

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1180-01-73	WISC 2024292	1

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

INO - ASHLAND

FISH CRK BR B-04-0057

USH 2 BAYFIELD

STATE PROJECT NUMBER
1180-01-73

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 = 90



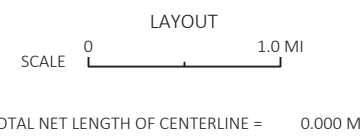
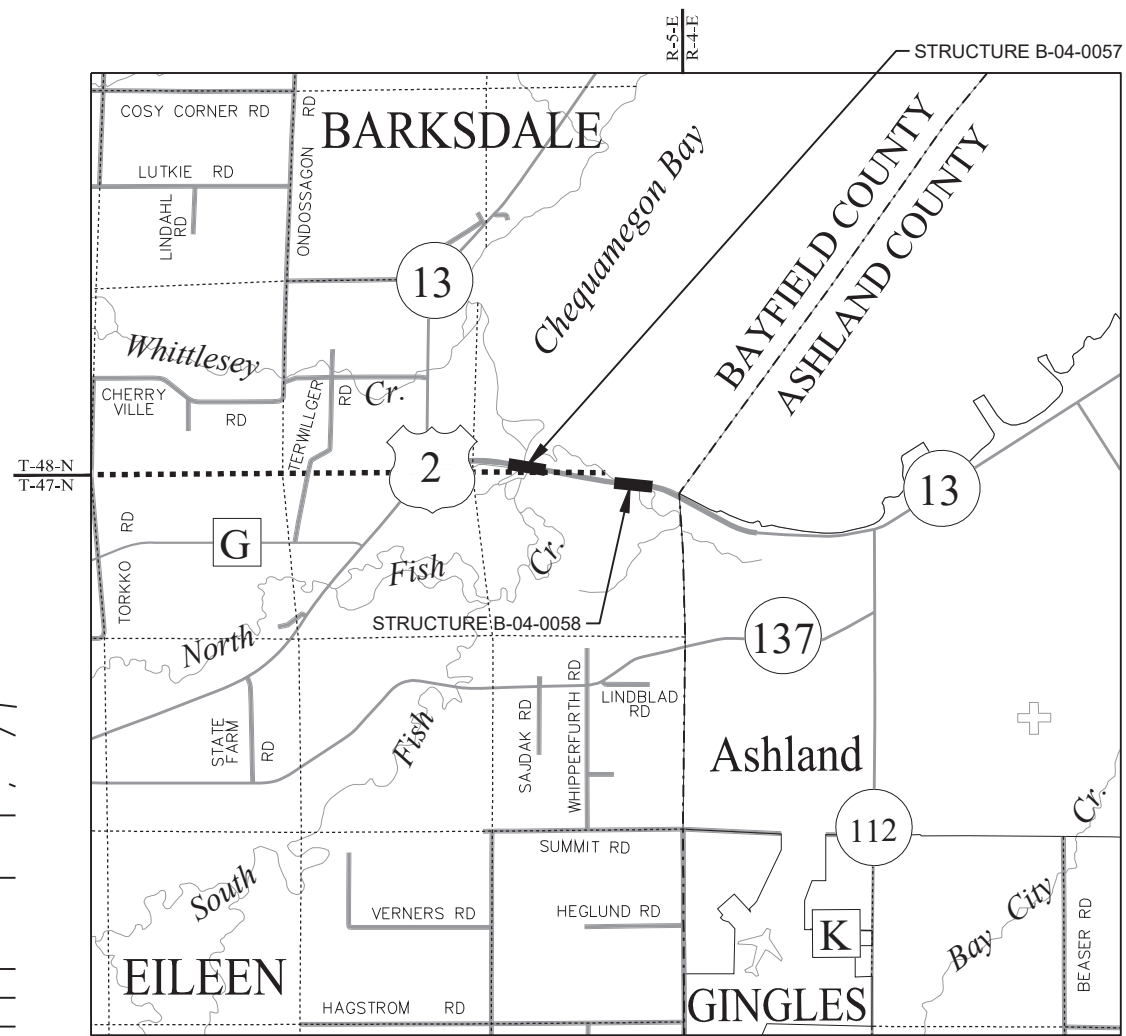
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DESIGN DESIGNATION

A.A.D.T.	2024	=	11,280
A.A.D.T.	2044	=	11,280
D.H.V.		=	N/A
D.D.		=	N/A
T.		=	9.4%
DESIGN SPEED		=	55 MPH
ESALS		=	N/A

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS		GRADE LINE	
PROPERTY LINE		ORIGINAL GROUND	
LOT LINE		MARSH OR ROCK PROFILE (To be noted as such)	
LIMITED HIGHWAY EASEMENT		SPECIAL DITCH	
EXISTING RIGHT OF WAY		GRADE ELEVATION	
PROPOSED OR NEW R/W LINE		CULVERT (Profile View)	
SLOPE INTERCEPT		UTILITIES	
REFERENCE LINE		ELECTRIC	
EXISTING CULVERT		FIBER OPTIC	
PROPOSED CULVERT (Box or Pipe)		GAS	
COMBUSTIBLE FLUIDS		SANITARY SEWER	
MARSH AREA		STORM SEWER	
WOODED OR SHRUB AREA		TELEPHONE	
		WATER	
		UTILITY PEDESTAL	
		POWER POLE	
		TELEPHONE POLE	



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

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



500 North 17th Avenue
Wausau, WI 54401
715.845.1081 Fax 715.845.1099



10-5-23 (Date) *Stephane G. Christensen* (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	EMCS, INC.
Designer	EMCS, INC.
Project Manager	PHILIP KEPPERS
Regional Examiner	TOU YANG
Regional Supervisor	JEFFREY OLSON

APPROVED FOR THE DEPARTMENT
DATE: 10/6/2023 *Philip Keppers* (Signature)

E

PROJECT ID: 1180-01-73

COUNTY: BAYFIELD

GENERAL NOTES

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

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

AS-BUILTS USED FOR PLAN DEVELOPMENT

PROJECT NO: 1181-04-71, CONSTRUCTION YEAR: 1990
 PROJECT NO: 1181-04-72, CONSTRUCTION YEAR: 1990
 EMERGENCY ASPHALTIC OVERLAY, CONSTRUCTION YEAR: 2013
 EMERGENCY SCOUR REPAIR; B-04-0057, CONSTRUCTION YEAR: 2022

ORDER OF SECTION 2 SHEETS

- TYPICAL SECTIONS
- CONSTRUCTION DETAILS (INCLUDES EROSION CONTROL)
- PAVING DETAIL
- TRAFFIC CONTROL

UTILITIES

COMMUNICATIONS

BRIGHTSPEED OF NORTH CENTRAL WI, LLC
 MARK SCRIBNER
 1905 WARD AVENUE
 LACROSSE, WI 54601
 MOBILE PHONE: (715) 492-7976
 MARK.SCRIBNER@BRIGHTSPEED.COM

SPECTRUM
 RYAN NELSON
 1810 LAKESHORE DRIVE E
 ASHLAND, WI 54806
 MOBILE PHONE: (715) 931-0238
 RYAN.NELSON@CHARTER.COM

ELECTRIC

XCEL ENERGY
 BEN KOZAK
 2400 FARM ROAD
 ASHLAND, WI 54806
 OFFICE PHONE: (715) 682-6915
 BENJAMIN.KOZAK@XCELENERGY.COM

GAS

XCEL ENERGY
 CHERI MARCHELLO
 1751 LIBERTY STREET
 IRONWOOD, MI 49938
 OFFICE PHONE: (906) 767-5125
 CHERI.J.MARCHELLO@XCELENERGY.COM

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 STRIP-TURF	.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 SLOPE-TURF			.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 = 4.5 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.8 ACRES

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

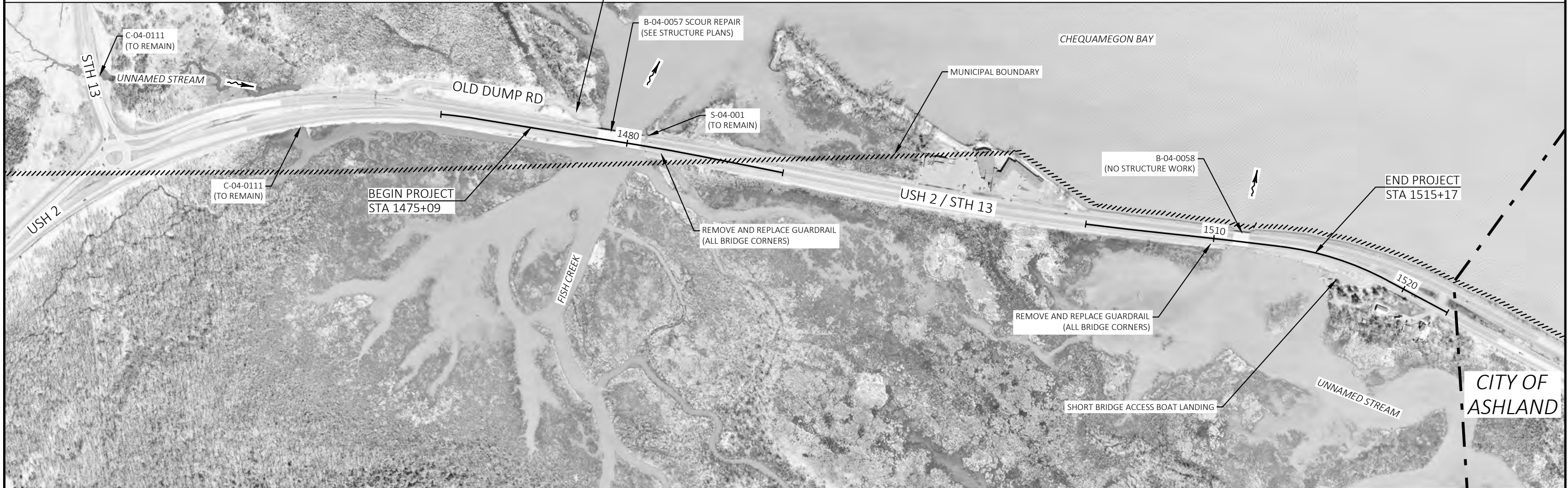
OTHER CONTACTS

WDNR LIAISON
 SHAWN HASELEU
 SPOONER SERVICE CENTER
 810 W MAPLE ST
 SPOONER, WI 54801
 (715) 416-0478
 SHAWN.HASELEU@WISCONSIN.GOV

DESIGNER CONTACT
 EMCS, INC.
 500 NORTH 17TH AVENUE
 WAUSAU, WI 54401
 (715) 845-1081



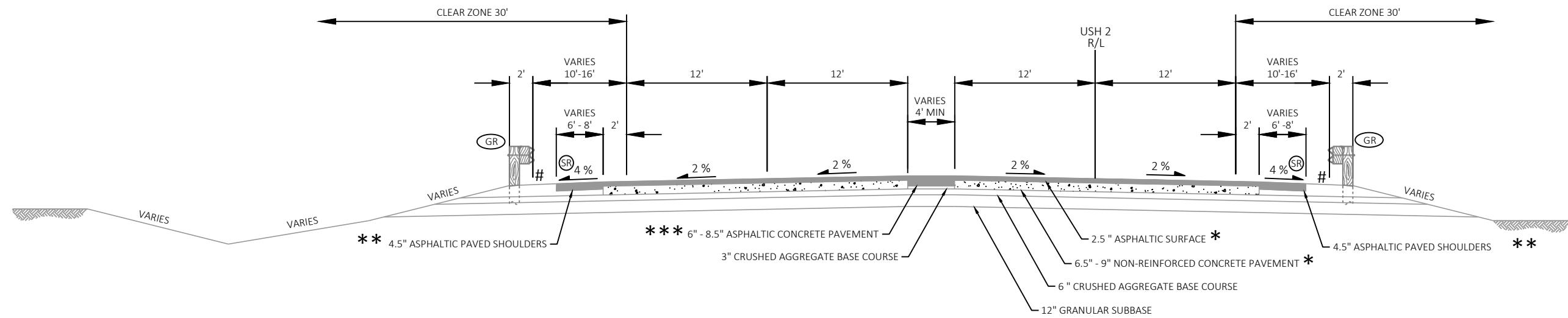
TOWN OF BARKSDALE



TOWN OF EILEEN

CITY OF ASHLAND

ASHLAND COUNTY
BAYFIELD COUNTY

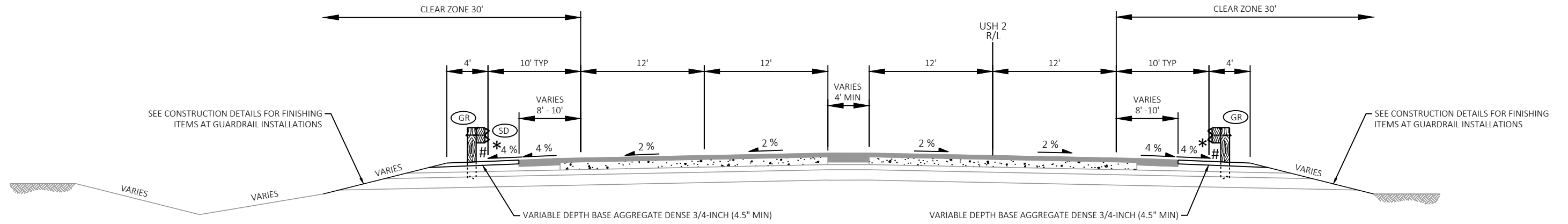


TYPICAL EXISTING SECTION
USH 2

NOTES

- * CONCRETE PAVEMENT WAS ORIGINALLY CONSTRUCTED IN 1990 AT A DEPTH OF 9". VARIABLE DEPTH GRINDING WAS COMPLETED DURING AN EMERGENCY ASPHALT OVERLAY IN 2013. THE PREVIOUS OVERLAY DEPTH VARIED FROM 0-2.5".
- ** ASPHALTIC SHOULDERS WERE ORIGINALLY CONSTRUCTED IN 1990 AT A DEPTH OF 3". VARIABLE DEPTH GRINDING WAS COMPLETED DURING AN EMERGENCY ASPHALT OVERLAY IN 2013. THE PREVIOUS OVERLAY DEPTH VARIED FROM 0-2.5".
- *** ASPHALTIC VARIABLE WIDTH MEDIAN WAS ORIGINALLY CONSTRUCTED IN 1990 AT A DEPTH OF 6". VARIABLE DEPTH GRINDING WAS COMPLETED DURING AN EMERGENCY ASPHALT OVERLAY IN 2013. THE PREVIOUS OVERLAY DEPTH VARIED FROM 0-2.5".
- # EXISTING CONCRETE SURFACE DRAINS AT STA 1480+82, LT & RT AND 1510+82, LT & RT
- (GR) GUARDRAIL LOCATED AT THE FOLLOWING STATIONS:
 B-04-0057
 STA 1477+45 - STA 1478+34, RT
 STA 1477+47 - STA 1478+34, LT
 STA 1480+78 - STA 1481+67, RT
 STA 1480+78 - STA 1481+22, LT

 B-04-0058
 STA 1509+98 - STA 1510+87, RT
 STA 1510+05 - STA 1510+87, LT
 STA 1511+80 - STA 1512+66, RT
 STA 1511+80 - STA 1512+66, LT
- (SR) SHOULDER RUMBLE STRIPS EXIST AT THE FOLLOWING STATIONS:
 STA 1475+12 - STA 1478+31, LT & RT
 STA 1480+86 - STA 1510+79, LT & RT
 STA 1511+83 - STA 1514+76, LT & RT

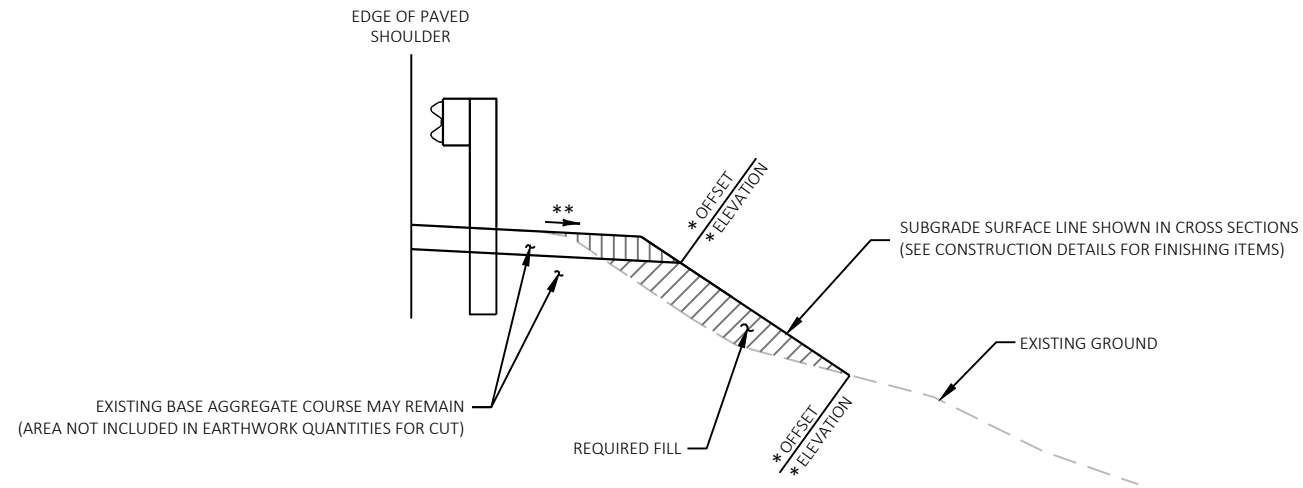


TYPICAL PROPOSED SECTION
USH 2

NOTES

- # EXISTING CONCRETE SURFACE DRAINS AT STA 1480+82, LT & RT AND 1510+82, RT
- * PROPOSED AGGREGATE SHOULDER SLOPES BEYOND THE FACE OF RAIL VARY BETWEEN 4% AND 10%, SEE CROSS SECTIONS
- (GR) GUARDRAIL LOCATED AT THE FOLLOWING STATIONS:
 B-04-0057
 STA 1476+16 - STA 1478+34, RT
 STA 1476+79 - STA 1478+34, LT
 STA 1480+78 - STA 1482+21, RT
 STA 1480+78 - STA 1482+94, LT

 B-04-0058
 STA 1508+57 - STA 1510+87, RT
 STA 1509+70 - STA 1510+87, LT
 STA 1511+80 - STA 1512+98, RT
 STA 1511+80 - STA 1514+08, LT
- (SD) PLACE CONCRETE SURFACE DRAIN FLUME TYPE AT STA 1510+31 - STA 1510+93 , LT (SEE PAVING DETAIL FOR ADDITIONAL INFORMATION)



SHOULDER WIDENING EARTHWORK & BASE AGGREGATE FOR GUARDRAIL DETAIL

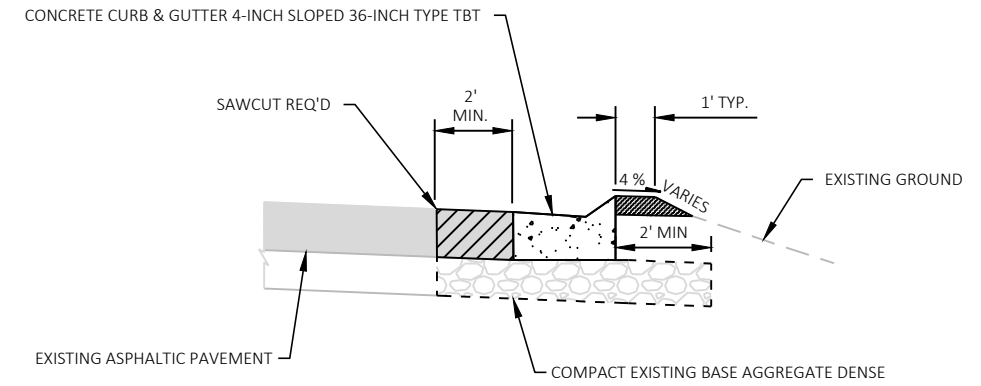
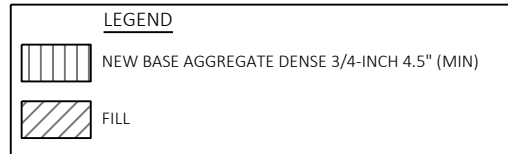
SEE CONSTRUCTION DETAILS, CROSS SECTIONS, AND TYPICAL SECTIONS FOR LOCATIONS

NOTES

BENCH FILL AS REQUIRED PER STANDARD SPECIFICATION 205.3.2(4).

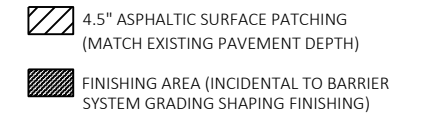
*OFFSET AND ELEVATION PROVIDED TO THESE POINTS ON THE CROSS SECTIONS.

**SHOULDER SLOPE PROVIDED ON CROSS SECTIONS



DETAIL OF CURB & GUTTER PLACEMENT

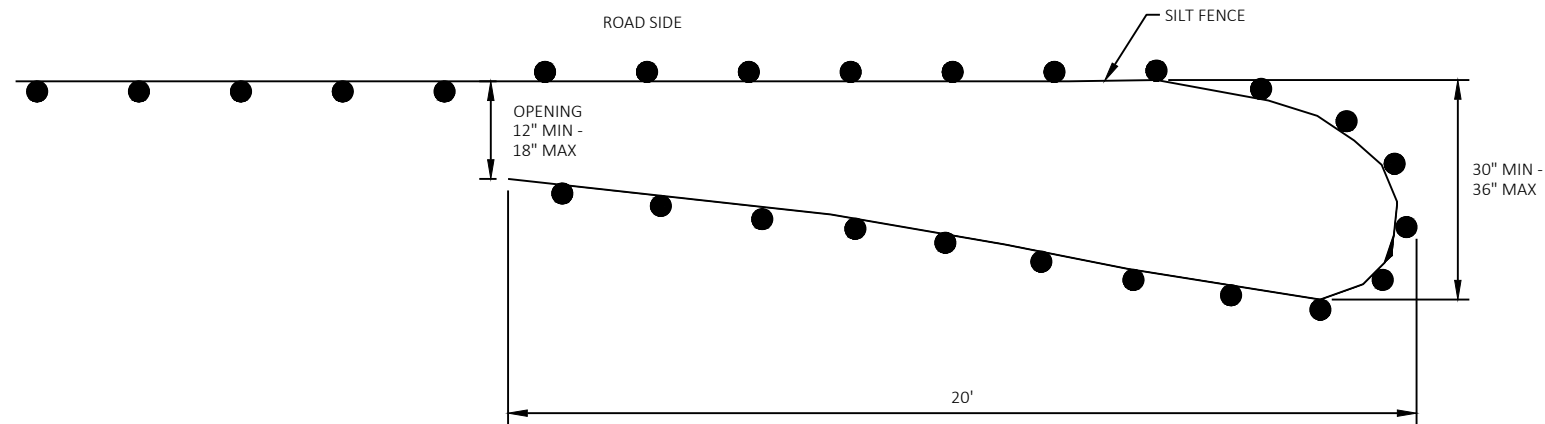
SEE PAVING DETAILS FOR CURB & GUTTER LOCATION



NOTES

FOR DETAILS NOT SHOWN, SEE SDD "CONCRETE CURB AND GUTTER" AND SDD "CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES"

SEE PAVING DETAILS FOR ADDITIONAL INFORMATION



PLAN VIEW

TEMPORARY SMALL ANIMAL TURN-AROUND

NOTES

SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

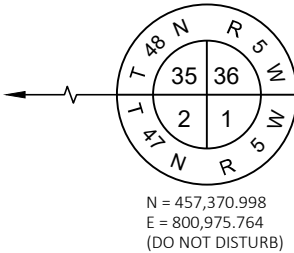
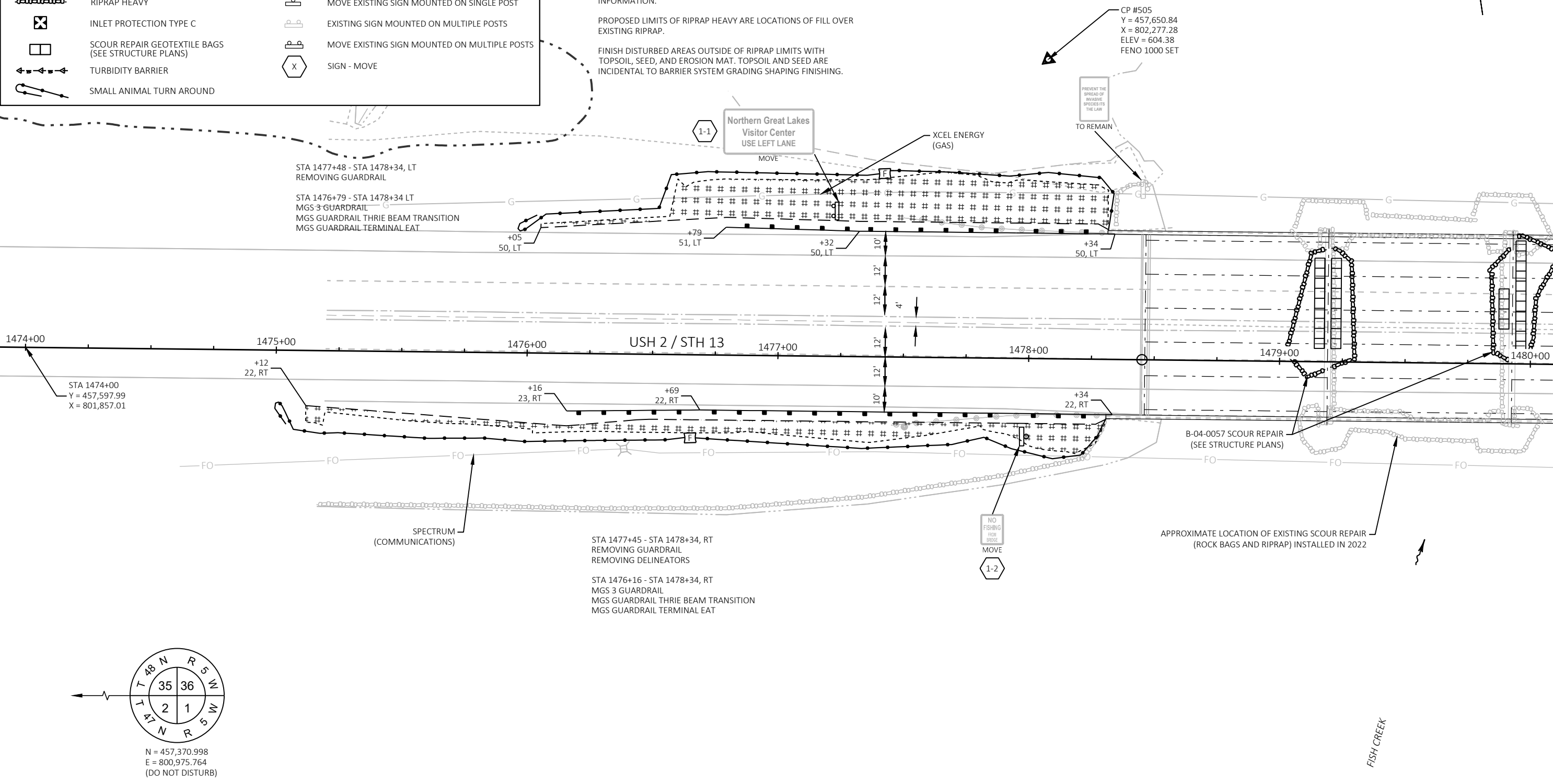
SEE EROSION CONTROL SHEETS FOR LOCATIONS.

LEGEND

#####	EROSION MAT URBAN TYPE B		SURFACE WATER FLOW
— — — — —	SILT FENCE		PERMITTED WETLAND IMPACTS
- - - - -	SLOPE INTERCEPT		EROSION BALE REINFORCEMENT **
- · - · - ·	DELINEATED WETLAND BOUNDARY		EXISTING SIGN MOUNTED ON SINGLE POST
— — — — —	RIPRAP HEAVY		MOVE EXISTING SIGN MOUNTED ON SINGLE POST
	INLET PROTECTION TYPE C		EXISTING SIGN MOUNTED ON MULTIPLE POSTS
	SCOUR REPAIR GEOTEXTILE BAGS (SEE STRUCTURE PLANS)		MOVE EXISTING SIGN MOUNTED ON MULTIPLE POSTS
	TURBIDITY BARRIER		SIGN - MOVE
	SMALL ANIMAL TURN AROUND		

NOTES

- PLACE SILT FENCE WITHIN 1-FT TO 3-FT OF THE SLOPE INTERCEPT IN WETLAND AREAS
- ** INSTALL EROSION BALES DIRECTLY ADJACENT TO SILT FENCE ON THE NON-FLOW SIDE FOR SILT FENCE REINFORCEMENT. EROSION BALE INSTALLATION LENGTH IS 20' FOR EACH LOCATION OR AS DIRECTED BY THE ENGINEER. SEE DETAIL OF EROSION BALES FOR SHEET FLOW IN SDD "TYPICAL INSTALLATIONS OF EROSION BALES/TEMPORARY DITCH CHECKS" FOR ADDITIONAL INFORMATION.
- PROPOSED LIMITS OF RIPRAP HEAVY ARE LOCATIONS OF FILL OVER EXISTING RIPRAP.
- FINISH DISTURBED AREAS OUTSIDE OF RIPRAP LIMITS WITH TOPSOIL, SEED, AND EROSION MAT. TOPSOIL AND SEED ARE INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING.



LEGEND

- #### EROSION MAT URBAN TYPE B
- SILT FENCE
- - - SLOPE INTERCEPT
- · - · DELINEATED WETLAND BOUNDARY
- ⊞ RIPRAP HEAVY
- ⊞ INLET PROTECTION TYPE C
- ▢ SCOUR REPAIR GEOTEXTILE BAGS (SEE STRUCTURE PLANS)
- ←←← TURBIDITY BARRIER
- ↻ SMALL ANIMAL TURN AROUND
- SURFACE WATER FLOW
- PERMITTED WETLAND IMPACTS
- [F] EROSION BALE REINFORCEMENT **
- ⊞ EXISTING SIGN MOUNTED ON SINGLE POST
- ⊞ MOVE EXISTING SIGN MOUNTED ON SINGLE POST
- ⊞ EXISTING SIGN MOUNTED ON MULTIPLE POSTS
- ⊞ MOVE EXISTING SIGN MOUNTED ON MULTIPLE POSTS
- ⊞ SIGN - MOVE

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
600	STA 1480+79.21, 51.32' LT	BM1 CHISELED BOX	615.37

STA 1480+78 - STA 1481+22, LT
REMOVING GUARDRAIL
REMOVING DELINEATORS

STA 1480+78 - STA 1482+94, LT
MGS 3 GUARDRAIL
MGS GUARDRAIL THRIE BEAM TRANSITION
MGS GUARDRAIL TERMINAL EAT
STEEL THRIE BEAM STRUCTURE APPROACH RETROFIT POST (MISSING POST 16)
POSTS 15 AND 17 TO BE CAREFULLY DRIVEN DUE TO PROXIMITY TO SURFACE DRAIN

NOTES

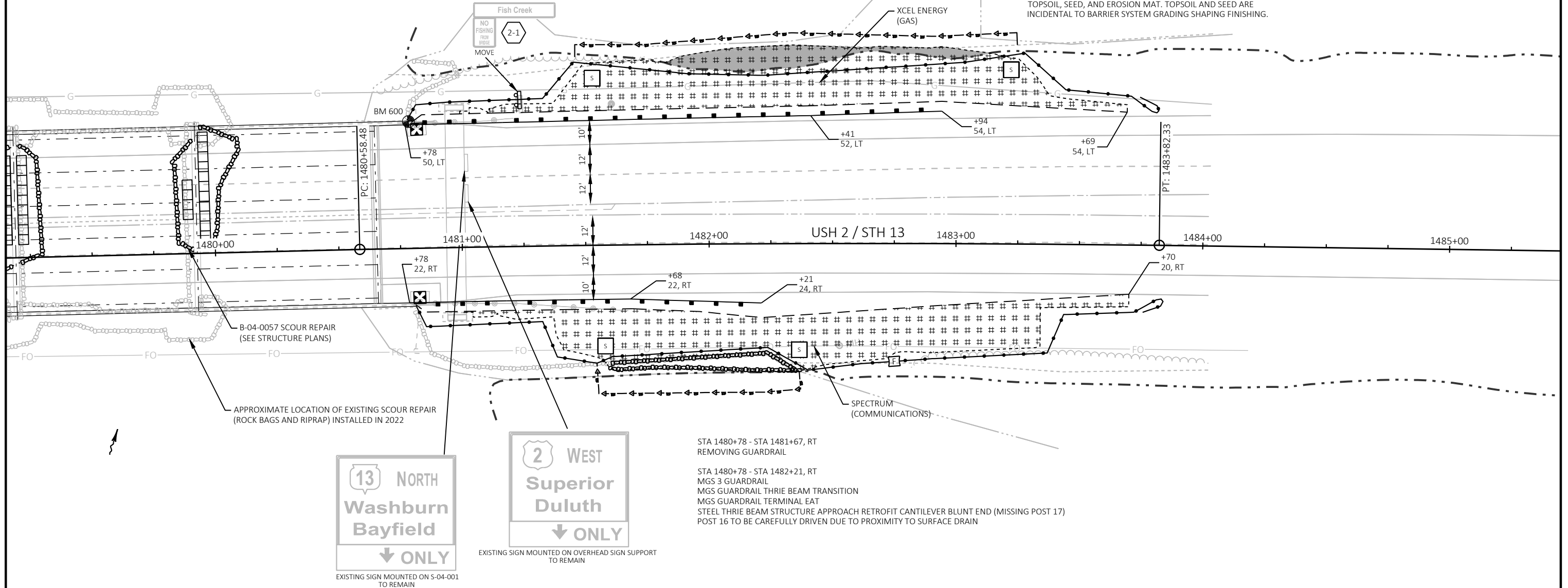
PLACE SILT FENCE WITHIN 1-FT TO 3-FT OF THE SLOPE INTERCEPT IN WETLAND AREAS

** INSTALL EROSION BALES DIRECTLY ADJACENT TO SILT FENCE ON THE NON-FLOW SIDE FOR SILT FENCE REINFORCEMENT. EROSION BALE INSTALLATION LENGTH IS 20' FOR EACH LOCATION OR AS DIRECTED BY THE ENGINEER. SEE DETAIL OF EROSION BALES FOR SHEET FLOW IN SDD "TYPICAL INSTALLATIONS OF EROSION BALES/TEMPORARY DITCH CHECKS" FOR ADDITIONAL INFORMATION.

PROPOSED LIMITS OF RIPRAP HEAVY ARE LOCATIONS OF FILL OVER EXISTING RIPRAP.

[S] INSTALL SILT FENCE ABOVE THE WATER LINE AND/OR EXISTING RIPRAP PRIOR TO THE SMALL ANIMAL FENCING DATE IN THE SPECIAL PROVISIONS. SILT FENCE MAY BE REMOVED IN THESE SECTIONS AFTER TURBIDITY BARRIER IS INSTALLED.

FINISH DISTURBED AREAS OUTSIDE OF RIPRAP LIMITS WITH TOPSOIL, SEED, AND EROSION MAT. TOPSOIL AND SEED ARE INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING.

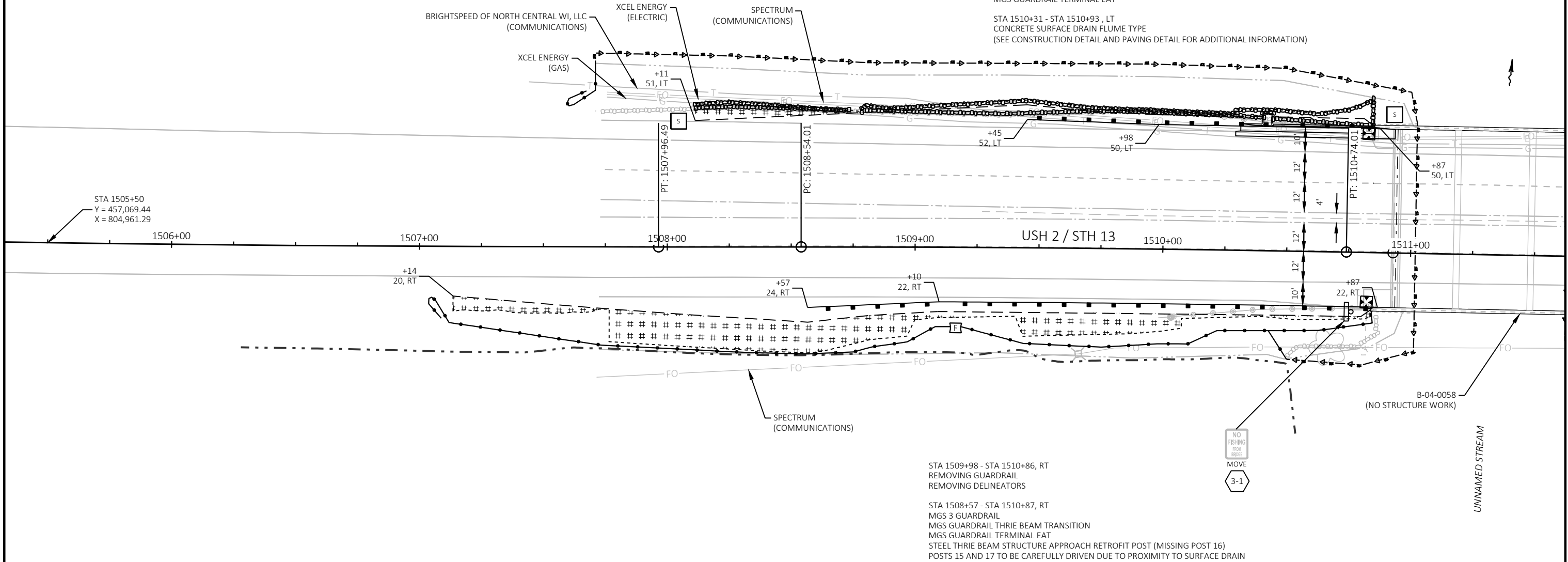


LEGEND

	EROSION MAT URBAN TYPE B		SURFACE WATER FLOW
	SILT FENCE		PERMITTED WETLAND IMPACTS
	SLOPE INTERCEPT		EROSION BALE REINFORCEMENT **
	DELINEATED WETLAND BOUNDARY		EXISTING SIGN MOUNTED ON SINGLE POST
	RIPRAP HEAVY		MOVE EXISTING SIGN MOUNTED ON SINGLE POST
	INLET PROTECTION TYPE C		EXISTING SIGN MOUNTED ON MULTIPLE POSTS
	SCOUR REPAIR GEOTEXTILE BAGS (SEE STRUCTURE PLANS)		MOVE EXISTING SIGN MOUNTED ON MULTIPLE POSTS
	TURBIDITY BARRIER		SIGN - MOVE
	SMALL ANIMAL TURN AROUND		

NOTES

- PLACE SILT FENCE WITHIN 1-FT TO 3-FT OF THE SLOPE INTERCEPT IN WETLAND AREAS
- ** INSTALL EROSION BALES DIRECTLY ADJACENT TO SILT FENCE ON THE NON-FLOW SIDE FOR SILT FENCE REINFORCEMENT. EROSION BALE INSTALLATION LENGTH IS 20' FOR EACH LOCATION OR AS DIRECTED BY THE ENGINEER. SEE DETAIL OF EROSION BALES FOR SHEET FLOW IN SDD "TYPICAL INSTALLATIONS OF EROSION BALES/TEMPORARY DITCH CHECKS" FOR ADDITIONAL INFORMATION.
- PROPOSED LIMITS OF RIPRAP HEAVY ARE LOCATIONS OF FILL OVER EXISTING RIPRAP.
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- FINISH DISTURBED AREAS OUTSIDE OF RIPRAP LIMITS WITH TOPSOIL, SEED, AND EROSION MAT. TOPSOIL AND SEED ARE INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING.



LEGEND

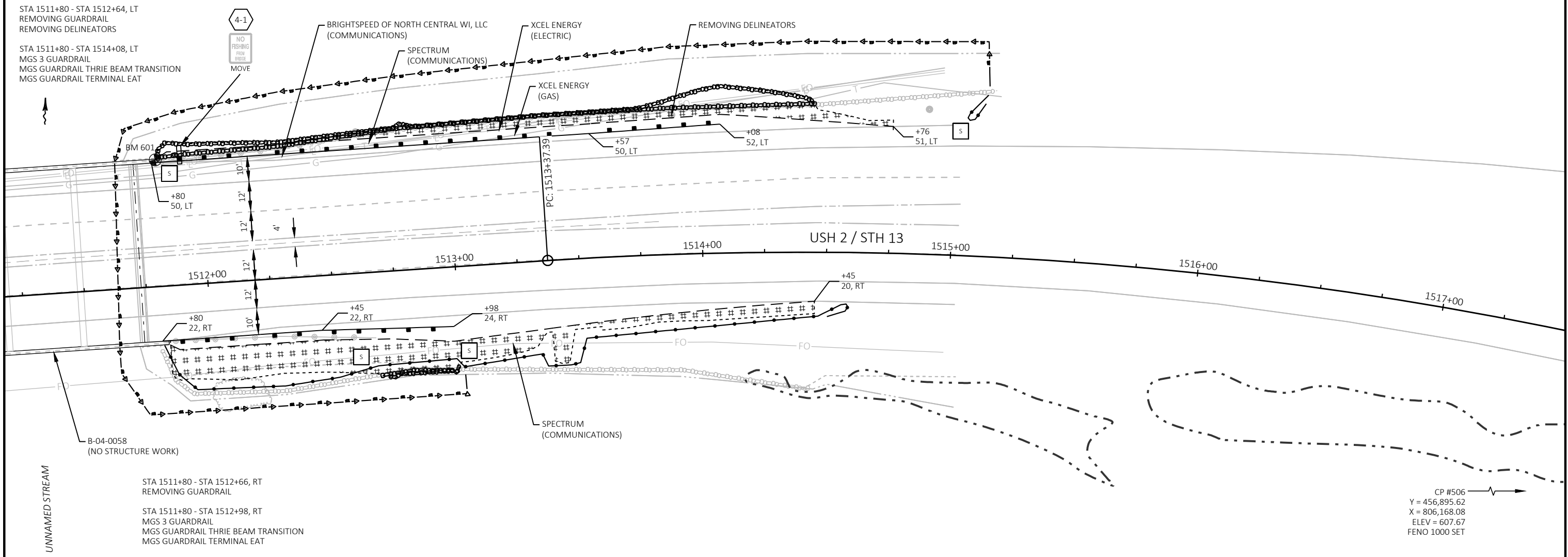
- EROSION MAT URBAN TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- DELINEATED WETLAND BOUNDARY
- RIPRAP HEAVY
- INLET PROTECTION TYPE C
- SCOUR REPAIR GEOTEXTILE BAGS (SEE STRUCTURE PLANS)
- TURBIDITY BARRIER
- SMALL ANIMAL TURN AROUND
- SURFACE WATER FLOW
- PERMITTED WETLAND IMPACTS
- EROSION BALE REINFORCEMENT **
- EXISTING SIGN MOUNTED ON SINGLE POST
- MOVE EXISTING SIGN MOUNTED ON SINGLE POST
- EXISTING SIGN MOUNTED ON MULTIPLE POSTS
- MOVE EXISTING SIGN MOUNTED ON MULTIPLE POSTS
- SIGN - MOVE

NOTES

- PLACE SILT FENCE WITHIN 1-FT TO 3-FT OF THE SLOPE INTERCEPT IN WETLAND AREAS
- ** INSTALL EROSION BALES DIRECTLY ADJACENT TO SILT FENCE ON THE NON-FLOW SIDE FOR SILT FENCE REINFORCEMENT. EROSION BALE INSTALLATION LENGTH IS 20' FOR EACH LOCATION OR AS DIRECTED BY THE ENGINEER. SEE DETAIL OF EROSION BALES FOR SHEET FLOW IN SDD "TYPICAL INSTALLATIONS OF EROSION BALES/TEMPORARY DITCH CHECKS" FOR ADDITIONAL INFORMATION.
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- FINISH DISTURBED AREAS OUTSIDE OF RIPRAP LIMITS WITH TOPSOIL, SEED, AND EROSION MAT. TOPSOIL AND SEED ARE INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING.

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
601	STA 1511+81.43, 51.02' LT	BM2 CHISELED BOX	611.76

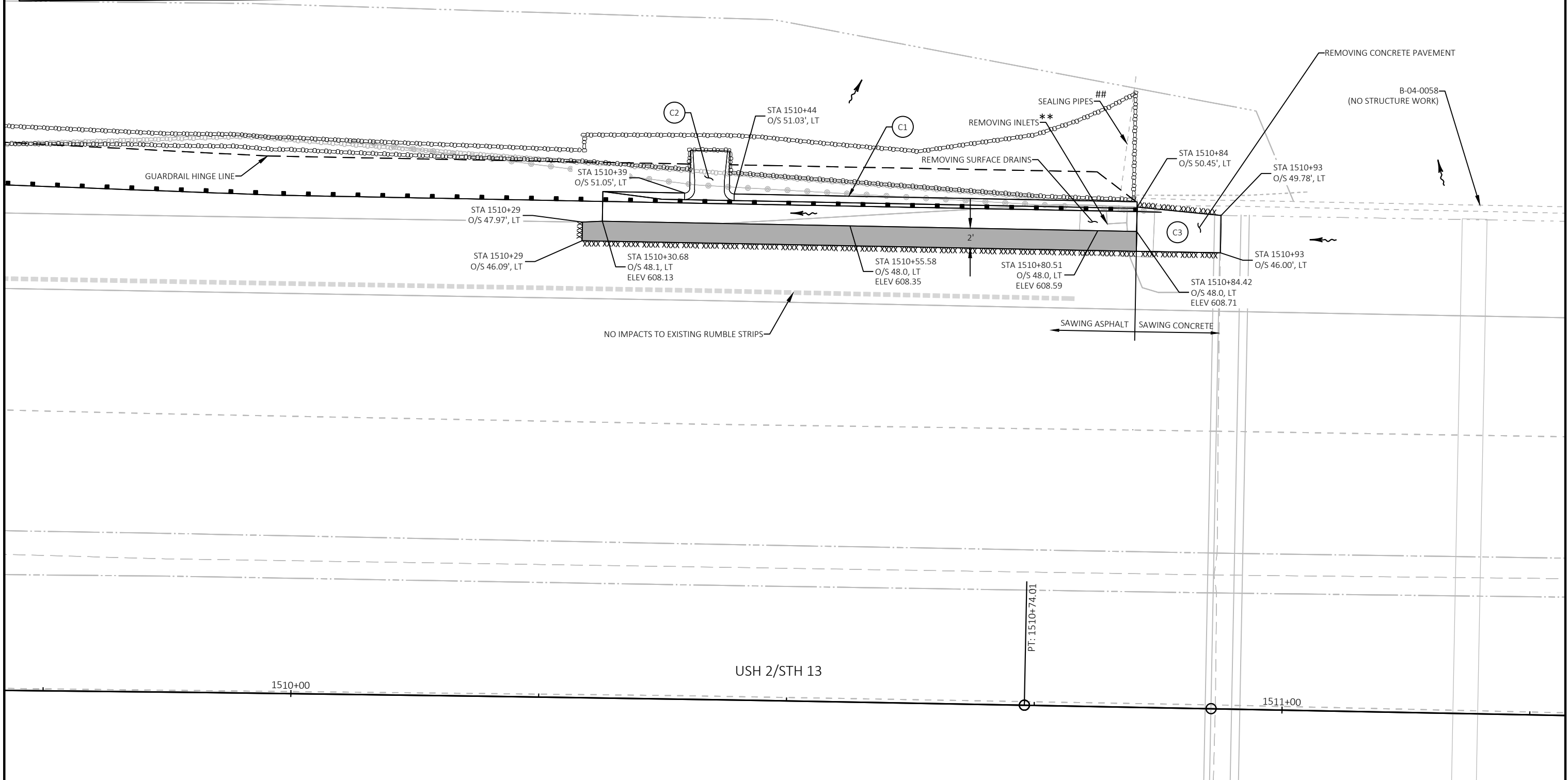
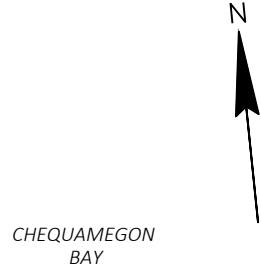


LEGEND

- XXXXXXXX . SAWCUT
- ASPHALTIC SURFACE PATCHING
- C1 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT
- C2 CONCRETE SURFACE DRAINS
- C3 CONCRETE PAVEMENT 7-INCH
- RIPRAP HEAVY
- SURFACE WATER FLOW

NOTES

- ## SEAL UPSTREAM END OF PIPE ONLY
- ** IF REMOVING INLET IS NOT FEASIBLE, ABANDON INLET ONLY IF DIRECTED BY THE ENGINEER
- SEE CONSTRUCTION DETAIL SHEETS FOR ADDITIONAL PROPOSED WORK INFORMATION



PROJECT NO: 1180-01-73	HWY: USH 2	COUNTY: BAYFIELD	PAVING DETAIL	SHEET	E
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TRAFFIC CONTROL GENERAL NOTES

1. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
2. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
3. ALL TYPE III BARRICADES SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING LIGHTS) PER SDDS.
4. DELINEATE PRIVATE ACCESS WITH TRAFFIC CONTROL DRUMS, WHERE REQUIRED.

NOTES

NOT ALL TRAFFIC CONTROL SIGNS AND DEVICES ARE SHOWN.
SEE STANDARD DETAIL DRAWINGS NOTED FOR ADDITIONAL INFORMATION.

LEGEND

- MB** TRAFFIC CONTROL SIGN PCMS
1. PLACE TRAFFIC CONTROL SIGNS PER SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC".
 2. PLACE TRAFFIC CONTROL SIGNS PER "TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL" IN SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC".
 3. PLACE TRAFFIC CONTROL SIGNS AND DEVICES AT THE RIGHT TURN LANES PER "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE RIGHT LANE CLOSURE".
 4. PLACE TRAFFIC CONTROL SIGNS AND DRUMS PER SDD "TRAFFIC CONTROL, SINGLE RIGHT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY" IN AREAS OF GUARDRAIL REPLACEMENTS AND SCOUR REPAIRS.
 5. WATERWAY MARKERS (SEE SPECIAL PROVISIONS FOR REQUIREMENTS)

TRAFFIC CONTROL SIGNS PCMS MESSAGES

PCMS SIGN LOCATION	PRIOR TO CONSTRUCTION	
	PHASE 1 (2 SEC)	PHASE 2 (2 SEC)
0.4 MILES WEST OF B-04-0057	USH 2 BRIDGE WORK	STARTS STARTING DATE
0.4 MILES EAST OF B-04-0058	USH 2 BRIDGE WORK	STARTS STARTING DATE

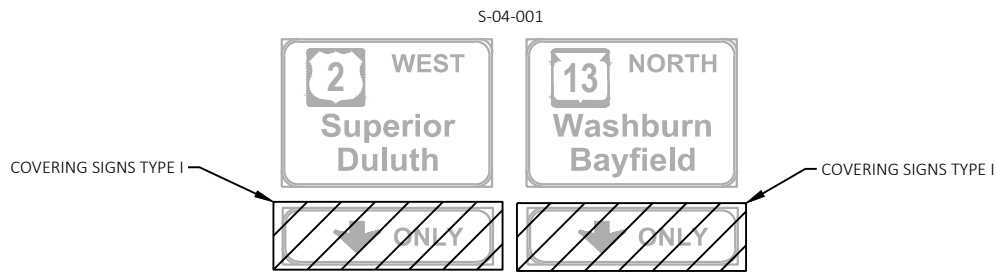
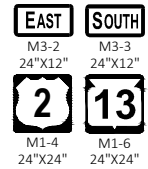
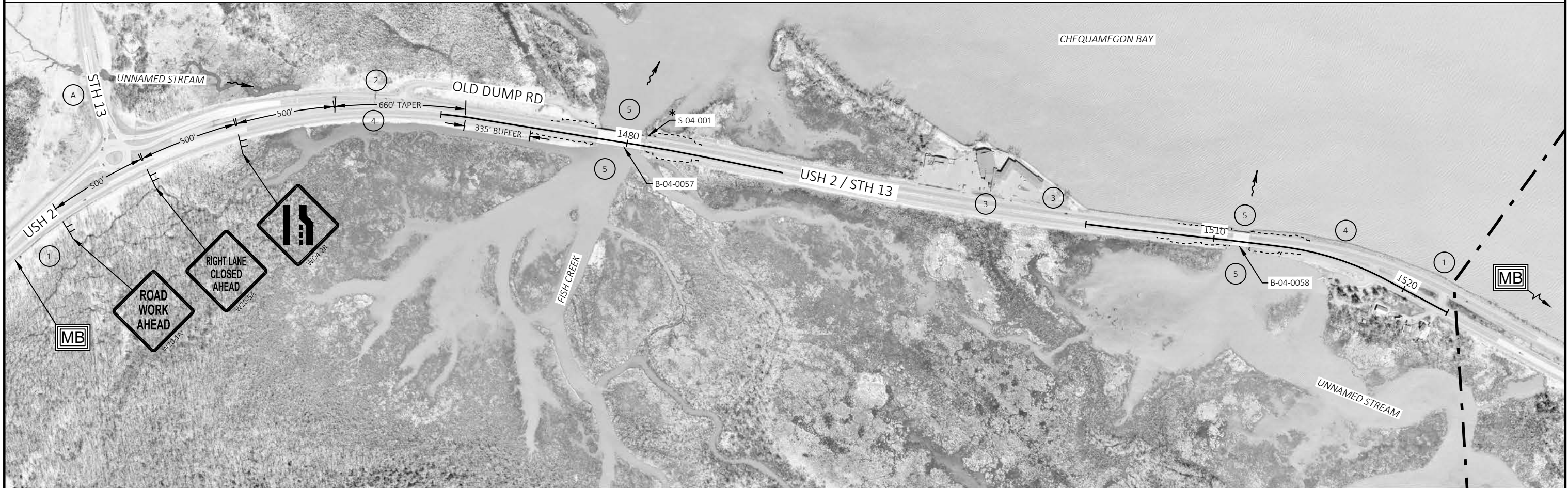
PCMS GENERAL NOTES

ADJUST TRAFFIC CONTROL PCMS MESSAGES AS NEEDED BASED ON CONSTRUCTION SCHEDULE. CONFIRM MESSAGES WITH THE ENGINEER PRIOR TO IMPLEMENTING.

CONSIDER GEOMETRICS WHEN LOCATING MESSAGE BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE BOARD FOR A MINIMUM OF 1,000 FEET IN FRONT OF THE MESSAGE BOARD. PLACE MESSAGE BOARDS AS FAR AWAY FROM LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY.

PLACE TRAFFIC CONTROL SIGNS PCMS AND DISPLAY THE MESSAGE 7 DAYS PRIOR TO THE EXPECTED START OF THE PROPOSED WORK AND THE START OF THE DETOUR. ADJUST THE MESSAGE DATE ACCORDINGLY.

N



ASHLAND COUNTY
BAYFIELD COUNTY

LEGEND



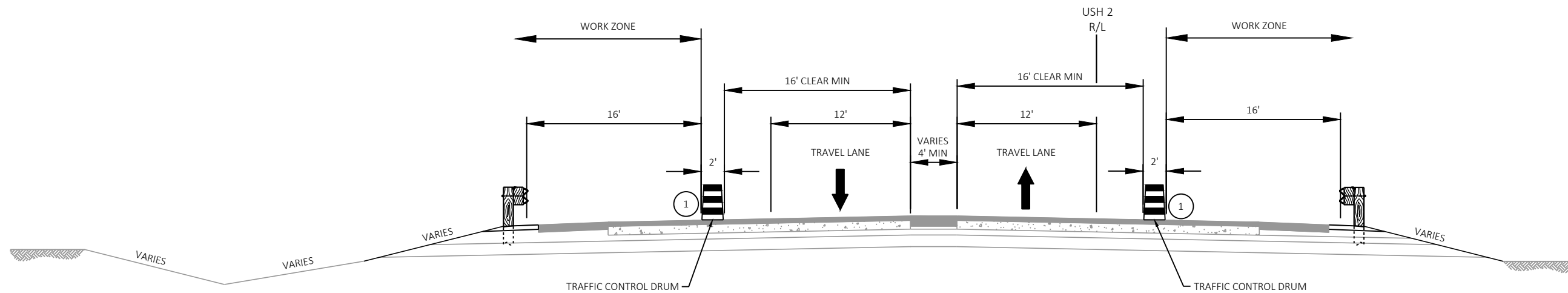
TRAFFIC CONTROL DRUM



DRUM PLACEMENT SHOWN DURING WORKING HOURS WITH LANE CLOSURES. DURING PERIODS OF SHOULDER CLOSURES, SEE SDD "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY" AND "TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 M.P.H." FOR ADDITIONAL INFORMATION.



TRAFFIC CONTROL FLOW ARROW



TRAFFIC CONTROL TYPICAL SECTION
USH 2

NOTE

OPEN TRAVEL LANES WILL REMAIN ON THEIR EXISTING LOCATIONS WITH NO CHANGES TO THE EXISTING MARKING.

Estimate Of Quantities

1180-01-73

Line	Item	Item Description	Unit	Total	Qty
0002	204.0100	Removing Concrete Pavement	SY	5.000	5.000
0004	204.0110	Removing Asphaltic Surface	SY	19.000	19.000
0006	204.0165	Removing Guardrail	LF	646.000	646.000
0008	204.0180	Removing Delineators and Markers	EACH	4.000	4.000
0010	204.0190	Removing Surface Drains	EACH	1.000	1.000
0012	204.0220	Removing Inlets	EACH	1.000	1.000
0014	204.0280	Sealing Pipes	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	443.000	443.000
0018	415.0070	Concrete Pavement 7-Inch	SY	4.000	4.000
0020	416.0610	Drilled Tie Bars	EACH	9.000	9.000
0022	465.0110	Asphaltic Surface Patching	TON	3.000	3.000
0024	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	54.000	54.000
0026	602.3010	Concrete Surface Drains	CY	1.000	1.000
0028	606.0300	Riprap Heavy	CY	245.000	245.000
0030	614.0010	Barrier System Grading Shaping Finishing	EACH	8.000	8.000
0032	614.0212	Steel Thrie Beam Structure Approach Retrofit Cantilever Blunt End	EACH	1.000	1.000
0034	614.0216	Steel Thrie Beam Structure Approach Retrofit Post	EACH	2.000	2.000
0036	614.2300	MGS Guardrail 3	LF	712.500	712.500
0038	614.2500	MGS Thrie Beam Transition	LF	315.200	315.200
0040	614.2610	MGS Guardrail Terminal EAT	EACH	8.000	8.000
0042	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1180-01-73	EACH	1.000	1.000
0044	619.1000	Mobilization	EACH	1.000	1.000
0046	624.0100	Water	MGAL	5.000	5.000
0048	628.1104	Erosion Bales	EACH	32.000	32.000
0050	628.1504	Silt Fence	LF	2,050.000	2,050.000
0052	628.1520	Silt Fence Maintenance	LF	2,050.000	2,050.000
0054	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0056	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0058	628.2008	Erosion Mat Urban Class I Type B	SY	2,070.000	2,070.000
0060	628.6005	Turbidity Barriers	SY	1,210.000	1,210.000
0062	628.7015	Inlet Protection Type C	EACH	4.000	4.000
0064	638.2102	Moving Signs Type II	EACH	5.000	5.000
0066	642.5001	Field Office Type B	EACH	1.000	1.000
0068	643.0300	Traffic Control Drums	DAY	4,670.000	4,670.000
0070	643.0420	Traffic Control Barricades Type III	DAY	300.000	300.000
0072	643.0705	Traffic Control Warning Lights Type A	DAY	100.000	100.000
0074	643.0715	Traffic Control Warning Lights Type C	DAY	650.000	650.000
0076	643.0800	Traffic Control Arrow Boards	DAY	50.000	50.000
0078	643.0900	Traffic Control Signs	DAY	1,325.000	1,325.000
0080	643.0910	Traffic Control Covering Signs Type I	EACH	16.000	16.000
0082	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0084	643.3180	Temporary Marking Line Removable Tape 6-Inch	LF	5,940.000	5,940.000
0086	643.3960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	1,485.000	1,485.000
0088	643.5000	Traffic Control	EACH	1.000	1.000
0090	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	54.000	54.000
0092	650.9911	Construction Staking Supplemental Control (project) 01. 1180-01-73	EACH	1.000	1.000
0094	690.0150	Sawing Asphalt	LF	57.000	57.000
0096	690.0250	Sawing Concrete	LF	22.000	22.000
0098	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0100	999.2005.S	Maintaining Bird Deterrent System (station) 01. 1479+57	EACH	1.000	1.000

Estimate Of Quantities

1180-01-73

Line	Item	Item Description	Unit	Total	Qty
0102	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0104	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0106	SPV.0035	Special 01. Scour Repair Geotextile Bags	CY	36.000	36.000
0108	SPV.0060	Special 01. River Bottom Scanning Survey Structure B-4-57	EACH	3.000	3.000
0110	SPV.0090	Special 01. Concrete Curb and Gutter Cure and Seal Treatment	LF	54.000	54.000

3

REMOVAL ITEMS

CATEGORY	STATION	TO	STATION	OFFSET	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0190 REMOVING SURFACE DRAINS EACH	204.0220 REMOVING INLETS EACH
0010	1510+29	-	1510+93	LT	5	19	1	1
TOTALS					5	19	1	1

SEALING PIPES ITEM

CATEGORY	STATION	TO	STATION	OFFSET	204.0280 SEALING PIPES EACH
0010	1510+84	-		64' LT	1
TOTAL					1

3

BASE AGGREGATE ITEM

CATEGORY	STATION	TO	STATION	OFFSET	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON
0010	1475+12	-	1478+34	RT	63
	1476+05	-	1478+34	LT	41
	1480+78	-	1483+69	LT	54
	1480+78	-	1483+70	RT	56
	1507+14	-	1510+87	RT	72
	1508+11	-	1510+87	LT	51
	1511+80	-	1514+45	RT	51
	1511+80	-	1514+76	LT	55
TOTAL					443

ASPHALTIC SURFACE PATCHING ITEM

CATEGORY	STATION	TO	STATION	OFFSET	465.0110 ASPHALTIC SURFACE PATCHING TON
0010	1510+29	-	1510+84	LT	3
TOTAL					3

RIPRAP HEAVY ITEM

CATEGORY	STATION	TO	STATION	OFFSET	606.0300 RIPRAP HEAVY CY
0010	1481+59	-	1482+36	RT	27
	1508+11	-	1510+84	LT	55
	1511+83	-	1514+45	LT	53
	1512+67	-	1512+99	RT	5
TOTAL					140

CONCRETE PAVEMENT ITEMS

CATEGORY	STATION	TO	STATION	OFFSET	415.0070 CONCRETE PAVEMENT 7-INCH SY	416.0610 DRILLED TIE BARS EACH	601.0588 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT LF	602.3010 CONCRETE SURFACE DRAINS CY	SPV.0090.01 CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT LF
0010	1510+84	-	1510+93	LT	4	9	54	1	54
TOTALS					4	9	54	1	54

3

EROSION CONTROL ITEMS

CATEGORY	STATION	TO	STATION	OFFSET	628.1104		628.1504		628.1520		628.2008		628.6005		628.7015	
					EROSION BALES EACH	SILT FENCE LF	SILT FENCE MAINTENANCE LF	EROSION MAT URBAN CLASS I TYPE B SY	TURBIDITY BARRIERS SY	INLET PROTECTION TYPE C EACH						
0010	1475+12	-	1478+34	RT	8	350	350	170	--	--						
	1476+05	-	1478+34	LT	8	270	270	330	--	--						
	1480+78	-	1483+69	LT	--	330	330	490	110	1						
	1480+78	-	1483+70	RT	8	340	340	440	60	1						
	1507+14	-	1510+87	RT	8	400	400	270	100	1						
	1508+11	-	1510+87	LT	--	30	30	30	360	1						
	1511+80	-	1514+45	RT	--	310	310	250	190	--						
	1511+80	-	1514+76	LT	--	20	20	90	390	--						
TOTALS					32	2,050	2,050	2,070	1,210	4						

EROSION CONTROL MOBILIZATION ITEMS

CATEGORY	LOCATION	628.1905		628.1910	
		MOBILIZATIONS EROSION CONTROL EACH	EROSION CONTROL EACH	MOBILIZATIONS EROSION CONTROL EACH	EMERGENCY EROSION CONTROL EACH
0010	PROJECT	3		2	
TOTALS		3		2	

3

MOVING SIGNS TYPE II ITEM

CATEGORY	STATION	OFFSET	SIGN NUMBER	SIGN MESSAGE	638.2102	
					MOVING SIGNS TYPE II	EACH
0010	1477+22	56'	LT 1-1	NORTHERN GREAT LAKES VISITOR CENTER USE LEFT LANE	1	
	1477+99	31'	RT 1-2	NO FISHING FROM BRIDGE	1	
	1481+23	55'	LT 2-1	NO FISHING FROM BRIDGE	1	
	1510+76	24'	RT 3-1	NO FISHING FROM BRIDGE	1	
	1511+90	53'	LT 4-1	NO FISHING FROM BRIDGE	1	
TOTAL					5	

MAINTAINING BIRD DETERRENT SYSTEM ITEM

CATEGORY	STATION	999.2005.S.01	
		MAINTAINING BIRD DETERRENT SYSTEM EACH	(STATION 1479+57)
0010	1479+57	1	
TOTAL		1	

TRAFFIC CONTROL ITEMS

CATEGORY	LOCATION	DURATION DAYS	643.0300		643.0420		643.0705		643.0715		643.0800		643.0900		643.1050	
			TRAFFIC CONTROL DRUMS NO.	DAY	TRAFFIC CONTROL BARRICADES TYPE III NO.	DAY	WARNING LIGHTS TYPE A NO.	DAY	WARNING LIGHTS TYPE C NO.	DAY	TRAFFIC CONTROL ARROW BOARDS NO.	DAY	TRAFFIC CONTROL SIGNS NO.	DAY	TRAFFIC CONTROL SIGNS PCMS NO.	DAY
0010	PRIOR TO CONSTRUCTION	7	10	70	--	--	--	--	--	--	--	--	--	2	14	
	WESTBOUND LANE CLOSURE	25	118	2,950	7	175	2	50	13	325	1	25	29	725	--	
	EASTBOUND LANE CLOSURE	25	66	1,650	5	125	2	50	13	325	1	25	24	600	--	
TOTALS			4,670	300	100	650	50	1,325	14							

TRAFFIC CONTROL COVERING SIGNS

CATEGORY	LOCATION	643.0910		
		TRAFFIC CONTROL COVERING SIGNS TYPE I	NUMBER OF CYCLES	NUMBER OF SIGNS EACH
0010	WESTBOUND LANE CLOSURE	8	2	16
TOTAL				16

3

3

GUARDRAIL ITEMS

CATEGORY	STATION	TO	STATION	OFFSET	204.0165	204.0180	614.0212	614.0216	614.2300	614.2500	614.2610
					REMOVING GUARDRAIL LF	REMOVING DELINEATORS AND MARKERS EACH	STEEL THRIE BEAM STRUCTURE APPROACH RETROFIT CANTILEVER BLUNT END EACH	STEEL THRIE BEAM STRUCTURE APPROACH RETROFIT POST EACH	MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH
0010	1476+16	-	1478+34	RT	88	1	--	--	125.0	39.4	1
	1476+79	-	1478+34	LT	86	--	--	--	62.5	39.4	1
	1480+78	-	1482+94	LT	44	1	--	1	125.0	39.4	1
	1480+78	-	1482+21	RT	88	--	1	--	50.0	39.4	1
	1508+57	-	1510+87	RT	88	1	--	--	137.5	39.4	1
	1509+45	-	1510+87	LT	82	--	--	--	50.0	39.4	1
	1511+80	-	1513+98	RT	86	--	--	1	25.0	39.4	1
	1511+80	-	1514+08	LT	84	1	--	--	137.5	39.4	1
TOTALS					646	4	1	2	712.5	315.2	8

BARRIER SYSTEM GRADING SHAPING FINISHING ITEM

CATEGORY	STATION	TO	STATION	OFFSET	614.0010	EXCAVATION COMMON CY	FILL CY	BORROW CY	TOPSOIL SY	SEEDING MIXTURE NO. 30 LB
					BARRIER SYSTEM GRADING SHAPING FINISHING EACH					
0010	1475+12	-	1478+34	RT	1	39	12	--	170	3
	1476+05	-	1478+34	LT	1	12	73	61	330	6
	1480+78	-	1483+70	RT	1	22	65	43	440	8
	1480+78	-	1483+69	LT	1	16	72	56	490	9
	1507+14	-	1510+87	RT	1	22	40	18	270	5
	1508+11	-	1510+87	LT	1	19	--	--	30	1
	1511+80	-	1514+45	RT	1	14	--	--	250	5
	1511+80	-	1514+76	LT	1	11	28	18	90	2
TOTALS					8	154	291	196	2,070	39

NOTES:
EXCAVATION COMMON AND FILL ARE BASED ON END AREA VOLUMES FROM THE CROSS SECTIONS. RIPRAP AND BASE AGGREGATE VOLUMES WERE NOT SUBTRACTED FROM THE END AREA VOLUMES.
**NON-BID ITEM, ITEMS AND QUANTITIES LISTED FOR BID INFORMATION ONLY. ITEMS INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING.

