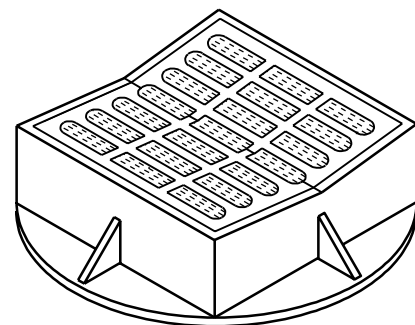
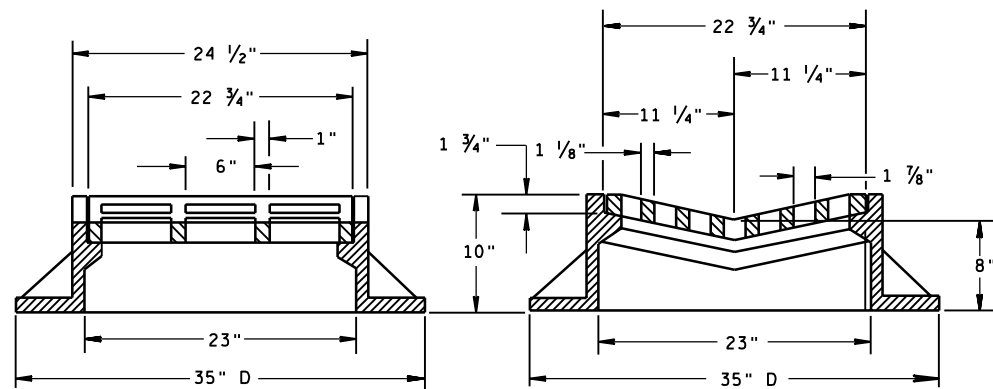
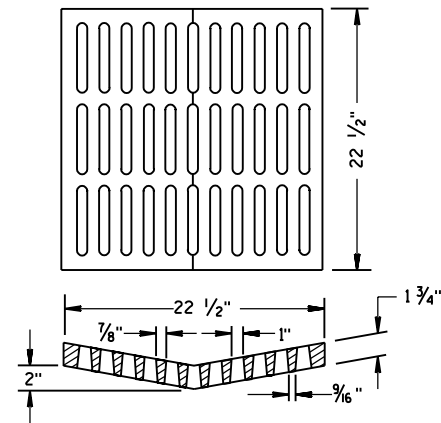


Standard Detail Drawing List

08A5-16B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08C1-5	INLETS TYPE 1, 2, 3 & 4
08D1-16	CONCRETE CURB, CONCRETE CURB AND GUTTER & PAVEMENT TIES
08D2-5	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D4-4	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E8-3	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E9-6	SILT FENCE
08E11-2	TURBIDITY BARRIER
08F1-11	APRON ENDWALLS FOR CULVERT PIPE
08F4-6	JOINT TIES FOR CONCRETE PIPE
09A1-12A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A1-12B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
09G1-2A	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G1-2D	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G1-2E	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G1-2F	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G1-2G	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G2-1A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G2-1B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
11B2-2	CONCRETE MEDIAN NOSE
12A3-9	NAME PLATE (STRUCTURES)
13A3-4	CONCRETE PAVEMENT SHOULDERS
13A6-2	RUMBLE STRIPS AT INTERSECTION
13B2-5	CONCRETE PAVEMENT APPROACH SLAB
13C1-12	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND PAVEMENT TIES
14B7-11A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B7-11B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B7-11C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B7-11D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B7-11E	CONCRETE BARRIER TEMPORARY PRECAST, 10' -0"
14B7-11F	CONCRETE BARRIER TEMPORARY PRECAST, 10' -0"
14B15-5A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-5B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B16-4A	ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
14B16-4B	ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
14B18-6A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-6A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-6B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END AND VERTICAL FACED PARAPETS
14B24-4A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-4B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-4C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15A3-1	MARKER POSTS, FLEXIBLE, FOR CULVERT END
15C4-1	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C6-5	SIGNING & MARKING FOR TWO LANE BRIDGES
15C7-8A	PAVEMENT MARKING SYMBOLS
15C7-8B	PAVEMENT MARKING WORDS
15C8-10A	PAVEMENT MARKING (MAINLINE)
15C8-10B	PAVEMENT MARKING (INTERSECTIONS)
15C8-10D	PAVEMENT MARKING (LEFT TURN LANE)
15C8-11E	PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)
15C12-3	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C18-2	MEDIAN ISLAND MARKING
15D28-1	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D33-2	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

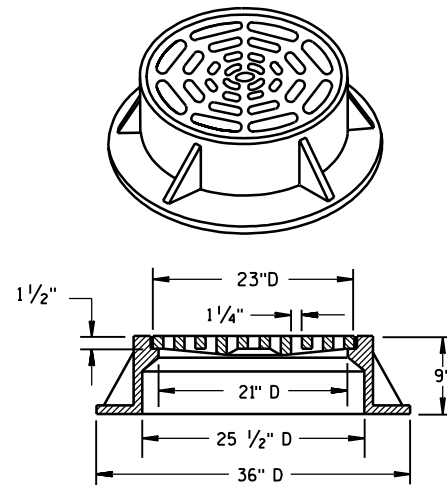


TYPE "B"
(APPROXIMATE WEIGHT 395 LBS.)
FRAME..... 285 LBS.
GRATE..... 110 LBS.

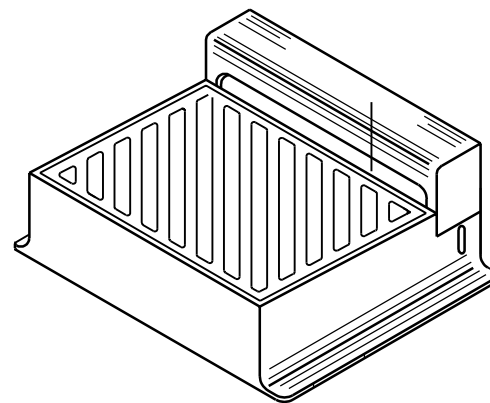


**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

(APPROXIMATE GRATE WEIGHT 125 LBS.)
GRATE..... 125 LBS.
USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
NOTED AS TYPE B-A ON THE DRAINAGE TABLE

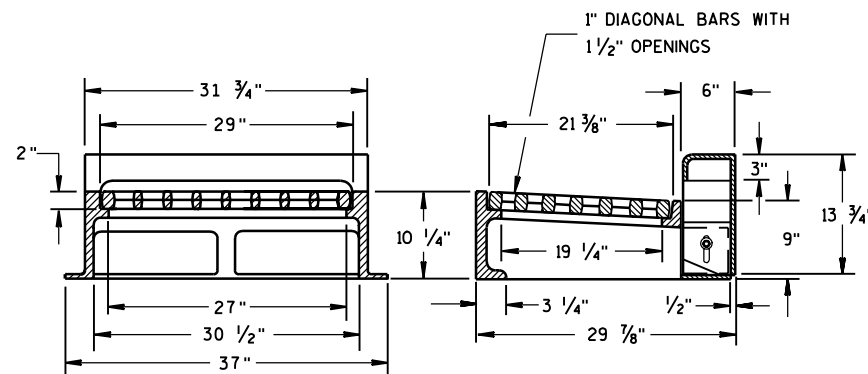


TYPE "C"
(APPROXIMATE WEIGHT 340 LBS.)
FRAME..... 235 LBS.
GRATE..... 105 LBS.



DIAGONAL SLOTS, SHALL BE ORIENTED
TO THE DIRECTION OF FLOW AS ILLUSTRATED.
GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION
OF FLOW



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"
(APPROXIMATE WEIGHT 670 LBS.)
FRAME..... 360 LBS.
GRATE..... 160 LBS.
CURB BOX..... 150 LBS.

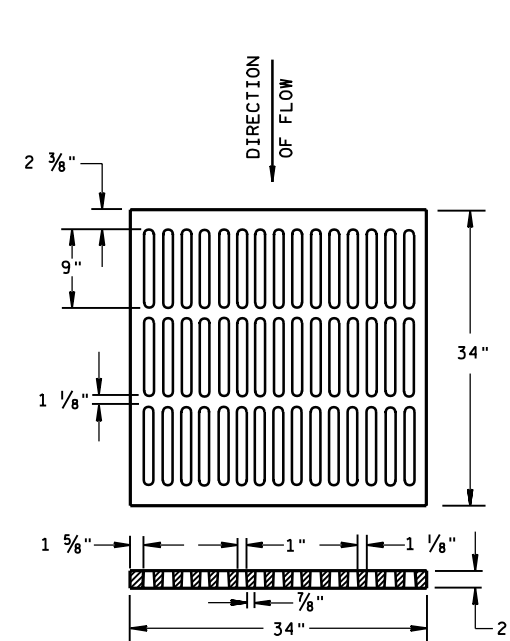
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

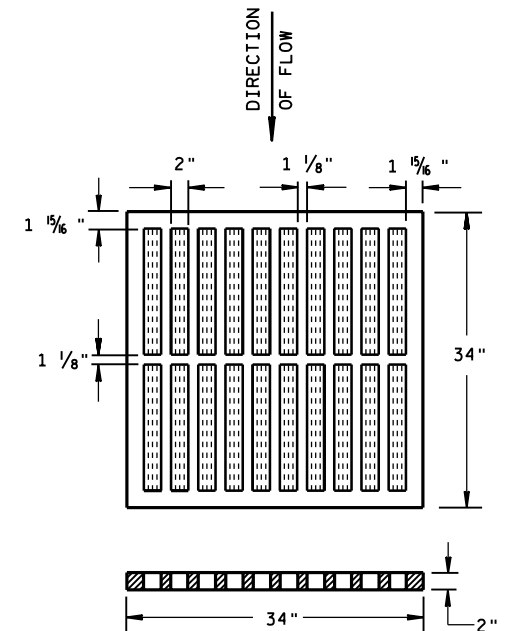
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



ALTERNATIVE TYPE "MS"
(APPROXIMATE GRATE WEIGHT 365 LBS.)
GRATE..... 365 LBS.

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



TYPE "MS"
(APPROXIMATE GRATE WEIGHT 270 LBS.)
GRATE..... 270 LBS.
USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON DRAINAGE TABLE

**INLET COVERS
TYPE B, B-A, C, MS, MS-A, & WM**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/4/99
DATE
FHWA

Raymond J. [Signature]
CHIEF ROADWAY DEVELOPMENT ENGINEER



*SELECTION OF SQUARE OR CIRCULAR DESIGN WILL BE BASED ON THE PIPE SIZES AND THE INLET COVER BEING UTILIZED

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 1-C", "CATCH BASINS 1-B", "INLETS 3-H", ETC. THE FIRST DIGIT DESIGNATES THE MASONRY PORTION OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

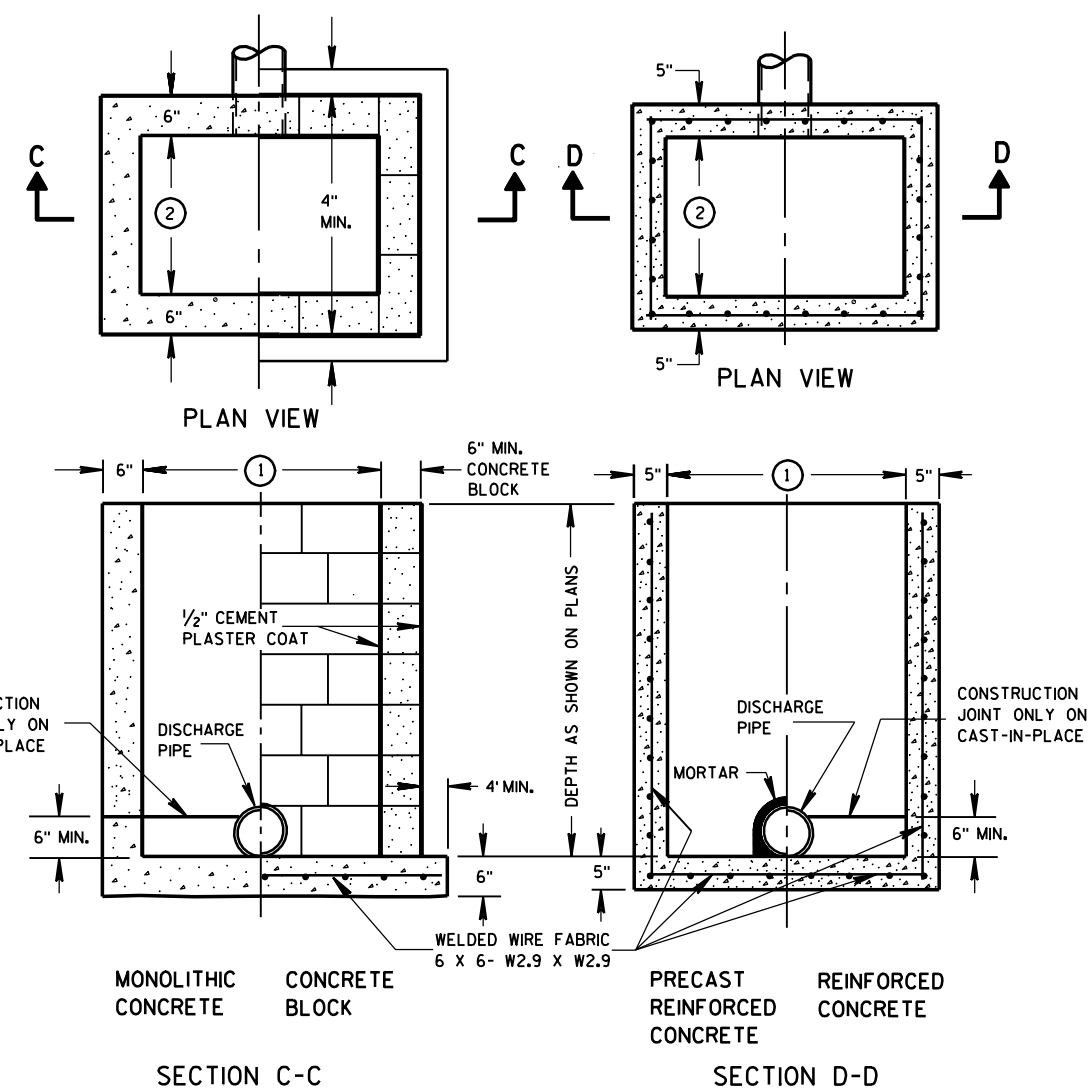
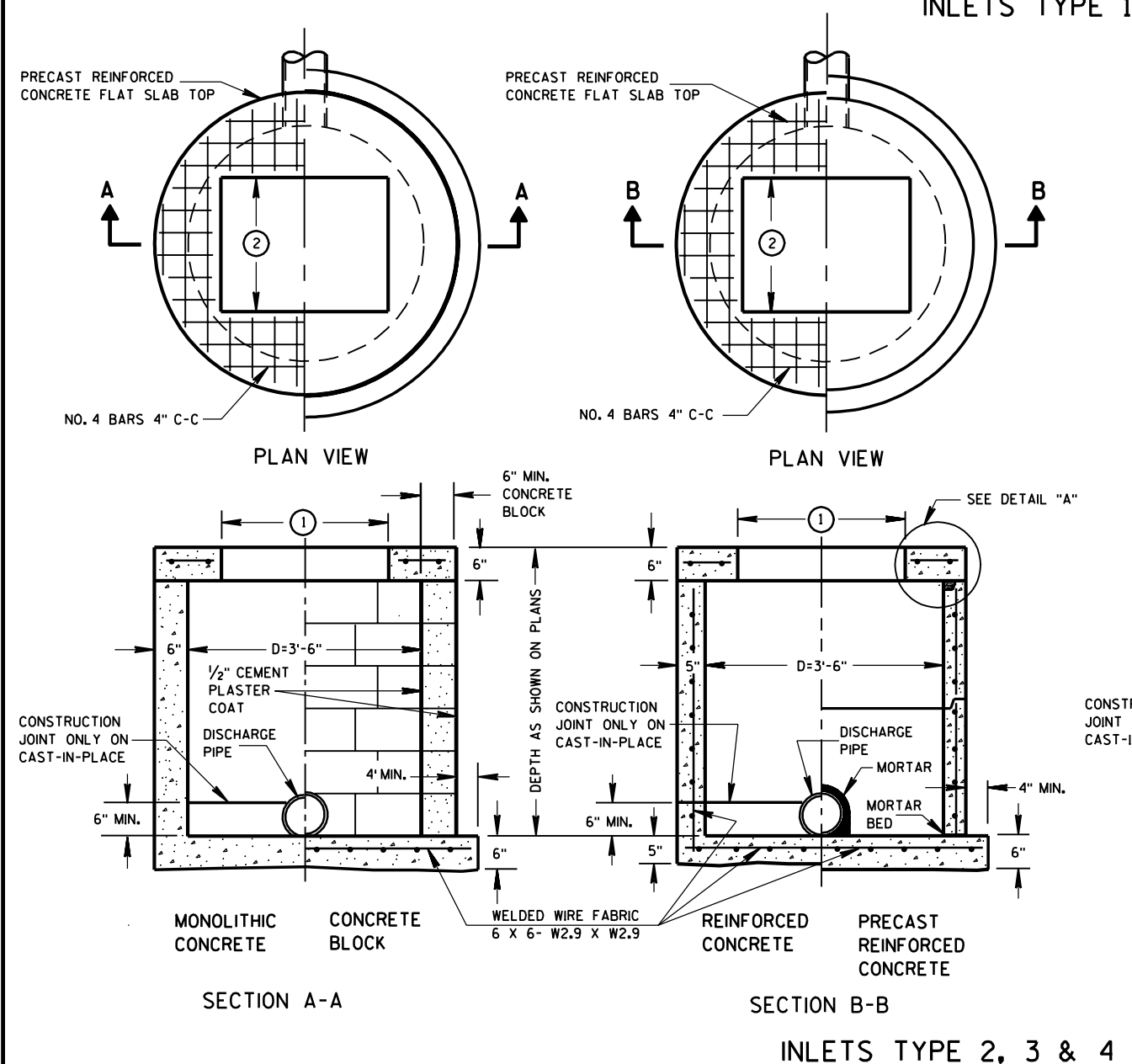
PRECAST REINFORCED BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON THE STRUCTURES. THE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED CONCRETE RISERS SHALL BE PLACED WITH TONGUE DOWN.

- ① USE 2'-6" OPENING FOR TYPE 2 INLETS, 3'-0" OPENING FOR TYPE 3 INLETS, AND 2'-11" FOR TYPE 4 INLETS.
- ② USE 2'-0" OPENING FOR TYPE 1, 2 & 3 INLETS, 2'-6 $\frac{1}{2}$ " OPENING FOR TYPE 4 INLETS.

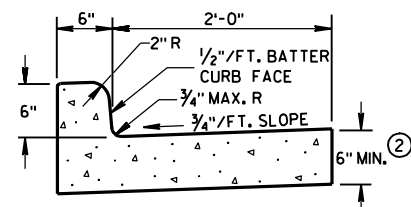


INLETS TYPE 1, 2, 3 & 4

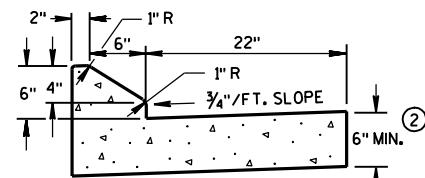
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/26/94
DATE
FHWA

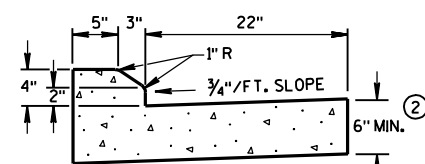
Ray L. Hines
CHIEF ROADWAY DEVELOPMENT ENGINEER



TYPES A & D ①

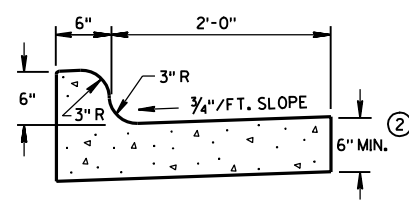


6" SLOPED CURB TYPES G & J ①

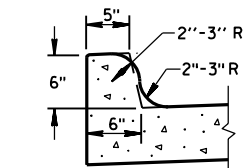
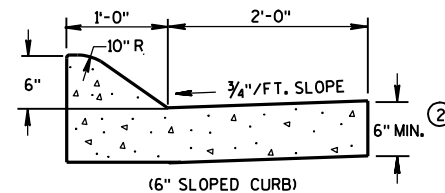


4" SLOPED CURB TYPES G & J ①

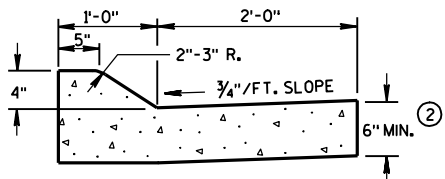
CONCRETE CURB & GUTTER 30"



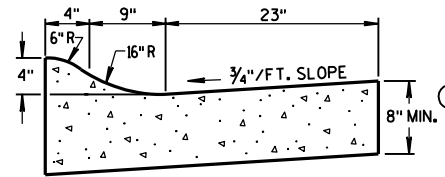
TYPES K & L ①

OPTIONAL CURB SHAPE
FOR TYPES K & L ①

(6" SLOPED CURB)

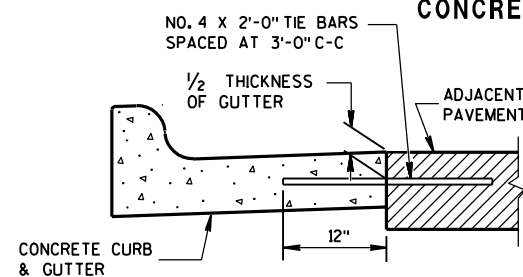


TYPES A & D ①

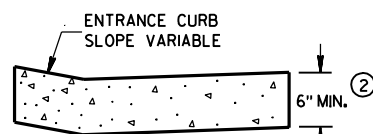
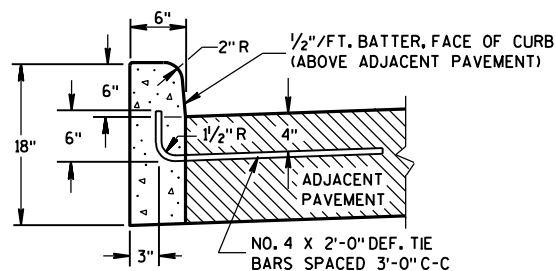


4" SLOPED CURB TYPES R & T ① ④

CONCRETE CURB & GUTTER 36"

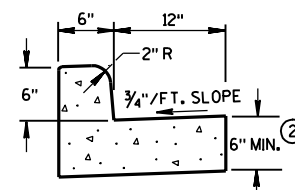
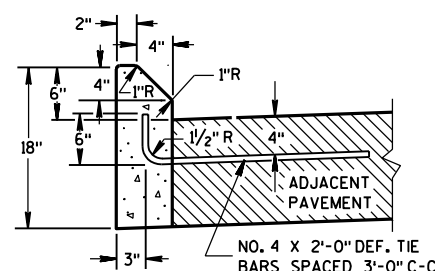


TYPICAL TIE BAR LOCATION ①

DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

TYPES A & D ①

CONCRETE CURB

TYPES A & D
CONCRETE CURB & GUTTER 18"

TYPES G & J ①

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

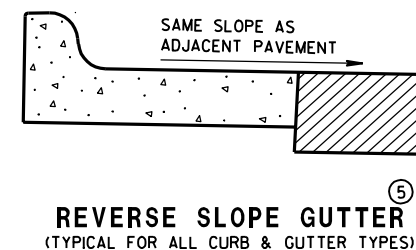
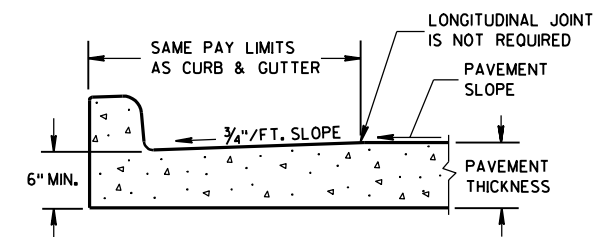
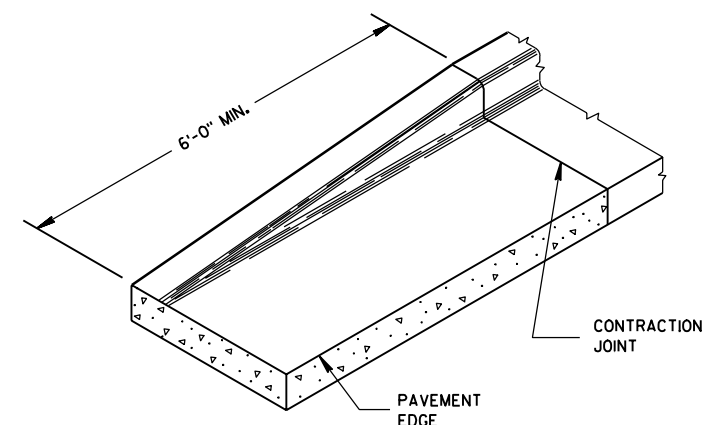
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

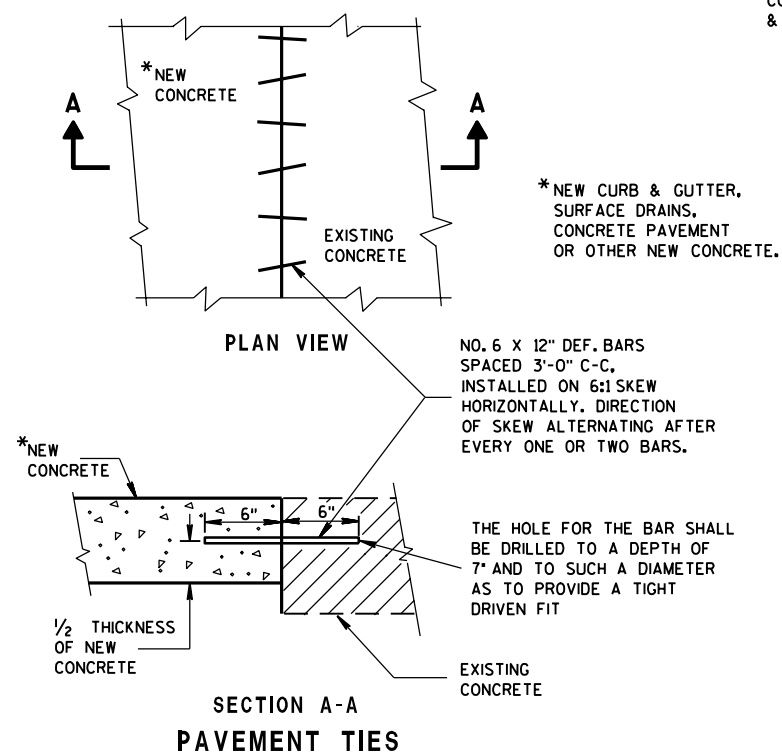
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ FOR THE PURPOSES OF SIGN PLACEMENT THE EDGE OF CURB IS TO BE 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

REVERSE SLOPE GUTTER ⑤
(TYPICAL FOR ALL CURB & GUTTER TYPES)PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER

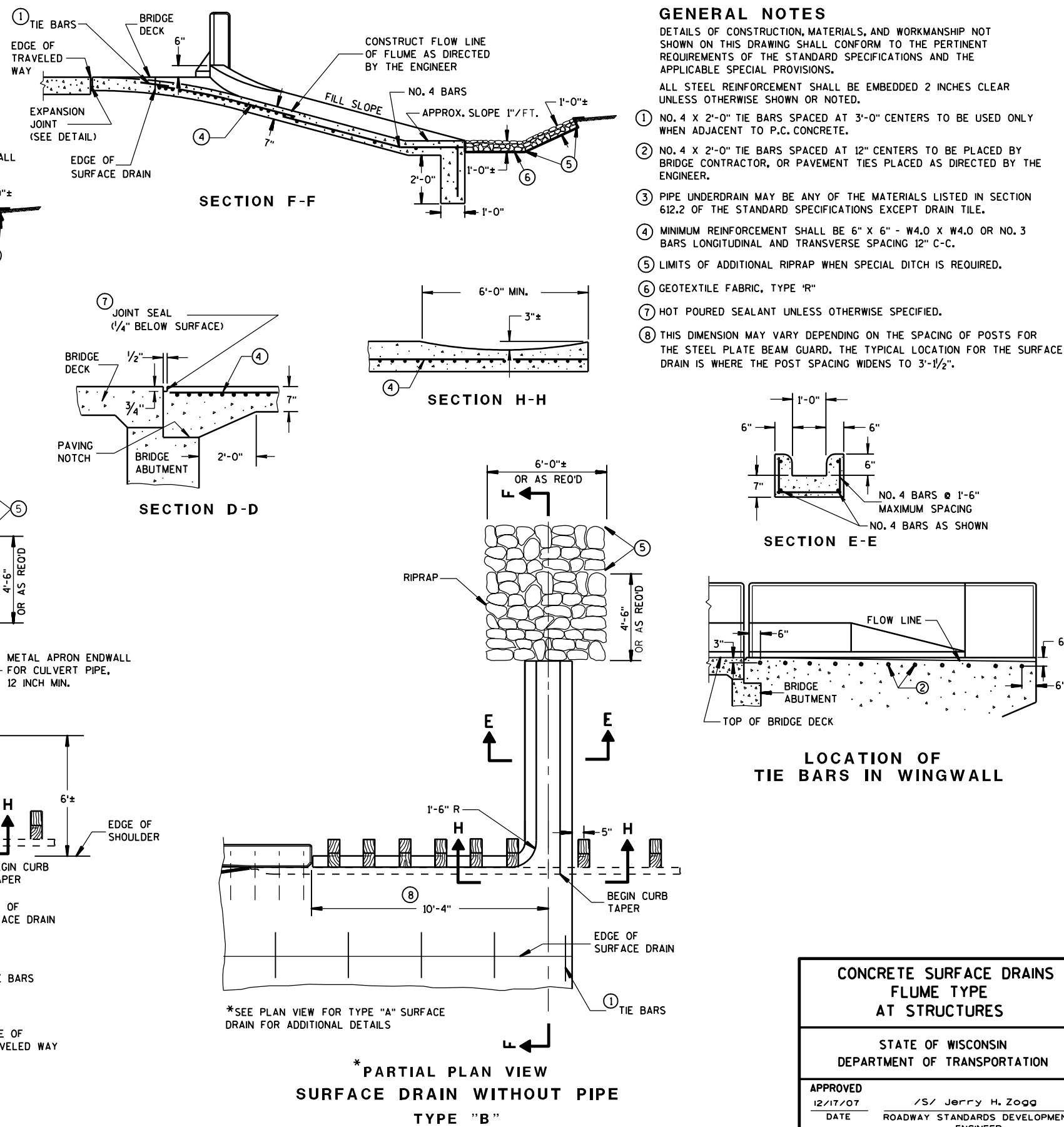
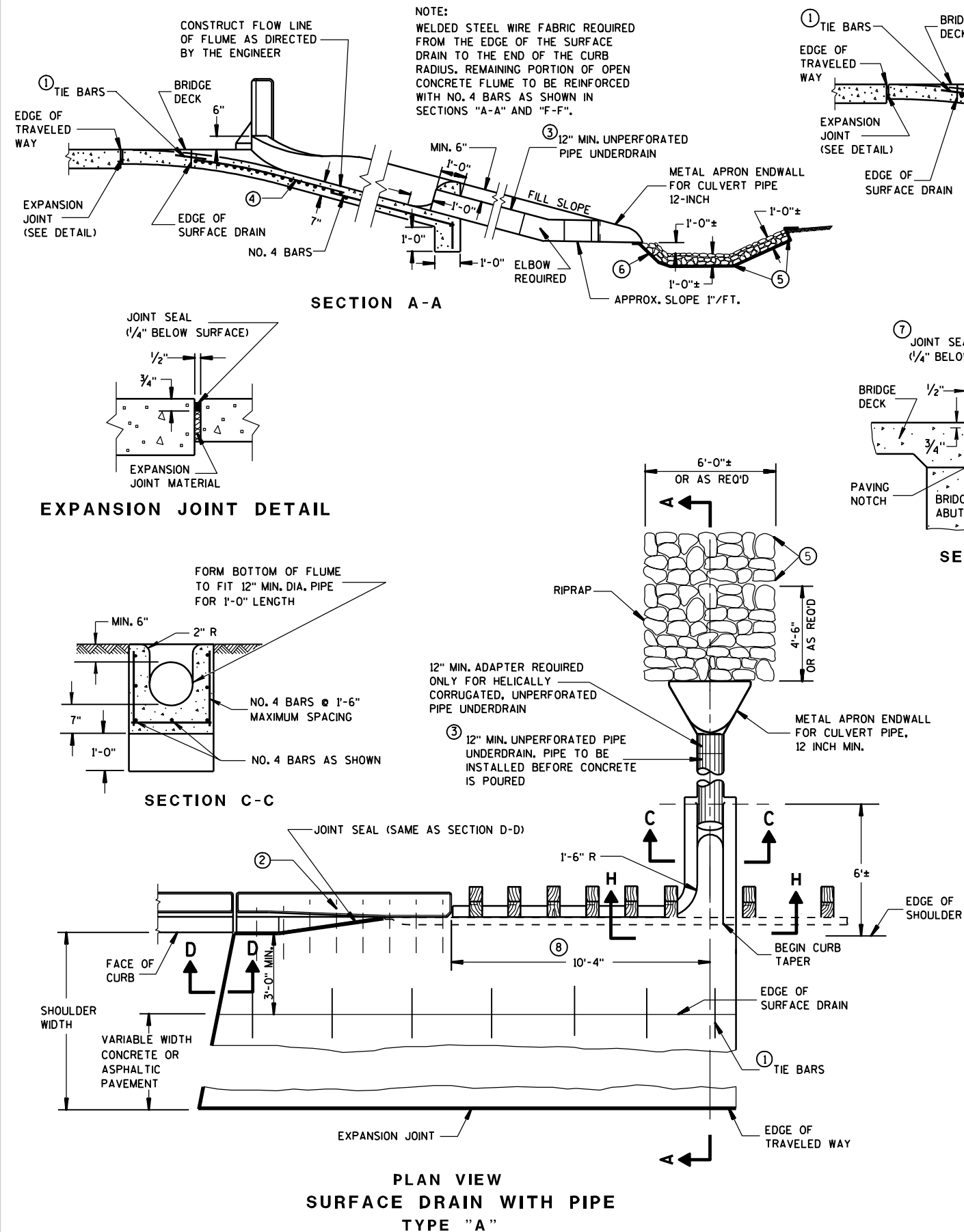
END SECTION CURB & GUTTER

SECTION A-A
PAVEMENT TIES

CONCRETE CURB, CONCRETE
CURB & GUTTER AND
PAVEMENT TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/4/08 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



NOTE:
WELDED STEEL WIRE FABRIC REQUIRED FROM THE EDGE OF THE SURFACE DRAIN TO THE END OF THE CURB RADIUS. REMAINING PORTION OF OPEN CONCRETE FLUME TO BE REINFORCED WITH NO. 4 BARS AS SHOWN IN SECTIONS "A-A" AND "F-F".

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR
UNLESS OTHERWISE SHOWN OR NOTED.

① NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

② NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR PAVEMENT TIES PLACED AS DIRECTED BY THE ENGINEER.

③ PIPE UNDERDRAIN MAY BE ANY OF THE MATERIALS LISTED IN SECTION 612.2 OF THE STANDARD SPECIFICATIONS EXCEPT DRAIN TILE.

④ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

⑤ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

(6) GEOTEXTILE FABRIC, TYPE "R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

⑧ THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1/2".

LOCATION OF TIE BARS IN WINGWALL

CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

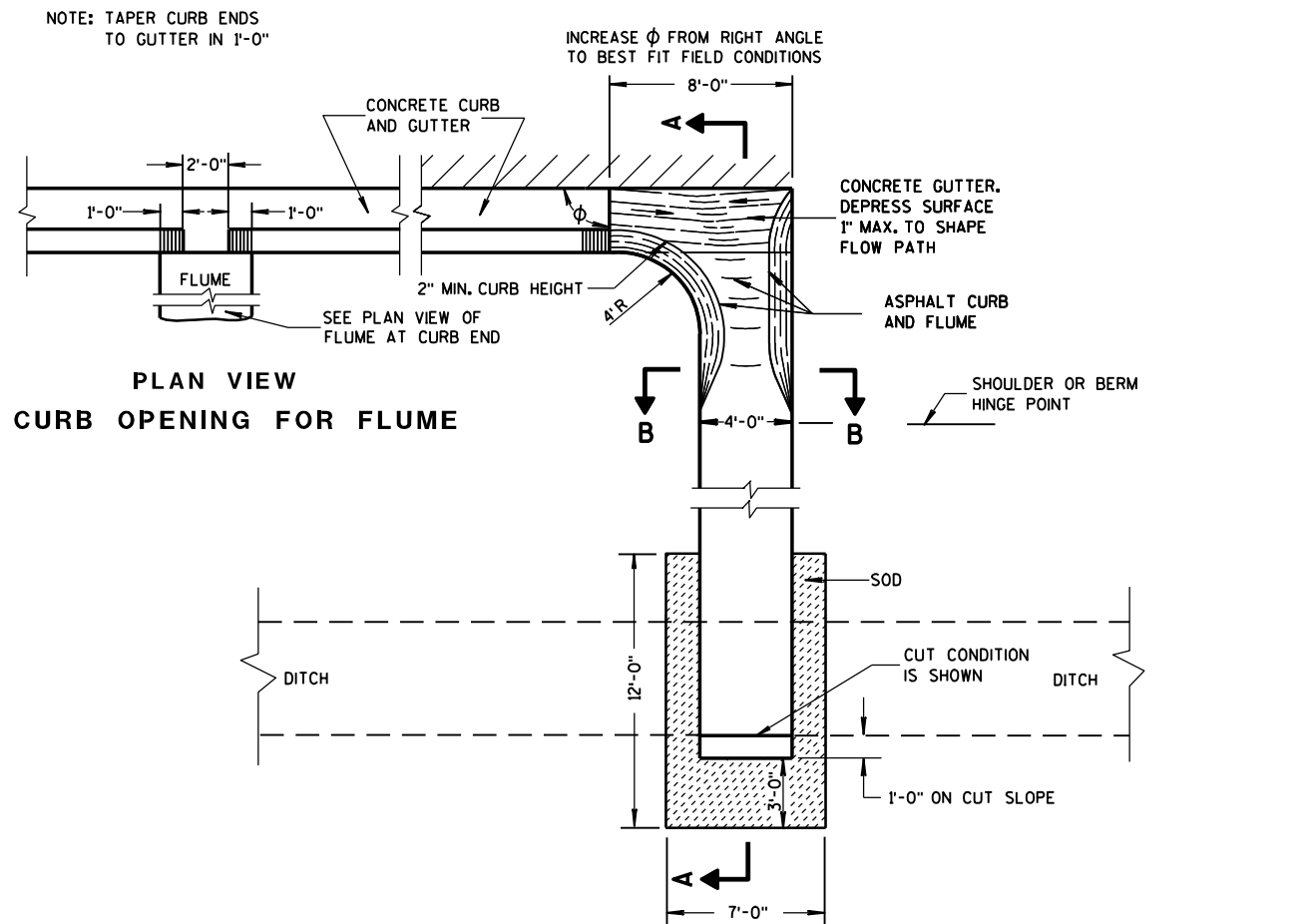
APPROVED
12/17/07
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

S.D.D. 8 D 2-5

S.D.D. 8 D 2-5

ASPHALTIC FLUME



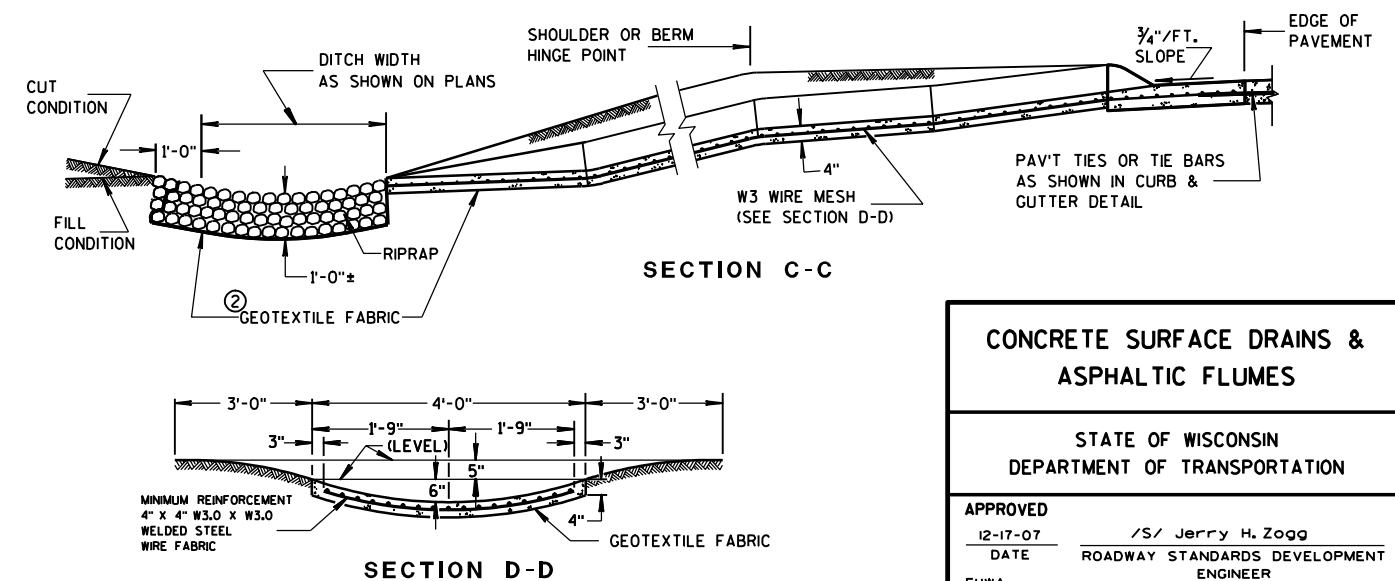
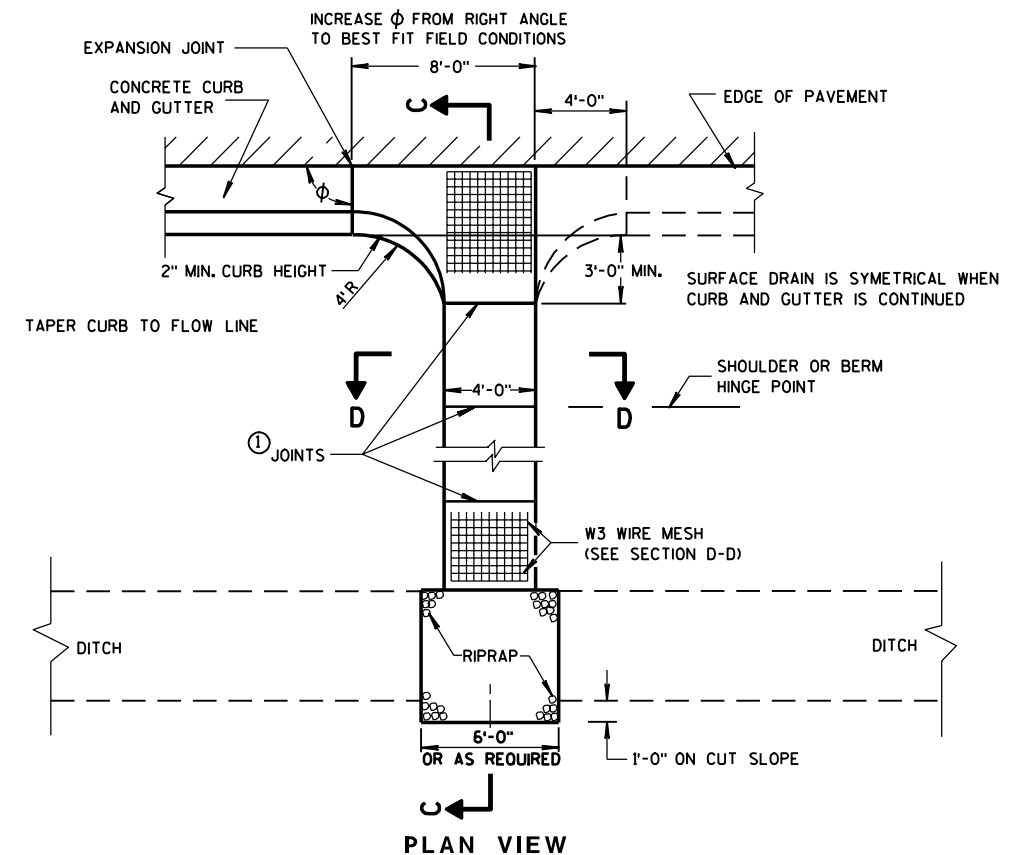
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- JOINTS SHALL BE 1/8 TO 1/4 INCH WIDE BY 1 1/2 INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

③ CONCRETE SURFACE DRAIN

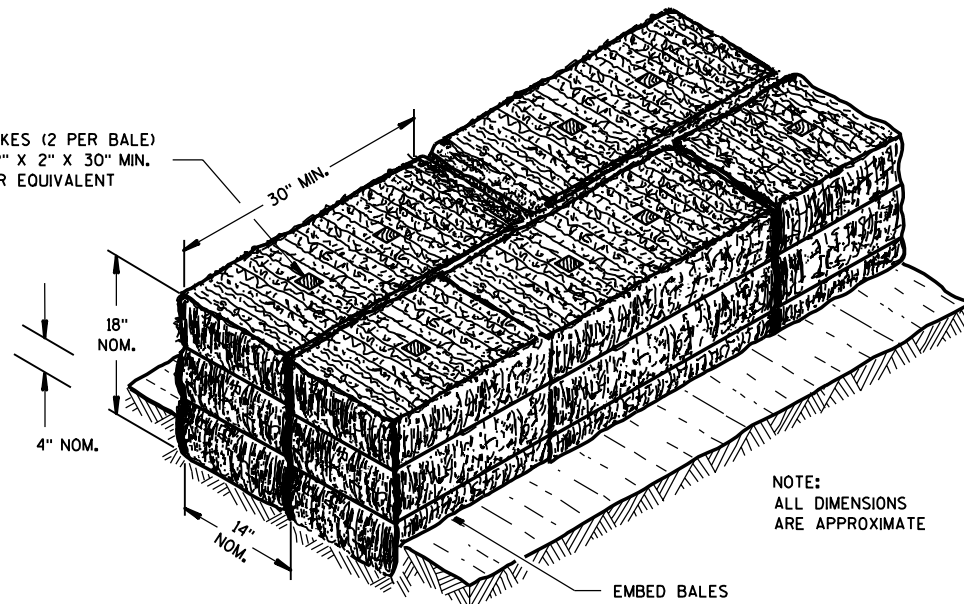


CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12-17-07 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

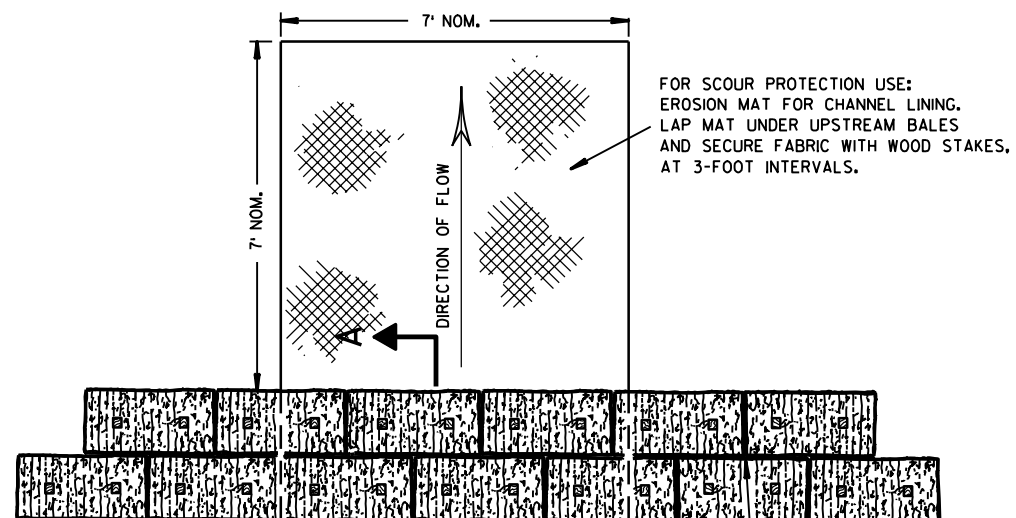
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A

NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

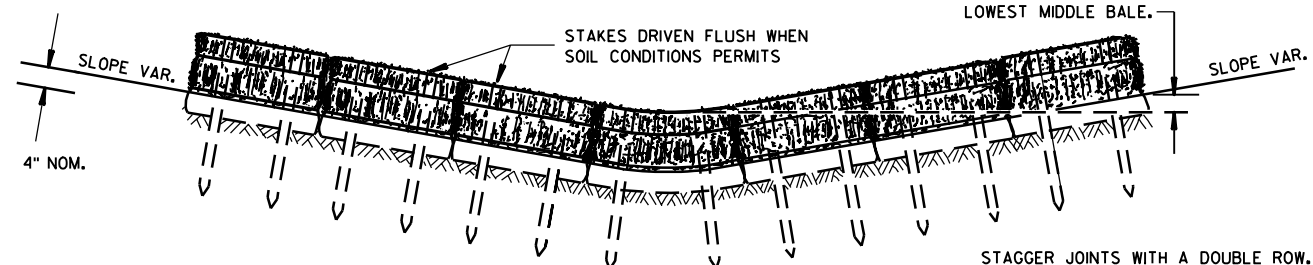
EMBED BALES



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL
BE EQUAL TO OR GREATER THAN TOP OF
LOWEST MIDDLE BALE.



