

RHI

WITH: N/A

PROJECT ID:

9302-00-70

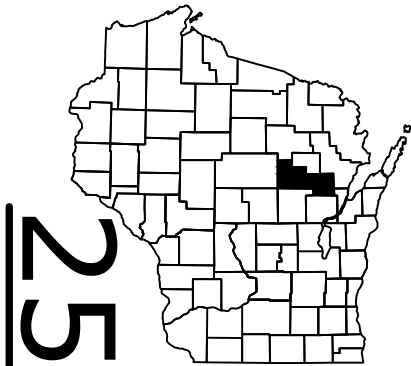
COUNTY:

SHAWANO

December 2024
ORDER OF SHEETS

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

TOTAL SHEETS = 46



DESIGN DESIGNATION

A.A.D.T.	2025	=	120
A.A.D.T.	2045	=	120
D.H.V.		=	20
D.D.		=	60/40
T.		=	7.8%
DESIGN SPEED		=	60 MPH
ESALS		=	22,000

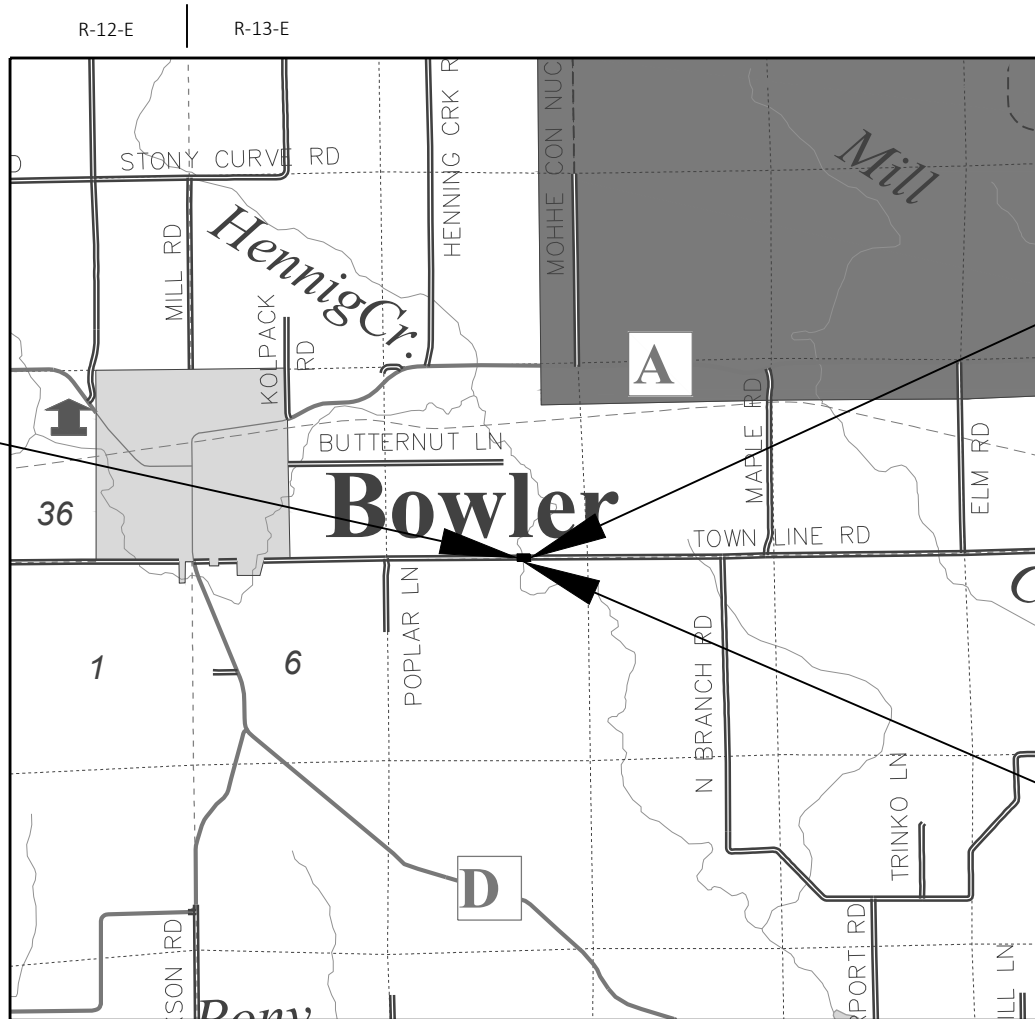
CONVENTIONAL SYMBOLS

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

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

BEGIN PROJECT
STA 15+00.00

Y: 298,985.160
X: 772,376.310



LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.040 MI

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

9302-00-70

FEDERAL PROJECT

PROJECT

WISC 2025118

CONTRACT

1

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T SENECA, SCHOOL HOUSE ROAD

N BRANCH EMBARRASS RIVER, B-58-0138

LOCAL STREET

SHAWANO COUNTY

STATE PROJECT NUMBER

9302-00-70

ACCEPTED FOR
SHAWANO COUNTY

Date 6-20-24 Hunter Hoff
County Engineer
(Signature and Title of Official)

ORIGINAL PLANS PREPARED BY:

SA
STRAND
ASSOCIATES®



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	STRAND ASSOCIATES
Designer	STRAND ASSOCIATES
Regional Examiner	NATHAN WAITE
Regional Supervisor	DAN ERVA

APPROVED FOR THE DEPARTMENT
DATE: 6/20/2024 [Signature]
(Signature)

E

GENERAL NOTES

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FINISHED WITH FERTILIZER, SEEDING AND EROSION MAT.

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

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

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

WETLANDS EXIST IN THE PROJECT AREA. DO NOT DISTURB AREAS OUTSIDE THE SLOPE INTERCEPTS.

PAVEMENT REMOVAL WILL BE TO THE NEAREST JOINT OR A SAWED EDGE WILL BE REQUIRED AS DIRECTED BY THE ENGINEER.

SILT FENCE SHALL BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER AND IN PLACE PRIOR TO CONSTRUCTION.

THE CONTRACTOR'S PAVING OPERATION SHALL BE CONSISTENT WITH THE TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING LANE.

SAWCUTS, AS SHOWN ON THE PLANS, ARE SUGGESTED LOCATIONS AND MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER TO BETTER SUIT FIELD CONDITIONS.

EXISTING SIGNS SHALL REMAIN IN PLACE UNLESS MOVED AS PART OF THE PLAN OR THE ENGINEER APPROVES THE REMOVAL.

UTILITIES CONTACTS

** ALLIANT ENERGY (ELECTRIC)

STEVE CYCHOSZ
708 NE 7TH STREET
MARION WI, 54950
PHONE: 715-754-4323
EMAIL: stevenychosz@alliantenergy.com

** CENTRAL WISCONSIN ELECTRIC COOPERATIVE (CWEC) (ELECTRIC)

DENNIS MAGEE
10401 LYSTUL ROAD PO BOX 100
ROSHOLT, WI 54473
PHONE: 715-701-2047
EMAIL: dennis.magee@cwecoop.com

** FRONTIER (COMMUNICATIONS)

CHRIS POLLACK
521 4TH STREET
WAUSAU, WI 54403
PHONE: 715-297-4773
EMAIL: christopher.pollack@ftr.com

**DENOTES DIGGERS HOTLINE MEMBER



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

OTHER CONTACTS

DESIGN CONSULTANT

TERA MEYER, P.E.
STRAND ASSOCIATES, INC.
910 WEST WINGRA DR.
MADISON, WI 53715
(608) 251-4843
tera.meyer@strand.com

DNR LIAISON

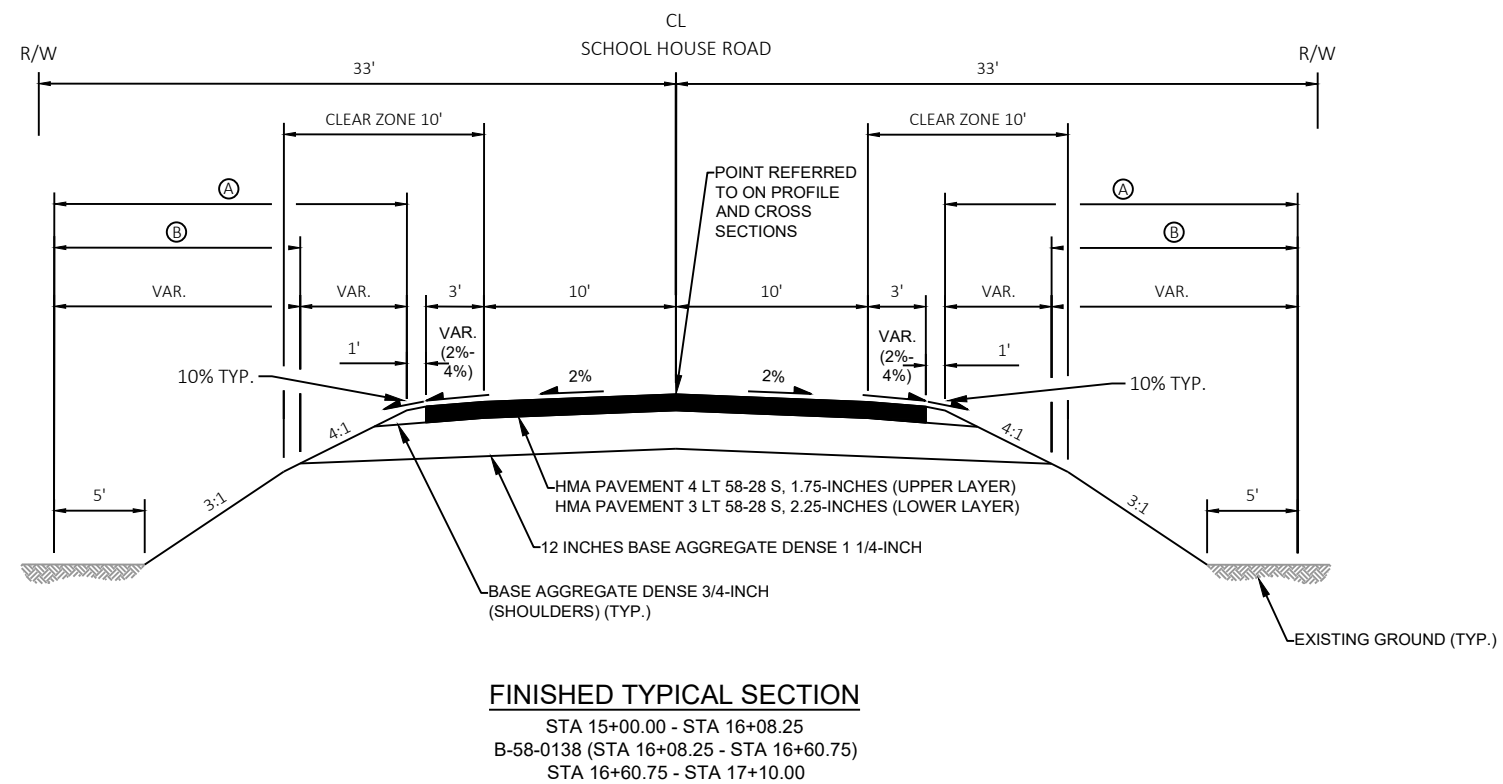
JIM DOPERALSKI, JR.
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
(920) 412-0165
james.doperalski@wisconsin.gov

SHAWANO COUNTY

HUNTER HOFFMAN, P.E.
SHAWANO COUNTY HIGHWAY DEPARTMENT
3035 EAST RICHMOND STREET
SHAWANO, WI 54166
(715) 526-9182
hunter.hoffman@shawanocountywi.gov

WISDOT CONTACT

NATHAN WAITE
WISDOT NC REGION
510 HANSON LAKE ROAD
RHINELANDER, WI 54501
(715) 365-5762
nathaniel.waite@dot.wi.gov

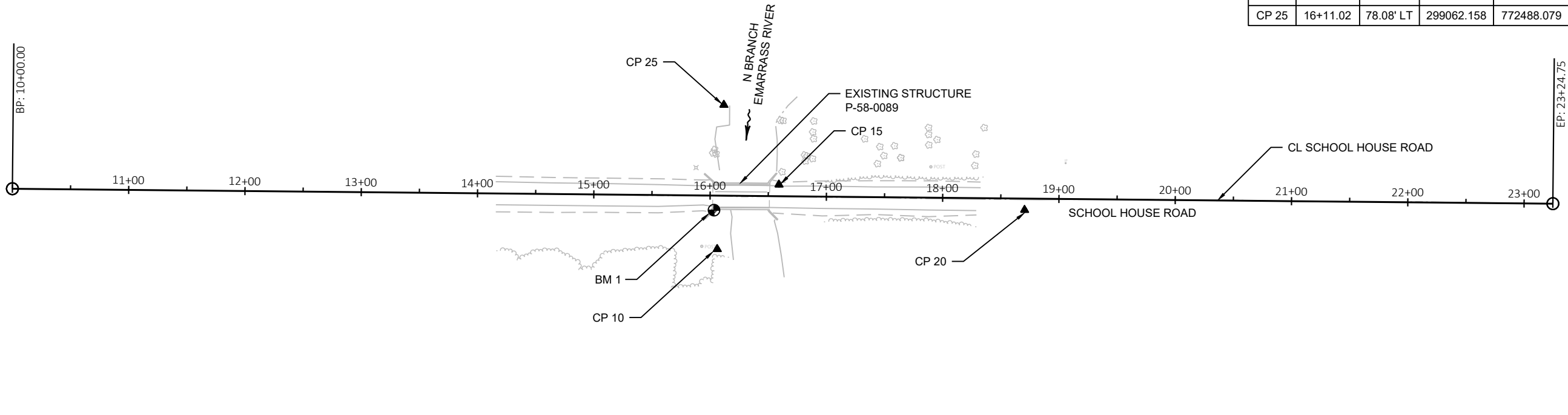


- ☐ (A) SEEDING MIXTURE NO. 20 AND FERTILIZER TYPE A.
- ☐ (B) SALVAGED TOPSOIL AND EROSION MAT URBAN CLASS I TYPE A

BENCH MARKS				
NO.	STATION	OFFSET	ELEV.	DESCRIPTION
BM 1	16+03.44	12.57 RT'	1026.27	SW WINGWALL

CONTROL POINTS AND BENCHMARK DETAIL

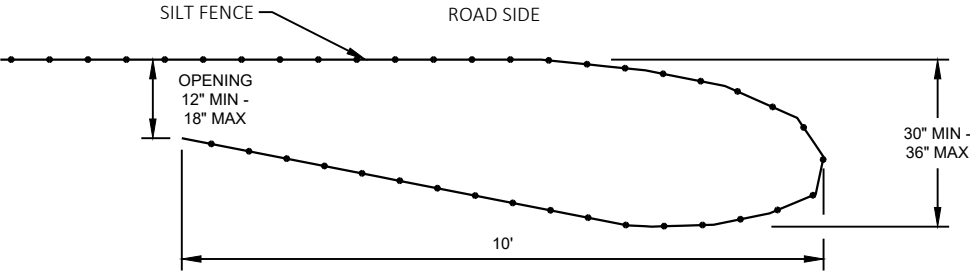
CONTROL POINTS					
NO.	STATION	OFFSET	Y	X	DESCRIPTION
CP 10	16+06.54	45.99'RT	298938.143	772482.398	ROD
CP 15	16+59.07	9.97' LT	298993.589	772535.468	½ INCH REBAR
CP 20	18+70.49	9.76' RT	298971.808	772746.687	MAG NAIL
CP 25	16+11.02	78.08' LT	299062.158	772488.079	SPIKE



RUNOFF COEFFICIENT TABLE

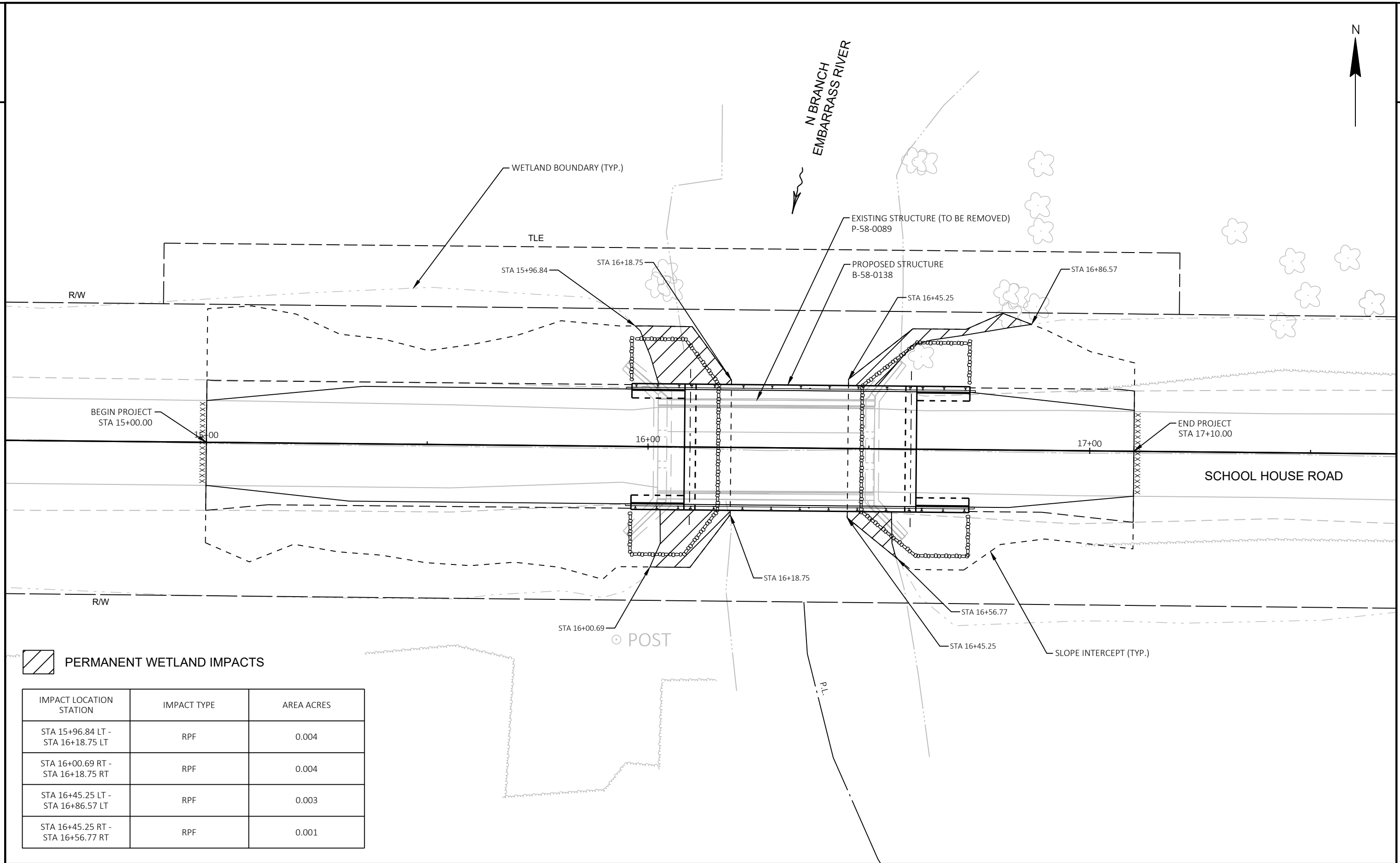
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33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

