

MAD JANUARY 2024

PROJECT ID: 3813-00-70  
WITH: 3926-00-70

COUNTY: DODGE

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 34



DESIGN DESIGNATION 3813-00-70

A.A.D.T.	2024	=	155
A.A.D.T.	2044	=	170
D.H.V.		=	
D.D.		=	
T.		=	3.5%
DESIGN SPEED		=	40 MPH
ESALS		=	

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

	ROCK
	LABEL
	95.36
	ARROWHEAD
	E
	FO
	G
	SAN
	SS
	T
	W
	W

# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

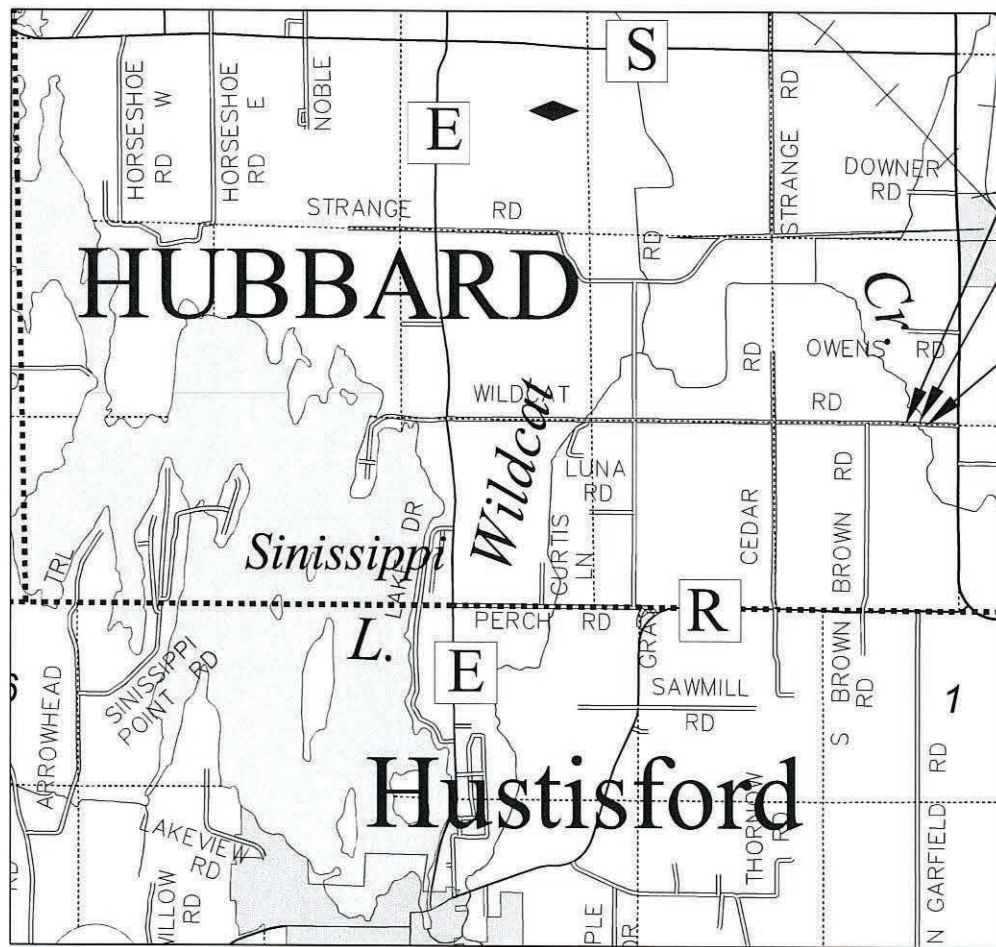
PLAN OF PROPOSED IMPROVEMENT

## TOWN OF HUBBARD, WILDCAT ROAD

WILDCAT CREEK BRIDGE, B-14-0227

LOC STR  
DODGE

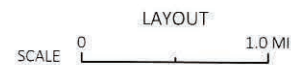
STATE PROJECT NUMBER  
3813-00-70



BEGIN PROJECT 3926-00-70  
STA. 9+25.00'

REPLACE BRIDGE  
STRUCTURE  
(B-14-0227)

END PROJECT 3926-00-70  
STA. 11+00.00'



TOTAL NET LENGTH OF CENTERLINE = 0.033 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DODGE NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3813-00-70	WISC 2024107	1
3926-00-70	WISC 2024108	1

ACCEPTED FOR

TOWN

HUBBARD

DATE: 7-31-23

*Dan G. ...*  
(ROAD COMMISSIONER)

ORIGINAL PLANS PREPARED BY

**AYRES**



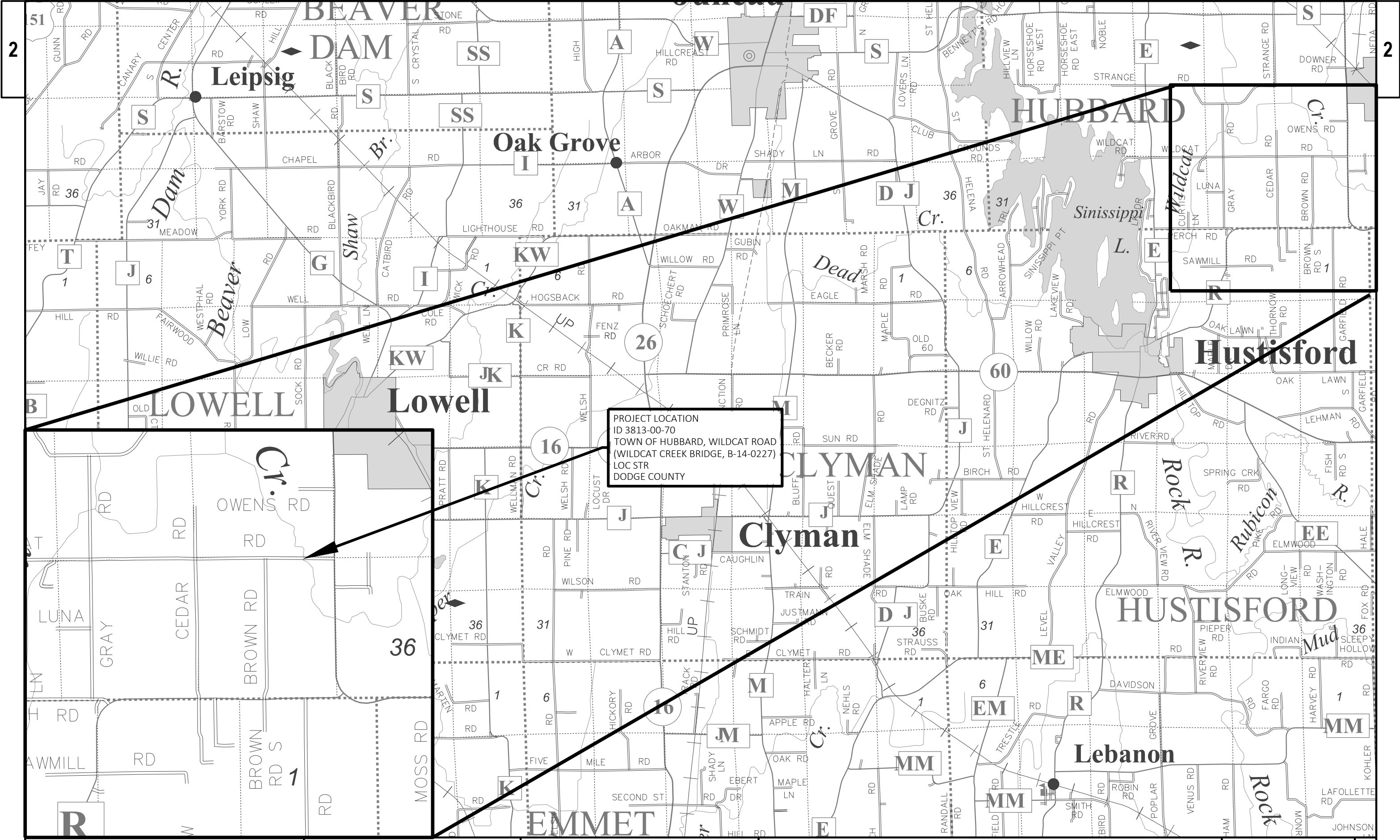
7/31/2023

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Project Manager	ZACH PEARSON
Regional Examiner	
Regional Supervisor	KYLE HEMP

APPROVED FOR THE DEPARTMENT  
DATE: 07/31/23  
*[Signature]*  
(Signature)

E



PROJECT LOCATION  
 ID 3813-00-70  
 TOWN OF HUBBARD, WILDCAT ROAD  
 (WILDCAT CREEK BRIDGE, B-14-0227)  
 LOC STR  
 DODGE COUNTY

PROJECT NO: 3813-00-70	HWY: WILDCAT ROAD	COUNTY: DODGE	PROJECT OVERVIEW	SHEET	E
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### GENERAL NOTES

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT LOCATION THAT ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

EXACT TRAFFIC CONTROL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE.

RESTORATION OF EXPOSED SLOPES AND DITCHES SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE.

WETLANDS ARE PRESENT IN THE PROJECT AREA. DO NOT DISTURB WETLANDS OUTSIDE THE PROPOSED SLOPE INTERCEPTS.

IF AN EXISTING SIGN IS TO BE REMOVED AND REPLACED WITH A NEW SIGN, DO NOT REMOVE THE EXISTING SIGN PRIOR TO INSTALLATION OF THE NEW SIGN.

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

HMA UNIT WEIGHT: 112 lb/sy/inch

### PROJECT CONTACTS

#### DODGE COUNTY PUBLIC WORKS

BRIAN FIELD  
HIGHWAY COMMISSIONER  
211 E. CENTER STREET  
JUNEAU, WI 53039-1309  
P: (920) 386-3653  
F: (920) 386-3525  
E: BFIELD@CO.DODGE.WI.US

#### UTILITIES

WE ENERGIES  
JOE FELLEZ  
W140 N9100 LILLY ROAD  
MENOMONEE FALLS, WI 53051  
E: JOSEPH.FELLEZ@WE-ENERGIES.COM

#### WISCONSIN DEPARTMENT OF NATURAL RESOURCES

SHELLY NELSON  
DNR SOUTH CENTRAL REGION HEADQUARTERS  
3911 FISH HATCHERY RD  
FITCHBERG, WI 53711  
P: (608) 444-2835  
E: SHELLEY.NELSON@WISCONSIN.GOV

#### TOWN OF HUBBARD

DANIEL GUENTERBERG  
HUBBARD TOWN HALL  
W2864 NEDA ROAD  
IRON RIDGE, WI 53035-9717  
P: (920) 296-4830  
E: TOWNOFHUBBARD@GMAIL.COM

#### DESIGNER

AMANDA INMAN, PE  
AYRES ASSOCIATES  
5201 EAST TERRACE DRIVE, SUITE 200  
MADISON, WI 53718  
P: (608) 443-1239  
E: INMANA@AYRESASSOCIATES.COM

\*\* DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

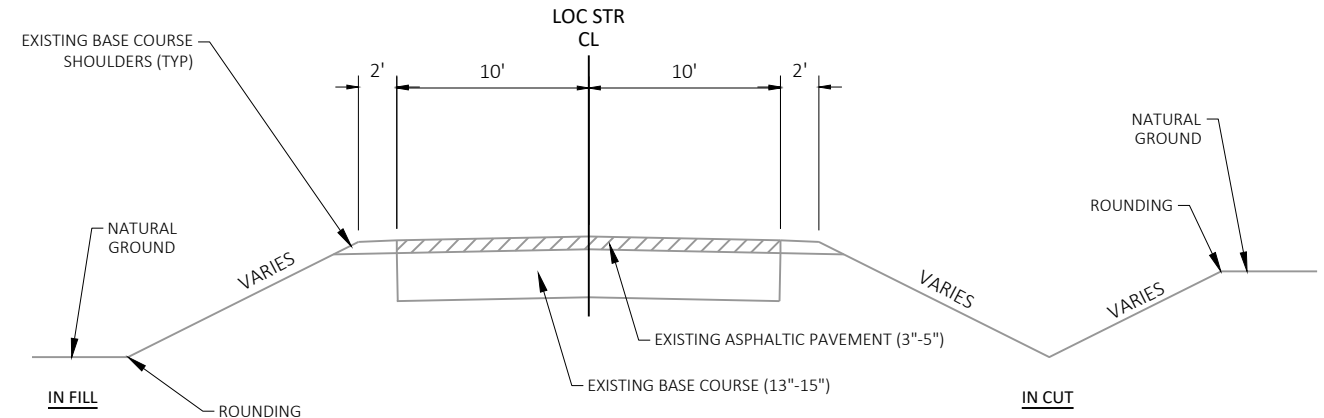


Dial 811 or (800) 242-8511

www.DiggersHotline.com

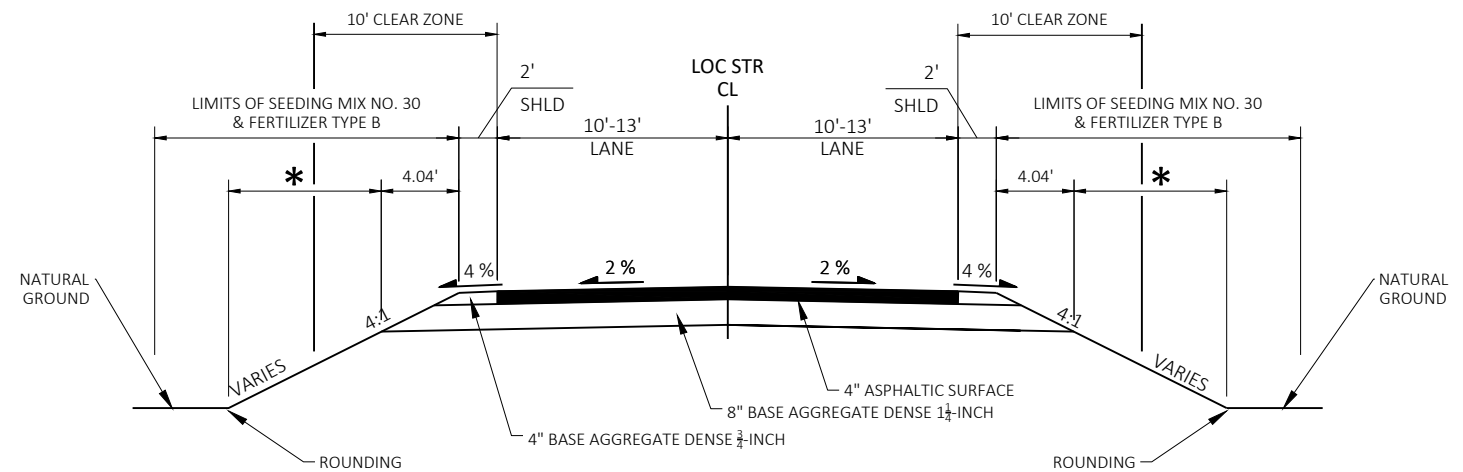
### ABBREVIATIONS

A.D.T.	AVERAGE DAILY TRAFFIC
ATMS	ARTERIAL TRAFFIC MANAGEMENT SYSTEM
BM	BENCHMARK
BOC	BACK OF CURB
BTWN	BETWEEN
C&G	CURB AND GUTTER
C.E.	COMMERCIAL ENTRANCE
CONST	CONSTRUCTION
CP	CONTROL POINT
CTR.	CENTER
D.D.	DIRECTIONAL DISTRIBUTION
D.H.V.	DESIGN HOURLY VOLUME
DMS	DYNAMIC MESSAGE SIGN
EB	EASTBOUND
EXIST	EXISTING
GALV.	GALVANIZED
HMA	HOT MIX ASPHALT
H.S.	HIGH STRENGTH
ITS	INTELLIGENT TRAFFIC SYSTEM
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NOR	NORMAL
PC	POINT OF CURVATURE
PCC	POINT OF COMMON CURVATURE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVT	PAVEMENT
R/L	REFERENCE LINE
REQ'D	REQUIRED
SB	SOUTHBOUND
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TCC	TRAFFIC CONDITION CAMERA
TYP	TYPICAL
VAR	VARIABLE
WB	WESTBOUND
WT.	WEIGHT
X-WALK	CROSS WALK



TYPICAL EXISTING SECTION

STA. 9+25 - STA. 9+79  
STA. 10+20 - STA. 11+00



FINISHED TYPICAL SECTION

STA. 9+25 - STA. 9+76  
STA. 10+23 - STA. 11+00

\* LIMITS OF SALVAGED TOPSOIL AND EROSION MAT  
URBAN CLASS I TYPE B

Estimate Of Quantities By Plan Sets

3813-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	2.000	2.000
0004	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-14-0078	EACH	1.000	1.000
0014	205.0100	Excavation Common	CY	174.000	174.000
0016	206.1001	Excavation for Structures Bridges (structure) 01. B-14-0227	EACH	1.000	1.000
0022	210.1500	Backfill Structure Type A	TON	690.000	690.000
0024	213.0100	Finishing Roadway (project) 01. 3813-00-70	EACH	1.000	1.000
0028	305.0110	Base Aggregate Dense 3/4-Inch	TON	20.000	20.000
0030	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	220.000	220.000
0034	455.0605	Tack Coat	GAL	24.000	24.000
0036	465.0105	Asphaltic Surface	TON	75.000	75.000
0038	502.0100	Concrete Masonry Bridges	CY	222.000	222.000
0040	502.3200	Protective Surface Treatment	SY	240.000	240.000
0044	505.0400	Bar Steel Reinforcement HS Structures	LB	5,260.000	5,260.000
0046	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	23,480.000	23,480.000
0052	513.4061	Railing Tubular Type M	LF	97.700	97.700
0054	516.0500	Rubberized Membrane Waterproofing	SY	12.000	12.000
0062	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	490.000	490.000
0064	606.0300	Riprap Heavy	CY	180.000	180.000
0066	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	180.000	180.000
0068	614.0920	Salvaged Rail	LF	70.000	70.000
0080	618.0100	Maintenance and Repair of Haul Roads (project) 01. 3813-00-70	EACH	1.000	1.000
0084	619.1000	Mobilization	EACH	0.500	0.500
0086	623.0200	Dust Control Surface Treatment	SY	390.000	390.000
0088	624.0100	Water	MGAL	5.000	5.000
0090	625.0500	Salvaged Topsoil	SY	293.000	293.000
0092	628.1504	Silt Fence	LF	425.000	425.000
0094	628.1520	Silt Fence Maintenance	LF	850.000	850.000
0096	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0098	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0100	628.2008	Erosion Mat Urban Class I Type B	SY	237.000	237.000
0102	628.6005	Turbidity Barriers	SY	200.000	200.000
0106	629.0210	Fertilizer Type B	CWT	1.000	1.000
0108	630.0130	Seeding Mixture No. 30	LB	9.000	9.000
0110	630.0200	Seeding Temporary	LB	13.000	13.000
0112	630.0500	Seed Water	MGAL	8.700	8.700
0114	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0116	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0118	638.2602	Removing Signs Type II	EACH	8.000	8.000
0120	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0122	642.5001	Field Office Type B	EACH	0.500	0.500
0124	643.0420	Traffic Control Barricades Type III	DAY	2,196.000	2,196.000
0126	643.0705	Traffic Control Warning Lights Type A	DAY	2,928.000	2,928.000
0128	643.0900	Traffic Control Signs	DAY	1,708.000	1,708.000
0130	643.5000	Traffic Control	EACH	0.500	0.500
0132	645.0111	Geotextile Type DF Schedule A	SY	120.000	120.000
0134	645.0120	Geotextile Type HR	SY	328.000	328.000
0138	650.4500	Construction Staking Subgrade	LF	135.000	135.000
0140	650.5000	Construction Staking Base	LF	135.000	135.000
0144	650.6501	Construction Staking Structure Layout (structure) 01. B-14-0227	EACH	1.000	1.000
0148	650.9911	Construction Staking Supplemental Control (project) 01. 3813-00-70	EACH	1.000	1.000



Estimate Of Quantities By Plan Sets

3813-00-70

Line	Item	Item Description	Unit	Total	Qty
0152	650.9920	Construction Staking Slope Stakes	LF	135.000	135.000
0154	690.0150	Sawing Asphalt	LF	44.000	44.000
0160	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 10+00 ID 3813-00-70	EACH	1.000	1.000
0164	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	500.000	500.000
0166	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0168	SPV.0035	Special 01. Excavation, Hauling, and Disposal of Creosote Contaminated Soil	CY	65.000	65.000
0170	SPV.0090	Special 01. Remove Existing Timber Piling	LF	120.000	120.000

3

GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0205 GRUBBING STA
0010	9+00	-	11+00	RT	2
TOTAL 0010					2

SALVAGED RAIL

CATEGORY	LOCATION	614.0920 SALVAGED RAIL LF
0010	BRIDGE NORTH	35
0010	BRIDGE SOUTH	35
TOTAL 0010		70

BASE AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL	REMARKS
0010	9+25	-	9+73	MAINLINE	10	90	2	WEST APPROACH
0010	10+19	-	11+00	MAINLINE	10	130	3	EAST APPROACH
TOTAL 0010					20	220	5	

RIPRAP

CATEGORY	STATION	TO	STATION	LOCATION	606.0300 RIPRAP HEAVY CY	645.0120 GEOTEXTILE TYPE HR SY
0020	10+24	-	10+50	SE EXTRA RIPRAP	35	53
TOTAL 0020					35	53

**WILDCAT RD EARTHWORK SUMMARY**

From/To Station	Location	Common Excavation (1) (Item 205.0100)	Unusable Cut	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste
		Cut			Factor 1.30		
9+25 to 9+73	WILDCAT RD, WEST APPROACH	59	11	18	24	24	24
10+19 to 11+00	WILDCAT RD, EAST APPROACH	115	19	12	16	80	80
TOTAL		174			40		104

- 1) Common Excavation is the Cut. Unusable excavation is existing pavement. Item number 205.0100.
- 2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill \* Fill Factor
- 3) The Mass Ordinate + or - Qty calculated for the side of the waterway. Plus quantity indicates an excess of material on the side of the waterway.
- 4) All quantities shown in CY.

ASPHALT

CATEGORY	STATION	TO	STATION	LOCATION	^ 455.0605 TACK COAT GAL	^^ 465.0105 ASPHALTIC SURFACE TON	REMARKS
0010	9+25	-	9+73	MAINLINE	9	29	WEST APPROACH
0010	10+19	-	11+00	MAINLINE	15	46	EAST APPROACH
TOTAL 0010					24	75	

NOTES:

- ^ TACK COAT APPLICATION RATE = 0.07 GAL/SY
- ^^ ASSUMED ASPHALT AT 112 LBS/SY/IN

CATEGORY	LOCATION	618.0100.01 MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) (01. 3813-00-70) EACH	REMARKS
0030	WILDCAT RD	1	
TOTAL 0030		1	

PROJECT-WIDE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	213.0100.01 FINISHING ROADWAY (PROJECT) (01. 3813-00-70) EACH	619.1000 MOBILIZATION EACH	623.0200 DUST CONTROL SURFACE TREATMENT SY	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	642.5001 FIELD OFFICE TYPE B EACH	999.2000.S.01 INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (STATION) (01. 10+00) EACH
0010	9+25	-	11+00	WILDCAT ROAD	1	0.5	390	4	4	0.5	1
TOTAL 0010					1	0.5	390	4	4	0.5	1

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

3

EROSION CONTROL AND FINISHING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	625.0500 SY	628.1504 LF	628.1520 LF	628.2008 SY	628.6005 SY	629.0210 CWT	630.0130 LB	630.0200 LB	630.0500 MGAL
0010	9+25	-	9+68	LT	69	80	160	50	-	0.1	2	2	1.6
0010	9+25	-	9+47	RT	54	65	130	44	91	0.1	1	2	1.3
0010	10+44	-	11+00	LT	89	90	180	63	-	0.1	2	3	2.0
0010	10+50	-	11+00	RT	81	105	210	58	95	0.1	2	3	1.9
0010			UNDISTRIBUTED		-	85	170	22	14	0.6	2	3	1.9
			TOTAL 0010		293	425	850	237	200	1.0	9	13	8.7

SIGNS

CATEGORY	STATION	LOCATION	634.0614 EACH	637.2230 SF	638.2602 EACH	638.3000 EACH	REMARKS
0010		AT CTH E	-	-	1	1	R12-55: POSTED BRIDGE AHEAD
0010		W OF BRIDGE	-	-	1	1	R12-1: WEIGHT LIMIT
0010		W OF BRIDGE	2	6	2	2	W5-52: CLEARANCE STRIPER DOWN
0010		E OF BRIDGE	2	6	2	2	W5-52: CLEARANCE STRIPER DOWN
0010		E OF BRIDGE	-	-	1	1	R12-1: WEIGHT LIMIT
0010		AT STH 67	-	-	1	1	R12-55: POSTED BRIDGE AHEAD
		TOTAL 0010	4	12	8	8	

STAKING

CATEGORY	STATION	TO	STATION	LOCATION	650.4500 LF	650.5000 LF	650.6501.01 EACH	650.9911.01 EACH	650.9920 LF
0010	9+25	-	11+00	MAINLINE	135	135	-	1	135
			TOTAL 0010		135	135	0	1	135
0020	9+72	-	10+19	B-14-0227	-	-	1	-	-
			TOTAL 0020		0	0	1	0	0
			PROJECT TOTAL		135	135	1	1	135

SAWING ASPHALT

CATEGORY	STATION	LOCATION	690.0150 LF	REMARKS
0010	9+25	WEST MATCHIN	22	
0010	11+00	EAST MATCHIN	22	
		TOTAL 0010	44	

TRAFFIC CONTROL

CATEGORY	LOCATION	DURATION DAYS	NO.	643.0420 DAY	643.0705 NO.	643.0705 DAY	643.0900 NO.	643.0900 DAY	643.5000 EACH	REMARKS
0010	PER SDD 15C2	122	18	2,196	24	2,928	14	1,708	-	DETAILS C & D
0010	WILDCAT RD	-	-	-	-	-	-	-	0.5	
	TOTAL 0010			2,196		2,928		1,708	0.5	

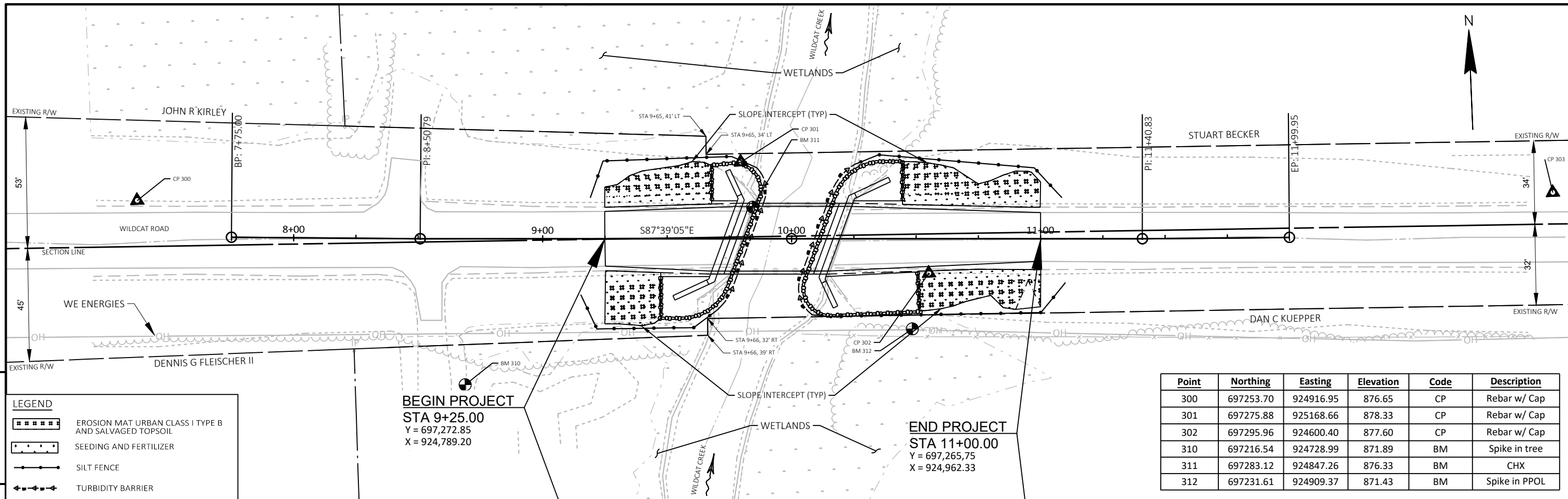
CREOSOTE CONTAMINATED SOIL

CATEGORY	STATION	OFFSET	TO	STATION	OFFSET	LOCATION	SPV.0035.01 CY
0020	9+62	25' RT	-	9+77	25' LT	WEST	33
0020	10+22	25' RT	-	10+38	25' LT	EAST	32
						TOTAL 0020	65

EXCAVATE A 2' OFFSET AROUND EACH EXISTING WOOD FRAMED WINGWALL AND ABUTMENT AND 3' DEEP

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

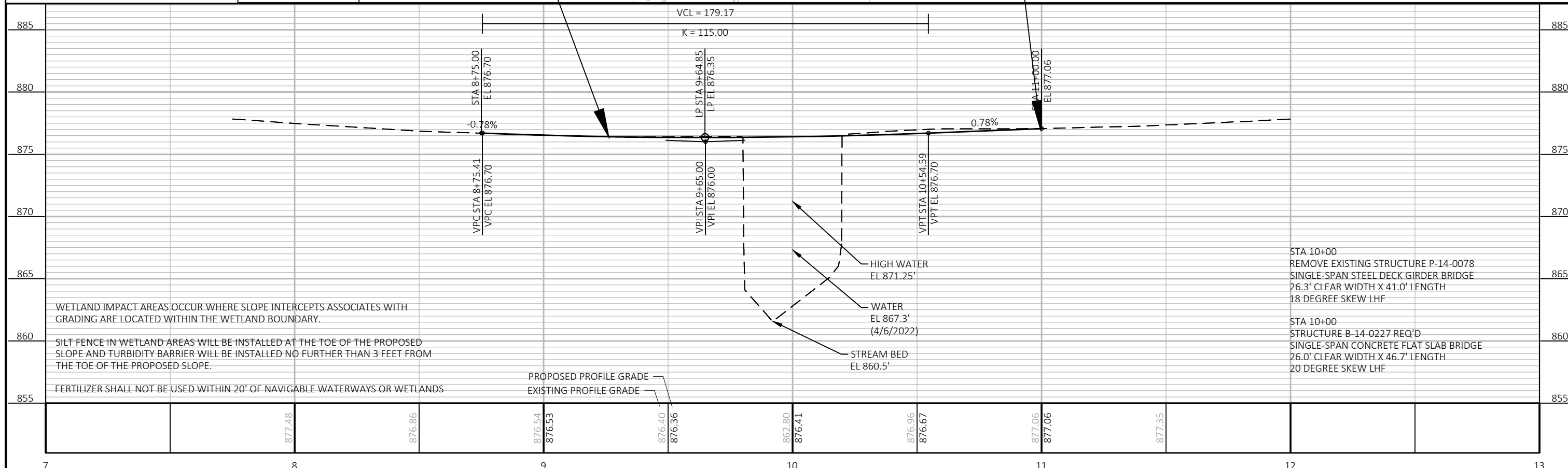




**LEGEND**

- EROSION MAT URBAN CLASS I TYPE B AND SALVAGED TOPSOIL
- SEEDING AND FERTILIZER
- SILT FENCE
- TURBIDITY BARRIER

Point	Northing	Easting	Elevation	Code	Description
300	697253.70	924916.95	876.65	CP	Rebar w/ Cap
301	697275.88	925168.66	878.33	CP	Rebar w/ Cap
302	697295.96	924600.40	877.60	CP	Rebar w/ Cap
310	697216.54	924728.99	871.89	BM	Spike in tree
311	697283.12	924847.26	876.33	BM	CHX
312	697231.61	924909.37	871.43	BM	Spike in PPOL

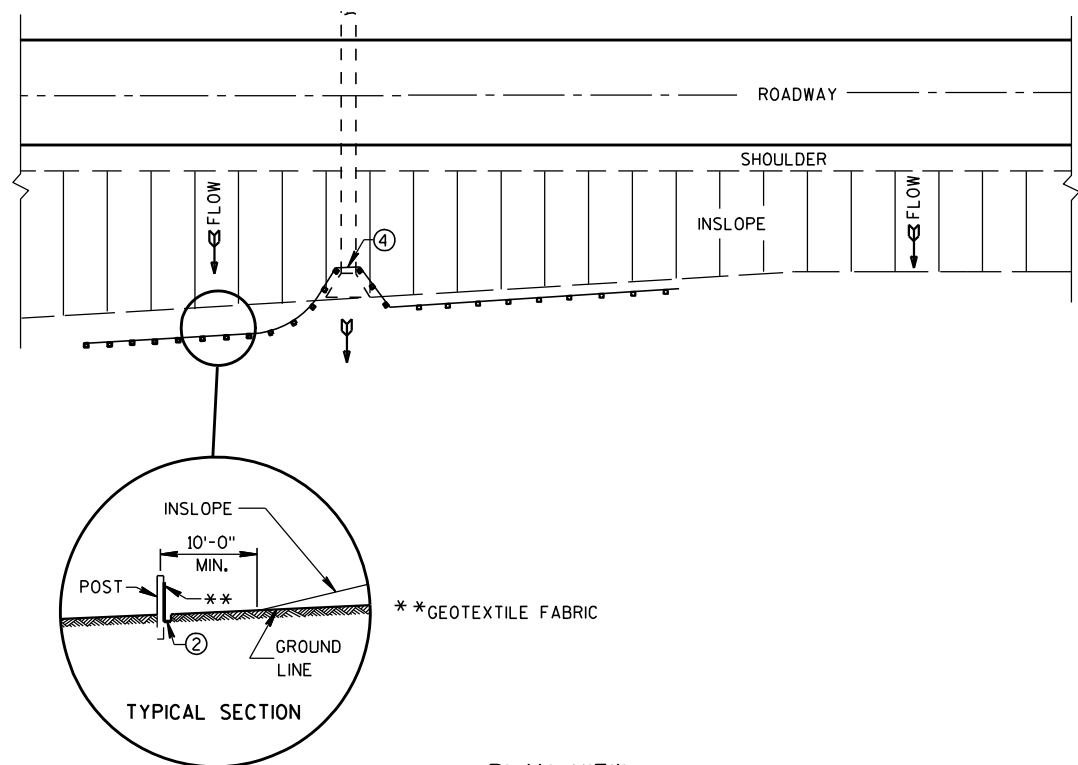


7	8	9	10	11	12	13
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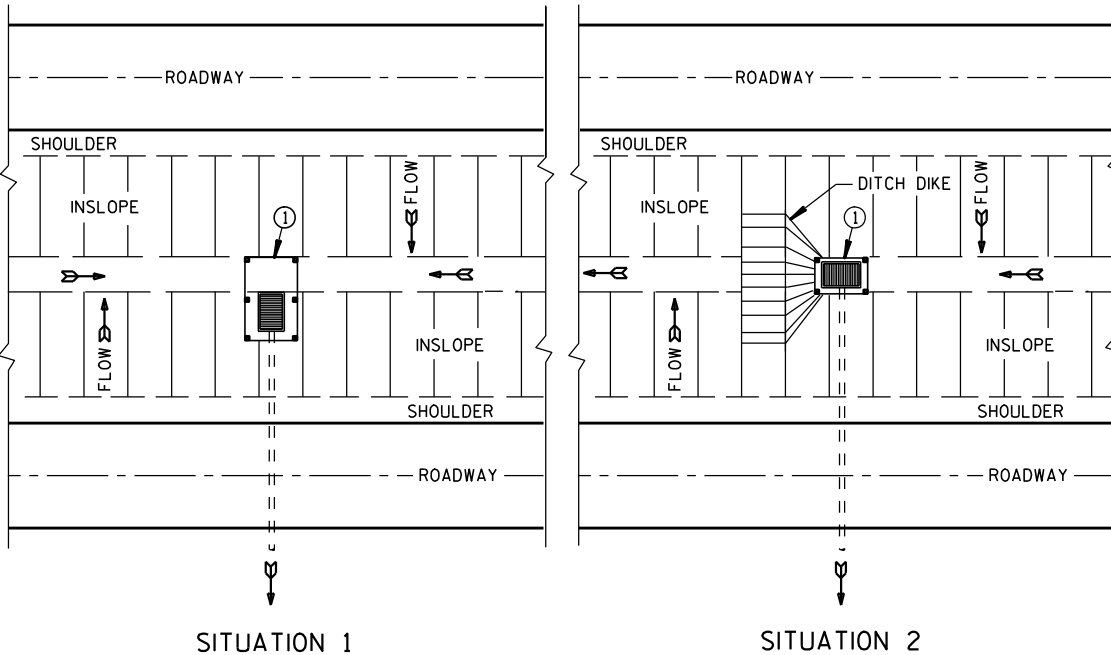
PROJECT NO: 3813-00-70      HWY: WILDCAT ROAD      COUNTY: DODGE      PLAN AND PROFILE: PLAN AND PROFILE      SHEET: **E**

## Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES

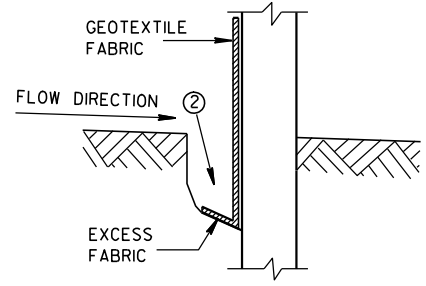


PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE



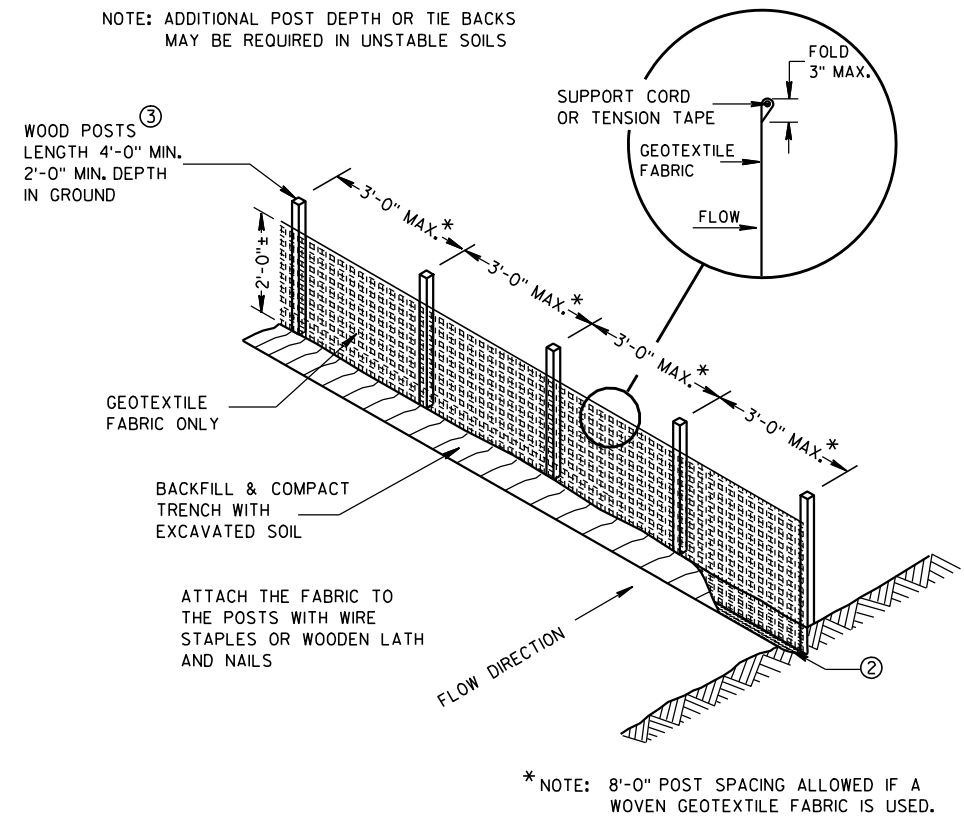
SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

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

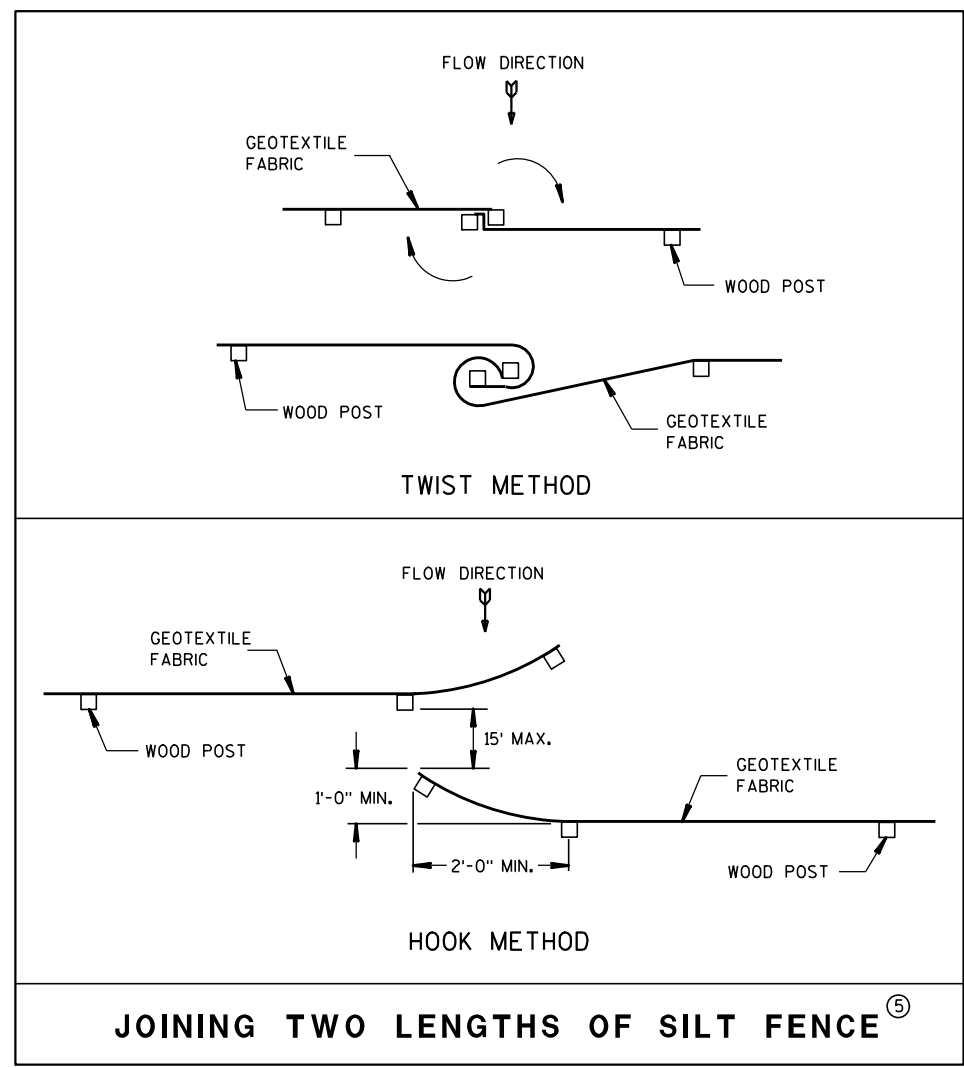


TRENCH DETAIL

6

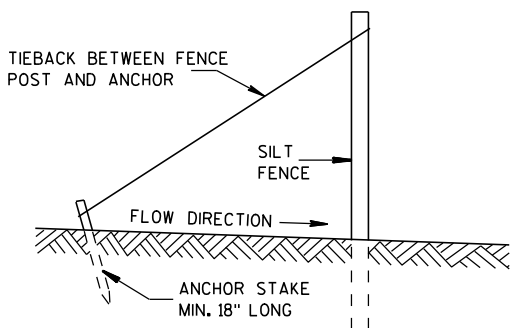


SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤

6



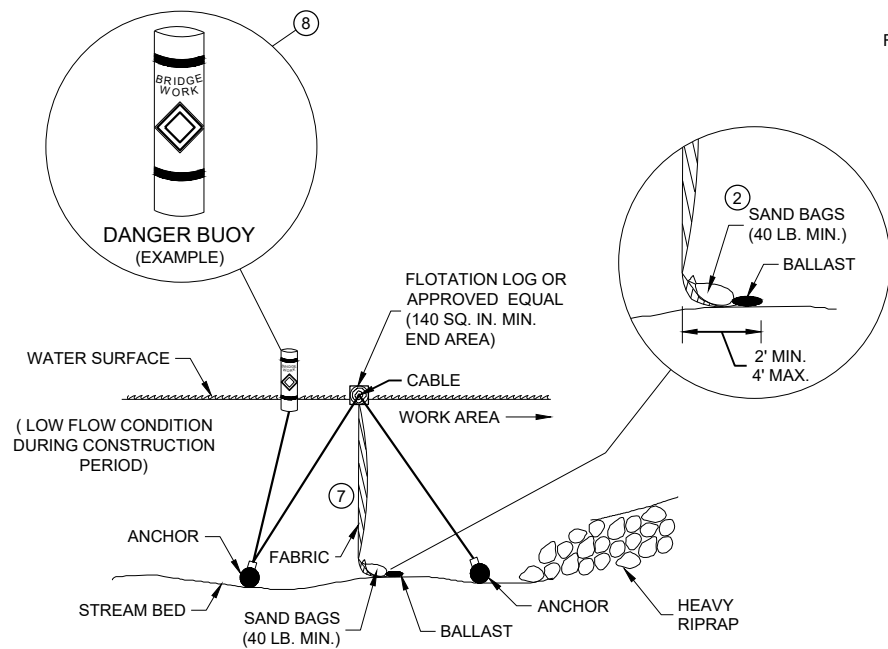
SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

<b>SILT FENCE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Canestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

S.D.D. 8 E 9-6

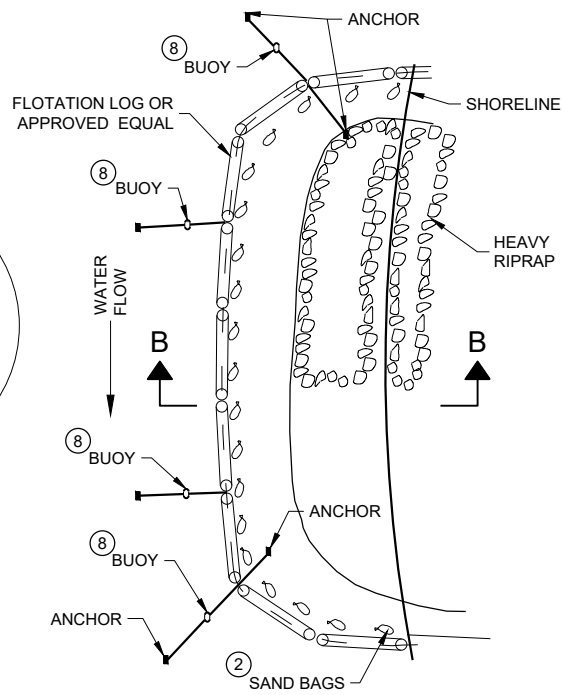
S.D.D. 8 E 9-6



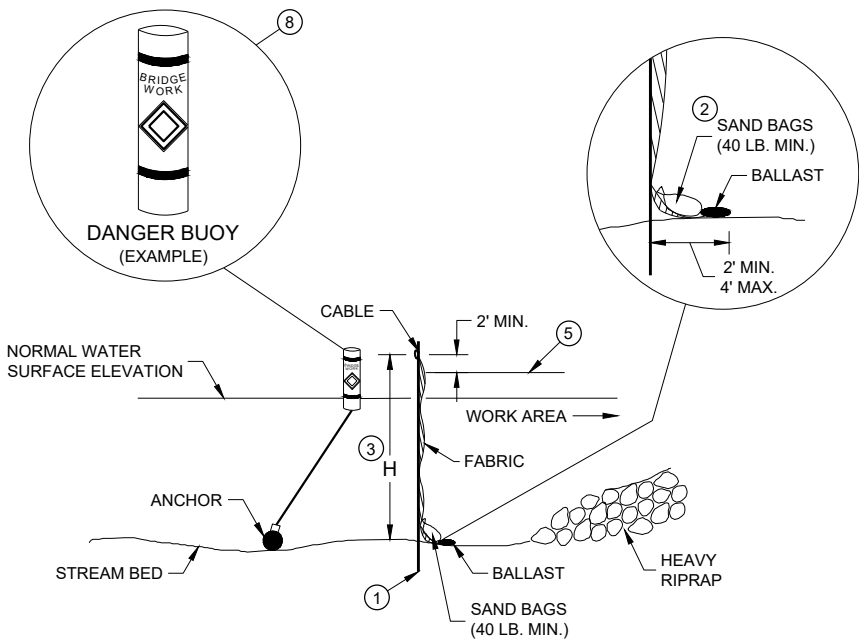


**SECTION B - B**

**TURBIDITY BARRIER - FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6**

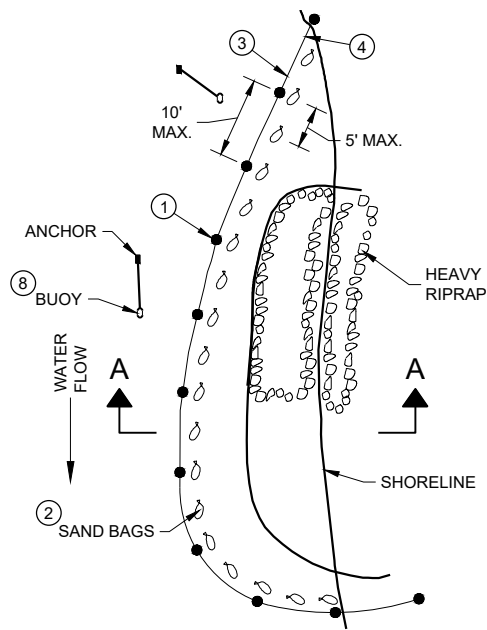


**PLAN VIEW**



**SECTION A - A**

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**



**PLAN VIEW**

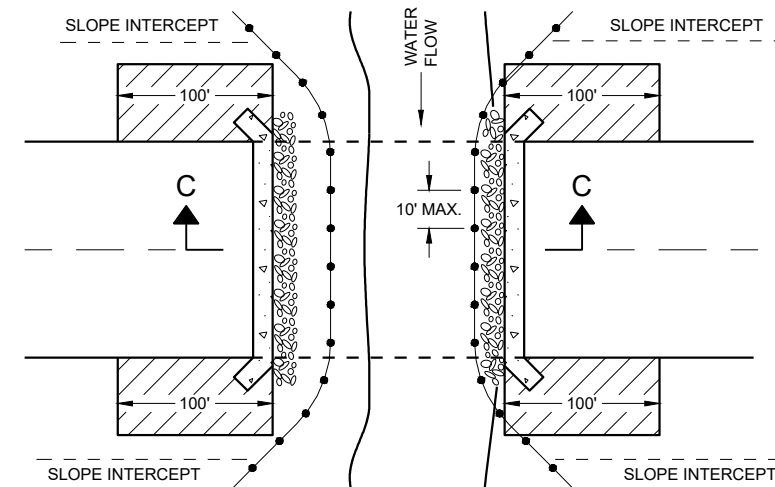
**TURBIDITY BARRIER PLACEMENT DETAILS**

**GENERAL NOTES**

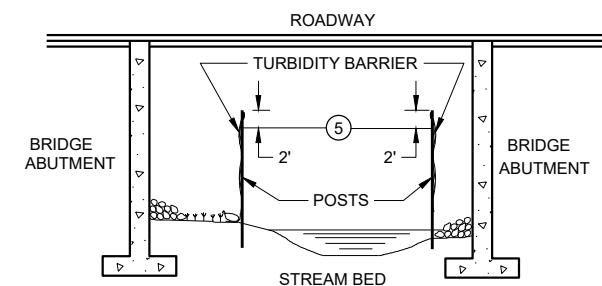
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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 SAND BAGS 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 FEET, 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 Q2 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 BEDROCK 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.



**PLAN VIEW**



**SECTION C - C**

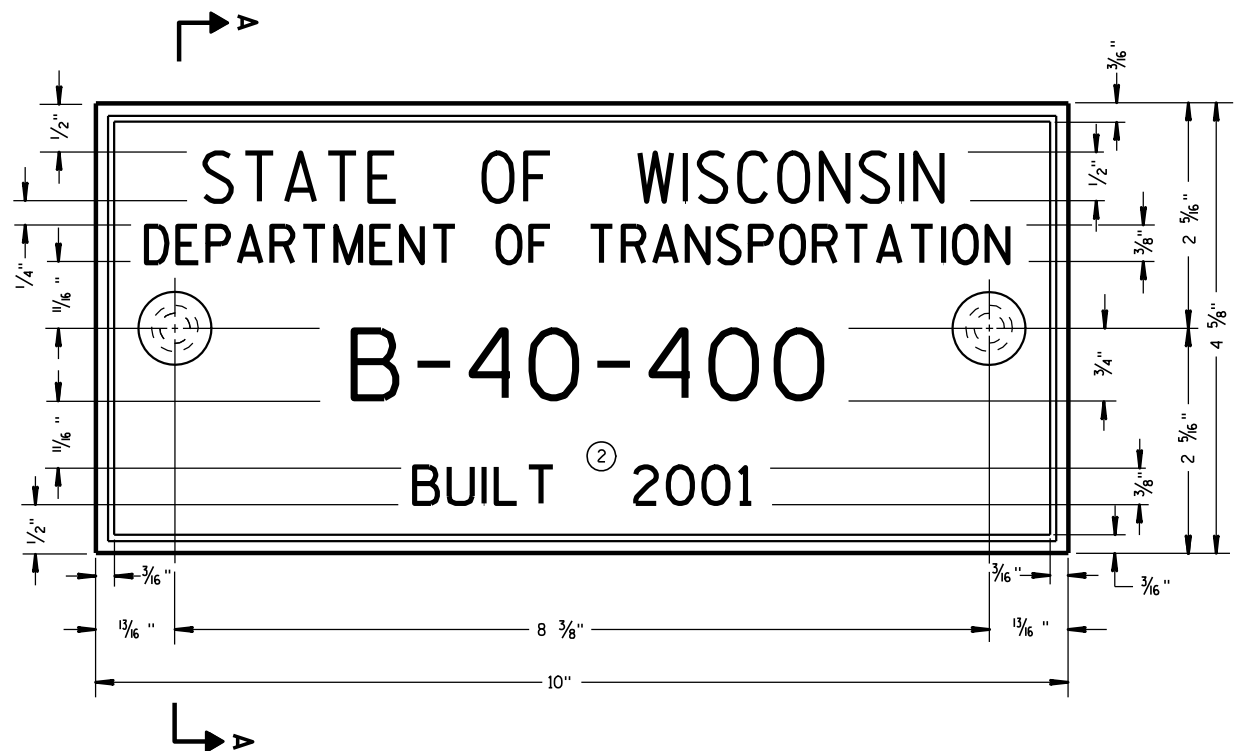
**TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES**

**TURBIDITY BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/4/02 DATE /S/ Beth Cannestra  
DATE CHIEF ROADWAY DEVELOPMENT  
ENGINEER

FHWA



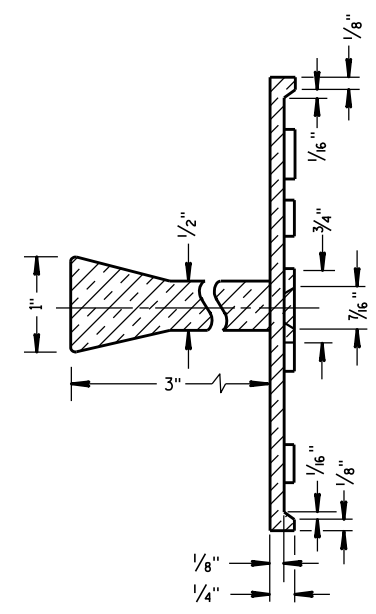
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

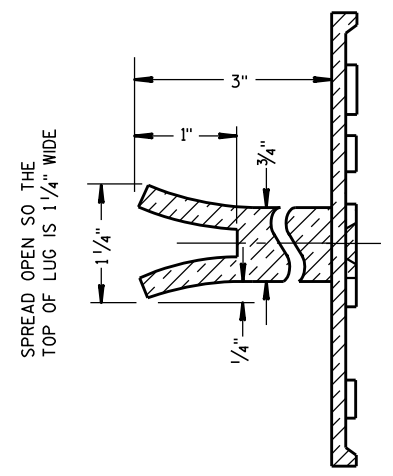
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.



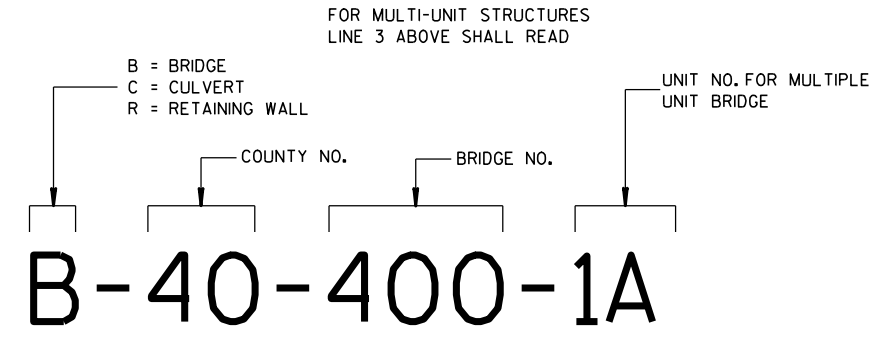
**SECTION A-A**



**ALTERNATE LUG**

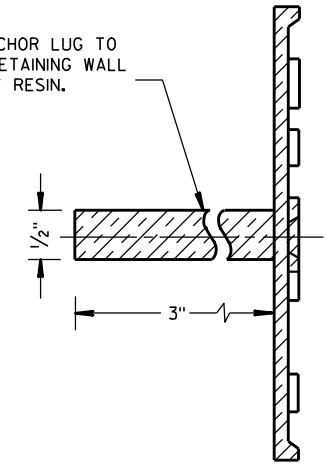
6

6



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

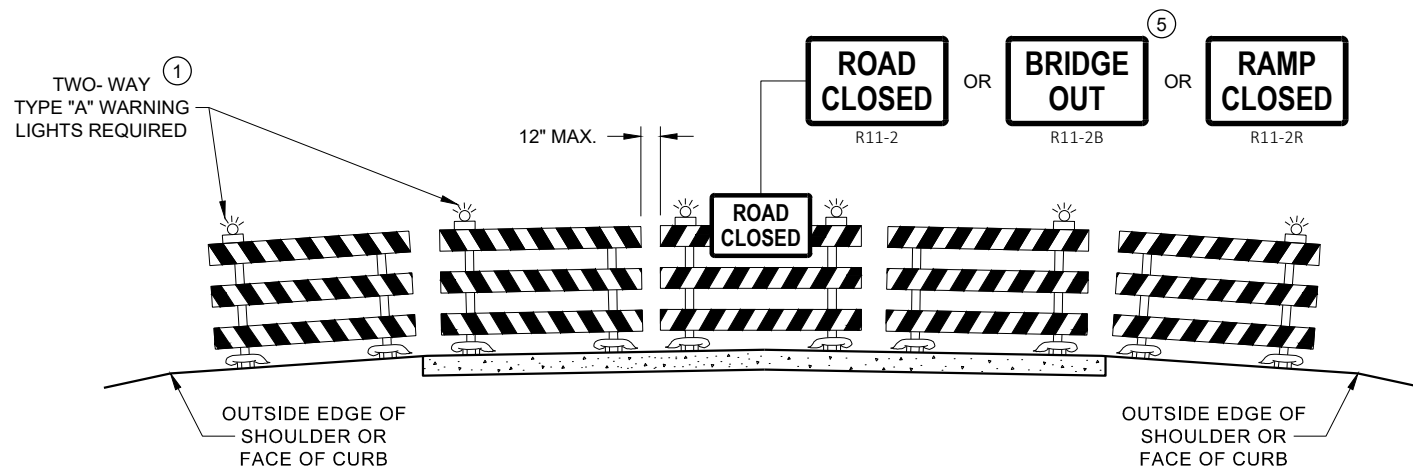
S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

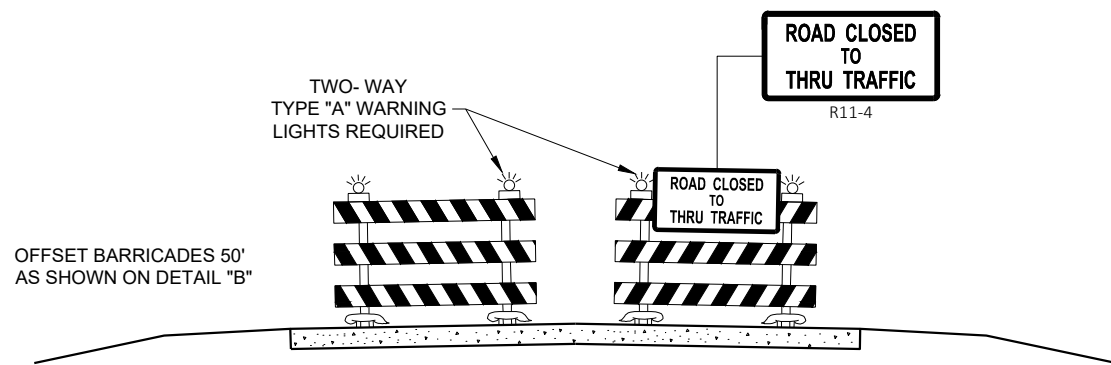
<b>NAME PLATE (STRUCTURES)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	







**DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW**



**DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**GENERAL NOTES**

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

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.

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

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

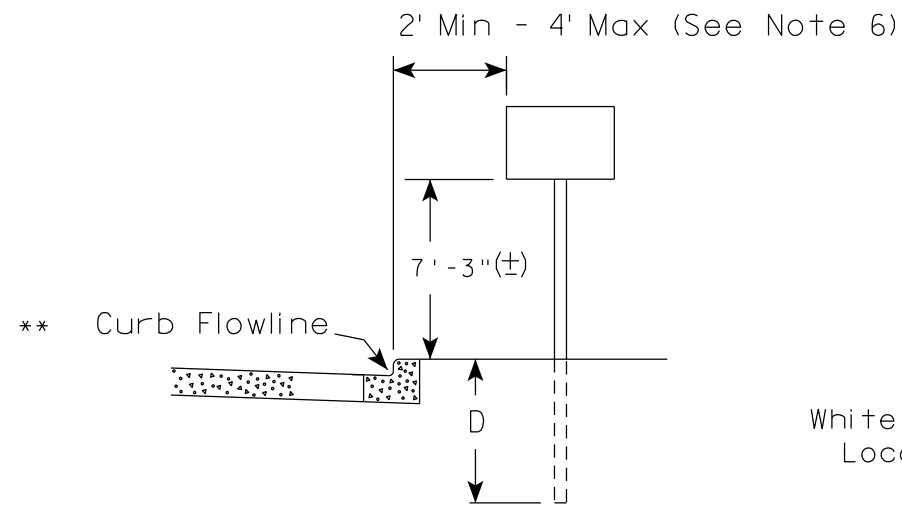
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

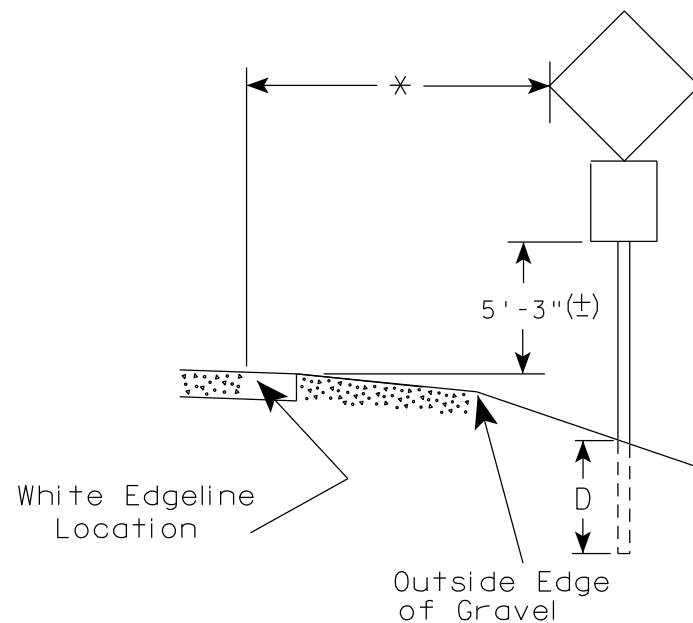
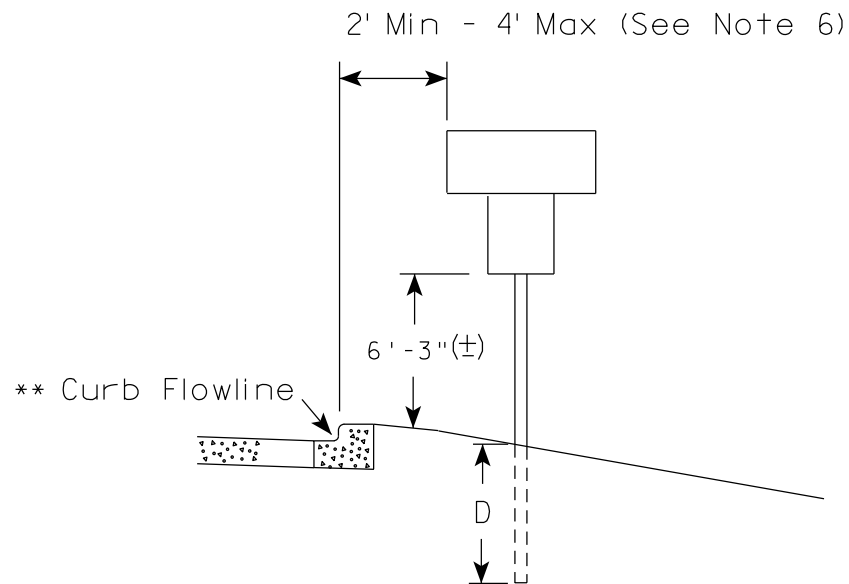
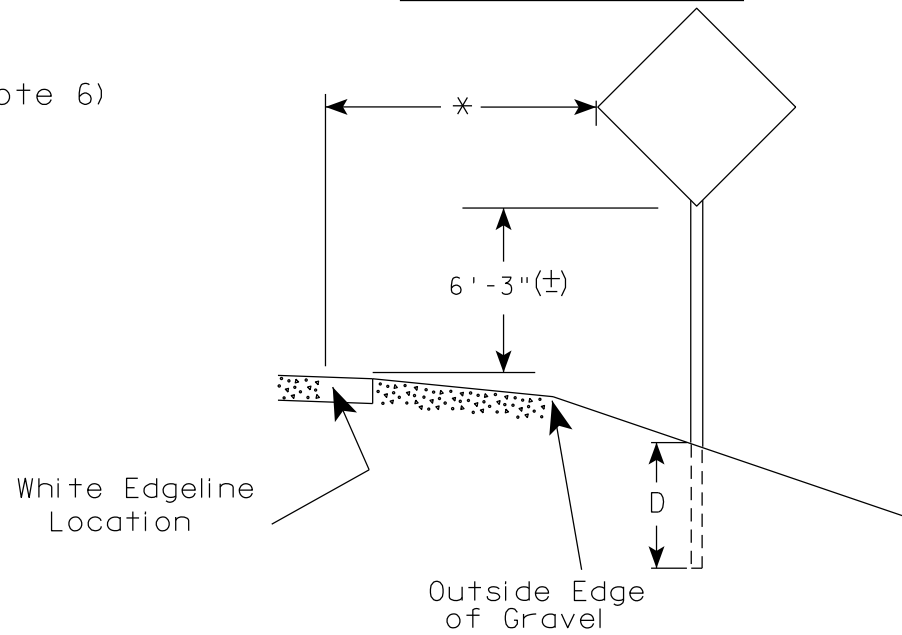
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.  
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation ( Sq. Ft. )	D ( Min )
20 or Less	4'
Greater than 20	5'

\* \* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

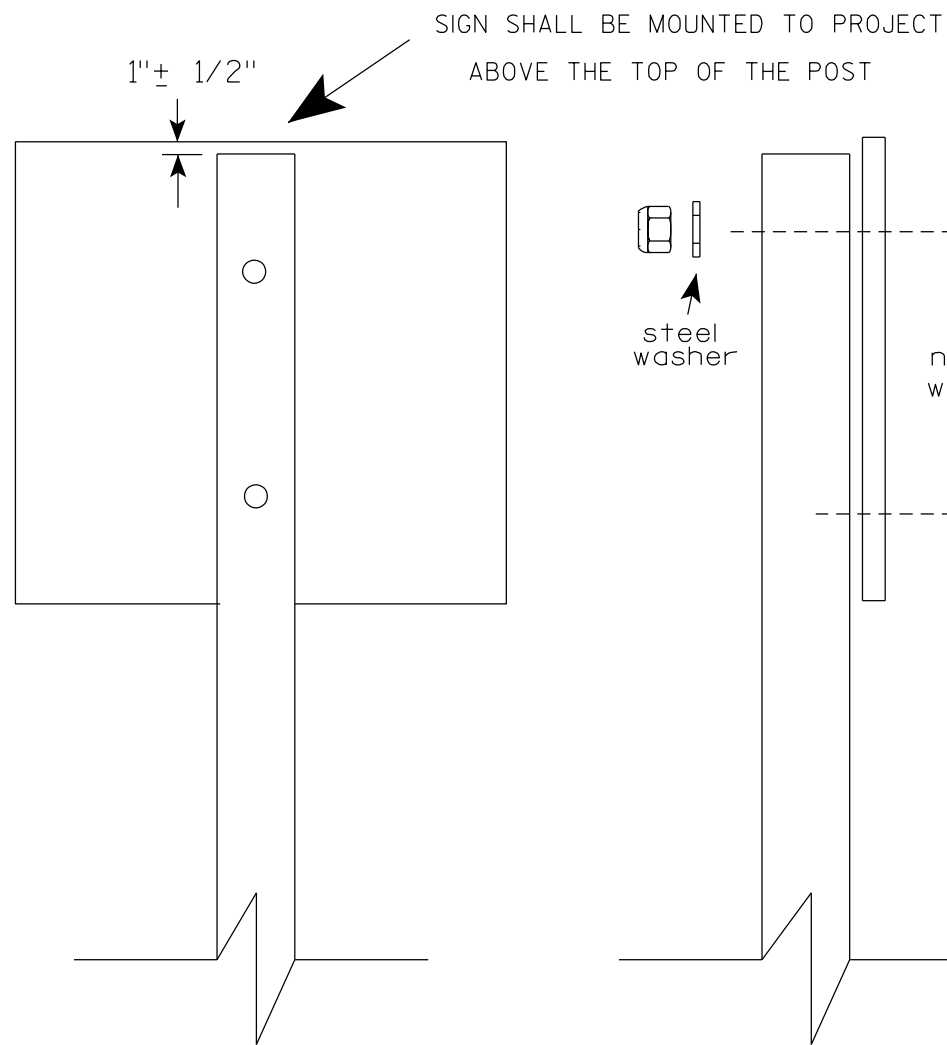
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/13/2020 PLATE NO. A4-3.22



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)  
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)  
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 3/8" I.D. X .080 NYLON

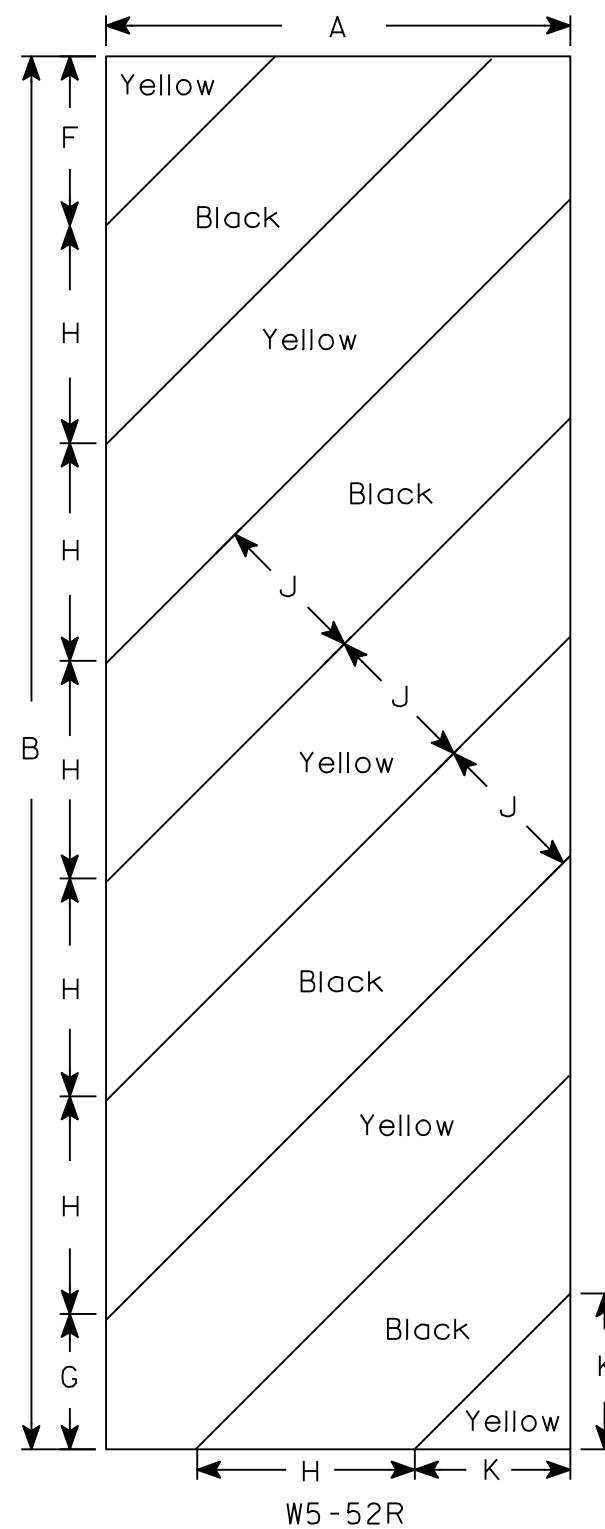
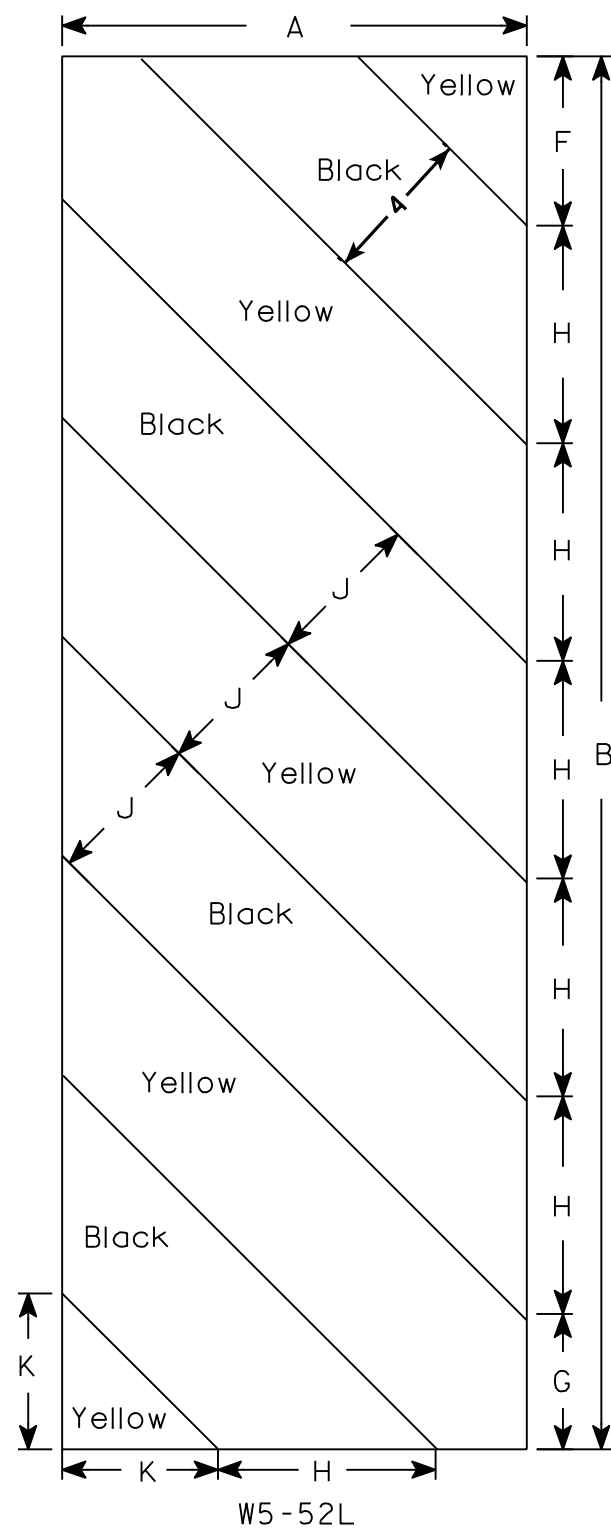
\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS  
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
For State Traffic Engineer

DATE 4/1/2020 PLATE NO. A4-8.9



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

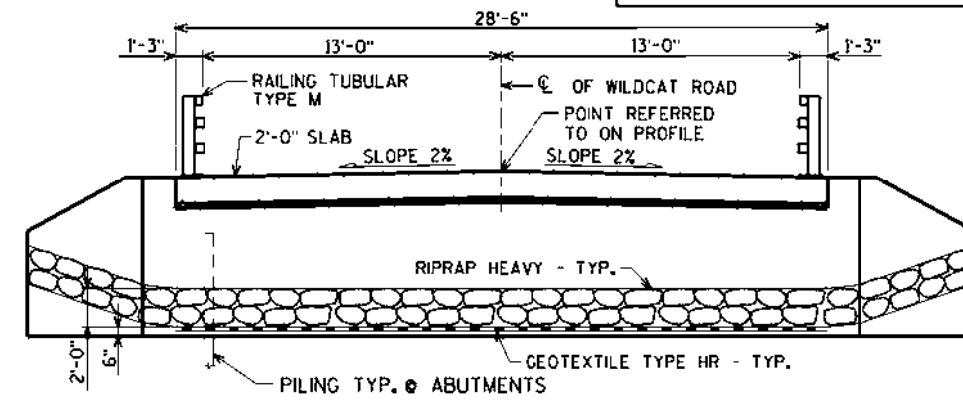
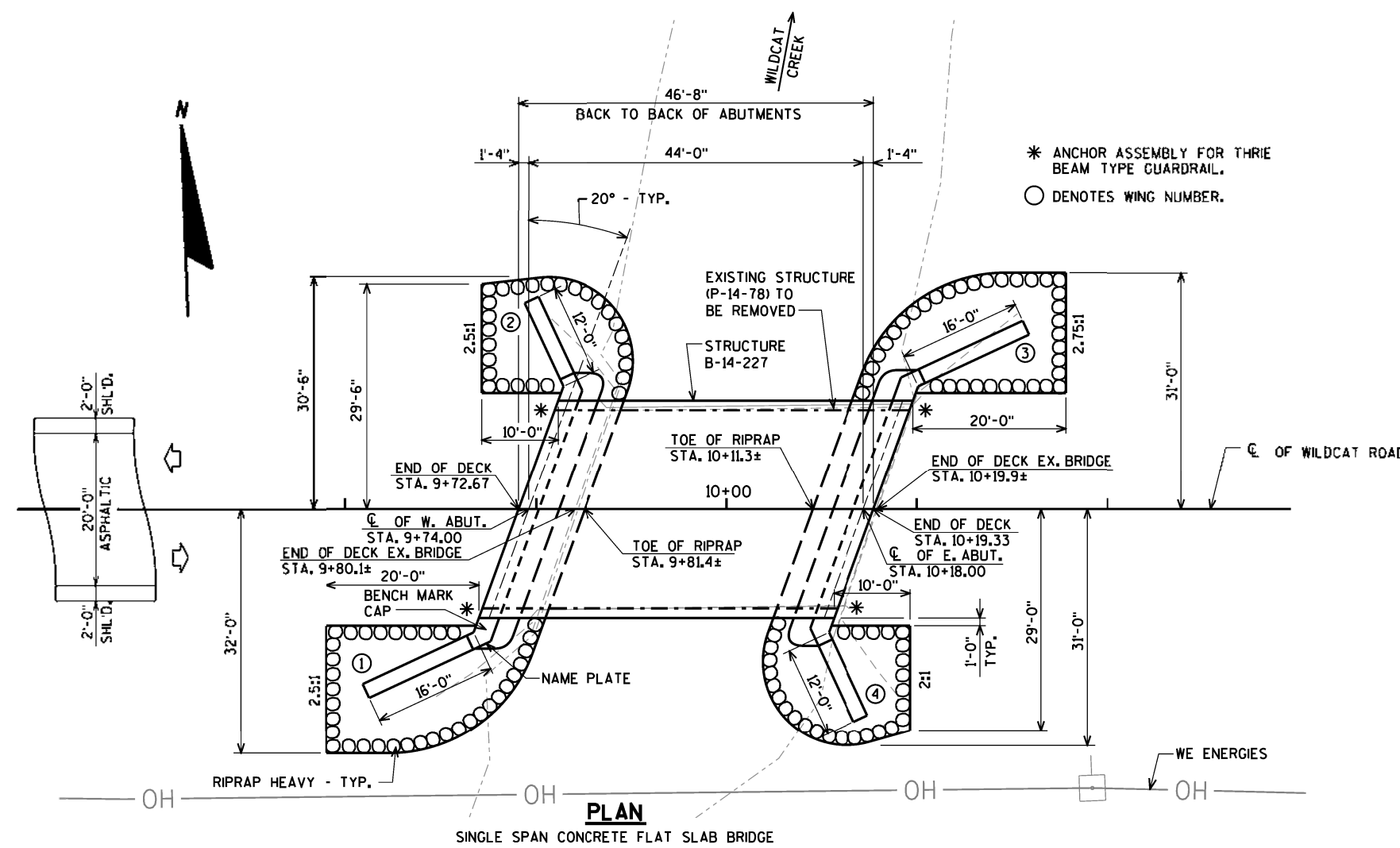
STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



DESIGN DATA

**LIVE LOAD:**  
 DESIGN LOADING: HL-93  
 INVENTORY RATING FACTOR: 1.34  
 OPERATING RATING FACTOR: 1.74  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 #/S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY { SUPERSTRUCTURE \_\_\_\_\_ f'c = 4,000 p.s.i.  
 ALL OTHER \_\_\_\_\_ f'c = 3,500 p.s.i.  
 HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) \_\_\_\_\_ fy = 60,000 p.s.i.

