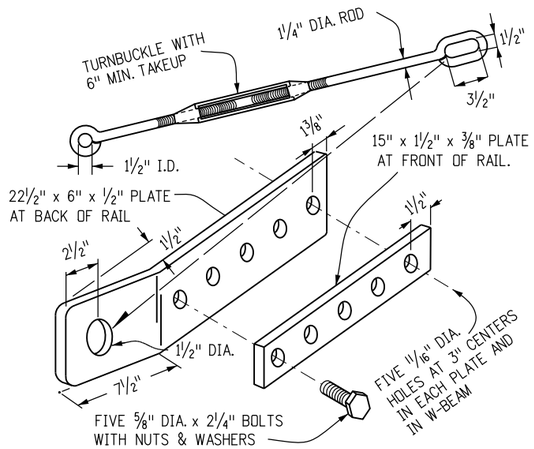
ELEVATION VIEW



PLAN VIEW

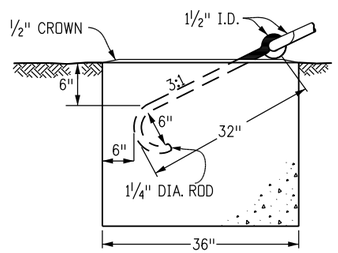
◆ END OF GUARDRAIL PAY LENGTH

END ANCHORAGE TYPE 3B (RUB RAIL)
(WITH ROADSIDE DITCH AT GUARDRAIL)

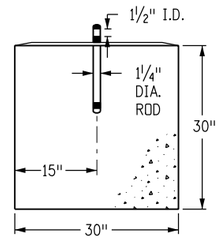


TYPE 3D HARDWARE DETAILS

NOTE: ALL PARTS SHALL BE GALVANIZED

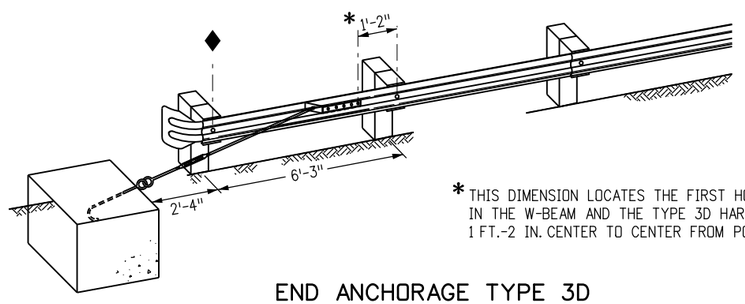


FRONT



END

TYPE 3D ANCHOR BLOCK DETAIL



* THIS DIMENSION LOCATES THE FIRST HOLE IN THE W-BEAM AND THE TYPE 3D HARDWARE. 1 FT.-2 IN. CENTER TO CENTER FROM POST BOLT HOLE.

END ANCHORAGE TYPE 3D DEPARTURE TERMINAL

Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31".
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 6060104020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

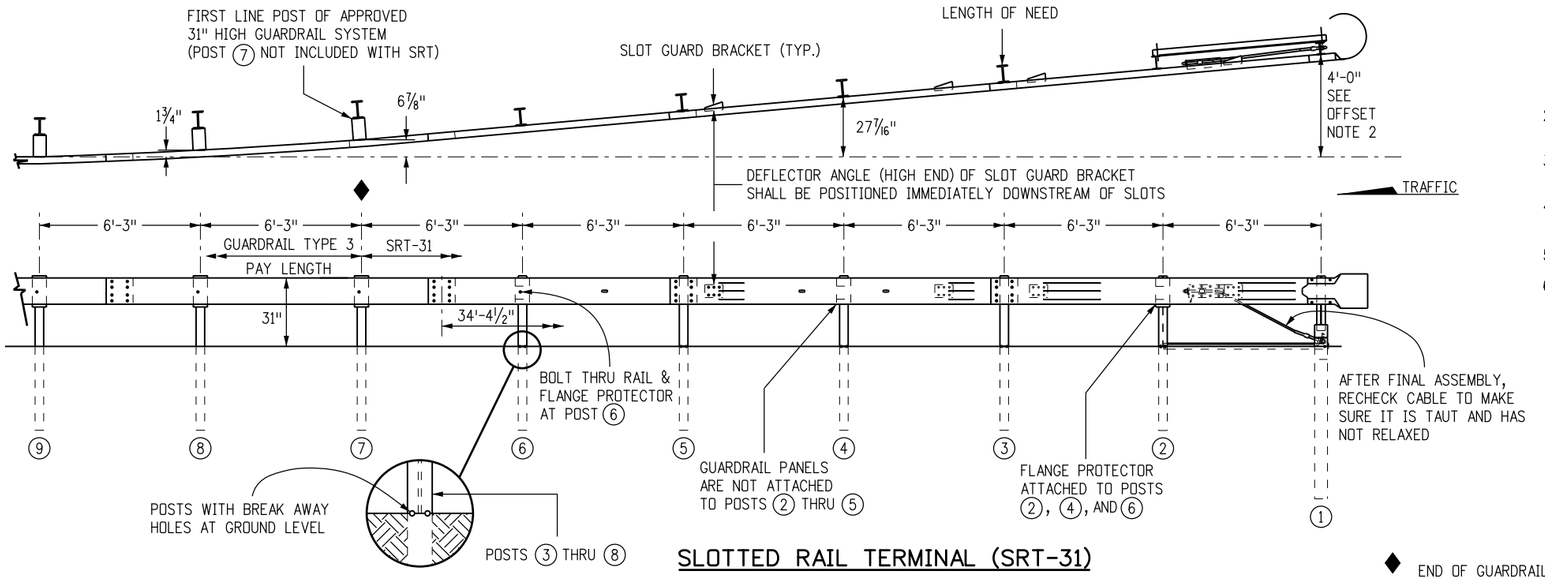
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 4 of 20

OFFSET NOTES

1. POST OFFSET DIMENSIONS ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF POSTS, EXCEPT AT POSTS (7) & (8), WHERE DIMENSION IS TO CENTER OF THE TRAFFIC FACE OF THE BLOCKOUTS.
2. THE GUARDRAIL BETWEEN POST (1) THRU (7) IS ON A STRAIGHT LINE FLARE.



SLOTTED RAIL TERMINAL (SRT-31)

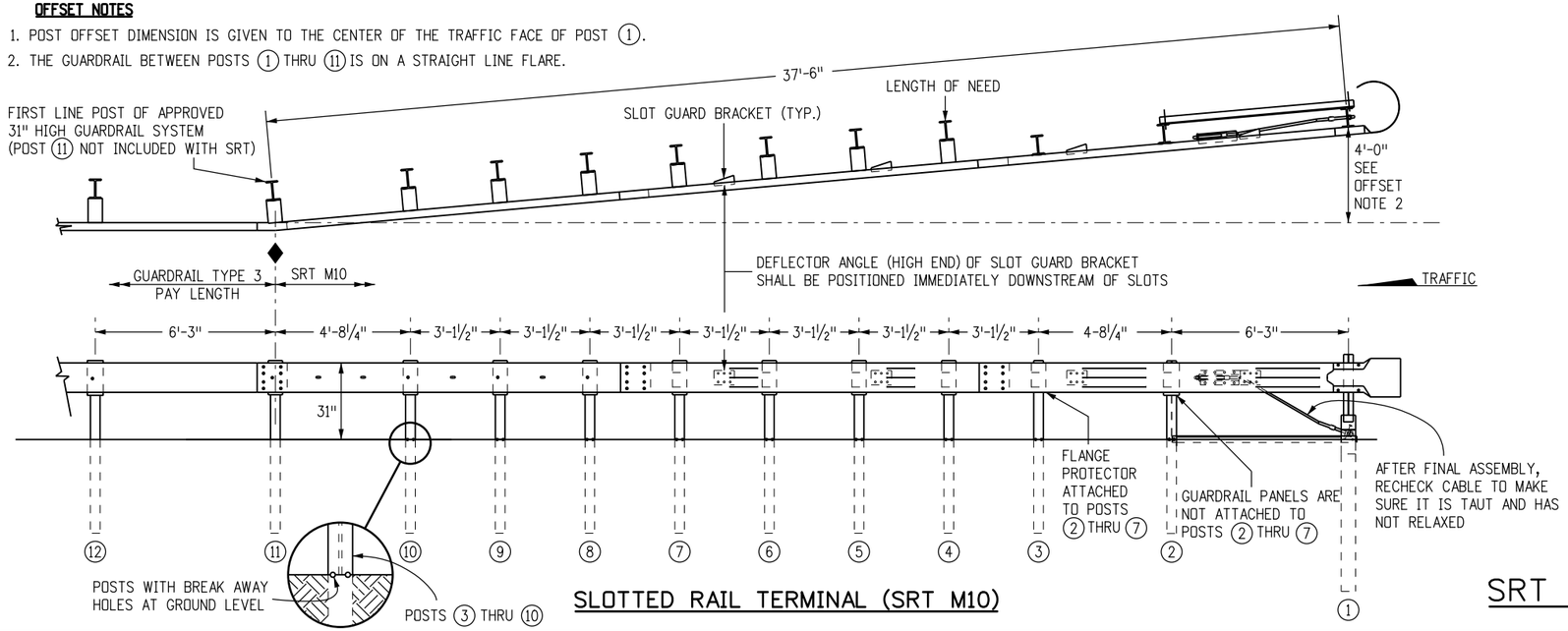
NOTES

1. THE END ANCHORAGES (FLARED) SHALL EITHER BE THE SLOTTED RAIL TERMINAL SRT-31 OR SRT M10 AS MANUFACTURED BY TRINITY HIGHWAY PRODUCTS LLC (TELEPHONE #: 800-772-7976), THE FLEAT-350, AS MANUFACTURED BY ROAD SYSTEMS INC. (TELEPHONE #: 432-263-2435), OR THE X-LITE AS MANUFACTURED BY BARRIER SYSTEMS, INC. (TELEPHONE #: 888-800-3691). ONE END ANCHORAGE (FLARED) SHALL INCLUDE ALL POST, RAIL, AND ALL HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE END ANCHORAGE (FLARES) SHALL BE INSTALLED CONFORMING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LIST TO THE ENGINEER PRIOR TO INSTALLATION OF THE DEVICE.
2. IN HEAVY SNOW LOCATIONS, TRIM POSTS (1) AND (2) (IF THEY ARE WOODEN) FLUSH WITH RAIL TOP AND TREAT END WITH SEALANT, IN CONFORMANCE WITH AASHTO M 133.
3. POSTS SHALL BE DRILLED FOR BREAKAWAY ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
4. SEE SHEETS 1, 3 AND 4 FOR STANDARD GUARDRAIL TYPE 3 AND INSTALLATION DETAILS.
5. RETROREFLECTOR TABS SHALL NOT BE USED ON END TERMINAL POSTS.
6. DELINEATION SHALL BE APPLIED TO THE END PIECE, AND SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.

◆ END OF GUARDRAIL PAY LENGTH

OFFSET NOTES

1. POST OFFSET DIMENSION IS GIVEN TO THE CENTER OF THE TRAFFIC FACE OF POST (1).
2. THE GUARDRAIL BETWEEN POSTS (1) THRU (11) IS ON A STRAIGHT LINE FLARE.



SLOTTED RAIL TERMINAL (SRT M10)

SRT END ANCHORAGES (FLARED)

Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	New SRT End Anchorages 31" high.
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 6060105020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

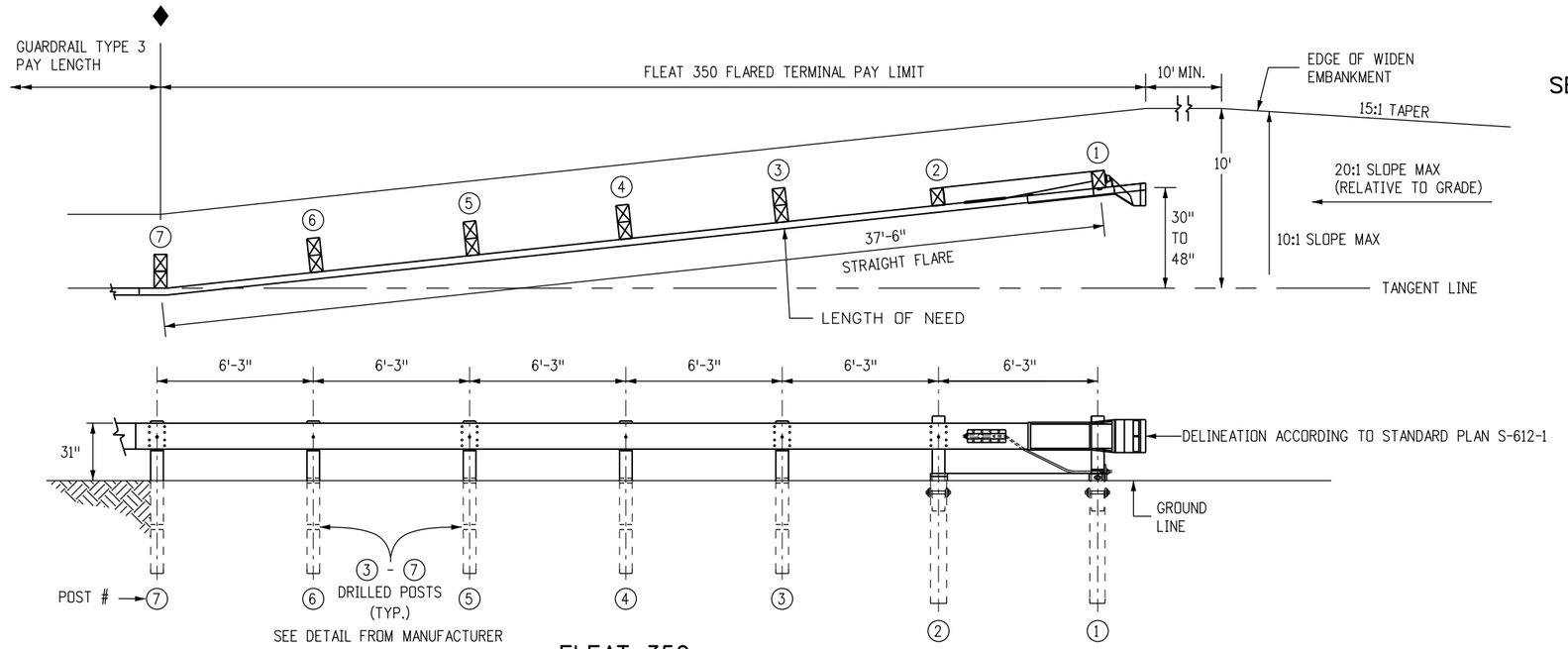
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

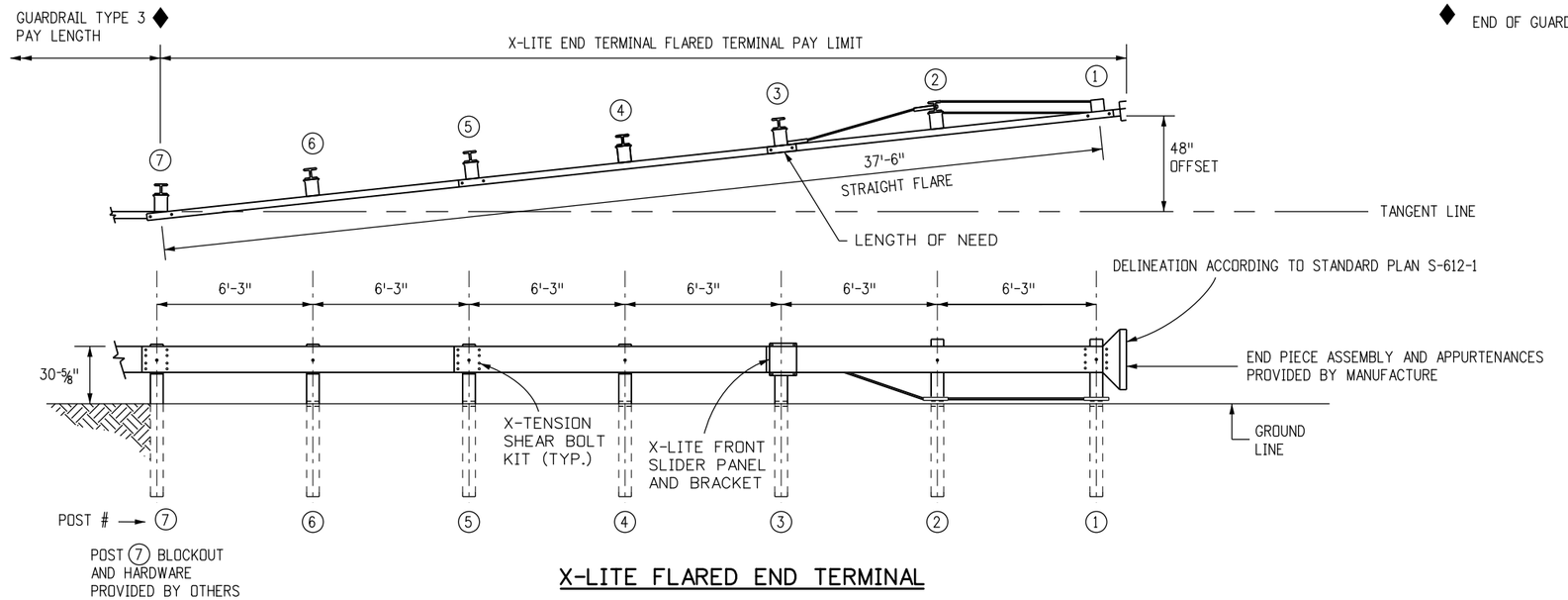
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1

SEE M-606-1, SHEET 5 OF 20, FOR "NOTES".



FLEAT 350



X-LITE FLARED END TERMINAL

END ANCHORAGES (FLARED)

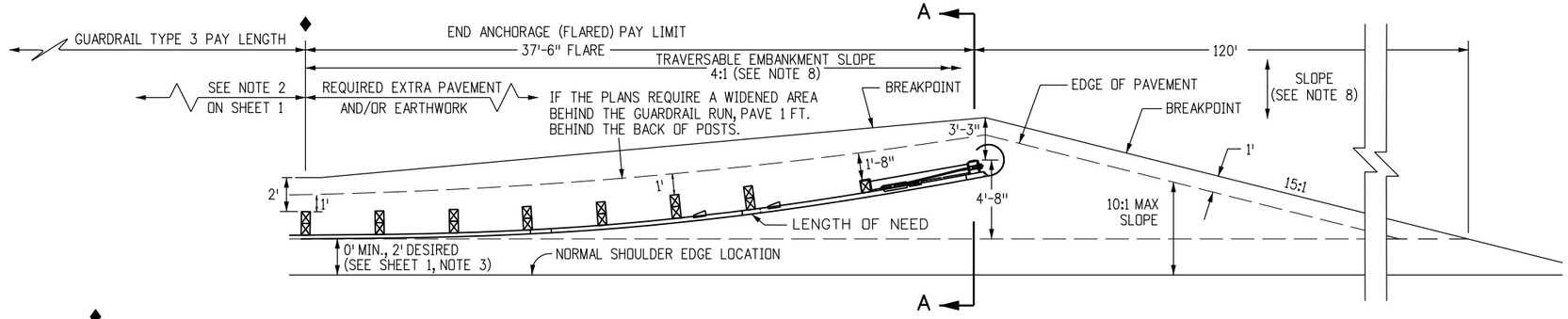
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	R-X	12/29/15	Raised End Anchorages to 31".
Full Path: www.codot.gov/business/designsupport	R-X		
Drawing File Name: 6060106020.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

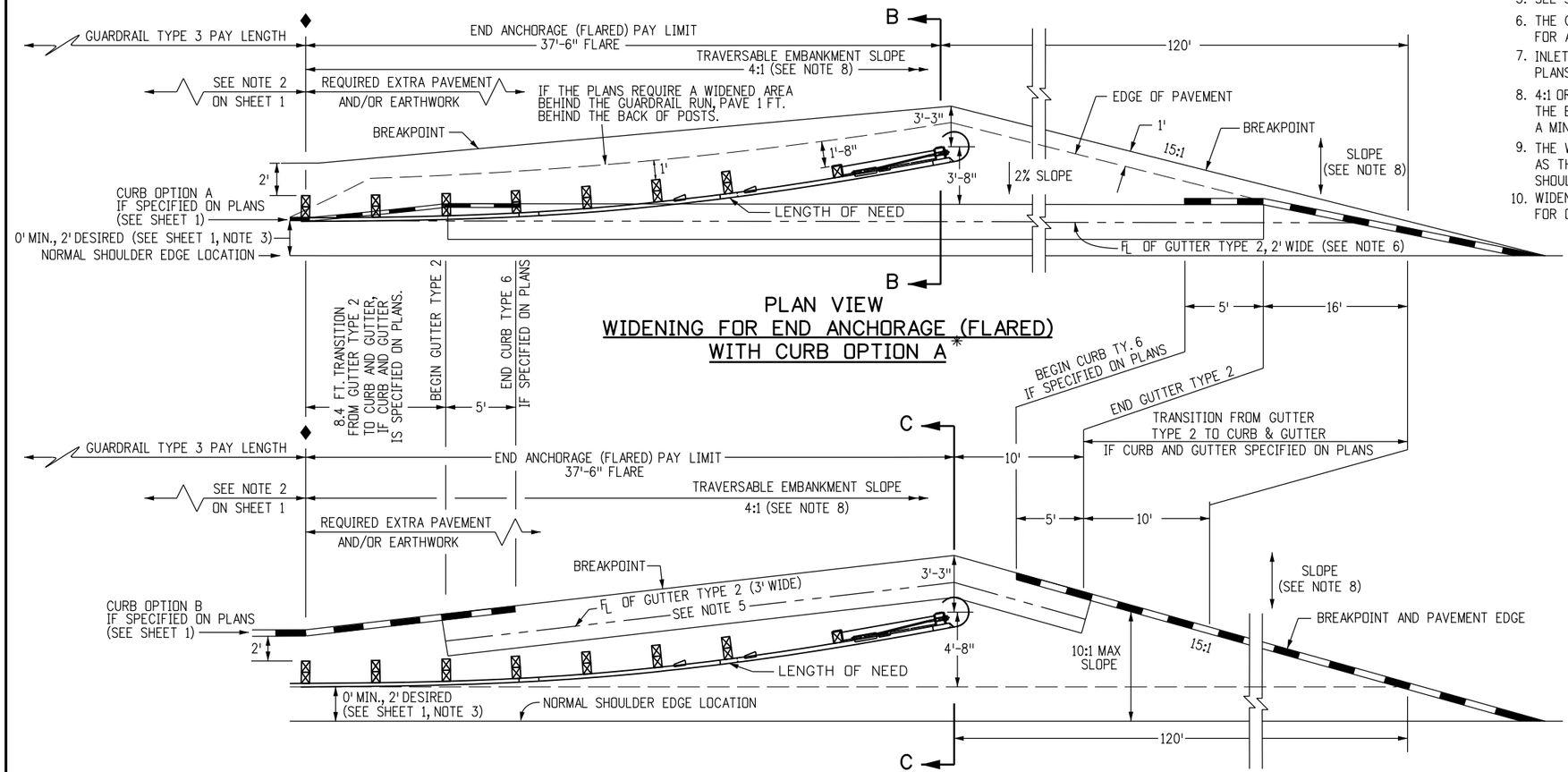
STANDARD PLAN NO.
M-606-1



◆ END OF GUARDRAIL PAY LENGTH

PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) *

* THIS PLAN VIEW SHOWS ONLY THE SRT-31. THE FLEAT-350 USES THE SAME WIDENING DETAILS.

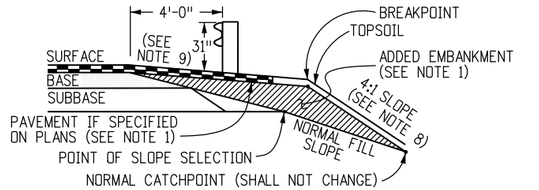


PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) WITH CURB OPTION A *

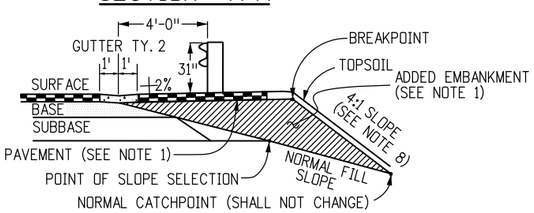
PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) WITH CURB OPTION B *

NOTES

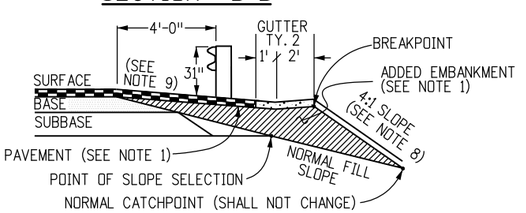
1. PAYMENT FOR THE ADDED EMBANKMENT (APPROXIMATELY 45 CU. YDS.) FOR THE FLARE SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 203 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 203
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (FLARED) WHEN THE CONTRACT PLANS DO NOT INCLUDE PAY ITEM 203. THE ADDED EMBANKMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH SUBSECTION 203.07, AASHTO T 99.
2. WHEN THE WIDENED AREA IS PAVED, PAYMENT FOR THE PAVEMENT (APPROX. 70 SQ. YDS.) SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 403 OR 412 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 403 OR 412
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (FLARED) WHEN THE CONTRACT PLAN DOES NOT INCLUDE PAY ITEM 403 OR 412 (SEE SHEET 1, NOTE 2 FOR PAVEMENT TYPES)
3. CONCRETE PAVED AREAS SHALL HAVE THEIR TAPERED ENDS SQUARED OFF AS DIRECTED BY THE ENGINEER.
4. WHEN OVERLAY PAVING, THE FINISHED SURFACE AT EACH POST SHALL NOT BE ABOVE THE TOP BREAKAWAY HOLE OR STRUT ASSEMBLY. THE WIDENED AREA AT THE FLARED END ANCHORAGE SHOULD NOT BE OVERLAYED UNLESS PAVEMENT CONDITIONS WARRANT IT BEING OVERLAYED. ANY OVERLAY PAVEMENT ABUTTING THE FLARED END ANCHORAGE SHALL BE TAPERED TO PREVENT A DROP IN THE PAVED SURFACE BELOW THE RAIL.
5. SEE SHEETS 1, 3 AND 4 FOR STANDARD TYPE 3 GUARDRAIL AND INSTALLATION DETAILS.
6. THE COST OF THE GUTTER WILL BE PAID FOR AS "GUTTER TYPE 2 (2 FT.)" FOR A LENGTH OF 134 FT. OR "GUTTER TY. 2 (3 FT.)" FOR A LENGTH OF 40 FT.
7. INLETS OR RUNDOWNS MAY BE USED INSTEAD OF THE GUTTER IF SPECIFIED ON THE PLANS. NO ADDITIONAL CURB SHALL BE ADDED IN THE VICINITY OF THE END ANCHORAGE.
8. 4:1 OR FLATTER SLOPES IN THE TRAVERSABLE AREA SHALL BE USED BEHIND THE END ANCHORAGE, AND IN ADVANCE OF POST (1). IF THIS IS NOT POSSIBLE, A MINIMUM 3:1 SLOPE MAY BE USED IF APPROVED BY THE ENGINEER.
9. THE WIDENED AREA, EXCEPT FOR CURB OPTION A, SHALL HAVE THE SAME GRADING AS THE ADJACENT GUARDRAIL: 10:1 OR FLATTER IF MORE THAN 2 FT. FROM SHOULDER OR SLOPE EQUAL TO ROADWAY SLOPE IF 2 FT. OR LESS FROM SHOULDER.
10. WIDENING FOR END ANCHORAGES SHALL BE PAVED ON INTERSTATES AND FREEWAYS. FOR OTHER HIGHWAYS, PAVING SHALL BE AS SHOWN ON THE PLANS.



SECTION A-A



SECTION B-B



SECTION C-C

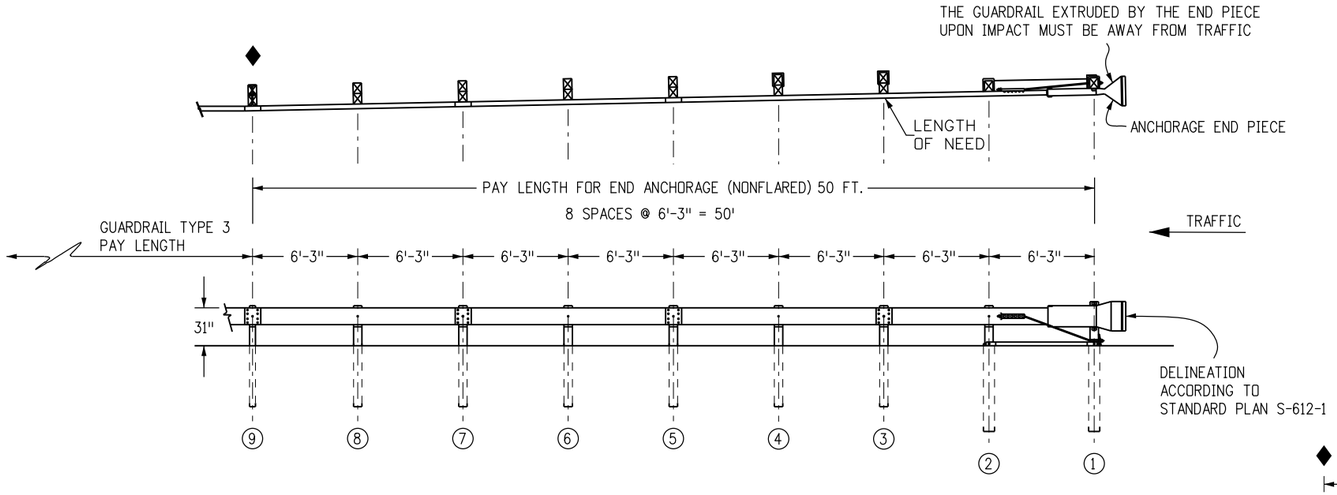
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31".
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 6060107020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

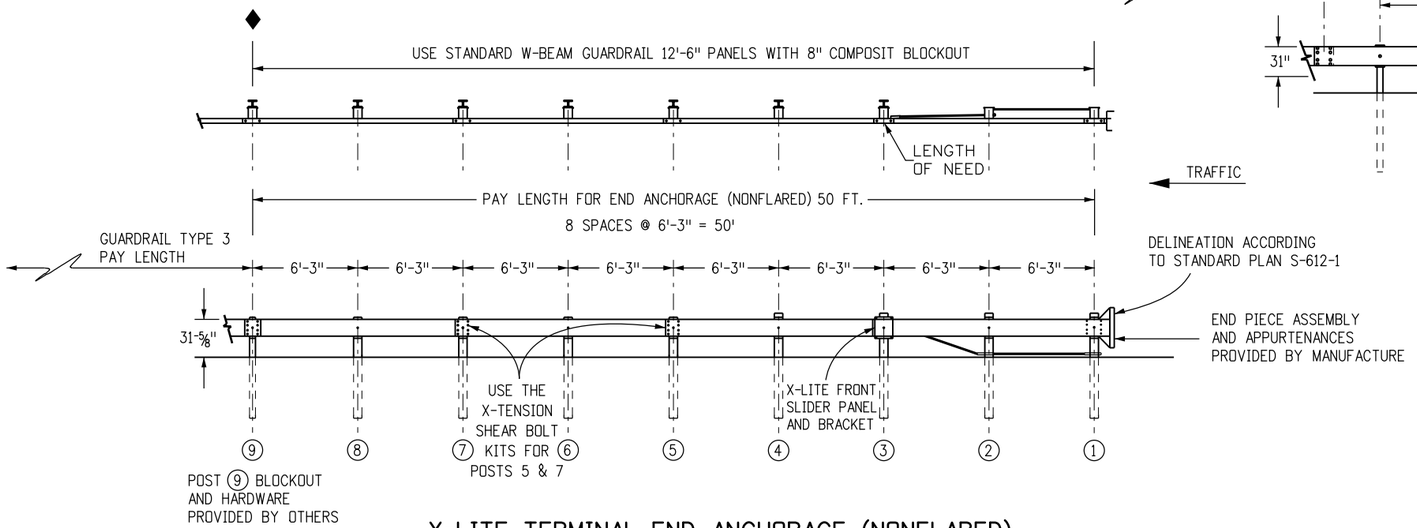
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 7 of 20



SKT END ANCHORAGE (NONFLARED)

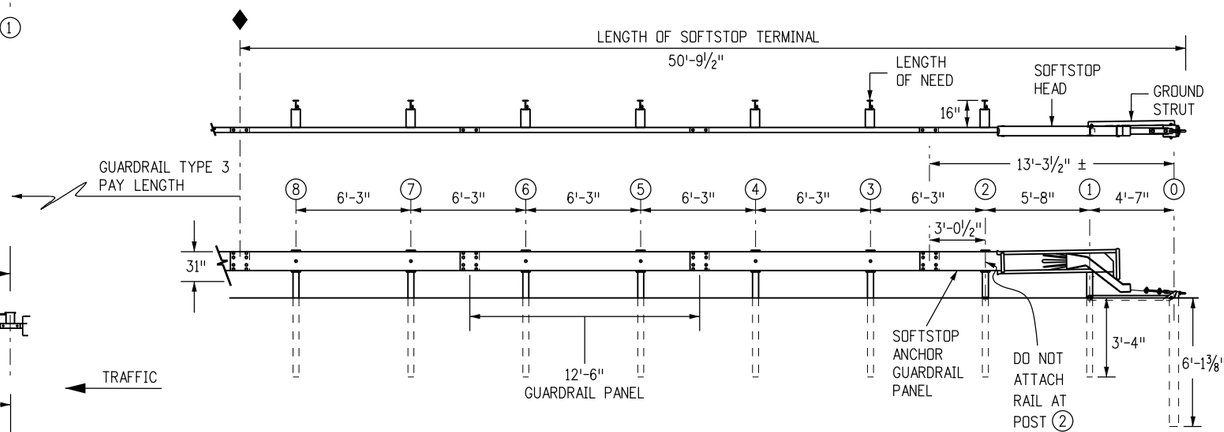
◆ END OF GUARDRAIL PAY LENGTH



X-LITE TERMINAL END ANCHORAGE (NONFLARED)

NOTES FOR NONFLARED

1. THE END ANCHORAGE (NONFLARED) SHALL EITHER BE THE SKT GUARDRAIL AS MANUFACTURED BY ROAD SYSTEMS, INC. (TEL. #: 432-263-2435), OR THE X-LITE AS MANUFACTURED BY BARRIER SYSTEMS, INC. (TEL. #: 888-800-3691), OR THE SOFTSTOP AS MANUFACTURED BY TRINITY HIGHWAY PRODUCTS LLC (TEL. # : 800-772-7976). THE END ANCHORAGE (NONFLARED) SHALL INCLUDE ALL POST, RAIL, AND HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE END ANCHORAGE (NONFLARED) SHALL BE INSTALLED CONFORMING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LIST TO THE ENGINEER PRIOR TO THE INSTALLATION OF THE DEVICE.
2. WOOD POSTS SHALL BE DRILLED FOR BREAKAWAY CONFORMING TO THE MANUFACTURER'S INSTRUCTIONS.
3. HINGED BREAK AWAY (HBA) STEEL POSTS MAY BE USED CONFORMING TO THE MANUFACTURER'S INSTRUCTIONS.
4. RETROREFLECTOR TABS SHALL NOT BE USED ON END TERMINAL POSTS.
5. USE THE MANUFACTURER'S SPECIFIED STEEL FOUNDATION TUBE FOR POSTS (1) AND (2) FOR SKT END ANCHORAGES (NONFLARED).
6. USE THE MANUFACTURE'S SUPPLIED POSTS FOR X-LITE END ANCHORAGE AS FOLLOWS:
   POST 1 - X-LITE, CRIMPED POST SLOTS, GALVANIZED.
   POST 2 - X-LITE, POST II, GALVANIZED.
   POST 3 - X-LITE, CRIMPED POST HOLES, GALVANIZED.
   FOR POSTS 4 THRU 8 - USE STANDARD LINE POST, GALVANIZED.
7. DELINEATION SHALL BE APPLIED TO THE END PIECE AND SHALL NOT BE PAID FOR SEPARATELY BUT BE INCLUDED IN THE COST OF THE WORK. SEE STANDARD PLAN S-612-1.



SOFTSTOP TERMINAL END ANCHORAGE (NONFLARED)

END ANCHORAGES (NONFLARED)

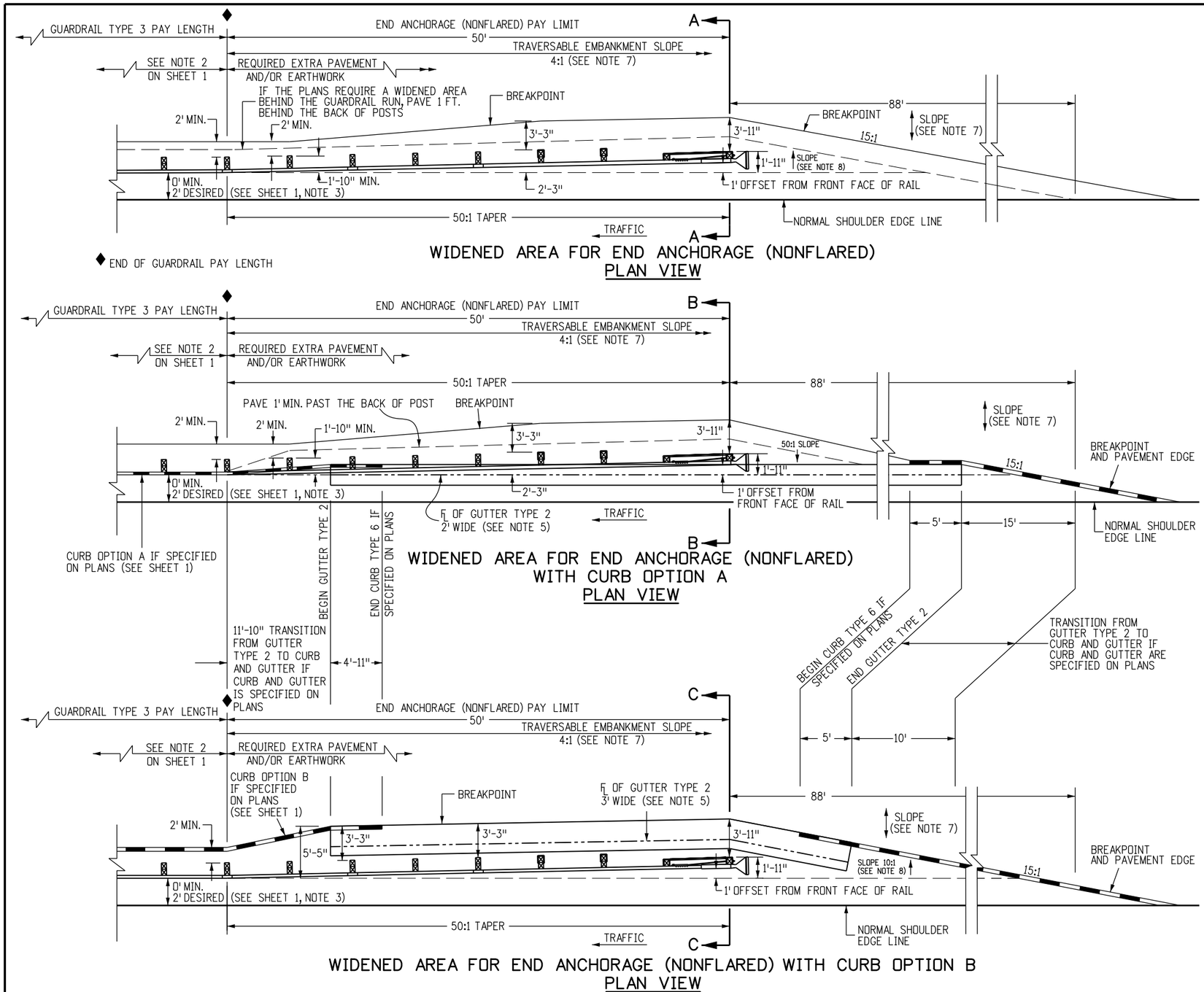
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised End Anchorages to 31".
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 60600108020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

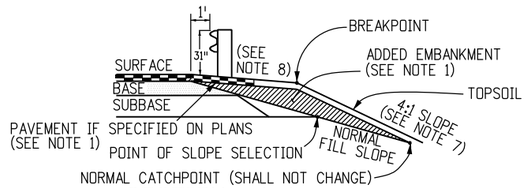
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 8 of 20

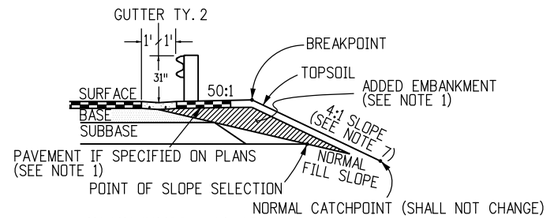


NOTES

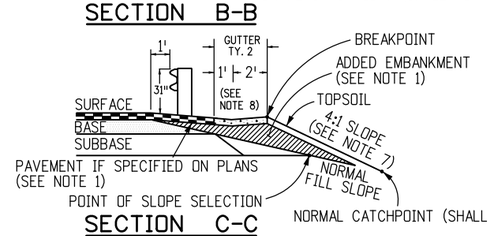
1. PAYMENT FOR THE ADDED EMBANKMENT (APPROXIMATELY 25 CU. YDS.) FOR THE FLARE SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 203 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 203.
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (NONFLARED) WHEN THE CONTRACT PLANS DOES NOT INCLUDE PAY ITEM 203. THE ADDED EMBANKMENT SHALL BE BE CONSTRUCTED IN ACCORDANCE WITH SUBSECTION 203.07, AASHTO T 99.
2. WHEN THE WIDENED AREA IS PAVED, PAYMENT FOR THE PAVEMENT (APPROX. 39 SQ. YDS.) SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 403 OR 412 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 403 OR 412.
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (NONFLARED) WHEN THE CONTRACT PLAN DOES NOT INCLUDE PAY ITEM 403 OR 412, (SEE SHEET 1, NOTE 2 FOR PAYMENT TYPES).
3. WHEN OVERLAY PAVING, THE FINISHED SURFACE AT EACH POST SHALL NOT BE ABOVE THE TOP BREAKWAY HOLE OR STRUT ASSEMBLY. THE WIDENED AREA AT THE END ANCHORAGE (NONFLARED) SHALL NOT BE OVERLAYED UNLESS PAVEMENT CONDITIONS WARRANT IT BEING OVERLAYED. ANY OVERLAY PAVEMENT ABUTTING THE END ANCHORAGE (NONFLARED) SHALL BE TAPERED TO PREVENT A DROP IN THE PAVED SURFACE BELOW THE RAIL.
4. SEE SHEETS 1, 2 AND 3 FOR STANDARD TYPE 3 GUARDRAIL AND INSTALLATIONS DETAILS.
5. THE COST OF THE GUTTER WILL BE PAID FOR AS "GUTTER TYPE 2 (2 FT.)" FOR A LENGTH OF 111 FT., OR "GUTTER TY. 2 (3 FT.)" FOR A LENGTH OF 50 FT.
6. INLETS OR RUNDOWNS MAY BE USED INSTEAD OF THE GUTTER IF SPECIFIED ON THE PLANS. NO ADDITIONAL CURB SHALL BE ADDED IN THE VICINITY OF THE END TREATMENT.
7. 4:1 OR FLATTER SLOPES IN THE TRAVERSABLE AREA SHALL BE USED BEHIND THE END ANCHORAGE AREA, AND IN ADVANCE OF POST (1). IF THIS IS NOT POSSIBLE A MINIMUM 3:1 SLOPE MAY BE USED IF APPROVED BY THE ENGINEER.
8. THE WIDENED AREA, EXCEPT FOR CURB OPTION A, SHALL HAVE THE SAME GRADING AS BENEATH THE ADJACENT GUARDRAIL: 10:1 OR FLATTER IF MORE THAN 2 FT. FROM SHOULDER, OR SLOPE EQUAL TO ROADWAY SLOPE IF 2 FT. OR LESS FROM SHOULDER.
9. WIDENING FOR END ANCHORAGES SHALL BE PAVED ON INTERSTATES AND FREEWAYS. FOR OTHER HIGHWAYS, PAVING SHALL BE AS SHOWN ON THE PLANS.
10. HINGED BREAK AWAY (HBA) STEEL POSTS MAY BE USED. SEE MANUFACTURER'S DETAILS.



SECTION A-A



SECTION B-B



SECTION C-C

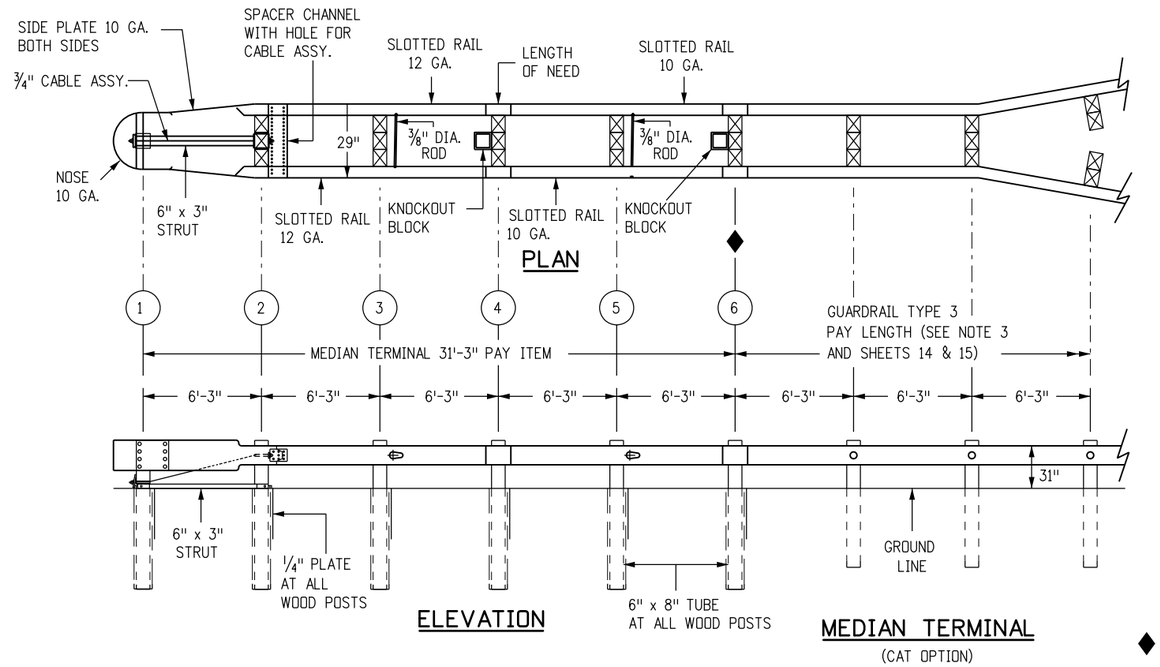
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31".
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 6060109020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-606-1



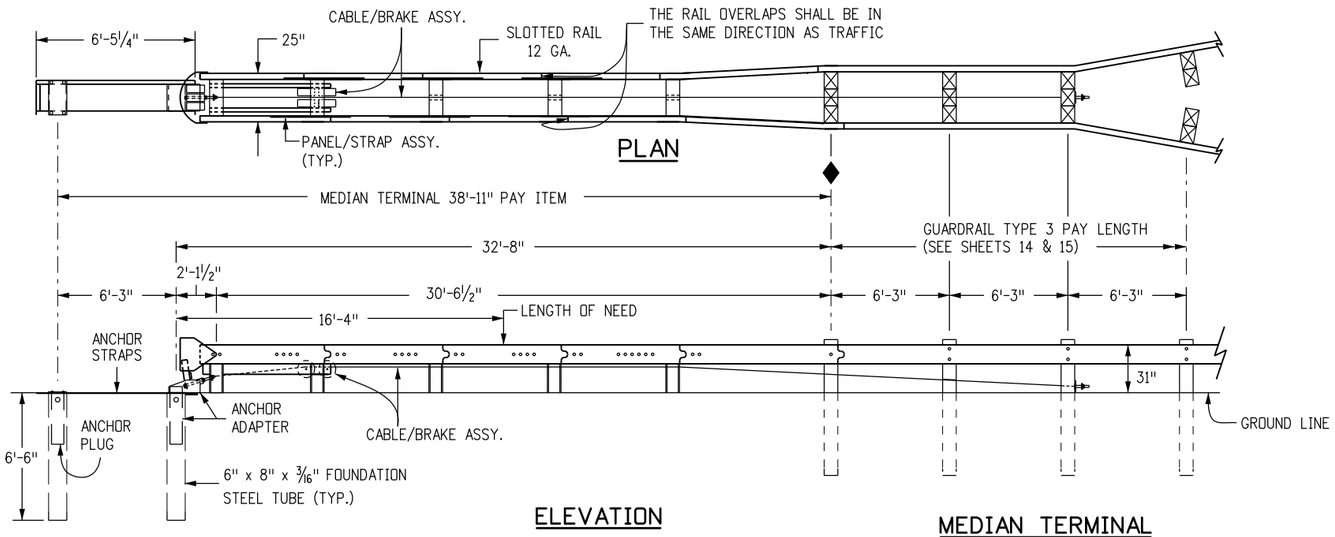
MEDIAN TERMINAL

(CAT OPTION)

◆ END OF GUARDRAIL PAY LENGTH

MEDIAN TERMINAL NOTES

1. THE MEDIAN TERMINAL SHALL BE THE CAT 350 AS MANUFACTURED BY TRINITY INDUSTRIES INC. (TEL #: 800-722-7976), OR THE BRAKEMASTER AS MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC. AS DISTRIBUTED BY INTERWEST SAFETY SUPPLY (TEL #: 303-733-8447), OR THE FLEAT-MT MEDIAN TERMINAL AS MANUFACTURED BY ROAD SYSTEM INC. (TEL. #: 432-263-2435).
2. ONE MEDIAN TERMINAL SHALL INCLUDE ALL POSTS, RAIL, AND HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE DEVICE SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LISTS TO THE ENGINEER PRIOR TO THE INSTALLATION OF THE DEVICE.
3. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE MEDIAN TERMINAL SHALL BE INSTALLED FOR BIDIRECTIONAL TRAFFIC APPLICATION.
4. MEDIAN GUARDRAIL POSTS MAY BE STEEL OR WOOD.
5. EACH INSTALLATION SHALL BE SUPERVISED AND CERTIFIED AS CORRECT UPON COMPLETION BY A REPRESENTATIVE OF THE DEVICE MANUFACTURER OR BY AN EMPLOYEE OF THE CONTRACTOR WHO IS A CERTIFIED INSTALLER. THE CERTIFIED INSTALLER SHALL HAVE COMPLETED DEVICE TRAINING AND SHALL BE REGISTERED WITH THE MANUFACTURER AS A CERTIFIED INSTALLER.
6. DELINEATION, IF REQUIRED, SHALL BE APPLIED TO THE END PIECE AND WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK. SEE STANDARD PLAN S-612-1.
7. IF THE MEDIAN TERMINAL IS LESS THAN 31 INCHES HIGH, A TRANSITIONAL PIECE SHALL BE INSTALLED TO REACH THE 31 INCHES MGS HEIGHT.



MEDIAN TERMINAL

(BRAKEMASTER OPTION)

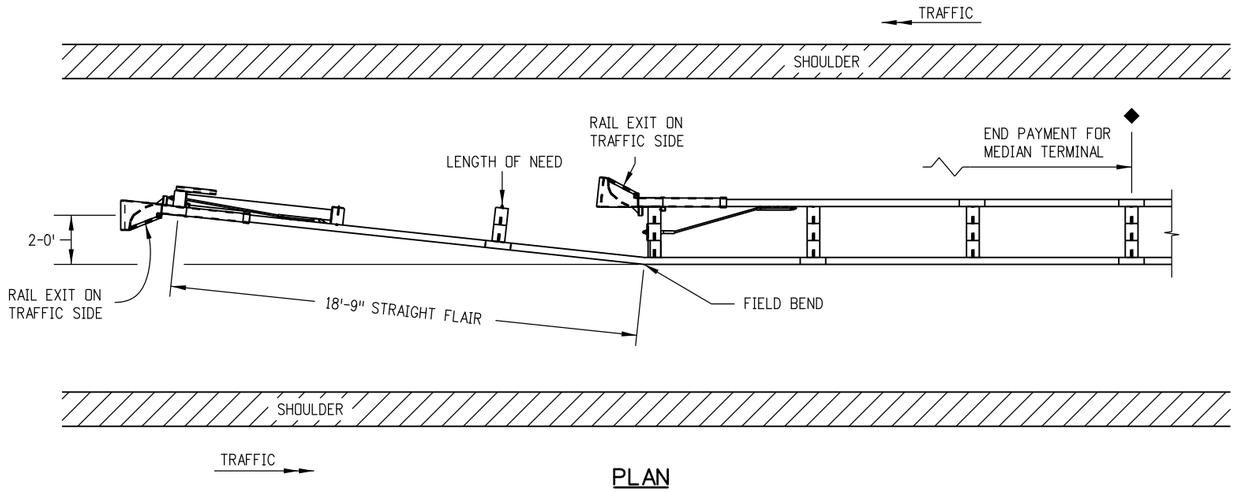
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31".
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 60601010020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

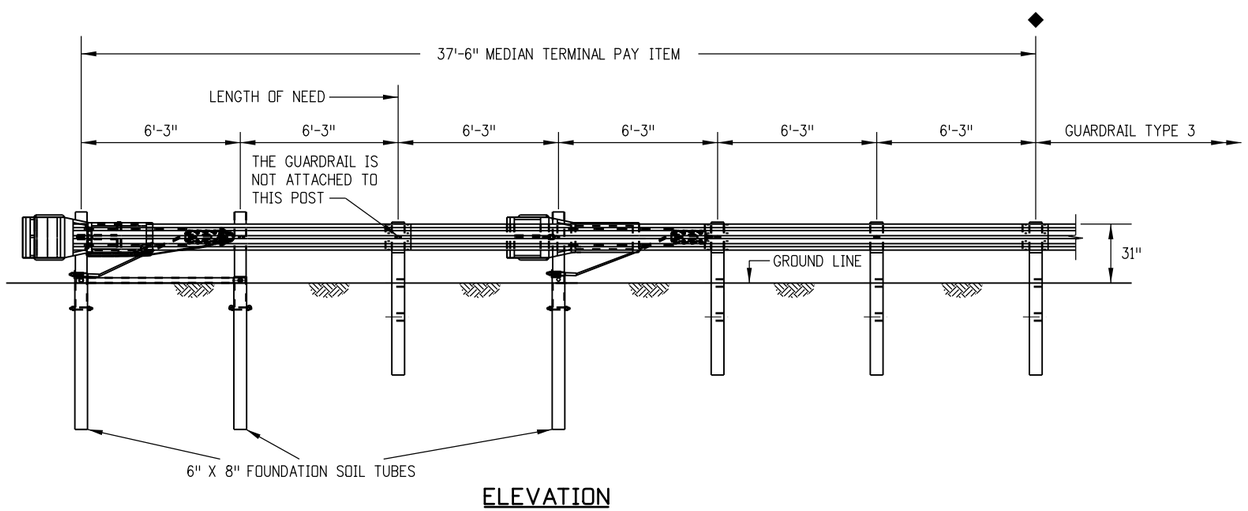
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-606-1



PLAN



ELEVATION

MEDIAN TERMINAL
(FLEAT-MT OPTION)

FLEAT- MT NOTES

1. THE FLEAT-MT MAY BE SELECTED AS A MEDIAN TERMINAL UNLESS OTHERWISE SHOWN IN THE PLANS.
2. BREAKAWAY POSTS ARE REQUIRED WITH THE FLEAT-MT.
3. THE SOIL TUBES SHALL NOT PROTRUDE MORE THAN 4 INCHES ABOVE GROUND (MEASURED ALONG A 5 FEET CORD). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
4. THE SOIL TUBES SHALL BE DRIVEN WITH AN APPROVED DRIVING HEAD AND NOT BE DRIVEN WITH THE POST IN THE TUBE. IF THE TUBES ARE PLACED IN DRILLED HOLES, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
5. WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE, 20 INCH DEEP MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROX. 2½ INCH DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.
6. THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT. DO NOT TWIST THE CABLE WHEN TIGHTENING NUTS.

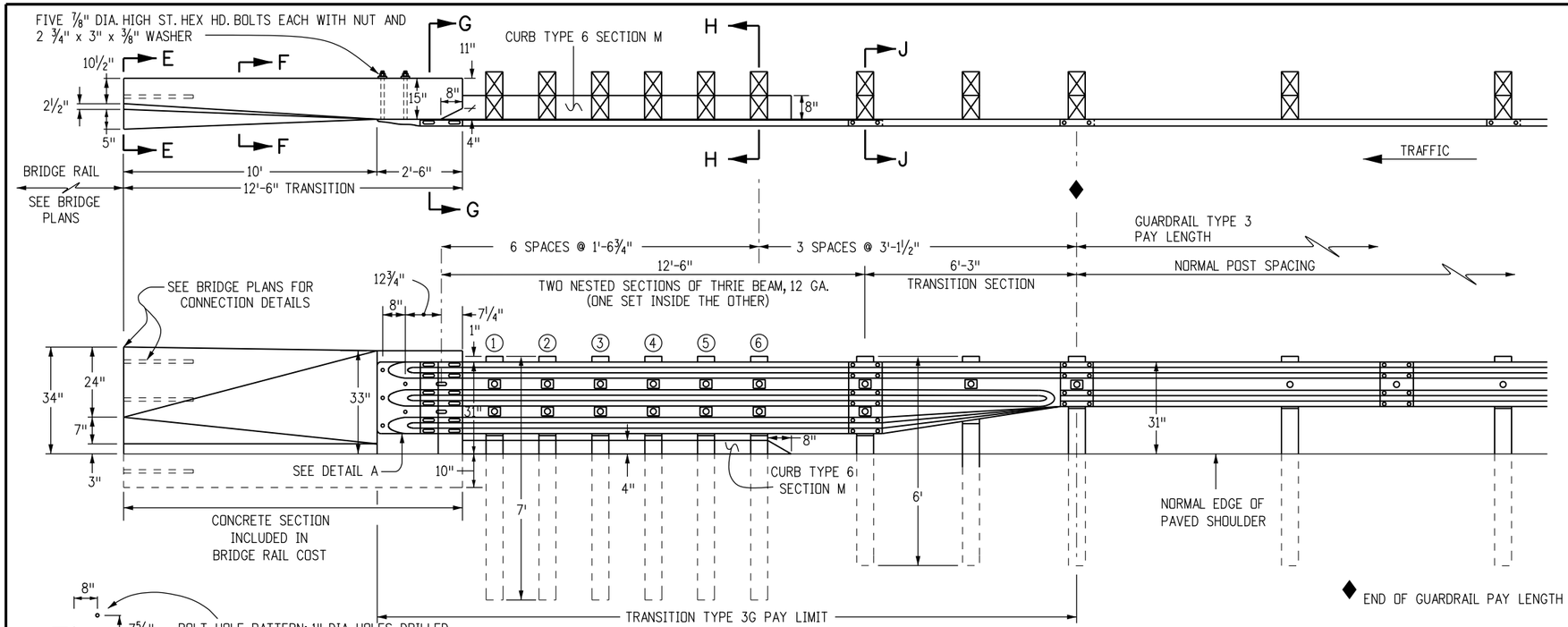
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31".
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 60601011020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

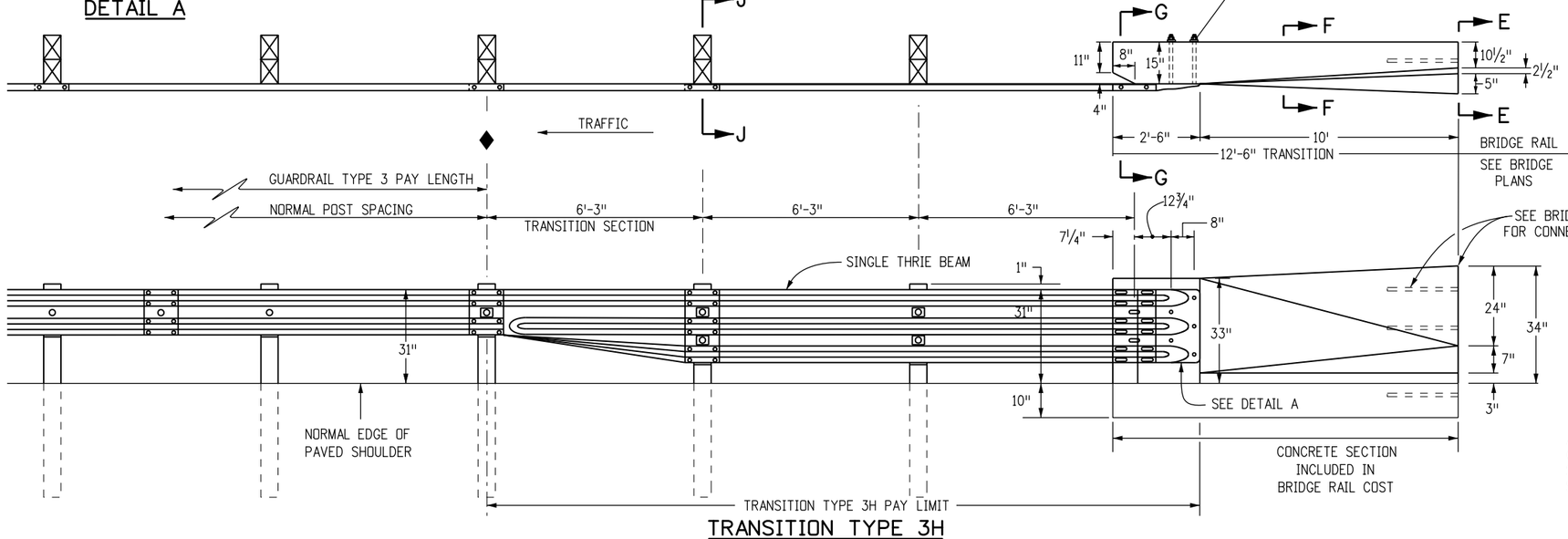
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 11 of 20

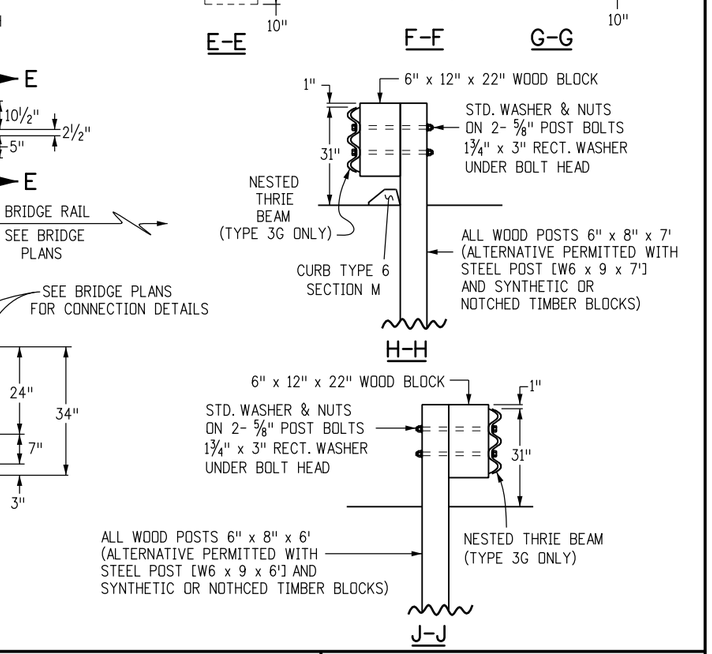


TRANSITION TYPE 3G

DETAIL A

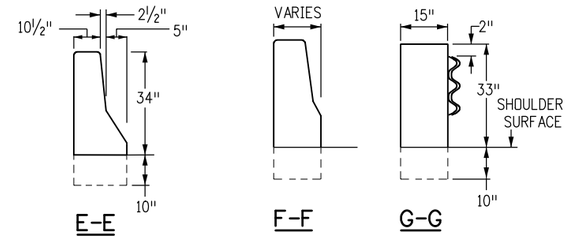


TRANSITION TYPE 3H



NOTES

1. TRANSITION TYPE 3G IS FOR USE AT BOTH ENDS OF BRIDGES ON TWO-WAY HIGHWAYS AND AT THE APPROACH END OF BRIDGES ON ONE-WAY HIGHWAYS.
2. TRANSITION TYPE 3H IS FOR USE AT THE TRAILING END OF BRIDGES ON ONE-WAY HIGHWAYS.
3. THE THRIE BEAM SECTION IN TRANSITIONS TYPES 3G AND 3H MAY BE SHOP BENT TO FIT CURVES THAT ARE GREATER THAN OR EQUAL TO A 10 FT. RADIUS. HOWEVER, THE 6 FT.-3 IN. TRANSITION SECTION SHALL NOT BE BENT.
4. A 12 FT.-6 IN. CONCRETE TRANSITION IS REQUIRED BETWEEN THE TYPE 3G OR 3H AND TYPE 7 BRIDGE RAIL. SEE STANDARD PLAN M-606-13 FOR THE TRANSITION BETWEEN TYPE 3 GUARDRAIL AND TYPE 7 GUARDRAIL.
5. TRANSITIONS TYPE 3G AND TYPE 3H ARE ALSO USED TO CONNECT TO TYPE 8 AND TYPE 10 BRIDGE RAIL. SEE BRIDGE PLANS FOR CONNECTION DETAILS.
6. BACKUP PLATE IS NOT REQUIRED AT POSTS ON TYPE 3G AND 3H.
7. ◻ THIS SYMBOL IN THE ELEVATION DRAWINGS SHOWS THE LOCATIONS WHERE A RECTANGULAR WASHER IS REQUIRED UNDER THE POST BOLT HEAD.
8. CURB TYPE 6 SECTION M, MAY BE ASPHALT OR CONCRETE. THE COST OF CURB IS INCLUDED IN THE WORK, UNLESS A SEPARATE PAY ITEM IS INCLUDED IN THE BID SCHEDULE.
9. POSTS (1) THRU (6) ARE 7 FT. LONG. ALL OTHER POSTS SHALL BE STANDARD 6 FT. IN LENGTH UNLESS OTHERWISE SPECIFIED IN THE CONTRACT.
10. NOTCHED RAIL BLOCKS MANUFACTURED FROM SYNTHETIC MATERIAL WILL BE ACCEPTED AS ALTERNATIVES TO WOOD NOTCHED BLOCKS FOR USE WITH STEEL POSTS PROVIDED THAT THE BLOCKS HAVE RECEIVED FHWA APPROVAL AND ARE CERTIFIED AS IDENTICAL TO THE SPECIMENS USED FOR TESTING AND APPROVAL. STEEL BLOCKS ARE NOT ALLOWED.



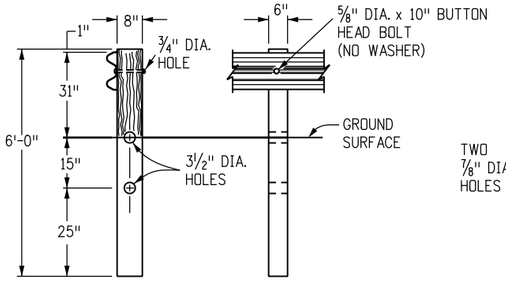
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31" and leveled the top of transisition guardrails.
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 60601012020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

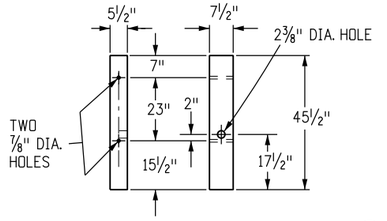
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 12 of 20



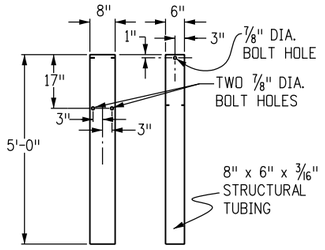
CONTROLLED RELEASING TERMINAL (CRT) POST ①



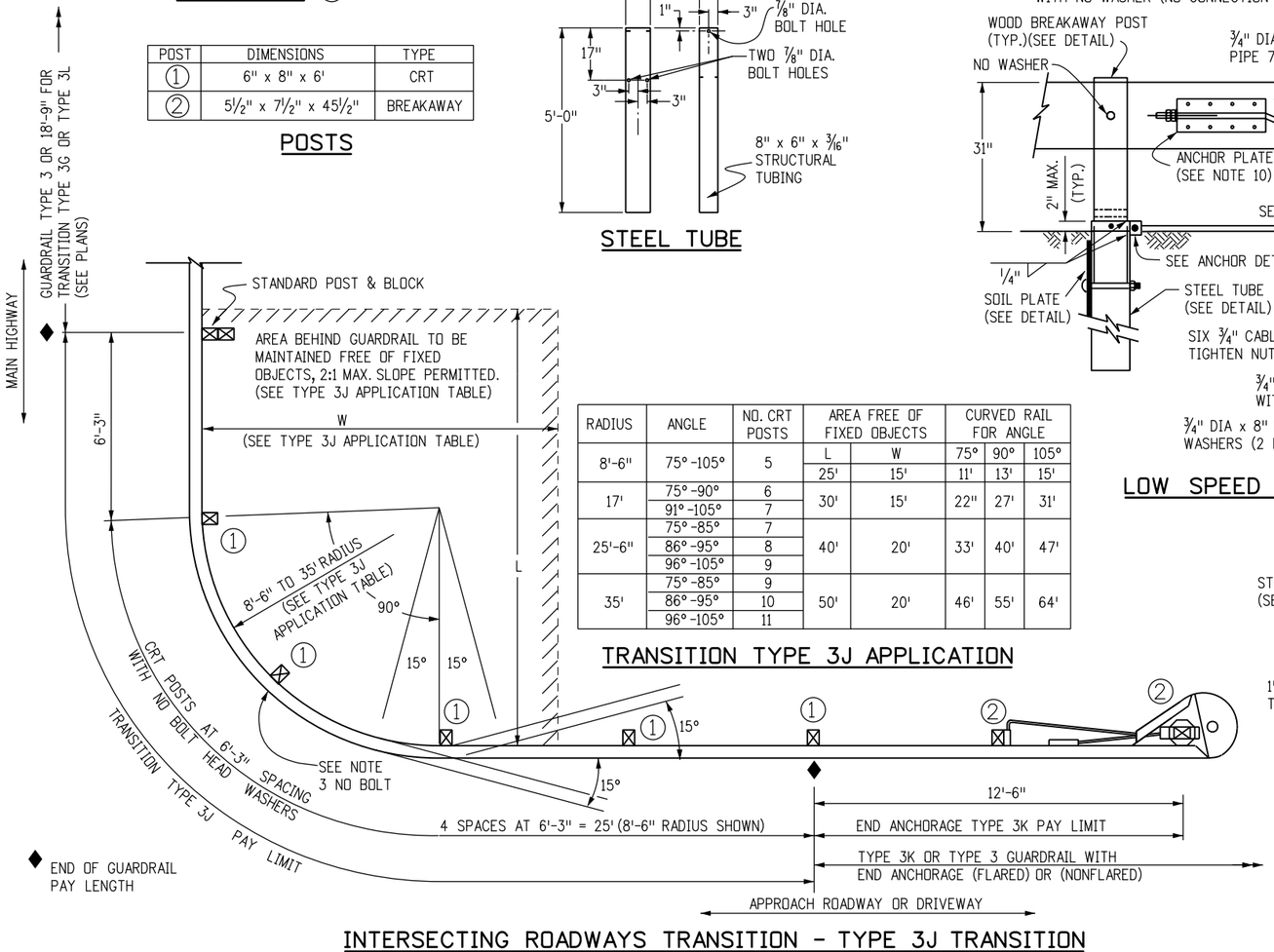
WOOD BREAKAWAY POST ②

POST	DIMENSIONS	TYPE
①	6" x 8" x 6'	CRT
②	5 1/2" x 7 1/2" x 45 1/2"	BREAKAWAY

POSTS



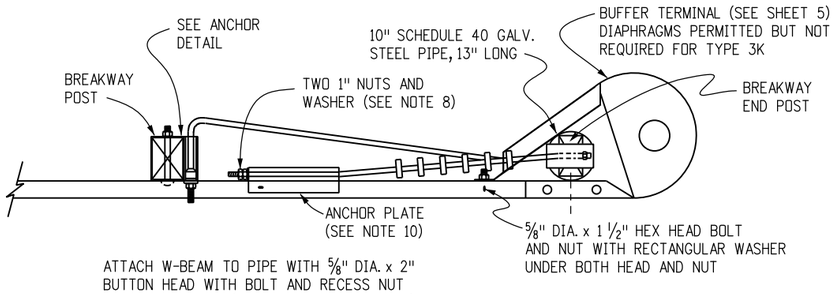
STEEL TUBE

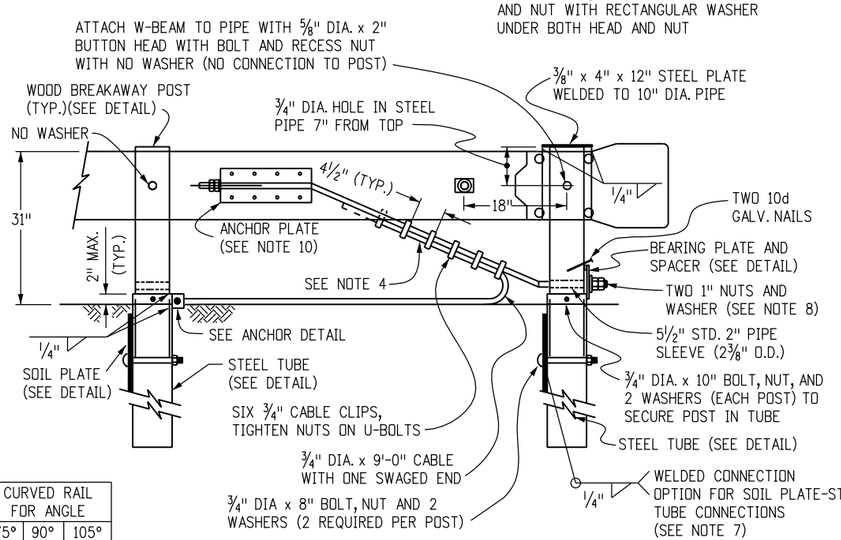


RADIUS	ANGLE	NO. CRT POSTS	AREA FREE OF FIXED OBJECTS		CURVED RAIL FOR ANGLE		
			L	W	75°	90°	105°
8'-6"	75°-105°	5	25'	15'	11'	13'	15'
17'	75°-90°	6	30'	15'	22"	27'	31'
	91°-105°	7					
25'-6"	75°-85°	7	40'	20'	33'	40'	47'
	86°-95°	8					
	96°-105°	9					
35'	75°-85°	9	50'	20'	46'	55'	64'
	86°-95°	10					
	96°-105°	11					

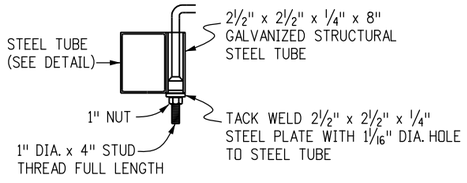
TRANSITION TYPE 3J APPLICATION

INTERSECTING ROADWAYS TRANSITION - TYPE 3J TRANSITION

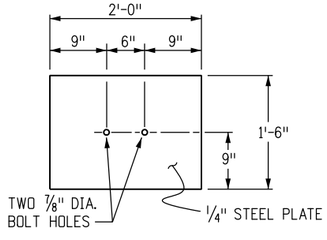




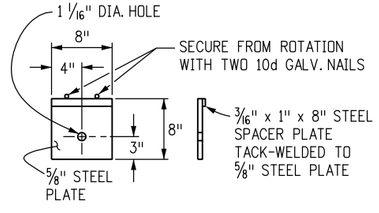
LOW SPEED TERMINAL - TYPE 3K



ANCHOR DETAIL



SOIL PLATE



BEARING PLATE FOR STEEL TUBE

NOTES

1. APPLICATION: THE TRANSITION TYPE 3J MAY BE USED TO SHIELD HAZARDS AT THE INTERSECTION OF TWO ROADWAYS. TYPICAL APPLICATIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
   A. CANAL SERVICE ROADS AT BRIDGE ENDS.
   B. INTERRUPTIONS IN GUARDRAIL RUNS BY INTERSECTING ROADWAYS, ETC..

