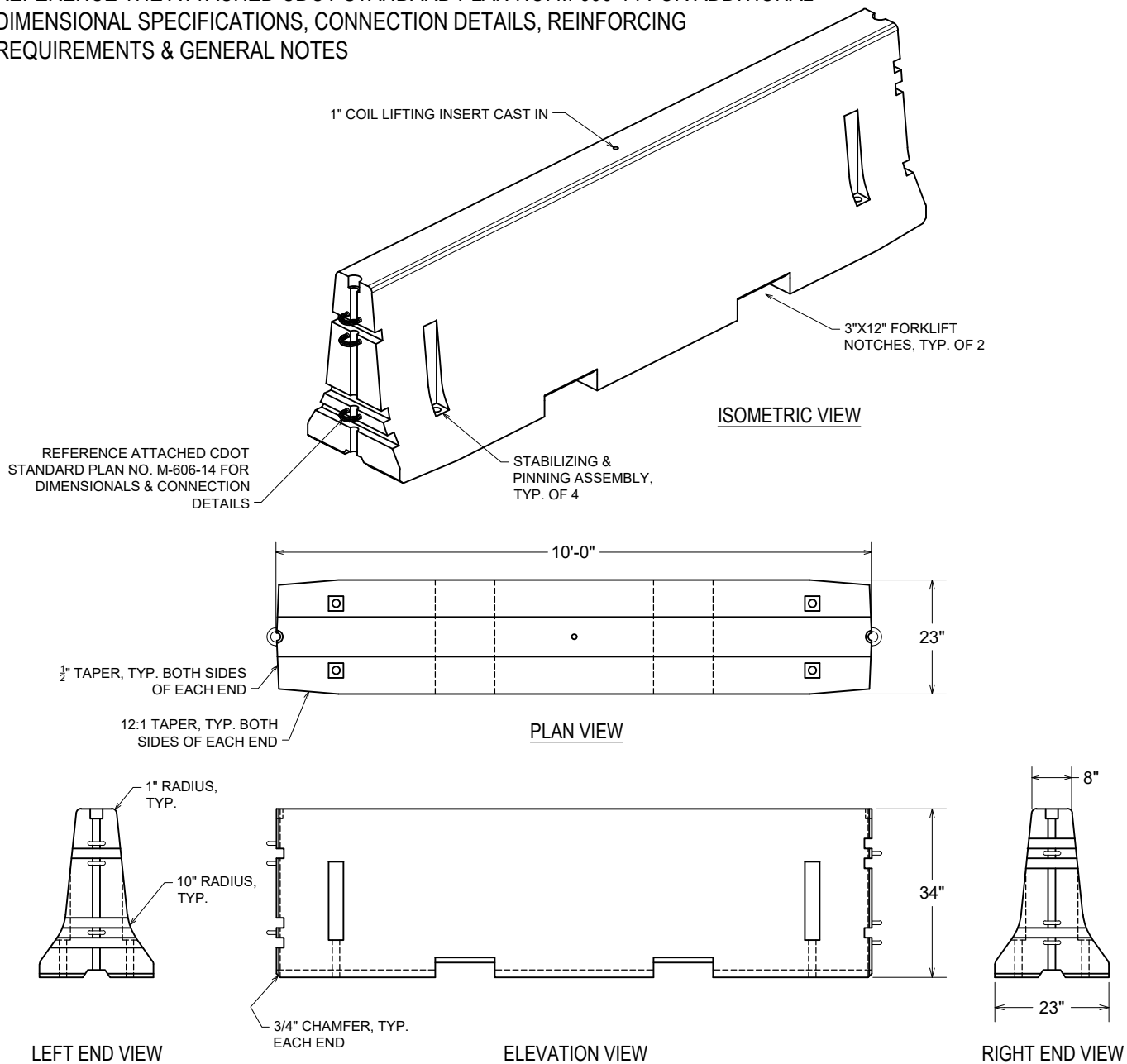


# TYPE 7 SAFETY BARRIER

PER THE APPROVED DESIGN BY THE COLORADO DEPT. OF TRANSPORTATION

REFERENCE THE ATTACHED CDOT STANDARD PLAN NO. M-606-14 FOR ADDITIONAL DIMENSIONAL SPECIFICATIONS, CONNECTION DETAILS, REINFORCING REQUIREMENTS & GENERAL NOTES



BARRIER WEIGHT: ~4,500 LBS. EACH

CONCRETE : 4,000 P.S.I. (MINIMUM)

REINFORCING: REBAR & A-36 PER CDOT STANDARDS (SEE ATTACHED SHEETS)

ACTUAL DIMENSIONS OF CONCRETE PRODUCTS MAY VARY SLIGHTLY

DRAWING IS NOT TO SCALE

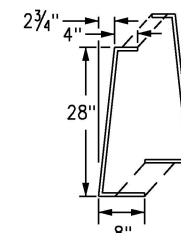
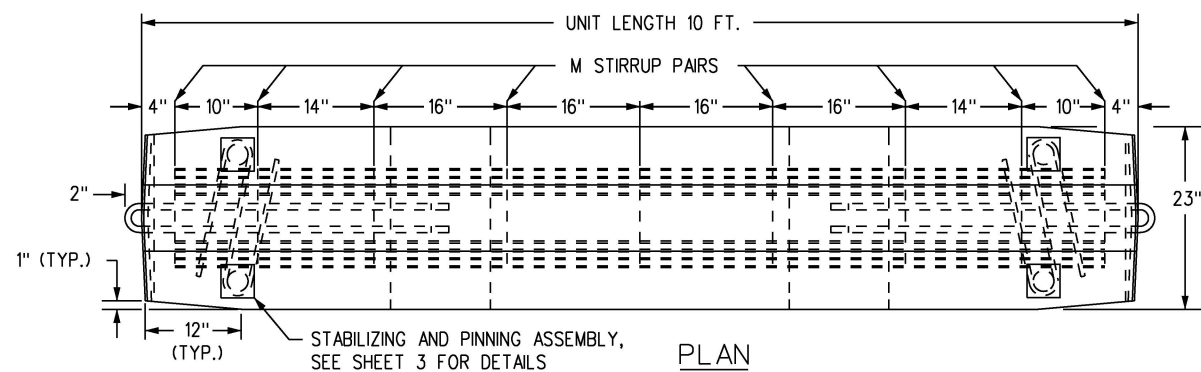


