

GRE  
WITH: N/A

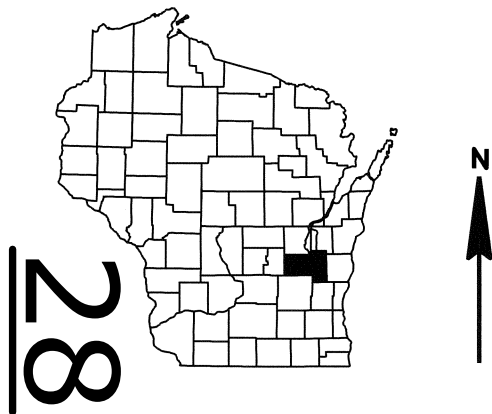
PROJECT ID: 4809-11-71

COUNTY: FOND DU LAC

FEBRUARY 2022  
ORDER OF SHEETS

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

TOTAL SHEETS = 96



DESIGN DESIGNATION

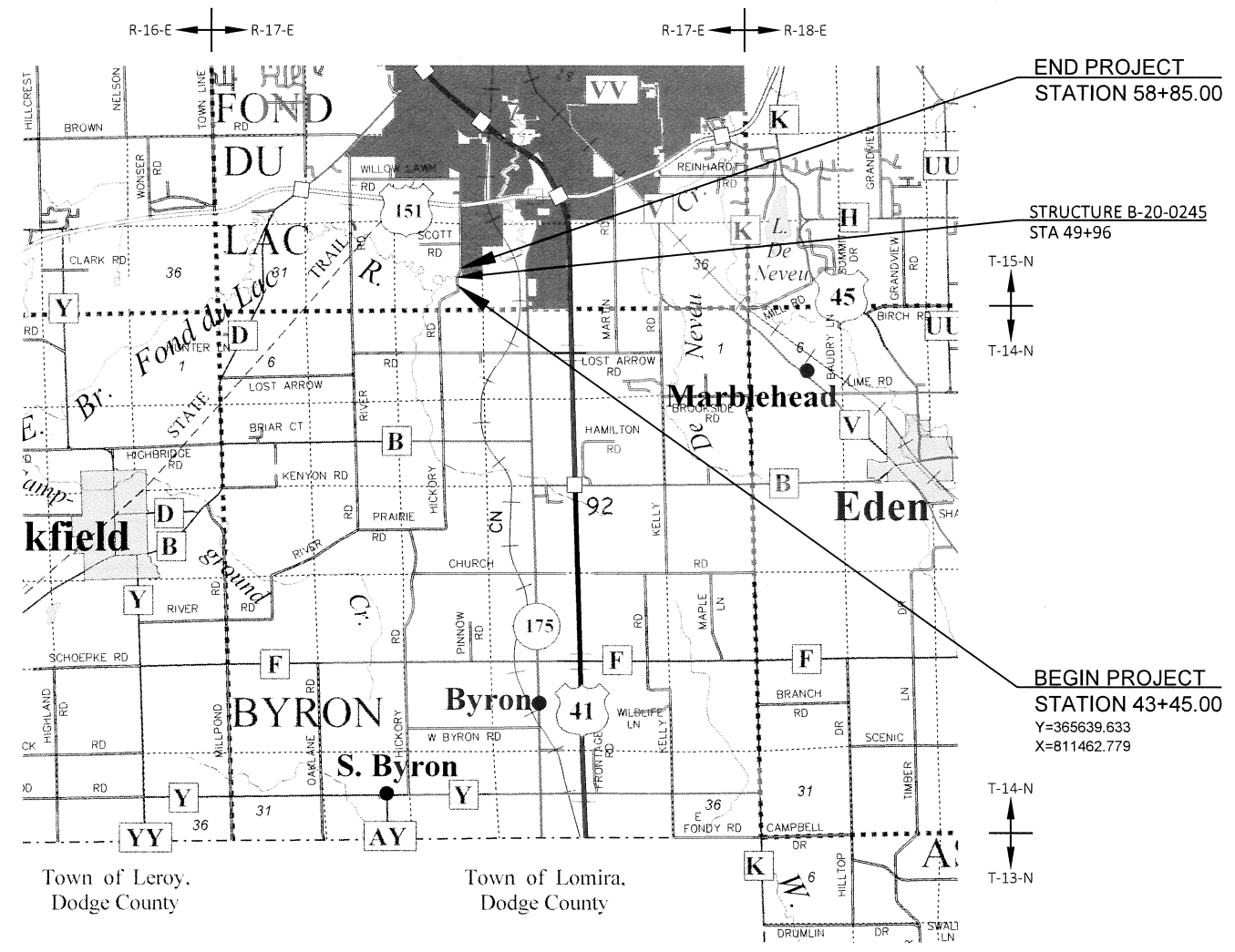
A.A.D.T.	2022	=	1500
A.A.D.T.	2042	=	1820
D.H.V.		=	207
D.D.		=	62/38
T.		=	6.0%
DESIGN SPEED		=	40 MPH
ESALS		=	200,000 HMA

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
PLAN OF PROPOSED IMPROVEMENT  
**T FOND DU LAC, HICKORY ROAD**  
EAST BR. FOND DU LAC RIVER BRIDGE  
LOCAL STREET  
FOND DU LAC COUNTY

STATE PROJECT NUMBER  
**4809-11-71**



LAYOUT  
SCALE 0 2 MI  
TOTAL NET LENGTH OF CENTERLINE = 0.292 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), FOND DU LAC COUNTY, NAD83 ( 2011 ), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 ( 2012 ). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4809-11-71		

ACCEPTED FOR  
TOWN OF FOND DU LAC  
Date 10/12/21 *Robert Giese*  
ROBERT GIESE  
TOWN CHAIRPERSON

ORIGINAL PLANS PREPARED BY  
**GREMMER & ASSOCIATES, INC.**  
CONSULTING ENGINEERS  
Stevens Point • Fond du Lac  
93 South Pioneer Road, Suite 300  
Fond du Lac, WI 54935  
(920) 924-5720



DATE 10/12/21 *Andrew L. Klemp*  
ANDREW L. KLEMP, PE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	GREMMER & ASSOCIATES, INC.
Designer	GREMMER & ASSOCIATES, INC.
Project Manager	JODI JAROSINSKI
Regional Examiner	NORTHEAST REGION
Regional Supervisor	BRIAN EDWARDS

APPROVED FOR THE DEPARTMENT  
DATE: 10/25/2021 *Jodi Jarosinski*

E

**GENERAL NOTES**

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

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

A VERTICAL SAW CUT SHALL BE MADE THROUGH EXISTING DRIVEWAYS, SIDEWALKS AND PAVEMENTS AT THE REMOVAL LIMITS, AND WHERE NEW ASPHALT ABUTS EXISTING PAVEMENT TO CREATE A SMOOTH CONTINUOUS VERTICAL FACE. SAWCUT SLURRY SHALL BE ACTIVELY MANAGED TO PREVENT RELEASE OF SLURRY INTO WATERWAY AND WETLANDS.

SAWCUT LOCATIONS SHOWN ON THE PLANS ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD.

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

NO FERTILIZER SHALL BE APPLIED WITHIN 20 FEET OF A BODY OF WATER OR WETLAND.

PROPOSED SECTIONS AS SHOWN ON THE CROSS SECTION SHEETS SHOW THE FINISHED SURFACE OF SALVAGED TOPSOIL WHERE REQUIRED.

EROSION CONTROL ITEMS SHOWN ARE APPROXIMATE, THE EXACT LOCATION SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD. EROSION CONTROL ITEMS TO BE INSTALLED PRIOR TO UPSLOPE WORK. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THAT THE MEASURE IS NO LONGER NECESSARY. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING EROSION CONTROL MEASURE AS DIRECTED BY THE ENGINEER.

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

TACK COAT APPLICATION RATE BASED ON 0.050 GAL/SY.

**ABBREVIATIONS**

A.A.D.T.	ANNUAL AVERAGE DAILY TRAFFIC
A.D.T.	AVERAGE DAILY TRAFFIC
AE, AEW	APRON ENDWALL
AGG	AGGREGATE
ASPH	ASPHALT
BAD	BASE AGGREGATE DENSE
BM	BENCHMARK
CABC	CRUSHED AGGREGATE BASE COURSE
CC	CENTER OF CURVATURE
CE	COMMERCIAL ENTRANCE
C/L	CENTER LINE
CONC	CONCRETE
CMCP	CORRUGATED METAL CULVERT PIPE
CMP	CORRUGATED METAL PIPE
D	DEGREE OF CURVE
Δ	DELTA
D.H.V.	DESIGN HOURLY VOLUME
E	EXTERNAL DISTANCE FROM MIDPOINT OF CIRCULAR CURVE FROM ANGLE INTERSECTION
EL, ELEV	ELEVATION
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
FE	FIELD ENTRANCE
F/L, FL	FLOW LINE
HT	HEIGHT
INTER	INTERSECTION
INV	INVERT
L	LENGTH OF CURVE
LHF	LEFT HAND FORWARD
MP	MARKER POST
NC	NORMAL CROWN
NOM	NOMINAL
NOR, NORM	NORMAL
PAVT	PAVEMENT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PE	PRIVATE ENTRANCE
PI	POINT OF INTERSECTION
P.L	PROPERTY LINE
PLE	PERMANENT LIMITED EASEMENT
PT	POINT OF TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RC	REVERSE CROWN
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RO	RUN OFF LENGTH
SALV	SALVAGED
SDD	STANDARD DETAIL DRAWING(S)
SE	SUPERELEVATION
SEG	SEGMENT
SHLD	SHOULDER
S/L	SURVEY LINE
T.	PERCENT TRUCKS
T	TANGENT LENGTH
TEMP	TEMPORARY
TER	TERRACE
TLE	TEMPORARY LIMITED EASEMENT
TYP	TYPICAL
V	VELOCITY OR DESIGN SPEED
VAR	VARIABLE
VC	VERTICAL CURVE
VCL	VERTICAL CURVE LENGTH
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPRC	VERTICAL POINT OF REVERSE CURVATURE
VPT	VERTICAL POINT OF TANGENCY

**ORDER OF SECTION 2 SHEETS**

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- EROSION CONTROL PLAN
- SIGNING PLAN

**UTILITIES**

**COMMUNICATIONS**

AT&T WISCONSIN  
70 EAST DIVISION STREET  
FOND DU LAC, WI 54935  
ATTN: CHUCK BARTELT  
PHONE: (920) 929-1013  
MOBILE: (920) 410-5104  
EMAIL: cb1461@att.com

**COMMUNICATIONS**

MICHELS  
817 MAIN STREET  
BROWNSVILLE, WI 53006  
ATTN: TOM BIRSCHBACH  
PHONE: (414) 254-3344  
EMAIL: TBirschb@michels.us

**ELECTRIC**

ALLIANT ENERGY  
506 FENTON STREET  
RIPON, WI 54971  
ATTN: CODY JACKSON  
PHONE: (920) 322-6773  
MOBILE: (920) 980-2271  
EMAIL: codyjackson@alliantenergy.com



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

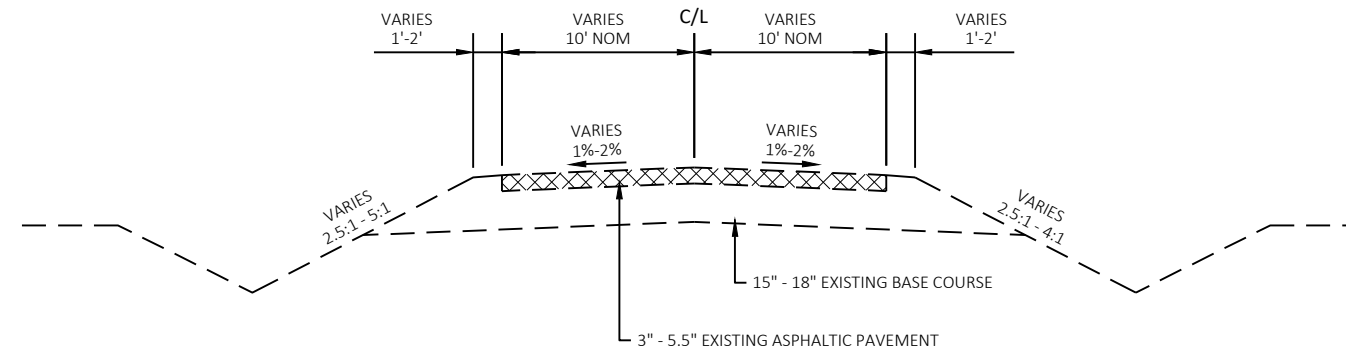
**DNR AREA LIAISON**

WISCONSIN DEPT. OF NATURAL RESOURCES  
NORTHEAST REGION HQ  
2984 SHAWANO AVENUE  
GREEN BAY, WI 54313-6727  
ATTN: JEREMIAH SCHIEFELBEIN  
PHONE: (920)-360-3784  
EMAIL: Jeremiah.Schiefelbein@wisconsin.gov

**RUNOFF COEFFICIENT TABLE**

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

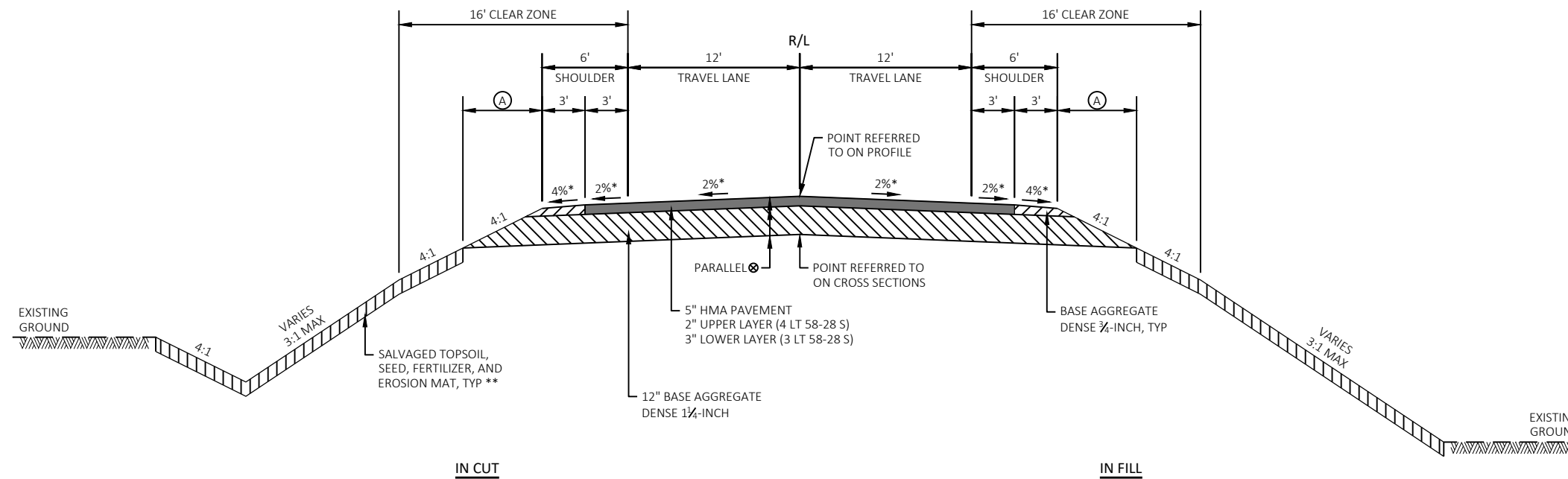
TOTAL PROJECT AREA = 3.935 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.997 ACRES



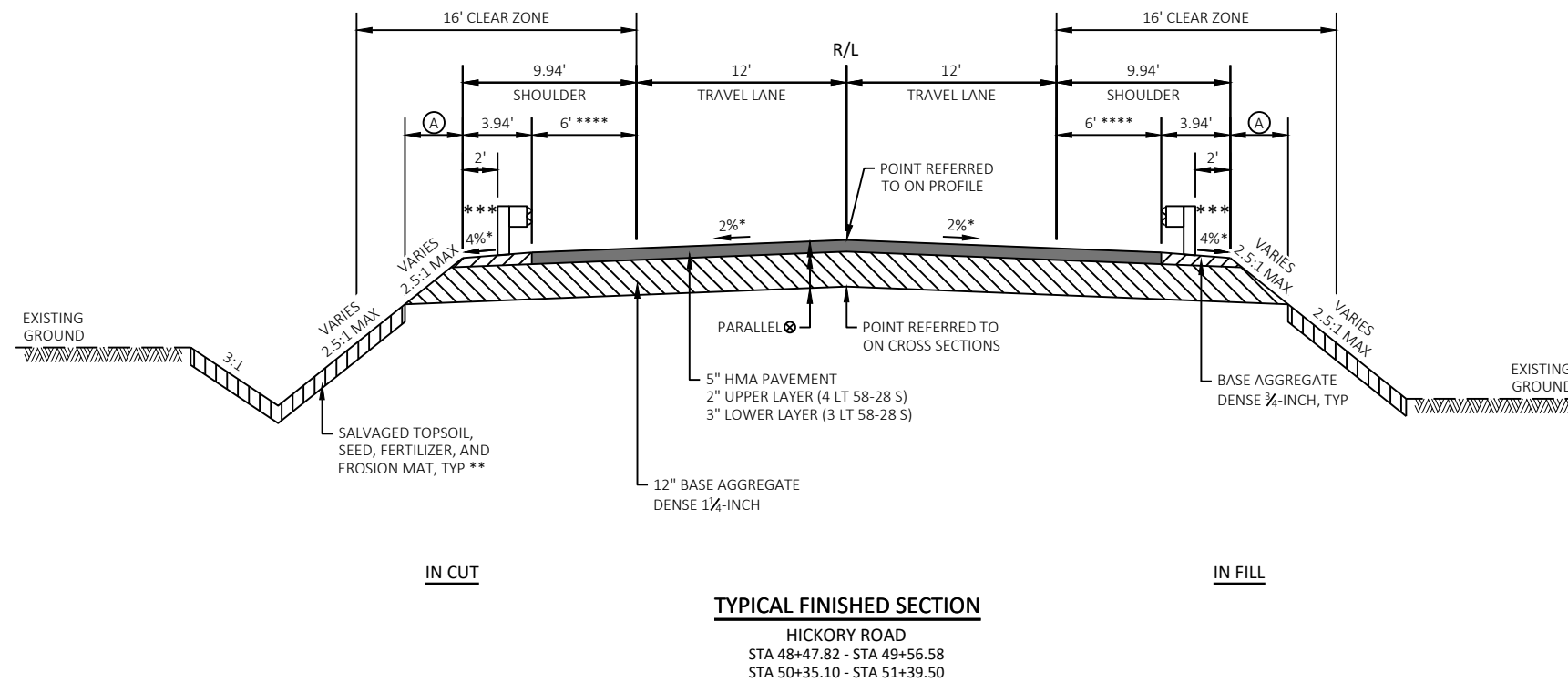
**TYPICAL EXISTING SECTION**  
 HICKORY ROAD  
 STA 43+45.00 - STA 58+85.00

**NOTES:**

- Ⓐ SEEDING & FERTILIZER
- \* CROSS SLOPE VARIES DUE TO SUPERELEVATION (SEE CROSS SECTIONS AND SUPERELEVATION TABLE FOR FURTHER DETAILS).
- \*\* SEE MISCELLANEOUS QUANTITIES AND EROSION CONTROL PLANS FOR LOCATIONS AND TYPES.
- ⊗ SUBGRADE SLOPES ARE PARALLEL TO PAVEMENT WITHIN TRAVEL LANE.



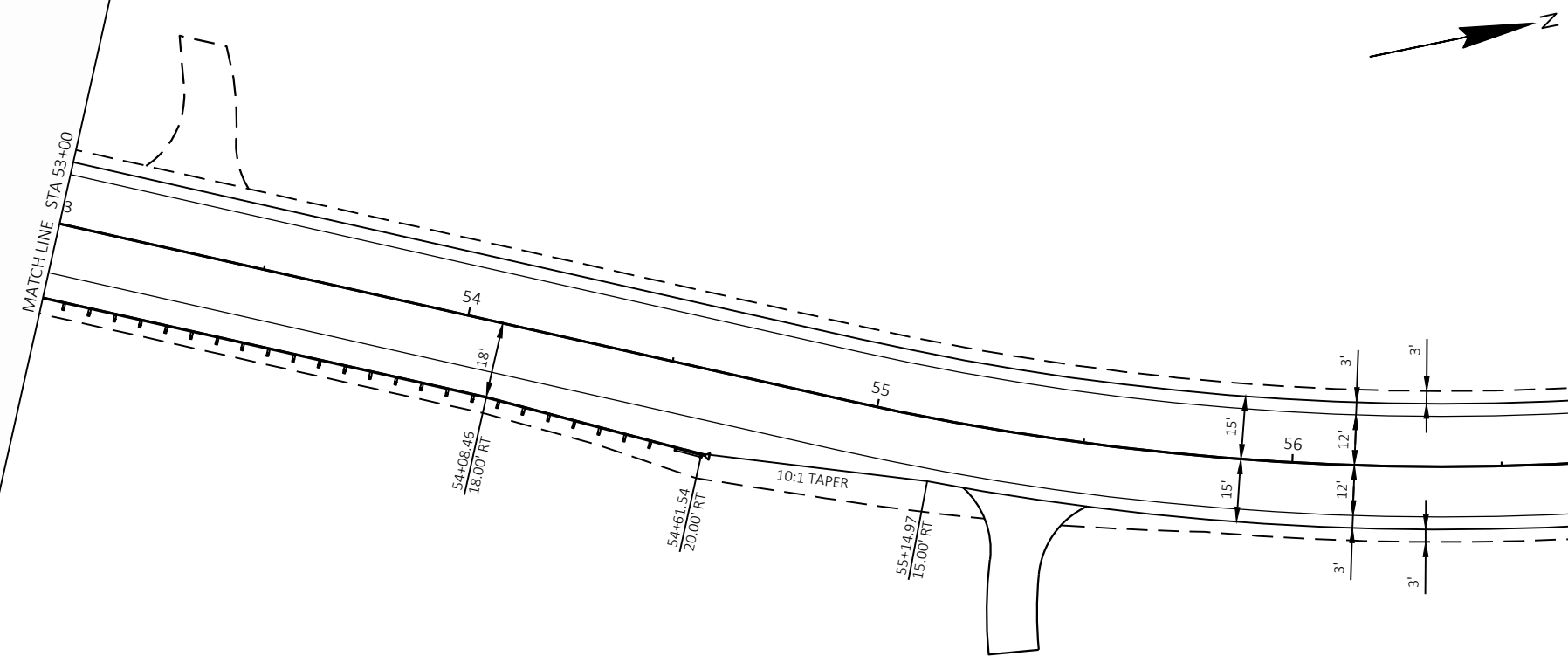
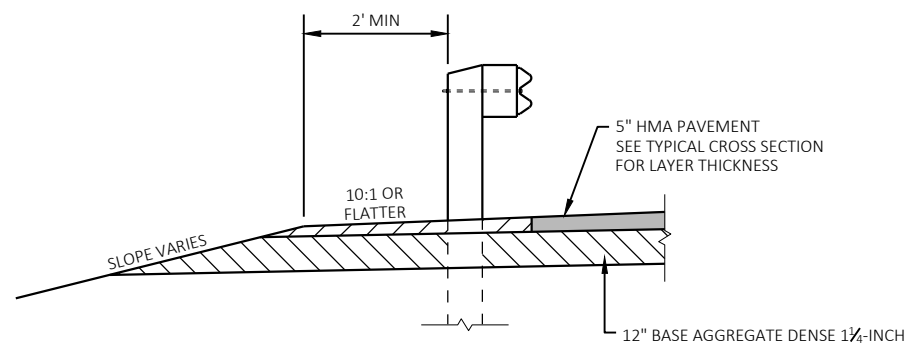
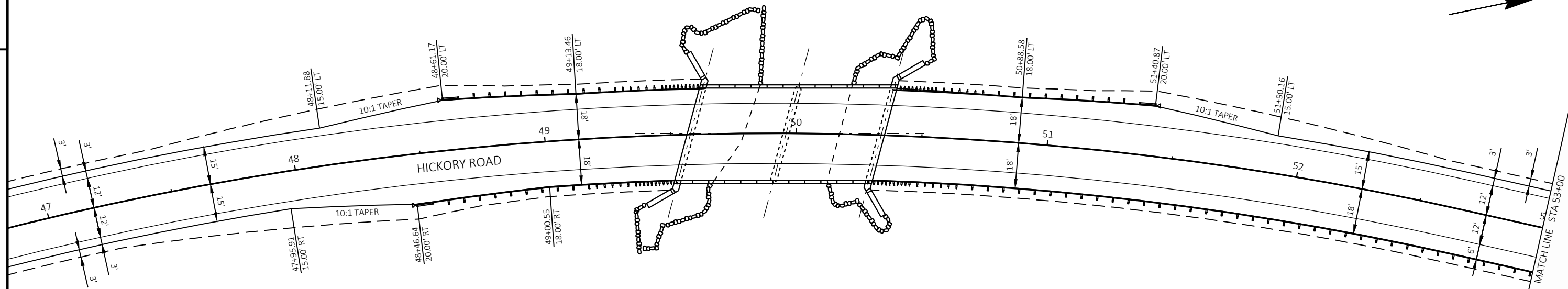
**TYPICAL FINISHED SECTION**  
 HICKORY ROAD  
 STA 43+45.00 - STA 48+47.82  
 STA 51+39.50 - STA 58+85.00



NOTES:

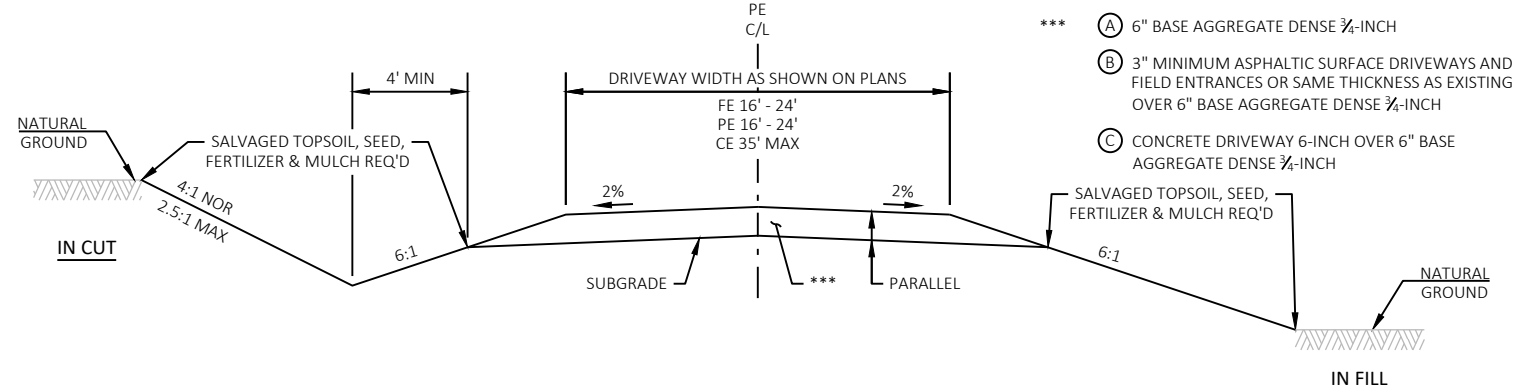
- Ⓐ SEEDING & FERTILIZER
- \* CROSS SLOPE VARIES DUE TO SUPERELEVATION (SEE CROSS SECTIONS AND SUPERELEVATION TABLE FOR FURTHER DETAILS).
- \*\* SEE MISCELLANEOUS QUANTITIES AND EROSION CONTROL PLANS FOR LOCATIONS AND TYPES.
- \*\*\* SEE CONSTRUCTION DETAILS FOR BEAM GUARD LOCATIONS.
- \*\*\*\* VARIES AT BEAM GUARD ATTACHMENT LOCATIONS TO MATCH BRIDGE RAILING
- ⊗ SUBGRADE SLOPES ARE PARALLEL TO PAVEMENT WITHIN TRAVEL LANE.



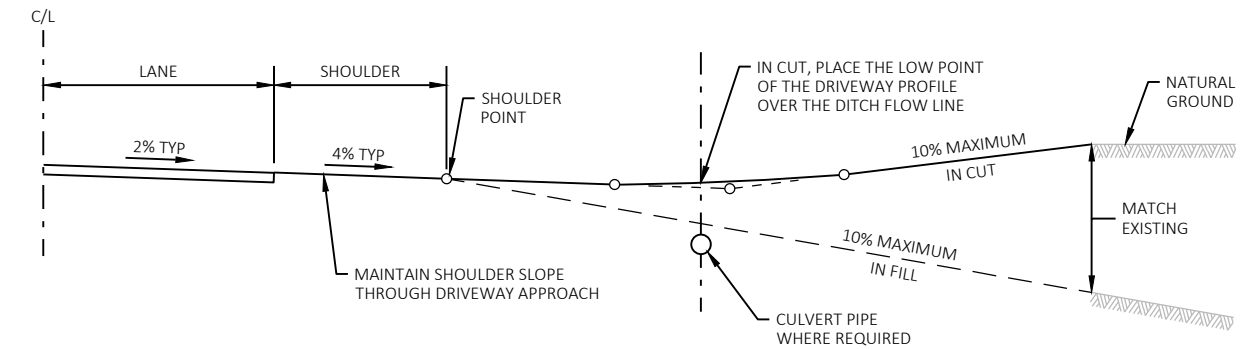


DETAIL FOR ASPHALTIC SHOULDER AT GUARDRAIL

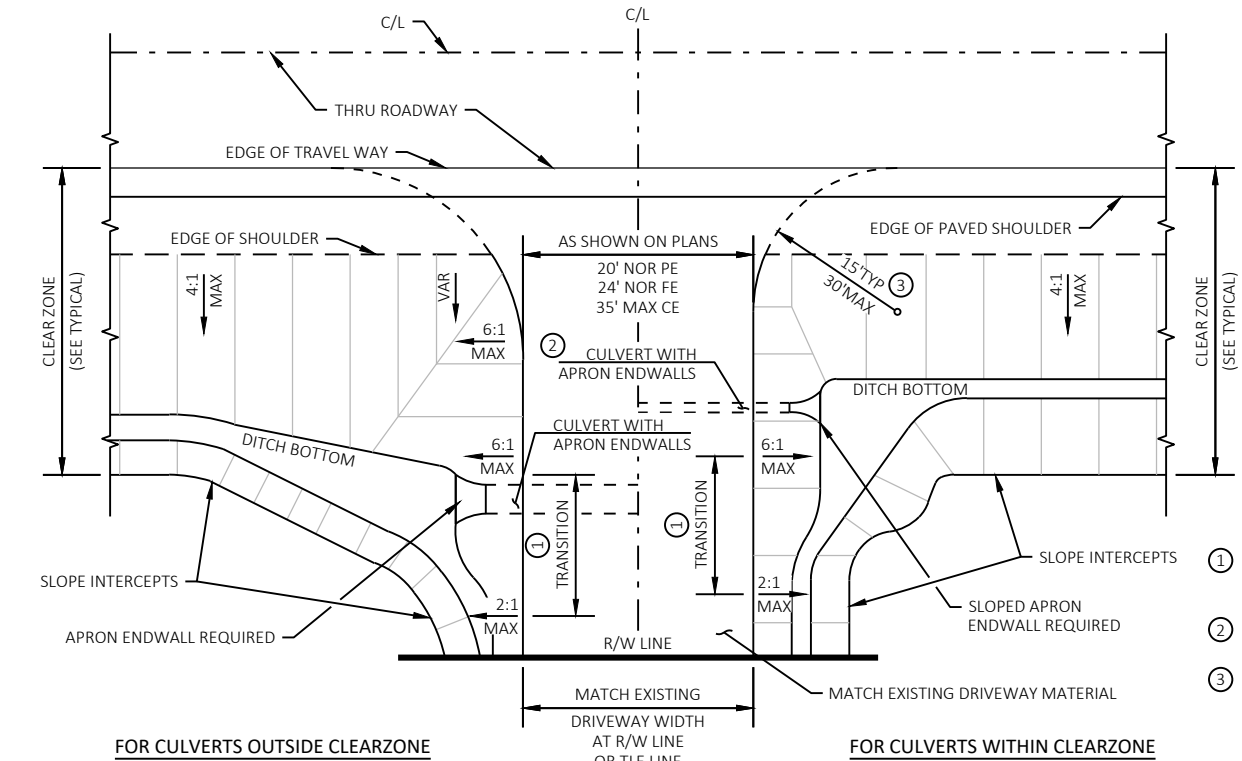
SUPERELEVATION REPORT FOR HICKORY ROAD					
TRANSITION EVENT POINTS		RATE (FT/FT)			
LOCATION	STATION	LEFT OF CROWNLIN		RIGHT OF CROWNLIN	
		LEFT SHOULDER	LEFT LANE	RIGHT LANE	RIGHT SHOULDER
<b>CURVE 1</b>					
End Normal Shoulder	39+73.23	-0.040	-0.020	-0.040	-0.020
End Normal Crown	39+73.23	-0.040	-0.020	-0.040	-0.020
Level Crown	40+07.56	-0.040	-0.020	0.000	0.000
Reverse Crown	40+41.89	-0.040	-0.020	0.020	0.020
Low Shoulder Match	40+76.23	-0.040	-0.040	0.040	0.040
Begin Full Super	41+10.56	-0.060	-0.060	0.060	0.060
End Full Super	42+33.26	-0.060	-0.060	0.060	0.060
Low Shoulder Match	42+67.59	-0.040	-0.040	0.040	0.040
Reverse Crown	43+01.92	-0.040	-0.020	0.020	0.020
Level Crown	43+36.26	-0.040	-0.020	0.000	0.000
Begin Normal Crown	43+70.59	-0.040	-0.020	-0.040	-0.020
Begin Normal Shoulder	43+70.59	-0.040	-0.020	-0.040	-0.020
<b>CURVE 2</b>					
End Normal Shoulder	43+71.44	-0.040	-0.020	-0.040	-0.020
End Normal Crown	43+71.44	-0.020	-0.020	-0.040	-0.020
Level Crown	44+12.83	0.000	0.000	-0.040	-0.020
Reverse Crown	44+54.23	0.020	0.020	-0.040	-0.020
Low Shoulder Match	44+95.62	0.040	0.040	-0.040	-0.040
Begin Full Super	45+01.83	0.043	0.043	-0.043	-0.043
End Full Super	52+37.13	0.043	0.043	-0.043	-0.043
Low Shoulder Match	52+43.34	0.040	0.040	-0.040	-0.040
Reverse Crown	52+84.74	0.020	0.020	-0.040	-0.020
Level Crown	53+26.13	0.000	0.000	-0.040	-0.020
Begin Normal Crown	53+67.53	-0.040	-0.020	-0.040	-0.020
Begin Normal Shoulder	53+67.53	-0.040	-0.020	-0.040	-0.020
<b>CURVE 3</b>					
End Normal Shoulder	53+72.52	-0.040	-0.020	-0.040	-0.020
End Normal Crown	53+72.52	-0.040	-0.020	-0.020	-0.020
Level Crown	54+13.92	-0.040	-0.020	0.000	0.000
Reverse Crown	54+55.33	-0.040	-0.020	0.020	0.020
Low Shoulder Match	54+96.73	-0.040	-0.040	0.040	0.040
Begin Full Super	55+31.92	-0.057	-0.057	0.057	0.057
End Full Super	57+26.33	-0.057	-0.057	0.057	0.057
Low Shoulder Match	57+61.52	-0.040	-0.040	0.040	0.040
Reverse Crown	58+02.92	-0.040	-0.020	0.020	0.020
Level Crown	58+44.33	-0.040	-0.020	0.000	0.000
Begin Normal Crown	58+85.73	-0.040	-0.020	-0.040	-0.020
Begin Normal Shoulder	58+85.73	-0.040	-0.020	-0.040	-0.020



TYPICAL DRIVEWAY CROSS SECTION



TYPICAL DRIVEWAY PROFILE

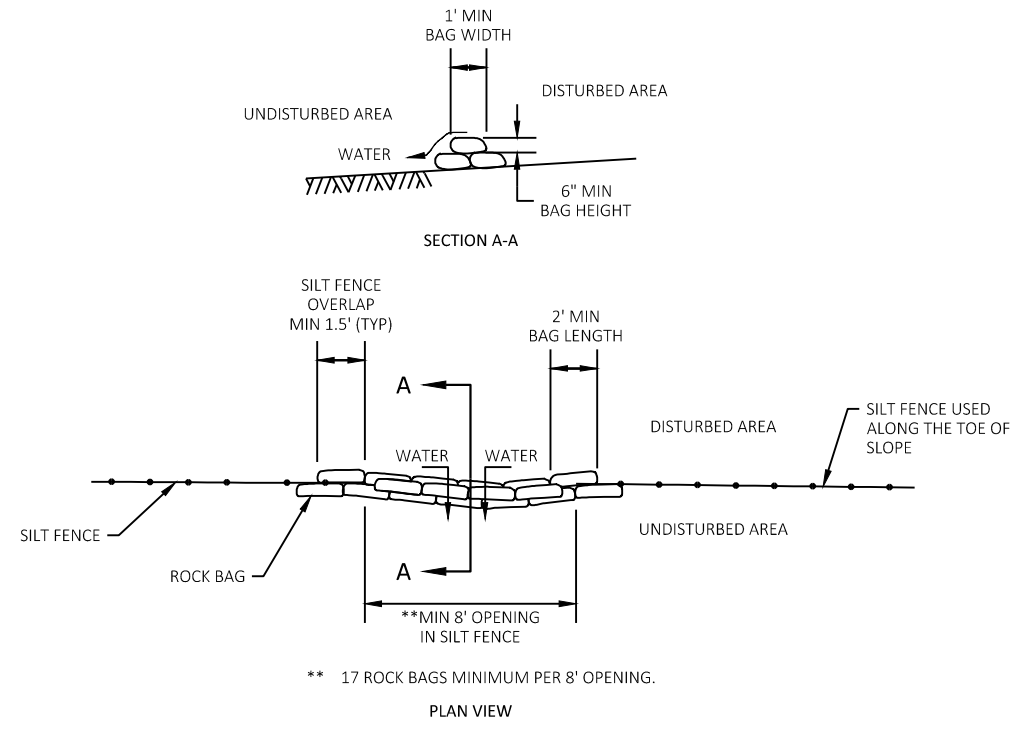


RURAL DRIVEWAY PLAN VIEW

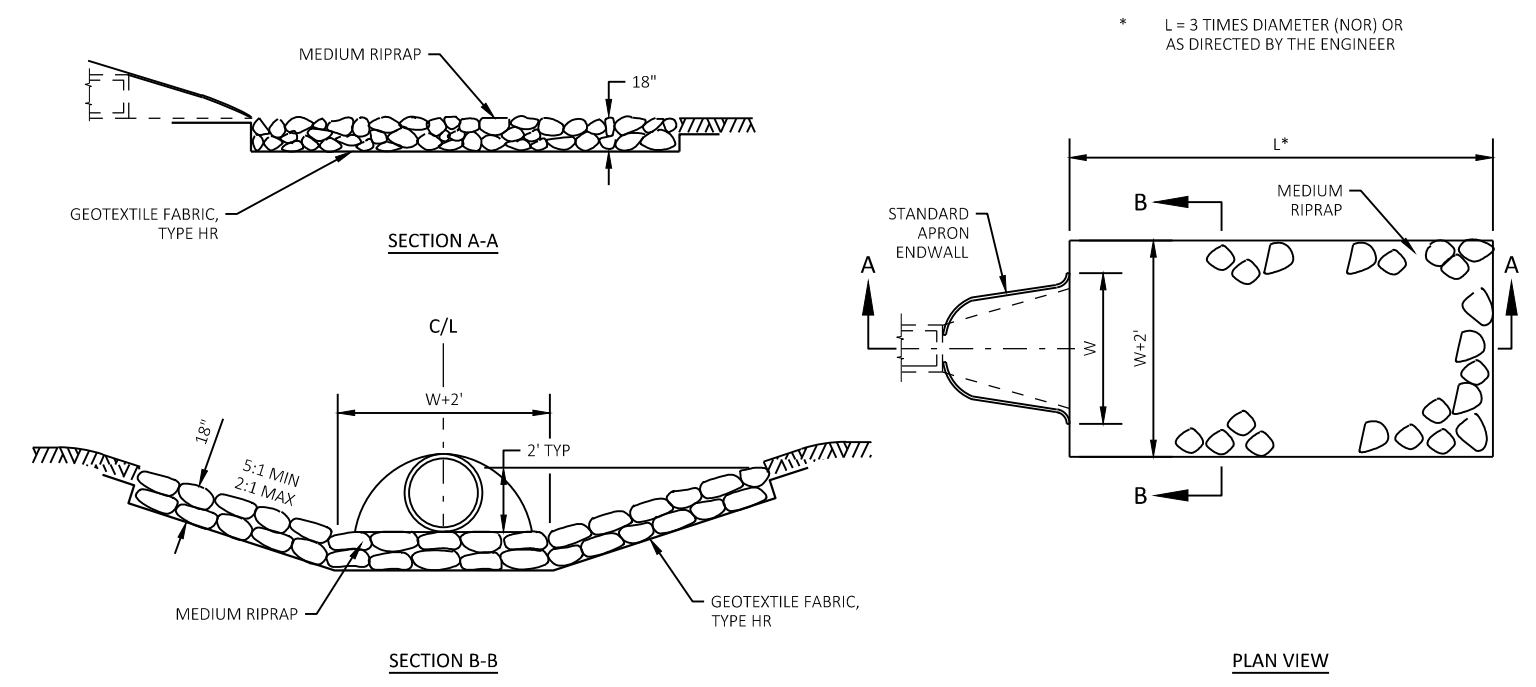
RURAL ENTRANCE DETAIL

- \*\*\* (A) 6" BASE AGGREGATE DENSE 3/4-INCH
- (B) 3" MINIMUM ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES OR SAME THICKNESS AS EXISTING OVER 6" BASE AGGREGATE DENSE 3/4-INCH
- (C) CONCRETE DRIVEWAY 6-INCH OVER 6" BASE AGGREGATE DENSE 3/4-INCH

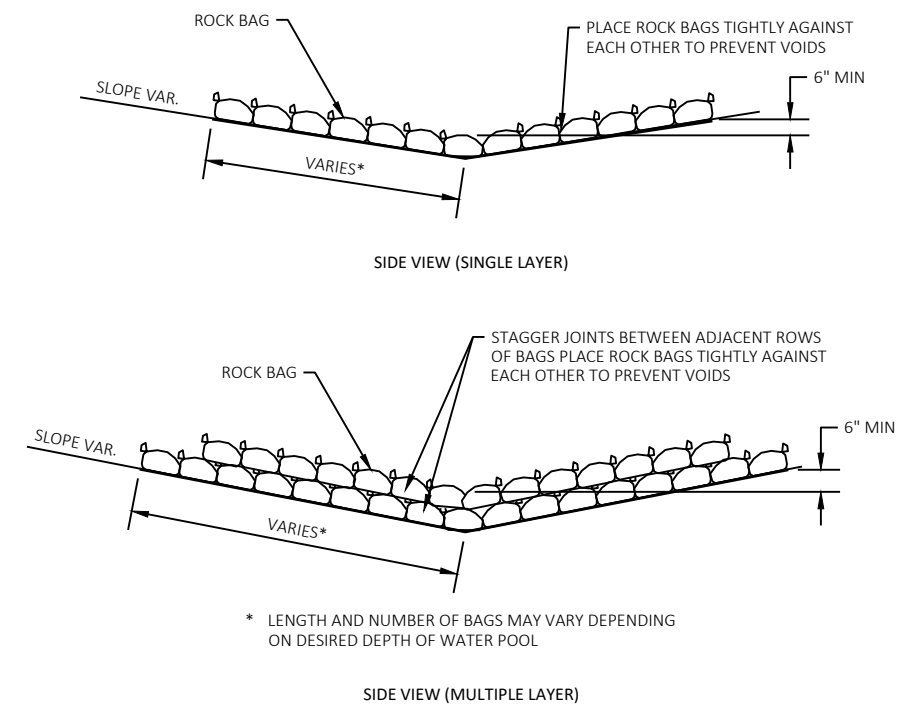
- (1) TRANSITION TO BE ACCOMPLISHED WITHIN THE RIGHT OF WAY
- (2) BLEND 6 : 1 SLOPES TO MATCH APRON ENDWALLS
- (3) USE LARGER PAVING RADIUS FOR PAVING IN HIGHER SPEED ZONES (> 40 MPH)



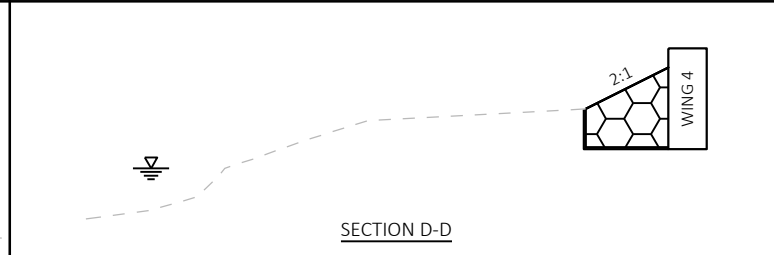
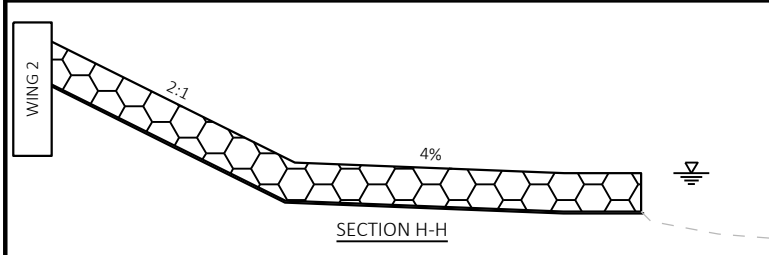
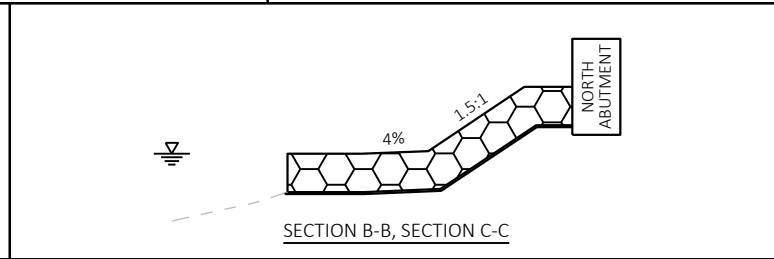
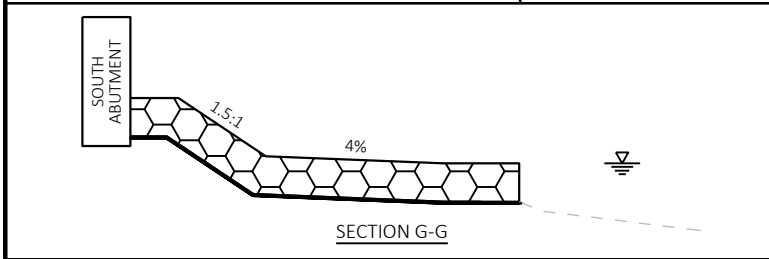
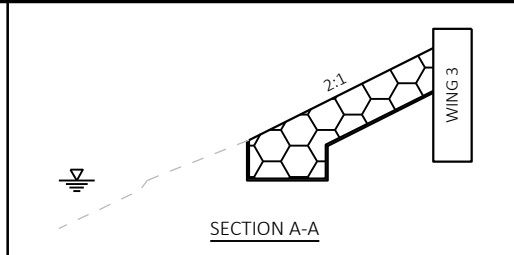
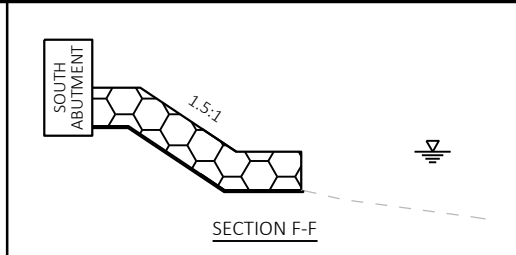
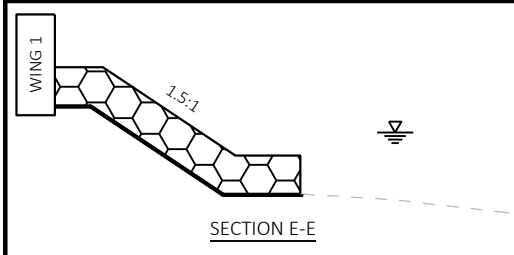
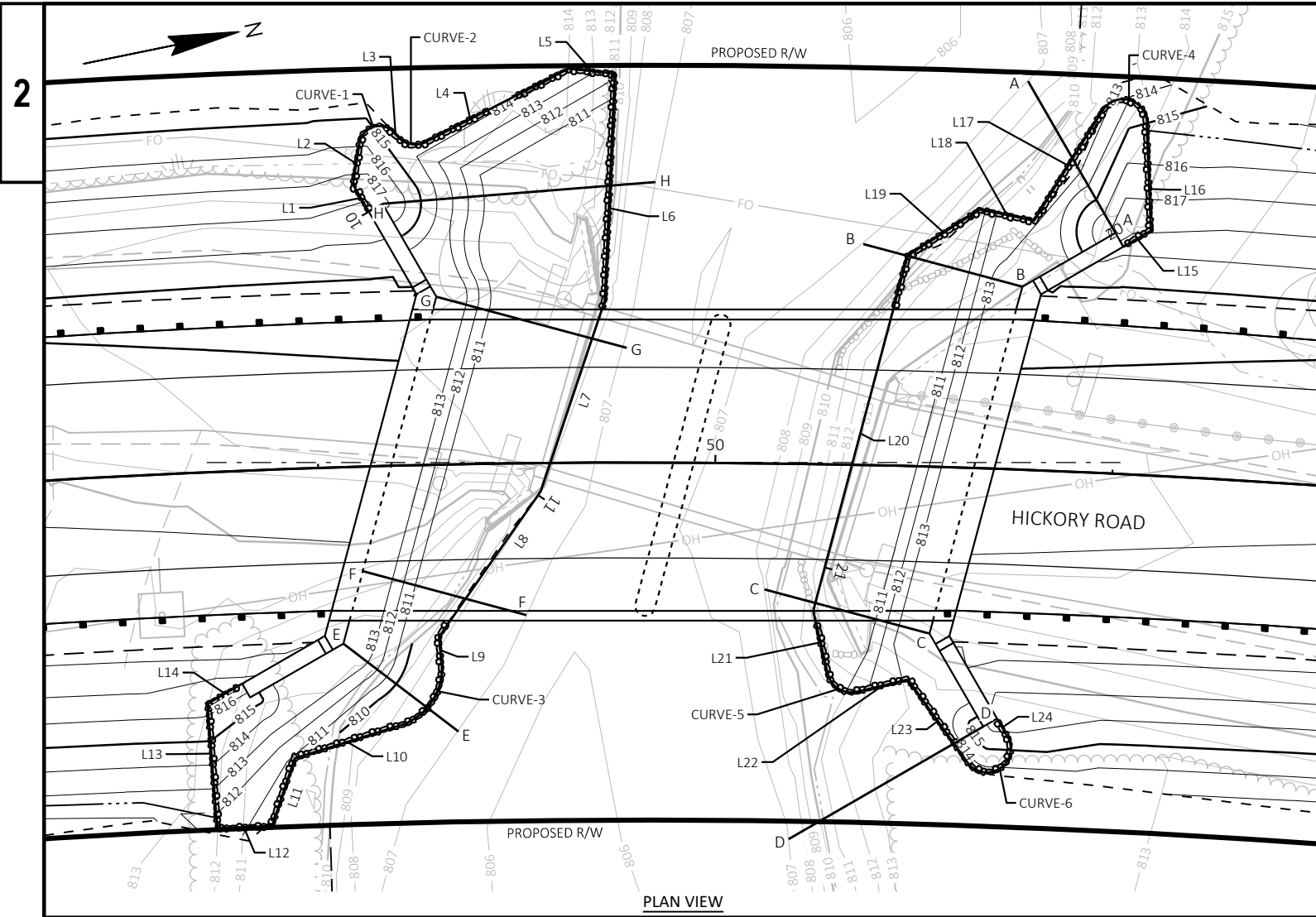
**ROCK BAGS USED FOR SILT FENCE RELIEF POINT DETAIL**



**MEDIUM RIPRAP AND GEOTEXTILE FABRIC DETAIL AT APRON ENDWALLS**

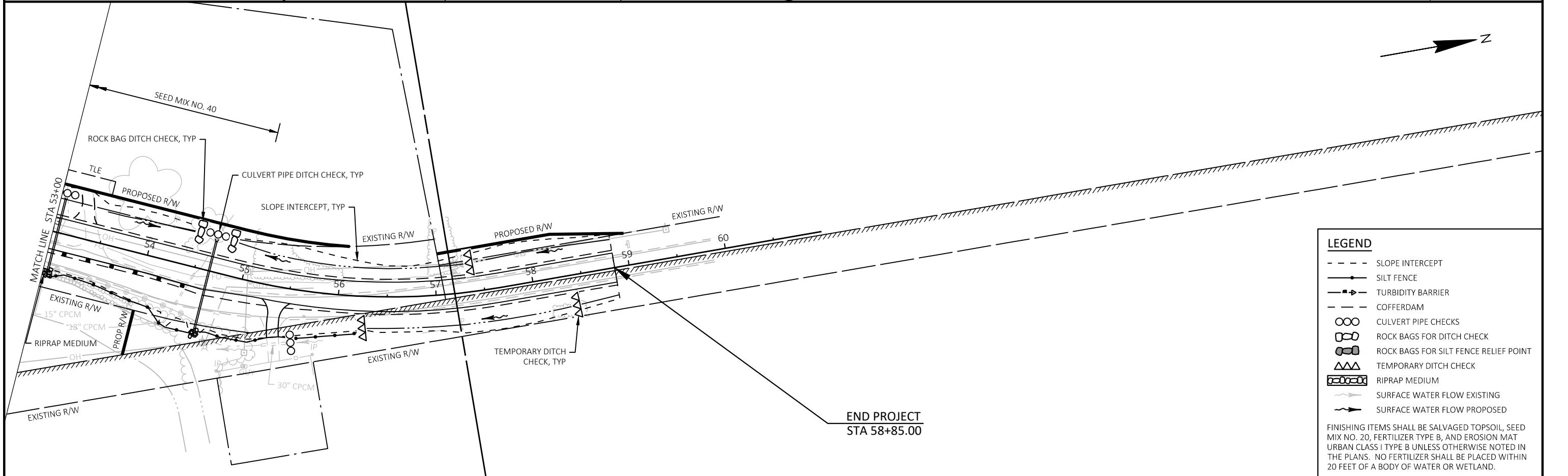
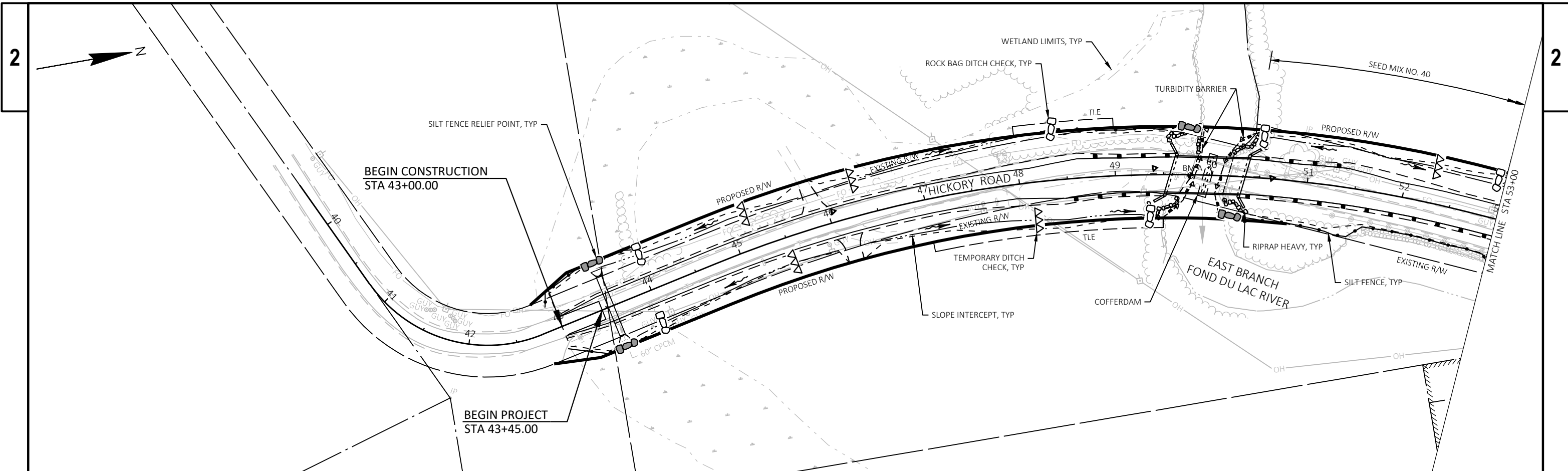


**ROCK BAGS USED FOR DITCH CHECKS DETAIL**



SOUTH-ABUT-RIPRAP										
SEGMENT NUMBER	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING	LENGTH	RADIUS	LINE/CHORD BEARING	DELTA ANGLE
L1	10+00.00	366251.449	811395.102	10+04.00	366250.184	811391.307	4.00		S71° 34' 06"W	
L2	10+04.00	366250.184	811391.307	10+09.26	366252.035	811386.384	5.26		N69° 24' 09"W	
CURVE-1	PC 10+09.26	PC 366252.035	PC 811386.384	PT 10+14.84	PT 366256.508	PT 811385.960	5.58	2.50	N5° 24' 45"W	127° 58' 48"
L3	10+14.84	366256.508	811385.960	10+15.60	366256.901	811386.604	0.75		N58° 34' 39"E	
CURVE-2	PC 10+15.60	PC 366256.901	PC 811386.604	PT 10+19.48	PT 366260.265	PT 811387.930	3.88	3.00	N21° 31' 10"E	74° 06' 58"
L4	10+19.48	366260.265	811387.930	10+39.63	366279.678	811382.532	20.15		N15° 32' 19"W	
L5	10+39.63	366279.678	811382.532	10+45.50	366285.281	811384.281	5.87		N17° 20' 14"E	
L6	10+45.50	366285.281	811384.281	10+74.13	366278.292	811412.050	28.63		S75° 52' 25"E	
L7	10+74.13	366278.292	811412.050	10+99.42	366265.587	811433.918	25.29		S59° 50' 39"E	
L8	10+99.42	366265.587	811433.918	11+21.77	366249.364	811449.294	22.35		S43° 27' 50"E	
L9	11+21.77	366249.364	811449.294	11+25.11	366248.989	811452.613	3.34		S83° 33' 07"E	
CURVE-3	PC 11+25.11	PC 366248.989	PC 811452.613	PT 11+35.28	PT 366242.304	PT 811459.231	10.17	7.50	S44° 42' 49"E	77° 40' 37"
L10	11+35.28	366242.304	811459.231	11+49.16	366228.497	811460.652	13.88		S5° 52' 31"E	
L11	11+49.16	366228.497	811460.652	11+58.30	366223.921	811468.559	9.14		S59° 56' 38"E	
L12	11+58.30	366223.921	811468.559	11+65.13	366217.175	811467.471	6.83		S9° 10' 08"W	
L13	11+65.13	366217.175	811467.471	11+81.01	366219.156	811451.717	15.88		N82° 50' 04"W	
L14	11+81.01	366219.156	811451.717	11+86.05	366223.934	811450.125	5.04		N18° 25' 54"W	

NORTH-ABUT-RIPRAP										
SEGMENT NUMBER	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING	LENGTH	RADIUS	LINE/CHORD BEARING	DELTA ANGLE
L15	20+00.00	366343.619	811418.452	20+04.00	366347.414	811417.187	4.00		N18° 25' 54"W	
L16	20+04.00	366347.414	811417.187	20+17.67	366349.613	811403.700	13.67		N80° 44' 23"W	
CURVE-4	PC 20+17.67	PC 366349.613	PC 811403.700	PT 20+25.30	PT 366344.473	PT 811401.156	7.64	3.00	S26° 19' 55"W	145° 51' 24"
L17	20+25.30	366344.473	811401.156	20+41.62	366333.263	811413.008	16.31		S46° 35' 47"E	
L18	20+41.62	366333.263	811413.008	20+48.57	366326.878	811410.258	6.95		S23° 18' 12"W	
L19	20+48.57	366326.878	811410.258	20+59.41	366316.757	811414.139	10.84		S20° 58' 53"E	
L20	20+59.41	366316.757	811414.139	21+05.65	366296.164	811455.538	46.24		S63° 33' 10"E	
L21	21+05.65	366296.164	811455.538	21+13.82	366296.372	811463.705	8.17		N88° 32' 24"E	
CURVE-5	PC 21+13.82	PC 366296.372	PC 811463.705	PT 21+18.55	PT 366299.473	PT 811466.627	4.74	3.00	N43° 17' 29"E	90° 29' 50"
L22	21+18.55	366299.473	811466.627	21+25.23	366306.143	811466.399	6.67		N1° 57' 26"W	
L23	21+25.23	366306.143	811466.399	21+38.05	366311.341	811478.115	12.82		N66° 04' 35"E	
CURVE-6	PC 21+38.05	PC 366311.341	PC 811478.115	PT 21+47.18	PT 366316.929	PT 811475.950	9.14	3.00	N21° 10' 40"W	174° 30' 29"
L24	21+47.18	366316.929	811475.950	21+49.79	366316.104	811473.475	2.61		S71° 34' 06"W	

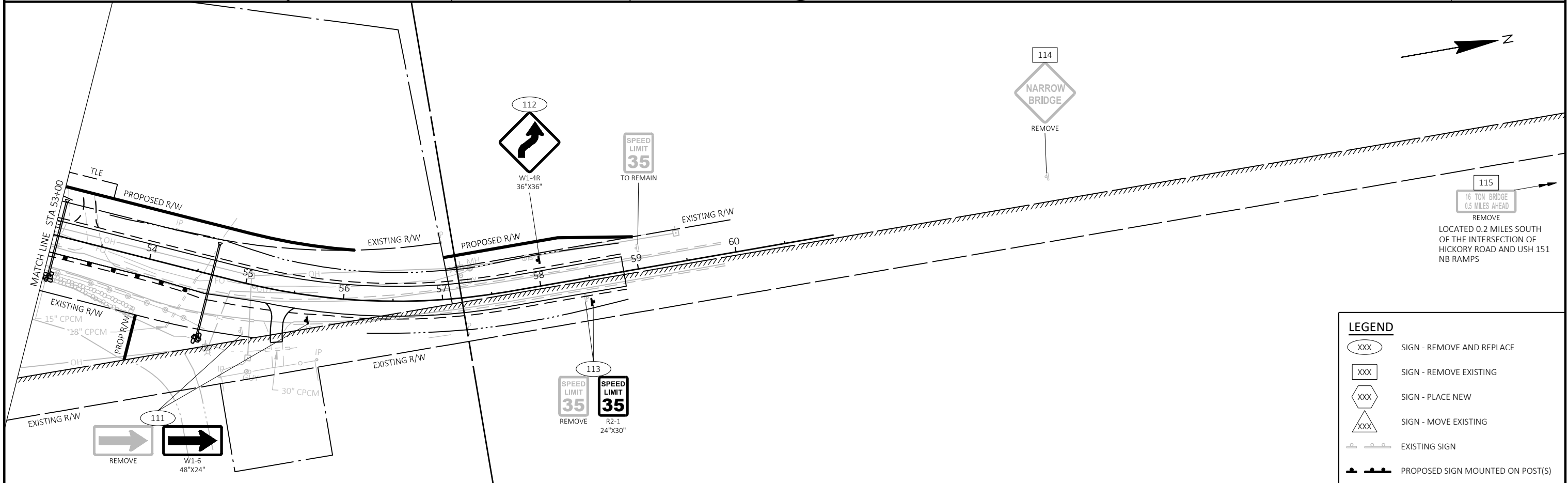
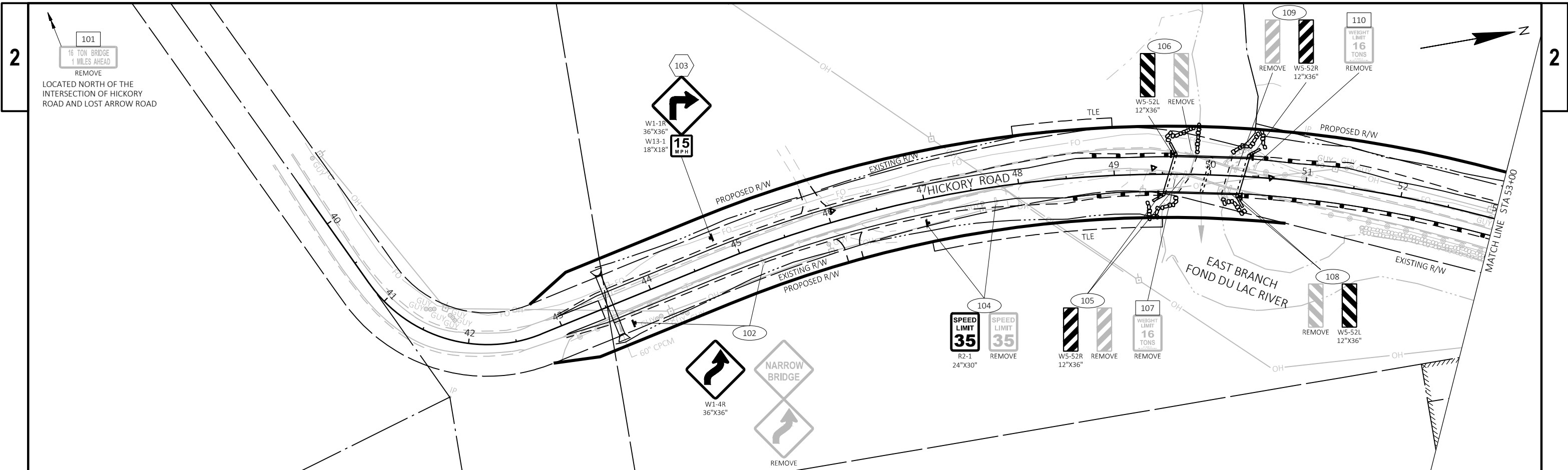


**LEGEND**

- SLOPE INTERCEPT
- - - SILT FENCE
- - - TURBIDITY BARRIER
- - - COFFERDAM
- OO CULVERT PIPE CHECKS
- OO ROCK BAGS FOR DITCH CHECK
- OO ROCK BAGS FOR SILT FENCE RELIEF POINT
- AAA TEMPORARY DITCH CHECK
- RRR RIPRAP MEDIUM
- SURFACE WATER FLOW EXISTING
- SURFACE WATER FLOW PROPOSED

FINISHING ITEMS SHALL BE SALVAGED TOPSOIL, SEED MIX NO. 20, FERTILIZER TYPE B, AND EROSION MAT URBAN CLASS I TYPE B UNLESS OTHERWISE NOTED IN THE PLANS. NO FERTILIZER SHALL BE PLACED WITHIN 20 FEET OF A BODY OF WATER OR WETLAND.

PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      EROSION CONTROL PLAN      SHEET      E



**LEGEND**

XXX	SIGN - REMOVE AND REPLACE
XXX	SIGN - REMOVE EXISTING
XXX	SIGN - PLACE NEW
XXX	SIGN - MOVE EXISTING
XXX	EXISTING SIGN
XXX	PROPOSED SIGN MOUNTED ON POST(S)

PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      SIGNING PLAN      SHEET      E

Estimate Of Quantities

4809-11-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	10.000	10.000
0004	201.0205	Grubbing	STA	10.000	10.000
0006	203.0100	Removing Small Pipe Culverts	EACH	2.000	2.000
0008	203.0220	Removing Structure (structure) 01. STA 43+58	EACH	1.000	1.000
0010	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-20-0091	EACH	1.000	1.000
0012	204.0165	Removing Guardrail	LF	545.000	545.000
0014	204.0170	Removing Fence	LF	150.000	150.000
0016	205.0100	Excavation Common	CY	1,804.000	1,804.000
0018	206.1000	Excavation for Structures Bridges (structure) 01. B-20-245	LS	1.000	1.000
0020	206.5000	Cofferdams (structure) 01. B-20-245	LS	1.000	1.000
0022	208.0100	Borrow	CY	3,124.000	3,124.000
0024	210.1500	Backfill Structure Type A	TON	580.000	580.000
0026	213.0100	Finishing Roadway (project) 01. 4809-11-71	EACH	1.000	1.000
0028	305.0110	Base Aggregate Dense 3/4-Inch	TON	615.000	615.000
0030	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	5,420.000	5,420.000
0032	311.0110	Breaker Run	TON	450.000	450.000
0034	450.4000	HMA Cold Weather Paving	TON	395.000	395.000
0036	455.0605	Tack Coat	GAL	280.000	280.000
0038	460.2000	Incentive Density HMA Pavement	DOL	1,010.000	1,010.000
0040	460.5223	HMA Pavement 3 LT 58-28 S	TON	950.000	950.000
0042	460.5224	HMA Pavement 4 LT 58-28 S	TON	620.000	620.000
0044	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	10.000	10.000
0046	502.0100	Concrete Masonry Bridges	CY	293.000	293.000
0048	502.3200	Protective Surface Treatment	SY	384.000	384.000
0050	502.9000.S	Underwater Substructure Inspection (Structure) 01. B-20-245	EACH	1.000	1.000
0052	505.0400	Bar Steel Reinforcement HS Structures	LB	8,250.000	8,250.000
0054	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	47,790.000	47,790.000
0056	513.4061	Railing Tubular Type M	LF	162.000	162.000
0058	516.0500	Rubberized Membrane Waterproofing	SY	24.000	24.000
0060	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	4.000	4.000
0062	521.1271	Apron Endwalls for Pipe Arch Steel 71x47-Inch	EACH	2.000	2.000
0064	521.6118	Culvert Pipe Corrugated Steel Aluminum Coated 18-Inch	LF	166.000	166.000
0066	521.6771	Pipe Arch Corrugated Steel Aluminum Coated 71x47-Inch	LF	66.000	66.000
0068	550.0500	Pile Points	EACH	26.000	26.000
0070	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	2,620.000	2,620.000
0072	606.0200	Riprap Medium	CY	5.000	5.000
0074	606.0300	Riprap Heavy	CY	247.000	247.000
0076	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	220.000	220.000
0078	614.2300	MGS Guardrail 3	LF	375.000	375.000
0080	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0082	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0084	619.1000	Mobilization	EACH	1.000	1.000
0086	624.0100	Water	MGAL	85.000	85.000
0088	625.0500	Salvaged Topsoil	SY	6,700.000	6,700.000
0090	627.0200	Mulching	SY	3,124.000	3,124.000
0092	628.1504	Silt Fence	LF	1,255.000	1,255.000
0094	628.1520	Silt Fence Maintenance	LF	1,255.000	1,255.000
0096	628.1905	Mobilizations Erosion Control	EACH	8.000	8.000
0098	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000

Estimate Of Quantities

4809-11-71

Line	Item	Item Description	Unit	Total	Qty
0100	628.2008	Erosion Mat Urban Class I Type B	SY	6,700.000	6,700.000
0102	628.6005	Turbidity Barriers	SY	295.000	295.000
0104	628.7504	Temporary Ditch Checks	LF	120.000	120.000
0106	628.7555	Culvert Pipe Checks	EACH	11.000	11.000
0108	628.7560	Tracking Pads	EACH	2.000	2.000
0110	628.7570	Rock Bags	EACH	235.000	235.000
0112	629.0210	Fertilizer Type B	CWT	4.000	4.000
0114	630.0120	Seeding Mixture No. 20	LB	205.000	205.000
0116	630.0140	Seeding Mixture No. 40	LB	25.000	25.000
0118	630.0300	Seeding Borrow Pit	LB	42.000	42.000
0120	630.0500	Seed Water	MGAL	200.000	200.000
0122	633.5200	Markers Culvert End	EACH	6.000	6.000
0124	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0126	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	4.000	4.000
0128	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	2.000	2.000
0130	637.2210	Signs Type II Reflective H	SF	10.000	10.000
0132	637.2230	Signs Type II Reflective F	SF	41.500	41.500
0134	638.2602	Removing Signs Type II	EACH	13.000	13.000
0136	638.3000	Removing Small Sign Supports	EACH	13.000	13.000
0138	642.5001	Field Office Type B	EACH	1.000	1.000
0140	643.0420	Traffic Control Barricades Type III	DAY	1,946.000	1,946.000
0142	643.0705	Traffic Control Warning Lights Type A	DAY	3,336.000	3,336.000
0144	643.0900	Traffic Control Signs	DAY	1,946.000	1,946.000
0146	643.5000	Traffic Control	EACH	1.000	1.000
0148	645.0111	Geotextile Type DF Schedule A	SY	132.000	132.000
0150	645.0120	Geotextile Type HR	SY	427.000	427.000
0152	646.1020	Marking Line Epoxy 4-Inch	LF	6,340.000	6,340.000
0154	646.6464	Cold Weather Marking Epoxy 4-Inch	LF	6,340.000	6,340.000
0156	650.4500	Construction Staking Subgrade	LF	1,507.000	1,507.000
0158	650.5000	Construction Staking Base	LF	1,507.000	1,507.000
0160	650.6000	Construction Staking Pipe Culverts	EACH	3.000	3.000
0162	650.6500	Construction Staking Structure Layout (structure) 01. B-20-245	LS	1.000	1.000
0164	650.9910	Construction Staking Supplemental Control (project) 01. 4809-11-71	LS	1.000	1.000
0166	650.9920	Construction Staking Slope Stakes	LF	1,507.000	1,507.000
0168	690.0150	Sawing Asphalt	LF	142.000	142.000
0170	715.0502	Incentive Strength Concrete Structures	DOL	1,758.000	1,758.000
0172	740.0440	Incentive IRI Ride	DOL	2,340.000	2,340.000
0174	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. STA 50+00	EACH	1.000	1.000



3

3

**CLEARING AND GRUBBING ITEMS**

STATION - STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
CATEGORY CODE 0010			
43+00 - 51+00	LT & RT	8	8
54+00 - 56+00	LT & RT	2	2
<b>TOTALS</b>		<b>10</b>	<b>10</b>

**REMOVING ITEMS**

STATION - STATION	LOCATION	203.0100	203.0220	204.0165	204.0170	COMMENTS
		REMOVING SMALL PIPE CULVERTS	REMOVING STRUCTURE	REMOVING GUARDRAIL	REMOVING FENCE	
CATEGORY CODE 0010		EACH	EACH	LF	LF	
43+03 - 44+14	RT	--	--	112	--	--
43+58	LT & RT	--	1	--	--	44 LF OF 60" CPCM
45+00 - 46+70	LT	--	--	--	150	--
50+23 - 51+02	LT	--	--	81	--	--
51+19 - 54+71	RT	--	--	352	--	--
53+06	RT	1	--	--	--	40 LF OF 15" CPCM
54+42	LT & RT	1	--	--	--	59 LF OF 18" CPCM
<b>TOTALS</b>		<b>2</b>	<b>1</b>	<b>545</b>	<b>150</b>	

**BASE AGGREGATE DENSE AND WATER ITEMS**

STATION - STATION	LOCATION	305.0110	305.0120	624.0100
		BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	WATER MGAL
CATEGORY CODE 0010				
43+00 - 49+57	LT & RT	265	2,293	36
50+35 - 58+85	LT & RT	350	3,127	49
<b>TOTALS</b>		<b>615</b>	<b>5,420</b>	<b>85</b>

BASE AGGREGATE DENSE 3/4-INCH WEIGHT CALCULATIONS BASED ON 2.1 TONS/CY.  
BASE AGGREGATE DENSE 1 1/4-INCH WEIGHT CALCULATIONS BASED ON 2.0 TONS/CY.