   THE LOW SPEED (<45 MPH) END ANCHORAGE TYPE 3K SHALL BE USED ONLY ON DRIVEWAYS AND LOW SPEED SERVICE ROADS. WHEN AN APPROVED CRASH-TESTED END TREATMENT IS REQUIRED USE THE END ANCHORAGE (FLARED) OR (NONFLARED) WITH 37 FT.-6 IN. LENGTH.
2. GRADING AND PAVING FOR THE 3J & 3K SHALL MATCH THE GRADING AND PAVING OF THE GUARDRAIL TO WHICH THEY ARE ATTACHED, AND SHALL BE IN ACCORDANCE WITH SHEET ONE OF THIS STANDARD. MAXIMUM FILL SLOPE SHALL BE 2:1.
3. THE RAIL IS NOT BOLTED TO THE CRT POST AT THE CENTER OF THE CURVE FOR THE 8 FT.-6 IN., 17 FT., AND 25 FT.-6 IN. RADII. PLATES SHALL CONFORM TO ASTM A 36, AND THE STRUCTURAL TUBING TO ASTM A 500.
4. THE 3/4IN. GALVANIZED WIRE ROPE (CABLE) SHALL CONFORM TO AASHTO M 30 TYPE II.
5. PLATES SHALL CONFORM TO ASTM A 36, AND STRUCTURAL TUBING TO ASTM A 500. WELDING SHALL MEET ALL REQUIREMENTS OF THE AMERICAN WELDING SOCIETY.
6. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A 123. POSTS SHALL NOT BE PUNCHED, DRILLED, CUT, OR WELDED AFTER GALVANIZING.
7. WHEN THE SOIL PLATE WELDED OPTION IS SELECTED, SOIL PLATE CONNECTION BOLT HOLES ARE NOT REQUIRED.
8. OUTSIDE NUT SHALL BE TORQUED AGAINST INSIDE NUT WITH THE CABLE INSTALLED TAUT BETWEEN THE ANCHOR PLATE AND FIRST POST.
9. ALL CURVED GUARDRAIL SHALL BE SHOP BENT.
10. SEE SHEET 4 FOR ANCHOR PLATE AND OTHER DETAILS.
11. THE STEEL TUBE MAY BE DRIVEN WITH WOOD POST INSERTED IF NO DAMAGE OCCURS TO THE POST OR BOLTS.

Computer File Information		
Creation Date: 08/19/15	Initials: DLM	
Last Modification Date: 12/29/15	Initials: LTA	(R-X)
Full Path: www.codot.gov/business/designsupport		(R-X)
Drawing File Name: 60601013020.dgn		(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English	(R-X)

Sheet Revisions	
Date:	Comments
12/29/15	Raised guardrail height to 31".

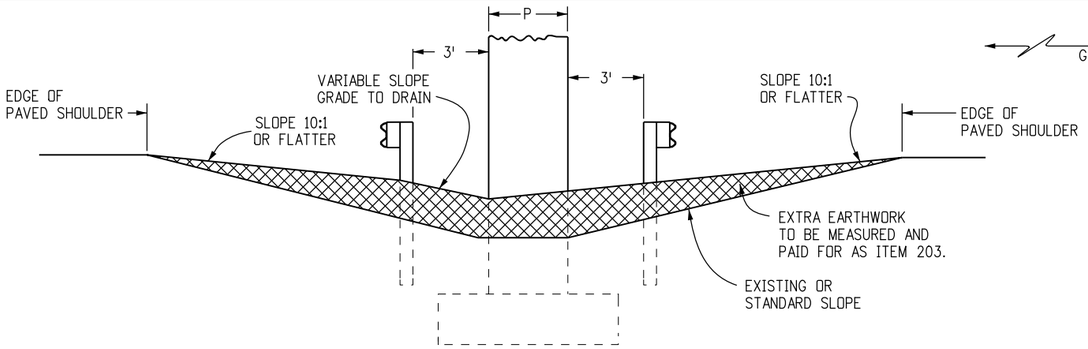
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

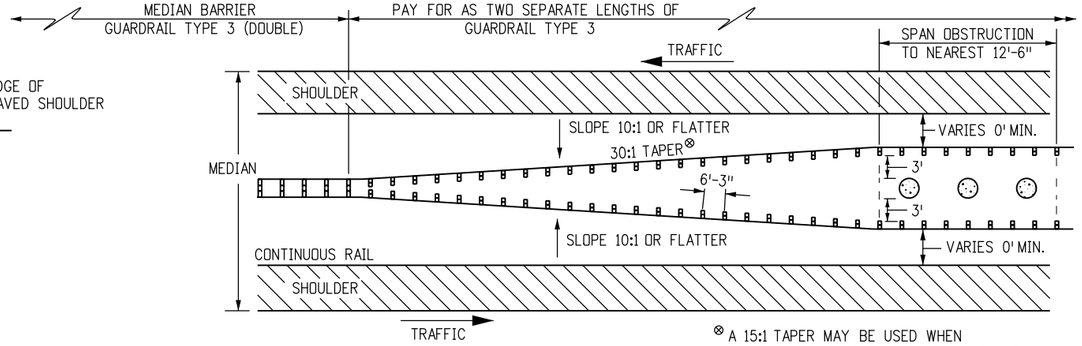
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-606-1

Sheet No. 13 of 20

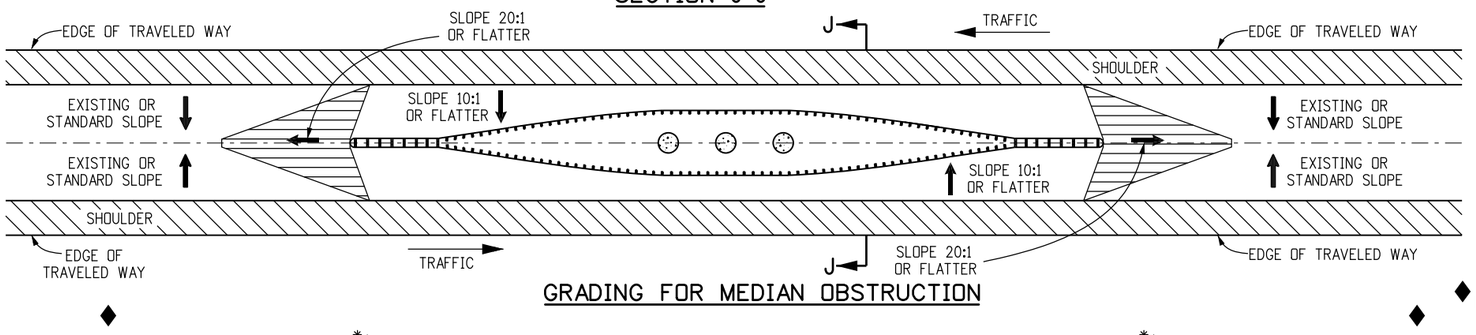


SECTION J-J

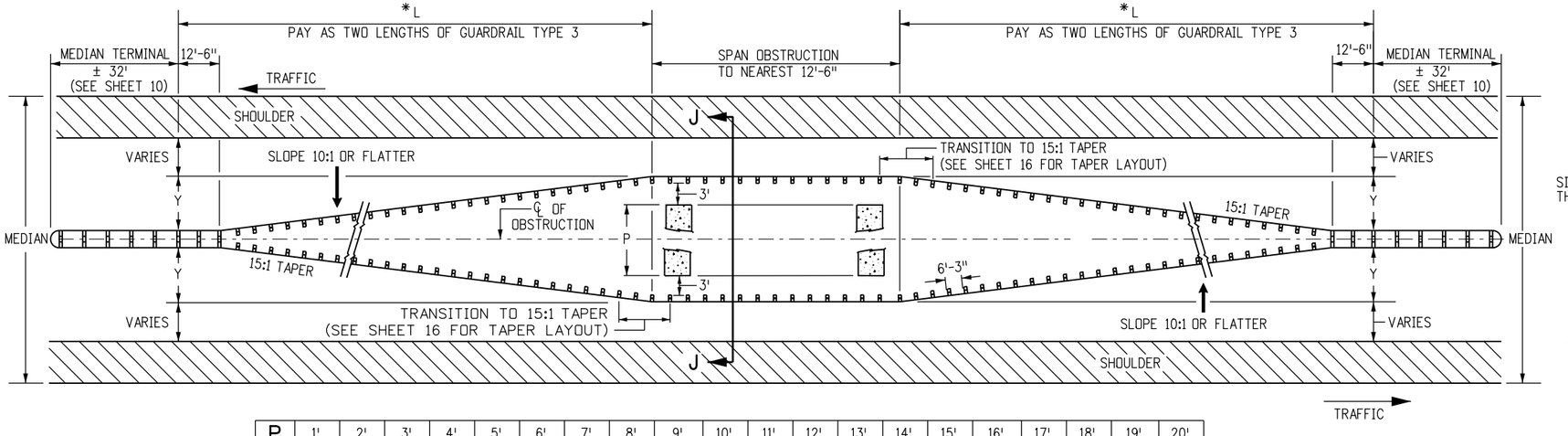


⊗ A 15:1 TAPER MAY BE USED WHEN THE BARRIER ENDS IN THE MEDIAN TERMINAL

OBSTRUCTION IN MEDIAN 30 FT. WIDE OR LESS



GRADING FOR MEDIAN OBSTRUCTION



END OF GUARDRAIL PAY LENGTH

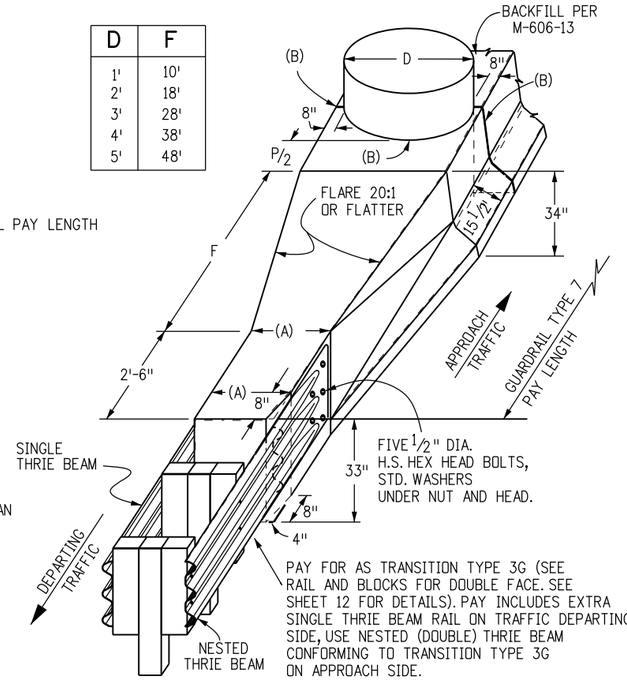
P	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	20'
Y	4'-1"	4'-7"	5'-1"	5'-7"	6'-1"	6'-7"	7'-1"	7'-7"	8'-1"	8'-7"	9'-1"	9'-7"	10'-1"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-1"	13'-7"
L	75'	87'-6"		100'	112'-6"		125'		137'-6"	150'		162'-6"		175'		187'-6"	200'		212'-6"	225'

*L IS MEASURED ALONG FACE OF GUARDRAIL

GUARDRAIL FOR OBSTRUCTION IN MEDIANS WIDER THAN 30 FT.

NOTE: FOR OBSTRUCTIONS (P) THAT ARE WIDER THAN 20 FT. IN MEDIANS USE SHEET 17.

D	F
1'	10'
2'	18'
3'	28'
4'	38'
5'	48'



(A). TIMBER POSTS 2 FT., STEEL POSTS 1 FT.-9½IN.

(B). ½ IN. PREFORMED JOINT MATERIAL

NARROW MEDIAN DETAIL

USUALLY LESS THAN 30 FT. WIDE MEDIAN WITH ALL PAVED SURFACE

OBSTRUCTIONS IN MEDIANS

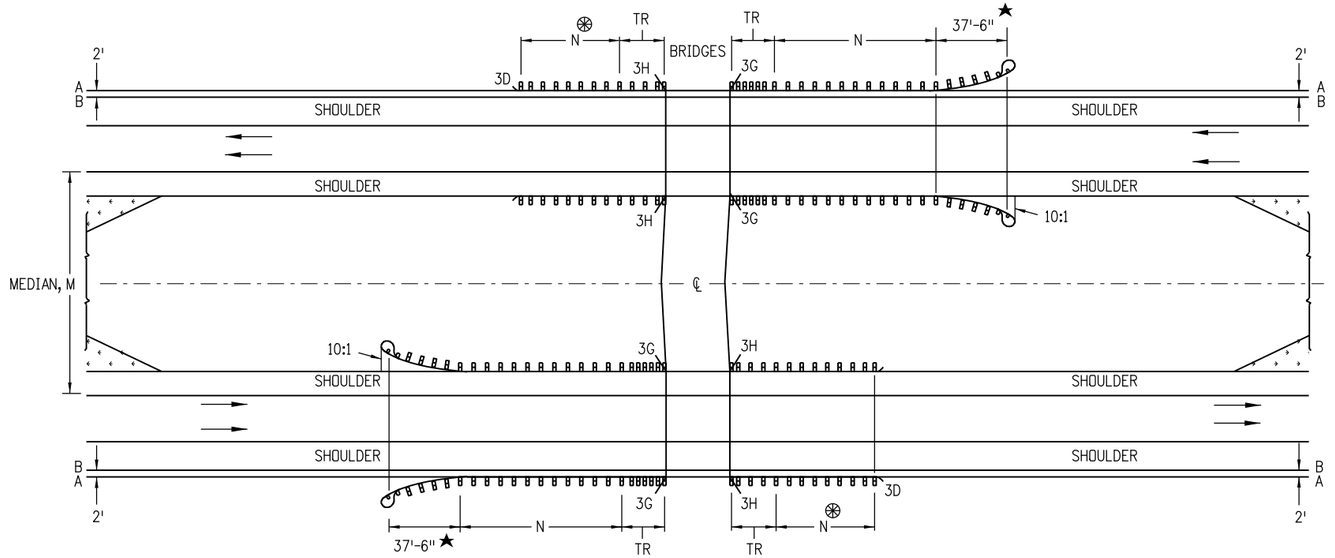
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)		
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 60601014020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1
Sheet No. 14 of 20



MULTILANE DIVIDED HIGHWAYS FOR STEEP EMBANKMENTS IN MEDIAN

NOTES

1. MEDIAN BARRIERS TANGENT TO THE ROADWAY MAY BE USED WHERE THE SHOULDER SLOPES IN THE MEDIAN ARE STEEP.
2. BARRIER LENGTHS SHALL BE INCREASED TO ACCOUNT FOR STEEP EMBANKMENTS OR OTHER HAZARDS WITHIN CLOSE PROXIMITY OF BRIDGES.

⊛ — DO NOT CONSTRUCT THE TR AND GUARDRAIL ON THE TRAILING BRIDGE ENDS IF SITE CONDITIONS DO NOT WARRANT THE USE OF GUARDRAIL.

N — SHOWN ON PLANS. LENGTH TO SHIELD ALL HAZARDS IS BASED ON GUARDRAIL'S LENGTH OF NEED COMPUTATION. SEE AASHTO ROADWAY DESIGN GUIDE. THE MINIMUM SHALL BE 12 FT. - 6 IN., WHERE SITE CONDITIONS ALLOW. THE TOTAL LENGTH OF NEED WILL INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT.

TR — 18 FT.-9 IN. FOR 3G AND 3H.

A — EDGE OF 8 FT. OR 10 FT. SHOULDER.

B — EDGE OF 6 FT. OR LESS SHOULDER.

★ — END ANCHORAGE CAN BE FLARED OR NONFLARED.

Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)		
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 606010150 20.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

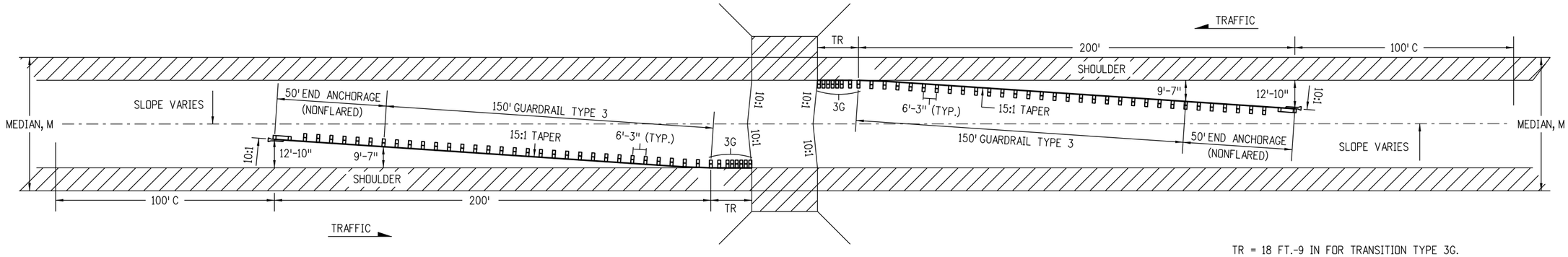
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

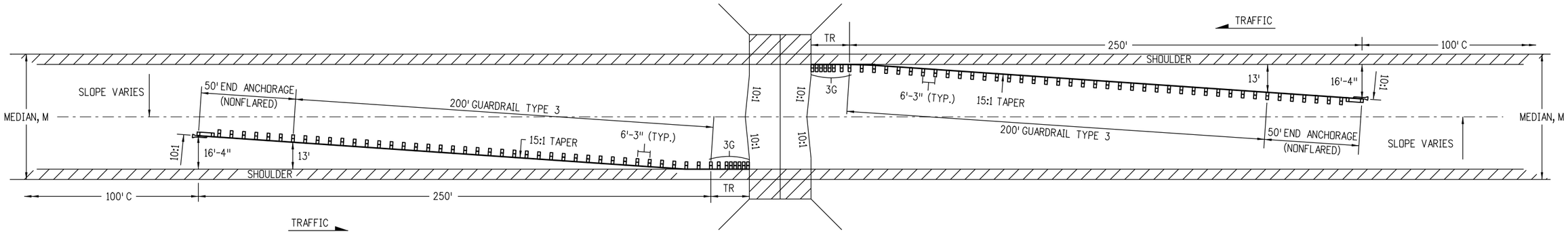
STANDARD PLAN NO.

M-606-1

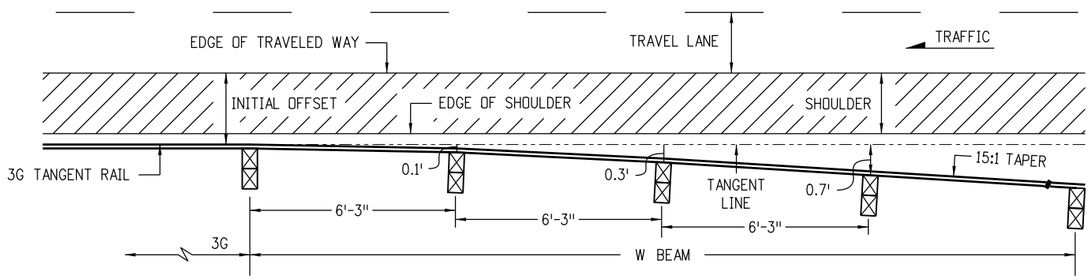


MEDIANS 60 FT. AND OVER WITH 10 FT. OR WIDER SHOULDERS.

TR = 18 FT.-9 IN FOR TRANSITION TYPE 3G.
C = CHANGE: 100 FT. TRANSITION TO NORMAL SLOPE.
M = WIDTH OF MEDIAN.



MEDIANS 60 FT. AND OVER WITH 4 to 8 FT. SHOULDERS.



TRANSITION TO TYPICAL 15:1 TAPER

NOTES

1. GUARDRAIL TRANSITIONS FROM PARALLEL TO ROADWAY SHOULDER AT 3G SEGMENT TO 15:1 TAPER WITHIN 18'-9" BASED ON POST OFFSET DIMENSIONS SHOWN.
2. SEE SHEET 15 FOR THE RIGHT SHOULDER GUARDRAIL LAYOUT.

MULTILANE DIVIDED HIGHWAYS - (DEPRESSED MEDIANS, 60 FT. AND OVER WITH OPEN HAZARDS OR OBSTRUCTIONS)

Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)		
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 606010160 20.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

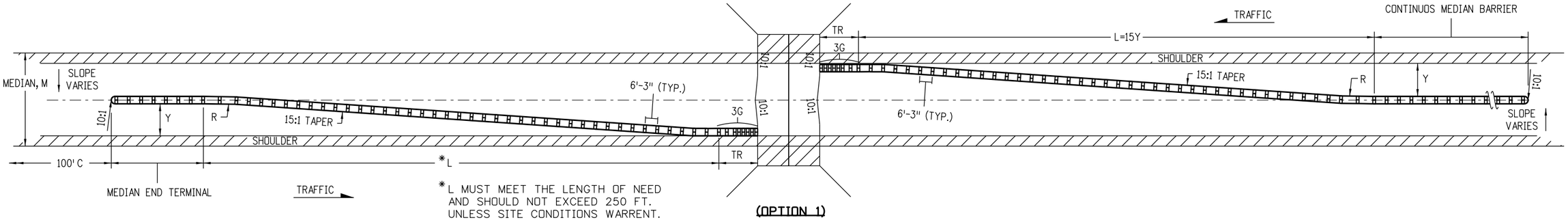
MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-606-1

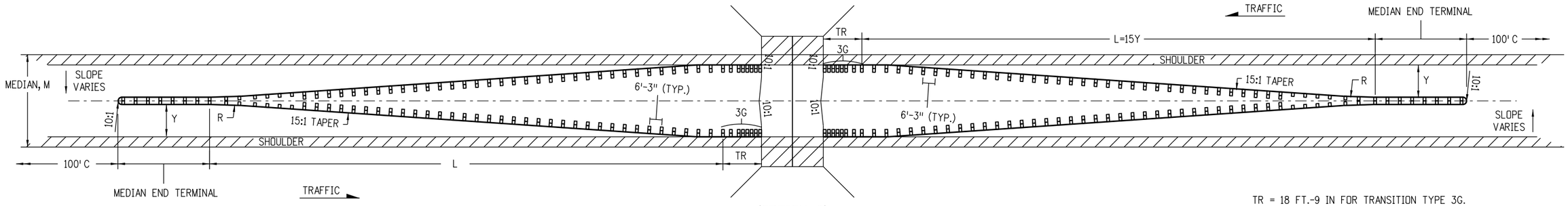
NOTES

1. GUARDRAIL TRANSITIONS FROM PARALLEL TO ROADWAY SHOULDER AT 3G SEGMENT TO 15:1 TAPER WITHIN 18'-9" BASED ON POST OFFSET DIMENSIONS SHOWN.
2. THE OPTION 1 LAYOUT SHALL BE USED WHEN "Y" EXCEEDS 16 FEET OR WHEN MEDIAN BARRIER IS CONTINUOUS.
3. THE OPTION 2 LAYOUT SHALL BE USED WHEN "Y" IS 16 FEET OR LESS.
4. SEE SHEET 15 FOR RIGHT SHOULDER GUARDRAIL LAYOUT.

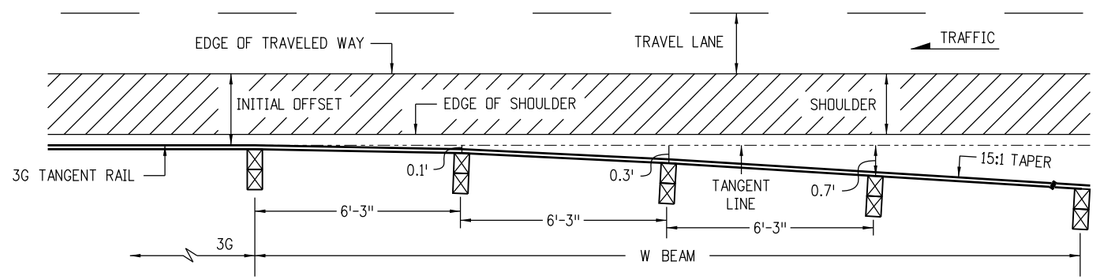


* L MUST MEET THE LENGTH OF NEED AND SHOULD NOT EXCEED 250 FT. UNLESS SITE CONDITIONS WARRENT.

(OPTION 1)



(OPTION 2)



TRANSITION TO TYPICAL 15:1 TAPER

TR = 18 FT.-9 IN FOR TRANSITION TYPE 3G.
C = CHANGE: 100 FT. TRANSITION TO NORMAL SLOPE.
M = WIDTH OF MEDIAN.
L = TOTAL LENGTH PAID AS GUARDRAIL TYPE 3.
Y = FINAL OFFSET AT END.

MULTILANE DIVIDED HIGHWAYS - (DEPRESSED MEDIANS, 21 - 59 FT. WITH OPEN HAZARDS OR OBSTRUCTIONS)

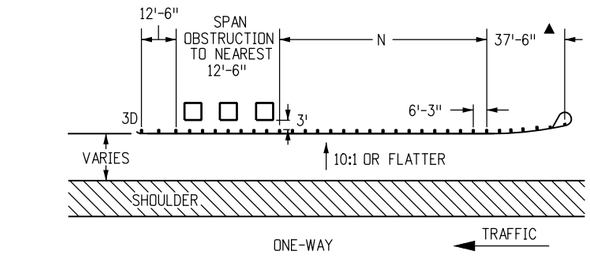
Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)		
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 60601017020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

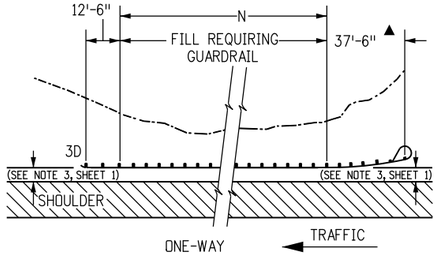
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

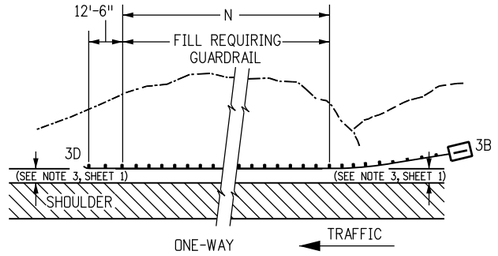
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

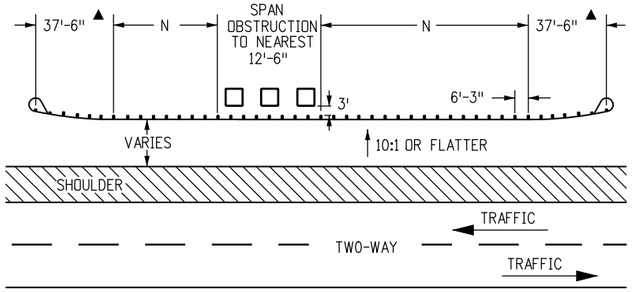
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-606-1

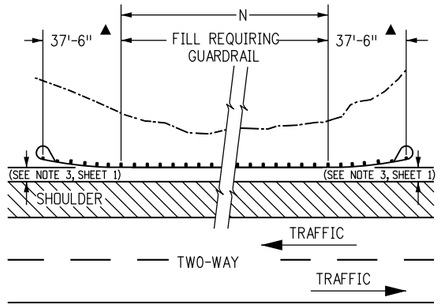




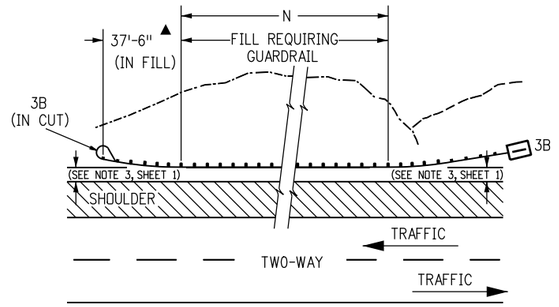




GUARDRAIL FOR ROADSIDE OBSTRUCTIONS



GUARDRAIL FOR ROADSIDE FILL CONSTRUCTION

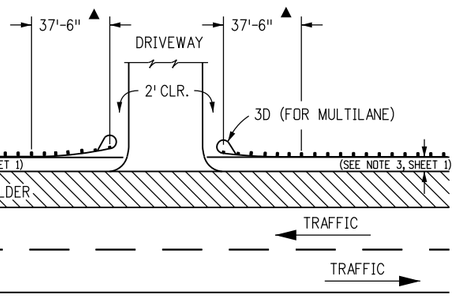


GUARDRAIL FOR ROADSIDE CUT-TO-FILL CONDITION

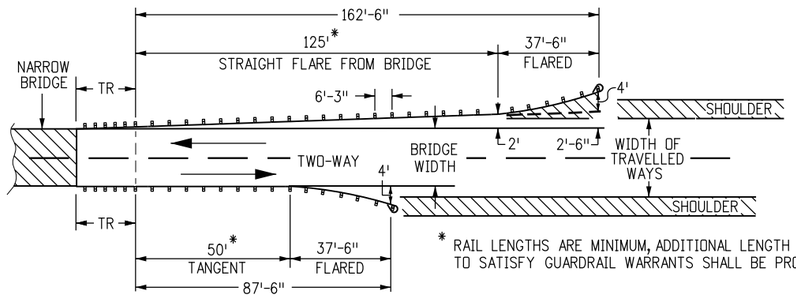
NOTES

1. THE TYPE 3G OR 3H TRANSITIONS (SEE SHEET 12) SHALL BE USED TO CONNECT A TYPE 3 W-BEAM TO TYPE 7 CONCRETE BARRIER OR TO A TYPE 7, 8, OR 10 BRIDGE RAIL. FOR A TRANSITION FROM A ROADWAY TYPE 3 W-BEAM TO A BRIDGE RAIL TYPE 3 WITH BACKING TUBES, THE TRANSITION TYPE 3L SHOWN ON SHEET 20 SHALL BE USED.
2. "TR" WILL BE 18 FT.-9 IN. FOR THE TRANSITIONS TYPE 3G AND 3H, AND 25 FT. FOR THE TRANSITION TYPE 3L.
3. THE GUARDRAIL LENGTH DIMENSION "N" IS THE LENGTH AS DETERMINED BY THE LENGTH OF NEED COMPUTATION AND IS SHOWN ON THE PLANS. THE MINIMUM IS 12 FT.-6 IN. WHERE SITE CONDITIONS ALLOW. THE OVERALL REQUIRED LENGTH OF NEED CAN INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT. A TRAVERSABLE SLOPE SHALL BE PROVIDED BEHIND THE TERMINAL TO DIMENSION "N" PRIOR TO THE OBSTRUCTION UNLESS OTHERWISE APPROVED BY THE ENGINEER.

▲ END ANCHORAGE CAN BE FLARED OR NONFLARED

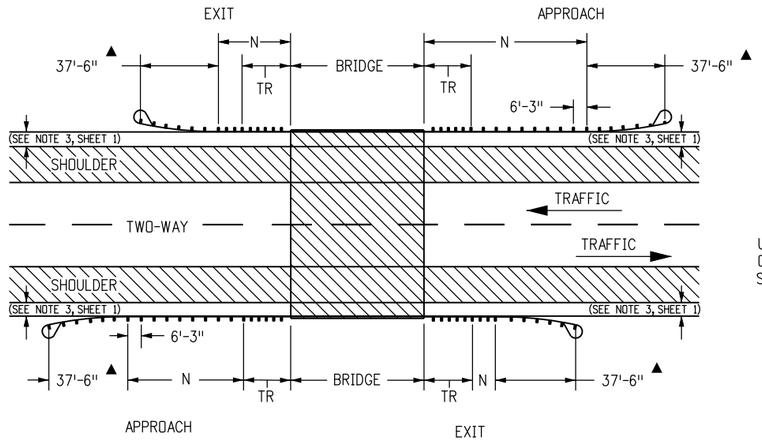


LAYOUT FOR DRIVEWAY APPROACH

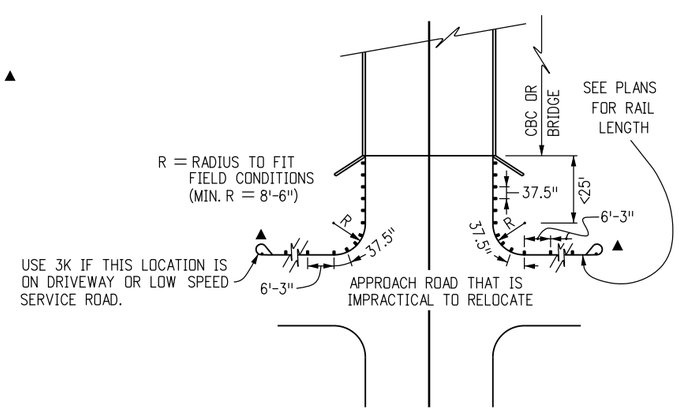


* RAIL LENGTHS ARE MINIMUM, ADDITIONAL LENGTH TO SATISFY GUARDRAIL WARRANTS SHALL BE PROVIDED

2-WAY NARROW APPLICATION



2-WAY NORMAL BRIDGE APPLICATION



GUARDRAIL TYPE 3 WITH BLOCKED OUT POSTS SPACED AT 3'-1½" FROM STRUCTURE AROUND CURVE.

INTERRUPTED STRUCTURE APPROACH

(USE TYPE 3J ON SHEET 13 WHEN PRACTICAL)

Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)		
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 606010180 20.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

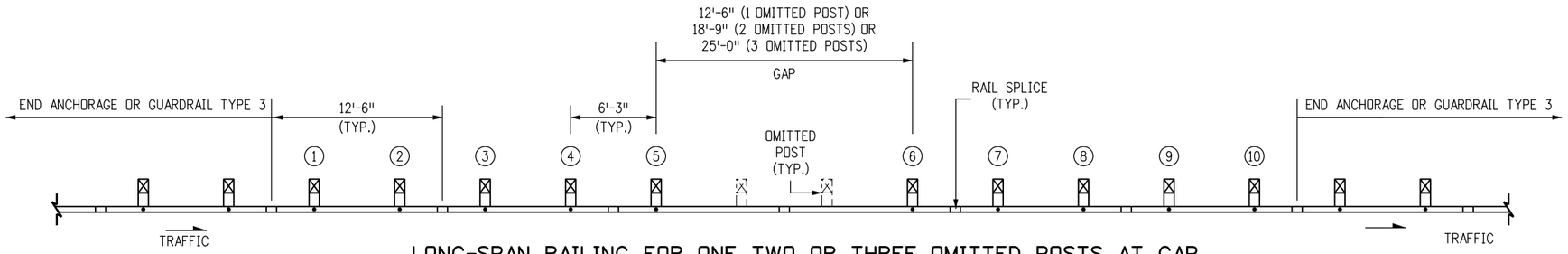
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.

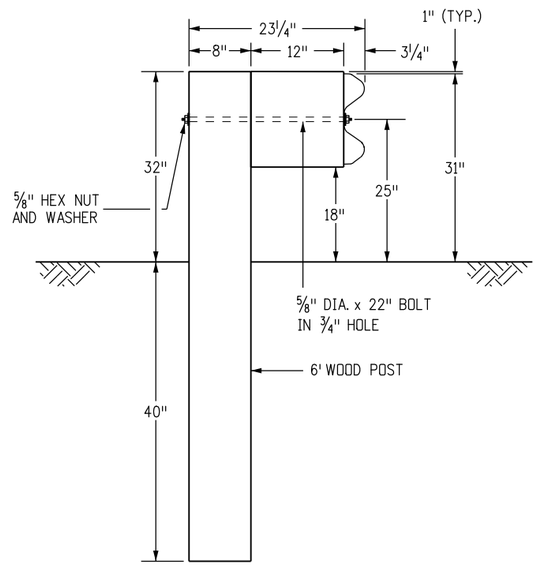
M-606-1

NOTES

1. POSTS (1), (2), (9), and (10) MAY BE TIMBER OR STEEL.
2. THE NUMBER OF OMITTED POSTS IS DEPENDENT ON THE LENGTH OF THE GAP.

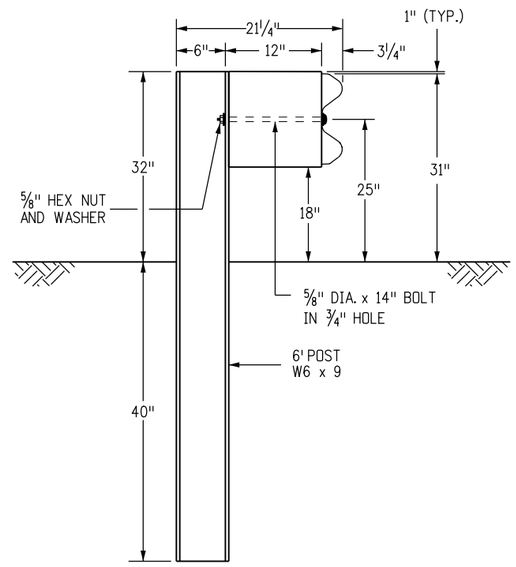


LONG-SPAN RAILING FOR ONE, TWO, OR THREE OMITTED POSTS AT GAP



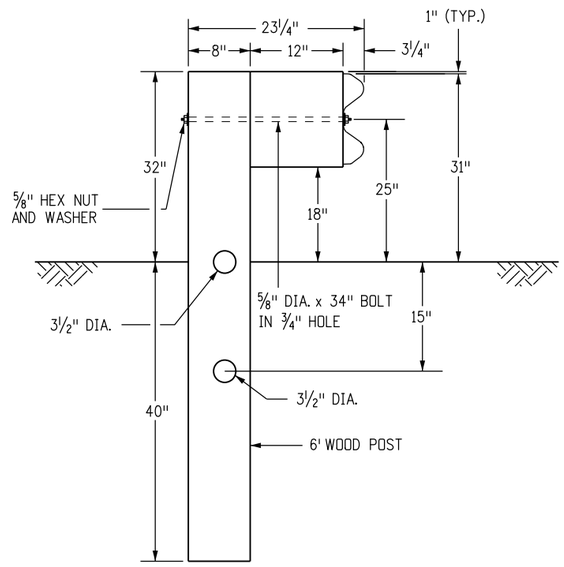
TIMBER POST

POSTS (1)-(2) AND (9)-(10)
(SEE NOTE 1)



STEEL POST

POSTS (1)-(2) AND (9)-(10)
(SEE NOTE 1)



BREAKWAY TIMBER POST

POSTS (3) - (8)

Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31".
Full Path: www.codot.gov/business/designsupport	(R-X)	12/29/15	Deleted Nested Rails details. Revised General Notes. Combined 1, 2, and 3 omitted posts details into one detail.
Drawing File Name: 606010190 20.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

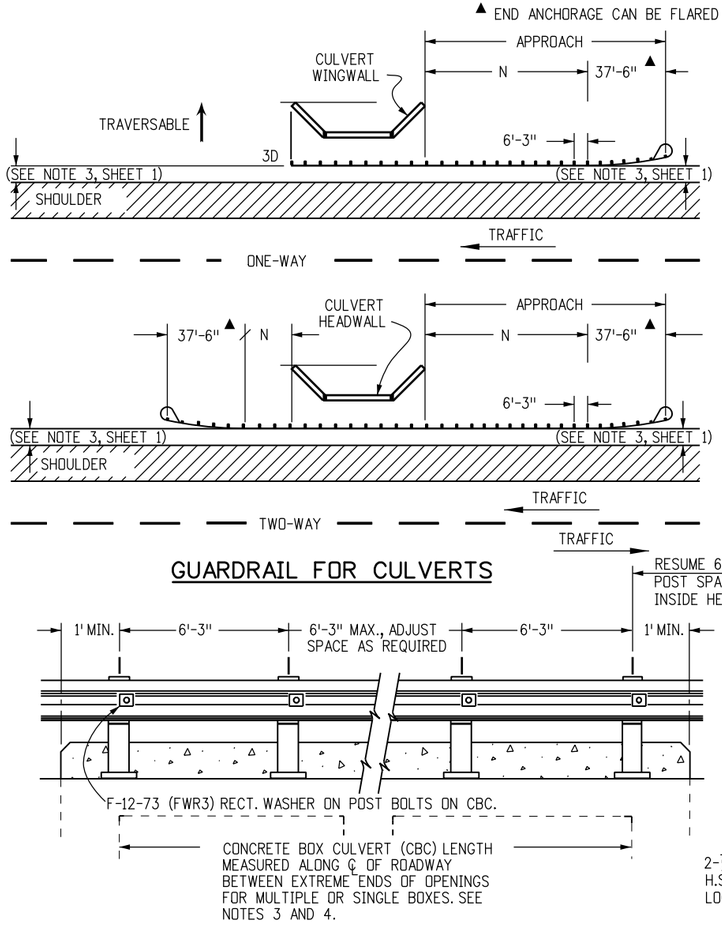
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

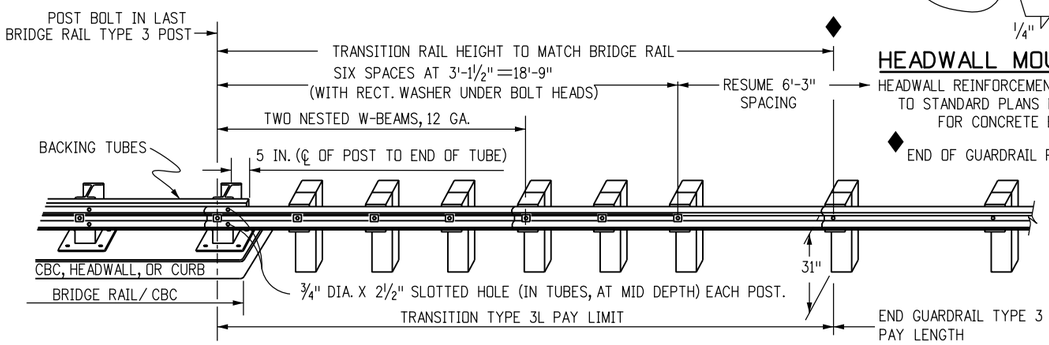
STANDARD PLAN NO.
M-606-1
Sheet No. 19 of 20

GUARDRAIL FOR CULVERTS

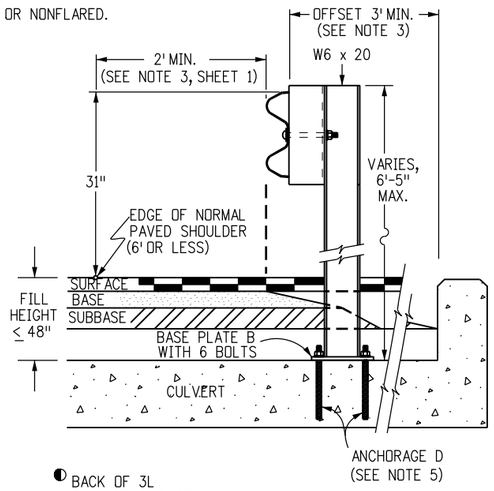


RAIL PLACEMENT FOR INSIDE OR HEADWALL MOUNT

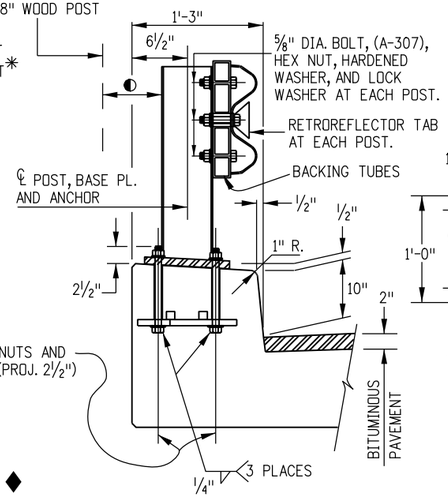
* USE 3L TRANSITION AT BOTH APPROACH AND EXIT ENDS OF BRIDGE RAIL TYPE 3 (HEADWALL MOUNT)



TRANSITION TYPE 3L AND GUARDRAIL TYPE 3 APPROACH



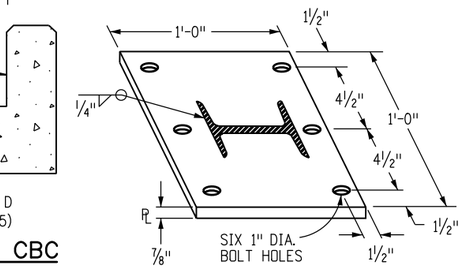
INSIDE MOUNT ON CBC



HEADWALL MOUNT ON CBC

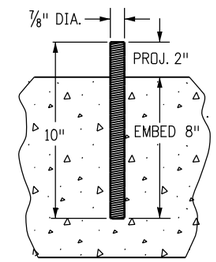
HEADWALL REINFORCEMENT SHALL BE ACCORDING TO STANDARD PLANS M-601-1, 2, AND 3 FOR CONCRETE BOX CULVERTS.

◆ END OF GUARDRAIL PAY LENGTH



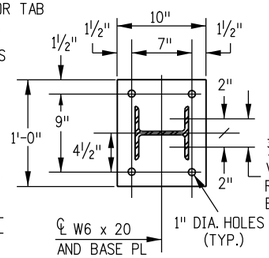
BASE PLATE B

(FOR INSIDE MOUNT)

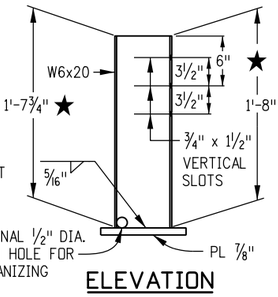


ANCHORAGE D

(FOR INSIDE MOUNT)

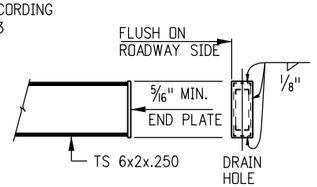


PLAN



ELEVATION

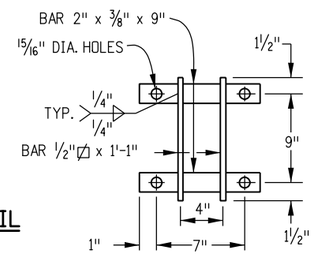
HEADWALL MOUNT POST DETAIL



BACKING TUBES END DETAIL

(FOR HEADWALL MOUNT)

TUBES SHALL BE CONTINUOUS. NEITHER BOLTED NOR WELDED SPLICES WILL BE ALLOWED.



● ANCHOR DETAIL

(FOR HEADWALL MOUNT)

NOTES

1. LOCATION AND LENGTH OF MEDIAN GUARDRAIL APPROACHES TO CULVERTS WITH FULL HEADWALL AND WINGWALLS SHALL BE AS SHOWN FOR BRIDGES ON SHEET 16. THE GUARDRAIL TYPE 3 SHALL CONTINUE ACROSS THE CULVERT AS SHOWN ON THIS SHEET.
2. RIGHT SHOULDER BOX CULVERT TREATMENT IS SHOWN ON THIS SHEET FOR CULVERTS 20 FT. OR LESS IN LENGTH.
3. GUARDRAIL ACROSS CULVERTS WITH A LENGTH OF 20 FT. OR LESS SHALL BE AS FOLLOWS:
   A. FILL HEIGHT AT GUARDRAIL POST 48 IN. OR GREATER: CONSTRUCTION AND PAYMENT WILL BE AS GUARDRAIL TYPE 3.
   B. FILL HEIGHT AT GUARDRAIL POST LESS THAN 48 IN. AND BLOCK FACE TO HEADWALL OFFSET OF 3 FT. OR GREATER: CONSTRUCTION AND PAYMENT AS GUARDRAIL TYPE 3.
   C. FILL HEIGHT AT GUARDRAIL POST 48 IN. OR LESS AND BLOCK FACE TO HEADWALL OFFSET LESS THAN 3 FT: CONSTRUCTION ACCORDING TO HEADWALL MOUNT DETAILS AND PAYMENT AS BRIDGE RAIL TYPE 3.
4. GUARDRAIL ACROSS CULVERTS WITH LENGTH GREATER THAN 20 FT. SHALL BE AS FOLLOWS:
   A. FILL HEIGHT AT GUARDRAIL POSTS 48 IN. OR GREATER: CONSTRUCTION AND PAYMENT WILL BE FOR STANDARD GUARDRAIL TYPE 3.
   B. FILL HEIGHT AT GUARDRAIL POSTS 48 IN. OR LESS: CONSTRUCTION AND PAYMENT IN ACCORDANCE WITH THE CONTRACT BRIDGE PLANS. WHEN BLOCK FACE TO HEADWALL OFFSET IS 3 FT. OR GREATER: CONSTRUCTION AND PAYMENT AS GUARDRAIL TYPE 3.
5. ANCHORAGE D: SIX BOLTS FOR BASE PLATE "B" WITH INSIDE MOUNT. THE BOLTS SHALL BE 7/8 IN. DIA X 10 IN. HIGH STRENGTH RODS THREADED FULL LENGTH AND ALL GALVANIZED. RODS SHALL BE CAST-IN-PLACE FOR A NEW STRUCTURE. FOR AN EXISTING STRUCTURE, THE RODS SHALL BE INSTALLED IN 1-1/4 IN. DIA HOLES WITH NON-SHRINK GROUT OR EPOXY CONFORMING TO ASTM C 881.
6. TYPE 3L POSTS SHALL BE STEEL OR WOOD TO MATCH POSTS USED ON THE APPROACH GUARDRAIL.
7. THE GUARDRAIL LENGTH DIMENSION "N" IS THE LENGTH AS DETERMINED BY THE LENGTH OF NEED COMPUTATION AND IS SHOWN ON THE PLANS. THE MINIMUM IS 12 FT.-6 IN. WHERE SITE CONDITIONS ALLOW. THE OVERALL REQUIRED LENGTH OF NEED CAN INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT.
8. ALL BRIDGE RAIL TYPE 3 BACKING TUBES SHALL BE FABRICATED FROM ASTM A 500 GRADE B. ALL POSTS, BASE PLATES, AND ANCHOR BOLTS SHALL BE FABRICATED FROM ASTM A 36 STEEL. THE ABOVE MATERIAL, W-BEAM, AND ALL ANCHOR BOLTS AND MISCELLANEOUS BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 509. CONCRETE, REINFORCING STEEL, AND STRUCTURAL STEEL ELEMENTS SHALL BE IN ACCORDANCE WITH SECTIONS 601, 602, AND 509, RESPECTIVELY.
9. POST ANCHORS, ENCASED IN CONCRETE, SHALL BE ASTM A 36 STEEL, AND NEED NOT BE GALVANIZED.
10. PRIOR TO FABRICATION OF BRIDGE RAIL, THREE SETS OF WORKING DRAWINGS WHICH COMPLY WITH THE REQUIREMENTS OF SECTION 105 SHALL BE SUBMITTED TO THE ENGINEER FOR INFORMATION ONLY.
11. IF HEADWALL MOUNT GUARDRAIL IS USED, SEE STANDARD PLAN M-601, AND NOTES BELOW:
    A. ALL ITEMS ABOVE TOP OF CBC HEADWALL WILL BE MEASURED AND PAID FOR AS LINEAR FEET OF BRIDGE RAIL TYPE 3.
    B. HEADWALL MOUNTING OF RAIL WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.

★ FOR STANDARD 12 IN. HEADWALL WITH NO PAVEMENT, THE POST HEIGHT SHALL BE 1 FT.- 6 IN. ADJUST POST HEIGHT FOR PAVEMENT THICKNESS.

● ONE ANCHOR ASSEMBLY SHALL BE PLACED FOR EACH RAIL POST.

Computer File Information		Sheet Revisions	
Creation Date: 08/19/15 Initials: DLM		Date:	Comments
Last Modification Date: 12/29/15 Initials: LTA	(R-X)	12/29/15	Raised guardrail height to 31".
Full Path: www.codot.gov/business/designsupport	(R-X)		
Drawing File Name: 60601020020.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

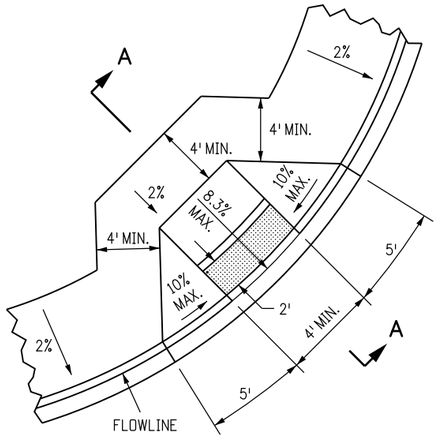
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.

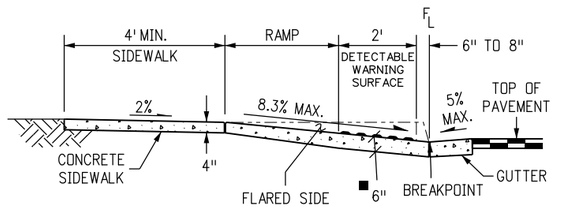
M-606-1

Sheet No. 20 of 20



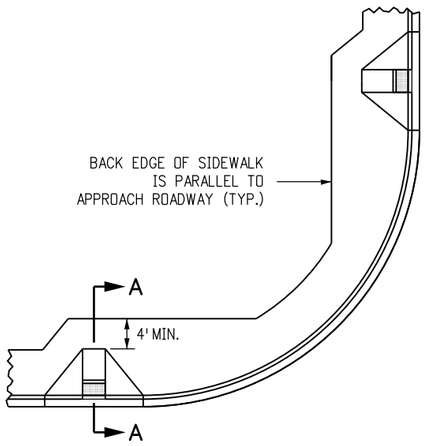
CURB RAMP TYPE 1A

SEE NOTE 9.

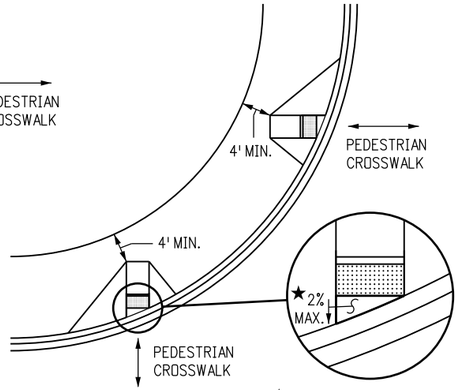


SECTION A-A

■ INCREASES TO 8" FOR BRICK PAVERS.



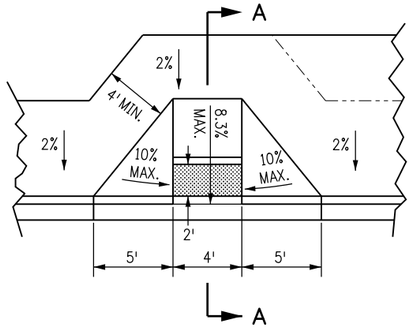
CURB RAMP TYPE 1B



★ SEE DETECTABLE WARNING PLACEMENT GUIDE DETAIL ON SHEET 7.

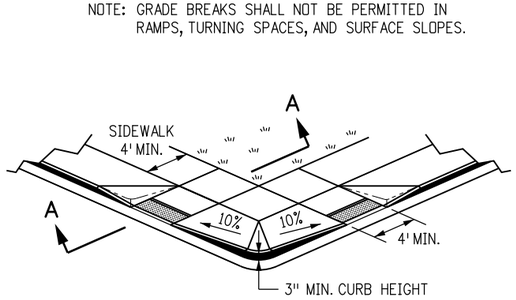
CURB RAMP TYPE 1B MODIFIED

NOTE: GRADE BREAKS SHALL NOT BE PERMITTED IN RAMPS, TURNING SPACES, AND SURFACE SLOPES.

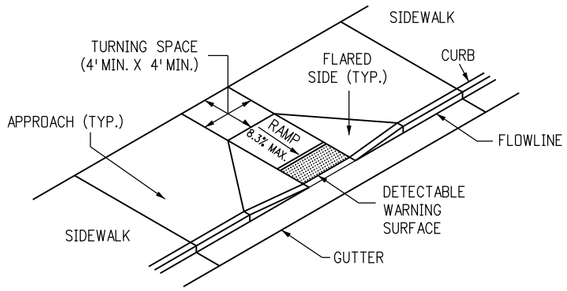


CURB RAMP TYPE 1B DETAIL

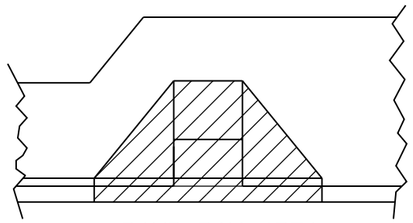
MAY BE USED IN MID-BLOCK.



CURB RAMP TYPE 1B OR 3B REDUCED CURB HEIGHT

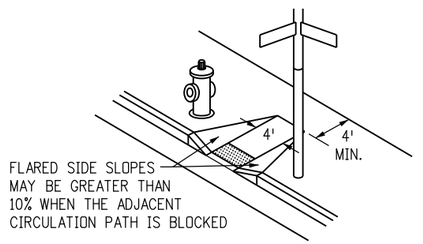


ISOMETRIC VIEW



RAMP PAY AREA

FOR CURB RAMPS TYPES 1A AND 1B.



STEEP FLARED SIDE SLOPES

SEE NOTE 15.

GENERAL NOTES

1. THE DETECTABLE WARNINGS SHALL BE INSTALLED AT SIDEWALK TO STREET TRANSITIONS. THEY SHALL HAVE A TRUNCATED DOME SURFACE. THE DOMES SHALL BE IN A SQUARE GRID PATTERN AND ALIGNED WITH PEDESTRIAN TRAFFIC.
2. ALL DETECTABLE WARNING SURFACES SHALL START A MINIMUM OF 6 INCHES FROM THE FLOWLINE OF THE CURB AND NOT BE MORE THAN A MAXIMUM OF 8 INCHES FROM ANY POINT ON THE FLOWLINE OF THE CURB, WITH EXCEPTION FOR TYPES 1B MODIFIED AND 3B MODIFIED CURB RAMPS AS THIS DIMENSION MAY BE GREATER THAN 8 INCHES ON ONE SIDE OF THE RADIUS.
3. THE RAMP SLOPE AND DETECTABLE WARNING SURFACE SHALL BE 8.3% OR FLATTER.
4. TOLERANCE LIMITS ON THE RAMP RUNNING SLOPE AND FLARED SIDE SLOPES SHALL BE +0.5% MAXIMUM. THE DEPARTMENT WILL MEASURE THE SLOPES AND THOSE EXCEEDING THE MAXIMUM TOLERANCE WILL NOT BE ACCEPTED.
5. THE MINIMUM WIDTH FOR SIDEWALK IS 4 FEET.
6. DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, OR OTHER OBSTRUCTIONS SHALL NOT BE INSTALLED IN THE CURB RAMP OR TURNING SPACE AREAS.
7. CONSTRUCTION OF THE CONCRETE PEDESTRIAN CURB SHALL BE INCLUDED IN THE BID PRICE OF THE CONCRETE CURB RAMP.
8. IF THE PLACEMENT OF THE PEDESTRIAN PUSH BUTTON ASSEMBLY ON A TRAFFIC SIGNAL MAST POLE WILL NOT BE WITHIN EASY REACH (10 INCHES OR LESS AND UNOBSTRUCTED) OF ALL PEDESTRIANS (IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT), THEN A SEPARATE PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA) SHALL BE INSTALLED WITHIN ADA REACH RANGES. THE PPBPA SHALL MEET THE PROVISIONS FOUND IN "SECTION 4E.08 THROUGH 4E.13 - PEDESTRIAN DETECTORS" OF THE 2009 MUTCD MANUAL WITH REVISIONS 1 AND 2.
9. DIAGONAL CURB RAMPS (ON THE APEX) ARE NOT PREFERRED IN NEW CONSTRUCTION. A SINGLE DIAGONAL CURB RAMP (ON THE APEX) WILL ONLY BE PERMITTED DURING RECONSTRUCTION OR ALTERATION WHERE PHYSICAL OR SITE CONSTRAINTS PREVENT TWO CURB RAMPS FROM BEING INSTALLED. THE ENGINEER SHALL PROVIDE APPROVED JUSTIFICATION DOCUMENTATION (CDOT CURB RAMP DESIGN VARIANCE REQUEST FORM). ALL CURB RAMPS INSTALLED ON THE APEX MUST MEET THE STANDARDS AS DEFINED IN M-608-1.
10. CURB RAMPS (EXCLUDING FLARED SIDES OR BLENDED TRANSITIONS) SHALL BE WHOLLY CONTAINED WITHIN THE WIDTH OF THE CROSSWALK AND/OR THE PEDESTRIAN STREET CROSSING THEY SERVE.
11. ALL CURB RAMP JOINTS AND GRADE BREAKS SHALL BE FLUSH (0" ±1/8"). THE JOINT BETWEEN THE ROADWAY SURFACE AND GUTTER PAN SHALL BE FLUSH.
12. THE CONTRACTOR SHALL VERIFY REMOVAL LIMITS ARE SUFFICIENT TO PROVIDE POSITIVE DRAINAGE, MAINTAIN EXISTING DRAINAGE PATTERNS, AND AVOID PONDING IN THE FINAL CONFIGURATION.
13. TO AVOID CHASING GRADE INDEFINITELY WHEN TRAVERSING THE HEIGHT OF CURB, THE RAMP LENGTH SHALL NOT EXCEED 15 FEET. ADJUST THE RAMP SLOPE AS NEEDED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT TECHNICALLY FEASIBLE.
14. THE CHANGE IN GRADE AT THE BOTTOM OF THE CURB RAMP AND ADJOINING ROAD SURFACE SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 13.33%. THE COUNTER SLOPE OF THE GUTTER OR ROAD AT THE FOOT OF A CURB RAMP, TURNING SPACE, OR BLENDED TRANSITION SHALL NOT EXCEED 5.0%
15. FLARED SIDE SLOPES MAY EXCEED 10% ONLY WHERE THEY ABUT A NON-WALKABLE SURFACE OR THE ADJACENT CIRCULATION PATH IS BLOCKED.
16. THE STANDARD TURNING SPACE IS 4 FEET BY 4 FEET. WHERE THE TURNING SPACE IS CONSTRAINED, THE TURNING SPACE SHALL BE 4 FEET MINIMUM BY 5 FEET MINIMUM. THE 5 FOOT DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

PERCENT SLOPE	1.0%	2.0%	5.0%	7.1%	8.3%	10.0%
EQUIVALENT SLOPE	100:1	50:1	20:1	14:1	12:1	10:1

SLOPE TABLE

Computer File Information	
Creation Date: 07/04/12 Initials: JBK	
Last Modification Date: 02/23/17 Initials: LTA	(R-X)
Full Path: www.coloradodot.info/business/designsupport	(R-X)
Drawing File Name: 6080101010.dgn	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

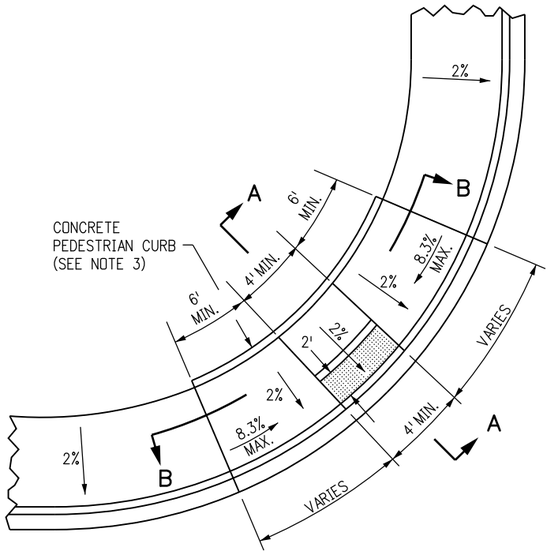
Sheet Revisions	
Date:	Comments
02/23/17	Added and revised the Curb Ramp details and General Notes.

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

CURB RAMPS

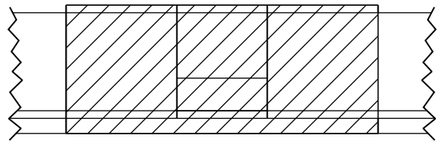
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1
Sheet No. 1 of 10



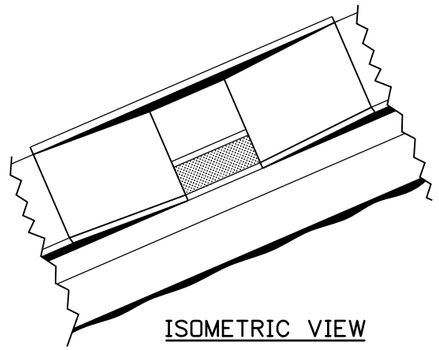
CURB RAMP TYPE 2A

SEE NOTE 2.



RAMP PAY AREA

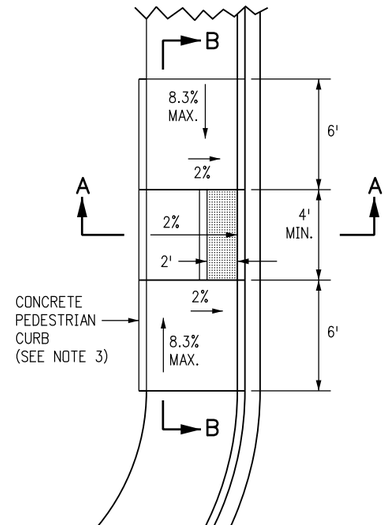
FOR CURB RAMP TYPES 2A AND 2B.

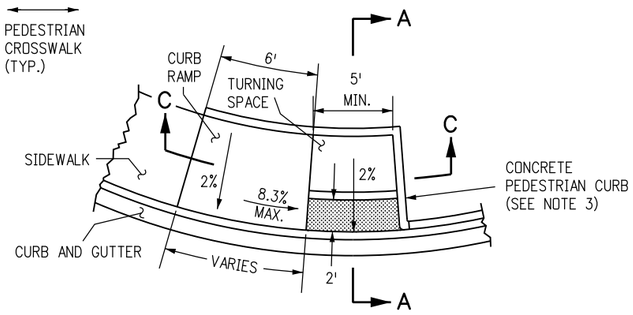


ISOMETRIC VIEW

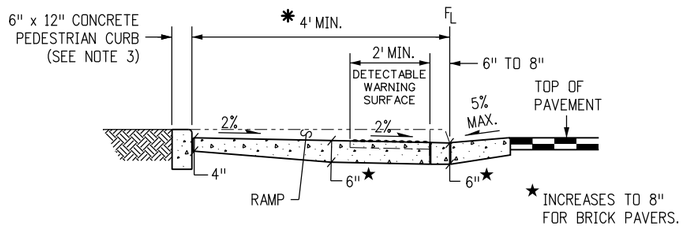
NOTES

1. CURB RAMP TYPE 2B MAY BE USED IN MID-BLOCK.
2. DIAGONAL CURB RAMPS (ON THE APEX) ARE NOT PREFERRED IN NEW CONSTRUCTION. A SINGLE DIAGONAL CURB RAMP (ON THE APEX) WILL ONLY BE PERMITTED DURING RECONSTRUCTION OR ALTERATION WHERE PHYSICAL OR SITE CONSTRAINTS PREVENT TWO CURB RAMPS FROM BEING INSTALLED. THE ENGINEER SHALL PROVIDE APPROVED JUSTIFICATION DOCUMENTATION (CDOT CURB RAMP DESIGN VARIANCE REQUEST FORM). ALL CURB RAMPS INSTALLED ON THE APEX MUST MEET THE STANDARDS AS DEFINED IN M-608-1.
3. THE PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE CURB RAMP OR LANDING IS THE SAME ELEVATION AS THE CURB RAMP OR LANDING AND THERE IS NO MATERIAL TO RETAIN.



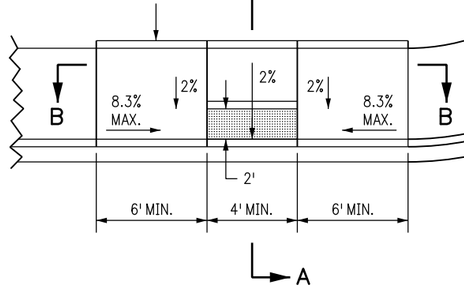


CURB RAMP TYPE 2C



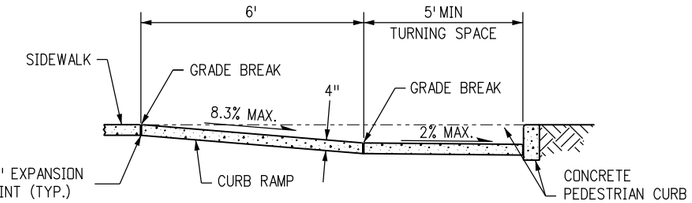
SECTION A-A

* SEE NOTE 16 ON SHEET 1.

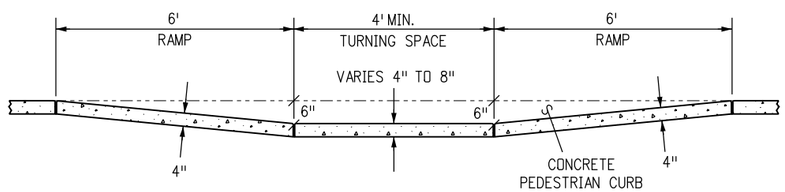


CURB RAMP TYPE 2B

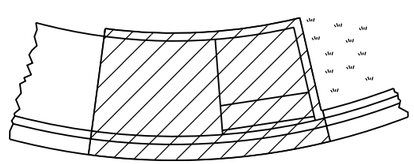
SEE NOTE 1.



SECTION C-C

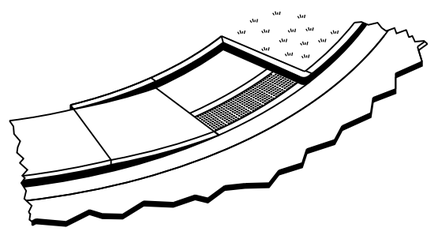


SECTION B-B



RAMP PAY AREA

FOR CURB RAMP TYPES 2C.



ISOMETRIC VIEW

Computer File Information		Sheet Revisions	
Creation Date: 12/01/16 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added and revised the Curb Ramp details and General Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6080102010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

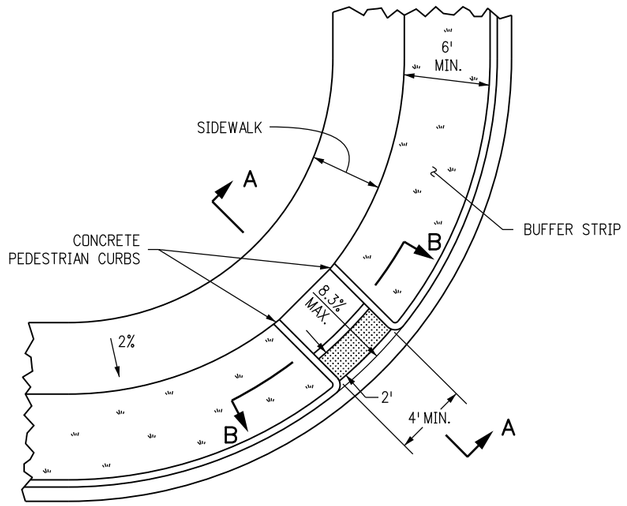
CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1
Sheet No. 2 of 10

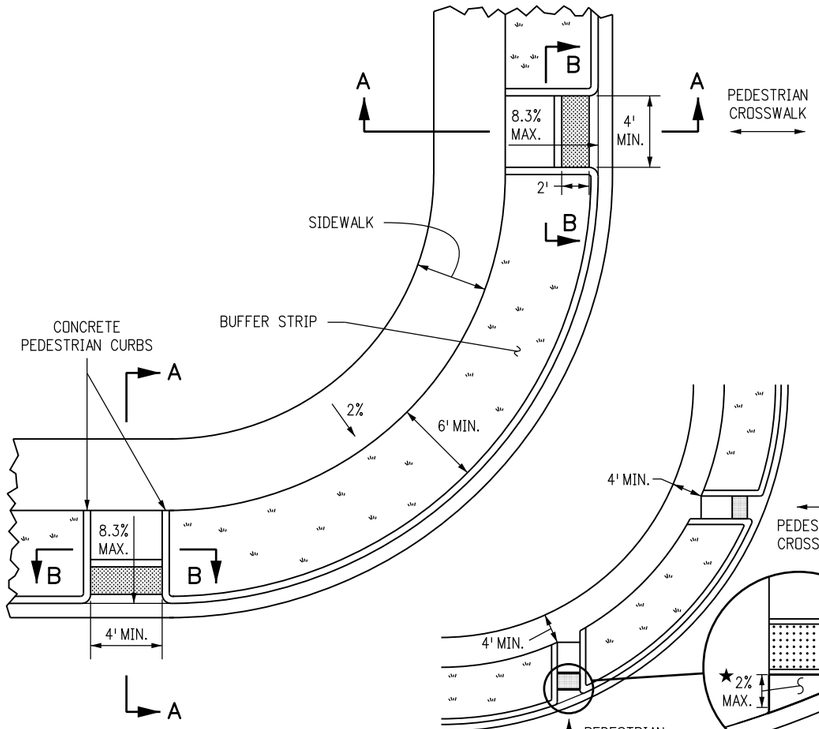
NOTES

1. CURB RAMP TYPE 3B MAY BE USED IN MID-BLOCK.
2. DIAGONAL CURB RAMPS (ON THE APEX) ARE NOT PREFERRED IN NEW CONSTRUCTION. A SINGLE DIAGONAL CURB RAMP (ON THE APEX) WILL ONLY BE PERMITTED DURING RECONSTRUCTION OR ALTERATION WHERE PHYSICAL OR SITE CONSTRAINTS PREVENT TWO CURB RAMPS FROM BEING INSTALLED. THE ENGINEER SHALL PROVIDE APPROVED JUSTIFICATION DOCUMENTATION (CDOT CURB RAMP DESIGN VARIANCE REQUEST FORM). ALL CURB RAMPS INSTALLED ON THE APEX MUST MEET THE STANDARDS AS DEFINED IN M-608-1.



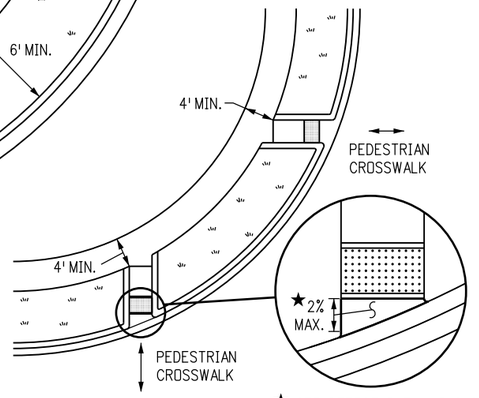
CURB RAMP TYPE 3A

SEE NOTE 2.



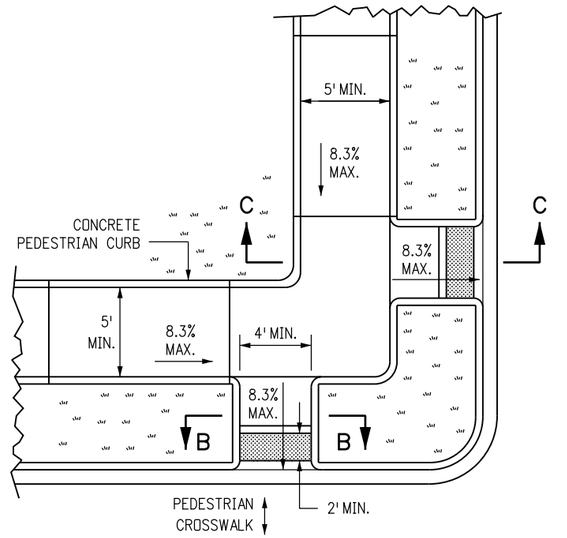
CURB RAMP TYPE 3B

SEE NOTE 1.

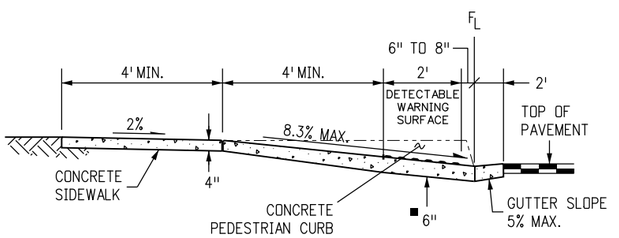


★ SEE DETECTABLE WARNING PLACEMENT GUIDE DETAIL ON SHEET 7.

CURB RAMP TYPE 3B MODIFIED

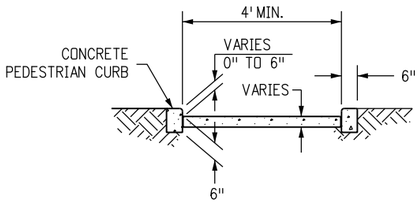


PLAN VIEW

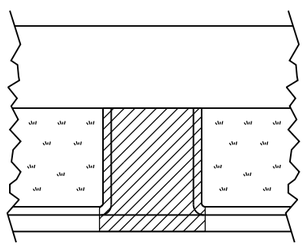


■ INCREASES TO 8" FOR BRICK PAVERS.