BARRIER - TYPE 7.DWG  
DATE CREATED: 11 / 05  
UPDATED: 5 / 21

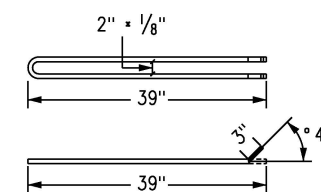
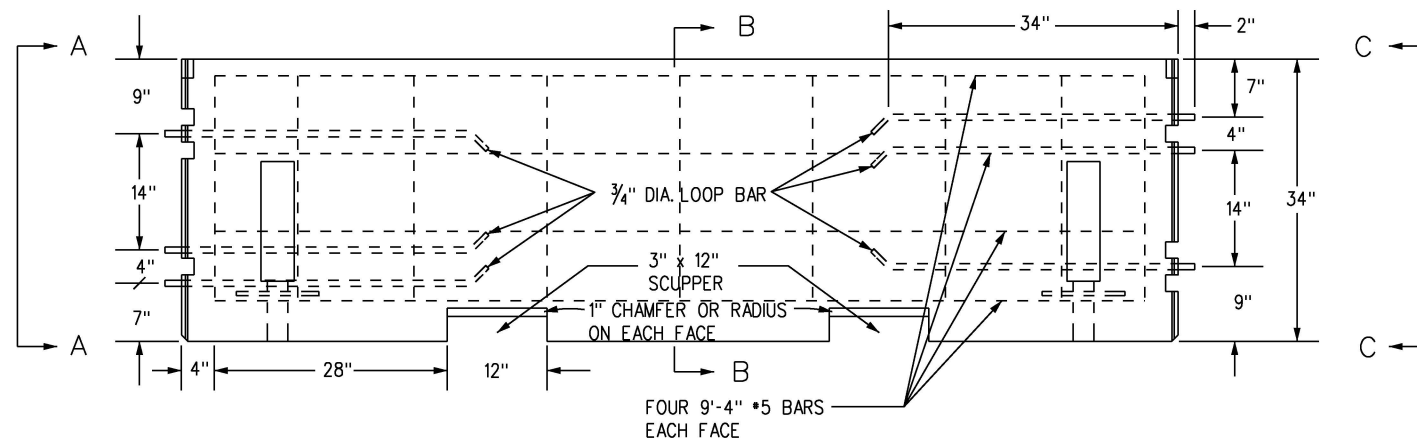
12650 Tucson Street • Henderson, Colorado 80640 • 303-659-3747, Fax 303-659-1333  
 2671 South Greeley Hwy • Cheyenne, Wyoming 82007 • 307-634-0695, Fax 307-634-0694  
 10021 Amarillo Blvd. East • Amarillo, Texas 79108 • 806-374-3747, Fax 806-335-3717

