WIS

DECEMBER 2026

PROJECT ID: 6844-01-72

WITH: N/A

COUNTY: WAUPACA

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control)
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 = 120



35

N

DESIGN DESIGNATION

A.A.D.T.	(2027)	=	1,465
A.A.D.T.	(2047)	=	1,523
D.H.V.		=	228
D.D.		=	50/50
T.		=	0.7%
DESIGN SPEED		=	60 MPH
ESALS		=	22,000

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 (30'/FEB')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

WAUPACA - OGDENSBURG

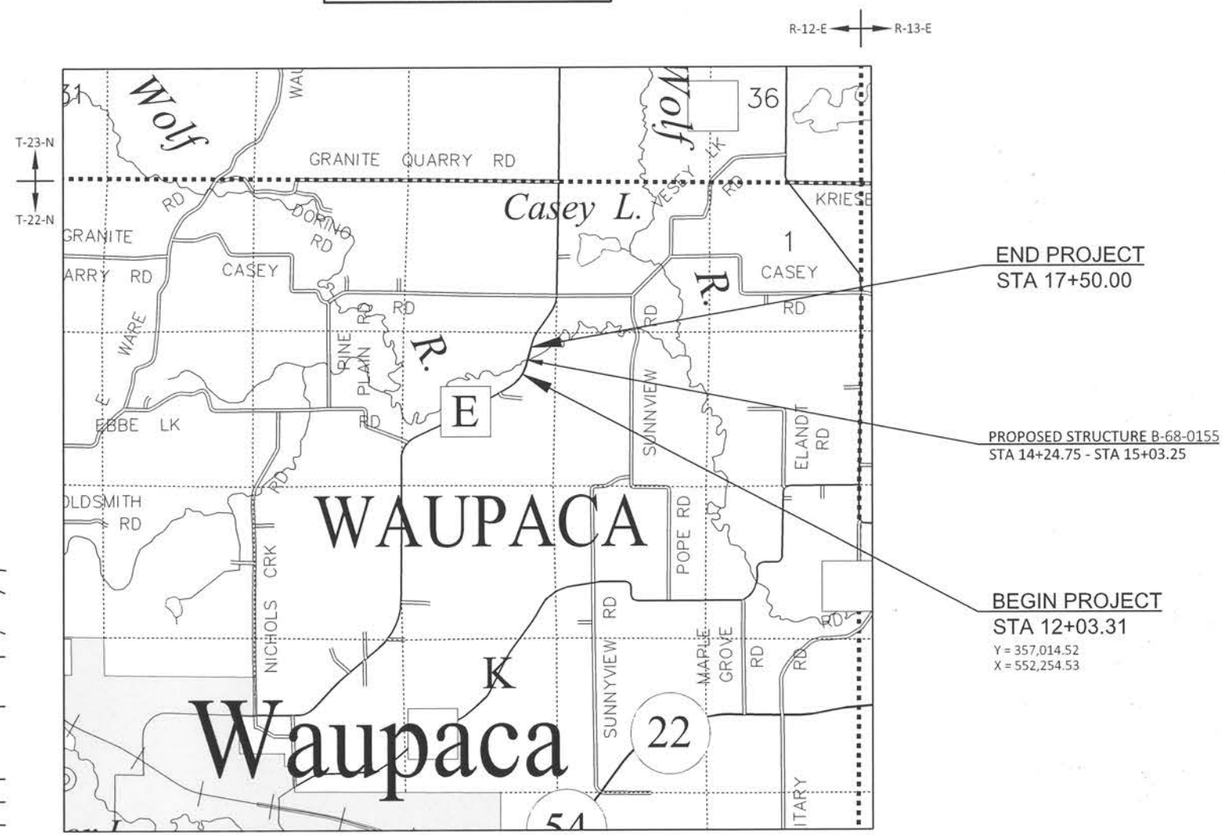
S BR LITTLE WOLF RIVER BR B-68-0155

CTH E

WAUPACA COUNTY

STATE PROJECT NUMBER
6844-01-72

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6844-01-72		



LAYOUT

SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.104 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), WAUPACA 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

ACCEPTED FOR WAUPACA COUNTY

DATE: 7/22/2026 (Signature)

ORIGINAL PLANS PREPARED BY:

STRAND ASSOCIATES®

910 WEST WINGRA DRIVE
MADISON, WISCONSIN 53715-1941
(608) 251-4843

WISCONSIN
TERA R MEYER
E-43318
MADISON
WI
PROFESSIONAL ENGINEER
7/22/26

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	STRAND ASSOCIATES, INC.
Designer	STRAND ASSOCIATES, INC.
Project Manager	JASON SCHAEFFER
Regional Examiner	NORTH CENTRAL REGION
Regional Supervisor	DAN ERVA, P.E.

APPROVED FOR THE DEPARTMENT

DATE: 7/23/2026 (Signature)

E

UTILITIES CONTACTS

**DENOTES DIGGERS HOTLINE MEMBER

**AT&T (COMMUNICATION)

MICHAEL DECET
221 W. WASHINGTON ST
APPLETON, WI 54911
PHONE: (920) 840-4344
EMAIL: md4321@att.com

**WAUPACA COUNTY (COMMUNICATION)

BRENT WYLAND
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WAUPACA, WI 54981
PHONE: (715) 258-6237
EMAIL: brent.wyland@co.waupaca.wi.us

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1700 SHERMAN ST
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EMAIL: jarrod.wurz@wisconsinpublicservice.com

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

DESIGN CONSULTANT

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EMAIL: tera.meyer@strand.com

DESIGN PROJECT MANAGER

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WAUPACA COUNTY

CASEY BEYERSDORF
WAUPACA COUNTY
2670 COUNTY ROAD A
WAUPACA, WI 54981
PHONE: (715) 258-7152
EMAIL: casey.beyersdorf@co.waupaca.wi.us

WISCONSIN DNR LIAISON

JAY SCHIEFELBEIN
NORTH CENTRAL REGION
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GREEN BAY, WI 54313
PHONE: (920) 360-3784
EMAIL: jeremiah.schiefelbein@wisconsin.gov

GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

COORDINATE CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THAT AREA.

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LBS/SY/IN.

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT APPROXIMATE LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER. MAINTAIN EROSION CONTROL MEASURES UNTIL SUCH A TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

THE EXACT LOCATION AND WIDTH OF DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD. DRIVEWAYS SHALL BE REPLACED IN KIND. ALL RESIDENTIAL DRIVEWAYS SHALL BE A MAXIMUM OF 20 FEET WIDE.

2

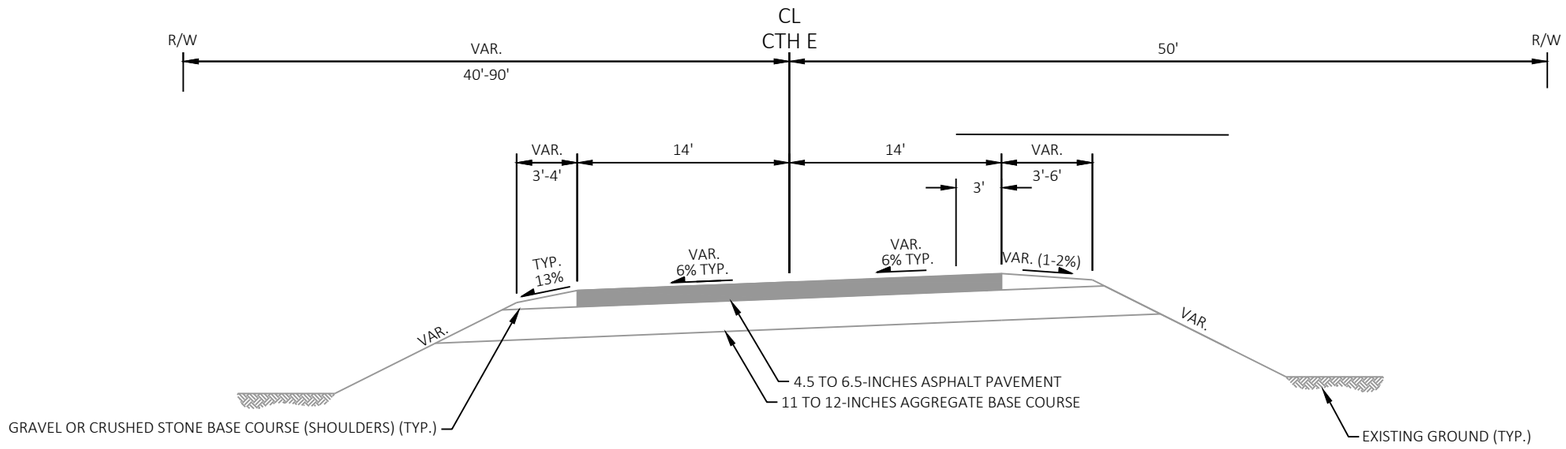
RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS:	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIPTURF:	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPETURF:			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT:	.70 - .95											
CONCRETE:	.80 - .95											
BRICK:	.70 - .80											
DRIVES, WALKS:	.75 - .85											
ROOFS:	.75 - .95											
GRAVEL ROADS, SHOULDERS:	.40 - .60											

TOTAL PROJECT AREA = 1.745 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.943 ACRES

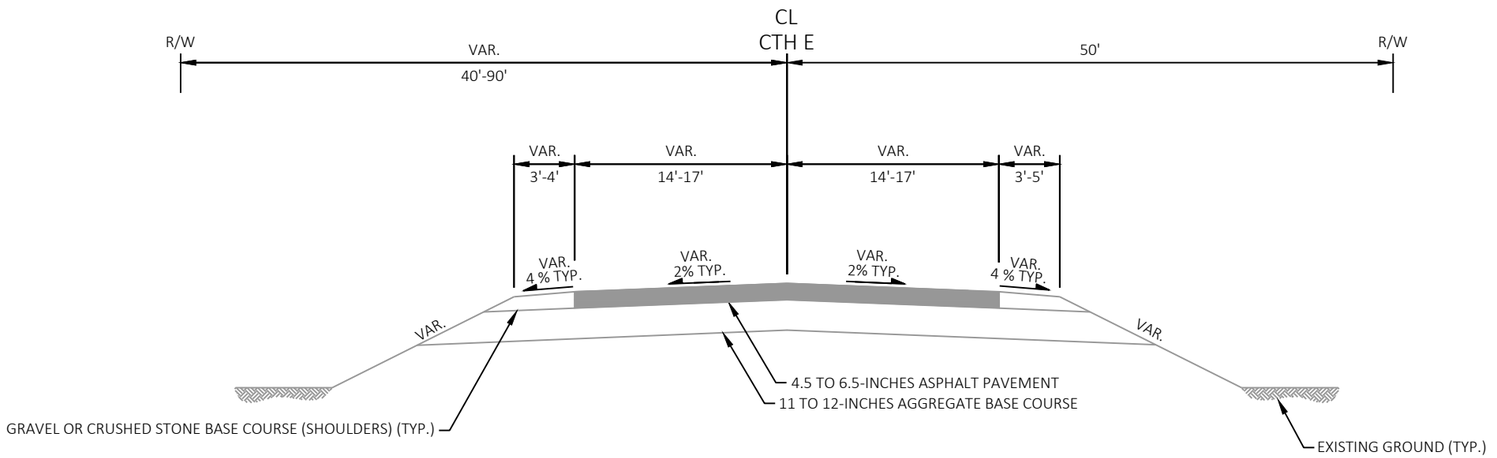
ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
EROSION CONTROL
PERMANENT SIGNING AND MARKING
DETOUR ROUTE



EXISTING TYPICAL SECTION

STA 11+40.36 - STA 12+03.31



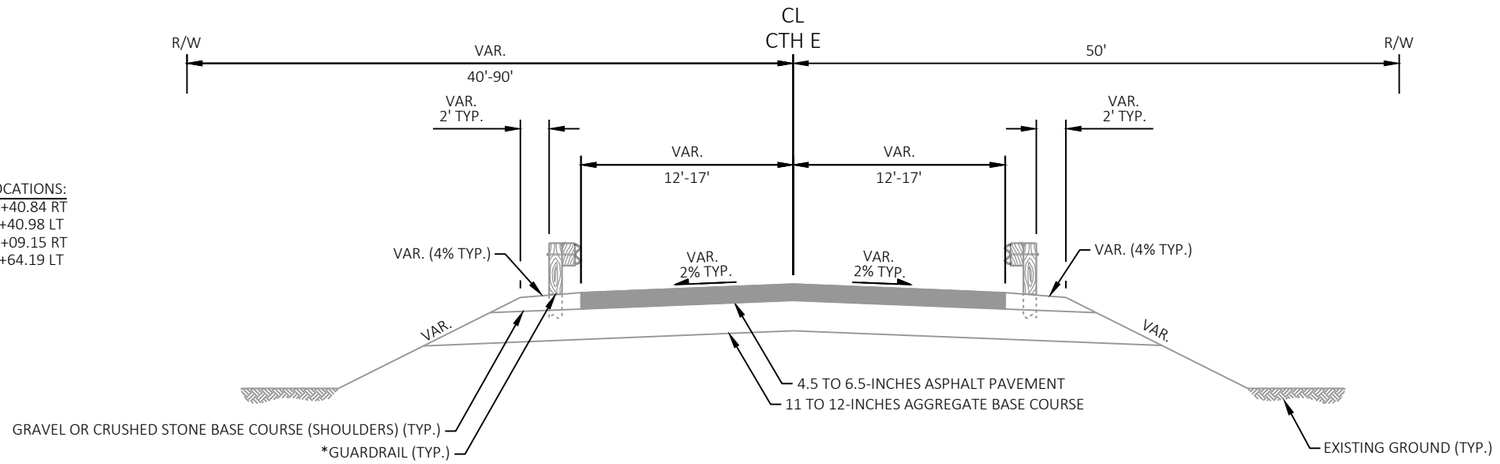
EXISTING TYPICAL SECTION

STA 12+03.31 - STA 13+17.70
STA 16+09.15 - STA 17+50.00

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET 3	E

2

*EXISTING GUARDRAIL LOCATIONS:
STA 13+17.70 RT - STA 14+40.84 RT
STA 13+26.43 LT - STA 14+40.98 LT
STA 14+87.07 RT - STA 16+09.15 RT
STA 14+87.39 LT - STA 15+64.19 LT



EXISTING TYPICAL SECTION

STA 13+17.70 - STA 16+09.15

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET 4	E

NOTES:

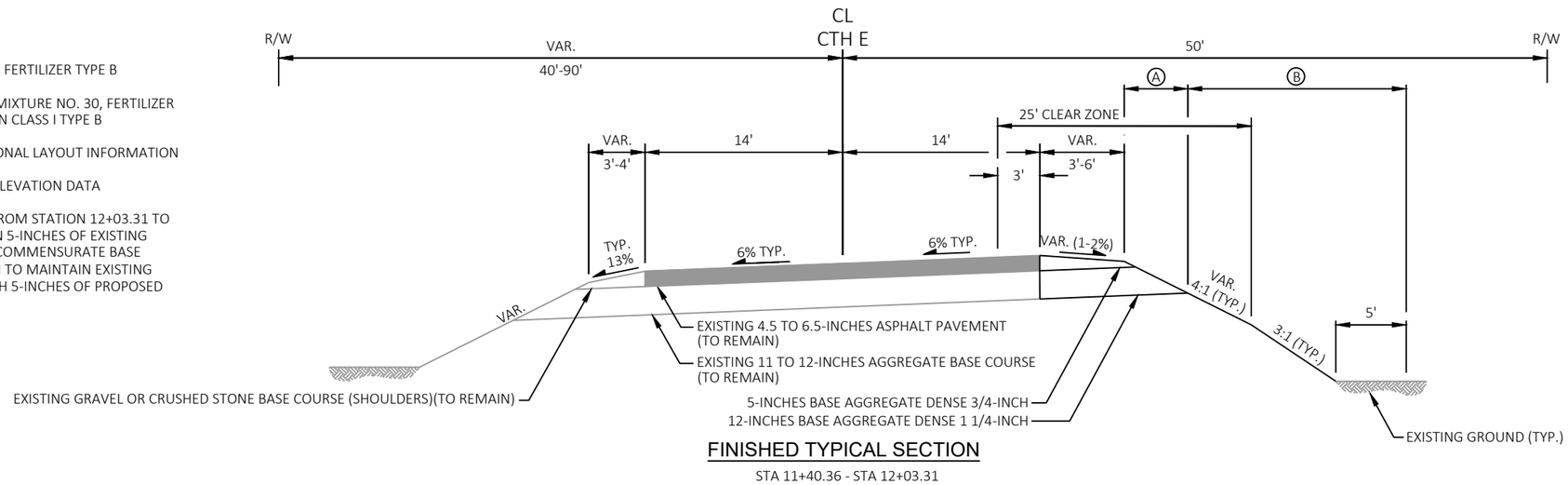
Ⓐ SEEDING MIXTURE NO. 30 AND FERTILIZER TYPE B

Ⓑ SALVAGED TOPSOIL, SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, & EROSION MAT URBAN CLASS I TYPE B

* SEE PLAN DETAILS FOR ADDITIONAL LAYOUT INFORMATION

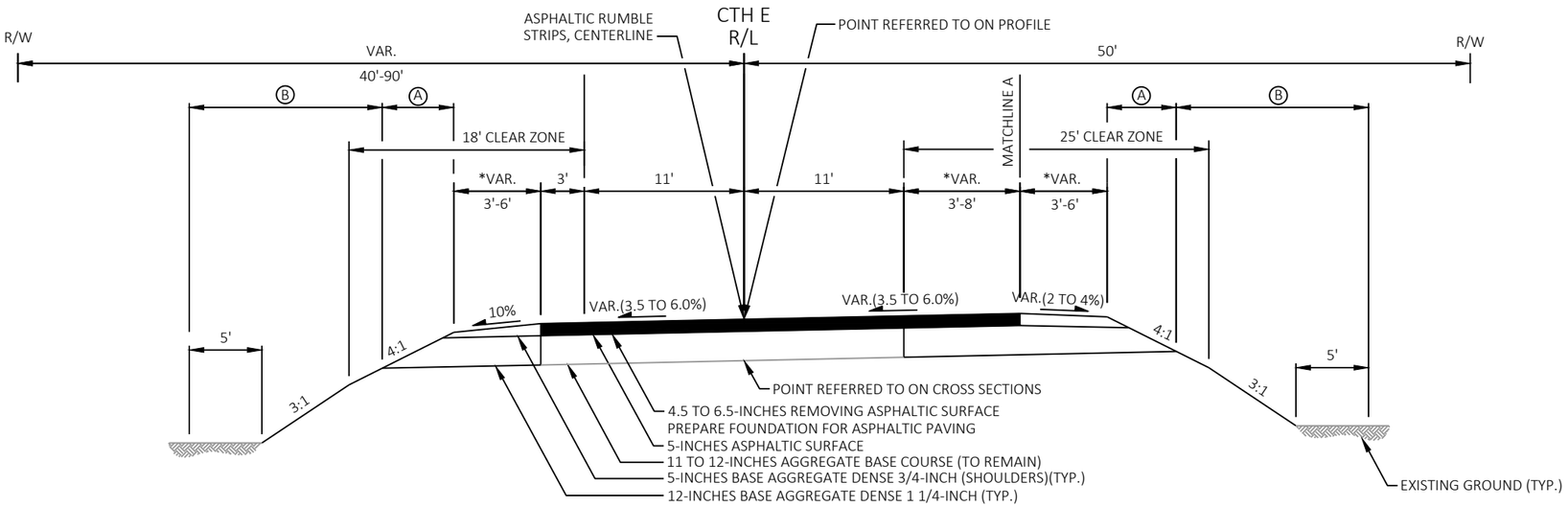
SEE PLAN DETAILS FOR SUPERELEVATION DATA

MAINTAIN EXISTING PROFILE FROM STATION 12+03.31 TO STATION 12+70. IF MORE THAN 5-INCHES OF EXISTING ASPHALT IS REMOVED, PLACE COMMENSURATE BASE AGGREGATE DENSE 1 1/4-INCH TO MAINTAIN EXISTING PROFILE IN CONJUNCTION WITH 5-INCHES OF PROPOSED HMA PAVEMENT.



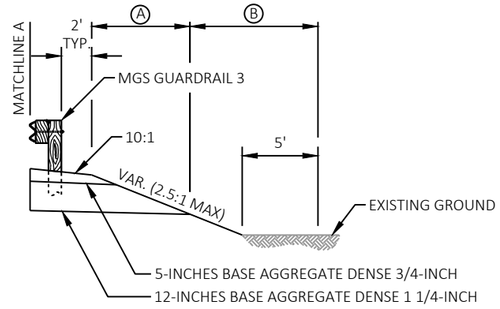
FINISHED TYPICAL SECTION

STA 11+40.36 - STA 12+03.31



FINISHED TYPICAL SECTION

STA 12+03.31 - STA 12+70.00



FINISHED TYPICAL SECTION - GUARDRAIL

STA 12+58.61 RT - STA 12+70.00 RT

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET 5	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\020301- TS.DWG
LAYOUT NAME - 020303-ts
PLOT DATE : 10/22/2026 10:57 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

NOTES:

Ⓐ SEEDING MIXTURE NO. 30 AND FERTILIZER TYPE B

Ⓑ SALVAGED TOPSOIL, SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, & EROSION MAT URBAN CLASS I TYPE B

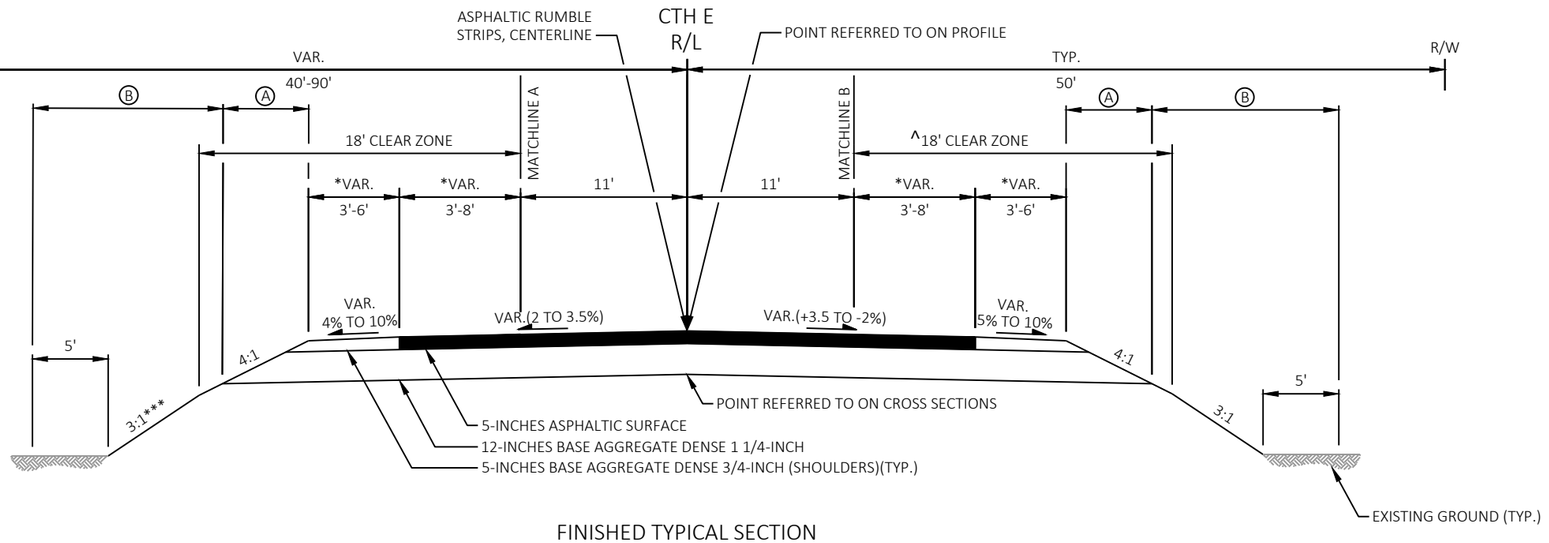
* SEE PLAN DETAILS FOR ADDITIONAL LAYOUT INFORMATION

** STEEL PLATE BEAM GUARD CLASS A FROM STA 15+13.02 LT - STA 15+62.56 LT

*** STA 16+00.00 LT - STA 17+50.00 LT VARIES BETWEEN 4:1 AND 8:1. SEE CROSS SECTIONS FOR ADDITIONAL INFORMATION.

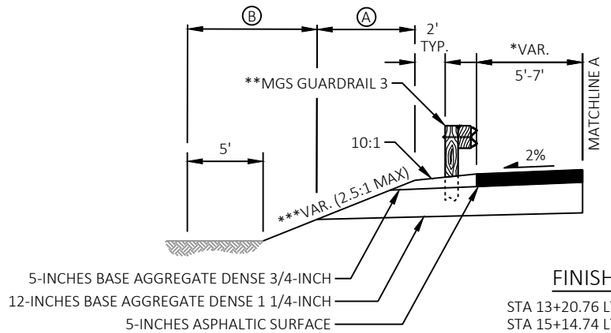
^ STA 12+70.00 - STA 12+83.26 CLEAR ZONE AT 25'

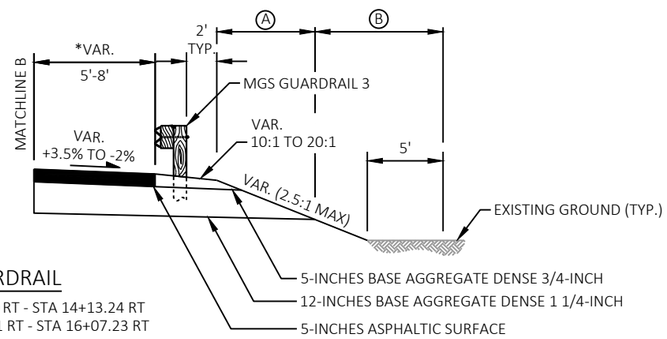
SEE PLAN DETAILS FOR SUPERELEVATION DATA



FINISHED TYPICAL SECTION

STA 12+70.00 - STA 14+24.75
STA 15+03.75 - STA 17+50.00





FINISHED TYPICAL SECTION - GUARDRAIL

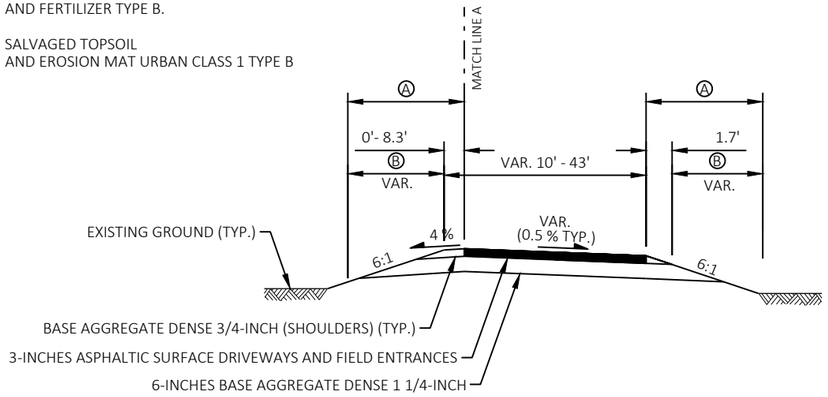
STA 13+20.76 LT - STA 14+13.24 LT
STA 15+14.74 LT - STA 15+63.89 LT

STA 12+70.00 RT - STA 14+13.24 RT
STA 15+14.741 RT - STA 16+07.23 RT

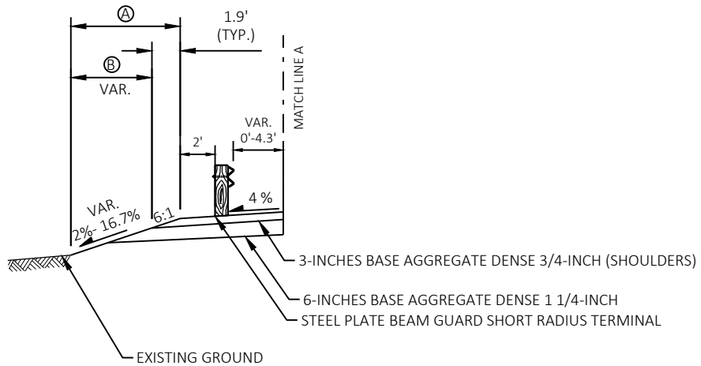
PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET 6	E

Ⓐ SEEDING MIXTURE NO. 30
AND FERTILIZER TYPE B.

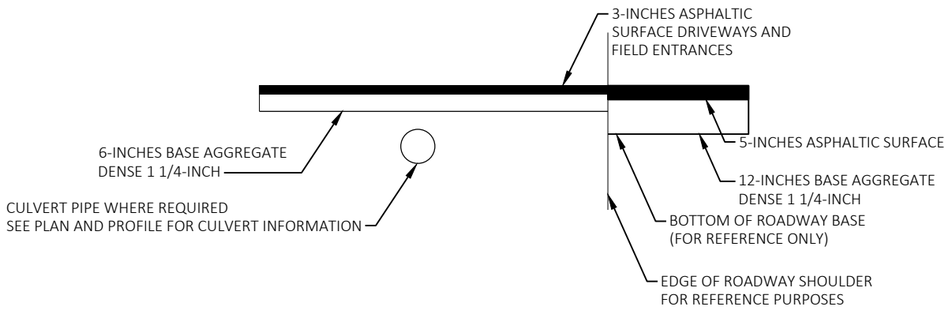
Ⓑ SALVAGED TOPSOIL
AND EROSION MAT URBAN CLASS 1 TYPE B



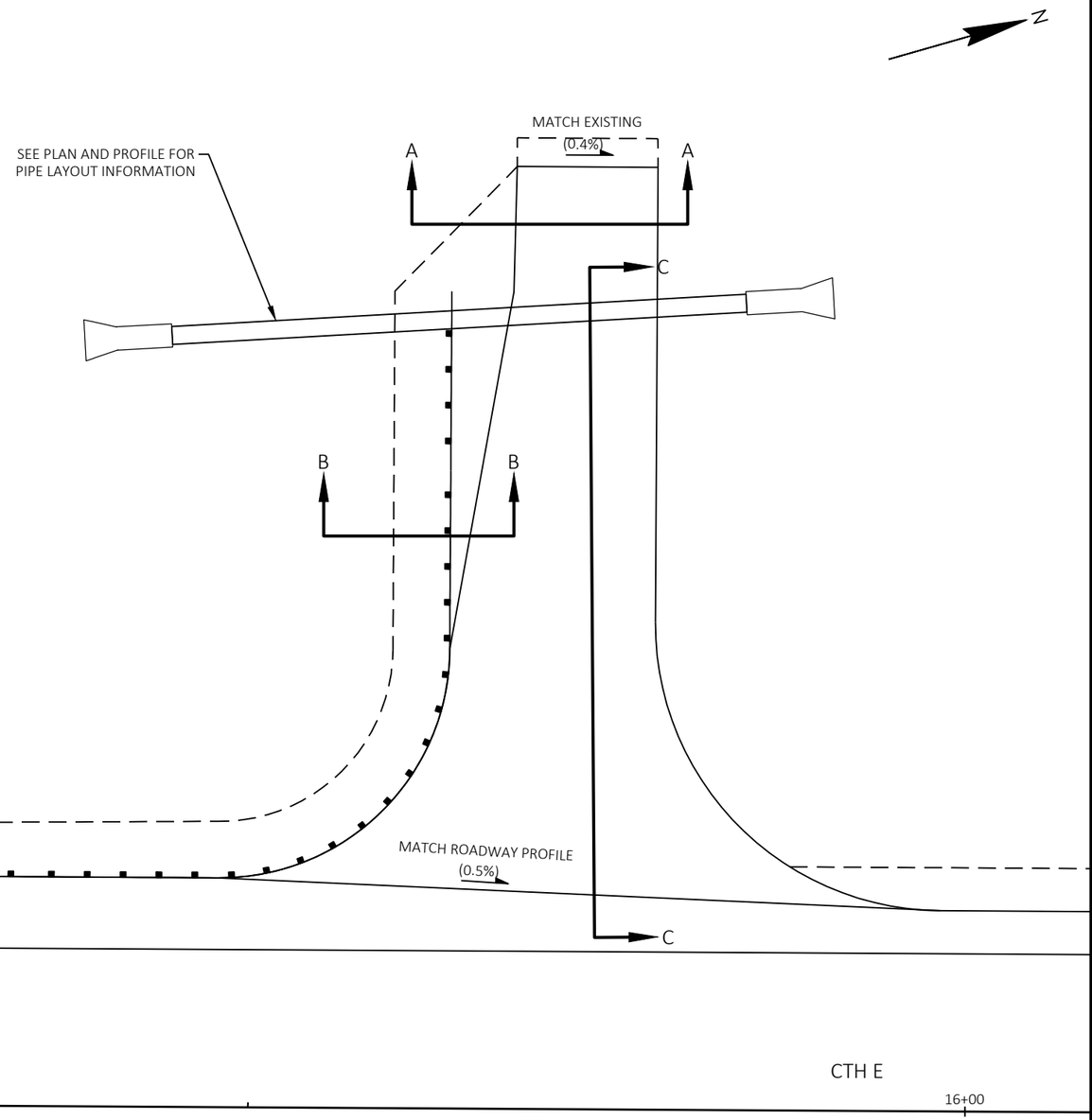
SECTION A - A



SECTION B - B

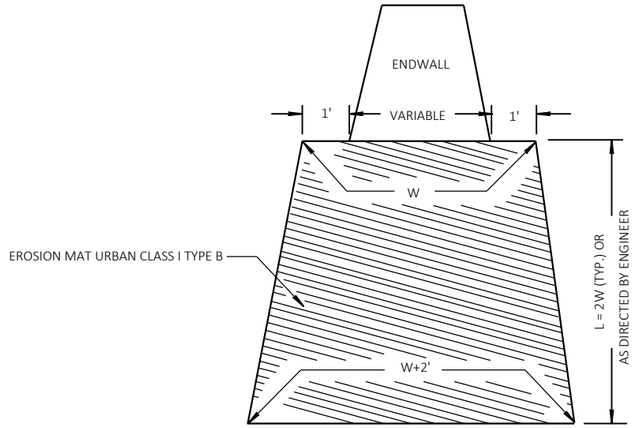


SECTION C - C

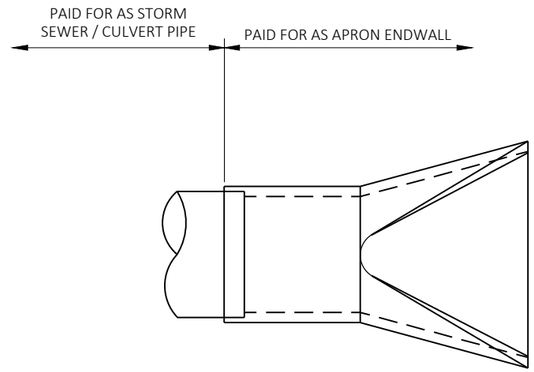


DRIVEWAY DETAIL

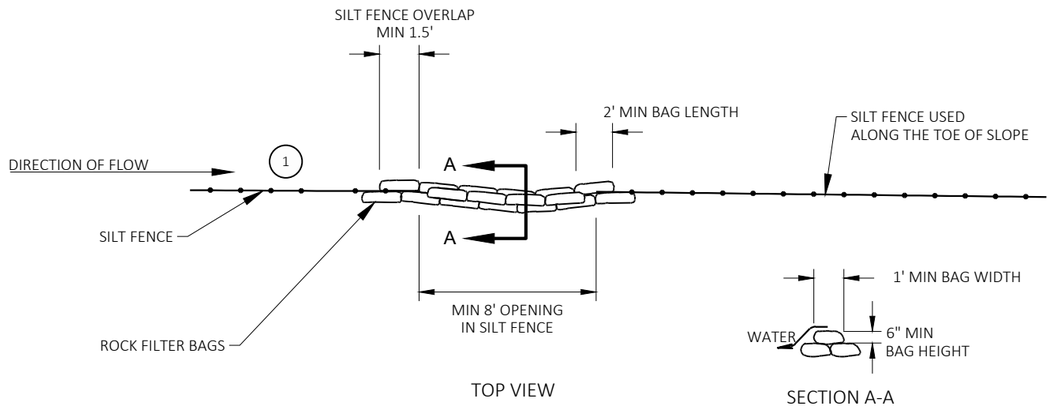
STA. 15+73 LT



EROSION MAT TREATMENT AT CULVERTS



APRON ENDWALL DETAIL



ROCK BAGS USED FOR SILT FENCE RELIEF

GENERAL NOTES

THE SILT FENCE RELIEF DETAIL IS A SUPPLEMENTAL DETAIL TO THE SILT FENCE STANDARD DETAILS AND SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

INSTALL SILT FENCE PRIOR TO CONSTRUCTING THE SILT FENCE OPENING. PRIOR TO CONSTRUCTING THE SILT FENCE OPENING, PLACE ROCK BAGS AT THE SILT FENCE OPENING AS SHOWN IN THIS DETAIL.

CONSTRUCTION OF THE SILT FENCE OPENING SHALL BE INCIDENTAL TO THE COST OF THE SILT FENCE BID ITEM.

PROVIDE A MINIMUM OF 22 ROCK BAGS PER 3 FOOT OPENING. ROCK BAGS SHALL BE PAID UNDER THE ROCK BAGS BID ITEM.

THE CONTRACTOR SHALL ADJUST THE SILT FENCE RELIEF OPENINGS WITHIN THE SILT FENCE AS NECESSARY TO PROVIDE RELIEF, TO FIT FIELD CONDITIONS AND AS DIRECTED BY THE FIELD ENGINEER.

(1) REFER TO THE SILT FENCE STANDARD DETAILS FOR ALLOWABLE ADJUSTMENTS TO POST SPACING.

2

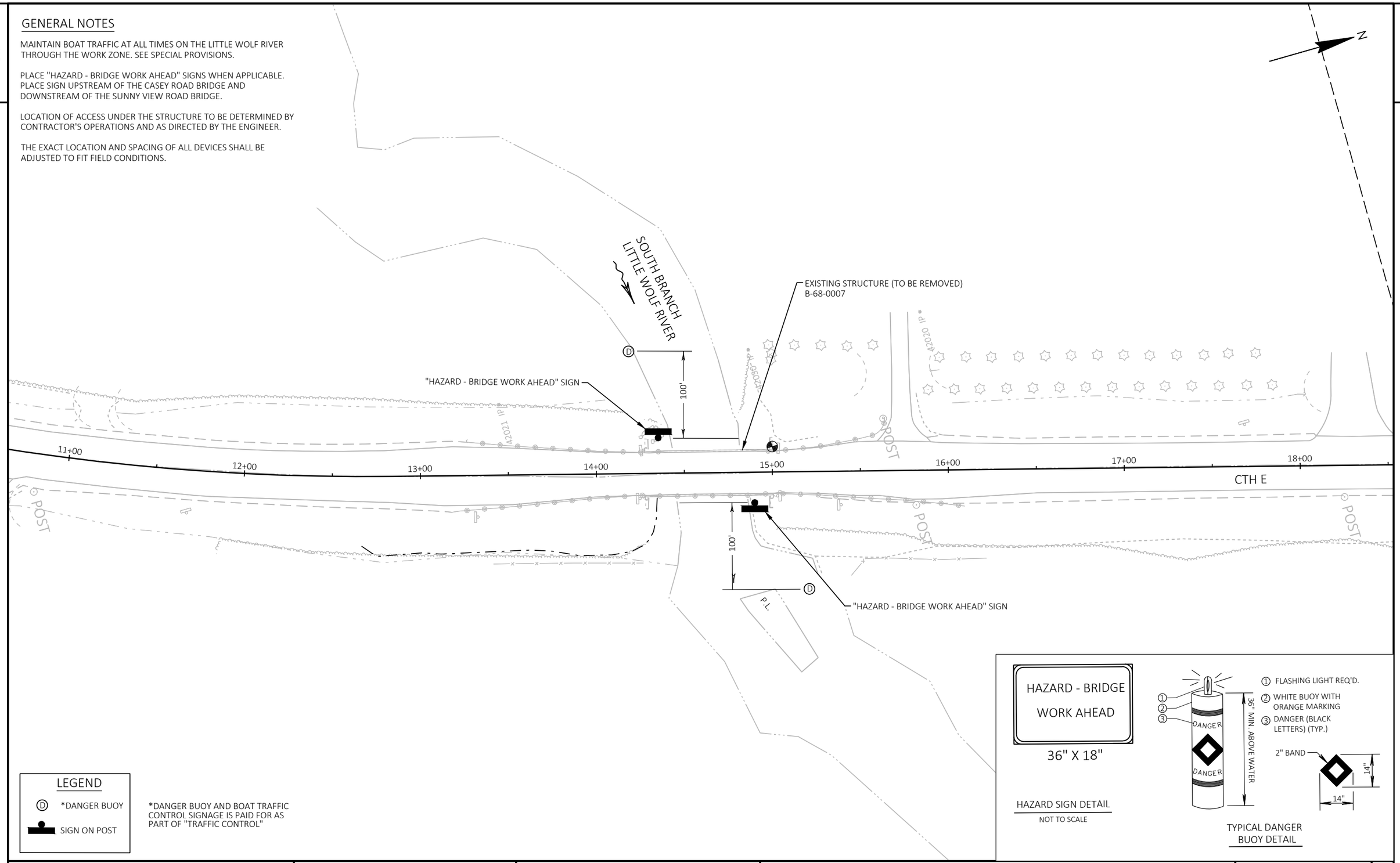
GENERAL NOTES

MAINTAIN BOAT TRAFFIC AT ALL TIMES ON THE LITTLE WOLF RIVER THROUGH THE WORK ZONE. SEE SPECIAL PROVISIONS.

PLACE "HAZARD - BRIDGE WORK AHEAD" SIGNS WHEN APPLICABLE. PLACE SIGN UPSTREAM OF THE CASEY ROAD BRIDGE AND DOWNSTREAM OF THE SUNNY VIEW ROAD BRIDGE.

LOCATION OF ACCESS UNDER THE STRUCTURE TO BE DETERMINED BY CONTRACTOR'S OPERATIONS AND AS DIRECTED BY THE ENGINEER.

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



LEGEND

- Ⓓ *DANGER BUOY
- SIGN ON POST

*DANGER BUOY AND BOAT TRAFFIC CONTROL SIGNAGE IS PAID FOR AS PART OF "TRAFFIC CONTROL"

HAZARD - BRIDGE WORK AHEAD

36" X 18"

HAZARD SIGN DETAIL

NOT TO SCALE

TYPICAL DANGER BUOY DETAIL

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CONSTRUCTION DETAILS	SHEET 9	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\021003-CD.DWG
LAYOUT NAME - 021003-cd

PLOT DATE : 10/22/2026 10:57 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:50 FT

WISDOT/CADDS SHEET 42

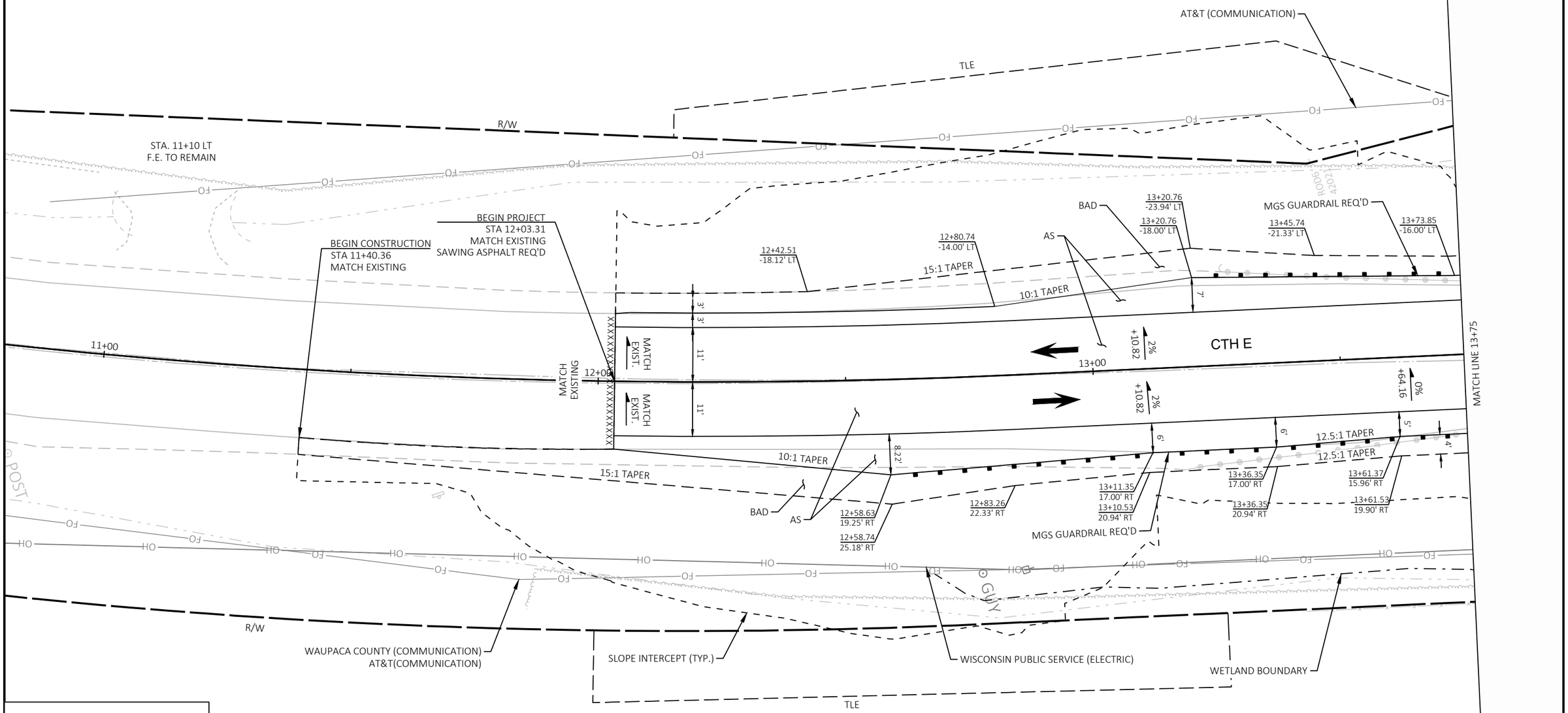
2

NOTE:
SEE SDD MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL,
SDD MIDWEST GUARDRAIL SYSTEM (MGS) TERMINAL, AND
SDD MIDWEST GUARDRAIL SYSTEM (MGS) THRIE BEAM
TRANSITION FOR ADDITIONAL GUARDRAIL INFORMATION

SUPER ELEVATION DATA		
FULL SUPER	STA. 12+03.31	-6% / 6%
REVERSE CROWN	STA. 13+10.82	-2% / 2%
LEVEL CROWN	STA. 13+64.16	-2% / 0%
NORMAL CROWN	STA. 14+17.49	-2% / -2%

STA. 13+20.76 LT - STA. 13+70.73 LT, MGS GUARDRAIL TERMINAL EAT
- EAT POST #1, STA. 13+20.76, 18.0' LT
- EAT POST #5, STA. 13+45.67, 17.1' LT
- EAT POST #9, STA. 13+70.73, 16.1' LT

STA. 13+73.85 LT - STA. 14+13.24 LT, MGS THRIE BEAM TRANSITION



LEGEND

AS	ASPHALTIC SURFACE
XXXXX	SAWING ASPHALT
➡	TRAFFIC FLOW
BAD	BASE AGGREGATE DENSE 3/4-INCH (SHOULDERS)

STA. 12+58.63 RT - STA. 13+11.35 RT, MGS GUARDRAIL TERMINAL EAT
- EAT POST #1, STA. 12+58.63, 19.2' RT
- EAT POST #5, STA. 12+83.26, 18.1' RT
- EAT POST #9, STA. 13+08.23, 17.1' RT

STA. 13+11.35 RT - STA. 13+73.85 RT, MGS GUARDRAIL 3

STA. 13+73.85 RT - STA. 14+13.25 RT, MGS THRIE BEAM TRANSITION

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	PLAN DETAILS	SHEET 10	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\021201-PD.DWG
LAYOUT NAME - 021201-pd
PLOT DATE : 10/22/2026 10:57 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:20 FT

NOTE:
SEE SDD STEEL PLATE BEAM GUARD CLASS "A", SDD STEEL THRIE BEAM STRUCTURE APPROACH, SDD STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL, SDD MIDWEST GUARDRAIL SYSTEM (MGS) TERMINAL, AND SDD MIDWEST GUARDRAIL SYSTEM (MGS) THRIE BEAM TRANSITION FOR ADDITIONAL GUARDRAIL INFORMATION

SUPER ELEVATION DATA		
FULL SUPER	STA. 12+03.31	-6% / 6%
REVERSE CROWN	STA. 13+10.82	-2% / 2%
LEVEL CROWN	STA. 13+64.16	-2% / 0%
NORMAL CROWN	STA. 14+17.49	-2% / -2%

STA. 15+14.74 LT - STA. 15+35.39 LT, STEEL THRIE BEAM STRUCTURE APPROACH
STA. 15+35.39 LT - STA. 15+47.89 LT, STEEL PLATE BEAM GUARD CLASS A (HEIGHT TRANSITION)
STA. 15+47.89 LT - STA. 15+63.89 LT, STEEL PLATE BEAM GUARD SHORT RADIUS
STA. 15+63.89 LT - STA. 15+63.89 LT, STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

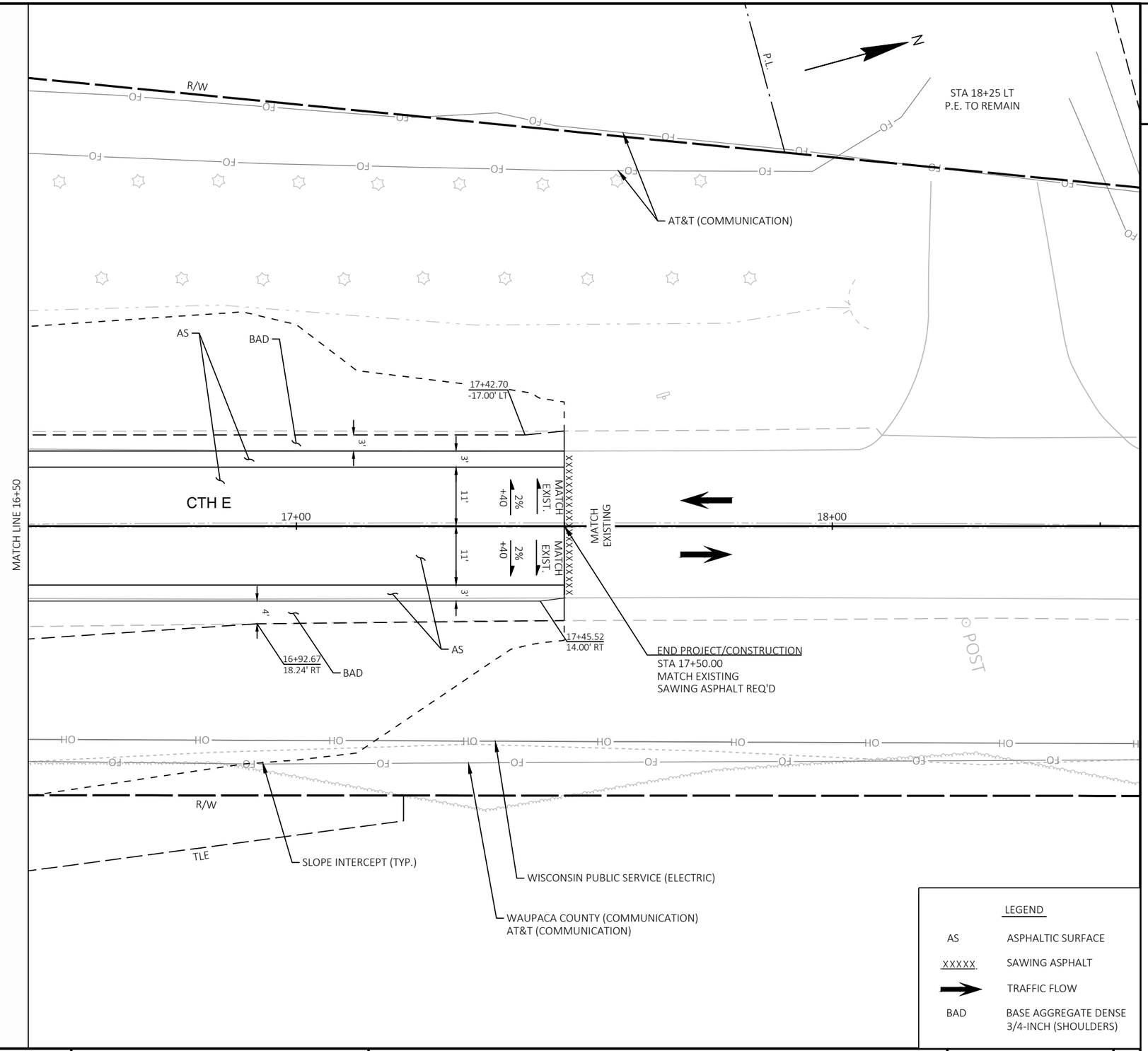
AT&T (COMMUNICATION)
SEE PLAN AND PROFILE FOR PIPE LAYOUT INFORMATION
SOUTH BRANCH LITTLE WOLF RIVER
PROPOSED STRUCTURE B-68-0155
EXISTING STRUCTURE (TO BE REMOVED) B-68-0007
MGS GUARDRAIL REQ'D
16' RADIUS FOR MGS STEEL PLATE BEAM GUARD SHORT RADIUS, 7 CRT POSTS
CENTER OF RADIUS 15+47.89, 32.00' LT
STEEL PLATE BEAM GUARD CLASS A REQ'D
STA 15+73 LT CONSTRUCT P.E.
MATCH EXISTING
WISCONSIN PUBLIC SERVICE (ELECTRIC)
SEE CONSTRUCTION DETAIL FOR ADDITIONAL DRIVEWAY DETAILS
CENTER OF RADIUS 15+98.22, 34.00' LT
CTH E
MATCH LINE 13+75
MATCH LINE 16+50
10:1 TAPER
15:1 TAPER
MAILBOX TO BE REMOVED BY OTHERS
MGS GUARDRAIL REQ'D
WETLAND BOUNDARY
WISCONSIN PUBLIC SERVICE (ELECTRIC)
WAUPACA COUNTY (COMMUNICATION)
AT&T (COMMUNICATION)
SLOPE INTERCEPT (TYP.)
R/W
TLE
P.I.

STA. 15+14.74 RT - STA. 15+54.14 RT, MGS THRIE BEAM TRANSITION
STA. 15+54.14 RT - STA. 16+07.23 RT, MGS GUARDRAIL TERMINAL EAT
- EAT POST #1, STA. 16+07.23, 18.0' RT
- EAT POST #5, STA. 15+82.24, 17.1' RT
- EAT POST #9, STA. 15+57.26, 16.1' RT

LEGEND	
AS	ASPHALTIC SURFACE
XXXXX	SAWING ASPHALT
→	TRAFFIC FLOW
BAD	BASE AGGREGATE DENSE 3/4-INCH (SHOULDERS)

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	PLAN DETAILS	SHEET 11	E

2



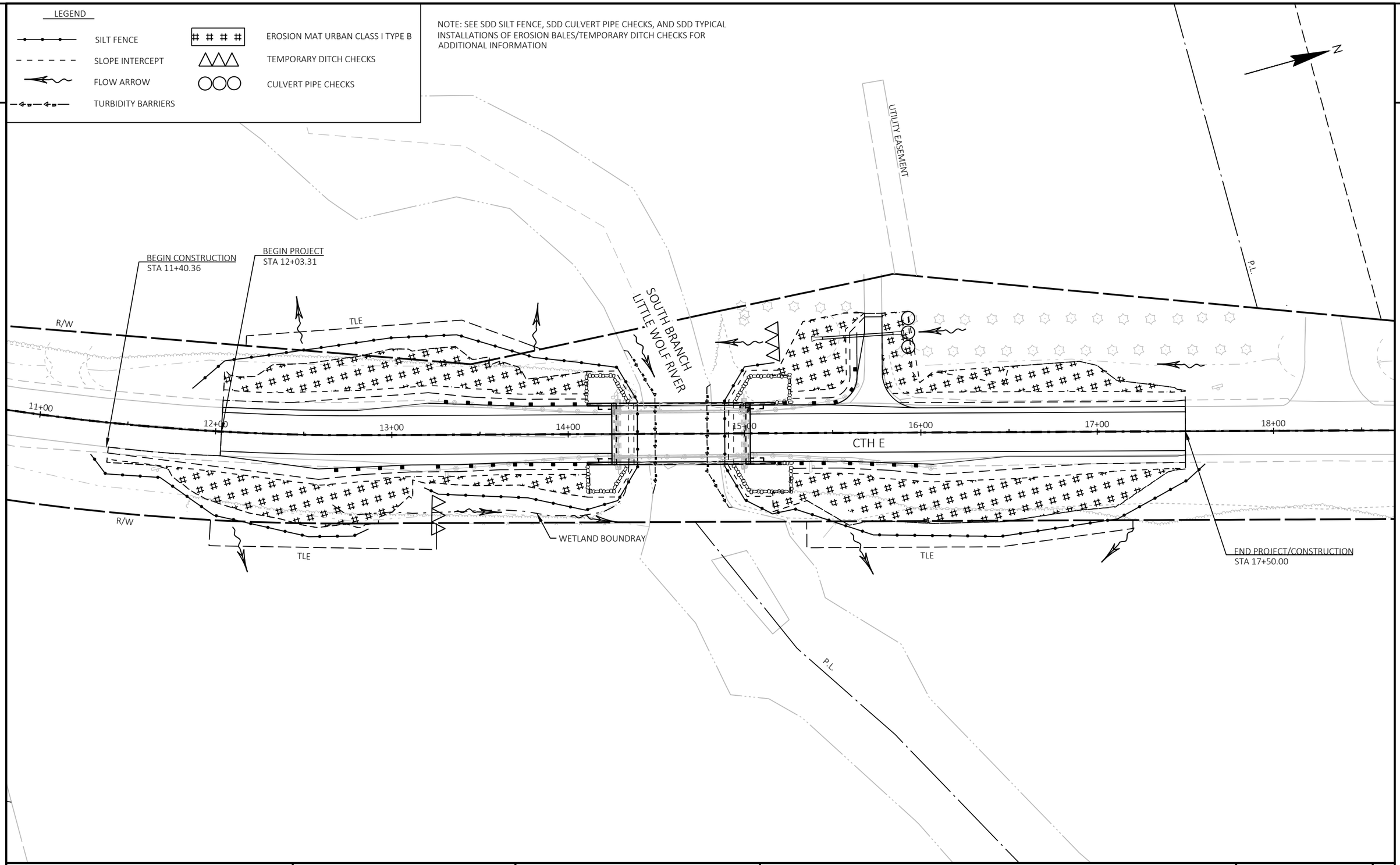
PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	PLAN DETAILS	SHEET 12	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\021201-PD.DWG
LAYOUT NAME - 021203-pd
PLOT DATE : 10/22/2026 10:58 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 42

LEGEND

- SILT FENCE
- SLOPE INTERCEPT
- FLOW ARROW
- TURBIDITY BARRIERS
- EROSION MAT URBAN CLASS I TYPE B
- TEMPORARY DITCH CHECKS
- CULVERT PIPE CHECKS

NOTE: SEE SDD SILT FENCE, SDD CULVERT PIPE CHECKS, AND SDD TYPICAL INSTALLATIONS OF EROSION BALES/TEMPORARY DITCH CHECKS FOR ADDITIONAL INFORMATION



PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	EROSION CONTROL	SHEET 13	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\022001-EC.DWG
LAYOUT NAME - 022001-ec

PLOT DATE : 6/25/2026 9:51 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:50 FT

2

LEGEND

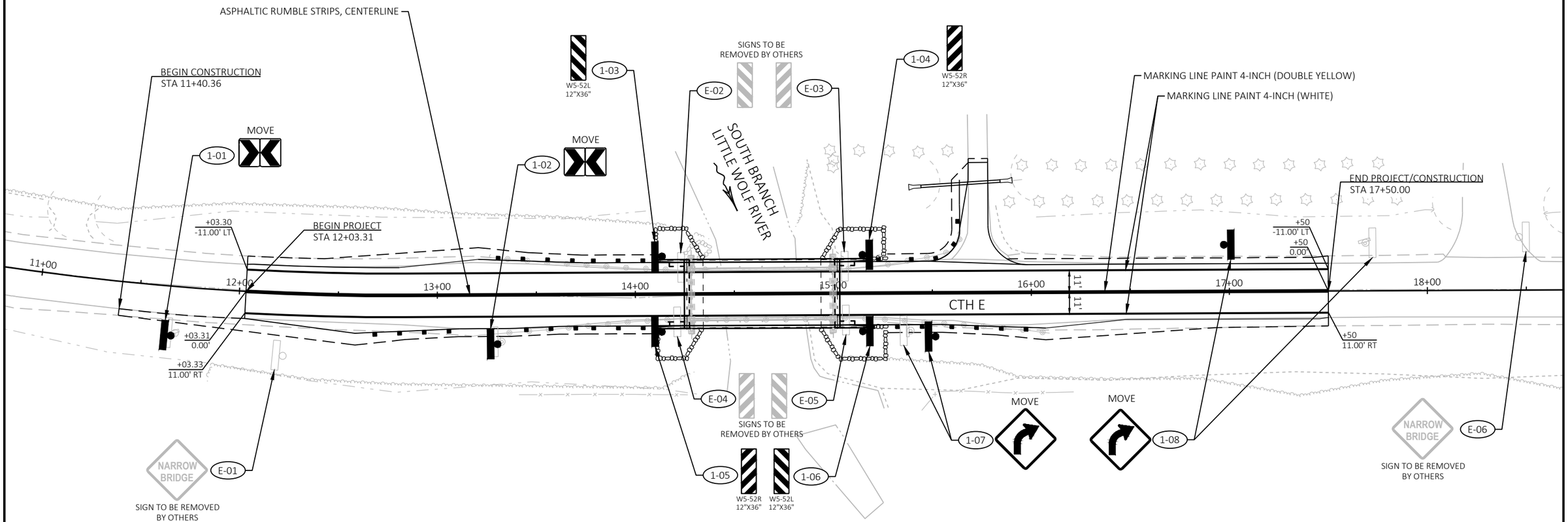
PROPOSED SIGN MOUNTED ON POST(S)

EXISTING SIGN MOUNTED ON POST(S)

XXX DESIGNATES SIGN ITEM NUMBER

NOTES:

SEE SDD SIGNING AND MARKING FOR TWO LANE BRIDGES FOR ADDITIONAL INFORMATION.



PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	PERMANENT SIGNING AND MARKING	SHEET 14	E

GENERAL NOTES

DETOUR ROUTE MARKER SIGNING TO BE INSTALLED AND MAINTAINED BY CONTRACTOR.

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

REMOVE OR COVER ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH TRAFFIC CONTROL "IN USE", OR AS APPROVED BY THE ENGINEER.

"WO" AND "W" SIGNS SHALL BE 48"x48" UNLESS OTHERWISE NOTED.

TRAFFIC CONTROL SIGNS PORTABLE CHANGEABLE MESSAGE TO BE INSTALLED BY WAUPACA COUNTY ONE WEEK PRIOR TO IMPLEMENTATION OF DETOUR ROUTE.

SEE S.D.D. "DETOUR SIGNING FOR MAINLINE CLOSURES", "BARRICADES AND SIGNS FOR MAINLINE CLOSURES".

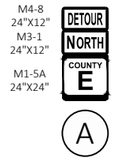
ALL M3 SERIES SIGNS (NORTH, SOUTH EAST, WEST) WHICH ARE PART OF ANY DETOUR ROUTE MARKER SIGNING ASSEMBLY OR ATTACHED TO ANY WARNING SIGN SHALL BE BLACK LETTERING ON A WHITE BACKGROUND.

ALL M05 AND M06 ARROW SIGNS SHALL BE THE SAME AS "M" SIGNS EXCEPT THAT THE BACKGROUND IS ORANGE.

LEGEND

- DETOUR ROUTE
- TRAFFIC CONTROL SIGNS
- EXISTING SIGNS MOUNTED ON POST(S)

M4-8 24"X12" / M3-1 24"X12" / M1-5A 24"X24"

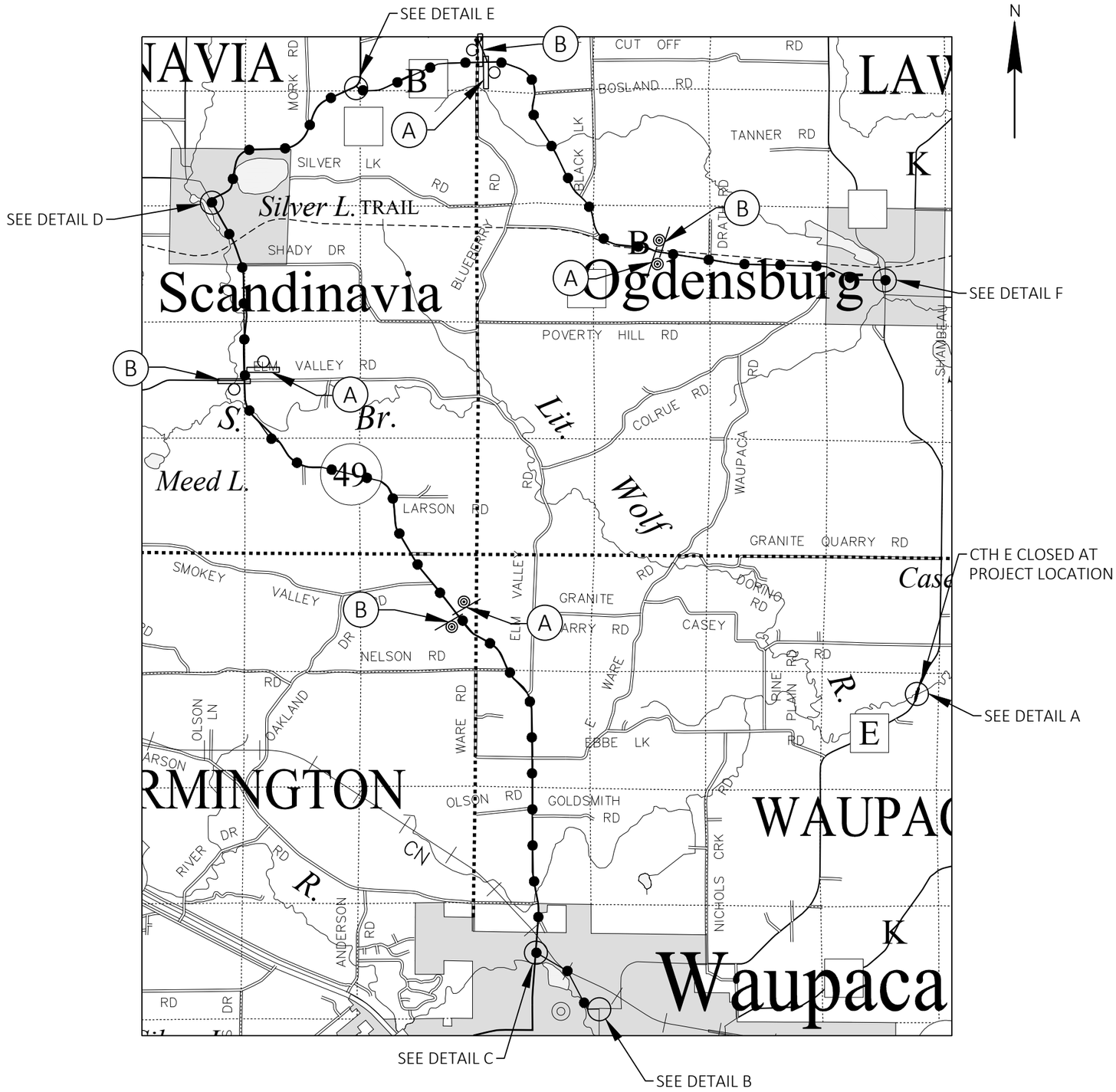


A

M4-8 24"X12" / M3-3 24"X12" / M1-5A 24"X24"



B



PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	DETOUR ROUTE	SHEET 15	E

2

2

E

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN TYPE 2 (TWO WARNING LIGHTS TYPE A REQ'D)
- TYPE III BARRICADE WITHOUT SIGN (TWO WARNING LIGHTS TYPE A REQ'D)
- TYPE III BARRICADE WITHOUT SIGN (ONE WARNING LIGHT TYPE A REQ'D)
- TRAFFIC CONTROL SIGN ON POST
- WORK ZONE

SEE S.D.D "BARRICADES AND SIGNS FOR MAINLINE CLOSURES", "BARRICADES AND SIGNS FOR VARIOUS CLOSURES", AND "DETOUR SIGNING FOR MAINLINE CLOSURES" FOR ADDITIONAL INFORMATION AND SPACING.