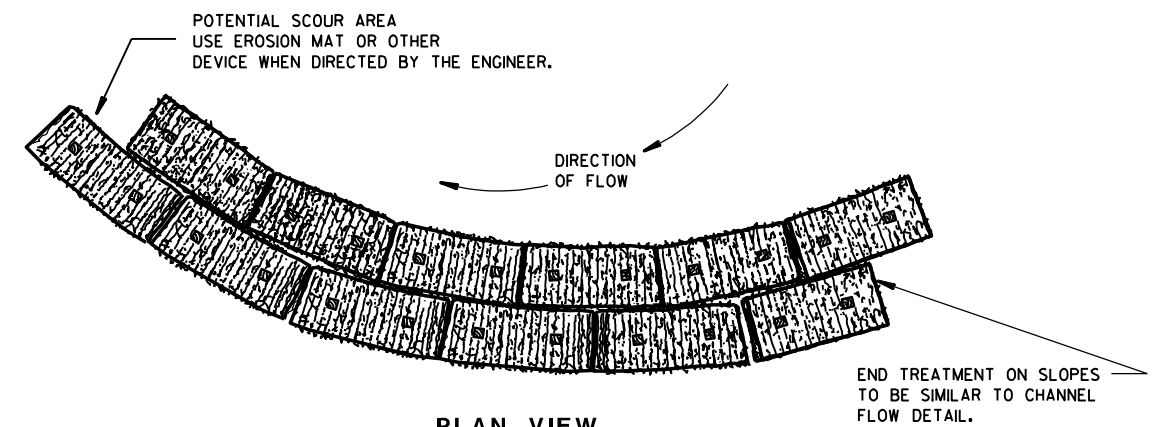
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

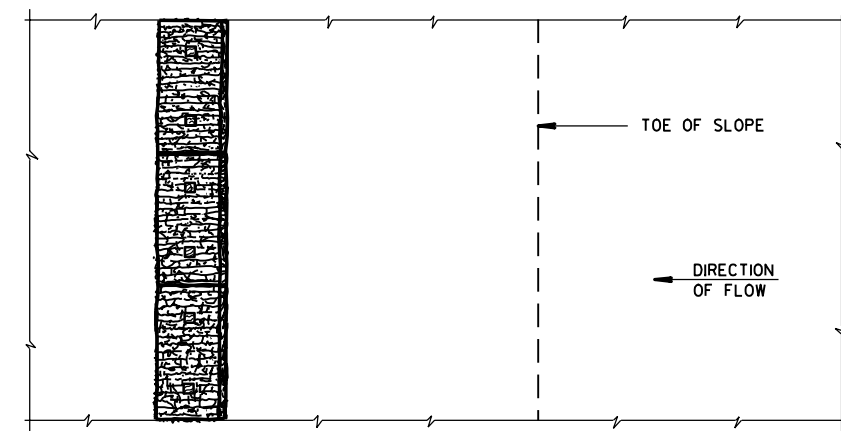
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

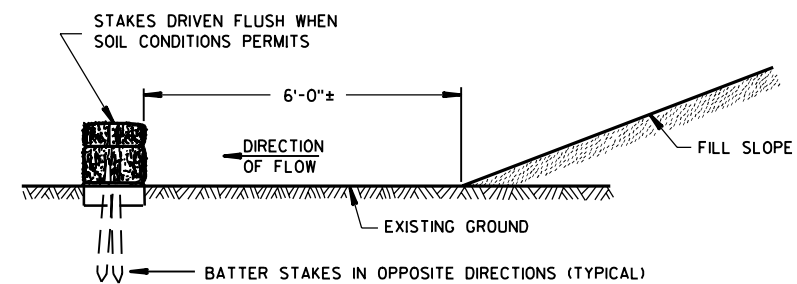


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02
DATE

CHIEF ROADWAY DEVELOPMENT ENGINEER

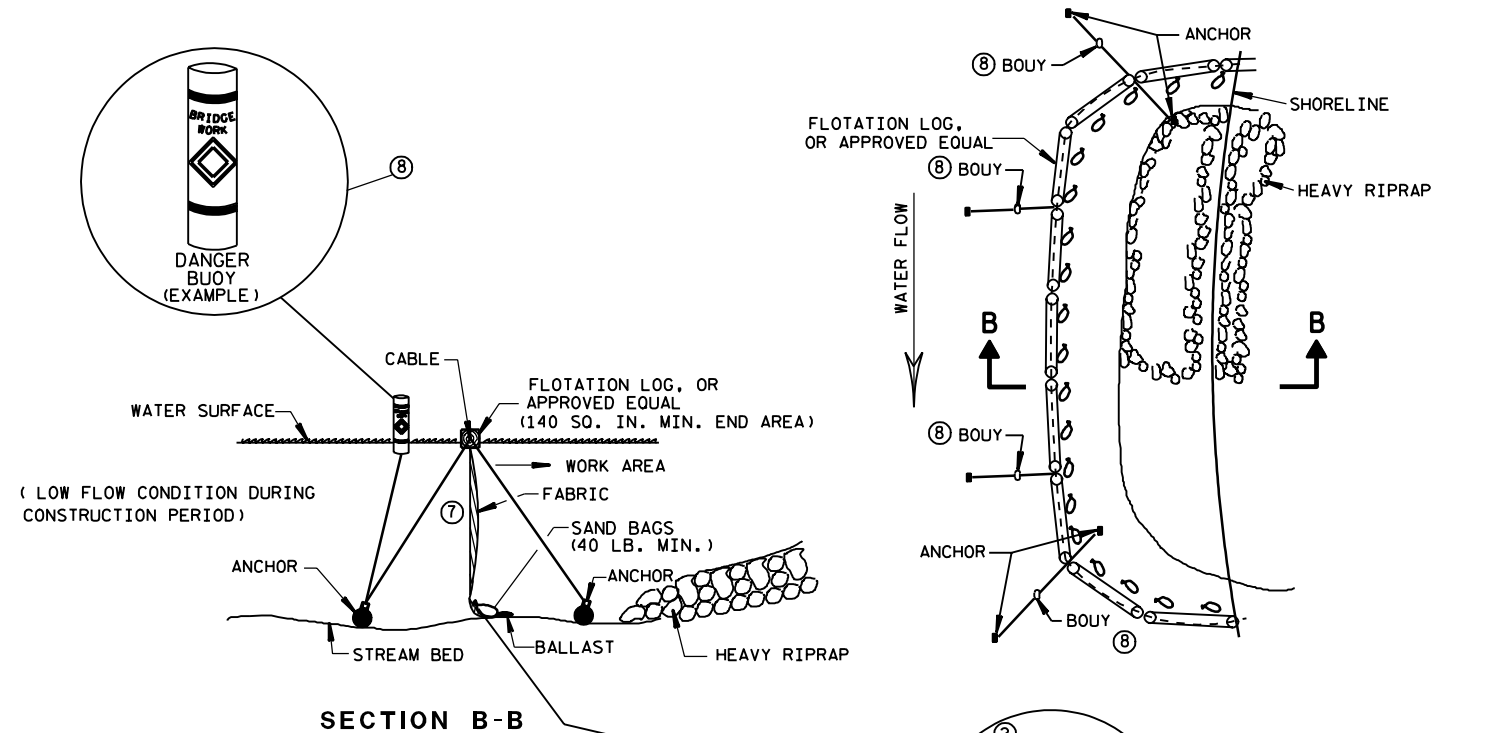
FHWA



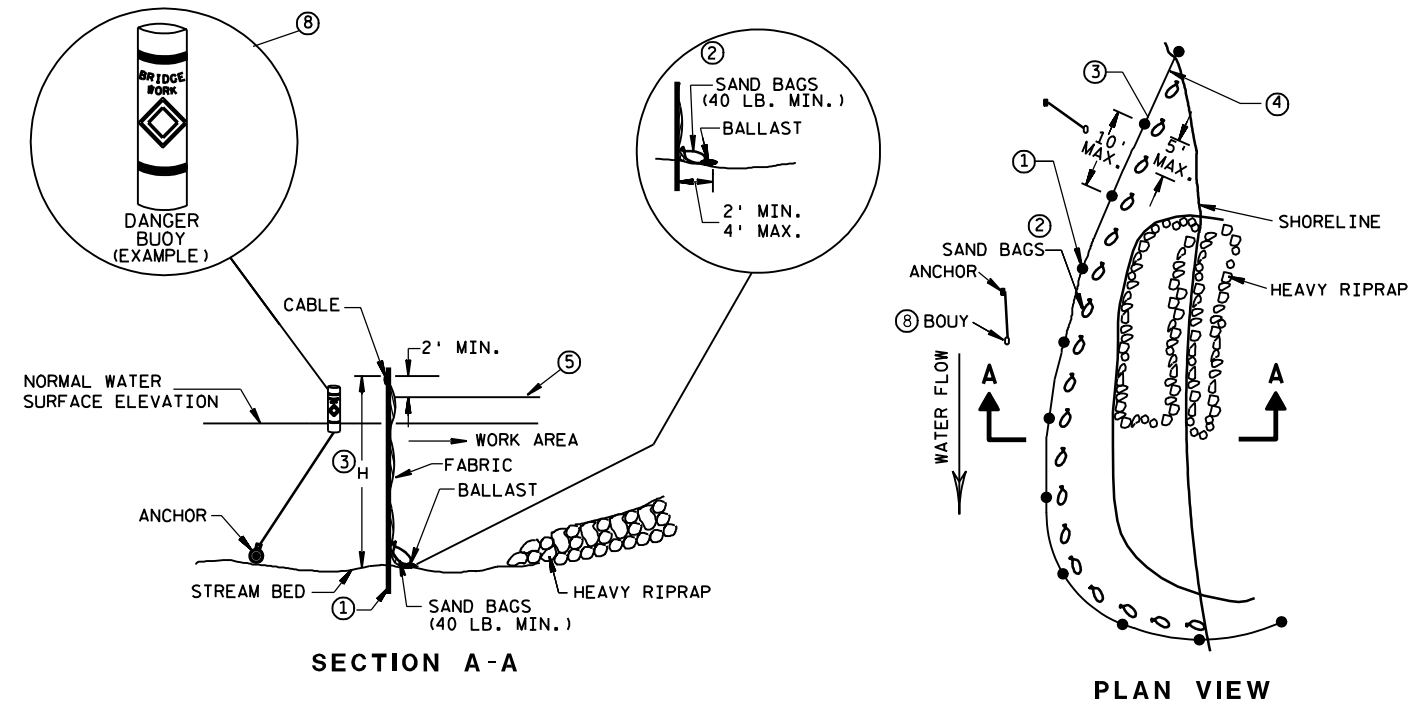
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



S.D.D. 8 E 9-6



TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



TURBIDITY BARRIER STANDARD POST INSTALLATION

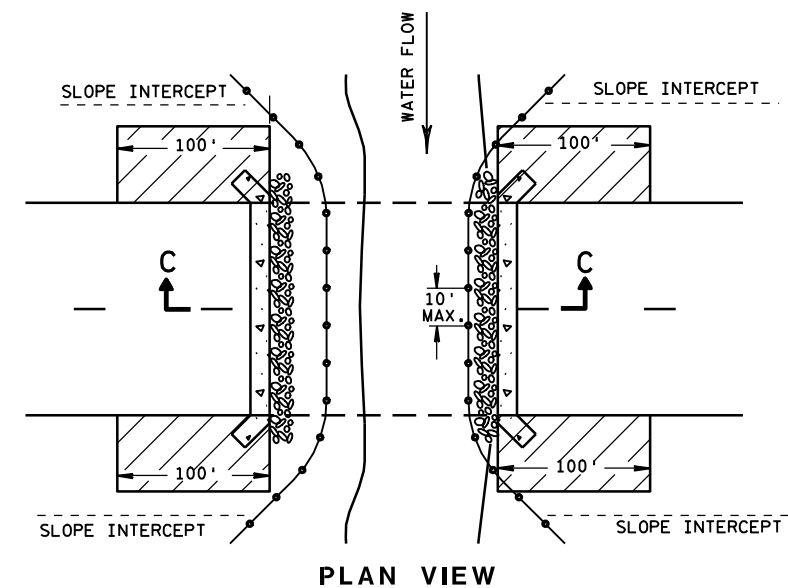
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



SECTION C-C

**TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES**

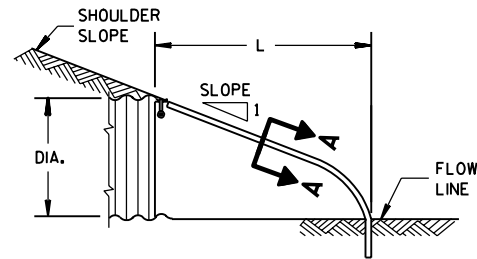
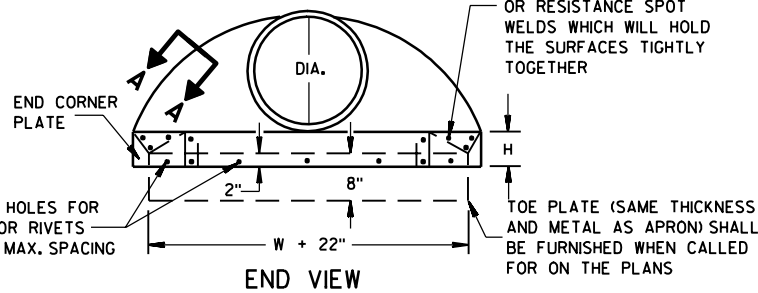
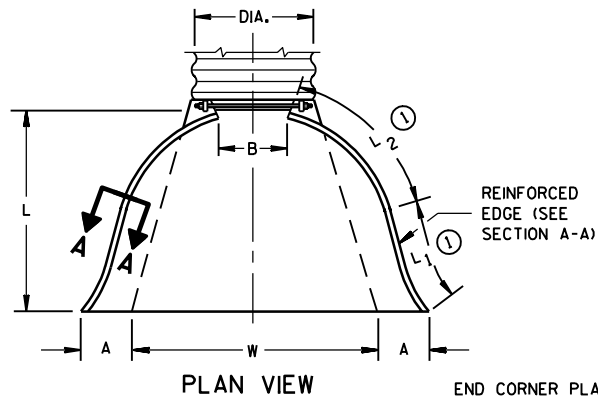
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02
DATE
FWHA
CHIEF ROADWAY DEVELOPMENT ENGINEER

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 3/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

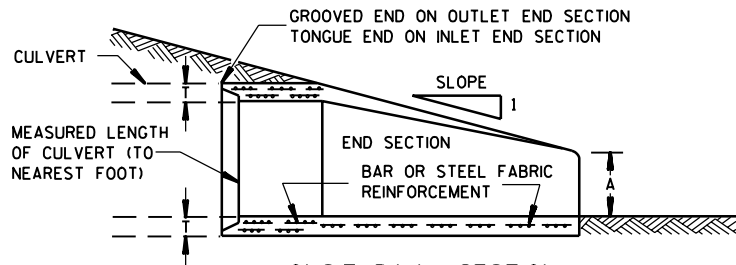
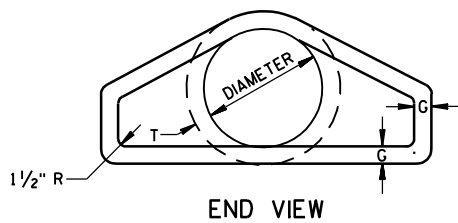
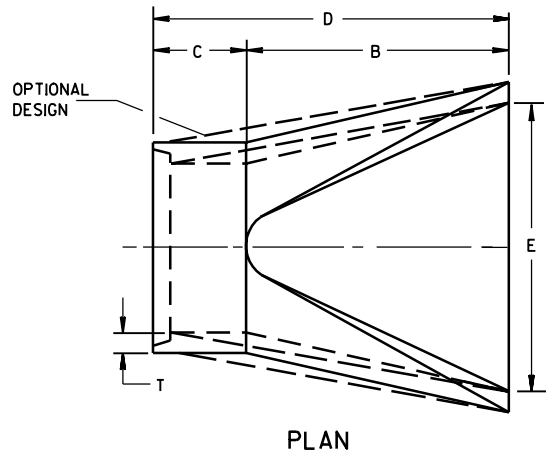
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

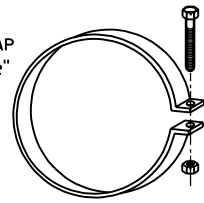
REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1	
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1	
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1	
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1	
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1	
36	4	15	63	34 3/4	97 1/4	72	4	3 to 1	
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1	
48	5	24	72	26	98	84	5	3 to 1	
54	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	2 5/8 to 1	
60	6	30-35	60	39	99	96	5	2 to 1	
66	6 1/2	24-30	72-78	21-27	99	102	5 1/2	2 to 1	
72	7	24-36	78	21	99	108	6	2 to 1	
78	7 1/2	24-36	78	21	99	114	6 1/2	2 to 1	
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1	
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1	

* MINIMUM
** MAXIMUM

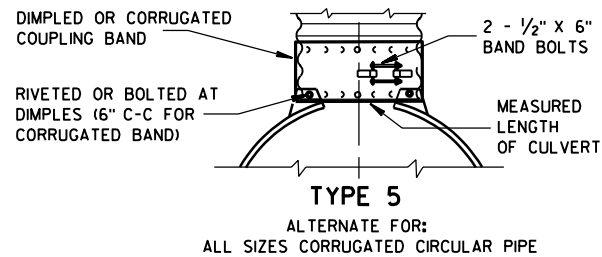
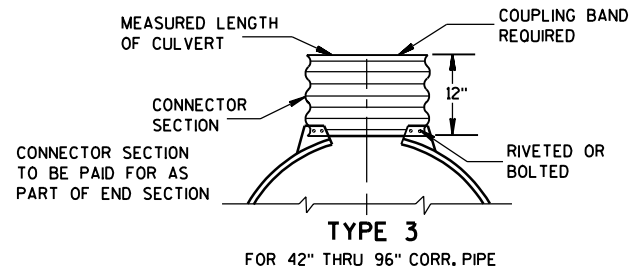
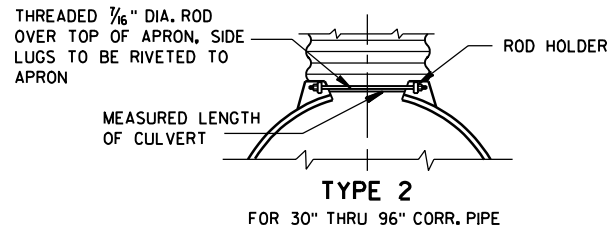
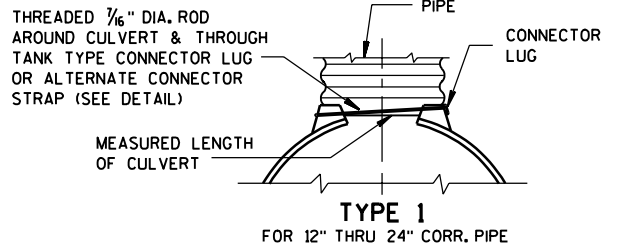


LONGITUDINAL SECTION
CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



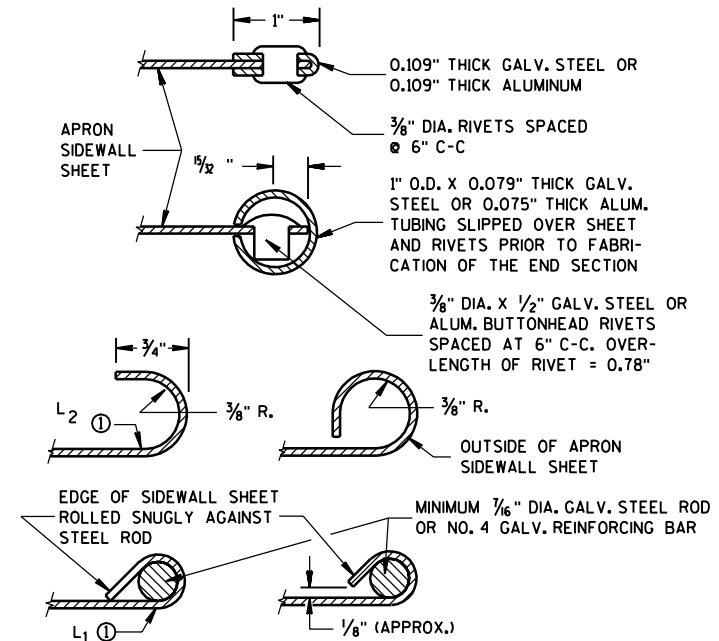
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

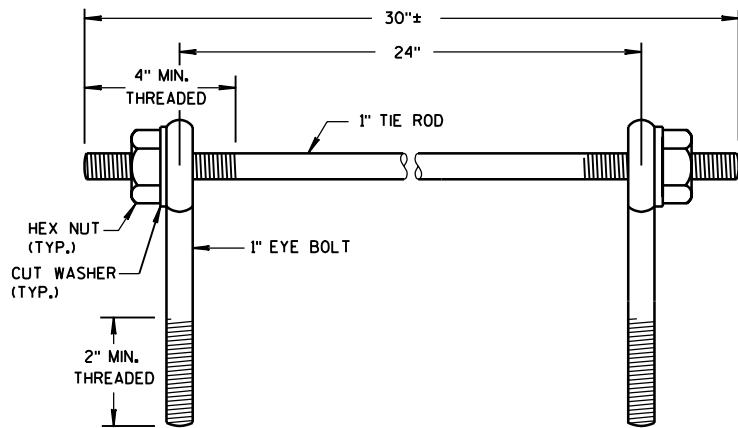
APRON ENDWALLS FOR CULVERT PIPE

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DEPARTMENT OF TRANSPORTATION

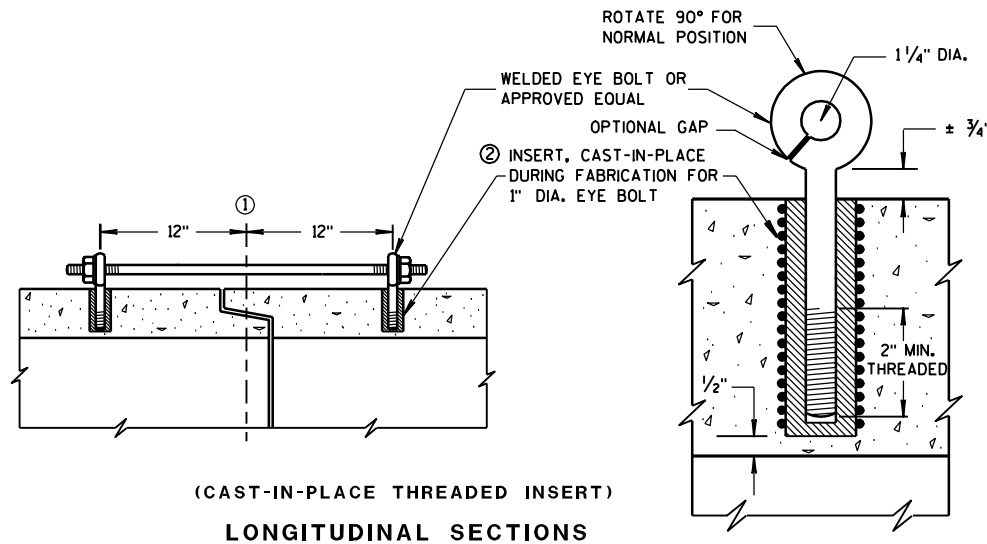
APPROVED
11/30/94
DATE

CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

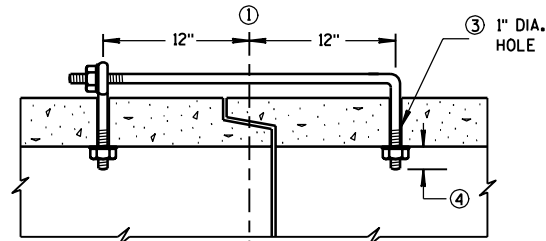
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED ON THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES. UNLESS OTHERWISE STATED IN THE CONTRACT THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE CULVERT PIPE AS INDICED ON THE PLANS AND BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO CULVERT PIPE, REINFORCED CONCRETE CULVERT PIPE, OR REINFORCED CONCRETE PIPE CATTLE PASS.

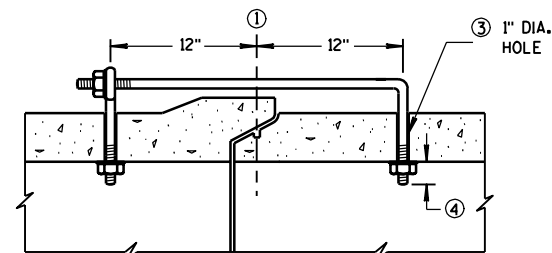
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

- ① C. OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM C. OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)
LONGITUDINAL SECTION

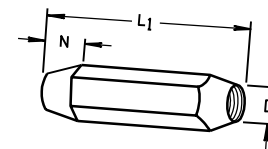
EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	

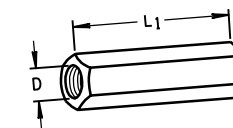
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/8

DIMENSIONS SHOWN ARE IN INCHES



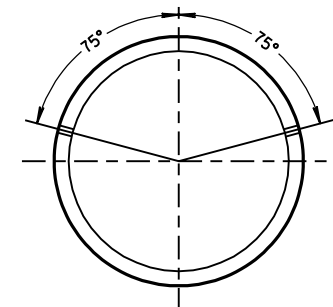
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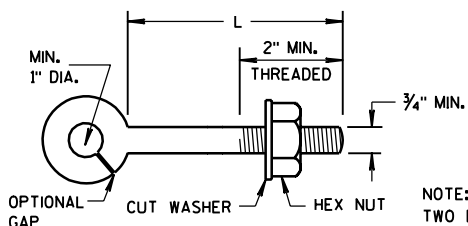
RIGHT AND LEFT THREADS

SLEEVE NUTS



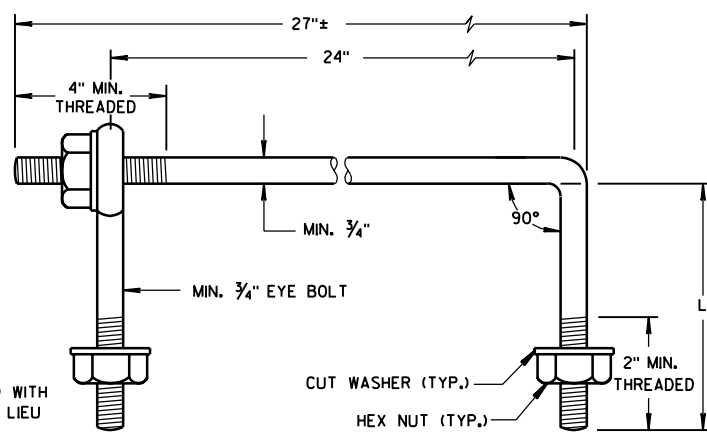
PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



EYE BOLT

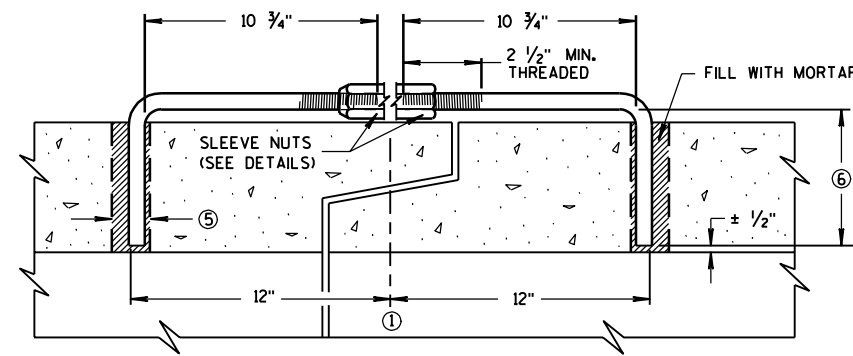
NOTE:
TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)

JOINT TIES FOR CONCRETE PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

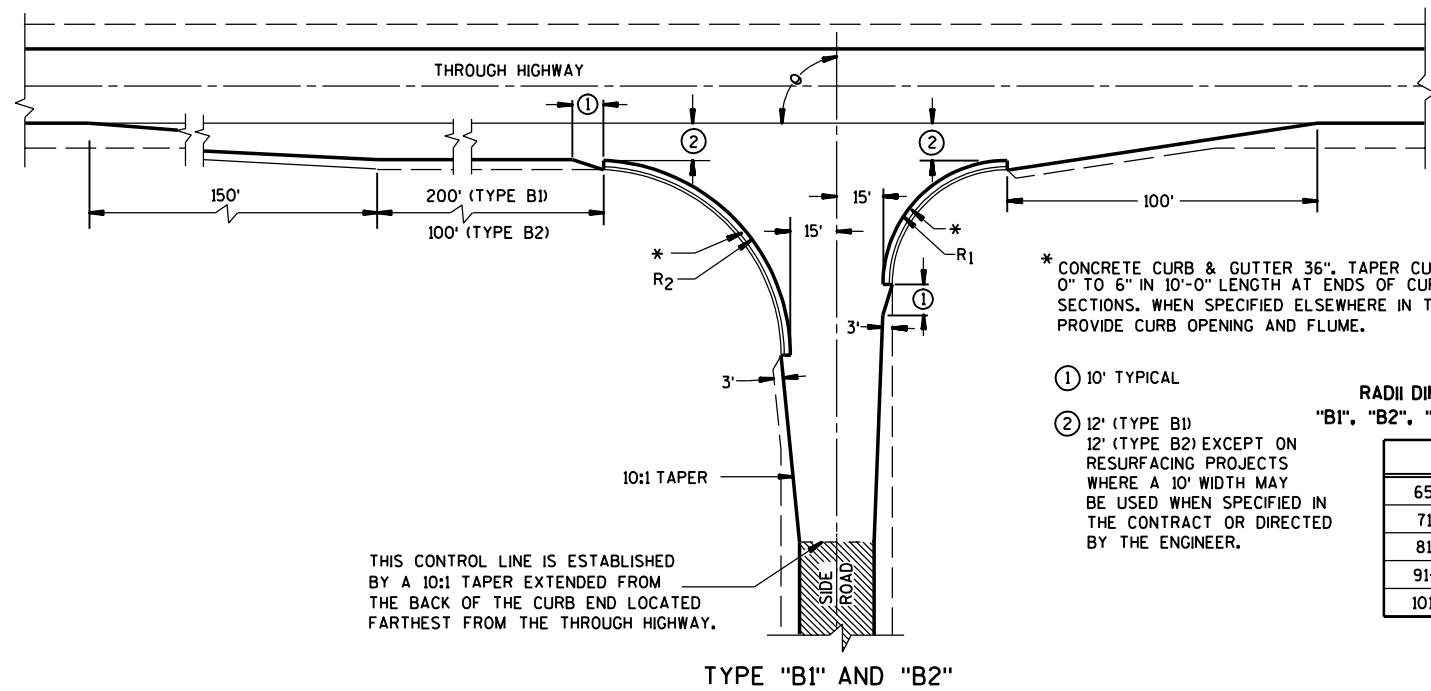
APPROVED

12/17/07

DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

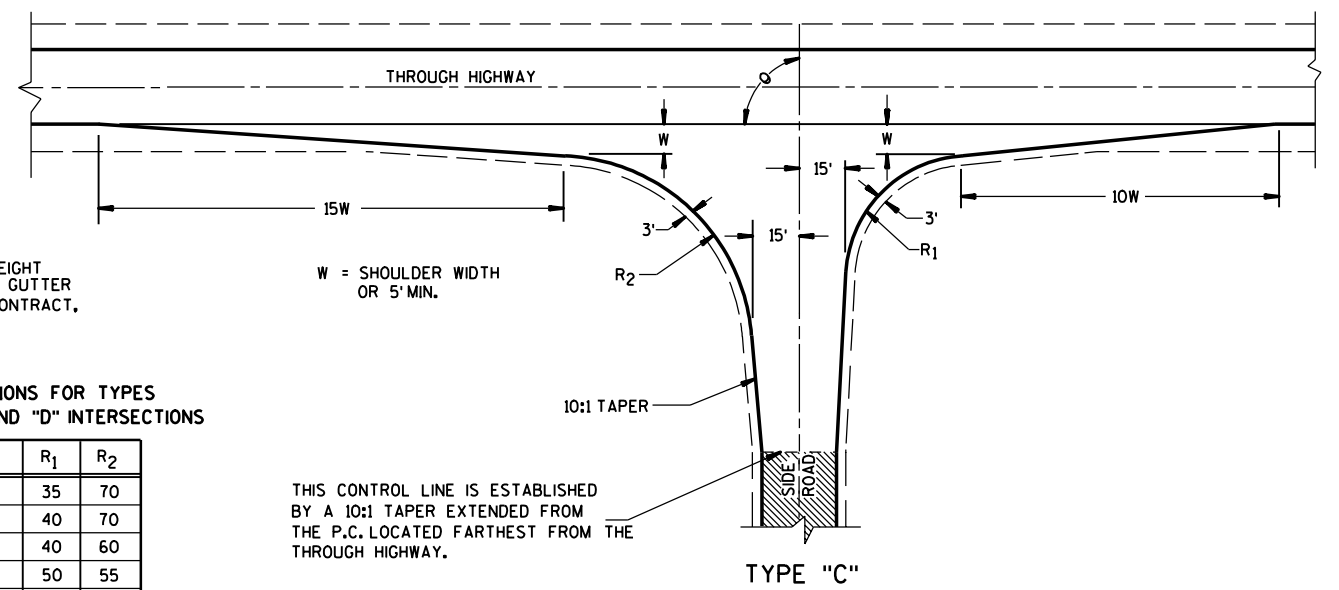


* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

- ① 10' TYPICAL
- ② 12' (TYPE B1)
12' (TYPE B2) EXCEPT ON RESURFACING PROJECTS WHERE A 10' WIDTH MAY BE USED WHEN SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.

RADI DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

0	R ₁	R ₂
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



W = SHOULDER WIDTH OR 5' MIN.

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

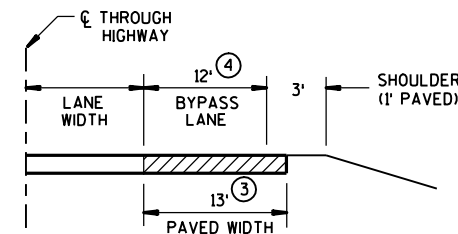
SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

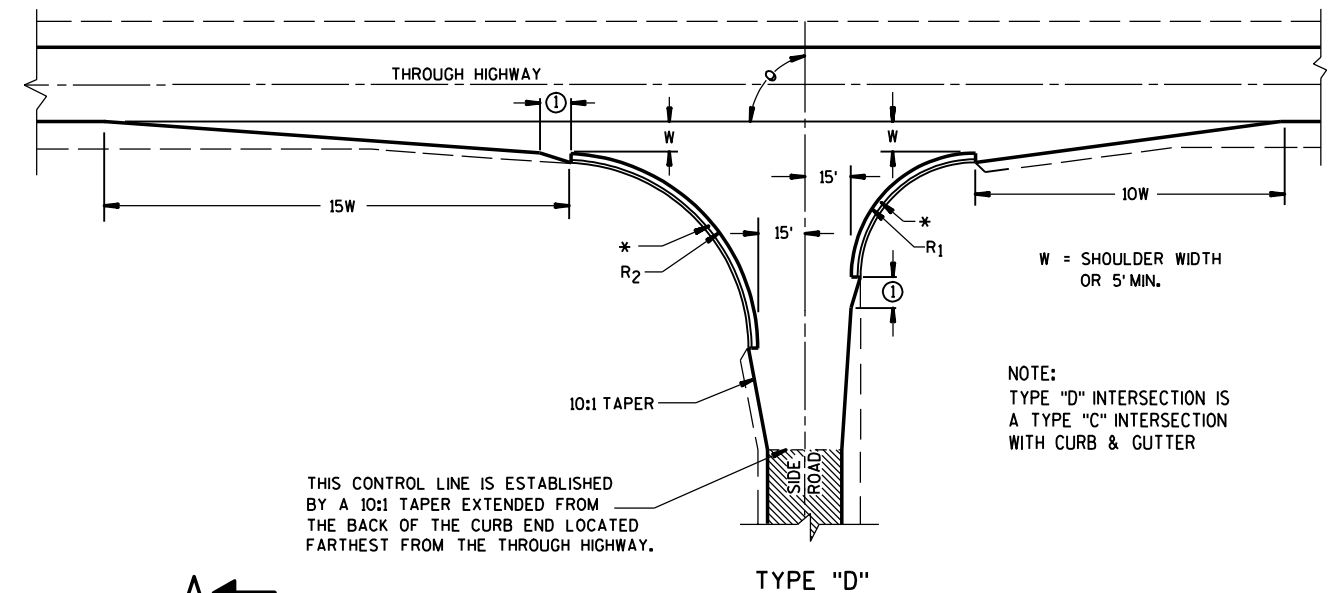
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING SURFACE

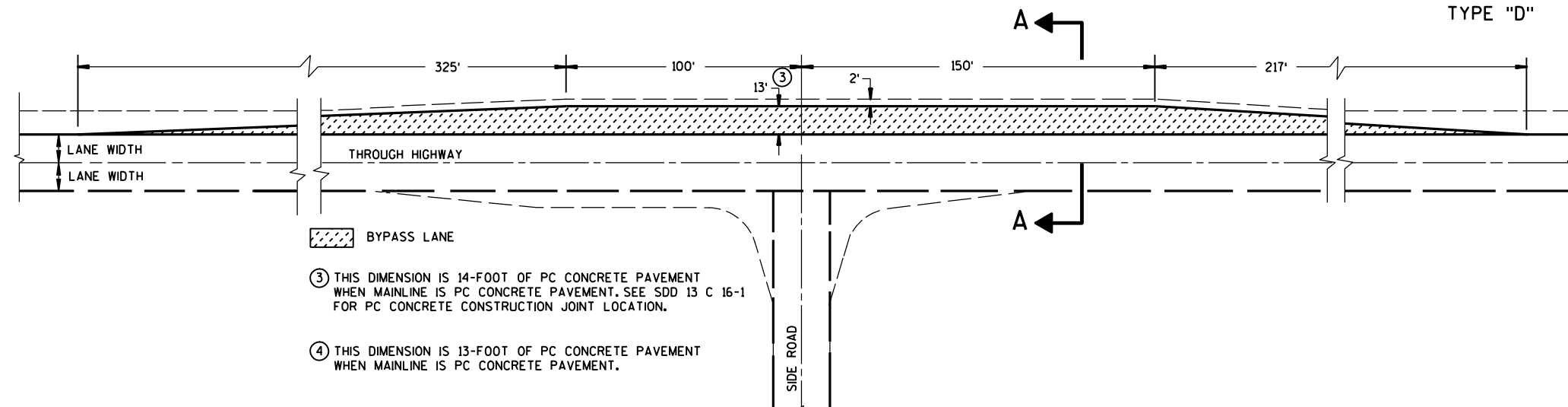


SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



W = SHOULDER WIDTH OR 5' MIN.

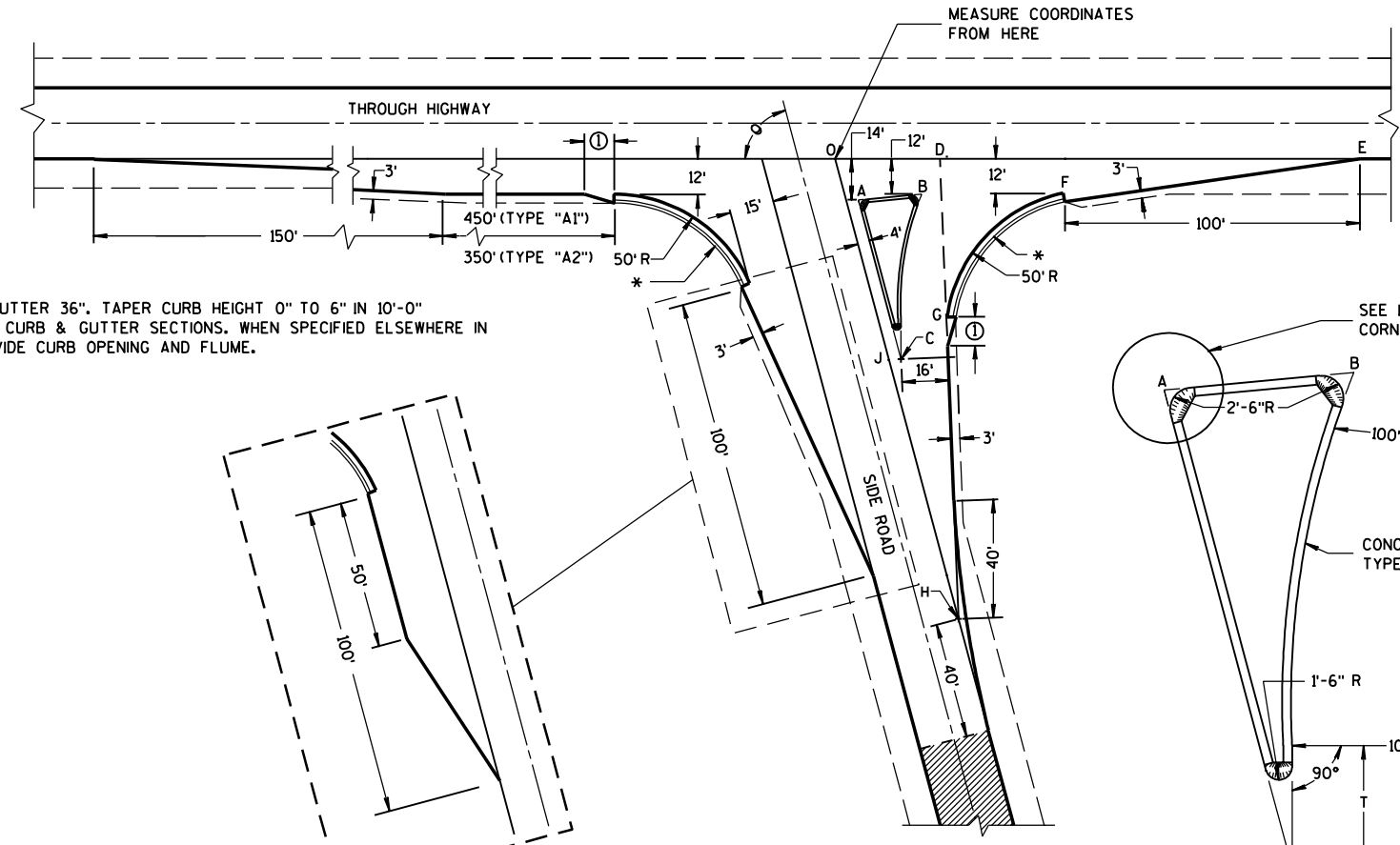
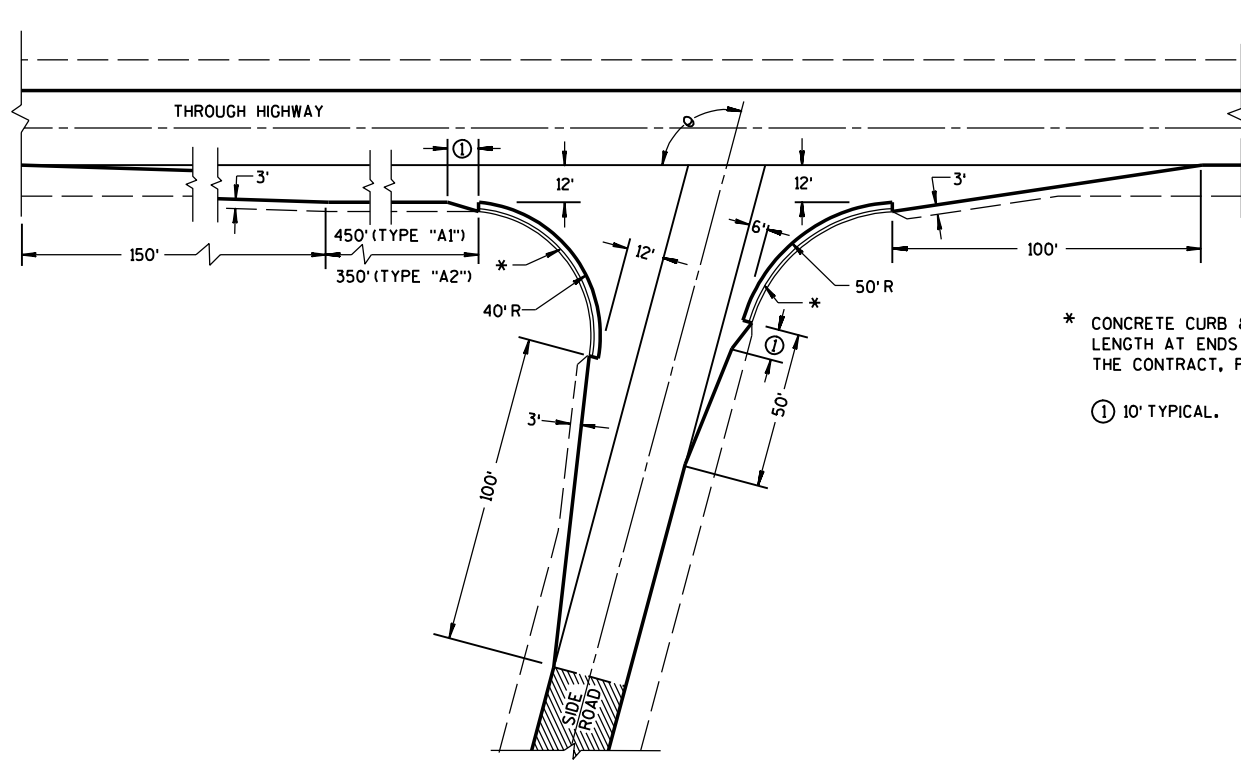
NOTE:
TYPE "D" INTERSECTION IS A TYPE "C" INTERSECTION WITH CURB & GUTTER



TEE INTERSECTION BYPASS LANE DETAIL

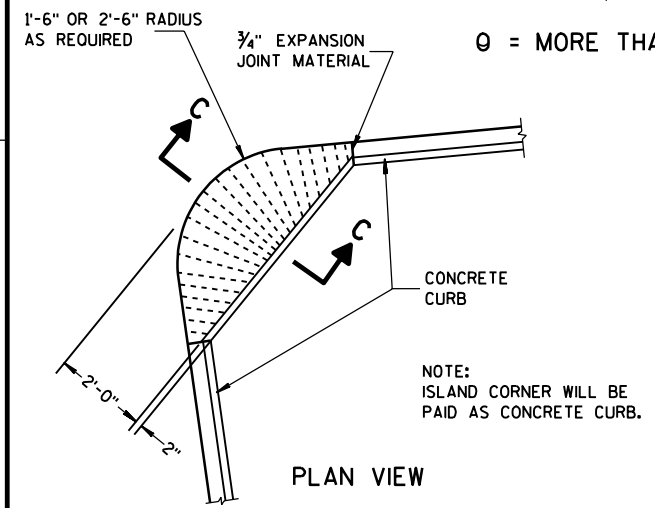
AT-GRADE SIDE ROAD
INTERSECTION, TYPES "B1", "B2", "C"
AND "D" AND TEE INTERSECTION
BYPASS LANE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10' TYPICAL.