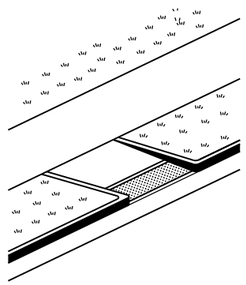
SECTION A-A



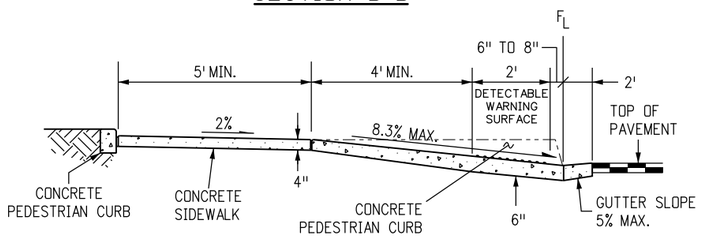
SECTION B-B



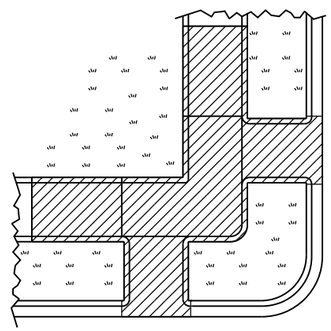
RAMP PAY AREA



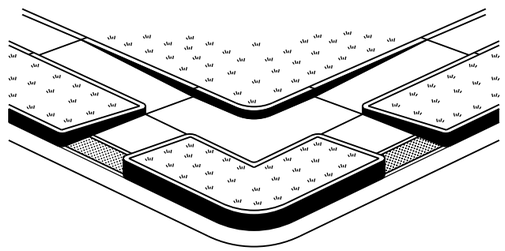
ISOMETRIC VIEW



SECTION C-C



RAMP PAY AREA



ISOMETRIC VIEW

CURB RAMP TYPE 3C (COMBINATION)

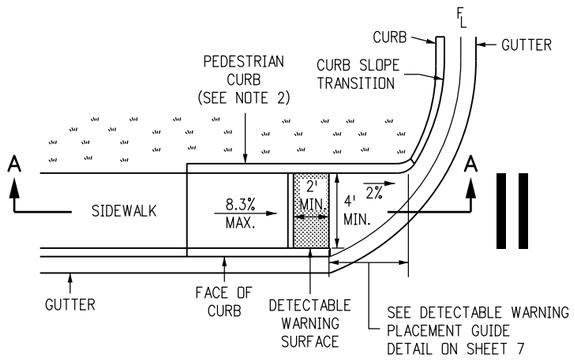
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added and revised the Curb Ramp details and General Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6080103010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

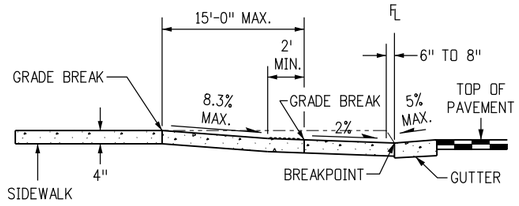
CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

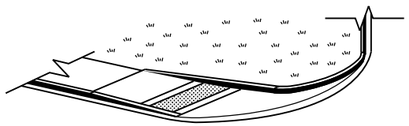
STANDARD PLAN NO.
M-608-1
Sheet No. 3 of 10



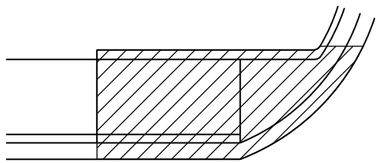
PLAN VIEW



SECTION A-A



ISOMETRIC VIEW

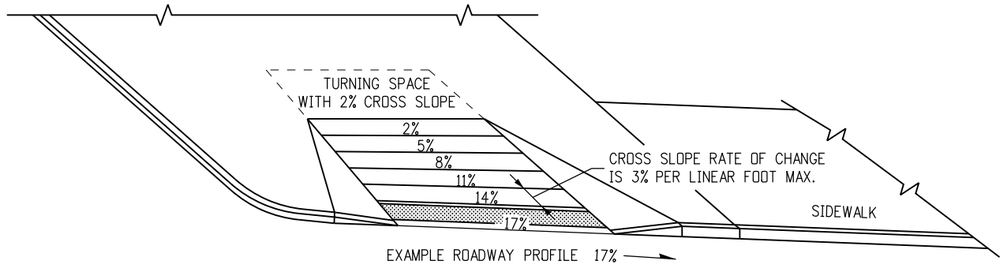


RAMP PAY AREA

CURB RAMP TYPE 4A

NOTES

1. RAMP GRADE BREAKS SHALL BE PERPENDICULAR TO THE RUNNING SLOPE.
2. PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE CURB RAMP AND TURNING SPACE WILL BE AT THE SAME ELEVATION AS THE CURB RAMP AND TURNING SPACE, OR THERE WILL NOT BE ANY MATERIAL TO RETAIN.

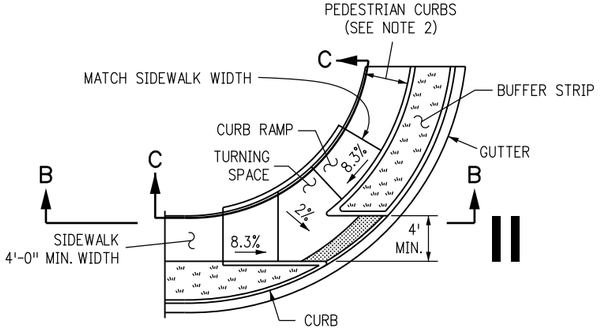


RAMP CROSS SLOPE TRANSITION TO MATCH ROADWAY PROFILE (APPLICABLE TO ALL CURB RAMP TYPES)

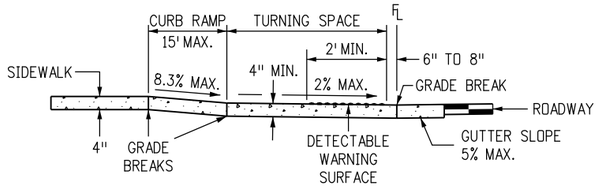
CURB RAMP CROSS SLOPES AND TURNING SPACES SHALL BE:

A. 2% MAX. WHEN A YIELD OR STOP CONTROL IS PRESENT.

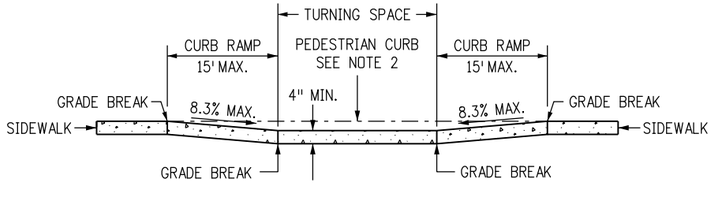
B. PERMITTED TO EQUAL THE ROADWAY GRADE WHEN THERE IS NO YIELD OR STOP CONTROL, WHEN A TRAFFIC SIGNAL IS PRESENT, OR AT A MIDBLOCK CROSSING LOCATION.



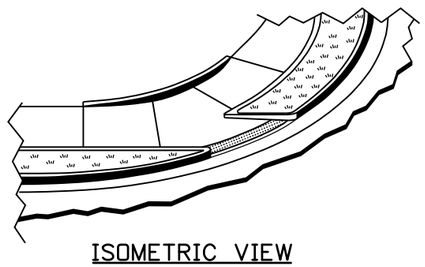
PLAN VIEW



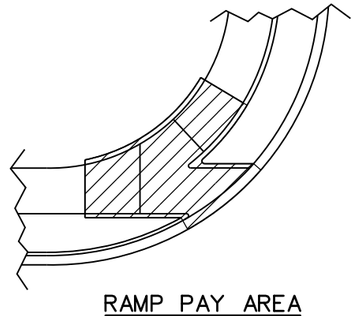
SECTION B-B



SECTION C-C



ISOMETRIC VIEW



RAMP PAY AREA

CURB RAMP TYPE 4B

FOR USE WHERE PEDESTRIAN CROSSING IS IN ONE DIRECTION ONLY.

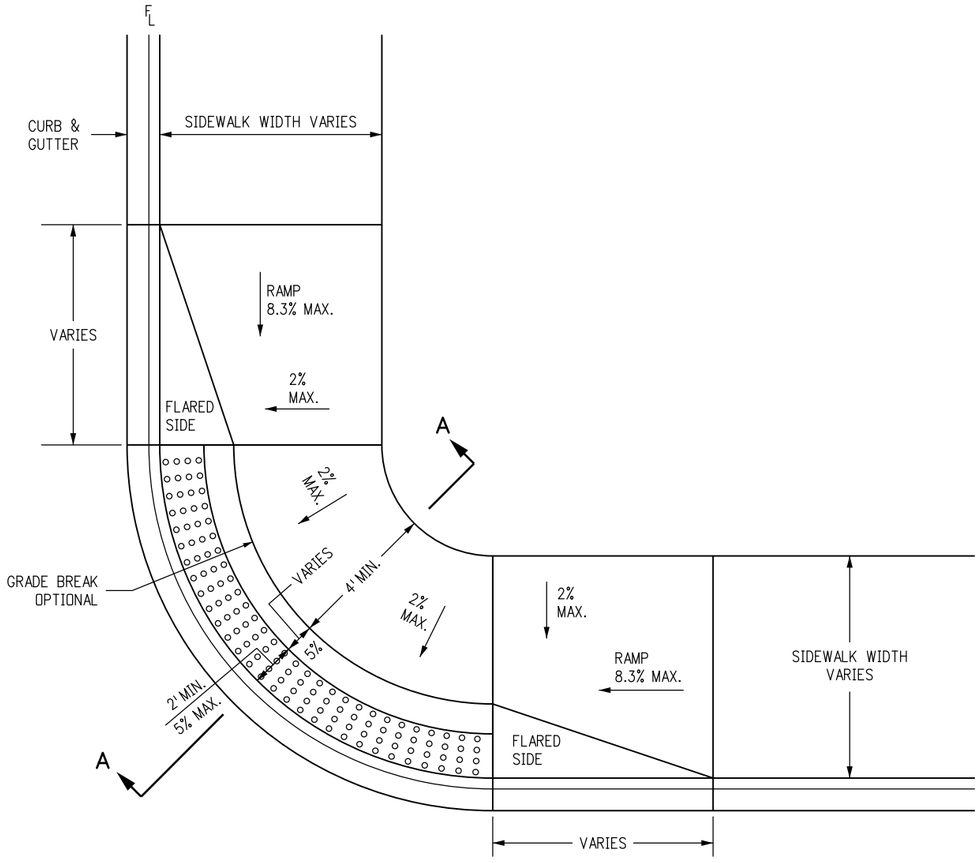
Computer File Information		Sheet Revisions	
Creation Date: 12/01/16 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added and revised the Curb Ramp details and General Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6080104010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

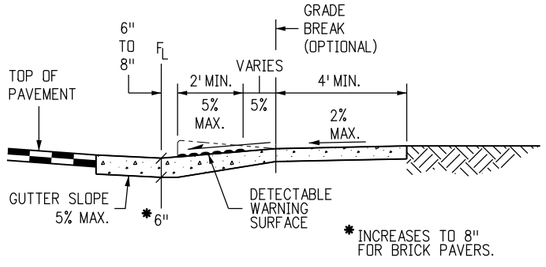
STANDARD PLAN NO.
M-608-1



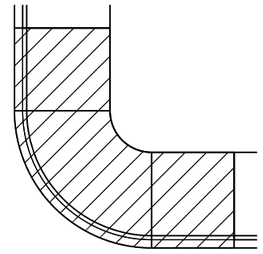
BLENDED TRANSITION (DEPRESSED CORNER) TYPE 5A

NOTES

1. SLOPES SHOWN AS TYPICAL IN SECTION A-A MAY BE ADJUSTED IF NECESSARY TO FIT EXISTING CONDITIONS BUT MAY NOT EXCEED 5% SLOPE UNDER ANY CONDITIONS.
2. ALL TRUNCATED DOME PANELS OR PAVERS PLACED AT THE SAME CORNER SHALL BE MADE UP OF THE SAME UNIFORM MATERIAL TYPE.
3. DEPRESSED CORNERS WITH LARGE SPANS CAN MAKE THE STREET TRANSITION DIFFICULT TO DETECT FOR PEDESTRIANS AND MOTORISTS. LIMIT THE SIZE AND DELINEATE WITH DETECTABLE WARNINGS. SHOULD A LARGE DEPRESSED CORNER BE AN EXISTING CONDITION, CONSIDER ADDING INTERMITTENT BARRIERS, SUCH AS PLANTING BOXES OR BOLLARDS NEXT TO THE CURB TO PREVENT VEHICLES FROM TRAVELING ONTO THE SIDEWALK WHEN TURNING THE CORNER. SPACE THE BARRIERS AT LEAST 36 INCHES APART TO PERMIT WHEELCHAIR USERS TO PASS.



SECTION A-A



RAMP PAY AREA

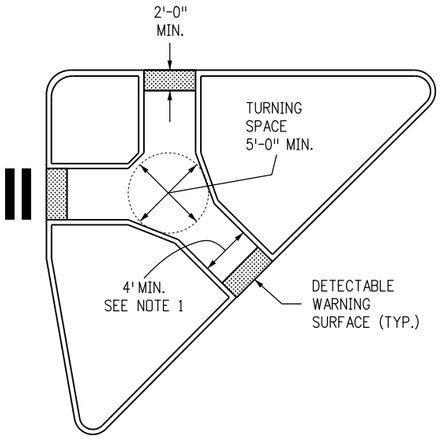
Computer File Information		Sheet Revisions	
Creation Date: 12/01/16 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added and revised the Curb Ramp details and General Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6080105010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

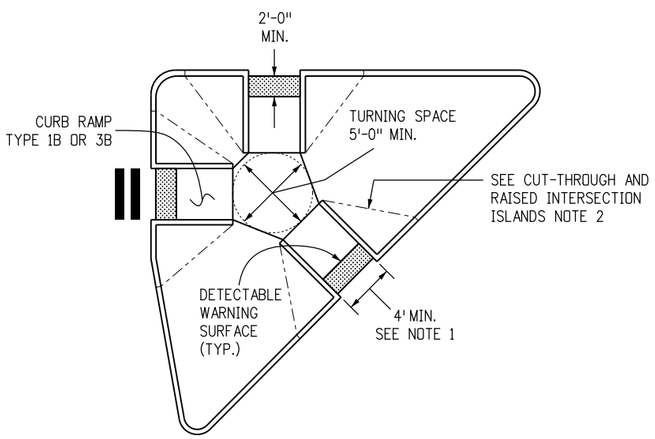
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

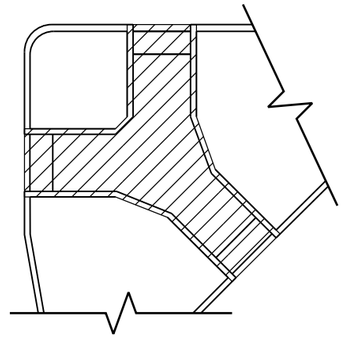
STANDARD PLAN NO.
M-608-1
Sheet No. 5 of 10





CUT-THROUGH AND RAISED INTERSECTION ISLANDS

1. FOR CUT-THROUGH INTERSECTION ISLANDS, THE DETECTABLE WARNING SURFACES SHALL BE AT THE FLOWLINE. FOR RAISED INTERSECTION ISLANDS, THE DETECTABLE WARNING SURFACES SHALL BE 6 TO 8 INCHES BACK FROM THE FLOWLINE (SEE SHEET 7).
2. FLARED SIDES ARE PREFERENTIAL ON RAISED INTERSECTION ISLANDS AND SHOULD BE PROVIDED FOR ISLANDS WHICH SERVE MULTI-USE PATHS OR AT LOCATIONS WHERE BICYCLE USE IS EXPECTED.

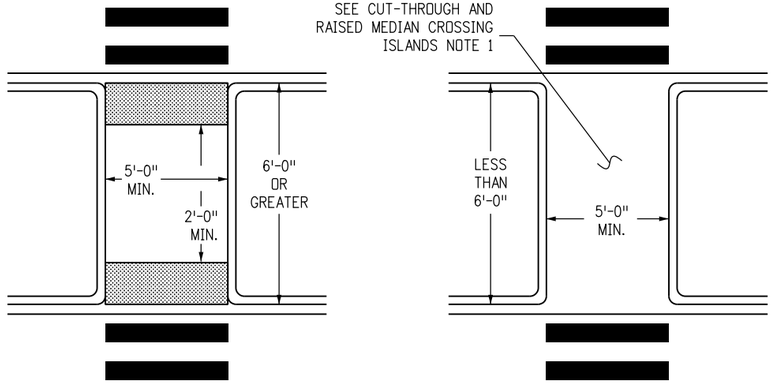


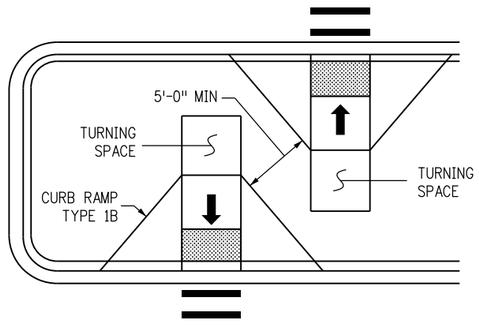
RAMP PAY AREA

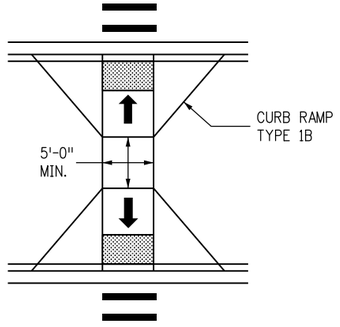
(WILL INCLUDE FLARED SIDES IF CONSTRUCTED)
SEE CURB RAMP TYPE 3B ON SHEET 3,
OR CURB RAMP TYPE 1B ON SHEET 1.

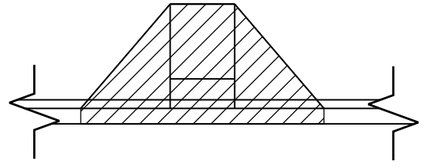
NOTE

1. CURB RAMP AND CUT-THROUGH WIDTHS SHOULD BE THE SAME WIDTH AS ANY SIDEWALK OR MULTI-USE PATHS WHICH THEY SERVE.









RAMP PAY AREA

SEE CURB RAMP TYPE 1B ON SHEET 1.

CUT-THROUGH AND RAISED MEDIAN CROSSING ISLANDS

1. FOR CUT-THROUGH MEDIAN CROSSING ISLANDS, DETECTABLE WARNING SURFACES SHALL BE PLACED AT THE EDGES OF THE ISLAND AND BE SEPARATED BY A MINIMUM 2 FOOT SPACE WITHOUT DETECTABLE WARNING SURFACES. IF A 2 FOOT SEPARATION BETWEEN DETECTABLE WARNING SURFACES CANNOT BE PROVIDED, THEN NO DETECTABLE WARNING SURFACES SHALL BE INSTALLED.

PERPENDICULAR CURB RAMPS FOR CROSSING ISLANDS

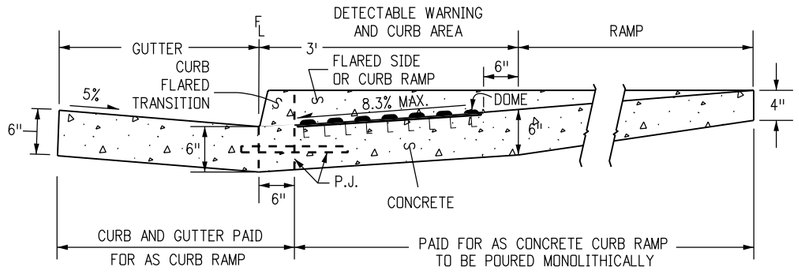
Computer File Information		Sheet Revisions	
Creation Date: 12/01/12 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added and revised the Curb Ramp details and General Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6080106010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

CURB RAMPS

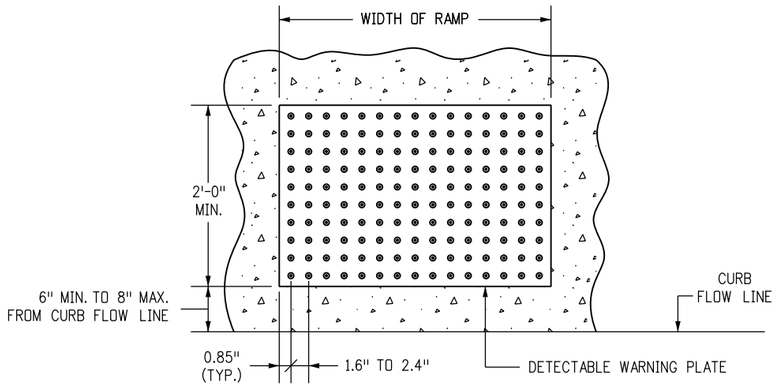
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1



P.J. = PERMISSIBLE JOINT WITH EPOXY-COATED DEFORMED NO. 4 BY 18 IN. BARS CONFORMING TO AASHTO M 284 AT 18 IN. SPACING.

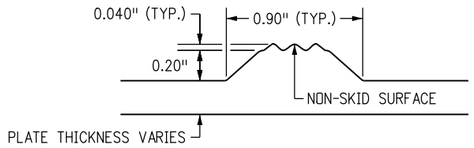
SECTION VIEW FOR TYPES 1 AND 3 CURB RAMPS



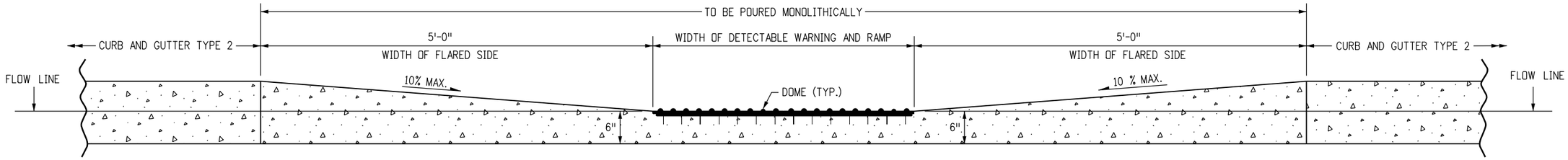
PLAN VIEW OF DETECTABLE WARNING SURFACE

NOTES

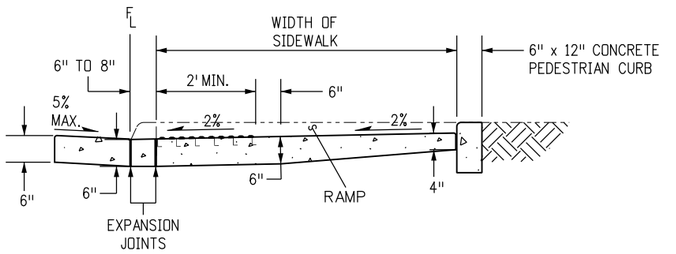
1. THE TRUNCATED DOME PLATE SHALL BE EMBEDDED IN THE CONCRETE CURB RAMP WHILE CONCRETE IS PLASTIC.
2. THE TRUNCATED DOME PLATE TO BE USED SHALL BE ON THE CDOT APPROVED PRODUCT LIST.
3. WHEN THE DETECTABLE WARNING SURFACE IS CUT, GRIND OFF THE REMAINING PORTION OF ANY CUT DOMES. SEAL ALL CUT PANEL EDGES WITH AN APPROVED PRODUCT LIST (APL) SEALANT TO PREVENT WATER DAMAGE.
4. THE DETECTABLE WARNING SURFACE SHALL SPAN THE ENTIRE WIDTH OF THE RAMP. IF CONDITIONS DO NOT ALLOW THE ENTIRE SPAN, THE DETECTABLE WARNING SURFACE SPAN SHALL NOT BE MORE THAN 2 INCHES AWAY FROM EACH SIDE OF RAMP.



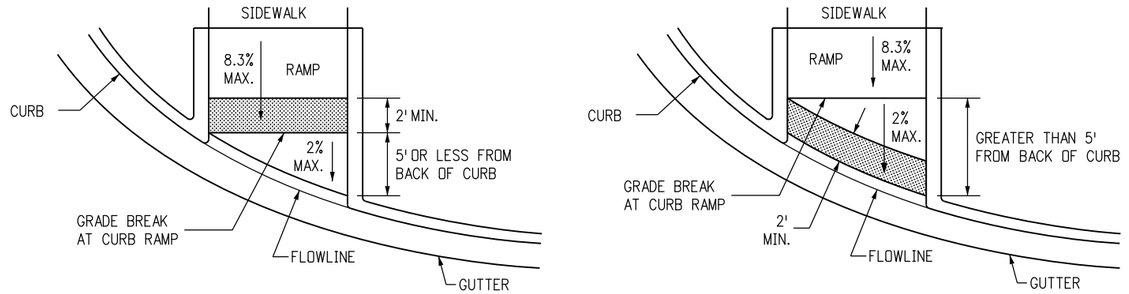
ELEVATION VIEW OF DETECTABLE WARNING PLATE



SECTION VIEW OF CURB RAMP TYPE 1



SECTION VIEW FOR TYPE 2 CURB RAMP



DETECTABLE WARNING PLACEMENT GUIDE FOR PAVERS AND PLATES

CURB RAMP TYPES WITH SURFACE PLATES

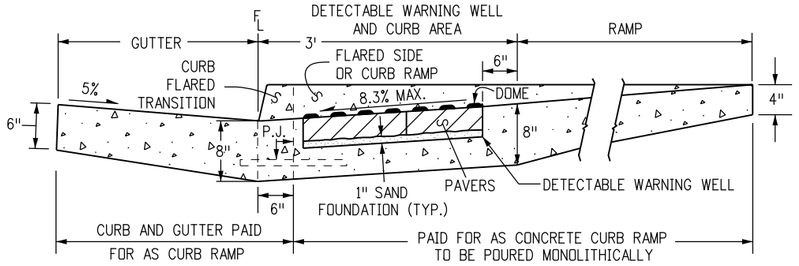
Computer File Information		Sheet Revisions	
Creation Date: 12/01/16 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added and revised the Curb Ramp details and General Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6080107010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

CURB RAMPS

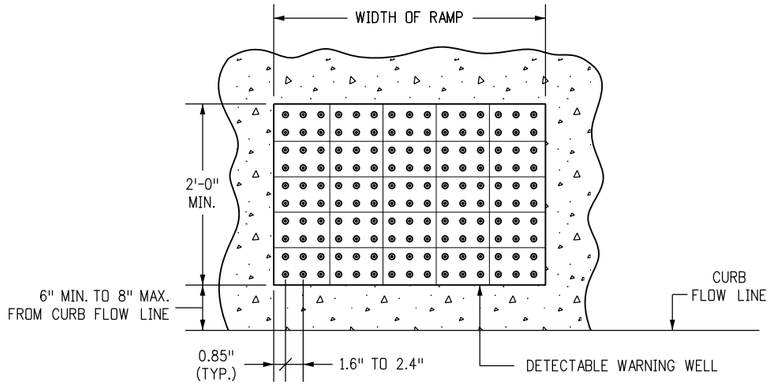
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1
Sheet No. 7 of 10



P.J. = PERMISSIBLE JOINT WITH EPOXY-COATED DEFORMED NO. 4 BY 18 IN. BARS CONFORMING TO AASHTO M 284 AT 18 IN. SPACING.

SECTION VIEW FOR TYPES 1 AND 3 CURB RAMPS

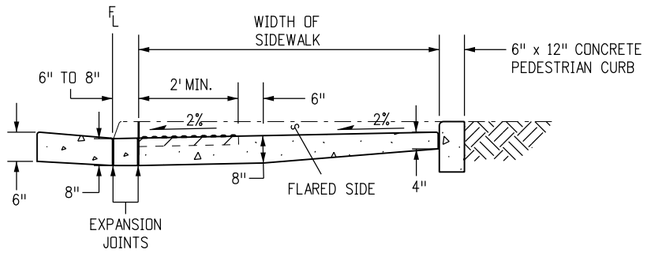


PLAN VIEW OF DETECTABLE WARNING AND WELL

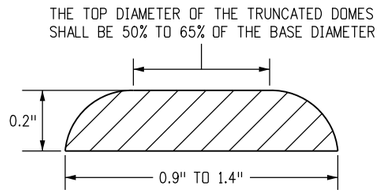
(PAVERS NOT DRAWN TO SCALE)

NOTES

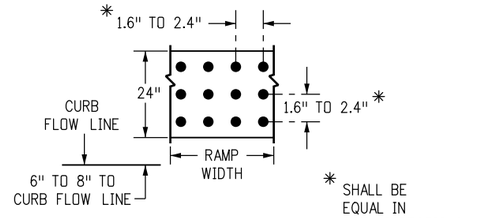
1. THE DETECTABLE WARNINGS SHALL BE BE MADE OF PAVERS WITH A TRUNCATED DOME SURFACE.
2. THE TOP OF THE DRAINAGE WEEP HOLE SHALL BE LOCATED AT THE LOWEST POINT OF THE DETECTABLE WARNING WELL.
3. THE DETECTABLE WARNING SURFACE SHALL SPAN THE ENTIRE WIDTH OF THE RAMP. IF CONDITIONS DO NOT ALLOW THE ENTIRE SPAN, THE DETECTABLE WARNING SURFACE SPAN SHALL NOT BE MORE THAN 2 INCHES AWAY FROM EACH SIDE OF RAMP.



DETAIL FOR TYPE 2 CURB RAMP

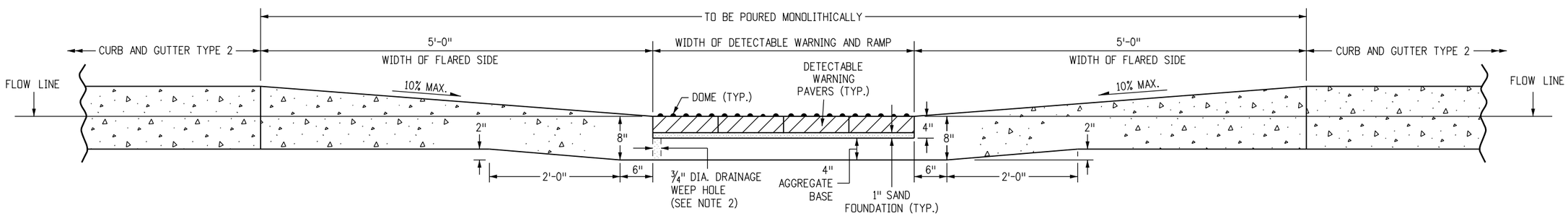


ELEVATION VIEW OF SINGLE DOME



PLAN VIEW

DOME AND DETECTABLE WARNING DETAILS



SECTION VIEW OF CURB RAMP TYPE 1

CURB RAMP TYPES WITH PAVERS

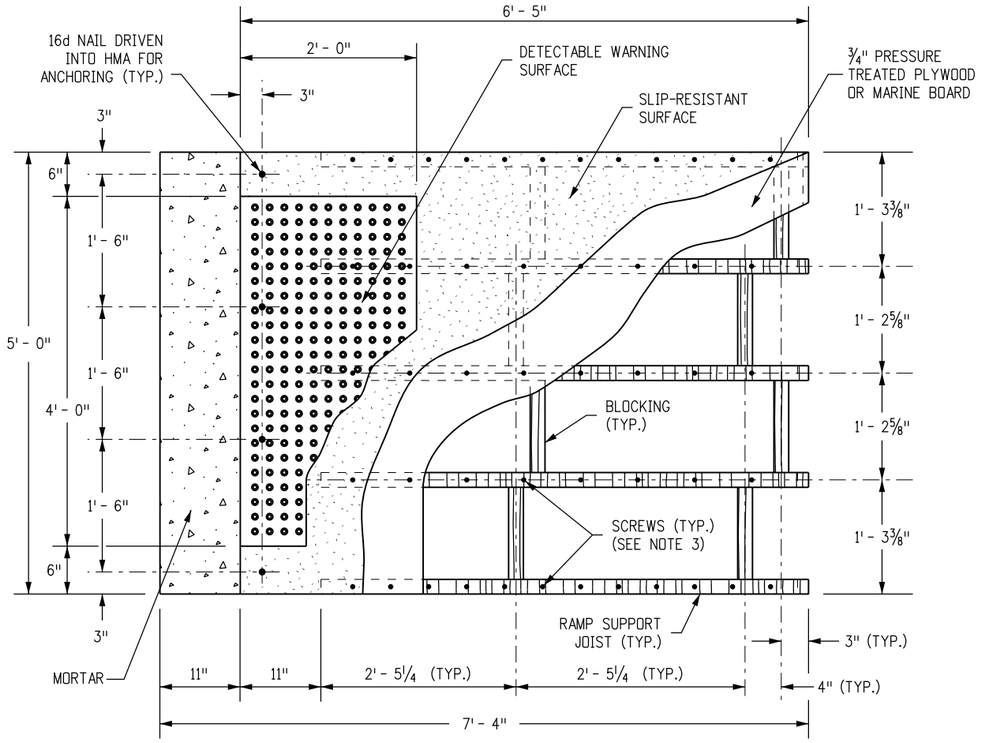
Computer File Information		Sheet Revisions	
Creation Date: 12/01/16 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added and revised the Curb Ramp details and General Notes.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6080108010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

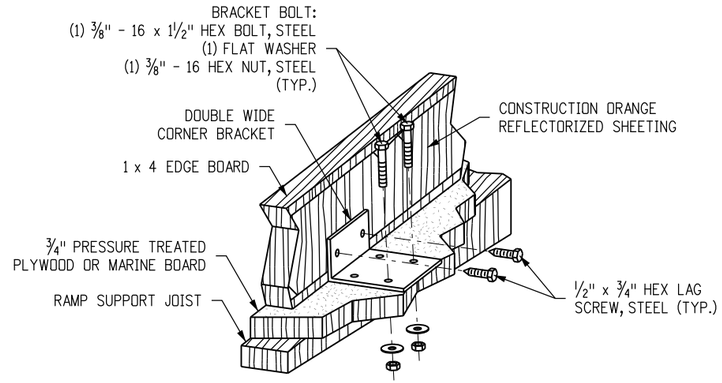
STANDARD PLAN NO.
M-608-1
Sheet No. 8 of 10



TOP VIEW

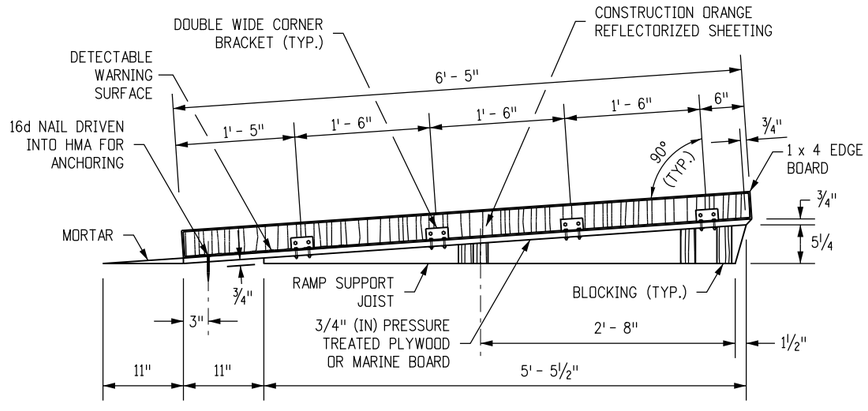
NOTES

1. A TEMPORARY PEDESTRIAN ACCESS ROUTE SHALL BE PROVIDED WHENEVER THE EXISTING PEDESTRIAN ACCESS ROUTE IN THE PUBLIC RIGHT-OF-WAY IS BLOCKED BY CONSTRUCTION, ALTERATION, MAINTENANCE, OR OTHER TEMPORARY CONDITIONS. FOR FURTHER WORK ZONE INFORMATION, PLEASE REFER TO CDOT'S WEBPAGE TITLED "ADA IN WORK ZONES".
2. THIS DESIGN ASSUMES OPTIMAL CONDITIONS AND A STANDARD CURB HEIGHT OF 6 INCHES. INSTALLED RAMPS SHALL BE NO STEEPER THAN 8.3% AND SHALL HAVE A CROSS-SLOPE OF 2.0% OR LESS. USE SHIMS OR GROUT AS REQUIRED TO ADJUST FOR EXISTING CONDITIONS AND TO PREVENT ROCKING. SHIMS SHALL BE NO HIGHER THAN 1 INCH AND SHALL BE SECURED TO THE RAMP. FOR CURBS SHORTER THAN 6 INCHES, INSTALL A RAMP ON THE SIDEWALK NO STEEPER THAN 8.3%, AND MADE OF GROUT OR AS APPROVED BY THE ENGINEER. ADJUSTMENTS TO THE RAMP DIMENSIONS SHOWN MAY BE REQUIRED TO MATCH EXISTING CONDITIONS.
3. SCREWS SHALL BE USED TO SECURE THE RAMP SURFACE. SPACING SHALL BE IN ACCORDANCE WITH THE CURRENT BUILDING CODE.
4. USE A SLIP-RESISTANT TREATMENT FOR THE SURFACE OF RAMP.
5. ALL FASTENERS SHALL BE GALVANIZED.
6. DO NOT INSTALL A HAND RAILING IF USING THE EDGE BOARD OPTION.



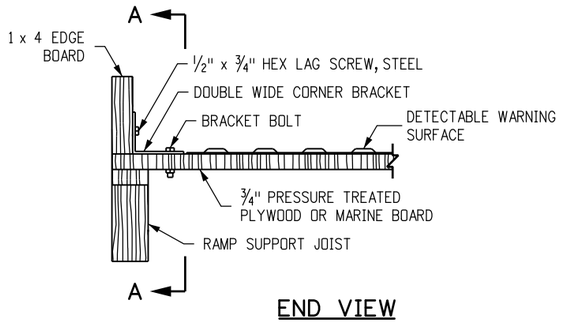
SECTION A-A

PERSPECTIVE VIEW

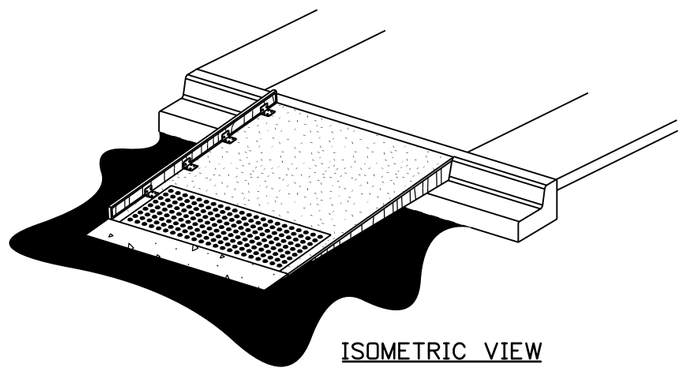


SIDE VIEW

RAMP AND EDGE BOARD



END VIEW



ISOMETRIC VIEW

TEMPORARY PERPENDICULAR CURB RAMP

Computer File Information		Sheet Revisions	
Creation Date: 12/01/16 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added this sheet.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6080109010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

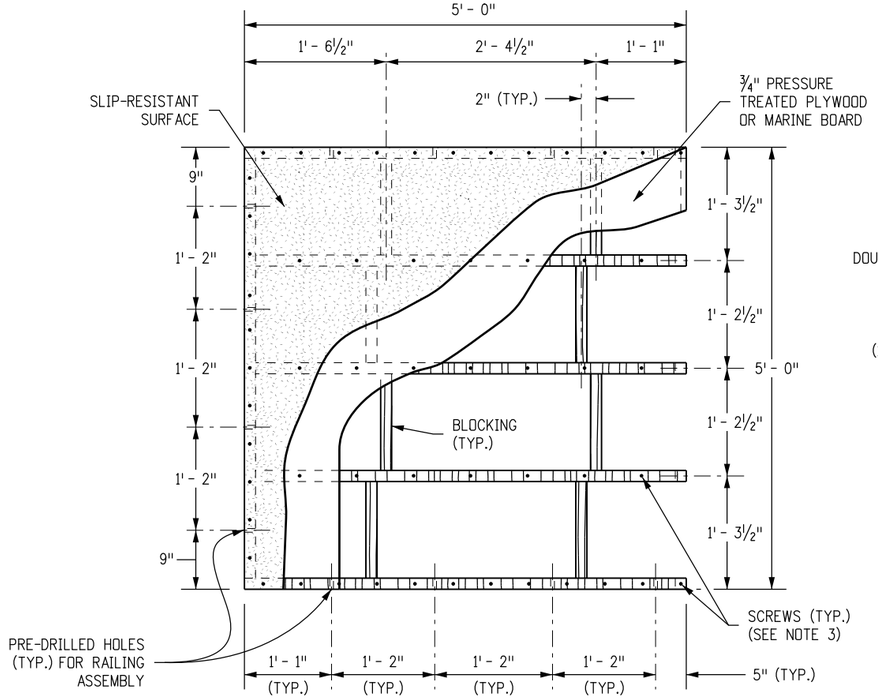
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

CURB RAMPS

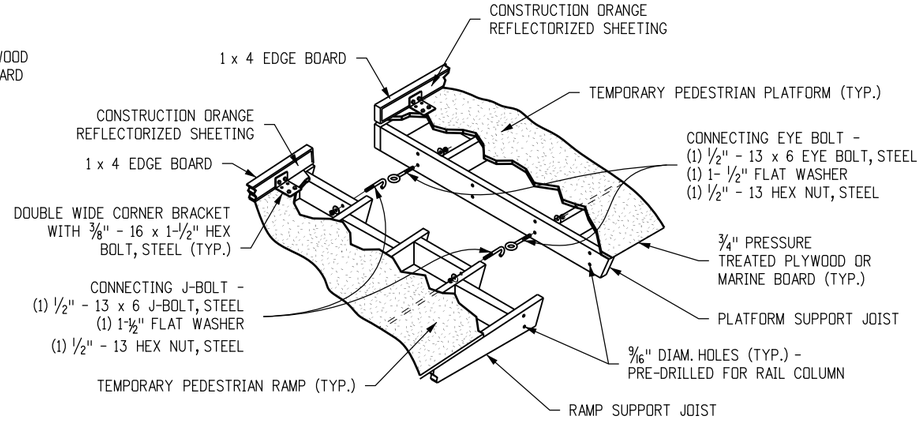
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.

M-608-1



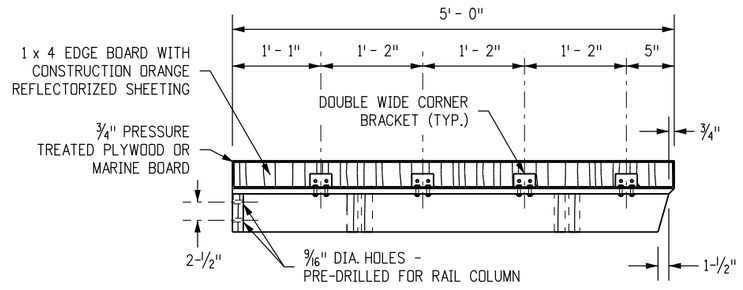
PLAN VIEW



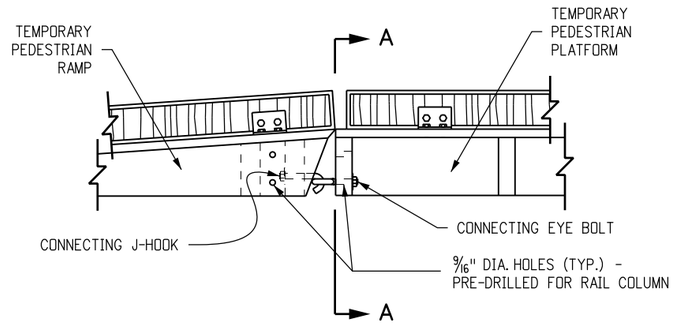
SECTION A-A
PERSPECTIVE VIEW

NOTES

1. ALL HOLES SHOWN SHALL BE DRILLED TO FACILITATE RE-USE AND FLEXIBLE EXPANSION.
2. THIS DESIGN ASSUMES OPTIMAL CONDITIONS AND A STANDARD CURB HEIGHT OF 6 INCHES. INSTALLED RAMPS SHALL BE NO STEEPER THAN 8.3% AND SHALL HAVE A CROSS-SLOPE OF 2.0% OR LESS. USE SHIMS OR GROUT AS REQUIRED TO ADJUST FOR EXISTING CONDITIONS AND TO PREVENT ROCKING. SHIMS SHALL BE NO HIGHER THAN 1 INCH AND SHALL BE SECURED TO THE RAMP AND/OR PLATFORM. FOR CURBS SHORTER THAN 6 INCHES, INSTALL A RAMP ON THE SIDEWALK, NO STEEPER THAN 8.3%, AND MADE OF GROUT OR AS APPROVED BY THE ENGINEER. ADJUSTMENTS TO THE PLATFORM DIMENSIONS SHOWN MAY BE REQUIRED TO MATCH EXISTING CONDITIONS.
3. SCREWS SHALL BE USED TO SECURE THE RAMP SURFACE. SPACING SHALL BE IN ACCORDANCE WITH THE CURRENT BUILDING CODE.
4. USE A SLIP-RESISTANT TREATMENT FOR SURFACE OF RAMP.
5. ALL FASTENERS SHALL BE GALVANIZED.

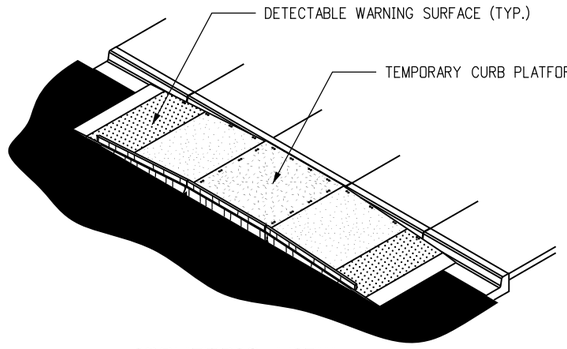


ELEVATION VIEW

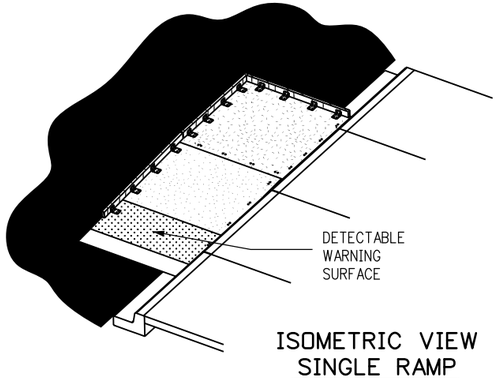


SIDE VIEW

PLATFORM DETAILS



ISOMETRIC VIEW
DUAL RAMP



ISOMETRIC VIEW
SINGLE RAMP

TEMPORARY PARALLEL CURB RAMPS (SINGLE OR DUAL)

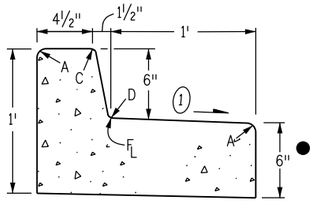
Computer File Information		Sheet Revisions	
Creation Date: 12/01/16 Initials: JBK		Date:	Comments
Last Modification Date: 02/23/17 Initials: LTA	(R-X)	02/23/17	Added this sheet.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 60801010010.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9021
Fax: (303) 757-9820
Project Development Branch JBK/LTA

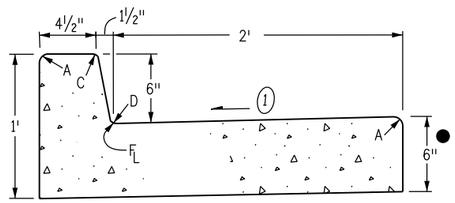
CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

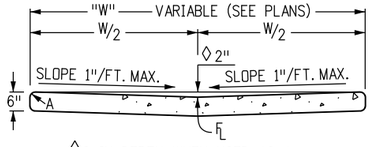
STANDARD PLAN NO.
M-608-1
Sheet No. 10 of 10



CURB AND GUTTER TYPE 2
(SECTION IB)
(6 IN. BARRIER - 1 FT. GUTTER)

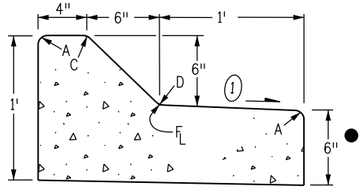


CURB AND GUTTER TYPE 2
(SECTION IIB)
(6 IN. BARRIER - 2 FT. GUTTER)

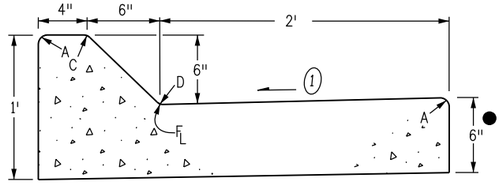


◊ 2 IN. DEPTH WHEN USED AS A CROSSPAN IN AN INTERSECTION

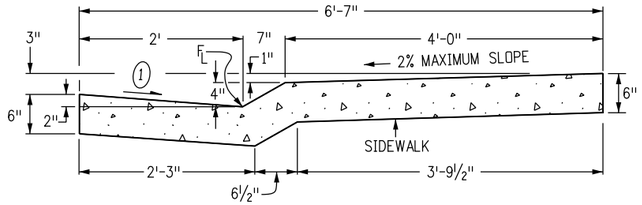
GUTTER TYPE 2



CURB AND GUTTER TYPE 2
(SECTION IM)
(6 IN. MOUNTABLE - 1 FT. GUTTER)



CURB AND GUTTER TYPE 2
(SECTION IIM)
(6 IN. MOUNTABLE - 2 FT. GUTTER)



CURB AND GUTTER TYPE 2
(SECTION MS)
(4 IN. MOUNTABLE WITH SIDEWALK)

GENERAL NOTES

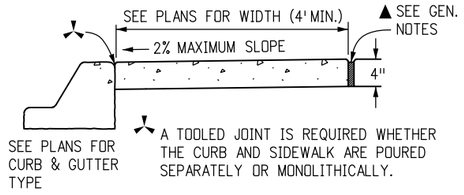
1. ON ROADWAY CURVES WITH A RADIUS OF 1,900 FT. OR LESS, CURBS AND GUTTERS ARE TO BE PLACED ON THE ARC OF THE CURVE, UNLESS OTHERWISE NOTED ON THE PLANS. A MAXIMUM CHORD LENGTH OF 10 FT. MAY BE USED WHEN THE CURVE RADIUS IS GREATER THAN 1,900 FT.
2. CONCRETE SHALL BE CLASS B.
3. PROFILE GRADE OF CURBS AND GUTTERS SHALL BE LOCATED AT THE FLOW LINE.
4. CURB TYPE 4 (KEY-WAY) MAY BE USED IN LIEU OF CURB AND GUTTER TYPE 2 (SECTIONS IB AND IM) UNLESS OTHERWISE SPECIFIED ON THE PLANS.
5. GUTTER CROSS SLOPES MAY BE ADJUSTED TO FACILITATE DRAINAGE FOR PROFILE GRADES AS SHOWN ON THE PLANS.
6. THICKNESS OF CURB AND GUTTER SECTION SHALL MATCH CONCRETE PAVEMENT THICKNESS IF SHOWN ON THE PLANS. CURB AND GUTTER SHALL BE CLASS P CONCRETE IF PLACED MONOLITHICALLY WITH CONCRETE PAVEMENT.
7. INCREASE SIDEWALK THICKNESS TO 6 IN. AT LOCATIONS SHOWN ON THE PLANS.
8. MINIMUM SIDEWALK WIDTH IS 4 FT.

▲ EXPANSION JOINTS SHALL BE INSTALLED WHEN ABUTTING EXISTING CONCRETE OR FIXED STRUCTURE. EXPANSION JOINT MATERIAL SHALL BE ½ IN. THICK AND SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE.

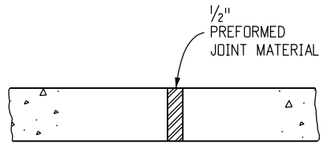
(1) GUTTER CROSS SLOPES SHALL BE ½ IN./FT. WHEN DRAINING AWAY FROM CURB AND 1 IN./FT. WHEN DRAINING TOWARD CURB (WITH EXCEPTION TO IMMEDIATELY ADJACENT TO CURB RAMPS - SEE STANDARD PLAN M-608-1 FOR SLOPE REQUIREMENTS).

● WHEN TIE BARS ARE REQUIRED, THE GUTTER THICKNESS SHALL BE INCREASED TO THE PAVEMENT THICKNESS (T). BARS SHALL BE EPOXY-COATED #4 CONFORMING TO AASHTO M 284 AND SPACED AT 3 FT. INTERVALS. THEY SHALL BE INSERTED T/2 AND 1#2 LENGTH INTO THE GUTTER.

LEGEND FOR RADII
A = 1/8" TO 1/4"
B = 1"
C = 1½"
D = 1½" TO 2"



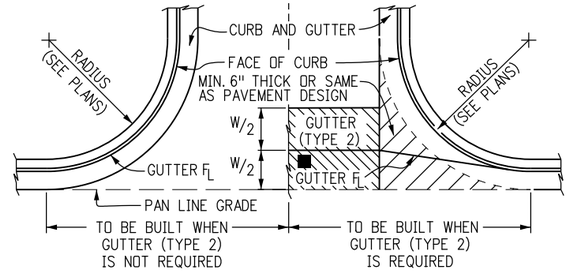
CONCRETE SIDEWALK



NOTES: 1. EXPANSION JOINTS SHALL BE PLACED IN THE SIDEWALK AT INTERVALS OF NOT MORE THAN 500 FT.

2. EXPANSION JOINTS MAY BE SEALED WHEN SPECIFIED ON THE PLANS.

SIDEWALK EXPANSION JOINT



▨ THIS AREA SHALL BE POURED MONOLITHICALLY WITH CURB AND GUTTER AND PAID FOR AS "CONCRETE PAVEMENT".

■ FLOW LINE LOCATION WILL BE ESTABLISHED BY W/2 SHOWN ON PLANS.

CONSTRUCTION OF CONCRETE GUTTERS AT INTERSECTION

Computer File Information		
Creation Date: 07/04/12	Initials: DLM	
Last Modification Date: 05/16/14	Initials: LTA	(R-X)
Full Path: www.coloradodot.info/business/designsupport		(R-X)
Drawing File Name: 609010104.dgn		(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)

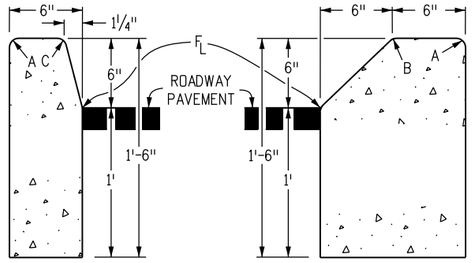
Sheet Revisions	
Date:	Comments
07/24/12	Changed Tie Bar spacing from 30" to 36".
05/16/14	Revised Gutter Cross Slope Note to exclude ADA Ramp

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DLM/LTA

CURB, GUTTERS, AND SIDEWALKS

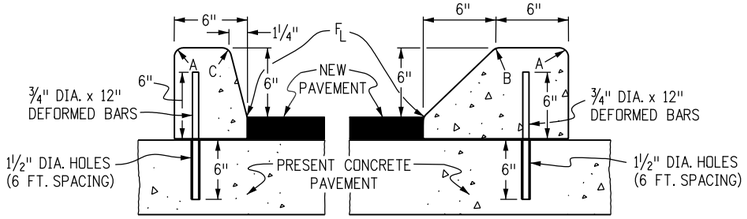
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-609-1
Sheet No. 1 of 4



CURB TYPE 2
(SECTION B)
6 IN. BARRIER

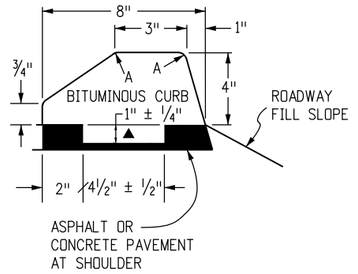
CURB TYPE 2
(SECTION M)
6 IN. MOUNTABLE

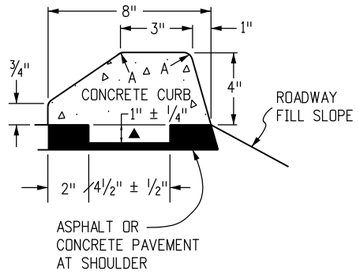


¾" DIA. x 12" DEFORMED REINFORCING BARS AT 6 FT. SPACING SHALL BE GROUTED IN 1¼" DIA. HOLES IN EXISTING CONCRETE. GROUT SHALL CONSIST OF 2 PARTS CLEAN SAND AND 1 PART CEMENT. COST OF INSTALLATION SHALL BE INCLUDED IN THE PRICE BID FOR CURB.

CURB TYPE 4
(SECTION B)
6 IN. BARRIER

CURB TYPE 4
(SECTION M)
6 IN. MOUNTABLE



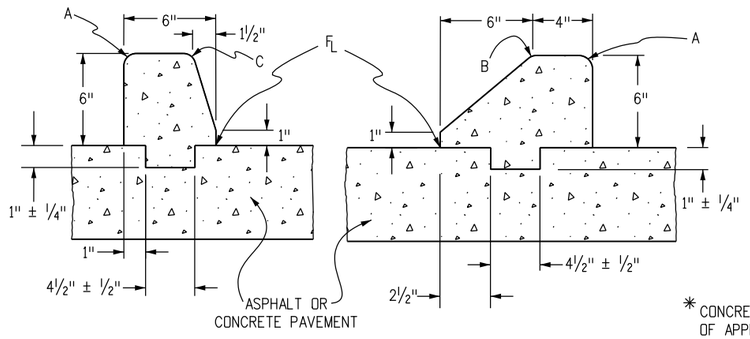


CURB TYPE 6
(SECTION M)
4 IN. MOUNTABLE

NOTE: BITUMINOUS OR CONCRETE * UNLESS OTHWISE SPECIFIED ON THE PLANS.

▲ KEY-WAY MAY BE OMITTED WHEN PLACED UNDER GUARDRAIL.

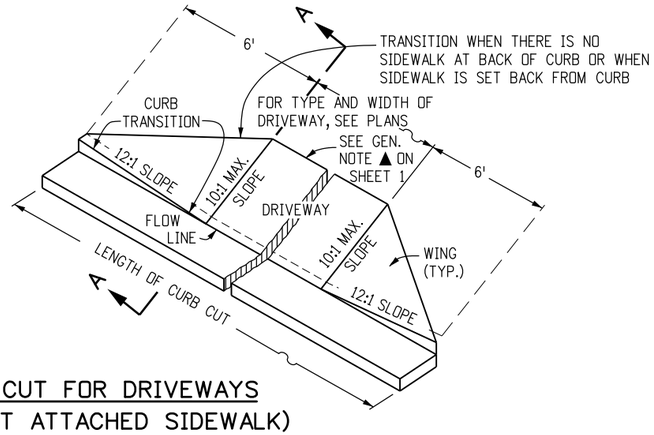
LEGEND FOR RADII
A = 1/8 TO 1/4"
B = 1"
C = 1½"
D = 1½" TO 2"



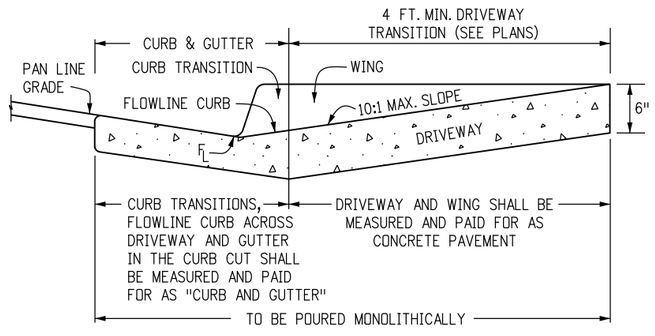
(SECTION B) (SECTION M)

CURB TYPE 4 (KEY-WAY) *

* CONCRETE CLASS B SHALL CONTAIN 1.5 POUNDS PER CUBIC YARD OF APPROVED POLYPROPYLENE FIBERS AND MAY HAVE A NOMINAL AGGREGATE SIZE OF ⅜ IN.

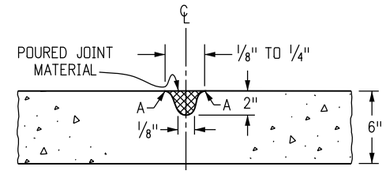


CURB CUT FOR DRIVEWAYS
(WITHOUT ATTACHED SIDEWALK)



SECTION A-A

CONCRETE PAVEMENT (DRIVEWAYS)



NOTE: RECOMMENED JOINT SPACING IS EVERY 8 FOOT ALONG THE WIDTH AND LENGTH OF DRIVEWAY. FOR DRIVEWAYS WIDER THAN 12 FEET, JOINTS ARE REQUIRED.

TRANSVERSE CONTRACTION JOINT
FOR CONCRETE PAVEMENT (DRIVEWAYS)

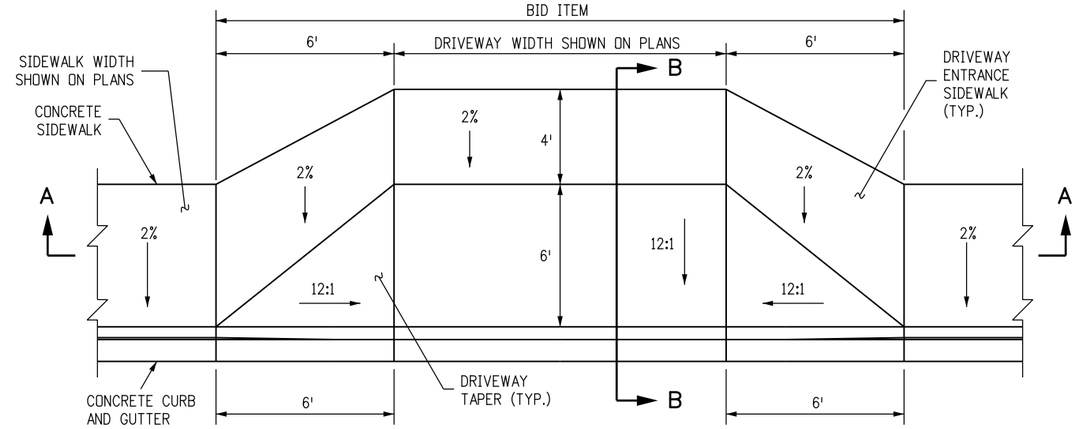
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DD		Date:	Comments
Last Modification Date: 07/04/12 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 609010204.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

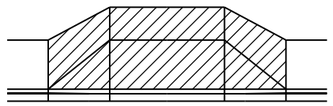
CURB, GUTTERS, AND SIDEWALKS

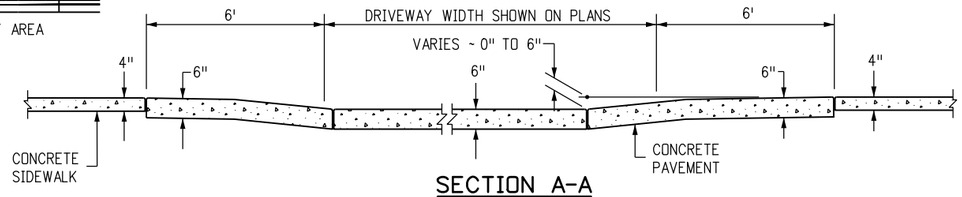
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-609-1
Sheet No. 2 of 4

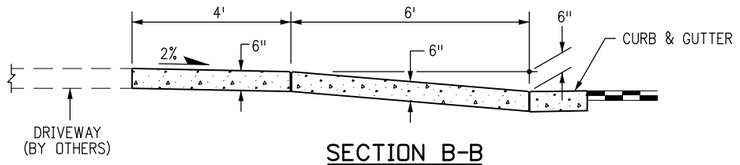


CONCRETE DRIVEWAY ENTRANCE TYPE 1

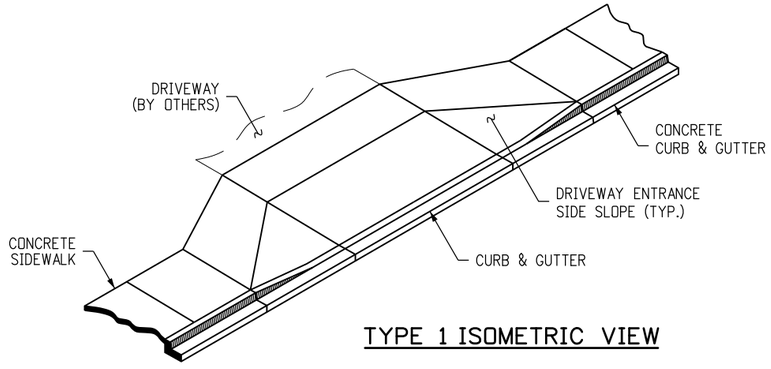




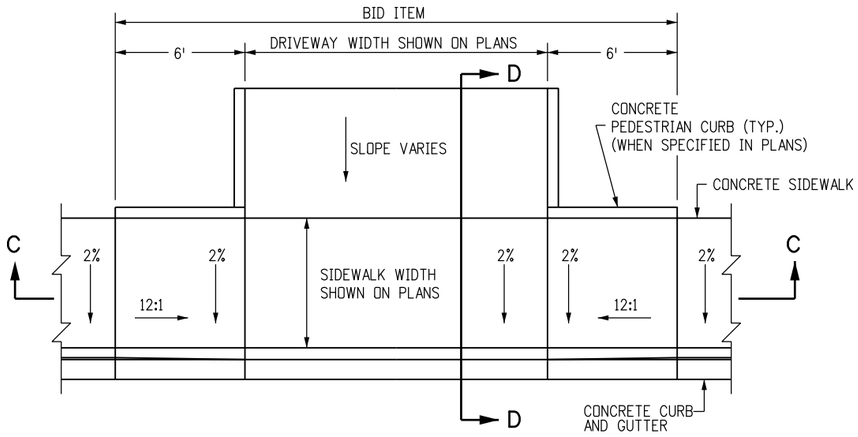
SECTION A-A



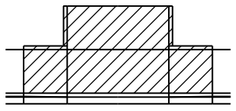
SECTION B-B

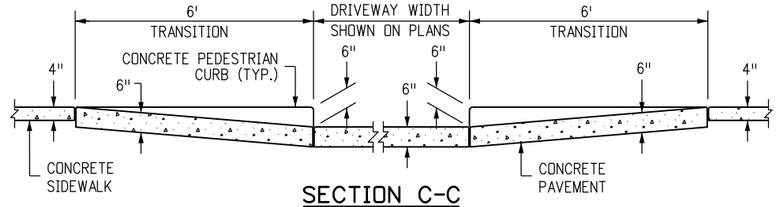


TYPE 1 ISOMETRIC VIEW

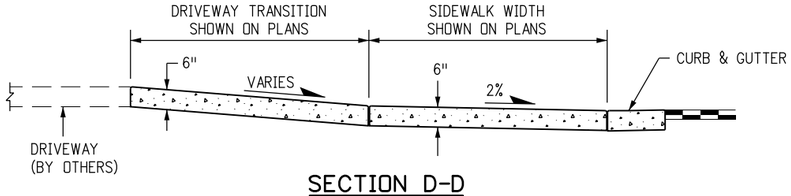


CONCRETE DRIVEWAY ENTRANCE TYPE 2

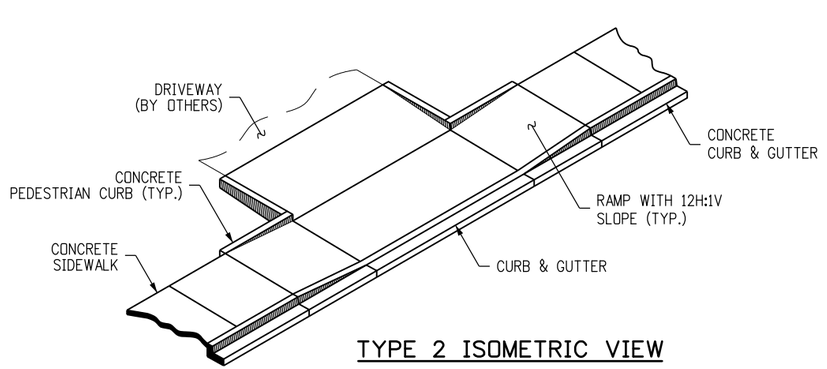




SECTION C-C



SECTION D-D



TYPE 2 ISOMETRIC VIEW

NOTES

1. DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, AND OTHER OBSTRUCTIONS SHOULD NOT BE PLACED IN FRONT OF THE DRIVEWAY RAMP ACCESS AREAS.
2. FOR THE CURB AND GUTTER SHOWN, SEE PLANS FOR CURB TYPE.
3. RAMP SLOPES SHALL BE 12:1 OR FLATTER.
4. CONSTRUCTION OF THE CONCRETE PEDESTRIAN CURB SHALL BE INCLUDED IN THE BID PRICE OF THE CONCRETE PAVEMENT.

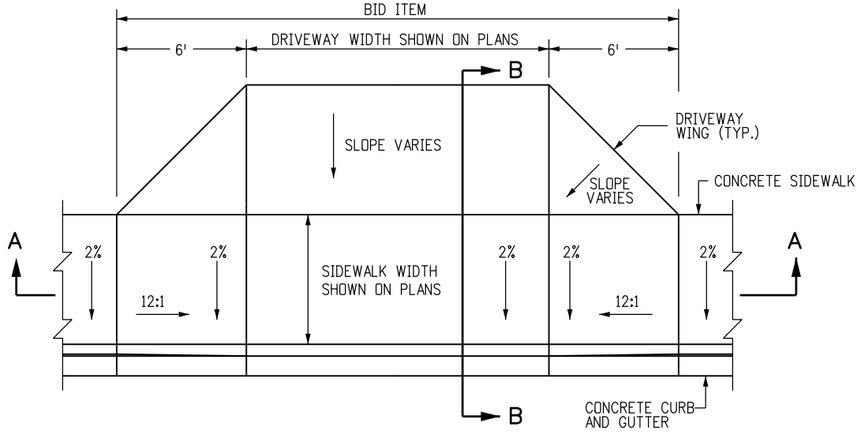
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DD		Date:	Comments
Last Modification Date: 07/04/12 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 609010304.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

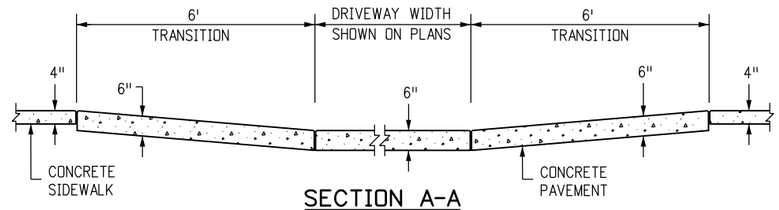
CURB, GUTTERS, AND SIDEWALKS

Issued By: Project Development Branch on July 4, 2012

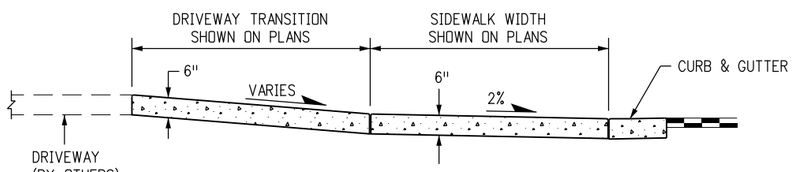
STANDARD PLAN NO.
M-609-1
Sheet No. 3 of 4



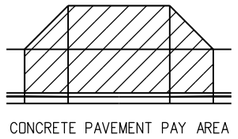
CONCRETE DRIVEWAY ENTRANCE TYPE 3



SECTION A-A



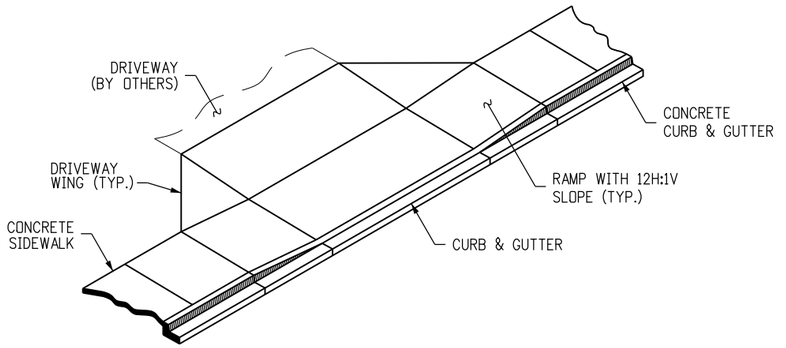
SECTION B-B



CONCRETE PAVEMENT PAY AREA

NOTES

1. DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, AND OTHER OBSTRUCTIONS SHOULD NOT BE PLACED IN FRONT OF THE DRIVEWAY RAMP ACCESS AREAS.
2. FOR THE CURB AND GUTTER SHOWN, SEE PLANS FOR CURB TYPE.
3. RAMP SLOPES SHALL BE 12:1 OR FLATTER.



TYPE 3 ISOMETRIC VIEW

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DD		Date:	Comments
Last Modification Date: 07/04/12 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 609010404.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

CURB, GUTTERS, AND SIDEWALKS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-609-1

SPACING FOR DELINEATOR POSTS ON HORIZONTAL CURVES

'R' RADIUS (FEET)	'D' DEGREE OF CURVE	✳ - ● SPACING ON CURVE (FEET)	✳ SPACING IN ADVANCE OF AND BEYOND CURVE (FEET)		
			FIRST SPACE	SECOND SPACE	THIRD SPACE
20000	0° 17'	300	300	300	300
17000	0° 20'	300	300	300	300
14000	0° 25'	300	300	300	300
12000	0° 29'	300	300	300	300
10000	0° 34'	299	300	300	300
8000	0° 43'	267	300	300	300
6000	0° 57'	231	300	300	300
5000	1° 09'	211	300	300	300
4000	1° 26'	189	300	300	300
3500	1° 38'	176	300	300	300
3000	1° 55'	163	300	300	300
2500	2° 18'	148	297	300	300
2000	2° 52'	132	265	300	300
1800	3° 11'	125	251	300	300
1600	3° 35'	118	236	300	300
1400	4° 06'	110	220	300	300
1200	4° 47'	102	203	300	300
1000	5° 44'	92	185	277	300
900	6° 22'	87	175	262	300
800	7° 10'	82	164	246	300
700	8° 11'	76	153	229	300
600	9° 33'	70	141	211	300
500	11° 28'	64	127	191	300
450	12° 44'	60	120	180	300
400	14° 20'	56	112	168	300
350	16° 22'	52	104	156	300
300	19° 06'	47	95	142	285
250	22° 55'	42	85	127	255
200	28° 39'	37	73	110	220
150	38° 12'	30	60	90	180
100	57° 18'	21	42	64	127
75	76° 24'	20	30	45	90

✳ ON CONVENTIONAL ROADWAYS OMIT THE "THIRD SPACE" AND DOUBLE THE SPACING "ON THE CURVE" AND "IN ADVANCE OF AND BEYOND THE CURVE" (300' MAX.)

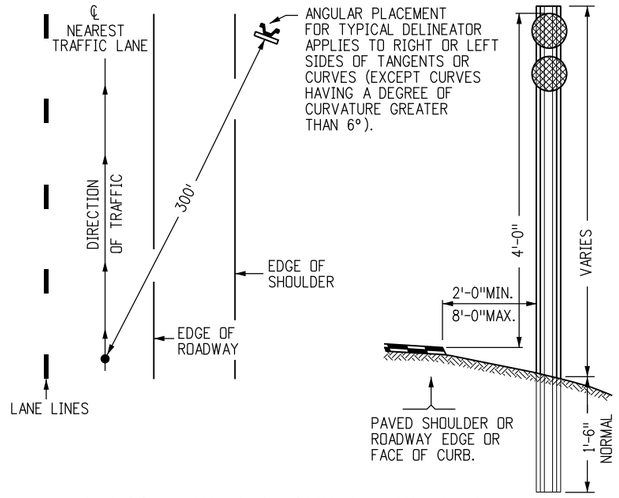
● SPACING FOR CURVES NOT SHOWN MAY BE COMPUTED FROM THE FORMULA: $S = 3\sqrt{R-50}$

SPACING IN ADVANCE OF AND BEYOND THE CURVE IS: FIRST SPACE = 2S, SECOND SPACE = 3S AND THIRD SPACE = 6S. SPACES SHOULD NOT BE LESS THAN 20 FT. OR GREATER THAN 300 FT.

RESIDUAL SPACE AFTER "ON CURVE" SPACING IS APPLIED, SHALL BE DIVIDED EQUALLY AMONG ALL OF THE "ON CURVE" SPACES SO THAT THE LAST DELINEATOR FALLS AT THE P.T. OR C.S. OF THE CURVE.