WATER

CATEGORY	LOCATION	624.0100 MGAL
0010	PROJECT	5
TOTAL		5

MARKING ITEMS

CATEGORY	LOCATION	643.3180	643.3960
		TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH SOLID WHITE LF	TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH 12.5' LINE 37.5' SKIP LF
0010	WESTBOUNT LANE CLOSURE	3,300	825
	EASTBOUNT LANE CLOSURE	2,640	660
TOTALS		5,940	1,485

STAKING ITEMS

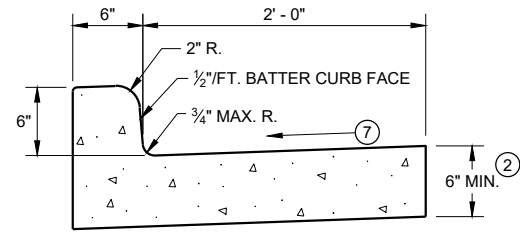
CATEGORY	STATION	TO	STATION	OFFSET	650.5500	650.9911
					CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (1180-01-73) LF
0010	1510+31	-	1510+84	LT	54	--
TOTALS					54	1

SAWING ITEMS

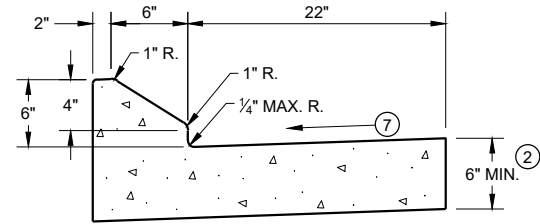
CATEGORY	STAGE	STATION	TO	STATION	OFFSET	690.0150	690.0250
						SAWING ASPHALT LF	SAWING CONCRETE LF
0010	1	1510+29	-	1510+93	LT	57	22
TOTALS						57	22

Standard Detail Drawing List

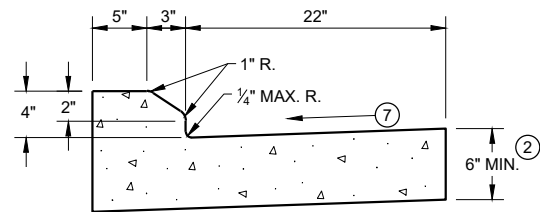
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-08A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
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)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	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)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B48-01A	RETROFIT CANTILEVER BLUNT END
14B48-01B	RETROFIT CANTILEVER BLUNT END
14B49-01A	RETROFIT CANTILEVER SLOPED END
14B49-01B	RETROFIT CANTILEVER SLOPED END
14B50-01A	THRIE BEAM APPROACH RETROFIT INSTALLATION OF MISSING POST
14B50-01B	THRIE BEAM APPROACH RETROFIT INSTALLATION OF MISSING POST
14B50-01C	THRIE BEAM APPROACH RETROFIT INSTALLATION OF MISSING POST
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-23B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D20-07B	TRAFFIC CONTROL, SINGLE RIGHT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY
15D21-07A	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D51-01	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY



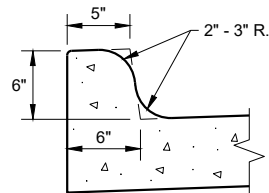
TYPES A^① & D



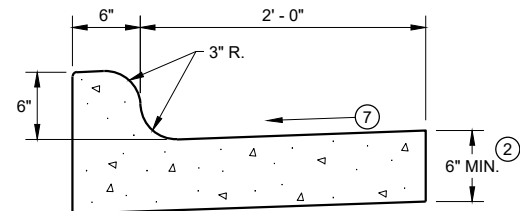
6" SLOPED CURB TYPES G^① & J



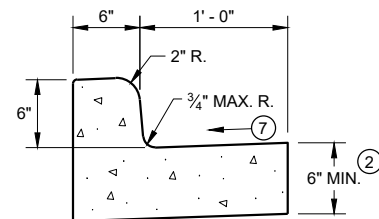
4" SLOPED CURB TYPES G^① & J



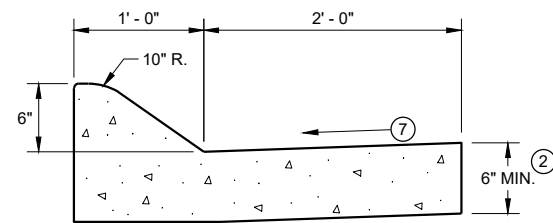
TYPES K^① & L
(OPTIONAL CURB SHAPE)



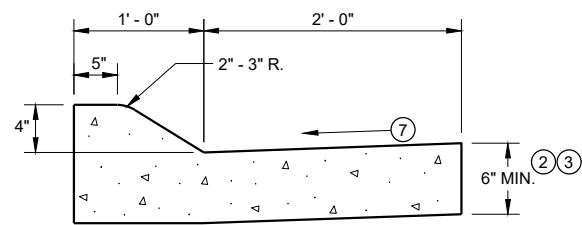
TYPES K^① & L
CONCRETE CURB AND GUTTER 30"



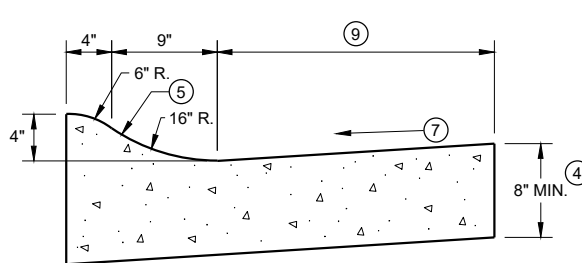
TYPES A^① & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A^① & D

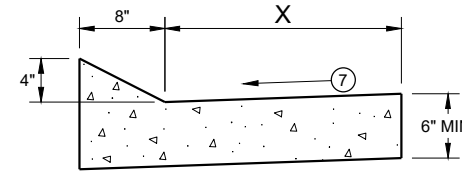


4" SLOPED CURB TYPES A^① & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

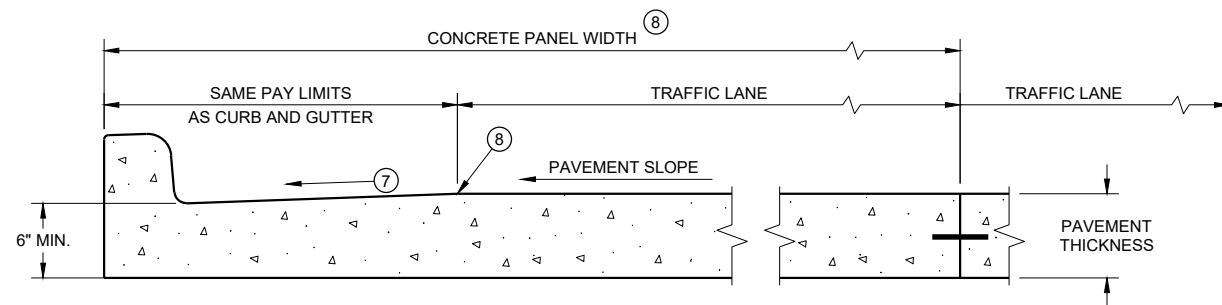
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT^①
CONCRETE CURB AND GUTTER

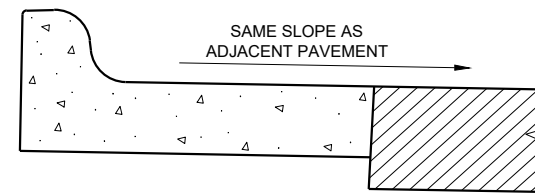
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT* WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

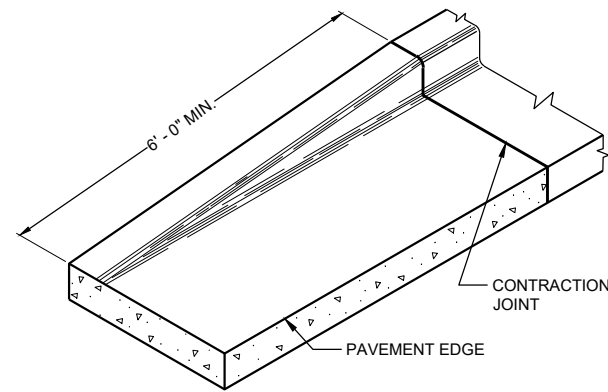
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

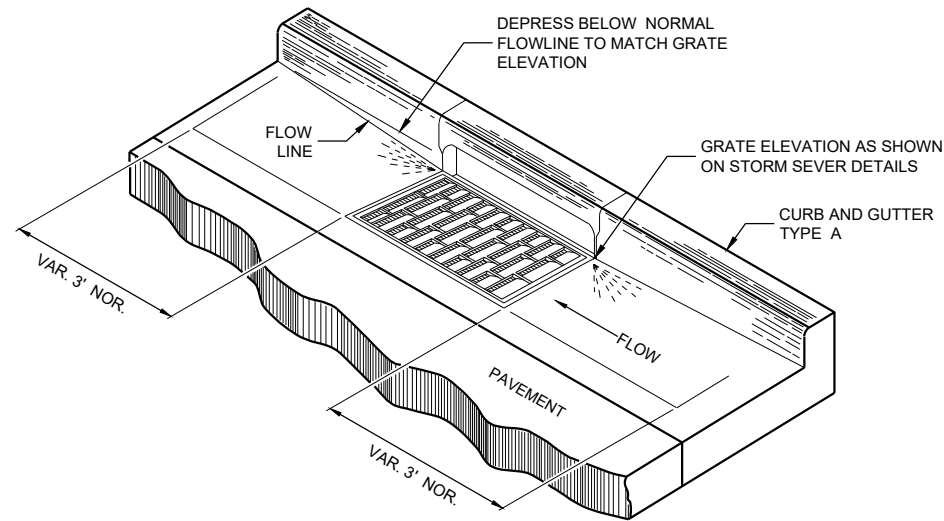
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS

(TYPICAL H INLET COVER SHOWN)

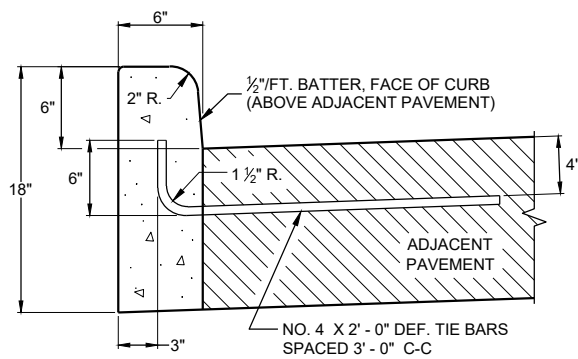
GENERAL NOTES

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

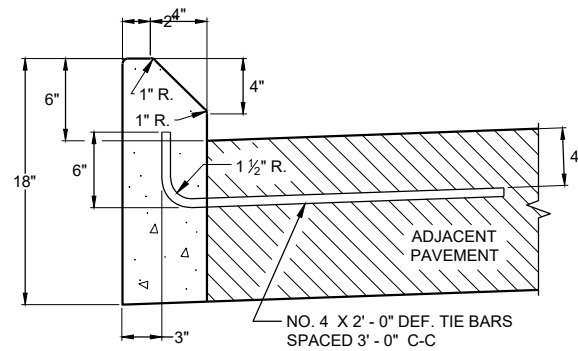
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

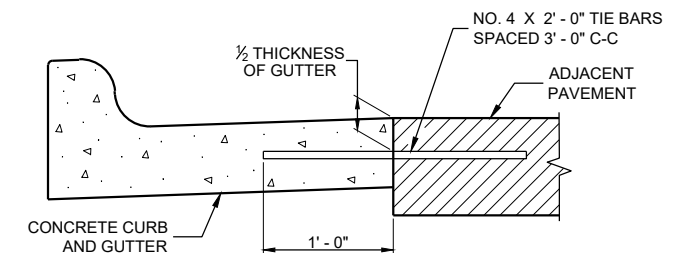
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.



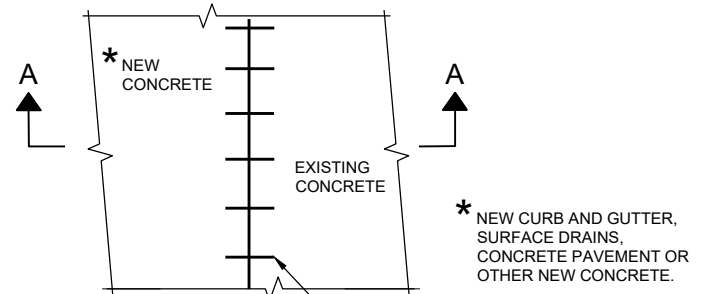
TYPES A^① & D



**TYPES G^① & J
CONCRETE CURB**

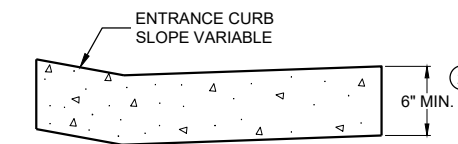


TYPICAL TIE BAR LOCATION^①

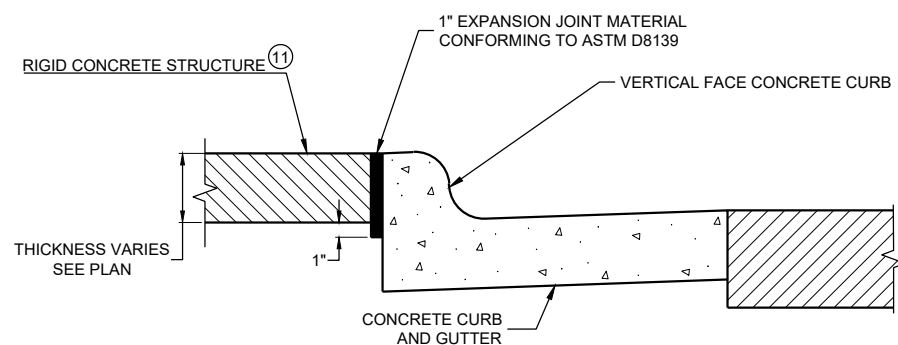


PLAN VIEW

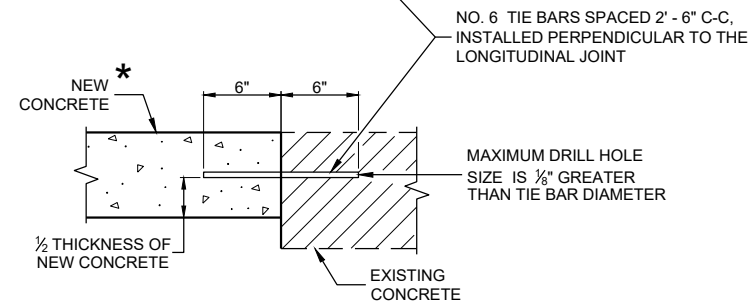
* NEW CURB AND GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.



**DRIVEWAY ENTRANCE CURB^⑩
(WHEN DIRECTED BY THE ENGINEER)**



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE^⑪



**SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT**

NO. 6 TIE BARS SPACED 2' - 6" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT

MAXIMUM DRILL HOLE SIZE IS 1/8" GREATER THAN TIE BAR DIAMETER

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE May 2023 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

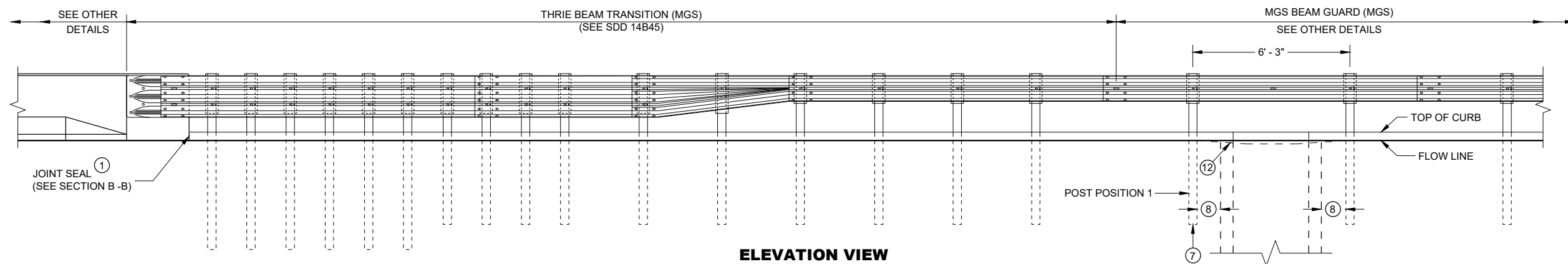
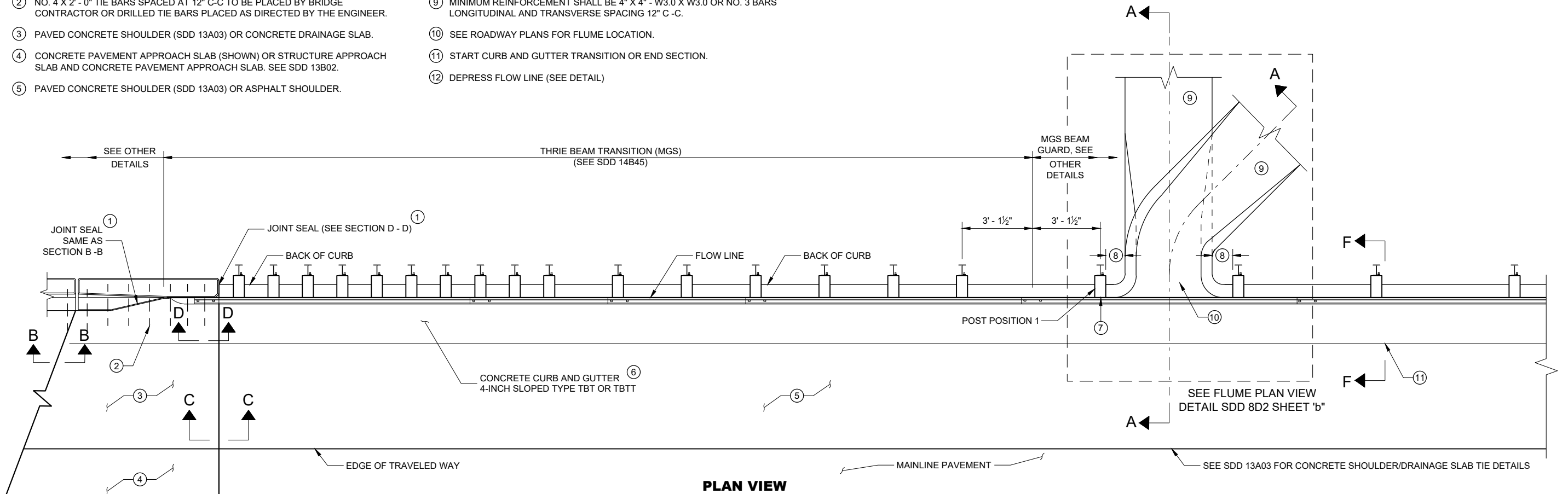
GENERAL NOTES

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

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)



**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

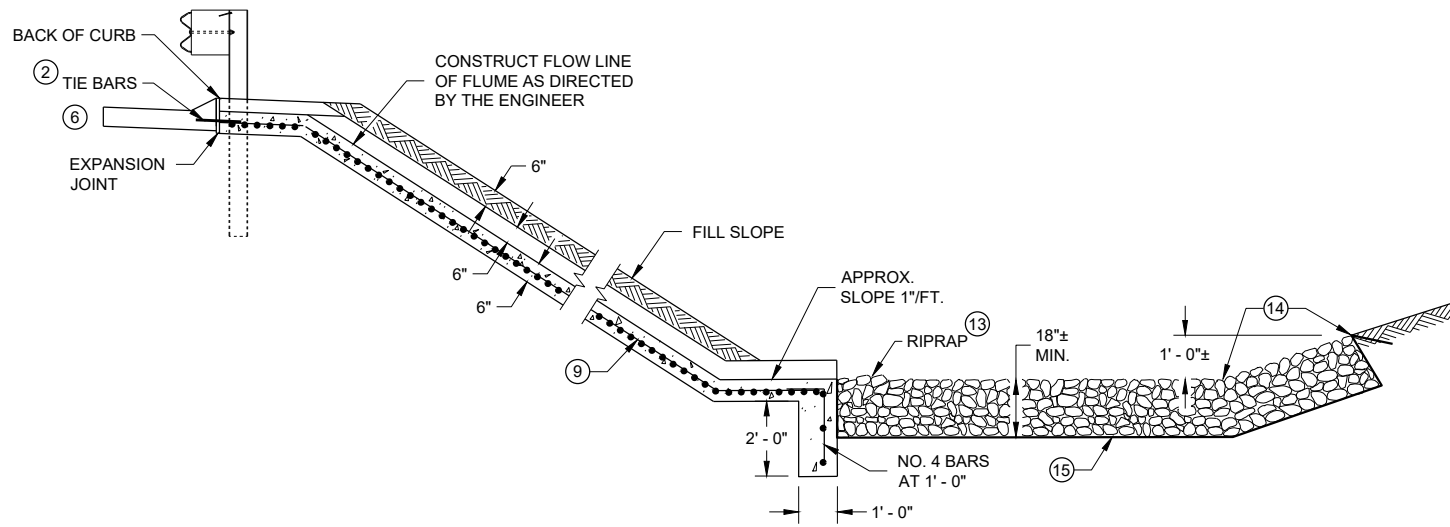
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

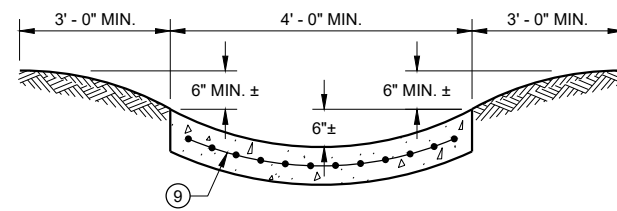
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SDD 08D02 - 08a

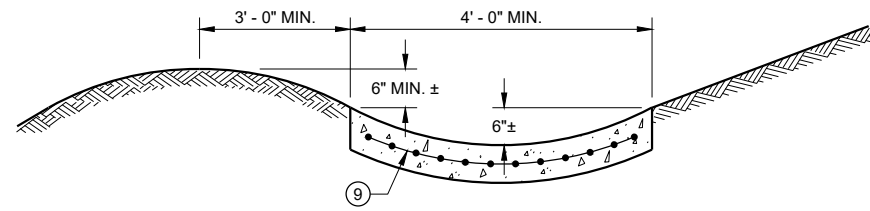
SDD 08D02 - 08a



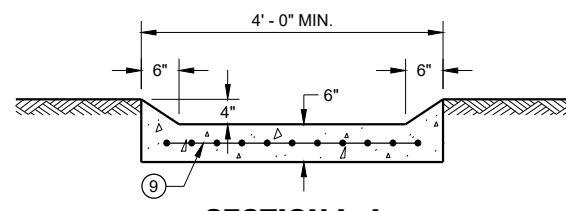
SECTION A - A



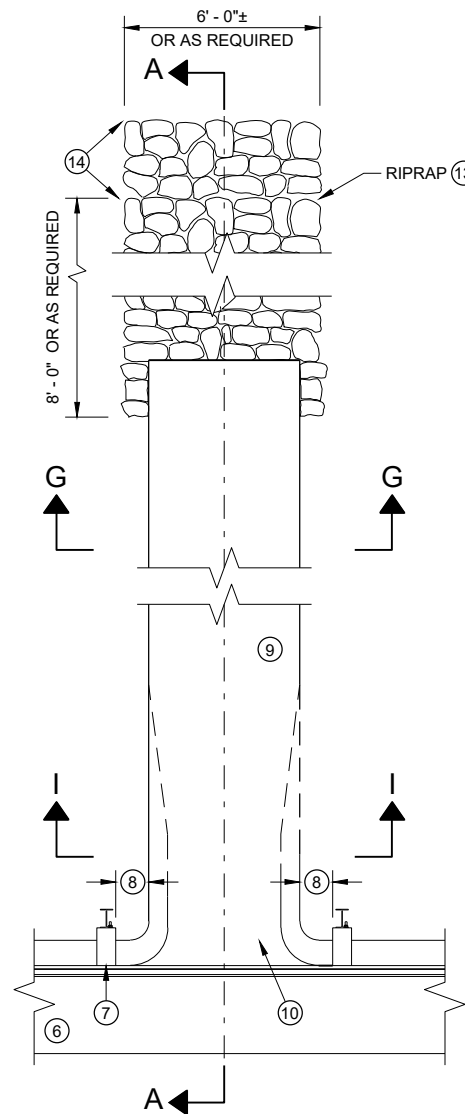
SECTION G - G



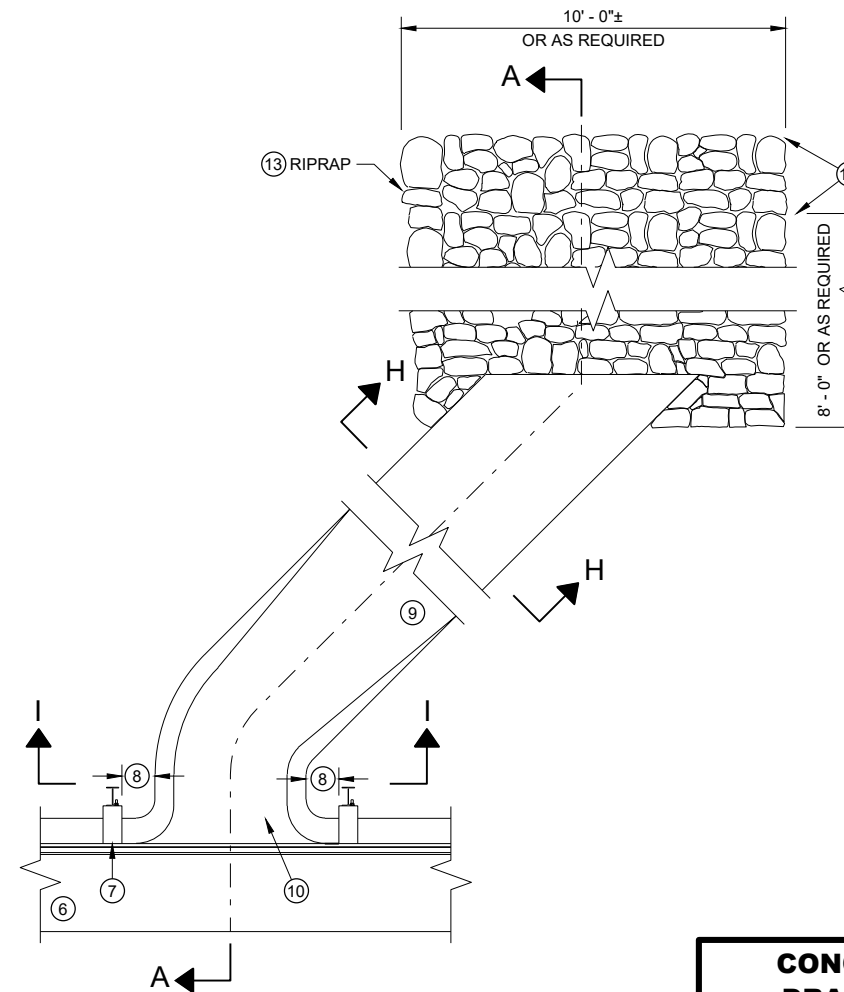
SECTION H - H



SECTION I - I



PLAN VIEW PERPENDICULAR FLUME



PLAN VIEW SKEWED FLUME

GENERAL NOTES

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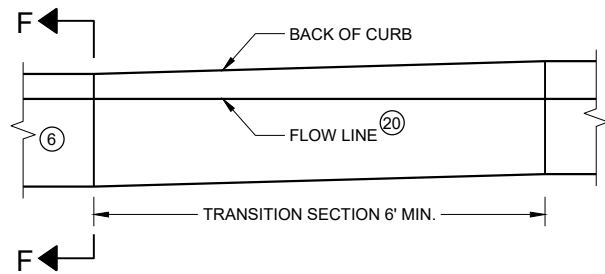
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

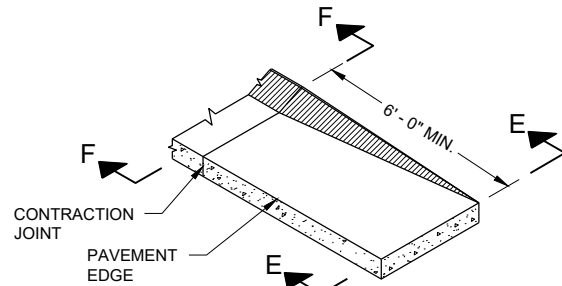
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C -C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE TYPE HR.

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

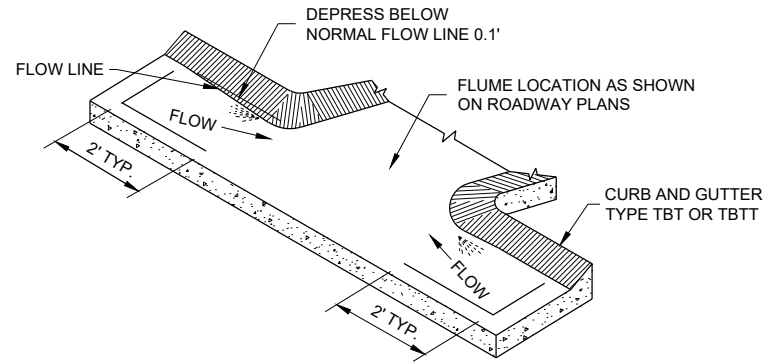
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



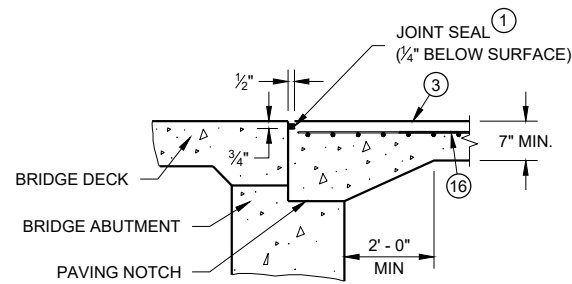
**CURB AND GUTTER FLOW LINE DEPRESSION
AT FLUMES CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**

GENERAL NOTES

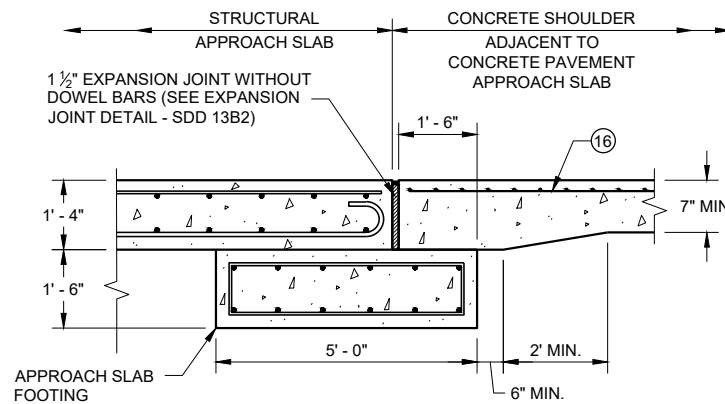
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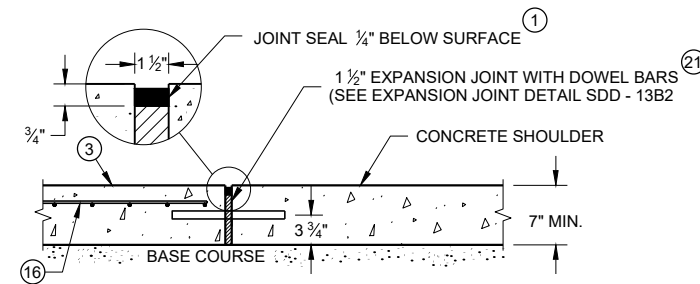
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- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.



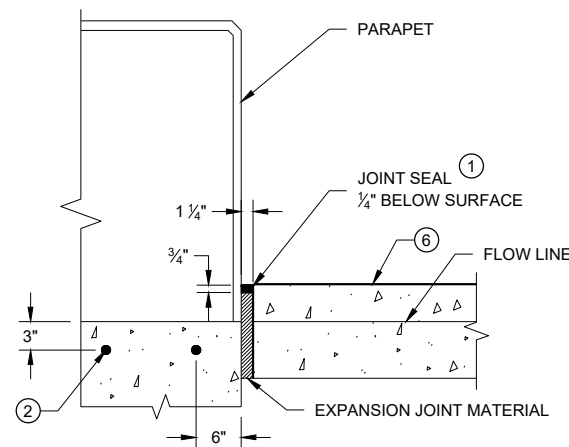
SECTION B-B



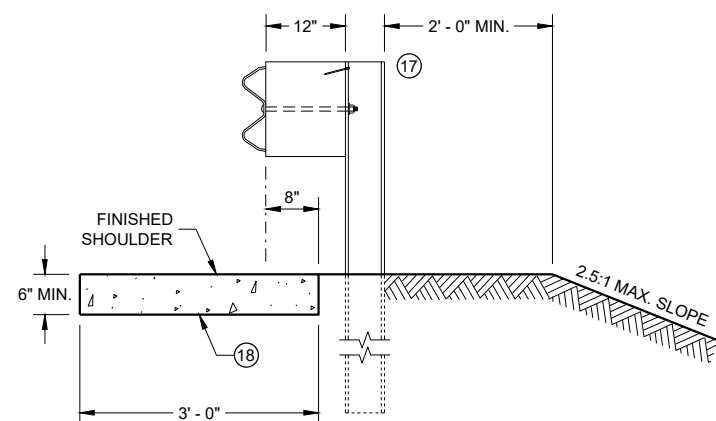
**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



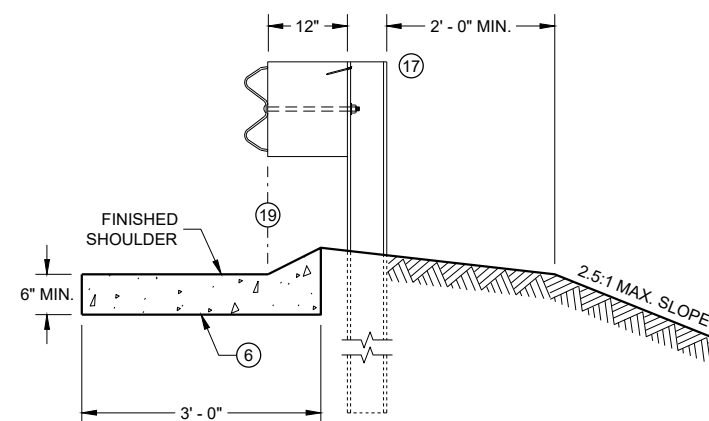
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



SECTION D - D



SECTION E - E



SECTION F - F

6

6

SDD08D02 - 08C

SDD08D02 - 08C

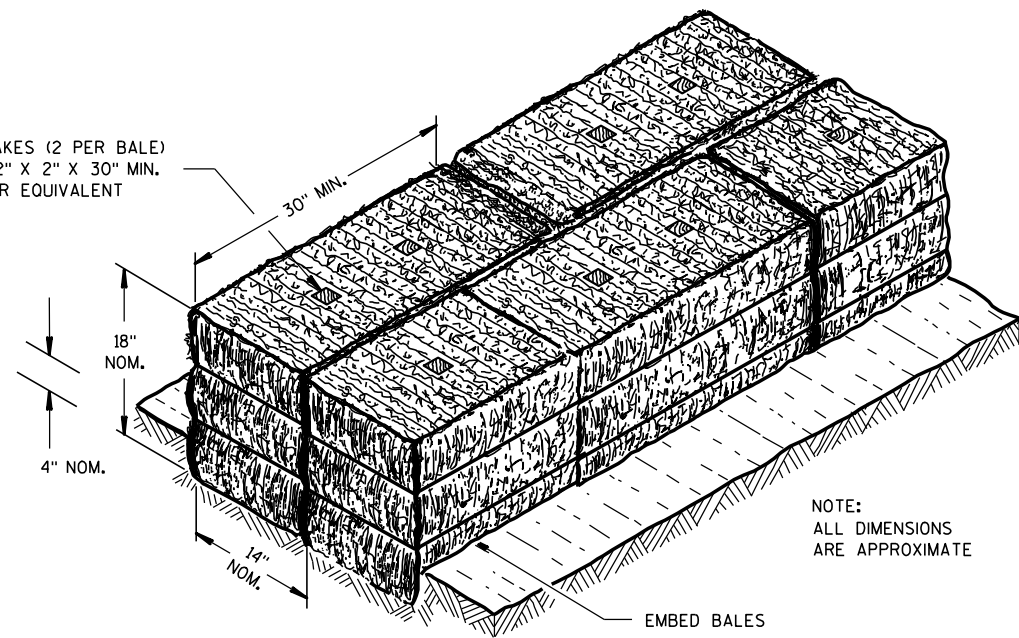
**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

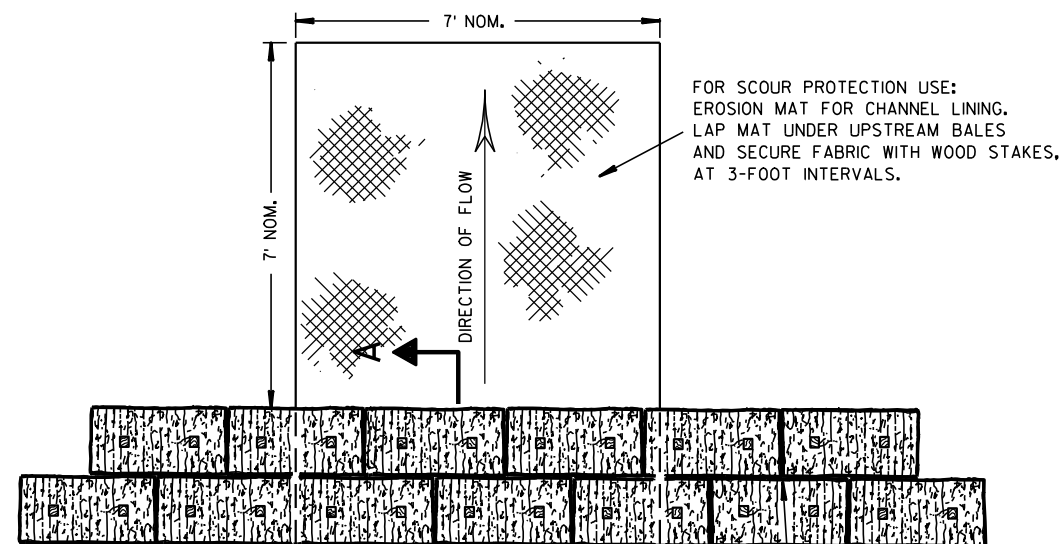
APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

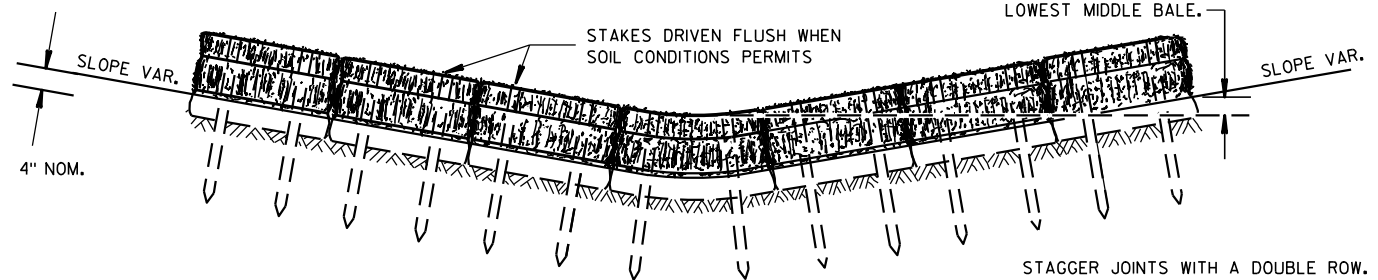
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



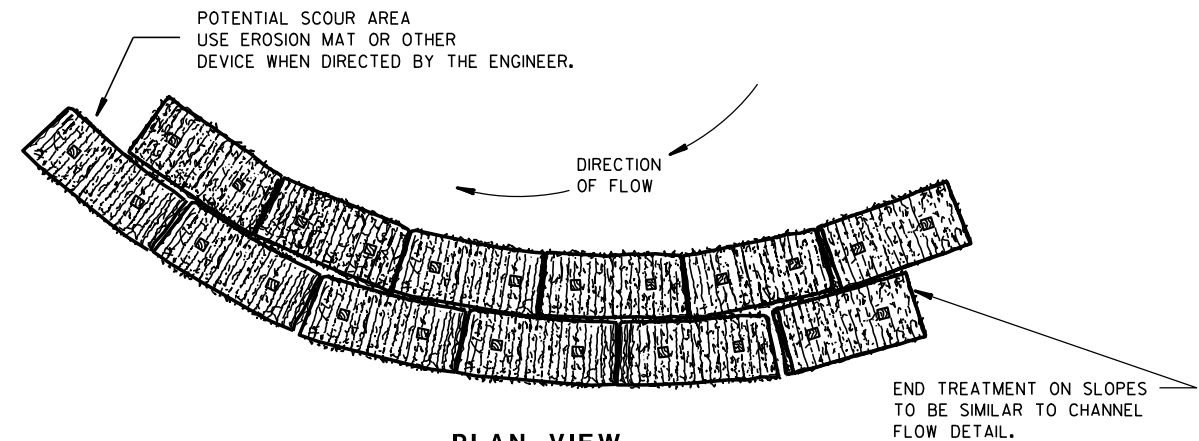
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

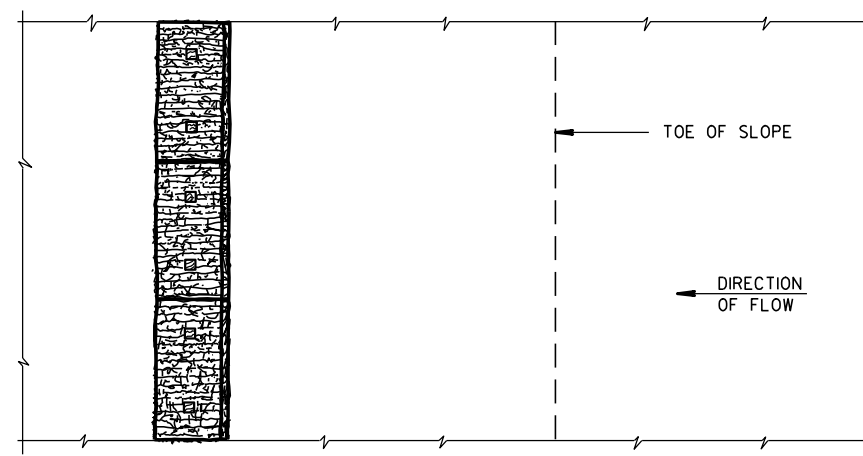
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- 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.

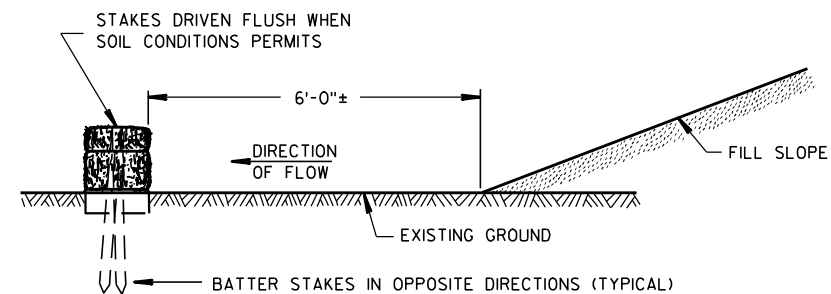


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

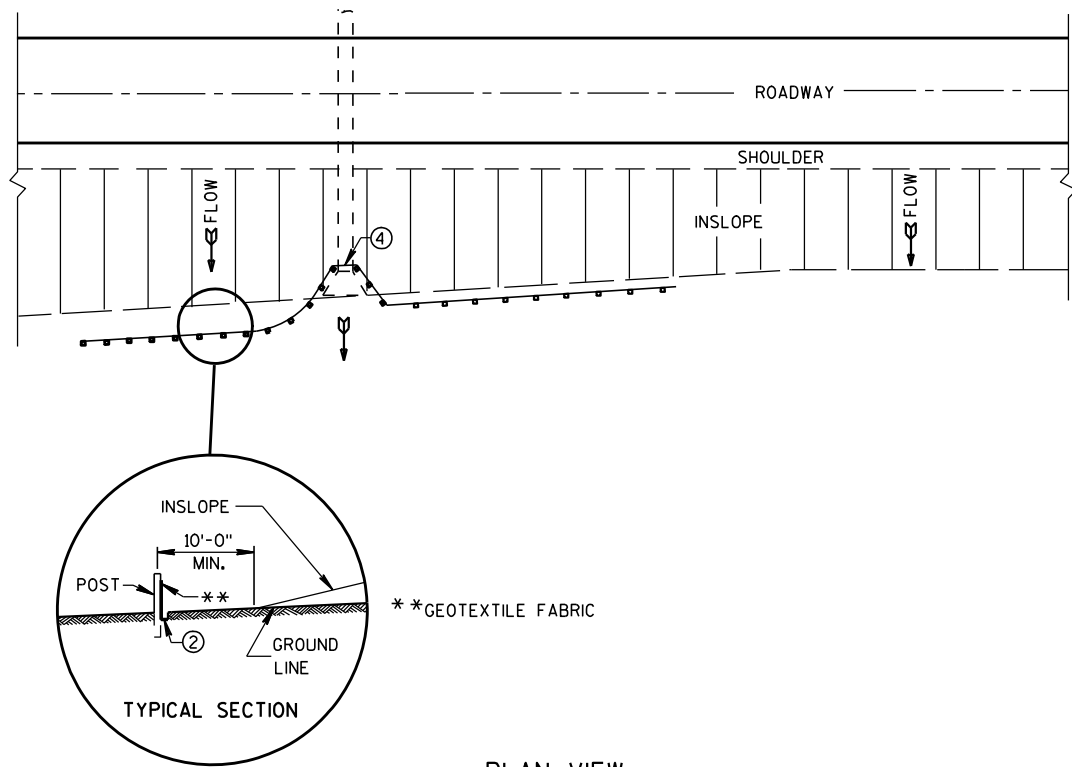
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

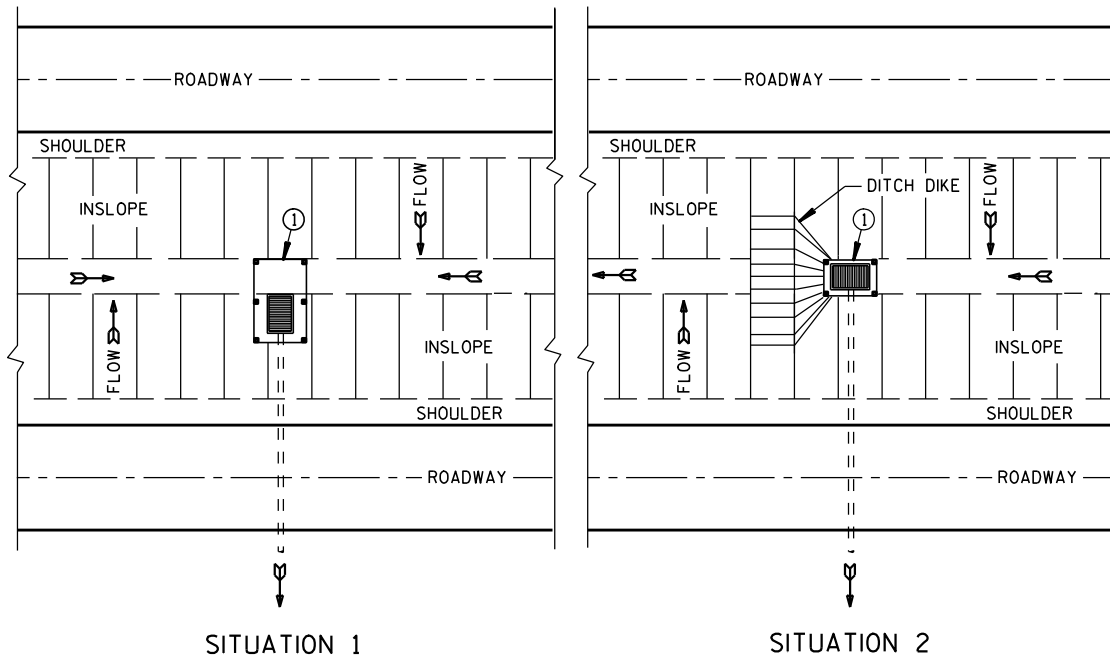
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
 6/04/02 /S/ Beth Canestra
 DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
 FHWA



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

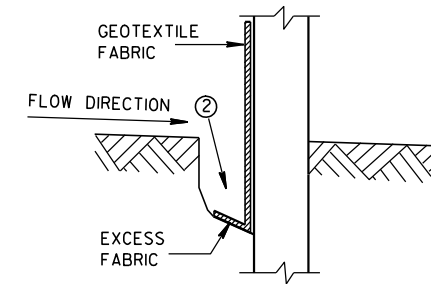


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

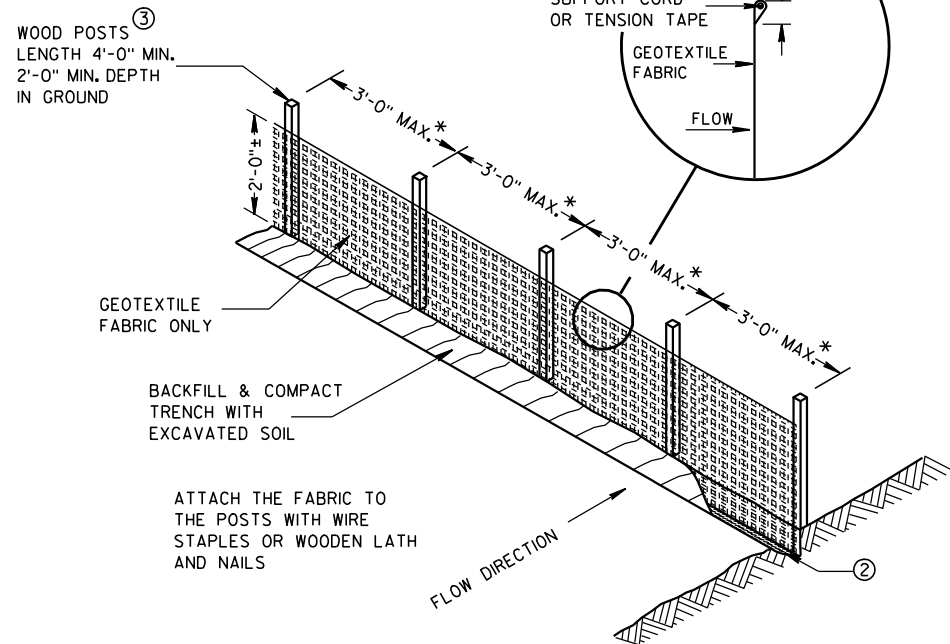
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



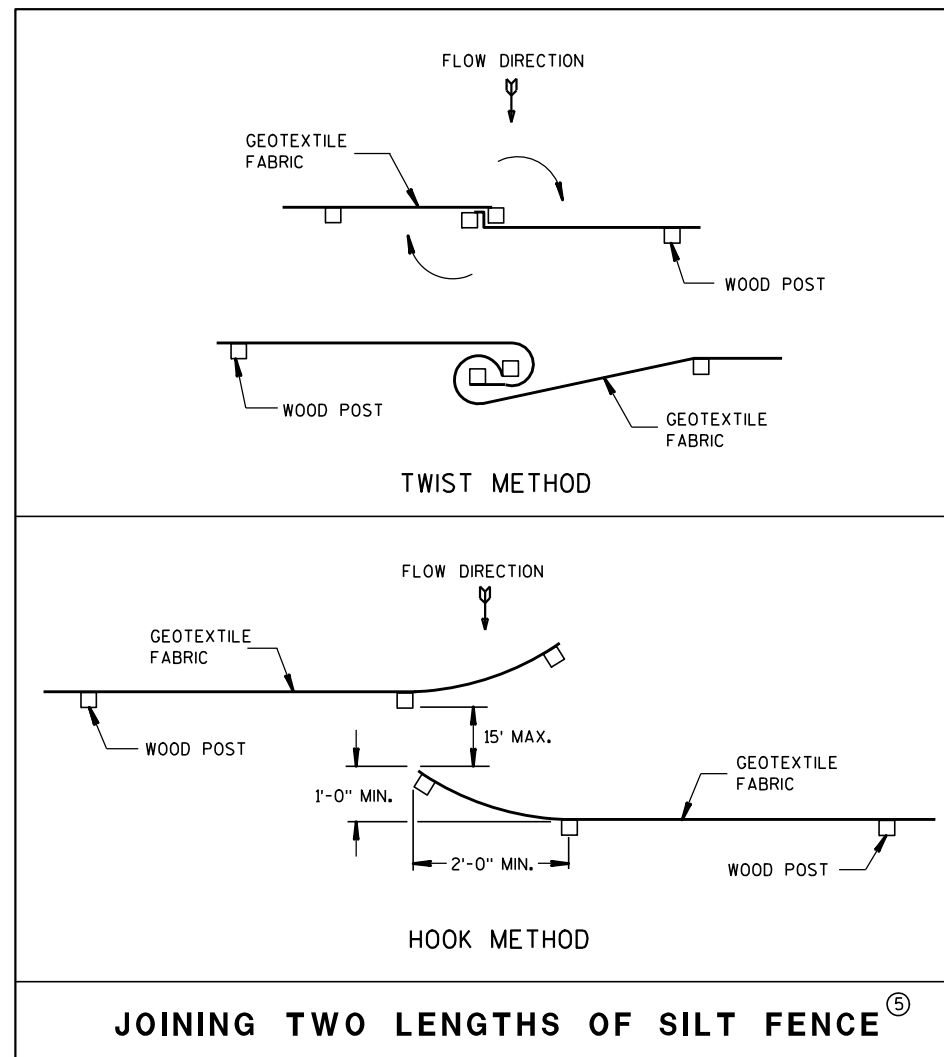
TRENCH DETAIL

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

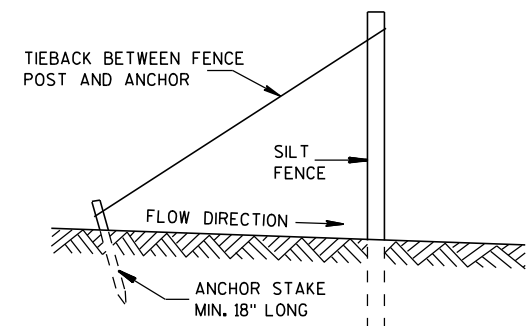


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

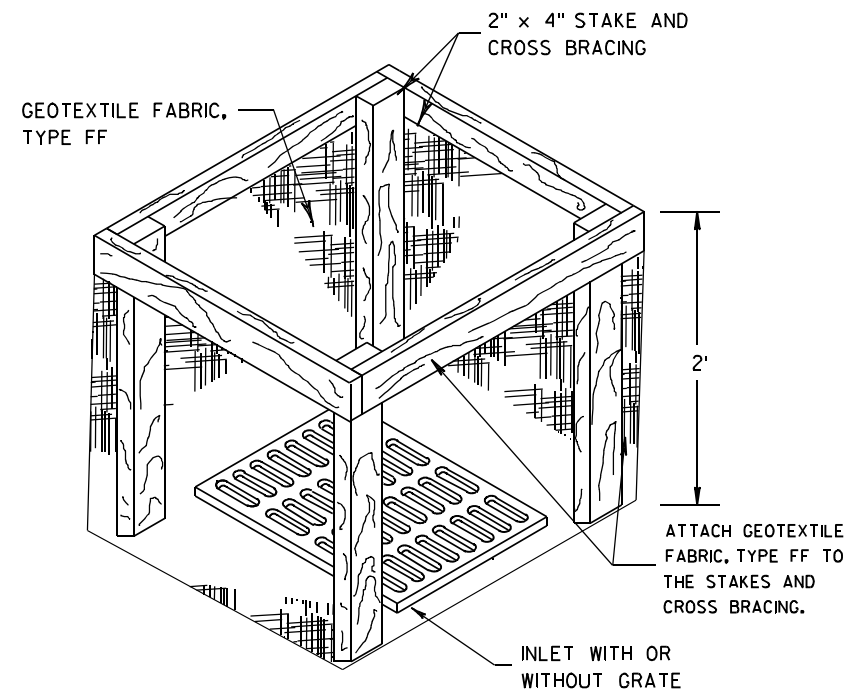
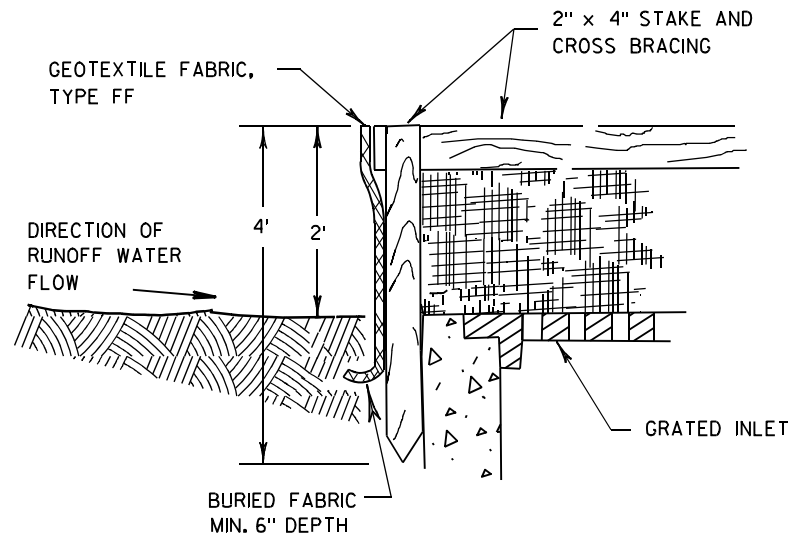


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



INLET PROTECTION, TYPE A

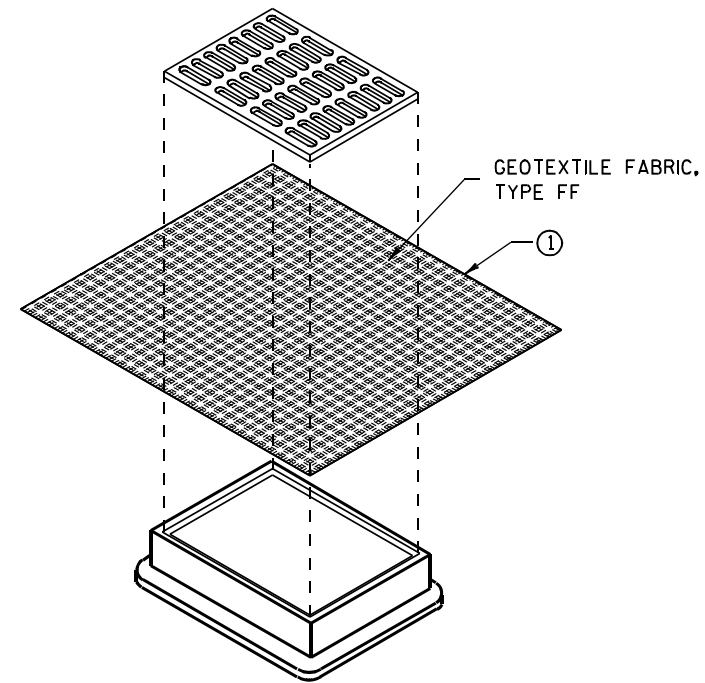
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