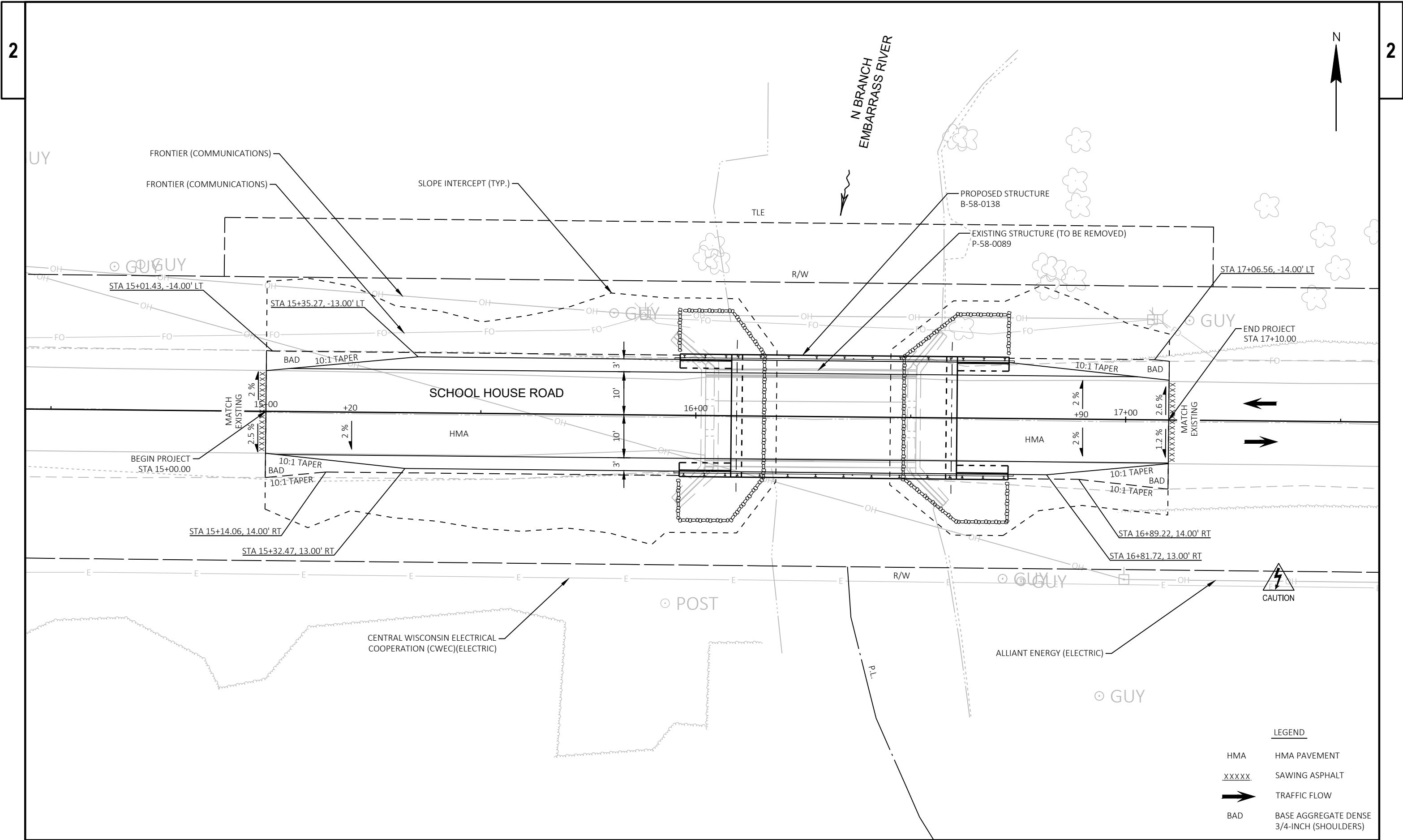
TOTAL PROJECT AREA = 0.370 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.257 ACRES

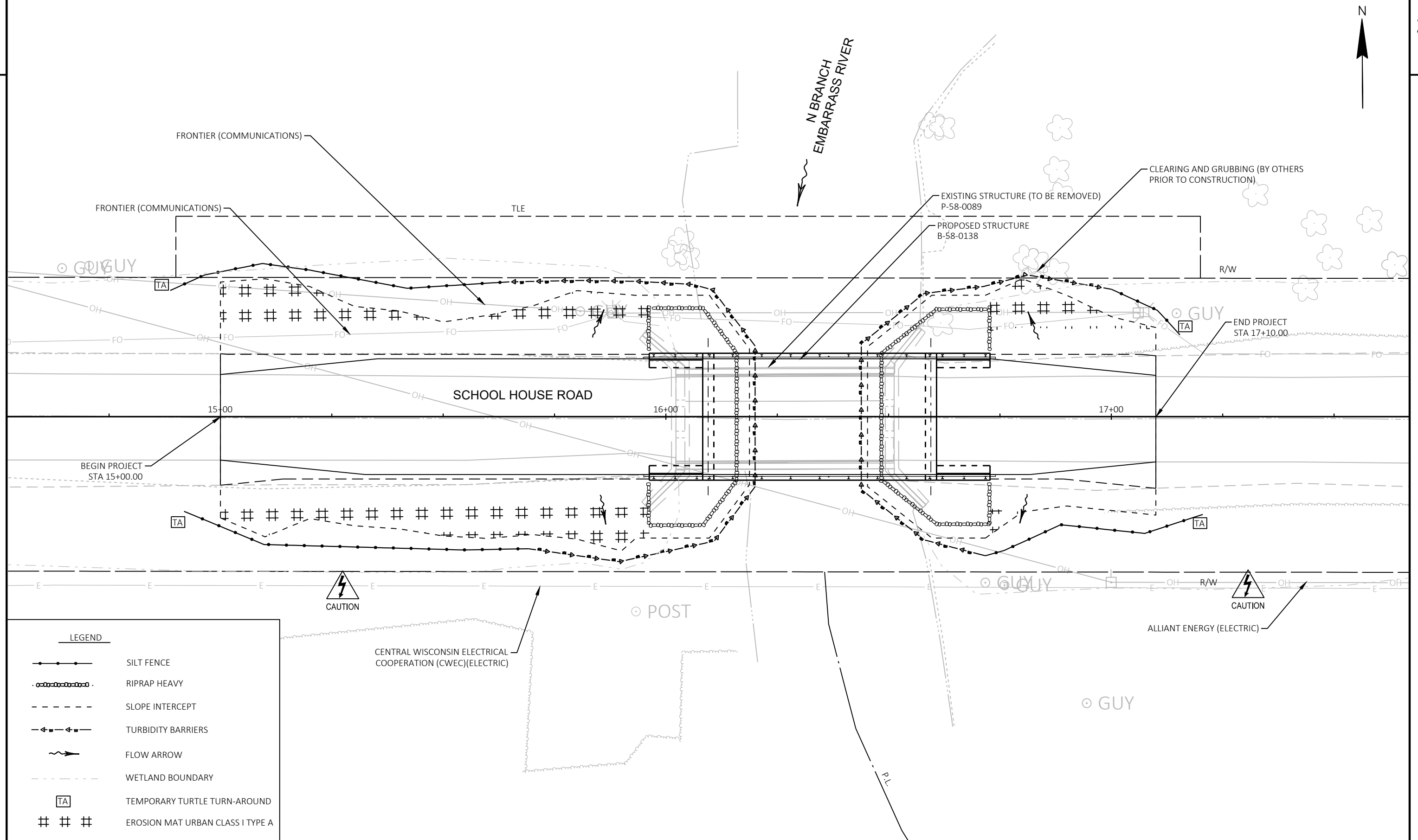


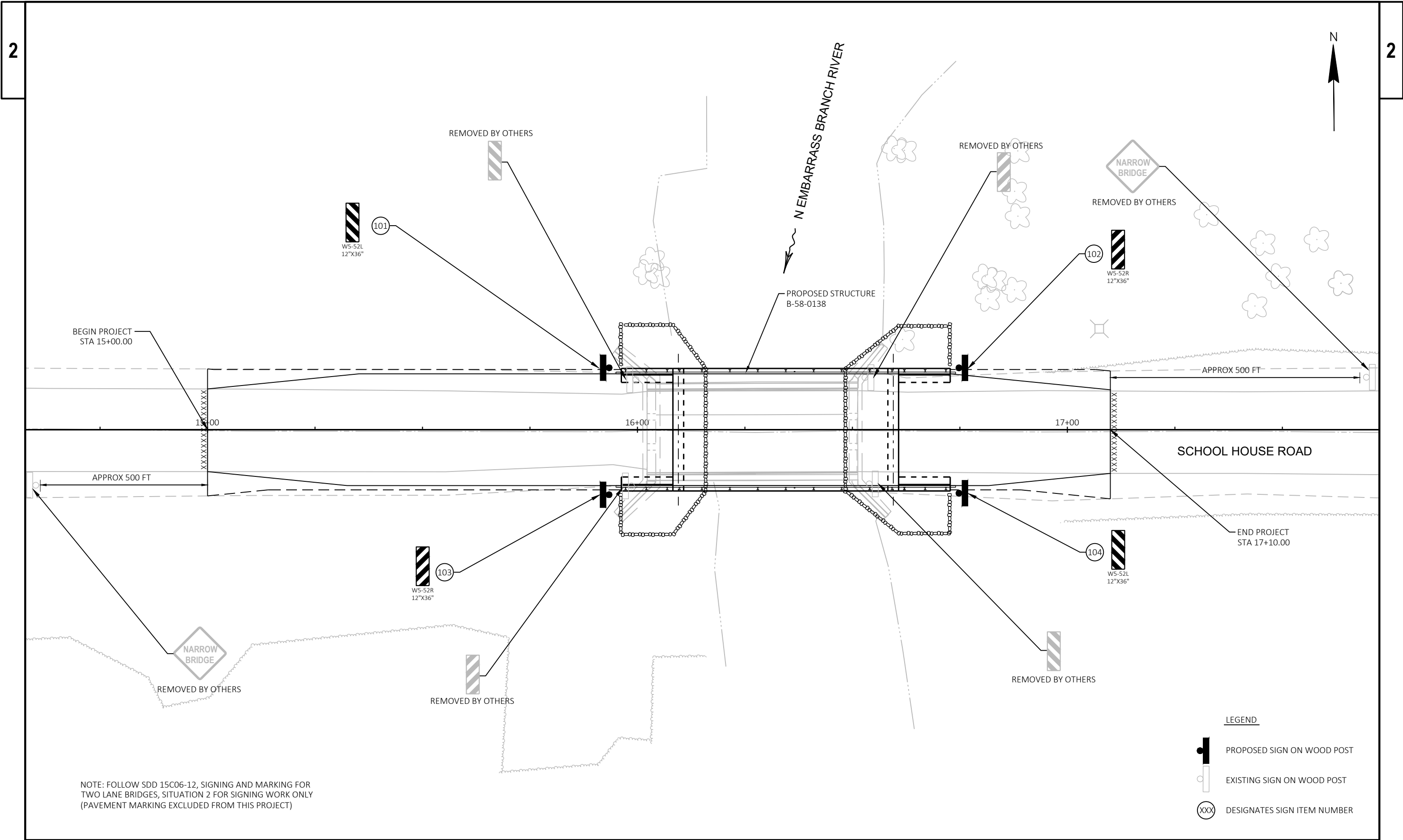
NOTE:
SILT FENCE POST FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND AND
TRENCHED IN ACCORDANCE WITH SILT FENCE REQUIREMENTS. TURN AROUND TO BE PAID AS "SILT FENCE".

STA 14+89 LT
STA 14+92 RT
STA 17+15 LT
STA 17+20 RT









PROJECT NO: 9302-00-70	HWY: SCHOOL HOUSE ROAD	COUNTY: SHAWANO	PERMANENT SIGNING	SHEET E
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Estimate Of Quantities

9302-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0270	Removing Structure Over Waterway Debris Capture (structure) 01. P-58-89	EACH	1.000	1.000
0004	205.0100	Excavation Common	CY	248.000	248.000
0006	206.1001	Excavation for Structures Bridges (structure) 01. B-58-0138	EACH	1.000	1.000
0008	210.1500	Backfill Structure Type A	TON	282.000	282.000
0010	213.0100	Finishing Roadway (project) 01. 9302-00-70	EACH	1.000	1.000
0012	305.0110	Base Aggregate Dense 3/4-Inch	TON	15.000	15.000
0014	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	355.000	355.000
0016	312.0110	Select Crushed Material	TON	23.000	23.000
0018	455.0605	Tack Coat	GAL	21.000	21.000
0020	460.2000	Incentive Density HMA Pavement	DOL	70.000	70.000
0022	460.5223	HMA Pavement 3 LT 58-28 S	TON	54.000	54.000
0024	460.5224	HMA Pavement 4 LT 58-28 S	TON	42.000	42.000
0026	502.0100	Concrete Masonry Bridges	CY	199.000	199.000
0028	502.3200	Protective Surface Treatment	SY	228.000	228.000
0030	505.0400	Bar Steel Reinforcement HS Structures	LB	3,400.000	3,400.000
0032	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	25,370.000	25,370.000
0034	513.4061	Railing Tubular Type M	LF	158.000	158.000
0036	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0038	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	360.000	360.000
0040	606.0300	Riprap Heavy	CY	106.000	106.000
0042	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	186.000	186.000
0044	618.0100	Maintenance and Repair of Haul Roads (project) 01. 9302-00-70	EACH	1.000	1.000
0046	619.1000	Mobilization	EACH	1.000	1.000
0048	624.0100	Water	MGAL	6.000	6.000
0050	625.0500	Salvaged Topsoil	SY	194.000	194.000
0052	627.0200	Mulching	SY	180.000	180.000
0054	628.1504	Silt Fence	LF	533.000	533.000
0056	628.1520	Silt Fence Maintenance	LF	790.000	790.000
0058	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0060	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0062	628.2006	Erosion Mat Urban Class I Type A	SY	190.000	190.000
0064	628.6005	Turbidity Barriers	SY	344.000	344.000
0066	628.7560	Tracking Pads	EACH	2.000	2.000
0068	629.0205	Fertilizer Type A	CWT	0.100	0.100
0070	630.0120	Seeding Mixture No. 20	LB	11.000	11.000
0072	630.0300	Seeding Borrow Pit	LB	5.000	5.000
0074	630.0500	Seed Water	MGAL	14.000	14.000
0076	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0078	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0080	642.5201	Field Office Type C	EACH	1.000	1.000
0082	645.0111	Geotextile Type DF Schedule A	SY	44.000	44.000
0084	645.0120	Geotextile Type HR	SY	219.000	219.000
0086	650.4500	Construction Staking Subgrade	LF	159.000	159.000
0088	650.5000	Construction Staking Base	LF	159.000	159.000
0090	650.6501	Construction Staking Structure Layout (structure) 01. B-58-0138	EACH	1.000	1.000
0092	650.9911	Construction Staking Supplemental Control (project) 01. 9302-00-70	EACH	1.000	1.000
0094	650.9920	Construction Staking Slope Stakes	LF	159.000	159.000
0096	690.0150	Sawing Asphalt	LF	40.000	40.000
0098	715.0502	Incentive Strength Concrete Structures	DOL	1,194.000	1,194.000

Estimate Of Quantities

9302-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0102	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000

EARTHWORK												
205.0100			EXCAVATION COMMON (1)		AVAILABLE STRUCTURE EXCAVATION (4) CY	AVAILABLE MATERIAL (5) CY	EXPANDED EBS BACKFILL (6) FACTOR 1.25 CY	UNEXPANDED FILL CY	EXPANDED FILL (7) FACTOR 1.25 CY	MASS ORDINATE +/- (8) CY	WASTE CY	312.0110 SELECT CRUSHED MATERIAL FACTOR 1.75
CATEGORY	LOCATION	STA- STA	CUT (2)	EBS EXCAVATION (3) 5% OF CUT CY								
0010	SCHOOL HOUSE ROAD	15+00 - 17+10	235	13	174	409	16	6	8	228	228	23
TOTALS			248		174	409	16	6	8	228	228	23

NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(2) SALVAGED/UNSUALE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(3) EBS EXCAVATION TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL.
(4) AVAILABLE STRUCTURE EXCAVATION IS FOR INFORMATION ONLY AND IS INCLUDED IN BID ITEM "EXCAVATION FOR STRUCTURES B-58-0138"
(5) AVAILABLE MATERIAL = CUT + AVAILABLE STRUCTURE EXCAVATION
(6) EXPANDED EBS BACKFILL - THIS IS TO BE FILLED WITH SELECT CRUSHED MATERIAL. EBS BACKFILL FACTOR = 1.25. ITEM NUMBER 312.0110
(7) EXPANDED FILL FACTOR = 1.25
(8) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. POSITIVE QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. NEGATIVE INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

FINISHING ROADWAY		
CATEGORY	PROJECT	213.0100 EACH
0010	9302-00-70	1

ASPHALTIC ITEMS					
CATEGORY	STATION - STATION	LOCATION	460.5223 HMA PAVEMENT 3 LT 58-28 S TON	460.5224 HMA PAVEMENT 4 LT 58-28 S TON	455.0605 TACK COAT GAL
0010	15+00 - 16+08 16+61 - 17+10	LT+RT LT+RT	38 16	29 13	15 6
TOTALS			54	42	21

BASE AGGREGATE SUMMARY				
CATEGORY	STATION - STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON
0010	15+00 - 16+08 16+61 - 17+10	LT/RT LT/RT	10 5	245 110
TOTALS			15	355

MAINTENANCE AND REPAIR OF HAUL ROADS		
CATEGORY	PROJECT	618.0100 EACH
0030	9302-00-70	1

NOTE: HMA PAVEMENT WEIGHT CALCULATIONS BASED ON 112 LB/SY/IN.