GENERAL NOTES

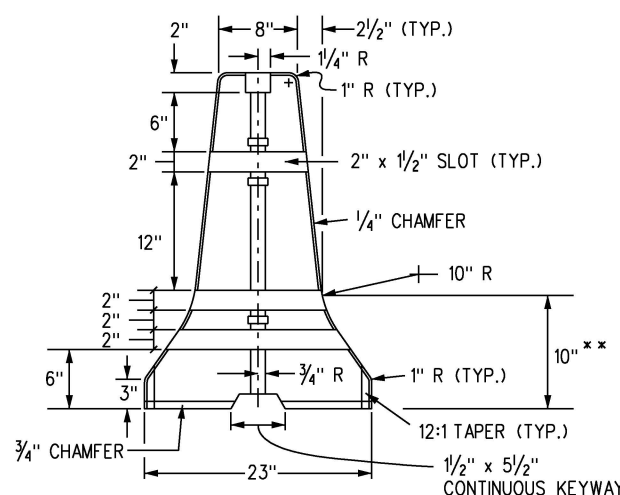
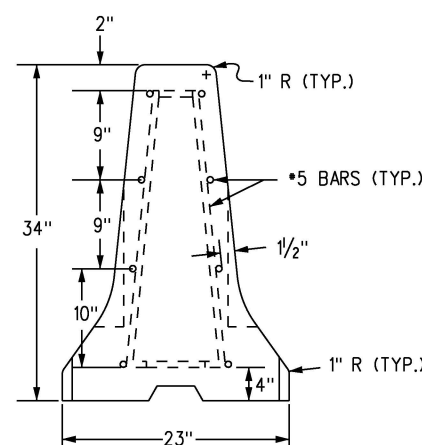
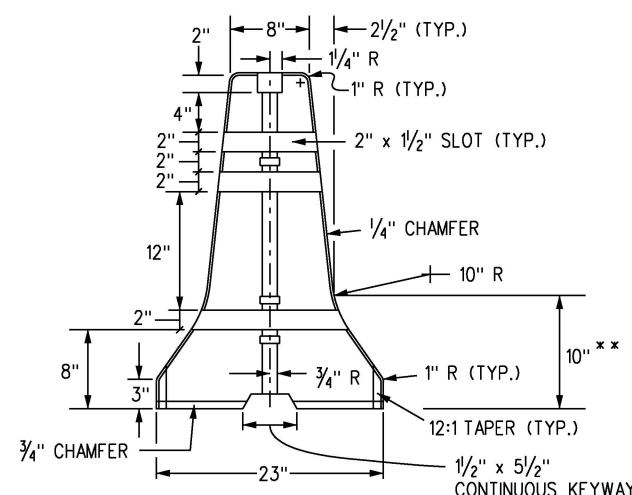
1. PRECAST TYPE 7 CONCRETE BARRIER HAS BEEN CLASSIFIED AS TL-3 MASH COMPLIANT. MANUFACTURING AND UTILIZATION OF PRECAST TYPE 7 CONCRETE BARRIER IS PERMITTED FOR ALL CDOT PROJECTS REQUIRING TL-3 MASH COMPLIANT TEMPORARY CONCRETE BARRIER. REFER TO CDOT'S APPROVED PRODUCT LIST (APL) FOR ADDITIONAL MASH COMPLIANT PROPRIETARY TEMPORARY BARRIER DEVICES.
2. ALL STEEL REINFORCING SHALL BE 2 IN. CLEAR OF THE NEAREST SURFACE OF CONCRETE UNLESS OTHERWISE SHOWN. REINFORCING STEEL SHALL BE GRADE 40 MINIMUM.
3. CONCRETE SHALL BE CLASS D.
4. ALL PERMANENT PRECAST BARRIERS USED TO REPLACE OTHER PRECAST TYPE 7 CONCRETE BARRIERS SHALL BE IN NEW CONDITION, UNDATED, AND WITH NO REPAIRS.
5. FOR TEMPORARY INSTALLATIONS, INSTALL WITH A MINIMUM 4 FT. DISTANCE FROM THE CENTERLINE OF THE PRECAST TYPE 7 CONCRETE BARRIER TO ANY OBSTRUCTIONS BEHIND IT. FOR TEMPORARY INSTALLATIONS WITH LESS THAN A 4 FT. MINIMUM DISTANCE, STABILIZATION PINS SHALL BE USED ON EACH PRECAST TYPE 7 CONCRETE BARRIER UNIT ADJACENT TO, AND WITHIN 10 FT. OF BOTH SIDES OF THE OBSTRUCTION. SEE SHEET 3 FOR STABILIZATION PINNING DETAILS.
6. THE FLARE RATE FOR TEMPORARY INSTALLATIONS SHALL BE 10:1 OR FLATTER UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR PERMANENT INSTALLATIONS. SEE THE FLARE RATES TABLE ON STANDARD M-606-13, SHEET 3.
7. STABILIZATION PINS SHALL BE USED TO ANCHOR EACH 10 FT. UNIT IN ALL PERMANENT INSTALLATIONS. SEE SHEET 3 FOR STABILIZATION PINNING DETAILS.
8. FOR ALL PERMANENT INSTALLATIONS THAT REQUIRE END ANCHORAGES. SEE STANDARD PLAN M-606-13, SHEET 1, FOR ANCHORAGE DETAILS.
9. THE MONTH AND YEAR THE PRECAST TYPE 7 CONCRETE BARRIER WAS MANUFACTURED SHALL BE MOLDED INTO ONE END OF EACH 10 FT. BARRIER UNIT.
10. APPROVED NON-SHRINK GROUT SHALL BE USED FOR GROUTING OVER ALL PINS AND GROUTING OF SCUPPERS.
11. WHEN HYDRAULIC ANALYSIS ALLOWS, SCUPPERS MAY NOT BE NEEDED ON:
  - A. MEDIAN INSTALLATION WITH INLET DRAINAGE.
  - B. PRECAST TYPE 7 CONCRETE SHOULDER BARRIER ON HIGH EDGE OF A SUPERELEVATED SHOULDER.
  - C. PRECAST TYPE 7 CONCRETE MEDIAN BARRIER ON A CREST VERTICAL CURVE.
  - D. PERMANENT BARRIER, IF SPECIFIED ON PLANS.
12. ALL INCIDENTAL WORK AND MATERIALS SUCH AS CONNECTING PINS, ANCHORS BOLTS, GROUT, AND EXCAVATION FOR END ANCHORAGE, WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
13. ONE IN. DIAMETER THREADED INSERTS MAY BE CAST-IN-PLACE TO FACILITATE LIFTING FOR THE TEMPORARY PRECAST TYPE 7 CONCRETE BARRIER APPLICATIONS ONLY.
14. RETROREFLECTORIZATION IS REQUIRED ON PRECAST TYPE 7 CONCRETE BARRIERS. SEE CONCRETE BARRIER RETROREFLECTOR NOTES ON STANDARD PLAN S-612-1.