$\theta = \text{MORE THAN } 80^\circ$

EXISTING SURFACE

SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
 $\theta = \text{ACUTE ANGLES } 70^\circ \text{ OR LESS}$

$\theta = \text{ACUTE ANGLES } 80^\circ \text{ OR LESS}$

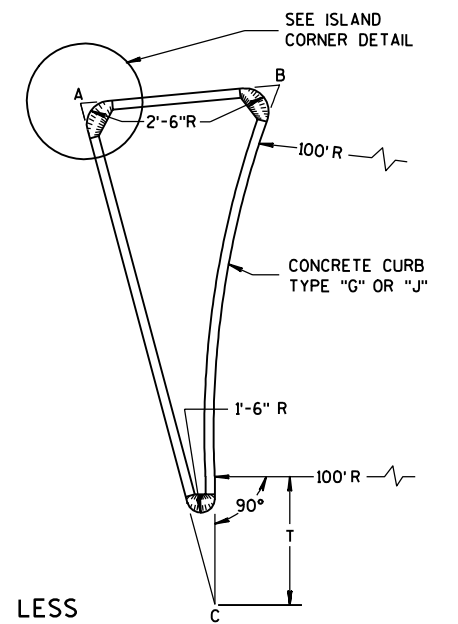
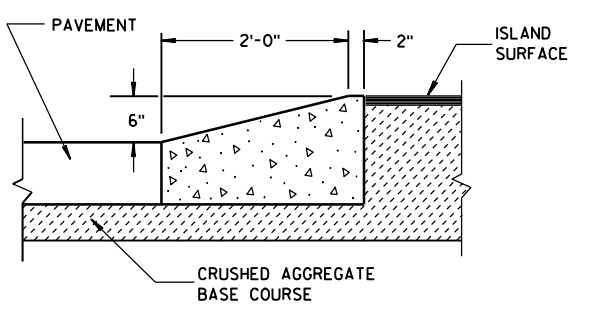


TABLE OF DIMENSIONS FOR
 VARIABLE SIDE ROAD INTERSECTION ANGLES
 (INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O")								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7	44.9	46.4	41.9	205.0	104.6	64.0	85.0	32.3	67.4	4.9	85.9	169.9
	-14.0	-12.0	-72.4	0.0	0.0	-12.0	-75.5	-147.1					
65	10.9	39.0	37.8	39.4	196.1	95.7	54.1	70.5	28.2	63.6	8.5	80.9	166.9
	-14.0	-12.0	-71.6	0.0	0.0	-12.0	-71.5	-151.3					
70	9.4	33.9	29.8	37.4	188.3	87.8	45.6	56.1	24.6	59.7	11.5	76.1	164.1
	-14.0	-12.0	-70.1	0.0	0.0	-12.0	-67.5	-154.2					
75	7.9	29.3	22.3	35.7	181.2	80.7	38.2	41.8	21.5	55.8	13.8	71.4	161.4
	-14.0	-12.0	-67.9	0.0	0.0	-12.0	-63.4	-155.9					
80	6.5	25.4	15.6	34.4	174.8	74.4	31.8	27.6	18.9	52.0	15.6	66.9	158.9
	-14.0	-12.0	-65.2	0.0	0.0	-12.0	-59.3	-156.5					

TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS



SECTION C-C

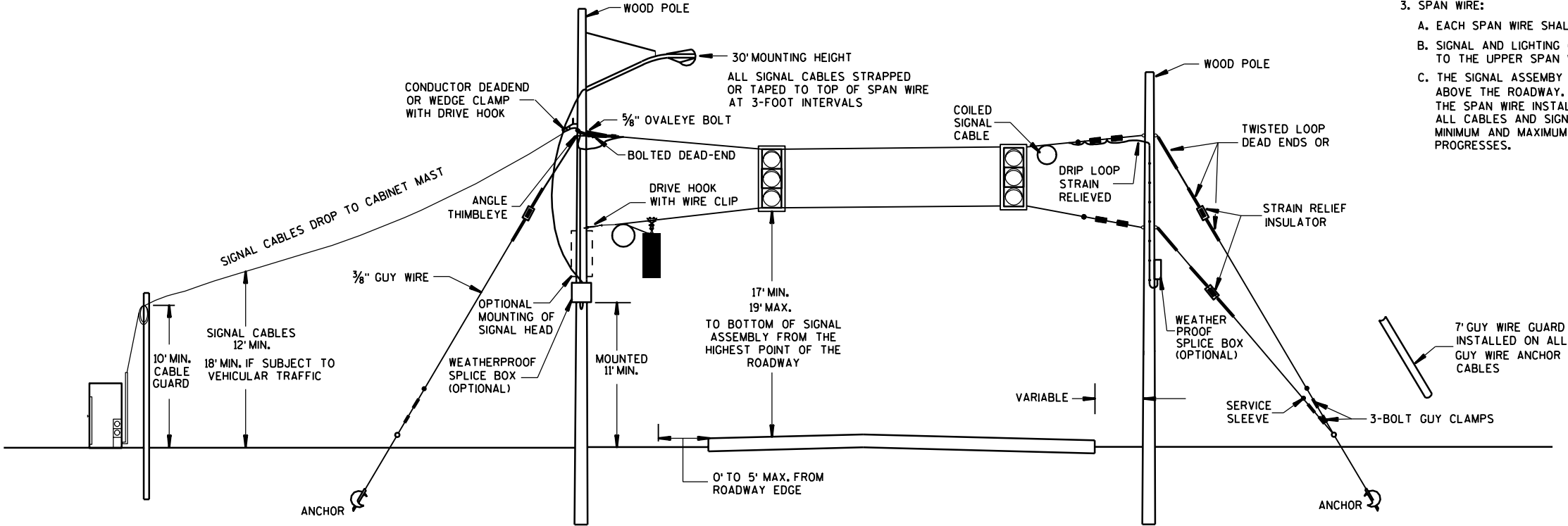
ISLAND CORNER DETAIL
 (TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

AT-GRADE SIDE ROAD
 INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 12/17/02
 DATE
 FHWA

CHIEF ROADWAY DEVELOPMENT ENGINEER



SPAN WIRE
TEMPORARY SIGNALS

MINIMUM POLE LENGTHS	POLE BURIEL DEPTHS
25'	5'
30'	6'
35'	7'
40'	8'
45'	9'

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

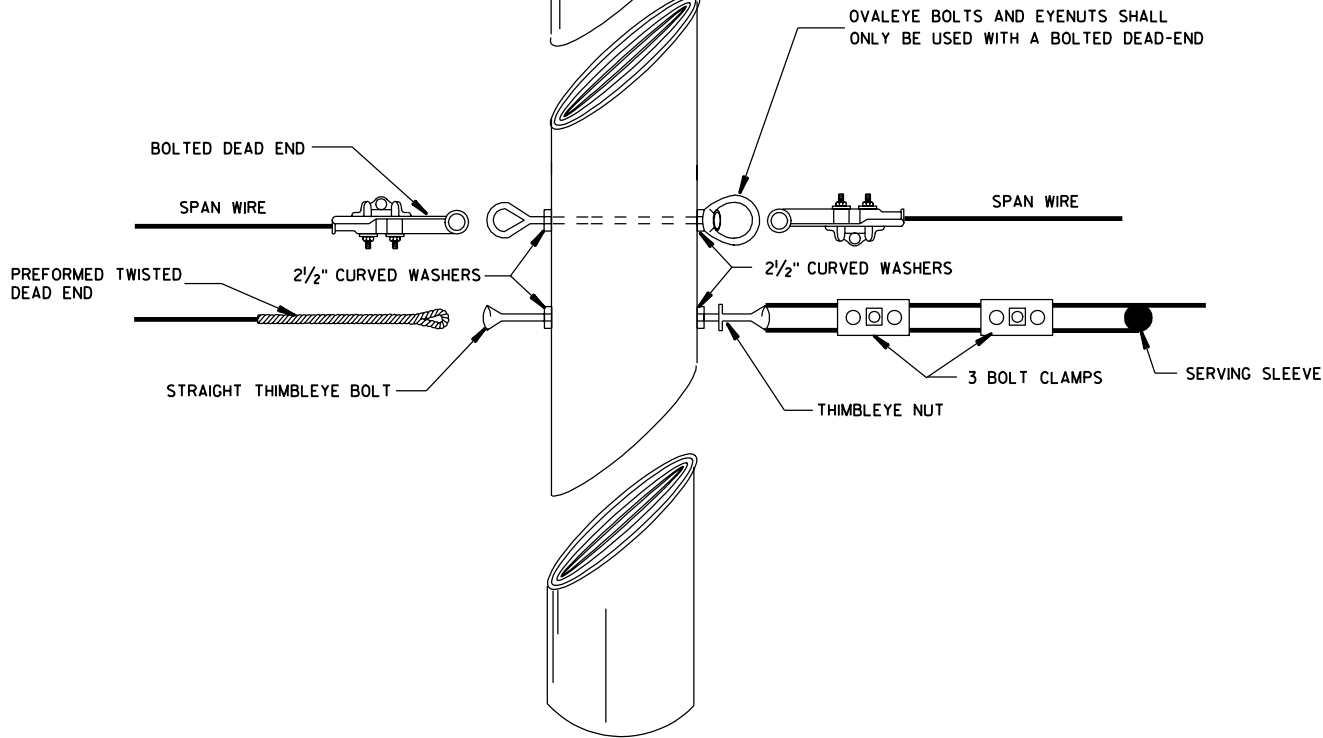
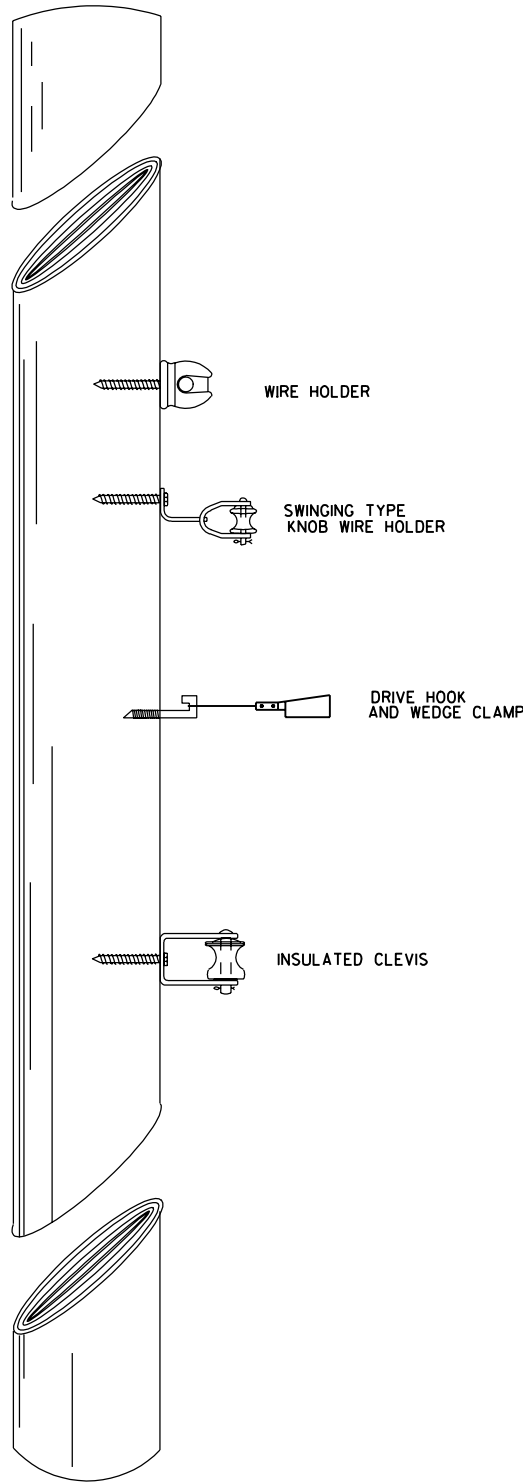
- WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
- SIGNAL FACES:
 - ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
 - EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
 - EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
 - NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY, IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
- SPAN WIRE:
 - EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
 - SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
 - THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

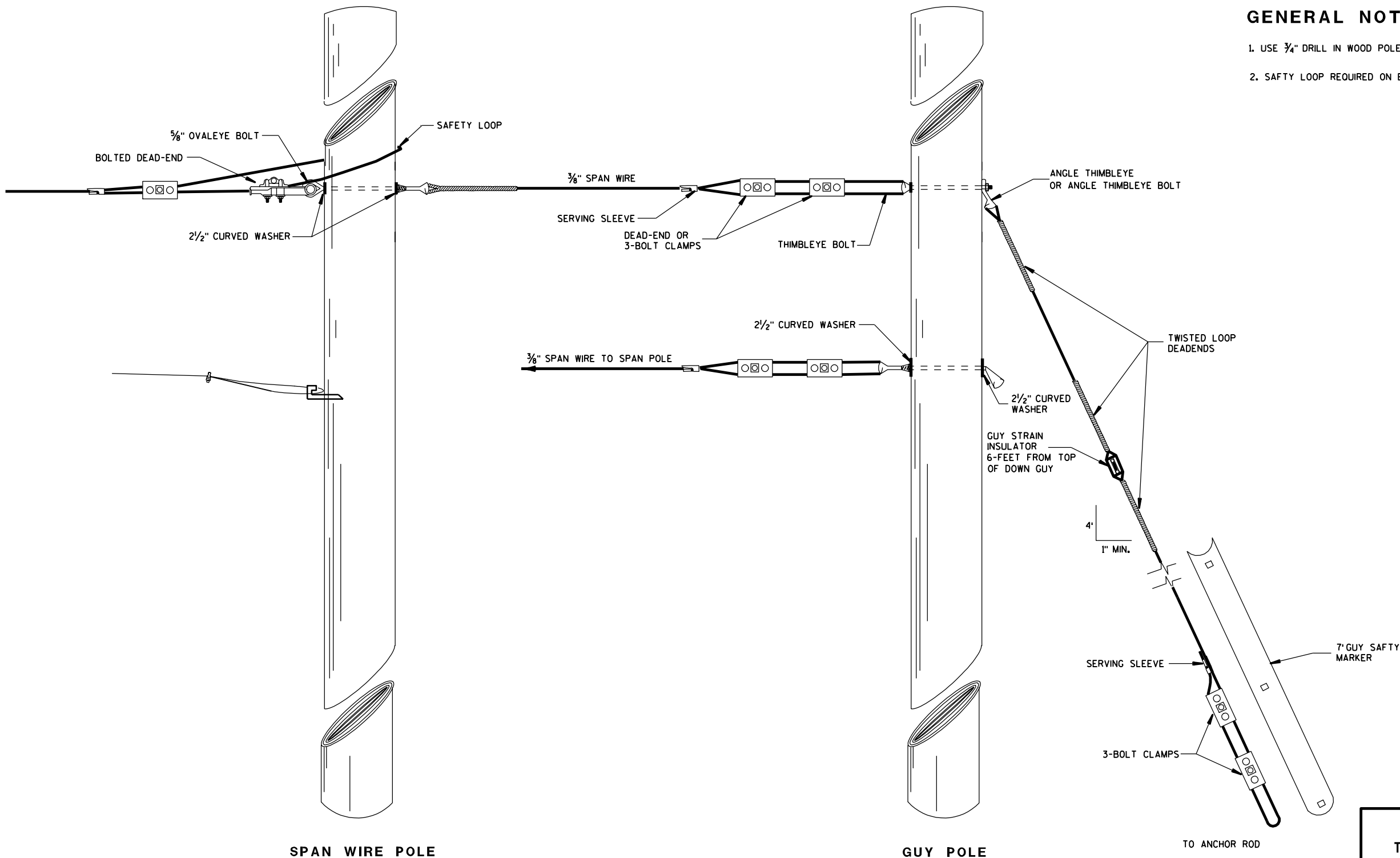
APPROVED
5-24-07 /S/ Balu Ananthanarayanan
DATE CHIEF ELECTRICAL ENGINEER FOR
FHWA HIGHWAYS

TYPICAL CABLE HANGERS



TYPICAL DEAD-ENDING

SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-24-07 DATE	/S/ Balu Ananthanarayanan CHIEF ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA	

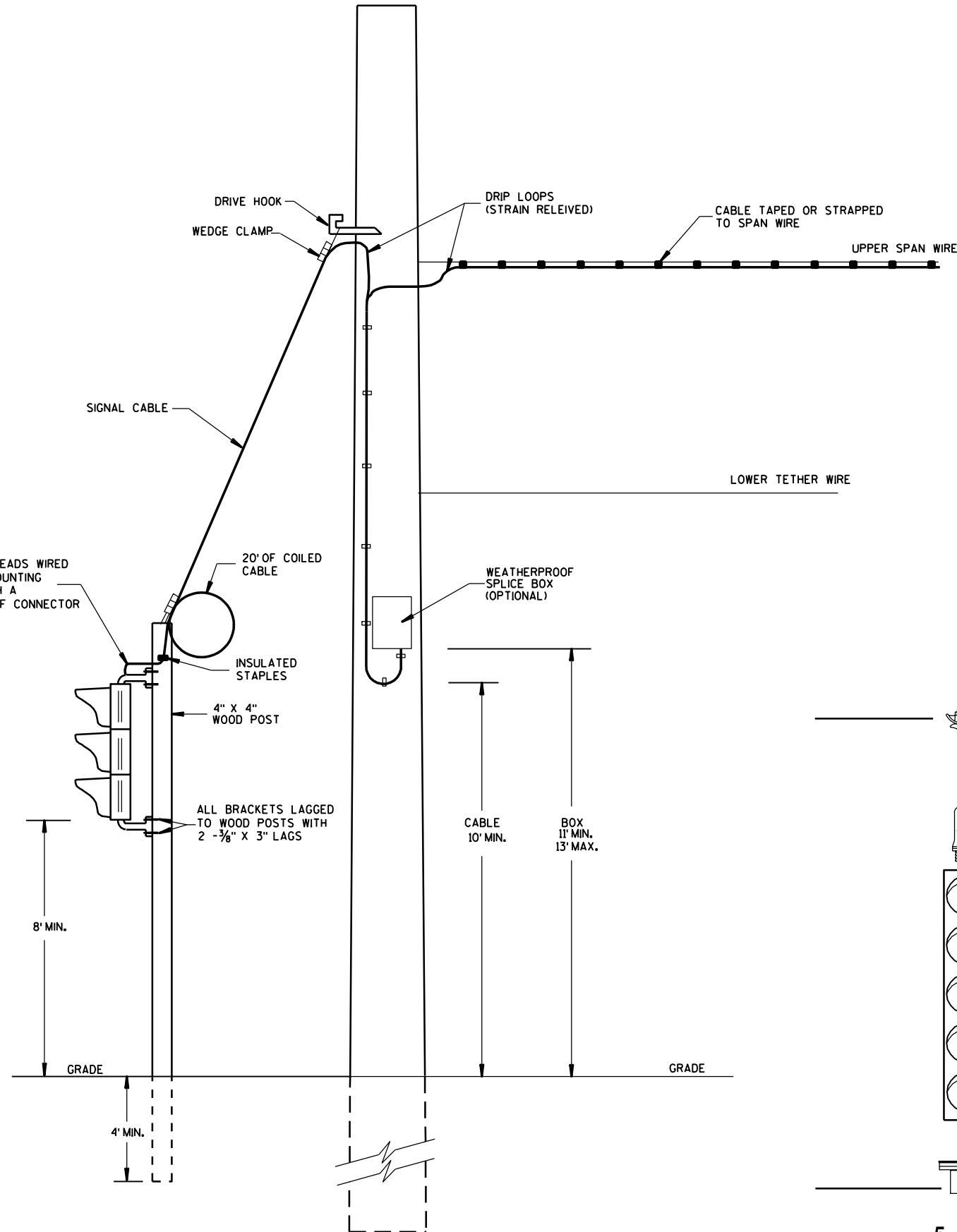


GENERAL NOTES

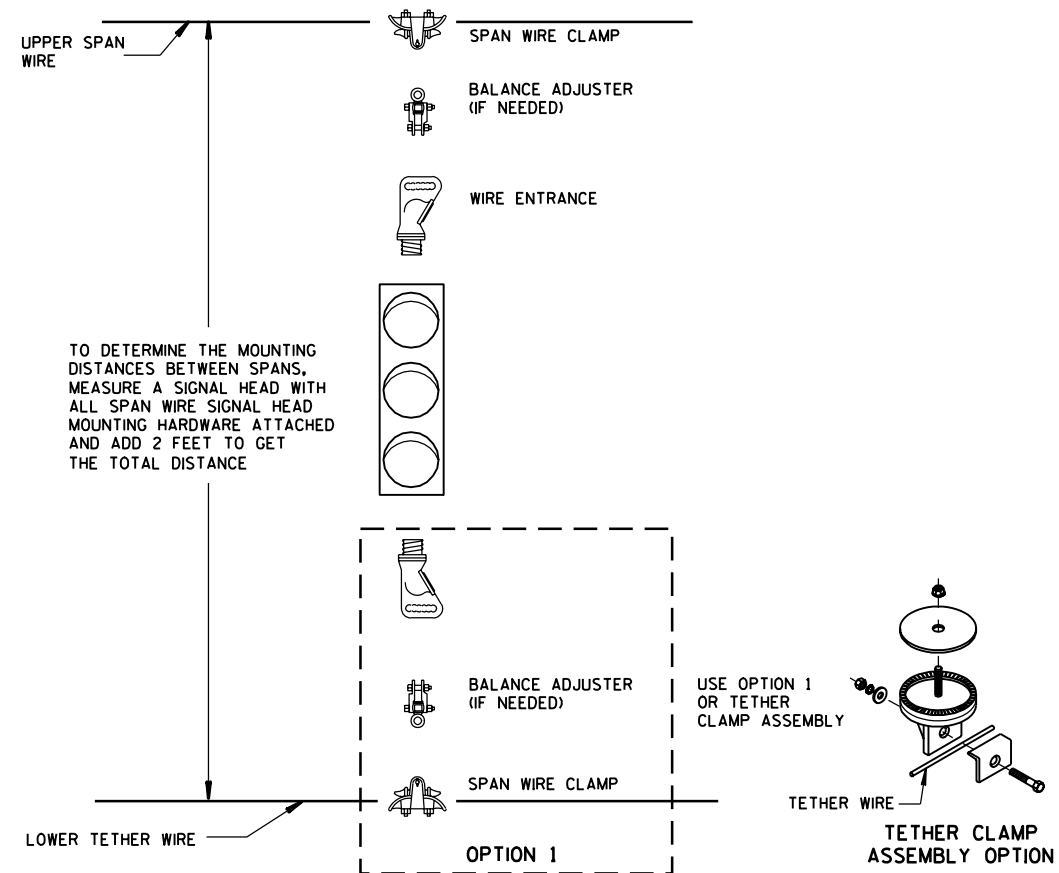
1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE HOLE FOR 5/8" BOLTS.
2. SAFTY LOOP REQUIRED ON EACH END OF ALL SPAN WIRES.

TYPICAL DEAD-ENDINGS OR GUYING

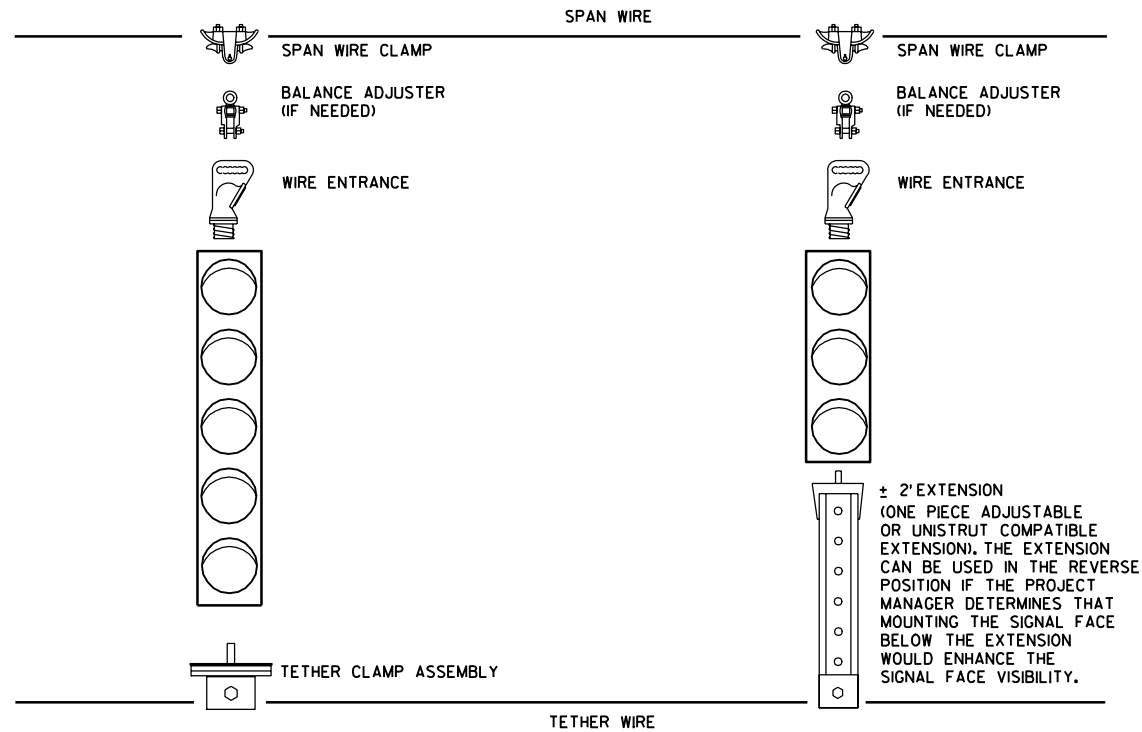
SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-24-07 DATE	/S/ Balu Ananthanarayanan CHIEF ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA	



TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL

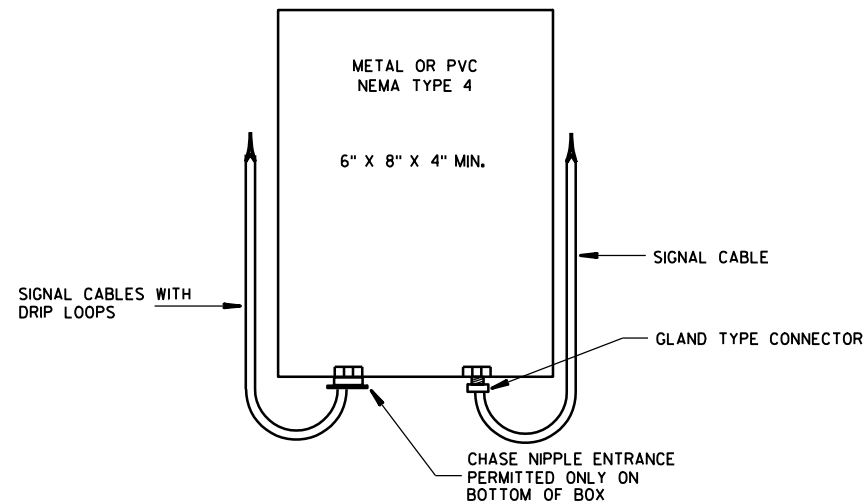
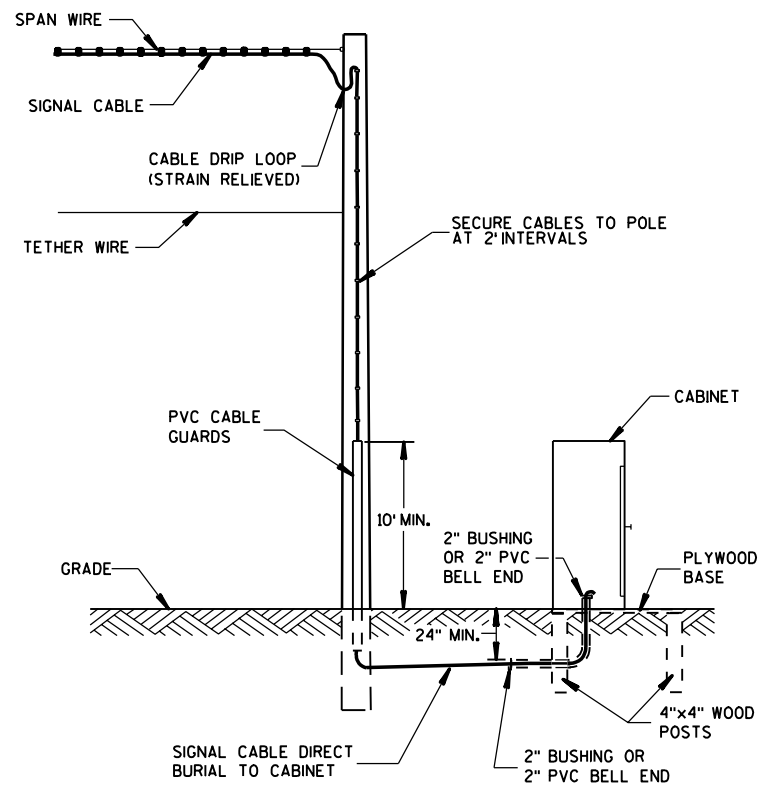


TYPICAL SPAN WIRE MOUNTING HARDWARE

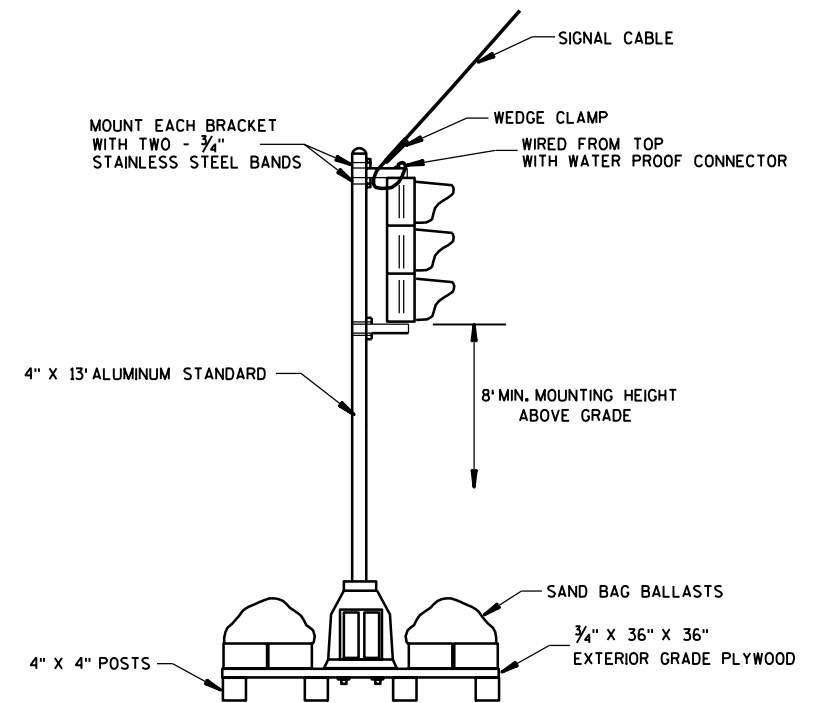


5 SECTION VERTICAL WITH 3 SECTION VERTICAL ON ONE SPAN WIRE

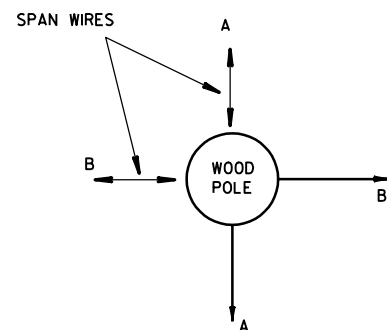
SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-24-07 DATE	/S/ Balu Ananthanarayanan CHIEF ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA	



SPLICE BOX

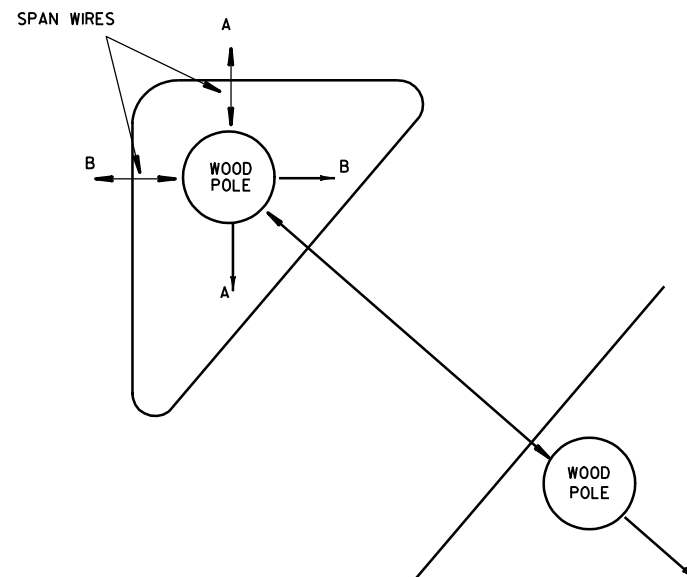


TYPICAL SKID TYPE TEMPORARY

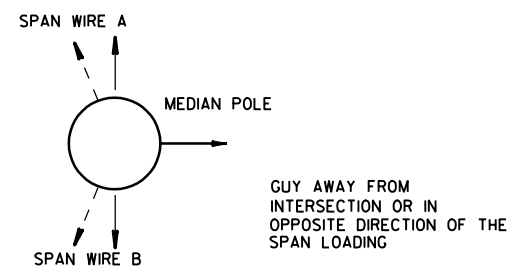


ALL DOWN OR SIDEWALK GUYS SHALL BE INSTALLED IN THE OPPOSITE DIRECTION OF THE STRAIN OF THE SPAN WIRE

CORNER POLES



ISLAND POLES



MEDIAN POLES

SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-24-07 DATE	/S/ Balu Ananthanarayanan CHIEF ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA	

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAYBE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY PLOES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

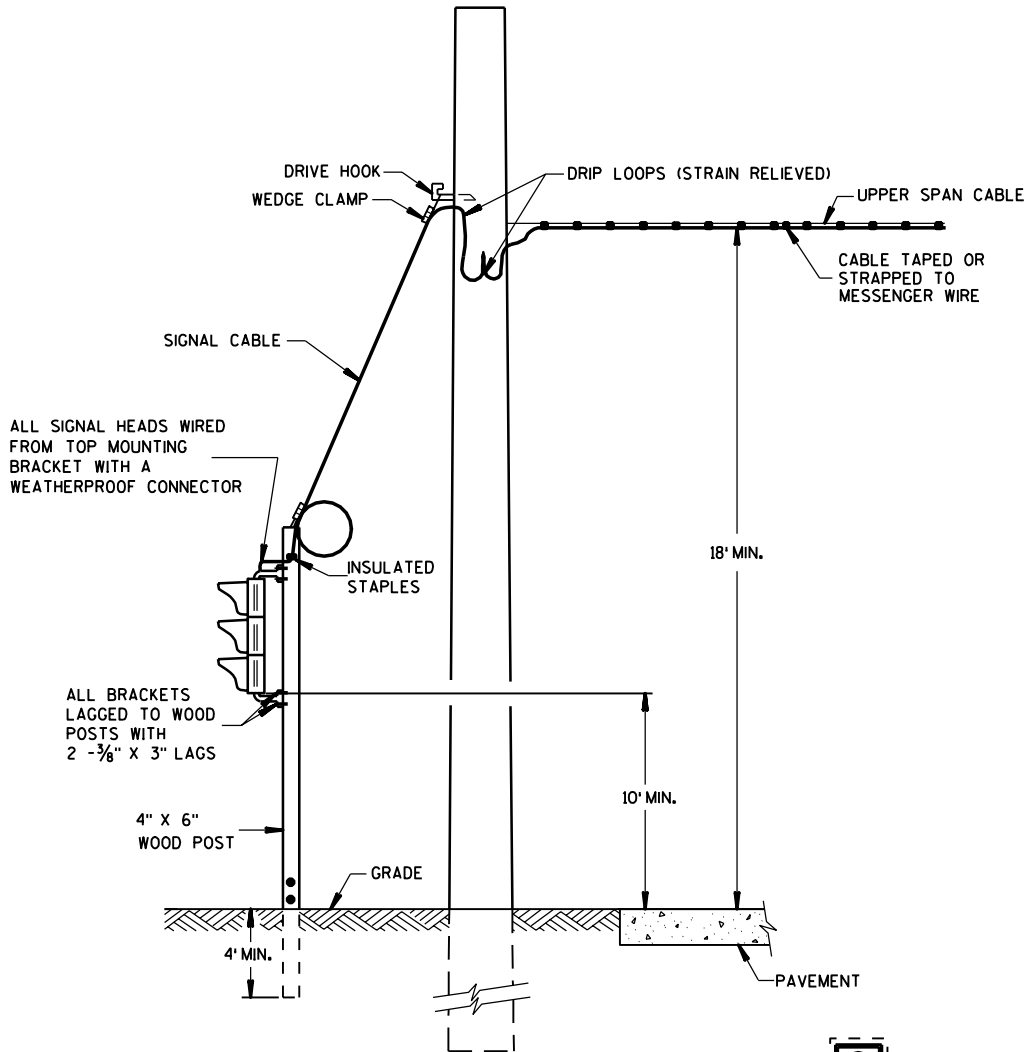
WOOD POLES (NONBREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAMGUARD, ETC.).

WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

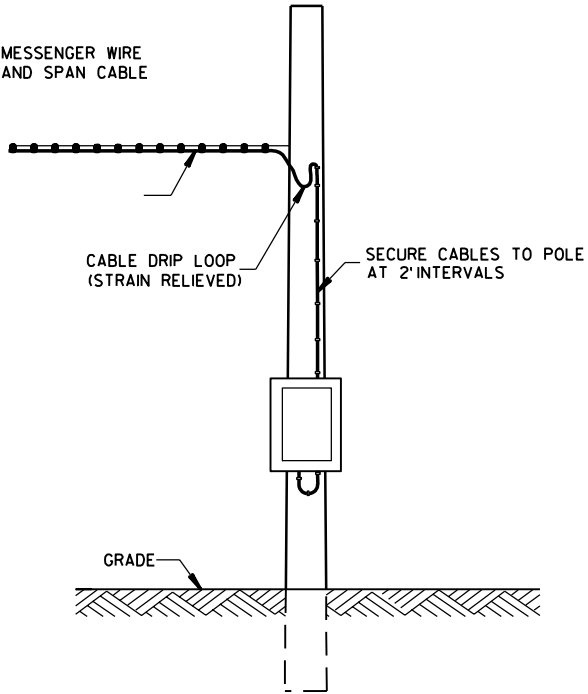
VERTICAL CLEARANCE ETC. PER NEC.

TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

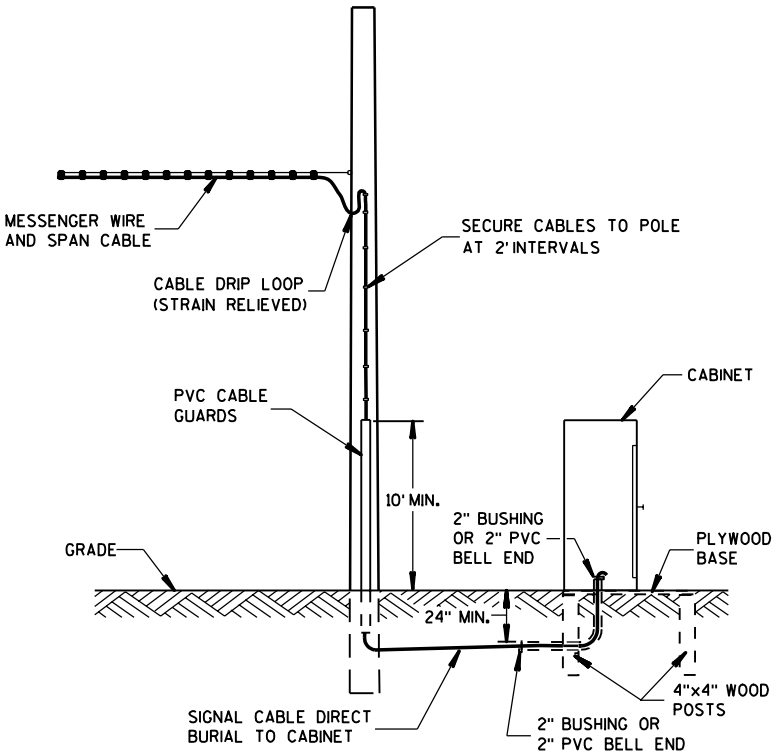
EACH TRAFFIC SIGNAL FACE SHALL HAVE A BACKPLATE.



TYPICAL DROP TO TRAFFIC SIGNAL FACE



POLE MOUNT CABINET INSTALLATION

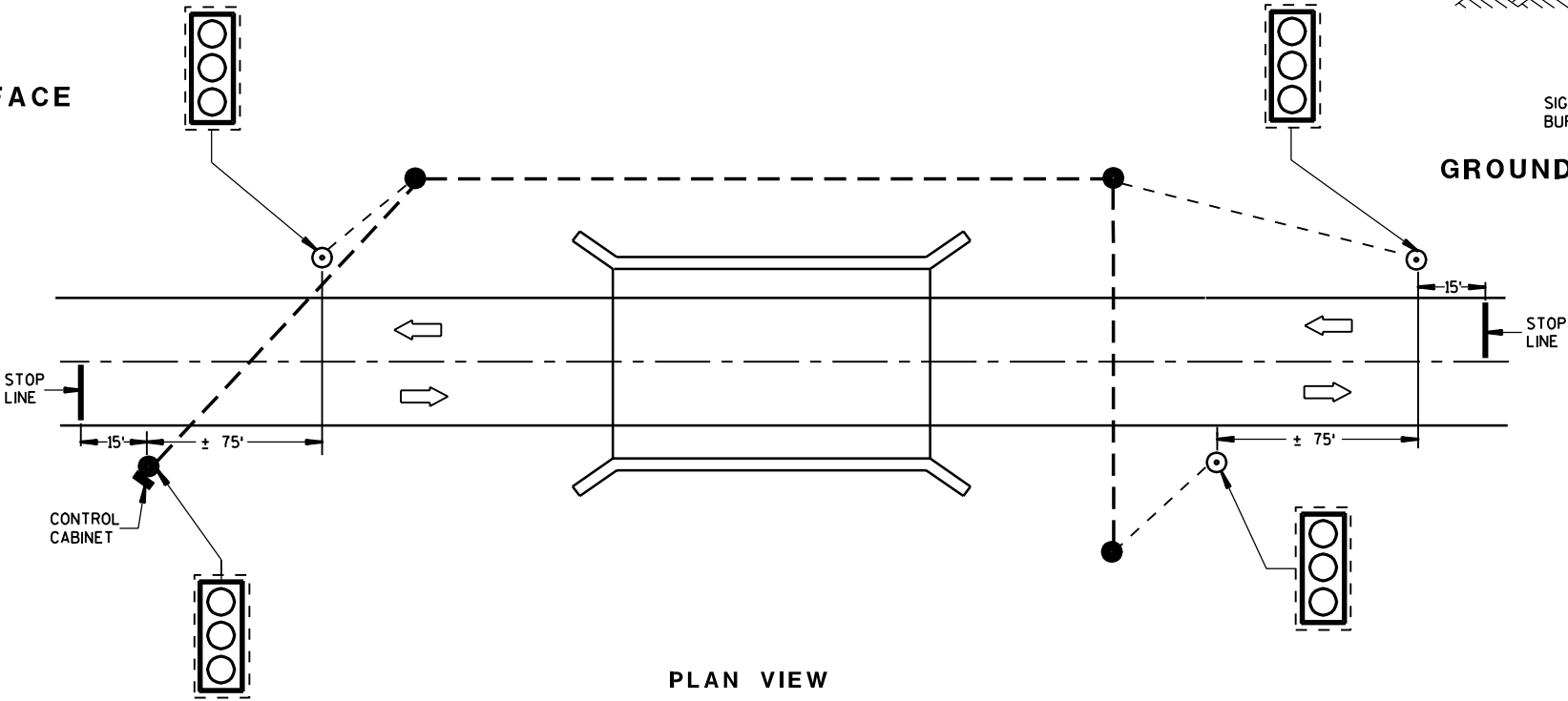


GROUND MOUNT CABINET INSTALLATION

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE**
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/ CURBS	2 FT

**NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.

MINIMUM POLE LENGTHS	CLASS	MINIMUM BURIAL DEPTHS
25 FEET	V	5 FEET
30 FEET	V	6 FEET
35 FEET	IV	7 FEET
40 FEET	IV	8 FEET
45 FEET	IV	9 FEET



PLAN VIEW
TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

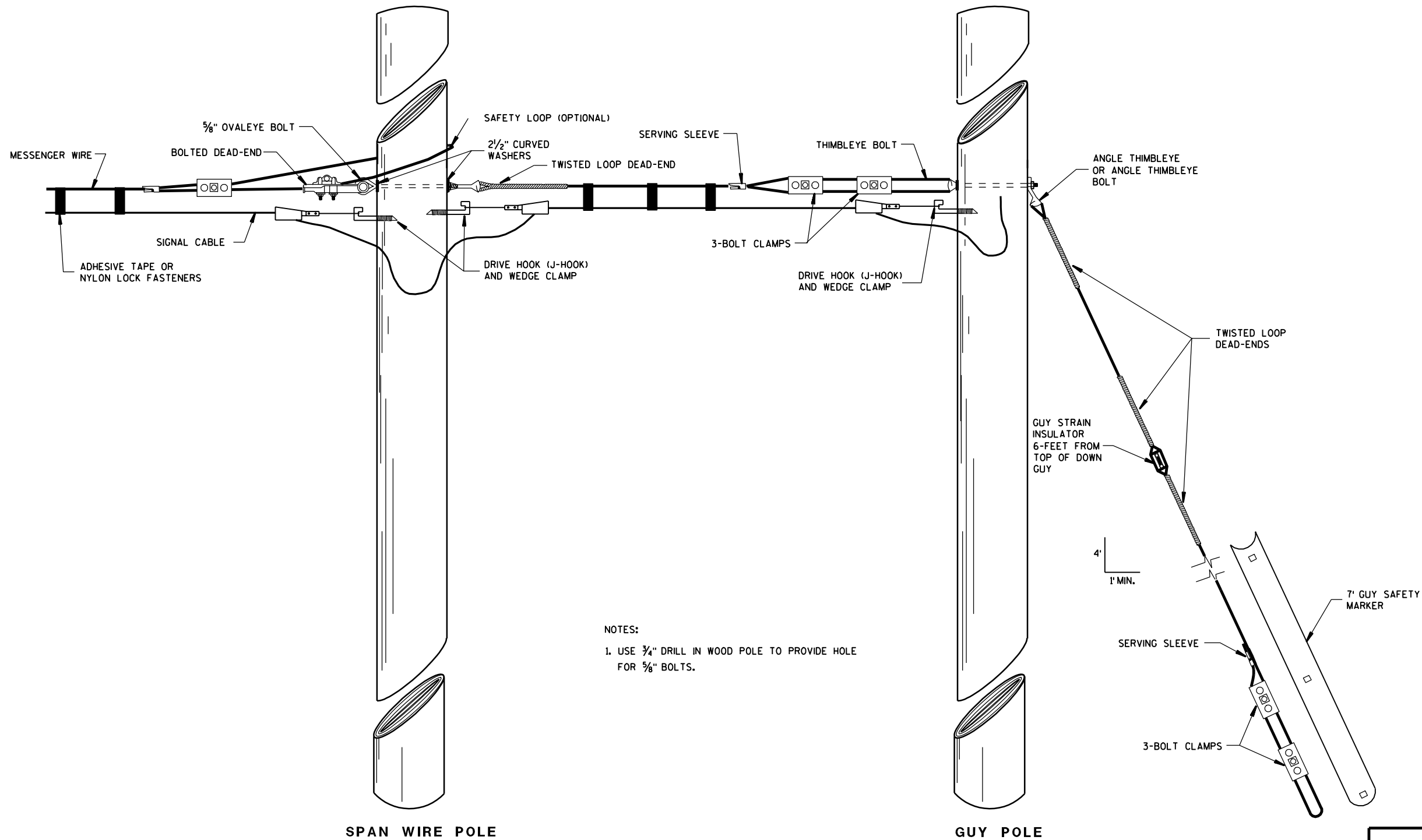
LEGEND

- WOOD POLE (NONBREAKAWAY)
- WOOD POST (BREAKAWAY)
- SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- LED TRAFFIC SIGNAL FACE WITH BACKPLATE
- 3'-12"
- DIRECTION OF TRAFFIC

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

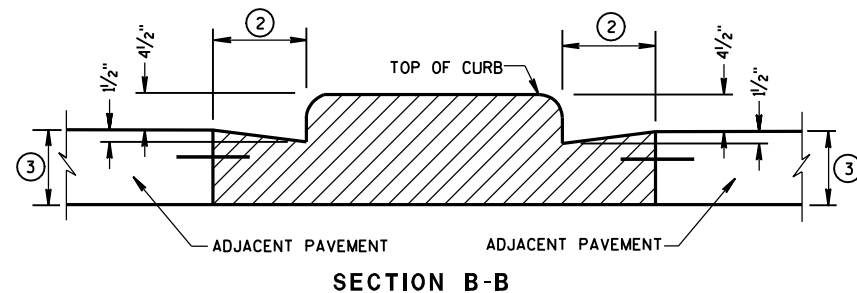
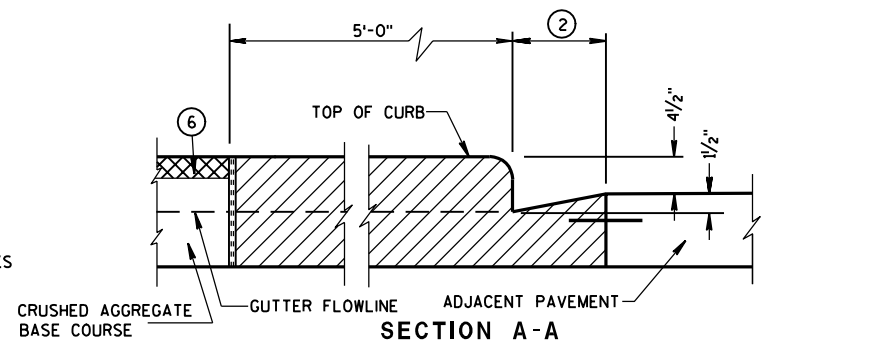
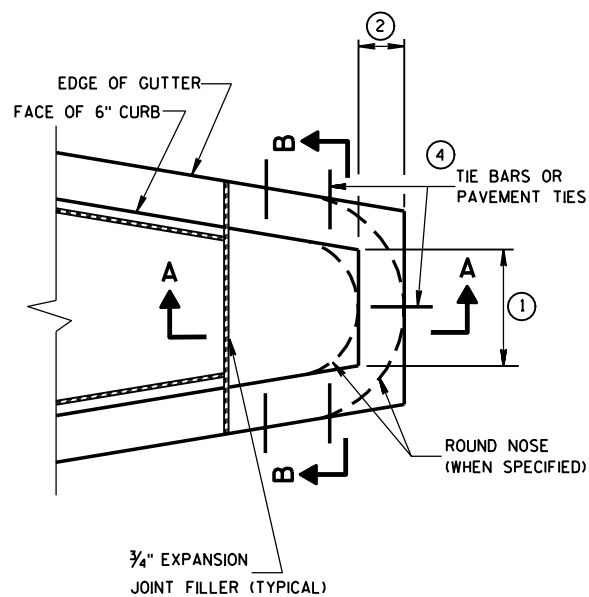
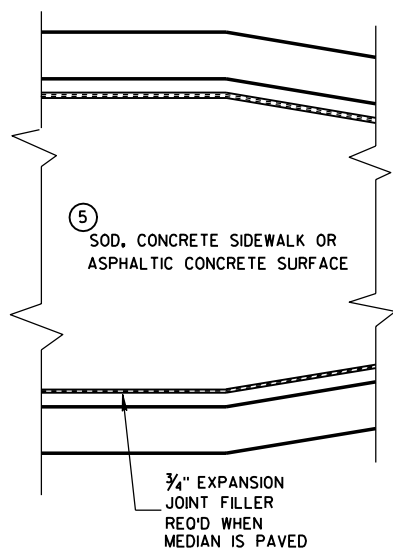
APPROVED
8-21-03
DATE
STATE ELECTRICAL ENGINEER FOR HIGHWAYS



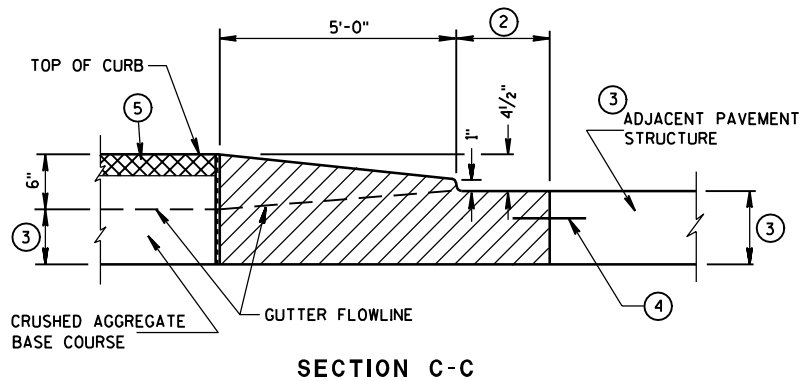
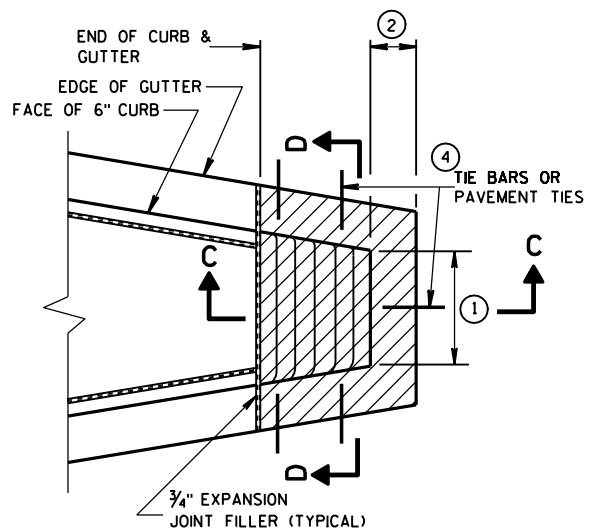
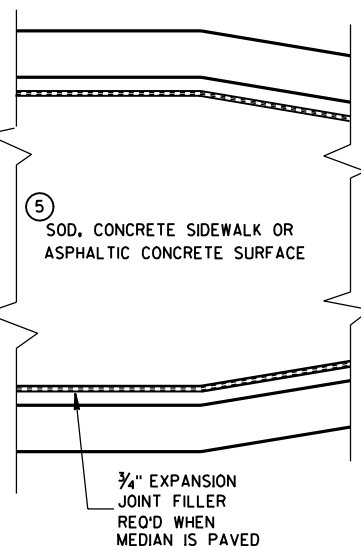
NOTES:
1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE HOLE FOR 5/8" BOLTS.