WATER			
CATEGORY	STATION - STATION	624.0100 MGAL	REMARKS
0010	15+00 - 17+10	1 5	DUST CONTROL COMPACTION
TOTAL		6	

MOBILIZATION		
CATEGORY	PROJECT	619.1000 EACH
0010	9302-00-70	1

MOBILIZATIONS EROSION CONTROL			
CATEGORY	PROJECT	628.1905	628.1910
		MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	9302-00-70	4	3

EROSION CONTROL					
CATEGORY	STATION - STATION	LOCATION	628.1504	628.1520	628.6005
			SILT FENCE LF	SILT FENCE MAINTENANCE LF	TURBIDITY BARRIERS SY
0010	15+00 - 16+08 16+61 - 17+10	LT/RT	185	275	150
		LT/RT	98	145	125
		WASTE SITE	140	210	---
		UNDISTRIBUTED	110	160	69
		TOTALS	533	790	344

TRACKING PADS		
CATEGORY	LOCATION	628.7560 EACH
0010	UNDISTRIBUTED	2

FIELD OFFICE TYPE C		
CATEGORY	PROJECT	642.5201 EACH
0010	9302-00-70	1

CONSTRUCTION STAKING					
CATEGORY	STATION - STATION	LOCATION	650.4500	650.5000	650.9920
			SUBGRADE LF	BASE LF	SLOPE STAKES LF
0010	15+00 - 16+08	LT/RT	110	110	110
	16+61 - 17+10	LT/RT	49	49	49
TOTALS			159	159	159

FINISHING ITEMS									
CATEGORY	STATION - STATION	LOCATION	625.0500	627.0200	628.2006	629.0205	630.0120	630.0300	630.0500
			SALVAGED TOPSOIL SY	MULCHING SY	EROSION MAT URBAN CLASS I TYPE A SY	FERTILIZER TYPE A CWT	SEEDING MIXTURE NO. 20 LB	SEEDING BORROW PIT LB	SEED WATER MGAL
0010	15+00 - 16+08 16+61 - 17+10	LT/RT	125	---	120	---	7	---	6
		LT/RT	30	---	30	---	2	---	2
		WASTE SITE	---	140	---	0.1	---	4	3
		UNDISTRIBUTED	39	40	40	---	2	1	3
		TOTALS	194	180	190	0.1	11	5	14

SAWING		
CATEGORY	LOCATION	690.0150 ASPHALT LF
0010	15+00	20
	17+10	20
TOTAL		40

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT)		
CATEGORY	PROJECT	650.9911 EACH
0010	9302-00-70	1

SIGNING SUMMARY								
CATEGORY	SIGN NO.	APPROX. STA.	SIGN LOC.	SIGN CODE	SIGN MESSAGE	637.2230	634.0614	POSTS WOOD 4x6-INCH
						SIGN SIZE (W x H) IN	SIGNS TYPE II REFLECTIVE F SF	x 14-FT EACH
0010	101	15+91	LT	W5-52L	CLEARANCE STRIPER DOWN RIGHT	12 x 36	3.00	1
	102	16+73	LT	W5-52R	CLEARANCE STRIPER DOWN LEFT	12 x 36	3.00	1
	103	15+92	RT	W5-52R	CLEARANCE STRIPER DOWN LEFT	12 x 36	3.00	1
	104	16+73	RT	W5-52L	CLEARANCE STRIPER DOWN RIGHT	12 x 36	3.00	1
TOTALS							12.00	4

SCHEDULE OF LANDS
& INTERESTS REQUIRED

PARCEL NUMBER	OWNERS	INTEREST REQUIRED	R/W NEW	S.F. REQUIRED EXISTING	TOTAL	TLE S.F.
1	DANIEL J. HANAUER SR. CHILDREN'S TRUST & DANIEL J. HANAUER JR.	TLE	---	---	---	3178

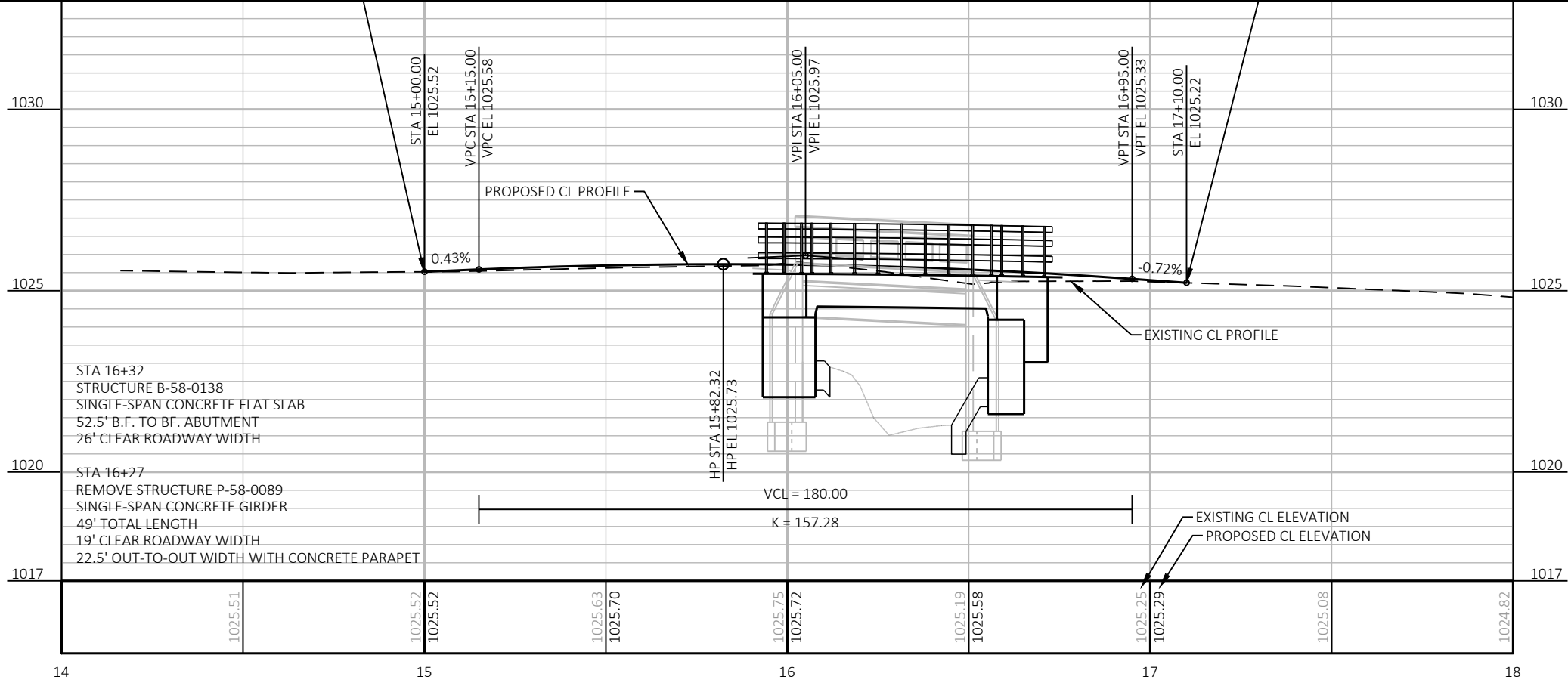
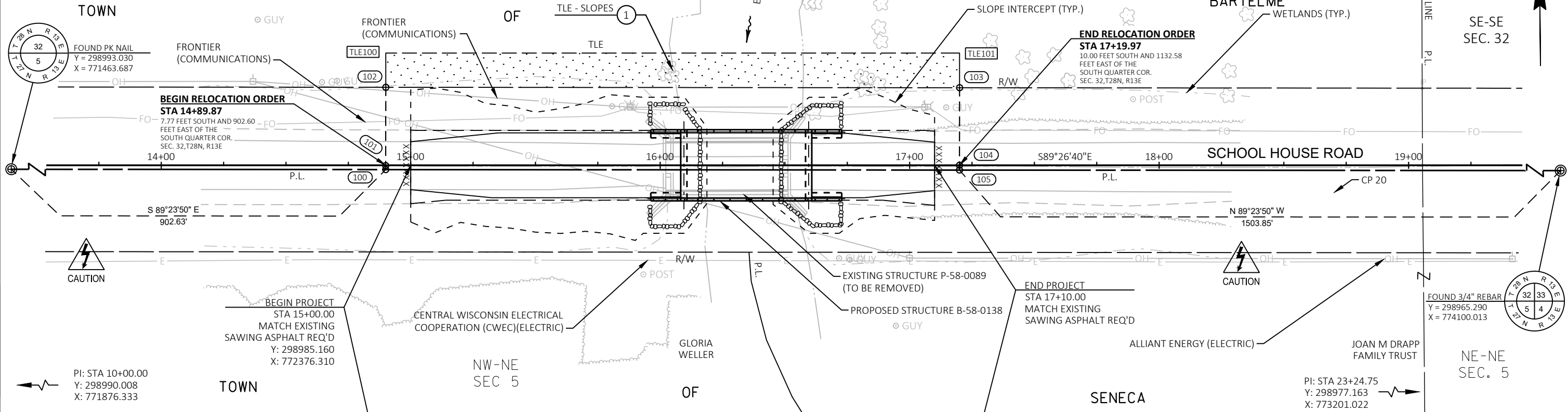
OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTEREST TO THE COUNTY

DANIEL J. HANAUER SR.
CHILDREN'S TRUST &
DANIEL J. HANAUER JR.

SW-SE
SEC. 32

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

EXISTING HIGHWAY RIGHT-OF-WAY ON SCHOOL HOUSE ROAD BASED ON THE SECTION LINE



STATION & OFFSET TABLE		
POINT	STATION	OFFSET
100	14+89.97	1.72'
101	14+89.97	0.12'
102	14+90.00	-31.28'
103	17+20.00	-31.09'
104	17+19.97	0.00'
105	17+19.97	1.91'
TLE100	14+90.00	-45.00'
TLE101	17+20.00	-45.00'

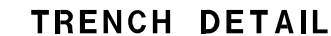
COURSE TABLE		
COURSE	BEARING	DISTANCE
100 - 101	N00° 36' 10"E	1.60'
101 - 102	N00° 36' 10"E	31.40'
102 - 103	S89° 23' 50"E	230.00'
103 - 104	S00° 36' 10"W	31.09'
104 - 105	S00° 36' 10"W	1.91'
105 - 100	N89° 23' 50"W	230.00'
102 - TLE100	N00° 33' 20"E	13.72'
TLE100 - TLE101	S89° 26' 40"E	230.00'
TLE101 - 103	S00° 33' 20"W	13.91'

Standard Detail Drawing List

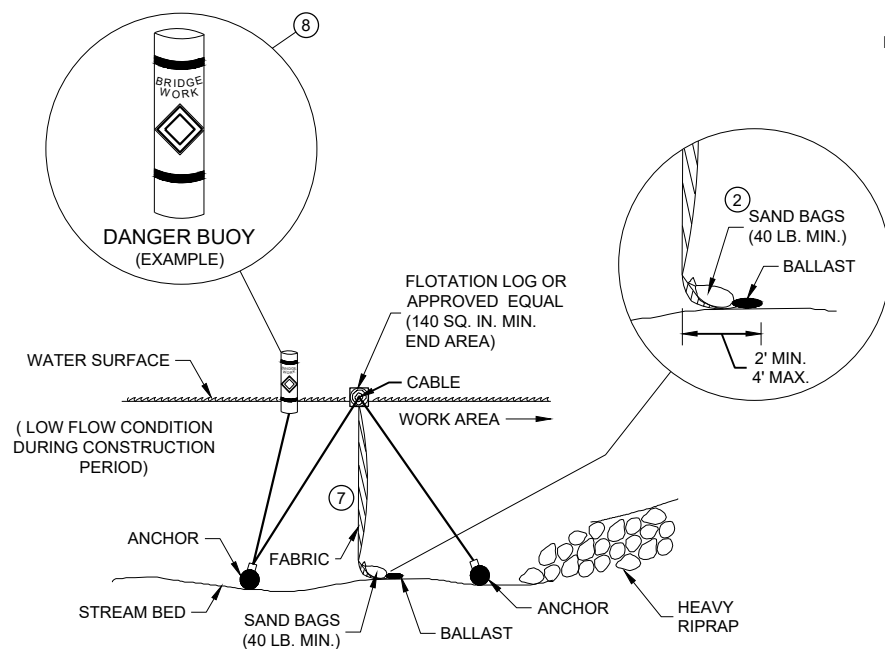
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-10A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



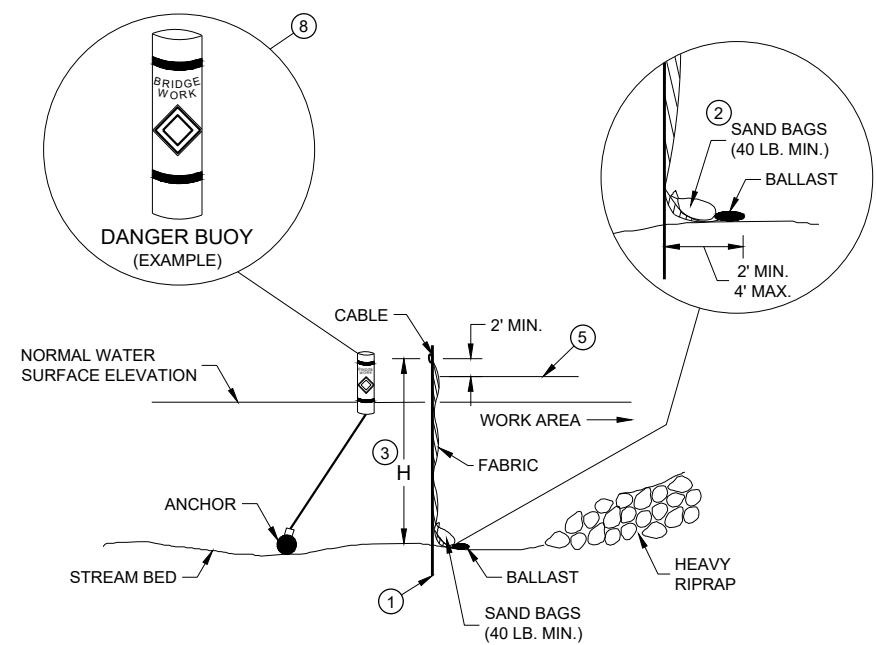
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" 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.



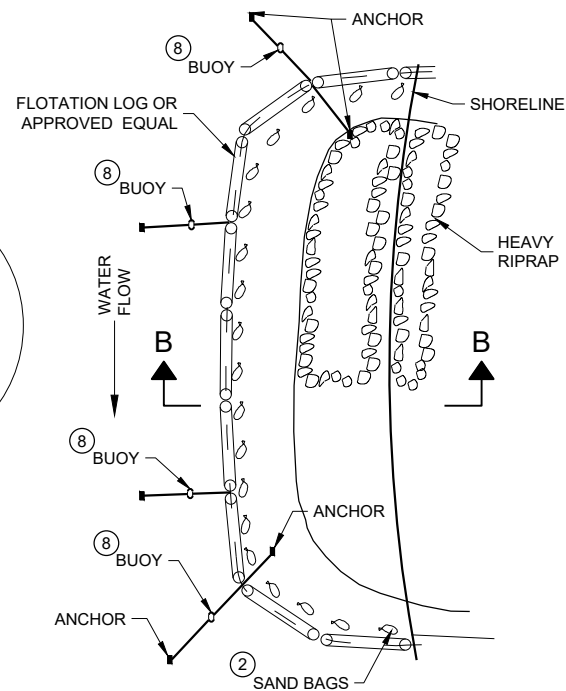
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>4-29-05</u> DATE	<u>/S/ Beth Cannestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



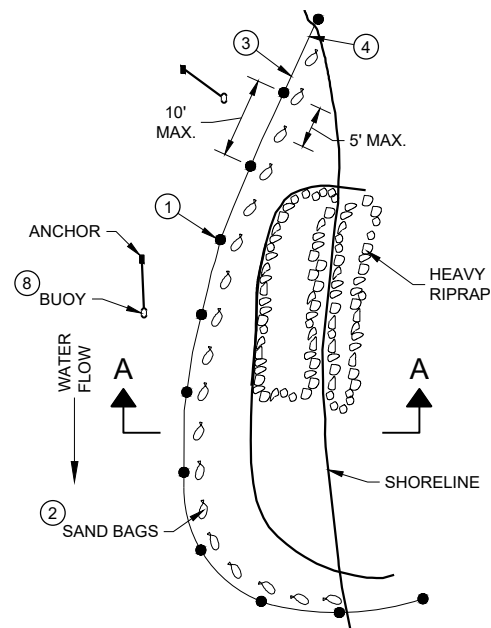
SECTION B - B

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

SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION

PLAN VIEW



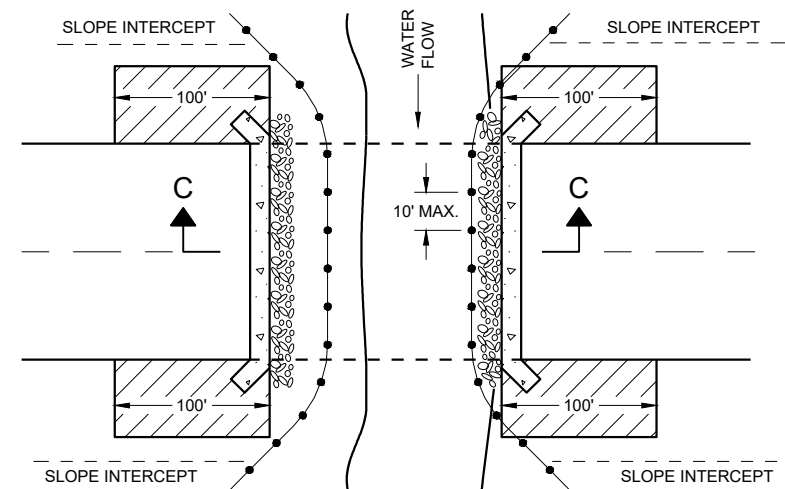
PLAN VIEW

TURBIDITY BARRIER PLACEMENT DETAILS**GENERAL NOTES**

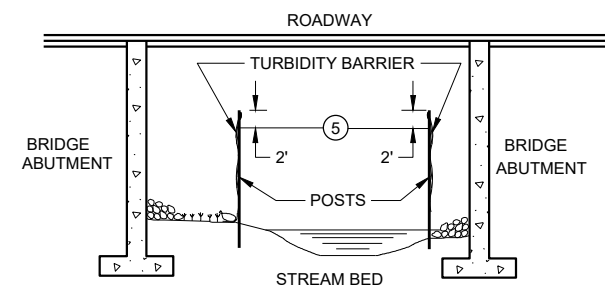
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