HYDRAULIC DATA:

**100 YEAR FREQUENCY**  
 Q<sub>100</sub> = 1,460 c.f.s.  
 VEL. = 5.7 f.p.s.  
 HW<sub>100</sub> = EL. 871.20

**2 YEAR FREQUENCY**  
 Q<sub>2</sub> = 570 c.f.s.  
 VEL. = 3.1 f.p.s.  
 HW<sub>2</sub> = EL. 869.07

WATERWAY AREA = 259 sq. ft.  
 DRAINAGE AREA = 20.0 sq. mi.  
 ROADWAY OVERTOPPING = N/A  
 SCOUR CRITICAL CODE = 5  
 DATUM = NAVD88 (2012)

FOUNDATION DATA:

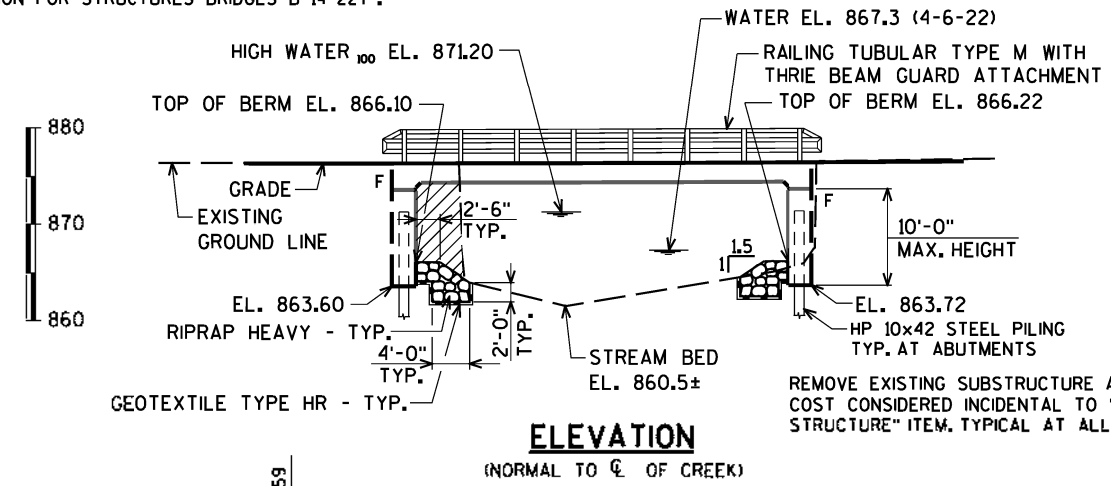
ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS # PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA, ESTIMATED LENGTH 35'-0\"/>

\*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

TRAFFIC DATA:

A.A.D.T. = 155 (2024)  
 A.A.D.T. = 170 (2044)  
 R.D.S. = 40 M.P.H.

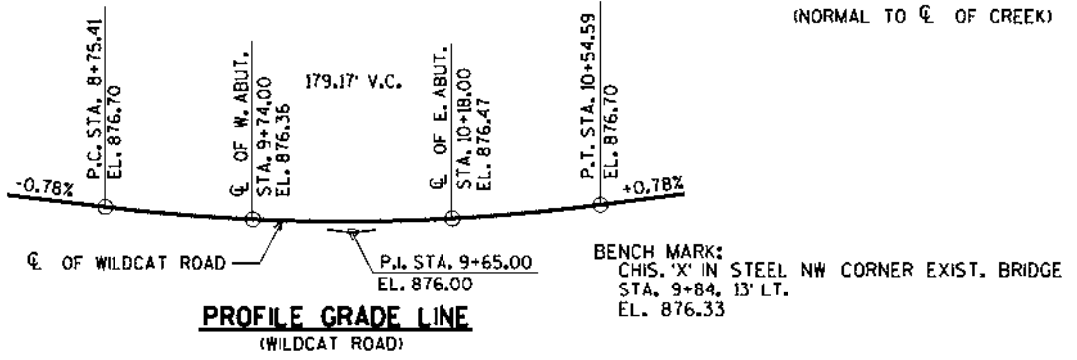
COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-14-227".



ELEVATION (NORMAL TO C OF CREEK)

LIST OF DRAWINGS

1. GENERAL PLAN
2. QUANTITIES AND NOTES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT WING 1 DETAILS
6. WEST ABUTMENT WING 2 DETAILS & BILL OF BARS
7. EAST ABUTMENT
8. EAST ABUTMENT WING 3 DETAILS
9. EAST ABUTMENT WING 4 DETAILS & BILL OF BARS
10. SUPERSTRUCTURE
11. SUPERSTRUCTURE DETAILS
12. TUBULAR STEEL RAILING TYPE 'M'



PROFILE GRADE LINE (WILDCAT ROAD)



BRIDGE OFFICE CONTACT:  
 AARON BONK  
 (608)-261-0261

CONSULTANT CONTACT:  
 KRISTOFER OLSON  
 (920)-498-1200

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
<b>AVRES</b> 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>[Signature]</i>	SDR 10/27/23	DATE
CHIEF STRUCTURES DESIGN ENGINEER			
<b>STRUCTURE B-14-227</b>			
WILDCAT ROAD OVER WILDCAT CREEK			
COUNTY	DODGE	TOWN/CITY/VILLAGE	HUBBARD
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	ZSS	DESIGN CR'D.	DRS
DRAWN BY	CLP	PLANS CR'D.	KRO
<b>GENERAL PLAN</b>			SHEET 1 OF 12

10/27/2023 PENTABLE:BRcou\_shd\_util.tbl

CHECKED BY: DATE: BACK CHECKED BY: DATE: CORRECTED BY: DATE:

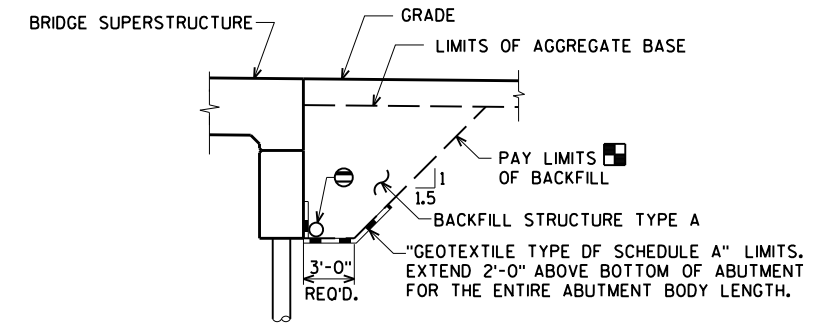
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**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-14-78	EACH	-----	-----	-----	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-14-227	EACH	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	345	345	-----	690
502.0100	CONCRETE MASONRY BRIDGES	CY	59.7	59.7	103.0	222
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	240	240
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,630	2,630	-----	5,260
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,120	2,120	19,240	23,480
513.4061	RAILING TUBULAR TYPE M	LF	-----	-----	97.7	97.7
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	6	6	-----	12
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	245	245	-----	490
606.0300	RIPRAP HEAVY	CY	75	70	-----	145
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	90	90	-----	180
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	60	60	-----	120
645.0120	GEOTEXTILE TYPE HR	SY	140	135	-----	275
SPV.0090.01	REMOVE EXISTING TIMBER PILING	LF	-----	120	-----	120
NON-BID ITEMS						
FILLER		SIZE	-----	-----	-----	1/2" & 3/4"



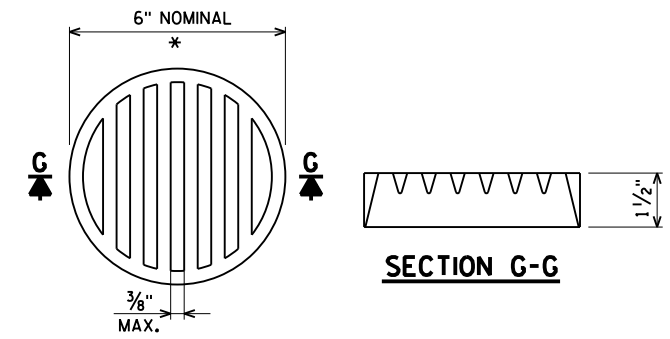
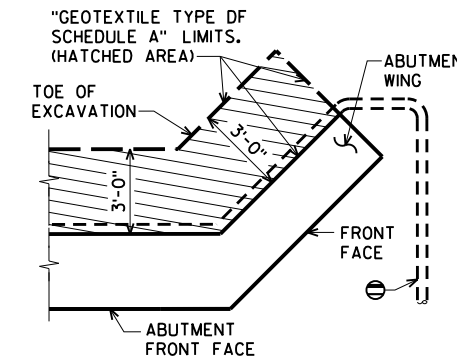
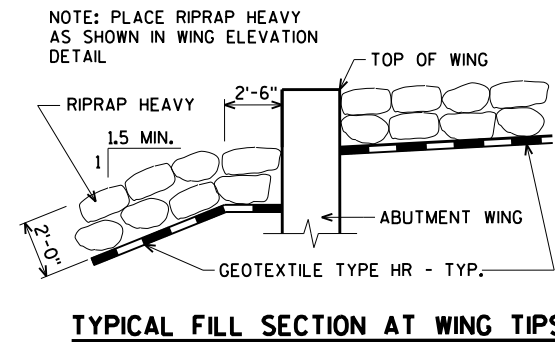
**BACKFILL STRUCTURE LIMITS THRU ABUTMENT**

BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET.

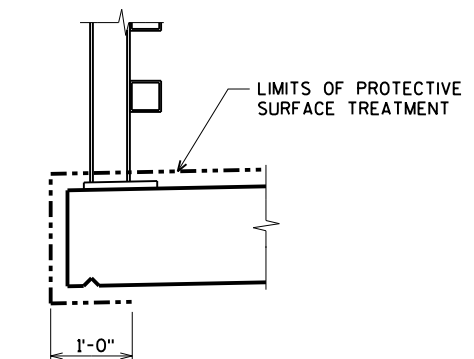
**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.  
 BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.  
 THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.  
 JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.  
 THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.  
 SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER.  
 THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-14-227" SHALL BE THE EXISTING GROUNDLINE.  
 THE EXISTING STRUCTURE, P-14-78, TO BE REMOVED, IS A SINGLE-SPAN STEEL BEAM BRIDGE WITH CONCRETE DECK ON TIMBER ABUTMENTS, 41-FT. LONG WITH A 26-FT. CLEAR ROADWAY WIDTH.  
 AT THE BACK FACE OF ABUTMENTS, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.  
 PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET AND APPLY TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THE 1'-0" OF THE FRONT FACE OF ABUTMENT.  
 EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.  
 THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.  
 BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.  
 EXTENT OF BELOW GRADE SUBSTRUCTURES ARE NOT KNOWN. REMOVE EXISTING SUBSTRUCTURES AS NEEDED TO BUILD NEW SUBSTRUCTURES. COST OF SUBSTRUCTURE REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" BID ITEM.  
 AT ABUTMENTS, CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

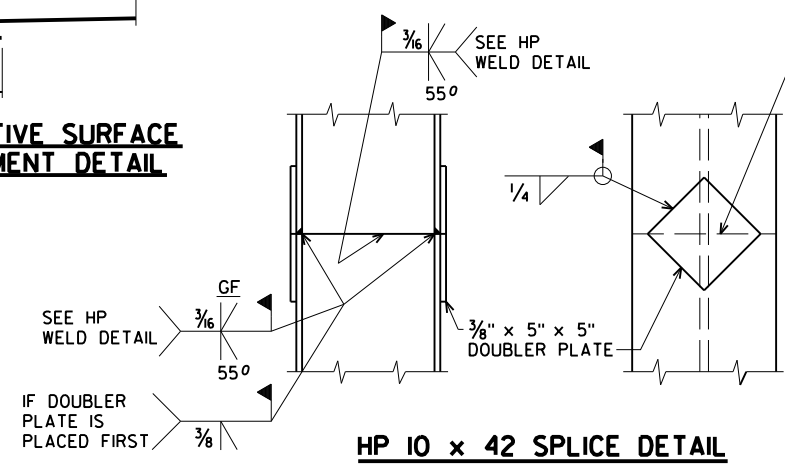


\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.  
 THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".  
 THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

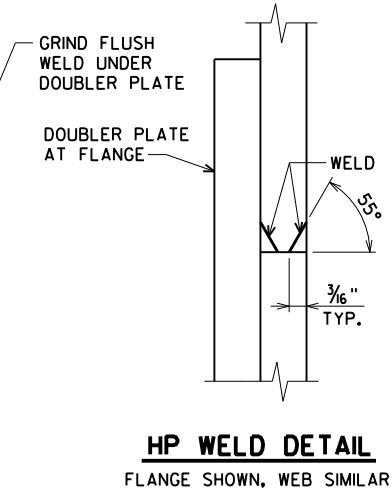
**RODENT SHIELD DETAIL**



**PROTECTIVE SURFACE TREATMENT DETAIL**



**HP 10 x 42 SPLICE DETAIL**



**HP WELD DETAIL**  
 FLANGE SHOWN, WEB SIMILAR

\$DATE \$PEN\$

8

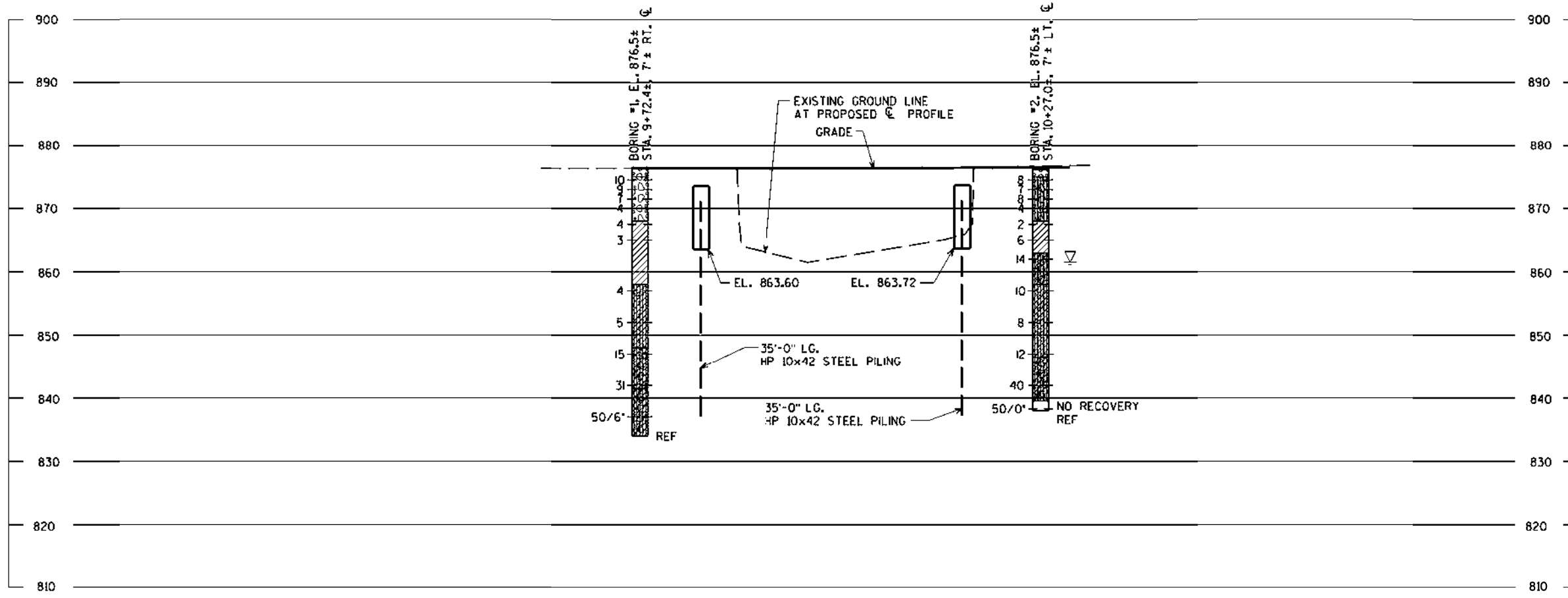
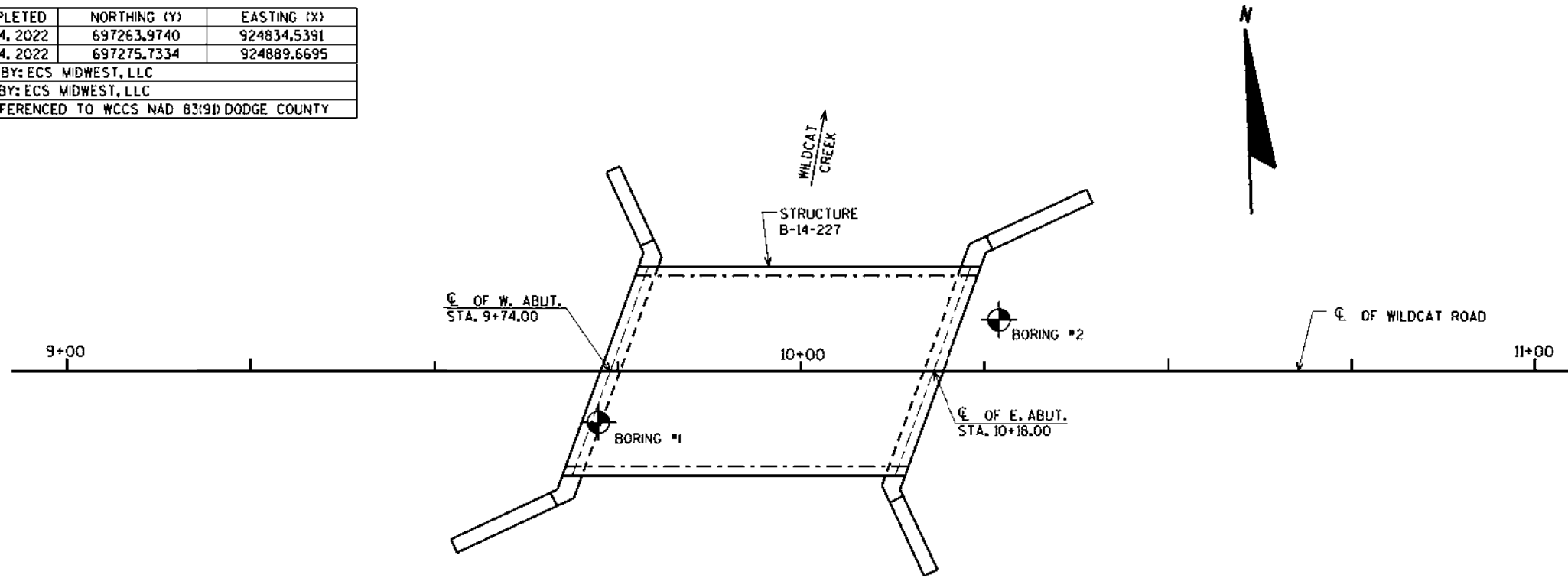
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ORIGINAL PLANS PREPARED BY  
**AYRES** 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
 www.AyresAssociates.com

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-227</b>			
DRAWN BY	CLP	PLANS CK'D.	JMC
<b>QUANTITIES AND NOTES</b>			SHEET 2 OF 12

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	OCTOBER 24, 2022	697263.9740	924834.5391
2	OCTOBER 24, 2022	697275.7334	924889.6695

BORINGS COMPLETED BY: ECS MIDWEST, LLC  
 REPORT COMPLETED BY: ECS MIDWEST, LLC  
 ALL COORDINATES REFERENCED TO WCCS NAD 83(9) DODGE COUNTY



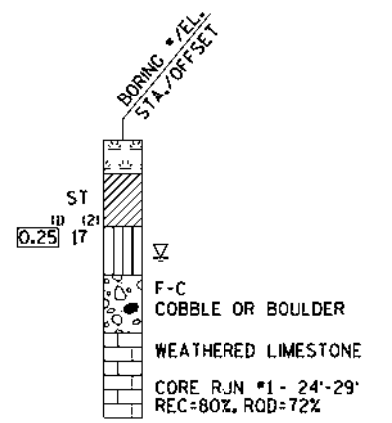
STATE PROJECT NUMBER

3813-00-70

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▽ END OF DRILLING
- ▽ AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-14-227

DRAWN BY CLP PLANS CKD. JMC

SUBSURFACE EXPLORATION

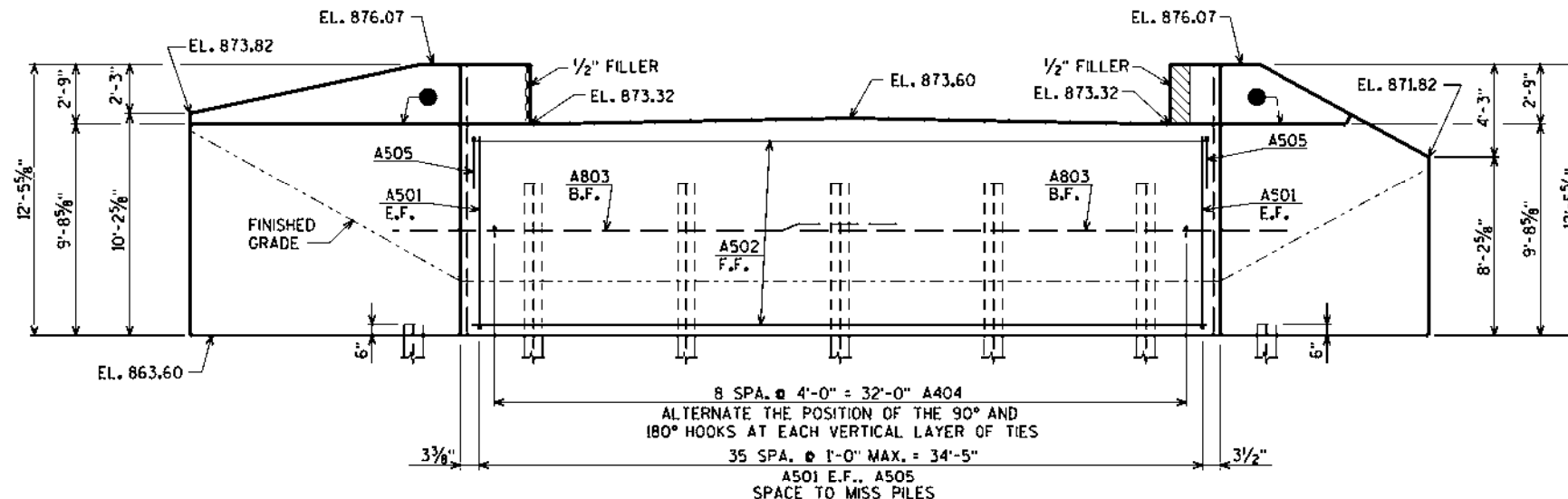
SHEET 3 OF 12

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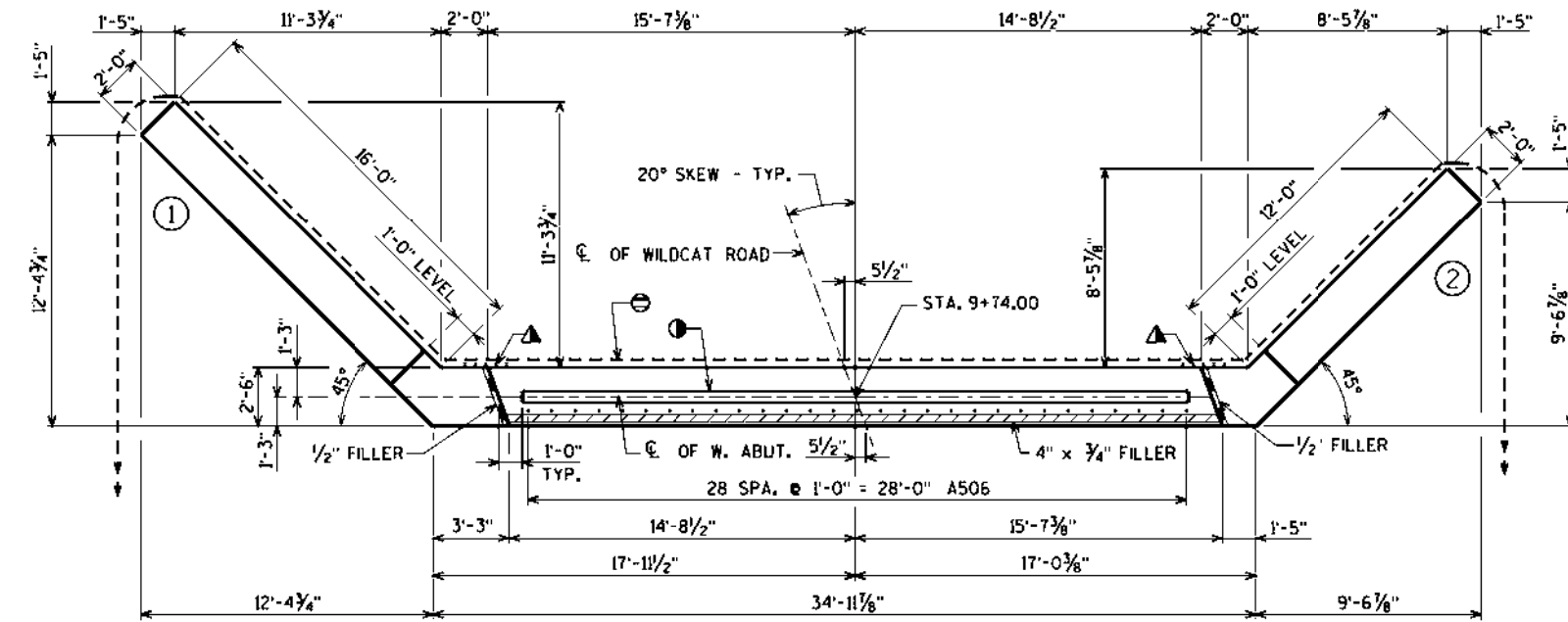
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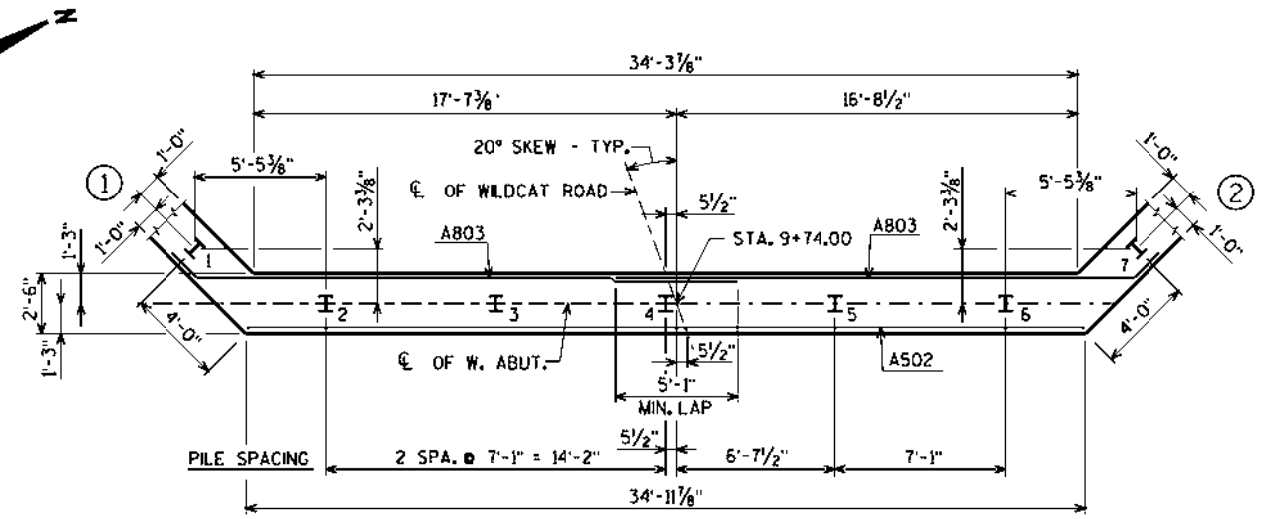
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)



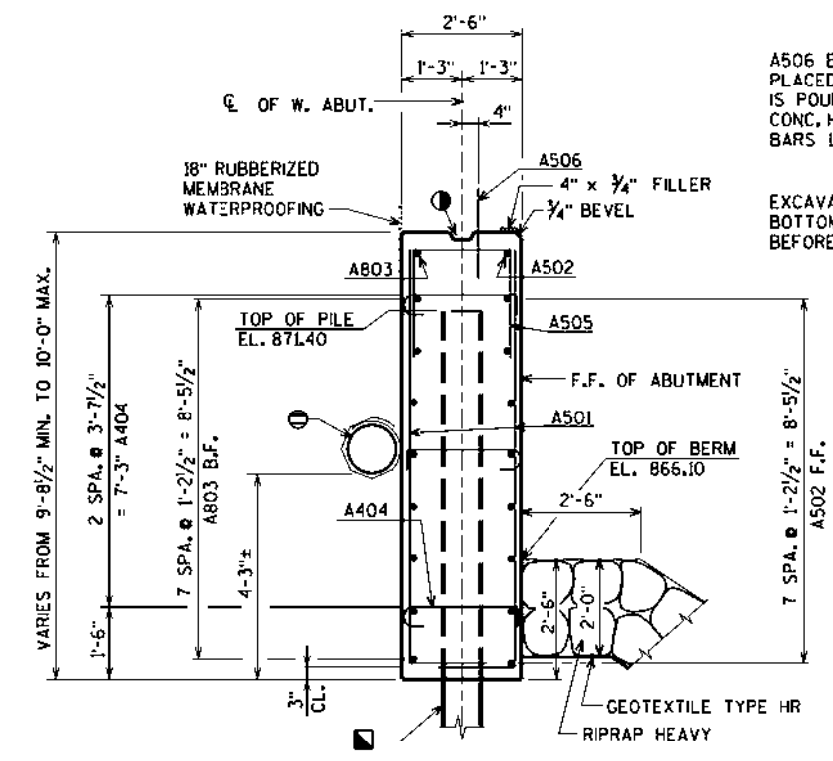
**ELEVATION**  
(LOOKING WEST)



**PLAN**



**PILE LAYOUT**



**TYPICAL SECTION THRU BODY**

ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE. ESTIMATED LENGTH 35'-0".

NOTE: DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. FOR RODENT SHIELD DETAIL SEE SHEET 2.

OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

FOR PILE SPLICE DETAIL SEE SHEET 2.

A506 BARS MAY BE PLACED AFTER ABUT. IS POURED BUT BEFORE CONC. HAS SET. EMBED BARS 1'-0".

EXCAVATE OR FILL TO BOTTOM OF ABUTMENT BEFORE DRIVING PILES.

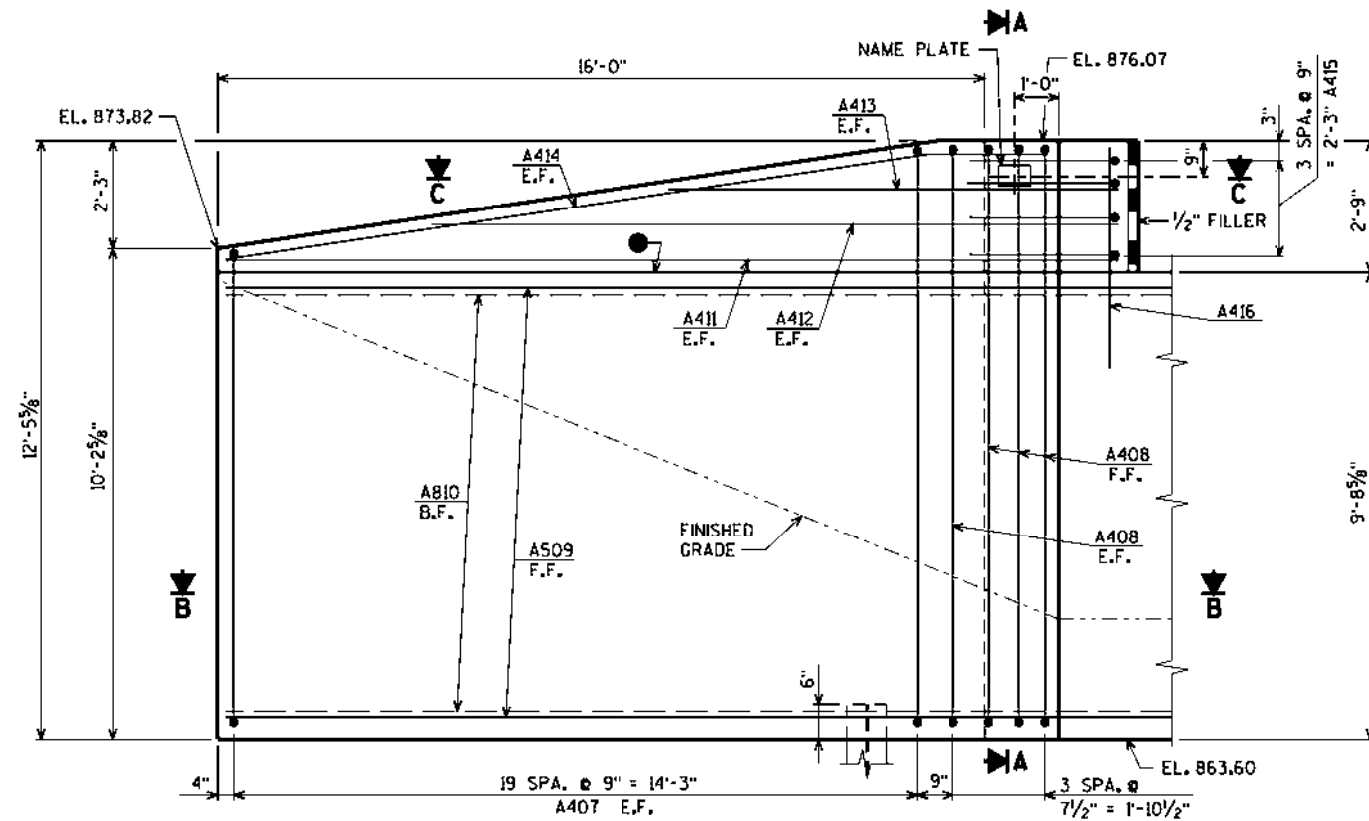
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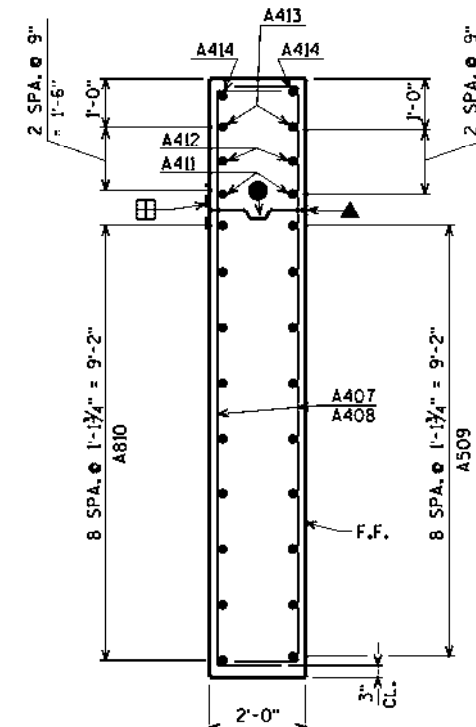
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-227</b>			
DRAWN BY		CLP	PLANS CKD. JMC
<b>WEST ABUTMENT</b>			SHEET 4 OF 12

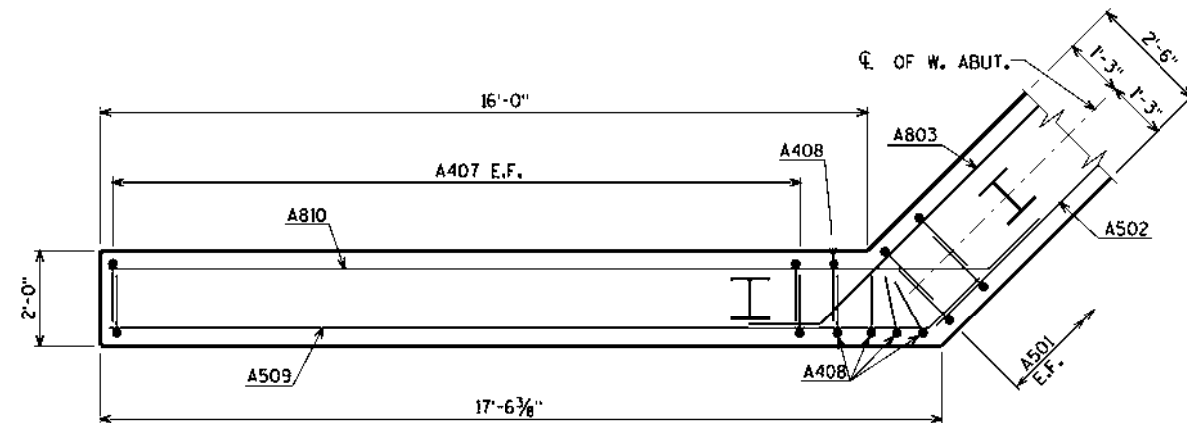
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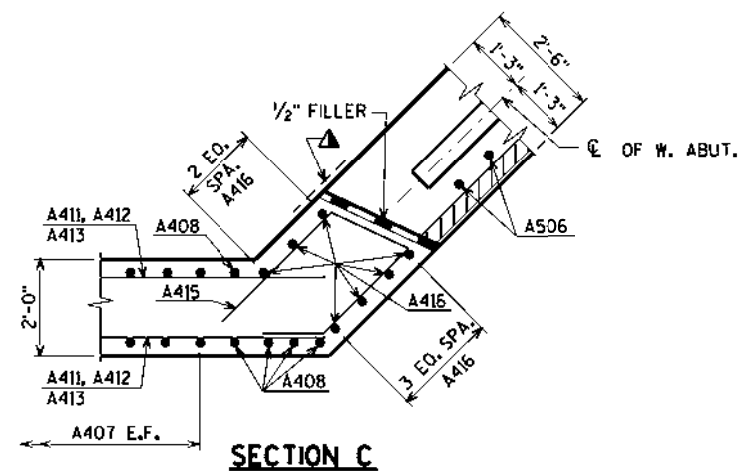
**ELEVATION - WING 1**



**SECTION A**



**SECTION B**



**SECTION C**

- ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
  - OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
  - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
  - ▣ 18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED. (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").
- FOR PILE SPLICE DETAIL SEE SHEET 2.

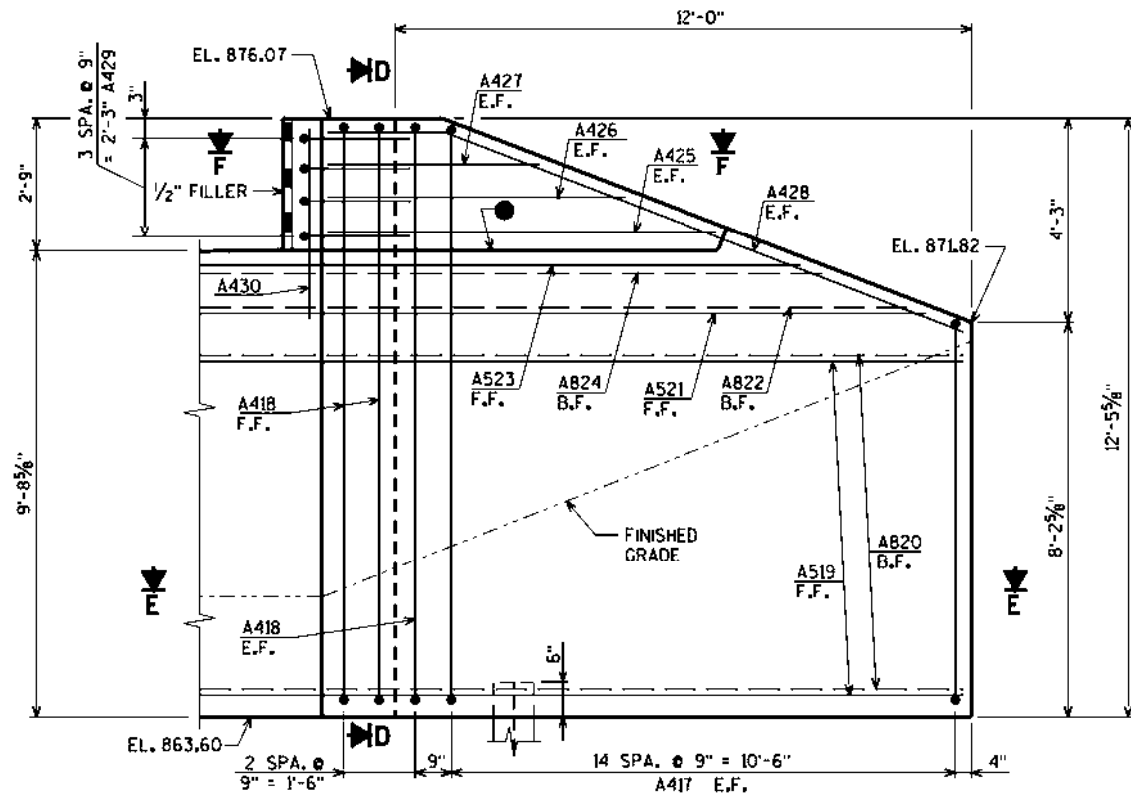
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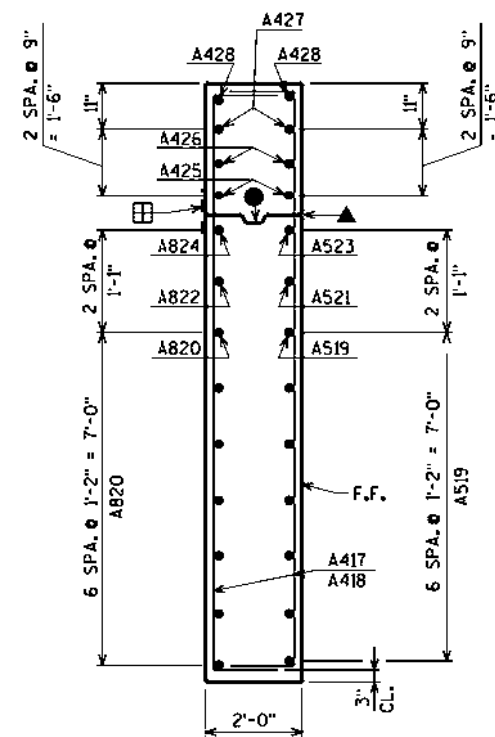
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-227</b>			
DRAWN BY		CLP	PLANS CKD. JMC
<b>WEST ABUTMENT WING 1 DETAILS</b>			SHEET 5 OF 12

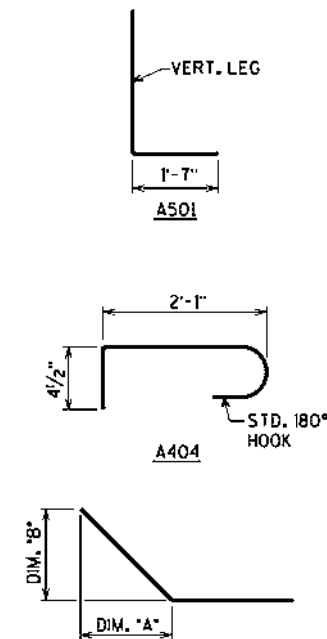
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 Eau Claire, WI 54701  
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ELEVATION - WING 2



SECTION D

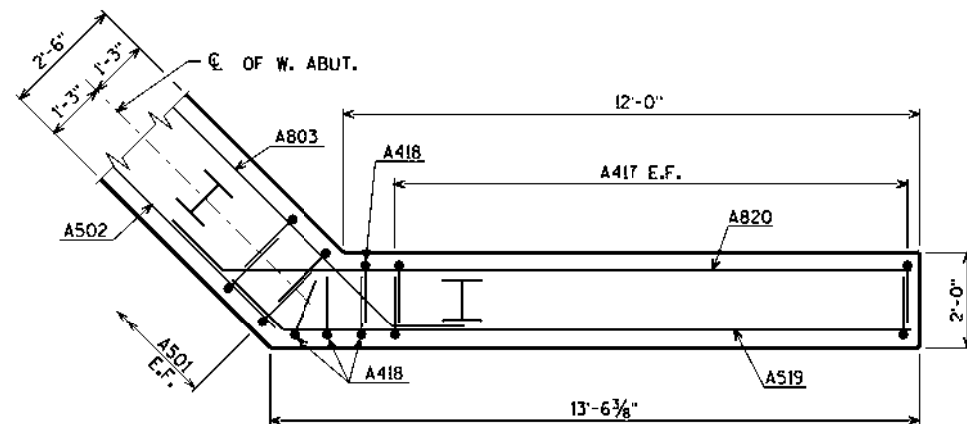


BAR NO.	DIM. 'A'	DIM. 'B'
A803	1'-0 3/4"	1'-0 3/4"
A509	1'-0 3/4"	1'-0 3/4"
A810	1'-0 3/4"	1'-0 3/4"
A414	15'-0"	2'-2"
A519	1'-0 3/4"	1'-0 3/4"
A820	1'-0 3/4"	1'-0 3/4"
A521	1'-0 3/4"	1'-0 3/4"
A822	1'-0 3/4"	1'-0 3/4"
A523	1'-0 3/4"	1'-0 3/4"
A824	1'-0 3/4"	1'-0 3/4"
A428	11'-0"	4'-2"

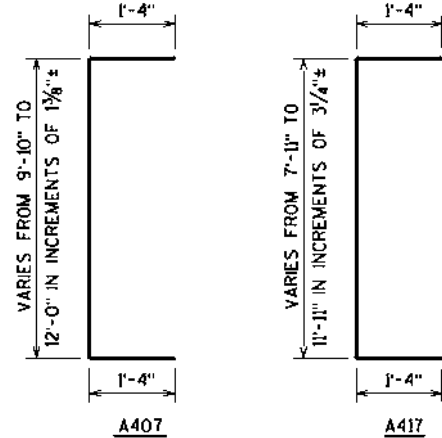
BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	2,120* COATED 2,630* UNCOATED	
								LOCATION
A501		72	10-9	X				BODY VERT. E.F.
A502		9	34-8					BODY HORIZ. F.F.
A803		18	23-7	X				BODY HORIZ. B.F.
A404		27	2-9	X				BODY TIES
A505		36	8-5	X				BODY VERT. TOP
A506	X	29	2-0					BODY DOWELS
A407	X	40	13-5	X				WING 1 VERT. E.F.
A408	X	5	14-6	X				WING 1 VERT. E.F.
A509	X	9	18-7	X				WING 1 HORIZ. F.F.
A810	X	9	20-1	X				WING 1 HORIZ. B.F.
A411	X	2	17-3					WING 1 HORIZ. E.F.
A412	X	2	13-0					WING 1 HORIZ. E.F.
A413	X	2	8-0					WING 1 HORIZ. E.F.
A414	X	2	17-4	X				WING 1 DIAG. E.F.
A415	X	4	9-5	X				WING 1 HORIZ.
A416	X	7	4-2					WING 1 VERT.
A417	X	30	12-5	X				WING 2 VERT. E.F.
A418	X	4	14-6	X				WING 2 VERT. E.F.
A519	X	7	14-9	X				WING 2 HORIZ. F.F.
A820	X	7	16-3	X				WING 2 HORIZ. B.F.
A521	X	1	13-9	X				WING 2 HORIZ. F.F.
A822	X	1	15-5	X				WING 2 HORIZ. B.F.
A523	X	1	10-10	X				WING 2 HORIZ. F.F.
A824	X	1	12-5	X				WING 2 HORIZ. B.F.
A425	X	2	8-3					WING 2 HORIZ. E.F.
A426	X	2	6-4					WING 2 HORIZ. E.F.
A427	X	2	4-5					WING 2 HORIZ. E.F.
A428	X	2	14-0	X				WING 2 DIAG. E.F.
A429	X	4	7-7	X				WING 2 HORIZ.
A430	X	5	4-2					WING 2 VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.  
 \* LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



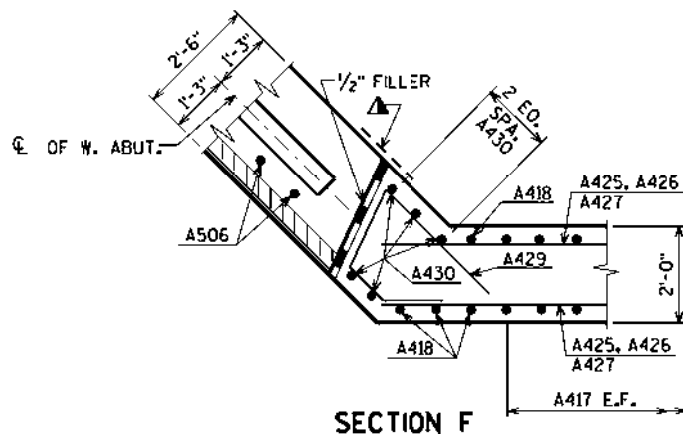
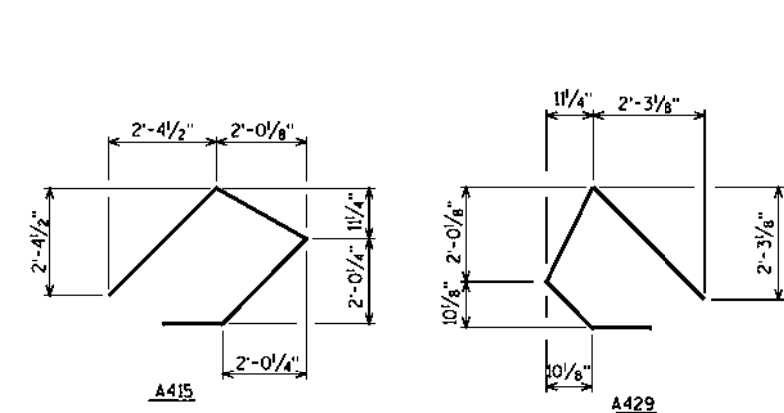
SECTION E



BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
A407	2 SERIES OF 20	12'-4" TO 14'-6"
A417	2 SERIES OF 15	10'-5" TO 14'-5"

BUNDLE AND TAG EACH SERIES SEPARATELY.



SECTION F

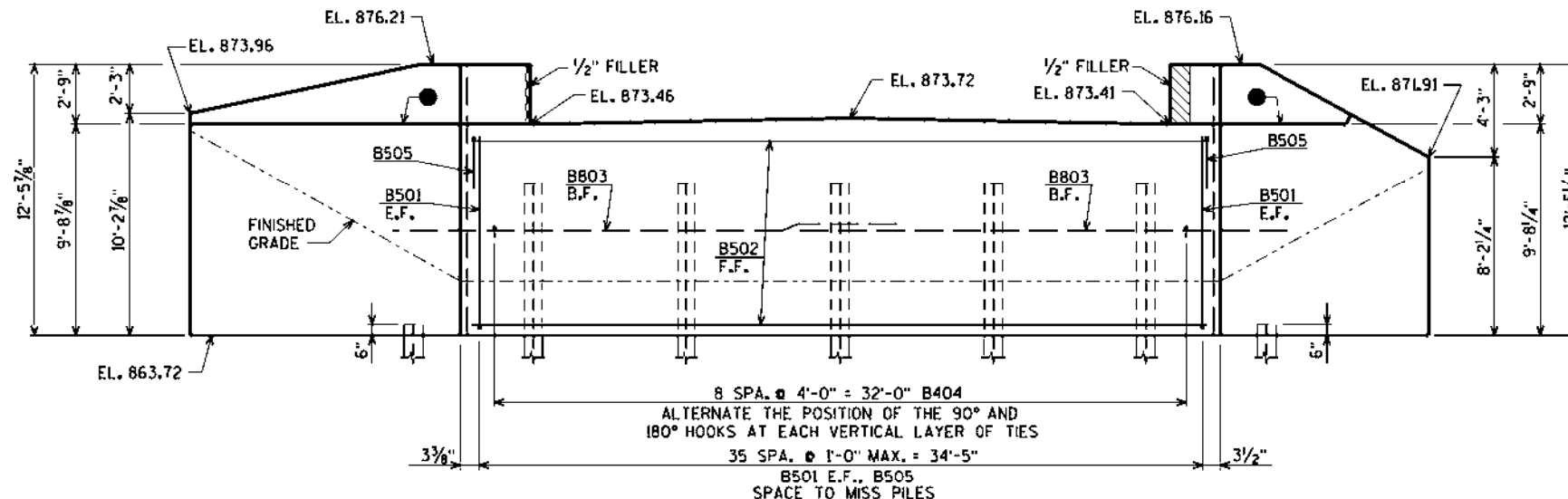
- ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
- ⊠ 18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED. (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").

FOR PILE SPLICE DETAIL SEE SHEET 2.

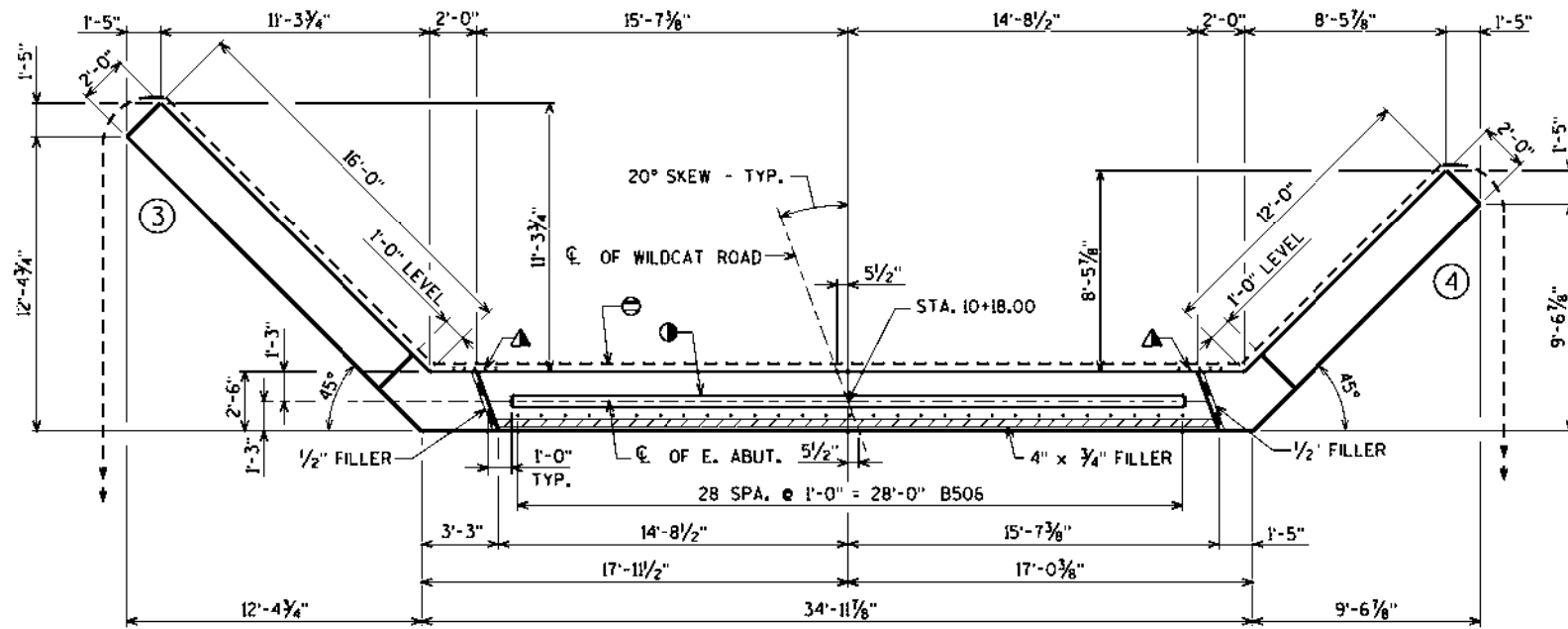
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-227</b>			
DRAWN BY		CLP	PLANS CKD. JMC
<b>WEST ABUTMENT WING 2 DETAILS &amp; BILL OF BARS</b>			SHEET 6 OF 12

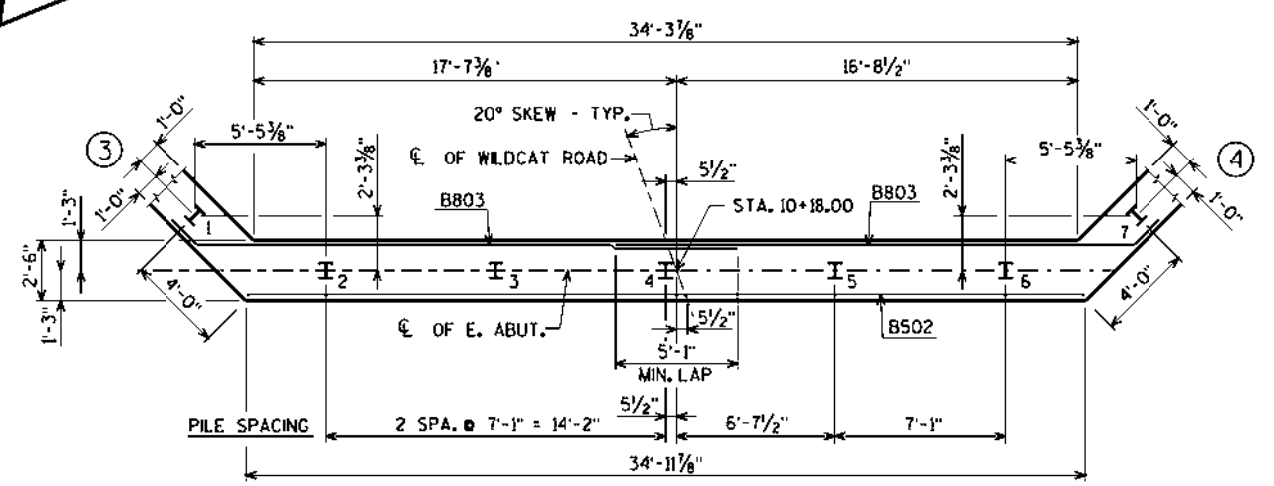
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)



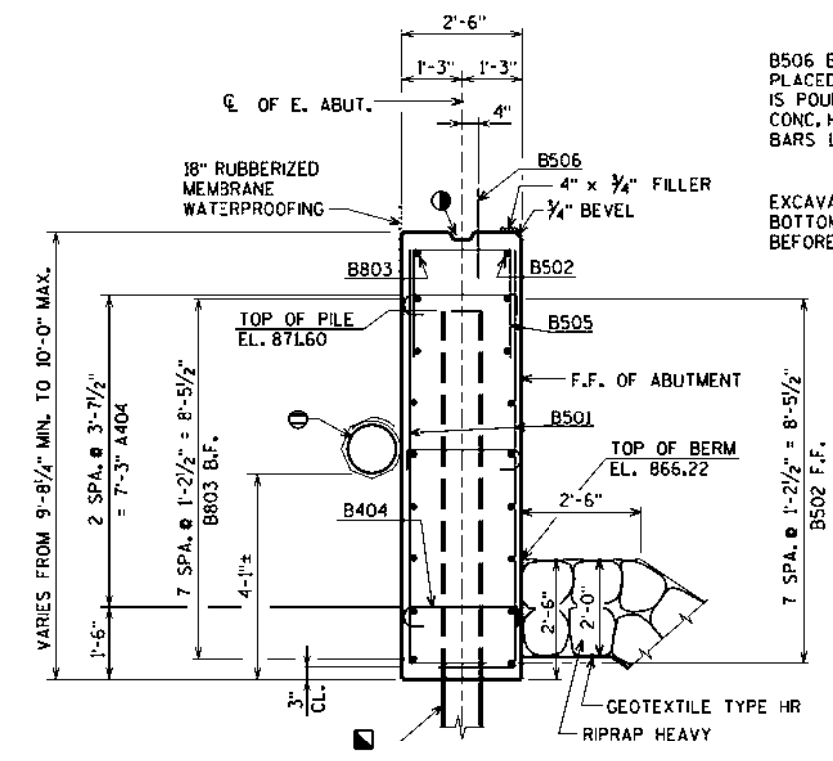
**ELEVATION**  
(LOOKING EAST)



**PLAN**



**PILE LAYOUT**



**TYPICAL SECTION THRU BODY**

ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE. ESTIMATED LENGTH 35'-0".

NOTE: DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. FOR RODENT SHIELD DETAIL SEE SHEET 2.

OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B506 BARS MAY BE PLACED AFTER ABUT. IS POURED BUT BEFORE CONC. HAS SET. EMBED BARS 1'-0".

EXCAVATE OR FILL TO BOTTOM OF ABUTMENT BEFORE DRIVING PILES.

10/27/2023  
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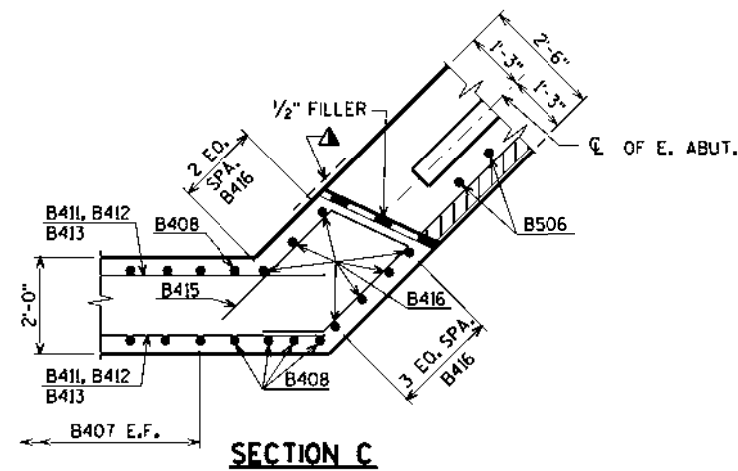
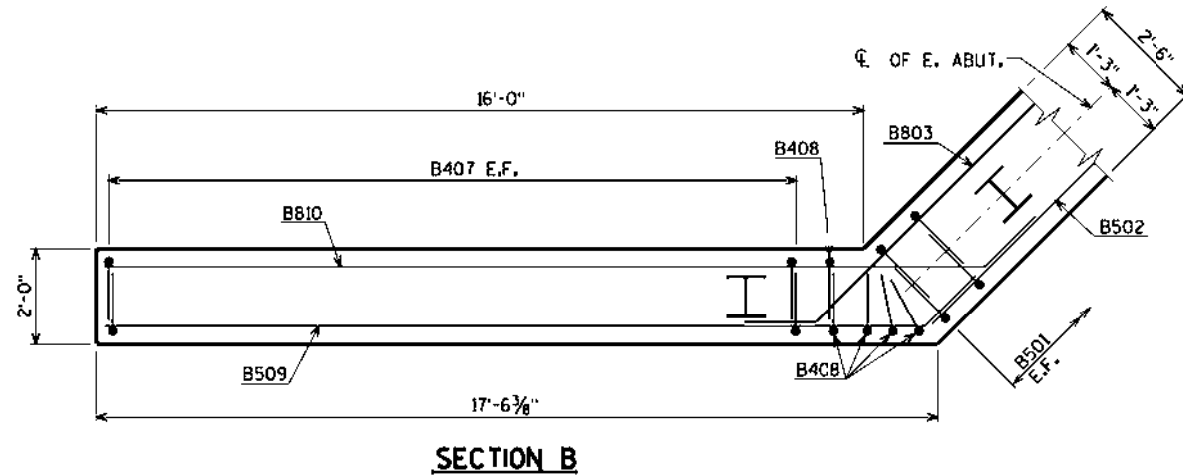
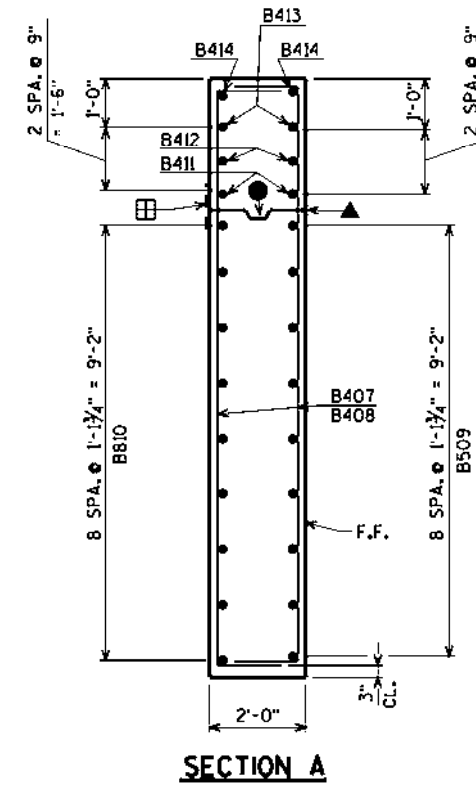
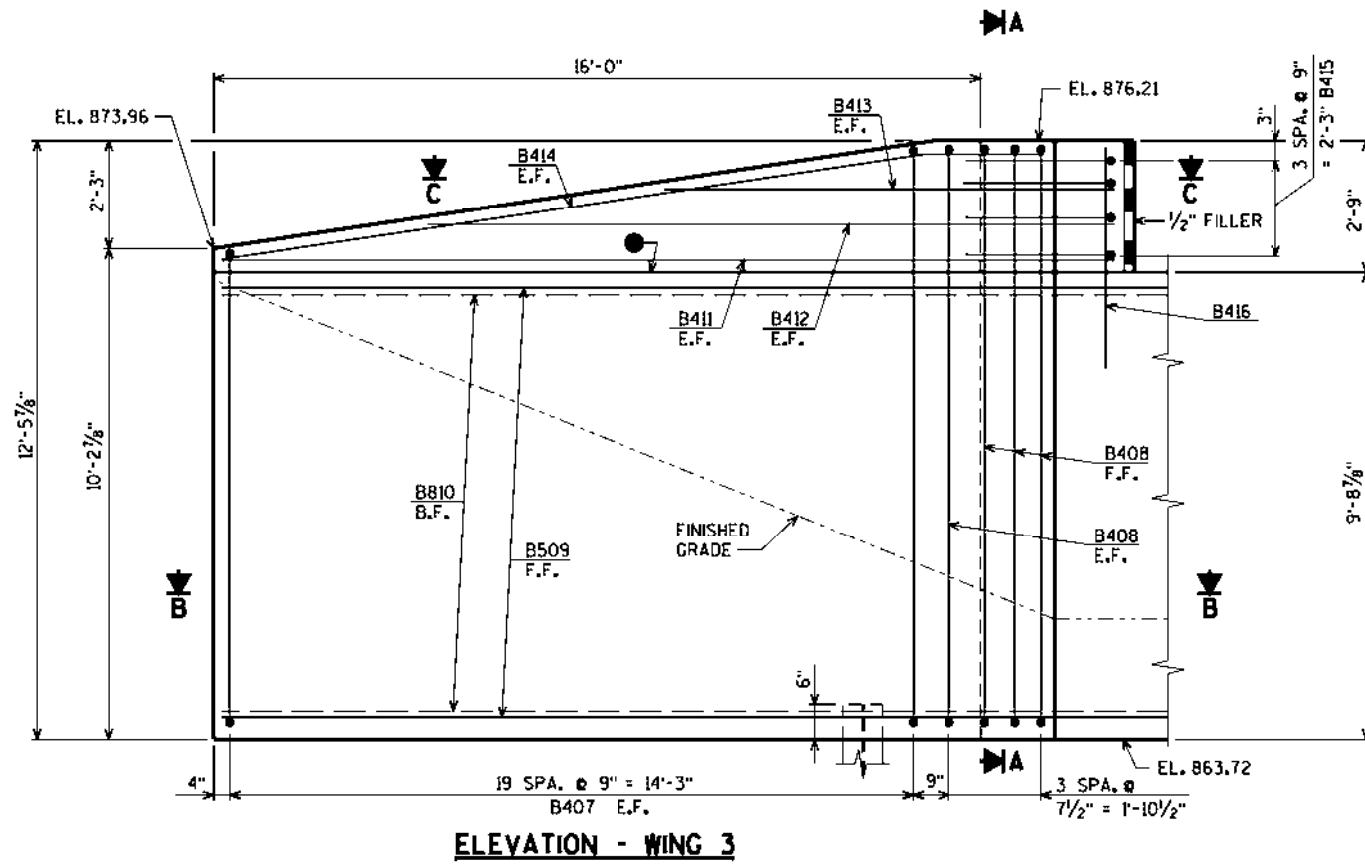
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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-227</b>			
DRAWN BY		CLP	PLANS CKD. JMC
<b>EAST ABUTMENT</b>			SHEET 7 OF 12

ORIGINAL PLANS PREPARED BY  
**AYRES**  
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Eau Claire, WI 54701  
www.AyresAssociates.com





- ▲ 3/4" V GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
  - OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
  - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
  - ▣ 18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED. (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").
- FOR PILE SPLICE DETAIL SEE SHEET 2.

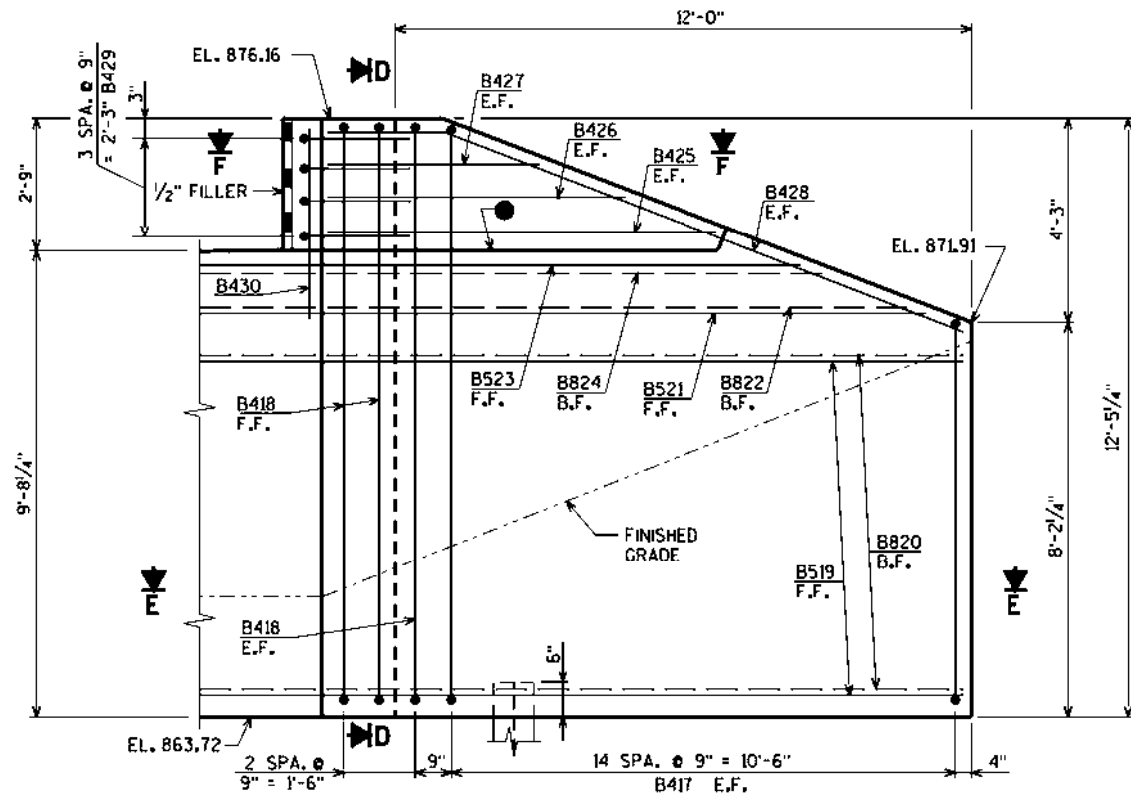
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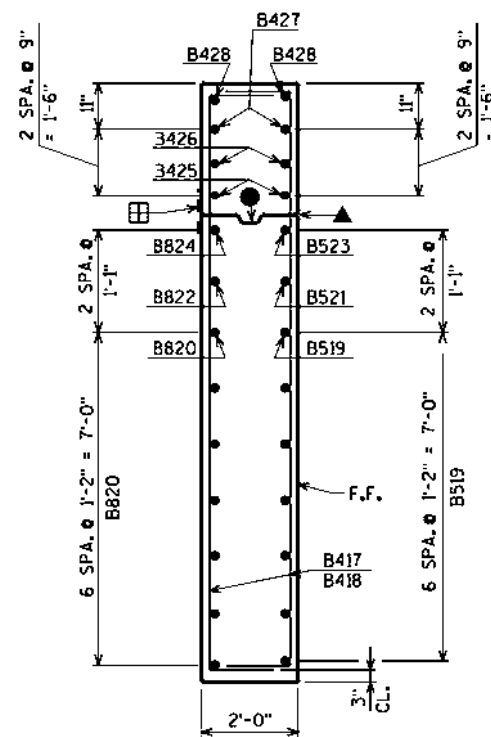
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-227</b>			
DRAWN BY		CLP	PLANS CKD. JMC
<b>EAST ABUTMENT WING 3 DETAILS</b>			SHEET 8 OF 12

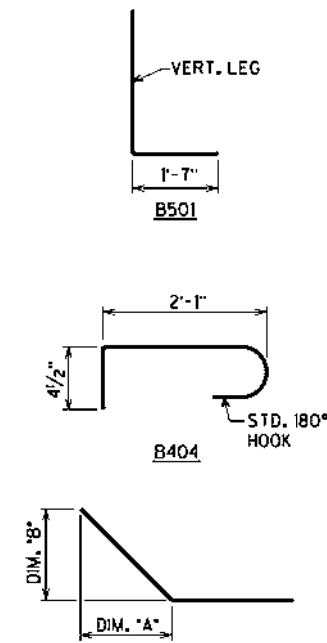
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ELEVATION - WING 4



SECTION D

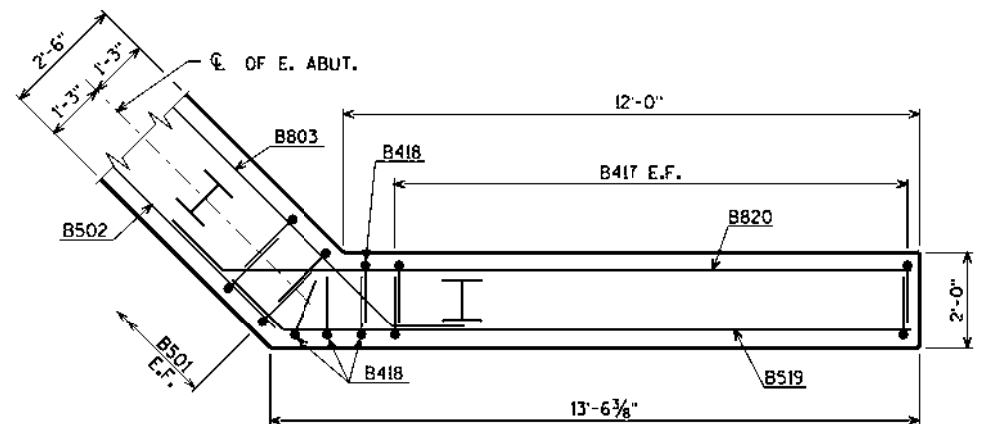


BAR NO.	DIM. 'A'	DIM. 'B'
B803	1'-0 3/4"	1'-0 3/4"
B509	1'-0 3/4"	1'-0 3/4"
B810	1'-0 3/4"	1'-0 3/4"
B414	15'-0"	2'-2"
B519	1'-0 3/4"	1'-0 3/4"
B820	1'-0 3/4"	1'-0 3/4"
B521	1'-0 3/4"	1'-0 3/4"
B822	1'-0 3/4"	1'-0 3/4"
B523	1'-0 3/4"	1'-0 3/4"
B824	1'-0 3/4"	1'-0 3/4"
B428	11'-0"	4'-2"

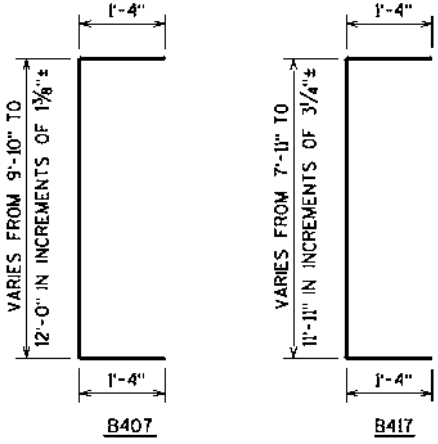
BILL OF BARS

BBR NO.	COBTED BBR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	2,120* COATED 2,630* UNCOATED	
								LOCATION
B501		72	10-9	X				BODY VERT. E.F.
B502		9	34-8					BODY HORIZ. F.F.
B803		18	23-7	X				BODY HORIZ. B.F.
B404		27	2-9	X				BODY TIES
B505		36	8-5	X				BODY VERT. TOP
B506	X	29	2-0					BODY DOWELS
B407	X	40	13-5	X				WING 3 VERT. E.F.
B408	X	5	14-6	X				WING 3 VERT. E.F.
B509	X	9	18-7	X				WING 3 HORIZ. F.F.
B810	X	9	20-1	X				WING 3 HORIZ. B.F.
B411	X	2	17-3					WING 3 HORIZ. E.F.
B412	X	2	13-0					WING 3 HORIZ. E.F.
B413	X	2	8-0					WING 3 HORIZ. E.F.
B414	X	2	17-4	X				WING 3 DIBG. E.F.
B415	X	4	9-5	X				WING 3 HORIZ.
B416	X	7	4-2					WING 3 VERT.
B417	X	30	12-5	X				WING 4 VERT. E.F.
B418	X	4	14-6	X				WING 4 VERT. E.F.
B519	X	7	14-9	X				WING 4 HORIZ. F.F.
B820	X	7	16-3	X				WING 4 HORIZ. B.F.
B521	X	1	13-9	X				WING 4 HORIZ. F.F.
B822	X	1	15-5	X				WING 4 HORIZ. B.F.
B523	X	1	10-10	X				WING 4 HORIZ. F.F.
B824	X	1	12-5	X				WING 4 HORIZ. B.F.
B425	X	2	8-3					WING 4 HORIZ. E.F.
B426	X	2	6-4					WING 4 HORIZ. E.F.
B427	X	2	4-5					WING 4 HORIZ. E.F.
B428	X	2	14-0	X				WING 4 DIBG. E.F.
B429	X	4	7-7	X				WING 4 HORIZ.
B430	X	5	4-2					WING 4 VERT.