TYPICAL DEAD-ENDINGS OR GUYING

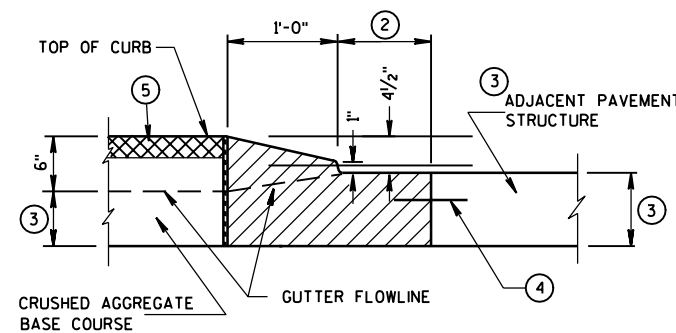
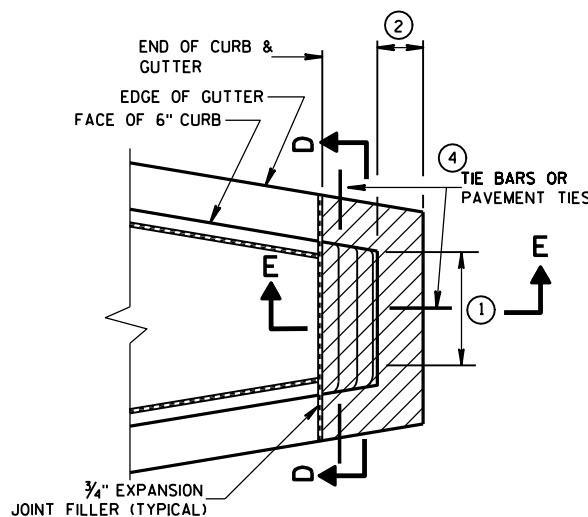
BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8-21-03 DATE	<i>Bala Struss</i> STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA	



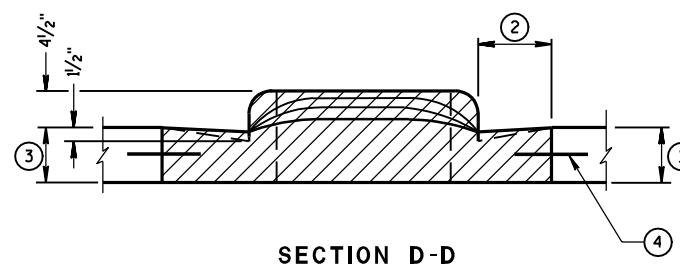
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
 - (1) NEW OR EXISTING CONCRETE PAVEMENT.
 - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
 - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.
- PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/8/06
DATE
FWHA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



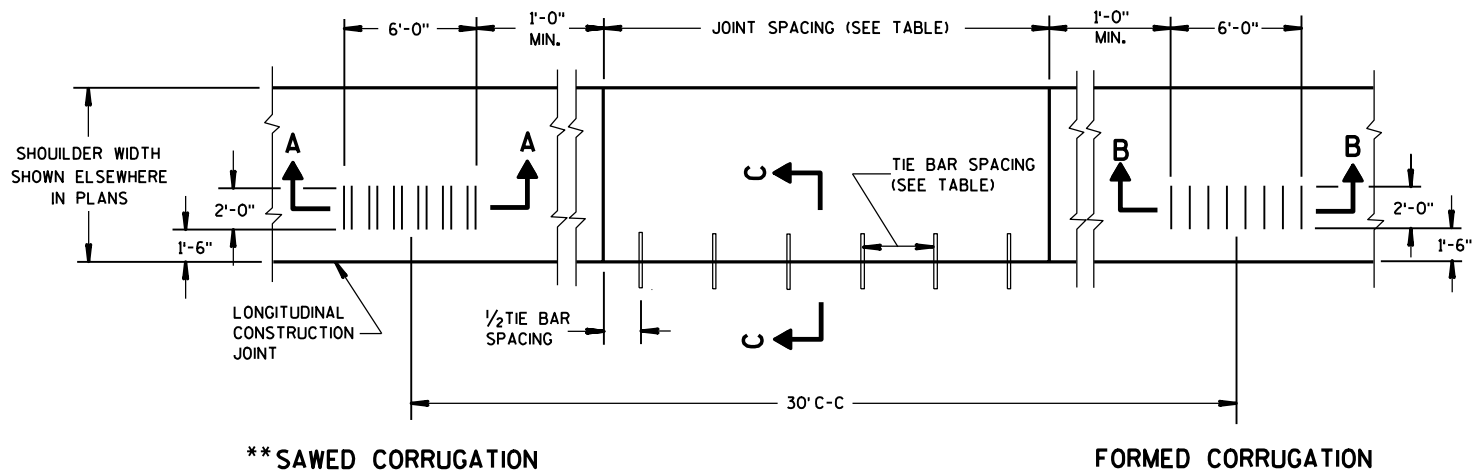
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

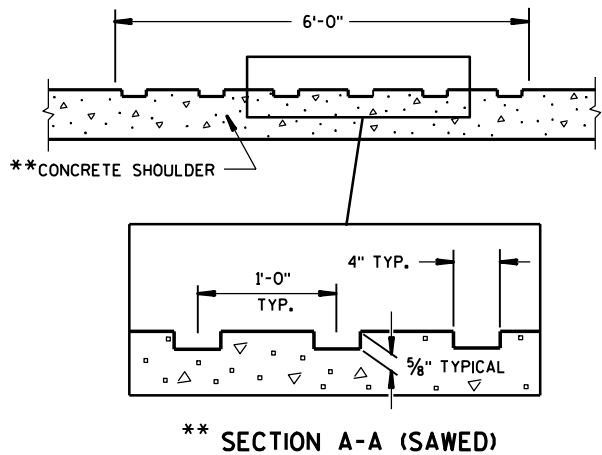
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



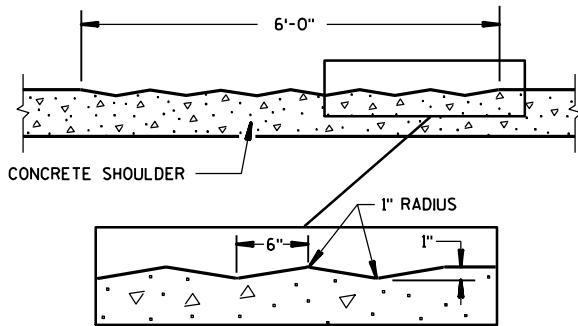
PAVEMENT TYPE OF TRAFFIC LANES	TIE BAR SPACING	SHOULDER JOINT SPACING
NON-REINFORCED	30"	MATCH JOINT SPACING OF ADJACENT TRAFFIC LANE
REINFORCED	30"	20' AND MATCH JOINT SPACING OF ADJACENT TRAFFIC LANE
CONTINUOUSLY REINFORCED	30"	15' FOR 6' TO 10' WIDE SHOULDERS
CONTINUOUSLY REINFORCED	36"	12' FOR 3' WIDE SHOULDERS



PLAN VIEW OF CONCRETE SHOULDER



SECTION A-A (SAWED)



SECTION B-B (FORMED)

CORRUGATION DETAIL

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

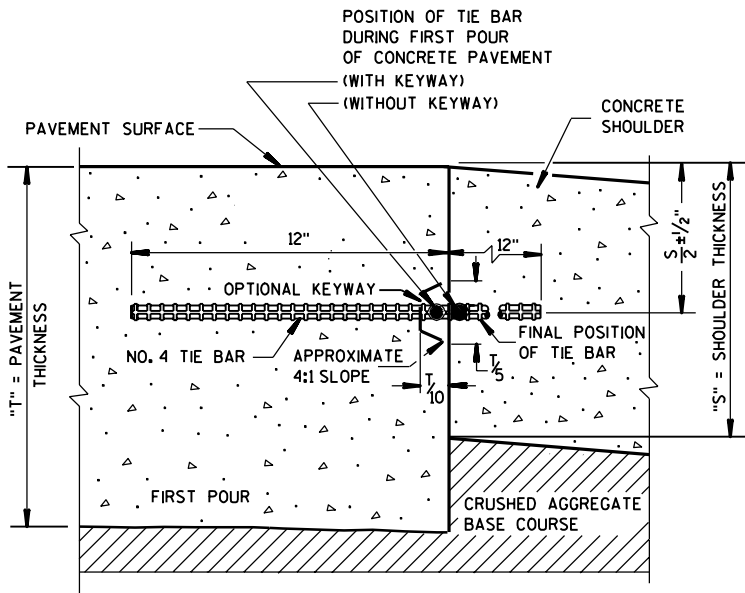
CORRUGATIONS SHALL BE PERPENDICULAR TO THE PAVEMENT EDGE.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

THE SHOULDER PAVEMENT SHALL RECEIVE A FINISH WITH AN ARTIFICIAL TURF DRAG IN CONFORMANCE WITH SUBSECTION 415.5.9.6.2 OF THE STANDARD SPECIFICATIONS

TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

**SAWED CORRUGATIONS SHALL NOT BE USED UNLESS SPECIFIED ELSEWHERE IN THIS CONTRACT.

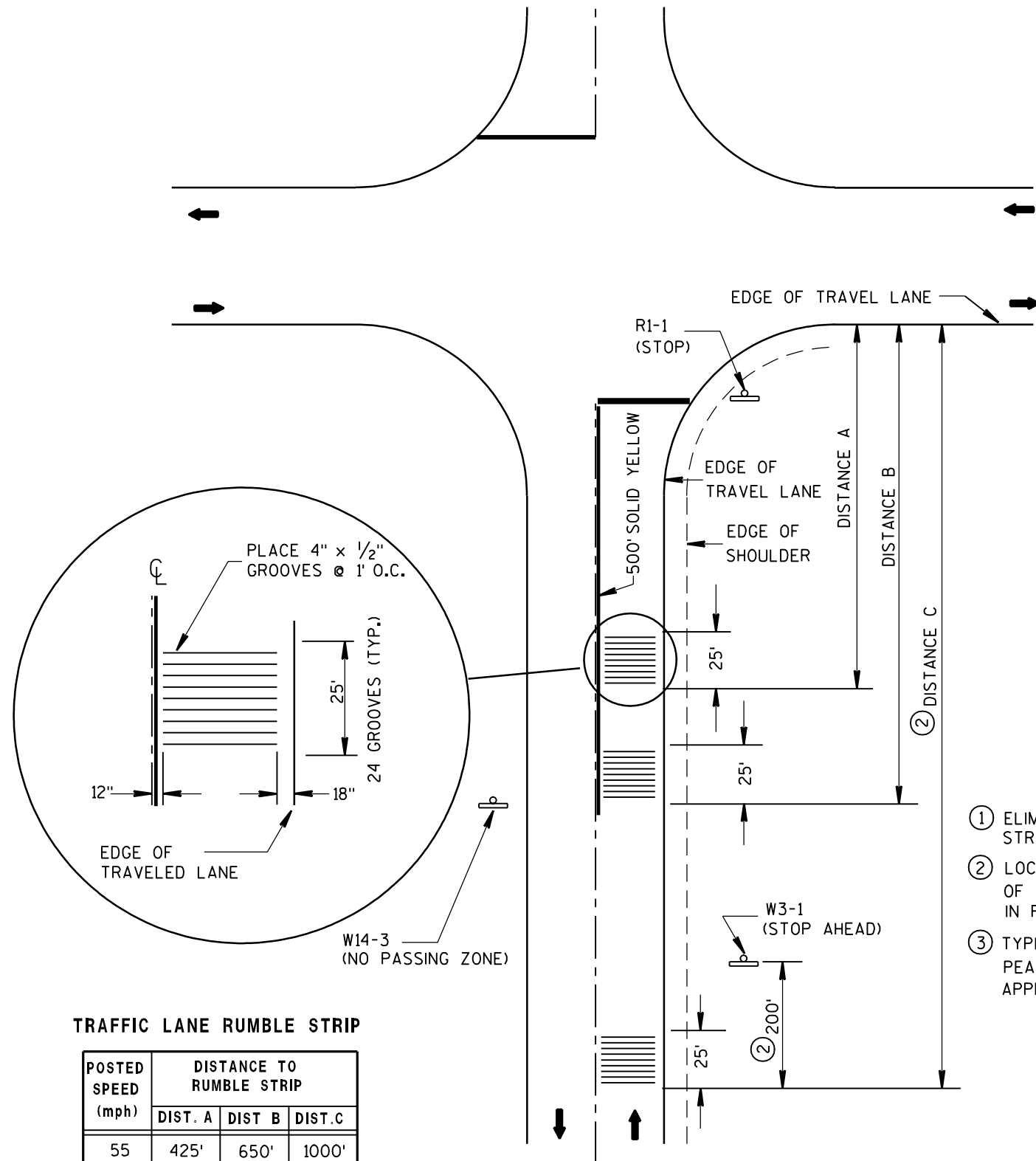


SECTION C-C
LONGITUDINAL CONSTRUCTION JOINT

CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/8/03
DATE
Bill Duckert
PAVEMENT ENGINEER
FHWA

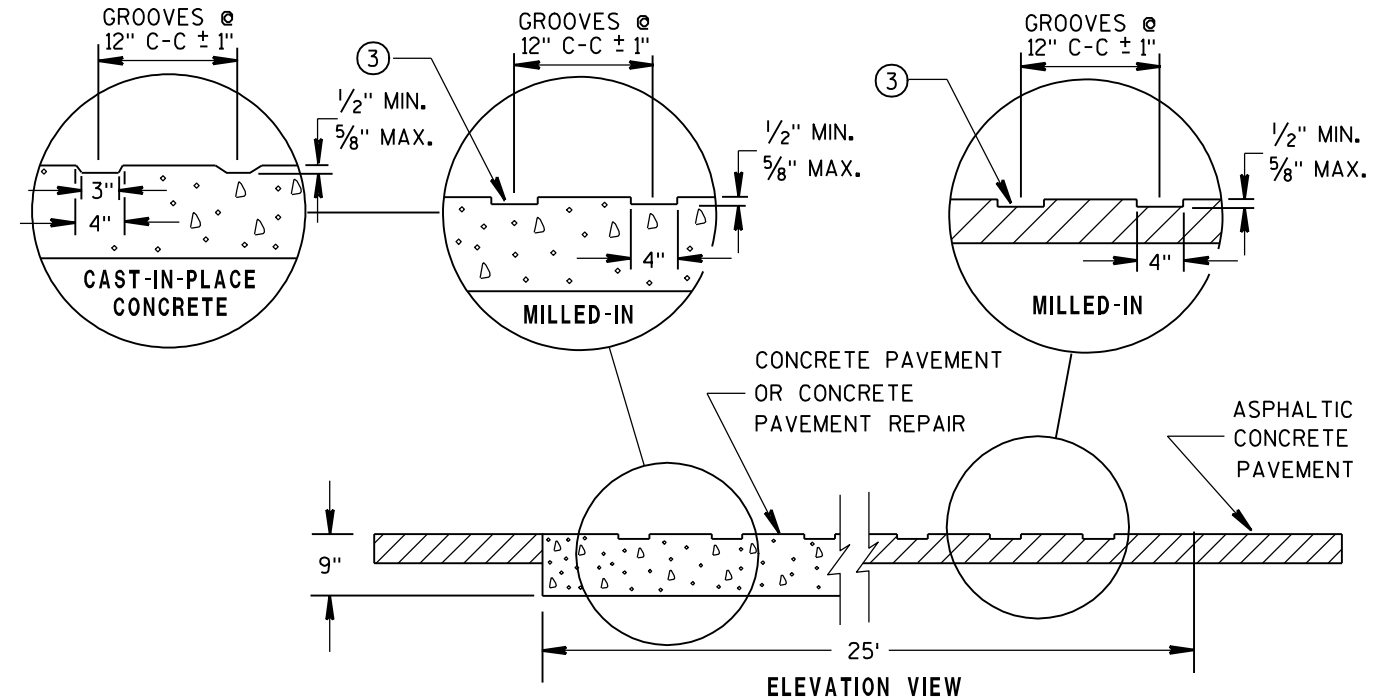


TRAFFIC LANE RUMBLE STRIP

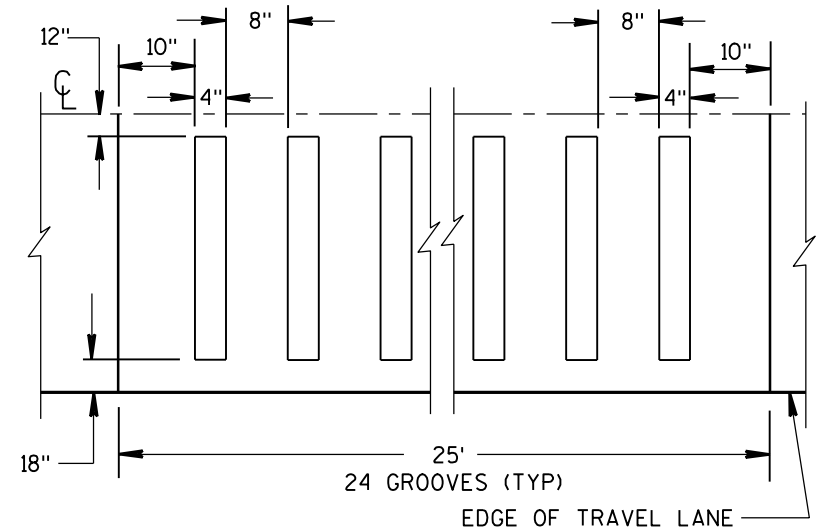
POSTED SPEED (mph)	DISTANCE TO RUMBLE STRIP		
	DIST. A	DIST. B	DIST. C
55	425'	650'	1000'
50	325'	450'	800'
45	275'	400'	650'
40	225'	①	550'
35	175'	①	475'
≤ 30	125'	①	425'

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

PLAN VIEW
RUMBLE STRIP LOCATION



ELEVATION VIEW



PLAN VIEW

CONCRETE PAVEMENT
MILLED-IN OR CAST-IN-PLACE

ASPHALTIC PAVEMENT
MILLED-IN

- ① ELIMINATE THE MIDDLE SET OF RUMBLE STRIPS.
- ② LOCATE RUMBLE STRIP 200' IN ADVANCE OF W3-1 SIGN AS SHOWN. IF W3-1 IS NOT IN PLACE, USE DISTANCE C.
- ③ TYPICAL VERTICAL VARIATION BETWEEN PEAKS AND VALLEYS WITHIN THE CUT APPROXIMATELY 1/16"

GENERAL NOTES

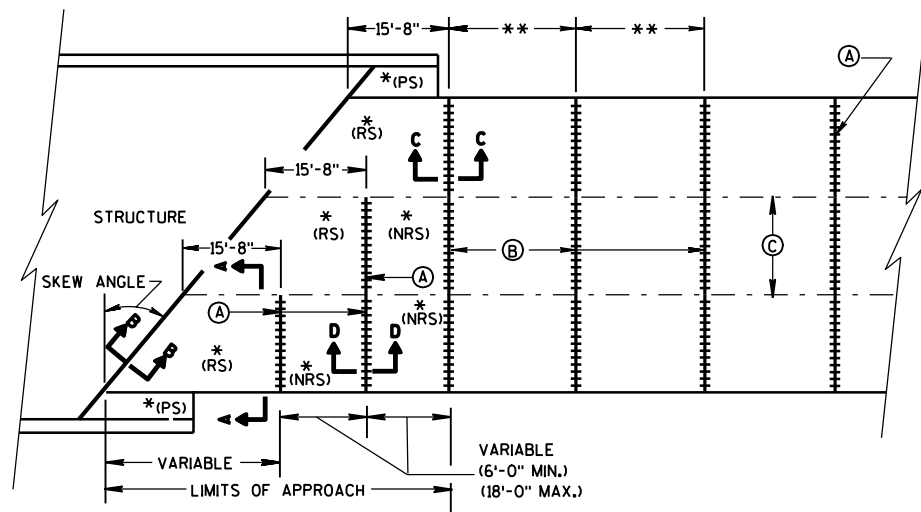
CONTRACTOR SHALL CONFIRM RUMBLE STRIP LOCATION WITH THE ENGINEER PRIOR TO INSTALLATION. THE ENGINEER MAY MODIFY THE RUMBLE STRIP LOCATION AS FIELD CONDITIONS DICTATE.

WHEN CONCRETE PAVEMENT IS INSTALLED IN THE RUMBLE STRIP AREA, THE CONCRETE SHALL EXTEND FROM THE CL TO THE EDGE OF TRAVEL WAY.

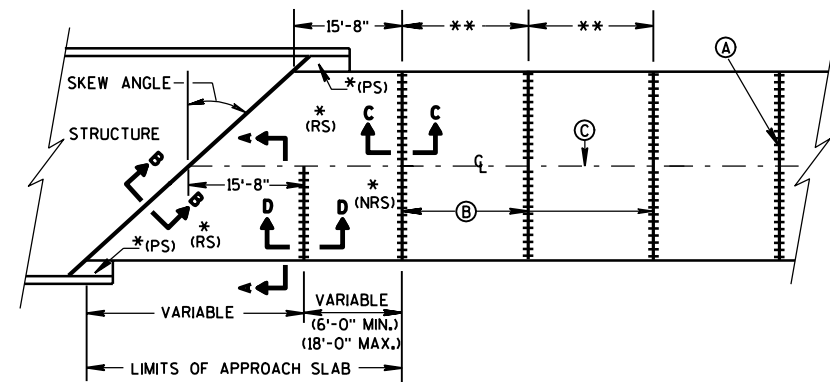
WHEN ASPHALTIC PAVEMENT IS NEW IN THE RUMBLE AREA THE CONTRACTOR SHALL ALLOW THE PAVEMENT TO CURE A MINIMUM OF 7 DAYS PRIOR TO RUMBLE INSTALLATION.

PAVEMENT MARKING AND SIGNING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

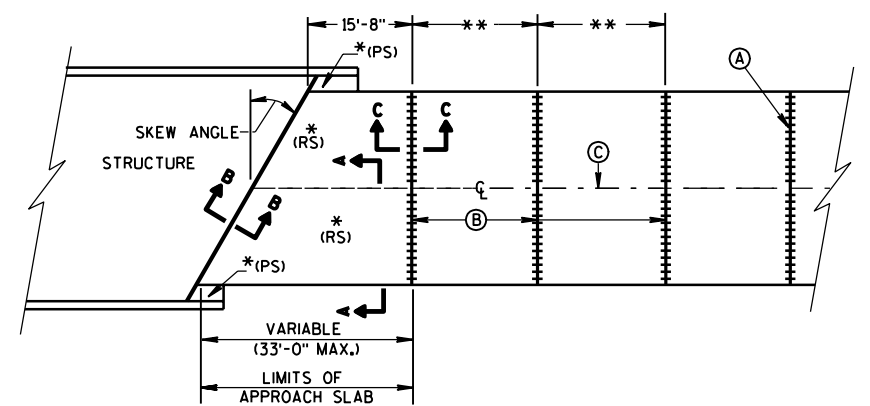
RUMBLE STRIPS AT INTERSECTION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6/22/01 DATE FWHA	 CHIEF ROADWAY DEVELOPMENT ENGINEER



**SKewed APPROACH
(PAVEMENT MORE THAN 2 LANES)**

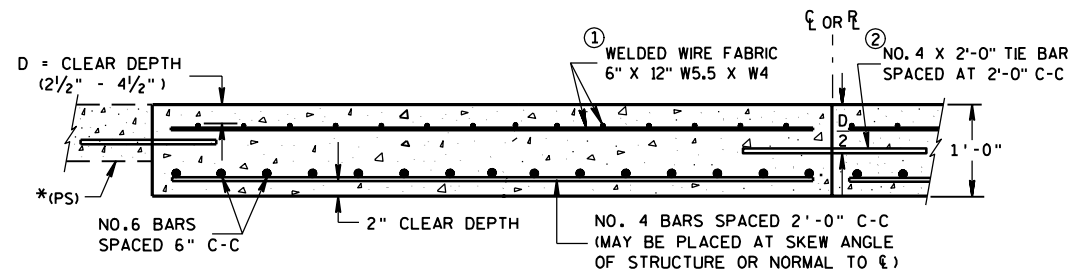


**SKEWS > 30°
(PAVEMENT WIDTH ≤ 30')**

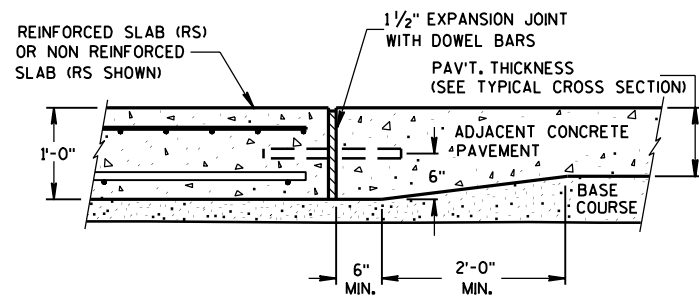


**SKEWS ≤ 30°
(PAVEMENT WIDTH ≤ 30')
APPROACH SLAB AND ADJACENT PAVEMENT**

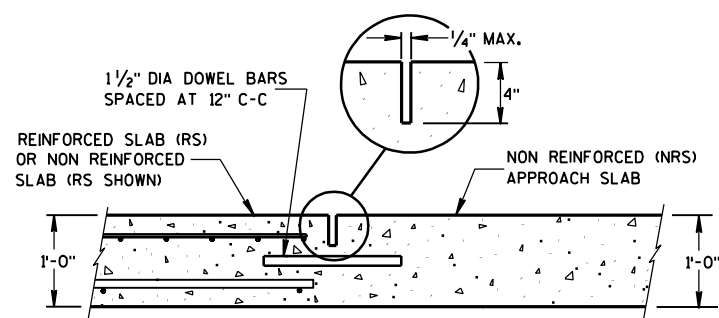
- *(RS) = REINFORCED CONCRETE SLAB
- *(PS) = PAVED CONCRETE SHOULDER, CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN (SEE DETAILS ELSEWHERE IN THE PLAN)
- *(NRS) = NON-REINFORCED CONCRETE SLAB
- **STANDARD TRANSVERSE JOINT SPACING (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
- Ⓐ STANDARD CONTRACTION JOINT NORMAL TO R_L OR R_C
- Ⓑ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO R_L OR R_C
- Ⓒ STANDARD LONGITUDINAL JOINT AND TIE BARS.



**SECTION A-A
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**



**SECTION D-D
CONTRACTION JOINT**

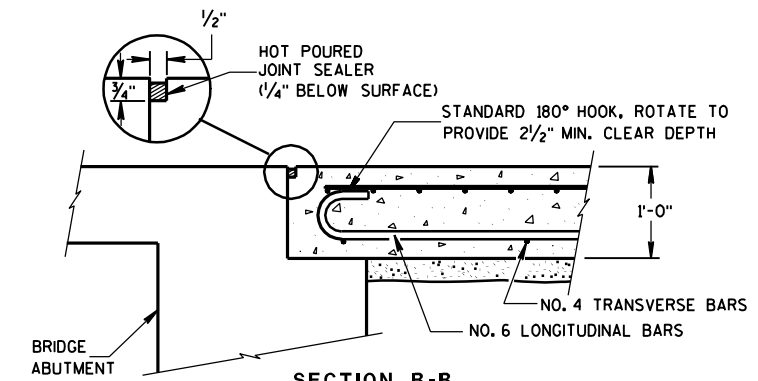
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

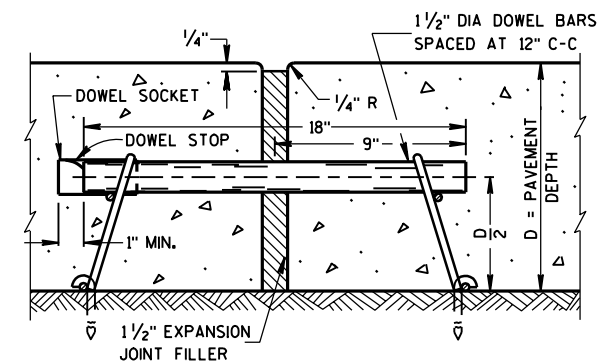
DOWEL BARS ARE NOT REQUIRED WHEN THE APPROACH SLAB ABUTS AN ASPHALT PAVEMENT OVER BASE COURSE.

SPLICING OF NO. 6 BARS IN THE APPROACH SLAB IS PERMITTED FOR SKEWED STRUCTURES ONLY. SPLICES SHALL BE STAGGERED, WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP SHALL BE 20 INCHS.

- ① NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS MAY BE USED FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② TIE BARS BETWEEN REINFORCED SLABS MAY BE OMITTED WHERE SLAB REINFORCEMENT EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.



**SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT**

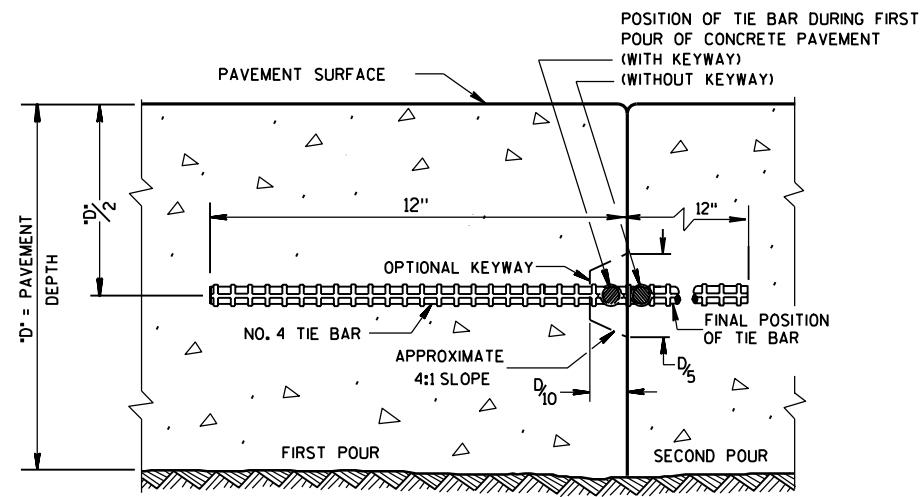


EXPANSION JOINT

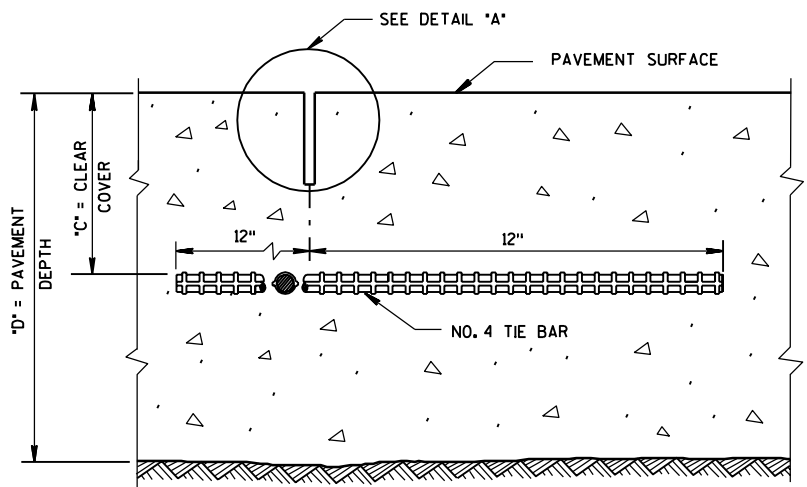
**CONCRETE PAVEMENT
APPROACH SLAB**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

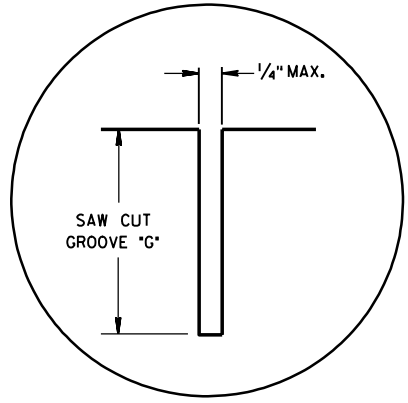
APPROVED
3/21/07 /S/ Steven W. Krebs
DATE CHIEF MATERIALS MANAGEMENT ENGINEER
FHWA



CONSTRUCTION JOINT



SAWED JOINT



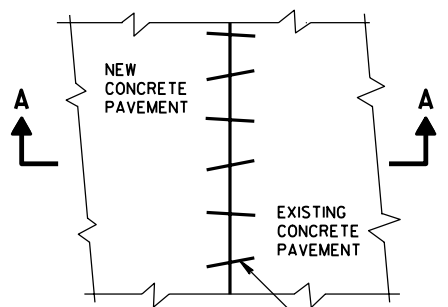
DETAIL "A"

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

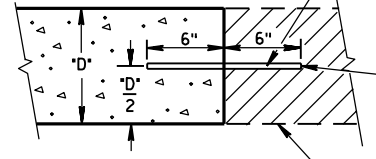
LONGITUDINAL JOINTS SHALL NOT BE SEALED OR FILLED.

TIE BAR SPACINGS ARE VALID ONLY FOR PAVEMENT WIDTHS IN THE TABLE. FOR WIDER PAVEMENTS, TIED CONCRETE SHOULDERS OR RAMPS, THE TIE BAR SPACING SHALL BE AS SHOWN ON THE PLANS.



PLAN VIEW

NO. 6 TIE BARS SPACED 3'-0" C-C, INSTALLED ON 6:1 SKEW HORIZONTALLY. DIRECTION OF SKEW ALTERNATING AFTER EVERY ONE OR TWO BARS.

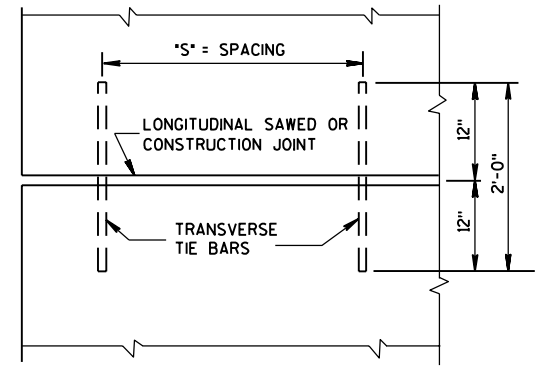


THE HOLE FOR THE BAR SHALL BE DRILLED TO A DEPTH OF 7" AND TO SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.

EXIST. CONC. PAVEMENT

SECTION A-A
PAVEMENT TIES

PAVEMENT DEPTH "D"	CLEAR COVER "C"	SAW CUT GROOVE "G"	MAXIMUM TIE BAR SPACING "S"	
			PAVEMENT WIDTH	
			24' OR 26'	30'
6, 6 1/2"	3" ± 1/2"	2"	48"	42"
7, 7 1/2"	3 1/4" ± 1"	2 1/4"	45"	36"
8, 8 1/2"	3 3/4" ± 1"	2 1/2"	39"	30"
9, 9 1/2"	4 1/4" ± 1"	3"	33"	27"
10, 10 1/2"	4 3/4" ± 1"	3 1/4"	30"	24"
11, 11 1/2"	5 1/4" ± 1"	3 3/4"	27"	21"
12"	5 3/4" ± 1"	4"	24"	21"

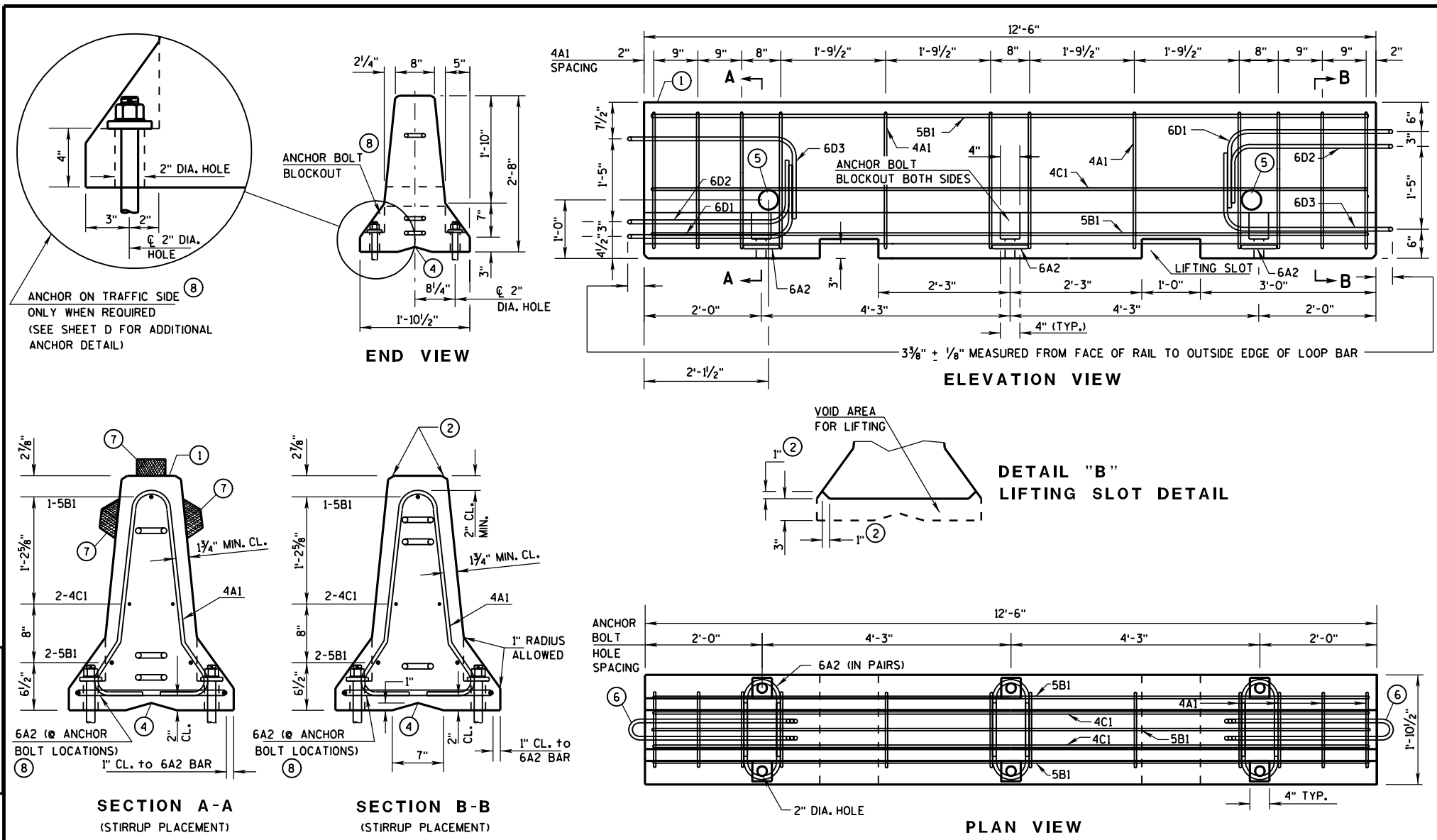


PLAN VIEW
SHOWING LOCATION OF TIE BARS

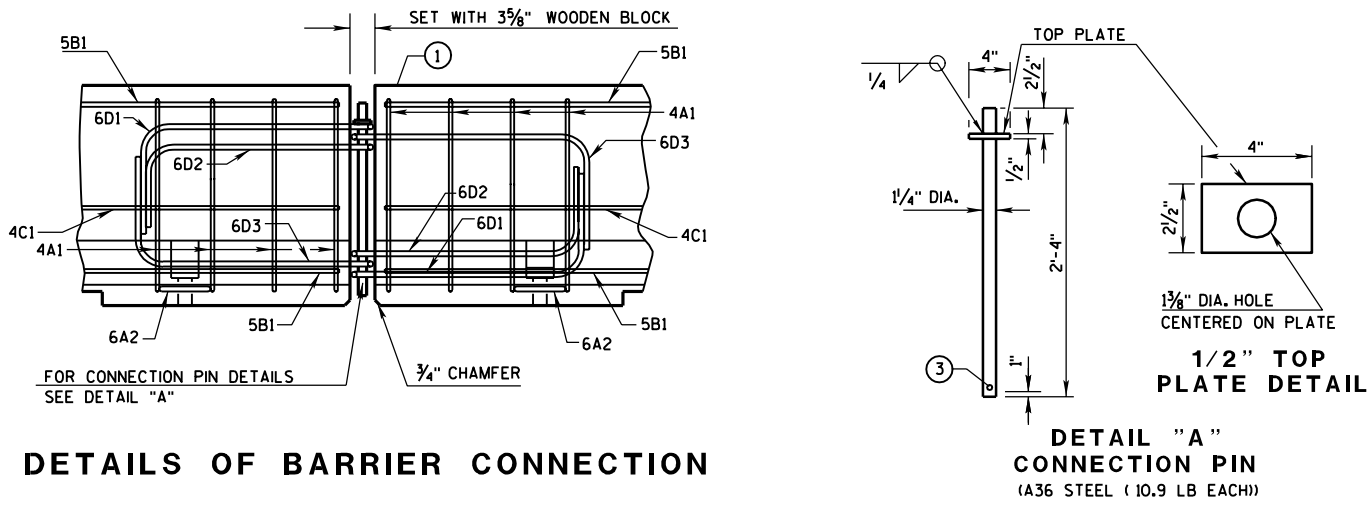
CONCRETE PAVEMENT
LONGITUDINAL JOINTS
AND PAVEMENT TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/21/07 DATE /S/ Steven W. Krebs
CHIEF MATERIALS MANAGEMENT ENGINEER
FHWA



DETAILS OF BARRIER SECTION

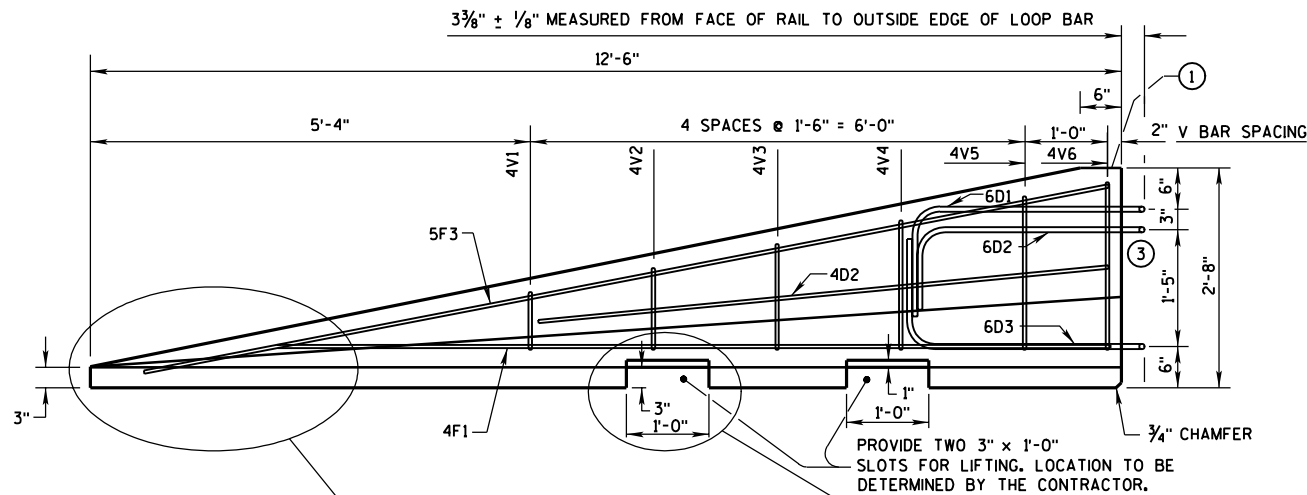


GENERAL NOTES

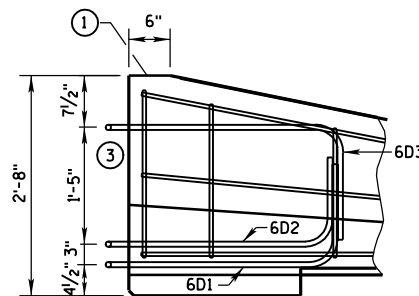
- THESE GENERAL NOTES APPLY TO SHEETS 14B7-11(a) THRU 14B7-11(d).
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- THIS STANDARD DETAIL DRAWING CONSISTS OF 6 SHEETS, 14B7-11(a) THRU 14B7-11(f).
- DETAILS AND REQUIREMENTS FOR THE FABRICATION AND INSTALLATION OF CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) ARE SHOWN ON 4 SHEETS, 14B7-11(a) THRU 14B7-11(d).
- DETAILS AND REQUIREMENTS FOR CONCRETE BARRIER TEMPORARY PRECAST, 10'-0" (CBTP10.0) ARE SHOWN ON 2 SHEETS, 14B7-11(e) THRU 14B7-11(f). CONCRETE BARRIER TEMPORARY PRECAST, 10'-0" (CBTP10.0) MAY BE USED UNTIL MAY 31, 2013, BUT ONLY IF ALL THE FOLLOWING CONDITIONS ARE MET:
- THE CBTP10.0 WAS MANUFACTURED BEFORE JUNE 1, 2003.
 - THE CBTP10.0 MEETS ALL THE REQUIREMENTS OF STANDARD DETAIL DRAWINGS 14B7-11(e) AND 14B7-11(f).
 - THE CBTP10.0 IS IN GOOD CONDITION.
- DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH CONCRETE BARRIER TEMPORARY PRECAST, 10'-0" (CBTP10.0) IN ANY SINGLE RUN OR INSTALLATION.
- USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.
- LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.
- CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.
- PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.
- MARK ONE END OF EACH BARRIER PERMANENTLY BY STAMPING OR FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE CBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
 - 1" CHAMFER TO PREVENT SPALLING.
 - A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
 - "V" NOTCH IS OPTIONAL.
 - THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
 - NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
 - USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
 - SEE SHEET D FOR ANCHORING CRITERIA.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

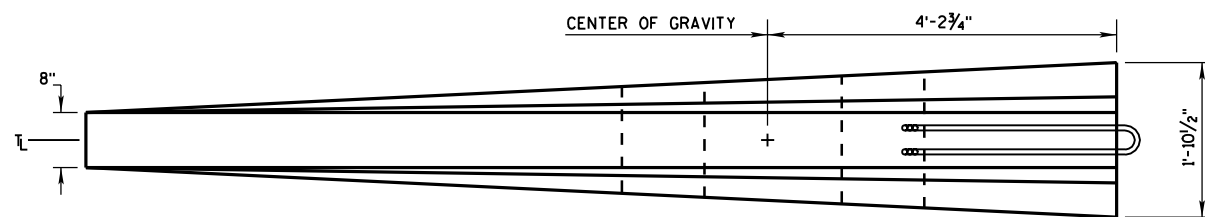
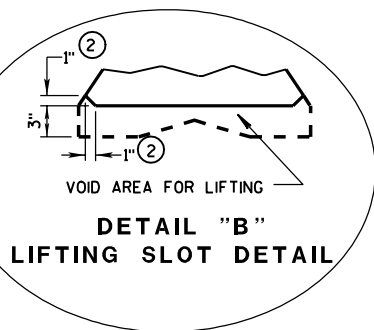
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



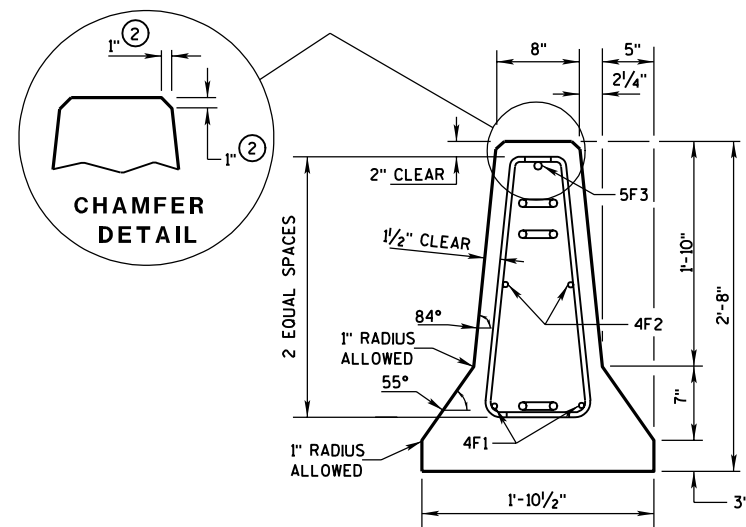
SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



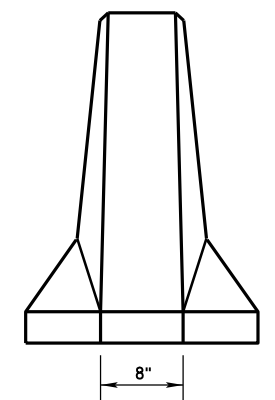
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



PLAN VIEW



END SECTION



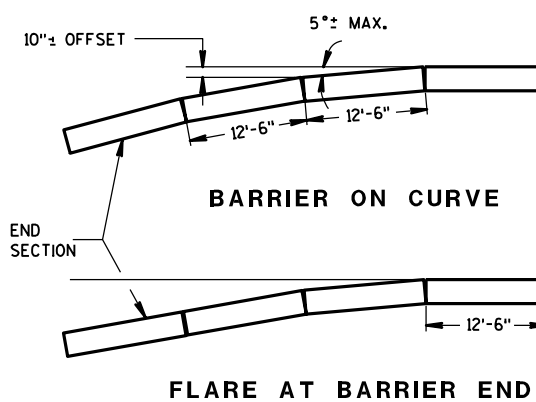
FRONT ELEVATION

DETAILS OF BARRIER TAPER SECTION

GENERAL NOTES

THE GENERAL NOTES ON SHEET 14B7-11(a) APPLY TO THIS SHEET.