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/ UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13) FACTOR 1.30	MASS ORDINATE +/- (14)	208.0100 BORROW	COMMENT
			CUT (2)	EBS EXCAVATION (3)							
DIVISION 1											
HICKORY	43+00/58+85		1,554	0	333	1,221	3,342	4,345	-3,124	3,124	
UNDISTRIBUTED			0	250	0	0	0	0	0	0	
DIVISION 1 SUBTOTAL			1,554	250	333	1,221	3,342	4,345	-3,124	3,124	
GRAND TOTAL			1,554	250	333	1,221	3,342	4,345	-3,124	3,124	
TOTAL COMMON EXC			1,804								

**BREAKER RUN**

LOCATION	311.0110 TON
CATEGORY CODE 0010	
UNDISTRIBUTED EBS LOCATIONS	450
<b>TOTAL</b>	<b>450</b>

BREAKER RUN WEIGHT CALCULATIONS BASED ON 1.8 TONS/CY.

**NOTES:**

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (3) EBS EXCAVATION TO BE BACKFILLED WITH BREAKER RUN
- (4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (13) EXPANDED FILL FACTOR = 1.30
- (14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

**ASPHALTIC ITEMS**

STATION - STATION	LOCATION	450.4000	455.0605	460.5223	460.5224	465.0120
		HMA COLD WEATHER PAVING	TACK COAT	HMA PAVEMENT 3 LT 58-28 S	HMA PAVEMENT 4 LT 58-28 S	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
CATEGORY CODE 0010		TON	GAL	TON	TON	TON
43+00 - 49+57	LT & RT	164	117	396	258	--
50+35 - 58+85	LT & RT	231	163	554	362	--
55+40	RT	--	--	--	--	10
<b>TOTALS</b>		<b>395</b>	<b>280</b>	<b>950</b>	<b>620</b>	<b>10</b>

TACK COAT CALCULATIONS BASED ON 0.050 GAL/SY  
ASPHALTIC SURFACE WEIGHT CALCULATIONS BASED ON 112 LB/SY/IN.

**CULVERT PIPE ITEMS**

STATION	LOCATION	521.1018	521.1271	521.6118	521.6771	633.5200	650.6000
		STEEL PIPE THICKNESS INCHES	APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH EACH	APRON ENDWALLS FOR PIPE ARCH STEEL 71X47-INCH EACH	CULVERT PIPE CORRUGATED STEEL ALUMINUM COATED 18-INCH LF	PIPE ARCH CORRUGATED STEEL ALUMINUM COATED 71X47-INCH LF	MARKERS CULVERT END EACH
CATEGORY CODE 0010							
43+55	LT & RT	0.138	--	2	--	66	2
53+05	LT & RT	0.064	2	--	74	--	2
54+65	LT & RT	0.064	2	--	92	--	2
<b>TOTALS</b>			<b>4</b>	<b>2</b>	<b>166</b>	<b>66</b>	<b>6</b>

ALL ITEMS ARE CATEGORY CODE 0010 UNLESS OTHERWISE NOTED

**RIPRAP AND GEOTEXTILE FABRIC ITEMS**

LOCATION	606.0200	645.0120*
	RIPRAP MEDIUM CY	GEOTEXTILE TYPE HR SY
CATEGORY CODE 0010		
53+05; RT	2	8
54+65; RT	2	7
UNDISTRIBUTED	1	4
<b>TOTALS</b>	<b>5</b>	<b>19</b>

\*ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLANS

**RESTORATION ITEMS**

STATION - STATION	LOCATION	625.0500	627.0200	628.2008	629.0210	630.0120	630.0140	630.0300	630.0500
		SALVAGED TOPSOIL SY	MULCHING SY	EROSION MAT URBAN CLASS I TYPE B SY	FERTILIZER TYPE B CWT	SEED MIX NO. 20 LB	SEED MIX NO. 40 LB	SEEDING BORROW PIT LB	SEED WATER MGAL
CATEGORY CODE 0010									
43+00 - 49+57	LT	1,499	--	1,499	0.3	50	--	--	41
43+00 - 49+57	RT	891	--	891	0.6	35	--	--	29
50+35 - 55+00	LT	879	--	879	0.7	--	20	--	25
50+35 - 58+85	RT	1,514	--	1,514	1.0	55	--	--	46
55+00 - 58+85	LT	586	--	586	0.5	23	--	--	19
BORROW SITE		--	3,124	--	--	--	--	42	--
UNDISTRIBUTED		1,331	--	1,331	0.9	42	5	--	40
<b>TOTALS</b>		<b>6,700</b>	<b>3,124</b>	<b>6,700</b>	<b>4.0</b>	<b>205</b>	<b>25</b>	<b>42</b>	<b>200</b>

NOTES: DO NOT APPLY FERTILIZER WITHIN 20 FEET OF A BODY OF WATER OR WETLAND

**MGS GUARDRAIL ITEMS**

STATION - STATION	LOCATION	614.2300	614.2500	614.2610
		MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH
CATEGORY CODE 0010				
48+47 - 49+53	RT	12.5	39.4	1.0
48+61 - 49+65	LT	12.5	39.4	1.0
50+28 - 54+62	RT	337.5	39.4	1.0
50+37 - 51+41	LT	12.5	39.4	1.0
<b>TOTALS</b>		<b>375.0</b>	<b>157.6</b>	<b>4.0</b>

**EROSION CONTROL ITEMS**

STATION	LOCATION	628.1504	628.1520	628.1905	628.1910	628.6005	628.7504	628.7555	628.7560	628.7570
		SILT FENCE LF	SILT FENCE MAINTENANCE LF	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	TURBIDITY BARRIERS SY	TEMPORARY DITCH CHECKS LF	CULVERT PIPE CHECKS EACH	TRACKING PADS EACH	ROCK BAGS EACH
CATEGORY CODE 0010										
PROJECT 4809-11-71		--	--	8	5	--	--	--	2	--
43+00 - 49+57	LT	277	277	--	--	--	24	--	--	64
43+00 - 49+57	RT	119	119	--	--	--	24	--	--	47
49+52 - 50+47	LT & RT	--	--	--	--	236	--	--	--	--
50+47 - 58+85	LT	--	--	--	--	--	24	4	--	60
50+47 - 58+85	RT	606	606	--	--	--	24	5	--	17
UNDISTRIBUTED		253	253	--	--	59	24	2	--	47
<b>TOTALS</b>		<b>1,255</b>	<b>1,255</b>	<b>8</b>	<b>5</b>	<b>295</b>	<b>120</b>	<b>11</b>	<b>2</b>	<b>235</b>

**PAVEMENT MARKING ITEMS**

STATION - STATION	LOCATION	646.1020		646.6464	
		MARKING LINE EPOXY 4-INCH WHITE LF	MARKING EPOXY 4-INCH YELLOW LF	COLD WEATHER MARKING EPOXY 4-INCH WHITE LF	COLD WEATHER MARKING EPOXY 4-INCH YELLOW LF
CATEGORY CODE 0010					
43+00 - 58+85	LT & RT	3,170	3,170	3,170	3,170
<b>TOTALS</b>		<b>6,340</b>	<b>6,340</b>	<b>6,340</b>	<b>6,340</b>

**TRAFFIC CONTROL ITEMS**

LOCATION	NUMBER OF DAYS IN SERVICE	643.0420		643.0705		643.0900		643.5000
		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL
		NO. REQ'D	TOTAL DAY	NO. REQ'D	TOTAL DAY	NO. REQ'D	TOTAL DAY	EACH
CATEGORY CODE 0010								
PROJECT 4809-11-71	--	--	--	--	--	--	--	1
HICKORY ROAD / LOST ARROW ROAD	139	2	278	4	556	3	417	--
SOUTH PROJECT LIMITS	139	5	695	8	1,112	4	556	--
NORTH PROJECT LIMITS	139	5	695	8	1,112	4	556	--
HICKORY ROAD / USH 151	139	2	278	4	556	3	417	--
<b>TOTALS</b>			<b>1,946</b>		<b>3,336</b>		<b>1,946</b>	<b>1</b>

ALL ITEMS ARE CATEGORY CODE 0010 UNLESS OTHERWISE NOTED

SIGNING ITEMS															
SIGN NUMBER	EXISTING STATION	EXISTING LOCATION	PROPOSED STATION	PROPOSED LOCATION	ROADWAY	SIGN CODE	SIZE	634.0612 POSTS WOOD 4X6X12 EACH	634.0616 POSTS WOOD 4X6X16 EACH	634.0618 POSTS WOOD 4X6X18 EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	COMMENTS
CATEGORY CODE 0010															
101	--	RT	--	--	HICKORY ROAD	--	---	--	--	--	--	--	1	1	REMOVE EXISTING R12-55 NORTH OF LOST ARROW ROAD
102	45+21	RT	43+72	RT	HICKORY ROAD	W1-4R	30X30	--	--	1	--	6.3	1	1	--
103	--	--	44+78	LT	HICKORY ROAD	W1-1R W13-1	36X36 ---	--	1	--	--	9.0	--	--	-- (15 MPH)
104	47+78	RT	47+00	RT	HICKORY ROAD	R2-1	24X30	--	1	--	5.0	--	1	1	(35 MPH)
105	49+75	RT	49+47	RT	HICKORY ROAD	W5-52R	12X36	1	--	--	--	3.0	1	1	--
106	49+81	LT	49+63	LT	HICKORY ROAD	W5-52L	12X36	1	--	--	--	3.0	1	1	--
107	49+65	RT	--	--	HICKORY ROAD	--	---	--	--	--	--	--	1	1	--
108	50+19	RT	50+32	RT	HICKORY ROAD	W5-52R	12X36	1	--	--	--	3.0	1	1	--
109	50+25	LT	50+41	LT	HICKORY ROAD	W5-52L	12X36	1	--	--	--	3.0	1	1	--
110	50+45	LT	--	--	HICKORY ROAD	--	---	--	--	--	--	--	1	1	--
111	50+05	RT	55+65	RT	HICKORY ROAD	W1-6	48X24	--	1	--	--	8.0	1	1	--
112	--	--	58+01	LT	HICKORY ROAD	W1-4R	30X30	--	--	1	--	6.3	--	--	--
113	58+44	RT	58+50	RT	HICKORY ROAD	R2-1	24X30	--	1	--	5.0	--	1	1	(35 MPH)
114	--	LT	--	--	HICKORY ROAD	--	---	--	--	--	--	--	1	1	REMOVE EXISTING W5-2 450' NORTH OF NORTH PROJECT LIMITS
115	--	LT	--	--	HICKORY ROAD	--	---	--	--	--	--	--	1	1	REMOVE EXISTING R12-55 1000' SOUTH OF USH 151
<b>TOTALS</b>								<b>4</b>	<b>4</b>	<b>2</b>	<b>10.0</b>	<b>41.5</b>	<b>13</b>	<b>13</b>	

**CONSTRUCTION STAKING ITEMS**

STATION - STATION	LOCATION	LF	650.4500 SUBGRADE	650.5000 BASE	650.6500 STRUCTURE LAYOUT	650.9910 SUPPLEMENTAL CONTROL	650.9920 SLOPE STAKES
CATEGORY CODE 0010							
PROJECT 4908-11-71			--	--	--	1	--
43+00 - 49+57	LT & RT	657	657	--	--	--	657
50+35 - 58+85	LT & RT	850	850	--	--	--	850
CATEGORY CODE 0010 SUBTOTALS		1,507	1,507	--	1	--	1,507
CATEGORY CODE 0020							
B-20-245		--	--	1	--	--	--
CATEGORY CODE 0020 SUBTOTALS		--	--	1	--	--	--
<b>TOTALS</b>		<b>1,507</b>	<b>1,507</b>	<b>1</b>	<b>1</b>	<b>1,507</b>	

STAKING ITEMS FOR PIPE CULVERTS SHOWN ELSEWHERE

**SAWING ASPHALT**

STATION - STATION	LOCATION	LF	690.0150
CATEGORY CODE 0010			
43+00 - 43+45	LT & RT	110	110
55+41	RT	12	12
58+85	LT & RT	20	20
<b>TOTAL</b>			<b>142</b>

**INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM**

STATION	LS	COMMENTS	999.2000.S
CATEGORY CODE 0010			
50+00	1	P-20-0091	
<b>TOTAL</b>			<b>1</b>

ALL ITEMS ARE CATEGORY CODE 0010 UNLESS OTHERWISE NOTED

R/W PROJECT NUMBER 4809-11-00	SHEET NUMBER	TOTAL SHEETS
R/W PROJECT NUMBER	4.01	5
<b>PLAT OF RIGHT OF WAY REQUIRED FOR T FOND DU LAC, HICKORY ROAD EAST BR. FOND DU LAC RIVER BRIDGE</b>		
LOCAL STREET	FOND DU LAC COUNTY	
CONSTRUCTION PROJECT NUMBER 4809-11-71		

**CONVENTIONAL SYMBOLS**

SECTION LINE	--- ---	PARCEL NUMBER	(25)	UTILITY NUMBER	(40)
QUARTER LINE	--- ---	SECTION CORNER	(18, 23, 24, 16, 15, 9)	R/W MONUMENT	●
SIXTEENTH LINE	--- ---	NOTATION FOR COMBUSTIBLE FLUIDS	CAUTION	NON-MONUMENTED R/W POINT	○
NEW REFERENCE LINE	--- ---	NOTATION FOR HIGH VOLTAGE TRANSMISSION LINES	CAUTION	FOUND IRON PIN	IP
NEW R/W LINE	--- ---			VALVE (GAS, WATER, ETC.)	○ (TYPE)
EXISTING R/W LINE	--- ---			SIGN	IP SIGN
PROPERTY LINE	--- ---			OFF-PREMISE SIGN	(41-25) SIGN
LOT, TIE, AND OTHER MINOR LINES	--- ---				
SLOPE INTERCEPT	////				
CORPORATE LIMITS	--- ---				
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)	--- ---				
FEE ACQUISITION AREA (HATCHING VARIES BY OWNER)	////				
TEMP. LIMITED EASEMENT AREA	////	ACCESS CONTROLLED BY ACQUISITION			
EASEMENT AREA (HIGHWAY, PERMANENT LIMITED, OR RESTRICTED DEVELOPMENT)	////	NO ACCESS (BY STATUTORY AUTHORITY)	●●●●●		
TRANSMISSION STRUCTURES	--- ---	ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)	▲▲▲▲▲		
BUILDING	--- ---	NO ACCESS (NEW HIGHWAY)	▲▲▲▲▲		
BUILDING (TO BE REMOVED)	--- ---	NATIONAL GEODETIC SURVEY MONUMENT	⊙		
BRIDGE	--- ---	SIXTEENTH CORNER MONUMENT	⊙		
		PARALLEL OFFSETS	--- ---		

**CONVENTIONAL UTILITY SYMBOLS**

WATER	--- ---	NON-COMPENSABLE	⊙	COMPENSABLE	●
GAS	--- ---	POWER POLE	⊙	TELEPHONE POLE	⊙
TELEPHONE	--- ---	TELEPHONE PEDESTAL	⊙	TELEPHONE PEDESTAL	⊙
OVERHEAD TRANSMISSION LINES	--- ---				
ELECTRIC	--- ---				
CABLE TELEVISION	--- ---				
FIBER OPTIC	--- ---				
SANITARY SEWER	--- ---				
STORM SEWER	--- ---				
ELECTRIC TOWER	⊙				

**CURVE DATA ABBREVIATIONS**

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

**CONVENTIONAL ABBREVIATIONS**

ACCESS RIGHTS	AR	OUTLOT	OL
ACRES	AC	PAGE	P
AHEAD	AH	POINT OF TANGENCY	PT
ALUMINUM	ALUM	PROPERTY LINE	PL
AND OTHERS	ET AL	RECORDED AS	(100')
BACK	BK	REEL / IMAGE	R/I
BLOCK	BLK	REFERENCE LINE	R/L
CENTERLINE	C/L	PERMANENT LIMITED EASEMENT	PLE
CERTIFIED SURVEY MAP	CSM	POINT OF BEGINNING	POB
CONCRETE	CONC	POINT OF CURVATURE	PC
COUNTY	CO	POINT OF COMPOUND CURVE	PCC
COUNTY TRUNK HIGHWAY	CTH	POINT OF INTERSECTION	PI
DISTANCE	DIST	REMAINING	REM
CORNER	COR	RESTRICTIVE DEVELOPMENT EASEMENT	RDE
DOCUMENT NUMBER	DOC	RIGHT	RT
EASEMENT	EASE	RIGHT OF WAY	R/W
EXISTING	EX	SECTION	SEC
GAS VALVE	GV	SEPTIC VENT	SEPV
GRID NORTH	GN	SQUARE FEET	SF
HIGHWAY EASEMENT	HE	STATE TRUNK HIGHWAY	STH
IDENTIFICATION	ID	STATION	STA
LAND CONTRACT	LC	TELEPHONE PEDESTAL	TP
LEFT	LT	TEMPORARY LIMITED EASEMENT	TLE
MONUMENT	MON	TRANSPORTATION PROJECT PLAT	TPP
NATIONAL GEODETIC SURVEY	NGS	UNITED STATES HIGHWAY	USH
NUMBER	NO	VOLUME	V

**NOTES:**

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), FOND DU LAC COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 MONUMENTS (TYPICALLY 1" I.D. X 24" IRON PIPES), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

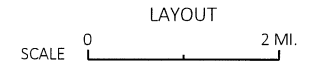
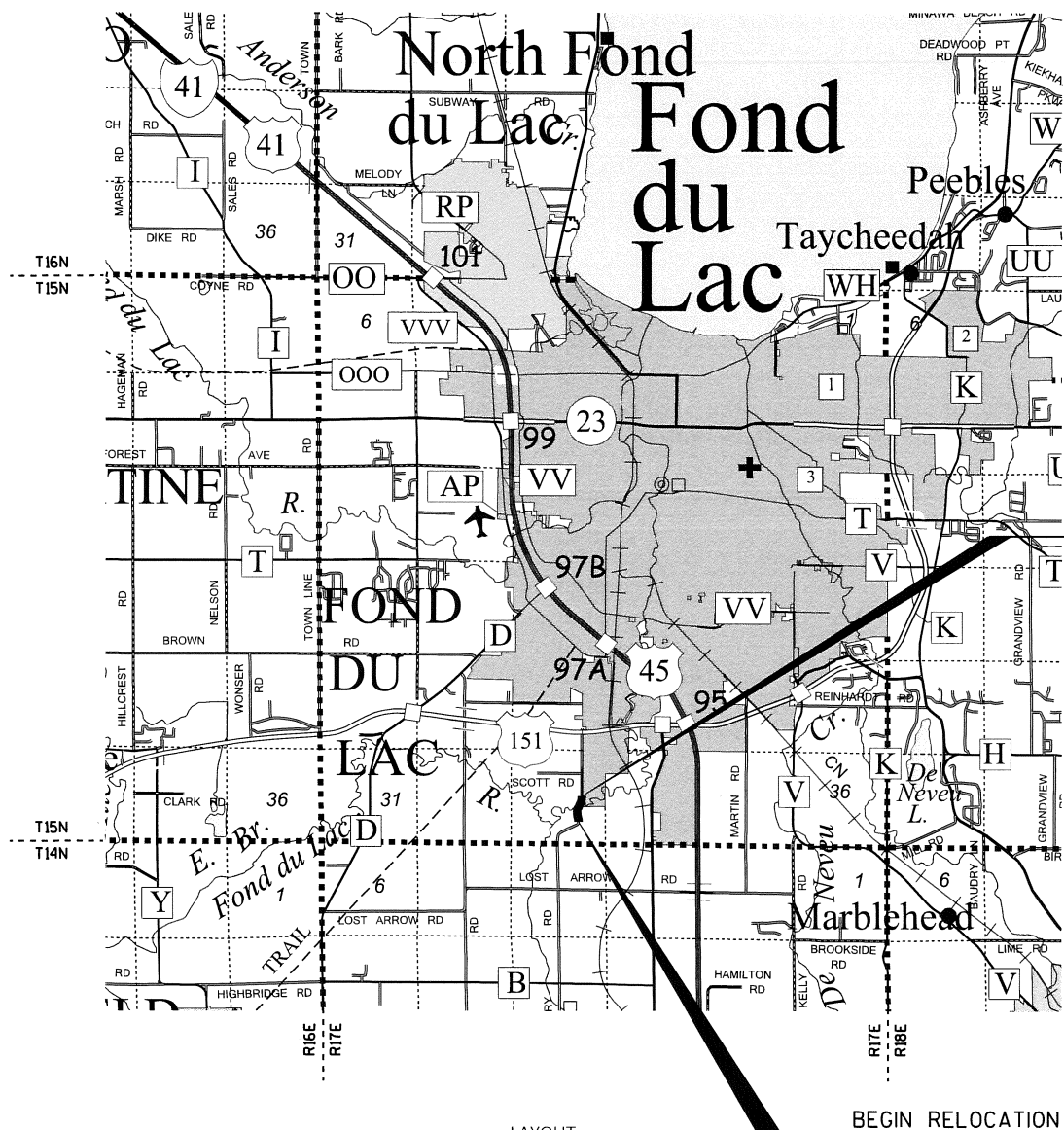
RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD".

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

FOR CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN GREEN BAY.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE. ALL (TLEs) ON THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

INFORMATION FOR THE BASIS OF EXISTING HIGHWAY RIGHT-OF-WAY POINTS OF REFERENCE AND ACCESS CONTROL ARE LISTED ON DETAIL SHEETS.



TOTAL NET LENGTH OF CENTERLINE = 0.307 MI.

**CAUTION:**  
THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY.  
DEEDS MUST BE CHECKED TO DETERMINE  
PROPERTY BOUNDARIES.

**END RELOCATION ORDER**

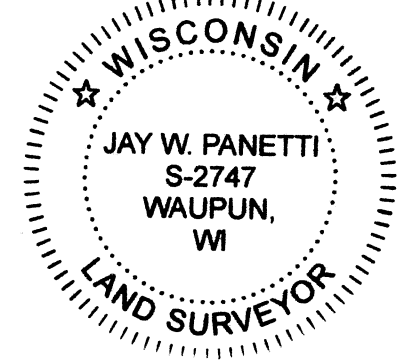
59+00.00  
Y 367146.21  
X 811667.61  
2468.15' SOUTH AND 1308.63' EAST OF THE  
NORTH QUARTER CORNER OF SECTION 33, T15N, R1E

**BEGIN RELOCATION ORDER**

42+77.59  
Y 365573.75  
X 811477.04  
1238.19' NORTH AND 1155.15' EAST OF THE  
SOUTH QUARTER CORNER OF SECTION 33, T15N, R1E

ACCEPTED FOR  
TOWN OF FOND DU LAC  
Date: 1/14/2021  
ROBERT GIESE  
TOWN CHAIRPERSON

ORIGINAL PLAT PREPARED BY  
**G GREMMER & ASSOCIATES, INC.**  
CONSULTING ENGINEERS  
Stevens Point • Fond du Lac  
95 South Pioneer Road, Suite 300 • Fond du Lac, WI 54605  
(920) 924-5720 • Fax (920) 924-5725  
Date: 1/11/2021  
JAY W. PANETTI, PLS



REVISION DATE  
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
APPROVED FOR THE DEPARTMENT  
DATE: \_\_\_\_\_ (Signature)

# SCHEDULE OF LANDS & INTERESTS REQUIRED


AREAS SHOWN IN THE TOTAL ACRES COLUMN MAY BE APPROXIMATE AND ARE DERIVED FROM TAX ROLLS OR OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER WHICH ARE NOT CONTIGUOUS TO THE AREA TO BE ACQUIRED. OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE DEPARTMENT.

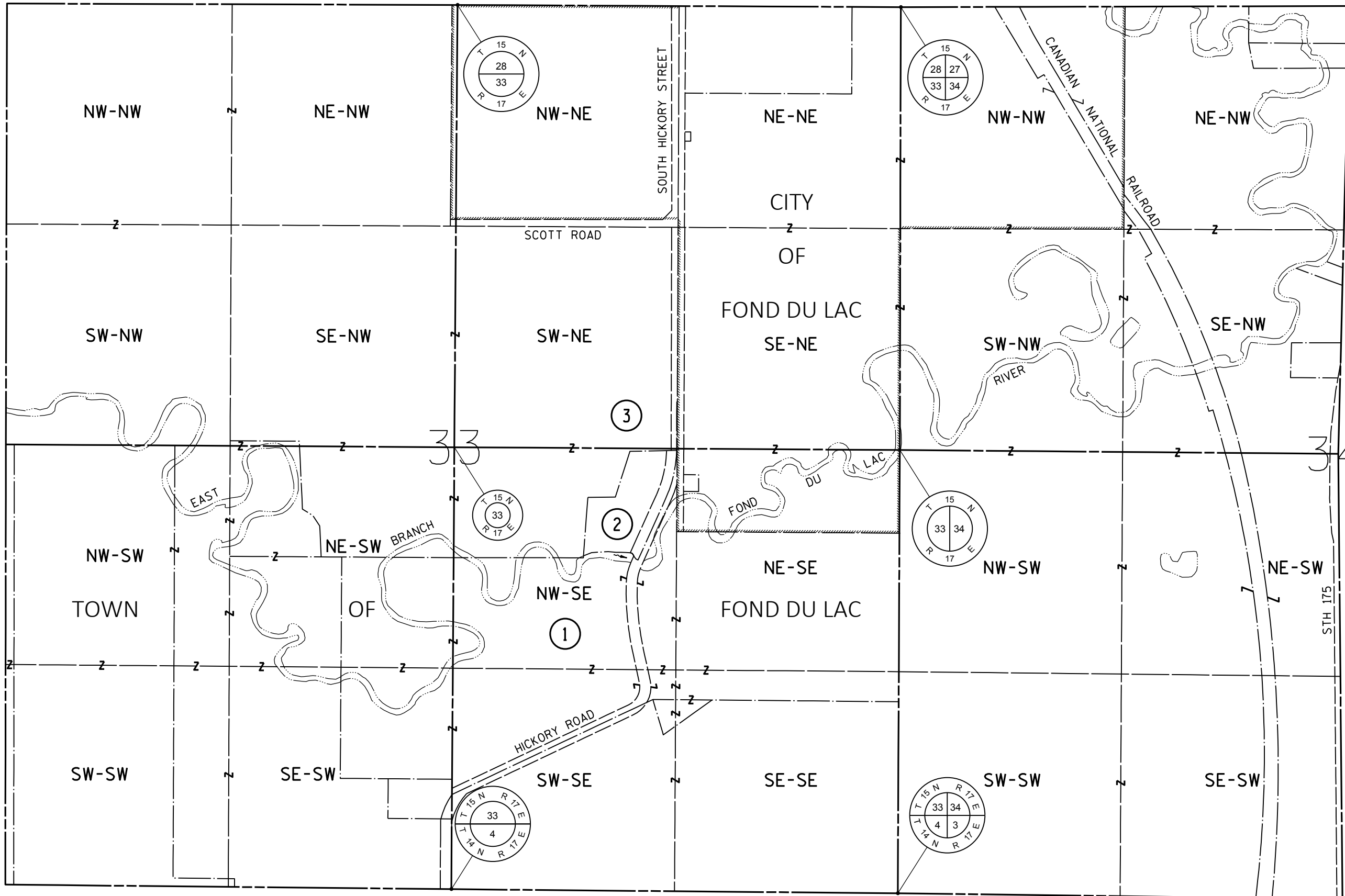
PARCEL NUMBER	SHEET NUMBER	OWNER(S)	INTEREST REQUIRED	R/W ACRES REQUIRED			T.L.E. ACRES TEMP.	TAX KEY NUMBER
				NEW	EXISTING	TOTAL		
1	4.04, 4.05	LEONARD A. MALLAS AND DEBRA A. MALLAS	FEE	0.035	0.112	0.147	0	T09-15-17-33-15-002-00
			FEE, TLE	0.515	1.456	1.971	0.079	T09-15-17-33-14-003-00
			TOTALS:	0.550	1.568	2.118	0.079	
2	4.05	CYNTHIA HEUER	FEE, TLE	0.134	0	0.134	0.017	T09-15-17-33-14-002-00
3	4.05	DAVID M. SCHMITZ AND MARY K. ROWE-SCHMITZ, AS TRUSTEES OF THE DAVID AND MARY SCHMITZ FAMILY TRUST	FEE	0.003	0.008	0.011	0	T09-15-17-33-14-001-00
			FEE	0.039	0.149	0.188	0	T09-15-17-33-03-001-00
			TOTALS:	0.042	0.157	0.199	0	
101	4.04, 4.05	AT&T WISCONSIN	RELEASE OF RIGHTS					

4

4

SHEET 2 OF 5 SHEETS

REVISION DATE	DATE 1/11/2021	SCALE, FEET	HWY: HICKORY ROAD	STATE R/W PROJECT NUMBER 4809-11-00	PLAT SHEET 4.02
	GRID FACTOR		COUNTY: FOND DU LAC	CONSTRUCTION PROJECT NUMBER 4809-11-71	PS&E SHEET



4

4

SHEET 3 OF 5 SHEETS

REVISION DATE	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

DATE	1/11/2021
GRID FACTOR	_____

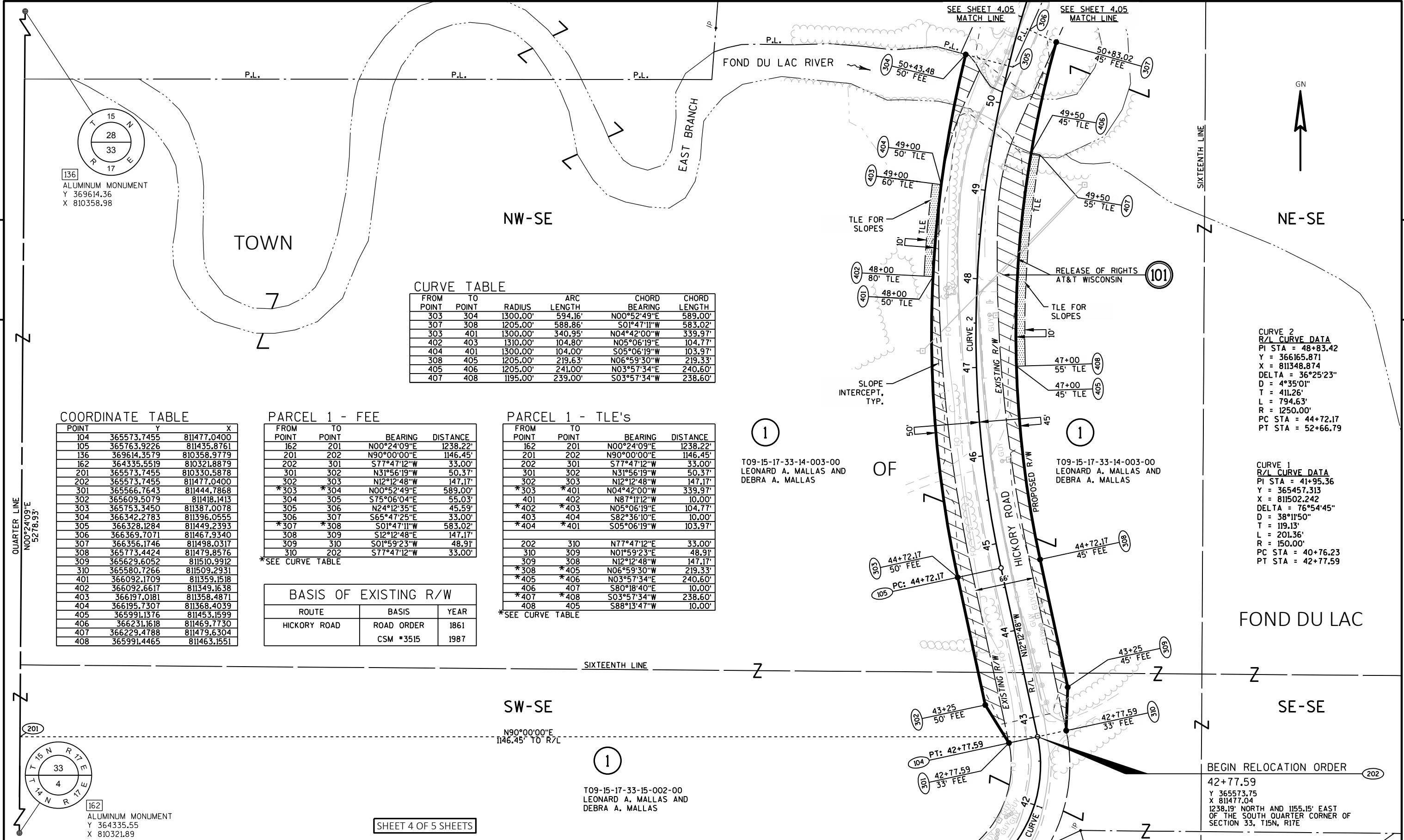


HWY:	HICKORY ROAD
COUNTY:	FOND DU LAC

STATE R/W PROJECT NUMBER	4809-11-00
CONSTRUCTION PROJECT NUMBER	4809-11-71

PLAT SHEET	4.03
PS&E SHEET	_____

E



**CURVE TABLE**

FROM POINT	TO POINT	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
303	304	1300.00'	594.16'	N00°52'49"E	589.00'
307	308	1205.00'	588.86'	S01°47'11"W	583.02'
303	401	1300.00'	340.95'	N04°42'00"W	339.97'
402	403	1310.00'	104.80'	N05°06'19"E	104.77'
404	401	1300.00'	104.00'	S05°06'19"W	103.97'
308	405	1205.00'	219.63'	N06°59'30"W	219.33'
405	406	1205.00'	241.00'	N03°57'34"E	240.60'
407	408	1195.00'	239.00'	S03°57'34"W	238.60'

**COORDINATE TABLE**

POINT	Y	X
104	365573.7455	811477.0400
105	365763.9226	811435.8761
136	369614.3579	810358.9779
162	364335.5519	810321.8879
201	365573.7455	810330.5878
202	365573.7455	811477.0400
301	365566.7643	811444.7868
302	365609.5079	811418.1413
303	365753.3450	811387.0078
304	366342.2783	811396.0555
305	366328.1284	811449.2393
306	366369.7071	811467.9340
307	366356.1746	811498.0317
308	365773.4424	811479.8576
309	365629.6052	811510.9912
310	365580.7266	811509.2931
401	366092.1709	811359.1518
402	366092.6617	811349.1638
403	366197.0181	811358.4871
404	366195.7307	811368.4039
405	365991.1376	811453.1599
406	366231.1618	811469.7730
407	366229.4788	811479.6304
408	365991.4465	811463.1551

**PARCEL 1 - FEE**

FROM POINT	TO POINT	BEARING	DISTANCE
162	201	N00°24'09"E	1238.22'
201	202	N90°00'00"E	1146.45'
202	301	S77°47'12"W	33.00'
301	302	N31°56'19"W	50.37'
302	303	N12°12'48"W	147.17'
*303	*304	N00°52'49"E	589.00'
304	305	S75°06'04"E	55.03'
305	306	N24°12'35"E	45.59'
306	307	S65°47'25"E	33.00'
*307	*308	S01°47'11"W	583.02'
308	309	S12°12'48"E	147.17'
309	310	S01°59'23"W	48.91'
310	202	S77°47'12"W	33.00'

\*SEE CURVE TABLE

**PARCEL 1 - TLE's**

FROM POINT	TO POINT	BEARING	DISTANCE
162	201	N00°24'09"E	1238.22'
201	202	N90°00'00"E	1146.45'
202	301	S77°47'12"W	33.00'
301	302	N31°56'19"W	50.37'
302	303	N12°12'48"W	147.17'
*303	*401	N04°42'00"W	339.97'
401	402	N87°11'12"W	10.00'
*402	*403	N05°06'19"E	104.77'
403	404	S82°36'10"E	10.00'
*404	*401	S05°06'19"W	103.97'
202	310	N77°47'12"E	33.00'
310	309	N01°59'23"E	48.91'
309	308	N12°12'48"W	147.17'
*308	*405	N06°59'30"W	219.33'
*405	*406	N03°57'34"E	240.60'
406	407	S80°18'40"E	10.00'
*407	*408	S03°57'34"W	238.60'
408	405	S88°13'47"W	10.00'

\*SEE CURVE TABLE

**BASIS OF EXISTING R/W**

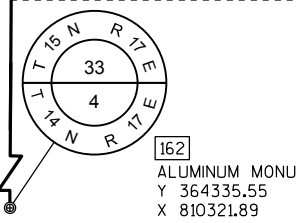
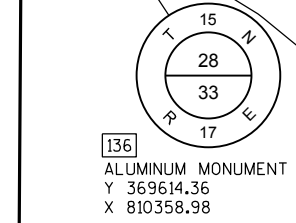
ROUTE	BASIS	YEAR
HICKORY ROAD	ROAD ORDER	1861
	CSM #3515	1987

**CURVE 2 R/L CURVE DATA**

PI STA = 48+83.42  
 Y = 366165.871  
 X = 811348.874  
 DELTA = 36°25'23"  
 D = 4°35'01"  
 T = 411.26'  
 L = 794.63'  
 PC = 1250.00'  
 PT STA = 52+66.79

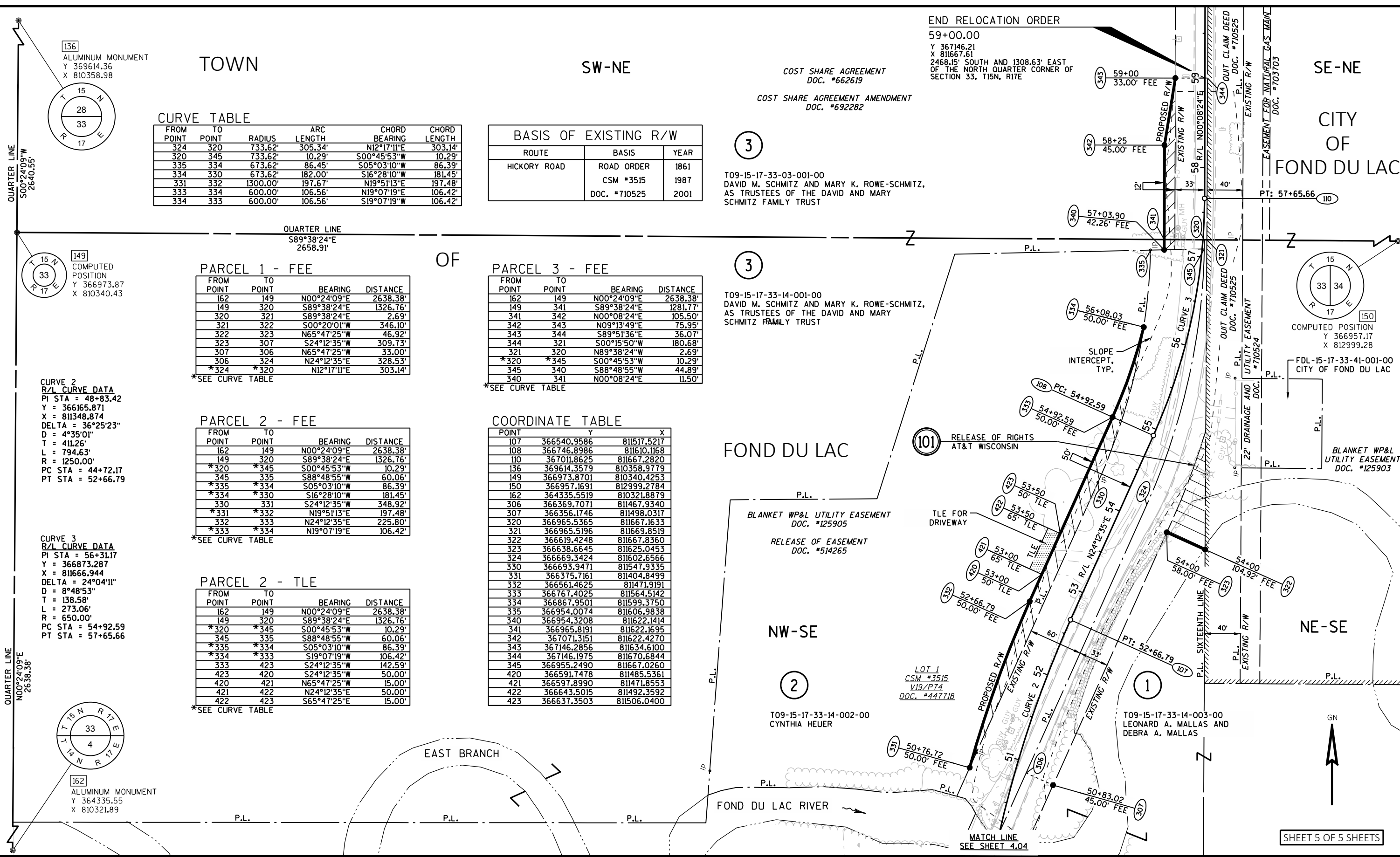
**CURVE 1 R/L CURVE DATA**

PI STA = 41+95.36  
 Y = 365457.313  
 X = 811502.242  
 DELTA = 76°54'45"  
 D = 38°11'50"  
 T = 119.13'  
 L = 201.36'  
 R = 150.00'  
 PC STA = 40+76.23  
 PT STA = 42+77.59



SHEET 4 OF 5 SHEETS

REVISION DATE	DATE 1/11/2021	SCALE, FEET 0 50 100	HWY: HICKORY ROAD	STATE R/W PROJECT NUMBER 4809-11-00	PLAT SHEET 4.04
	GRID FACTOR		COUNTY: FOND DU LAC	CONSTRUCTION PROJECT NUMBER 4809-11-71	PS&E SHEET



CURVE TABLE

FROM POINT	TO POINT	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
324	320	733.62'	305.34'	N12°17'11"E	303.14'
320	345	733.62'	10.29'	S00°45'53"W	10.29'
335	334	673.62'	86.45'	S05°03'10"W	86.39'
334	330	673.62'	182.00'	S16°28'10"W	181.45'
331	332	1300.00'	197.67'	N19°51'13"E	197.48'
333	334	600.00'	106.56'	N19°07'19"E	106.42'
334	333	600.00'	106.56'	S19°07'19"W	106.42'

BASIS OF EXISTING R/W

ROUTE	BASIS	YEAR
HICKORY ROAD	ROAD ORDER	1861
	CSM #3515	1987
	DOC. #710525	2001

PARCEL 1 - FEE

FROM POINT	TO POINT	BEARING	DISTANCE
162	149	N00°24'09"E	2638.38'
149	320	S89°38'24"E	1326.76'
320	321	S89°38'24"E	2.69'
321	322	S00°20'01"W	346.10'
322	323	N65°47'25"W	46.92'
323	307	S24°12'35"W	309.73'
307	306	N65°47'25"W	33.00'
306	324	N24°12'35"E	328.53'
*324	*320	N12°17'11"E	303.14'

PARCEL 3 - FEE

FROM POINT	TO POINT	BEARING	DISTANCE
162	149	N00°24'09"E	2638.38'
149	341	S89°38'24"E	1281.77'
341	342	N00°08'24"E	105.50'
342	343	N09°13'49"E	75.95'
343	344	S89°51'36"E	36.07'
344	321	S00°15'50"W	180.68'
321	320	N89°38'24"W	2.69'
*320	*345	S00°45'53"W	10.29'
345	340	S88°48'55"W	44.89'
340	341	N00°08'24"E	11.50'

PARCEL 2 - FEE

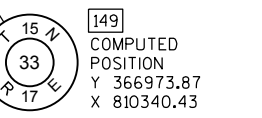
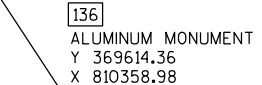
FROM POINT	TO POINT	BEARING	DISTANCE
162	149	N00°24'09"E	2638.38'
149	320	S89°38'24"E	1326.76'
*320	*345	S00°45'53"W	10.29'
345	335	S88°48'55"W	60.06'
*335	*334	S05°03'10"W	86.39'
*334	*330	S16°28'10"W	181.45'
330	331	S24°12'35"W	348.92'
*331	*332	N19°51'13"E	197.48'
332	333	N24°12'35"E	225.80'
*333	*334	N19°07'19"E	106.42'

COORDINATE TABLE

POINT	X	Y
107	366540.9586	811517.5217
108	366746.8986	811610.1168
110	367011.8625	811667.2820
136	369614.3579	810358.9779
149	366973.8701	810340.4253
150	366957.1691	812999.2784
162	364335.5519	810321.8879
306	366369.7071	811467.9340
307	366356.1746	811498.0317
320	366965.5365	811667.1633
321	366965.5196	811669.8519
322	366619.4248	811667.8360
323	366638.6645	811625.0453
324	366669.3424	811602.6566
330	366693.9471	811547.9335
331	366375.7161	811404.8499
332	366561.4625	811471.9191
333	366767.4025	811564.5142
334	366867.9501	811599.3750
335	366954.0074	811606.9838
340	366954.3208	811622.1414
341	366965.8191	811622.1695
342	367071.3151	811622.4270
343	367146.2856	811634.6100
344	367146.1975	811670.6844
345	366955.2490	811667.0260
420	366591.7478	811485.5361
421	366597.8990	811471.8553
422	366643.5015	811492.3592
423	366637.3503	811506.0400

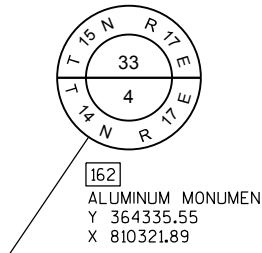
PARCEL 2 - TLE

FROM POINT	TO POINT	BEARING	DISTANCE
162	149	N00°24'09"E	2638.38'
149	320	S89°38'24"E	1326.76'
*320	*345	S00°45'53"W	10.29'
345	335	S88°48'55"W	60.06'
*335	*334	S05°03'10"W	86.39'
*334	*333	S19°07'19"W	106.42'
333	423	S24°12'35"W	142.59'
423	420	S24°12'35"W	50.00'
420	421	N65°47'25"W	15.00'
421	422	N24°12'35"E	50.00'
422	423	S65°47'25"E	15.00'



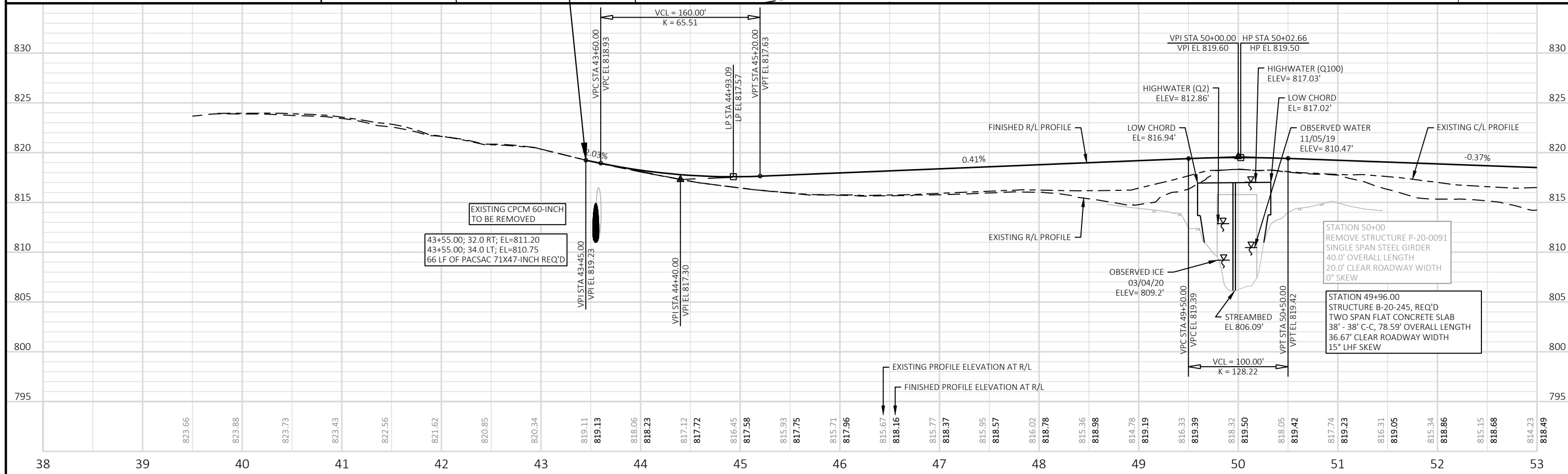
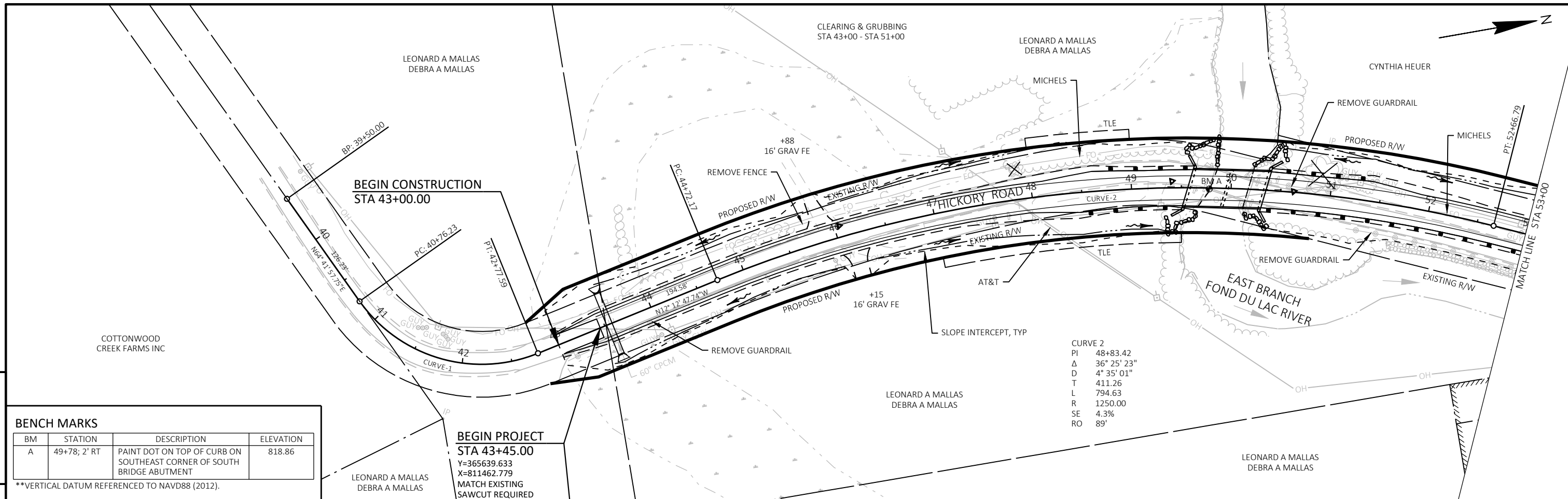
CURVE 2  
R/L CURVE DATA  
PI STA = 48+83.42  
Y = 366165.871  
X = 811348.874  
DELTA = 36°25'23"  
D = 4°35'01"  
T = 411.26'  
L = 794.63'  
R = 1250.00'  
PC STA = 44+72.17  
PT STA = 52+66.79

CURVE 3  
R/L CURVE DATA  
PI STA = 56+31.17  
Y = 366873.287  
X = 811666.944  
DELTA = 24°04'11"  
D = 8°48'53"  
T = 138.58'  
L = 273.06'  
R = 650.00'  
PC STA = 54+92.59  
PT STA = 57+65.66

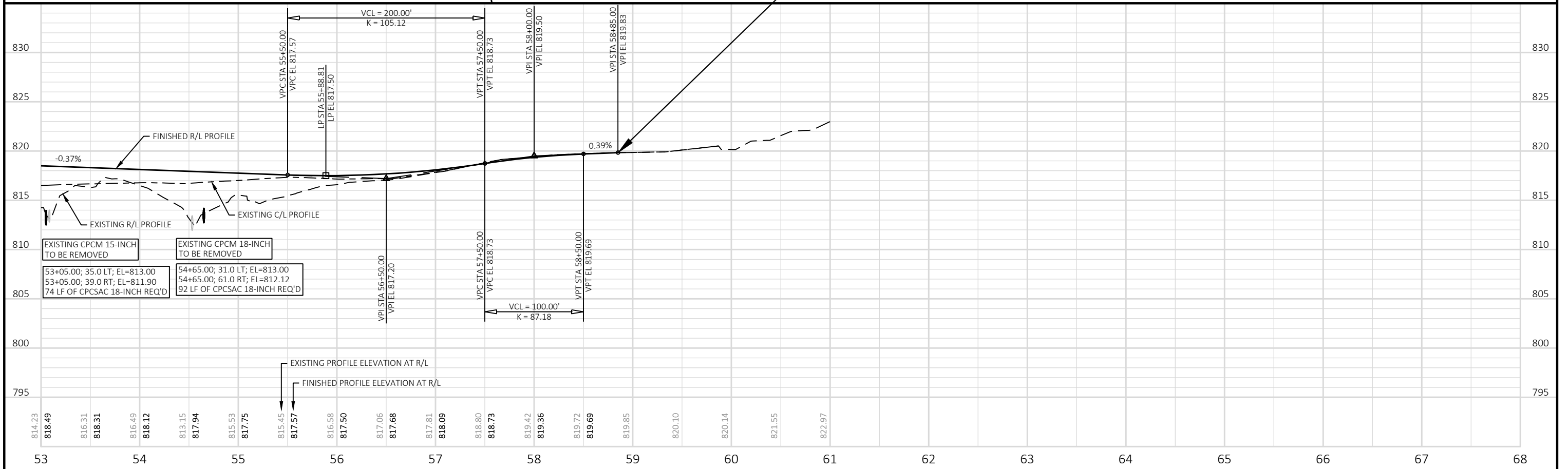
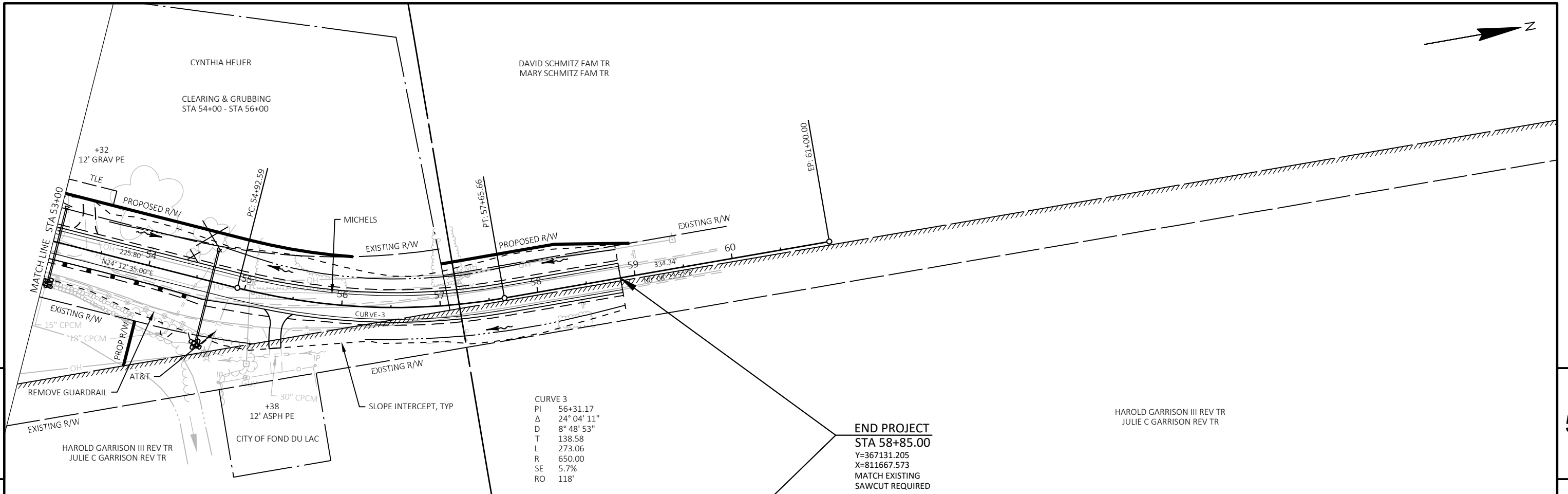


REVISION DATE	DATE 1/11/2021	SCALE, FEET	HWY: HICKORY ROAD	STATE R/W PROJECT NUMBER 4809-11-00	PLAT SHEET 4.05
	GRID FACTOR	0 50 100	COUNTY: FOND DU LAC	CONSTRUCTION PROJECT NUMBER 4809-11-71	PS&E SHEET





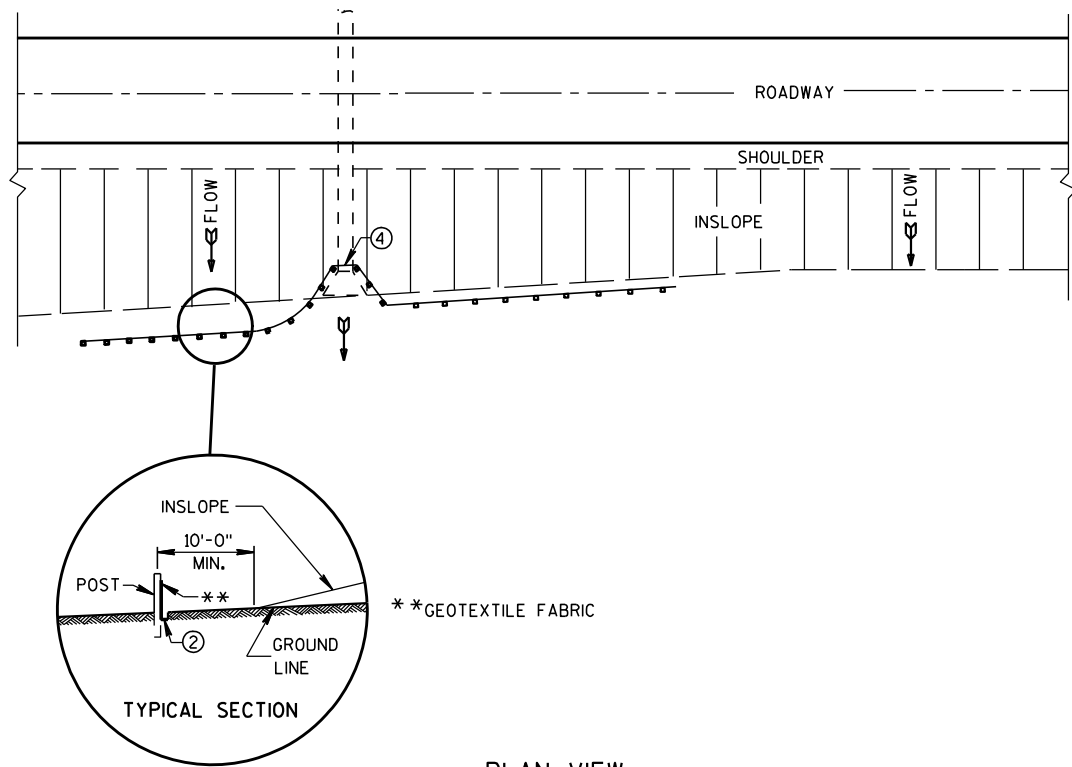
PROJECT NO: 4809-11-71    HWY: HICKORY ROAD    COUNTY: FOND DU LAC    PLAN AND PROFILE: HICKORY ROAD    SHEET: E



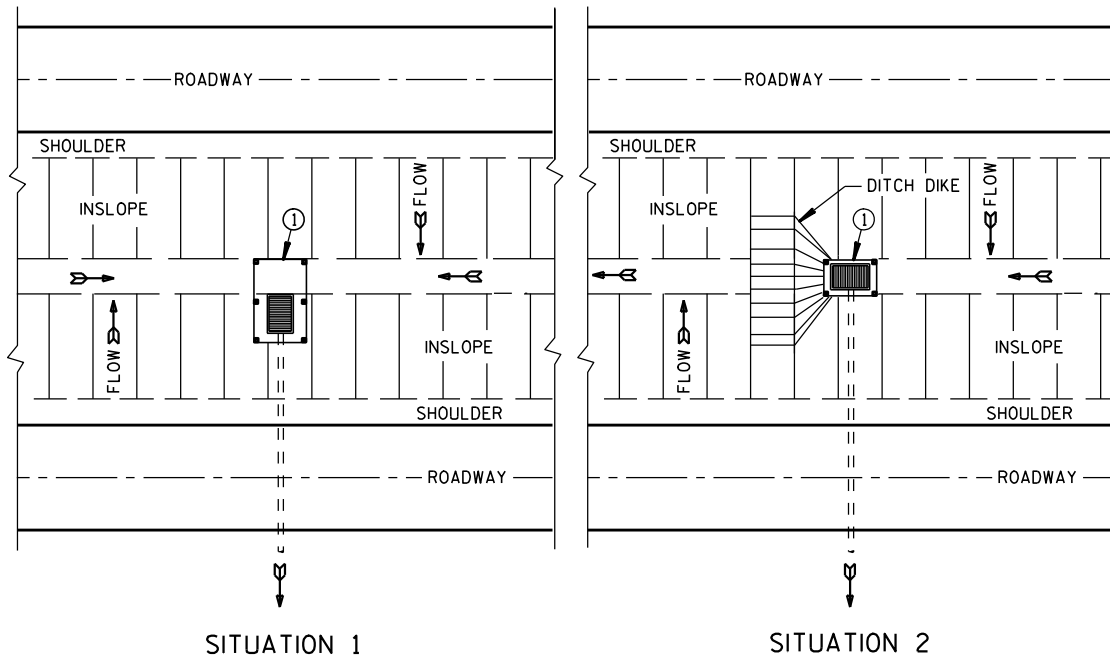
PROJECT NO: 4809-11-71	HWY: HICKORY ROAD	COUNTY: FOND DU LAC	PLAN AND PROFILE: HICKORY ROAD	SHEET	<b>E</b>
------------------------	-------------------	---------------------	--------------------------------	-------	----------

## Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
14B29-01	SAFETY EDGE
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)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

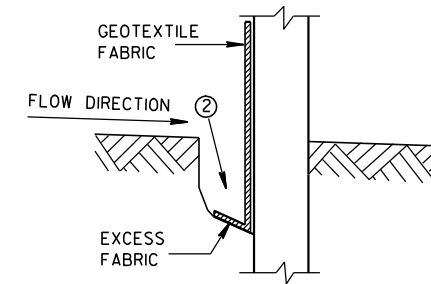


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

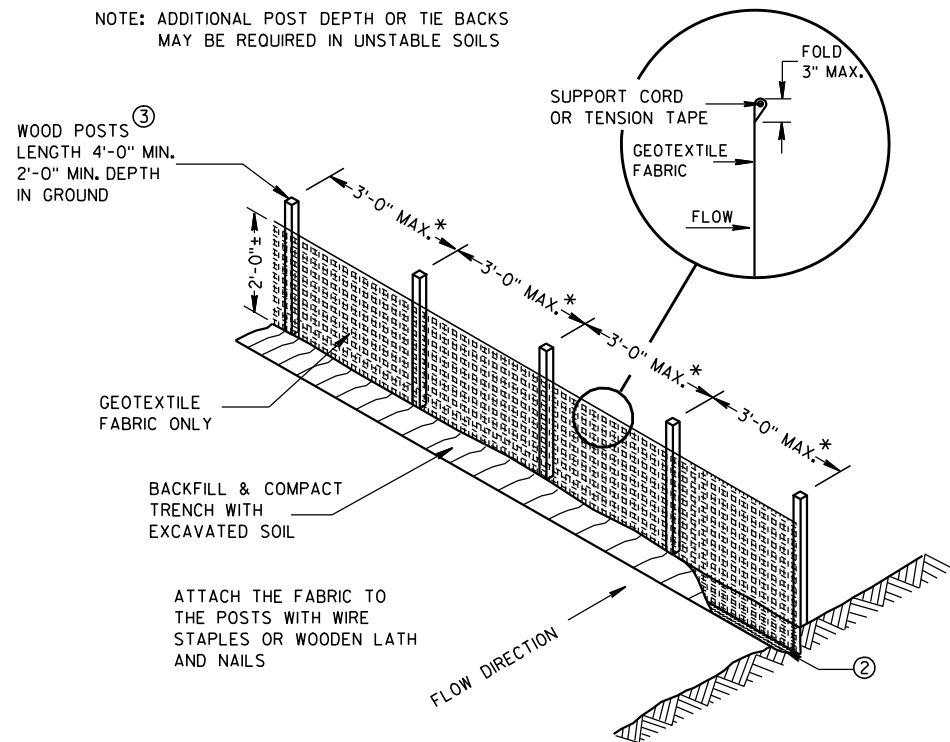
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



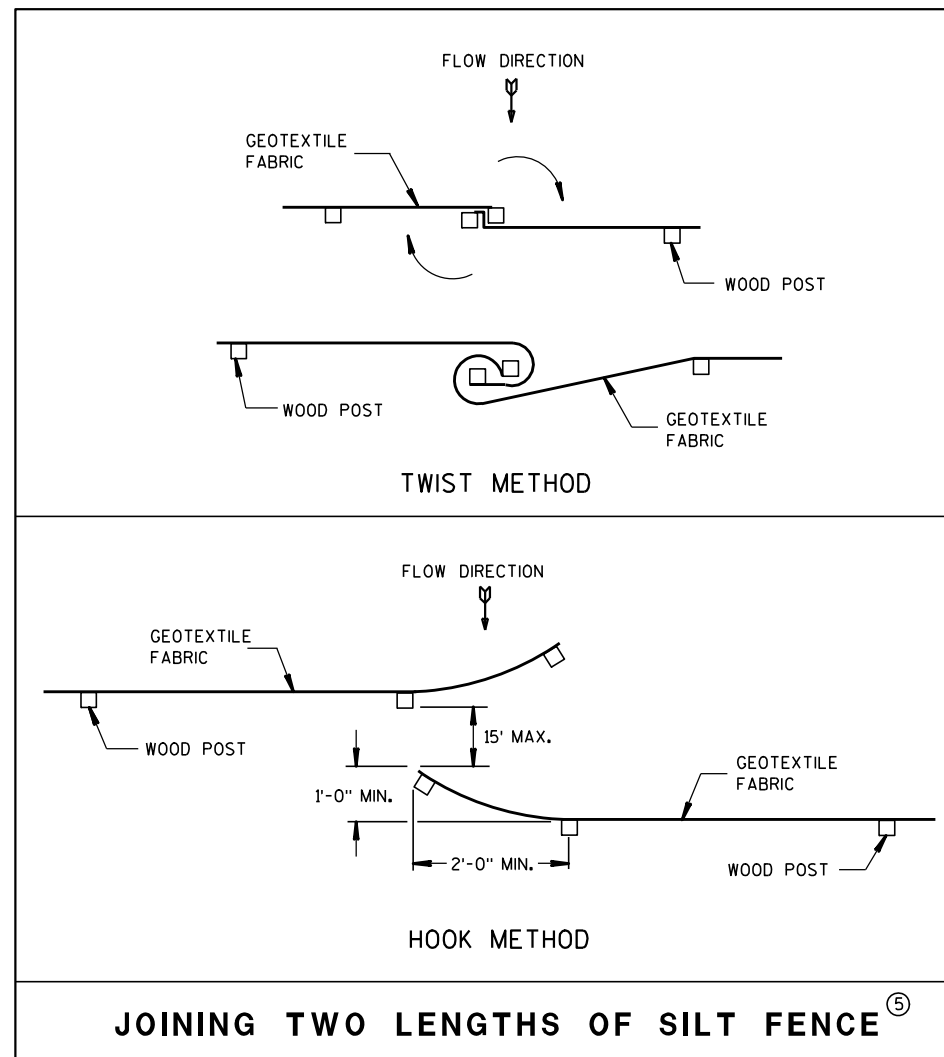
TRENCH DETAIL

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

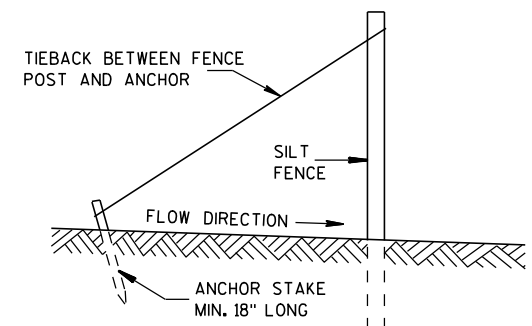


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

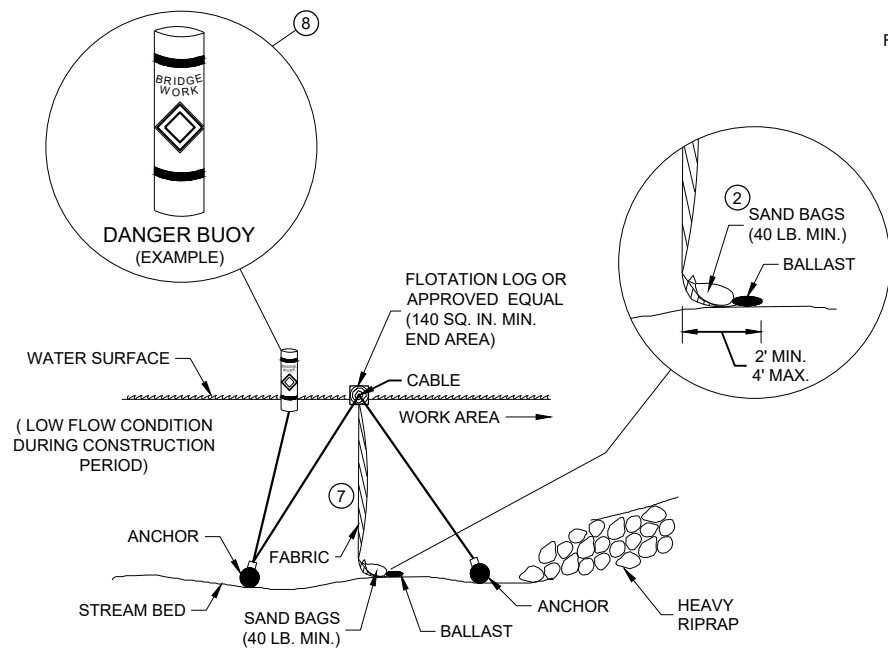


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

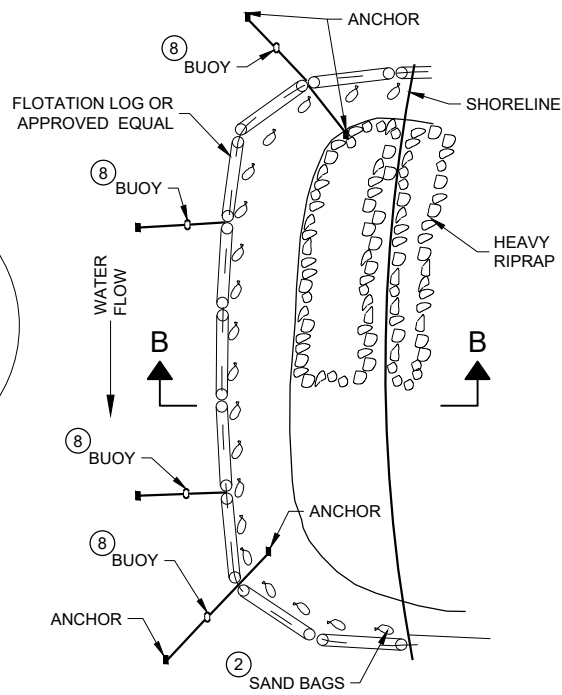
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