ALL SIGNS ARE 48-INCH X 48-INCH UNLESS OTHERWISE NOTED.

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

*PLACE PCMS BOARDS 7 DAYS PRIOR TO ROAD CLOSURE. PCMS BOARDS ARE TO BE INSTALLED BY OTHERS.

N

ROAD CLOSED 1000 FT W20-3C

ROAD CLOSED 500 FT W20-3D

ROAD CLOSED AHEAD W20-3A

BRIDGE OUT R11-2B 48"X30"

50 FT

1000'

500'

500'

*PCMS

*PRE-WARN

FRAME 1 ROAD CLOSED BEGINS

FRAME 2 (DAY) (DATE)

*PRE-WARN

FRAME 1 ROAD CLOSED BEGINS

FRAME 2 (DAY) (DATE)

*PCMS

500'

500'

1000'

50 FT

CTH E

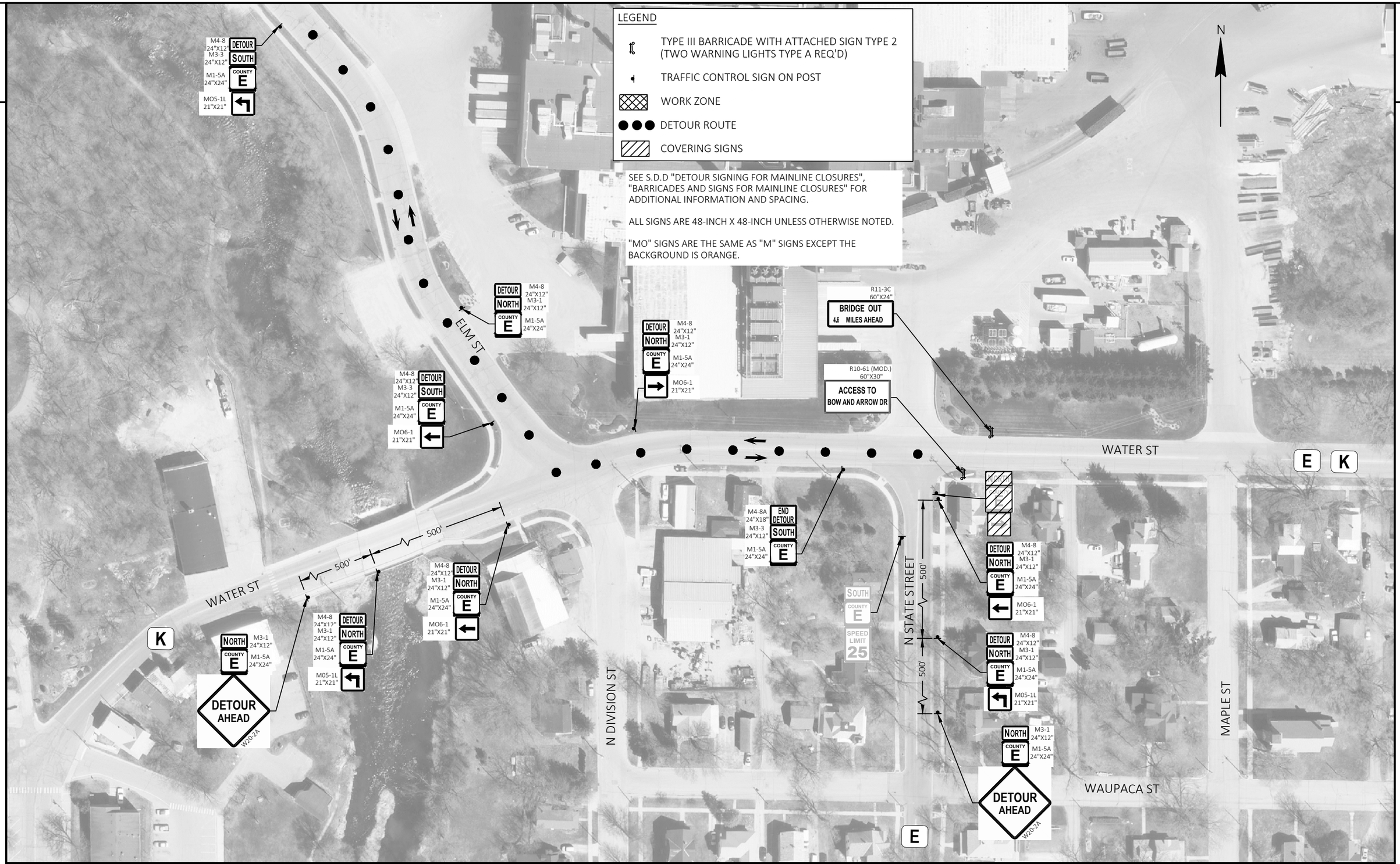
ROAD CLOSED AHEAD W20-3A

BRIDGE OUT R11-2B 48"X30"

ROAD CLOSED 500 FT W20-3D

ROAD CLOSED 1000 FT W20-3C

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	DETOUR - DETAIL A	SHEET 16	E



PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	DETOUR - DETAIL B	SHEET 17 E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\027001-DT.DWG
LAYOUT NAME - 027003-dt

PLOT DATE : 6/25/2026 9:52 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN TYPE 2 (TWO WARNING LIGHTS TYPE A REQ'D)
- TRAFFIC CONTROL SIGN ON POST
- WORK ZONE
- DETOUR ROUTE
- COVERING SIGNS

SEE S.D.D "DETOUR SIGNING FOR MAINLINE CLOSURES", "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR ADDITIONAL INFORMATION AND SPACING.

ALL SIGNS ARE 48-INCH X 48-INCH UNLESS OTHERWISE NOTED.

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

N

M4-8 24"X12" DETOUR SOUTH
M3-3 24"X12"
M1-5A 24"X24" COUNTY E
M05-1L 21"X21"

49

M4-8 24"X12" DETOUR SOUTH
M3-3 24"X12"
M1-5A 24"X24" COUNTY E
MO6-1 21"X21"

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-5A 24"X24" COUNTY E

TIMBER DR

500'

500'

M3-1 24"X12" NORTH
M1-5A 24"X24" COUNTY E
DETOUR AHEAD W20-2A

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-5A 24"X24" COUNTY E
M05-1L 21"X21"

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-5A 24"X24" COUNTY E
MO6-1 21"X21"

STH 49

500'

1000'

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-5A 24"X24" COUNTY E
MO6-1 21"X21"

M3-1 24"X12" NORTH
M1-5A 24"X24" COUNTY E
DETOUR AHEAD W20-2A

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-5A 24"X24" COUNTY E
MO6-1 21"X21"

ELM ST

M4-8 24"X12" DETOUR SOUTH
M3-3 24"X12"
M1-5A 24"X24" COUNTY E

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-5A 24"X24" COUNTY E
MO6-1 21"X21"

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-5A 24"X24" COUNTY E
M5-1R 21"X21"

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	DETOUR - DETAIL C	SHEET 18	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\027001-DT.DWG
LAYOUT NAME - 027004-dt
PLOT DATE : 6/25/2026 9:52 AM
PLOT BY : DEMPSEY, EDEN
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

2

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN TYPE 2 (TWO WARNING LIGHTS TYPE A REQ'D)
- TRAFFIC CONTROL SIGN ON POST
- WORK ZONE
- DETOUR ROUTE
- COVERING SIGNS

SEE S.D.D "DETOUR SIGNING FOR MAINLINE CLOSURES", "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR ADDITIONAL INFORMATION AND SPACING.

ALL SIGNS ARE 48-INCH X 48-INCH UNLESS OTHERWISE NOTED.

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

PLEASANT ST

S MAIN ST

N SHORE DR

LAKE ST

CHURCH ST

M4-8 24"X12" M3-3 24"X12" M1-5A 24"X24" M05-1L 21"X21"
DETOUR SOUTH COUNTY E 49 COUNTY B

M4-8 24"X12" M3-3 24"X12" M1-5A 24"X24" MO6-1 21"X21"
DETOUR SOUTH COUNTY E

M4-8 24"X12" M3-1 24"X12" M1-5A 24"X24"
DETOUR NORTH COUNTY E NORTH 49 COUNTY B

M4-8 24"X12" M3-1 24"X12" M1-5A 24"X24" MO6-1 21"X21"
DETOUR NORTH COUNTY E COUNTY B 49

M4-8 24"X12" M3-1 24"X12" M1-5A 24"X24" M05-1R 21"X21"
DETOUR NORTH COUNTY E

M3-3 24"X12" M1-5A 24"X24"
SOUTH COUNTY E

DETOUR AHEAD W20-2A

500' 500'

M4-8 24"X12" M3-3 24"X12" M1-5A 24"X24" MO6-1 21"X21"
DETOUR SOUTH COUNTY E SOUTH 49 COUNTY B

M4-8 24"X12" M3-3 24"X12" M1-5A 24"X24"
DETOUR SOUTH COUNTY E

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	DETOUR - DETAIL D	SHEET 19	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\027001-DT.DWG
LAYOUT NAME - 027005-dt
PLOT DATE : 6/25/2026 9:52 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

2

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN TYPE 2 (TWO WARNING LIGHTS TYPE A REQ'D)
- TRAFFIC CONTROL SIGN ON POST
- WORK ZONE
- DETOUR ROUTE
- COVERING SIGNS

N

SEE S.D.D "DETOUR SIGNING FOR MAINLINE CLOSURES", "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR ADDITIONAL INFORMATION AND SPACING.

ALL SIGNS ARE 48-INCH X 48-INCH UNLESS OTHERWISE NOTED.

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

49

STH 49

1000'

660'

SOUTH / COUNTY E — M3-3 24"X12", M1-5A 24"X24"
DETOUR AHEAD — W20-2A

M4-8 24"X12" DETOUR / M3-3 24"X12" SOUTH / M1-5A 24"X24" COUNTY E / MO6-1 21"X21" — COUNTY B JCT

M4-8 24"X12" DETOUR / M3-3 24"X12" SOUTH / M1-5A 24"X24" COUNTY E / MO6-1 21"X21" — COUNTY B

M4-8 24"X12" DETOUR / M3-3 24"X12" SOUTH / M1-5A 24"X24" COUNTY E — COUNTY B 49

M4-8 24"X12" DETOUR / M3-3 24"X12" SOUTH / M1-5A 24"X24" COUNTY E — SOUTH 49 COUNTY B

M4-8 24"X12" DETOUR / M3-1 24"X12" NORTH / M1-5A 24"X24" COUNTY E — COUNTY B

M4-8 24"X12" DETOUR / M3-1 24"X12" NORTH EAST / M1-5A 24"X24" COUNTY E — COUNTY B

M4-8 24"X12" DETOUR / M3-3 24"X12" SOUTH / M1-5A 24"X24" COUNTY E / MO5-1 21"X21"

M4-8 24"X12" DETOUR / M3-1 24"X12" NORTH / M1-5A 24"X24" COUNTY E / MO5-1R 21"X21" — COUNTY B

49 B B

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	DETOUR - DETAIL E	SHEET 20	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\027001-DT.DWG
LAYOUT NAME - 027006-dt

PLOT DATE : 6/25/2026 9:52 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

E
K

STEWARD ST

SOUTH M3-3 24"X12"
COUNTY E M1-5A 24"X24"
DETOUR AHEAD W20-2A

M4-8 24"X12"
DETOUR
SOUTH
M3-3 24"X12"
COUNTY E
M1-5A 24"X24"
M05-1R 21"X21"

M4-8 24"X12"
DETOUR
SOUTH
M3-3 24"X12"
COUNTY B
COUNTY E M1-5A 24"X24"
MO6-1 21"X21"

M4-8 24"X12"
DETOUR
SOUTH
M3-3 24"X12"
COUNTY E M1-5A 24"X24"

500'
500'

B

M4-8 24"X12"
DETOUR
M3-3 24"X12"
NORTH
M1-5A 24"X24"
COUNTY E
JCT
COUNTY K
JCT
COUNTY E
M05-1L 21"X21"

END DETOUR M4-8A 24"X18"
NORTH M3-1 24"X12"
COUNTY E
COUNTY K
COUNTY B

M4-9R 30"X24"
DETOUR
R11-3C 60"X24"
BRIDGE OUT
3.8 MILES AHEAD

STEWARD ST

E
K
B

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN TYPE 2 (TWO WARNING LIGHTS TYPE A REQ'D)
- TRAFFIC CONTROL SIGN ON POST
- WORK ZONE
- DETOUR ROUTE
- COVERING SIGNS

SEE S.D.D "DETOUR SIGNING FOR MAINLINE CLOSURES", "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR ADDITIONAL INFORMATION AND SPACING.

ALL SIGNS ARE 48-INCH X 48-INCH UNLESS OTHERWISE NOTED.

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

N

2

STEWARD ST

NORTH
COUNTY E

DETOUR
SOUTH
M4-8 24"X12"
M3-3 24"X12"
COUNTY E M1-5A 24"X24"
MO6-1 21"X21"

DETOUR
SOUTH
M4-8 24"X12"
M3-3 24"X12"
COUNTY E M1-5A 24"X24"
MO6-1 21"X21"

SOUTH M3-3 24"X12"
COUNTY E M1-5A 24"X24"
DETOUR AHEAD W20-2A

500'
500'

ST LAWRENCE ST

MAIN ST

R10-61 (MOD.) 60"X30"
ACCESS TO CASEY RD

WASHINGTON ST

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	DETOUR - DETAIL F	SHEET 21	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\027001-DT.DWG
LAYOUT NAME - 027007-dt

PLOT DATE : 6/25/2026 9:52 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

Estimate Of Quantities

6844-01-72

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	6.000	6.000
0004	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0006	203.0270	Removing Structure Over Waterway Debris Capture (structure) 01. B-68-0007	EACH	1.000	1.000
0008	204.0110	Removing Asphaltic Surface	SY	200.000	200.000
0010	204.0165	Removing Guardrail	LF	434.000	434.000
0012	205.0100	Excavation Common	CY	1,133.000	1,133.000
0014	206.1001	Excavation for Structures Bridges (structure) 01. B-68-0155	EACH	1.000	1.000
0016	210.1500	Backfill Structure Type A	TON	382.000	382.000
0018	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 6844-01-72	EACH	1.000	1.000
0020	213.0100	Finishing Roadway (project) 01. 6844-01-72	EACH	1.000	1.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	101.000	101.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,500.000	1,500.000
0026	312.0110	Select Crushed Material	TON	103.000	103.000
0028	455.0605	Tack Coat	GAL	81.000	81.000
0030	465.0105	Asphaltic Surface	TON	452.000	452.000
0032	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	15.000	15.000
0034	465.0560	Asphaltic Rumble Strips, Centerline	LF	547.000	547.000
0036	502.0100	Concrete Masonry Bridges	CY	192.000	192.000
0038	502.3200	Protective Surface Treatment	SY	279.000	279.000
0040	502.3210	Pigmented Surface Sealer	SY	105.000	105.000
0042	503.0137	Prestressed Girder Type I 36W-Inch	LF	308.000	308.000
0044	505.0400	Bar Steel Reinforcement HS Structures	LB	3,980.000	3,980.000
0046	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	26,140.000	26,140.000
0048	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0050	506.4000	Steel Diaphragms (structure) 01. B-68-0155	EACH	3.000	3.000
0052	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0054	521.1015	Apron Endwalls for Culvert Pipe Steel 15-Inch	EACH	2.000	2.000
0056	521.3115	Culvert Pipe Corrugated Steel 15-Inch	LF	50.000	50.000
0058	550.0020	Pre-Boring Rock or Consolidated Materials	LF	200.000	200.000
0060	550.0500	Pile Points	EACH	8.000	8.000
0062	550.1100	Piling Steel HP 10-Inch x 42 Lb	LF	520.000	520.000
0064	606.0300	Riprap Heavy	CY	193.000	193.000
0066	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0068	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0070	614.0200	Steel Thrie Beam Structure Approach	LF	20.700	20.700
0072	614.0305	Steel Plate Beam Guard Class A	LF	12.500	12.500
0074	614.0345	Steel Plate Beam Guard Short Radius	LF	37.500	37.500
0076	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000
0078	614.2300	MGS Guardrail 3	LF	62.500	62.500
0080	614.2500	MGS Thrie Beam Transition	LF	118.200	118.200
0082	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0084	618.0100	Maintenance and Repair of Haul Roads (project) 01. 6844-01-72	EACH	1.000	1.000
0086	619.1000	Mobilization	EACH	1.000	1.000
0088	624.0100	Water	MGAL	37.300	37.300
0090	625.0500	Salvaged Topsoil	SY	2,120.000	2,120.000
0092	627.0200	Mulching	SY	430.000	430.000
0094	628.1504	Silt Fence	LF	1,270.000	1,270.000
0096	628.1520	Silt Fence Maintenance	LF	4,310.000	4,310.000
0098	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000

6844-01-72

Line	Item	Item Description	Unit	Total	Qty
0100	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0102	628.2008	Erosion Mat Urban Class I Type B	SY	2,110.000	2,110.000
0104	628.6005	Turbidity Barriers	SY	154.000	154.000
0106	628.7504	Temporary Ditch Checks	LF	46.000	46.000
0108	628.7555	Culvert Pipe Checks	EACH	2.000	2.000
0110	628.7560	Tracking Pads	EACH	3.000	3.000
0112	628.7570	Rock Bags	EACH	86.000	86.000
0114	629.0210	Fertilizer Type B	CWT	1.900	1.900
0116	630.0130	Seeding Mixture No. 30	LB	118.000	118.000
0118	630.0300	Seeding Borrow Pit	LB	19.000	19.000
0120	630.0500	Seed Water	MGAL	69.500	69.500
0122	634.0616	Posts Wood 4x6-Inch x 16-FT	EACH	4.000	4.000
0124	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0126	638.2102	Moving Signs Type II	EACH	4.000	4.000
0128	638.4000	Moving Small Sign Supports	EACH	4.000	4.000
0130	642.5001	Field Office Type B	EACH	1.000	1.000
0132	643.0420	Traffic Control Barricades Type III	DAY	1,680.000	1,680.000
0134	643.0705	Traffic Control Warning Lights Type A	DAY	2,880.000	2,880.000
0136	643.0900	Traffic Control Signs	DAY	26,160.000	26,160.000
0138	643.0920	Traffic Control Covering Signs Type II	EACH	3.000	3.000
0140	643.1000	Traffic Control Signs Fixed Message	SF	25.000	25.000
0142	643.5000	Traffic Control	EACH	1.000	1.000
0144	645.0111	Geotextile Type DF Schedule A	SY	62.000	62.000
0146	645.0120	Geotextile Type HR	SY	352.000	352.000
0148	646.1005	Marking Line Paint 4-Inch	LF	2,200.000	2,200.000
0150	650.4500	Construction Staking Subgrade	LF	532.000	532.000
0152	650.5000	Construction Staking Base	LF	532.000	532.000
0154	650.6501	Construction Staking Structure Layout (structure) 01. B-68-0155	EACH	1.000	1.000
0156	650.9911	Construction Staking Supplemental Control (project) 01. 6844-01-72	EACH	1.000	1.000
0158	650.9920	Construction Staking Slope Stakes	LF	532.000	532.000
0160	680.0100	Public Land Survey Monument Verify and Reset	EACH	2.000	2.000
0162	690.0150	Sawing Asphalt	LF	64.000	64.000
0164	715.0502	Incentive Strength Concrete Structures	DOL	1,152.000	1,152.000
0166	999.2005.S	Maintaining Bird Deterrent System (station) 01. 14+25	EACH	1.000	1.000
0168	SPV.0060	Special 01. Research and Locate Existing Land Parcel Monuments	EACH	2.000	2.000
0170	SPV.0195	Special 01. Infill Riprap B-68-0155	TON	86.000	86.000

3

GRUBBING SUMMARY

CATEGORY	STATION - STATION	LOCATION	201.0205 GRUBBING STA
0010	11+85 - 14+30	LT/RT	3
	15+00 - 17+20	LT	3
		TOTAL	6

REMOVING SMALL PIPE CULVERTS

CATEGORY	STATION - STATION	LOCATION	203.0100 EACH	SIZE
0010	15+50 - 15+90	LT	1	12"x36' CMCP

REMOVING ASPHALTIC SURFACE

CATEGORY	STATION - STATION	LOCATION	204.0110 SY
0010	12+03 - 12+70	LT/RT	200

REMOVING GUARDRAIL

CATEGORY	STATION - STATION	LOCATION	204.0165 LF
0010	13+17 - 14+40	RT	120
	13+27 - 14+40	LT	110
	14+87 - 15+63	LT	84
	14+87 - 16+09	RT	120
		TOTAL	434

PREPARE FOUNDATION FOR ASPHALTIC PAVING

CATEGORY	PROJECT	211.0101 EACH
0010	6844-01-72	1

FINISHING ROADWAY

CATEGORY	PROJECT	213.0100 EACH
0010	6844-01-72	1

EARTHWORK SUMMARY

DIVISION	FROM/TO STATION	LOCATION	205.0100 EXCAVATION COMMON (CY)(1) CUT (2)	205.0100 EXCAVATION COMMON (CY)(1) EBS EXCAVATION (3)(4)	SALVAGED/UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (6) FACTOR 1.25	MASS ORDINATE +/- (7)	WASTE (8)	312.0110 SELECT CRUSHED MATERIAL (TON)	*624.0100 WATER
DIVISION 1												
EWRK	11+40.36/17+50.00	LT/RT	1,079	54	552	527	473	591	488		103	2.3
DIVISION 1 SUBTOTAL			1,079	54	552	527	473	591	488	488	103	2.3
GRAND TOTAL			1,079	54	552	527	473	591	488	488	103	2.3
TOTAL COMMON EXC			1,133									

*QUANTITIES LISTED ELSEWHERE

NOTES:

(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT
(3) EBS EXCAVATION TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL. ITEM NUMBER 312.0110
(4) EBS CALCUALTED AS 5 PERCENT OF CUT.
(5) AVAILABLE MATERIAL = CUT-SALVAGED/UNUSABLE PAVEMENT MATERIAL
(6) EXPANDED FILL = (UNEXPANDED FILL)*EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
(7) MASS ORDINATE: MASS ORDINATE = CUT-EXPANDED FILL
THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
(8) WASTE = MASS ORDINATE + EBS EXCAVATION

BASE AGGREGATE SUMMARY

CATEGORY	STATION - 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
0010	11+40 - 14+25	LT/RT	45	670	15
	15+03 - 17+50	LT/RT	56	830	20
		TOTALS	101	1,500	35

*QUANTITIES LISTED ELSEWHERE

ASPHALTIC ITEMS

CATEGORY	STATION - STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON
0010	12+03 - 14+25	LT/RT	40	222	---
	15+03 - 17+50	LT/RT	41	230	15
		TOTALS	81	452	15

ASPHALTIC RUMBLE STRIPS, CENTERLINE

CATEGORY	STATION - STATION	LOCATION	465.0560 ASPHALTIC RUMBLE STRIPS, CENTERLINE LF
0010	12+03 - 17+50	MEDIAN	547

CULVERT ITEMS

CATEGORY	INLET STATION	INLET OFFSET	INLET ELEVATION	OUTLET STATION	OUTLET OFFSET	OUTLET ELEVATION	PIPE THICKNESS (IN)	521.3115 CULVERT PIPE CORRUGATED STEEL 15-INCH LF	521.1015 APRON ENDWALLS FOR CULVERT PIPE STEEL 15-INCH EA
0010	15+90	56.7 LT	826.82	15+38	53.4 LT	826.50	0.064	50	2

BEAM GUARD SUMMARY

CATEGORY	STATION - STATION	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0305 STEEL PLATE BEAM GUARD CLASS A LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EACH	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
0010	13+21 - 14+13	LT	---	---	---	---	---	39.4	1
	12+59 - 14+13	RT	---	---	---	---	62.5	39.4	1
	15+15 - 15+64	LT	20.7	12.5	37.5	1	---	---	---
	15+15 - 16+07	RT	---	---	---	---	---	39.4	1
		TOTALS	20.7	12.5	37.5	1	62.5	118.2	3

MAINTENANCE AND REPAIR OF HAUL ROADS

CATEGORY	PROJECT	618.0100 EACH
0030	6844-01-72	1

MOBILIZATION

CATEGORY	PROJECT	619.1000 EACH
0010	6844-01-72	1

FINISHING SUMMARY

CATEGORY	STATION - STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0300 SEEDING BORROW PIT LB	630.0500 SEED WATER MGAL
0010	11+40 - 14+12	RT	380	---	380	0.3	21	---	11.0
	12+03 - 14+12	LT	370	---	370	0.3	21	---	11.0
	15+16 - 17+50	RT	520	---	520	0.4	28	---	14.0
	15+16 - 17+50	LT	420	---	420	0.3	24	---	12.0
	WASTE SITE		---	340	---	0.2	---	15	7.5
	UNDISTRIBUTED		430	90	420	0.4	24	4	14.0
		TOTALS	2,120	430	2,110	1.9	118	19	69.5

SILT FENCE SUMMARY

CATEGORY	STATION - STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
0010	11+85 - 14+39	LT/RT	450	1,530
	11+31 - 12+87	RT	180	610
	14+89 - 17+61	LT/RT	380	1,290
	UNDISTRIBUTED		260	880
		TOTALS	1,270	4,310

MOBILIZATIONS EROSION CONTROL

CATEGORY	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	5	5

TURBIDITY BARRIER

CATEGORY	STATION - STATION	LOCATION	628.6005 TURBIDITY BARRIER SY
0010	14+30 - 14+50	LT/RT	66
	14+78 - 14+94	LT/RT	57
	UNDISTRIBUTED		31
		TOTAL	154

TEMPORARY DITCH CHECKS

CATEGORY	STATION	LOCATION	628.7504 LF
0010	13+22	RT	16
	15+19	LT	20
	UNDISTRIBUTED		10
		TOTAL	46

CULVERT PIPE CHECKS

CATEGORY	STATION	LOCATION	628.7555 EACH
0010	15+93	LT	2

TRACKING PADS

CATEGORY	LOCATION	628.7560 EACH
0010	NORTH END OF PROJECT	1
	SOUTH END OF PROJECT	1
	WASTE SITE	1
	TOTAL	3

ROCK BAGS

CATEGORY	STATION	LOCATION	628.7570 EACH	COMMENT
0010	13+38	LT	22	
	14+11	RT	22	
	16+28	RT	22	
		UNDISTRIBUTED	20	UNDISTRIBUTED QUANTITY FOR USE AS SILT FENCE RELIEF
		TOTAL	86	

PERMANENT SIGNING SUMMARY

CATEGORY	DESCRIPTION	SIGN NO.	APPROX. STA.	LOC.	SIGN CODE	SIGN MESSAGE	SIGN SIZE (W x H) IN	637.2230 SIGNS TYPE II REFLECTIVE F SF	634.0616 POSTS WOOD 4x6-INCH X 16-FT EACH	638.2102 MOVING SIGNS TYPE II EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
0010	CTH E											
		1 - 1	11+65	RT	---	---	0 x 0	---	---	1	1	MOVE FROM STA 11+65 TO STA 11+65
		1 - 2	13+30	RT	---	---	0 x 0	---	---	1	1	MOVE FROM STA 13+30 TO STA 13+30
		1 - 3	14+10	LT	W5-52L	CLEARANCE STRIPER DOWN RIGHT	12 x 36	3.0	1	---	---	
		1 - 4	15+15	LT	W5-52R	CLEARANCE STRIPER DOWN LEFT	12 x 36	3.0	1	---	---	
		1 - 5	14+10	RT	W5-52R	CLEARANCE STRIPER DOWN LEFT	12 x 36	3.0	1	---	---	
		1 - 6	15+15	RT	W5-52L	CLEARANCE STRIPER DOWN RIGHT	12 x 36	3.0	1	---	---	
		1 - 7	15+50	RT	---	---	0 x 0	---	---	1	1	MOVE FROM STA 15+30 TO STA 15+50
		1 - 8	17+00	LT	---	---	0 x 0	---	---	1	1	MOVE FROM STA 17+75 TO STA 17+00
						TOTALS		12.0	4	4	4	

FIELD OFFICE TYPE B

CATEGORY	PROJECT	642.5001 EACH
0010	6844-01-72	1

TRAFFIC CONTROL

CATEGORY	PROJECT	643.5000 EACH
0010	6844-01-72	1

TRAFFIC CONTROL

CATEGORY	LOCATION	DURATION DAYS	643.0420 BARRICADES TYPE III EACH	643.0420 BARRICADES TYPE III DAY	643.0705 WARNING LIGHTS TYPE A EACH	643.0705 WARNING LIGHTS TYPE A DAY	643.0900 SIGNS EACH	643.0900 SIGNS DAY	643.0920 COVERING SIGNS TYPE II CYCLES	643.0920 COVERING SIGNS TYPE II SIGNS	643.0920 COVERING SIGNS TYPE II EACH	643.1000 SIGNS FIXED MESSAGE SF
0010	DETOUR/ADVANCED WARNING	100	14	1,400	24	2,400	218	21,800	1	3	3	25
	UNDISTRIBUTED			280		480		4360			---	---
	TOTALS			1,680		2,880		26,160			3	25

PAVEMENT MARKING

CATEGORY	STATION	-	STATION	LOCATION	646.1005 MARKING LINE PAINT 4-INCH (WHITE) LF	646.1005 MARKING LINE PAINT 4-INCH (DOUBLE YELLOW) LF
0010	12+03	-	17+50	LT/RT	1100	1100
				TOTAL		2200

CONSTRUCTION STAKING ITEMS

CATEGORY	STATION	-	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
0010	11+40	-	14+25	LT/RT	285	285	285
	15+03	-	17+50	LT/RT	247	247	247
				TOTALS	532	532	532

CONSTRUCTION STAKING STRUCTURE LAYOUT

CATEGORY	STRUCTURE	650.6501 EACH
0020	B-68-0155	1

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

CATEGORY	PROJECT	650.9911 EACH
0010	6844-01-72	1

SAWING ASPHALT

CATEGORY	STATION	LOCATION	690.0150 LF
0010	12+03	LT/RT	27
	15+73	LT	10
	17+50	LT/RT	27
		TOTAL	64

MAINTAINING BIRD DETERRENT SYSTEM

CATEGORY	STATION	999.2005.S EACH	NOTES
0010	14+25	1	B-68-0007

LAND PARCEL MONUMENTS

CATEGORY	SPV.0060.01 RESEARCH AND LOCATE EXISTING LAND PARCEL MONUMENTS EACH	680.0100 PUBLIC LAND SURVEY MONUMENT VERIFY AND RESET EACH
0010	2	2

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE COUNTY.

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	FEE S.F.	TLE S.F.
1	TIMOTHY J. AND KATHRYN A. GAUERKE	TLE	---	2433
2	VIRGINIA E. BRYERS	TLE	---	1811
3	VAN C. PAGEL	TLE	---	2360

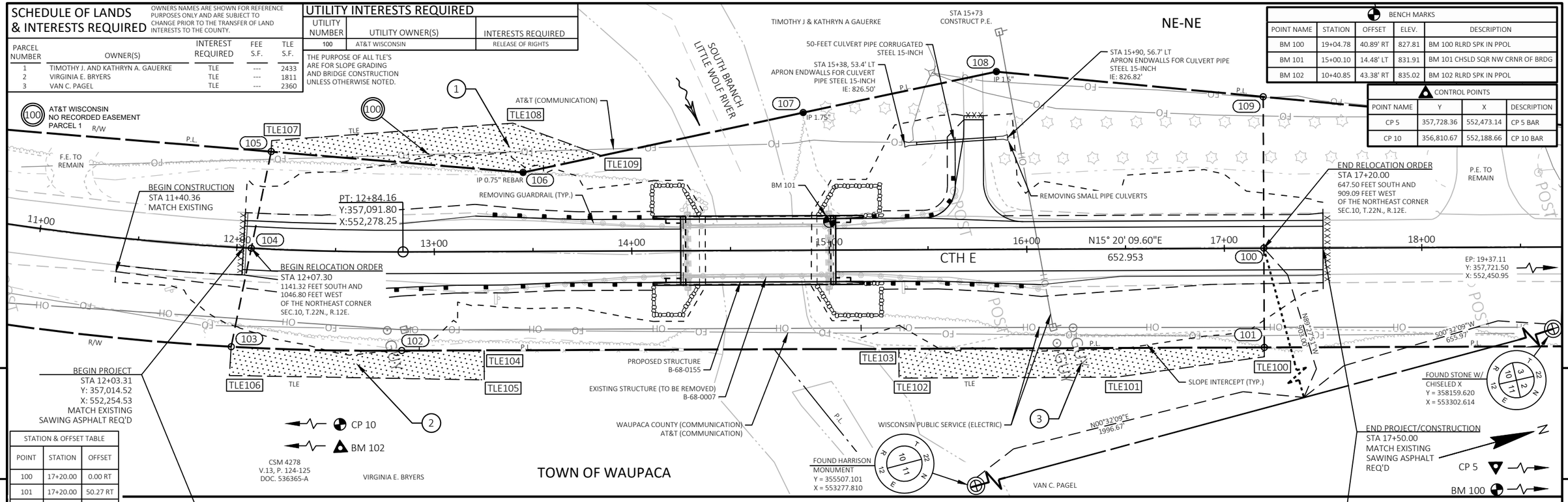
UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTERESTS REQUIRED
100	AT&T WISCONSIN	RELEASE OF RIGHTS

THE PURPOSE OF ALL TLE'S ARE FOR SLOPE GRADING AND BRIDGE CONSTRUCTION UNLESS OTHERWISE NOTED.

BENCH MARKS				
POINT NAME	STATION	OFFSET	ELEV.	DESCRIPTION
BM 100	19+04.78	40.89' RT	827.81	BM 100 RLRD SPK IN PPOL
BM 101	15+00.10	14.48' LT	831.91	BM 101 CHSLD SQR NW CRNR OF BRDG
BM 102	10+40.85	43.38' RT	835.02	BM 102 RLRD SPK IN PPOL

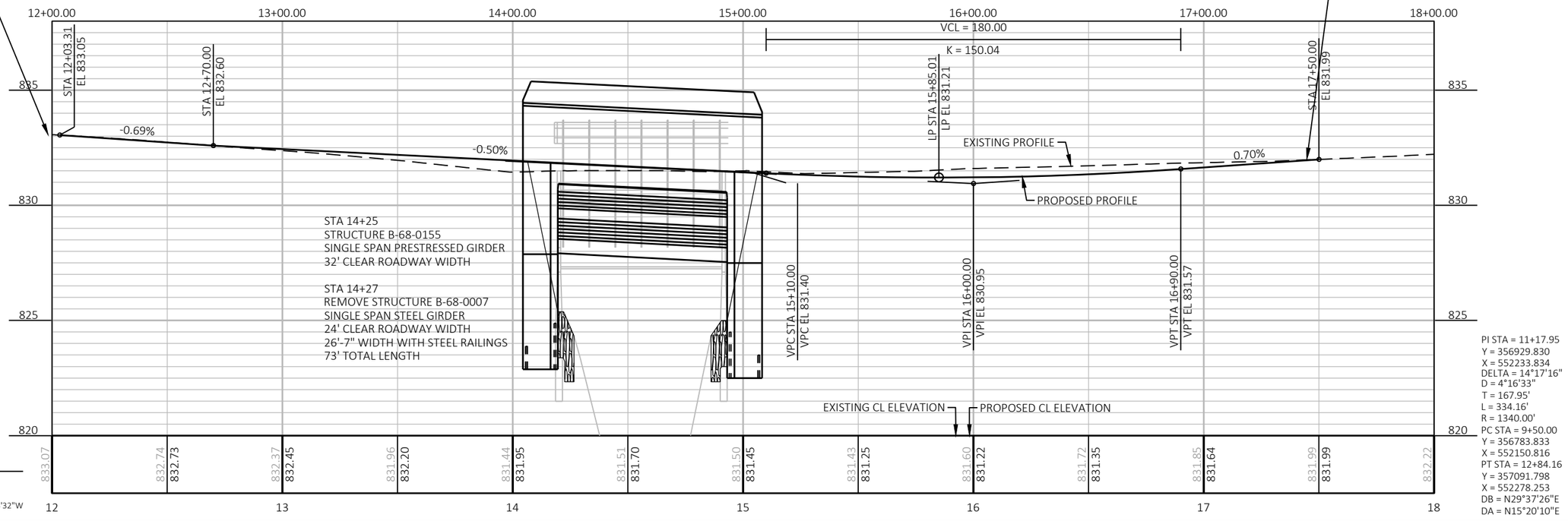
CONTROL POINTS			
POINT NAME	Y	X	DESCRIPTION
CP 5	357,728.36	552,473.14	CP 5 BAR
CP 10	356,810.67	552,188.66	CP 10 BAR



STATION & OFFSET TABLE		
POINT	STATION	OFFSET
100	17+20.00	0.00 RT
101	17+20.00	50.27 RT
102	12+83.29	50.01 RT
103	12+00.00	50.41 RT
104	12+07.30	0.00 RT
105	12+15.00	49.36 LT
106	13+45.07	39.95 LT
107	14+87.04	69.67 LT
108	15+84.92	90.03 LT
109	17+20.00	76.70 LT
TLE100	17+15.80	57.33 RT
TLE101	16+45.00	65.00 RT
TLE102	15+35.00	65.00 RT
TLE103	15+35.00	50.16 RT
TLE104	13+25.00	50.04 RT
TLE105	13+25.00	65.00 RT
TLE106	12+00.00	65.00 RT
TLE107	12+15.00	55.00 LT
TLE108	13+40.00	65.00 LT
TLE109	13+85.00	48.31 LT

COURSE TABLE		
COURSE	BEARING	DISTANCE
100 - 101	S74° 39' 50"E	50.27'
101 - 102	S15° 22' 09"W	436.74'
102 - 103	SEE CURVE 1 DATA	
103 - 104	N62° 49' 57"W	50.95'
104 - 105	N62° 49' 57"W	49.93'
105 - 106	N20° 19' 22"E	127.98'
106 - 107	N03° 30' 50"E	145.05'
107 - 108	N03° 35' 04"E	99.97'
108 - 109	N20° 58' 15"E	135.74'
109 - 100	S74° 39' 50"E	76.70'

CURVE 1
R=1323.30'
L=86.42'
LCH=86.40'
LCB=S16°53'32"W

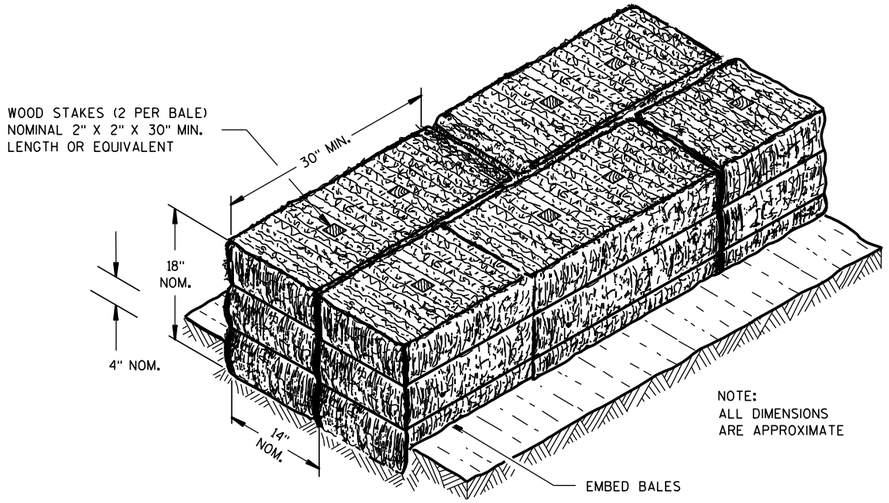


PI STA = 11+17.95
Y = 356929.830
X = 552233.834
DELTA = 14°17'16"
D = 4°16'33"
T = 167.95'
L = 334.16'
R = 1340.00'
PC STA = 9+50.00
Y = 356783.833
X = 552150.816
PT STA = 12+84.16
Y = 357091.798
X = 552278.253
DB = N29°37'26"E
DA = N15°20'10"E

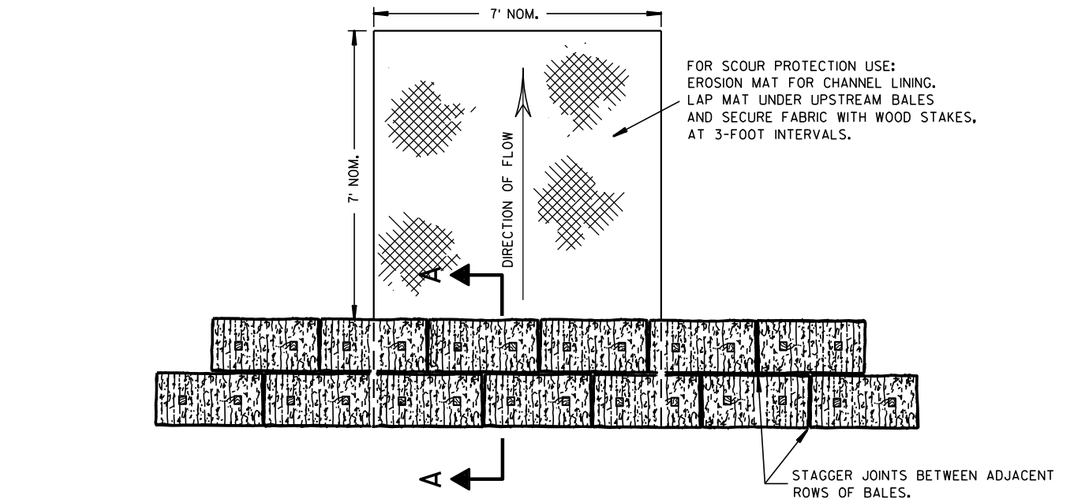
PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	PLAN AND PROFILE: CTH E	SHEET 29	E

Standard Detail Drawing List

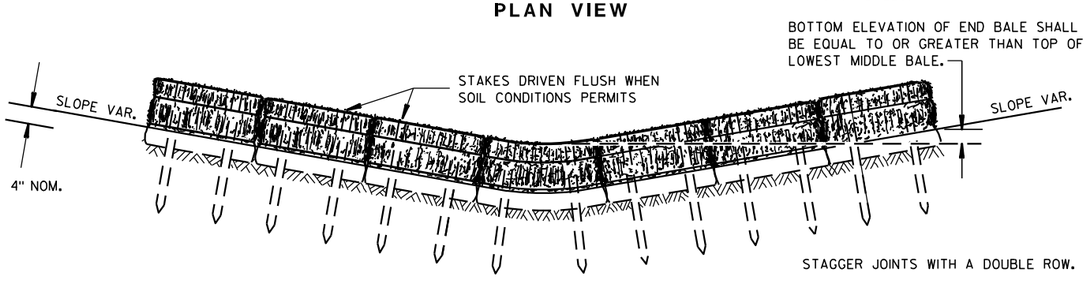
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
13C19-03	HMA LONGITUDINAL JOINTS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION AND ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION AND ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION AND ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS
14B20-12A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-12B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-12G	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
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 THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A04-08E	DELINEATOR POST WITH REFLECTIVE SHEETING
15C02-10A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-10B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-10C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-12	SIGNING AND MARKING FOR TWO LANE BRIDGES
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



SECTION A-A



PLAN VIEW



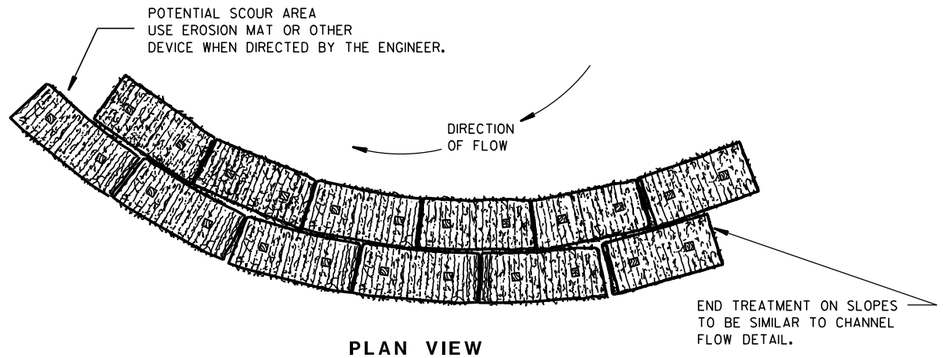
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

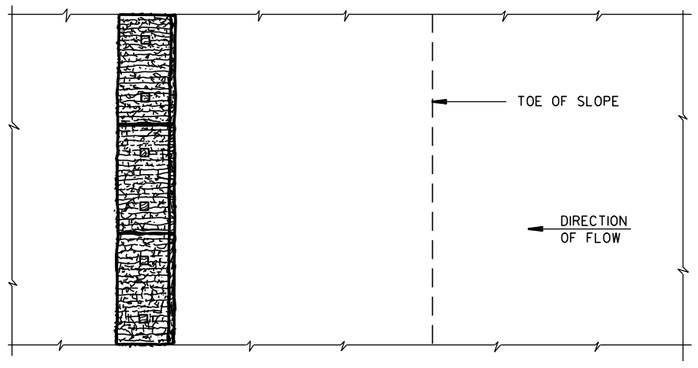
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

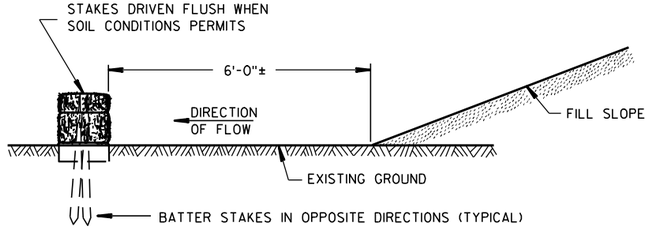


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02 DATE — /S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

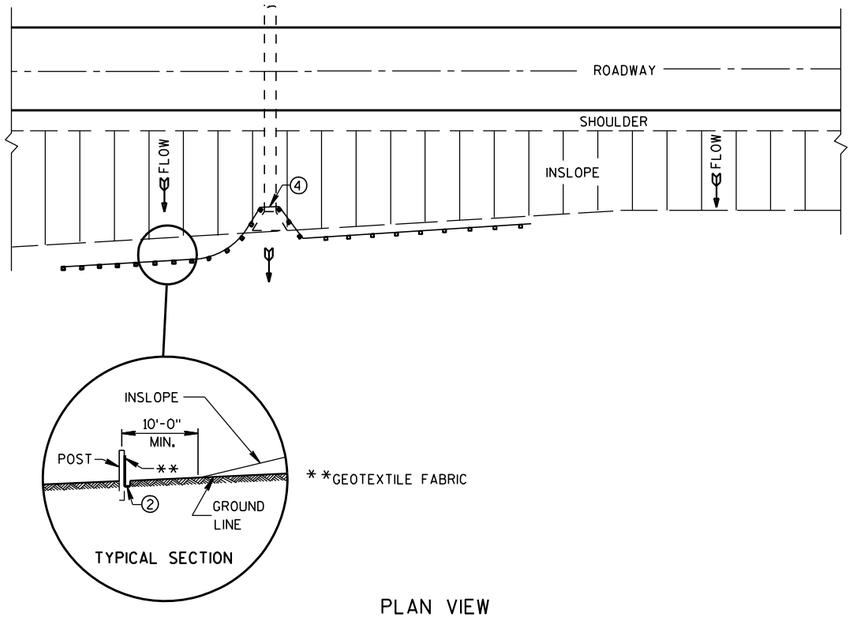
FHWA

6

S.D.D. 8 E 8-3

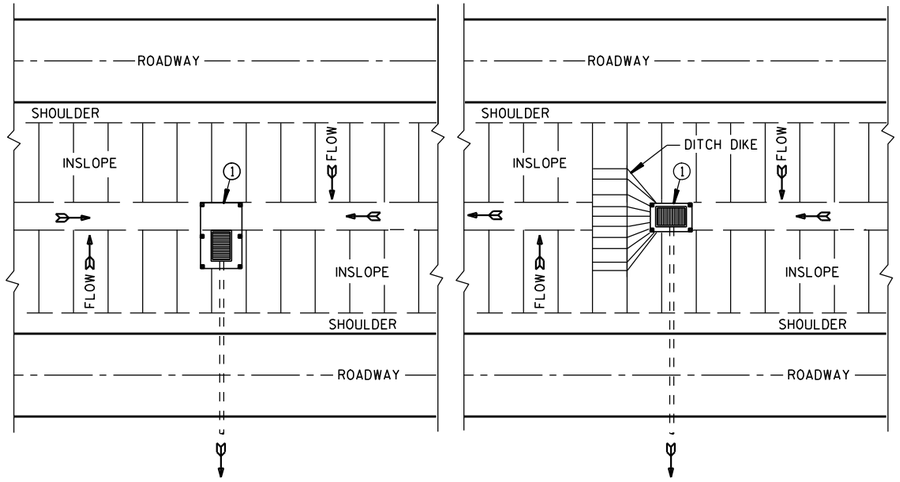
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S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



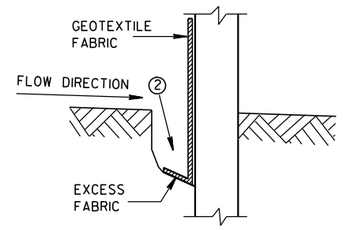
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

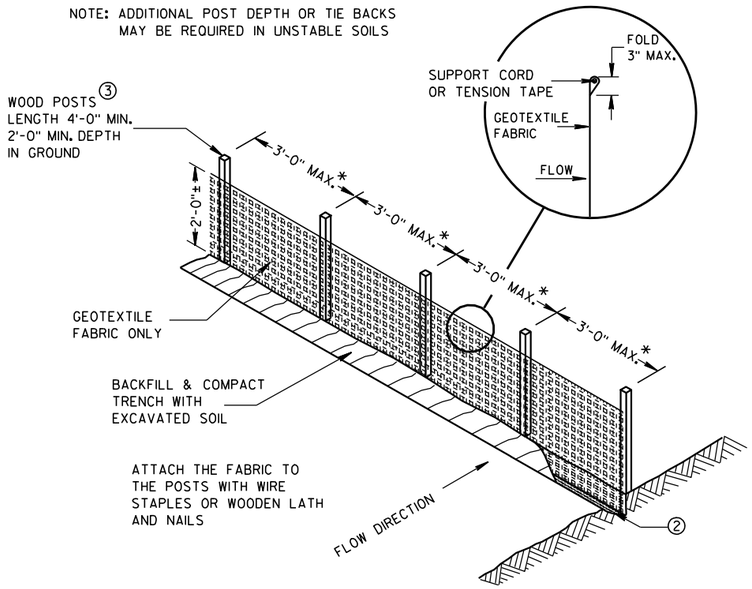
GENERAL NOTES

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 1⅛" X 1⅛" 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.

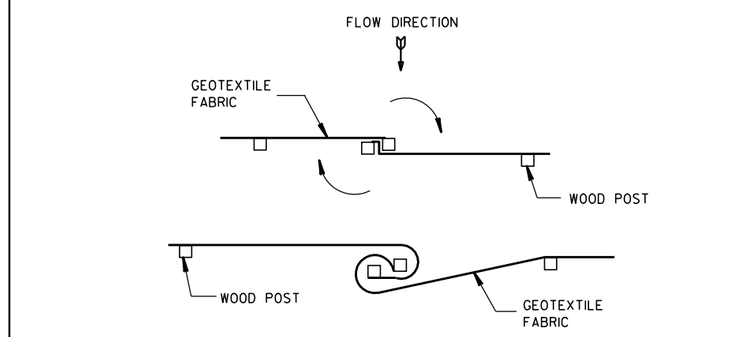


TRENCH DETAIL

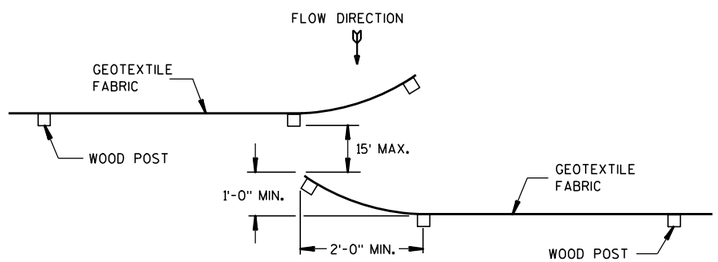


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

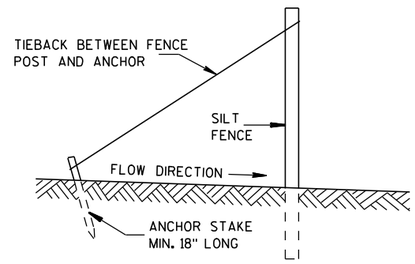


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

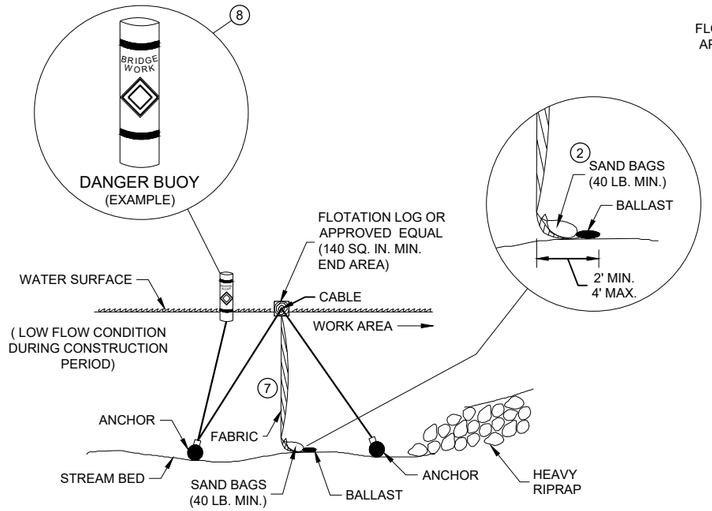
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

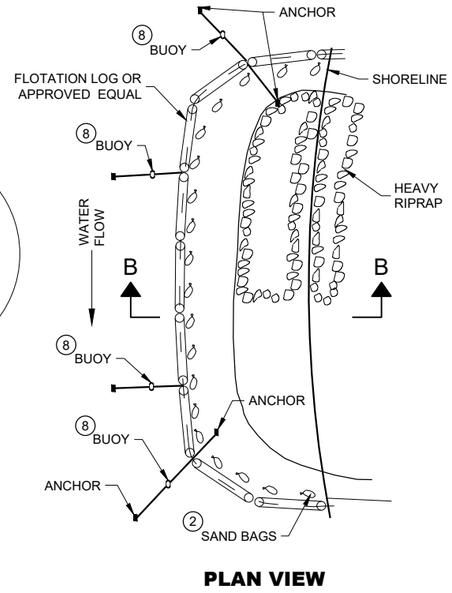
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6

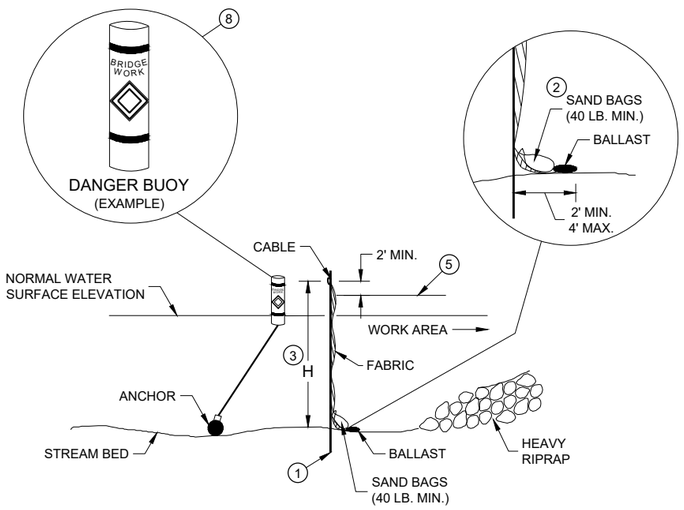


SECTION B - B

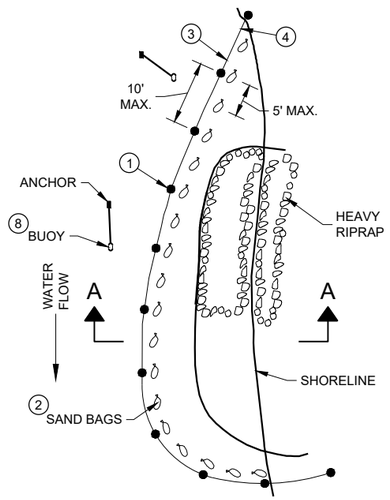


PLAN VIEW

TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A - A



PLAN VIEW

TURBIDITY BARRIER - STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

(1) DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

(2) 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.

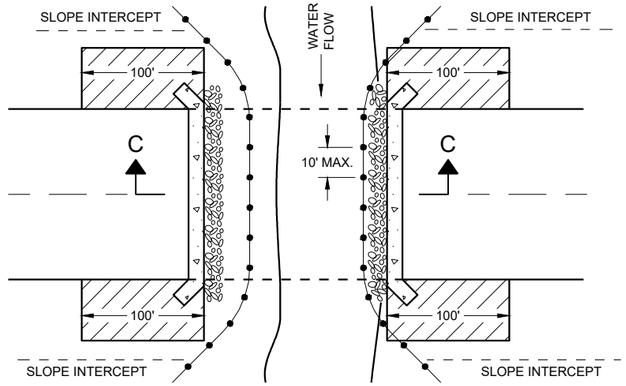
(4) IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

(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.

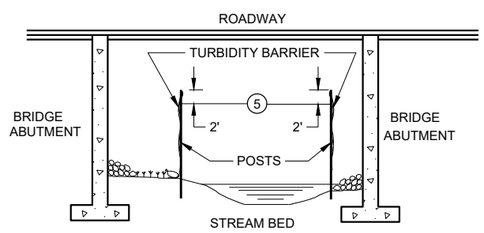
(6) FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.

(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

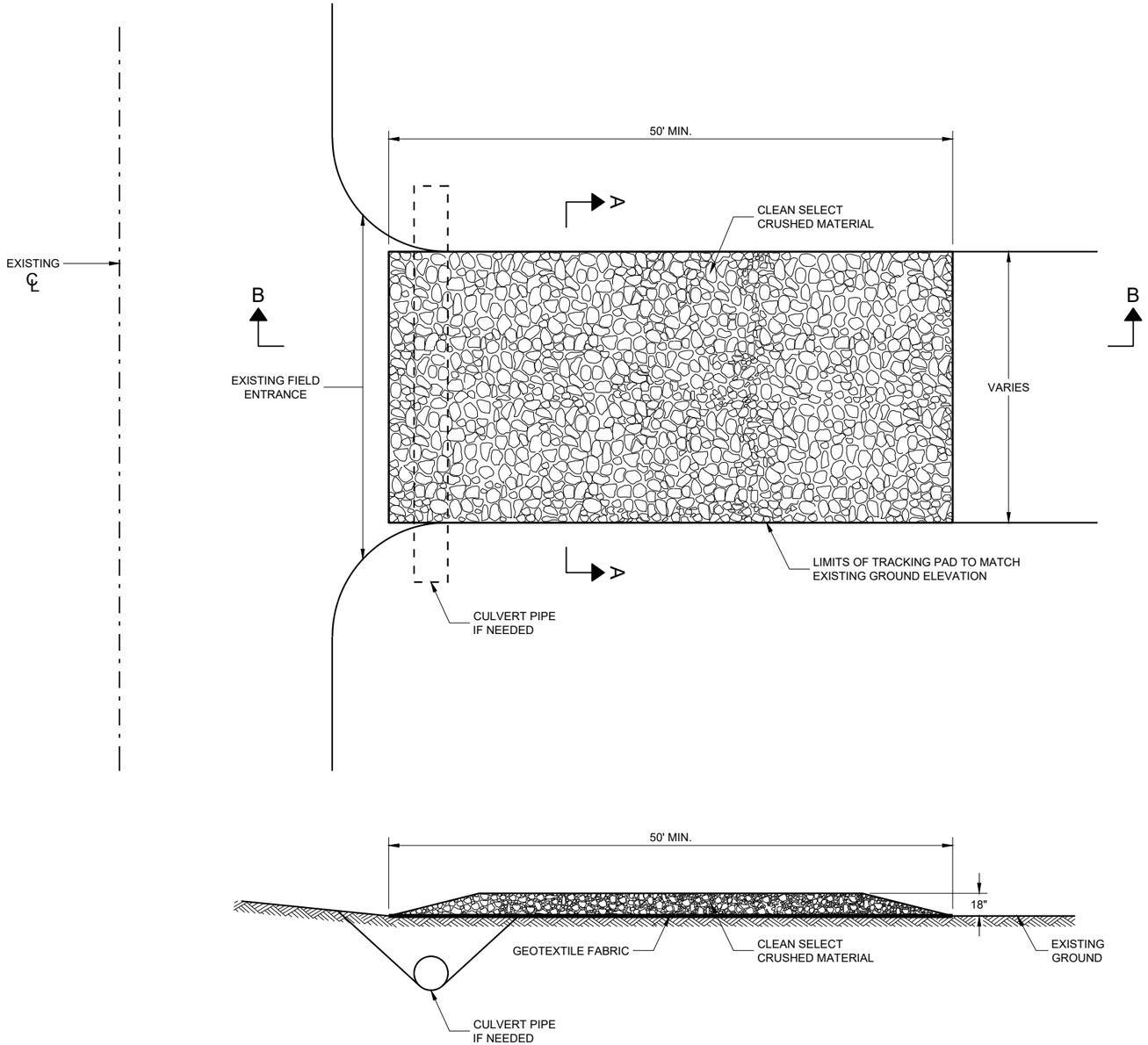
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6
SDD 08E11 - 02



SECTION B - B

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.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

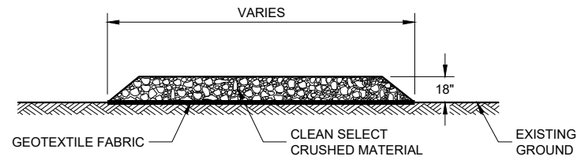
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



SECTION A - A

6

SDD 08E14 - 01

TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

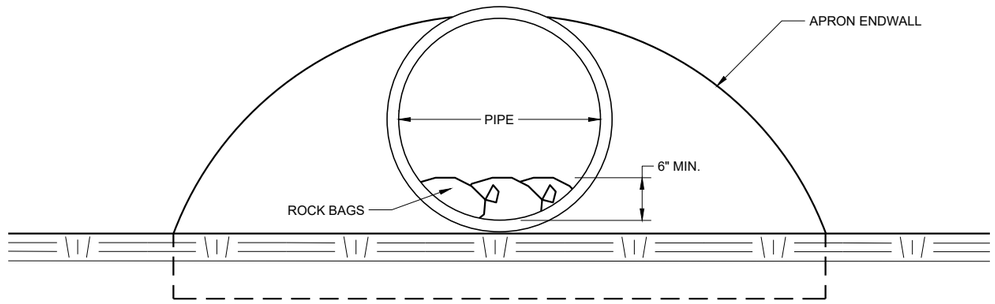
3/24/2011
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVE ENGINEER

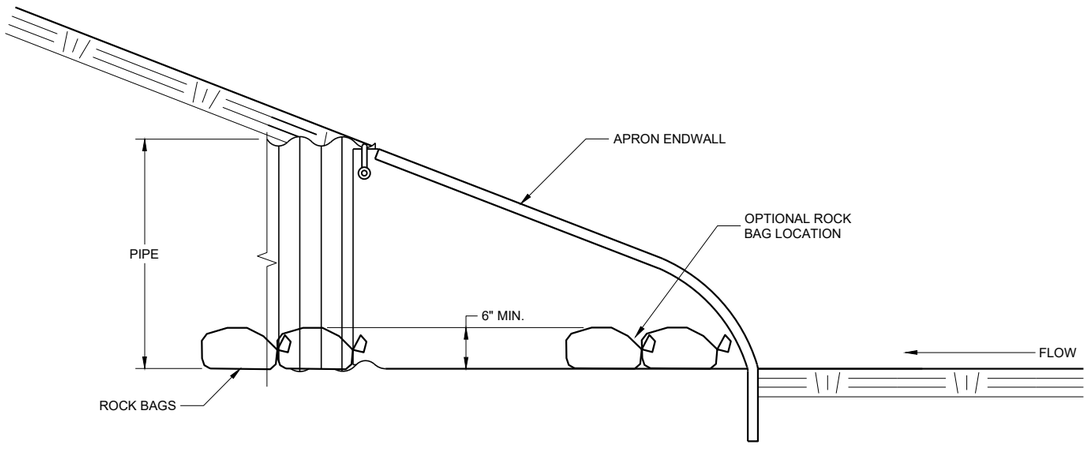
FHWA

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SDD 08E14 - 01



END VIEW



SIDE VIEW

CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019
DATE

/S/ Daniel Schave
EROSION CONTROL ENGI

FHWA

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SDD 08E15 - 01

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SDD 08E15 - 01

METAL APRON ENDWALLS

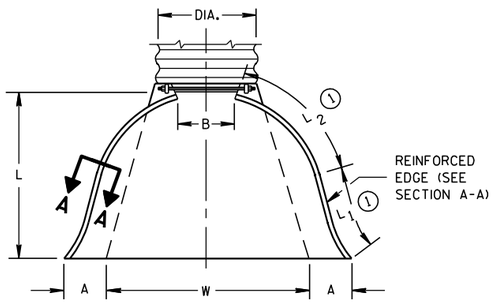
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

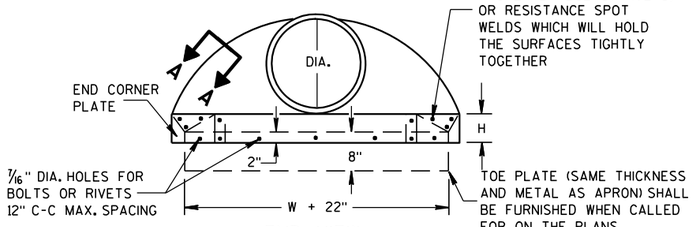
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

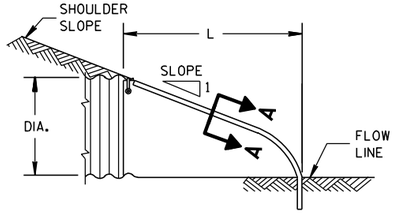
*MINIMUM
**MAXIMUM



PLAN VIEW

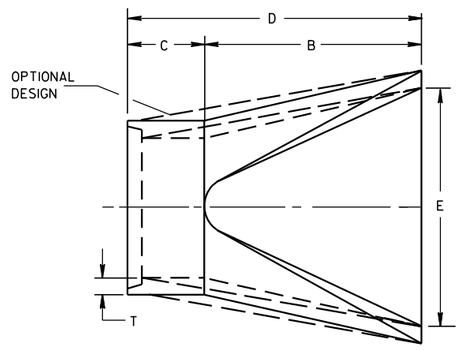


END VIEW

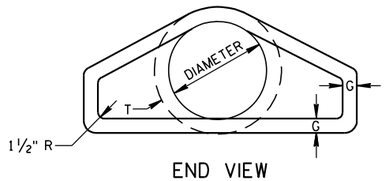


SIDE ELEVATION

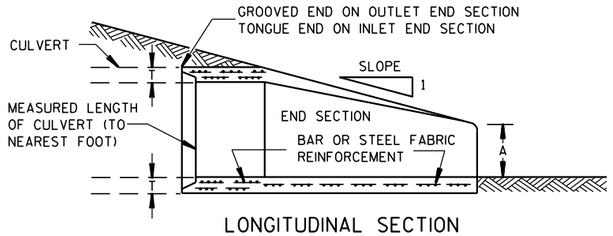
METAL ENDWALLS



PLAN

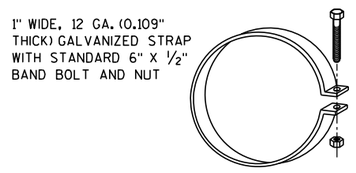


END VIEW



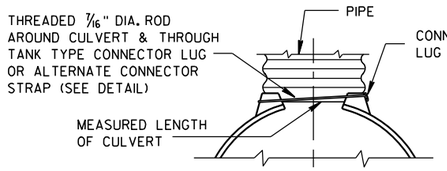
LONGITUDINAL SECTION

CONCRETE ENDWALLS

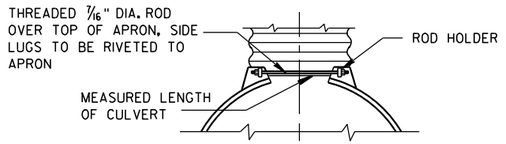


ALTERNATE FOR TYPE 1 CONNECTION

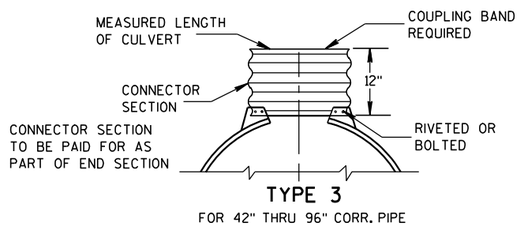
END SECTION CONNECTOR STRAP



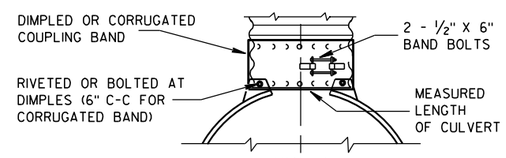
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

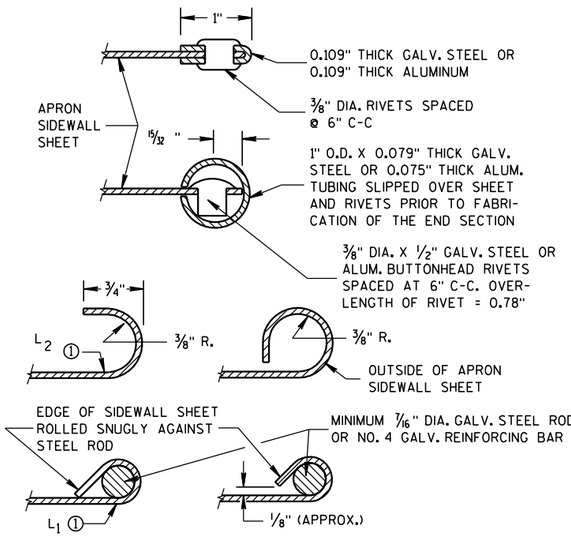
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

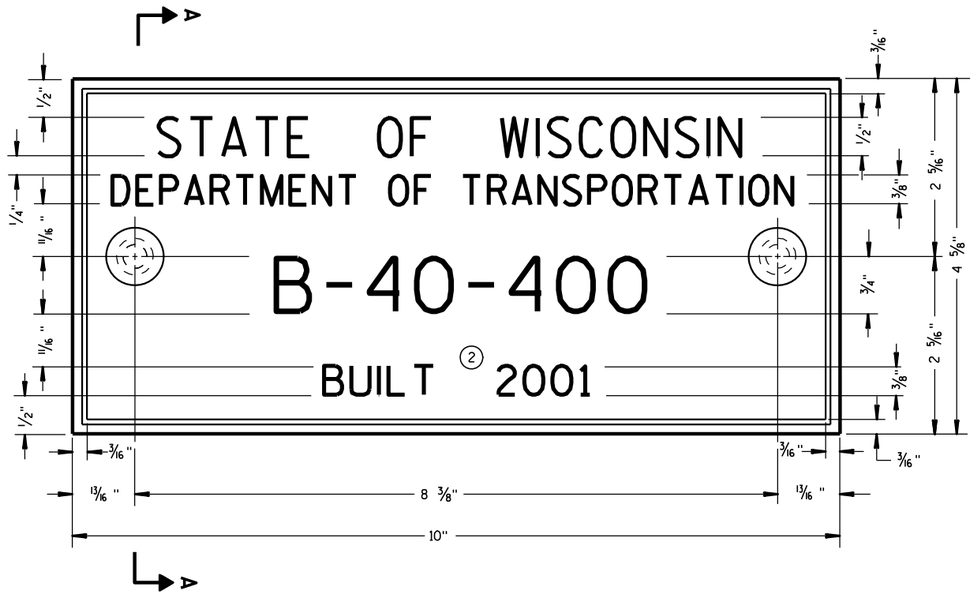
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



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

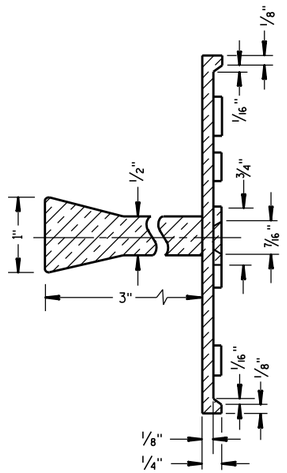
GENERAL NOTES

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.