GENERAL NOTES

1. SEE THE TABULATION OF QUANTITIES INCLUDED IN THE PLANS FOR THE NUMBERS AND LOCATIONS OF DELINEATORS REQUIRED.
2. THE COLOR OF DELINEATORS SHALL, IN ALL CASES, CONFORM TO THE COLOR OF EDGE LINES, EXCEPT:
   A. RED, GREEN AND BLUE DELINEATORS
   B. TYPE III DELINEATORS (3 YELLOW).
3. THE COLOR OF DELINEATOR POSTS AND ALL SPECIAL MOUNTING BRACKETS SHALL BE INTERSTATE GREEN.
4. DELINEATORS ARE MANDATORY ON ALL ROADWAYS ON THE STATE HIGHWAY SYSTEM. THEY ARE OPTIONAL WHERE FIXED SOURCE LIGHTING IS IN OPERATION: HOWEVER, ALL CONCRETE BARRIER AND TYPE 3 GUARDRAIL SHALL HAVE REFLECTORS OR SUPPLEMENTAL TABS.
5. TYPE I (YELLOW) DELINEATORS ARE MANDATORY ON THE LEFT SIDE OF EXPRESSWAY ROADWAYS (MEDIAN).
6. RED DELINEATORS MAY BE INSTALLED ON THE REVERSE SIDE OF ANY DELINEATOR AND/OR A SEPARATE POST ON ONE-WAY ROADWAYS OR RAMPS WHERE INVESTIGATION SHOWS A NEED FOR WRONG-WAY MOVEMENT PROTECTION.
7. TYPE III (3-YELLOW) DELINEATORS ARE TO BE INSTALLED TO WARN OF THE EXISTENCE OF OBJECTS NOT ACTUALLY IN THE ROADWAY BUT THAT MAY BE SO CLOSE TO THE EDGE OF THE ROADWAY THAT THEY NEED A MARKER. THESE INCLUDE UNDERPASS PIERS, BRIDGE ABUTMENTS, HANDRAILS, AND CULVERTS HEADS. THE INSIDE EDGE OF THE MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION.
8. INTERCHANGE RAMPS SHALL BE DELINEATED ON THE RIGHT SIDE, THE LEFT SIDE, OR BOTH SIDES WITH TYPE I DELINEATORS OF THE APPROPRIATE COLOR (CRYSTAL OR YELLOW) AS ILLUSTRATED ON SHEET NUMBER 3.
9. FRONTAGE ROAD DELINEATORS ARE NOT TO BE INSTALLED WHERE THEY MIGHT BE MISLEADING TO MAINLINE TRAFFIC.
10. SPACING OF DELINEATORS FOR TUNNELS AND SNOW SHEDS SHALL BE AS SHOWN ON THE PLANS.
11. WHERE PRACTICABLE, THE APPROACH ENDS OF ISLANDS AND MEDIANS SHOULD BE DELINEATED.
12. TYPICAL INSTALLATION LOCATIONS FOR ALL TYPE I DELINEATORS ON TAGENT SECTIONS SHALL BE ON 1/10TH MILE INTERVALS IN RELATION TO THE HIGHWAY MILE MARKERS. A 200 FOOT MINIMUM WILL APPLY TO THE "LAST SPACE" EXITTING A HORIZONTAL CURVE AND THE FOLLOWING DELINEATOR SHALL BE INSTALLED ON THE NEXT 1/10TH MILE LOCATION (MAXIMUM SPACING IS ALSO 528 FEET). AT ALL OTHER LOCATIONS, SUCH AS A & D LANES, RAMPS, WIDTH TRANSITIONS, AND TURN LANES, A "LAST SPACE" SHOULD NOT BE LESS THAN 50% OF HTE SPACING SHOWN FOR THAT LOCATION.
13. TYPE II DELINEATORS SHALL BE INSTALLED AT 100 FOOT SPACING ON ALL ACCELERATION LANES AND TAPERS, DECELERATION LANES AND TAPERS, AND LANE TRANSITIONS INVOLVING PAVEMENT WIDTH REDUCTIONS IN THE DIRECTION OF TRAFFIC. TYPE II DELINEATORS ARE NOT REQUIRED FOR REDIRECT TAPERS, FOR TRAFFIC MOVING IN THE DIRECTION OF WIDER PAVEMENT OR ON THE SIDE OF THE ROADWAY WHERE THE ALIGNMENT IS NOT AFFECTED BY THE LANE REDUCTION. TYPE II (YELLOW) DELINEATORS SHALL ONLY BE USED WHEN A RAISED OR DEPRESSED MEDIAN IS PRESENT. FOR WIDTH TRANSITIONS WHERE TRAFFIC MOVES IN THE DIRECTION OF WIDER PAVEMENT, THE NORMAL SPACING SHALL BE ADJUSTED SO THERE IS A DELINEATOR AT EACH OF THE ANGLE POINTS OF THE WIDTH TRANSITION.
14. TYPE I DELINEATORS SHALL BE INSTALLED AT 100 FOOT SPACING ON INTERCHANGE RAMP TANGENT SECTION AND BY THE SPACING TABLE ON RAMP CURVES. SPACING "IN ADVANCE OF AND BEYOND CURVE" DOES NOT APPLY TO RAMP CURVES.
15. FOR SPACING ON A CURVE THAT FOLLOWS A TANGENT SECTION WITH SPACES SHORTER THAN THOSE SHOWN IN THE CURVE SPACING TABLE: MODIFY THE TABLE SO THAT THE CURVE SPACING IS NO GREATER THAN THE TANGENT SPACING.
16. WHERE GUARDRAIL INTRUDES INTO THE SPACE BETWEEN THE PAVEMENT EDGE AND THE LINE OF DELINEATORS, PLACE THE DELINEATORS IMMEDIATELY ABOVE OR BEHIND THE RAIL FACE, AND DELINEATOR SPACING SHALL BE THE SAME BEHIND THE RAIL FACE.
17. WHEN NORMAL SPACING FALLS ON AN INTERSECTING ROADWAY, DRIVEWAY, ETC. THE DELINEATOR MAY BE MOVED EITHER DIRECTION A DISTANCE NOT EXCEEDING ONE-QUARTER OF THE NORMAL SPACING.
18. THE ANGULAR PLACEMENT FOR ALL DELINEATORS SHOULD BE BY THE "TRAFFIC ORIENTING" METHOD: AIM THE FACE OF THE DELINEATOR AT THE CENTERLINE OF THE NEAREST LANE OF APPROACHING TRAFFIC AT A POINT 300 FEET AWAY (OR AS DIRECTED BY THE ENGINEER FOR SPECIAL OR LOCATIONS AND CURVES HAVING A DEGREE OF CURVATURE GREATER THAN 6 DEGREES).
19. TYPE III (YELLOW-BLUE-YELLLOW) DELINEATORS ARE TO BE INSTALLED TO WARN OF THE EXISTENCE OF AN ASPHALT CURB INSTALLED BELOW GUARDRAIL. THE DELINEATOR SHALL BE PLACED IN LINE WITH THE ASPHALT CURB.



TYPICAL DELINEATOR PLACEMENT

SECTION B-B

TYPICAL DOUBLE HEIGHT INSTALLATION

POST NOTES

1. POSTS SHALL BE A UNIFORM FLANGED CHANNEL SECTION (U-SHAPE) MADE FROM HOT ROLLED STRUCTURAL STEEL, RE-ROLLED RAIL STEEL, OR NEW BILLET STEEL, HAVING A MINIMUM YIELD STRENGTH OF 30,000 PSI AND A MINIMUM TENSILE STRENGTH OF 50,000 PSI.
2. POSTS SHALL BE SET IN DRILLED OR EXCAVATED HOLES, PLACED PLUMB AND FIRMLY TAMPED IN PLACE; OR MAY BE DRIVEN PLUMB.
3. A MINIMUM OF 3 HOLES OF 3/16" DIAMETER, SPACED AS SHOWN, ARE REQUIRED FOR ALL DELINEATOR POSTS.

● AN ADDITIONAL HOLE IS REQUIRED WHEN THE ADJUSTABLE REFLECTOR BRACKET IS USED.

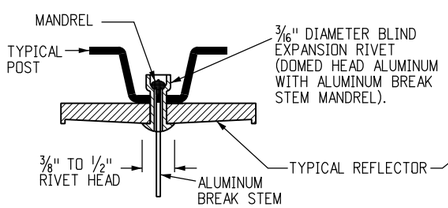
DOUBLE HEIGHT POSTS

4. THE LOWER SECTION OF THE 2-POST COMBINATION SHALL BE INSTALLED ACCORDING TO THE SAME PLACEMENT SPECIFICATIONS AS A TYPICAL SINGLE POST INSTALLATION.

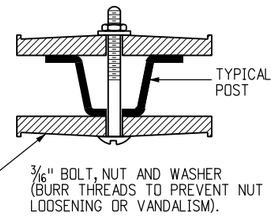
▲ 5. REFLECTORS SHALL BE MOUNTED AT THE CONNECTION OF THE POSTS AND AT THE TOP OF THE UPPER POST IN ACCORDANCE WITH THE APPROPRIATE CONFIGURATION FOR THE APPLICATION.

6. THE LENGTH OF THE UPPER EXTENSION PIECE SHALL NOT EXCEED 7 FEET.

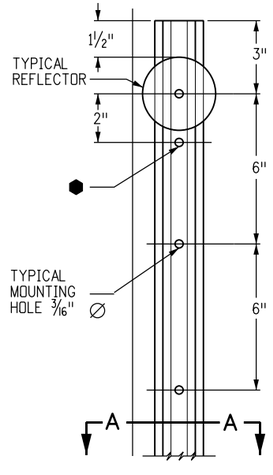
TYPICAL INSTALLATION SINGLE DIRECTION



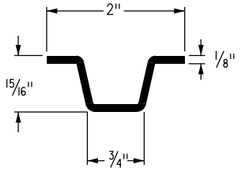
TYPICAL INSTALLATION BACK - TO - BACK



TYPICAL DELINEATOR FABRICATION DETAILS



TYPICAL 1,12# DELINEATOR POST



SECTION A-A

ALLOWABLE TOLERANCE DIMENSION:

1" AND UP	± 1/8"
1/2" TO 1"	± 1/16"
1/2" AND BELOW	± 1/32"

WEIGHT:

MINUS 3 1/2% OF THE WEIGHT OF ANY ONE POST.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: KEN	Date:	Comments
Last Modification Date: 12/01/16	Initials: RPR	12/01/2016	UPDATED NOTE 12 AND ADDED NOTE 19
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-612-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

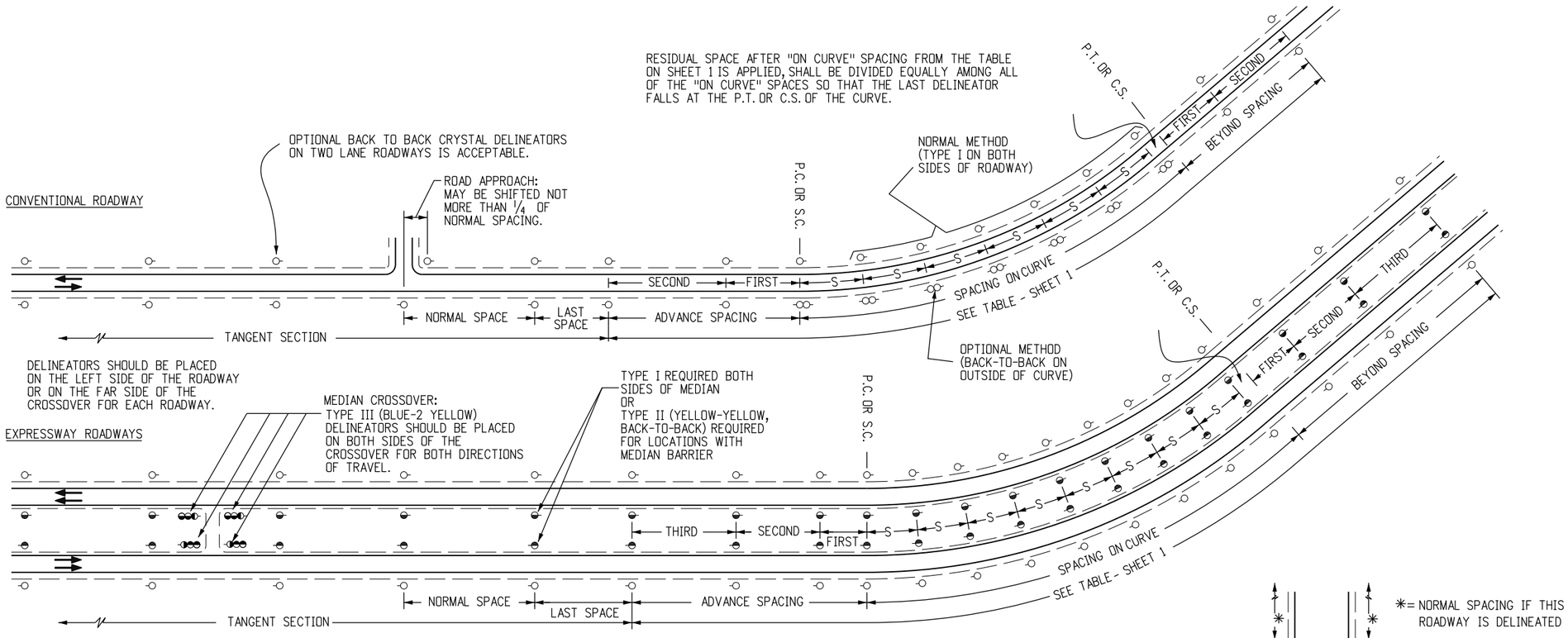
R-1

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

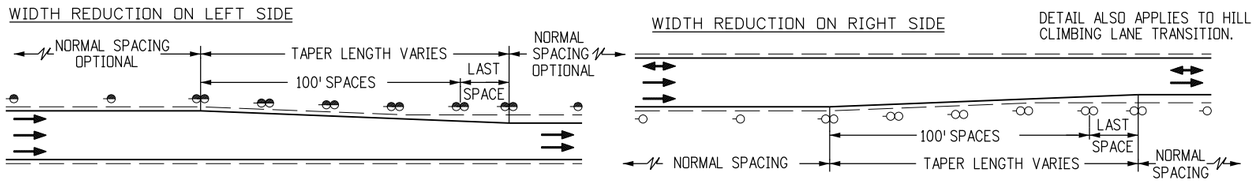
DELINEATOR INSTALLATIONS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

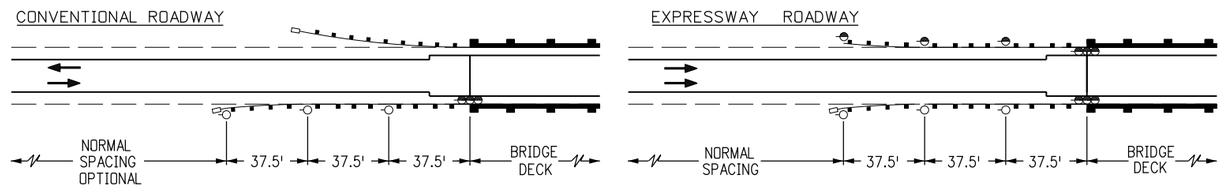
STANDARD PLAN NO.
S-612-1
Sheet No. 1 of 7



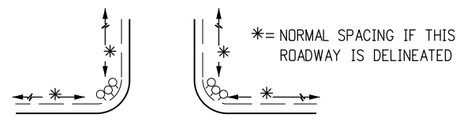
TYPICAL INSTALLATION FOR TANGENT SECTION AND CURVES

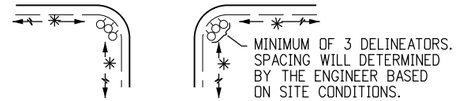


TYPICAL INSTALLATION FOR LANE TRANSITION



TYPICAL INSTALLATION FOR BRIDGE APPROACHES





TYPICAL INSTALLATION FOR MINOR INTERSECTION

DELINEATOR SYMBOLS AND TYPICAL CONFIGURATION

- TYPE I (CRYSTAL)
- TYPE I (YELLOW)
- TYPE I (RED)
- TYPE I (GREEN) (MAINTENANCE MARKER)
- TYPE I (BLUE) (MAINTENANCE MARKER)
- TYPE II (2 CRYSTAL)
- TYPE II (2 YELLOW)
- TYPE II (CRYSTAL-CRYSTAL BACK-TO-BACK)
- TYPE II (YELLOW-YELLOW, BACK-TO-BACK)
- TYPE II (CRYSTAL-RED, BACK-TO-BACK)
- TYPE II (YELLOW-RED, BACK-TO-BACK)
- TYPE III (3 YELLOW)
- TYPE III (2 CRYSTAL-RED, BACK-TO-BACK)
- TYPE III (2 YELLOW-RED, BACK-TO-BACK)
- TYPE III (GREEN)
- TYPE III (BLUE)
- TYPE III (BLUE-2 YELLOW)
- TYPE III (YELLOW-BLUE-YELLOW)

BRIDGE NOTES

1. WHERE CURB TO CURB WIDTH OF BRIDGE IS EQUAL TO OR GREATER THAN ROADWAY WIDTH PLUS USABLE SHOULDER WIDTH, USE THE TYPE III DELINEATOR (3 YELLOW) ONLY AND OMIT ALL THE TYPE I DELINEATORS.
2. FOR GUARD RAIL INSTALLATIONS WHERE APPROACH END IS NOT FLARED, PLACE A TYPE III DELINEATOR (3 YELLOW) IMMEDIATELY IN ADVANCE OF APPROACH END.
3. ALL TYPE I DELINEATORS ARE TO BE MOUNTED ABOVE OR IMMEDIATELY BEHIND GUARD RAIL AND ARE NOT A CONSTANT DISTANCE FROM THE ROADWAY.

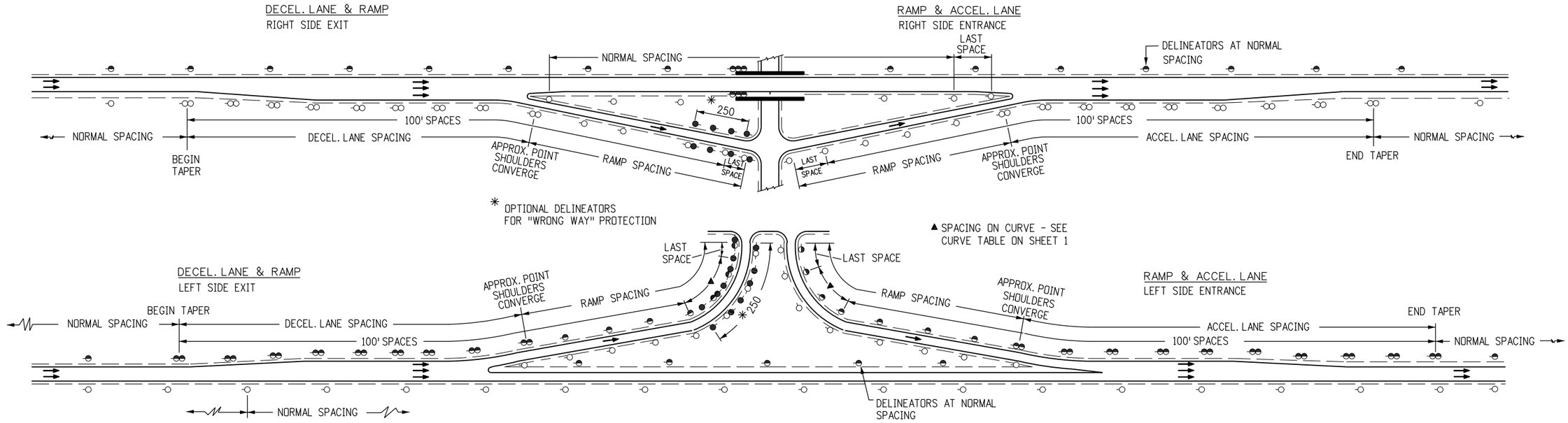
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RPR		Date:	Comments
Last Modification Date: 12/01/2016 Initials: RPR	R-1	12/01/16	ADDED YELLOW-BLUE-YELLOW CRYSTAL
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-612-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

DELINEATOR INSTALLATIONS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

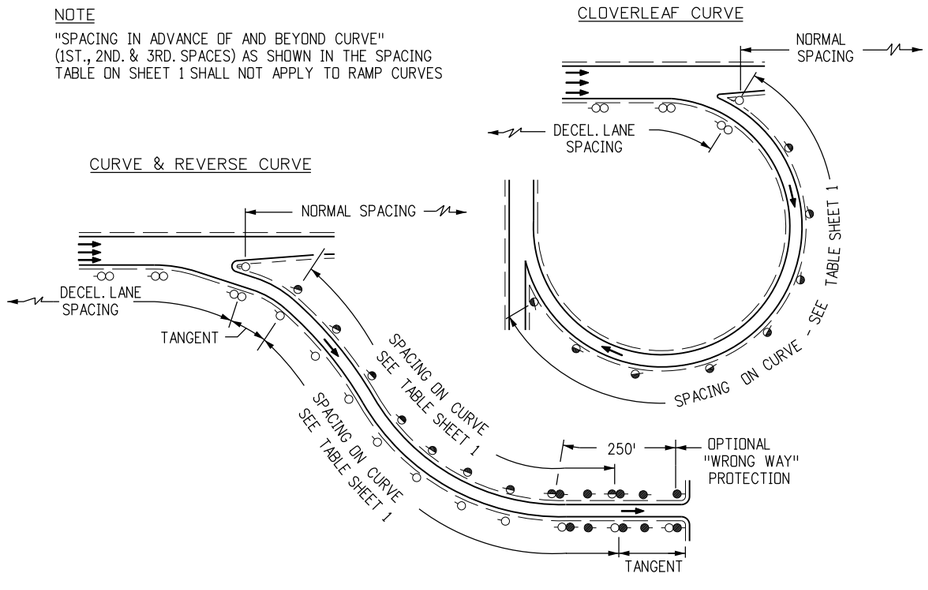
STANDARD PLAN NO.
S-612-1
Sheet No. 2 of 7



TYPICAL INSTALLATION FOR INTERCHANGES

NOTE

"SPACING IN ADVANCE OF AND BEYOND CURVE" (1ST., 2ND. & 3RD. SPACES) AS SHOWN IN THE SPACING TABLE ON SHEET 1 SHALL NOT APPLY TO RAMP CURVES



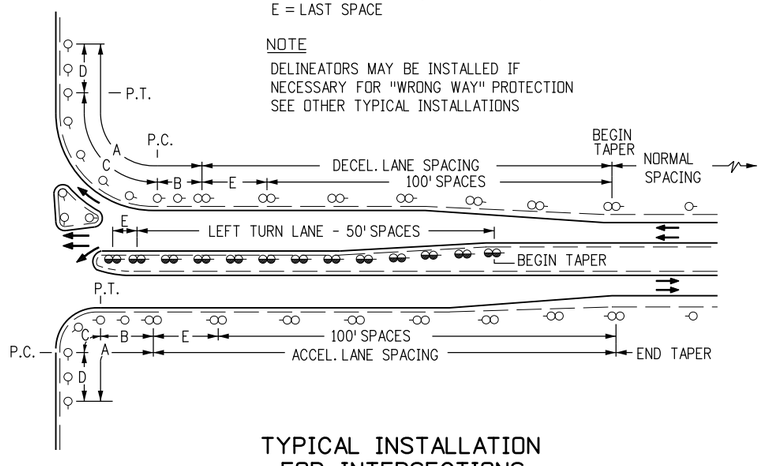
TYPICAL INSTALLATION FOR RAMP CURVES

LEGEND

A = SEE CURVE SPACING TABLE
B = ADVANCE SPACES (FIRST & SECOND)
C = SPACING ON CURVE
D = BEYOND SPACES (FIRST & SECOND)
E = LAST SPACE

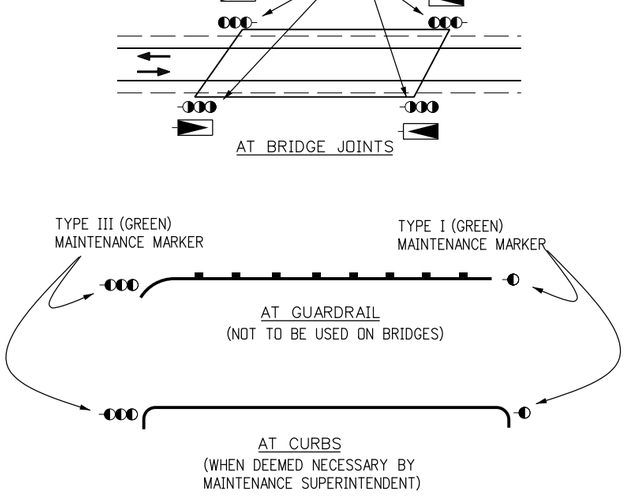
NOTE

DELINEATORS MAY BE INSTALLED IF NECESSARY FOR "WRONG WAY" PROTECTION SEE OTHER TYPICAL INSTALLATIONS



TYPICAL INSTALLATION FOR INTERSECTIONS

WITH ACCEL. & DECEL. LANES



MAINTENANCE MARKER LOCATIONS FOR OBSTRUCTIONS

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: RPR	Date:	Comments
Last Modification Date: 12/01/16	Initials: NNC	12/01/16	ADDED BRIDGE JOINT MARKER
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-612-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

R-1

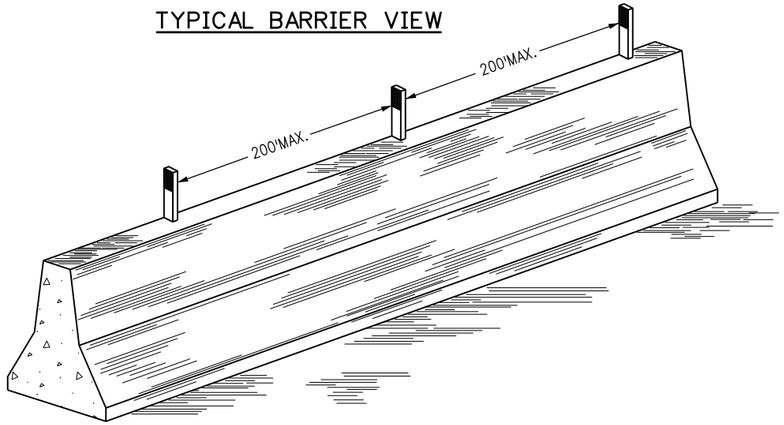
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

DELINEATOR INSTALLATIONS

Issued By: Safety & Traffic Engineering Branch July xx, 2012

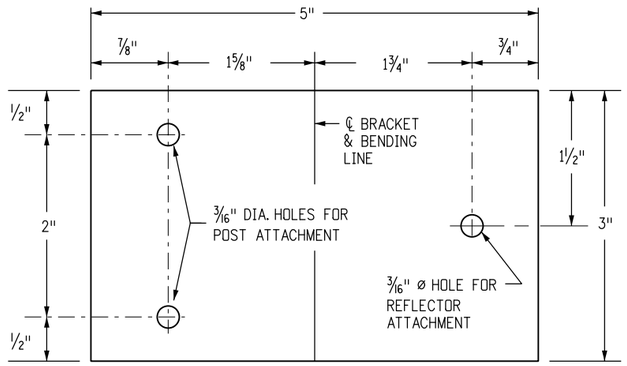
STANDARD PLAN NO.
S-612-1
Sheet No. 3 of 7

TYPICAL BARRIER VIEW

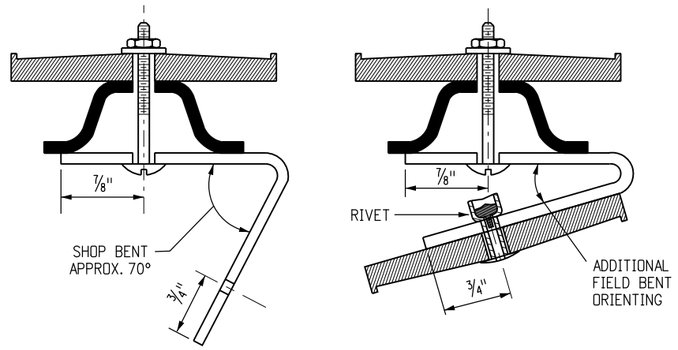


TYPICAL REFLECTOR DETAILS FOR CONCRETE BARRIER

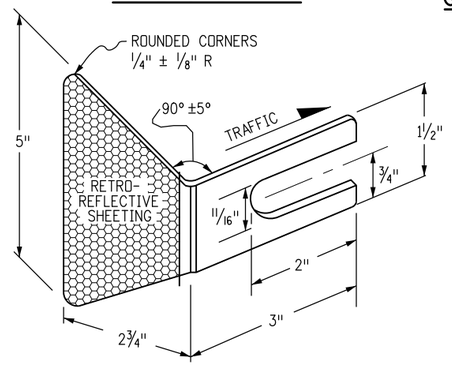
PLAN VIEW



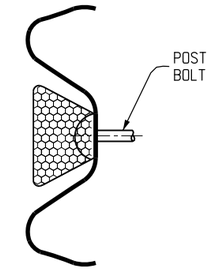
TYPICAL ADJUSTABLE REFLECTOR BRACKET



REFLECTOR TAB



MOUNTING POSITION ON GUARD RAIL TYPE 3

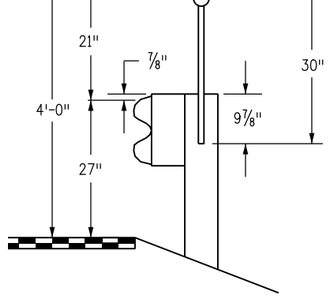


TYPICAL GUARDRAIL REFLECTOR TAB

SEE THE APPROPRIATE GUARDRAIL STANDARD PLANS FOR REFLECTOR TAB FABRICATION AND PLACEMENT DETAILS.

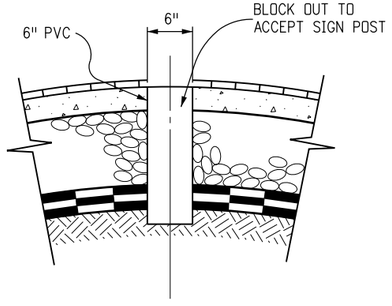
BARRIER REFLECTOR NOTES

1. BARRIER REFLECTORS, REGARDLESS OF TYPE, SHALL MEET THE RETROREFLECTIVE QUALTITIES SPECIFIED IN SECTION 713 OF THE STANDARD SPECIFICATIONS FOR DELINEATOR REFLECTORS, AND BE PAID FOR AS DELINEATOR (TYPE _) (BARRIER) (EACH). USE OF THESE REFLECTORS IS MANDATORY.
2. THE COLOR OF REFLECTIVE SURFACE SHALL MATCH THE COLOR OF THE ADJACENT EDGE LINE.
3. CONCRETE SURFACE PREPARATION, ADHESIVE, AND METHOD OF APPLICATION SHALL BE AS RECOMMENDED BY THE REFLECTOR MANUFACTURER.
4. UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE ENGINEER, A 200 FOOT MAXIMUM TANGENT AND CURVE SPACING APPLIES TO BARRIER REFLECTORS.
5. TOP MOUNT REFLECTORS ARE STANDARD. SIDEMOUNT BARRIER REFLECTORS OR 6 INCH WIDE REFLECTOR STRIPS MAY BE REQUIRED IF SPECIFIED IN THE PLANS.
6. MEDIAN BARRIER REFLECTORS SHALL BE TYPE II (YELLOW-YELLOW, BACK-TO-BACK).
7. FOR A TWO-WAY ROADWAY BARRIER, REFLECTORS SHALL BE TYPE II (CRYSTAL-CRYSTAL, BACK-TO-BACK).
8. FOR TEMPORARY CONCRETE BARRIER, RELFECTORS SHALL BE INSTALLED THAT MEET THE MINIMUM REQUIREMENTS OF STANDARD TYPICAL DELINEATOR INSTALLATIONS, EXCEPT THE MAXIMUM SPACING SHALL BE 50 FT., AND THEY WILL NOT BE PAID FOR, BUT ARE INCLUDED IN THE WORK.



TYPICAL GUARDRAIL POST MOUNT DELINEATORS

POST MOUNT DELINEATORS SHALL BE ATTACHED BY A METHOD APPROVED BY THE ENGINEER OR A METHOD REQUIRED BY THE DEVICE MANUFACTURER.



TYPICAL SLEEVE INSTALLATION FOR MEDIAN DELINEATOR POSTS

TYPICAL BRACKET FABRICATION DETAILS

BRACKET NOTES

1. THE ADJUSTABLE REFLECTOR BRACKET IS TO BE USED TO "TRAFFIC ORIENT" BACK-TO-BACK DELINEATORS USED ON CURVES.
2. REFLECTOR BRACKETS SHALL BE FABRICATED FROM EITHER GALVANIZED STEEL NOT LESS THAN 16 GAGE, OR ALUMINUM NOT LESS THAN 0.100 INCH THICKNESS.
3. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
4. ALL BRACKET HOLES ARE 3/16 IN. DIAMETER AND DELINEATOR POSTS REQUIRE AN ADDITIONAL HOLE 2 IN. BELOW THE TOP HOLE PROVIDED IN THE POST.
5. SHOP BEND THE BRACKET APPROX. 70 DEGREES AS SHOWN, ATTACH TO THE DELINEATOR POST WITH 3/16 IN. BOLTS AND FIELD BEND AS NECESSARY TO TRAFFIC ORIENT. THEN THE BRACKET REFLECTOR CAN BE ATTACHED WITH A 3/16 IN. BLIND EXPANSION RIVET OR A BOLT.
6. BURR THE THREADS OF ALL BOLTS TO PREVENT NUT LOOSENING OR VANDALISM.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: RPR	Date:	Comments
Last Modification Date:	Initials:		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-612-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

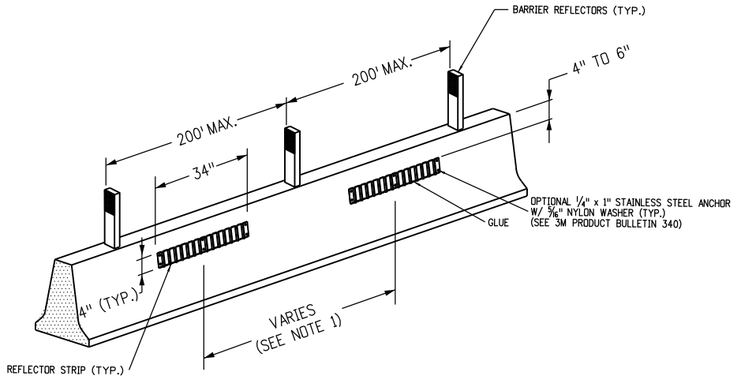
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

DELINEATOR INSTALLATIONS

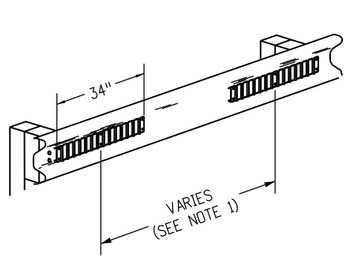
Issued By: Safety & Traffic Engineering Branch July 04, 2012

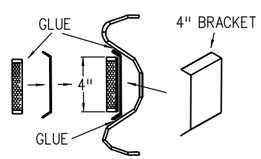
STANDARD PLAN NO.
S-612-1
Sheet No. 4 of 7

TYPICAL INSTALLATION DETAIL FOR CONTINUOUS CONCRETE BARRIER



TYPICAL INSTALLATION DETAIL FOR GUARDRAIL TYPE 3





ATTACHMENT DETAILS

TYPICAL REFLECTOR STRIP INSTALLATION

1. REFLECTOR STRIPS SHALL BE SPACED AT INTERVALS OF 20' O.C. FOR TANGENT SECTIONS OF BARRIER AND 10' O.C. FOR CURVED SECTIONS OF BARRIER.
2. THIS DEVICE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. IT IS THE RESPONSIBILITY OF THE INSTALLER TO CONTACT THE MANUFACTURER REPRESENTATIVE WHENEVER THERE IS A QUESTION REGARDING APPLICATION PROCEDURES OR SUBSTRATE CONDITIONS.
3. THE COLOR OF THE RELECTIVE SURFACE SHALL MATCH THE COLOR OF THE ADJACENT ROADWAY EDGE LINE.
4. AT THE TIME OF INSTALLATION, THE CONTACTING SURFACE SHALL BE DRY AND MOISTURE-FREE.
5. AFTER REFLECTOR STRIP INSTALLATION, SURFACES SHOULD STAY DRY WITHOUT RAIN IN THE FORECAST FOR AT LEASAT 8 HOURS.
6. SURFACE PREPARATION, BRACKETS, BOLTS, AND GLUE (OR EQUIVALENT) SHALL BE INCLUDED IN THE COST OF EACH DELINEATOR STRIP.

CONCRETE BARRIER NOTES

1. CONCRETE SURFACE PREPARATION, ADHESIVE, AND METHOD OF APPLICATION SHALL BE AS RECOMMENDED BY THE REFLECTOR MANUFACTURER.
2. TO ASSUME A STRAIGHT, LEVEL APPLICATION, SNAP A CHALK LINE ACROSS THE BARRIER.
3. FOR MOUNTING THE REFLECTOR STRIP TO CONCRETE BARRIER, INCLUDING THE BRACKETS, THE USE OF 3M WINDO-WELD SUPER FAST URETHANE GLUE OR EQUIVALENT APPLIED AT 60 DEGREES FAHRENHEIT IN DRY WEATHER IS RECOMMENDED. THIS PRODUCT IS AVAILABLE IN A STANDARD CAULKING TUBE AND SHOULD BE APPLIED TO THE BRACKETS AND PANELS WITH A CONSTRUCTION STYLE CAULKING GUN, AND/OR USE 1/4" x 1" STAINLESS STEEL ANCHOR WITH 5/16" NYLON WASHER, AS SPECIFIED IN 3M PRODUCT BULLETIN 340.
4. UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE ENGINEER, A 200-FOOT MAXIMUM TANGENT AND CURVE SPACING APPLIES TO BARRIER REFLECTORS ALONG THE TOP OF THE BARRIER.

GUARDRAIL TYPE 3 NOTES

1. THE USE OF REFLECTOR STRIPS ON GUARDRAIL TYPE 3 IS SUPPLEMENTAL TO THE REFLECTOR TAB.
2. TWO DIFFERENT STYLES OF MOUNTING BRACKETS ARE AVAILABLE. THERE IS ONE TYPE FOR THE 4" REFLECTOR STRIP AND ANOTHER FOR THE 6" REFLECTOR STRIP. THE BRACKETS MUST BE MATCHED TO FIT THE EXACT 4" OR 6" REFLECTOR STRIP PANEL. THE 4" REFLECTOR STRIP SIZE IS TYPICAL, HOWEVER, 1.5" OR 6" REFLECTOR STRIPS MAY BE INSTALLED AS SPECIFIED IN THE PLANS.
3. METAL GUARDRAIL SHALL BE WIRE BRUSHED/SANDED, THEN CLEANED WITH ISOPROPYL ALCOHOL WHERE THE BRACKETS WILL ADHERE TO THE GUARDRAIL.
4. FOR MOUNTING THE REFLECTOR STRIP TO GUARDRAIL, INCLUDING THE BRACKETS, THE USE OF 3M WINDO-WELD SUPER FAST URETHANE GLUE OR EQUIVALENT APPLIED AT 60 DEGREES FAHRENHEIT IN DRY WEATHER IS RECOMMENDED. THIS PRODUCT IS AVAILABLE IN A STANDARD CAULKING TUBE AND SHOULD BE APPLIED TO THE BRACKETS AND PANELS WITH A CONSTRUCTION STYLE CAULKING GUN, AND/OR USE 1#4" x 1" STAINLESS STEEL ANCHOR WITH 5#16" NYLON WASHER, AS SPECIFIED IN 3M PRODUCT BULLETIN 340.
5. INSTALLATION REQUIRES THE USE OF THREE BRACKETS (MIN.) PER REFLECTOR STRIP CORRESPONDING TO THE PRE-DRILL REFLECTOR STRIP HOLES.

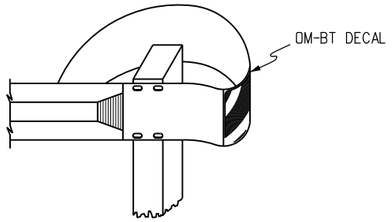
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RPR		Date:	Comments
Last Modification Date: 12/01/16 Initials: TCD	R-1	12/01/16	ADDED SPACING REQUIREMENTS DELETED 6" REFLECTOR STRIP
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-612-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

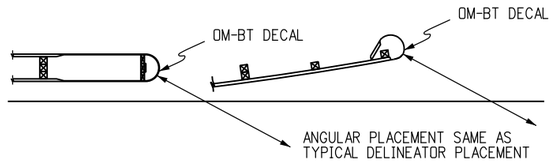
DELINEATOR INSTALLATIONS

Issued By: Safety & Traffic Engineering Branch July 04, 2012

STANDARD PLAN NO.
S-612-1
Sheet No. 5 of 7

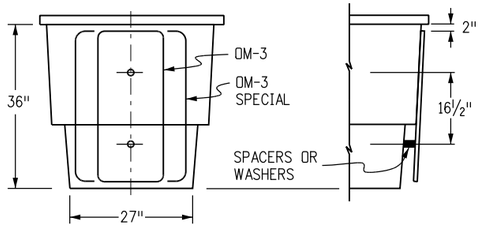


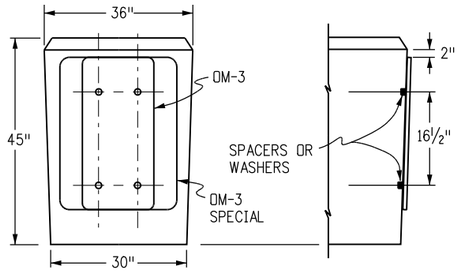
SIDE VIEW



TOP VIEWS

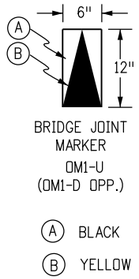
BUFFER TERMINALS (BT)





FRONT VIEWS SIDE VIEWS

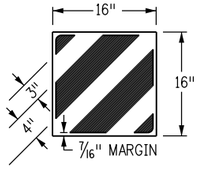
IMPACT ATTENUATOR (SAND FILLED)



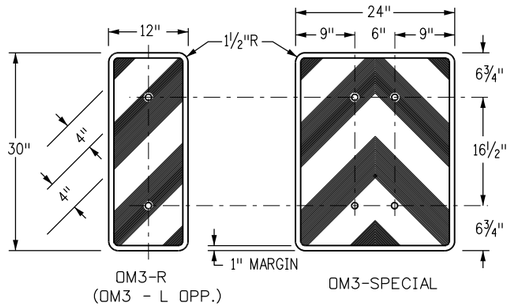
BRIDGE JOINT
MARKER
OM1-U
(OM1-D OPP.)

(A) BLACK

(B) YELLOW



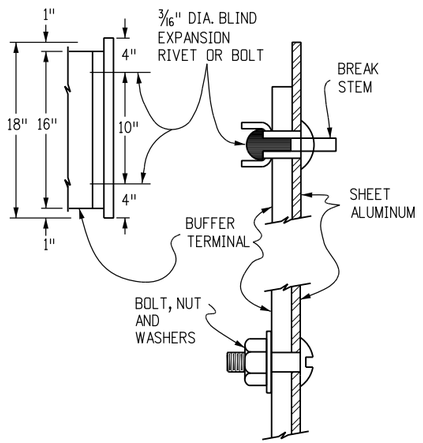
OM-BT DECAL
(OPTIONAL)



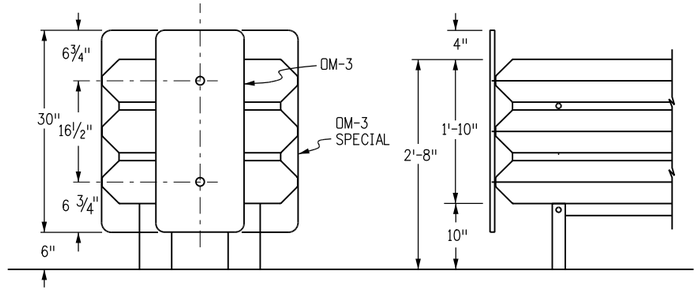
OM3-R
(OM3 - L OPP.)

OM3-SPECIAL

SUPPLEMENTAL DELINEATION DETAILS

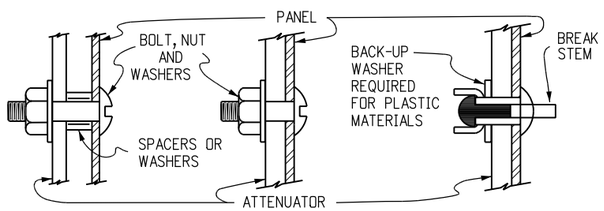


BUFFER PANEL ATTACHMENT DETAILS



FRONT VIEW SIDE VIEW

IMPACT ATTENUATOR (MODULAR)



ATTENUATOR PANEL ATTACHMENT DETAILS

SUPPLEMENTAL PANEL NOTES

1. ALL SUPPLEMENTAL DELINEATION PANELS SHALL BE SINGLE SHEET ALUMINUM, 0.080" MINIMUM THICKNESS.
2. A) PANELS SHALL BE FASTENED DIRECTLY TO THE IMPACT ATTENUATOR WITH 2 OR 4-3/16 IN. DIA. BLIND EXPANSION RIVETS, OR 2 OR 4-3/16 IN. BOLTS, NUTS AND WASHERS.
   B) EXPANSION RIVETS SHALL BE DOMED HEAD ALUMINUM WITH ALUMINUM BREAK STEM MANDREL, AND SHALL HAVE A BACK-UP WASHER WHEN USED WITH PLASTIC MATERIALS.
   C) BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
   D) SPACERS, OR SPACING WASHERS SHALL BE USED AS NECESSARY FOR SAND FILLED ATTENUATORS.
3. OM-BT DECAL (BUFFER TERMINAL OBJECT MARKER) SHALL BE PRESSURE SENSITIVE REFLECTIVE SHEETING AND SHALL BE APPLIED DIRECTLY TO THE GUARDRAIL END TREATMENT (FLARED OR NON-FLARED).
4. RETROREFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956, TYPE III. THE SHEETING SHALL BE YELLOW FOR PERMANENT INSTALLATIONS.
   OM-BT DECAL AND OM-3 PANELS SHALL HAVE YELLOW SHEETING BACKGROUND WITH STENCIL BLACK STRIPES.
   THE SHEETING FOR TEMPORARY (CONSTRUCTION ZONE) INSTALLATIONS SHALL BE AS FOLLOWS:
   OM-BT DECAL AND OM-3 PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES.
5. SUPPLEMENTAL DELINEATION PANELS OR PRESSURE SENSITIVE RETROREFLECTIVE SHEETING DECALS SHALL BE INCLUDED IN THE COST OF THE GUARDRAIL END ANCHOR OR THE IMPACT ATTENUATOR ITEM.
6. REFERENCE SHEET S-612-1 SHEET 7 OF FOR BASE DETAIL

SUPPLEMENTAL DELINEATION FOR GUARD RAIL BUFFER TERMINALS AND IMPACT ATTENUATORS

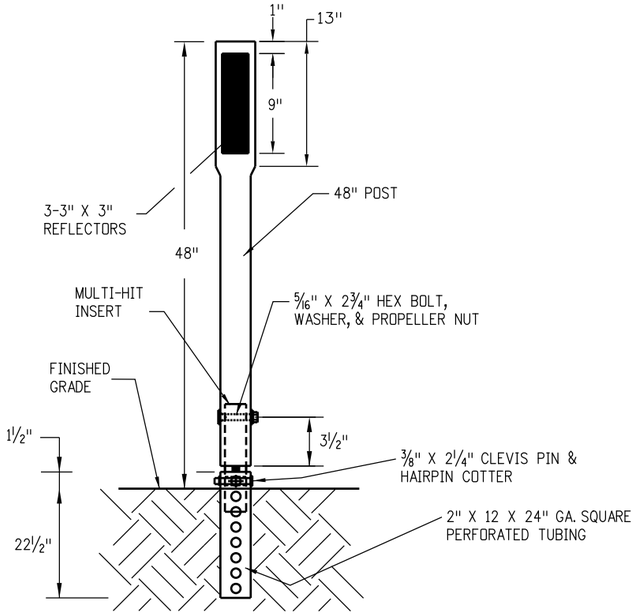
Computer File Information			Sheet Revisions	
Creation Date: 07/04/12 Initials: RPR			Date:	Comments
Last Modification Date: 12/01/16 Initials: NNC	R-1		12/01/16	ADDED BRIDGE JOINT MARKER
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans				
Drawing File Name: S-612-01.dgn				
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English				

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

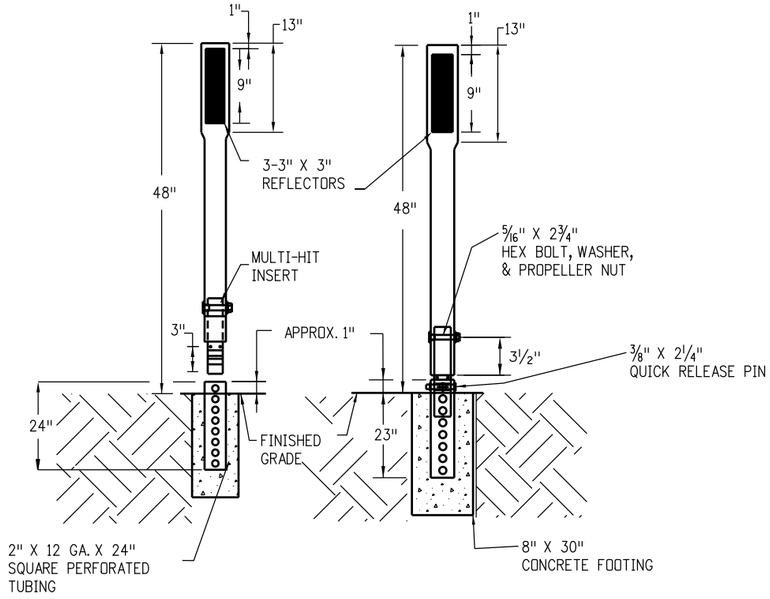
DELINEATOR INSTALLATIONS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-612-1
Sheet No. 6 of 7

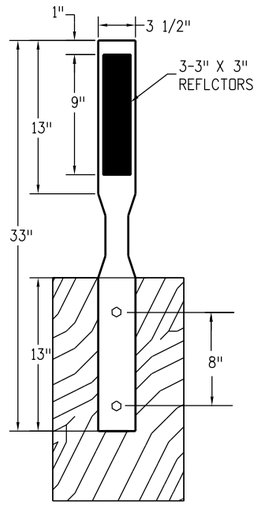


TYPICAL CONDITIONS



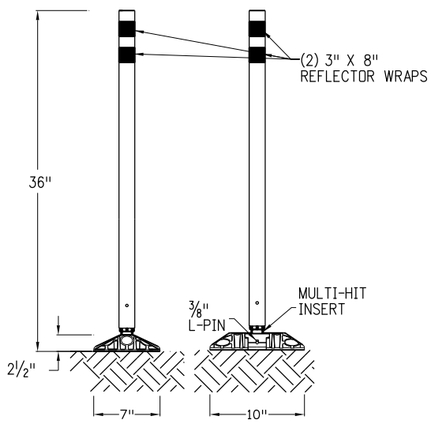
SOFT SOIL CONDITIONS

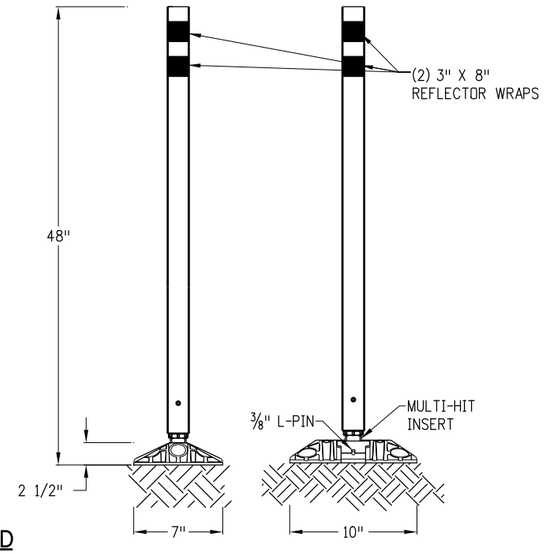
DRIVEABLE METHOD



POST MOUNTED

GUARDRAIL MOUNTED





SURFACE MOUNTED

GENERAL NOTES

1. FLEXIBLE,33", IMPACT RESISTANT, DELINEATOR POSTS, COMPRISED OF RUBBER COMPOSITE, INCLUDING, 80% BY VOLUME, POST COMSUMER RECYLED HDPE, WITH AN INTERSTATE GREEN, PREMIUM U.V. INHIBITED, CO-EXTRUDED HDTP SHELL.
2. THE TOP OF TUBULAR POSTS SHALL BE PERMANENTLY CLOSED TO PREVENT MOISTURE OR DEBRIS FROM ENTERING.
3. THE SIDE OF THE POST FACING TRAFFIC, UPON WHICH THE DELINEATOR IS TO BE MOUNTED. SHALL HAVE A FLAT SURFACE WITH MINIMUM DIMENSIONS OF 3.25 INCHES IN WIDTH BY 13 INCHES IN LENGTH. THE TEXTURE OF THE PROJECTED SURFACE SHALL BE SMOOTH AND SUITABLE FOR THE ADHERENCE OF REFLECTIVE SHEETING WITHOUT PREPARATION OTHER THAN WIPING WITH A CLEAN CLOTH DAMPENED WITH MINERAL SPIRITS TO REMOVE OIL-TYPE CONTAMINANTS.
4. THE BOTTOM OF THE POST SHALL HAVE A MINIMUM 13 INCH LENGTH FLAT MOUNTING SURFACE WITH MINIMUM DIMENSION OF 3 1/4 INCHES IN WIDTH.
5. THE WIDTH OF THE POST AT ANY POINT (EXCLUDING THE BASE, IF ANY) SHALL BE A MAXIMUM OF 4 1/8 INCHES.
6. THE OUTSIDE DIAMETER OF THE TUBULAR POST SHALL BE A MAXIMUM OF 2 3/8 INCHES.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: RPR	Date:	Comments
Last Modification Date: 12/01/2016	Initials: RPR	12/01/2016	REMOVED "SHURFLEX" FROM DETAIL AND UPDATED "INTERSTATE GREEN" TO NOTE 1
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-612-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

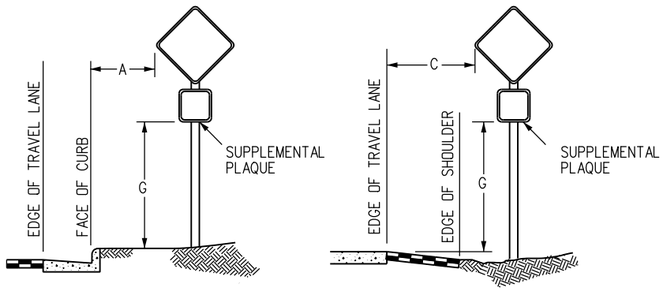
R-1

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

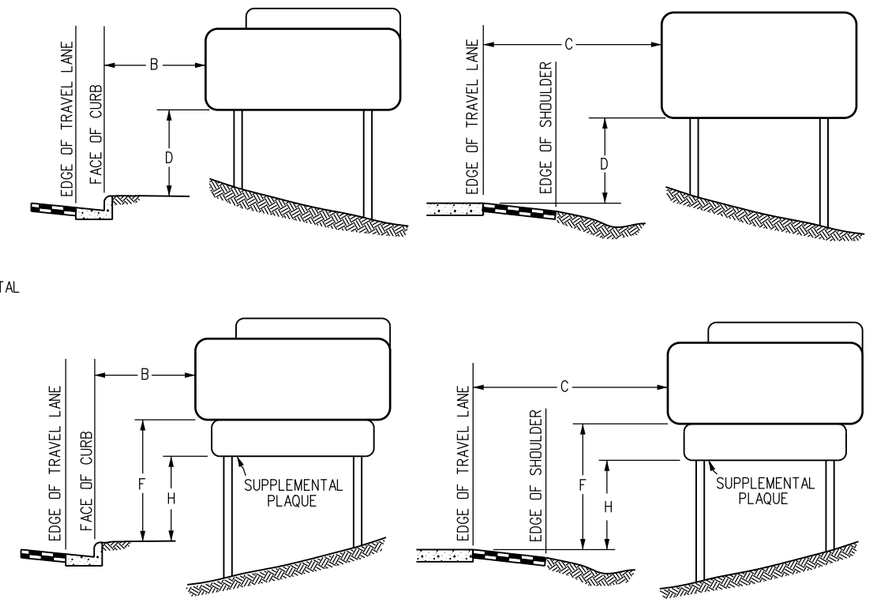
DELINEATOR INSTALLATIONS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

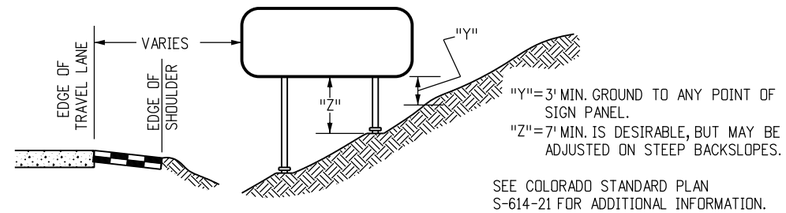
STANDARD PLAN NO.
S-612-1
Sheet No. 7 of 7



WARNING SIGN PLACEMENT



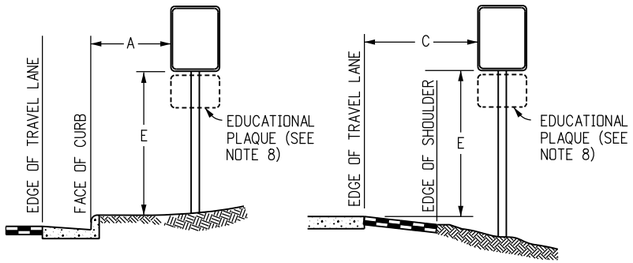
CLASS III SIGN PLACEMENT

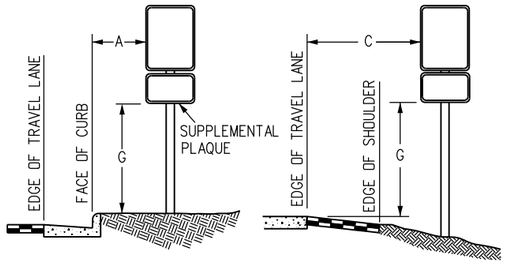


"Y"= 3' MIN. GROUND TO ANY POINT OF SIGN PANEL.
"Z"= 7' MIN. IS DESIRABLE, BUT MAY BE ADJUSTED ON STEEP BACKSLOPES.

SEE COLORADO STANDARD PLAN S-614-21 FOR ADDITIONAL INFORMATION.

CLASS III SIGNS, PANEL GROUND CLEARANCE

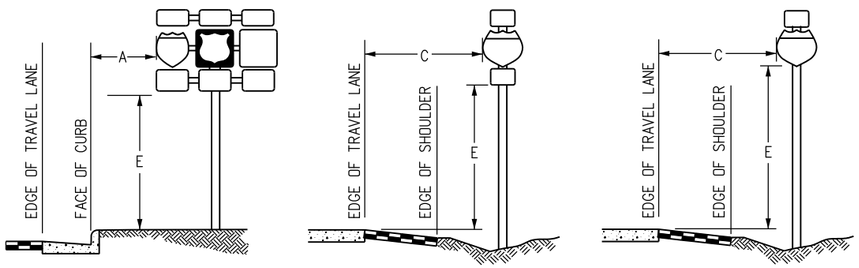




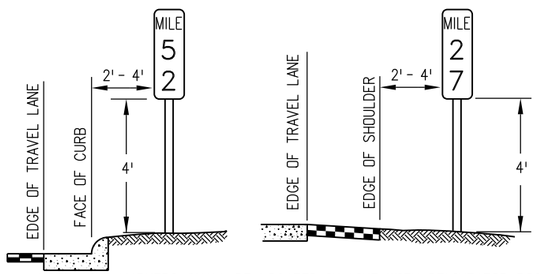
REGULATORY, RECREATIONAL AND CULTURAL INFORMATION SIGN PLACEMENT

GENERAL NOTES

1. THE ENGINEER WILL ESTABLISH GRADES AND LOCATIONS FOR ALL SIGN POSTS IN ACCORDANCE WITH DETAILS SHOWN ON THE PLANS.
2. SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATION TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN.
3. MINIMUM POST EMBEDMENT SHALL BE 3 FT. FOR U-2 POSTS AND 4 IN. X 4 IN. TIMBER POSTS, AND 5 FT. FOR 6 IN. X 6 IN. TIMBER POSTS. FOR FOOTING DEPTH SEE THE APPLICABLE STANDARD.
4. IF A SHOULDER IS WIDER THAN 6 FEET, THE MINIMUM LATERAL OFFSET DISTANCE SHOULD BE 6 FEET FROM EDGE OF SHOULDER, EXCEPT FOR MILE MARKER SIGNS. SEE FIGURE 2A-2(B) OF THE 2009 MUTCD.
5. NORMAL LATERAL PLACEMENT IS MEASURED FROM THE EDGE OF TRAVEL LANE.
6. IN URBAN AREAS, A LATERAL CLEARANCE OF 1 FT. FROM THE CURB FACE IS PERMISSIBLE WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.
7. TYPICAL POST MOUNTING HEIGHTS FROM GROUND TO BOTTOM OF SIGN PANEL ARE 7, OR 8 FEET. OTHER HEIGHTS MAY BE REQUIRED WHEN SIGNS ARE MOUNTED ON STEEPER FILL OR CUT SLOPES.
8. "EDUCATIONAL PLAQUES" FOR SYMBOL SIGNS WILL NOT BE CONSIDERED WHEN DETERMINING VERTICAL PLACEMENT. FOR INFORMATION OF EDUCATIONAL PLAQUE, SEE PAGE 3 OF THE 2012 CDOT GUIDE SIGNING POLICIES & PROCEDURES, AND SECTION 2M.06 OF THE 2009 MUTCD.
9. WHEN LATERAL PLACEMENT IS 30 FT. OR MORE FOR SIGNS WITHOUT A SUPPLEMENTAL PLAQUE, VERTICAL PLACEMENT D MAY BE REDUCED TO 5 FT. WHEN LATERAL PLACEMENT IS 30 FT. OR MORE, FOR SIGNS WITH A SUPPLEMENTAL PANEL, VERTICAL PLACEMENT E DOES NOT APPLY - USE ONLY VERTICAL PLACEMENT H.
10. NORMAL ANGULAR PLACEMENT IS 0 DEG. SIGNS CLOSER THAN 30 FT. SHOULD BE TURNED SLIGHTLY AWAY TO MINIMIZE SPECULAR REFLECTION. SIGNS PLACED 30 FT. OR MORE SHOULD GENERALLY BE TURNED TOWARD THE ROAD.
11. THE EXIT PANEL IS MOUNTED ON THE RIGHT HAND SIDE FOR RIGHT HAND EXITS AND THE LEFT SIDE FOR LEFT HAND EXITS.
12. POST SHALL BE INSTALLED PLUMB, VERTICAL DEVIATION SHALL NOT EXCEED ½ IN. IN 10 FT.
13. ON ALL TWO-LANE, UNDIVIDED HIGHWAYS, THE MILE MARKER AND POST SHALL BE INSTALLED ON THE RIGHT SHOULDER IN THE ASCENDING DIRECTION, WITH THE MILE MARKER PANELS DISPLAYED ON THE FRONT AND BACK SIDE OF THE POST.
14. ON ALL UNDIVIDED MULTI-LANE AND DIVIDED HIGHWAYS, AND INTERSTATES, THE MILE MARKER AND POST SHALL BE INSTALLED ON THE OUTSIDE SHOULDER (OR SIDEWALK IF APPLICABLE) IN BOTH DIRECTIONS OF TRAVEL.
15. VERTICAL SPACING BETWEEN SIGN PANELS SHALL BE 1 TO 1½ IN., TYPICAL.



ROUTE MARKER ASSEMBLY PLACEMENT



NOTE: MILE MARKERS SHALL BE LOCATED IN LINE WITH DELINEATOR POSTS.

MILE MARKER PLACEMENT

PLACEMENT TABLES

LATERAL PLACEMENT		
KEY	ALL CLASSES OF STREETS AND HIGHWAYS	
	MINIMUM	NORMAL
A	2'-0"	15'-0"PLUS CURB
B	2'-0"	30'-0" OR MORE INCLUDES CURB
C	2'-0"	6'-0"PLUS EDGE OF 6'+ WIDE SHOULDER. IF NONE, 15'-0" FROM EDGE OF TRAVEL LANE.

VERTICAL PLACEMENT						
KEY	FREEWAYS AND EXPRESSWAYS		CONVENTIONAL STREETS AND HIGHWAYS			
			URBAN		RURAL	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
D	7'-0" OR NOTE NO. 9	12'-0"	7'-0"	8'-0"	5'-0"	8'-0"
E	7'-0"	8'-0"	7'-0"	8'-0"	5'-0"	8'-0"
F	8'-0" OR NOTE NO. 9	12'-0"	8'-0"	9'-0"	5'-0"	9'-0"
G	6'-0"	7'-0"	6'-0"	7'-0"	4'-0"	7'-0"
H	5'-0"	10'-0"	6'-0"	7'-0"	4'-0"	7'-0"

Computer File Information	
Creation Date: 07/04/12	Initials: KCM
Last Modification Date: 12/12/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-614-01_1of2.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

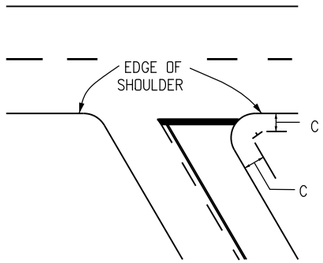
	Sheet Revisions	
	Date:	Comments
R-1	07/24/12	ADDED NOTES 14 AND 15 ON SHEET 1
R-2	03/07/14	SHEET 1 - UPDATED DIMENSIONS TO MUTCD STDS.
R-3	12/12/14	SHEET 1 - CORRECTED BOTTOM PANELS TO 'PLAQUES'
R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

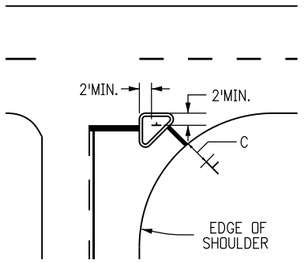
GROUND SIGN PLACEMENT

Issued By: Safety & Traffic Engineering Branch July 4, 2012

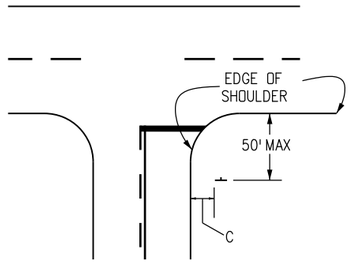
STANDARD PLAN NO.
S-614-1
Sheet No. 1 of 2



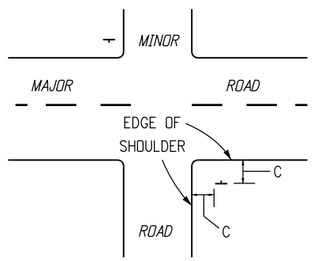
ACUTE ANGLE INTERSECTION



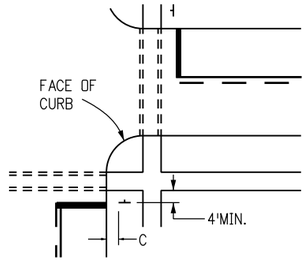
CHANNELIZED INTERSECTION



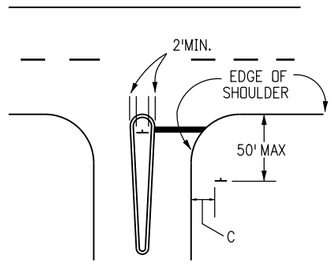
WIDE THROAT INTERSECTION



MINOR CROSSROAD

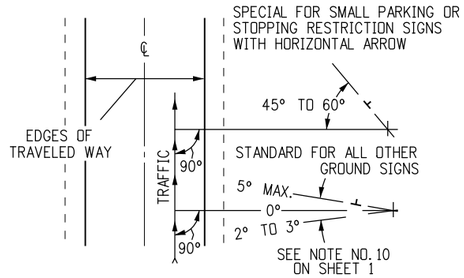


URBAN INTERSECTION



DIVISIONAL ISLAND

TYPICAL LOCATIONS-STOP SIGNS AND YIELD SIGNS



NORMAL ANGULAR PLACEMENT IS 0°. SIGNS CLOSER THAN 30 FT. SHOULD BE TURNED SLIGHTLY AWAY TO MINIMIZE SPECULAR REFLECTION. SIGNS PLACED 30' OR MORE SHOULD GENERALLY BE TURNED TOWARD THE ROAD.

ANGULAR PLACEMENT

PLACEMENT TABLES

LATERAL PLACEMENT		
KEY	ALL CLASSES OF STREETS AND HIGHWAYS	
	MINIMUM	NORMAL
*A	2'-0" & NOTE NO.4	15'-0"PLUS CURB OR SHOULDER WIDTH
*B	2'-0" & NOTE NO.4	30'-0" OR MORE INCLUDES CURB OR SHOULDER
*C	2'-0" & NOTE NO.4	6'-0"PLUS CURB OR SHOULDER WIDTH OR IF NONE 15'-0"

VERTICAL PLACEMENT (MINIMUM) (9' MAXIMUM)			
KEY	FREEWAYS AND EXPRESSWAYS	CONVENTIONAL STREETS AND HIGHWAYS	
		URBAN	RURAL
D	7'-0" OR NOTE NO. 10	7'-0"	5'-0"
E	6'-0"	7'-0"	5'-0"
F	8'-0" OR NOTE NO. 10	7'-0"	5'-0"
G	6'-0"	6'-0"	4'-0"
H	5'-0"	6'-0"	4'-0"

* SEE NOTE NO. 6 ON SHEET 1

Computer File Information		
Creation Date: 07/04/12	Initials: KCM	
Last Modification Date:	Initials:	R-X
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-X
Drawing File Name: S-614-01_2of2.dgn		R-X
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English	R-X

Sheet Revisions	
Date:	Comments

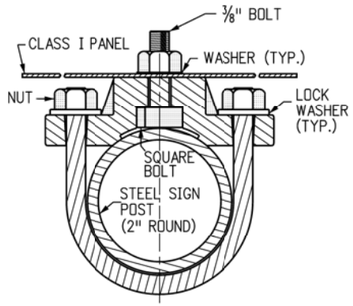
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

GROUND SIGN PLACEMENT

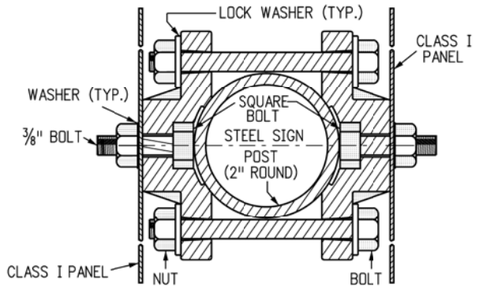
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-614-1
Sheet No. 2 of 2

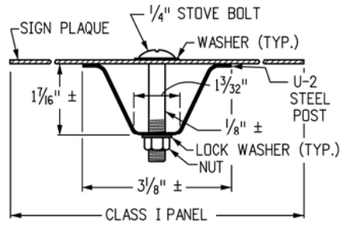
TYPICAL SINGLE BRACKET



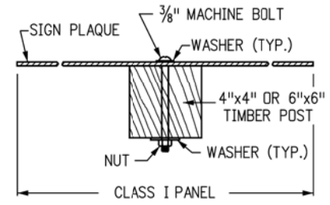
TYPICAL BACK TO BACK



TYPICAL ROUND STEEL POLE SECTION



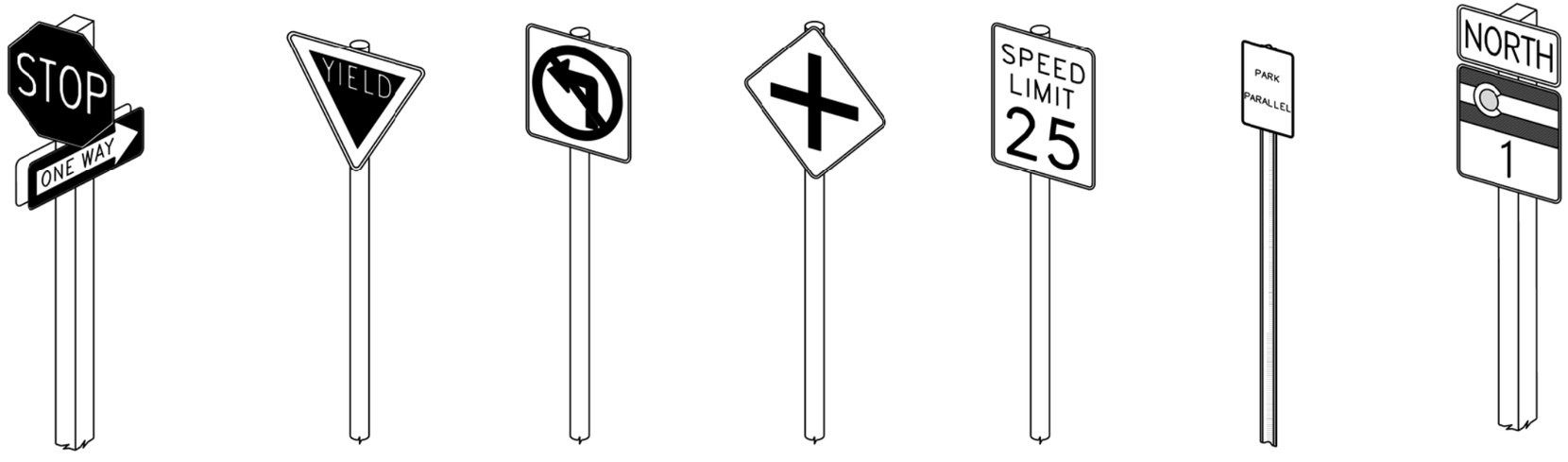
TYPICAL U-2 POST SECTION



TYPICAL TIMBER POST SECTION

GENERAL NOTES

1. CLASS I SIGN PANELS ARE ALL THOSE THAT DO NOT REQUIRE BACKING ZEES. CLASS I PANELS SHALL GENERALLY BE 0.100" MINIMUM THICKNESS SINGLE SHEET ALUMINUM, BUT 0.080" THICKNESS MAY BE USED FOR SIGN PANELS WHERE BOTH THE HORIZONTAL AND VERTICAL DIMENSIONS ARE LESS THAN 36 IN.
2. CLASS I SIGN PANELS SHALL BE FASTENED TO THE U-2 POST WITH 2-1/4 IN. STOVE BOLTS AND TO TIMBER POSTS WITH 2-3/8 IN. MACHINE BOLTS. SEE STANDARD PLANS S-614-20 AND S-614-22 FOR EXCEPTIONS.
3. A WASHER SHALL BE PLACED BETWEEN THE BOLT HEAD AND THE FACE OF THE SIGN PANEL. A 1½ IN. DIA. WASHER SHALL BE PLACED UNDER THE NUT ON THE BACK OF THE TIMBER POST.
4. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
5. ALL SIGNS SHALL BE FABRICATED USING RETROREFLECTIVE SHEETING CONFORMING TO ASTM D4956. THE TYPE SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.
6. FOR SIGN PLACEMENT SEE STANDARD PLAN S-614-1.
7. U-2 POSTS MAY ONLY BE USED FOR DELINEATORS, MILE MARKERS AND STRUCTURE NUMBER PLAQUES. "U" SHAPE STEEL POSTS SHALL BE A UNIFORM FLANGED CHANNEL SECTION MADE FROM HOT ROLLED STRUCTURAL STEEL, RE-ROLLED RAIL STEEL, OR NEW BILLET STEEL HAVING A MINIMUM YIELD STRENGTH OF AT LEAST 30,000 PSI, AND A MINIMUM TENSILE STRENGTH OF AT LEAST 50,000 PSI. U" SHAPE POSTS SHALL WEIGH 2 LBS/FT, EXCEPT THAT A MILL TOLERANCE OF MINUS 3½% OF THE WEIGHT OF ANY ONE POST WILL BE ALLOWED. "U" SHAPE POSTS SHALL HAVE 5/16 IN. HOLES DRILLED OR PUNCHED ON 1IN. OR 2 IN. CENTERS FOR THE TOP 4 FEET OF THE POST AS A MINIMUM, WITH THE FIRST HOLE 1½ IN. FROM THE TOP OF THE POST. COLOR OF POSTS SHALL BE INTERSTATE GREEN.
8. VERTICAL SPACING BETWEEN PANELS ON THE SAME POST SHALL BE 1 IN. TO 1½ IN.
9. TIMBER SIGN POSTS MAY ONLY BE USED FOR TEMPORARY SIGNAGE DURING CONSTRCTION. TUBULAR STEEL SHALL BE USED FOR PERMANENT INSTALLATIONS.