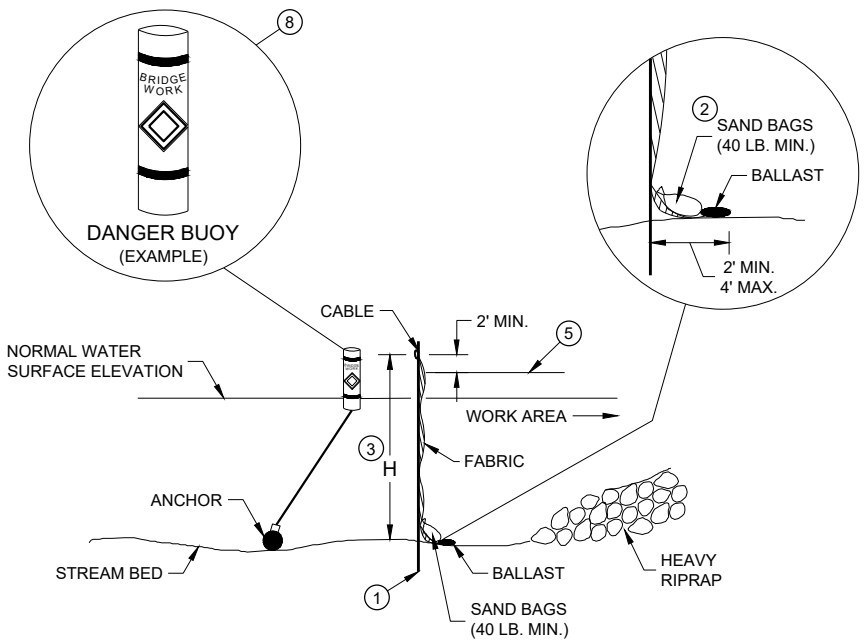


**SECTION B - B**

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

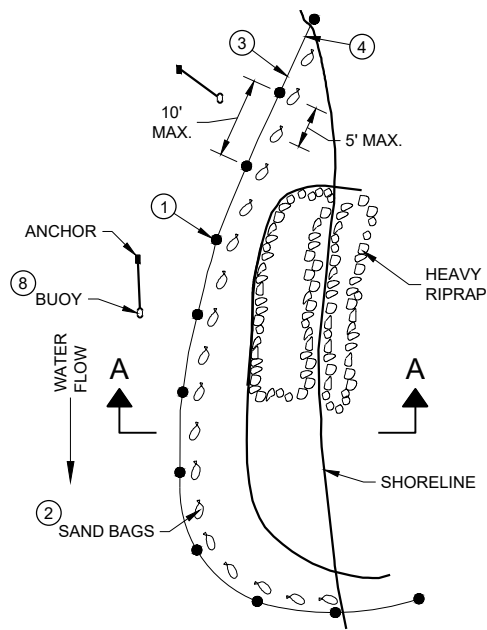


**PLAN VIEW**



**SECTION A - A**

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**



**PLAN VIEW**

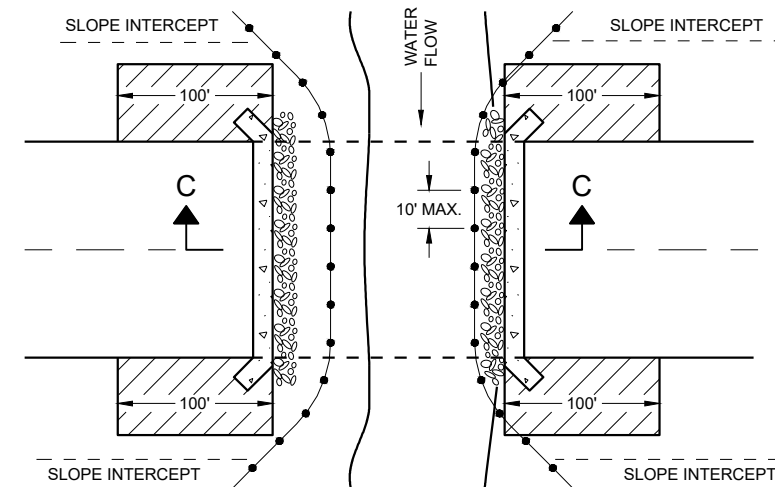
**TURBIDITY BARRIER PLACEMENT DETAILS**

**GENERAL NOTES**

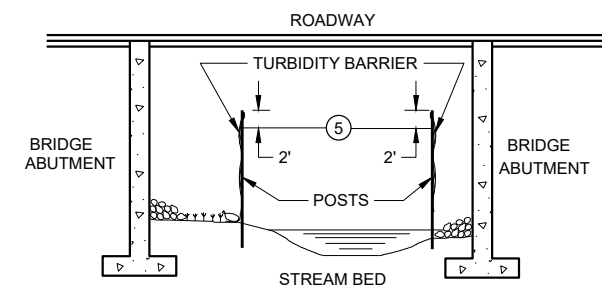
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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



**PLAN VIEW**



**SECTION C - C**

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

**TURBIDITY BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

**GENERAL NOTES**

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

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

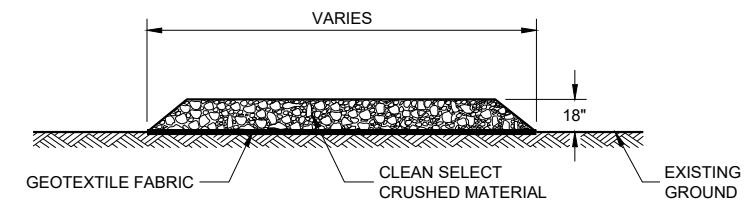
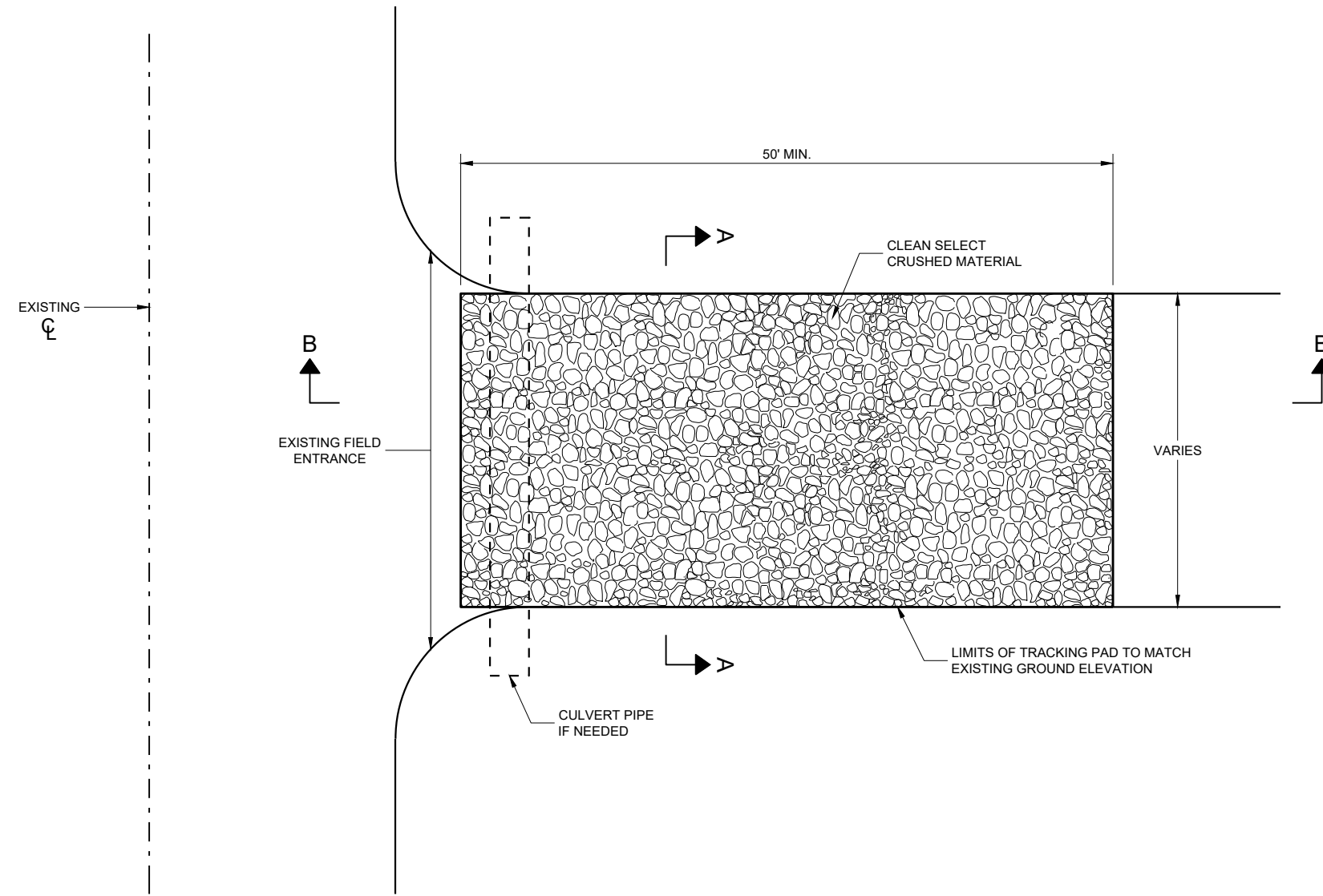
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

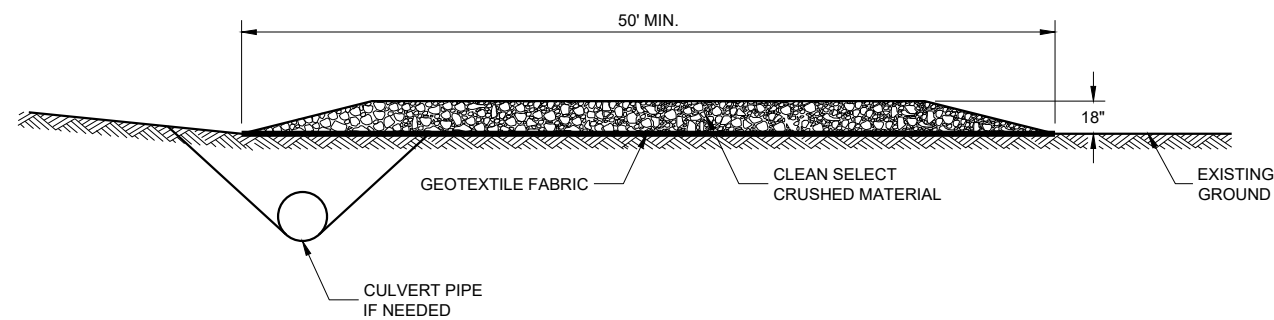
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

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

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



**SECTION A - A**



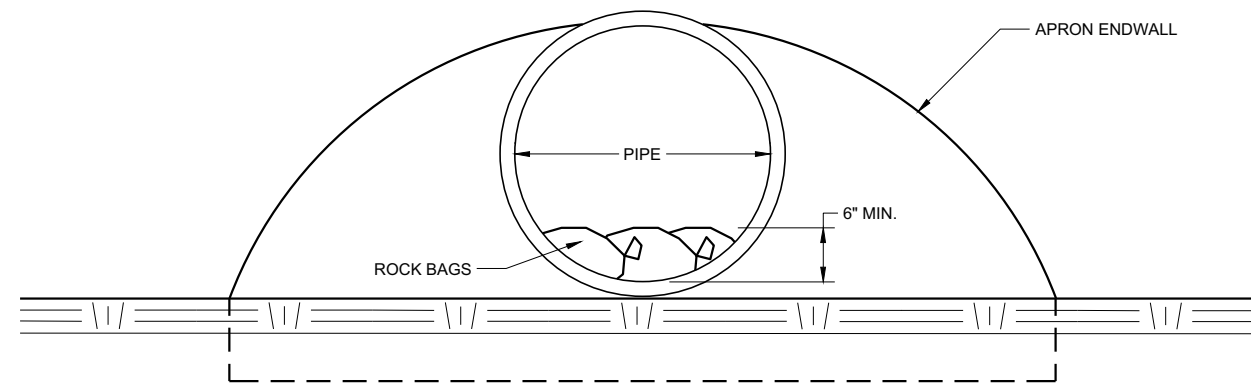
**SECTION B - B**

**TRACKING PAD**

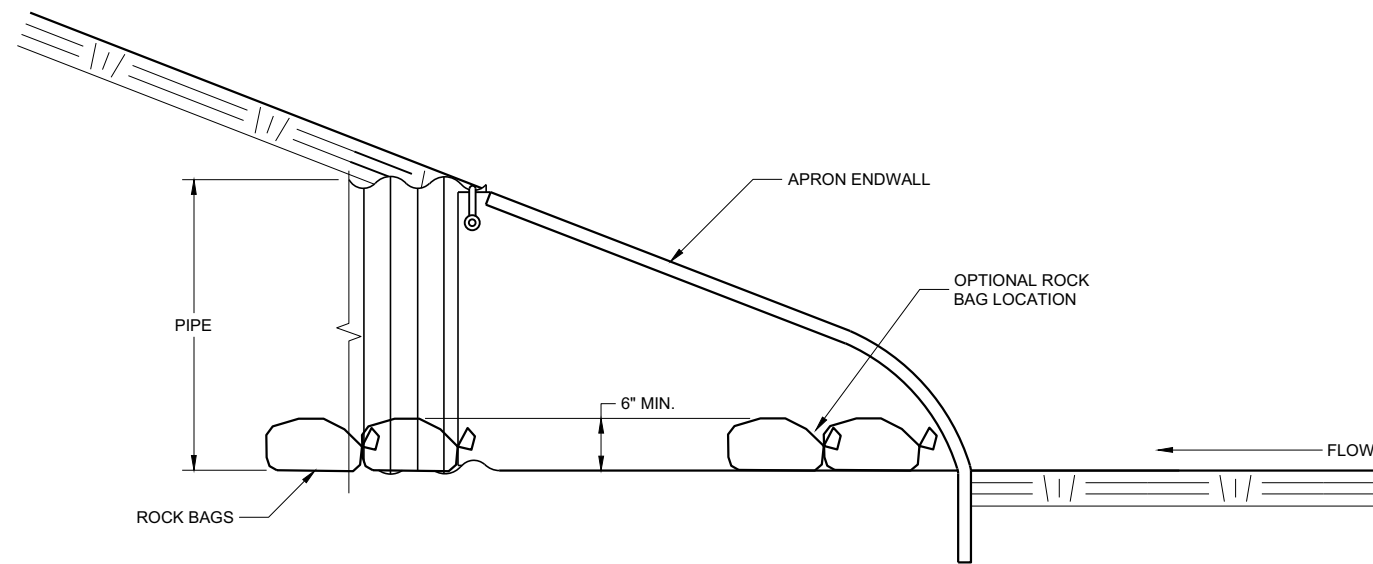
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/24/2011 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA



**END VIEW**



**SIDE VIEW**

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

6

6

SDD 08E15 - 01

SDD 08E15 - 01

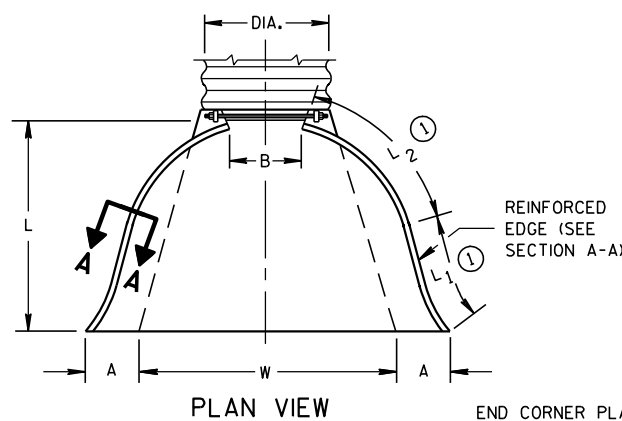
<b>CULVERT PIPE CHECK</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGINEER
<small>FHWA</small>	

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

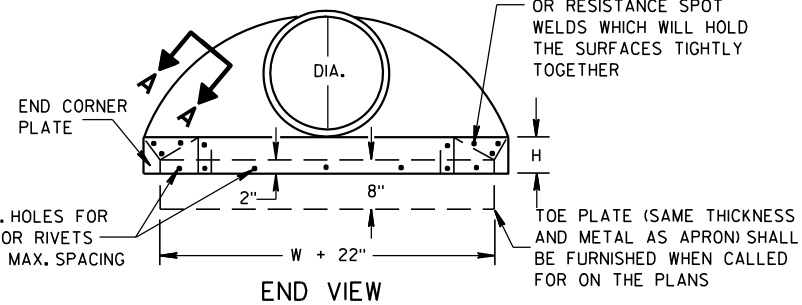
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

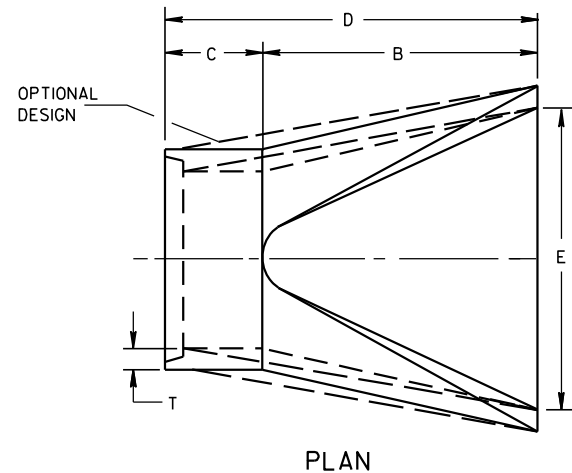
\* MINIMUM  
\*\* MAXIMUM



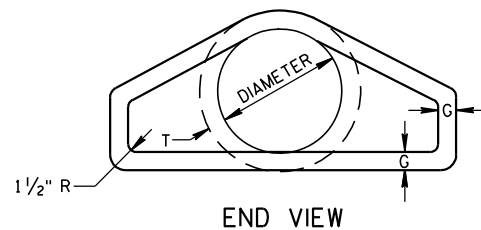
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



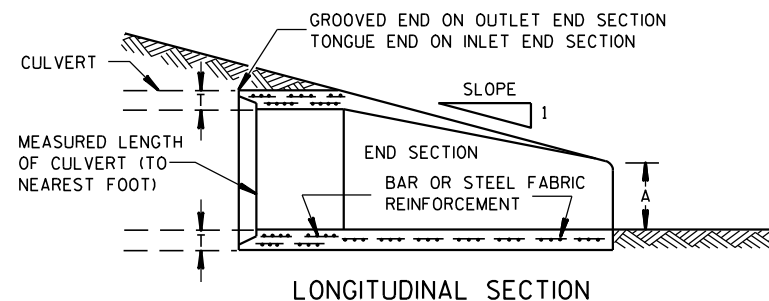
SIDE ELEVATION  
METAL ENDWALLS



PLAN

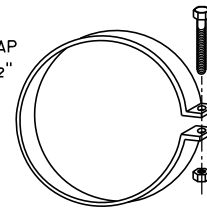


END VIEW

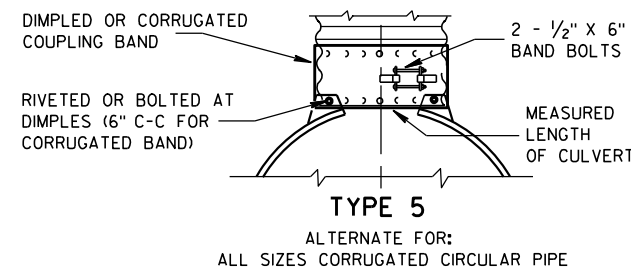
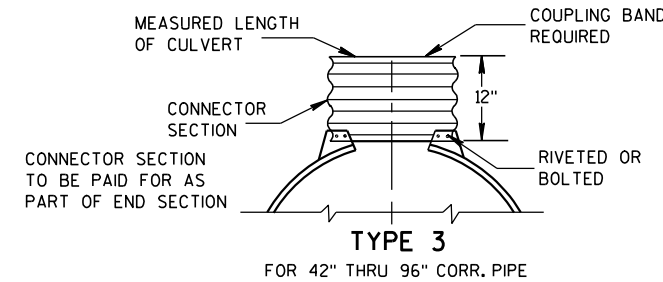
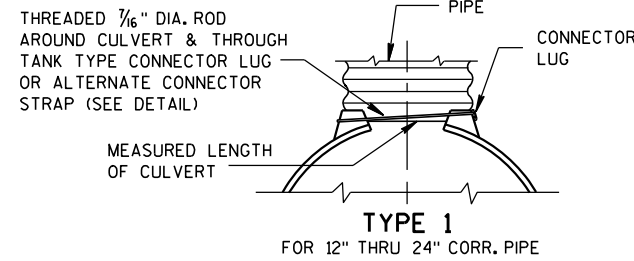


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



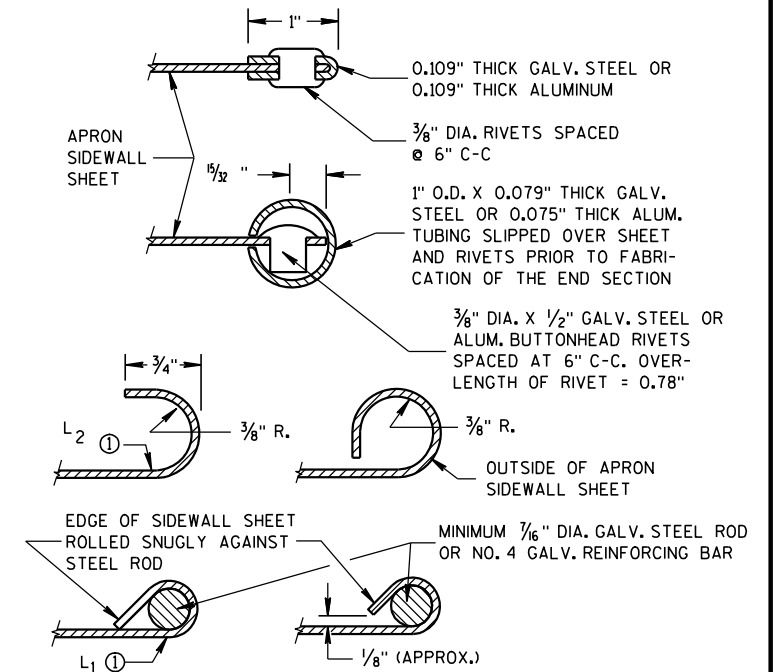
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

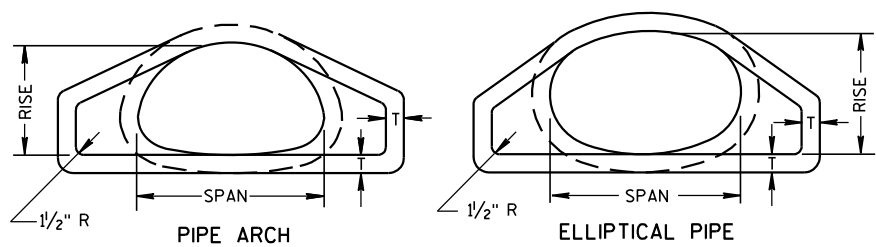
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR  
CULVERT PIPE

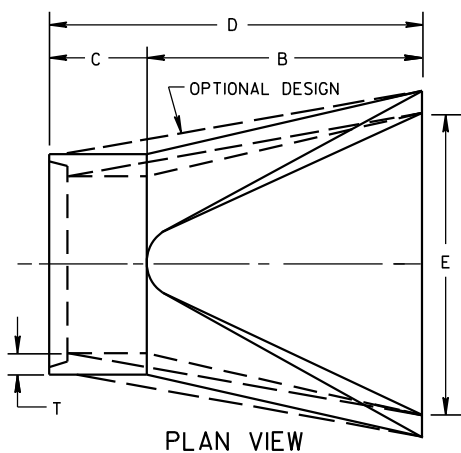
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

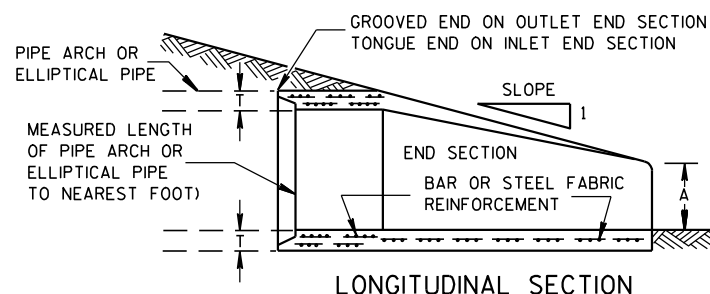




END VIEW



PLAN VIEW



LONGITUDINAL SECTION

CONCRETE ENDWALLS

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

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

**3" X 1" CORRUGATIONS**

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

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

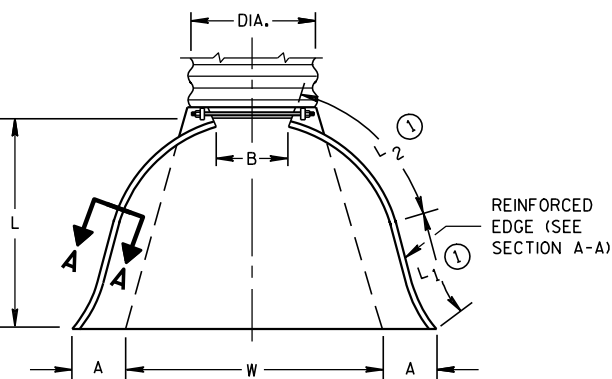
**REINFORCED CONCRETE PIPE ARCH**

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/8	60	36	96	72	3 to 1
42	51	31	4 1/2	15 5/16	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

**REINFORCED CONCRETE ELLIPTICAL PIPE**

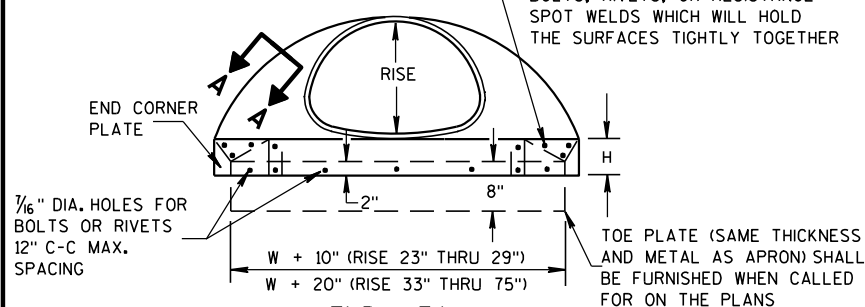
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 3/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68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

\*\*NOMINAL SIZE

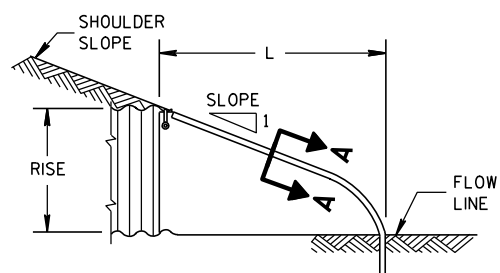


PLAN VIEW

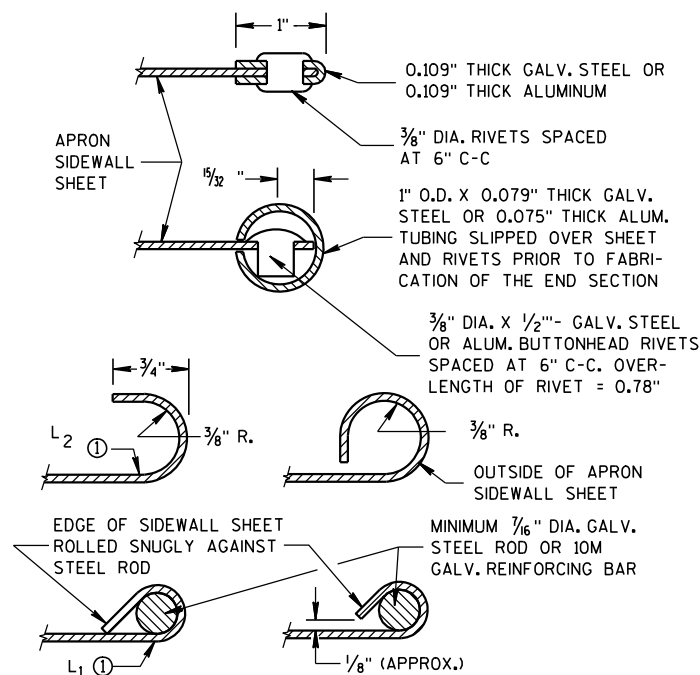
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW



SIDE ELEVATION  
METAL ENDWALLS

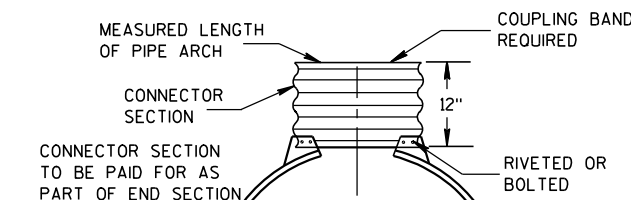


SECTION A-A



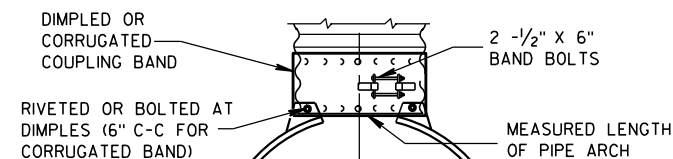
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:  
ALL SIZES CORRUGATED PIPE ARCHES

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

CONNECTION DETAILS

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

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

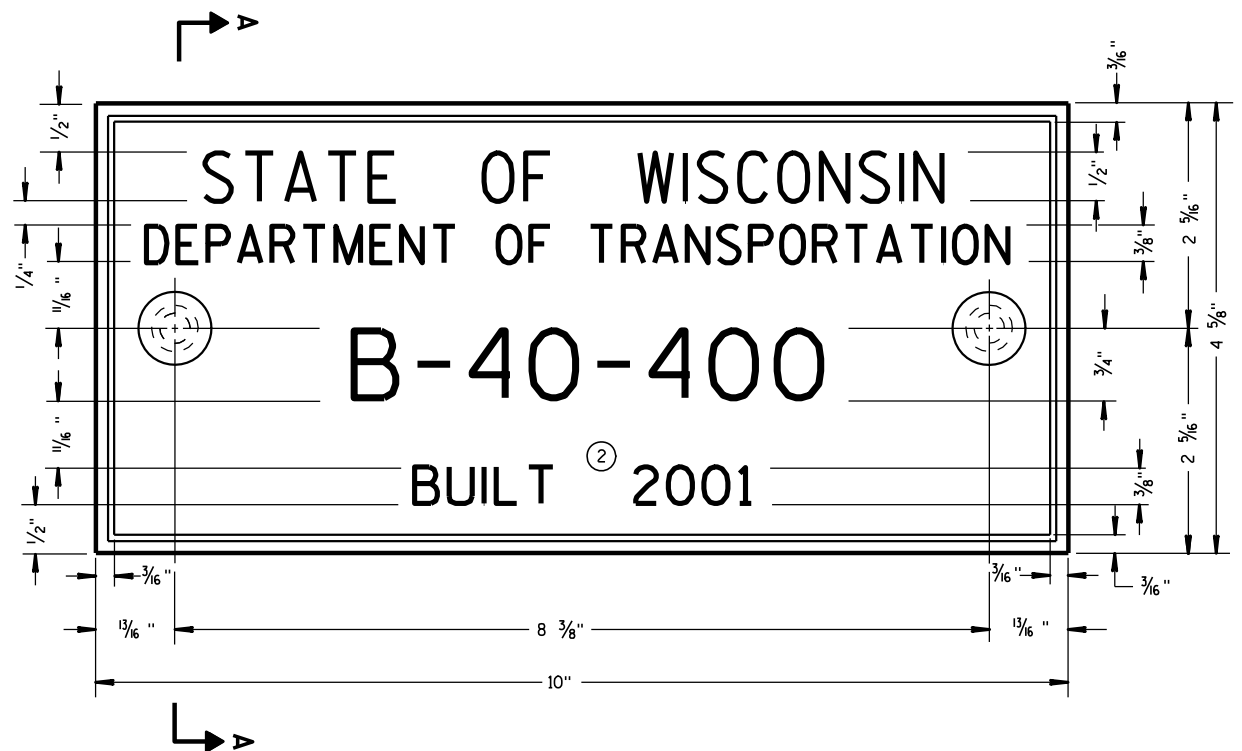
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR  
PIPE ARCH AND  
ELLIPTICAL PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



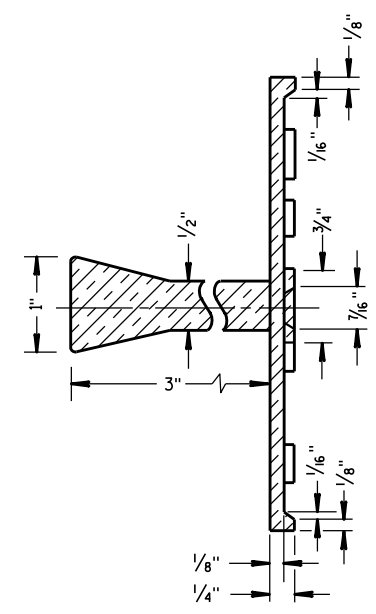
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

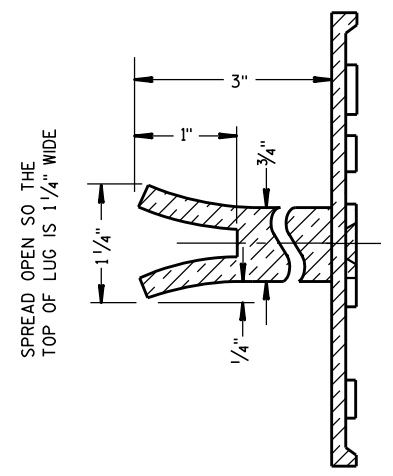
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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



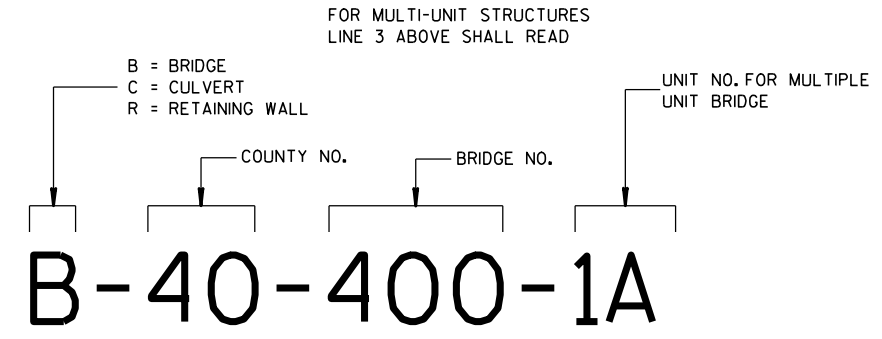
**SECTION A-A**



**ALTERNATE LUG**

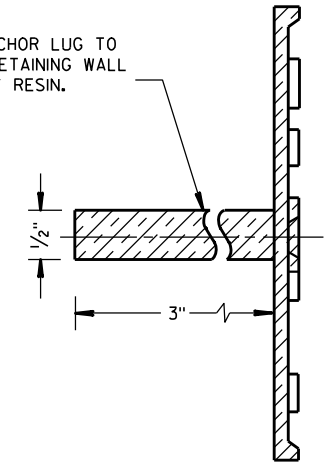
6

6



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

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

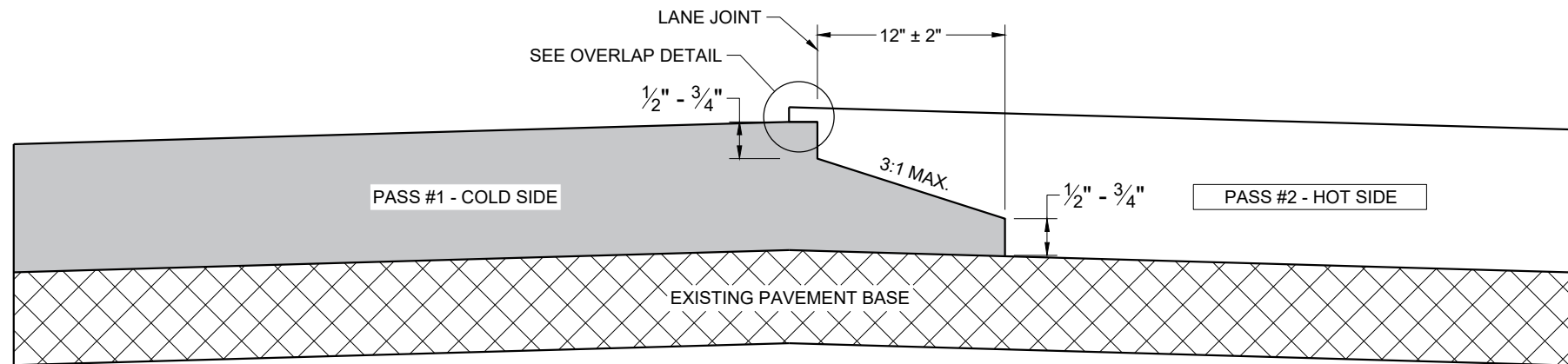


**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

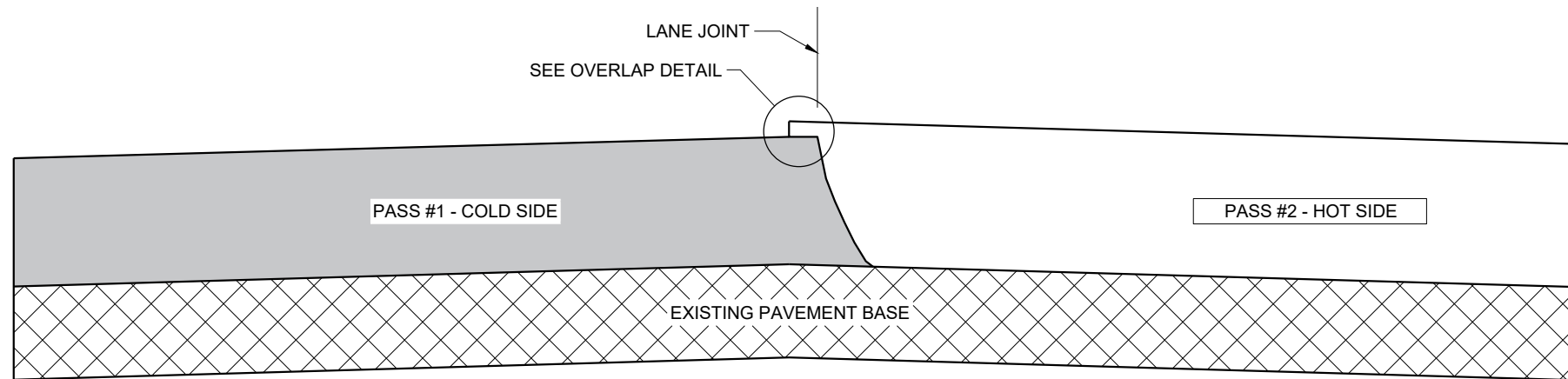
S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

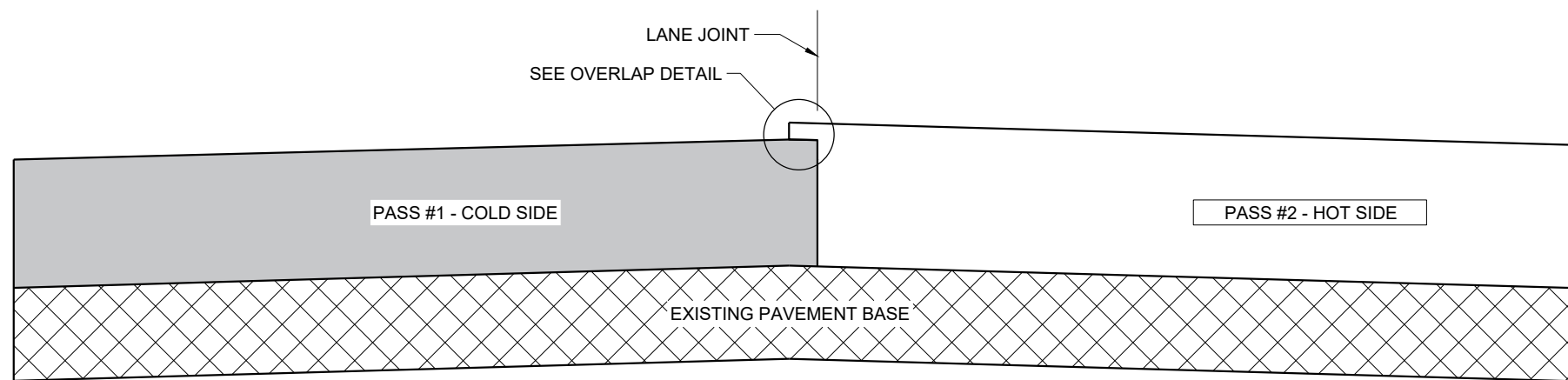
<b>NAME PLATE (STRUCTURES)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	



**TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT (MILLED)**

**GENERAL NOTES**

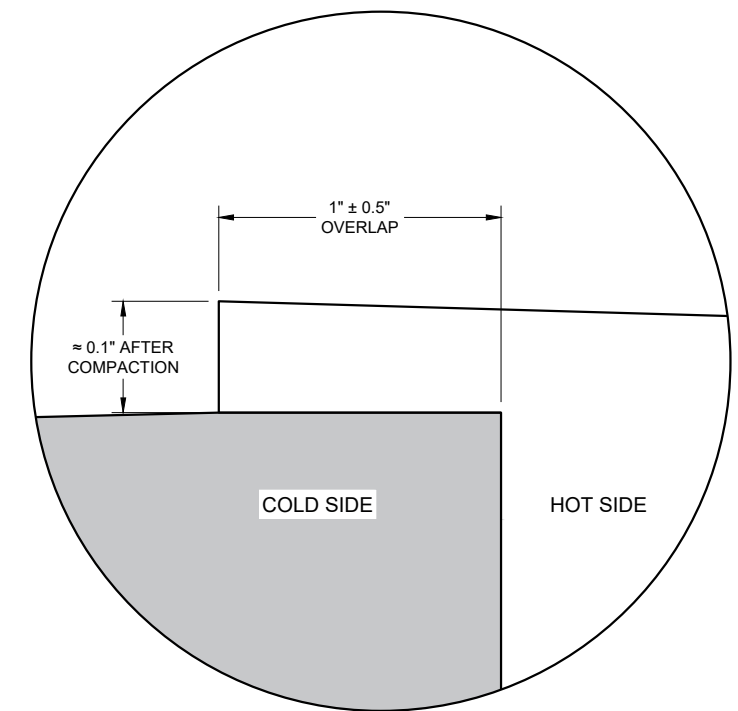
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



**OVERLAP DETAIL (TYPICAL)**

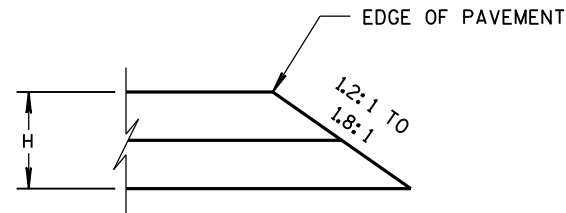
6

6

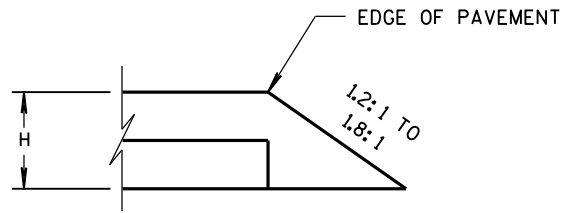
SDD 13C19 - 03

SDD 13C19 - 03

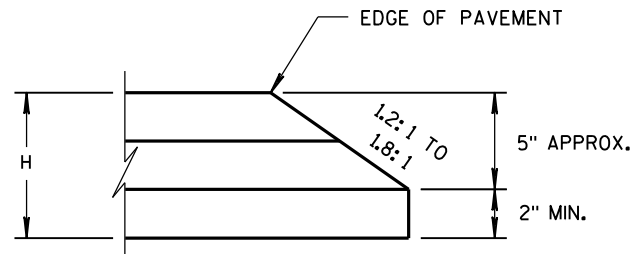
<b>HMA LONGITUDINAL JOINTS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2020 DATE	/S/ Steven Hefel HMA PAVEMENT ENGINEER
FHWA	



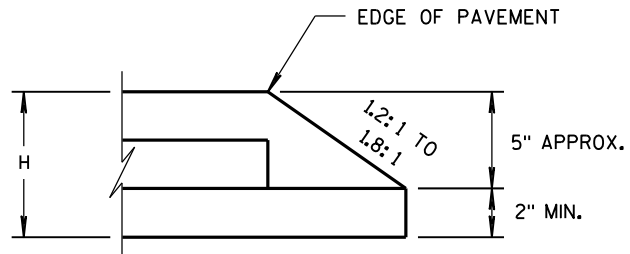
CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER  
FOR H 5" OR LESS

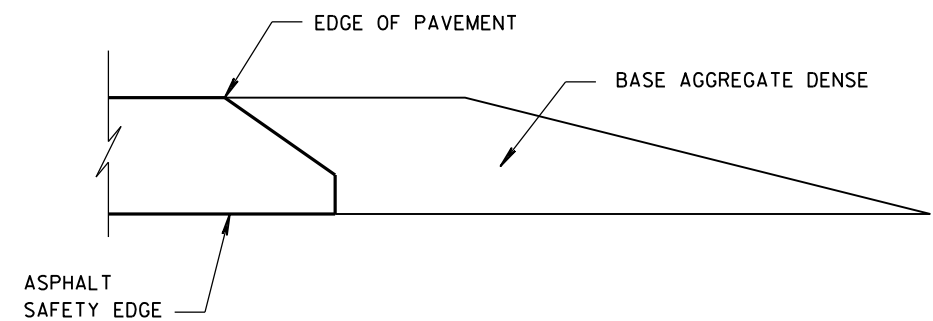


CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER  
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

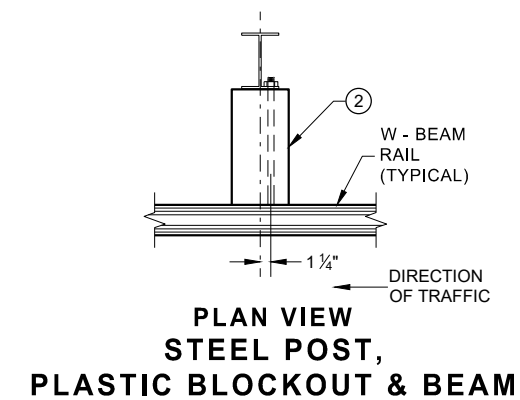
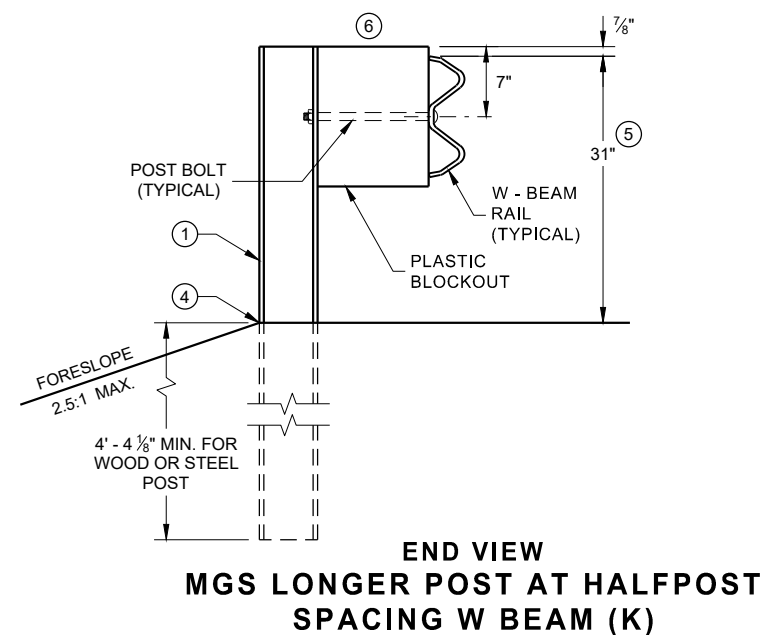
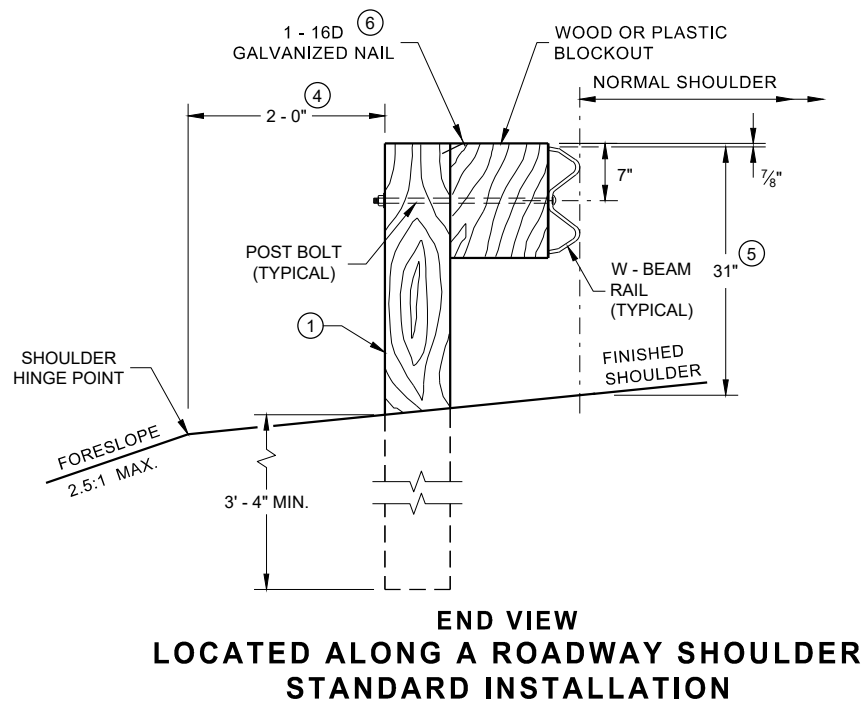
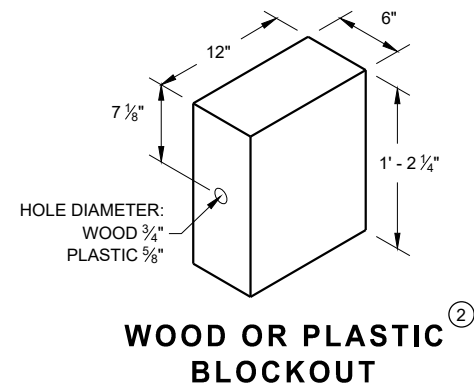
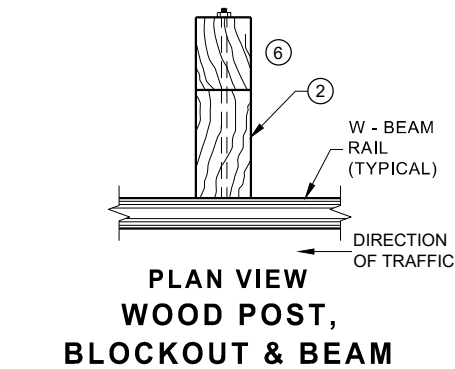
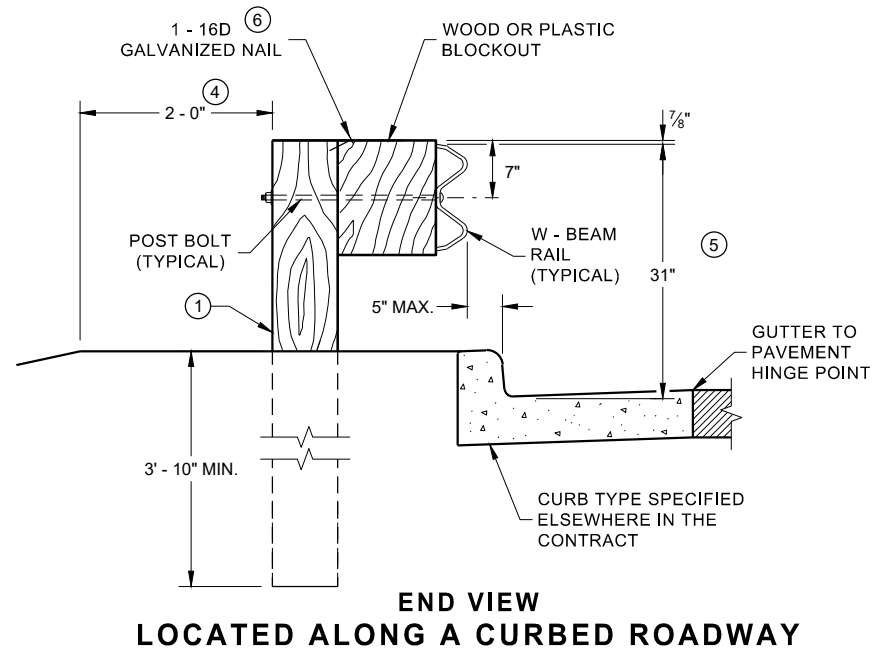
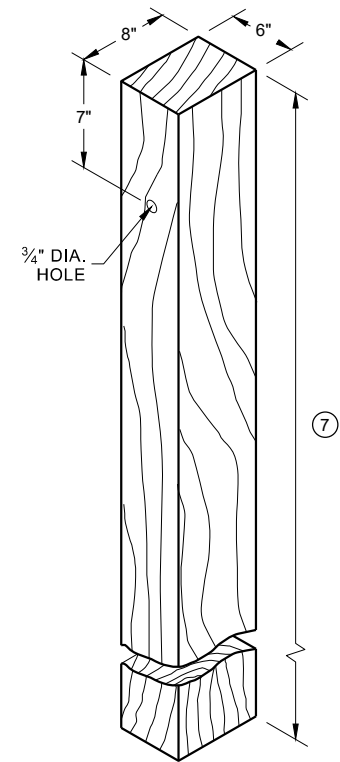
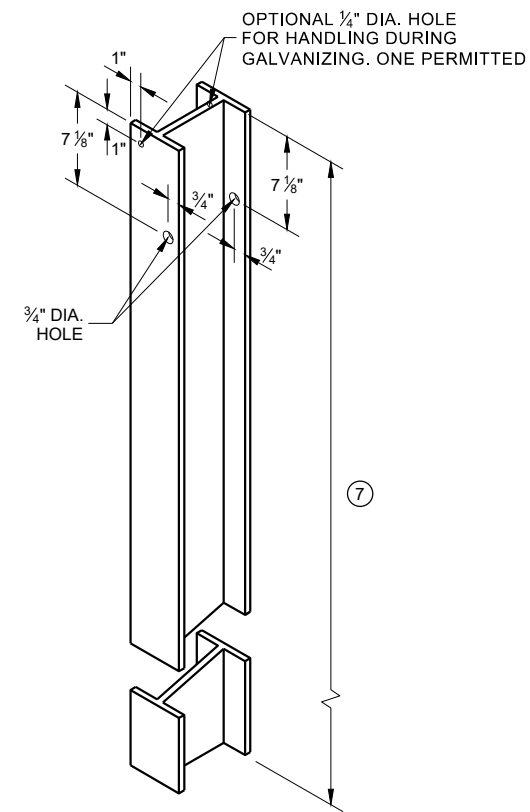
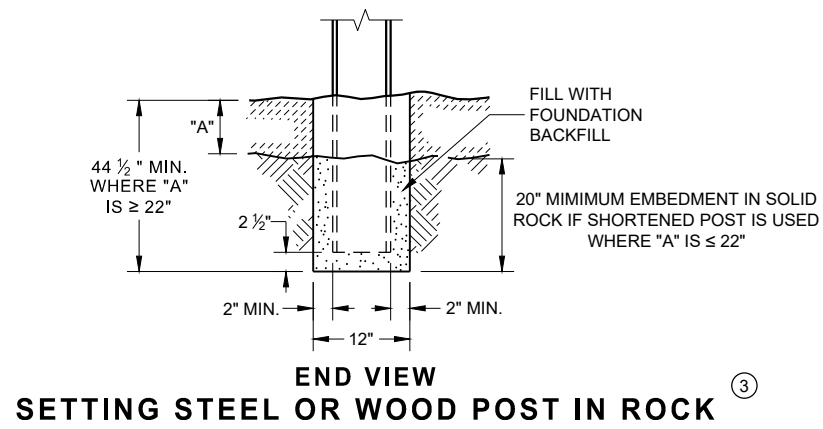
6

S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

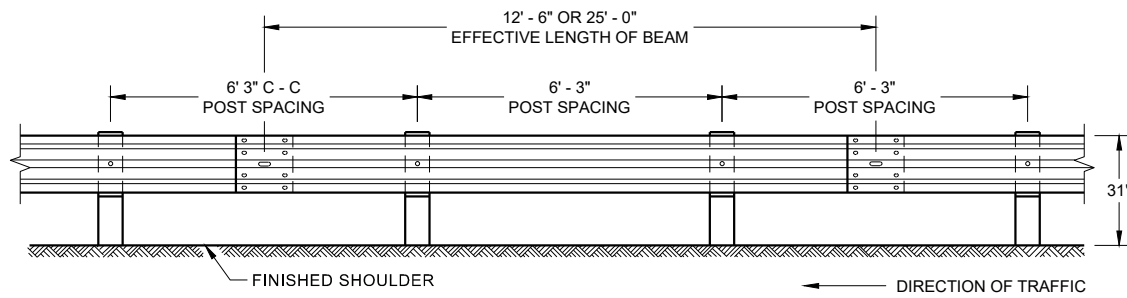
SAFETY EDGE <sub>SM</sub>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 11/30/2012	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

- 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  $\pm 1"$ . FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".

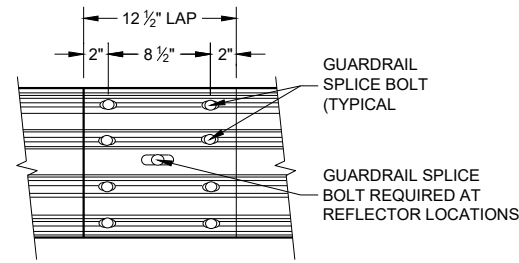


**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



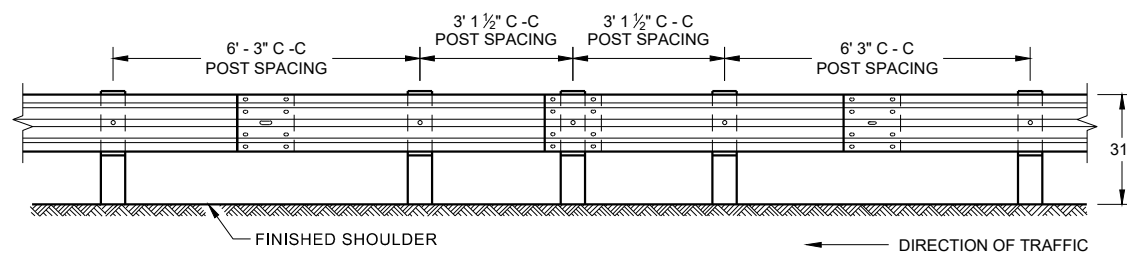
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



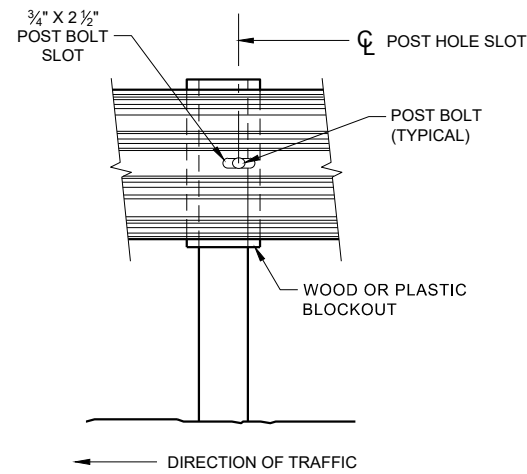
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

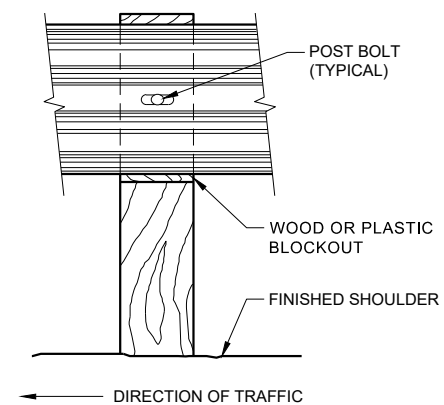
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER 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.



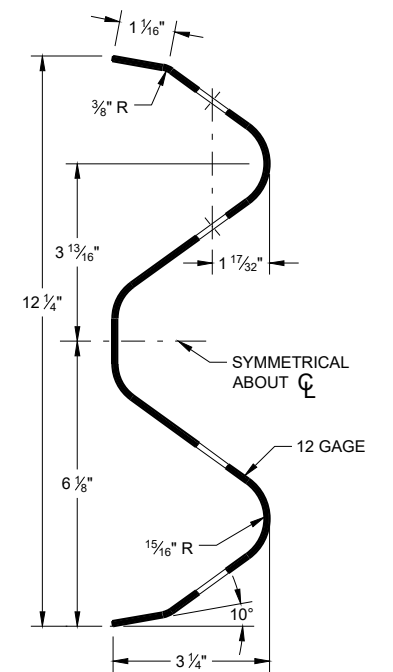
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



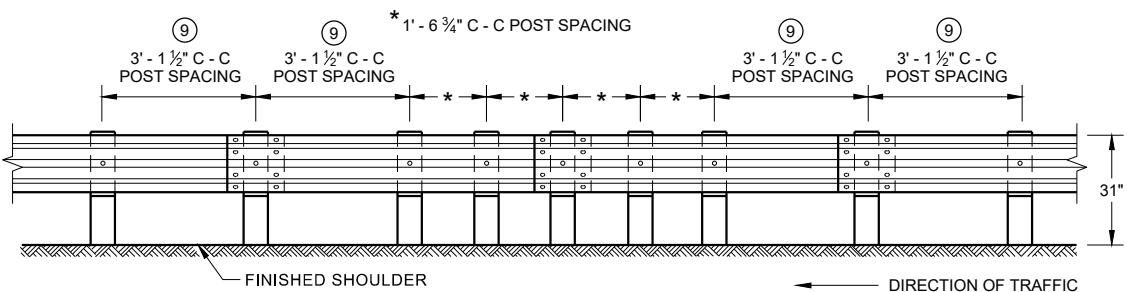
**FRONT VIEW AT STEEL POST**



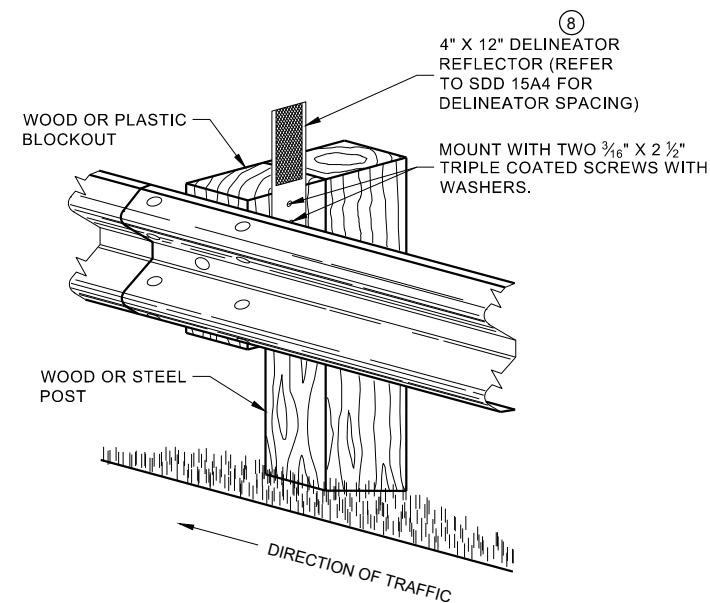
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

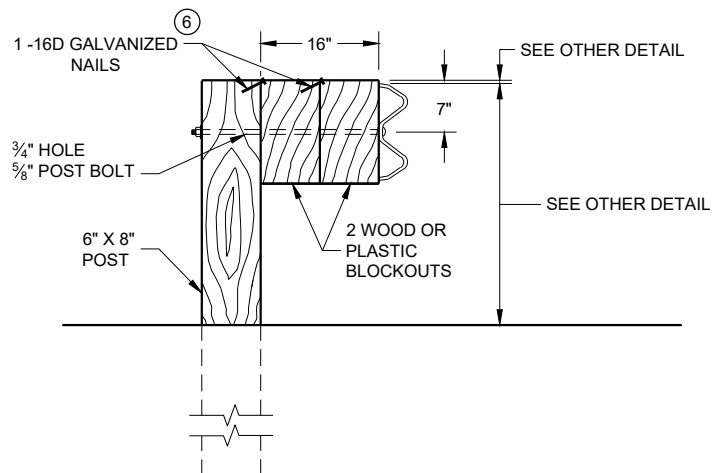
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

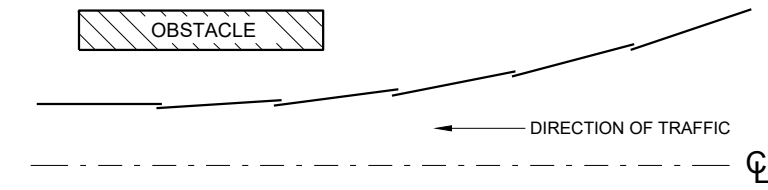
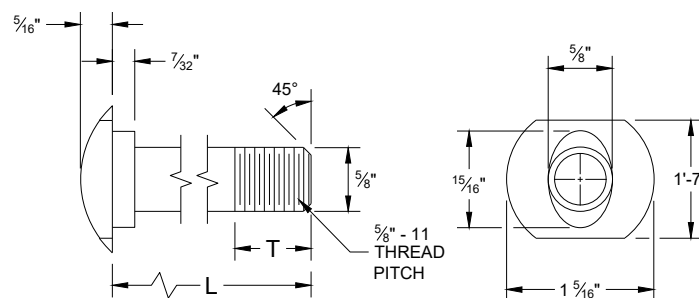
SDD 14B42 - 07b



**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.

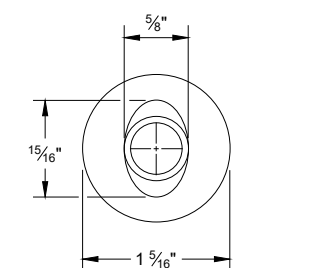
- NOTE:
1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
  2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.



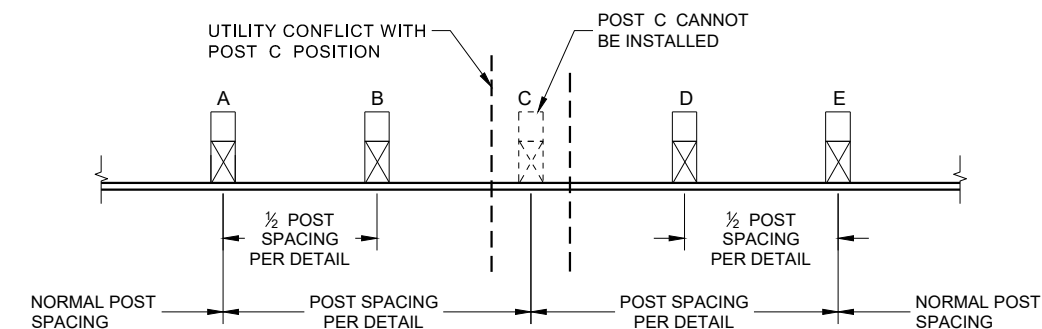
**PLAN VIEW  
BEAM LAPPING DETAIL**

**POST BOLT TABLE**

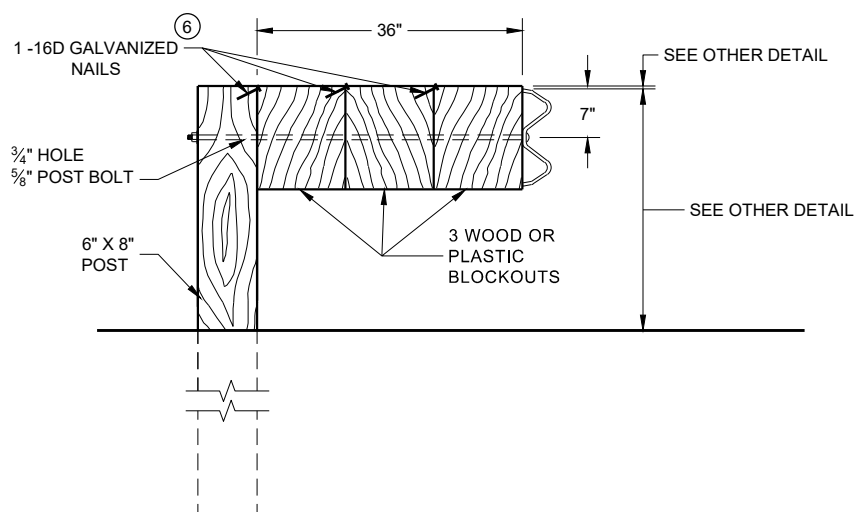
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



**ALTERNATE BOLT HEAD**

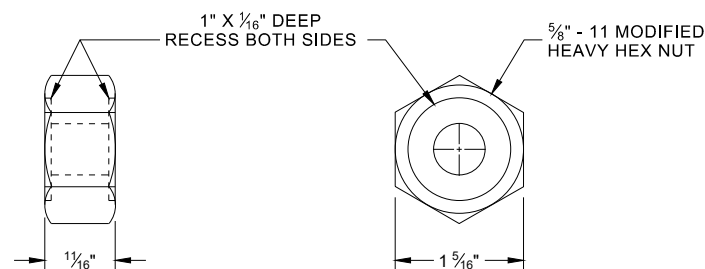


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

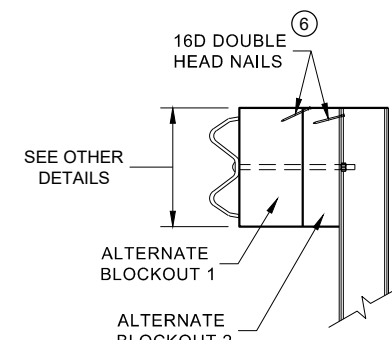


**DETAIL FOR 36" BLOCKOUT DEPTH**

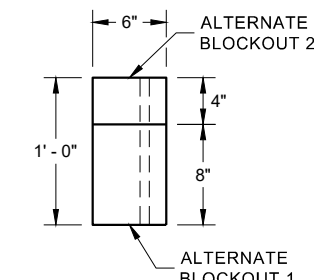
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE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



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



**SIDE VIEW**



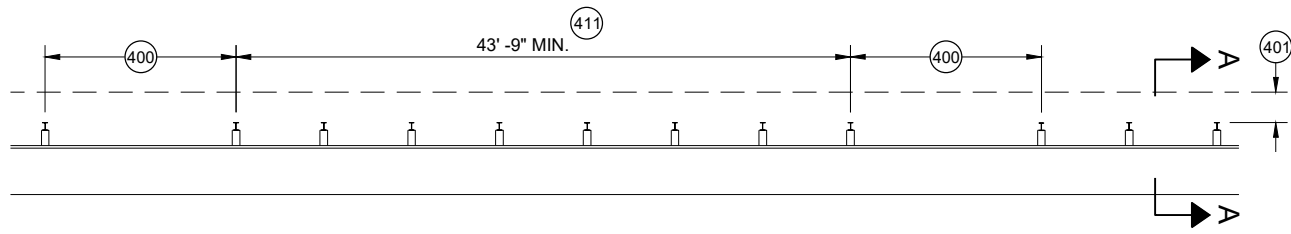
**PLAN VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

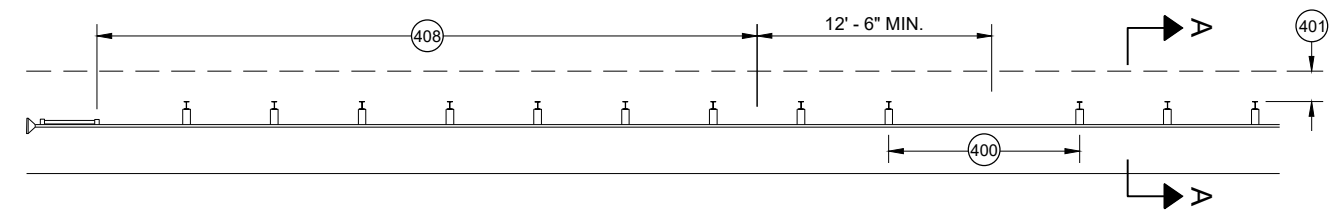
⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

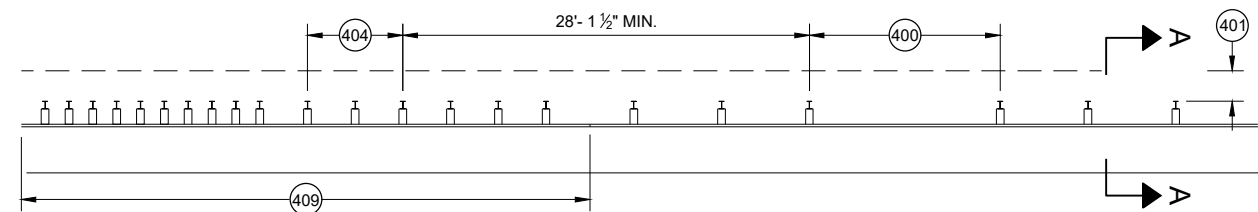
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



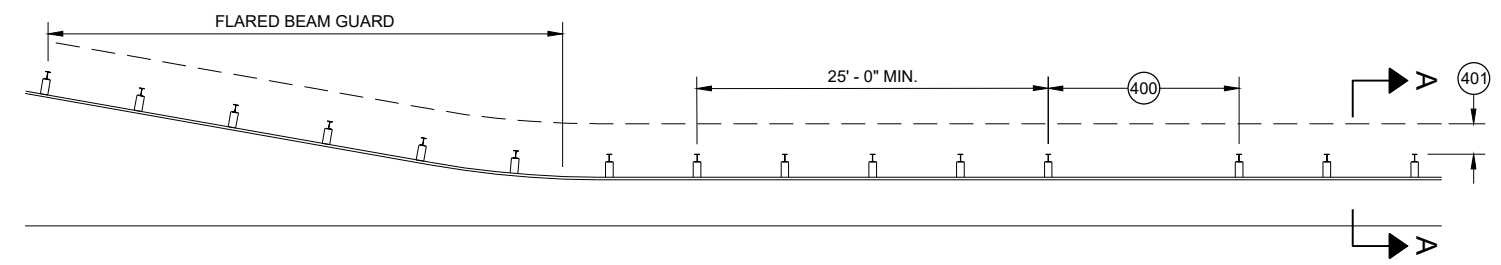
**MISSING POST IN MGS GUARDRAIL**



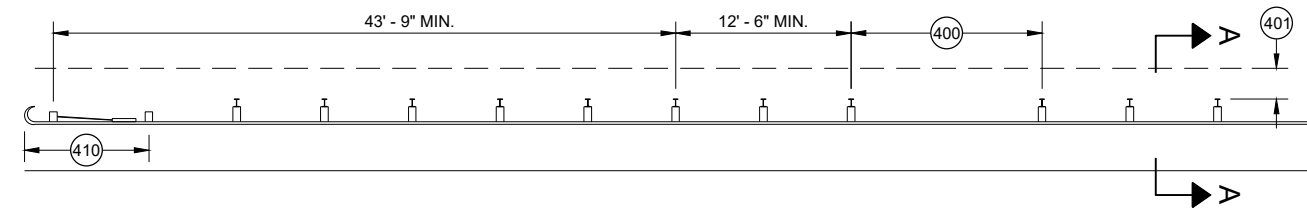
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



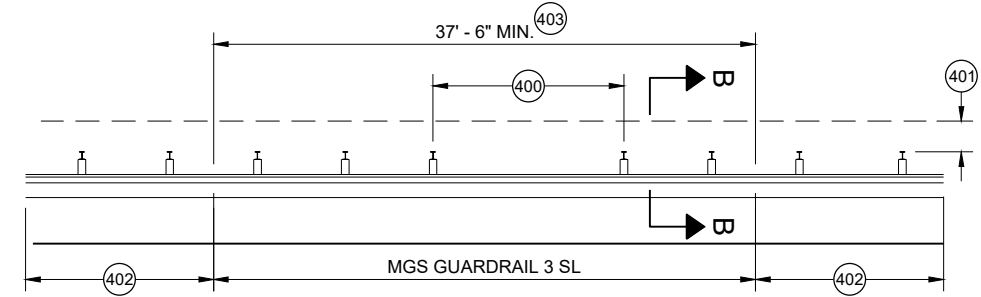
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



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

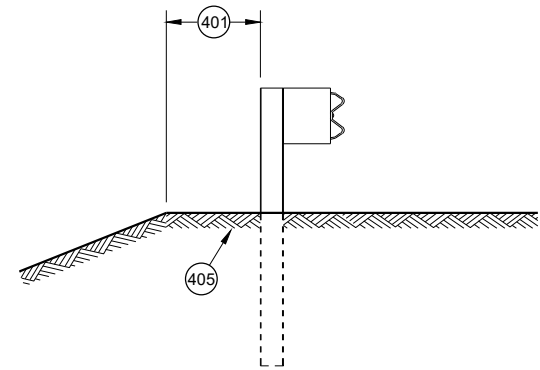


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

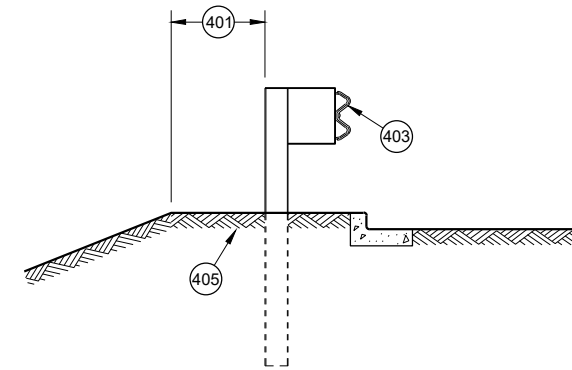


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

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



**SECTION A - A**



**SECTION B - B**

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



**GENERAL NOTES**

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

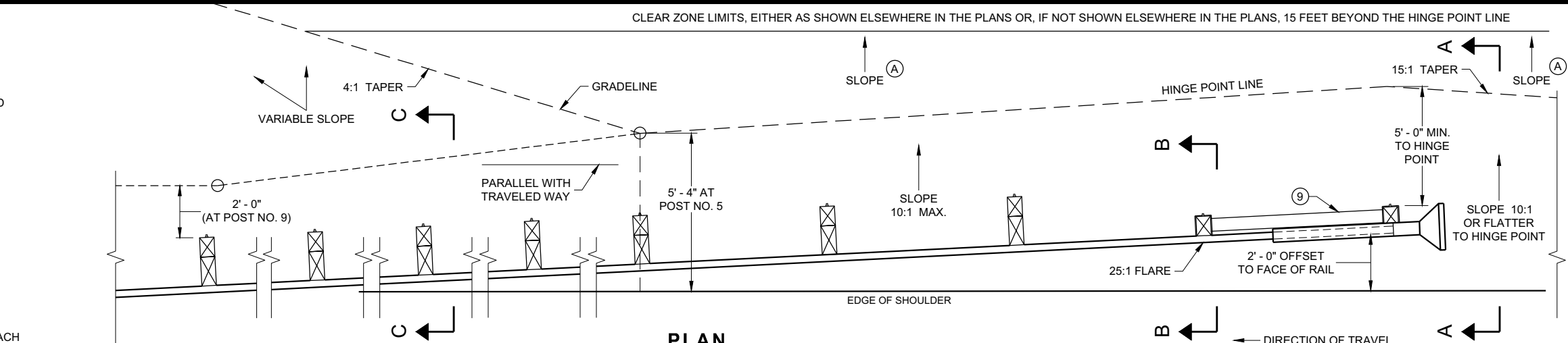
SEE SDD 14B42 FOR MORE INFORMATION.