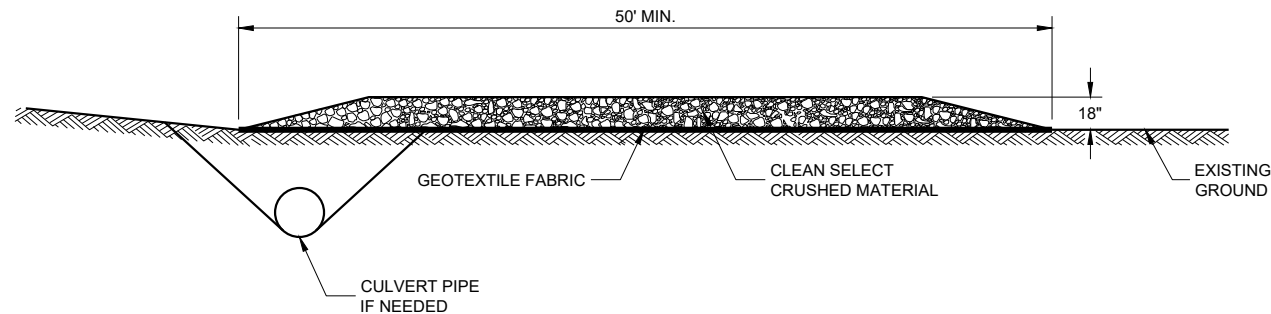
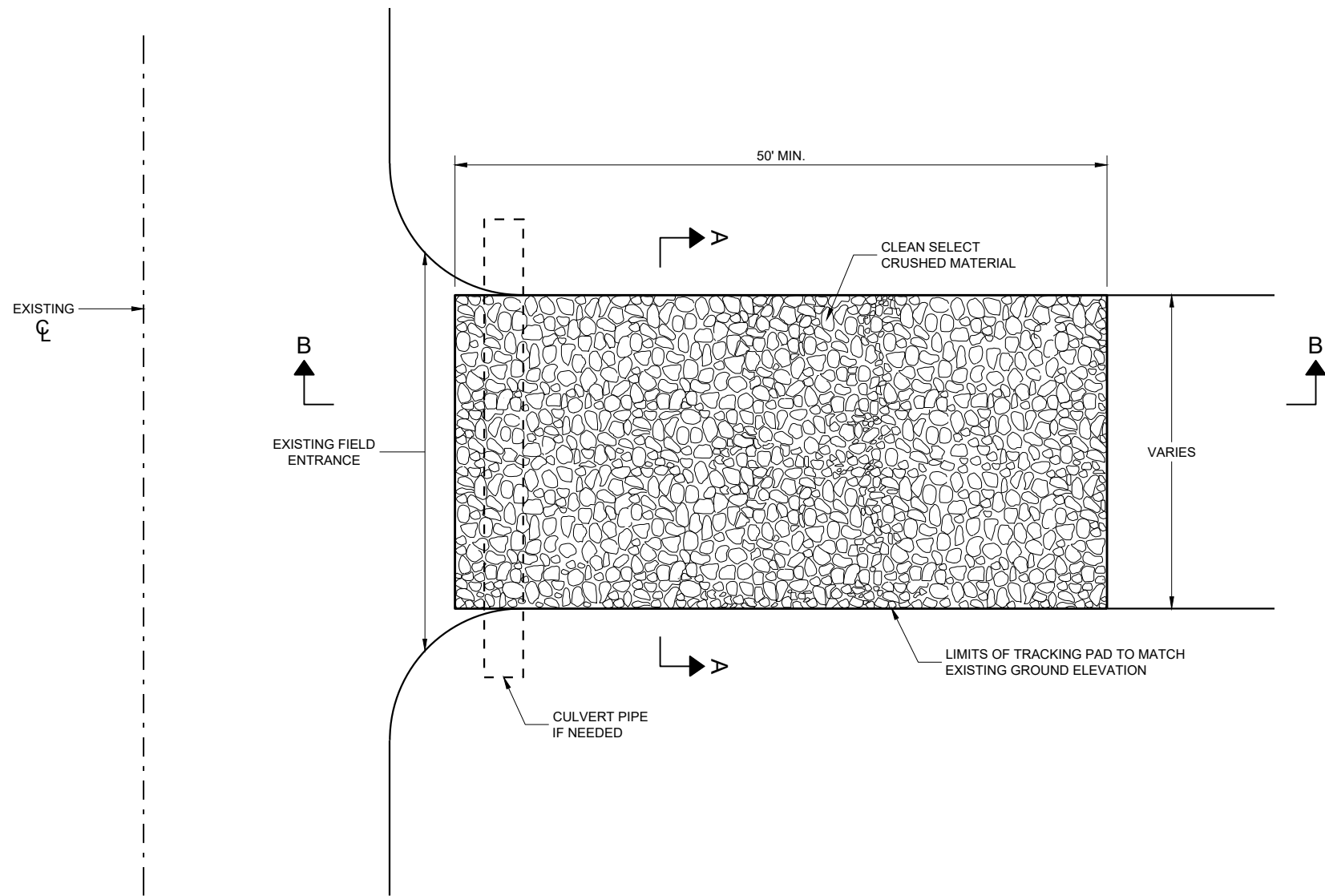
DATE

FHWA

/S/ Beth Canestra

CHIEF ROADWAY DEVELOPMENT

ENGINEER



SECTION B - B

GENERAL NOTES

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

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

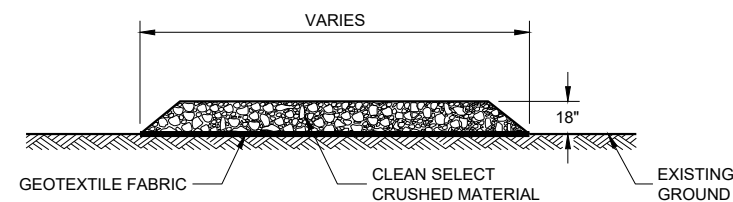
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

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

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

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



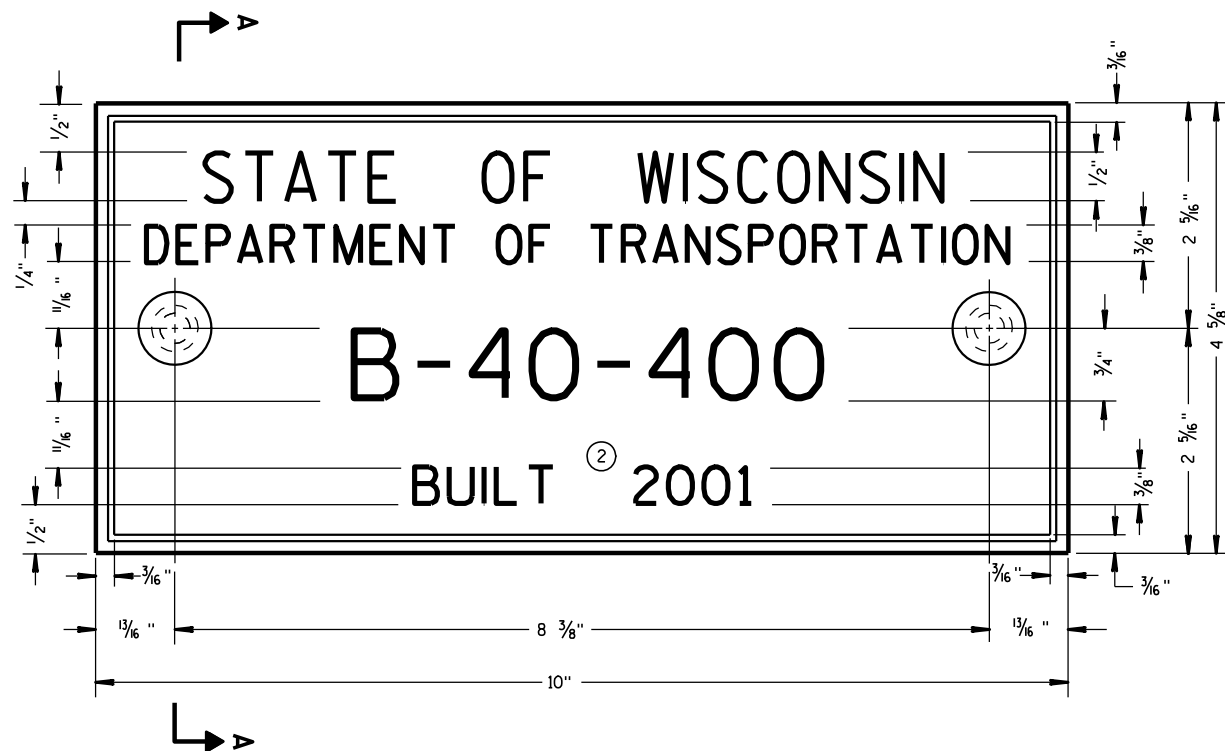
SECTION A - A

TRACKING PAD

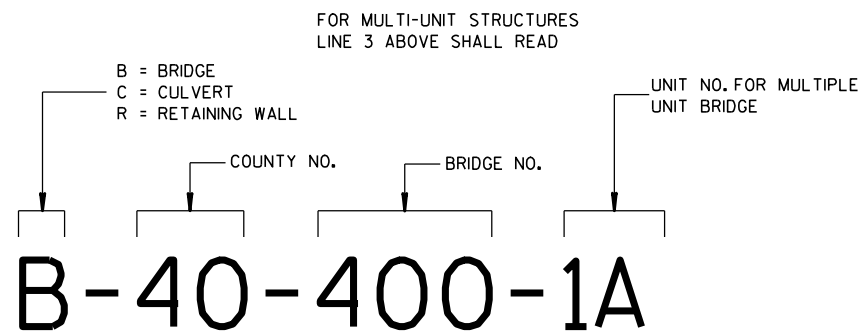
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



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



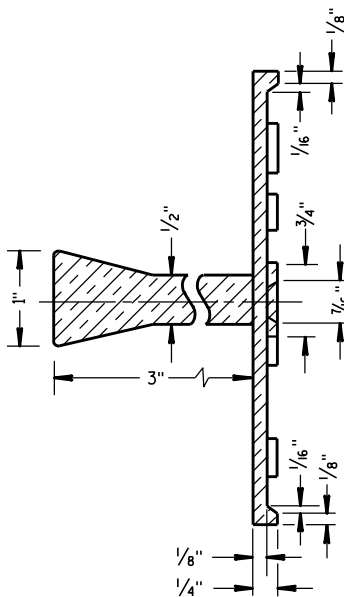
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

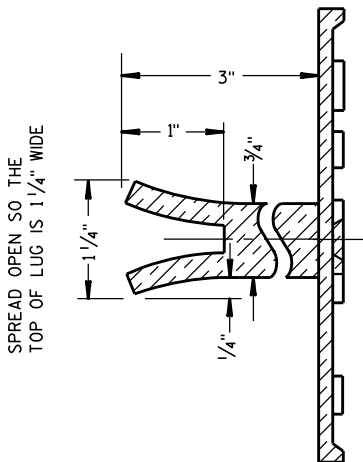
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

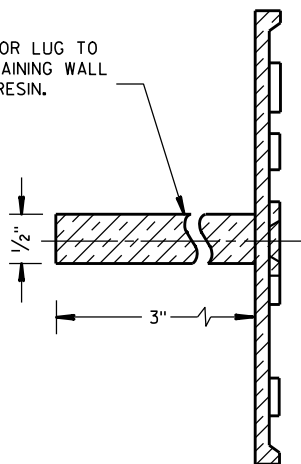


SECTION A-A



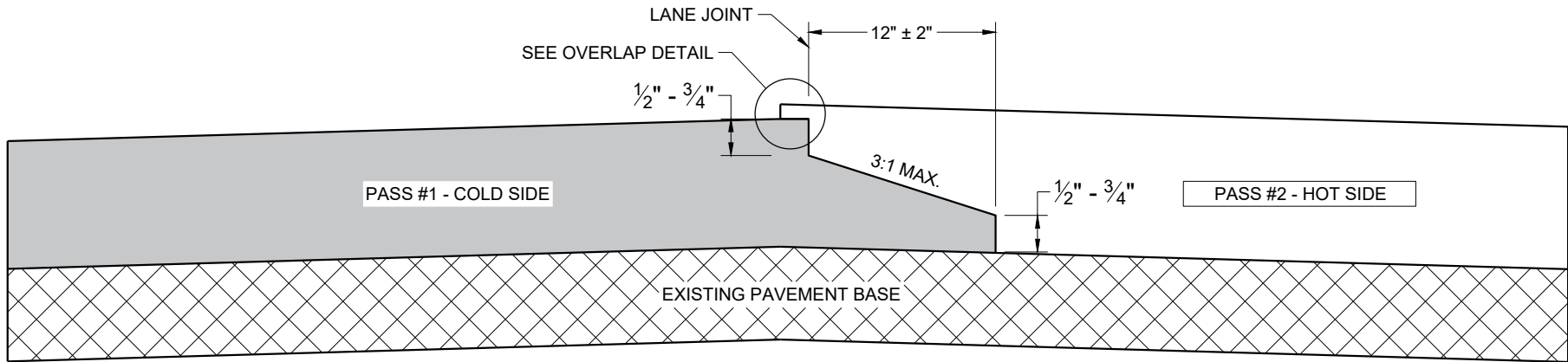
ALTERNATE LUG

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

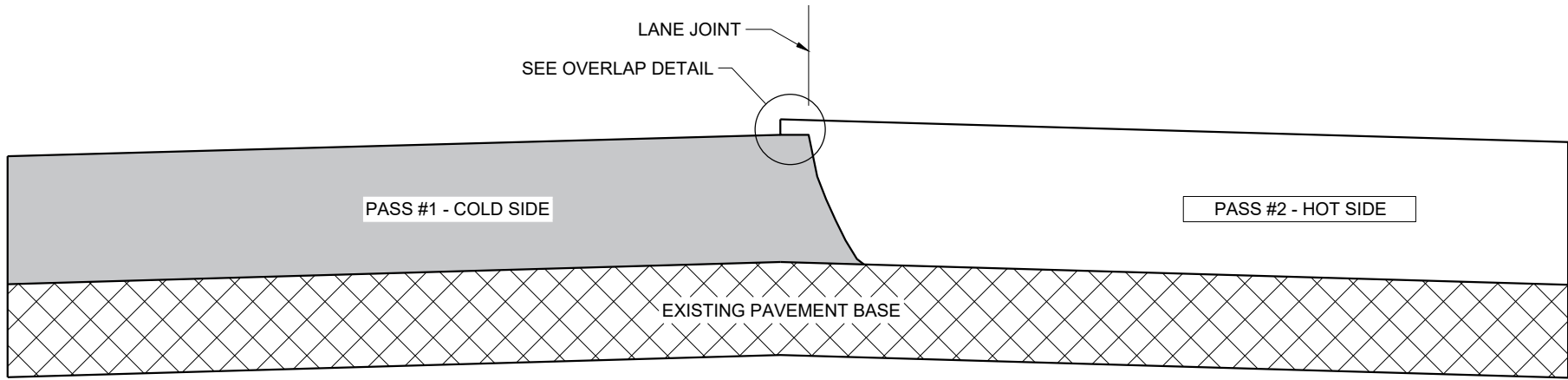


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

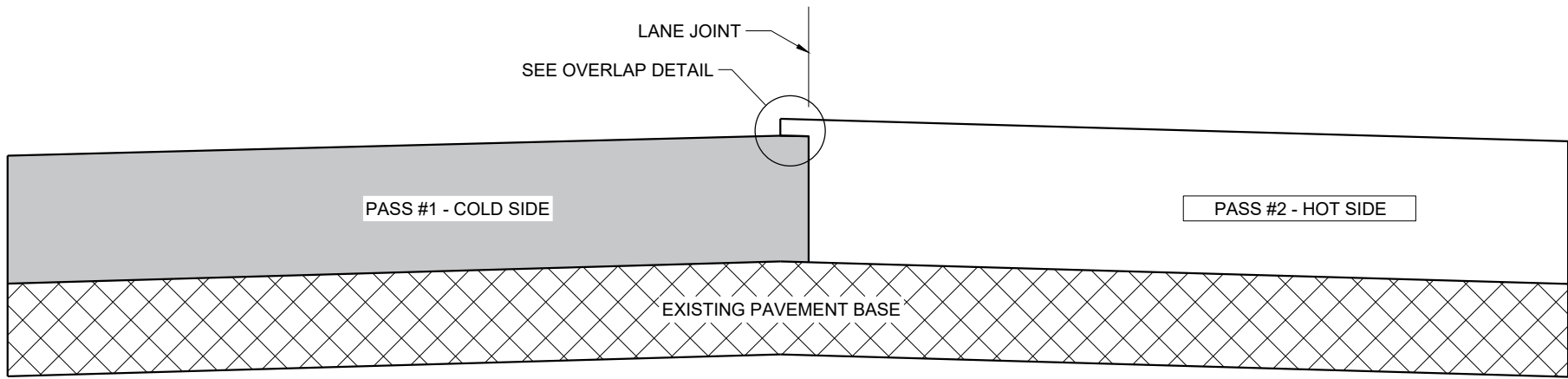
NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/26/10 DATE	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

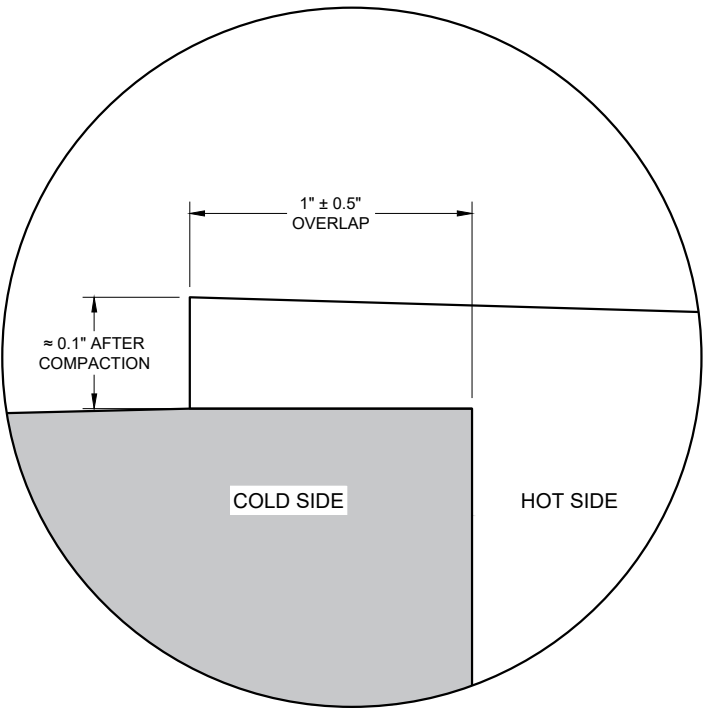
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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.