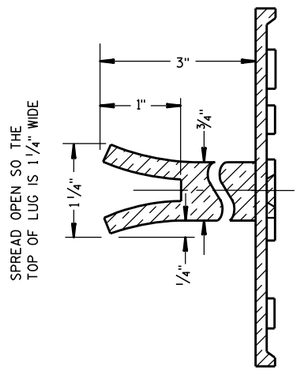
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(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

FOR MULTI-UNIT STRUCTURES LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

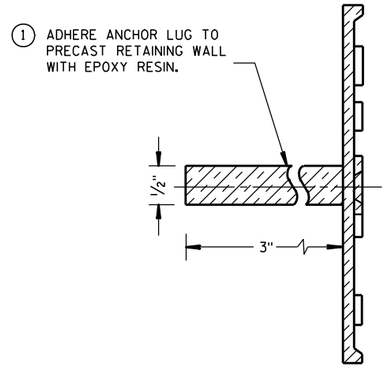
COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck-- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 12 A 3-10

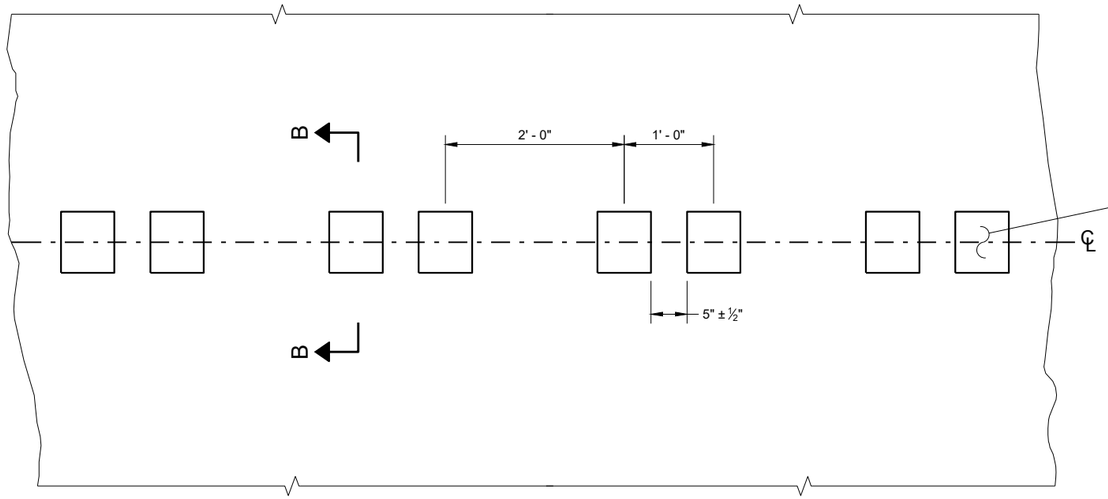
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S.D.D. 12 A 3-10

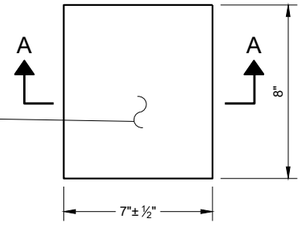
GENERAL NOTES

DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

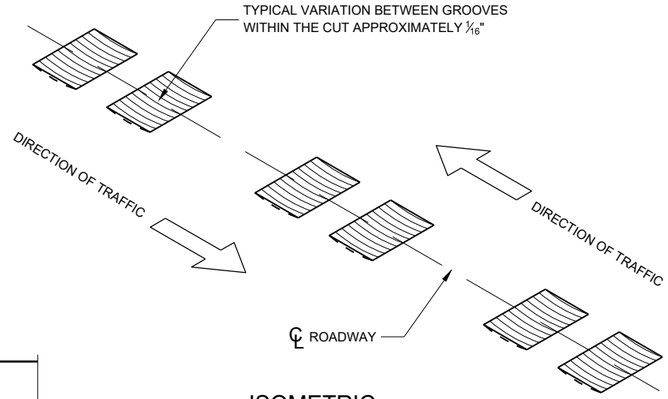
CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



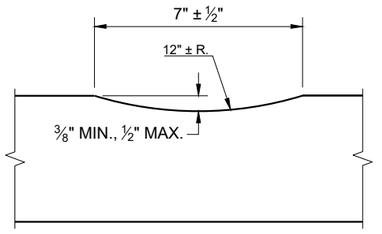
PLAN DETAIL VIEW



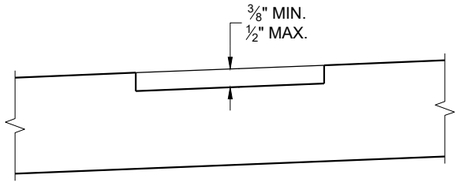
PLAN VIEW
(SINGLE GROOVE)



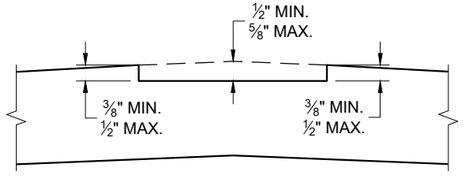
ISOMETRIC



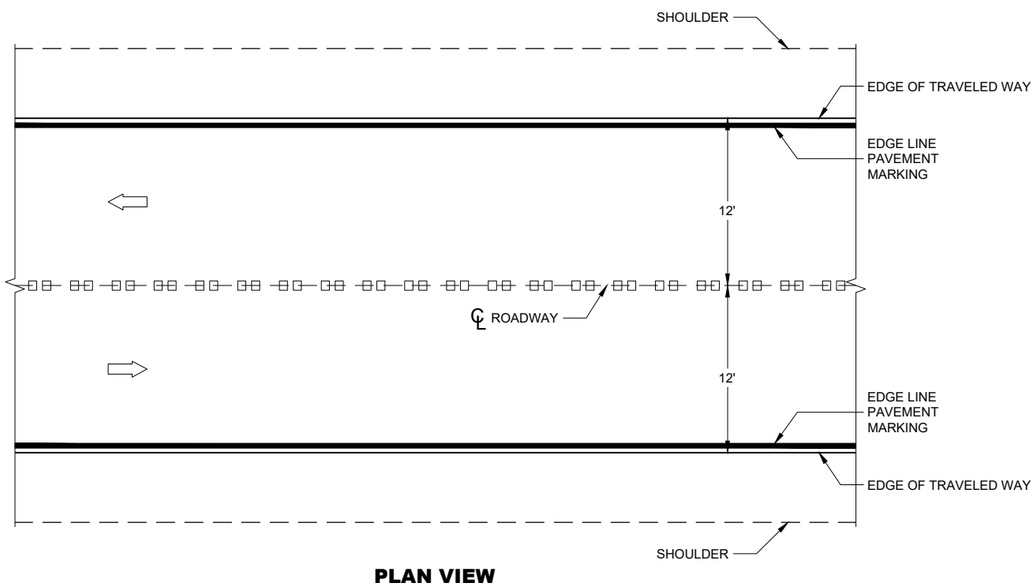
SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY



SECTION B - B
CROWNED ROADWAY



PLAN VIEW

CENTERLINE RUMBLE STRIPS - ASPHALT

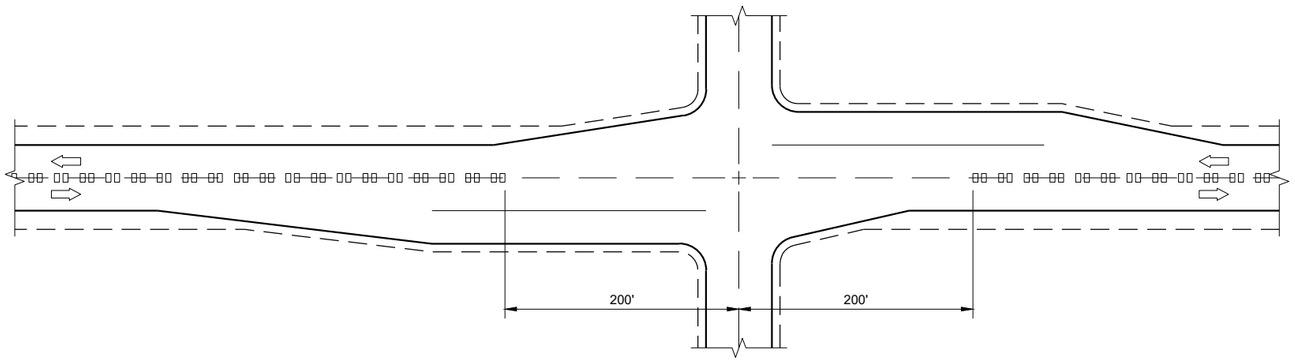
CENTERLINE RUMBLE STRIPS - ASPHALT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTAT	38

6

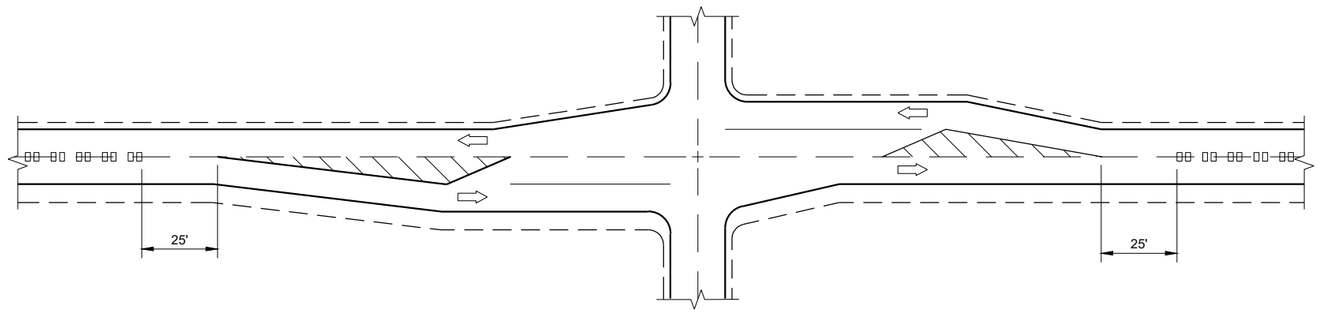
SDD 13A11 - 04a

6

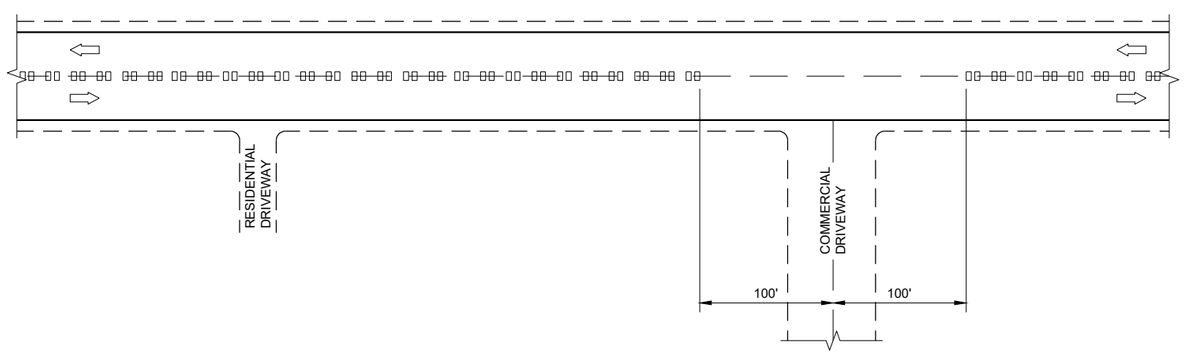
SDD 13A11 - 04a



CENTERLINE GROOVES AT INTERSECTIONS



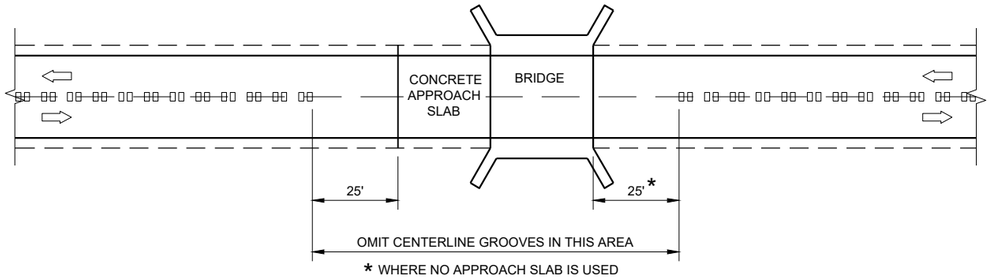
CENTERLINE GROOVES AT INTERSECTIONS (WITH LEFT TURN LANES)



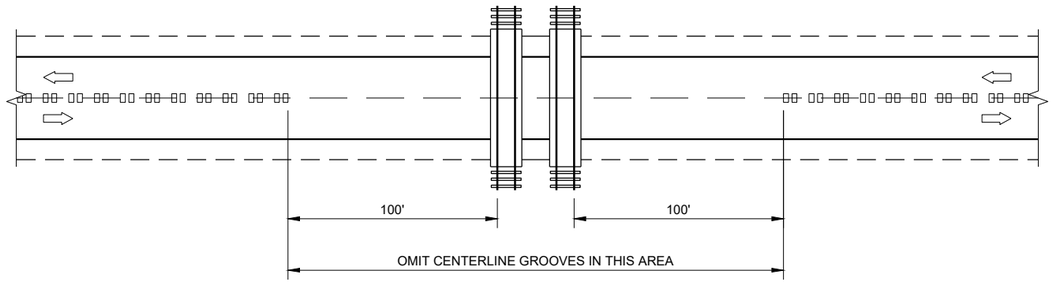
CENTERLINE GROOVES AT DRIVEWAYS (1)

GENERAL NOTES

(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

CENTER LINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAIL ROADS

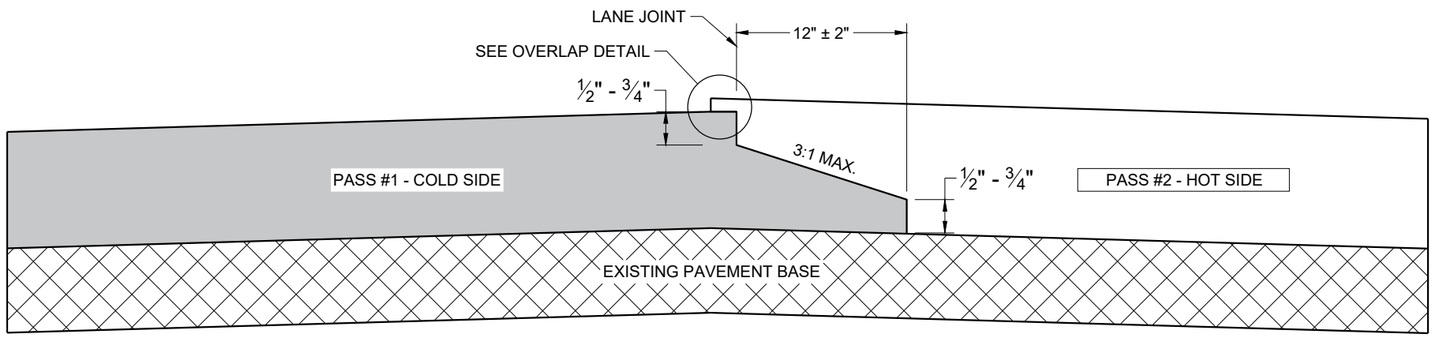
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 — DATE
/S/ John Jenkins — ROADWAY STANDARDS DEVE ENGINEER

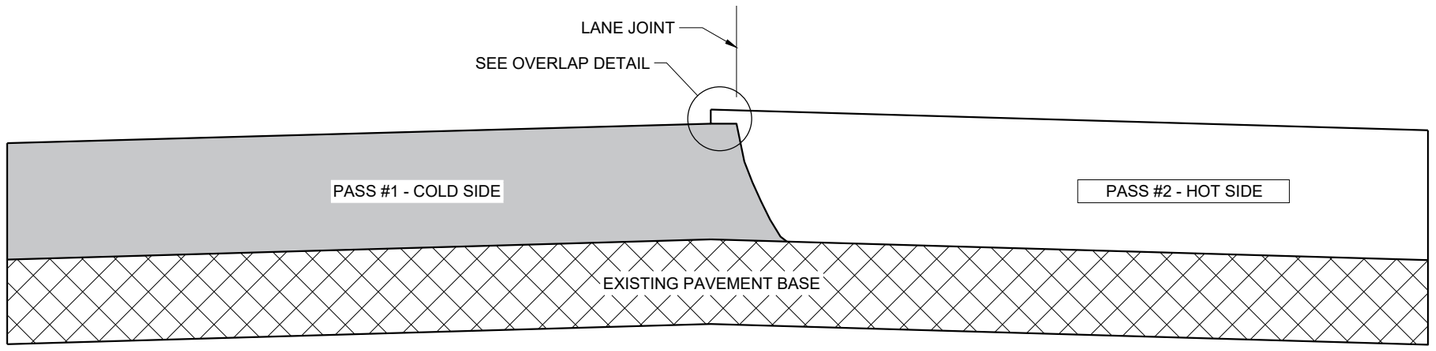
FHWA

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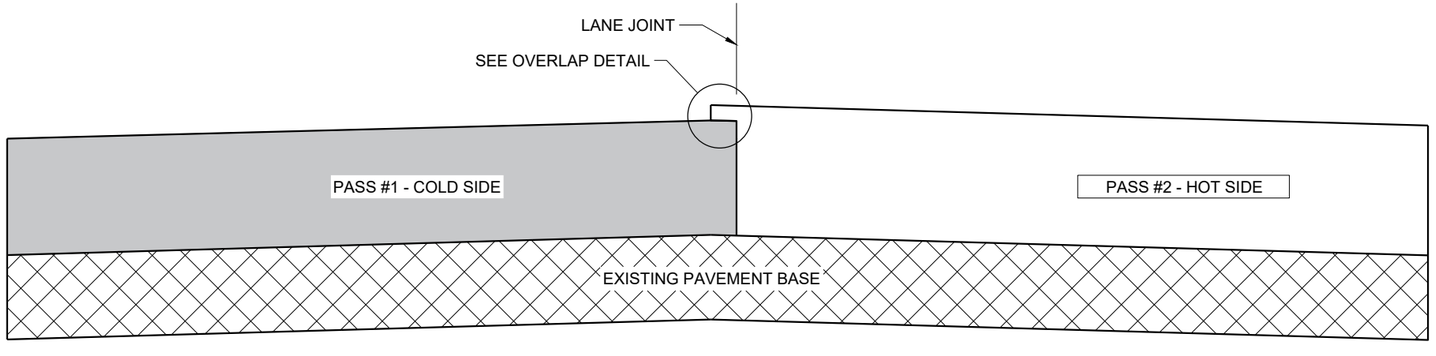
SDD 13A11 - 04d



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

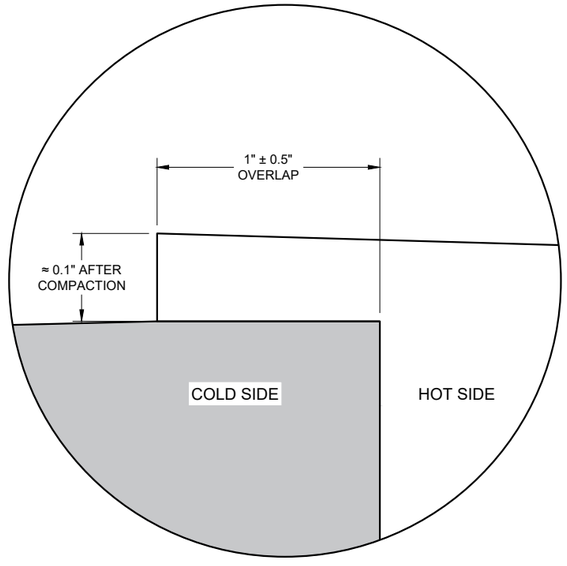
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY 1" ± 0.5" AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



OVERLAP DETAIL (TYPICAL)

6

6

SDD 13C19 - 03

SDD 13C19 - 03

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020
DATE

/S/ Steven Hefel
HMA PAVEMENT ENGIN

FHWA

SDD 14B15a Steel Plate Beam Guard, Class "A", Installation and Elements

GENERAL NOTES

1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6"X8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL AND WOOD POSTS IN A SINGLE INSTALLATION.

2. USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGE SPELTER COATING ON GALVANIZED POSTS.

3. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

4. USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.

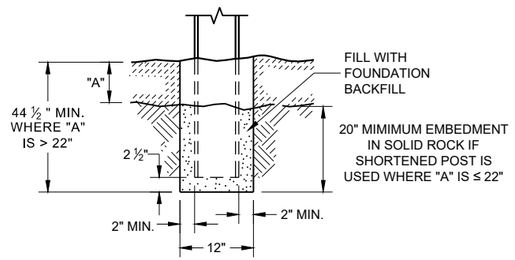
5. IF THE DISTACE FROM BACK OF POST TO SHOULDER HIGHE POINT IS LESS THAN 2 FEET, INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

6. IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCHES IN DIAMETER POST HOLE 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 AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT ADEQUATELY.

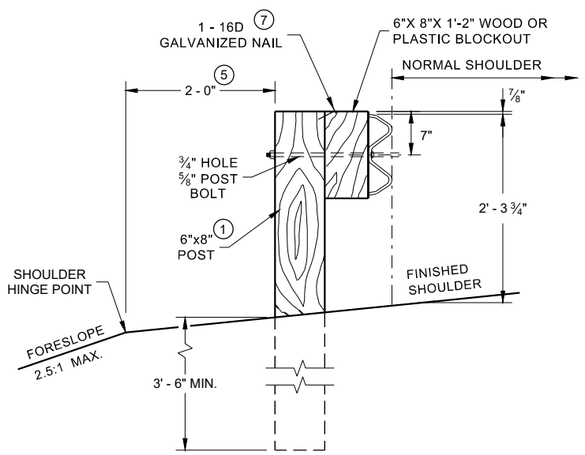
7. WHEN USING STEEL POSTS AND WOOD BLOCKOUTS, INSTALL FOUR 16d GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

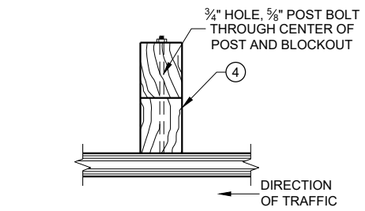
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



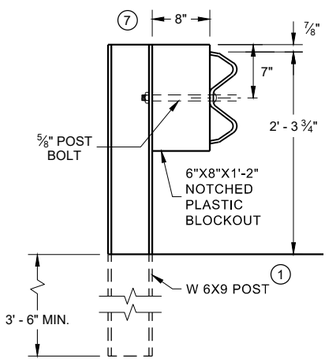
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)



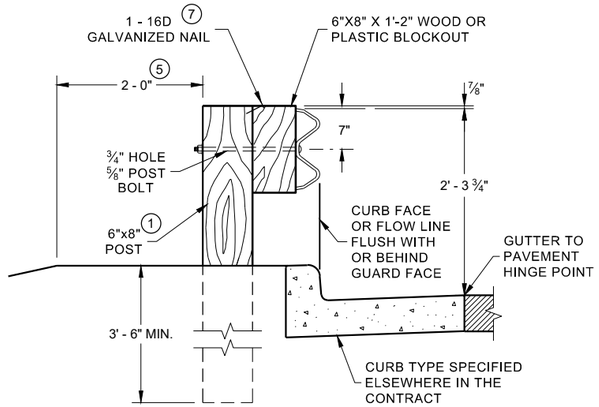
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



PLAN VIEW
WOOD POST, BLOCKOUT AND BEAM

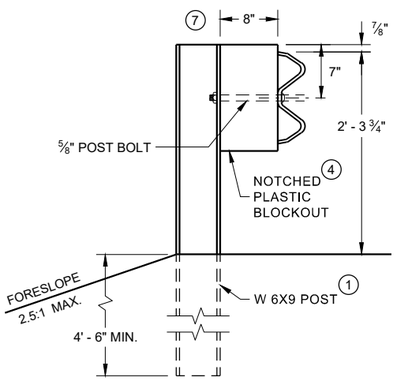


END VIEW
STEEL POST AND NOTCHED PLASTIC BLOCKOUT ALTERNATIVE STANDARD INSTALLATION

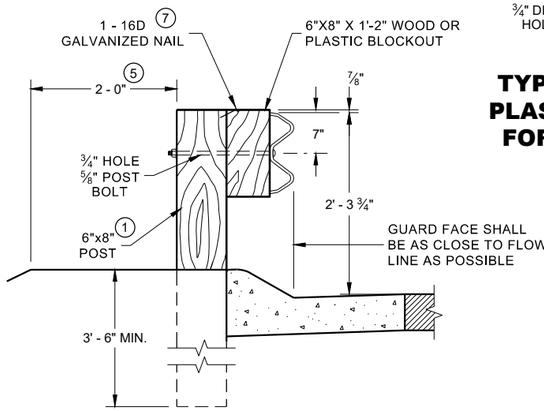


END VIEW
LOCATED ALONG A CURBED ROADWAY

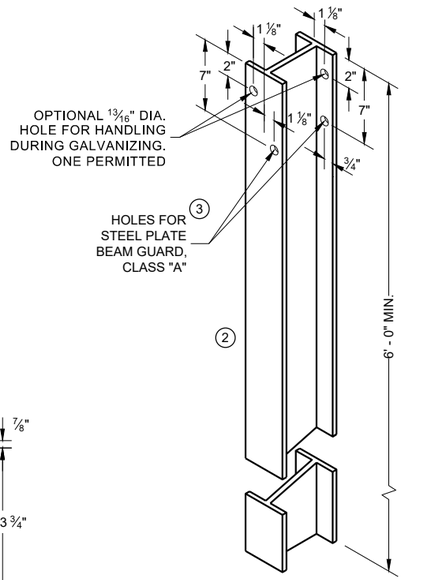
PLAN VIEW
WOOD POST, BLOCKOUT AND BEAM



END VIEW
LONGER POST AT HALF POST SPACING W BEAM (LHW)

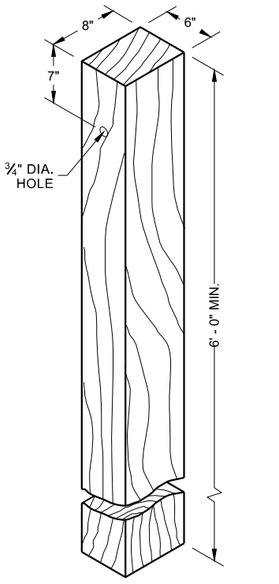


END VIEW
LOCATED ALONG A MOUNTABLE CURBED ROADWAY

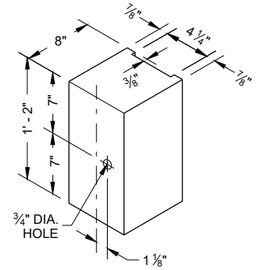


STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)

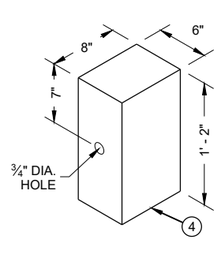
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



WOOD POST (6" X 8") NOMINAL (1)



TYPICAL NOTCHED PLASTIC BLOCKOUT FOR STEEL POSTS



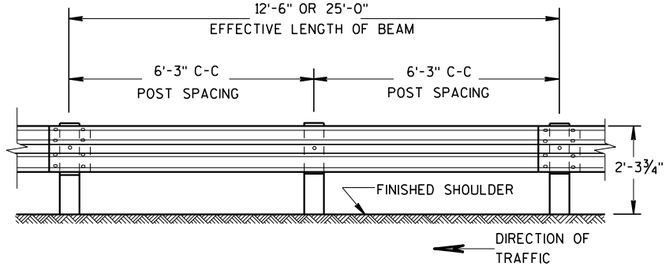
WOOD OR PLASTIC BLOCKOUT FOR WOOD POSTS

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

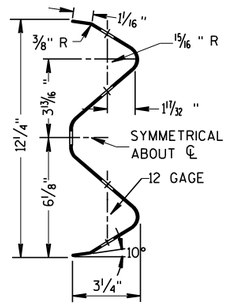
SDD 14B15 -11a

SDD 14B15 -11a

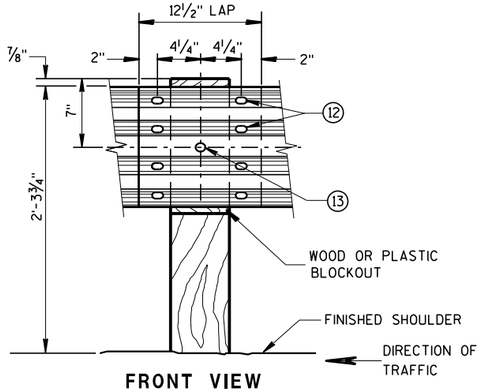


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

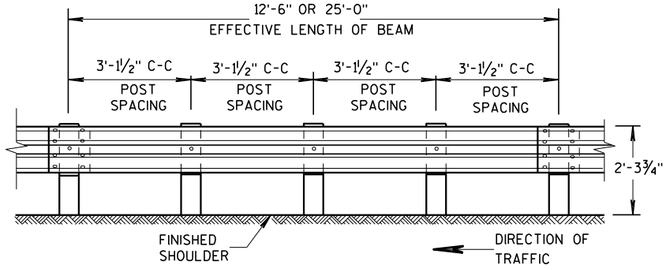
GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.

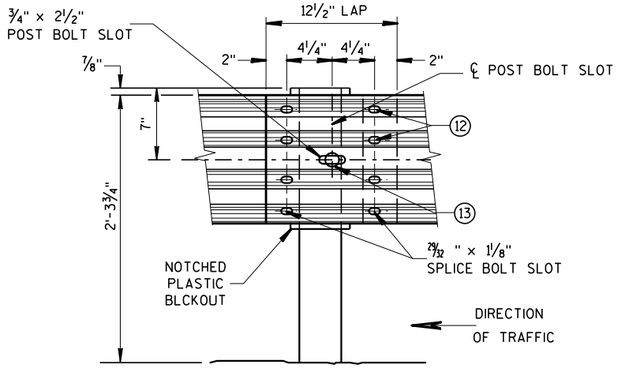
(12) 8 -⅝" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) ⅝" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH ⅝" DIA. F844 FLAT WASHER UNDER NUT.



FRONT VIEW

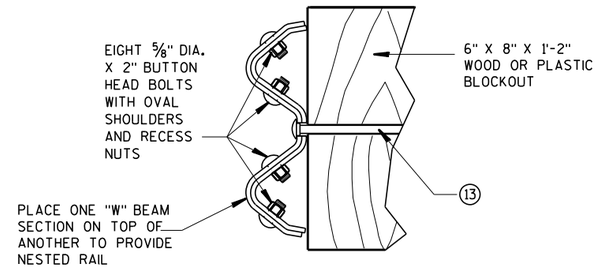
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

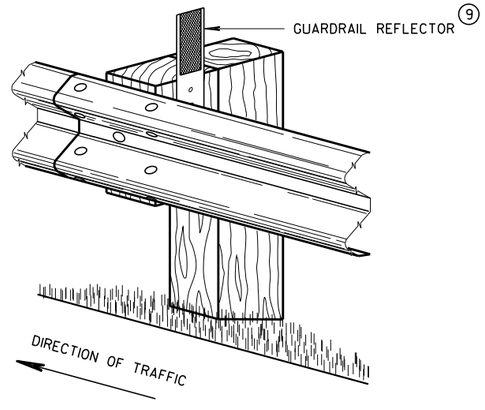
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD



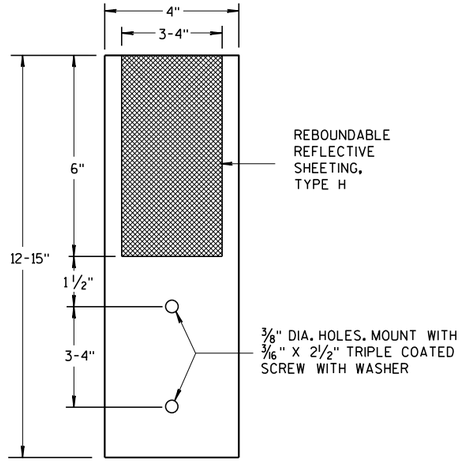
NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR CONSTRUCTING NESTED W BEAM (NW)

* USE DOUBLE SIDED WHITE GUADRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



4" X 12" GUARDRAIL REFLECTOR DETAIL AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

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

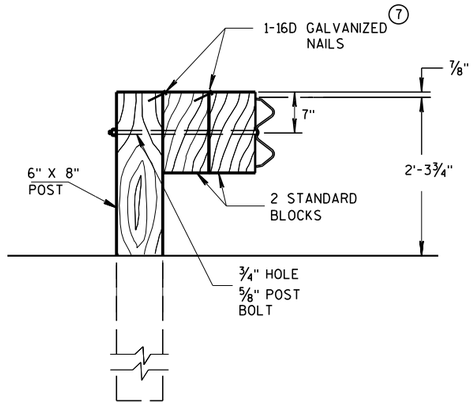
STATE OF WISCO 42
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 15-11b

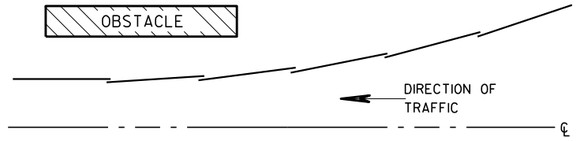
6

S.D.D. 14 B 15-11b

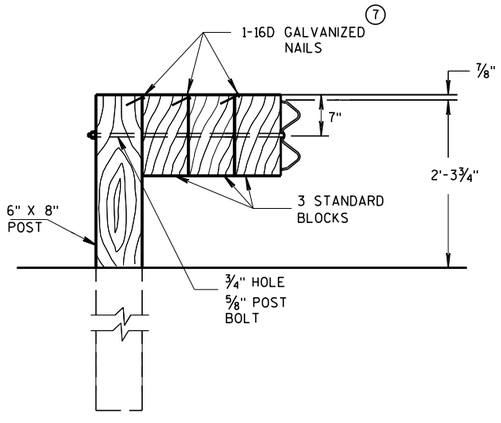


DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS WITHIN A BARRIER RUN IS UNLIMITED

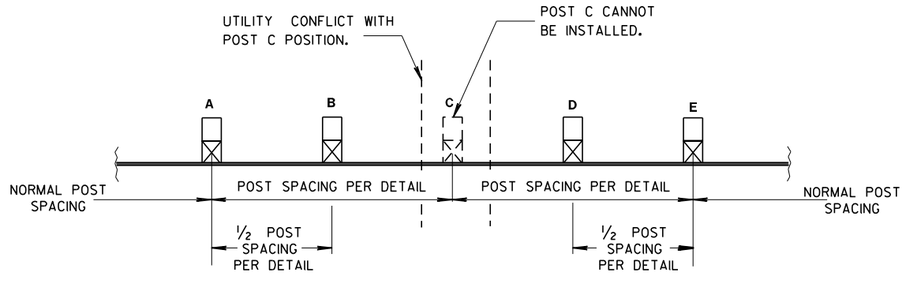


PLAN VIEW
BEAM LAPPING DETAIL



DETAIL FOR TRIPLE BLOCKS

TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES PREVENT THE POST FROM BEING INSTALLED.

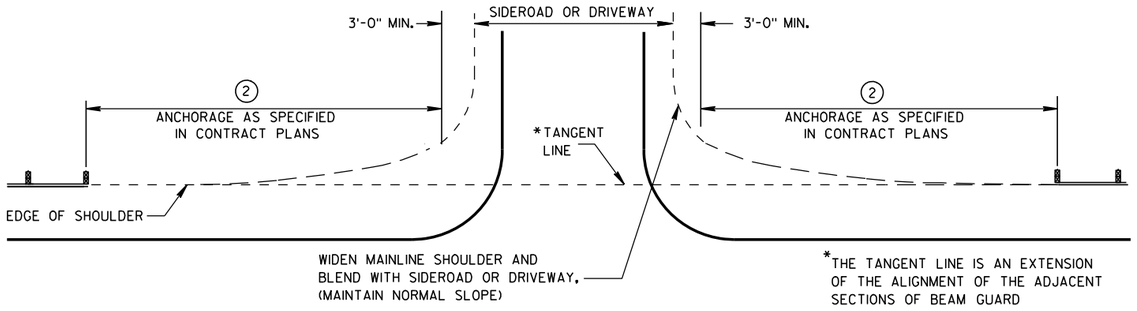
DO NOT USE EXTRA BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

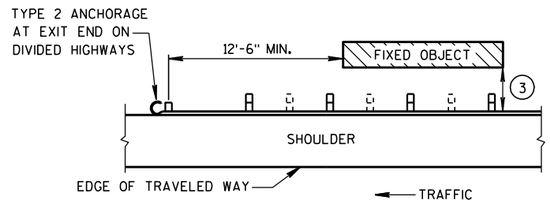
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DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
FHWA

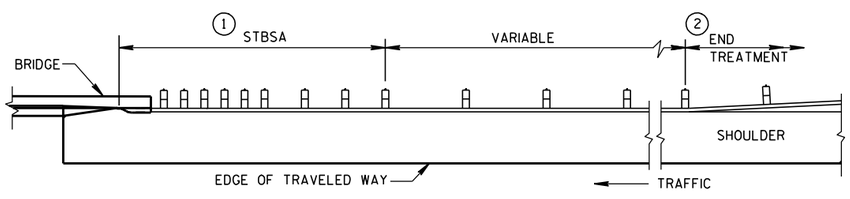
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S.D.D. 14 B 15-11c



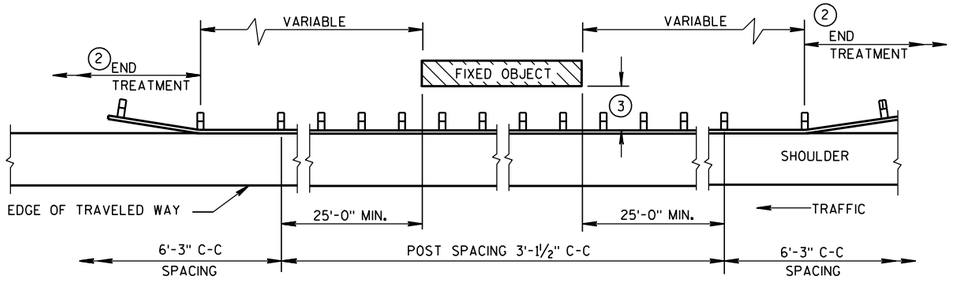
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

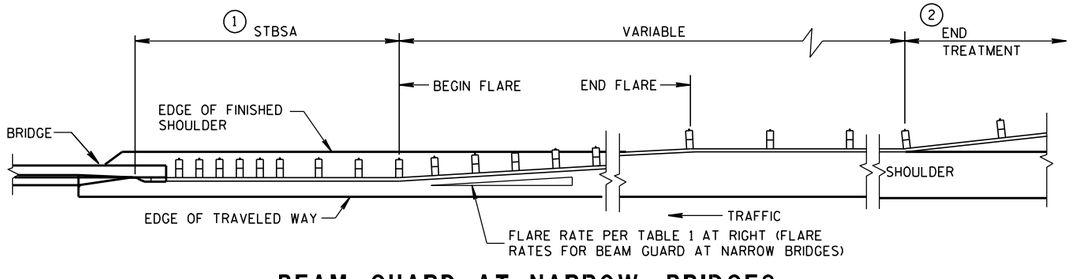


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

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



BEAM GUARD AT NARROW BRIDGES

(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

TABLE 1
FLARE RATES FOR BEAM GUARD AT NARROW BRIDGES

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

GENERAL NOTES

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

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

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

(1) STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.

(2) USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

(3)

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

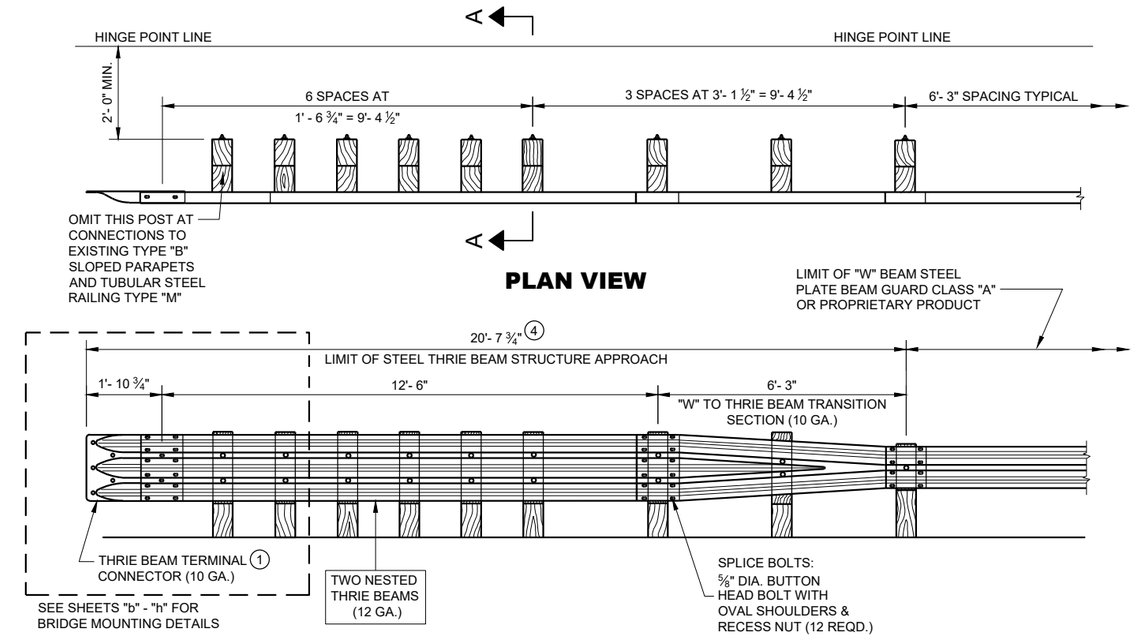
STEEL PLATE BEAM GUARD CLASS "A" AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS

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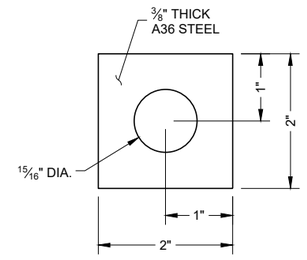


PLATE WASHER DETAIL

GENERAL NOTES

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

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

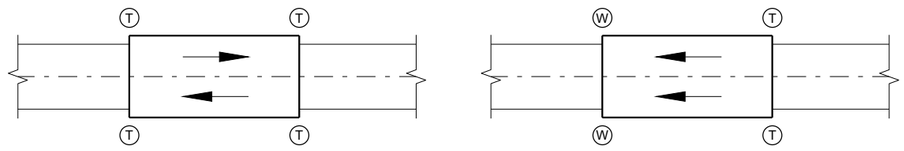
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 ½" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(2) MINIMUM EMBEDMENT SHALL BE 4'- 0".

(3) POST BOLTS ARE ⅝" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A ⅝" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.

(4) ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



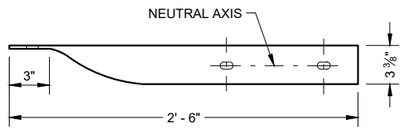
TWO WAY TRAFFIC

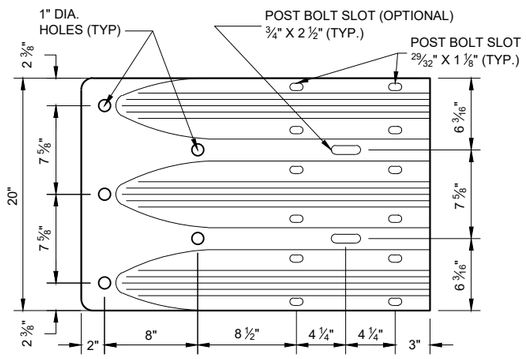
ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

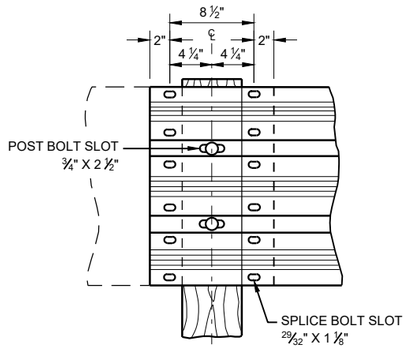
(W) W-BEAM CONNECTION WHEN REQUIRED

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

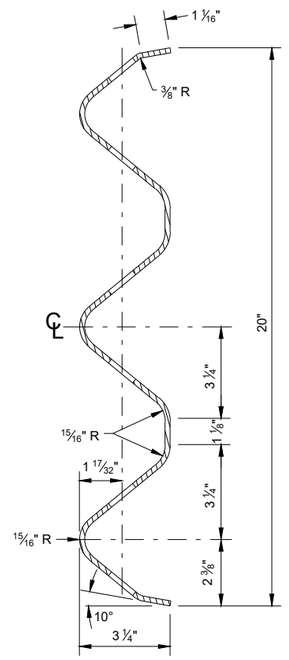




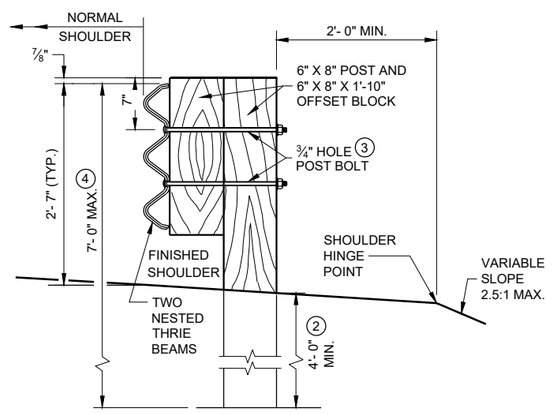
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

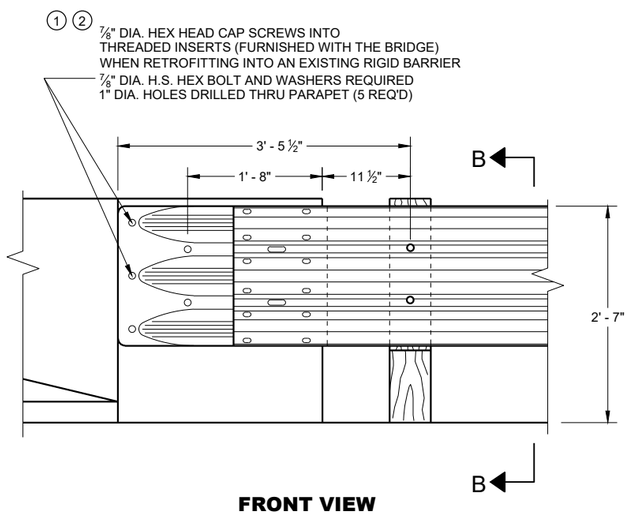
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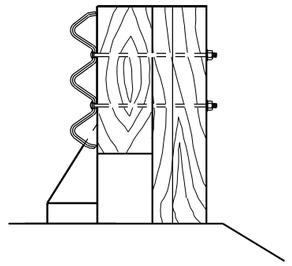
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FRONT VIEW



SECTION B - B

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

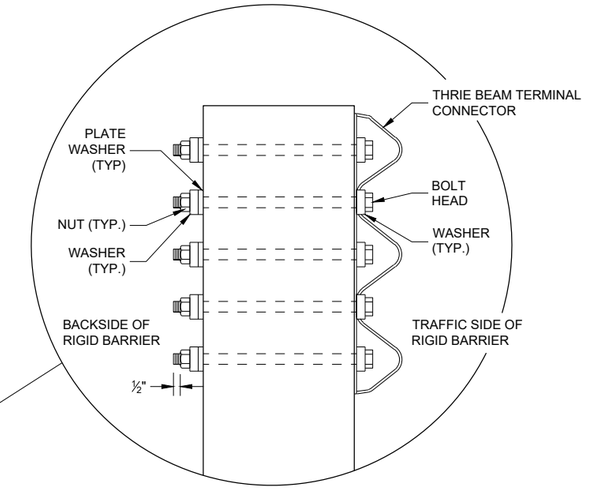
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

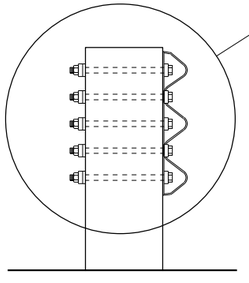
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

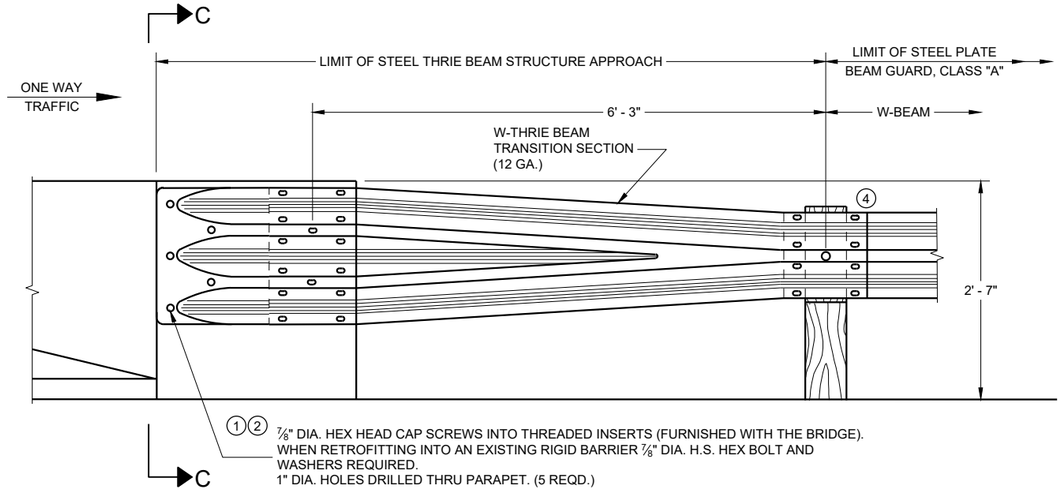
④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

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





SECTION C - C



① ② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE). WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER ⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED.
1" DIA. HOLES DRILLED THRU PARAPET. (5 REQD.)

FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGE)

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

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November 2022
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE ENGINEER

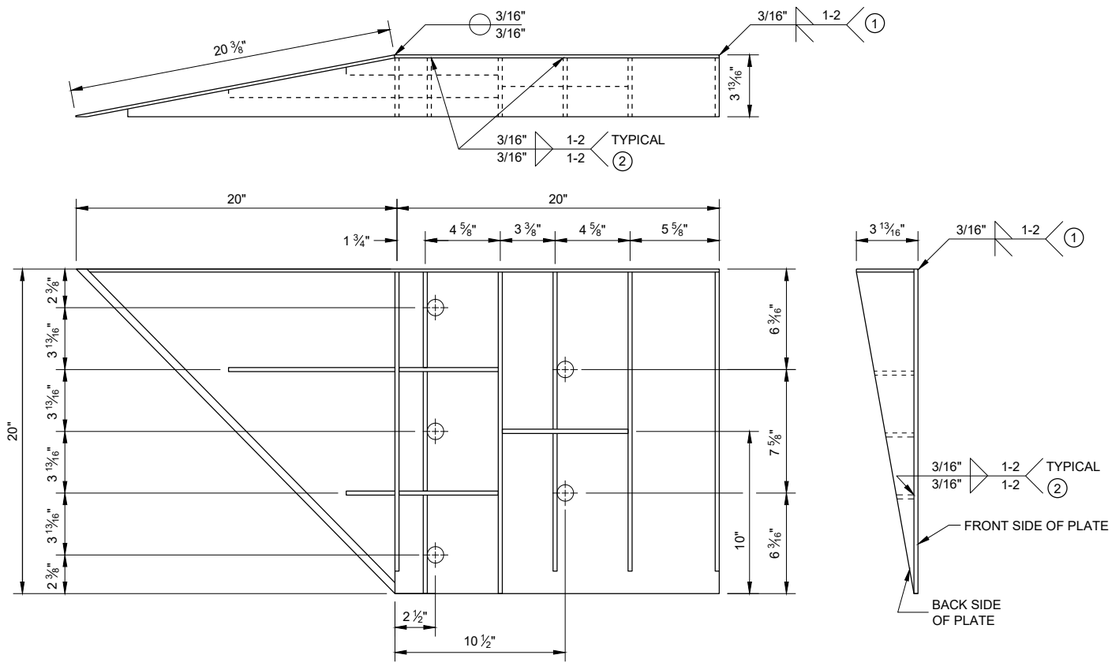
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SDD 14B20 - 12b

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SDD 14B20 - 12b



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

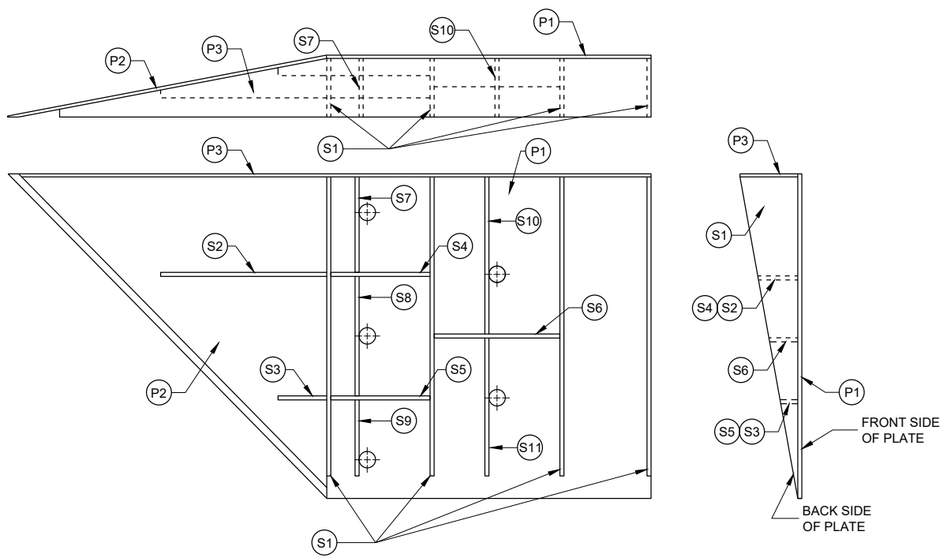


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION, MIRROR DRAWINGS.

(1) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(2) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATED DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

STEEL THRIE BEAM STRUCTURE APPROACH

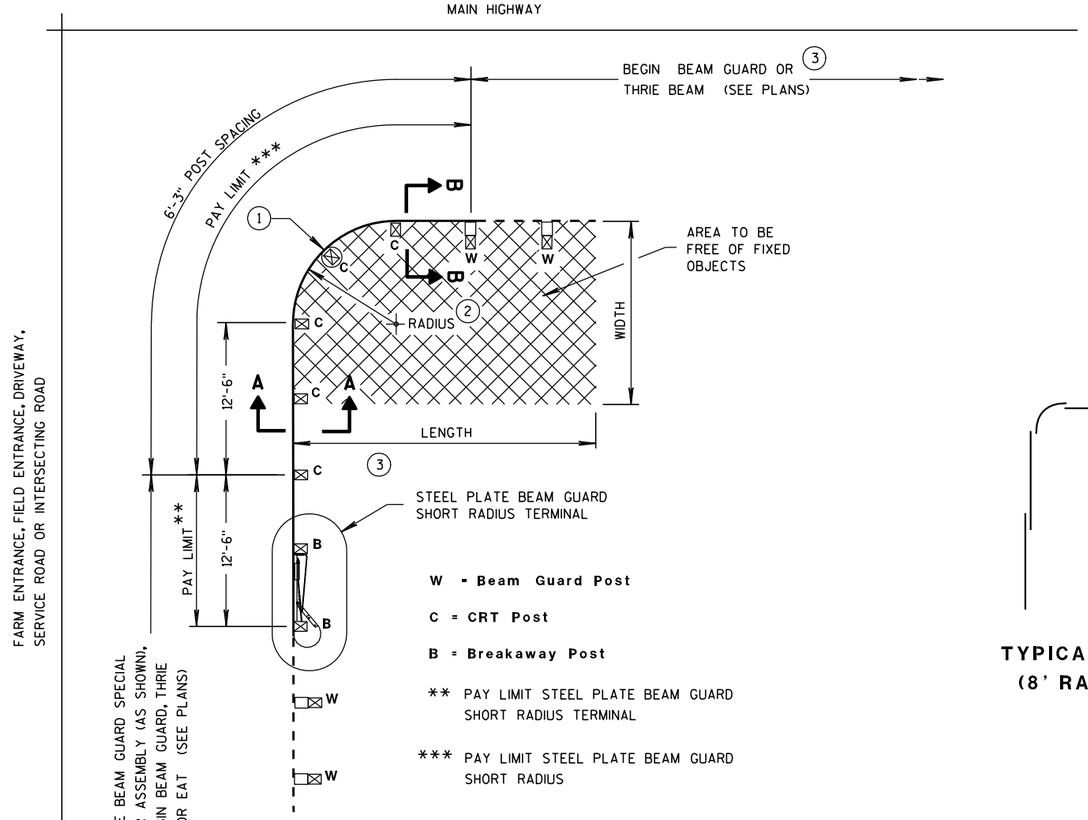
STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL

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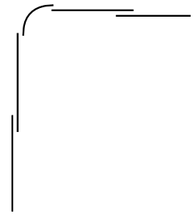
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TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2. UNLESS NOTED OTHERWISE.

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

(1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.

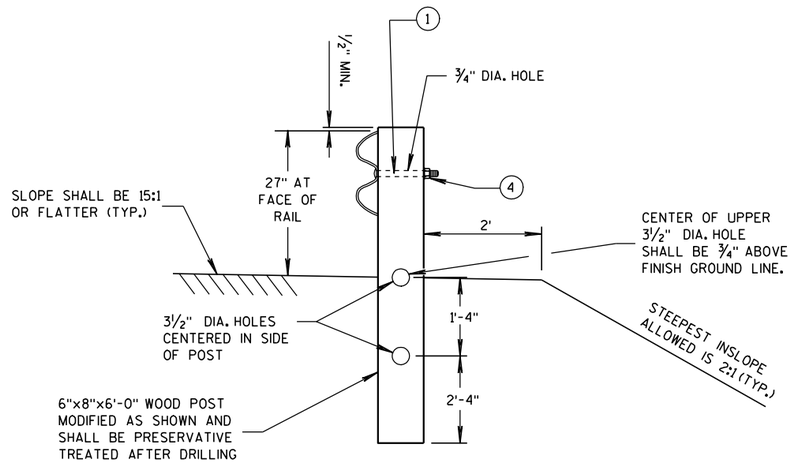
(2) RADIUS FROM 8' - 36'. SEE PLAN.

(3) HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.