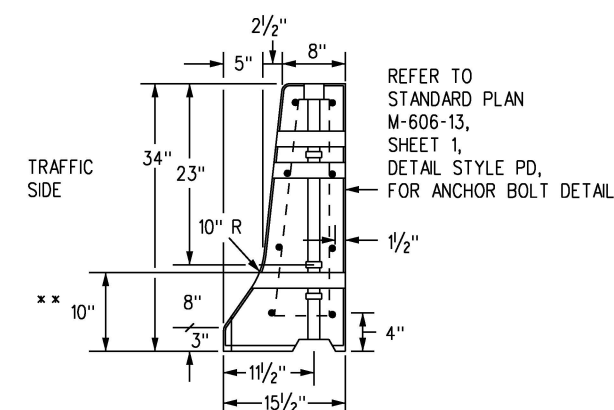
STIRRUP "M" #5 REBAR PAIR



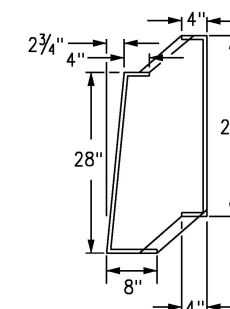
LOOP BAR BENDING DETAIL (ASTM A36) (HOT-DIP GALVANIZED AFTER FABRICATION)



\*\* DIMENSIONS MARKED ARE TO THE INTERSECTION POINT OF THE BARRIER SLOPES. CONSTRUCT THE 10 IN. RADIUS TO PROVIDE A SMOOTH TRANSITION BETWEEN THE SLOPES.

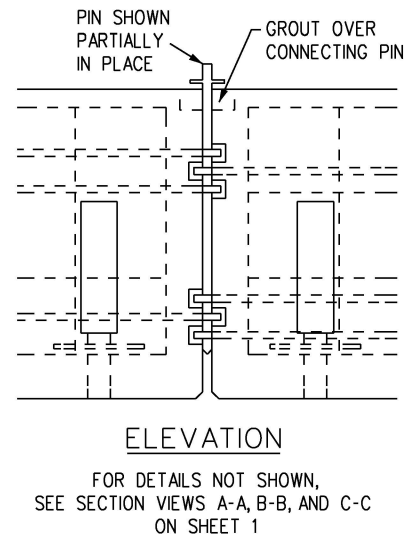
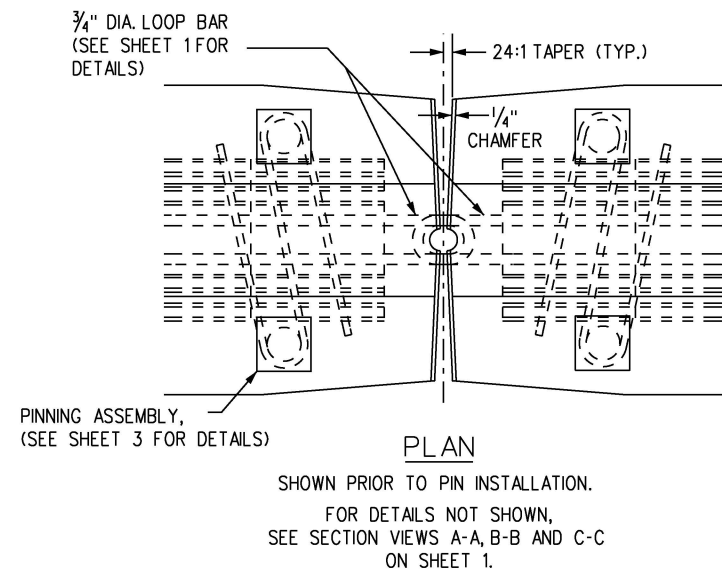


NARROW BASE SHOULDER BARRIER



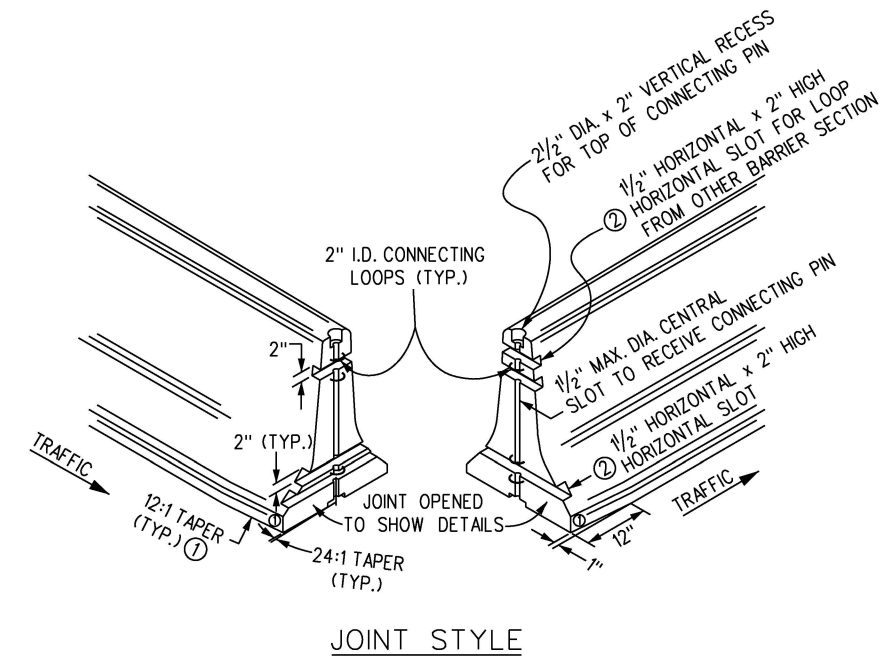
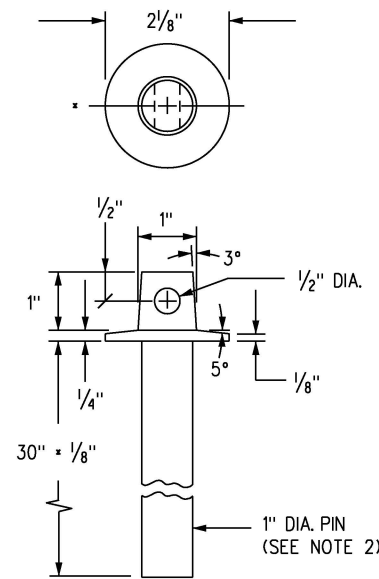
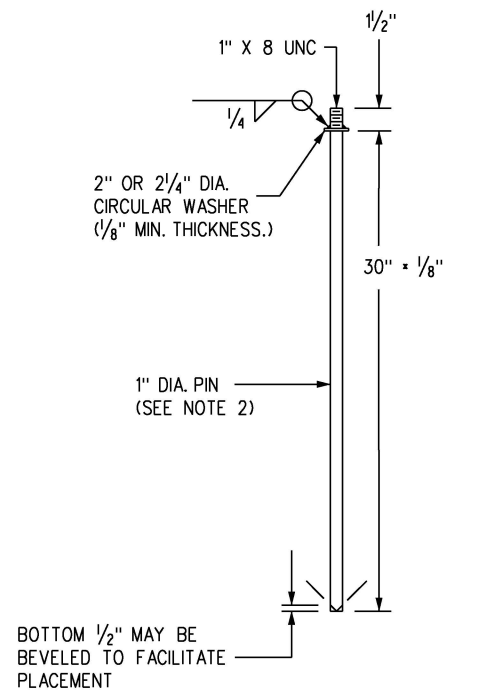
NARROW BASE STIRRUP "M" #5 REBAR PAIR