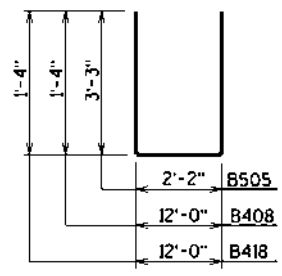
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.  
 \* LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



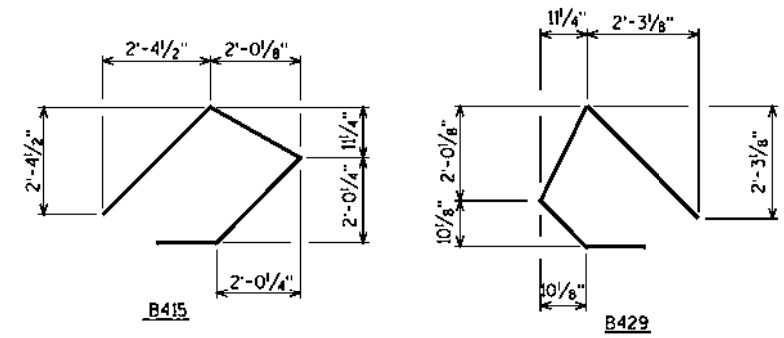
SECTION E



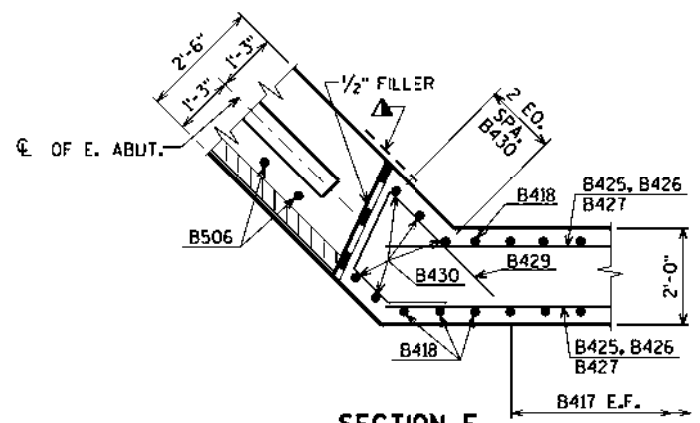
B407  
 B417



B505  
 B408  
 B418



B415  
 B429



SECTION F

- ▲ 3/8" V GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
- 18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED. (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").

FOR PILE SPLICE DETAIL SEE SHEET 2.

BAR SERIES TABLE

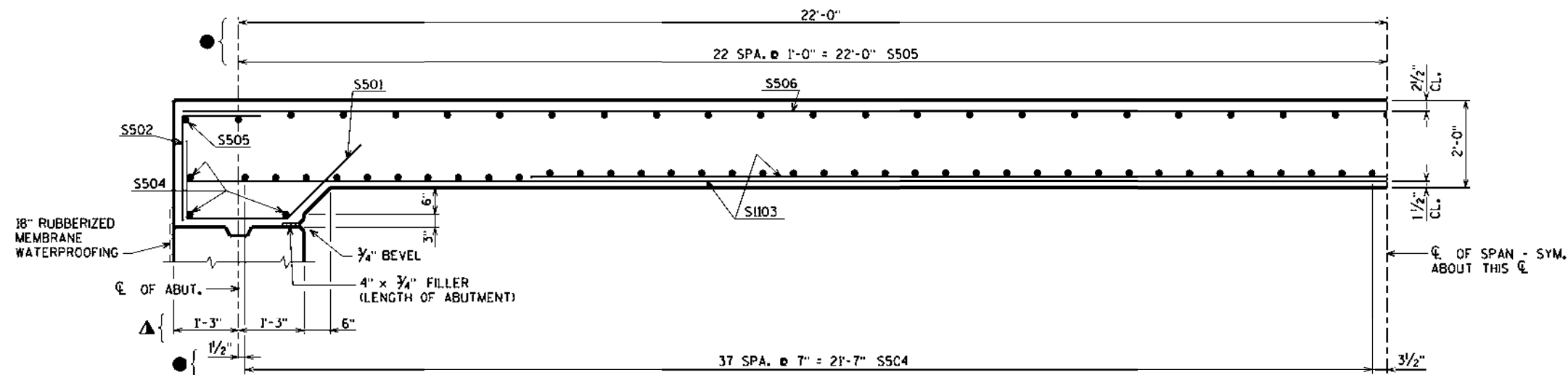
BAR MARK	NO REQ'D.	LENGTH
B407	2 SERIES OF 20	12'-4" TO 14'-6"
B417	2 SERIES OF 15	10'-5" TO 14'-5"

BUNDLE AND TAG EACH SERIES SEPARATELY.

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-227			
DRAWN BY		CLP	PLANS CKD. JMC
EAST ABUTMENT WING 4 DETAILS & BILL OF BARS			SHEET 9 OF 12

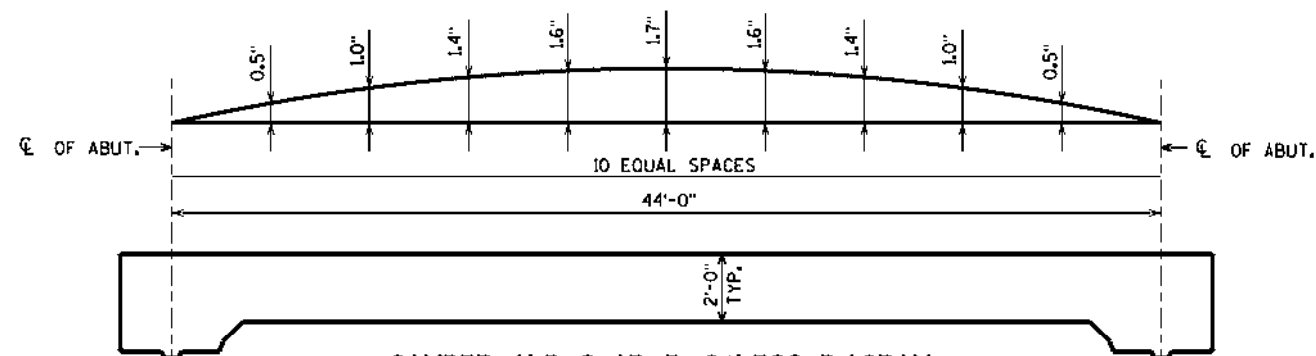




**PART LONGITUDINAL SECTION**

▲ DIMENSIONS MEASURED NORMAL TO CL. OF SUBSTRUCTURE.

● DIMENSIONS MEASURED ALONG CL. OF ROAD.



**CAMBER AND SLAB THICKNESS DIAGRAM**

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTION.

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE, FOLLOW THIS PROCEDURE:

- TOP OF SLAB ELEVATION AT FINAL GRADE
- MINUS..... SLAB THICKNESS
- PLUS..... CAMBER
- PLUS..... FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
- EQUALS = TOP OF SLAB FALSEWORK ELEVATION

**SURVEY TOP OF SLAB ELEVATIONS**

LOCATION	CL. OF W. ABUT.	5/10 PTS.	CL. OF E. ABUT.
N. EDGE OF SLAB			
CL. OF STRUCTURE			
S. EDGE OF SLAB			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE CL. OF ABUTMENTS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR CL. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

**TOP OF DECK ELEVATIONS**

LOCATION	CL. OF W. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL. OF E. ABUT.
N. EDGE OF SLAB	876.07	876.08	876.09	876.10	876.11	876.12	876.14	876.15	876.17	876.19	876.21
CL. OF STRUCTURE	876.35	876.36	876.36	876.37	876.38	876.39	876.40	876.42	876.44	876.45	876.47
S. EDGE OF SLAB	876.07	876.07	876.07	876.08	876.08	876.09	876.10	876.12	876.13	876.15	876.16

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.

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<b>STRUCTURE B-14-227</b>			
DRAWN BY		CLP	PLANS CKD. JMC
<b>AYRES</b>			SHEET 11 OF 12

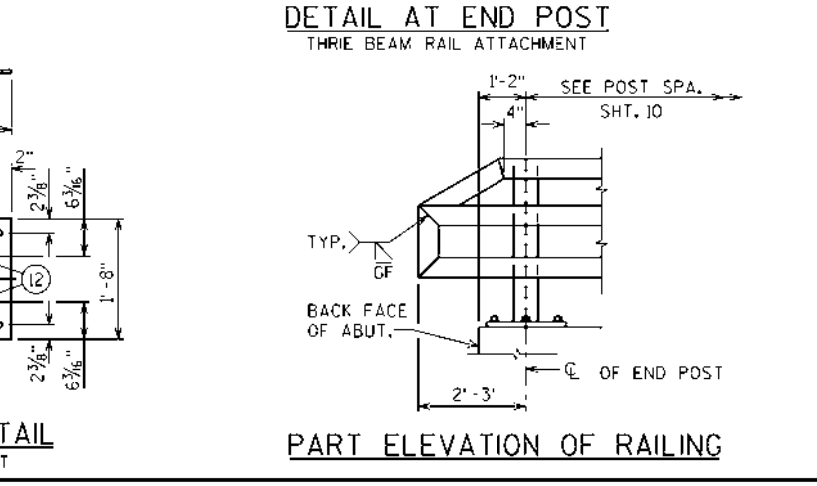
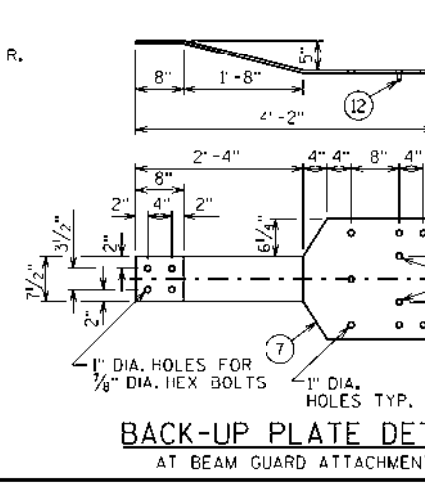
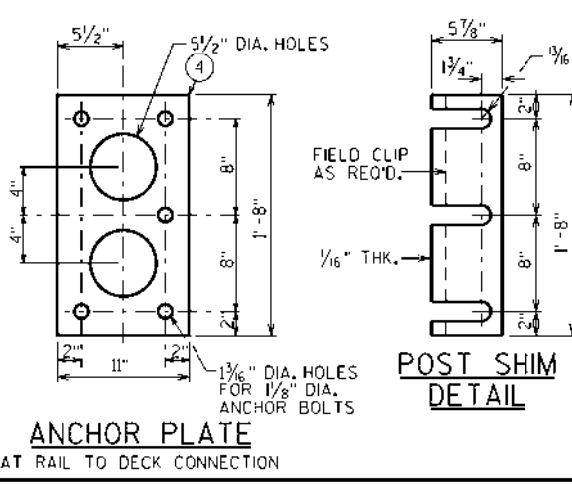
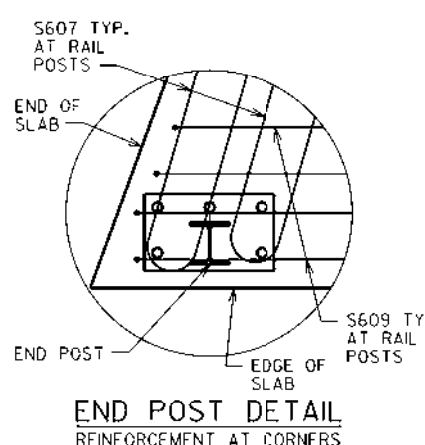
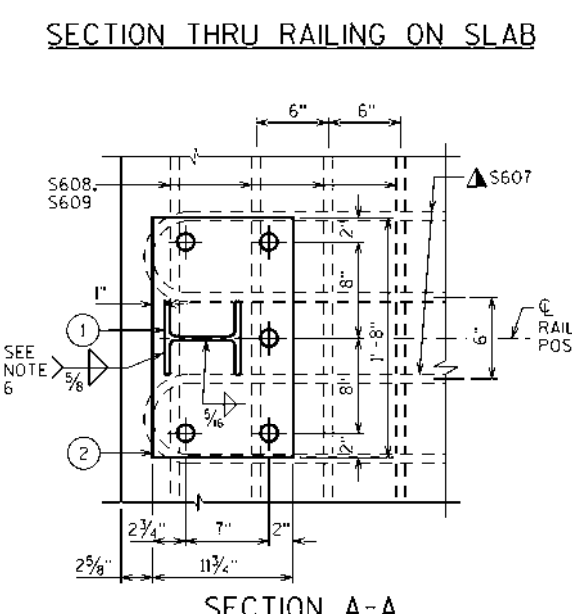
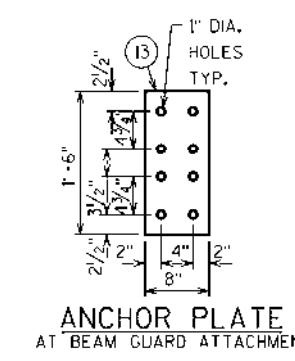
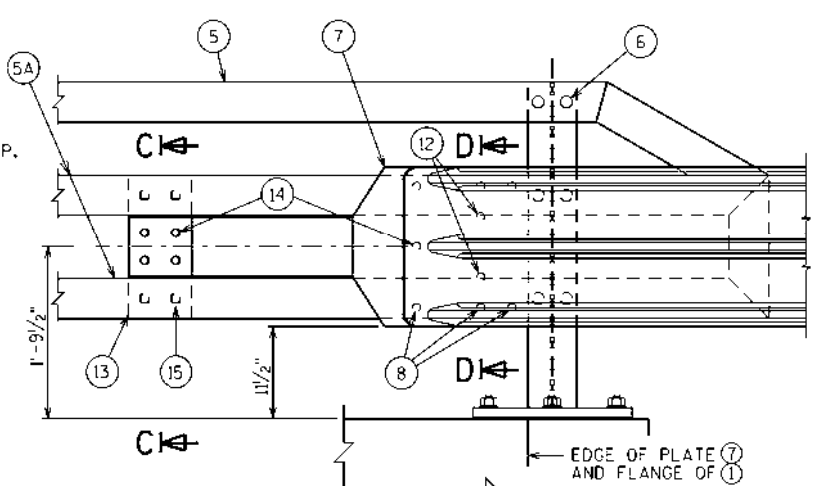
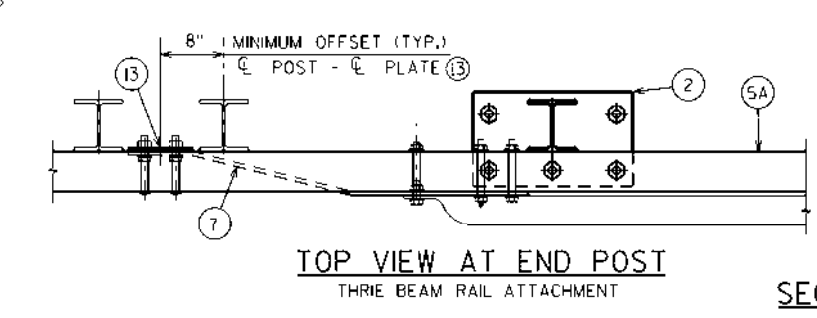
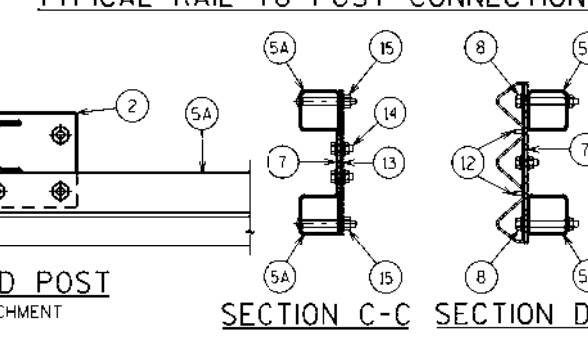
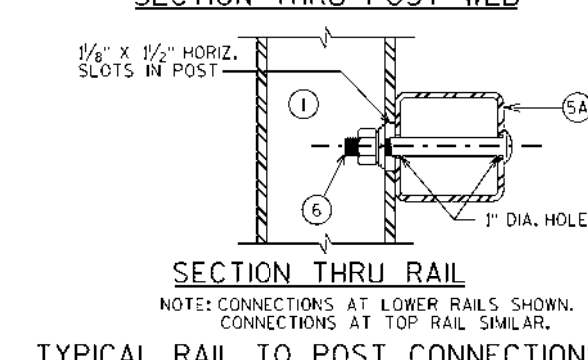
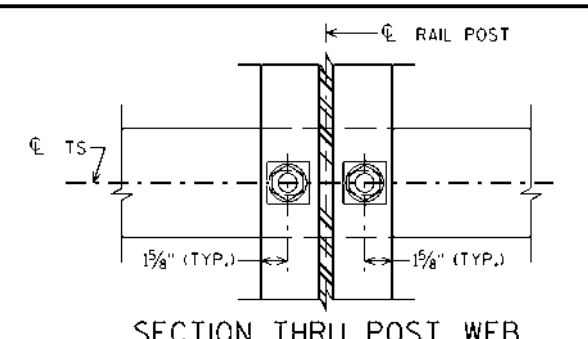
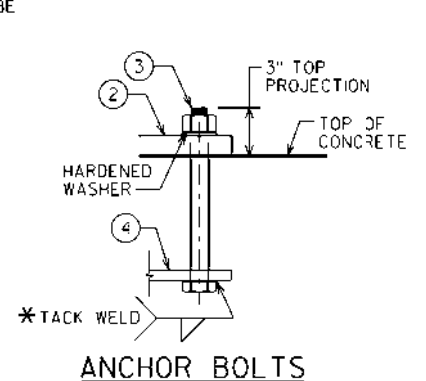
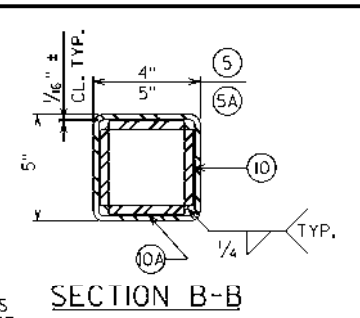
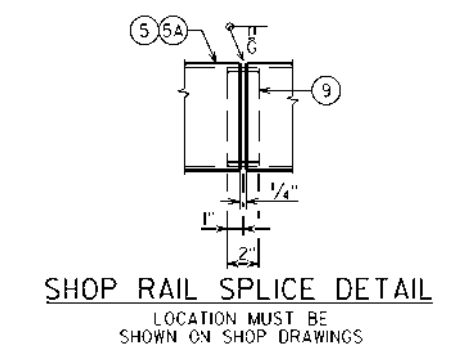
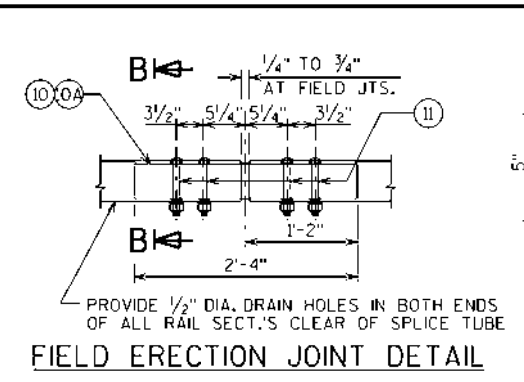
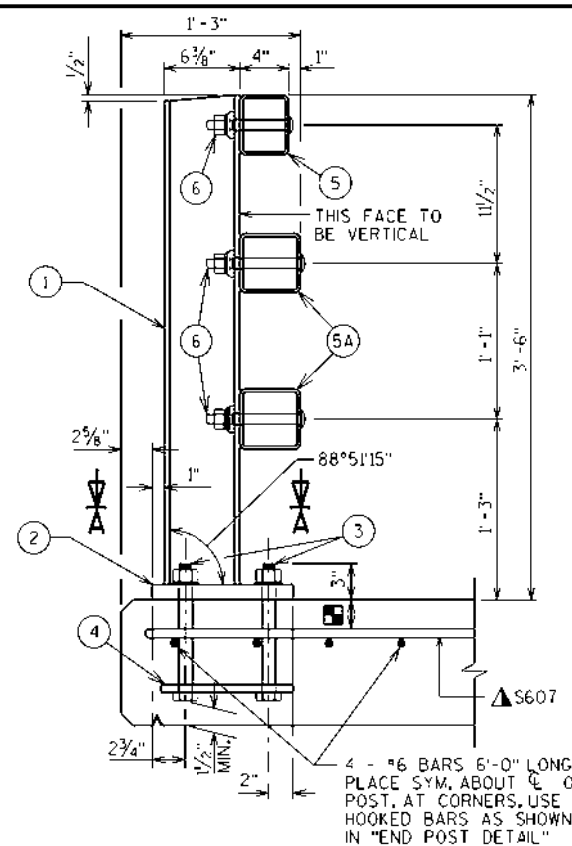
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**LEGEND**

- ① W6 x 25 WITH 1/8" x 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 1/8" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - 1/4" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED), 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-0" LONG MIN. LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1/4" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE 1/4" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- ④ 3/8" x 1" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 1/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ 3/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" x 1 5/8" x 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 3/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- ⑨ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5A. 3/8" x 3 5/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ 3/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1/4" x 1 1/2" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1/4" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE 1/4" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- ⑫ 7/8" DIA. x 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.)
- ⑬ 3/4" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- ⑭ 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.)
- ⑮ 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

**GENERAL NOTES**

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8" TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.



▲ TIE TO TOP MAT OF STEEL.

\* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

■ 1/4" TO 3/4" OPENING AT ALL ABUTMENTS.

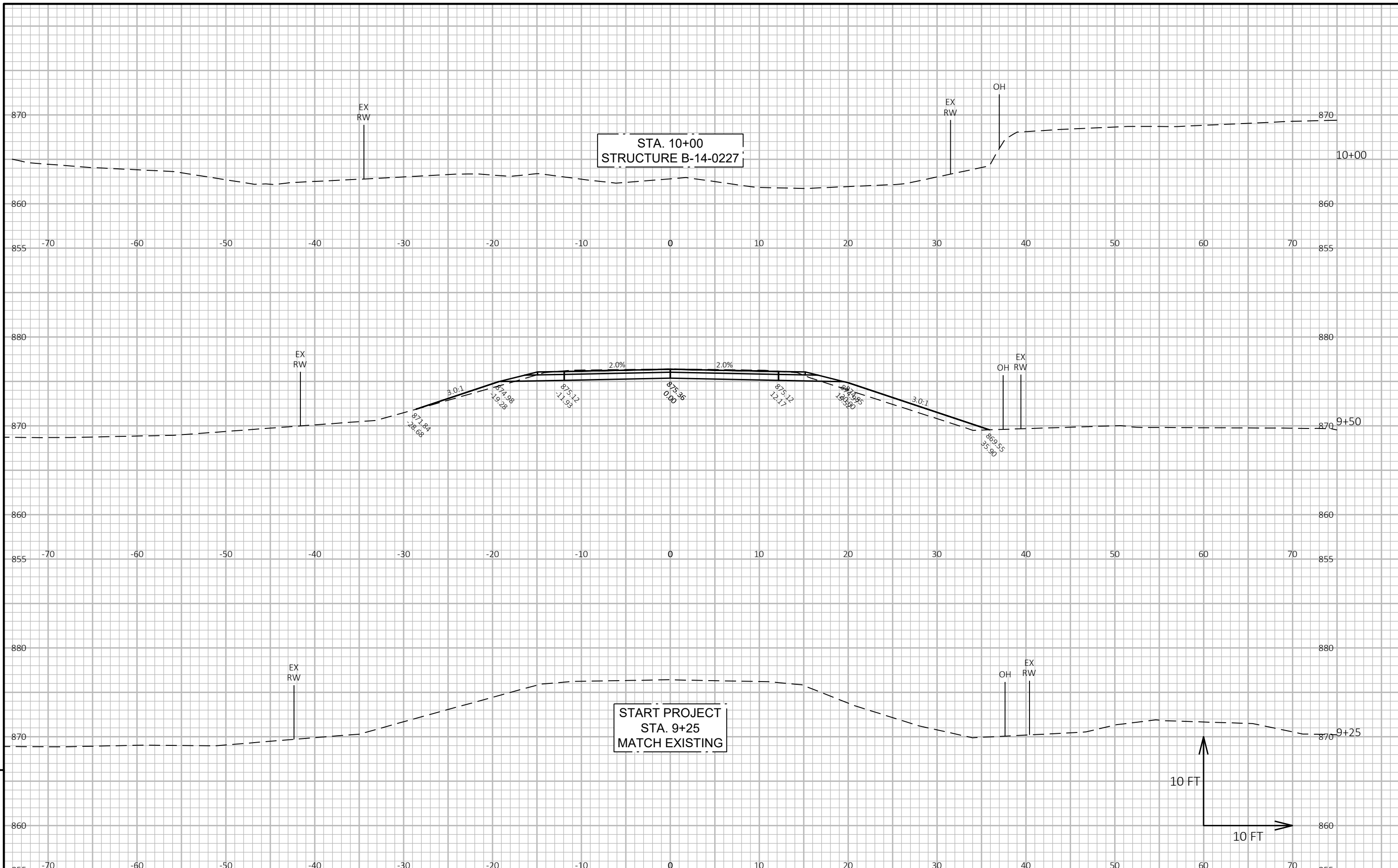
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-227</b>			
DRAWN BY		CLP	PLANS CKD. JMC
<b>TUBULAR STEEL RAILING TYPE 'M'</b>			SHEET 12 OF 12

**WILDCAT RD COMPUTER EARTHWORK**

Station	Distance	Area (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
		Cut	Unusable Cut	Fill	Cut	Unusable Cut	Fill	Cut 1.00	Unusable Cut	Expanded Fill 1.30	
9+25	--	30.6	6.7	0.0	--	--	--				
9+47	22	32.4	6.7	16.0	26	5	7	26	5	9	17
9+50	3	32.7	6.7	15.2	4	1	2	30	6	12	18
9+67	17	34.2	6.7	11.4	21	4	8	51	10	22	29
9+73	6	34.2	6.7	0.0	8	1	1	59	11	23	36
NEW BRIDGE	--	--	--	--	--	--	--	--	--	--	--
10+19	--	40.8	6.7	0.0	--	--	--	--	--	--	--
10+25	6	40.8	6.7	0.0	9	1	0	68	12	23	45
10+45	20	40.3	6.7	9.1	30	5	3	98	17	27	71
10+50	5	40.7	6.7	11.0	8	1	2	106	18	30	76
10+75	25	36.9	6.7	2.8	36	6	6	142	24	38	104
11+00	25	31.4	6.7	0.0	32	6	1	174	30	39	135
					174	30	30				

Note 1 - Cut	Includes both useable and unusable cut material
Note 2 - Unusable Cut	Existing asphalt pavement. Not to be used outside the 1:1 road core.
Note 3 - Expanded Fill	Volume needed to be filled = Fill * 1.30
Note 4 - Mass Ordinate	(Cut) - (Expanded Fill)

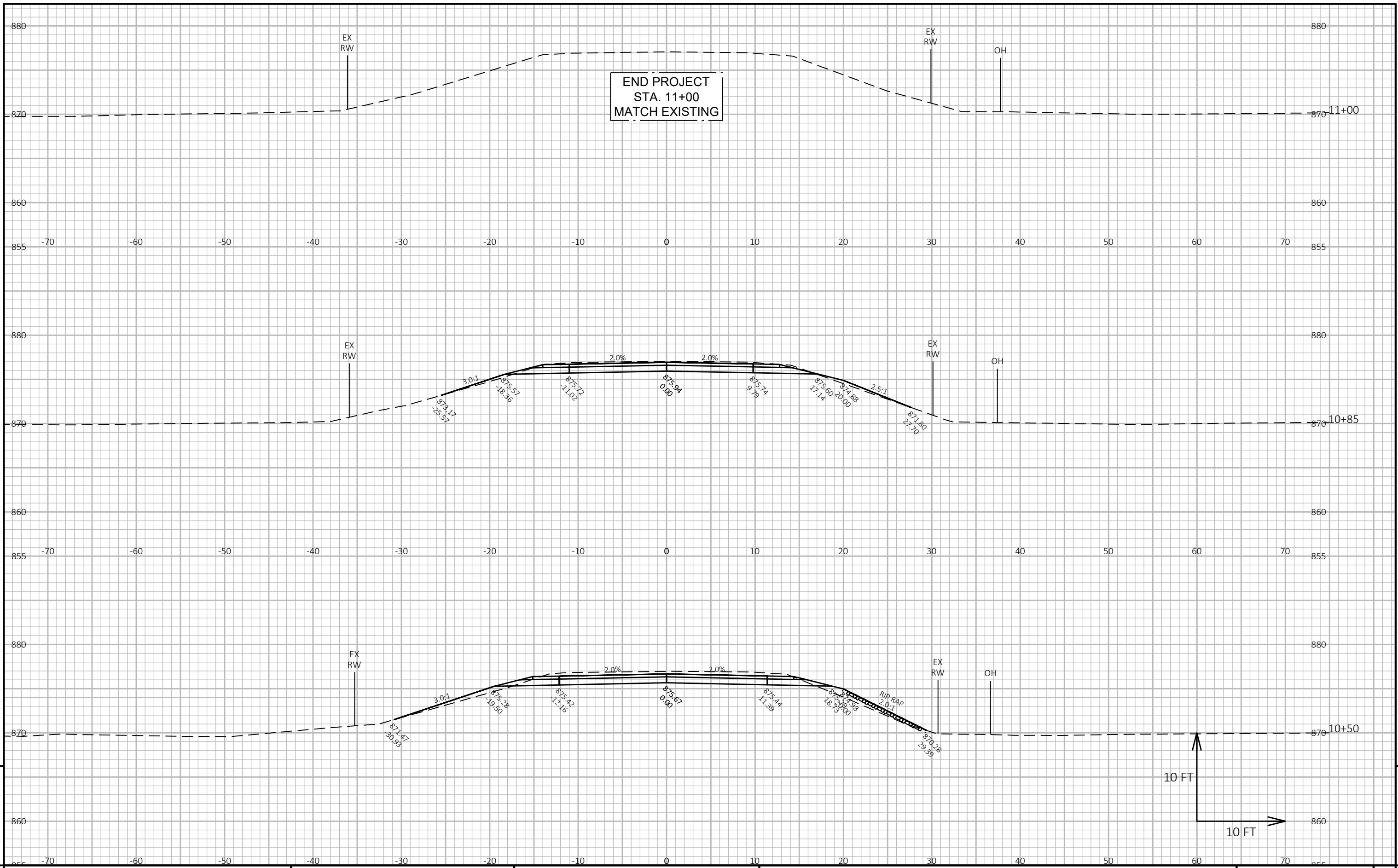


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9

PROJECT NO: 3813-00-70	HWY: WILDCAT ROAD	COUNTY: DODGE	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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END PROJECT  
STA. 11+00  
MATCH EXISTING

11+00

10+85

10+50

10 FT

10 FT

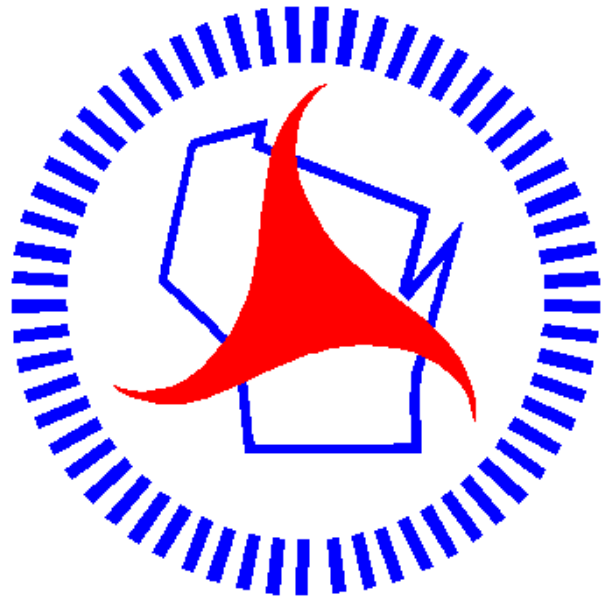
PROJECT NO: 3813-00-70	HWY: WILDCAT ROAD	COUNTY: DODGE	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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FILE NAME : I:\47\470392 DODGE TN HUBBARD\C3D\SHEETS\38130070\_090201-XS.DWG PLOT DATE : 8/31/2022 2:07 PM PLOT BY : KUSCHEL, LEVI PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

9

9

Notes



## *Wisconsin Department of Transportation*

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>

MAD  
PROJECT ID:  
WITH: 3813-00-70

3926-00-70

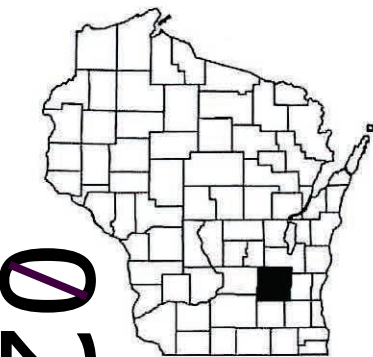
COUNTY:  
DODGE

JANUARY 2024

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile (incl. Erosion Control)
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 74



DESIGN DESIGNATION 3926-00-70

A.A.D.T.	2024	=	750
A.A.D.T.	2044	=	830
D.H.V.		=	
D.D.		=	
T.		=	7.15%
DESIGN SPEED		=	40 MPH
ESALS		=	

CONVENTIONAL SYMBOLS

<b>PLAN</b>	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

<b>PROFILE</b>	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
<b>UTILITIES</b>	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH P - CTH V

BUTLER CREEK BRIDGE, B-14-0229

CTH NP

DODGE

STATE PROJECT NUMBER  
3926-00-70



BEGIN PROJECT 3926-00-70  
STA. 9+25.00'  
X=954,608.55  
Y=686,222.33

REPLACE BRIDGE  
STRUCTURE  
(B-14-0229)

END PROJECT 3926-00-70  
STA. 10+75.00'  
X=954,753.27  
Y=686,187.31

LAYOUT  
SCALE 0 1 Mi.  
TOTAL NET LENGTH OF CENTERLINE = 0.028 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DODGE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012), GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3926-00-70	WISC 2024107	1
3813-00-70	WISC 2024108	1

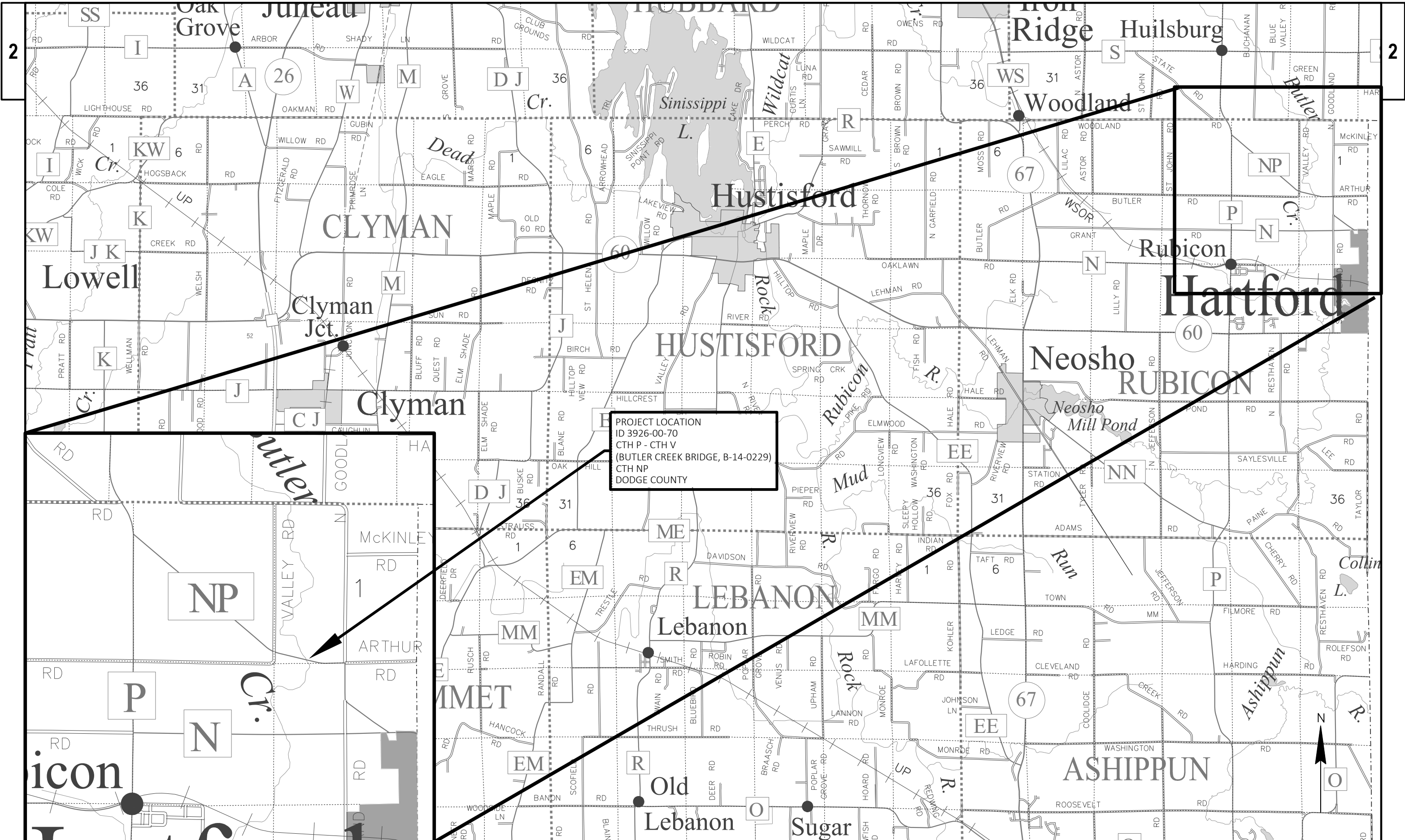
ACCEPTED FOR  
COUNTY  
DODGE  
DATE: 7-31-2023  
  
HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY  
**AYRES**  
AMANDA M. INMAN  
44690 OREGON WI  
PROFESSIONAL ENGINEER  
8/1/2023

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
PREPARED BY  
Surveyor: AYRES ASSOCIATES INC.  
Designer: AYRES ASSOCIATES INC.  
Project Manager: ZACH PEARSON  
Regional Examiner:  
Regional Supervisor: KYLE HEMP

APPROVED FOR THE DEPARTMENT  
DATE: 08/01/23  
  
(Signature)





PROJECT LOCATION  
 ID 3926-00-70  
 CTH P - CTH V  
 (BUTLER CREEK BRIDGE, B-14-0229)  
 CTH NP  
 DODGE COUNTY

PROJECT NO: 3926-00-70	HWY: CTH NP	COUNTY: DODGE	PROJECT OVERVIEW	SHEET	E
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**GENERAL NOTES**

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT LOCATION THAT ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

EXACT TRAFFIC CONTROL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE.

RESTORATION OF EXPOSED SLOPES AND DITCHES SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE.

WETLANDS ARE PRESENT IN THE PROJECT AREA. DO NOT DISTURB WETLANDS OUTSIDE THE PROPOSED SLOPE INTERCEPTS.

IF AN EXISTING SIGN IS TO BE REMOVED AND REPLACED WITH A NEW SIGN, DO NOT REMOVE THE EXISTING SIGN PRIOR TO INSTALLATION OF THE NEW SIGN.

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

DODGE COUNTY TO PAVE TOP LAYER OF ASPHALT WITH ADJACENT ROADWAORK.

HMA UNIT WEIGHT: 112 LB/SY/IN

**ABBREVIATIONS**

A.D.T.	AVERAGE DAILY TRAFFIC
ATMS	ARTERIAL TRAFFIC MANAGEMENT SYSTEM
BM	BENCHMARK
BOC	BACK OF CURB
BTWN	BETWEEN
C&G	CURB AND GUTTER
C.E.	COMMERCIAL ENTRANCE
CONST	CONSTRUCTION
CP	CONTROL POINT
CTR.	CENTER
D.D.	DIRECTIONAL DISTRIBUTION
D.H.V.	DESIGN HOURLY VOLUME
DMS	DYNAMIC MESSAGE SIGN
EB	EASTBOUND
EXIST	EXISTING
GALV.	GALVANIZED
HMA	HOT MIX ASPHALT
H.S.	HIGH STRENGTH
ITS	INTELLIGENT TRAFFIC SYSTEM
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NOR	NORMAL
PC	POINT OF CURVATURE
PCC	POINT OF COMMON CURVATURE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVT	PAVEMENT
R/L	REFERENCE LINE
REQ'D	REQUIRED
SB	SOUTHBOUND
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TCC	TRAFFIC CONDITION CAMERA
TYP	TYPICAL
VAR	VARIABLE
WB	WESTBOUND
Wt.	WEIGHT
X-WALK	CROSS WALK

**PROJECT CONTACTS**

**DODGE COUNTY PUBLIC WORKS**  
 BRIAN FIELD  
 HIGHWAY COMMISSIONER  
 211 E. CENTER STREET  
 JUNEAU, WI 53039-1309  
 P: (920) 386-3653  
 F: (920) 386-3525  
 E: BFIELD@CO.DODGE.WI.US

**WISCONSIN DEPARTMENT OF NATURAL RESOURCES**  
 SHELLY NELSON  
 DNR SOUTH CENTRAL REGION HEADQUARTERS  
 3911 FISH HATCHERY RD  
 FITCHBERG, WI 53711  
 P: (608) 444-2835  
 E: SHELLY.NELSON@WISCONSIN.GOV

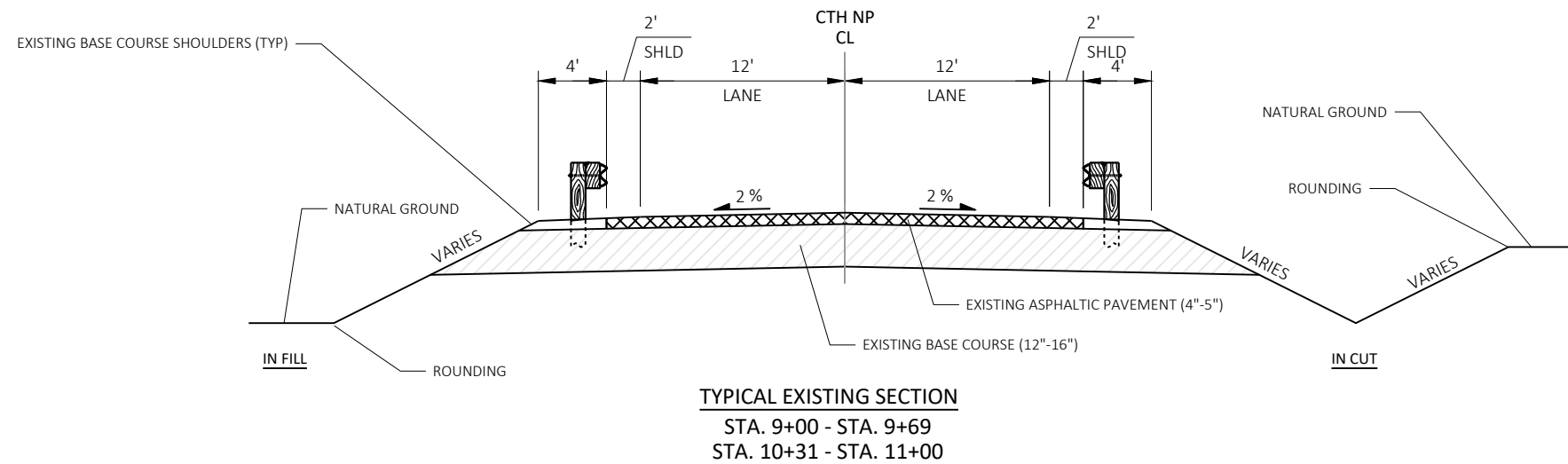
**DESIGNER**  
 AMANDA INMAN, PE  
 AYRES ASSOCIATES  
 5201 EAST TERRACE DRIVE, SUITE 200  
 MADISON, WI 53718  
 P: (608) 443-1239  
 E: INMANA@AYRESASSOCIATES.COM

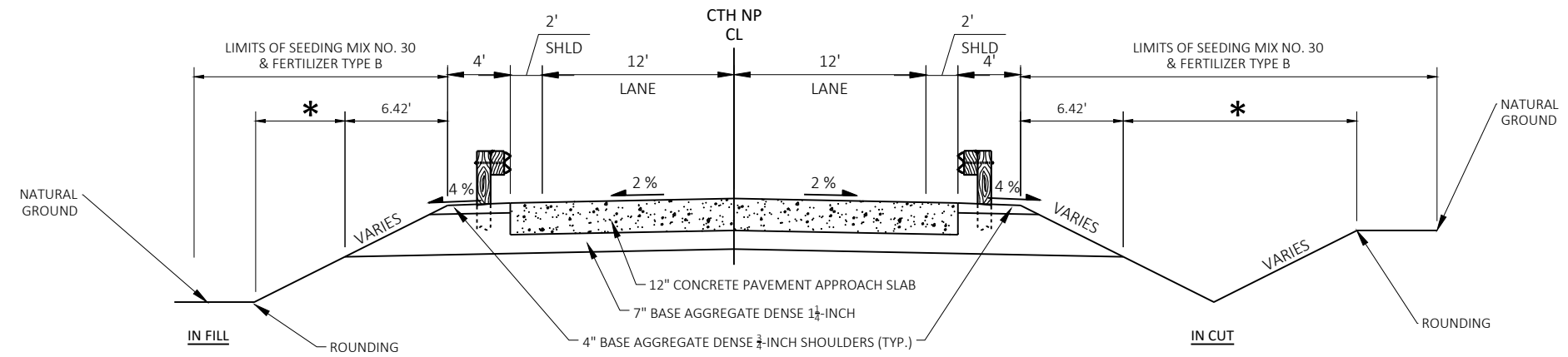
**UTILITIES**

AT&T  
 DEAN HERRO  
 435 S 95TH ST  
 MILWAUKEE, WI 53214-1226  
 C: (262) 226-9639  
 E: DH2572@ATT.COM

WE ENERGIES  
 JOE FELLEZ  
 W140 N9100 LILLY ROAD  
 MENOMONEE FALLS, WI 53051  
 P: (262) 502-6831  
 C: (414) 322-8928  
 E: JOSEPH.FELLEZ@WE-ENERGIES.COM

\*\* DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

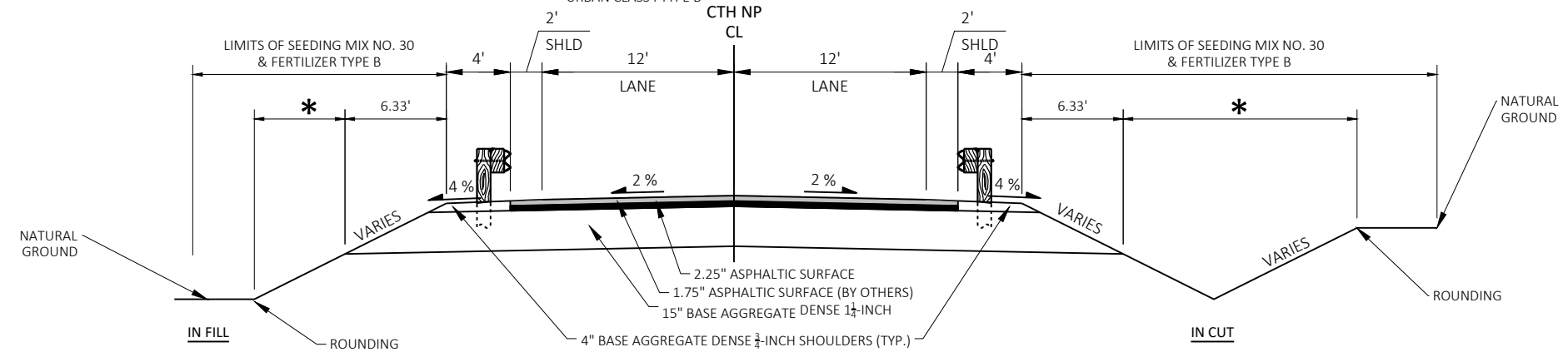




**FINISHED TYPICAL SECTION  
(APPROACH SLABS)**

STA. 9+52 - STA. 9+69  
STA. 10+31 - STA. 10+46

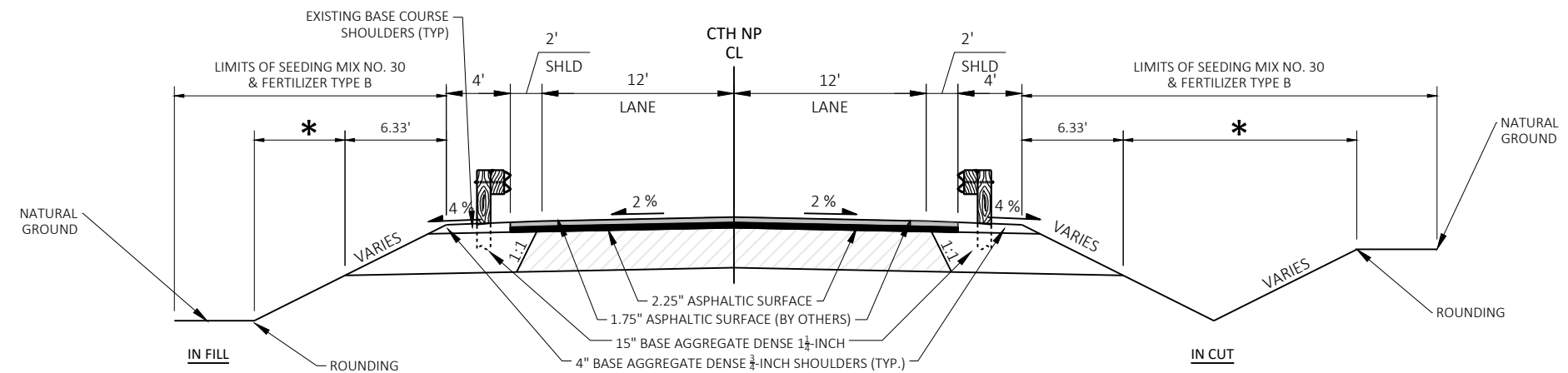
\* LIMITS OF SALVAGED TOPSOIL AND EROSION MAT  
URBAN CLASS I TYPE B



**FINISHED TYPICAL SECTION  
(FULL DEPTH REPLACEMENT)**

STA. 9+25 - STA. 9+52  
STA. 10+46 - STA. 10+75

\* LIMITS OF SALVAGED TOPSOIL AND EROSION MAT  
URBAN CLASS I TYPE B

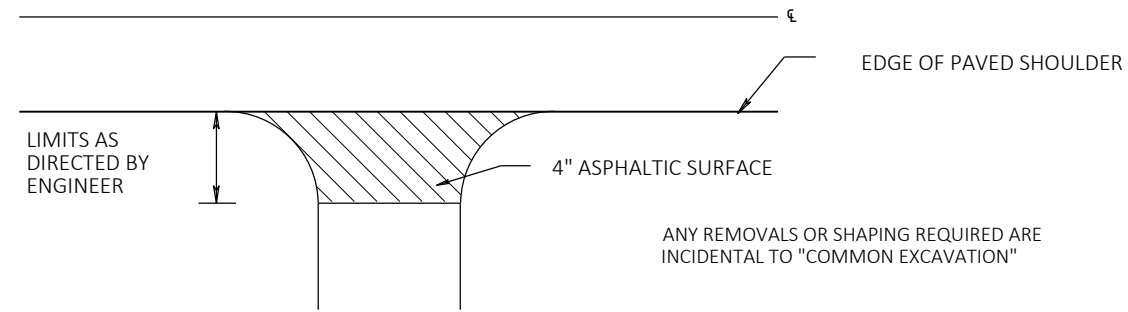


**FINISHED TYPICAL SECTION  
(PAVEMENT REPLACEMENT)**

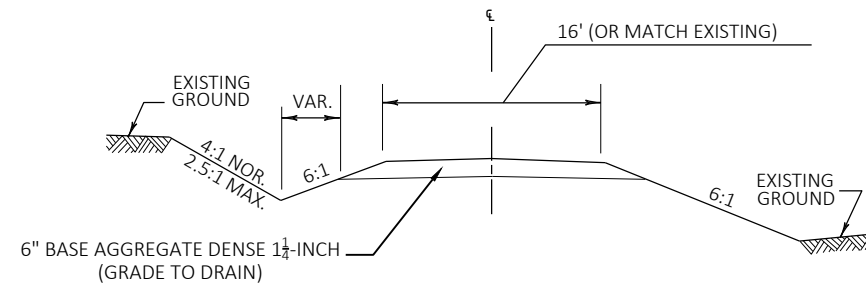
STA. 8+14 - STA. 9+25  
STA. 10+75 - STA. 11+61

\* LIMITS OF SALVAGED TOPSOIL AND EROSION MAT  
URBAN CLASS I TYPE B

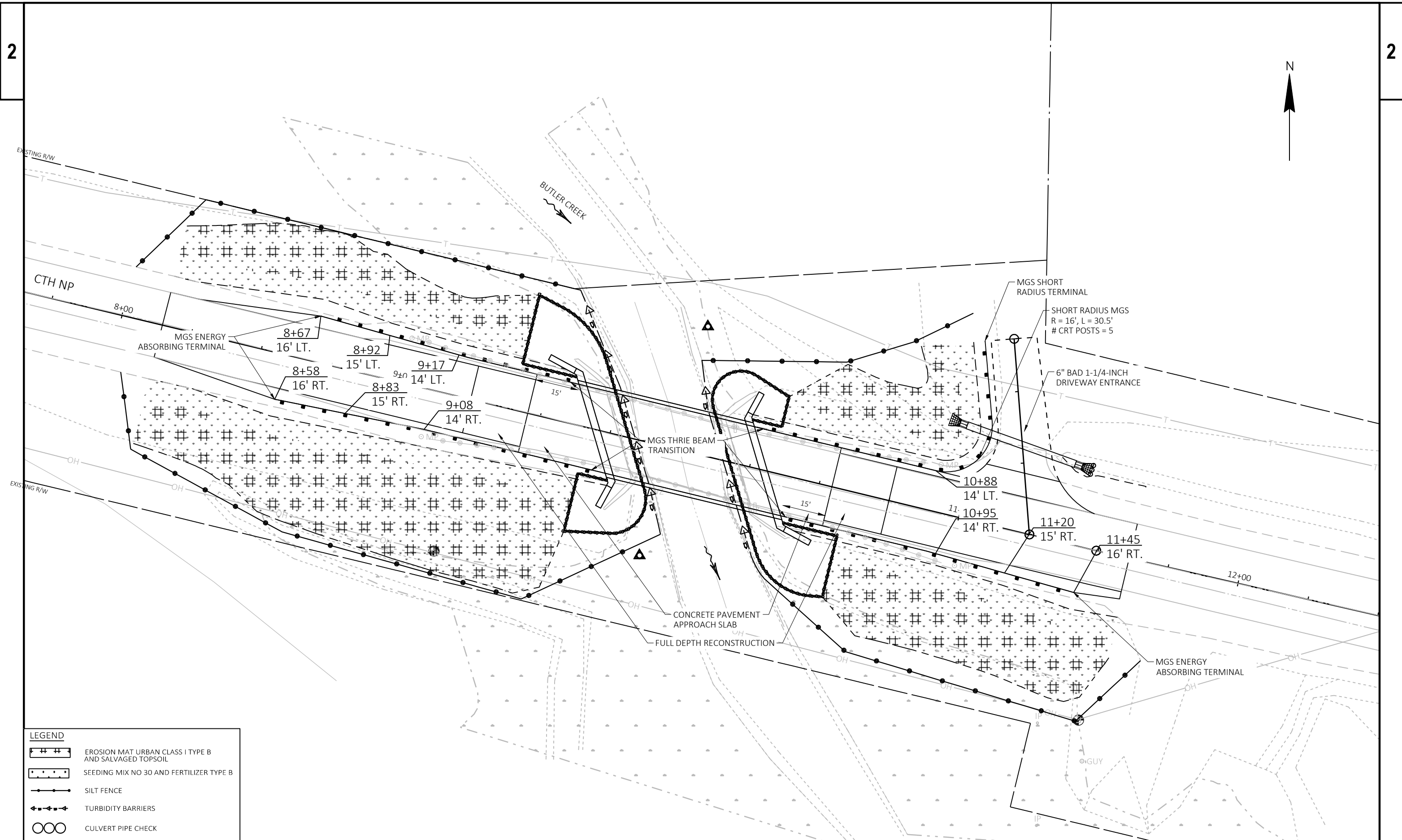




RURAL DRIVEWAY DETAIL - ASPHALT



TYPICAL CROSS SECTION



LEGEND	
	EROSION MAT URBAN CLASS I TYPE B AND SALVAGED TOPSOIL
	SEEDING MIX NO 30 AND FERTILIZER TYPE B
	SILT FENCE
	TURBIDITY BARRIERS
	CULVERT PIPE CHECK

PROJECT NO: 3926-00-70	HWY: CTH NP	COUNTY: DODGE	CONSTRUCTION DETAILS - GUARDRAIL & EROSION CONTROL	SHEET	<b>E</b>
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Estimate Of Quantities By Plan Sets

3926-00-70

Line	Item	Item Description	Unit	Total	Qty
0006	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 02. P-14-0107	EACH	1.000	1.000
0008	204.0110	Removing Asphaltic Surface	SY	523.000	523.000
0010	204.0165	Removing Guardrail	LF	370.000	370.000
0012	204.0180	Removing Delineators and Markers	EACH	4.000	4.000
0014	205.0100	Excavation Common	CY	388.000	388.000
0018	206.1001	Excavation for Structures Bridges (structure) 02. B-14-0229	EACH	1.000	1.000
0020	208.0100	Borrow	CY	265.000	265.000
0022	210.1500	Backfill Structure Type A	TON	340.000	340.000
0026	213.0100	Finishing Roadway (project) 02. 3926-00-70	EACH	1.000	1.000
0028	305.0110	Base Aggregate Dense 3/4-Inch	TON	36.000	36.000
0030	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	287.000	287.000
0032	415.0410	Concrete Pavement Approach Slab	SY	144.000	144.000
0034	455.0605	Tack Coat	GAL	46.000	46.000
0036	465.0105	Asphaltic Surface	TON	81.000	81.000
0038	502.0100	Concrete Masonry Bridges	CY	175.000	175.000
0040	502.3200	Protective Surface Treatment	SY	240.000	240.000
0042	503.0137	Prestressed Girder Type I 36W-Inch	LF	244.000	244.000
0044	505.0400	Bar Steel Reinforcement HS Structures	LB	5,320.000	5,320.000
0046	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	17,190.000	17,190.000
0048	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0050	506.4000	Steel Diaphragms (structure) 02. B-14-0229	EACH	3.000	3.000
0052	513.4061	Railing Tubular Type M	LF	131.800	131.800
0054	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0056	520.1024	Apron Endwalls for Culvert Pipe 24-Inch	EACH	2.000	2.000
0058	520.3424	Culvert Pipe Class III-A Non-metal 24-Inch	LF	40.000	40.000
0060	550.0500	Pile Points	EACH	16.000	16.000
0062	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	560.000	560.000
0064	606.0300	Riprap Heavy	CY	260.000	260.000
0066	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	170.000	170.000
0070	614.2300	MGS Guardrail 3	LF	37.500	37.500
0072	614.2350	MGS Guardrail Short Radius	LF	84.000	84.000
0074	614.2500	MGS Thrie Beam Transition	LF	160.000	160.000
0076	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0078	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0082	618.0100	Maintenance and Repair of Haul Roads (project) 02. 3926-00-70	EACH	1.000	1.000
0084	619.1000	Mobilization	EACH	0.500	0.500
0086	623.0200	Dust Control Surface Treatment	SY	596.000	596.000
0088	624.0100	Water	MGAL	6.000	6.000
0090	625.0500	Salvaged Topsoil	SY	1,115.000	1,115.000
0092	628.1504	Silt Fence	LF	720.000	720.000
0094	628.1520	Silt Fence Maintenance	LF	1,440.000	1,440.000
0096	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0098	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0100	628.2008	Erosion Mat Urban Class I Type B	SY	1,225.000	1,225.000
0102	628.6005	Turbidity Barriers	SY	175.000	175.000
0104	628.7555	Culvert Pipe Checks	EACH	1.000	1.000
0106	629.0210	Fertilizer Type B	CWT	0.900	0.900
0108	630.0130	Seeding Mixture No. 30	LB	29.000	29.000
0110	630.0200	Seeding Temporary	LB	43.000	43.000
0112	630.0500	Seed Water	MGAL	36.700	36.700

Estimate Of Quantities By Plan Sets

3926-00-70

Line	Item	Item Description	Unit	Total	Qty
0114	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0116	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0118	638.2602	Removing Signs Type II	EACH	4.000	4.000
0120	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0122	642.5001	Field Office Type B	EACH	0.500	0.500
0124	643.0420	Traffic Control Barricades Type III	DAY	2,196.000	2,196.000
0126	643.0705	Traffic Control Warning Lights Type A	DAY	2,928.000	2,928.000
0128	643.0900	Traffic Control Signs	DAY	1,708.000	1,708.000
0130	643.5000	Traffic Control	EACH	0.500	0.500
0132	645.0111	Geotextile Type DF Schedule A	SY	120.000	120.000
0134	645.0120	Geotextile Type HR	SY	480.000	480.000
0136	646.2020	Marking Line Epoxy 6-Inch	LF	1,444.000	1,444.000
0138	650.4500	Construction Staking Subgrade	LF	300.000	300.000
0140	650.5000	Construction Staking Base	LF	300.000	300.000
0142	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0146	650.6501	Construction Staking Structure Layout (structure) 02. B-14-0229	EACH	1.000	1.000
0150	650.9911	Construction Staking Supplemental Control (project) 02. 3926-00-70	EACH	1.000	1.000
0152	650.9920	Construction Staking Slope Stakes	LF	300.000	300.000
0154	690.0150	Sawing Asphalt	LF	56.000	56.000
0156	715.0502	Incentive Strength Concrete Structures	DOL	1,050.000	1,050.000
0158	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0162	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 02. 10+00 ID 3926-00-70	EACH	1.000	1.000
0172	SPV.0090	Special 02. Flashing Stainless Steel	LF	114.200	114.200

REMOVING GUARDRAIL

CATEGORY	LOCATION	204.0165 REMOVING GUARDRAIL LF
0010	NORTH SIDE	185
0010	SOUTH SIDE	185
TOTAL 0010		370

REMOVING DELINEATORS AND MARKERS

CATEGORY	STATION TO	STATION	LOCATION	204.0180 REMOVING DELINEATORS AND MARKERS EACH	REMARKS
0010	8+14 -	10+00	WEST APPROACH	2	GUARDRAIL DELINEATORS
0010	10+00 -	11+60	EAST APPROACH	2	GUARDRAIL DELINEATORS
TOTAL 0010				4	

CULVERT

CATEGORY	STATION	LOCATION	520.1024 APRON ENDWALLS FOR CULVERT PIPE 24- INCH EACH	520.3424 CULVERT PIPE CLASS III-A NON- METAL 24-INCH LF	REMARKS
0010	11+20	FIELD ENTRANCE, LT	2	40	
TOTAL 0010			2	40	

MAINTENANCE AND REPAIR OF HAUL ROADS

CATEGORY	LOCATION	618.0100.02 MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) (3926-00-70) EACH	REMARKS
0030	CTH NP	1	
TOTAL 0030		1	

PROJECT-WIDE ITEMS

CATEGORY	STATION TO	STATION	LOCATION	213.0100.02 FINISHING ROADWAY (PROJECT) (02. 3926-00-70) EACH	619.1000 MOBILIZATION EACH	623.0200 DUST CONTROL SURFACE TREATMENT SY	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 EMERGENCY EROSION CONTROL EACH	642.5001 FIELD OFFICE TYPE B EACH	999.2000.S.02 INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (STATION) (02. 10+00) EACH
0010	8+14 -	11+60	CTH NP	1	0.5	596	4	4	0.5	1
TOTAL 0010				1	0.5	596	4	4	0.5	1

CTH NP EARTHWORK SUMMARY

From/To Station	Location	Common Excavation (1) (Item 205.0100)	Unusable Cut	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Borrow (Item 208.0100)	Comment:
		Cut			Factor 1.30				
8+14 - 10+00	CTH NP - WEST APPROACH	226	14	189	246	-20		20	
10+00 - 11+60	CTH NP - EAST APPROACH	162	15	313	407	-245		245	
TOTAL		388			653			265	

- 1) Common Excavation is the Cut. Unusable excavation is existing pavement. Item number 205.0100.
- 2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill \* Fill Factor
- 3) The Mass Ordinate + (waste) or - (borrow)
- 4) All quantities shown in CY.

PAVEMENT AND BASE

CATEGORY	STATION TO	STATION	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	624.0100 WATER MGAL	REMARKS
0010	8+14 -	9+25	WEST APPROACH	290	--	--	--	21	37	--	PAVEMENT REPLACEMENT
0010	8+14 -	9+68	WEST APPROACH	--	22	157	72	4	7	3	FULL DEPTH & SIDES
0010	10+31 -	11+60	EAST APPROACH	--	14	130	72	4	7	3	FULL DEPTH & SIDES
0010	10+75 -	11+60	EAST APPROACH	233	--	--	--	17	30	--	PAVEMENT REPLACEMENT
TOTAL 0010				523	36	287	144	46	81	6	

NOTES:

- \* TACK COAT APPLICATION RATE = 0.07 GAL/SY
- \*\* ASSUMED ASPHALT AT 112 LBS/SY/IN

GUARDRAIL

CATEGORY	STATION TO	STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2350 MGS GUARDRAIL SHORT RADIUS LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2630 MGS GUARDRAIL SHORT RADIUS TERMINAL EACH
0010	8+14 -	9+68	MAINLINE	25	--	80	2	--
0010	10+31 -	11+60	MAINLINE	12.5	84	80	1	1
TOTAL 0010				37.5	84	160	3	1

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

EROSION CONTROL

CATEGORY	STATION	TO	STATION	LOCATION	625.0500 SY	628.1504 LF	628.1520 LF	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.6005 TURBIDITY BARRIERS SY	628.7555 CULVERT PIPE CHECKS EACH	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL	REMARKS
0010	8+14	-	10+00	LT	210	165	330	210	85	--	0.2	5	8	6.7	
0010	8+14	-	10+00	RT	510	230	460	510	--	--	0.4	11	17	13.9	
0010	10+00	-	11+60	LT	125	100	200	125	75	1.0	0.1	4	5	4.4	
0010	10+00	-	11+60	RT	270	160	320	270	--	--	0.2	6	9	7.8	
0010			UNDISTRIBUTED		--	65	130	110	15	--	--	3	4	3.9	
			TOTAL 0010		1,115	720	1,440	1,225	175	1.0	0.9	29	43	36.7	

SIGNING

CATEGORY	LOCATION	634.0614 WOOD 4X6- INCH X 14-FT EACH	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
0010	W OF BRIDGE	2	6	2	2	W5-52: CLEARANCE STRIPER DOWN
0010	E OF BRIDGE	2	6	2	2	W5-52: CLEARANCE STRIPER DOWN
	TOTAL 0010	4	12	4	4	

TRAFFIC CONTROL

CATEGORY	LOCATION	DURATION DAYS	NO.	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A NO.	643.0900 TRAFFIC CONTROL SIGNS DAY	643.5000 TRAFFIC CONTROL EACH	REMARKS		
0010	PER SDD 15C2 CTH NP	122	18	2,196	24	2,928	14	1,708	--	DETAILS C & D
	TOTAL 0010	--	--	2,196	--	2,928	--	1,708	0.5	

PAVEMENT MARKING

CATEGORY	STATION	TO	STATION	LOCATION	646.2020 MARKING LINE EPOXY 6-INCH WHITE LF	646.2020 MARKING LINE EPOXY 6-INCH YELLOW LF	REMARKS
0010	8+14	-	11+60	LT	361	--	EDGE LINE
0010	8+14	-	11+60	CL	--	722	DOUBLE SOLID CENTERLINE
0010	8+14	-	11+60	RT	361	--	EDGE LINE
			TOTAL 0010		1,444		

STAKING

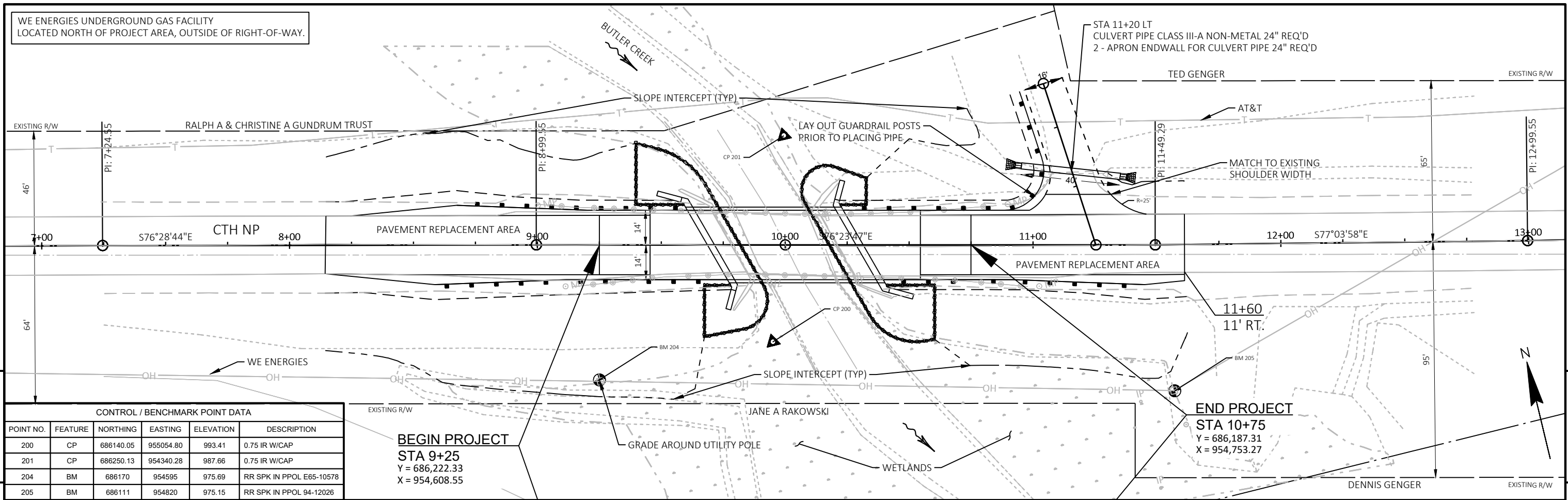
CATEGORY	STATION	TO	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.6000 CONSTRUCTION STAKING PIPE CULVERTS EACH	650.6501.02 CONSTRUCTION STAKING STRUCTURE (STRUCTURE) (02. B-14-0229) EACH	650.9911.02 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (02. 3926-00-70) EACH	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
0010	8+14	-	11+60	MAINLINE	300	300	1	-	1	300
			TOTAL 0010		300	300	1	0	1	300
0020	9+68	-	10+31	B-14-0229	-	-	-	1	-	-
			TOTAL 0020		0	0	0	1	0	0
			PROJECT TOTAL		300	300	1	1	1	300

SAWING ASPHALT

CATEGORY	STATION	LOCATION	690.0150 SAWING ASPHALT LF
0010	8+14	CTH NP	28
0010	11+60	CTH NP	28
		TOTAL 0010	56

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

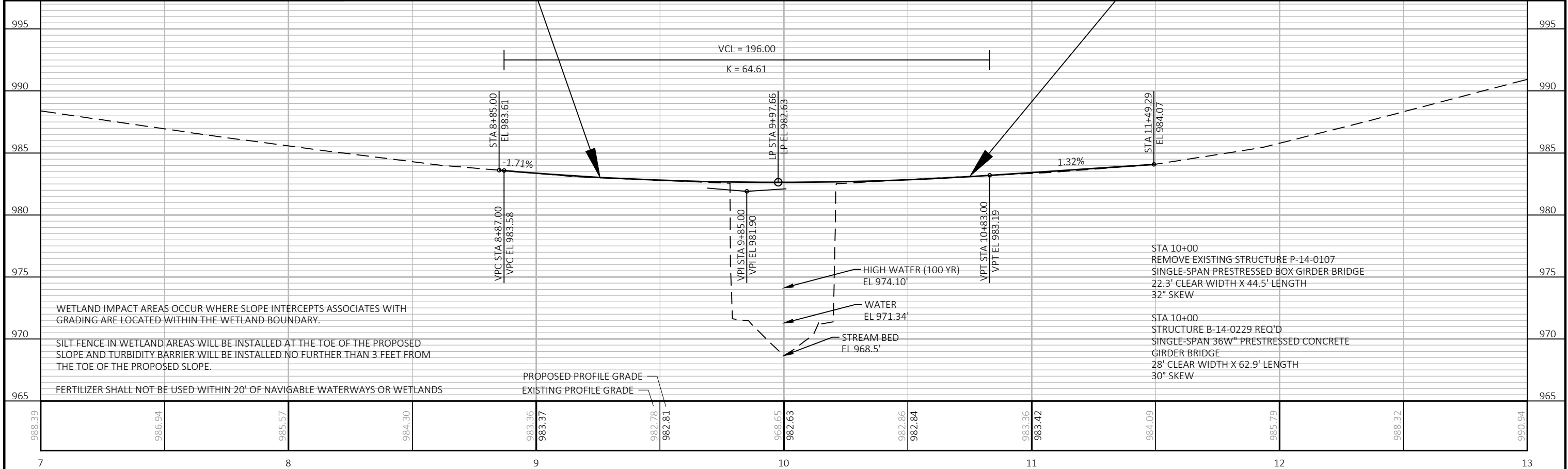
WE ENERGIES UNDERGROUND GAS FACILITY  
LOCATED NORTH OF PROJECT AREA, OUTSIDE OF RIGHT-OF-WAY.



CONTROL / BENCHMARK POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	CP	686140.05	955054.80	993.41	0.75 IR W/CAP
201	CP	686250.13	954340.28	987.66	0.75 IR W/CAP
204	BM	686170	954595	975.69	RR SPK IN PPOL E65-10578
205	BM	686111	954820	975.15	RR SPK IN PPOL 94-12026

**BEGIN PROJECT**  
STA 9+25  
Y = 686,222.33  
X = 954,608.55

**END PROJECT**  
STA 10+75  
Y = 686,187.31  
X = 954,753.27



WETLAND IMPACT AREAS OCCUR WHERE SLOPE INTERCEPTS ASSOCIATES WITH GRADING ARE LOCATED WITHIN THE WETLAND BOUNDARY.

SILT FENCE IN WETLAND AREAS WILL BE INSTALLED AT THE TOE OF THE PROPOSED SLOPE AND TURBIDITY BARRIER WILL BE INSTALLED NO FURTHER THAN 3 FEET FROM THE TOE OF THE PROPOSED SLOPE.

FERTILIZER SHALL NOT BE USED WITHIN 20' OF NAVIGABLE WATERWAYS OR WETLANDS

STA 10+00  
REMOVE EXISTING STRUCTURE P-14-0107  
SINGLE-SPAN PRESTRESSED BOX GIRDER BRIDGE  
22.3' CLEAR WIDTH X 44.5' LENGTH  
32° SKEW

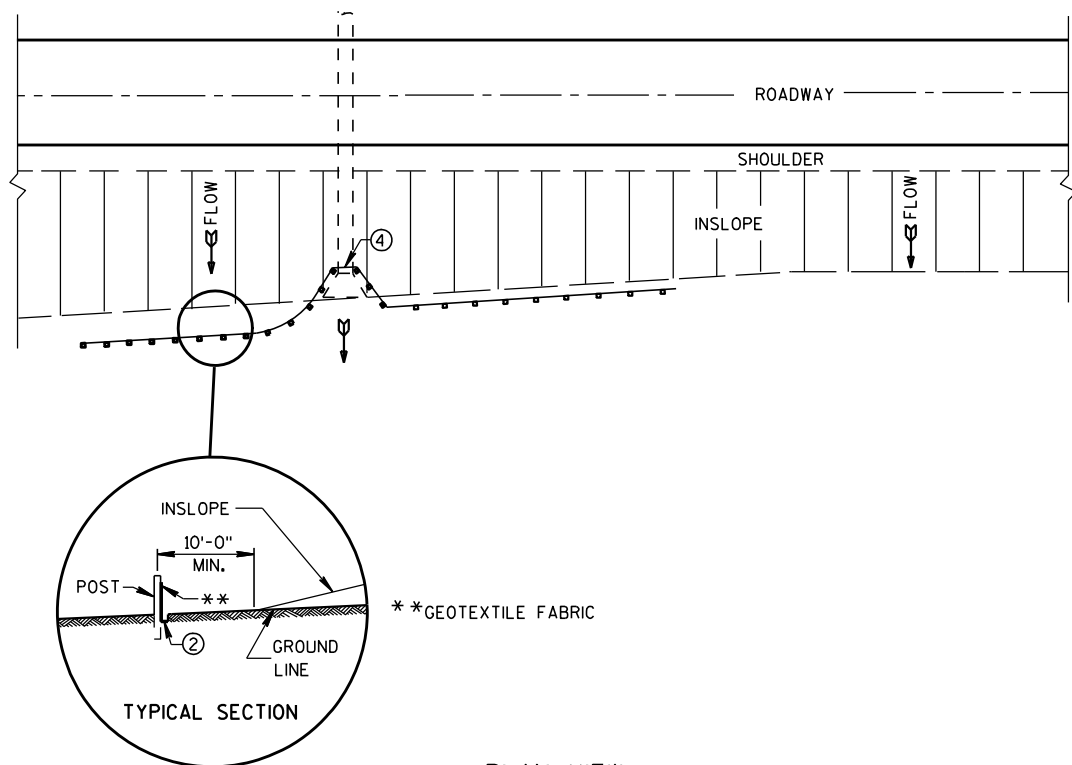
STA 10+00  
STRUCTURE B-14-0229 REQ'D  
SINGLE-SPAN 36W" PRESTRESSED CONCRETE  
GIRDER BRIDGE  
28' CLEAR WIDTH X 62.9' LENGTH  
30° SKEW

PROJECT NO: 3926-00-70	HWY: CTH NP	COUNTY: DODGE	PLAN AND PROFILE: PLAN AND PROFILE	SHEET: E
------------------------	-------------	---------------	------------------------------------	----------

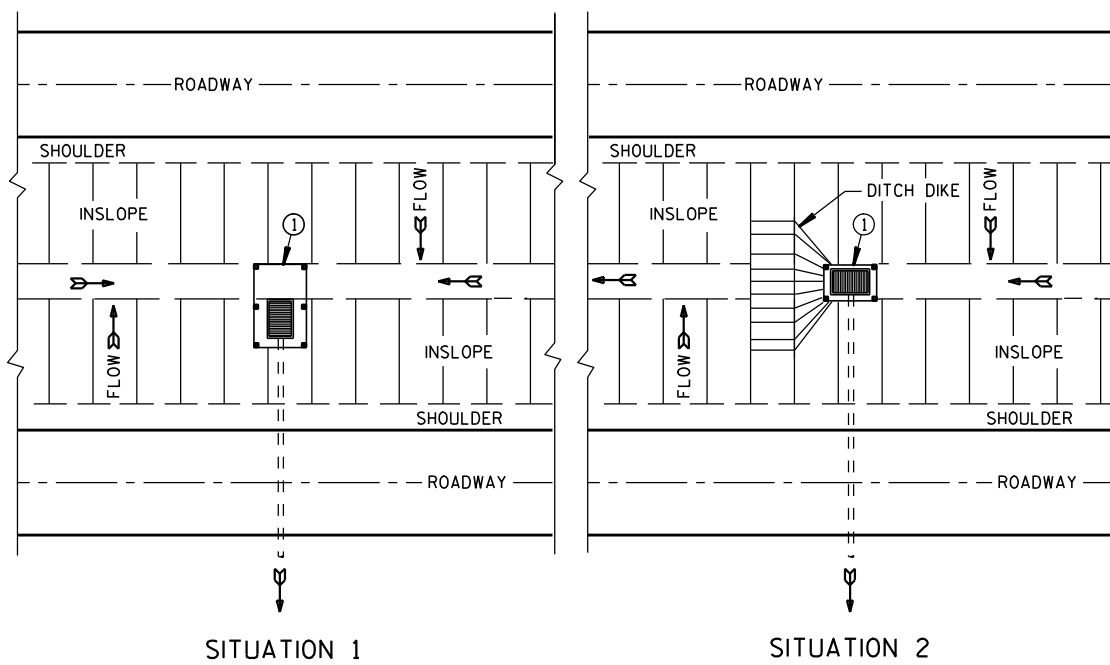
## Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B53-02A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS





PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

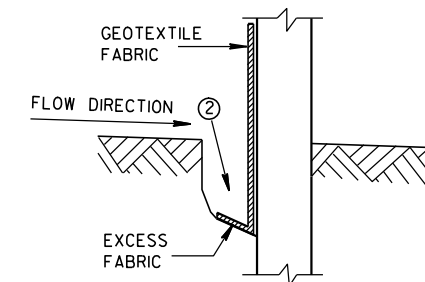


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

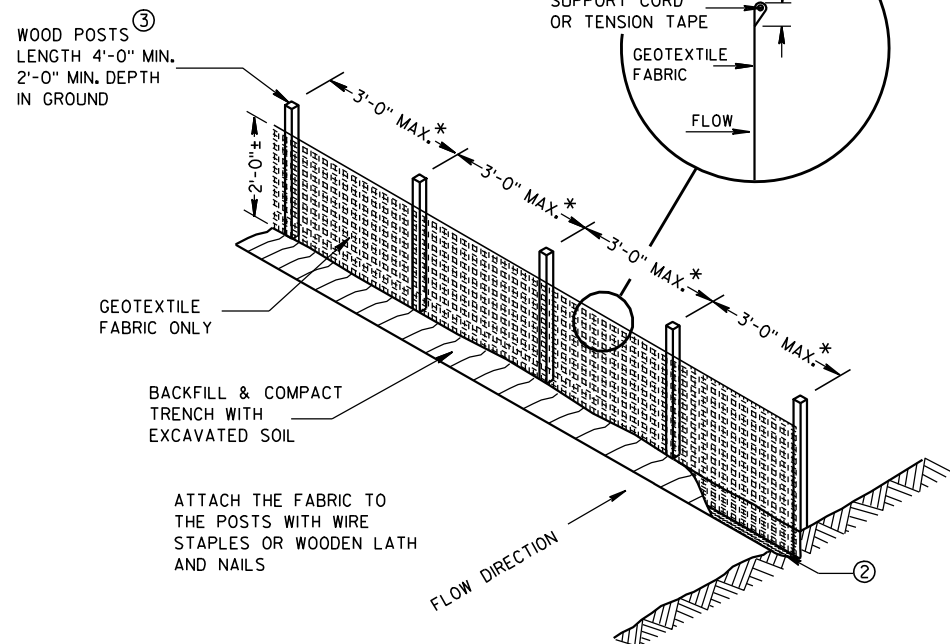
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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.