TYPICAL CLASS I GROUND SIGNS

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KCM		Date:	Comments
Last Modification Date: 06/24/2016 Initials: RRR	(R-1)	6/24/16	ADD NOTE 9
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	(R-X)		
Drawing File Name: S-614-02_1of1.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

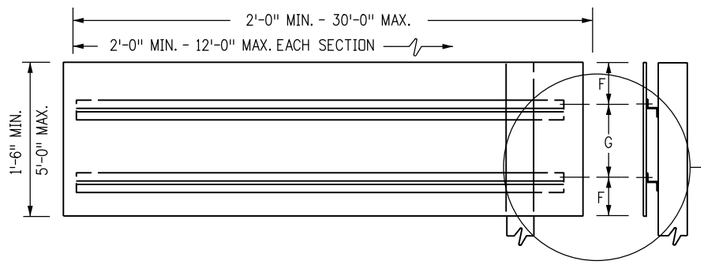
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

CLASS I SIGNS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-614-2
Sheet No. 1 of 1

HORIZONTAL SECTIONS



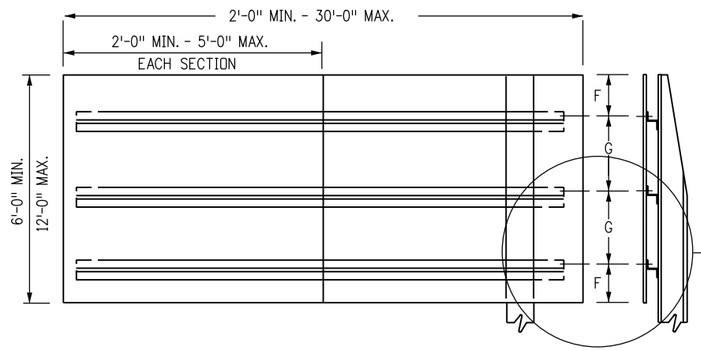
SECTIONS REQUIRED

WIDTH	*SECTIONS
2'-0" TO 12'-0"	1
12'-6" TO 24'-0"	2
24'-6" TO 30'-0"	3

*NUMBER OF SECTIONS SHALL NOT EXCEED MAXIMUM SHOWN IN TABLE

SEE TYPICAL DETAIL ON SHEET 2

VERTICAL SECTIONS



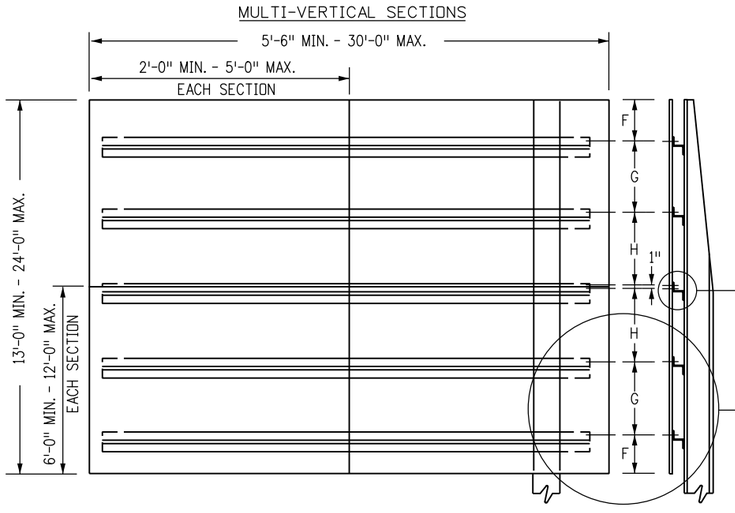
SECTIONS REQUIRED

WIDTH	*SECTIONS
2'-0" TO 5'-0"	1
5'-6" TO 10'-0"	2-3
10'-6" TO 15'-0"	3-4
15'-6" TO 20'-0"	4-5
20'-6" TO 25'-0"	5-7
25'-6" TO 30'-0"	6-8

*NUMBER OF SECTIONS SHALL NOT EXCEED MAXIMUM SHOWN IN TABLE

SEE TYPICAL DETAIL ON SHEET 2

MULTI-VERTICAL SECTIONS



SECTIONS REQUIRED

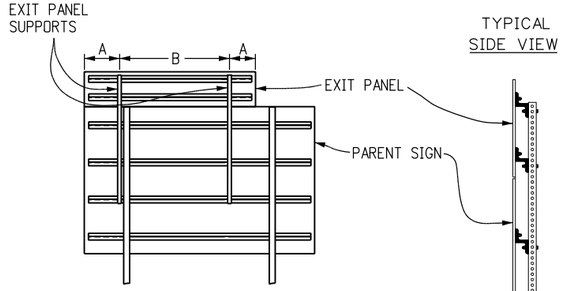
WIDTH	*SECTIONS
5'-6" TO 10'-0"	4-6
10'-6" TO 15'-0"	6-8
15'-6" TO 20'-0"	8-10
20'-6" TO 25'-0"	10-14
25'-6" TO 30'-0"	12-16

*NUMBER OF SECTIONS SHALL NOT EXCEED MAXIMUM SHOWN IN TABLE

SEE TYPICAL SEAM CLOSURE DETAIL ON SHEET 2

SEE TYPICAL DETAIL ON SHEET 2

TYPICAL PANEL ELEVATIONS



SUPPORT SPACING TABLE

EXIT PANEL WIDTH	OVERHANG "A"	SPACING "B"
7'	1'-0"	5'
8'	1'-6"	5'
9'	2'-0"	5'
10'	2'-6"	5'
11'	2'-6"	6'
12'	2'-6"	7'

TYPICAL EXIT PANEL INSTALLATION FOR GROUND SIGNS

EXIT PANEL NOTES

1. THE EXIT PANEL SHALL BE MOUNTED WITH TWO SUPPORTS. RIGHT HAND EXITS REQUIRE THE EDGE OF THE EXIT PANEL TO BE MOUNTED EVEN WITH THE RIGHT EDGE OF THE PARENT SIGN. LEFT HAND EXITS REQUIRE THE LEFT EDGE OF THE EXIT PANEL TO BE MOUNTED EVEN WITH THE LEFT EDGE OF THE PARENT SIGN.

2. THE SUPPORTS SHALL BE SQUARE STEEL TUBING A MINIMUM WIDTH OF 2-1/4" WITH 7/16" INCH HOLES PUNCHED OR DRILLED ON 1" CENTERS ALONG THE LENGTH OF EACH SIDE WHILE MAINTAINING A MINIMUM SECTION MODULUS OF 0.499 CUBIC INCHES. THE STEEL MUST HAVE A MINIMUM YIELD STRESS OF 33 KSI. ALTERNATELY, ZEE BAR MAY USED FOR THE SUPPORT MEMBERS WITH 7/8" HOLES PUNCHED WHERE NEEDED.

3. THE SUPPORTS SHALL BE FASTENED TO THE BACKING ZEE USING 3/8" BOLTS.

4. THE EXIT PANEL SUPPORT MAY BE MOVED 6" IF IT CONFLICTS WITH THE PARENT SIGN SUPPORT.

5. EXIT PANEL MOUNTING WILL BE PAID FOR AS PART OF THE CLASS III SIGN PANEL.

6. EXIT PANEL SUPPORTS SHALL BE ATTACHED TO A MINIMUM OF THREE BACKING ZEES.

GENERAL NOTES

1. CLASS III SIGN PANELS ARE ALL THOSE WHERE A SINGLE PANEL REQUIRES 3 OR MORE BACKING ZEES (THESE WILL BE SIGN PANELS THAT ARE 72 IN. OR MORE IN HEIGHT) AND ANY PANELS THAT ARE PART OF A CLASS III ASSEMBLY SUCH AS EXIT PANELS. ALL CLASS III PANELS SHALL BE 0.125 IN. MINIMUM THICKNESS SHEET ALUMINUM.

2. SEE THE APPLICABLE STANDARDS FOR SIGN PLACEMENT, FOOTING DETAILS AND POST SPACING TABLES.

3. A 3/8 IN. 90° COUNTERSUNK HUCKBOLT AND COLLAR SHALL BE USED TO FASTEN THE SIGN PANEL TO THE BACKING ZEE. A HEX-HEAD BOLT WITH NUT AND WASHERS SHALL BE USED TO FASTEN THE BACKING ZEE TO A TIMBER POST OR TO A STEEL POST.

4. A FLAT WASHER SHALL BE PLACED BETWEEN THE BOLT HEAD AND THE POST FLANGE. A LOCK WASHER SHALL BE PLACED UNDER THE NUT ON A STEEL POST OR A BACKING ZEE. A 1-1/2" DIAMETER WASHER SHALL BE PLACED UNDER THE BOLT HEAD ON A TIMBER POST.

5. ALL EXPOSED SIGN PANEL SECTION JOINTS, EXCEPT THE MULTI-VERTICAL SECTIONS HORIZONTAL SEAM, SHALL BE COVERED ON THE BACKSIDE OF THE SIGN PANEL WITH AN ALUMINUM CLOSURE STRIP. CLOSURE STRIPS SHALL BE RIVETED OR TAPED. SEE FABRICATIONS NOTES.

6. SECTIONS ILLUSTRATED BASED ON UTILIZING 12' X 5' STOCK. 4' WIDE STOCK MAY BE USED WITH APPROPRIATE ADJUSTMENT IN NUMBER OF SECTIONS.

7. ALL SIGNS SHALL BE FABRICATED USING RETROREFLECTIVE SHEETING CONFORMING TO ASTM D4956. THE TYPE SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.

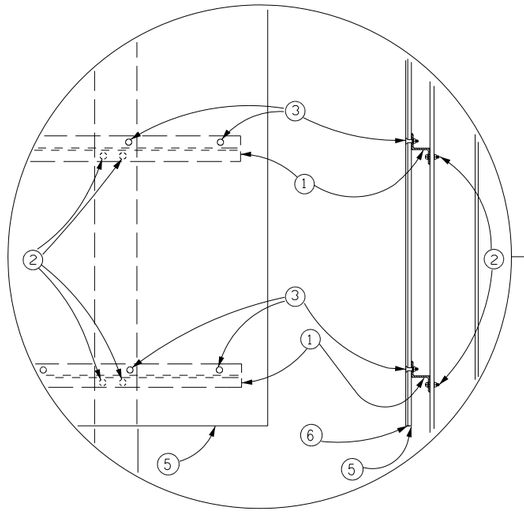
Computer File Information			Sheet Revisions	
Creation Date: 07/04/12 Initials: KCM			Date:	Comments
Last Modification Date: 12/17/14 Initials: KEN	R-1		12/17/14	SHEET 2 - ADDED TWO "TYPICAL BOTTOM PLAQUE INSTALLATION FOR GROUND SIGNS" DETAILS
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X			
Drawing File Name: S-614-04_1of3.dgn	R-X			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

CLASS III SIGNS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

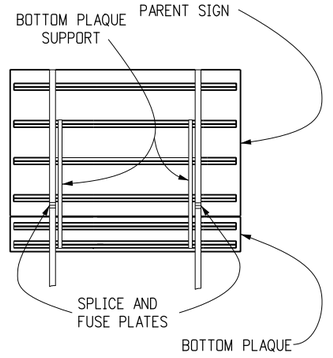
STANDARD PLAN NO.
S-614-4
Sheet No. 1 of 3



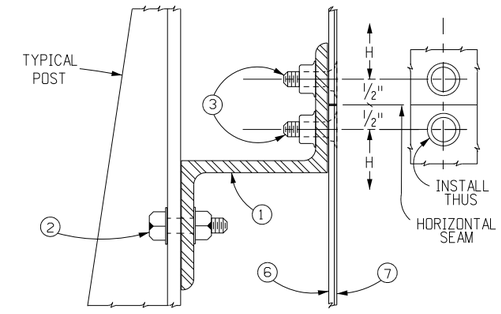
TYPICAL ELEVATION DETAIL

FABRICATION NOTES

1. BACKING ZEE. SEE "ZEE SPACING TABLE" ON SHEET 3. ALUMINUM ALLOY 6061-T6. EACH ZEE TO BE PROVIDED WITH A 9/16 IN. X 2 IN. HORIZONTAL SLOT FOR EACH POST MOUNTING BOLT.
2. 3/8 IN. HEX-HEAD BOLT WITH NUT AND WASHERS; 2 PER BACKING ZEE PER POST REQUIRED. WASHERS ON POST SHALL BE 1 1/2 IN. DIA.
3. 3/8 IN. (NO. 6) 90 DEG. COUNTERSUNK HUCKBOLT WITH COLLAR.
4. 2 IN. X 0.025 IN. ALUMINUM CLOSURE STRIP RIVETED ABOVE THE TOP Z AND BELOW THE BOTTOM Z OR ALUMINUM CLOSURE STRIPS ATTACHED ABOVE, BETWEEN, AND BELOW THE ZEES WITH A VERY HIGH BOND (VHB) DOUBLE ACRYLIC FOAM TAPE, OR APPROVED EQUIVALENT. MANUFACTURER'S RECOMMENDATIONS SHALL BE ADHERED TO FOR THIS APPLICATION.
5. SHEET ALUMINUM: 0.125 IN. MINIMUM THICKNESS.
6. ADHESIVES SHALL BE CLASS I OR CLASS II ADHESIVES OF ASTM D4956.
7. BACKING ZEES SHALL EXTEND TO THE EDGE OF THE PANEL ON 6 FT., 7 FT. & 8 FT. WIDE SIGNS.



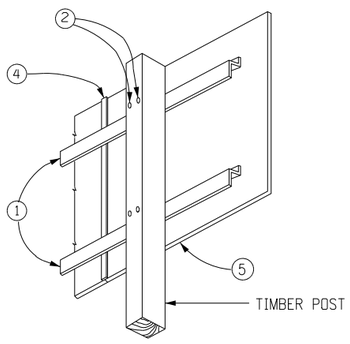
*TYPICAL BOTTOM PLAQUE INSTALLATION FOR GROUND SIGNS (FULL WIDTH PLAQUE SUPPORT)



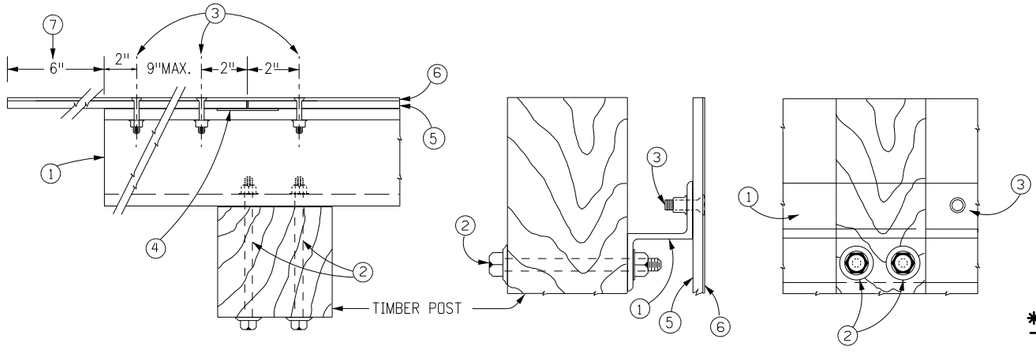
TYPICAL DETAIL SEAM CLOSURE ZEE

(MULTIPLE-VERTICAL SECTIONS, HORIZONTAL SEAMS)

* IN NO CASE SHALL ANY PORTION OF A SIGN PANEL OR PLAQUE BE ATTACHED TO A BREAKAWAY POST BELOW THE FUSE AND SPLICE PLATES.

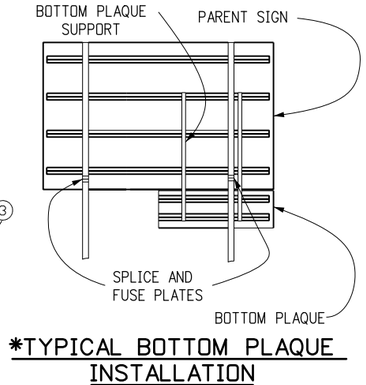


TYPICAL VIEW

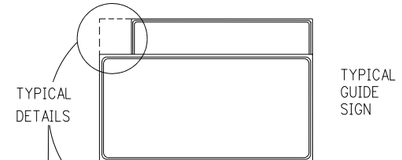


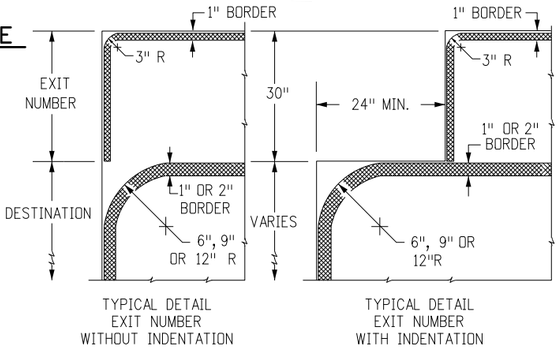
TYPICAL TIMBER POST INSTALLATION

PANEL FABRICATION AND MOUNTING DETAILS

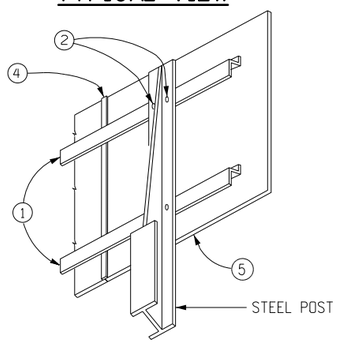


*TYPICAL BOTTOM PLAQUE INSTALLATION FOR GROUND SIGNS (PARTIAL WIDTH PLAQUE SUPPORT)

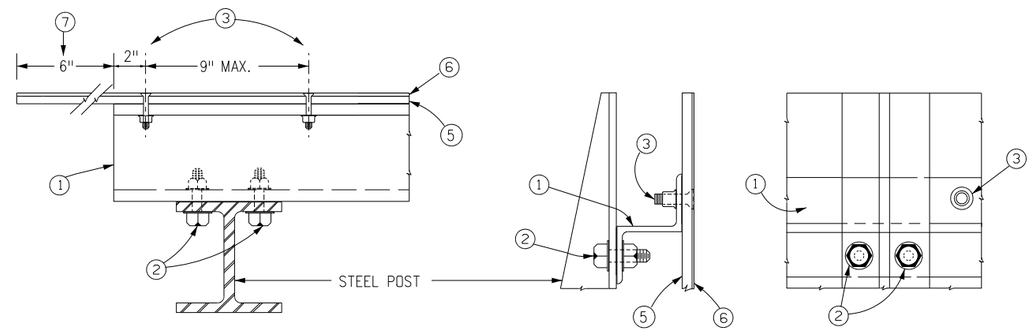




TYPICAL BORDER DETAILS WITH EXIT NUMBER



TYPICAL VIEW



TYPICAL STEEL POST INSTALLATION

PANEL FABRICATION AND MOUNTING DETAILS

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KCM		Date:	Comments
Last Modification Date: 12/17/14 Initials: KEN	R-1	12/17/14	ADDED TWO "TYPICAL BOTTOM PLAQUE INSTALLATION FOR GROUND SIGNS" DETAILS
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-614-04_2of3.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

CLASS III SIGNS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-614-4
Sheet No. 2 of 3

POST SPACING TABLE
FOR SHEET ALUMINUM SIGN PANELS

WIDTH OF SIGN	NO. OF POSTS	OVERHANG "A"	POST SPACING "B"
1'-6"	1	0'-9"	
2'-0"	1	1'-0"	
2'-6"	1	1'-3"	
3'-0"	1	1'-6"	
4'-0"	1	2'-0"	
5'-0"	1	2'-6"	
6'-0"	2	0'-3"	5'-6"
7'-0"	2	0'-3"	6'-6"
8'-0"	2	0'-3"	7'-6"
9'-0"	2	0'-9"	7'-6"
10'-0"	2	1'-3"	7'-6"
11'-0"	2	1'-9"	7'-6"
12'-0"	2	2'-3"	7'-6"
13'-0"	2	2'-6"	8'-0"
14'-0"	2	2'-6"	9'-0"
15'-0"	2	3'-0"	9'-0"
16'-0"	2	3'-3"	9'-6"
17'-0"	2	3'-3"	10'-6"
18'-0"	2	3'-6"	11'-0"
19'-0"	2	3'-9"	11'-6"
20'-0"	2	4'-0"	12'-0"
21'-0"	3	2'-6"	8'-0"
22'-0"	3	3'-0"	8'-0"
23'-0"	3	3'-6"	8'-0"
24'-0"	3	3'-8"	8'-4"
25'-0"	3	4'-0"	8'-6"
26'-0"	3	4'-0"	9'-0"
27'-0"	3	4'-0"	9'-6"
28'-0"	3	4'-0"	10'-0"
29'-0"	3	4'-0"	10'-6"
30'-0"	3	4'-0"	11'-0"

(1), (2)
(1), (2)
(1)

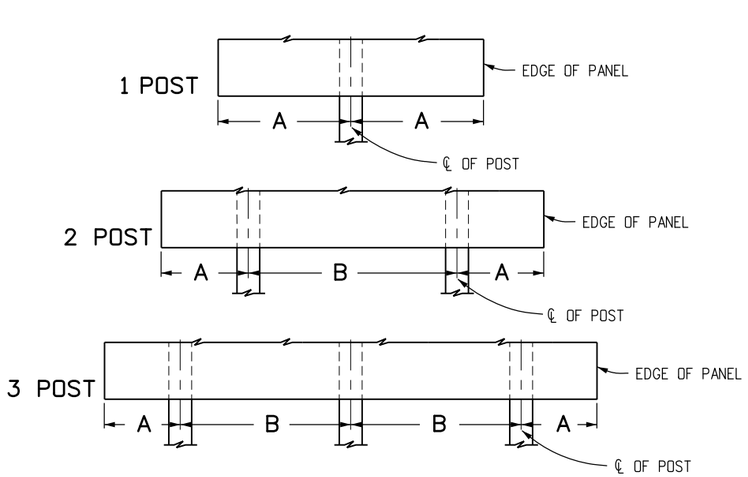
(1) BACKING ZEE SHALL EXTEND TO THE EDGE OF THE PANEL, EXCEPT FOR EXIT PANELS ATTACHED BY SQUARE STEEL TUBING.

(2) 6" X 6" TIMBER POSTS WILL NOT BE USED FOR THESE SIZES OF PANEL.

ZEE SPACING TABLE
FOR 3" X $2^{11}/_{16}$ X 2.33 ALUMINUM BACKING ZEES

SIGN PANEL HEIGHT	NUMBER OF ZEES	OVERHANG "F"	SPACING "G"	SIGN PANEL HEIGHT	NUMBER OF ZEES	OVERHANG "F"	SPACING "G"	SPACING "H"
1'-6"	2	0'-4"	0'-10"	13'-0"	7	1'-0"	1'-10"	1'-9½"
2'-0"	2	0'-5"	1'-2"	14'-0"	7	0'-6"	2'-2"	2'-1½"
2'-6"	2	0'-6"	1'-6"	15'-0"	7	1'-0"	2'-2"	2'-1½"
3'-0"	2	0'-7"	1'-10"	16'-0"	7	0'-6"	2'-6"	2'-5½"
4'-0"	2	0'-11"	2'-2"	17'-0"	7	1'-0"	2'-6"	2'-5½"
5'-0"	2	1'-3"	2'-6"	18'-0"	9	0'-4"	2'-2"	2'-1½"
6'-0"	3	0'-10"	2'-2"	19'-0"	9	0'-10"	2'-2"	2'-1½"
7'-0"	3	1'-0"	2'-6"	20'-0"	9	1'-4"	2'-2"	2'-1½"
8'-0"	4	0'-9"	2'-2"	21'-0"	9	0'-6"	2'-6"	2'-5½"
9'-0"	4	1'-3"	2'-2"	22'-0"	9	1'-0"	2'-6"	2'-5½"
10'-0"	4	1'-3"	2'-6"	23'-0"	11	0'-8"	2'-2"	2'-1½"
11'-0"	5	1'-2"	2'-2"	24'-0"	11	1'-2"	2'-2"	2'-1½"
12'-0"	5	1'-0"	2'-6"					

NOTES: - FOR F, G & H. SEE DETAILS ON SHEET 1.



TYPICAL POST SPACING

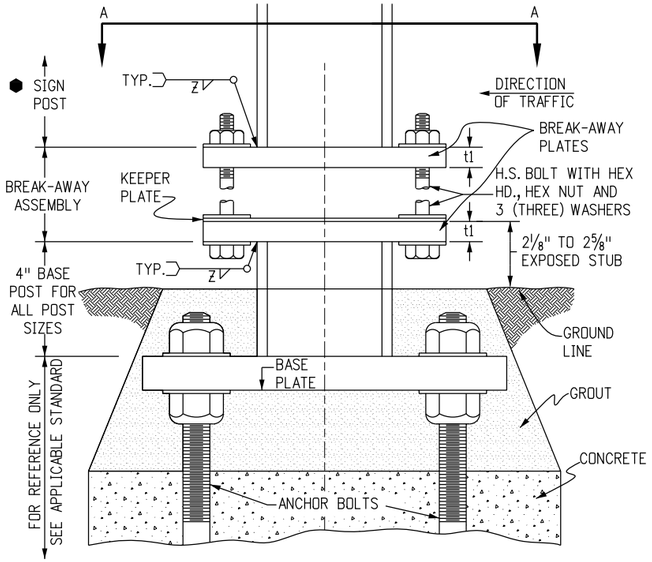
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KCM		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-614-04_3of3.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

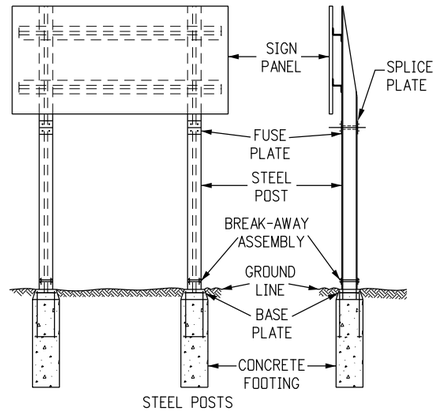
CLASS III SIGNS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

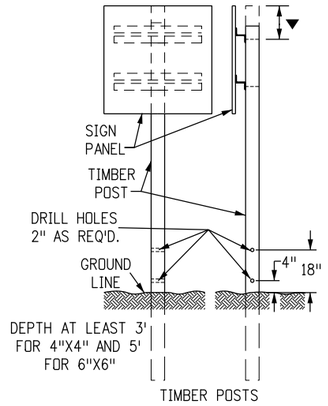
STANDARD PLAN NO.
S-614-4
Sheet No. 3 of 3



TYPICAL ELEVATION
STEEL POST ASSEMBLY

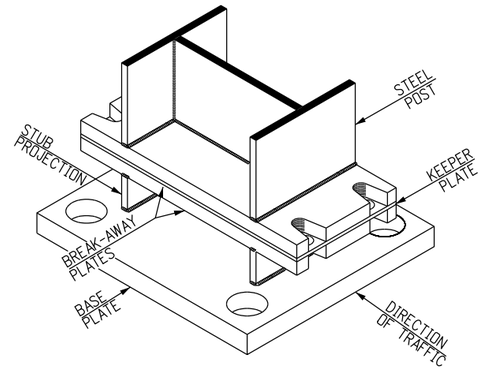


STEEL POSTS



TIMBER POSTS

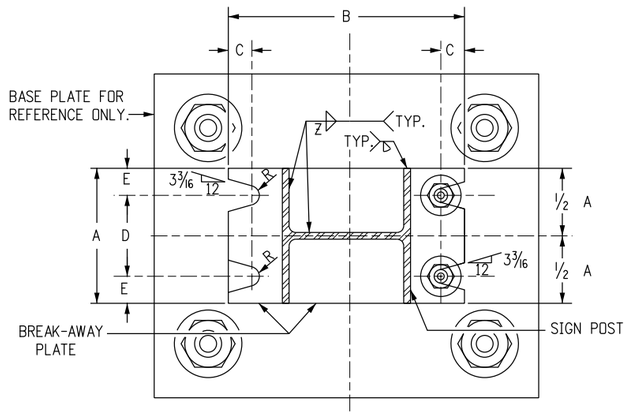
TYPICAL BREAK-AWAY SIGN SUPPORT INSTALLATIONS



TYPICAL PROJECTED VIEW
STEEL POST ASSEMBLY

GENERAL NOTES

1. DESIGN CONFORMS WITH AASHTO "SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS".
2. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270 (ASTM A709) GRADE 36 AND SECTIONS 509 AND 614 OF THE STANDARD SPECIFICATIONS.
3. STEEL FUSE PLATES AND SPLICE PLATES SHALL CONFORM TO AASHTO M270 (ASTM A709) GRADE 36.
4. ALL STRUCTURAL STEEL INCLUDING FUSE AND SPLICE PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 AFTER FABRICATION. STEEL POSTS SHALL BE STAMPED WITH THEIR SIZE.
5. ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM-A325. WASHERS USED IN THE BREAK-AWAY PLATE AND FUSE PLATE ASSEMBLIES SHALL BE OF SUFFICIENT STRENGTH TO PREVENT ANY DEFLECTION OR CUPPING INTO THE SLOTTED GROOVES UNDER BOLT TORQUING.
6. ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ASTM-A153 OR ASTM-A164.
7. ALL HOLES IN FUSE PLATE AND POST FLANGE ON WHICH IT MOUNTS, SHALL BE DRILLED. ALL OTHERS MAY BE DRILLED OR SUB-PUNCHED AND REAMED.
8. ALL STEEL CUTS SHALL PREFERABLY BE SAW CUTS; HOWEVER, FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND. REMOVE ALL BURRS. METAL SHALL NOT PROJECT BEYOND THE PLANE OF THE PLATE FACE.
9. A "KEEPER PLATE" OF 28-GAGE GALVANIZED SHEET METAL, FABRICATED TO MATCH BREAK-AWAY PLATE DIMENSIONS BUT WITH HOLES RATHER THAN SLOTS, SHALL BE USED TO PREVENT BOLT LOOSENING DUE TO WIND VIBRATION.
10. HIGH STRENGTH BOLTS IN THE BREAK-AWAY ASSEMBLY SHALL BE TIGHTENED ONLY TO THE TORQUE SHOWN IN THE TABLE. DO NOT OVERTIGHTEN.
11. TIMBER POSTS SHALL BE IN ACCORDANCE WITH SECTION 614 OF THE STANDARD SPECIFICATIONS AS TO SIZE, ALTERNATE SIZE, GRADE, SPECIES, TREAMENT, AND BREAK-AWAY.
12. FOR ALL BASE PLATE AND FOOTING WORK SEE STANDARD PLAN S-614-6.
13. FOR ADDITIONAL INFORMATION, REFER TO "TABULATION OF SIGNS" AND CROSS SECTIONS FOR CLASS III SIGNS" INCLUDED IN THE PLANS.
14. ▼ TIMBER POST SHALL BE FLUSH WITH TOP OF SIGN PANEL FOR DIRECT MOUNT AND 3-3/16" MINIMUM ABOVE BOLT FOR BACKING ZEE MOUNT.
15. TIMBER SIGN POST MAY ONLY BE USED FOR TEMPORARY SIGNAGE DURING CONSTRUCTION. TUBULAR STEEL SHALL BE USED FOR PERMANENT INSTALLATIONS.
16. IN NO CASE SHALL A BACKING ZEE BE PLACED BELOW THE FUSE PLATES.
17. SIGN POST PAY LENGTH IS FROM THE UPPER BREAK-AWAY PLATE TO THE TOP OF THE "COPE". THE 4-INCH "BASE POST" AND THE LOWER "BREAK-AWAY PLATE" ARE PAID FOR AS PART OF THE FOOTING. THE UPPER "BREAK-AWAY PLATE" AND ALL NUTS, BOLTS, WASHERS AND KEEPER PLATE FOR FASTENING THE BREAK-AWAY PLATES ARE PAID FOR AS A PART OF THE POST.



SECTION A-A

BOLTING PROCEDURE FOR BREAK-AWAY PLATE ASSEMBLY

1. ASSEMBLE THE POST TO THE STUB WITH BOLTS, WITH ONE FLAT WASHER ON THE TOP OF THE UPPER BREAK-AWAY PLATE AND ONE BELOW THE LOWER BREAK-AWAY PLATE, AND ONE FLAT WASHER AND A KEEPER PLATE BETWEEN THE BREAK-AWAY PLATES.
2. TIGHTEN ALL BOLTS TO A "SNUG TIGHT" CONDITION WITH A 12 IN. TO 15 IN. WRENCH, TO BED THE WASHERS AND CLEAN THE BOLT THREADS. THEN LOOSEN EACH BOLT IN TURN, AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE (SEE BREAK-AWAY PLATE DATA TABLES).
3. BURR THREADS AT JUNCTION WITH NUT TO PREVENT NUT LOOSENING.

BREAK-AWAY PLATE DATA TABLE

DIMENSION / POST SIZE	BOLT SIZE AND TORQUE	A	B	C	D	E	t1	WELD Z	R
W 12 X 26	¾"ø X 3¾" 46 Ft. Lb.	6½"	17"	⅞"	3½"	1½"	1"	5/16"	13/32"
W 10 X 26		5¾"	14⅞"	⅞"	3¼"	1¼"	1"	5/16"	13/32"
W 10 X 22		5¾"	14⅝"	⅞"	3¼"	1¼"	1"	5/16"	13/32"
W 8 X 21		5¼"	12⅝"	⅞"	2¾"	1¼"	1"	5/16"	13/32"
W 8 X 18	⅝"ø X 3" 29 Ft. Lb.	5¼"	12"	¾"	3"	1⅛"	¾"	¼"	11/32"
W 6 X 15		6"	10"	¾"	3¾"	1⅛"	¾"	¼"	11/32"
W 6 X 12		5"	10"	¾"	2¾"	1⅛"	¾"	¼"	11/32"

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: SCL	Date:	Comments
Last Modification Date: 02/08/2017	Initials: DiNardo	02/08/17	Rev. Dimension D in Table for W10 Posts
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-614-05_1of2.dgn			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

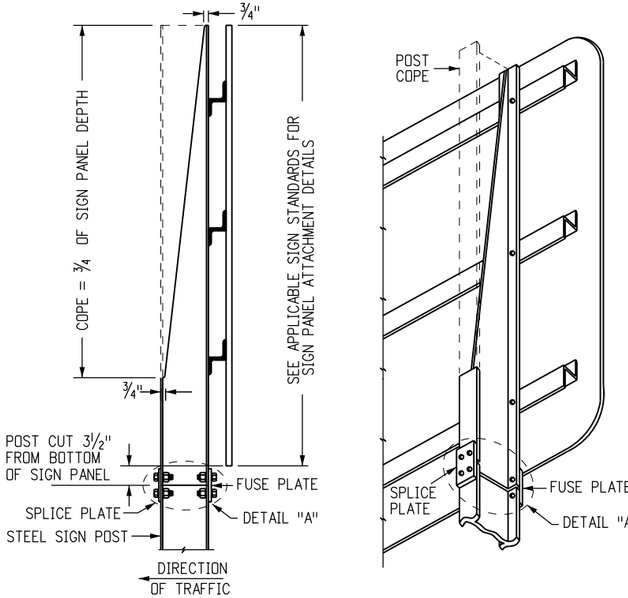
R-1

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

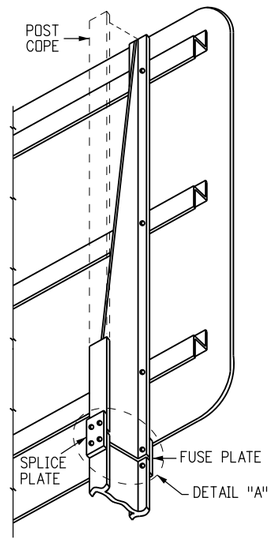
BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

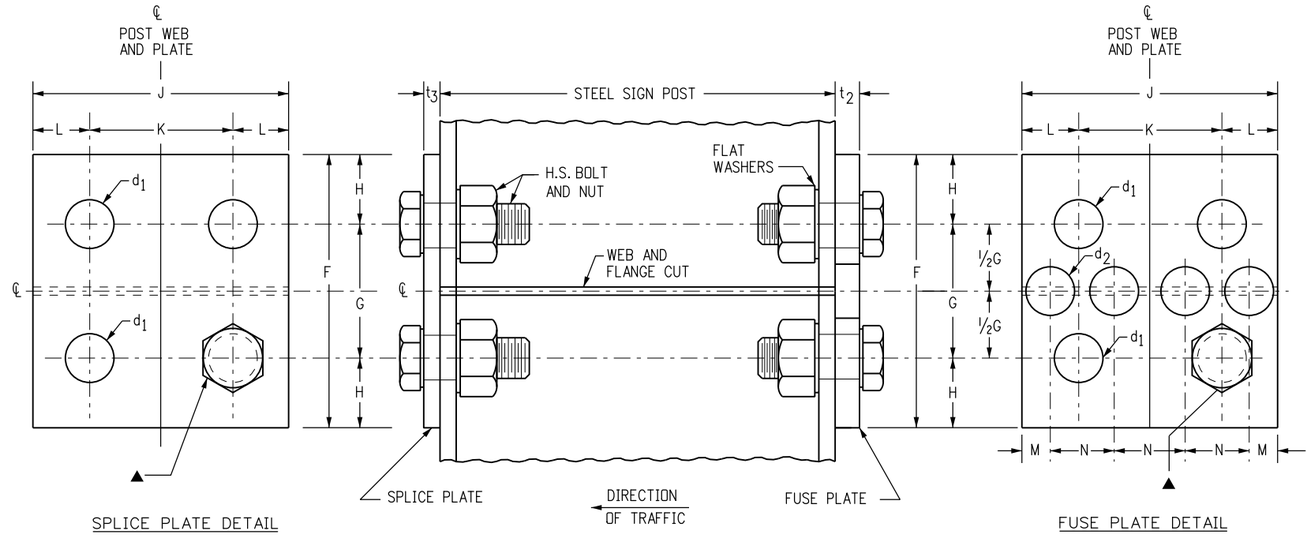
STANDARD PLAN NO.
S-614-5
Sheet No. 1 of 2



TYPICAL SIDE VIEW
FUSE PLATE AND POST COPE



TYPICAL PROJECTED VIEW
FUSE PLATE AND POST COPE



▲ HOLE DIAMETER = d_1
USE HIGH STRENGTH BOLTS WITH HEX HEAD AND HEX NUT, WITH ONE FLAT WASHER UNDER EACH

TYPICAL FUSE AND SPLICE PLATE HINGE DETAILS

FUSE AND SPLICE PLATE HINGE DATA TABLE

SIZE / POST	F	G	H	J	K	L	M	N	d_1	d_2	t_2	t_3	BOLT SIZE	FABRICATION NOTES
W 12 X 26	6"	3"	1½"	6½"	3½"	1½"	13/16"	1⅝"	13/16"	1⅝"	½"	7/16"	¾" ØX 2½"	ALL HOLES IN FUSE PLATE AND POST FLANGE HOLES ON WHICH IT MOUNTS SHALL BE DRILLED. ALL OTHERS MAY BE PUNCHED. BURR THREADS AT JUNCTION WITH NUT TO PREVENT NUT LOOSENING. ASTM-A441, ASTM-572 GRADE 50, OR ASTM-A588 MAY BE SUBSTITUTED FOR AASHTO M270 (ASTM A709) GRADE 36 AT THE OPTION OF THE FABRICATOR. STEEL USED SHALL HAVE AN ULTIMATE TENSILE STRENGTH NOT TO EXCEED 80 KSI.
W 10 X 26	6"	3"	1½"	5¾"	2¾"	1½"	13/16"	1⅜"	13/16"	1⅛"	½"	7/16"	¾" ØX 2½"	
W 10 X 22	6"	3"	1½"	5¾"	2¾"	1½"	13/16"	1⅜"	13/16"	1⅛"	½"	⅜"	¾" ØX 2½"	
W 8 X 21	5½"	2½"	1½"	5¼"	2¾"	1¼"	¾"	1¼"	13/16"	1"	½"	⅜"	¾" ØX 2½"	
W 8 X 18	5"	2½"	1¼"	5¼"	2¾"	1¼"	¾"	1¼"	11/16"	1⅛"	⅜"	⅜"	⅝" ØX 2½"	
W 6 X 15	5"	2½"	1¼"	6"	3½"	1¼"	¾"	1½"	11/16"	1¼"	⅜"	¼"	⅝" ØX 2½"	
W 6 X 12	4¼"	2"	1⅛"	4"	2¼"	⅞"	½"	1"	9/16"	¾"	¼"	¼"	½" ØX 1¾"	

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: SCL		Date:	Comments
Last Modification Date: Initials:			
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-614-05_2of2.dgn			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

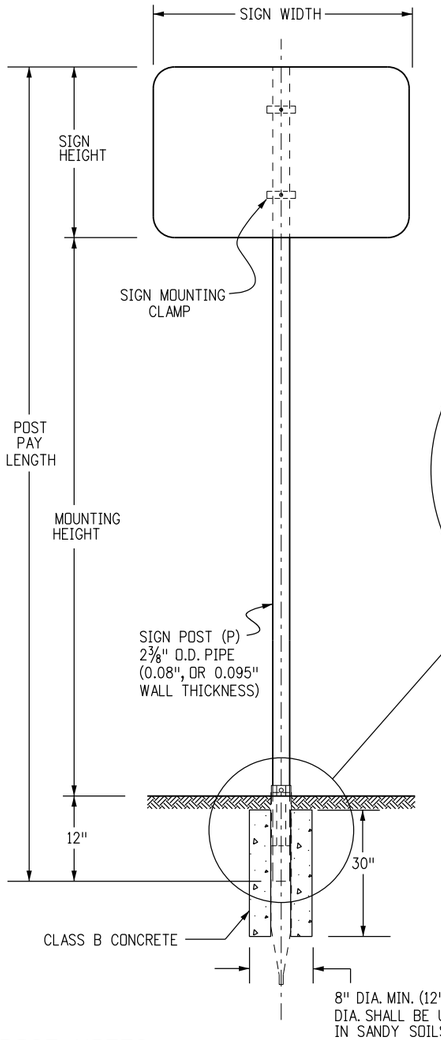
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

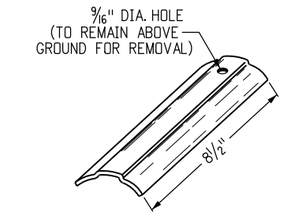
BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

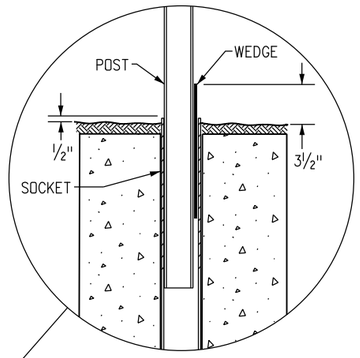
STANDARD PLAN NO.
S-614-5
Sheet No. 2 of 2

TUBULAR STEEL POSTS
(SOCKET SYSTEM) (FOR USE WITH ALL P-POST INSTALLATIONS)
(SEE SHEET 2 FOR P1 AND P2 POST INSTALLATIONS)

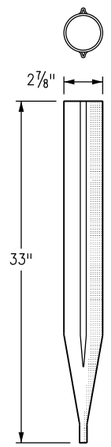




WEDGE
11 GA. GALVANIZED STEEL
ASTM A-526 G-90



NOTE: WEDGE SHALL BE INSTALLED ON SIDE OF POST FACING TRAFFIC.



TUBULAR CONCRETE FOOTING
12 GA. GALVANIZED
STEEL ASTM - 787

POST NOTES

THE POST MAY BE PRE-PUNCHED WITH ⅜" DIA. HOLES AND THE SIGN MOUNTED DIRECTLY TO THE POST, OR AN APPROVED MOUNTING CLAMP MAY BE USED TO MOUNT THE SIGN TO THE POST. IF THE POST IS PRE-PUNCHED, THE HOLES SHALL BE SPACED THE FOLLOWING DISTANCES FROM THE TOP:

1", 3", 10", 16", 21", 23", 24", 27", 33", 37", 39", AND 45"

SIGNPOST SELECTION GUIDE (90 MPH WIND LOAD DESIGN)
(FOR SOCKET SYSTEM AND SLIPBASE INSTALLATIONS USING P, P1 OR P2 POSTS)

7' MOUNTING HEIGHT

SIGN HEIGHT (FT) \ SIGN WIDTH (FT)	1	2	2.5	3	4	5	6	7	8	9
1	P	P	P	P	P	P1	SIZES NOT USED			
2	P	P	P	P	P	P1				
2.5	P	P	P	P	P1	P1				
3	P	P	P	P1	P1	P1				
4	P	P1	P1	P1	P1	P1	TWO P1'S			
5	SIZES NOT USED		P1	P1	P1	P1				
6			P1	P1	P1	▼P2				TWO P2'S
7			P1	P1	▼P2	TWO P1'S			TWO P2'S	SIZE NOT USED

8' MOUNTING HEIGHT

SIGN HEIGHT (FT) \ SIGN WIDTH (FT)	1	2	2.5	3	4	5	6	7	8	9
1	P	P	P	P	P	P1	SIZES NOT USED			
2	P	P	P	P	P1	P1				
2.5	P	P	P	P1	P1	P1				
3	P	P	P1	P1	P1	P1				
4	P	P1	P1	P1	P1	P1	TWO P1'S			
5	SIZES NOT USED		P1	P1	P1	▼P2				
6			P1	P1	P1	▼P2				TWO P2'S
7			P1	P1	TWO P1'S	TWO P1'S			TWO P2'S	SIZES NOT USED

9' MOUNTING HEIGHT

SIGN HEIGHT (FT) \ SIGN WIDTH (FT)	1	2	2.5	3	4	5	6	7	8	9
1	P	P	P	P	P	P1	SIZES NOT USED			
2	P	P	P	P	P1	P1				
2.5	P	P	P	P1	P1	P1				
3	P	P	P1	P1	P1	P1				
4	P	P1	P1	P1	P1	P1	TWO P1'S			
5	SIZES NOT USED		P1	P1	P1	▼P2				TWO P2'S
6			P1	P1	▼P2	TWO P1'S			TWO P2'S	
7			P1	P2	TWO P1'S	TWO P1'S		TWO P2'S	SIZES NOT USED	

▼ SEE CHART NOTE 4.

CHART NOTES

1. TYPICAL POST MOUNTING HEIGHTS FROM GROUND TO BOTTOM OF SIGN PANEL ARE 7, 8 OR 9 FEET. OTHER HEIGHTS MAY BE REQUIRED WHEN SIGNS ARE MOUNTED ON STEEPER FILL OR CUT SLOPES.
2. FOR SIGNS MOUNTED ON TWO POSTS, THE MINIMUM DISTANCE BETWEEN POSTS SHALL BE 2 FEET AND THE MAXIMUM DISTANCE SHALL BE 8 FEET. DISTANCE FROM POST TO EDGE OF SIGN PANEL(S) SHALL BE 0 TO 4 INCHES. WHEN BACKING ZEES ARE USED, POSTS SHALL BE INSTALLED WITH A MINIMUM OF 2 INCHES TO THE EDGE OF THE BACKING ZEE.
3. ALL SIGN PANELS GREATER THAN 60 INCHES IN WIDTH MUST BE MOUNTED ON TWO POSTS TO PREVENT TURNING.
4. THE POST SIZES SHOWN ARE THE MINIMUM SIZES REQUIRED. TWO P1 POSTS MAY BE SUBSTITUTED WHERE ONE P2 POST IS INDICATED. P2 POSTS MAY SUBSTITUTED FOR P1 POSTS WHEN DIRECTED BY THE ENGINEER.

GENERAL NOTES

1. SIGNS BETWEEN 37 IN. AND 60 IN. WIDTH WITH ONE POST INSTALLATION REQUIRE A T OR U SIGN SUPPORT BRACKET IN ADDITION TO THE BACKING ZEE REQUIREMENTS. WHEN DIRECTED BY THE ENGINEER, SIGN PANELS LESS THAN 48 IN. IN WIDTH MAY ATTACHED DIRECTLY TO T OR U BRACKETS WITHOUT ZEES.
2. U-BRACKETS MAY BE USED FOR MULTIPLE SIGN INSTALLATIONS.
3. FOR BACKING ZEE REQUIREMENTS AND DETAILS, SEE STANDARD PLANS S-614-3 AND S-614-4.

POST SPECIFICATIONS

POST SIZE	OUTSIDE DIAMETER	WALL THICKNESS	MATERIAL	**COATING	MAX ALLOW MOMENT	PAID FOR AS:
P	2.375"	.080"	ASTM-513	ASTM A-653 G-210 WITH 3.0 MIL POLYMER COATING PER ASTM A123 CLEAR COATING	1.47 KIP FT	STEEL SIGN SUPPORT (2 INCH ROUND)
P1	2.875"	.160"	ASTM-513		4.02 KIP FT	STEEL SIGN SUPPORT (2½ INCH ROUND NP-40)
P2	2.875"	.276"	ASTM-500	GC HOT DIPPED PER ASTM-123	5.13 KIP FT	STEEL SIGN SUPPORT (2½ INCH ROUND SCH 80)

** COLOR POWDER COATING MAY BE ADDED ACCORDING TO MANUFACTURER SPECIFICATIONS FOR SPECIAL LOCATIONS WHEN SHOWN ON THE PLANS.

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 08/05/16	Initials: NNC
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-614-08.dgn	
CAD Ver.: MicroStation V8i Scale: Not to Scale	Units: English

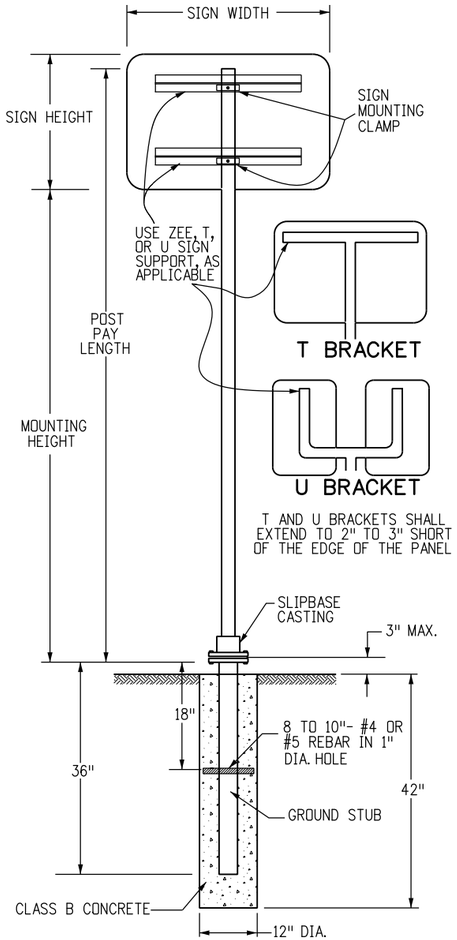
Sheet Revisions		
	Date:	Comments
R-1	03/05/13	SHTS 1 & 2 - UPDATED DETAIL TITLES
R-2	10/23/14	SHT 2 - MOVED SLIPBASE DETAILS TO SHEET 3, AND ADDED 4" BASE PLATE DETAIL TO NEW SHEET 3

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

TUBULAR STEEL SIGN SUPPORT DETAILS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-614-8
Sheet No. 1 of 6



TUBULAR STEEL POST (WITH SLIPBASE) (FOR USE WITH ALL P1 AND P2 POST INSTALLATIONS) (SEE SHEET 1 FOR P-POST INSTALLATIONS)

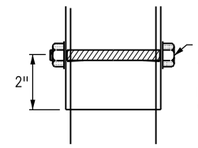
GENERAL NOTE

THE CONTRACTOR SHALL INSTALL THE POSTS PER THE MANUFACTURER'S RECOMMENDATIONS WITHOUT ADDITIONAL COMPENSATION.

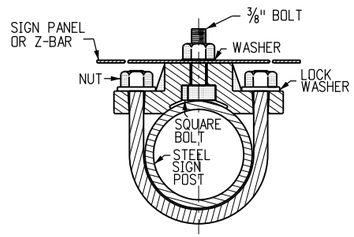
DIMENSIONS FOR MOUNTING CLAMP (ALL DIMENSION ARE IN INCHES)

STANDARD PIPE SIZE	A	B	C	D	E	F	G	K	L	R_1	R_2
2	3 3/4	2 3/4	1 1/2	1 1/8	1/2	3/16	1	2 11/16	1 7/32	1 1/4	1 3/16
2 1/2	4 1/4	3 1/4	2	1 1/4	1/2	1/4	1	3 3/16	1 15/32	1 1/2	1 7/16

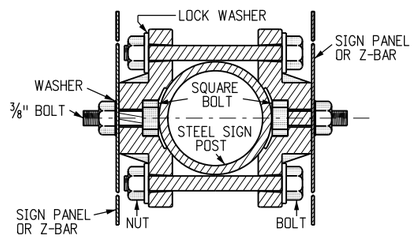
T AND U BRACKET ATTACHMENT



TYPICAL SINGLE BRACKET



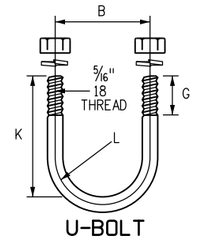
TYPICAL BACK TO BACK



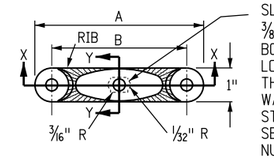
DETAILS FOR SIGN PANEL ATTACHMENT

PIPE CLAMP CASTING

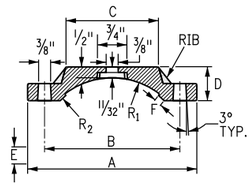
PIPE CLAMP CASTING SHALL BE ASTM B26 OR B108 ALUMINUM ALLOY A444.0-T4 OR 356.0-F. ALL SIGN MOUNTING CLAMP PARTS NOT MADE FROM ALUMINUM SHALL BE GALVANIZED STEEL IN CONFORMANCE WITH ASTM A153 OR STAINLESS STEEL.



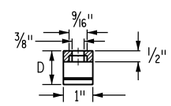
U-BOLT TO BE MADE IN ACCORDANCE WITH STANDARD MANUFACTURING PROCEDURE. 1/4" OR 5/18" DIAMETER STOCK IS PERMISSIBLE. AMERICAN STANDARD REGULAR SEMI-FINISHED HEX NUTS AND SPRING LOCKWASHERS.



SLOT TO HOLD HEAD OF 3/8" HEX HEAD BOLT. THE BOLT SHALL BE 1 1/4" LONG, WITH FULL THREADS, A MEDIUM WASHER, AND GALVANIZED STEEL OR ALUMINUM SELF-LOCKING HEX HEAD NUT. THE BOLT HEAD MUST NOT TURN IN THE SLOT.



SECTION X-X



SECTION Y-Y

MOUNTING CLAMP FOR SOCKET OR SLIPBASE

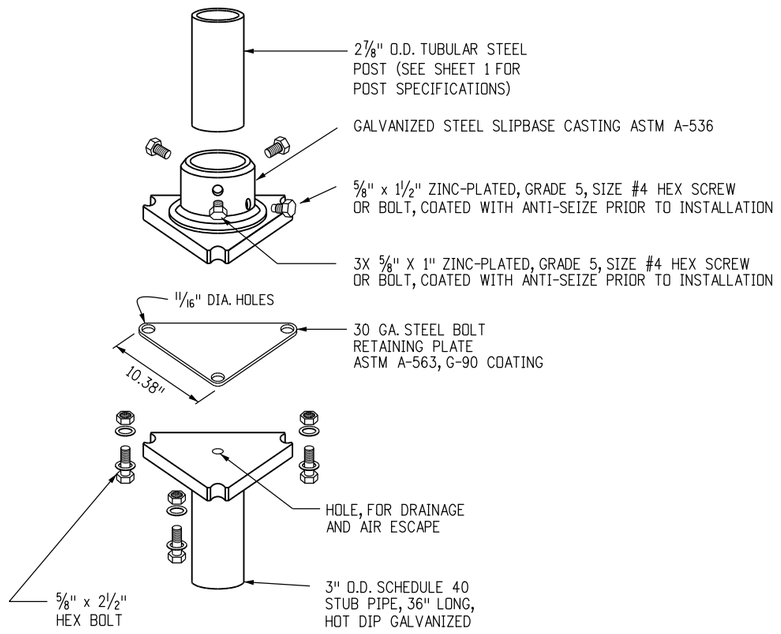
Computer File Information			Sheet Revisions	
Creation Date: 07/04/12 Initials: SCL		Date:	Comments	
Last Modification Date: 10/23/14 Initials: KEN	R-1	03/05/13	UPDATED DETAIL TITLES	
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-2	10/23/14	MOVED SLIPBASE DETAILS TO SHEET 3	
Drawing File Name: S-614-08.dgn				
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English				

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

TUBULAR STEEL SIGN SUPPORT DETAILS

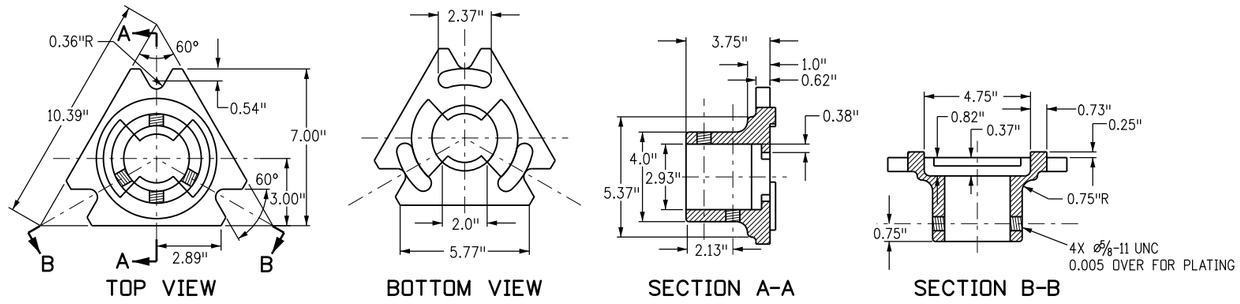
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-614-8
Sheet No. 2 of 6

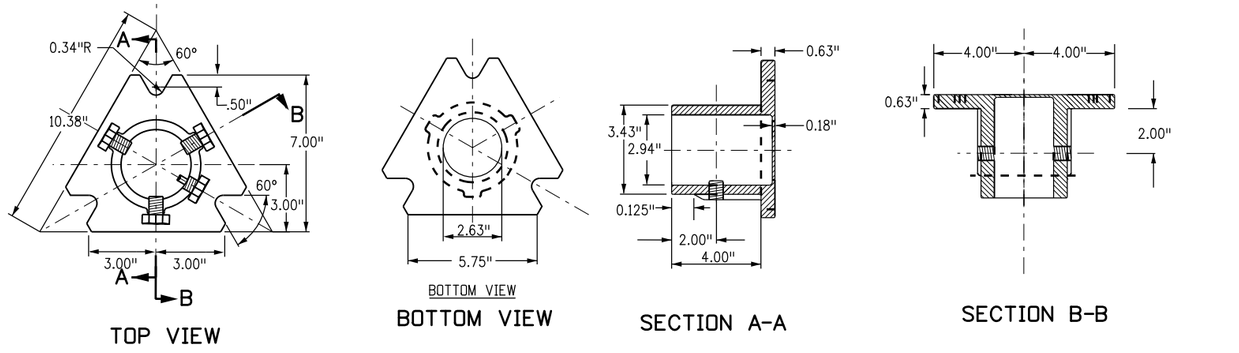


TYPICAL ASSEMBLY

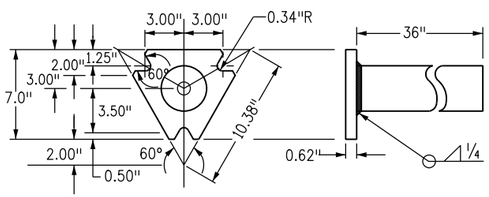
CAST-IN-PLACE SLIPBASE INSTALLATION



SLIPBASE CASTING 1



SLIPBASE CASTING 2



SLIPBASE STUB POST

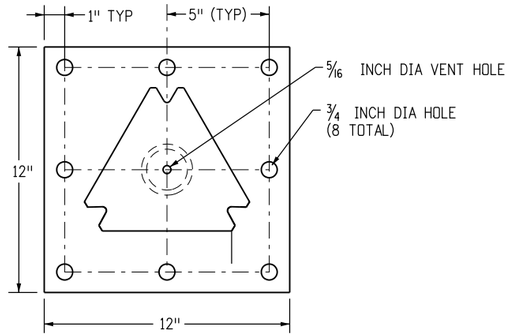
BASE PLATE FABRICATION REQUIREMENTS:

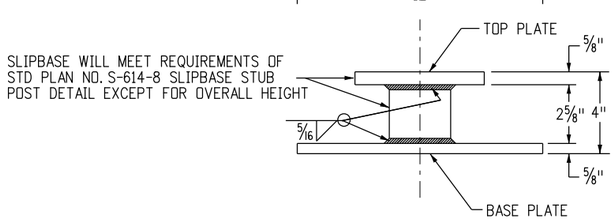
BASE PLATE: 3/4 INCH ASTM A 36 PLATE STEEL

PIPE STUB: 3 INCH NOMINAL SCHEDULE 80, ASTM A 500 GR B

TOP PLATE: MEET REQUIREMENTS OF STD PLAN NO. S-614-8, SHT 2 OF 5

MEET ASTM A 123 GALVANIZING AFTER FABRICATION IS COMPLETED.





BASE PLATE DETAIL

SURFACE MOUNT SLIPBASE TUBULAR STEEL SIGN BASE REQUIREMENTS

FOR 2-7/8 INCH POSTS (P1 OR P2 POSTS)
FOR CONCRETE SURFACES GREATER THAN 7 INCHES THICK
FOR CONCRETE SURFACES GREATER THAN 12 INCHES IN WIDTH

MOUNTING HARDWARE

- 8 - EACH ⅝ x 5½ INCH LONG "HILTI KWIK HUS-EZ SCREW ANCHORS
- 16 - EACH ⅝ INCH FLAT WASHERS
- 8 - EACH ⅝ INCH LOCK WASHERS
- 8 - EACH ⅝ INCH NUTS

ALL HARDWARE WILL BE GALVANIZED OR ZINC PLATED.

INSTALLATION REQUIREMENTS:

DRILL: (8) - ⅝ INCH HOLES 6 INCH DEEP, CLEAN HOLE PRIOR TO INSTALLING ANCHORS

USE ADDITIONAL WASHERS FOR SHIMMING TO LEVEL BASE PLATE.

SURFACE MOUNT SLIPBASE TUBULAR STEEL SIGN BASE NOTES

1. REFER TO SIGNING PLANS FOR SIGN LOCATIONS AND HEIGHT
2. MINUMUM ALLOWABLE TENSION CAPACITY FOR WEDGE ANCHORS = 3000 LBS.
3. MAXIMUM ALLOWABLE MOMENT FOR SIGN BASE = 5.13 kip-ft.

RETRO-FIT SLIPBASE INSTALLATION

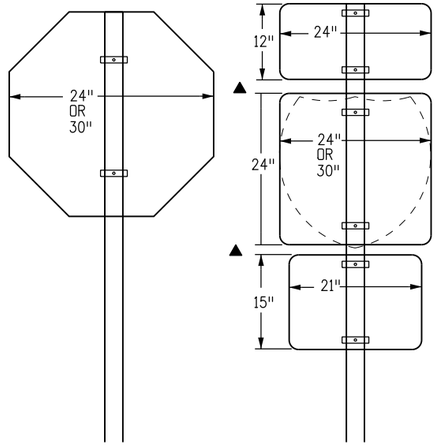
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KEN		Date:	Comments
Last Modification Date: 12/01/16 Initials: RPR	R-1	10/23/14	NEW SHEET. INCLUDES SLIP BASE DETAILS PLUS 4" BASE PLATE DETAIL
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-2	04/01/16	UPDATES TO RETRO-FIT HARDWARE
Drawing File Name: S-614-08.dgn	R-3	12/01/16	ADDED DETAILS FOR SLIPBASE 2
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

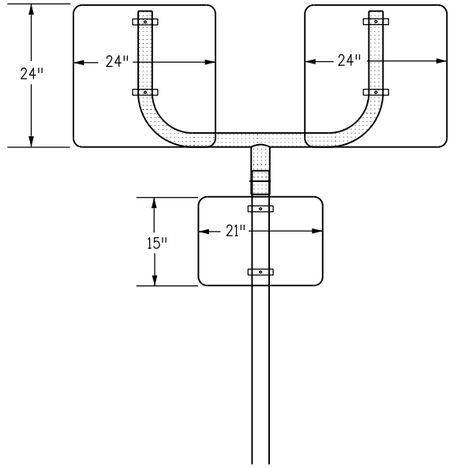
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

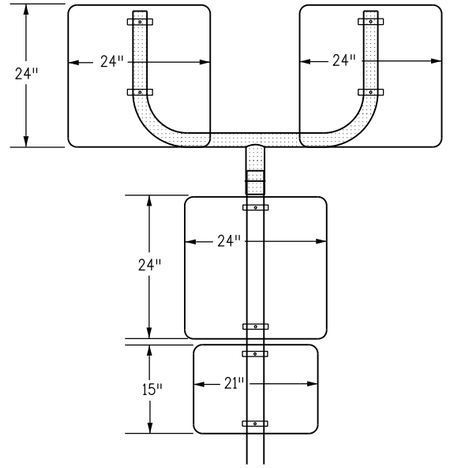
TUBULAR STEEL SIGN SUPPORT DETAILS

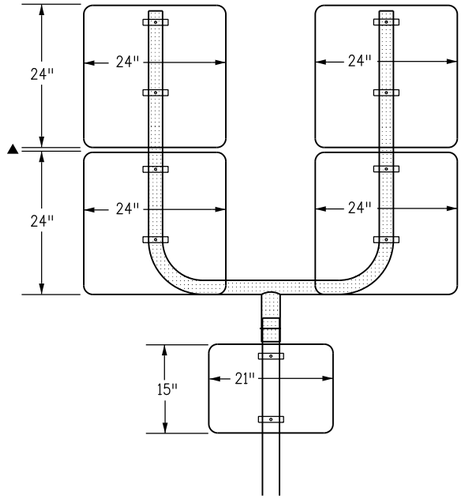
Issued By: Safety & Traffic Engineering Branch July 4, 2012

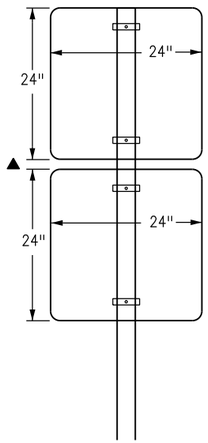
STANDARD PLAN NO.
S-614-8

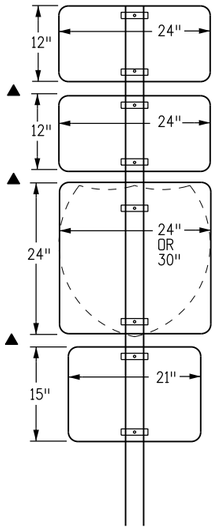


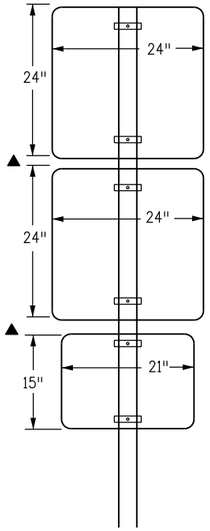




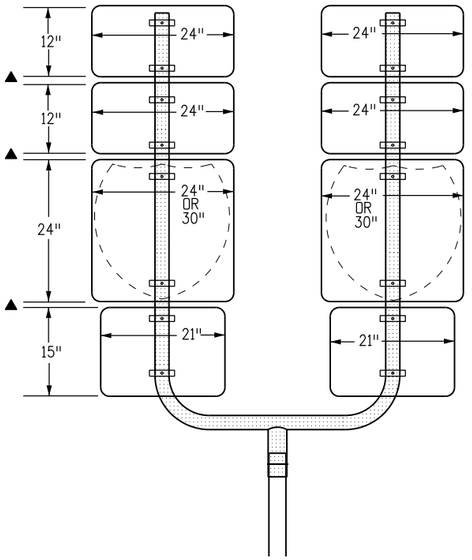








CLASS I SIGN COMBINATIONS (DIRECT ATTACHMENT)



CLASS I SIGN COMBINATIONS USING U-BRACKETS

▲ SEE NOTE 6 ON SHEET 5

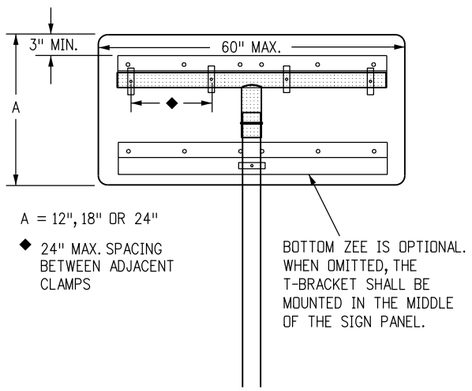
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: KEN	Date:	Comments
Last Modification Date:	Initials:		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-614-08.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale	Units: English		

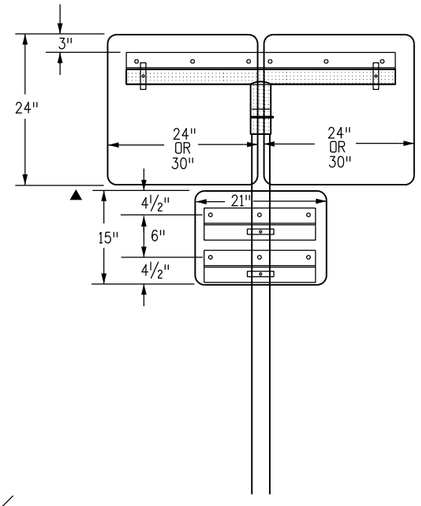
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

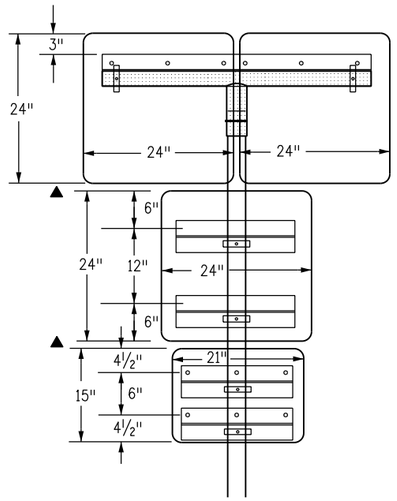
TUBULAR STEEL SIGN SUPPORT DETAILS

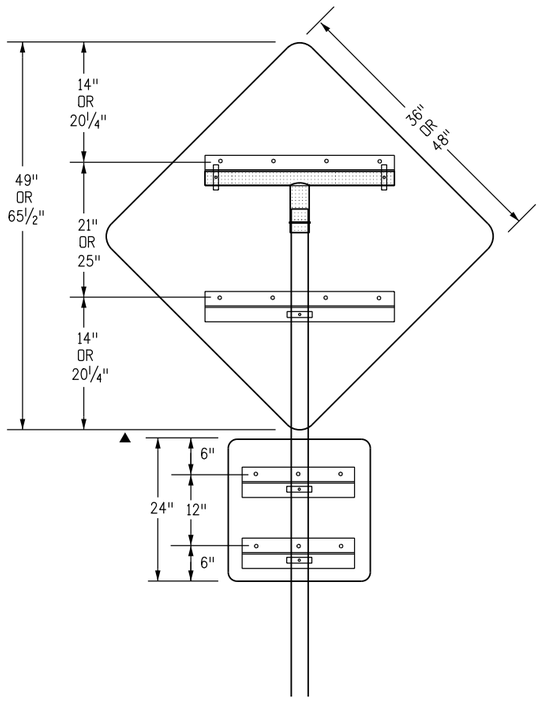
Issued By: Safety & Traffic Engineering Branch July 4, 2012

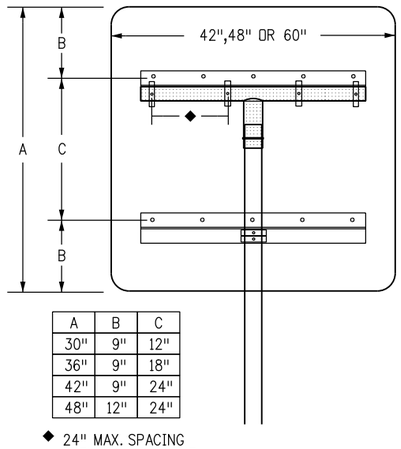
STANDARD PLAN NO.
S-614-8
Sheet No. 4 of 6











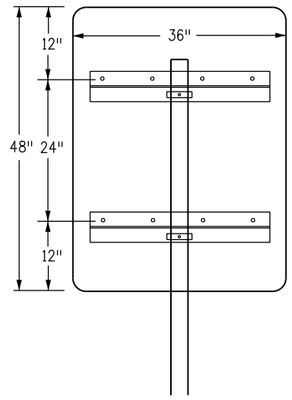
A	B	C
30"	9"	12"
36"	9"	18"
42"	9"	24"
48"	12"	24"

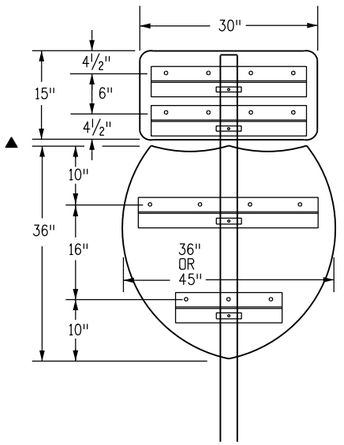
CLASS II SIGN COMBINATIONS USING T-BRACKETS WITH Z-BAR

PANEL WIDTHS	ZEE LENGTH
21"	15"
24"	18"
30"	24"
36"	30"
42"	36"
45"	39"
48"	42"
54"	48"
60"	54"
36" DIAMOND	22"
48" DIAMOND	36"
24" & 24"	43"
24" & 30"	49"
30" & 30"	55"
36" & 36"	67"
45" & 36"	76"
24" & 24" & 24"	68"
24" & 24" & 30"	74"
24" & 30" & 24"	74"
30" & 24" & 30"	80"
24" & 30" & 30"	80"
30" & 30" & 30"	86"

GENERAL NOTES

1. Z-BAR LENGTH SHALL BE 3 IN. (± ½ IN.) SHORT OF THE EDGE OF THE SIGN OR ROW OF SIGNS ON BOTH SIDES. THE ACCOMPANYING TABLE GIVES THE Z-BAR LENGTH FOR MOST TYPICAL PANEL COMBINATIONS.
2. FIRST AND LAST HOLES SHALL BE 2 IN. FROM EDGE OF Z-BAR. THE HOLES IN BETWEEN SHALL BE 6 IN. TO 8 IN. APART.
3. T AND U BRACKETS SHALL TERMINATE 2 IN. TO 3 IN. FROM EDGE OF SIGN PANEL. WHEN A ZEE IS CONNECTED TO A T-BRACKET, THEY SHALL BE THE SAME LENGTH EXCEPT WHEN THE ZEE MUST EXTEND BEYOND THE MAXIMUM LENGTH OF A T-BRACKET.
4. TWO MOUNTING CLAMPS ARE REQUIRED ON ZEES WHERE THERE IS ONLY ONE ZEE FOR THE PANEL AND THE ZEE IS ATTACHED TO ONLY ONE POST.
5. ZEES SHALL BE ATTACHED TO T-BRACKETS AND U-BRACKETS WITH U-BOLTS OR MOUNTING CLAMPS.
6. ▲ VERTICAL SPACING BETWEEN SIGN PANELS SHALL BE 1 IN. TO 1½ IN. TYPICAL.
7. IN SPECIAL CASES U-BRACKETS MAY BE USED TO MOUNT SIGNS THAT FACE DIFFERENT DIRECTIONS. THE ENGINEER SHALL DETERMINE THE ORIENTATION OF THE SIGN PANELS AND VERIFY THAT THE MAXIMUM ALLOWABLE WIND LOADS FOR THE POST ARE NOT EXCEEDED.