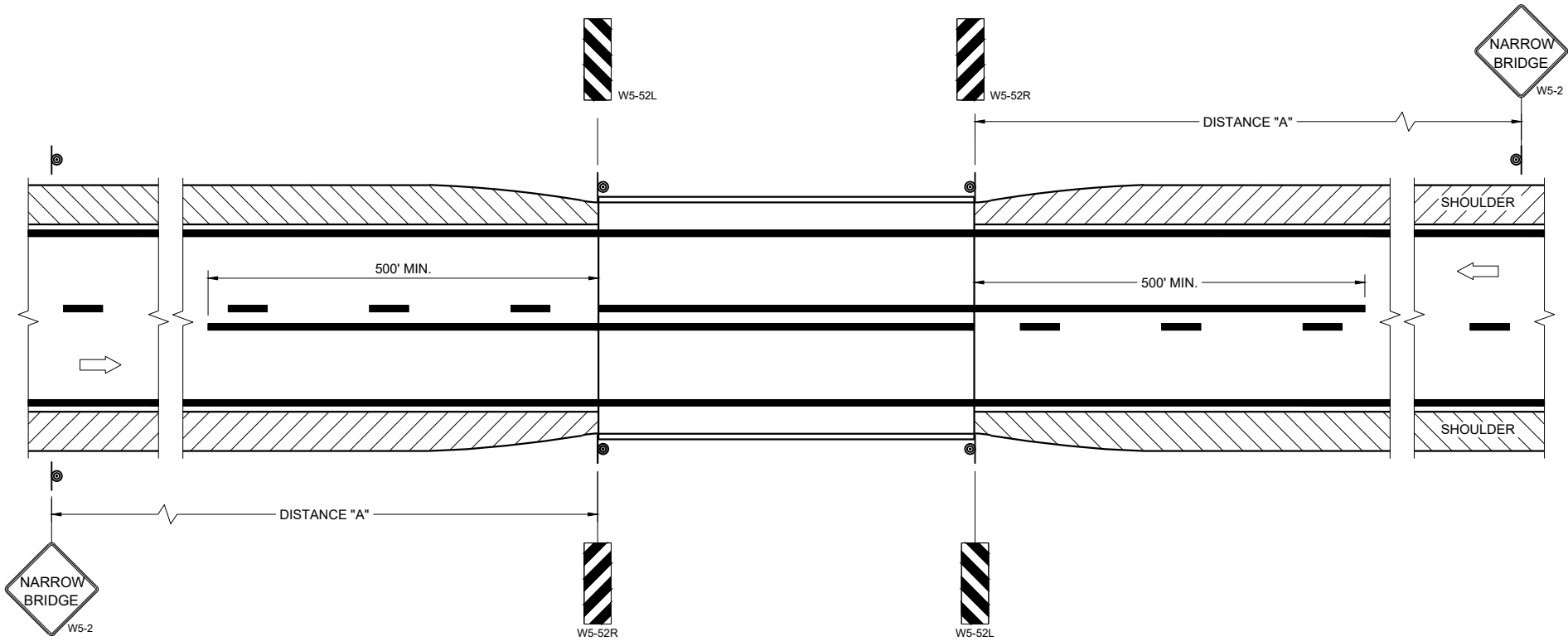


OVERLAP DETAIL (TYPICAL)

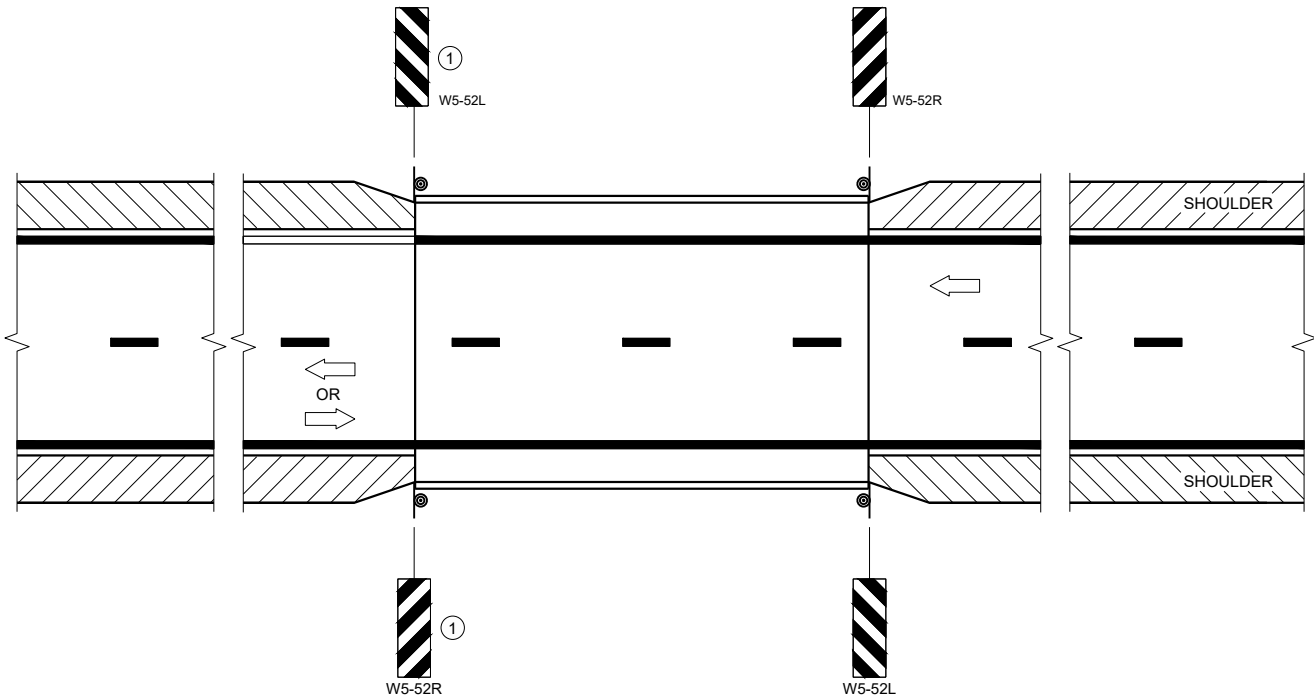
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA



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



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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

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

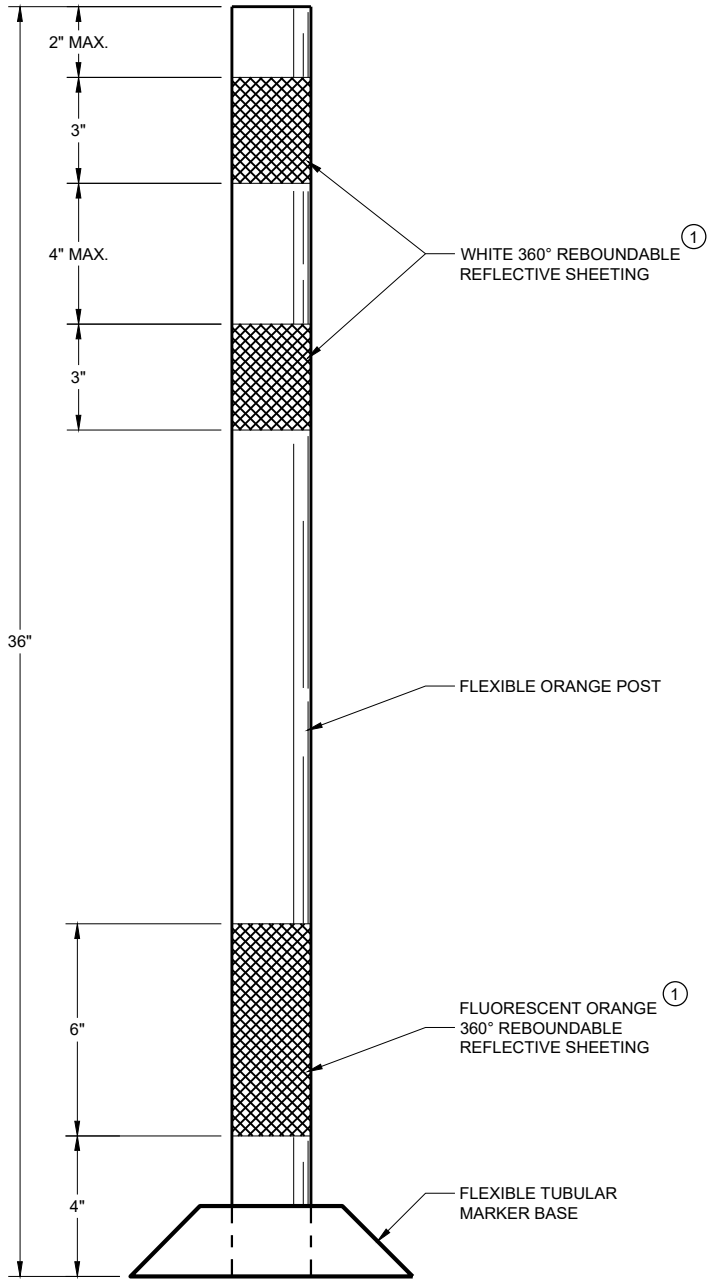
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA



FLEXIBLE TUBULAR
MARKER POST
WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

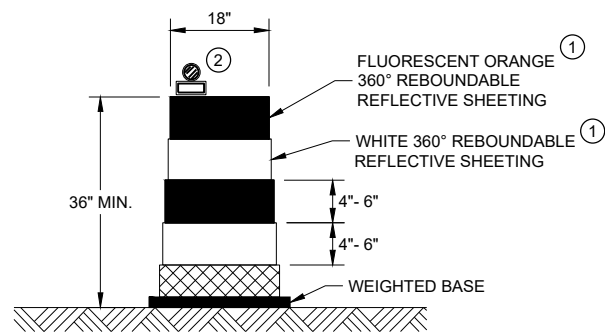
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES
FLEXIBLE TUBULAR
MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

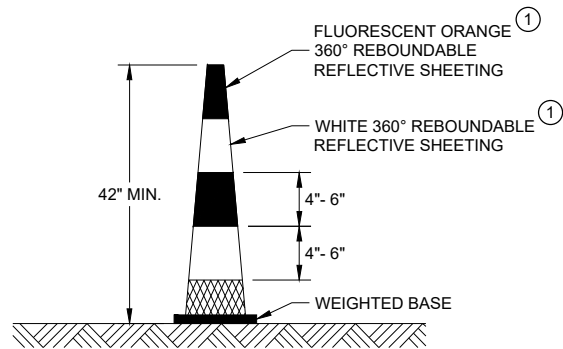
APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



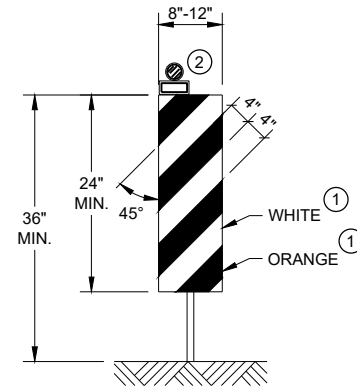
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



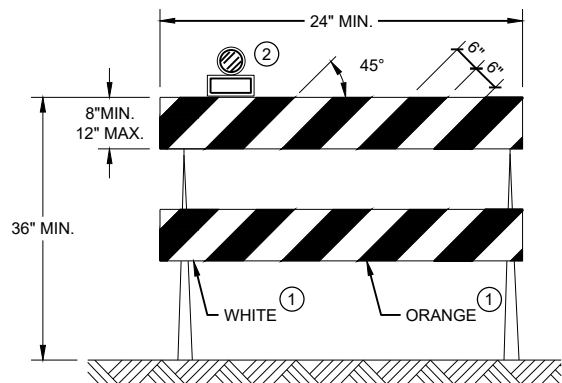
42" CONE

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



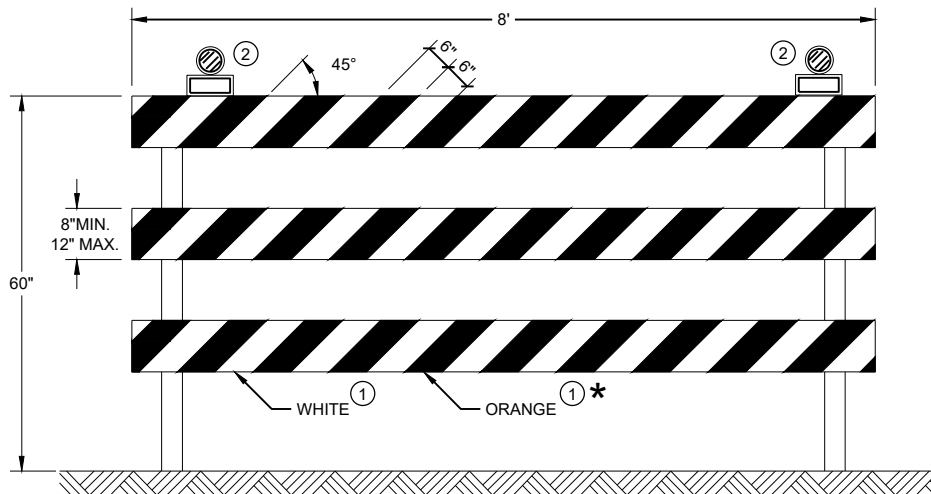
VERTICAL PANEL

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



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.

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.

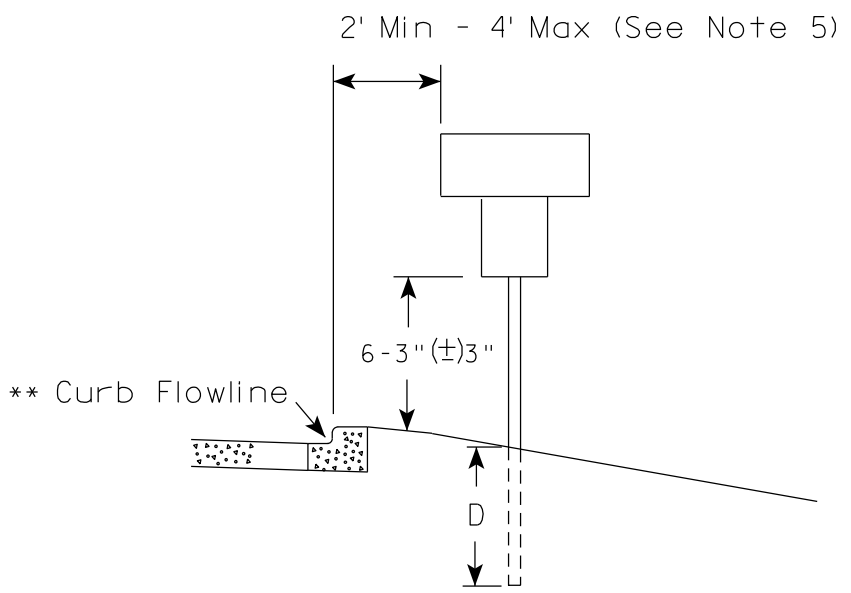
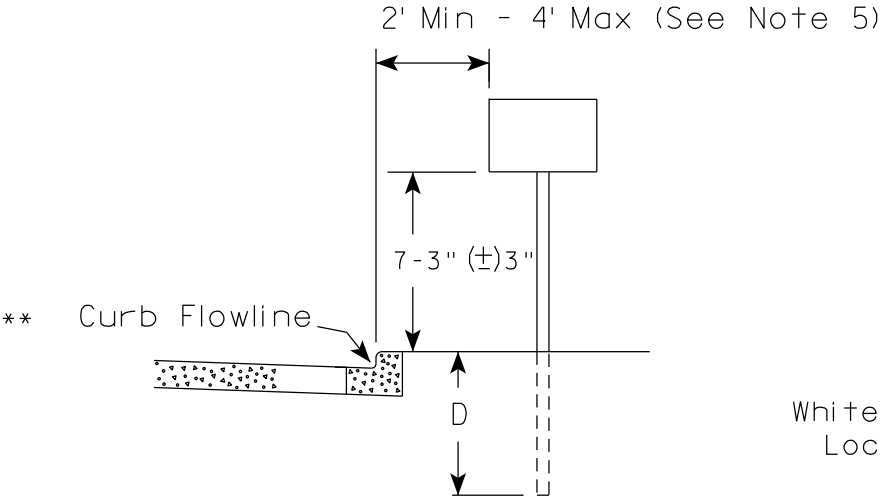
**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

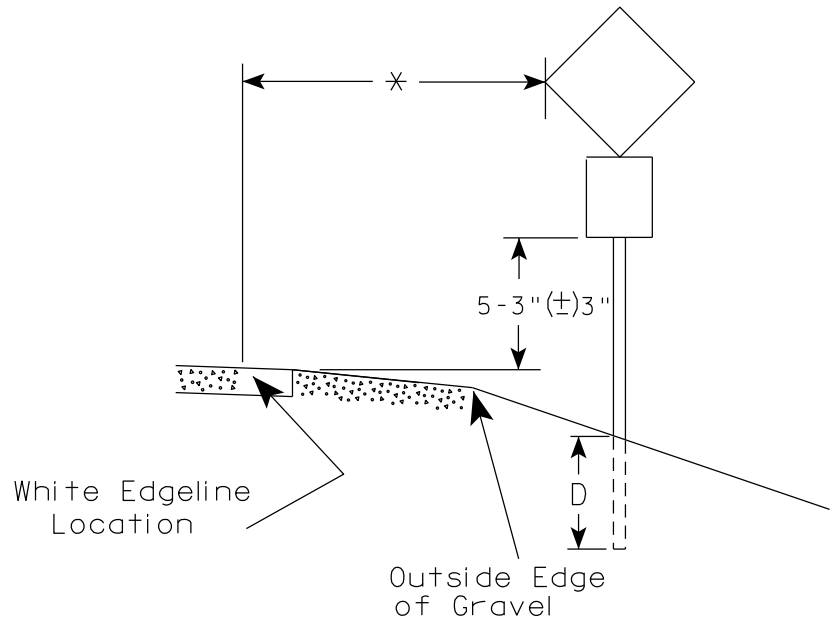
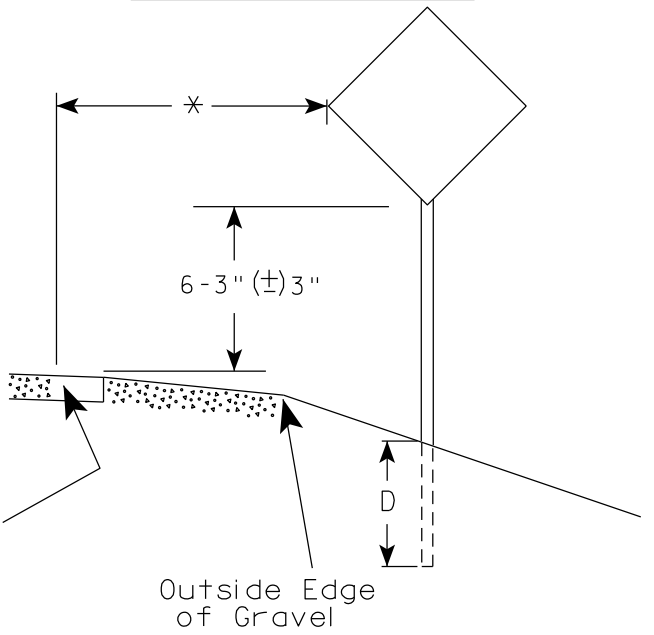
APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

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" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as 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.