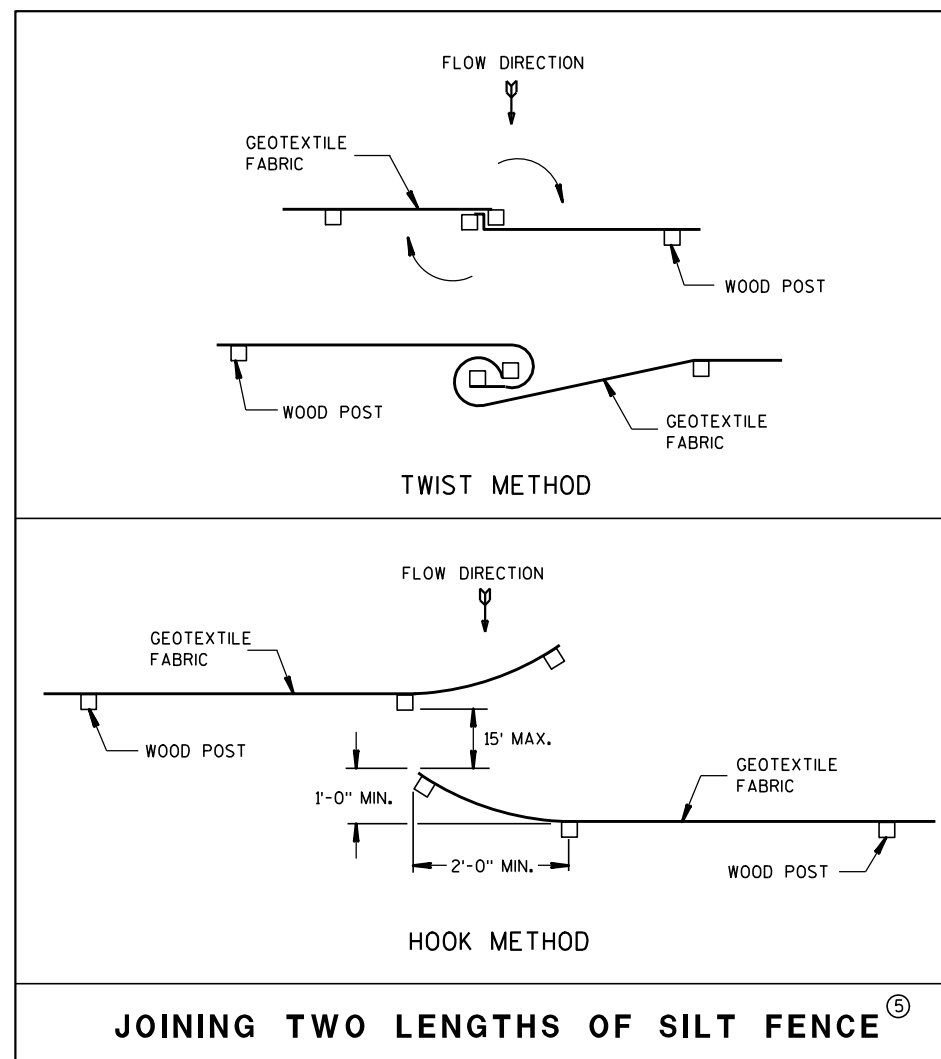
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

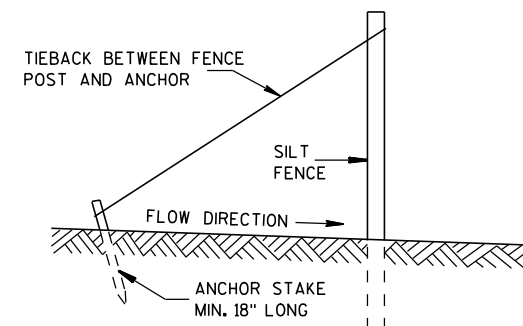


SILT FENCE

\* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤

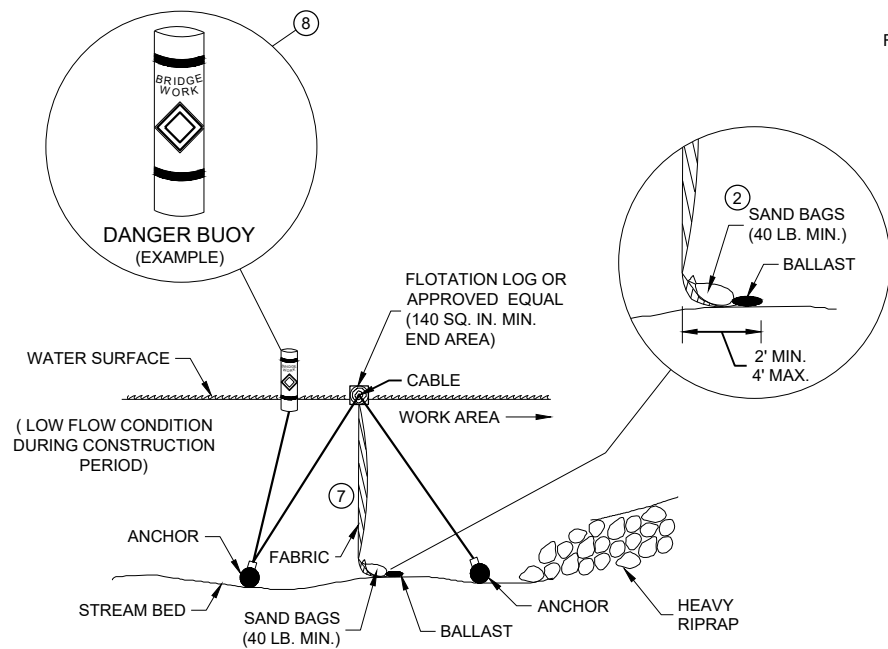


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

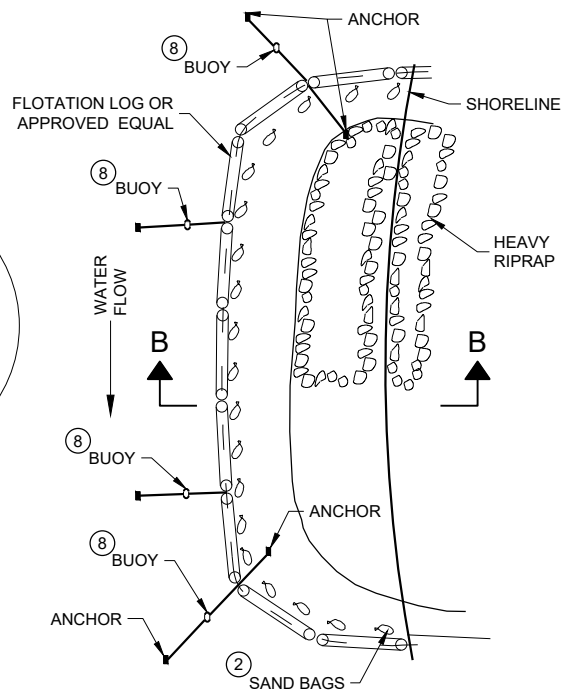
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
4-29-05 /S/ Beth Canestra  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA

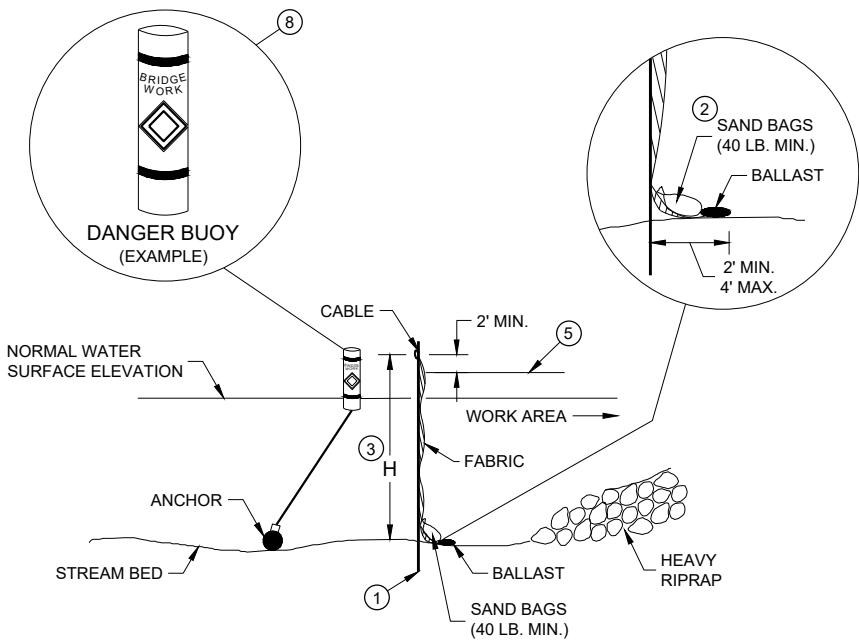


**SECTION B - B**

**TURBIDITY BARRIER - FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6**

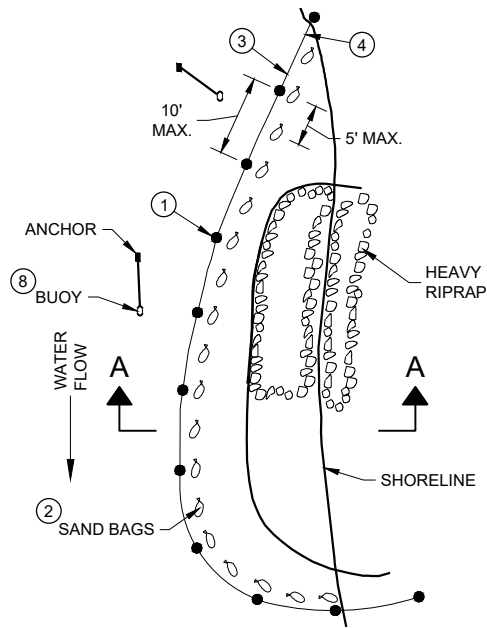


**PLAN VIEW**



**SECTION A - A**

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**



**PLAN VIEW**

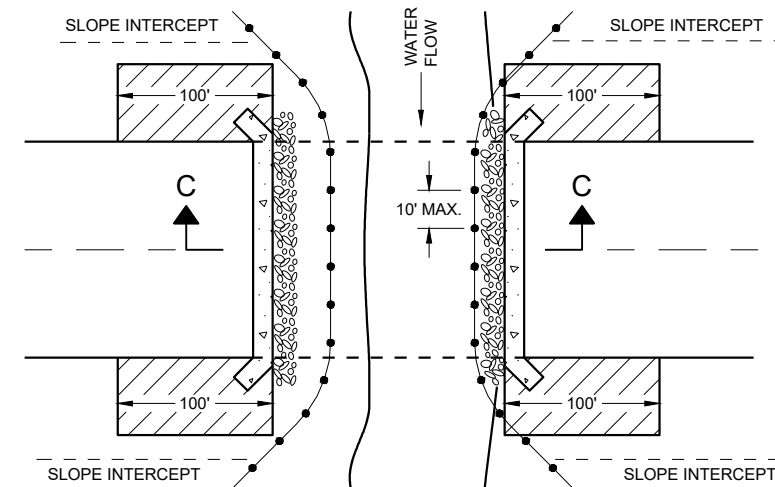
**TURBIDITY BARRIER PLACEMENT DETAILS**

**GENERAL NOTES**

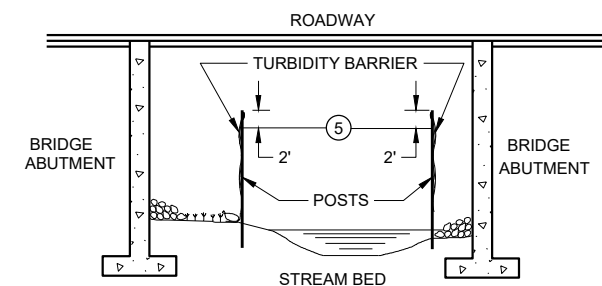
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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 SAND BAGS 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 FEET, 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 Q2 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 BEDROCK 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.



**PLAN VIEW**



**SECTION C - C**

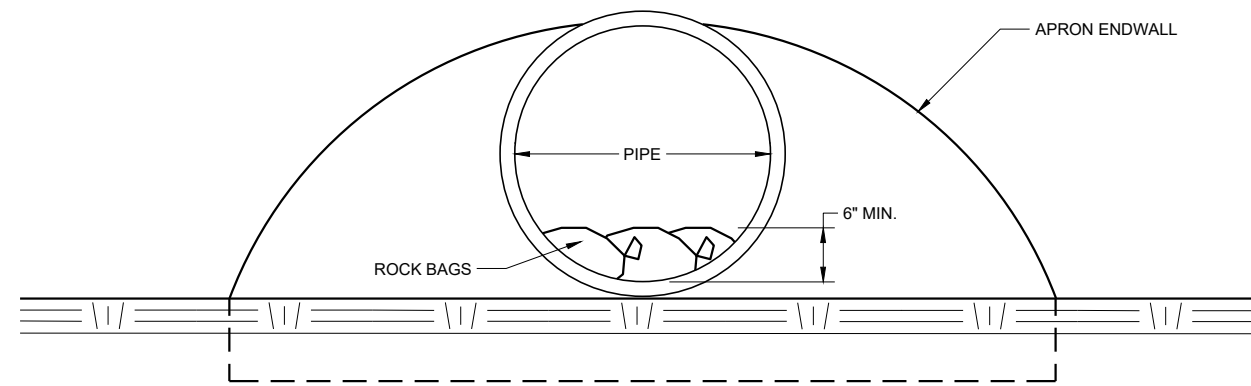
**TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES**

**TURBIDITY BARRIER**

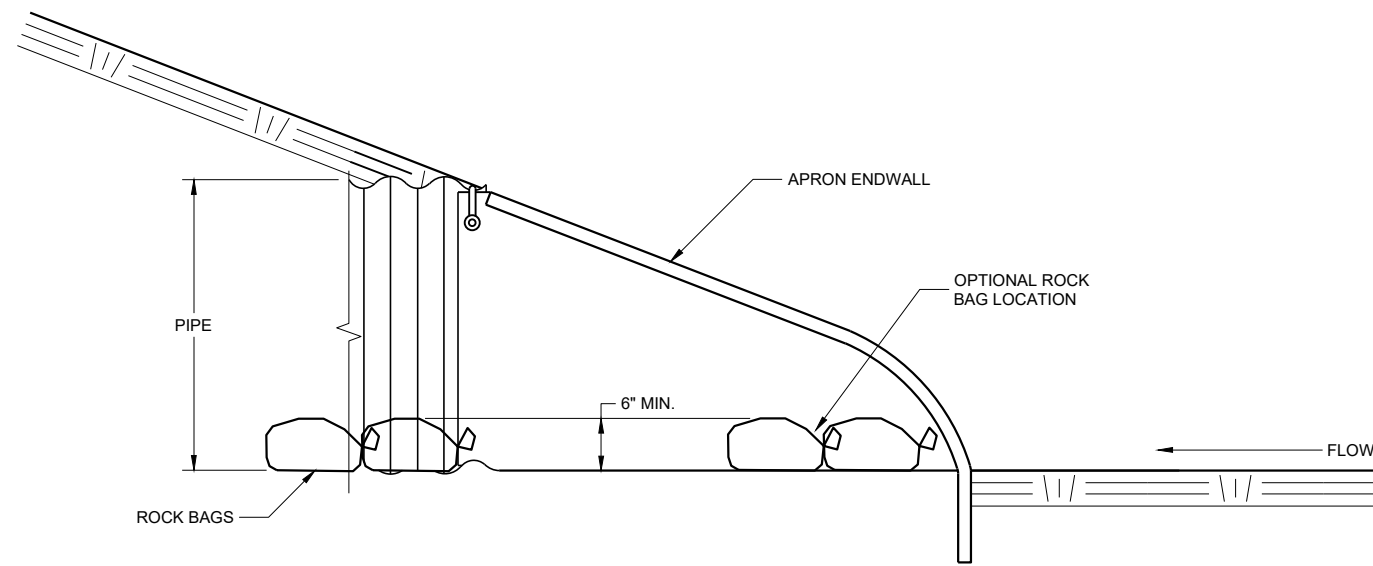
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/4/02 DATE /S/ Beth Cannestra  
DATE CHIEF ROADWAY DEVELOPMENT  
ENGINEER

FHWA



**END VIEW**



**SIDE VIEW**

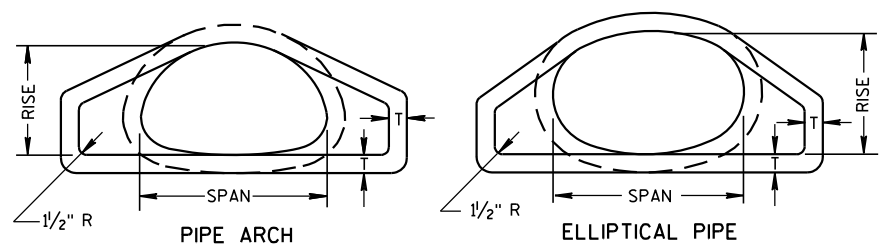
**CULVERT PIPE CHECK**  
(INSTALL ON INLET END ONLY)

**CULVERT PIPE CHECK**

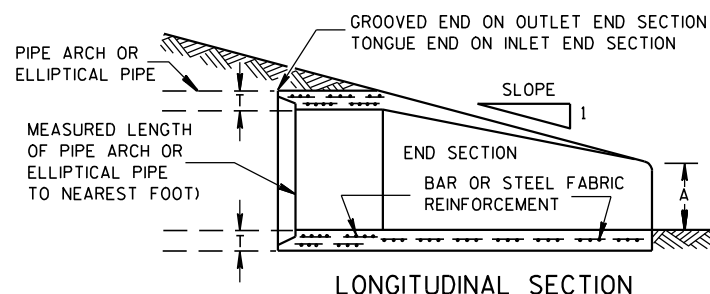
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2019 /S/ Daniel Schave  
DATE EROSION CONTROL ENGINEER

FHWA

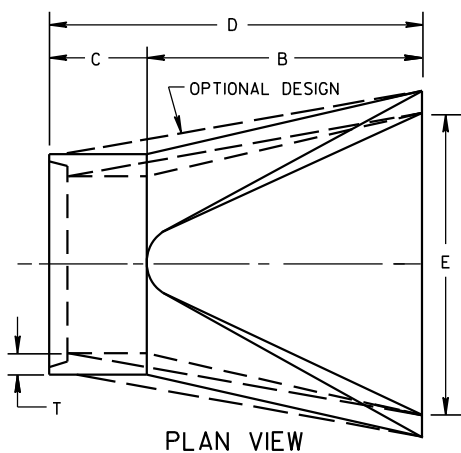


END VIEW



LONGITUDINAL SECTION

CONCRETE ENDWALLS



PLAN VIEW

**2- 2 2/3" X 1/2" CORRUGATIONS**

EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (⓪)	L2 (⓪)	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/4 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/4 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

**3" X 1" CORRUGATIONS**

EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (⓪)	L2 (⓪)	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED. \* EXCEPT CENTER PANEL SEE GENERAL NOTES

**REINFORCED CONCRETE PIPE ARCH**

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/8	60	36	96	72	3 to 1
42	51	31	4 1/2	15 1/8	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

**REINFORCED CONCRETE ELLIPTICAL PIPE**

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 3/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1

\*\*NOMINAL SIZE

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.

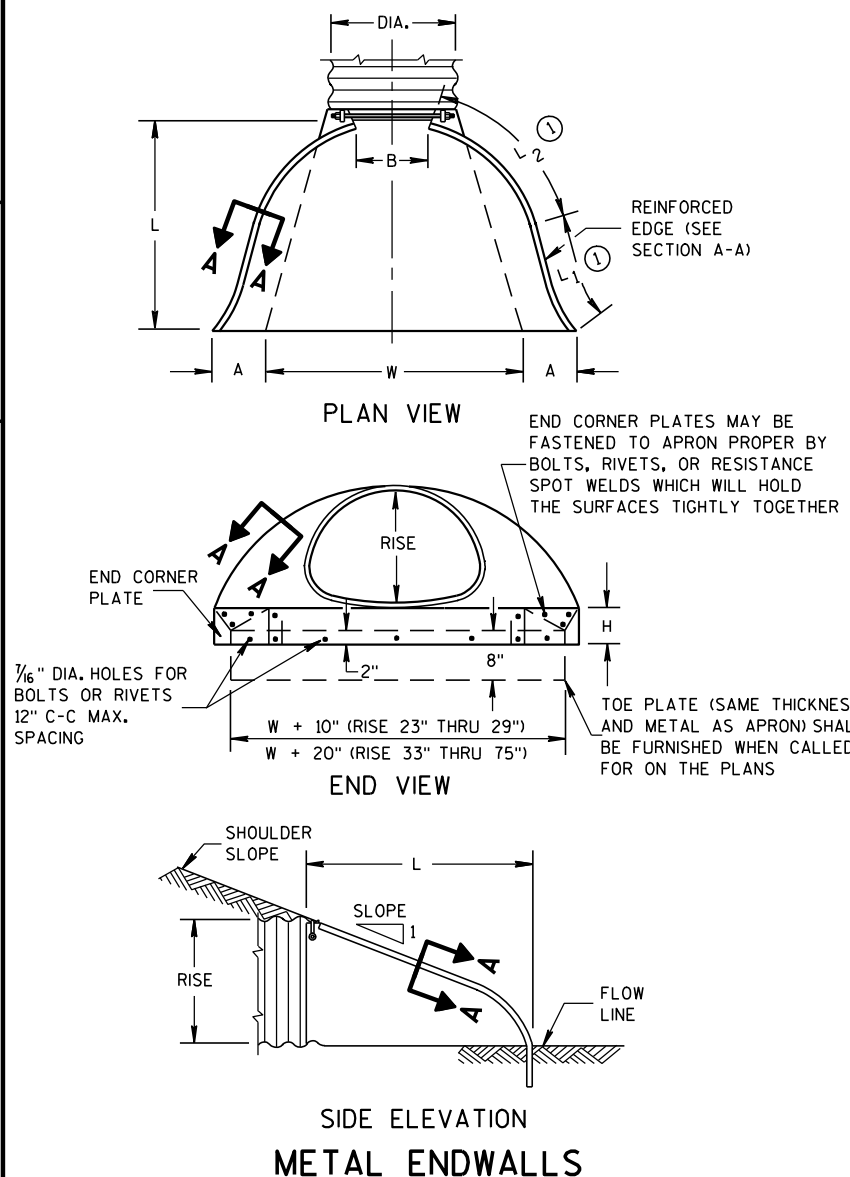
CONCRETE APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM APRON ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH 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 ARCH PERIMETER.

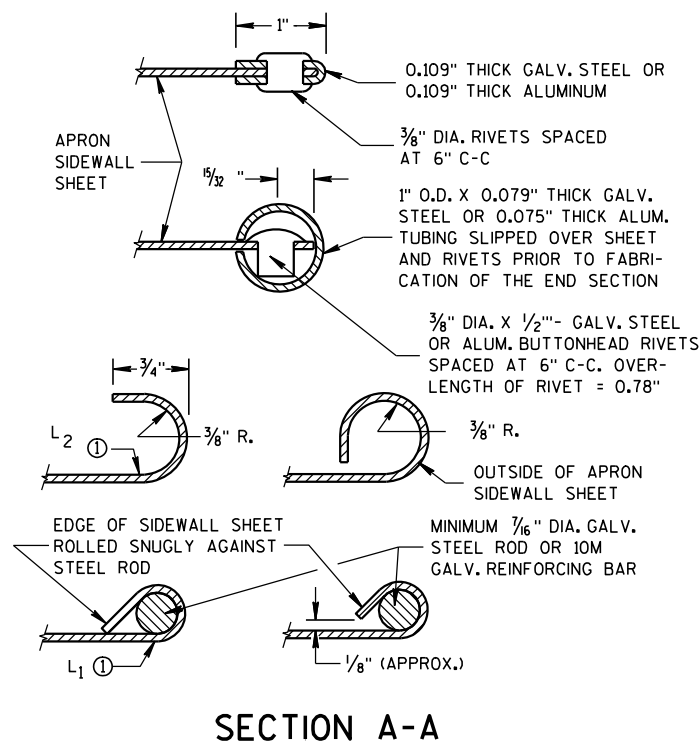
LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER 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.

⓪ FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.



METAL ENDWALLS

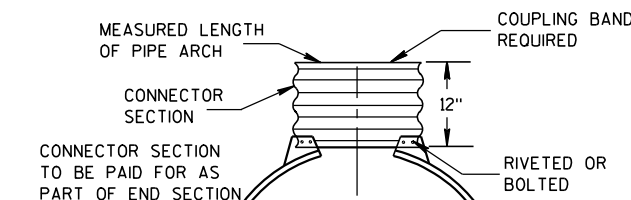


SECTION A-A



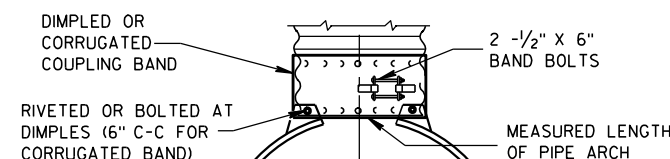
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR: ALL SIZES CORRUGATED PIPE ARCHES

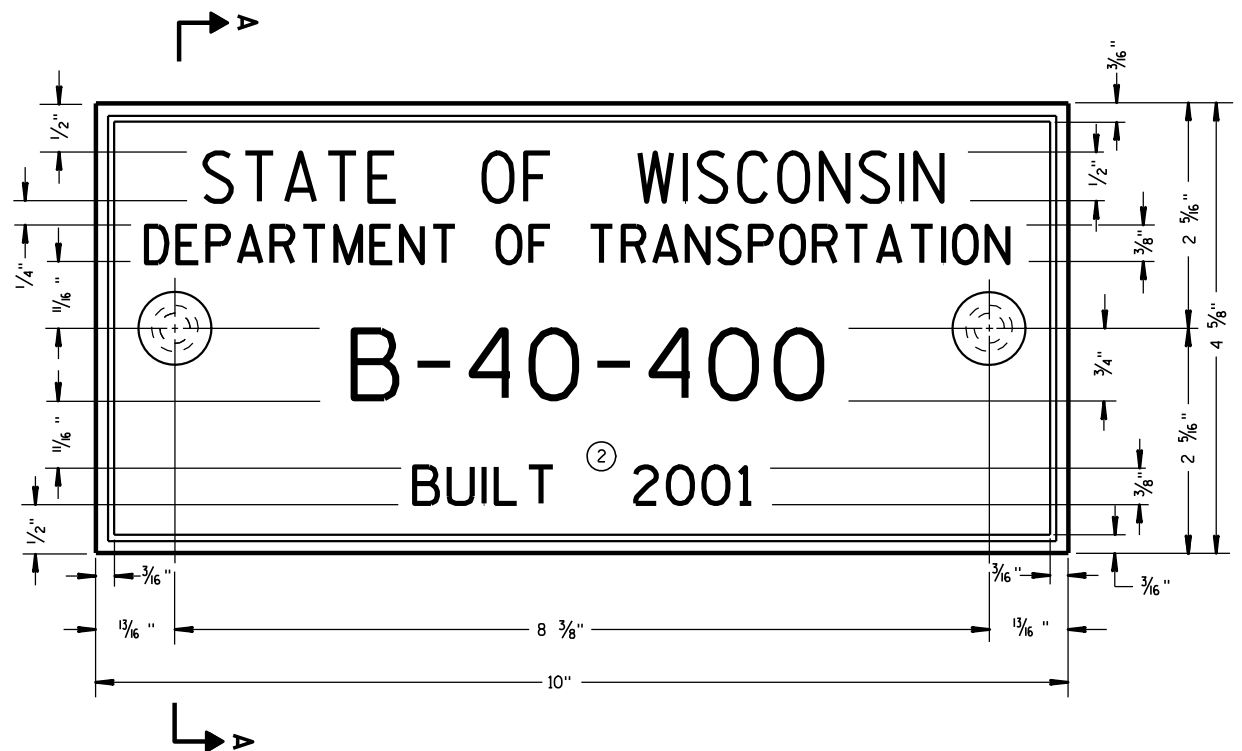
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

**APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/30/94 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



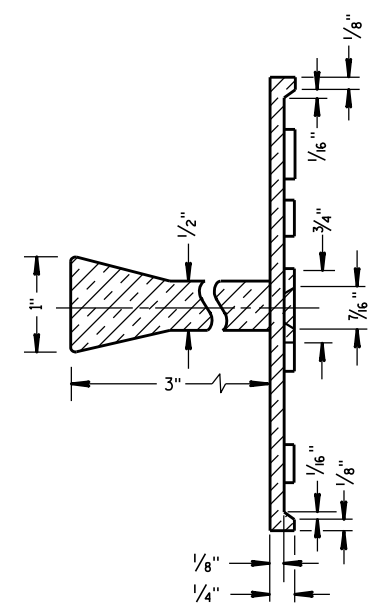
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

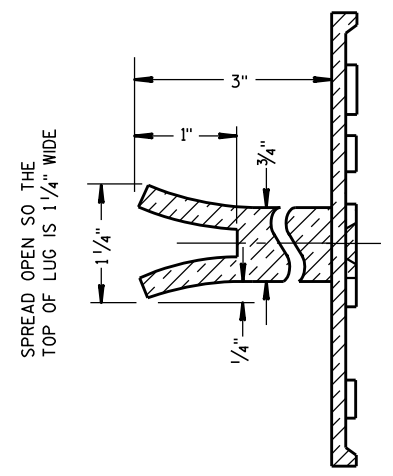
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.



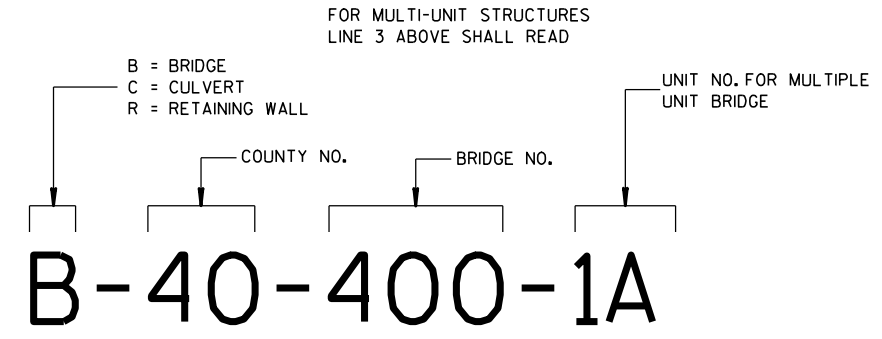
**SECTION A-A**



**ALTERNATE LUG**

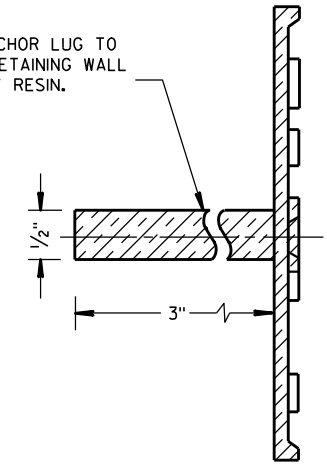
6

6



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.

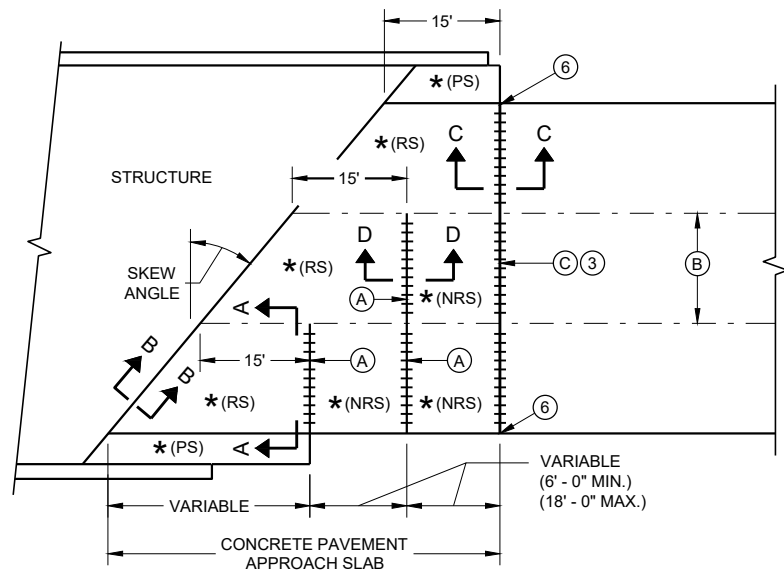


**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

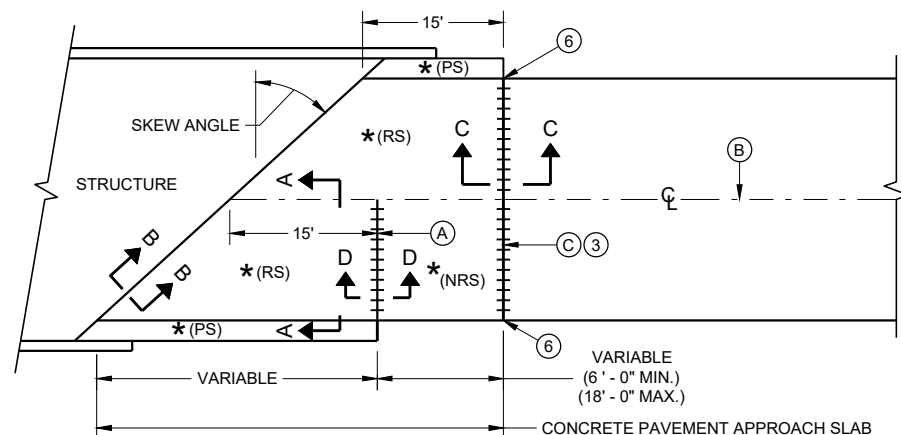
S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

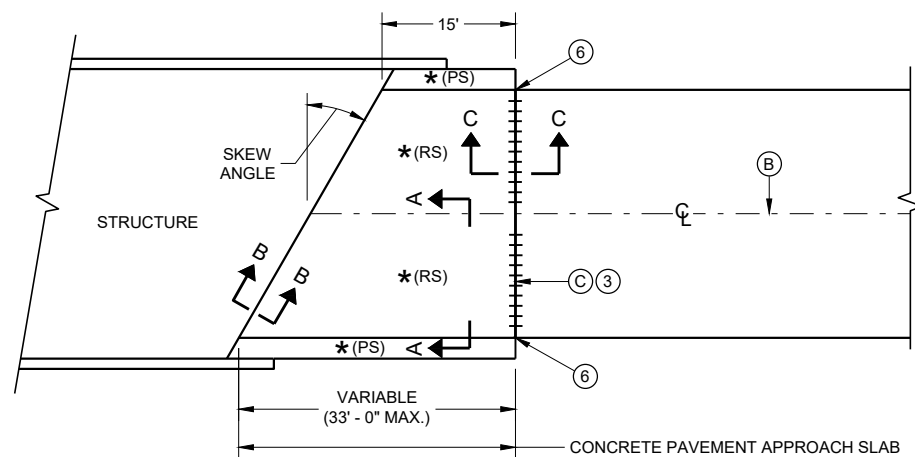
<b>NAME PLATE (STRUCTURES)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	



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



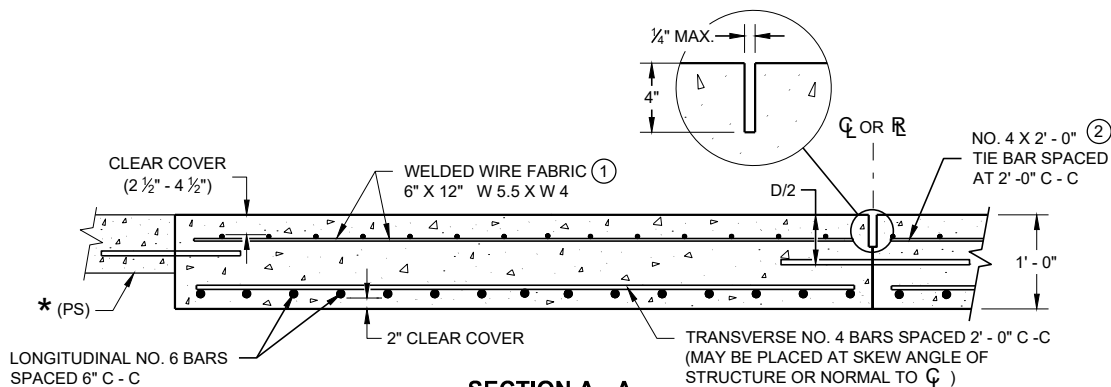
**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**



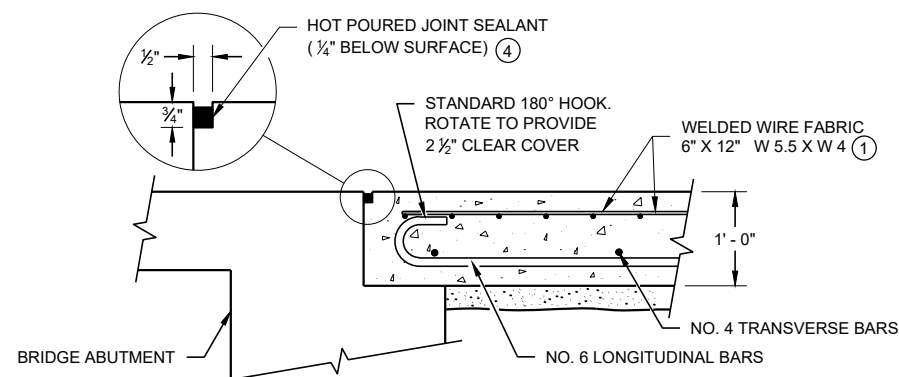
**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')**

**APPROACH SLAB AND ADJACENT PAVEMENT**

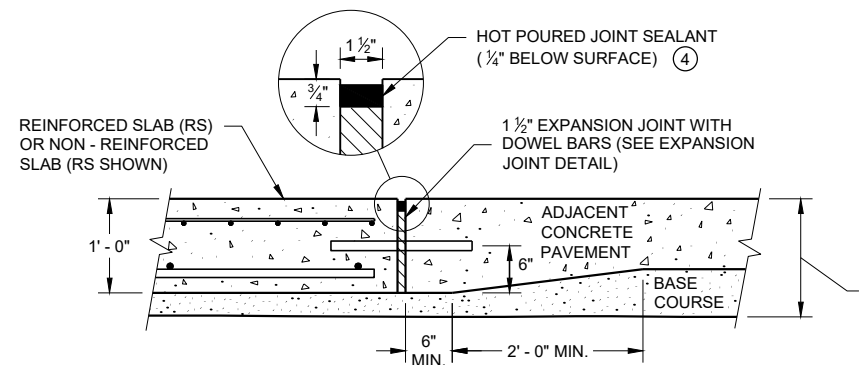
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- \* (NRS) = NON - REINFORCED CONCRETE SLAB
- \*\*\* STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A  
REINFORCEMENT POSITIONING DETAIL**



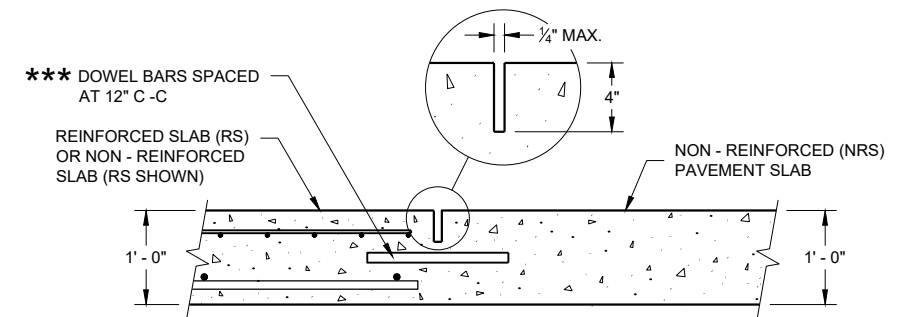
**SECTION B - B  
BEND DETAIL  
BOTTOM REINFORCEMENT**



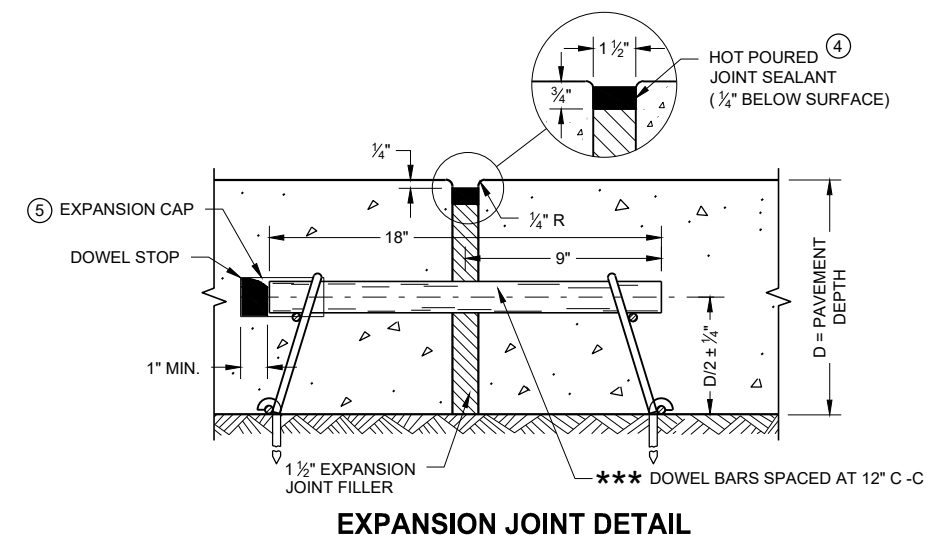
**SECTION C - C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**

**GENERAL NOTES**

- THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.
- TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.
- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
  - ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
  - ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
  - ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
  - ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
  - ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
  - (A) STANDARD CONTRACTION JOINT NORMAL TO C OR R.
  - (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
  - (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO C OR R.



**SECTION D - D  
CONTRACTION JOINT**



**EXPANSION JOINT DETAIL**

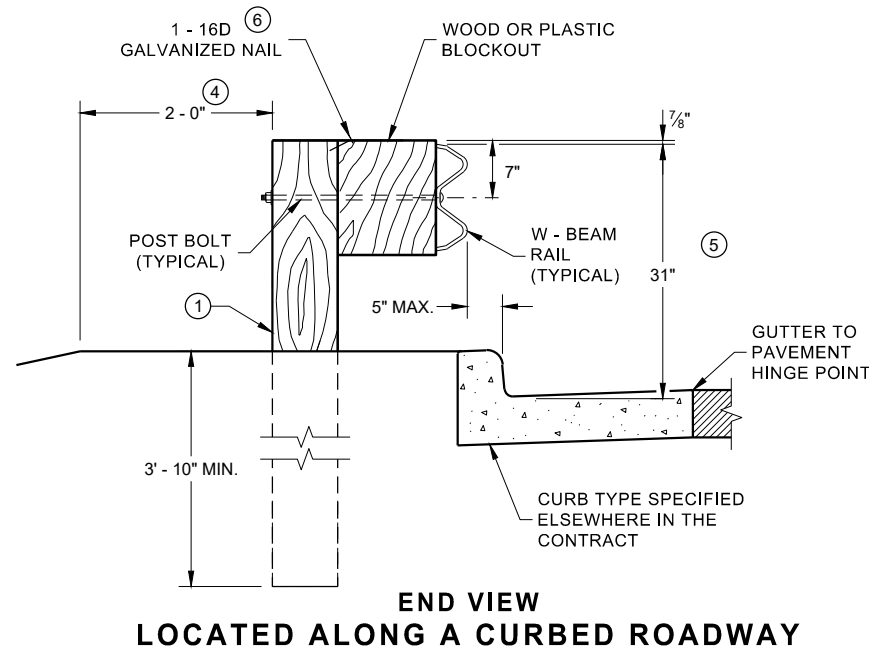
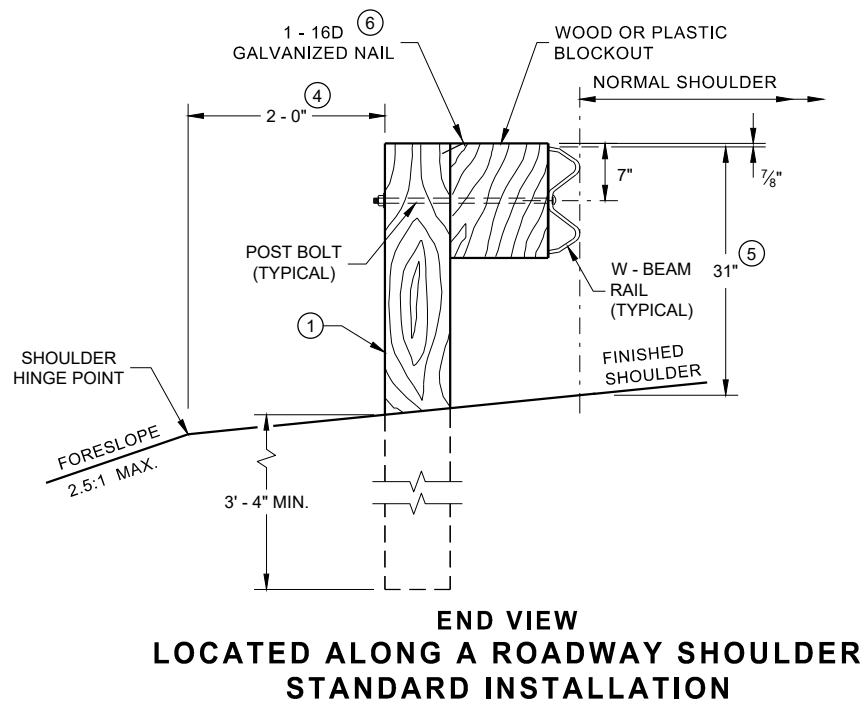
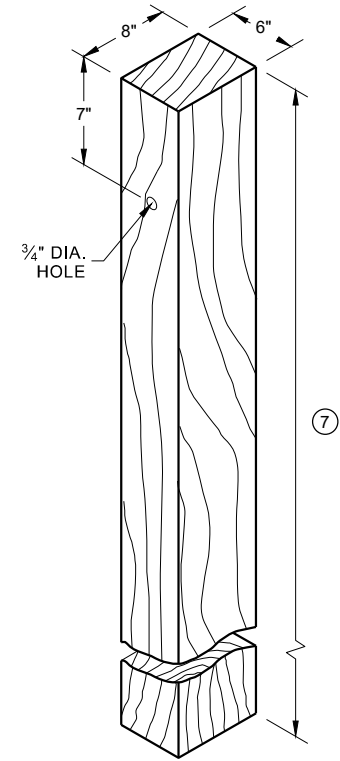
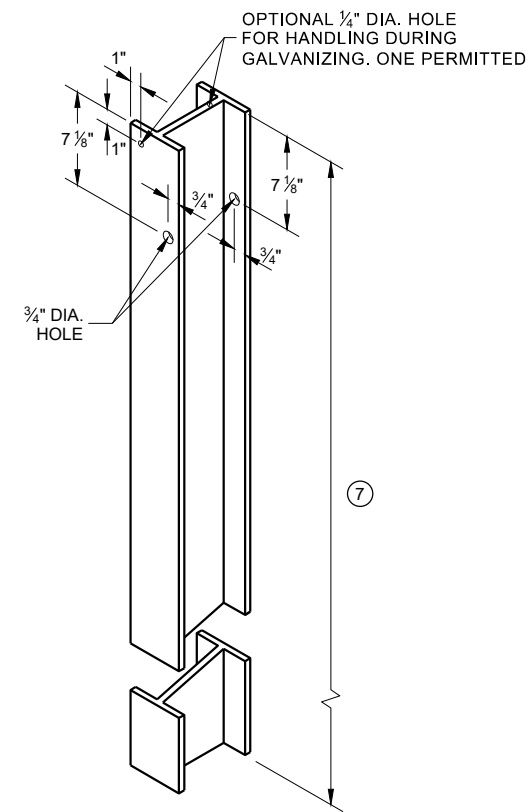
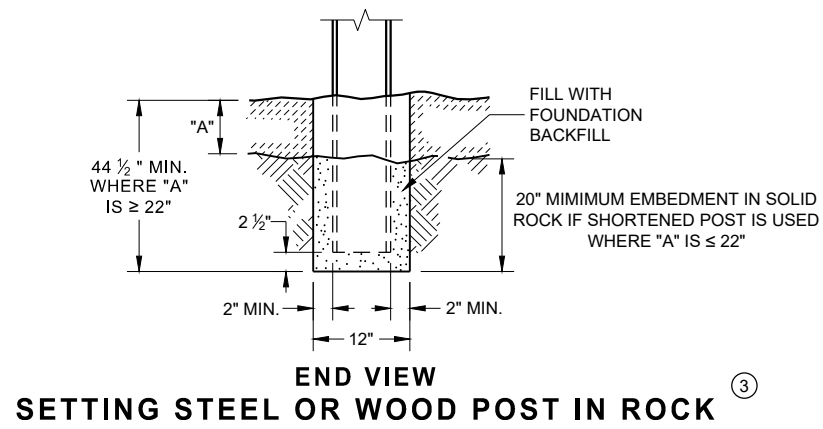
**CONCRETE PAVEMENT  
APPROACH SLAB**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Peter Kemp, P.E.  
DATE DATE PAVEMENT SUPERVISOR

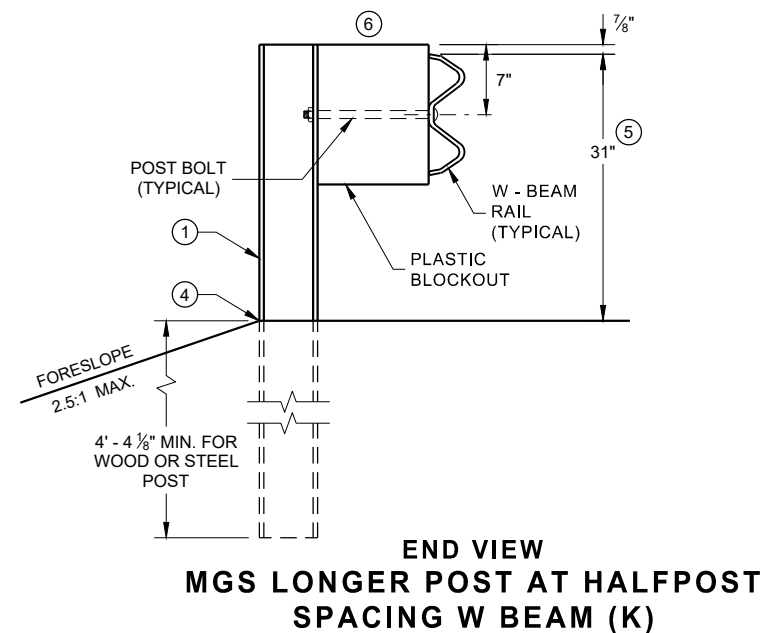
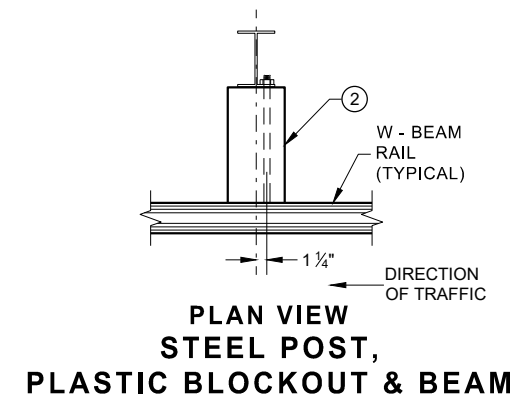
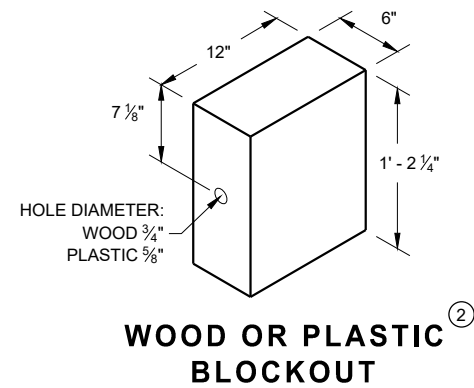
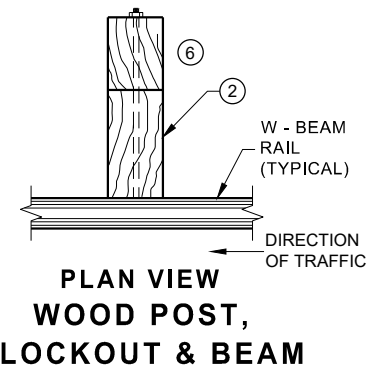
FHWA

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS  $\pm 1"$ . FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



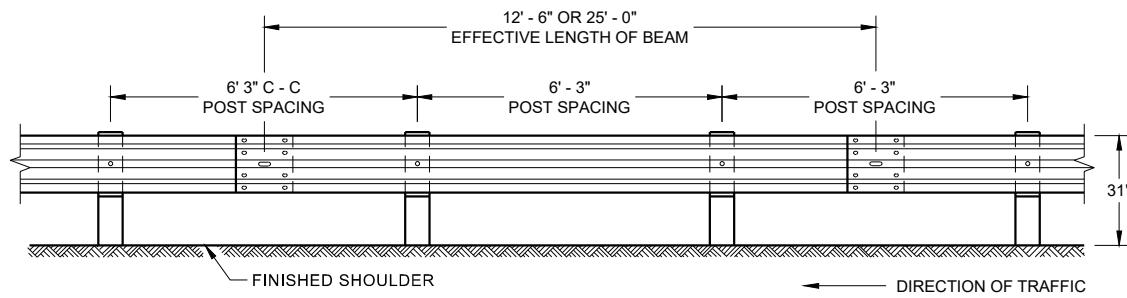
**STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9)**

**WOOD POST (6" X 8") NOMINAL**

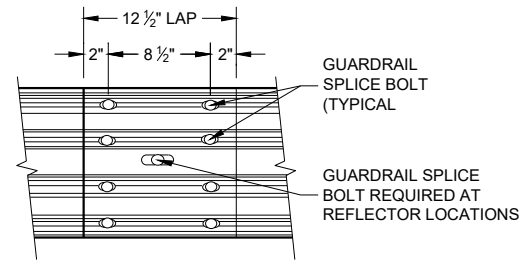


**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



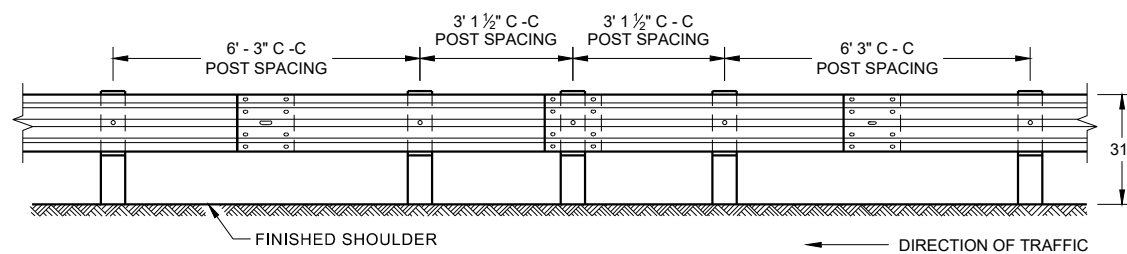
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



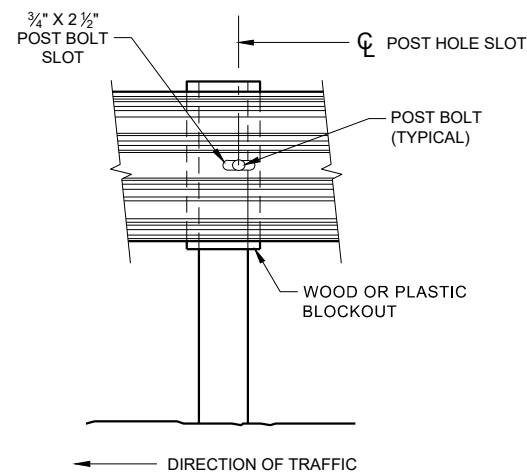
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

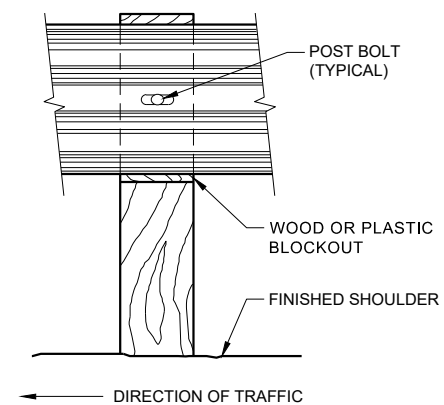
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



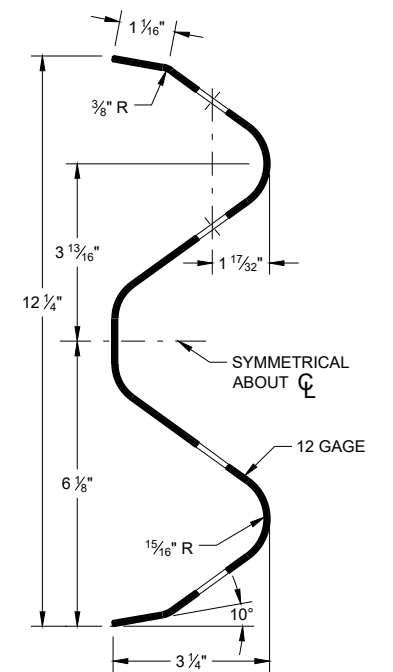
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



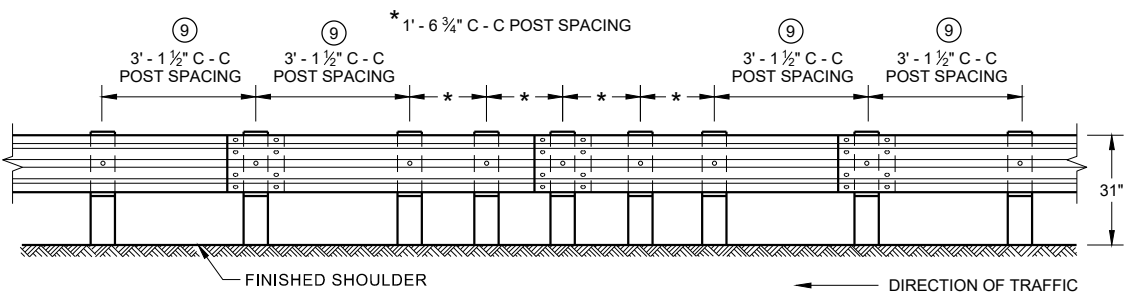
**FRONT VIEW AT STEEL POST**



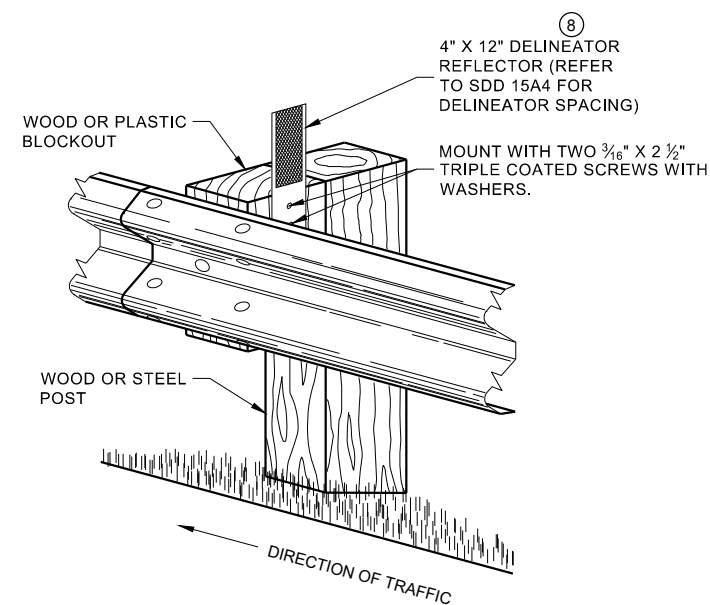
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



**FRONT VIEW  
QUARTER POST SPACING (QS)**



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

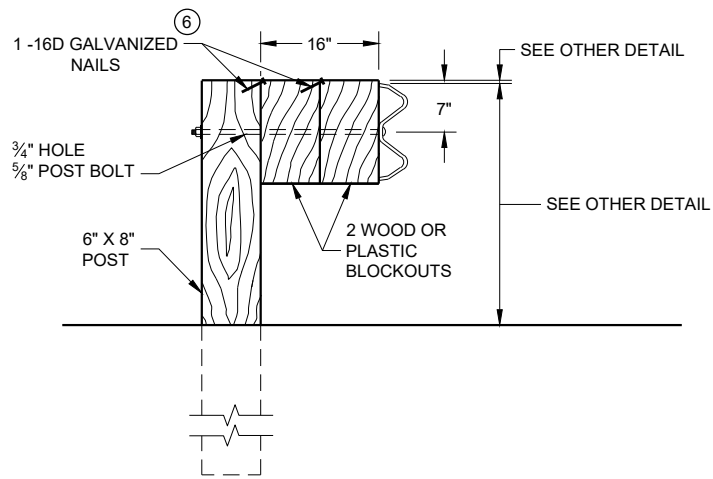
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6

SDD 14B42 - 07b

SDD 14B42 - 07b



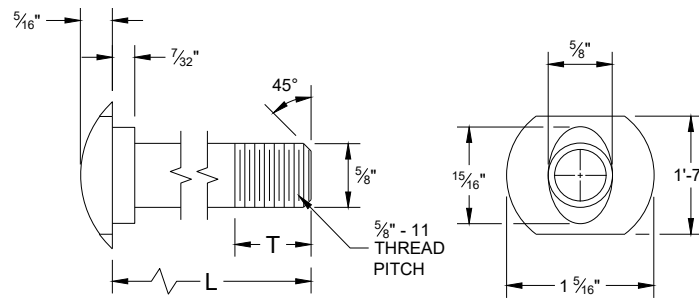


**DETAIL FOR 16" BLOCKOUT DEPTH**

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

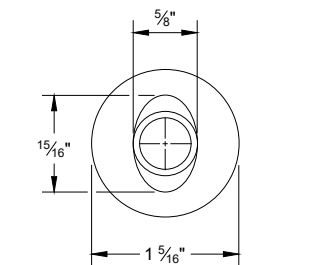
**NOTE:**

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

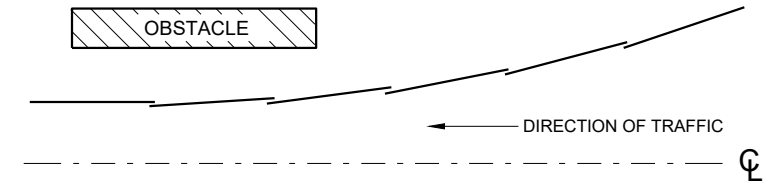


**POST BOLT TABLE**

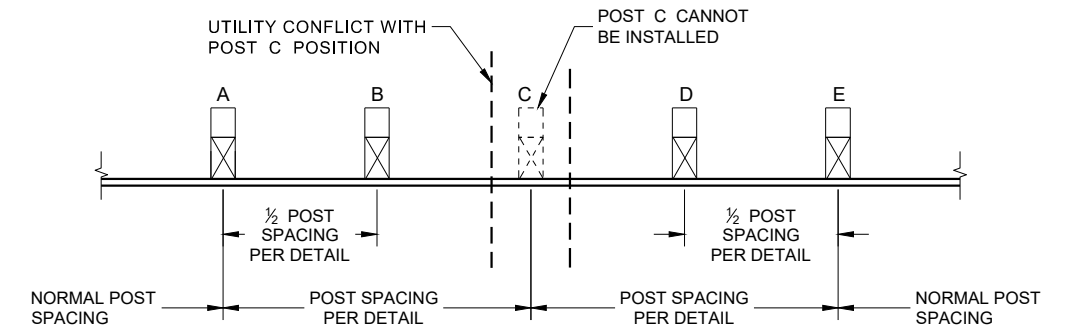
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



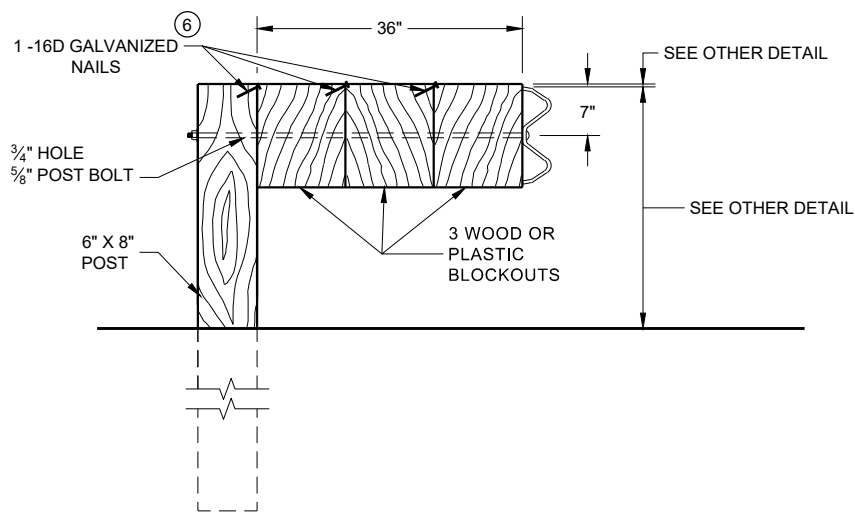
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

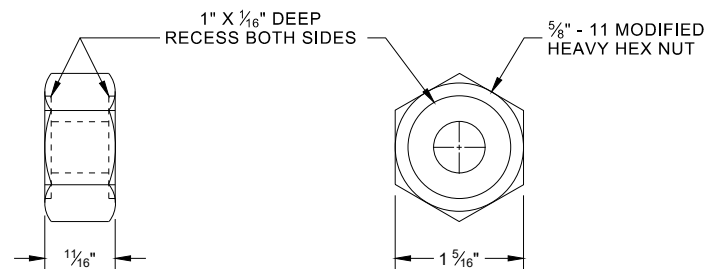


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

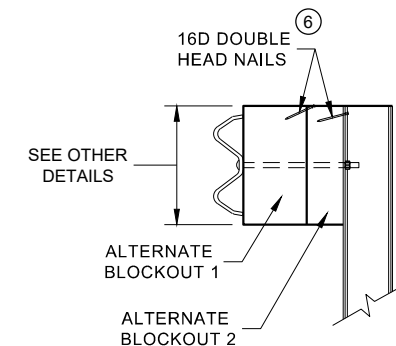


**DETAIL FOR 36" BLOCKOUT DEPTH**

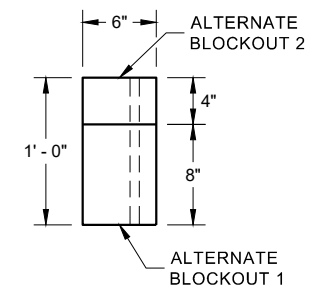
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



**POST BOLT, SPLICE BOLT  
AND RECESS NUT**



**SIDE VIEW**



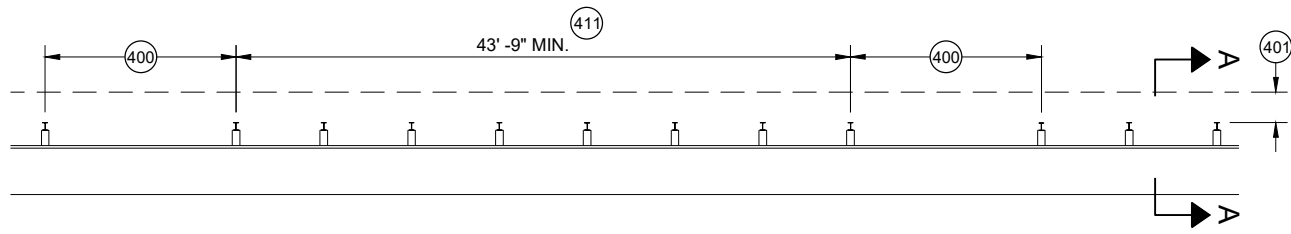
**PLAN VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

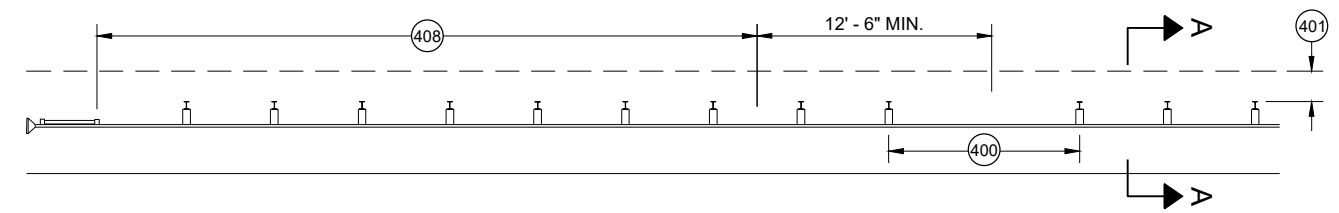
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

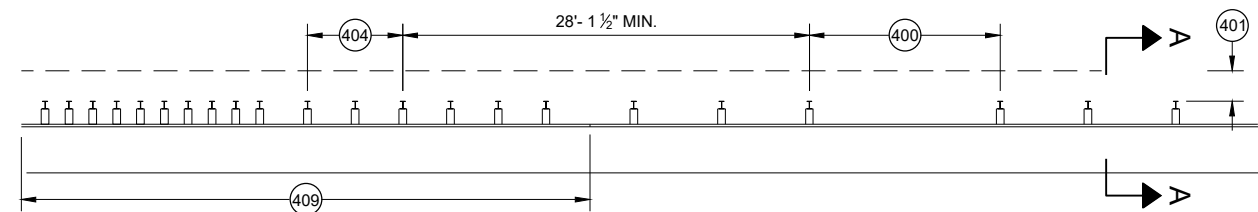
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



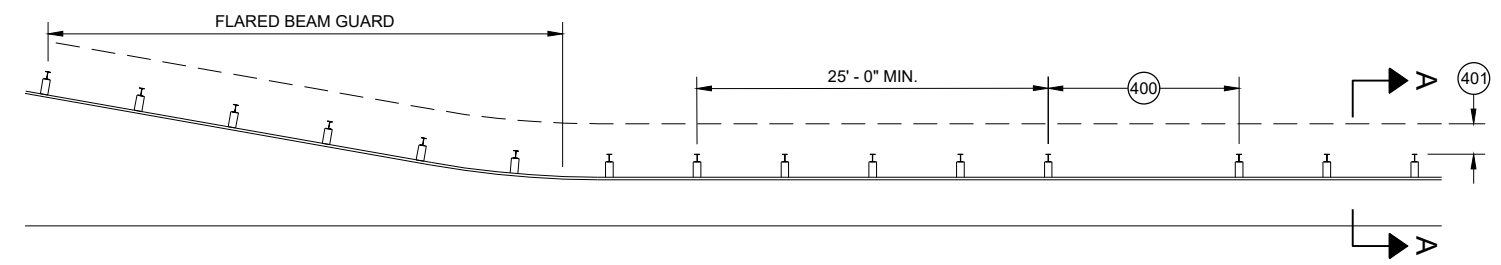
**MISSING POST IN MGS GUARDRAIL**



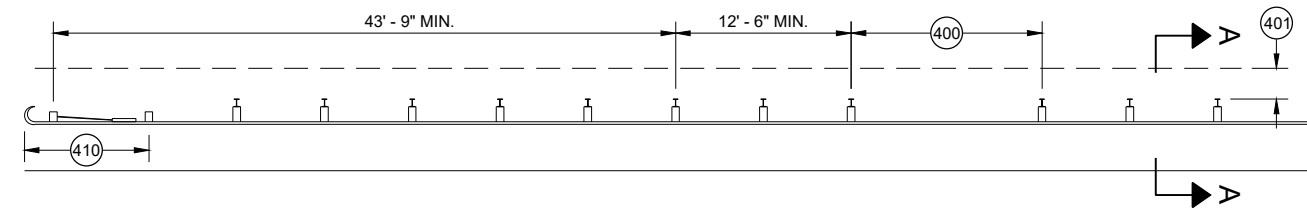
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



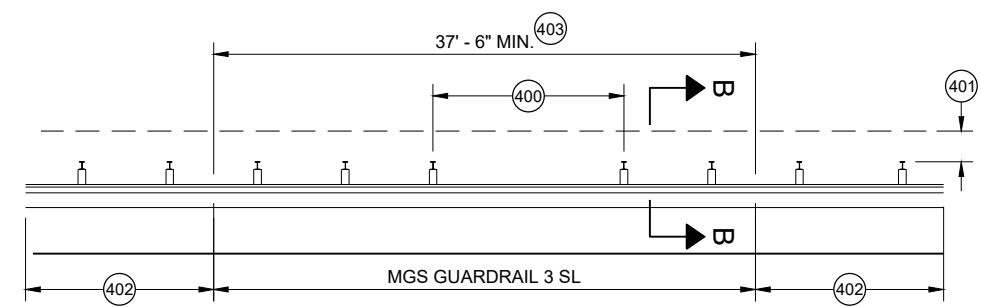
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

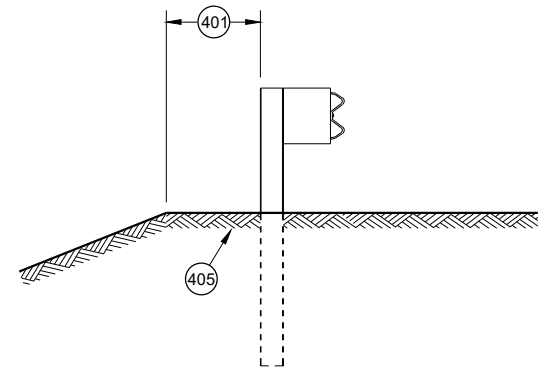


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

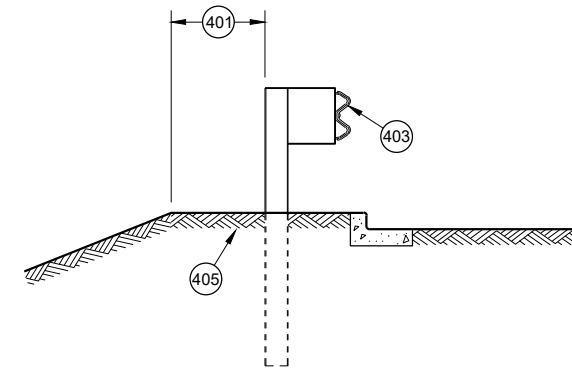


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

- 400 MAX SPAN 12' - 6"
- 401 2' MIN.
- 402 MGS GUARDRAIL 3
- 403 NESTING BEAM GUARD
- 404 ASYMMETRIC TRANSITION
- 405 SOIL WELL DRAINED AND COMPACTED
- 406 SEE OTHER DRAWINGS IN THIS SDD
- 407 SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- 408 SEE SDD 14B44
- 409 SEE SDD 14B45
- 410 SEE SDD 14B47
- 411 MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



**SECTION A - A**



**SECTION B - B**

<b>MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	

**GENERAL NOTES**

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
  - (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
  - (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
  - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
  - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

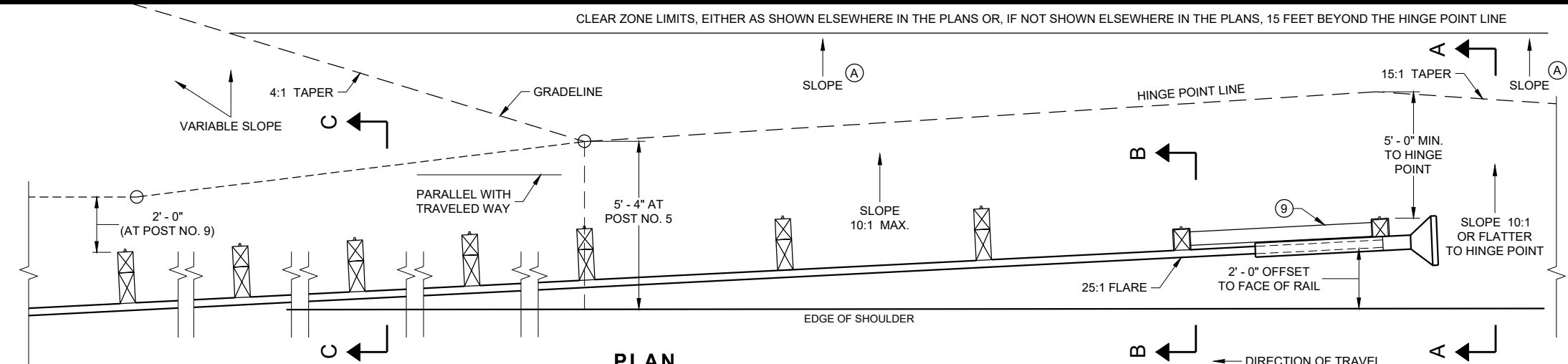
SEE SDD 14B42 FOR MORE INFORMATION.

\* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

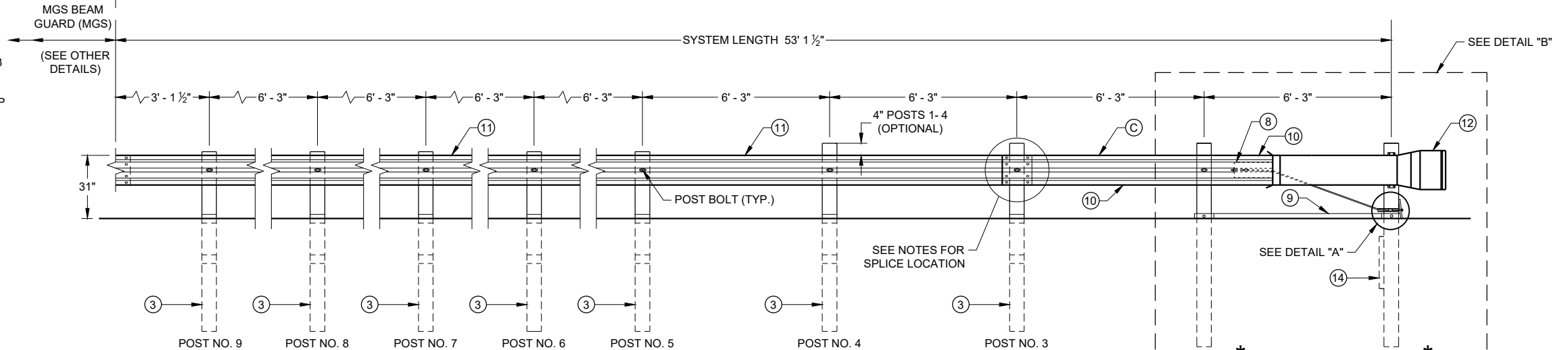
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

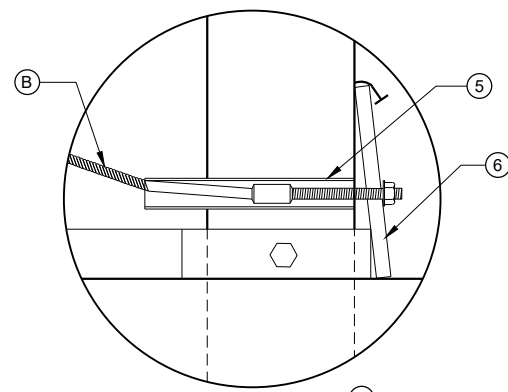
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



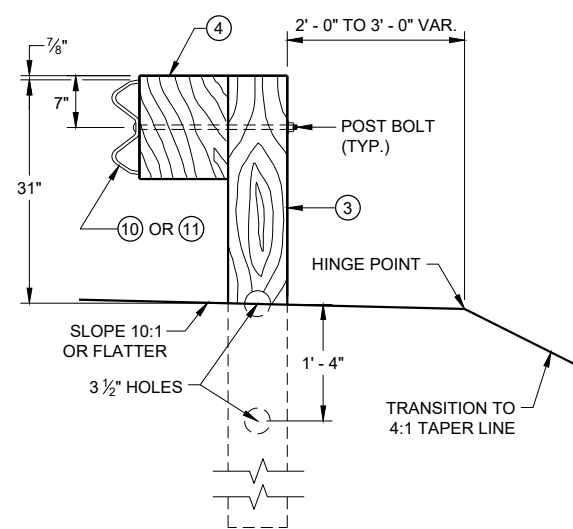
**PLAN**



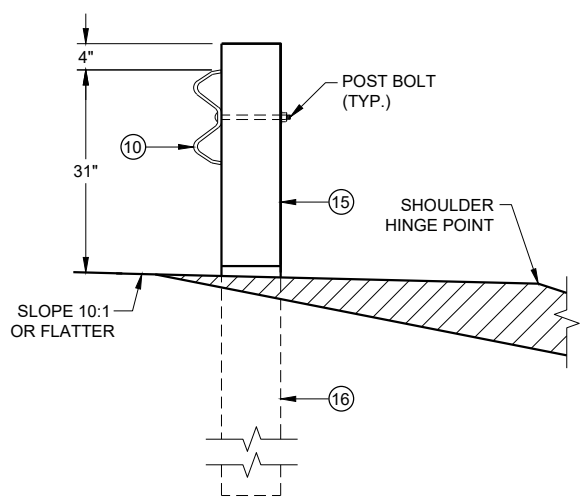
**ELEVATION**



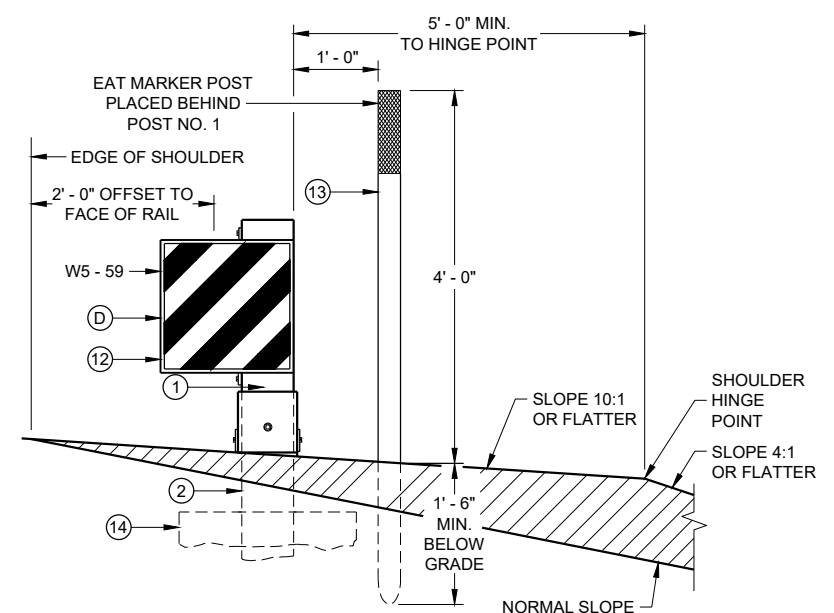
**DETAIL "A"**



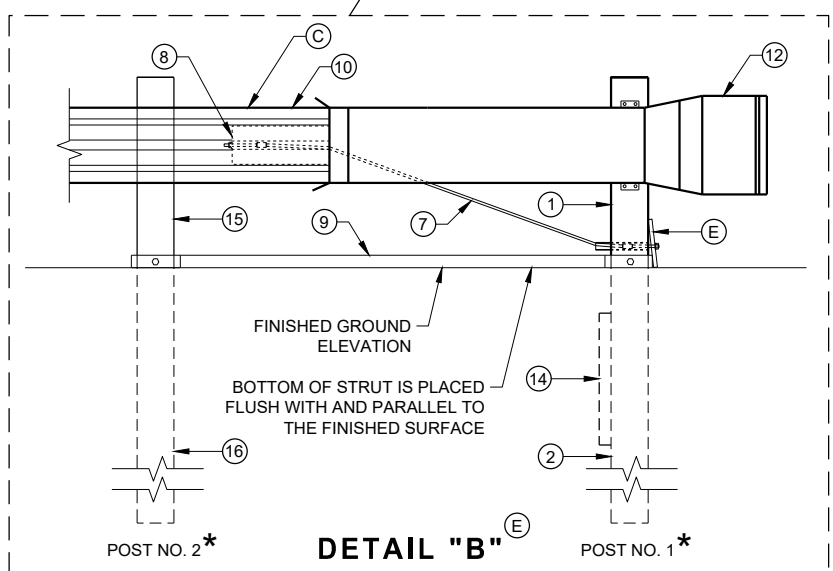
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B  
TYPICAL AT POST NO. 2\***



**SECTION A - A  
TYPICAL AT POST NO. 1\***



**DETAIL "B"**

**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

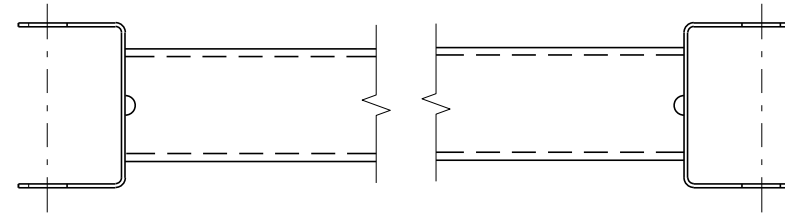
6

SDD 14B44 - 04a

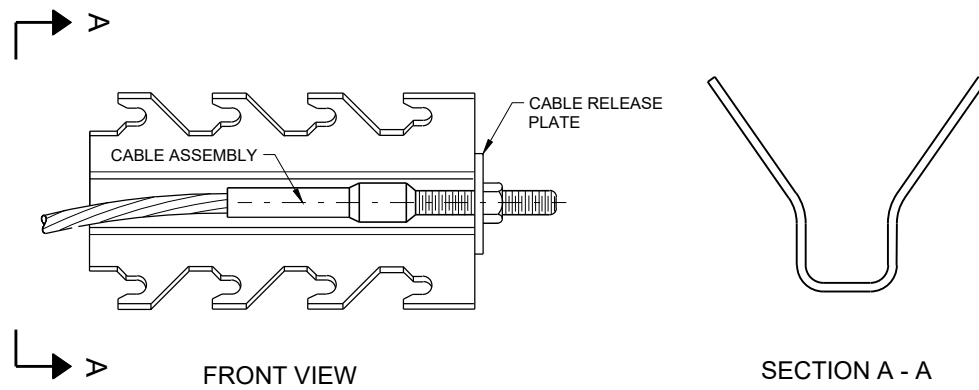
SDD 14B44 - 04a

**BILL OF MATERIALS**

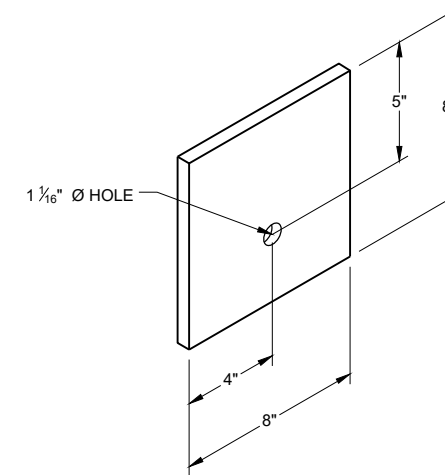
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



**GENERIC GROUND STRUT** ⑨ ⑤



**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



**BEARING PLATE** ⑥ ⑤

6

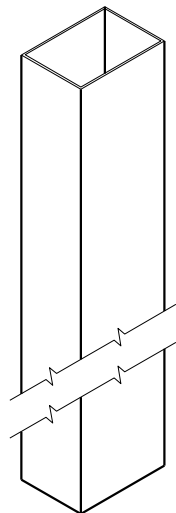
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SDD 14B44 - 04b

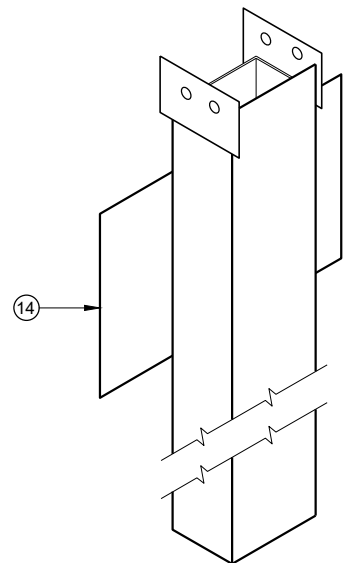
SDD 14B44 - 04b

**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

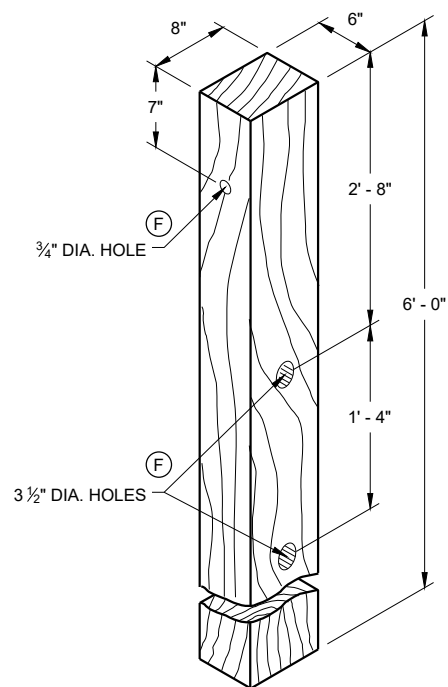
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



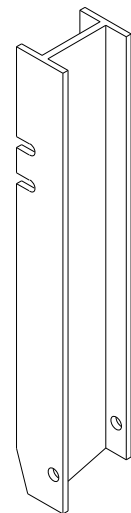
UPPER POST NO. 1 <sup>(1)</sup> (E)



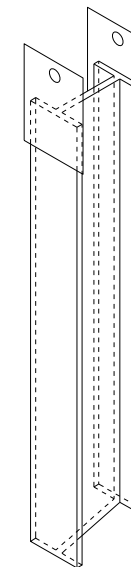
LOWER POST NO. 1 <sup>(2)</sup> (E)



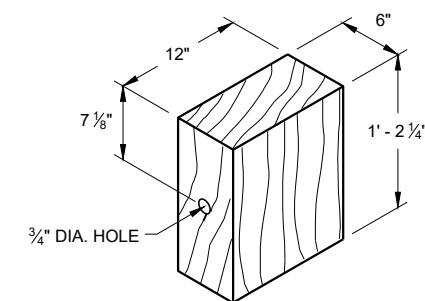
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



UPPER POST NO. 2 <sup>(15)</sup> (E)

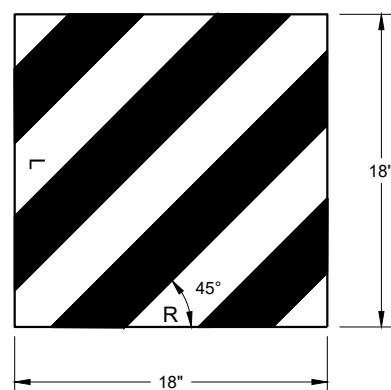


LOWER POST NO. 2 <sup>(16)</sup> (E)



WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

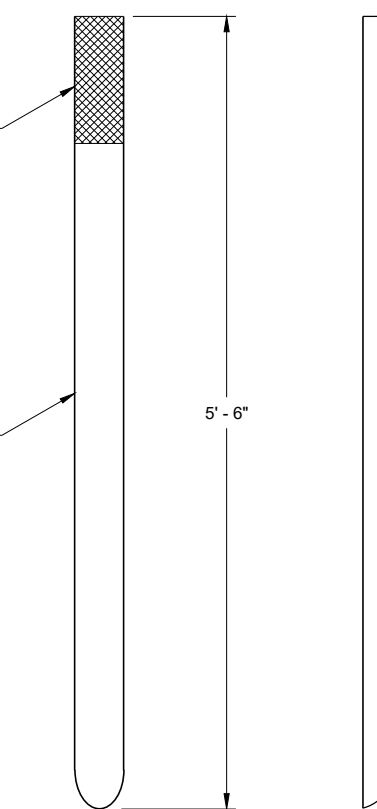
6



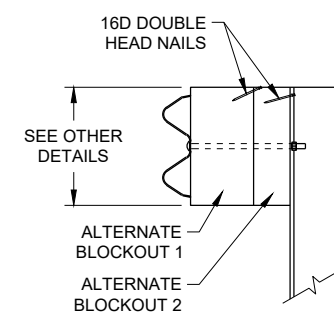
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

TYPE H  
YELLOW REFLECTIVE  
SHEETING 3" X 9".  
SEE STANDARD  
SPECIFICATION 637.

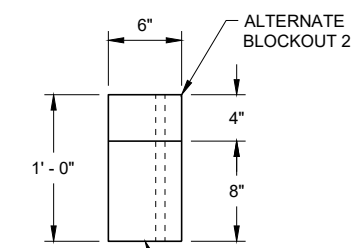
E.A.T. MARKER  
POST (YELLOW)



FRONT VIEW SIDE VIEW  
E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

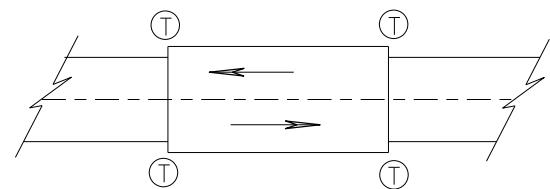
SDD 14B44 - 04c

**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

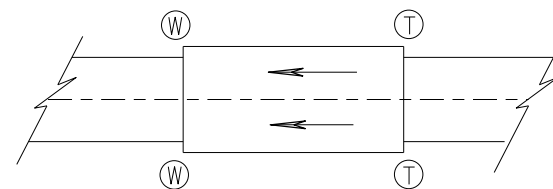
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

FHWA



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

**GENERAL NOTES**

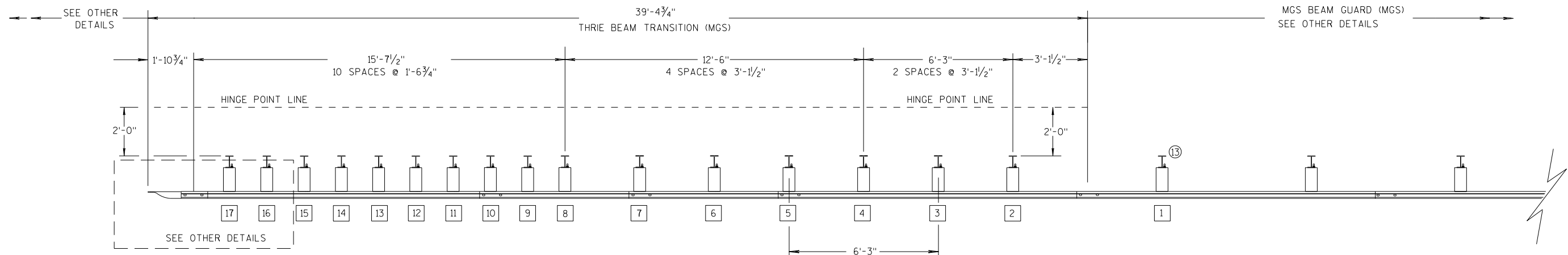
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

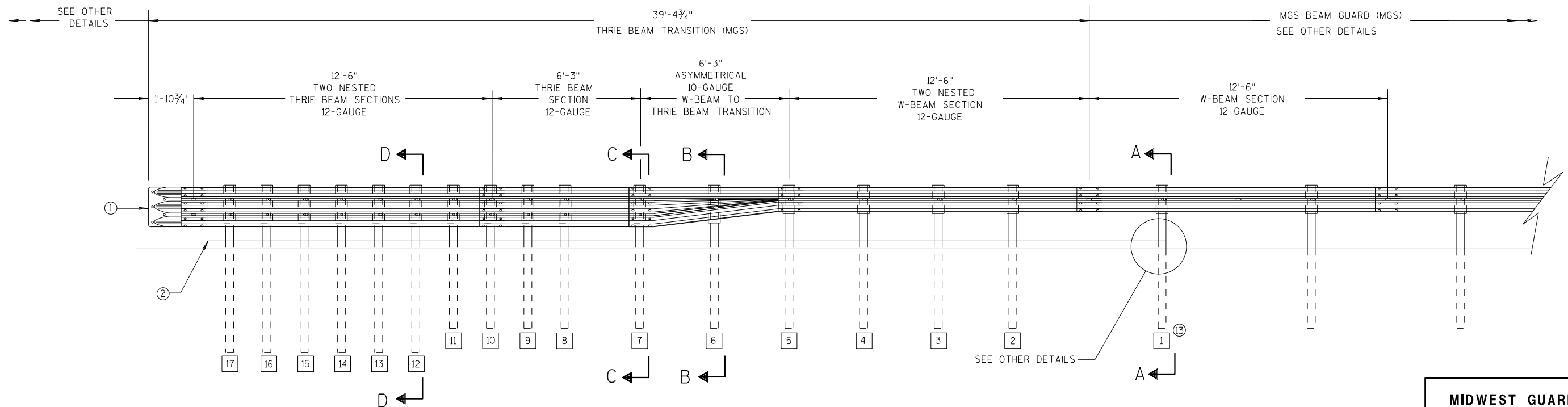
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

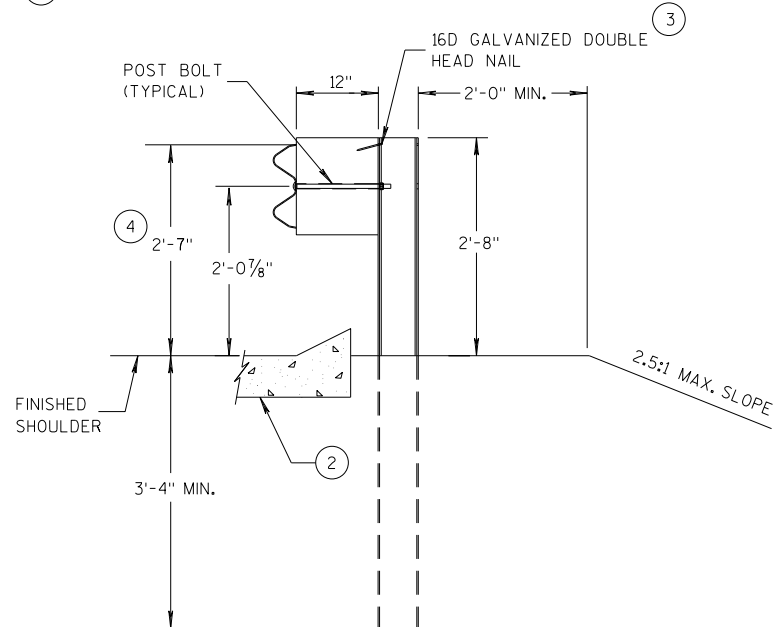
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

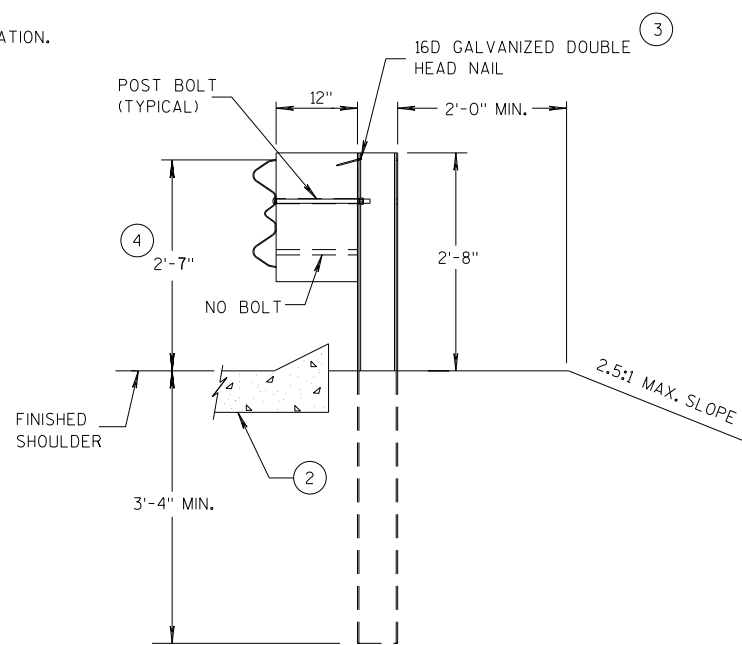
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

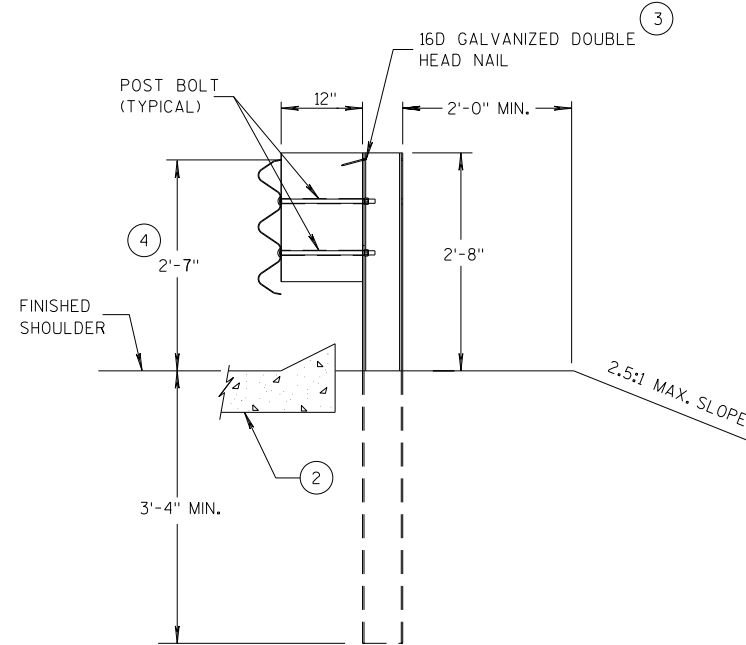
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



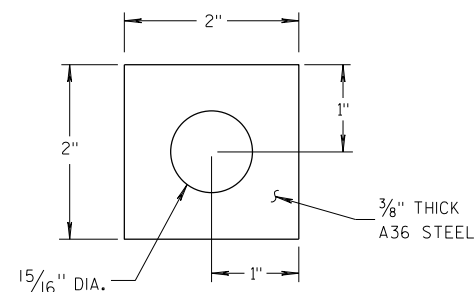
**SECTION A-A  
POSTS 1-5**



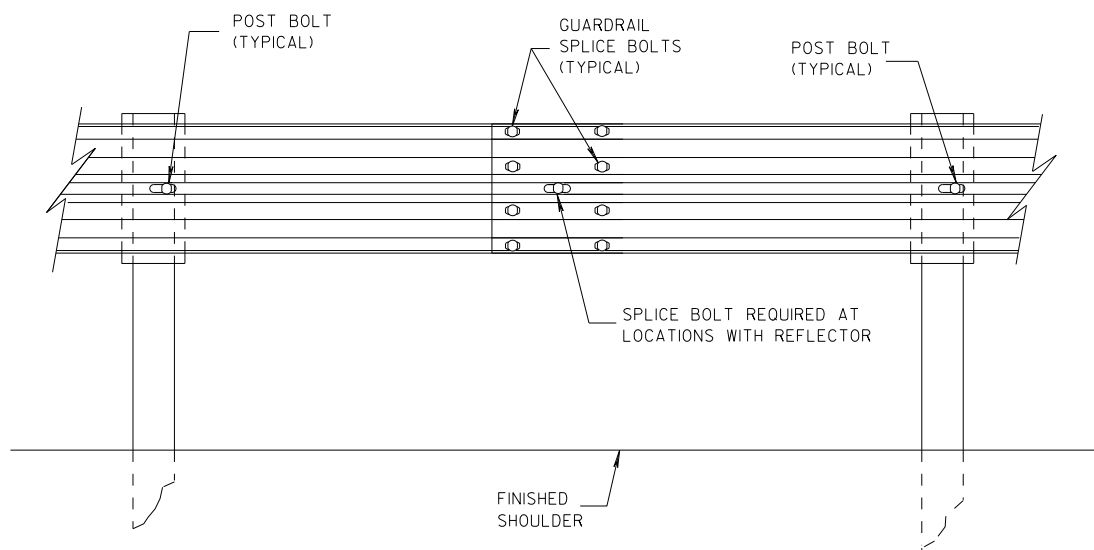
**SECTION B-B  
POST 6**



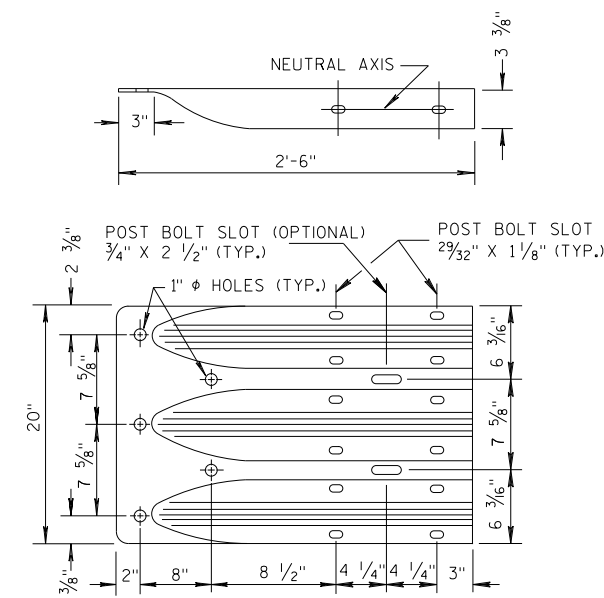
**SECTION C-C  
POSTS 7-11**



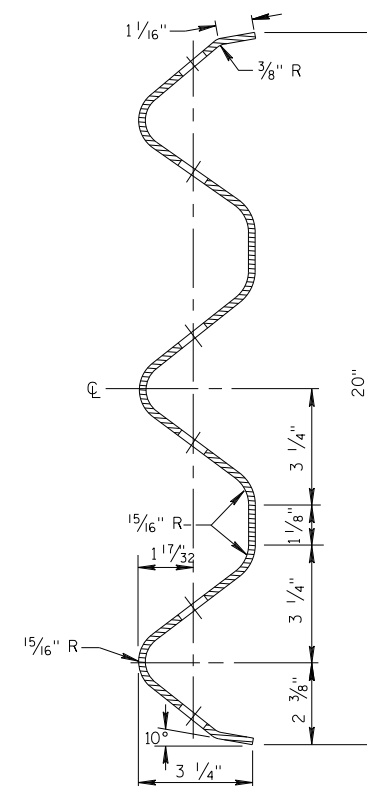
**PLATE WASHER DETAIL**



**SPLICE DETAIL**



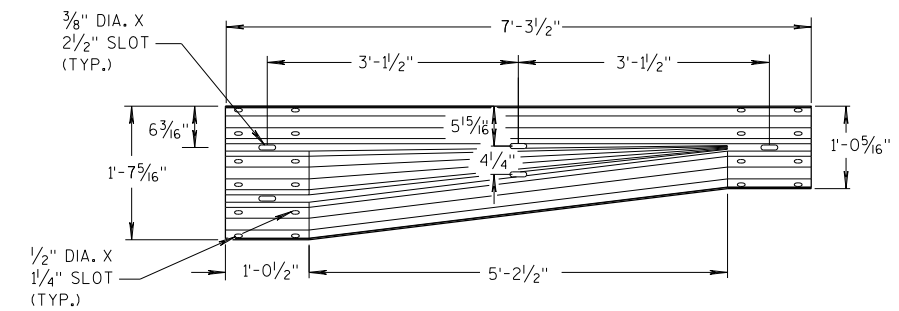
**THRIE BEAM  
TERMINAL CONNECTOR**



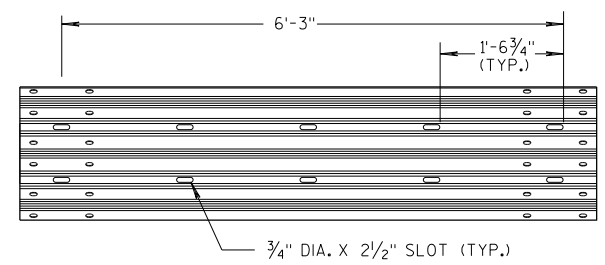
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

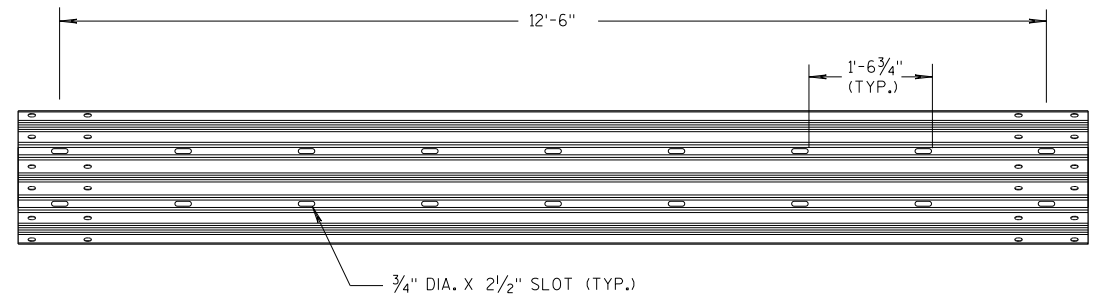
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



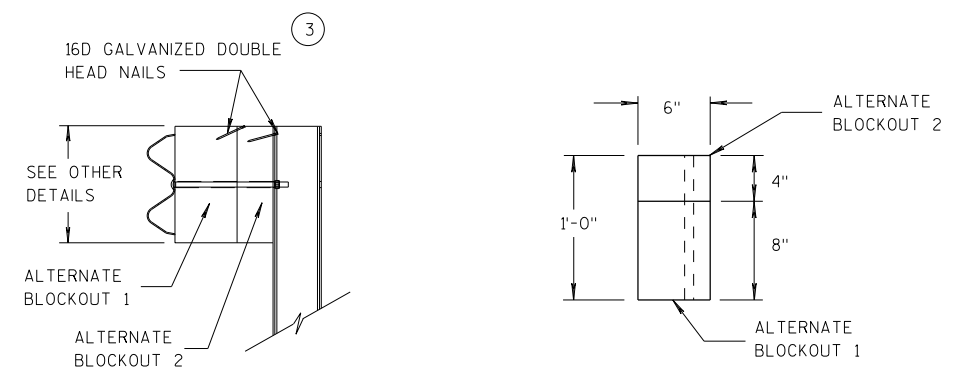
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



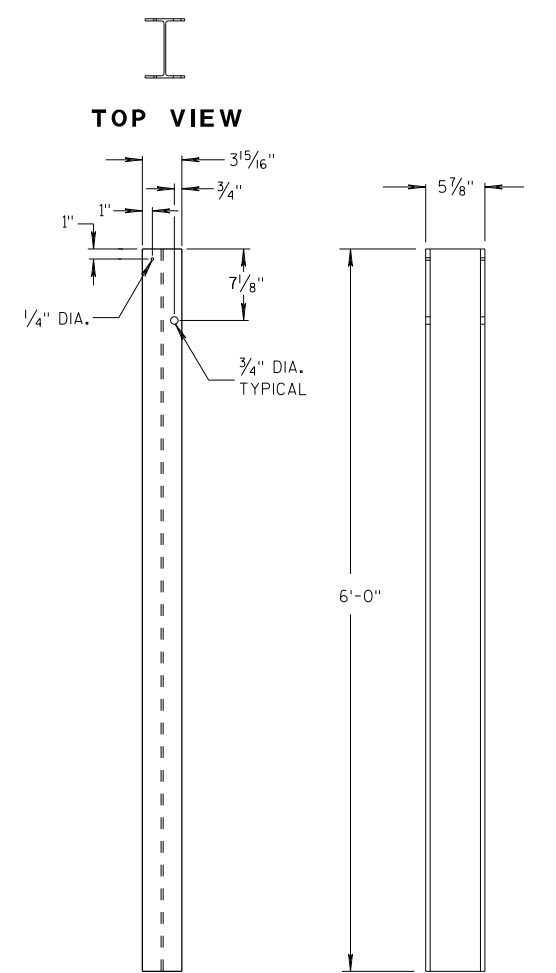
**6'-3\"/>**



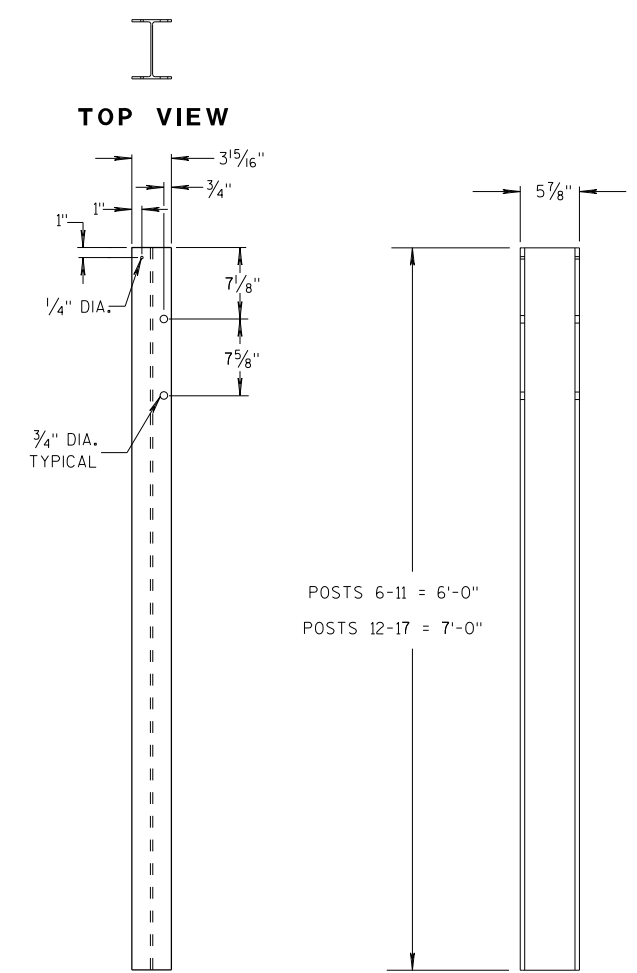
**12'-6\"/>**



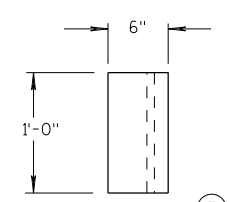
**ALTERNATE WOOD BLOCKOUT DETAIL**



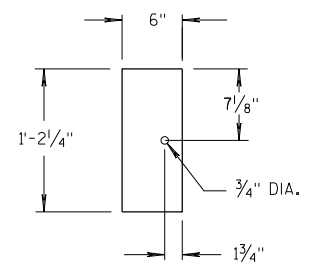
**STEEL POSTS 1-5**



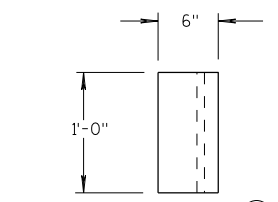
**STEEL POSTS 6-17**



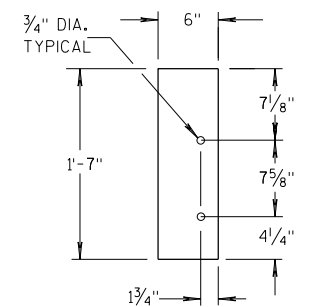
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 6-17**

**GENERAL NOTES**

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

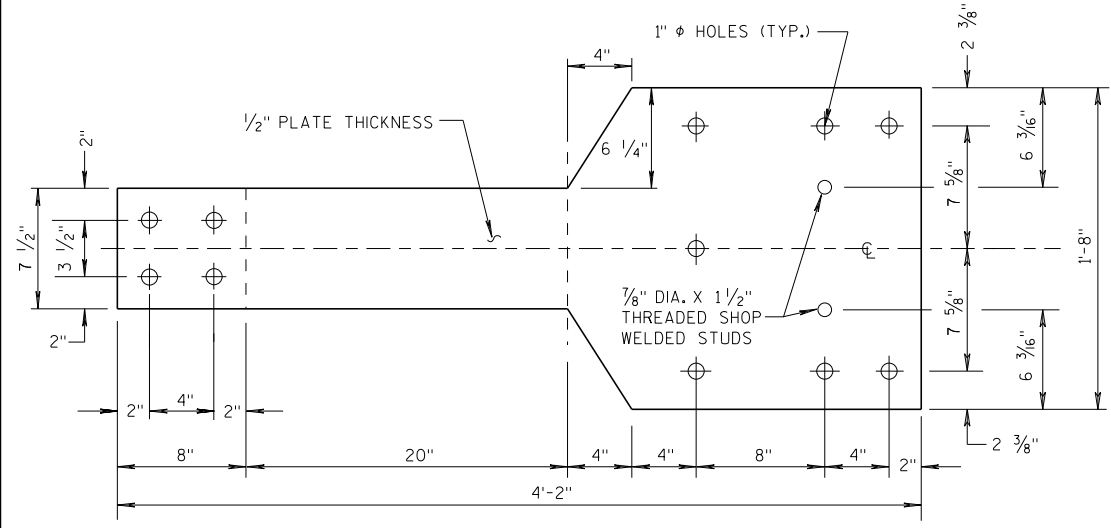
S.D.D. 14 B 45-5c

S.D.D. 14 B 45-5c

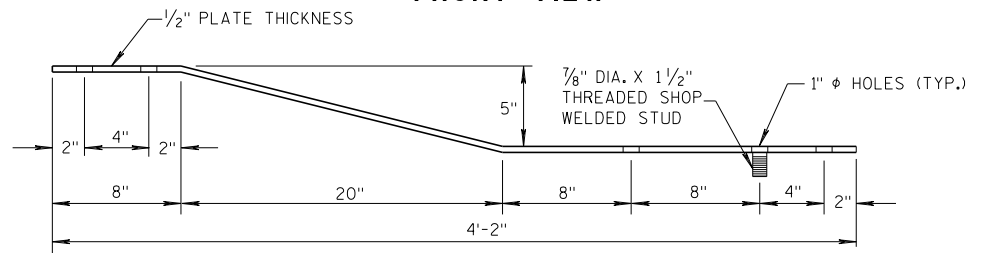


**GENERAL NOTES**

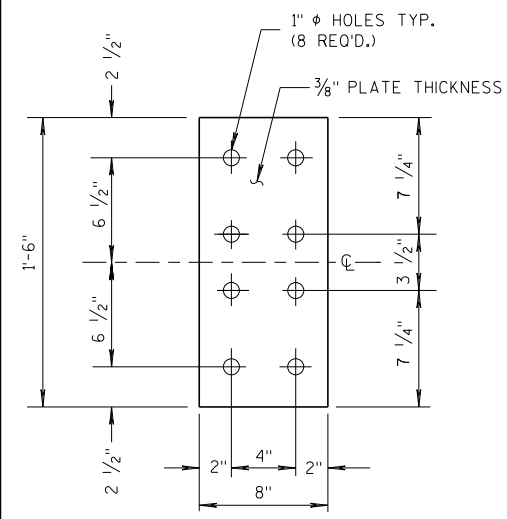
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



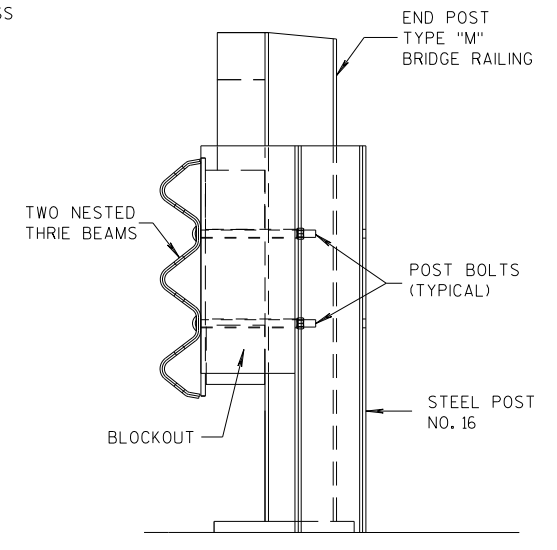
**FRONT VIEW**



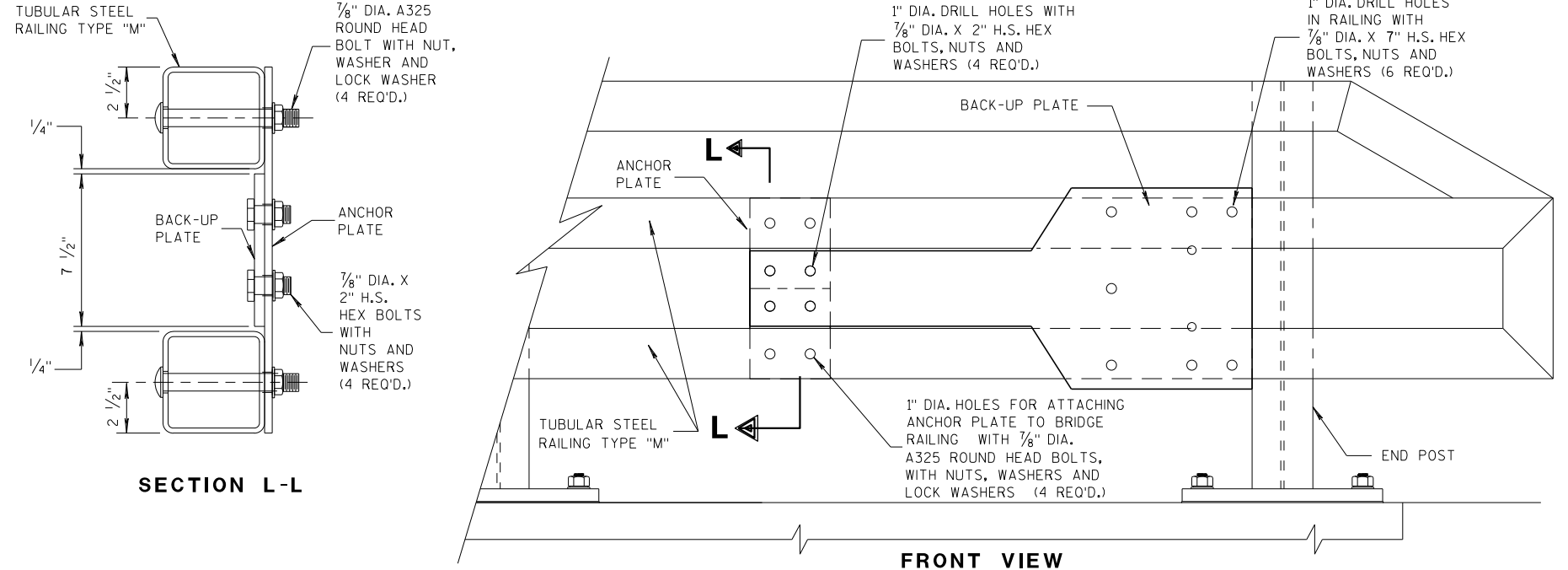
**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**



**FRONT VIEW  
ANCHOR PLATE DETAIL, TYPE "M"**



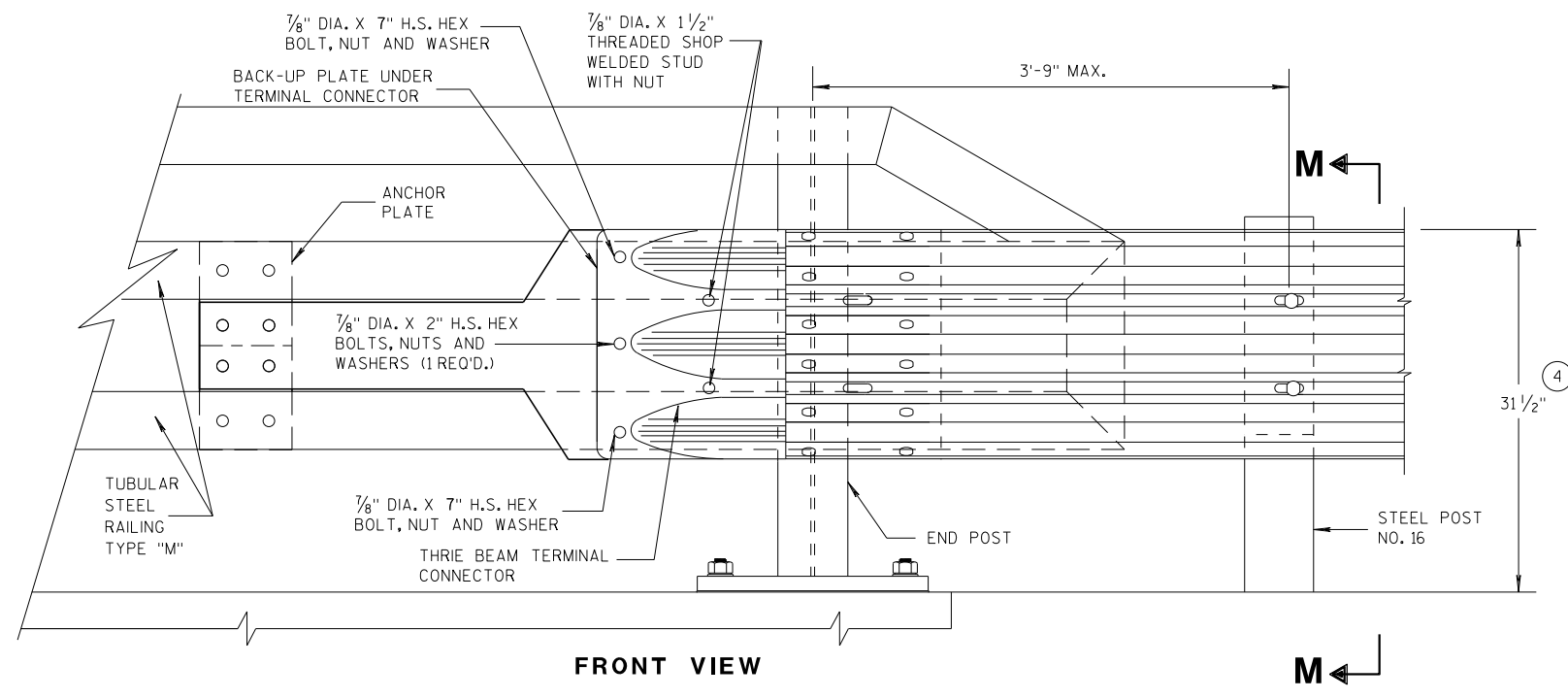
**SECTION M-M**



**SECTION L-L**

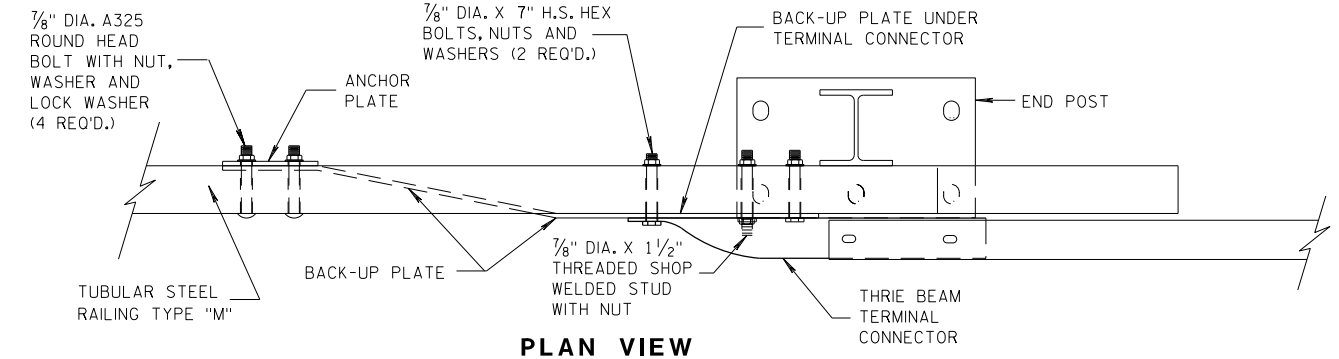
**FRONT VIEW**

**ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"**



**FRONT VIEW**

**M**



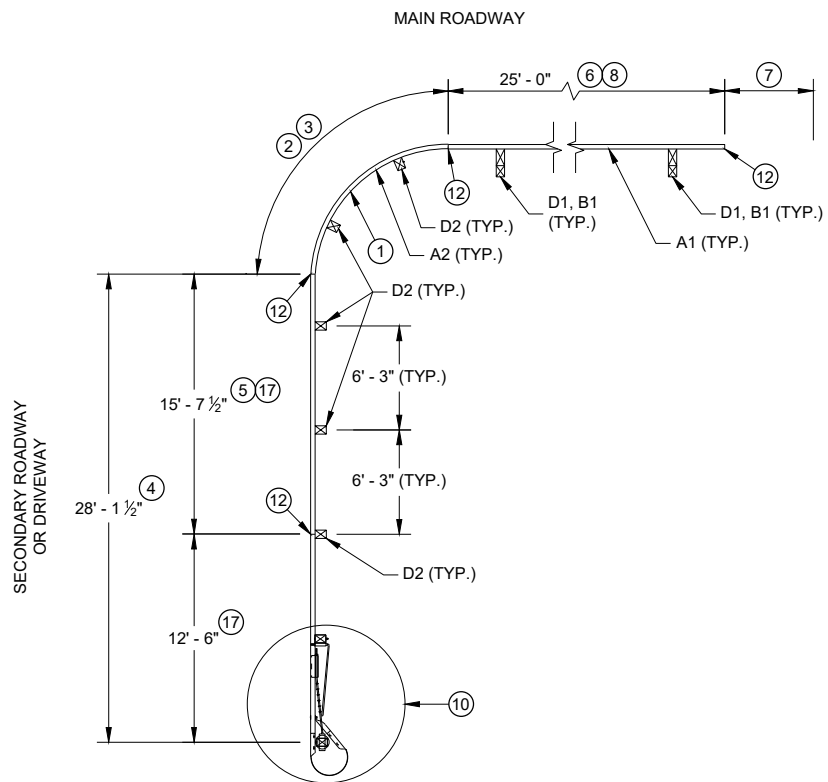
**PLAN VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"**

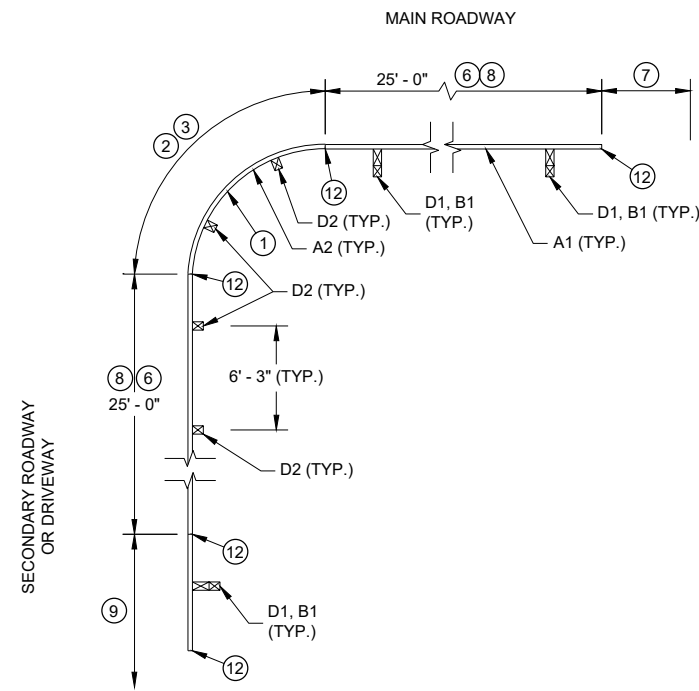
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 07/2018  
DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



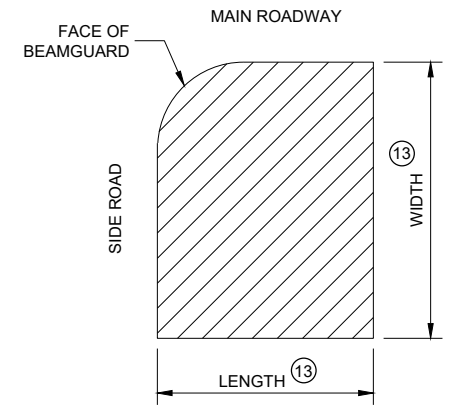
**PLAN VIEW**  
**SHORT RADIUS BEAM GUARD WITH**  
**SHORT RADIUS TERMINAL ON**  
**SECONDARY ROAD OR DRIVEWAY**



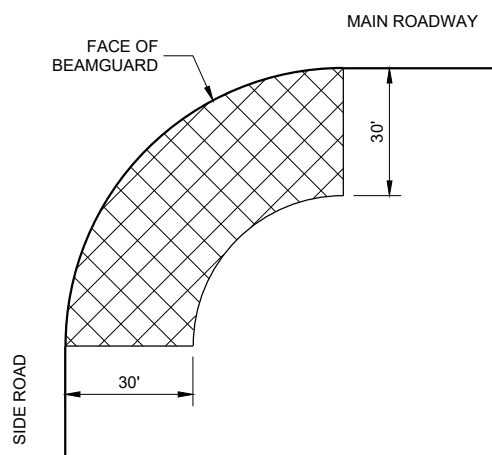
**PLAN VIEW**  
**SHORT RADIUS BEAM GUARD WITH**  
**EAT, ADDITIONAL BEAM GUARD**  
**OR**  
**TRANSITION TO RIGID BARRIER ON**  
**SECONDARY ROAD OR DRIVEWAY**

**TABLE FOR RADIUS OF 32' AND LESS**

RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



**AREA FREE OF FIXED**  
**OBJECTS FOR RADIUS**  
**32' AND LESS**

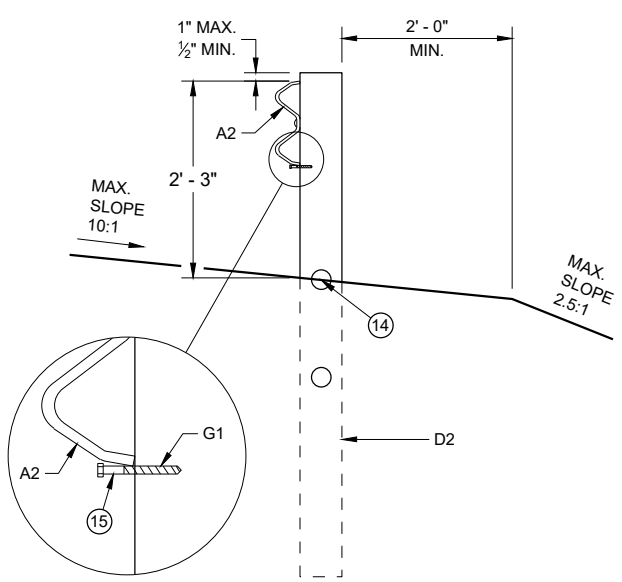


**AREA FREE OF FIXED**  
**OBJECTS FOR RADIUS**  
**GREATER THAN 32'**

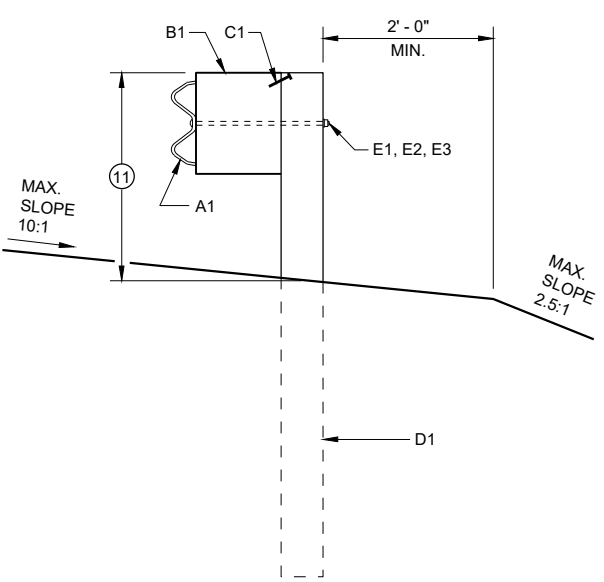
**GENERAL NOTES**

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

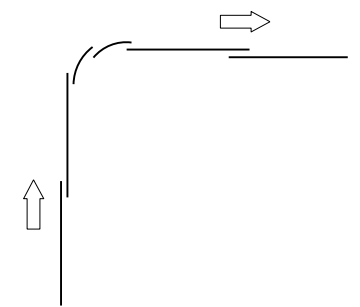
- ① RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- ② CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- ③ WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- ④ MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- ⑤ ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- ⑥ MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- ⑦ BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- ⑧ TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- ⑨ ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- ⑩ SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- ⑪ HEIGHT VARIES. SEE NOTE ⑧ AND ⑧.
- ⑫ BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- ⑬ SEE TABLE FOR VALUES.
- ⑭ MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- ⑮ DRILL POST 1 5/8" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- ⑯ SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- ⑰ TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).



**CONTROLLED RELEASE**  
**TERMINAL POST (CRT) IN RADIUS**

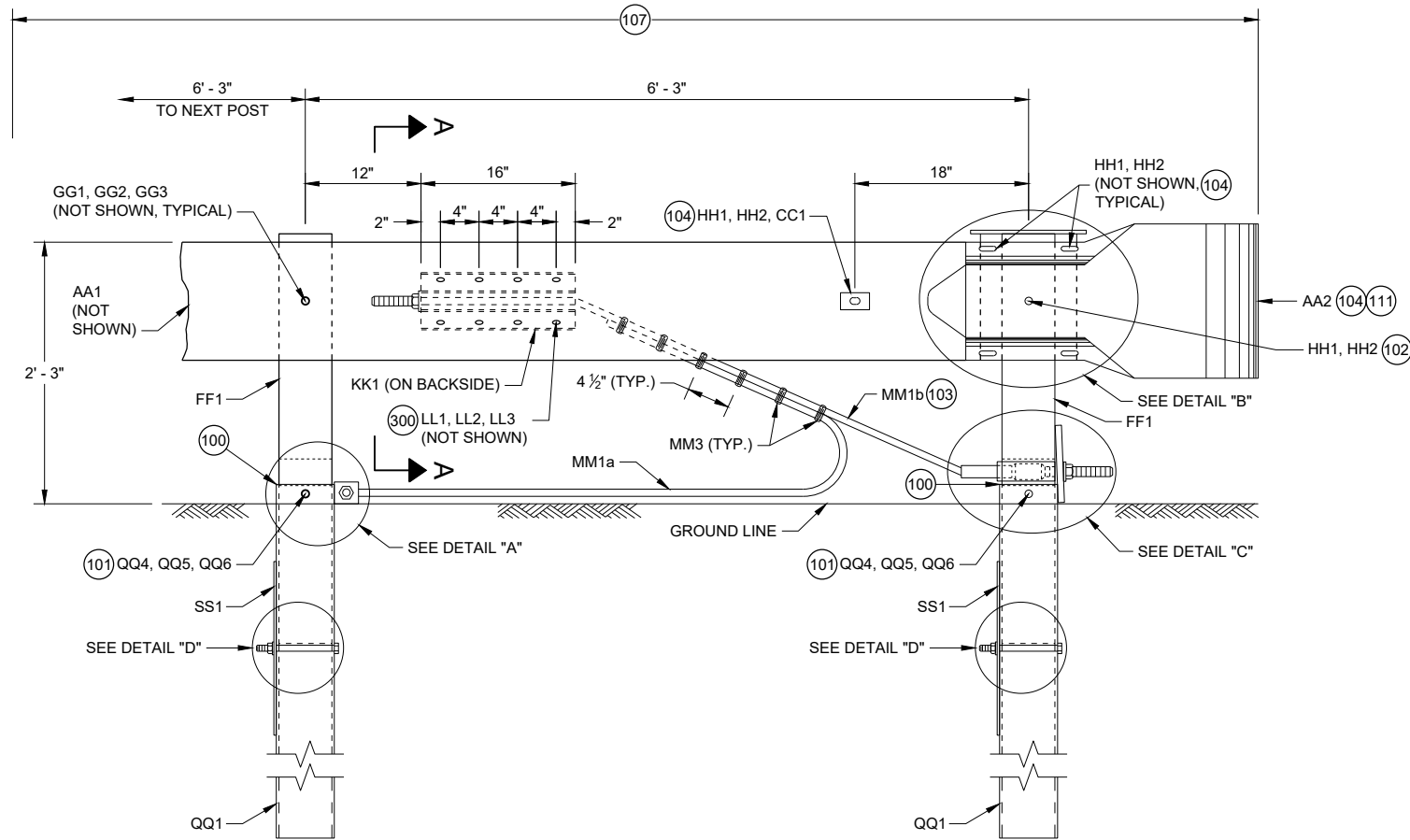


**BEAM GUARD POSTS**  
**IN HEIGHT TRANSITION**

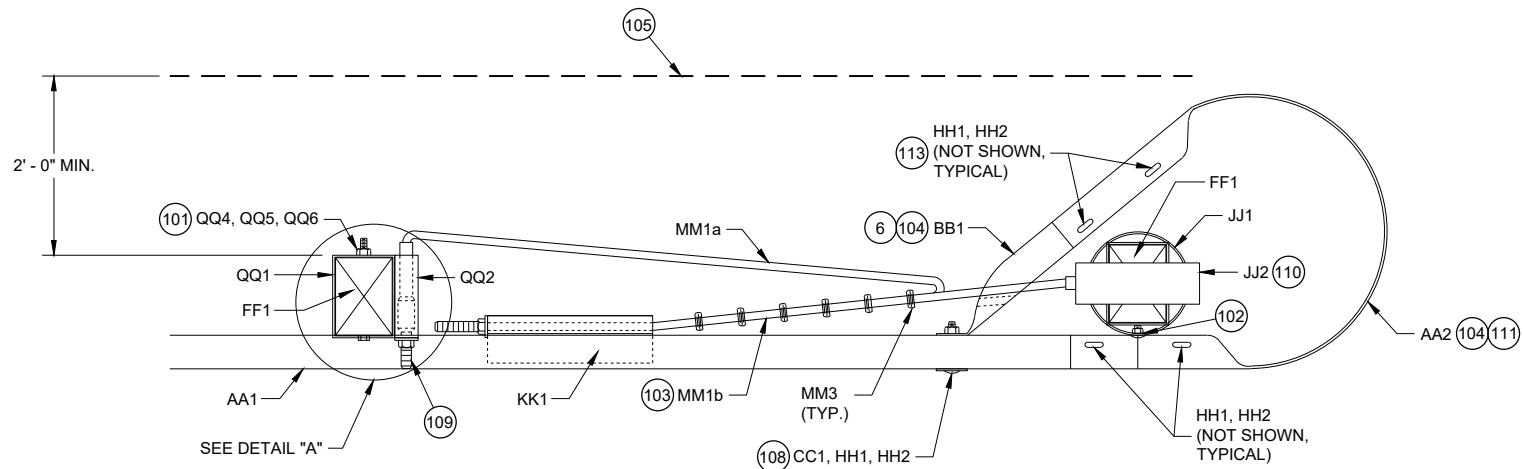


**LAP SPLICE DETAIL**

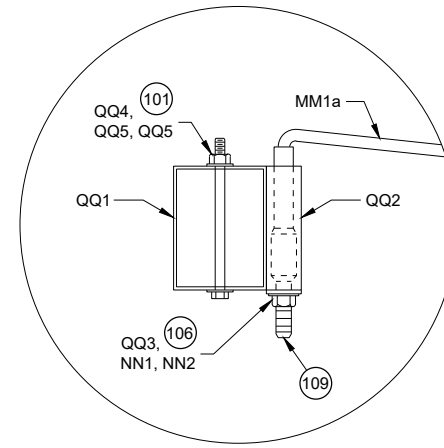
**SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)**  
 STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



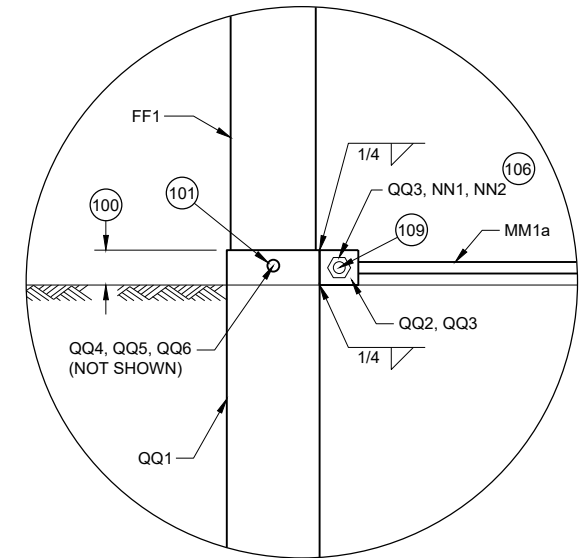
**PROFILE VIEW  
SHORT RADIUS TERMINAL**



**TOP VIEW  
SHORT RADIUS TERMINAL**



**TOP VIEW  
DETAIL "A"  
(WOOD BREAKAWAY AND BEAM  
GUARD RAIL POSTS NOT SHOWN)**



**PROFILE VIEW  
DETAIL "A"**

**GENERAL NOTES**

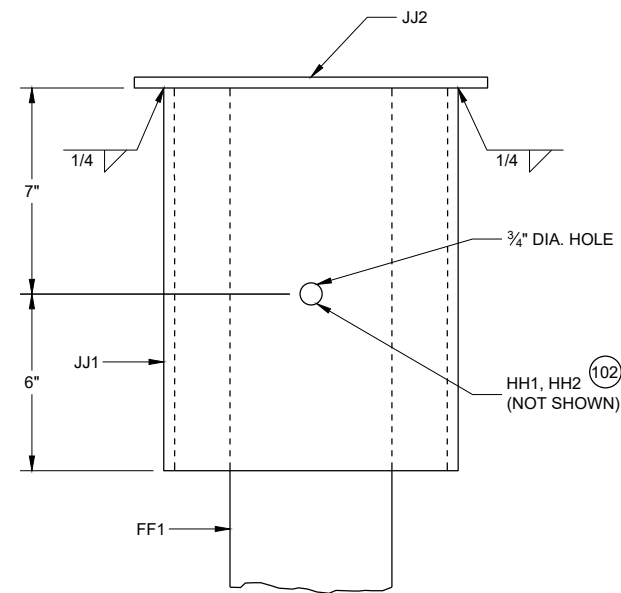
- (100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- (101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- (102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- (103) CABLE IS TAUT.
- (104) ADJUST AA2 AND BB1 TO FIT.
- (105) BREAK POINT OF SHOULDER.
- (106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- (107) PAY LIMIT FOR BEAM GUARD.
- (108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- (109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- (110) SEE STEEL PIPE ASSEMBLY DETAILS.
- (111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- (112) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- (113) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

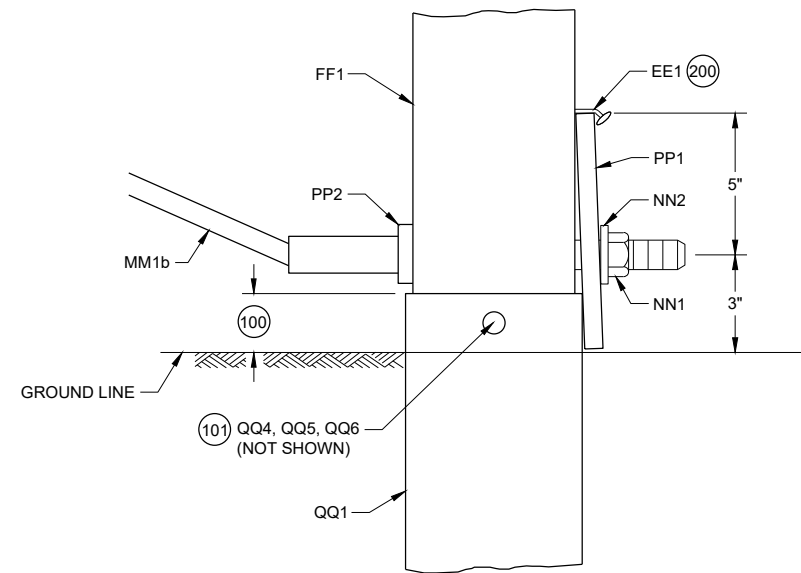
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

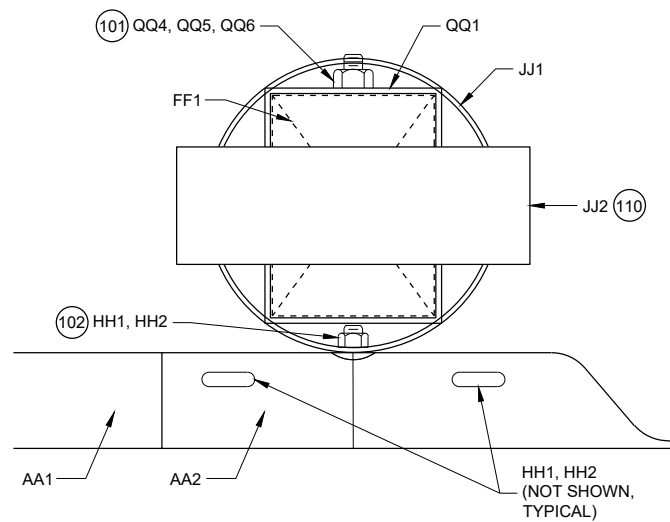
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.



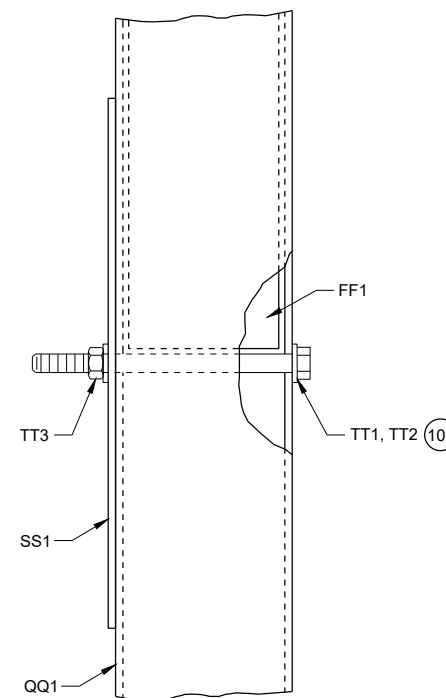
**PROFILE VIEW  
DETAIL "B"  
STEEL PIPE ASSEMBLY  
(BEAM GUARD AND W BEAM  
END SECTION NOT SHOWN)**



**PROFILE VIEW  
DETAIL "C"**



**PLAN VIEW  
DETAIL "B"  
STEEL PIPE ASSEMBLY**



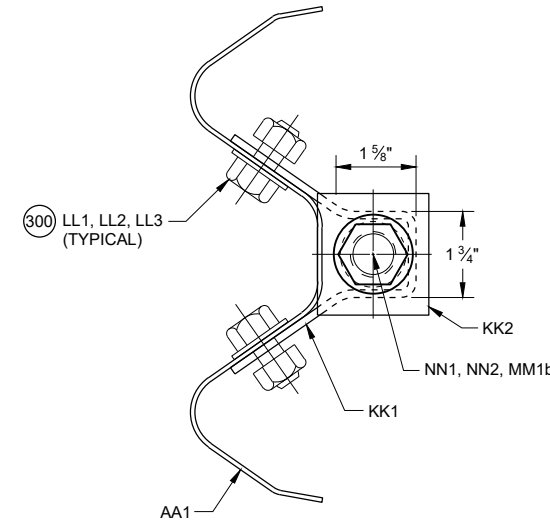
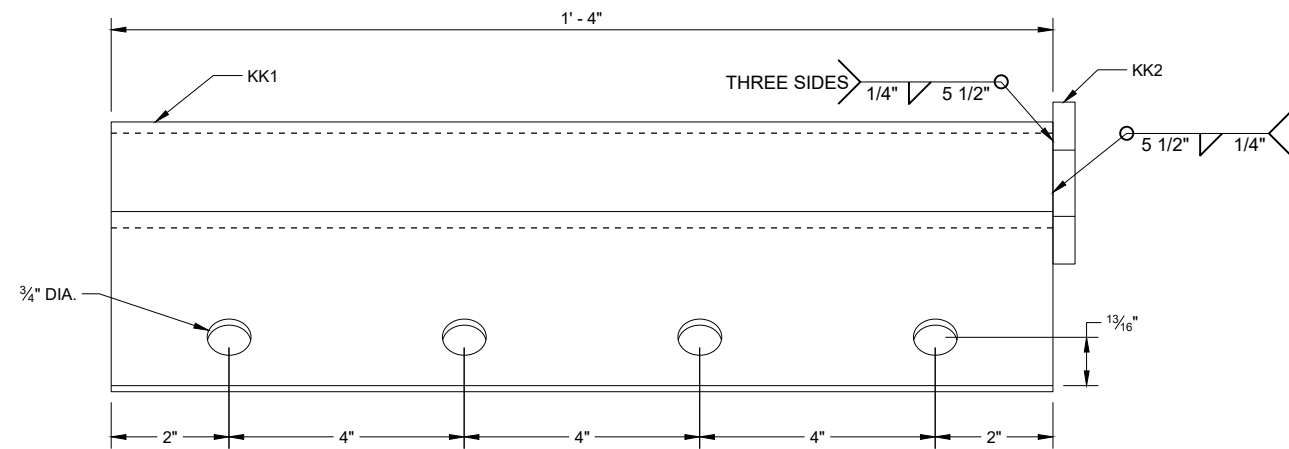
**PROFILE VIEW  
DETAIL "D"**

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

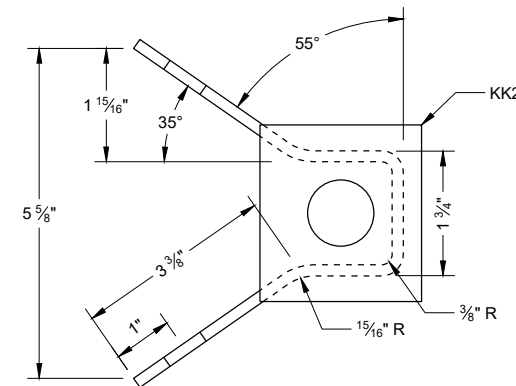
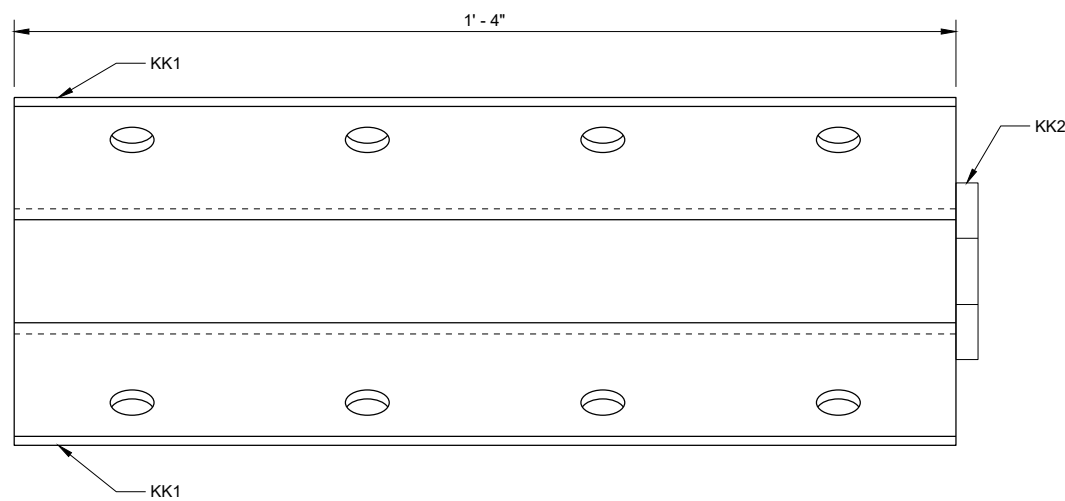
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

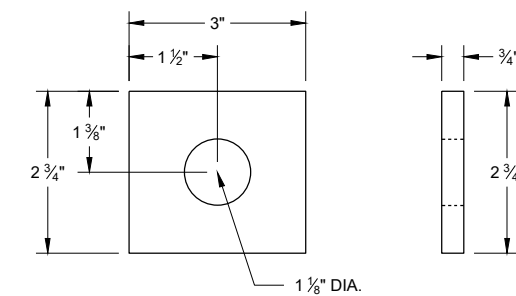
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.