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

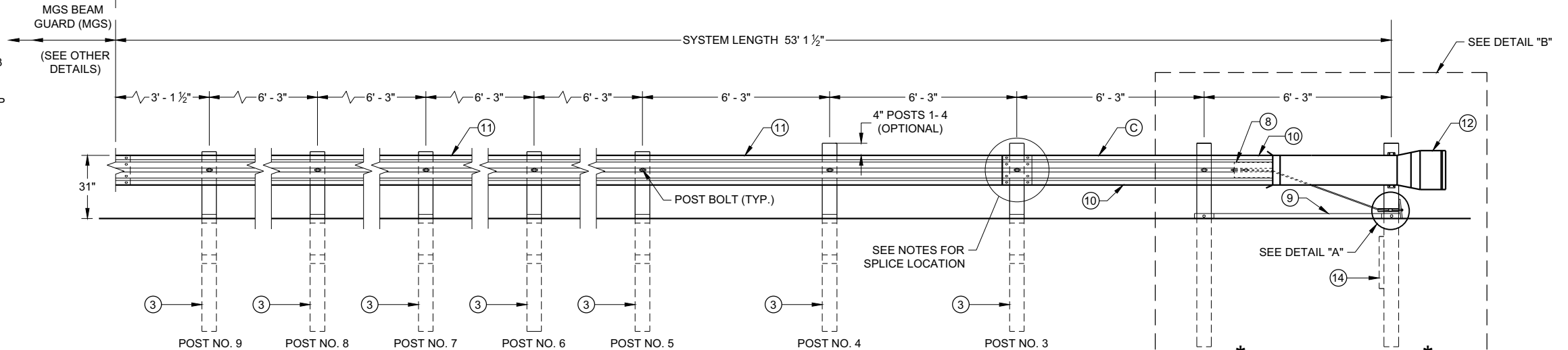
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

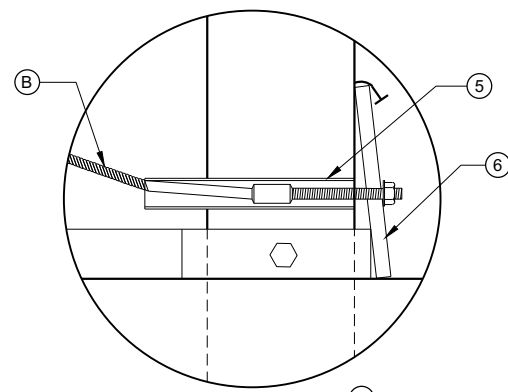
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



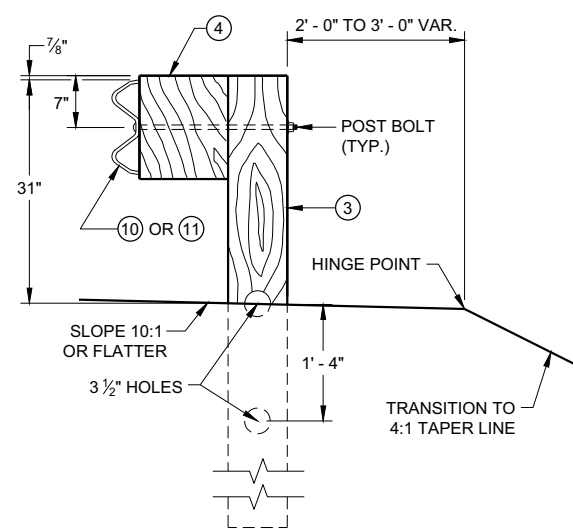
**PLAN**



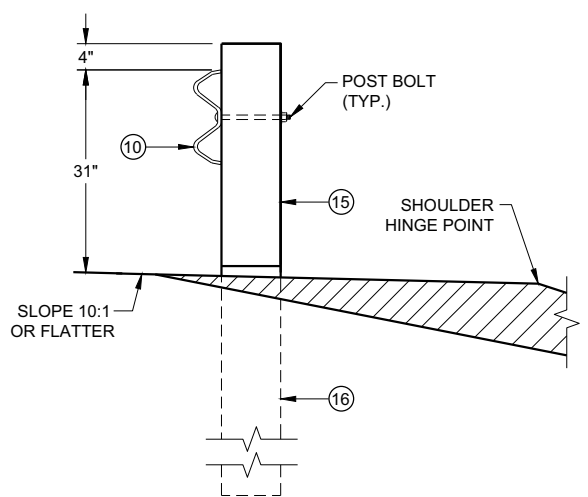
**ELEVATION**



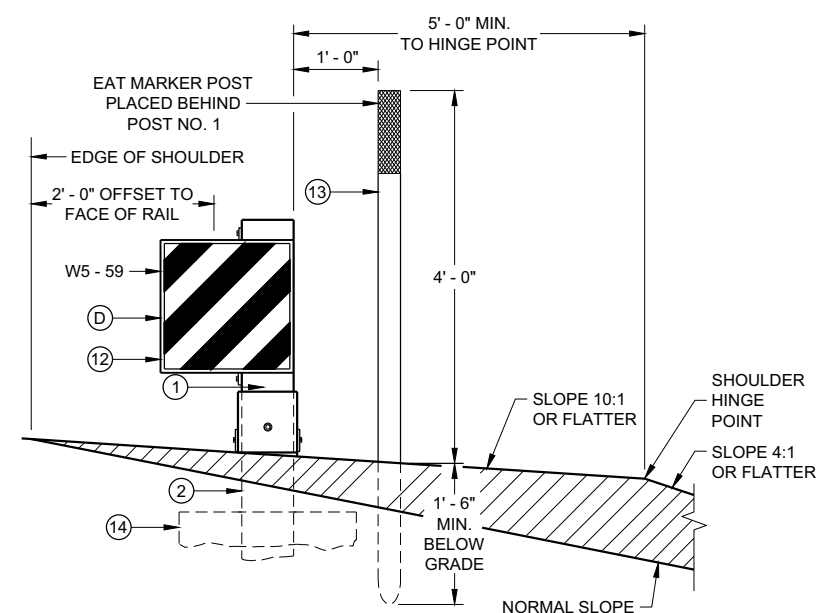
**DETAIL "A"**



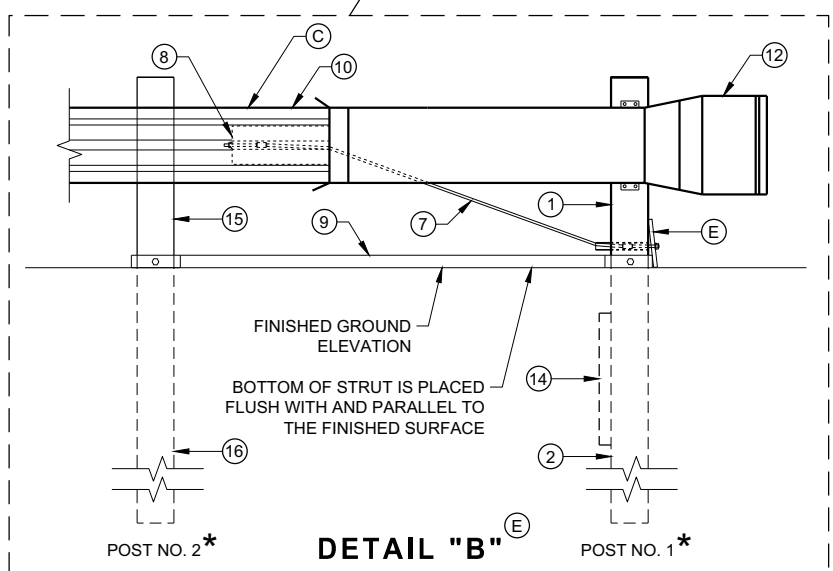
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



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



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



**DETAIL "B"**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

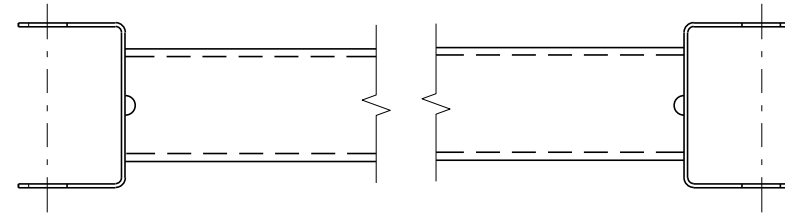
6

SDD 14B44 - 04a

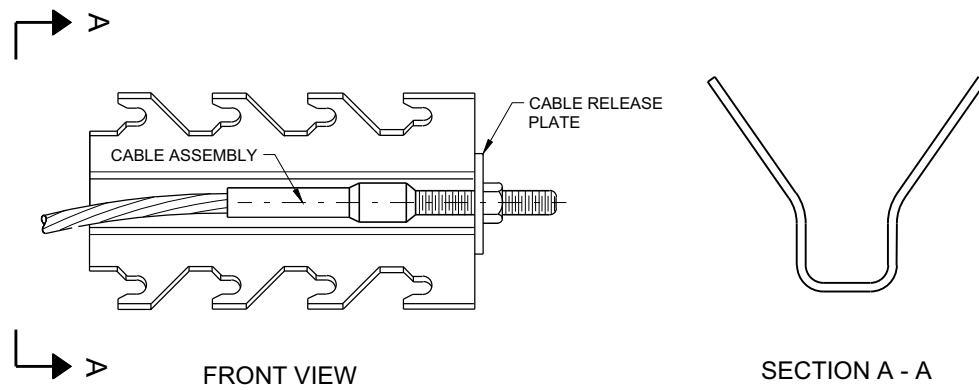
SDD 14B44 - 04a

**BILL OF MATERIALS**

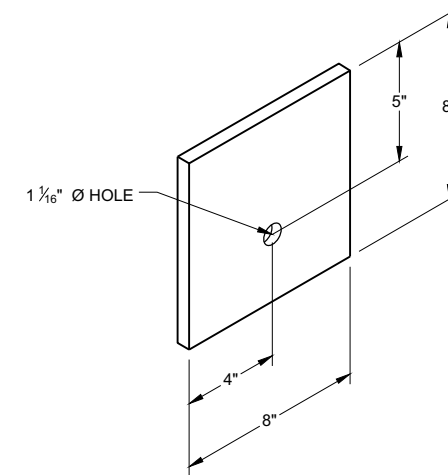
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



**GENERIC GROUND STRUT** ⑨ ⑤



**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



**BEARING PLATE** ⑥ ⑤

6

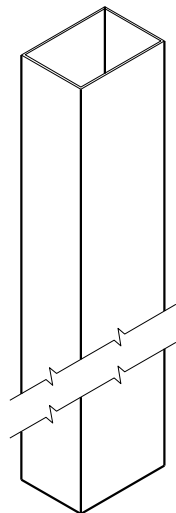
6

SDD 14B44 - 04b

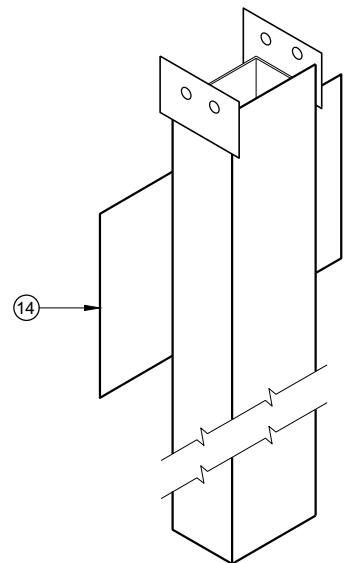
SDD 14B44 - 04b

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

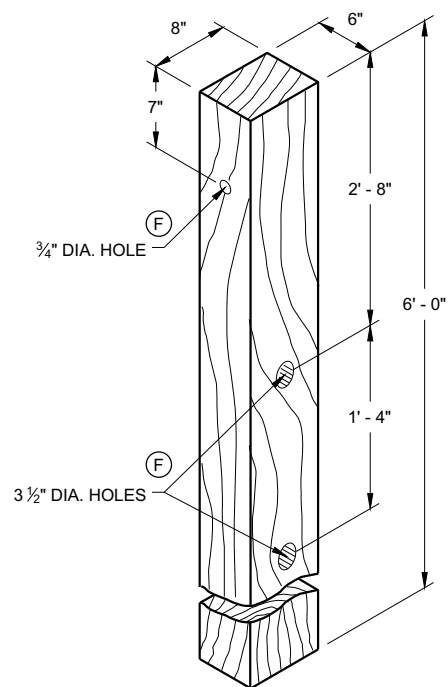
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



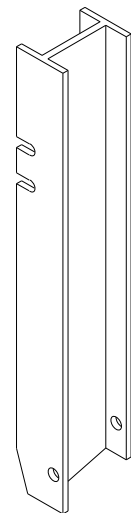
UPPER POST NO. 1 <sup>(1)</sup> (E)



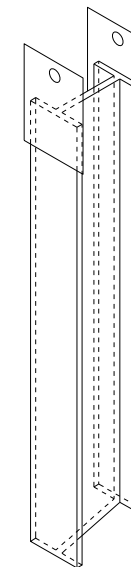
LOWER POST NO. 1 <sup>(2)</sup> (E)



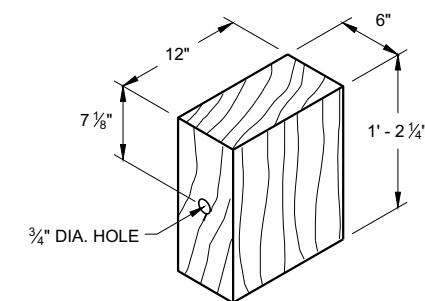
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



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

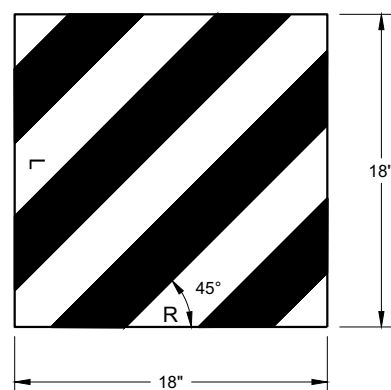


LOWER POST NO. 2 <sup>(16)</sup> (E)



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

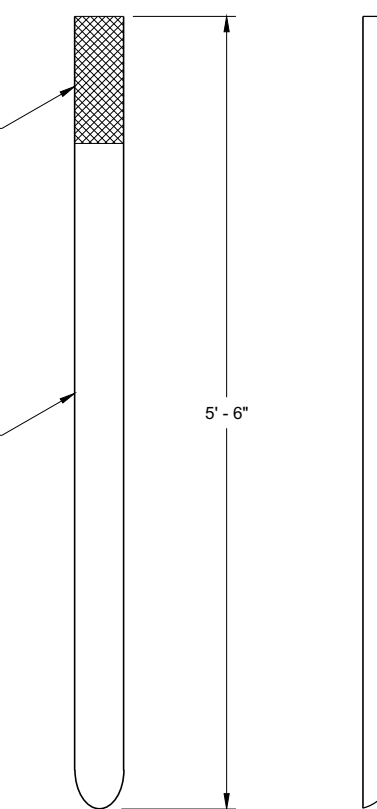
6



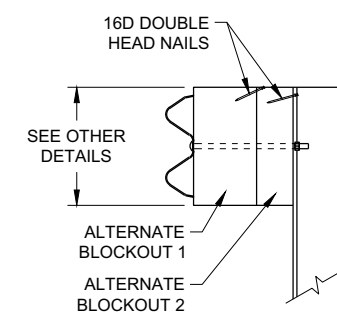
W5 - 59  
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

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

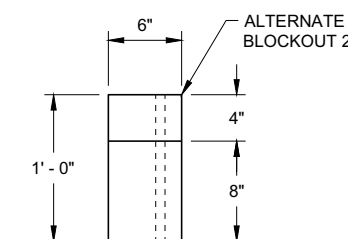
E.A.T. MARKER  
POST (YELLOW)



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



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

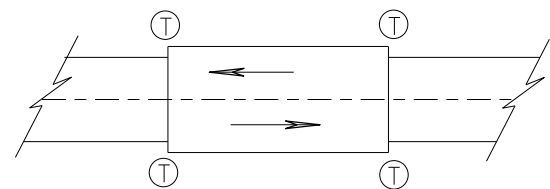
SDD 14B44 - 04c

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

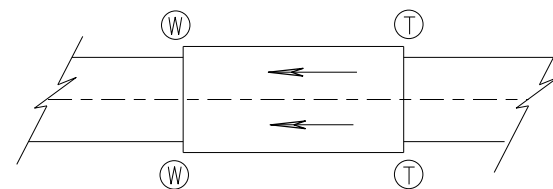
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

**GENERAL NOTES**

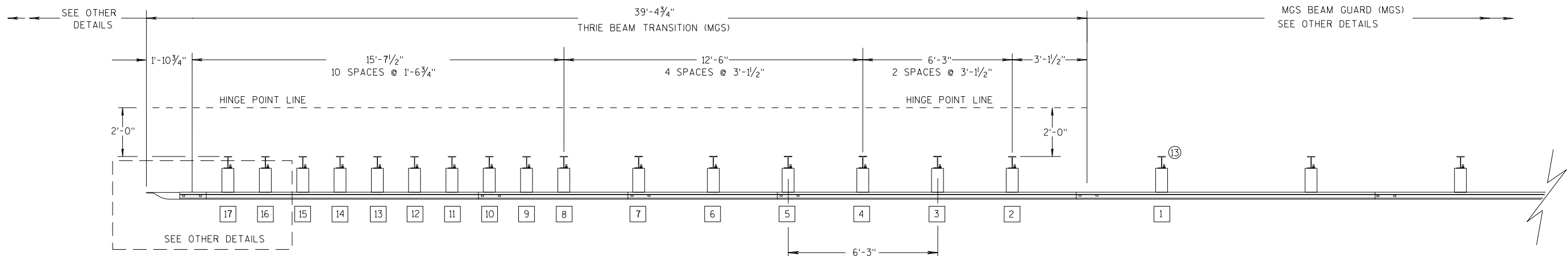
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

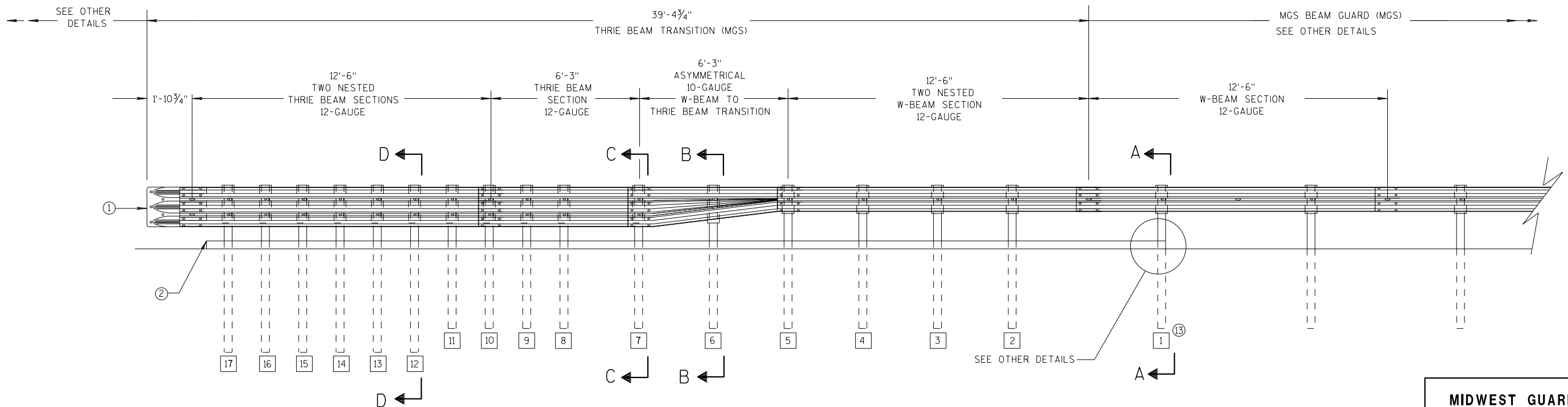
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

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



**PLAN VIEW**



**ELEVATION VIEW**

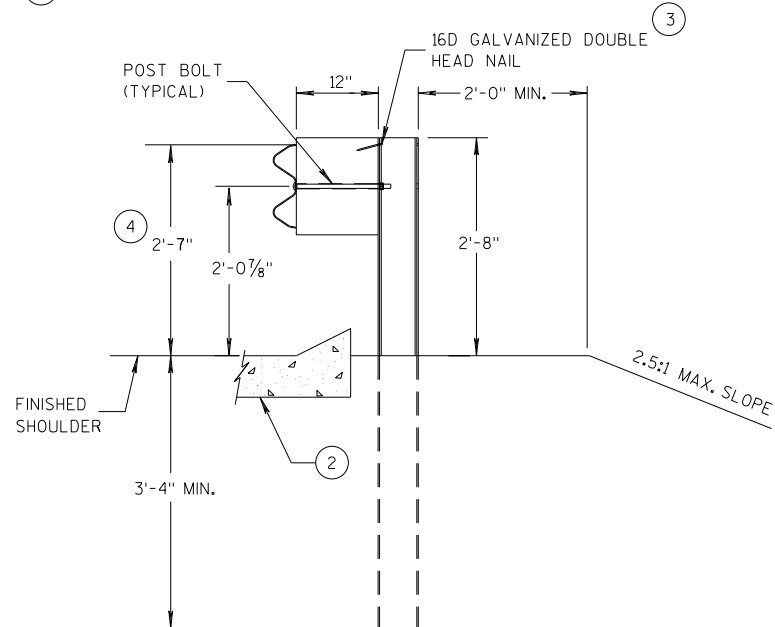
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

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

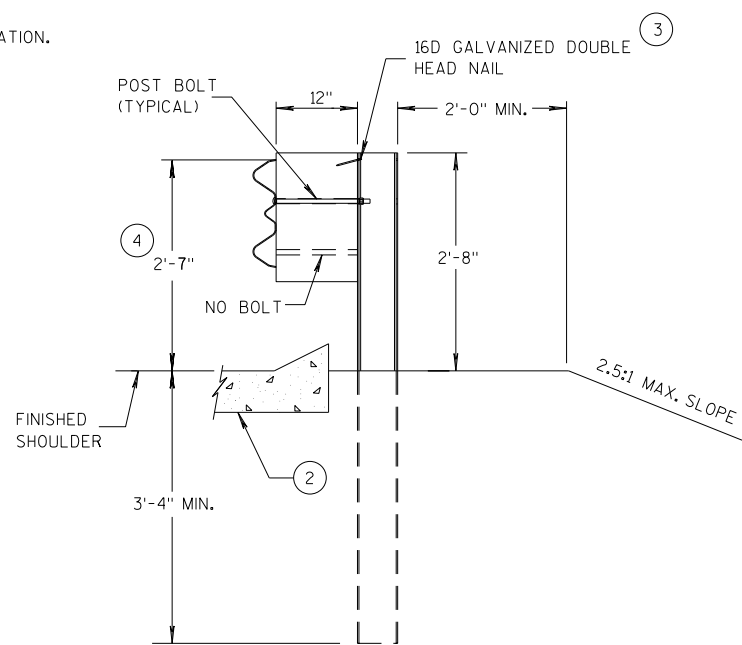
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

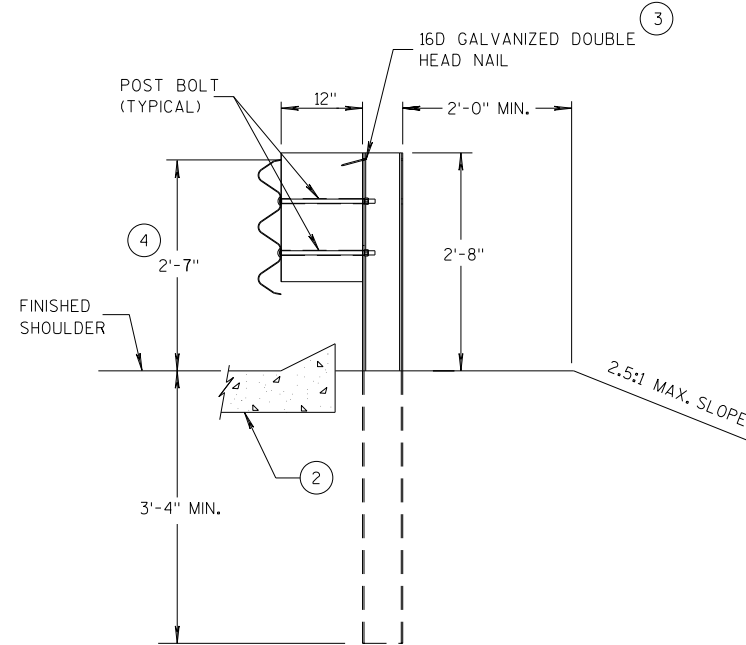
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



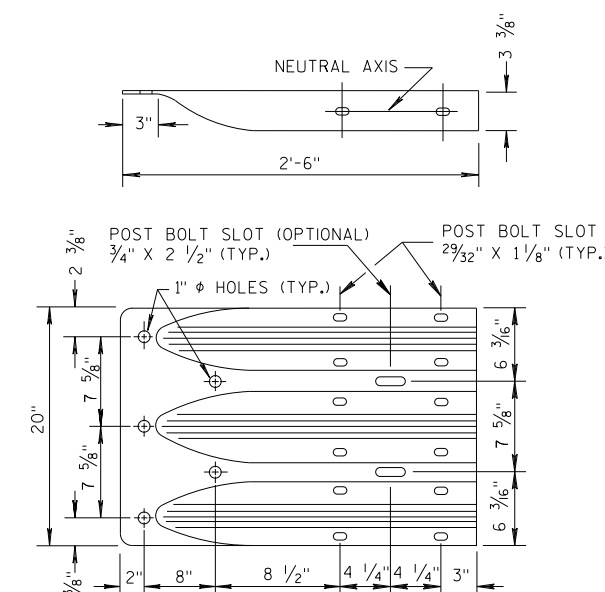
**SECTION A-A  
POSTS 1-5**



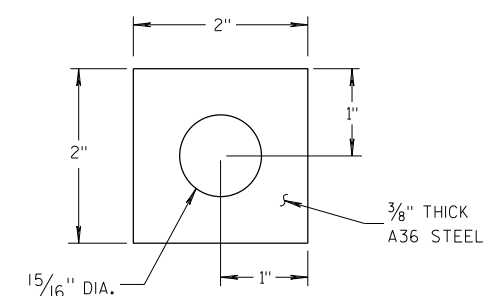
**SECTION B-B  
POST 6**



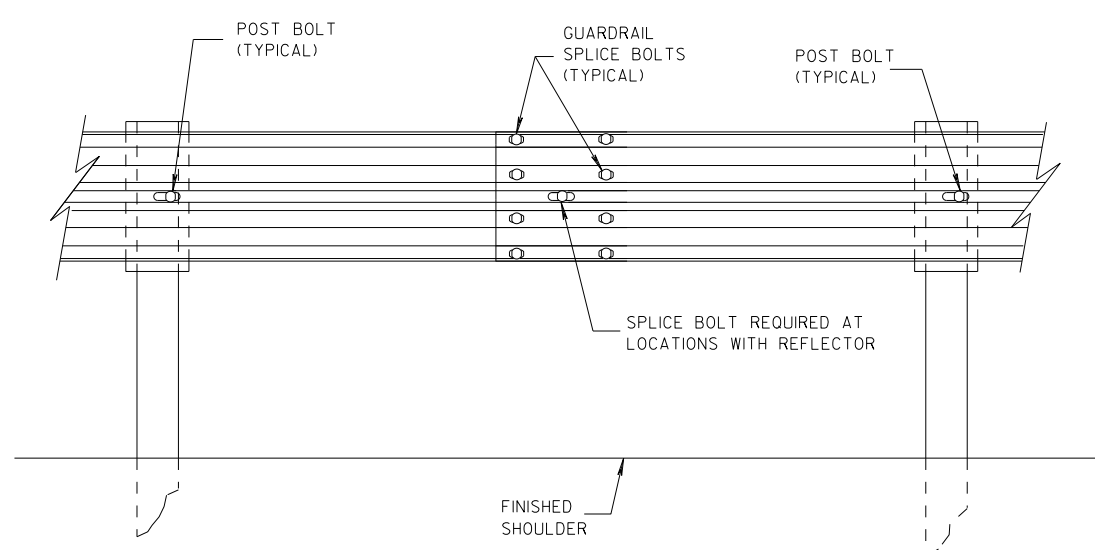
**SECTION C-C  
POSTS 7-11**



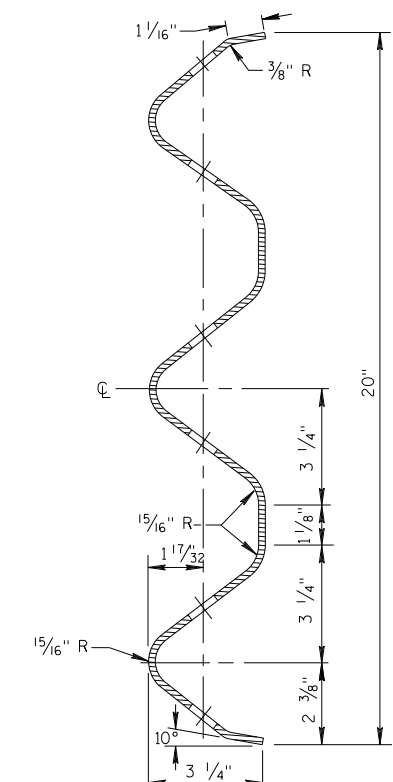
**THRIE BEAM  
TERMINAL CONNECTOR**



**PLATE WASHER DETAIL**



**SPLICE DETAIL**



**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

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

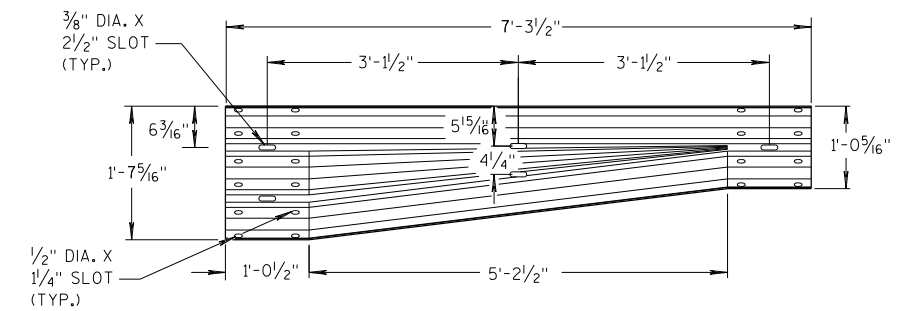
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

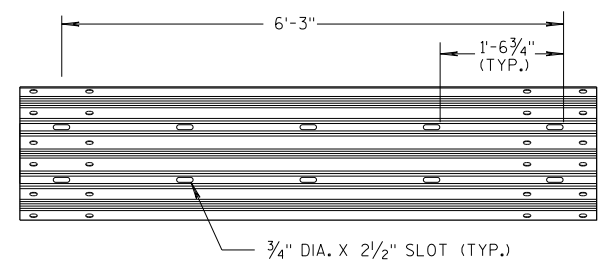
6

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

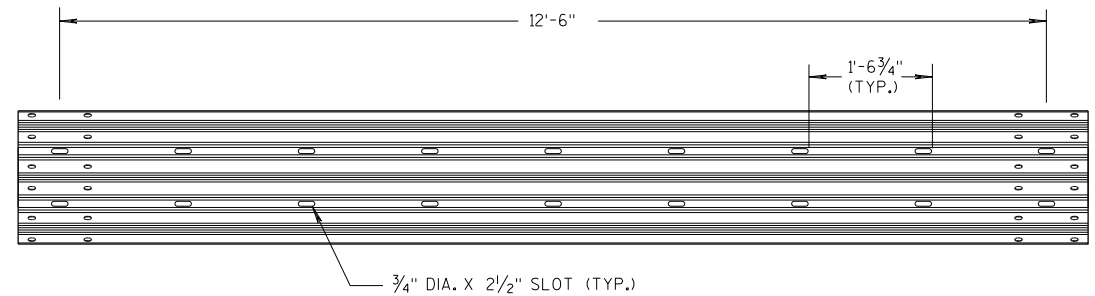
S.D.D. 14 B 45-5b



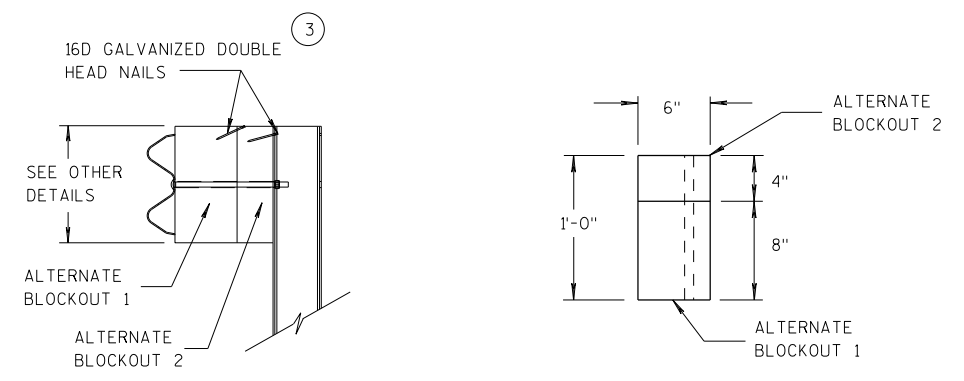
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



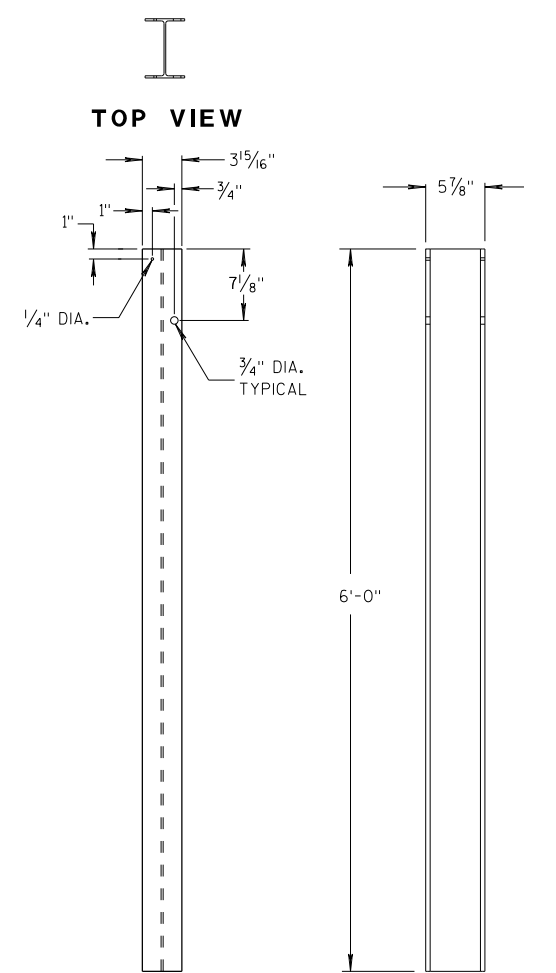
**6'-3\"/>**



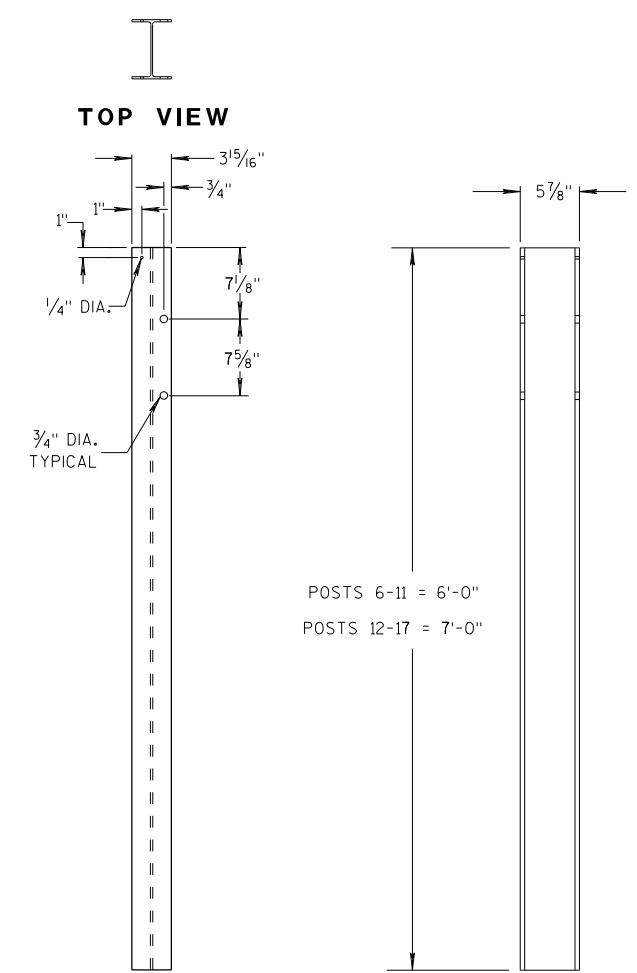
**12'-6\"/>**



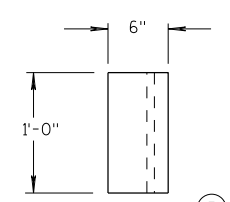
**ALTERNATE WOOD BLOCKOUT DETAIL**



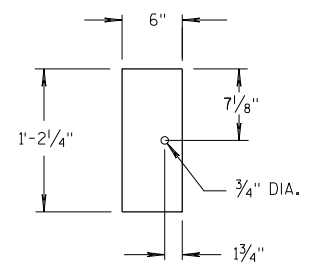
**STEEL POSTS 1-5**



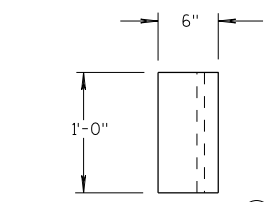
**STEEL POSTS 6-17**



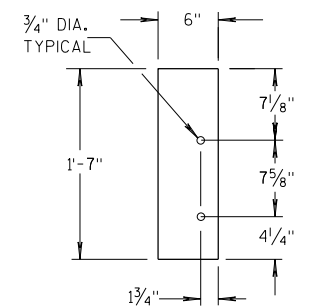
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 6-17**

**GENERAL NOTES**

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

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

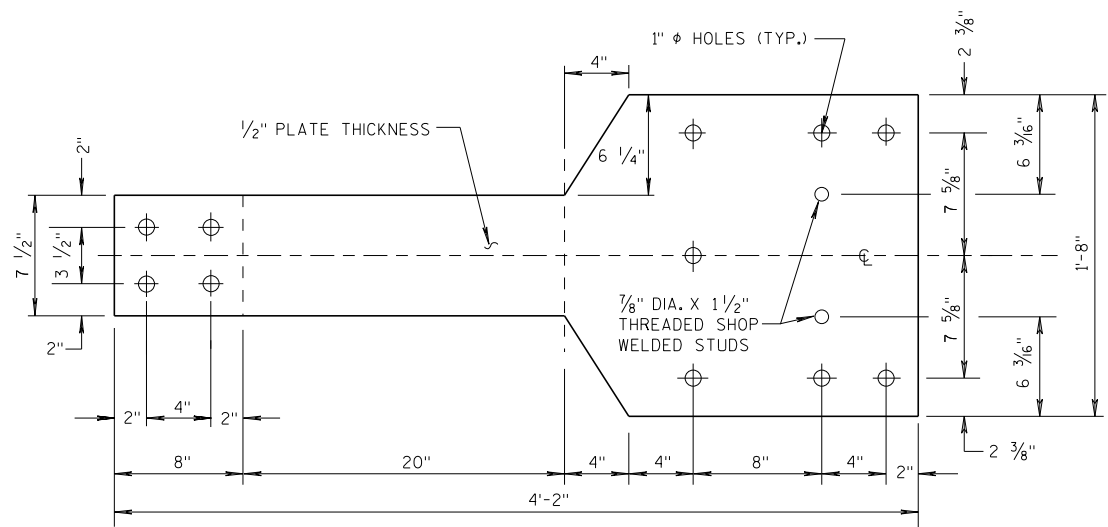
6

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

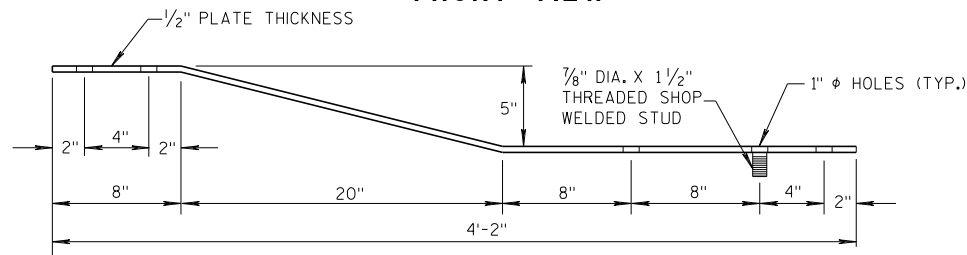
S.D.D. 14 B 45-5c

**GENERAL NOTES**

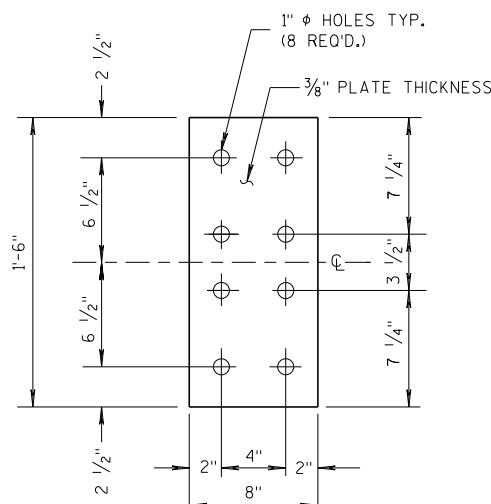
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



**FRONT VIEW**

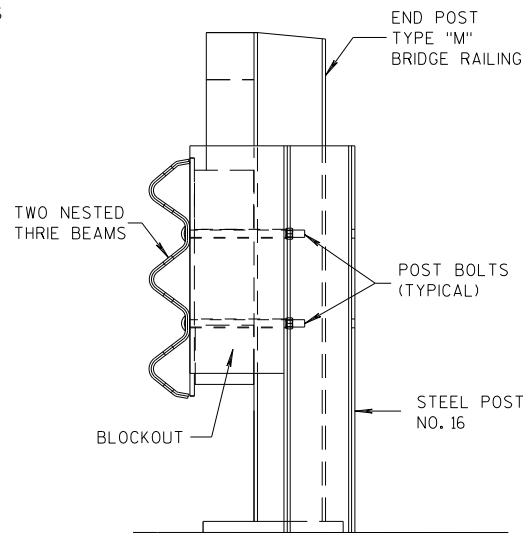


**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**

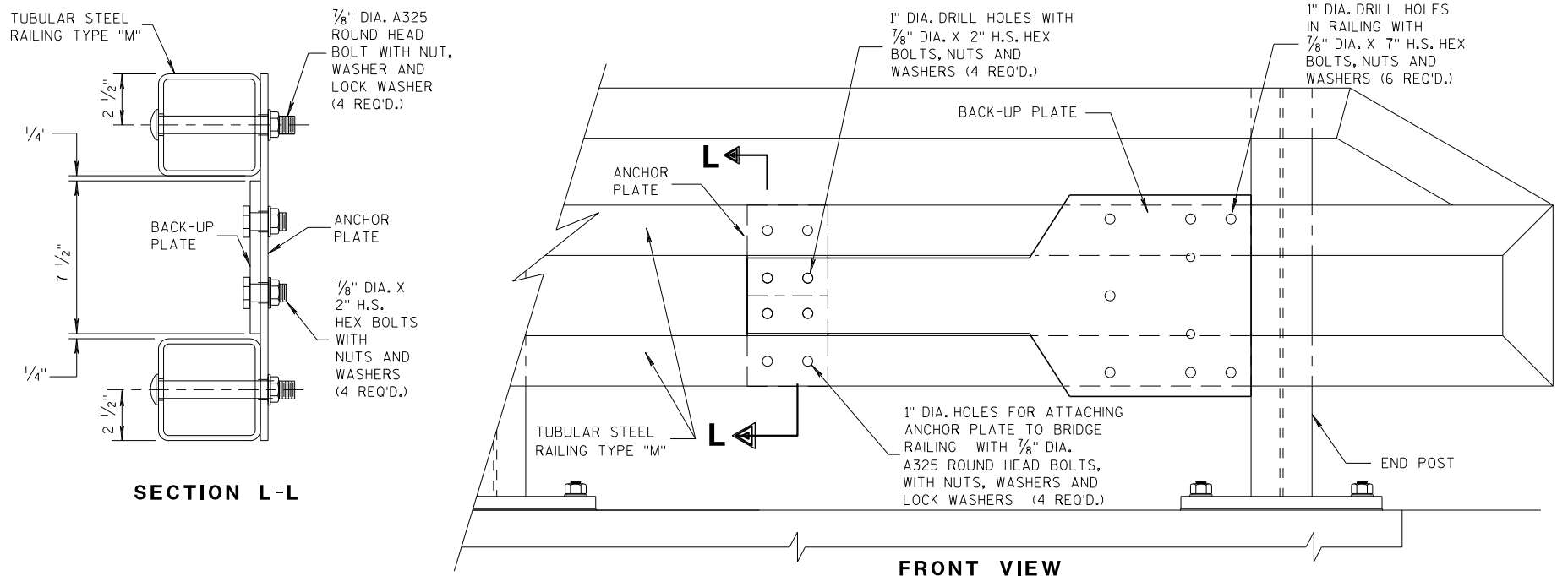


**FRONT VIEW**

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



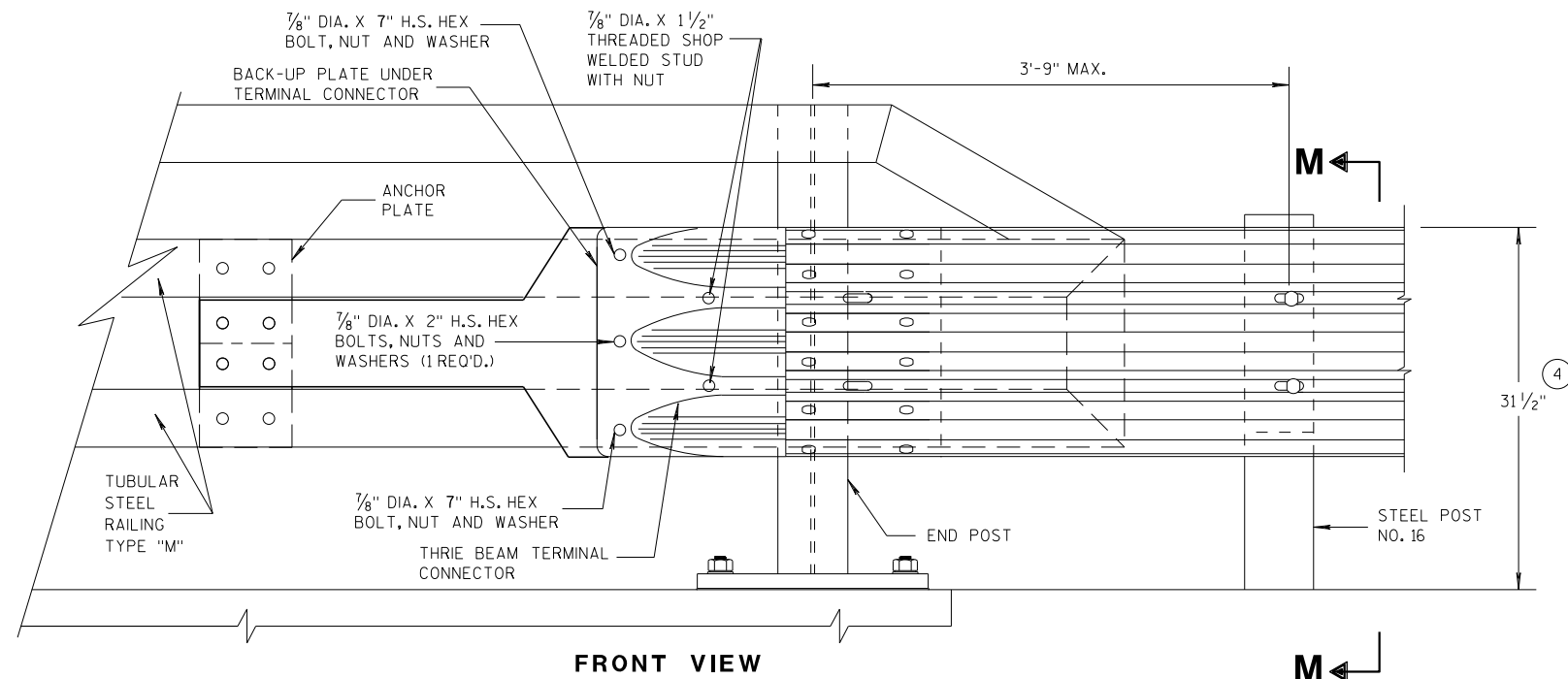
**SECTION M-M**



**SECTION L-L**

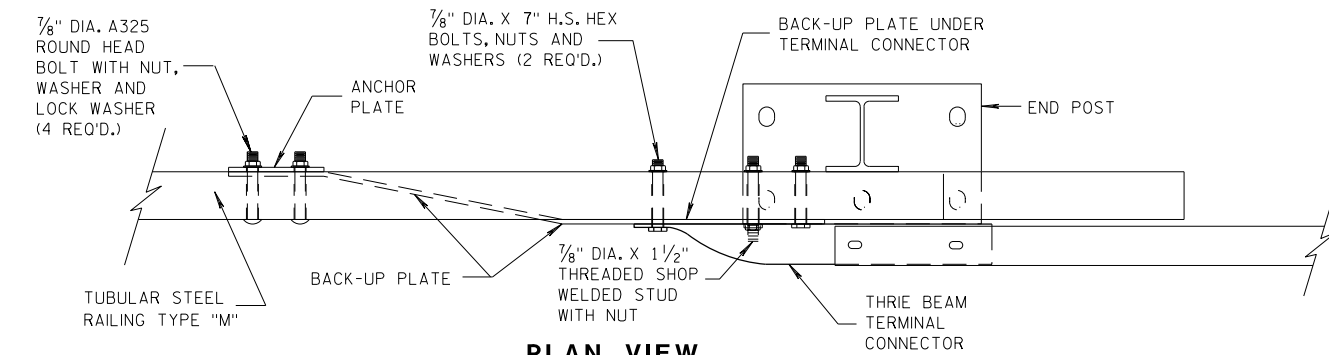
**FRONT VIEW**

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



**FRONT VIEW**

**M**



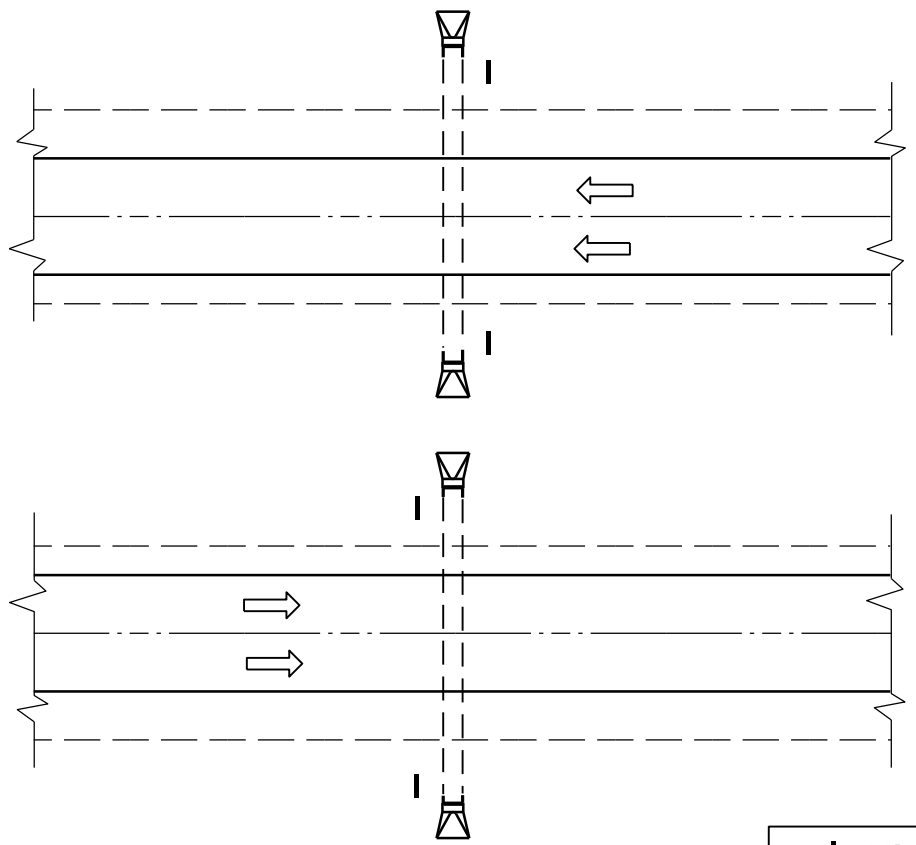
**PLAN VIEW**

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

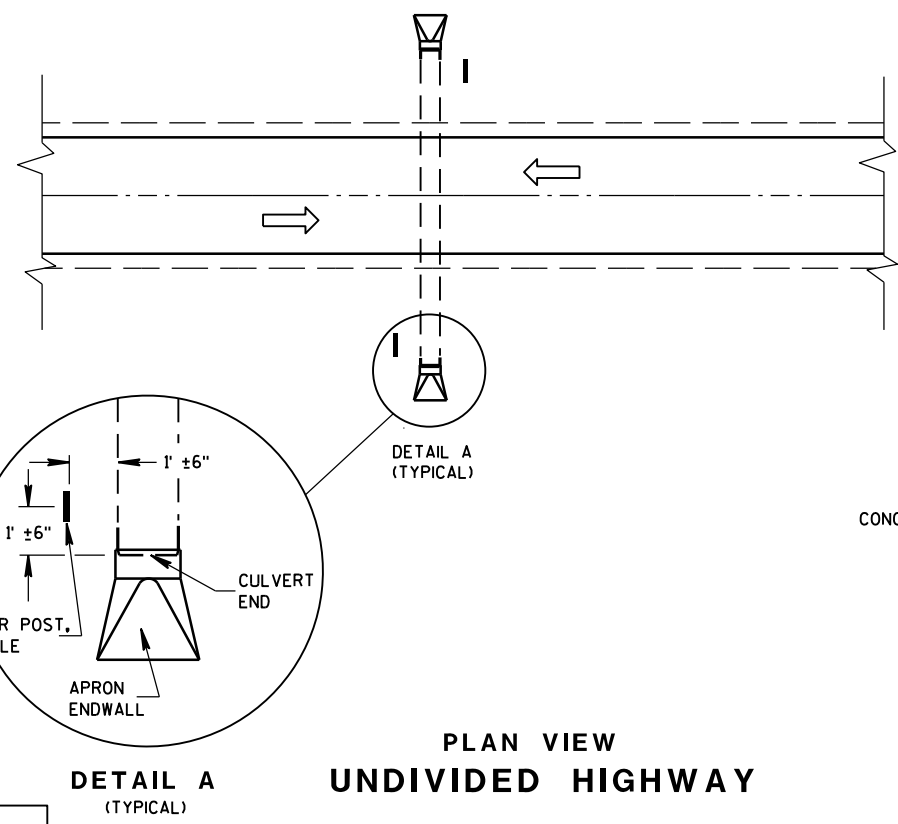
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

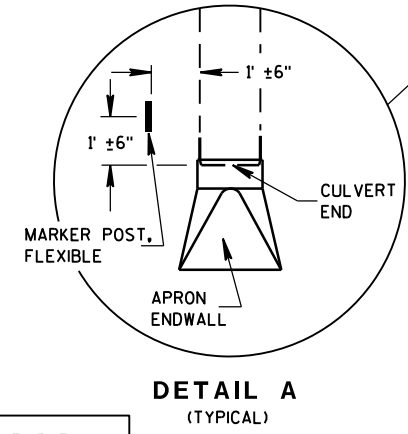
APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



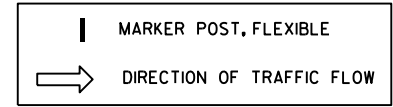
PLAN VIEW  
DIVIDED HIGHWAY



PLAN VIEW  
UNDIVIDED HIGHWAY



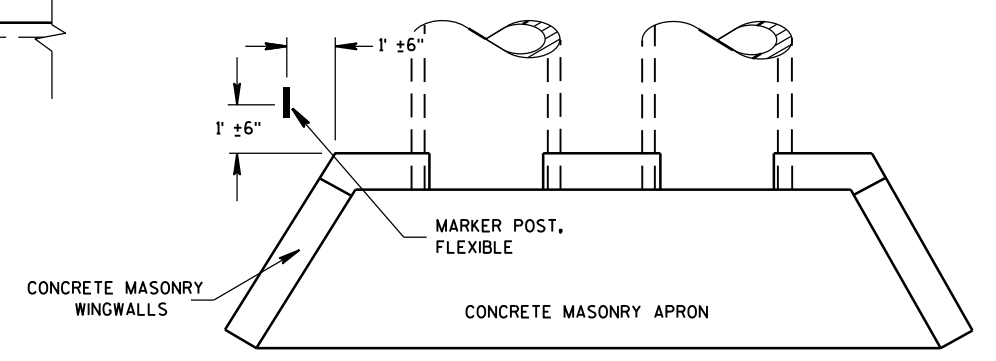
DETAIL A  
(TYPICAL)



FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

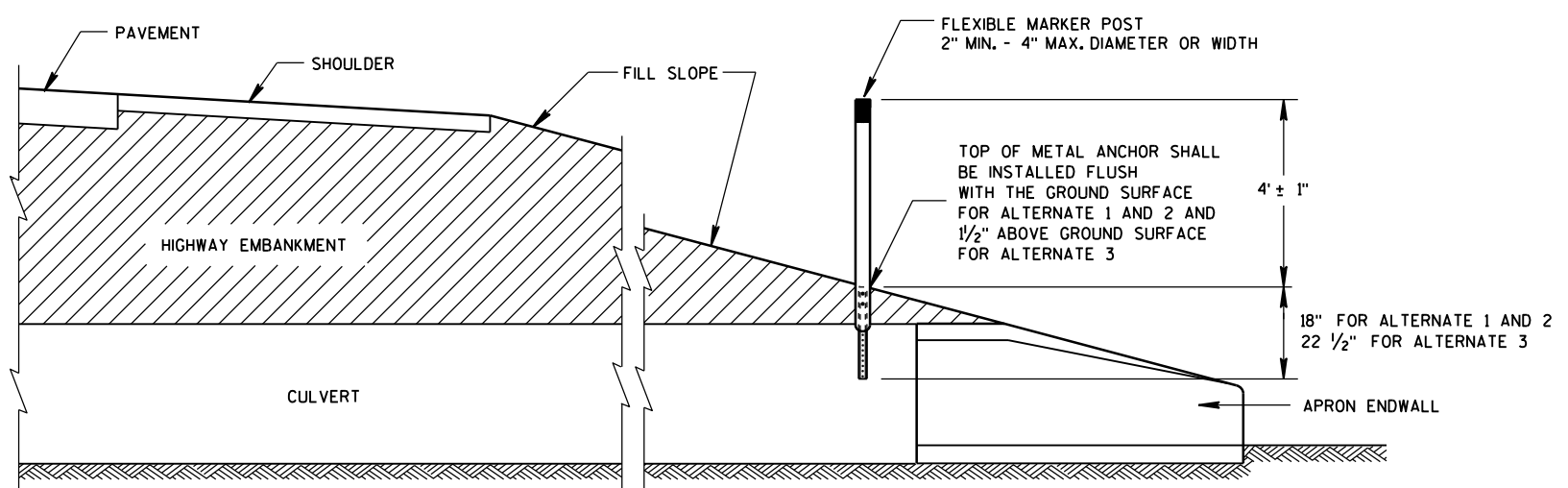
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW  
CONCRETE MASONRY ENDWALLS FOR  
CULVERT PIPE AND PIPE ARCH

6

6



CROSS SECTION  
FLEXIBLE MARKER POST

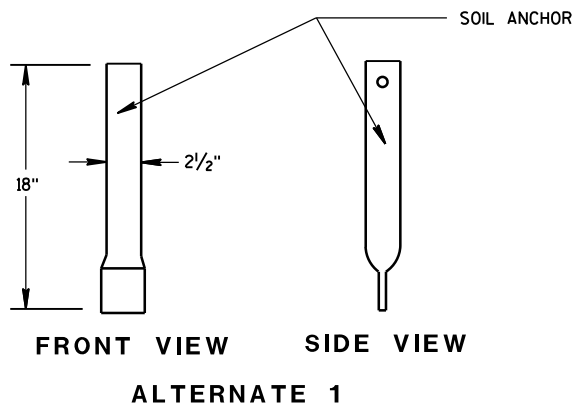
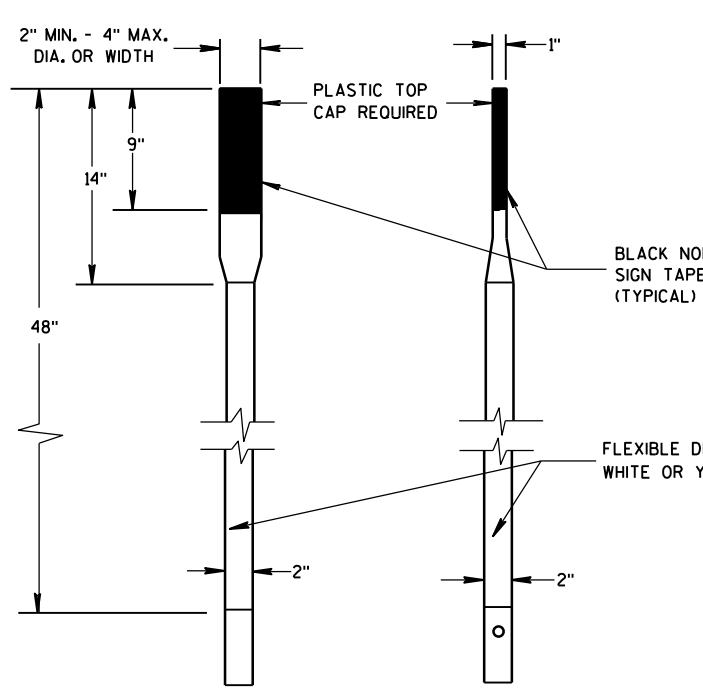
FLEXIBLE MARKER POST  
FOR CULVERT END

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

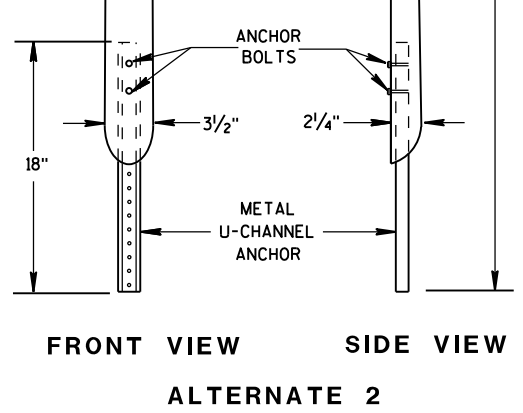
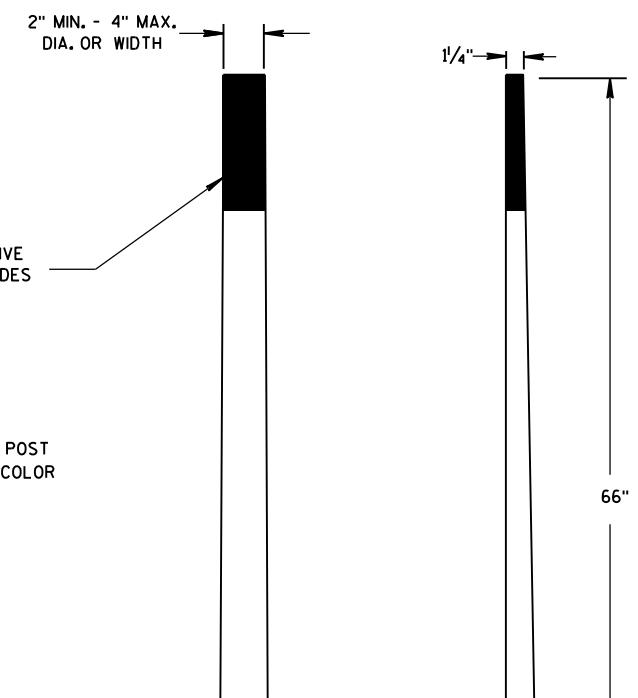
S.D.D. 15 A 3-2a

S.D.D. 15 A 3-2a

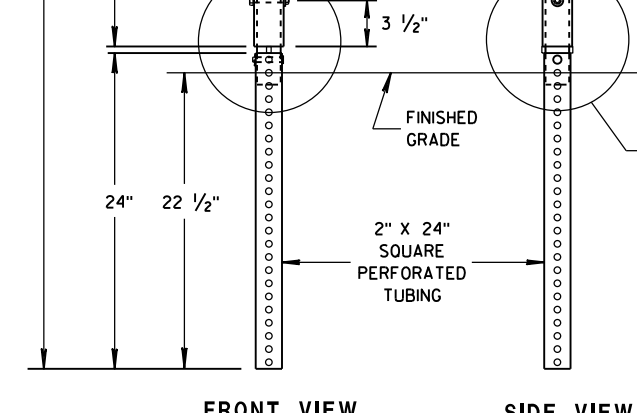
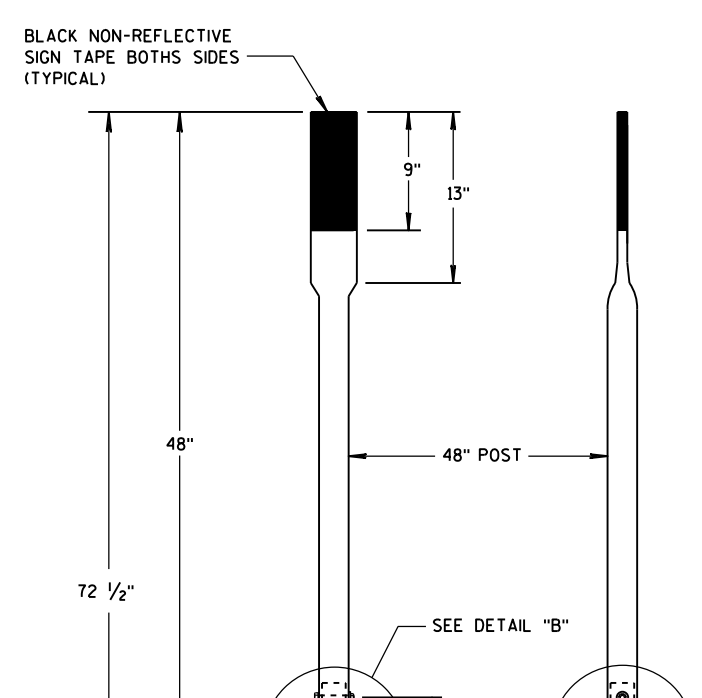




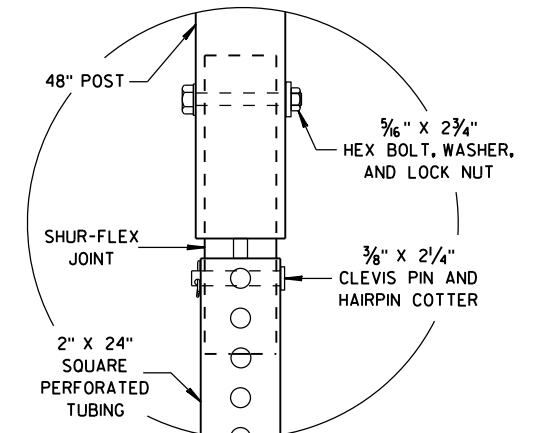
FRONT VIEW SIDE VIEW  
ALTERNATE 1



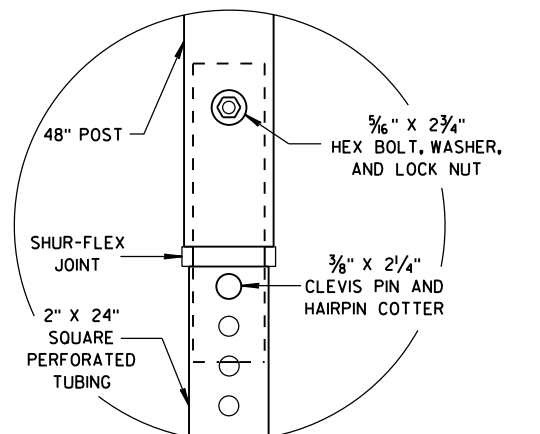
FRONT VIEW SIDE VIEW  
ALTERNATE 2



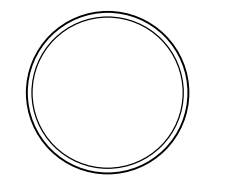
FRONT VIEW SIDE VIEW  
ALTERNATE 3



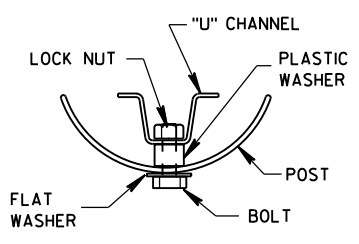
DETAIL B



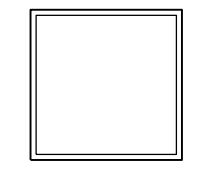
DETAIL C



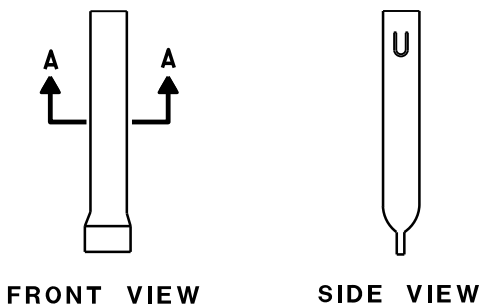
SECTION A-A



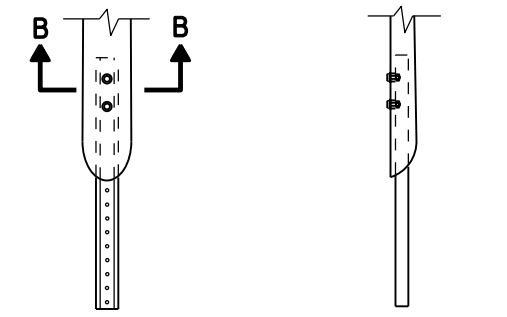
SECTION B-B



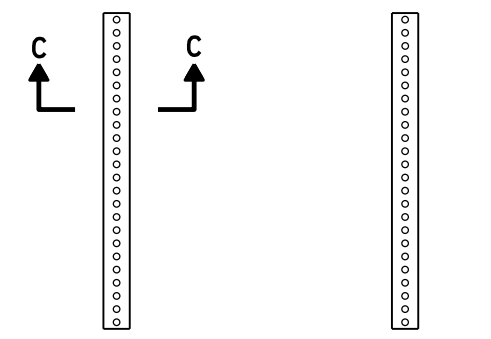
SECTION C-C



FRONT VIEW SIDE VIEW  
ALTERNATE 1



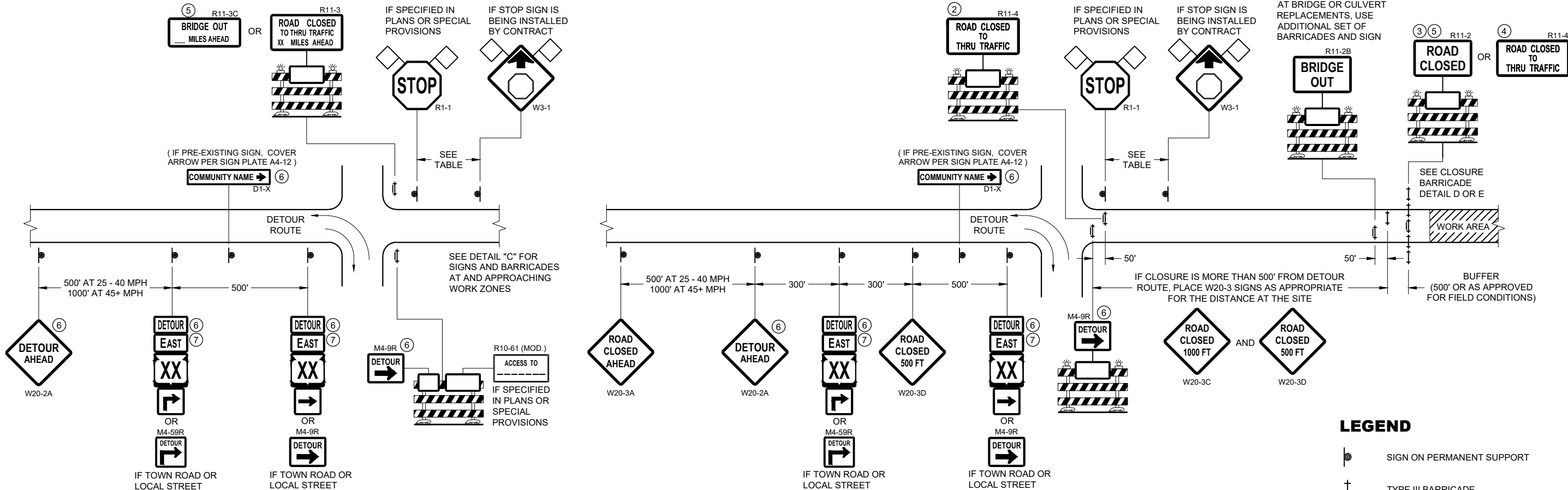
FRONT VIEW SIDE VIEW  
ALTERNATE 2



FRONT VIEW SIDE VIEW  
ALTERNATE 3

**FLEXIBLE MARKER POST ANCHORS**

<b>FLEXIBLE MARKER POST FOR CULVERT END</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