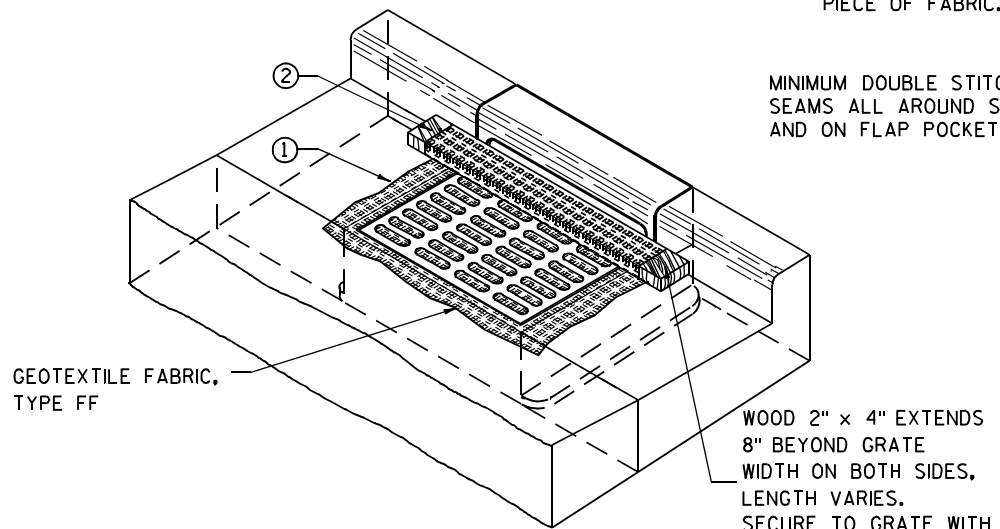
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

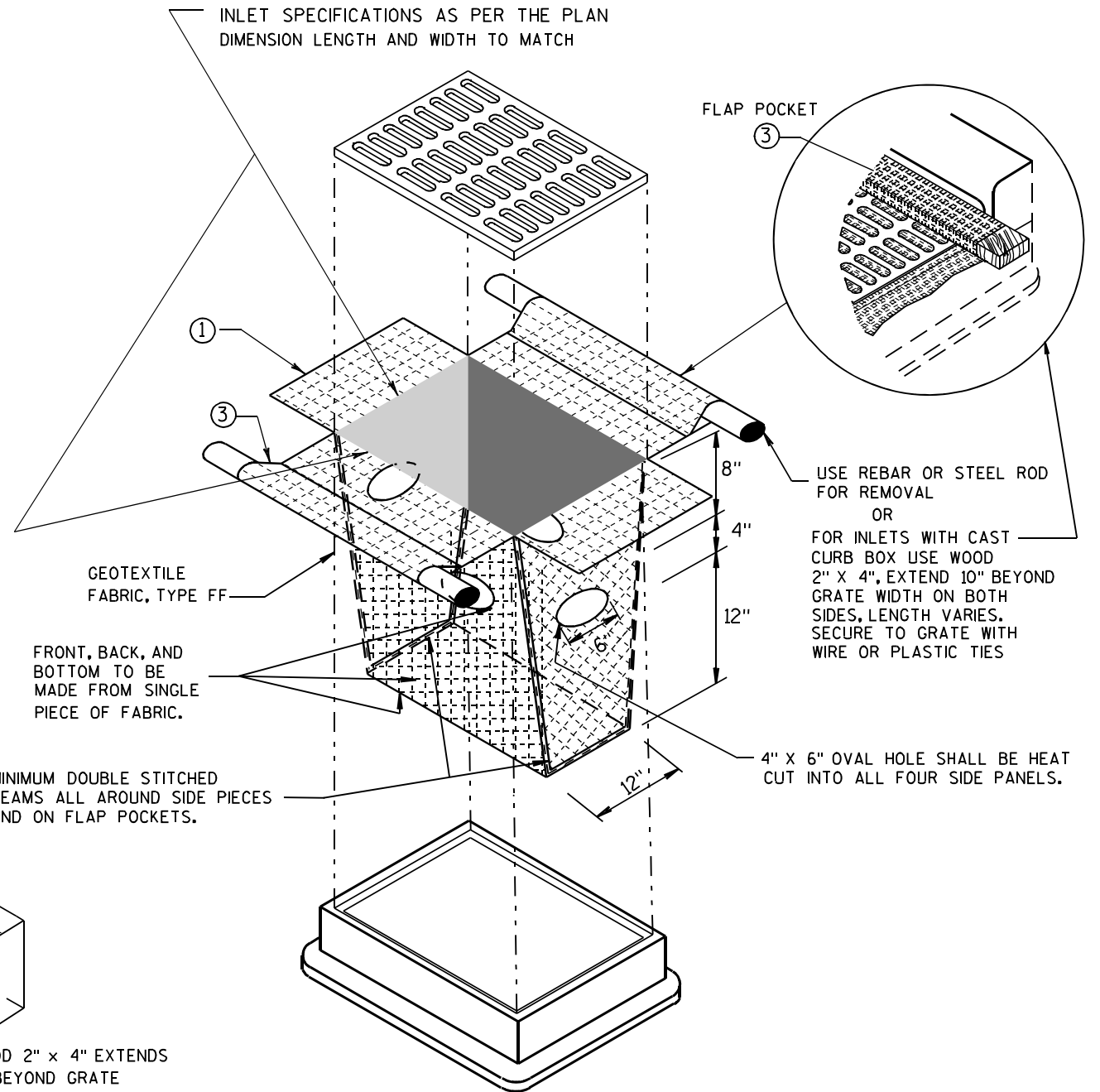
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

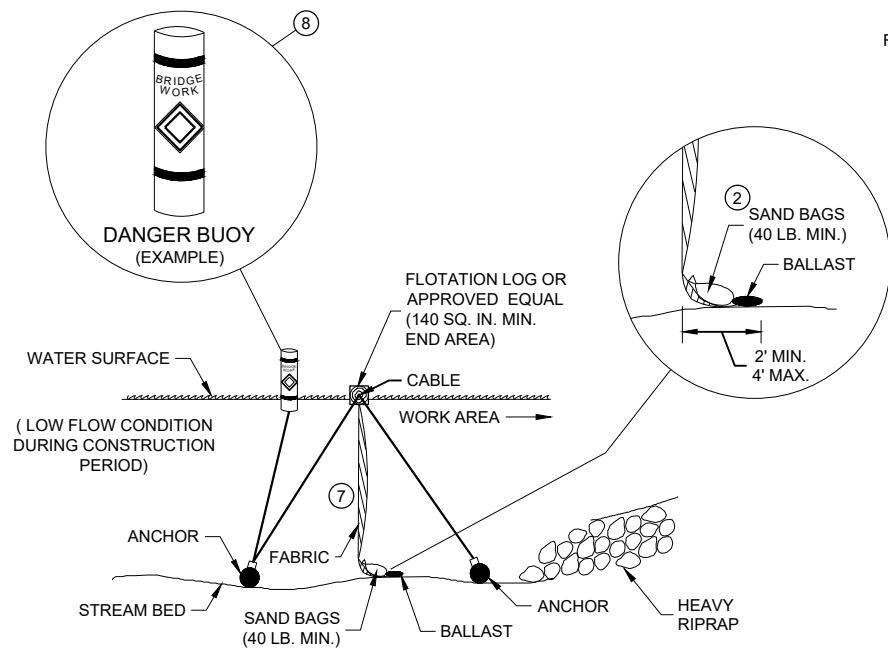
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

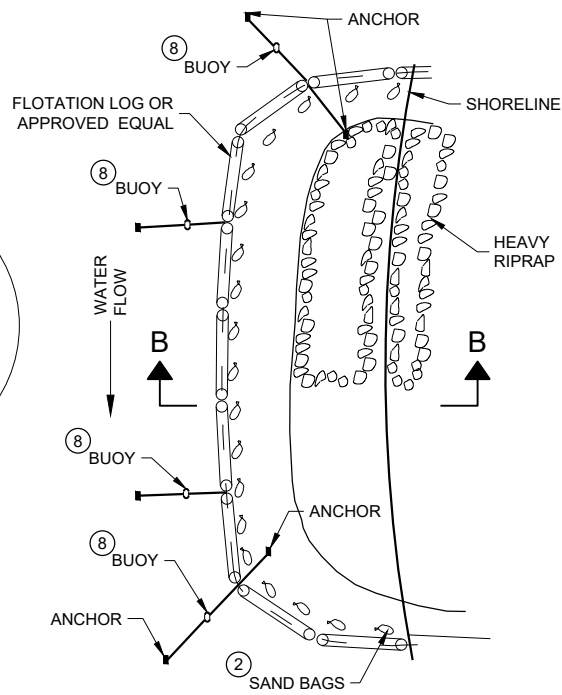
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Conestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

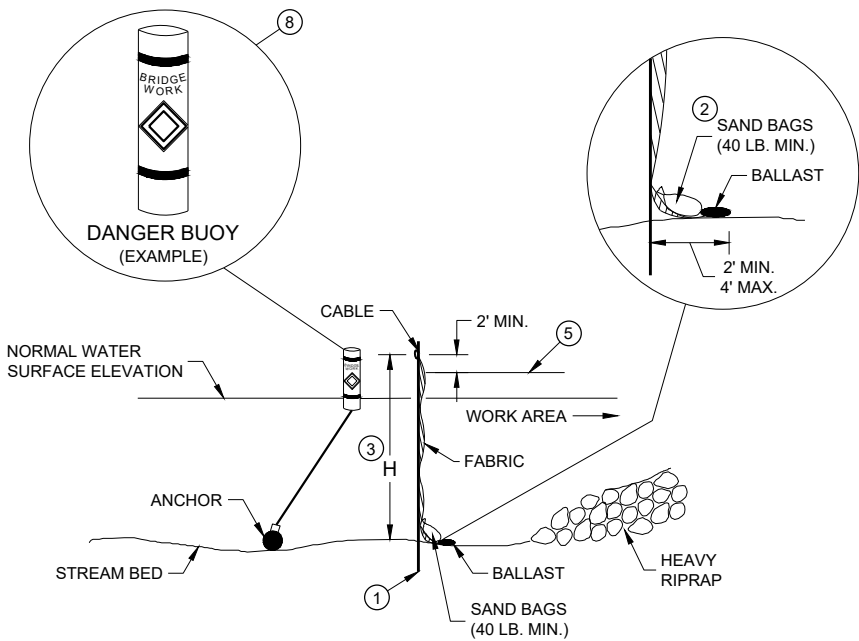


SECTION B - B

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

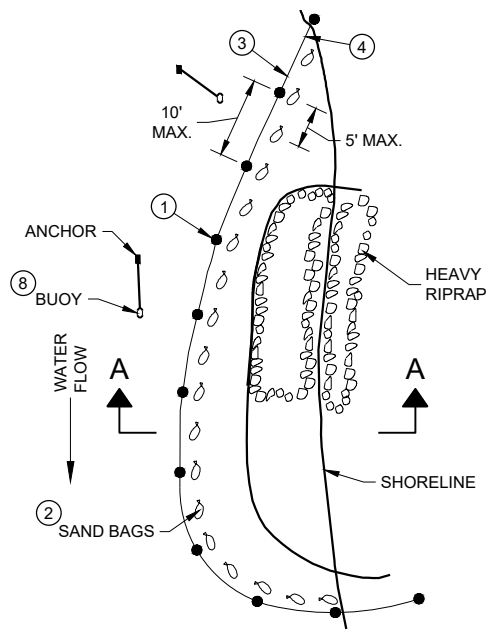


PLAN VIEW



SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW

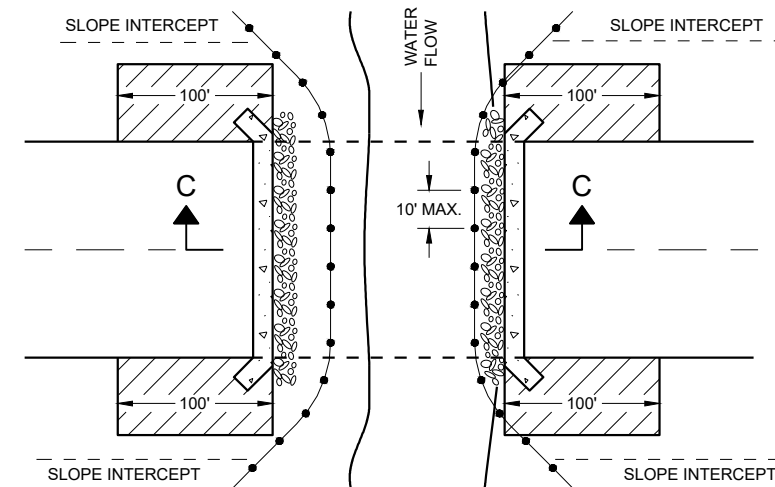
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

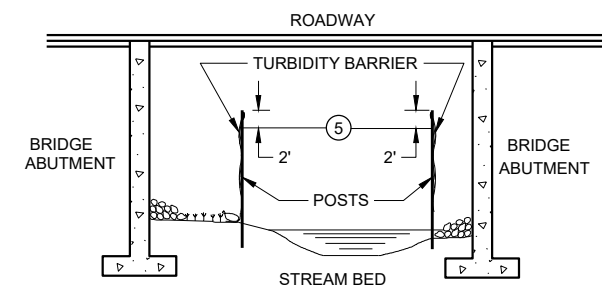
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C - C

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

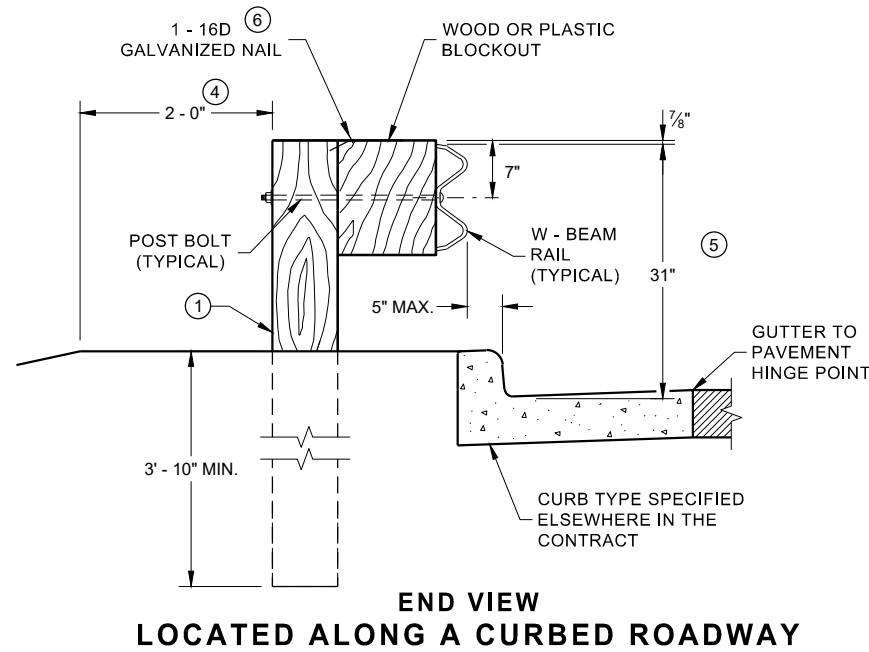
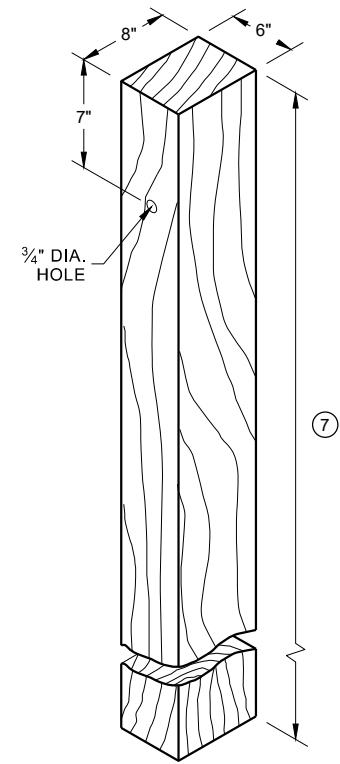
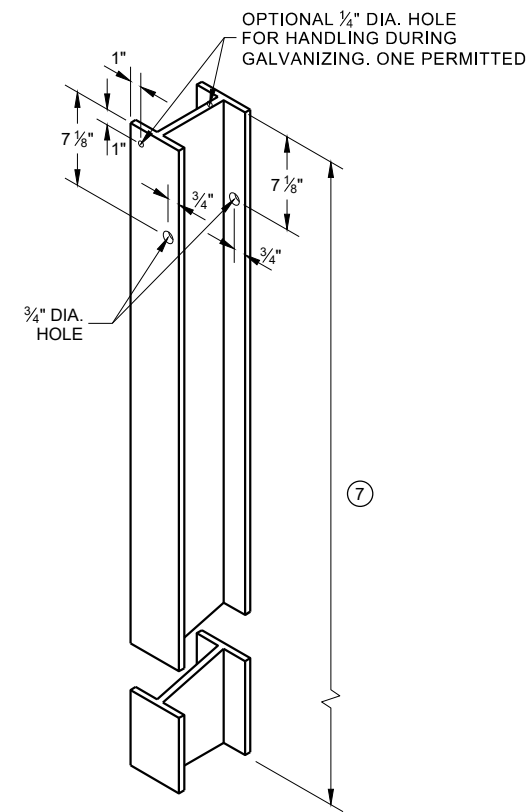
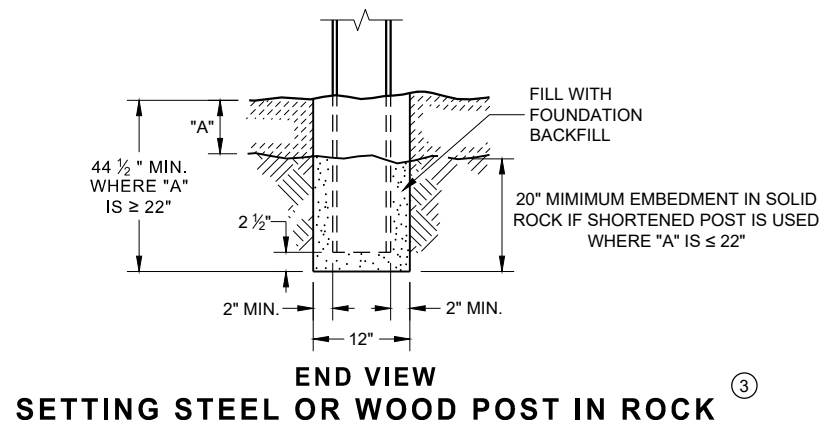
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

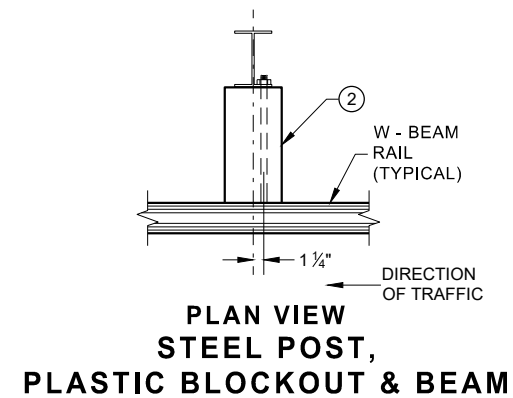
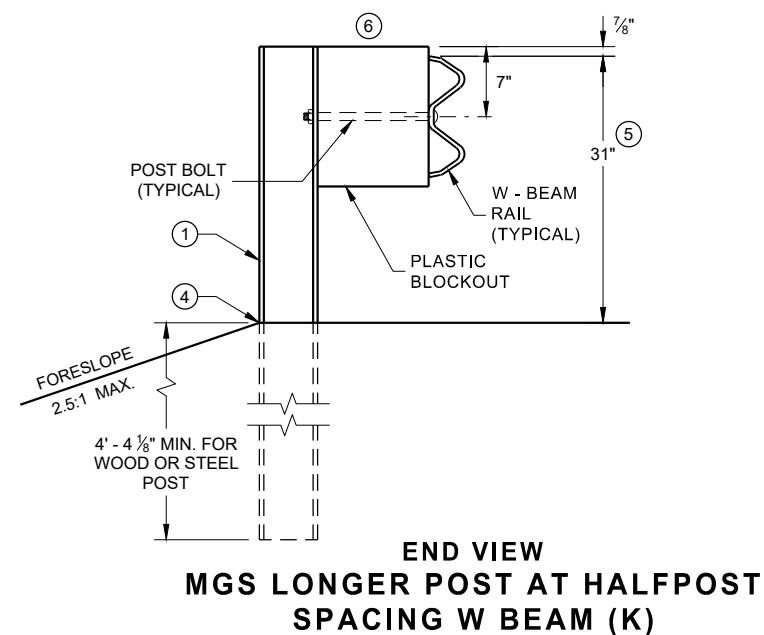
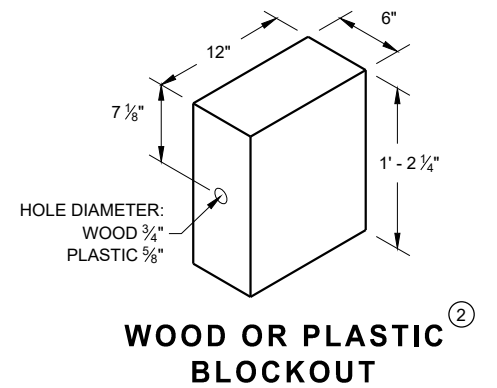
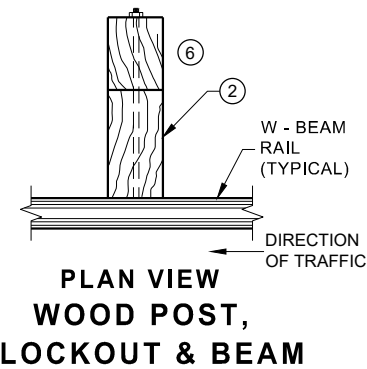
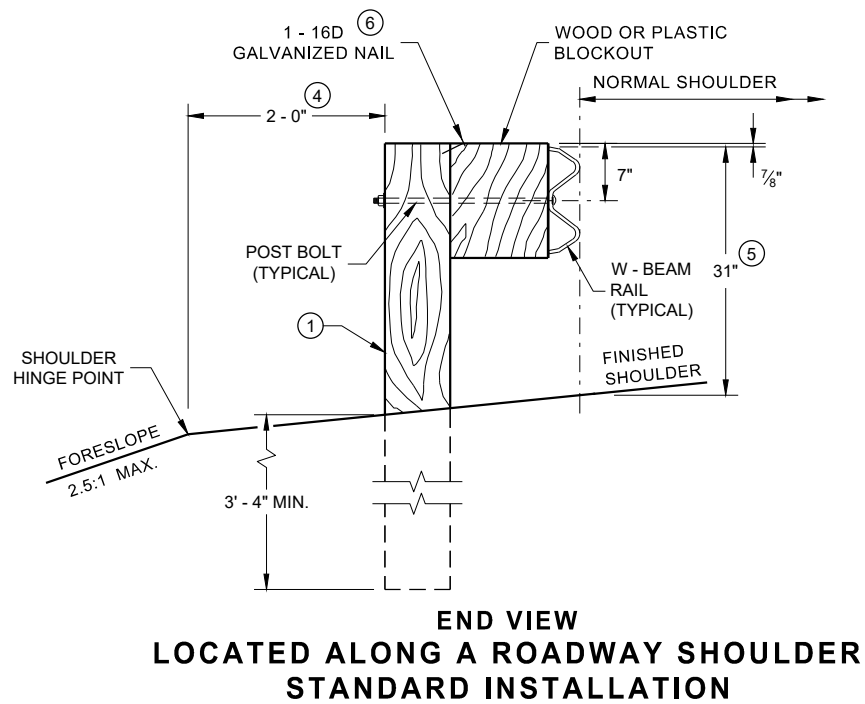
FHWA

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



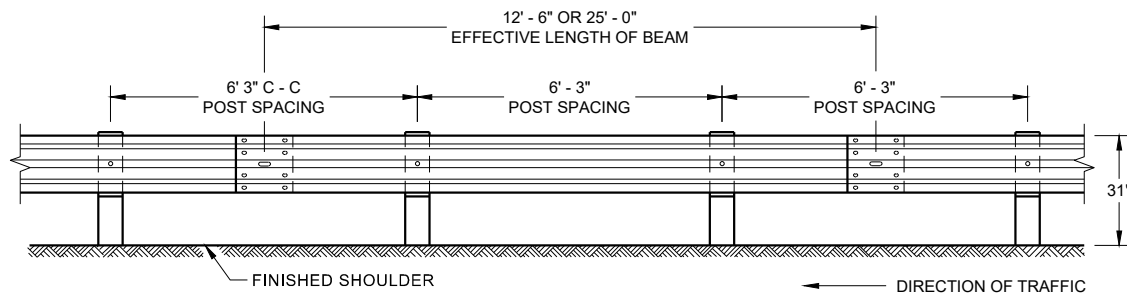
**STEEL POST & HOLE PUNCHING DETAIL
(W 6 X 9)** ①

**WOOD POST
(6" X 8") NOMINAL** ①

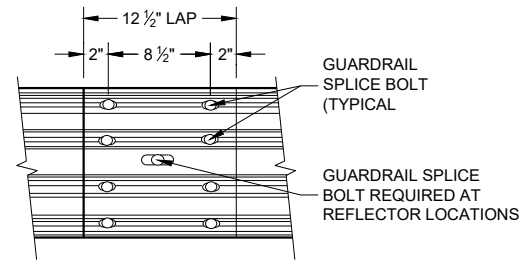


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



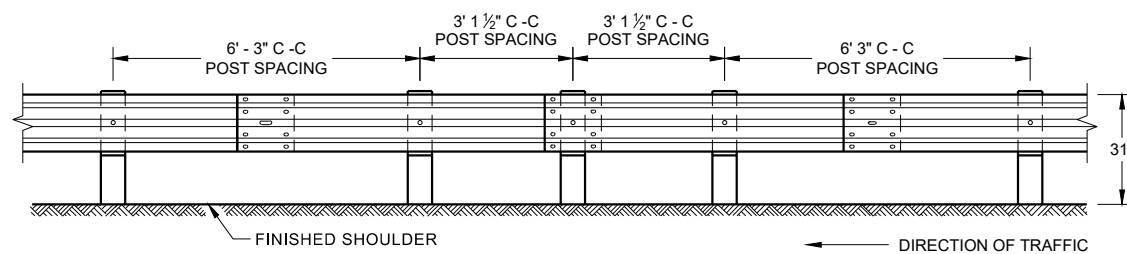
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



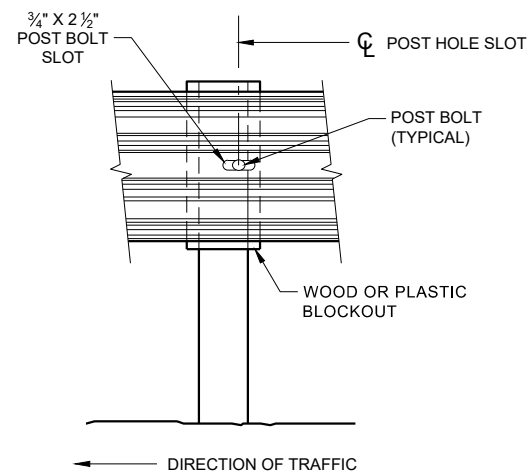
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

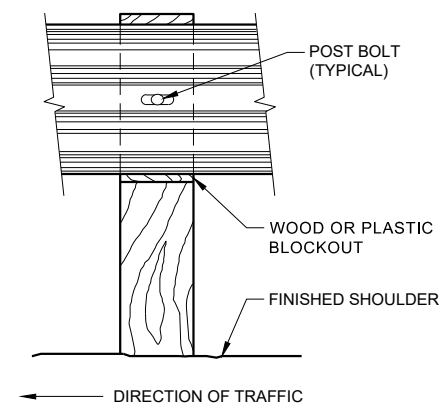
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER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



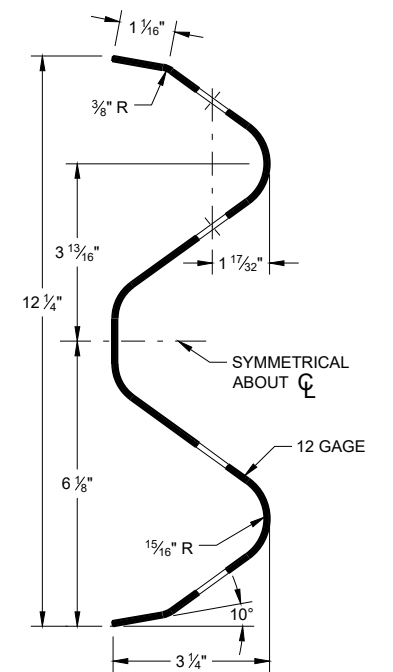
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



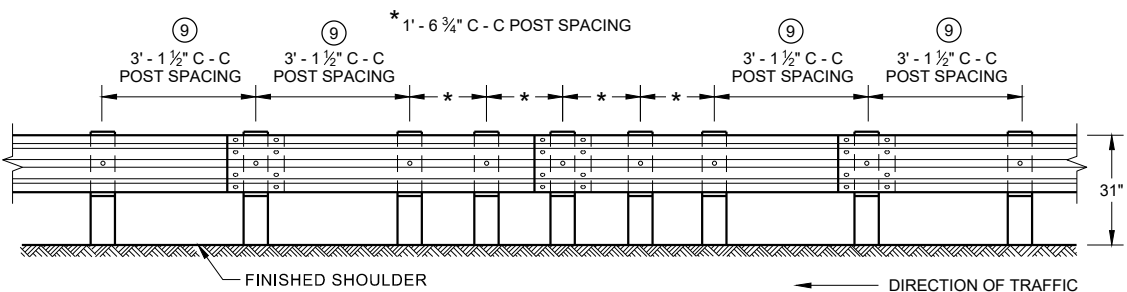
FRONT VIEW AT STEEL POST



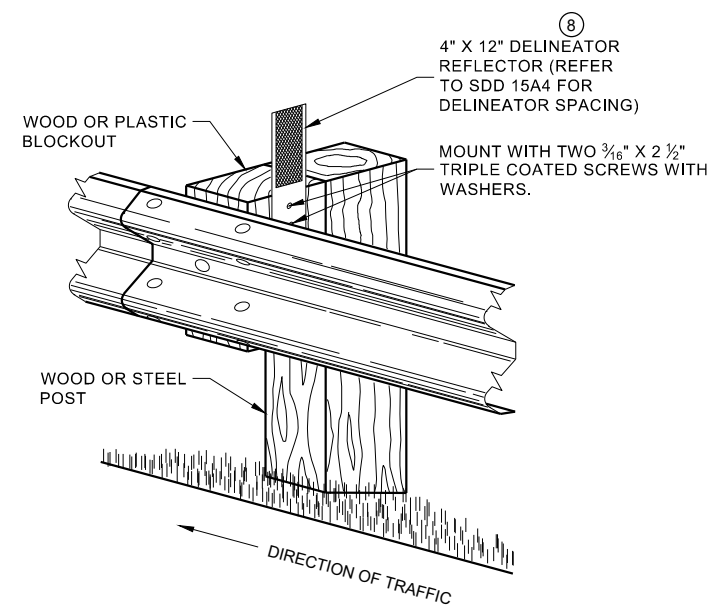
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



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



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

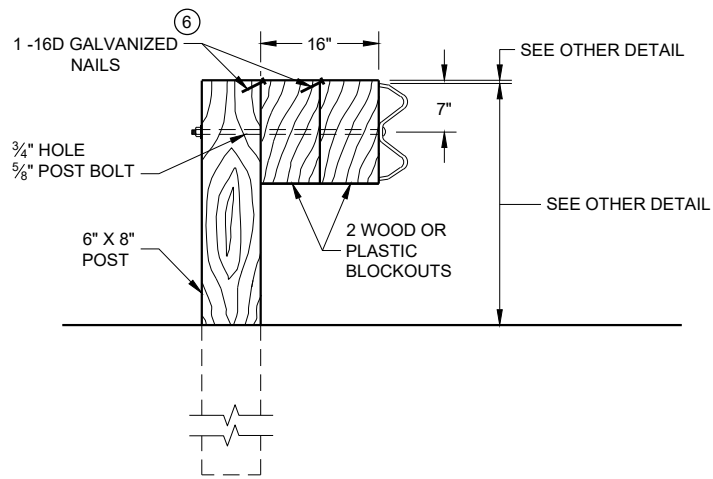
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

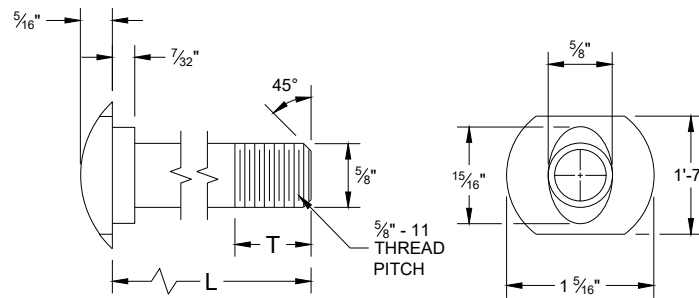


DETAIL FOR 16" BLOCKOUT DEPTH

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

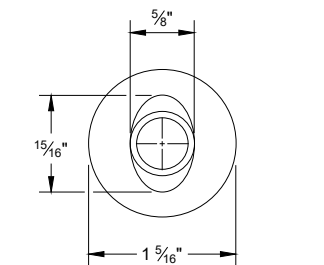
NOTE:

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

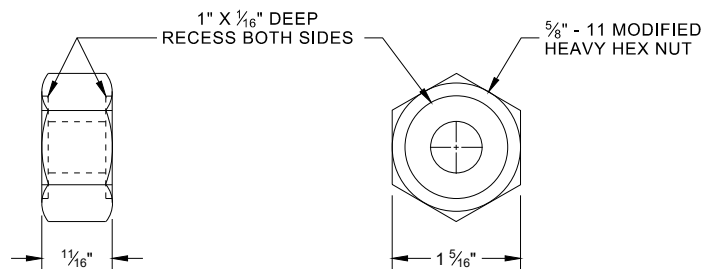


POST BOLT TABLE

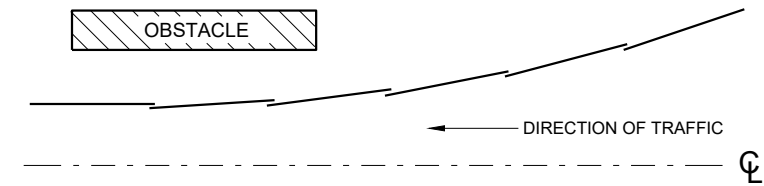
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



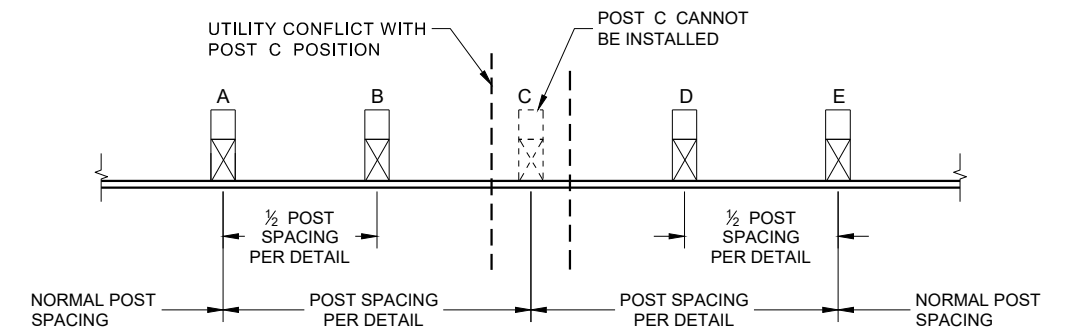
ALTERNATE BOLT HEAD



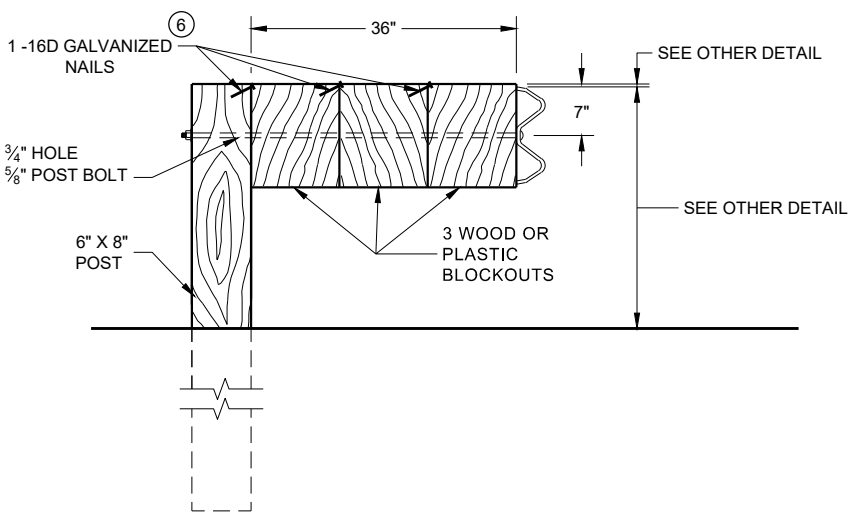
POST BOLT, SPLICE BOLT AND RECESS NUT



PLAN VIEW BEAM LAPPING DETAIL

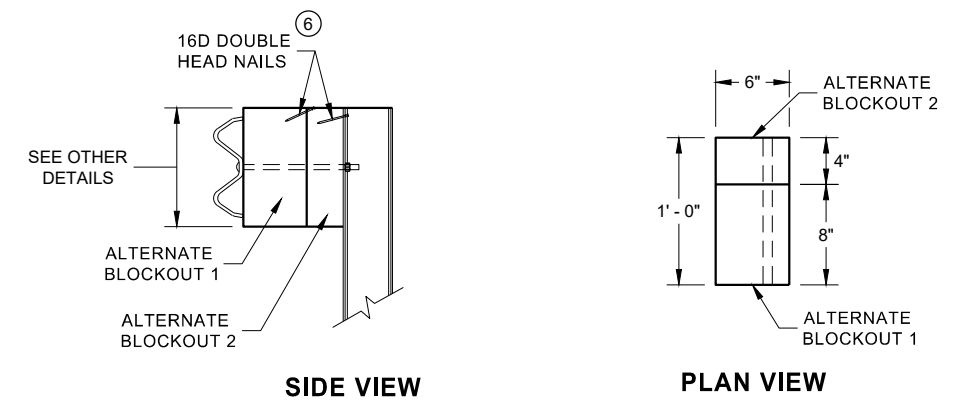


POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



DETAIL FOR 36" BLOCKOUT DEPTH

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

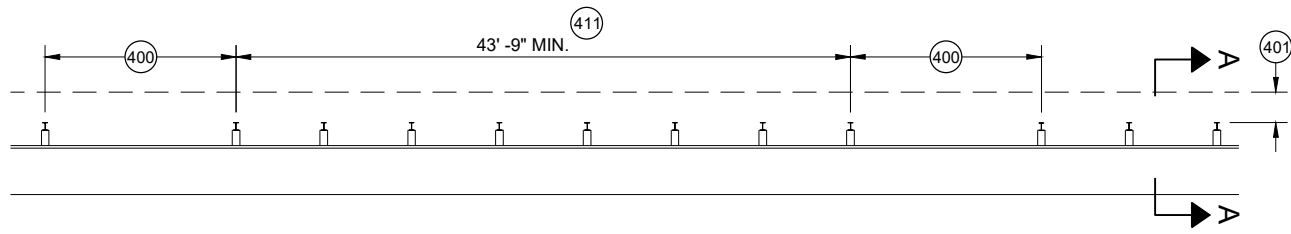


ALTERNATE WOOD BLOCKOUT DETAIL

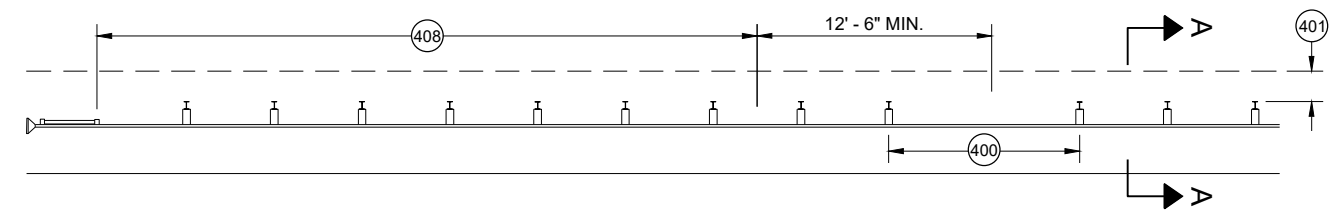
⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

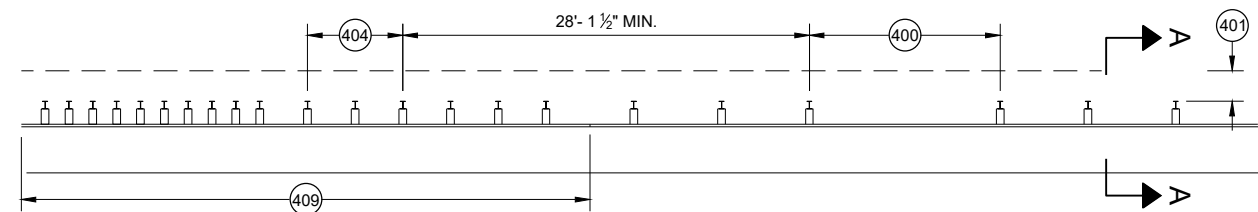
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



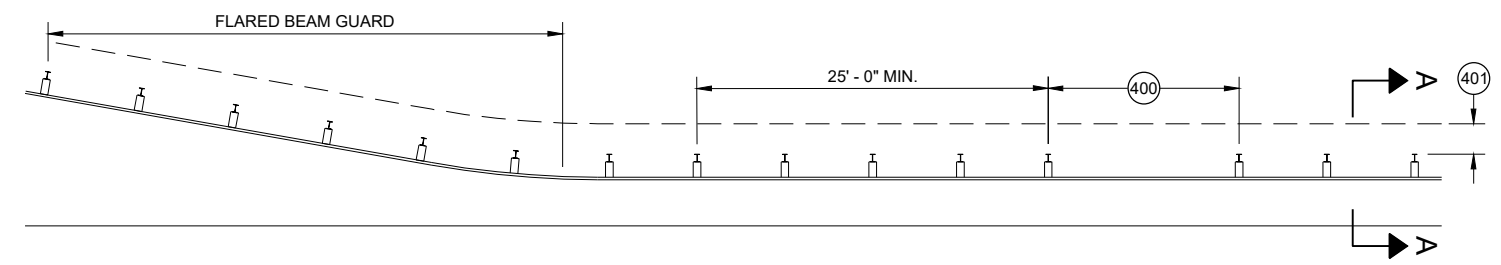
MISSING POST IN MGS GUARDRAIL



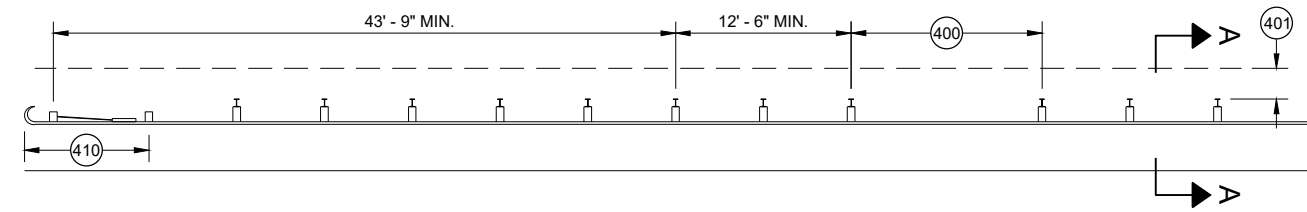
MISSING POST IN MGS GUARDRAIL NEAR EAT



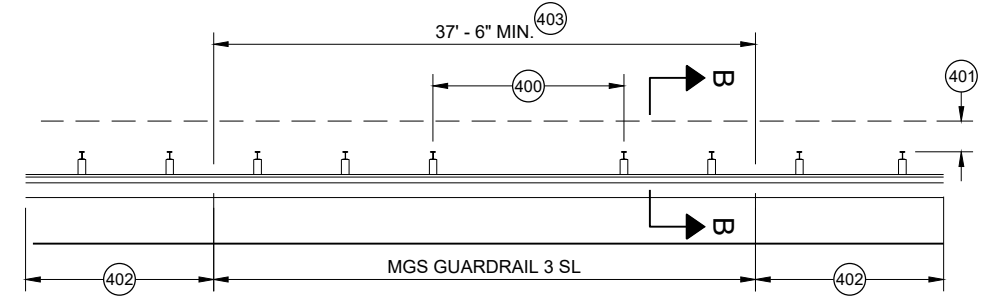
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

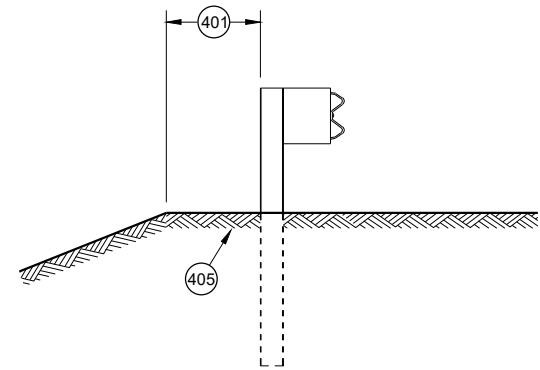


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

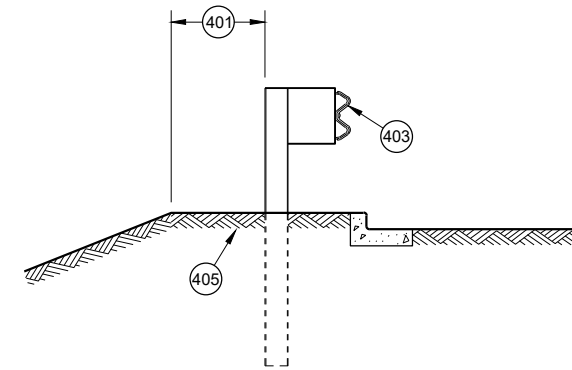


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

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

GENERAL NOTES

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

SEE SDD 14B42 FOR MORE INFORMATION.

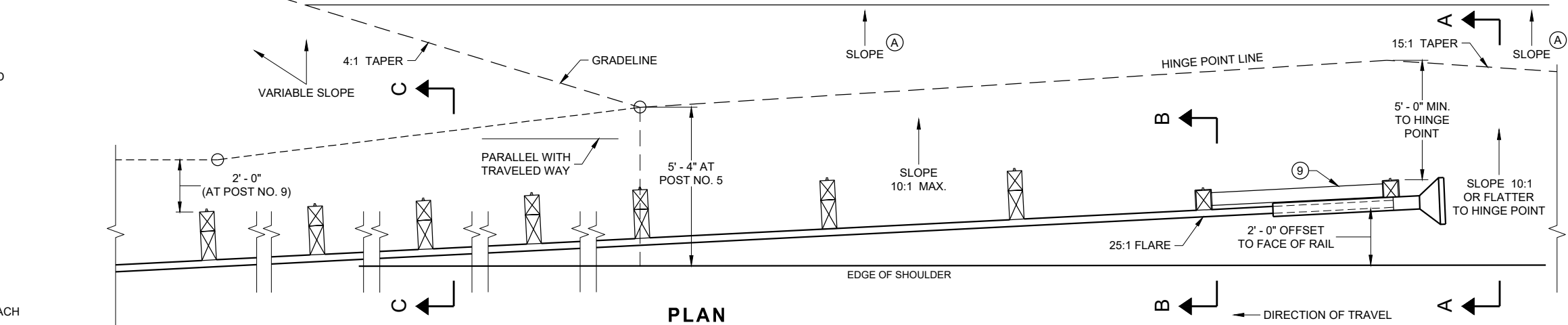
* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

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

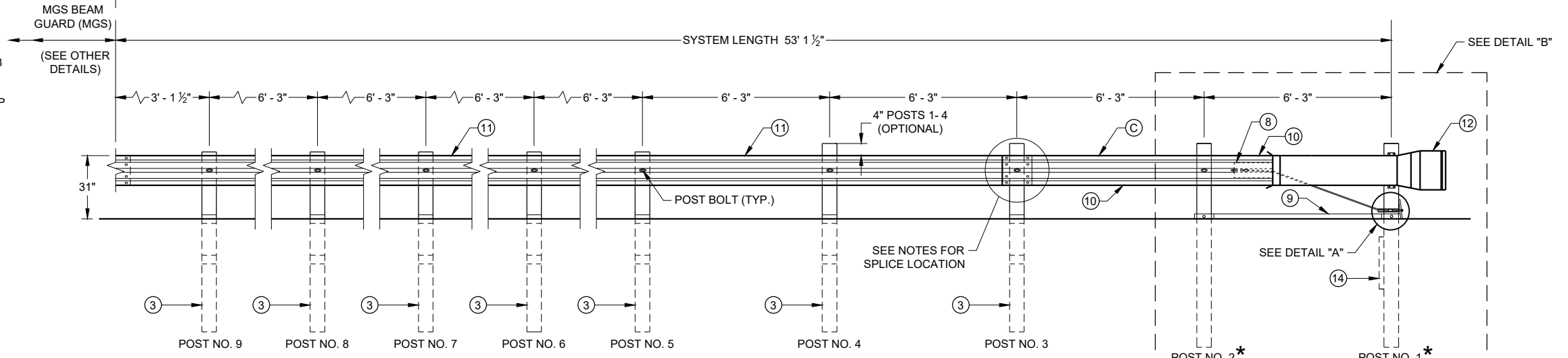
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

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

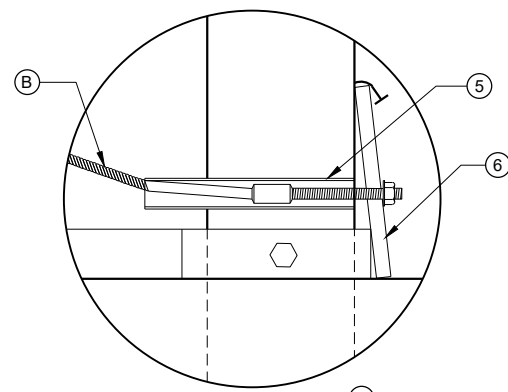
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



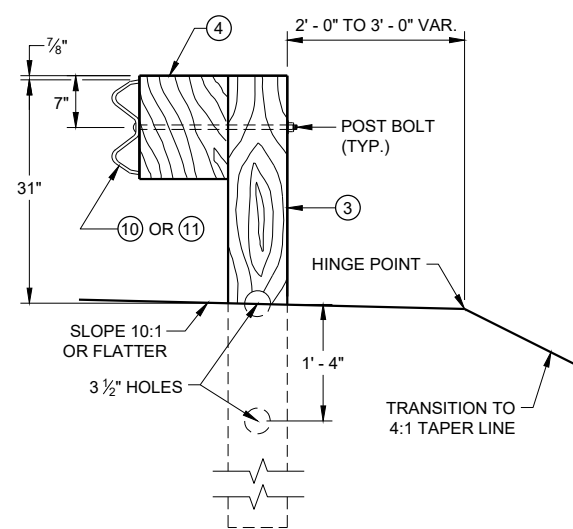
PLAN



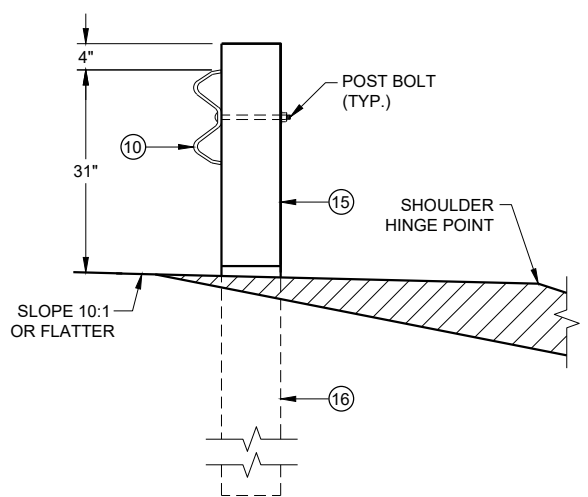
ELEVATION



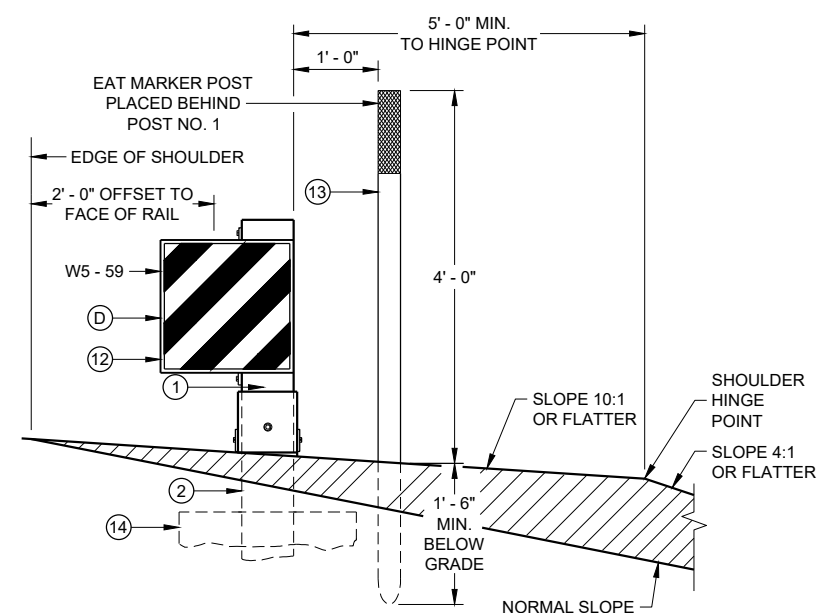
DETAIL "A"



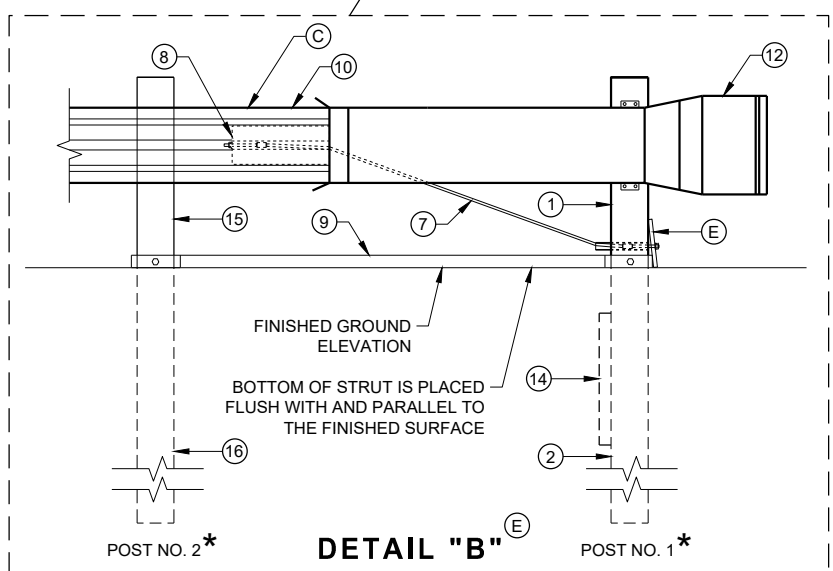
**SECTION C - C
TYPICAL AT POST NOS. 3 - 9**



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



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



DETAIL "B"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

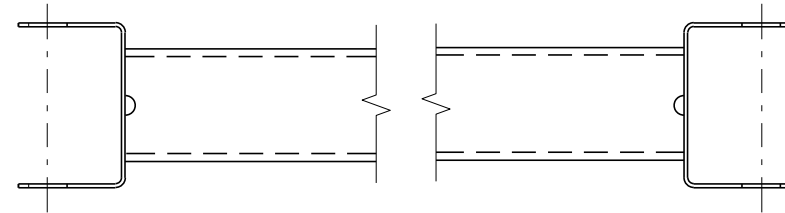
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SDD 14B44 - 04a

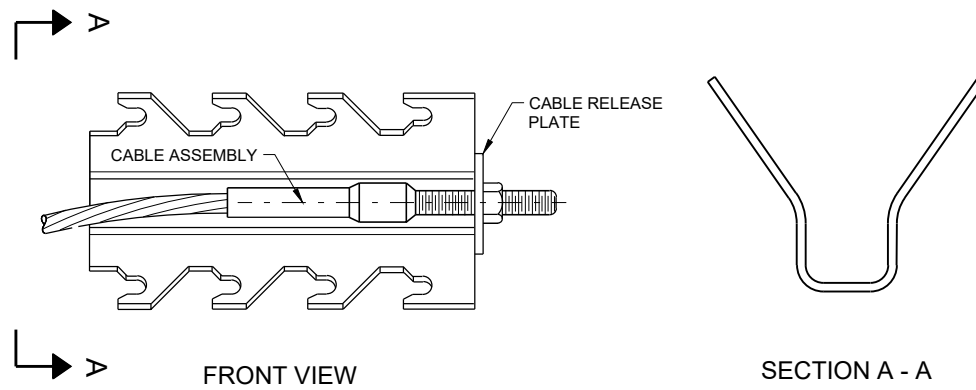
SDD 14B44 - 04a

BILL OF MATERIALS

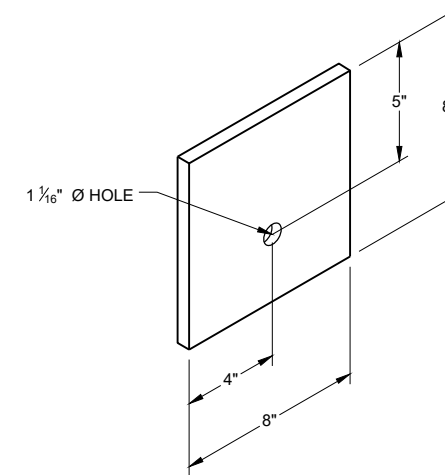
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



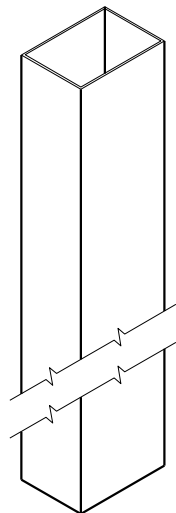
GENERIC GROUND STRUT ⑨ ⑤



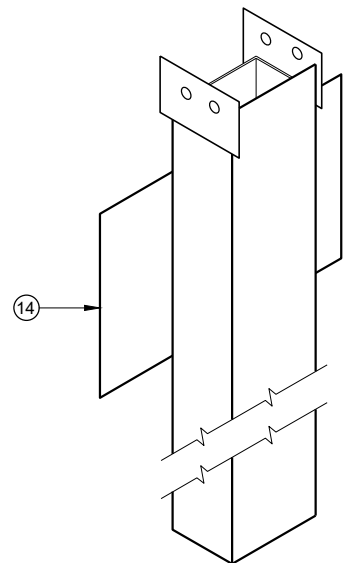
GENERIC ANCHOR CABLE BOX ⑨ ⑤



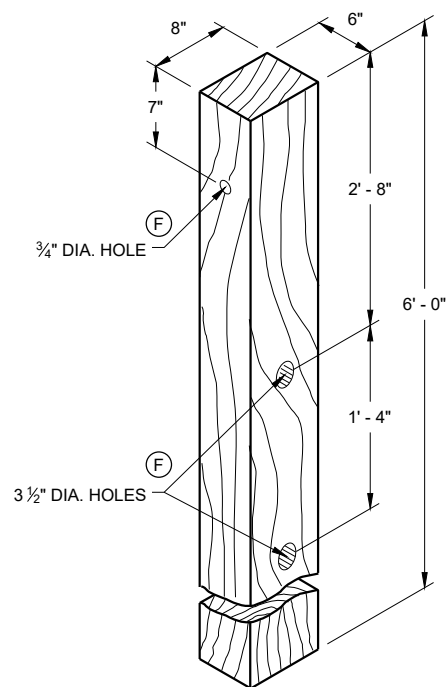
BEARING PLATE ⑥ ⑤



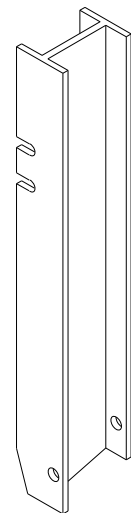
UPPER POST NO. 1 ⁽¹⁾ (E)



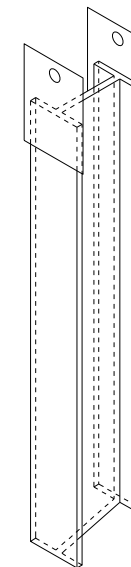
LOWER POST NO. 1 ⁽²⁾ (E)



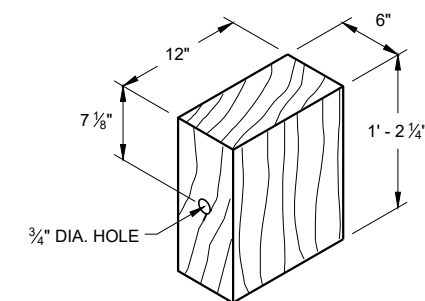
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

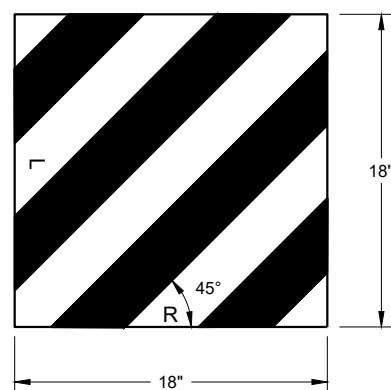


LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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

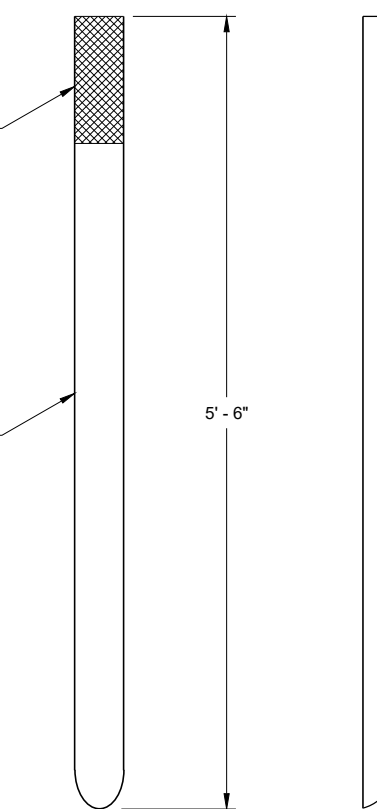
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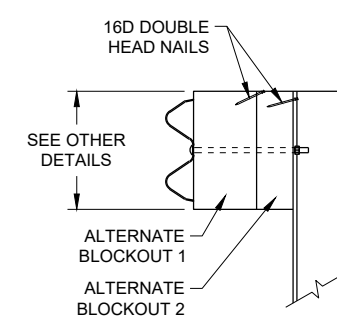
W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)

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

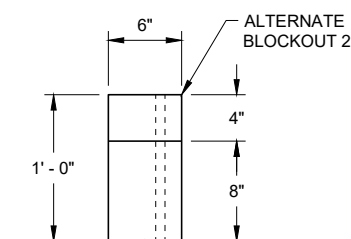
E.A.T. MARKER
POST (YELLOW)