**SECTION A - A**



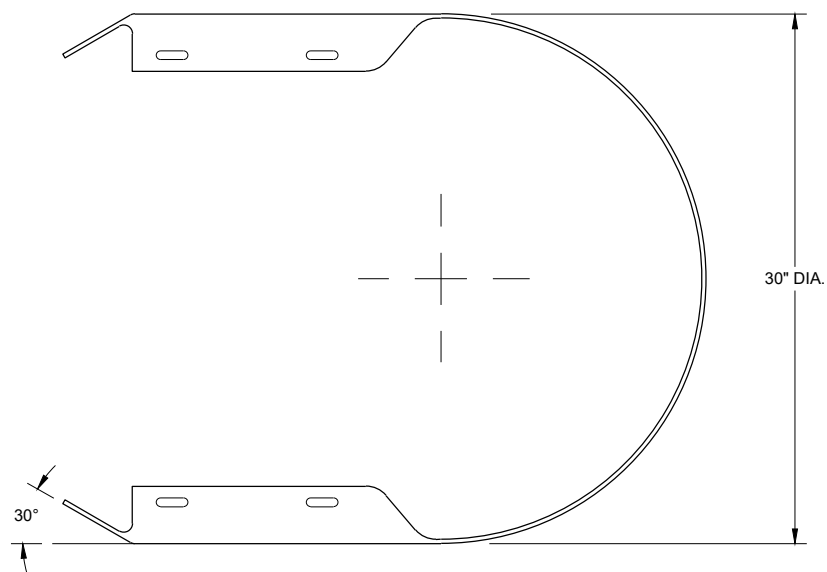
**ANCHOR BRACKET BEARING PLATE (KK2)**



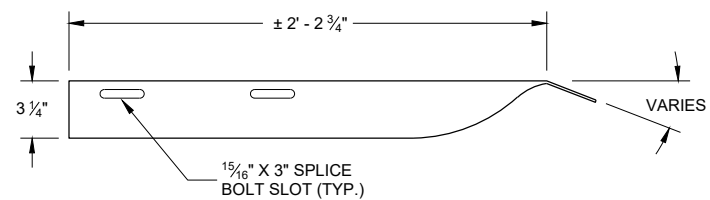
**ANCHOR BRACKET (KK1, KK2)**

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



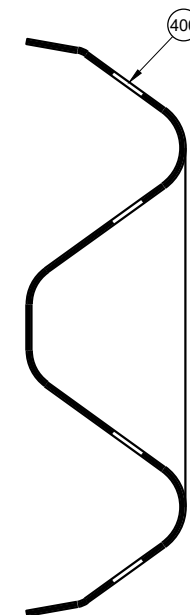
**TOP VIEW**



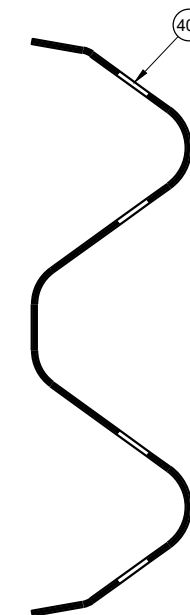
**TOP VIEW**

**GENERAL NOTES**

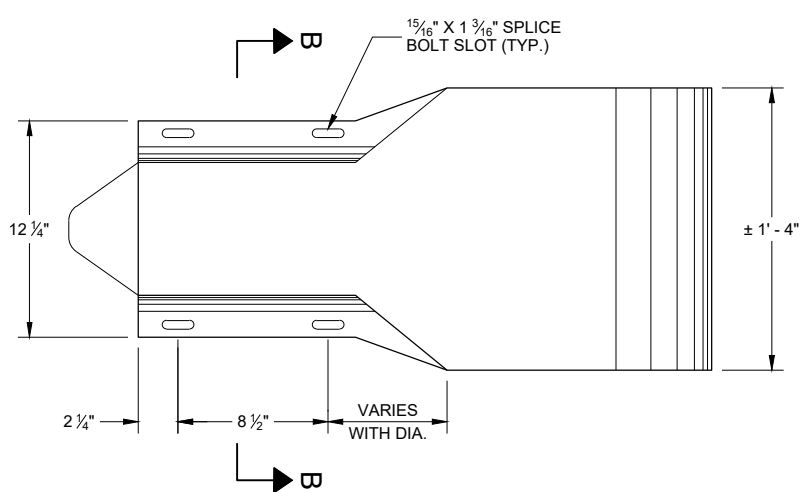
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



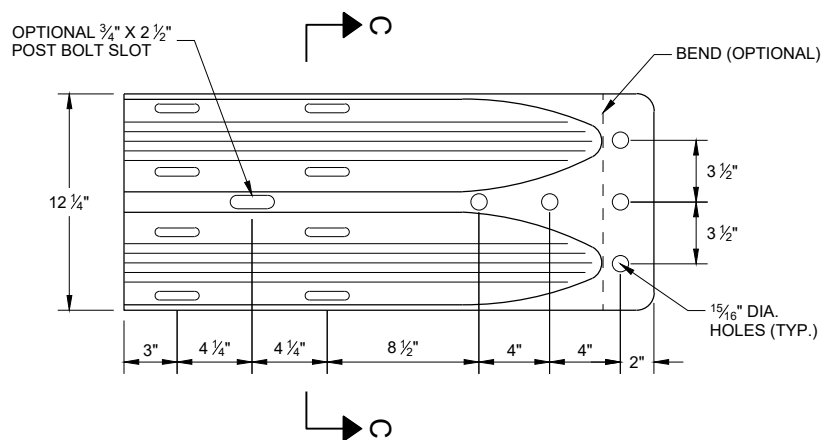
**SECTION B - B**



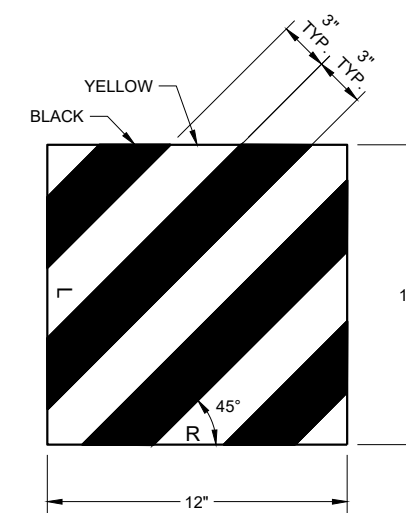
**SECTION C - C**



**PROFILE VIEW  
W BEAM  
END SECTION BUFFER (AA2)**



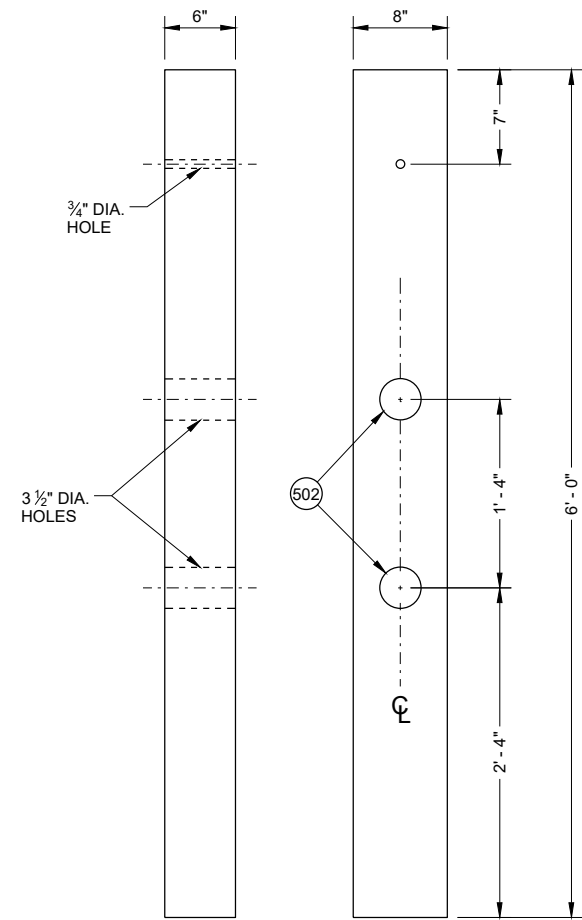
**PROFILE VIEW  
W BEAM  
TERMINAL CONNECTOR (BB1)**



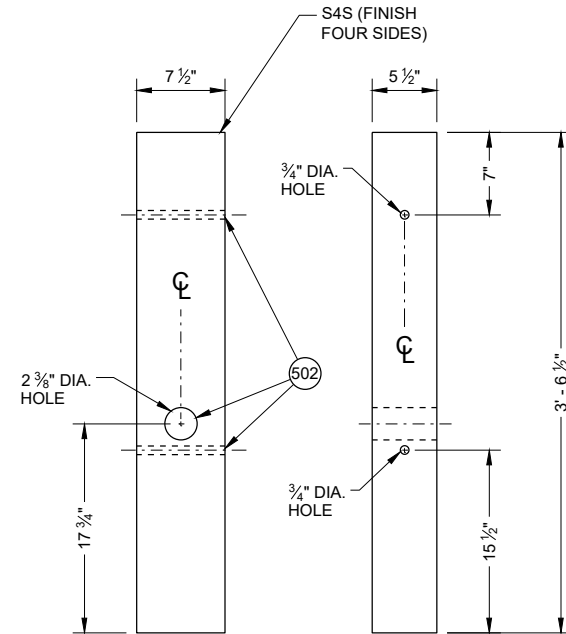
**REFLECTIVE SHEETING (UU1, UU2)**

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

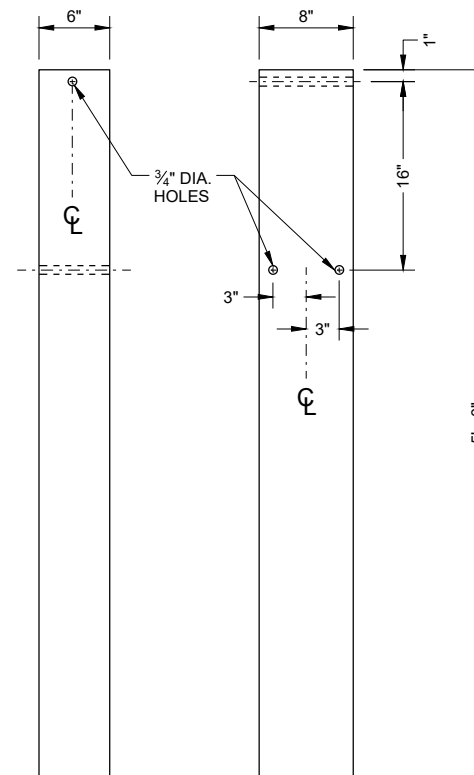
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



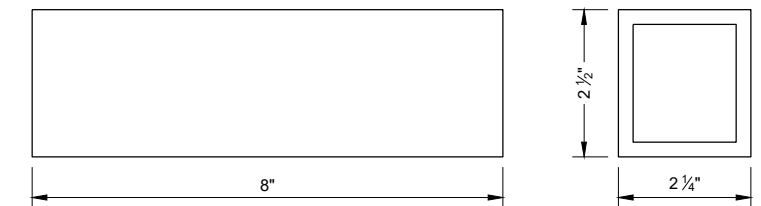
**FRONT VIEW SIDE VIEW  
CONTROLLED RELEASE  
POST (CRT) (DD2)**



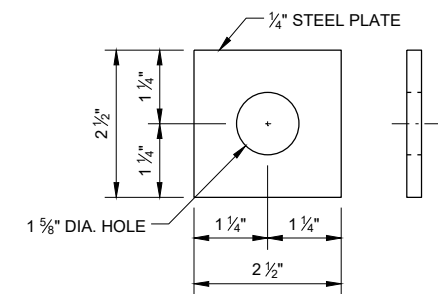
**FRONT VIEW SIDE VIEW  
WOOD BREAKAWAY POST (FF1)**



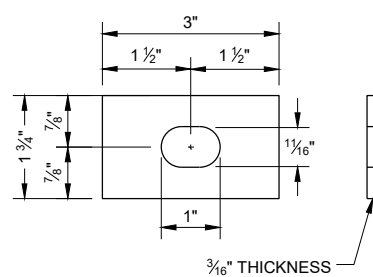
**FRONT VIEW SIDE VIEW  
FOUNDATION TUBE (QQ1)**



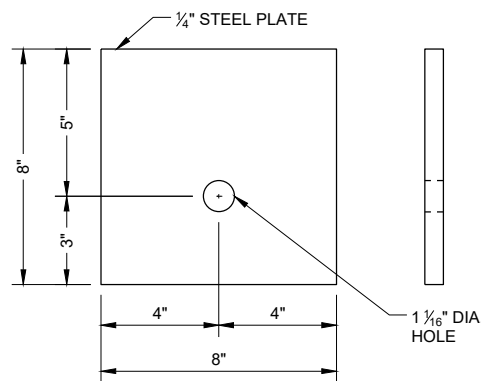
**FOUNDATION TUBE -  
ANCHOR CABLE TUBE (QQ2)**



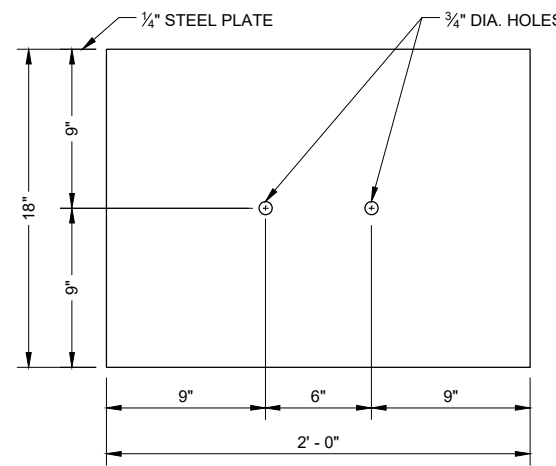
**ANCHOR CABLE TUBE  
END PLATE (QQ3)**



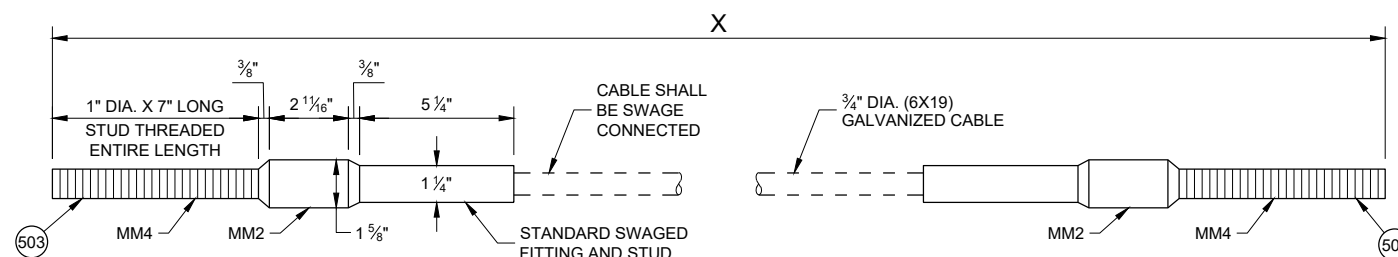
**RECTANGULAR PLATE  
WASHER (CC1)**



**BEARING PLATE (PP1)**



**SOIL PLATE (SS1)**



**CABLE ASSEMBLY (MM1a, MM1b)**

**"X" LENGTH**

MM1b	9' - 0"
MM1b	6' - 8"

**GENERAL NOTES**

- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

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SDD 14B53 - 02g

SDD 14B53 - 02g

**SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
ASTM A563 GRADE A HEAVY HEX HEAD			
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS $\frac{3}{8}$ " X 4" X 1' - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	$\frac{3}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{3}{8}$ " DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	$\frac{3}{4}$ "
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

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SDD 14B53 - 02h

SDD 14B53 - 02h

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/8"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 1/2" X 2 1/2" X 1/4"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5/8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

6

6

SDD 14B53 - 02i

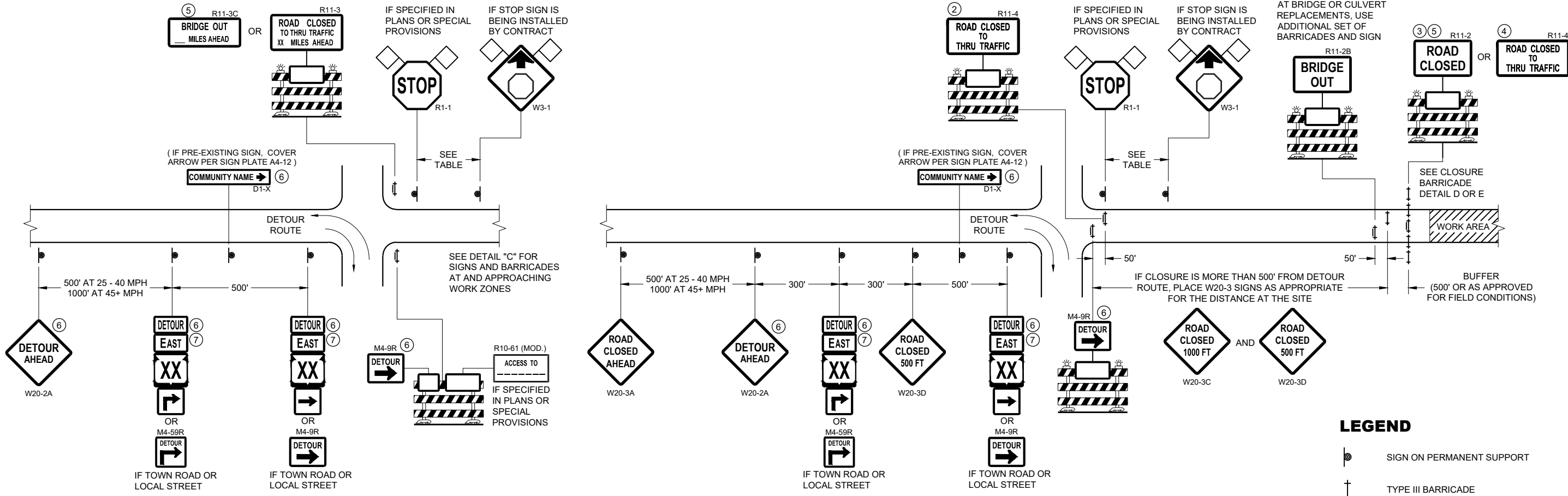
SDD 14B53 - 02i

**SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2022 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

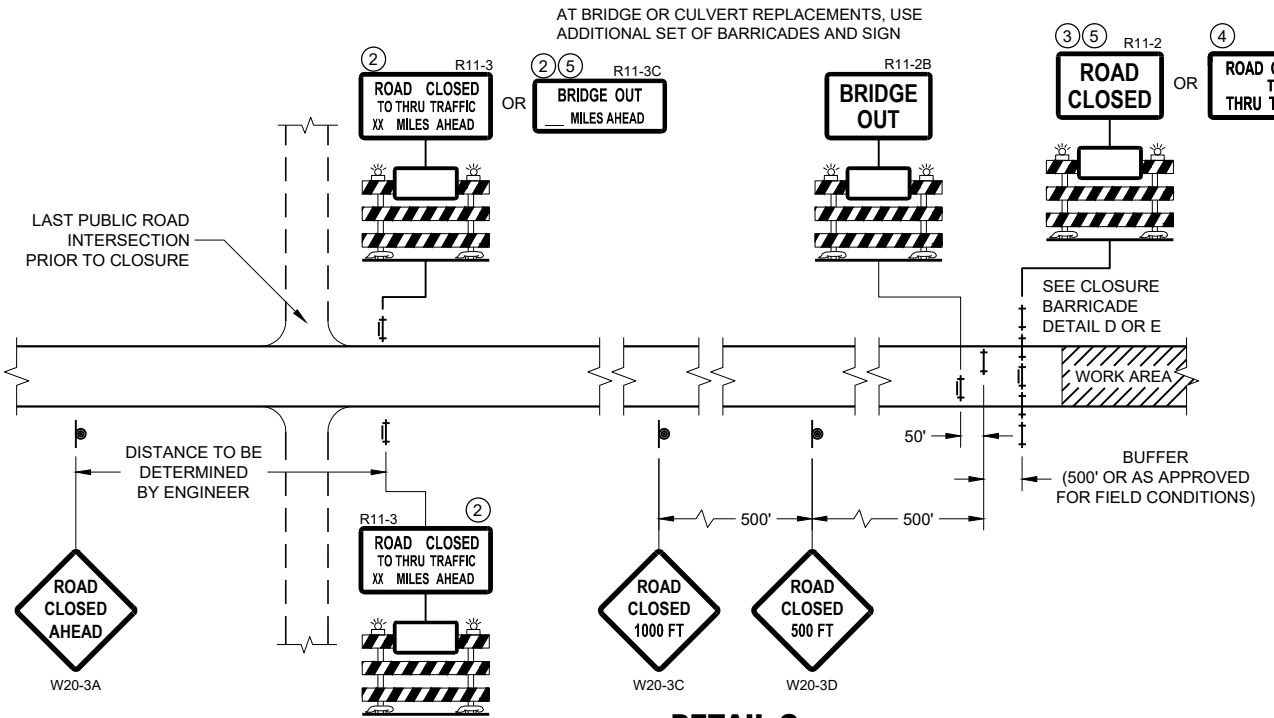
WORK ZONE LESS THAN 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



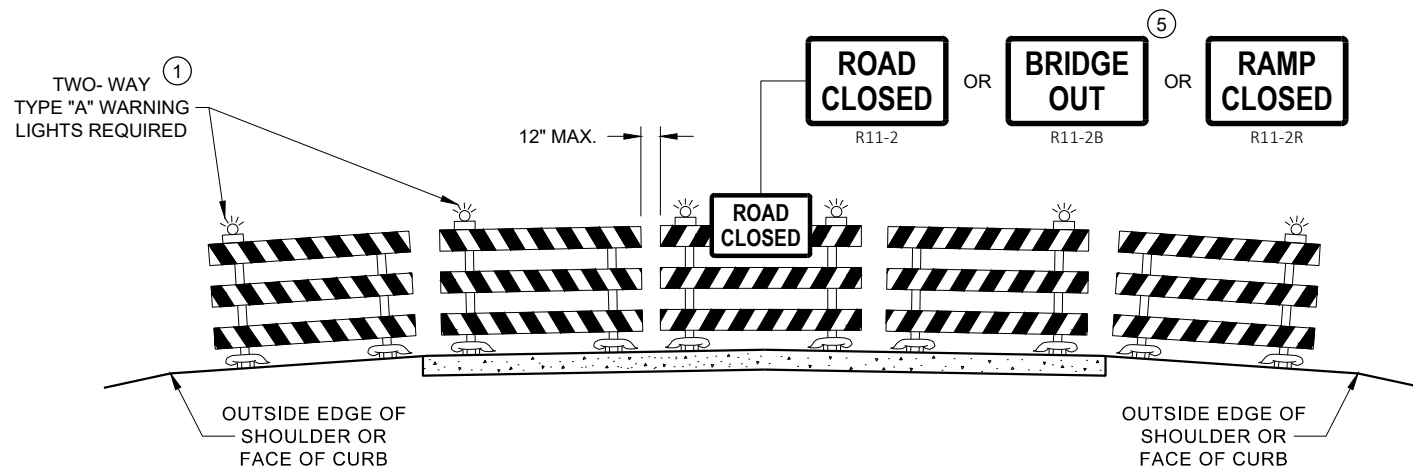
**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦

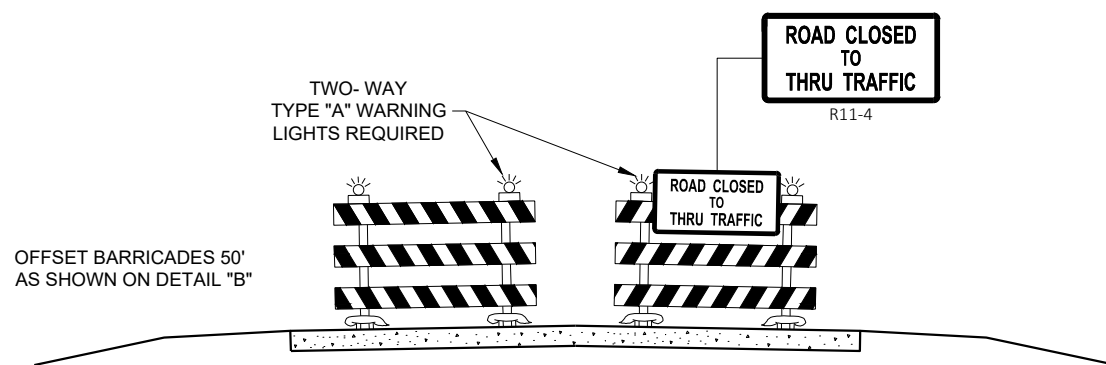
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE DATE WORK ZONE ENGINEER  
FHWA



**DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW**



**DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**GENERAL NOTES**

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

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.

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

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

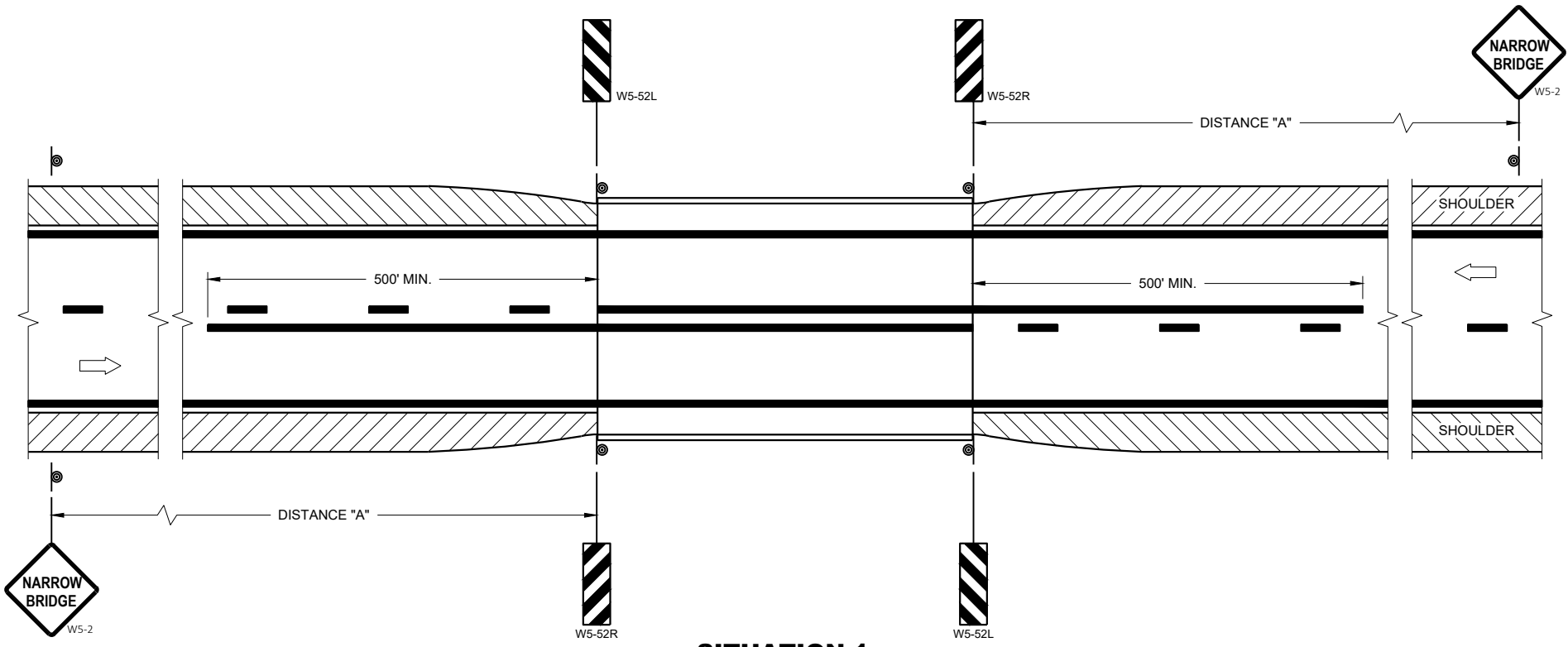
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

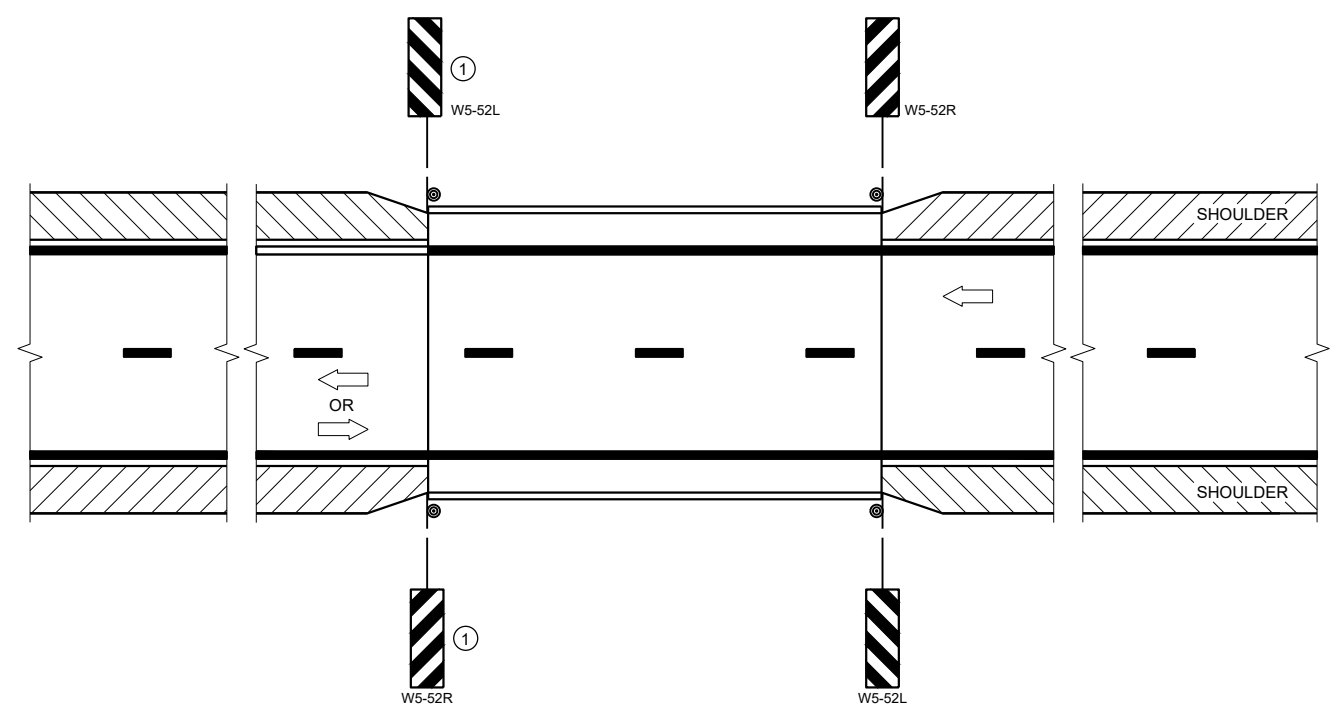
**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER



**SITUATION 1**  
 WARRANTING CRITERIA:  
 BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



**SITUATION 2**  
 WARRANTING CRITERIA:  
 1. BRIDGE WIDTH IS AT LEAST 24 FEET AND  
 2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET

**GENERAL NOTES**

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

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

**LEGEND**

- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC

**DISTANCE TABLE**

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

6

6

SDD 15C06-12

SDD 15C06-12

**SIGNING AND MARKING FOR TWO LANE BRIDGES**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 May 2023 /S/ Jeannie Silver  
 DATE STATE SIGNING AND MARKING ENGINEER




FHWA

**GENERAL NOTES**

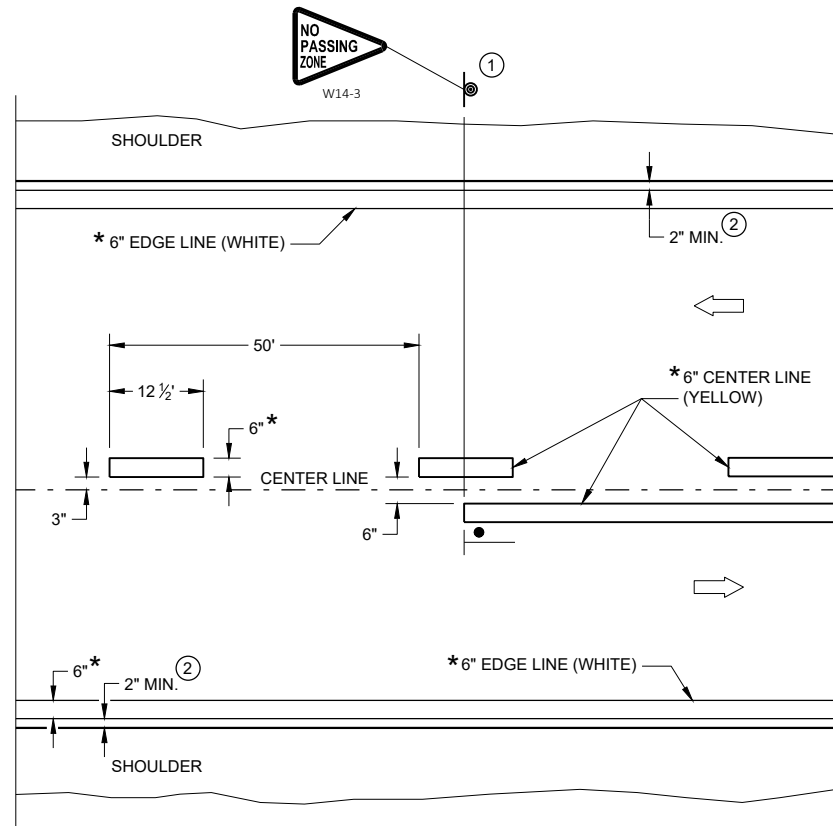
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

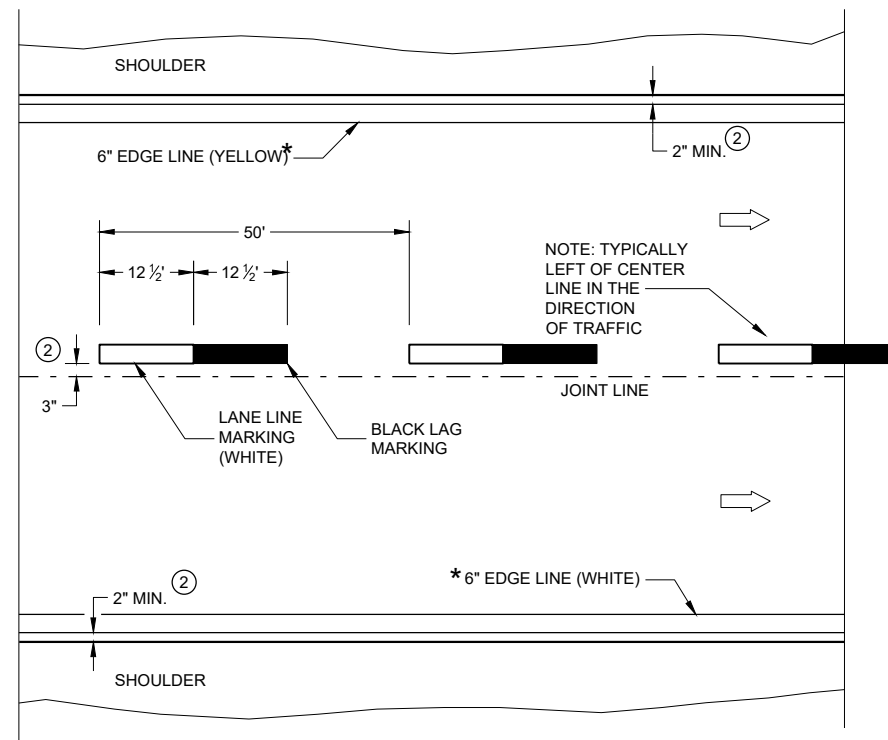
**LEGEND**

-  "T" MARKING
-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

**PERMANENT PAVEMENT MARKING**

6

6

SDD 15C08-23a

SDD 15C08-23a

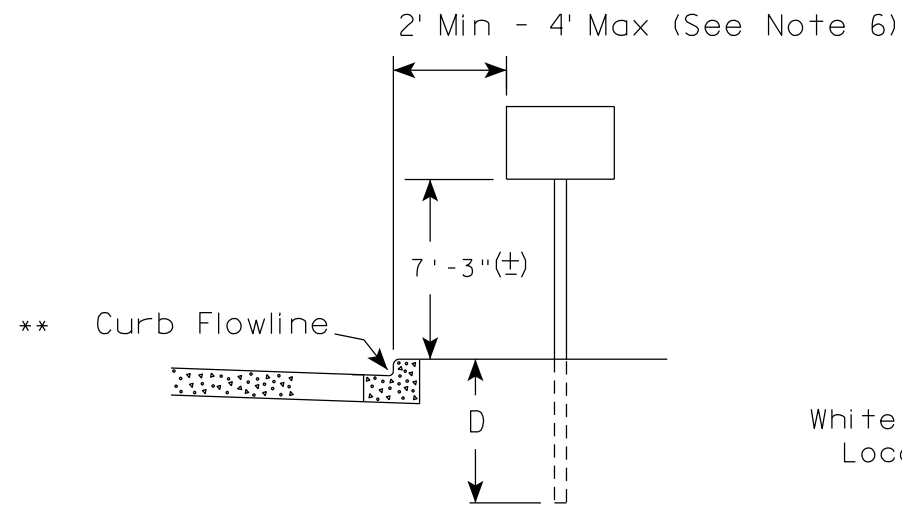
**PERMANENT LONGITUDINAL PAVEMENT MARKINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

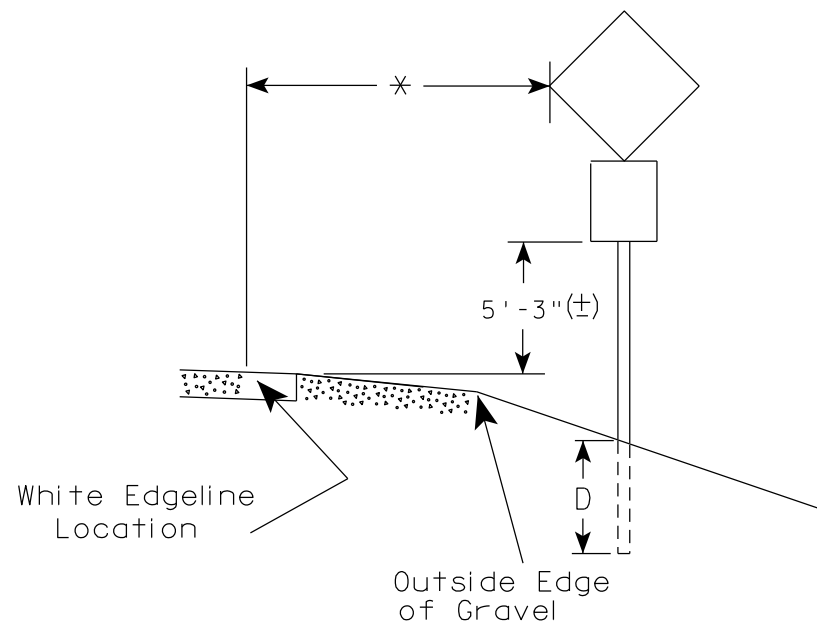
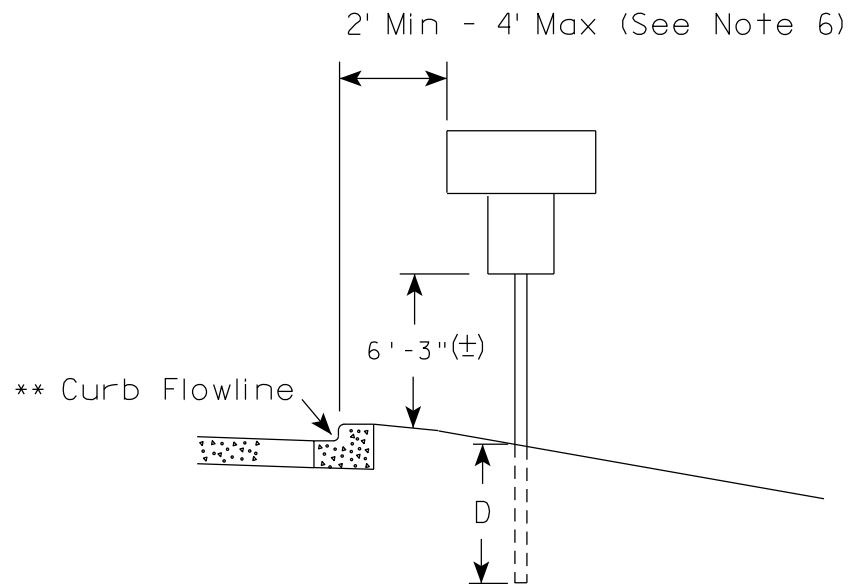
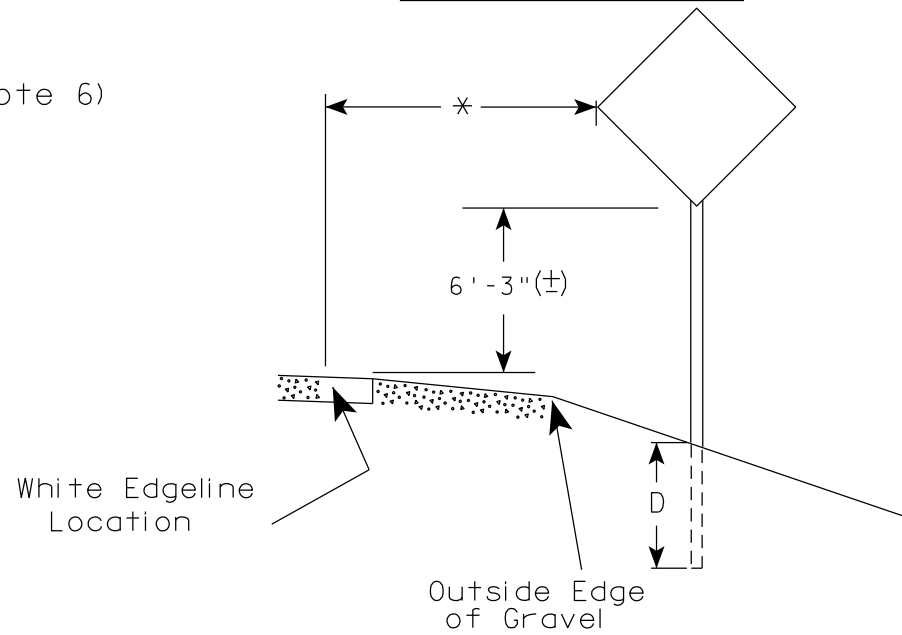
APPROVED  
May 2023 /S/ Jeannie Silver  
DATE STATEWIDE SIGNING AND MARKING ENGINEER

FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.  
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation ( Sq. Ft. )	D ( Min )
20 or Less	4'
Greater than 20	5'

\* \* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

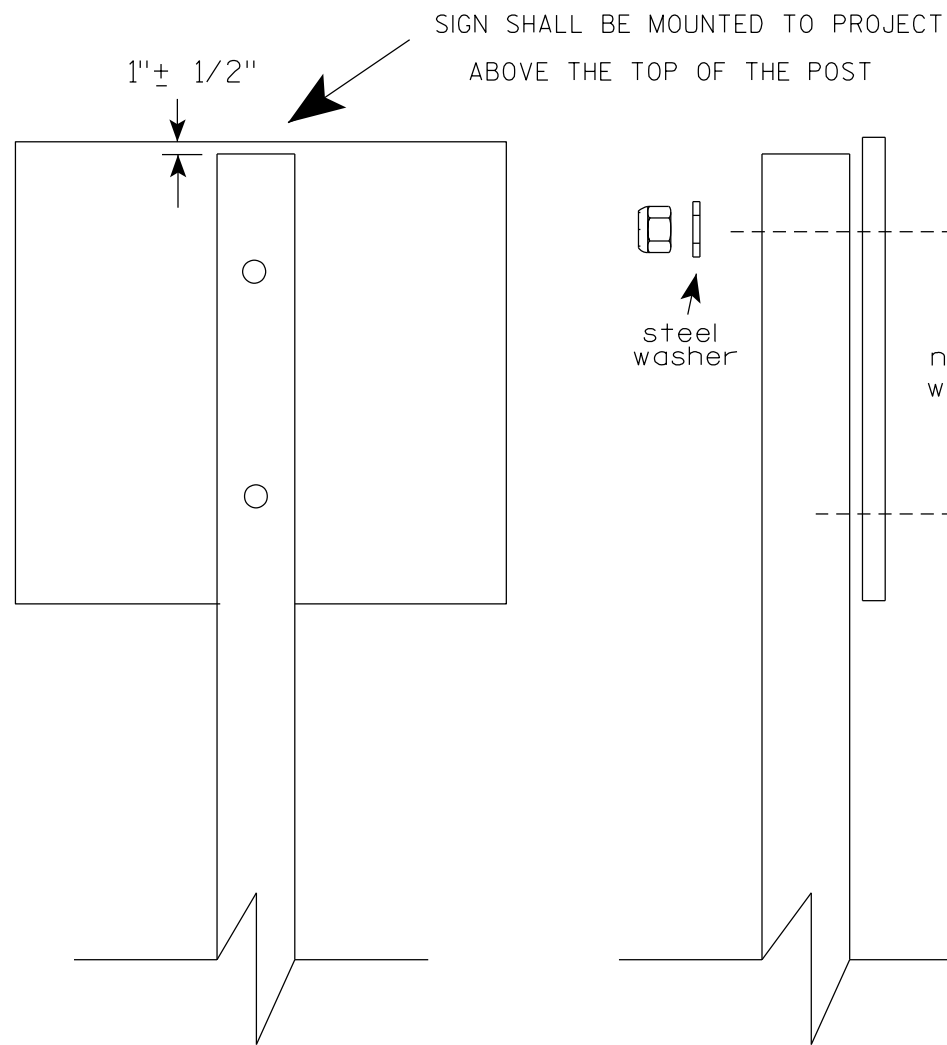
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/13/2020 PLATE NO. A4-3.22



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

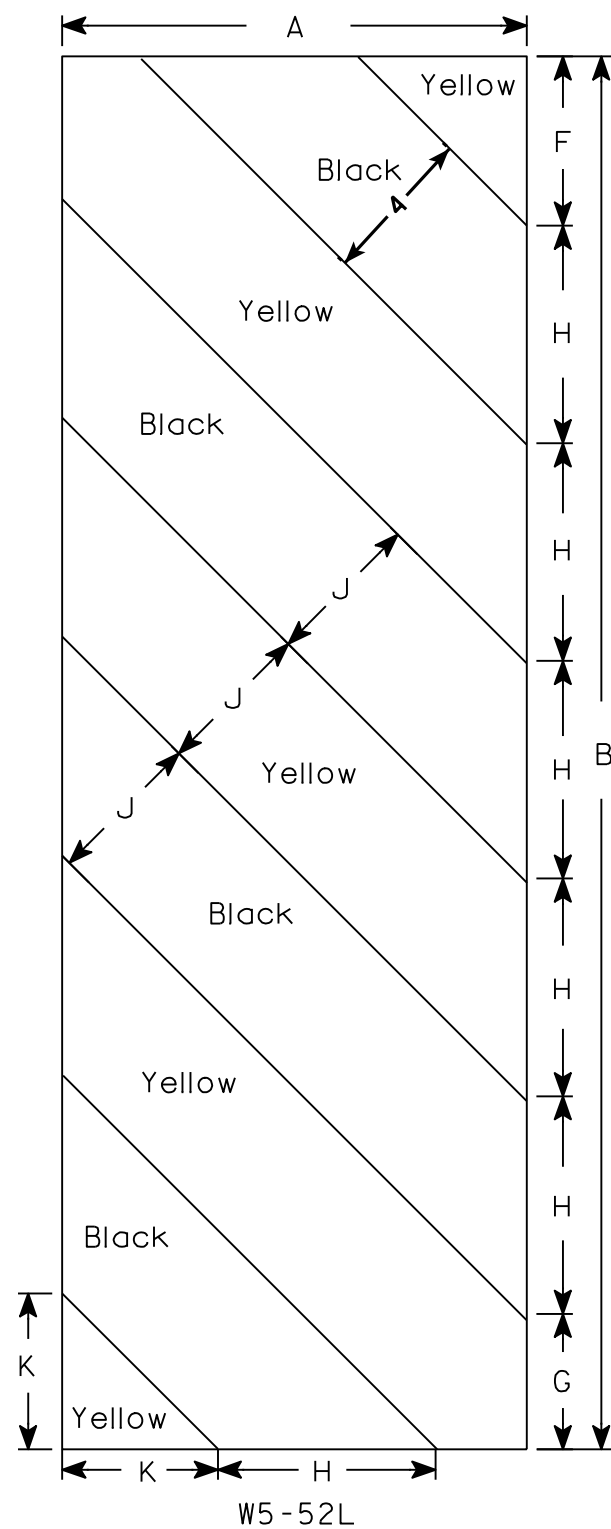
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS -  $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS -  $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
  - $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS -  $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
  - $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS -  $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ " STEEL
  - 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X .080 NYLON

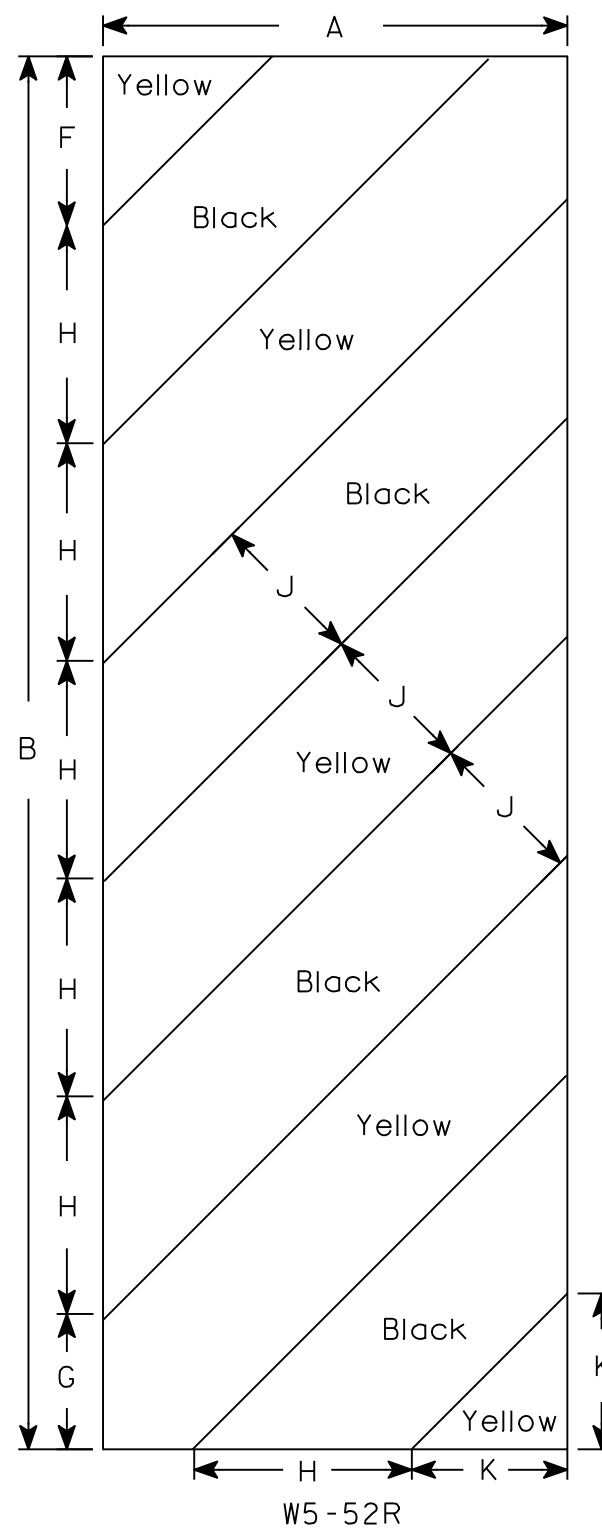
\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9





W5-52L



W5-52R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.35
OPERATING RATING FACTOR: 1.75
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20" S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY (SUPERSTRUCTURE) f'c = 4,000 p.s.i.
(ALL OTHER) f'c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) fy = 60,000 p.s.i.

36" PRESTRESSED GIRDER
CONCRETE MASONRY f'c = 8,000 p.s.i.
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF = 270,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY
O100 = 600 c.f.s.
VEL. = 4.38 f.p.s.
HW100 = EL. 974.27
WATERWAY AREA = 137 sq. ft.
DRAINAGE AREA = 10.0 sq. mi.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5
DATUM = NAVD88 (2012)
2 YEAR FREQUENCY
O2 = 230 c.f.s.
VEL. = 2.54 f.p.s.
HW2 = EL. 972.83

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 40'-0" FOR WEST ABUT. AND 30'-0" FOR EAST ABUT.

\*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

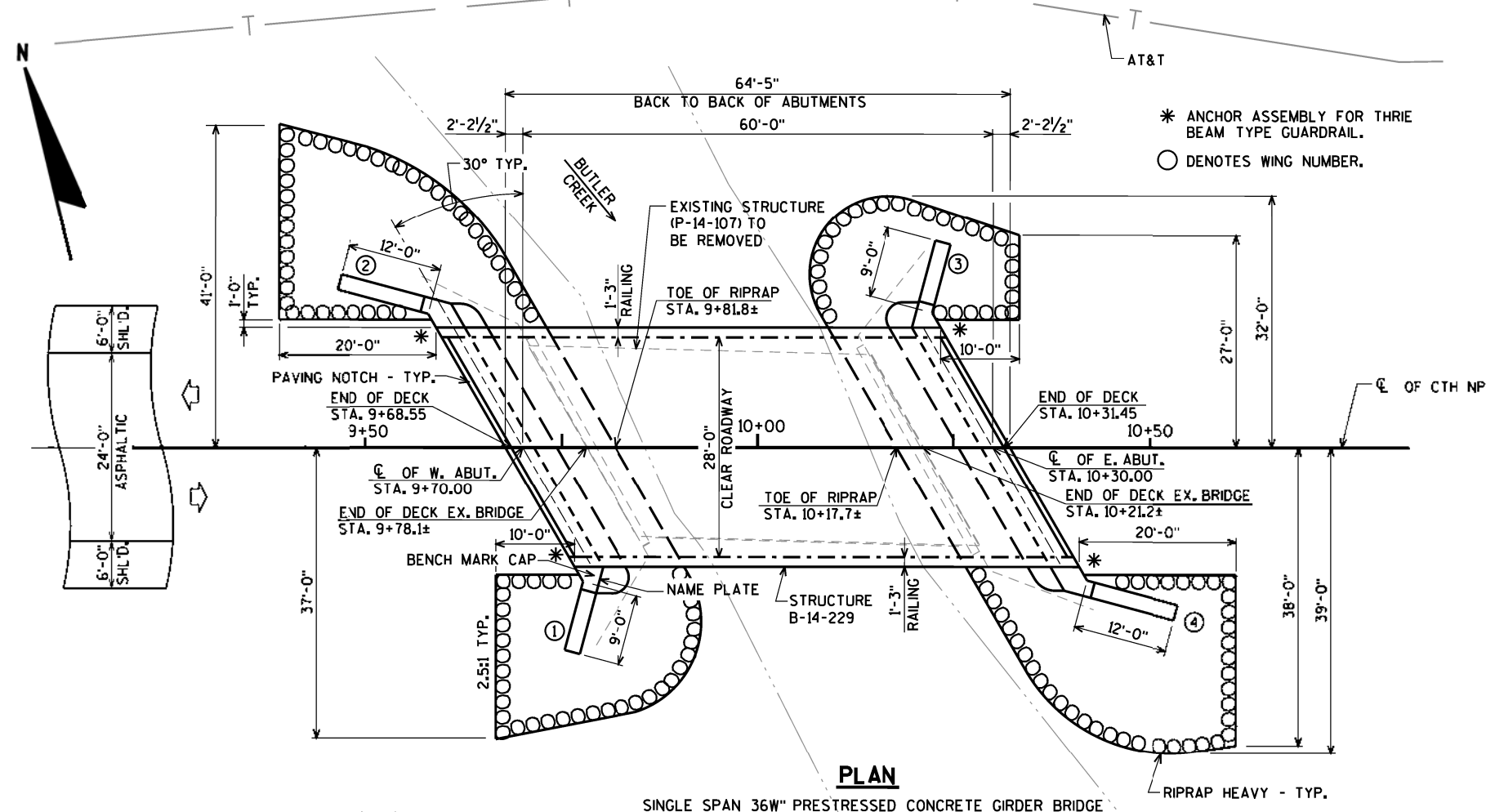
TRAFFIC DATA:

A.A.D.T. = 750 (2024)
A.A.D.T. = 830 (2044)
R.D.S. = 40 M.P.H.

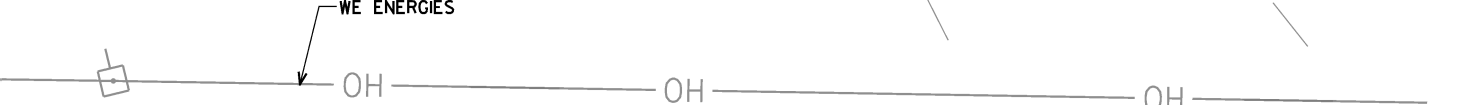
LIST OF DRAWINGS

- 1. GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES AND NOTES
3. STRUCTURE DETAILS
4. SUBSURFACE EXPLORATION
5. WEST ABUTMENT
6. WEST ABUTMENT WING 1 DETAILS
7. WEST ABUTMENT WING 2 DETAILS
8. WEST ABUTMENT DETAILS & BILL OF BARS
9. EAST ABUTMENT
10. EAST ABUTMENT WING 3 DETAILS
11. EAST ABUTMENT WING 4 DETAILS
12. EAST ABUTMENT DETAILS & BILL OF BARS
13. STEEL DIAPHRAGM
14. 36" PRESTRESSED GIRDER DETAILS
15. 36" PRESTRESSED GIRDER DETAILS
16. SUPERSTRUCTURE
17. SUPERSTRUCTURE PLAN
18. SUPERSTRUCTURE TRANSVERSE DECK STEEL LAYOUT
19. SUPERSTRUCTURE DETAILS
20. TUBULAR STEEL RAILING TYPE 'M'

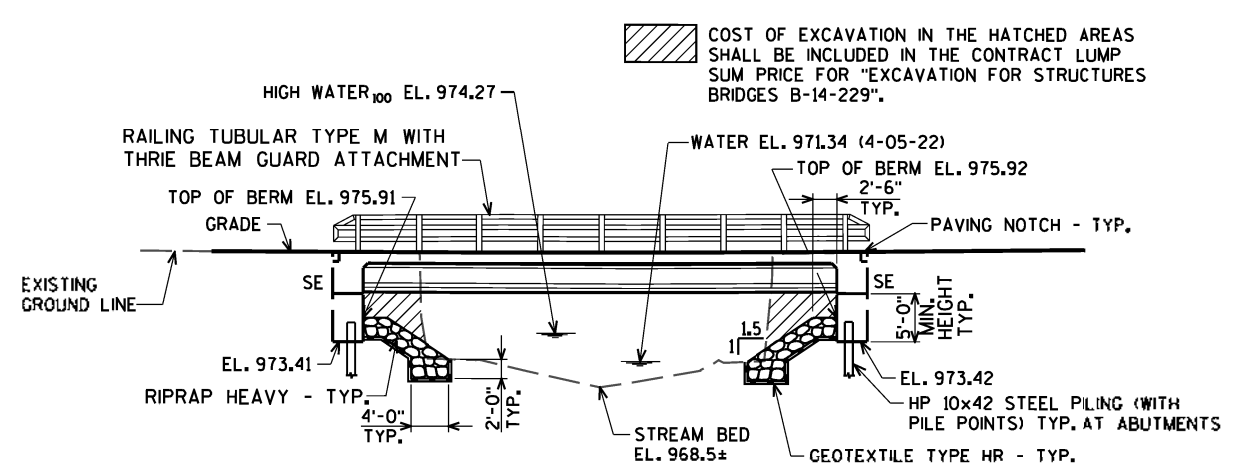
FOR TYPICAL SECTION SEE SHEET 2



PLAN



PROFILE GRADE LINE (CTH NP)



ELEVATION (NORMAL TO C OF CREEK)

REMOVE EXISTING SUBSTRUCTURE AS NEEDED. COST CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE ITEM". TYPICAL AT ALL SUBSTRUCTURES.



BRIDGE OFFICE CONTACT: AARON BONK (608)-261-0261
CONSULTANT CONTACT: KRISTOFER OLSON (920)-498-1200

Table with columns for NO., DATE, REVISION, BY. Includes project details like 'STRUCTURE B-14-229' and 'CTH NP OVER BUTLER CREEK'.

6/1/2023 PENTABLE:BRcou\_shd\_util.tbl

CHECKED BY: DATE:
BACK CHECKED BY: DATE:
CORRECTED BY: DATE:

8

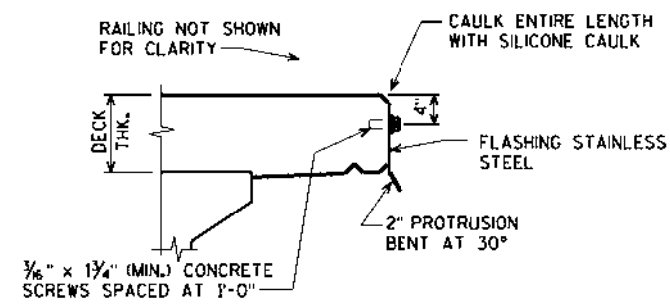
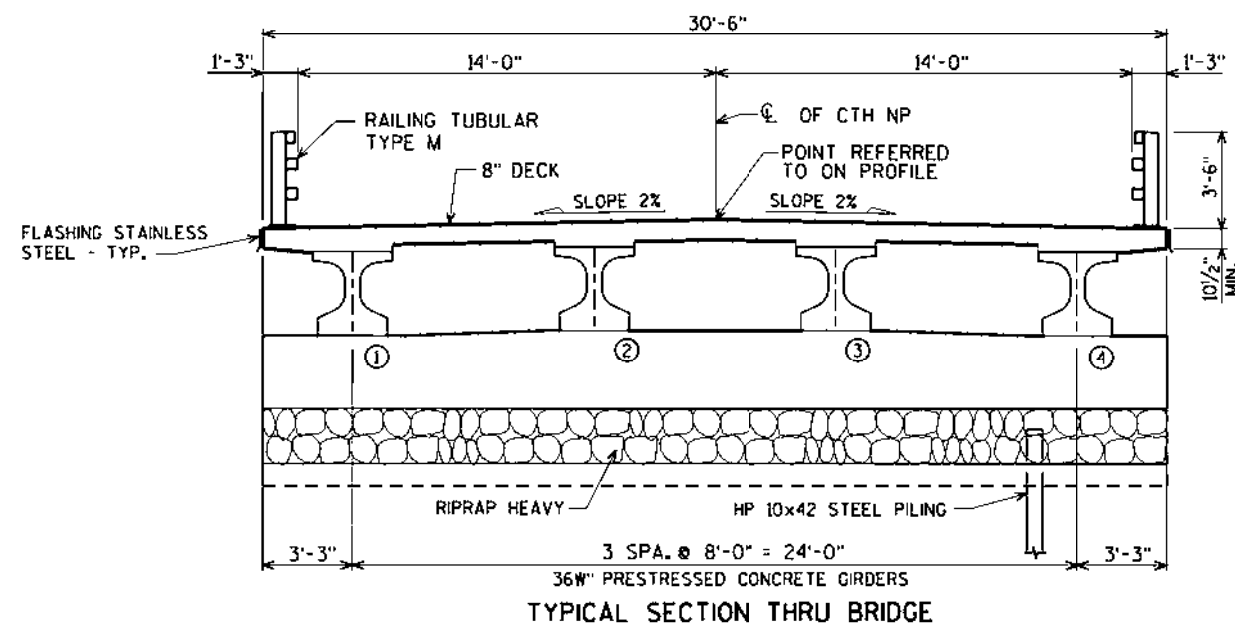
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**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-14-107	EACH	-----	-----	-----	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-14-229	EACH	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	170	170	-----	340
502.0100	CONCRETE MASONRY BRIDGES	CY	44.8	44.9	85.7	175
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	240	240
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	-----	-----	244	244
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,660	2,660	-----	5,320
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,770	1,770	13,650	17,190
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	-----	-----	8	8
506.4000	STEEL DIAPHRAGMS B-14-229	EACH	-----	-----	3	3
513.4061	RAILING TUBULAR TYPE M	LF	-----	-----	131.8	131.8
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	8	-----	16
550.0500	PILE POINTS	EACH	8	8	-----	16
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	320	240	-----	560
606.0300	RIPRAP HEAVY	CY	140	120	-----	260
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	85	85	-----	170
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	60	60	-----	120
645.0120	GEOTEXTILE TYPE HR	SY	255	225	-----	480
SPV.0090.02	FLASHING STAINLESS STEEL	LF	-----	-----	114.2	114.2
<b>NON-BID ITEMS</b>						
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

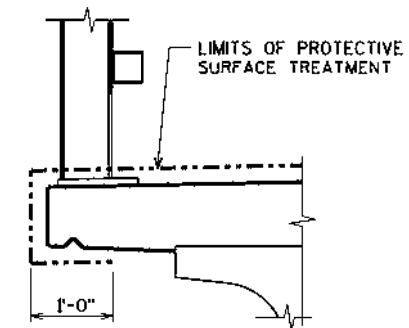
**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.  
 BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.  
 THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE. JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.  
 THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.  
 ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.  
 THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-14-229" SHALL BE THE EXISTING GROUNDLINE.  
 THE EXISTING STRUCTURE, P-14-107, TO BE REMOVED, IS A SINGLE-SPAN PRECAST CONCRETE BOX BEAM BRIDGE ON TIMBER ABUTMENTS, 44.5-FT. LONG WITH A 24.7-FT. CLEAR ROADWAY WIDTH. AT THE BACK FACE OF ABUTMENTS, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.  
 PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.  
 EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.  
 THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET, BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.  
 THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET, WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.  
 BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.  
 EXTENT OF BELOW GRADE SUBSTRUCTURES ARE NOT KNOWN. REMOVE EXISTING SUBSTRUCTURES AS NEEDED TO BUILD NEW SUBSTRUCTURES. COST OF SUBSTRUCTURE REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" BID ITEM.



**FLASHING DETAIL FOR NEW BRIDGES WITH OPEN RAILING**

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, 3/8" CONCRETE SCREWS AND CLEANING THE EDGE OF THE DECK PRIOR TO ATTACHMENT OF THE FLASHING.  
 FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.  
 CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.  
 EXTEND FLASHING TO FRONT FACE OF ABUTMENT.  
 TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF DECK SURFACE.  
 THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST DECK DEPTH OVER THE BRIDGE LENGTH.



**PROTECTIVE SURFACE TREATMENT**

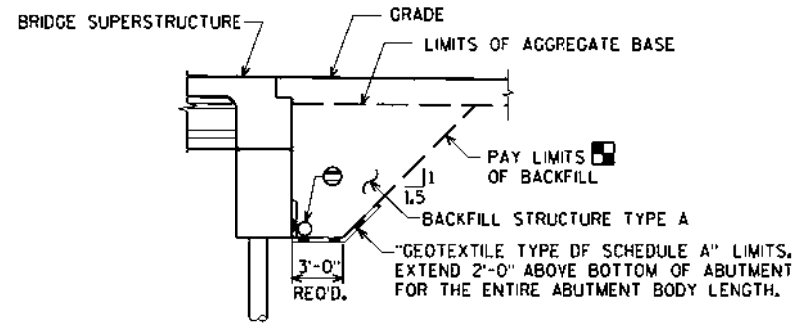
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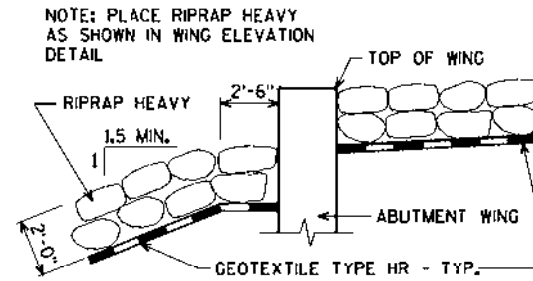
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY	CLP	PLANS CKD.	ZSS
<b>TYPICAL SECTION, QUANTITIES AND NOTES</b>			SHEET 2 OF 20

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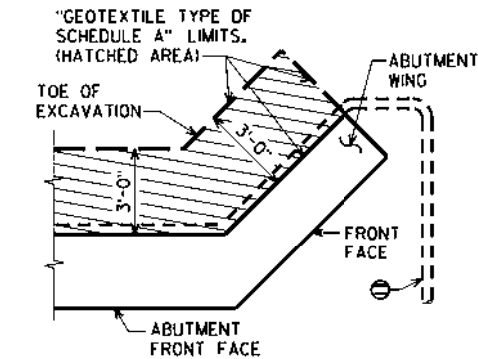


**BACKFILL STRUCTURE LIMITS THRU ABUTMENT**

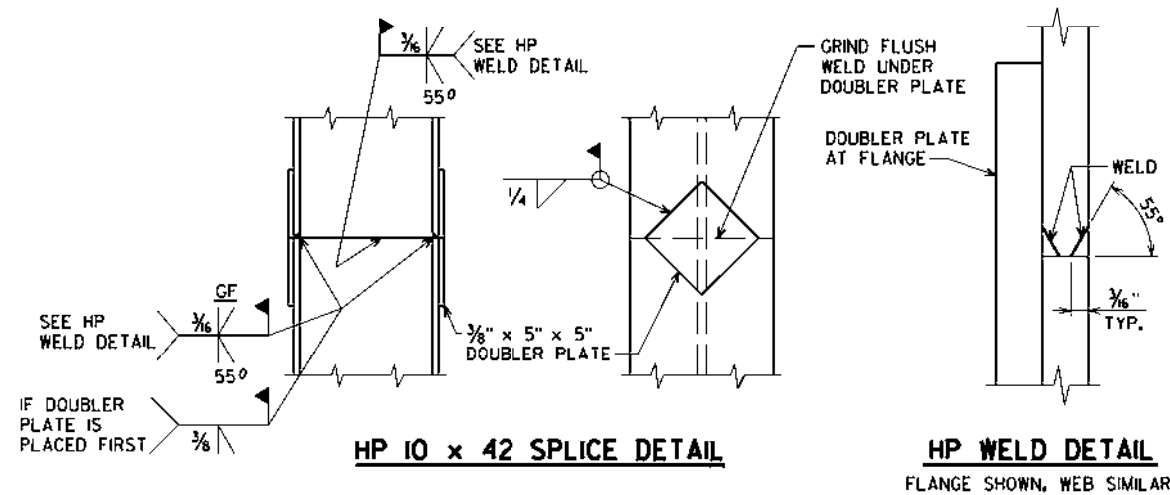
- ☐ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- ⊖ PIPE UNDERDRAIN WRAPPED 6-INCH, SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODEN™ SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET.



**TYPICAL FILL SECTION AT WING TIPS**

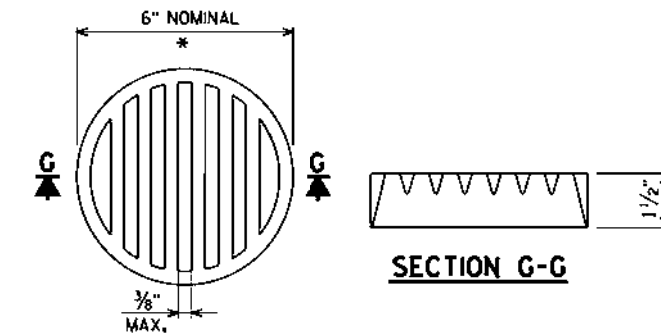


**BACKFILL STRUCTURE LIMITS ABUTMENT PLAN WITH WING**



**HP 10 x 42 SPLICE DETAIL**

**HP WELD DETAIL  
FLANGE SHOWN, WEB SIMILAR**



**SECTION G-G**

\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

**RODENT SHIELD DETAIL**

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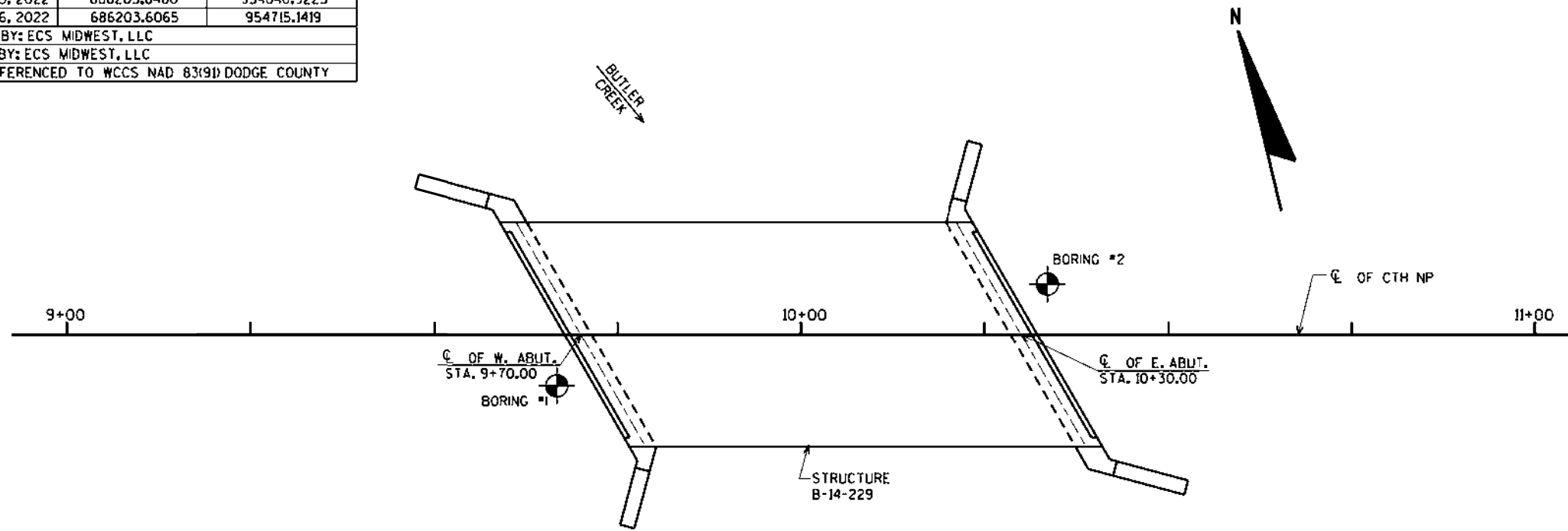
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY	CLP	PLANS CKD.	ZSS
<b>STRUCTURE DETAILS</b>			SHEET 3 OF 20

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BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	OCTOBER 25, 2022	686205.8460	954646.9223
2	OCTOBER 26, 2022	686203.6065	954715.1419

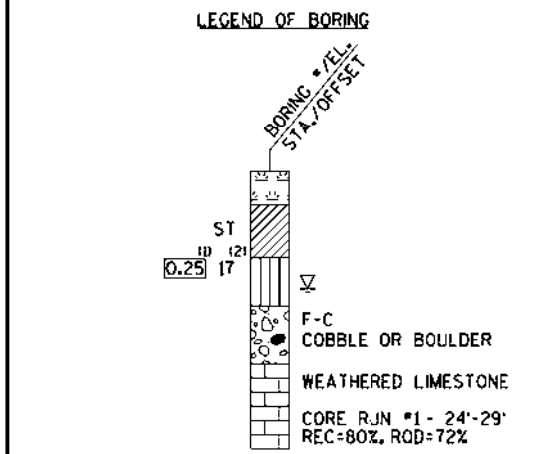
BORINGS COMPLETED BY: ECS MIDWEST, LLC  
 REPORT COMPLETED BY: ECS MIDWEST, LLC  
 ALL COORDINATES REFERENCED TO WCCS NAD 83(9) DODGE COUNTY



STATE PROJECT NUMBER  
**3926-00-70**

**MATERIAL SYMBOLS**

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

**GROUND WATER ELEVATION**

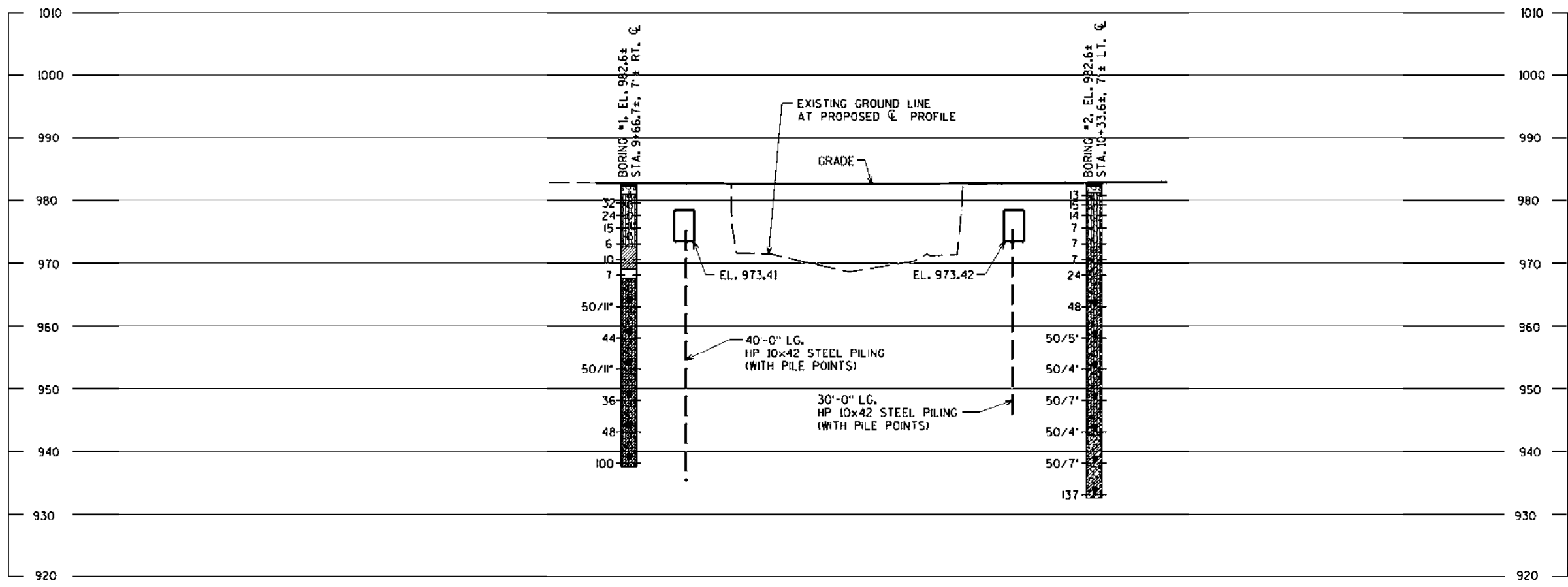
▽ AT TIME OF DRILLING  
 ▽ END OF DRILLING  
 ▽ AFTER DRILLING

**ABBREVIATIONS**

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

**SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION**

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.



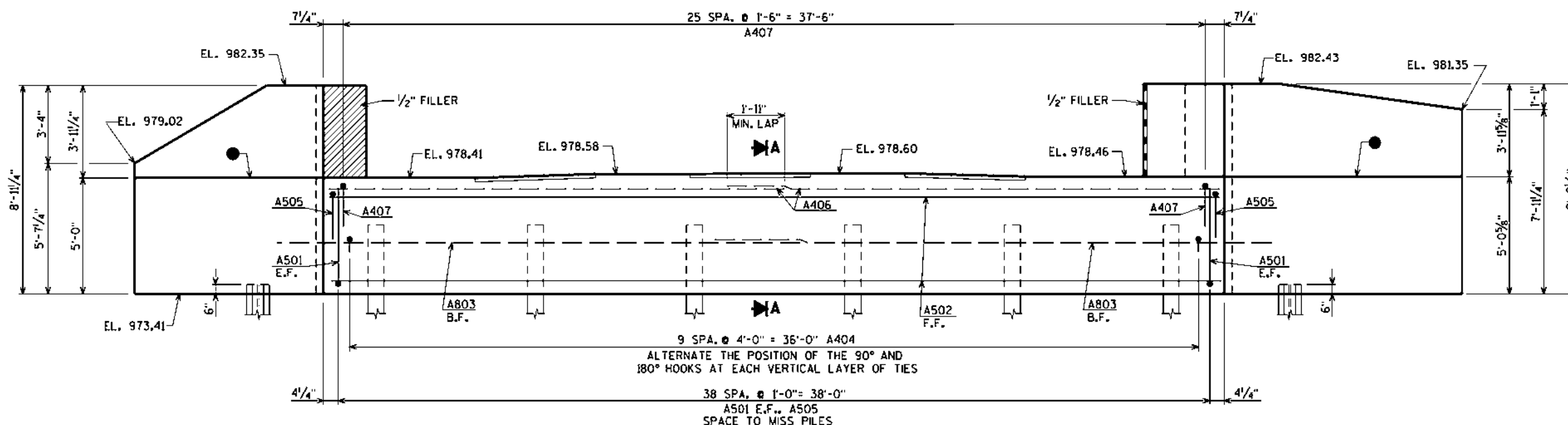
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY		CLP	PLANS CKD. ZSS
<b>SUBSURFACE EXPLORATION</b>			SHEET 4 OF 20

NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)



**ELEVATION**  
(LOOKING WEST)

FOR SECTION A SEE SHEET 8.