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY STAMPING OR FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE CBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



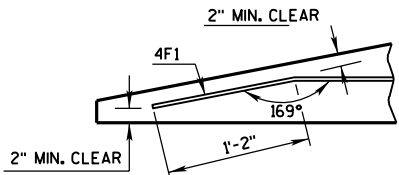
POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	10:1
45 OR GREATER	15:1

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

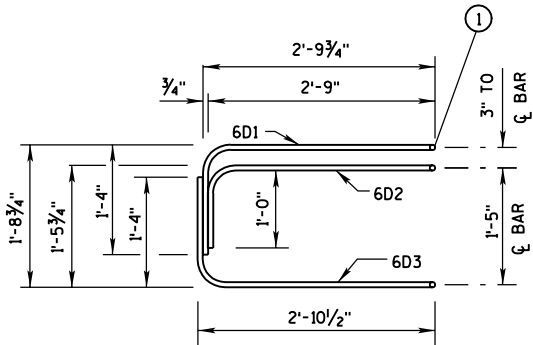
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BARRIER TAPER SECTION
BILL OF MATERIALS
(PER 12'-6" BARRIER TAPER SECTION)

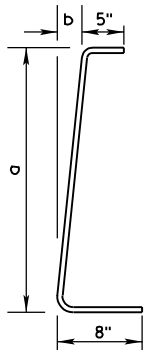
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

TAPER BARRIER SECTION

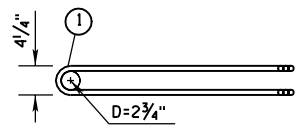
GENERAL NOTES

THE GENERAL NOTES ON SHEET 14B7-11(c) APPLY TO THIS SHEET.

1 NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

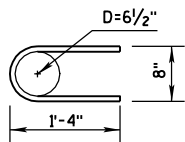
BARRIER SECTION
BILL OF MATERIALS
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

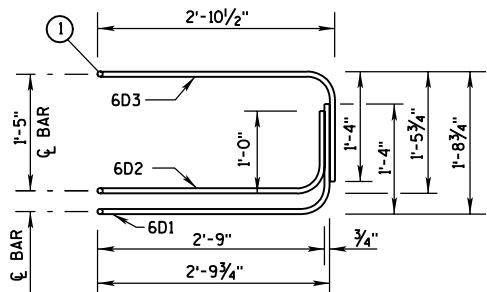


PLAN VIEW
LOOP BAR ASSEMBLY

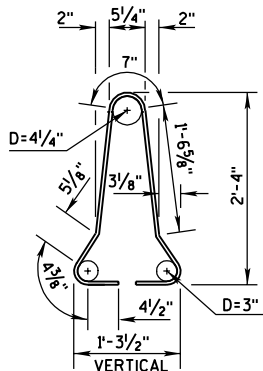
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2



ELEVATION VIEW

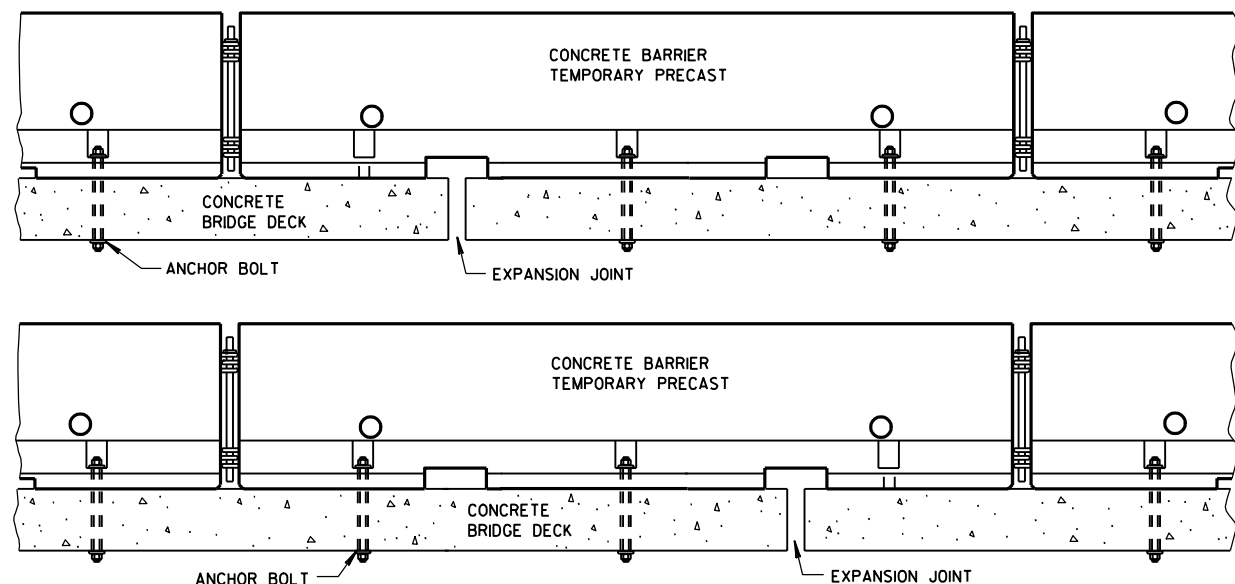


4A1

BARRIER SECTION

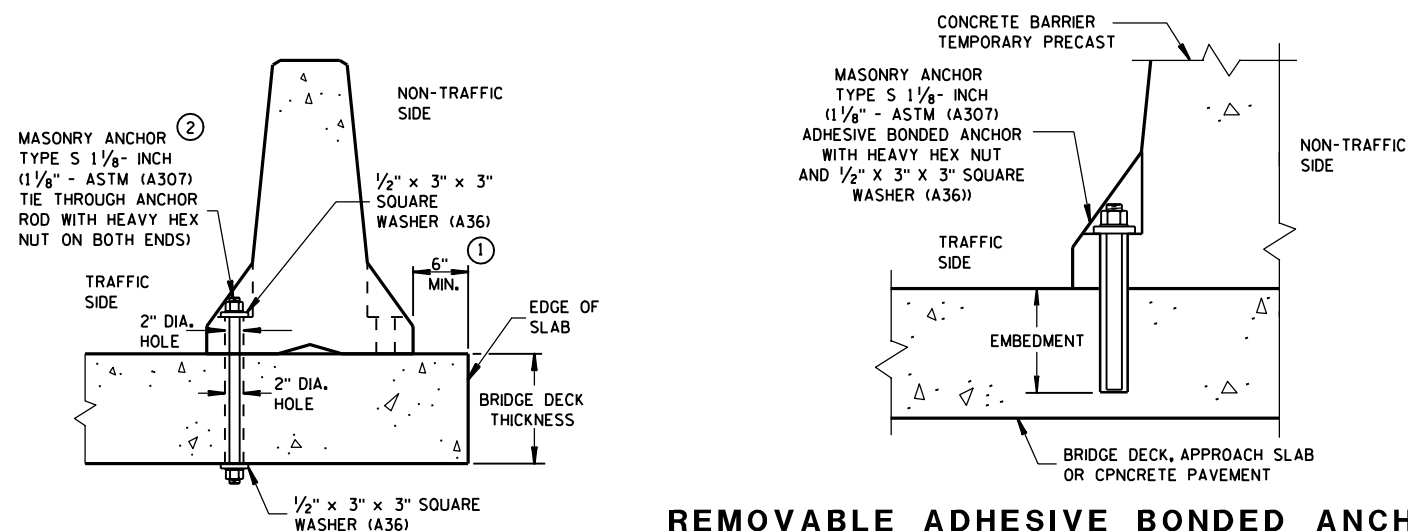
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)

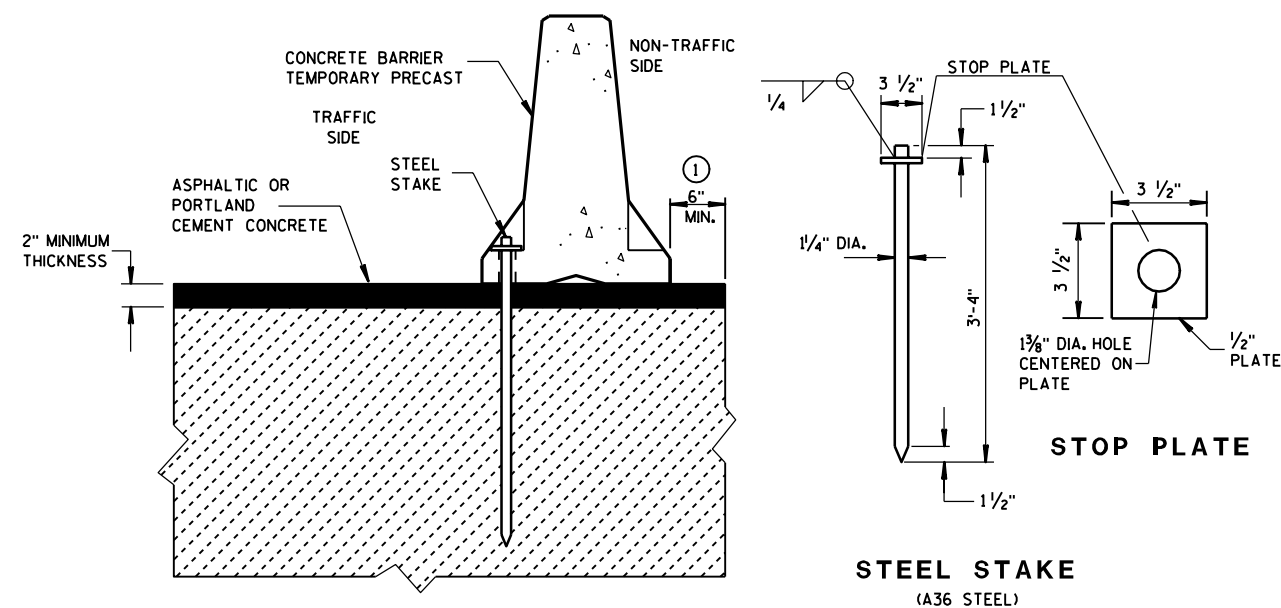


THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)

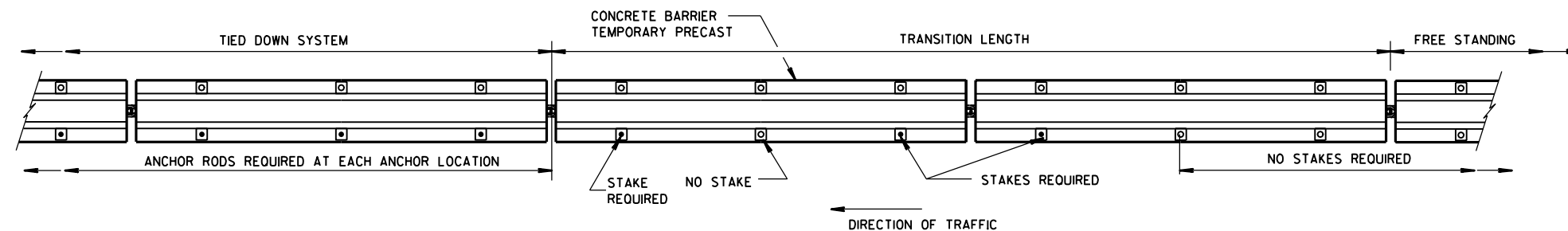
REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

THE GENERAL NOTES ON SHEET 14B7-11(a) APPLY TO THIS SHEET.

- CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

- ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED (EPOXY) ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1 1/8-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERCIAL GROUT OR EPOXY MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

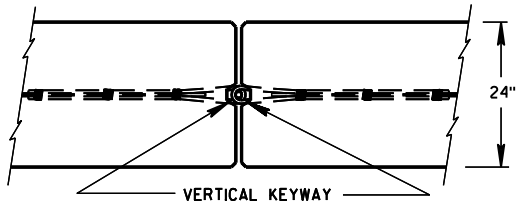
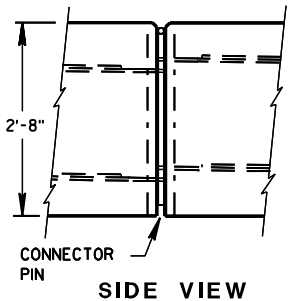
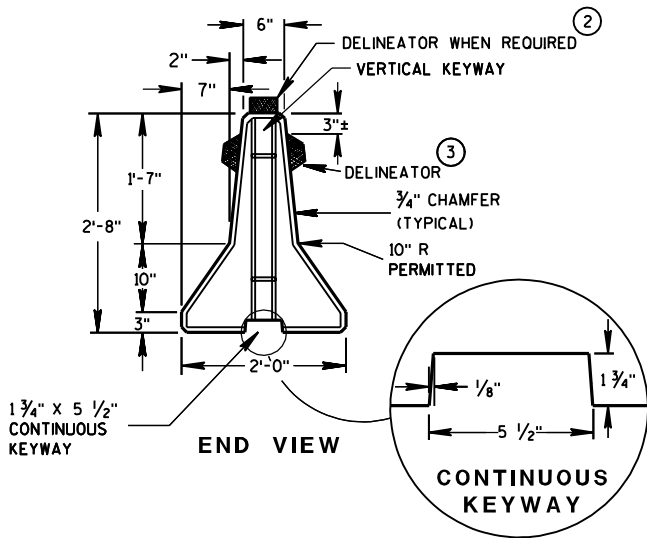
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-24-06
DATE
FWHA

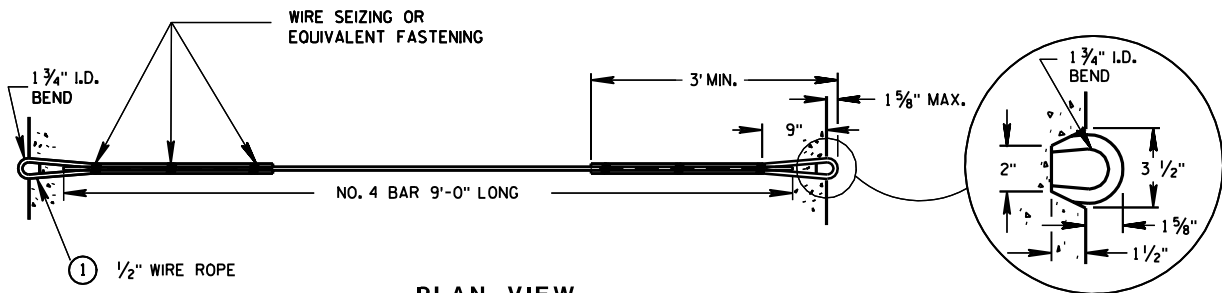
/S/ Jerry H. Zogg
ROADWAY STANDARD DEVELOPMENT
ENGINEER

DESCRIPTION	SIZE	NO. REQ'D	LENGTH
TOP CONNECTOR WIRE ROPE ①	1/2"	2	6'-0"
BOTTOM CONN. WIRE ROPE ①	1/2"	2	6'-0"
TOP CONNECTOR STEEL BAR	NO. 4	1	9'-0"
BOTTOM CONN. STEEL BAR	NO. 4	1	9'-0"
STEEL CONNECTING PIN	1 1/4" DIA.	1	2'-6"
BOTTOM TIE BARS	NO. 4	5	1'-8"
VERTICAL STEEL BAR	NO. 4	10	2'-1"
HORIZONTAL STEEL BAR	NO. 5	4	9'-4"

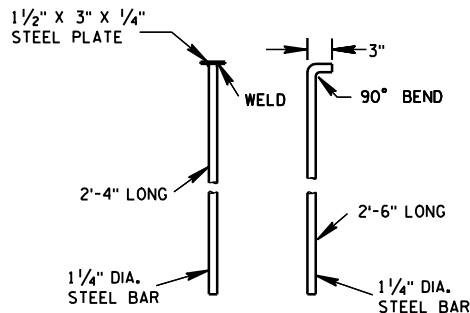
BILL OF MATERIALS



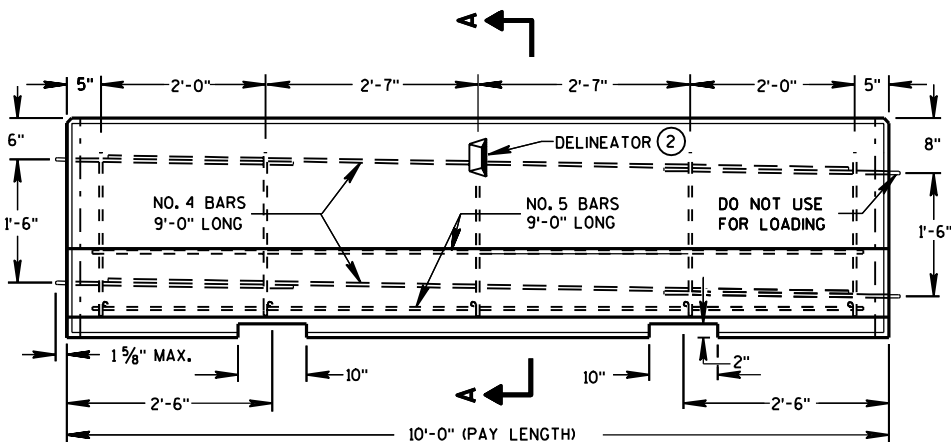
PIN & LOOP CONNECTION DETAILS



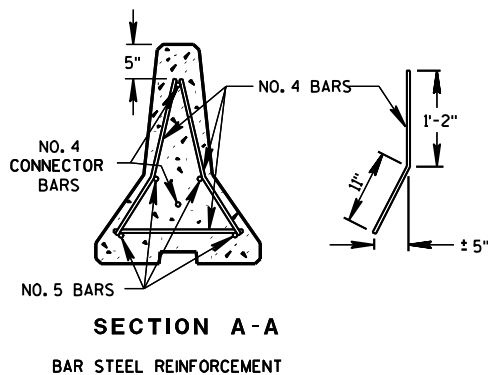
PLAN VIEW
TOP & BOTTOM CONNECTOR ASSEMBLY ①



ALTERNATE
CONNECTING PINS



SIDE VIEW
LOCATION OF REINFORCEMENT STEEL



SECTION A-A

BAR STEEL REINFORCEMENT

GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-11(e) AND 14B7-11(f).

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

THIS STANDARD DETAIL DRAWING CONSISTS OF 6 SHEETS, 14B7-11(g) THRU 14B7-11(i).

DETAILS AND REQUIREMENTS FOR THE FABRICATION AND INSTALLATION OF CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) ARE SHOWN ON 4 SHEETS, 14B7-11(g) THRU 14B7-11(i).

DETAILS AND REQUIREMENTS FOR CONCRETE BARRIER TEMPORARY PRECAST, 10'-0" (CBTP10.0) ARE SHOWN ON 2 SHEETS, 14B7-11(e) THRU 14B7-11(f). CONCRETE BARRIER TEMPORARY PRECAST, 10'-0" (CBTP10.0) MAY BE USED UNTIL MAY 31, 2013, BUT ONLY IF ALL THE FOLLOWING CONDITIONS ARE MET:

THE CBTP10.0 WAS MANUFACTURED BEFORE JUNE 1, 2003.

THE CBTP10.0 MEETS ALL THE REQUIREMENTS OF STANDARD DETAIL DRAWINGS 14B7-11(e) AND 14B7-11(f).

THE CBTP10.0 IS IN GOOD CONDITION.

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH CONCRETE BARRIER TEMPORARY PRECAST, 10'-0" (CBTP10.0) IN ANY SINGLE RUN OR INSTALLATION.

PLACE BARRIER ON PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

DO NOT ANCHOR CONCRETE BARRIER TEMPORARY PRECAST 10'-0".

BARRIERS SHALL BE REINFORCED WITH EITHER BAR STEEL REINFORCEMENT AS DETAILED ON THIS DRAWING OR WELDED STEEL WIRE FABRIC ADEQUATE TO ASSURE SAFE HANDLING STRENGTH.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN.

WIRE ROPE SHALL BE ZINC-COATED 6 X 19 CLASS 2 IWRC WITH A MINIMUM BREAKING STRENGTH OF 20,000 LBS. AND SHALL CONFORM TO FEDERAL SPECIFICATION RR-W-410. THE ZINC COATING SHALL CONFORM TO TABLE II OF THE FEDERAL SPECIFICATIONS.

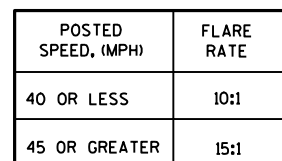
DELINEATORS SHALL CONFORM TO SECTION 633 OF THE STANDARD SPECIFICATIONS EXCEPT THE SHAPE SHALL BE AS SHOWN ON THIS DRAWING. ALTERNATIVE SHAPES MAY BE USED WHEN APPROVED BY THE ENGINEER. CONCRETE SURFACE PREPARATION, ADHESIVE AND METHOD OF APPLICATION SHALL BE AS RECOMMENDED BY THE DELINEATOR MANUFACTURER. THE COLOR OF REFLECTORS SHALL BE YELLOW WHEN LOCATED TO THE LEFT OF TRAFFIC AND WHITE WHEN LOCATED TO THE RIGHT OF TRAFFIC. MAXIMUM SPACING SHALL BE 20 FEET.

CONCRETE BARRIER TEMPORARY PRECAST, 10'-0", WHETHER UN-RESTRAINED OR RESTRAINED, SHALL NOT BE USED IF THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 8 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF.

- CONNECTOR ASSEMBLIES MAY, AT THE CONTRACTORS OPTION, BE FORMED FROM A CONTINUOUS SECTION OF 1/2 INCH WIRE ROPE (16'-6" MIN. LENGTH). THE NO 4 CONNECTOR STEEL BARS MAY THEN BE OMITTED.
- TOP MOUNTED DELINEATORS SHALL BE PROVIDED IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON CURVED ALIGNMENT LONGER THAN 200 FT.
- BARRIERS USED TO SEPARATE OPPOSING TRAFFIC SHALL HAVE DELINEATORS ON BOTH SIDES. TOP MOUNTED DELINEATORS SHALL BE DOUBLE FACED FOR THIS CONDITION.

CONCRETE BARRIER
TEMPORARY PRECAST, 10'-0"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



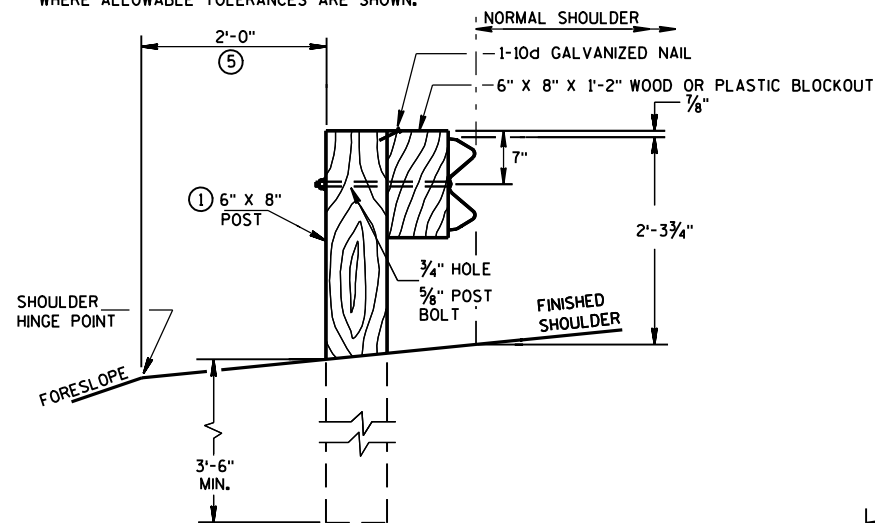
* WHEN BARRIERS ARE USED TO SEPARATE OPPOSING TRAFFIC, DELINEATORS ARE REQUIRED ON BOTH SIDES.

S.D.D. 14B 7-11f

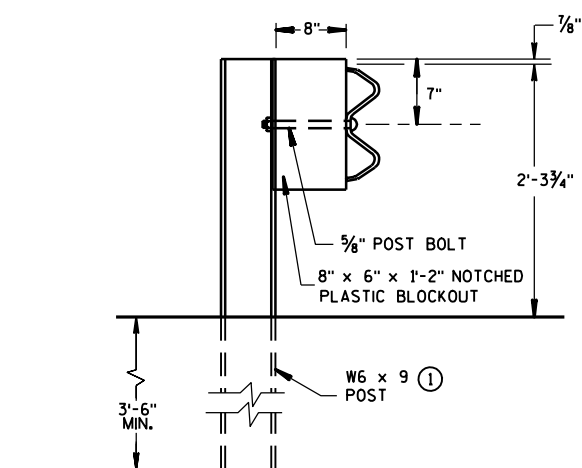
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, AND THE APPLICABLE SPECIAL PROVISIONS.

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.
DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ WHEN SPECIFIED IN THE PLANS, THE SHOULDER HINGE POINT MAY BE BETWEEN THE FRONT FACE OF THE POST AND 2 FEET BEHIND THE BACK OF THE POST, IF EXISTING CONDITIONS DO NOT PERMIT THE DESIRABLE EARTHWORK.
INCREASE POST DEPTH TO PROVIDE A MINIMUM EMBEDMENT OF 4'-6" WHERE THE SHOULDER HINGE POINT IS LOCATED BETWEEN THE FRONT FACE OF THE POST AND 2 FEET BEHIND THE BACK OF THE POST.
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.

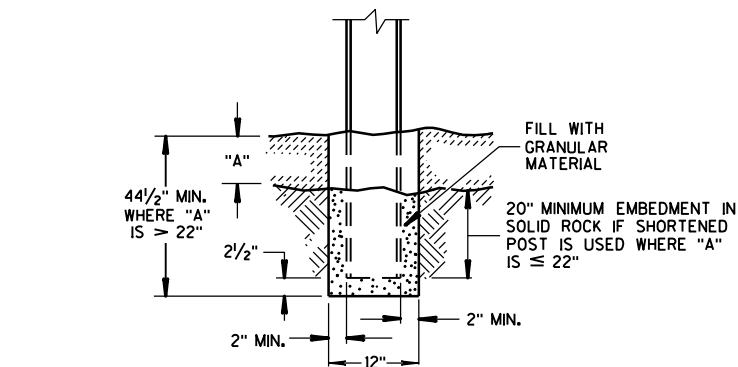
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



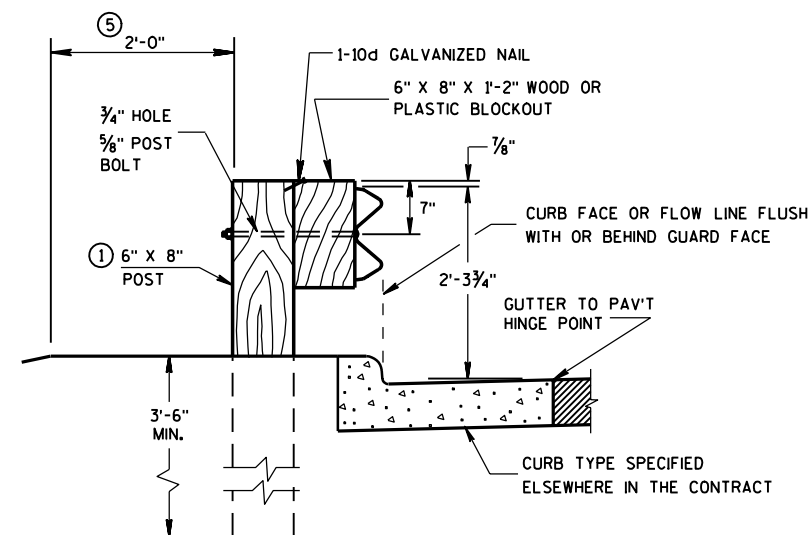
END VIEW
LOCATED ALONG A ROADWAY SHOULDER



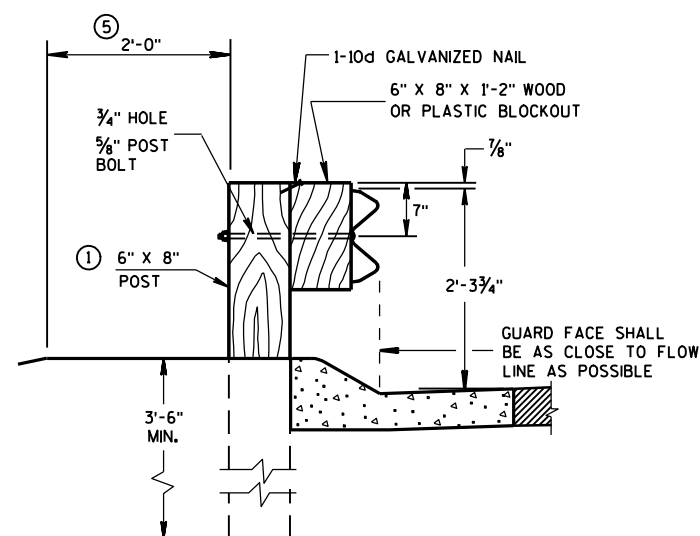
**END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE**



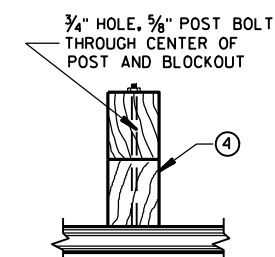
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ⑥



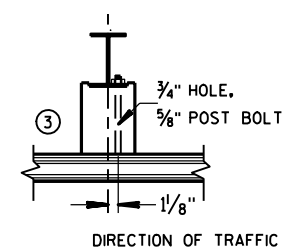
END VIEW
LOCATED ALONG A CURBED ROADWAY



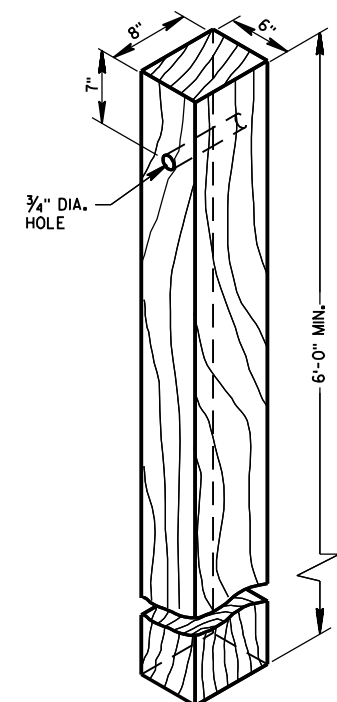
END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY



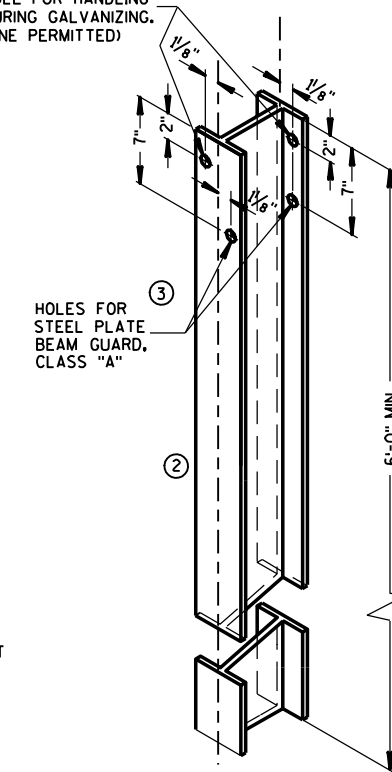
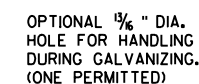
PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

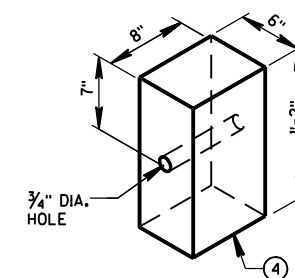


**WOOD POST
(6"X8") NOMINAL**

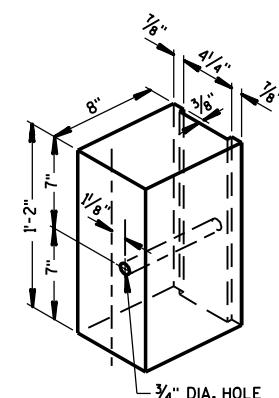


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) ①

ALL HOLES $\frac{13}{16}$ " DIAMETER EXCEPT AS NOTED



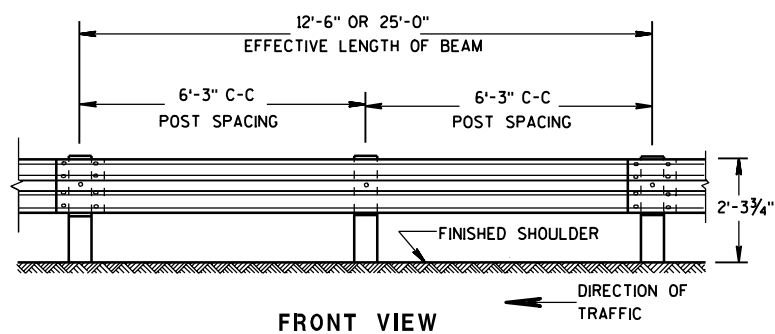
**WOOD OR PLASTIC
BLOCKOUT FOR WOOD POSTS**



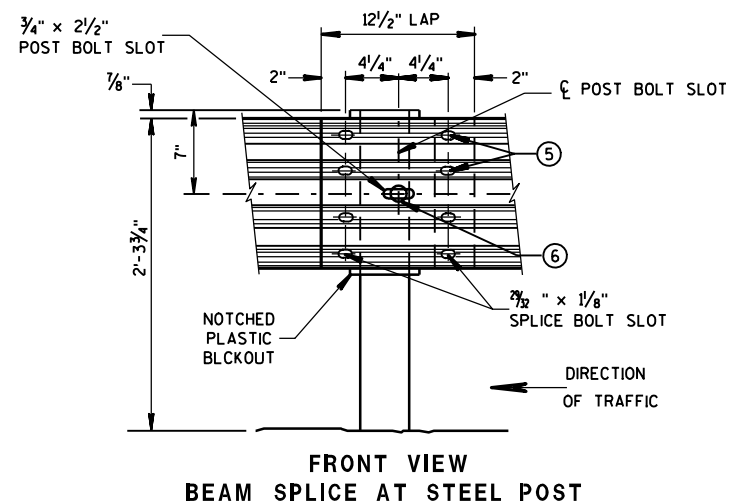
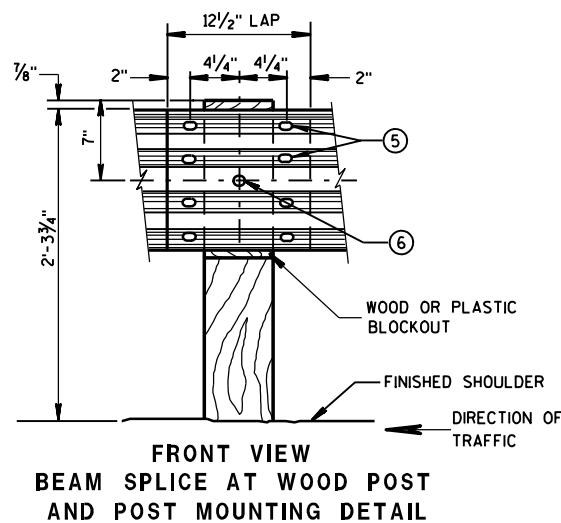
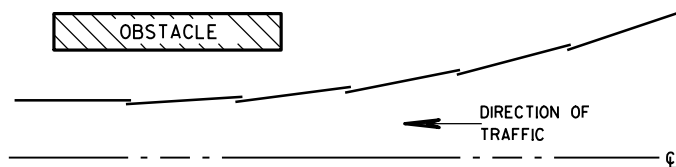
**TYPICAL NOTCHED PLASTIC^①
BLOCKOUT FOR STEEL POSTS**

STEEL PLATE BEAM GUARD,
CLASS "A"
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



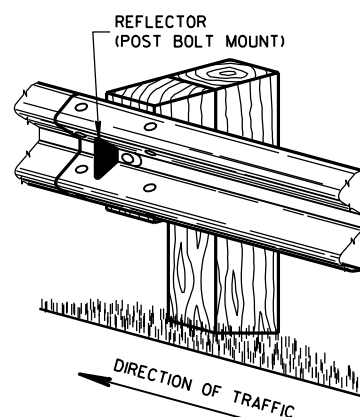
**PLAN VIEW
BEAM LAPPING DETAIL**



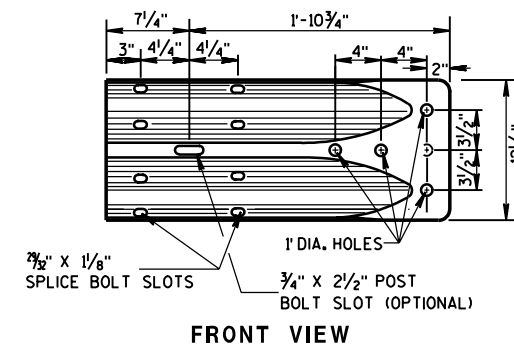
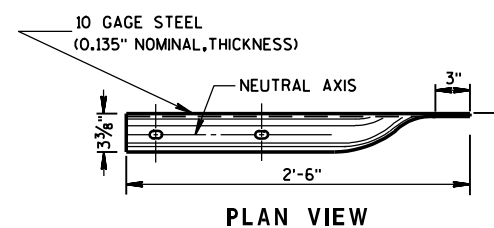
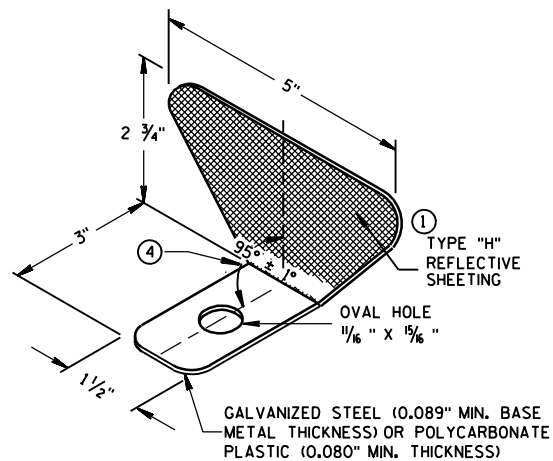
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

REFLECTOR SPACING ②

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	



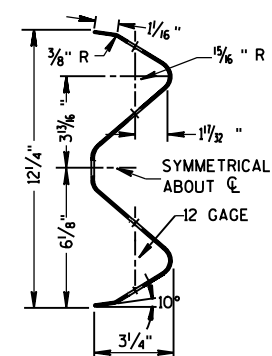
ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①



W BEAM TERMINAL CONNECTOR
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑤ 8 - 5/8" ϕ X 1 1/4" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑥ 5/8" ϕ X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.