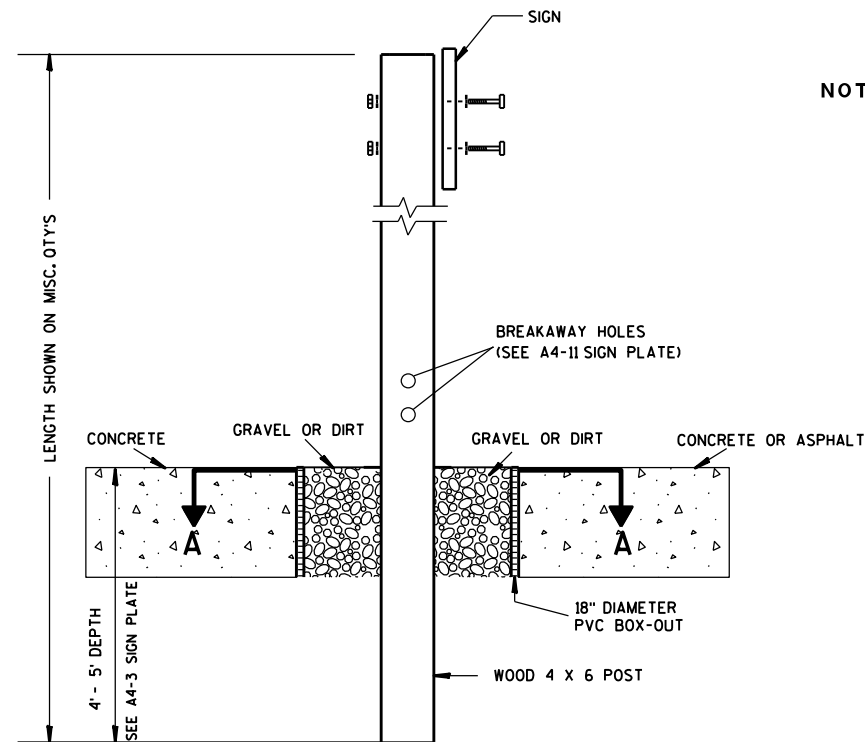
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

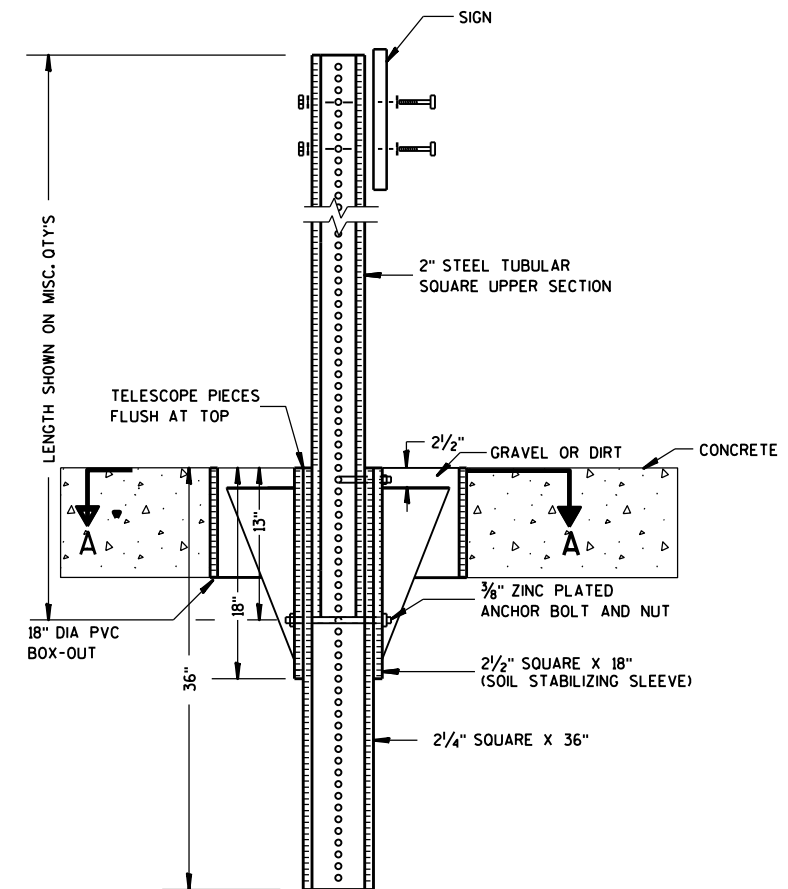
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

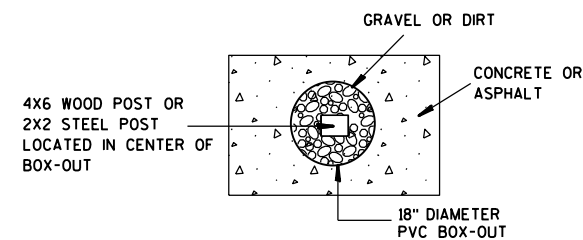
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

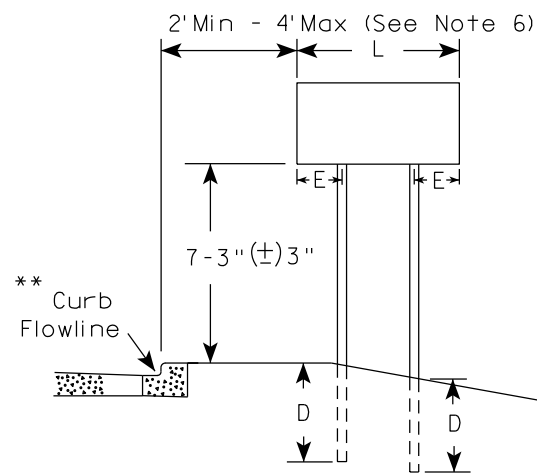
HWY:

COUNTY:

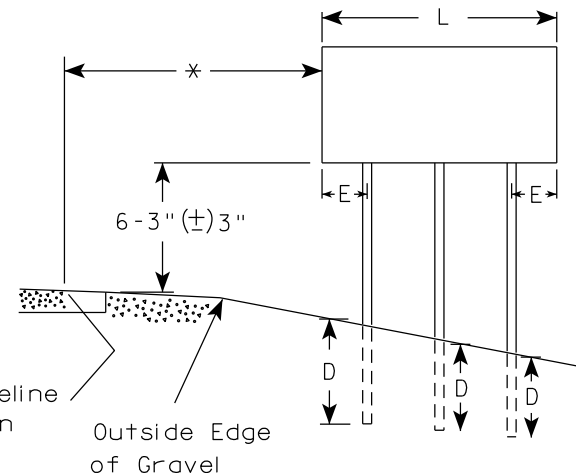
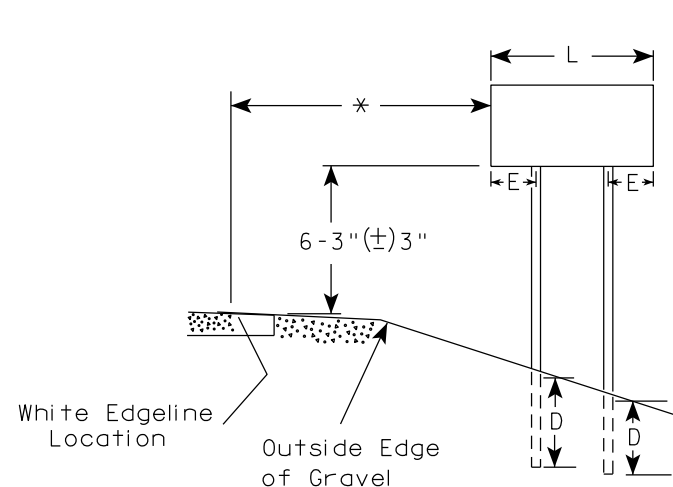
SHEET NO:

E

URBAN AREA



RURAL AREA (See Note 3)



GENERAL NOTES

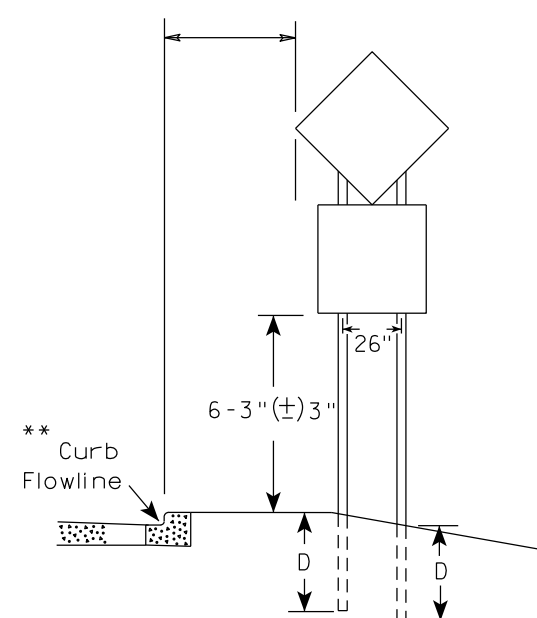
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3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

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

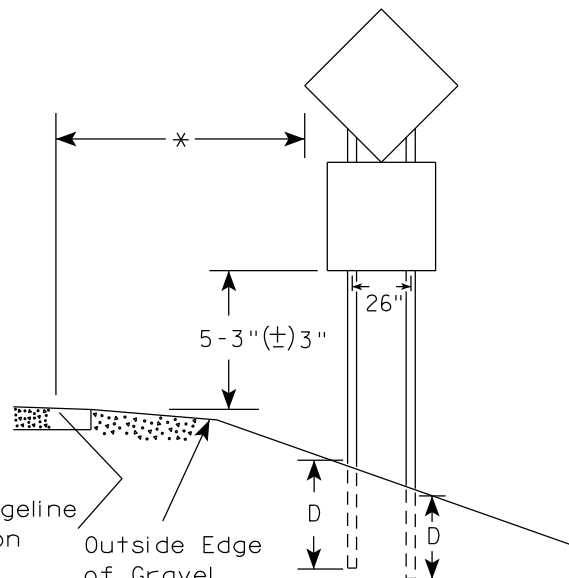
** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs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

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

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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

POST EMBEDMENT DEPTH

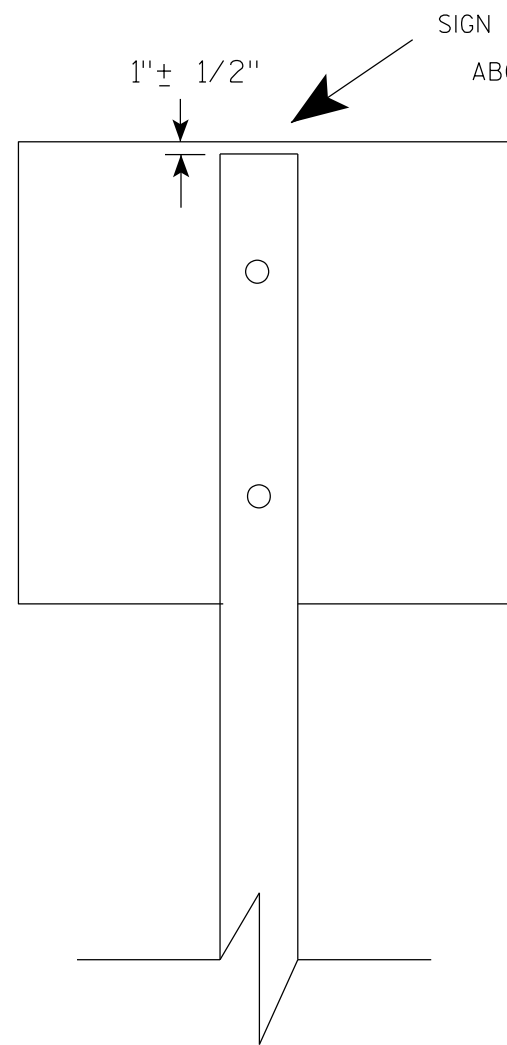
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

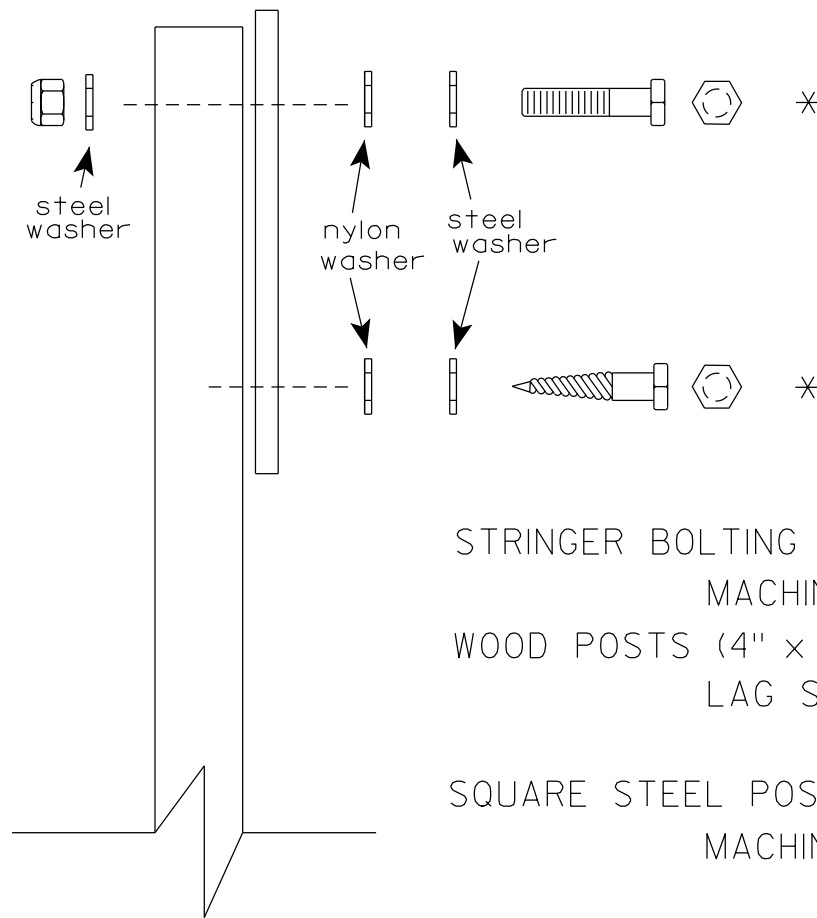
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



SIGN SHALL BE MOUNTED TO PROJECT
ABOVE THE TOP OF THE POST



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

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

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

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

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

WOOD POSTS (4" x 6")

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

SQUARE STEEL POSTS (2" x 2")

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

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

WASHERS (ALL POSTS) -

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

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

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

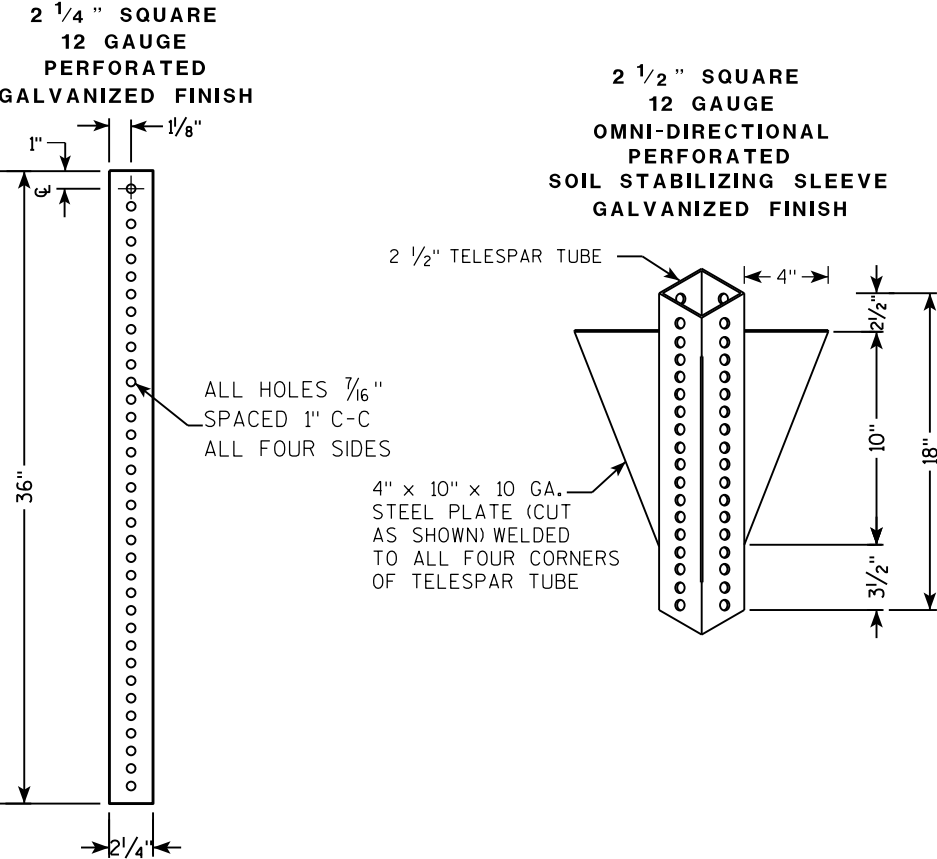
ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

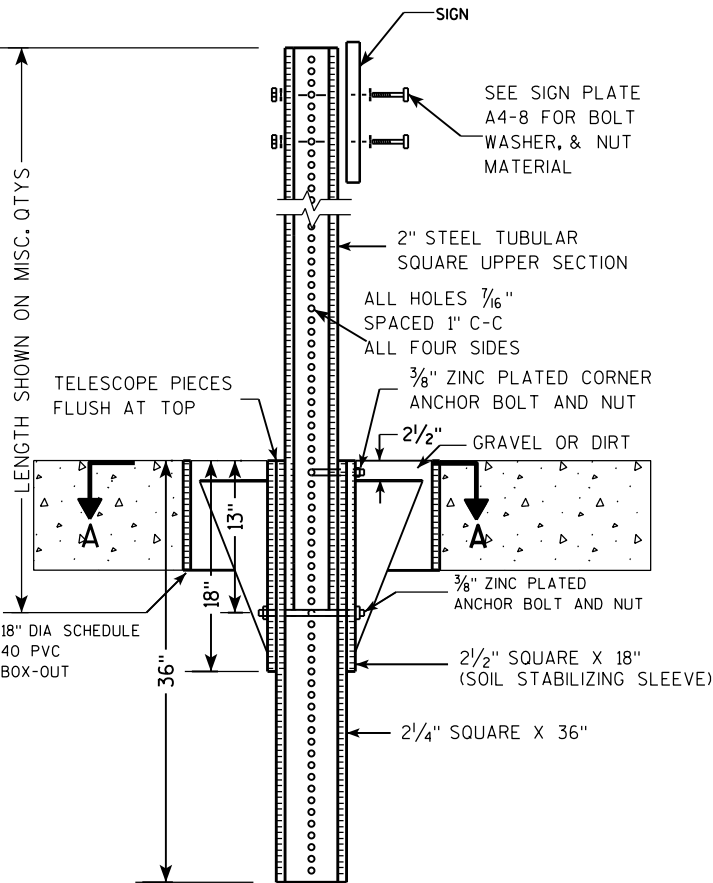
APPROVED Matthew R. Rauch
For State Traffic Engineer

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

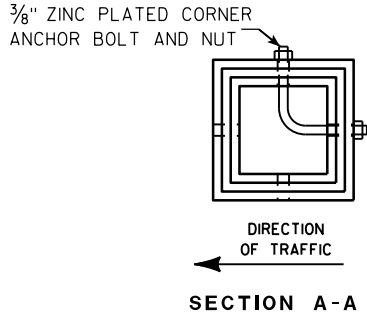
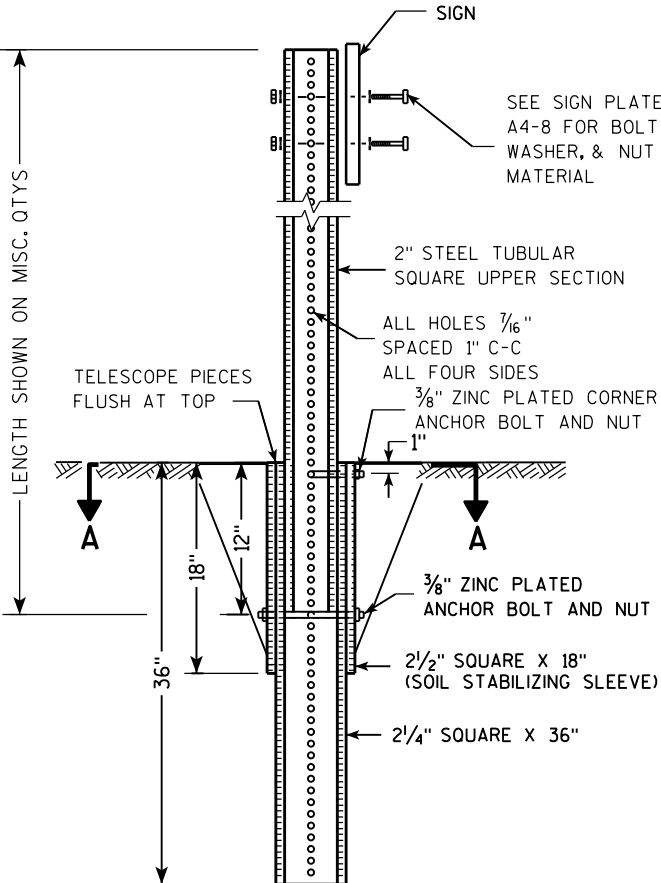
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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).