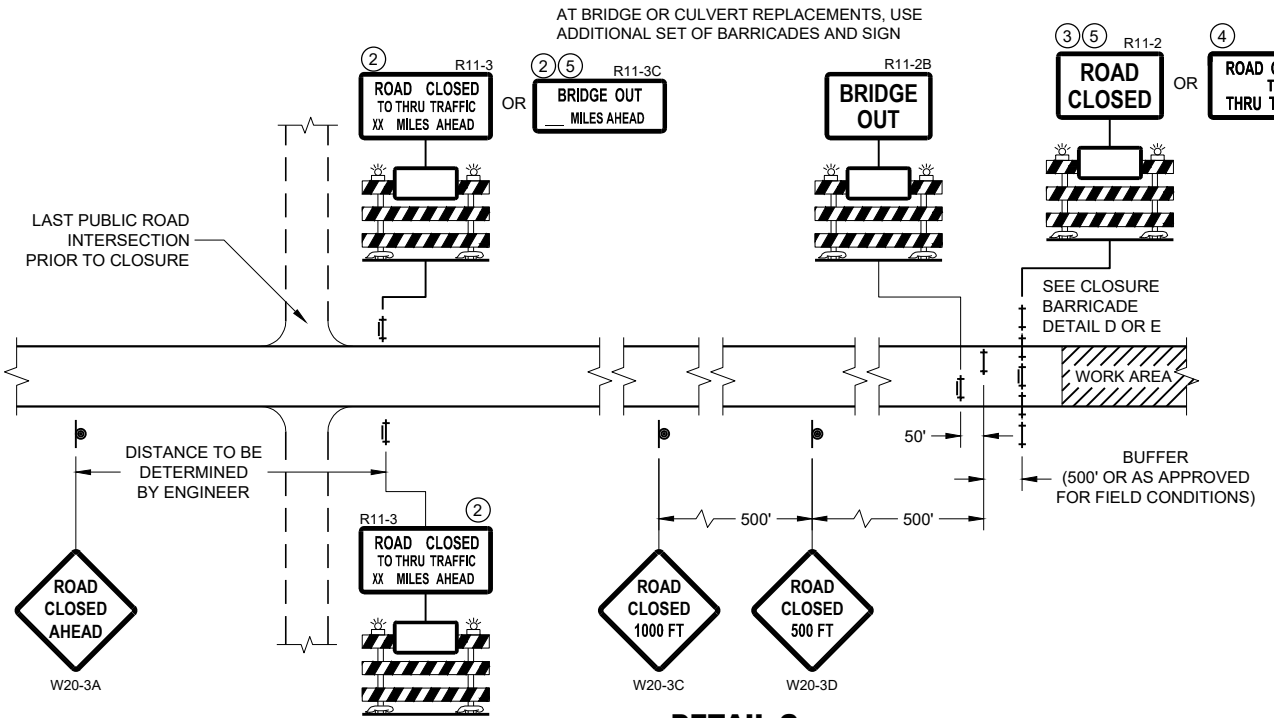
WORK ZONE LESS THAN 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**LEGEND**

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

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

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



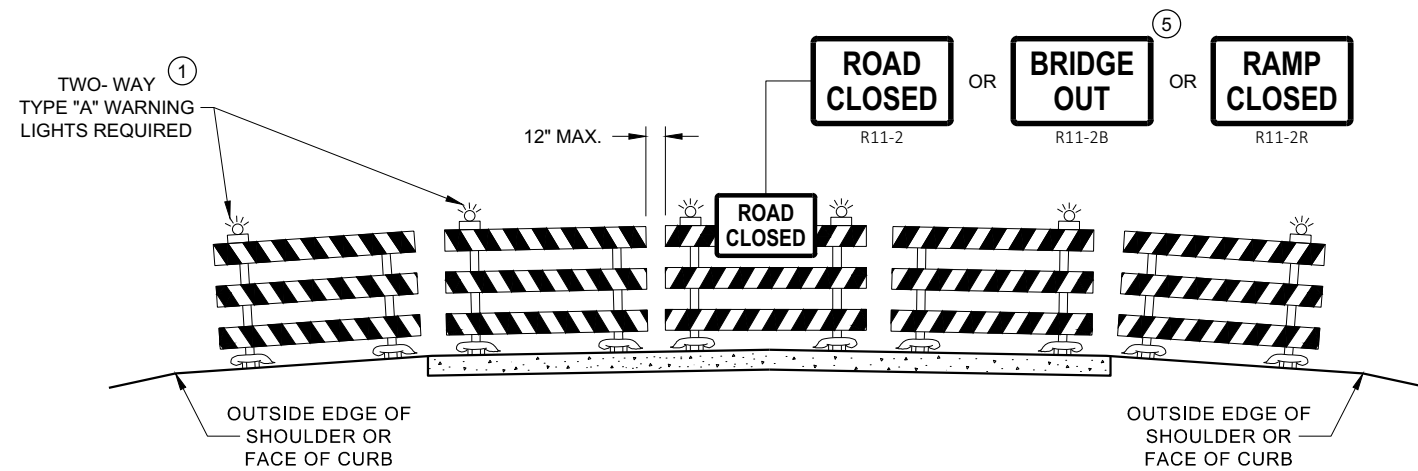
**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

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

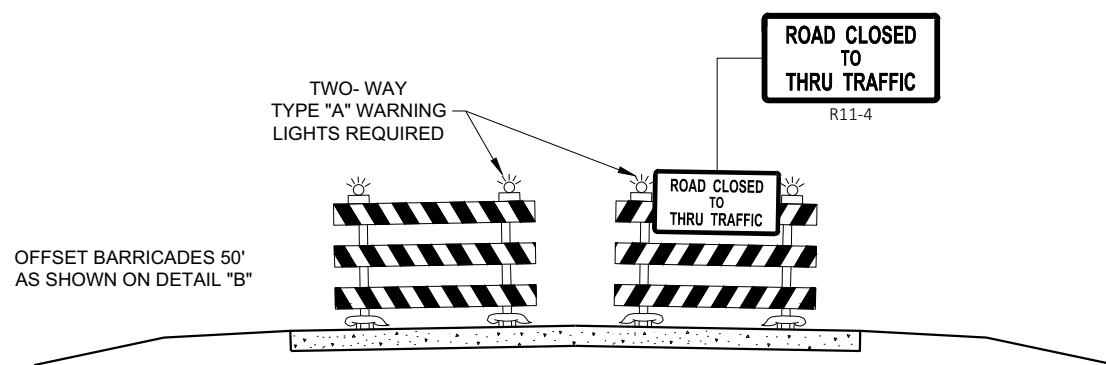
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER



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



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

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**GENERAL NOTES**

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

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

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

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

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

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

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

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

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

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

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

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

**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

### GENERAL NOTES

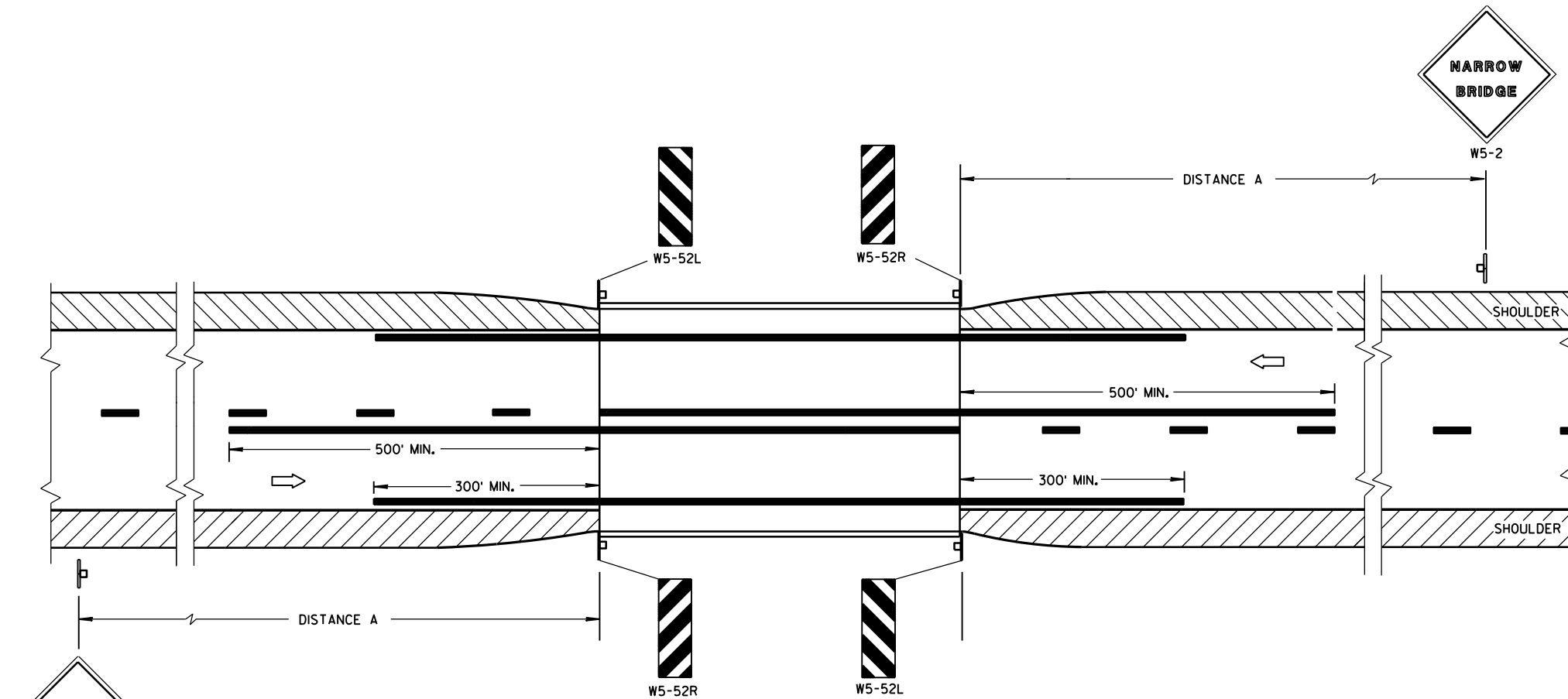
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

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

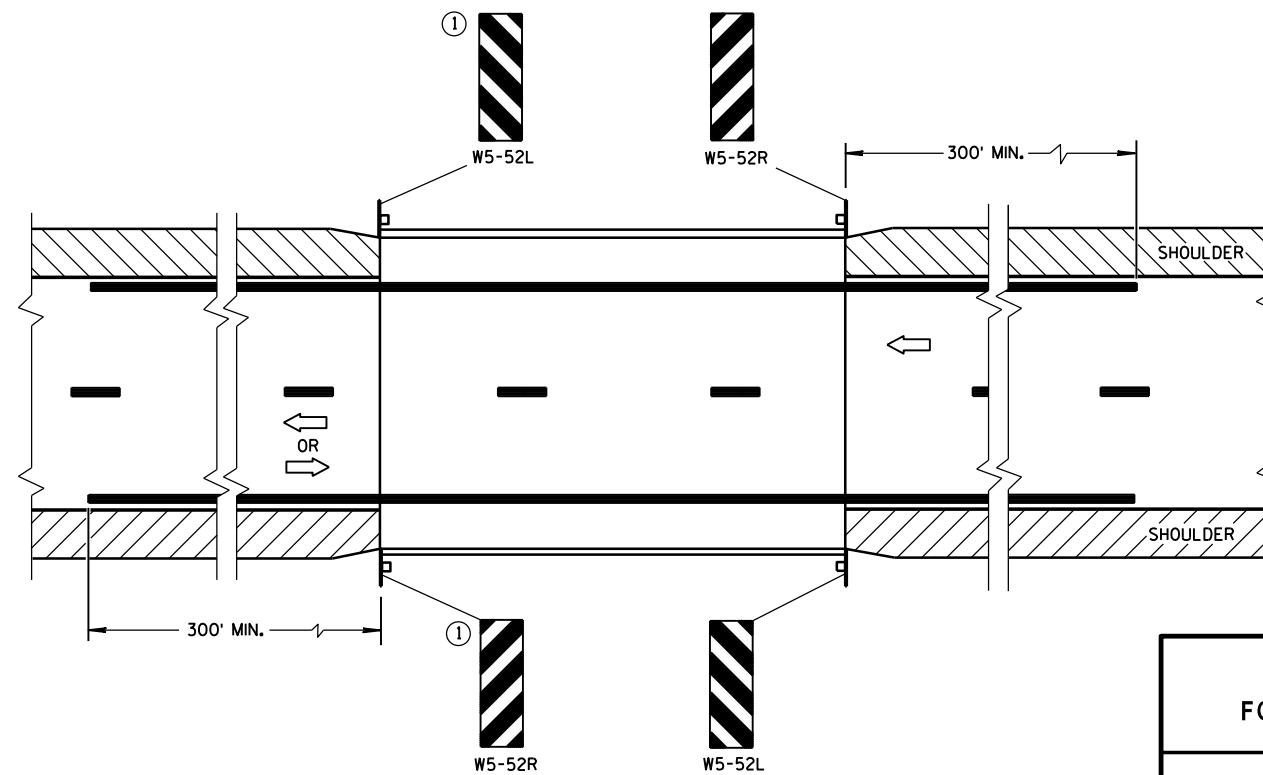
① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



### SITUATION 1

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



### SITUATION 2

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

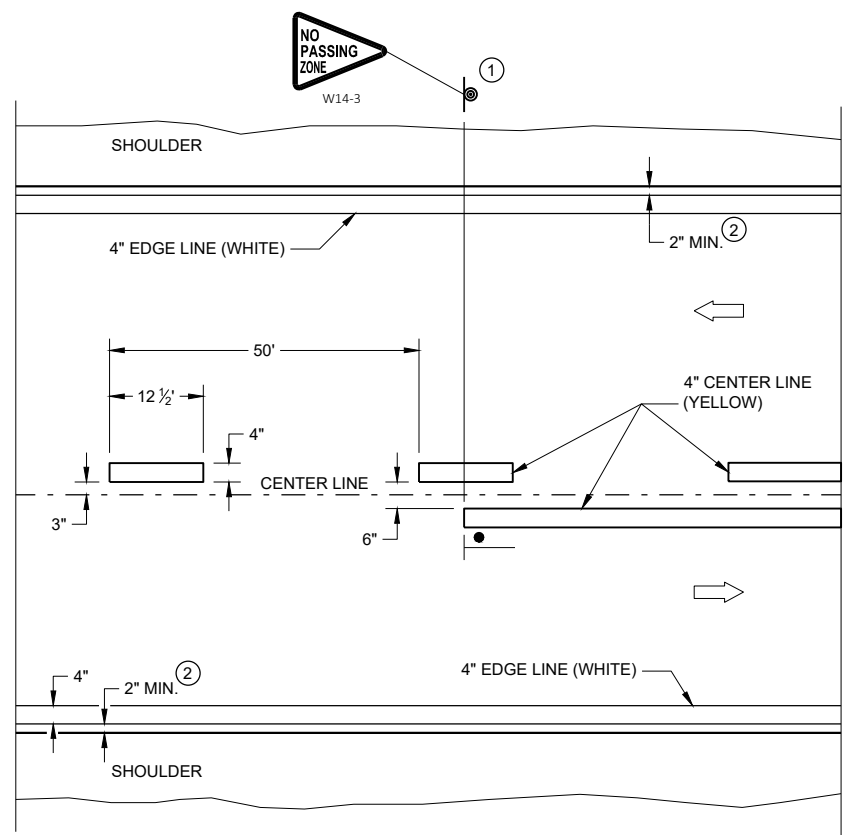
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

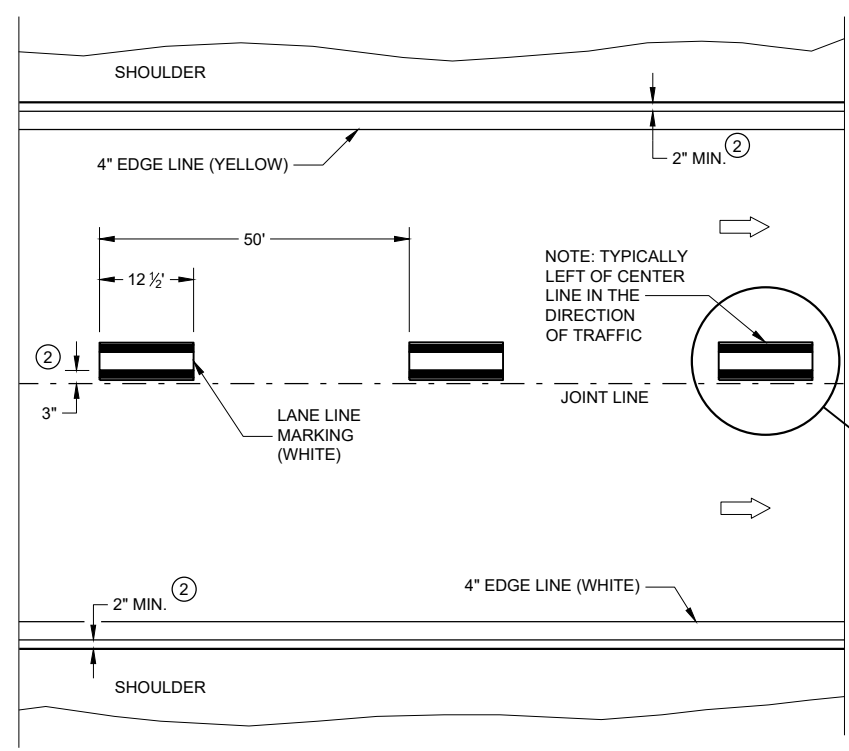
### SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017 /S/ Matthew R. Rauch  
DATE STATE SIGNING AND MARKING ENGINEER  
FHWA

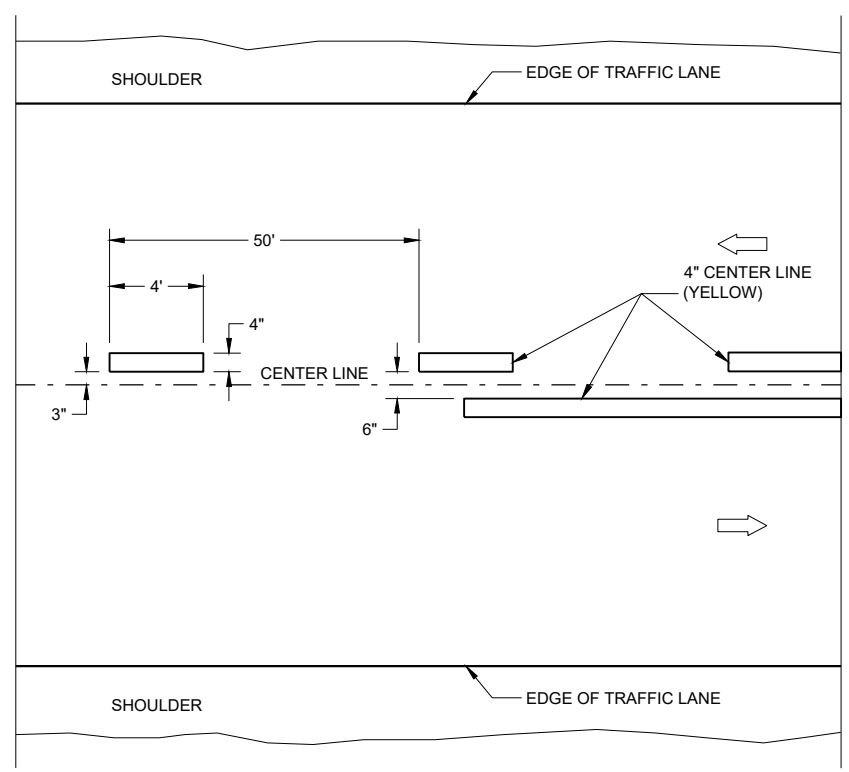


TWO WAY TRAFFIC

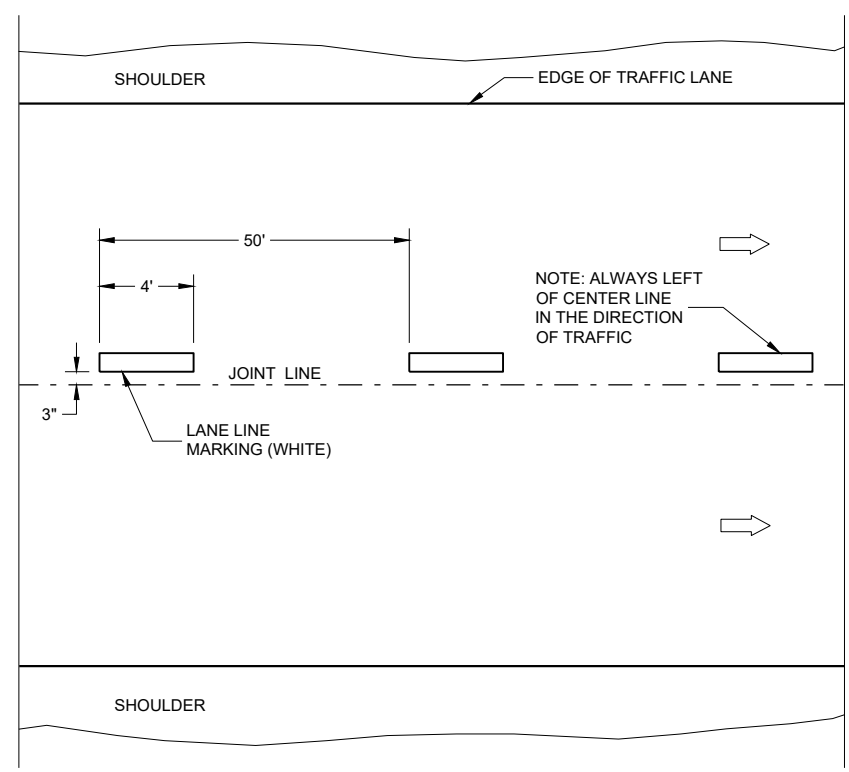


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

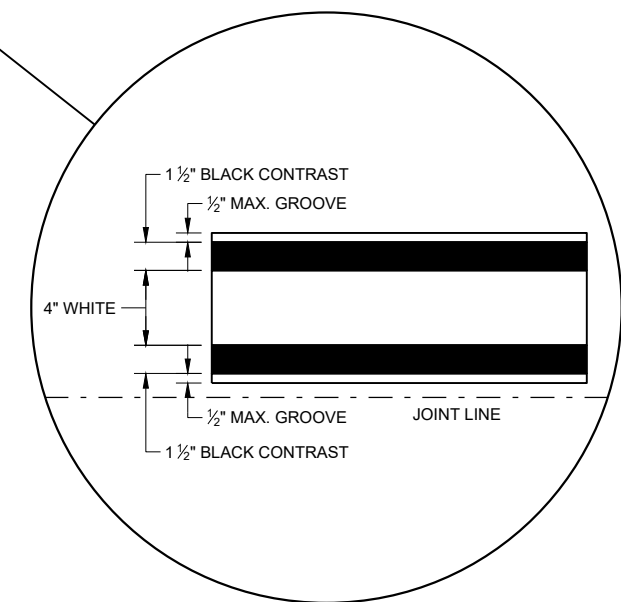
GENERAL NOTES

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

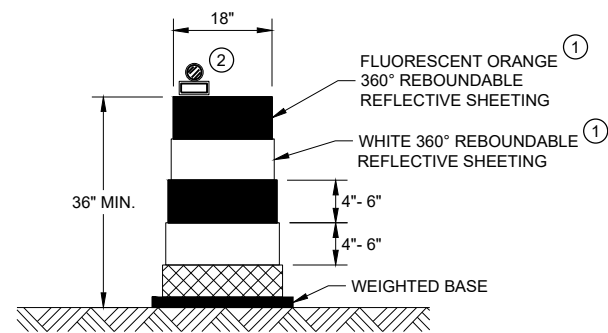
- |—"T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



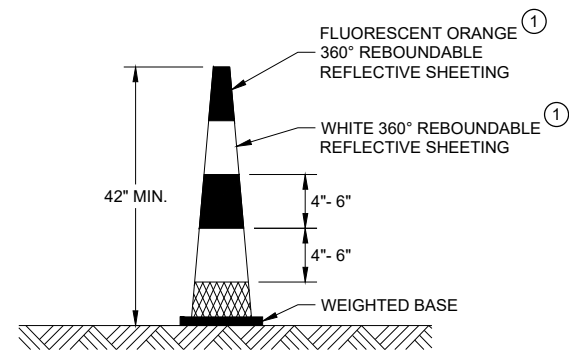
LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED  
 February 2020 /S/ Matthew Rauch  
 DATE STATEWIDE SIGNING AND MARKING ENGINEER  
 FHWA

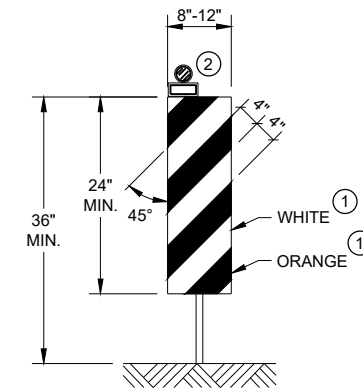


**DRUM**



**42" CONE**

DO NOT USE IN TAPERS  
 1/2 SPACING OF DRUMS

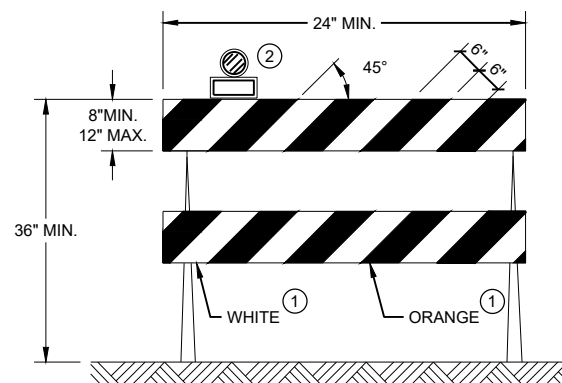


**VERTICAL PANEL**

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

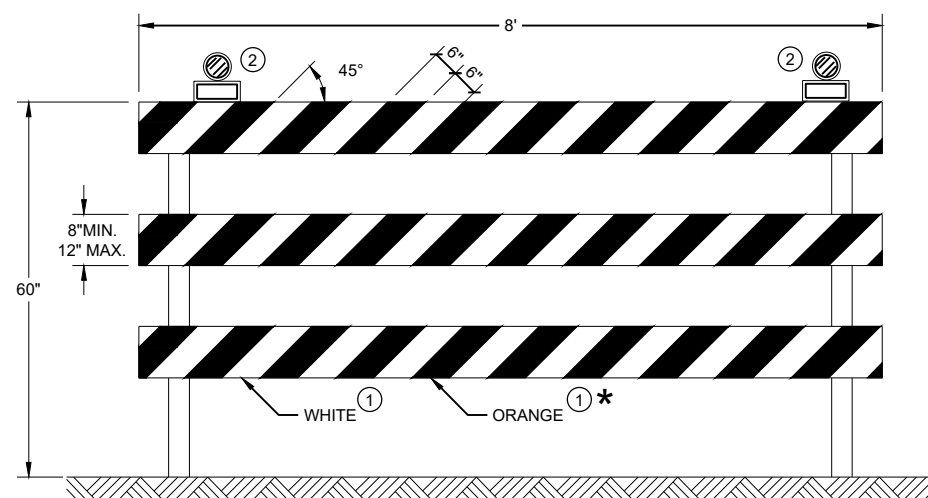
**GENERAL NOTES**

- 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**

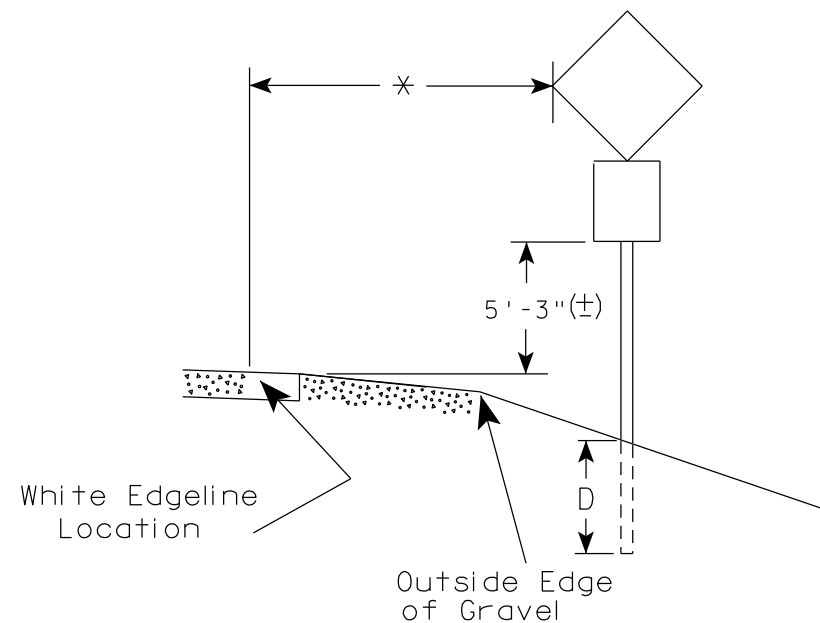
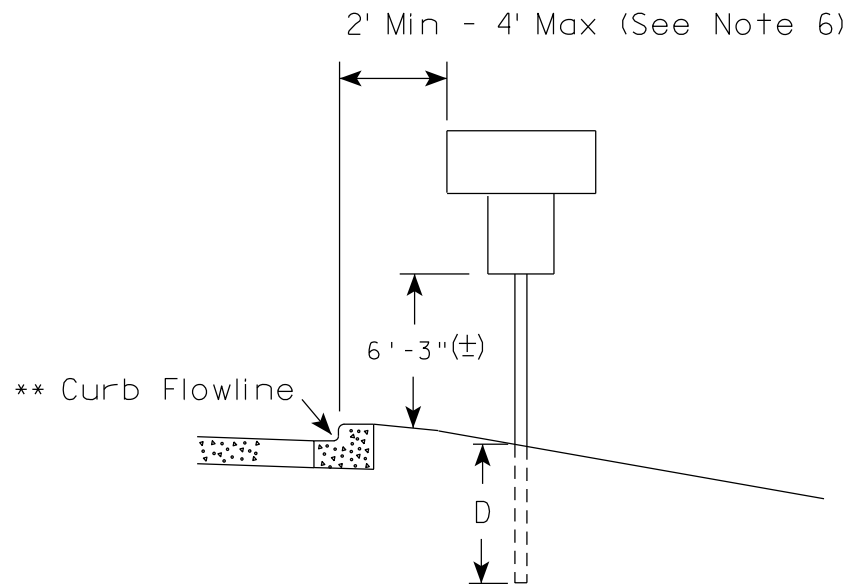
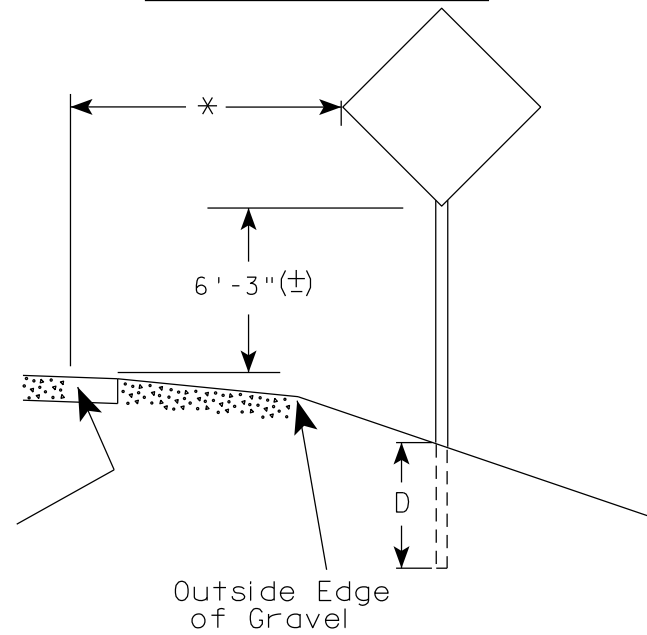
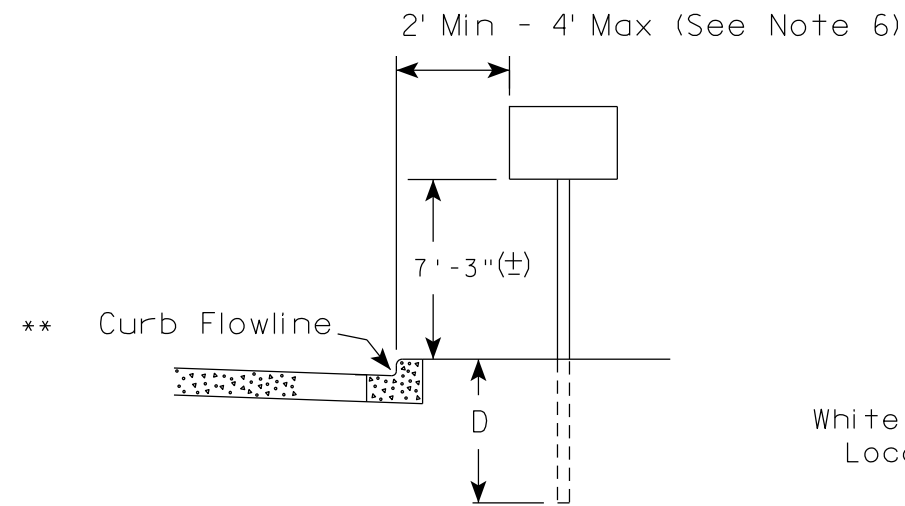
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

<b>CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	

URBAN AREA

RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

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

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

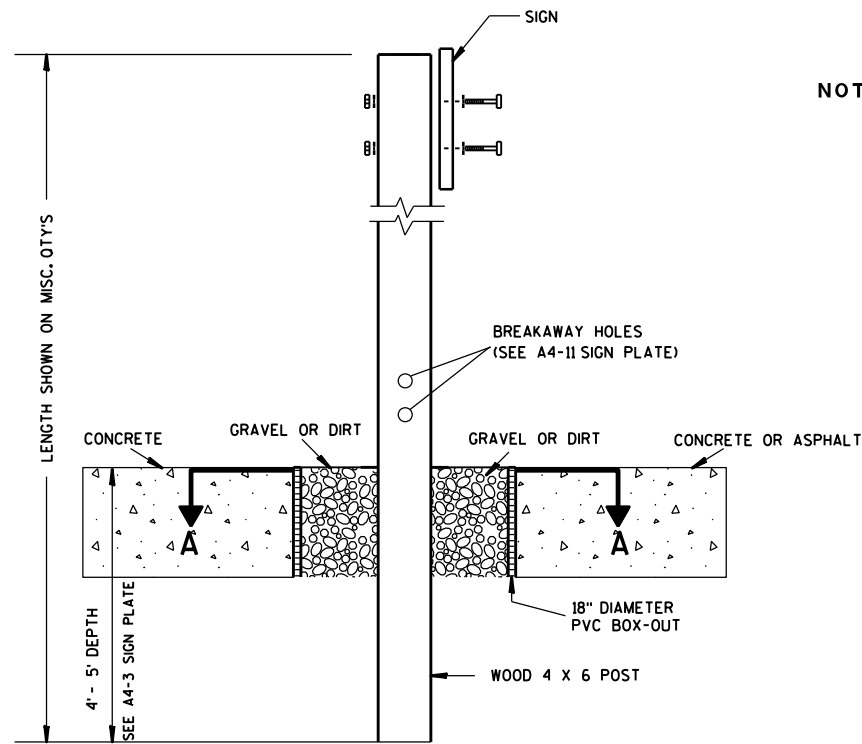
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

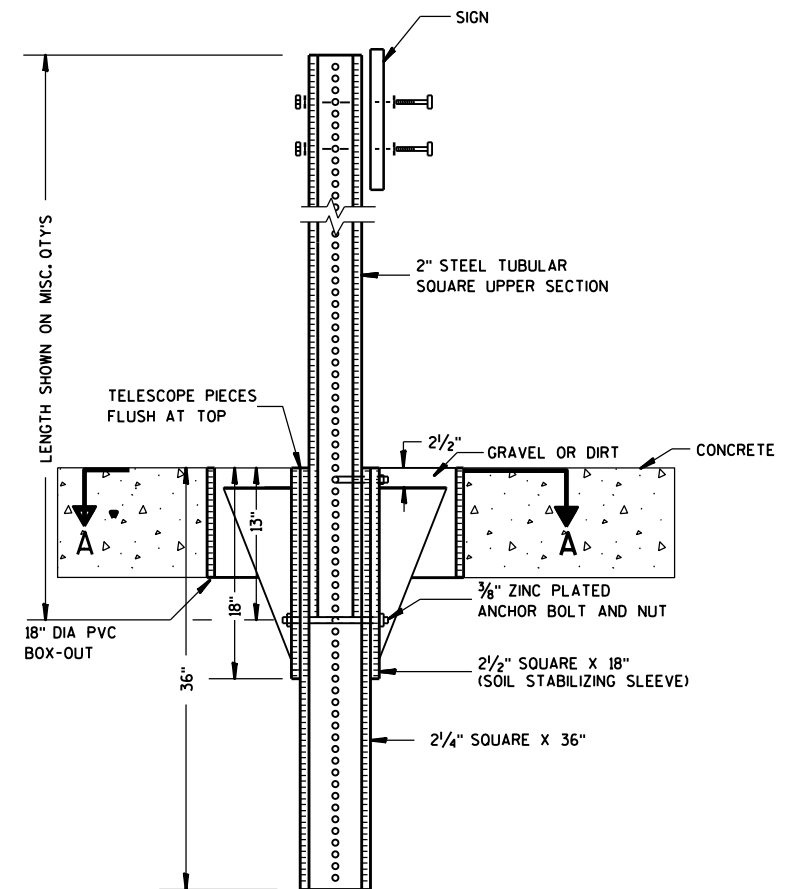
DATE 5/13/2020 PLATE NO. A4-3.22



**ELEVATION VIEW**

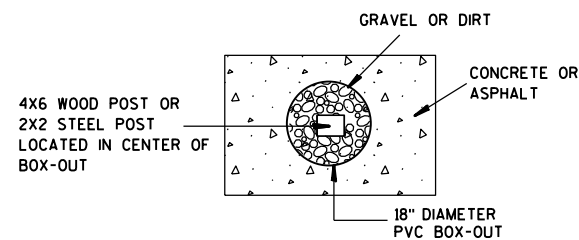
**DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT**

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



**ELEVATION VIEW**

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



**PLAN VIEW**

**FOR NEW CONCRETE/ ASPHALT INSTALLATIONS**

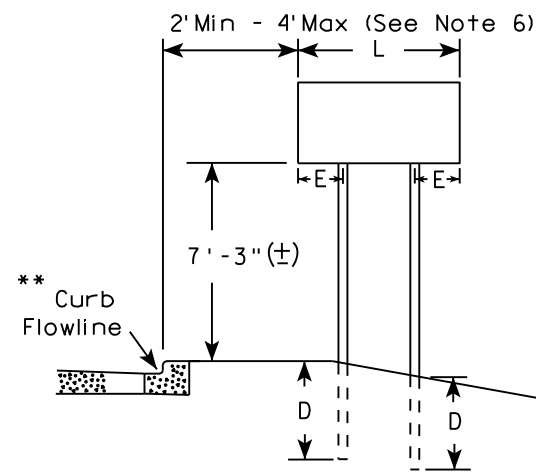
<b>SIGN POST BOX-OUTS A4-3B</b>	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R. Rauch</i> <small>for State Traffic Engineer</small>	
<small>DATE 1/27/14</small>	<small>PLATE NO. A4-3B.1</small>



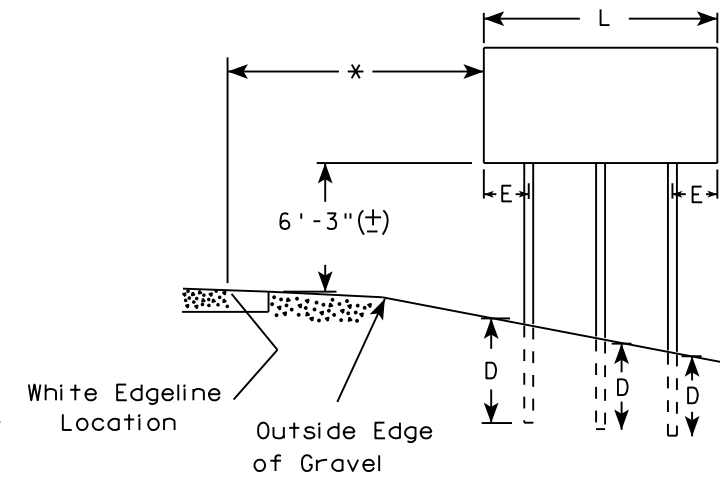
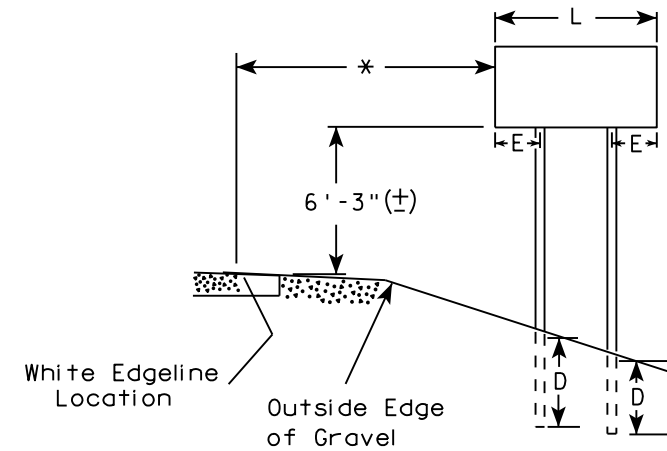
GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

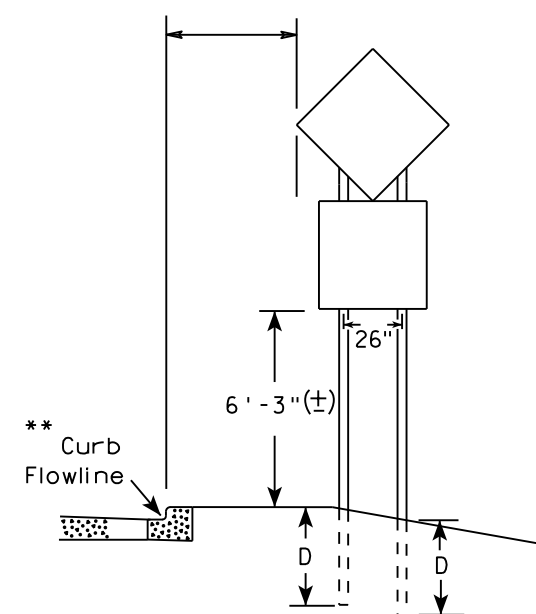
URBAN AREA



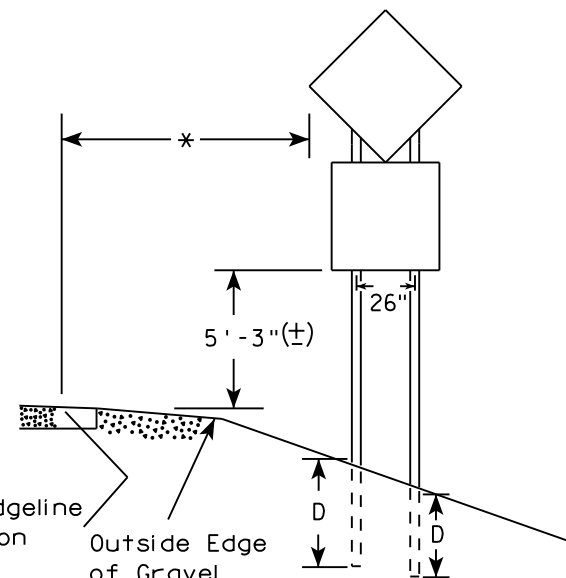
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

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

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

\*\*\*

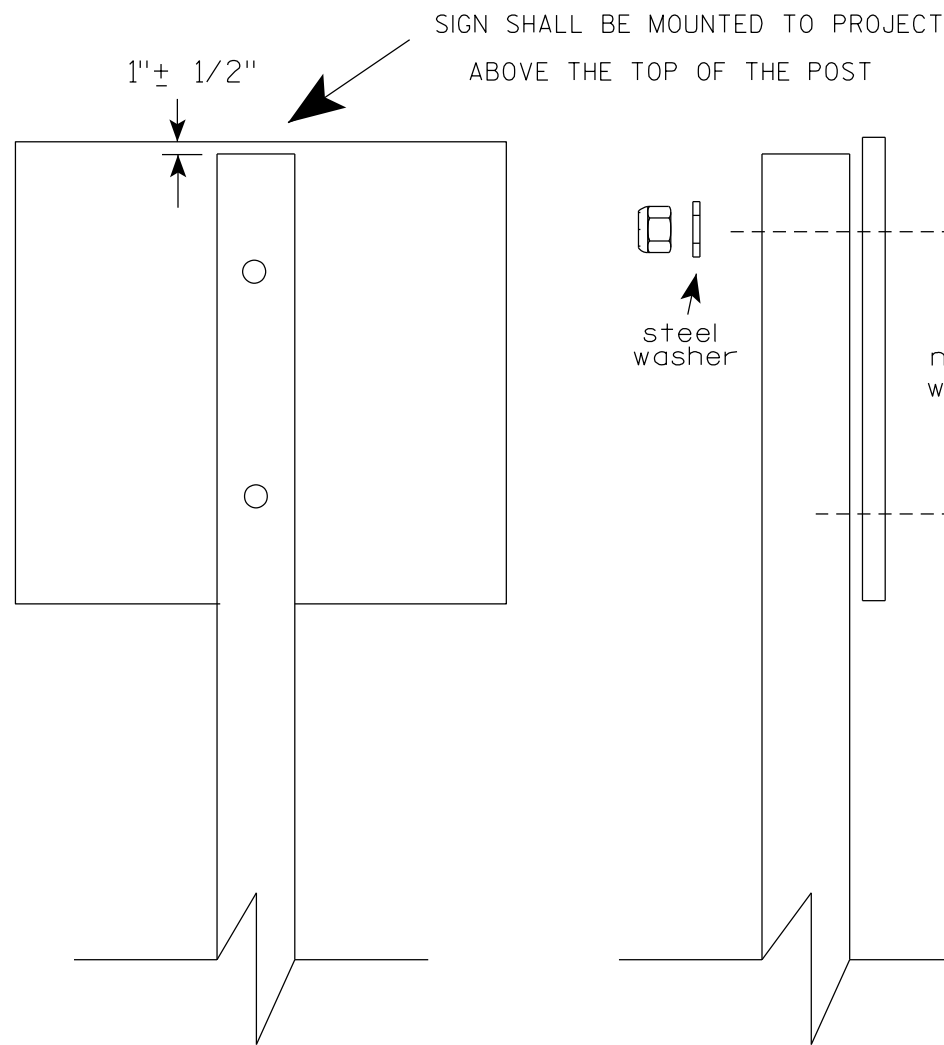
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION  
 APPROVED *Matthew R. Rauch*  
 For State Traffic Engineer  
 DATE 8/21/17 PLATE NO. A4-4.15



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

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

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

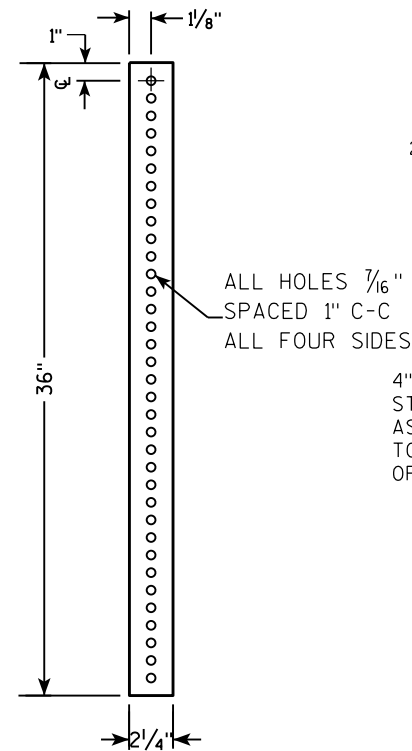
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS -  $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS -  $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
-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

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

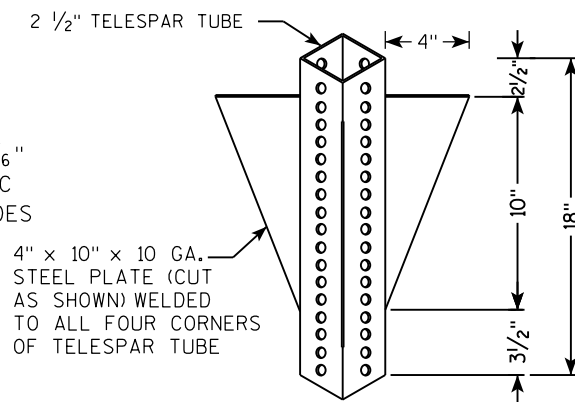
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM**

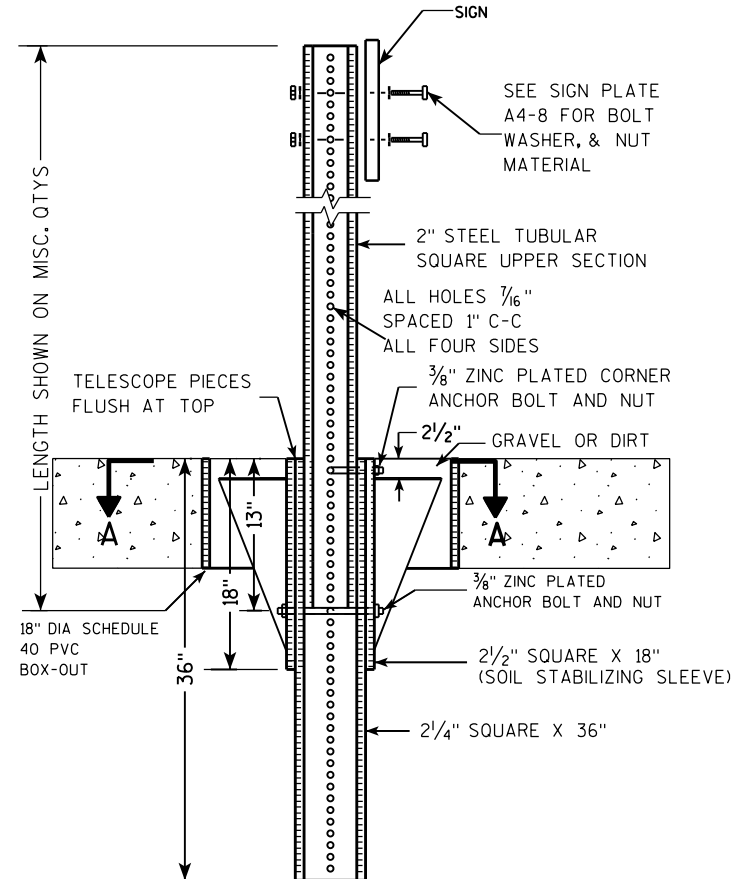
2 1/4" SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH



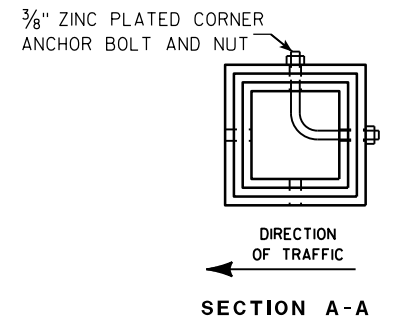
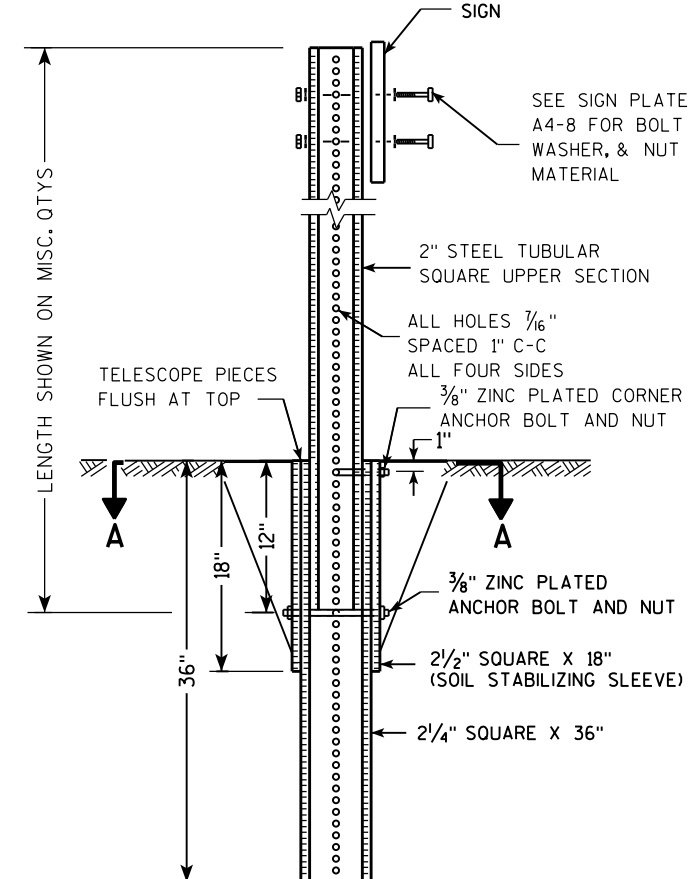
2 1/2" SQUARE  
12 GAUGE  
OMNI-DIRECTIONAL  
PERFORATED  
SOIL STABILIZING SLEEVE  
GALVANIZED FINISH



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



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



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

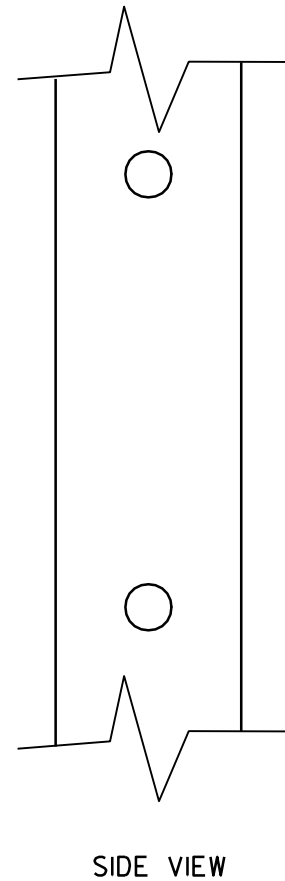
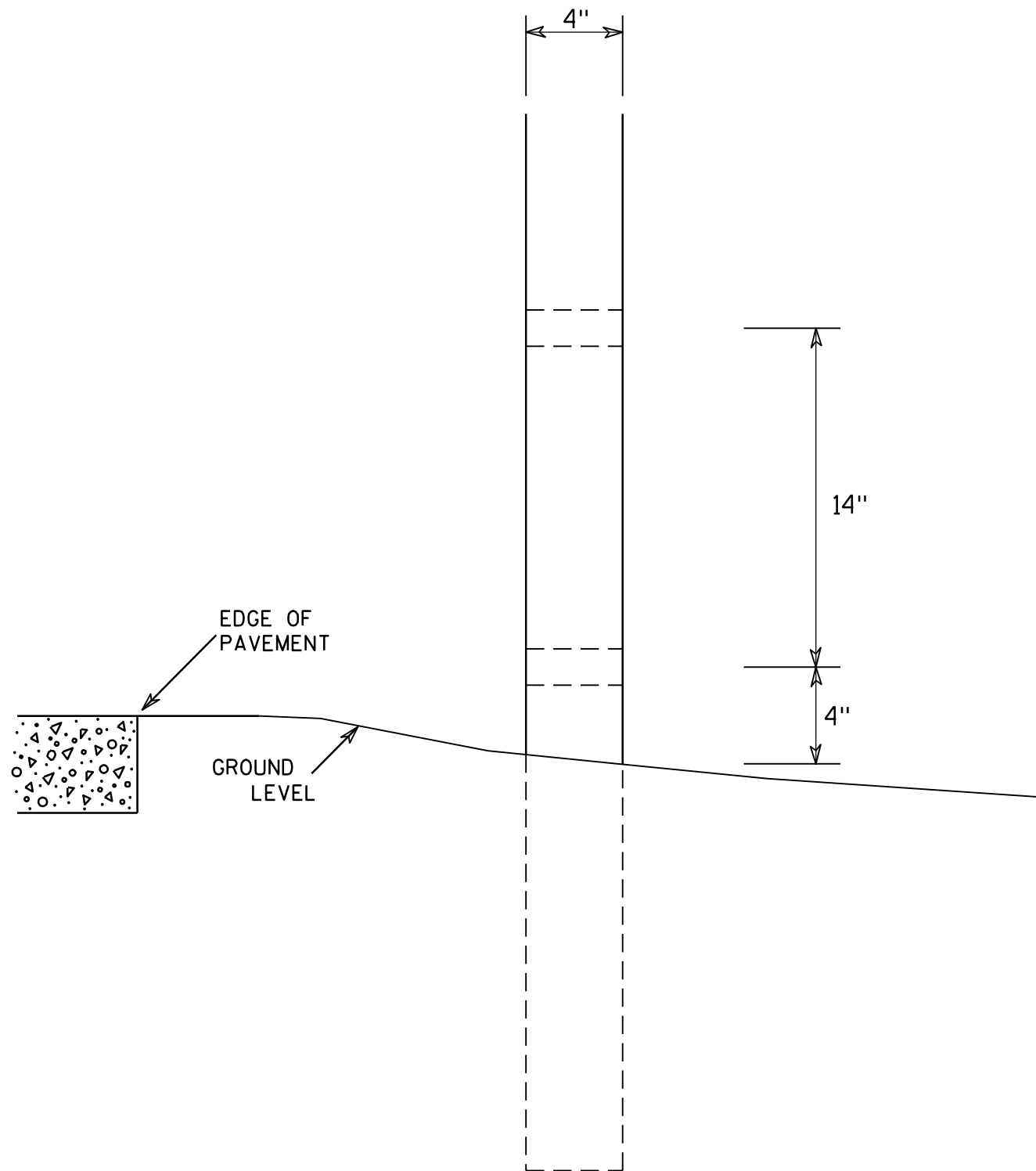
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL  
SIGN POST  
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9



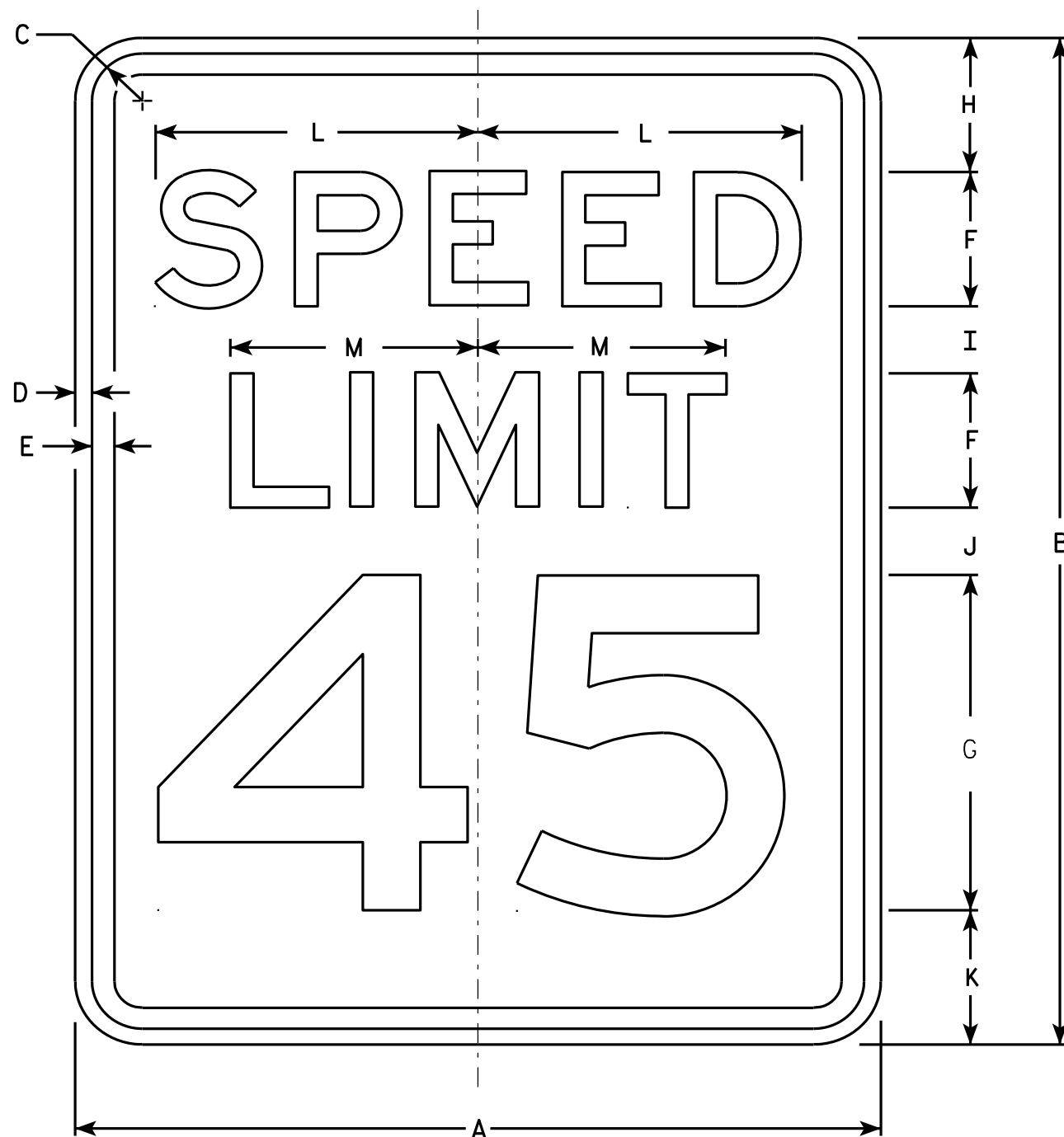
GENERAL NOTES

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

7

7

<b>4 X 6 WOOD POST MODIFICATIONS</b>	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

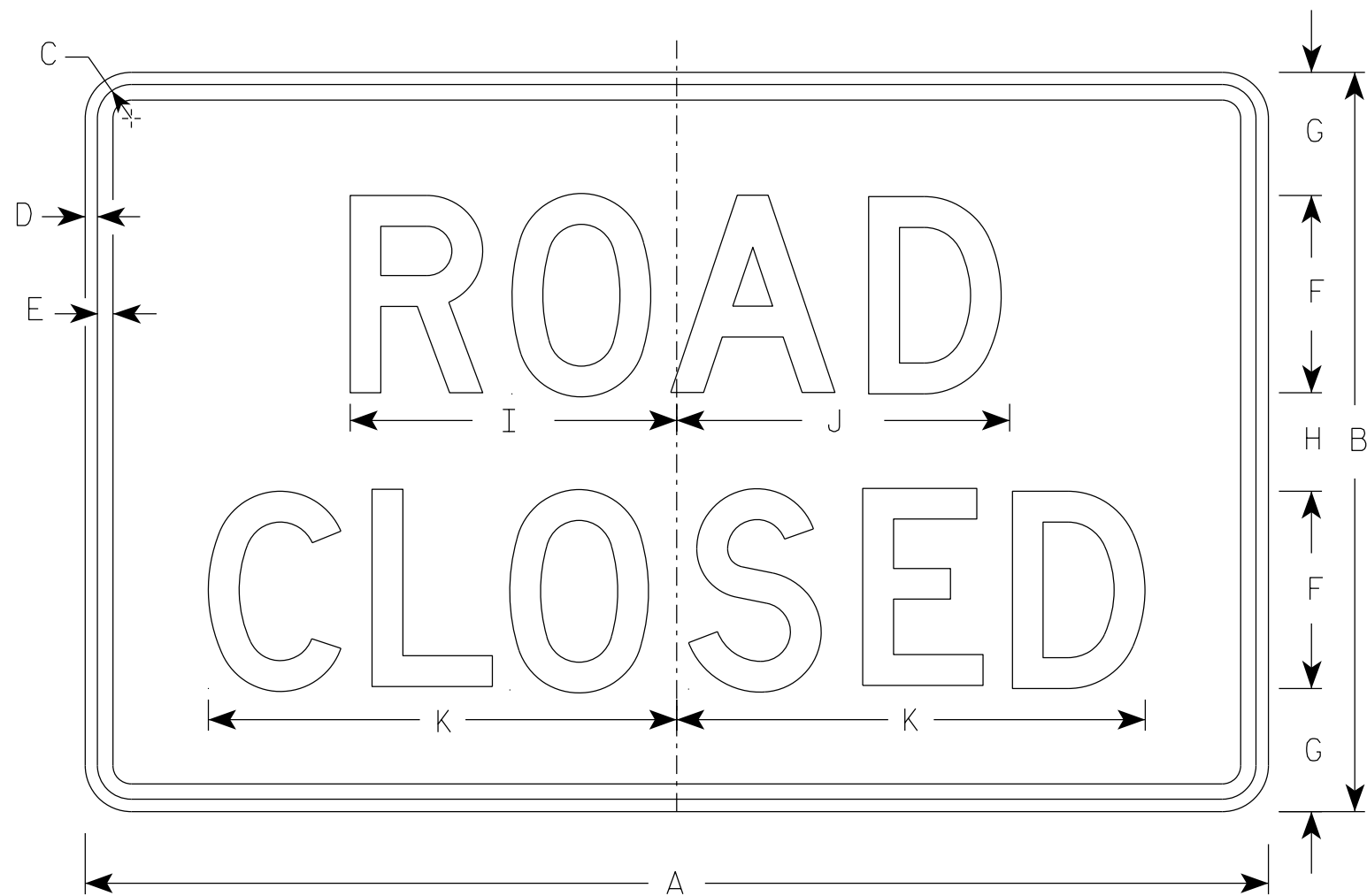
STANDARD SIGN  
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

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



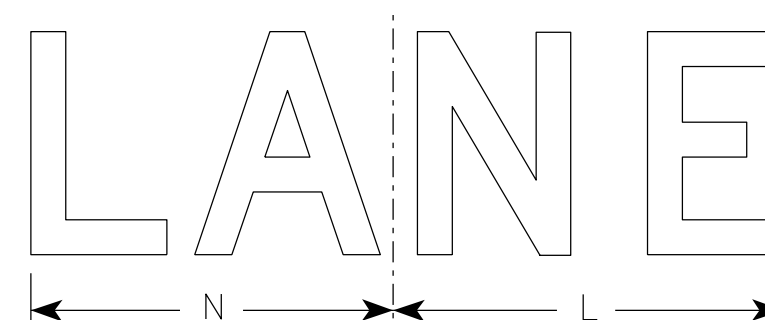
R11-2



R11-2R



R11-2T



R11-2L

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

STANDARD SIGN  
R11-2

WISCONSIN DEPT OF TRANSPORTATION

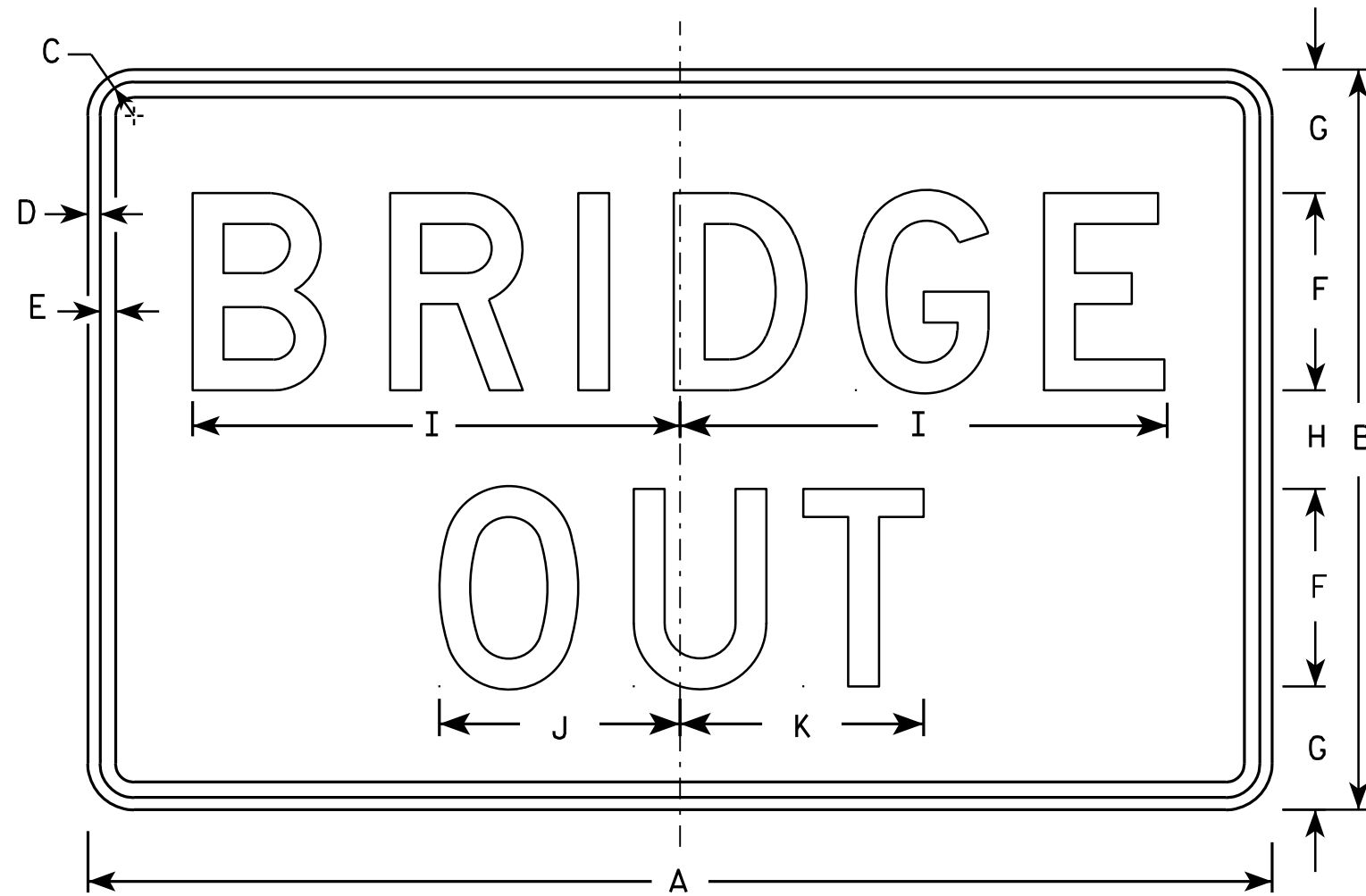
APPROVED *Matthew R Rauch*  
For State Traffic Engineer