FRONT VIEW SIDE VIEW
E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

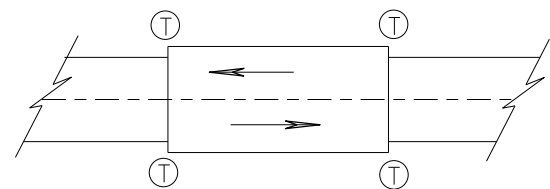
ALTERNATE WOOD
BLOCKOUT DETAIL

6

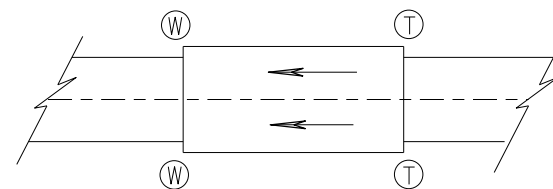
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

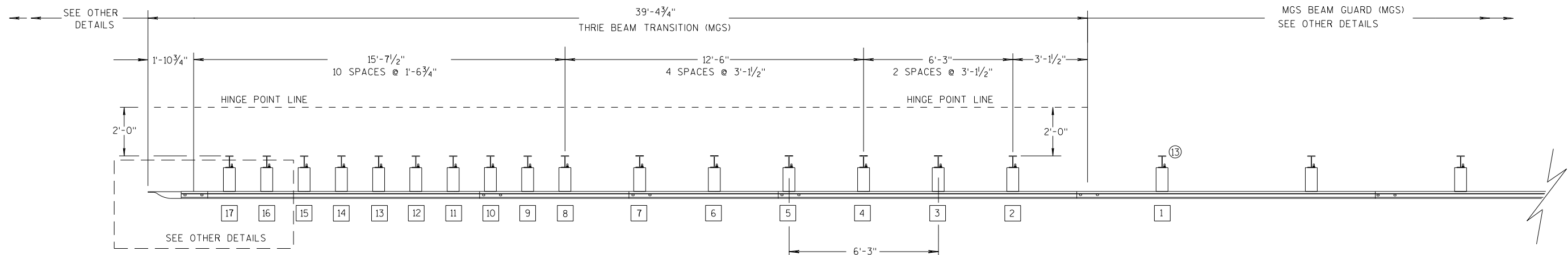
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

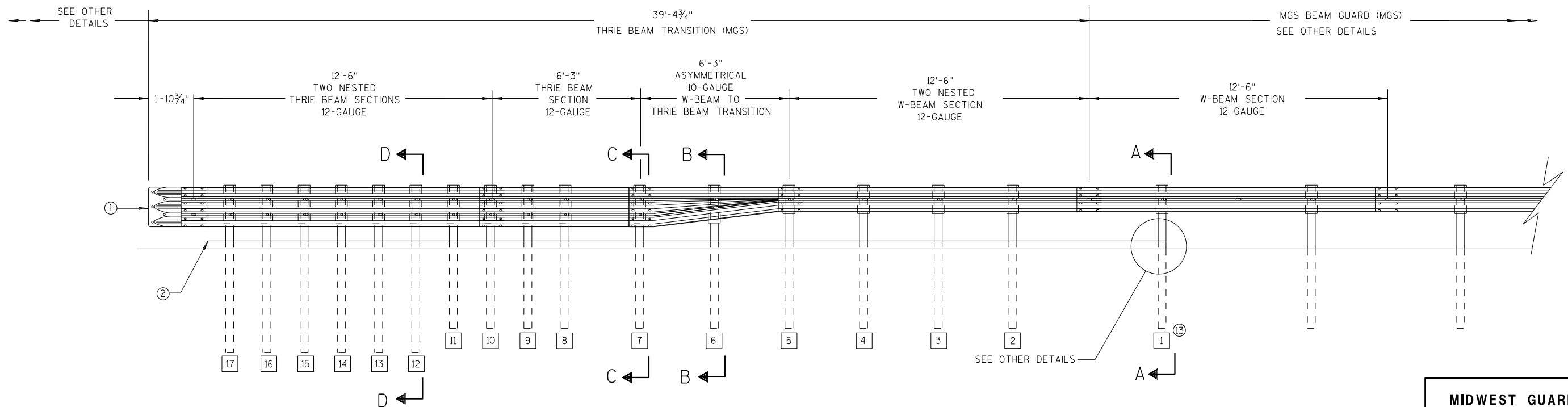
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

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



PLAN VIEW



ELEVATION VIEW

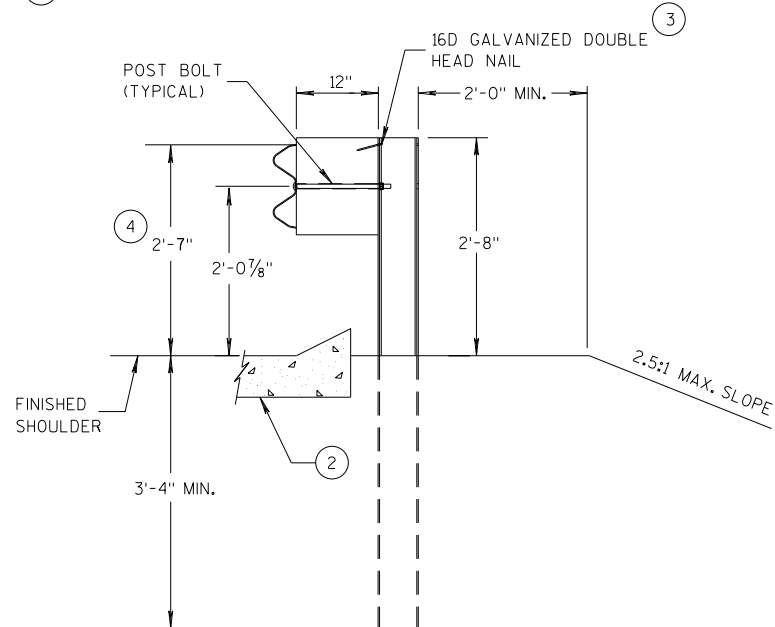
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

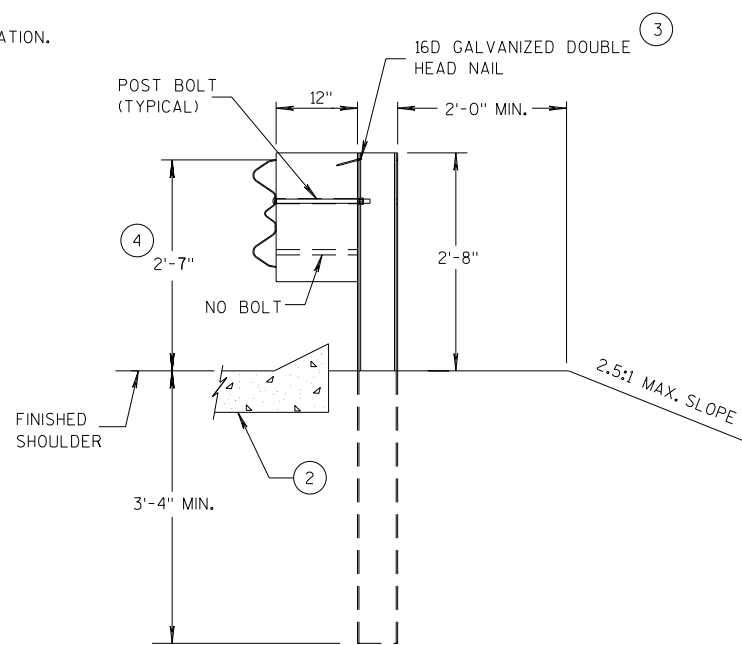
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

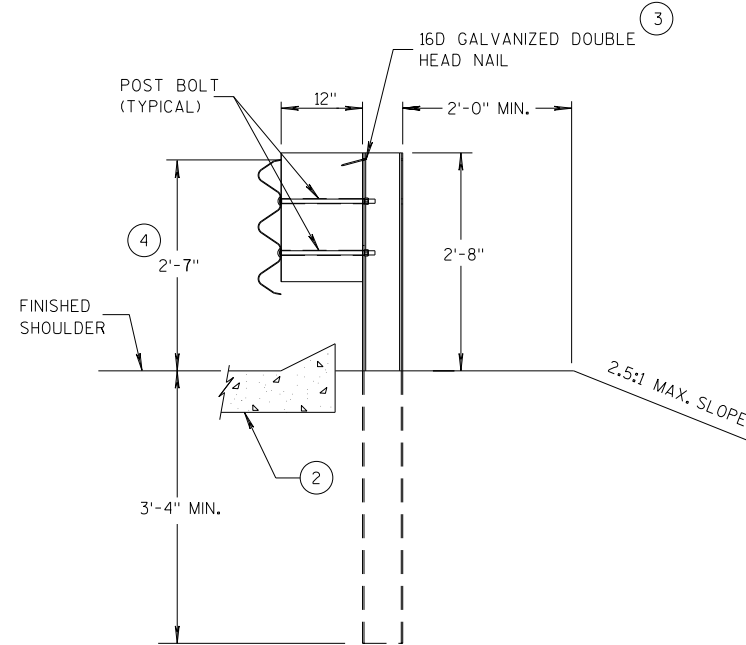
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



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



**SECTION B-B
POST 6**



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

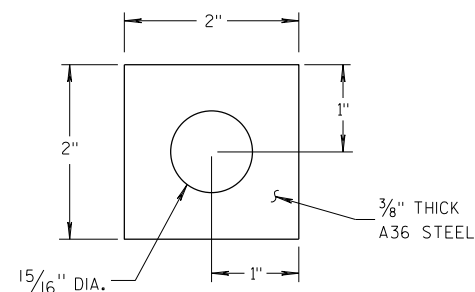
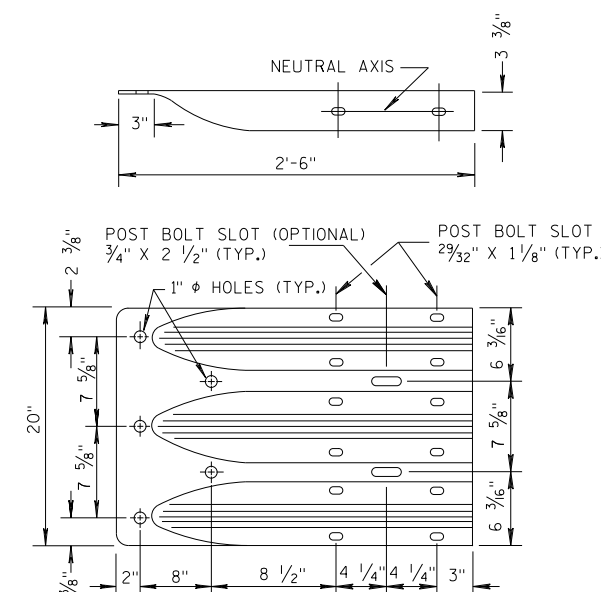
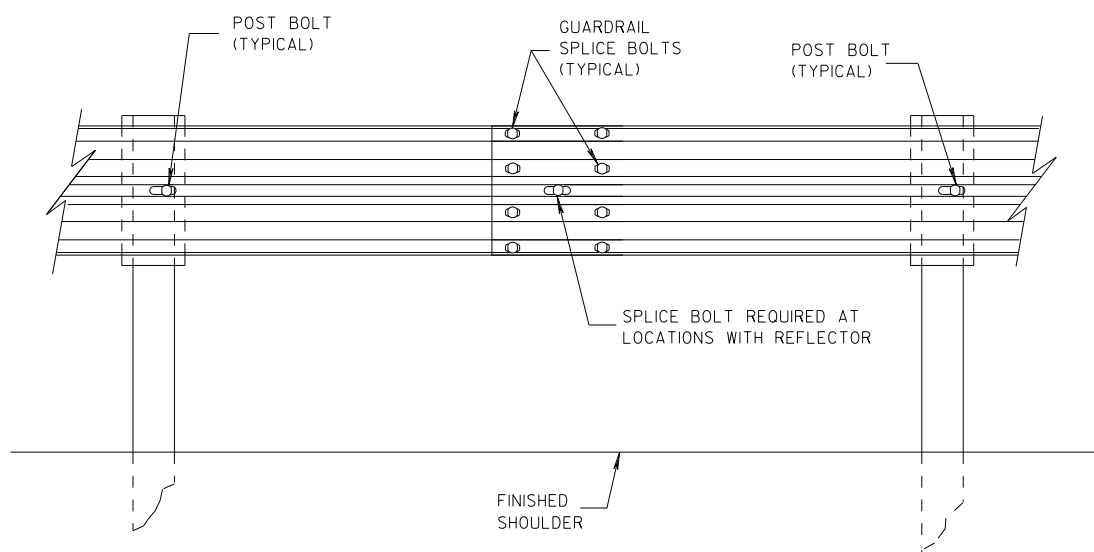


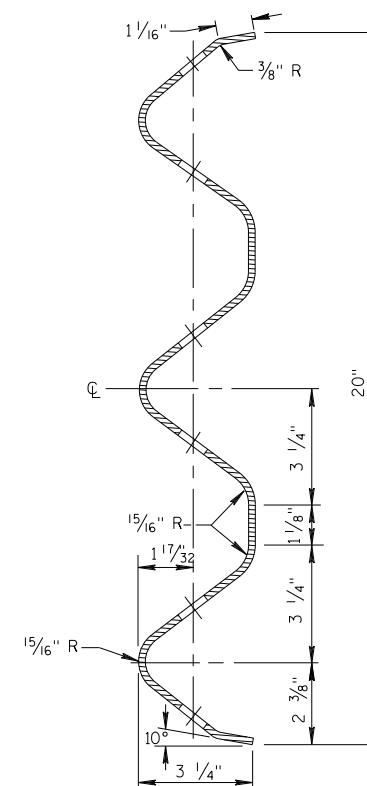
PLATE WASHER DETAIL



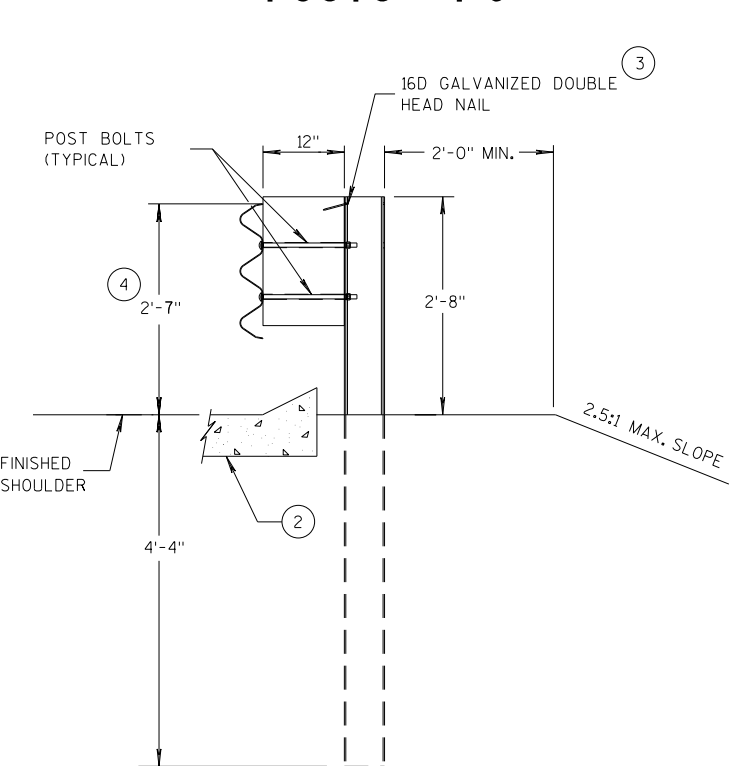
**THRIE BEAM
TERMINAL CONNECTOR**



SPLICE DETAIL



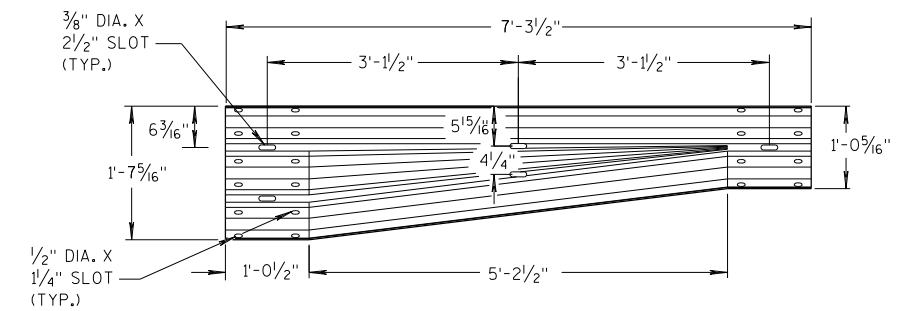
**SECTION THRU THRIE
BEAM RAIL ELEMENT**



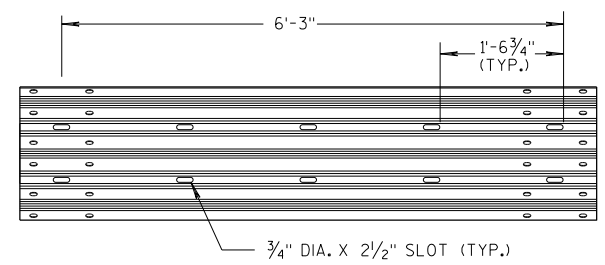
**SECTION D-D
POSTS 12-17**

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

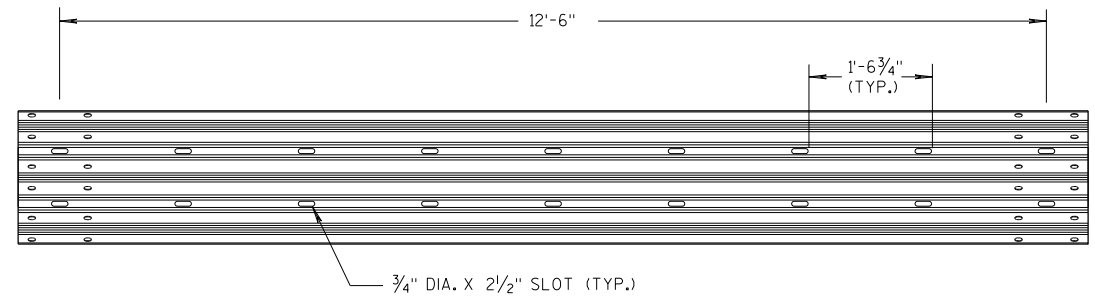
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



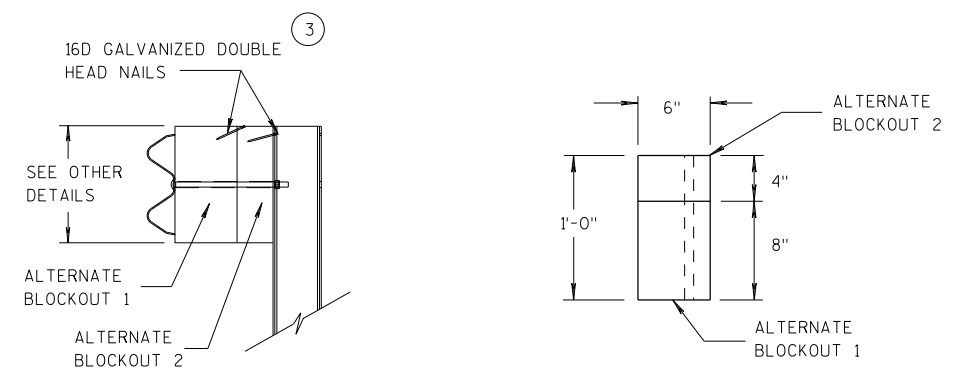
W-BEAM TO THRIE BEAM TRANSITION SECTION



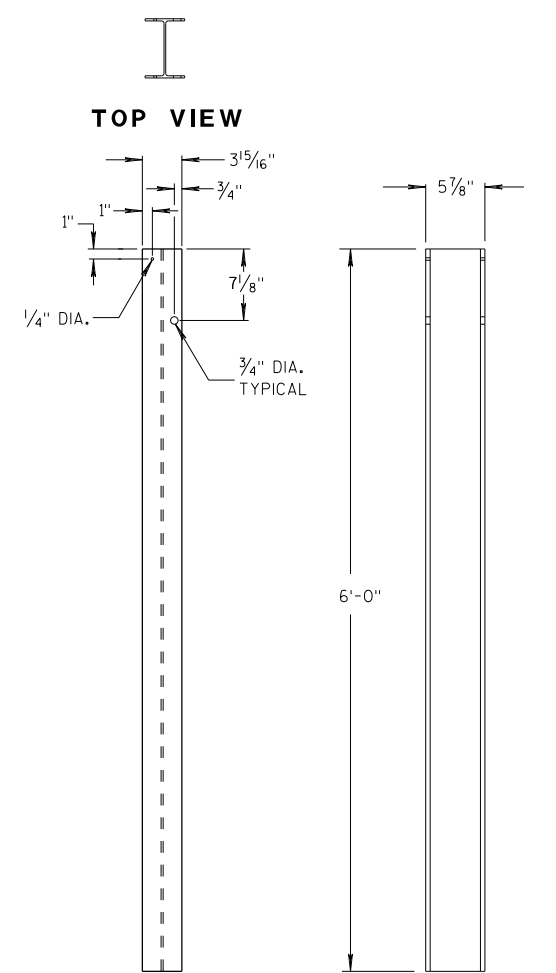
6'-3\"/>



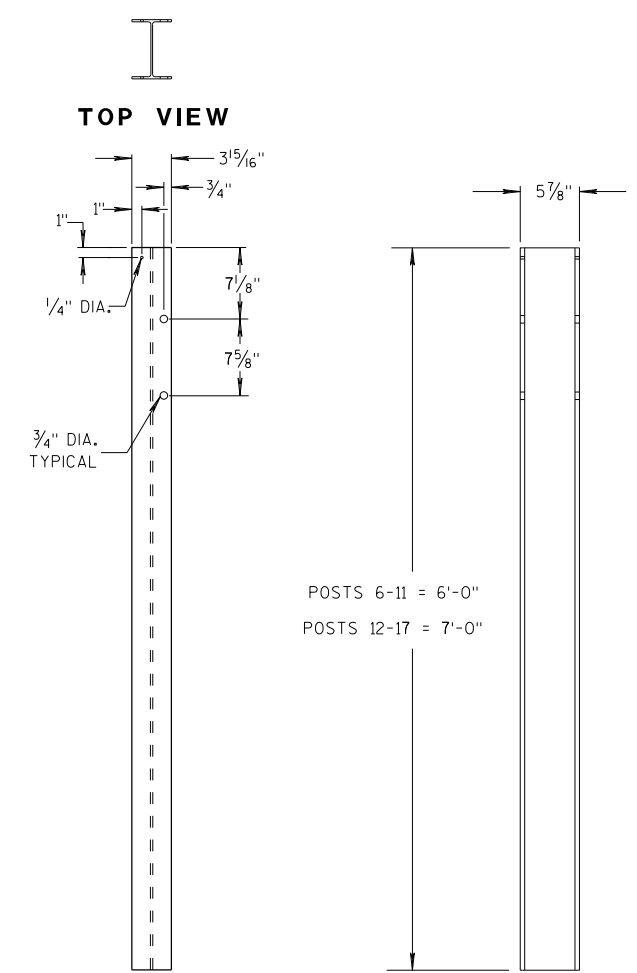
12'-6\"/>



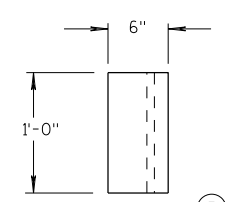
ALTERNATE WOOD BLOCKOUT DETAIL



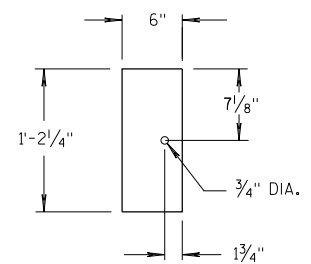
STEEL POSTS 1-5



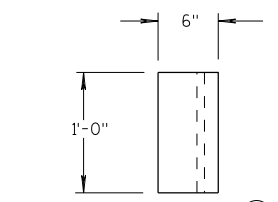
STEEL POSTS 6-17



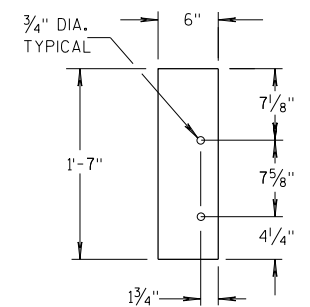
TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 1-5**



TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 6-17**

GENERAL NOTES

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

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

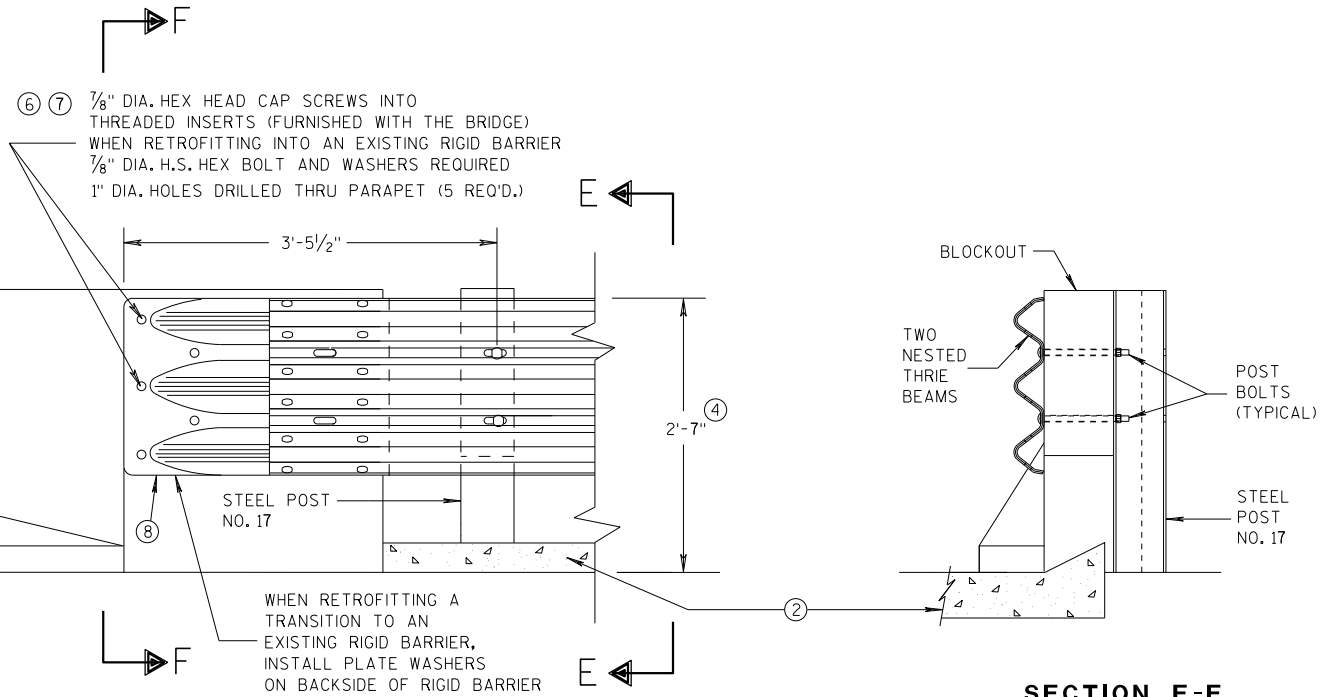
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

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

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



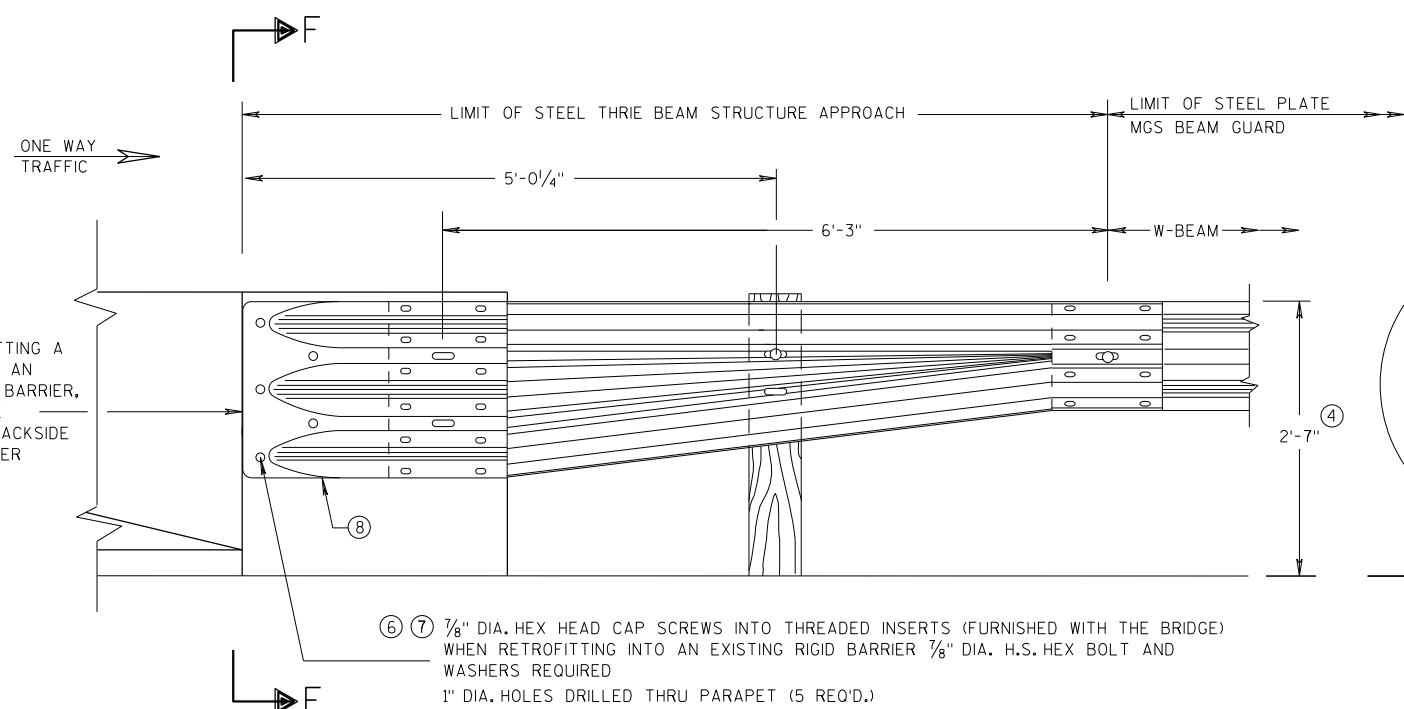
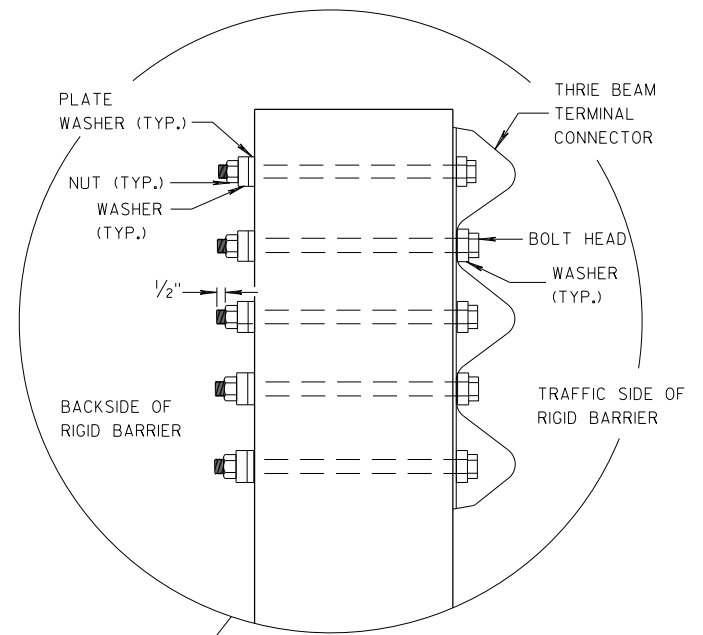
FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

SECTION E-E

GENERAL NOTES

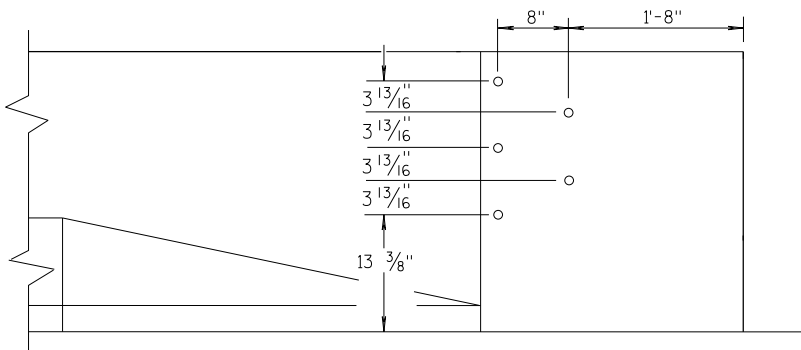
- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
 - (4) TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
 - (6) DRILLING BOLT HOLES THROUGH THE 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

**W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**

SECTION F-F



DRILL HOLE LOCATION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

6

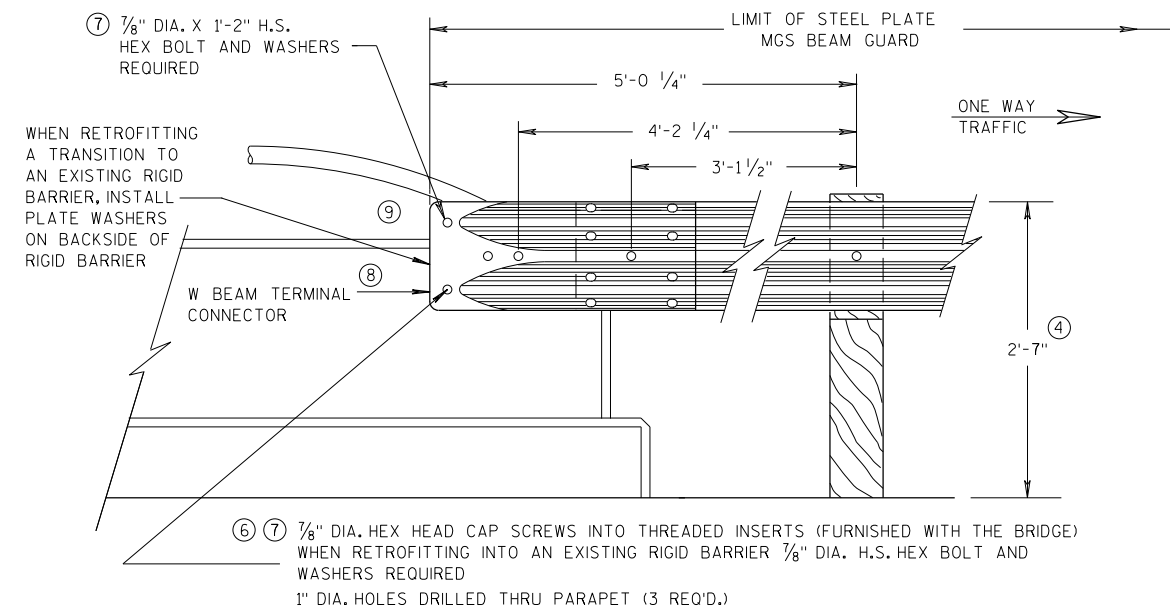
S.D.D. 14 B 45-5d

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

GENERAL NOTES

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

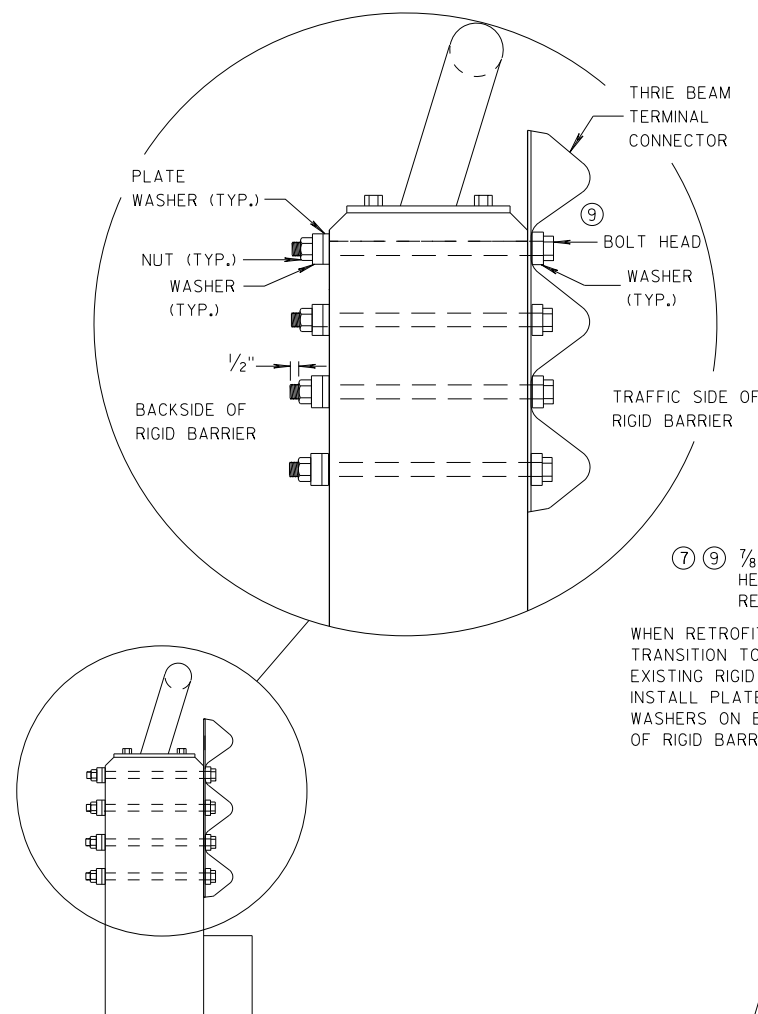
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



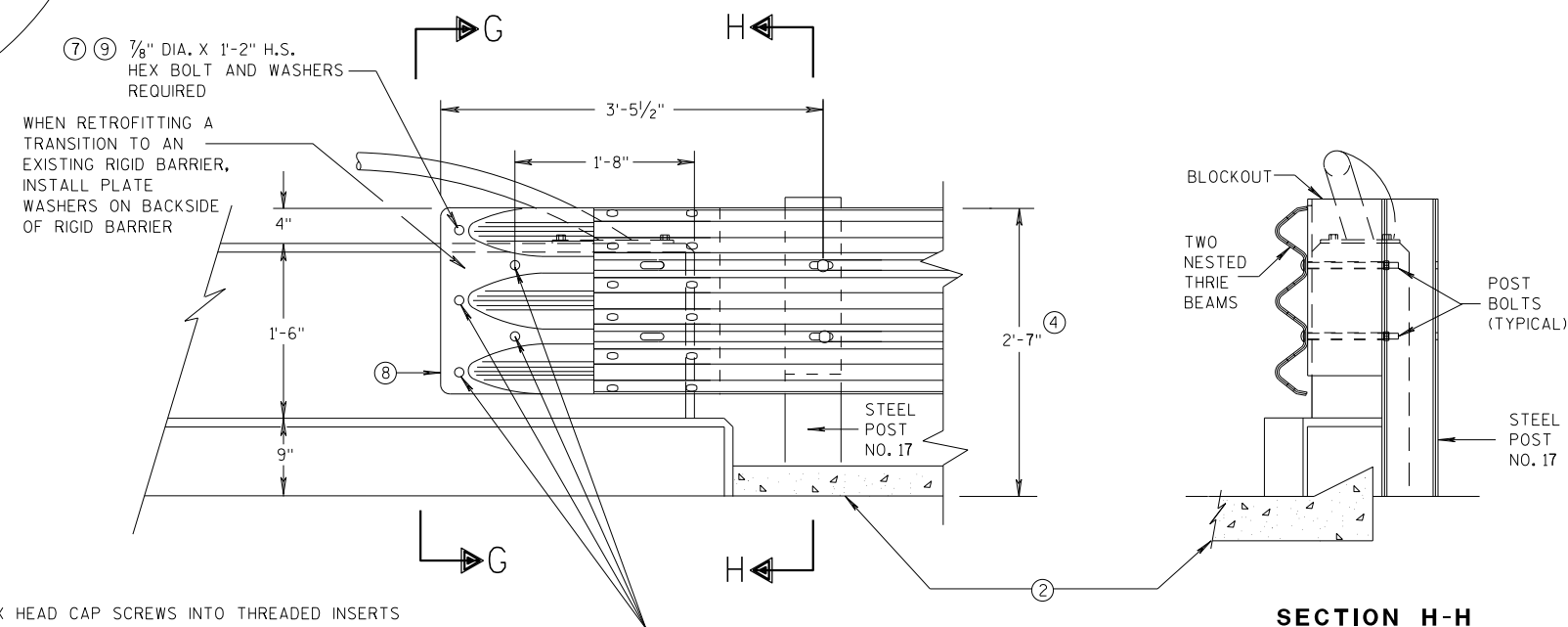
FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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



SECTION G-G



FRONT VIEW

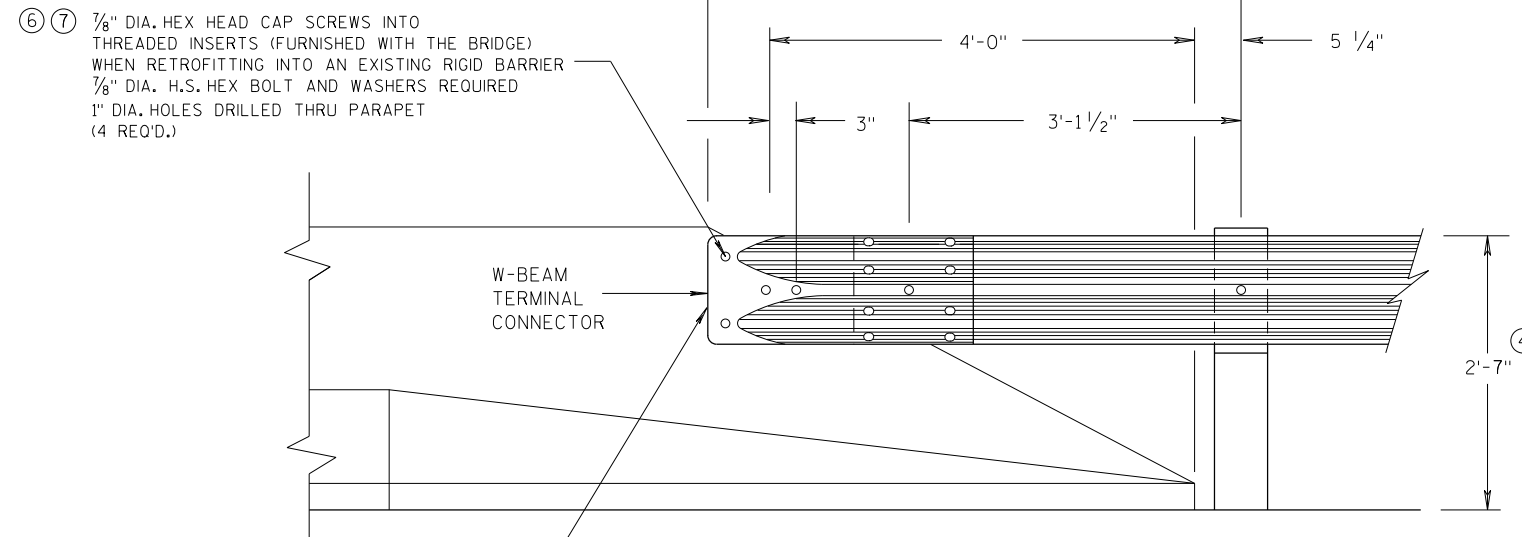
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

ONE WAY
TRAFFIC



W-BEAM
TERMINAL
CONNECTOR

WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.

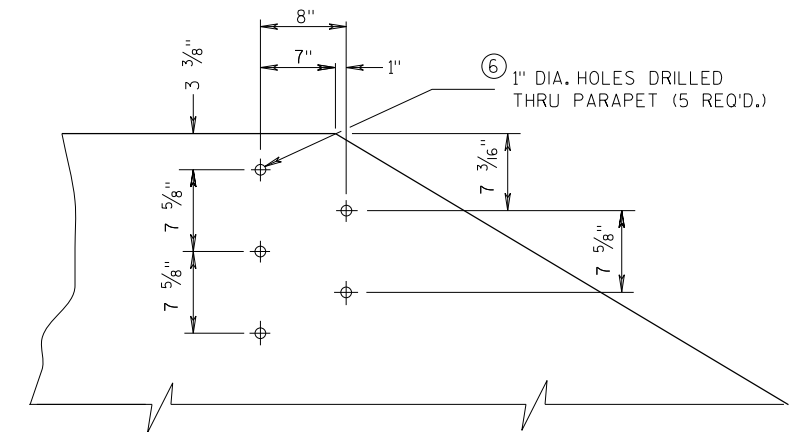
FRONT VIEW

**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

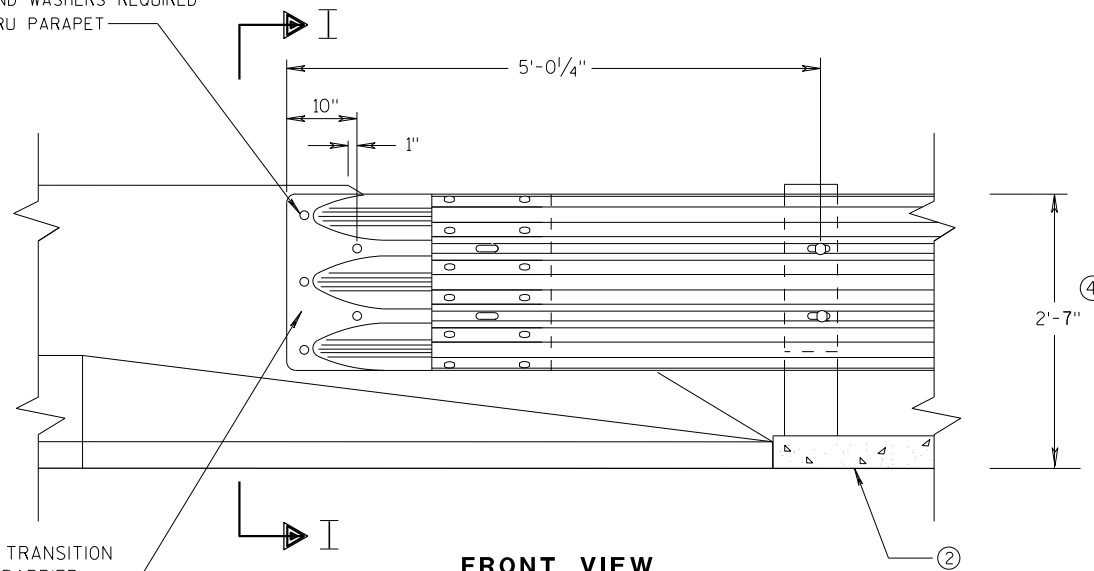
GENERAL NOTES

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- 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.



**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**

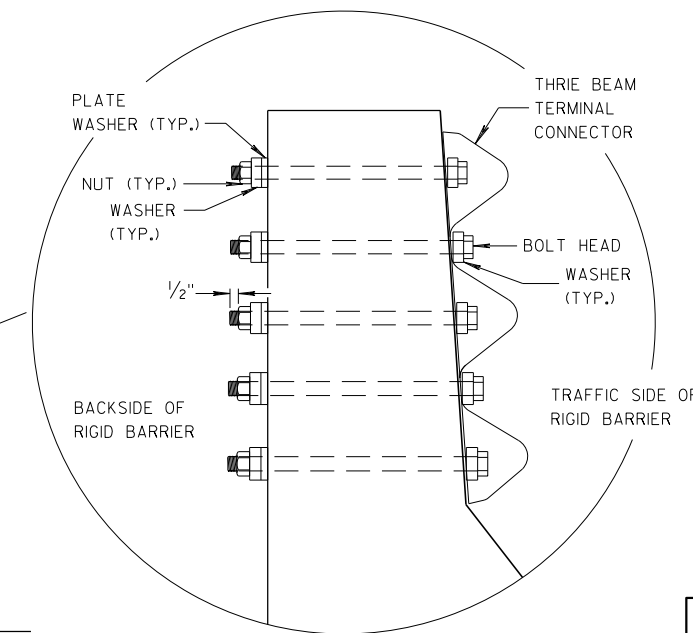
⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(5 REQ'D.)



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**

SECTION I-I

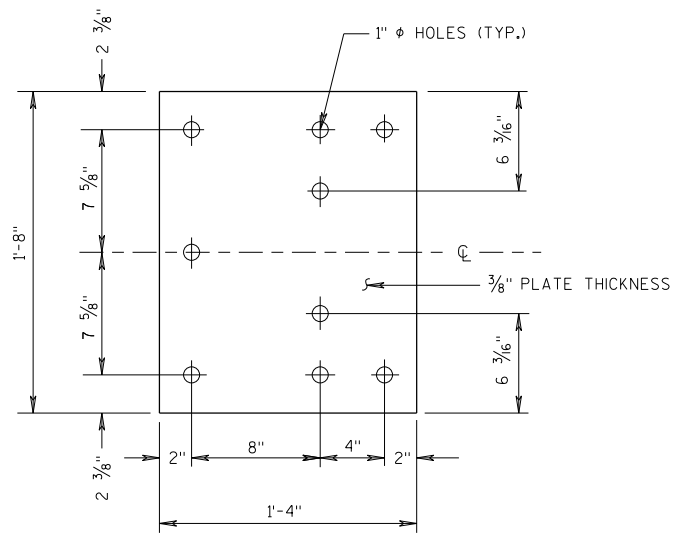


WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.

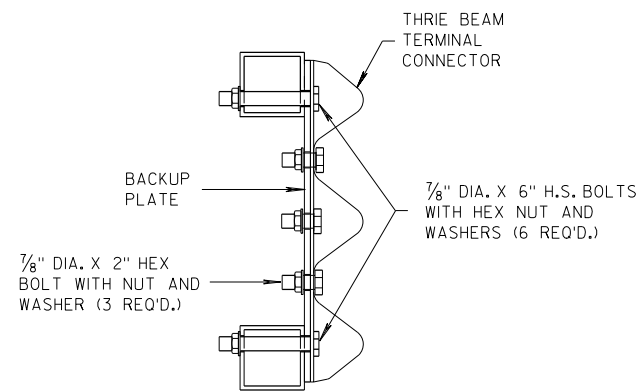
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

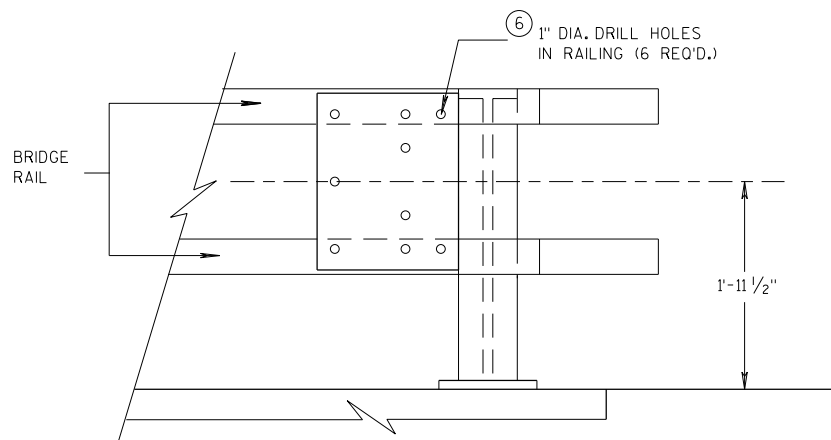
APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



BACK-UP PLATE DETAIL



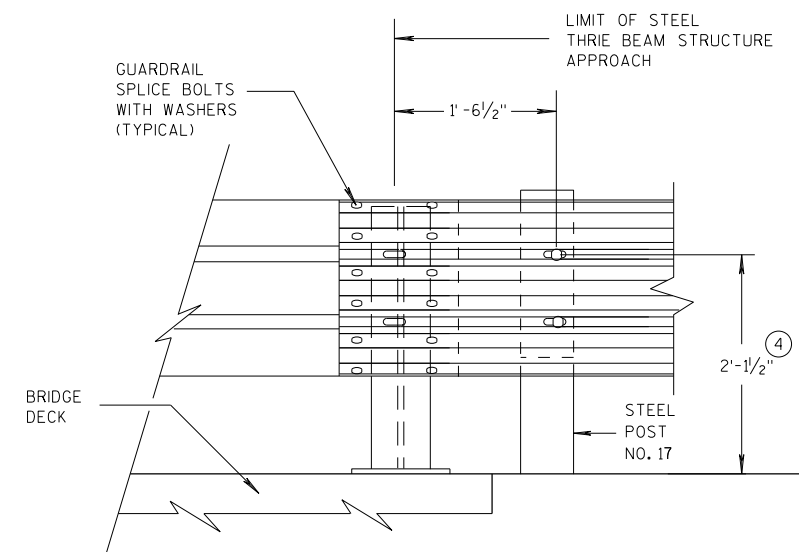
SECTION J-J



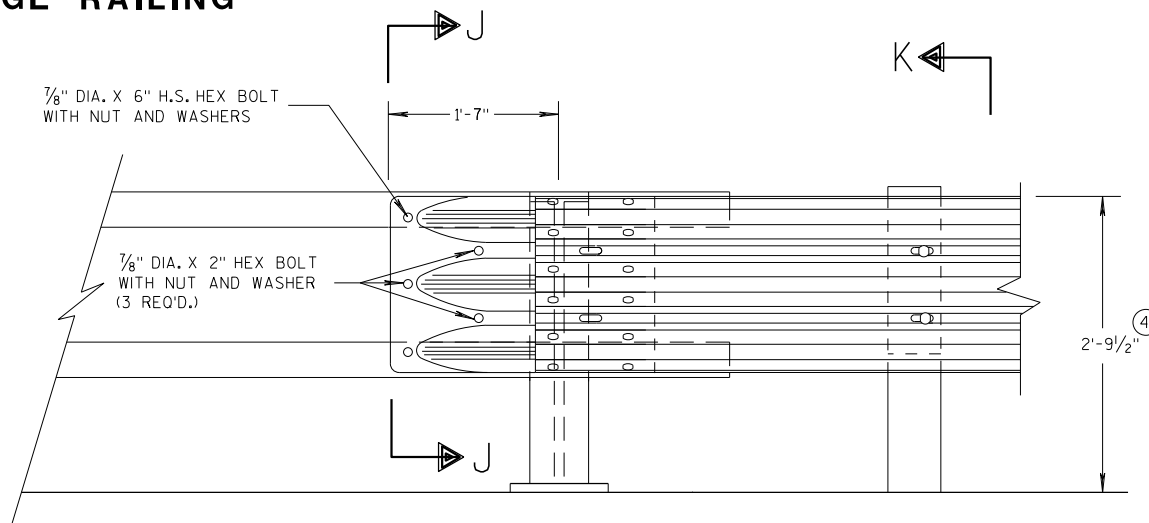
BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1'$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

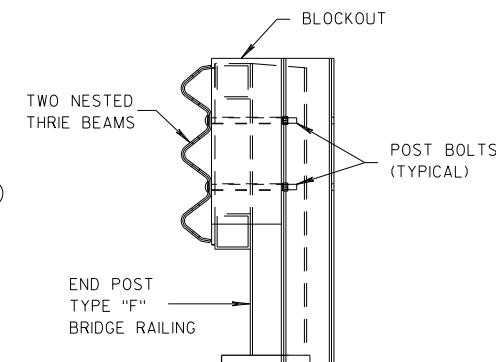


**FRONT VIEW
THRIE BEAM CONNECTION TO
STEEL RAILING TYPE "W"**



FRONT VIEW

**THRIE BEAM CONNECTION TO
TUBULAR RAILING TYPE "F"**



SECTION K-K

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

6

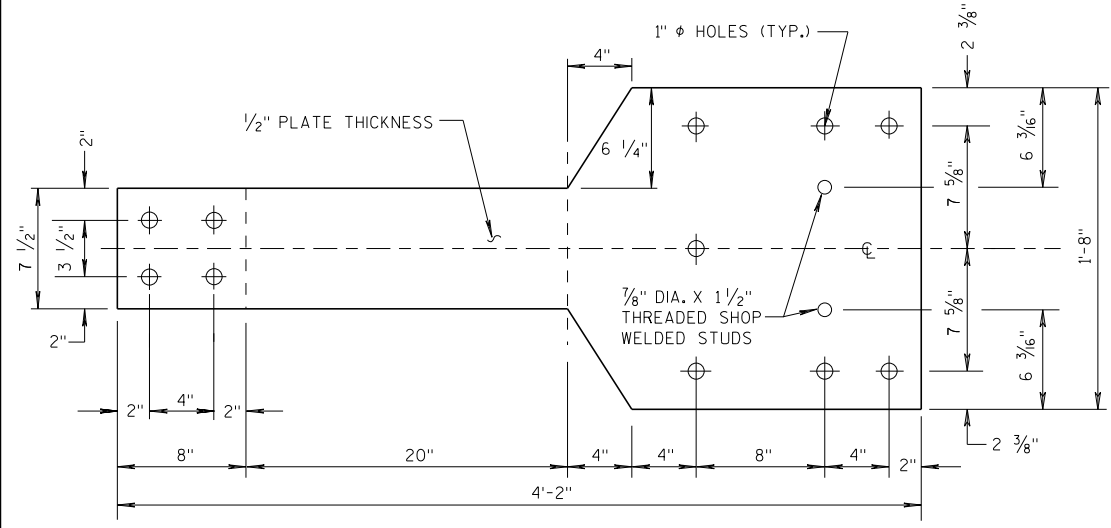
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S.D.D. 14 B 45-59

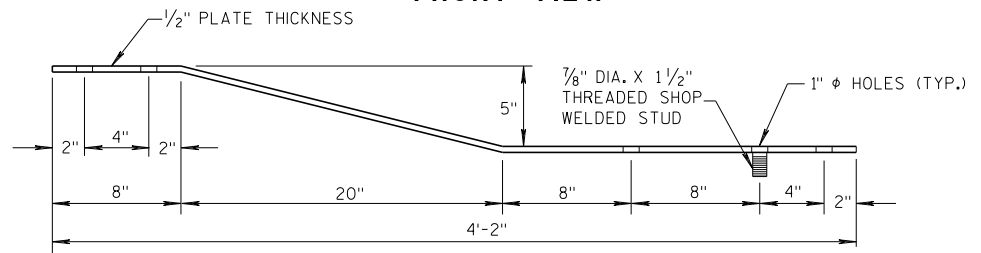
S.D.D. 14 B 45-59

GENERAL NOTES

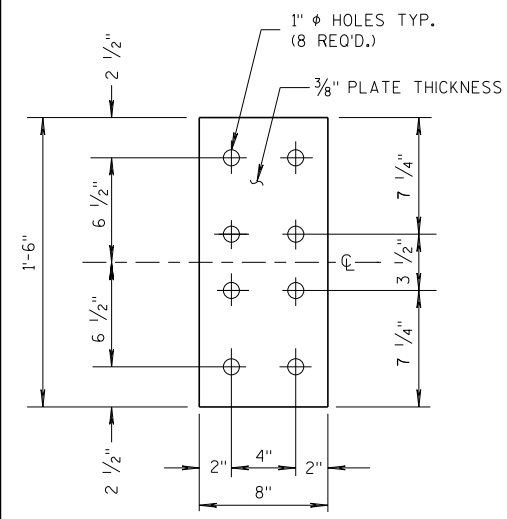
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



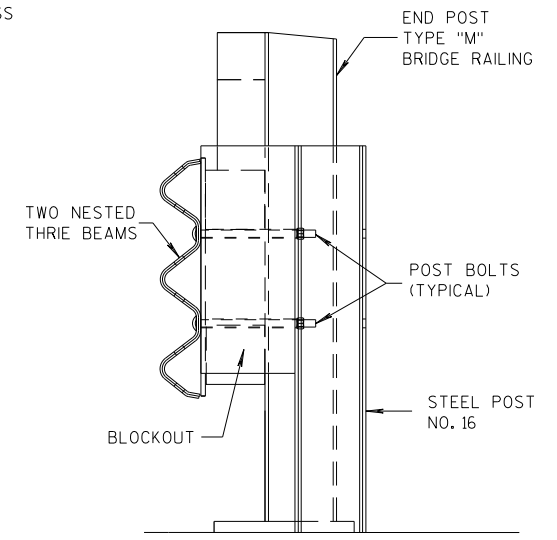
FRONT VIEW



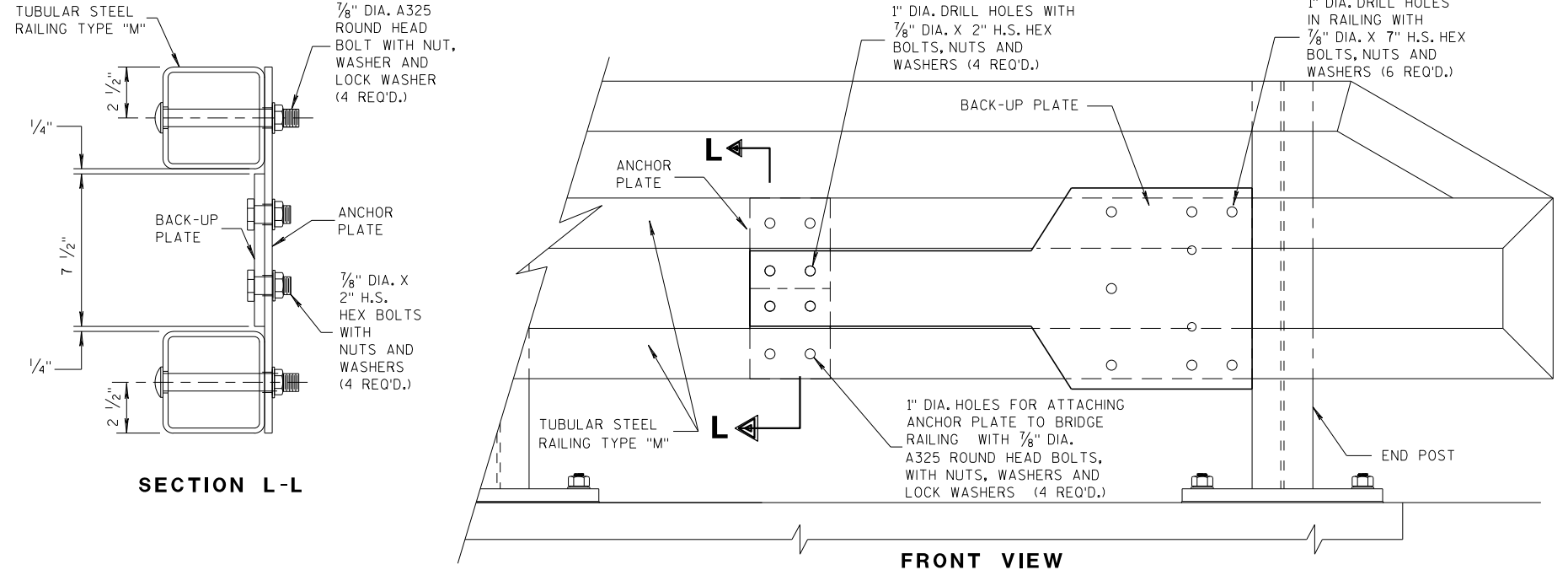
**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**