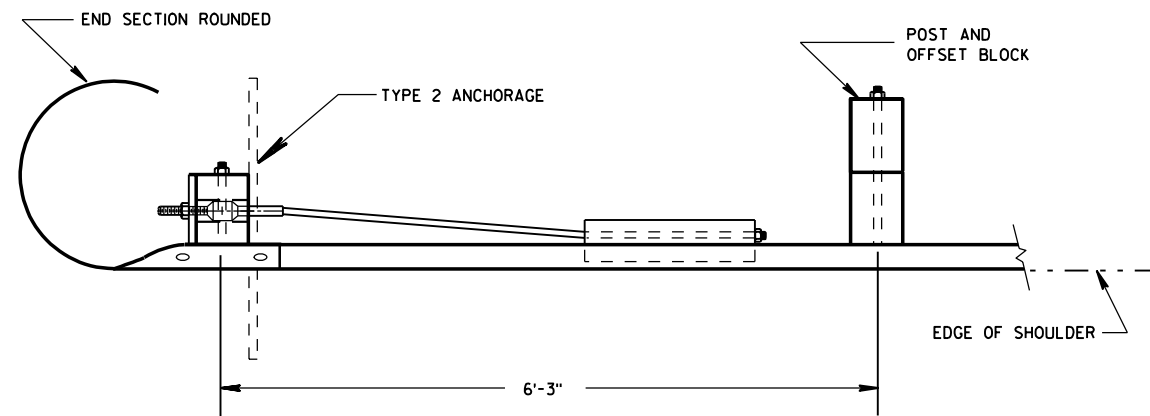
SECTION THRU W BEAM

STEEL PLATE BEAM GUARD, CLASS 'A', INSTALLATION & ELEMENTS

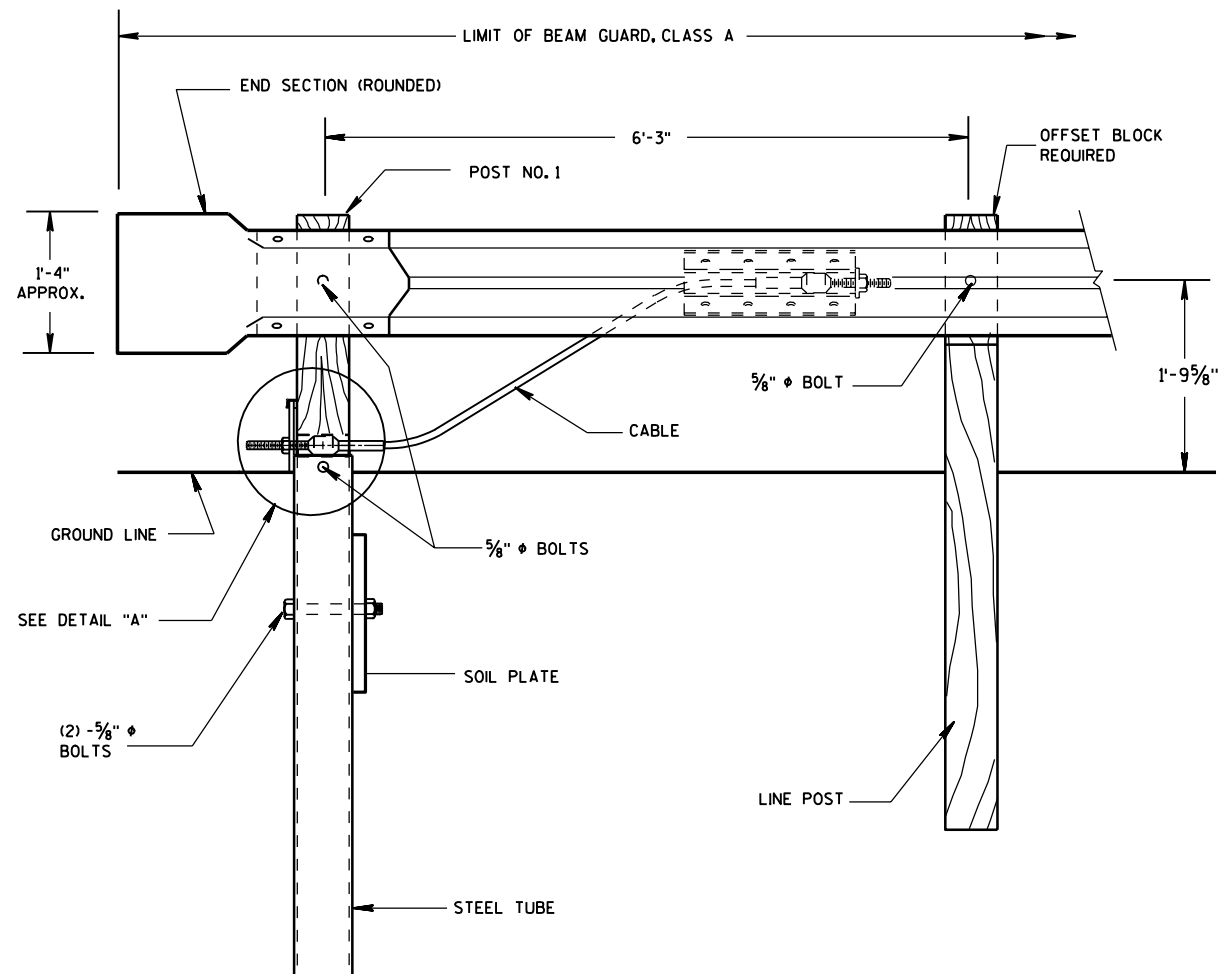
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/23/06
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

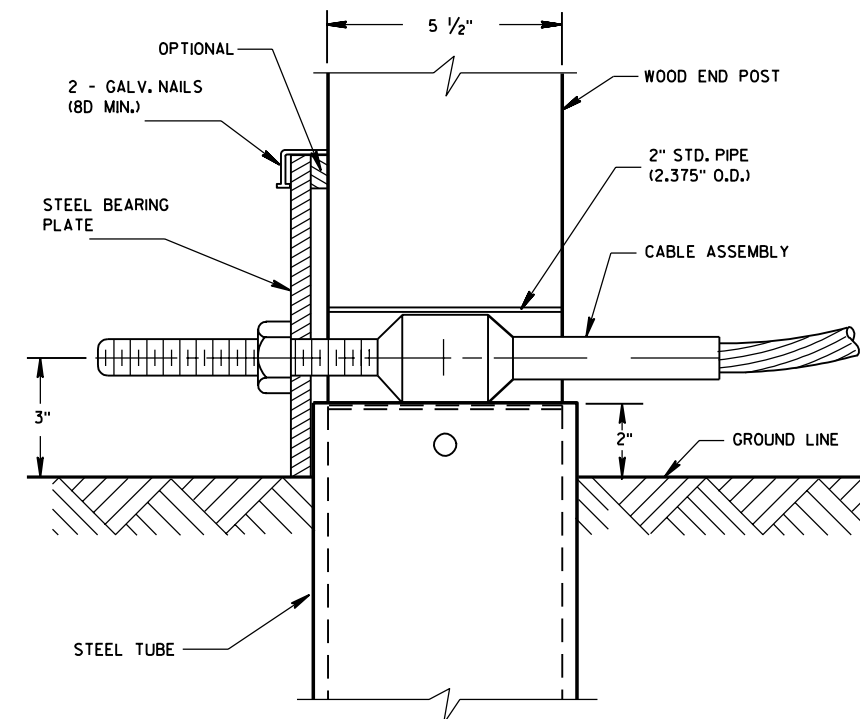


PLAN VIEW

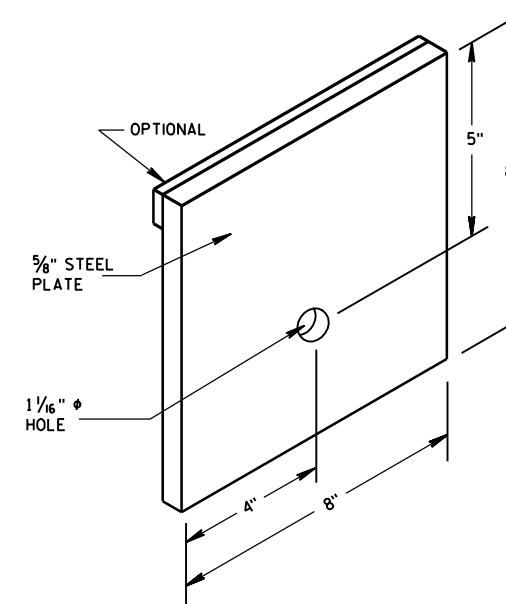


FRONT VIEW

END TREATMENT WITH TYPE 2 ANCHORAGE
(USE ON ONE-WAY ROADWAYS ONLY - DEPARTING END)



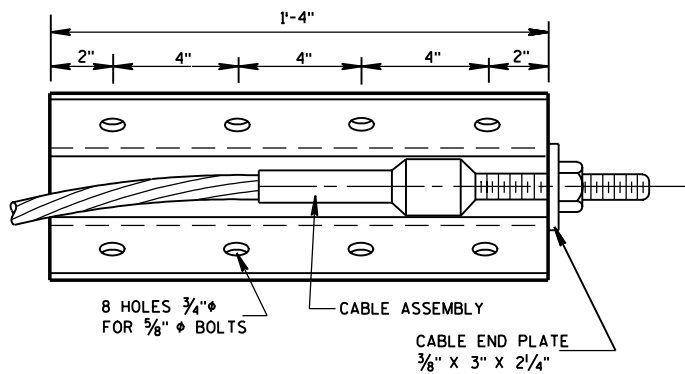
DETAIL "A"
POST NO. 1



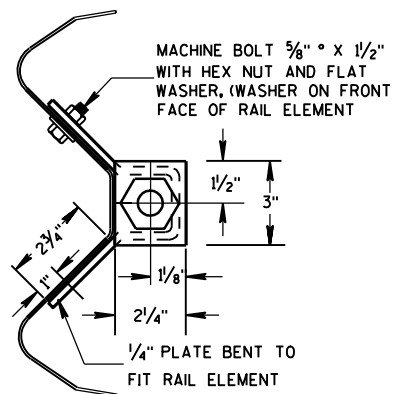
STEEL BEARING PLATE

**ANCHORAGE FOR STEEL
PLATE BEAM GUARD
TYPE 2**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

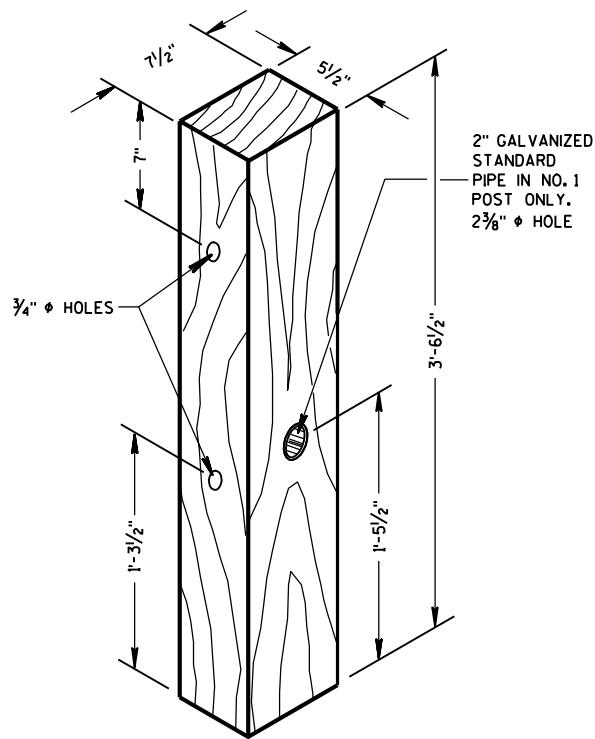


FRONT VIEW

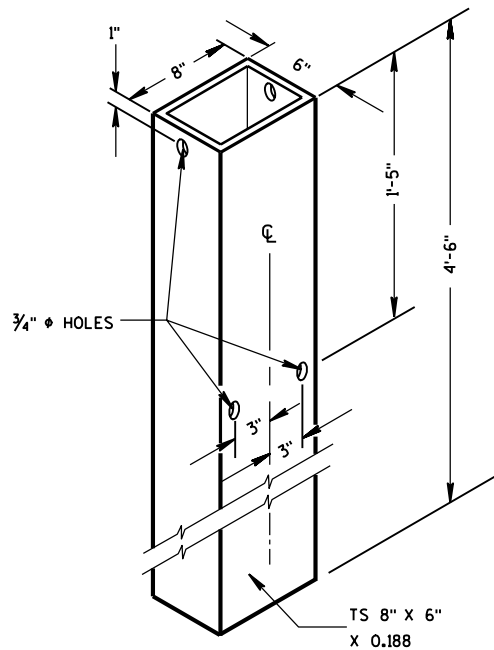


END VIEW

ANCHOR PLATE DETAIL

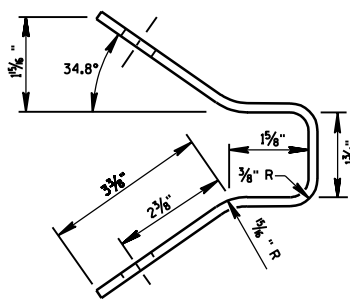


WOOD BREAKAWAY POST

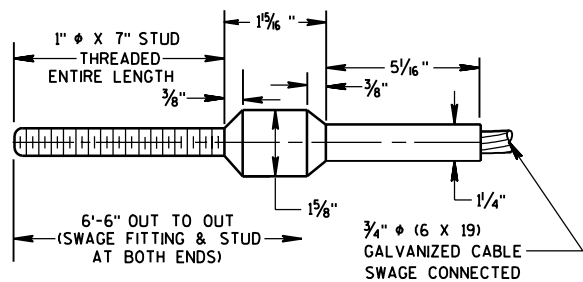


STEEL TUBE

STEEL TUBE SHALL CONFORM TO REQUIREMENTS OF ASTM A500

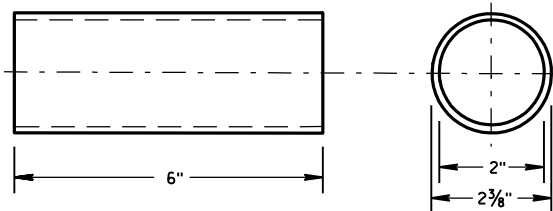


END VIEW OF BRACKET



CABLE ASSEMBLY

CABLE, SWAGE FITTING, STUD AND NUT SHALL DEVELOP A MINIMUM BREAKING STRENGTH OF 40,000 LB (TIGHTEN UNTIL TAUT)



BREAKAWAY TERMINAL POST SLEEVE

GALVANIZED STANDARD STRENGTH STEEL PIPE, ASTM 53 GRADE "B"

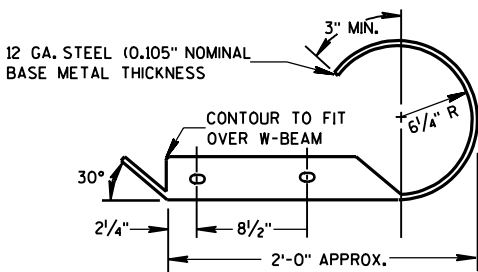
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THW STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

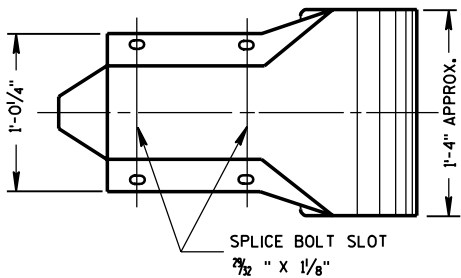
STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-500 GRADE B OR ASTM A-501.

POST NO.1 SHALL BE WOOD BREAKAWAY POST INSERTED AND BOLTED INTO STEEL TUBE.

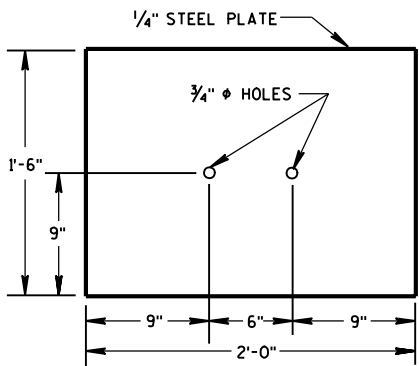
TYPE 2 ANCHORAGE SHALL CONSIST OF A STEEL TUBE, SOIL PLATE WOOD BREAKAWAY POST, BEARING PLATE, ANCHOR PLATE, CABLE ASSEMBLY AND ALL ASSOCIATED HARDWARE, ALL STEEL PARTS SHALL BE GALVANIZED.



PLAN VIEW

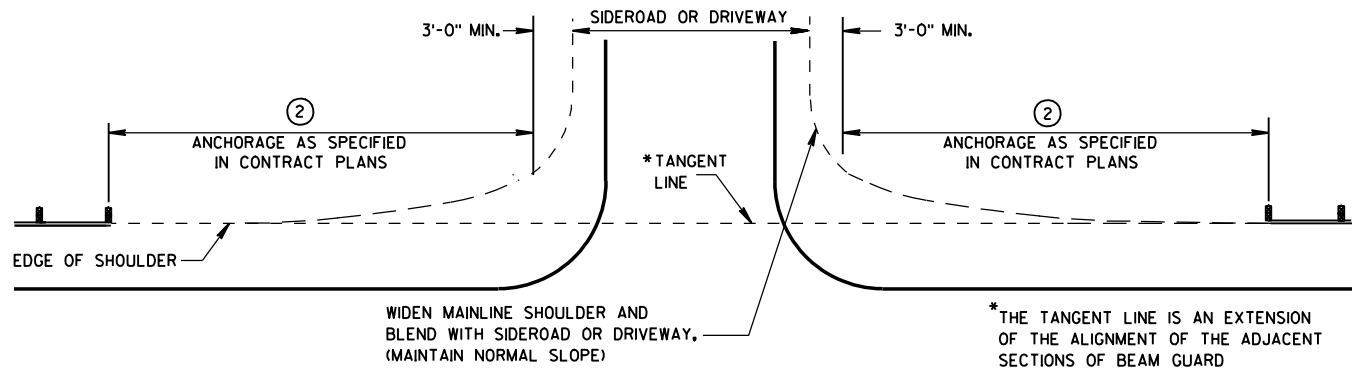


FRONT VIEW
W BEAM END SECTION ROUNDED

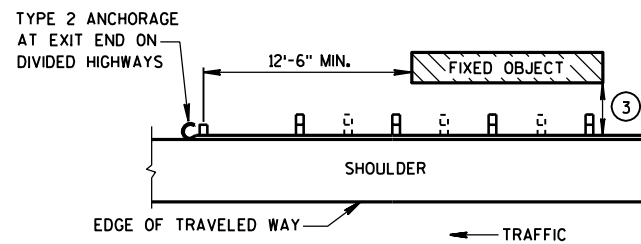


SOIL PLATE

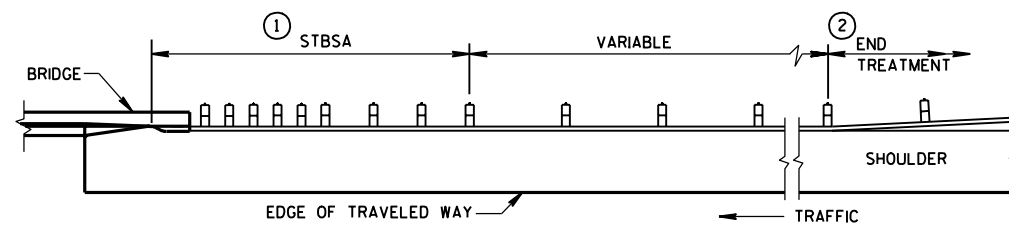
ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/21/07 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



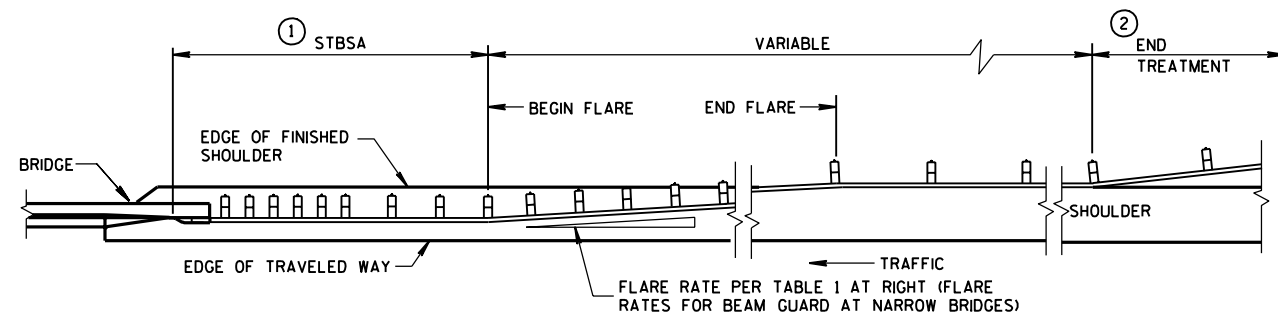
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

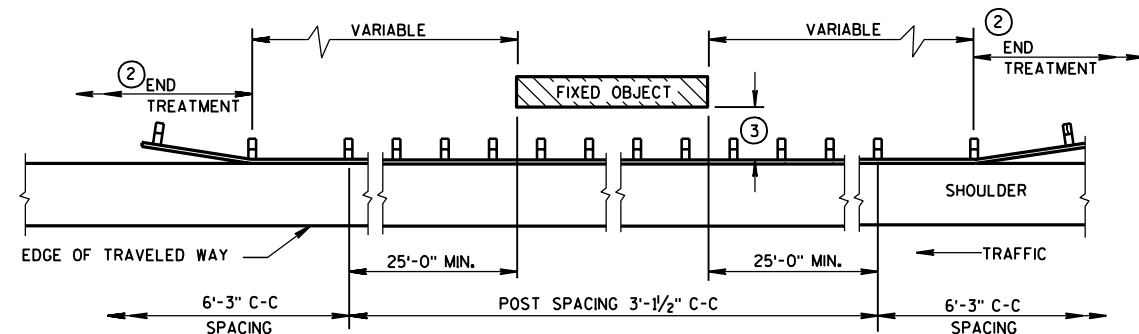
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- ② USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1½"
4'-6"	6' - 3"



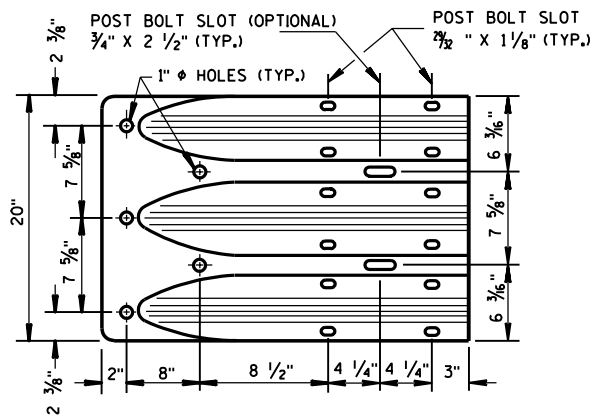
BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

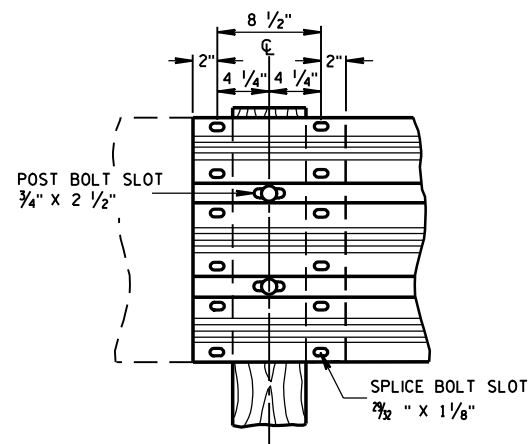
TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1

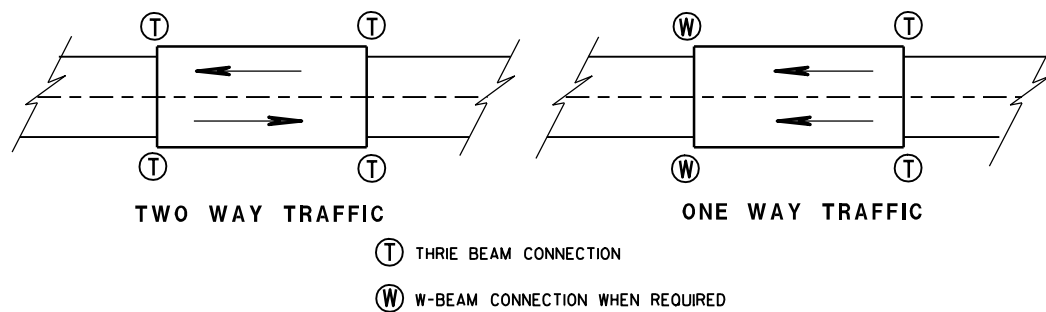
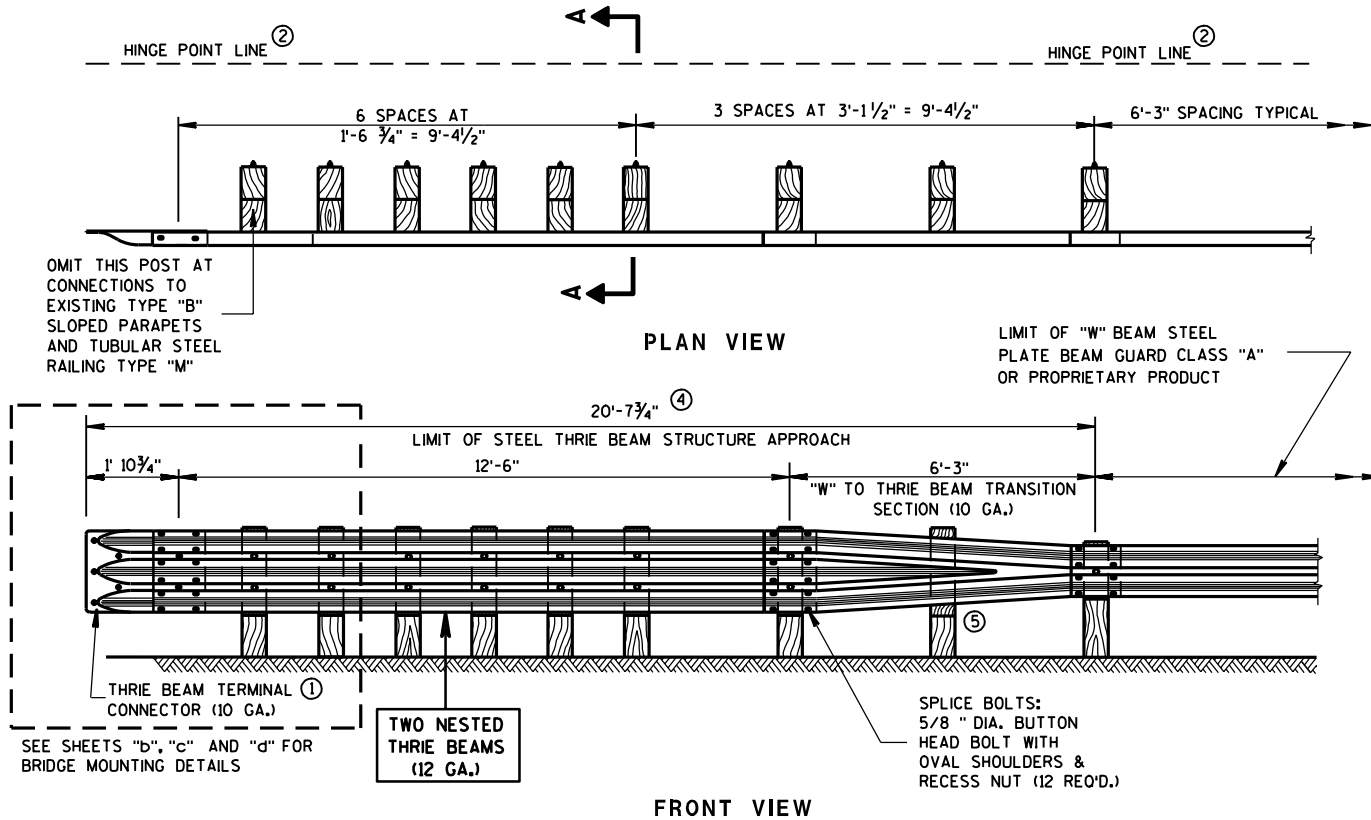
STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8-21-07 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

TYPICAL LOCATIONS OF THRIE BEAM
AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

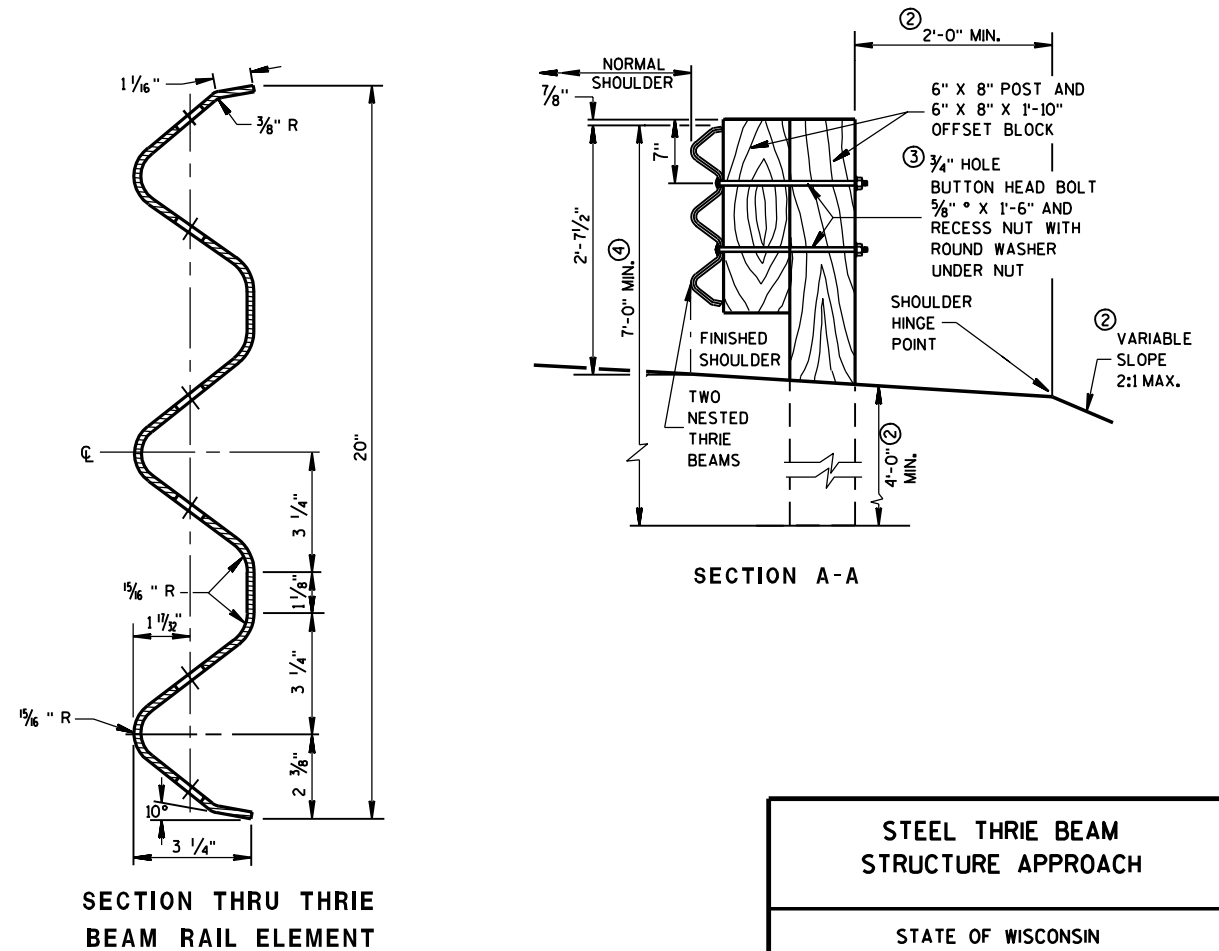
FURNISH AND CONSTRUCT THRIE BEAM STRUCTURAL APPROACH ACCORDING TO THE REQUIREMENTS OF SECTION 614 OF THE STANDARD SPECIFICATIONS. THRIE BEAM SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M180, CLASS "A", TYPE 2.

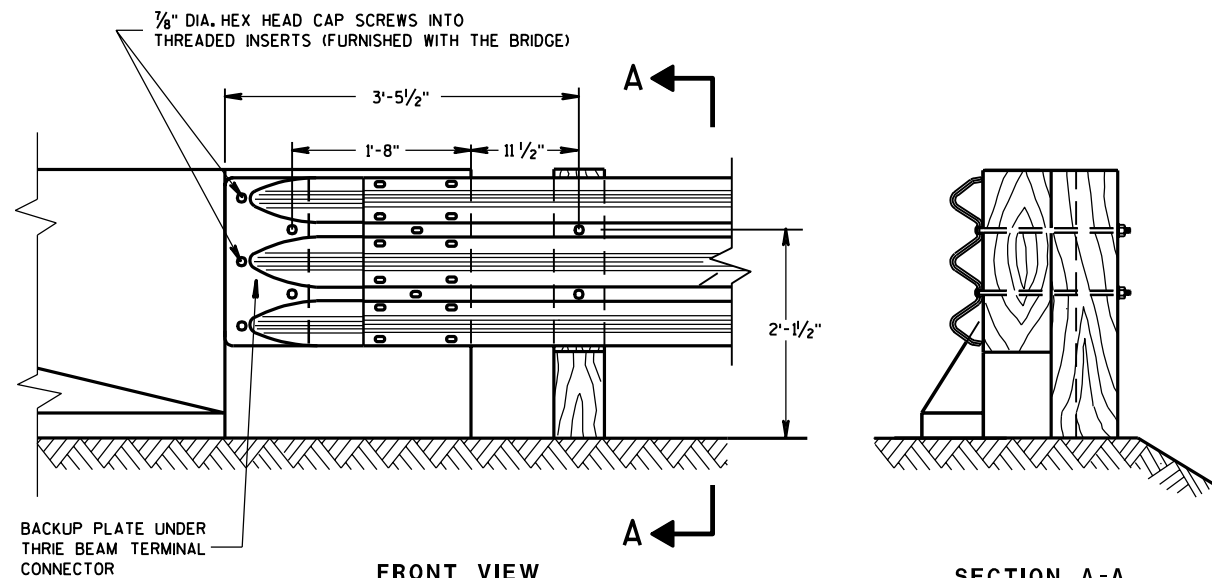
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY, (SEE SDD 14 B 15-4a).

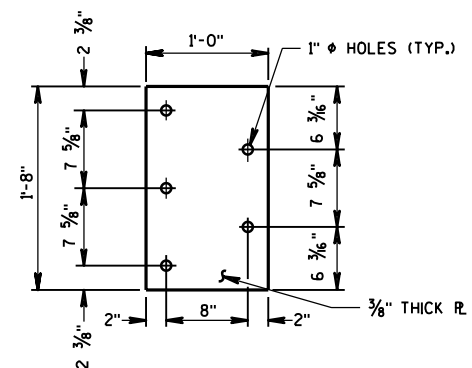
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0", WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F-1554, GRADE 55. NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-563 DH.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.
- ⑤ DO NOT ATTACH POST IN "W" TO THRIE BEAM TRANSITION SECTION.



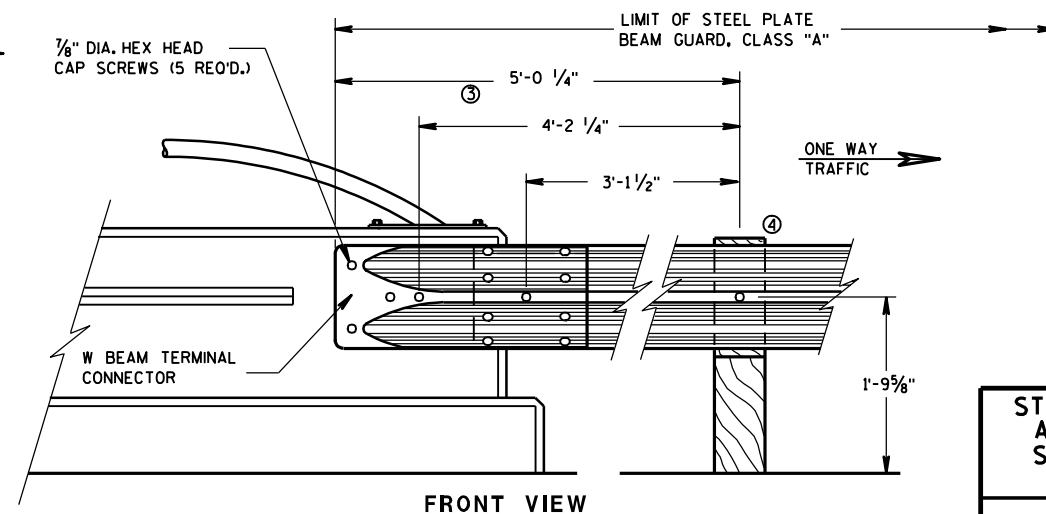
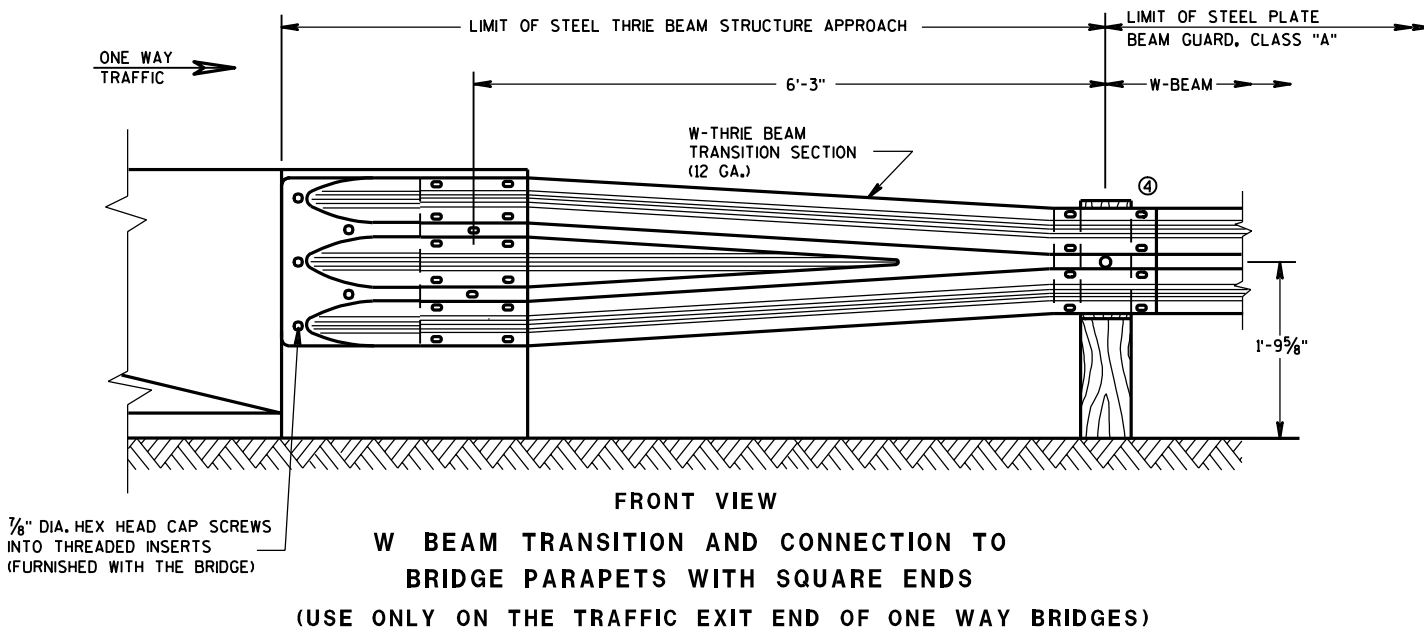


FRONT VIEW
THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS

SECTION A-A



② BACKUP PLATE DETAIL
(USE ONLY AT BRIDGE PARAPET CONNECTIONS)



W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

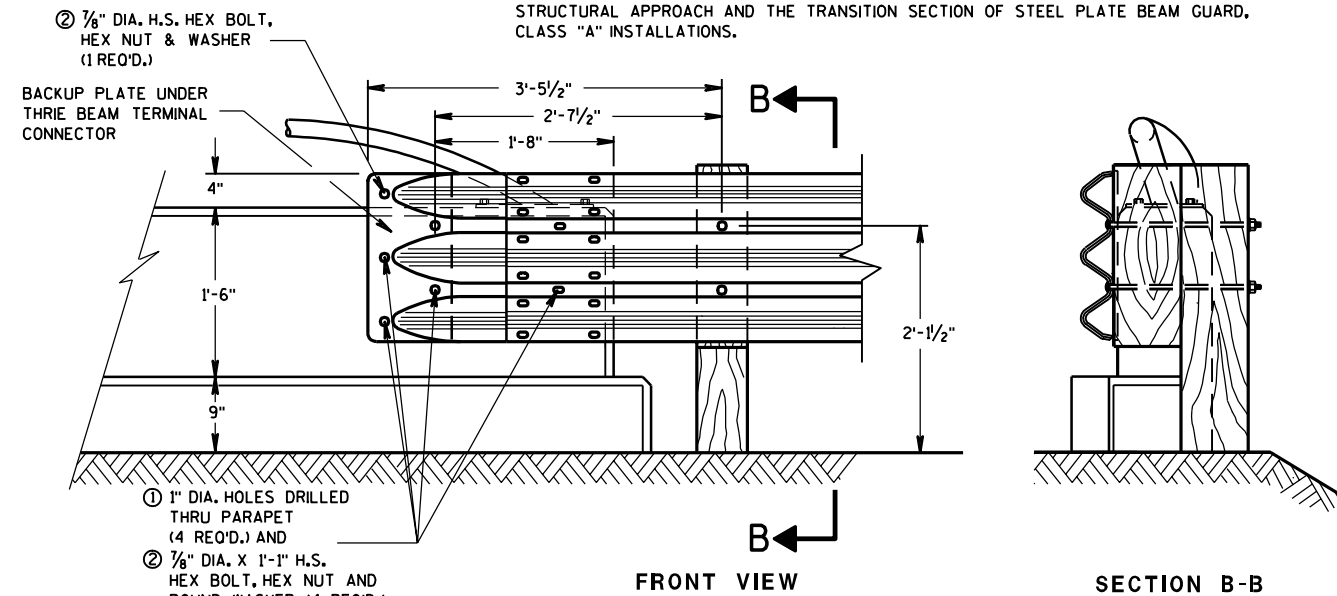
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, PLATES AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325, AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

- ① INCLUDE THE PAYMENT FOR DRILLING BOLT HOLES THROUGH THE PARAPET, AND THE BACKUP PLATE AND ALL BOLTS, NUTS AND WASHERS IN THE ITEM "STEEL THRIE BEAM STRUCTURAL APPROACH".
- ② EACH BOLT AT THE BACK FACE OF THE PARAPET REQUIRES A HARDENED ROUND STEEL WASHER WITH A 2 1/4" O.D. X 3/32" THICK.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
SQUARE END AND VERTICAL
FACED PARAPETS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 2-12-04
 DATE
 FHWA

CHIEF ROADWAY DEVELOPMENT ENGINEER

BILL OF MATERIALS

NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	4	STEEL TUBE: TS 8" X 6" X 0.188", 4'-6" LONG
③	4	SOIL PLATE: 2'-0" X 1'-6" X 1/4"
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA. 13'-6 1/2" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA. 13'-6 1/2"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING: 18" X 18"

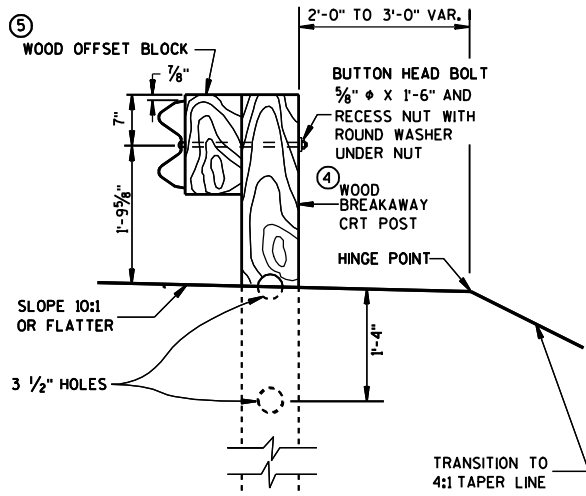
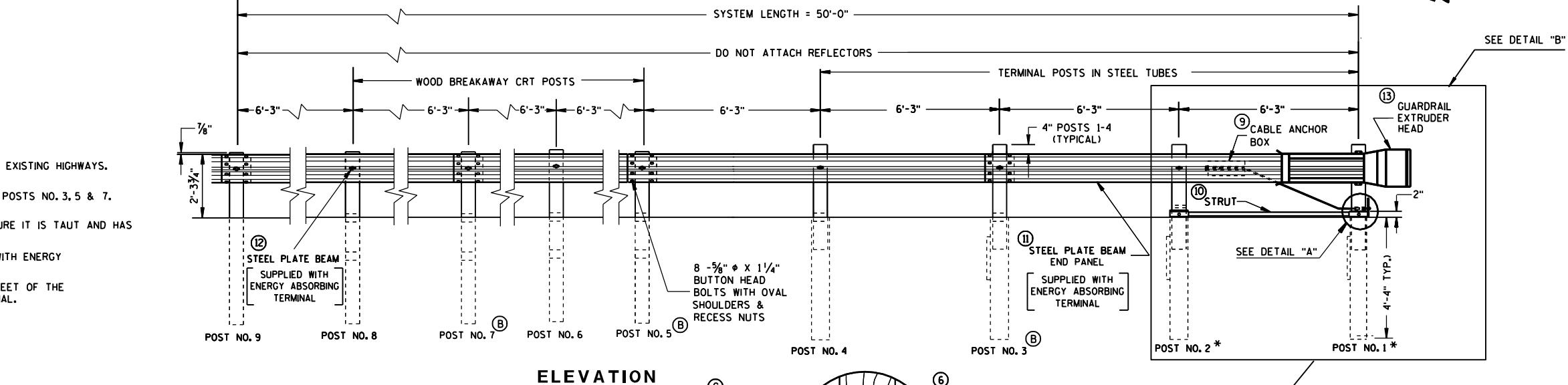
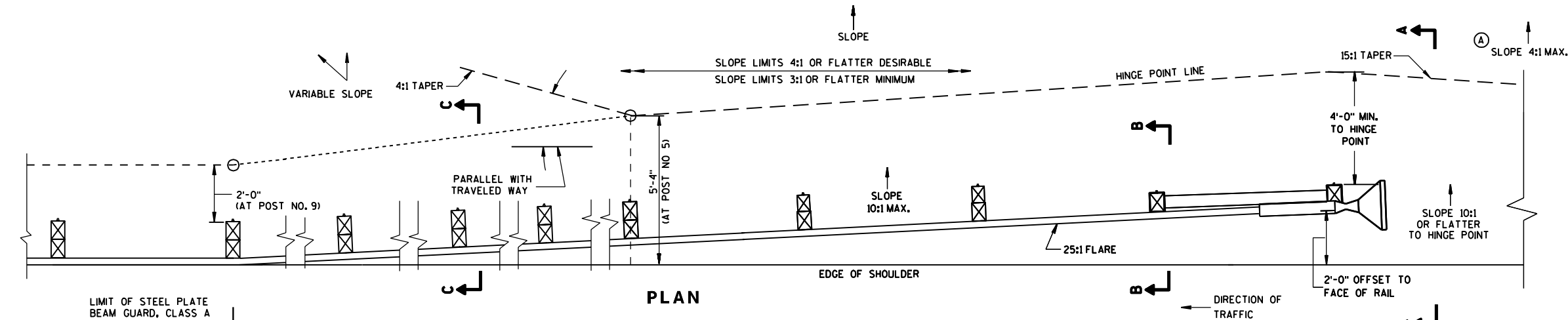
GENERAL NOTES

- (A) USE 3:1 OR FLATTER SLOPE FOR INSTALLATION ON EXISTING HIGHWAYS.
- (B) DO NOT ATTACH GUARDRAIL TO POST BLOCKS AT POSTS NO. 3, 5 & 7.
- (C) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

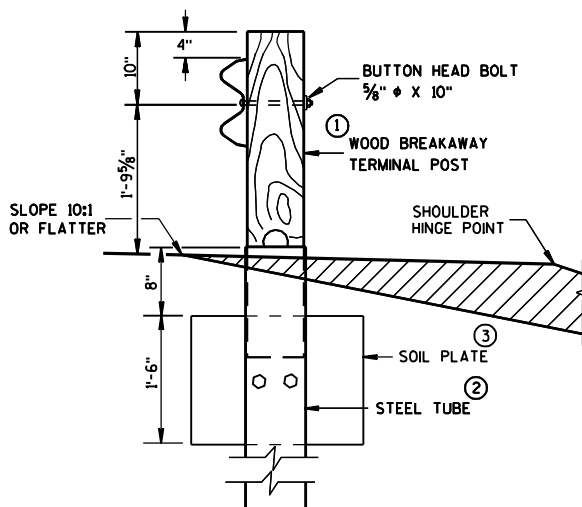
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

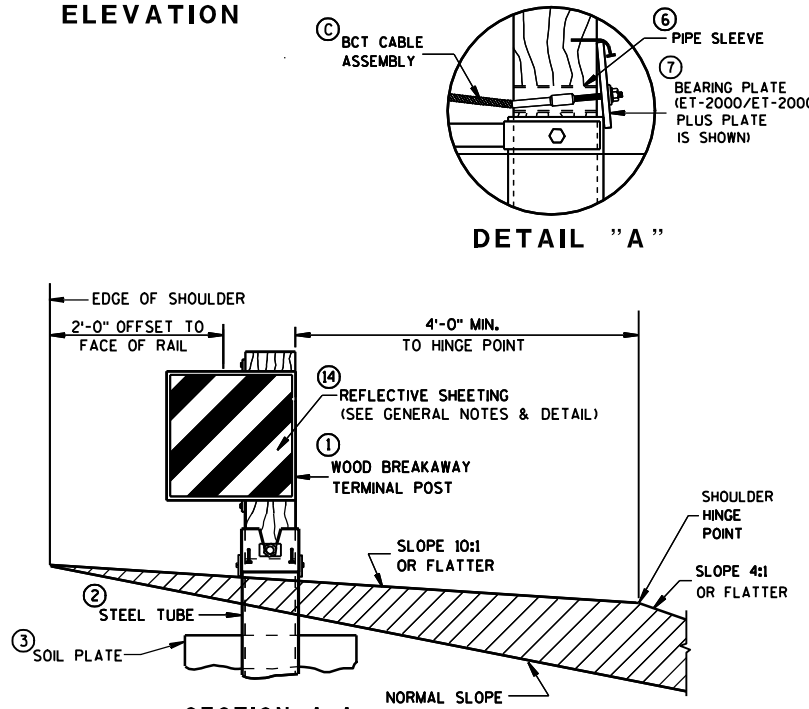
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