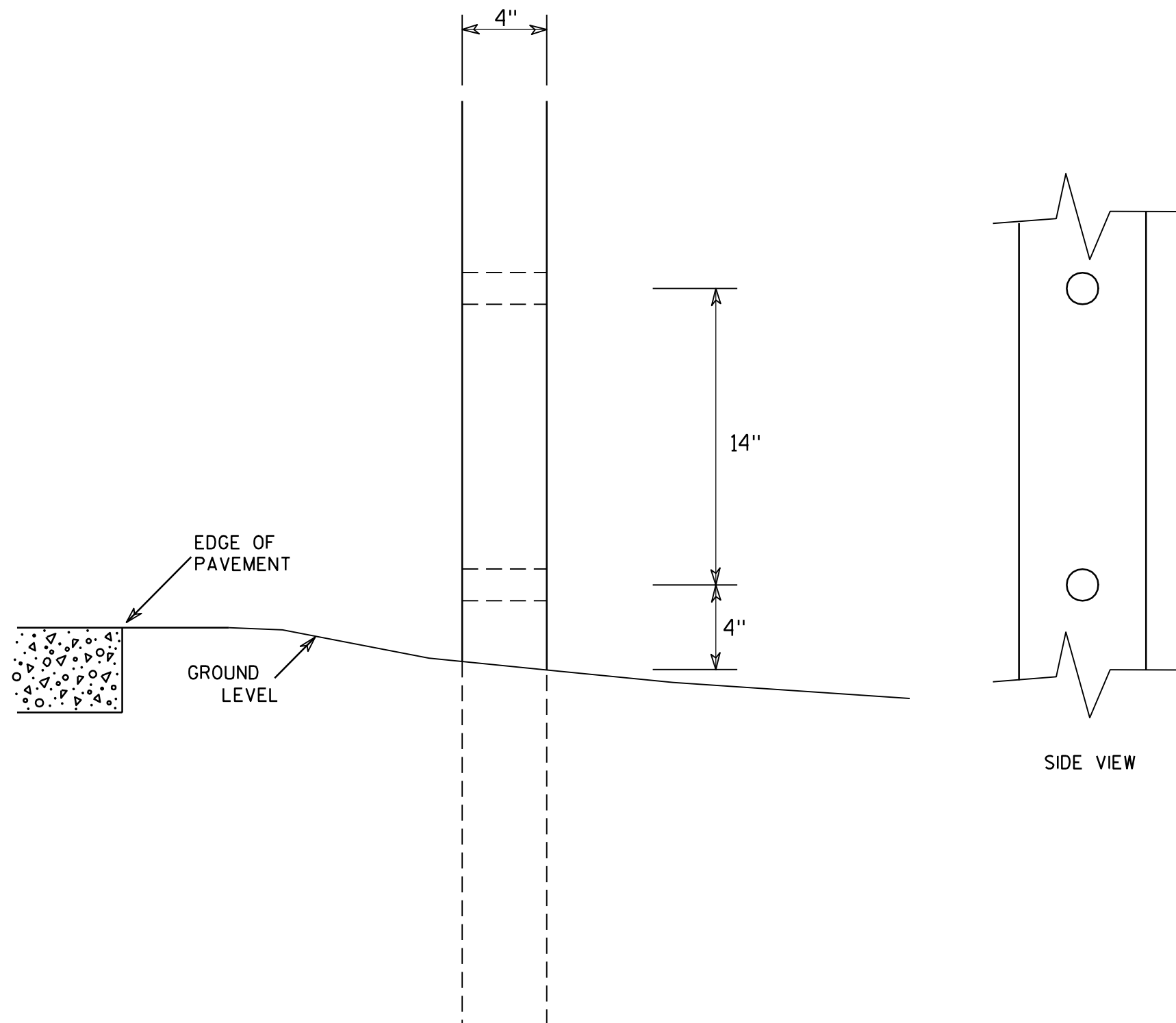
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

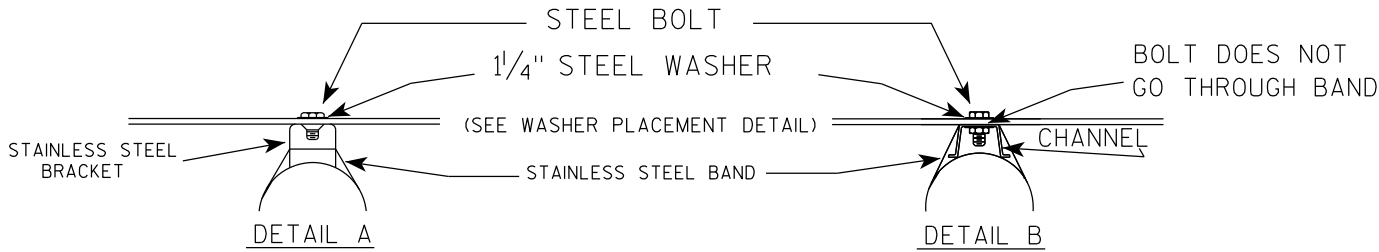
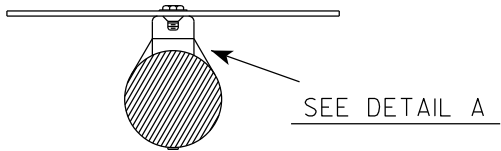
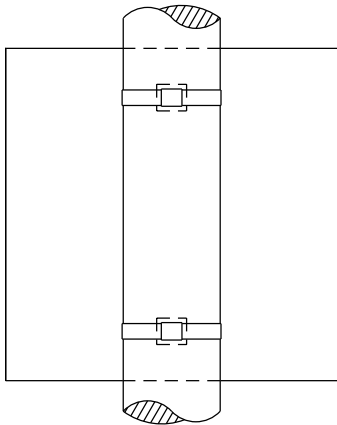
COUNTY:

SHEET NO:

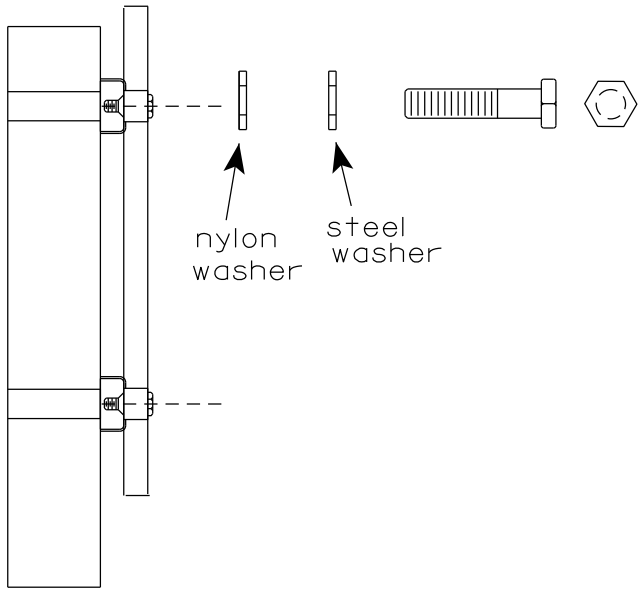
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

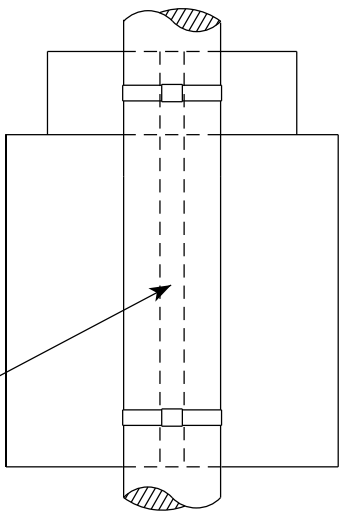


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

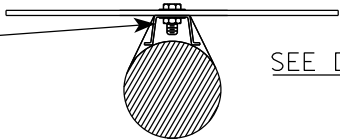
GENERAL NOTES

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

"J" ASSEMBLY



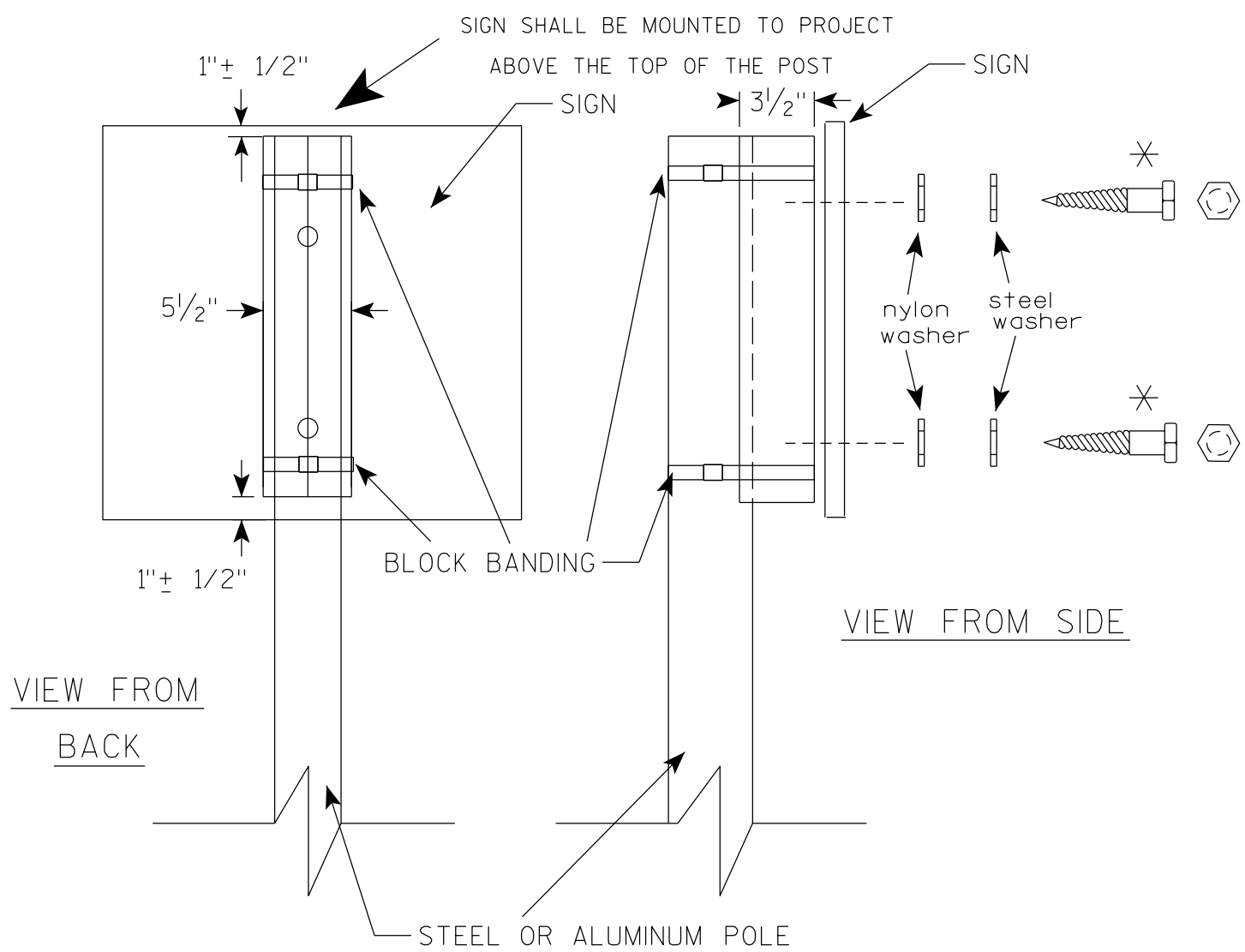
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

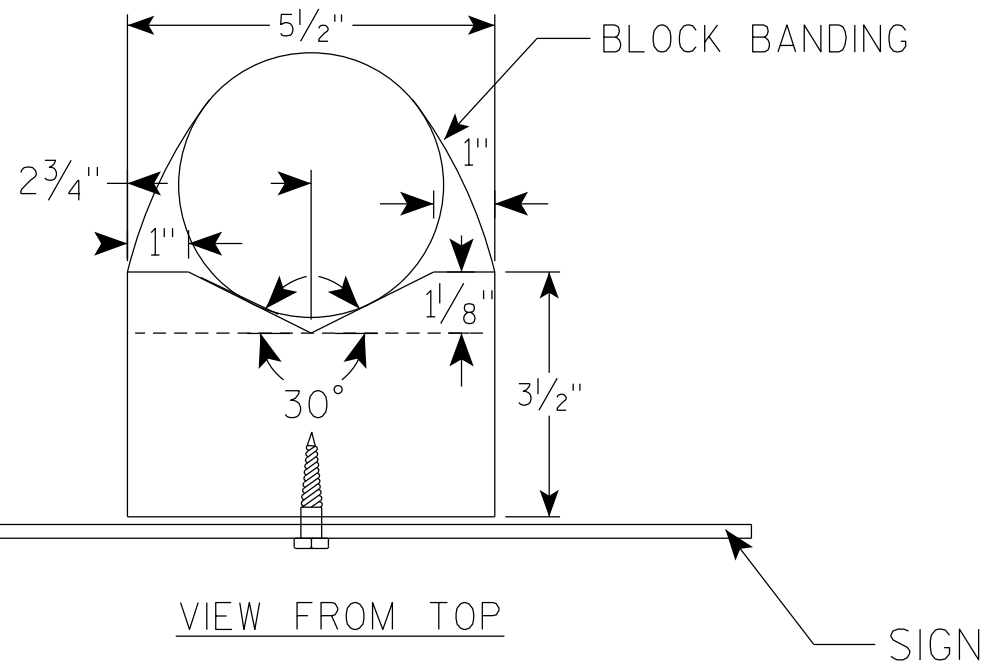
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

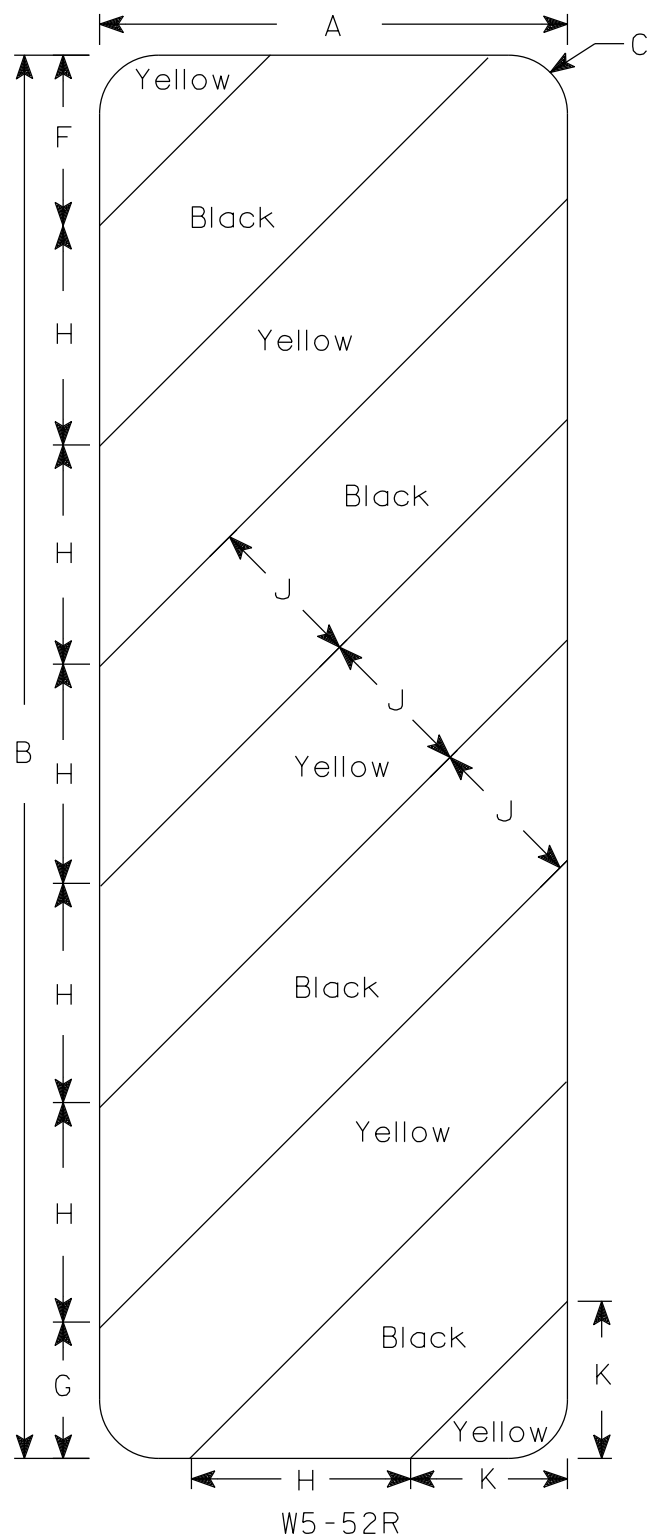
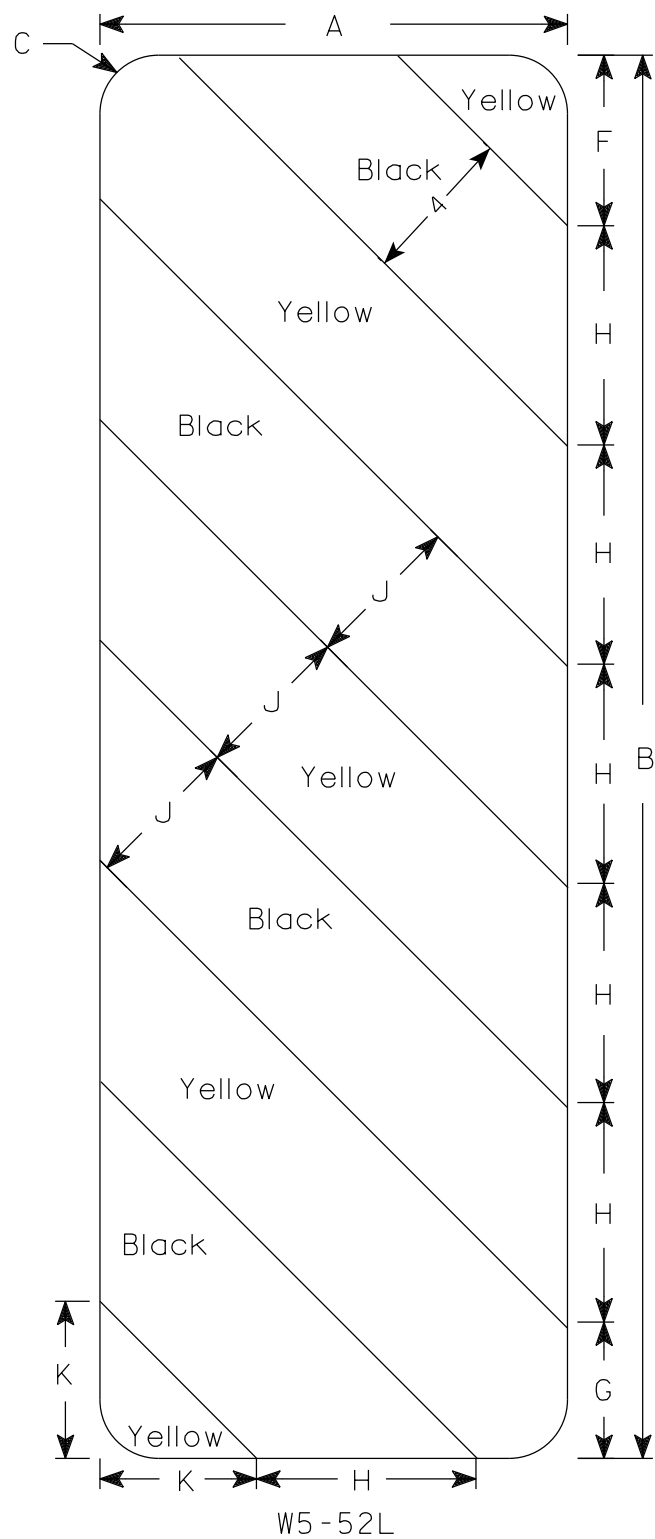
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