SINGLE POST CLASS II SIGNS USING Z-BAR

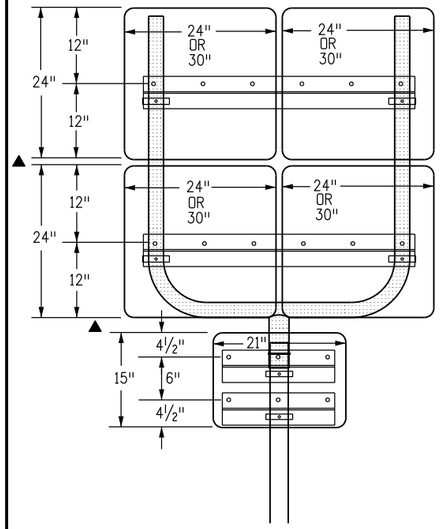
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: KEN	Date:	Comments
Last Modification Date:	Initials:		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-614-08.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

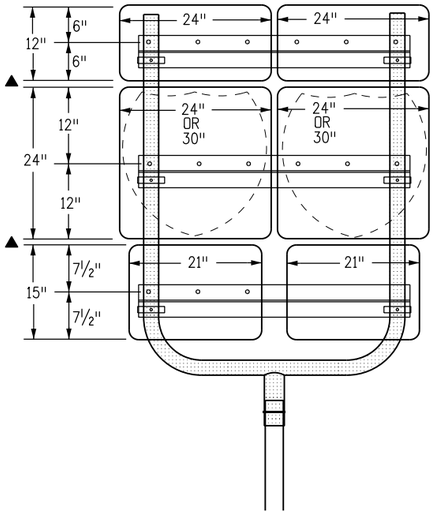
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

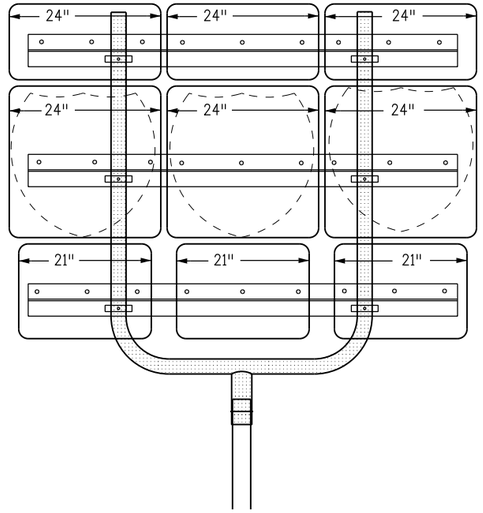
TUBULAR STEEL SIGN SUPPORT DETAILS

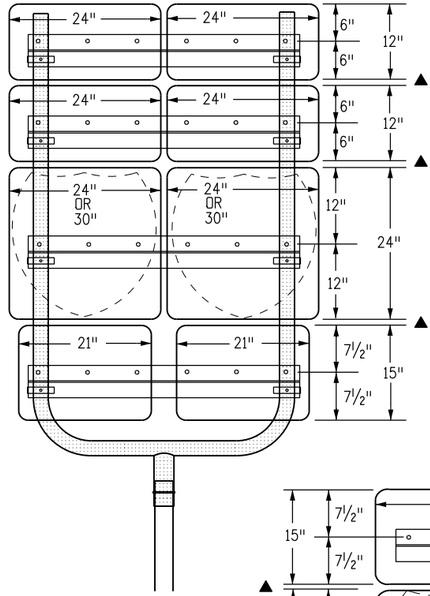
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-614-8

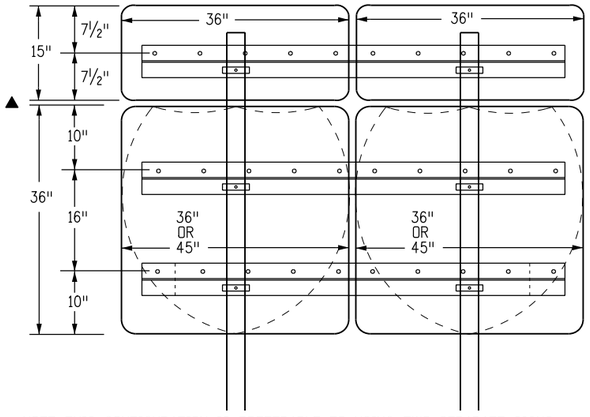




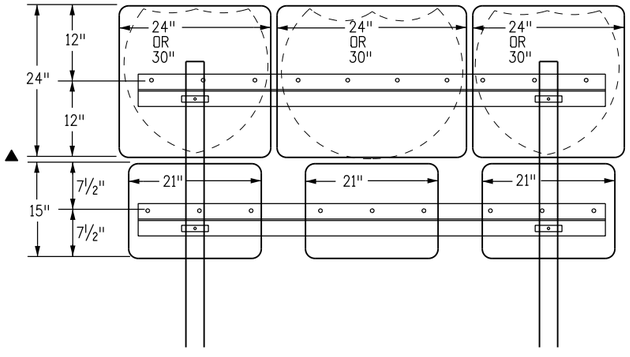




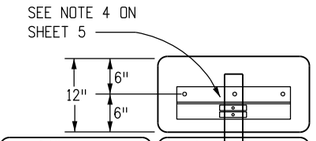
CLASS II SIGN COMBINATIONS USING U-BRACKETS

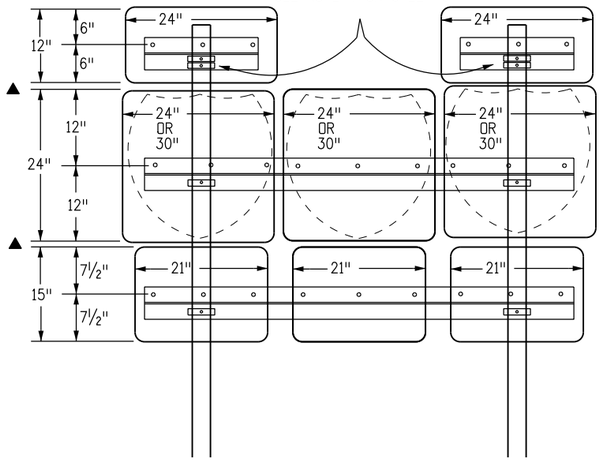


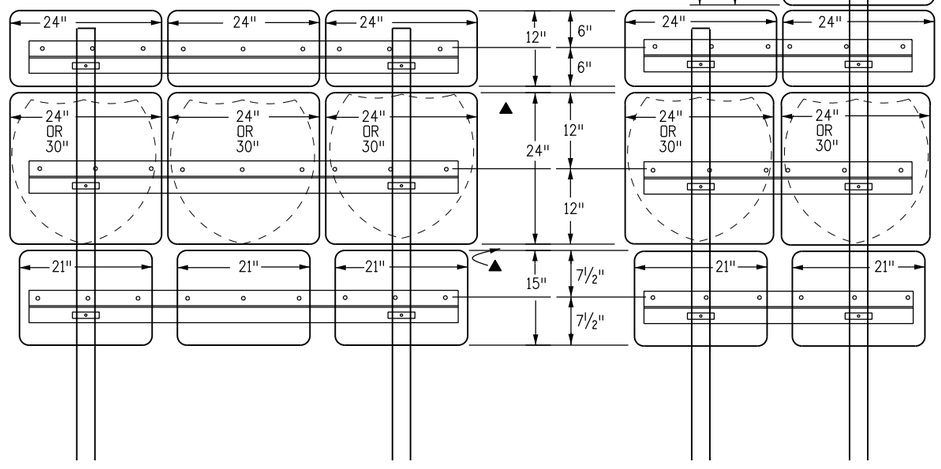
NOTE: THIS CONFIGURATION IS PREFERABLE TO USING TWO SEPARATE SIGNS.



SEE NOTE 4 ON SHEET 5







▲ SEE NOTE 6 ON SHEET 5

CLASS II SIGN COMBINATIONS USING TWO POSTS

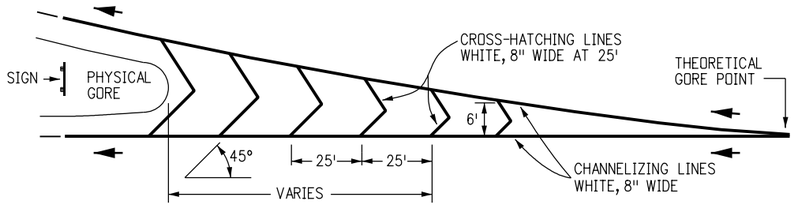
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: KEN	Date:	Comments
Last Modification Date:	Initials:		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-614-08.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

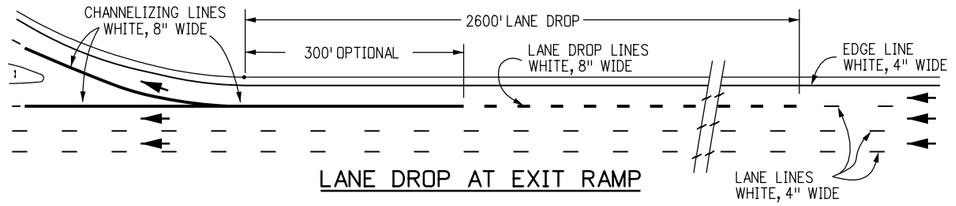
TUBULAR STEEL SIGN SUPPORT DETAILS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

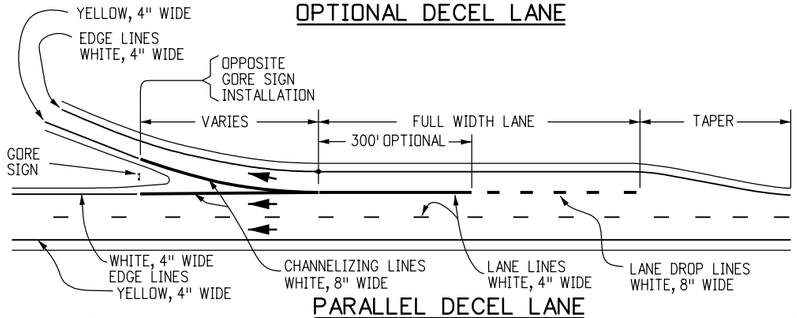
STANDARD PLAN NO.
S-614-8
Sheet No. 6 of 6



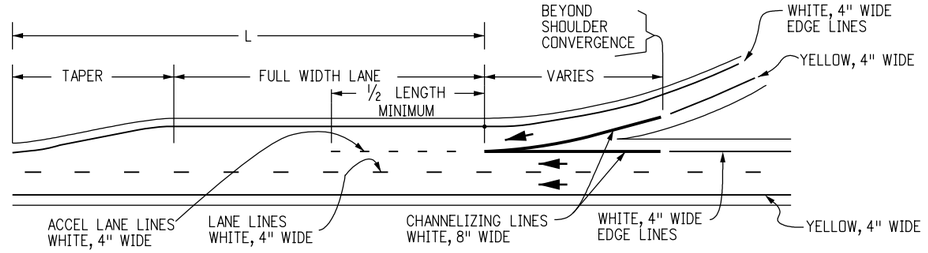
OPTIONAL DECEL LANE



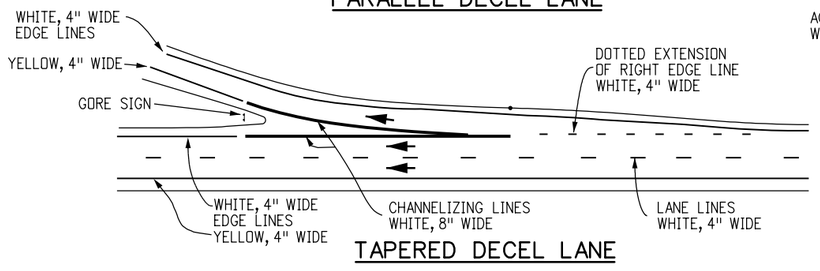
LANE DROP AT EXIT RAMP



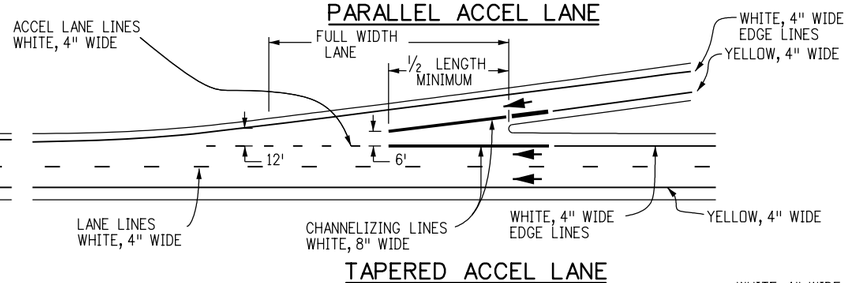
PARALLEL DECEL LANE



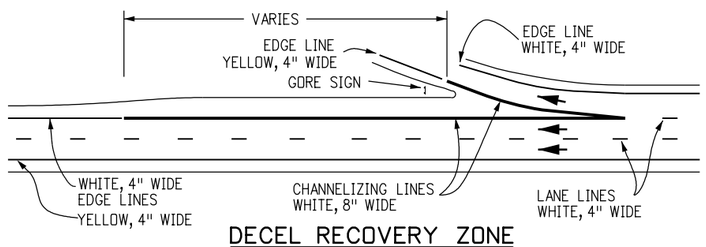
PARALLEL ACCEL LANE



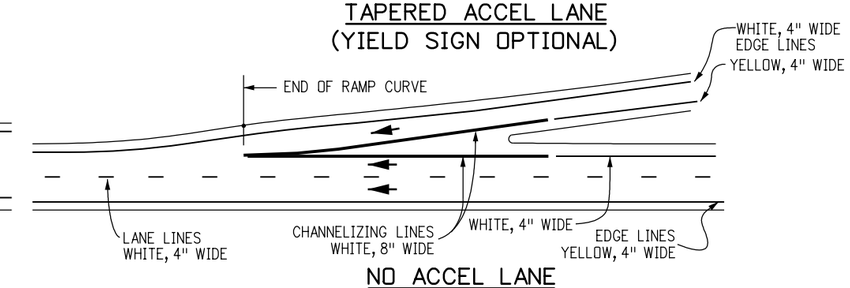
TAPERED DECEL LANE



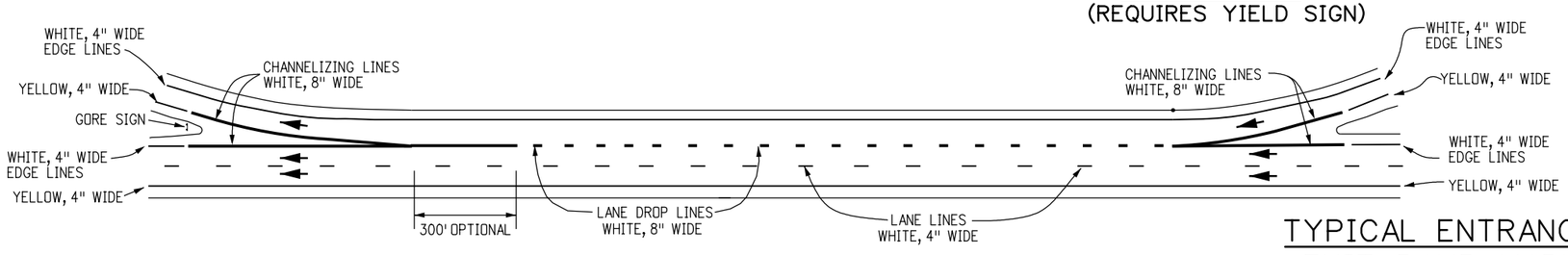
TAPERED ACCEL LANE (YIELD SIGN OPTIONAL)



DECEL RECOVERY ZONE



NO ACCEL LANE (REQUIRES YIELD SIGN)



COMBINATION ACCEL-DECEL LANE

TYPICAL ENTRANCE AND EXIT RAMP MARKINGS

GENERAL NOTES

1. CENTER LINES

   BROKEN YELLOW, 4 IN. WIDE - 10 FT. SEGMENTS WITH 30 FT. GAPS.

   SOLID YELLOW, 4 IN. WIDE. THESE LINES SEPARATE ADJACENT-OPPOSITE DIRECTION TRAFFIC LANES. DOUBLE LINES SHALL BE SPACED 4 IN. APART.

2. LANE LINES

   BROKEN WHITE, 4 IN. WIDE - 10 FT. SEGMENTS WITH 30' GAPS.

   SOLID WHITE, 4 IN. WIDE. THESE LINES SEPARATE ADJACENT-SAME DIRECTION TRAFFIC LANES. A SOLID LINE MAY BE USED TO DISCOURAGE LANE CHANGING, WHILE TWO PARALLEL SOLID WHITE LINES ARE REQUIRED TO PROHIBIT LANE CHANGING.

3. EDGE LINES

   SOLID WHITE OR YELLOW EDGE LINES SHALL BE 4 IN. WIDE. YELLOW EDGE LINES SHALL BE USED ONLY FOR LEFT EDGE, IN THE DIRECTION OF TRAVEL OF DIVIDED STREETS AND HIGHWAYS (SEPARATED BY OTHER THAN A PAINTED MEDIAN) AND ONE-WAY ROADWAYS (INCLUDING RAMPS).

   EDGE LINES ARE NOT CONTINUED THROUGH INTERSECTIONS AND ARE NOT BROKEN FOR DRIVEWAYS. CARE MUST BE TAKEN TO AVOID EDGE LINE APPEARING AS LANE LINE ALONG ROADWAYS WITH WIDE SHOULDERS AND/OR CLOSELY SPACED DRIVEWAYS.

4. DOTTED EXTENSION LINES

   BROKEN WHITE, WIDTH MATCHING THE LINE BEING EXTENDED-2 FT. SEGMENTS WITH 4 FT. GAPS. THESE LINES ARE USED TO DELINEATE THE EXTENSION OF A LINE THROUGH AN INTERSECTION OR INTERCHANGE AREA.

5. CHANNELIZING LINES

   SOLID WHITE, 8 IN. WIDE. THESE LINES ARE USED WITH ACCELERATION-DECELERATION LANES, PAVEMENT WIDTH TRANSITIONS, AND LEFT-RIGHT TURN SLOTS OR ISLANDS.

6. CROSS-HATCHING LINES

   SOLID WHITE OR YELLOW, 8 IN. WIDE-45 DEGREE DIAGONAL, SPACED AT 25 FT. INTERVALS. THESE LINES ARE OPTIONAL AND MAY BE PLACED AT LOCATIONS INDICATED ON THE PLANS OR DETERMINED BY THE ENGINEER. YELLOW SHALL BE USED FOR PAINTED MEDIANS OR PAVEMENT WIDTH TRANSITIONS ONLY.

   OPTIONAL DIAGONAL SHOULDER MARKINGS SHALL BE SOLID WHITE, 8 IN. WIDE, SPACED AT INTERVALS OF 20 FT. MINIMUM TO 100 FT. MAXIMUM.

7. PARKING LINES

   SOLID WHITE, 3 IN. WIDE-DIAGONAL OR PARALLEL AS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.

8. STOP LINES

   SOLID WHITE, 24 IN. WIDE-EXTEND PARALLEL TO INTERSECTED ROADWAY ACROSS ALL APPROACH LANES OR AS INDICATED AT LOCATIONS ON THE PLANS. LOCATE AT THE DESIRED STOPPING POINT, NOT MORE THAN 30 FT, NOR LESS THAN 4 FT. FROM THE NEAREST EDGE OF THE INTERSECTED TRAFFIC LANE.

9. LANE DROP / AUX LINES

   BROKEN WHITE, 8 IN. WIDE - 3 FT. SEGMENTS WITH 12 FT. GAPS. THESE LINES SHOULD BEGIN 2600 FT. IN ADVANCE OF THE THEORETICAL GORE POINT TO DISTINGUISH THE LANE DROP FROM A CONTINUOUS LANE. THE CHANNELIZING LINE MAY BE EXTENDED APPROXIMATELY 300 FT. UPSTREAM.

(CONTINUED ON SHEET NO. 2)

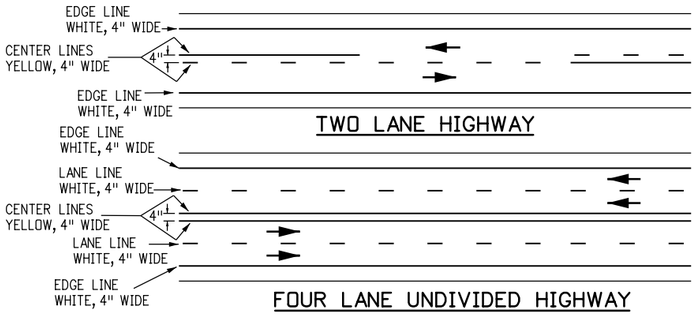
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: SCL		Date:	Comments
Last Modification Date: 02/08/17 Initials: MBhat	R-5	02/08/17	UPDATED #9 IN GEN. NOTES FROM 9' TO 12' UPDATED #9 TITLE TO INCLUDE "AUX LINES" UPATED LANE DROP TO ACCEL LANE DELETED DIMENSION IN COMB. ACCEL-DECEL DRAWING ADDED DIMENSIONS IN PARALLEL ACCEL LANE DRAWING
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-627-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

PAVEMENT MARKINGS

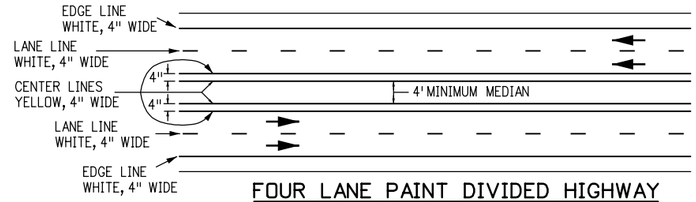
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-627-1
Sheet No. 1 of 8

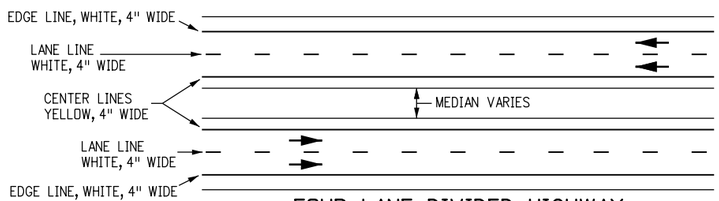


TWO LANE HIGHWAY

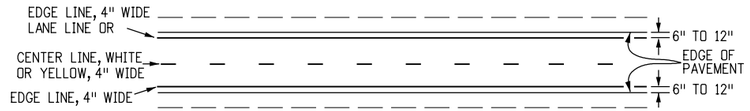
FOUR LANE UNDIVIDED HIGHWAY



FOUR LANE PAINT DIVIDED HIGHWAY



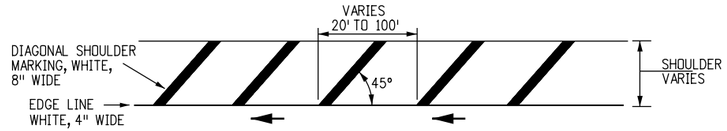
FOUR LANE DIVIDED HIGHWAY



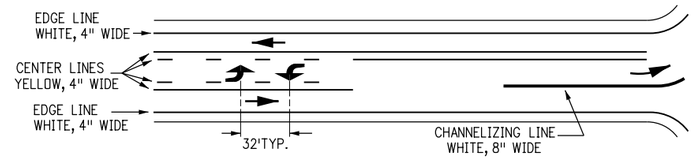
NOTE: EDGE LINES ARE NOT TO BE USED WHEN TRAVELED WAY IS LESS THAN 20 FEET.

NO SHOULDER OR UNSURFACED SHOULDER

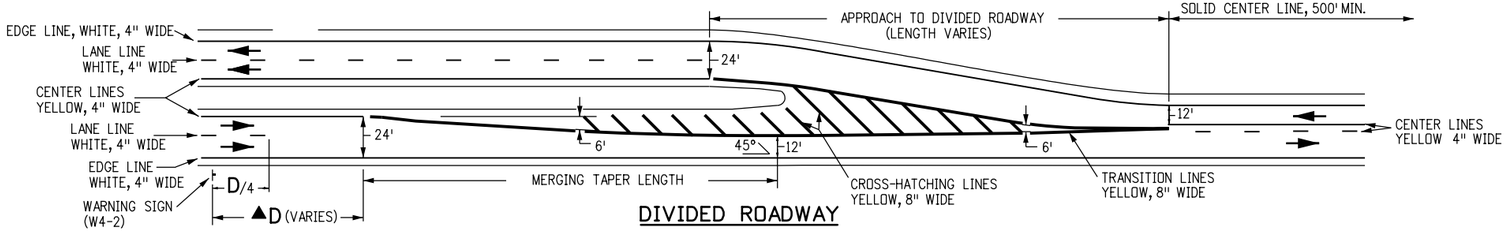
SHOULDER SURFACED



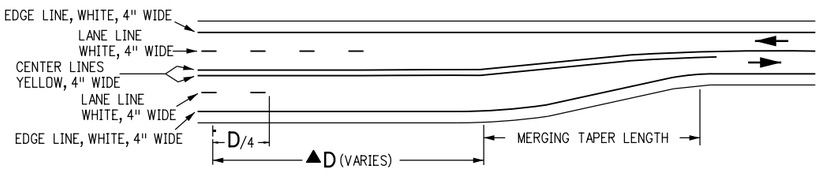
EDGE LINE WITH OPTIONAL DIAGONAL SHOULDER MARKING



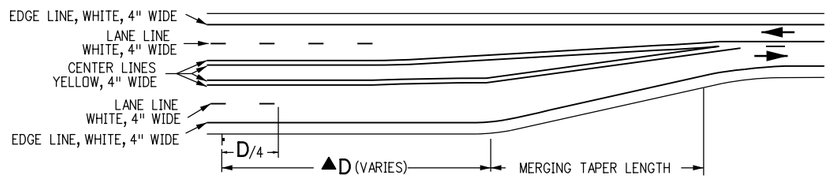
TYPICAL TWO WAY LEFT TURN LANE



DIVIDED ROADWAY



UNDIVIDED ROADWAY - CASE 1



UNDIVIDED ROADWAY - CASE 2

GENERAL NOTES

(CONTINUED FROM SHEET NO. 1)

10. ACCEL LANE LINES

BROKEN WHITE, 4 IN WIDE - 3 FT SEGMENTS WITH 12 FT GAPS. THESE LINES WOULD BE USED WHERE TWO THRU LANES OR AN ACCEL LANE MERGE INTO ONE THRU LANE.

11. CROSSWALK LINES

SOLID WHITE, 12 IN. WIDE FOR TRANSVERSE LINE TYPE - EXTEND ACROSS ENTIRE WIDTH OF PAVEMENT. IF NO ADVANCE STOP LINE IS PROVIDED, INCREASE THE WIDTH OF THE CROSSWALK LINES TO 24 IN. THE DISTANCE BETWEEN THE LINES IS USUALLY DETERMINED BY THE WIDTH OF THE SIDEWALKS SO CONNECTED, HOWEVER, IN NO CASE SHALL THIS BE LESS THAN 6 FT.

COMPLICATED AND/OR CHANNELIZED INTERSECTIONS AND MID-BLOCK CROSSWALKS SHALL BE SOLID WHITE, 12 IN. TO 24 IN. WIDE AND 8 FT. TO 10 FT. LONG FOR LONGITUDINAL LINE TYPE AS DETAILED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

12. WORD, ARROW AND SYMBOL MARKINGS

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH "THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

13. MERGING TAPER LENGTH

L = MINIMUM LENGTH OF TAPER.

S = DESIGN SPEED FOR NEW CONSTRUCTION OR NUMERICAL VALUE OF THE POSTED SPEED LIMIT OF THE 85TH PERCENTILE SPEED OF EXISTING TRAFFIC.

W = WIDTH TRANSITIONED

FORMULA: FOR SPEED 45 MPH OR MORE, $L = S \times W$

FOR SPEED 40 MPH OR LESS, $L = \frac{WS^2}{60}$

14. TRANSITION LINES

SOLID YELLOW, 8 IN. WIDE. THESE LINES ARE USED WHERE ADDITIONAL EMPHASIS OR VISIBILITY IS DESIRABLE AT PAVEMENT WIDTH TRANSITIONS. PLACE AT LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

15. SPEED MEASURING MARKING

SOLID WHITE, 24 IN. - EXTEND 4 FT. FROM OUTSIDE OF EDGE LINES ON SHOULDERS.

▲ NOTE:

D = THE DISTANCE FROM THE LANE ENDS SIGN (W4-2) TO THE BEGINNING OF THE MERGING TAPER. FOR MORE INFORMATION ON THE "D" VALUE REGARDING SIGN AND PAVEMENT MARKING PLACEMENT, SEE THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", TABLE 2C-4, CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC AND FOOTNOTE 2 REGARDING TYPICAL CONDITIONS.

LEGEND

→ Direction of Travel

TYPICAL PAVEMENT WIDTH TRANSITION MARKINGS

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 02/08/17	Initials: MBhat
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-627-01.dgn	
CAD Ver.: MicroStation V8i Scale: Not to Scale	Units: English

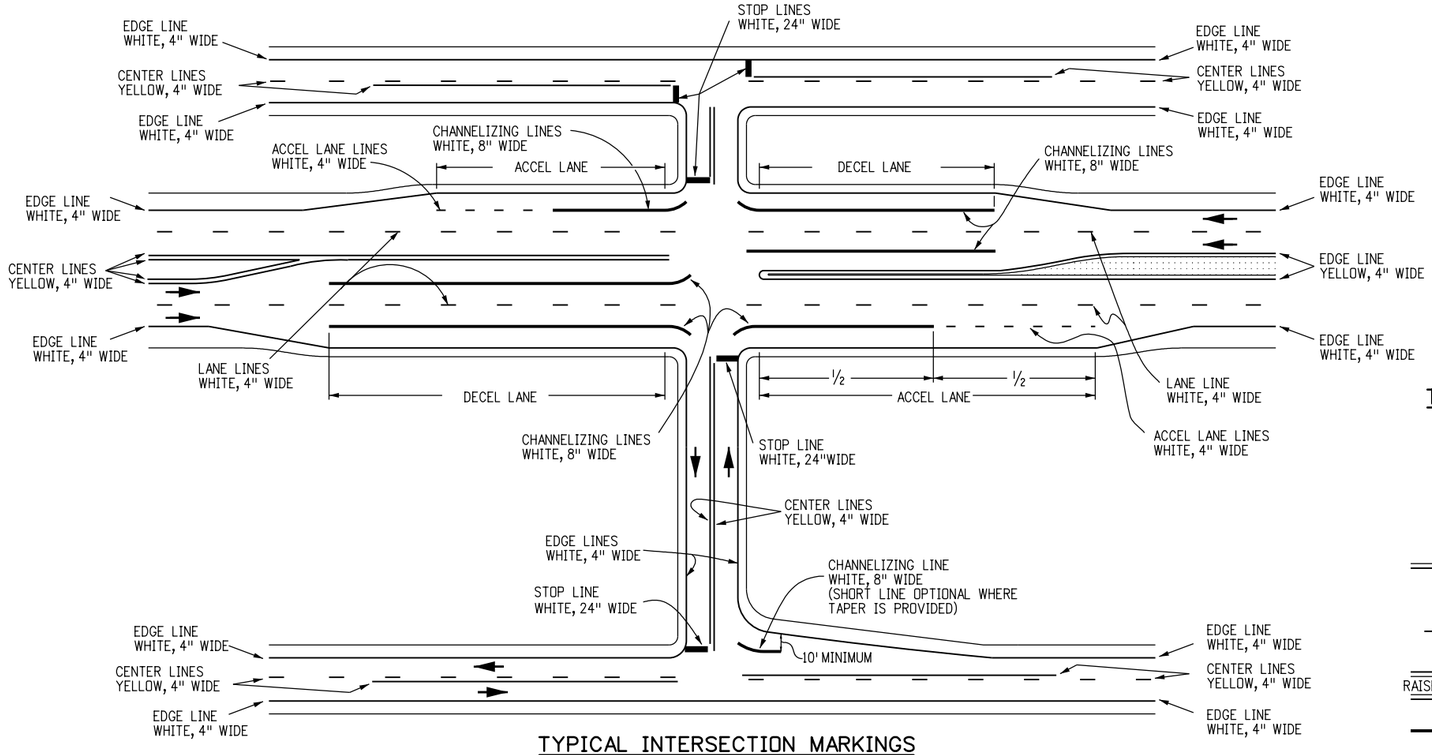
Sheet Revisions	
Date:	Comments
10/18/12 (R-1)	ADDED MORE NOTES ON "D" VALUE
02/08/17 (R-2)	ADDED LEGEND UPDATED WORD "TRANSITION" TO "MERGING" UPDATED ▲NOTE ADDED NEW NOTE 10 RENUMBERED NOTES FOLLOWING 10

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

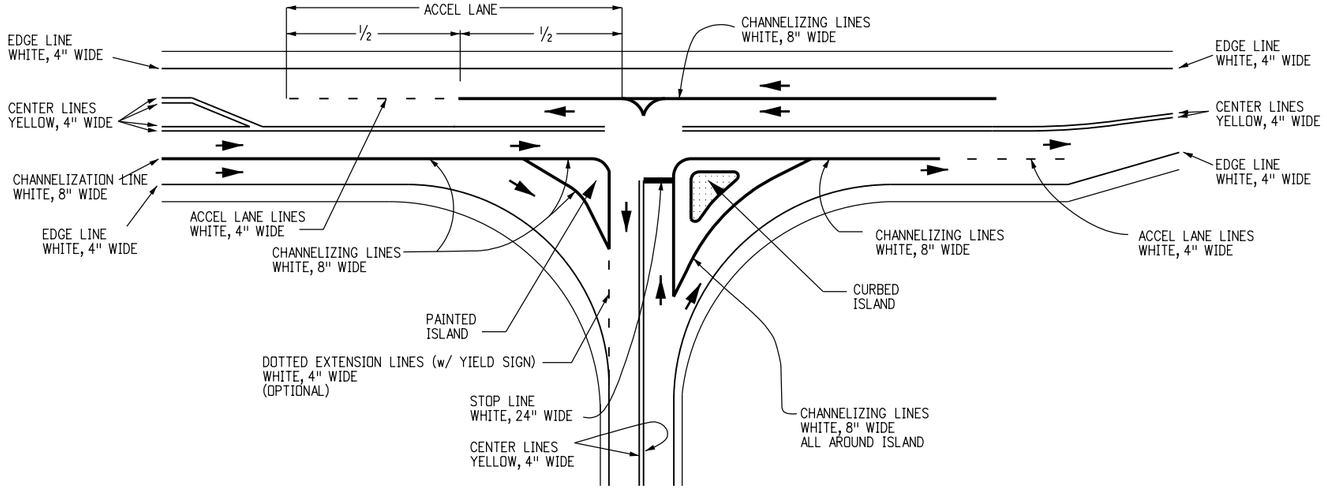
PAVEMENT MARKINGS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

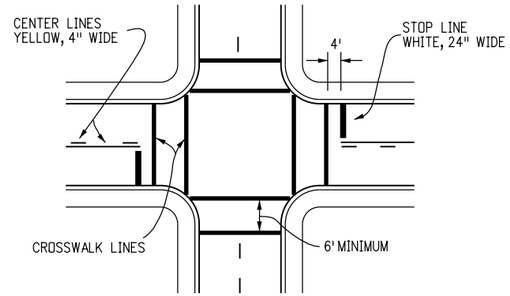
STANDARD PLAN NO.
S-627-1
Sheet No. 2 of 8



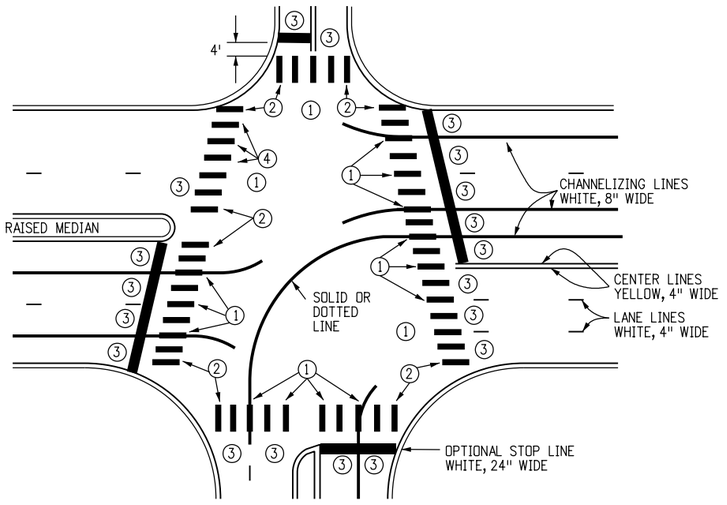
TYPICAL INTERSECTION MARKINGS



TYPICAL ISLAND MARKINGS

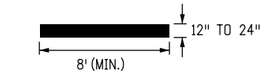


TYPICAL TRANSVERSE LINE CROSSWALK MARKINGS



TYPICAL CONTINENTAL CROSSWALK MARKINGS

CROSSWALK LINE DETAIL



LEGEND

→ Direction of Travel

CROSSWALK NOTES

1. CENTER CROSSWALKS ON CURB RAMPS. IF SUCH RAMPS ARE NOT PROVIDED CENTER ON SIGNAL POLES WHEREVER PRACTICAL.
2. CENTER ON LANE, CENTER OR CHANNELIZING LINE.
3. CENTER OR EXTENDED FLOW LINE.
4. CENTER BETWEEN ADJACENT LINES.
5. LINES AND SPACES TO APPROXIMATE ADJACENT PATTERN.

INTERSECTIONS, ISLANDS AND CROSSWALKS

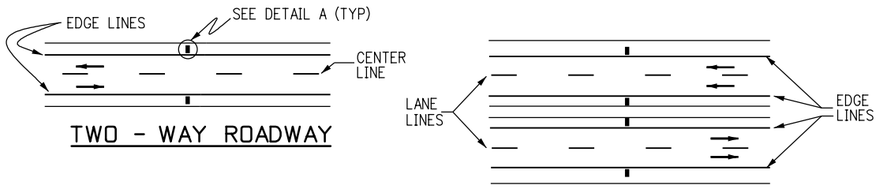
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JSW		Date:	Comments
Last Modification Date: 02/08/17 Initials: MBhat	R-5	02/08/17	UPDATE LANE DROP LINES TO ACCEL LANES ADDED LEGEND UPDATE LANE ISLAND MARKINGS & ADDED ADDED DIMENSIONS TO ACCEL LANE LINES
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-627-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			UPDATED "LONGITUDINAL" TO "CROSSWALK"

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

PAVEMENT MARKINGS

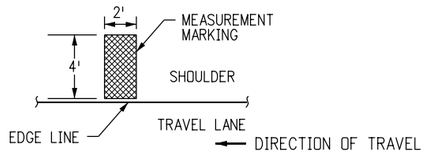
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-627-1
Sheet No. 3 of 8



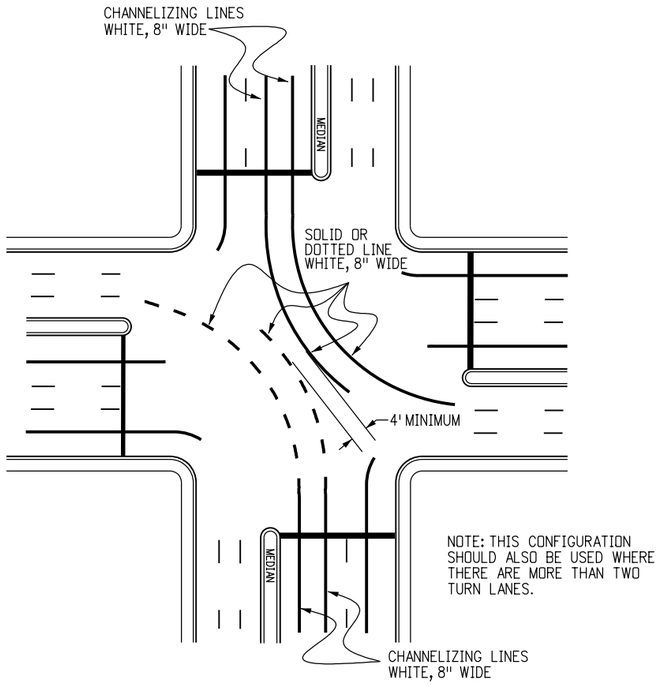
TWO - WAY ROADWAY

MULTI - LANE DIVIDED HIGHWAY

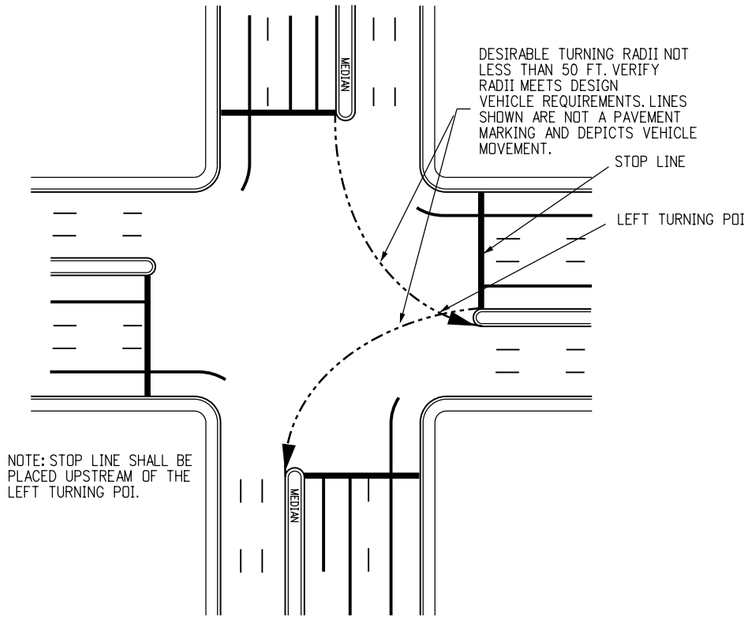


DETAIL A

TYPICAL SPEED MEASUREMENT MARKING



TYPICAL DOUBLE LEFT TURN MARKINGS



TYPICAL STOP LINE PLACEMENT

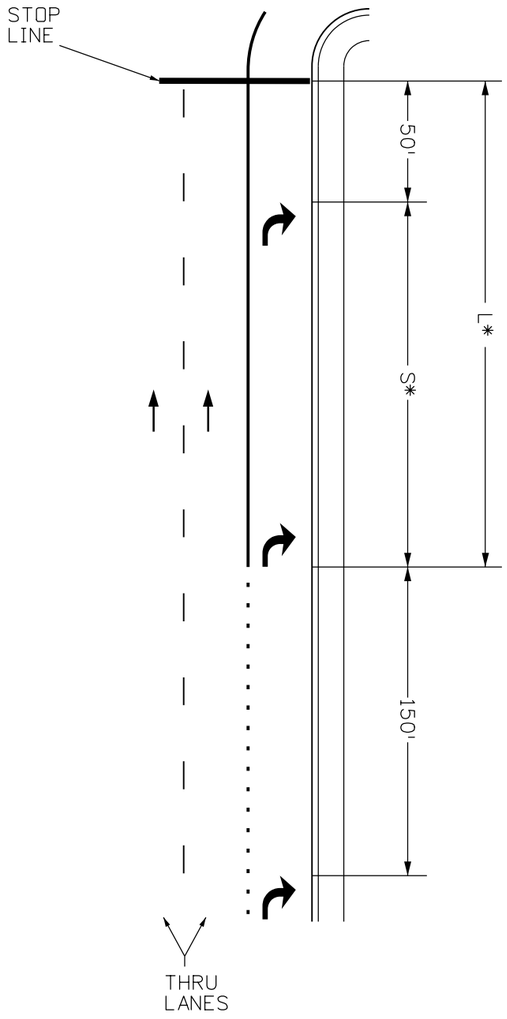
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: SCL		Date:	Comments
Last Modification Date: 02/08/17 Initials: MBhat	R-1	02/08/17	UPDATE "TYPICAL STOP BAR PLACEMENT" TITLE TO "TYPICAL STOP LINE PLACEMENT"
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-627-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

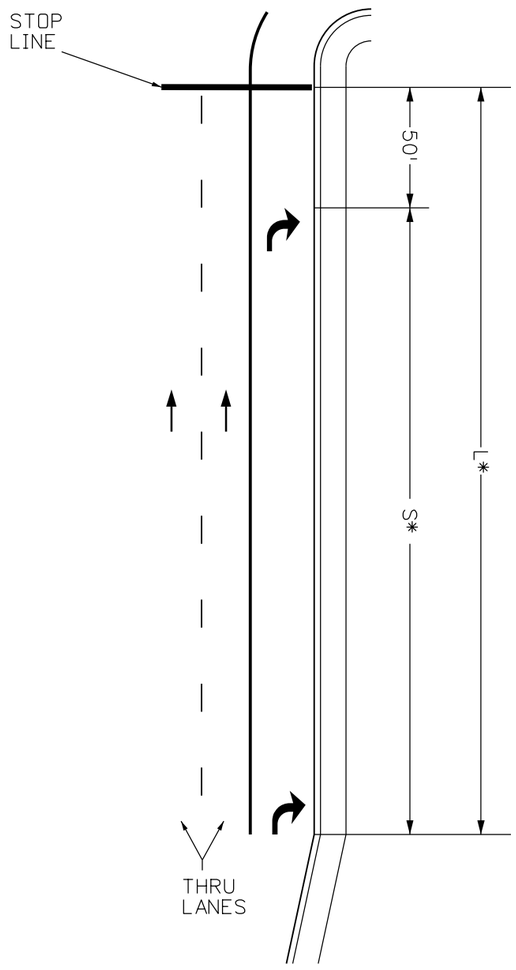
PAVEMENT MARKINGS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

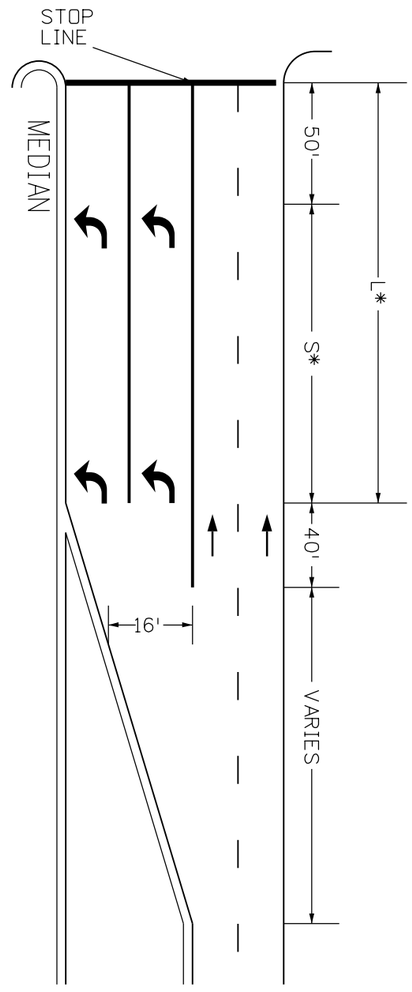
STANDARD PLAN NO.
S-627-1
Sheet No. 4 of 8



LANE DROP



POCKET LANE



DOUBLE TURNING

GENERAL NOTES

1. THE SPACING, IN THE TABLE APPLIES TO LEFT & RIGHT TURN LANES.
2. WHEN ONE (1) ARROW IS USED, IT SHALL BE PLACED AT THE BEGINNING OF THE FULL WIDTH TURN LANE, OTHERWISE USE THE TABLE BELOW FOR ARROW PLACEMENT.

LENGTH (L)	NO. OF ARROWS PER LANE	SPACING (S)
L < 200'	1	NA
200' - 350'	2	EVENLY SPACED BETWEEN 150'-300'
350' - 650'	3	
650' - 950'	4	
950' ≤	≥5	

*L (LENGTH) AND *S (SPACING) PROVIDED IN THE TABLE ABOVE WILL HELP DETERMINE THE NUMBER OF ARROWS NEEDED PER LANE.

LEGEND

→ Direction of Travel

ARROW PLACEMENTS AT INTERSECTIONS

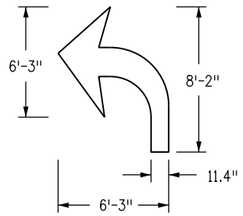
Computer File Information		Sheet Revisions	
Creation Date: 02/08/17	Initials: MBhat	Date:	Comments
Last Modification Date:	Initials:		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-627-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

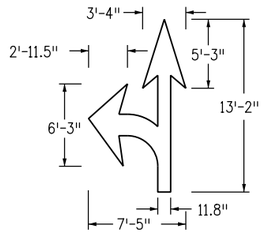
PAVEMENT MARKINGS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

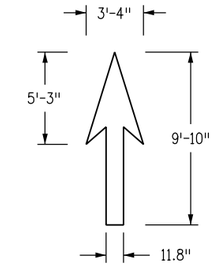
STANDARD PLAN NO.
S-627-1
Sheet No. 5 of 8



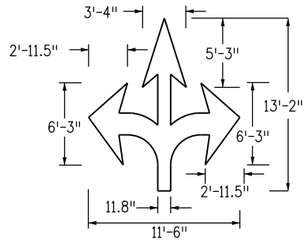
AREA = 16.1 SQ.FT.



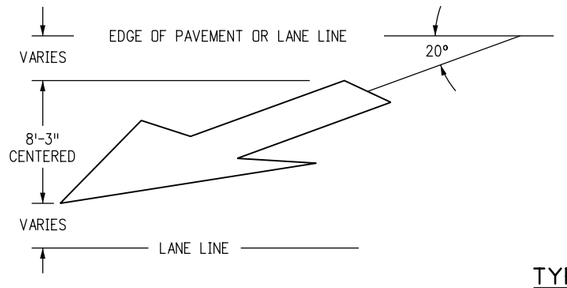
AREA = 27.5 SQ.FT.

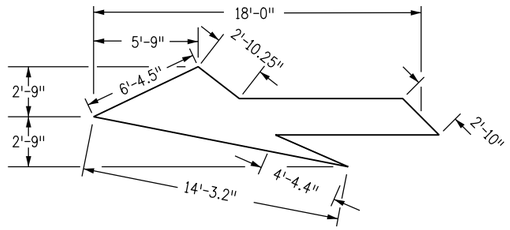


AREA = 12.1 SQ.FT.

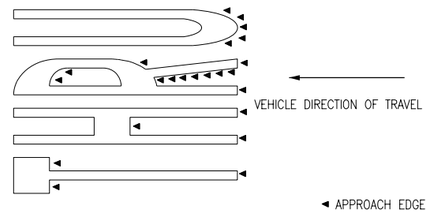


AREA = 39.8 SQ.FT.

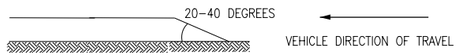




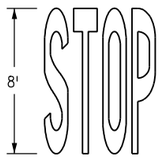
AREA = 58 SQ.FT.

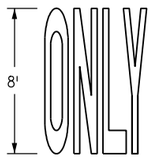


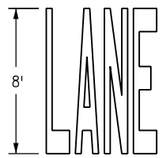
TYPICAL APPROACH EDGE TAPERING VIEW

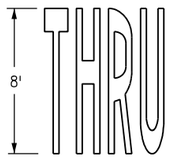


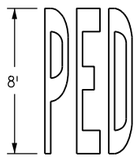
TYPICAL APPROACH EDGE TAPERING PROFILE VIEW

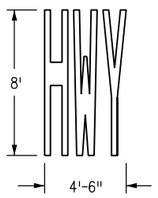


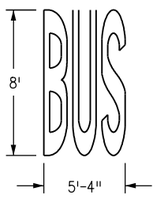


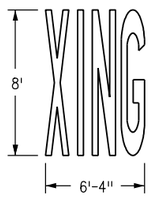


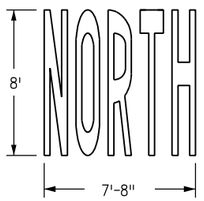


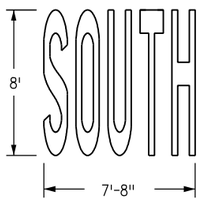


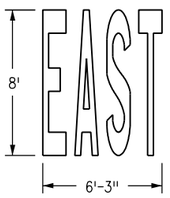


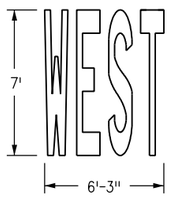


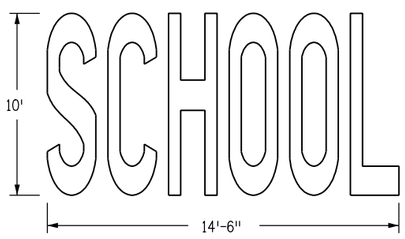






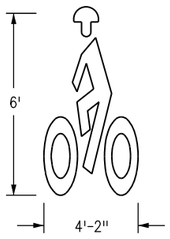


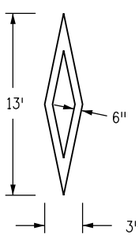




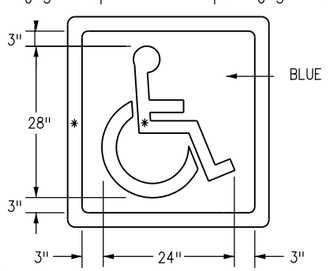
STROKE = 8"
2-LANE SCHOOL

1-LANE SCHOOL





AREA = 11.9 SQ.FT. AREA = 10 SQ.FT.



* WHITE 3" STROKE WIDTH (BORDER MAY BE 4" STROKE WIDTH)

PAVEMENT MARKING WORDS AND SYMBOLS

WORD AND SYMBOL NOTES

IF HEIGHT IS INCREASED OR DECREASED THEN ALL MEASUREMENTS CHANGE PROPORTIONATELY. EXAMPLE: "H" MEASUREMENT FOR STOP IS REDUCED TO 4' FROM 8' THEN SQUARE FEET = 5.75 (1/4 OF 23.0 SQ. FT.).

PAVEMENT WORD AND SYMBOL MARKINGS, TRANSVERSE AND LONGITUDINAL (CONTINENTAL) CROSSWALK LINES, AND STOP LINES WILL BE PAID FOR IN SQUARE FEET USING THEIR SPECIFIC BID ITEMS.

LETTER SPACING SHALL BE 8 INCHES EXCEPT FOR THE LETTER "A' WHICH IS 6 INCHES.

USE THE MARKING WORD "BIKE" IF 6 FT TO 8 FT BIKE LANES ARE INSTALLED.

TAPERING NOTES

ALL PAVEMENT MARKING APPROACH EDGES FROM THE VEHICLE DIRECTION OF TRAVEL SHALL BE TAPERED USING A PUTTY KNIFE OR SIMILAR TOOL.

DESIGNATED PAYMENT AREAS

FOR THE FOLLOWING H, W, AND S DIMENSIONS PAY:

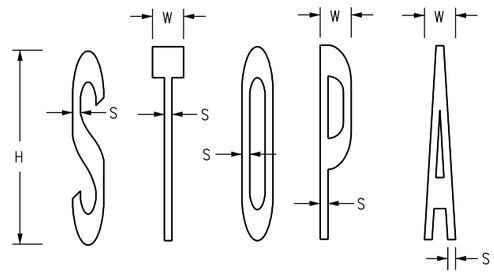
H = 4' WORDS

BIKE - 5.5 SQ.FT.	LANE - 6.0 SQ.FT.
ONLY - 6.0 SQ.FT.	XING - 5.0 SQ.FT.

H = 8' WORDS

STOP - 23.0 SQ.FT.	XING - 20.0 SQ.FT.
ONLY - 22.5 SQ.FT.	LANE - 22.5 SQ.FT.
AHEAD - 29.0 SQ.FT.	BIKE - 21.0 SQ.FT.
BUS - 18.5 SQ.FT.	HWY - 16.5 SQ.FT.
SCHOOL(1L) - 33.0 SQ.FT.	THRU - 22.0 SQ.FT.
SCHOOL(2L) - 85.0 SQ.FT.	PED - 17.5 SQ.FT.
NORTH - 30.6 SQ.FT.	SOUTH - 28.5 SQ.FT.
EAST - 22.1 SQ.FT.	WEST - 23.7 SQ.FT.

TYPICAL LETTER MEASUREMENTS



H = HEIGHT	H = 8'	H = 4'
W = WIDTH	W = 1'-3.4" TO 1'-4"	W = XX TO XX
S = STROKE	S = 3.8" TO 4"	S = 1.9" TO 2"

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: SCL	Date:	Comments
Last Modification Date: 02/08/17	Initials: MBhat	02/08/17	UPDATED BICYCLIST SYMBOL ADDED NOTE REGARDING "BIKE" MARKING WORD RELOCATED ELONGATED ROUTE SHIELDS TO PAGE 7 OF 8 ADDED CARDINAL STENCILS & UPDATED STENCIL DIMENSIONS ADDED 3 HEAD COMBINATION ARROW & UPDATED ARROW DIMENSIONS AND AREAS
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-627-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

R-3

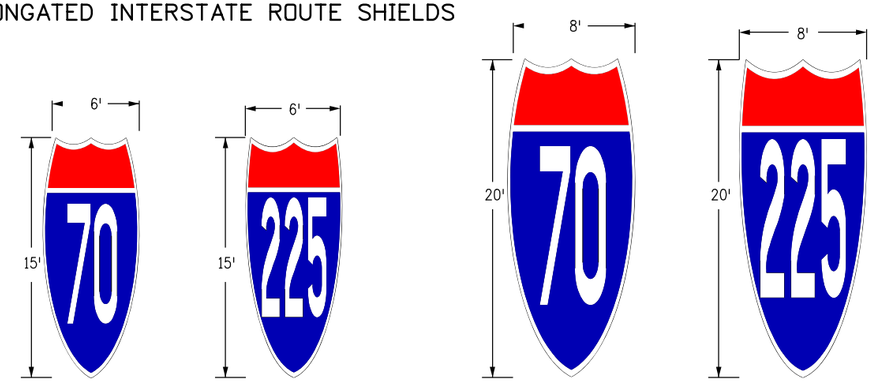
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

PAVEMENT MARKINGS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-627-1
Sheet No. 6 of 8

ELONGATED INTERSTATE ROUTE SHIELDS



DESIGNATED PAYMENT AREAS

FOR THE FOLLOWING ROUTE SHIELDS
& CARDINAL DIRECTIONS DIMENSIONS PAY:

INTERSTATE

6' X 15' - 75 SQ.FT. 8' X 20' - 128 SQ.FT.

COLORADO STATE

6' X 15' - 90 SQ.FT. 8' X 20' - 160 SQ.FT.

US HIGHWAYS

7' X 16' - 112 SQ.FT. 9' X 21' - 189 SQ.FT.

CARDINAL

8' X 10' - 80 SQ.FT. 9' X 10' - 90 SQ.FT.

GENERAL NOTES

1. DIMENSIONS

   ELONGATED ROUTE SHIELDS SHALL BE AT LEAST 8'x20' WHEN USED ON HIGH SPEED ROADWAYS (55 MPH OR MORE).

   PER FIGURE 3B-25 OF THE 2009 MUTCD ELONGATED ROUTE SHIELD COLORS SHALL CONFORM WITH THE STANDARD HIGHWAY SIGNS AND MARKINGS BOOK.

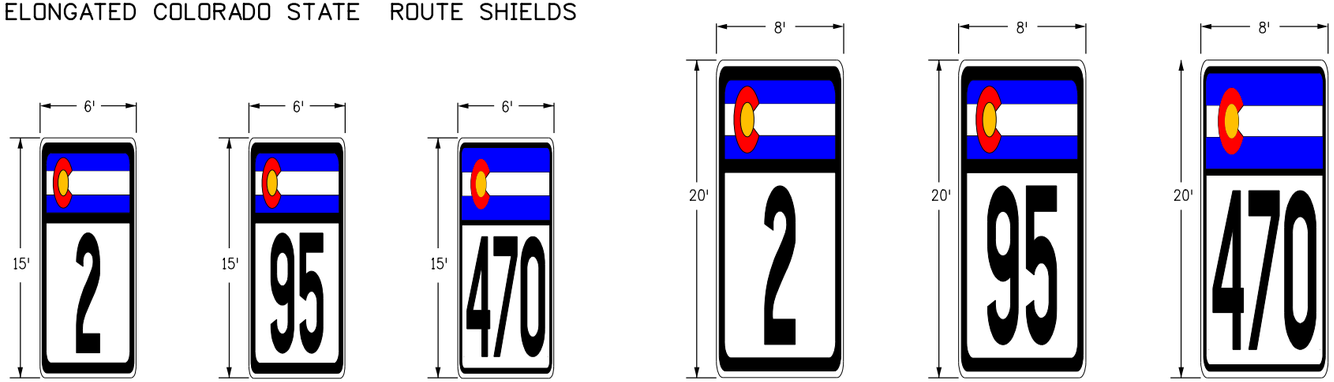
2. CARDINAL DIRECTIONS

   USE CARDINAL DIRECTIONS WITH WHITE ON BLUE WHEN USING INTERSTATE ROUTE SHIELDS

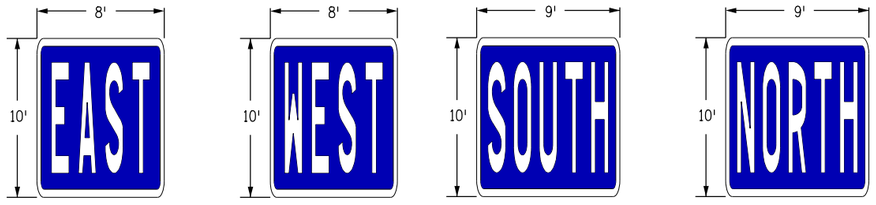
   USE CARDINAL DIRECTIONS WITH BLACK ON WHITE WHEN USING EITHER COLORADO STATE OR US HIGHWAY ROUTE SHIELDS.

   CARDINAL DIRECTION MARKING WORD SYMBOL FROM PAGE 7 OF 8 MAY BE USED INSTEAD OF PLAQUE.

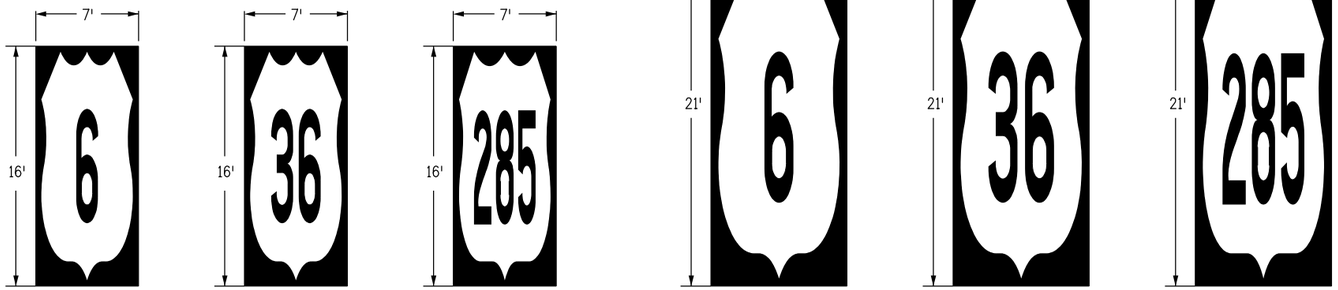
ELONGATED COLORADO STATE ROUTE SHIELDS



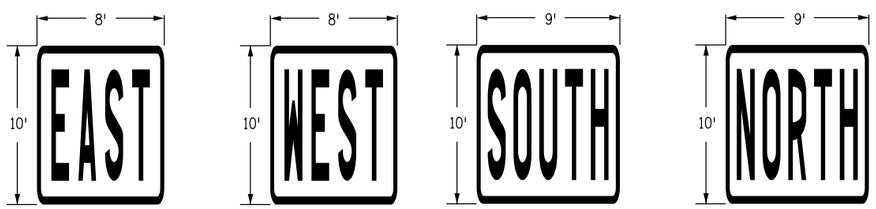
CARDINAL DIRECTIONS
(WHITE LETTERING ON BLUE BACKGROUND)



ELONGATED US HIGHWAY ROUTE SHIELDS



CARDINAL DIRECTIONS
(BLACK LETTERING ON WHITE BACKGROUND WITH BLACK BORDER)



ELONGATED ROUTE SHIELDS & CARDINAL DIRECTION MARKINGS

Computer File Information	
Creation Date: 02/08/17	Initials: MBhat
Last Modification Date:	Initials:
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-627-01.dgn	
CAD Ver.: MicroStation V8i Scale: Not to Scale	Units: English

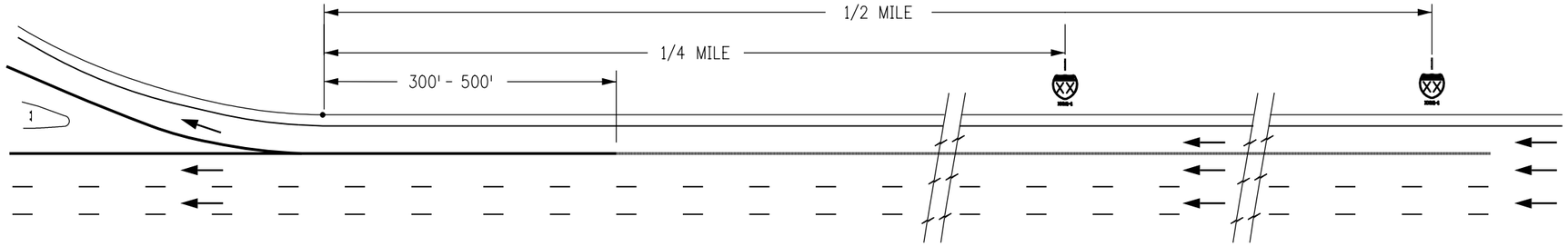
Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

PAVEMENT MARKINGS

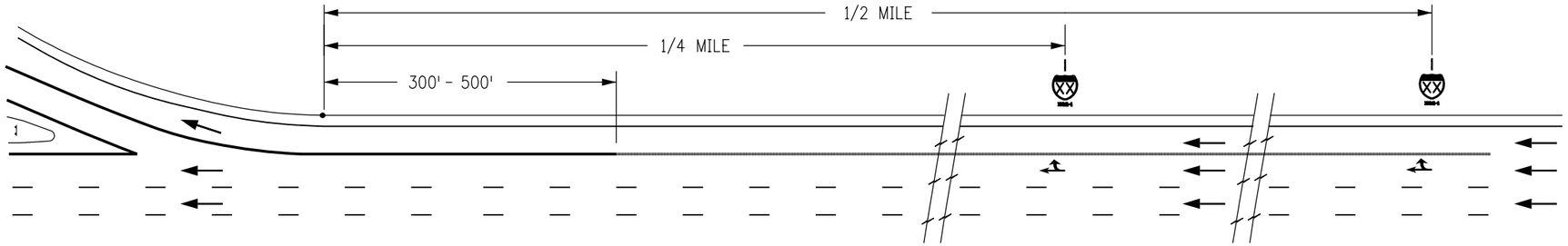
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-627-1
Sheet No. 7 of 8



TYPICAL SHIELD PLACEMENT

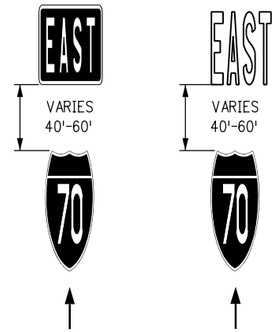
*AS DIRECTED BY THE ENGINEER



TYPICAL SHIELD & OPTION ARROW PAVEMENT MARKING PLACEMENT

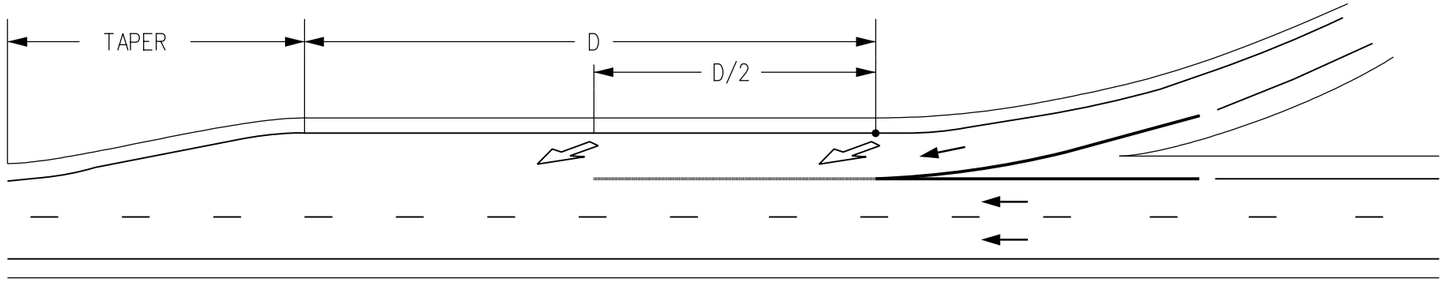
*AS DIRECTED BY THE ENGINEER

SHIELD LAYOUT DETAIL

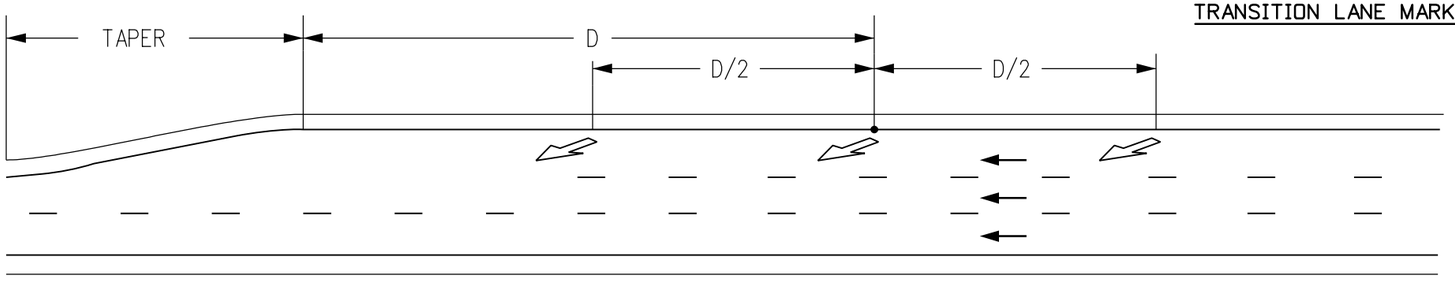


LEGEND

→ Direction of Travel



TRANSITION LANE MARKINGS



D = THE DISTANCE FROM THE PAVEMENT WIDTH TRANSITION SIGN (W4-2) TO THE BEGINNING OF THE TRANSITION TAPER

THRU LANE DROP MARKINGS

LANE REDUCTION TRANSITION MARKINGS

Computer File Information		Sheet Revisions	
Creation Date: 02/08/17	Initials: MBhat	Date:	Comments
Last Modification Date:	Initials:		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans			
Drawing File Name: S-627-01.dgn			
CAD Ver.: MicroStation V8i Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: 303-757-9543 FAX: 303-757-9219
Safety & Traffic Engineering KCM

PAVEMENT MARKINGS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.

S-627-1

GENERAL NOTES

1. ALL CONSTRUCTION ZONE TRAFFIC CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO BARRICADES, SIGNS, ARROW PANELS, FLASHING BEACON (PORTABLE), AND CHANNELIZING DEVICES, SHALL BE FURNISHED, INSTALLED, MAINTAINED (INCLUDING WASHING), REPLACED IF DAMAGED, REMOVED WHEN TEMPORARILY NOT IN USE AND RETURNED WHEN REQUIRED, RESET AS NECESSARY DURING THE PROGRESS OF CONSTRUCTION, AND REMOVED ENTIRELY WHEN THE PROJECT IS COMPLETED. ALL DEVICES SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE ATSSA "QUALITY GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES & FEATURES".

2. WORK ON THE PROJECT SHALL NOT BE STARTED UNTIL ALL REQUIRED TRAFFIC CONTROL DEVICES ARE IN PLACE, AND APPROVED BY THE ENGINEER.

3. WHEN SPEED LIMIT REDUCTION IS REQUIRED, SUCH REDUCTION SHALL BE IN ACCORDANCE WITH CDOT FORM 568, "AUTHORIZATION AND DECLARATION OF TEMPORARY SPEED LIMITS."

   WHEN A CHANGE IN AN EXISTING SPEED LIMIT IS REQUIRED, THE R2-1 SIGNS, SHOWN ON THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES, SHOULD BE INSTALLED AT THE LOCATIONS SHOWN ON THE TYPICAL CASES BY R2-1 (OPTIONAL) SIGNS.

   AN ADVISORY SPEED PLATE (W13-1P) MAY BE USED WITH A WARNING SIGN WHEN THE MAXIMUM RECOMMENDED SPEED FOR CONDITION NAMED IS LOWER THAN THE POSTED SPEED LIMIT.

   THE REGULATORY OR ADVISORY SPEED REDUCTION DISPLAYED SHALL NOT EXCEED 15 MPH PER SIGN INSTALLATION.

4. ANY TRAFFIC CONTROL DEVICE THAT IS DAMAGED, WEATHERED, WORN, OR OTHERWISE DEEMED UNACCEPTABLE BY THE ENGINEER, SHALL BE REPLACED.

5. CONTRACTOR AND PERSONAL VEHICLE PARKING IS PROHIBITED WITHIN THE RIGHT-OF-WAY UNLESS DESIGNATED ON THE PLANS, OR APPROVED BY THE ENGINEER.

6. CONSTRUCTION TRAFFIC SIGNS SHALL BE MEASURED BY THE FOLLOWING SIZES AND DESCRIPTIONS:

PANEL SIZE A	0.01 TO 9.00 SQ. FT. (INCLUDING TYPE 1 AND TYPE 2 BARRICADES).
PANEL SIZE B	9.01 TO 16.00 SQ. FT.
PANEL SIZE C	GREATER THAN 16 SQ. FT.

   CONSTRUCTION TRAFFIC SIGN (SPECIAL), SQ. FT., MAY BE USED FOR SOME PROJECT SPECIFIC INFORMATION SIGNS.

   FOR DETAILED DIMENSIONS OF SIGNS WITH SIGN CODE NUMBERS, SEE "STANDARD HIGHWAY SIGNS" AND THE "COLORADO SUPPLEMENT" THERETO. SIGN LAYOUTS FOR OTHER SIGNS WILL BE FURNISHED IN THE PLANS, TRANSMITTED TO THE ENGINEER AFTER AWARD, OR MAY BE AVAILABLE UPON REQUEST.

   W20-5 WARNING SIGNS SHALL BE FURNISHED WITH EXCHANGEABLE PLAQUES READING "RIGHT", "LEFT", "CENTER", "RIGHT 2", ETC. AT NO ADDITIONAL COST.

7. ALL WARNING AND REGULATORY SIGNS SHALL BE POSTED ON BOTH SIDES OF THE ROADWAY ON DIVIDED HIGHWAYS, MULTI-LANE RAMPS, ONE-WAY STREETS, AND AS DIRECTED BY THE ENGINEER, EXCEPT WHERE ONLY ONE SHOULDER IS CLOSED (EX: CASE 11 ON SHEET 7).

8. ADDITIONAL TRAFFIC CONTROL DEVICES ADDRESSING FLAGGING, SPEED REDUCTION, ETC. WILL BE NECESSARY FOR SET-UP AND TAKE-DOWN OF MOST CASE APPLICATIONS; DAILY WORK SITE ACCESS; AND PAVEMENT MARKING REMOVAL AND INSTALLATION OPERATIONS.

9. BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS, THE FINAL LOCATIONS OF SIGNS ARE SUBJECT TO APPROVAL OF THE ENGINEER.

10. IF CONSTRUCTION RELATED TRAFFIC CONGESTION BACKS UP BEYOND THE INSTALLED ADVANCE SIGN SEQUENCE, ADDITIONAL ADVANCE SIGNING SHALL BE PLACED BEYOND THE CONGESTION.

11. ALL SIGN MATERIAL SHALL BE SOUND AND DURABLE TO THE DEGREE NECESSARY FOR MAINTAINING EFFECTIVE AND NEAT APPEARING TRAFFIC CONTROLS, AND:

    a. SIGN PANELS MAY BE FABRICATED FROM PLYWOOD, STEEL, ALUMINUM, OR OTHER SUITABLE MATERIAL.
    b. REFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956. THE TYPE SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.
    c. SYMBOLS AND LEGEND SHALL BE OF GOOD WORKMANSHIP (UNEVEN OR HAND LETTERING WILL NOT BE ACCEPTED).
    d. PORTABLE OR TEMPORARY MOUNTING SHALL NOT BE CONSTRUCTED OR WEIGHTED BY ANY METHOD OR MATERIAL THAT MAKES THEM HAZARDOUS TO TRAFFIC.
    e. CERTAIN POST SIZES AND SHAPES REQUIRE A "BREAK-AWAY" DEVICE. SEE THE APPLICABLE STANDARD PLAN. OTHER POST DESIGNS OR SYSTEMS REQUIRE THE SUBMITTAL OF AN FHWA LETTER OF ACCEPTANCE TO THE ENGINEER, AND MUST BE APPROVED BY THE ENGINEER PRIOR TO THEIR USE.

12. ALL CONSTRUCTION SIGN PLACEMENT SHALL BE IN ACCORDANCE WITH STANDARD PLAN "TYPICAL GROUND SIGN PLACEMENT" UNLESS OTHERWISE APPROVED.

    SIGNS APPROVED TO BE MOUNTED ON PORTABLE SUPPORTS, OR APPROPRIATE SIGNS MOUNTED ON BARRICADES, MAY BE AT LOWER HEIGHTS, BUT THE BOTTOM OF THE SIGNS SHALL NOT BE LESS THAN ONE FOOT ABOVE THE PAVEMENT ELEVATION.

13. SIGNS MOUNTED ON THE MEDIAN OF DIVIDED HIGHWAYS WHERE MEDIAN BARRIER IS IN PLACE MAY BE MOUNTED ON THE BARRIER WITH A SADDLE TYPE BRACKET. IF THE BRACKET ALLOWS THE SIGN PANEL TO BE TURNED PARALLEL TO THE ROADWAY, THE SIGN MAY REMAIN IN PLACE WHEN NOT APPLICABLE, BUT LAYING THE SIGN PANEL DOWN IN A HORIZONTAL POSITION IS NOT PERMITTED.

14. TRAFFIC CONES SHALL BE AT LEAST 28 INCHES IN HEIGHT. HOWEVER, THE MINIMUM SIZE SHALL BE 36 INCHES WHEN THEY ARE USED ON FREEWAYS AND EXPRESSWAYS, OR DURING NIGHT TIME WORKING HOURS. THEY SHOULD ALSO BE 36 INCHES WHEN USED ON OTHER HIGH SPEED ROADWAYS (45 MPH OR MORE) WITH AN ADT OF 6,000 OR MORE.

15. TYPE 1 BARRICADES SHALL NOT BE USED ON FREEWAYS, EXPRESSWAYS, OR OTHER HIGH SPEED ROADWAYS (55 MPH OR MORE).

16. WHEN TWO-WAY TRAFFIC IS PLACED ON ONE ROADWAY OF A NORMALLY DIVIDED HIGHWAY, OPPOSING TRAFFIC SHALL BE SEPARATED EITHER WITH CONCRETE BARRIER (TEMPORARY), OR WITH CHANNELIZING DEVICES APPROVED FOR THIS APPLICATION, THROUGHOUT THE LENGTH OF TWO-WAY OPERATION. THE TRANSITION ZONES SHALL HAVE CONCRETE BARRIER (TEMPORARY). THE BARRIER SHALL BE TIED TO AN EXISTING STRUCTURE OR GUARD RAIL, FLARED OR EXTENDED, TO MEET CLEAR ZONE REQUIREMENTS, OR FITTED WITH AN IMPACT ATTENUATION DEVICE.

17. CHANNELIZING DEVICE SPACING, IN FEET, SHALL BE AS FOLLOWS:
    a. FOR TAPERS AND TRANSITIONS, SPACING EQUALS THE NUMERICAL VALUE OF THE SPEED LIMIT. (e.g. 45 MPH = 45 FEET)
    b. FOR TANGENTS ALONG THE BUFFER SPACE OR WORK AREA, SPACING MAY NOT BE GREATER THAN TWO TIMES THE SPEED LIMIT. (e.g. 50 MPH = 50 FEET TO 100 FEET MAXIMUM)

18. FOR DETAILS ON BARRICADES, CONCRETE BARRIER (TEMPORARY), VERTICAL PANELS, AND FLASHING BEACON (PORTABLE), SEE THE APPLICABLE STANDARD PLANS.