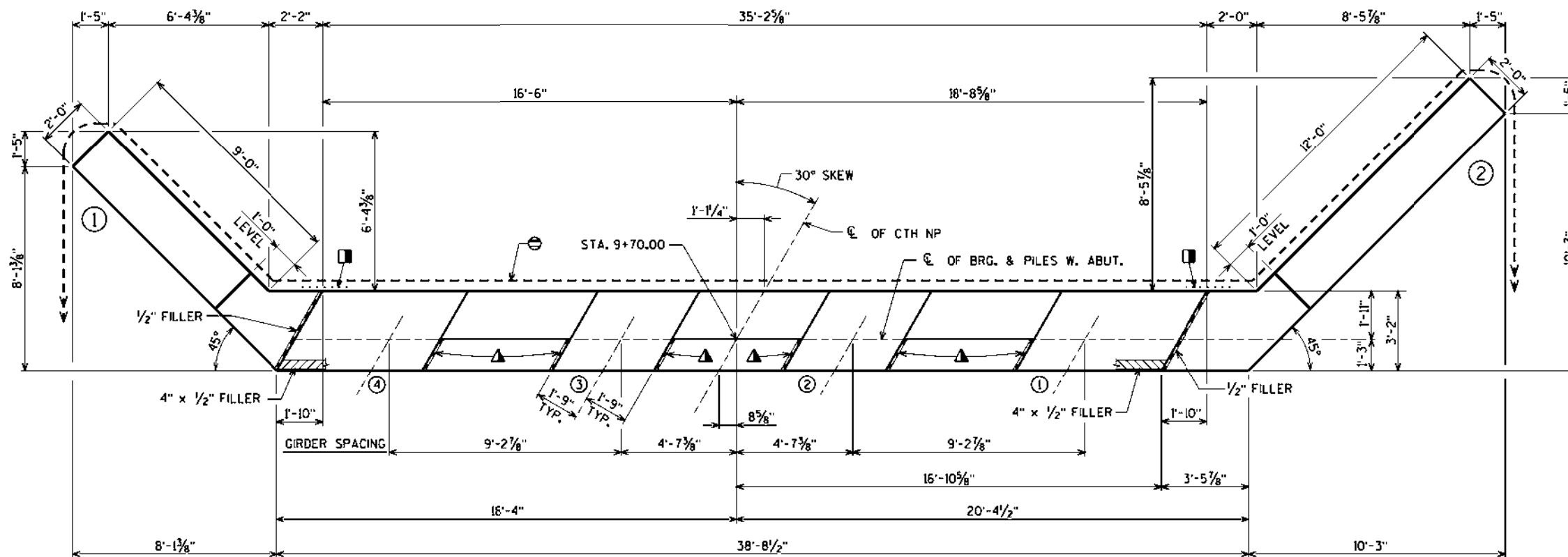
⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 3. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

▣ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.

▲ 1/4" CORK FILLER ON VERTICAL FACE ONLY.

FOR PILE SPLICE DETAIL SEE SHEET 3.



**PLAN**

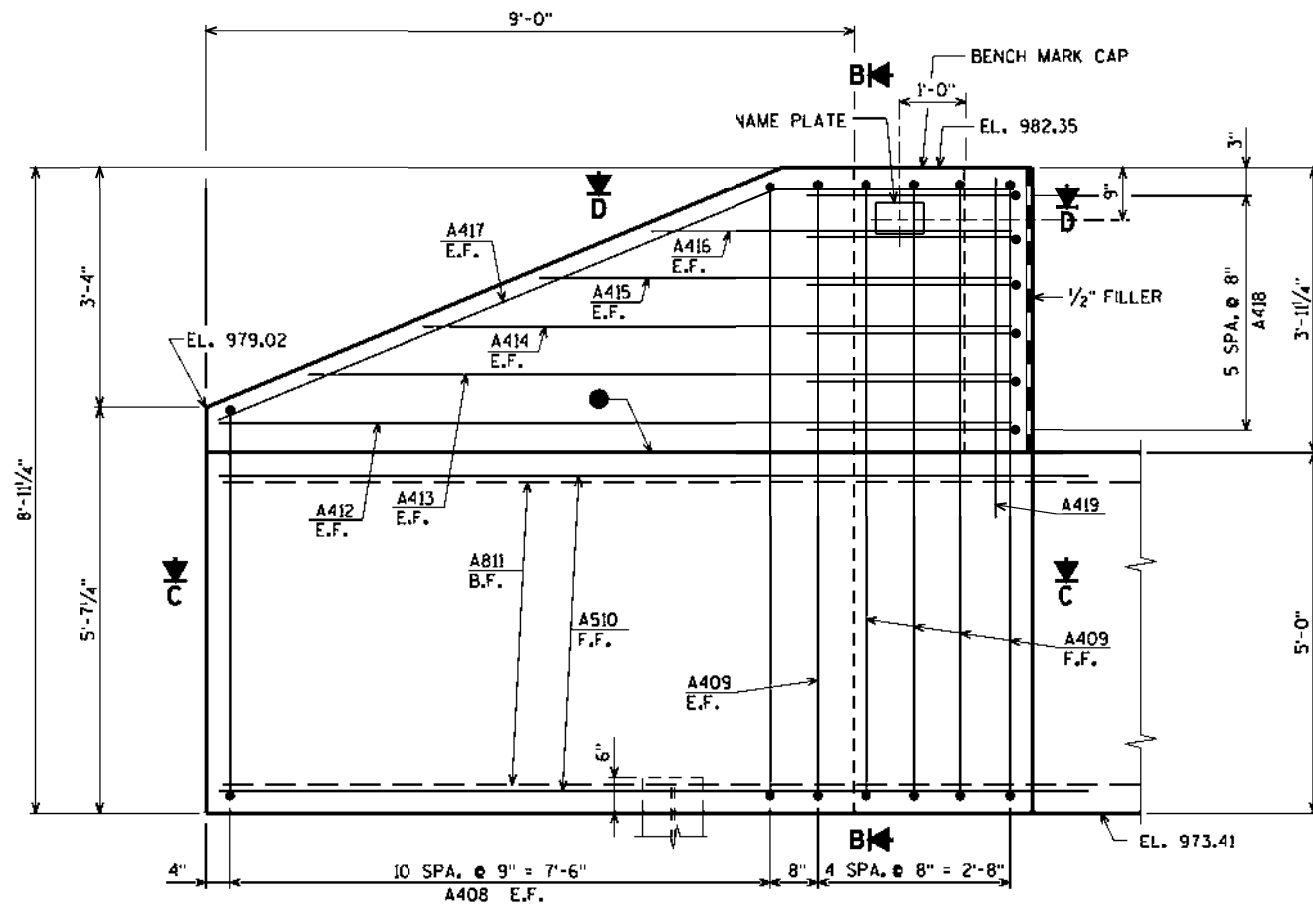
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-229			
DRAWN BY CLP		PLANS CKD. ZSS	
<b>WEST ABUTMENT</b>			SHEET 5 OF 20

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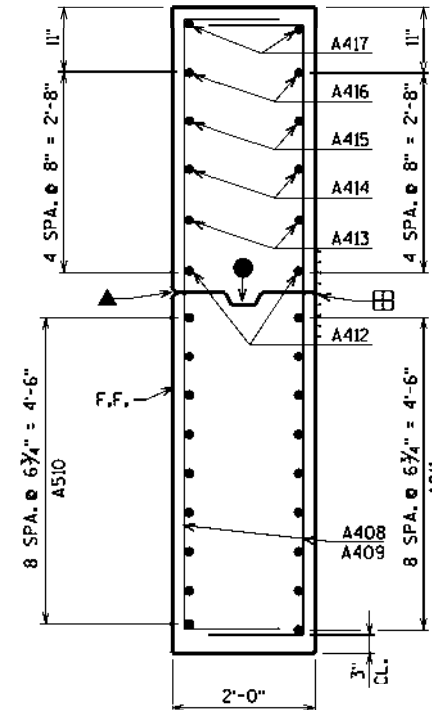
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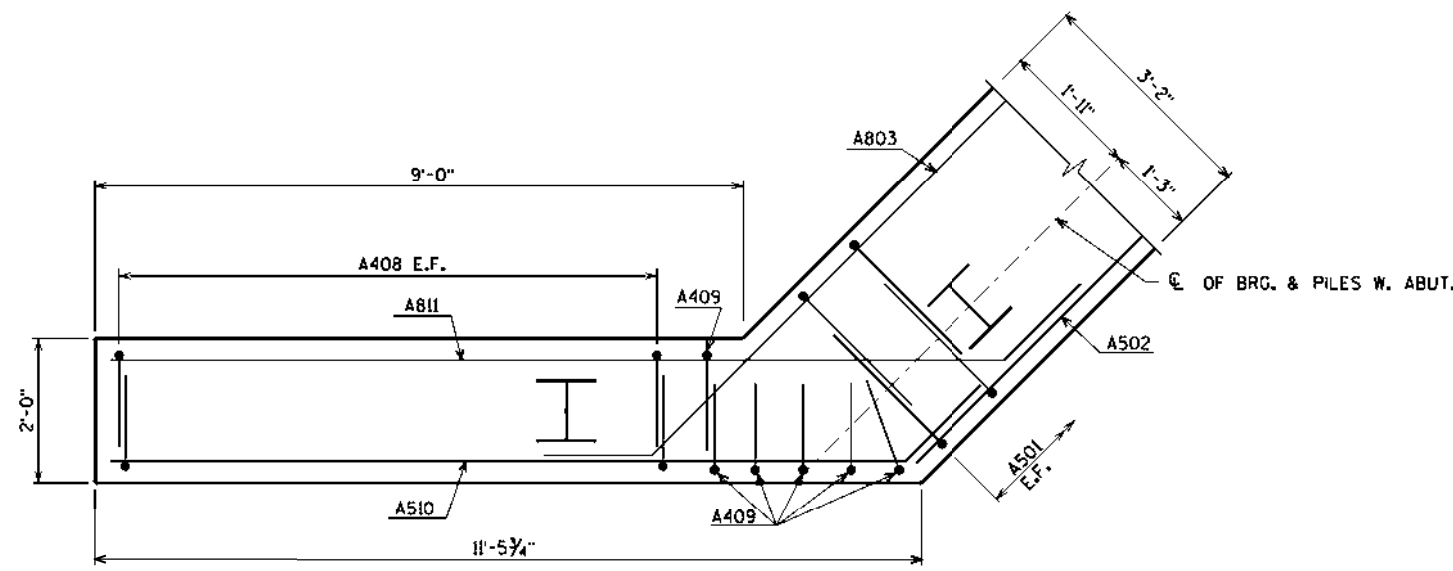


ELEVATION - WING 1

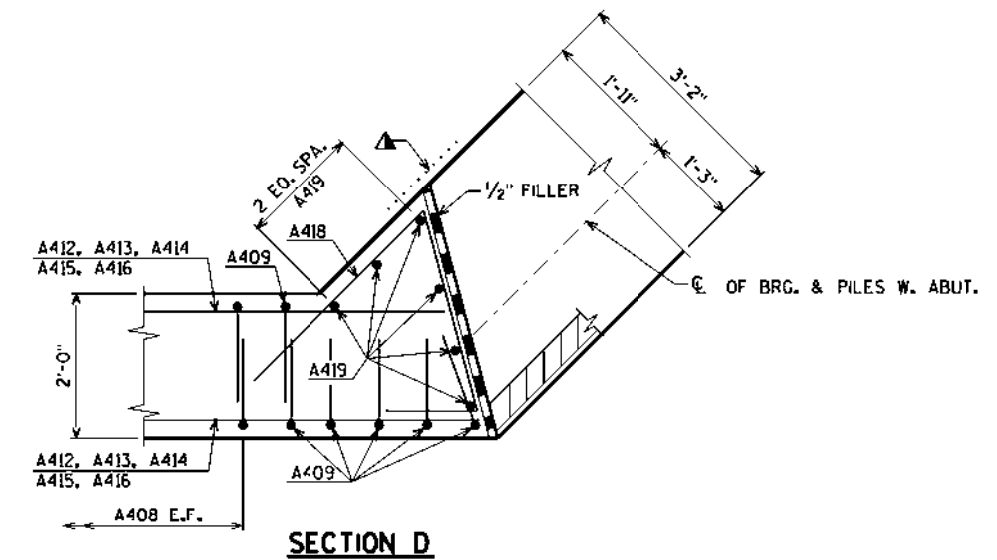


SECTION B

- ▣ RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
  - OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
  - ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
  - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
- FOR PILE SPICE DETAIL SEE SHEET 3.



SECTION C



SECTION D

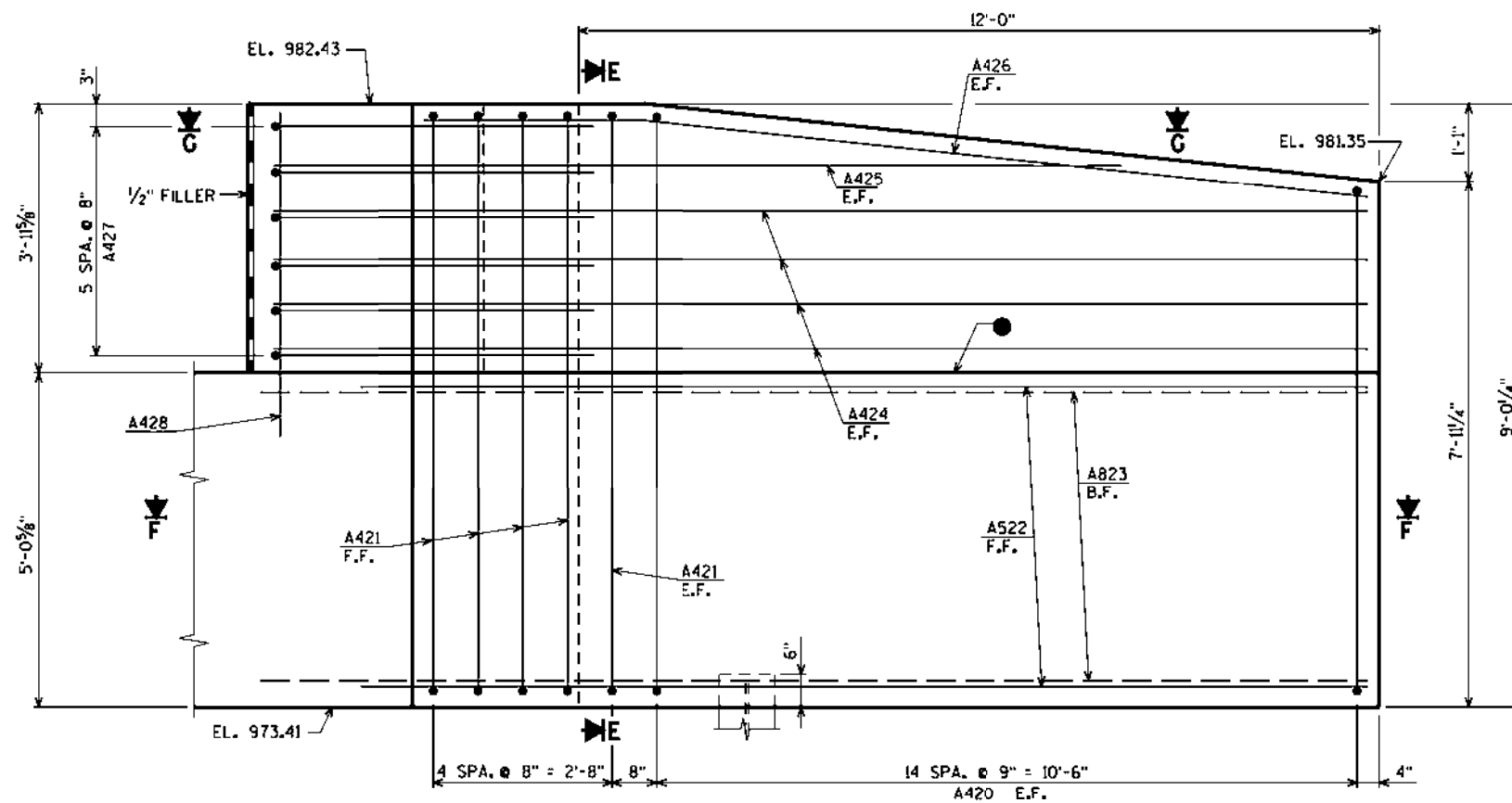
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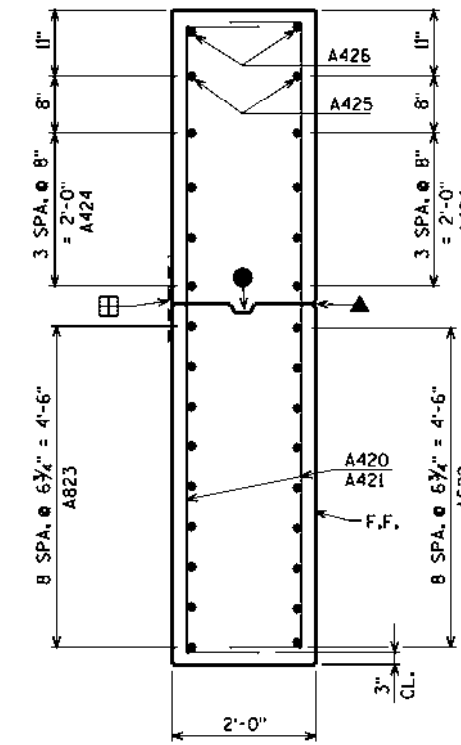
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY		CLP	PLANS CKD. ZSS
<b>WEST ABUTMENT WING 1 DETAILS</b>			SHEET 6 OF 20

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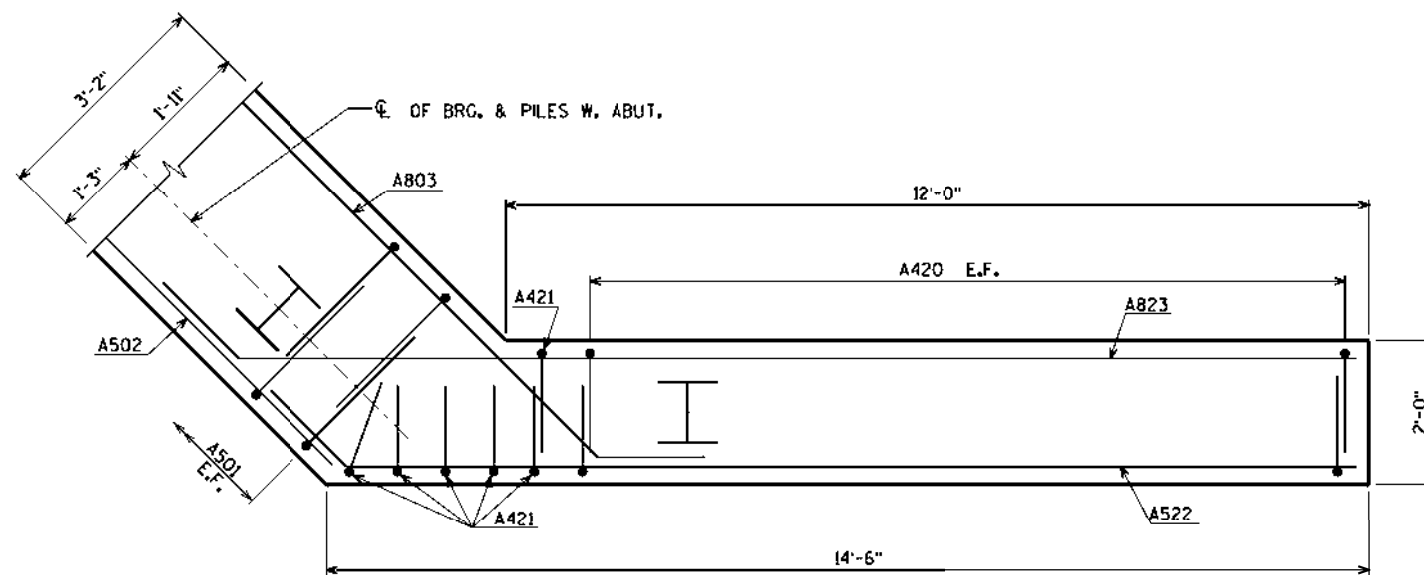


**ELEVATION - WING 2**

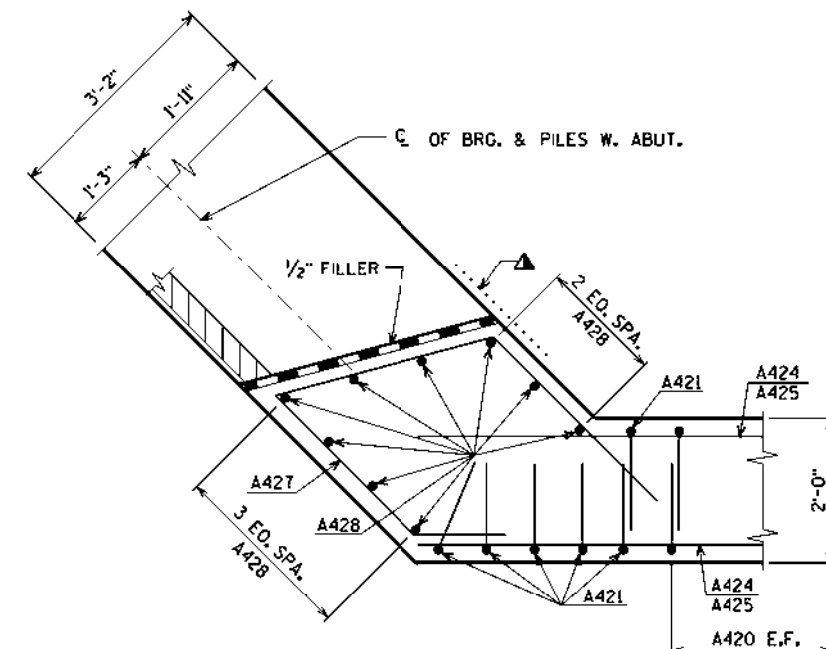


**SECTION E**

- ▣ RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
  - OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
  - ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
  - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
- FOR PILE SPLICE DETAIL SEE SHEET 3.



**SECTION F**



**SECTION G**

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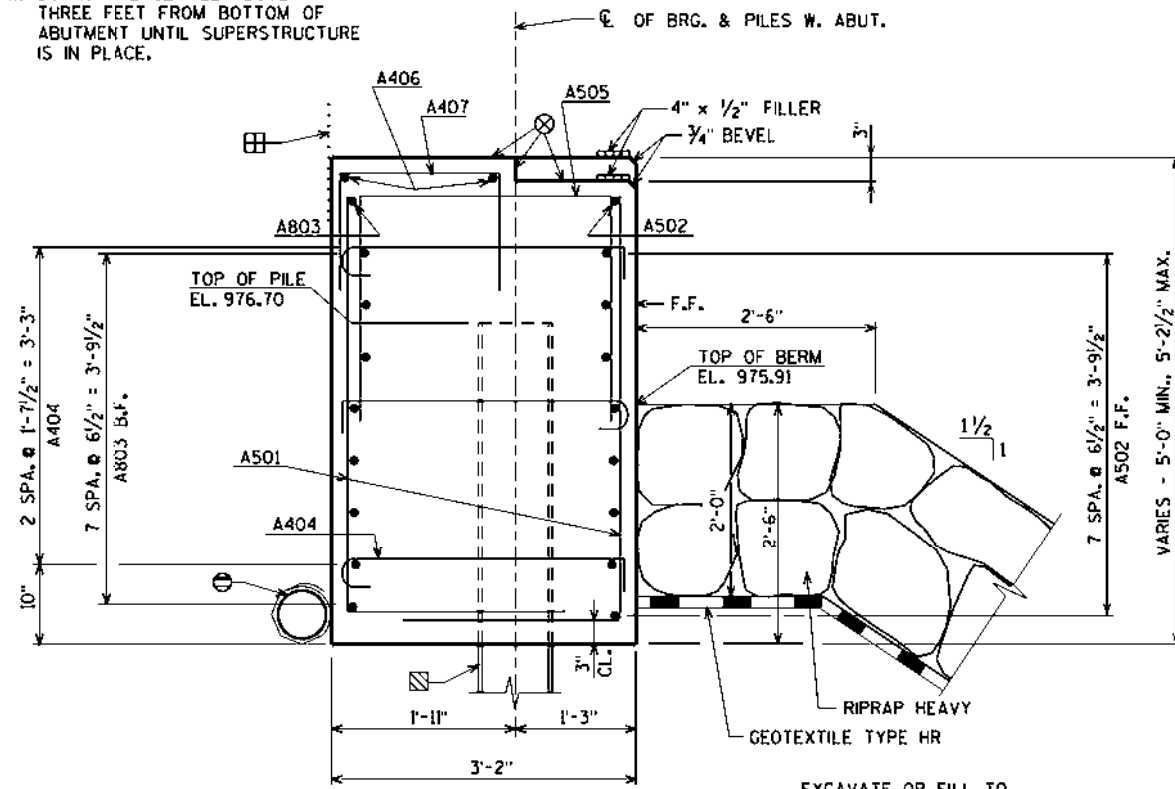
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY		CLP	PLANS CKD. ZSS
<b>WEST ABUTMENT WING 2 DETAILS</b>			SHEET 7 OF 20

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NOTE: DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.



SECTION A

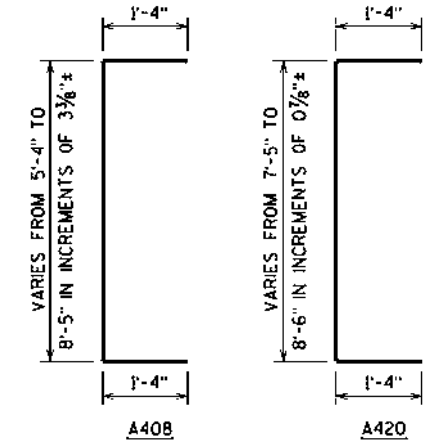
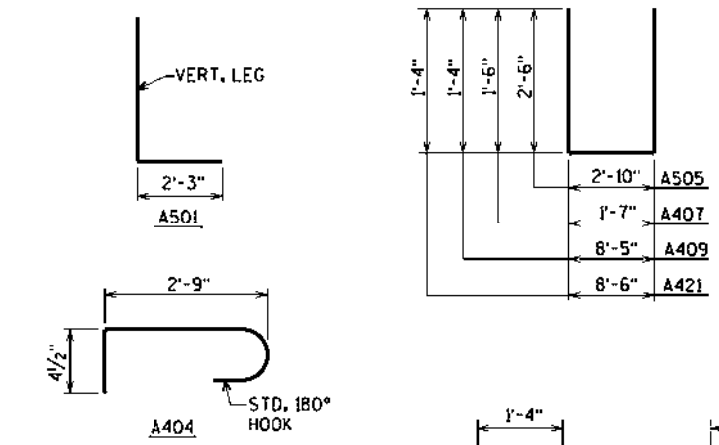
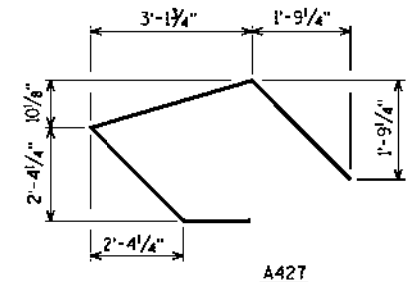
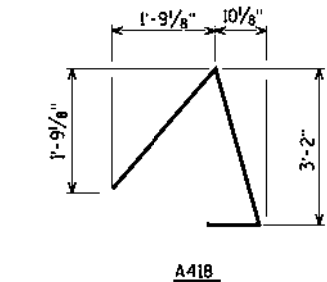
ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE. ESTIMATED LENGTH 40'-0".

BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A408	2 SERIES OF 11	7'-9" TO 10'-10"
A420	2 SERIES OF 15	9'-11" TO 11'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR NO.	DIM. "A"	DIM. "B"
A803	1'-0 3/4"	1'-0 3/4"
A510	1'-0 3/4"	1'-0 3/4"
A811	1'-0 3/4"	1'-0 3/4"
A417	7'-10"	3'-4"
A522	1'-0 3/4"	1'-0 3/4"
A823	1'-0 3/4"	1'-0 3/4"
A426	11'-0"	1'-1"



BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	1770° COATED 2.660° UNCOATED	
							LOCATION	
A501		78	6-6	X		BODY VERT. E.F.		
A502		9	38-6			BODY HORIZ. F.F.		
A803		18	26-1	X		BODY HORIZ. B.F.		
A404		30	4-1	X		BODY TIES		
A505		39	7-7	X		BODY VERT. TOP		
A406		4	20-2			BODY HORIZ. TOP @ NOTCH		
A407		26	4-5	X		BODY VERT. TOP @ NOTCH		
A408	X	22	9-4	X		WING 1 VERT. E.F.		
A409	X	6	10-11	X		WING 1 VERT. E.F.		
A510	X	9	12-7	X		WING 1 HORIZ. F.F.		
A811	X	9	14-5	X		WING 1 HORIZ. B.F.		
A412	X	2	11-1			WING 1 HORIZ. E.F.		
A413	X	2	9-10			WING 1 HORIZ. E.F.		
A414	X	2	8-3			WING 1 HORIZ. E.F.		
A415	X	2	6-8			WING 1 HORIZ. E.F.		
A416	X	2	5-1			WING 1 HORIZ. E.F.		
A417	X	2	11-8	X		WING 1 DIAG. E.F.		
A418	X	6	7-7	X		WING 1 HORIZ.		
A419	X	6	5-3			WING 1 VERT.		
A420	X	30	10-5	X		WING 2 VERT. E.F.		
A421	X	6	11-0	X		WING 2 VERT. E.F.		
A522	X	9	15-7	X		WING 2 HORIZ. F.F.		
A823	X	9	17-5	X		WING 2 HORIZ. B.F.		
A424	X	8	14-1			WING 2 HORIZ. E.F.		
A425	X	2	10-5			WING 2 HORIZ. E.F.		
A426	X	2	14-1	X		WING 2 DIAG. E.F.		
A427	X	6	10-10	X		WING 2 HORIZ.		
A428	X	9	5-3			WING 2 VERT.		

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.  
 ⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

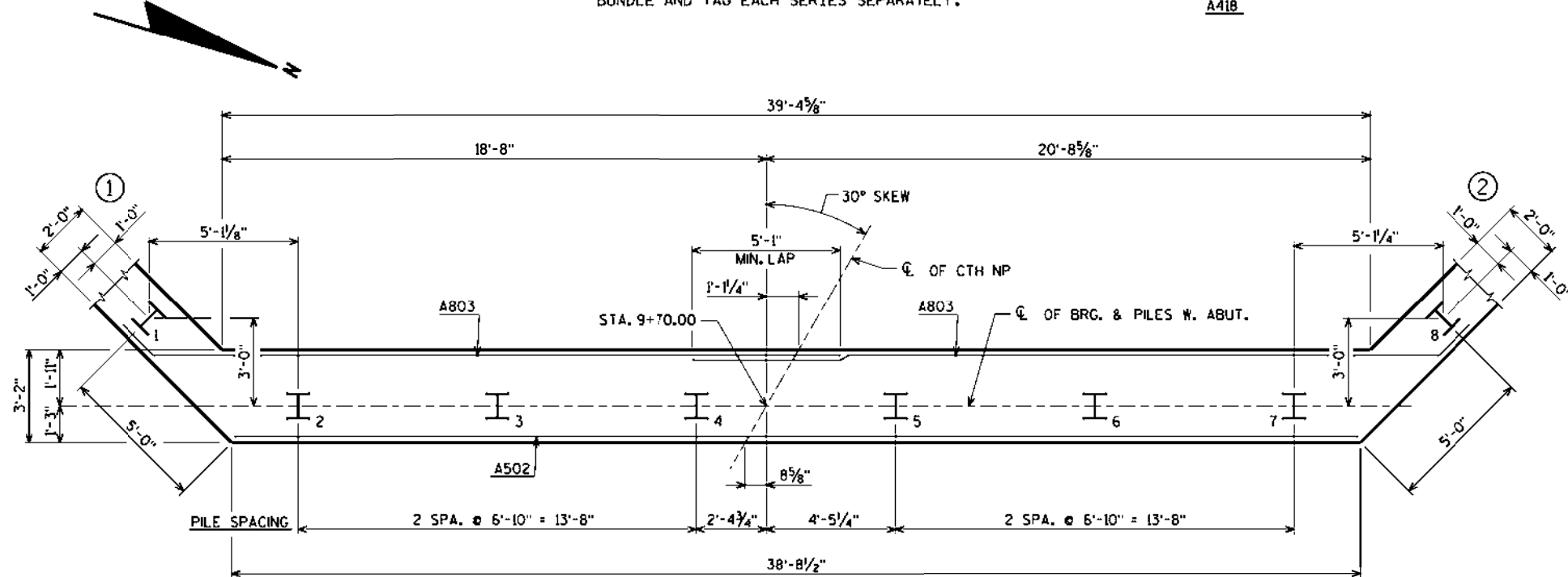
⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 3. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

⊕ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING FILLER AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

FOR PILE SPLICE DETAIL SEE SHEET 3.

FOR LOCATION OF SECTION A, SEE SHEET 5.

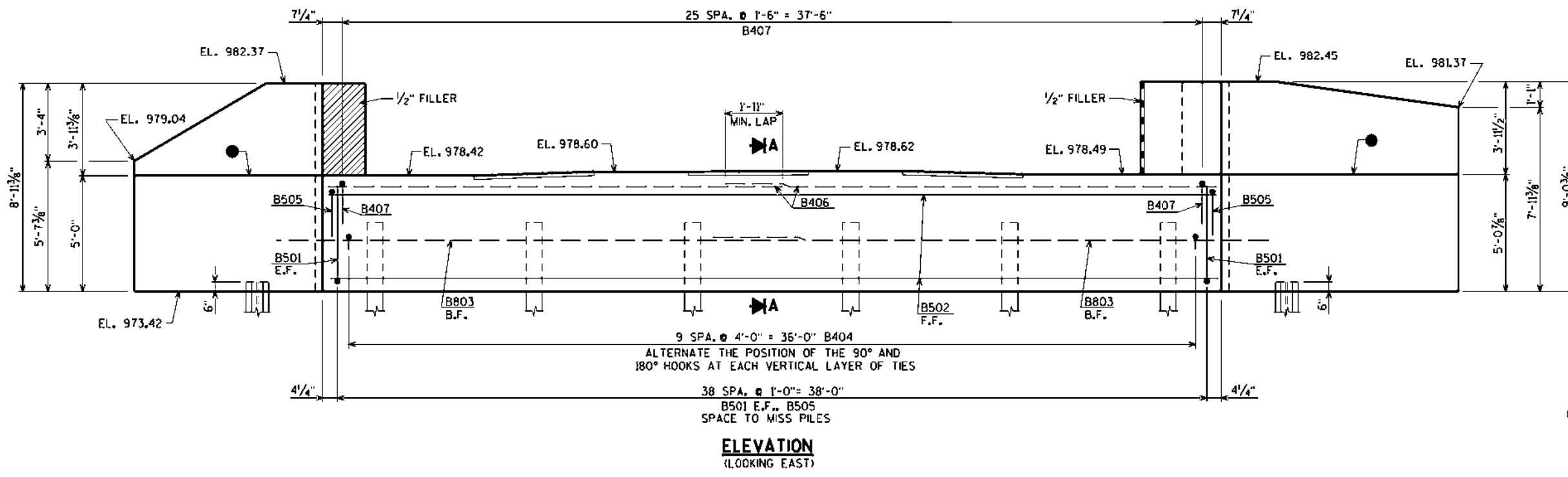


PILE LAYOUT

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-229			
DRAWN BY	CLP	PLANS CK'D.	ZSS
WEST ABUTMENT DETAILS & BILL OF BARS			SHEET 8 OF 20

ORIGINAL PLANS PREPARED BY  
**AYRES**  
 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
 www.AyresAssociates.com

NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)



**ELEVATION**  
(LOOKING EAST)

FOR SECTION A SEE SHEET 12.

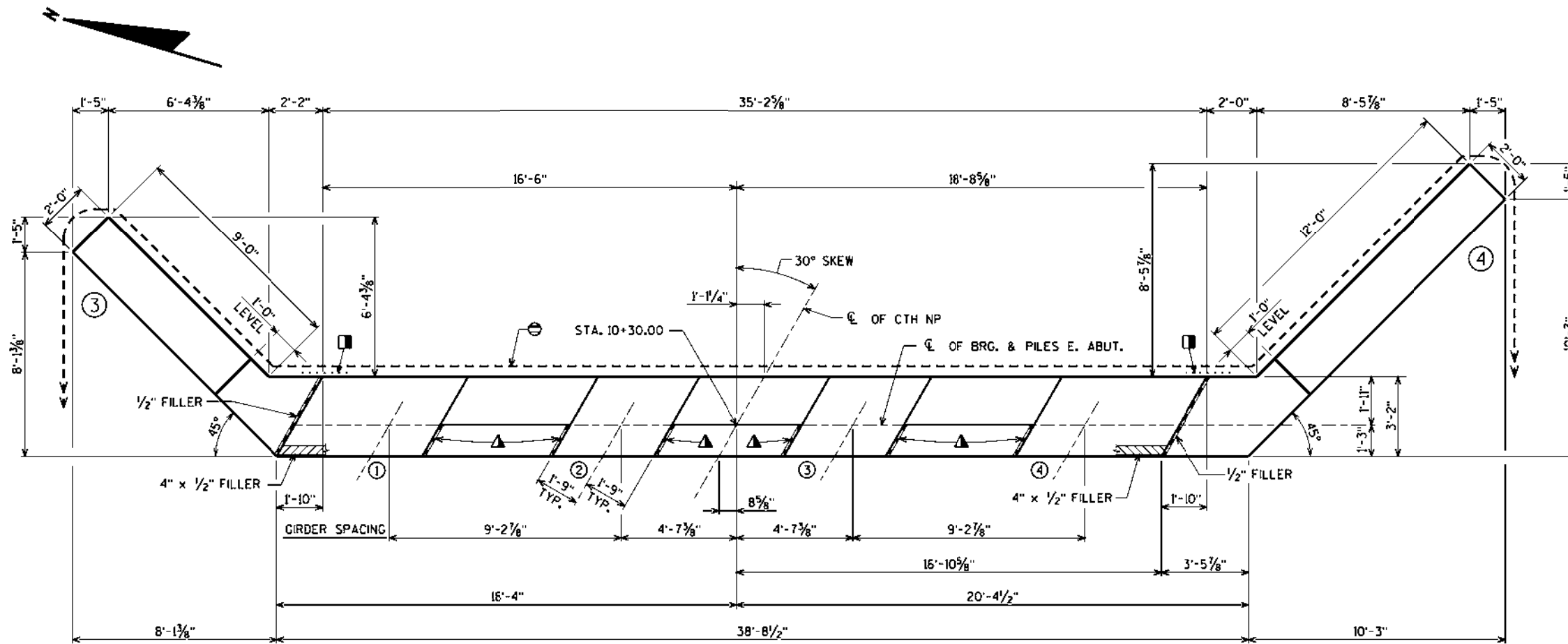
⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 3. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

▣ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.

▲ 3/4" CORK FILLER ON VERTICAL FACE ONLY.

FOR PILE SPLICE DETAIL SEE SHEET 3.



**PLAN**

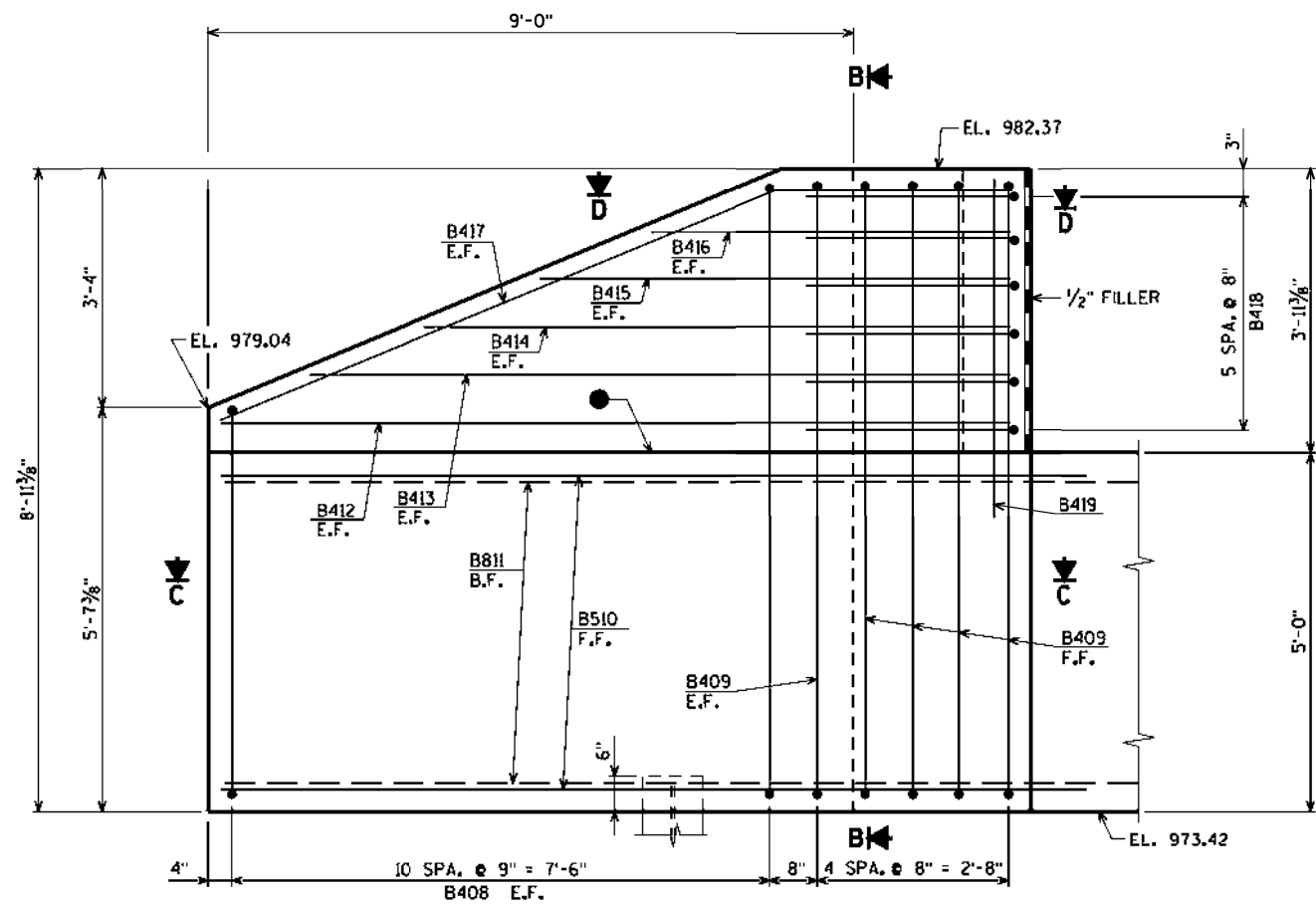
6/1/2023 PENTABLE:BRRequ\_shd\_util.tbl

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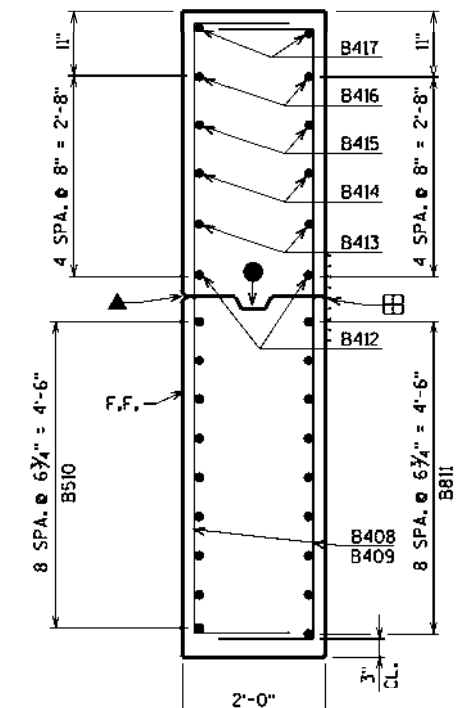
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY		CLP	PLANS CKD. ZSS
<b>EAST ABUTMENT</b>			SHEET 9 OF 20

ORIGINAL PLANS PREPARED BY  
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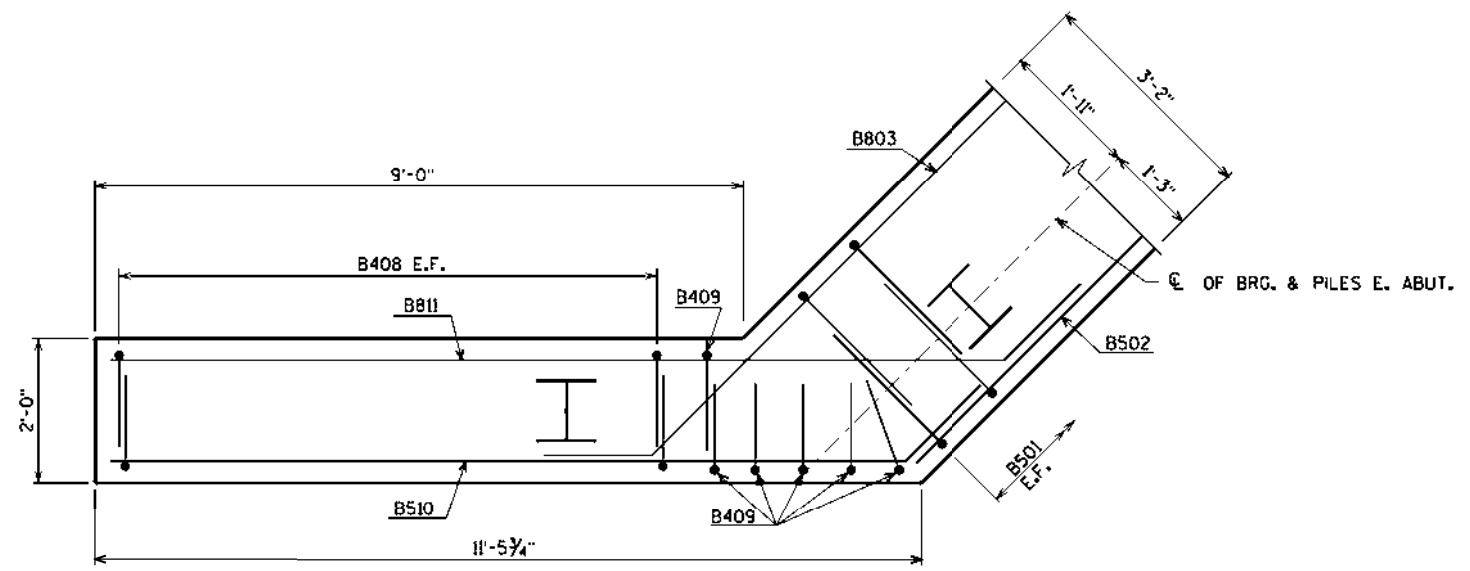


ELEVATION - WING 3

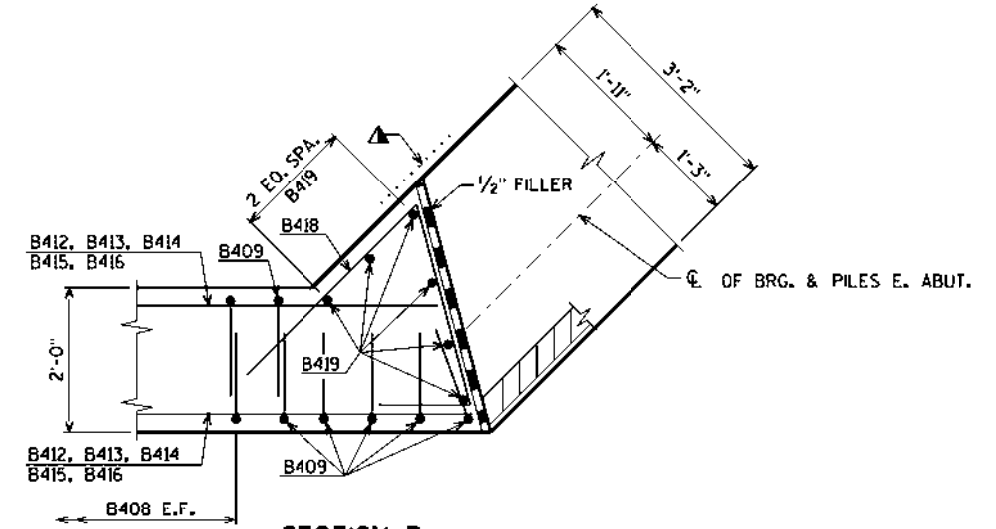


SECTION B

- ▣ RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
  - OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
  - ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
  - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
- FOR PILE SPICE DETAIL SEE SHEET 3.



SECTION C



SECTION D

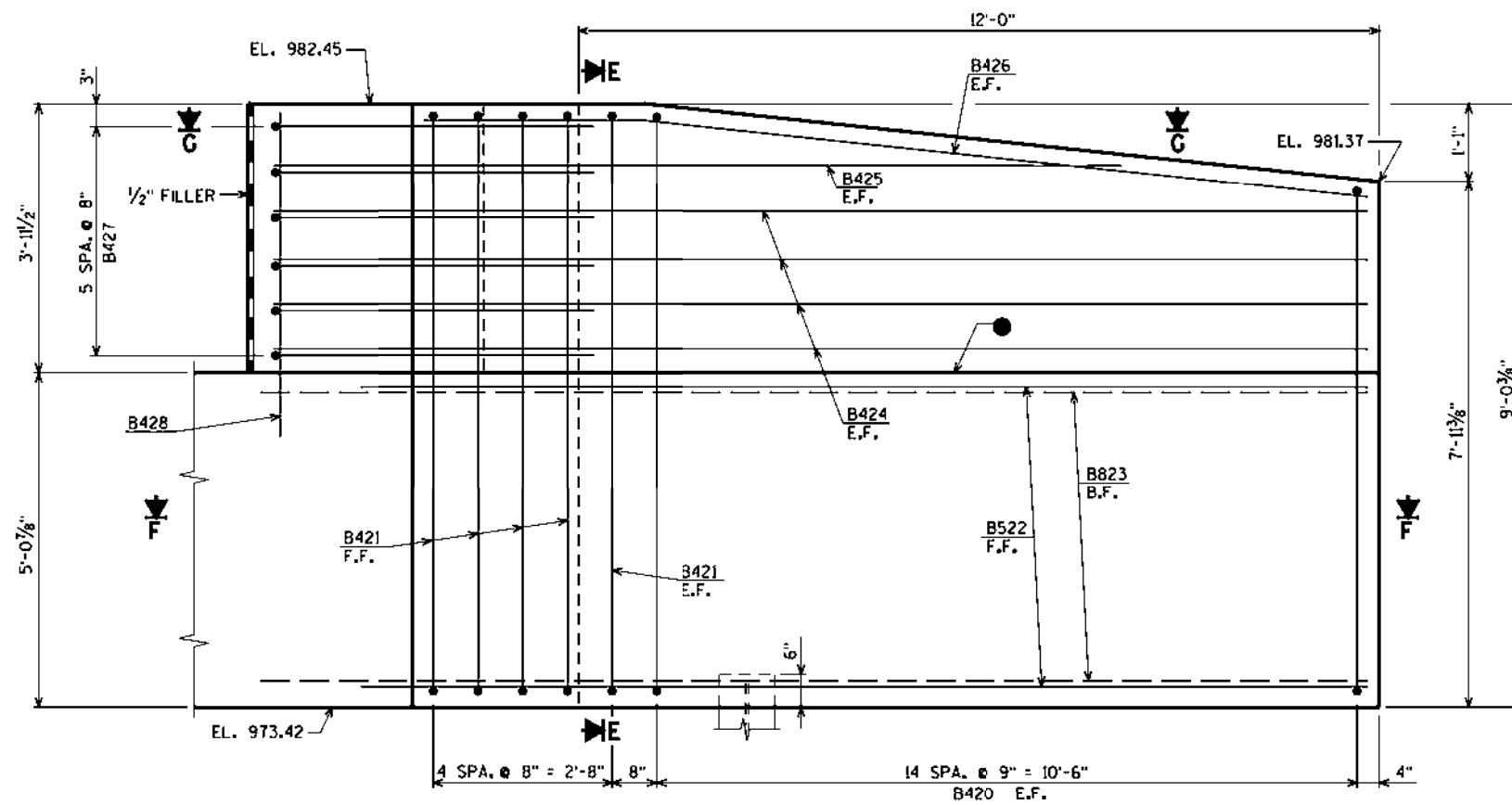
6/1/2023 PENTABLE:BRQu\_shd\_util.tbi

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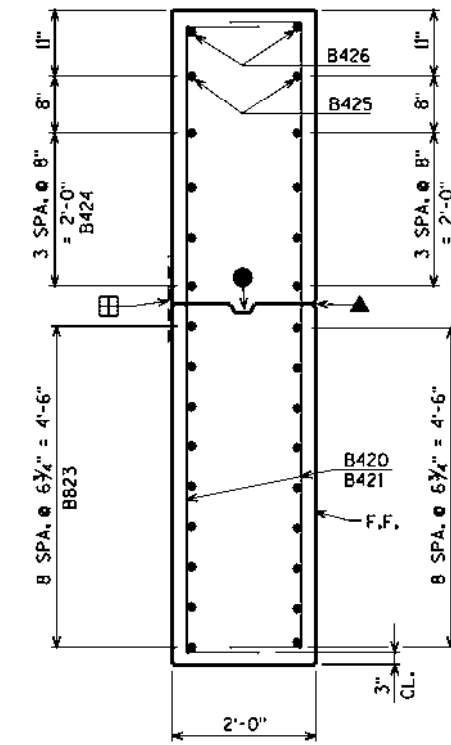
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY		CLP	PLANS CKD. ZSS
<b>EAST ABUTMENT WING 3 DETAILS</b>			SHEET 10 OF 20

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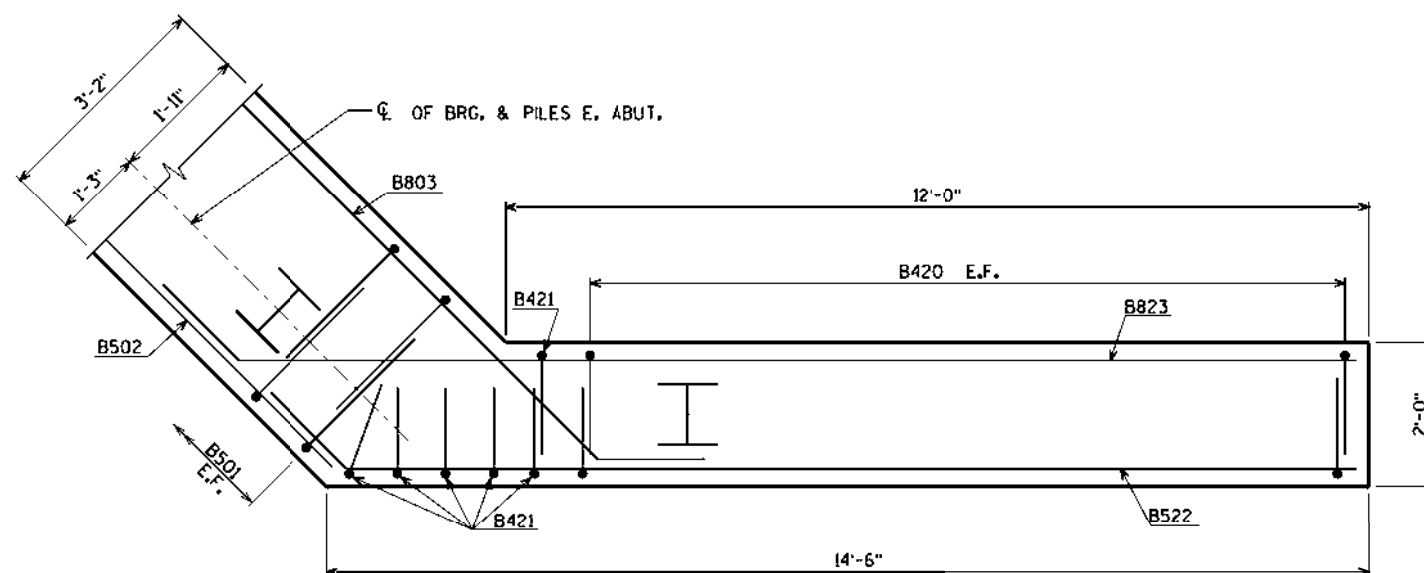


ELEVATION - WING 4

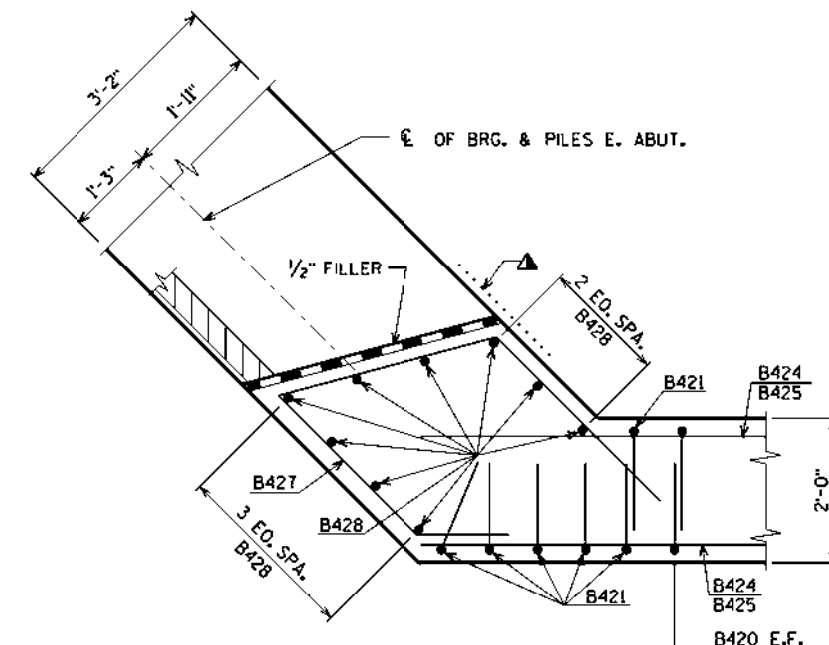


SECTION E

- ☐ RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
  - OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
  - ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
  - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
- FOR PILE SPLICE DETAIL SEE SHEET 3.



SECTION F



SECTION G

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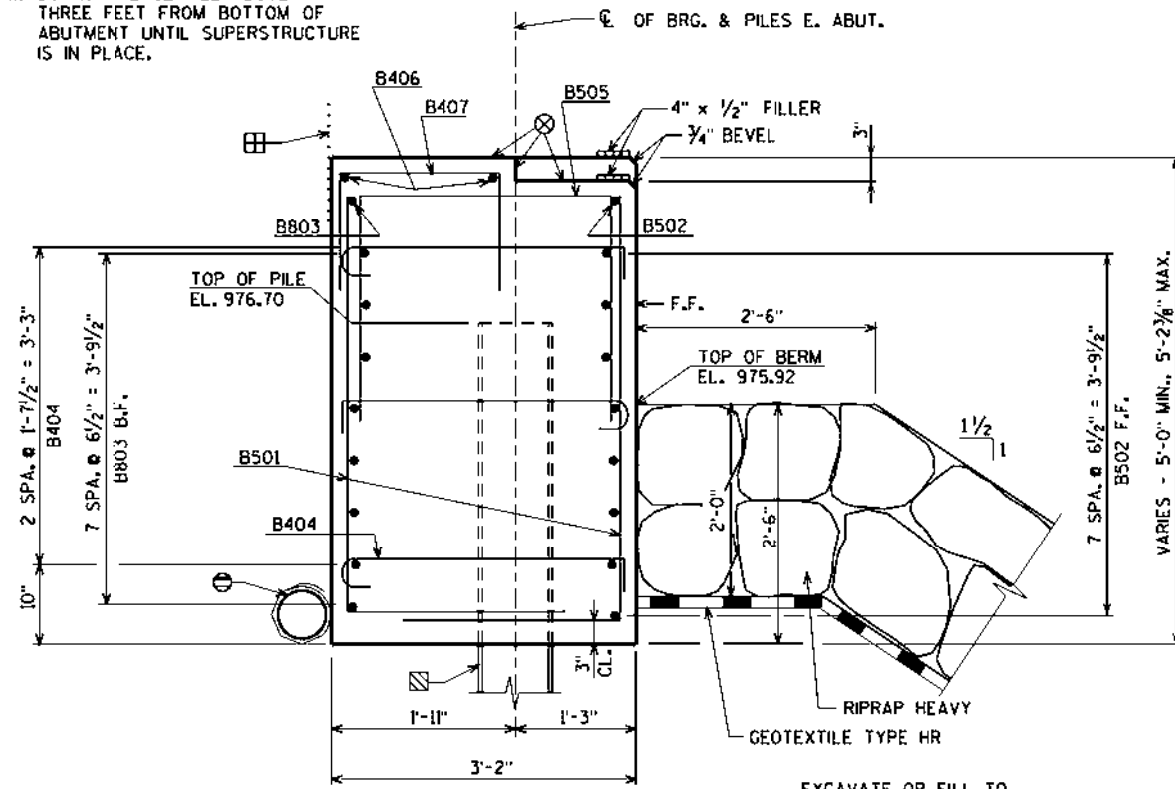
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-229			
DRAWN BY		CLP	PLANS CKD. ZSS
EAST ABUTMENT WING 4 DETAILS			SHEET 11 OF 20

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NOTE: DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.



SECTION A

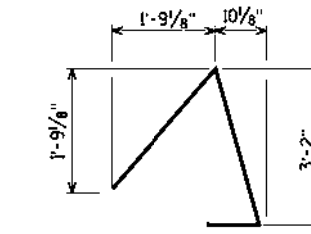
ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE. ESTIMATED LENGTH 30'-0".

BAR SERIES TABLE

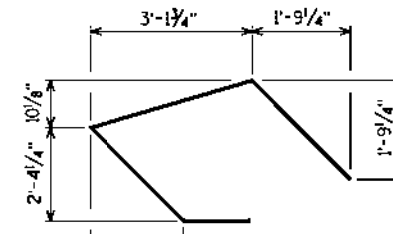
BAR MARK	NO. REQ'D.	LENGTH
B408	2 SERIES OF 11	7'-9" TO 10'-10"
B420	2 SERIES OF 15	9'-11" TO 11'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY.

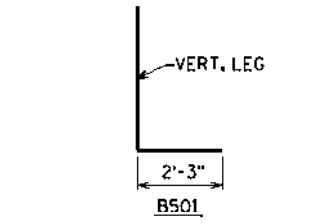
BAR NO.	DIM. "A"	DIM. "B"
B803	1'-0 3/4"	1'-0 3/4"
B510	1'-0 3/4"	1'-0 3/4"
B811	1'-0 3/4"	1'-0 3/4"
B417	7'-10"	3'-4"
B522	1'-0 3/4"	1'-0 3/4"
B823	1'-0 3/4"	1'-0 3/4"
B426	11'-0"	1'-1"



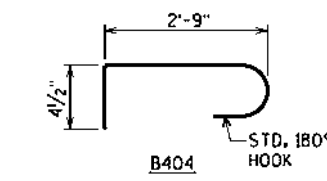
B418



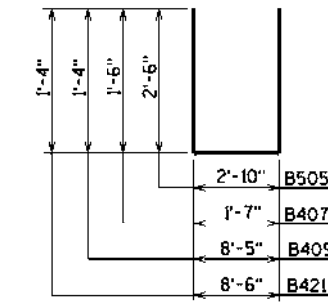
B427



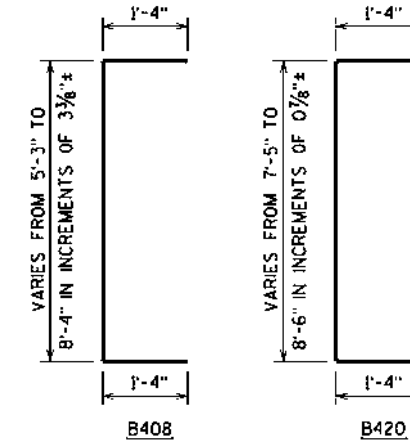
B501



B404



B421



B408

B420

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	1770° COATED	2.660° UNCOATED
LOCATION								
B501		78	6-6	X		BODY VERT. E.F.		
B502		9	38-6			BODY HORIZ. F.F.		
B803		18	26-1	X		BODY HORIZ. B.F.		
B404		30	4-1	X		BODY TIES		
B505		39	7-7	X		BODY VERT. TOP		
B406		4	20-2			BODY HORIZ. TOP @ NOTCH		
B407		26	4-5	X		BODY VERT. TOP @ NOTCH		
B408	X	22	9-4	X		WING 3 VERT. E.F.		
B409	X	6	10-11	X		WING 3 VERT. E.F.		
B510	X	9	12-7	X		WING 3 HORIZ. F.F.		
B811	X	9	14-5	X		WING 3 HORIZ. B.F.		
B412	X	2	11-1			WING 3 HORIZ. E.F.		
B413	X	2	9-10			WING 3 HORIZ. E.F.		
B414	X	2	8-3			WING 3 HORIZ. E.F.		
B415	X	2	6-8			WING 3 HORIZ. E.F.		
B416	X	2	5-1			WING 3 HORIZ. E.F.		
B417	X	2	11-8	X		WING 3 DIAG. E.F.		
B418	X	6	7-7	X		WING 3 HORIZ.		
B419	X	6	5-3			WING 3 VERT.		
B420	X	30	10-5	X		WING 4 VERT. E.F.		
B421	X	6	11-0	X		WING 4 VERT. E.F.		
B522	X	9	15-7	X		WING 4 HORIZ. F.F.		
B823	X	9	17-5	X		WING 4 HORIZ. B.F.		
B424	X	8	14-1			WING 4 HORIZ. E.F.		
B425	X	2	10-5			WING 4 HORIZ. E.F.		
B426	X	2	14-1	X		WING 4 DIAG. E.F.		
B427	X	6	10-10	X		WING 4 HORIZ.		
B428	X	9	5-3			WING 4 VERT.		

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.  
 X LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

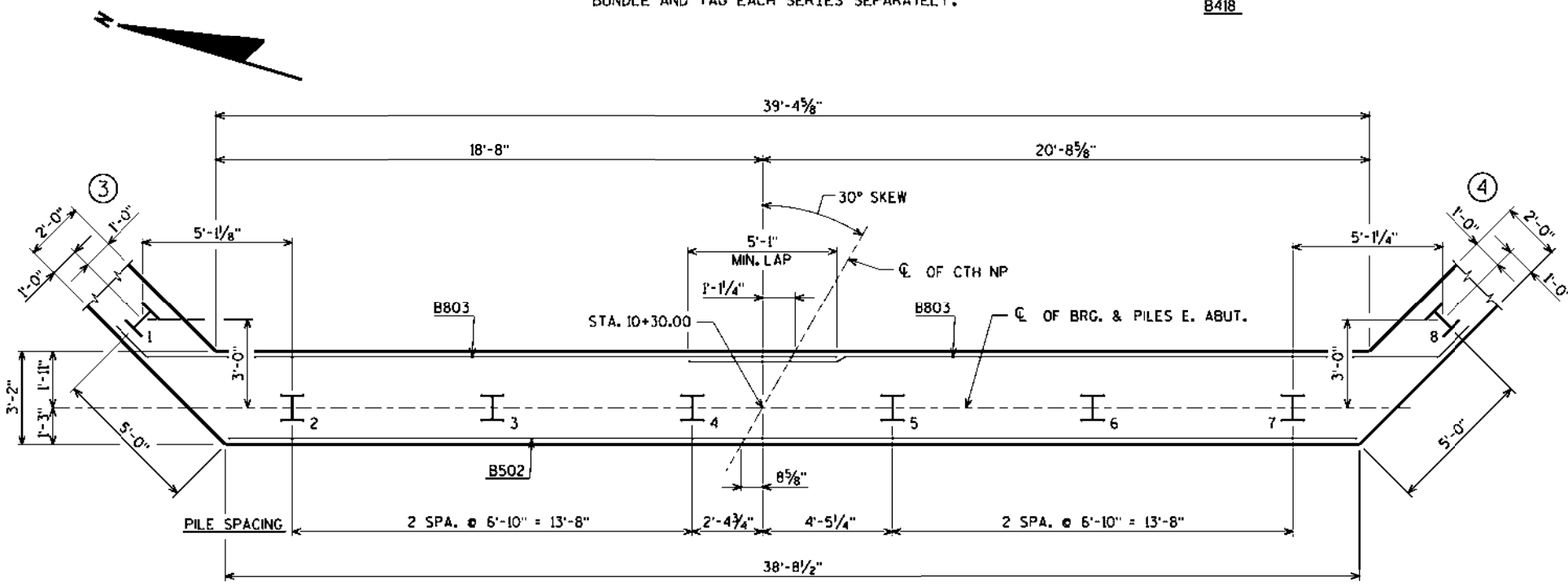
PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 3. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.

STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING FILLER AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

FOR PILE SPLICE DETAIL SEE SHEET 3.

FOR LOCATION OF SECTION A, SEE SHEET 9.

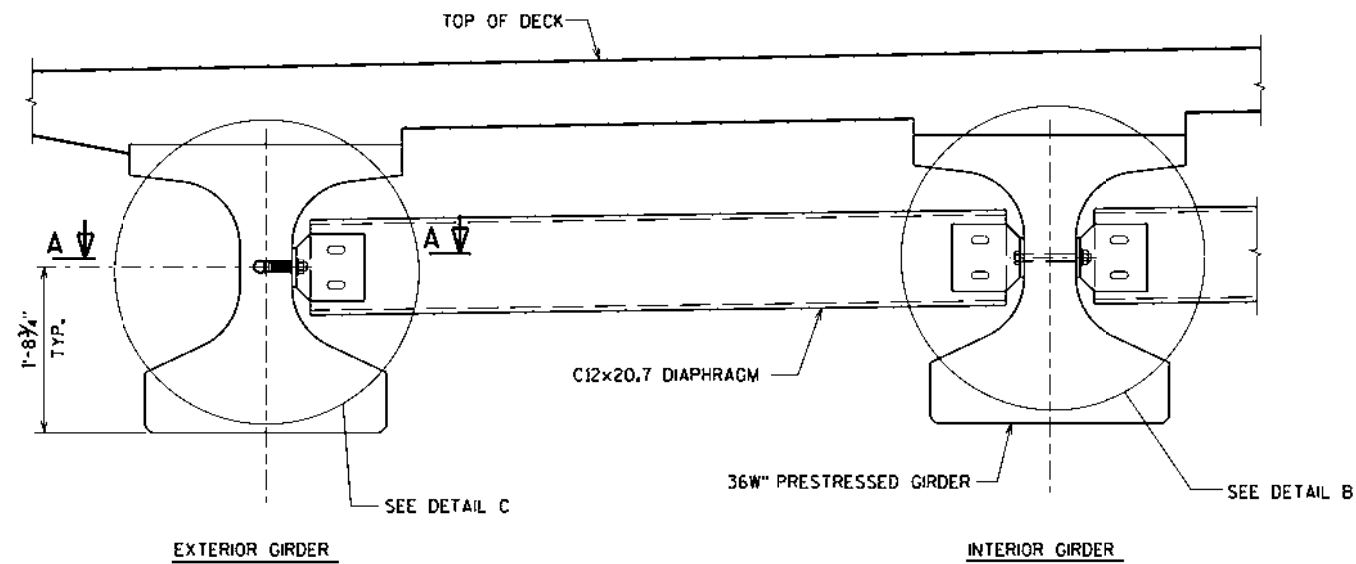


PILE LAYOUT

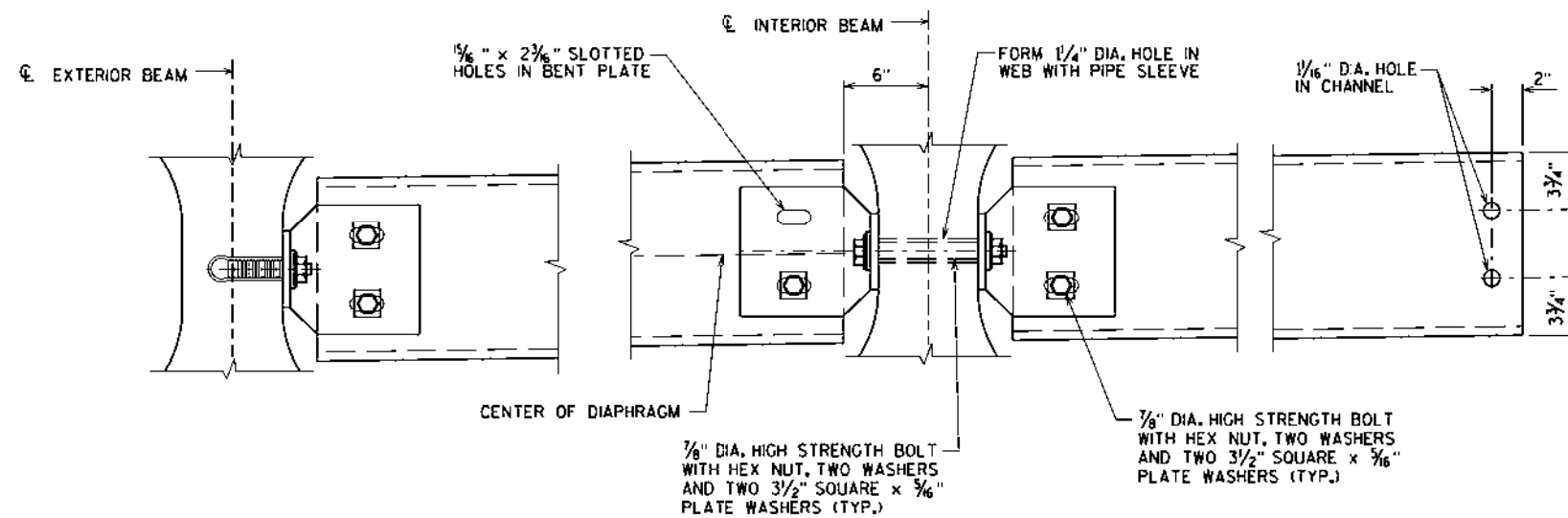
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STRUCTURE B-14-229			
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EAST ABUTMENT DETAILS & BILL OF BARS			SHEET 12 OF 20

6/1/2023 PENTABLE:BRQU\_uhd\_util.tbl

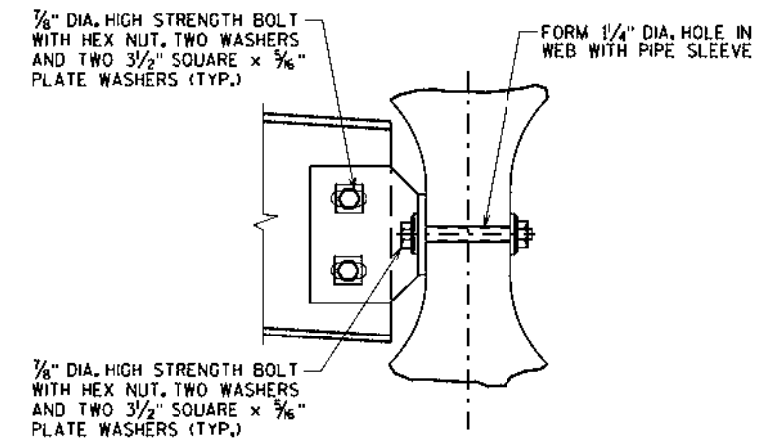


PART TRANSVERSE SECTION AT DIAPHRAGM

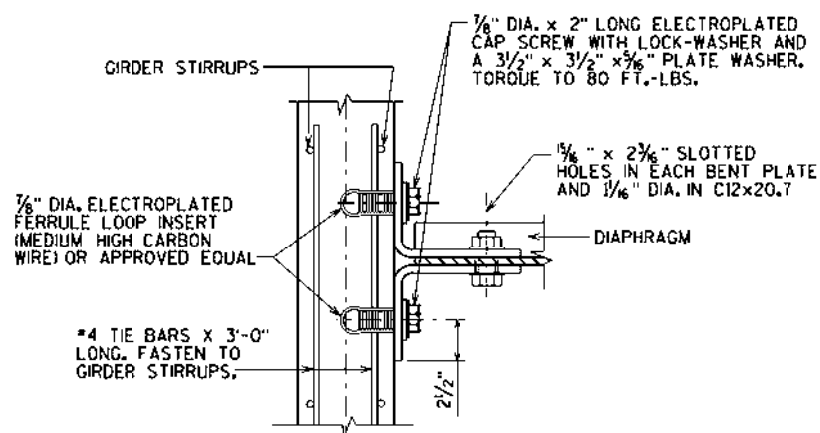


DETAIL C

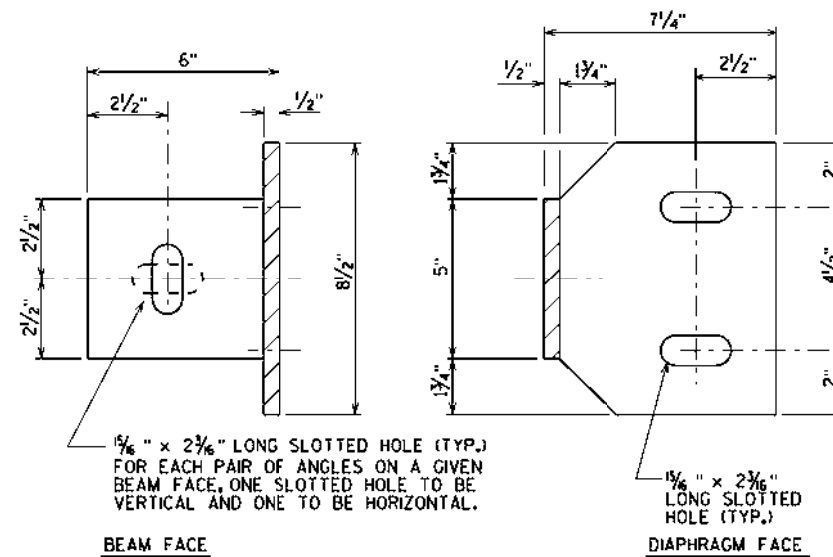
DETAIL B



SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°

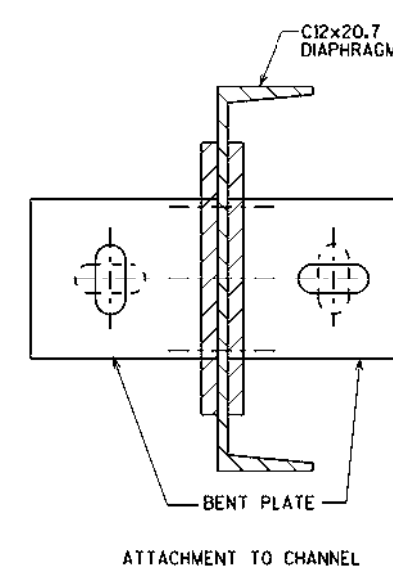


SECTION A-A  
(FOR EXTERIOR ATTACHMENT)



BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-14-229", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

FOR DIAPHRAGM SPACING SEE SHEET 17.