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



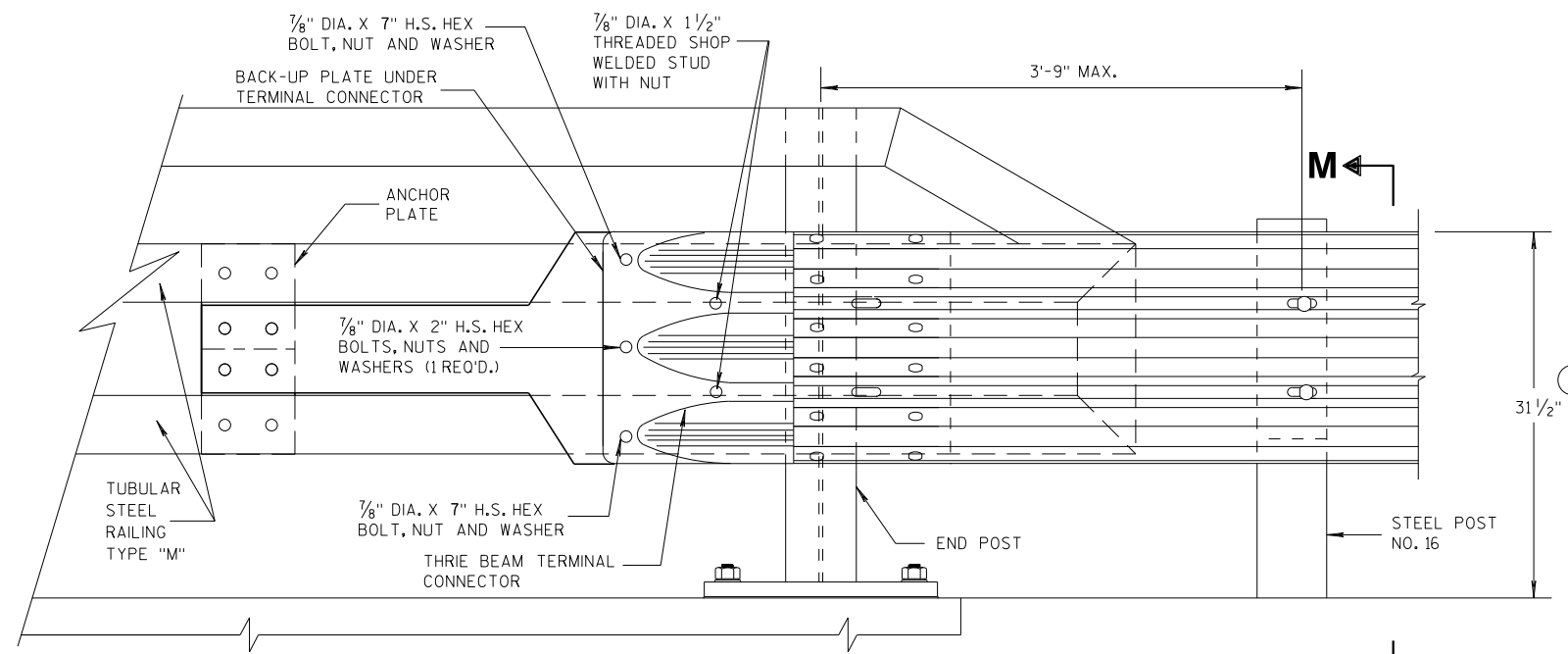
SECTION M-M



SECTION L-L

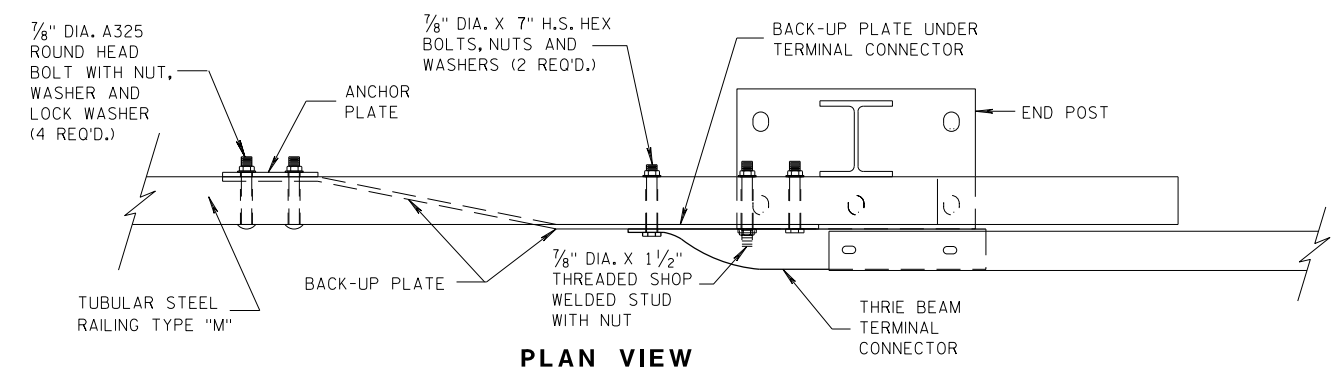
FRONT VIEW

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



FRONT VIEW

M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

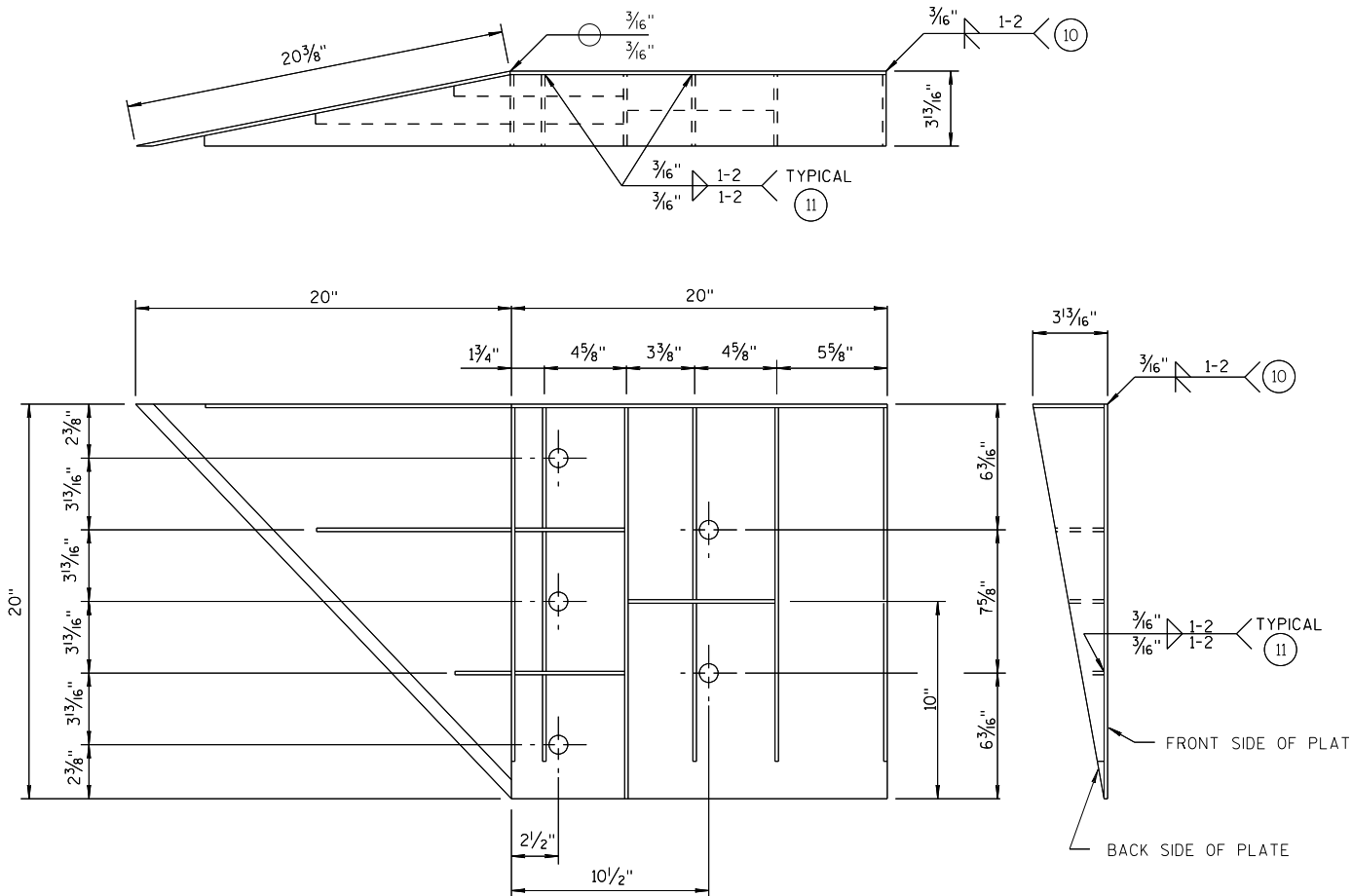
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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)

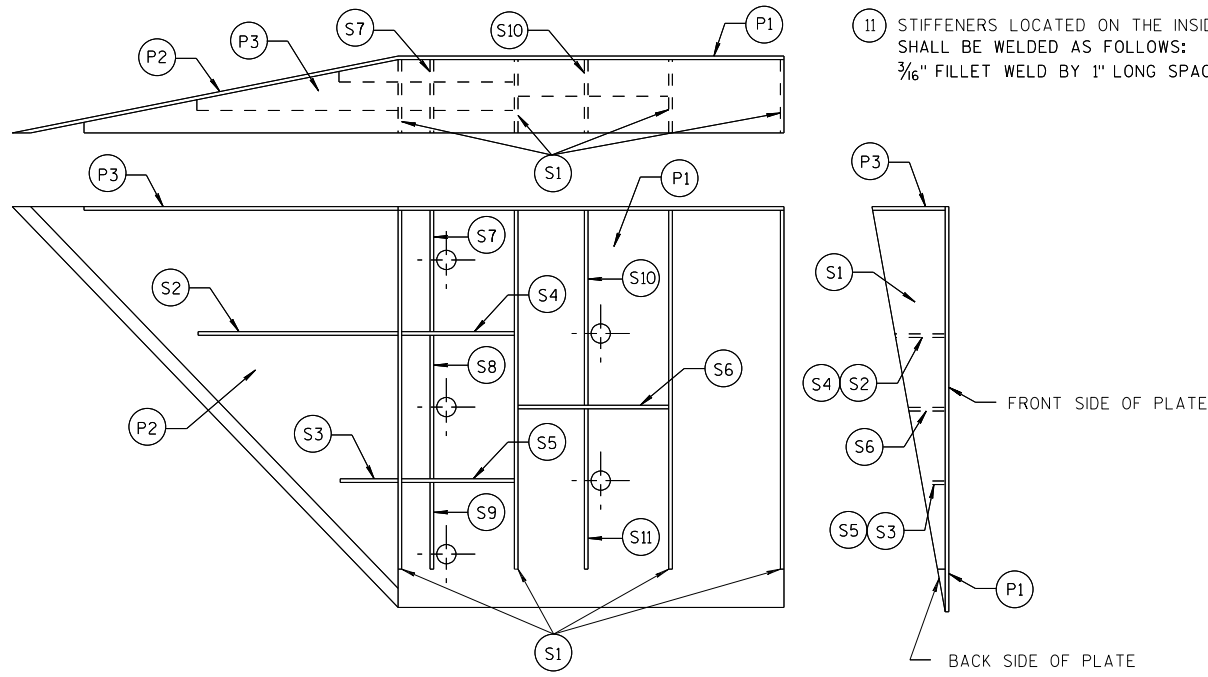


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

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 3/16"	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 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" 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 3/16" 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 3/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

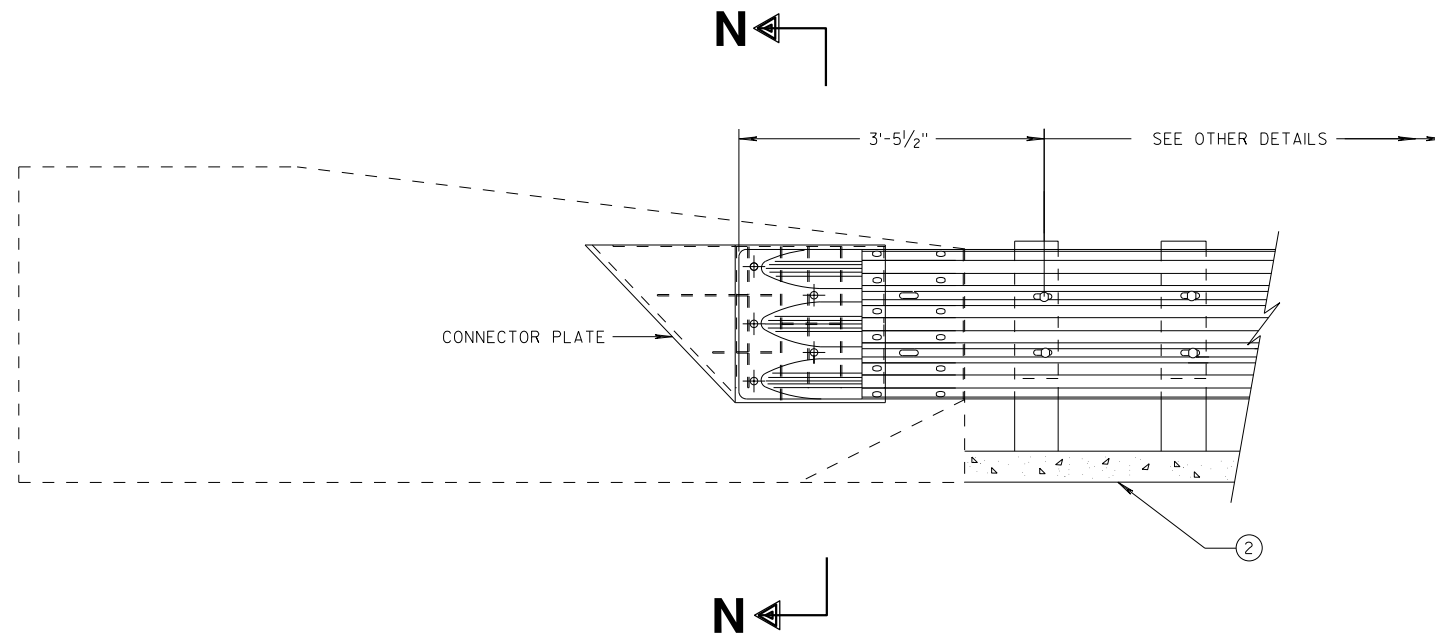
FHWA

GENERAL NOTES

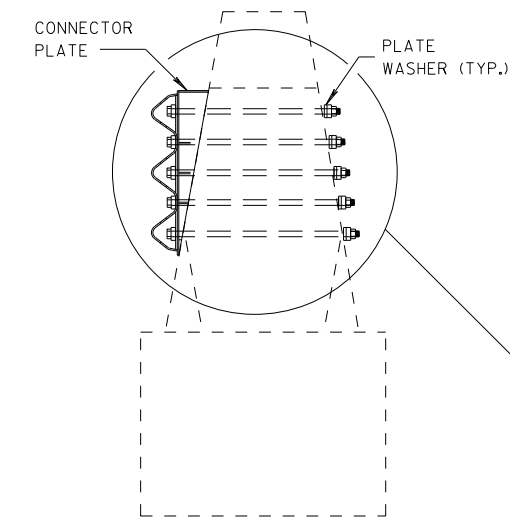
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

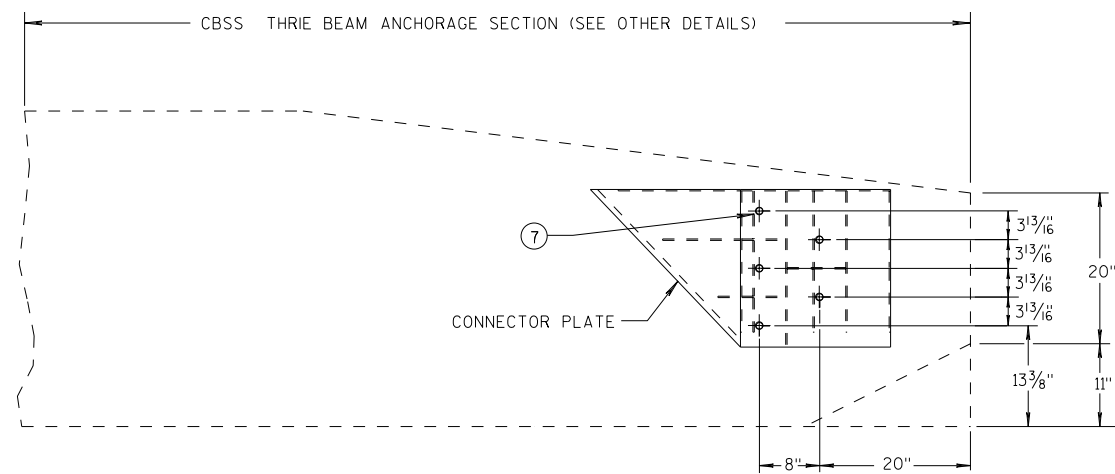
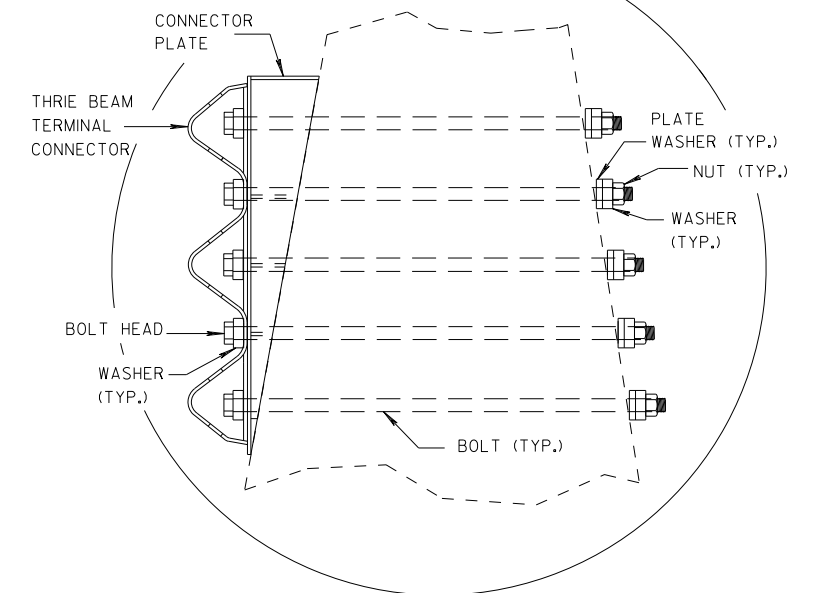
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. 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.



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



SECTION N-N

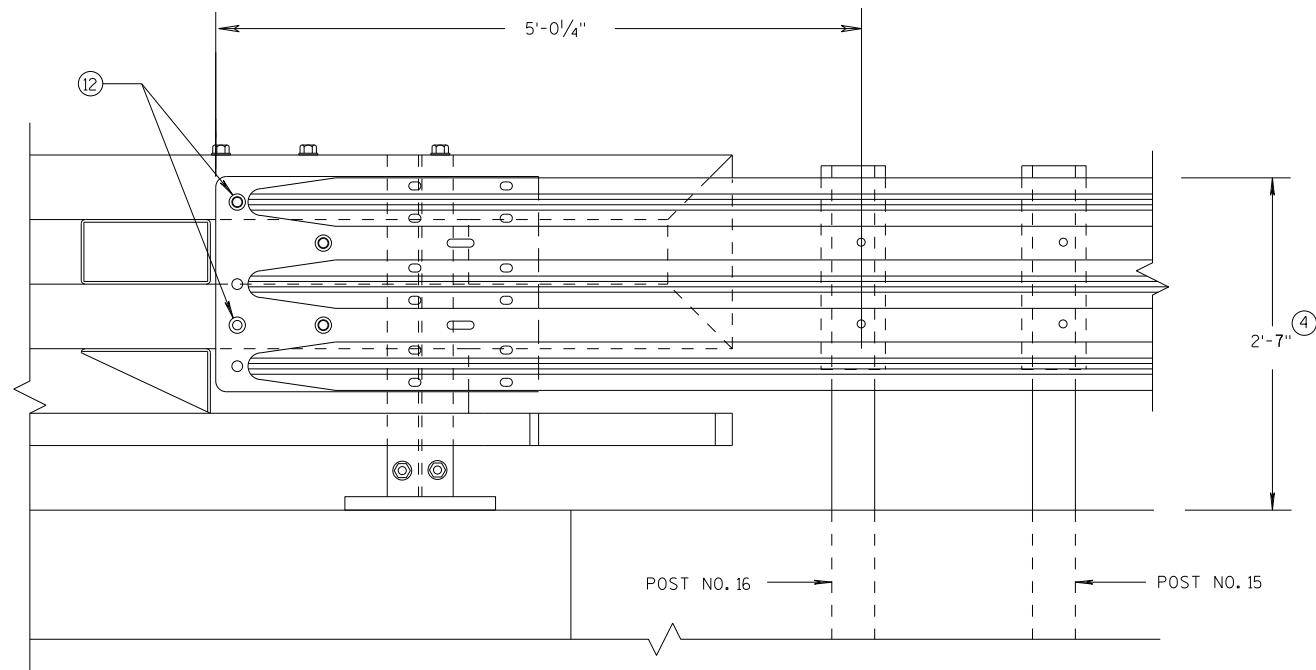


SINGLE SLOPE CONNECTION PLATE PLACEMENT

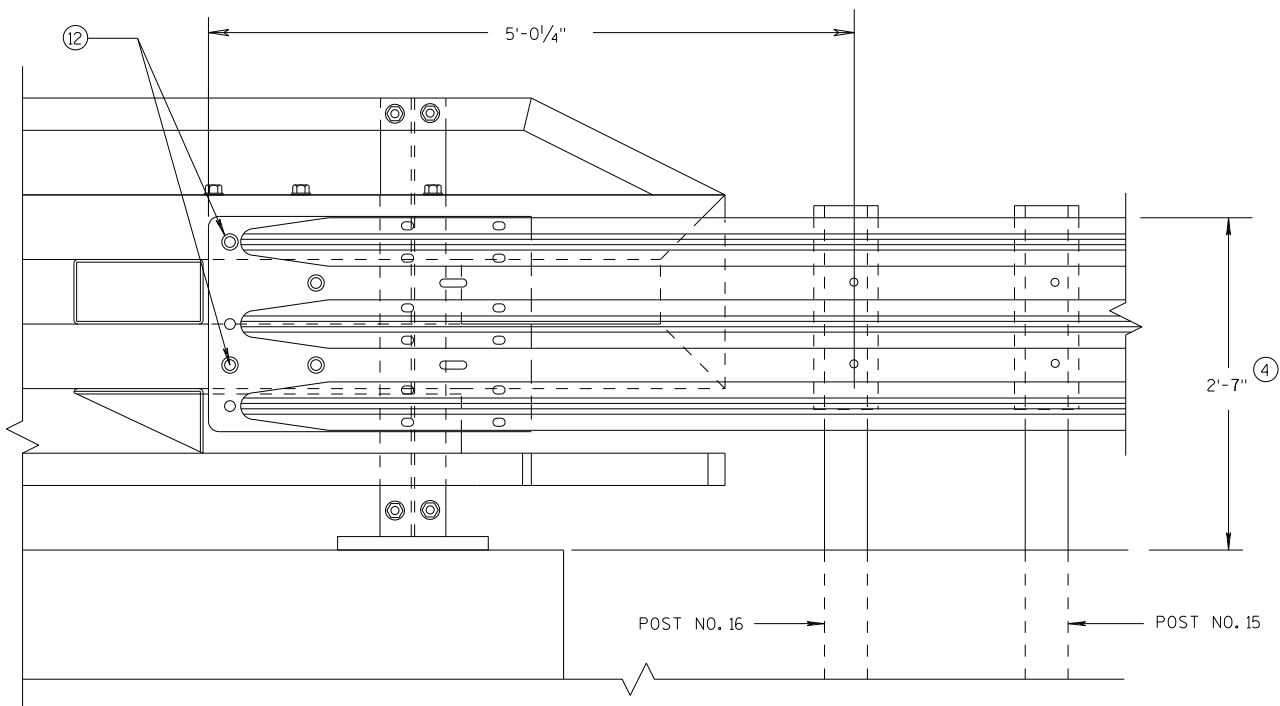
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT**



**ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT**

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑫ 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

6

6

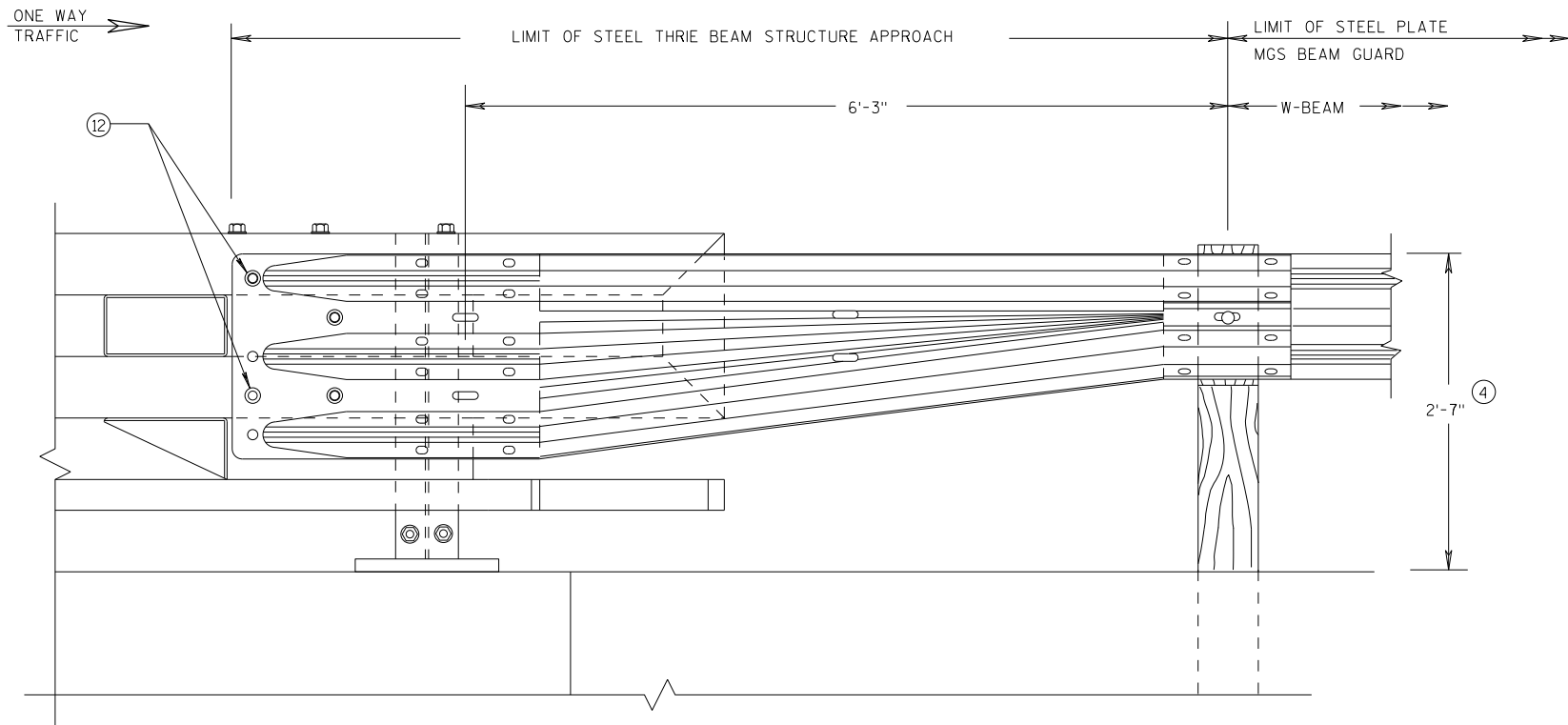
S.D.D. 14 B 45-5k

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

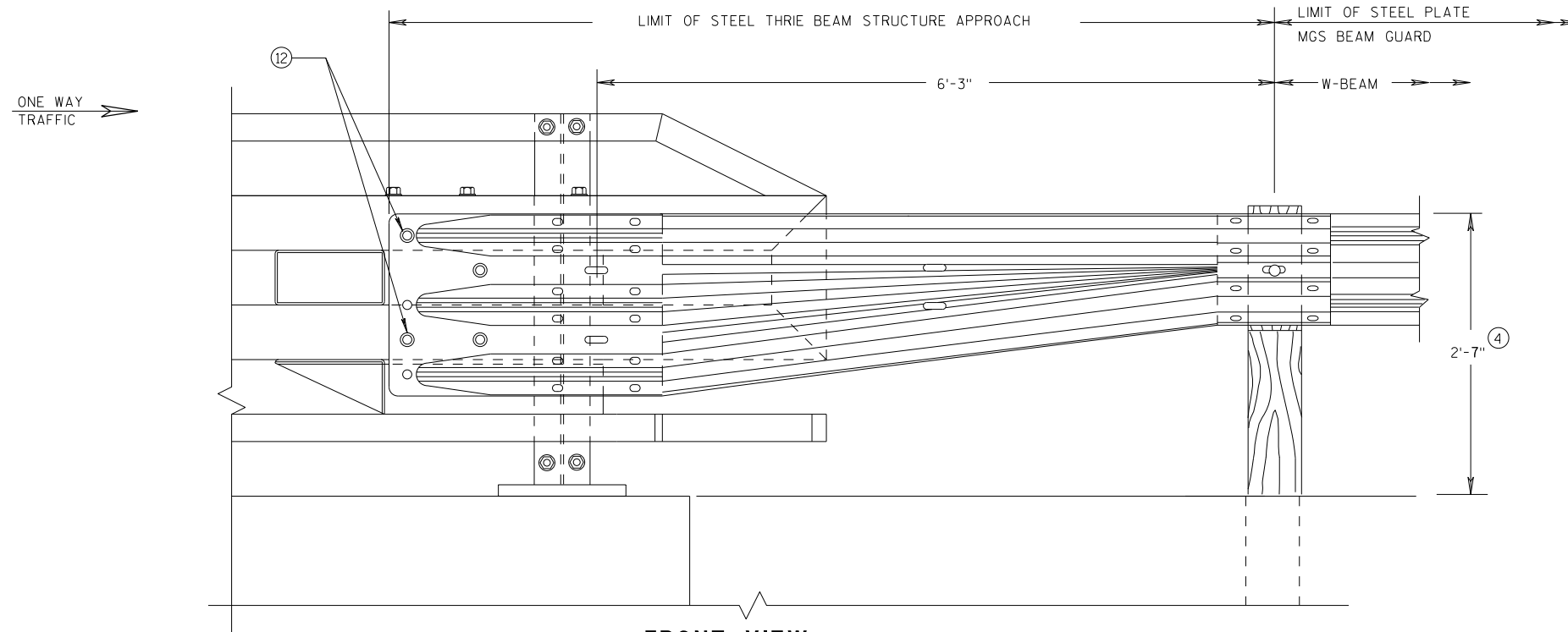
APPROVED
DATE 7/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY3"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.

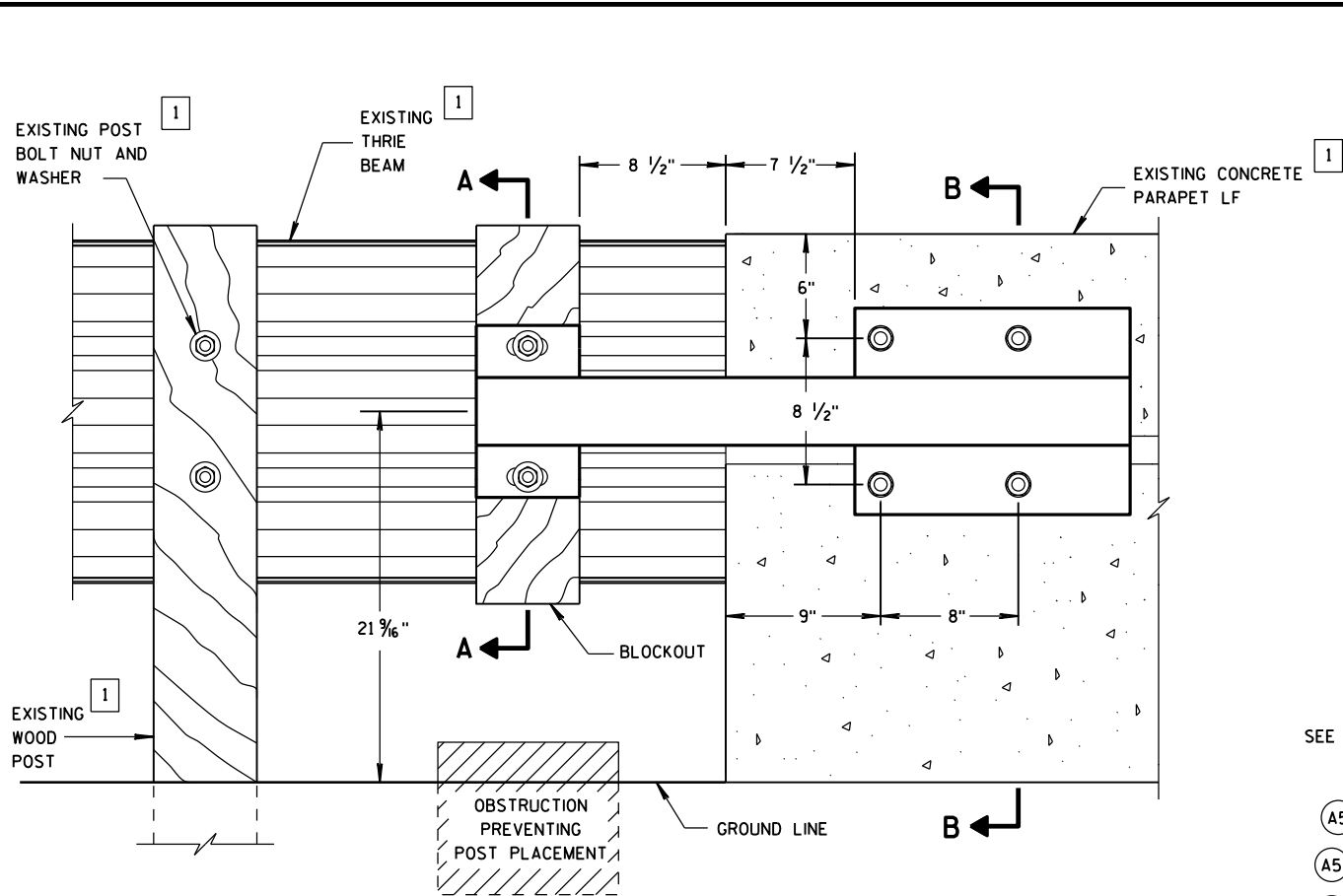


FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

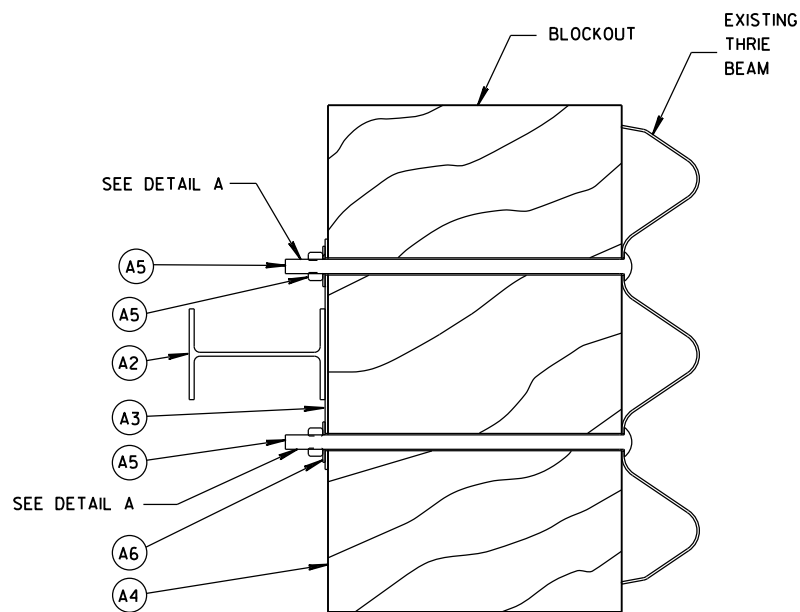
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

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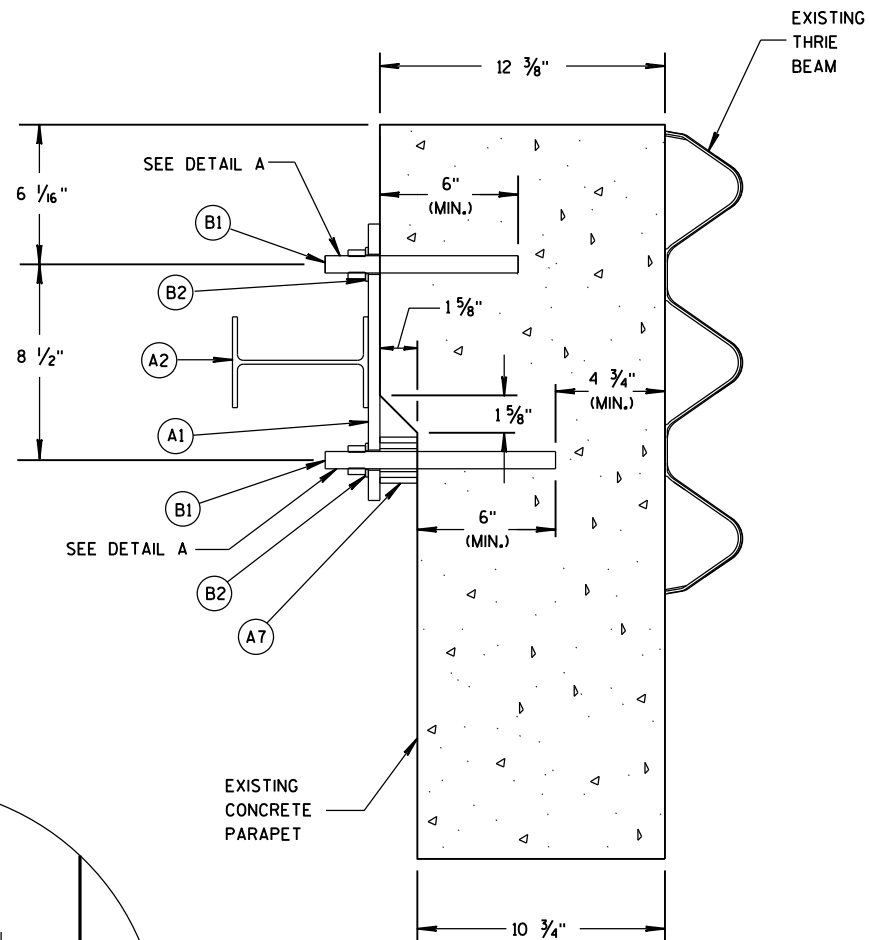


ELEVATION VIEW (BACKSIDE OF PARAPET)



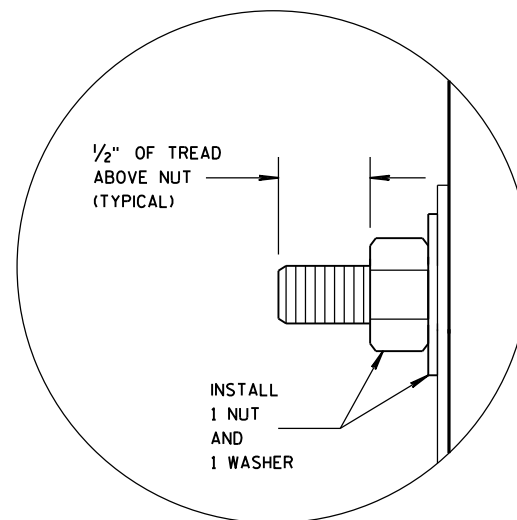
SECTION A-A

NOTES: THRIE BEAM CONNECTION HARDWARE OMITTED FROM VIEWS FOR CLARITY



SECTION B-B

NOTES: THRIE BEAM CONNECTION HARDWARE OMITTED FROM VIEWS FOR CLARITY.



DETAIL A

GENERAL NOTES

THE ADHESIVE USED TO SECURE THREADED RODS MUST HAVE MINIMUM BOND STRENGTHS OF 1800 PSI FOR EMBEDMENT SHOWN.

ANY EXISTING THROUGH-BOLT INTERFERING WITH THE PLACEMENT OF THIS COMPONENT SHALL BE REPLACED WITH A SHORTER EPOXED BOLT.

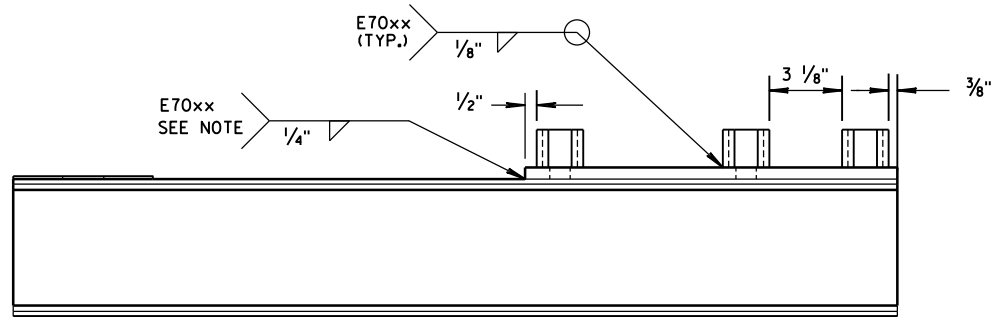
1 SEE OTHER PARTS OF THE PLAN OR STANDARD SPECIFICATIONS.

2 TYPICAL BRIDGE PARAPET SHOWN. FOR OTHER RIGID BARRIERS WITH VERTICAL BACK OMIT PART (A7).

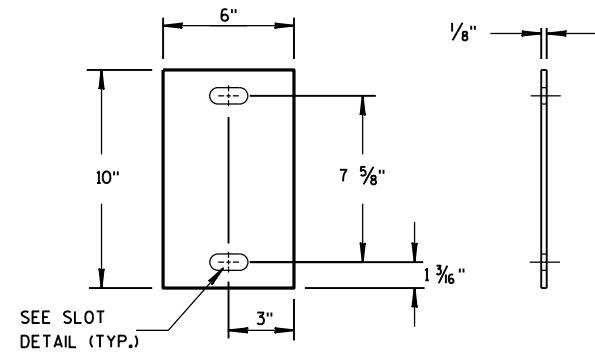
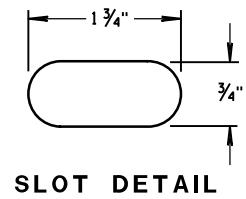
CONCRETE PARAPET LF RETROFIT BILL OF MATERIALS				
ITEM NO.	QTY.	DESCRIPTION	MATERIAL SPECIFICATION	COMMENTS
(A1)	1	16" x 12" x 1/2" BASE PLATE	ASTM A572 GR. 50	-
(A2)	1	38" LONG W6x9 BEAM	ASTM A992 GR. 50	-
(A3)	1	6" x 10" x 1/8" BACKUP PLATE	ASTM A36	-
(A4)	1	6" x 12 3/4" x 22" BLOCKOUT	1	-
(A5)	2	5/8" DIA. POST BOLT AND DOUBLE RECESSED (DR) HEAVY HEX NUT	1	-
(A6)	2	5/8" DIA. FLAT WASHER	GRADE 5	-
(A7)	3	2" x 2" x 1/4" SQUARE TUBE 1 5/8" LONG	ASTM A36	MULTIPLE 3/4" DIA. FLAT WASHERS (B2) CAN BE USED
(B1)	4	3/4" DIA. - 10 UNC THREADED ROD	ASTM A193 TYPE B7	-
(B2)	4	3/4" DIA. FLAT WASHER	ASTM F436	-
(B3)	4	3/4" DIA. DOUBLE RECESSED (DR) HEAVY HEX NUT	1	-

RETROFIT CANTILEVER BLUNT END

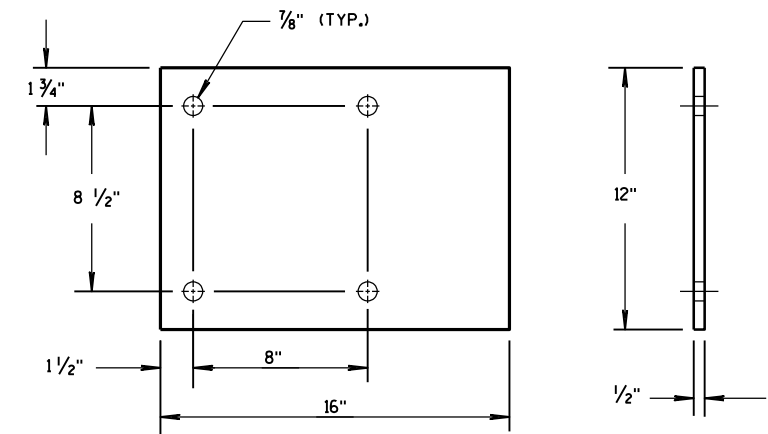
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



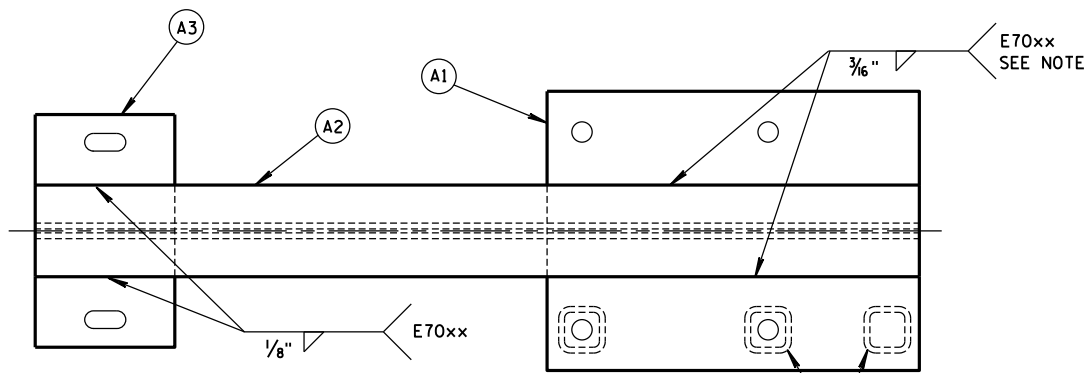
PLAN VIEW



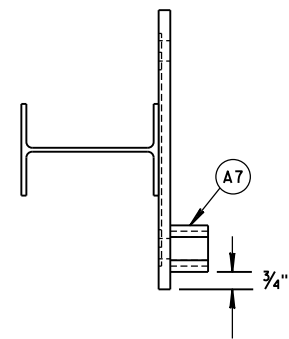
BLACKUP PLATE (A3)



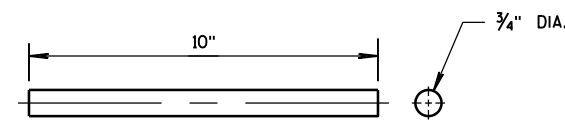
BASE PLATE (A1)



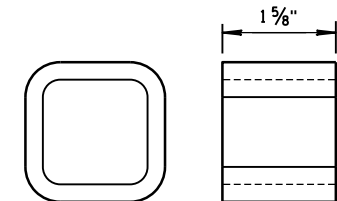
ELEVATION VIEW



END VIEW



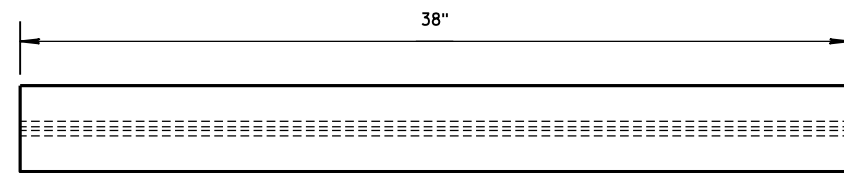
THREADED ROD (B1)



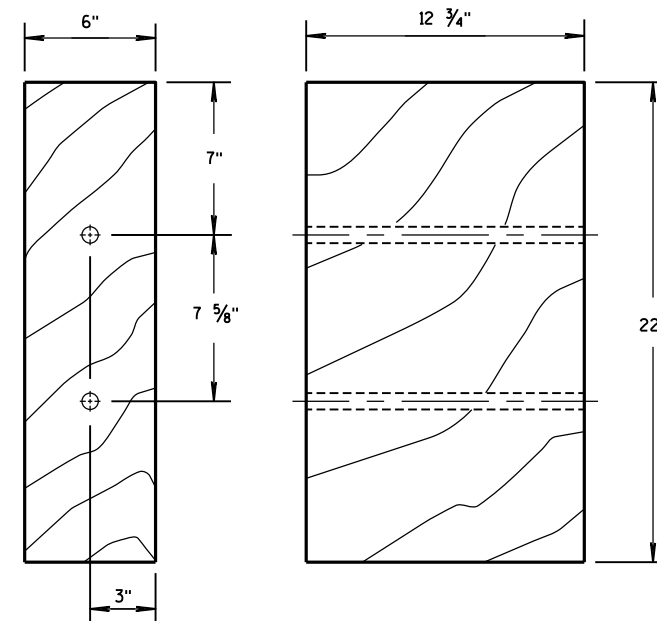
SQUARE TUBE (A7)

NOTES:
WELDS ON OPPOSITE PLANES (i.e., VERTICAL AND LONGITUDINAL) SHALL NOT BE CONNECTED.

WELD DETAIL



W6x9 BEAM (A2)



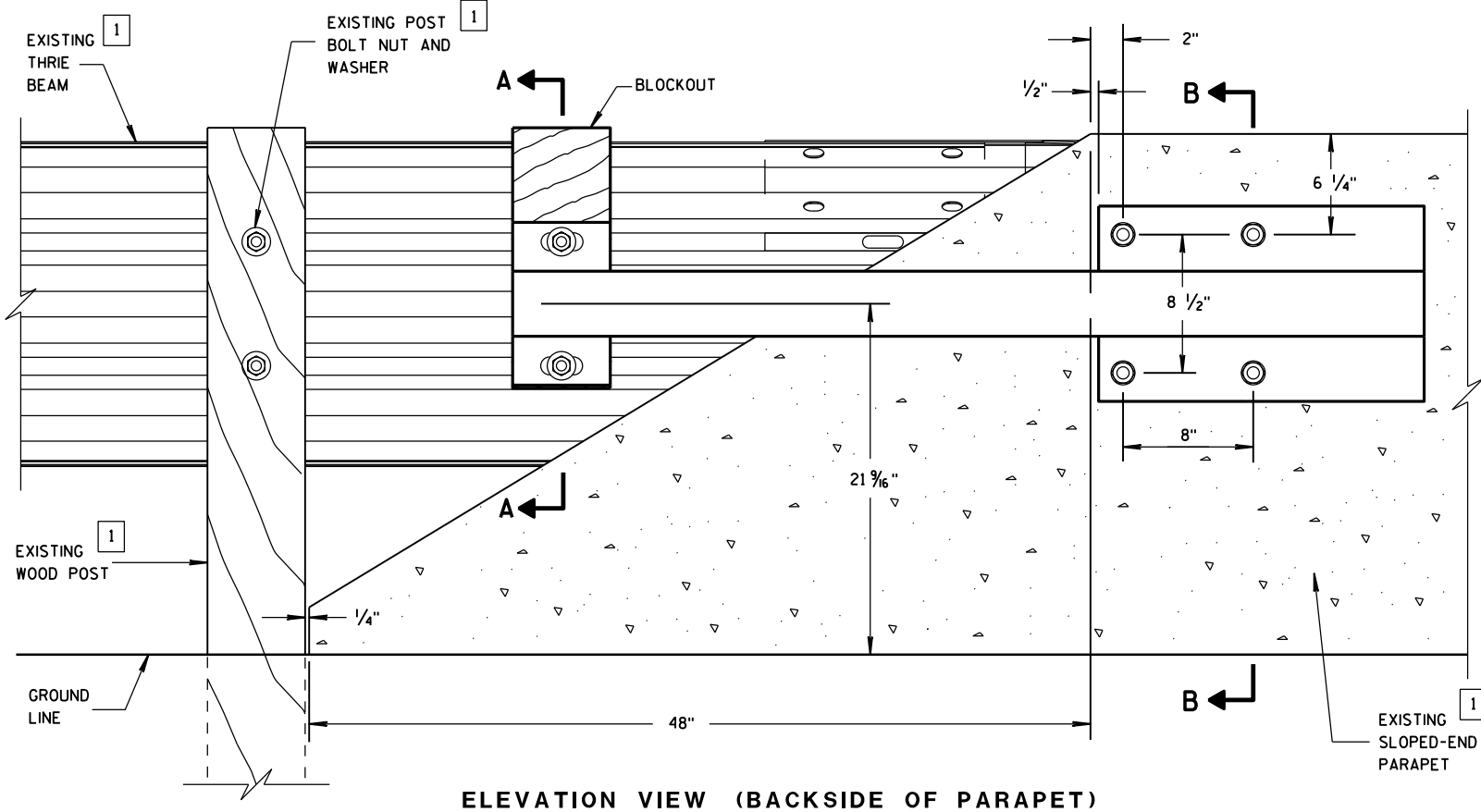
BLOCKOUT (A4)

ANCHOR PLATE ASSEMBLY PARTS

RETROFIT CANTILEVER
BLUNT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE June 2014 /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



ELEVATION VIEW (BACKSIDE OF PARAPET)

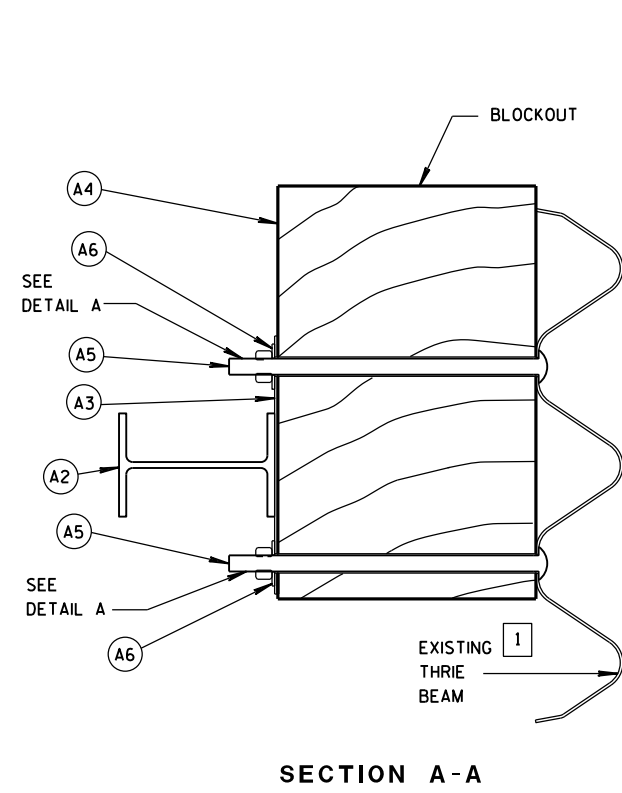
GENERAL NOTES

THE ADHESIVE USED TO SECURE THREADED RODS MUST HAVE MINIMUM BOND STRENGTHS OF 1800 PSI FOR EMBEDMENT SHOWN.

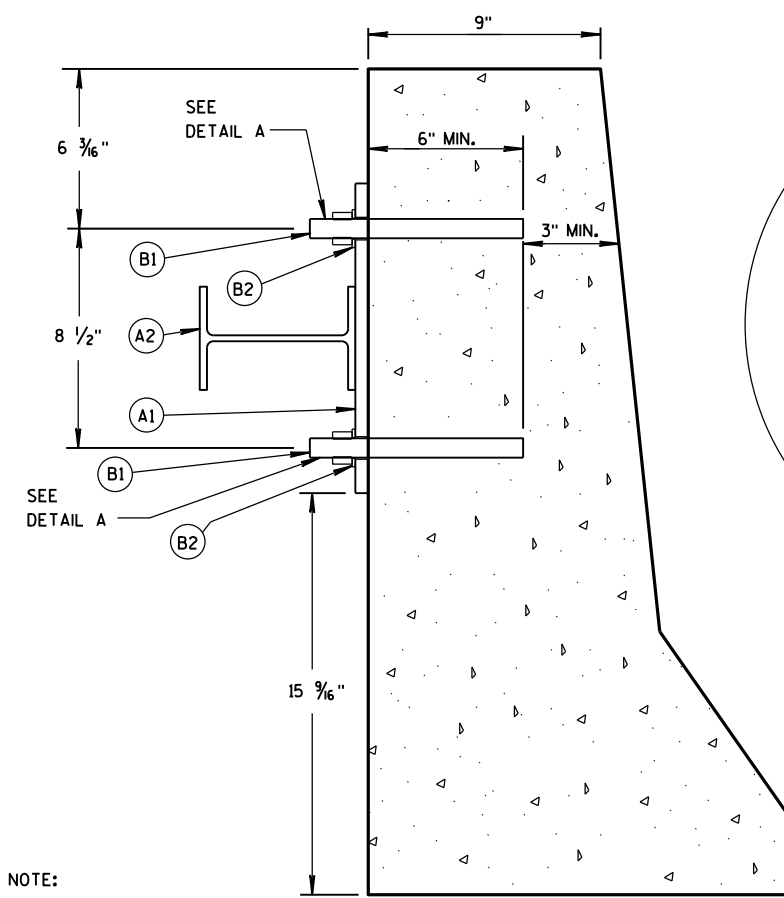
ANY EXISTING THROUGH-BOLT INTERFERING WITH THE PLACEMENT OF THIS COMPONENT SHALL BE REPLACED WITH A SHORTER EPOXED BOLT.

1 SEE OTHER PARTS OF THE PLAN OR STANDARD SPECIFICATIONS.

SLOPED END PARAPET RETROFIT BILL OF MATERIALS			
ITEM NO.	QTY.	DESCRIPTION	MATERIAL SPECIFICATION
(A1)	1	20" x 12" x 1/2" BASE PLATE	ASTM A572 GR. 50
(A2)	1	55" LONG W6x12 BEAM	ASTM A992 GR. 50
(A3)	1	6" x 10" x 1/8" BACKUP PLATE	ASTM A36
(A4)	1	6" x 10" x 16" BLOCKOUT	1
(A5)	2	5/8" DIA. POST BOLT AND DOUBLE RECESSED (DR) HEAVY HEX NUT	1
(A6)	2	5/8" DIA. FLAT WASHER	GRADE 5
(B1)	4	3/4" DIA. - 10 UNC THREADED ROD	ASTM A193 TYPE B7
(B2)	4	3/4" DIA. FLAT WASHER	ASTM F436
(B3)	4	3/4" DIA. DOUBLE RECESSED (DR) HEAVY HEX NUT	1

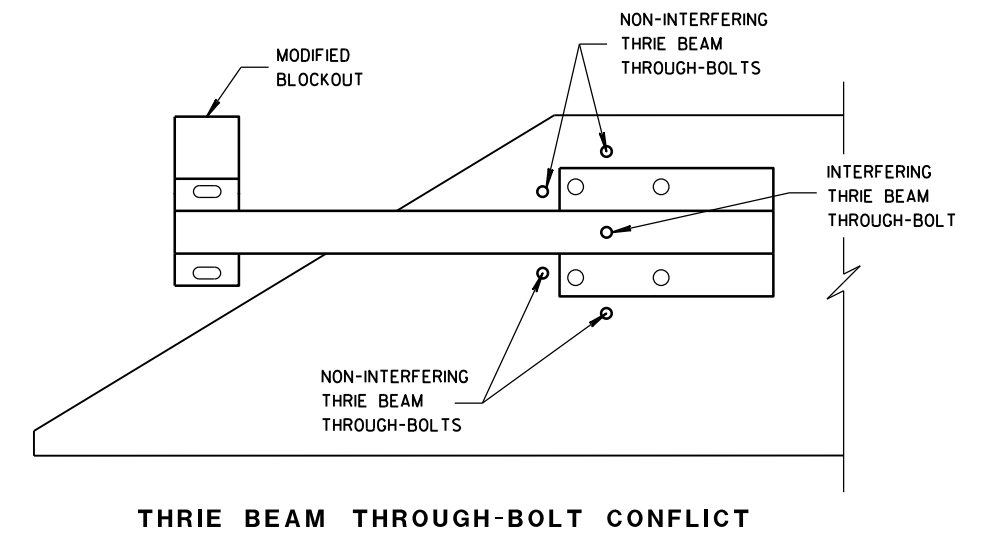
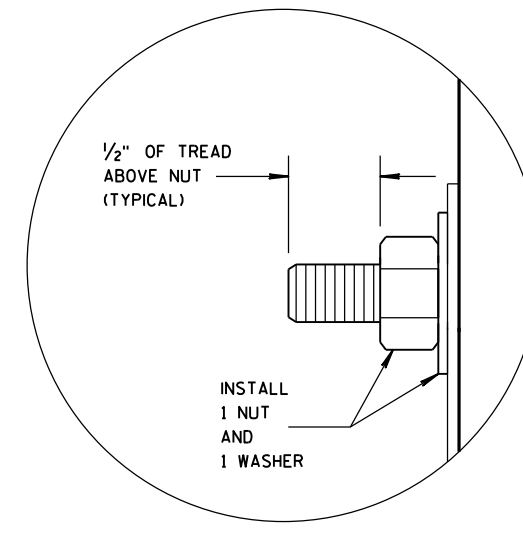


SECTION A-A



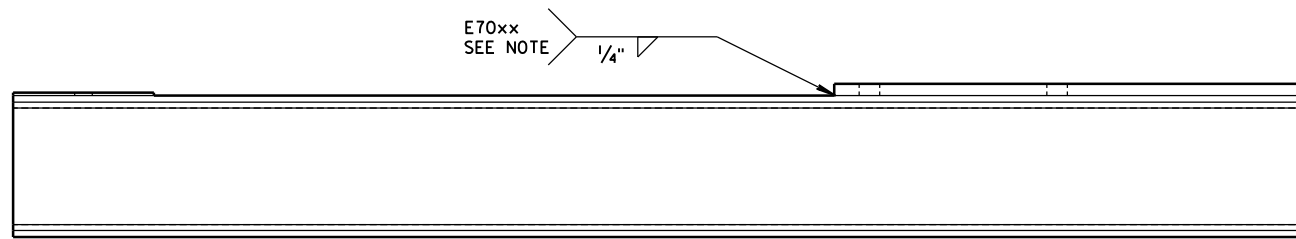
SECTION B-B

NOTE:
THRIE BEAM AND CONNECTION HARDWARE NOT SHOWN IN SECTION B-B FOR CLARITY.

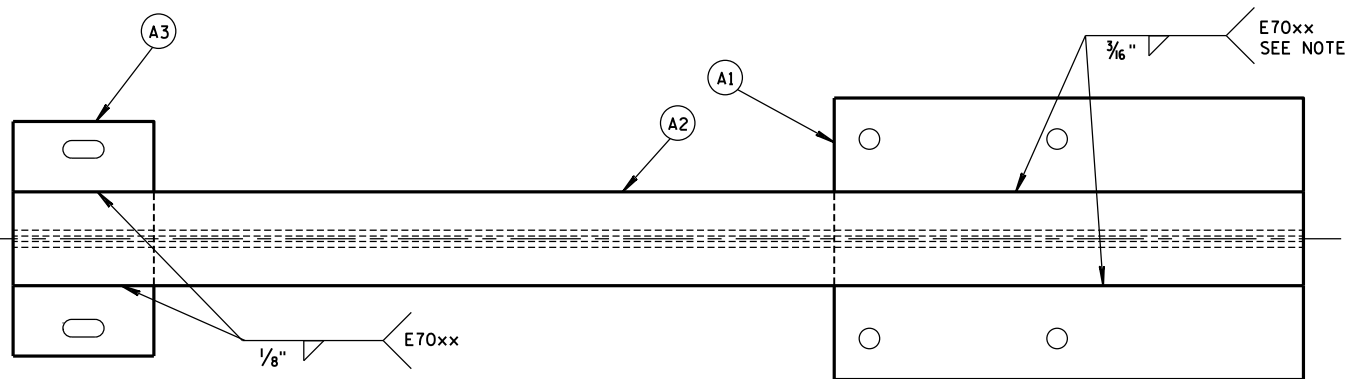


RETROFIT CANTILEVER SLOPED END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



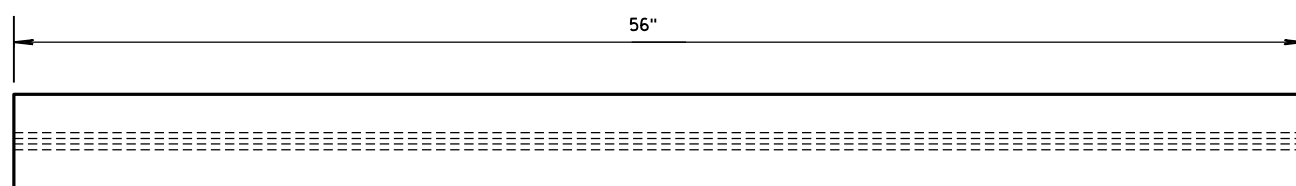
PLAN VIEW



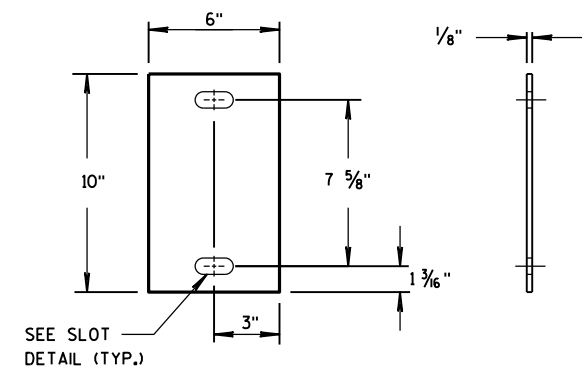
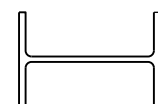
ELEVATION VIEW

NOTE:
WELDS ON OPPOSITE PLANES (i.e., VERTICAL AND LONGITUDINAL) SHALL NOT BE CONNECTED.