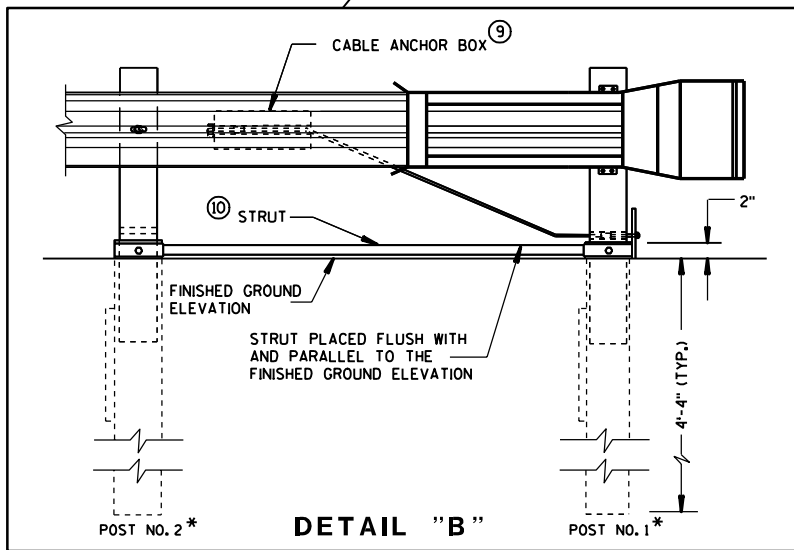
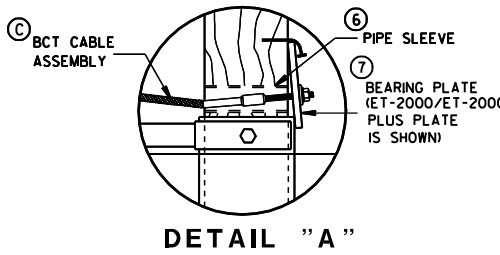
SECTION C-C
TYPICAL AT POST NOS. 4, 6, 8



SECTION B-B
TYPICAL AT POST NO. 2*

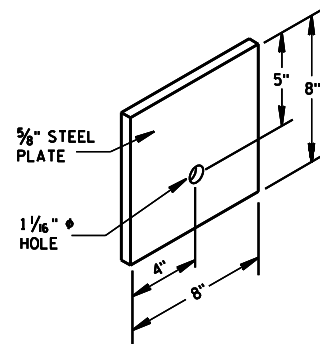


SECTION A-A
TYPICAL AT POST NO. 1*

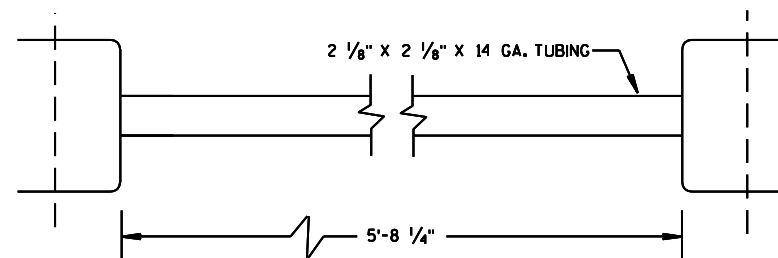


STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

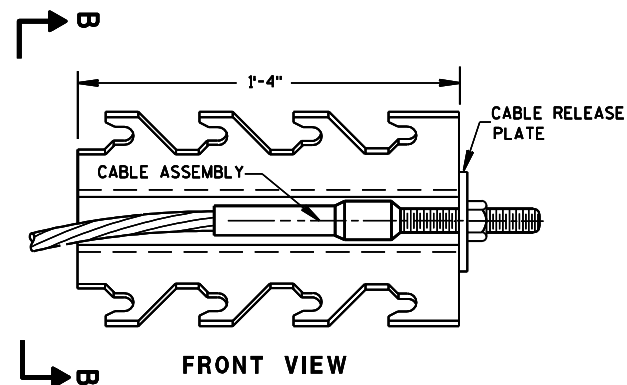
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



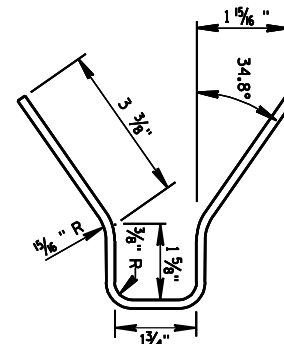
STEEL BEARING PLATE (SKT-350)



STRUT DETAIL (SKT-350)



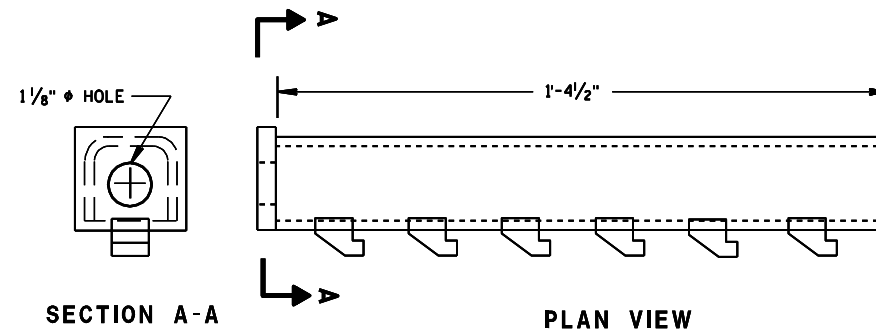
FRONT VIEW



SECTION B-B

CABLE ANCHOR BOX (SKT-350)

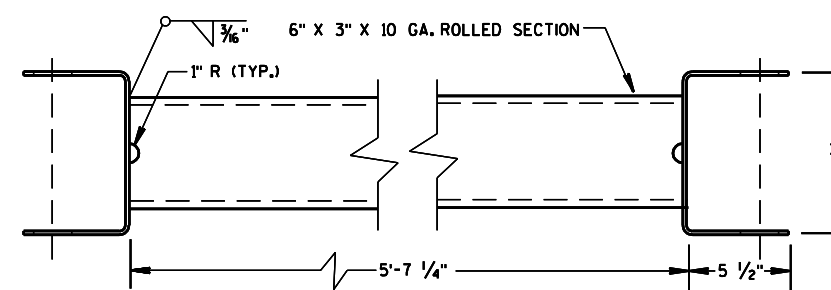
(SKT-350)



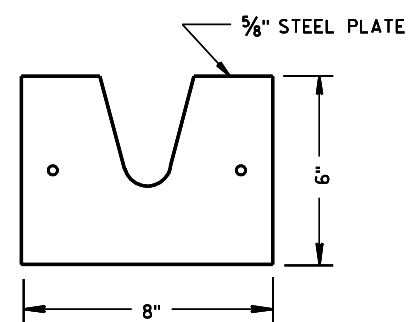
SECTION A-A

PLAN VIEW

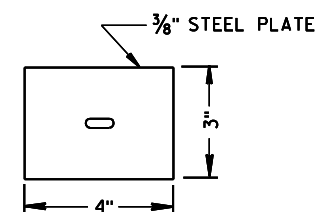
CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



STRUT DETAIL (ET-2000/ET-2000 PLUS)

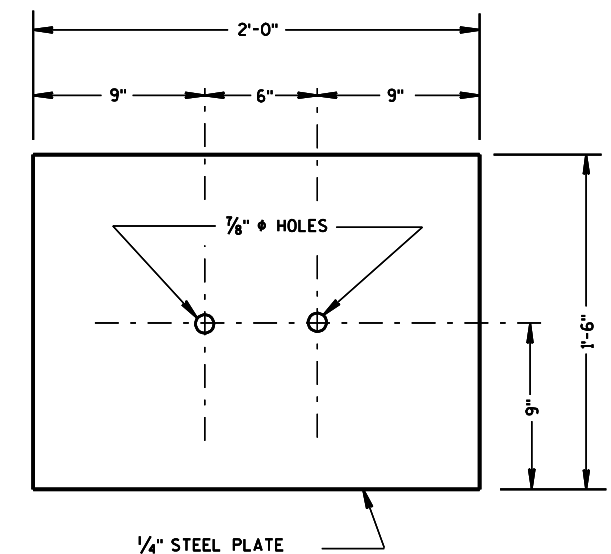


STEEL BEARING PLATE
(ET-2000/ET-2000 PLUS)



BEARING PLATE WASHER
(ET-2000/ET-2000 PLUS)

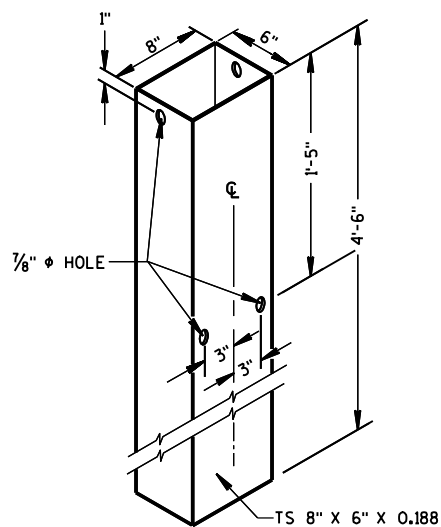
(ET-2000/ET-2000 PLUS)



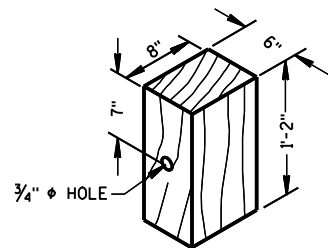
SOIL PLATE
(SKT-350, ET-2000/ET-2000 PLUS)

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

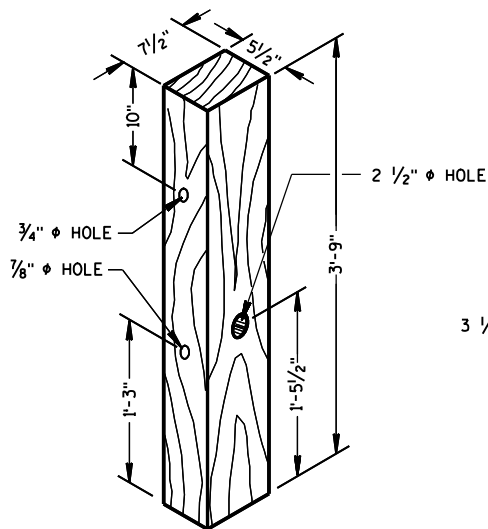
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



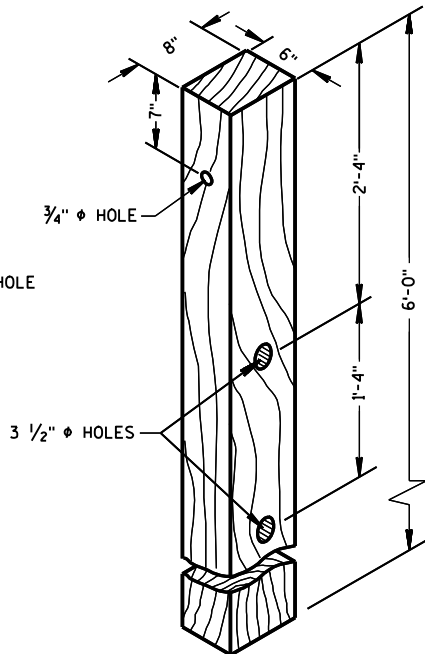
STEEL TUBE
(POSTS NO. 1-4)
THE STEEL TUBE SHALL CONFORM
TO REQUIREMENTS OF ASTM A500



WOOD OFFSET BLOCK
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

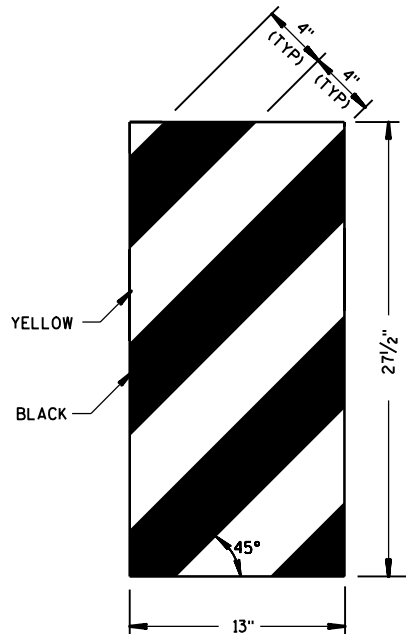


TERMINAL POST
(POSTS NO. 1-4)



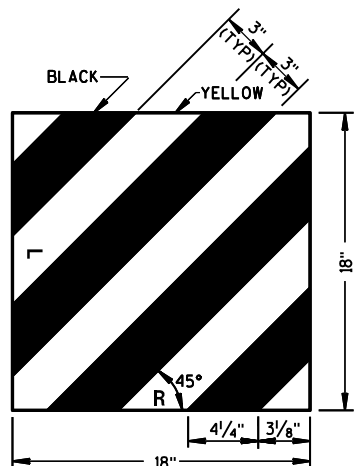
CRT POST
(POSTS NO'S 5-8)

WOOD BREAKAWAY POSTS



ET-2000 PLUS ONLY

REFLECTIVE SHEETING DETAILS



ET-2000 AND SKT-350

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, APPLICABLE SPECIAL PROVISIONS AND MANUFACTURERS INSTRUCTIONS.

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL SHALL BE EITHER THE EXTRUDER TERMINAL (ET-2000), OR THE SEQUENTIAL KINKING TERMINAL (SKT-350). THE CONTRACTOR SHALL NOT INTERMIX PROPRIATERY PRODUCT MATERIALS.

STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

REFLECTIVE SHEETING - SHALL CONFORM TO ASTM SPECIFICATION D4956-94, REFLECTIVE SHEETING TYPE III, BACKING CLASS 4, PERFORMANCE REQUIREMENT TYPE III. THE MESSAGE AND LINES SHALL BE APPLIED TO THE SIGNS BY THE SILK SCREEN STENCIL PROCESS USING A BLACK OR DARK STENCIL PASTE AS A TYPE APPROVED BY THE MANUFACTURER OF THE FACE MATERIAL TO WHICH IT IS TO BE APPLIED. MESSAGE UNITS CUT FROM NONREFLECTIVE SHEETING AND APPLIED TO THE SIGN FACE ARE NOT ACCEPTABLE. AFTER THE APPROACH END OF THE STEEL PLATE BEAM GUARD INSTALLATION IS COMPLETE, CLEAN THE AREA WHERE THE REFLECTIVE SHEETING WILL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION. ONCE CLEAN, APPLY REFLECTIVE SHEETING DIRECTLY TO THE STEEL PLATE BEAM GUARD AS SHOWN. THE CONTRACTOR SHALL TURN OVER THE MANUFACTURERS WARRANTY FOR THE REFLECTIVE SHEETING TO THE DEPARTMENT FOR POTENTIAL DEALING WITH THE MANUFACTURER. PAYMENT OF REFLECTIVE SHEETING IS INCIDENTAL TO STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL.

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES 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.

**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

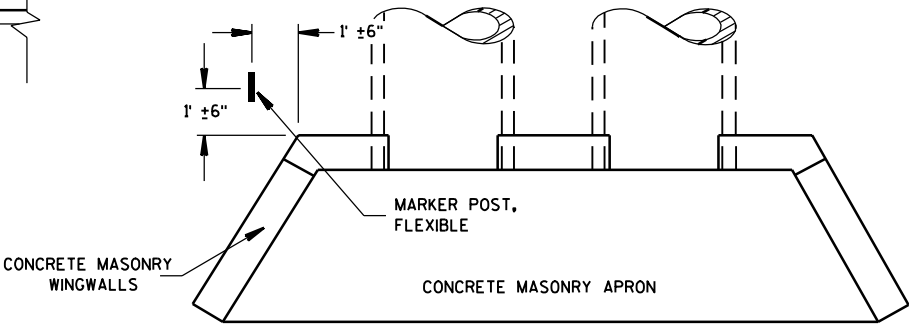
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6-25-03
DATE
FHWA

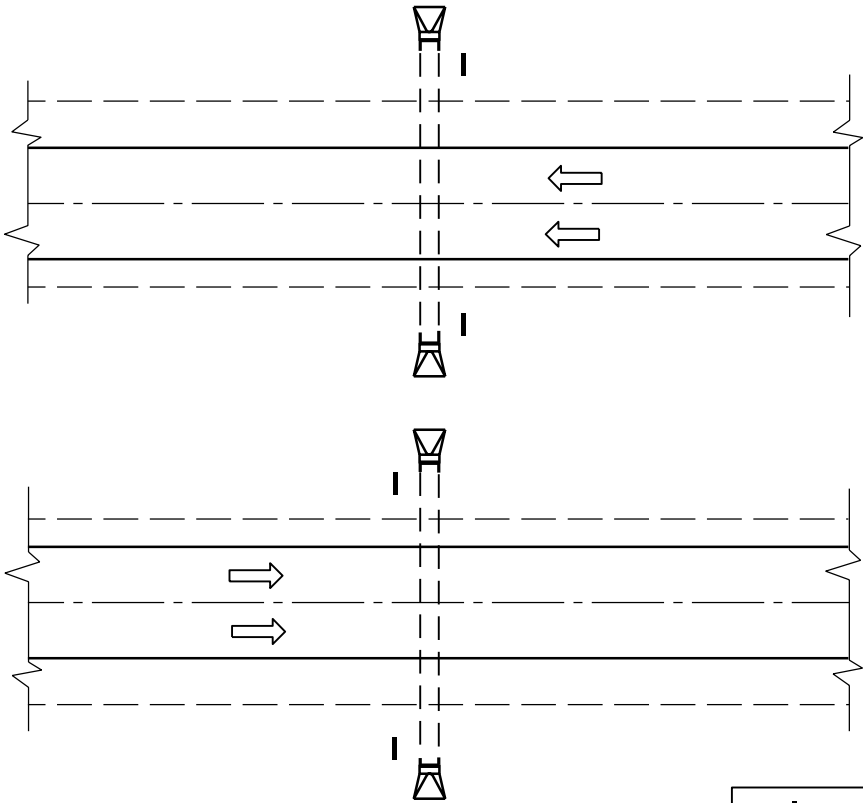
[Signature]
CHIEF ROADWAY DEVELOPMENT ENGINEER

GENERAL NOTES

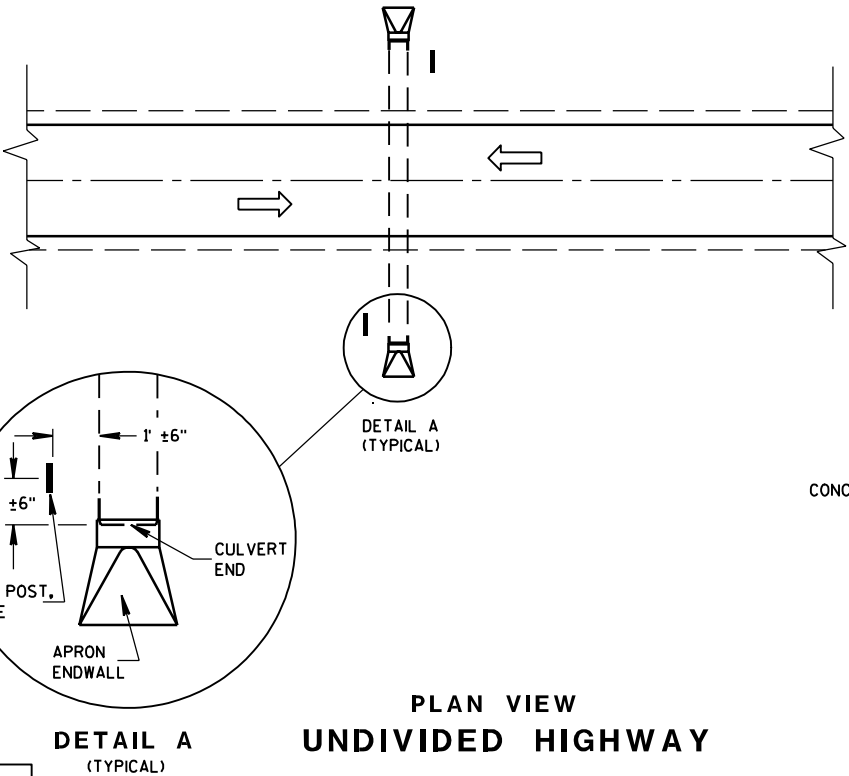
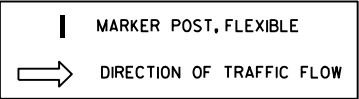
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

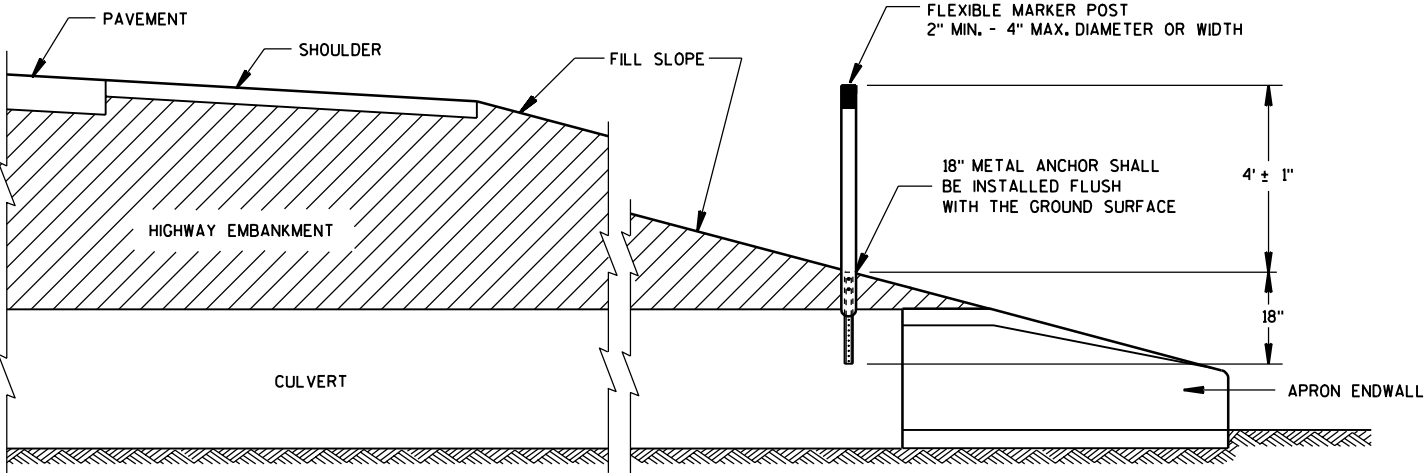


PLAN VIEW
DIVIDED HIGHWAY

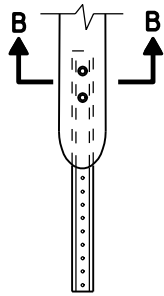


PLAN VIEW
UNDIVIDED HIGHWAY

FLEXIBLE MARKER POST LOCATION



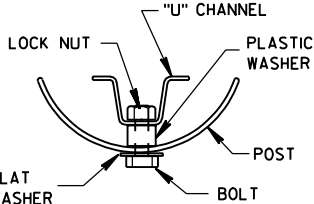
CROSS SECTION
FLEXIBLE MARKER POST



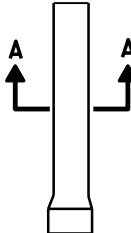
FRONT VIEW
CURVED MARKER



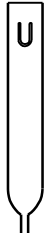
SIDE VIEW



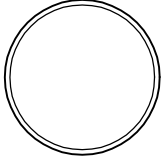
SECTION B-B



FRONT VIEW
ROUND MARKER

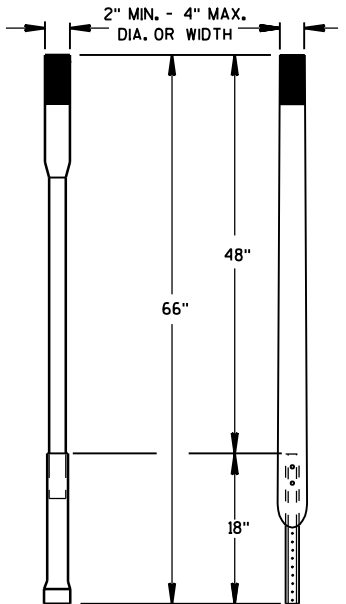


SIDE VIEW



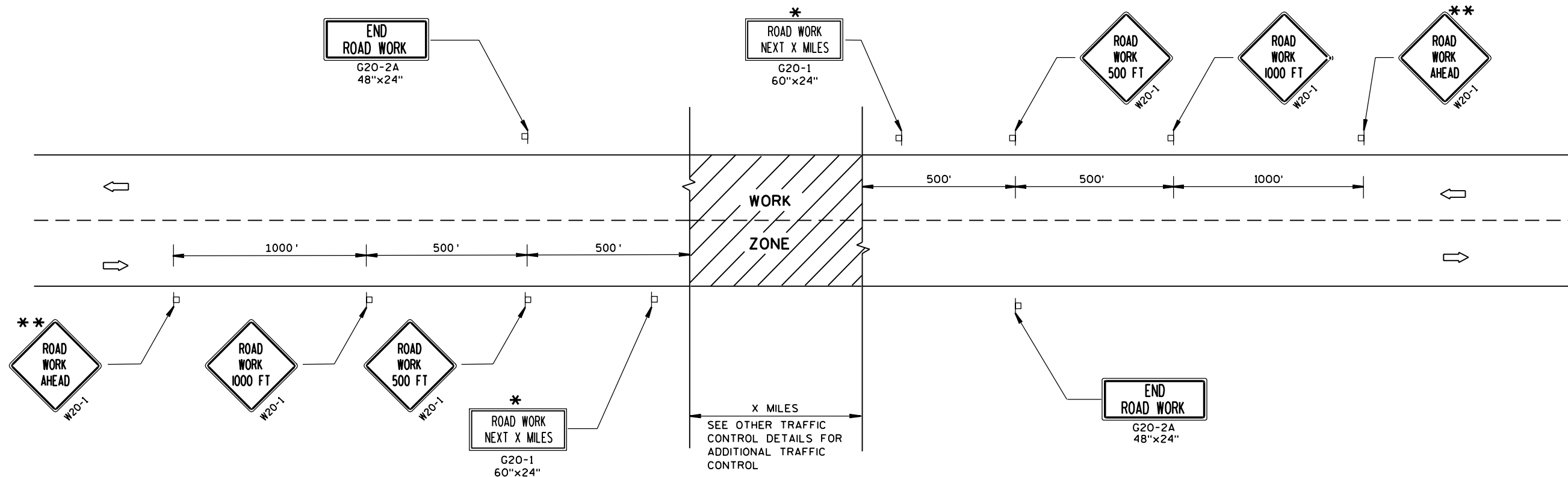
SECTION A-A

FLEXIBLE MARKER POST ANCHORS



ALTERNATE 1 ALTERNATE 2
FLEXIBLE MARKER POST

MARKER POST, FLEXIBLE, FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/98 DATE	 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

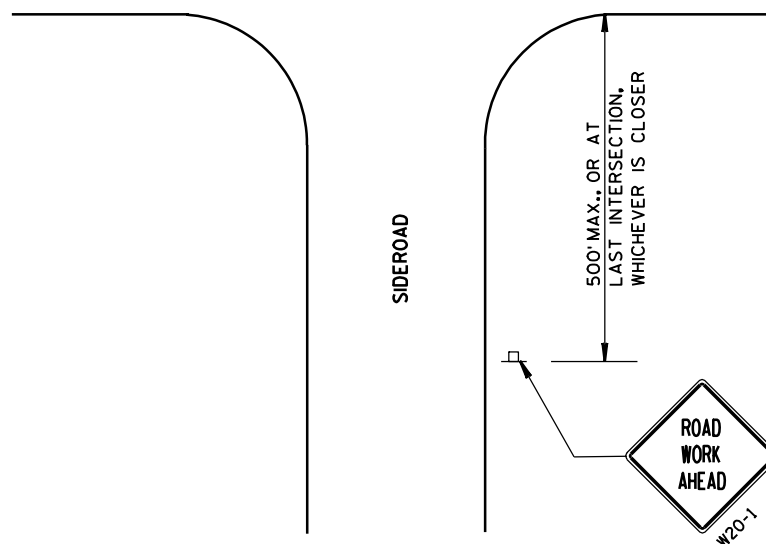
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

** PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA OR SIGNING.

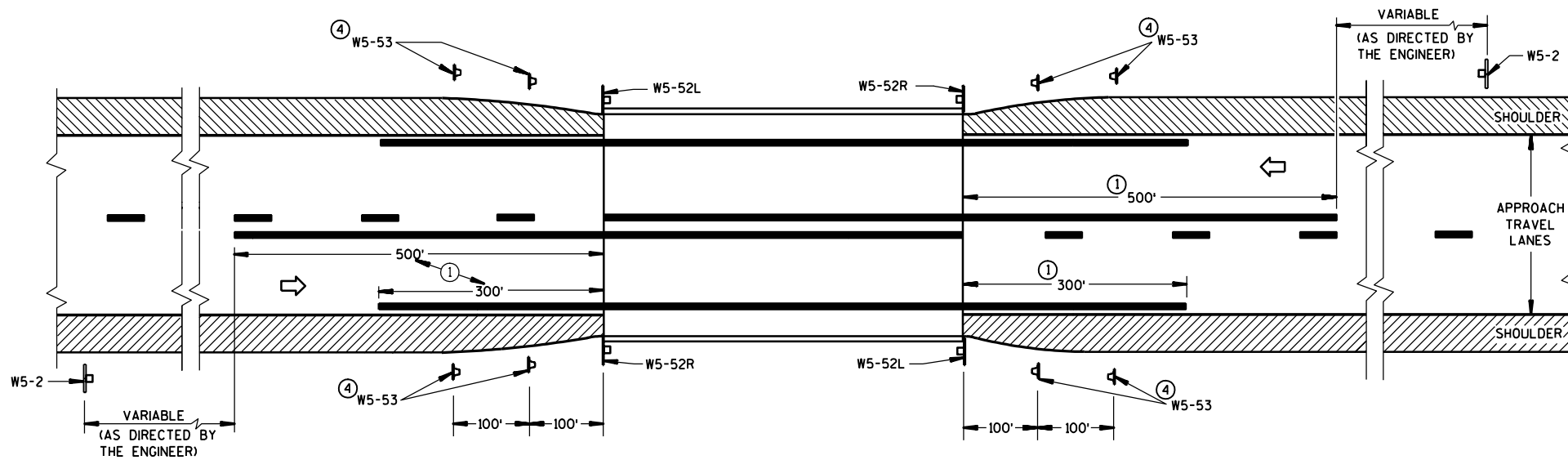
CENTER OF ROADWAY
MAINLINE ROADWAY UNDER CONSTRUCTION



LEGEND

- POST MOUNTED SIGN
- ➡ DIRECTION OF TRAFFIC FLOW

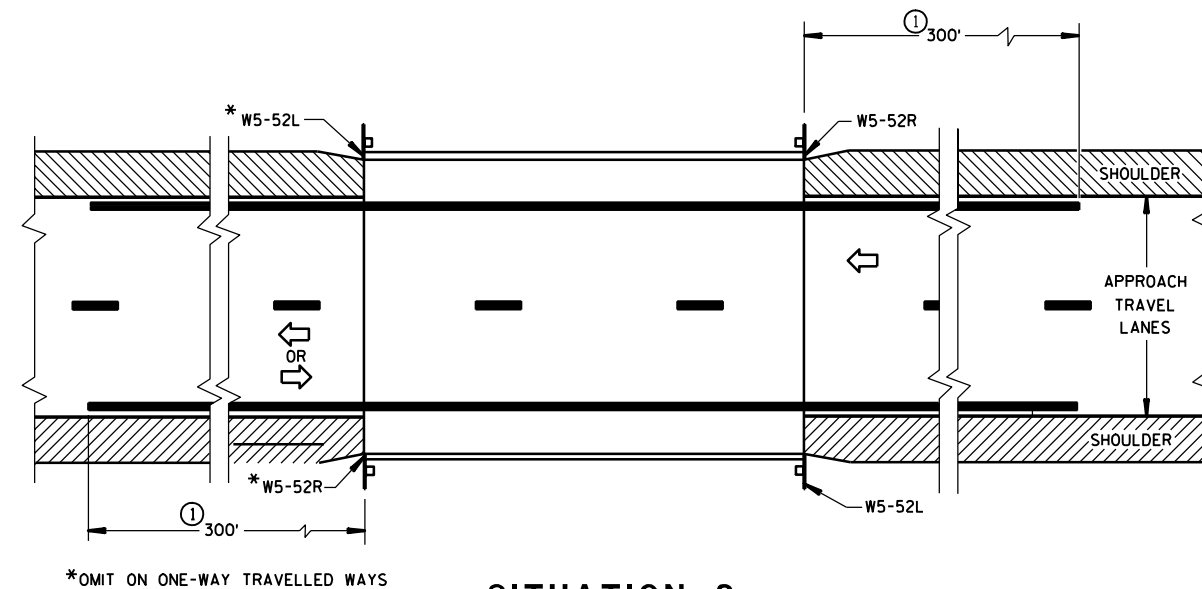
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/23/00 DATE FHWA	<i>Chetan J. Spang</i> CHIEF SIGNS AND MARKING ENGINEER



SITUATION 1

WARRANTING CRITERION:

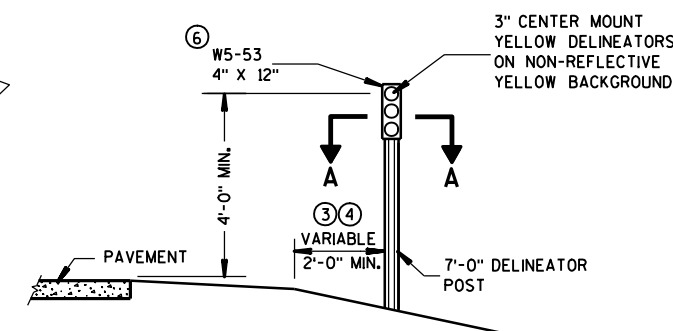
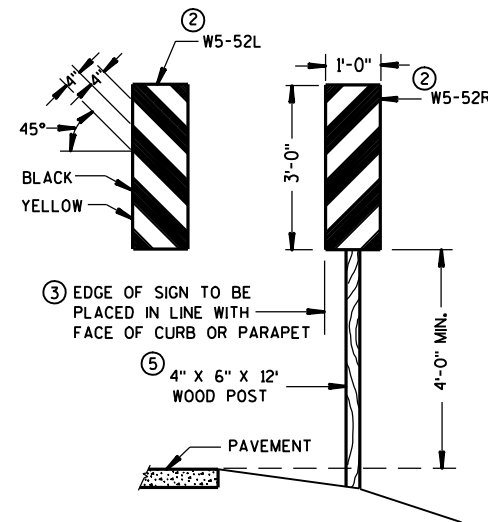
BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



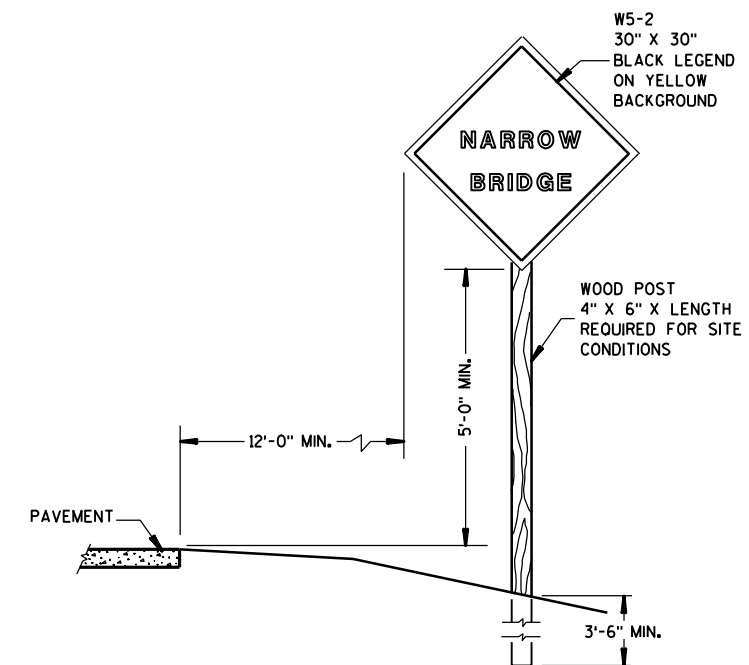
OBJECT MARKER PLACEMENT

GENERAL NOTES

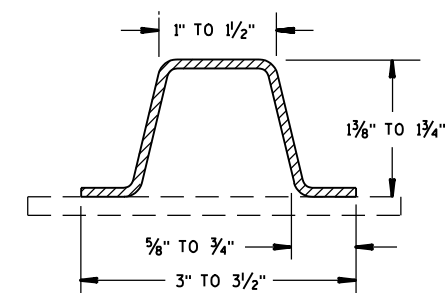
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R AND W5-52L SHALL BE COVERED WITH TYPE H REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.
- ④ OBJECT MARKERS (W5-53) SHALL BE LOCATED ALONG A LINE FLARED AWAY FROM THE BRIDGE CORNER TO DELINEATE THE NARROWING OF THE SHOULDER OR BERM.
- ⑤ A 12 FOOT DELINEATOR POST MAY BE USED INSTEAD OF A WOOD POST.
- ⑥ NON-BID ITEM. INCIDENTAL TO OTHER ITEMS.



SIGN PLACEMENT



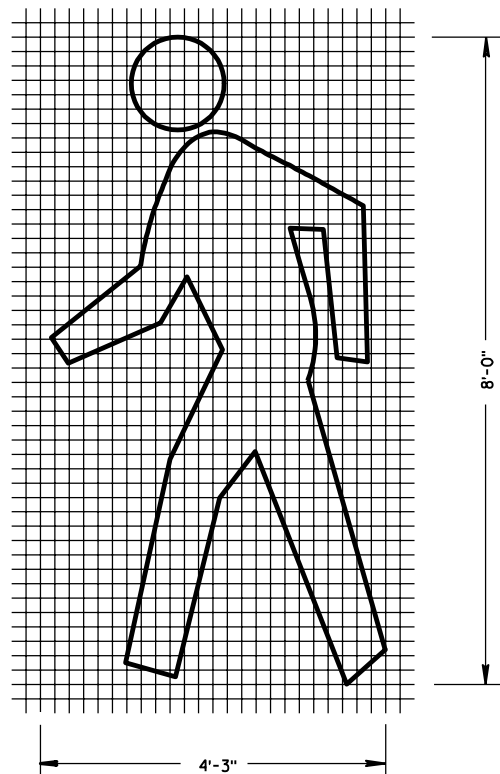
SECTION A-A

(MINIMUM WEIGHT 1.9 LBS. PER FT. AFTER GALVANIZING)

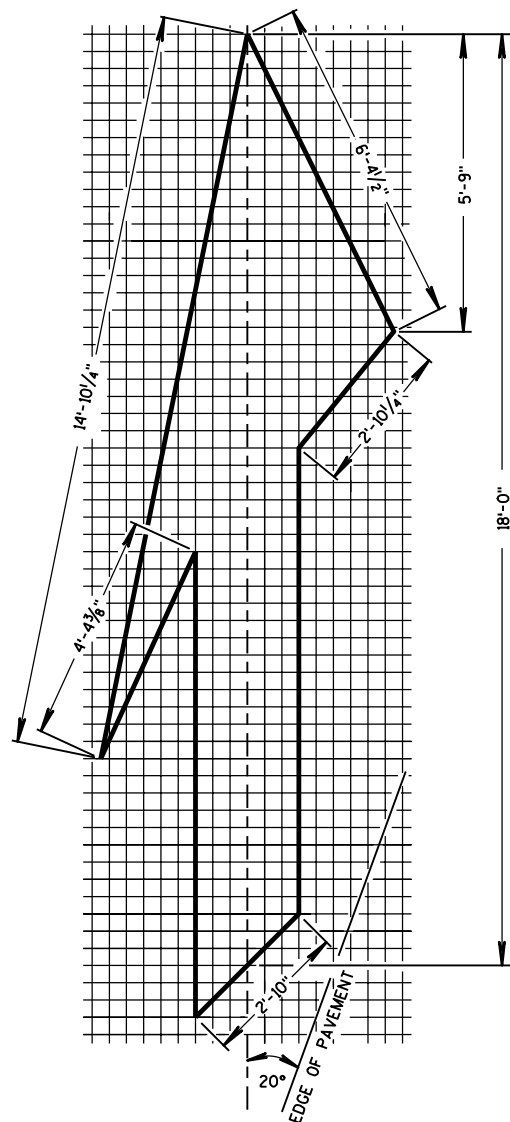
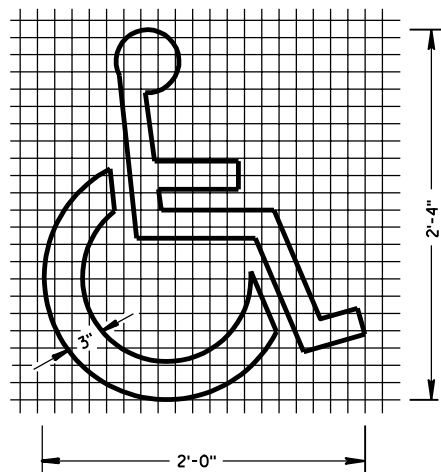
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

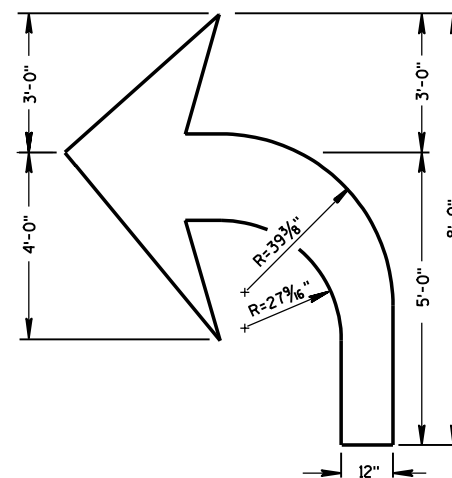
APPROVED
9/5/06 /S/ Thomas N. Notbohm
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



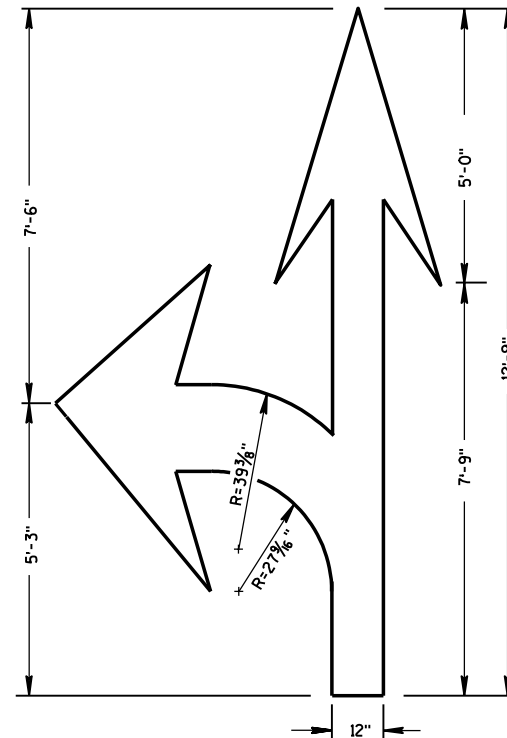
PEDESTRIAN SYMBOL



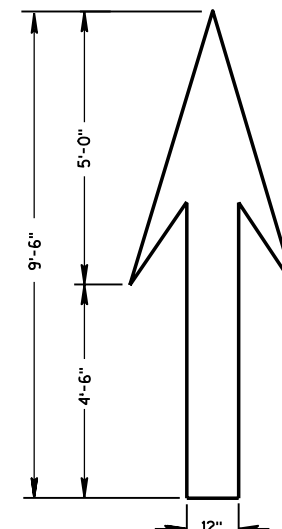
TYPE 5 LANE DROP ARROW



TYPE 2



TYPE 3



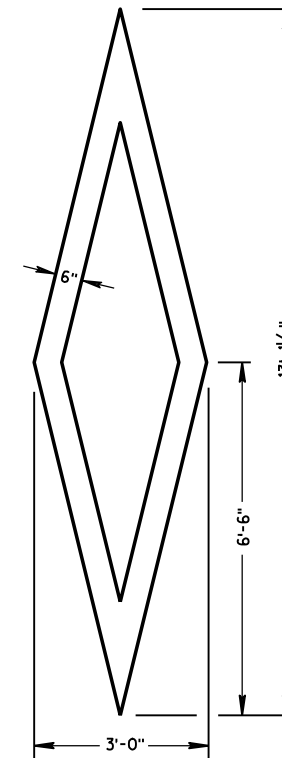
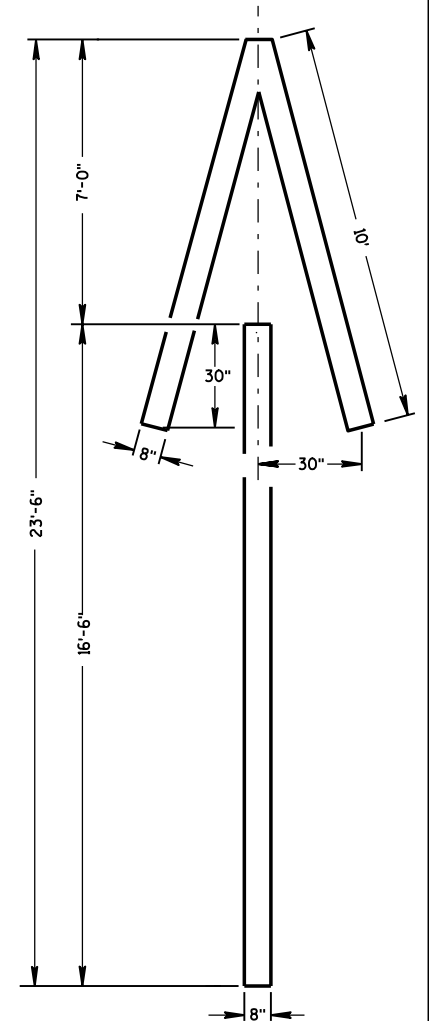
TYPE 1

GENERAL NOTES

DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

ALL LETTERS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED.

A DETAILED DRAWING OF THE HANDICAPPED PARKING SYMBOL IS ILLUSTRATED IN THE "STANDARD HIGHWAY SIGNS MANUAL" BY THE FEDERAL HIGHWAY ADMINISTRATION.