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	<h1>PRECAST TYPE 7 CONCRETE BARRIER</h1> <p>Issued by the Project Development Branch: July 31, 2019</p>	STANDARD PLAN NO.
Creation Date: 07/31/19	(R-X)	Date: 8/21/20	Comments: Added Gen. Note 1 to show these barriers are TL-3 MASH compliant.			M-606-14
Designer Initials: JBK	(R-X)					Standard Sheet No. 1 of 4
Last Modification Date: 08/21/20	(R-X)					Project Sheet Number:
Detailer Initials: LTA	(R-X)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)					



NOTES

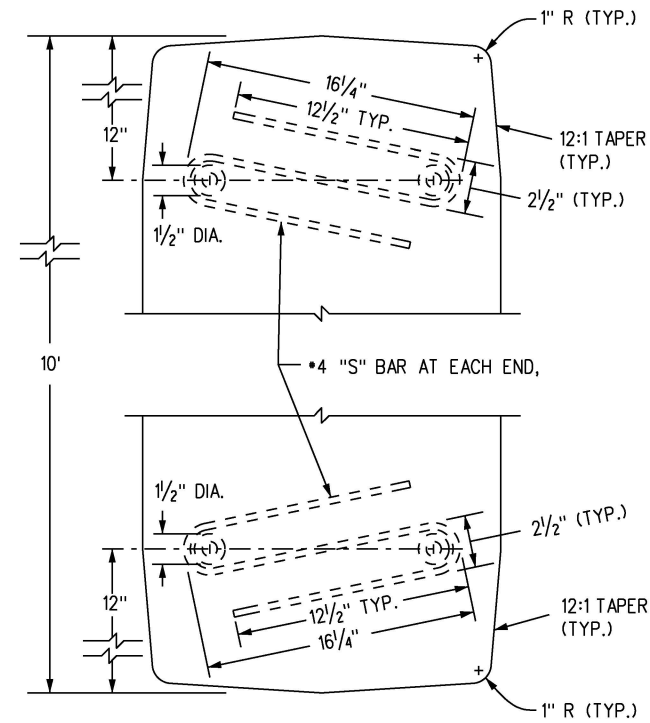
1. WASHERS SHALL BE FORGED AS AN INTEGRAL PART OF THE PIN, OR SHALL BE WELDED AS SHOWN.
2. PINS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
3. IF AN ALTERNATIVE TOP CONFIGURATION IS USED FOR LIFTING, THE LIFTING PIN SHALL BE PROVIDED. PINS SHALL CONFORM TO CRITICAL DIMENSIONS (PIN LENGTH DIAMETER).
4. PINS SHALL CONFORM TO ASTM A449.
5. APPROVED NON-SHRINK GROUT SHALL BE USED FOR GROUTING OVER ALL PINS, AND GROUTING OF SCUPPERS.
6. BOTH ENDS OF THE TYPE 7 CONCRETE BARRIER SHALL HAVE A 24:1 TAPER IN EACH DIRECTION FROM THE CENTER PIN RECESS TO ITS OUTER EDGE TO FACILITATE PLACEMENT ON CURVES.
7. JOINTS BETWEEN CAST-IN-PLACE GUARDRAIL TYPE 7 AND PERMANENT INSTALLATION PRECAST TYPE 7 CONCRETE BARRIER SHALL INCLUDE ALL REGRESSES AND LOOPS IN THE CAST-IN-PLACE END, ALONG WITH THE PIN TO COMPLETE THE TYPICAL PRECAST TYPE 7 CONCRETE BARRIER JOINT.