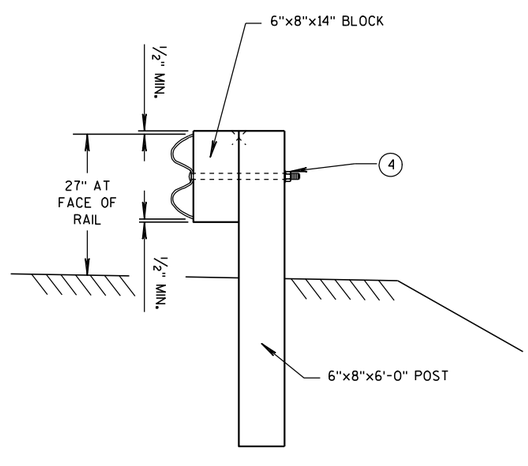
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



SECTION A-A
(CRT POST)



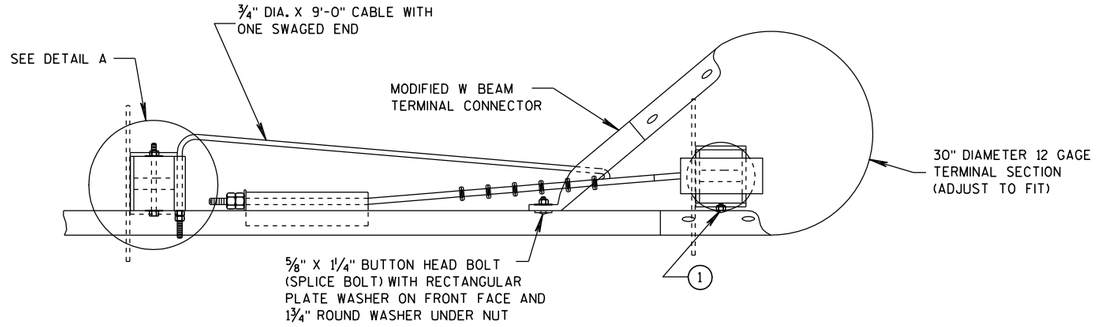
SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

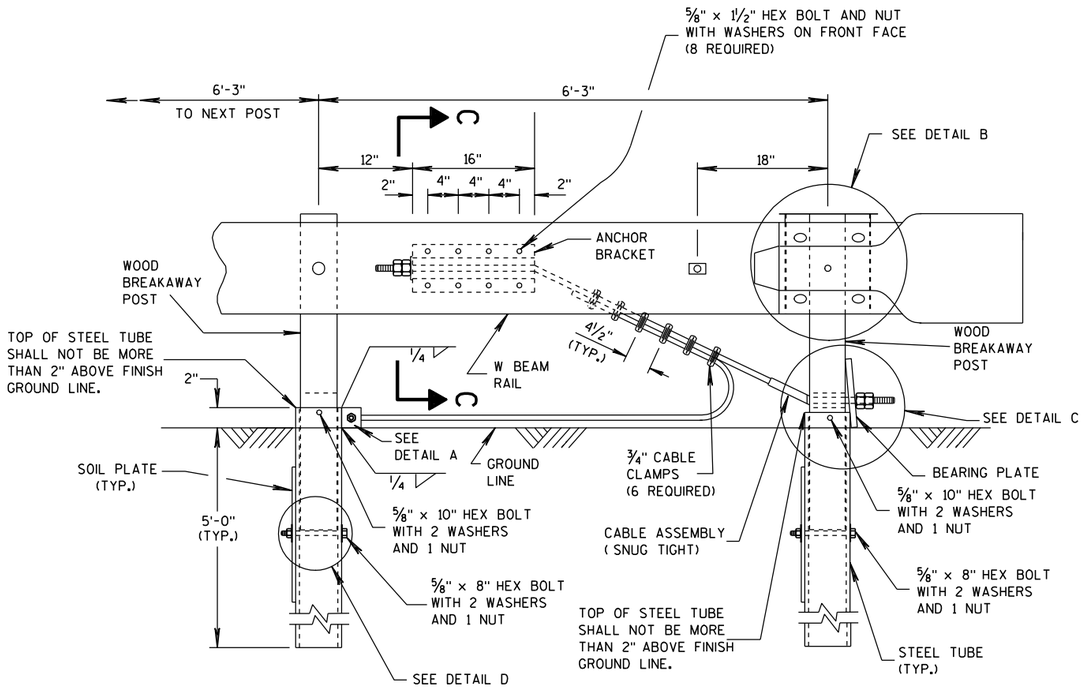
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

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S.D.D. 14 B 27-1a



PLAN VIEW



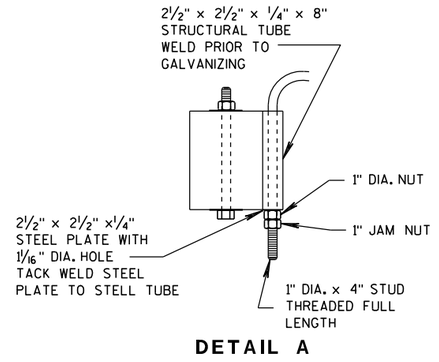
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

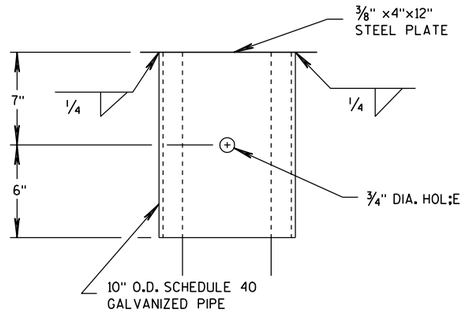
GENERAL NOTES

(1) ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A ⅝" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED ¾" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

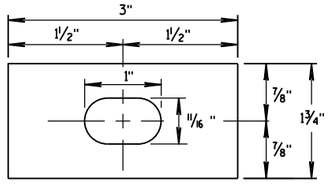
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DEPARTMENT OF TRANSPORTATION

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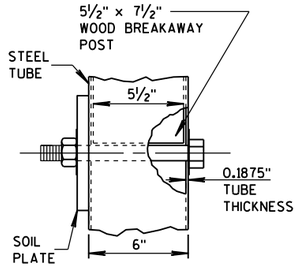
S.D.D. 14 B 27-1b

6

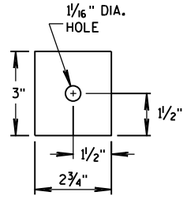
S.D.D. 14 B 27-1b



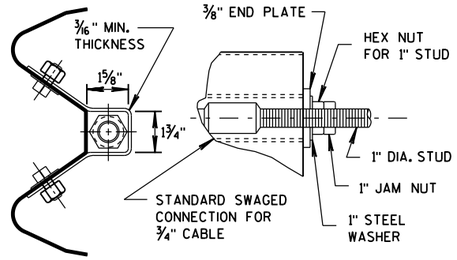
RECTANGULAR PLATE WASHER



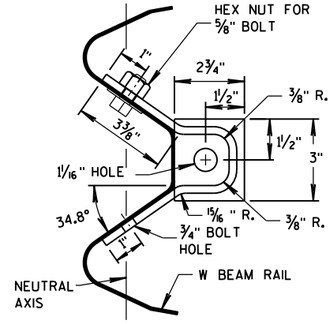
DETAIL D



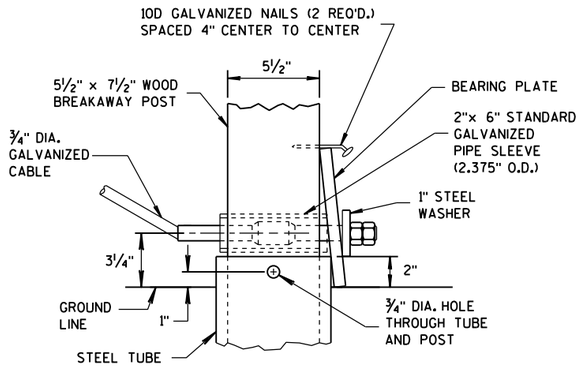
END PLATE



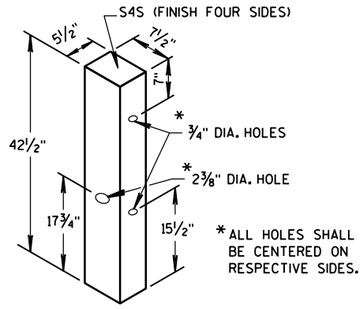
SECTION C-C
(END PLATE REMOVED)



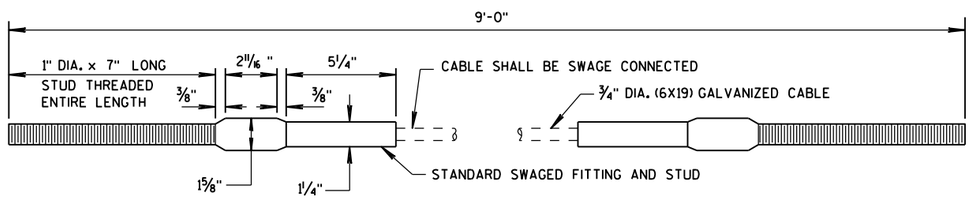
ANCHOR BRACKET



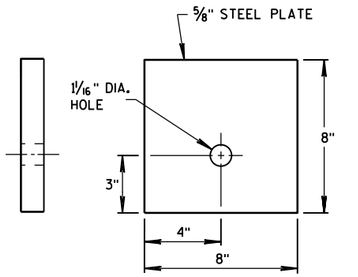
DETAIL C



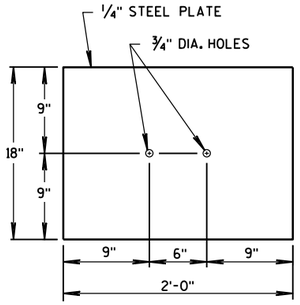
WOOD BREAKAWAY POST



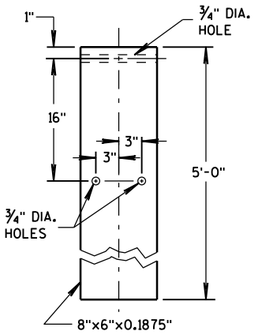
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/18/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 27-1c

6

S.D.D. 14 B 27-1c

(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.

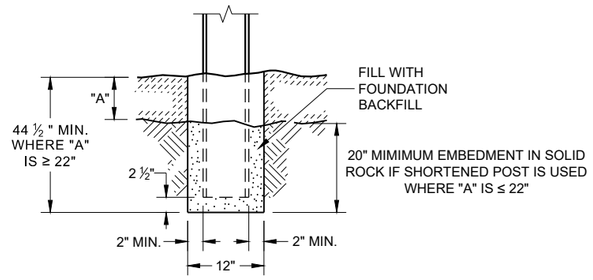
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL 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).

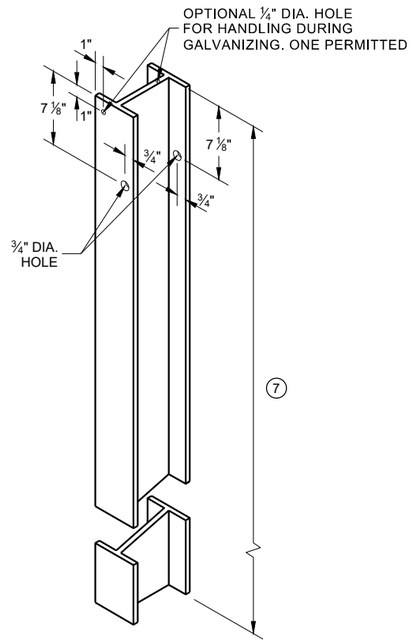
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

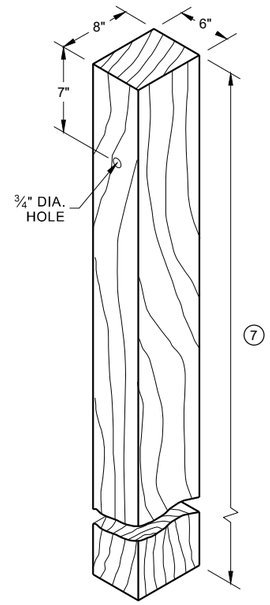
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



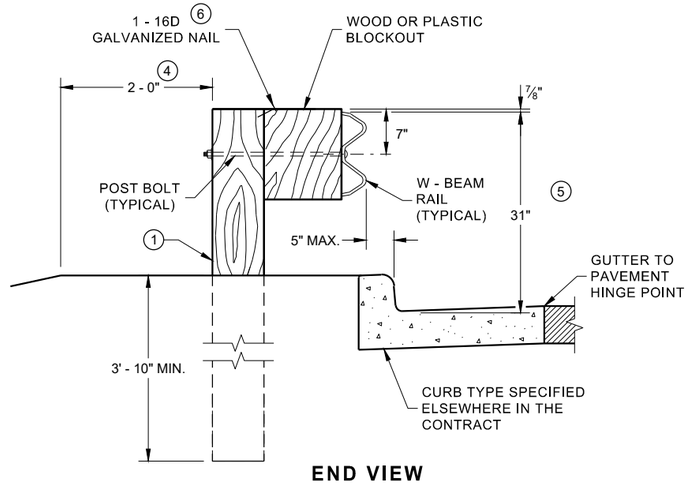
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



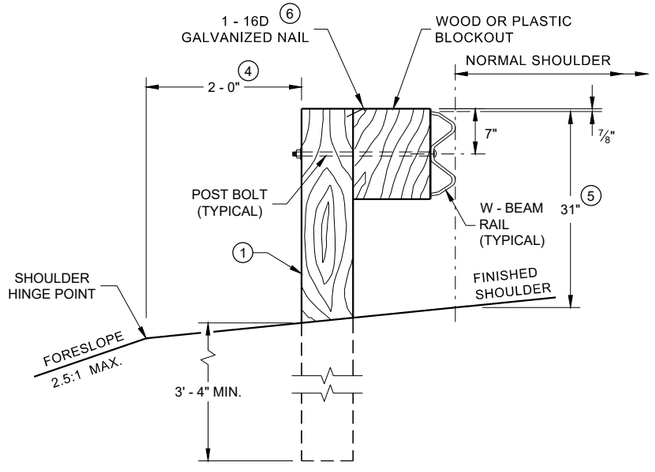
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



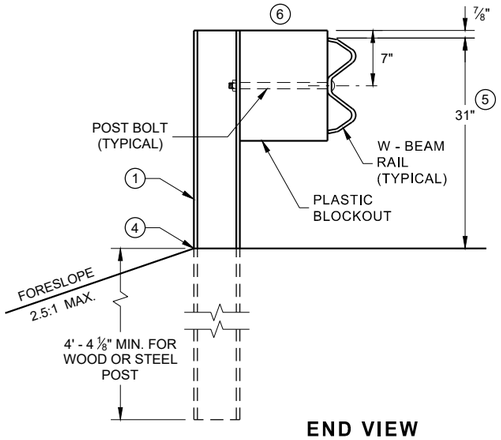
WOOD POST (6" X 8") NOMINAL (1)



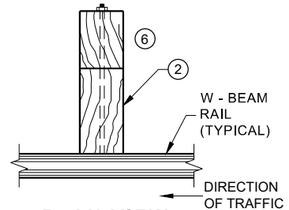
END VIEW
LOCATED ALONG A CURBED ROADWAY



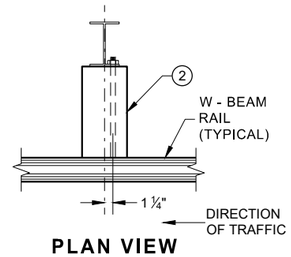
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



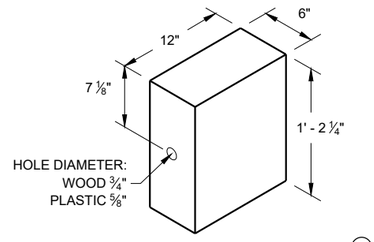
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



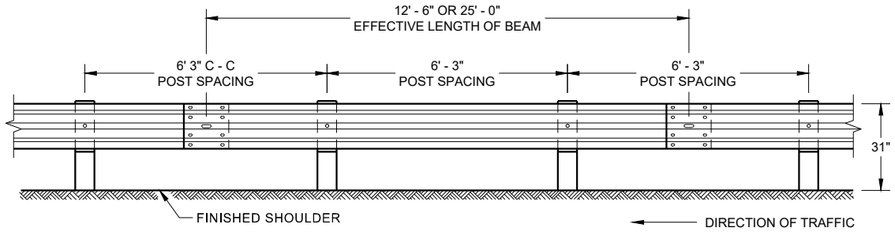
PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



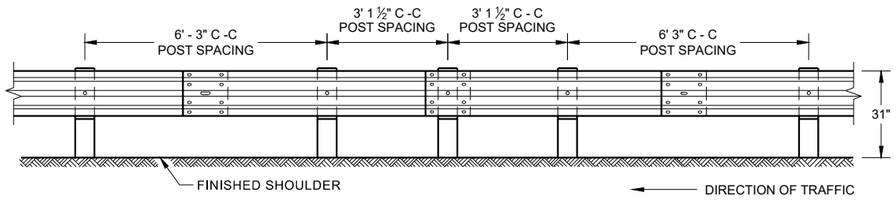
WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

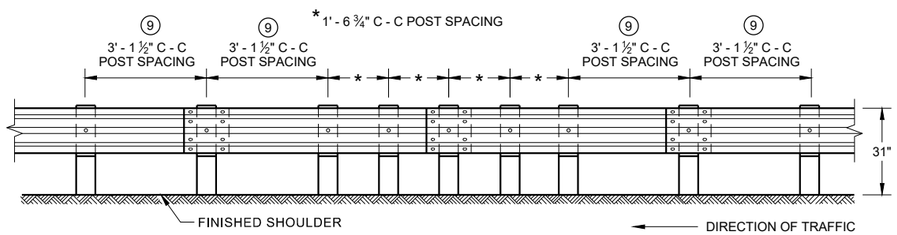
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



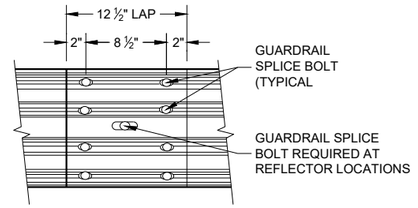
FRONT VIEW
POST SPACING STANDARD INSTALLATION



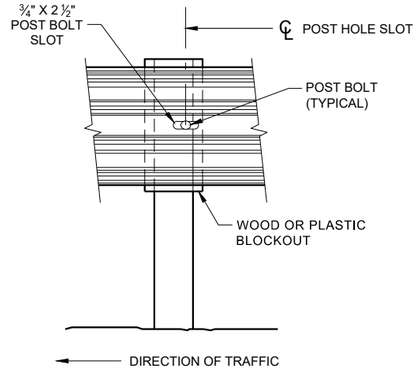
FRONT VIEW
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



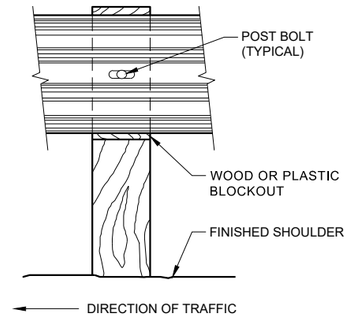
FRONT VIEW
QUARTER POST SPACING (QS)



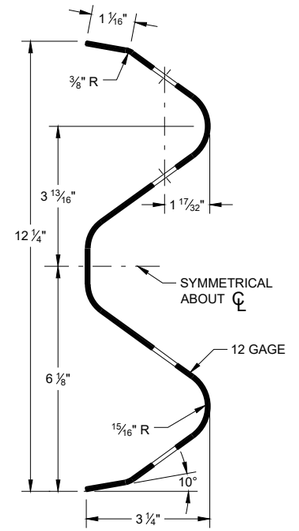
FRONT VIEW
MID-SPAN BEAM SPLICE



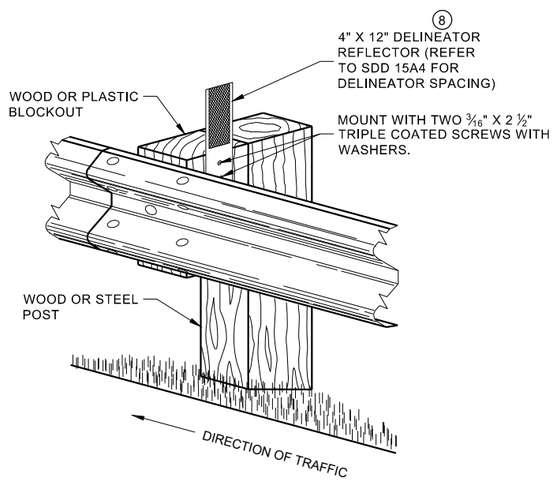
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

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.

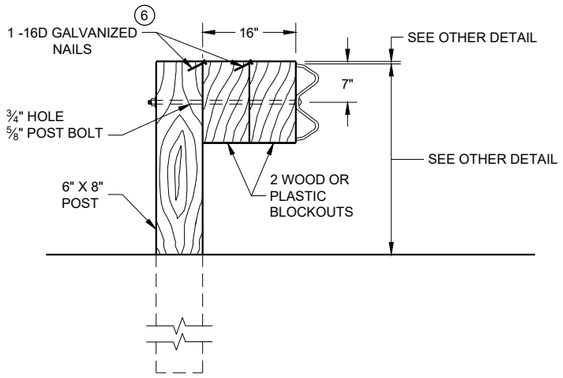
POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
SDD 14B42 - 07b

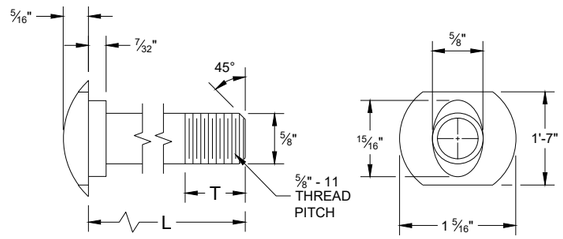


DETAIL FOR 16" BLOCKOUT DEPTH

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.

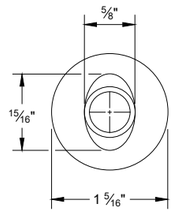
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3⁄16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

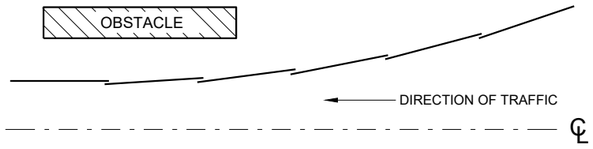


POST BOLT TABLE

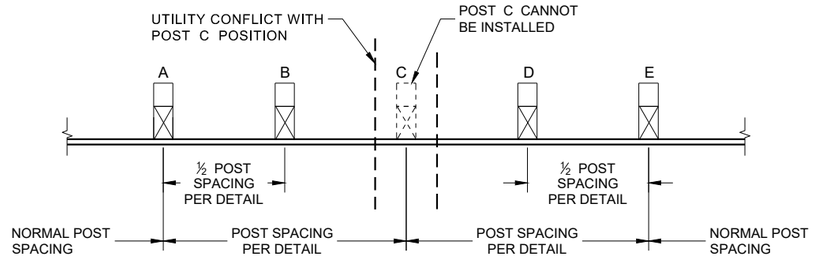
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



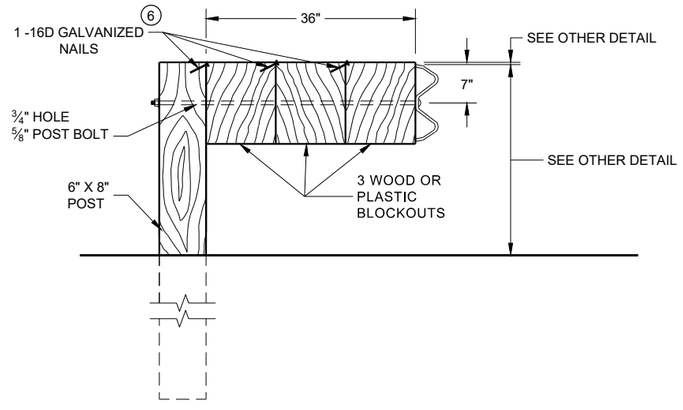
ALTERNATE BOLT HEAD



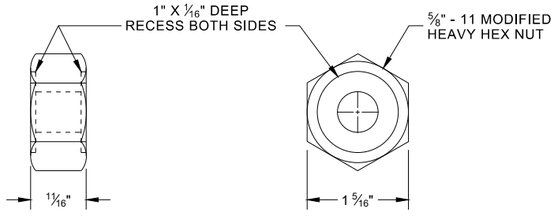
PLAN VIEW
BEAM LAPPING DETAIL



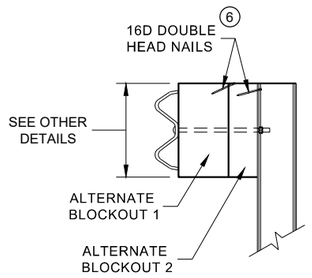
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



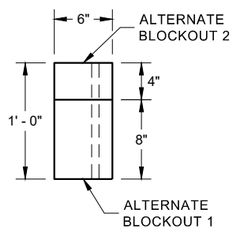
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



PLAN VIEW

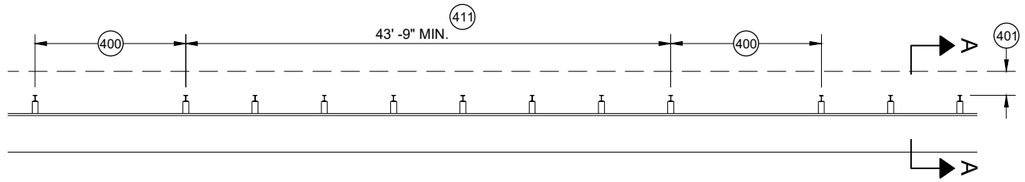
ALTERNATE WOOD BLOCKOUT DETAIL

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.

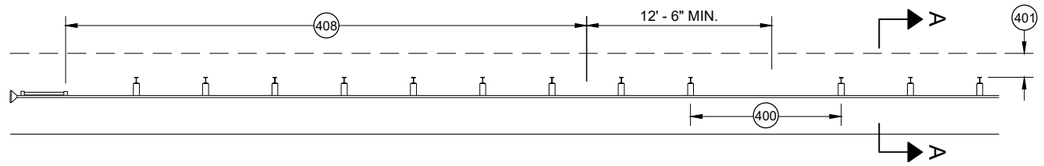
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

(6) WHEN USING STEEL POST AD 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.

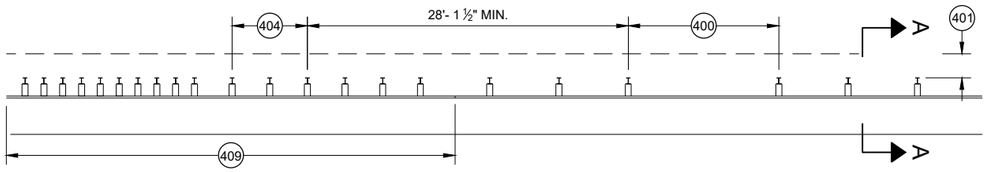
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



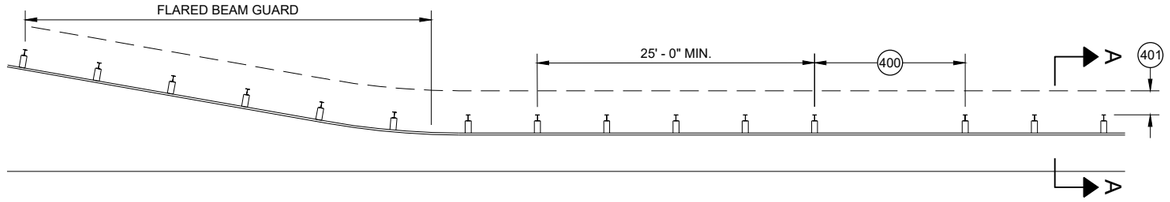
MISSING POST IN MGS GUARDRAIL



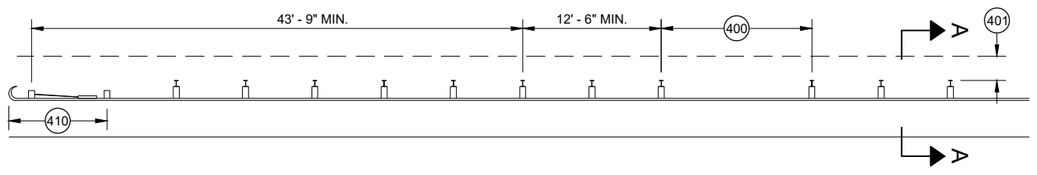
MISSING POST IN MGS GUARDRAIL NEAR EAT



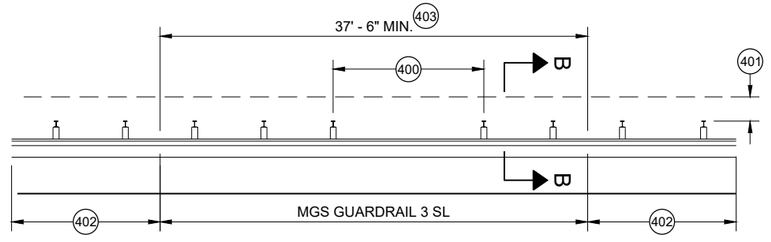
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

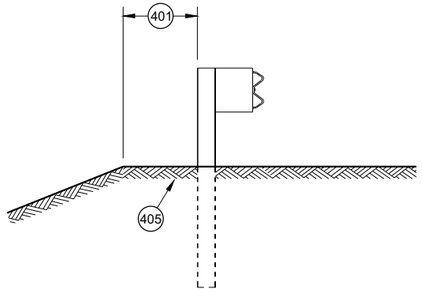


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

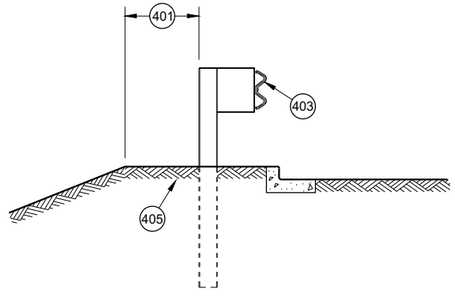


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

(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 406



SECTION B - B 406

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR
FHWA

6

SDD 14B42 - 07d

SDD 14B42 - 07d

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) 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.

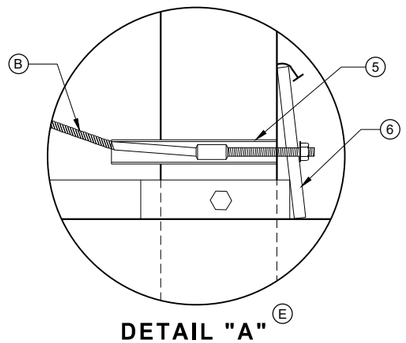
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

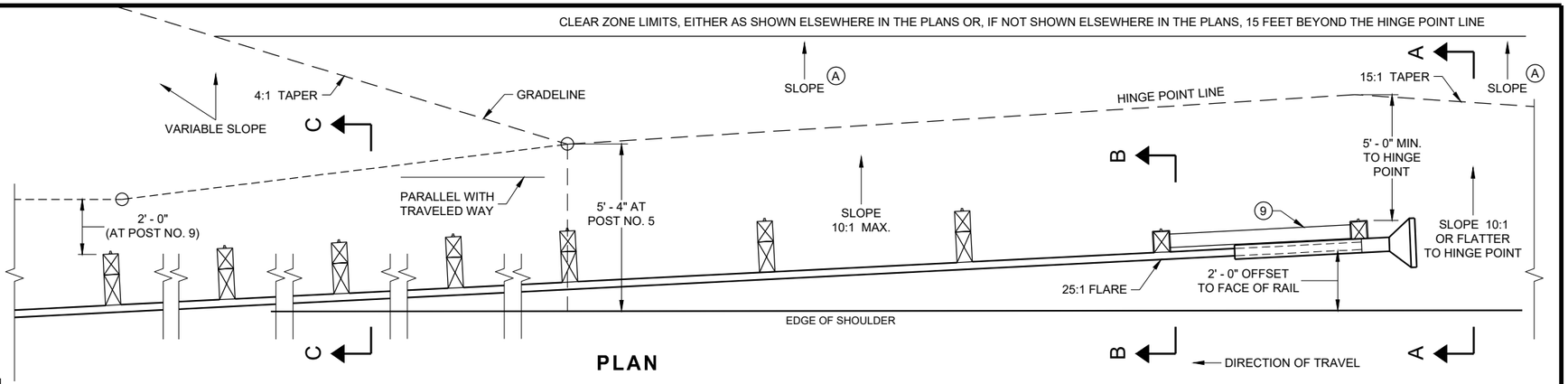
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

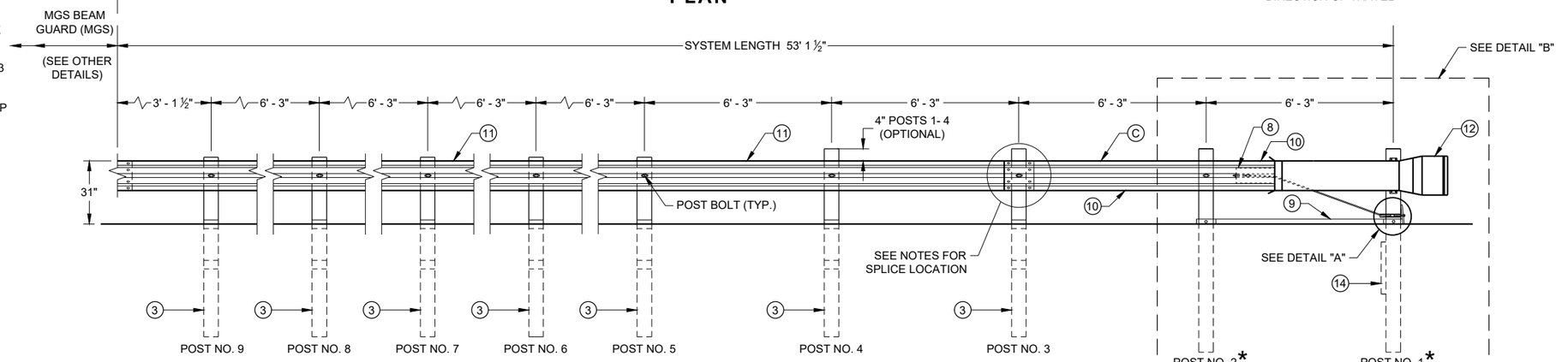
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



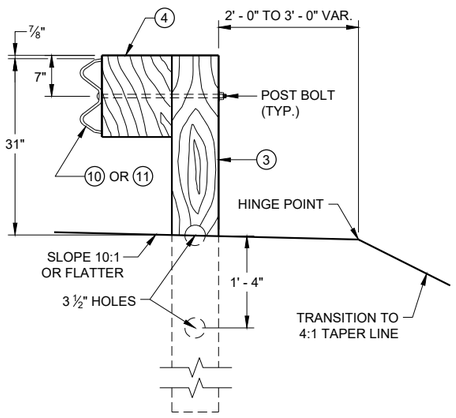
DETAIL "A" (E)



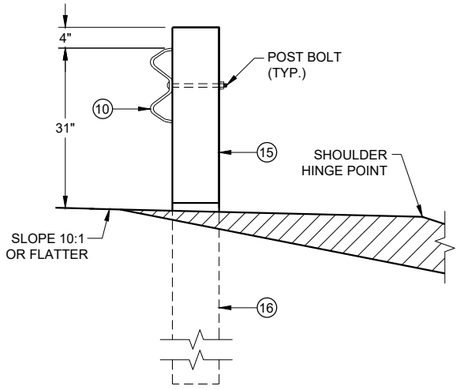
PLAN



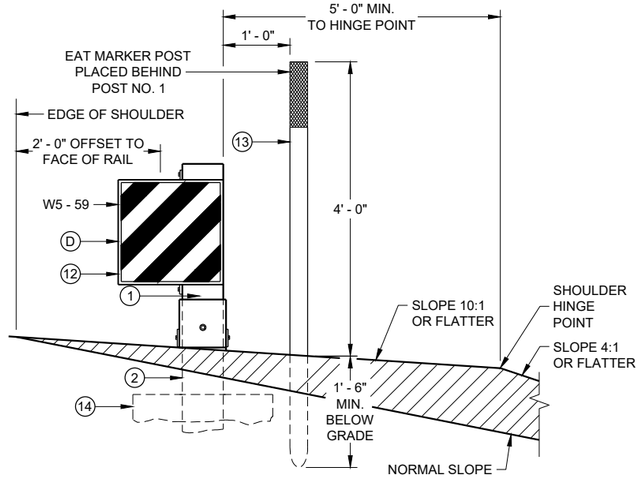
ELEVATION



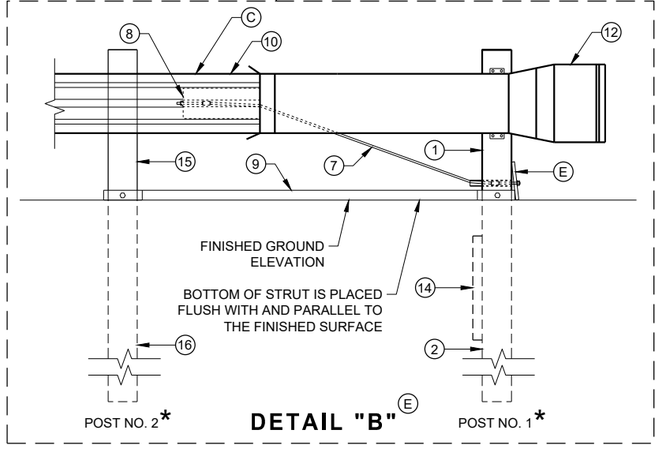
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



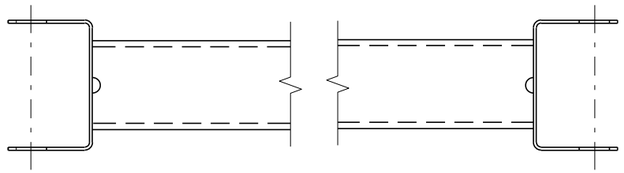
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

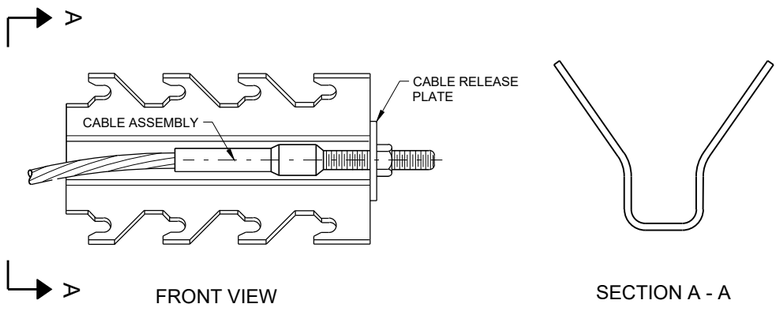
SDD 14B44 - 04a



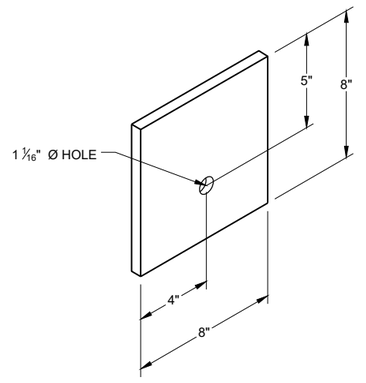
GENERIC GROUND STRUT ⑨ Ⓔ

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUGACTURER'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 ANCHOR CABLE BOX ⑨ Ⓔ



BEARING PLATE ⑥ Ⓔ

6

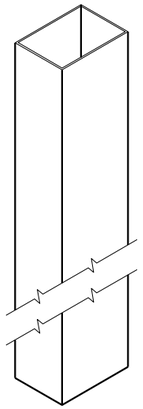
6

SDD 14B44 - 04b

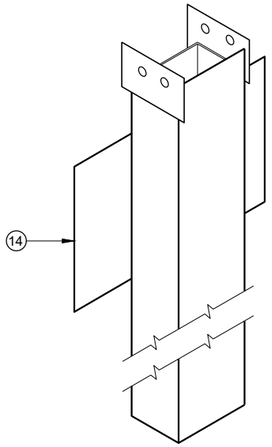
SDD 14B44 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

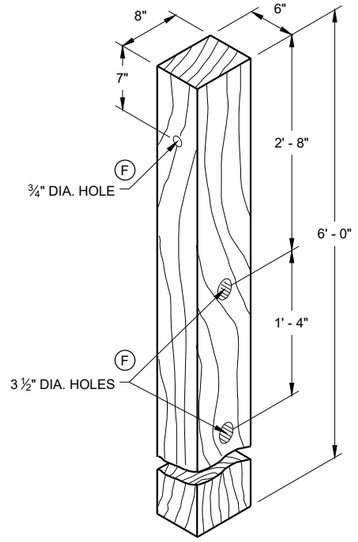
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



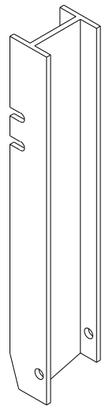
UPPER POST NO. 1 (1) (E)



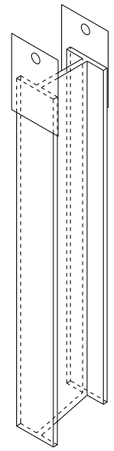
LOWER POST NO. 1 (2) (E)



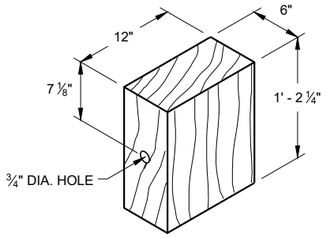
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



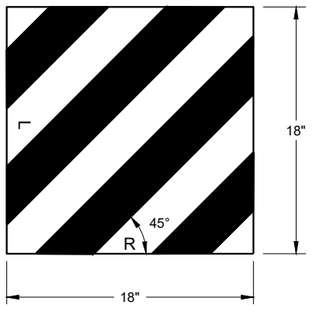
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

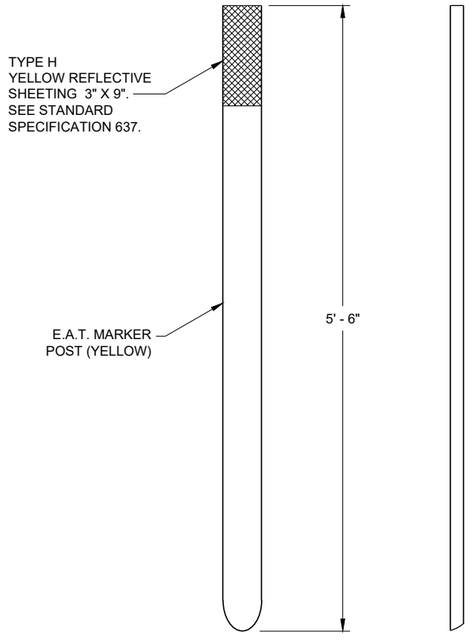


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



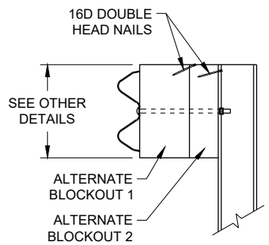
W5 - 59

REFLECTIVE SHEETING DETAIL (E)

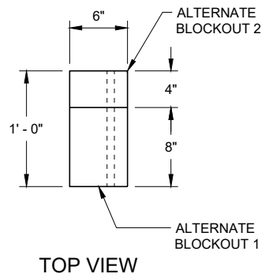


FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

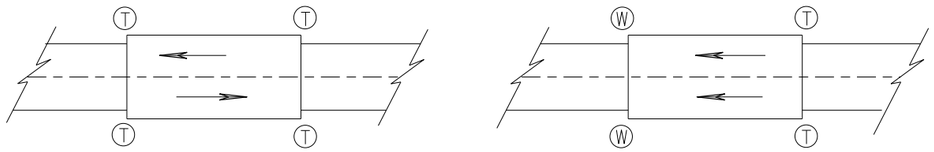
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

SDD 14B44 - 04c



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 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

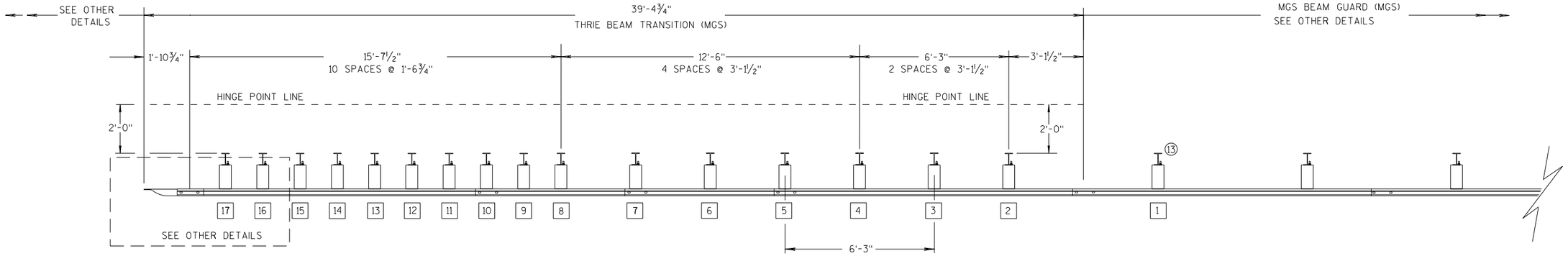
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

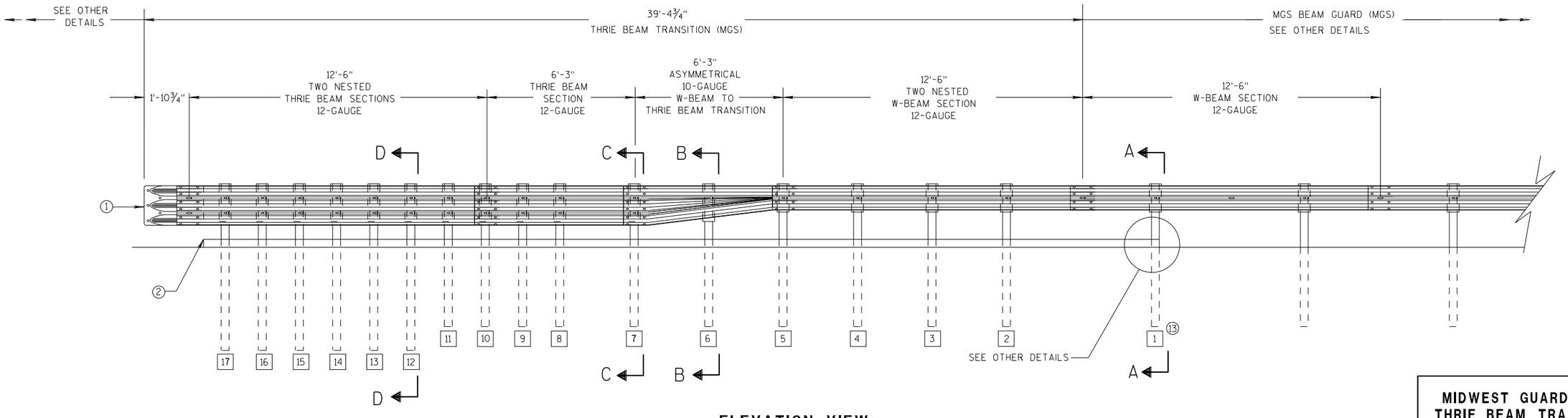
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(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 TRANSPOR

6

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

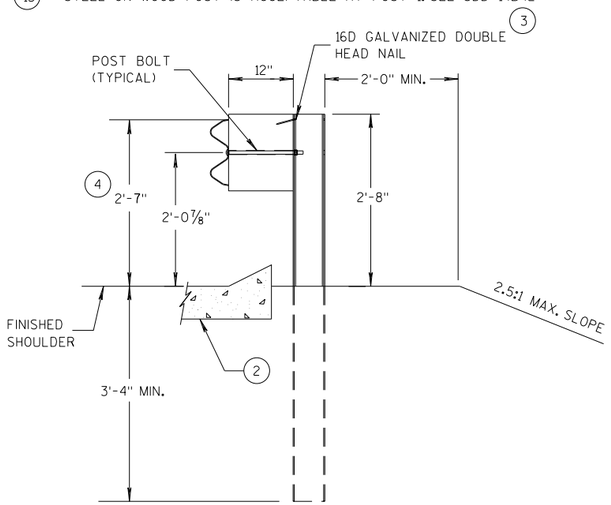
GENERAL NOTES

(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.

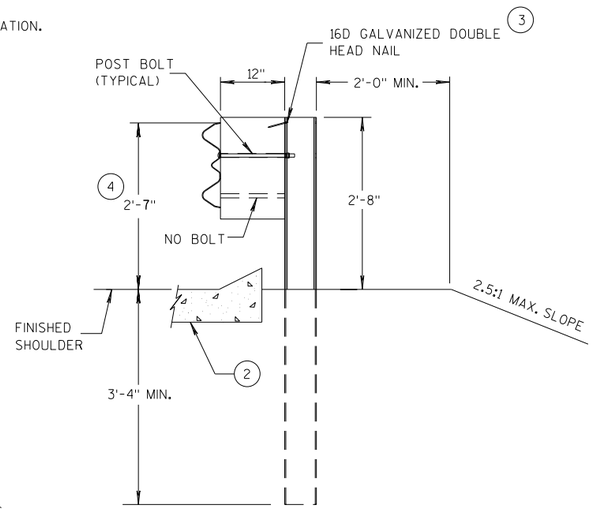
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



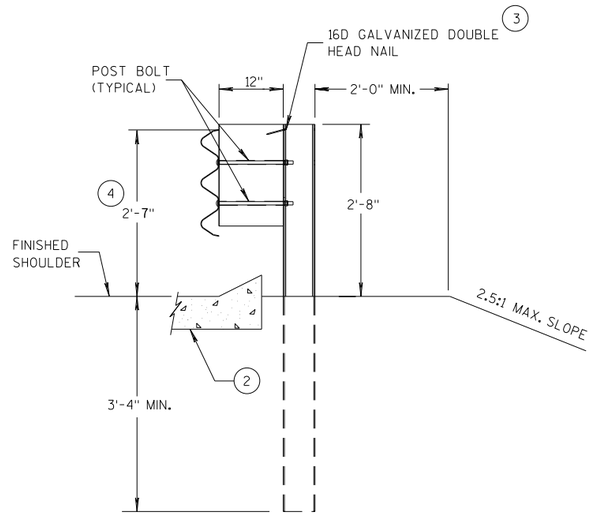
SECTION A-A (13)

POSTS 1-5



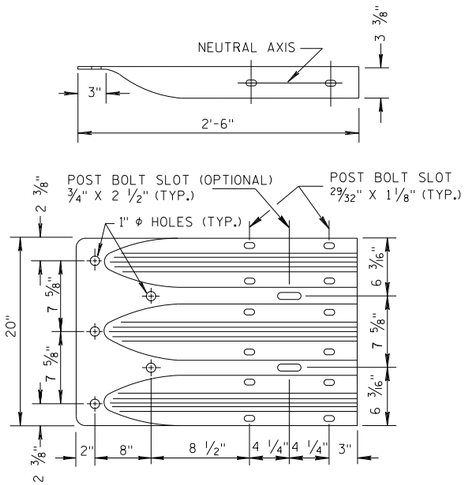
SECTION B-B

POST 6

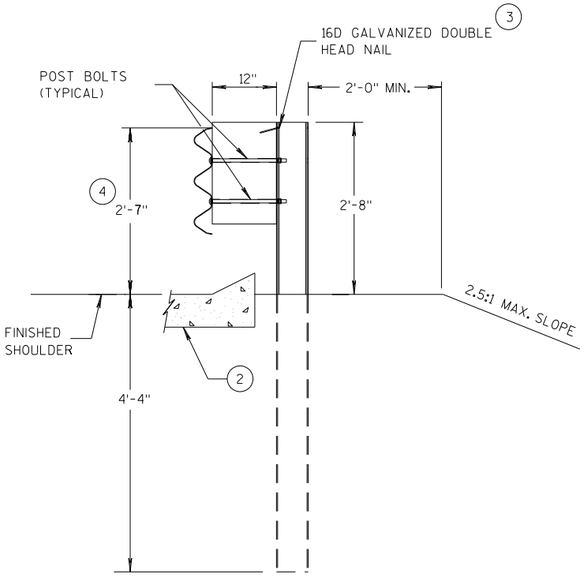


SECTION C-C

POSTS 7-11

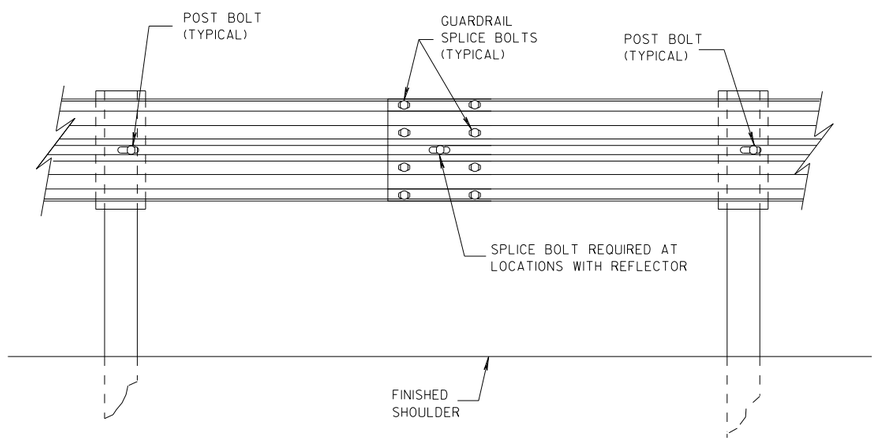


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

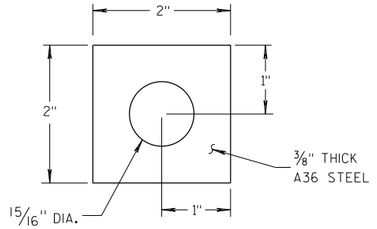
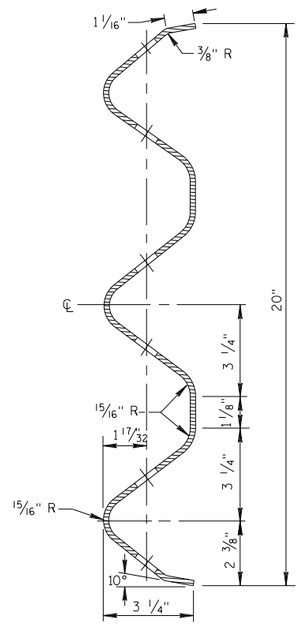


PLATE WASHER DETAIL



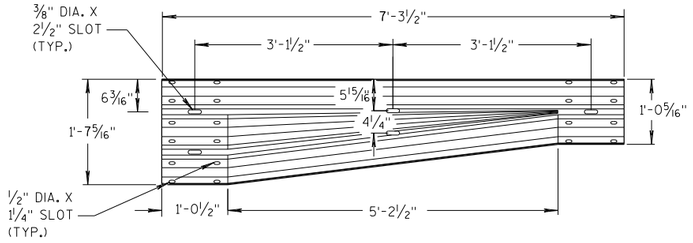
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

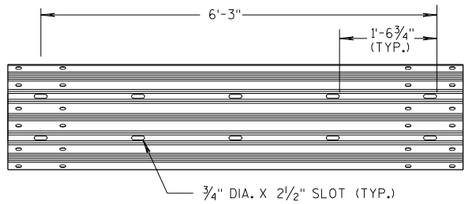
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

6

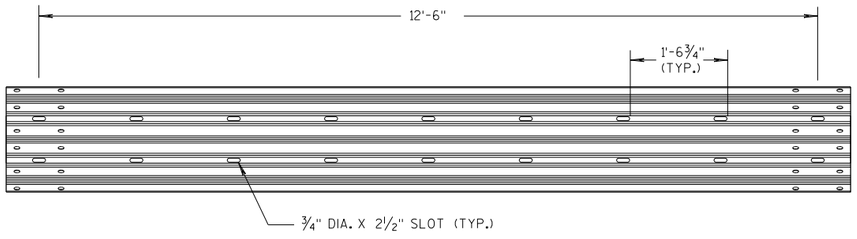
S.D.D. 14 B 45-5b



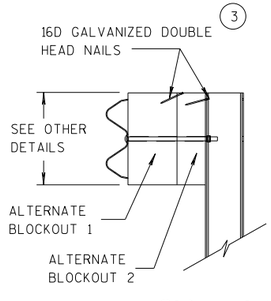
W-BEAM TO THRIE BEAM TRANSITION SECTION



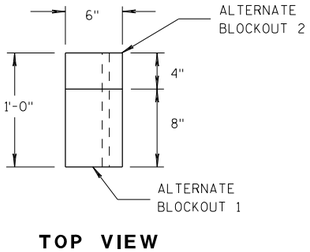
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

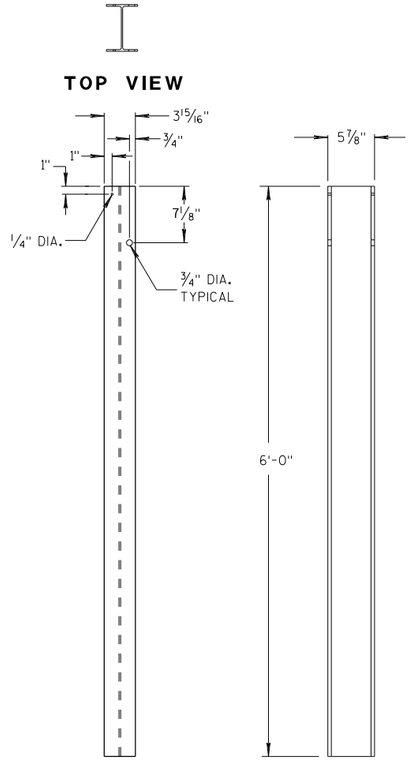


SIDE VIEW



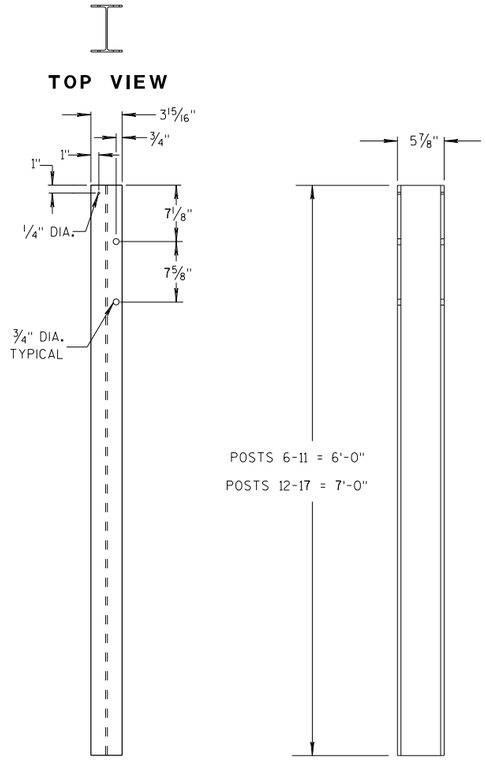
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



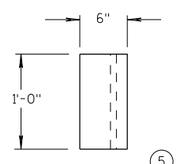
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

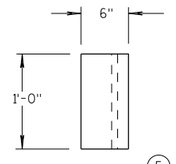


FRONT VIEW SIDE VIEW

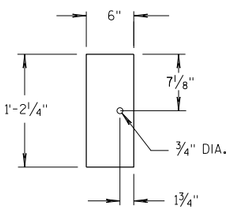
STEEL POSTS 6-17



TOP VIEW (5)

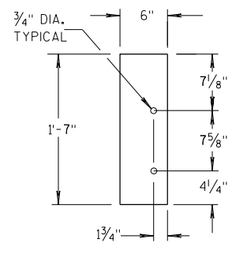


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



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.