DATE 3/29/2021 PLATE NO. R11-2.11

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

NOTES

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



R11-2B

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

**STANDARD SIGN**  
R11-2B

*WISCONSIN DEPT OF TRANSPORTATION*

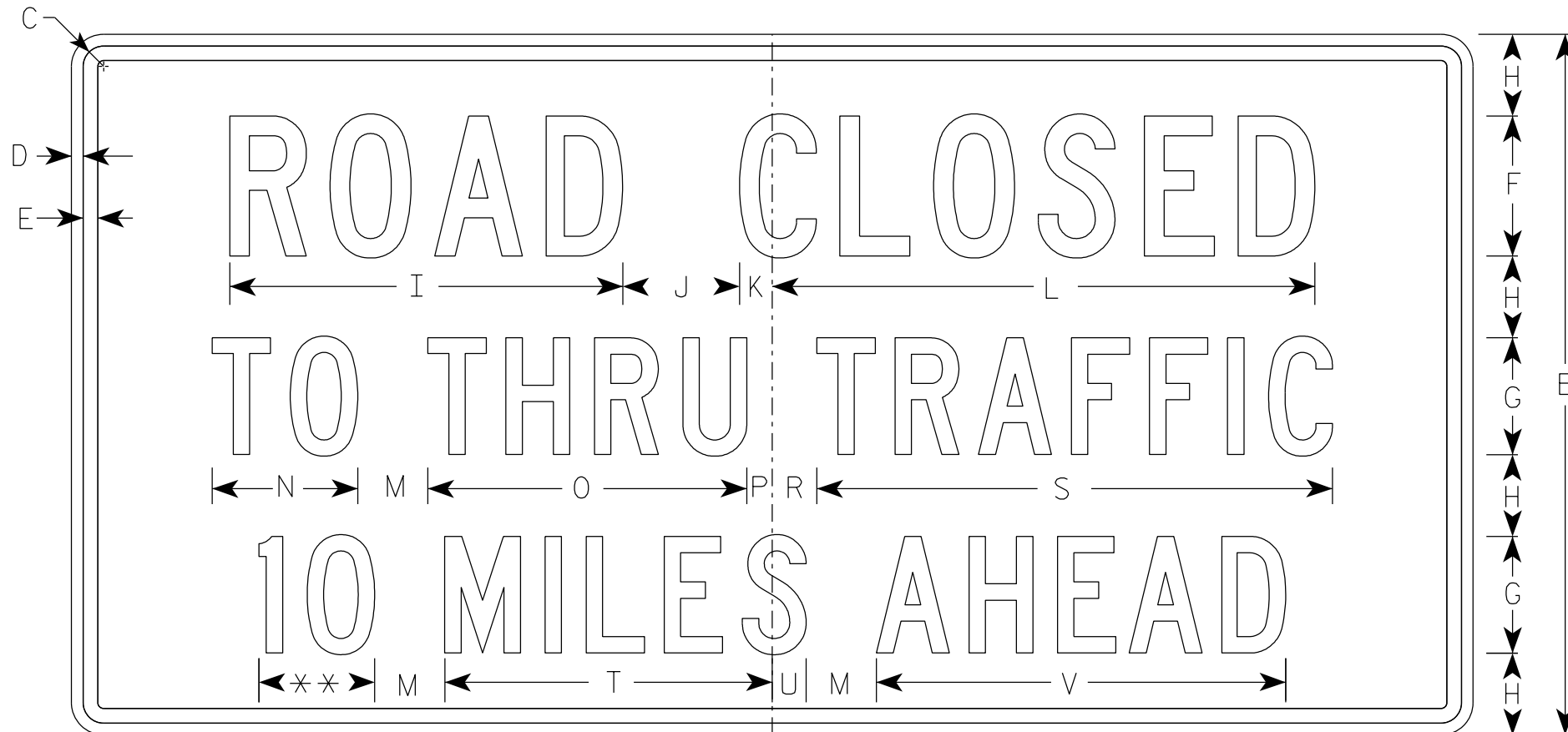
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

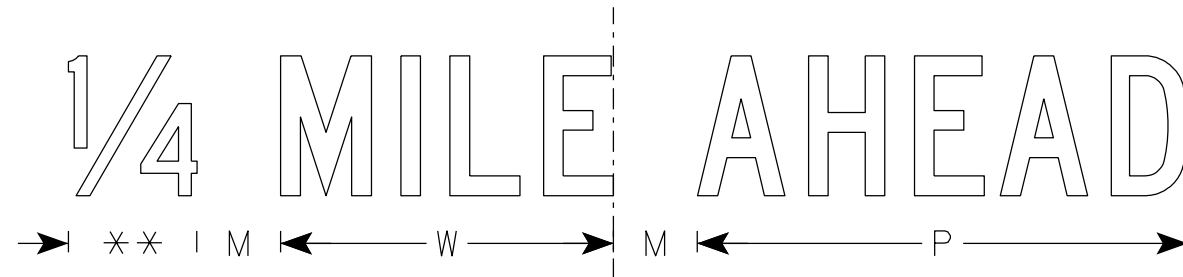
NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3

\*\* See Note 5



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/4	3/8	3/8	4	3	2	11 1/4	3	1 1/8	15 3/8	2	3 3/4	8 1/4	5/8		1 3/8	13 1/4	8 3/8	7/8	10 1/2	7 1/8			4.5	
2S	60	30	1 3/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8			12.5	
2M	60	30	1 3/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8			12.5	
3																											
4																											
5																											

STANDARD SIGN  
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

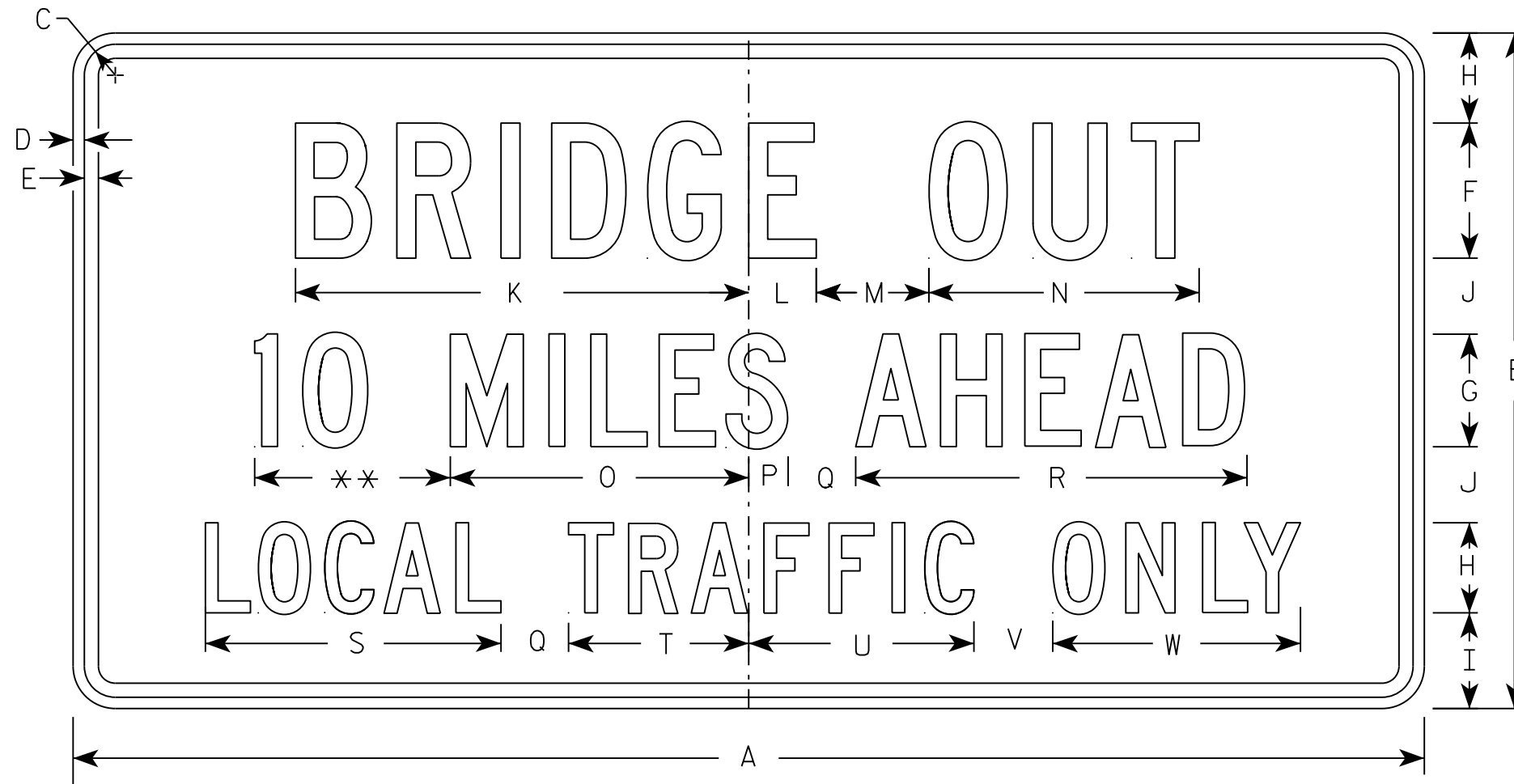
DATE 6/14/2021 PLATE NO. R11-3.9

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



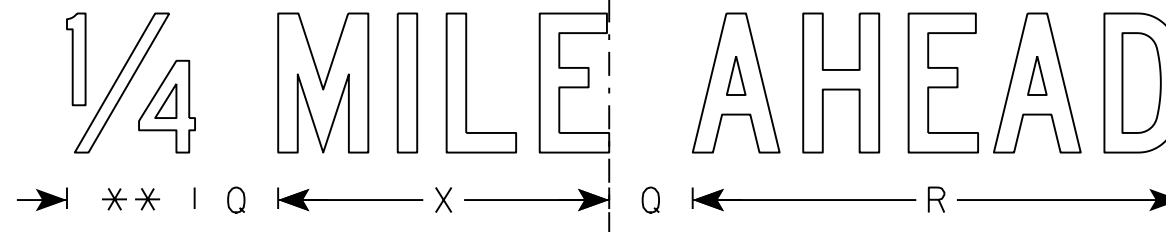
NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



\*\* See Note 5

R11-3B



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4	7 1/8		4.5	
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11	11 7/8		12.5	
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11	11 7/8		12.5	
3																											
4																											
5																											

STANDARD SIGN  
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

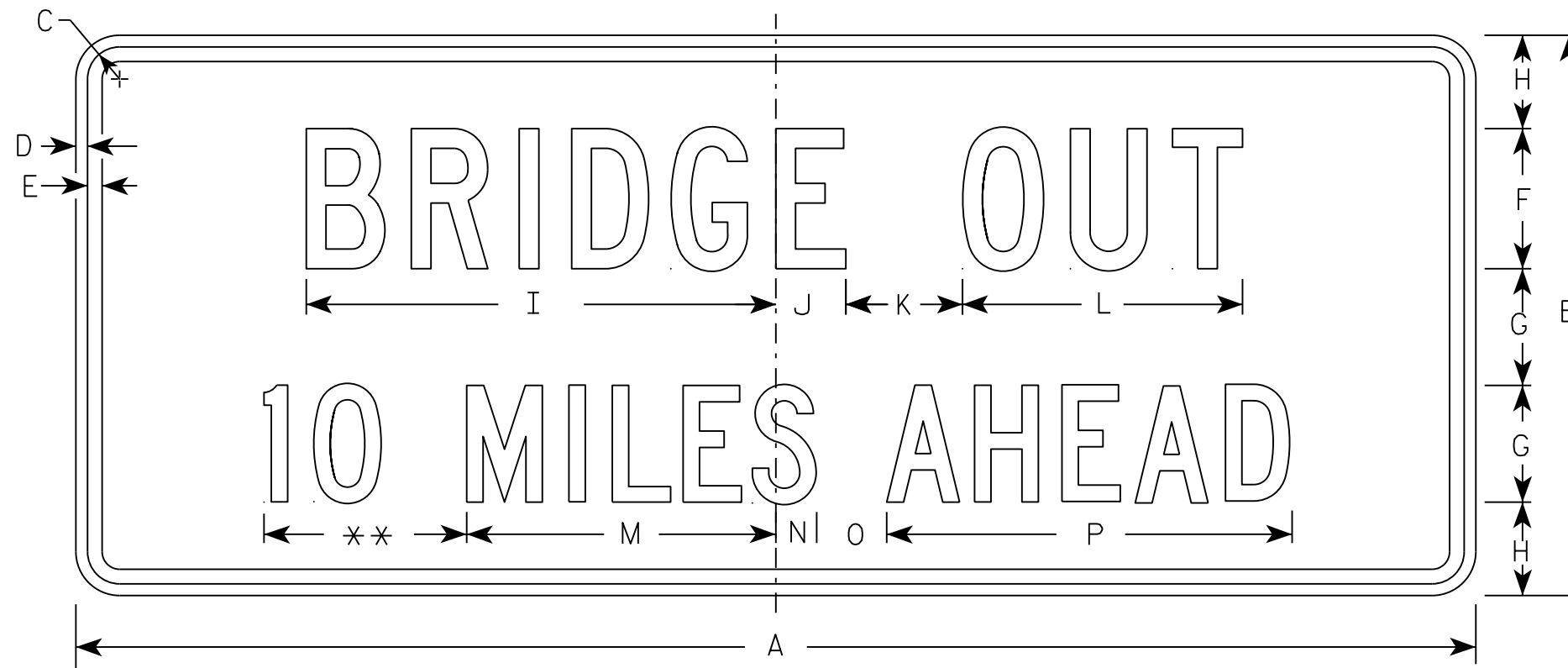
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/21/17 PLATE NO. R11-3B.3

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

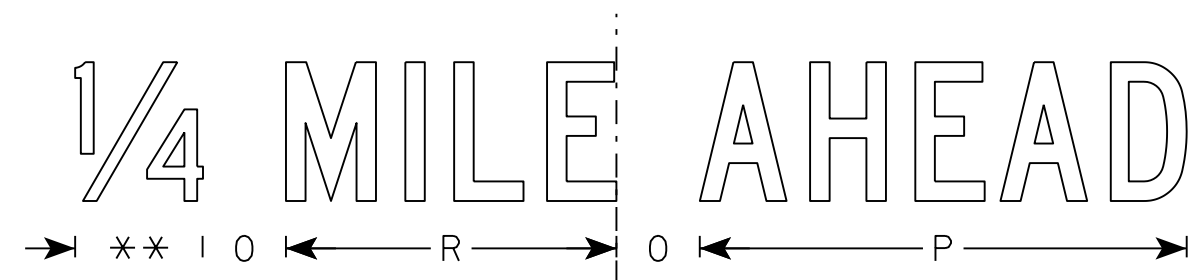
NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3C

\*\* See Note 5



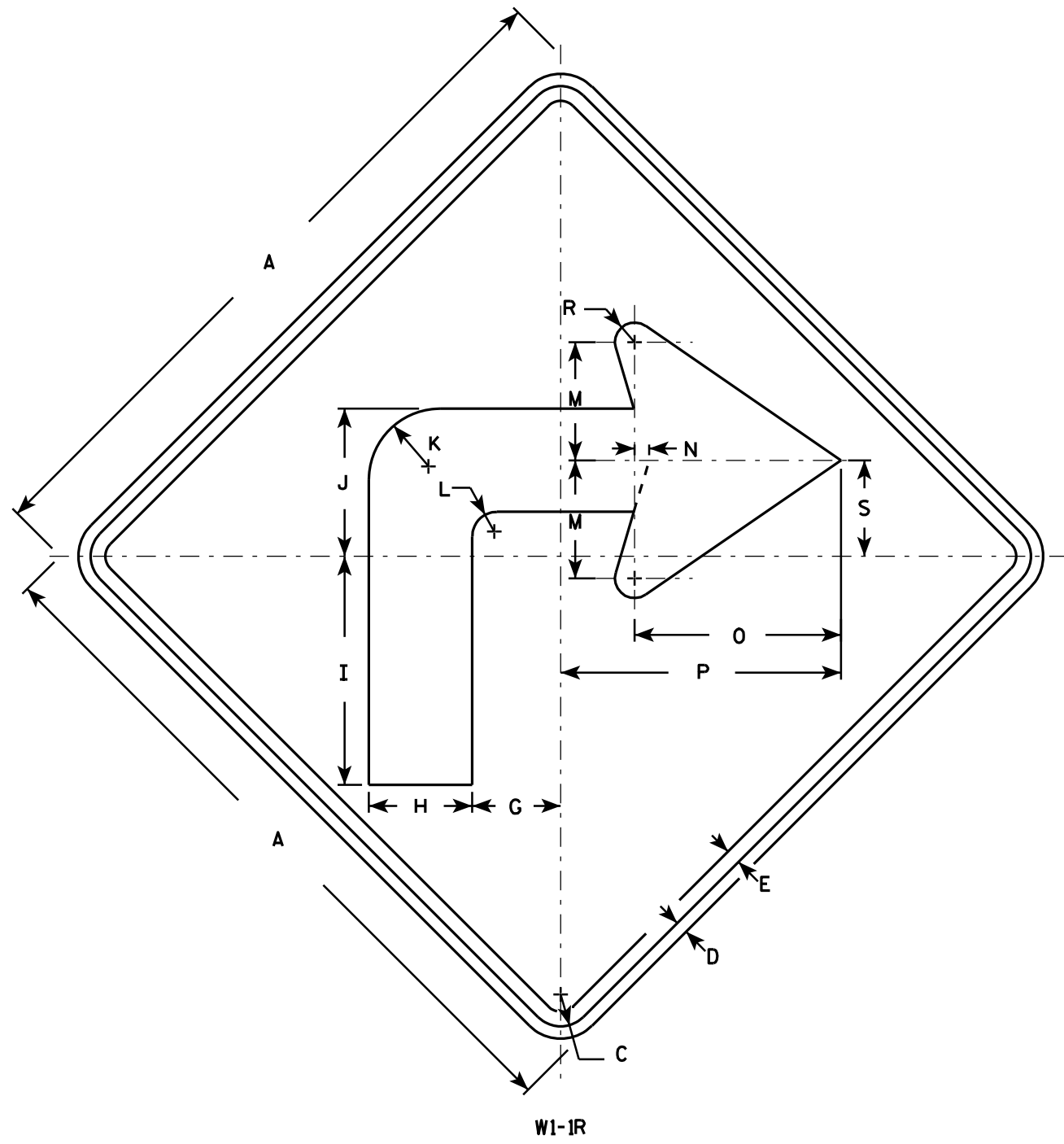
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	15	1 3/8	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4		7 1/8									3.75
2S	60	24	1 3/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
2M	60	24	1 3/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN  
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 7/28/16 PLATE NO. R11-3C.3



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W1-1L is the same as W1-1R except the arrow is reversed along the vertical centerline.

7

7

W1-1R

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2		3	3 1/2	7 3/4	5	2 1/2	7/8	4	1/2	7	9 1/2		5/8	3 1/4								4.0
2S	36		1 5/8	5/8	3/4		4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	1 1/4	6	3/4	10 1/2	14 1/4		1	4 7/8								9.0
2M	36		1 5/8	5/8	3/4		4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	1 1/4	6	3/4	10 1/2	14 1/4		1	4 7/8								9.0
3	36		1 5/8	5/8	3/4		4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	1 1/4	6	3/4	10 1/2	14 1/4		1	4 7/8								9.0
4	48		2 1/4	3/4	1		6	7	15 1/2	10	4 7/8	1 5/8	8	1	14	19		1 1/4	6 1/2							16.0	
5	48		2 1/4	3/4	1		6	7	15 1/2	10	4 7/8	1 5/8	8	1	14	19		1 1/4	6 1/2							16.0	

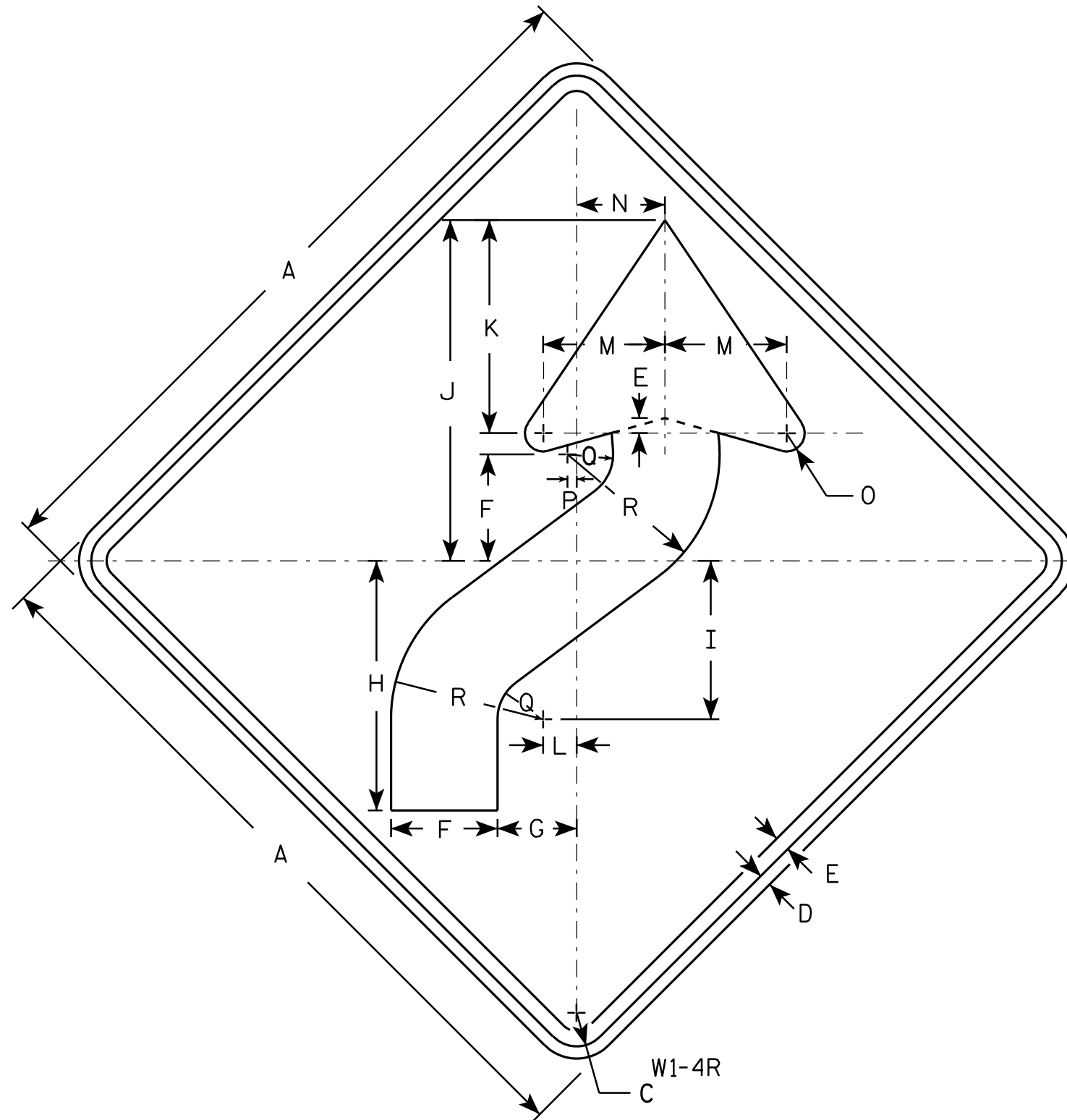
**STANDARD SIGN**  
W1-1

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/15/12 PLATE NO. W1-1.11

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



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W1-4L is the same as W1-4R except the arrow is reversed along the vertical centerline.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	3 1/2	2 5/8	8 1/4	5 1/4	11 1/4	7	1 1/8	4	3	5/8	1/4	1 1/2	5									4.0
2S	30		1 3/8	1/2	5/8	4 3/8	3 1/4	10 1/4	6 1/2	14	8 3/4	1 3/8	5	3 5/8	3/4	3/8	1 7/8	6 1/4									6.25
2M	36		1 5/8	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
3	36		1 5/8	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
4	36		1 5/8	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
5	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

STANDARD SIGN  
W1-4

WISCONSIN DEPT OF TRANSPORTATION

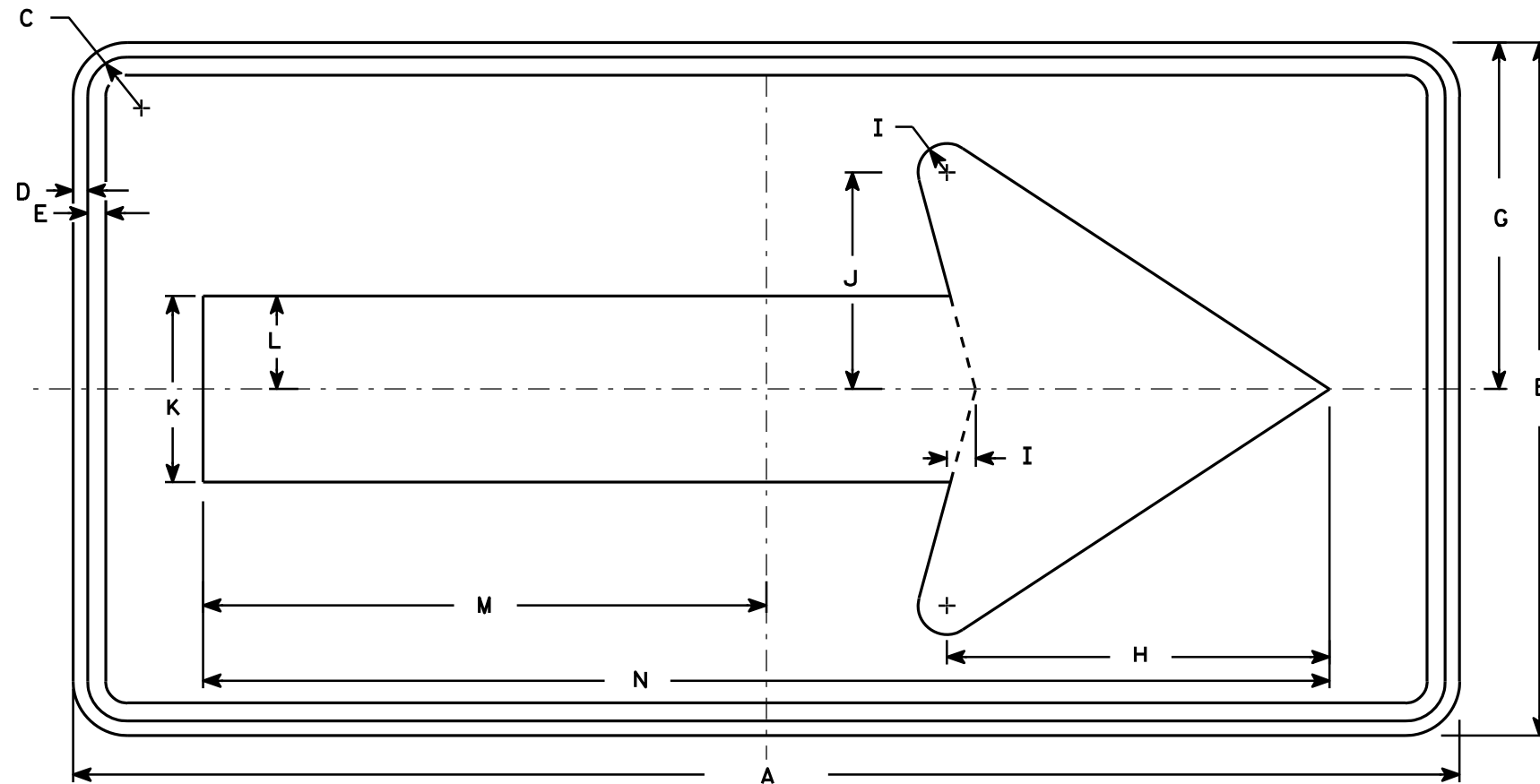
APPROVED *Matthew R. Raub*  
for State Traffic Engineer

DATE 5/17/12 PLATE NO. W1-4.11

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

NOTES

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



W1-6

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	3/8		9	10	3/4	5 5/8	4 3/4	2 3/8	14 5/8	29 1/4													4.5
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	96	48	2 1/4	3/4	1		24	26 1/2	2	15	13	6 1/2	39	78													32.0

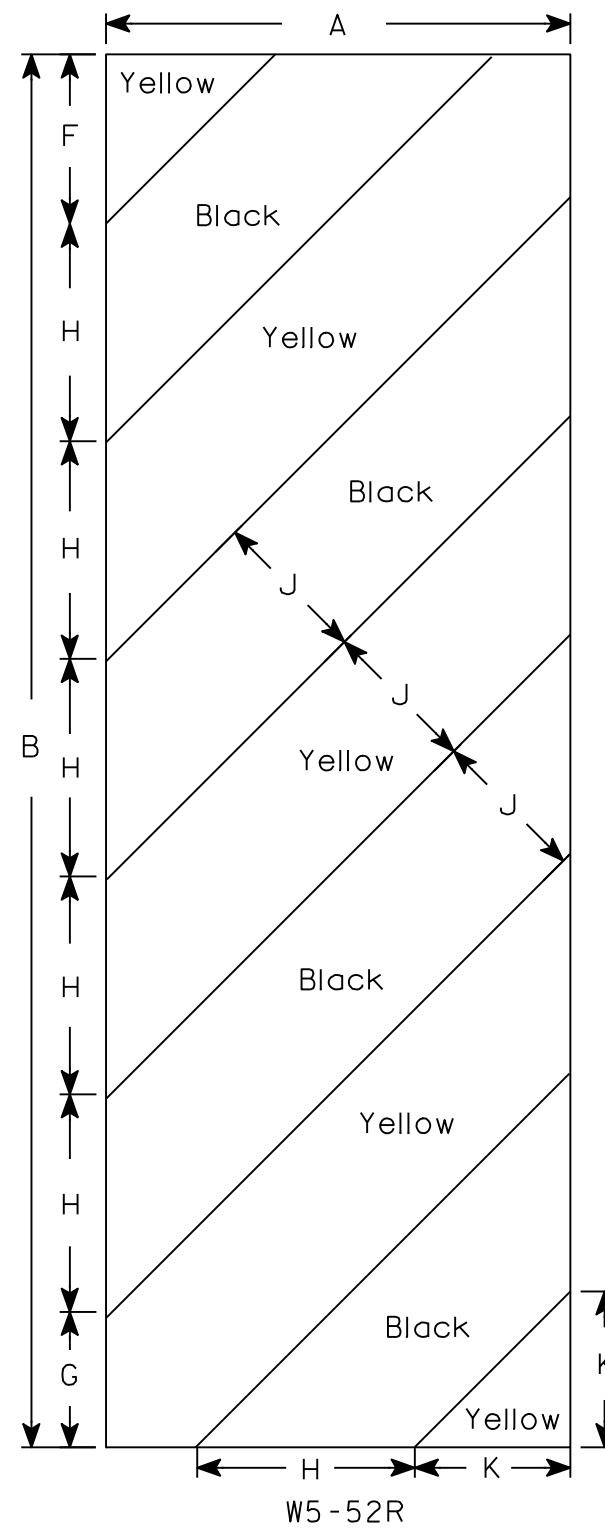
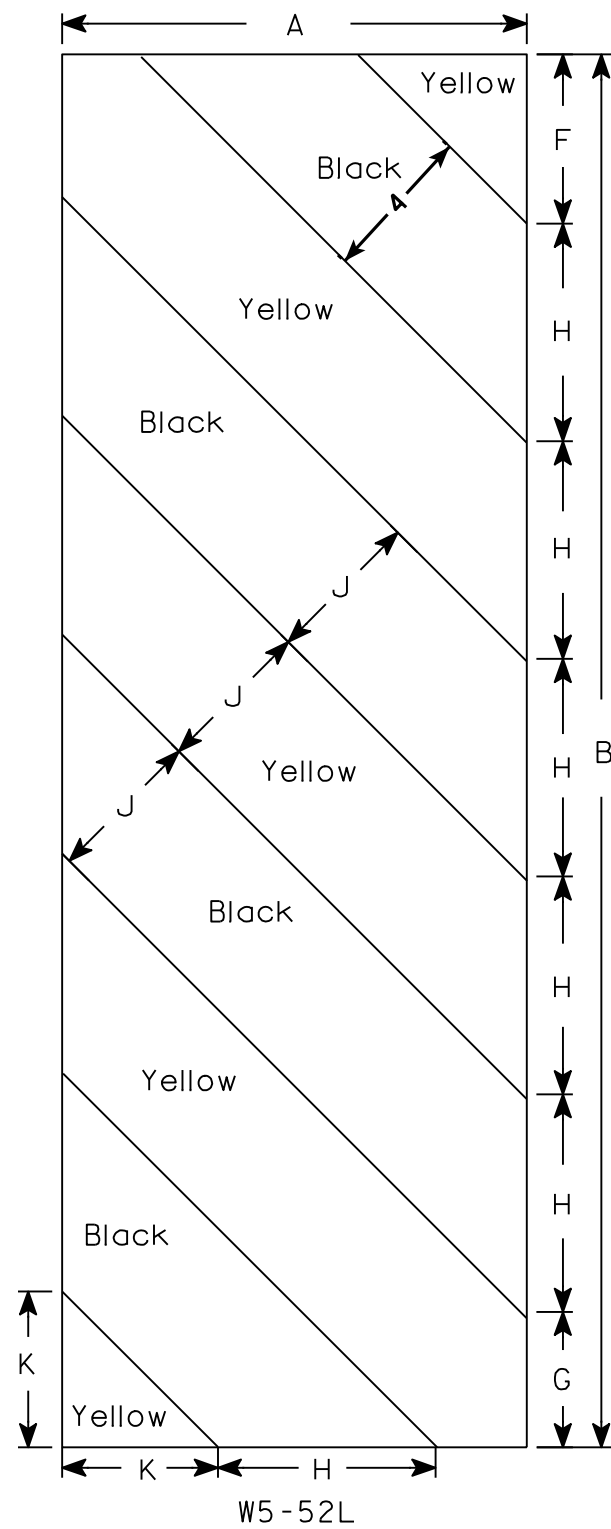
**STANDARD SIGN**  
W1-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-6.8

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



NOTES

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

7

7

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

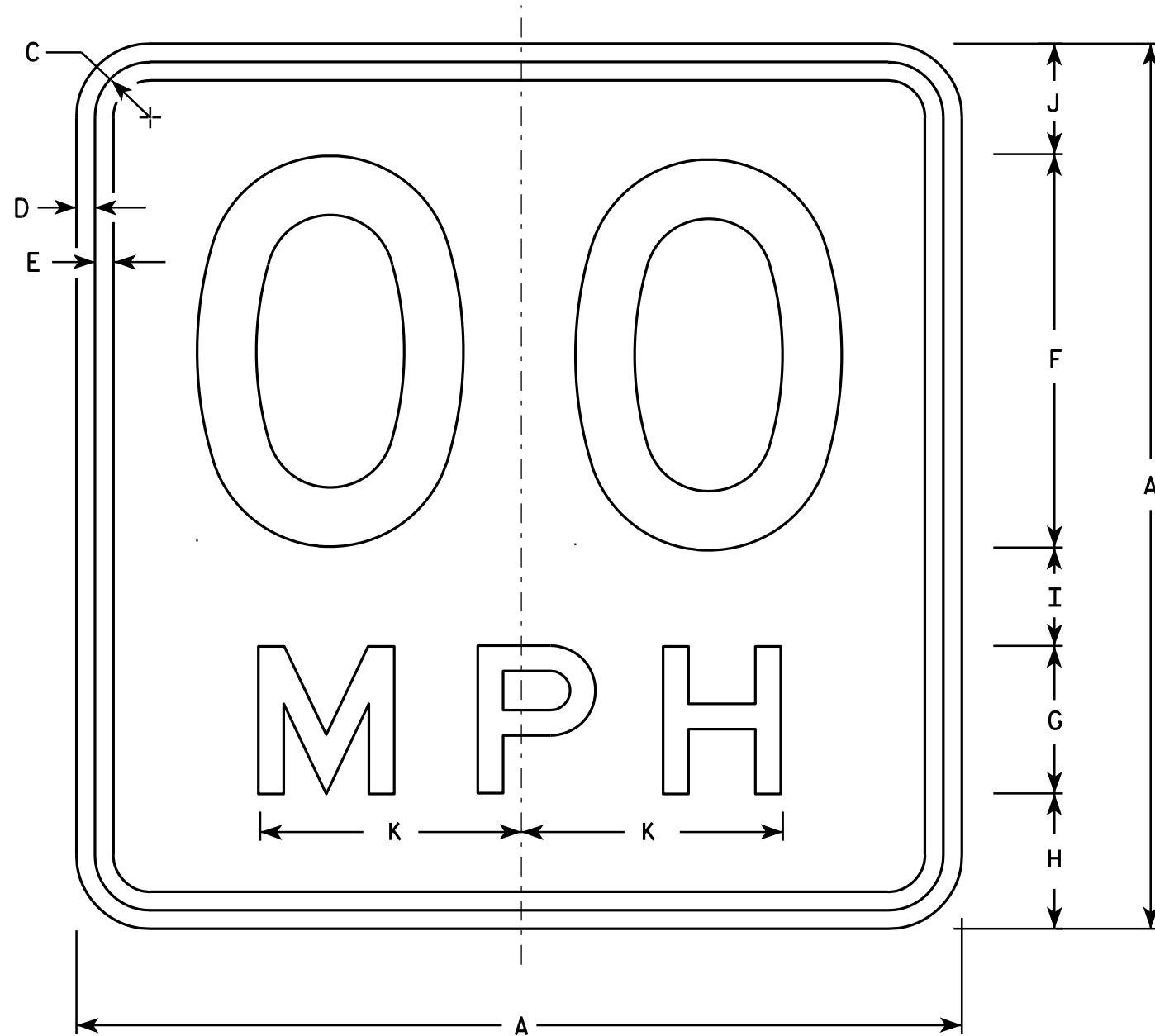
STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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

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



**NOTES**

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D  
Line 2 is Series E

W13-1

\* For 30" x 30" Warning Signs, use 18" x 18" W13-1 signs.  
For 36" x 36" Warning Signs, use 24" x 24" W13-1 signs.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
* 2S	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
* 2M	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
3	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8																4.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

STANDARD SIGN

W13-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 5/31/12 PLATE NO. W13-1.16

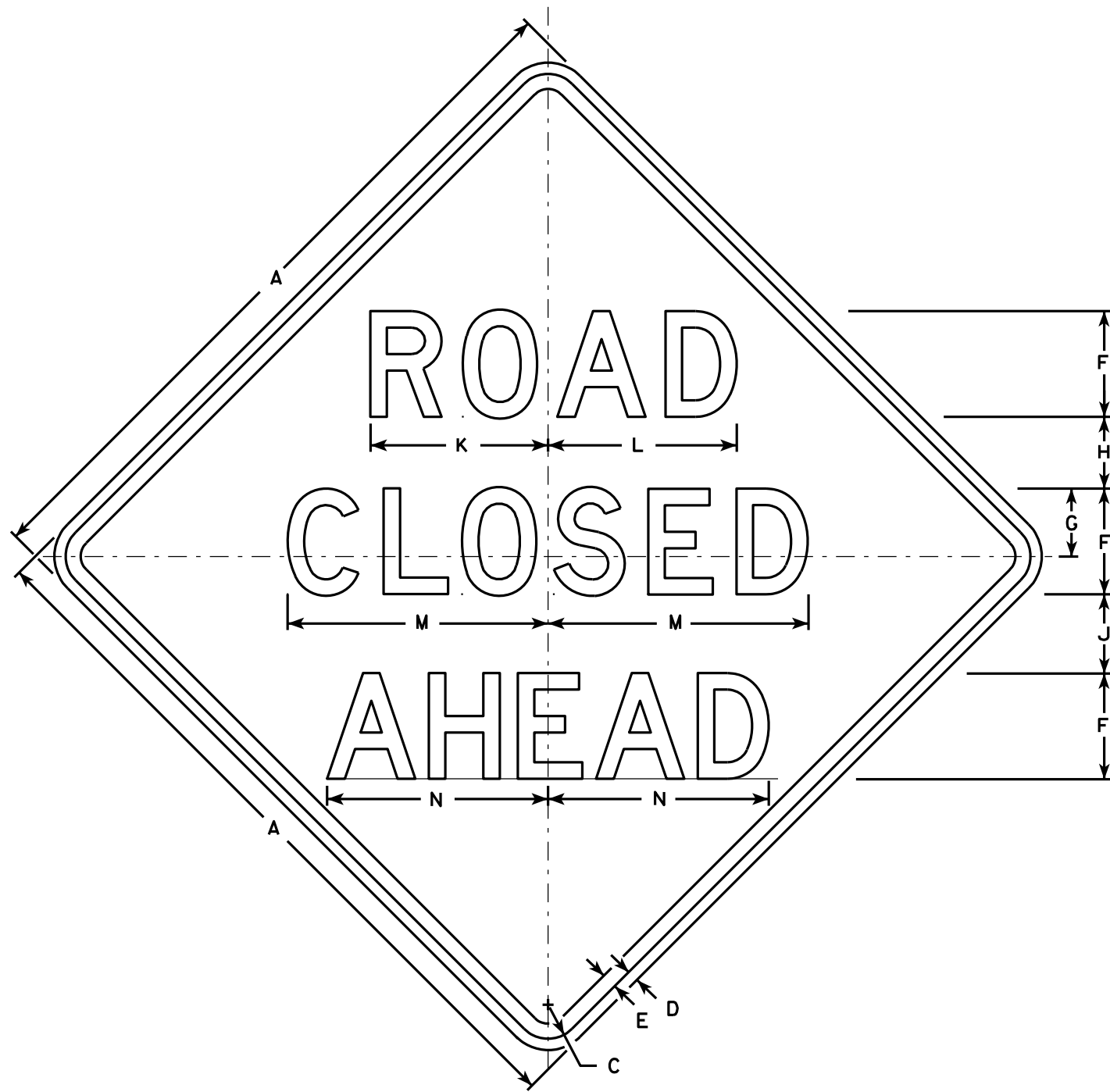
PROJECT NO:

HWY:

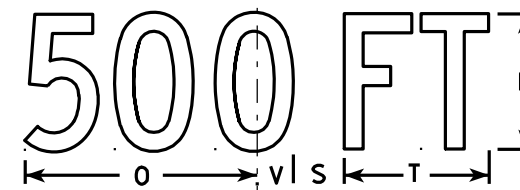
COUNTY:

SHEET NO:

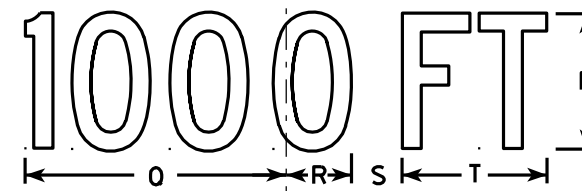
E



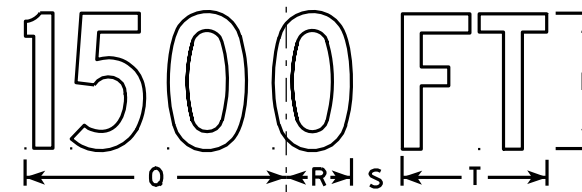
W20-3A



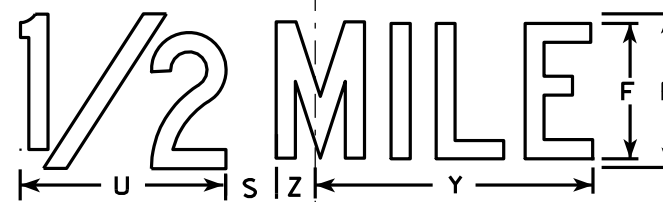
W20-3D



W20-3C



W20-3B



W20-3G



W20-3F

**NOTES**

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.  
Line 3 is Series D for AHEAD and Series C for all other distances.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

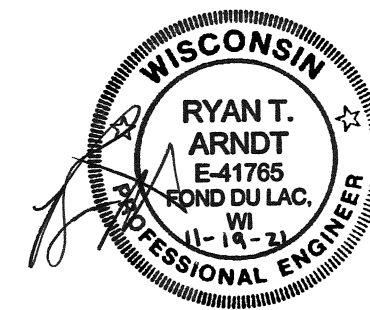
**STANDARD SIGN**  
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7





**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.  
 ALL DIMENSIONS ARE IN INCHES (IN) EXCEPT AS NOTED.  
 ALL STATIONS AND ALL ELEVATIONS ARE IN FEET (FT).  
 ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD88 (2012).  
 BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.  
 SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.  
 THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE HR TO THE EXTENT AND SHAPING SHOWN ON THIS SHEET, ABUTMENT SHEETS, AND CONSTRUCTION DETAIL IN ROADWAY PLANS.  
 JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION: M153, TYPE I, II OR III; OR M213.  
 THE EXISTING GROUND LINE AT THE ABUTMENTS SHALL BE THE UPPER LIMIT OF EXCAVATION FOR STRUCTURE.  
 THE EXISTING STREAM BED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIERS.  
 AT THE BACKFACE OF THE ABUTMENTS ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.  
 AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.  
 THIS STRUCTURE WILL REPLACE A SINGLE SPAN STEEL GIRDER BRIDGE (P-20-0091).  
 ALL REINFORCING BARS ARE ENGLISH AND THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFY THE BAR SIZE.

**DESIGN DATA**

DESIGN LOAD HL-93  
 INVENTORY RATING FACTOR RF=1.08  
 OPERATING RATING FACTOR RF=1.39  
 MAX STD PERMIT VEHICLE (WIS SPV) 240 KIPS

STRUCTURE WILL BE DESIGNED FOR A FUTURE WEARING SURFACE OF 20 LBS PER SQ FT

**MATERIAL PROPERTIES**

CONCRETE: SLAB  $f_c = 4,000$  psi  
 ALL OTHER  $f_c = 3,500$  psi  
 REINFORCING STEEL GRADE 60  $f_y = 60,000$  psi  
 STRUCTURAL STEEL GRADE 36  $f_y = 36,000$  psi

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

**FOUNDATION DATA**

ABUTMENTS TO BE SUPPORTED ON HP 10-INCH X 42-LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS\* PER PILE FOR SOUTH ABUTMENT, 130 TONS\* PER PILE FOR NORTH ABUTMENT, AND 170 TONS\* PER PILE FOR PIER AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED PILE LENGTH FOR SOUTH ABUTMENT IS 95 FT. ESTIMATED PILE LENGTH FOR NORTH ABUTMENT IS 95 FT. ESTIMATED PILE LENGTH FOR PIER IS 110 FT.

**HYDRAULIC DATA**

100 YEAR FREQUENCY Q100 = 3,200 cfs  
 VELOCITY-THRU BRIDGE = 6.6 fps  
 HIGH WATER (Q100) = 817.03 ft  
 WATERWAY AREA-THRU BRIDGE = 484 ft<sup>2</sup>  
 DRAINAGE AREA = 69.1 mi<sup>2</sup>  
 OVERTOPPING FREQUENCY = N/A  
 SCOUR CRITICAL CODE = 5  
 2 YEAR FREQUENCY Q2 = 880 cfs  
 VELOCITY-THRU BRIDGE = 3.6 fps  
 HIGH WATER (Q2) = 812.86 ft

**TRAFFIC DATA**

(HICKORY ROAD)  
 ADT (2022) 1500 vpd  
 ADT (2042) 1820 vpd  
 V 40 MPH

**LIST OF DRAWINGS**

1. GENERAL PLAN
2. QUANTITIES AND CROSS SECTION
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. PIER DETAILS
9. SUPERSTRUCTURE
10. SUPERSTRUCTURE DETAILS
11. TUBULAR STEEL RAILING TYPE 'M'

**BRIDGE OFFICE CONTACT:**  
 AARON BONK 608-261-0261

**CONSULTANT CONTACT:**  
 THOMAS LANSER 920-924-5720

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR 11/22/21  
 CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-20-245**

HICKORY ROAD OVER EAST BRANCH FOND DU LAC RIVER

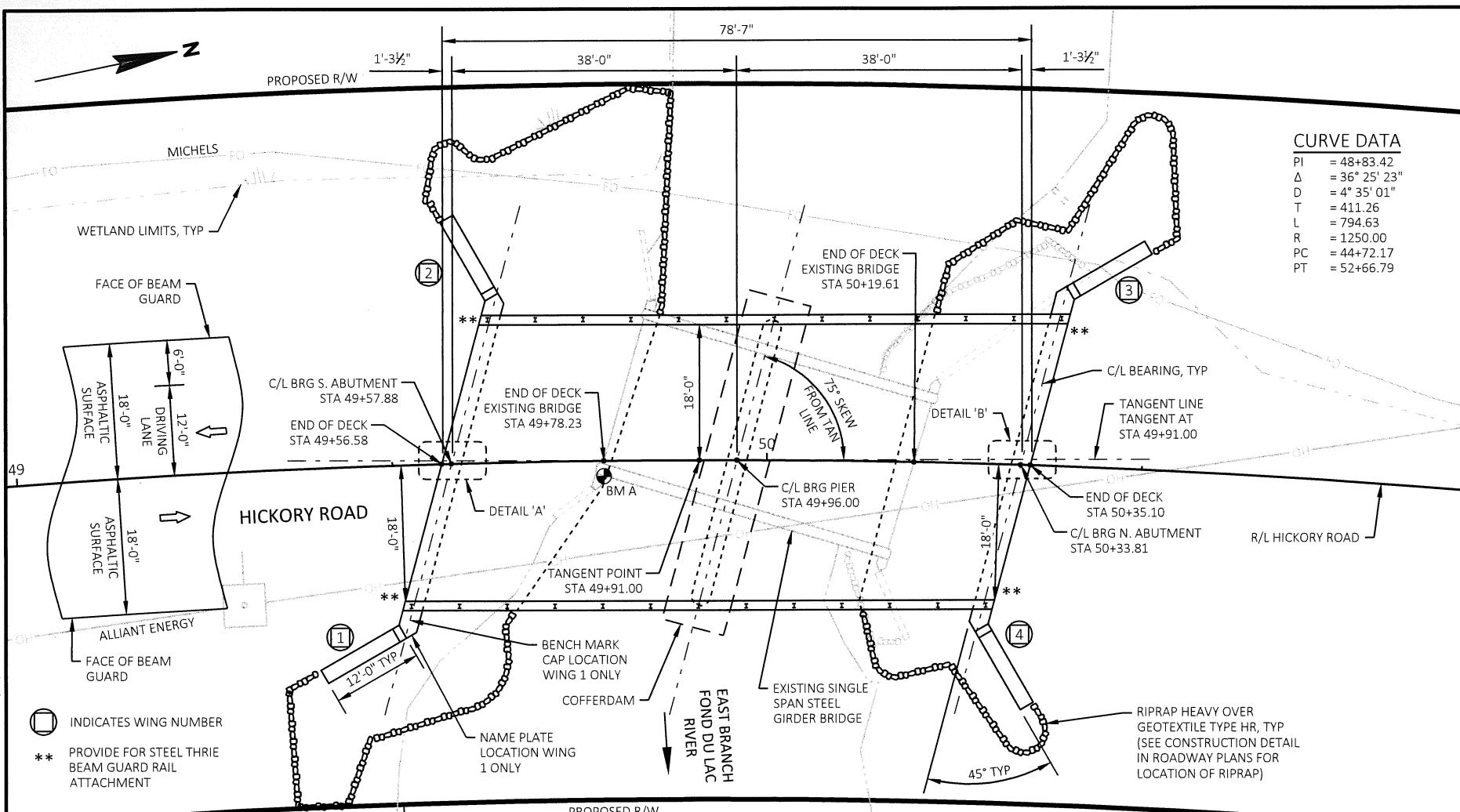
COUNTY FOND DU LAC TOWN/CITY/VILLAGE FOND DU LAC

DESIGN SPEC AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY RTA	DESIGN CK'D ALK	DRAWN BY AJS	PLANS CK'D ALK
-----------------	-----------------	--------------	----------------

**GENERAL PLAN**

SHEET 1 OF 11

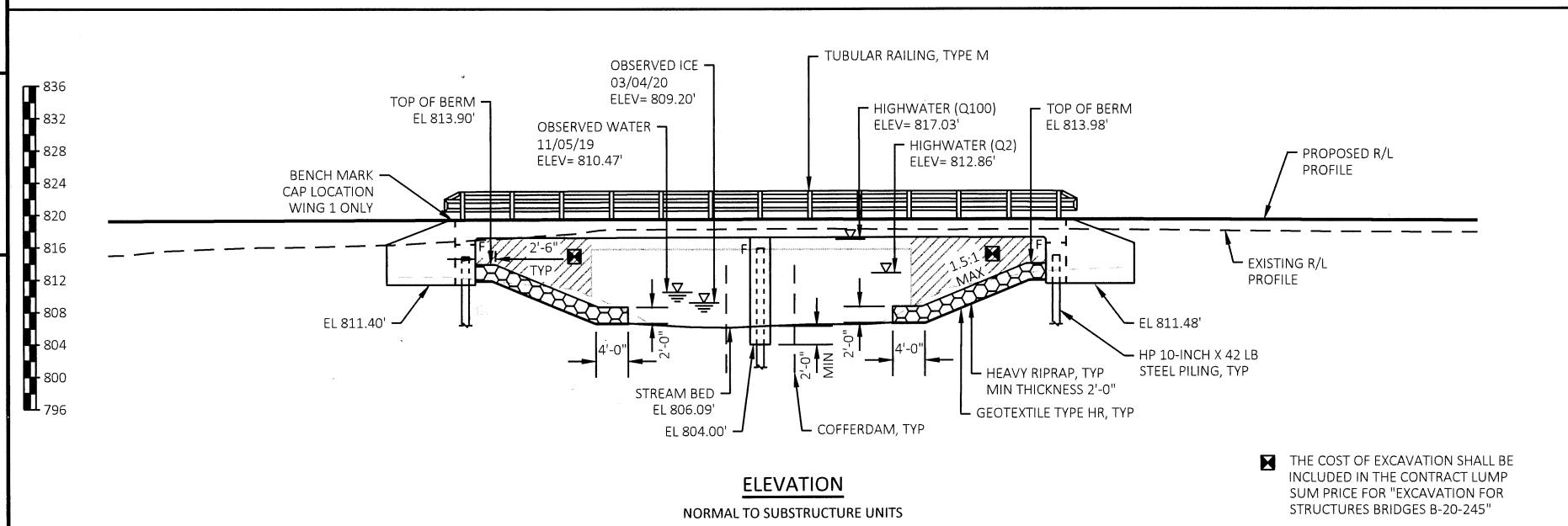
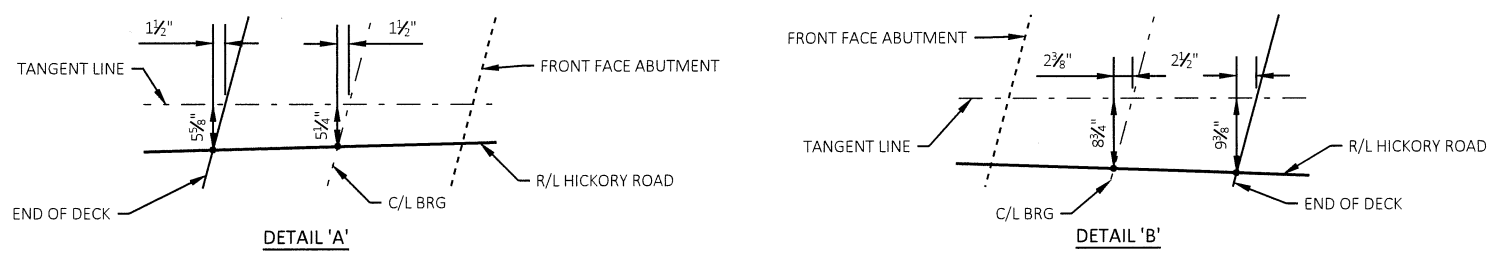


**CURVE DATA**

PI	= 48+83.42
Δ	= 36° 25' 23"
D	= 4° 35' 01"
T	= 411.26
L	= 794.63
R	= 1250.00
PC	= 44+72.17
PT	= 52+66.79

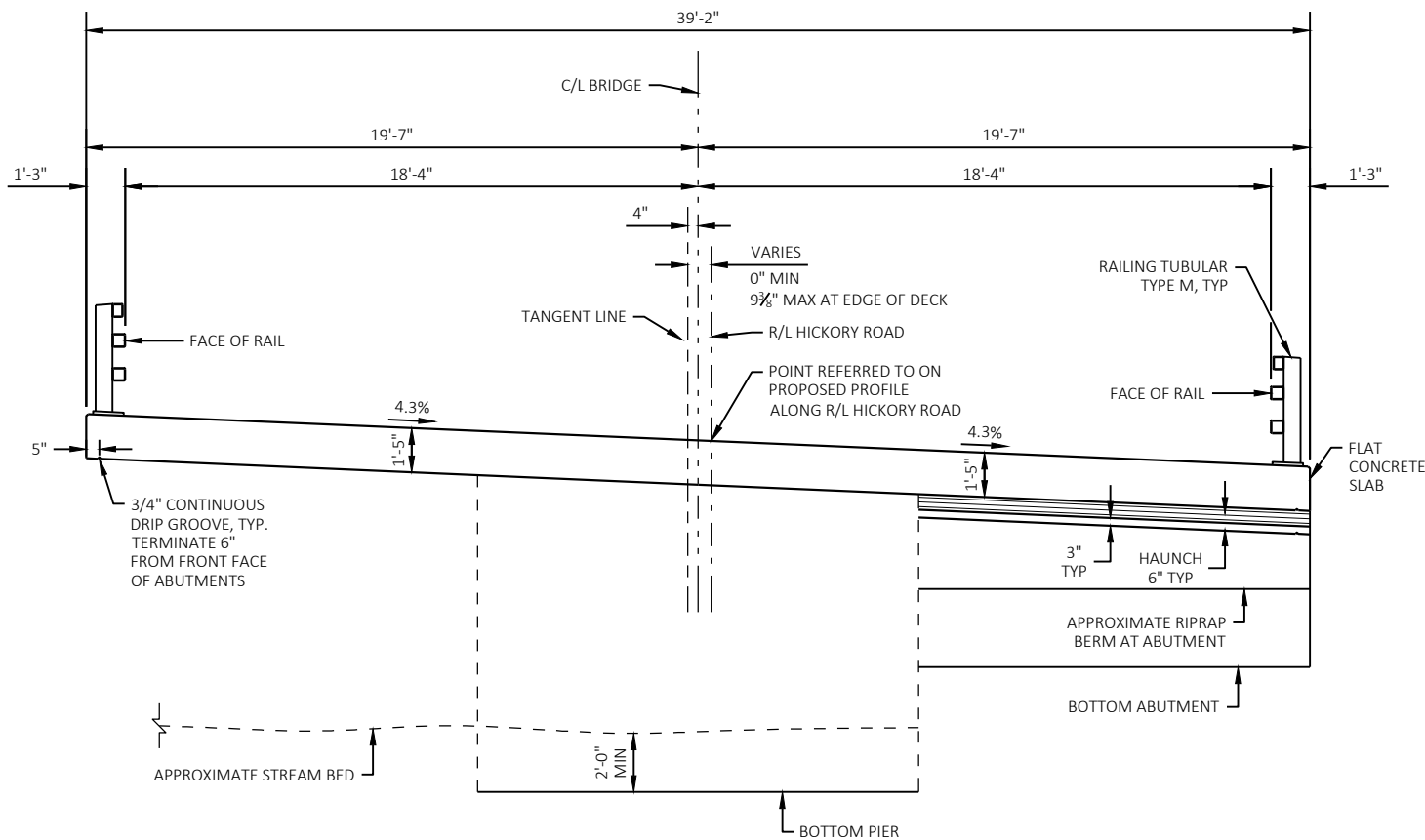
BM	STATION	DESCRIPTION	ELEVATION
A	49+78; 2' RT	PAINT DOT ON TOP OF CURB ON SOUTHEAST CORNER OF SOUTH BRIDGE ABUTMENT	818.86

**PLAN**  
TWO SPAN FLAT CONCRETE SLAB BRIDGE



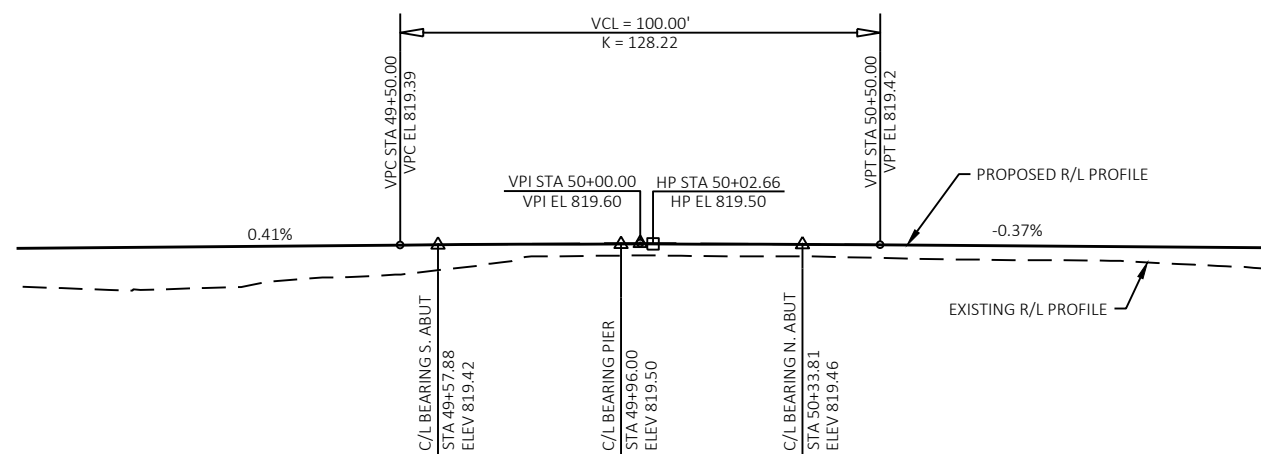
☒ THE COST OF EXCAVATION SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-20-245"

FILE NAME : S:\CURRPROJ\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETS\PLAN\48091100-080101-BR.DWG  
 PLOT DATE : 11/18/2021 4:57 PM  
 LAYOUT NAME - SHEET-01



AT MIDSAPN                      AT PIER                      AT ABUTMENT

**CROSS-SECTION THROUGH STRUCTURE**  
LOOKING NORTH

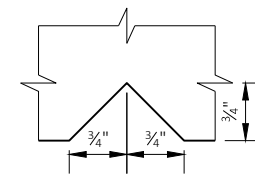


**FINISHED REFERENCE LINE PROFILE**  
HICKORY ROAD

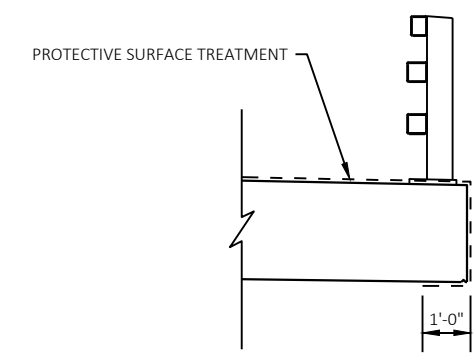
**TOTAL ESTIMATED QUANTITIES**

ITEM NO.	BID ITEMS	UNIT	S ABUT	N ABUT	PIER	SUPER	TOTAL	CATEGORY 0020	CATEGORY 0030 *
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-20-0091	EACH	---	---	---	---	1	1	0
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-20-245	LS	---	---	---	---	1	1	0
206.5000	COFFERDAMS B-20-245	LS	---	---	---	---	1	1	0
210.1500	BACKFILL STRUCTURE TYPE A	TON	290	290	---	---	580	520	60
502.0100	CONCRETE MASONRY BRIDGES	CY	37.9	37.9	50.1	167.3	293	254	39
502.3200	PROTECTIVE SURFACE TREATMENT	SY	---	---	---	384	384	332	52
502.9000.S	UNDERWATER SUBSTRUCTURE INSPECTION B-20-245	EACH	---	---	1	---	1	1	0
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,970	2,970	2,310	---	8,250	6,870	1,380
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,740	1,740	80	44,230	47,790	41,410	6,380
513.4061	RAILING TUBULAR TYPE M	LF	---	---	---	162	162	162	0
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12	12	---	---	24	24	0
550.0500	PILE POINTS	EACH	8	8	10	---	26	26	0
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	760	760	1,100	---	2,620	2,620	0
606.0300	RIPRAP HEAVY	CY	153	94	---	---	247	247	0
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	115	105	---	---	220	220	0
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	66	66	---	---	132	132	0
645.0120	GEOTEXTILE TYPE HR	SY	253	155	---	---	408	408	0
NON-BID ITEMS									
----	JOINT FILLER	SIZE					1/2" & 3/4"		

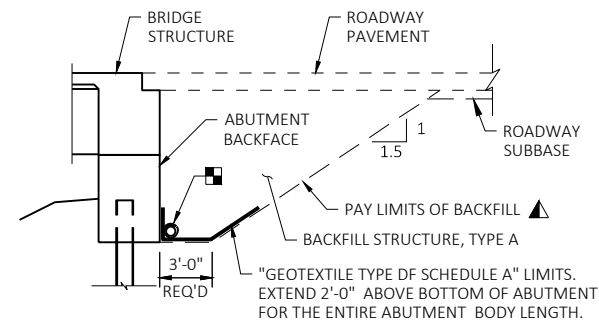
\* CATEGORY 0030 IS USED TO LOCALLY FUND A 6-FOOT WIDE PORTION OF THE PROPOSED BRIDGE. THE 0030 QUANTITIES ARE BASED OFF OF CALCULATED AMOUNTS FROM THE INTERIOR OF THE ASSOCIATED BRIDGE STRUCTURE.



**V-GROOVE DETAIL**



**PROTECTIVE SURFACE TREATMENT DETAIL**



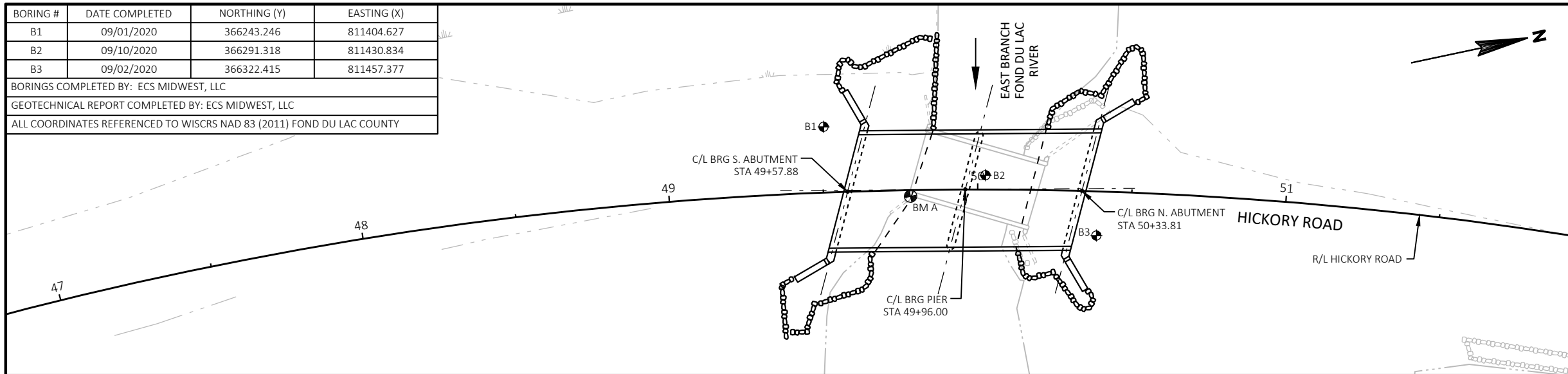
**TYPICAL SECTION THRU ABUTMENT**

- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6 INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY		AJS	PLANS CK'D ALK
<b>QUANTITIES AND CROSS SECTION</b>			SHEET 2

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B1	09/01/2020	366243.246	811404.627
B2	09/10/2020	366291.318	811430.834
B3	09/02/2020	366322.415	811457.377

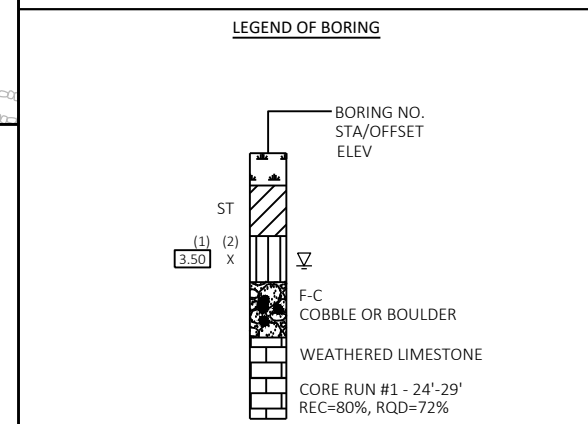
BORINGS COMPLETED BY: ECS MIDWEST, LLC  
 GEOTECHNICAL REPORT COMPLETED BY: ECS MIDWEST, LLC  
 ALL COORDINATES REFERENCED TO WISCRS NAD 83 (2011) FOND DU LAC COUNTY



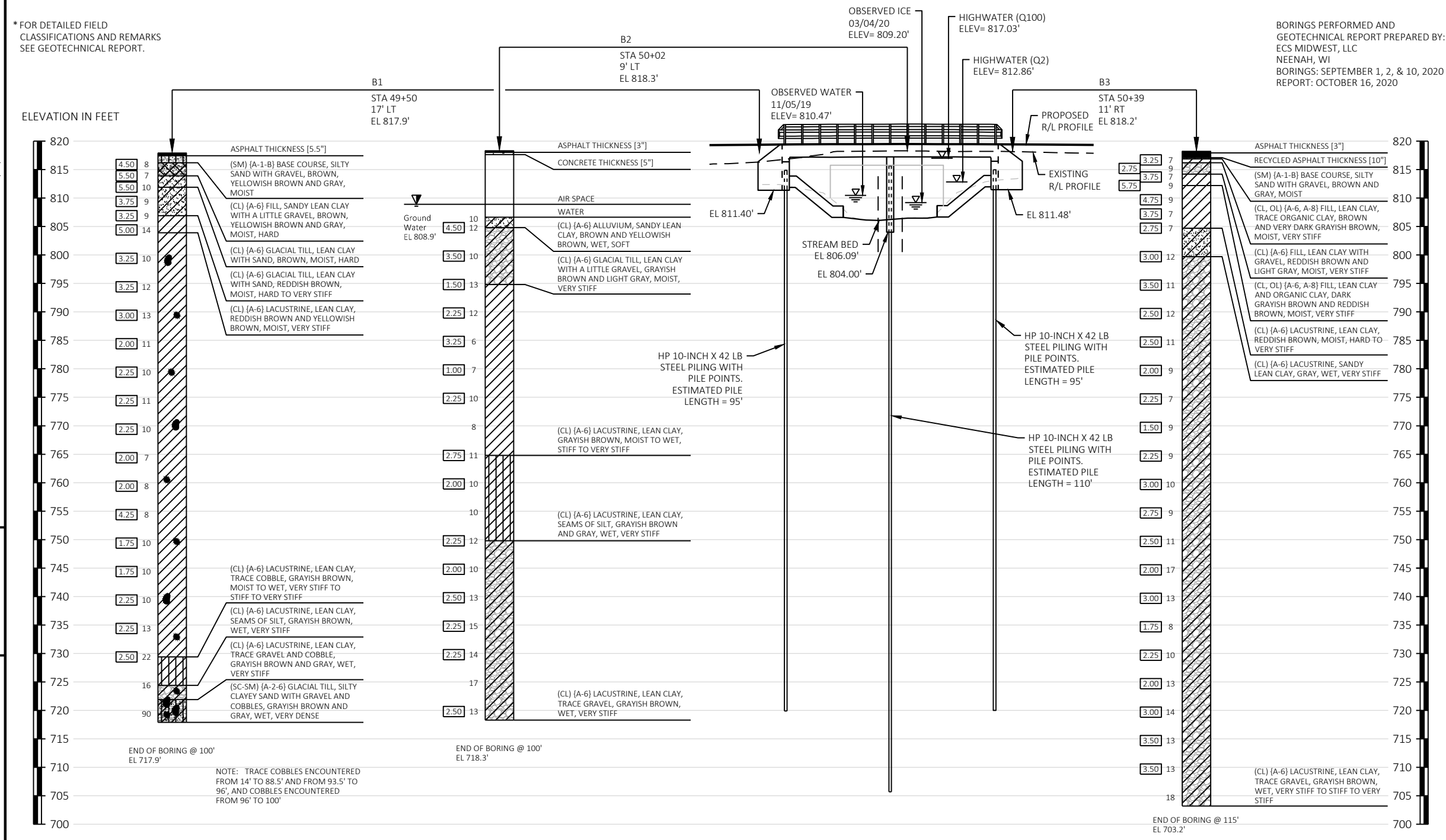
STATE PROJECT NUMBER	
4809-11-71	

**MATERIAL SYMBOLS**

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



\*FOR DETAILED FIELD CLASSIFICATIONS AND REMARKS SEE GEOTECHNICAL REPORT.