19. FLOOD LIGHTS SHALL BE USED TO ILLUMINATE FLAGGER STATIONS DURING THE HOURS OF DARKNESS UNLESS OTHERWISE APPROVED. A TYPICAL LIGHT SHOULD PROVIDE THE FOLLOWING: A FULLY DIRECTIONAL SWIVEL MOUNT QUARTZ LIGHT SOURCE (500 WATT MINIMUM), SELF-SUPPORTING STAND WITH VARIABLE LIGHT HEIGHT FROM A MINIMUM OF EIGHT FEET ABOVE THE ROADWAY, AND A POWER SOURCE. IT SHALL ILLUMINATE THE STATION AREA AND A FLAGGER ESCAPE PATH, BUT SHALL NOT PRESENT ANY GLARE TO TRAFFIC.

20. FOR TEMPORARY PAVEMENT MARKINGS AND CONTROL POINTS FOR INSTALLING THOSE PAVEMENT MARKINGS FOR UNDIVIDED ROADWAYS THAT ARE BEING CONSTRUCTED UNDER TRAFFIC, FULL COMPLIANCE CENTER LINE, LANE LINE, AND EDGE LINE TEMPORARY MARKINGS SHALL BE IN PLACE AT THE END OF EACH WORK DAY IN ACCORDANCE WITH SECTION 627.03(d)2.

    FOR ADDITIONAL PAVEMENT MARKING DETAILS, SEE STANDARD PLAN "TYPICAL PAVEMENT MARKINGS".

21. BUFFER SPACE IS OPTIONAL. NEED MUST BE DETERMINED ON A PROJECT OR SITE SPECIFIC BASIS AS DIRECTED BY THE ENGINEER. WHEN A BUFFER SPACE IS USED, DIMENSIONS AND/OR DEVICES USED ARE TO BE INCORPORATED IN THE TRAFFIC CONTROL PLAN (TCP) OR THE CONTRACTOR'S METHOD OF HANDLING TRAFFIC (MHT).

22. ADDITIONAL VMS SIGNAGE SHOULD BE CONSIDERED AT LEAST A MILE IN ADVANCE OF THE SIGNING SHOWN IN THE DETAIL FOR ANY LANE CLOSURES ON INTERSTATE AND OTHER HIGH SPEED FACILITIES ESPECIALLY WHEN THE LEVEL OF SERVICE IS SIGNIFICANTLY REDUCED AS A RESULT OF CONSTRUCTION. THE LEGENDS SHOULD BE CHANGED TO ADVISE MOTORISTS OF UPCOMING TRAFFIC CONDITIONS AND TO ALERT THEM OF UPCOMING LANE USAGE.

    ADDITIONAL ADVANCE WARNING SIGNAGE IS ENCOURAGED IN ALL CASES WHERE TRAFFIC VOLUMES AND SPEEDS ARE HIGH AND/OR WHERE THERE ARE INFREQUENT EXITS. ADDITIONAL SIGNAGE IS ALSO ENCOURAGED IN LOCATIONS WHERE DRIVERS' LINE OF SIGHT TO ADVANCE WARNING SIGNS IS OBSTRUCTED.

23. WHEN ARROW BOARDS ARE USED TO CLOSE MULTIPLE LANES, A SEPARATE ARROW BOARD SHALL BE USED FOR EACH CLOSED LANE.

    IF ARROW BOARDS ARE USED FOR SHOULDER WORK, BLOCKING THE SHOULDER, FOR ROADSIDE WORK NEAR THE SHOULDER, OR FOR TEMPORARILY CLOSING ONE LANE ON A TWO-LANE, TWO-WAY ROADWAY, USE THE ARROW BOARDS ONLY IN THE CAUTION MODE.

24. RAISED PAVEMENT MARKERS MAY BE USED TO SUPPLEMENT TEMPORARY STRIPING DURING NON-SNOW PERIODS. THEIR USE IS ENCOURAGED ON HIGHER SPEED FACILITIES WHEN TRAFFIC IS BEING DIVERTED FROM ITS USUAL COURSE.

25. THE TYPICAL CASES DEPICTED IN THIS STANDARD REFLECT THE MINIMUM REQUIREMENTS, UNLESS AS OTHERWISE DIRECTED BY THE PROJECT PLANS AND SPECIFICATIONS, AND/OR THE PROJECT ENGINEER.

26. A SIGNIFICANT PROJECT IS DEFINED AS ONE THAT, ALONE OR IN COMBINATION WITH OTHER CONCURRENT PROJECTS NEARBY, IS ANTICIPATED TO CAUSE SUSTAINED WORK ZONE IMPACTS AT A LOCATION FOR THREE OR MORE CONSECUTIVE DAYS WITH EITHER INTERMITTENT OR CONTINUOUS LANE CLOSURES.

Sheet Revisions

	Date:	Comments
R-1	02/06/13	SHEET 13 - UPDATE TO 2009 MUTCD STD
R-2	02/26/13	SHEET 1 - UPDATE TO NOTE 1
R-3	02/27/13	SHEET 4 - UPDATE TAPER TO MUTCD STD
R-4	07/26/13	SHTS 9,10,15 & 20 - CORRECTED SIGN CODE DESIGNATION
R-5	**03/27/14**	SHTS 17 & 18 - UPDATED SIGNS AND TMA'S
R-6	**07/22/14**	SHEET 1 - UPDATE TO NOTE 20
R-7	**12/8/14**	SHEETS 17 TO 24 - ADDED AND RENUMBERED SHEET 22 - SIGN CODE UPDATE, W5-4D & W21-5a

Computer File Information

Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 12/8/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_1of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 1 of 24

INDEX TO TYPICAL WORK ZONE CASES

TYPICAL CASE DESCRIPTION	CASE NO.	SHEET NO.
CLOSURE OF ONE ROADWAY, 4-LANE HIGHWAY	1	3
CLOSURE OF HALF OF 4-LANE UNDIVIDED HIGHWAY	2	4
ROAD CLOSURE, USE OF ADJACENT SHOULDERS	3	
ROAD CLOSURE, BYPASS DETOUR PROVIDED	4	5
LANE #1 CLOSURE, MULTI-LANE FREEWAY	5	
LANE #2 CLOSURE, MULTI-LANE FREEWAY	6	6
LANE #3 CLOSURE, MULTI-LANE FREEWAY	7	
LANE #4 CLOSURE, MULTI-LANE FREEWAY	8	
CENTER LANE CLOSURE - MULTI-LANE FREEWAY	9	7
ONE LANE CLOSE - 4-LANE DIVIDED HIGHWAY	10	
SHOULDER WORK - FREEWAY/EXPRESSWAY	11	
TRAFFIC CONTROL ON FREEWAY NEAR AN OFF-RAMP	12	8
TRAFFIC CONTROL ON FREEWAY BEFORE AN ON-RAMP	13	
TRAFFIC CONTROL ON FREEWAY ALLOWING ACCESS FROM ON-RAMP	14	
BLASTING ZONE	15	9
RAMP CONSTRUCTION WHERE PARTIAL RAMP IS CLOSED	16	
LANE CLOSURE, 2-LANE HIGHWAY, AT CURVE	17	
TRAFFIC CONTROL AROUND A WORK AREA NEAR AN INTERSECTION, ONE LANE CLOSED	18	10
TRAFFIC CONTROL AROUND A WORK AREA NEAR AN INTERSECTION	19	
TYPICAL SIGNING FOR ROAD CLOSURE	20	
FULL CLOSURE, MULTI-LANE FREEWAY	21	11
CONTINUOUS LANE RAMP CLOSURE, MULTI-LANE FREEWAY	22	
SIMPLE RAMP CLOSURE, MULTI-LANE FREEWAY	23	
"FINES DOUBLE IN WORK ZONE" SIGNING (WITH SPEED REDUCTION)	24	12
SHIFTING OF ONE ROADWAY ON 4-LANE DIVIDED HIGHWAY	25	13
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 65 MPH SPEED LIMIT	26	14
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 75 MPH SPEED LIMIT	27	
ROCK SCALING - ROAD CLOSURE, 4-LANE DIVIDED HIGHWAY	28	15

TYPICAL CASE DESCRIPTION	CASE NO.	SHEET NO.
LATE MERGING - ONE LANE CLOSED, 4-LANE DIVIDED HIGHWAY	29	16
ROUNDABOUT - PARTIAL CLOSURE NEAR ONE-LANE ROUNDABOUT	30	17
ROUNDABOUT - INSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT	31	18
ROUNDABOUT - OUTSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT	32	19
ROUNDABOUT - PARTIAL CLOSURE FOR ONE-LANE ROUNDABOUT	33	20
MOBILE PAVEMENT MARKING ZONE, MOBILE SHOULDER CLOSURE ON 2-LANE UNDIVIDED HIGHWAY	34	21
MOBILE PAVEMENT MARKING ZONE, CENTERLINE STRIPING ON 2-LANE UNDIVIDED HIGHWAY	35	
MOBILE PAVEMENT MARKING ZONE, LANE LINE STRIPING - CENTER LANE OPERATIONS ON MULTI-LANE DIVIDED HIGHWAY	36	22
MOBILE PAVEMENT MARKING ZONE, MOBILE RAMP CLOSURE - EXPRESSWAY/FREEWAY	37	
MOBILE OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY (NOT FOR USE ON FREEWAYS)	38	23
MOBILE OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY	39	

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date:	Initials:
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_2of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

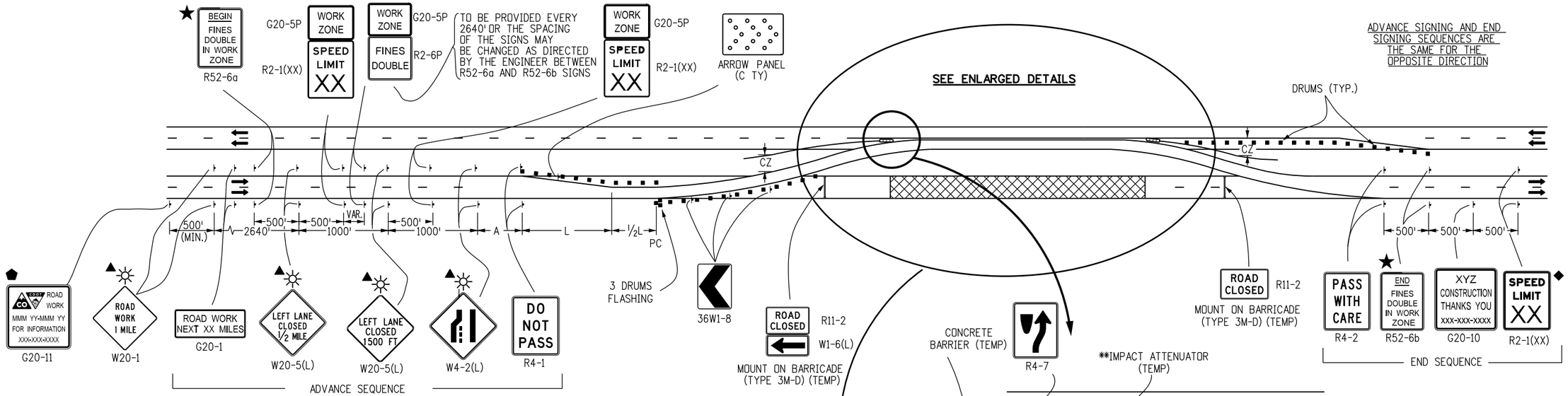
	Sheet Revisions	
	Date:	Comments
R-1	**05/19/16**	ADDED CASES AND UPDATED SHEET NUMBERS
R-X		
R-X		
R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

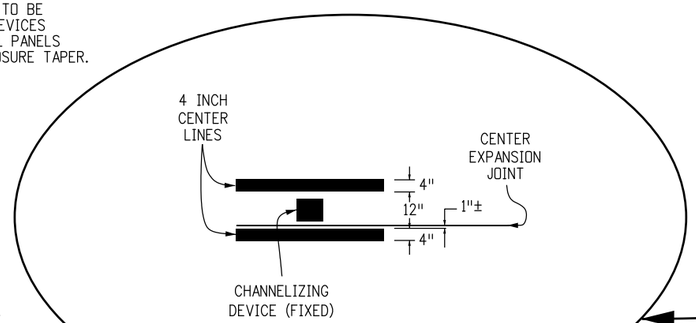
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 2 of 24



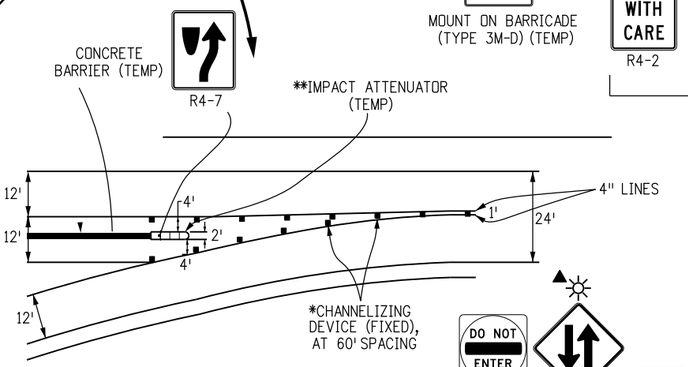
LEGEND

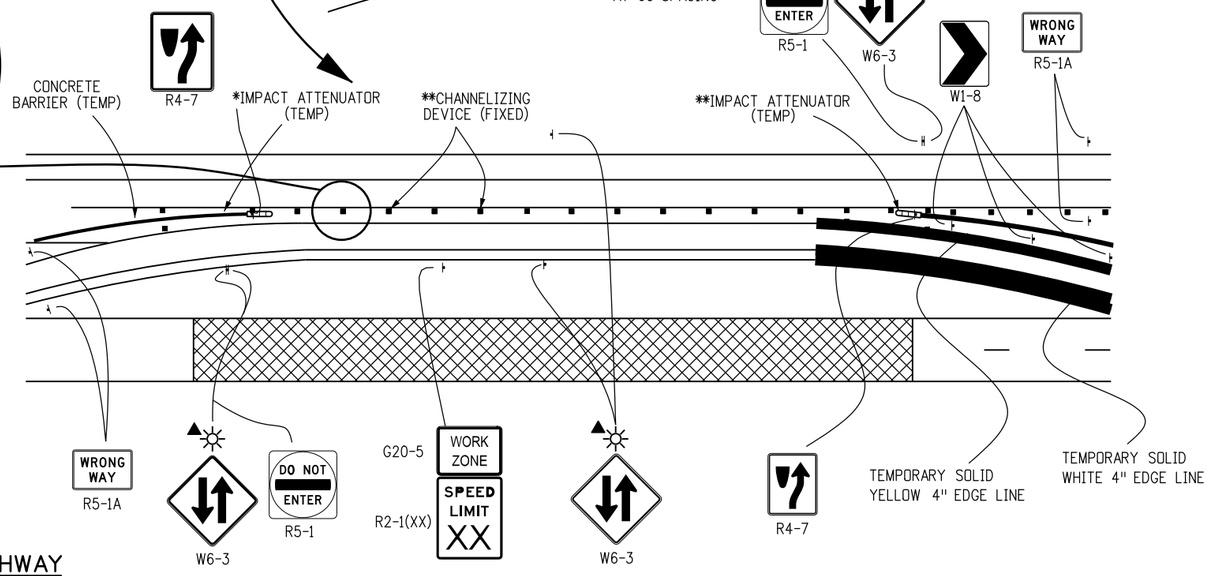
- ▪ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- A = 100' (URBAN LOW SPEED)
  - 350' (URBAN HIGH SPEED)
  - 500' (RURAL)
  - 1,000' (EXPRESSWAY / FREEWAY)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- VAR. BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- IMPACT ATTENUATOR AS DETAILED ON THE PLANS
- FLASHING BEACON



TYPICAL 2-WAY ZONE STRIPING

- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- * THESE ITEMS ARE NOT REQUIRED WHEN CONTINUOUS CONCRETE BARRIER IS USED FOR CHANNELIZATION.
- ** SEE GENERAL NOTE 16 ON SHEET 1.
- ⬟ G20-11 SIGN IS REQUIRED IF SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.





CASE NO. 1
TYPICAL APPLICATION
CLOSURE OF ONE ROADWAY 4-LANE DIVIDED HIGHWAY

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_3of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

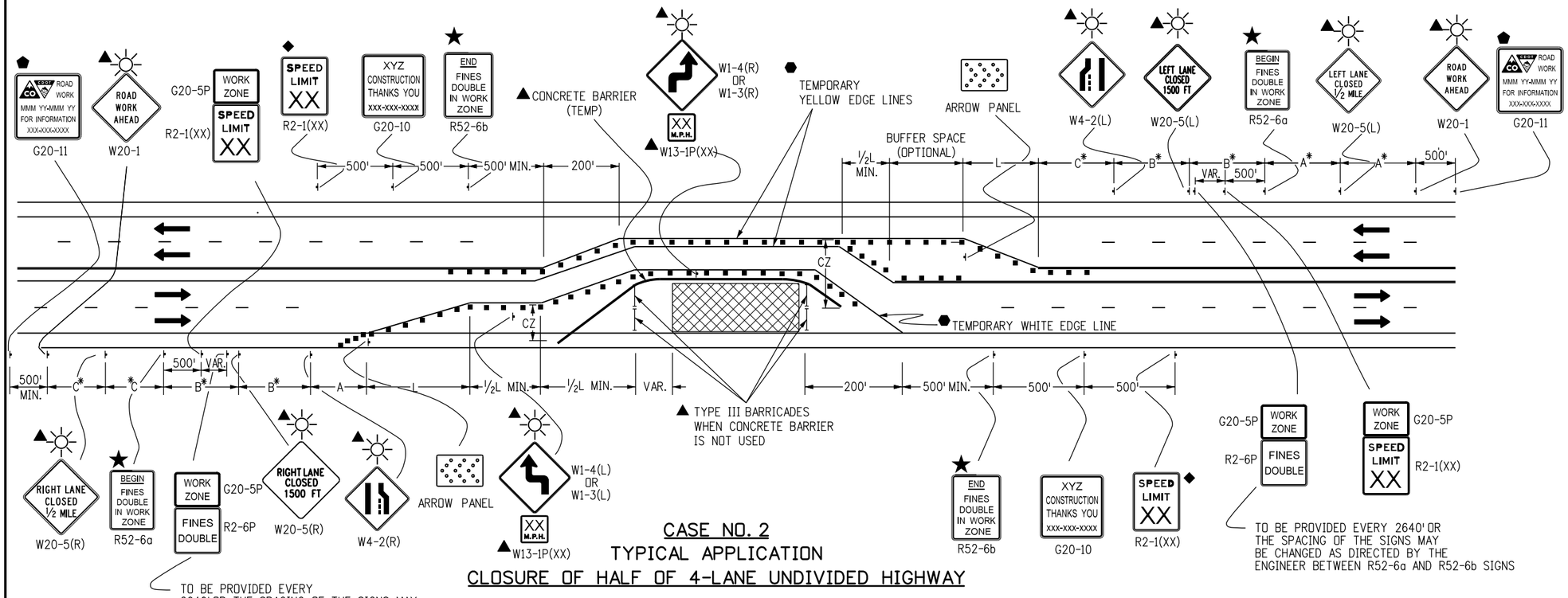
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

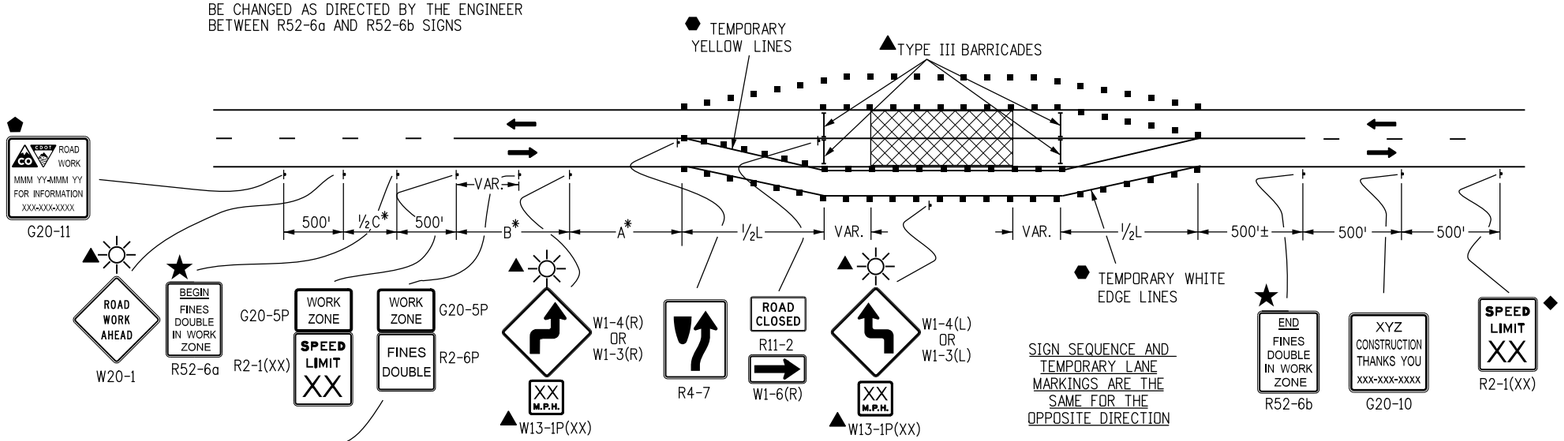
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO. S-630-1

-?-



CASE NO. 2
TYPICAL APPLICATION
CLOSURE OF HALF OF 4-LANE UNDIVIDED HIGHWAY



CASE NO. 3
TYPICAL APPLICATION
ROAD CLOSURE, USE OF ADJACENT SHOULDERS

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- A = 100' (URBAN LOW SPEED)
  350' (URBAN HIGH SPEED)
  500' (RURAL)
  1,000' (EXPRESSWAY / FREEWAY)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1)
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VAR. BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

* KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date: 02/27/13	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_4of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

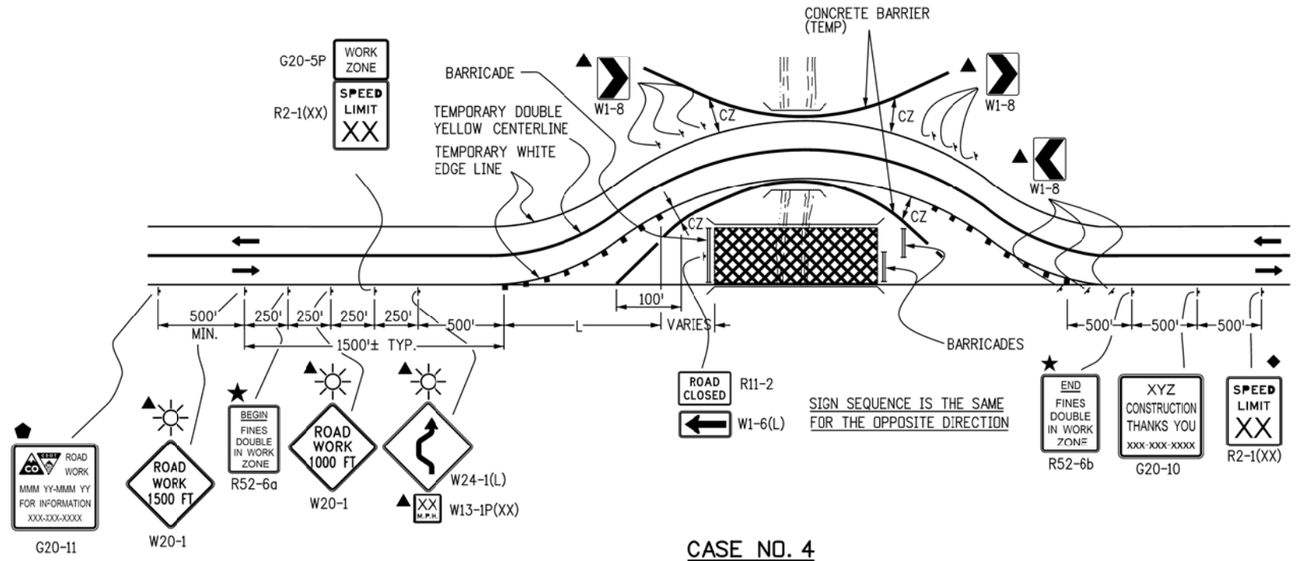
Sheet Revisions		
	Date:	Comments
R-3	02/27/13	UPDATE TAPER TO MUTCD STD
R-X		
R-X		
R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

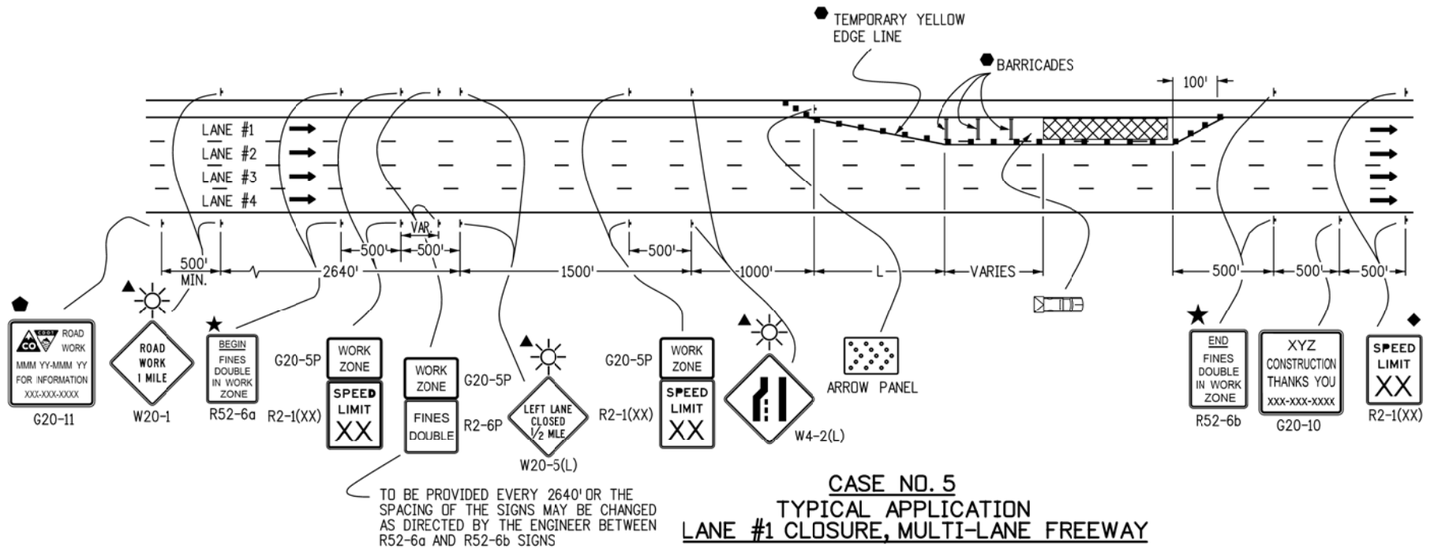
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 4 of 24



CASE NO. 4
TYPICAL APPLICATION
ROAD CLOSURE, BYPASS DETOUR PROVIDED



TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 5
TYPICAL APPLICATION
LANE #1 CLOSURE, MULTI-LANE FREEWAY

LEGEND

- ▪ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L — TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ — CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES — BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- MOBILE ATTENUATOR
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

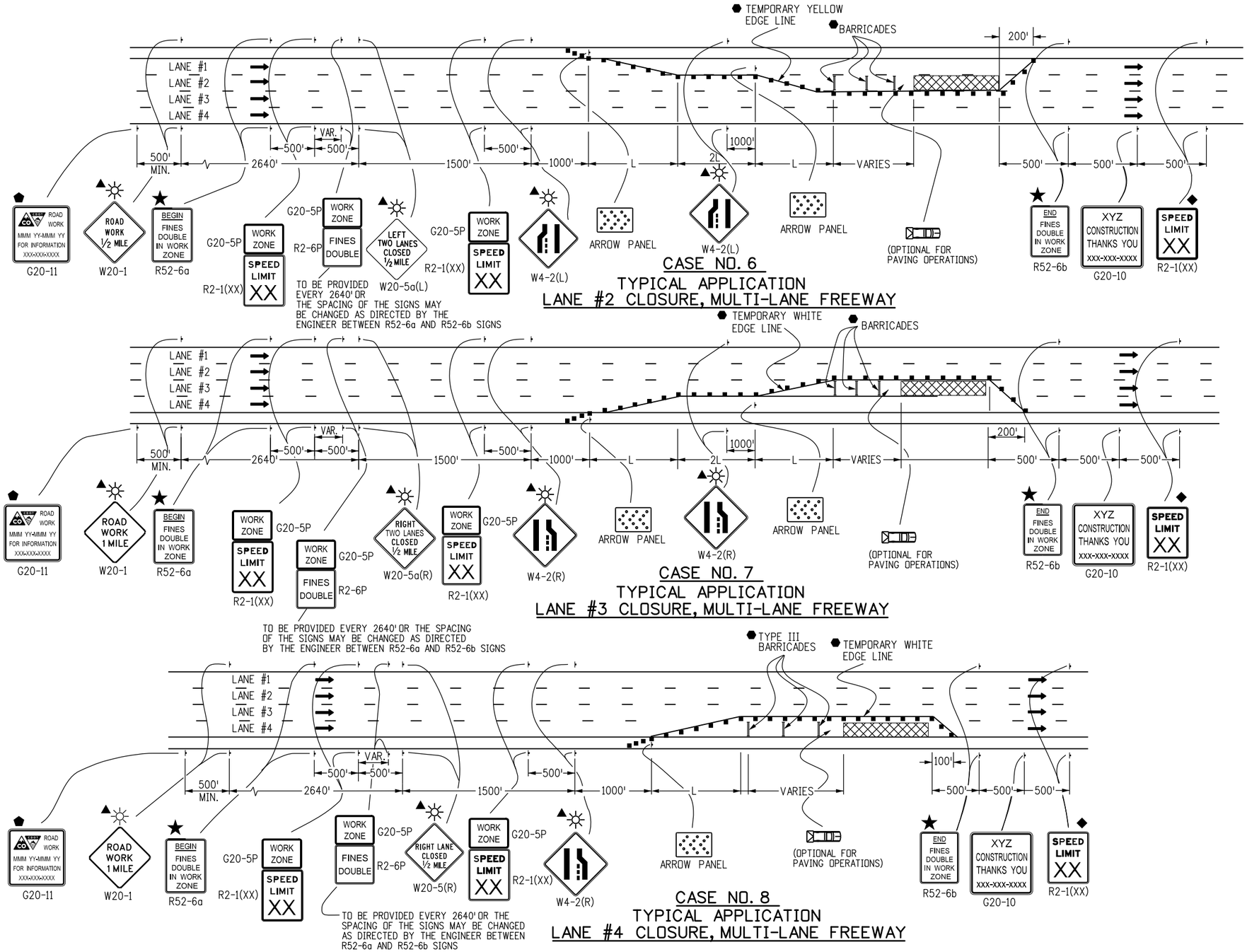
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R=X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R=X		
Drawing File Name: S-630-01_5of24.dgn	R=X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R=X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 5 of 24



LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ● REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- MOBILE ATTENUATOR
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

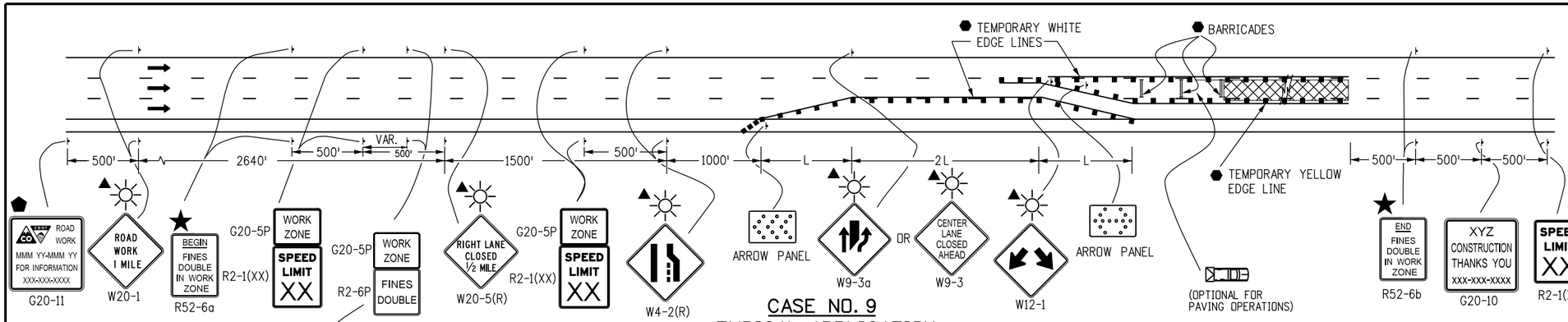
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-1	05/19/16	ADDED "OPTIONAL FOR PAVING OPERATIONS" CHANGED TMA TO "MOBILE ATTENUATOR"
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_6of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

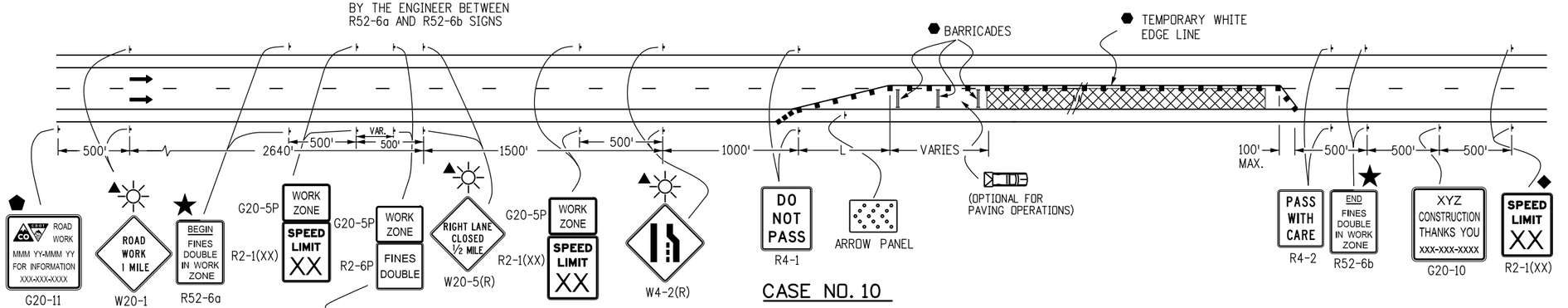
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 6 of 24



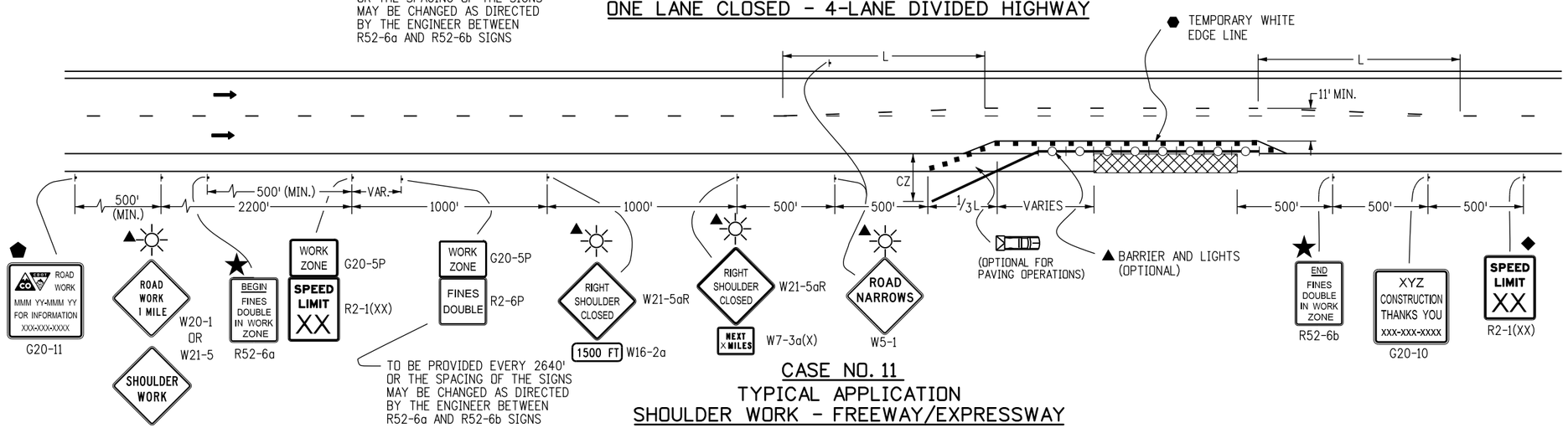
TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 9
TYPICAL APPLICATION
CENTER LANE CLOSURE - MULTI-LANE FREEWAY



TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 10
TYPICAL APPLICATION
ONE LANE CLOSED - 4-LANE DIVIDED HIGHWAY



TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 11
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY

LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- FLASHING BEACON
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- MOBILE ATTENUATOR
- CONCRETE BARRIER (TEMPORARY) WITH LIGHTS
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date:	Initials:
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_7of24.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

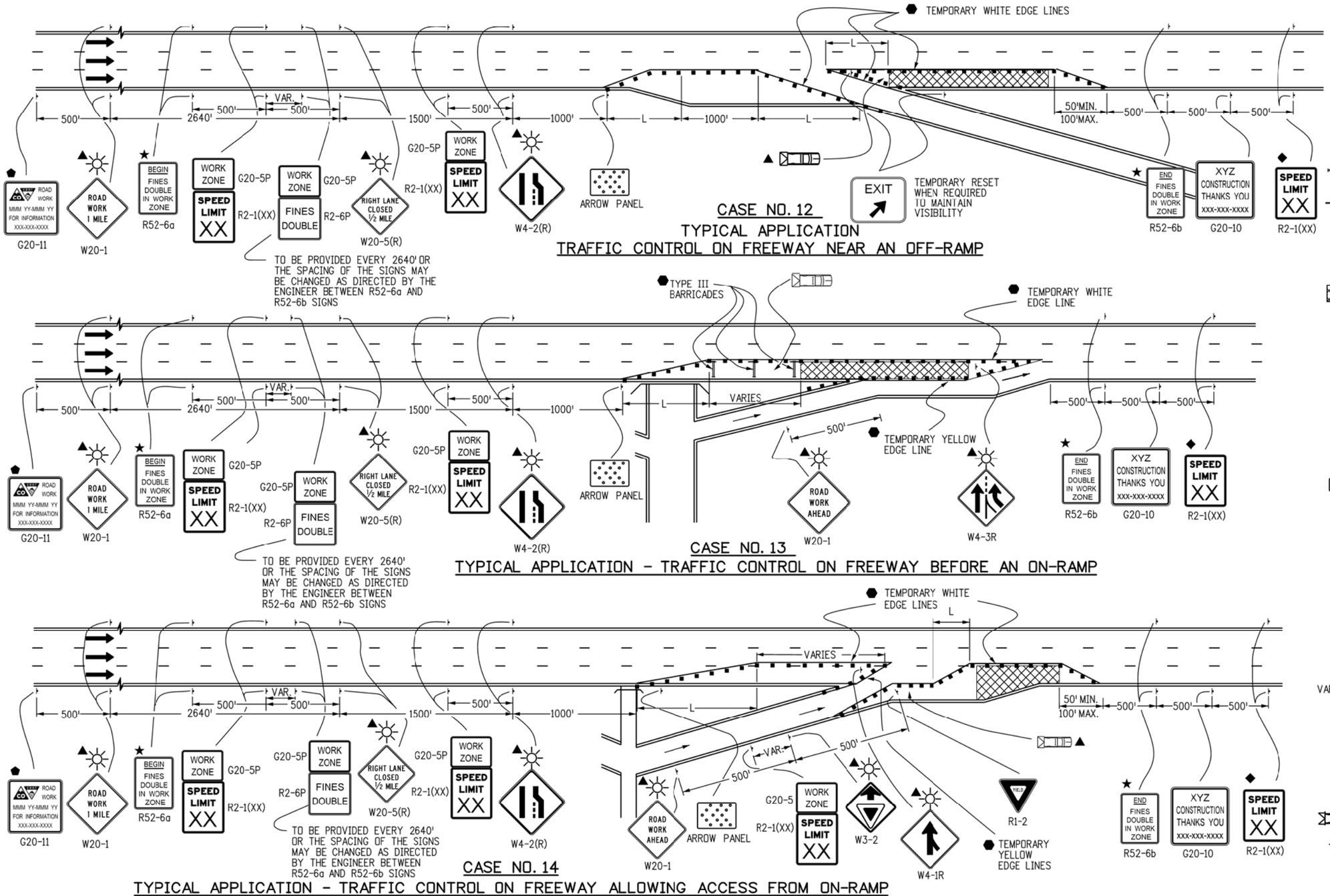
Sheet Revisions		
	Date:	Comments
R-1	05/19/16	ADDED "OPTIONAL FOR PAVING OPERATIONS" CHANGED TMA TO "MOBILE ATTENUATOR"
R-X		
R-X		
R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 7 of 24



LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- MOBILE ATTENUATOR
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

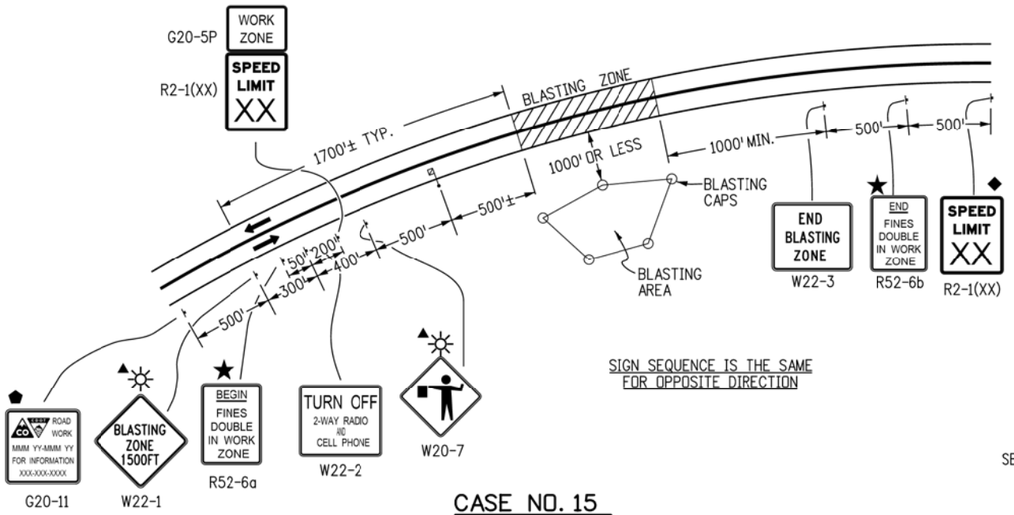
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KEN		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_8of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

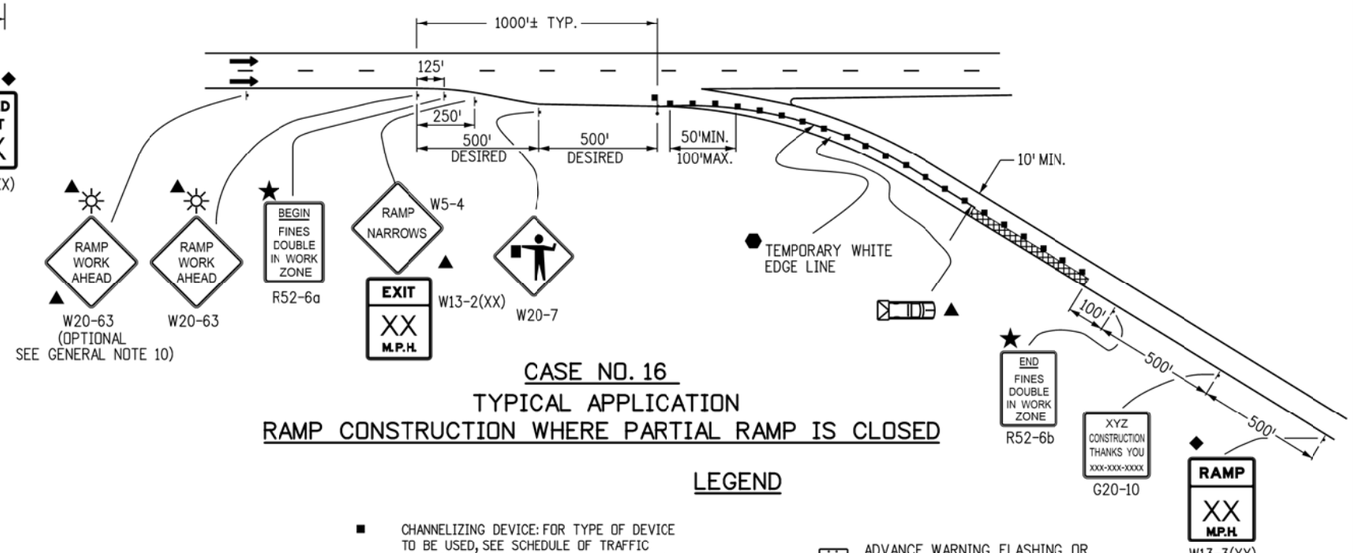
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 8 of 24

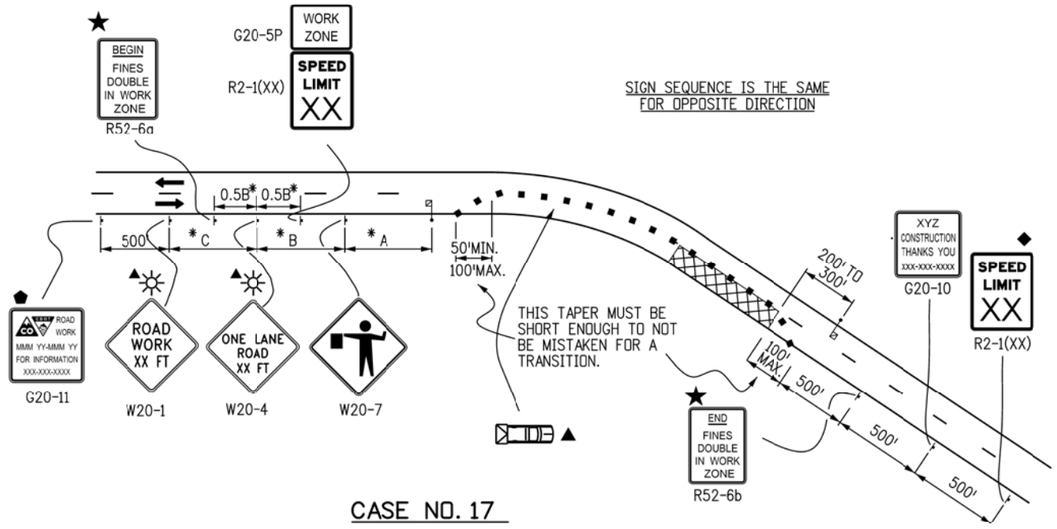


SIGN SEQUENCE IS THE SAME FOR OPPOSITE DIRECTION

CASE NO. 15
TYPICAL APPLICATION
BLASTING ZONE



CASE NO. 16
TYPICAL APPLICATION
RAMP CONSTRUCTION WHERE PARTIAL RAMP IS CLOSED



SIGN SEQUENCE IS THE SAME FOR OPPOSITE DIRECTION

CASE NO. 17
TYPICAL APPLICATION
LANE CLOSURE, 2-LANE HIGHWAY, AT CURVE

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: L = S x W
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- MOBILE ATTENUATOR
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- FLASHING BEACON
- ● REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

*KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information		
Creation Date: 07/04/12	Initials: RRR	
Last Modification Date: 07/26/13	Initials: KEN	R-4
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-X
Drawing File Name: S-630-01_9of24.dgn		R-X
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		R-X

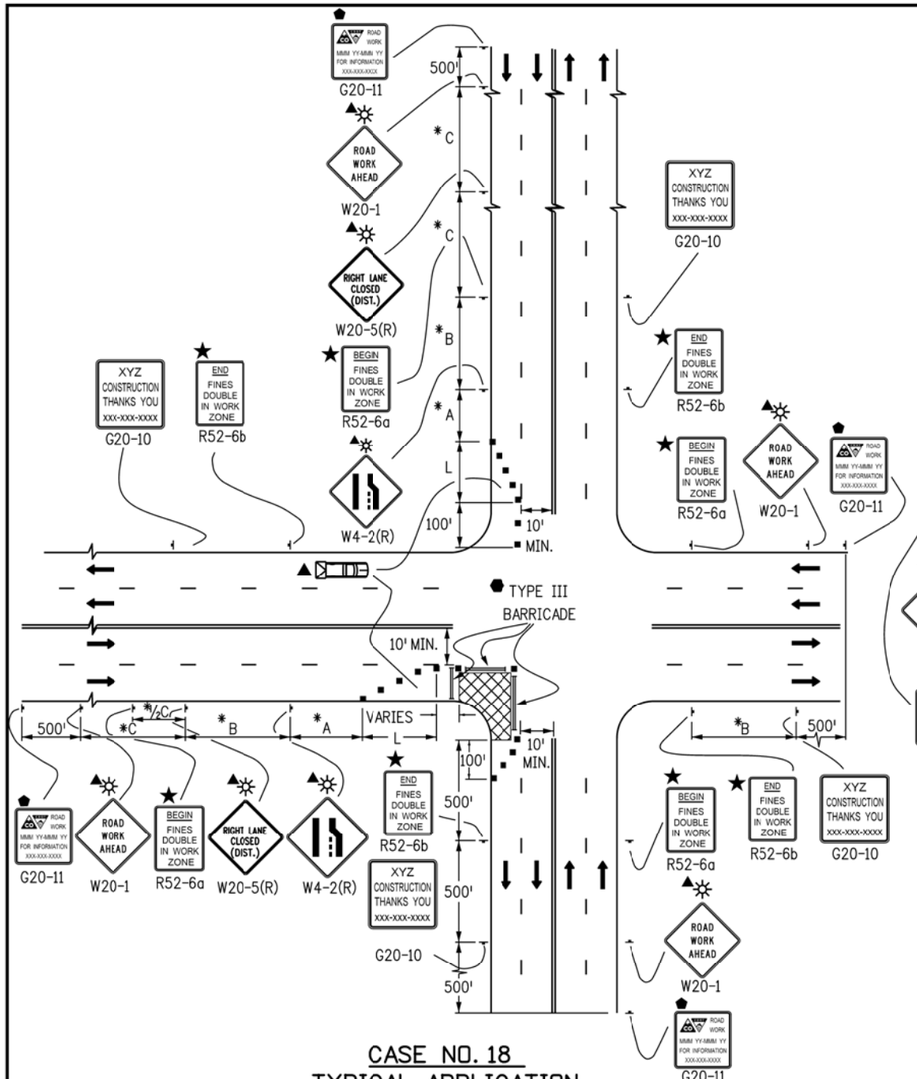
Sheet Revisions	
Date:	Comments
07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBOL) SIGN TO W20-7

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

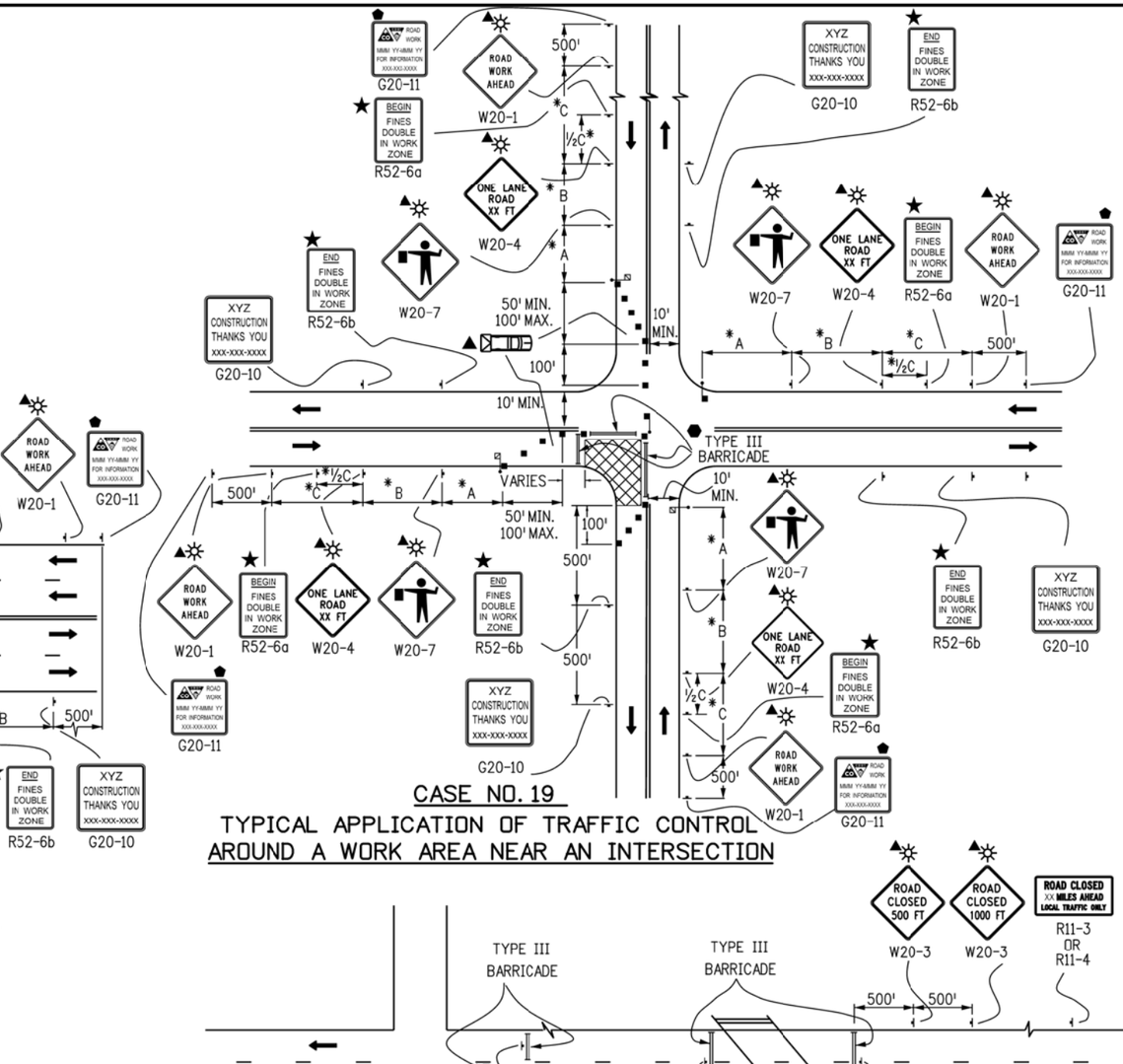
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

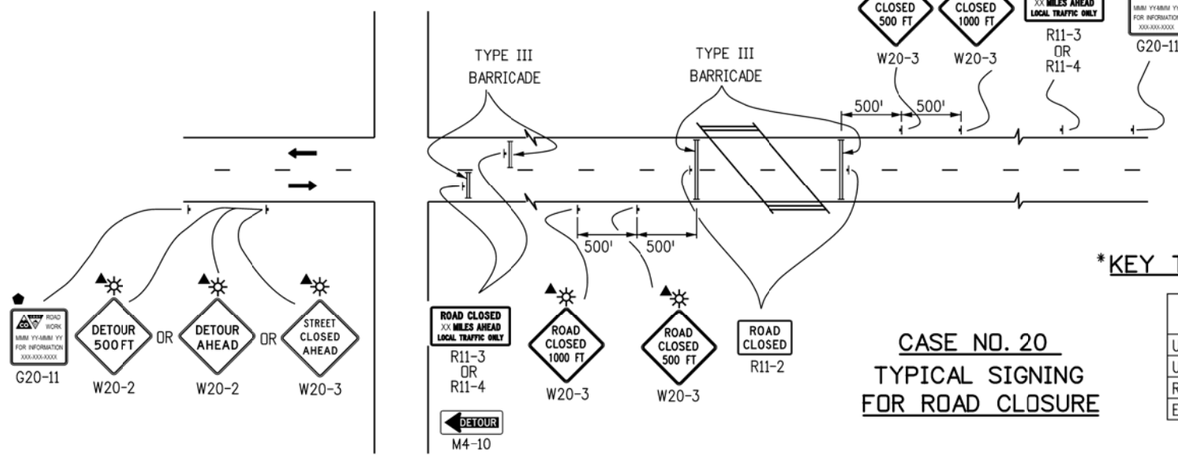
STANDARD PLAN NO.
S-630-1
Sheet No. 9 of 24



CASE NO. 18
TYPICAL APPLICATION TRAFFIC CONTROL AROUND A WORK AREA NEAR AN INTERSECTION, ONE LANE CLOSED



CASE NO. 19
TYPICAL APPLICATION OF TRAFFIC CONTROL AROUND A WORK AREA NEAR AN INTERSECTION



CASE NO. 20
TYPICAL SIGNING FOR ROAD CLOSURE

NOTES:

1. SIGN PLACEMENT SHOWN ON CASES 18 AND 19 TYPIFIES RURAL APPLICATIONS. URBAN APPLICATIONS REQUIRE THE SIGNS TO BE PLACED WITHIN ONE, OR PERHAPS TWO, BLOCKS.
2. TRUCK-MOUNTED ATTENUATORS (TMA) OPTIONAL FOR ALL CASES AS DETERMINED BY THE ENGINEER.

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: L = S x W
  - SPEED 40 MPH OR LESS: L = $\frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- MOBILE ATTENUATOR
- CZ CLEAR ZONE (SEE GENERAL NOTE 16).
- FLASHING BEACON
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬟ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

*KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date: 04/02/2015	Initials: TCD
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_10of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

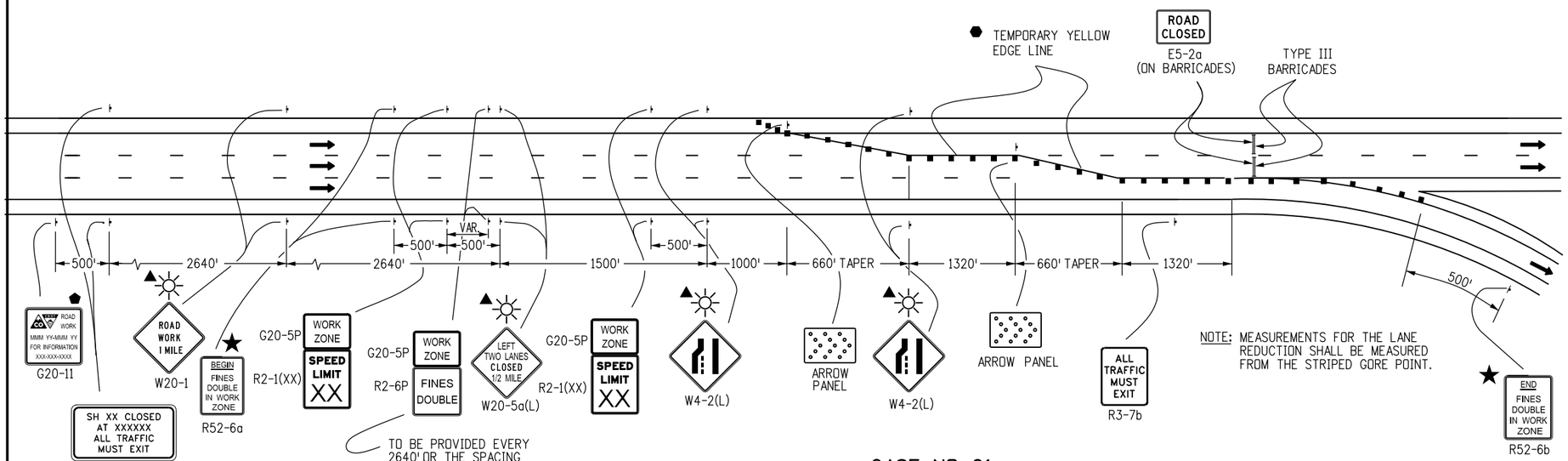
	Sheet Revisions	
	Date:	Comments
R-4	07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBOL) SIGN TO W20-7
R-5	04/02/20	CORRECTED SIGN CODE DESIGNATION FOR ROAD WORK AHEAD SIGN TO W20-1
R-X		
R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

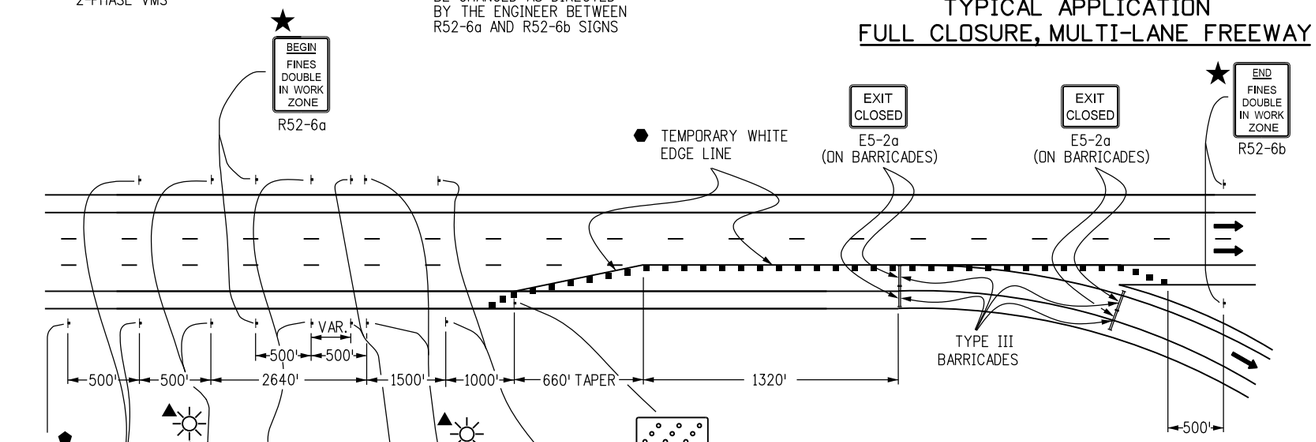
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

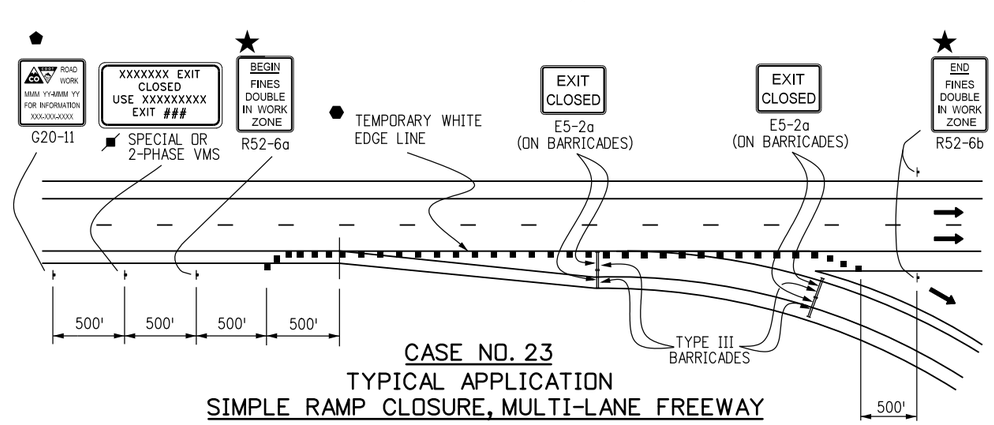
STANDARD PLAN NO.
S-630-1
Sheet No. 10 of 24



CASE NO. 21
TYPICAL APPLICATION
FULL CLOSURE, MULTI-LANE FREEWAY



CASE NO. 22
TYPICAL APPLICATION
CONTINUOUS LANE RAMP CLOSURE, MULTI-LANE FREEWAY



CASE NO. 23
TYPICAL APPLICATION
SIMPLE RAMP CLOSURE, MULTI-LANE FREEWAY

LEGEND

- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- DIRECTION OF TRAVEL
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- CLOSURE AND EXIT MESSAGES ON SIGN LEGEND(S) SHOULD BE MODIFIED TO FIT THE SITUATION.
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

NOTES

1. NOTICE OF EXIT CLOSURE SHALL ALSO BE GIVEN IN ADVANCE OF THE PREVIOUS EXIT TO PROVIDE MOTORISTS WITH THE OPTION TO EXIT AT THAT LOCATION.
2. ADDITIONAL SIGNING TO REDIRECT DETOURED TRAFFIC SHALL BE PROVIDED FOR IN THE PROJECT'S METHOD OF HANDLING TRAFFIC.
3. FOR LONG TERM SETUPS, A BLACK ON ORANGE "EXIT CLOSED" (E5-2a) PANEL SHALL BE MOUNTED DIAGONALLY ACROSS ALL EXISTING GUIDE SIGNS THAT PERTAIN TO THE CLOSED EXIT.

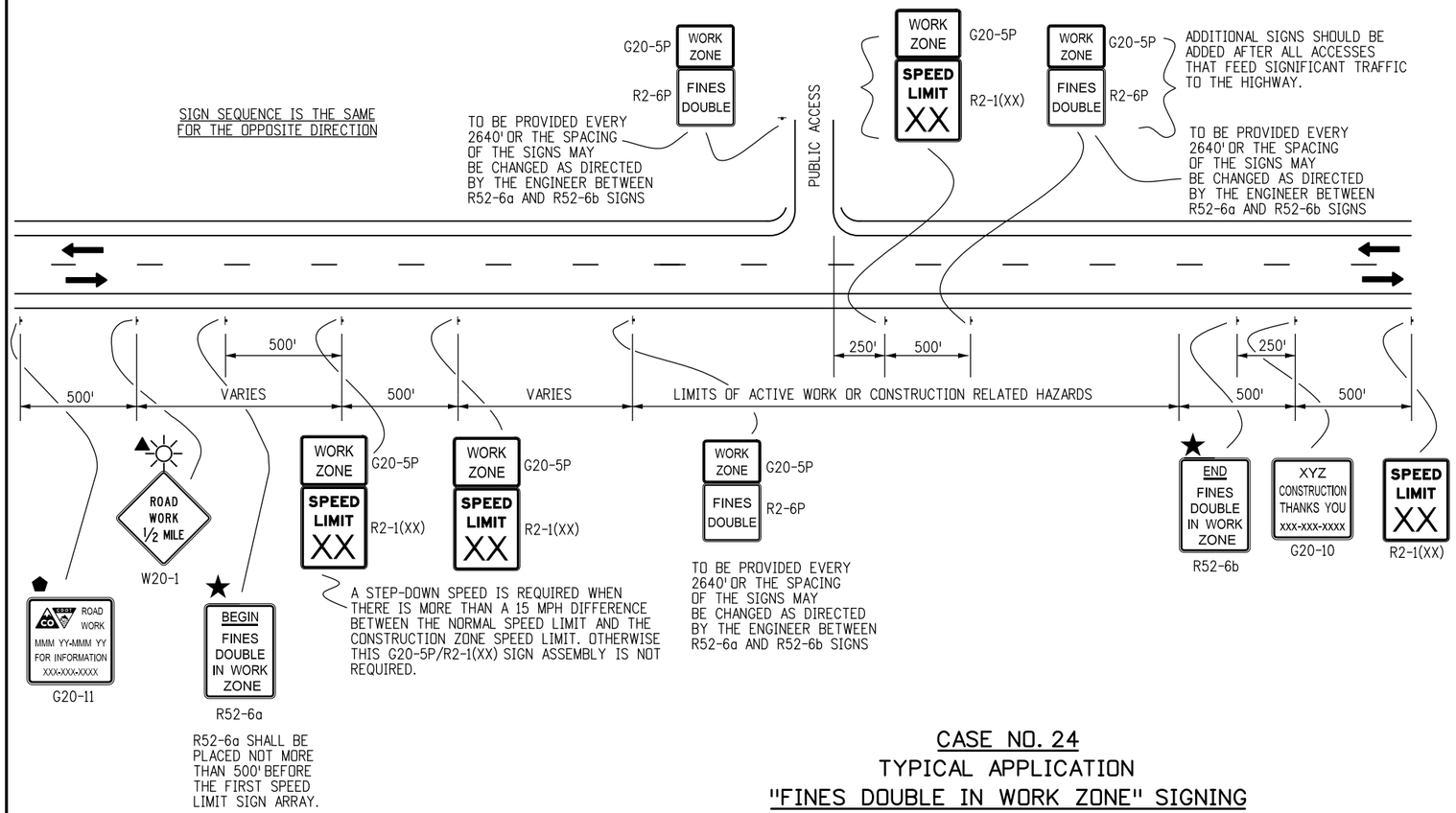
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KEN		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_11of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 11 of 24



LEGEND

- DIRECTION OF TRAVEL
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- FLASHING BEACON
- ★ FINES DOUBLE SIGNING NOTES, SEE BELOW

FINES DOUBLE SIGNING NOTES:

1. SIGNS SHALL NOT BE PLACED SOONER THAN FOUR HOURS BEFORE WORK IS TO BEGIN AND SHALL BE REMOVED AS SOON AS WORK ACTIVITIES ARE CONCLUDED, UNLESS POTENTIAL HAZARDS INTRODUCED AS A RESULT OF THE WORK ARE STILL PRESENT AT THE END OF THE WORK DAY. IF SIGNS ARE LEFT IN PLACE AFTER WORK ACTIVITIES, THE TRAFFIC CONTROL SUPERVISOR SHALL MAKE AN ENTRY IN THEIR DAILY DIARY THAT JUSTIFIES THEIR USE.

   "HAZARDS" INCLUDE BUT ARE NOT LIMITED TO:
   - EDGE DROP OFFS
   - EQUIPMENT, WORKERS OR NON-SHIELDED OBJECTS IN THE CLEAR ZONE
   - ROUGH PAVEMENT
   - MAJOR CHANGE IN ALIGNMENT
   - REDUCED SHOULDER WIDTH
   - TEMPORARY GUARD RAIL OR BARRIER
   - LANE CLOSURE

2. SIGNS SHALL ONLY BE PLACED WHERE WORKERS ARE PRESENT IN THE ROADWAY OR CLEAR ZONE OR ARE AT RISK, OR WHERE THERE ARE HAZARDS IN THE TRAVELWAY, SHOULDERS OR CLEAR ZONE.

3. SIGNS SHOULD BE PLACED SO THAT MOTORISTS IMMEDIATELY ASSOCIATE THE SIGNS WITH PRESENT WORK ACTIVITIES. IF THE ZONE OF WORK ACTIVITY MOVES, THE SIGNS SHOULD BE MOVED ACCORDINGLY.

4. SIGNING SHOWN IS REQUIRED TO ENFORCE DOUBLE FINES IN A WORK ZONE. ADDITIONAL SIGNING SHALL BE IN ACCORDANCE WITH THAT NORMALLY REQUIRED FOR THE PARTICULAR WORK ZONE. PLACEMENT OF "FINES DOUBLE" SIGNING MAY BE ADJUSTED AS NEEDED TO PROVIDE A MINIMUM 250' SPACING BETWEEN OTHER SIGNING REQUIRED FOR THE SPECIFIC WORK ZONE SETUP.