PREFERENTIAL
LANE SYMBOL

TYPE 4

PAVEMENT MARKING SYMBOLS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

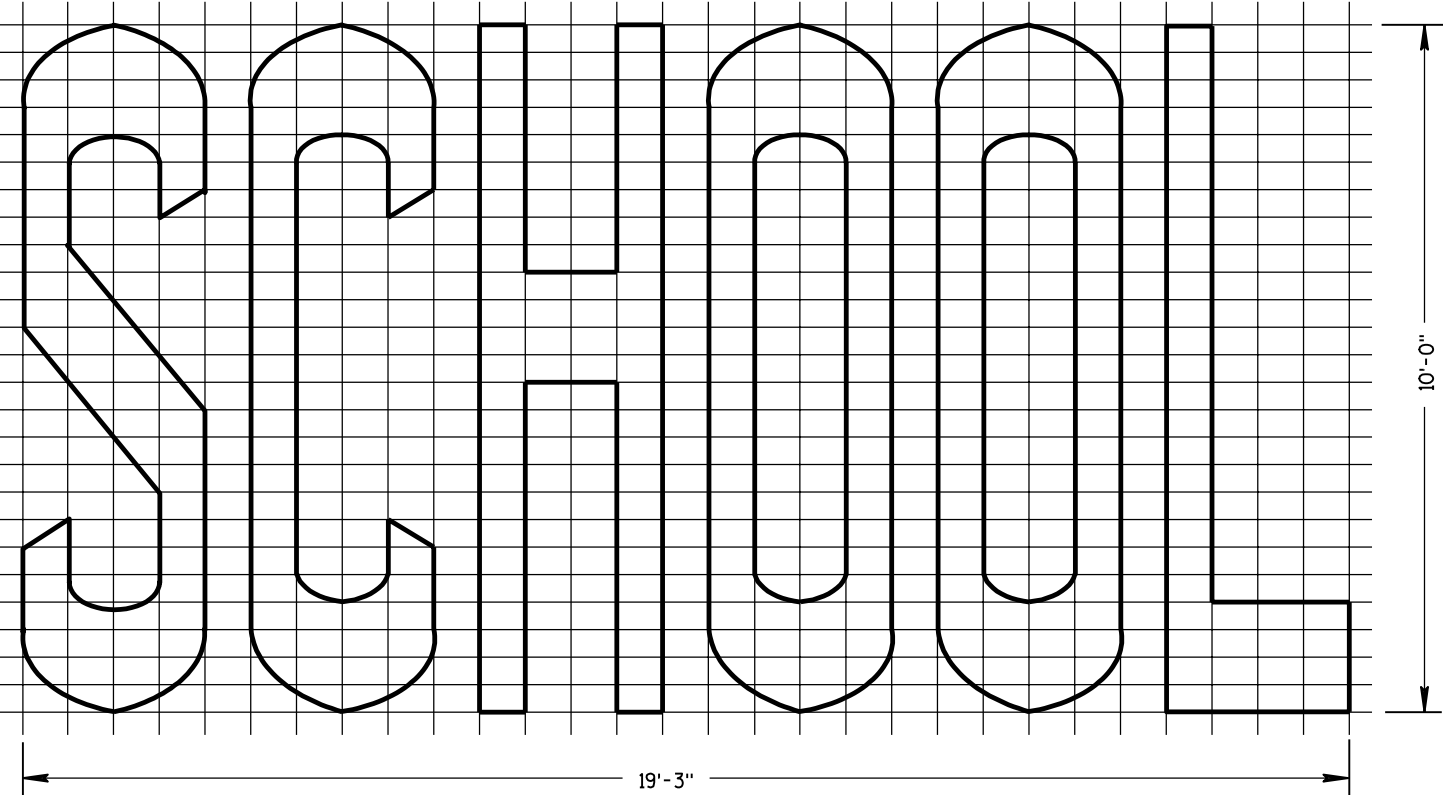
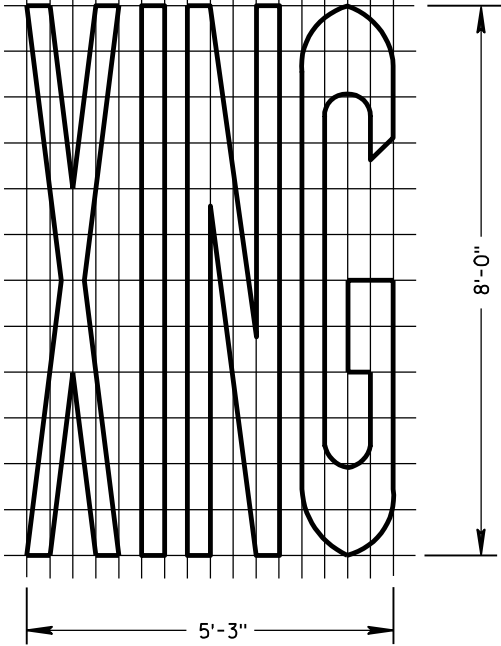
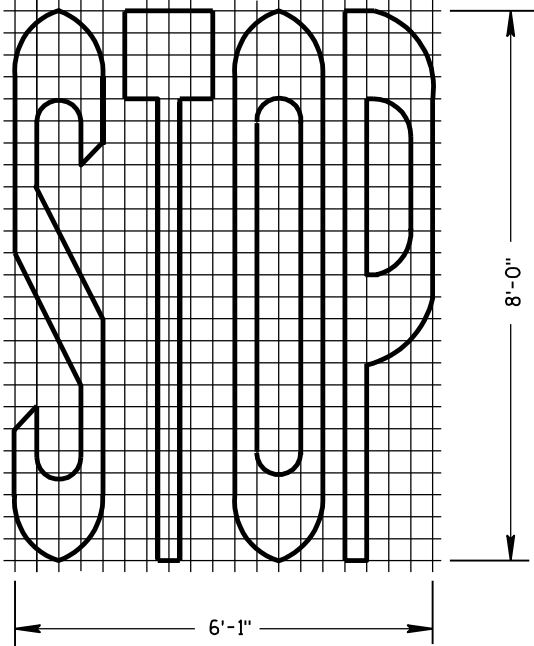
APPROVED
2/22/05
DATE
FHWA

Thomas N. Notbush
STATE TRAFFIC ENGINEER OF DESIGN

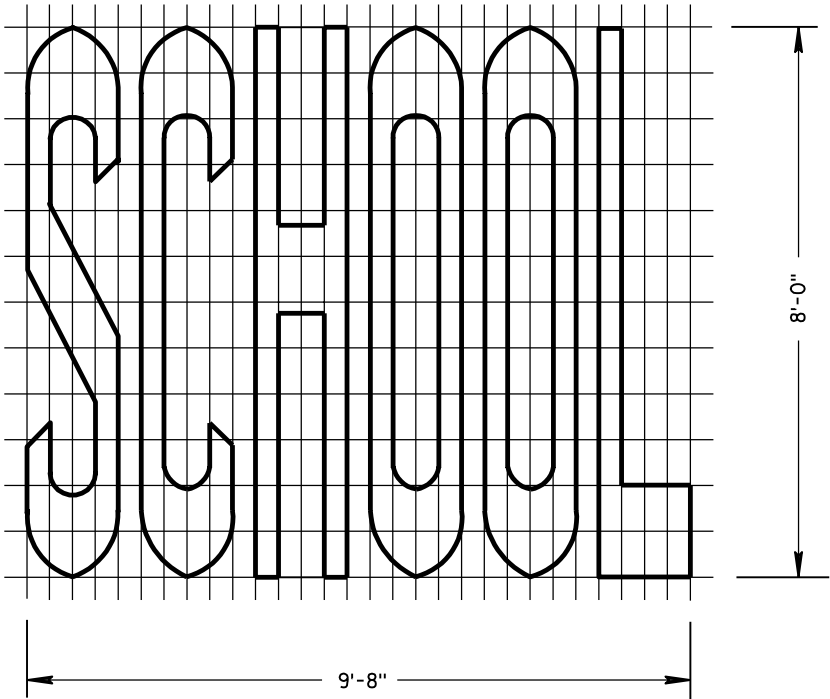
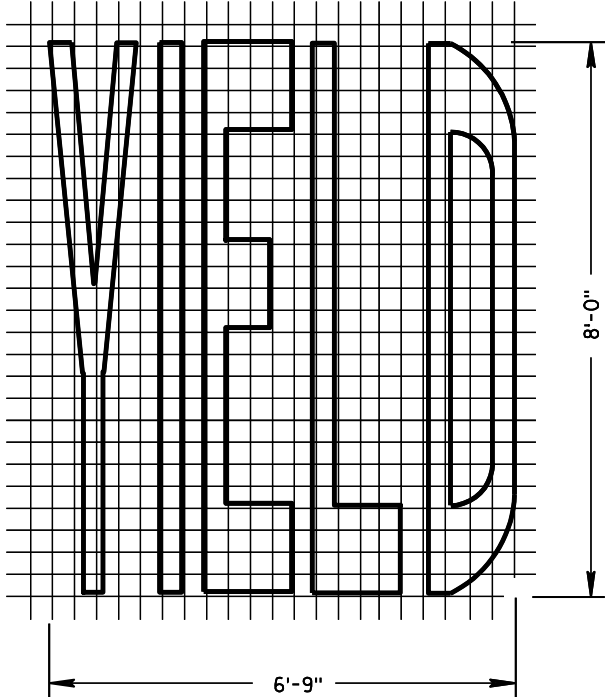
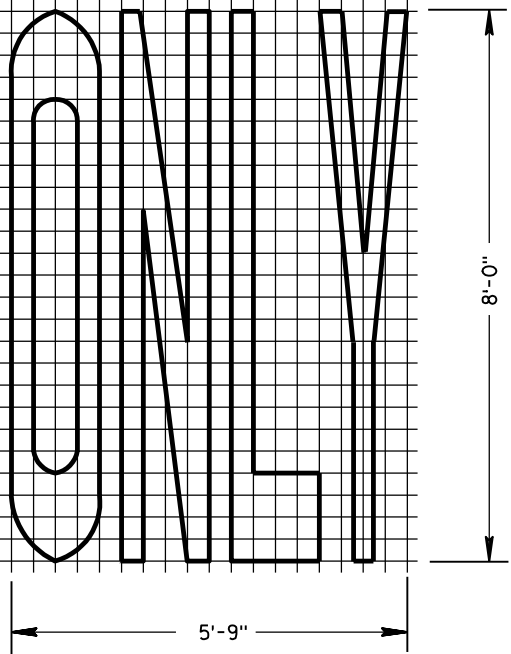
GENERAL NOTES

DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED.



TWO-LANE

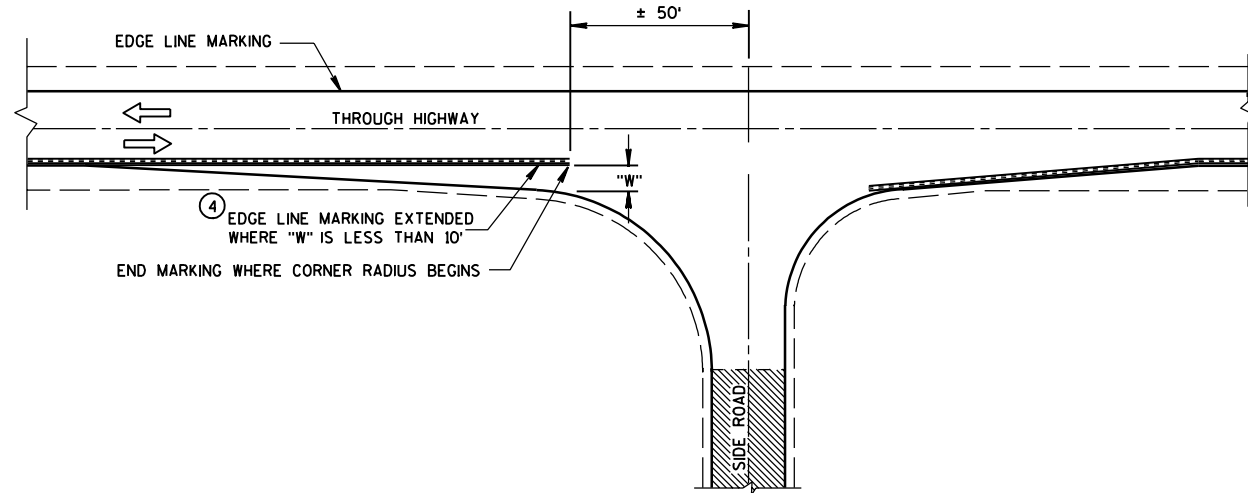


SINGLE-LANE

PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

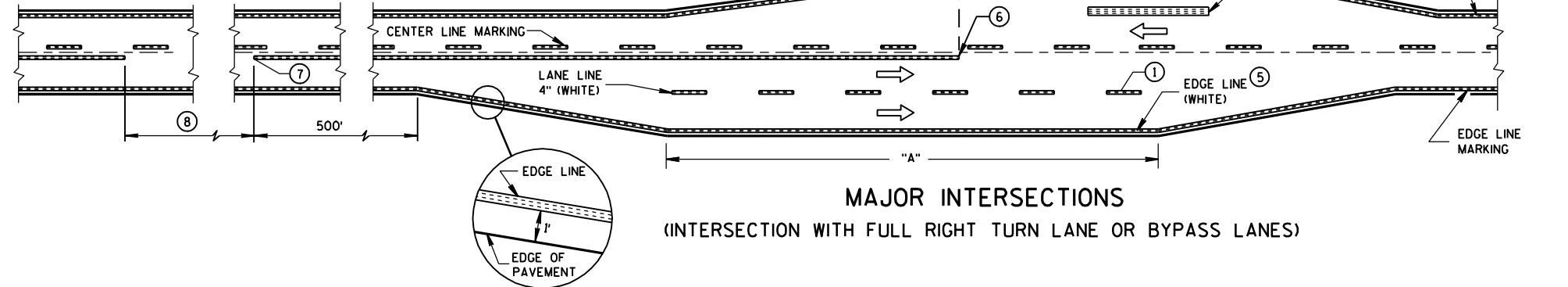
APPROVED
2-22-05
DATE
STATE TRAFFIC ENGINEER OF DESIGN
FHWA



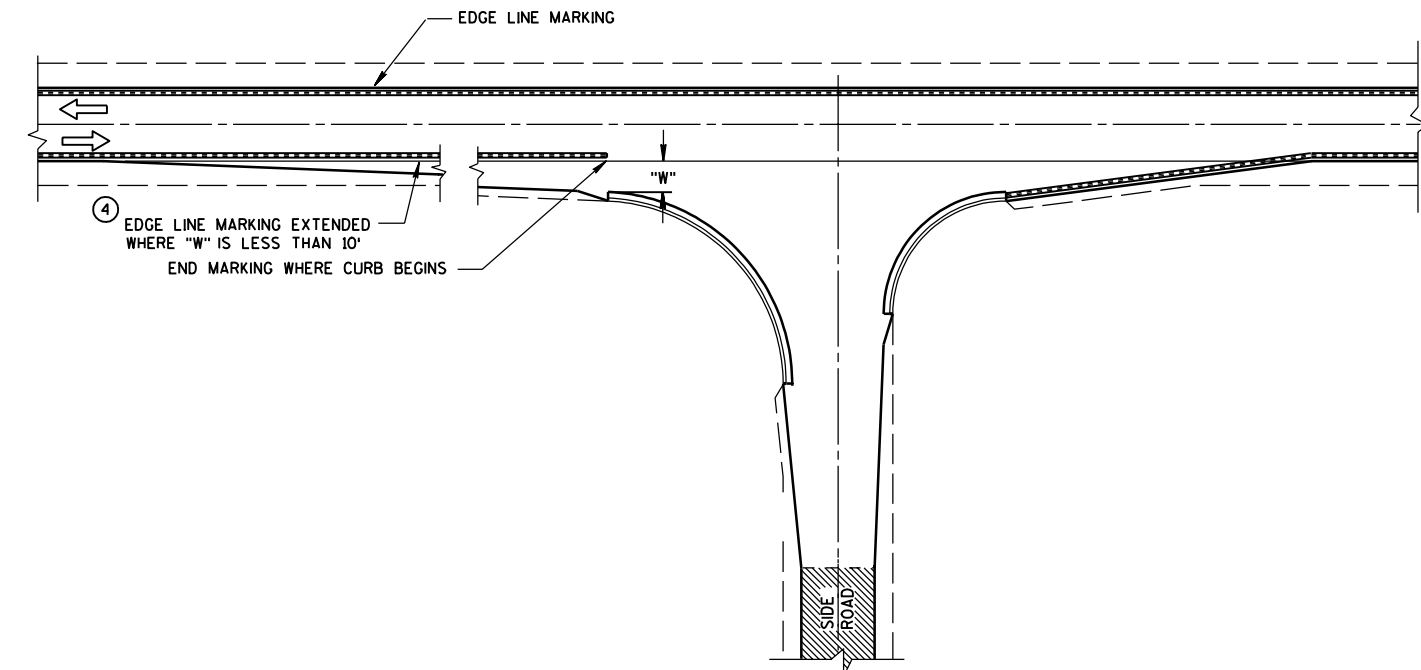
MINOR INTERSECTION WITHOUT CURBS

⑧

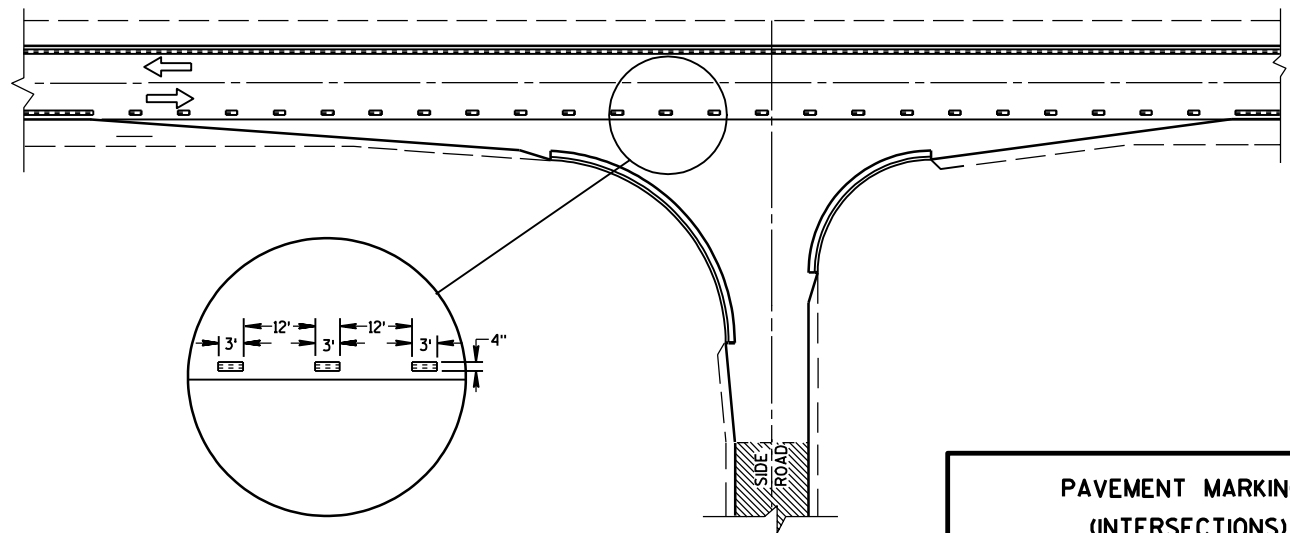
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



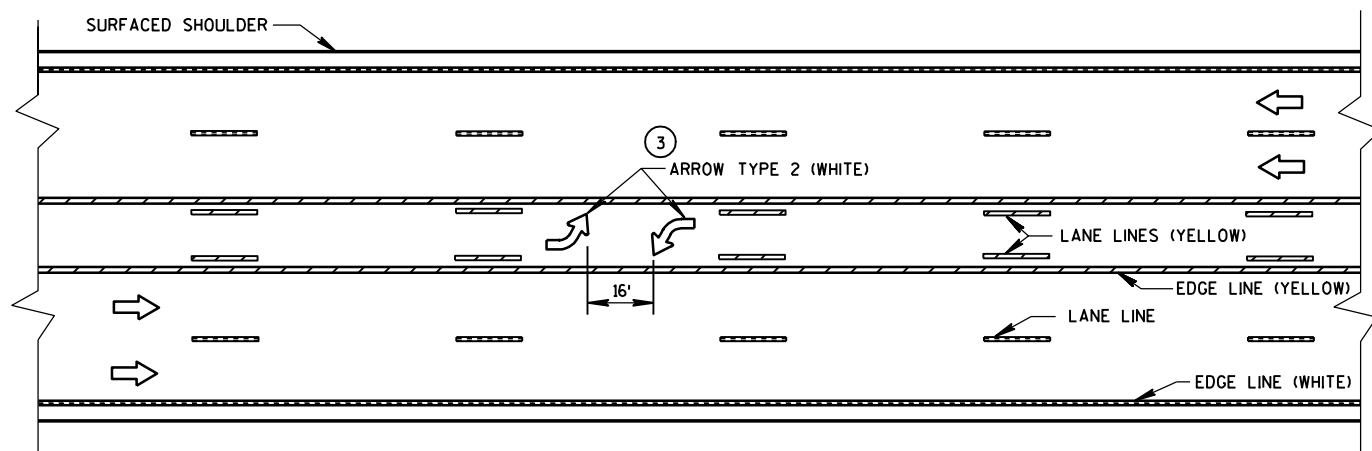
MINOR INTERSECTION WITH CURBS
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

GENERAL NOTES

- EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
 - ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
 - ③ ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.
 - ④ LOCATE THE EDGE LINE ALONG THE TAPER WHERE "W" IS 10' OR MORE.
 - ⑤ THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.
 - ⑥ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.
 - ⑦ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
 - ⑧ IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.
- ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

PAVEMENT MARKING (INTERSECTIONS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/15/05 DATE	<i>Thomas N. Notbohm</i> STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

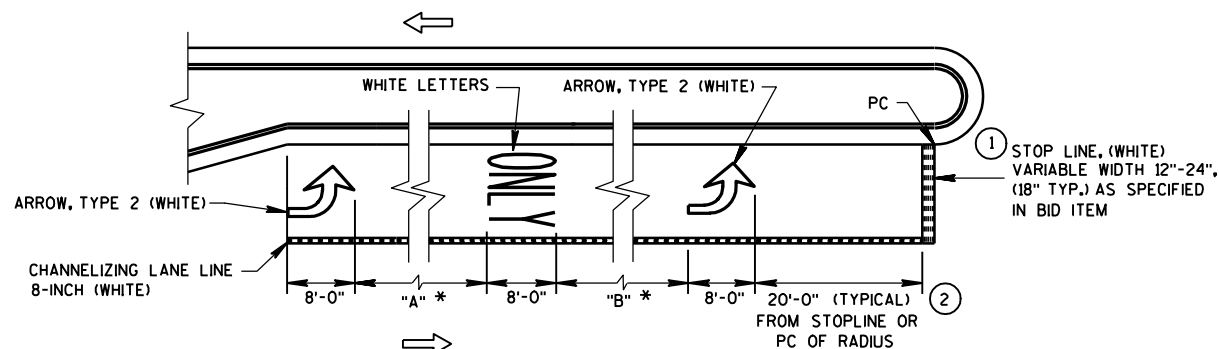
NOTE:
ARROW SYMBOL (→)
SHOWS DIRECTION OF TRAVEL



TWO WAY LEFT TURN LANE

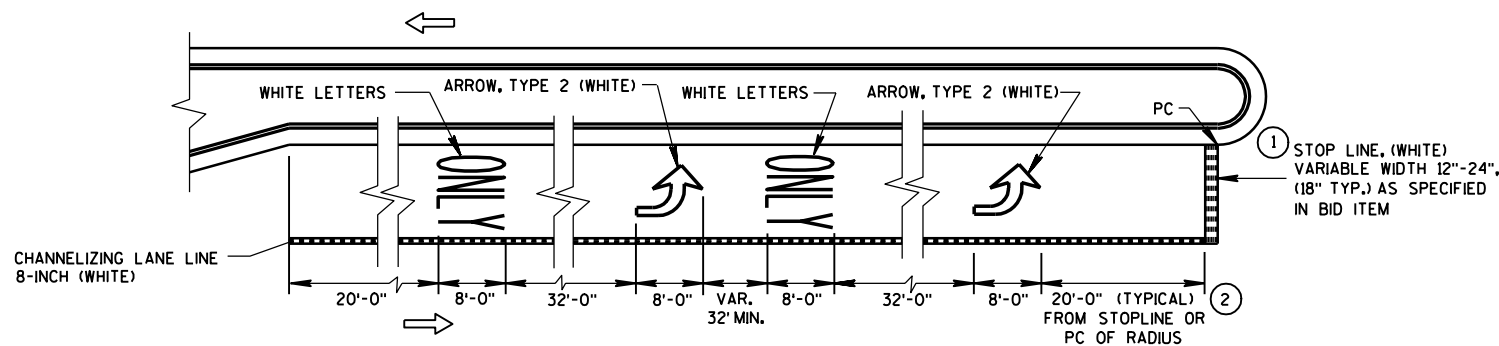
NOTES:

- 1 STOP BAR IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
- 2 DISTANCE MAY BE ADJUSTED TO ACCOMMODATE SHORT LEFT TURN LANES. AS APPROVED BY THE ENGINEER.
- 3 A SET OF ARROWS IS REQUIRED EVERY 400' OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.

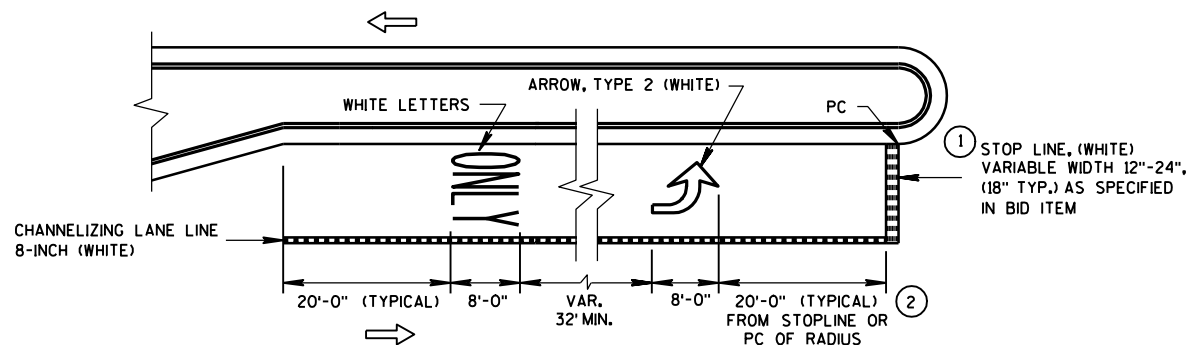


* VARIABLE, 32' MIN.
"A" = "B" (TYPICAL)

LEFT TURN LANE
(LENGTH 108' TO 167')



LEFT TURN LANE
(LENGTH OVER 167')

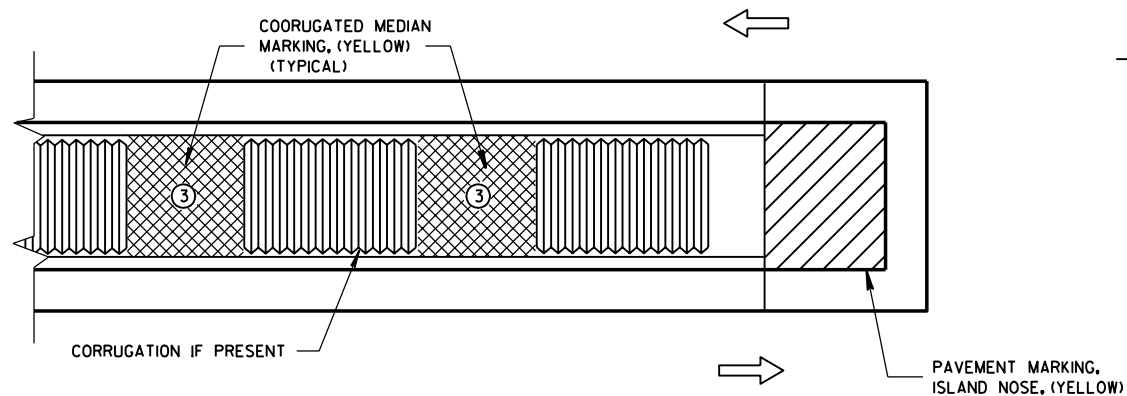


LEFT TURN LANE
(LENGTH UNDER 108')

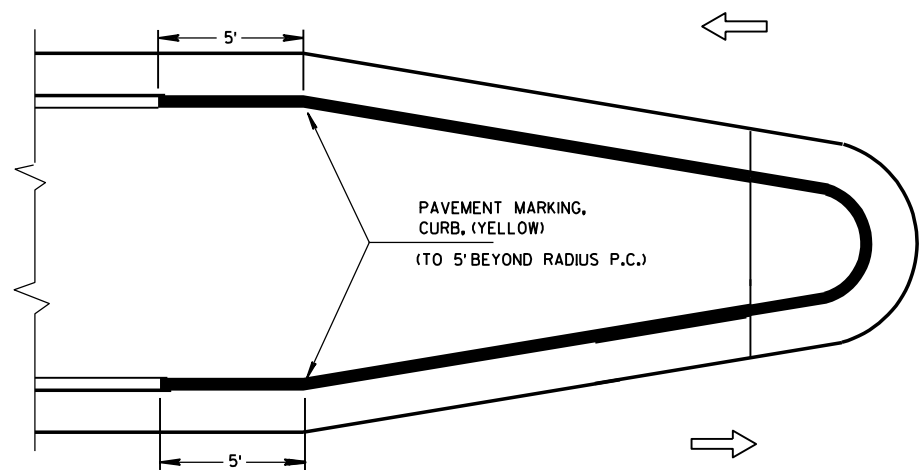
PAVEMENT MARKING
(LEFT TURN LANE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

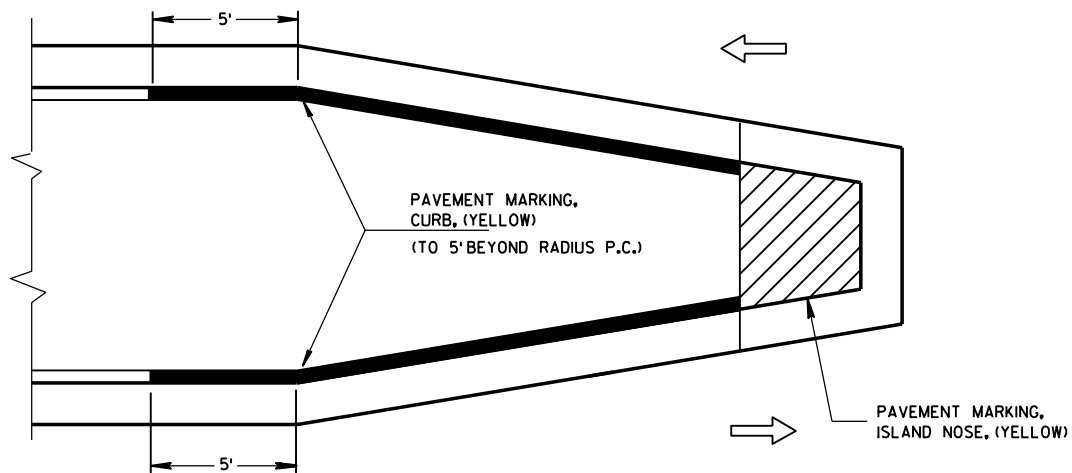
APPROVED
8/1/05 DATE /S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN
FHWA



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

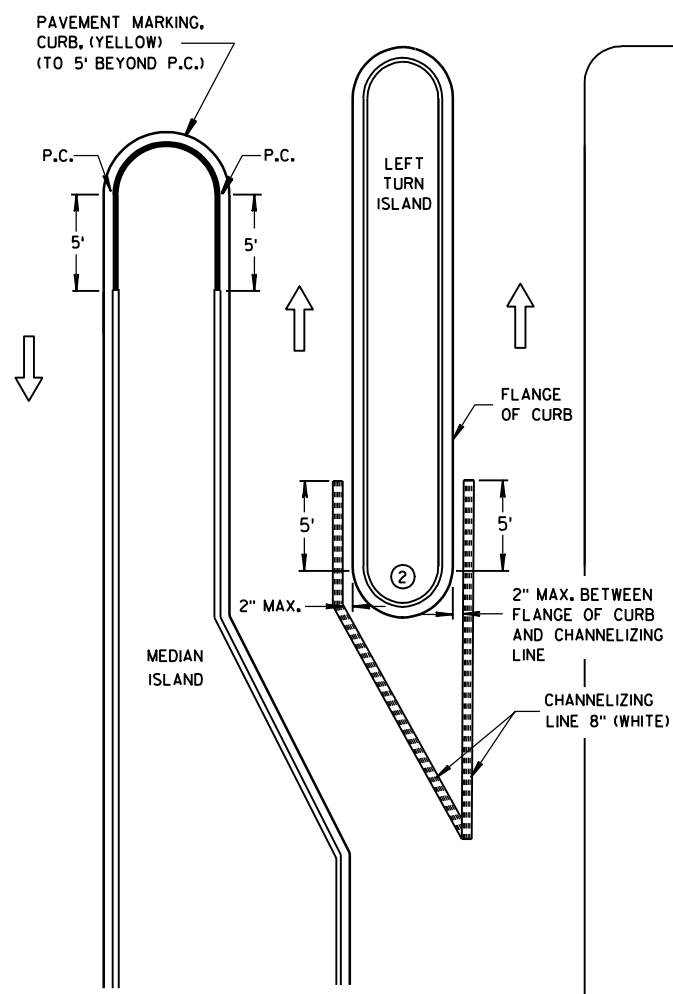


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

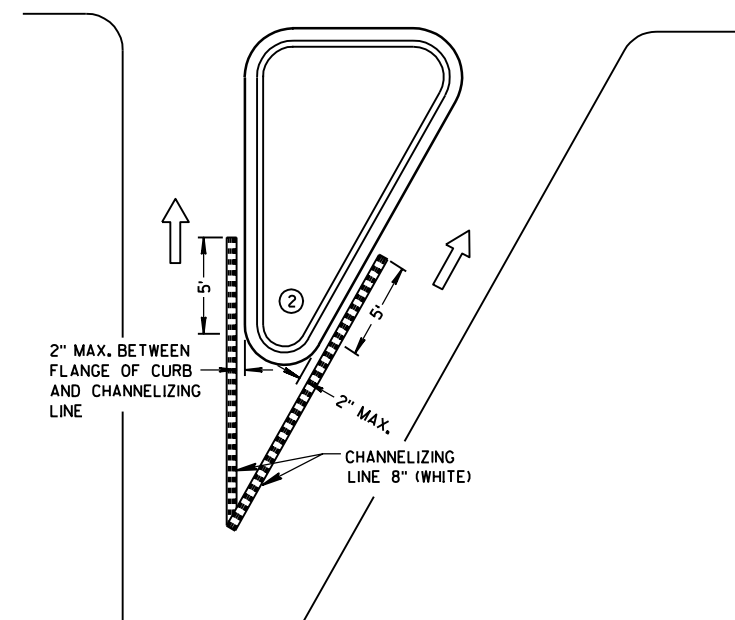
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

- 1 STOP LINE IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
- 2 DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.
- 3 WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND

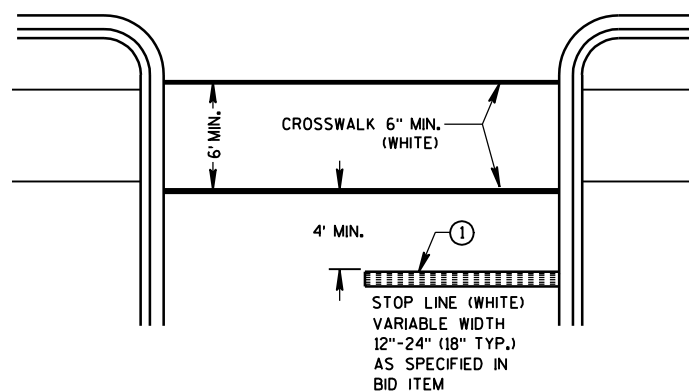
LEGEND

- ISLAND NOSE MARKING
- CURB MAKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9-21-07 DATE /S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN
FWHA



STOP LINE AND CROSSWALK

TWO-LANE ROADWAY

SYMBOLS



WORK AREA



FLAGGER, EQUIPPED WITH STOP/SLOW
PADDLE FASTENED ON SUPPORT STAFF

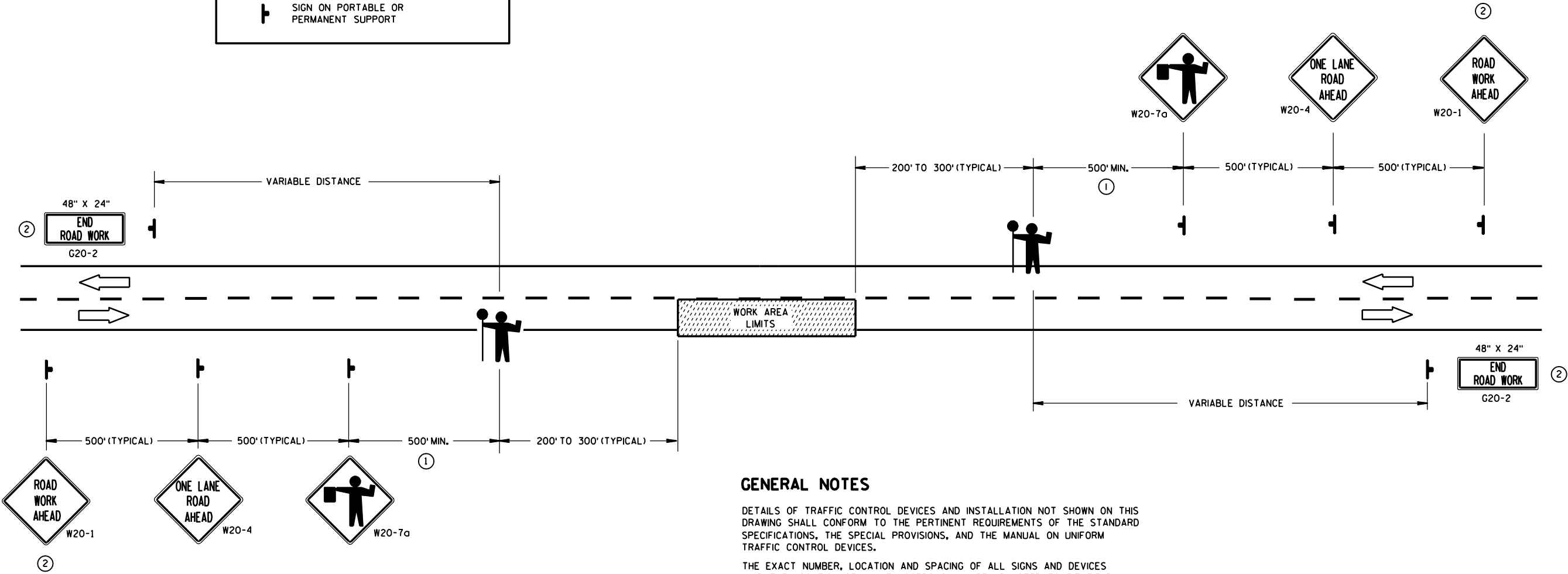


SIGN ON PORTABLE OR
PERMANENT SUPPORT



W3-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE LOCATION OF ALL FLAGGERS) SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, THE "FLAGGER AHEAD", THE "ROAD WORK AHEAD" AND THE ONE LANE ROAD AHEAD" SIGNS SHALL BE COVERED OR REMOVED AND THE HIGHWAY RESTORED TO NORMAL OPERATION.

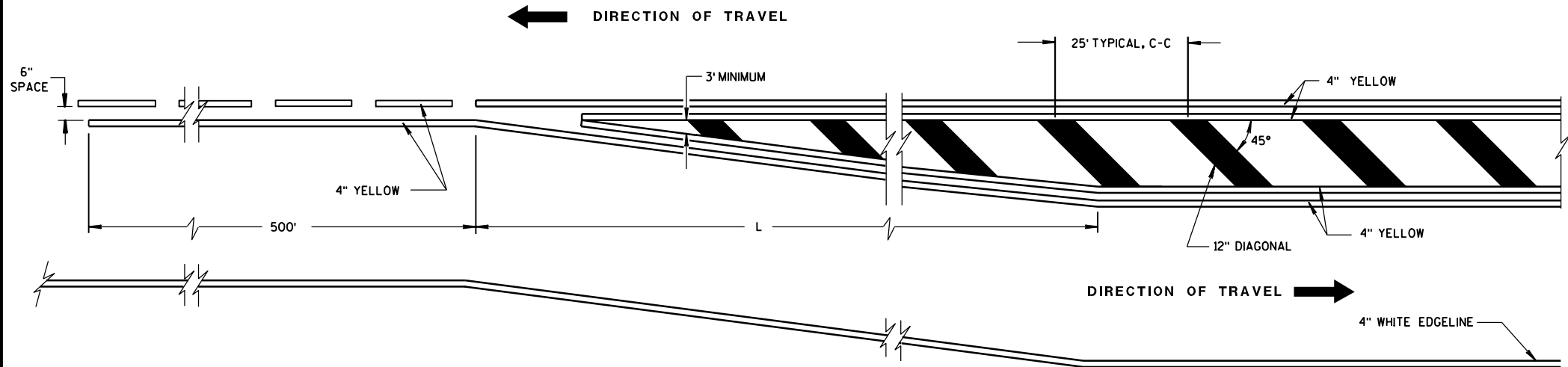
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

- ① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

TRAFFIC CONTROL FOR LANE
CLOSURE (SUITABLE FOR
MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/5/06 /S/ Thomas N. Notbohm
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



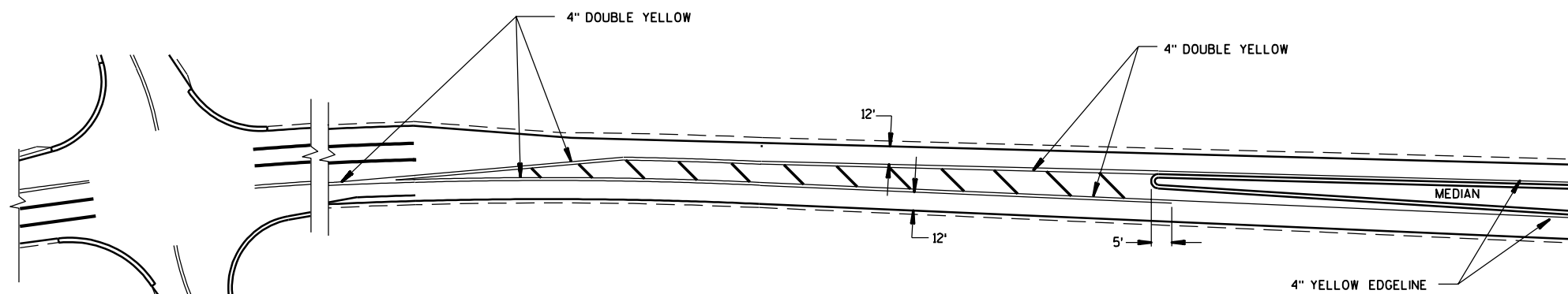
MEDIAN ISLAND DETAIL

GENERAL NOTE

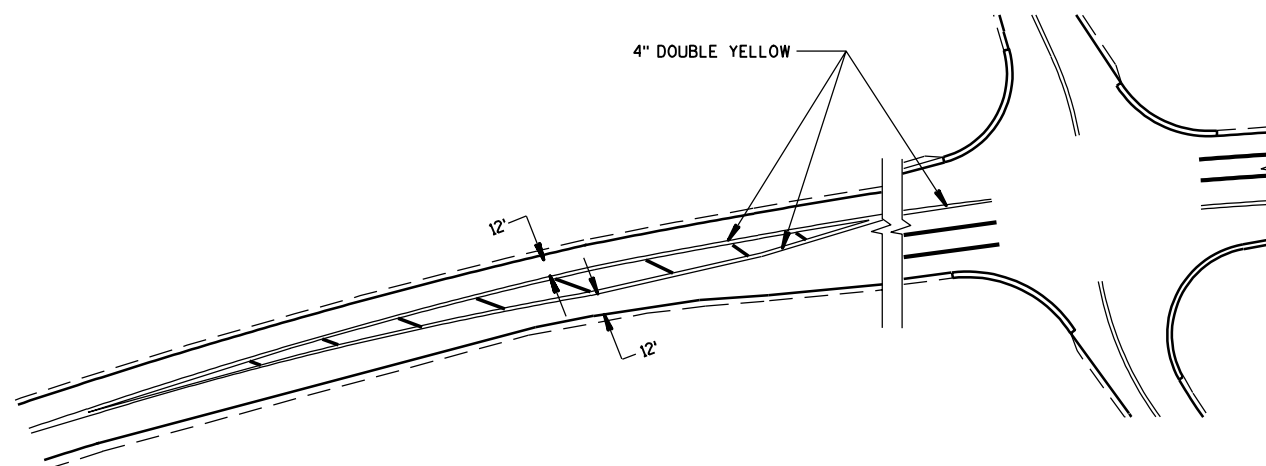
DIAGONALS ARE OPTIONAL WHEN PAINTED ISLAND IS LESS THAN 6 FEET AT WIDEST POINT.

MINIMUM SHIFTING TAPER LENGTH TABLE

POSTED SPEED (S)	TAPER LENGTH (L)
25	100'
30	100'
35	125'
40	165'
45	270'
50	300'
55	330'
65	390'



APPROACH MARKINGS FOR OTHER MEDIAN TYPES



NON APPROACH MARKINGS

MEDIAN ISLAND MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10-16-07
DATE

/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN

FHWA

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

W20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

TABLE A

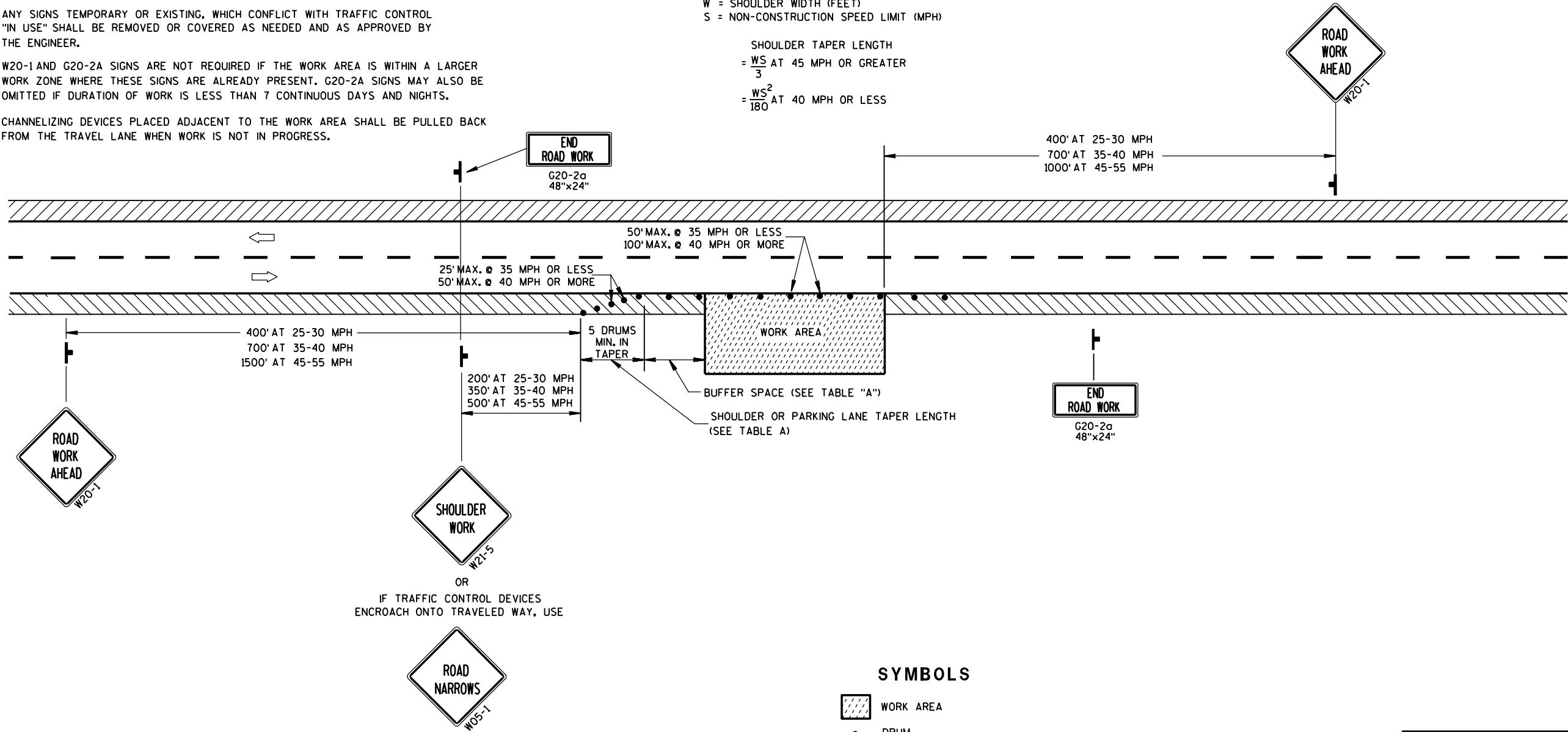
SHOULDER TAPER LENGTH (FEET)						BUFFER SPACE (FEET)
S \ W	4	6	8	10		
30	20	30	40	50		85
35	30	45	55	70		120
40	40	55	75	90		170
45	60	90	120	150		220
50	70	100	135	170		280
55	75	110	150	185		335

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

SHOULDER TAPER LENGTH

= $\frac{WS}{3}$ AT 45 MPH OR GREATER

= $\frac{WS^2}{180}$ AT 40 MPH OR LESS



SYMBOLS

- WORK AREA
- DRUM
- POST MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/23/00 DATE	 CHIEF SIGNS AND MARKING ENGINEER
FHWA	

LEGEND

- † POST MOUNTED SIGN
- *-x-* REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- /● DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- ▬ TEMPORARY PRECAST CONCRETE BARRIER
- ◇ FLAGS, 16"x16" MIN., ORANGE
- ⬮ TEMPORARY SIGNAL WITH BACKPLATE AND 12-INCH LENSES ON BREAKAWAY POLE
- ▨ ASPHALTIC PAVEMENT WIDENING
- ➡ DIRECTION OF TRAFFIC FLOW
- 4" X 6" WOOD POST

GENERAL NOTES :

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

NON-OPERATIONAL EQUIPMENT OR MATERIAL SHALL BE LOCATED BEHIND THE PRECAST CONCRETE BARRIER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 7 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 500' SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350' TYPICAL SPACING. FOR 25-30 MPH, USE 200' TYPICAL SPACING.

** USE 300' SPACING IF PRE-CONSTRUCTION REGULATORY SPEED LIMIT IS 35 MPH OR LESS.