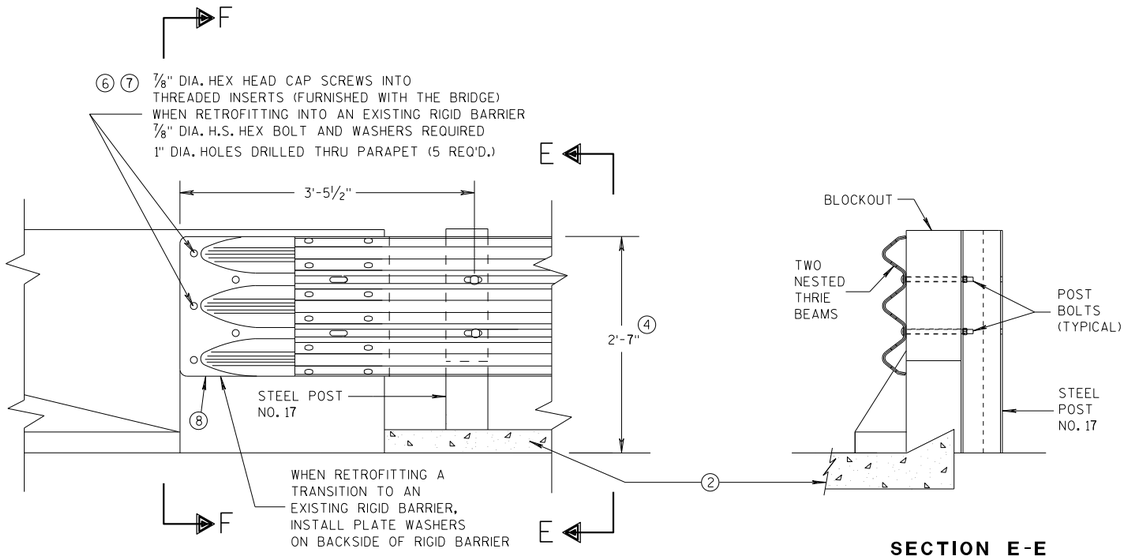
(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

6

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



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

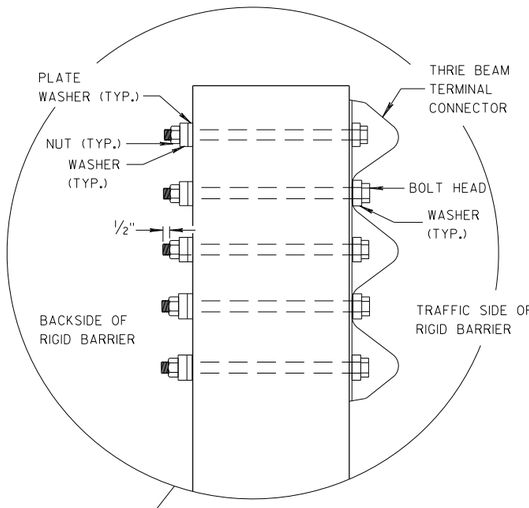
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

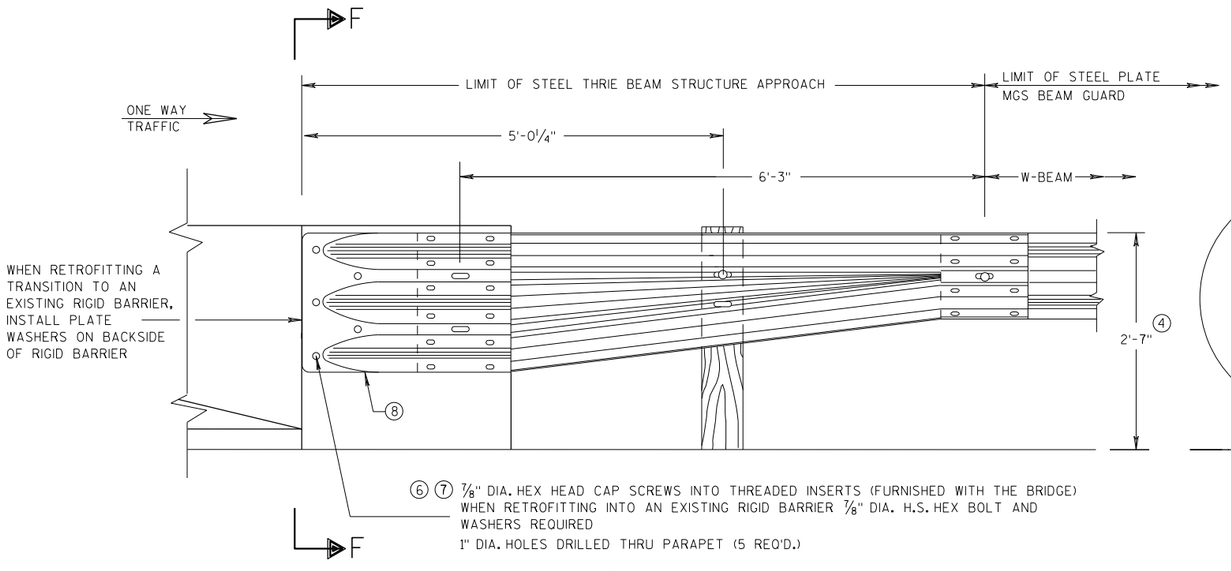
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

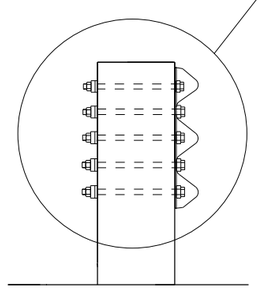
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

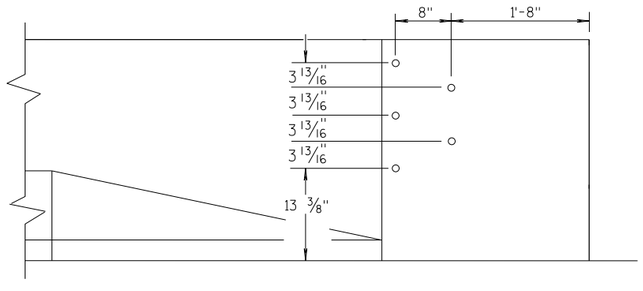




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D UNIT SUPERVIS
NT
FHWA

6

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

6

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

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

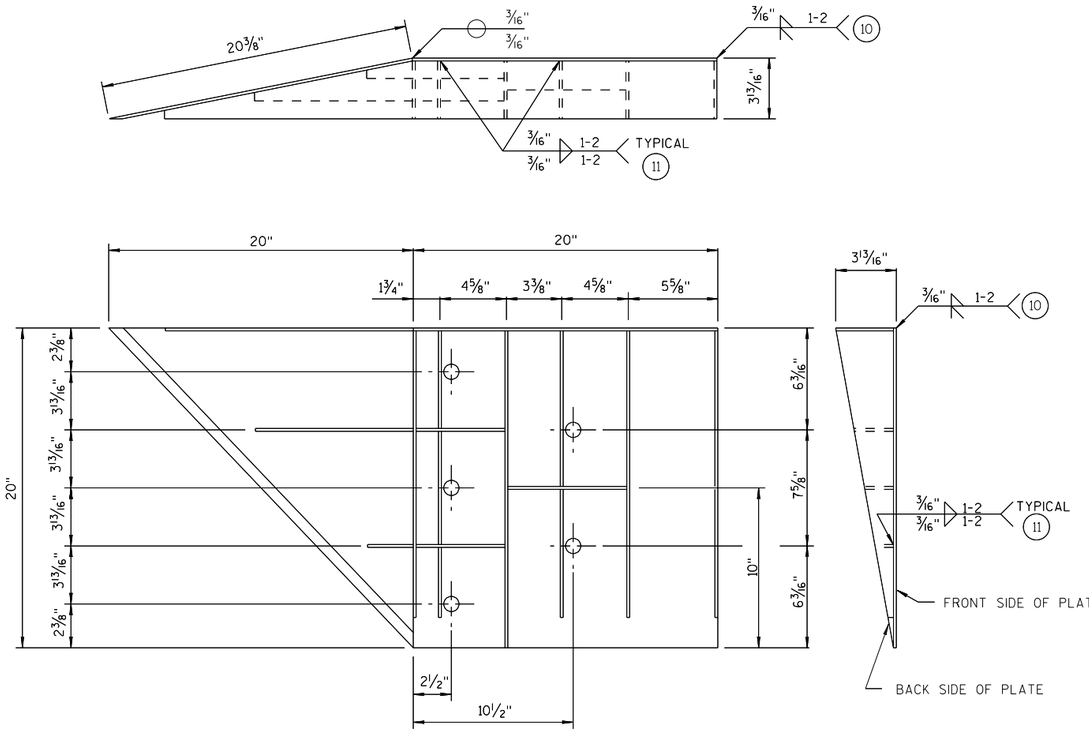
FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

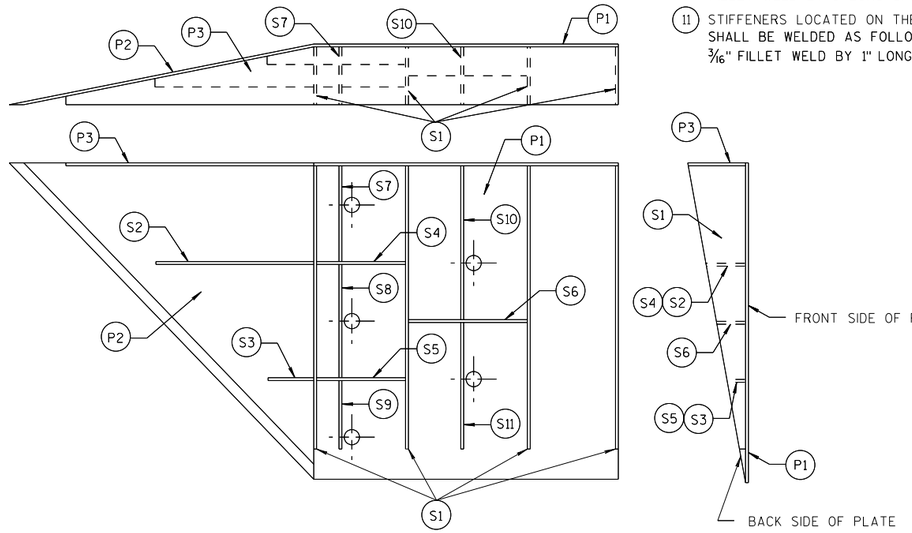


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

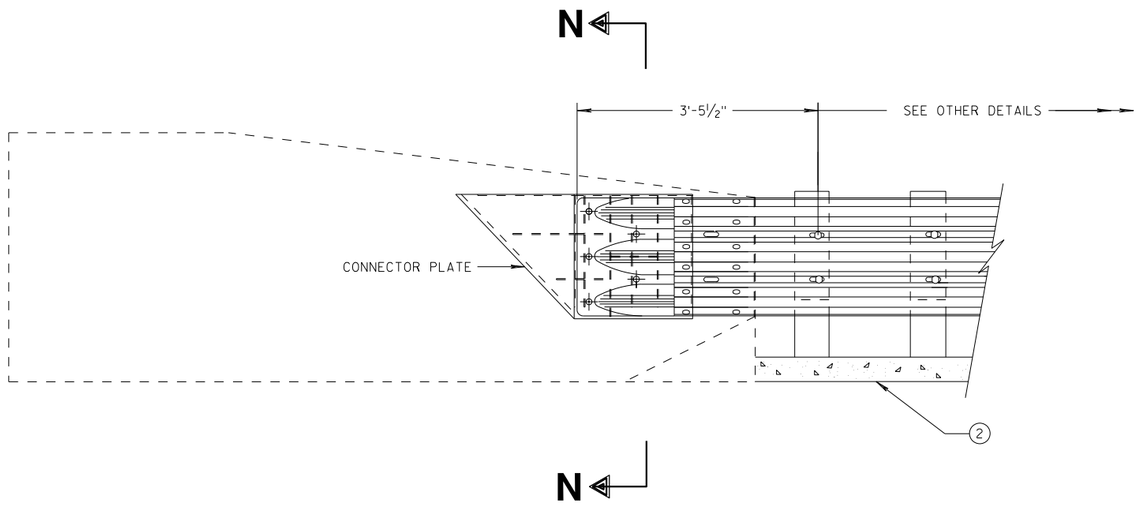
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

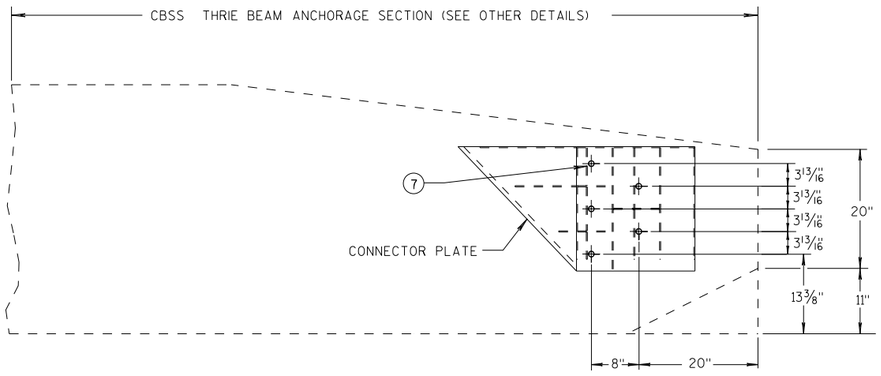
APPROVED
7/2018
DATE
/S/ Rodney Taylor
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S.D.D. 14 B 45-5i



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



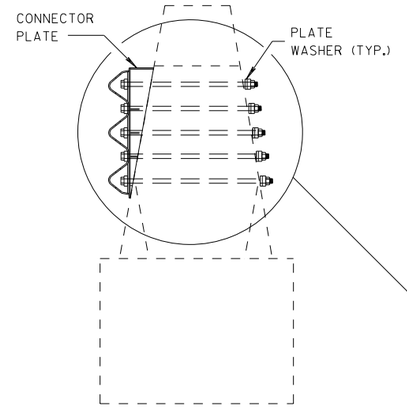
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

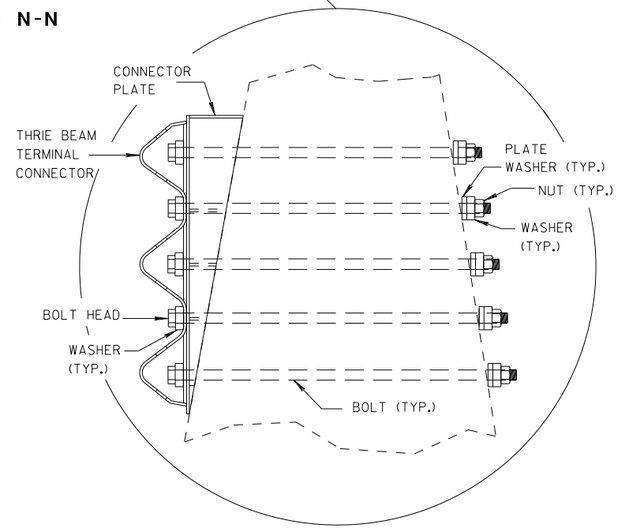
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

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SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

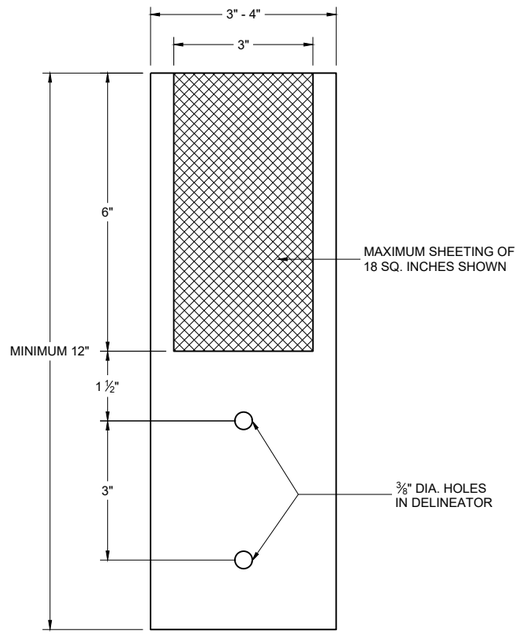
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DI UNIT SUPERVIS
NT
FHWA

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

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



4" x 12" DELINEATOR
WITH REFLECTIVE SHEETING

REFLECTOR SPACING TABLE

REFLECTOR SPACING	MINIMUM NUMBER OF REFLECTORS
100' C-C	3

DELINEATOR POST
WITH REFLECTIVE SHEETING

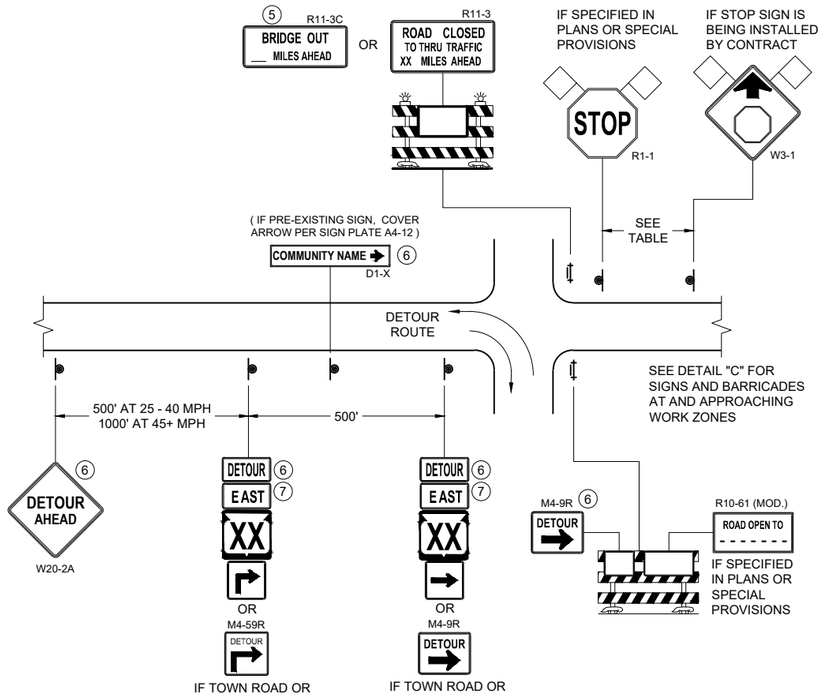
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2024
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

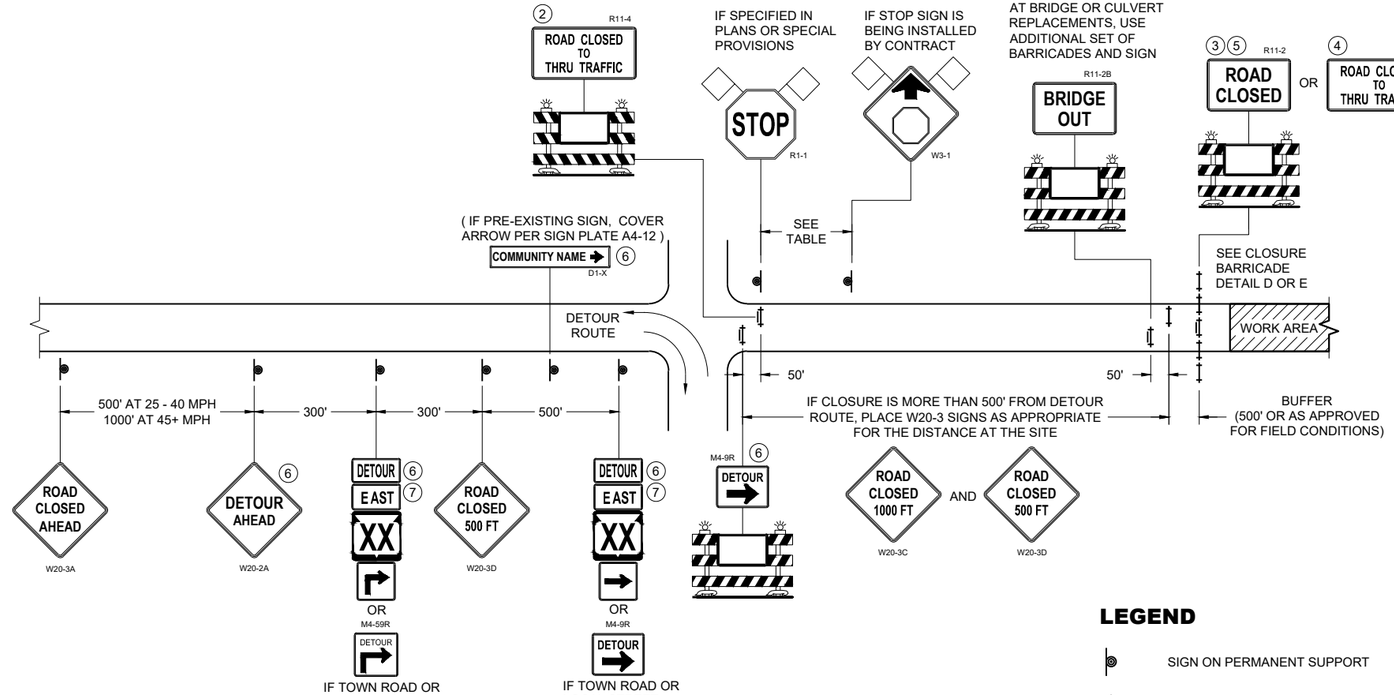
FHWA

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SDD 15A04-08e



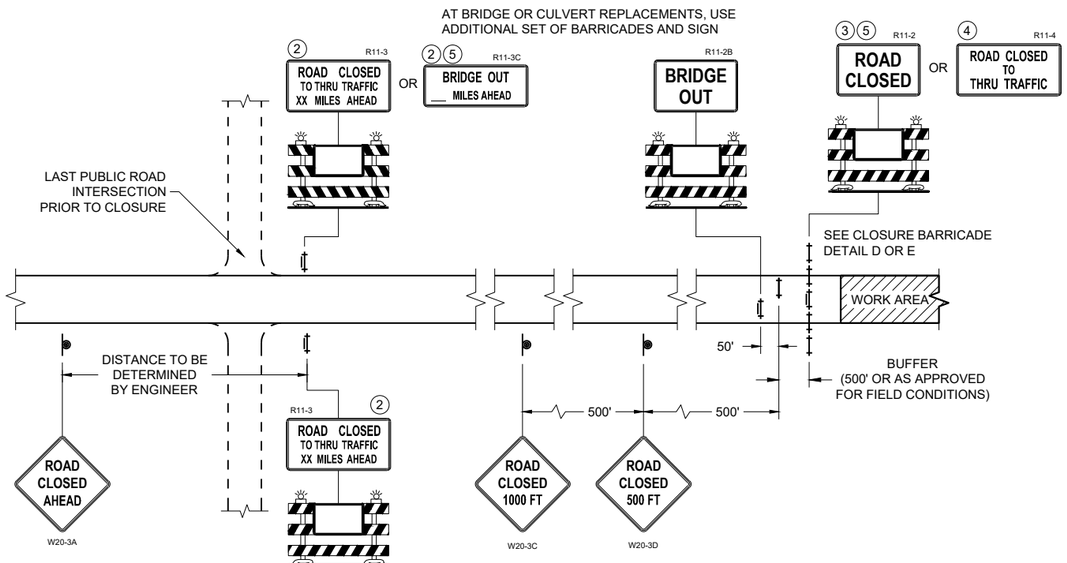
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

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)

DETOUR M4 - 8
EAST M3 - X
XX M1 - 4 OR XX M1 - 6 OR COUNTY X M1 - 5A
M05 - 1 OR M06 - 1

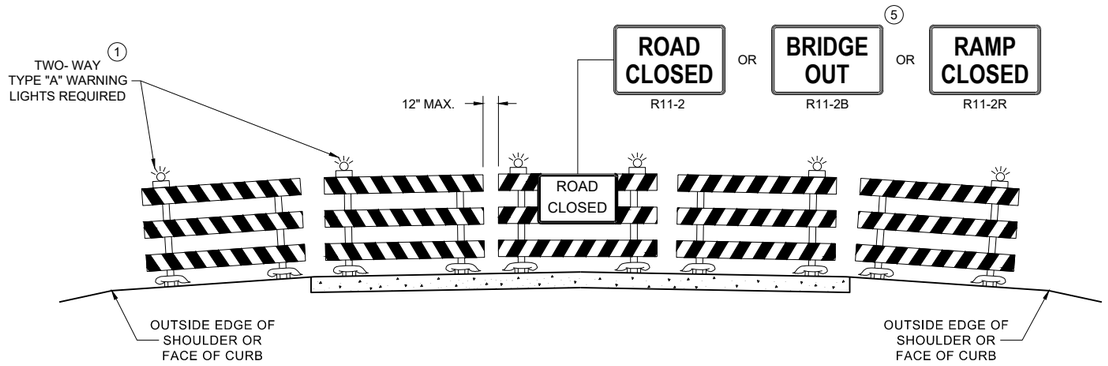
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER

FHWA

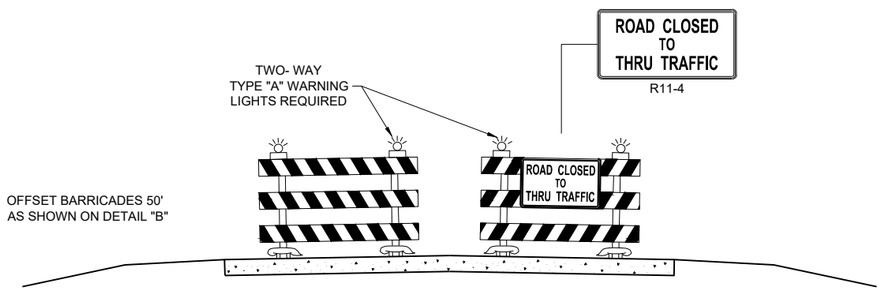
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SDD 15C02-10a



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.

PARTIAL NUMBERS ON SIGNS SHALL BE DISPLAYED AS A WHOLE NUMBER(AS NEEDED) FOLLOWED BY A FRACTION. SIGNS SHALL NOT DISPLAY NUMBERS IN DECIMAL FORM.

"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"

SIGNS PLACED ON TYPE III BARRICADES THAT ARE SIZES OTHER THAN 48"X30" SHALL HAVE A CORRUGATED POLYPROPYLENE OR POLYETHYLENE PLASTIC SIGN BASE.

(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
November 2025 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER
FHWA

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SDD 15C02-10b

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR — M4 - 8
- EAST — M3 - X
- XX — M1 - 4 OR XX — M1 - 6 OR COUNTY X — M1 - 5A
- M05 - 1 OR M06 - 1 OR M06 - 1

GENERAL NOTES

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

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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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.

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

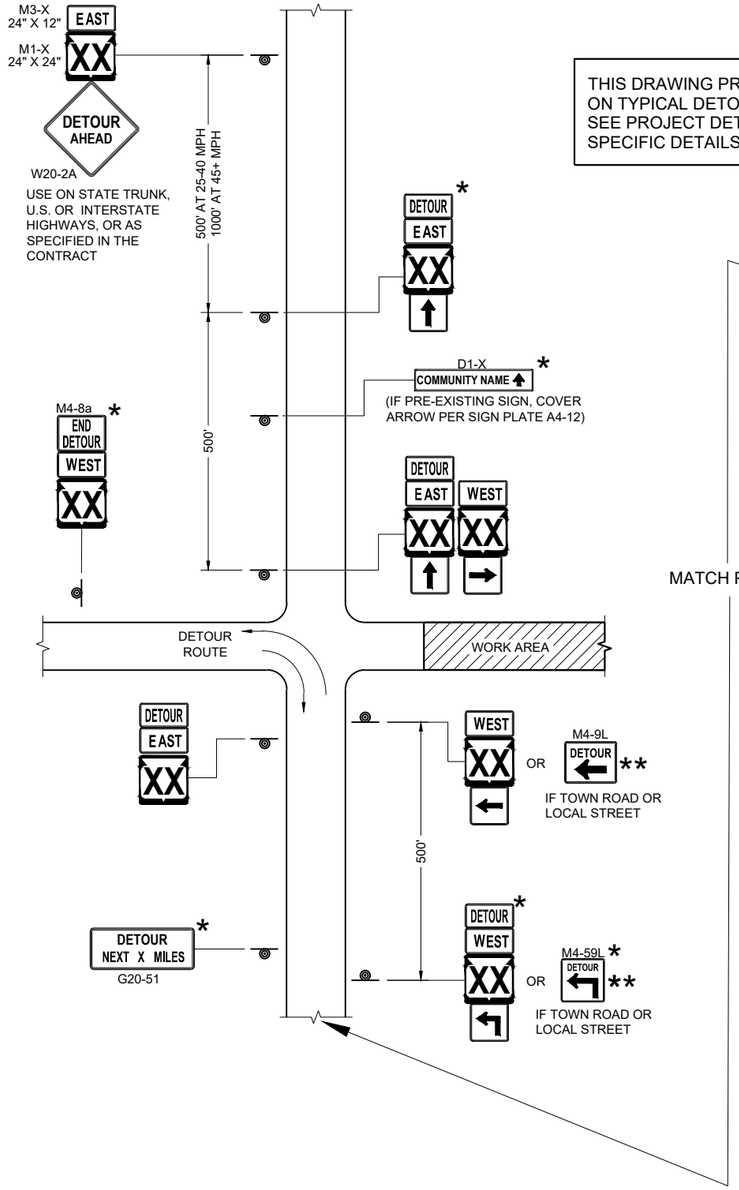
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

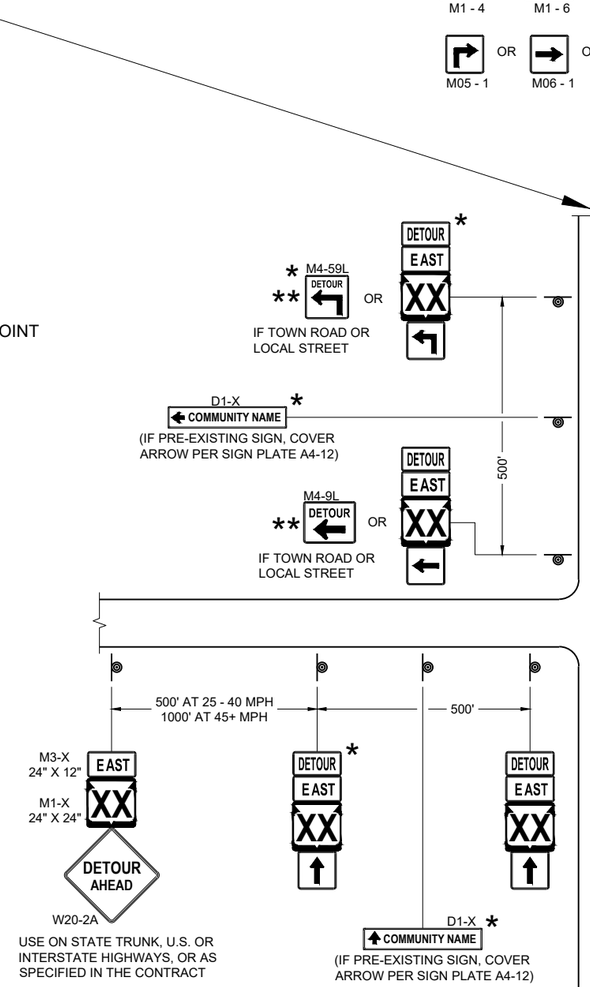
SIGN SIZES SHALL BE AS FOLLOWS:

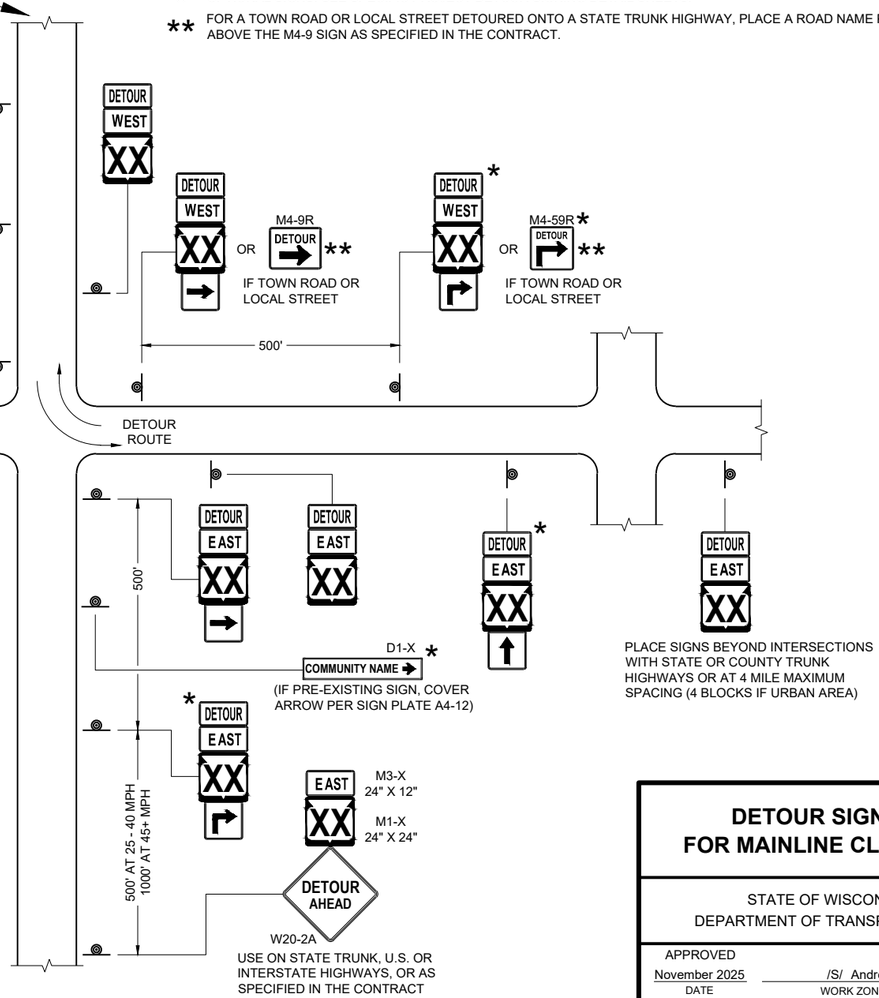
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.







SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

DETAIL F
DETOUR SIGNING

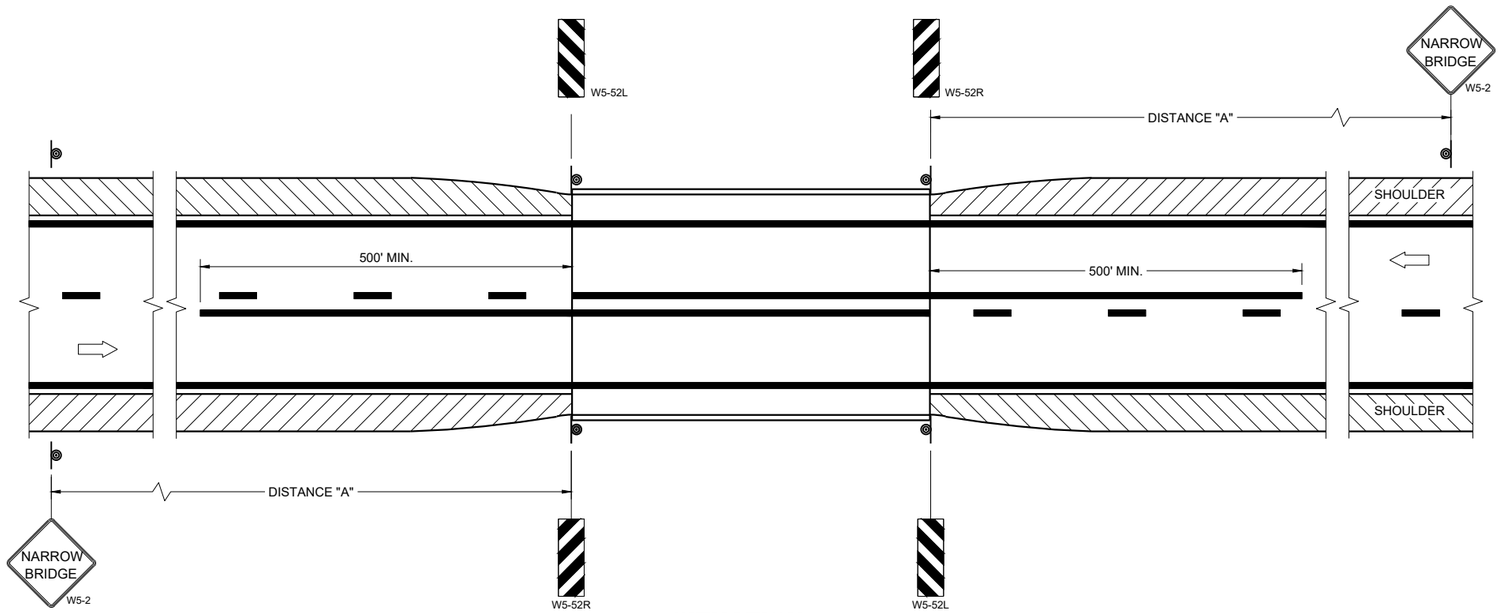
DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER

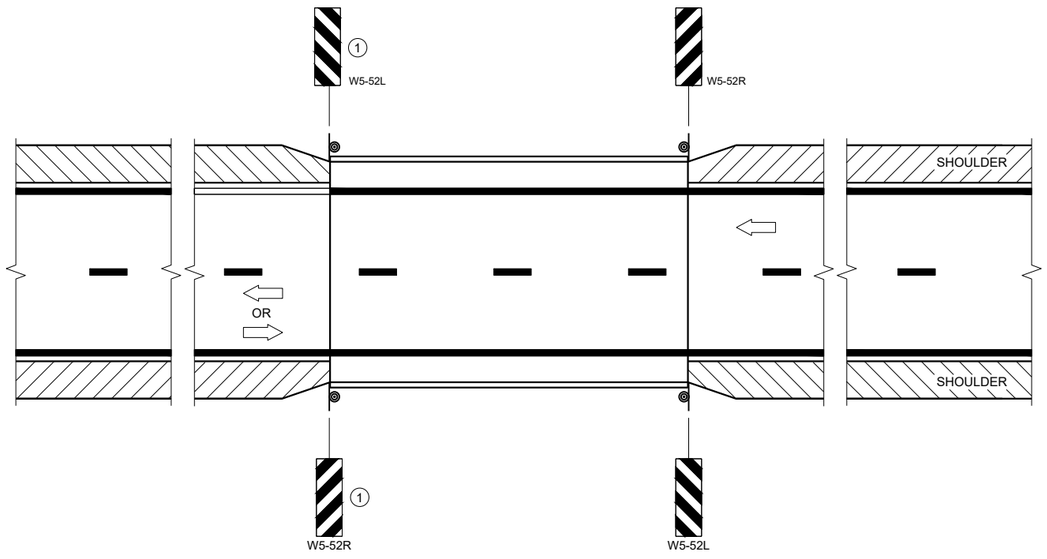
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SDD 15C02-10c



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'

SIGNING AND MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

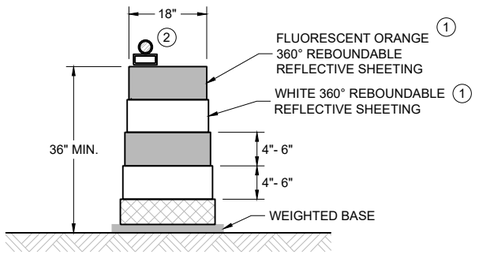
APPROVED
May 2023
DATE
/S/ Jeannie Silver
Statewide Pavement Marking Engineer
FHWA

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SDD 15C06-12

GENERAL NOTES

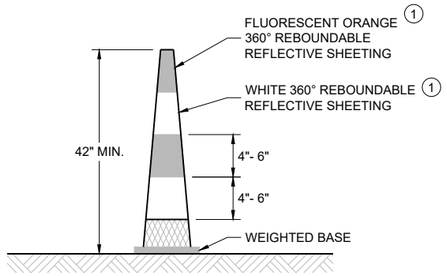
(1) REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

(2) LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



DRUM

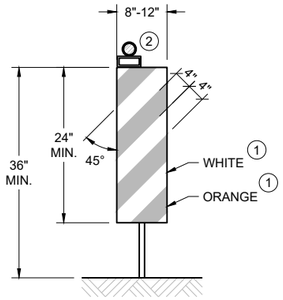
BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

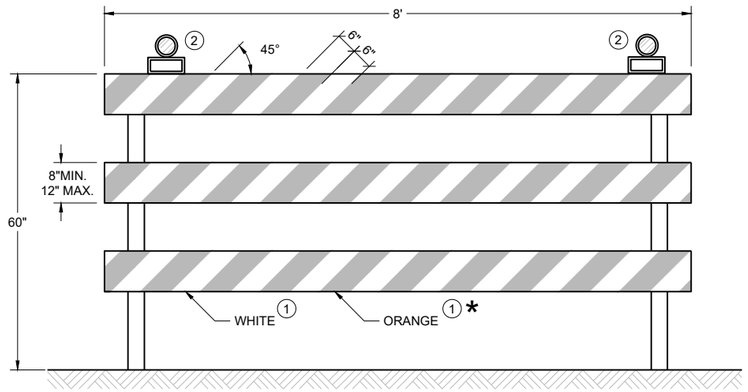
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"



VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

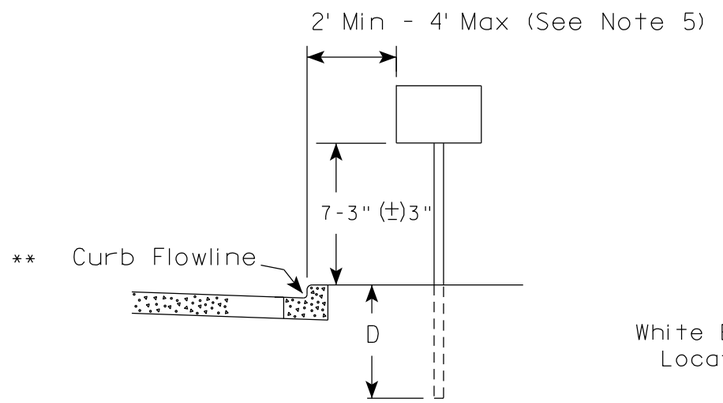
CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

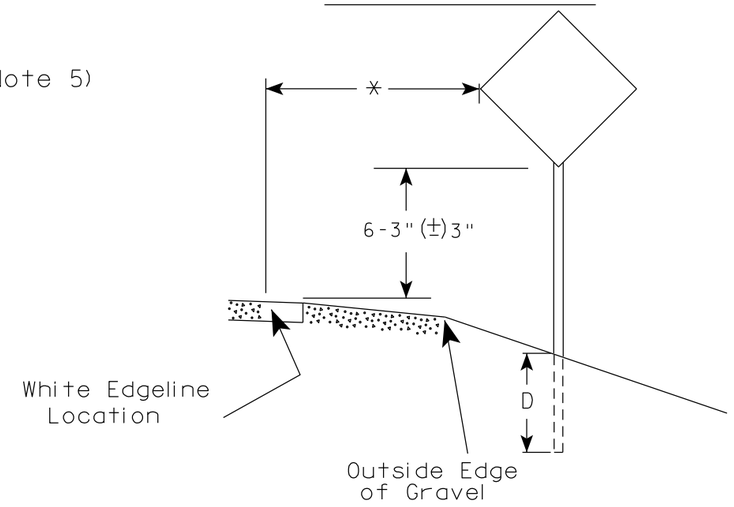
APPROVED
February 2026 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER
FHWA

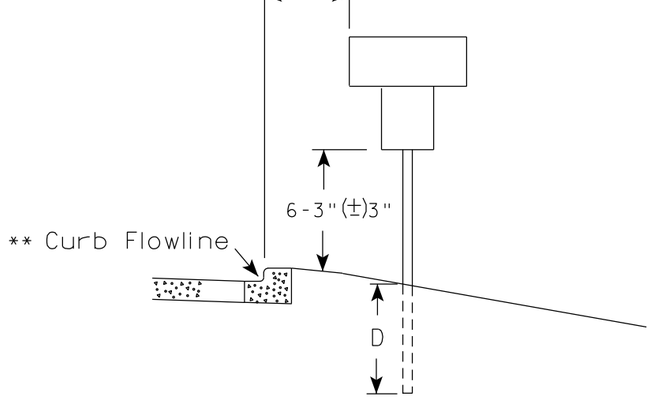
6
SDD 15C11-11b

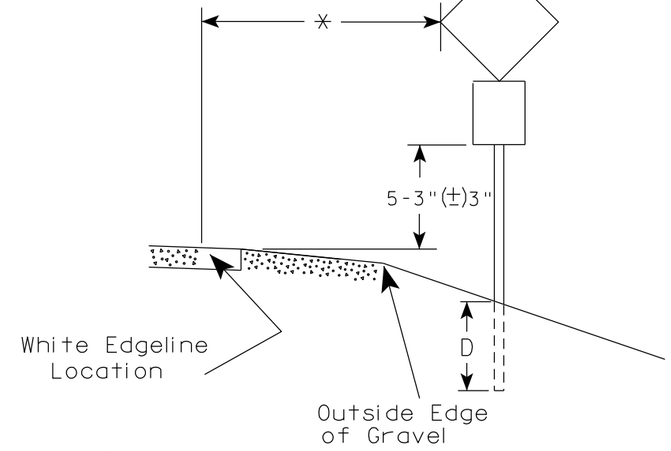
URBAN AREA



RURAL AREA (See Note 2)







** 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.

POST EMBEDMENT DEPTH

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

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" (±) 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".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directd by the Engineer.

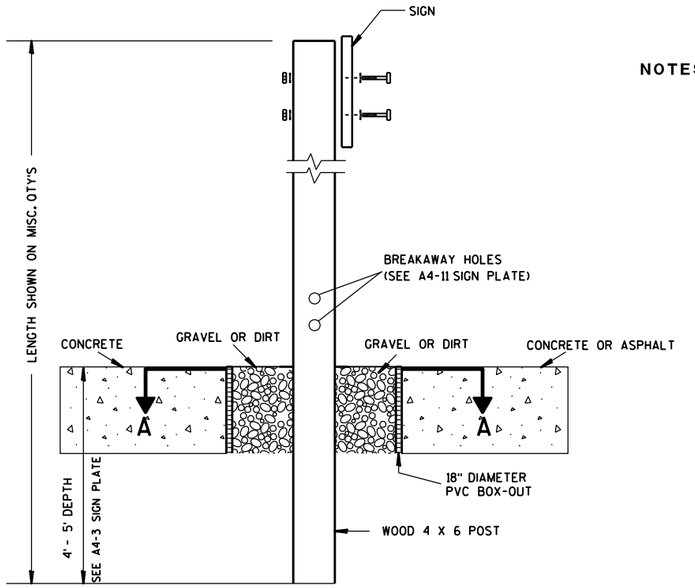
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-3.23

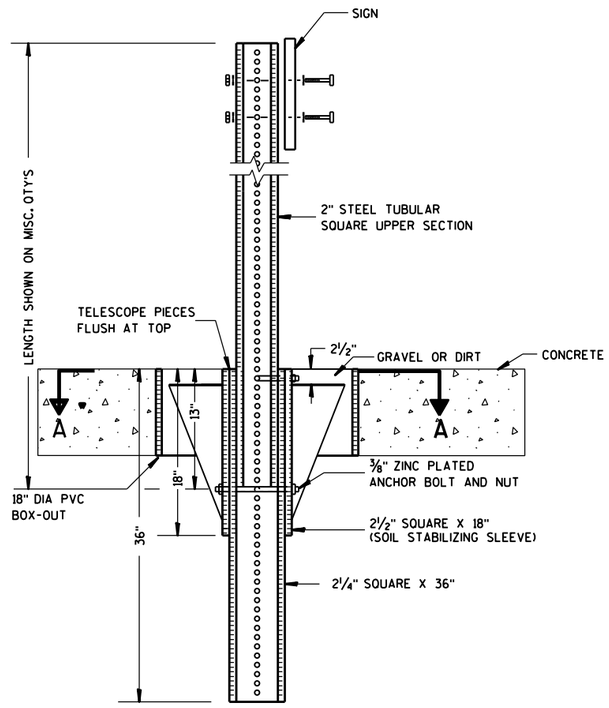
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 70	E



ELEVATION VIEW

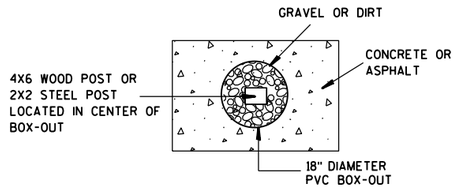
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

NOTES:
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

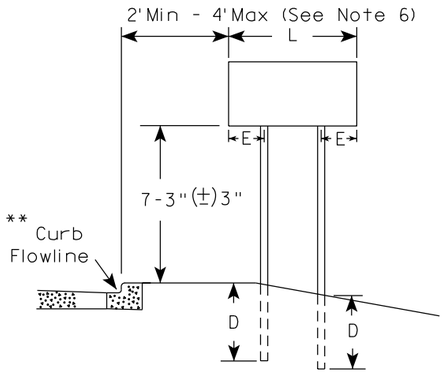
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

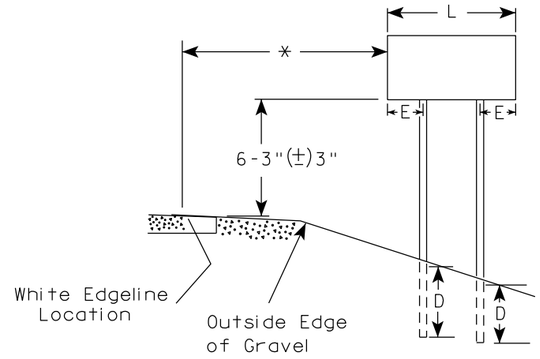
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

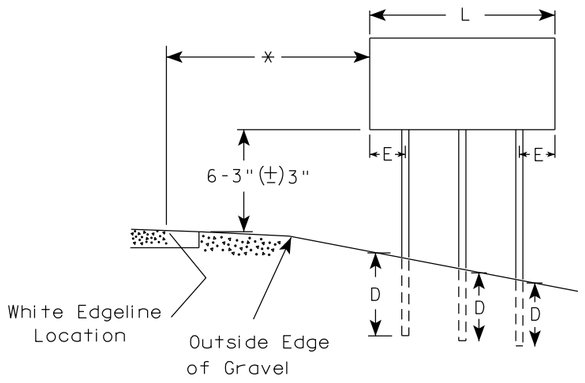
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

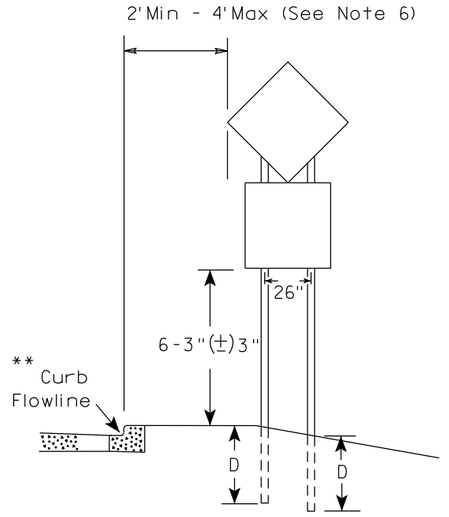
URBAN AREA



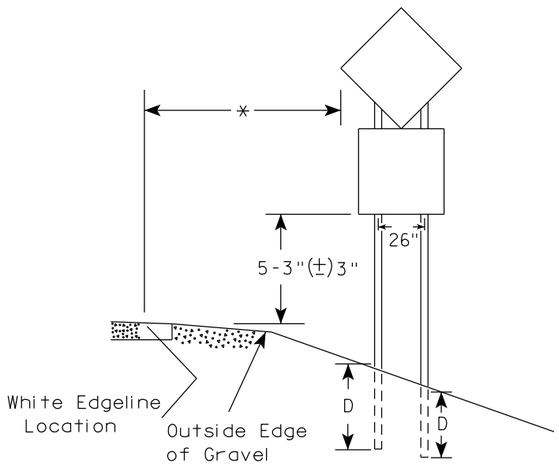
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)		
	L	E
***	Greater than 48" Less than 60"	12"
	60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), 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".

* 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.

** 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.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

POST EMBEDMENT DEPTH

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

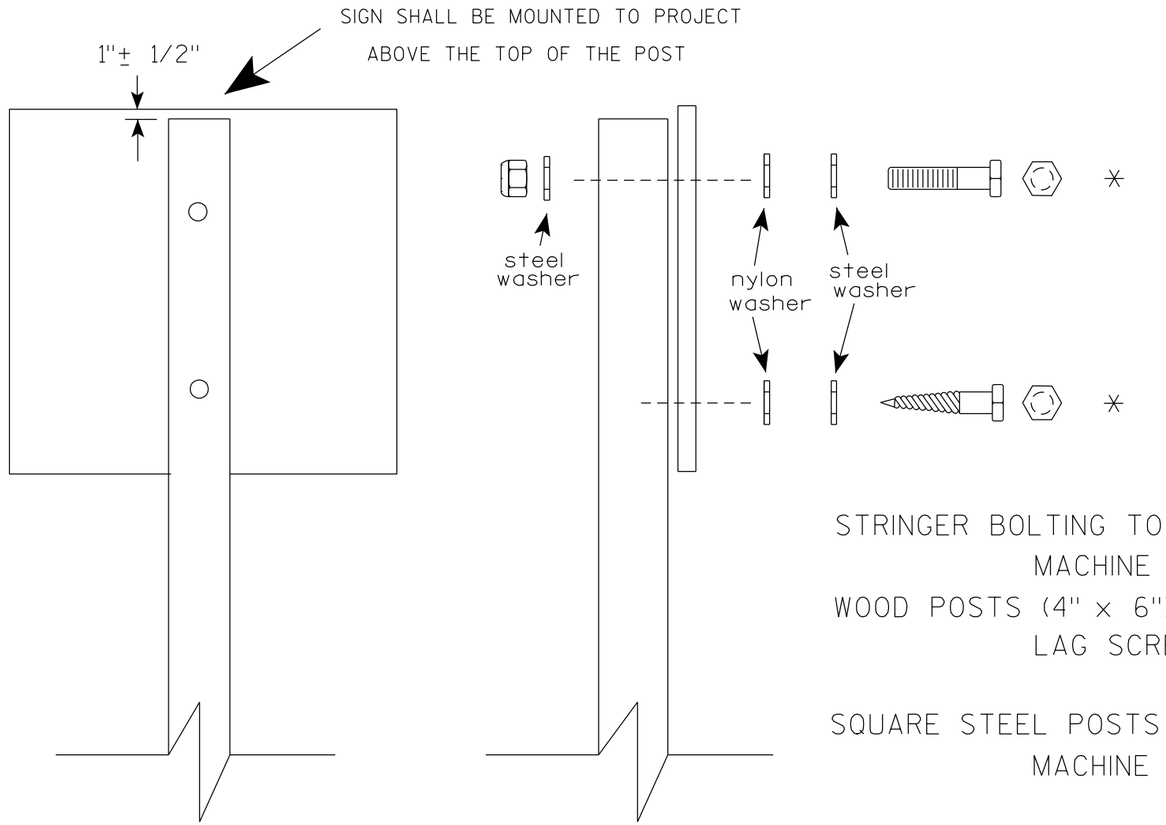
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 72	E



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

PROJECT NO:

SHEET NO: 73 E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A48.DGN PLOT DATE : 01-APRIL-2020 PLOT BY : dotc4c

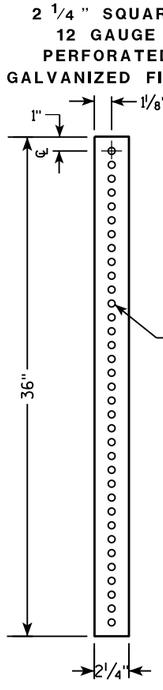
WISDOT/CADDS SHEET 42

7

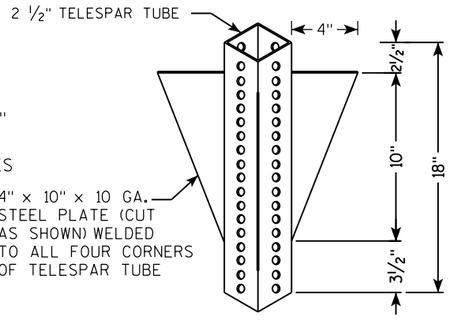
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TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

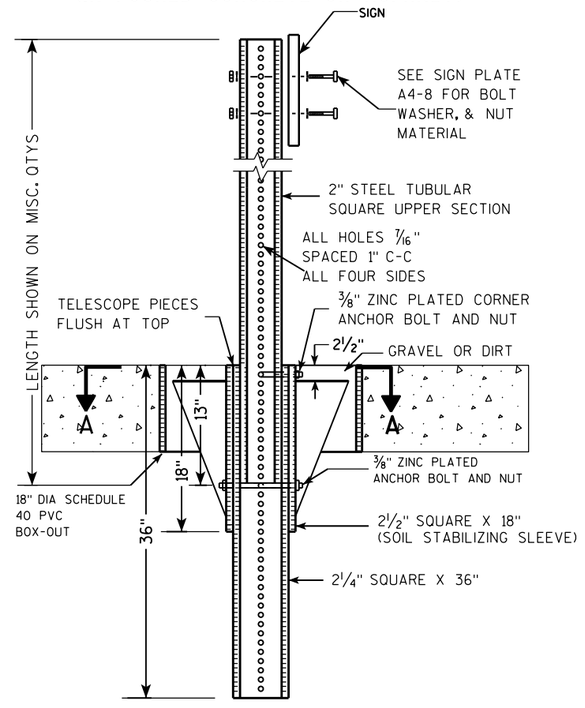
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



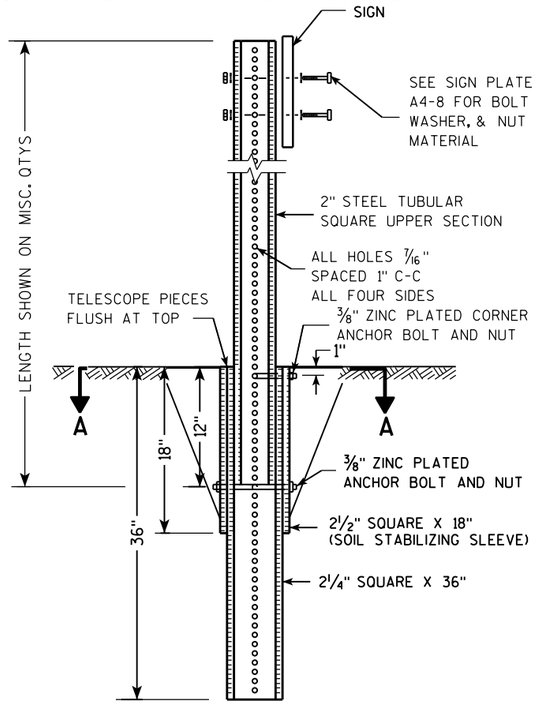
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

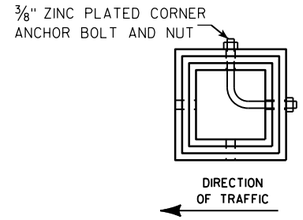


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)





SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

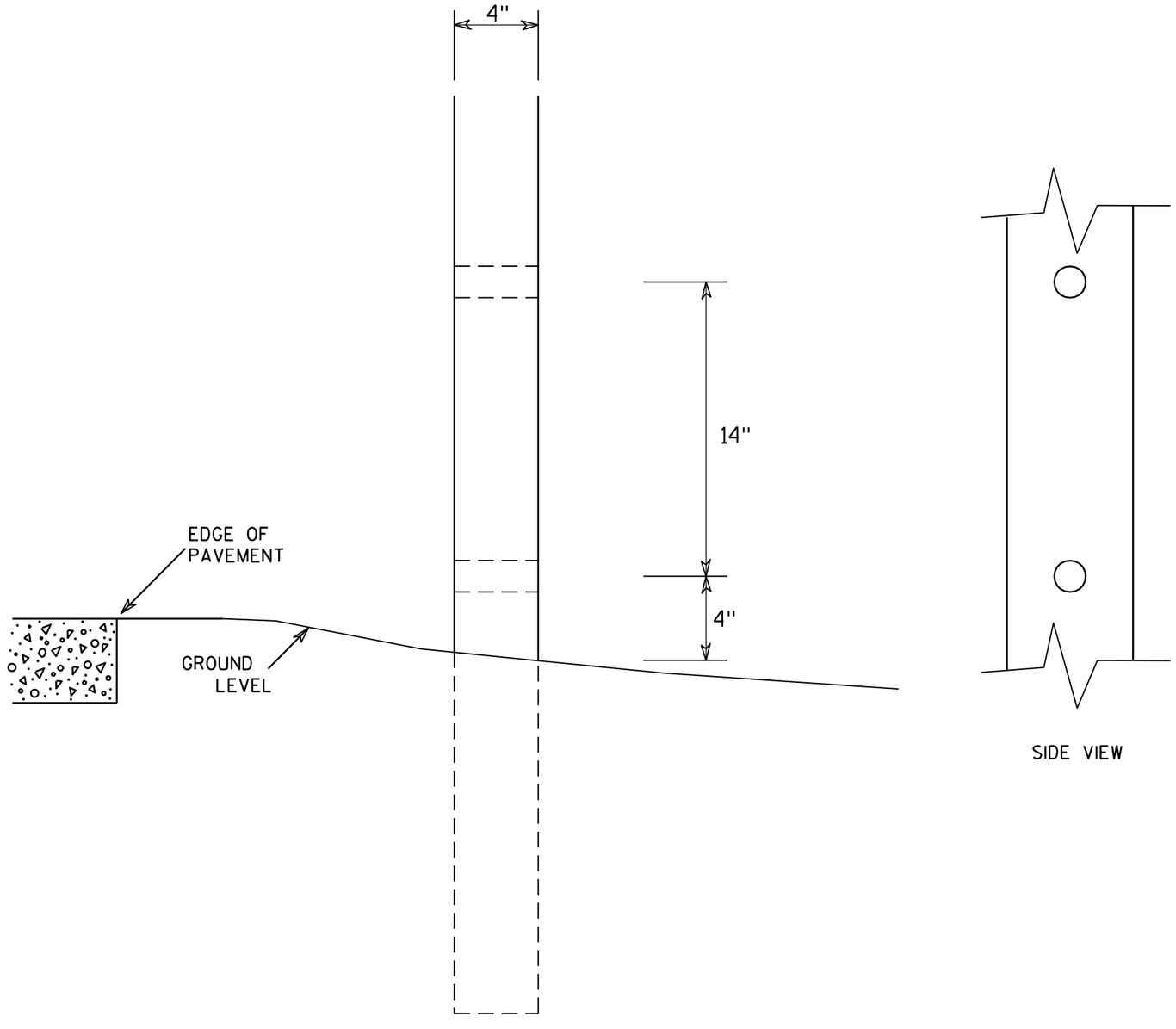
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 74 A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN PLOT DATE : 05-FEB-2015 17:09 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000

WISDOT/CADDS SHEET 42



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

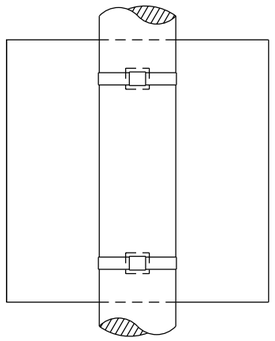
APPROVED Chester J Spang
for State Traffic Engineer

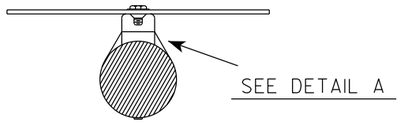
DATE 3/27/97 PLATE NO. A4-11.2

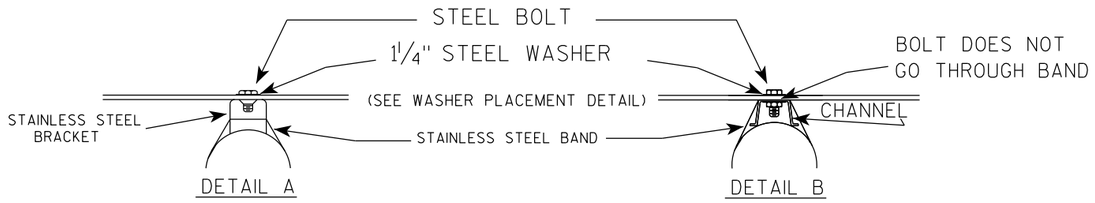
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 75	E

BANDING

SINGLE SIGN



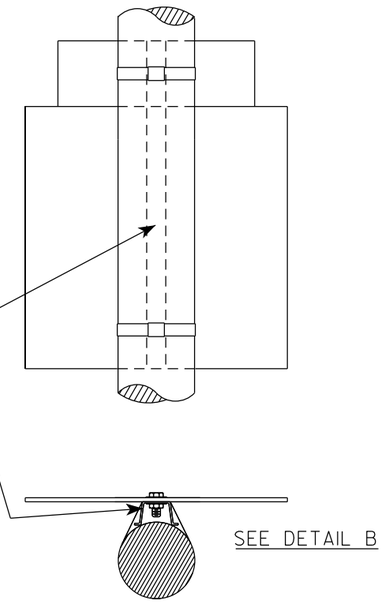




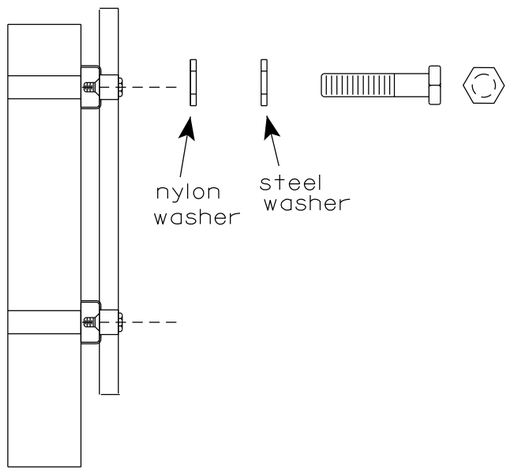
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be ¾" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



WASHER PLACEMENT



WASHERS (ALL POSTS) -
1-1/4" O.D. X ⅜" I.D. X 1/16" STEEL
1-1/4" O.D. X ⅜" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

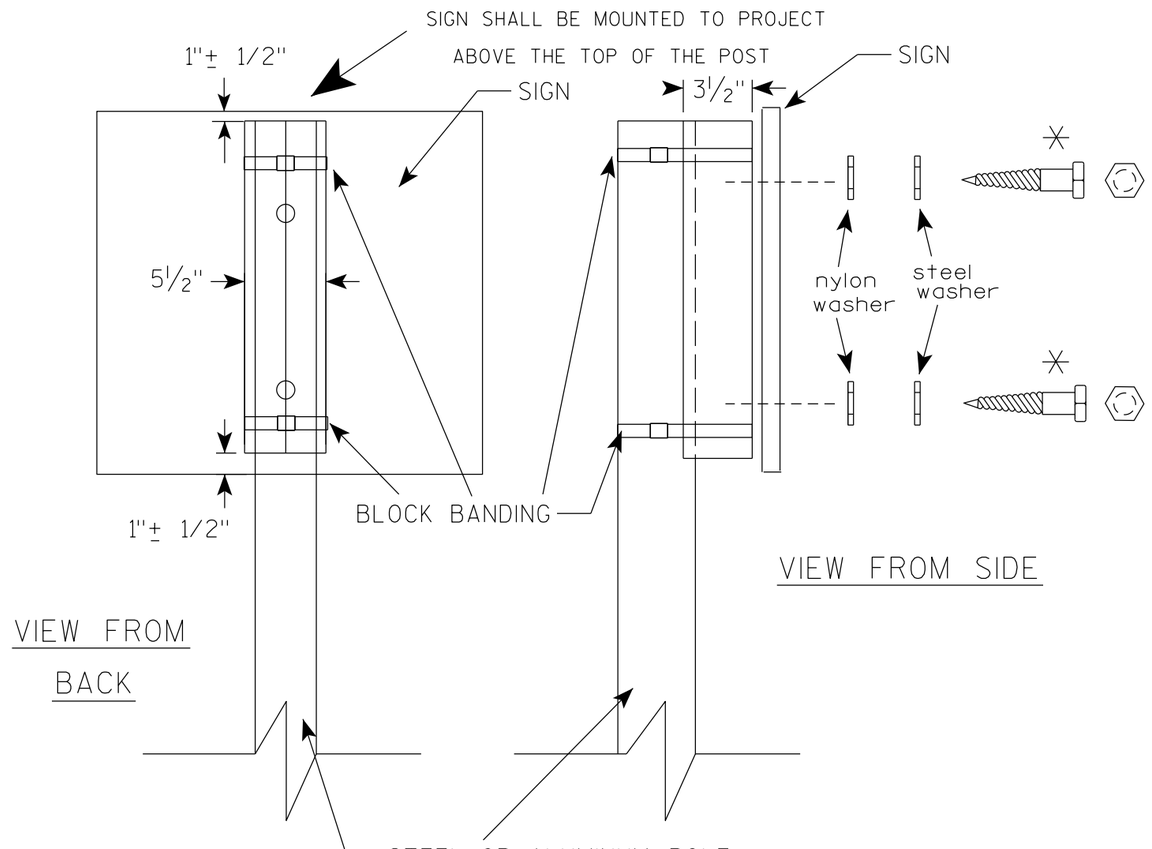
DATE 6/10/19 PLATE NO. A5-9.4

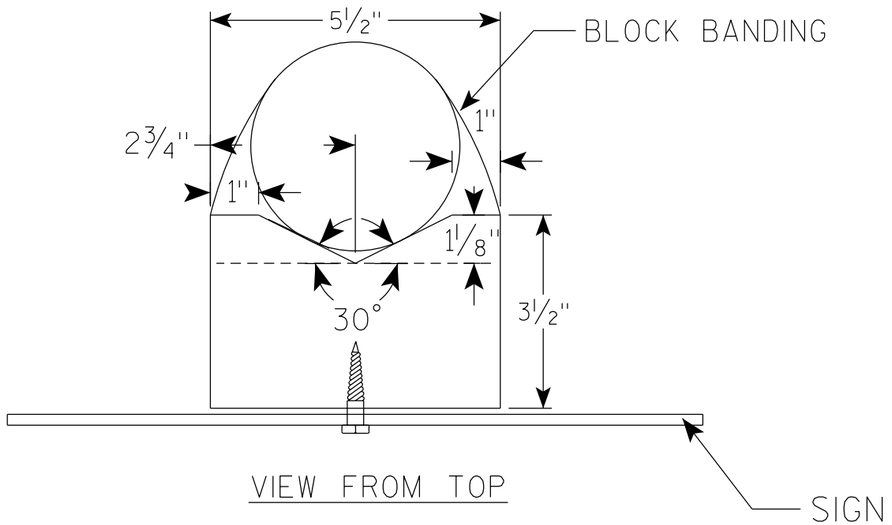
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 76	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A59.dgn PLOT DATE : 10-JUN 2019 4:10 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

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GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, ¾" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORNALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

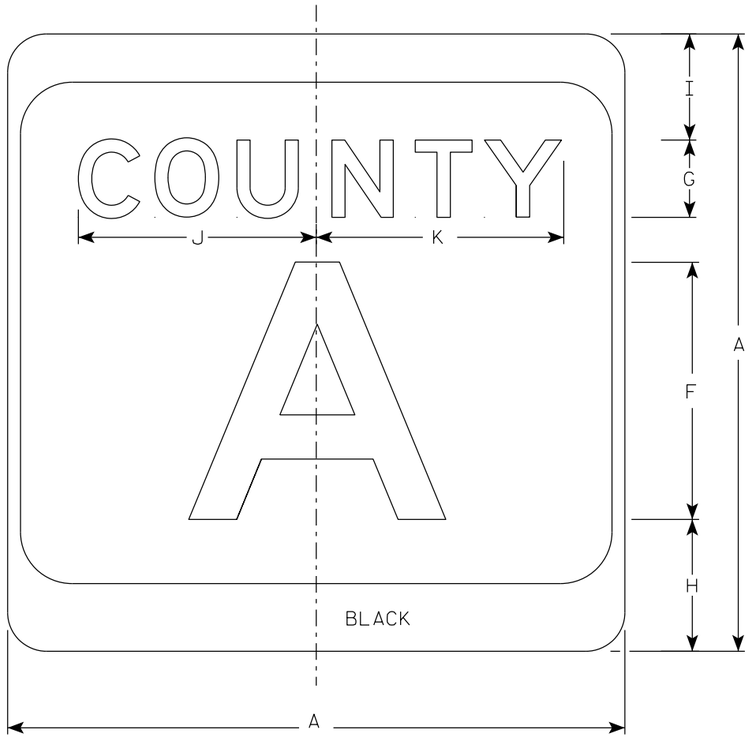
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

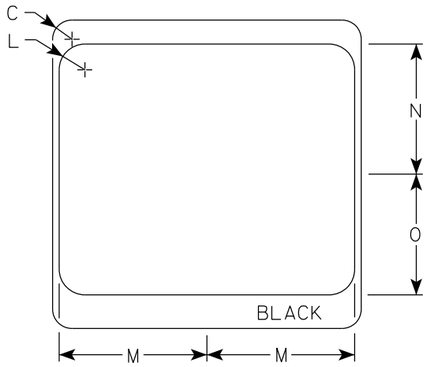
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 77 E

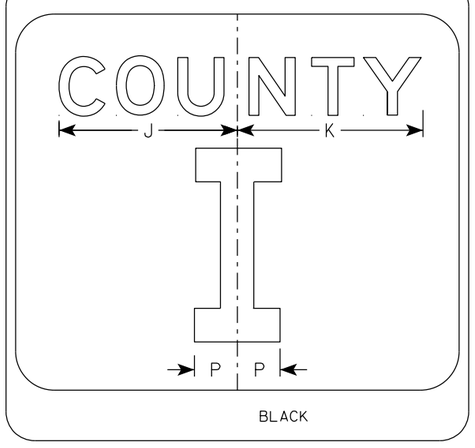


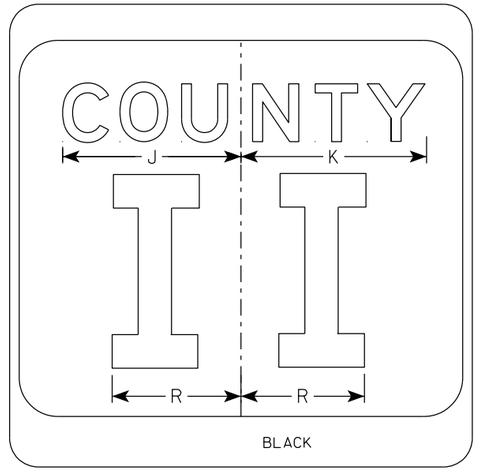
M1-5A



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White & Black
   Message - Black
3. Message Series - see Note 4
4. Message Series E for 1 letter.
   Message Series D for 2 letters unless message is too big then Series C.
   Message Series C for 3 letters unless message is too big then Series B.
5. Substitute appropriate letters & optically center to achieve proper balance.