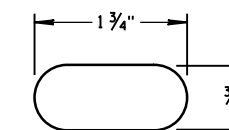
WELD DETAIL



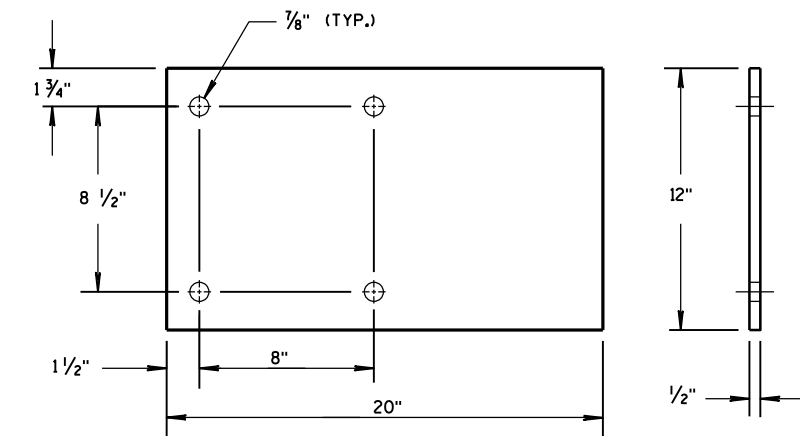
W6x12 BEAM (A2)



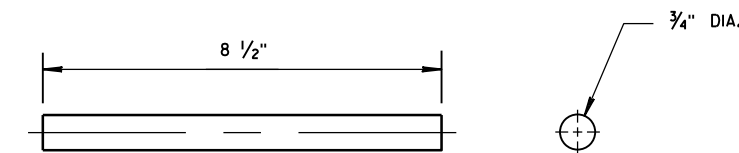
BLACKUP PLATE (A3)



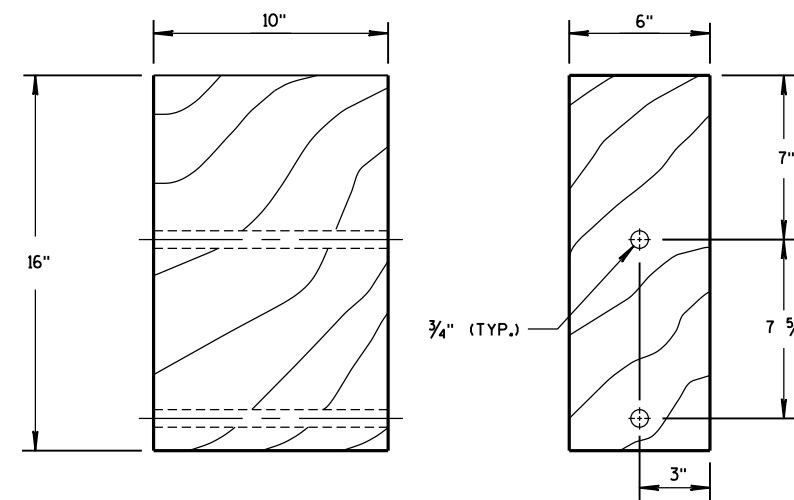
SLOT DETAIL



BASE PLATE (A1)



THREADED ROD (B1)



NOTE:
ACTUAL DIMENSIONS OF THE BLOCKOUT MAY VARY FROM THAT SHOWN DEPENDING ON ACTUAL DIMENSIONS OF THE BRIDGE PARAPET.

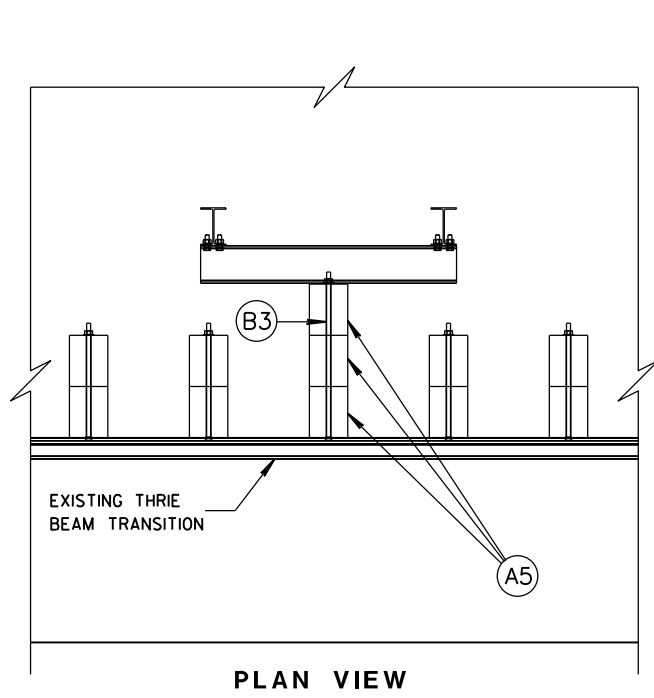
BLOCKOUT (A4)

ANCHOR PLATE ASSEMBLY PARTS

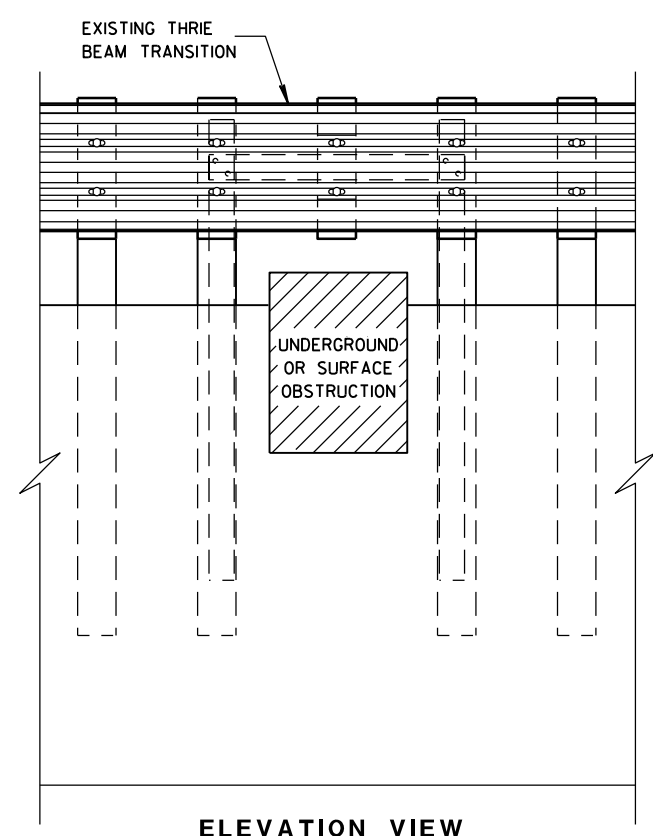
RETROFIT CANTILEVER
SLOPED END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

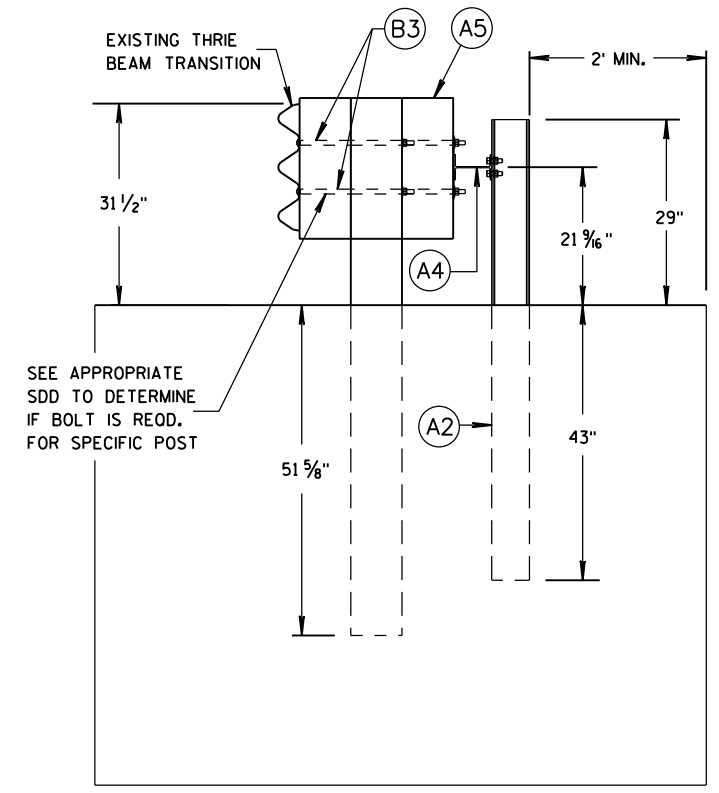
APPROVED
DATE June 2014 /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



PLAN VIEW



ELEVATION VIEW



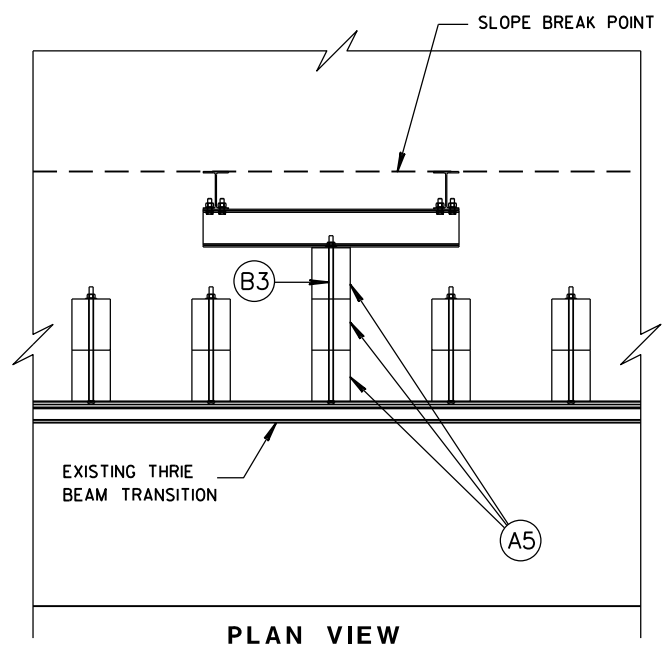
SIDE VIEW

72" MISSING POST CROSS-BEAM

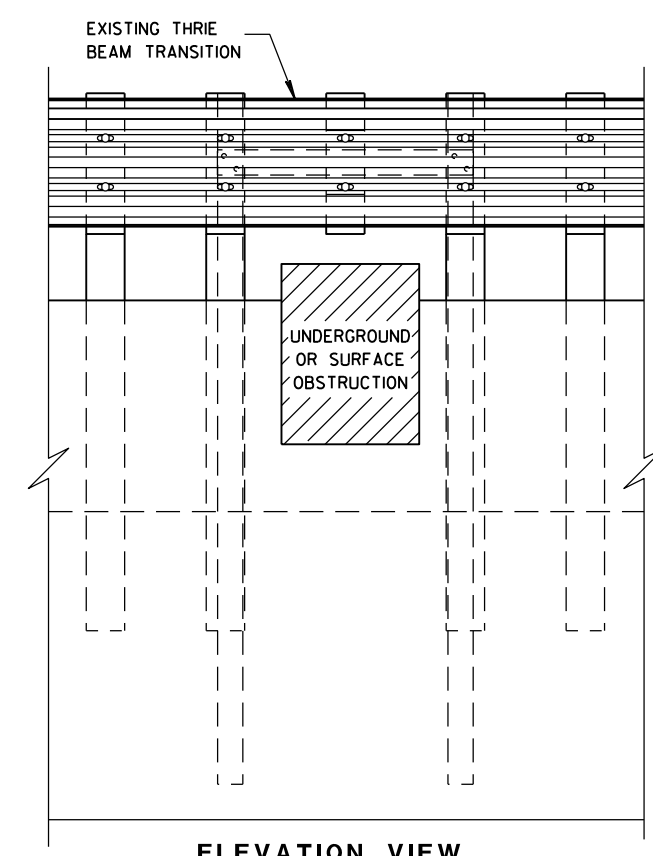
GENERAL NOTES

- ONLY ONE SUCH POST RETROFIT PER SYSTEM.
- SEE SDD 14B20 FOR MORE INFORMATION ON THE THRIE BEAM TRANSITIONS.
- IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2-INCHES AND 12-INCHES IN DIAMETER AROUND POST. SEE SDD 14B20 OR 14B45 FOR MORE DETAILS.
- ONLY STEEL POST CAN BE USED.
- BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN ALL HARDWARE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH.
- ONLY ONE WASHER AND ONE NUT CAN BE INSTALLED AT A CONNECTION. CUT THREADING OF BOLTS SO THAT NO MORE THAN 1/4-INCH TO 1/2-INCH OF THREADING IS BEYOND THE NUT.
- WHEN USING APPROACH RETROFIT POST BID ITEM, REVIEW SDD 14B20 INSTALL POST INFORMATION AND LOCATION, BLOCK AND HARDWARE.

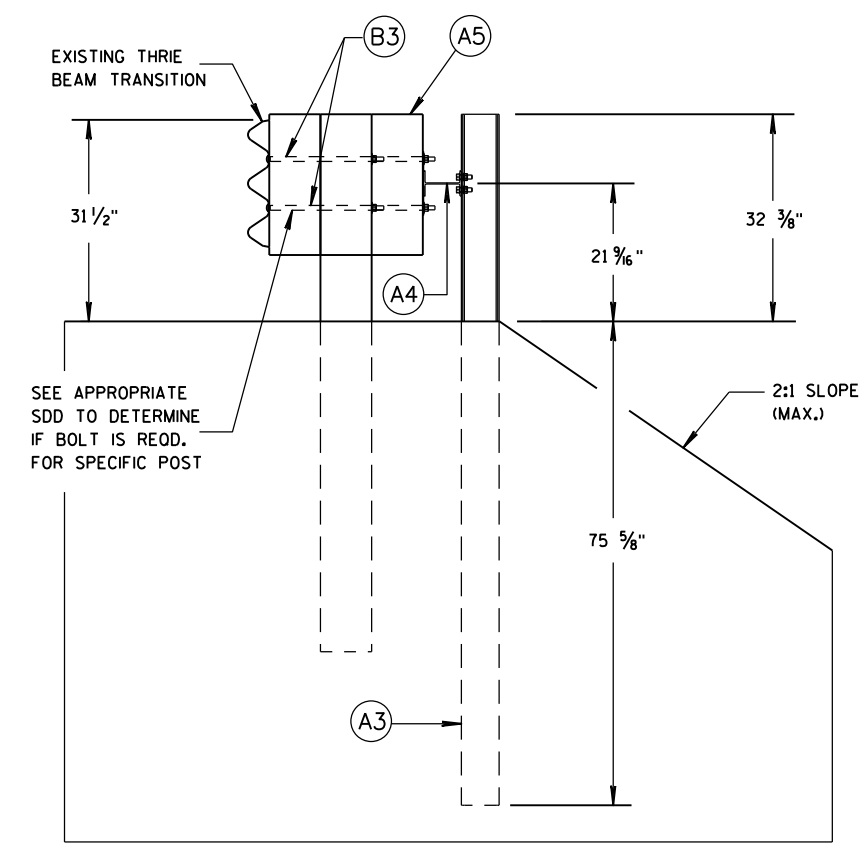
6



PLAN VIEW



ELEVATION VIEW



SIDE VIEW

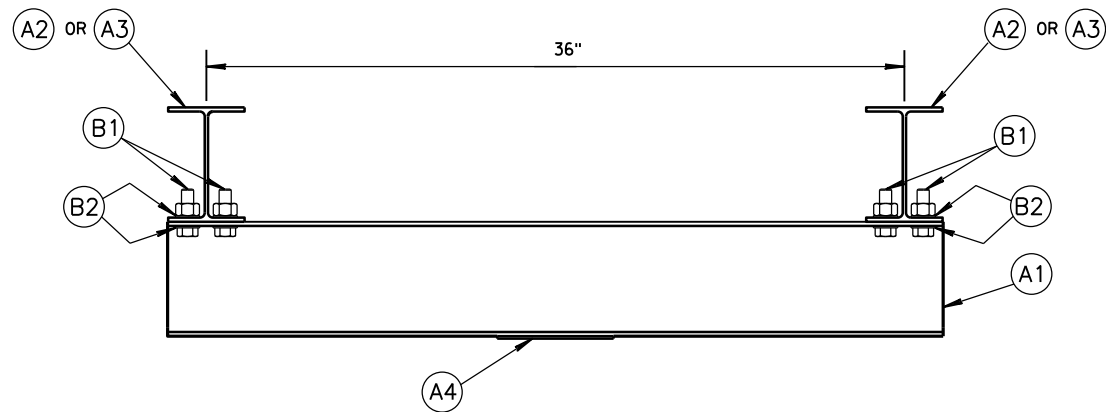
108" MISSING POST CROSS-BEAM

THRIE BEAM APPROACH
RETROFIT INSTALLATION
OF MISSING POST

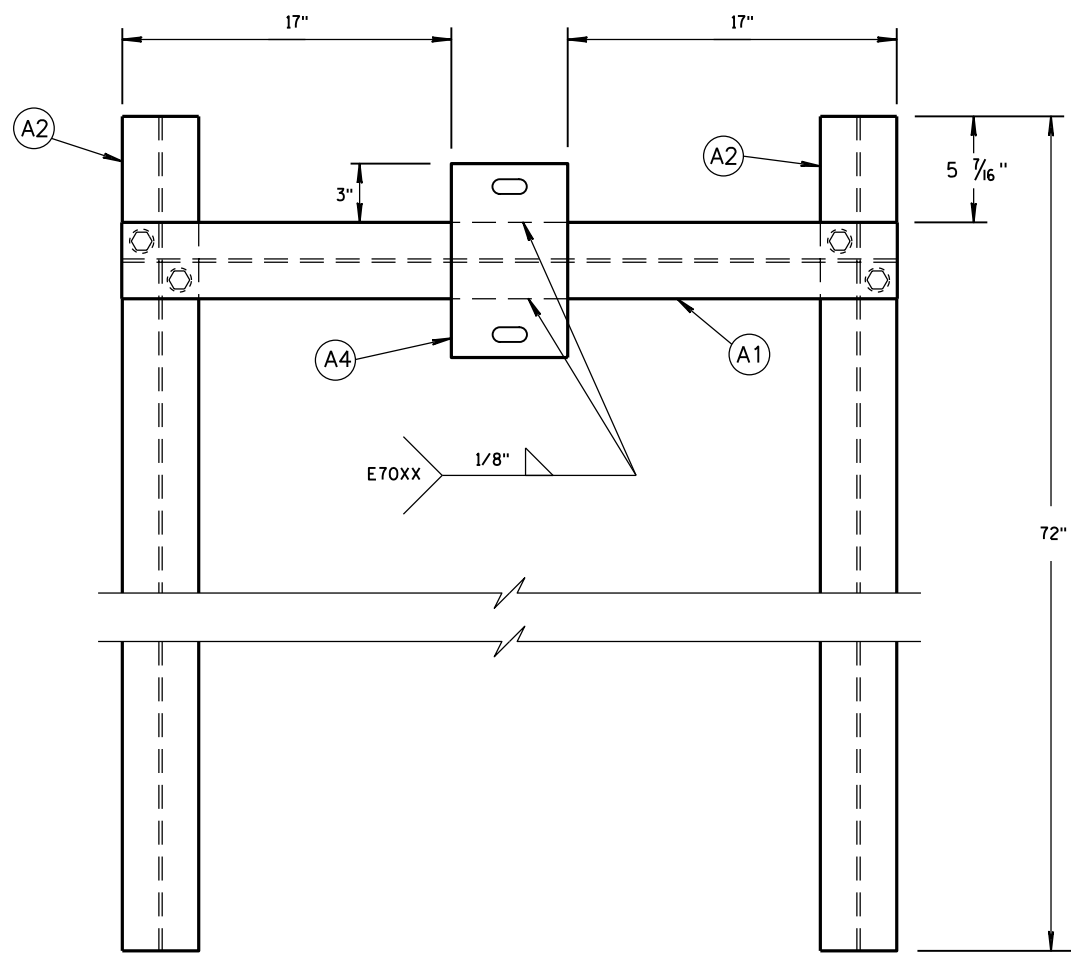
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

S.D.D. 14 B 50-1a

S.D.D. 14 B 50-1a

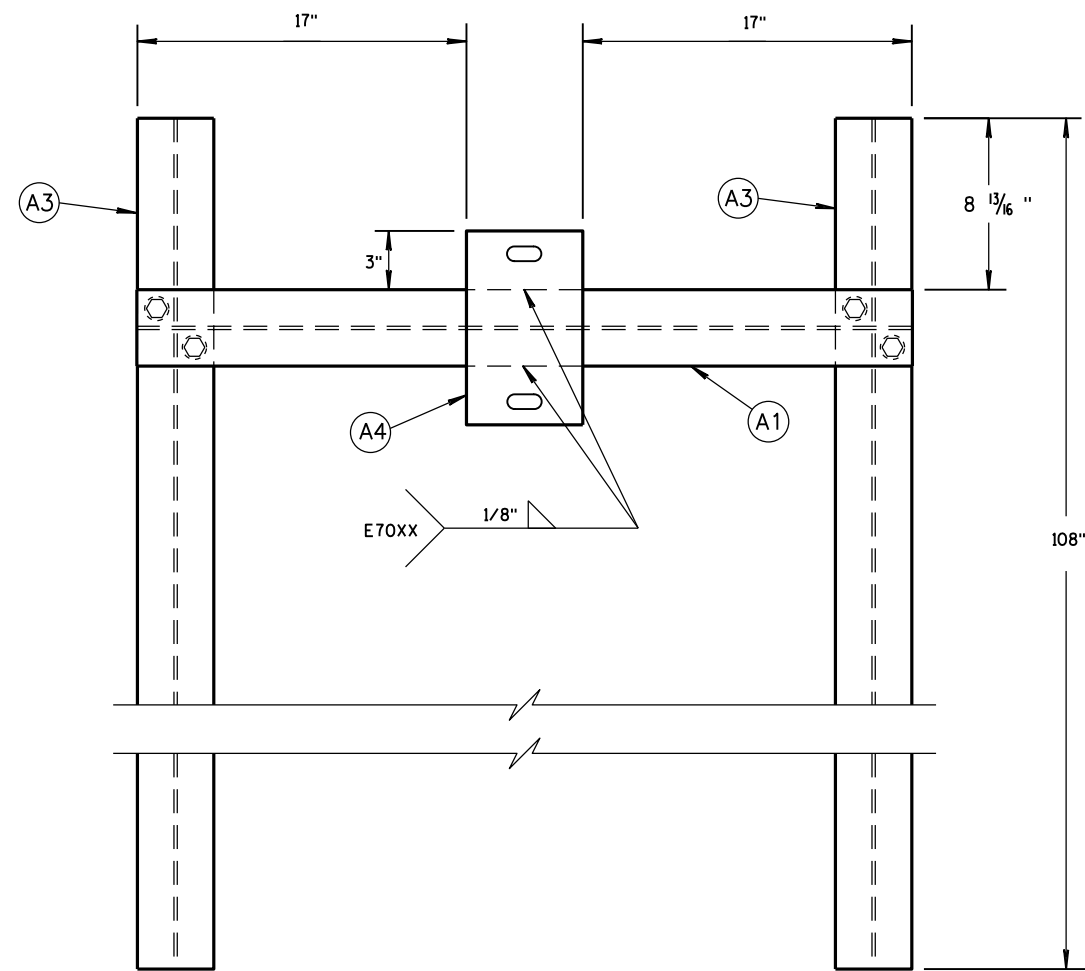


PLAN VIEW



ELEVATION VIEW

72" POST



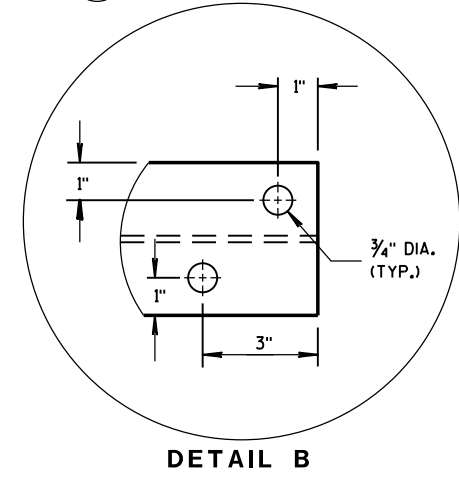
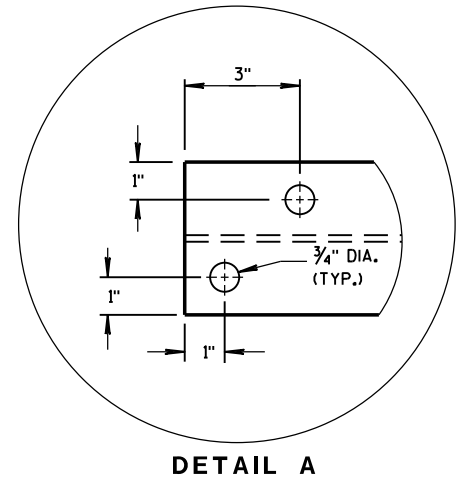
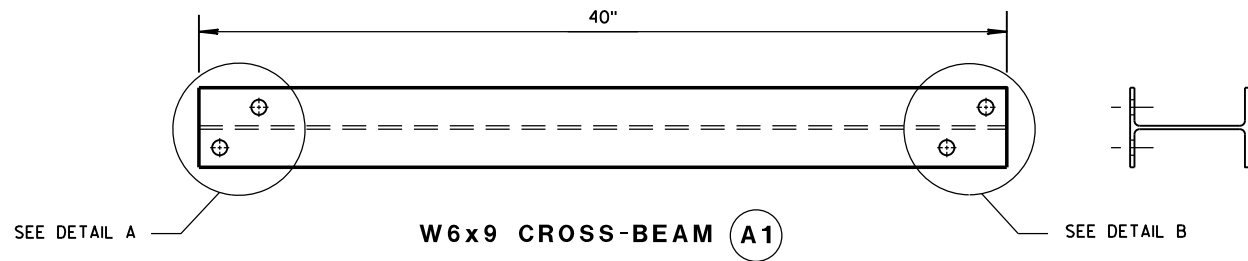
ELEVATION VIEW

108" POST

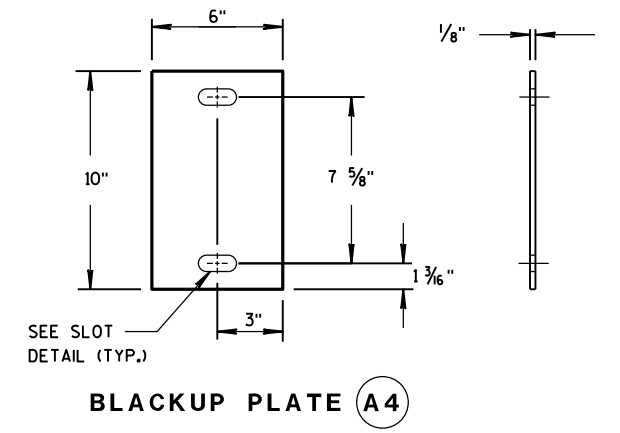
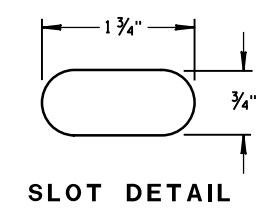
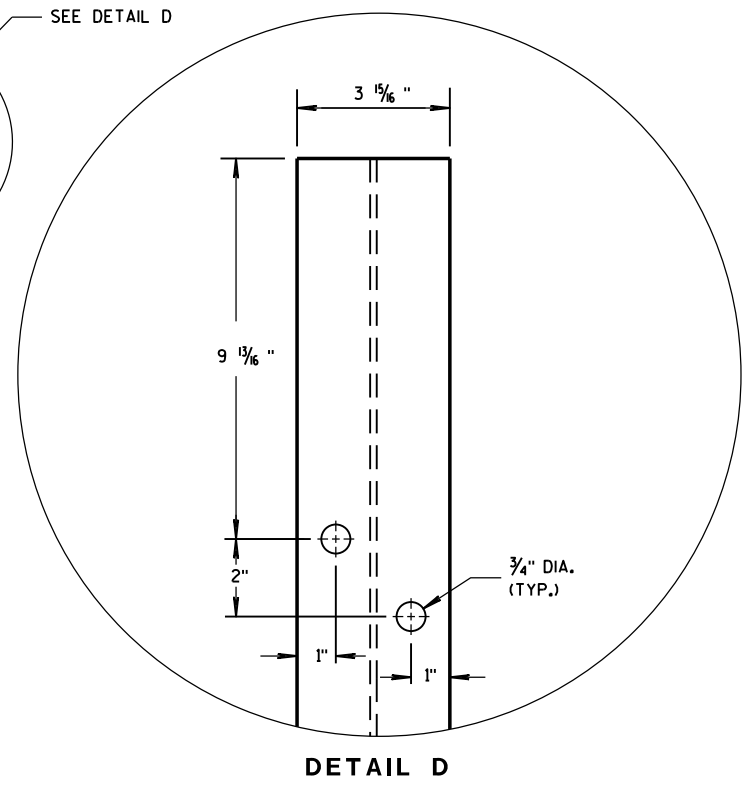
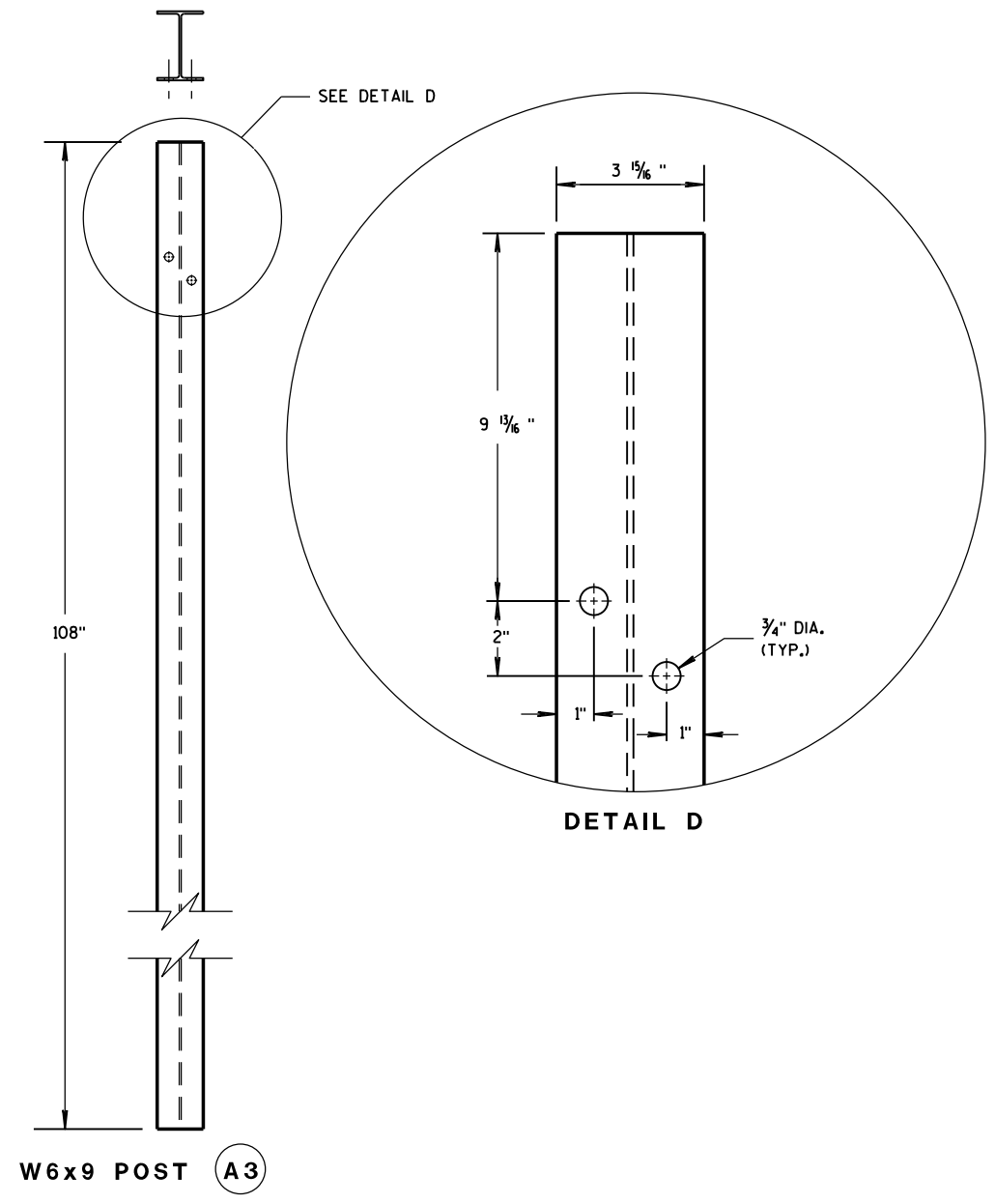
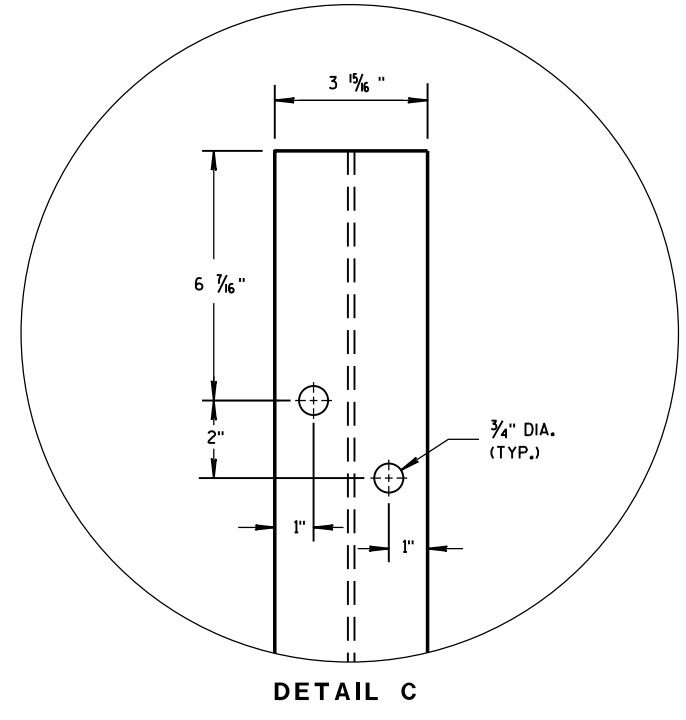
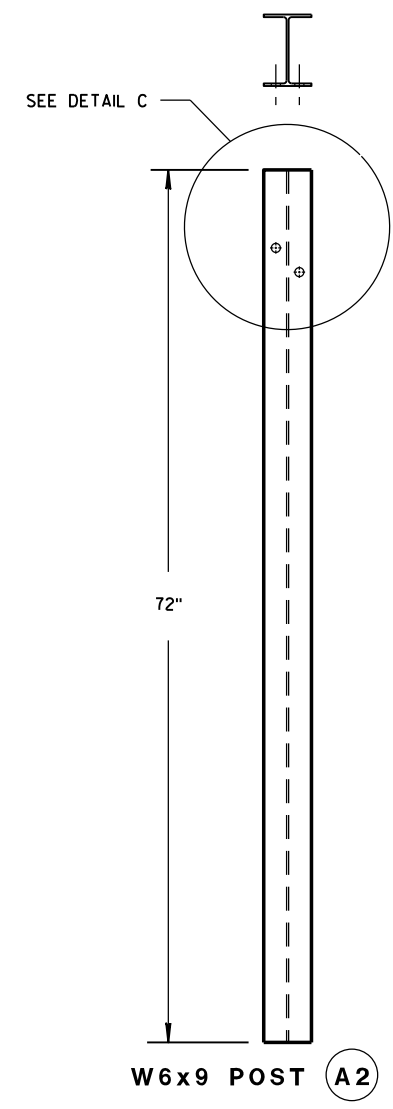
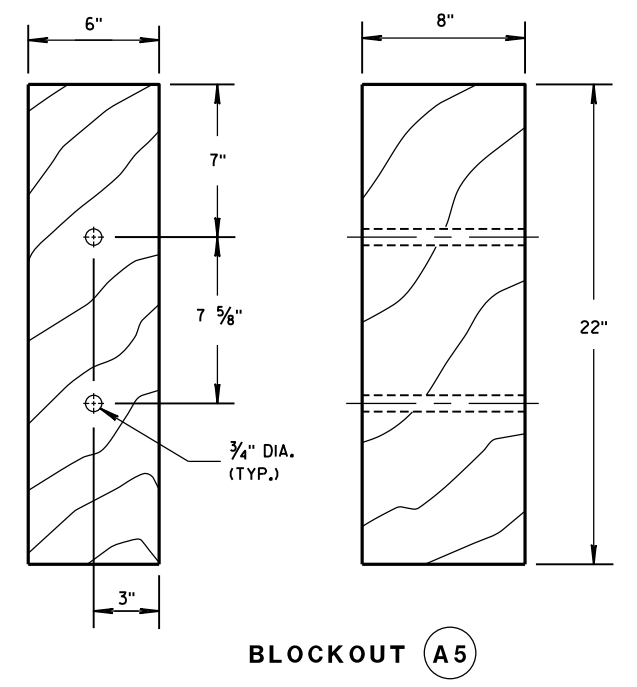
MISSING POST CROSS-BEAM DETAIL

THREE BEAM APPROACH
RETROFIT INSTALLATION
OF MISSING POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



BILL OF MATERIALS			
ITEM NO.	QTY.	DESCRIPTION	MATERIAL SPECIFICATION
(A1)	1	40" LONG W6x9 CROSS-BEAM	ASTM A992 GR. 50 OR ASTM A36
(A2)	2	72" LONG W6x9 POST	ASTM A992 GR. 50 OR ASTM A36
(A3)	2	108" LONG W6x9 POST	ASTM A992 GR. 50 OR ASTM A36
(A4)	1	6" x 10" x 1/8" BACKUP PLATE	ASTM A992 GR. 50 OR ASTM A36
(A5)	3	6" x 8" x 22" BLOCKOUT	
(B1)	4	5/8" DIA. - HEX HEAD BOLT	BOLT: HEAVY HEX HEAD ASTM A307 OR SAE J429 GRADE 2 NUT: HEAVY HEX HEAD ASTM A563 A
(B2)	8	5/8" DIA. NARROW FLAT WASHER	ASTM F436
(B3)	2	LONG, 5/8" DIA. - POST BOLT AND NUT	BOLT: SAE J429 GRADE 2 OR ASTM A307 GRADE C OR ASTM F1554 GRADE 36 NUT: 5/8" DIA. ASTM A563 A DOUBLE RECESSED (DR) HEAVY HEX HEAD
(B4)	2	5/8" DIA. PLAIN ROUND WASHER	ASTM F844



6

6

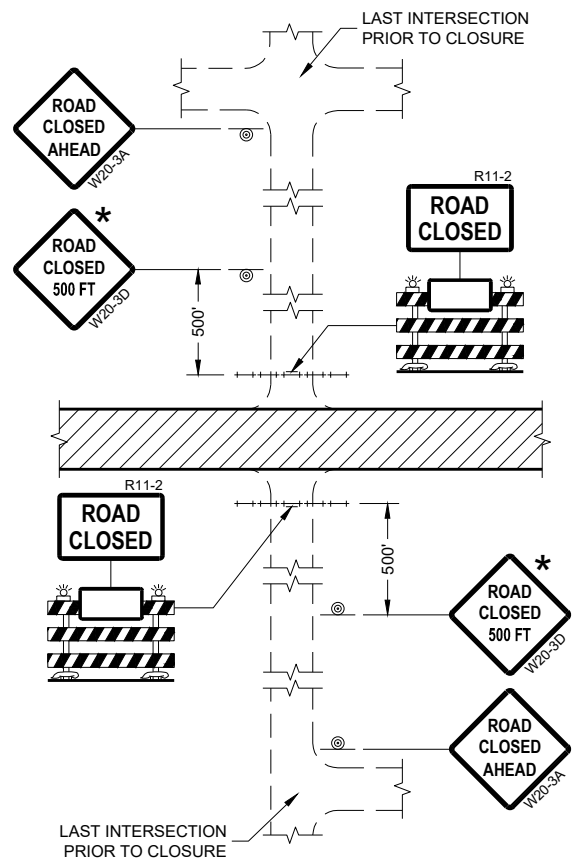
S.D.D. 14 B 50-1c

S.D.D. 14 B 50-1c

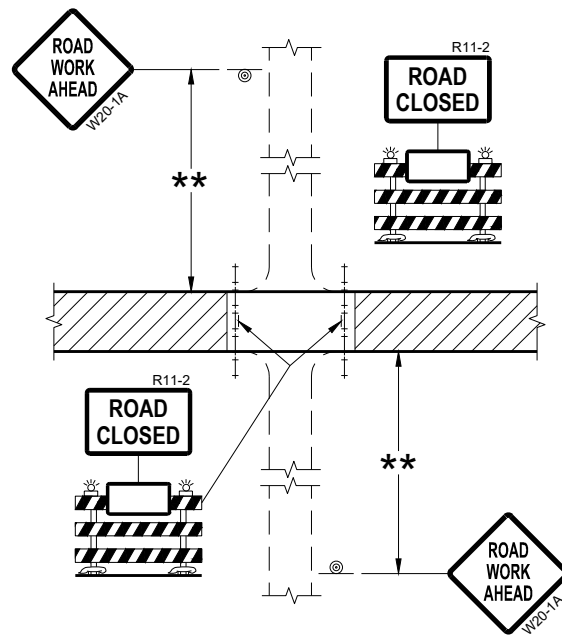
**THREE BEAM APPROACH
RETROFIT INSTALLATION
OF MISSING POST**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

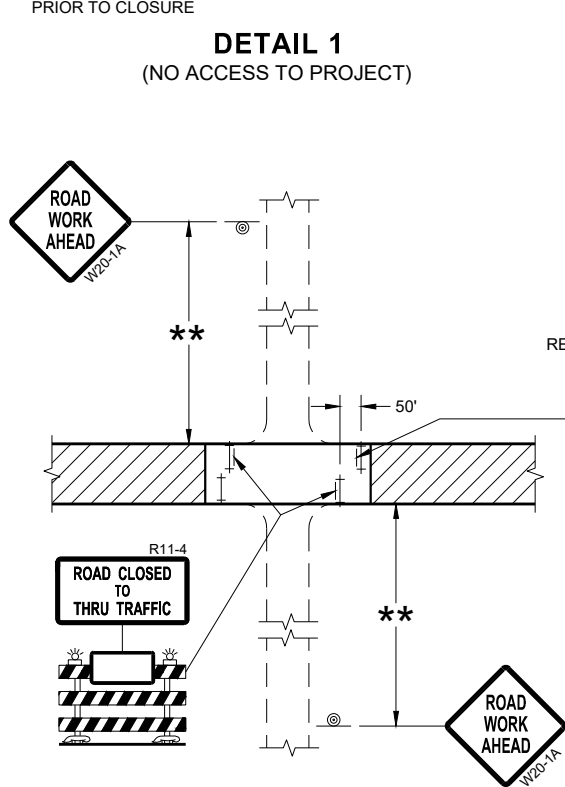
APPROVED
June 2014 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER



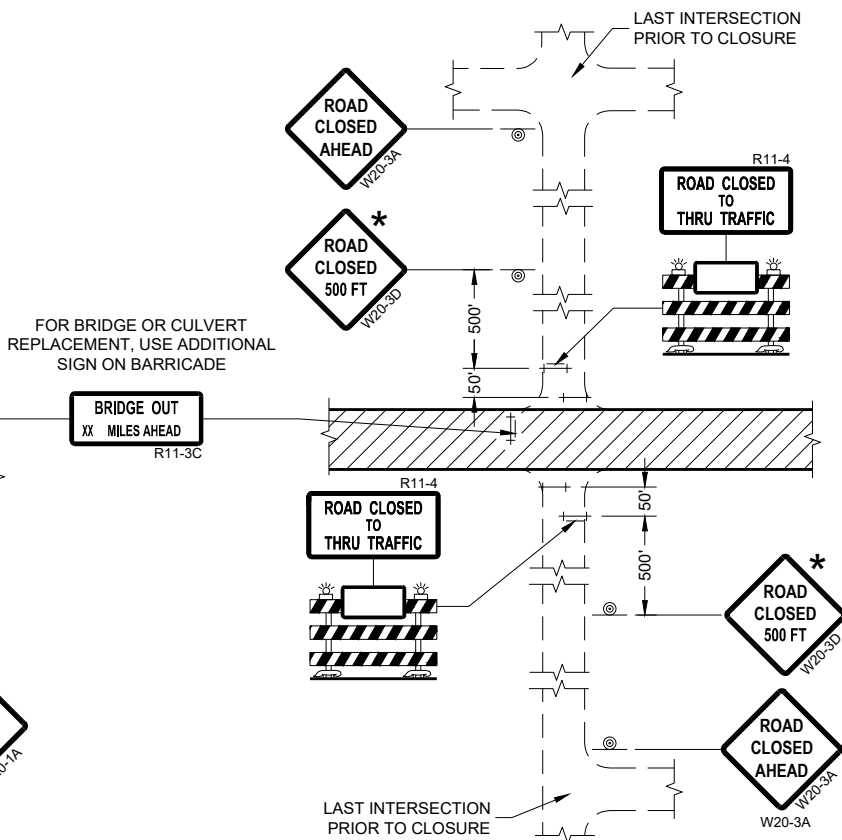
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

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 (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- ⚡ TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

GENERAL NOTES

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

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




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

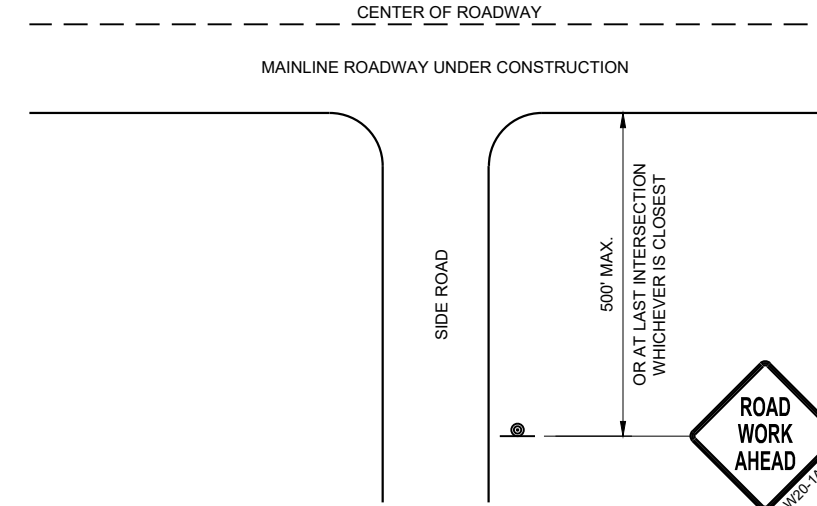
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

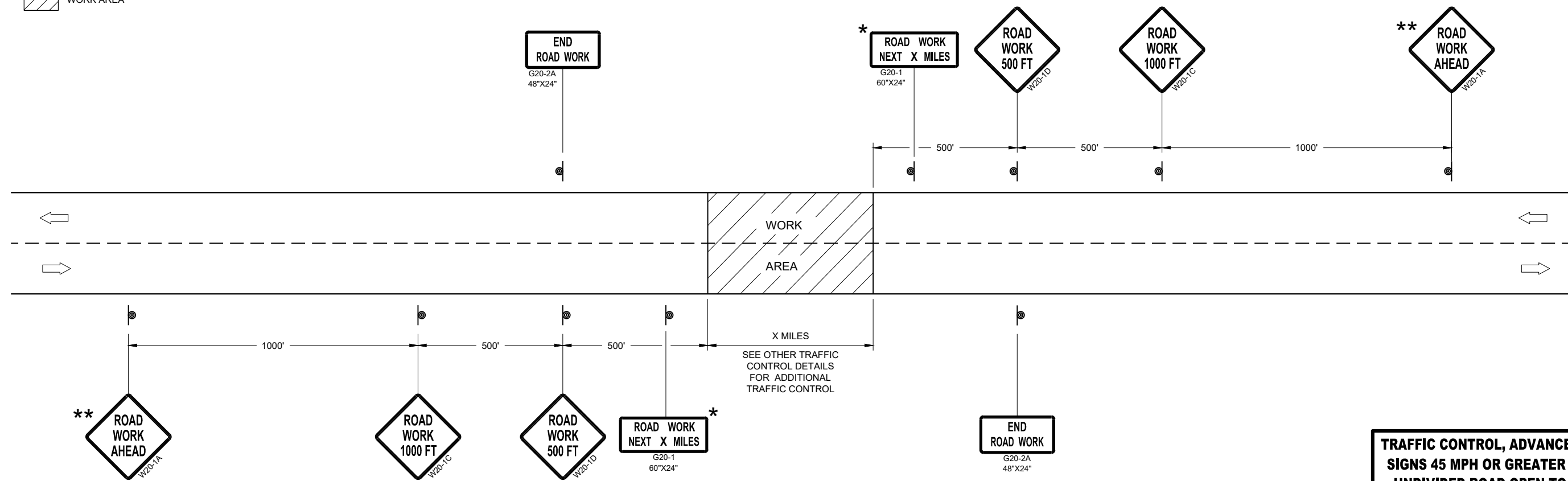
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



TYPICAL SIDE ROAD APPROACH WARNING SIGN DETAIL



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER




TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 MPH OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

GENERAL NOTES

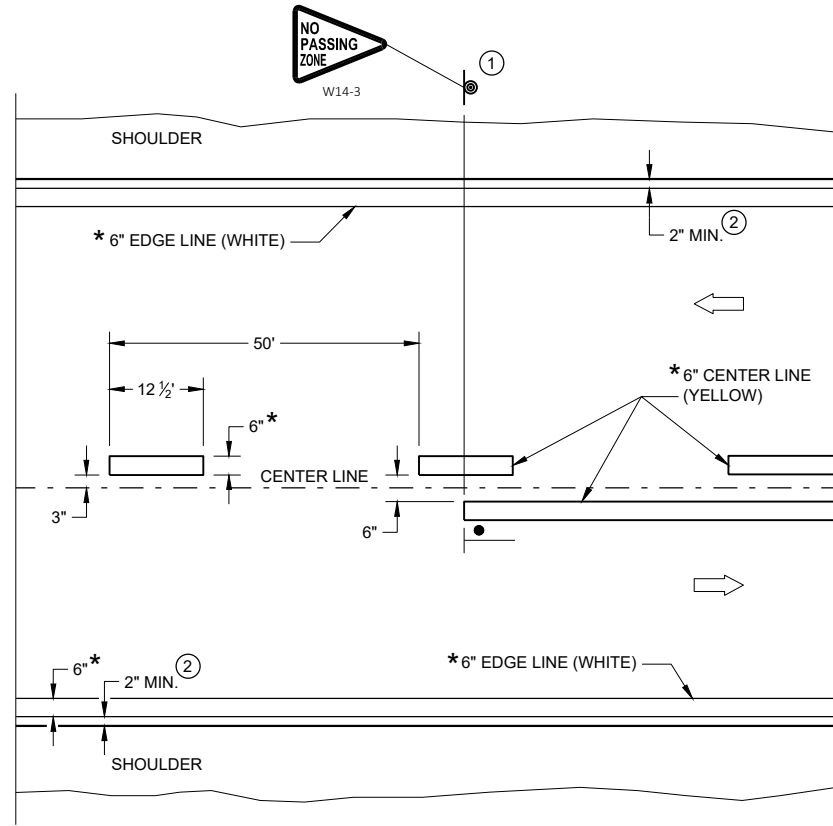
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

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

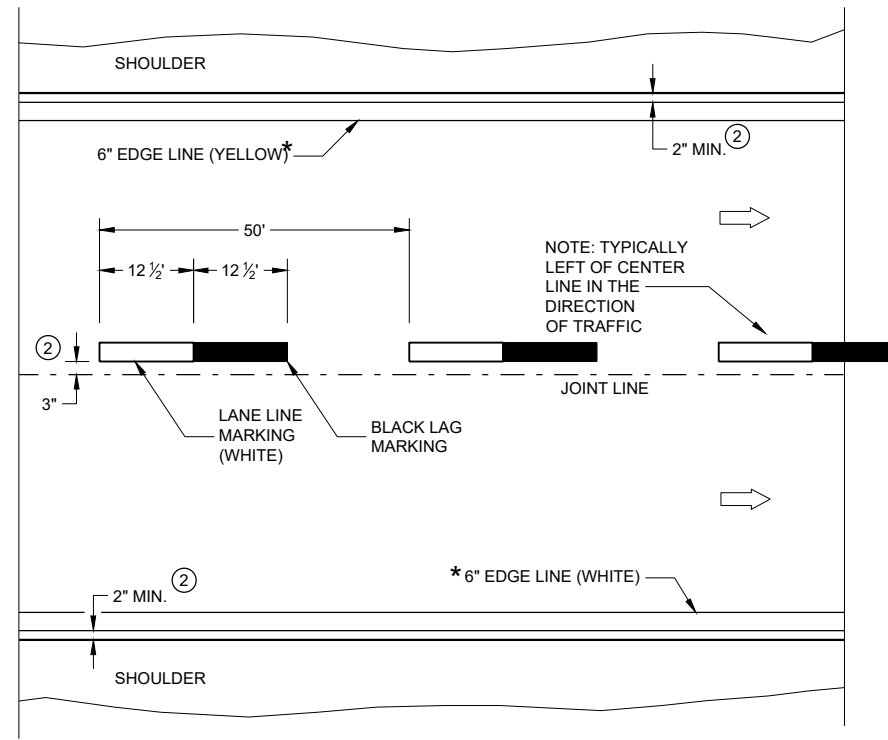
LEGEND

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

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

6

6

SDD 15C08-23a

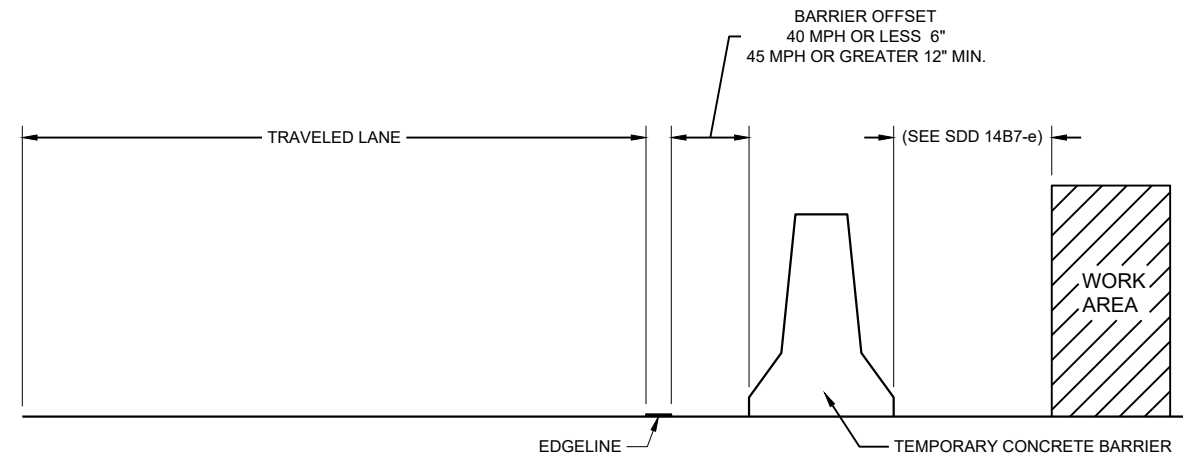
SDD 15C08-23a

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



TEMPORARY BARRIER OFFSET FROM EDGE LINE

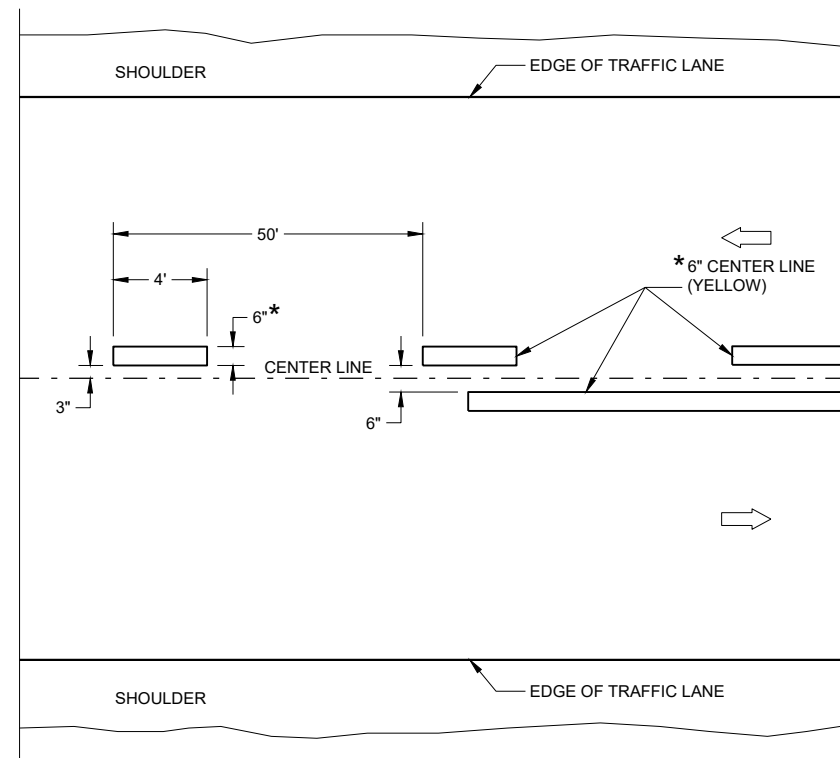
GENERAL NOTES

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

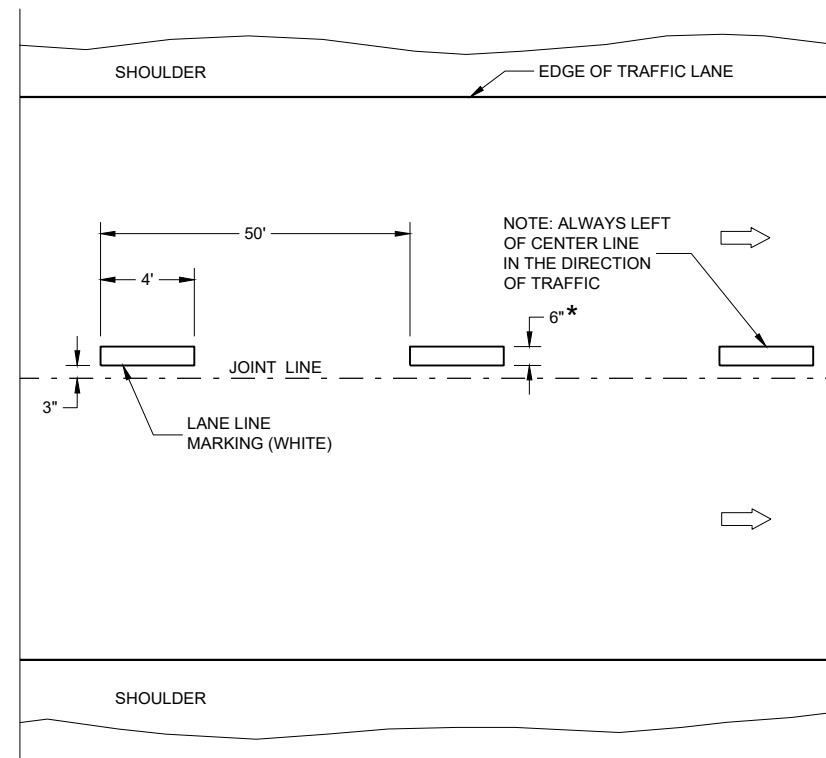
LEGEND

➡ DIRECTION OF TRAFFIC

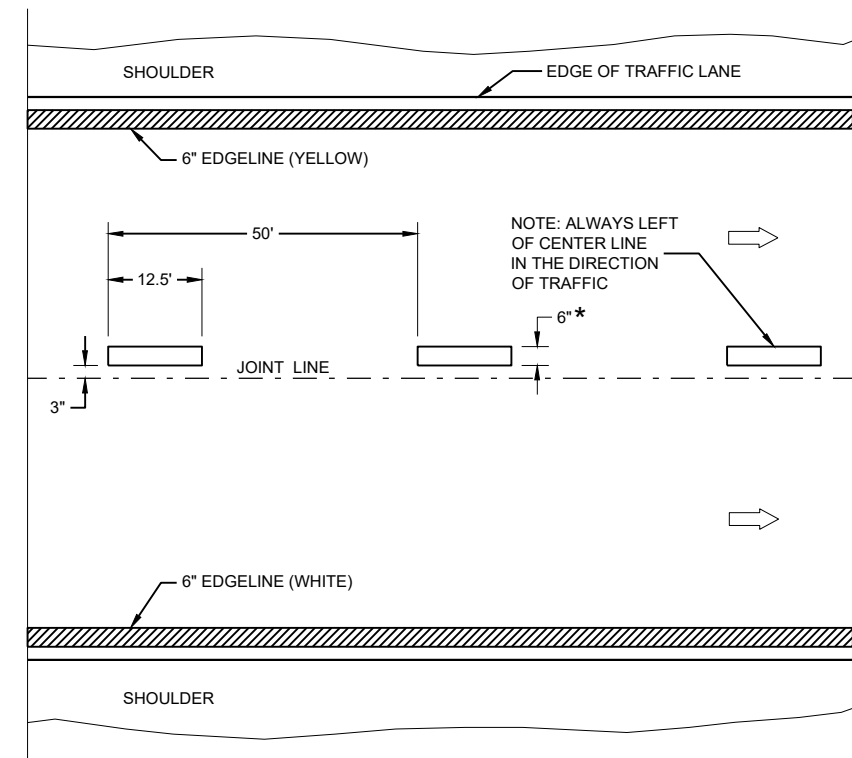
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

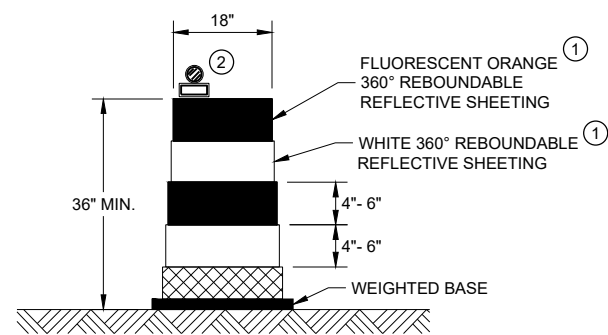
TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

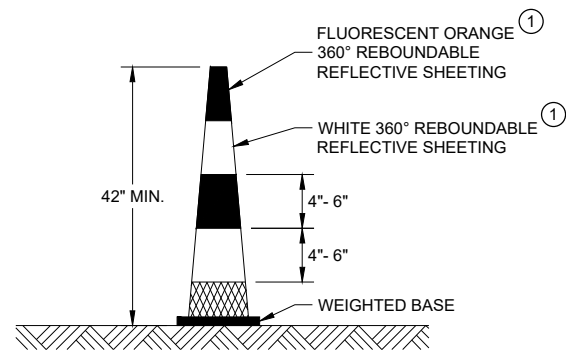
APPROVED
May 2023 /S/ Jeannie Silver
DATE STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



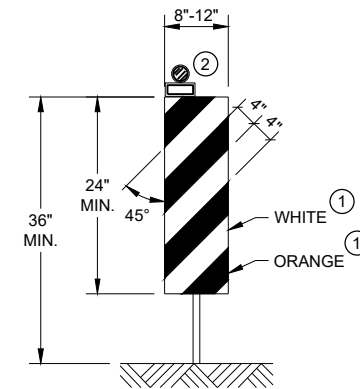
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"

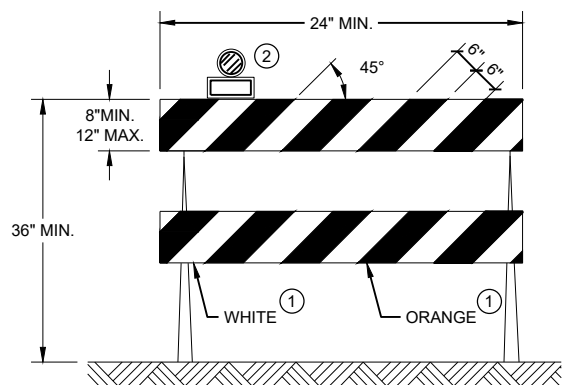


VERTICAL PANEL

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

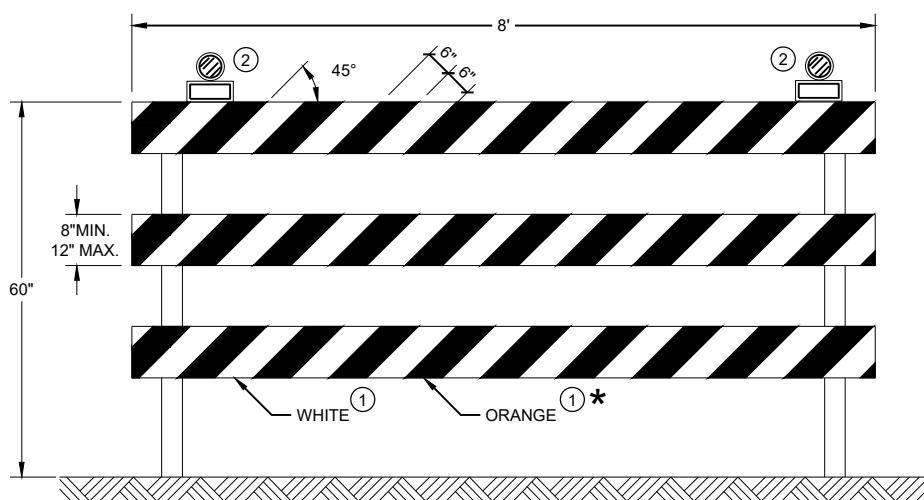
GENERAL NOTES

- 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.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL 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	/S/ Andrew Heidtke
November 2022	DATE
	WORK ZONE ENGINEER
FHWA	

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  FLASHING ARROW BOARD
-  DIRECTION OF TRAFFIC
-  REMOVE PAVEMENT MARKING (SEE GENERAL NOTES)
-  WORK AREA

GENERAL NOTES

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"X 36" SIGNS MAY BE USED IF APPROVED BY REGIONAL TRAFFIC UNIT.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON TEMPORARY SUPPORTS.