- (1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
- (2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.
- GROUND WATER ELEVATION**
- ▽ AT TIME OF DRILLING
  - ▽ END OF DRILLING
  - ▽ AFTER DRILLING
- ABBREVIATIONS**
- F-Fine M-Medium C-Coarse ST-Shelby Tube

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

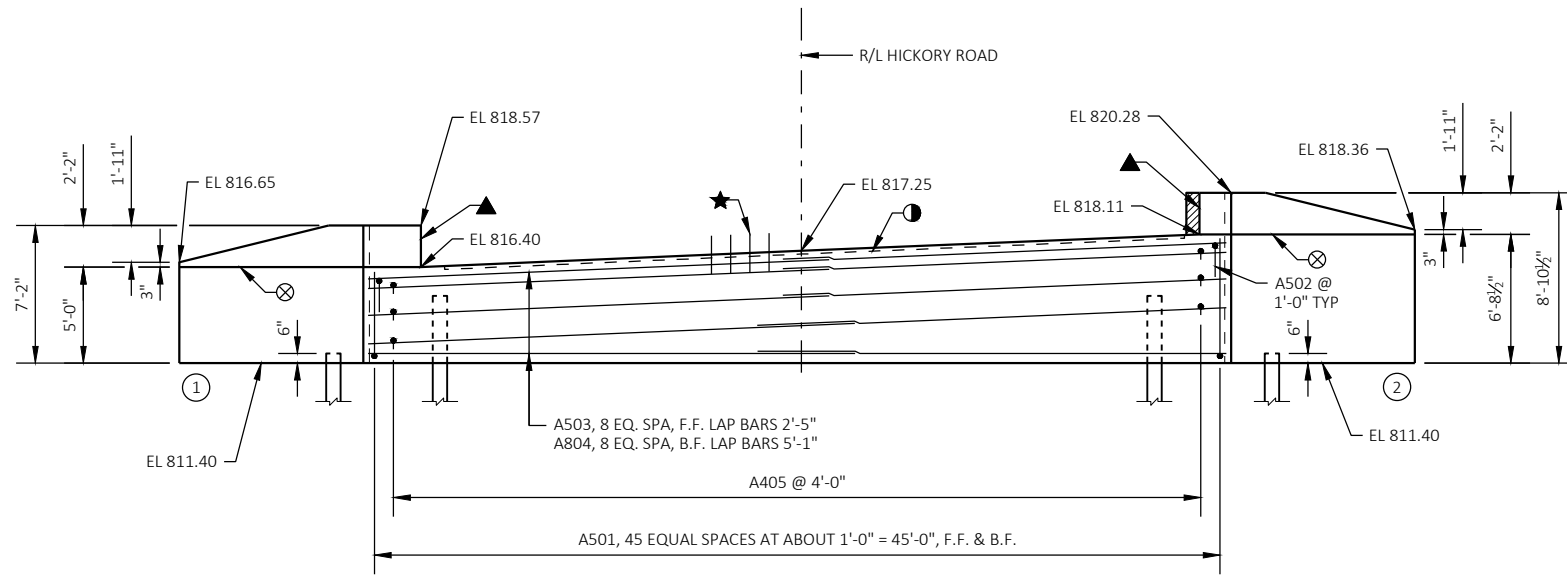
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY		AJS	PLANS CK'D ALK
<b>SUBSURFACE EXPLORATION</b>			SHEET 3

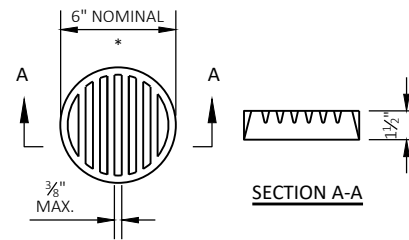
FILE NAME : S:\CURRPROJ\FONDUCO\FOND DU LAC, TOWN OF\HICKORY ROAD BRIDGE\CIVIL\3D\HICKORY\RD\SHEETS\PLAN\48091100-080103-BR.DWG  
 PLOT DATE : 11/18/2021 4:57 PM  
 LAYOUT NAME : SHEET-03

8

8



**ELEVATION**  
(LOOKING SOUTH FOR SOUTH ABUTMENT)

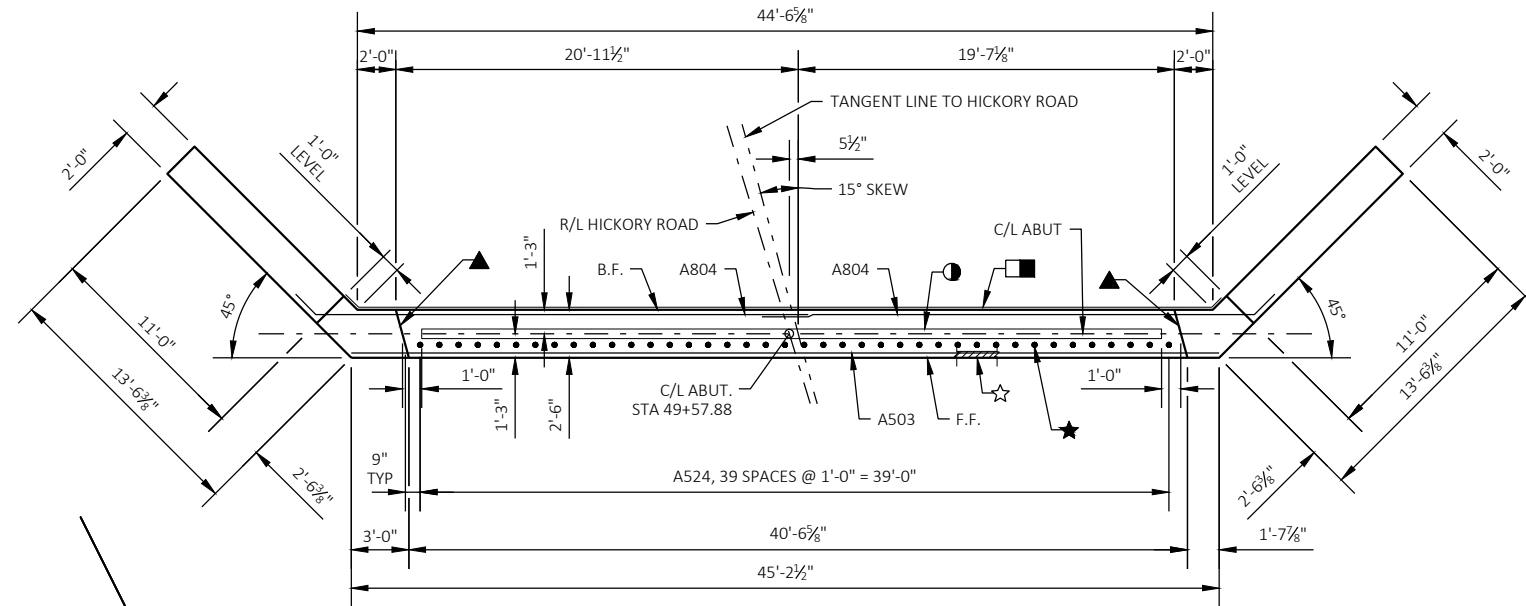


\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

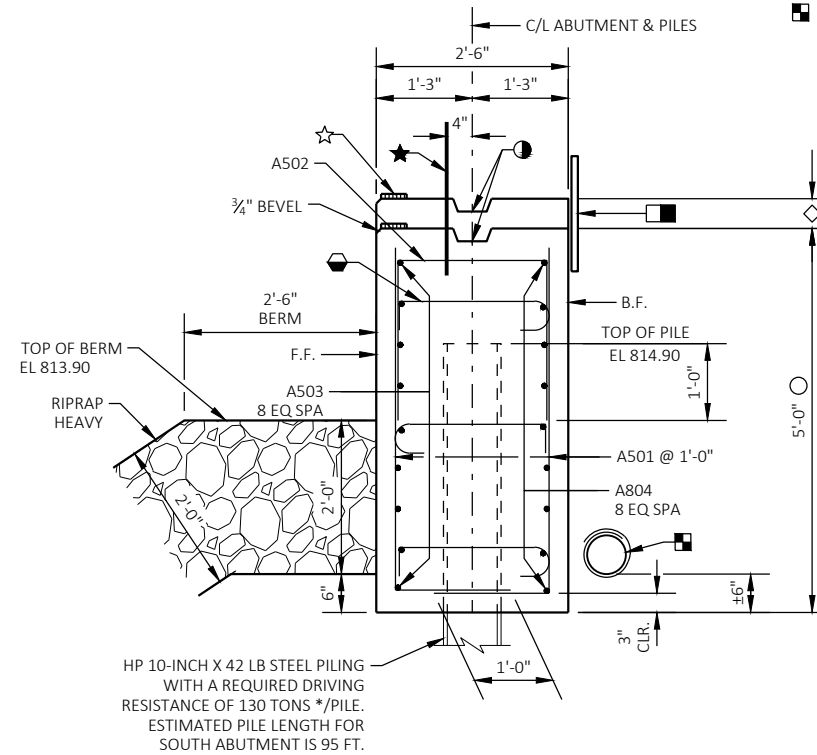
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN UNPERFORATED".

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

**RODENT SHIELD DETAIL**

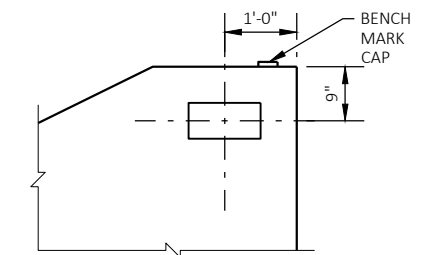


**PLAN**



HP 10-INCH X 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS \*/PILE. ESTIMATED PILE LENGTH FOR SOUTH ABUTMENT IS 95 FT.

**TYPE A5 WITH  
FIXED SEAT**



**NAME PLATE DETAIL**  
(WING 1 ONLY)

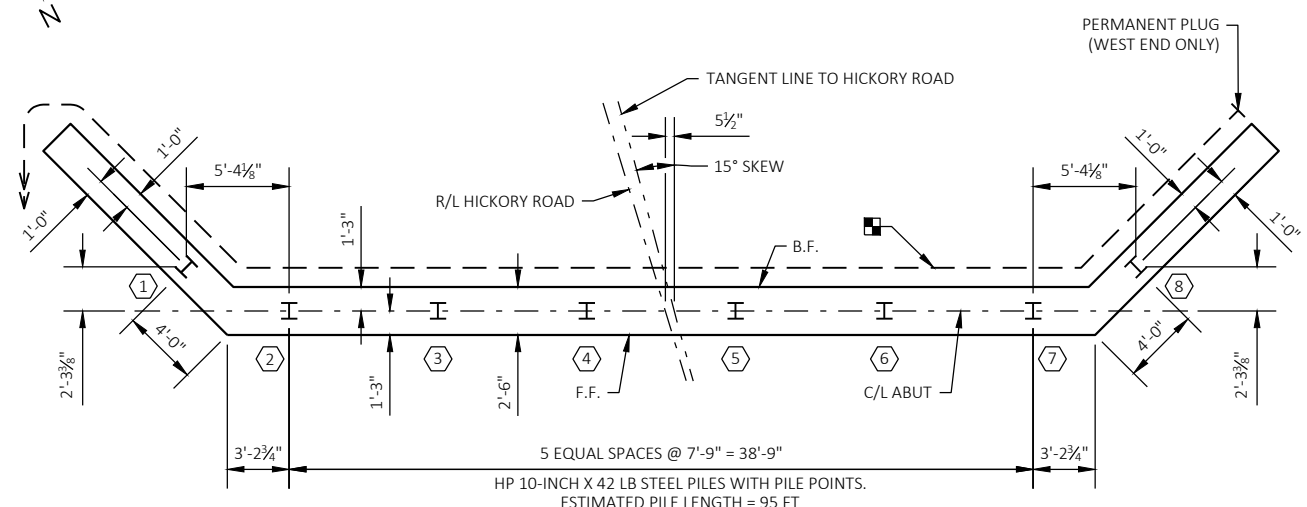
**GENERAL NOTES**

SEE SHEET 8 FOR PILE SPLICE DETAIL.  
SHIFT REINFORCING AS NECESSARY TO AVOID PILING.

**LEGEND**

- ① INDICATES WING NUMBER
- ⑥ INDICATES PILE NUMBER
- F.F. FRONT FACE
- B.F. BACK FACE
- RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND CONTINUOUS BETWEEN CORNERS AND FROM SEAT TO TOP OF WINGS, TO BE PLACED FLUSH WITH SURFACE OF CONCRETE.
- ▲ 1/2" PREFORMED FILLER TO EXTEND FROM TOP OF ABUTMENT BODY TO TOP OF WINGS, SEAL ALL EXPOSED SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER (1" DEEP & HOLD 1/2" BELOW SURFACE OF CONC.).
- KEYED CONSTRUCTION JOINT FORMED WITH A SURFACED BEVELED 2" X 6".
- ⊗ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6".
- ▲ 3/4" V-GROOVE ON FRONT FACE OF WING WALL. REQUIRED ONLY WHEN OPTIONAL CONSTRUCTION JOINT IS USED.
- ★ A524 BARS COATED AT 1'-0" (2'-0" LONG). THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- ☆ 4" X 3/4" PREFORMED JOINT FILLER.
- A405 BARS, 2 EQUAL SPACES VERTICAL AND 4'-0" SPACES HORIZONTAL. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- DIMENSION IS FROM BOTTOM OF ABUTMENT TO LOW BEAM SEAT OR LOW SIDE OF SLAB TYPE SUPERSTRUCTURE.
- ◇ VARIES 0" - 1'-8 1/2" ADJUST HEIGHT OF A502 AND TOP A503, A804 BARS TO MATCH ABUTMENT SLOPE.
- PIPE UNDERDRAIN WRAPPED, 6 INCH, SLOPED 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH PERMANENT PLUG ON UPSTREAM END. ATTACH RODENT SHIELD AT OUTLET END AS DETAILED ON THIS SHEET. RODENT SHIELD AND PERMANENT PLUG TO BE INCLUDED IN BID PRICE FOR "PIPE UNDERDRAIN UNPERFORATED 6-INCH".

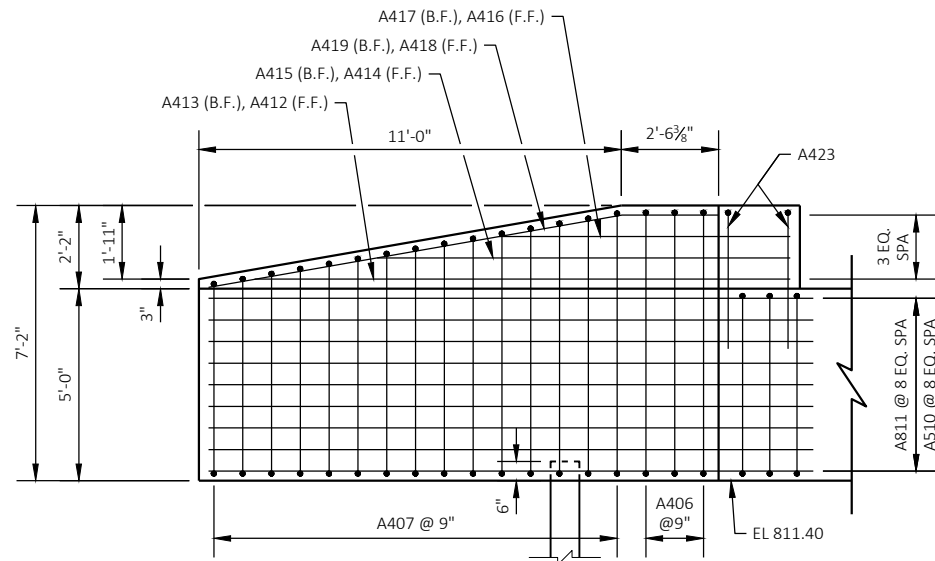
FILE NAME : S:\CURRPROJ\FONDDUCO\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHETS\PLAN\4809-11-00-080104-BR.DWG  
PLOT DATE : 11/18/2021 4:57 PM  
LAYOUT NAME - SHEET-04



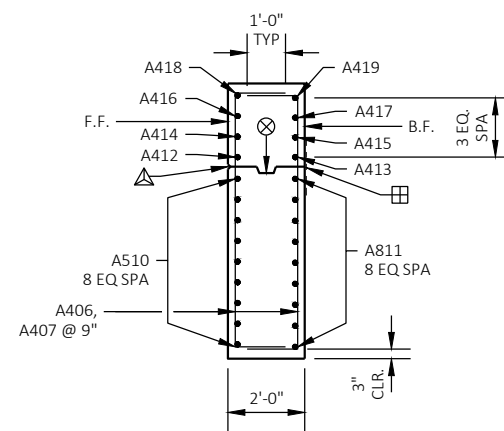
**PILE PLAN**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY AJS		PLANS CK'D ALK	
<b>SOUTH ABUTMENT</b>			SHEET 4

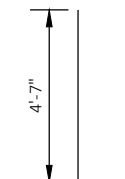
FILE NAME : S:\CURRPROJ\FONDDUCO\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL\3D\HICKORYRD\SHETSPLAN\48091100-080104-BR.DWG  
 PLOT BY : AARON SARAUER  
 LAYOUT NAME - SHEET-05  
 PLOT DATE : 11/18/2021 4:57 PM



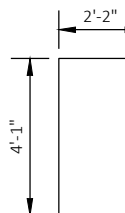
WING 1 ELEVATION



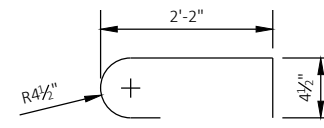
WING 1 SECTION



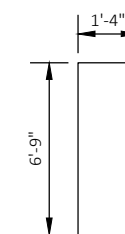
A501



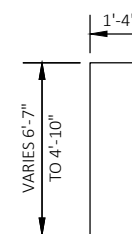
A502



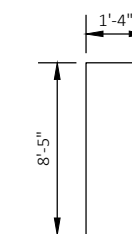
A405



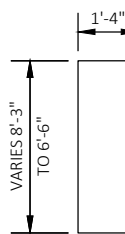
A406



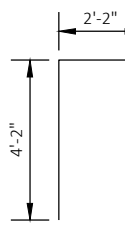
A407



A408



A409



A423

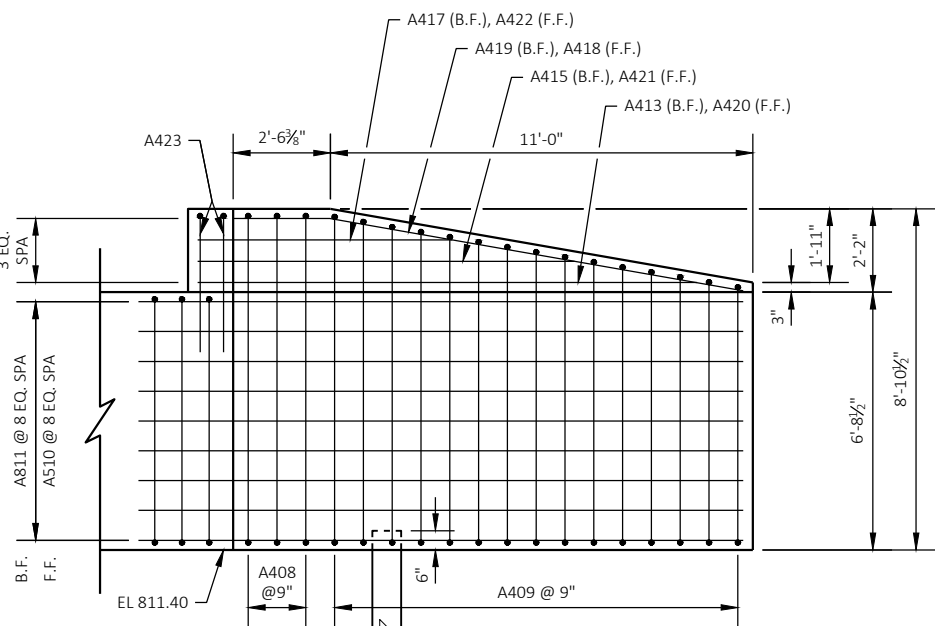
BILL OF BARS - SOUTH ABUTMENT

BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
A501		92	6'-1"	X		BODY - VERTICAL - STIRRUPS
A502		46	10'-1"	X		BODY - VERTICAL - STIRRUPS - TOP
A503		18	23'-8"			BODY - HORIZONTAL - F.F.
A804		18	28'-9"	X		BODY - HORIZONTAL - B.F.
A405		36	3'-0"	X		BODY - TIES
A406	X	6	9'-3"	X		WING 1 - VERTICAL AT BODY
A407	X	30	8'-3"	X	X	WING 1 - VERTICAL - STIRRUPS
A408	X	6	10'-11"	X		WING 2 - VERTICAL AT BODY
A409	X	30	9'-11"	X	X	WING 2 - VERTICAL - STIRRUPS
A510	X	18	14'-9"	X		LOWER WINGS 1 AND 2 - HORIZONTAL - F.F.
A811	X	18	16'-5"	X		LOWER WINGS 1 AND 2 - HORIZONTAL - B.F.
A412	X	1	15'-10"	X		UPPER WING 1 - HORIZONTAL - F.F.
A413	X	2	13'-4"	X		UPPER WINGS 1 AND 2 - HORIZONTAL - B.F.
A414	X	1	12'-4"	X		UPPER WING 1 - HORIZONTAL - F.F.
A415	X	2	9'-11"	X		UPPER WINGS 1 AND 2 - HORIZONTAL - B.F.
A416	X	1	8'-10"	X		UPPER WING 1 - HORIZONTAL - F.F.
A417	X	2	6'-5"	X		UPPER WINGS 1 AND 2 - HORIZONTAL - B.F.
A418	X	2	12'-11"	*		UPPER WINGS 1 AND 2 - HORIZONTAL - TOP - F.F.
A419	X	2	11'-6"	*		UPPER WINGS 1 AND 2 - HORIZONTAL - TOP - B.F.
A420	X	1	14'-5"	X		UPPER WING 2 - HORIZONTAL - F.F.
A421	X	1	10'-11"	X		UPPER WING 2 - HORIZONTAL - F.F.
A422	X	1	7'-5"	X		UPPER WING 2 - HORIZONTAL - F.F.
A423	X	4	10'-4"	X		UPPER WINGS 1 AND 2 - VERTICAL - OVER ABUTMENT BODY
A524	X	40	2'-0"			BODY - DOWELS

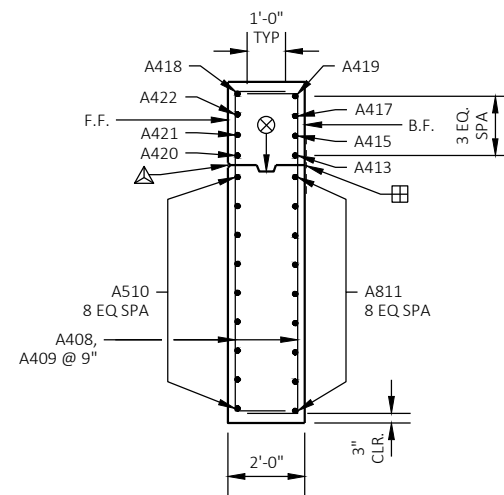
\* AN ADDITIONAL FIELD BEND WILL BE REQUIRED TO FIT THESE BARS IN THE WINGS, OVER THE ABUTMENT BODY

BAR SERIES - SOUTH ABUTMENT

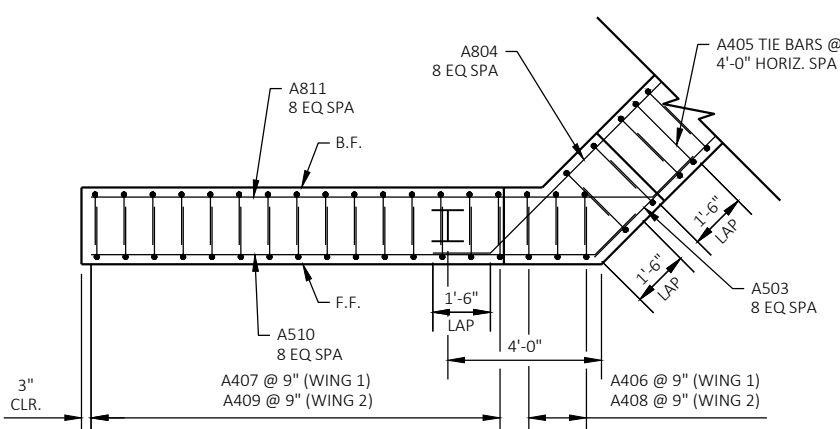
BAR MARK	NUMBER REQUIRED	LENGTH
A407	2 SERIES OF 15	9'-1" TO 7'-4"
A409	2 SERIES OF 15	10'-9" TO 9'-0"



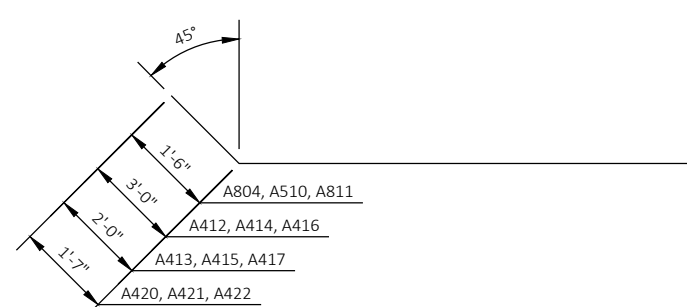
WING 2 ELEVATION



WING 2 SECTION



PLAN - WINGS



A804, A510, A811, A412, A413, A414, A415, A416, A417, A418, A419, A420, A421, A422

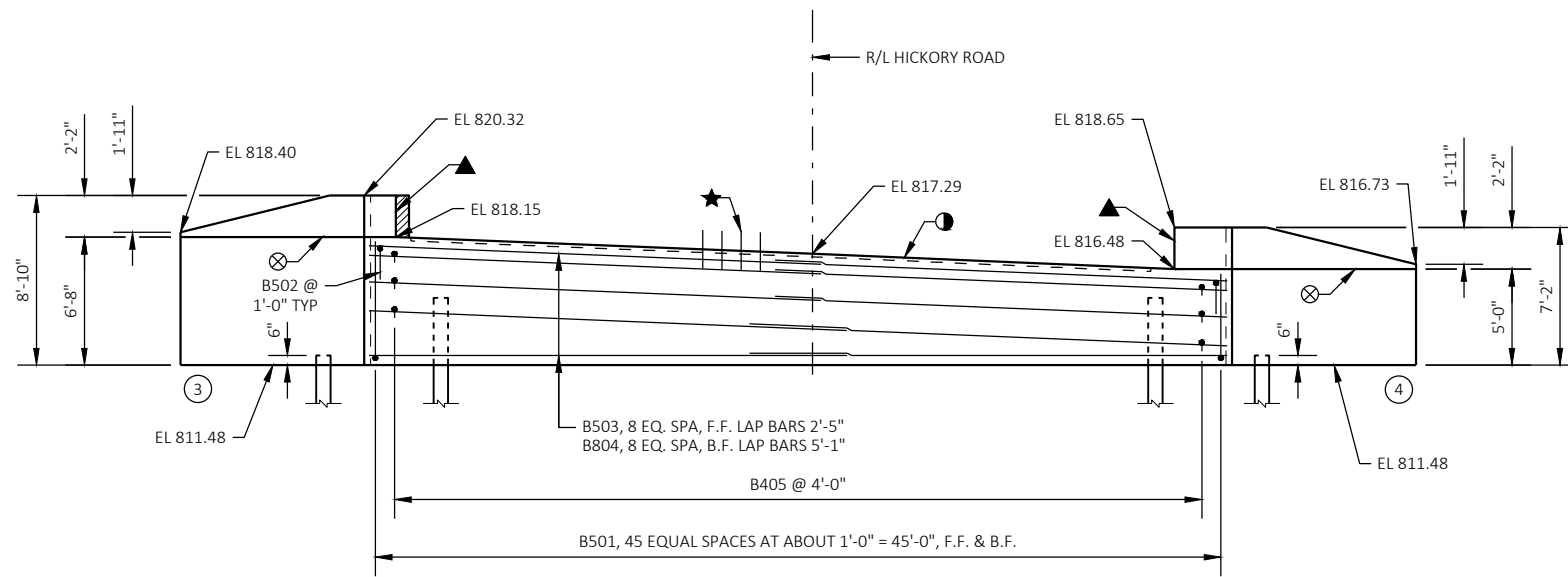
LEGEND

- F.F. FRONT FACE
- B.F. BACK FACE
- 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND CONTINUOUS BETWEEN CORNERS AND FROM SEAT TO TOP OF WINGS, TO BE PLACED FLUSH WITH SURFACE OF CONCRETE.
- RUBBERIZED MEMBRANE WATERPROOFING IF CONSTRUCTION JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
- 1/2" FILLER TO EXTEND FROM TOP OF ABUTMENT BODY TO TOP OF WINGS, SEAL ALL EXPOSED SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER (1" DEEP & HOLD 1/2" BELOW SURFACE OF CONC.).
- OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6".
- 1/4" V-GROOVE ON FRONT FACE OF WING WALL. REQUIRED ONLY WHEN OPTIONAL CONSTRUCTION JOINT IS USED.
- LENGTH SHOWN FOR BARS IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTH.

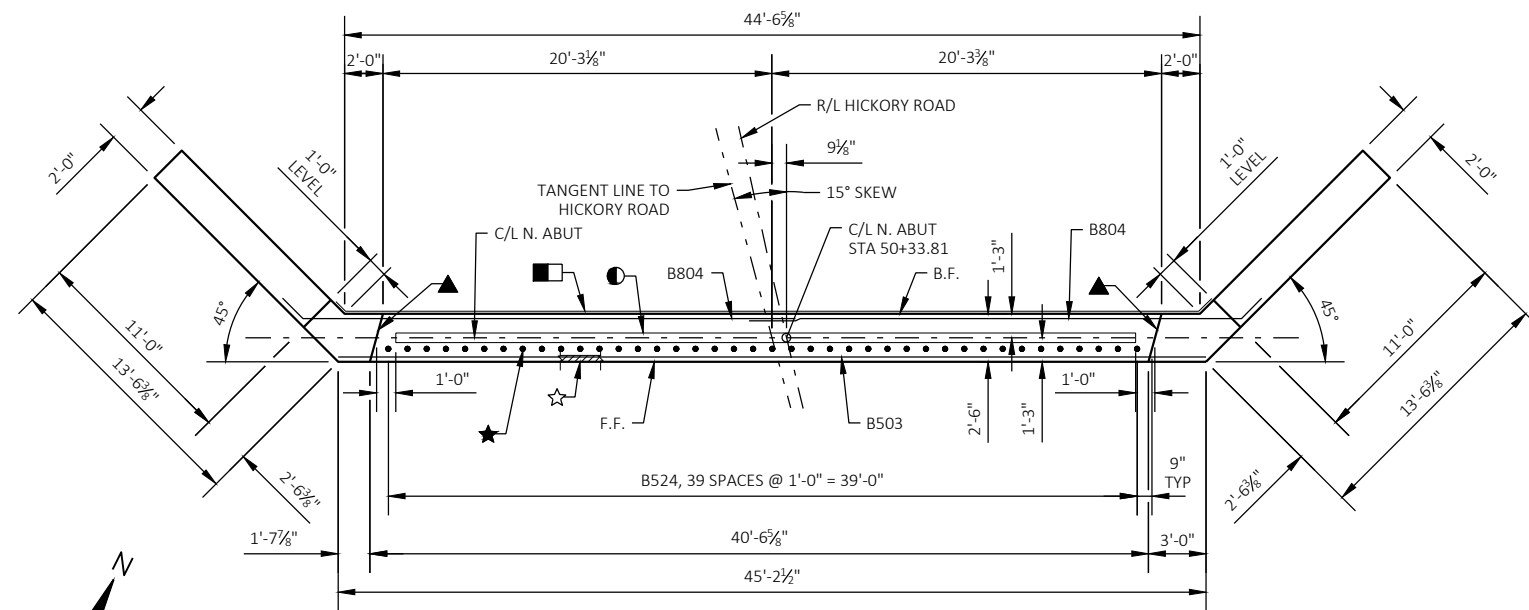
NOTES:

1. THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
2. BAR DIMENSIONS ARE OUT TO OUT OF BAR.
3. FILL/EXCAVATE TO BOTTOM OF FOOTING ELEVATION BEFORE DRIVING PILING.

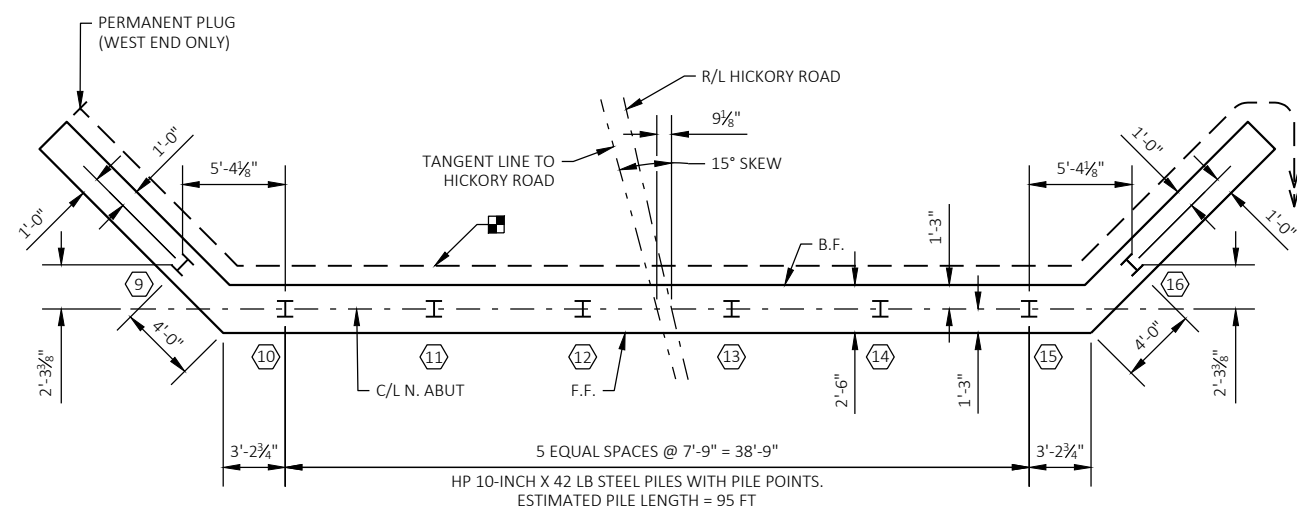
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY		AJS	PLANS CK'D ALK
<b>SOUTH ABUTMENT DETAILS</b>			SHEET 5



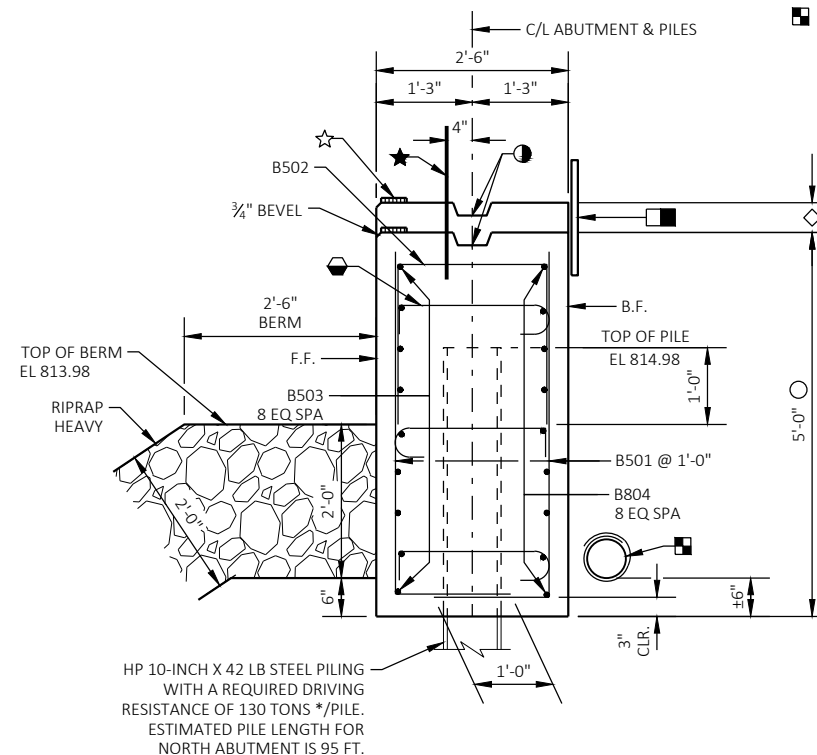
**ELEVATION**  
(LOOKING NORTH FOR NORTH ABUTMENT)



**PLAN**



**PILE PLAN**



**TYPE A5 WITH  
FIXED SEAT**

**GENERAL NOTES**

- SEE SHEET 4 FOR RODENT SHIELD DETAIL.
- SEE SHEET 8 FOR PILE SPLICE DETAIL.
- SHIFT REINFORCING AS NECESSARY TO AVOID PILING.

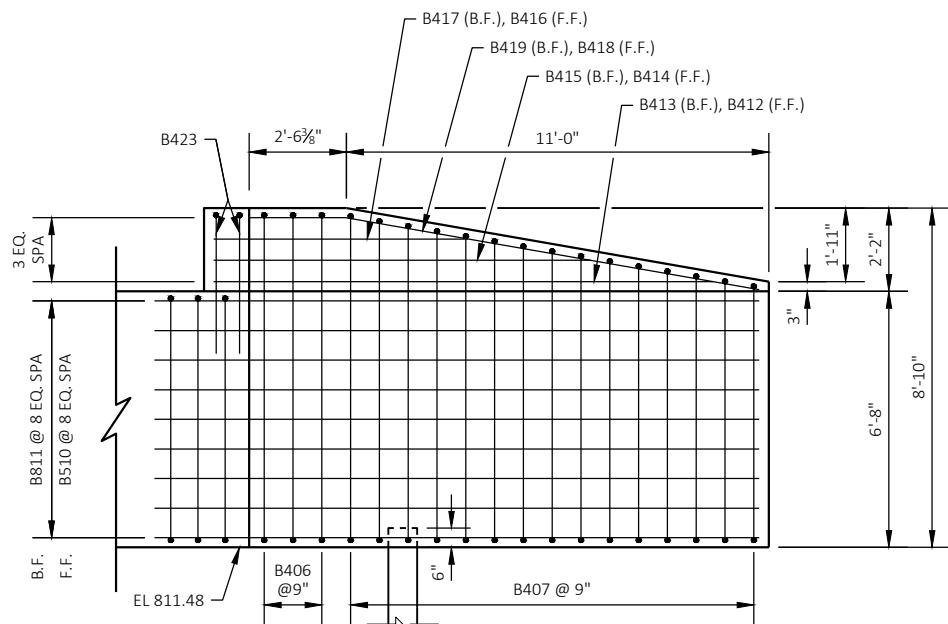
**LEGEND**

- ① INDICATES WING NUMBER
- ① INDICATES PILE NUMBER
- F.F. FRONT FACE
- B.F. BACK FACE
- RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND CONTINUOUS BETWEEN CORNERS AND FROM SEAT TO TOP OF WINGS, TO BE PLACED FLUSH WITH SURFACE OF CONCRETE.
- ▲ ½" PREFORMED FILLER TO EXTEND FROM TOP OF ABUTMENT BODY TO TOP OF WINGS, SEAL ALL EXPOSED SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER (1" DEEP & HOLD ½" BELOW SURFACE OF CONC.).
- KEYED CONSTRUCTION JOINT FORMED WITH A SURFACED BEVELED 2" X 6".
- ⊗ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6".
- ▲ ¼" V-GROOVE ON FRONT FACE OF WING WALL. REQUIRED ONLY WHEN OPTIONAL CONSTRUCTION JOINT IS USED.
- ★ B524 BARS COATED AT 1'-0" (2'-0" LONG). THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- ☆ 4" X ¾" PREFORMED JOINT FILLER.
- B405 BARS, 2 EQUAL SPACES VERTICAL AND 4'-0" SPACES HORIZONTAL. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- DIMENSION IS FROM BOTTOM OF ABUTMENT TO LOW BEAM SEAT OR LOW SIDE OF SLAB TYPE SUPERSTRUCTURE.
- ◇ VARIES 0" - 1'-8½" ADJUST HEIGHT OF B502 AND TOP B503, B804 BARS TO MATCH ABUTMENT SLOPE.
- PIPE UNDERDRAIN WRAPPED, 6 INCH, SLOPED 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH PERMANENT PLUG ON UPSTREAM END. ATTACH RODENT SHIELD AT OUTLET END AS DETAILED ON SHEET 4. RODENT SHIELD AND PERMANENT PLUG TO BE INCLUDED IN BID PRICE FOR "PIPE UNDERDRAIN UNPERFORATED 6-INCH".

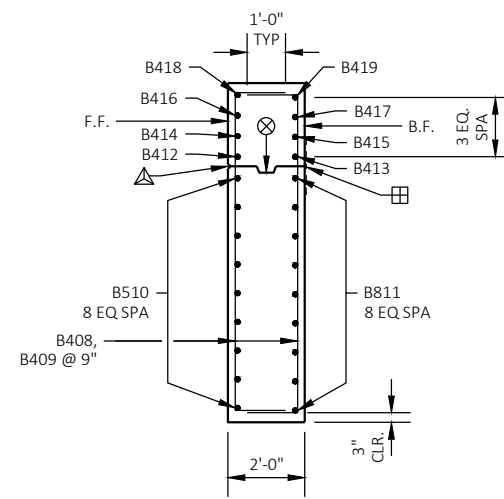
FILE NAME : S:\CURRPROJ\FONDDUCO\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHETSPLAN\48091100-080104-BR.DWG  
PLOT DATE : 11/18/2021 4:57 PM  
LAYOUT NAME - SHEET-06

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY AJL		PLANS CK'D ALK	
<b>NORTH ABUTMENT</b>			SHEET 6

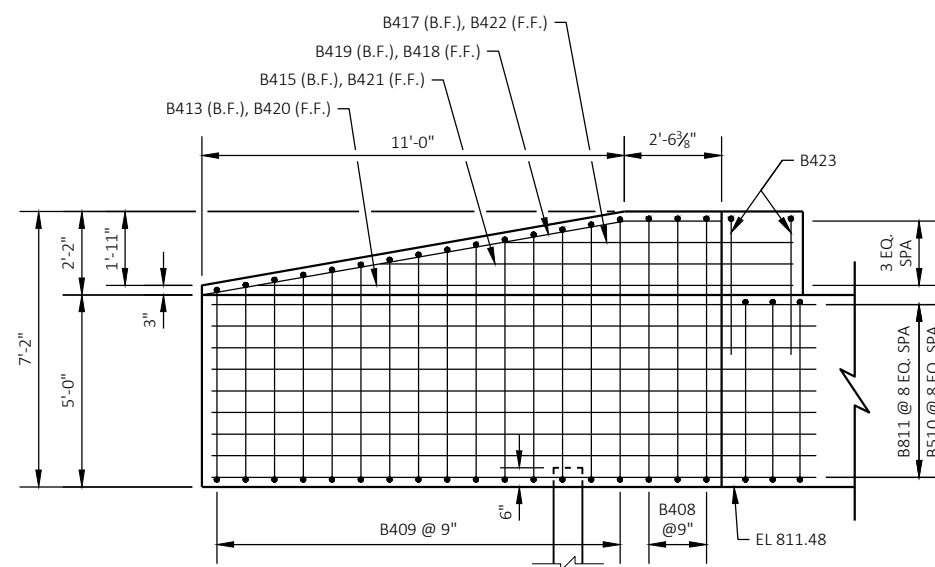
FILE NAME : S:\CURRPROJ\FONDDUCO\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETS\PLAN\48091100-080104-BR.DWG  
 PLOT BY : AARON SARAUER  
 LAYOUT NAME - SHEET-07  
 PLOT DATE : 11/18/2021 4:57 PM



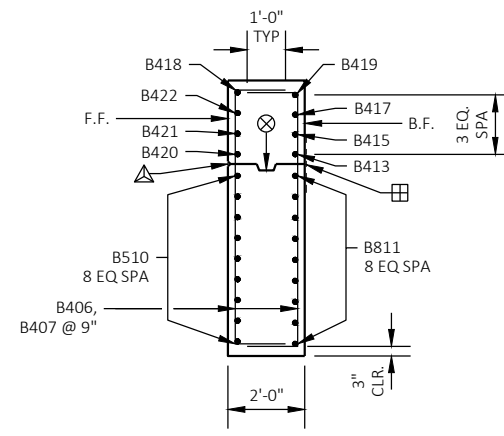
WING 3 ELEVATION



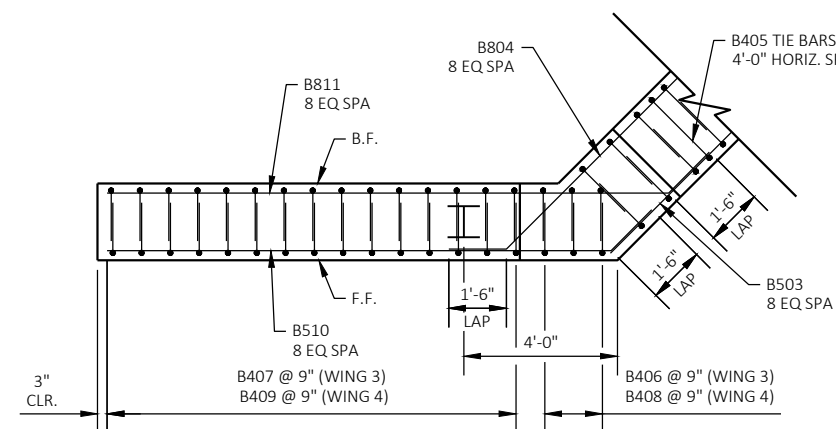
WING 3 SECTION



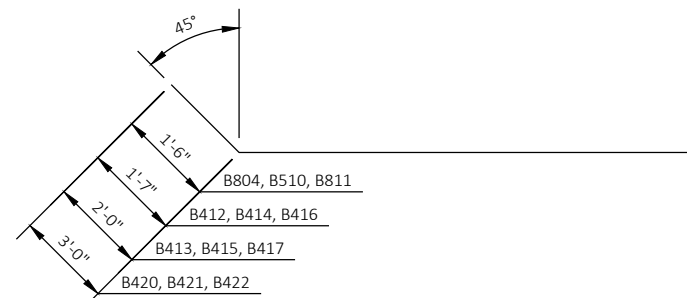
WING 4 ELEVATION



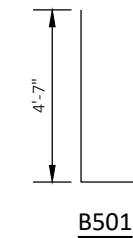
WING 4 SECTION



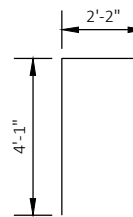
PLAN - WINGS



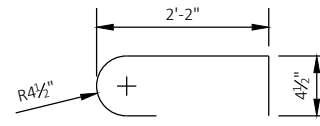
B804, B510, B811, B412, B413, B414, B415, B416, B417, B418, B419, B420, B421, B422



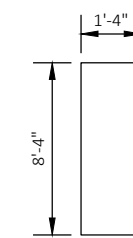
B501



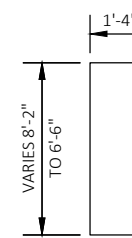
B502



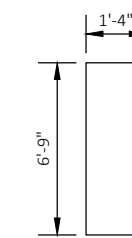
B405



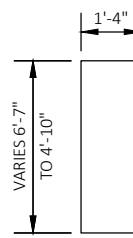
B406



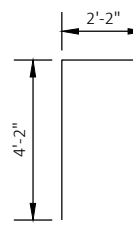
B407



B408



B409



B423

BILL OF BARS - NORTH ABUTMENT

BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
B501		92	6'-1"	X		BODY - VERTICAL - STIRRUPS
B502		46	10'-1"	X		BODY - VERTICAL - STIRRUPS - TOP
B503		18	23'-8"			BODY - HORIZONTAL - F.F.
B804		18	28'-9"	X		BODY - HORIZONTAL - B.F.
B405		36	3'-0"	X		BODY - TIES
B406	X	6	10'-10"	X		WING 3 - VERTICAL AT BODY
B407	X	30	9'-10"	X	X	WING 3 - VERTICAL - STIRRUPS
B408	X	6	9'-3"	X		WING 4 - VERTICAL AT BODY
B409	X	30	8'-3"	X	X	WING 4 - VERTICAL - STIRRUPS
B510	X	18	14'-9"	X		LOWER WINGS 3 AND 4 - HORIZONTAL - F.F.
B811	X	18	16'-5"	X		LOWER WINGS 3 AND 4 - HORIZONTAL - B.F.
B412	X	1	14'-5"	X		UPPER WING 3 - HORIZONTAL - F.F.
B413	X	2	13'-4"	X		UPPER WINGS 3 AND 4 - HORIZONTAL - B.F.
B414	X	1	10'-11"	X		UPPER WING 3 - HORIZONTAL - F.F.
B415	X	2	9'-11"	X		UPPER WINGS 3 AND 4 - HORIZONTAL - B.F.
B416	X	1	7'-5"	X		UPPER WING 3 - HORIZONTAL - F.F.
B417	X	2	6'-5"	X		UPPER WINGS 3 AND 4 - HORIZONTAL - B.F.
B418	X	2	12'-11"	*		UPPER WINGS 3 AND 4 - HORIZONTAL - TOP - F.F.
B419	X	2	11'-6"	*		UPPER WINGS 3 AND 4 - HORIZONTAL - TOP - B.F.
B420	X	1	15'-10"	X		UPPER WING 4 - HORIZONTAL - F.F.
B421	X	1	12'-4"	X		UPPER WING 4 - HORIZONTAL - F.F.
B422	X	1	8'-10"	X		UPPER WING 4 - HORIZONTAL - F.F.
B423	X	4	10'-4"	X		UPPER WINGS 3 AND 4 - VERTICAL - OVER ABUT BODY
B524	X	40	2'-0"			BODY - DOWELS

\* AN ADDITIONAL FIELD BEND WILL BE REQUIRED TO FIT THESE BARS IN THE WINGS, OVER THE ABUTMENT BODY

BAR SERIES - SOUTH ABUTMENT

BAR MARK	NUMBER REQUIRED	LENGTH
B407	2 SERIES OF 15	10'-8" TO 9'-0"
B409	2 SERIES OF 15	9'-1" TO 7'-4"

LEGEND

- F.F. FRONT FACE
- B.F. BACK FACE
- 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND CONTINUOUS BETWEEN CORNERS AND FROM SEAT TO TOP OF WINGS, TO BE PLACED FLUSH WITH SURFACE OF CONCRETE.
- RUBBERIZED MEMBRANE WATERPROOFING IF CONSTRUCTION JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
- 1/2" FILLER TO EXTEND FROM TOP OF ABUTMENT BODY TO TOP OF WINGS, SEAL ALL EXPOSED SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER (1" DEEP & HOLD 1/2" BELOW SURFACE OF CONC.).
- OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6".
- 3/8" V-GROOVE ON FRONT FACE OF WING WALL. REQUIRED ONLY WHEN OPTIONAL CONSTRUCTION JOINT IS USED.
- LENGTH SHOWN FOR BARS IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTH.

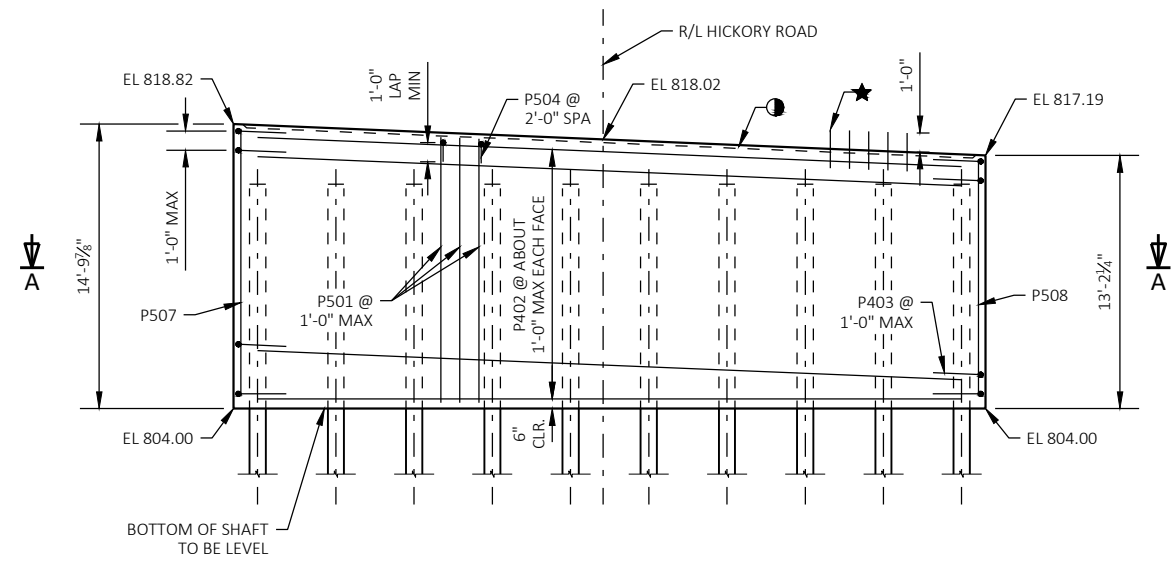
NOTES:

1. THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
2. BAR DIMENSIONS ARE OUT TO OUT OF BAR.
3. FILL/EXCAVATE TO BOTTOM OF FOOTING ELEVATION BEFORE DRIVING PILING.

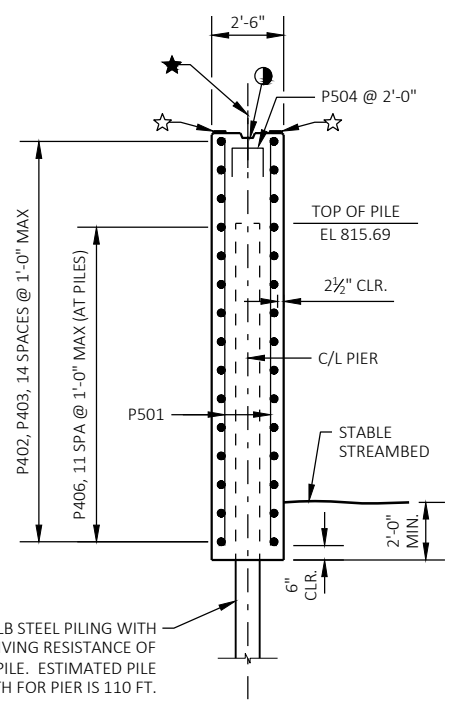
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY		AJS	PLANS CK'D ALK
<b>NORTH ABUTMENT DETAILS</b>			SHEET 7



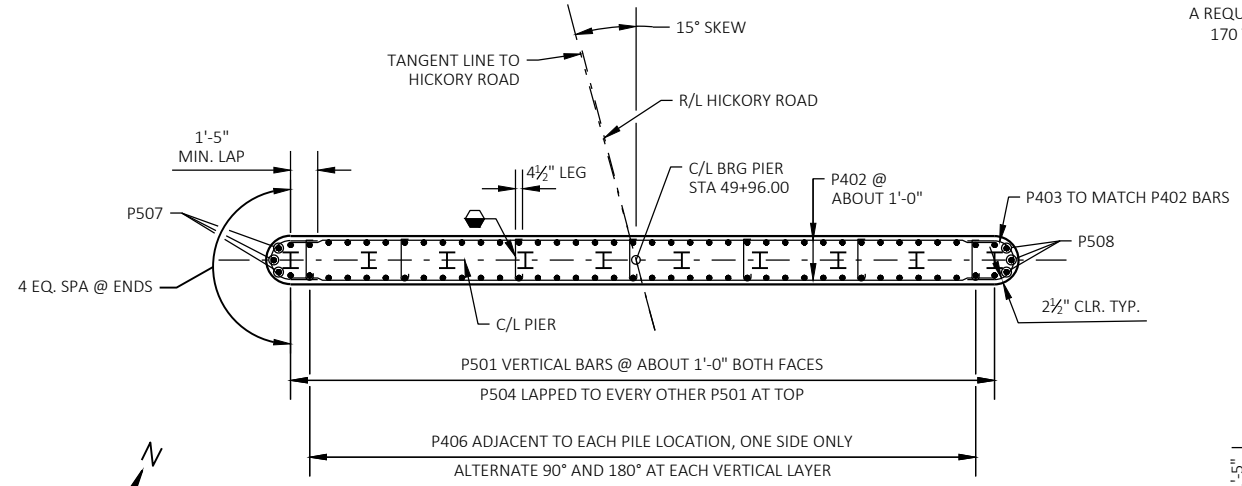
FILE NAME : S:\CURRPROJ\FONDDUCO\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL\3D\HICKORYRD\SHETSPLAN\48091100-080104-BR.DWG  
 PLOT BY : AARON SARAUER  
 PLOT DATE : 11/19/2021 9:28 AM  
 LAYOUT NAME - SHEET-08



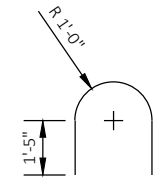
**ELEVATION**  
(LOOKING NORTH)



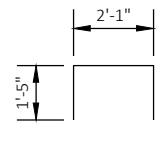
**END VIEW**



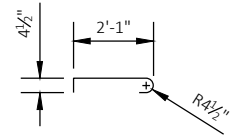
**SECTION A-A**



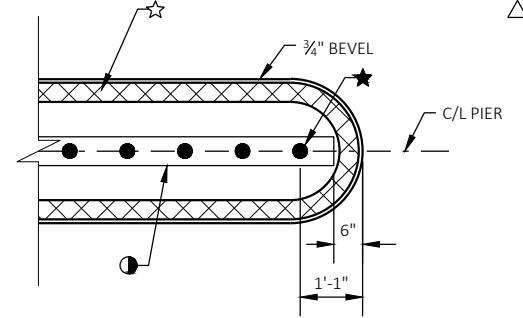
**P403**



**P504**



**P406**



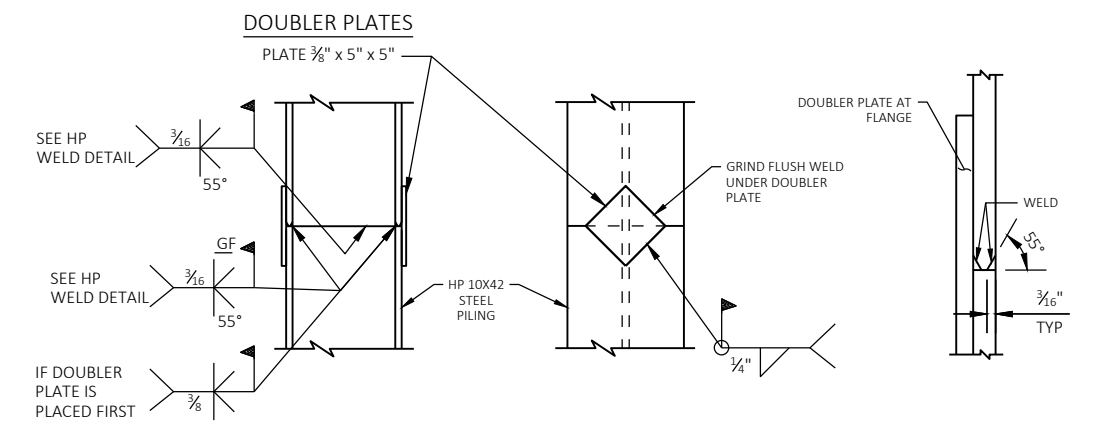
**TOP OF PIER CAP DETAIL**

**NOTES:**

- AT PIER 1, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.
- THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.
- FILL/EXCAVATE TO BOTTOM OF FOOTING ELEVATION BEFORE DRIVING PILING.

**LEGEND**

- ① INDICATES PILE NUMBER
- F.F. FRONT FACE
- B.F. BACK FACE
- KEYED CONSTRUCTION JOINT FORMED WITH A SURFACED BEVELED 2" X 6".
- ★ P505 BARS COATED AT 1'-0" (2'-0" LONG). THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- ☆ 4" X 3/4" PREFORMED JOINT FILLER.
- ⬡ P406 BARS, PLACE ADJACENT TO EACH PILE ONLY. TIE TO NEAREST VERTICAL P501 BAR. VERTICAL SPACE @ 1'-0" MAX TO MATCH P402 OUTSIDE BARS. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- △ LENGTH SHOWN FOR BARS IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTH.



**STEEL 'HP' SHAPES**

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

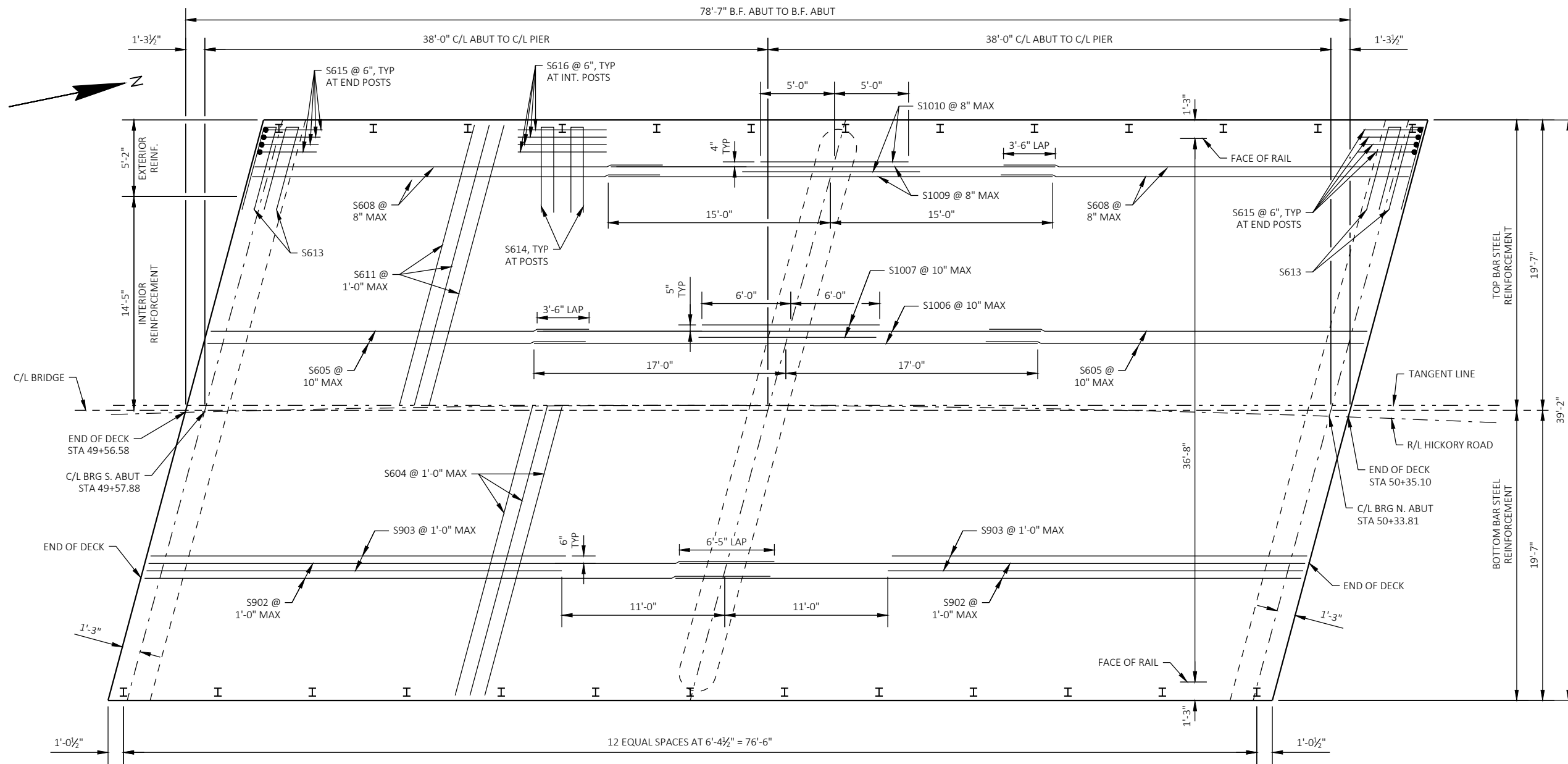
**PILE SPLICE DETAILS**

BILL OF BARS - PIER						
BAR MARK	COAT	NO. REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
P501		76	13'-4"		X	VERTICAL
P402		30	36'-8"			HORIZONTAL
P403		30	6'-0"	X		HORIZONTAL - ENDS
P504		20	4'-9"	X		TOP
P505	X	38	2'-0"			DOWELS
P406		120	2'-8"	X		TIE BARS
P507		3	14'-1"			VERTICAL - WEST END
P508		3	12'-6"			VERTICAL - EAST END

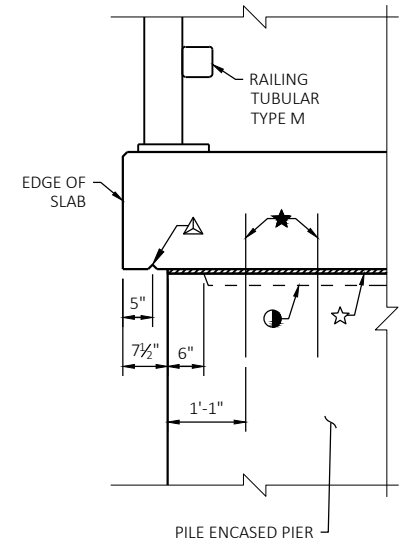
BAR SERIES - PIER		
BAR MARK	NUMBER REQUIRED	LENGTH
P501	2 SERIES OF 38	14'-1" TO 12'-6"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY		AJS	PLANS CK'D ALK
<b>PIER</b>			SHEET 8

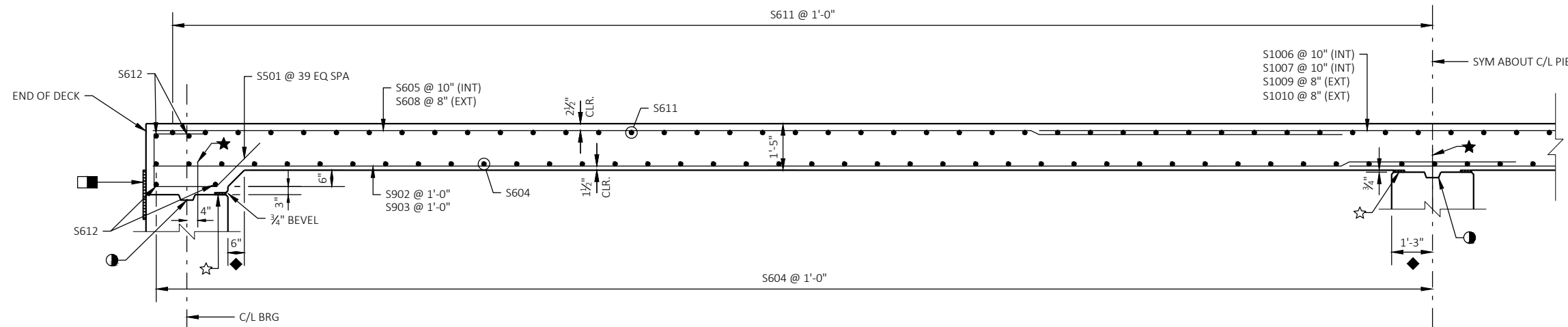




PLAN



PIER DETAILS



LONGITUDINAL SECTION

LEGEND

- RUBBERIZED MEMBRANE WATERPROOFING.
- KEYED CONSTRUCTION JOINT FORMED WITH A SURFACED BEVELED 2" X 6".
- ★ DOWEL BARS COATED AT 1'-0" (2'-0" LONG). THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- ☆ 4" X 3/4" PREFORMED JOINT FILLER.
- ▲ 3/4" V-GROVE REQUIRED. EXTEND TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGMS.
- ◆ DIMENSIONS MEASURED NORMAL TO C/L SUBSTRUCTURE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY		AJS	PLANS CK'D ALK
<b>SUPERSTRUCTURE</b>			SHEET 9

FILE NAME : S:\CURRPROJ\FONDDUCO\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHETSPLAN\48091100-080104-BR.DWG  
PLOT BY : AARON SARAUER  
LAYOUT NAME - SHEET-09  
PLOT DATE : 11/19/2021 9:28 AM

**LEGEND**

△ ¾" V-GROVE REQUIRED. EXTEND TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGMS.

**GENERAL NOTES:**

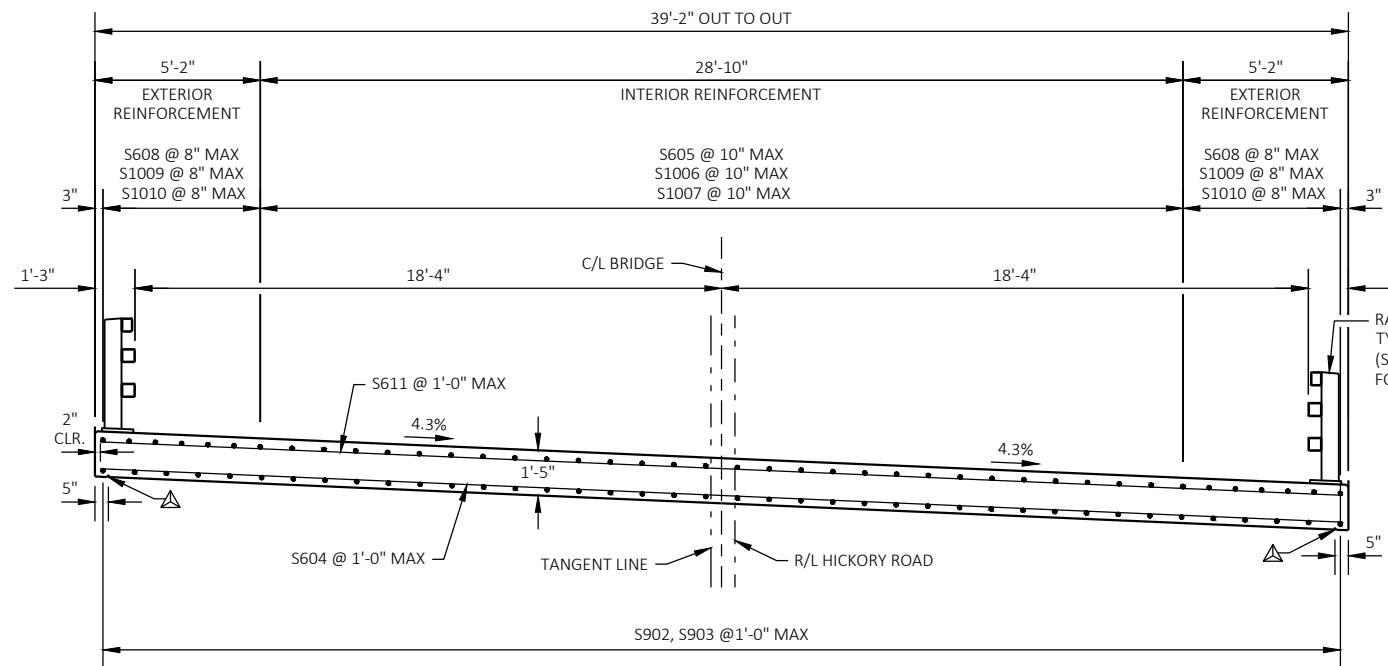
TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE C/L OF THE SUBSTRUCTURE UNITS.

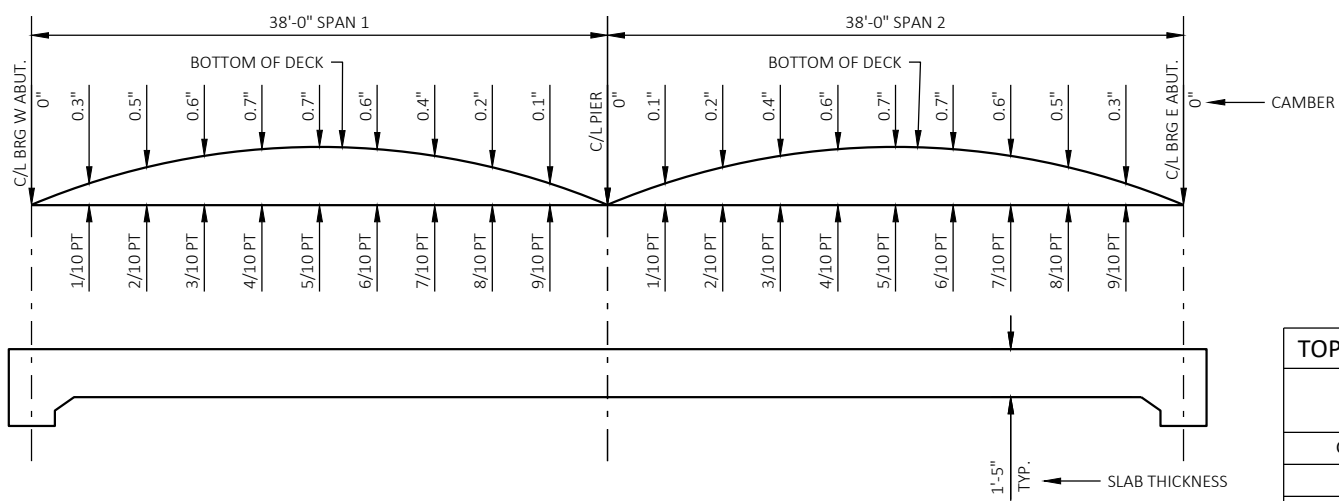
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

**BILL OF BARS - SUPERSTRUCTURE**

BAR MARK	COAT	NO. REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	80	7'-1"	X		AT END OF DECK
S902	X	80	42'-4"			DECK - BOTTOM - LONGITUDINAL
S903	X	78	28'-2"			DECK - BOTTOM - LONGITUDINAL
S604	X	79	40'-2"			DECK - BOTTOM - TRANSVERSE
S605	X	68	25'-8"			DECK - TOP - LONGITUDINAL - INTERIOR
S1006	X	34	34'-0"			DECK - TOP - LONGITUDINAL - INTERIOR
S1007	X	35	12'-0"			DECK - TOP - LONGITUDINAL - INTERIOR
S608	X	16	27'-8"			DECK - TOP - LONGITUDINAL - EXTERIOR
S1009	X	16	30'-0"			DECK - TOP - LONGITUDINAL - EXTERIOR
S1010	X	16	10'-0"			DECK - TOP - LONGITUDINAL - EXTERIOR
S611	X	78	40'-2"			DECK - TOP - TRANSVERSE
S612	X	8	40'-2"			DECK - TOP - TRANSVERSE - AT ABUTMENT
S613	X	8	12'-1"	X		DECK - AT END RAIL POSTS - TRANSVERSE - 2 PER POST
S614	X	44	12'-1"	X		DECK - AT INTERMEDIATE RAIL POSTS - TRANSVERSE - 2 PER POST
S615	X	16	6'-0"	X		DECK - AT END RAIL POSTS - LONGITUDINAL
S616	X	88	6'-0"			DECK - AT INTERMEDIATE RAIL POSTS - LONGITUDINAL



**CROSS SECTION THRU SUPERSTRUCTURE**  
(LOOKING NORTH)



**CAMBER AND SLAB THICKNESS DIAGRAM**

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

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

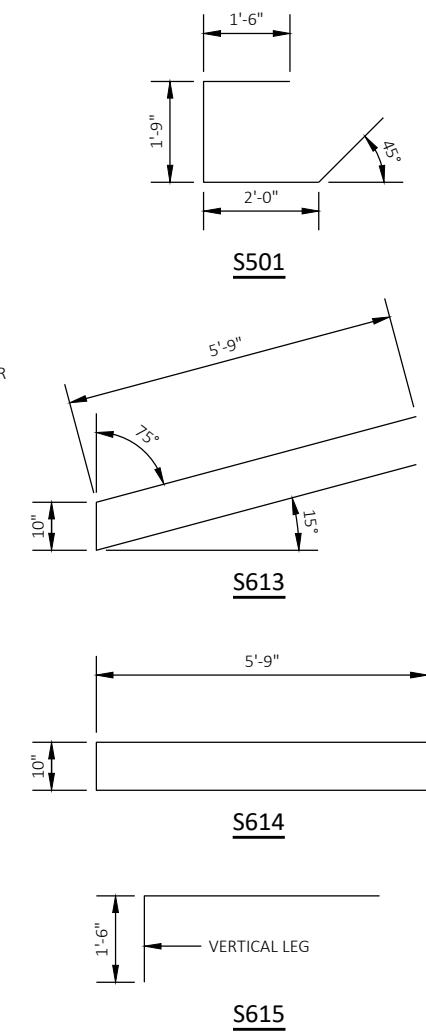
- LESS TOP OF SLAB ELEVATION AT FINAL GRADE
- LESS SLAB THICKNESS
- PLUS CAMBER
- PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
- EQUALS TOP OF SLAB FALSEWORK ELEVATION.