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																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
2M	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

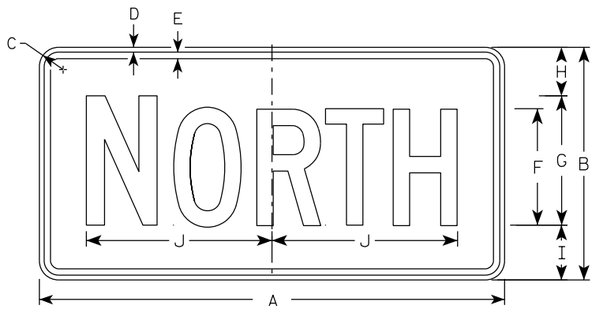
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/8/2022 PLATE NO. M1-5A.9

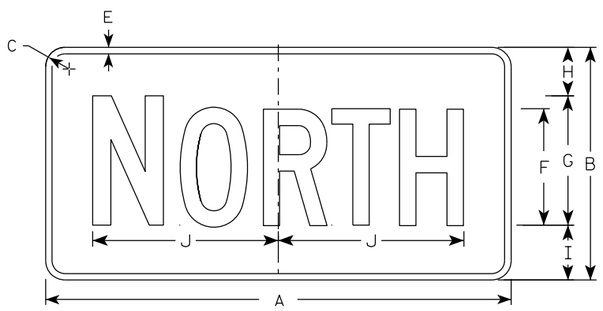
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M15A.dgn PLOT DATE : 8-NOV 2022 8:26 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

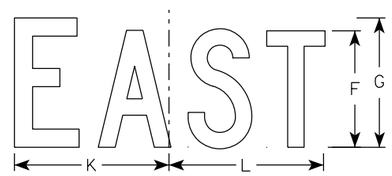
7



M3-1
MM3-1
MP3-1



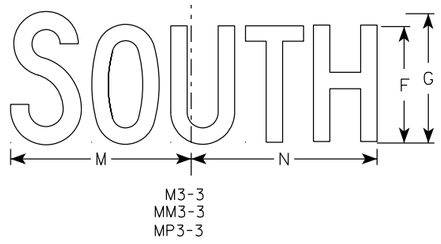
MB3-1
MK3-1
MN3-1



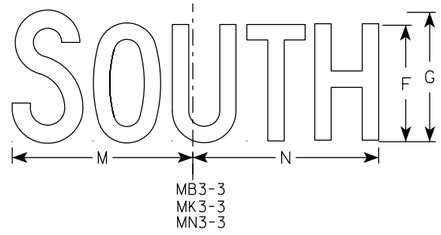
M3-2
MM3-2
MP3-2



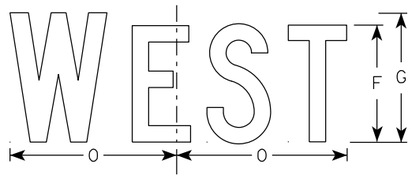
MB3-2
MK3-2
MN3-2



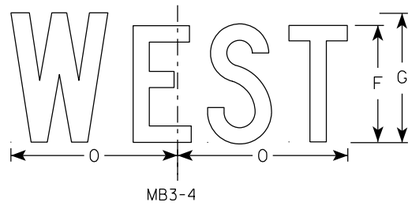
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H Reflective
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. 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.
5. M3-1 thru M3-4 Background - White
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White
   MK3-1 thru MK3-4 Background - Green
   Message - White
   MM3-1 thru MM3-4 Background - White
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White
   MP3-1 thru MP3-4 Background - White
   Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

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	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
2M	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
3	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
4	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
5	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5

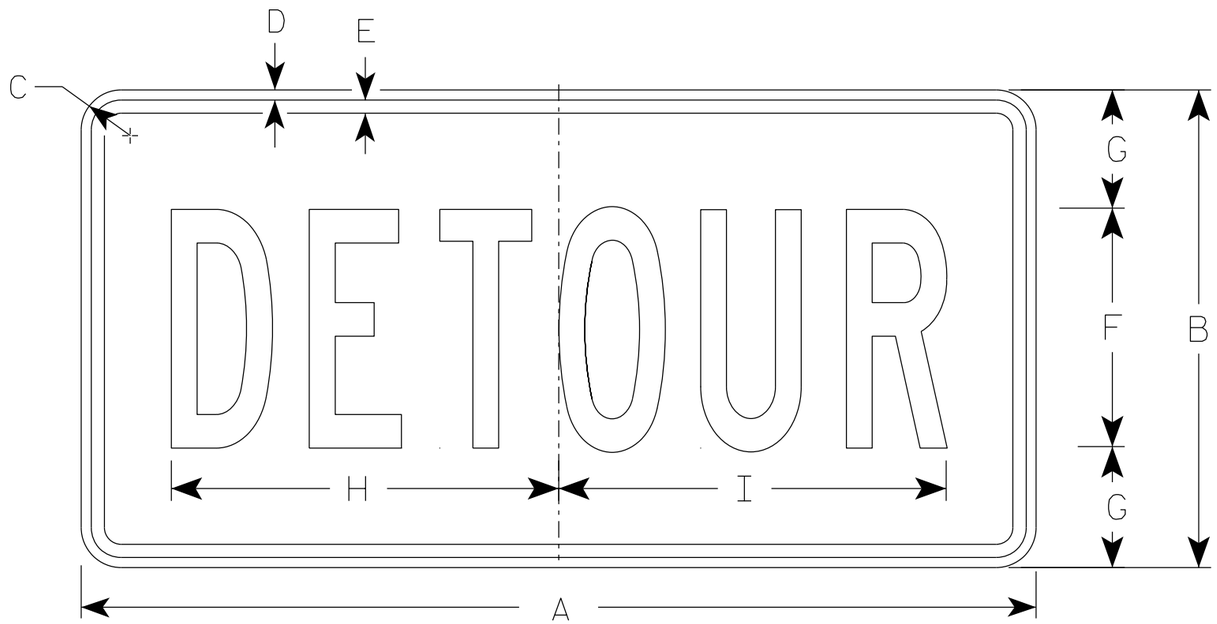
STANDARD SIGNS
M3-1 THRU M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 2/8/2023 PLATE NO. M3-1.15

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 79 | E



M4-8

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - B
4. 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.

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																											
2	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN
M4-8

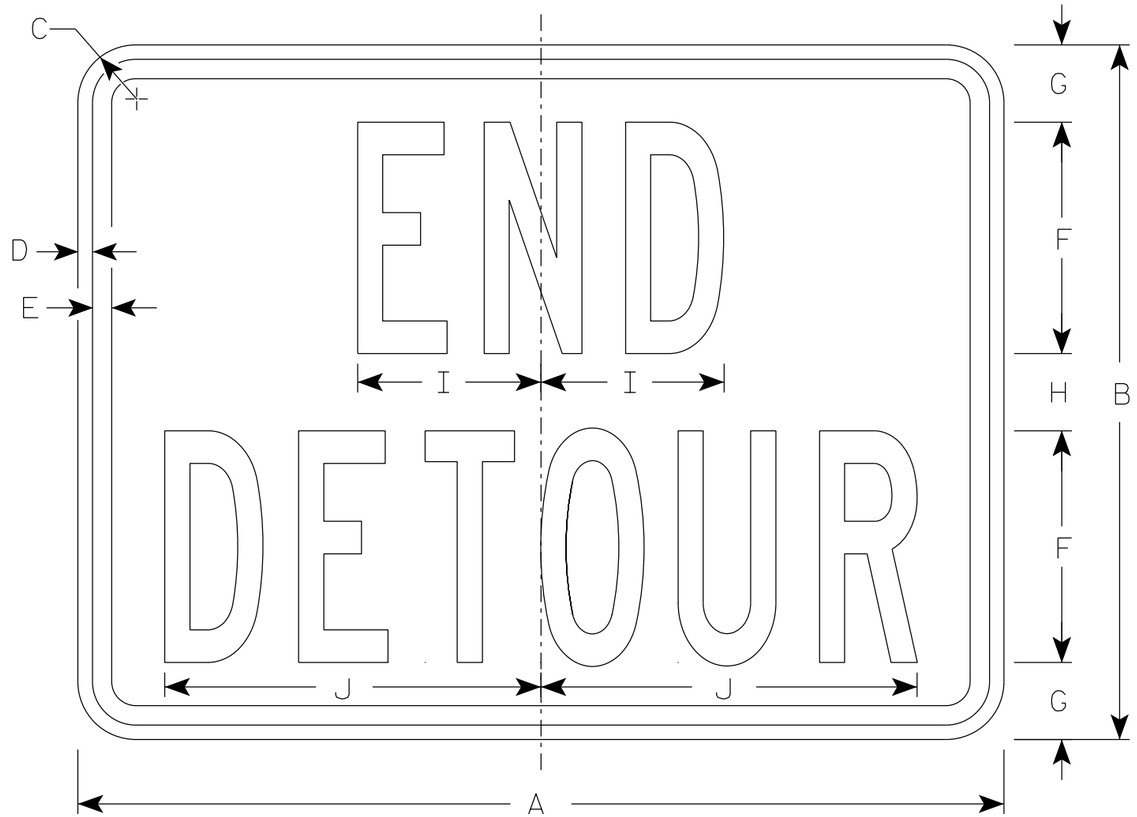
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M48.dgn PLOT DATE : 9-FEB 2023 7:38 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42



M4-8A

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - B
4. 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.

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																											
2	24	18	1 ½	⅜	½	6	2	2	4 ¾	9 ¾																	3.0
2M	24	18	1 ½	⅜	½	6	2	2	4 ¾	9 ¾																	3.0
3	30	24	1 ½	⅜	½	8	2 ½	3	6 ¾	13																	5.0
4	30	24	1 ½	⅜	½	8	2 ½	3	6 ¾	13																	5.0
5	30	24	1 ½	⅜	½	8	2 ½	3	6 ¾	13																	5.0

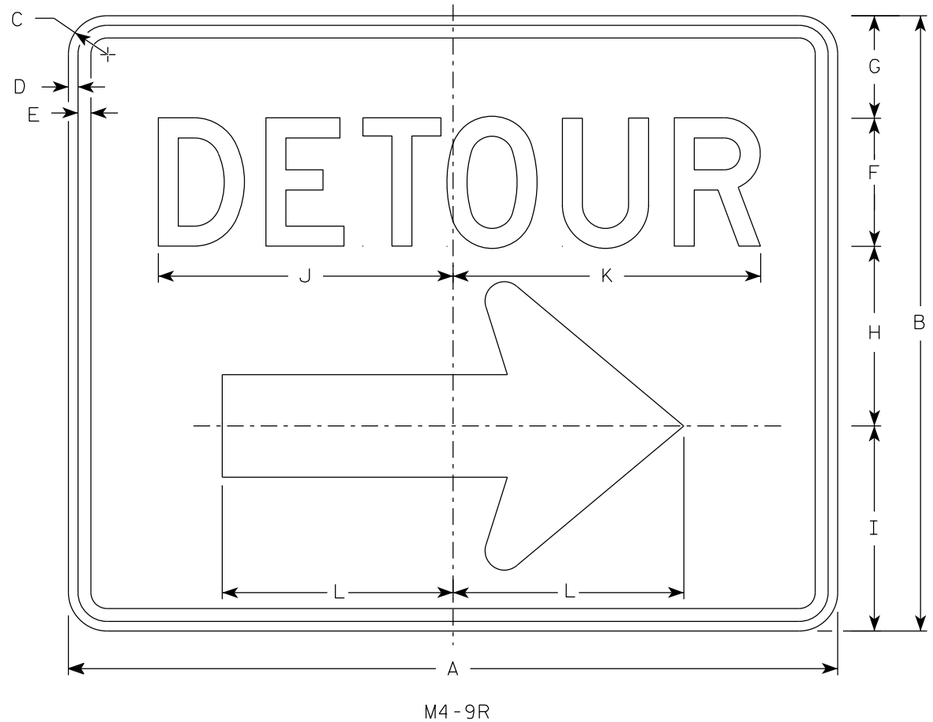
STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8A.4

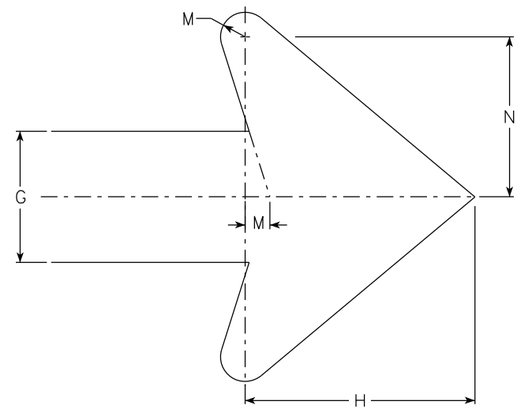
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 81 | E



M4-9R

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - D
4. 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. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

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																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

STANDARD SIGN
M4-9 R & L

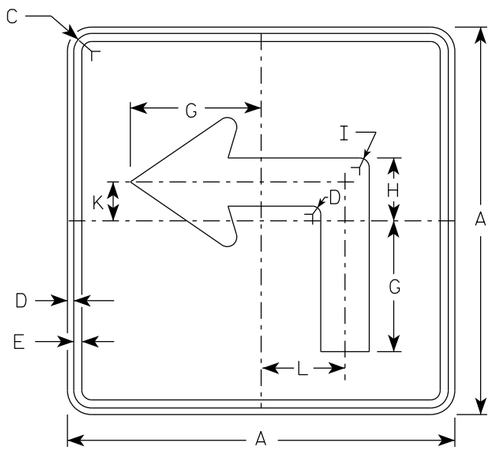
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

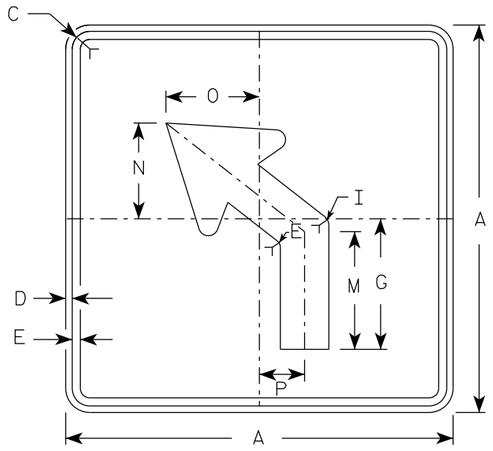
DATE 2/9/2023 PLATE NO. M4-9R.6

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

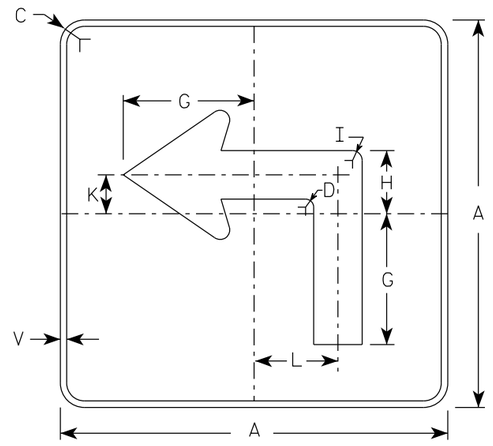
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M49R.dgn PLOT DATE : 21-MARCH 2023 1:40 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42



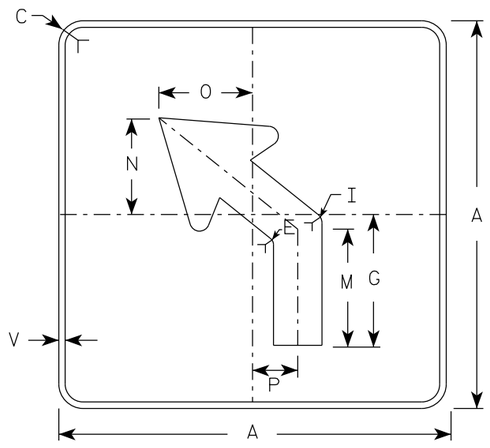
M5-1L
MM5-1L
MO5-1L
MP5-1L



M5-2L
MM5-2L
MO5-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L

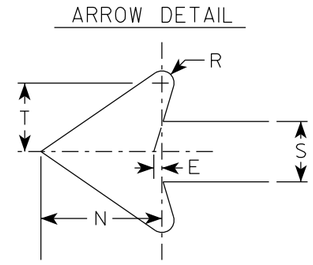


MB5-2L
MK5-2L
MN5-2L
MR5-2L

NOTES

1. Signs are Type II - Type H reflective except as shown
2. Color:
   Background - See note 4
   Message - See note 4
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. M5-1 and M5-2 Background - White
   Message - Black
   MB5-1 and MB5-2 Background - Blue
   Message - White
   MK5-1 and MK5-2 Background - Green
   Message - White
   MM5-1 and MM5-2 Background - White
   Message - Green
   MN5-1 and MN5-2 Background - Brown
   Message - White
   MO5-1 and MO5-2 Background - Orange - Type F Reflective
   Message - Black
   MP5-1 and MP5-2 Background - White
   Message - Blue
   MR5-1 and MR5-2 Background - Brown
   Message - Yellow
5. M5-1R same as M5-1L except arrow points right.
6. M5-2R same as M5-2L except arrow tilts right.

ARROW DETAIL



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	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

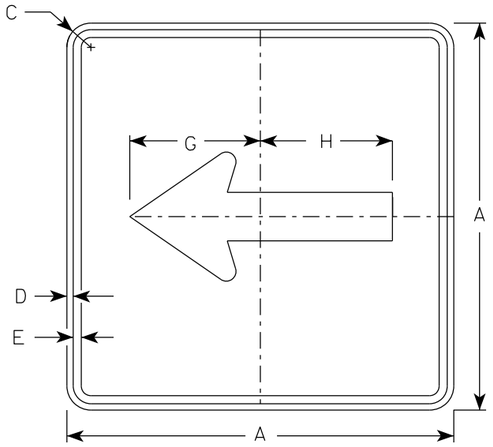
STANDARD SIGN
M5-1 & M5-2

WISCONSIN DEPT OF TRANSPORTATION

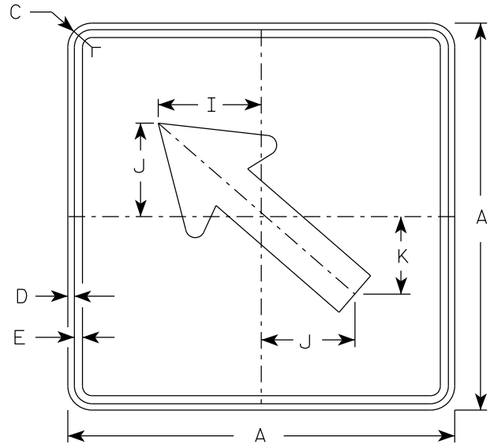
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/13/2023 PLATE NO. M5-1.15

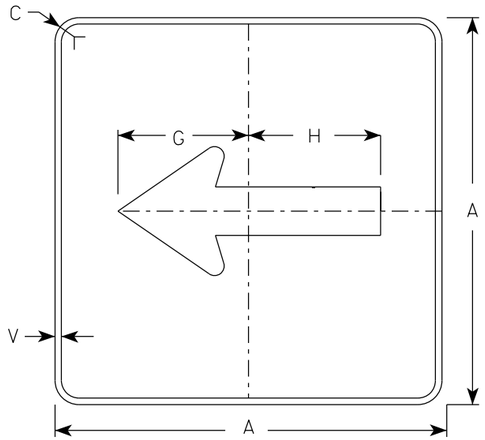
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 83 | E



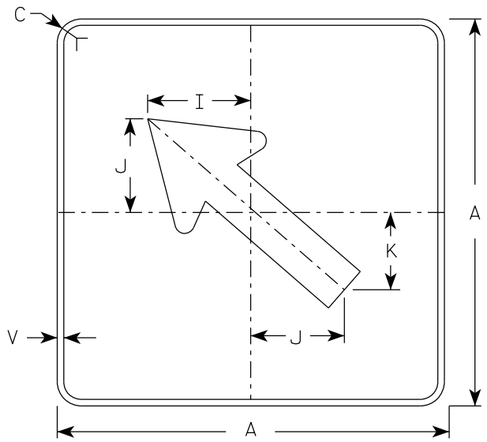
M6-1
MM6-1
MO6-1
MP6-1



M6-2
MM6-2
MO6-2
MP6-2



MB6-1
MK6-1
MN6-1
MR6-1

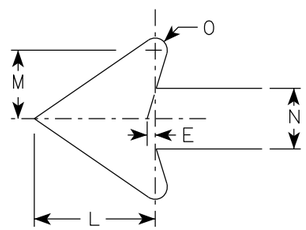


MB6-2
MK6-2
MN6-2
MR6-2

NOTES

1. Signs are Type II - Type H Reflective except as Shown
2. Color:
   Background - See note 4
   Message - See note 4
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. M6-1 and M6-2 Background - White
   Message - Black
   MB6-1 and MB6-2 Background - Blue
   Message - White
   MK6-1 and MK6-2 Background - Green
   Message - White
   MM6-1 and MM6-2 Background - White
   Message - Green
   MN6-1 and MN6-2 Background - Brown
   Message - White
   MO6-1 and MO6-2 Background - Orange - Type F Reflective
   Message - Black
   MP6-1 and MP6-2 Background - White
   Message - Blue
   MR6-1 and MR6-2 Background - Brown
   Message - Yellow

ARROW DETAIL



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	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
4	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
5	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25

STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

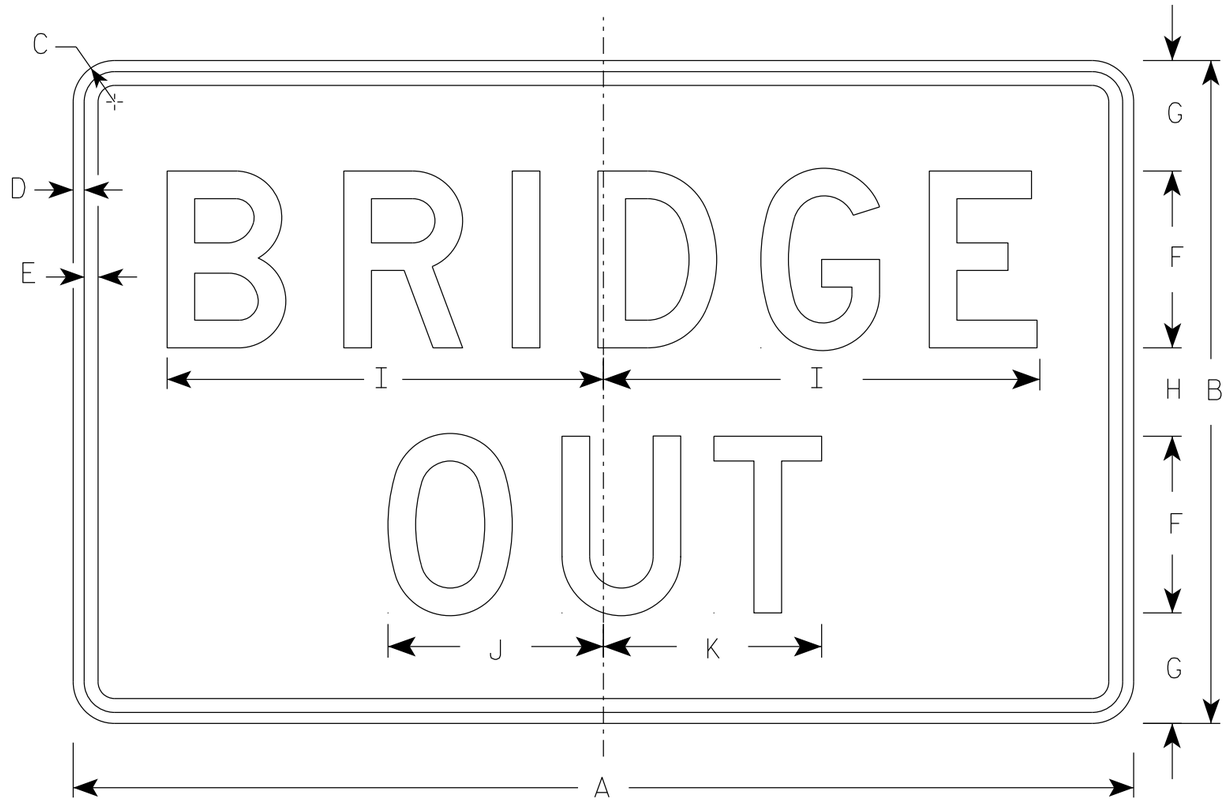
APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 2/13/2023 PLATE NO. M6-1.16

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 84 | E

7

7



R11-2B

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. 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.

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	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

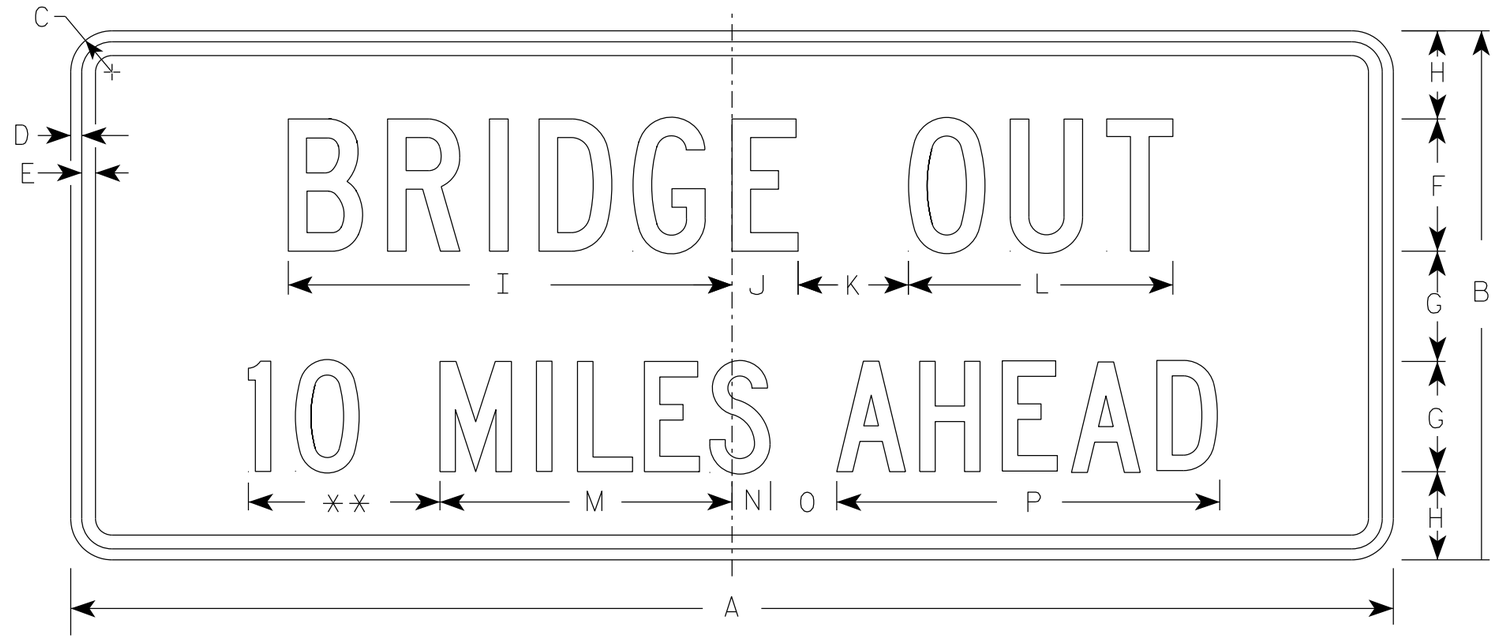
DATE 2/5/24 PLATE NO. R11-2B.3

PROJECT NO:

SHEET NO: 85 E

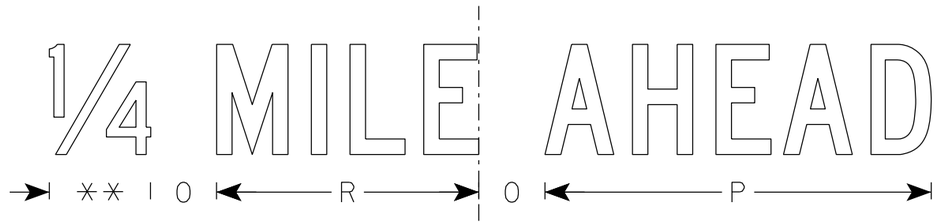
NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. 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.
5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3C

** See Note 5



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	36	15	1 1/2	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4		7 1/8									3.75
2S	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
2M	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN
R11-3C

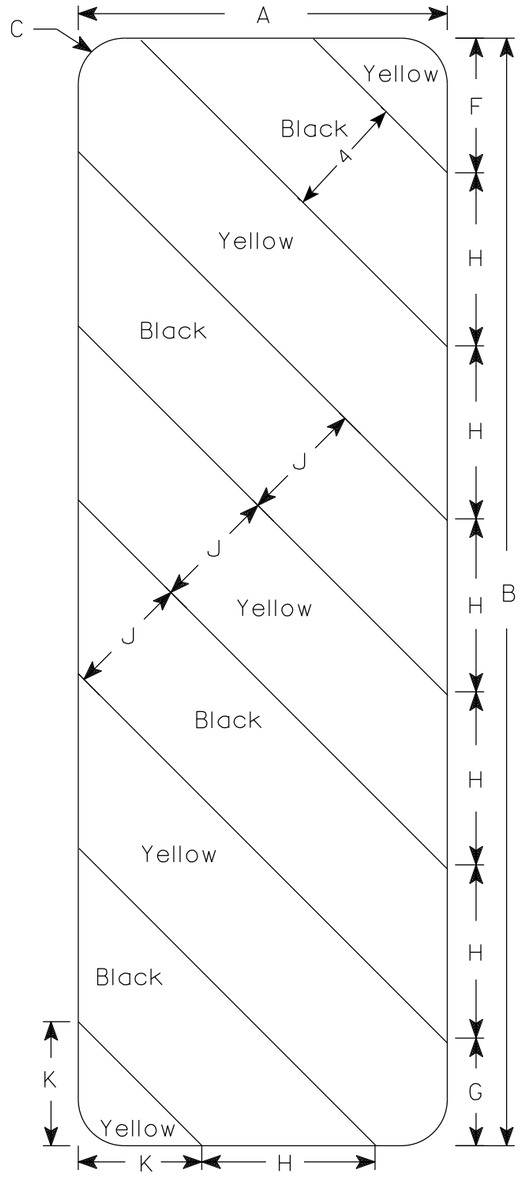
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

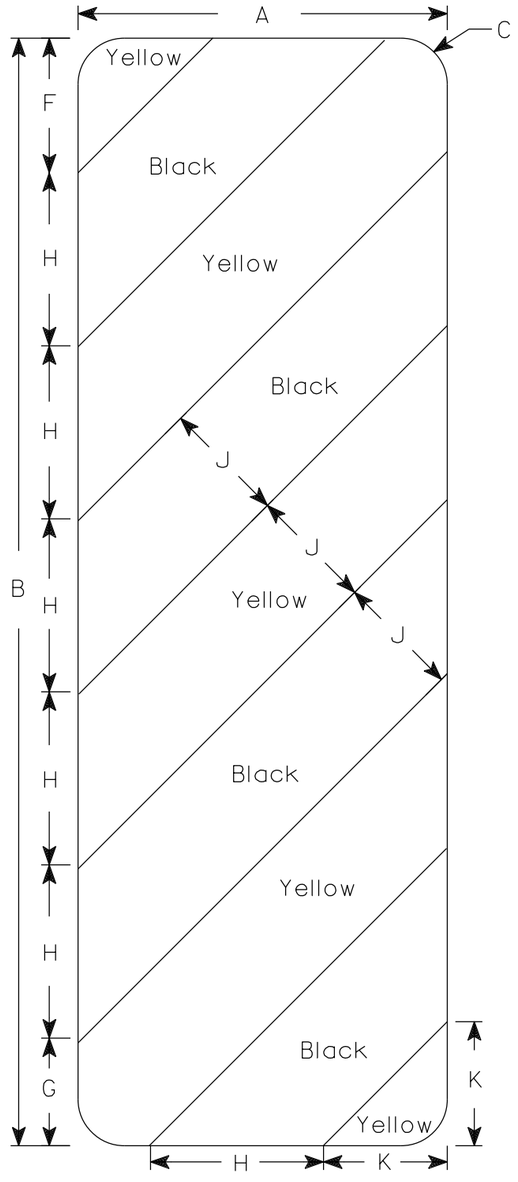
DATE 2/5/24 PLATE NO. R11-3C.4

PROJECT NO:

SHEET NO: 86 E



W5-52L



W5-52R

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Yellow
   Message - Black
3. Alternate colors of stripes as shown.

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	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN

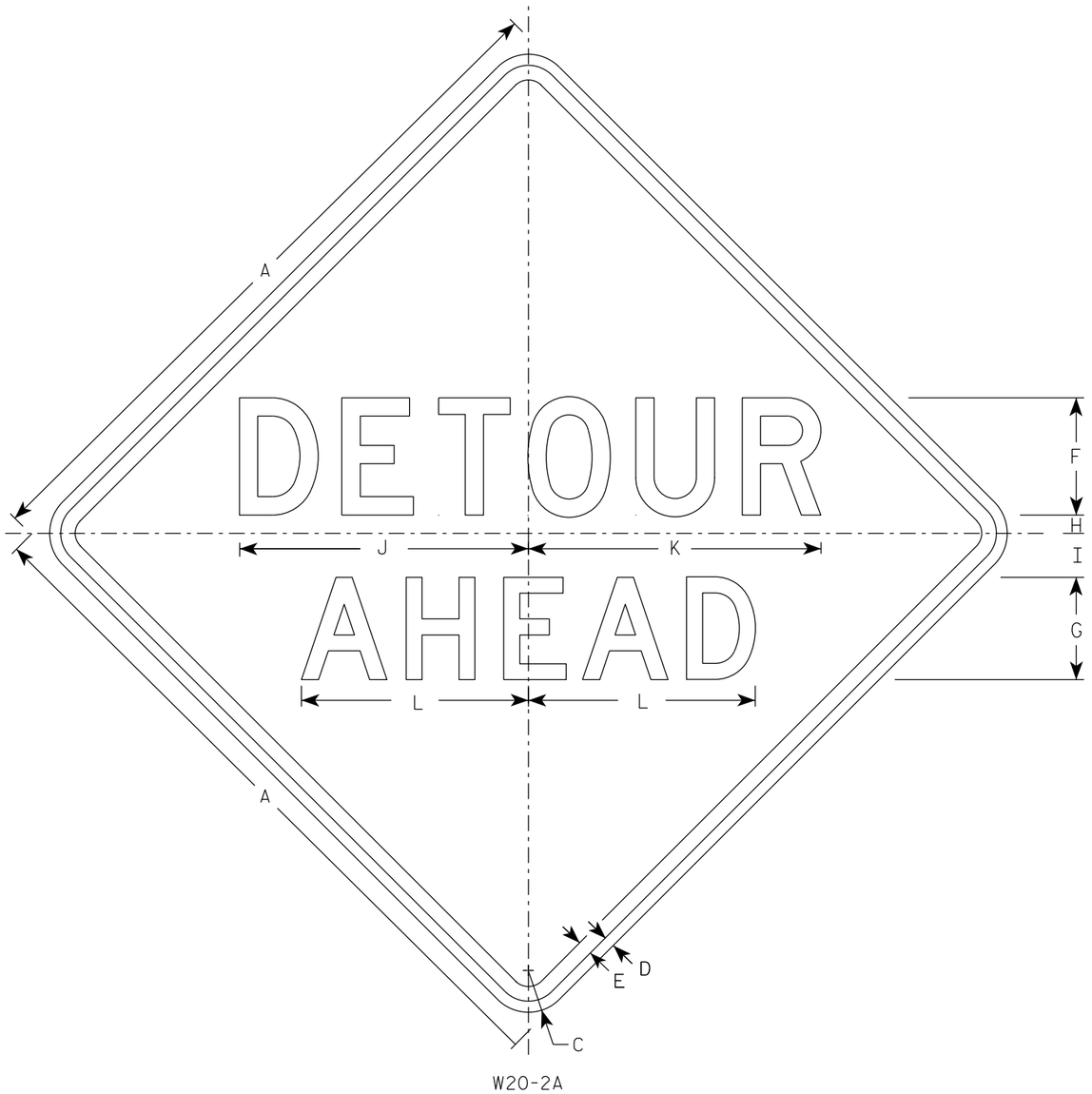
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

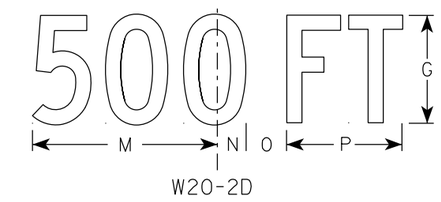
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/4/2024 PLATE NO. W5-52.10

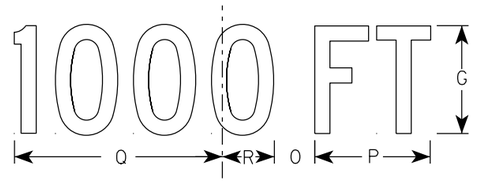
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 87 E



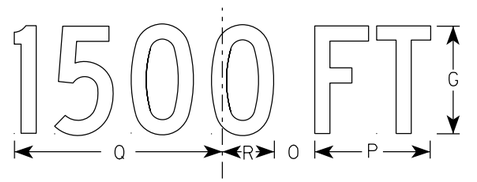
W20-2A



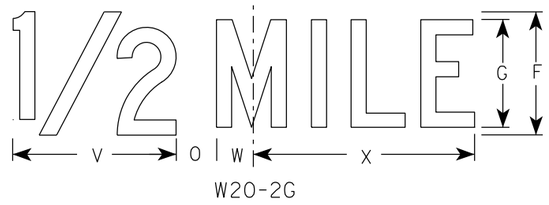
W20-2D



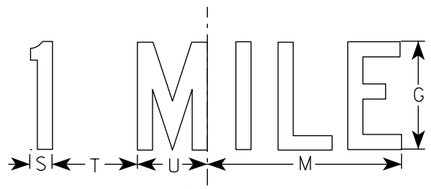
W20-2C



W20-2B



W20-2G



W20-2F

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See note 5
4. 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.
5. Line 1 is Series D.
   Line 2 is Series D for AHEAD and Series C for all other distances.

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	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN
W20-2A,B,C,D,F & G

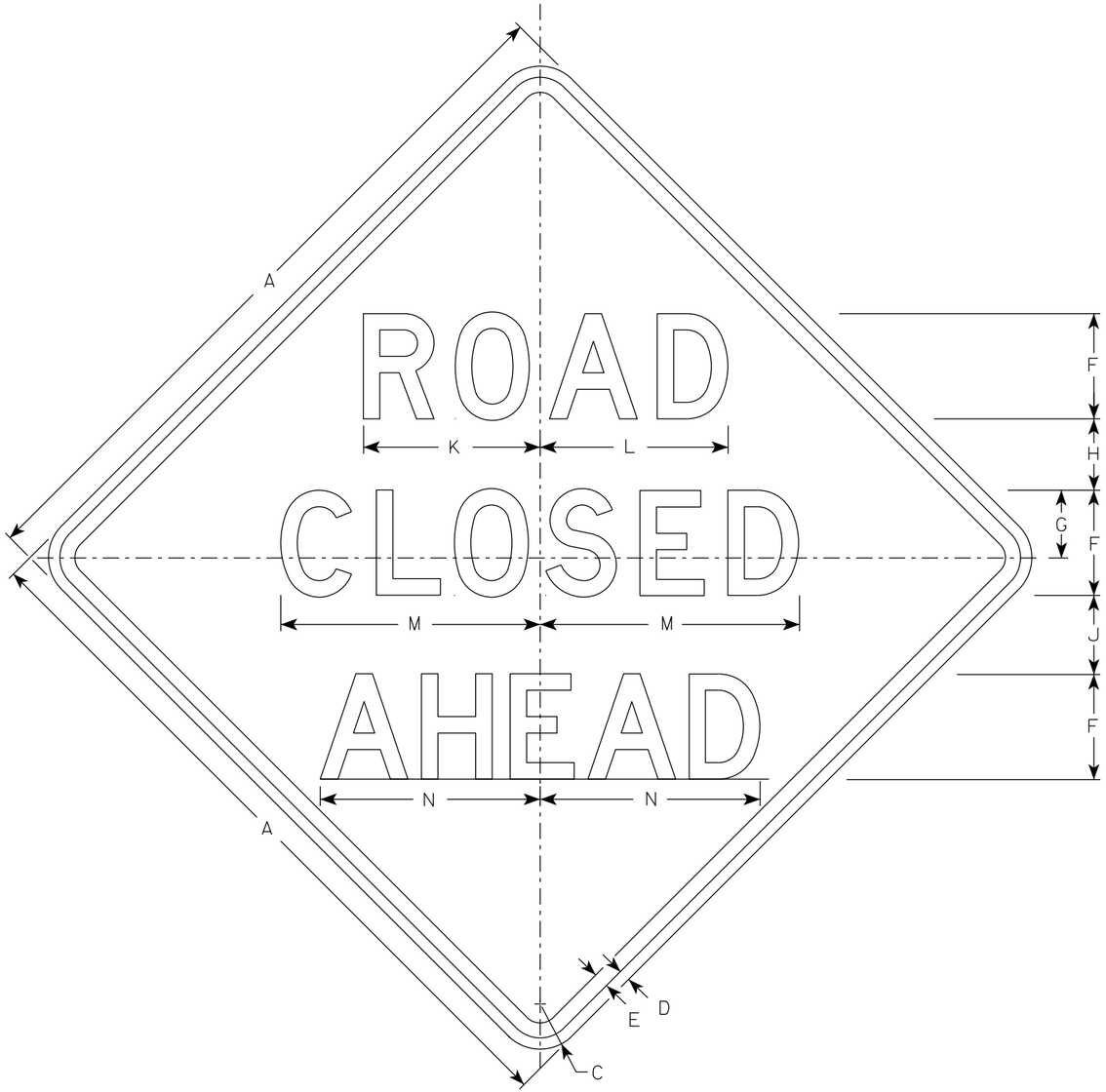
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

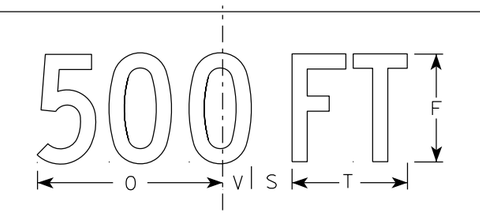
DATE 1/10/2024 PLATE NO. W20-2.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

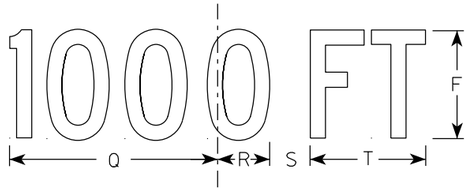
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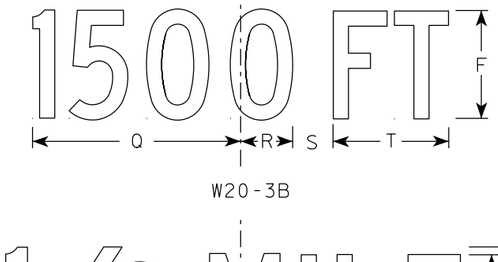
W20-3A



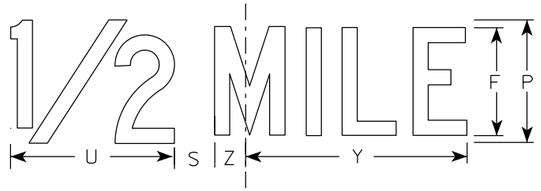
W20-3D



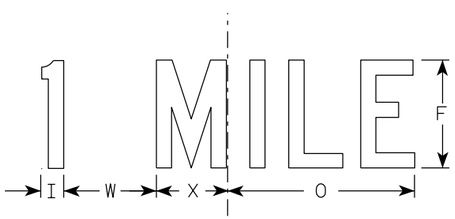
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - see note 5
4. 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.
5. Lines 1 and 2 are Series D.
   Line 3 is Series D for AHEAD and Series C for all other distances.

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	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

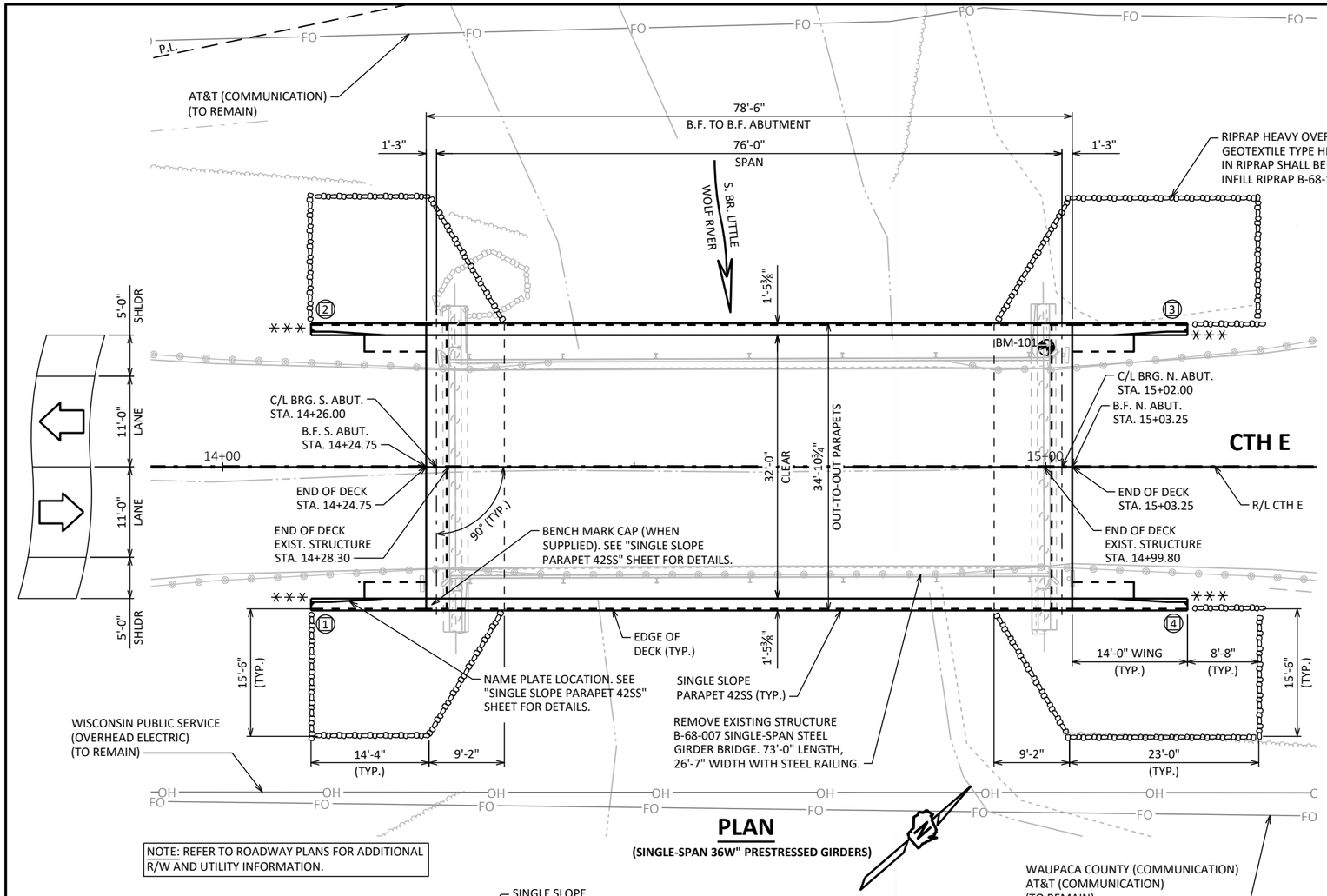
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-3.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

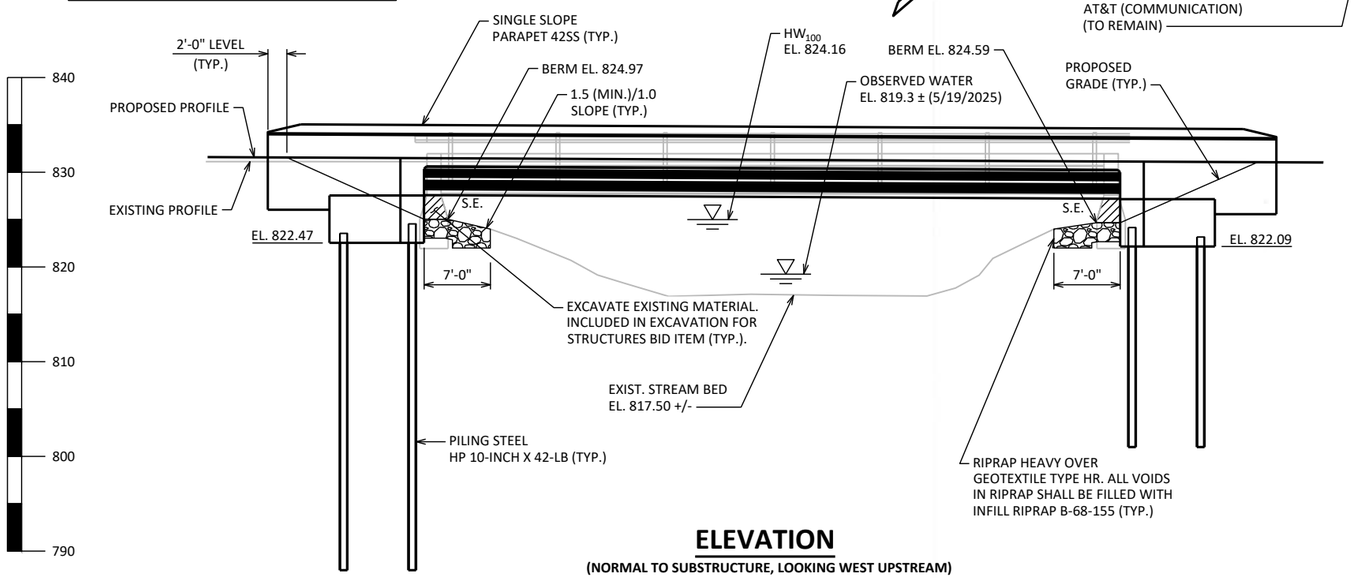
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NOTE: REFER TO ROADWAY PLANS FOR ADDITIONAL R/W AND UTILITY INFORMATION.

PLAN

(SINGLE-SPAN 36W" PRESTRESSED GIRDERS)



ELEVATION

(NORMAL TO SUBSTRUCTURE, LOOKING WEST UPSTREAM)

DESIGN DATA

STATE PROJECT NUMBER

6844-01-72

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.10
OPERATING RATING: RF = 1.64
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE — f'_c = 4,000 PSI
ALL OTHER — f'_c = 3,500 PSI

BAR STEEL REINFORCEMENT
GRADE 60 — f_y = 60,000 PSI

36W" PRESTRESSED GIRDERS:
CONCRETE MASONRY — f'_c = 8,000 PSI
STRANDS: 0.60" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

SOUTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 40'-0" LONG. PILE POINTS REQ'D.

**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 PILE CAPACITY.

NORTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB PILING IN PRE-BORED HOLES EXTENDING A MINIMUM OF 3 FEET INTO SOUND BEDROCK. PILING BEARING ON SOUND BEDROCK DESIGNED FOR A FACTORED AXIAL COMPRESSION LOAD OF 180 KIPS. PILE DRIVING IS NOT REQUIRED. FIRMLY SEAT THE PILE IN THE BOTTOM OF THE PRE-BORED HOLE AFTER IT IS CLEANED OUT. ESTIMATED 25'-0" LONG.

HYDRAULIC DATA

100-YEAR FREQUENCY:

Q_{100}= 1,700 C.F.S.
V_{100}= 7.7 F.P.S.
HW_{100}= EL. 824.16
WATERWAY AREA = 221 SQ. FT.
DRAINAGE AREA = 106 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5

2-YEAR FREQUENCY:

Q_2= 615 C.F.S.
V_2= 4.5 F.P.S.
HW_2= EL. 821.63

TRAFFIC DATA

FEATURE ON: CTH E

ADT = 1,465 (2027)
ADT = 1,523 (2047)
R.D.S. = 60 MPH

WISCONSIN
EVAN J. CONSTANT
E-48226
MADISON
WI
PROFESSIONAL ENGINEER
8-7-2026

LEGEND

(X) INDICATES WING NUMBER

✶✶✶ PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT

LIST OF DRAWINGS:

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES, AND DETAILS
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. 36W" PRESTRESSED GIRDER DETAILS - 1
9. 36W" PRESTRESSED GIRDER DETAILS - 2
10. STEEL DIAPHRAGMS
11. SUPERSTRUCTURE PLAN
12. SUPERSTRUCTURE SECTION
13. SUPERSTRUCTURE DETAILS
14. SINGLE SLOPE PARAPET 42SS

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
BM-101	15+00.10, 14.48' LT	CHISELED SQUARE ON NW CORNER OF BRIDGE	831.91

STRUCTURE DESIGN CONTACTS:

DESIGN CONSULTANT: EVAN CONSTANT 608-251-4843
BUREAU OF STRUCTURES: AARON BONK 608-261-0261

NO.	DATE	REVISION	BY

STRAND ASSOCIATES®
MADISON, WISCONSIN 53715
(608)–251–4843
(608) 251–8655 FAX
WWW.STRAND.COM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED JLR 08/13/26
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-68-155

CTH E OVER S. BR. LITTLE WOLF RIVER

COUNTY	TOWN
WAUPACA	WAUPACA

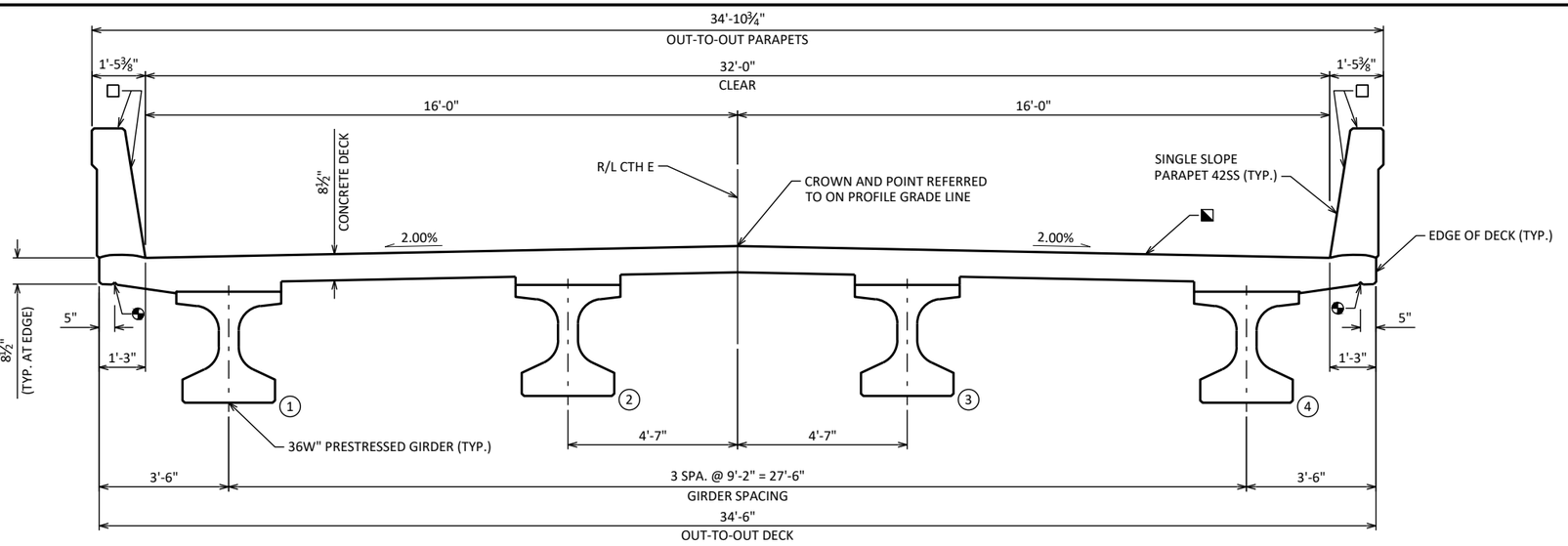
DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED BY	DESIGN CK'D	DRAWN BY	PLANS CK'D
ABH	EJC	ABH	EJC

GENERAL PLAN

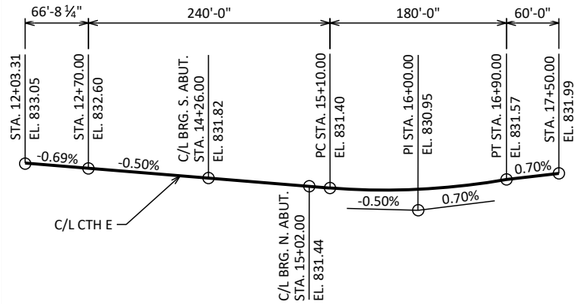
SHEET 1 OF 14
90

I.D.
DATE:

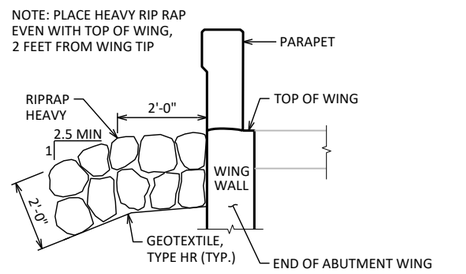


CROSS SECTION THRU SUPERSTRUCTURE

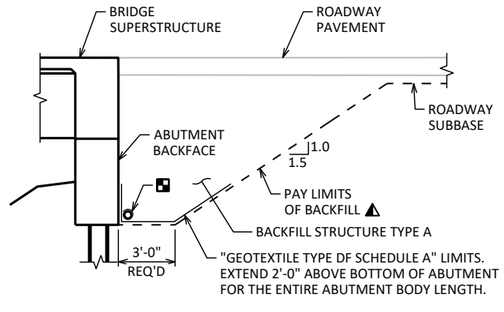
(LOOKING NORTH)



PROFILE GRADE LINE



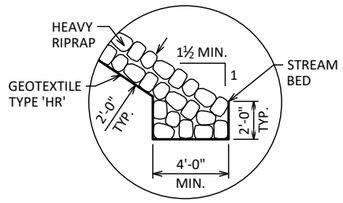
TYPICAL FILL SECTION AT WING TIPS



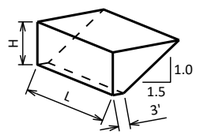
TYPICAL SECTION THRU ABUTMENT

TOTAL ESTIMATED QUANTITIES

BID NUMBER	BID ITEM	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0270	REMOVING STRUCTURE OVER WATERWAY DEBRIS CAPTURE B-68-007	EACH	---	---	---	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-68-155	EACH	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	191	191	---	382
502.0100	CONCRETE MASONRY BRIDGES	CY	35.4	35.4	121.0	192
502.3200	PROTECTIVE SURFACE TREATMENT	SY	---	---	279	279
502.3210	PIGMENTED SURFACE SEALER	SY	14	14	77	105
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	---	---	308	308
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1990	1990	---	3980
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2360	2360	21420	26140
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	4	4	---	8
506.4000	STEEL DIAPHRAGMS B-68-155	EACH	---	---	3	3
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9	9	---	18
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	---	200	---	200
550.0500	PILE POINTS	EACH	8	---	---	8
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	320	200	---	520
606.0300	RIPRAP HEAVY	CY	85	108	---	193
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	70	70	---	140
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	---	---	4	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	31	31	---	62
645.0120	GEOTEXTILE TYPE HR	SY	154	198	---	352
SPV.0195	INFILL RIPRAP B-68-155	TON	37	49	---	86
	NON-BID ITEMS					
	FILLER	SIZE				1/2" & 3/4"
	NAME PLATE	EACH				1



RIPRAP TOE DETAIL



ABUTMENT BACKFILL DIAGRAM

L = OUT TO OUT OF ABUTMENT BODY INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)
V_{CY} = V_{CF}(EF)/27
V_{TON} = V_{CY}(2.0)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

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

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR DIMENSIONS FOR BENDING ARE OUT-TO-OUT OF BARS.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-68-155" SHALL BE THE EXISTING GROUNDLINE.

AT THE BACK FACE OF ABUTMENT 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".

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.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE, TOP, AND ENDS OF THE PARAPETS, INCLUDING PARAPETS ON THE WINGWALLS.

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 SHEET 1 AND THE ABUTMENT DETAILS.

AT ABUTMENTS, HP 12X53 STEEL PILING MAY BE USED IN LIEU OF HP 10X42 STEEL PILING. PAYMENT SHALL BE BASED ON BID PRICE FOR HP 10X42 STEEL PILING.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE "36W PRESTRESSED GIRDER DETAILS-2" SHEET.

AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

LEGEND

- ¾" V-GROOVE REQ'D. EXTEND TO 6" FROM F.F. OF ABUTMENT DIAPHRAGMS.
- COAT WITH PROTECTIVE SURFACE TREATMENT PER THE SPECIFICATIONS AND AS NOTED.
- COAT WITH PIGMENTED SURFACE SEALER PER THE SPECIFICATIONS AND AS NOTED.
- BACKFILL PAY LIMITS. BACKFILL BEYOND 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.
- (#) INDICATES GIRDER NUMBER

STATE PROJECT NUMBER

6844-01-72

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

DRAWN BY ABH | PLANS CK'D EJC

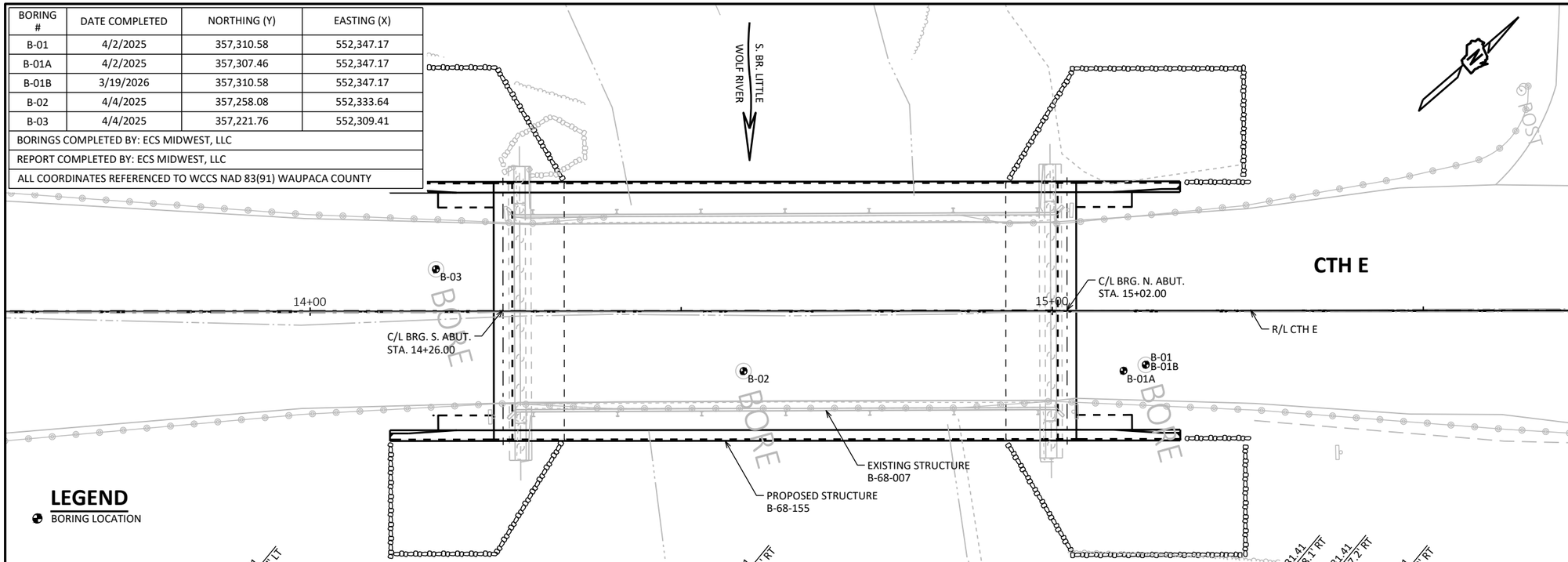
CROSS SECTION, QUANTITIES, NOTES, AND DETAILS

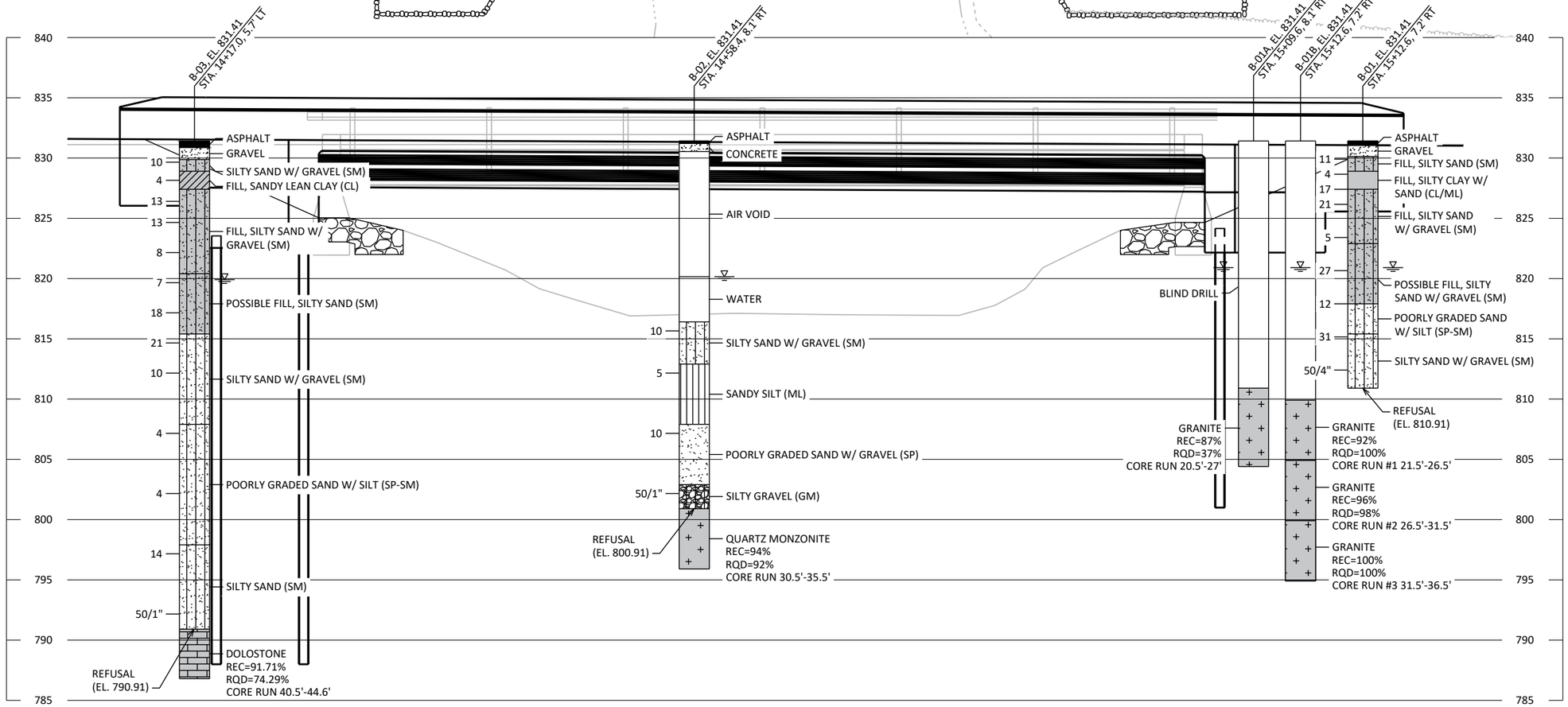
SHEET 2
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BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-01	4/2/2025	357,310.58	552,347.17
B-01A	4/2/2025	357,307.46	552,347.17
B-01B	3/19/2026	357,310.58	552,347.17
B-02	4/4/2025	357,258.08	552,333.64
B-03	4/4/2025	357,221.76	552,309.41
BORINGS COMPLETED BY: ECS MIDWEST, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) WAUPACA COUNTY			





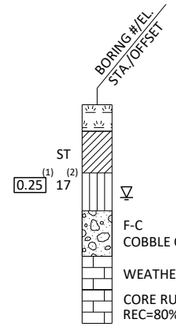
STATE PROJECT NUMBER

6844-01-72

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-68-155

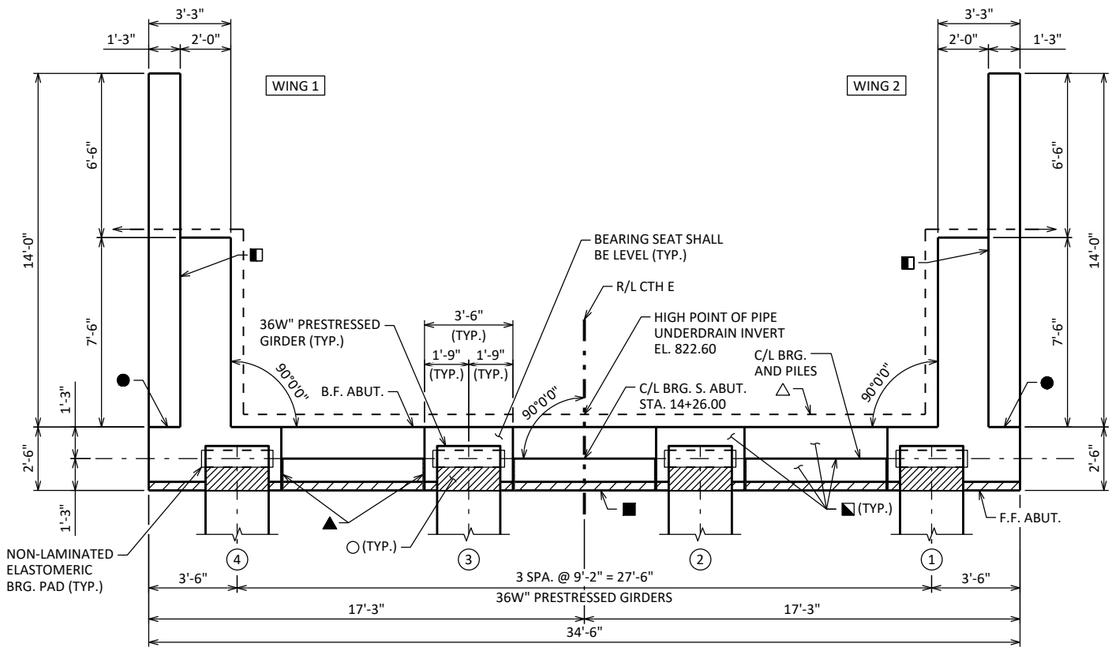
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SUBSURFACE EXPLORATION

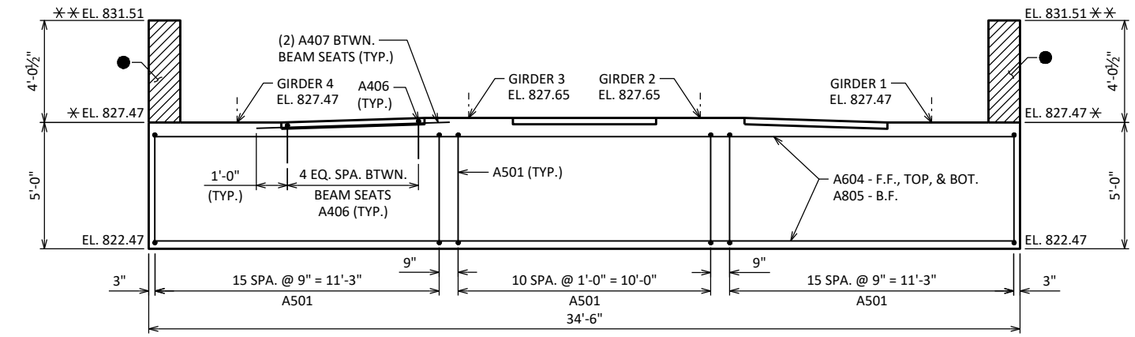
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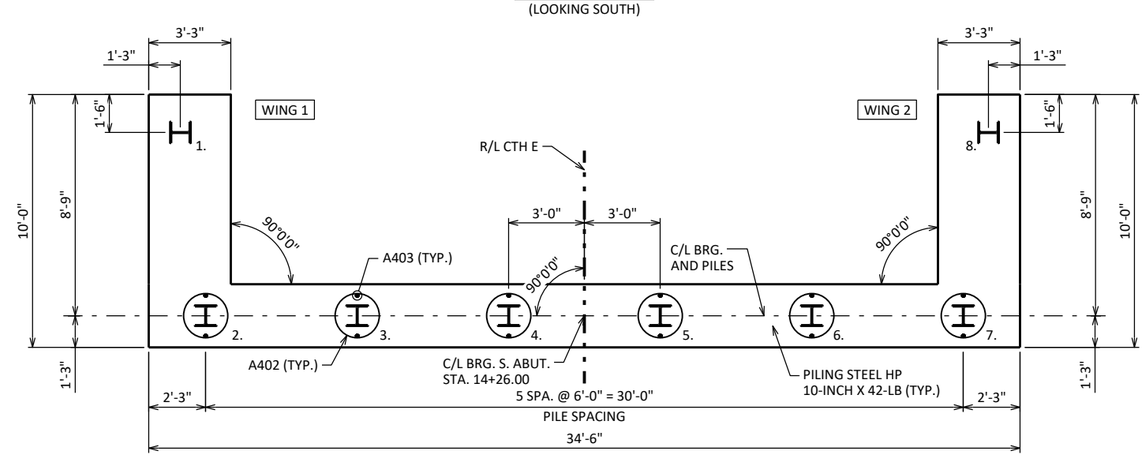


PLAN



ELEVATION

(LOOKING SOUTH)



PILE PLAN

STATE PROJECT NUMBER

6844-01-72

NOTES

SEE THIS SHEET FOR PILE SPLICE AND PILE POINT DETAILS.