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

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

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROW BOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

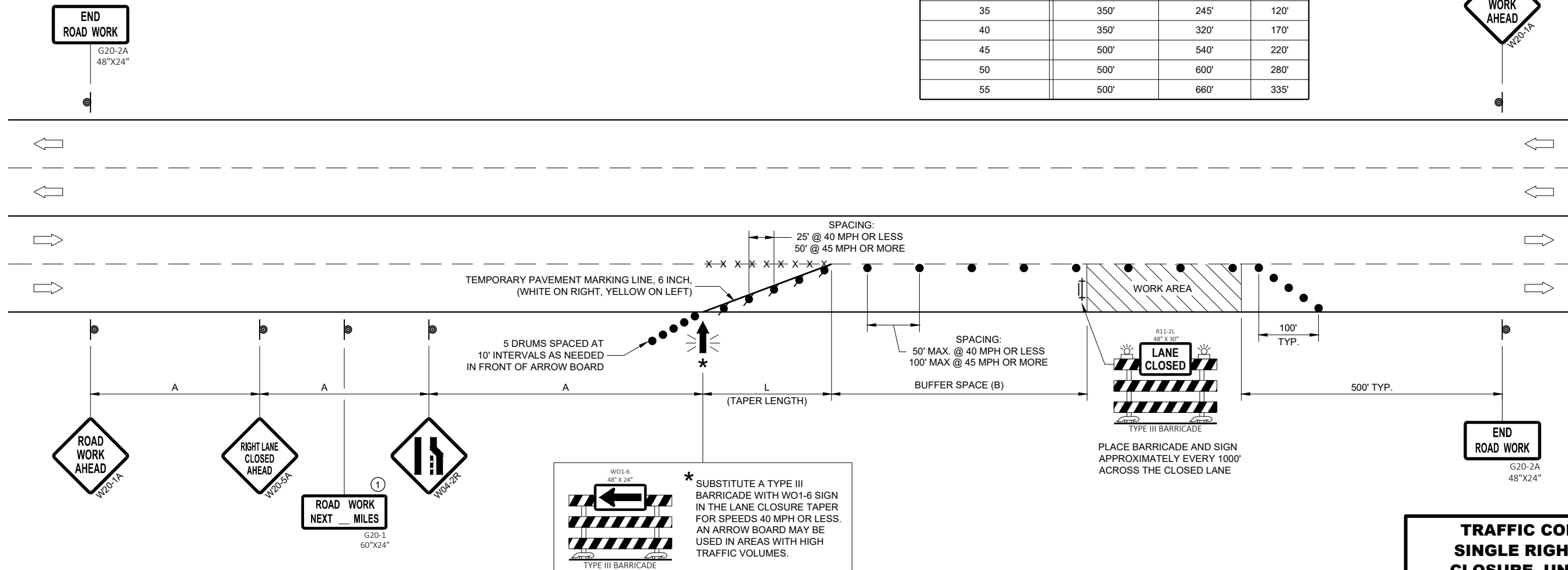
① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	55'
30	200'	180'	85'
35	350'	245'	120'
40	350'	320'	170'
45	500'	540'	220'
50	500'	600'	280'
55	500'	660'	335'



6

6



SDD 15D20-07b

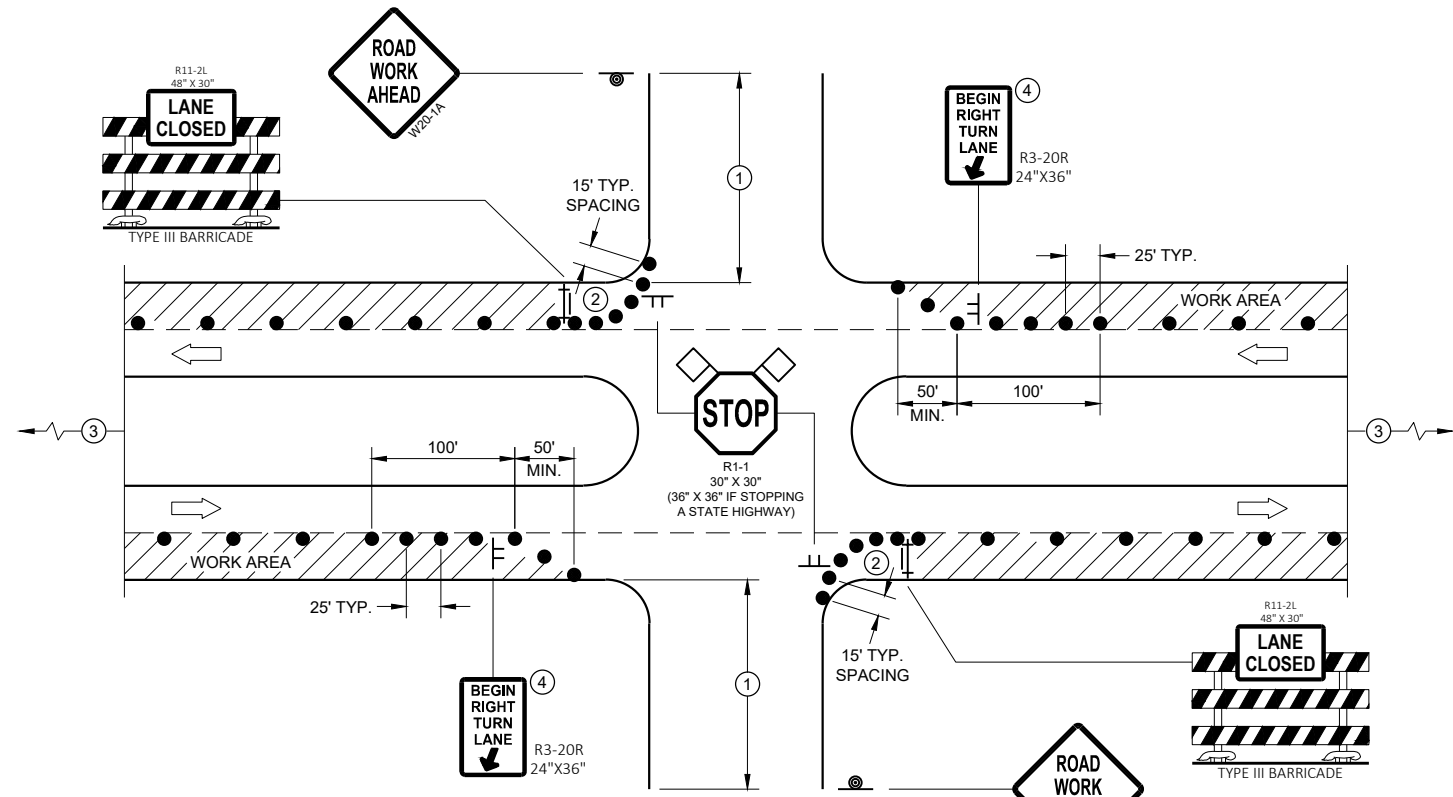
SDD 15D20-07b

**TRAFFIC CONTROL,
SINGLE RIGHT LANE
CLOSURE, UNDIVIDED
NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



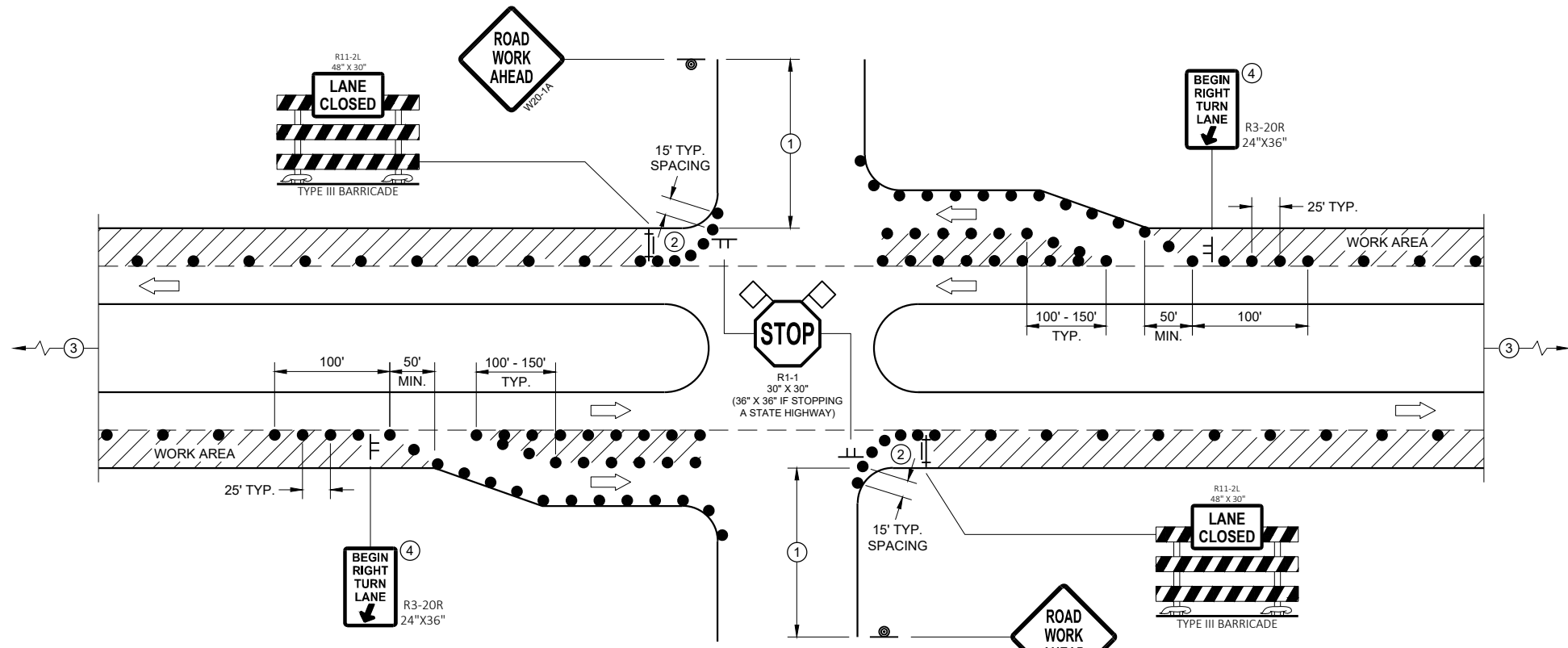
PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.
- "WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE
- SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.
- SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.
- BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.
- CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.



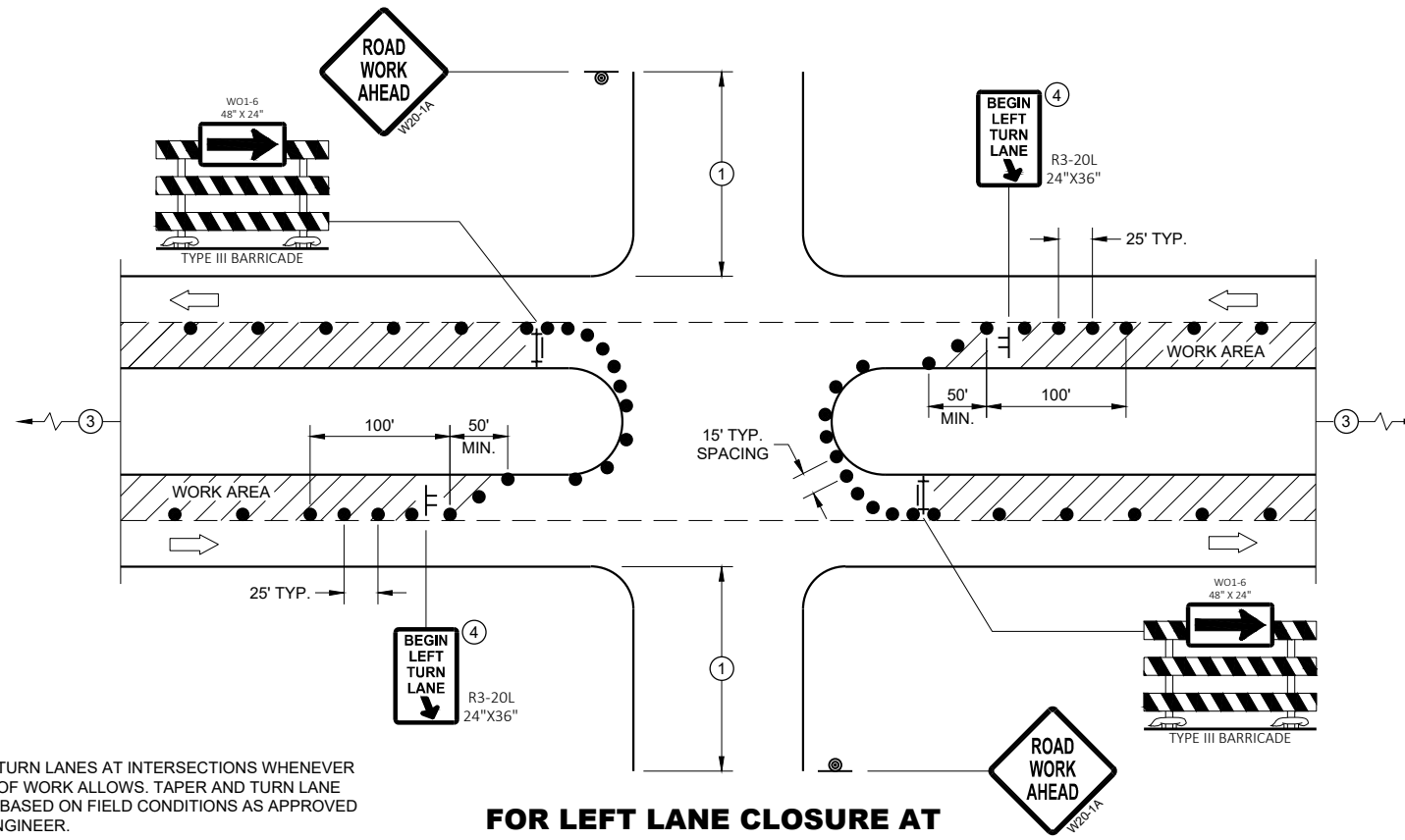
FOR RIGHT LANE CLOSURE AT INTERSECTION (WITH RIGHT TURN BAY OPEN)

LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

**TRAFFIC CONTROL,
INTERSECTION WITHIN SINGLE
RIGHT LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

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

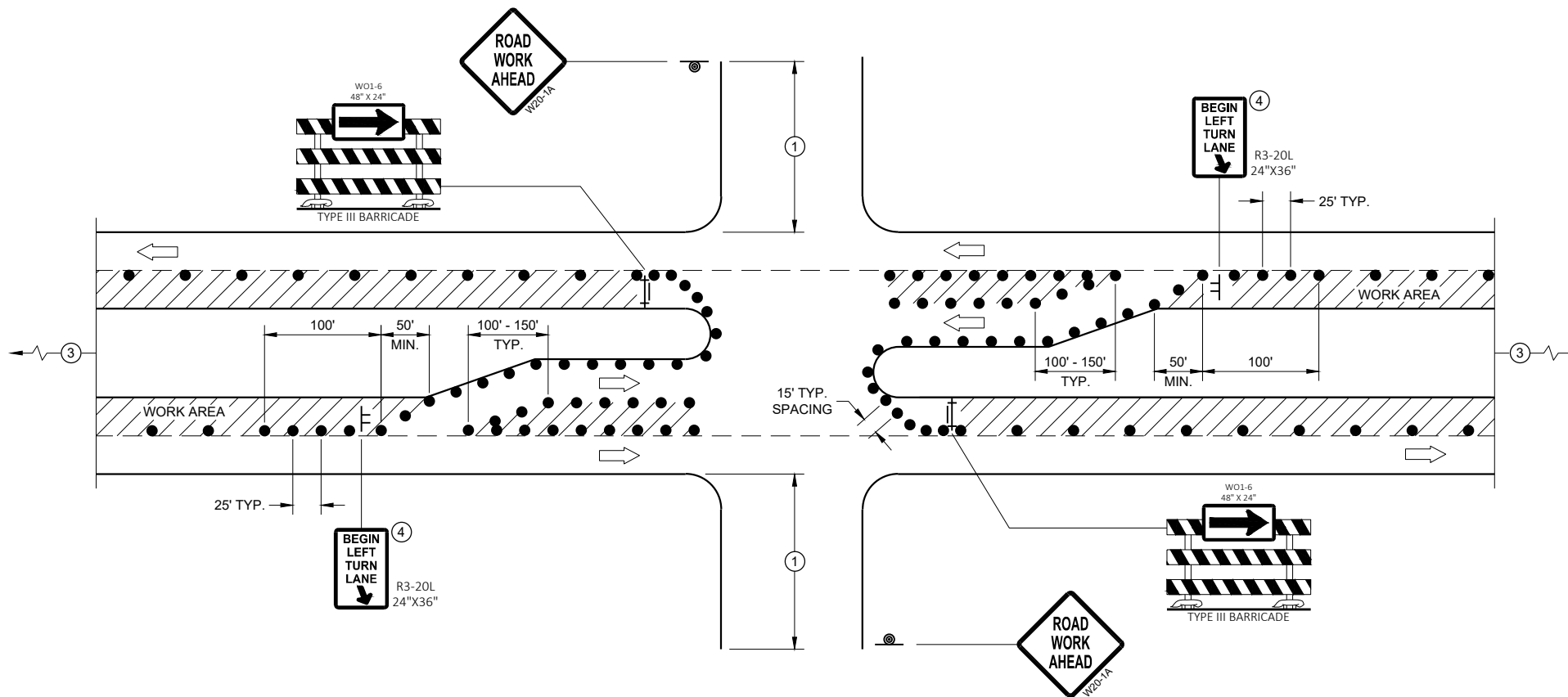
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.



FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING (WITH LEFT TURN BAY OPEN)

LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

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

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

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

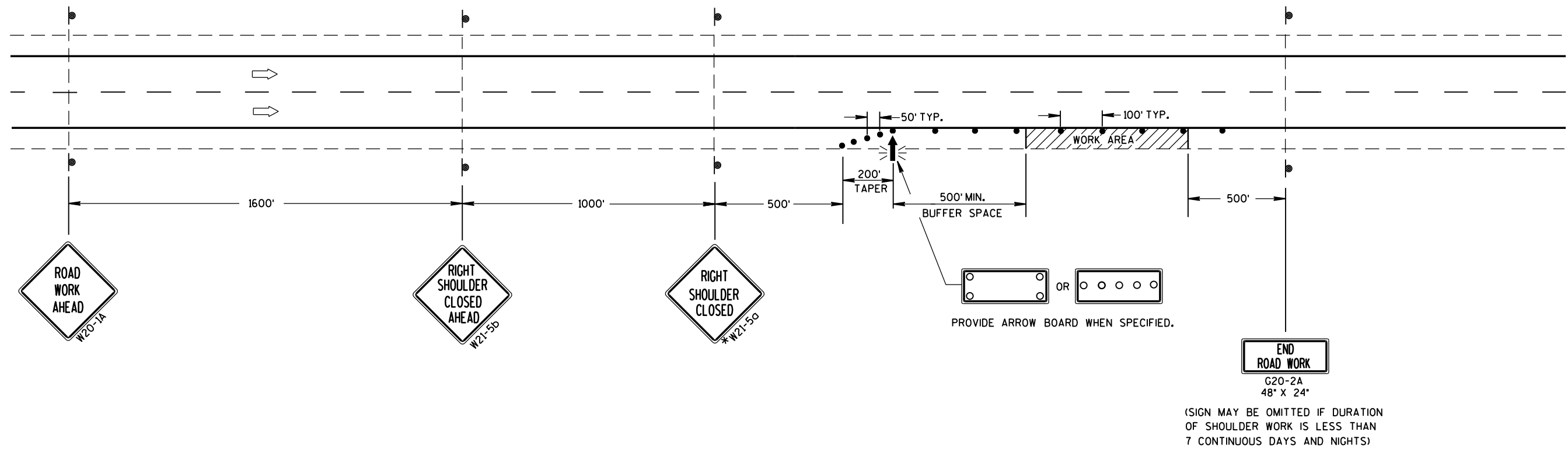
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-50 SIGN MAY BE OMITTED.





LEGEND

- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡ FLASHING ARROW BOARD
- ▨ WORK AREA



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/s/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

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

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

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

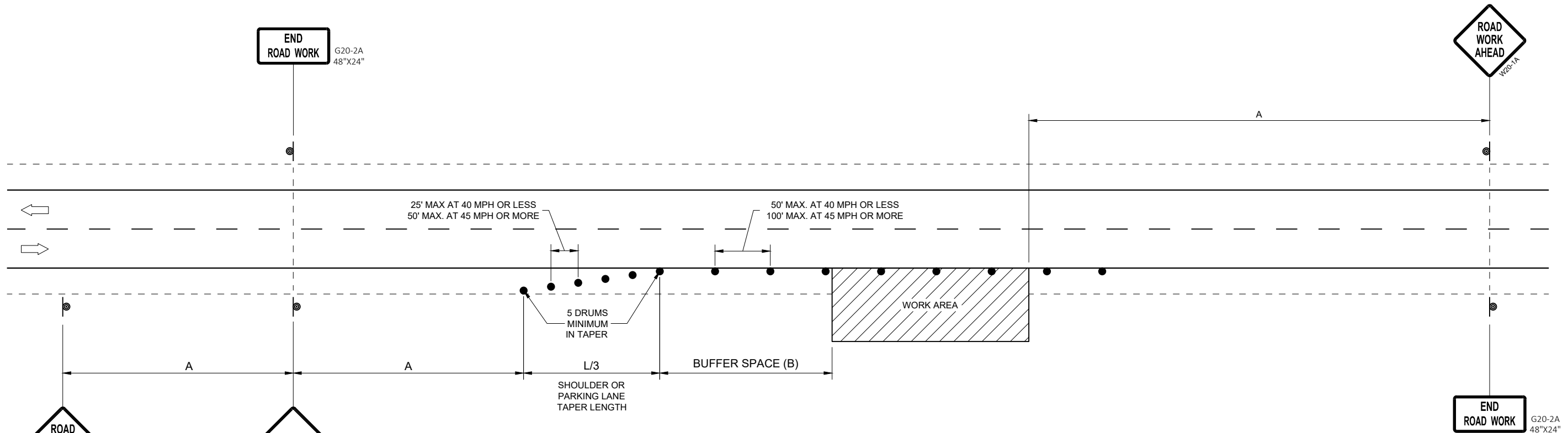
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

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POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

OR
IF TRAFFIC CONTROL DEVICES ENCROACH ONTO TRAVELED WAY, USE



TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION





APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

SDD 15D28 - 04

SDD 15D28 - 04

LEGEND

- V1 WORK VEHICLE
- V2 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  FLASHING ARROW PANEL (CAUTION)
-  WORK AREA
-  DIRECTION OF TRAFFIC

POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

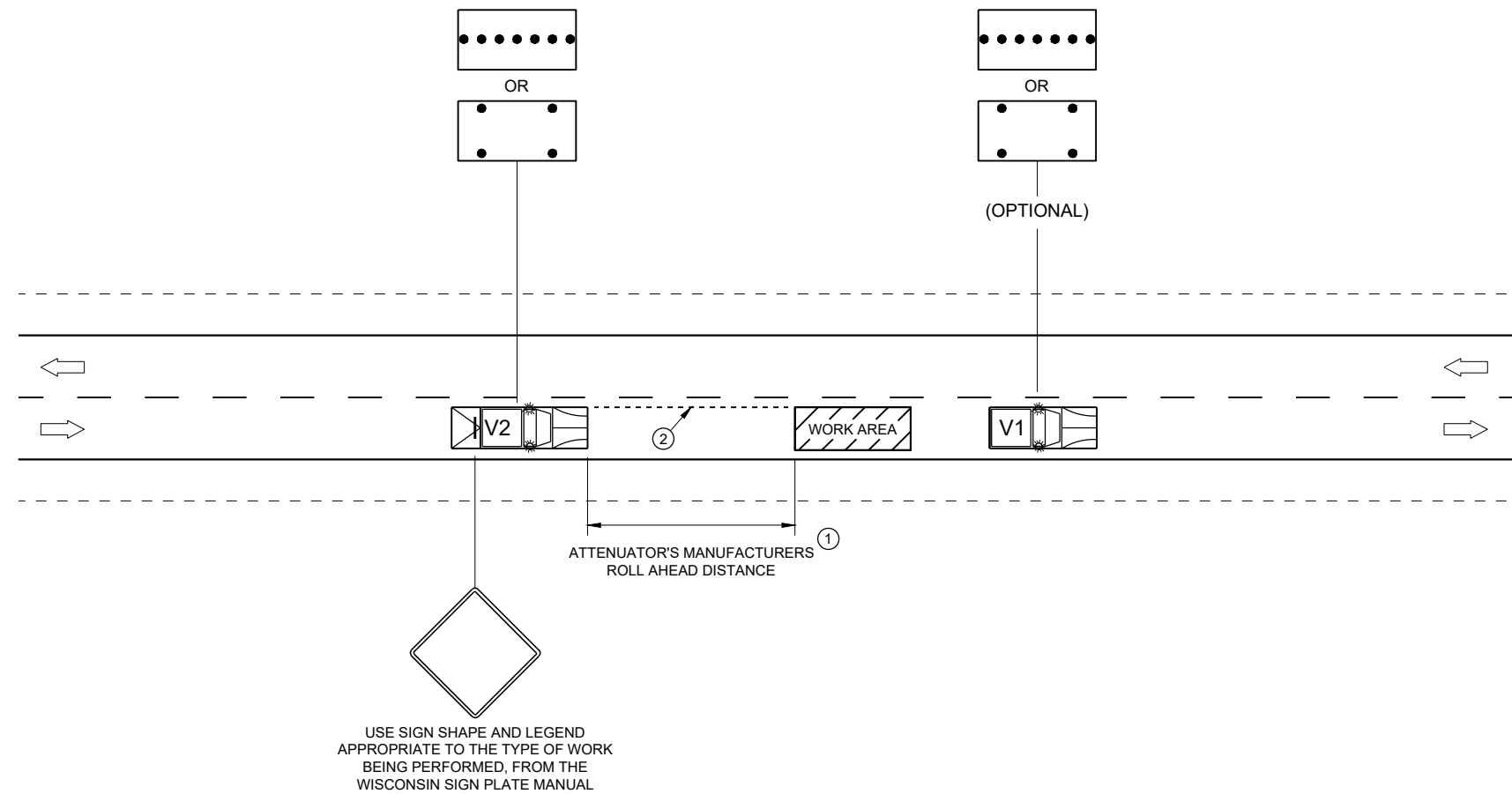
MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

- ① DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ② ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.



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SDD 15D51 - 01

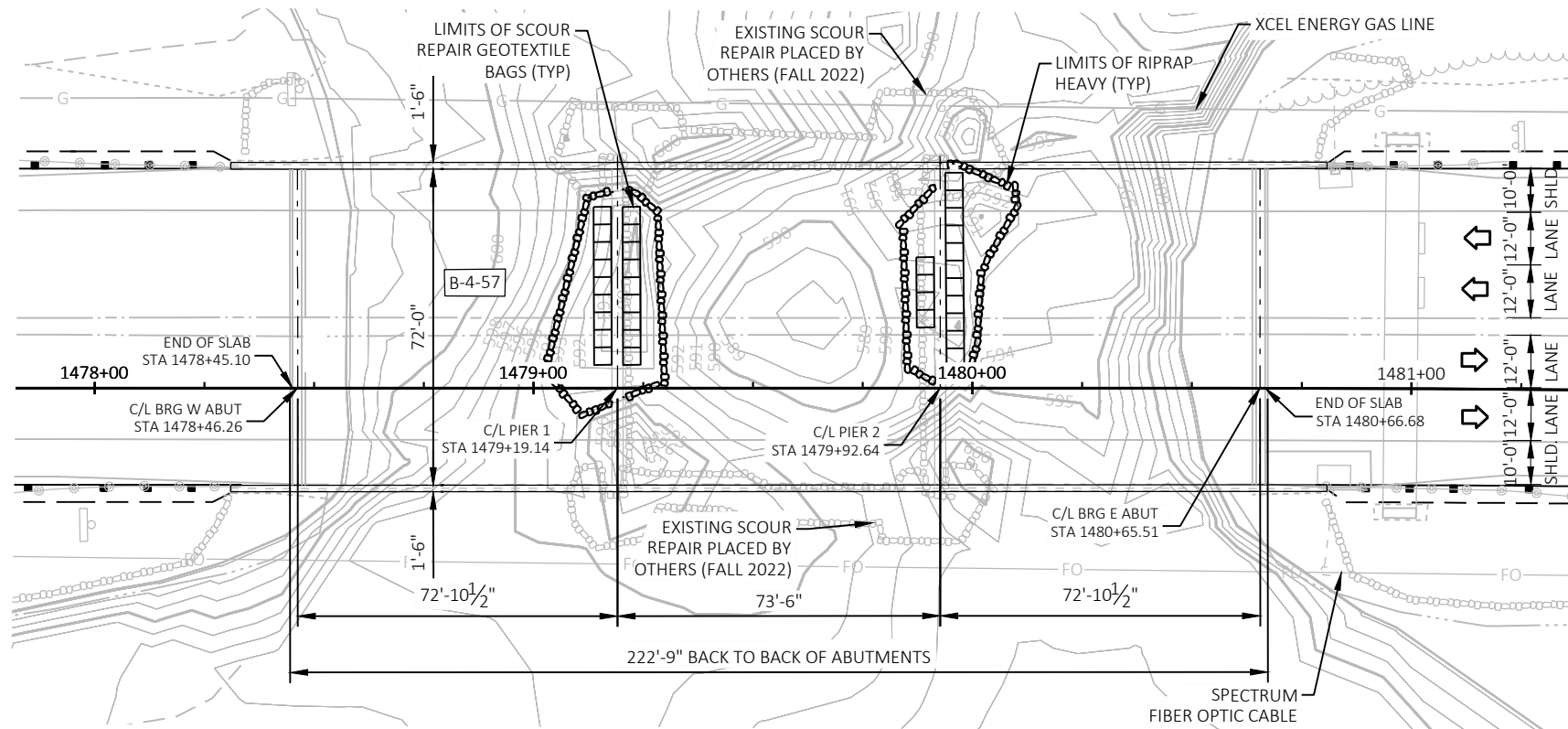
SDD 15D51 - 01

**TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA



PLAN
THREE SPAN PRESTRESSED GIRDER BRIDGE

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

STREAMBED MUST BE SCANNED PRIOR TO SCOUR REPAIR GEOTEXTILE BAG PLACEMENT, PRIOR TO RIPRAP PLACEMENT AND AFTER RIPRAP PLACEMENT, FOR A TOTAL OF 3 SCANS AS PART OF THE BID ITEM "RIVER BOTTOM SCANNING SURVEY STRUCTURE B-4-57".

PROPOSED GEOTEXTILE BAG PLACEMENT LIMITS SHOWN ARE BASED ON RIVER SCAN INFORMATION FROM THE WISDOT SURVEY DATED 5/15/2023.

GEOTEXTILE BAGS ARE PAID AS BID ITEM "SCOUR REPAIR GEOTEXTILE BAGS."

AFTER COMPLETION OF THE INITIAL SCAN OF THE STREAMBED AND PRIOR TO PLACEMENT OF GEOTEXTILE BAGS, THE FINAL QUANTITY AND EXTENTS OF THE GEOTEXTILE BAG PLACEMENT SHALL BE CONFIRMED WITH THE BUREAU OF STRUCTURES AND APPROVED BY THE ENGINEER.

PRIOR TO PLACEMENT OF GEOTEXTILE BAGS AND RIPRAP, DEMONSTRATE MEANS AND METHODS OF THE GEOTEXTILE BAG PLACEMENT TO ENSURE GEOTEXTILE BAG WILL BE PLACED WITHOUT DAMAGE TO THE BAGS AND SUBSTRUCTURE.

AFTER PLACEMENT OF GEOTEXTILE BAGS AND PRIOR TO PLACEMENT OF RIPRAP, THE GEOTEXTILE BAG PLACEMENT SHALL BE CONFIRMED WITH THE BUREAU OF STRUCTURES AND APPROVED BY THE ENGINEER.

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS20
INVENTORY RATING: HS = 21
OPERATING RATING: HS = 35
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)
(RATINGS TAKEN FROM HSI, 04/27/2023)

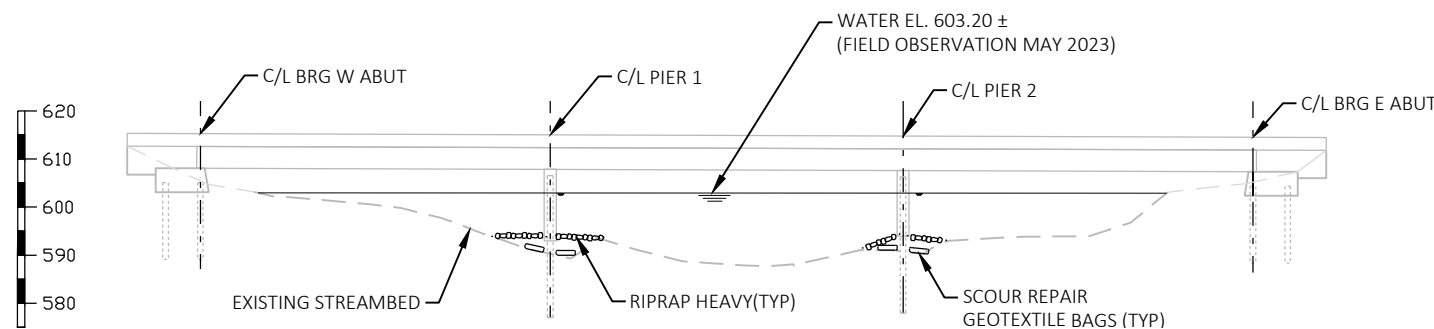
TRAFFIC DATA

FEATURE ON:

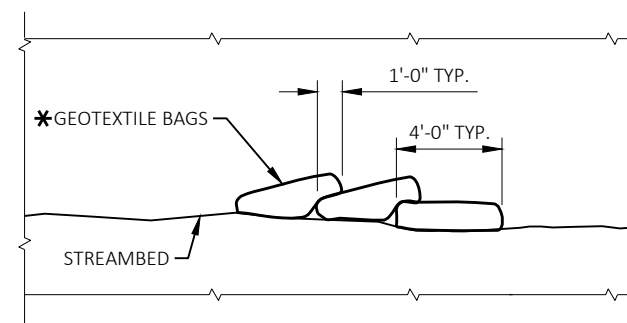
ADT = 11,280(2044)
R.D.S. = 55 MPH

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	PIER 1	PIER 2	TOTALS
606.0300	RIPRAP HEAVY	CY	60	45	105
SPV.0035	SCOUR REPAIR GEOTEXTILE BAGS	CY	19	17	36
SPV.0060	RIVER BOTTOM SCANNING SURVEY STRUCTURE B-4-57	EACH	--	--	3



ELEVATION
(LOOKING NORTH)



PLACEMENT DETAIL

* OVERLAP BAGS A MINIMUM OF 1'-0". RIVERBED MUST BE SCANNED BEFORE AND AFTER PLACEMENT.

LIST OF DRAWINGS

- 1 GENERAL PLAN
- 2 PLAN AT PIER 1
- 3 PLAN AT PIER 2

STRUCTURE DESIGN CONTACTS:

CONSULTANT: TONY CASTLE 414-347-1607
WISDOT BOS: AARON BONK 608-261-0261



9/22/2023

NO.	DATE	REVISION	BY

emcs

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR **11/14/23**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-4-57

USH 2 OVER FISH CREEK

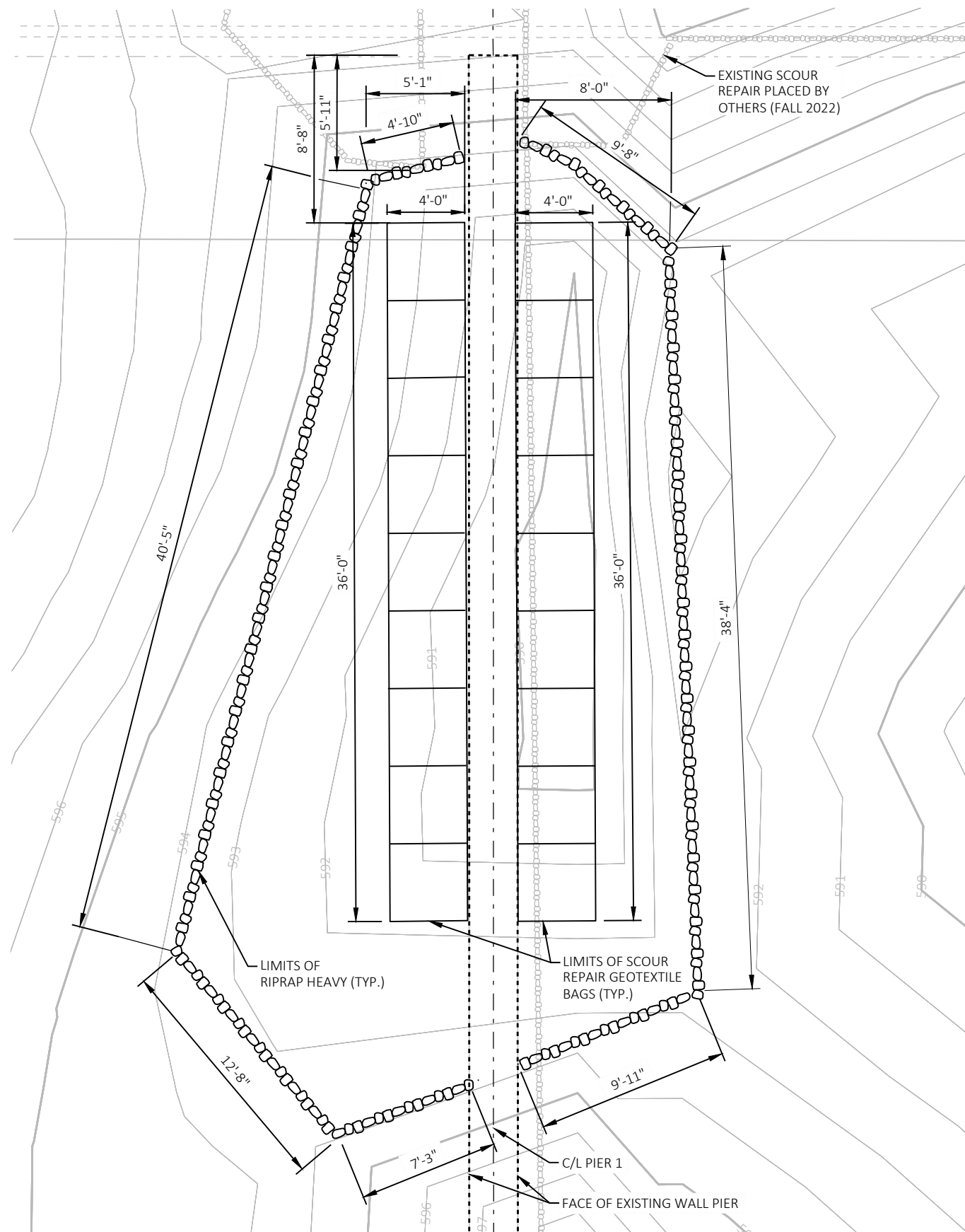
COUNTY BAYFIELD TOWN BARKSDALE

DESIGN SPEC. REHABILITATION N/A

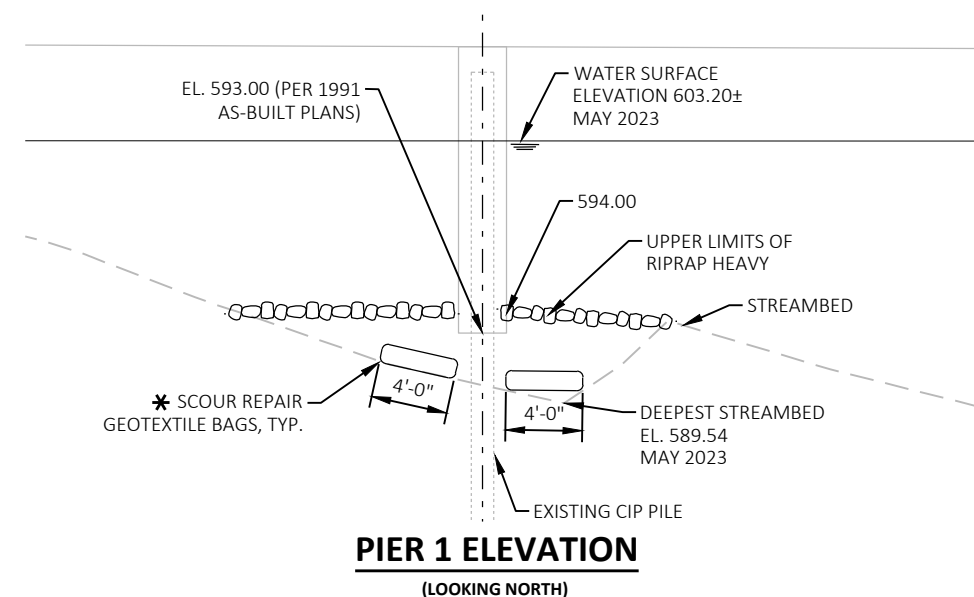
DESIGNED BY	JRM	DESIGNED CK'D	AJC	DRAWN BY	AMR	PLANS CK'D	AJC
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GENERAL PLAN

SHEET 1 OF 3



PLAN AT PIER 1
(PLACEMENT TO FOLLOW CONTOURS)



PIER 1 ELEVATION
(LOOKING NORTH)

NOTES:

GEOTEXTILE BAGS TO BE 4' WIDE X 4' LONG X 2' THICK, FILLED 1'-0" FULL. TO BE HAND SEWN ON SITE.

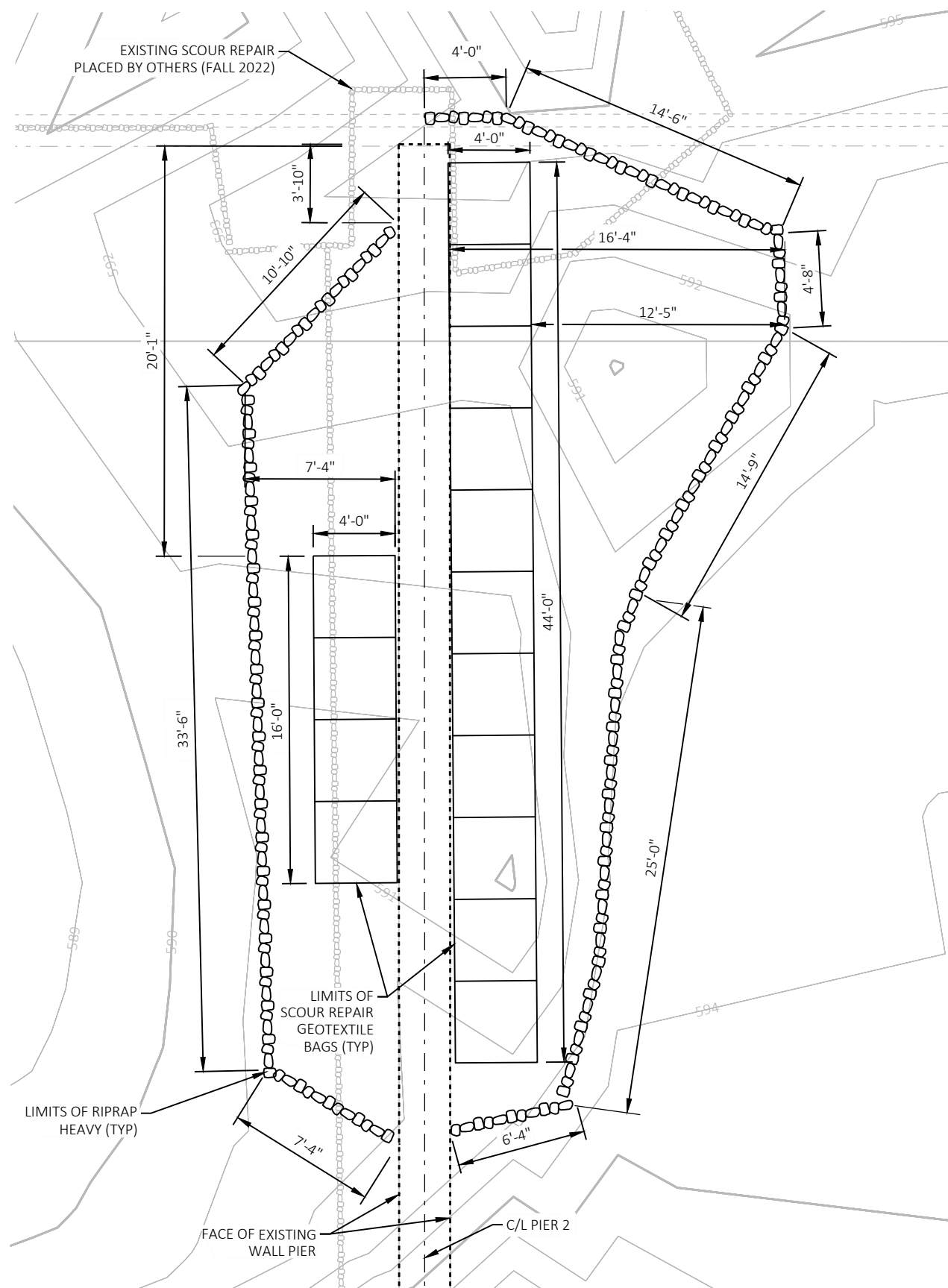
* SEE PLACEMENT DETAIL ON GENERAL PLAN SHEET FOR DETAILS.

RIPRAP SHALL NOT BE PLACED HIGHER THAN EL. 594.00, BLEND INTO THE NATURAL STREAMBED.

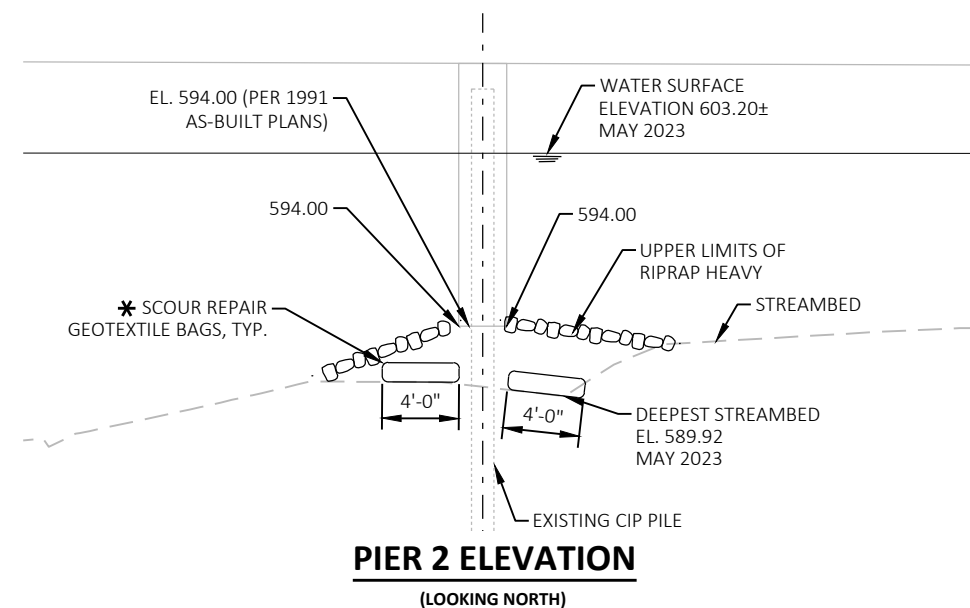
STREAMBED ELEVATION MAY VARY AT TIME OF PLACEMENT. FINAL QUANTITY AND EXTENTS OF GEOTEXTILE BAG PLACEMENT SHALL BE DETERMINED BY THE ENGINEER BASED ON THE RESULTS OF THE INITIAL RIVER BOTTOM SCAN.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-4-57			
DRAWN BY		PLANS CK'D	AJC
AMR			
PLAN AT PIER 1			SHEET 2 OF 3

SCALE = 1/4"=1'-0"



PLAN AT PIER 2
(PLACEMENT TO FOLLOW CONTOURS)



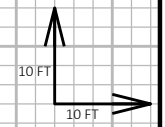
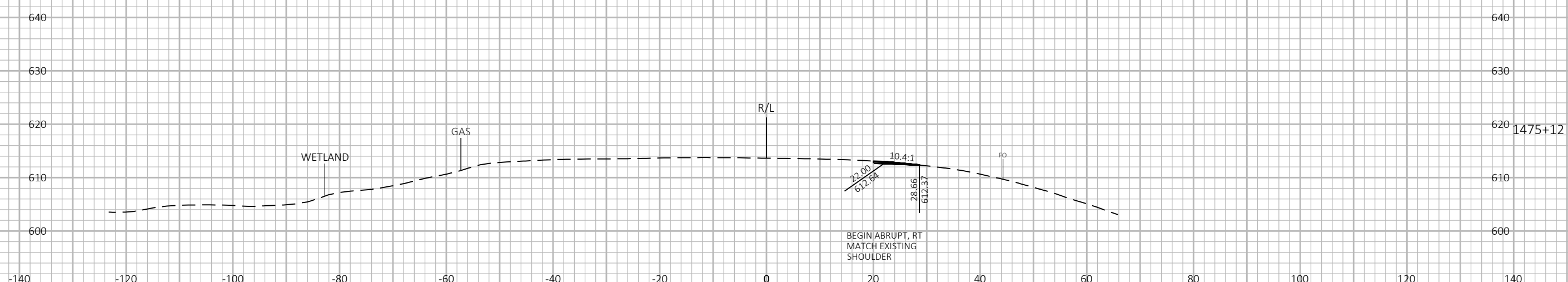
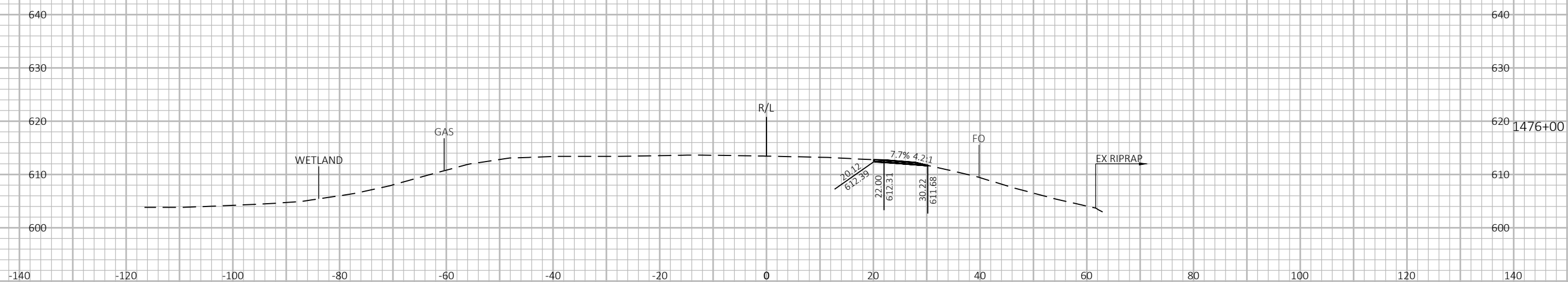
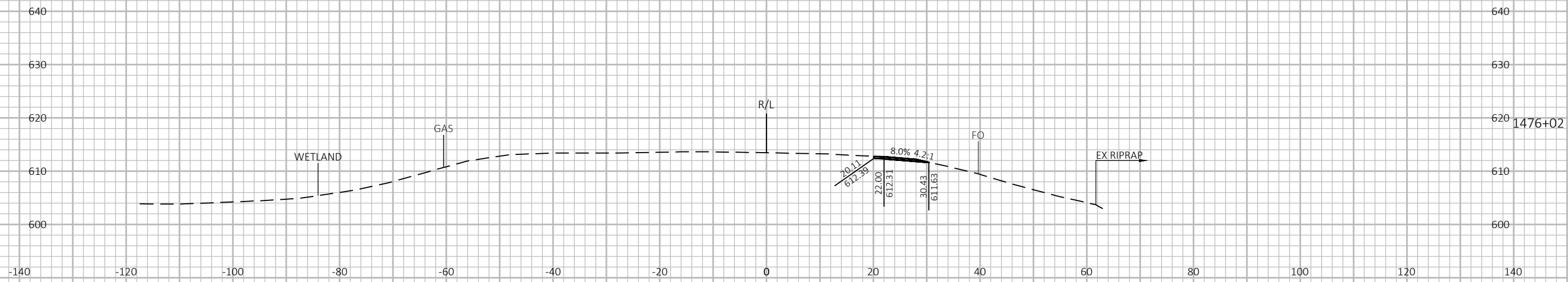
PIER 2 ELEVATION
(LOOKING NORTH)

NOTES:

- GEOTEXTILE BAGS TO BE 4' WIDE X 4' LONG X 2' THICK, FILLED 1'-0" FULL. TO BE HAND SEWN ON SITE.
- * SEE PLACEMENT DETAIL ON GENERAL PLAN SHEET FOR DETAILS.
- RIPRAP SHALL NOT BE PLACED HIGHER THAN EL. 594.00, BLEND INTO THE NATURAL STREAMBED.
- STREAMBED ELEVATION MAY VARY AT TIME OF PLACEMENT. FINAL QUANTITY AND EXTENTS OF GEOTEXTILE BAG PLACEMENT SHALL BE DETERMINED BY THE ENGINEER BASED ON THE RESULTS OF THE INITIAL RIVER BOTTOM SCAN.