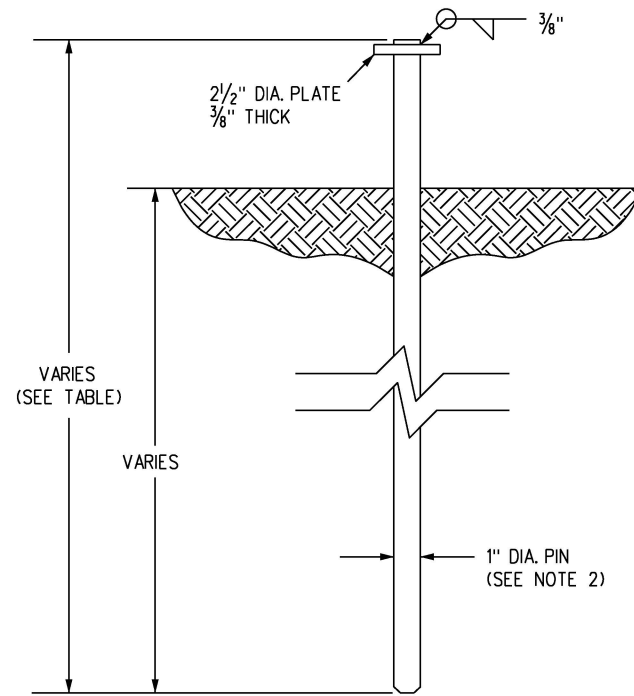
- ① A 1 IN. BY 12 IN. TAPER IS REQUIRED AT THE BOTTOM OF ALL FOUR CORNERS OF THE PRECAST TYPE 7 CONCRETE BARRIER SECTIONS TO ELIMINATE SNAGGING OF SNOW PLOW BLADES. THE TAPER IS OPTIONAL ON PERMANENT INSTALLATIONS.
- ② THE HORIZONTAL SLOTS SHALL BE 1/2 IN. IN DEPTH AT THE CENTER OF THE PRECAST TYPE 7 CONCRETE BARRIER AND MAY DECREASE IN DEPTH AT THE EDGE OF THE BARRIER UNIT DUE TO THE (24:1) TAPER.

DETAILS FOR PIN AND LOOP CONNECTION

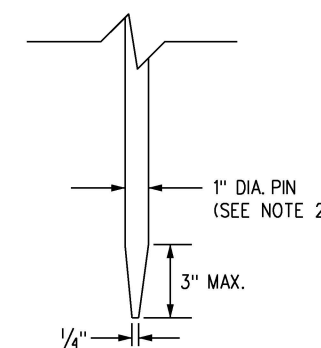
Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch      JBK	<h2 style="text-align: center;">PRECAST TYPE 7 CONCRETE BARRIER</h2> <p style="text-align: center;">Issued by the Project Development Branch: July 31, 2019</p>	STANDARD PLAN NO.	
Creation Date: 07/31/19		Date:	Comments			M-606-14	
Designer Initials: JBK		(R-X) 8/21/20	Added Gen. Note 1 on Sheet 1 to show these barriers are TL-3 MASH compliant.			Standard Sheet No. 2 of 4	
Last Modification Date: 08/21/20		(R-X)					
Detailer Initials: LTA		(R-X)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		Project Sheet Number:			



PLAN VIEW OF S BAR ENDS



STABILIZATION PIN  
(ASTM A 36 STEEL)



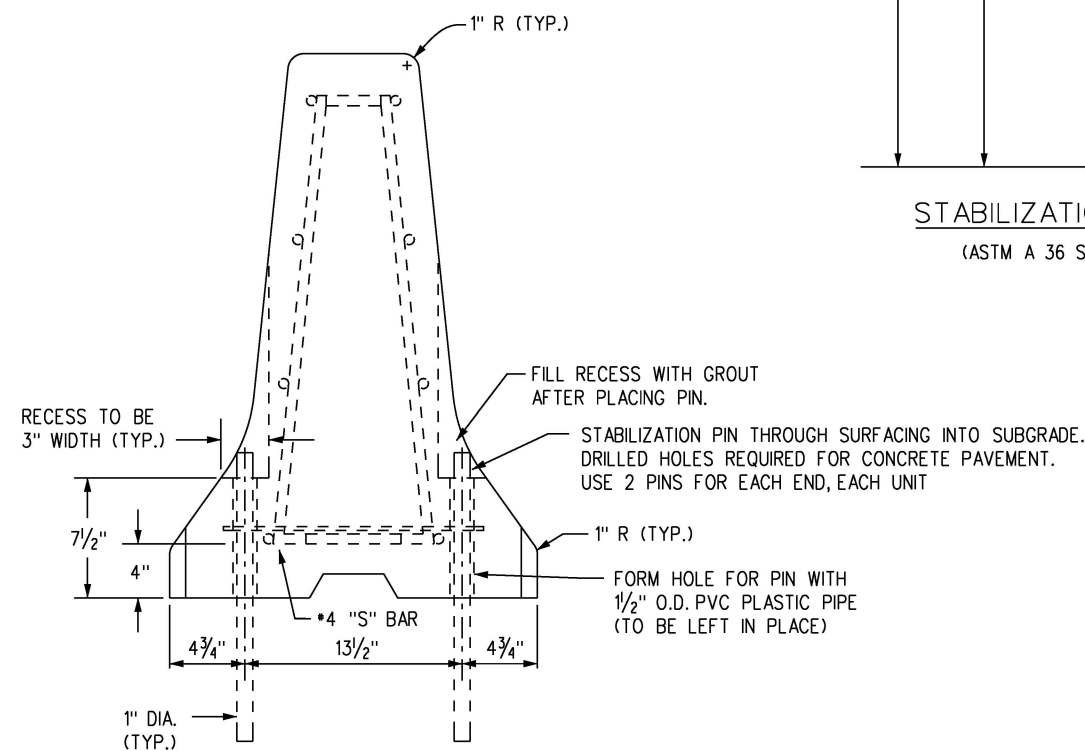
OPTIONAL TAPERED END PIN  
(SEE NOTE 4)

NOTES

1. SEE SHEET 1 FOR REINFORCEMENT AND OTHER DETAILS NOT SHOWN HERE.
2. PINS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION
3. FOR TERMINAL ANCHORING OF THE PERMANENT INSTALLATION OF PRECAST TYPE 7 CONCRETE BARRIERS, SEE THE END ANCHORAGE DETAIL ON STANDARD PLAN M-606-13, SHEET 1.
4. AN OPTIONAL 3 IN. MAXIMUM TAPERED END POINT MAY BE PROVIDED ON THE STABILIZATION PIN TO FACILITATE DRIVING.