8

8

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<b>STRUCTURE B-14-229</b>			
DRAWN BY CLP		PLANS CKD. ZSS	
<b>STEEL DIAPHRAGM</b>			SHEET 13 OF 20

**NOTES**

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER, FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO ASTM M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

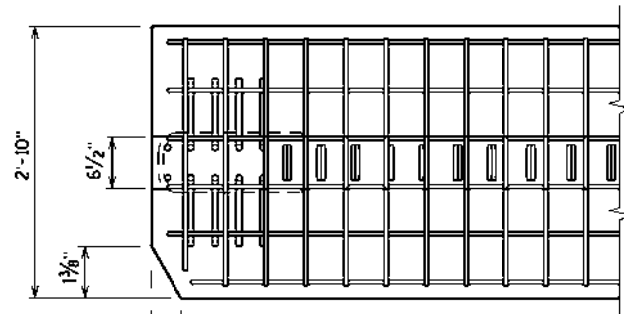
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 AND #5 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

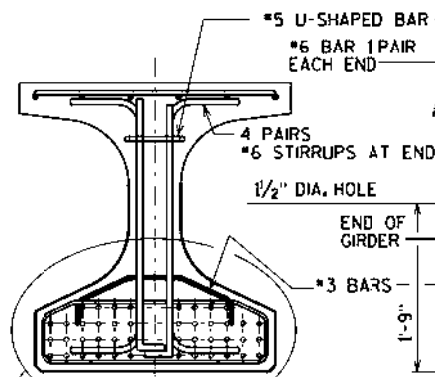
AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON ACCEPTANCE OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

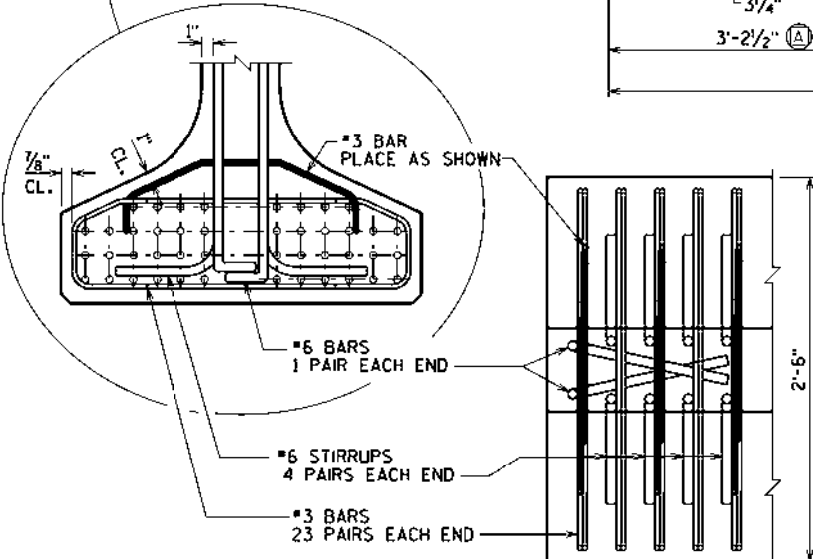
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.



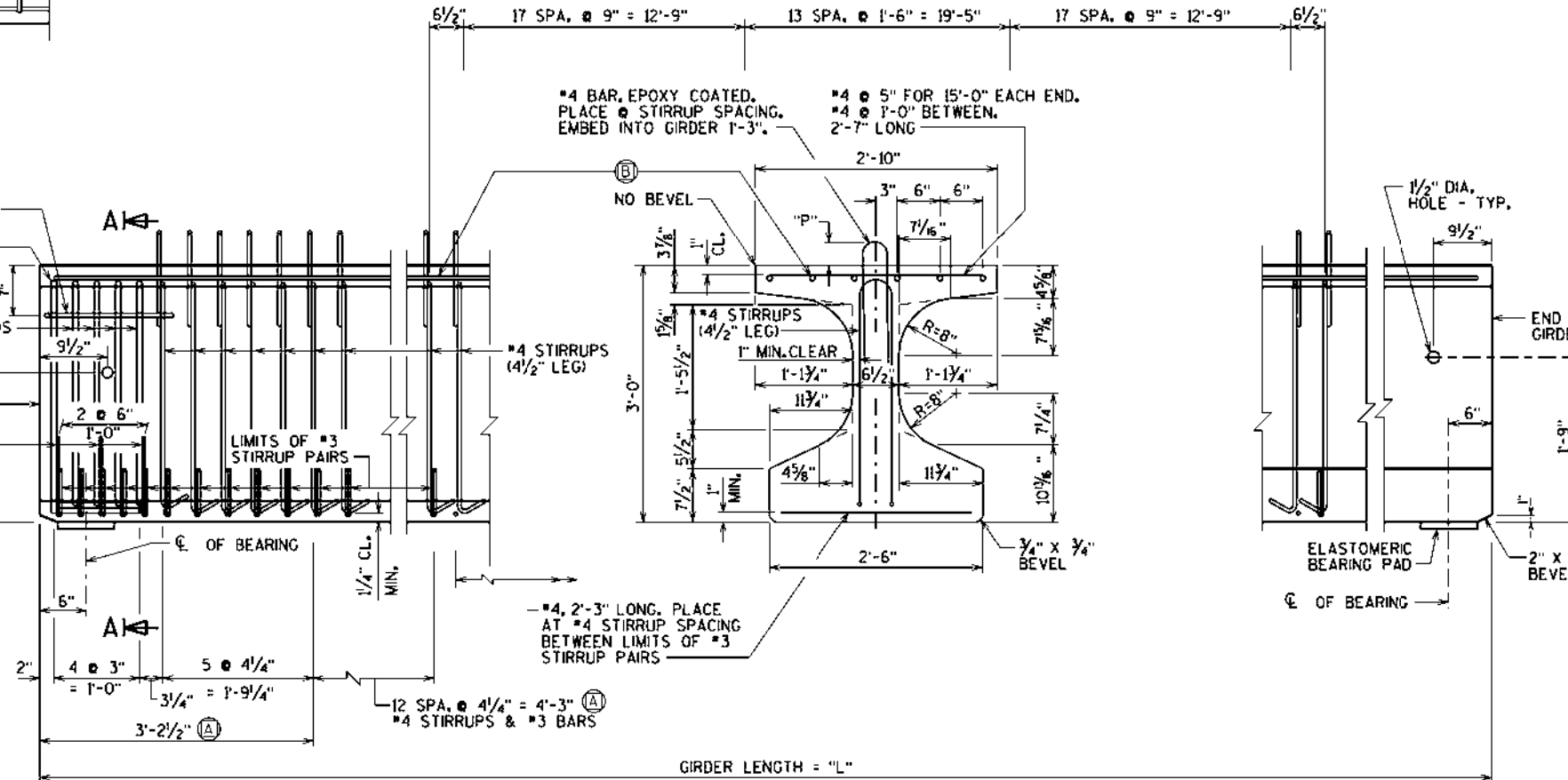
**TOP FLANGE**



**SECTION A-A**

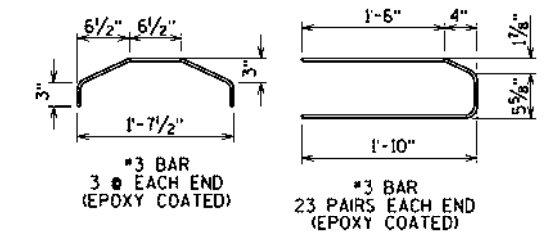
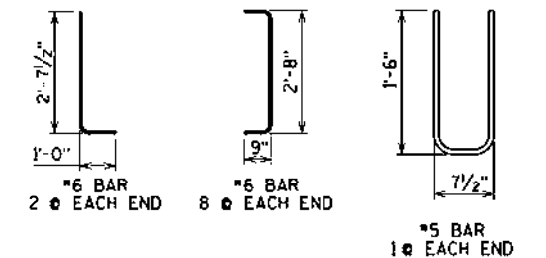


**DETAIL A  
BOTTOM FLANGE**



**SIDE VIEW & TYPICAL SECTION IN SPAN**

- (A) DETAIL TYP. AT EACH END
- (B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-4"



\* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)										CONC. STRGTH. f'c (P.S.I.)	"P" 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)					UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10						TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	"A"	"B" MIN.	"B" MAX.	"C"	TOTAL NO. OF STRANDS
1	1 & 4	61'-0"	0.1	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.1	8,000	8 1/2"	7"	8 1/2"	0.60	16	6,400	33	10.5	13.5	3		
1	2 & 3	61'-0"	0.1	0.3	0.4	0.5	0.4	0.4	0.3	0.1	8,000	8 1/2"	7"	8 1/2"	0.60	16	6,400	33	10.5	13.5	3			

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY	CLP	PLANS CKD.	ZSS
<b>36W" PRESTRESSED GIRDER DETAILS</b>			SHEET 14 OF 20

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\$PRNAME\$ I:\47\470391\36W.dgn

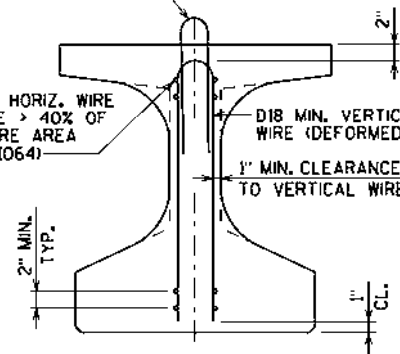
#4 BAR, EPOXY COATED. PLACE STIRRUP SPACING REQUIRED FOR NON WWF STIRRUPS. EMBED INTO GIRDER 1'-3".

HORIZ. WIRES SHALL BE LOCATED IN TOP AND BOT. FLANGES AND NOT IN THE WEB.

AREA OF HORIZ. WIRE SHALL BE > 40% OF VERT. WIRE AREA (ASTM A1064)

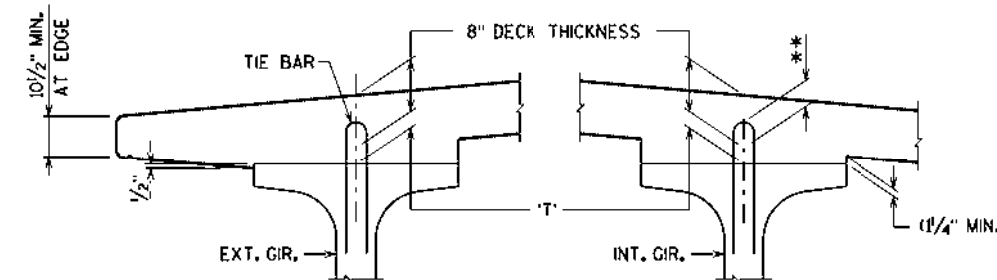
D18 MIN. VERTICAL WIRE (DEFORMED)

1" MIN. CLEARANCE TO VERTICAL WIRE



**SECTION THRU GIRDER**

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS  
ASTM A1064 (FY = 70 KSI)



**DECK HAUNCH DETAIL**

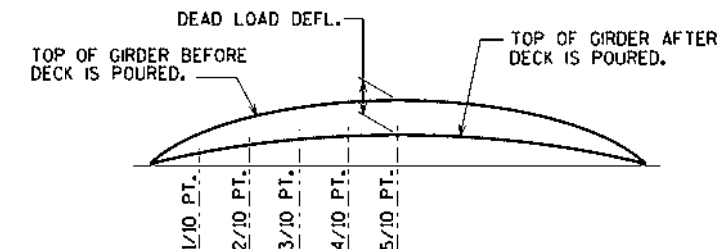
IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN DECK THICKNESS SHALL BE HELD, NOTIFY THE STRUCTURE SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR.

\*\* IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

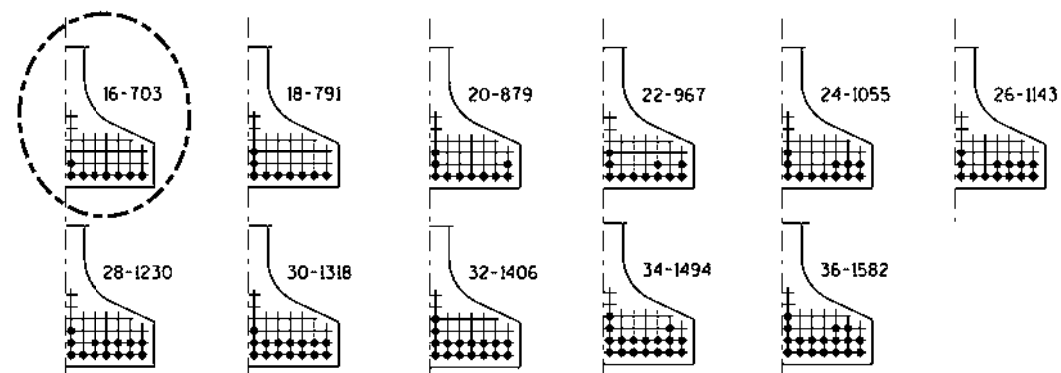
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT C. OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 3/8" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

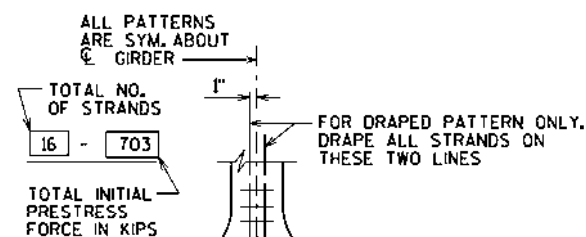


**DEAD LOAD DEFLECTION DIAGRAM**

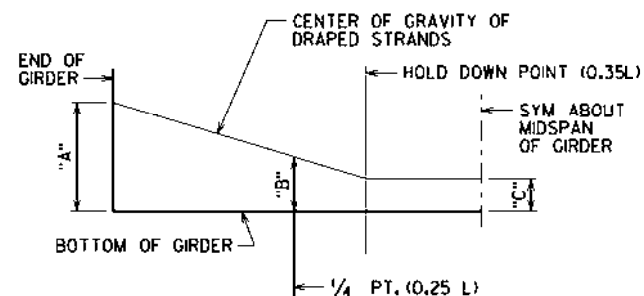


**ARRANGEMENT AT C. SPAN - FOR GIRDERS WITH DRAPED STRANDS**

0.6" STRANDS



**TYP. STRAND PATTERN**



**DRAPED STRAND PROFILE**

\* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	1.1

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

\$PRNAME\$  
I:\47-470391\Drawings\Structure\CADD\Structure\Final\470391\_36w.dgn

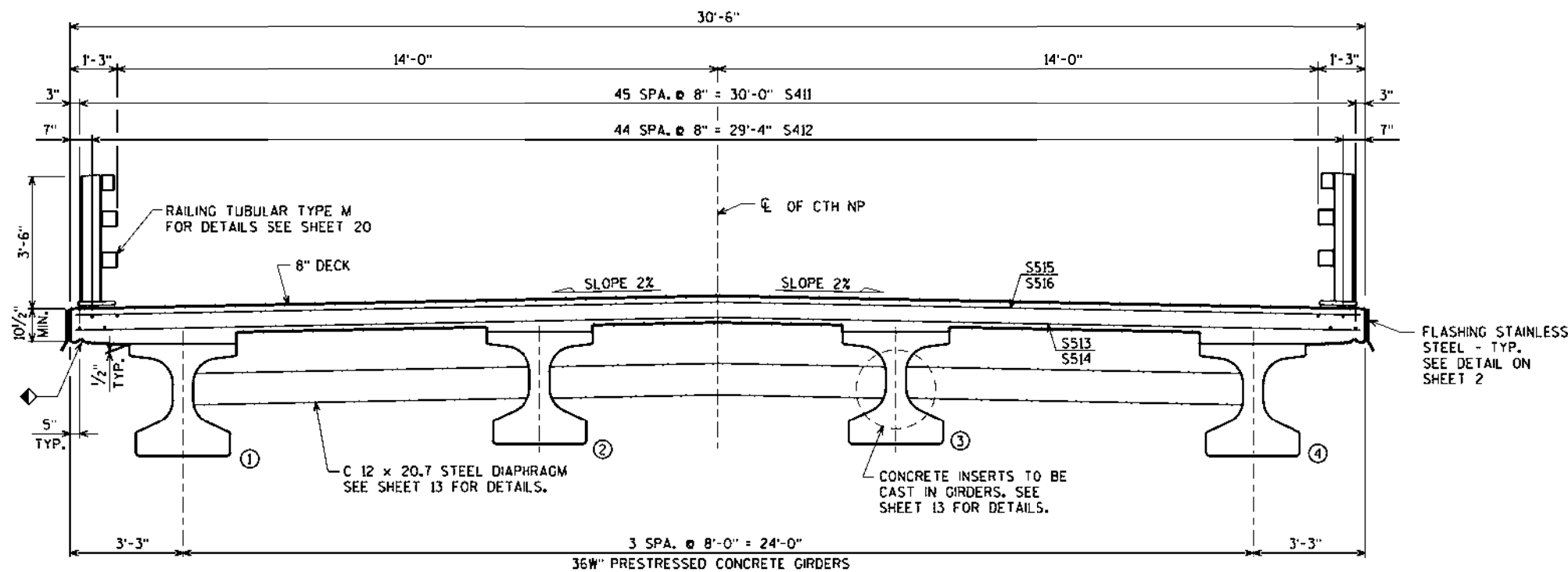
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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY	CLP	PLANS CKD.	ZSS
<b>36W" PRESTRESSED GIRDER DETAILS</b>			SHEET 15 OF 20

ORIGINAL PLANS PREPARED BY  
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**TYPICAL SECTION THRU BRIDGE**  
(LOOKING EAST)

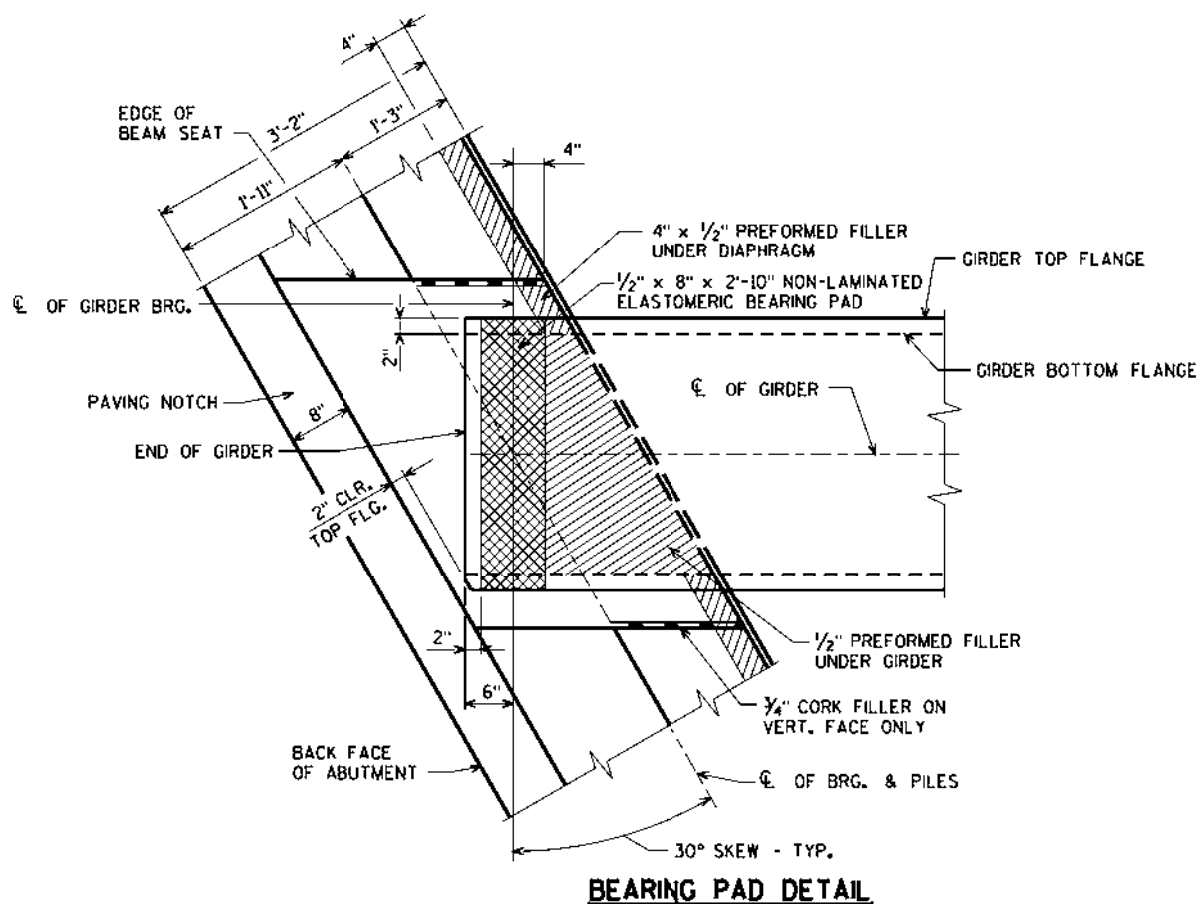
◆ 3/4" V - GROOVE, EXTEND V - GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGMS - TYP.

**BILL OF BARS**

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	13.650* COATED	LOCATION
S401	X	30	3-3	X				DIAPH. @ ABUT. VERT. @ NOTCH
S402	X	12	4-11					DIAPH. @ ABUT. HORIZ. @ NOTCH
S503	X	54	11-8	X				DIAPH. @ ABUT. VERT.
S504	X	16	9-4	X				DIAPH. @ ABUT. VERT.
S505	X	54	5-5	X				DIAPH. @ ABUT. VERT.
S606	X	10	34-10					DIAPH. @ ABUT. HORIZ.
S607	X	30	4-11					DIAPH. @ ABUT. HORIZ. BETW. GDRS.
S608	X	4	1-10					DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S609	X	8	8-6	X				DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S510	X	16	6-0					DIAPH. @ ABUT. HORIZ. THRU GDRS.
S411	X	92	32-1					DECK LONG. BOT.
S412	X	90	32-1					DECK LONG. TOP
S513	X	69	30-2					DECK TRANS. BOTTOM
S514	X	48	15-6		⊗			DECK TRANS. BOTTOM
S515	X	70	30-2					DECK TRANS. TOP
S516	X	48	14-11		⊗			DECK TRANS. TOP
S617	X	48	11-3	X				DECK @ RAIL POSTS
S618	X	80	6-0					DECK @ INT. RAIL POSTS
S619	X	16	6-0	X				DECK @ END RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

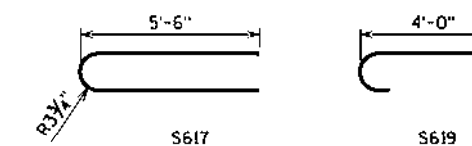
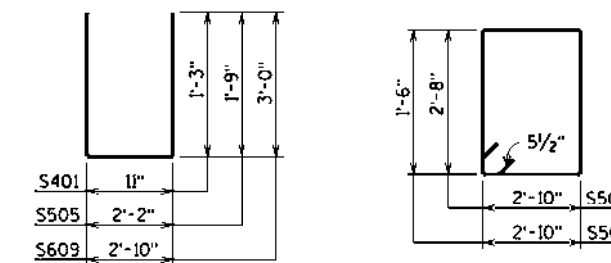


**BEARING PAD DETAIL**

**BAR SERIES TABLE**

BAR MARK	NO REQ'D.	LENGTH
S514	2 SERIES OF 24	2'-3" TO 28'-9"
S516	2 SERIES OF 24	1'-8" TO 28'-2"

BUNDLE AND TAG EACH SERIES SEPARATELY.



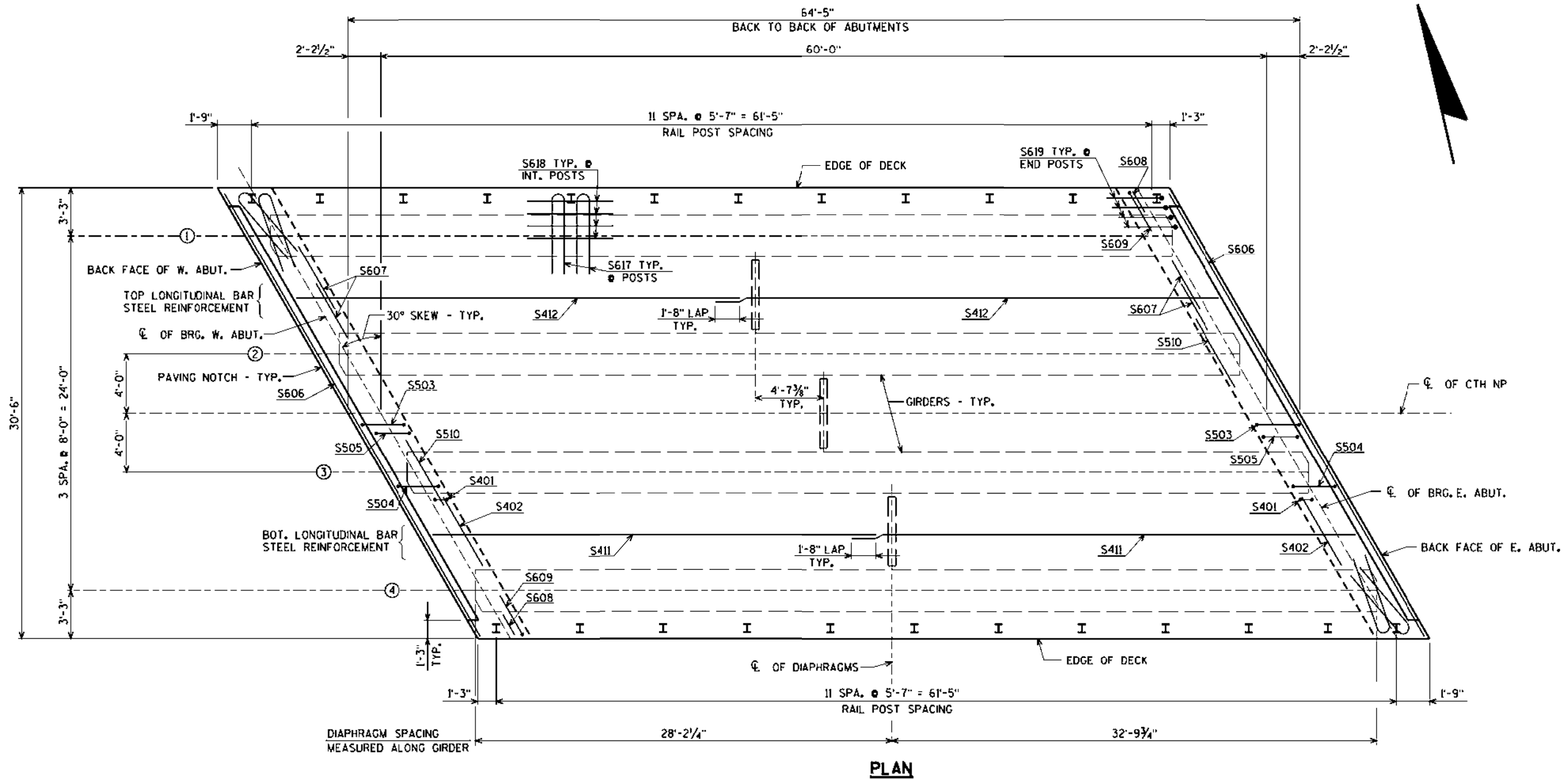
6/1/2023 PENTABLE:BRRequ\_shd\_util.tbl

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
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SUPERSTRUCTURE			SHEET 16 OF 20

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PLAN

TOP OF DECK ELEVATIONS

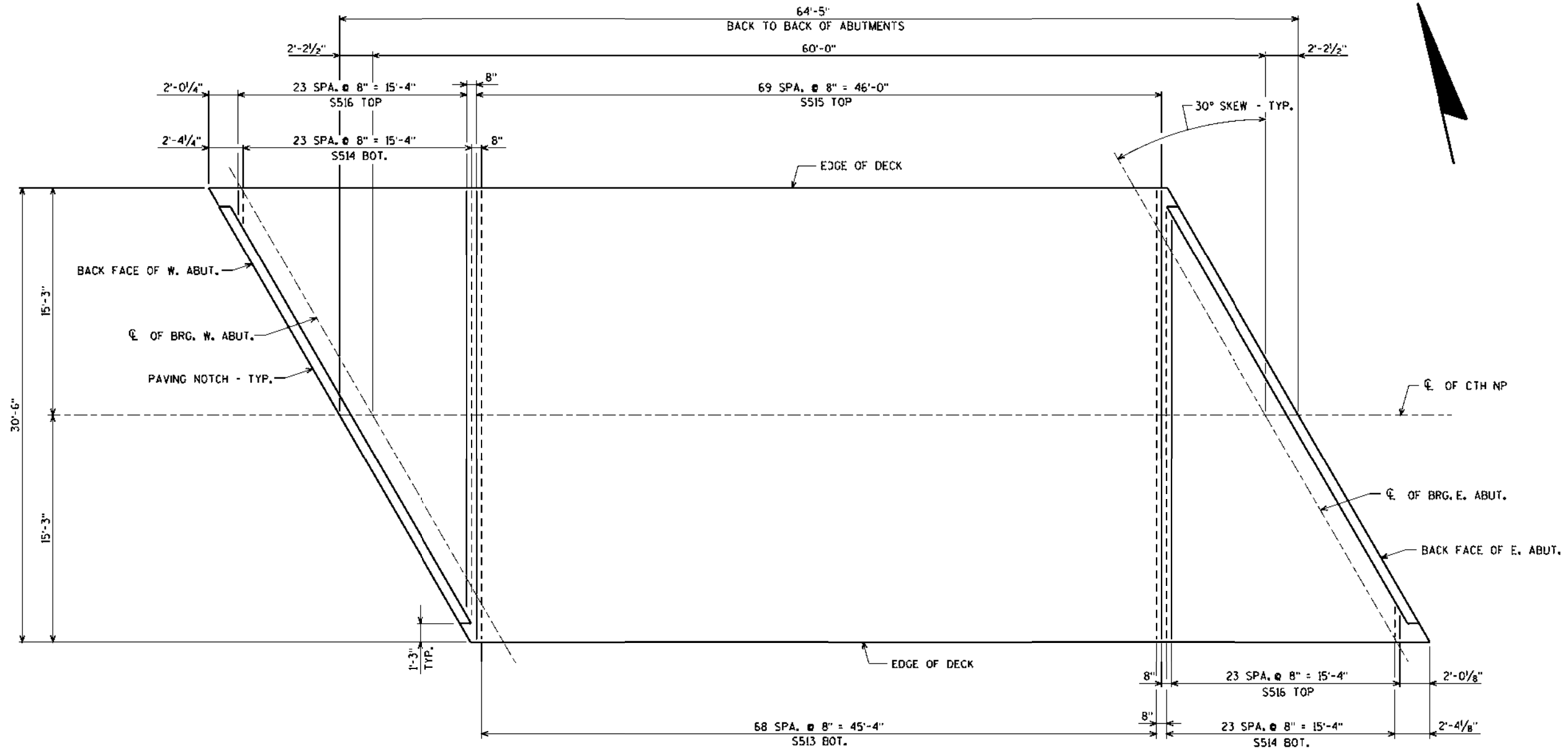
	€ OF BRG. W. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	€ OF BRG. E. ABUT.
N. EDGE OF DECK	982.43	982.40	982.37	982.35	982.34	982.33	982.32	982.33	982.33	982.35	982.37
GIRDER 1	982.48	982.45	982.43	982.41	982.40	982.39	982.39	982.39	982.40	982.42	982.44
GIRDER 2	982.62	982.59	982.58	982.56	982.55	982.55	982.55	982.56	982.57	982.59	982.62
€ CTH NP	982.69	982.67	982.65	982.64	982.63	982.63	982.63	982.65	982.66	982.68	982.71
GIRDER 3	982.60	982.58	982.56	982.55	982.55	982.55	982.56	982.57	982.59	982.61	982.64
GIRDER 4	982.42	982.41	982.40	982.39	982.39	982.40	982.41	982.42	982.45	982.47	982.51
S. EDGE OF DECK	982.35	982.34	982.33	982.32	982.33	982.33	982.35	982.37	982.39	982.42	982.45

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES FOR DEAD LOAD DEFLECTION.

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY		CLP	PLANS CKD. ZSS
<b>SUPERSTRUCTURE PLAN</b>			SHEET 17 OF 20

5/22/2023 PENTABLE:BRQu\_shd\_util.tbl



**TRANSVERSE BAR STEEL LAYOUT**

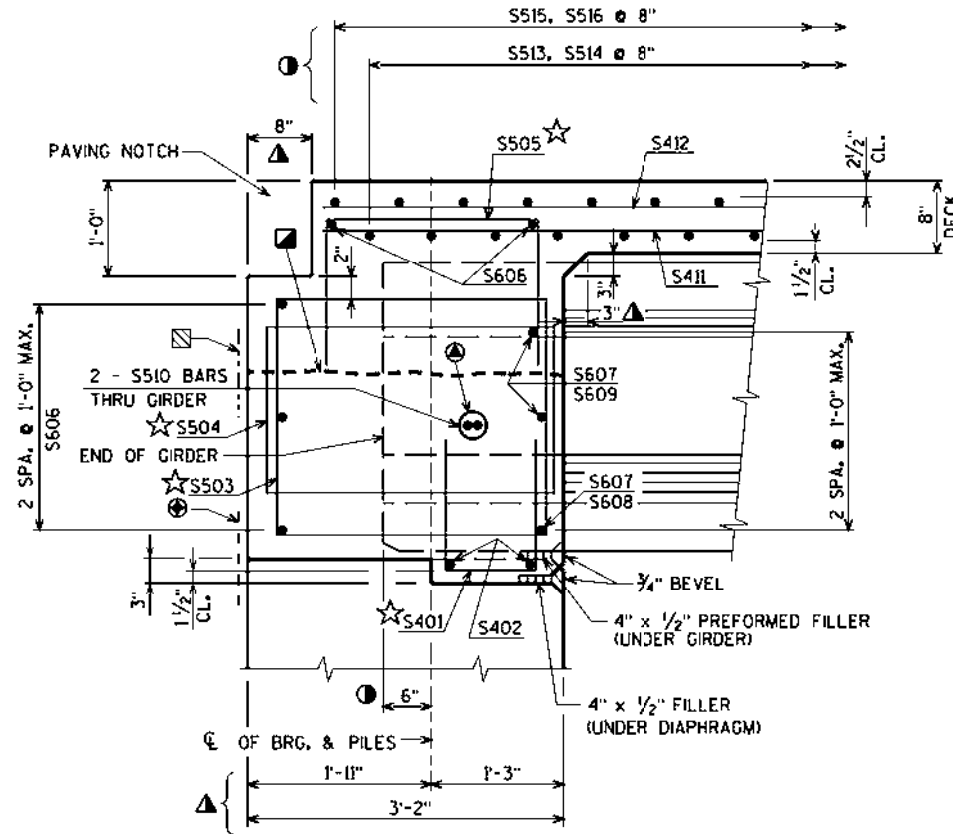
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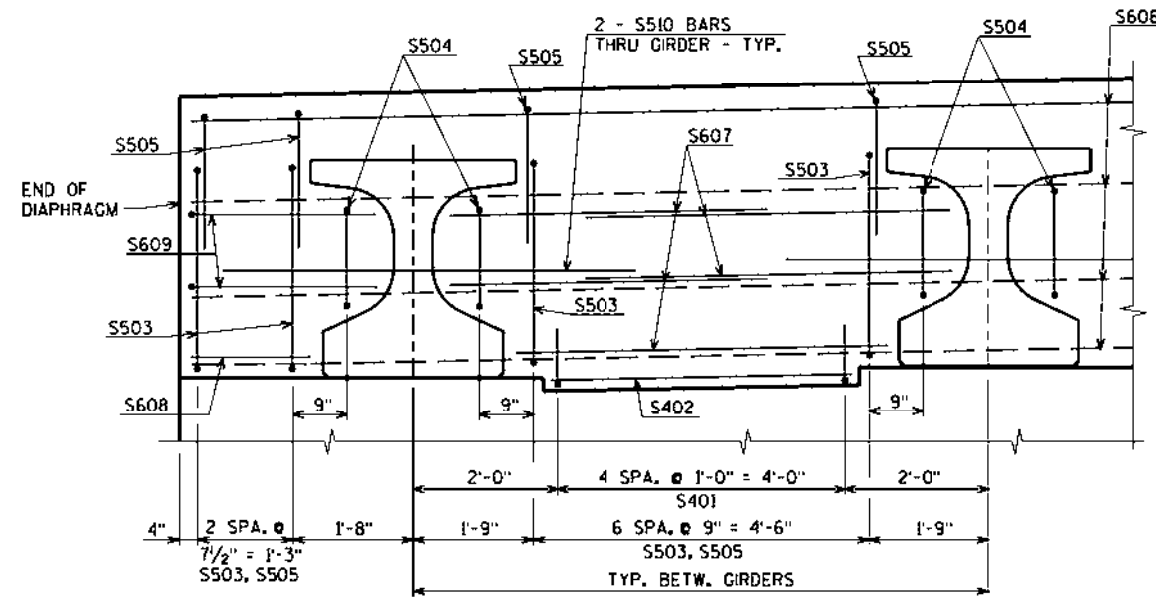
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY	CLP	PLANS CKD.	ZSS
<b>SUPERSTRUCTURE TRANSVERSE DECK STEEL LAYOUT</b>			SHEET 18 OF 20

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**PART LONGITUDINAL SECTION**



**PART TRANSVERSE SECTION AT ABUTMENT DIAPHRAGM**

- ⊗ 18" RUBBERIZED MEMBRANE WATERPROOFING
- ⊙ DIMENSIONS MEASURED ALONG  $\bar{C}$  OF GIRDER.
- ⚠ DIMENSIONS MEASURED NORMAL TO  $\bar{C}$  OF SUBSTRUCTURE UNIT.
- ☑ OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW TOP OF GIRDER. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.
- ⊠ 18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED, COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES"
- ⊕ 1 - 1/2" DIA. HOLE IN WEB FOR S510 BARS. PLACE S510 BARS SYM. ABOUT  $\bar{C}$  OF GIRDERS. FIELD BEND ALONG SKEW.
- ☆ BARS PLACED PARELLEL TO GIRDERS. SPACING PERPENDICULAR TO  $\bar{C}$  OF GIRDERS.

5/22/2023  
PENTABLE:BRQu\_shd\_util.tb1

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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-14-229</b>			
DRAWN BY		CLP	PLANS CKD. ZSS
<b>SUPERSTRUCTURE DETAILS</b>			SHEET 19 OF 20

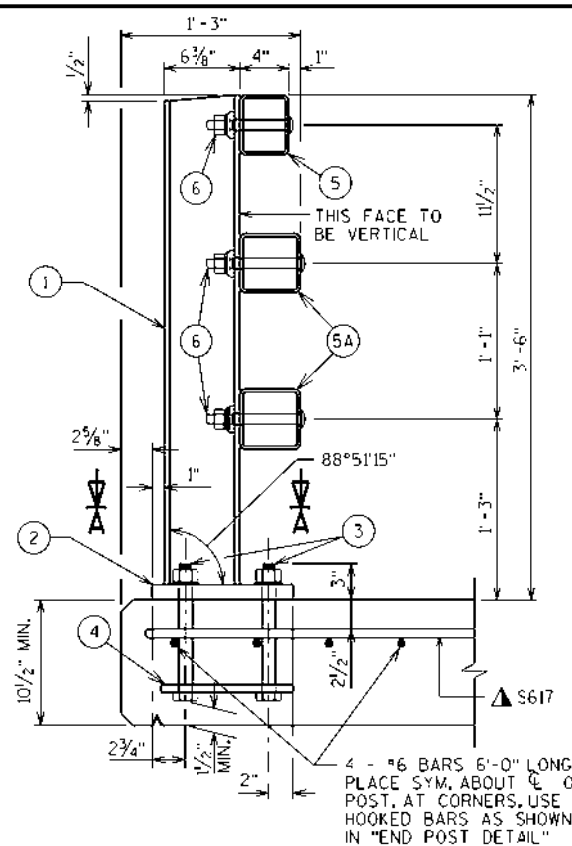
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**LEGEND**

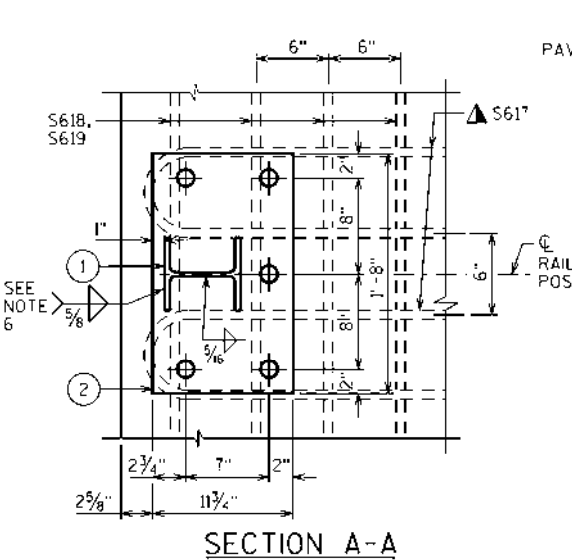
- ① W6 x 25 WITH 1/8" x 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 1/8" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED), 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 10" USE 1'-3" LONG. USE 10 1/2" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- ④ 3/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 1/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ 3/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" x 1 5/8" x 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 3/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- ⑨ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5A. 3/8" x 3 5/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ 3/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 1/2" x 1 1/4" LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS AND 1 1/2" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE 1/8" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- ⑫ 7/8" DIA. x 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- ⑬ 3/8" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- ⑭ 3/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- ⑮ 1" DIA. HOLES IN TUBES NO. 5A FOR 3/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

**GENERAL NOTES**

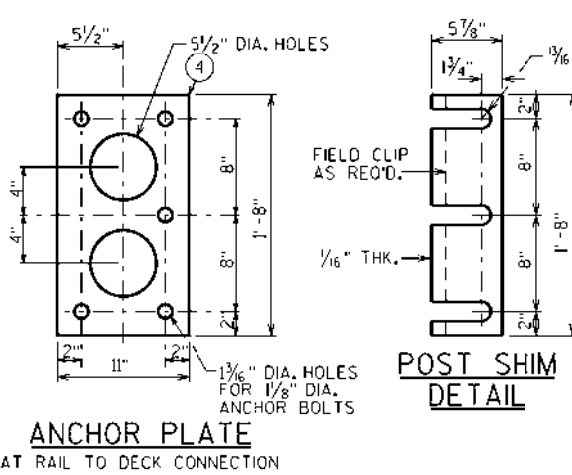
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWed. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.



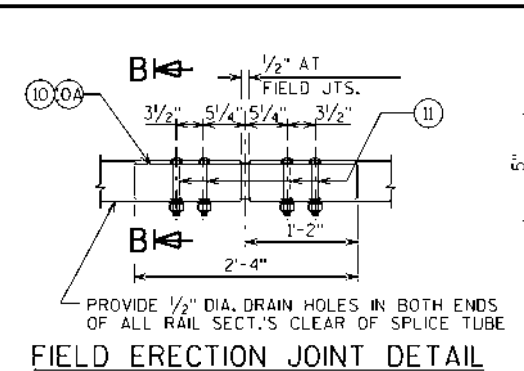
SECTION THRU RAILING ON SLAB



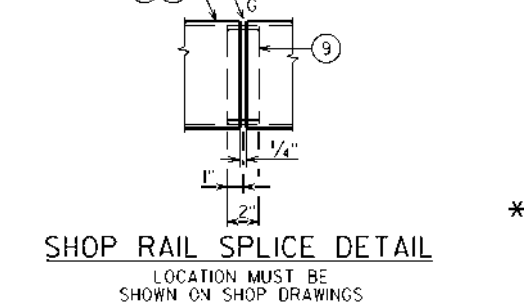
SECTION A-A



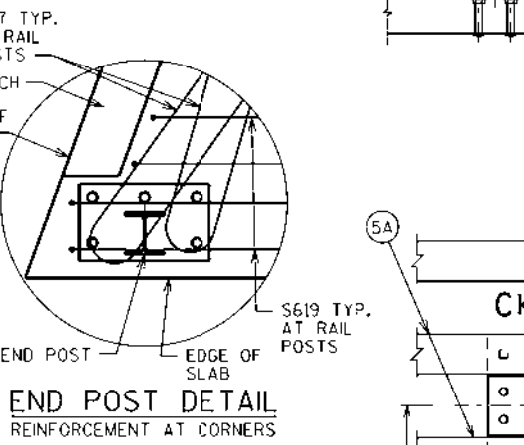
ANCHOR PLATE AT RAIL TO DECK CONNECTION



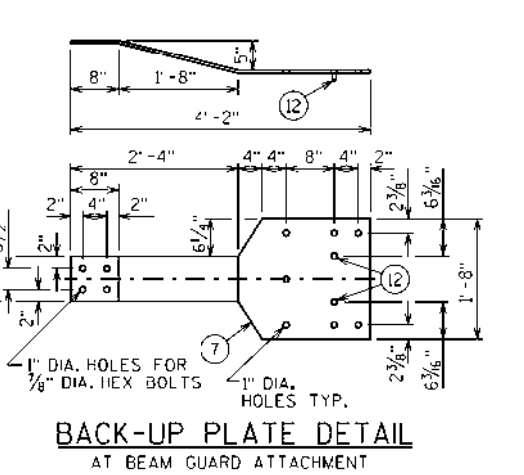
FIELD ERECTION JOINT DETAIL



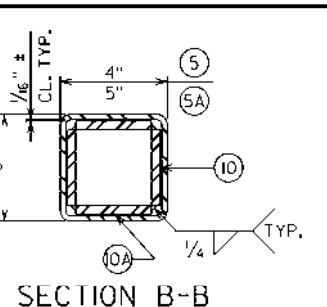
SHOP RAIL SPLICE DETAIL



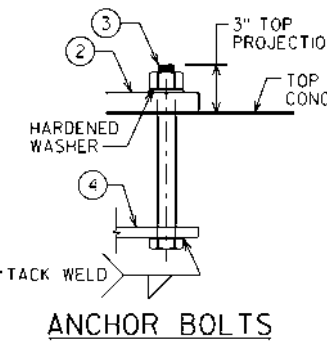
END POST DETAIL REINFORCEMENT AT CORNERS



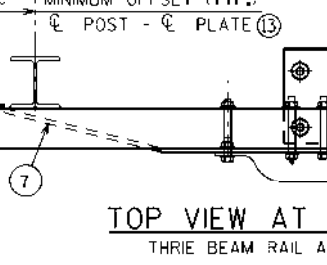
BACK-UP PLATE DETAIL AT BEAM GUARD ATTACHMENT



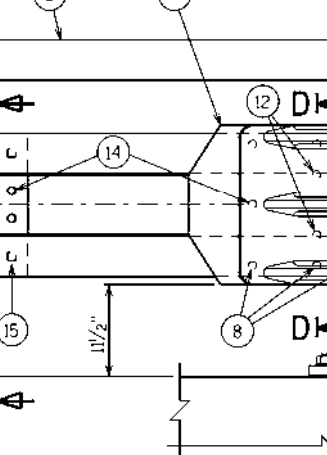
SECTION B-B



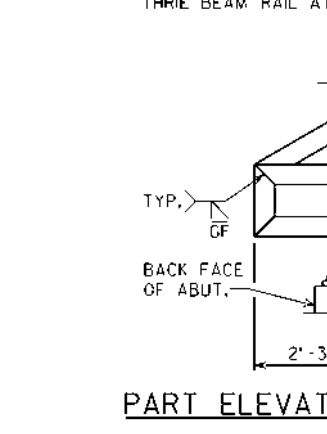
ANCHOR BOLTS



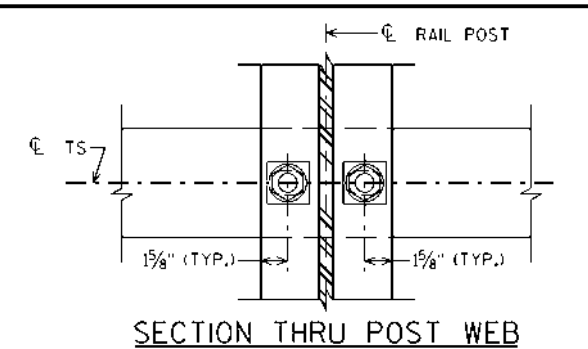
TOP VIEW AT END POST THREE BEAM RAIL ATTACHMENT



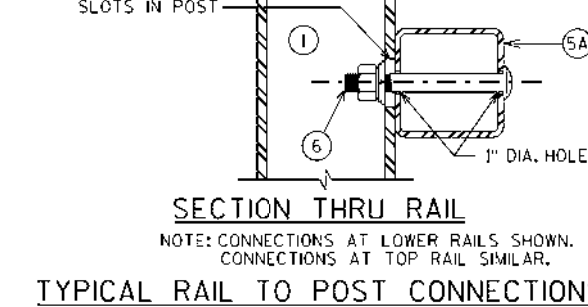
DETAIL AT END POST THREE BEAM RAIL ATTACHMENT



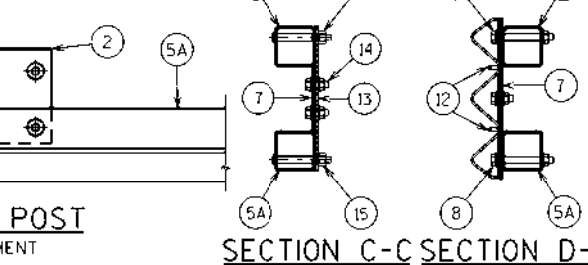
PART ELEVATION OF RAILING



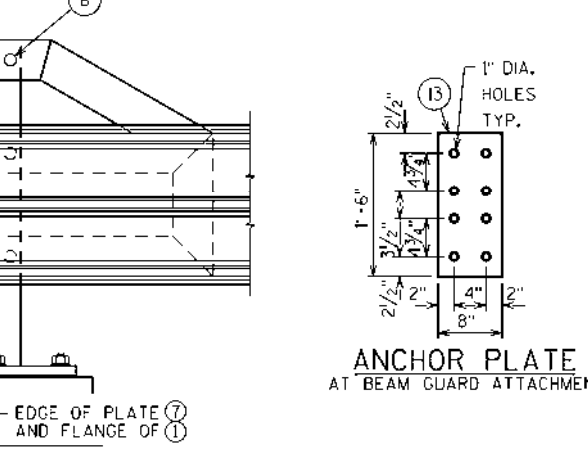
SECTION THRU POST WEB



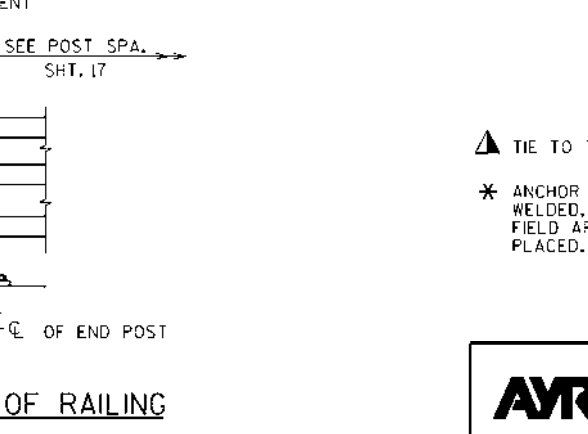
SECTION THRU RAIL



TYPICAL RAIL TO POST CONNECTIONS



SECTION C-C SECTION D-D



ANCHOR PLATE AT BEAM GUARD ATTACHMENT

▲ TIE TO TOP MAT OF STEEL.

\* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

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<b>STRUCTURE B-14-229</b>			
DRAWN BY		CLP	PLANS CKD. ZSS
<b>TUBULAR STEEL RAILING TYPE 'M'</b>			SHEET 20 OF 20

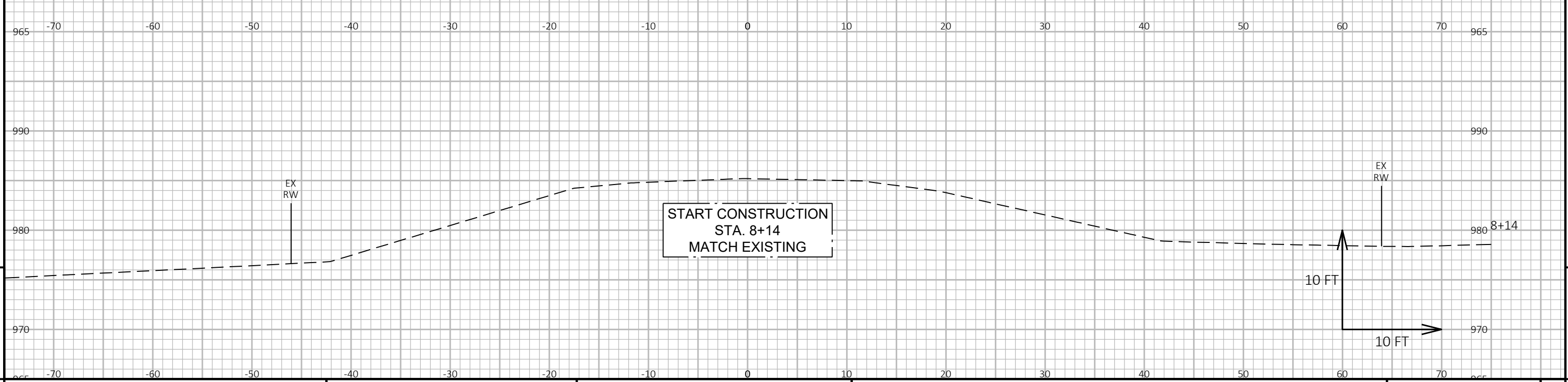
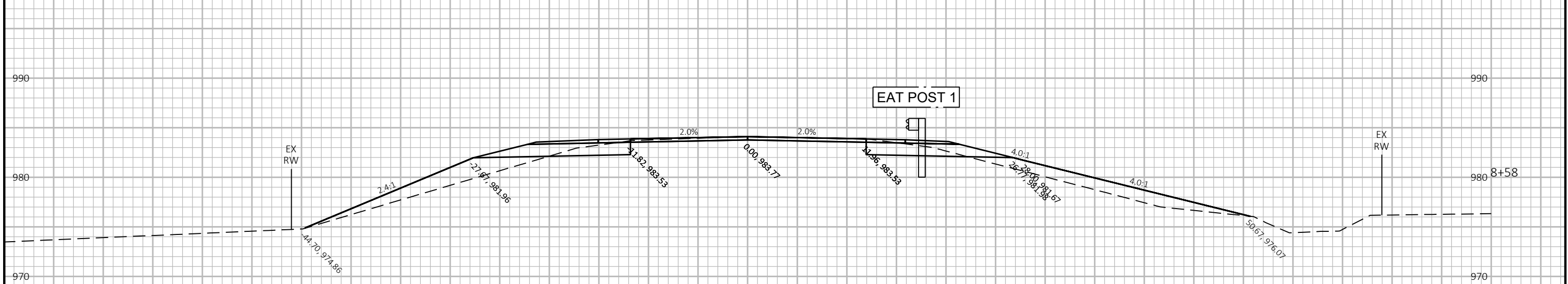
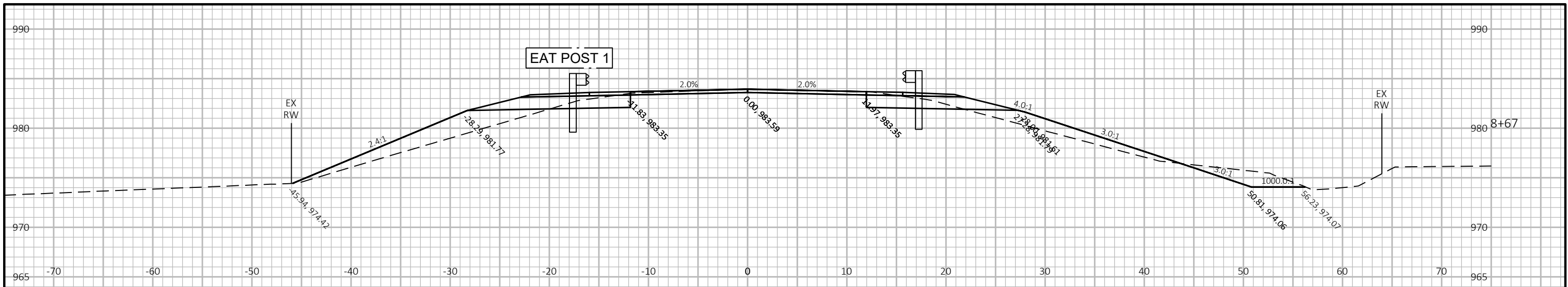
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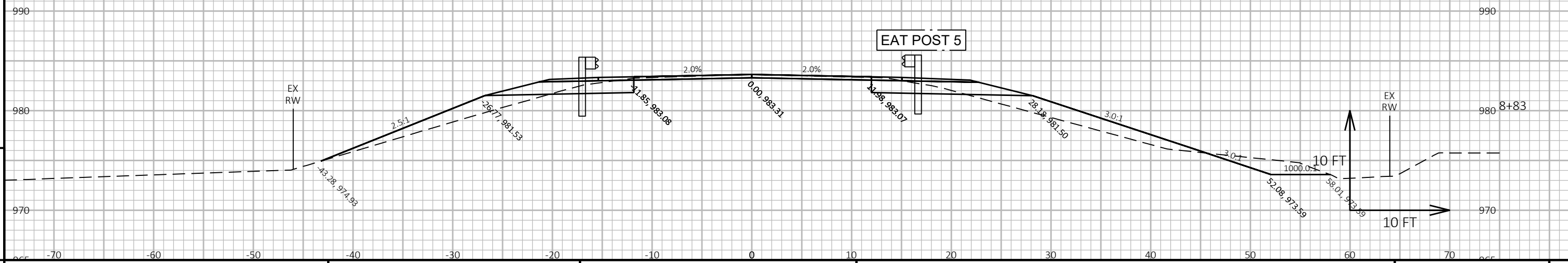
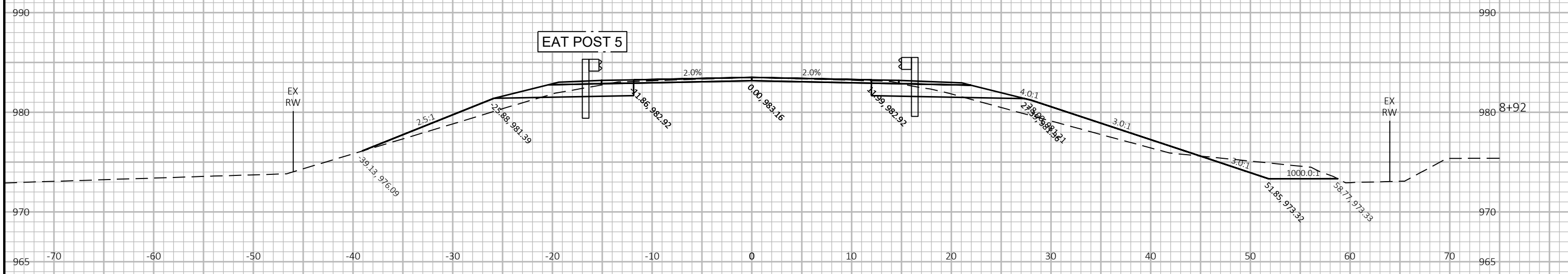
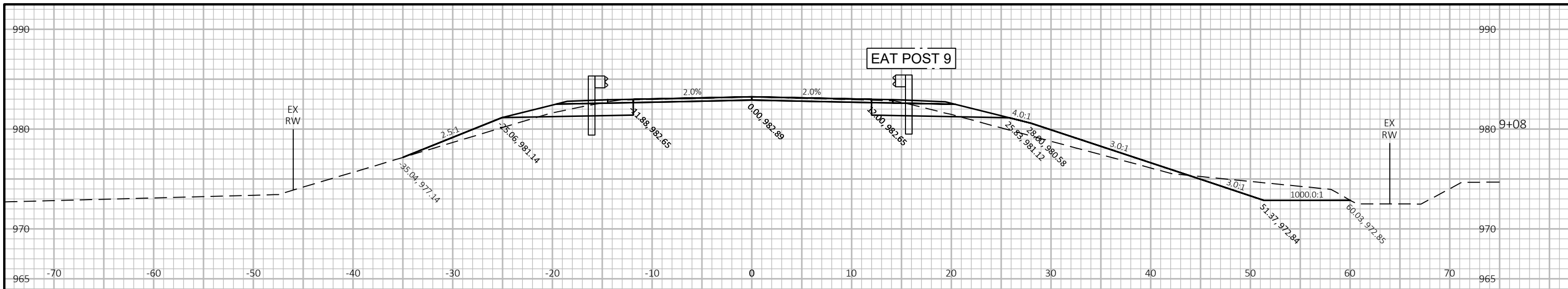
**CTH NP COMPUTER EARTHWORK**

Station	Distance	Area (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
		Cut	Unusable Cut	Fill	Cut	Unusable Cut	Fill	Cut 1.00	Unusable Cut	Expanded Fill 1.30	
8+25	--	0.0	0.0	0.0	--	--	--	--	--	--	--
8+67	42	16.4	8.0	64.4	13	12	50	13	12	65	-52
8+84	17	16.3	8.0	68.9	10	5	42	23	17	120	-97
8+92	8	16.7	8.0	56.4	5	2	19	28	19	144	-116
9+09	17	17.5	8.0	44.7	11	5	32	39	24	186	-147
9+17	8	17.5	8.0	42.8	5	2	13	44	26	203	-159
9+25	8	51.8	8.0	33.0	10	2	11	54	28	217	-163
9+34	9	51.8	8.0	33.0	17	3	11	71	31	231	-160
9+50	16	49.2	8.0	55.3	30	5	26	101	36	265	-164
9+68	18	49.2	8.0	55.3	33	5	37	134	41	313	-179
Bridge											
10+31		52.7	8.0	75.1							
10+76	45	15.0	8.0	75.1	56	13	125	190	54	476	-286
10+95	19	20.3	8.0	62.3	12	6	48	202	60	538	-336
11+00	5	21.4	8.0	97.1	4	1	15	206	61	558	-352
11+20	20	28.2	8.0	78.8	18	6	65	224	67	642	-418
11+45	25	19.2	8.0	88.4	22	7	77	246	74	742	-496
11+60	15	0.0	0.0	0.0	5	2	25	251	76	775	-524
					251	76	596				

Note 1 - Cut	Includes both useable and unusable cut material
Note 2 - Unusable Cut	Existing asphalt pavement. Not to be used outside the 1:1 road core.
Note 3 - Expanded Fill	Volume needed to be filled = Fill * 1.30
Note 4 - Mass Ordinate	(Cut) - (Expanded Fill)

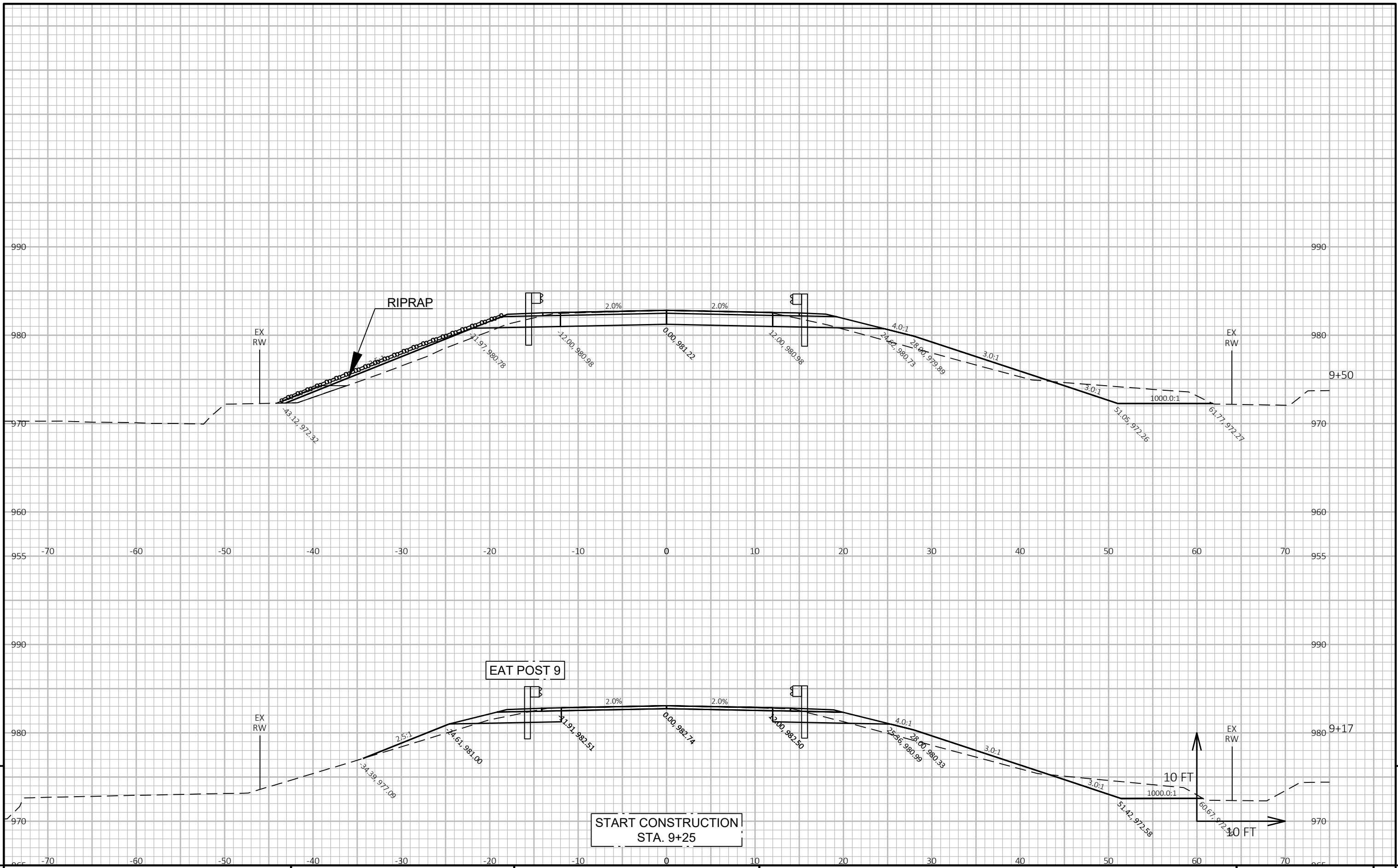


PROJECT NO: 3926-00-70	HWY: CTH NP	COUNTY: DODGE	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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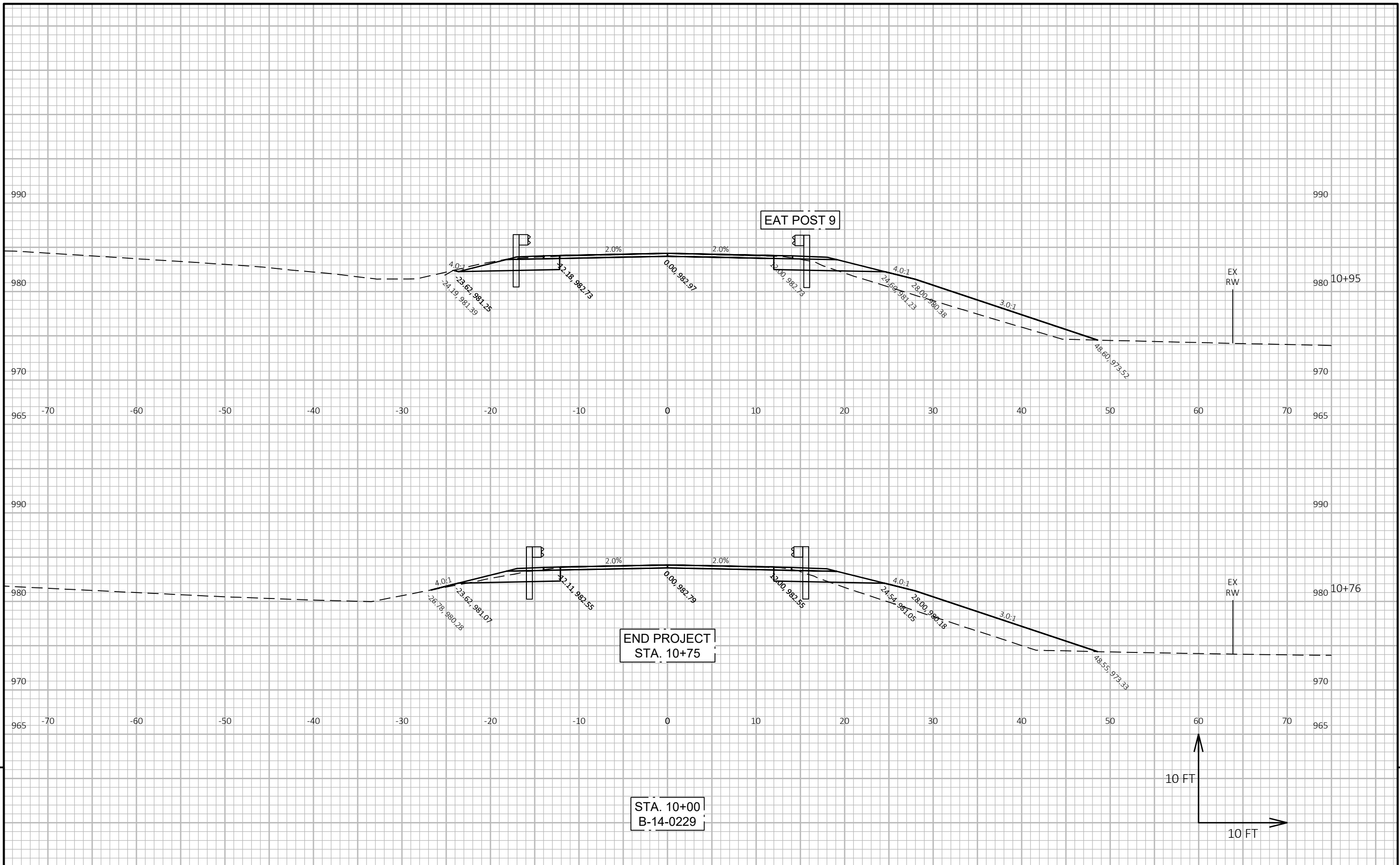


PROJECT NO: 3926-00-70	HWY: CTH NP	COUNTY: DODGE	CROSS SECTIONS: CROSS SECTIONS	SHEET	<b>9</b>
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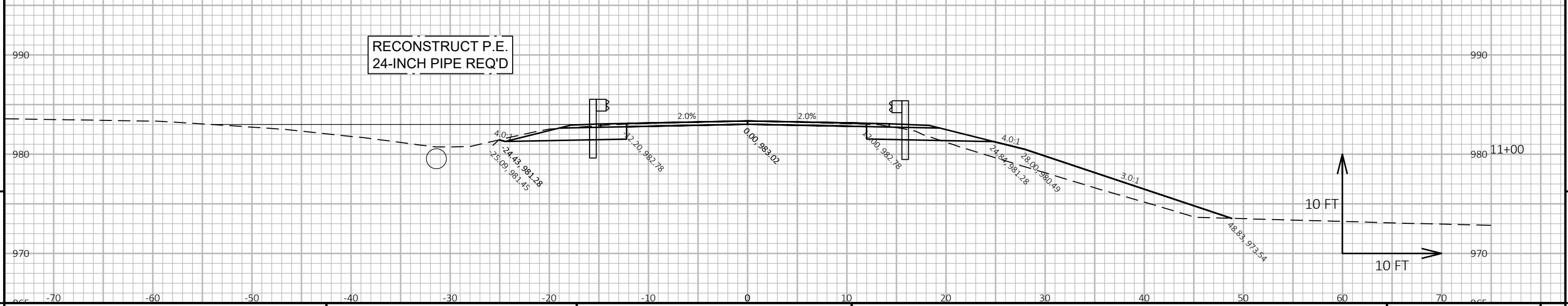
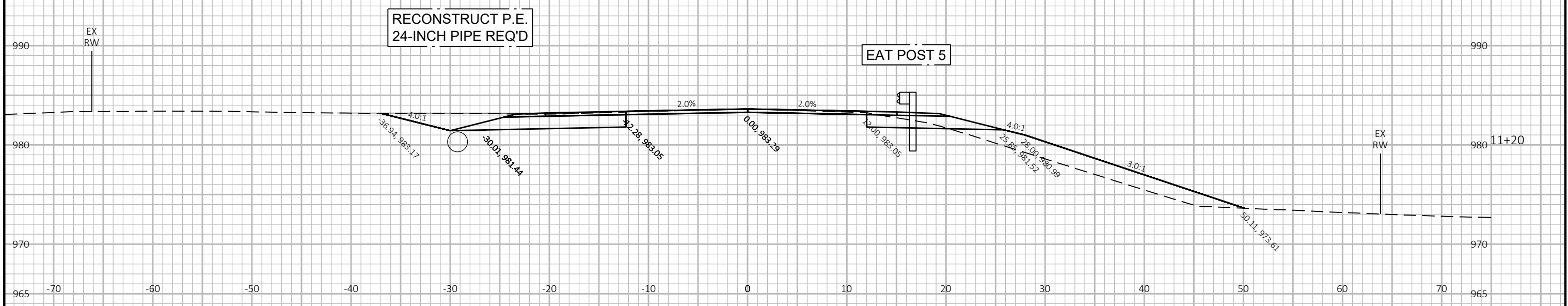
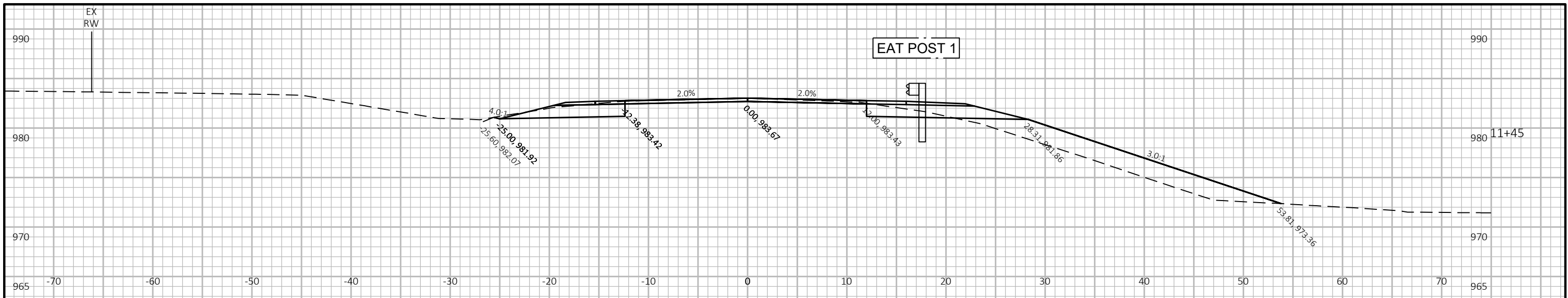




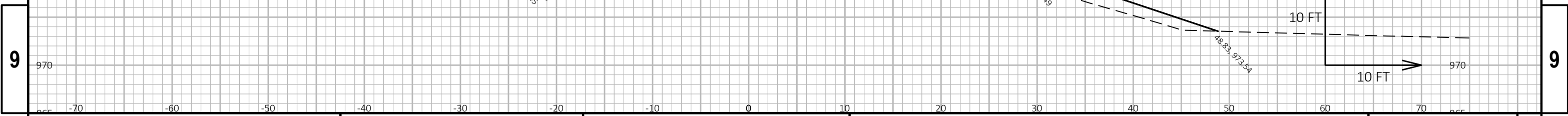
PROJECT NO: 3926-00-70	HWY: CTH NP	COUNTY: DODGE	CROSS SECTIONS: CROSS SECTIONS	SHEET	<b>9</b>
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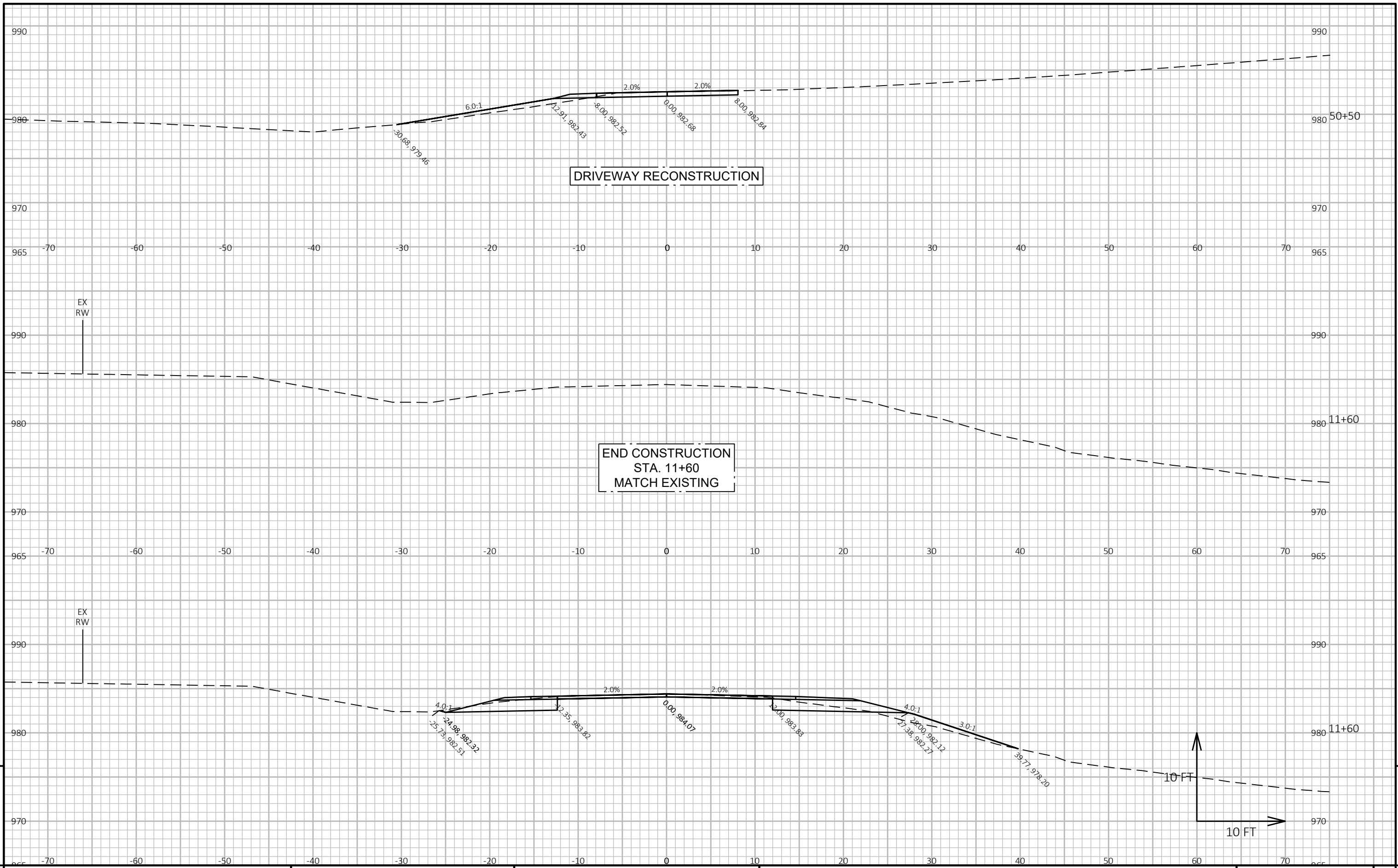


PROJECT NO: 3926-00-70      HWY: CTH NP      COUNTY: DODGE      CROSS SECTIONS: CROSS SECTIONS      SHEET      E



PROJECT NO: 3926-00-70	HWY: CTH NP	COUNTY: DODGE	CROSS SECTIONS: CROSS SECTIONS	SHEET
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DRIVEWAY RECONSTRUCTION

END CONSTRUCTION  
STA. 11+60  
MATCH EXISTING

EX  
RW

EX  
RW

9

9

PROJECT NO: 3926-00-70	HWY: CTH NP	COUNTY: DODGE	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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# Notes



## *Wisconsin Department of Transportation*

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