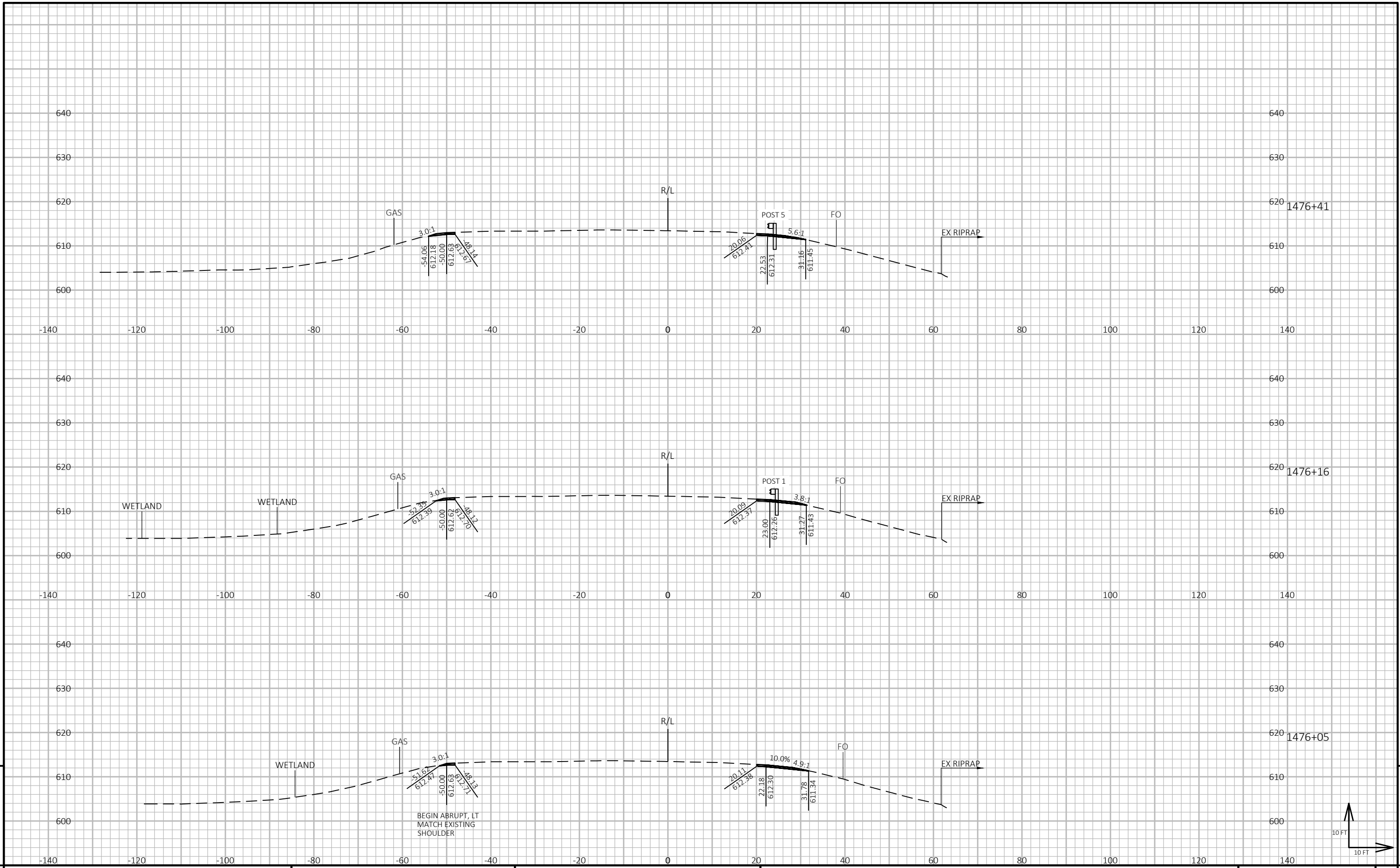
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-4-57			
DRAWN BY		PLANS CK'D	
AMR		AIC	
PLAN AT PIER 2			SHEET 3 OF 3

SCALE = 1/4"=1'-0"



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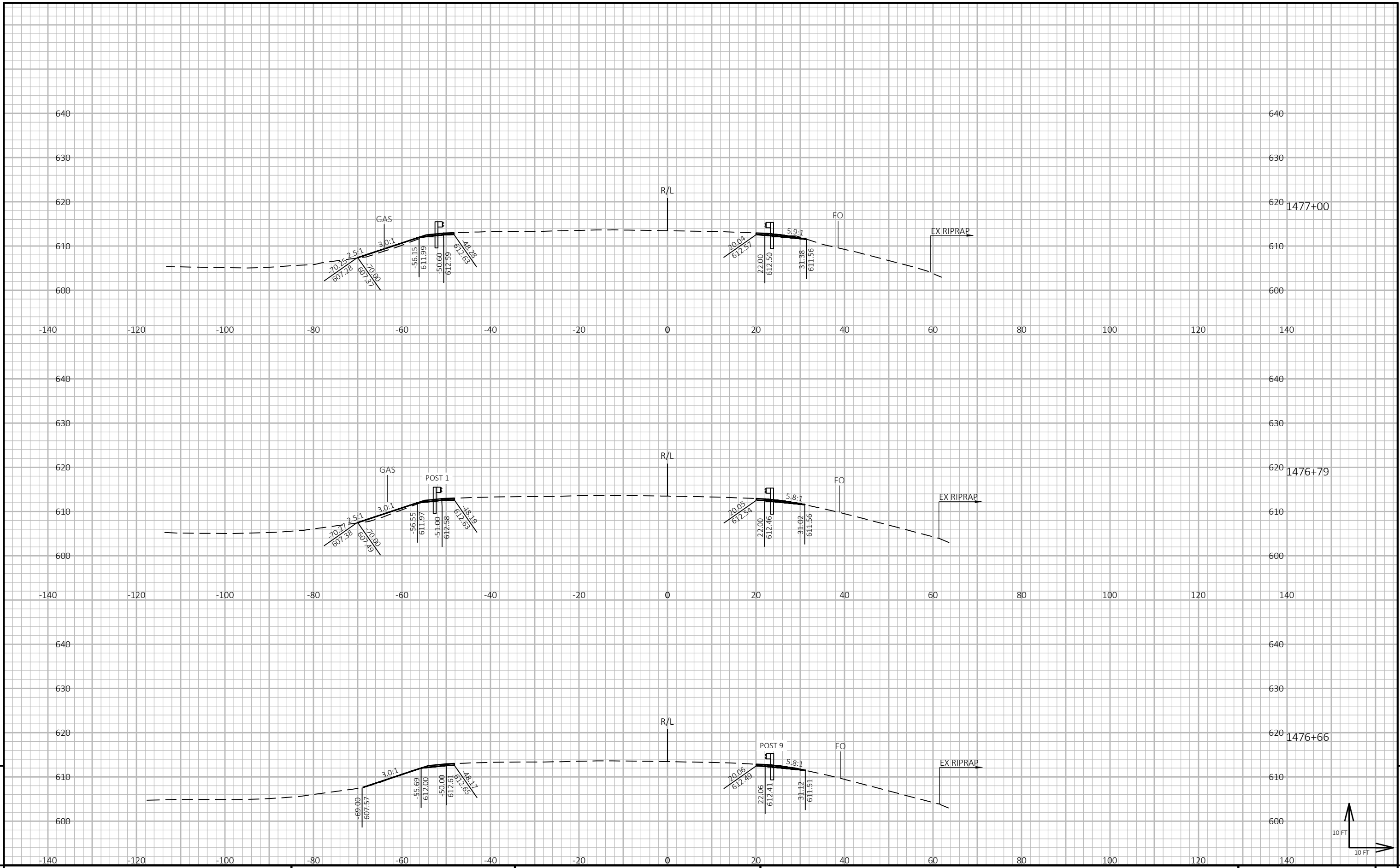
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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0057 GUARDRAIL SHEET E

FILE NAME : P:\55XX\5552.DP.22.USH2.BAY\CADDS\11800173\SHEETS\090201-XS.DWG PLOT DATE : 8/31/2023 3:53 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADDS SHEET 49

LAYOUT NAME - 2



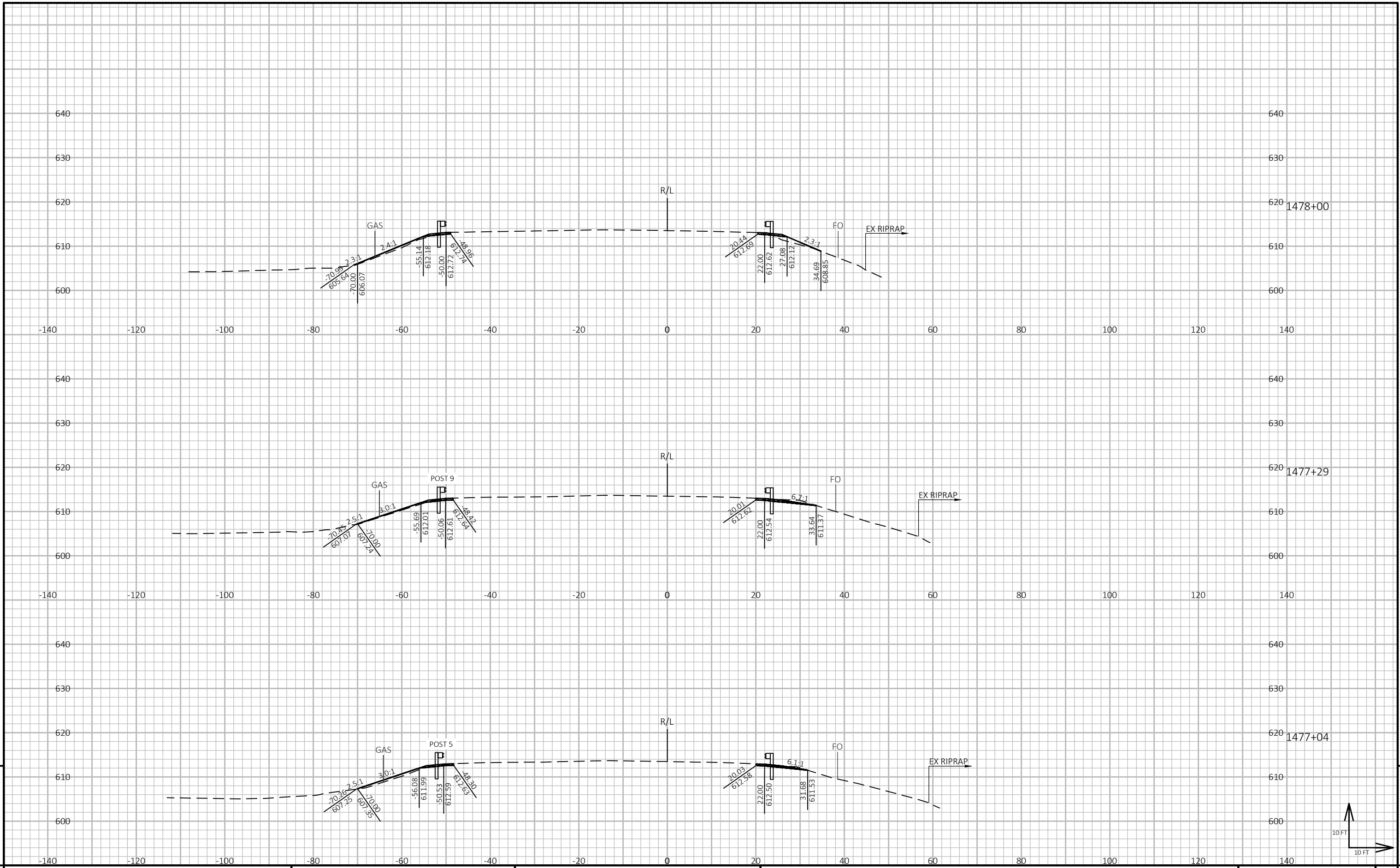
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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0057 GUARDRAIL SHEET E

FILE NAME : P:\55XX\5552.DP.22.USH2.BAY\CADDS\11800173\SHEETS\090201-XS.DWG PLOT DATE : 8/31/2023 3:53 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADDS SHEET 49

LAYOUT NAME - 3



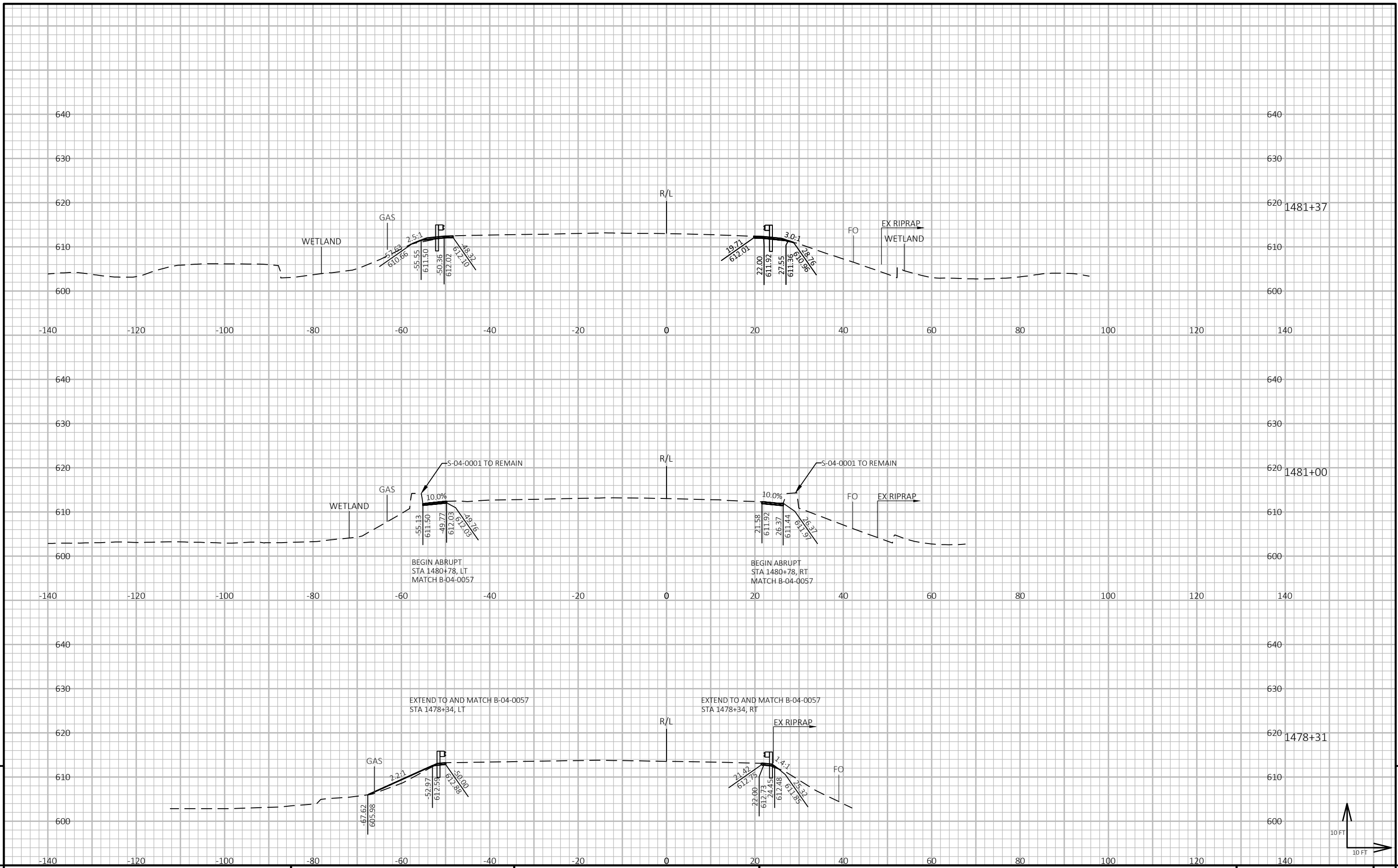
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9

PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0057 GUARDRAIL SHEET E

FILE NAME : P:\55XX\5552.DP.22.USH2.BAY\CADDS\11800173\SHEETS\090201-XS.DWG PLOT DATE : 8/31/2023 3:53 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADDS SHEET 49

LAYOUT NAME - 4



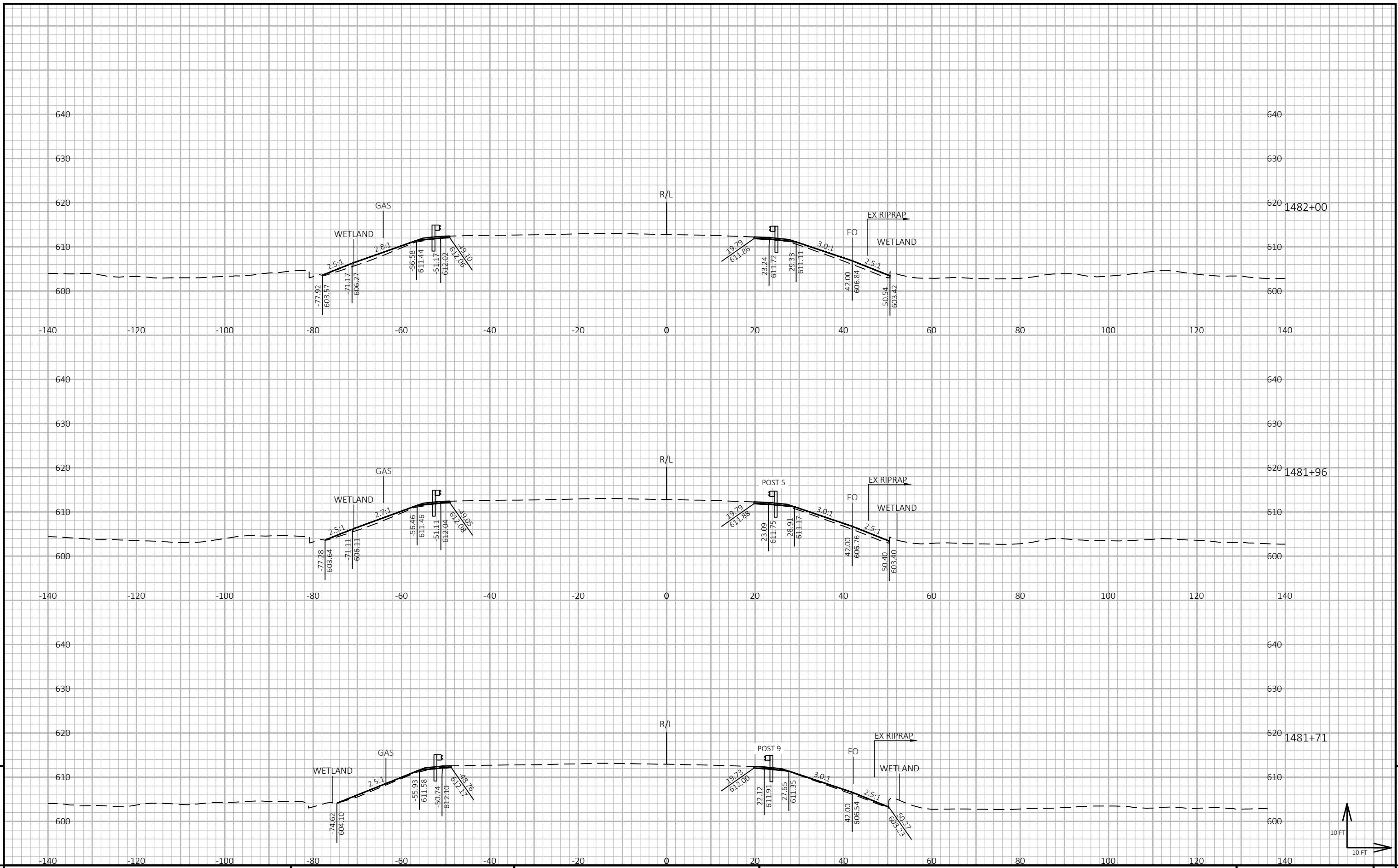
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9

PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0057 GUARDRAIL SHEET E

FILE NAME : P:\55XX\5552.DP.22.USH2.BAY\CADDS\11800173\SHEETS\090201-XS.DWG PLOT DATE : 8/31/2023 3:53 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADDS SHEET 49

LAYOUT NAME - 5



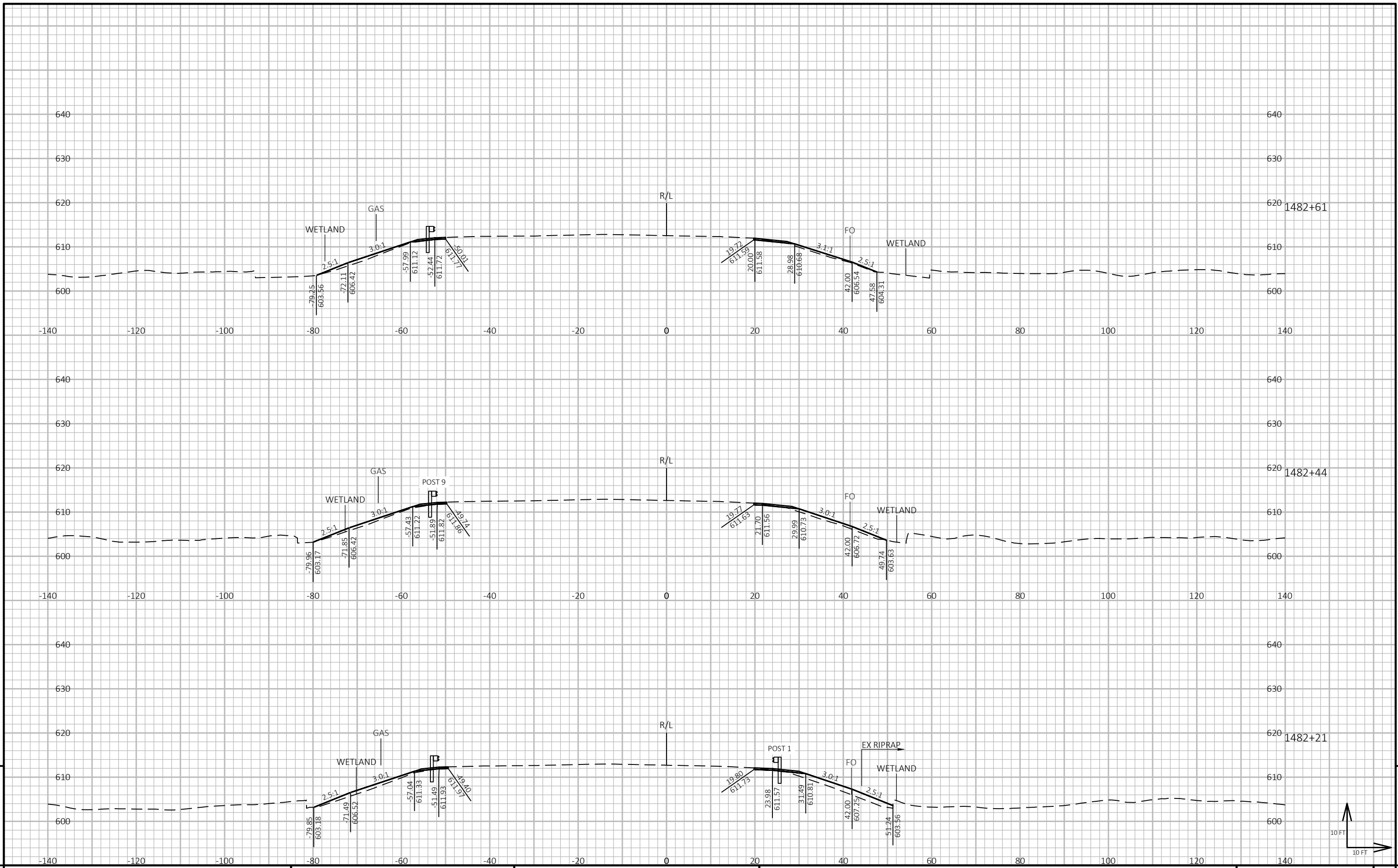
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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0057 GUARDRAIL SHEET E

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LAYOUT NAME - 6



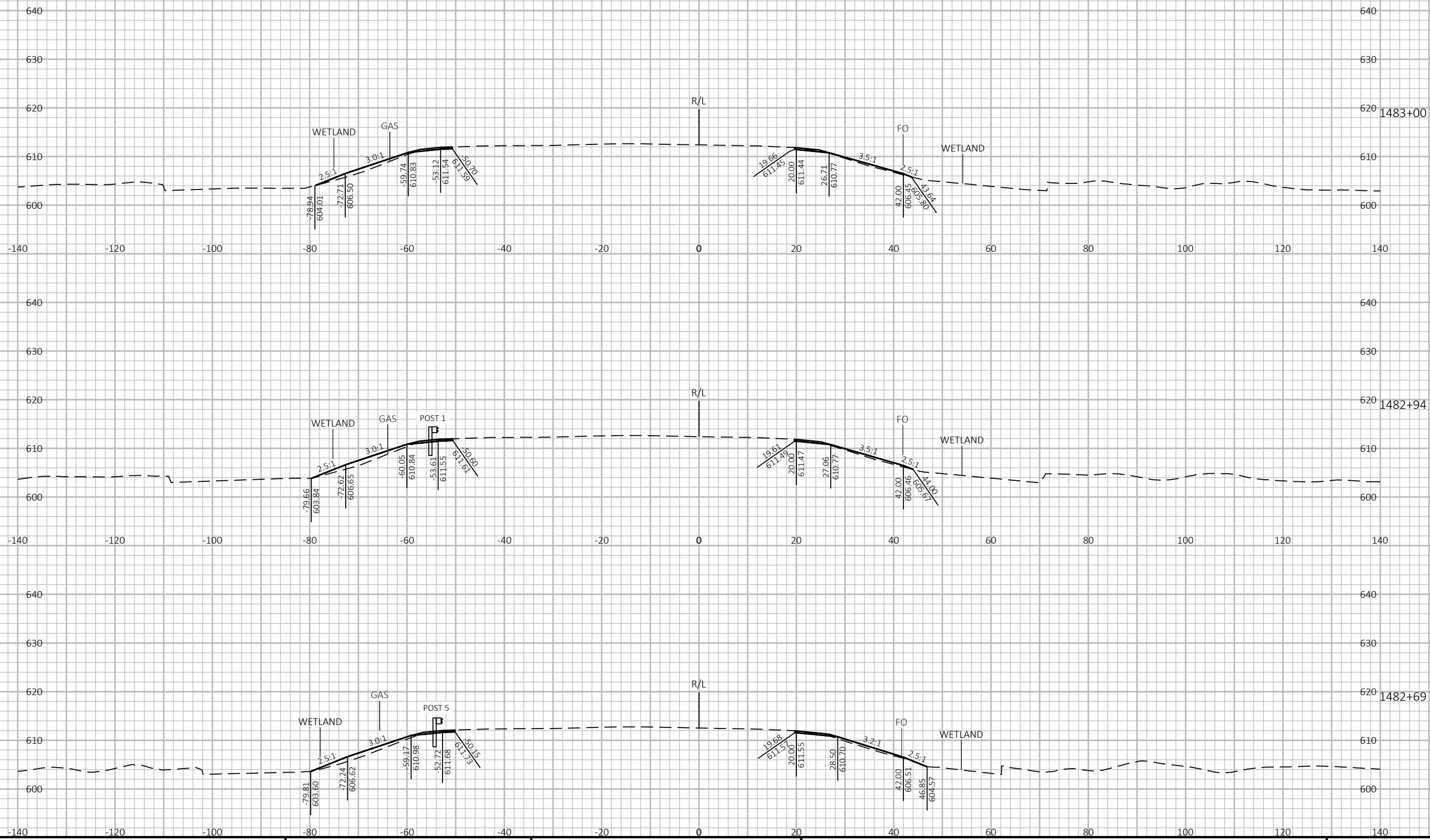
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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0057 GUARDRAIL SHEET E

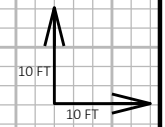
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LAYOUT NAME - 7



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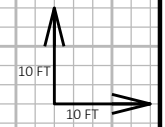
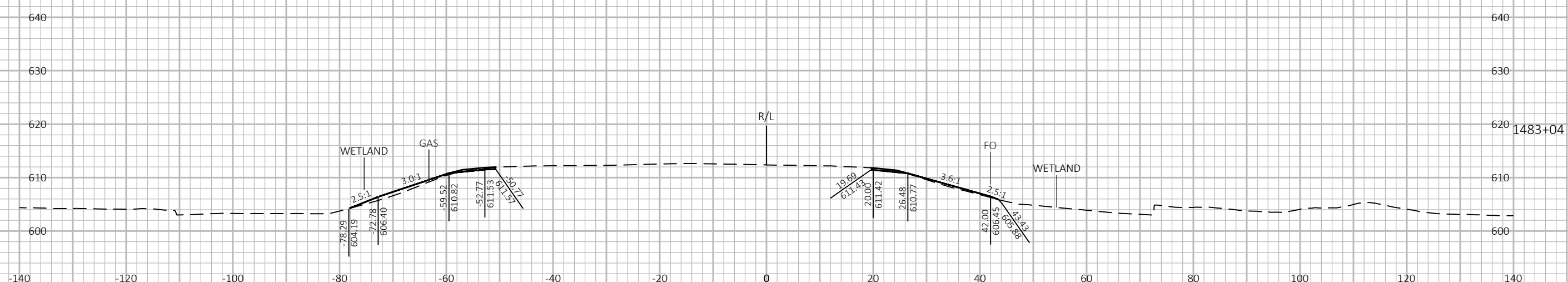
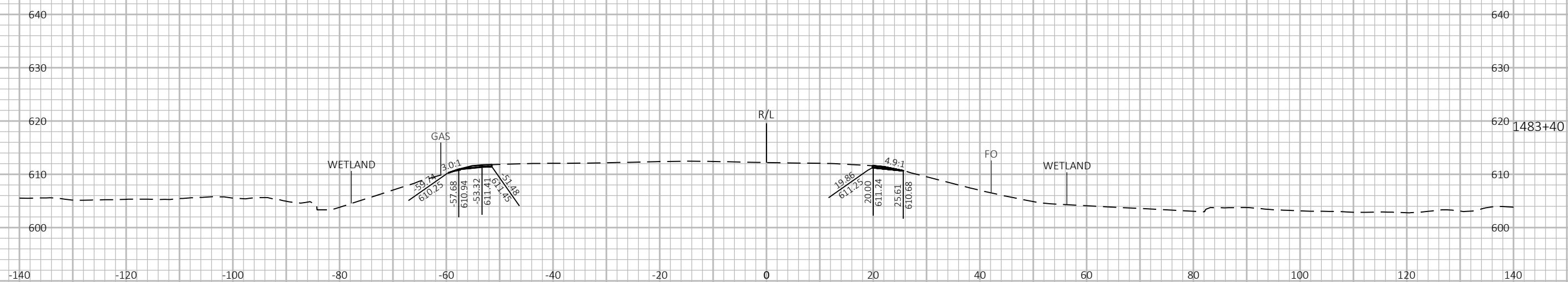
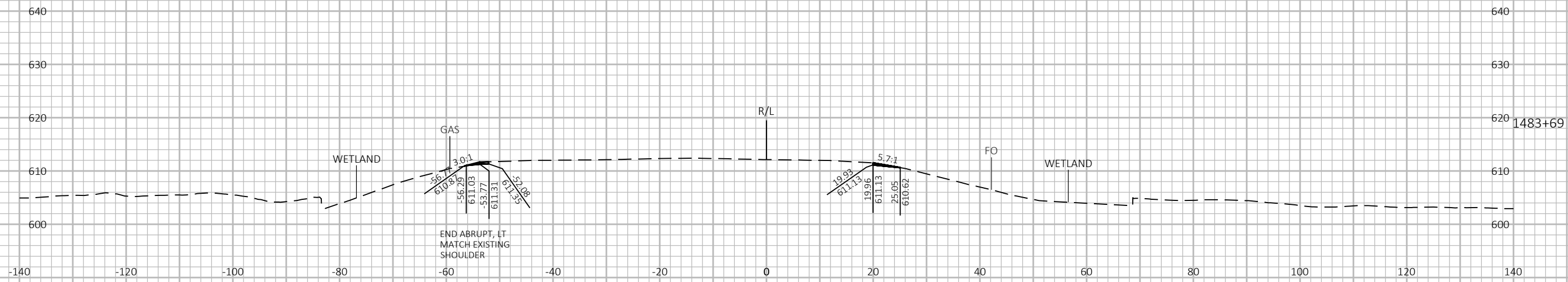
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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0057 GUARDRAIL SHEET E

FILE NAME : P:\55XX\5552.DP.22.USH2.BAY\CADDS\11800173\SHEETS\090201-XS.DWG PLOT DATE : 8/31/2023 3:53 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADDS SHEET 49

LAYOUT NAME - 8



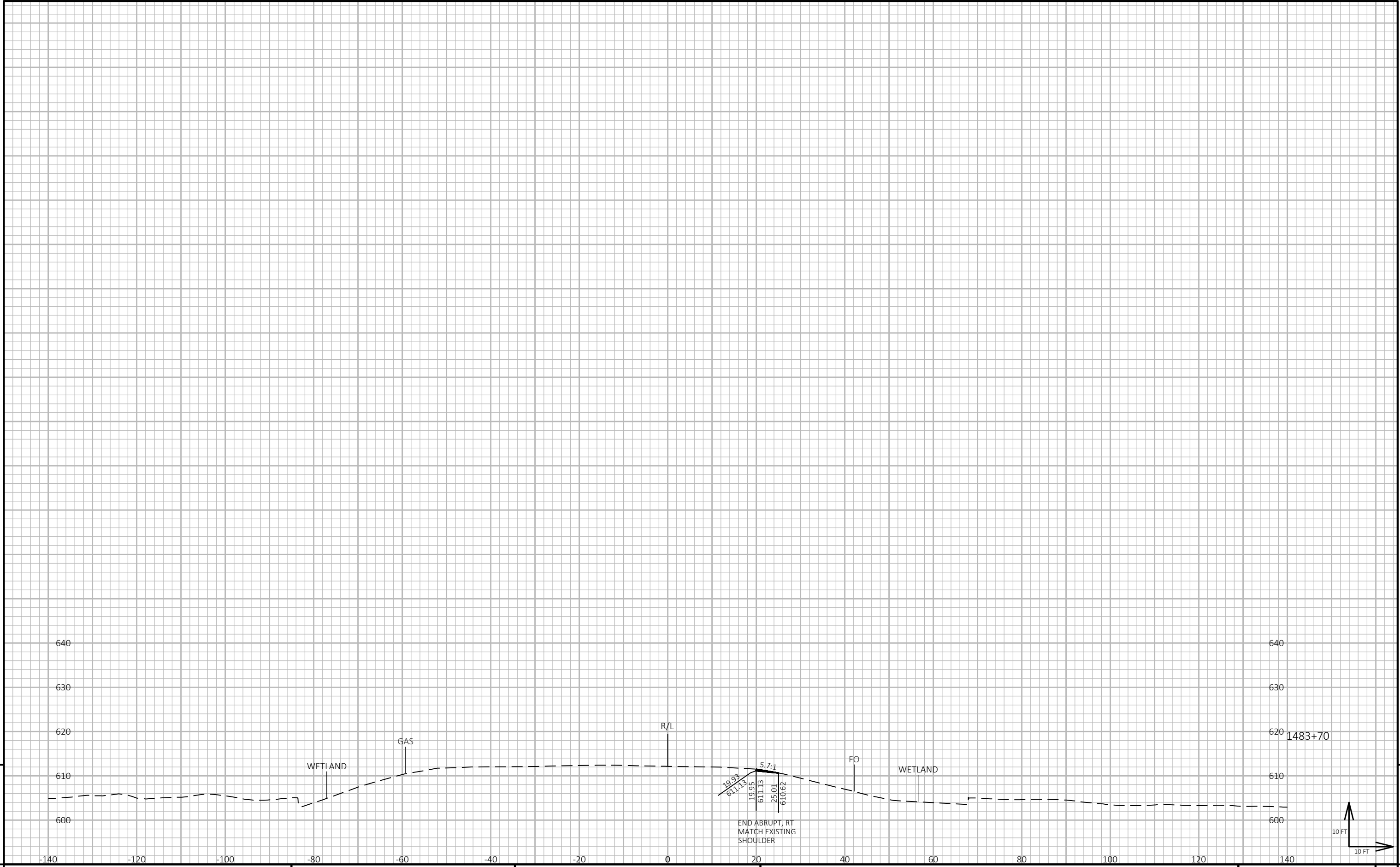
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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0057 GUARDRAIL SHEET E

FILE NAME : P:\55XX\5552.DP.22.USH2.BAY\CADDS\11800173\SHEETS\090201-XS.DWG PLOT DATE : 8/31/2023 3:53 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADDS SHEET 49

LAYOUT NAME - 9



9

9

PROJECT NO: 1180-01-73	HWY: USH 2	COUNTY: BAYFIELD	CROSS SECTIONS: B-04-0057 GUARDRAIL	SHEET	E
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FILE NAME : P:\55XX\5552.DP.22.USH2.BAY\CADD\11800173\SHEETS\090201-XS.DWG
LAYOUT NAME - 9 (2)

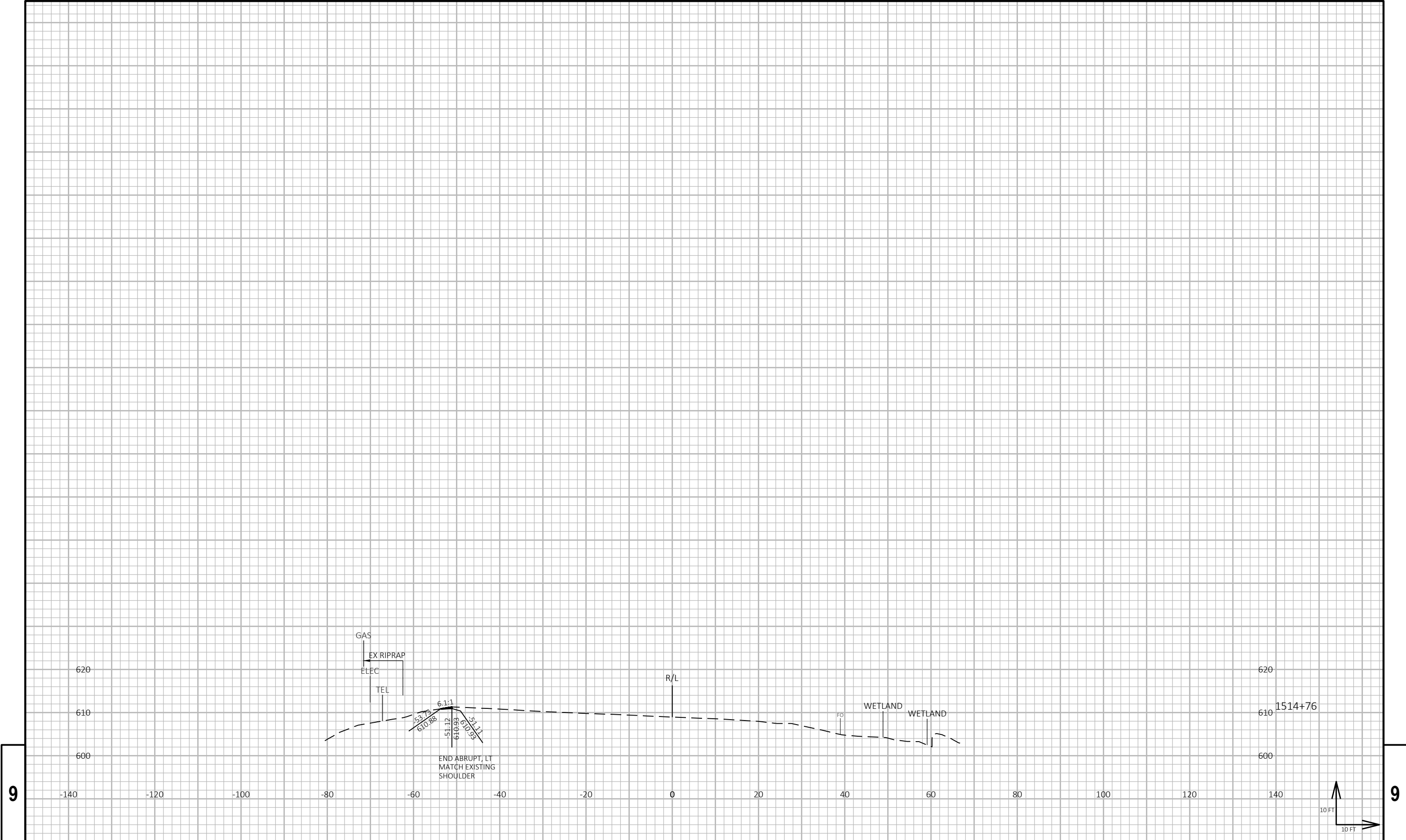
PLOT DATE : 8/31/2023 3:53 PM

PLOT BY : LINDSEY CHANNEL

PLOT NAME :

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

WISDOT/CADD SHEET 49



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PROJECT NO: 1180-01-73

HWY: USH 2

COUNTY: BAYFIELD

CROSS SECTIONS: B-04-0058 GUARDRAIL

SHEET

E

FILE NAME : DRAWING4.DWG
LAYOUT NAME - 10

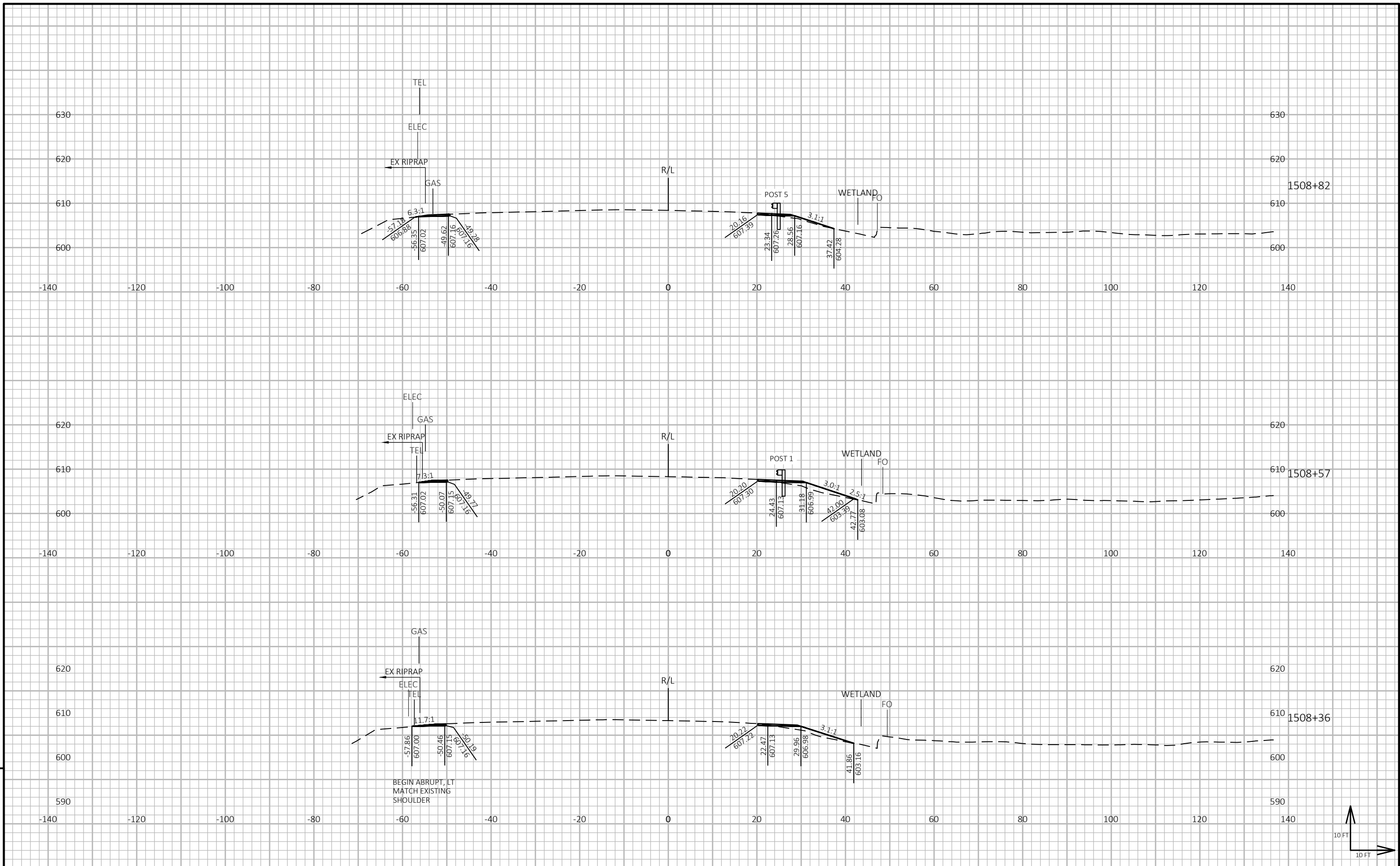
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PLOT BY : LINDSEY CHANNEL

PLOT NAME :

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WISDOT/CADD SHEET 49



PROJECT NO: 1180-01-73

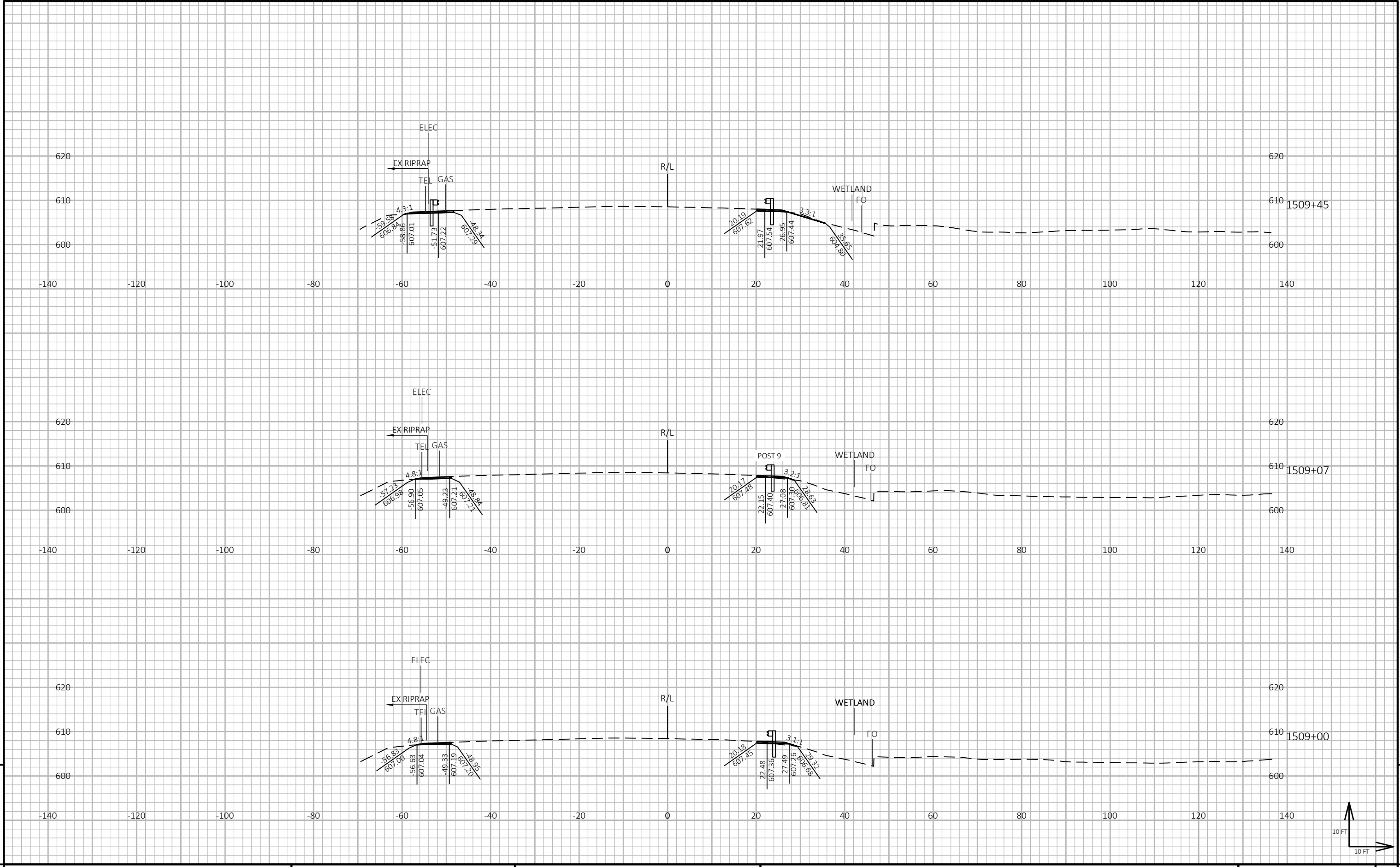
HWY: USH 2

COUNTY: BAYFIELD

CROSS SECTIONS: B-04-0058 GUARDRAIL

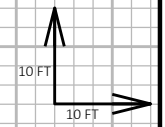
SHEET

E



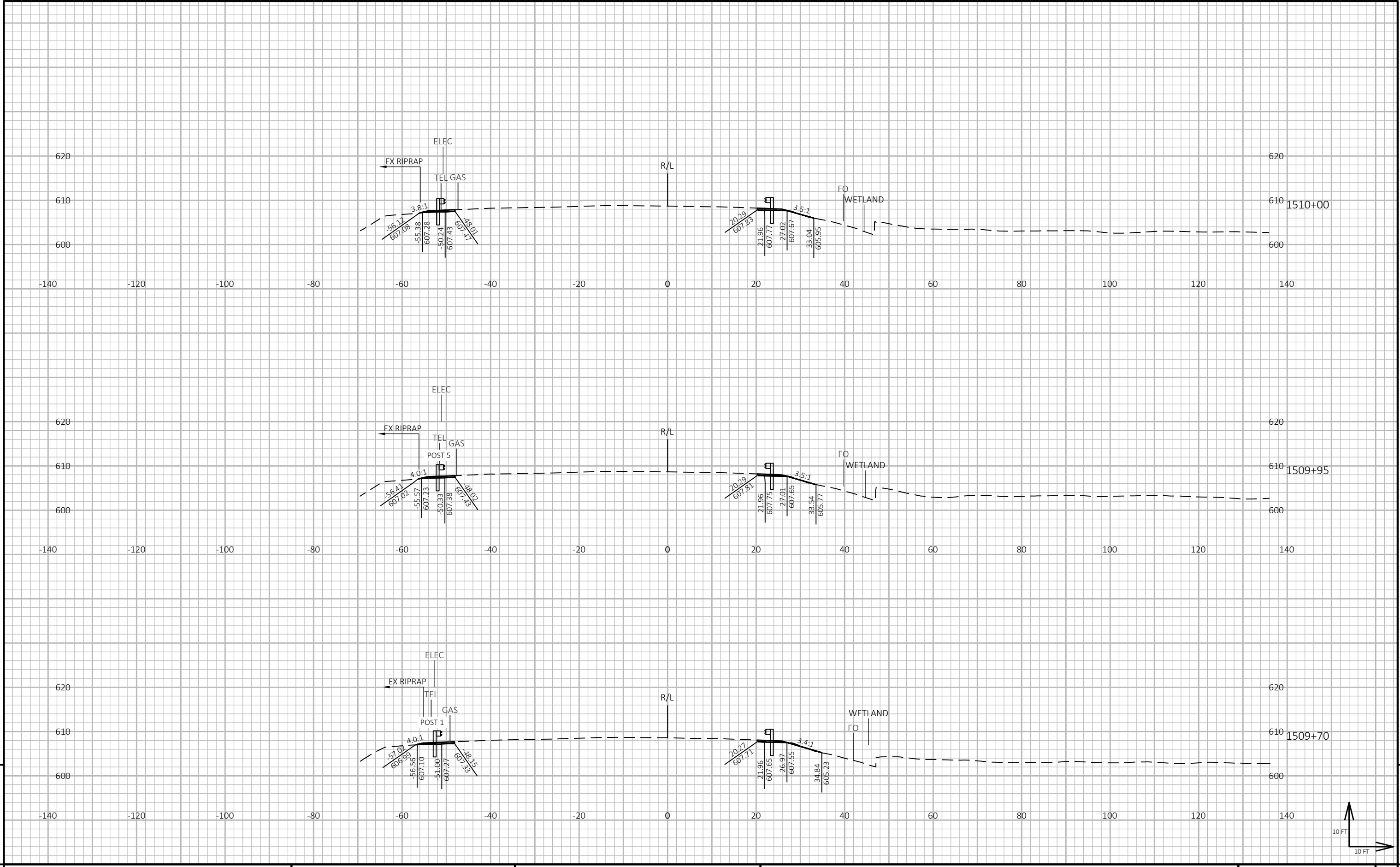
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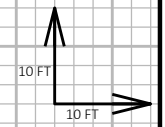
PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0058 GUARDRAIL SHEET E

FILE NAME : DRAWING4.DWG LAYOUT NAME - 3 PLOT DATE : 8/31/2023 3:54 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



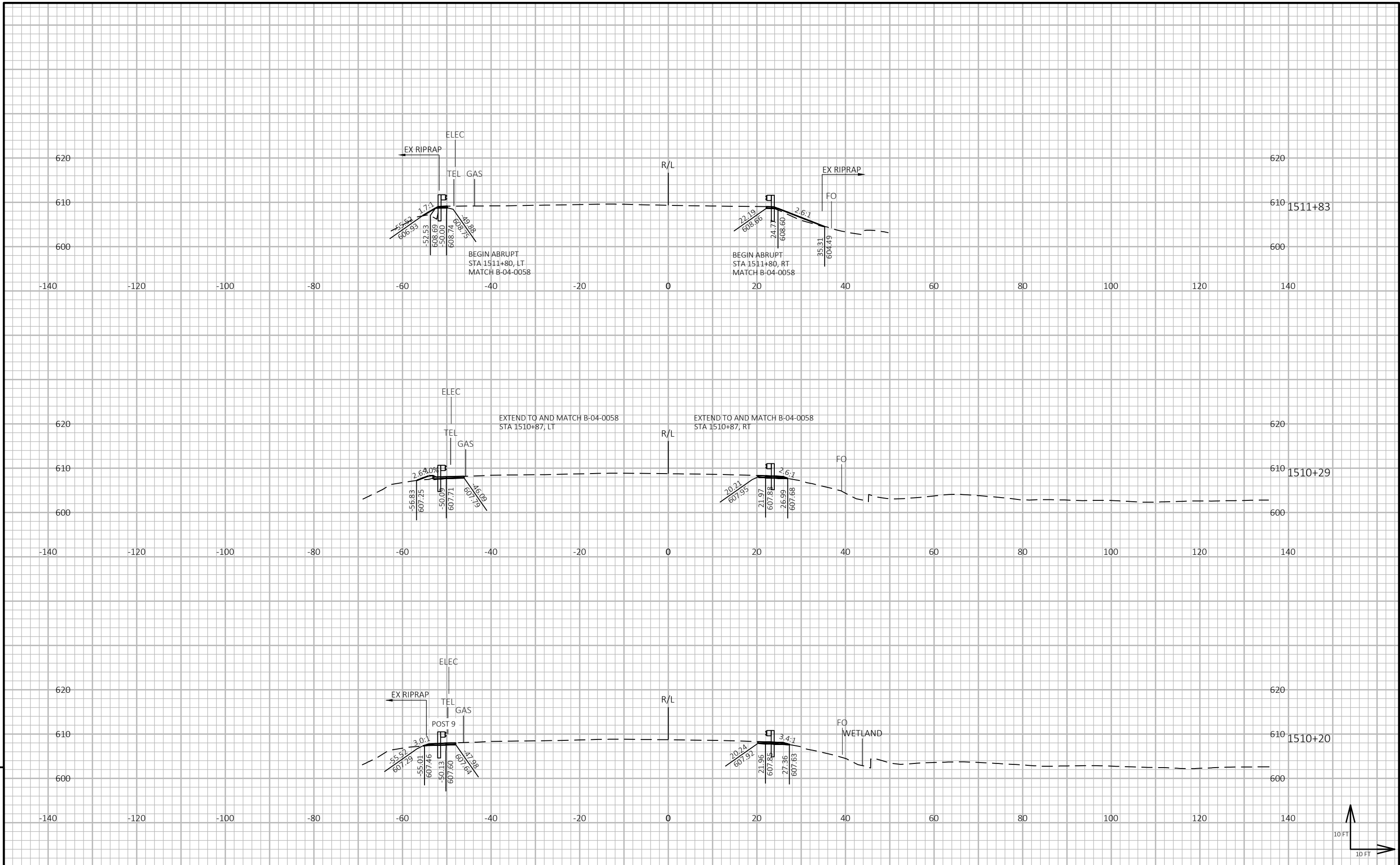
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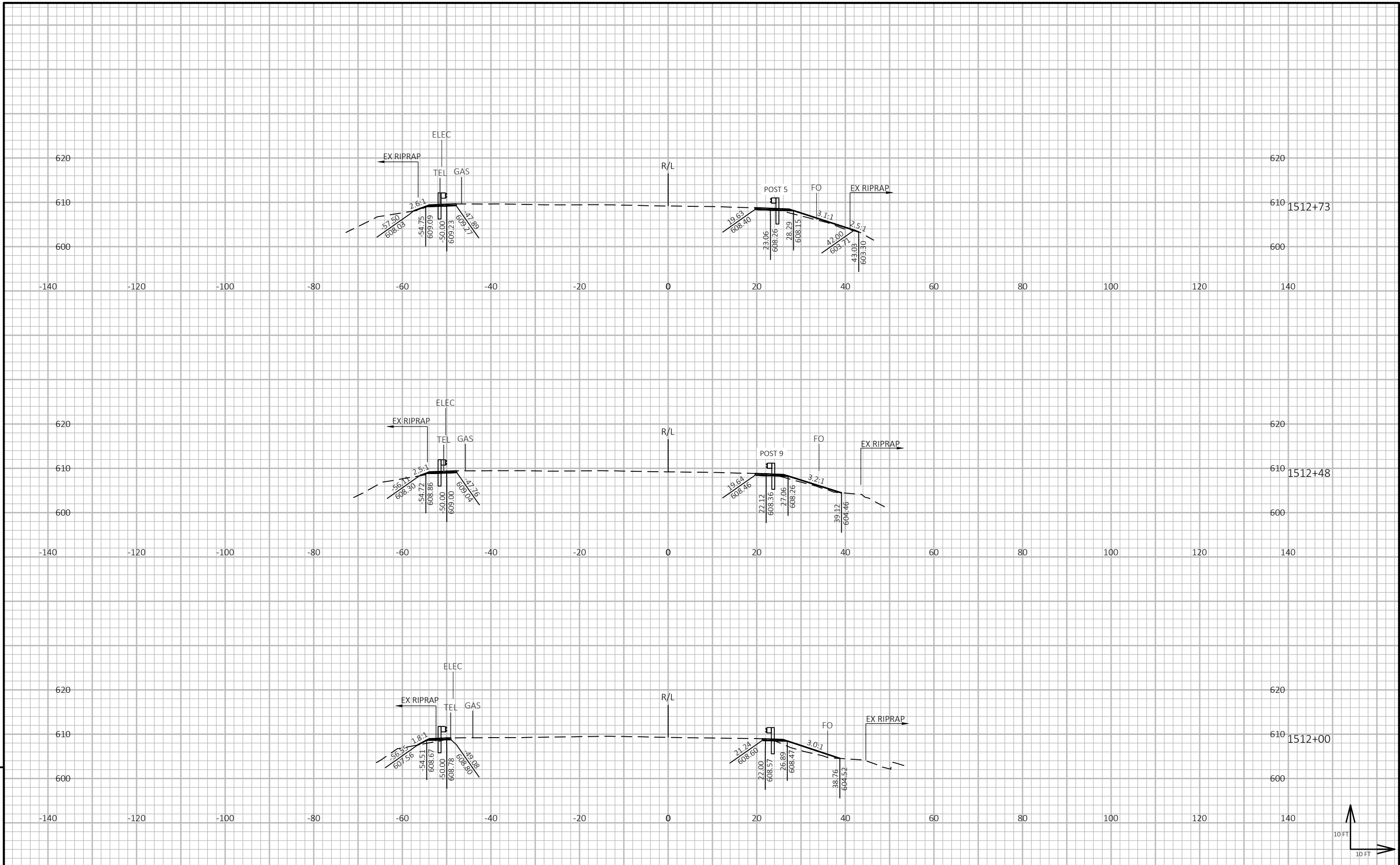
PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0058 GUARDRAIL SHEET E

FILE NAME : DRAWING4.DWG LAYOUT NAME - 4 PLOT DATE : 8/31/2023 3:54 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



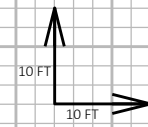
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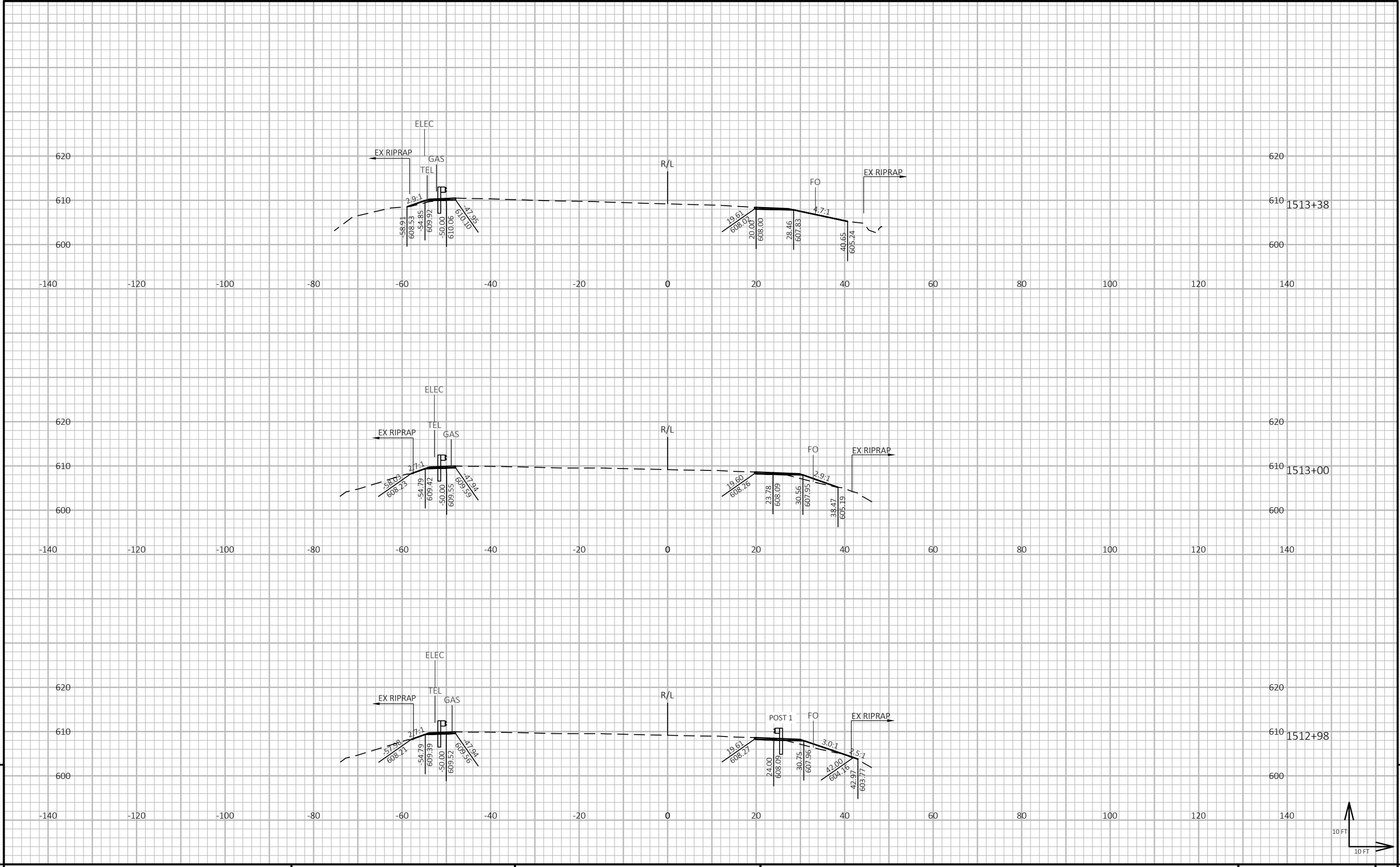
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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0058 GUARDRAIL SHEET E

FILE NAME : DRAWING4.DWG LAYOUT NAME : - 6 PLOT DATE : 8/31/2023 3:54 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

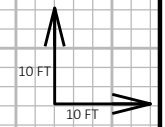
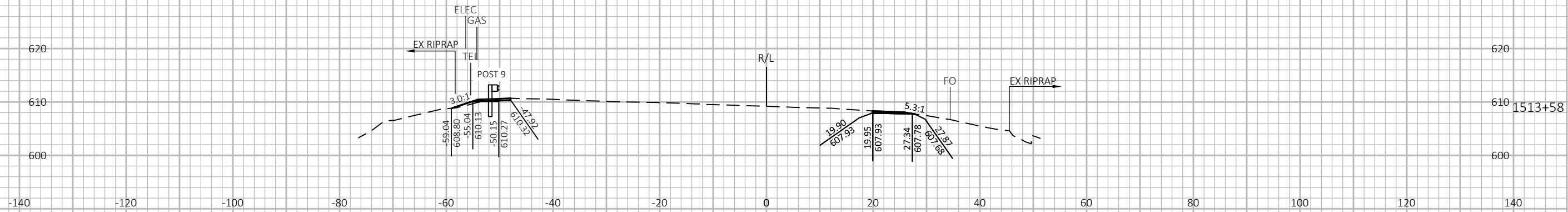
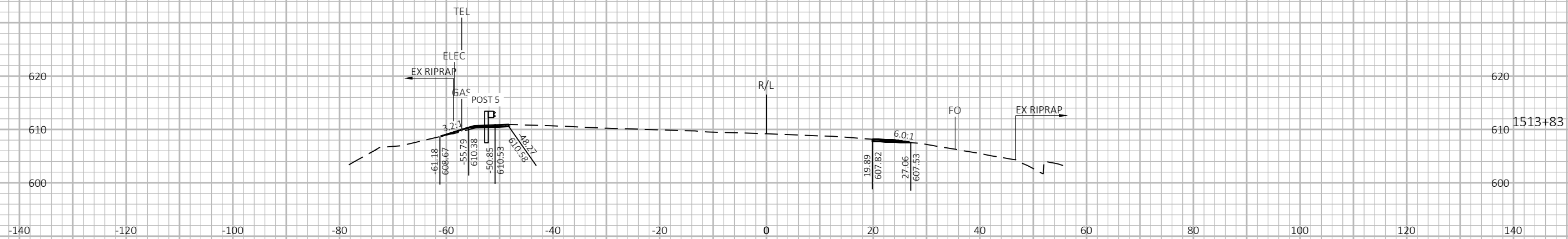
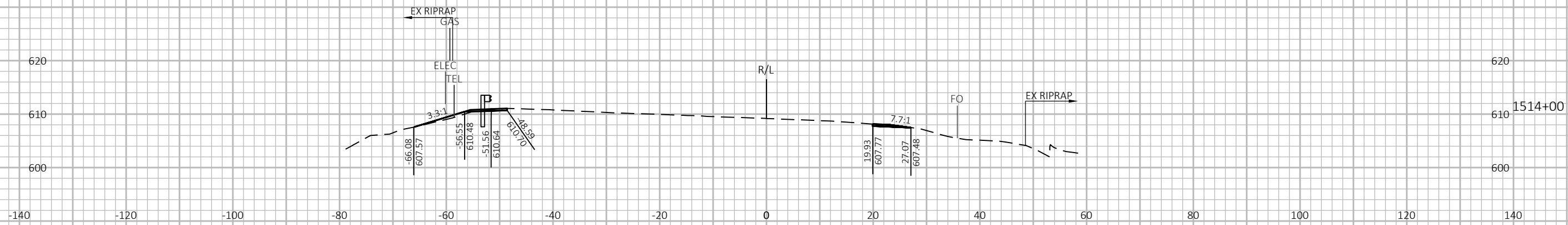


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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0058 GUARDRAIL SHEET E

FILE NAME : DRAWING4.DWG LAYOUT NAME - 7 PLOT DATE : 8/31/2023 3:54 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

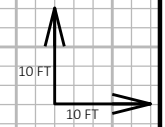
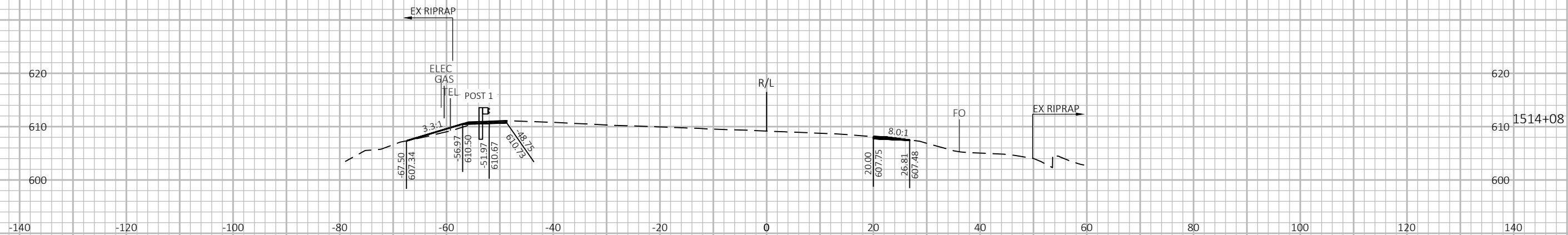
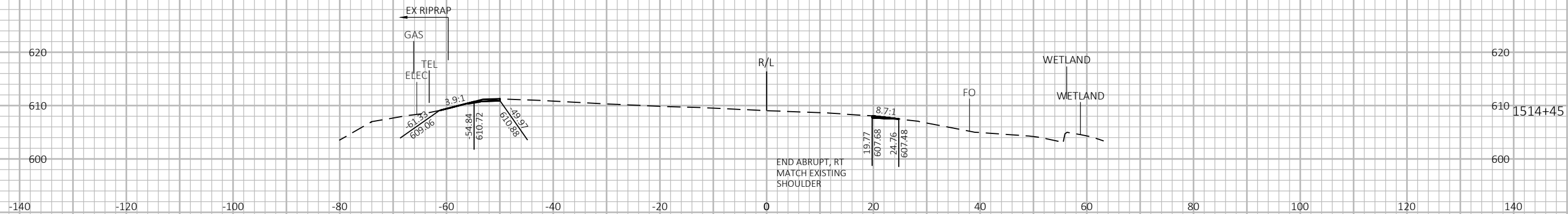


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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0058 GUARDRAIL SHEET E

FILE NAME : DRAWING4.DWG LAYOUT NAME - 8 PLOT DATE : 8/31/2023 3:54 PM PLOT BY : LINDSEY CHANNEL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



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PROJECT NO: 1180-01-73 HWY: USH 2 COUNTY: BAYFIELD CROSS SECTIONS: B-04-0058 GUARDRAIL SHEET E

FILE NAME : DRAWING4.DWG LAYOUT NAME - 9 PLOT DATE : 8/31/2023 3:54 PM PLOT BY : LINDSEY CHANNEL 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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