SEE SHEET 5 FOR REINFORCING DETAILS.

ADJUST A501 BARS INTERFERING WITH PILES.

SUPPORT SOUTH ABUTMENT ON PILING STEEL HP 10-INCH X 42-LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 40'-0" LONG AT SOUTH ABUTMENT. PILE POINTS REQ'D.

SEE SHEET 2 FOR TYPICAL FILL SECTION AT WING TIPS.

LEGEND

△ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. HIGH POINT EL. 822.60. RODENT SHIELD REQUIRED AT ENDS. SEE DETAIL ON SHEET 6.

● ½" FILLER TO EXTEND FROM ABUTMENT SEAT TO TOP OF CONCRETE PARAPET (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

◧ 18" RUBBERIZED MEMBRANE WATERPROOFING (RMW). SEAL ALL HORIZ. AND VERT. JOINTS AT BACKFACE.

⚹⚹ ELEVATION GIVEN AT C/L BRG. ABUT.

⚹ ELEVATION GIVEN AT B.F. ABUT.

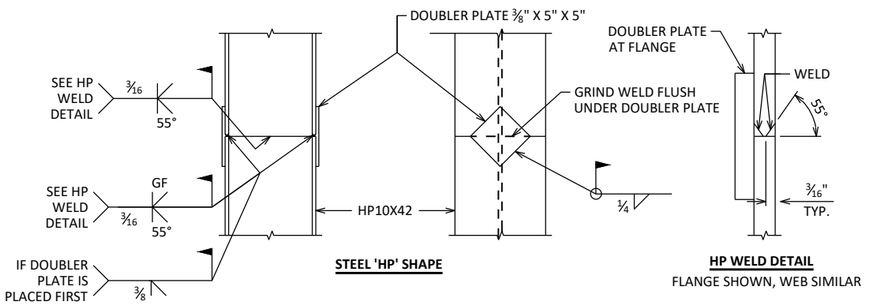
◪ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

(#) INDICATES GIRDER NUMBER.

■ 4" X ½" PREFORMED JOINT FILLER (TYP.)

▲ ¾" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL TO GIRDER (TYP.)

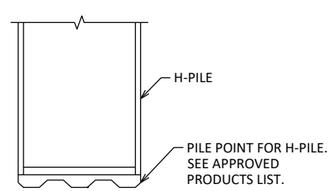
○ ½" PREFORMED JOINT FILLER UNDER GIRDER FLANGE IN FRONT OF BRG. PAD.



STEEL 'HP' SHAPE

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

'HP' PILE DETAILS



PILE POINT FOR H-PILING

PILE POINT SHALL BE INSTALLED ACCORDING TO THE PILE POINT MANUFACTURER'S INSTRUCTIONS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

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SOUTH ABUTMENT

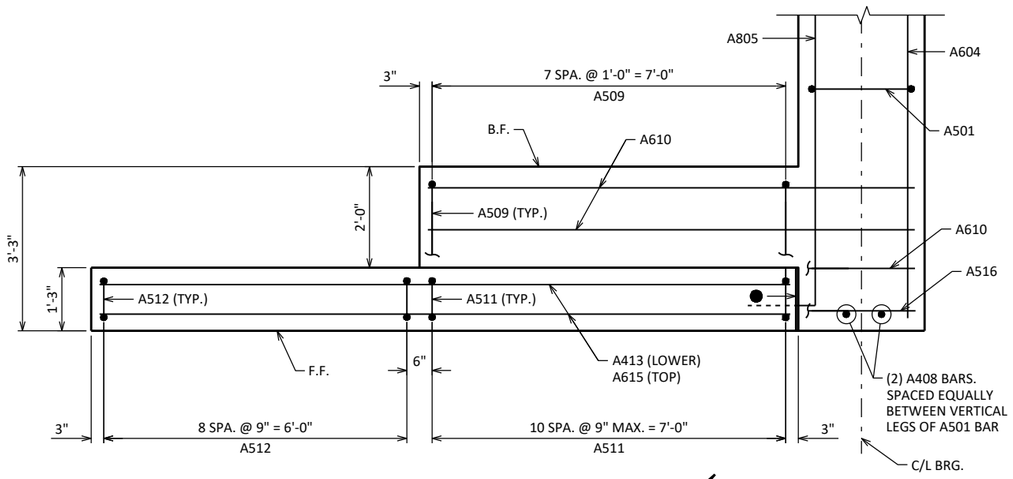
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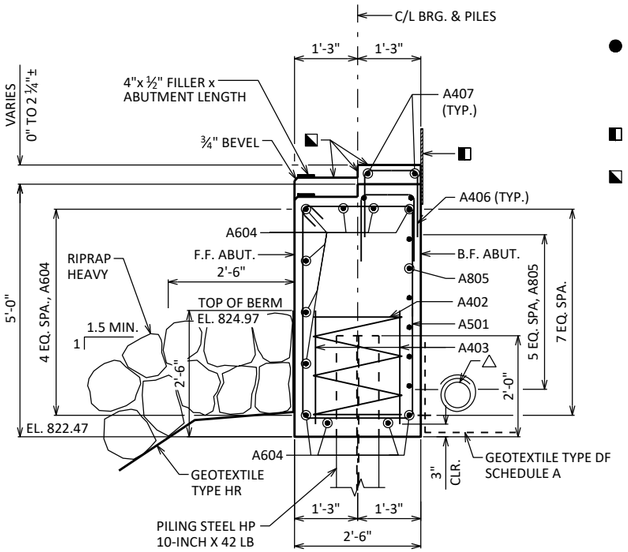
STATE PROJECT NUMBER

6844-01-72



WING 1 PLAN

(WING 2 SIMILAR)



TYPICAL ABUTMENT SECTION

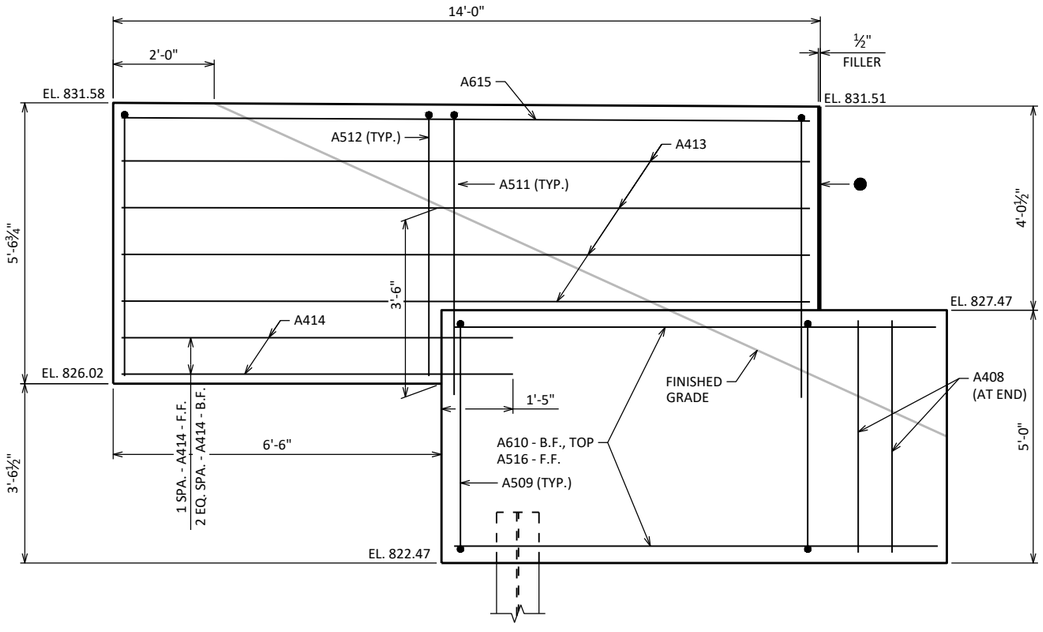
LEGEND

- ◭ OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2"x6".
- △ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. HIGH POINT EL. 822.60 AT R/L. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN PER DETAIL ON SHEET 6.
- ● ½" FILLER TO EXTEND FROM ABUTMENT SEAT TO TOP OF WING (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- ◧ 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. AND VERT. JOINTS AT BACKFACE.
- ◥ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

SOUTH ABUTMENT BILL OF BARS

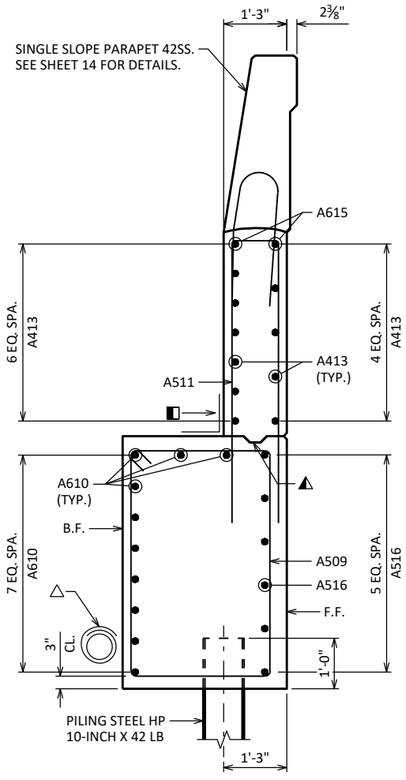
UNCOATED: 1990 LBS
COATED: 1410 LBS

BAR MARK	NO. REQ'D	LENGTH	BENT	COAT	LOCATION
A501	43	14'-0"	X		LOWER BODY - VERT.
A402	6	28'-0"	X		LOWER BODY - PILES - SPIRAL
A403	12	2'-3"			LOWER BODY - PILES - VERT.
A604	11	34'-2"			LOWER BODY - TOP, BOT., & F.F. - HORIZ.
A805	6	36'-5"	X		LOWER BODY - B.F. - HORIZ.
A406	15	3'-9"	X		LOWER BODY - VERT. - TOP
A407	6	7'-8"			LOWER BODY - HORIZ. - TOP
A408	4	4'-7"			LOWER BODY - VERT. - ENDS
A509	16	15'-6"	X	X	LOWER WING - VERT. - WINGS 1 & 2
A610	20	9'-8"		X	LOWER WING - B.F., TOP - HORIZ. - WINGS 1 & 2
A511	22	12'-4"	X	X	UPPER WING - VERT. - WINGS 1 & 2
A512	18	10'-10"	X	X	UPPER WING - VERT. - WINGS 1 & 2
A413	20	13'-7"		X	UPPER WING - F.F., B.F. - HORIZ. - WINGS 1 & 2
A414	10	7'-9"		X	UPPER WING - F.F., B.F. - HORIZ. - WINGS 1 & 2
A615	4	13'-7"		X	UPPER WING - TOP - HORIZ. - WINGS 1 & 2
A516	6	9'-8"		X	LOWER WING - F.F. - HORIZ. - WINGS 1 & 2

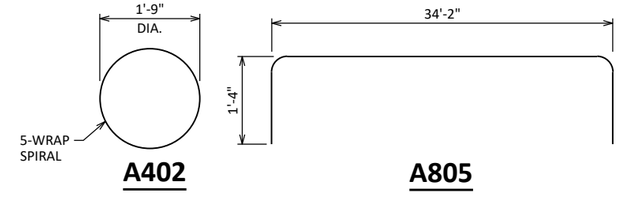


WING 1 ELEVATION

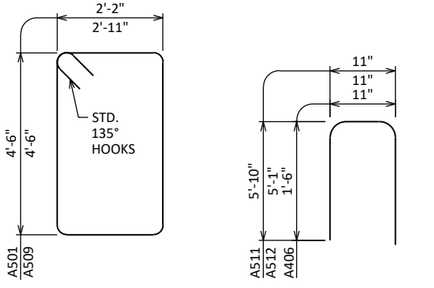
(WING 2 SIMILAR)



TYPICAL SECTION THRU WING



A402 **A805**



A501, A509 **A406, A511, A512**

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

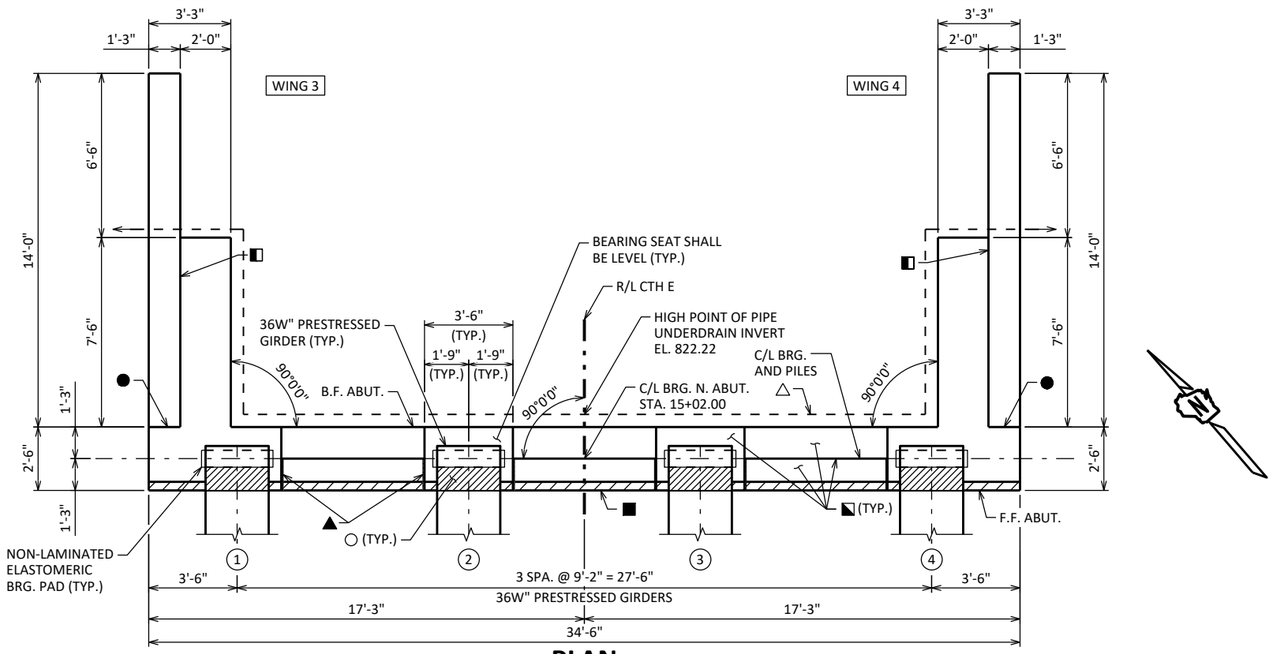
DRAWN BY ABH | PLANS CK'D EJC

SOUTH ABUTMENT DETAILS

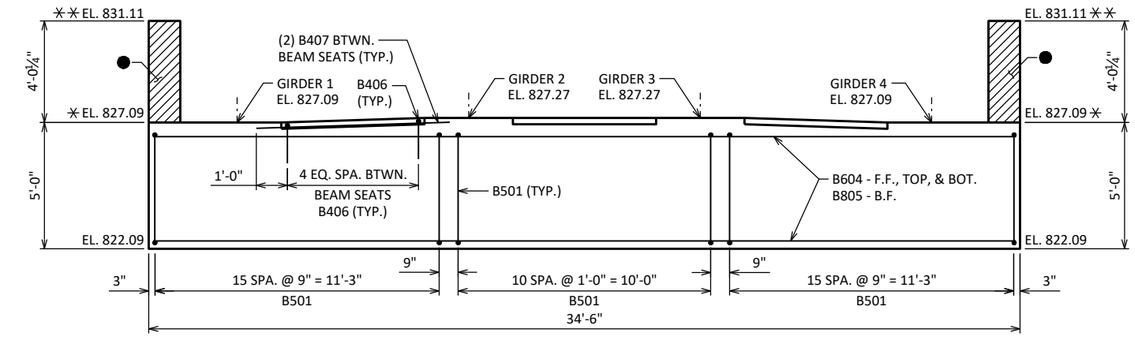
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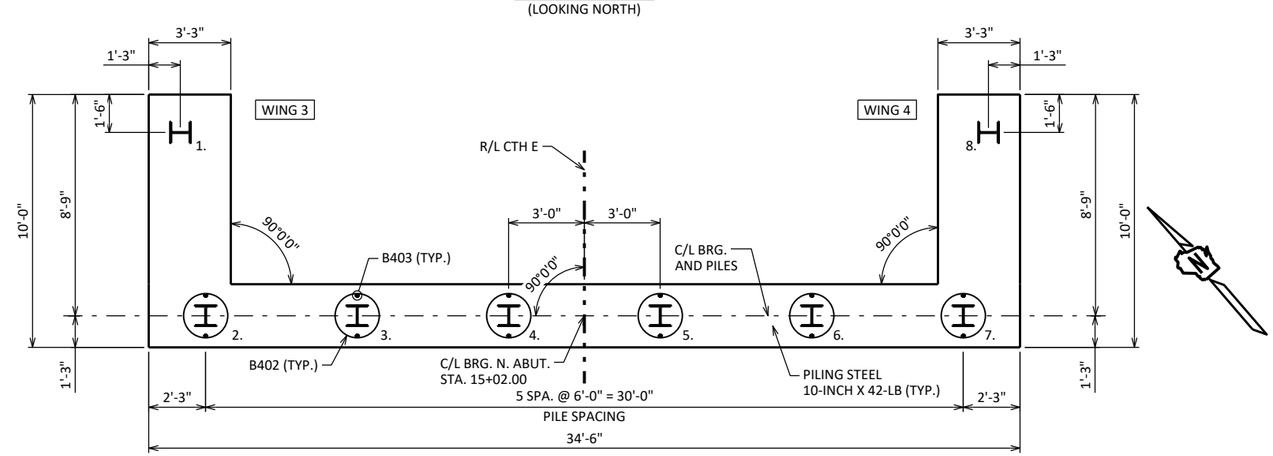


PLAN



ELEVATION

(LOOKING NORTH)



PILE PLAN

STATE PROJECT NUMBER

6844-01-72

NOTES

SEE SHEET 4 FOR PILE SPLICE DETAILS.

SEE SHEET 7 FOR REINFORCING DETAILS.

ADJUST B501 BARS INTERFERING WITH PILES.

NORTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB WITH A FACTORED AXIAL COMPRESSION LOAD OF 180 KIPS PER PILE. PILING TO BE INSTALLED IN PRE-BORED HOLES EXTENDING A MINIMUM OF 3 FEET INTO SOUND BEDROCK. BACKFILL WITHIN THE PRE-BORED HOLE INTO BEDROCK SHALL BE GROUT. ESTIMATED PILE LENGTH IS 25'-0". PILE DRIVING IS NOT REQUIRED. FIRMLY SEAT THE PILE IN THE BOTTOM OF THE PRE-BORED HOLE AFTER IT IS CLEANED OUT.

SEE SHEET 2 FOR TYPICAL FILL SECTION AT WING TIPS.

LEGEND

△ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. HIGH POINT EL. 822.22. RODENT SHIELD REQUIRED AT ENDS. SEE DETAIL ON THIS SHEET.

● ½" FILLER TO EXTEND FROM ABUTMENT SEAT TO TOP OF CONCRETE PARAPET (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

◧ 18" RUBBERIZED MEMBRANE WATERPROOFING (RMW). SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

✳ ELEVATION GIVEN AT C/L BRG. ABUT.

✳✳ ELEVATION GIVEN AT B.F. ABUT.

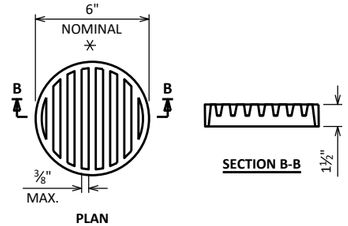
◪ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

(#) INDICATES GIRDER NUMBER.

■ 4" X ½" PREFORMED JOINT FILLER (TYP.)

▲ ¾" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL TO GIRDER (TYP.)

○ ½" PREFORMED JOINT FILLER UNDER GIRDER FLANGE IN FRONT OF BRG. PAD.



RODENT SHIELD DETAIL

✳ 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 COMMERCIALLY 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.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

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NORTH ABUTMENT

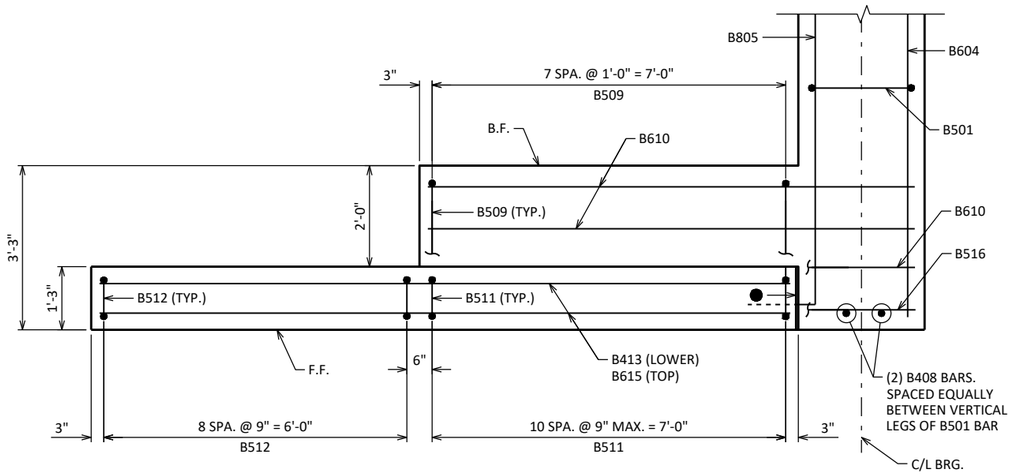
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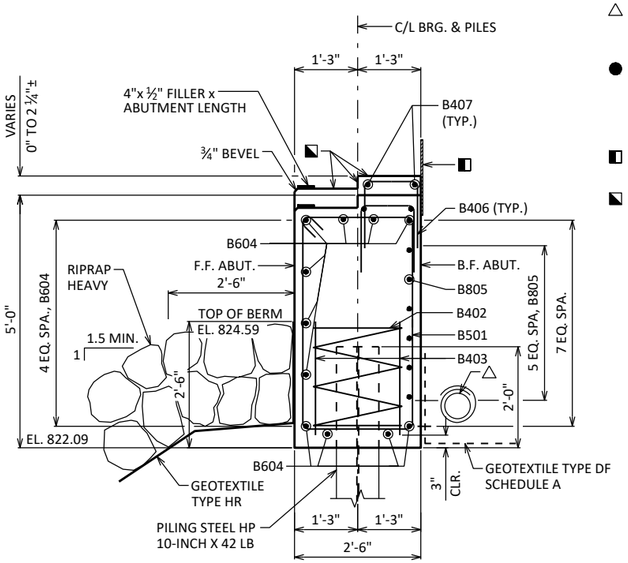
STATE PROJECT NUMBER

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WING 3 PLAN

(WING 4 SIMILAR)



TYPICAL ABUTMENT SECTION

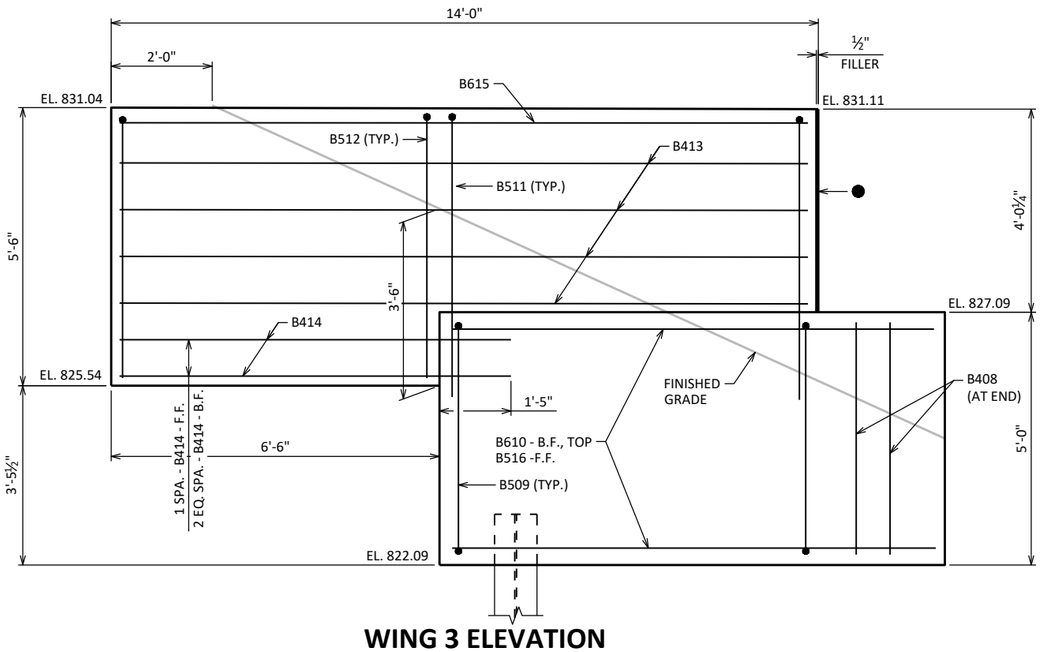
LEGEND

- ◭ OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2"x6".
- △ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. HIGH POINT EL. 822.22 AT R/L. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN PER DETAIL ON SHEET 6.
- ● ½" FILLER TO EXTEND FROM ABUTMENT SEAT TO TOP OF WING (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- ◧ 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. AND VERT. JOINTS AT BACKFACE.
- ◹ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

NORTH ABUTMENT BILL OF BARS

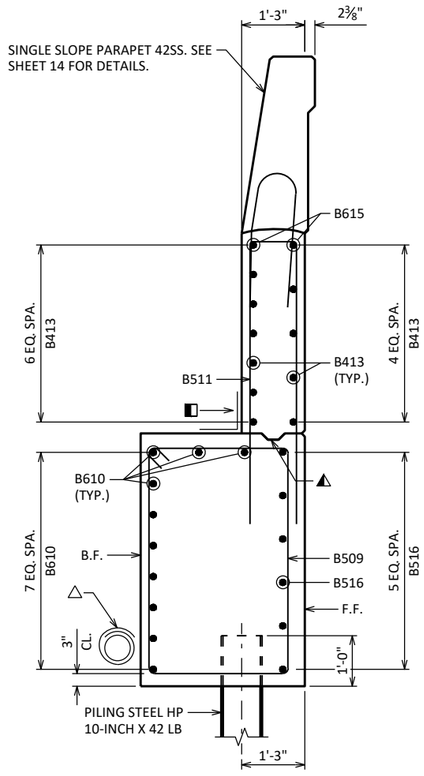
UNCOATED: 1990 LBS
COATED: 1410 LBS

BAR MARK	NO. REQ'D	LENGTH	BENT	COAT	LOCATION
B501	43	14'-0"	X		LOWER BODY - VERT.
B402	6	28'-0"	X		LOWER BODY - PILES - SPIRAL
B403	12	2'-3"			LOWER BODY - PILES - VERT.
B604	11	34'-2"			LOWER BODY - TOP, BOT., & F.F. - HORIZ.
B805	6	36'-5"	X		LOWER BODY - B.F. - HORIZ.
B406	15	3'-9"	X		LOWER BODY - VERT. - TOP
B407	6	7'-8"			LOWER BODY - HORIZ. - TOP
B408	4	4'-7"			LOWER BODY - VERT. - ENDS
B509	16	15'-6"	X	X	LOWER WING - VERT. - WINGS 3 & 4
B610	20	9'-8"		X	LOWER WING - B.F., TOP - HORIZ. - WINGS 3 & 4
B511	22	12'-4"	X	X	UPPER WING - VERT. - WINGS 3 & 4
B512	18	10'-10"	X	X	UPPER WING - VERT. - WINGS 3 & 4
B413	20	13'-7"		X	UPPER WING - F.F., B.F. - HORIZ. - WINGS 3 & 4
B414	10	7'-9"		X	UPPER WING - F.F., B.F. - HORIZ. - WINGS 3 & 4
B615	4	13'-7"		X	UPPER WING - TOP - HORIZ. - WINGS 3 & 4
B516	6	9'-8"		X	LOWER WING - F.F. - HORIZ. - WINGS 3 & 4

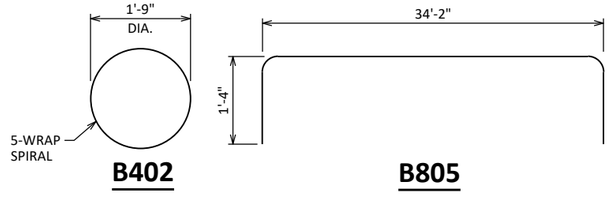


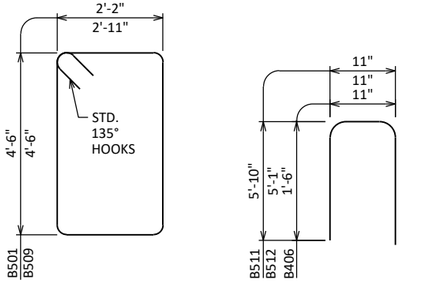
WING 3 ELEVATION

(WING 4 SIMILAR)



TYPICAL SECTION THRU WING





B501, B509

B406, B511, B512

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

DRAWN BY ABH | PLANS CK'D EJC

NORTH ABUTMENT DETAILS

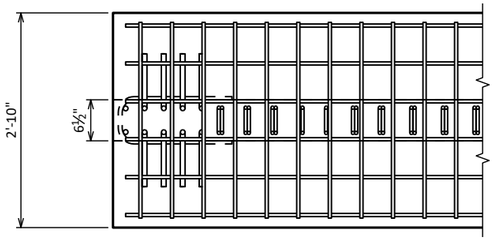
SHEET 7
96

8

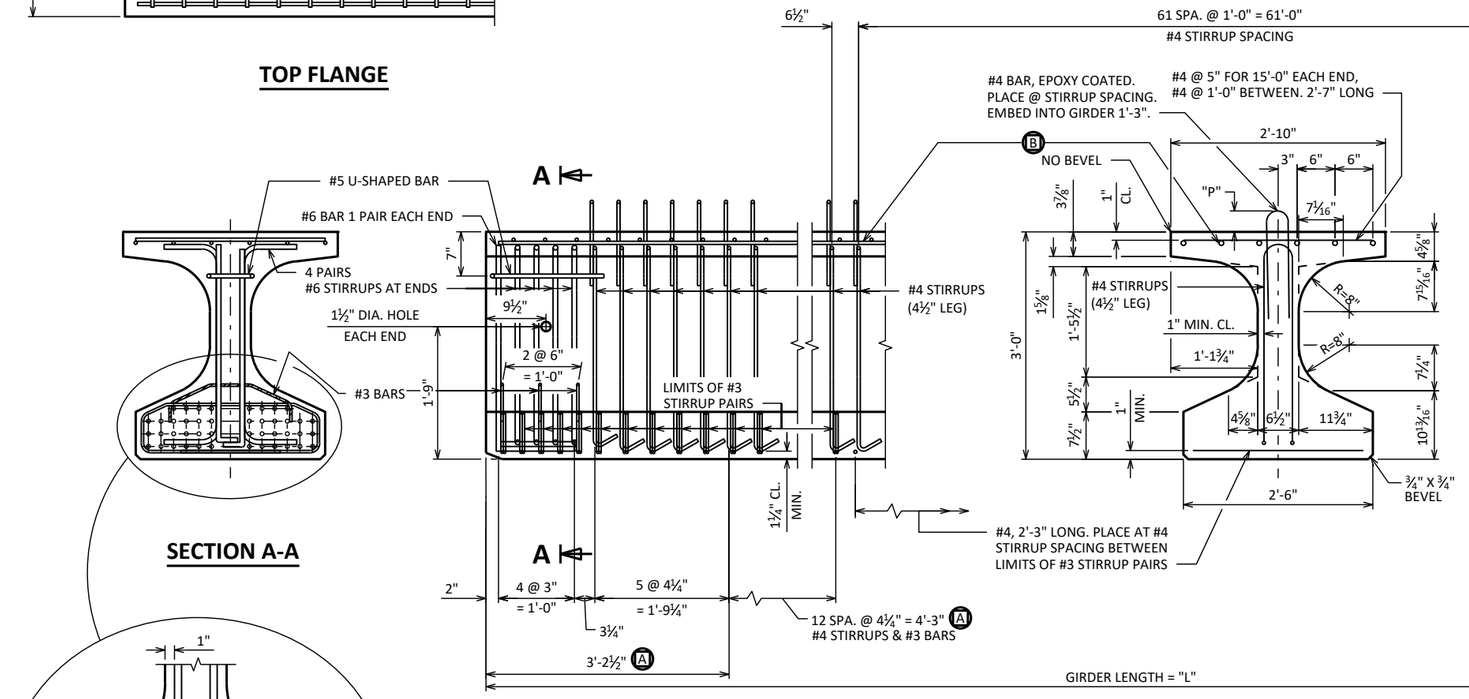
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STATE PROJECT NUMBER

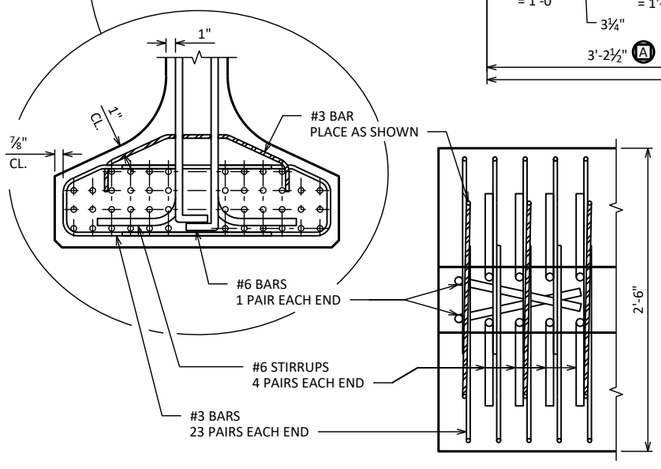
6844-01-72



TOP FLANGE



SECTION A-A



BOTTOM FLANGE

SIDE VIEW & TYPICAL SECTION IN SPAN

(A) DETAIL TYP. AT EACH END

(B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-5"

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. 503.3.4 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 AASHTO 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.

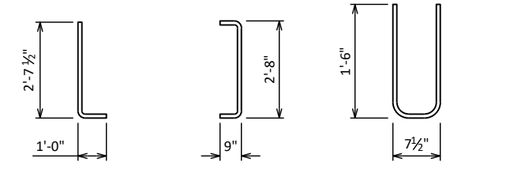
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

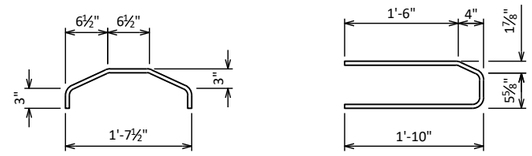
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DESIGN 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 DIAPHRAGMS" SHEET.





GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.) 1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CONC. STRGTH. f'c (P.S.I.)	"P" (IN.) 1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) ⚹	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	UNDRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) ⚹
1	1,4	77'-0"	0.4	0.8	1.1	1.3	1.3	1.3	1.1	0.8	0.4	8,000	8.00	7.00	8.00	0.60	28	6,800	32	11	14	4	--	--
1	2,3	77'-0"	0.4	0.8	1.1	1.3	1.4	1.3	1.1	0.8	0.4	8,000	8.00	7.00	8.00	0.60	28	6,800	32	11	14	4	--	--

⚹ MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

NO.	DATE	REVISION	BY

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

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36W" PRESTRESSED GIRDER DETAILS - 1

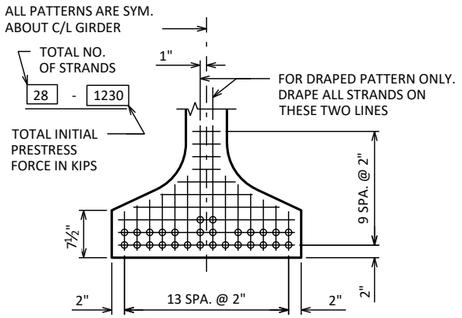
SHEET 8
97

8

8

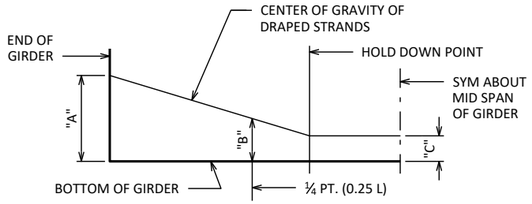
STATE PROJECT NUMBER

6844-01-72

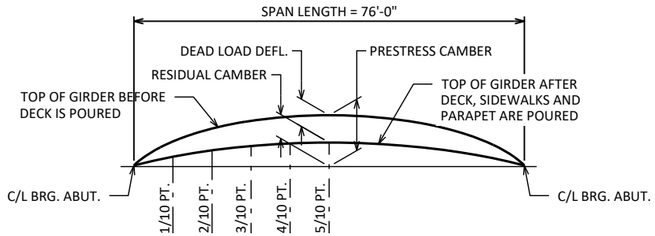


TYP. STRAND PATTERN

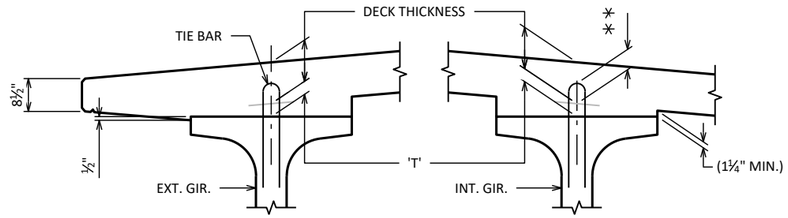
0.6" STRANDS



DRAPED STRAND PROFILE



DEAD LOAD DEFLECTION DIAGRAM



DECK HAUNCH DETAIL

IF 1¼" 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 STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

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

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT C/L 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'

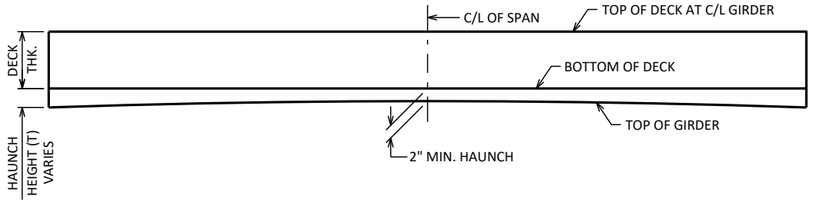
NOTE: AN AVERAGE HAUNCH ('T') OF 3" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

⁑ 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.

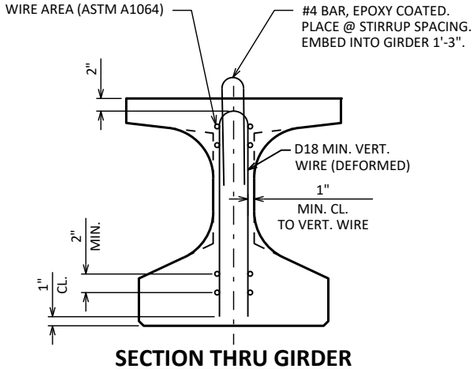
SPAN	CAMBER (IN.) ⁑
1	2.8

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



ELEVATION



SECTION THRU GIRDER

SHOWING WELED WIRE FABRIC (WWF) STIRRUPS
ASTM A1064 (f_y = 70 KSI)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

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36W" PRESTRESSED GIRDER DETAILS - 2

SHEET 9
98

8

8

STATE PROJECT NUMBER

6844-01-72

NOTES

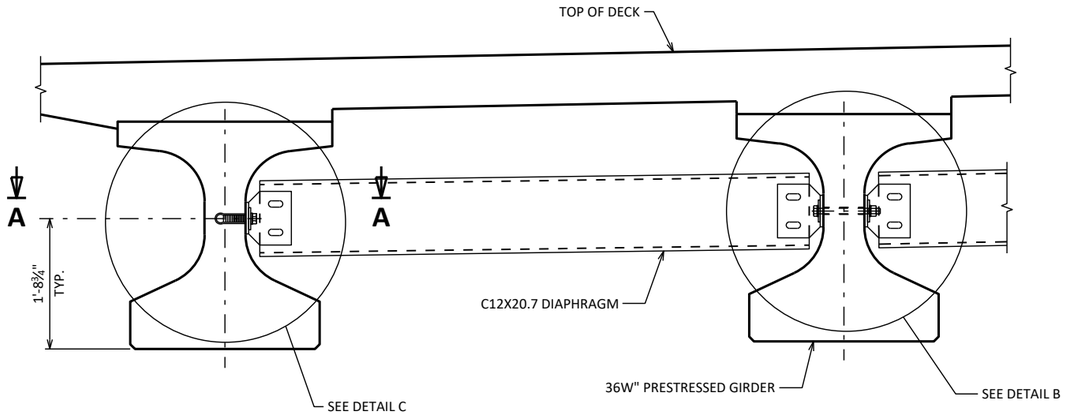
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-68-155", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

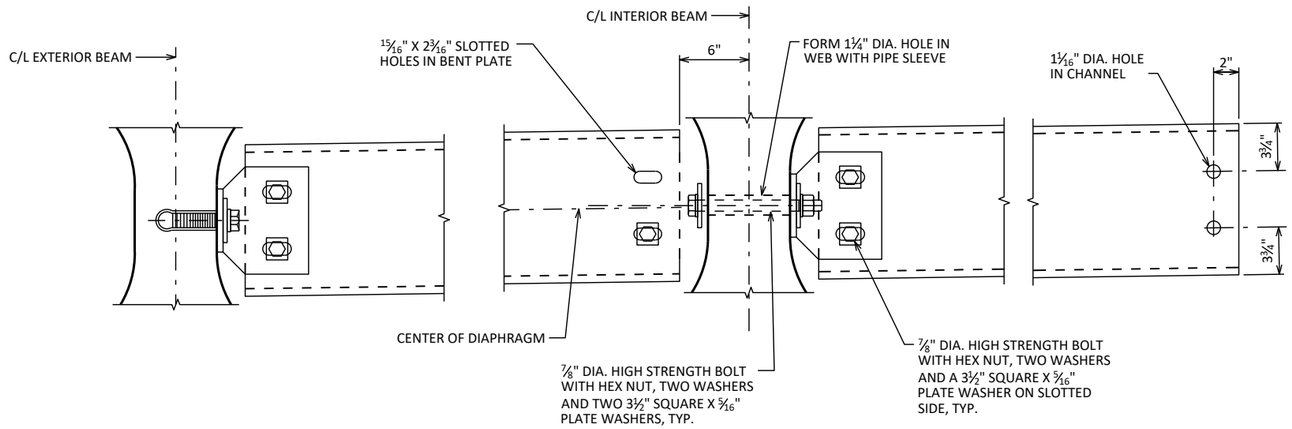
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

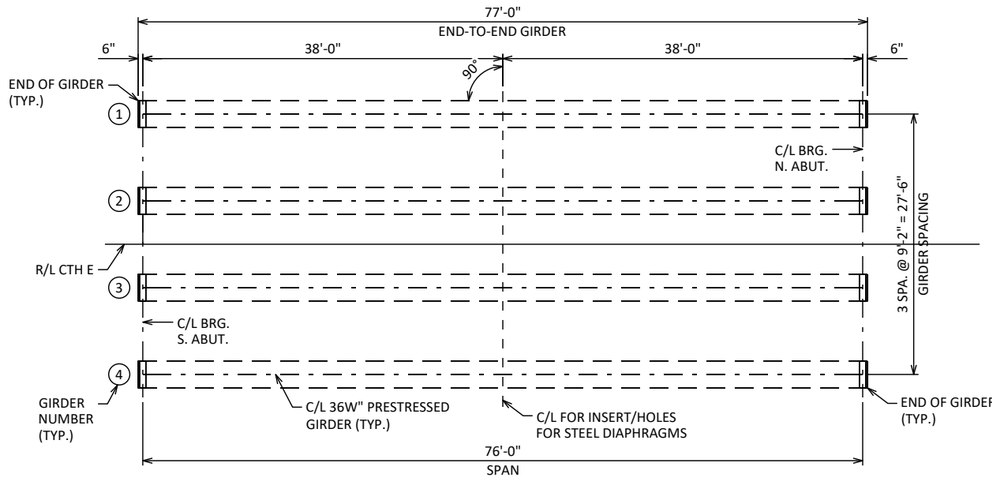


EXTERIOR GIRDER **INTERIOR GIRDER**

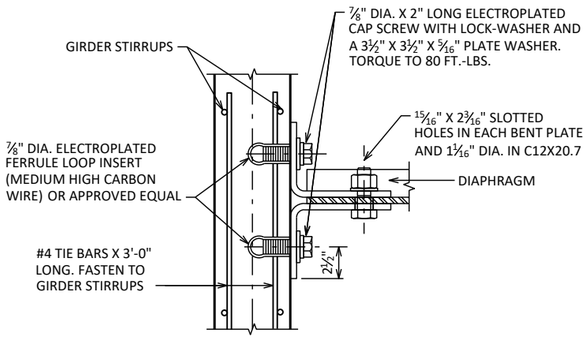
PART TRANSVERSE SECTION AT DIAPHRAGM



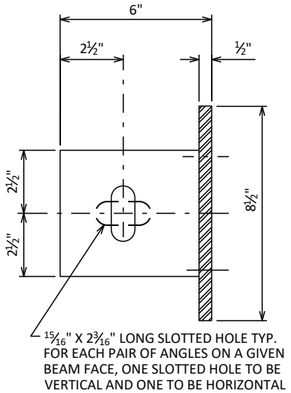
DETAIL C **DETAIL B**



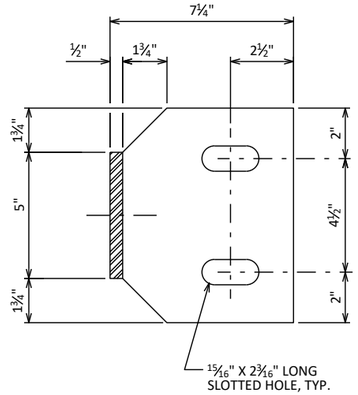
PLAN
(SHOWING STEEL DIAPHRAGM LAYOUT)



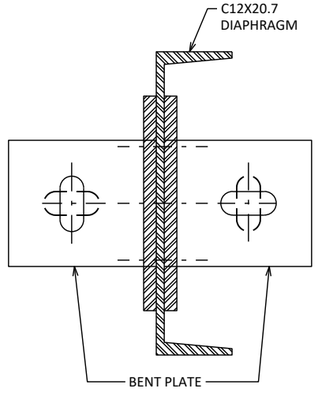
SECTION A-A
(FOR EXTERIOR ATTACHMENT)



BEAM FACE



DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

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STEEL DIAPHRAGMS

SHEET 10
99

SCALE =

8

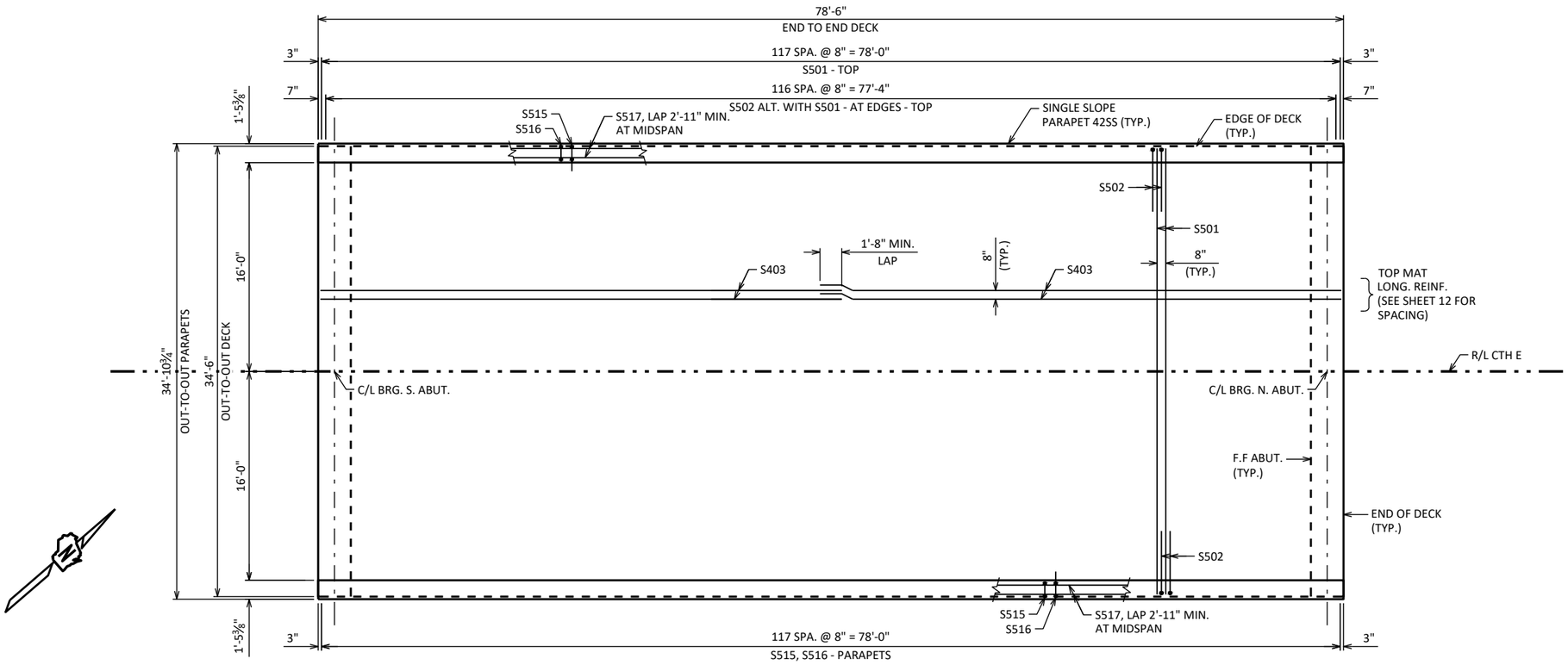
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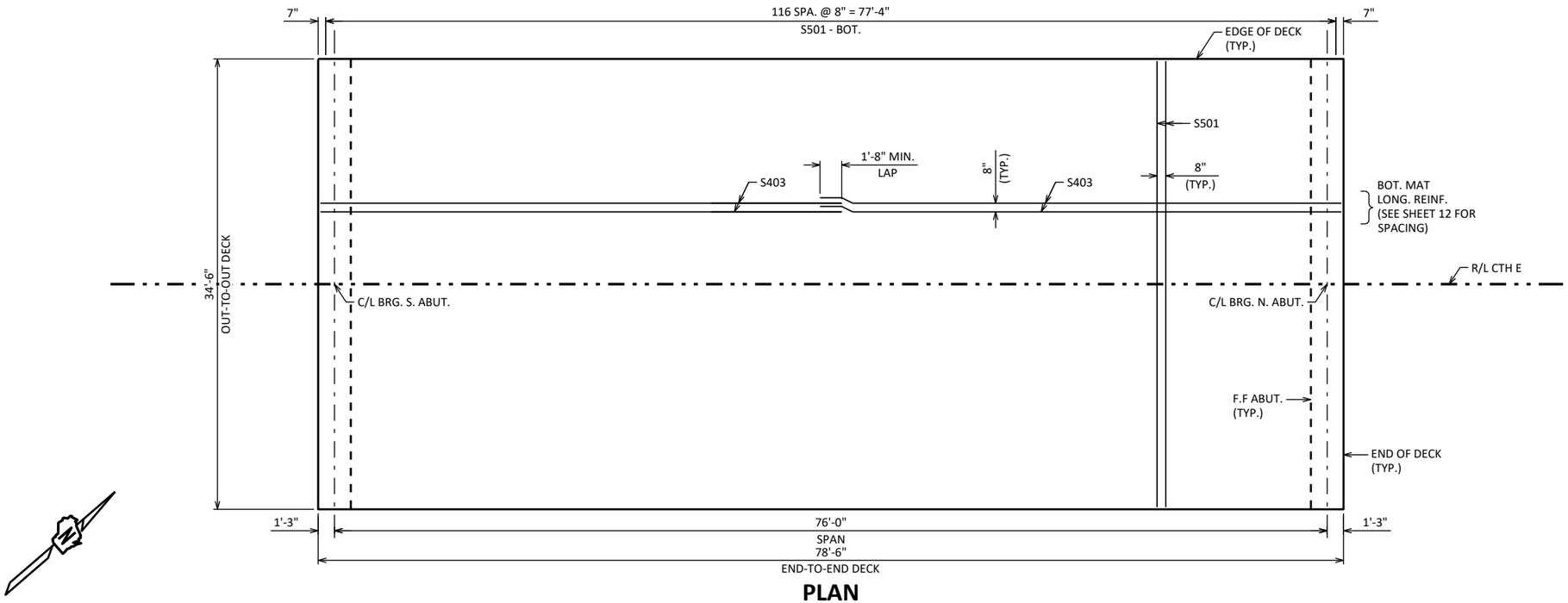
NOTES

SEE SHEETS 12-13 FOR REINFORCING DETAILS.



PLAN

(SHOWING TOP MAT DECK AND PARAPET REINFORCING)



PLAN

(SHOWING BOTTOM MAT DECK REINFORCING)

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

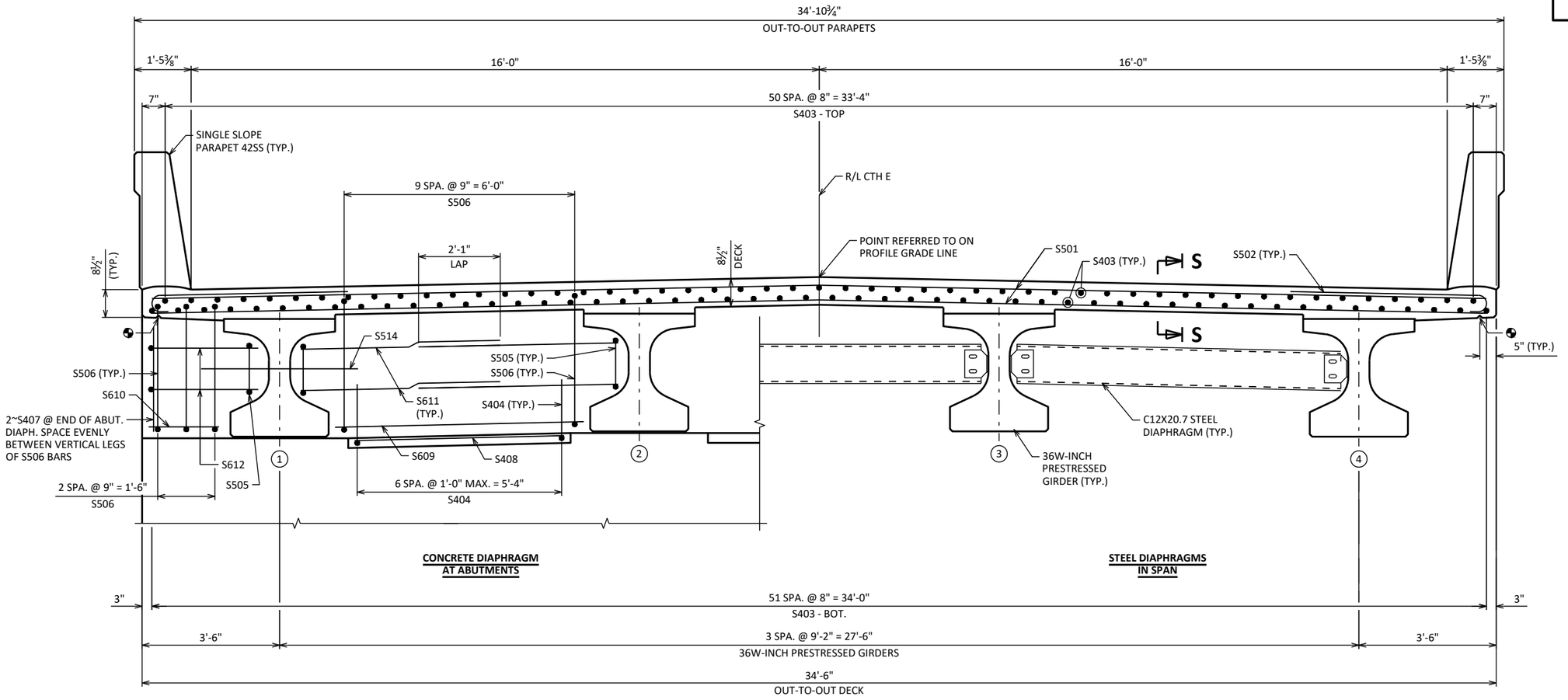
DRAWN BY ABH | PLANS CK'D EJC

SUPERSTRUCTRE PLAN

SHEET 11
100

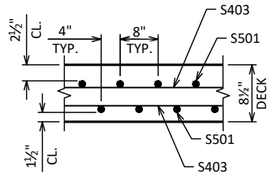
STATE PROJECT NUMBER

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CROSS SECTION THRU DECK

(LOOKING NORTH)



SECTION S-S

NOTES

SEE SHEET 13 FOR REINFORCING DETAILS.

LEGEND

(#) INDICATES GIRDER NUMBER.

¾" V-GROOVE REQUIRED. EXTEND TO 6" FROM F.F. OF ABUT. DIAPHRAGM.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

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SUPERSTRUCTURE SECTION

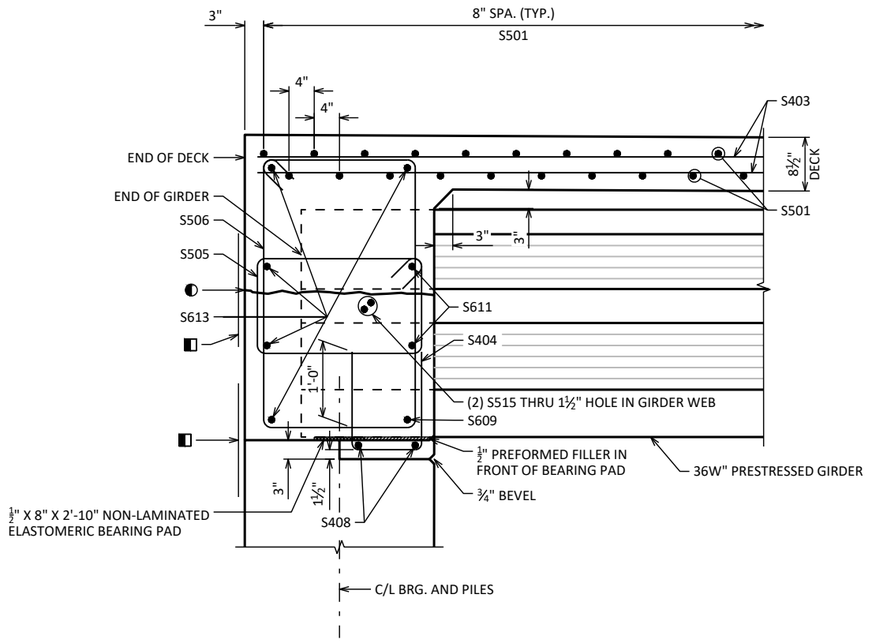
SHEET 12
101

8

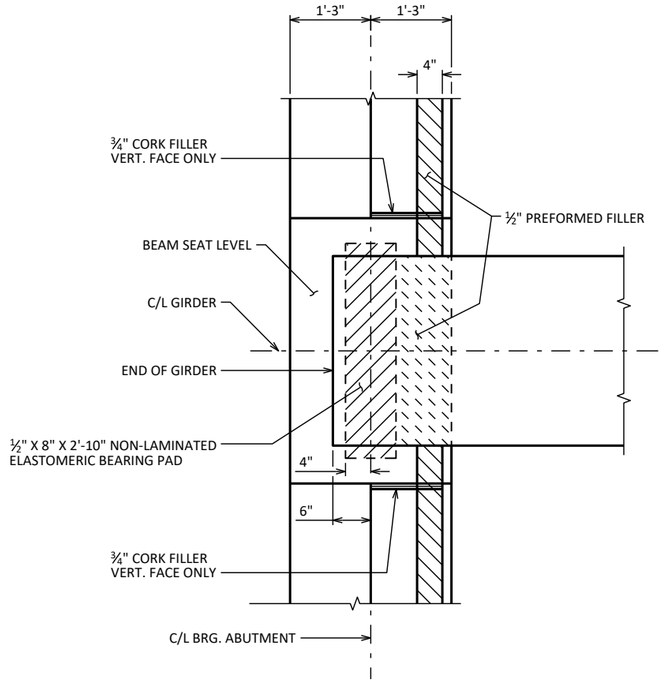
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STATE PROJECT NUMBER

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SUPERSTRUCTURE DETAILS AT ABUTMENT

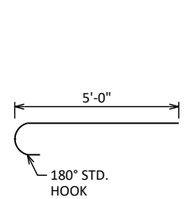


BEARING PAD DETAIL

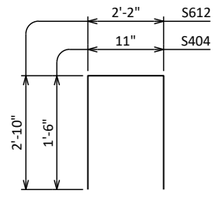
SUPERSTRUCTURE BILL OF BARS

COATED: 21420 LBS

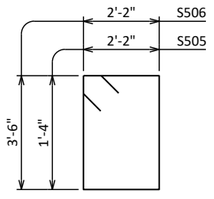
BAR MARK	NO. REQ'D	LENGTH	BENT	COAT	LOCATION
S501	235	34'-2"		X	DECK - TRANS. - TOP & BOT.
S502	234	5'-5"	X	X	DECK - TRANS. - TOP - AT EDGES
S403	206	39'-11"		X	DECK - LONG. - TOP & BOT.
S404	42	3'-9"	X	X	ABUT. DIAPHRAGM - VERT. - LOWER
S505	16	7'-8"	X	X	ABUT. DIAPHRAGM - VERT. - MID
S506	72	12'-0"	X	X	ABUT. DIAPHRAGM - VERT. - MID
S407	8	2'-8"		X	ABUT. DIAPHRAGM - VERT. - ENDS
S408	12	5'-4"		X	ABUT. DIAPHRAGM - HORIZ. - BTWN BEAM SEATS
S609	6	6'-4"		X	ABUT. DIAPHRAGM - HORIZ. - LOWER - F.F.
S610	4	1'-11"		X	ABUT. DIAPHRAGM - HORIZ. - LOWER - F.F. - ENDS
S611	24	5'-1"		X	ABUT. DIAPHRAGM - HORIZ. - MID - F.F.
S612	8	7'-6"	X	X	ABUT. DIAPHRAGM - HORIZ. - MID - ENDS
S613	10	34'-2"		X	ABUT. DIAPHRAGM - HORIZ. - TOP & BOT. B.F.
S514	16	6'-0"		X	ABUT. DIAPHRAGM - HORIZ. - THRU GIRDERS
S515	236	4'-5"	X	X	PARAPET - VERT.
S516	236	6'-8"	X	X	PARAPET - VERT.
S517	32	40'-7"		X	PARAPET - HORIZ.