ROAD SURFACE	PIN LENGTH
CONCRETE	2 FT.-6 IN.
HMA	3 FT.
SOIL	3 FT.-6 IN.

TABLE OF STABILIZATION PIN LENGTHS



ELEVATION VIEW WITH PINS

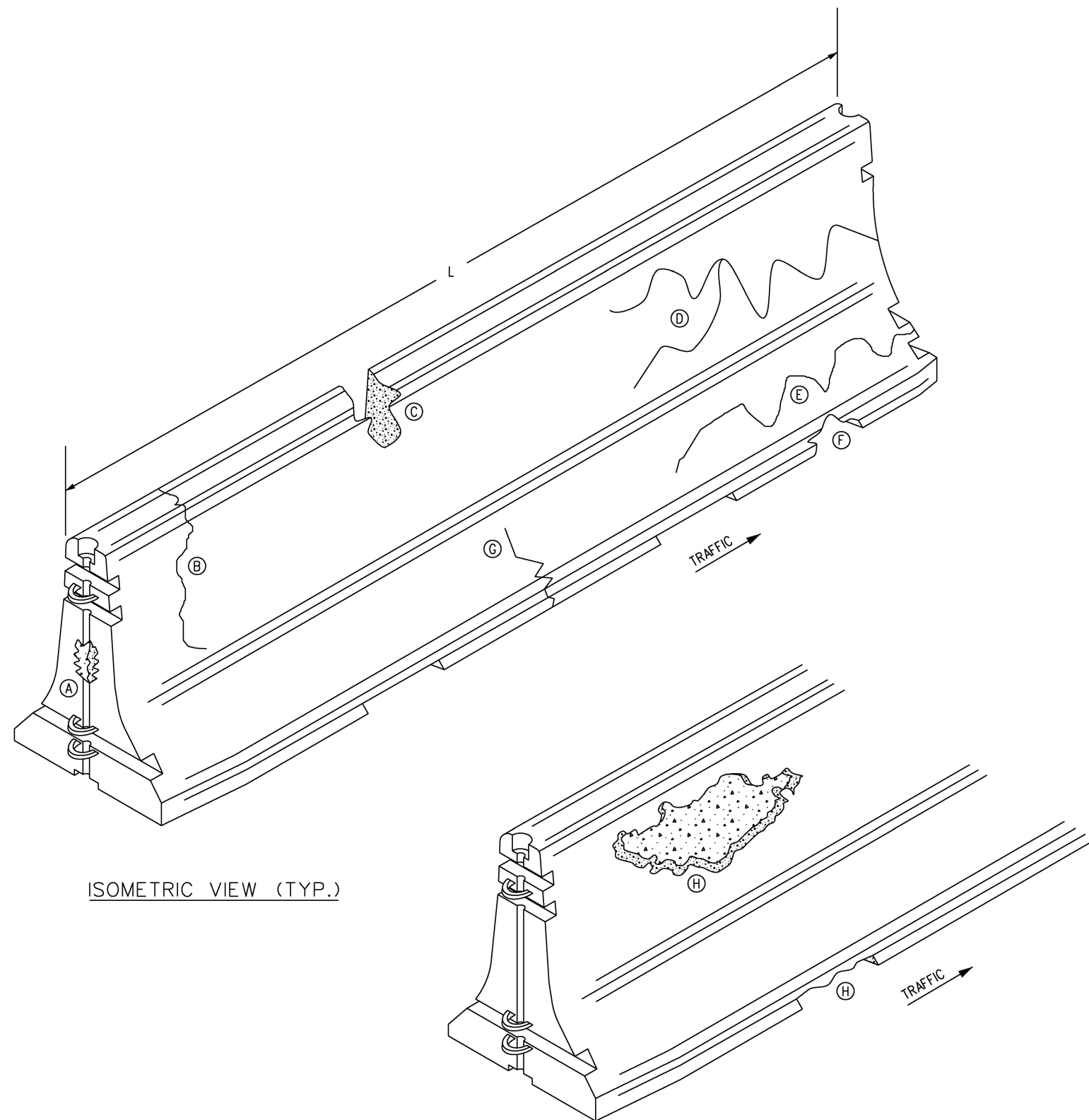
DETAILS FOR STABILIZATION OF PERMANENT OR TEMPORARY PINNED PRECAST TYPE 7 CONCRETE BARRIER

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch      JBK	<h2 style="text-align: center;">PRECAST TYPE 7 CONCRETE BARRIER</h2>	STANDARD PLAN NO.
Creation Date: 07/31/19		Date:	Comments			M-606-14
Designer Initials: JBK		(R-X) 8/21/20	Added Gen. Note 1 on Sheet 1 to show these barriers are TL-3 MASH compliant.			Standard Sheet No. 3 of 4
Last Modification Date: 08/21/20		(R-X)				
Detailer Initials: LTA		(R-X)				
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:	