SURVEY TOP OF SLAB ELEVATIONS					
	ABUTMENT	5/10	PIER	5/10	ABUTMENT
WEST EDGE OF SLAB					
C/L OF SLAB					
EAST EDGE OF SLAB					

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

**TOP OF DECK ELEVATIONS AT FINAL GRADE**

LOCATION	WEST EDGE OF DECK		BRIDGE C/L		HICKORY ROAD C/L		EAST EDGE OF DECK	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
C/L S. ABUT	49+63.59	820.28	49+57.91	819.42	49+57.88	819.42	49+52.06	818.57
1/10	49+67.33	820.29	49+61.71	819.44	49+61.71	819.44	49+55.92	818.58
2/10	49+71.07	820.32	49+65.51	819.45	49+65.53	819.45	49+59.77	818.59
3/10	49+74.81	820.30	49+69.31	819.45	49+69.35	819.46	49+63.63	818.60
4/10	49+78.55	820.31	49+73.11	819.46	49+73.17	819.47	49+67.49	818.60
5/10	49+82.29	820.32	49+76.91	819.47	49+76.98	819.48	49+71.35	818.61
6/10	49+86.04	820.32	49+80.71	819.47	49+80.79	819.48	49+75.22	818.62
7/10	49+89.78	820.33	49+84.51	819.48	49+84.60	819.49	49+79.08	818.63
8/10	49+93.52	820.33	49+88.31	819.48	49+88.40	819.49	49+82.94	818.63
9/10	49+97.26	820.33	49+92.11	819.49	49+92.20	819.50	49+86.80	818.63
C/L PIER	50+01.01	820.33	49+95.91	819.49	49+96.00	819.50	49+90.66	818.64
1/10	50+04.75	820.33	49+99.72	819.49	49+99.79	819.50	49+94.52	818.64
2/10	50+08.49	820.33	50+03.52	819.49	50+03.59	819.50	49+98.38	818.64
3/10	50+12.23	820.34	50+07.32	819.49	50+07.37	819.50	50+02.24	818.65
4/10	50+15.97	820.34	50+11.12	819.49	50+11.16	819.50	50+06.11	818.65
5/10	50+19.71	820.33	50+14.92	819.50	50+14.94	819.50	50+09.97	818.65
6/10	50+23.45	820.34	50+18.72	819.49	50+18.72	819.49	50+13.83	818.65
7/10	50+27.19	820.33	50+22.52	819.49	50+22.50	819.49	50+17.69	818.65
8/10	50+30.93	820.33	50+26.31	819.49	50+26.27	819.48	50+24.55	818.65
9/10	50+34.67	820.32	50+30.11	819.48	50+30.05	819.47	50+25.41	818.64
C/L N. ABUT	50+38.41	820.32	50+33.91	819.48	50+33.81	819.46	50+29.26	818.65



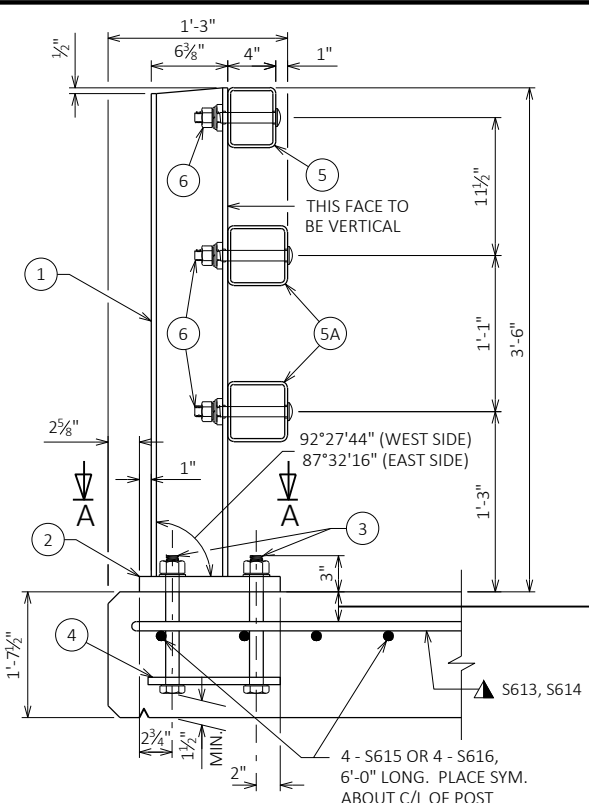
FILE NAME : S:\CURRPROJ\FONDDUCO\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHETSPLAN\4809.1100-080104-BR.DWG PLOT BY : AARON SARAUER LAYOUT NAME - SHEET-10

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY		AJS	PLANS CK'D ALK
<b>SUPERSTRUCTURE DETAILS</b>			SHEET 10

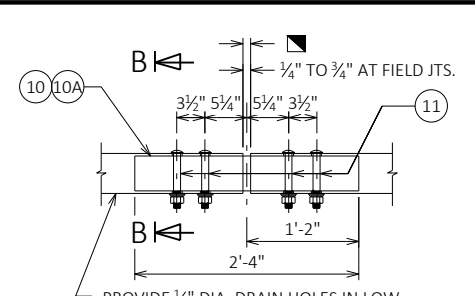
FILE NAME : S:\CURRPROJ\FONDUCO\FOND DU LAC, TOWN OF HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETS\PLAN\4809.1100-080104-BR.DWG  
 PLOT BY : AARON SARAUER  
 LAYOUT NAME - SHEET-11  
 PLOT DATE : 11/18/2021 4:57 PM

STATE PROJECT NUMBER

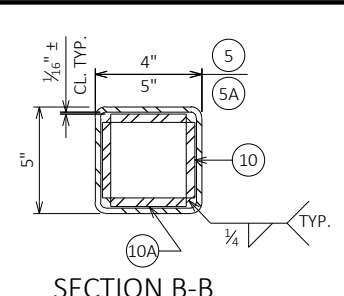
4809-11-71



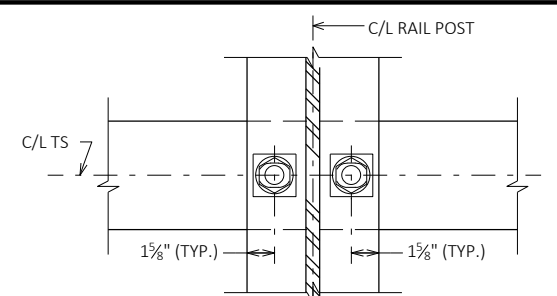
SECTION THRU RAILING ON DECK



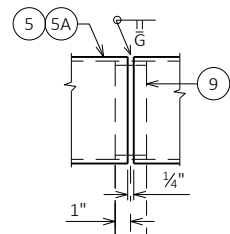
FIELD ERECTION JOINT DETAIL



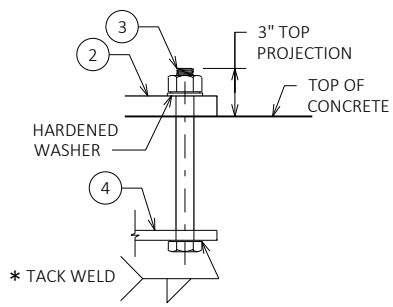
SECTION B-B



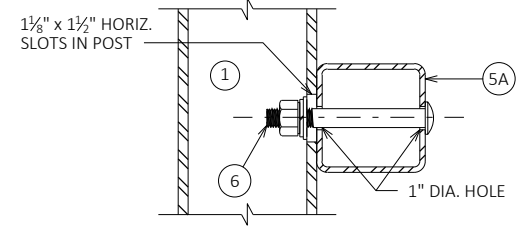
SECTION THRU POST WEB



SHOP RAIL SPLICE DETAIL



ANCHOR BOLTS

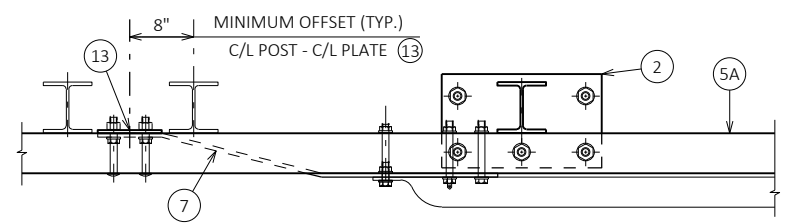


SECTION THRU RAIL

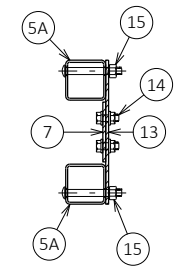
TYPICAL RAIL TO POST CONNECTIONS

LOCATION MUST BE SHOWN ON SHOP DRAWINGS

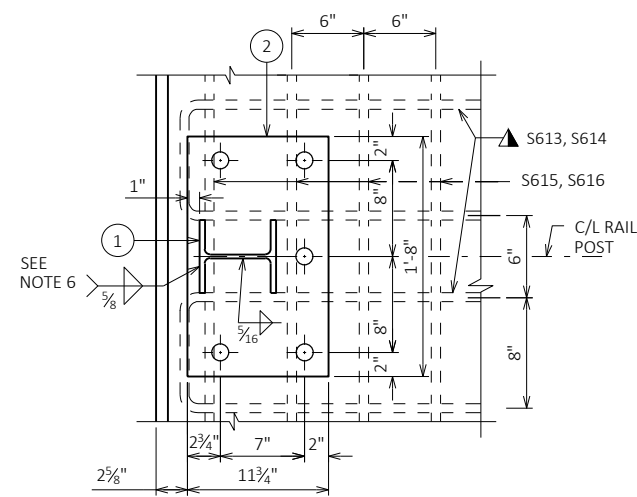
PLACE BELOW TOP MAT SLAB REINFORCEMENT.



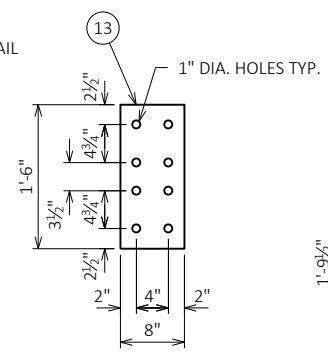
TOP VIEW AT END POST  
THREE BEAM RAIL ATTACHMENT



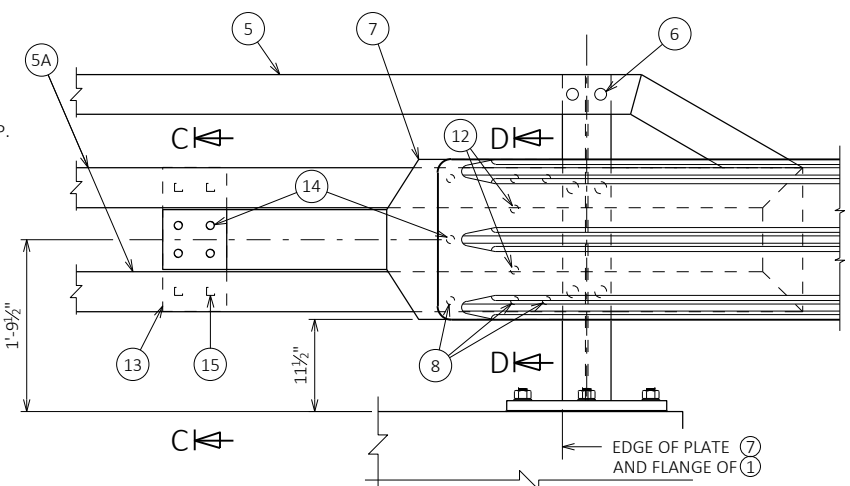
SECTION C-C



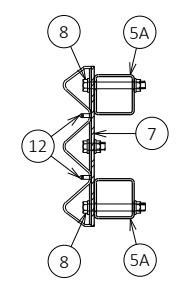
SECTION A-A



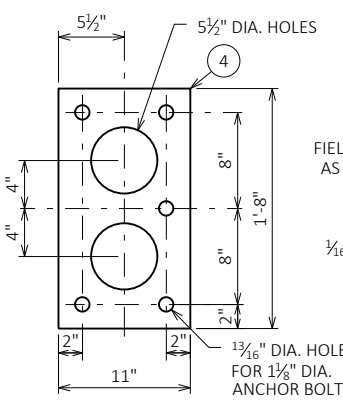
ANCHOR PLATE  
AT BEAM GUARD ATTACHMENT



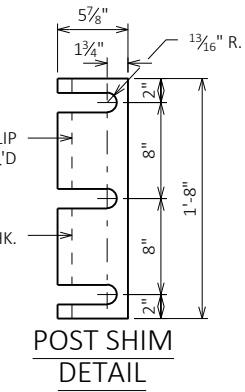
DETAIL AT END POST  
THREE BEAM RAIL ATTACHMENT



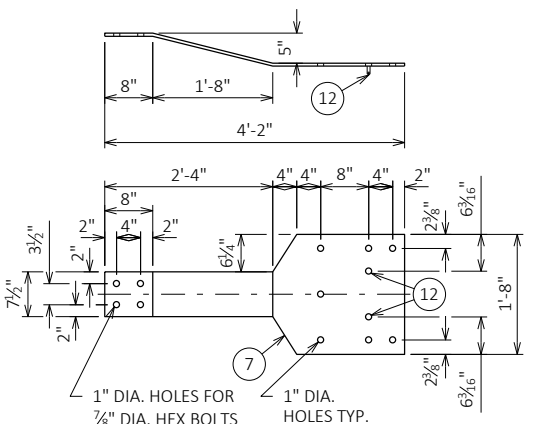
SECTION D-D



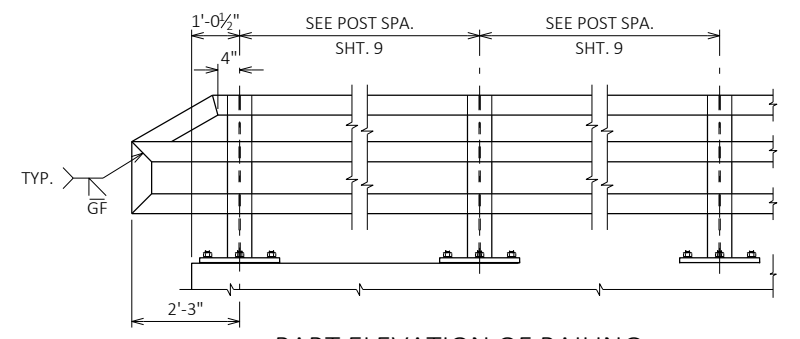
ANCHOR PLATE  
AT RAIL TO DECK CONNECTION



POST SHIM  
DETAIL



BACK-UP PLATE DETAIL  
AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

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

GENERAL NOTES

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

TIE TO TOP MAT OF STEEL.

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

RDWY. OPENING OR 2 1/2" MIN. FOR STRIP SEAL EXP. JOINT & (1/4" TO 3/4") OPENING FOR A1 ABUTMENT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-245</b>			
DRAWN BY		AJS	PLANS CK'D ALK
<b>TUBULAR STEEL RAILING TYPE 'M'</b>			SHEET 11

8

8

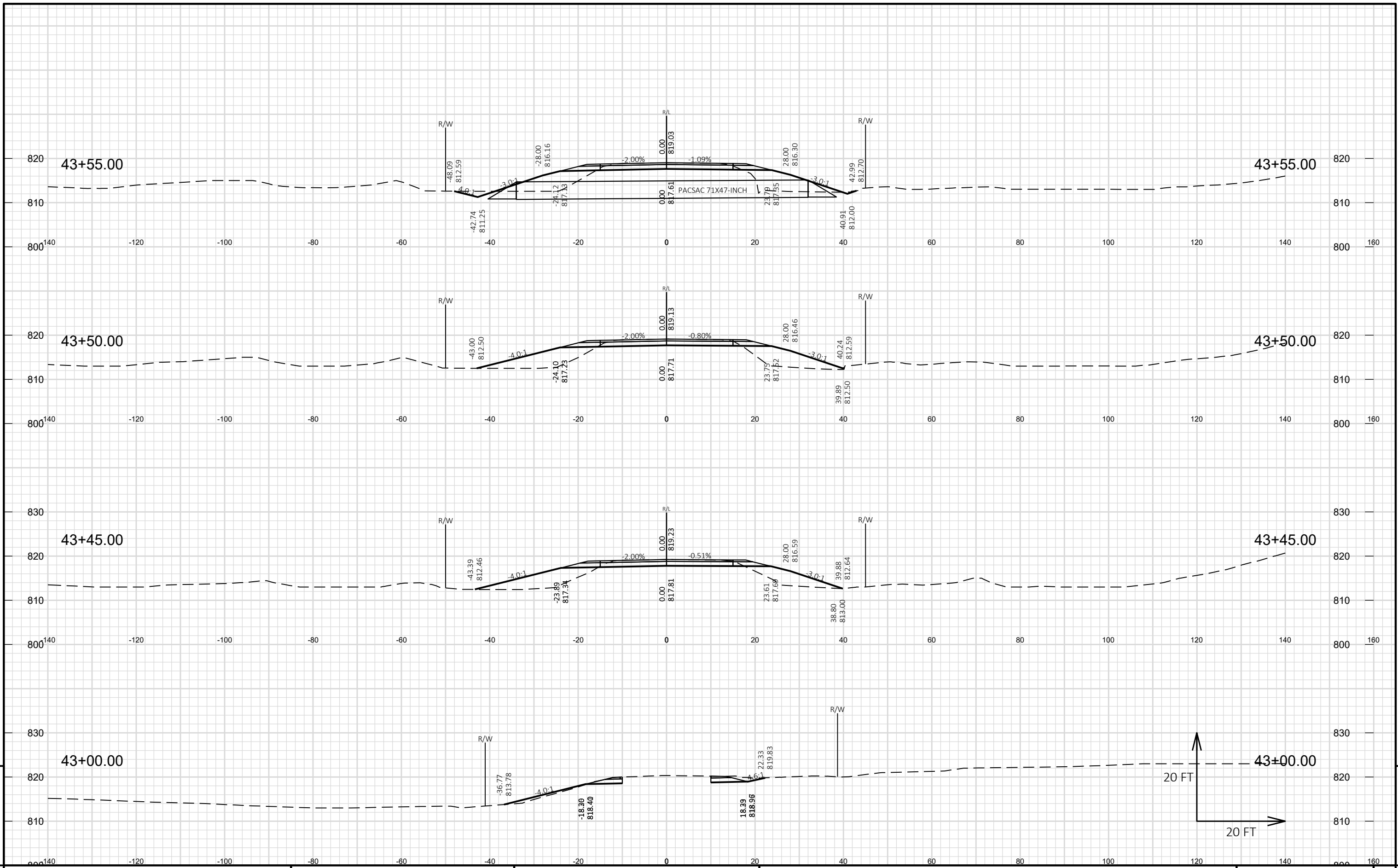
DIVISION 1 - HICKORYBRIDGE

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
43+00	4300.00	0.00	50.11	7.13	0	0	0	0	0
43+45	4345.00	45.00	42.10	100.09	77	89	77	116	-39
43+50	4350.00	5.00	42.25	109.93	8	19	85	140	-55
43+55	4355.00	5.00	79.35	99.71	11	19	96	165	-69
44+00	4400.00	45.00	38.05	70.40	98	142	194	350	-156
44+50	4450.00	50.00	30.32	36.98	63	99	257	478	-221
45+00	4500.00	50.00	15.69	34.15	43	66	300	564	-264
45+50	4550.00	50.00	0.98	55.98	15	83	315	672	-357
46+00	4600.00	50.00	10.37	72.59	11	119	326	827	-501
46+50	4650.00	50.00	0.48	97.35	10	157	336	1,031	-695
47+00	4700.00	50.00	1.68	134.37	2	215	338	1,310	-972
47+50	4750.00	50.00	15.04	133.40	15	248	353	1,633	-1,280
48+00	4800.00	50.00	19.99	126.69	32	241	385	1,946	-1,561
48+50	4850.00	50.00	15.49	155.68	33	261	418	2,285	-1,867
49+00	4900.00	50.00	6.09	169.89	20	301	438	2,677	-2,239
49+50.1	4950.10	50.10	0.00	0.00	6	158	444	2,882	-2,438
50+40.845	5040.85	90.75	0.00	0.00	0	0	444	2,882	-2,438
50+40.945	5040.95	0.10	4.25	28.04	0	0	444	2,882	-2,438
51+00	5100.00	59.05	23.76	27.03	31	60	475	2,960	-2,485
51+50	5150.00	50.00	21.64	55.54	42	76	517	3,059	-2,542
52+00	5200.00	50.00	12.48	64.89	32	112	549	3,205	-2,656
52+50	5250.00	50.00	8.19	83.09	19	137	568	3,383	-2,815
53+00	5300.00	50.00	18.78	95.88	25	166	593	3,598	-3,005
53+05	5305.00	5.00	17.92	102.75	3	18	596	3,622	-3,026
53+50	5350.00	45.00	23.72	15.19	35	98	631	3,749	-3,118
54+00	5400.00	50.00	40.87	8.91	60	22	691	3,778	-3,087
54+50	5450.00	50.00	14.55	119.78	51	119	742	3,933	-3,191
54+65	5465.00	15.00	3.66	133.69	5	70	747	4,024	-3,277
55+00	5500.00	35.00	49.70	25.55	35	103	782	4,157	-3,375
55+50	5550.00	50.00	76.27	7.07	117	30	899	4,196	-3,297
56+00	5600.00	50.00	39.06	4.30	107	11	1,006	4,211	-3,205
56+50	5650.00	50.00	19.38	9.59	54	13	1,060	4,228	-3,168
57+00	5700.00	50.00	36.01	9.80	51	18	1,111	4,251	-3,140
57+50	5750.00	50.00	78.58	13.61	106	22	1,217	4,280	-3,063
58+00	5800.00	50.00	77.09	11.32	144	23	1,361	4,310	-2,949
58+50	5850.00	50.00	56.93	8.58	124	18	1,485	4,333	-2,848
58+85	5885.00	35.00	50.28	5.35	69	9	1,554	4,345	-2,791

Notes:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	MASS ORDINATE = CUT - EXPANDED FILL

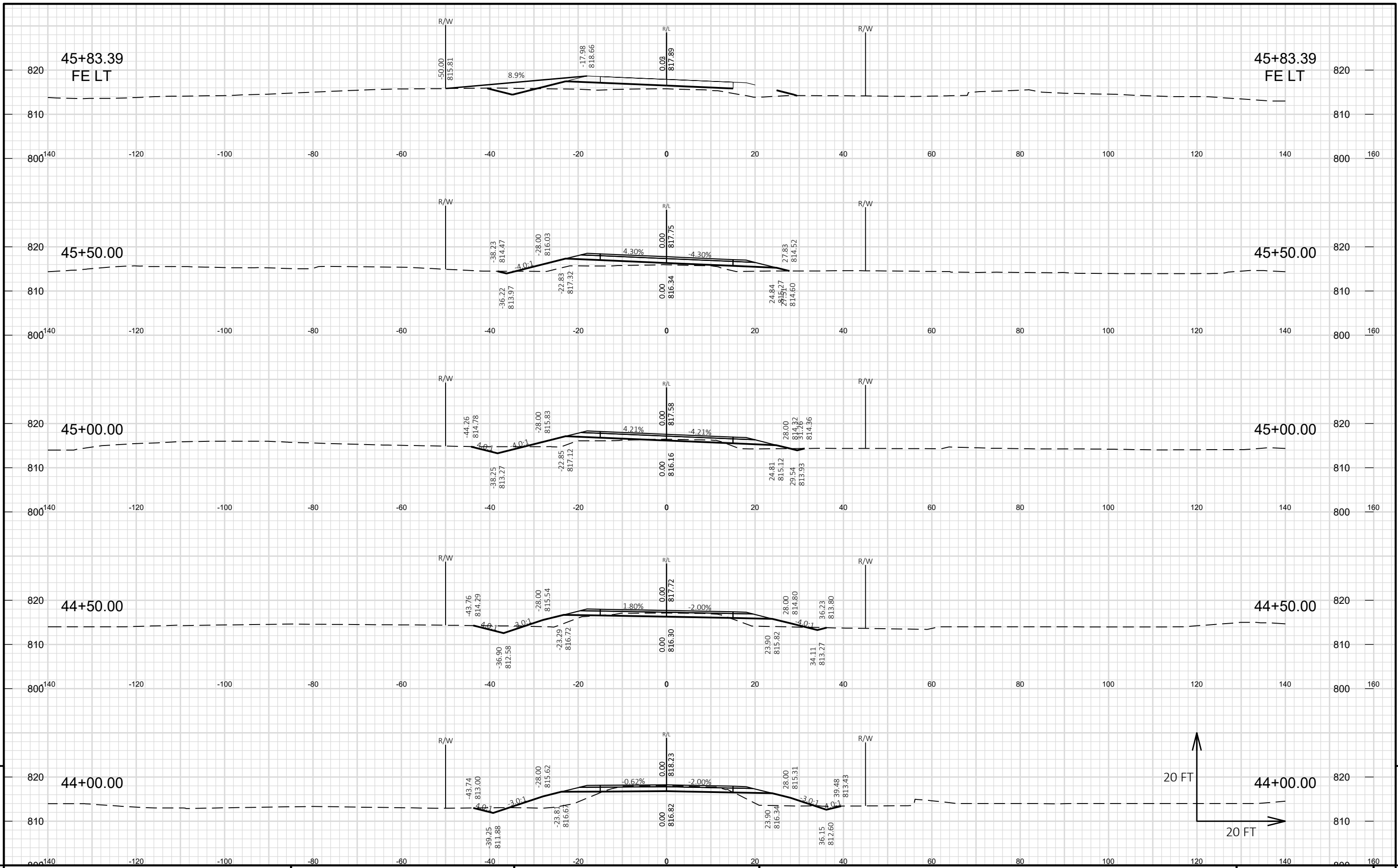
9

9



PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET 9

FILE NAME: S:\CURRPRO\FONDUCO\FOND DU LAC, TOWN OF\HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETSPLAN\48091100-090201-XS.DWG      PLOT DATE: 10/25/2021 10:38 AM      PLOT BY: BENJAMIN OITZINGER      PLOT NAME:      PLOT SCALE: 1 IN:20 FT HORZ. / 1 IN:20 FT VERT.      WISDOT/CADD SHEET 49



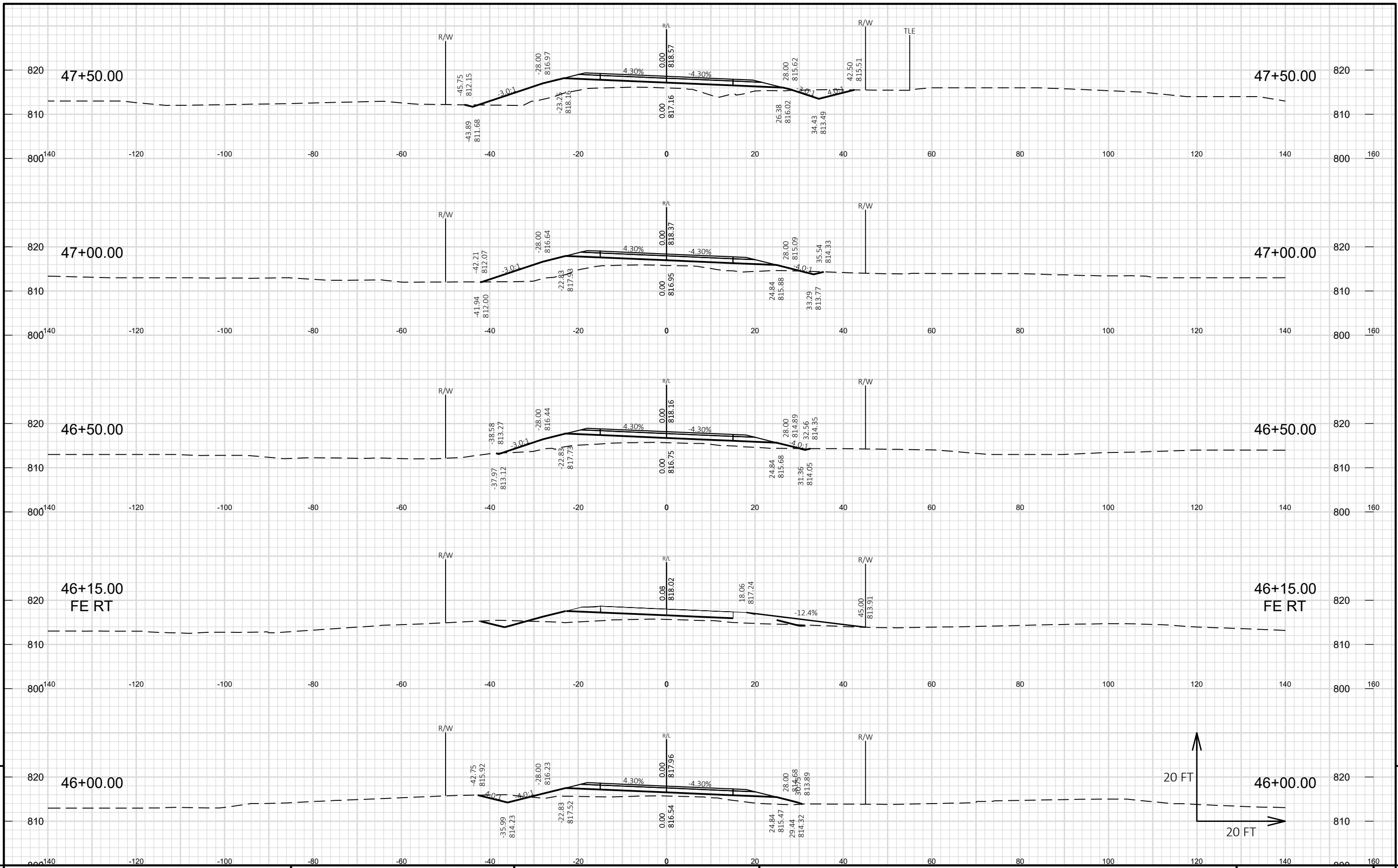
9

9

PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET      E

FILE NAME : S:\CURRPRO\FONDUCO\FOND DU LAC, TOWN OF\HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETSPLAN\48091100-090201-XS.DWG      PLOT DATE : 10/25/2021 10:38 AM      PLOT BY : BENJAMIN OITZINGER      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:20 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 002



PROJECT NO: 4809-11-71

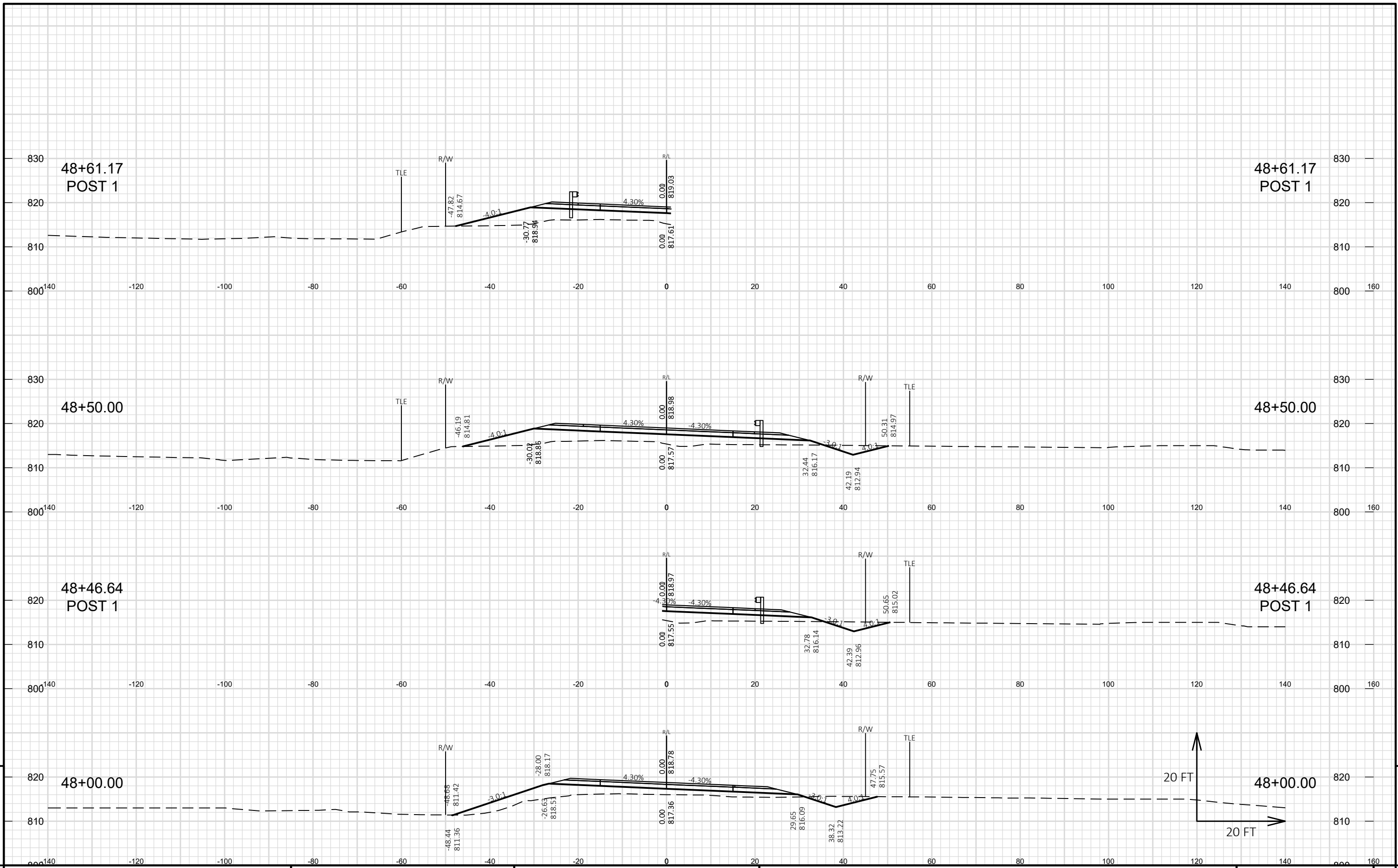
HWY: HICKORY ROAD

COUNTY: FOND DU LAC

CROSS SECTIONS: HICKORY ROAD

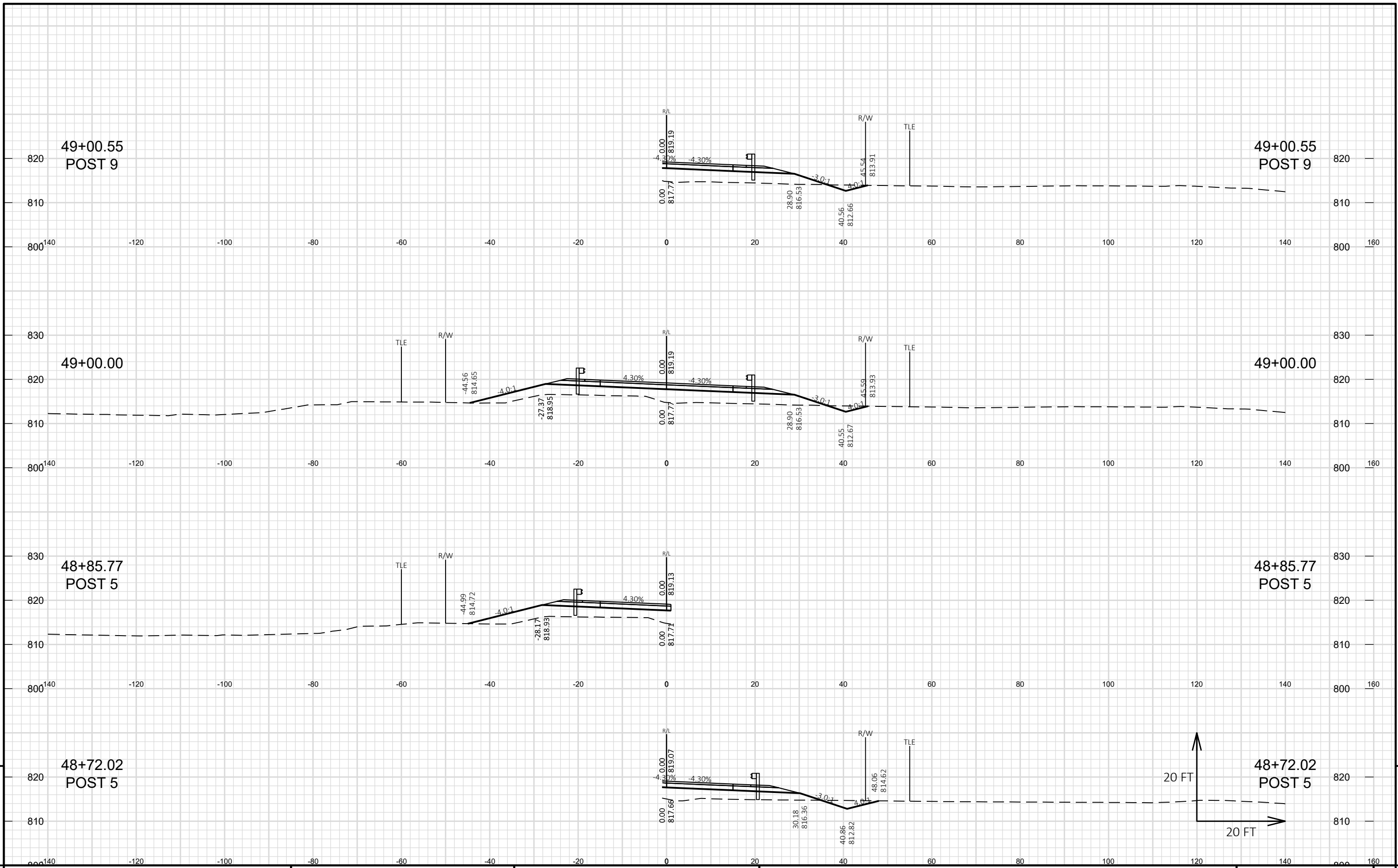
SHEET

E

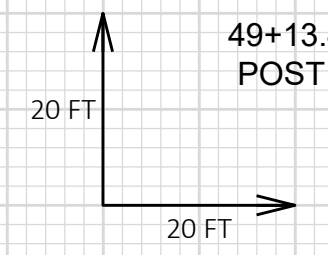
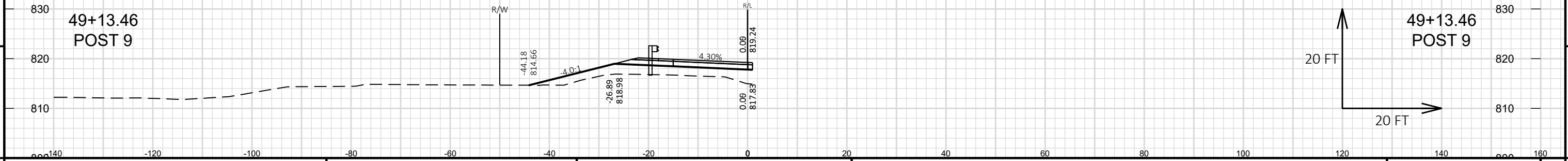
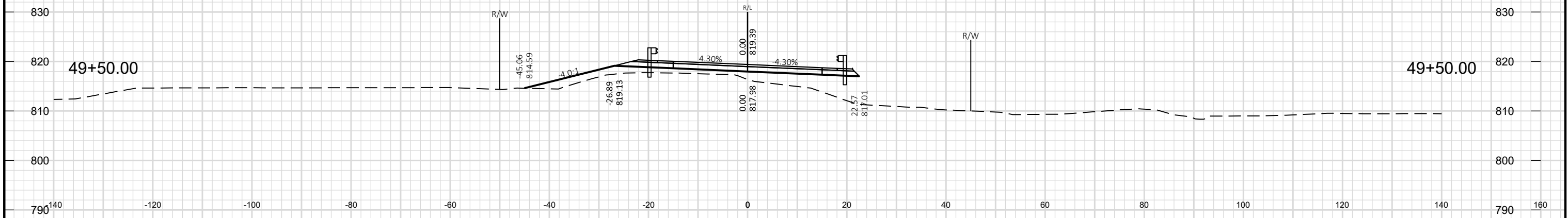
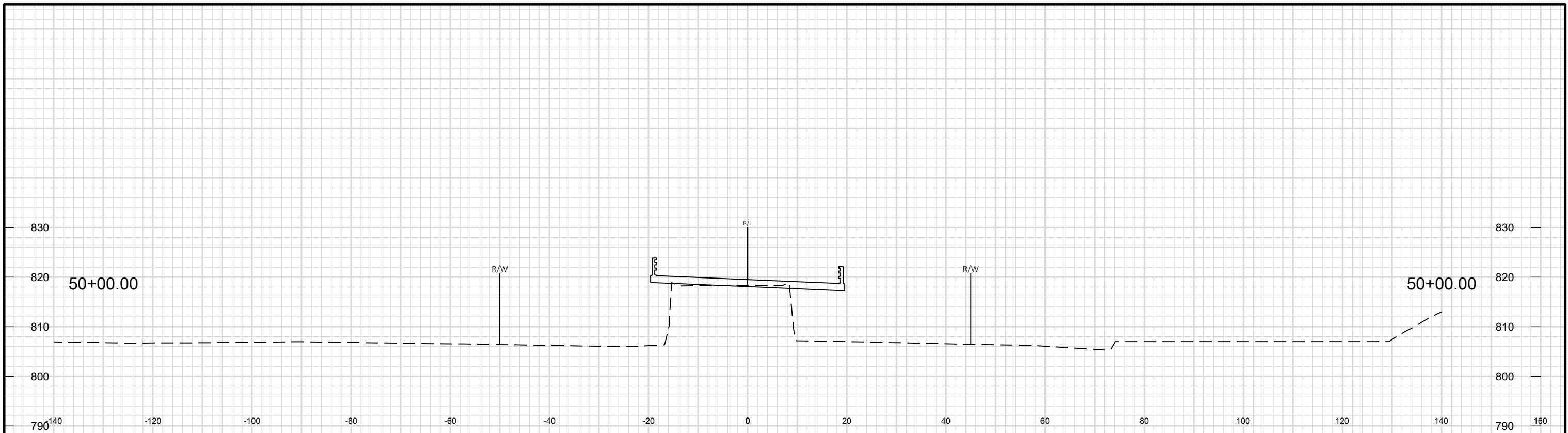


PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET 9

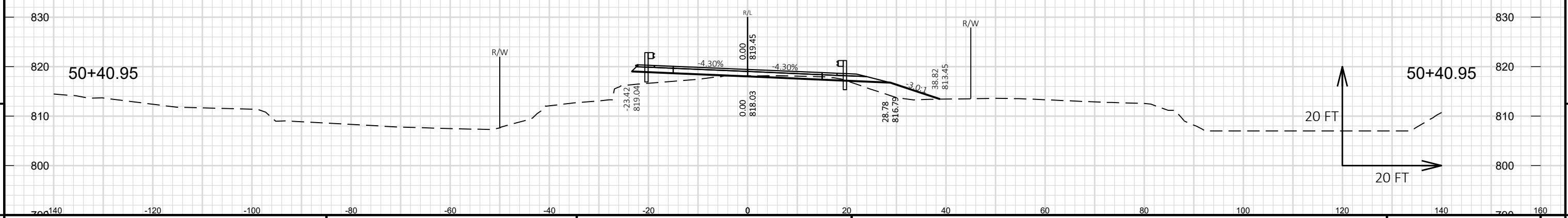
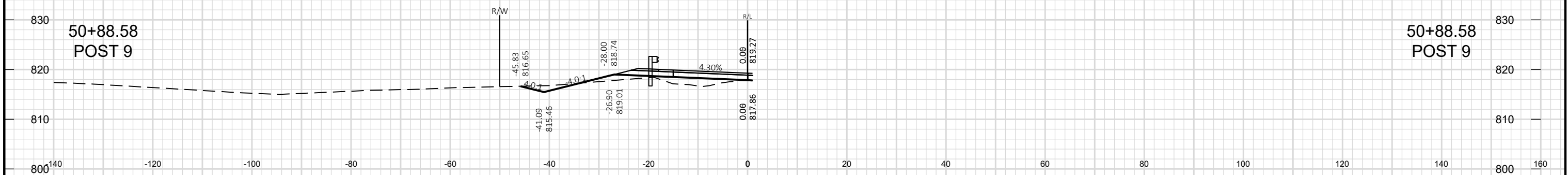
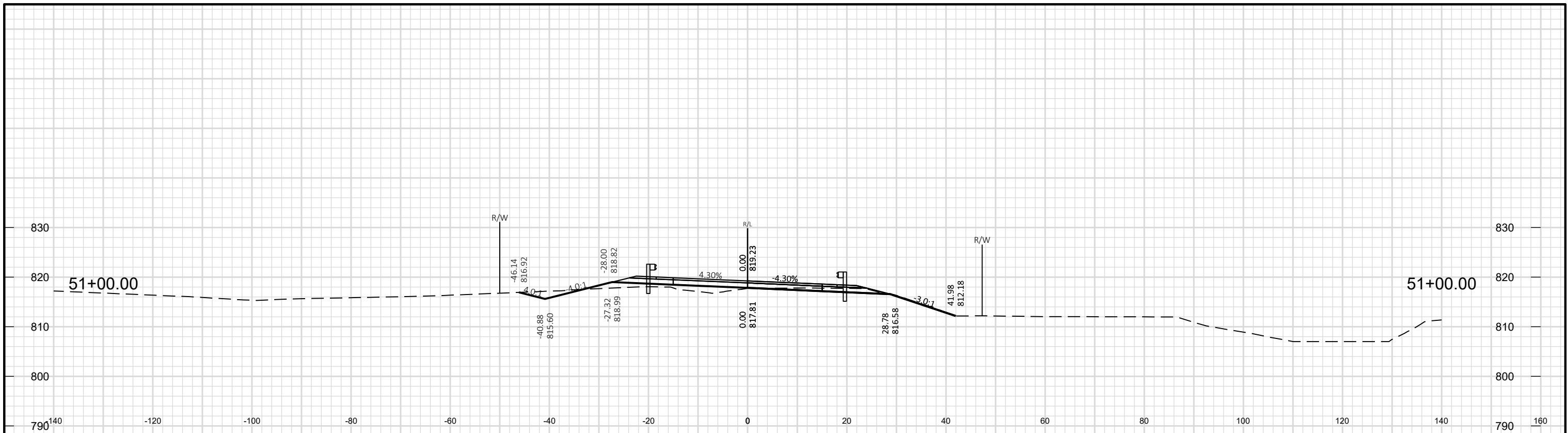




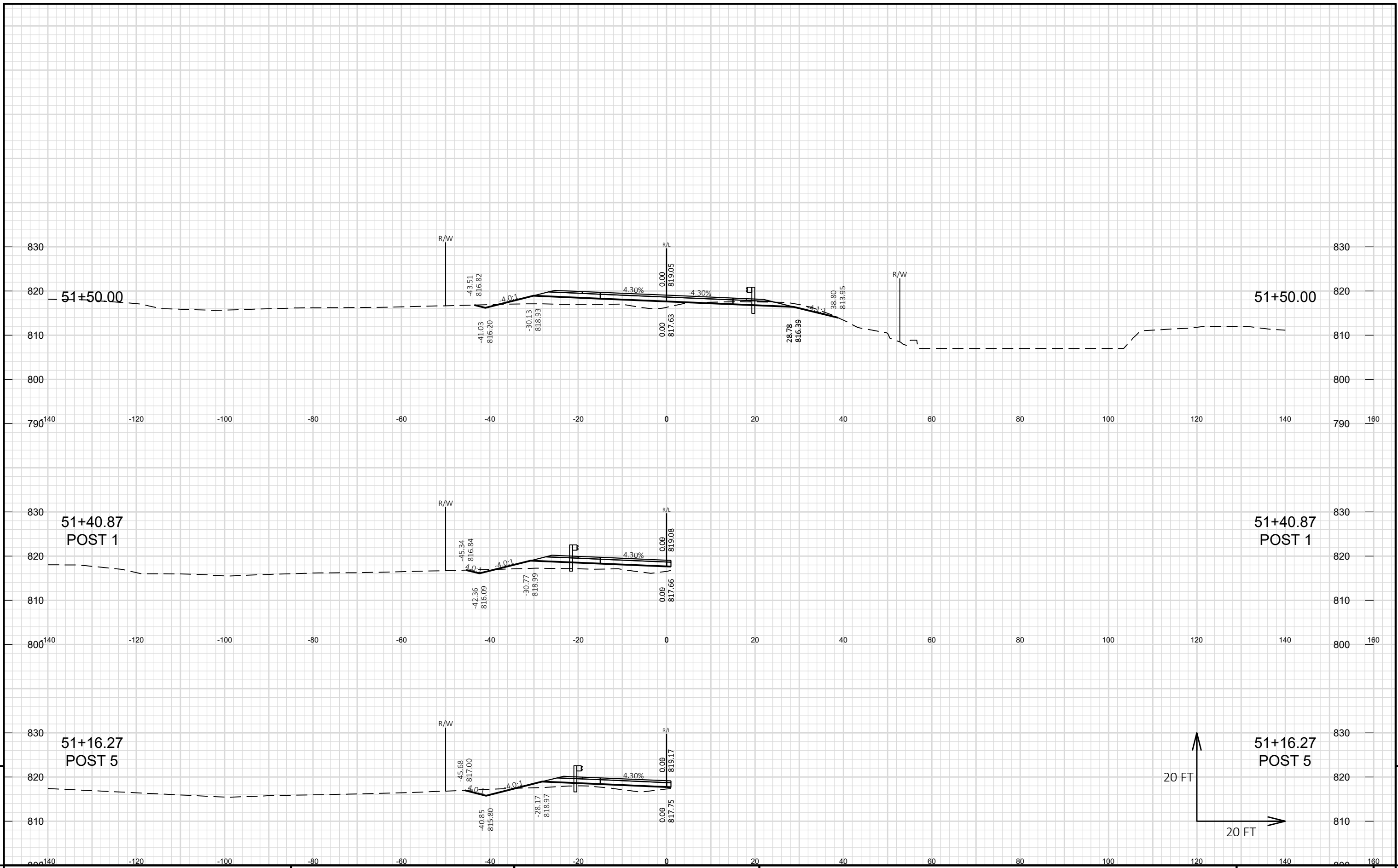
PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET      E



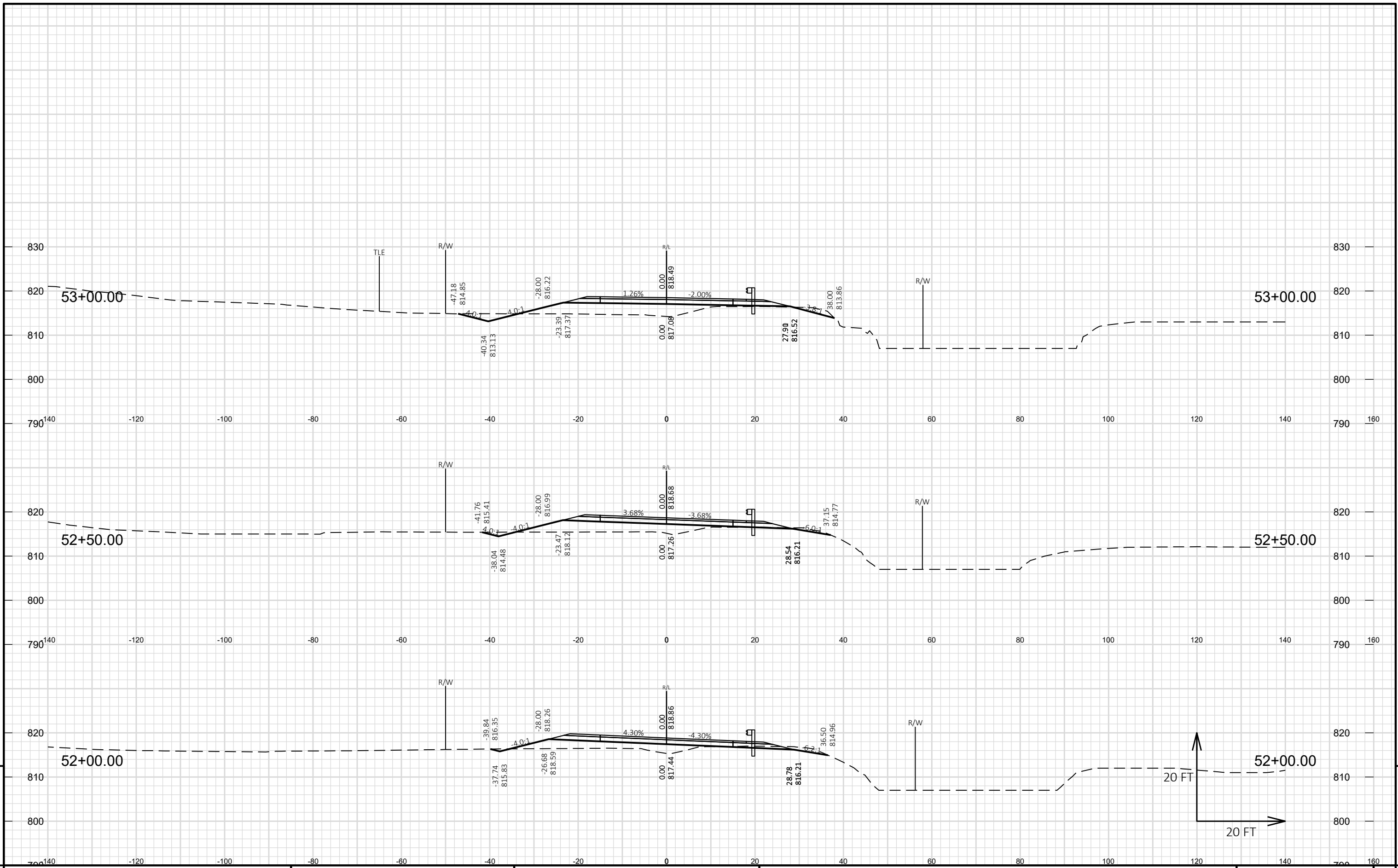
PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET 9



PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET 9



PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET      E



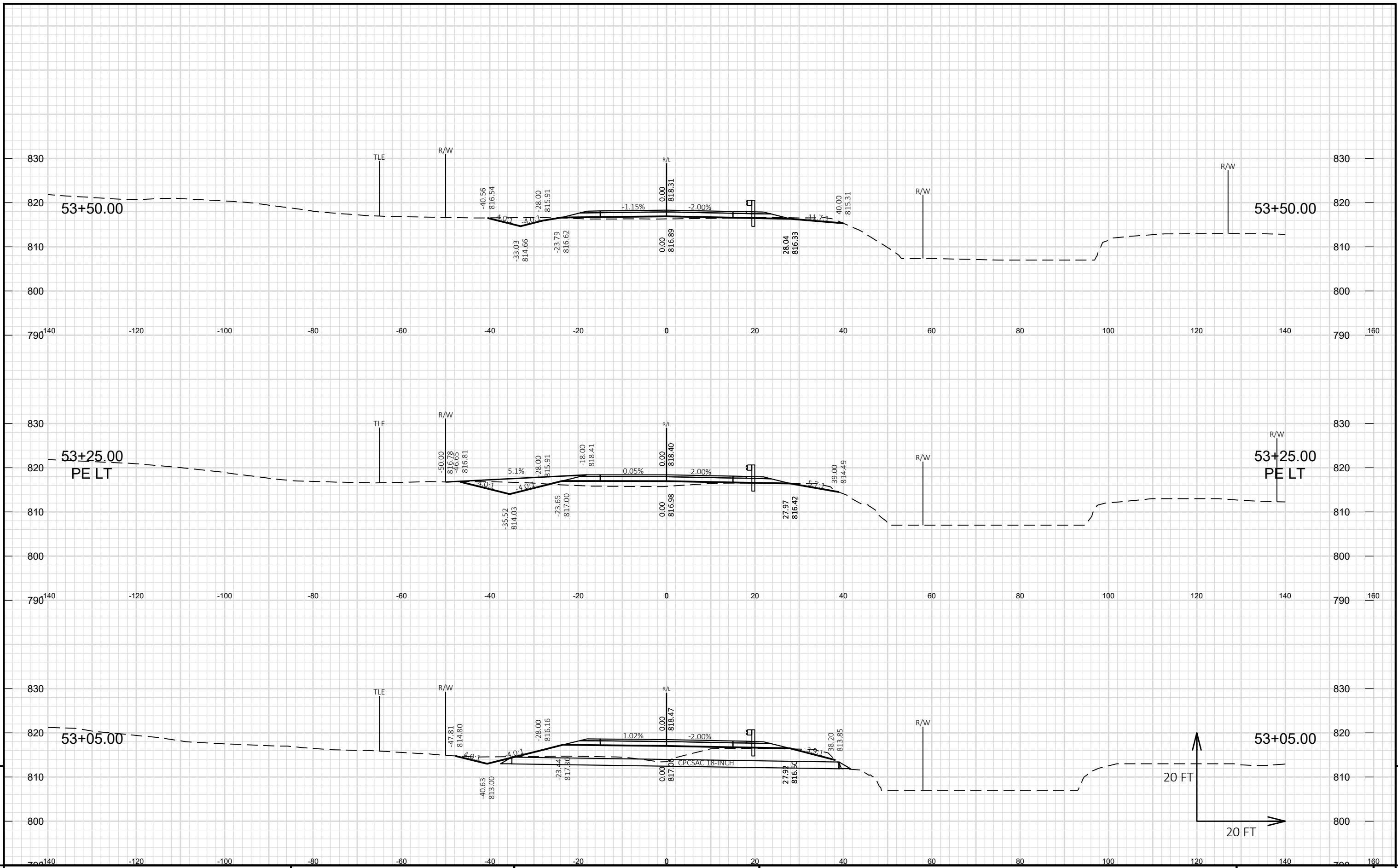
9

9

PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET      E

FILE NAME : S:\CURRPRO\FONDDUCO\FOND DU LAC, TOWN OF\HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETSPLAN\48091100-090201-XS.DWG      PLOT DATE : 10/25/2021 10:39 AM      PLOT BY : BENJAMIN OITZINGER      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:20 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 009



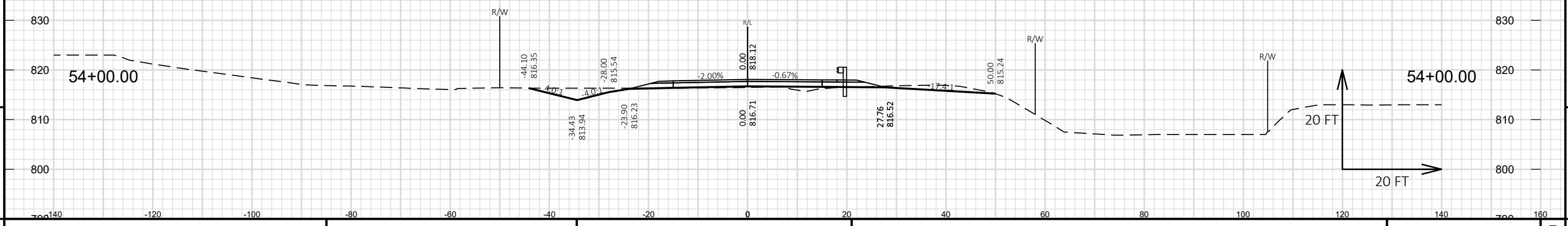
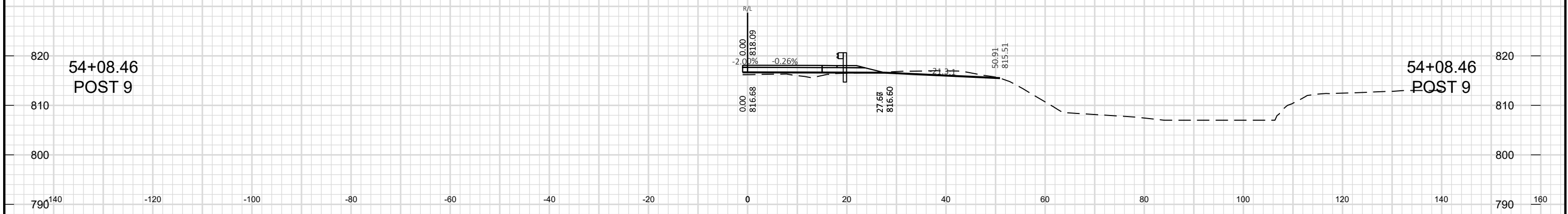
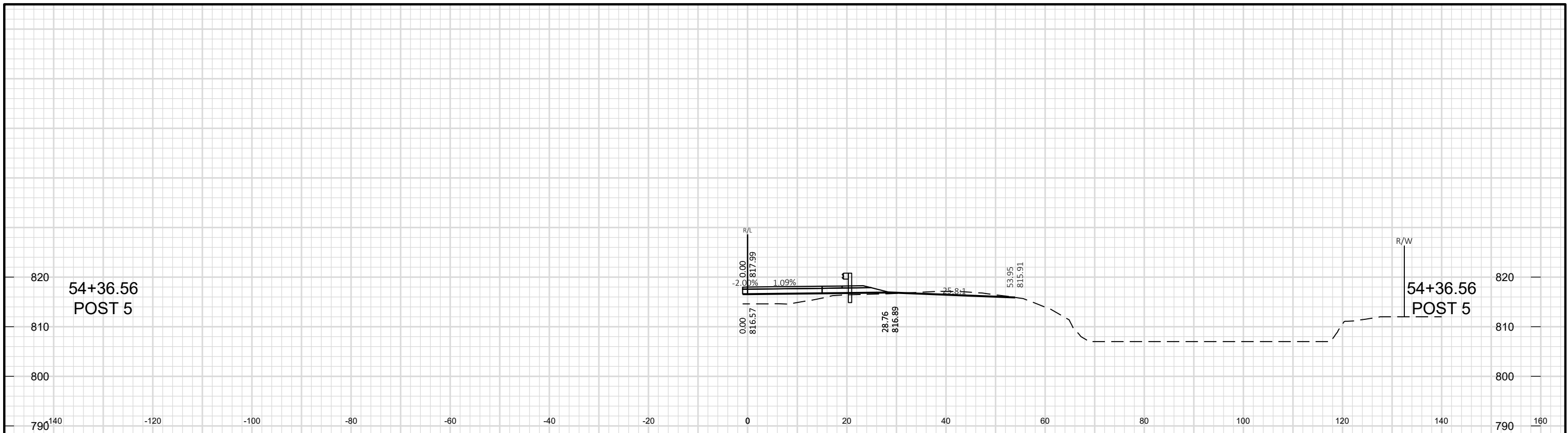
9

9

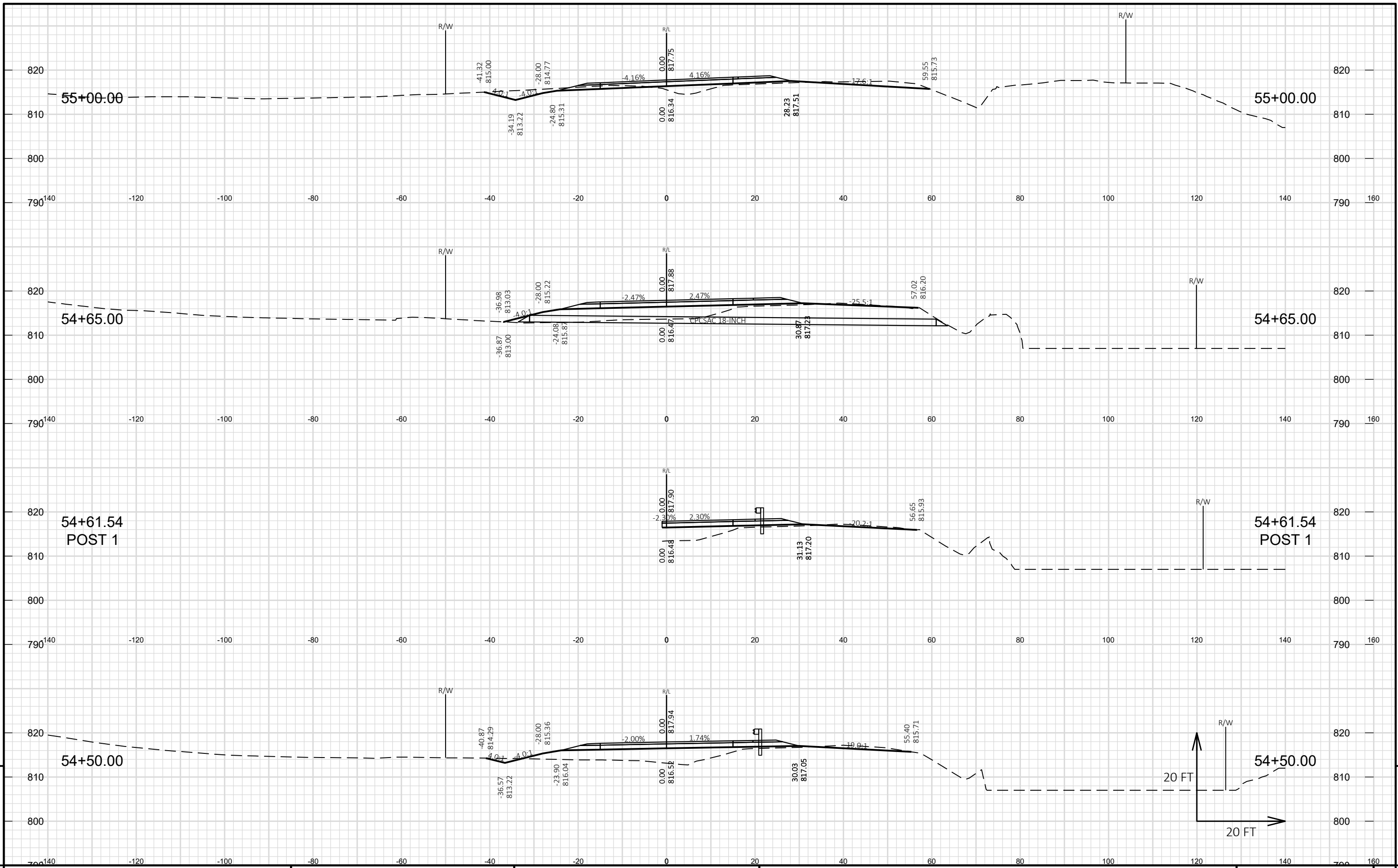
PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET      E

FILE NAME : S:\CURRPRO\FONDDUCO\FOND DU LAC, TOWN OF\HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETSPLAN\48091100-090201-XS.DWG      PLOT DATE : 10/25/2021 10:39 AM      PLOT BY : BENJAMIN OITZINGER      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:20 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 010



PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET      E

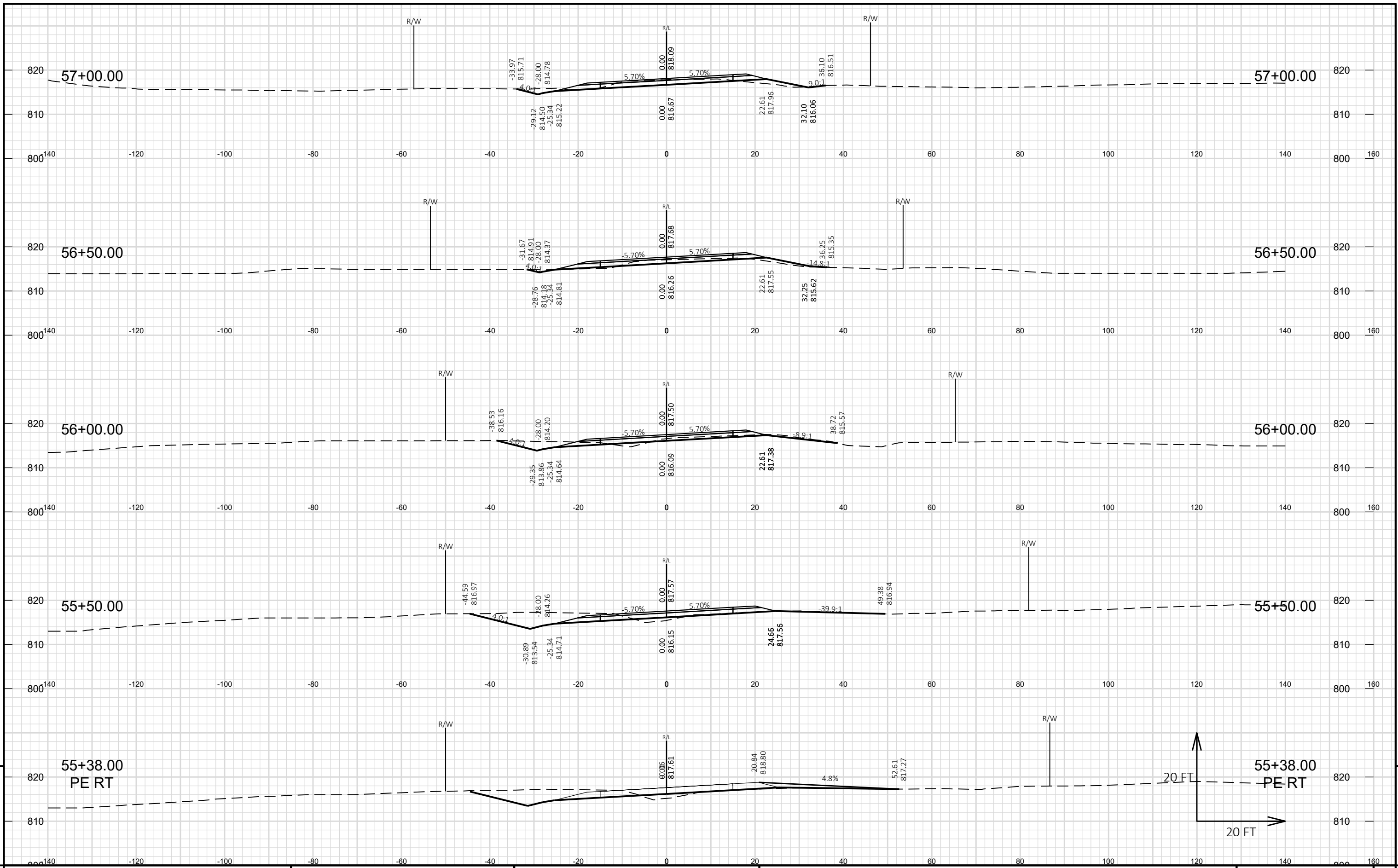


PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET 9

FILE NAME : S:\CURRPRO\FONDUCO\FOND DU LAC, TOWN OF\HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETSPLAN\48091100-090201-XS.DWG      PLOT DATE : 10/25/2021 10:39 AM      PLOT BY : BENJAMIN OITZINGER      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:20 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 012





PROJECT NO: 4809-11-71

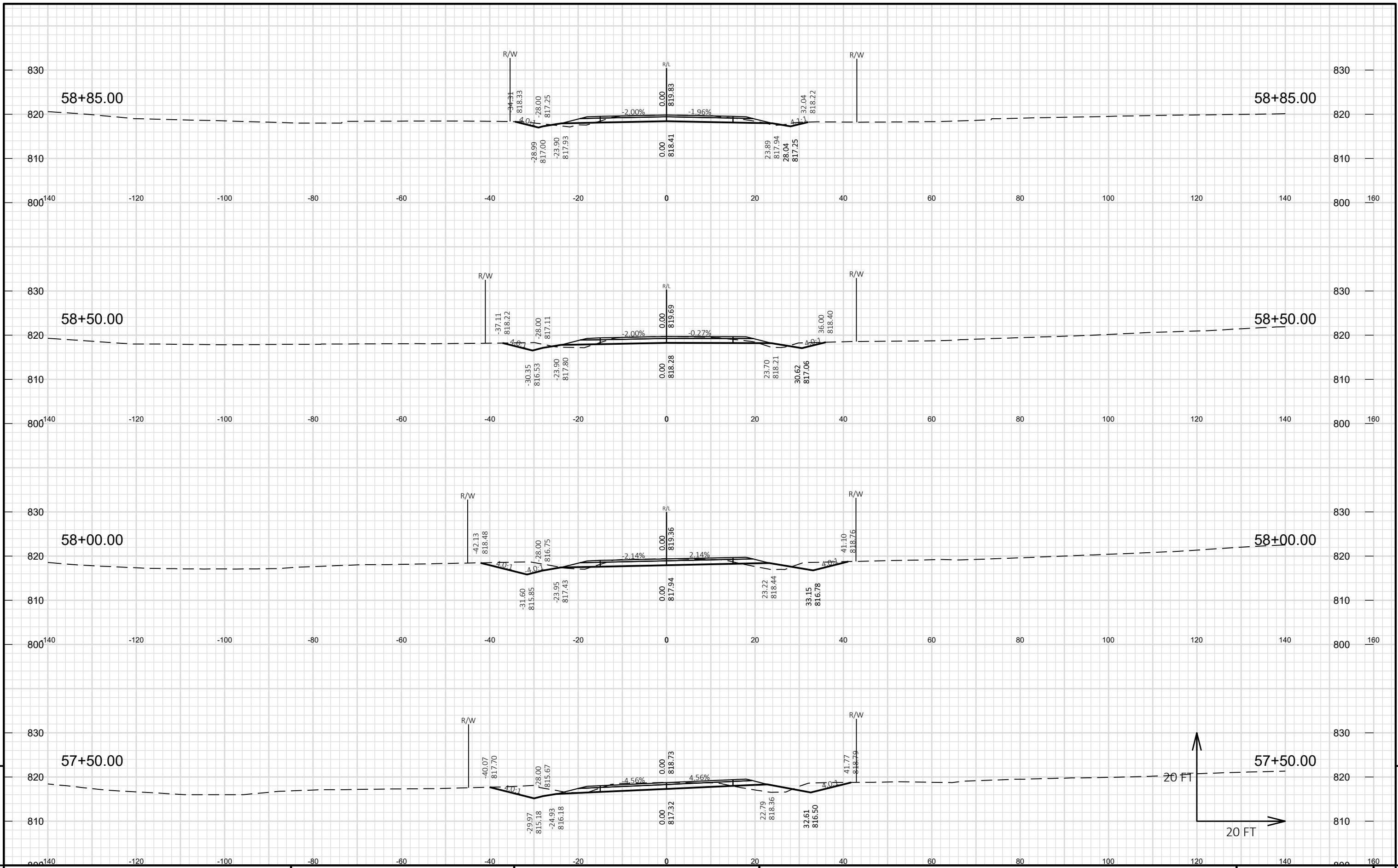
HWY: HICKORY ROAD

COUNTY: FOND DU LAC

CROSS SECTIONS: HICKORY ROAD

SHEET

E



PROJECT NO: 4809-11-71      HWY: HICKORY ROAD      COUNTY: FOND DU LAC      CROSS SECTIONS: HICKORY ROAD      SHEET 9

FILE NAME: S:\CURRPRO\FONDUCO\FOND DU LAC, TOWN OF\HICKORY ROAD BRIDGE\CIVIL3D\HICKORYRD\SHEETSPLAN\48091100-090201-XS.DWG      PLOT DATE: 10/25/2021 10:39 AM      PLOT BY: BENJAMIN OITZINGER      PLOT NAME:      PLOT SCALE: 1 IN:20 FT HORZ. / 1 IN:20 FT VERT.      WISDOT/CADD SHEET 49

# Notes



## ***Wisconsin Department of Transportation***

Dedicated people creating transportation solutions through innovation and exceptional service.

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