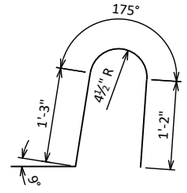
S502



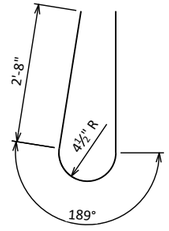
S404, S612



S505, S506



S515



S516

TOP OF DECK ELEVATIONS

SPAN 1											
	C/L BRG. S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	C/L BRG. N. ABUT.
W. DECK EDGE	831.50	831.46	831.42	831.39	831.35	831.31	831.27	831.23	831.20	831.16	831.12
GIRDER 1	831.54	831.51	831.47	831.43	831.39	831.35	831.32	831.28	831.24	831.20	831.16
GIRDER 2	831.73	831.69	831.65	831.61	831.58	831.54	831.50	831.46	831.42	831.39	831.35
REF. LINE	831.82	831.78	831.74	831.71	831.67	831.63	831.59	831.55	831.52	831.48	831.44
GIRDER 3	831.73	831.69	831.65	831.61	831.58	831.54	831.50	831.46	831.42	831.39	831.35
GIRDER 4	831.54	831.51	831.47	831.43	831.39	831.35	831.32	831.28	831.24	831.20	831.16
E. DECK EDGE	831.50	831.46	831.42	831.39	831.35	831.31	831.27	831.23	831.20	831.16	831.12

LEGEND

◐ OPTIONAL CONST. 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.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

DRAWN BY ABH | PLANS CK'D EJC

SUPERSTRUCTURE DETAILS

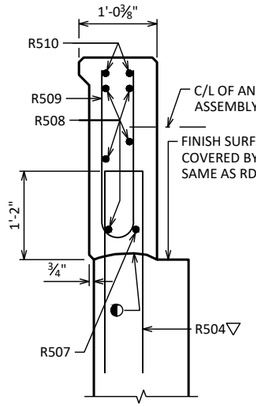
SHEET 13
102

8

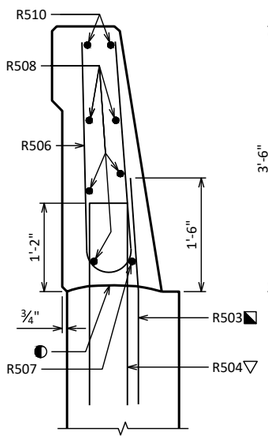
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STATE PROJECT NUMBER

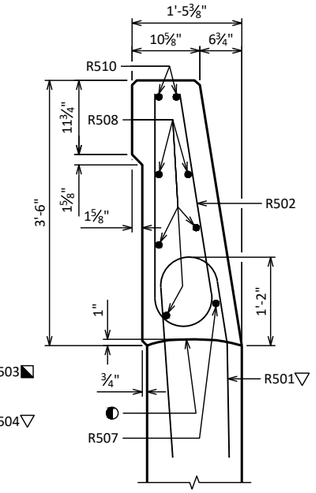
6844-01-72



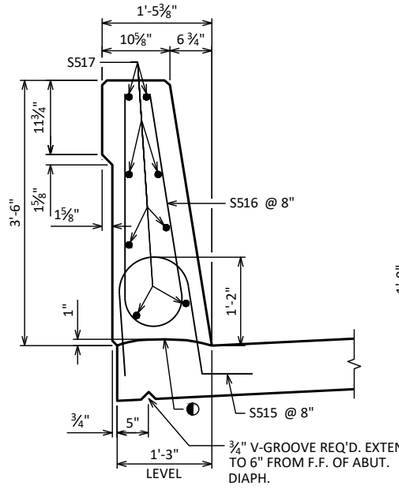
SECTION A-A



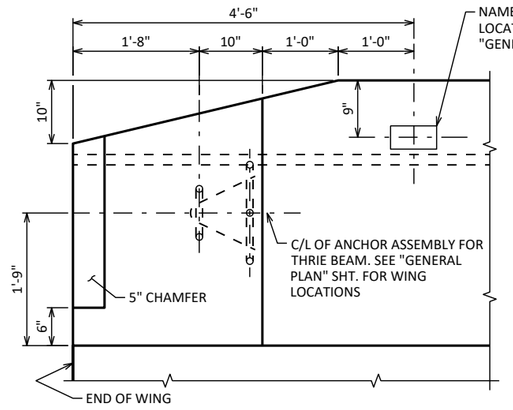
SECTION B-B



SECTION C-C



SECTION THRU PARAPET ON DECK



PARAPET END TREATMENT DETAIL

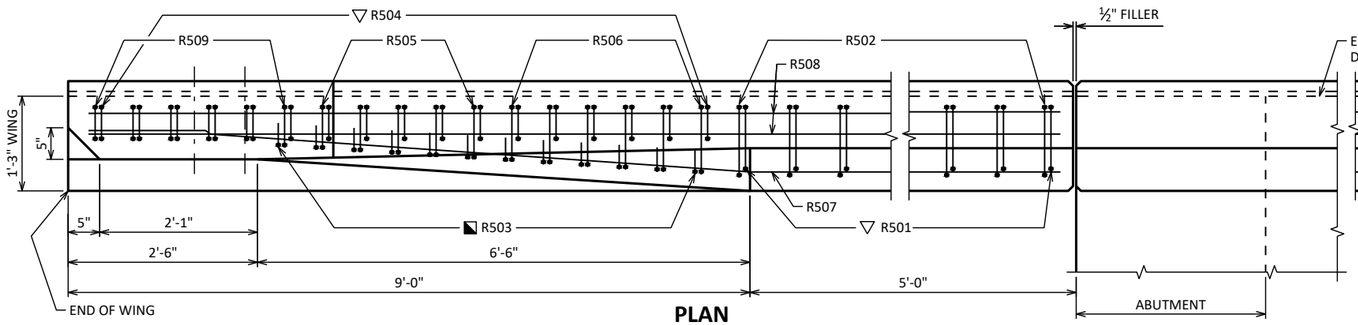
LOOKING AT INSIDE FACE OF PARAPET

SINGLE SLOPE PARAPET 42SS (AT ABUTMENTS)

BILL OF BARS — COATED: 1900 LBS

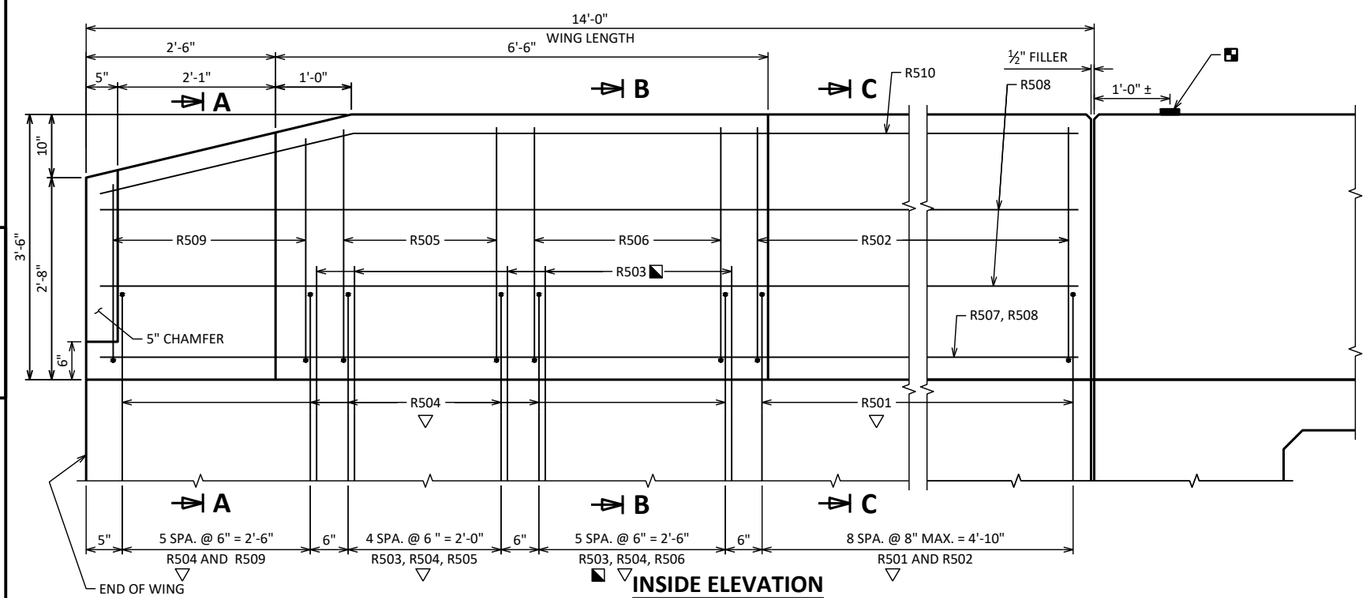
BAR MARK	S. ABUT.	N. ABUT.	LENGTH	BENT	COAT	SERIES	LOCATION
R501	18	18	5'-10"	X	X		PARAPET VERT.
R502	18	18	6'-8"	X	X		PARAPET VERT.
R503	24	24	3'-0"	X	X		PARAPET VERT.
R504	34	34	5'-7"	X	X		PARAPET VERT.
R505	10	10	6'-5"	X	X		PARAPET VERT.
R506	12	12	6'-6"	X	X		PARAPET VERT.
R507	2	2	13'-7"	X	X		PARAPET HORIZ.
R508	10	10	13'-7"		X		PARAPET HORIZ.
R509	12	12	5'-5"	X	X	⚠	PARAPET VERT.
R510	4	4	13'-7"	X	X		PARAPET HORIZ.

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



PLAN

WING 2 SHOWN, OTHERS SIMILAR



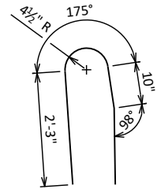
INSIDE ELEVATION

WING 2 SHOWN, OTHERS SIMILAR

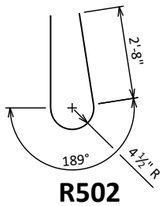
BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

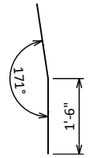
BAR MARK	NO. REQ'D.	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"



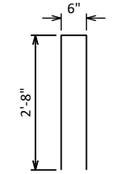
R501



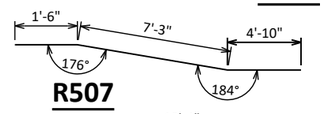
R502



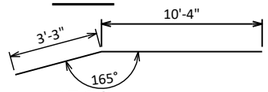
R503



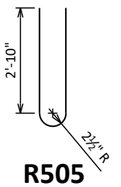
R504



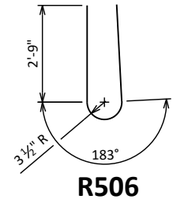
R507



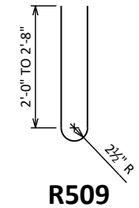
R510



R505



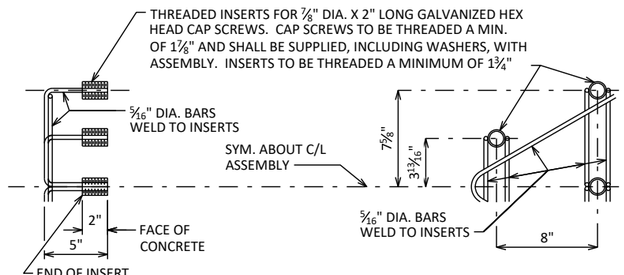
R506



R509

LEGEND

- CONST. JOINT - STRIKE OFF AS SHOWN
- R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.
- BENCH MARK CAP (WHEN SUPPLIED). AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-155

DRAWN BY ABH | PLANS CK'D EJC

SINGLE SLOPE PARAPET 42SS

SHEET 14

103

8

8

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	FILL	EBS	CUT NOTE 1	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 5
11+40.36	0.00	7.38	0.00	0.37	0	0	0	0	0	0
11+50.00	9.64	6.92	0.00	0.35	3	0	0	3	0	3
12+00.00	50.00	6.04	9.33	0.30	12	9	1	15	11	4
12+03.31	3.31	27.72	15.72	1.39	2	2	0	17	14	3
12+32.24	28.93	28.57	53.60	1.43	30	37	2	47	60	-13
12+50.00	17.76	29.24	60.47	1.46	19	38	1	66	108	-42
12+60.05	10.05	29.78	68.46	1.49	11	24	1	77	138	-61
12+84.57	24.52	54.80	62.61	2.74	38	60	2	115	213	-98
13+00.00	15.43	54.66	29.34	2.73	31	26	2	146	245	-99
13+09.56	9.56	57.41	32.53	2.87	20	11	1	166	259	-93
13+22.09	12.53	55.66	35.83	2.78	26	16	1	192	279	-87
13+47.07	24.98	49.42	29.29	2.47	49	30	2	241	316	-75
13+50.00	2.93	50.42	26.51	2.52	5	3	0	246	320	-74
13+72.00	22.00	40.54	13.33	2.03	37	16	2	283	340	-57
14+00.00	28.00	38.86	13.09	1.94	41	14	2	324	358	-34
14+24.75	24.75	34.89	5.92	1.74	34	9	2	358	369	-11
15+03.25	0.00	48.12	3.04	2.41	0	0	0	358	369	-11
15+50.00	46.75	66.34	0.56	3.32	99	3	5	457	373	85
15+55.93	5.93	71.33	3.62	3.57	15	0	1	472	373	100
15+73.32	17.39	191.33	13.59	9.57	85	6	4	557	380	177
15+80.91	7.59	173.87	29.58	8.69	51	6	3	608	388	221
16+00.00	19.09	78.18	47.87	3.91	89	27	4	697	421	276
16+05.90	5.90	81.49	47.43	4.07	17	10	1	714	434	280
16+50.00	44.10	73.36	39.84	3.67	126	71	6	840	523	318
17+00.00	50.00	66.37	11.55	3.32	129	48	6	969	583	387
17+09.97	9.97	64.62	6.83	3.23	24	3	1	993	586	407
17+40.00	30.03	54.41	0.17	2.72	66	4	3	1059	591	468
17+50.00	10.00	54.01	0.00	2.70	20	0	1	1079	591	488
	COLUMN TOTALS				1,079	473	54			

NOTES:

1) CUT: CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2) SALVAGED/UNUSABLE PAVEMENT MATERIAL: NOT SHOWN IN CROSS SECTIONS
3) FILL: FILL DOES NOT INCLUDE SALVAGED/UNUSABLE PAVEMENT MATERIAL
4) EBS CALCULATED AT 5 PERCENT OF CUT
5) MASS ORDINATE: MASS ORDINATE = CUT-EXPANDED FILL

9

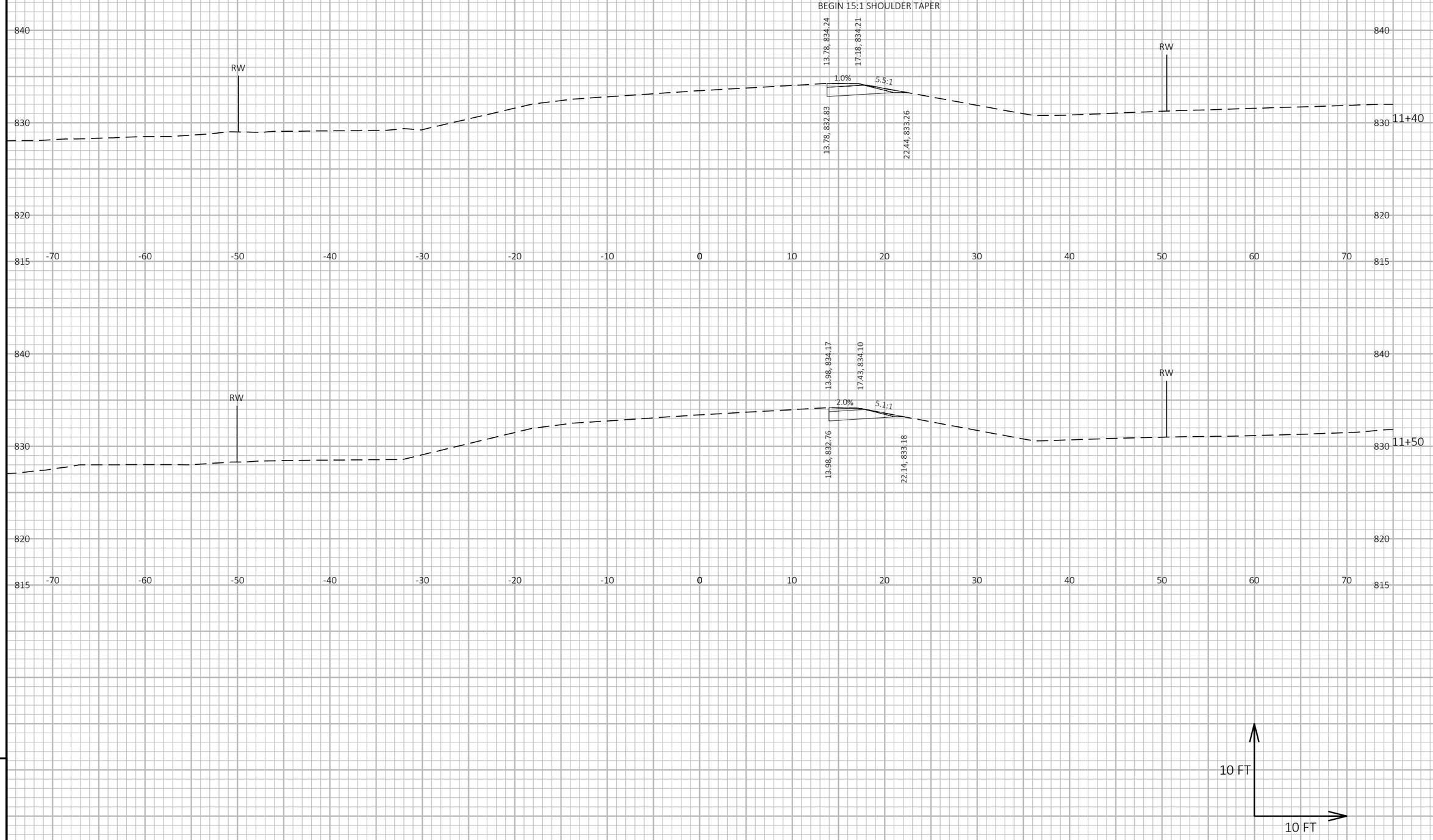
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PROJECT NO: 6844-01-72 | HWY: CTH E | COUNTY: WAUPACA | EARTHWORK | SHEET: 104 | E

FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : PLOT SCALE : 1" = 1" WISDOT/CADDS SHEET 42

BEGIN CONSTRUCTION
STA 11+40.36

BEGIN 15:1 SHOULDER TAPER



9

9

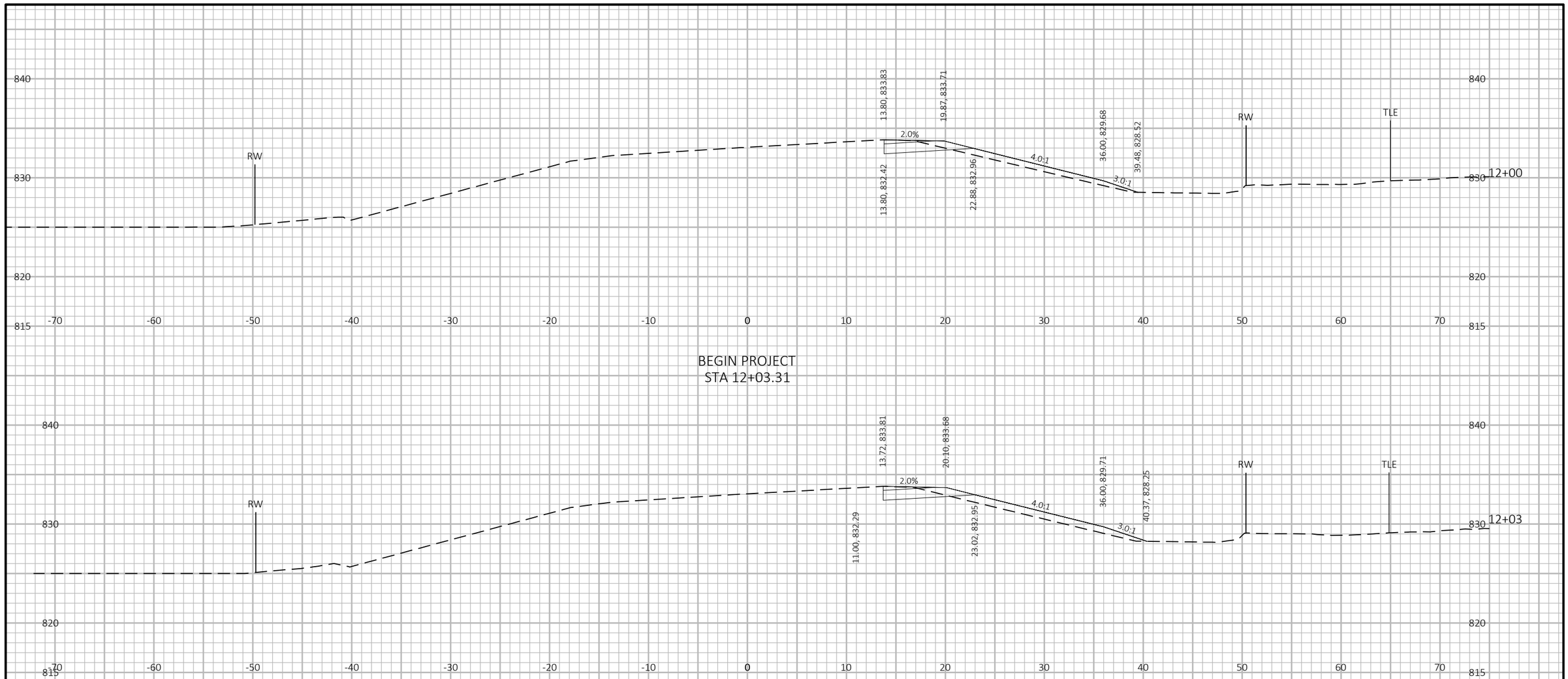
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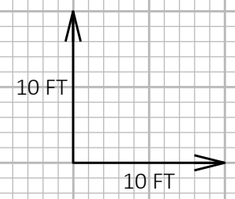
PLOT DATE : 6/25/2026 9:54 AM PLOT BY : DEMPSEY, EDEN PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



BEGIN PROJECT
STA 12+03.31



9

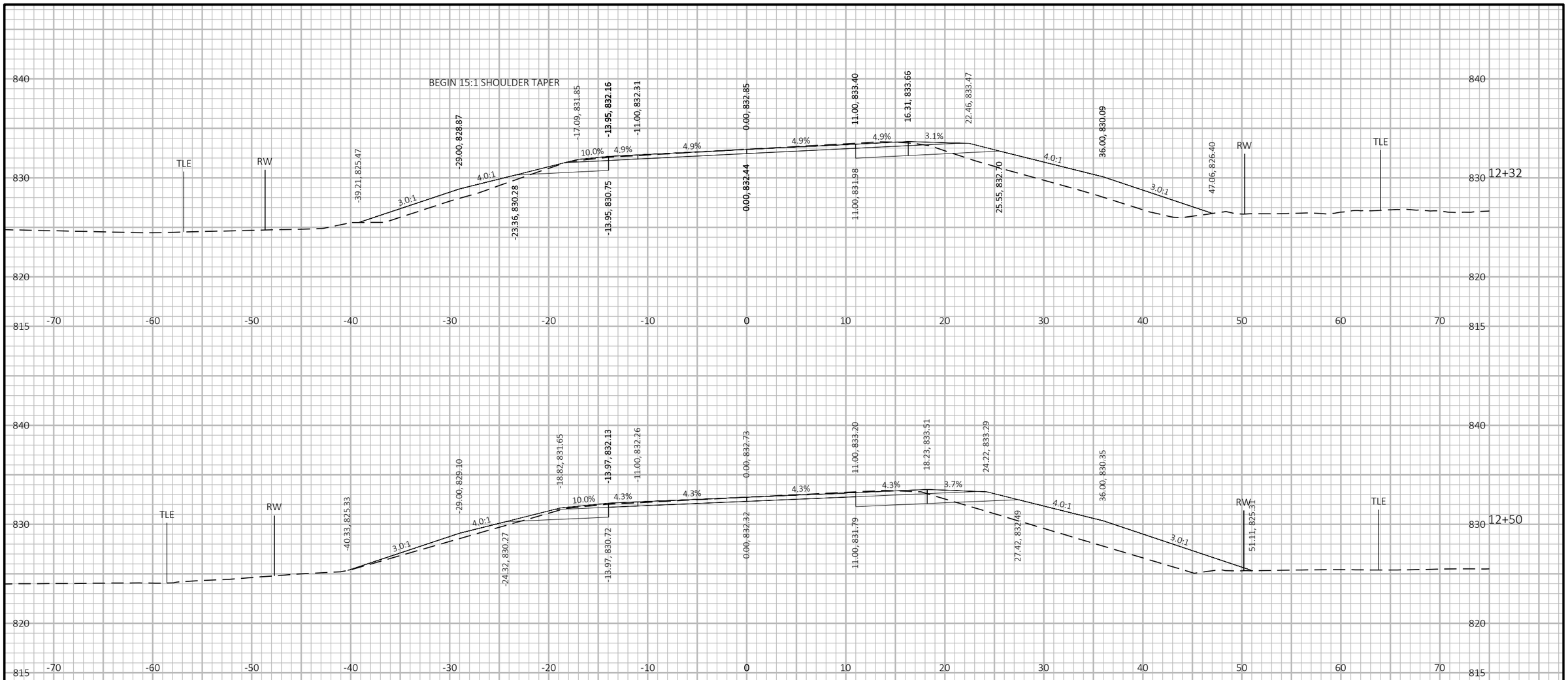
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PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 106	E

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LAYOUT NAME - 090202-xs

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WISDOT/CADDS SHEET 49

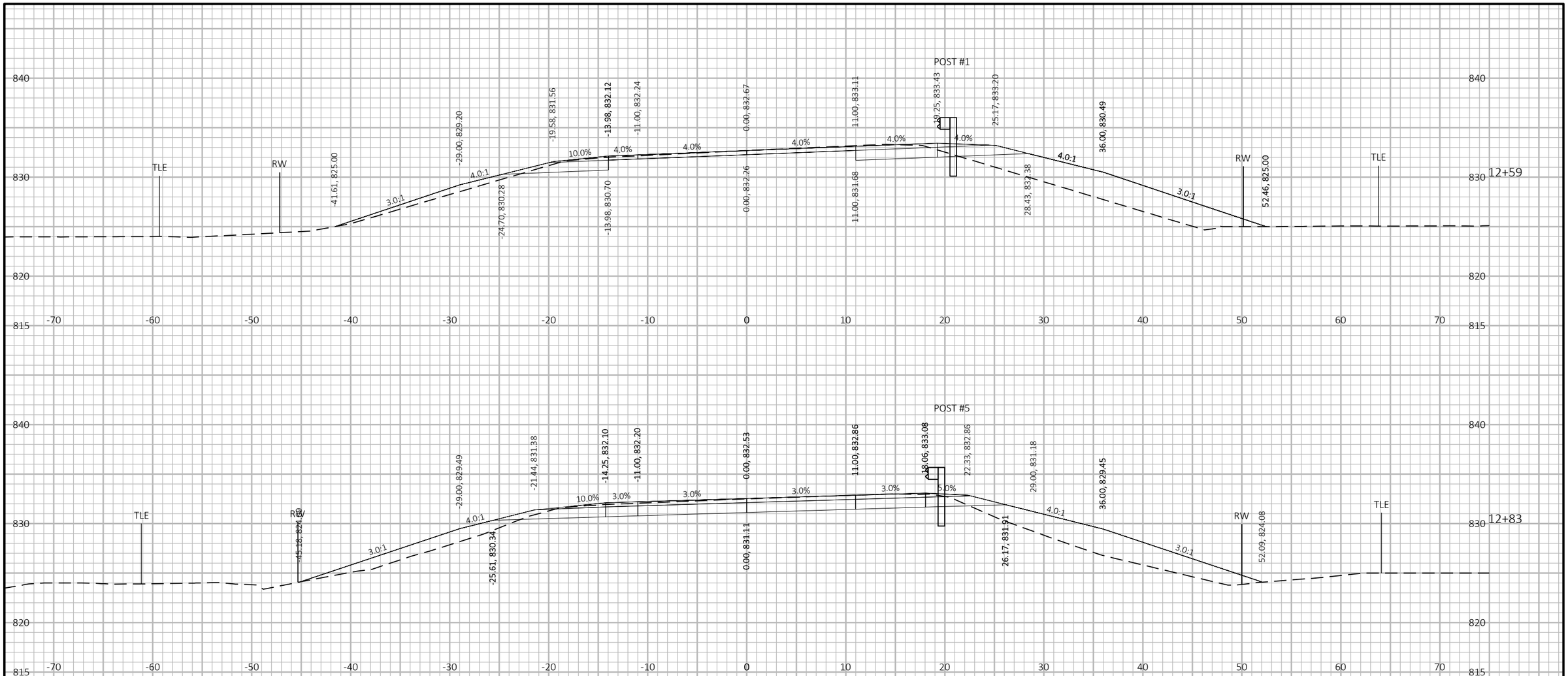


PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 107	E

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LAYOUT NAME - 090203-xs

PLOT DATE : 6/25/2026 9:54 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

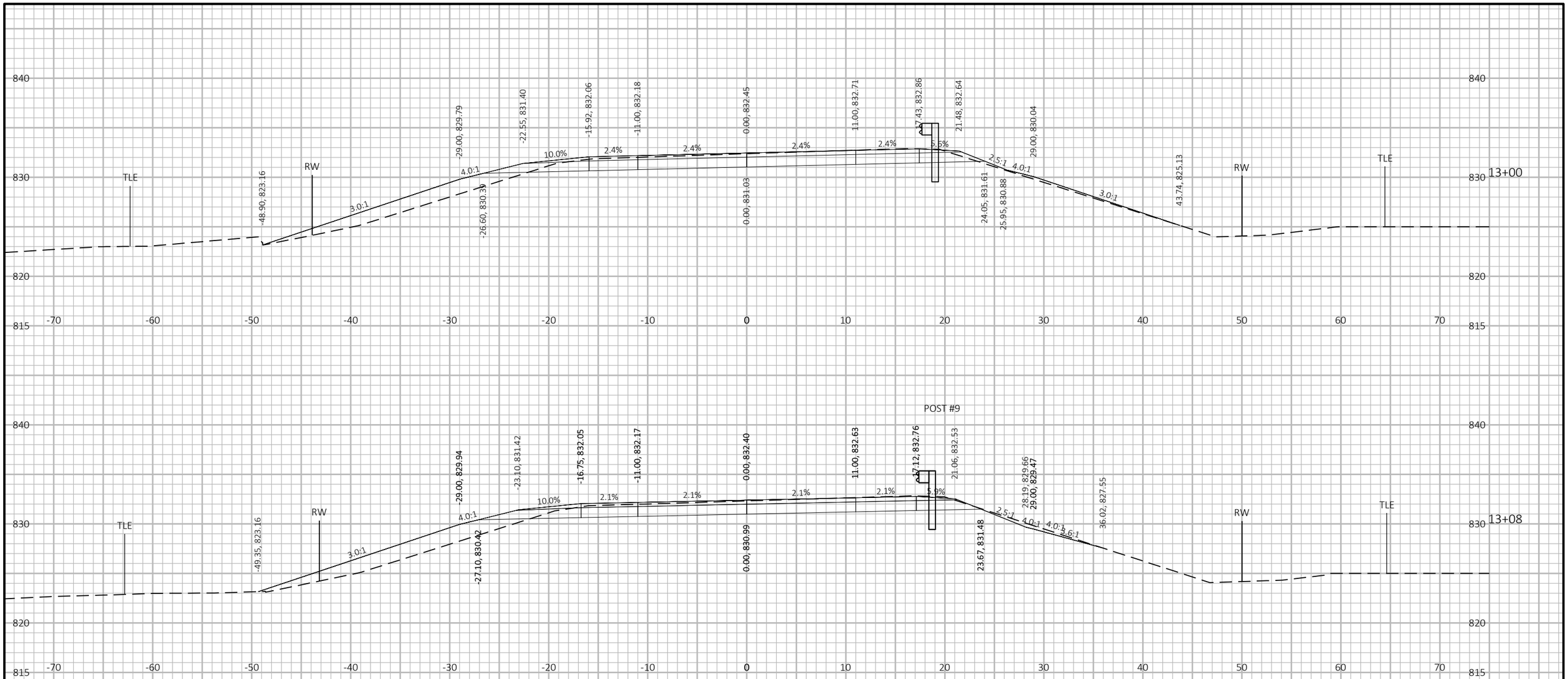
PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 108	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\090201-XS.DWG
LAYOUT NAME - 090204-xs

PLOT DATE : 6/25/2026 9:54 AM PLOT BY : DEMPSEY, EDEN PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

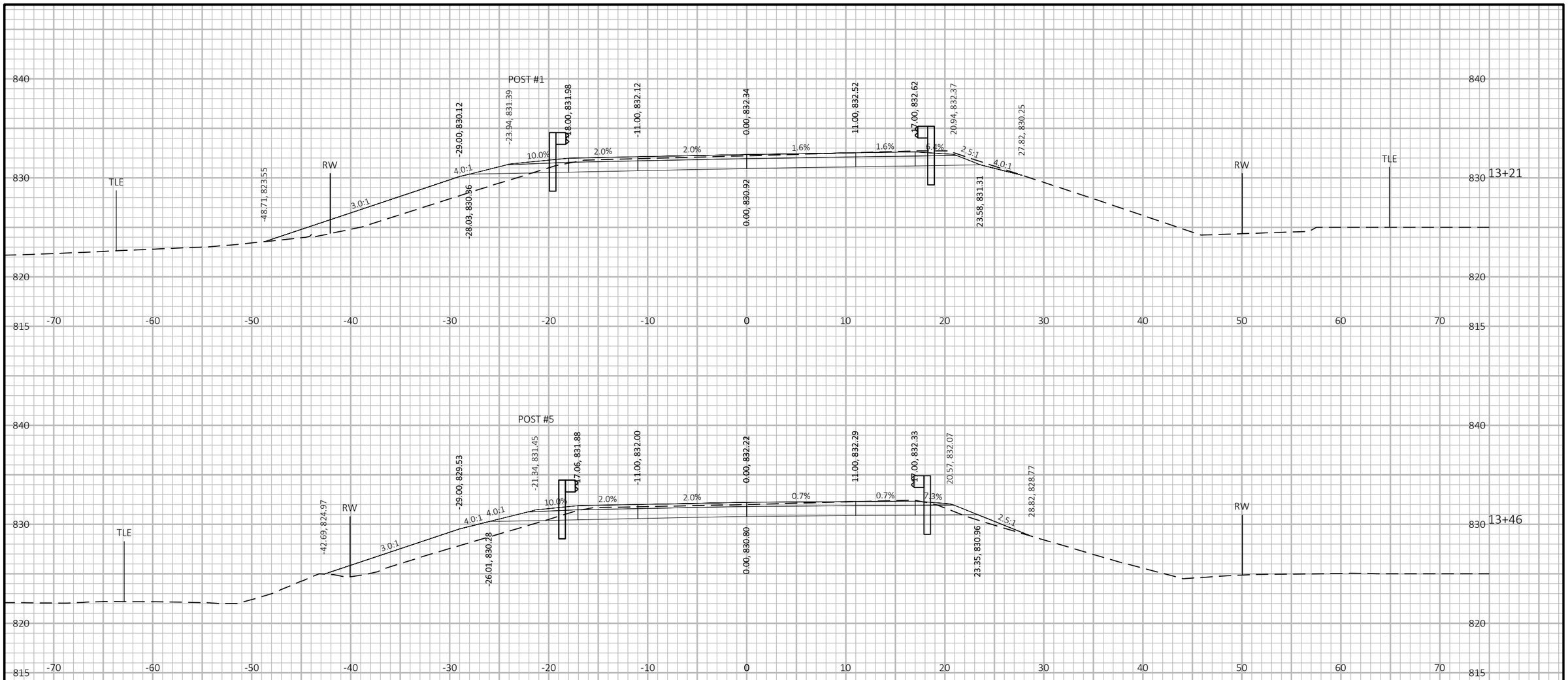
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PLOT DATE : 6/25/2026 9:54 AM PLOT BY : DEMPSEY, EDEN PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

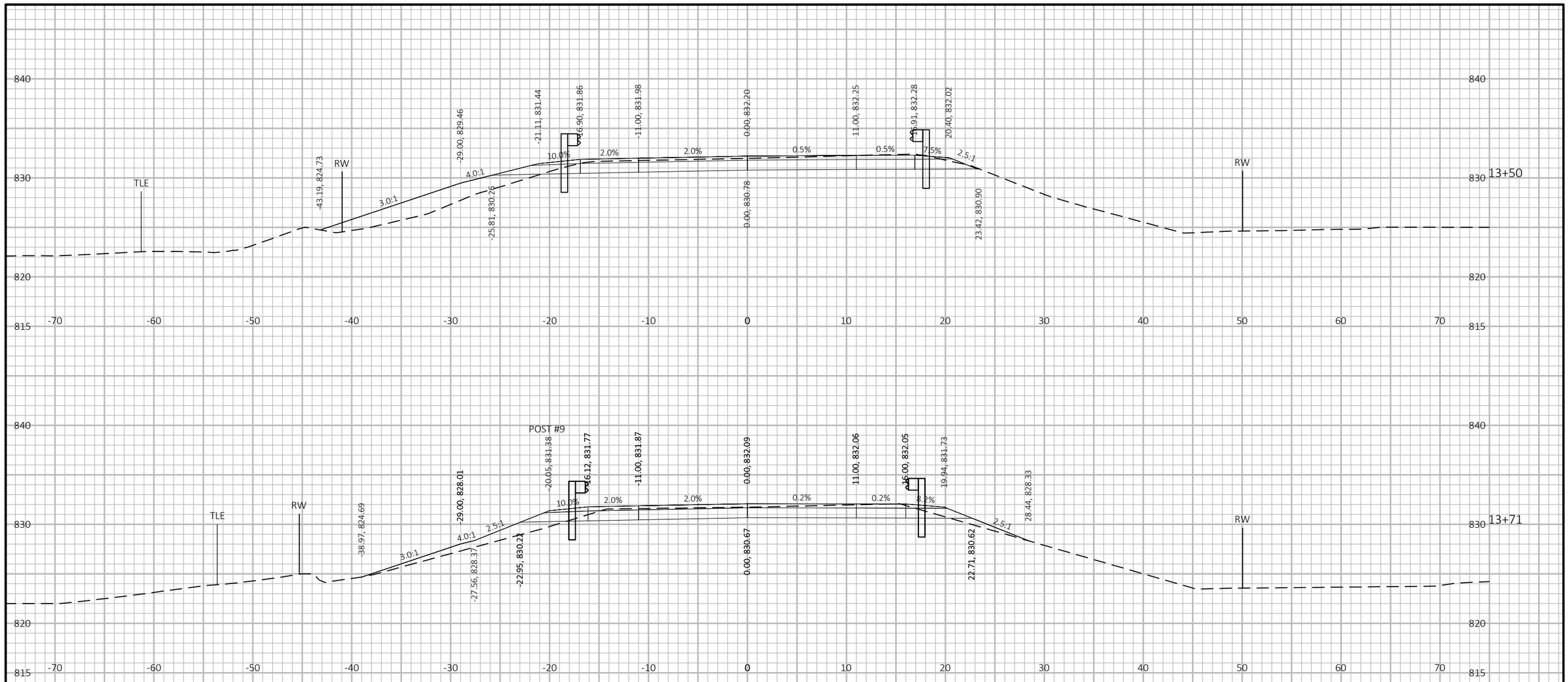
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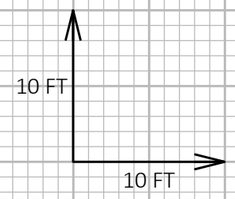
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LAYOUT NAME - 090206-xs

PLOT DATE : 6/25/2026 9:55 AM PLOT BY : DEMPSEY, EDEN PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49





9

9

PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 111	E

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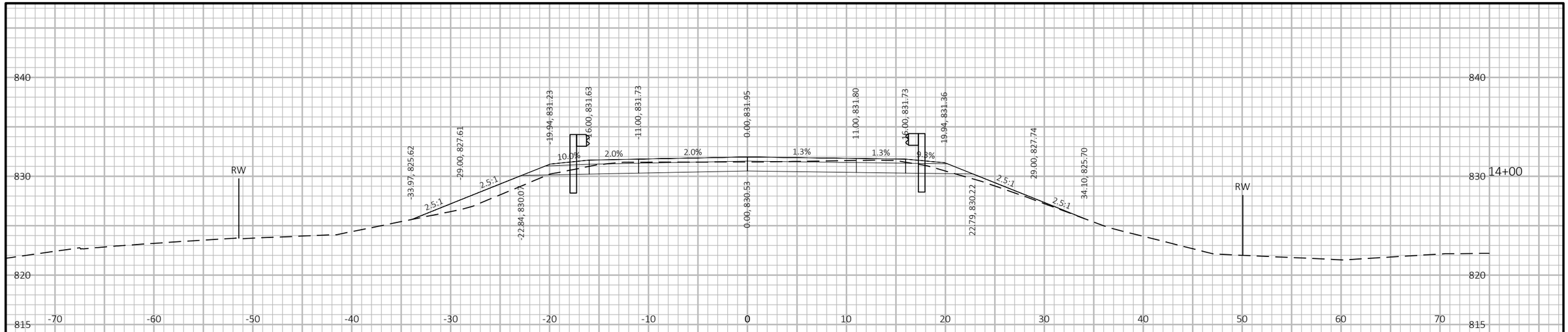
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PLOT BY : DEMPSEY, EDEN

PLOT NAME :

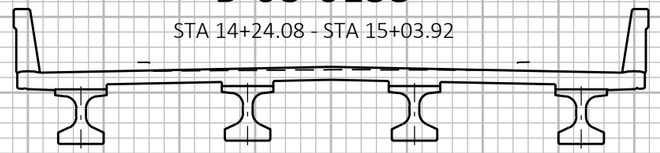
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

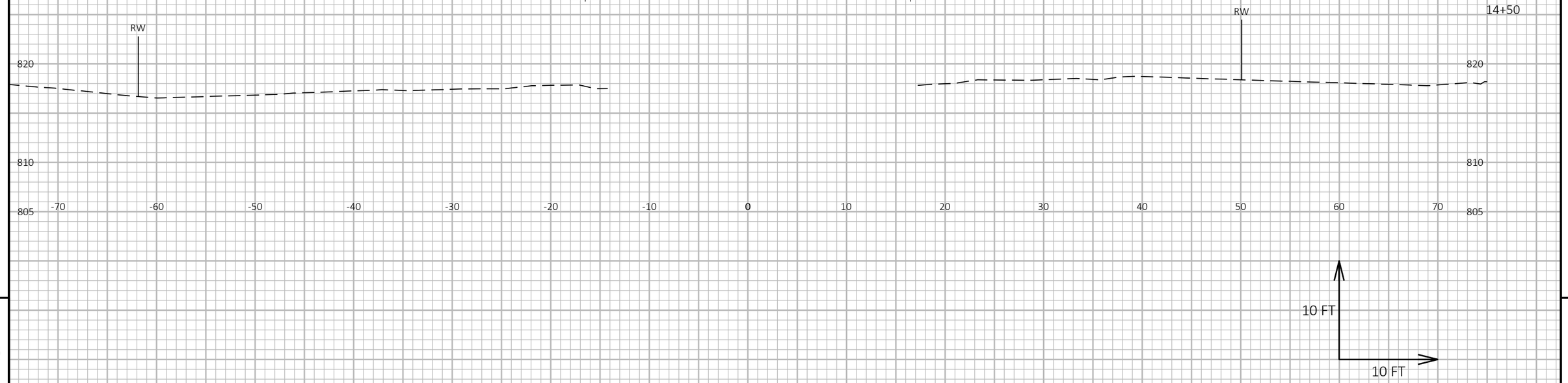
WISDOT/CADDS SHEET 49



B-68-0155

STA 14+24.08 - STA 15+03.92





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PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 112	E

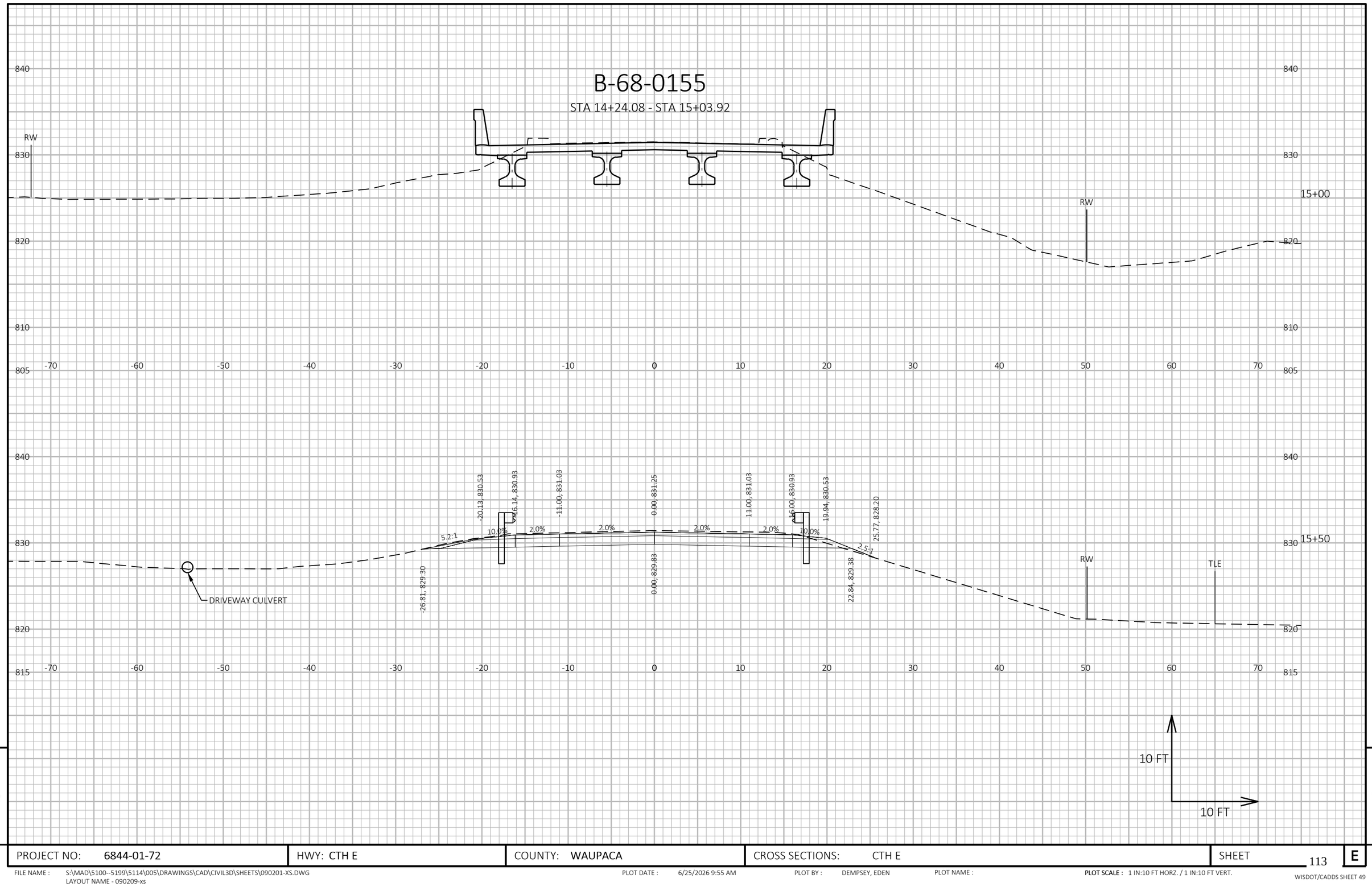
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LAYOUT NAME - 090208-xs

PLOT DATE : 6/25/2026 9:55 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

B-68-0155

STA 14+24.08 - STA 15+03.92



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PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 113	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\090201-XS.DWG
LAYOUT NAME - 090209-xs

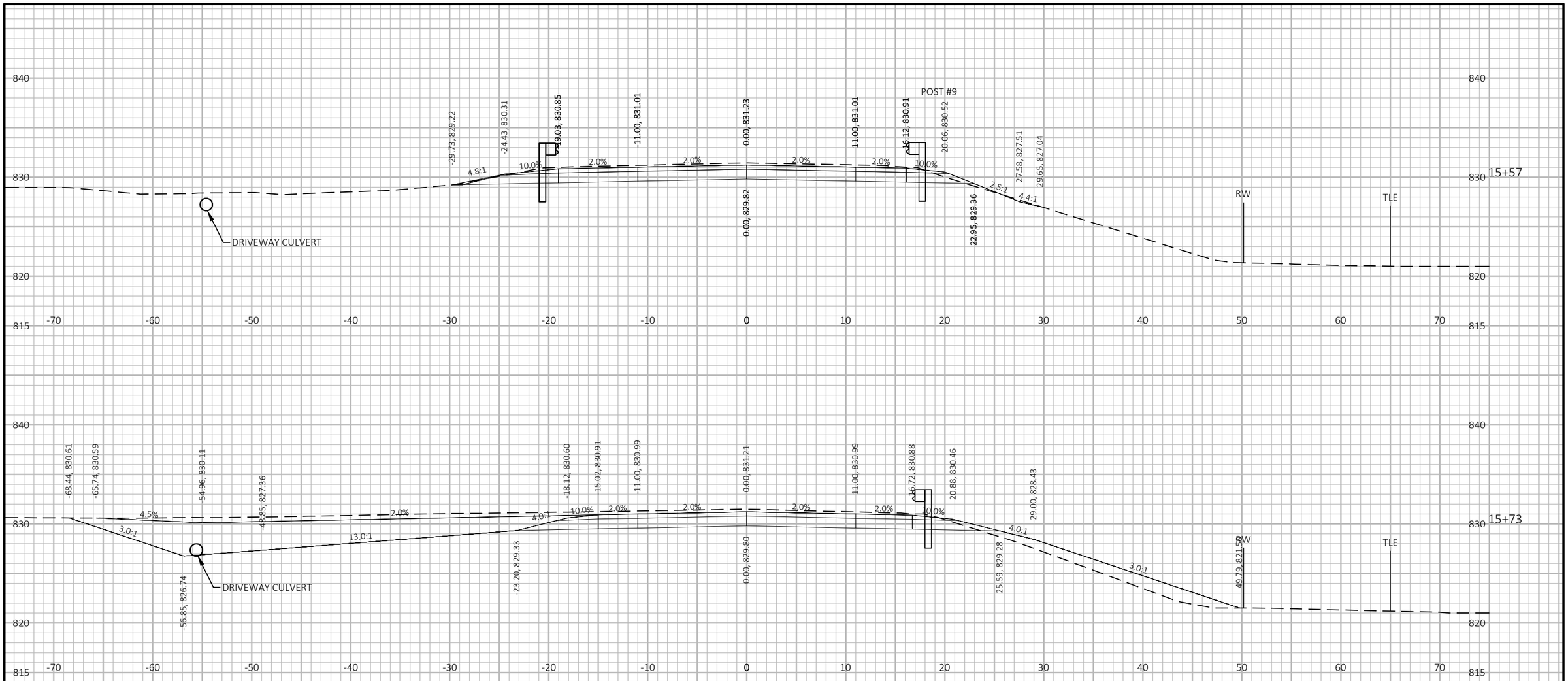
PLOT DATE : 6/25/2026 9:55 AM

PLOT BY : DEMPSEY, EDEN

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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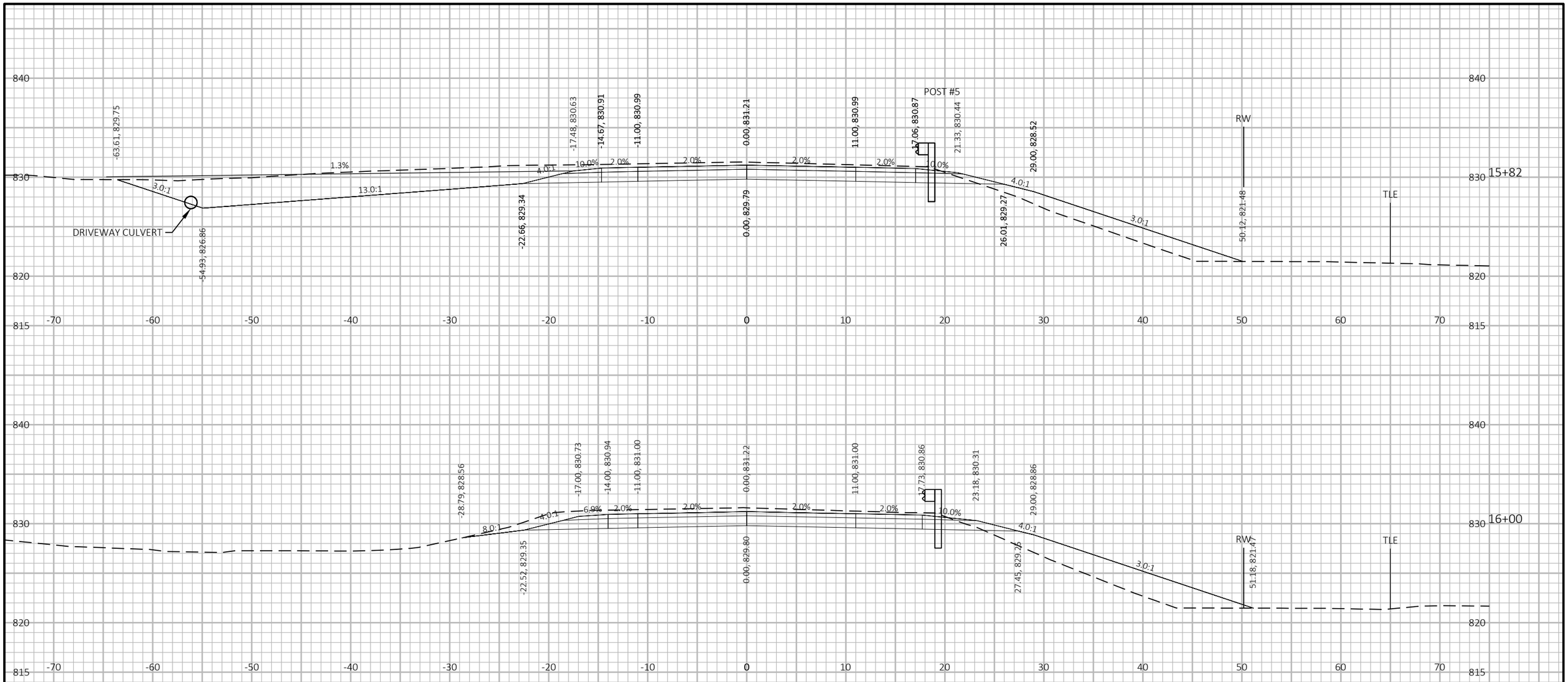
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LAYOUT NAME - 090210-xs

PLOT DATE : 6/25/2026 9:55 AM PLOT BY : DEMPSEY, EDEN PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

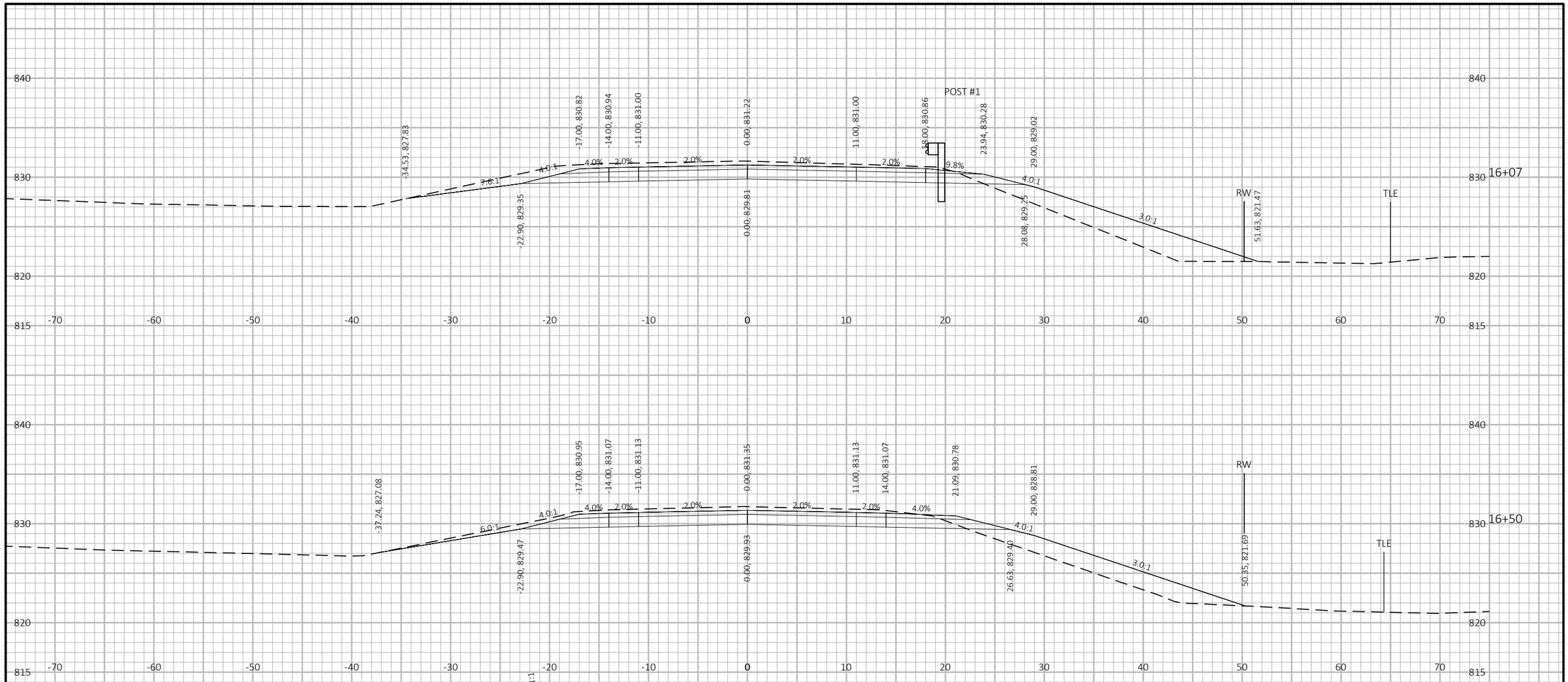


PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 115 E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\090201-XS.DWG
LAYOUT NAME - 090211-xs

PLOT DATE : 6/25/2026 9:55 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



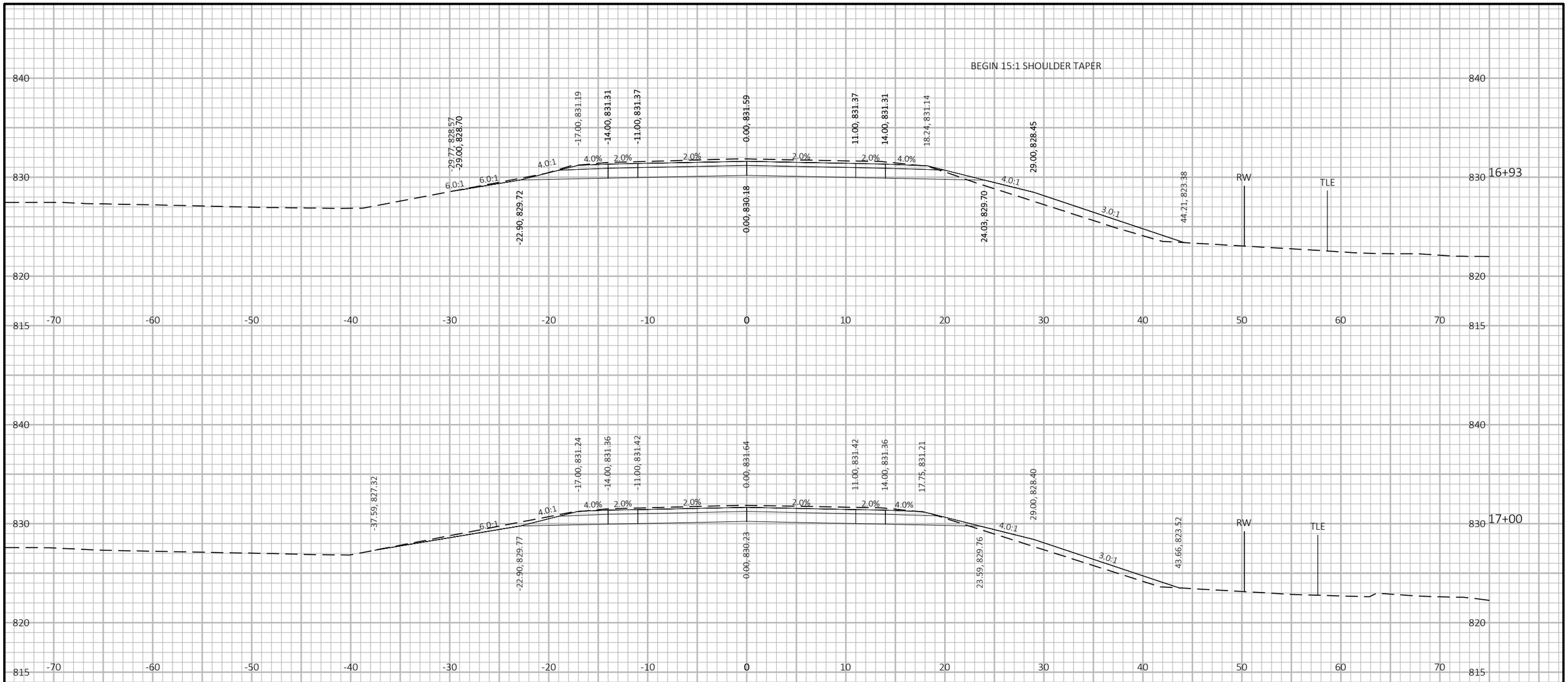
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PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 116	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\090201-XS.DWG
LAYOUT NAME - 090212-xs

PLOT DATE : 6/25/2026 9:55 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

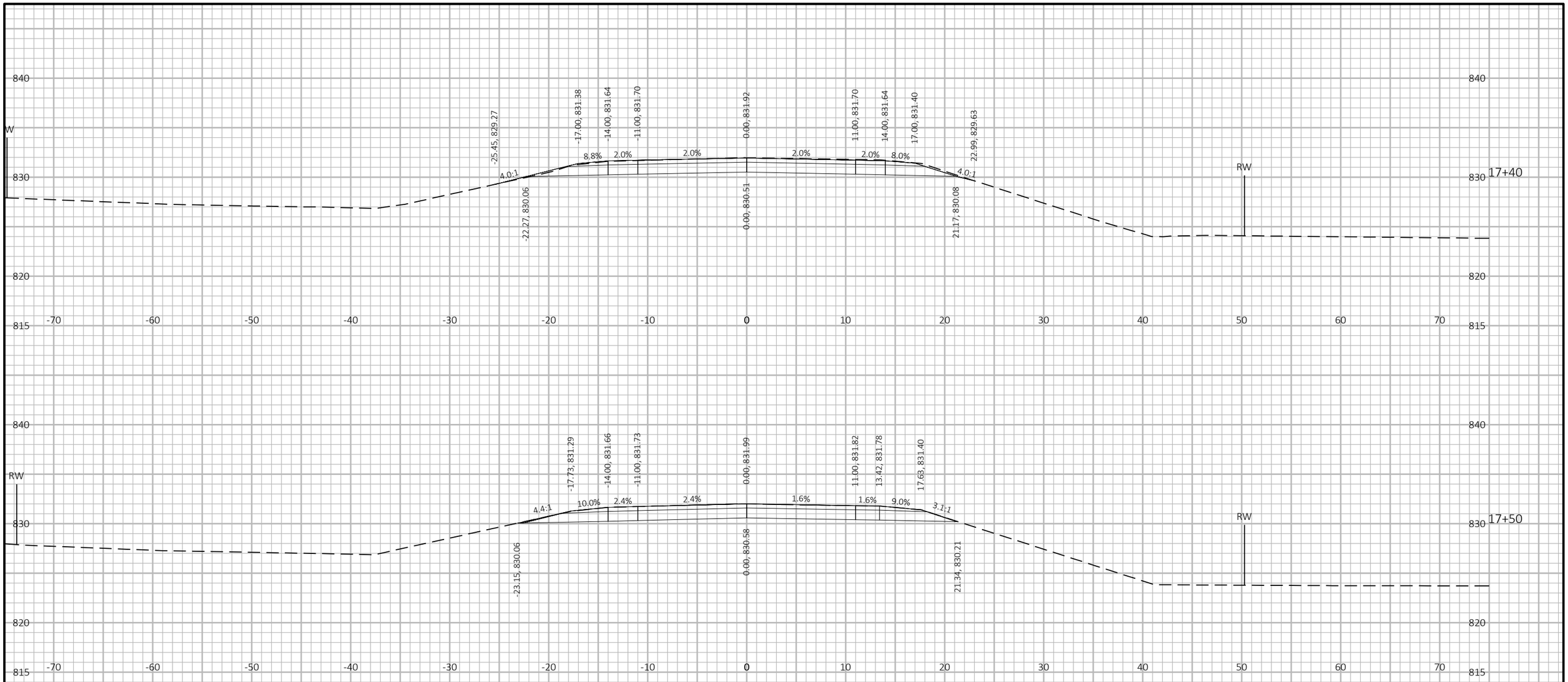


PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 117	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\090201-XS.DWG
LAYOUT NAME - 090213-xs

PLOT DATE : 6/25/2026 9:55 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



PROJECT NO: 6844-01-72	HWY: CTH E	COUNTY: WAUPACA	CROSS SECTIONS: CTH E	SHEET 118	E

FILE NAME : S:\MAD\5100--5199\5114\005\DRAWINGS\CAD\CIVIL3D\SHEETS\090201-XS.DWG
LAYOUT NAME - 090214-xs

PLOT DATE : 6/25/2026 9:55 AM PLOT BY : DEMPSEY, EDEN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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