CASE NO. 24
TYPICAL APPLICATION
"FINES DOUBLE IN WORK ZONE" SIGNING
(WITH SPEED REDUCTION)

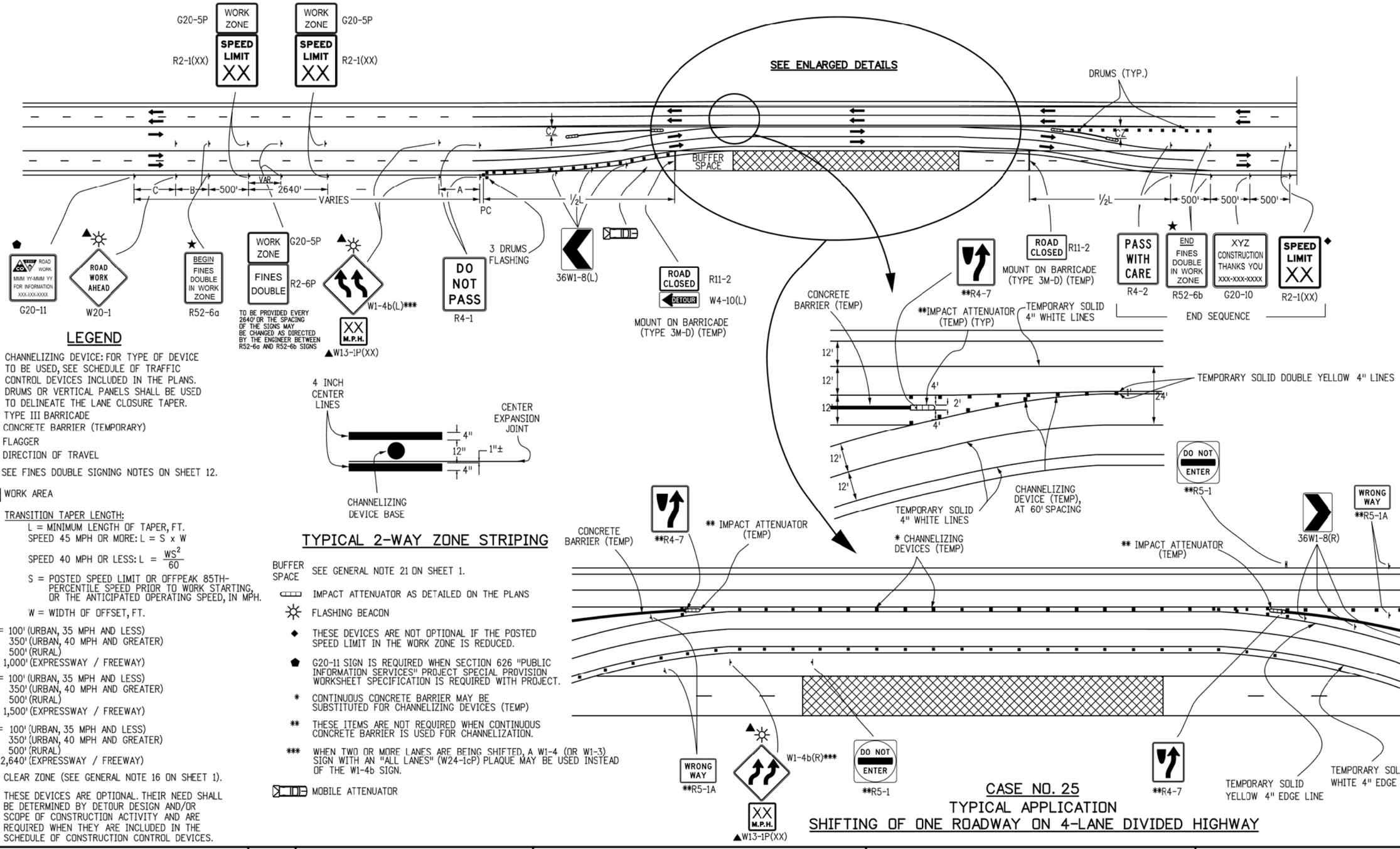
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_12of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 12 of 24



LEGEND

- ▪ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- ⊢ TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER, FT.
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = POSTED SPEED LIMIT OR OFFPEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED, IN MPH.
  - W = WIDTH OF OFFSET, FT.
- A = 100' (URBAN, 35 MPH AND LESS); 350' (URBAN, 40 MPH AND GREATER); 500' (RURAL); 1,000' (EXPRESSWAY / FREEWAY)
- B = 100' (URBAN, 35 MPH AND LESS); 350' (URBAN, 40 MPH AND GREATER); 500' (RURAL); 1,500' (EXPRESSWAY / FREEWAY)
- C = 100' (URBAN, 35 MPH AND LESS); 350' (URBAN, 40 MPH AND GREATER); 500' (RURAL); 2,640' (EXPRESSWAY / FREEWAY)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

TYPICAL 2-WAY ZONE STRIPING

- BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.
- IMPACT ATTENUATOR AS DETAILED ON THE PLANS
- FLASHING BEACON
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- * CONTINUOUS CONCRETE BARRIER MAY BE SUBSTITUTED FOR CHANNELIZING DEVICES (TEMP)
- ** THESE ITEMS ARE NOT REQUIRED WHEN CONTINUOUS CONCRETE BARRIER IS USED FOR CHANNELIZATION.
- *** WHEN TWO OR MORE LANES ARE BEING SHIFTED, A W1-4 (OR W1-3) SIGN WITH AN "ALL LANES" (W24-1cP) PLAQUE MAY BE USED INSTEAD OF THE W1-4b SIGN.
- MOBILE ATTENUATOR

CASE NO. 25
TYPICAL APPLICATION
SHIFTING OF ONE ROADWAY ON 4-LANE DIVIDED HIGHWAY

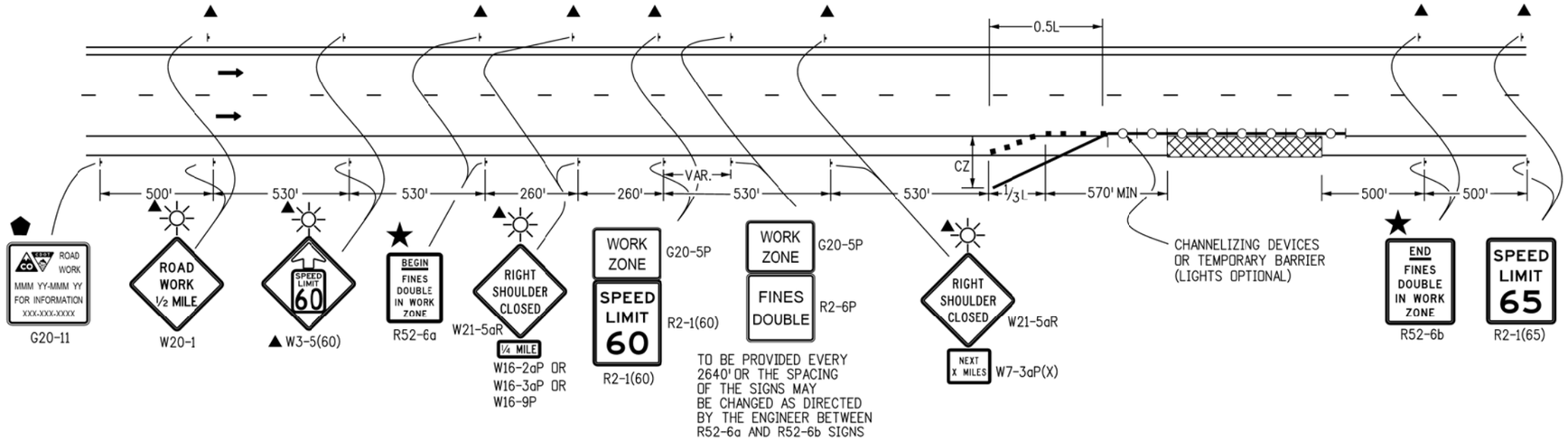
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: 02/06/13 Initials: KEN	R-1	02/06/13	UPDATE TO 2009 MUTCD STANDARD
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_13of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

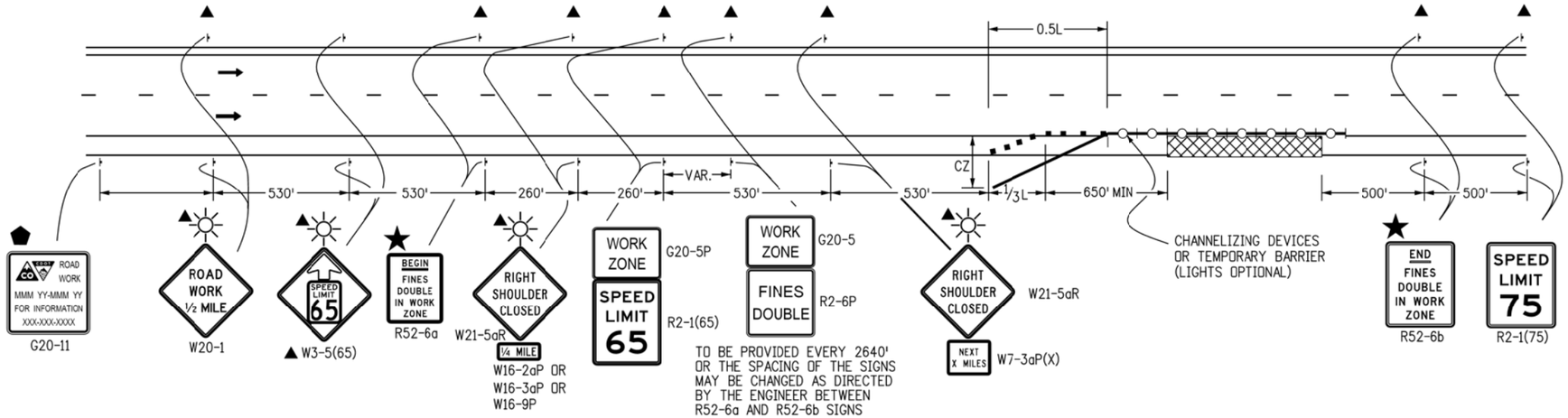
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 13 of 24



CASE NO. 26
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 65 MPH SPEED LIMIT

WHEN HAZARDS (WORKERS, EQUIPMENT, OR TEMPORARY BARRIER) ARE WITHIN 8 FT OF TRAVEL WAY



CASE NO. 27
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 75 MPH SPEED LIMIT

WHEN HAZARDS (WORKERS, EQUIPMENT, OR TEMPORARY BARRIER) ARE WITHIN 10 FT OF TRAVEL WAY

LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L — TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: L = S x W
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ — CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY TRAFFIC VOLUMES AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- MOBILE ATTENUATOR
- FLASHING BEACON
- SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

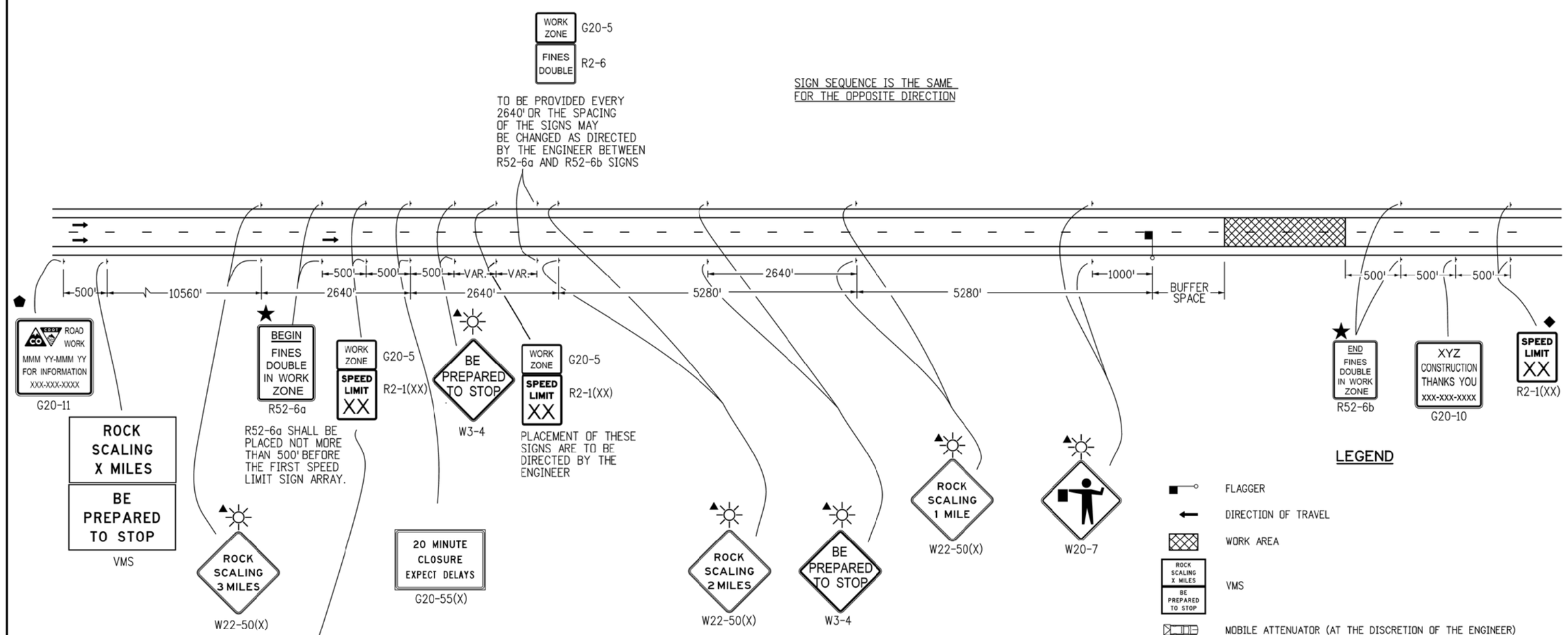
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_14of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 14 of 24



CASE NO. 28
TYPICAL APPLICATION
ROCK SCALING - ROAD CLOSURE, 4-LANE DIVIDED HIGHWAY

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: 07/26/13 Initials: KEN	R-4	07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBOL) SIGN TO W20-7
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_15of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

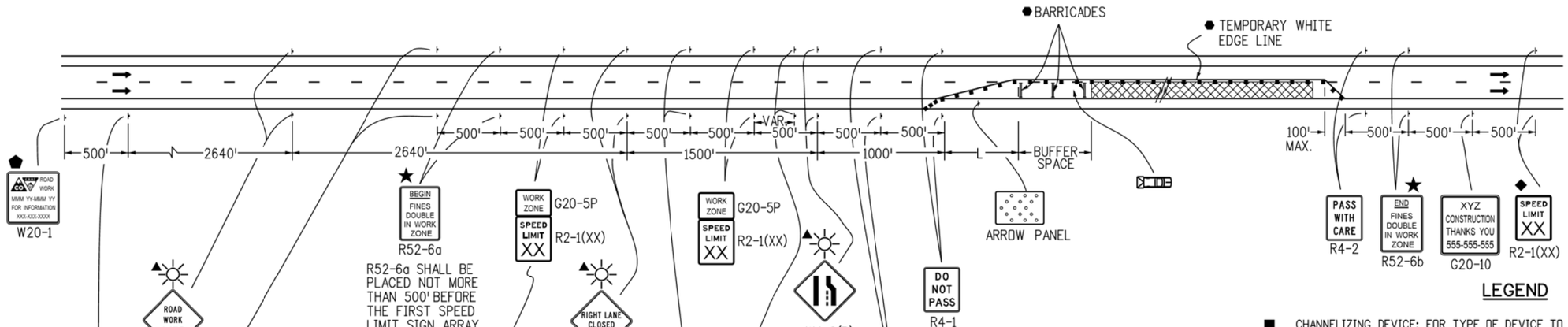
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO. S-630-1

Sheet No. 15 of 24



R52-6a SHALL BE PLACED NOT MORE THAN 500' BEFORE THE FIRST SPEED LIMIT SIGN ARRAY.

A STEP-DOWN SPEED LIMIT IS REQUIRED WHEN THERE IS MORE THAN A 15 MPH DIFFERENCE BETWEEN THE NORMAL SPEED LIMIT AND THE CONSTRUCTION ZONE SPEED LIMIT. OTHERWISE THIS G20-5P/R2-1(XX) SIGN ASSEMBLY IS NOT REQUIRED.

TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 29
TYPICAL APPLICATION
LATE MERGING - ONE LANE CLOSED, 4-LANE DIVIDED HIGHWAY

LEGEND

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬟ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

MOBILE ATTENUATOR

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-1	06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_16of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

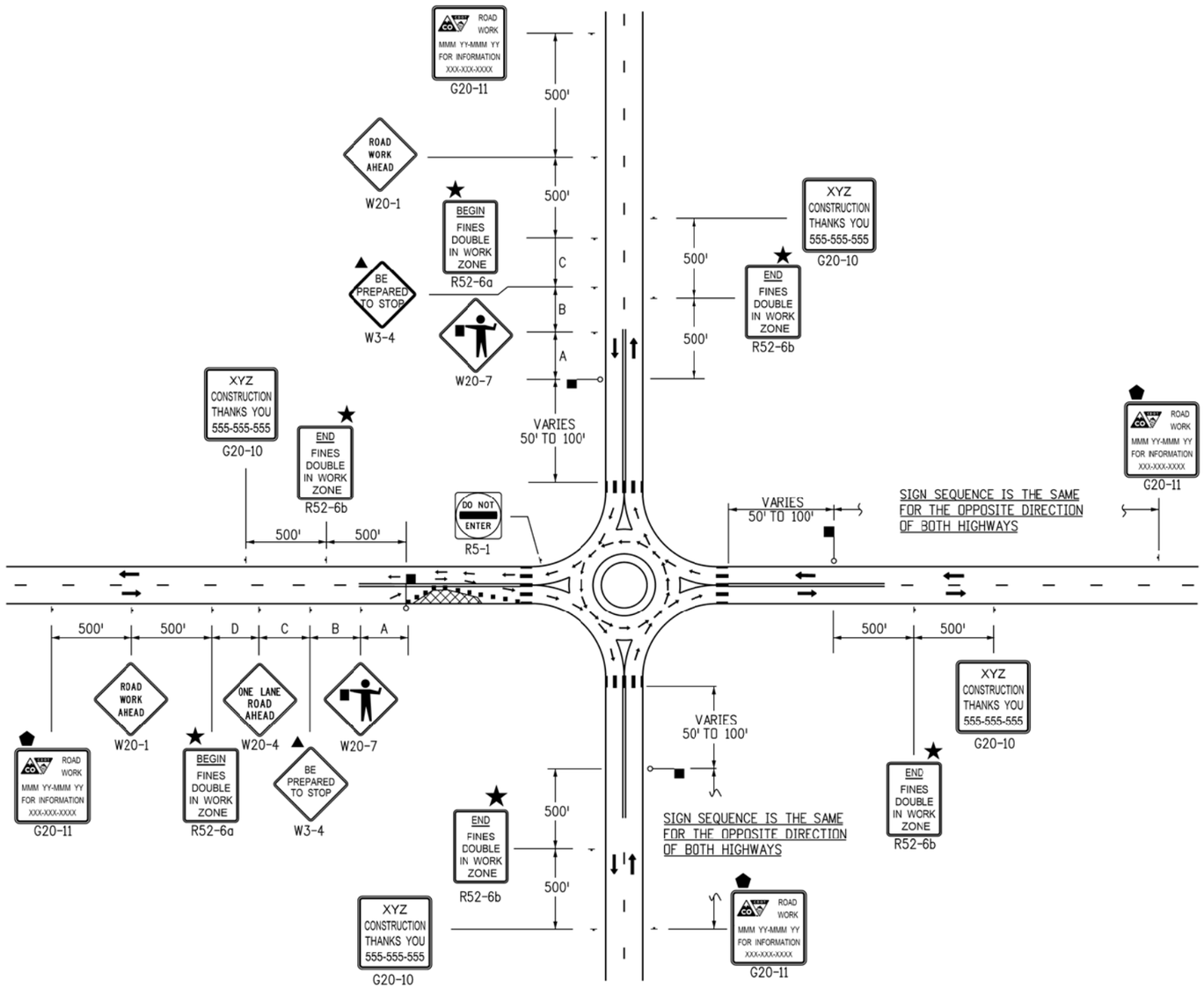
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO. S-630-1

-?-



LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.
- TYPE III BARRICADE
- DIRECTION OF TRAVEL
- WORK AREA
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- FLASHING BEACON
- ⬟ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- MOBILE ATTENUATOR
- L TRANSITION TAPER LENGTH:

  L = MINIMUM LENGTH OF TAPER

  SPEED 45 MPH OR MORE: $L = S \times W$

  SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

  S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

  W = WIDTH OF OFFSET

  SHOULDER TAPER = 1/3 L
- BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.
- FLAGGER

CASE NO. 30
TYPICAL APPLICATION
ROUNDABOUT - PARTIAL CLOSURE NEAR ONE-LANE ROUNDABOUT

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

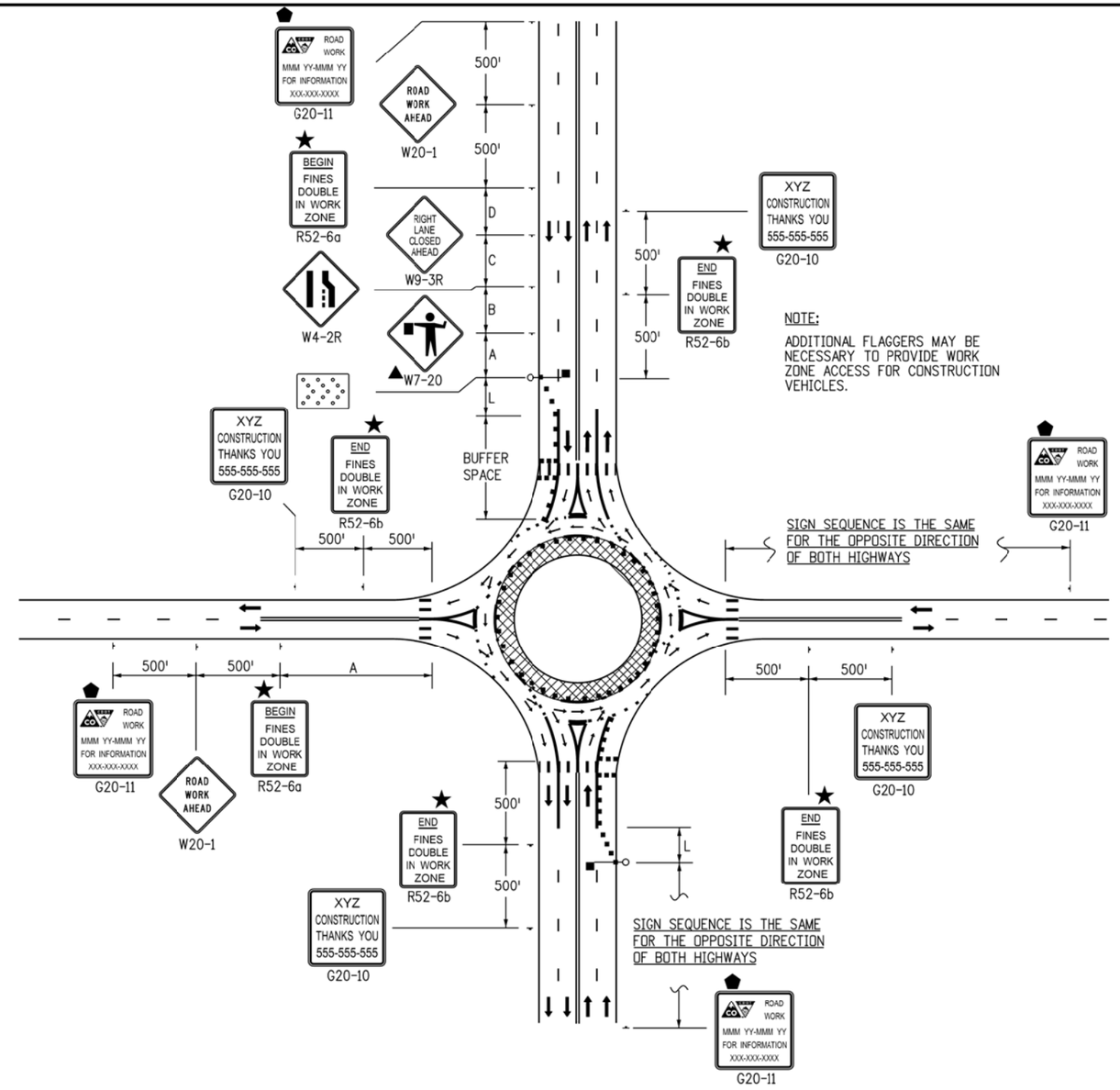
Computer File Information			Sheet Revisions	
Creation Date: 07/04/12	Initials: KEN		Date:	Comments
Last Modification Date: 12/08/14	Initials: KEN	R-7	12/08/14	NEW SHEET 17. OLD SHEET 17 NOW SHEET 21
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-2	06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"
Drawing File Name: S-630-01_17of24.dgn		R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 17 of 24



CASE NO. 31

TYPICAL APPLICATION *

ROUNDABOUT - INSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬟ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

MOBILE ATTENUATOR

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = \frac{WS^2}{60}$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 12/08/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_18of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

	Sheet Revisions	
	Date:	Comments
R-7	12/08/14	NEW SHEET 18. OLD SHEET 18 NOW SHEET 22
R-8	06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"
R-X		
R-X		

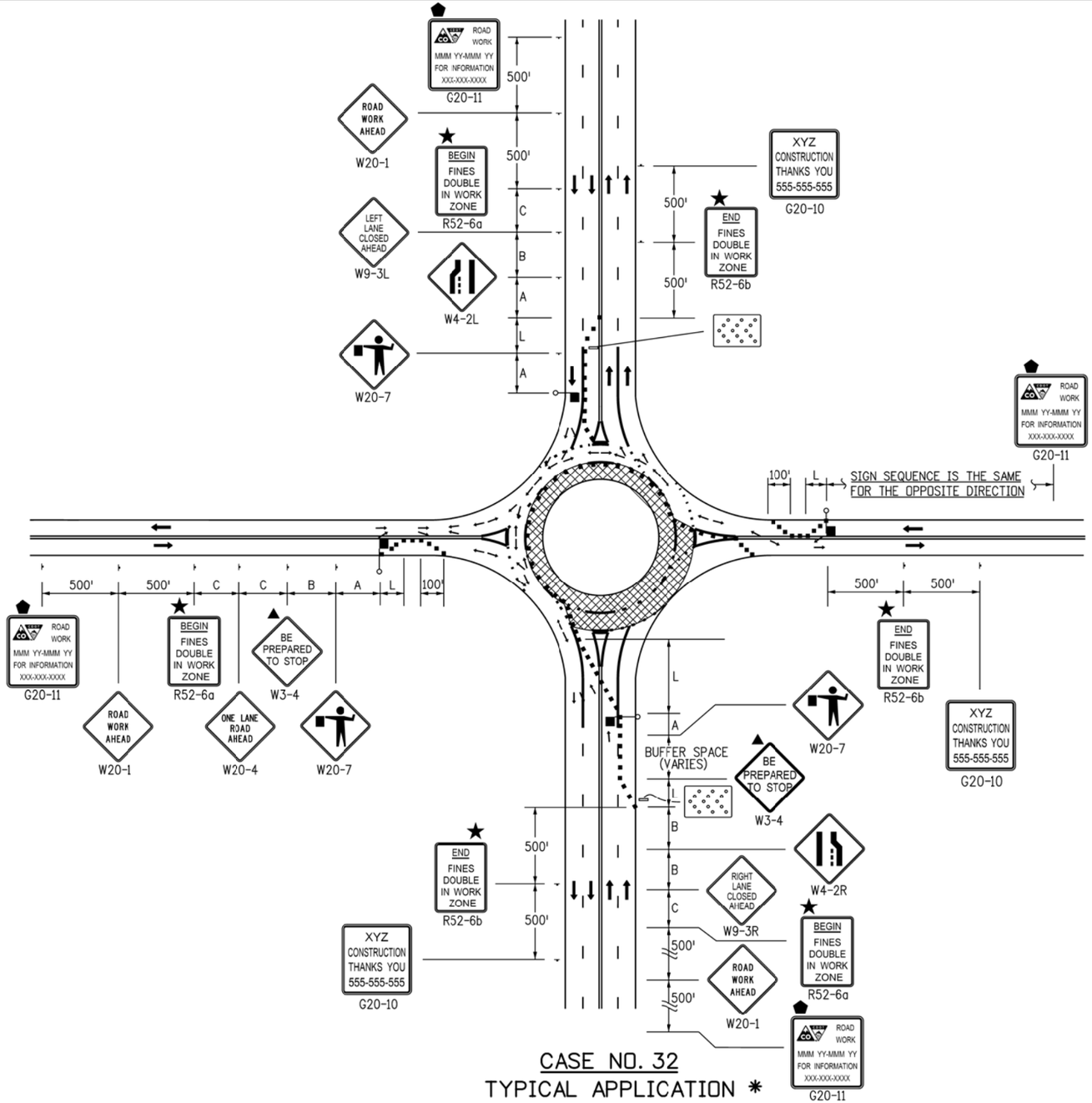
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.

S-630-1



CASE NO. 32

TYPICAL APPLICATION *

ROUNDABOUT - OUTSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

MOBILE ATTENUATOR

L TRANSITION TAPER LENGTH: =

L = MINIMUM LENGTH OF TAPER $\frac{WS^2}{60}$

SPEED 45 MPH OR MORE: L = S x W

SPEED 40 MPH OR LESS: L

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information		
Creation Date: 07/04/12	Initials: KEN	
Last Modification Date: 12/08/14	Initials: KEN	(R-7)
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		(R-8)
Drawing File Name: S-630-01_19of24.dgn		(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)

Sheet Revisions	
Date:	Comments
12/08/14	NEW SHEET 19. OLD SHEET 19 NOW SHEET 23
06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"

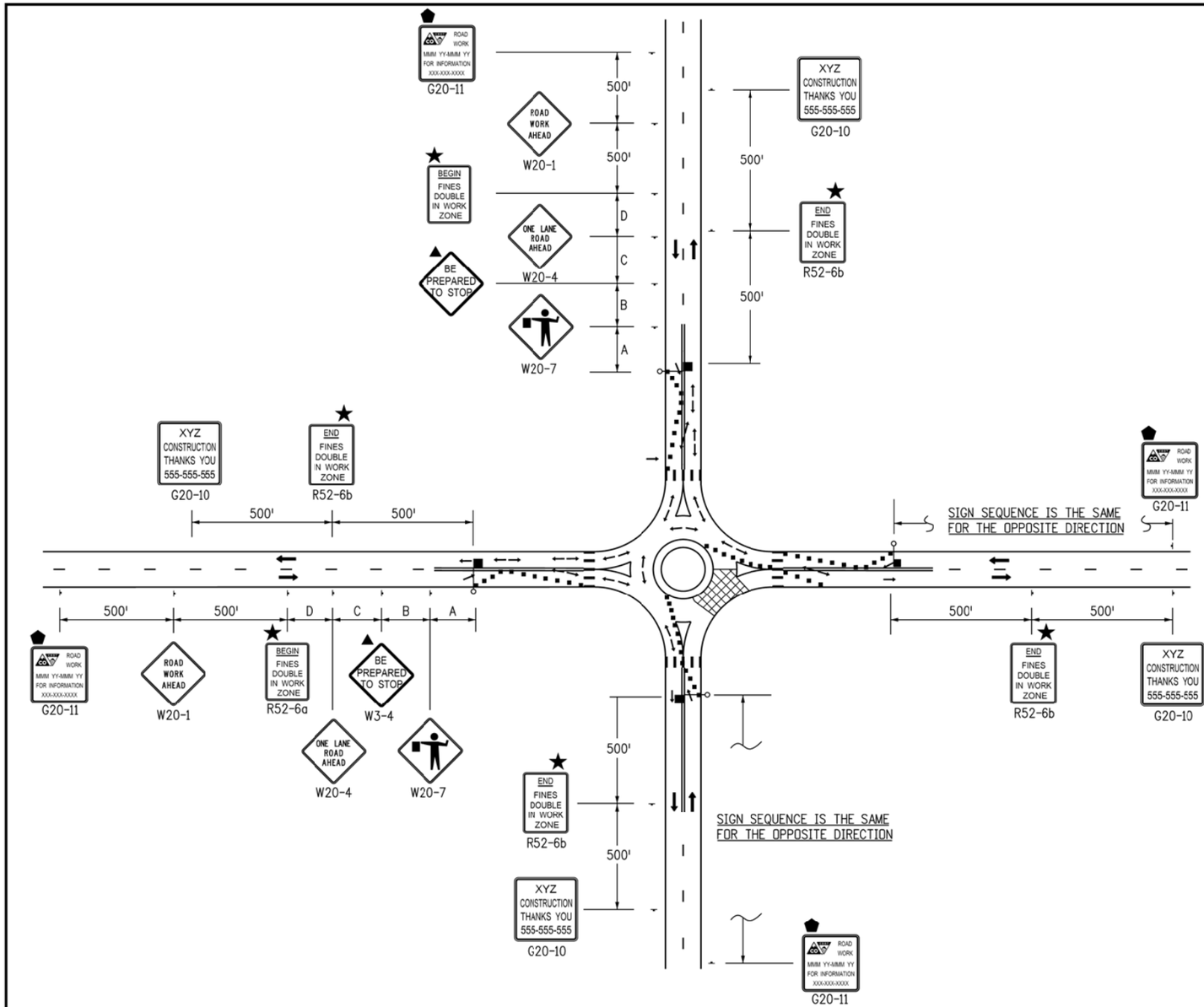
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.

S-630-1



CASE NO. 33

TYPICAL APPLICATION *

ROUNDABOUT - PARTIAL CLOSURE FOR ONE-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

MOBILE ATTENUATOR

L TRANSITION TAPER LENGTH: =

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = \frac{WS^2}{60}$

SPEED 40 MPH OR LESS: $L = S W$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 12/08/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_20of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

	Sheet Revisions	
	Date:	Comments
R-7	12/08/14	NEW SHEET 20. OLD SHEET 20 NOW SHEET 24
R-8	**06/23/16**	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"
R-X		
R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.

S-630-1

LEGEND

MOBILE ATTENUATOR VEHICLE, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.

VMS — VARIABLE MESSAGE SIGN (VMS).

▲ WHEN VMS IS USED, THE "SHOULDER CLOSED" SIGN BECOMES OPTIONAL.

■ THE "PICK-UP VEHICLES" OR "WARNING VEHICLE" MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.

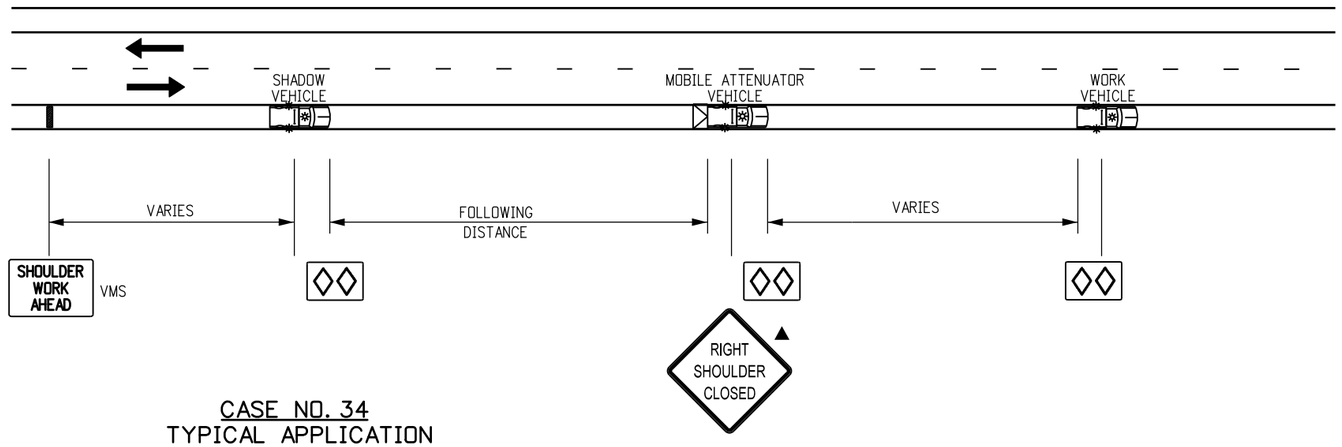
● IF TRACKING OF THE WET PAINT IS ANTICIPATED, THE USE OF CONES OR STATIONARY "WET PAINT" SIGNS SHALL BE POSTED.

⬢ THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.

⬬ OPTIONAL

FOLLOWING DISTANCE CHART FOR WARNING AND MOBILE ATTENUATOR (OR CONE PICKUP) VEHICLE

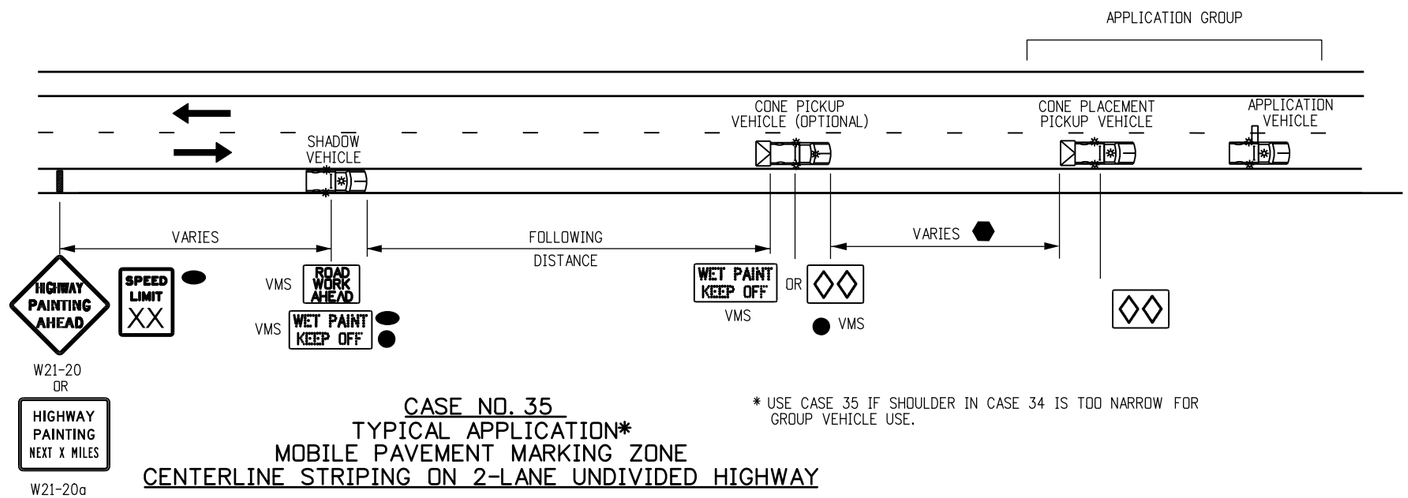
POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



CASE NO. 34
TYPICAL APPLICATION
MOBILE WORK ZONE
MOBILE SHOULDER CLOSURE ON 2-LANE UNDIVIDED HIGHWAY

NOTE

THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.



CASE NO. 35
TYPICAL APPLICATION*
MOBILE PAVEMENT MARKING ZONE
CENTERLINE STRIPING ON 2-LANE UNDIVIDED HIGHWAY

* USE CASE 35 IF SHOULDER IN CASE 34 IS TOO NARROW FOR GROUP VEHICLE USE.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KEN		Date:	Comments
Last Modification Date: 03/16/2016 Initials: NNC	R-5	3/27/14	REDUCED NUMBER OF TMA VEHICLES, REVISE VMS AND ADD STATIONARY SIGNS
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-7	12/8/14	FORMERLY SHEET 17.
Drawing File Name: S-630-1_21of24.dgn	R-8	5/20/16	VEHICLE TITLE CHANGE, SIGN REMOVAL NOTE CHANGE FROM 31 TO 34
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-9	6/23/16	UPDATED NOTE ON BOTTOM RIGHT FROM 34 TO 35 AND 30 TO 34

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/NNC

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

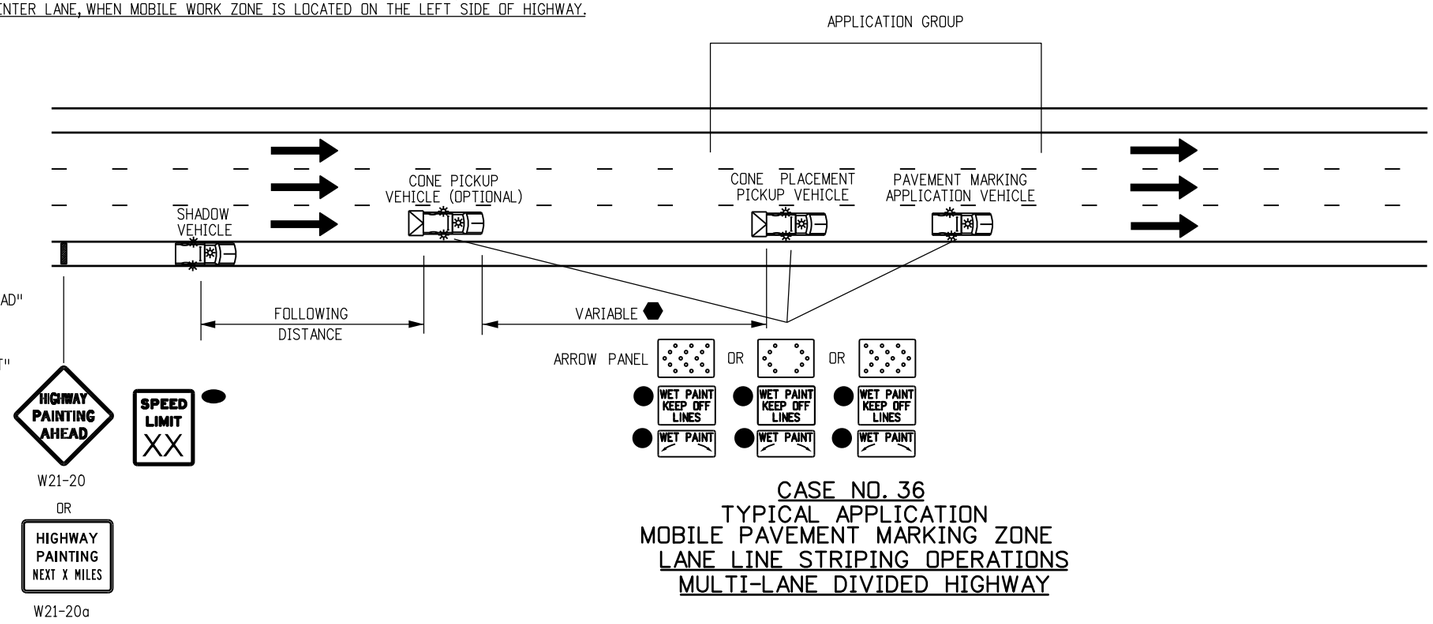
Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 21 of 24

FOR CASE #36, VEHICLE/SIGN SEQUENCE IS THE SAME FOR THE LEFT SIDE OF HIGHWAY, WHILE TAPER IS MIRRORED ABOUT THE CENTER LANE, WHEN MOBILE WORK ZONE IS LOCATED ON THE LEFT SIDE OF HIGHWAY.

LEGEND

- MOBILE ATTENUATOR VEHICLE, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- AHEAD / LANE CLOSED — PORTABLE VARIABLE MESSAGE SIGN (VMS).
- ▲ WHEN THE VMS IS USED, THE "SHOULDER CLOSED" (W21-5aX) OR W21-5bX), AND "RAMP CLOSED AHEAD" SIGNS BECOME OPTIONAL.
- ● IF TRACKING OF THE WET PAINT IS ANTICIPATED, THE USE OF CONES OR STATIONARY "WET PAINT" SIGNS SHALL BE POSTED.
- ⬢ THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.
- ⬬ OPTIONAL



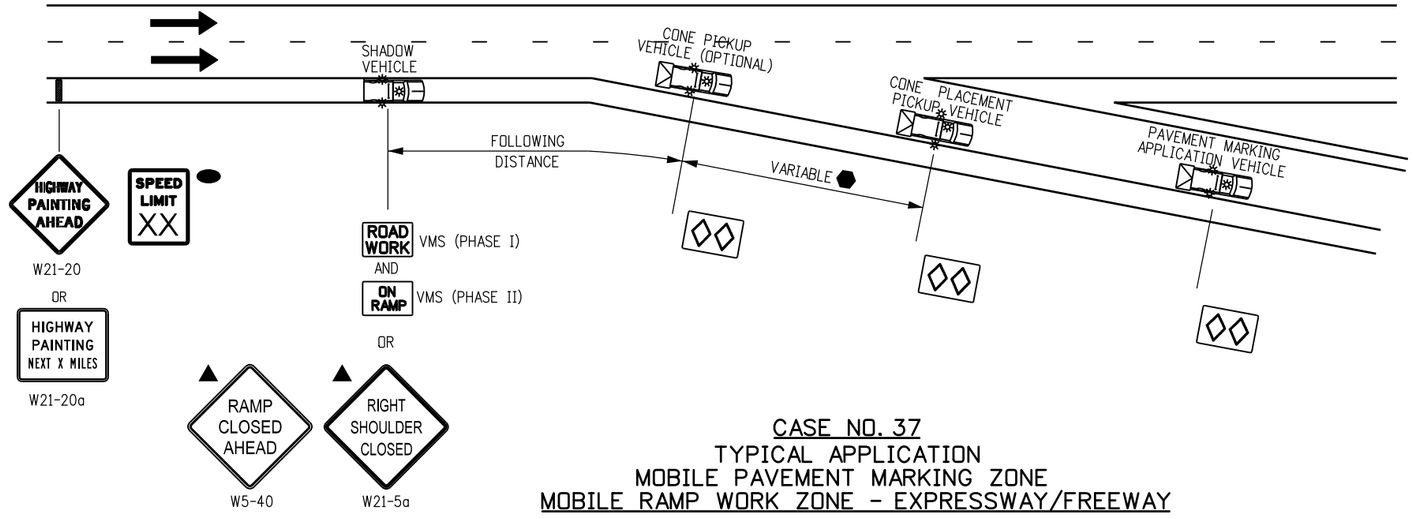
CASE NO. 36
TYPICAL APPLICATION
MOBILE PAVEMENT MARKING ZONE
LANE LINE STRIPING OPERATIONS
MULTI-LANE DIVIDED HIGHWAY

FOLLOWING DISTANCE CHART FOR WARNING VEHICLE AND CONE PICKUP VEHICLES

POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600

NOTES

1. THE SIGNING VEHICLES MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.
2. IF THE RAMP CANNOT BE REOPENED WITHIN 15 MINUTES, USE CASE NO. 22 OF THE S-630-1 STANDARD PLAN.



CASE NO. 37
TYPICAL APPLICATION
MOBILE PAVEMENT MARKING ZONE
MOBILE RAMP WORK ZONE - EXPRESSWAY/FREEWAY

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KEN		Date:	Comments
Last Modification Date: 3/16/16 Initials: NNC	R-5	3/27/14	REDUCE NUMBER OF TMA VEHICLES, REVISE VMS, AND ADD STATIONARY SIGNS
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-7	12/8/14	FORMERLY SHEET 18. SIGN CODE UPDATE. W5-40 & W21-5a.
Drawing File Name: S-630-1_22of24.dgn	R-8	5/20/16	REVISED NOTE 32 TO 36, CHANGE VEHICLE TITLE, REMOVE SIGNS
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-9	6/23/16	UPDATED LEGEND FROM "TRUCK MOUNTED ATTENUATOR" TO "MOBILE ATTENUATOR VEHICLE"

Colorado Department of Transportation
DEPARTMENT OF TRANSPORTATION
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/NNC

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 22 of 24

LEGEND

MOBILE ATTENUATOR TRUCK, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

LANE CLOSED — PORTABLE VARIABLE MESSAGE SIGN (VMS).

▲ WHEN THE VMS IS USED, THE "RIGHT LANE CLSED AHEAD" (W9-3X) SIGN BECOMES OPTIONAL.

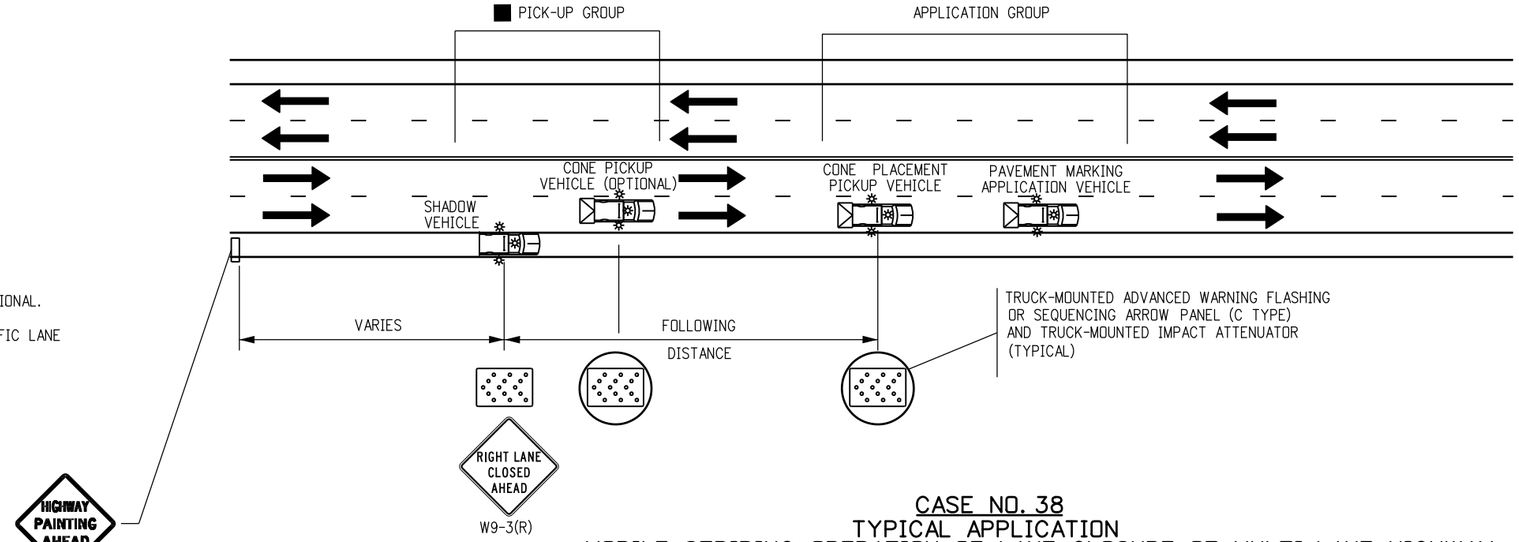
■ THE "CONE PICK-UP VEHICLE" OR "WARNING VEHICLE" MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.

NOTES

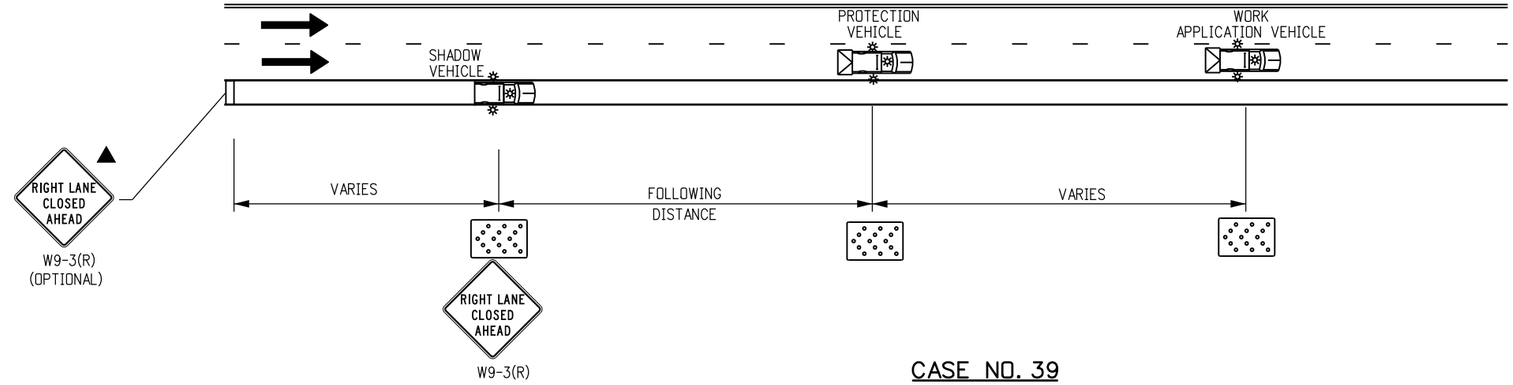
1. IN ROADWAY WHERE THE AADT IS 2,000 OR LESS, A SINGLE WORK VEHICLE WITH APPROPRIATE WARNING DEVICES ON THE VEHICLE MAY BE USED.
2. RADIO COMMUNICATIONS BETWEEN THE WORKCREW AND THE MOVING BLOCKADE ARE REQUIRED TO ADJUST THE BLOCKADE TO INCREASE OR DECREASE THE CLOSURE TIME. RELEASE TRAFFIC ONLY AFTER CONFIRMATION THAT ALL WORKERS AND THEIR VEHICLES ARE CLEAR OF THE ROADWAY.
3. IF APPLICABLE, ALL RAMPS AND ACCESS BETWEEN THE MOVING BLOCKADE AND WORK OPERATION AREA SHALL BE TEMPORARILY CLOSED USING TRAFFIC CONTROL EQUIPMENT AND PERSONNEL. EACH RAMP MUST REMAIN CLOSED UNTIL THE CREW DOING THE WORK GIVES THE "ALL CLEAR" SIGNAL OR UNTIL THE FRONT OF THE MOVING BLOCKADE PASSES THE CLOSED RAMP(S).

FOLLOWING DISTANCE CHART FOR WARNING VEHICLE AND SIGNING VEHICLES

POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



CASE NO. 38
TYPICAL APPLICATION
MOBILE STRIPING OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY
(NOT FOR USE ON FREEWAYS)



CASE NO. 39
TYPICAL APPLICATION
MOBILE OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KEN		Date:	Comments
Last Modification Date: 05/17/16 Initials: NNC	R-7	12/8/14	FORMERLY SHEET 19.
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-8	05/20/16	CHANGED VEHICLE TITLES; CHANGED SIGN TEXT; ADDED W21-20 & W21-20a
Drawing File Name: S-630-1_23of24.dgn	R-9	06/23/16	UPDATED LEGEND FROM "TRUCK MOUNTED ATTENUATOR" TO "MOBILE ATTENUATOR VEHICLE"
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
DEPARTMENT OF TRANSPORTATION
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/NNC

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 23 of 24

TYPICAL CONSTRUCTION ZONE SIGNS

THESE SIGNING NOTES ARE INTENDED AS A QUICK REFERENCE
FOR TYPICAL SIGN USE AND PLACEMENT IN CONSTRUCTION ZONES.

G20-1 "ROAD/WORK/NEXT XX MILES" - THIS SIGN SHALL BE ERECTED AT THE LIMITS OF ANY ROAD CONSTRUCTION OR MAINTENANCE PROJECT OF MORE THAN TWO (2) MILES IN LENGTH WHERE TRAFFIC IS MAINTAINED THROUGH THE PROJECT.

G20-4 "PILOT CAR/FOLLOW ME" - THIS SIGN SHALL BE MOUNTED IN A CONSPICUOUS POSITION ON THE REAR OF A VEHICLE USED FOR GUIDING ONE-WAY TRAFFIC THROUGH OR AROUND THE PROJECT.

G20-5P "WORK ZONE" - THIS PLAQUE SHALL BE MOUNTED JUST ABOVE THE WORK ZONE SPEED LIMIT SIGNS PRIOR TO THE WORK ZONE AREA.

G20-10 THANK YOU SIGN - THIS SIGN SHOULD BE ERECTED APPROXIMATELY 500 FEET BEYOND THE END OF THE PROJECT.

G20-11 CONSTRUCTION PROJECT INFORMATION SIGN - THIS SIGN SHOULD BE ERECTED AS DESCRIBED IN THE SECTION 626 STANDARD SPECIFICATION.

G20-55(X) "X MINUTE CLOSURE. EXPECT DELAYS" - THIS SIGN IS INTENDED FOR USE 500 FEET PAST THE "WORK ZONE"/SPEED LIMIT SIGN.

M4-9( ) "DETOUR/<<<<" - THIS SIGN IS USED FOR UNNUMBERED ROUTES; FOR USE IN EMERGENCY SITUATIONS; FOR PERIODS OF SHORT DURATION; OR WHERE, OVER RELATIVELY SHORT DISTANCES. IT IS NOT NECESSARY TO SHOW ROUTE MARKERS TO GUIDE TRAFFIC ALONG THE DETOUR AND BACK TO ITS AUTHORIZED ROUTE.

M4-10( ) "DETOUR ARROW" - THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DETOUR ROADWAY OR ROUTE HAS BEEN ESTABLISHED DUE TO THE CLOSURE OF THE STREET OR HIGHWAY TO THROUGH TRAFFIC.

R2-1( ) "SPEED/LIMIT/XX" - THESE SIGNS ARE INTENDED TO REDUCE TRAFFIC SPEED IN ADVANCE OF THE DAILY WORK AREA WITHIN THE OVERALL PROJECT LIMITS.

R2-1(XX) "SPEED/LIMIT/XX" - THIS SIGN IS INTENDED FOR USE 500 FEET PAST THE "THANK YOU" SIGN TO BRING TRAFFIC BACK TO ORIGINAL POSTED SPEED.

R2-6P "FINES DOUBLE" - THIS SIGN IS INTENDED FOR USE WITHIN WORK ZONES TO PROVIDE NOTICE OF INCREASED FINES FOR TRAFFIC VIOLATIONS WITHIN WORK ZONES.

R4-1 "DO NOT PASS" - THIS SIGN SHOULD BE PLACED AT TRANSITION TAPER POINT.

R4-2 "PASS WITH CARE" - THIS SIGN SHOULD BE PLACED AT TRANSITION TAPER POINT.

R11-2 "ROAD/CLOSED" - THIS SIGN IS TO BE MOUNTED ON THE BARRICADE THAT IS PLACED BEFORE THE WORK ZONE ENTRANCE TO PROHIBIT TRAFFIC FROM ENTERING THE WORK ZONE.

R11-3 "ROAD CLOSED/X MILES AHEAD/L.T.O. - THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.

R11-4 "ROAD CLOSED/TO/THRU TRAFFIC" FOR URBAN USE - THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.

R52-6a "BEGIN FINES DOUBLE IN WORK ZONE" SIGN IS PLACED AT THE BEGINNING OF THE ADVANCED WARNING AREA OF THE TRAFFIC CONTROL ZONE.

R52-6b "END FINES DOUBLE IN WORK ZONE" SIGN IS PLACED AFTER WORK ZONE AREA, PAST DOWNSTREAM TAPER SECTION.

W1-1( ) "TURN ARROW" - THIS SIGN IS INTENDED FOR USE WHERE ENGINEERING INVESTIGATIONS OF ROADWAY CONDITIONS SHOW THE RECOMMENDED SPEED ON THE TURN TO BE 30 MPH OR LESS.*

W1-2( ) "CURVE ARROW" - THIS SIGN IS INTENDED FOR USE WHERE ENGINEERING INVESTIGATIONS OF ROADWAY CONDITIONS SHOW THE RECOMMENDED SPEED ON THE CURVE TO BE IN THE RANGE BETWEEN 30 AND 60 MILES PER HOUR.*

W1-3( ) "REVERSE TURN ARROW" - THIS SIGN IS INTENDED FOR USE WHERE TWO TURNS OR THE CURVE AND A TURN IN OPPOSITE DIRECTIONS ARE SEPARATED BY A TANGENT OF LESS THAN 600 FEET.*

W1-4( ) "REVERSE CURVE ARROW" - THIS SIGN IS INTENDED FOR USE WHERE TWO CURVES IN OPPOSITE DIRECTIONS ARE SEPARATED BY A TANGENT OF LESS THAN 600 FEET.*

W1-6( ) "ARROW" - THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DIVERSION HAS BEEN ESTABLISHED DUE TO THE LANE CLOSURE.

W3-2 "YIELD AHEAD" - THIS SIGN IS INTENDED FOR USE AT THE APPROACH TO THE YIELD SIGN THAT IS NOT VISIBLE FOR A SUFFICIENT DISTANCE TO PERMIT THE DRIVER TO BRING HIS VEHICLE TO A STOP AT THE YIELD SIGN.*

W3-4 "BE PREPARED TO STOP" - THIS SIGN TO BE PLACED 1.5 MILES IN ADVANCED OF A FLAGGER.

W4-2(X) "LEFT (RIGHT) LANE TRANSITION SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE REDUCTION IN THE NUMBER OF TRAFFIC LANES IN THE DIRECTION OF TRAVEL ON THE MULTILANE HIGHWAY.*

W4-50 "USE BOTH LANES DURING CONGESTION" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE "ROAD WORK X MILE" ADVANCED WARNING SIGN.

W4-51 "USE BOTH LANES TO MERGE POINT" - THIS SIGN IS INTENDED TO DIRECT MOTORISTS TO USE BOTH TRAVEL LANES UNTIL THE LANES ARE REDUCED TO ONE LANE.

W4-52 "TAKE TURNS MERGE HERE" - THIS SIGN IS INTENDED TO WARN MOTORISTS IN ADVANCED TO MOVE FROM THE CLOSED TRAVEL LANE TO THE OPEN TRAVEL LANE, USUALLY 500 FEET IN ADVANCED OF THE START OF THE TRANSITION TAPER .

W5-1 "ROAD NARROWS" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE TRANSITION ON THE ROAD WHERE THE PAVEMENT WIDTH IS REDUCED ABRUPTLY TO A WIDTH SUCH THAT TWO CARS CANNOT PASS WITHOUT REDUCING SPEED.*

W5-2a "NARROW BRIDGE SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A BRIDGE OR CULVERT HAVING A CLEAR TWO-WAY ROADWAY WIDTH OF 16 TO 18 FEET OR ANY BRIDGE OR CULVERT HAVING A ROADWAY CLEARANCE LESS THAN THE WIDTH OF THE APPROACH PAVEMENT.*

W5-3 "ONE LANE/BRIDGE" - THIS SIGN SHOULD BE PLACED ON TWO-WAY ROADWAYS IN ADVANCE OF THE BRIDGES OR CULVERTS WHERE THE ROADWAY WIDTH IS LESS THAN 16 FEET (18 FEET FOR COMMERCIAL VEHICLES) OR WHEN THE ALIGNMENT IS POOR ON THE APPROACH TO THE STRUCTURE HAVING A CLEAR ROADWAY WIDTH OF 18 FEET OR LESS.*

W6-1 "DIVIDED HIGHWAY SYMBOL" - THIS SIGN SHOULD BE PLACED ON THE APPROACHES TO THE SECTION OF HIGHWAY WHERE OPPOSING FLOWS OF TRAFFIC ARE SEPARATED BY A PHYSICAL MEDIAN.

W6-2 "DIVIDED HIGHWAY ENDS SYMBOL" - THIS SIGN SHOULD BE PLACED AT THE END OF THE SECTION OF PHYSICALLY DIVIDED HIGHWAY AS A WARNING OF TWO-WAY TRAFFIC AHEAD.

W6-3 "TWO-WAY TRAFFIC SYMBOL" - THIS SIGN IS INTENDED FOR USE TO GIVE WARNING OF TRANSITION FROM A SEPARATED ONE-WAY ROADWAY TO A TWO-WAY ROADWAY.*

W7-1 "HILL SYMBOL" - THIS SIGN SHOULD BE PLACED AT A POINT IN ADVANCE OF THE DOWNGRADE WHERE THE LENGTH, PERCENT OF GRADE, HORIZONTAL CURVATURE, OR OTHER PHYSICAL FEATURES REQUIRE SPECIAL CONSIDERATION ON THE PART OF DRIVERS.*

W8-1,W8-2 "BUMP"/"DIP" - THESE SIGNS ARE INTENDED FOR USE TO GIVE WARNING OF A SHARP RISE OR DEPRESSION IN THE PROFILE OF THE ROAD THAT IS SUFFICIENTLY ABRUPT TO AFFECT VEHICLE OPERATION OR CAUSE CONSIDERABLE DISCOMFORT TO PASSENGERS.*

W8-3a "PAVEMENT ENDS SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE THE PAVEMENT SURFACE CHANGES FROM A HARD-SURFACED PAVEMENT TO THE LOW-TYPE SURFACE OR EARTH ROAD.*

W8-4 "SOFT SHOULDER" - THIS SIGN IS INTENDED FOR USE TO WARN OF A SOFT SHOULDER CONDITION THAT COULD PRESENT A PROBLEM TO VEHICLES THAT MAY GET OFF THE PAVEMENT.*

W8-5 "SLIPPERY WHEN WET SYMBOL" - THIS SIGN SHOULD BE PLACED IN ADVANCE OF THE CONDITION WHERE THE HIGHWAY SURFACE IS SLIPPERY BEYOND WHAT IS ORDINARY WHEN WET.*

W8-9a "SHOULDER DROP-OFF" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A SHOULDER DROP-OFF THAT EXCEEDS THREE INCHES IN HEIGHT.*

W8-11 "UNEVEN LANES" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF AN UNEVEN ADJACENT LANE SITUATION THAT EXCEEDS ONE INCH IN HEIGHT.*

W9-1( ) "LEFT (RIGHT) LANE ENDS" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE PAVEMENT WIDTH TRANSITION SIGN (W4-2).

W9-2( ) "LANE ENDS/MERGE LEFT (RIGHT)" - THIS SIGN IS INTENDED FOR USE AS A SUPPLEMENT TO THE PAVEMENT WIDTH TRANSITION SIGN (W4-2).

W9-3 OR W9-3a( ) "CENTER LANE CLOSED AHEAD" - THIS SIGN SHOULD BE USED IN ADVANCE OF THE POINT WHERE WORK OCCUPIES THE CENTER LANE AND TRAFFIC IS DIRECTED TO THE RIGHT OR LEFT OF THE WORK ZONE.*

W12-1 "DOUBLE ARROW SYMBOL" - THIS SIGN SHOULD BE PLACED AT THE POINT OF THE OBSTRUCTION IN THE ROADWAY, WHERE TRAFFIC IS PERMITTED TO PASS ON EITHER SIDE OF THE OBSTRUCTION.

W12-2 "LOW CLEARANCE SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF AN OBSTRUCTION TO WARN VEHICLE OPERATORS OF CLEARANCES LESS THAN THE MAXIMUM VEHICLE HEIGHT PERMITTED PLUS 12 INCHES.*

W13-1P( ) "ADVISORY SPEED PLAQUE" - THIS PLAQUE IS INTENDED TO SUPPLEMENT WARNING SIGNS ONLY AND SHALL NOT BE MOUNTED ALONE. IT IS USED TO INDICATE THE MAXIMUM RECOMMENDED SPEED FOR THE INDICATED CONDITION.

W13-3 "ADVISORY RAMP SPEED" - THIS SIGN IS TO BE POSTED TO INFORM MOTORISTS WHAT THE SUGGESTED SPEED LIMIT IS ON A RAMP.

W20-1 "ROAD/WORK/AHEAD" - THIS SIGN IS TO BE LOCATED IN ADVANCE OF THE INITIAL ACTIVITY OR DETOUR A DRIVER MAY ENCOUNTER, AND IS INTENDED TO BE USED AS A WARNING OF OBSTRUCTIONS OR RESTRICTIONS.

W20-2 "DETOUR/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE POINT AT WHICH TRAFFIC IS DIVERTED OVER A TEMPORARY ROADWAY OR ROUTE.

W20-3 "ROAD/CLOSED/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT AT WHICH A ROADWAY IS CLOSED TO ALL TRAFFIC OR TO ALL BUT LOCAL TRAFFIC.

W20-4 "ONE LANE/ROAD/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE TRAFFIC IN BOTH DIRECTIONS MUST USE A SINGLE LANE.

W20-5( ) "XXX LANE/CLOSED/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE ONE LANE OF A MULTIPLE-LANE ROADWAY IS CLOSED. IT SHOULD BE PROVIDED WITH INTERCHANGEABLE PLAQUES READING "RIGHT", "LEFT", AND "CENTER" AT NO ADDITIONAL COST TO THE PROJECT.

W20-7 "FLAGGER SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT AT WHICH A FLAGGER HAS BEEN STATIONED TO CONTROL TRAFFIC THROUGH OR AROUND THE PROJECT.*

W20-52 "GROOVED/PAVEMENT/AHEAD" - THIS SIGN IS INTENDED TO BE USED IN ADVANCE OF A ROADWAY THAT HAS BEEN GROOVED AND/OR ROTO MILLED.

W21-1a "WORKER SYMBOL" - THIS SIGN IS INTENDED FOR USE IN CONJUNCTION WITH MINOR MAINTENANCE AND PUBLIC UTILITY OPERATIONS FOR THE PROTECTION OF MEN WORKING IN OR NEAR THE ROADWAY.

W21-2 "FRESH/OIL" - THIS SIGN IS INTENDED FOR USE WHERE RE-SURFACING OPERATIONS HAVE RENDERED THE SURFACE OF THE PAVEMENT TEMPORARILY WET, AND OBJECTIONABLE SPLASHING ON VEHICLES MAY OCCUR.*

W21-3 "ROAD/MACHINERY/AHEAD" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE AREAS WHERE HEAVY EQUIPMENT IS OPERATING IN OR ADJACENT TO THE ROADWAY.*

W21-4 "ROAD/WORK/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF MAINTENANCE FOR MINOR RECONSTRUCTION OPERATIONS IN THE ROADWAY.

W21-5 "SHOULDER/WORK" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE PROJECT INVOLVING THE SHOULDER, WHERE THE TRAVELED WAY REMAINS UNOBSTRUCTED.

W21-6 "SURVEY/CREW" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE A SURVEYING CREW IS WORKING IN OR ADJACENT TO THE ROADWAY.*

W21-20 "HIGHWAY PAINTING AHEAD" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE A PAINT CREW IS WORKING IN OR ADJACENT TO THE ROADWAY.

W21-20a "HIGHWAY PAINTING NEXT X MILES" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF PAINT CREW WORKING IN OR ADJACENT TO THE ROADWAY.

W22-1 "BLASTING/ZONE/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT OR WORK SITE WHERE THERE ARE EXPLOSIVES BEING USED. THE W22-2 AND W22-3 SIGNS MUST BE USED IN SEQUENCE WITH THIS SIGN.

W22-2 "TURN OFF/2-WAY RADIOS/AND/CELLULAR/PHONES" - THIS SIGN IS TO BE USED IN SEQUENCE WITH THE W22-1 AND W22-3 SIGNS AND PLACED AT LEAST 1000 FEET FROM THE BEGINNING OF THE BLASTING ZONE.

W22-3 "END/BLASTING/ZONE" - THIS SIGN IS TO BE USED TO DENOTE THE END OF THE RADIO INFLUENCE AREA AND SHALL BE PLACED A MINIMUM OF 1000 FEET FROM THE BLASTING ZONE, EITHER WITH OR PRECEDING THE END CONSTRUCTION SIGN.

W22-50(X) "ROCK SCALING X MILE(S)" - THIS SIGN IS INTENDED TO BE USED IN ADVANCE OF A FLAGGER IN ADVANCED OF THE WORK ZONE AREA.

ADVANCE PLACEMENT OF WARNING SIGNS

POSTED OR 85TH PERCENTILE SPEED	CONDITION A +	ADVANCE PLACEMENT DISTANCE (FEET) ++ CONDITION B: DECLARATION TO THE LISTED ADVISORY SPEED (MPH) FOR THE CONDITION							
		MPH							
		0	10	20	30	40	50	60	70
20	225	●	●	--	--	--	--	--	--
25	325	●	●	●	--	--	--	--	--
30	450	●	●	●	--	--	--	--	--
35	550	●	●	●	●	--	--	--	--
40	650	125	●	●	●	--	--	--	--
45	750	175	125	●	●	●	--	--	--
50	850	250	200	150	100	●	--	--	--
55	950	325	275	225	175	100	●	--	--
60	1100	400	350	300	250	175	●	--	--
65	1200	475	425	400	350	275	175	●	--
70	1250	550	525	500	425	350	250	150	--
75	1350	650	625	600	525	450	350	250	100

+ CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC. TYPICAL SIGNS ARE "MERGE" AND "RIGHT LANE ENDS".

++ CONDITION B: TYPICAL CONDITIONS ARE THE WARNING OF A POTENTIAL STOP SITUATION AND LOCATIONS WHERE THE ROAD USER MUST DECREASE SPEED TO MANEUVER THROUGH THE WARNED CONDITION. TYPICAL SIGNS ARE "STOP AHEAD", "SIGNAL AHEAD", "YIELD AHEAD", "CURVE", "REVERSE CURVE", "TURN".

● NO SUGGESTED DISTANCES ARE PROVIDED AT THESE SPEEDS, AS THE PLACEMENT IS DEPENDENT ON SITE CONDITIONS AND OTHER SIGNING.

A SUPPLEMENTAL PLAQUE MAY BE USED WITH WARNING SIGNS SPECIFYING THE DISTANCE TO THE CONDITION IF THERE IS AN IN-BETWEEN INTERSECTION THAT MIGHT CONFUSE THE MOTORIST.

* PLACEMENT SHOULD BE IN ACCORDANCE WITH WARNING SIGN PLACEMENT TABLE.

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 05/19/16	Initials: NNC
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_24of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

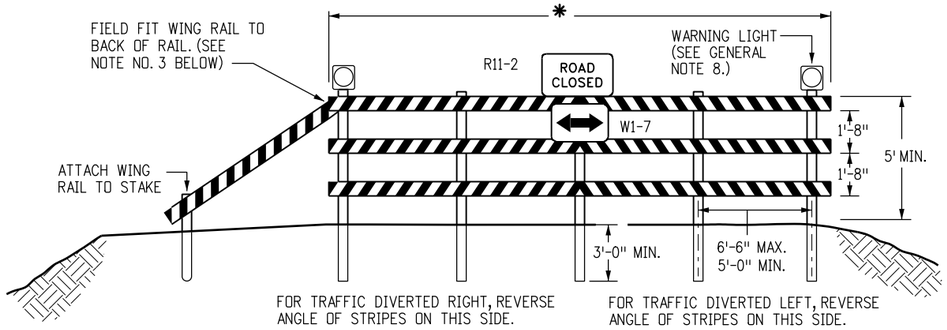
	Sheet Revisions	
	Date:	Comments
R-4	07/26/13	CHANGE W20-7a SIGN CODE TO W20-7
R-7	12/8/14	FORMERLY SHEET 20.
R-8	05/20/16	ADDED SIGN W21-20 & W21-20a
R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/NNC

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
Sheet No. 24 of 24



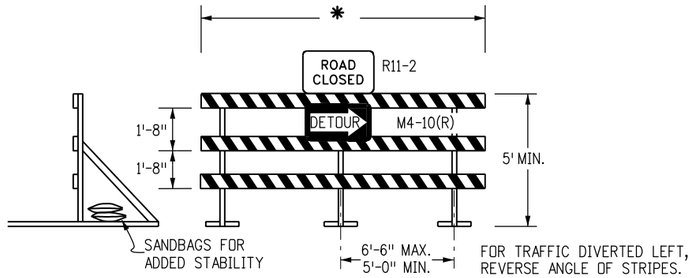
FIXED

* RAIL LENGTH TABLE

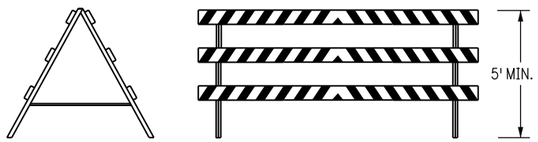
TYPE 3 BARRICADE		LENGTH
FIXED	MOVABLE	
F - A	M - A	8'- 14'
F - B	M - B	15'- 24'
F - C	M - C	25'- 35'
F - D	M - D	> 35'

NOTES

1. TYPE 3 BARRICADES HAVE 3 REFLECTORIZED RAIL FACES IF FACING TRAFFIC IN ONE DIRECTION AND 6 IF FACING TRAFFIC IN TWO DIRECTIONS.
2. THE PORTION OF THE POST ABOVE THE GROUND LINE SHALL BE PAINTED IN ACCORDANCE WITH THE APPROPRIATE GENERAL NOTE.
3. DETACHABLE EXTENSION WING RAILS FOR BYPASSING OF CONSTRUCTION EQUIPMENT ARE PERMITTED, WHEN NECESSARY, ON FIXED OR MOVABLE TYPE 3 BARRICADES. THE LENGTH SHALL BE ADEQUATE TO CLOSE THE BORROW PIT AND/OR SHOULDER AS REQUIRED.



MOVABLE-SKIDS

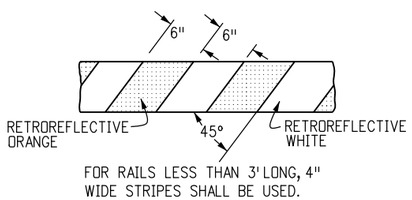


MOVABLE-HINGED

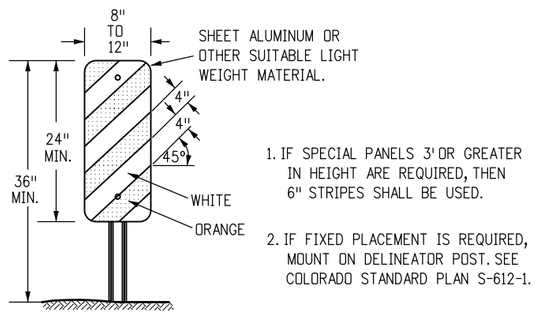
TYPICAL TYPE 3 BARRICADES

TYPICAL BARRICADE CHARACTERISTICS

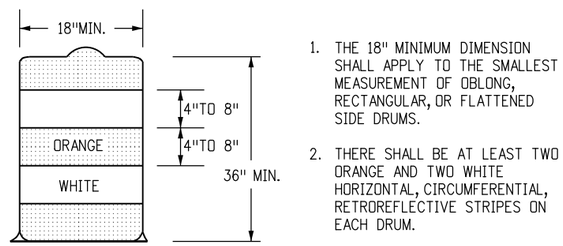
	BARRICADE DESIGNATIONS
	TYPE 3
RAIL WIDTH	8" MIN.-12" MAX.
RAIL LENGTH	AS REQUIRED, SEE RAIL LENGTH TABLE
HEIGHT	5' MIN.
USE	TEMPORARY OR PERMANENT
STRIPES	SEE DETAIL OF BARRICADE STRIPING AND APPROPRIATE GENERAL NOTES.



RAIL STRIPING DETAIL



TYPICAL VERTICAL PANEL



TYPICAL DRUM

GENERAL NOTES

1. THE VARIOUS TYPES, COMBINATIONS AND APPLICATIONS OF SIGNS AND WARNING LIGHTS FOR BARRICADES REQUIRED FOR EACH PROJECT SHALL BE:
   A. AS SPECIFIED OR DETAILED IN THE PLANS.
   B. AS SHOWN IN APPLICABLE TYPICAL ILLUSTRATIONS.
   C. AS CALLED FOR AND SUBJECT TO APPROVAL BY THE ENGINEER.
2. TEMPORARY AND PERMANENT BARRICADES TYPE 3 SHALL BE FABRICATED FROM APPROVED CRASH TESTED MATERIALS. SEE SECTION 614 AND 630 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION FOR ADDITIONAL REQUIREMENTS.
3. ALL PAINTING SHALL CONFORM WITH THE FOLLOWING:
   A. THE APPLICABLE SECTION OF 508 OF THE STANDARD SPECIFICATIONS.
   B. ALL SKIDS, BRACES AND POSTS SHALL BE PAINTED WITH 2 COATS OF EXTERIOR WHITE PAINT
   C. THE BACKSIDES OF RAILS AND VERTICAL PANEL CHANNELIZING DEVICES FACING ONE DIRECTION OF TRAFFIC ONLY SHALL BE PAINTED WITH "EXTERIOR WHITE PAINT.
   D. ALUMINUM OR GALVANIZED STEEL SKIDS, BRACES AND POSTS SHALL NOT BE PAINTED.
4. ALL STRIPED SURFACES SHALL CONFORM WITH THE FOLLOWING:
   A. THE ENTIRE AREA OF ORANGE AND WHITE STRIPES SHALL BE FABRICATED AS ONE PIECE.
   B. HORIZONTAL RAILS, WING RAILS AND VERTICAL PANEL CHANNELIZING DEVICES SHALL HAVE ORANGE AND WHITE STRIPES ON THE FACE SIDE(S) SLANTING DOWNWARD AT A 45° ANGLE TOWARD THE SIDE(S) TO WHICH TRAFFIC IS TO PASS OR TURN.
   C. PERMANENT BARRICADES SHALL HAVE RETROREFLECTIVE RED AND WHITE STRIPES. THEY MAY BE USED AT LOCATIONS TO MARK THE END OF A ROAD, STREET OR HIGHWAY THAT ENDS AT A "T" INTERSECTION, OR WHERE THERE IS NO CROSSROAD OR OUTLET.
   D. ALL RETROREFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956:
      1. ORANGE AND WHITE SHALL BE TYPE II, III OR IV.
      2. RED AND WHITE SHALL BE TYPE II, III OR IV.
5. FOR ALL WOODEN BARRICADE COMPONENTS NOMINAL LUMBER DIMENSIONS ARE SATISFACTORY.
6. ALL SCREWS, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
7. STABILITY OF BARRICADES AND CHANNELIZING DEVICES SHALL CONFORM WITH THE FOLLOWING:
   A. SKIDS (BASES) OF MOVABLE BARRICADES SHALL BE WEIGHTED WITH SANDBAGS ONLY WHERE NECESSARY TO PROVIDE STABILITY
   B. NO MOVABLE OR PORTABLE DEVICE SHALL BE WEIGHTED BY ANY METHOD OR WITH ANY MATERIAL THAT WOULD MAKE THEM HAZARDOUS TO MOTORISTS.
8. WARNING LIGHTS USED WITH BARRICADES, DRUMS AND VERTICAL PANELS SHALL CONFORM WITH THE FOLLOWING:
   A. USE FLASHING WARNING LIGHTS WHEN DEVICES ARE USED SINGLY, AND STEADY BURN LIGHTS WHEN THEY ARE USED IN A SERIES FOR CHANNELIZATION.
   B. THEY SHALL BE POSITIONED ABOVE THE TOP RAIL OF BARRICADES OR ON TOP OF DRUMS AND VERTICAL PANELS.
9. CONCRETE BARRIER (TEMPORARY) SHALL CONFORM WITH:
   A. PRECAST CONCRETE BARRIER AS SHOWN ON COLORADO STANDARD PLAN M-606-14.
   B. BARRIER REFLECTORS SHALL BE INSTALLED THAT MEET THE REQUIREMENTS OF STANDARD TYPICAL DELINEATOR INSTALLATIONS, EXCEPT THE MAXIMUM SPACING SHALL BE 50', AND THEY WILL NOT BE PAID FOR BUT ARE INCLUDED IN THE COST OF THE BARRIER.
   C. CONCRETE BARRIER END TREATMENT SHALL BE IN ACCORDANCE WITH CLEAR ZONE CRITERIA, AND PLACED AS SHOWN ON THE PLANS.
10. SIGN PANELS MOUNTED ON BARRICADES WILL BE PAID FOR SEPARATELY.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: JSW		Date:	Comments
Last Modification Date: Initials:	R-1	06/03/16	UPDATED GENERAL NOTES 4 C
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-02_1of1.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/MKB

BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) & VERTICAL PANELS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-2
Sheet No. 1 of 1