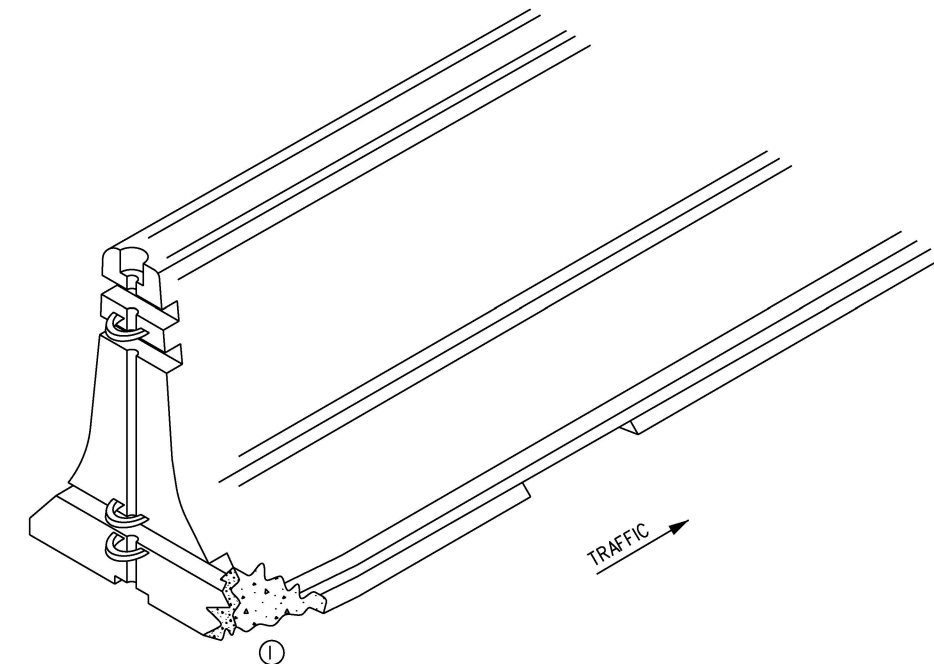


NOTES

1. PRECAST TYPE 7 CONCRETE BARRIERS SHALL BE USED ONLY IN TEMPORARY CONFIGURATIONS AND MUST BE INSPECTED PRIOR TO REUSE AND PLACEMENT IN WORK ZONES. CONTINUED USE IN WORK ZONES IS ALSO SUBJECT TO PERIODIC INSPECTIONS. INSPECTIONS AND MEASUREMENTS WILL BE PERFORMED BY CDOT. ANY PRECAST TYPE 7 CONCRETE BARRIER SHOWING ANY ONE OF THE FOLLOWING DISCREPANCIES WILL NOT BE INSTALLED OR ALLOWED TO REMAIN IN USE:
  - (A) A SLOT CONNECTION WHERE MORE THAN 25% IS EITHER CRACKED OR MISSING.
  - (B) A CRACK ON TOP OF A BARRIER UNIT WHICH RUNS DOWN THE VERTICAL FACE ON EITHER SIDE FOR MORE THAN 16 INCHES.
  - (C) A CHIP ON THE TOP OR VERTICAL FACE WHICH IS MORE THAN 1 SQUARE FOOT IN AREA AND MORE THAN 2 INCHES DEEP. SMALLER AREAS AND DEPTHS SHALL BE FIELD PATCHED. CHIPS LESS THAN 2 INCHES DEPTH AND WITHIN A REASONABLE AREA SHALL NOT REQUIRE ATTENTION.
  - (D) A HORIZONTAL CRACK ON EITHER SIDE WHICH IS GREATER THAN L/2, OR THAT SPLITS INTO A "Y" SHAPE WITH ARMS GREATER THAN 12 INCHES.
  - (E) A HORIZONTAL CRACK IN THE SLOPING AREA THAT IS GREATER THAN L/2 AND INTERSECTS A VERTICAL CRACK.
  - (F) A CHIP ON A VERTICAL CURB GREATER THAN 1 SQUARE FOOT AND/OR 3 INCHES DEEP. SMALLER AREAS AND DEPTHS SHALL BE FIELD PATCHED. CHIPS LESS THAN INCH DEPTH AND WITHIN A REASONABLE AREA SHALL NOT REQUIRE ATTENTION.
  - (G) A VERTICAL CRACK ACROSS THE BOTTOM AND UP THE CURB FACE INTO THE SLOPING FACE.
  - (H) SPALLING CONCRETE THAT IS PITTED, FLAKED, OR BROKEN OFF MORE THAN 5 SQUARE FEET COMBINED (EXPOSED REBAR MAY OR MAY NOT BE VISIBLE).
  - (I) ANY CORNERS THAT ARE CHIPPED MORE THAN 1 SQUARE FOOT IN AREA AND MORE THAN 2 INCHES DEEP. SMALLER AREAS AND DEPTHS SHALL BE FIELD PATCHED. CHIPS LESS THAN 2 INCHES DEPTH AND WITHIN A REASONABLE AREA SHALL NOT REQUIRE ATTENTION.
2. A "CRACK" IS DEFINED AS AN OPENING OF AT LEAST 1/8 INCH IN WIDTH WHEN MEASURED WITH A FEELER GAUGE.
3. ALL PRECAST TYPE 7 CONCRETE BARRIERS SHALL BE IN ACCORDANCE WITH SUBSECTION 606.04(B).



ISOMETRIC VIEW (TYP.)



NON-REUSE OF PRECAST TYPE 7 CONCRETE BARRIER

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch      JBK	<h2 style="margin: 0;">PRECAST TYPE 7 CONCRETE BARRIER</h2> <p style="margin: 0; font-size: small;">Issued by the Project Development Branch: July 31, 2019</p>	STANDARD PLAN NO.
Creation Date: 07/31/19	(R-X)	Date: 8/21/20	Comments: Added Gen. Note 1 on Sheet 1 to show these barriers are TL-3 MASH compliant.			M-606-14
Designer Initials: JBK	(R-X)					Standard Sheet No. 4 of 4
Last Modification Date: 08/21/20	(R-X)					Project Sheet Number:
Detailer Initials: LTA	(R-X)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)				