SHEET NO:

E



NOTES

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

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

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.13
OPERATING RATING: RF = 1.46
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

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

MATERIAL PROPERTIES:

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

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

TRAFFIC DATA

FEATURE ON: SCHOOL HOUSE ROAD

ADT = 120 (2025)
ADT = 120 (2045)
R.D.S. = 60 MPH

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 12-IN X 53 LB PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 200 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

ESTIMATED 50'-0" LONG AT WEST ABUTMENT.
ESTIMATED 40'-0" LONG AT EAST ABUTMENT.

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

LEGEND

① INDICATES WING NUMBER

HYDRAULIC DATA

100-YEAR FREQUENCY:

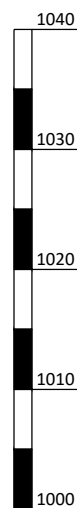
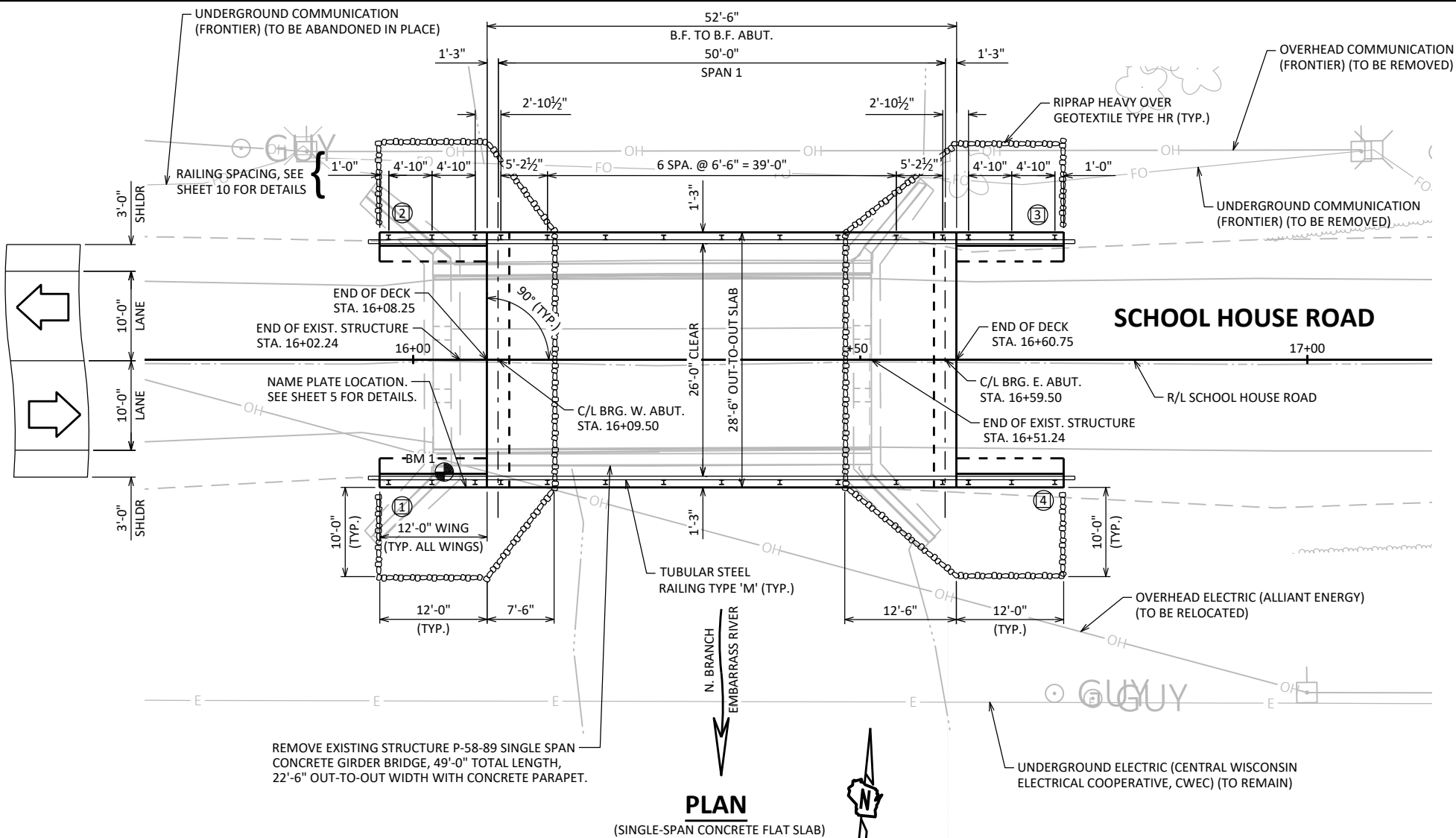
$Q_{100} = 1080$ C.F.S.
 $V_{100} = 5.49$ F.P.S.
 $HW_{100} = \text{EL. } 1021.53$
WATERWAY AREA = 197.6 SQ. FT.
DRAINAGE AREA = 47.5 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5

2-YEAR FREQUENCY:

$Q_2 = 405$ C.F.S.
 $V_2 = 2.98$ F.P.S.
 $HW_2 = \text{EL. } 1019.81$

LIST OF DRAWINGS:

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES, & DETAILS
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT DETAILS
6. EAST ABUTMENT
7. EAST ABUTMENT DETAILS
8. SUPERSTRUCTURE PLAN AND SECTION
9. SUPERSTRUCTURE CROSS SECTION AND DETAILS
10. TUBULAR STEEL RAILING TYPE 'M'

ELEVATION
(LOOKING NORTH)

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
BM1	16+03.44, 12.6' RT	TOP CONC. ON SW WINGWALL	1026.27

STRUCTURE DESIGN CONTACTS:

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

REVISION BY



910 WEST WINGRA DRIVE
MADISON, WISCONSIN 53715
(608)-251-4843
(608) 251-8655 FAX
WWW.STRAND.COM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *[Signature]* SDR 10/14/24
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-58-138

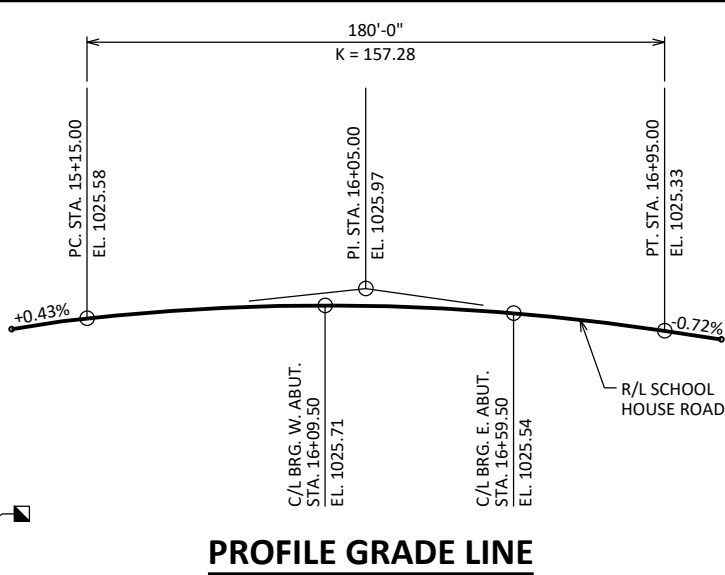
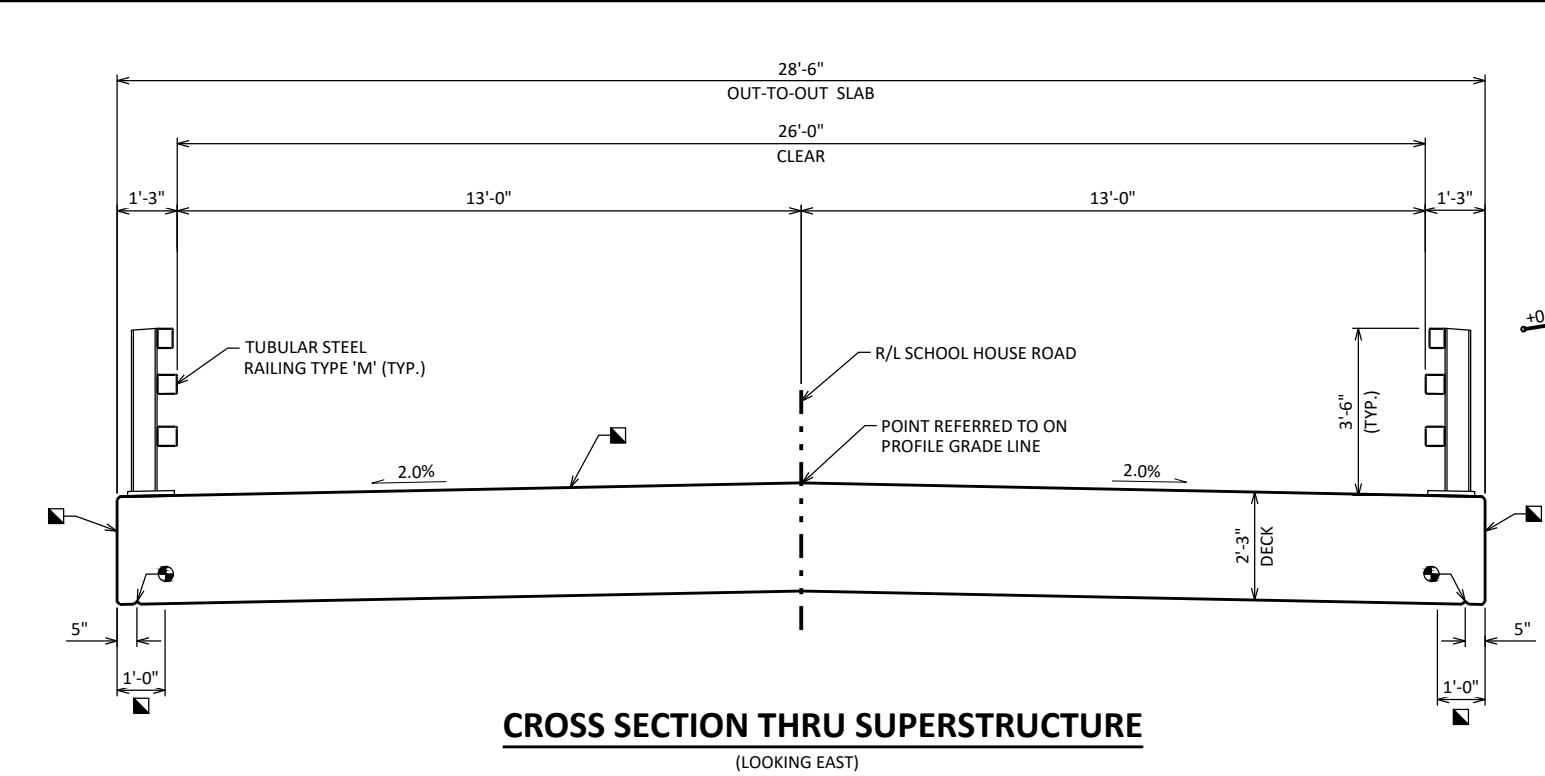
SCHOOL HOUSE ROAD OVER N. BR. EMBARRASS RIVER

COUNTY SHAWANO TOWN SENECA

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATION
DESIGNED BY JRP CK'D EJC DRAWN BY ZHC PLANS CK'D EJC

GENERAL PLAN

SHEET 1 OF 10



STATE PROJECT NUMBER
9302-00-70

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-58-138" SHALL BE THE EXISTING GROUNDLINE.

AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

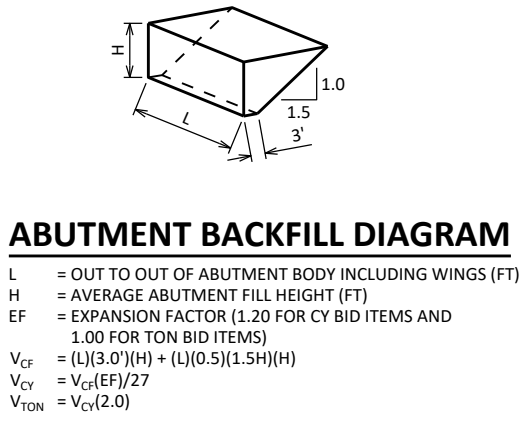
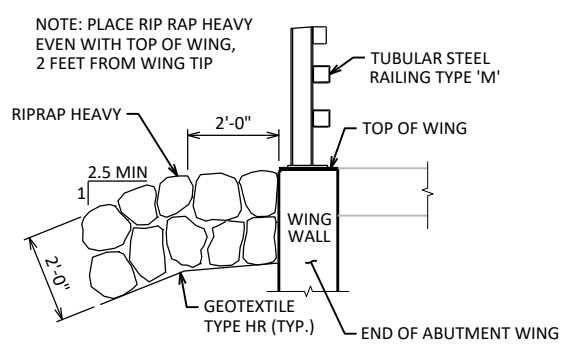
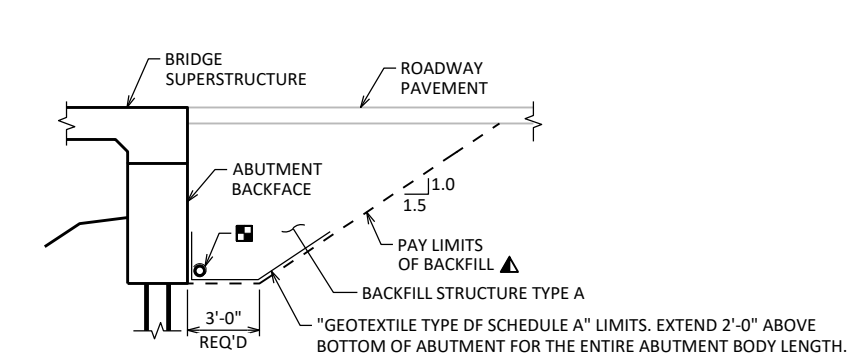
THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK, SIDE OF DECK, 1'-0" WIDE STRIP AT EDGE UNDERSIDE OF DECK, TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THE END 1'-0" FRONT FACE OF ABUTMENTS.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

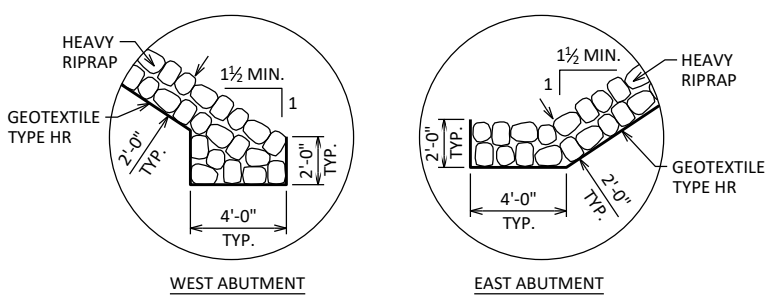
AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.



- ### LEGEND
- ¾" V-GROOVE REQ'D. EXTEND TO 6" FROM F.F. OF ABUT. DIAPHRAGMS.
 - PROTECTIVE SURFACE TREATMENT.
 - BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
 - PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	WEST ABUT.	EAST ABUT.	SUPERS.	TOTAL
203.0270	REMOVING STRUCTURE OVER WATERWAY DEBRIS CAPTURE P-58-89	EACH	---	---	---	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-58-138	EACH	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	141	141	---	282
502.0100	CONCRETE MASONRY BRIDGES	CY	34.8	34.8	128.9	199
502.3200	PROTECTIVE SURFACE TREATMENT	SY	12	12	204	228
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1,700	1,700	---	3,400
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,780	1,780	21,810	25,370
513.4061	RAILING TUBULAR TYPE M	LF	---	---	158	158
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	---	20
550.1120	PIILING STEEL HP 12-INCH X 53 LB	LF	200	160	---	360
606.0300	RIPRAP HEAVY	CY	48	58	---	106
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	93	93	---	186
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	22	22	---	44
645.0120	GEOTEXTILE TYPE HR	SY	96	123	---	219
NON-BID ITEMS						
NAME PLATE		EACH				1
FILLER		SIZE				1/2" & 3/4"



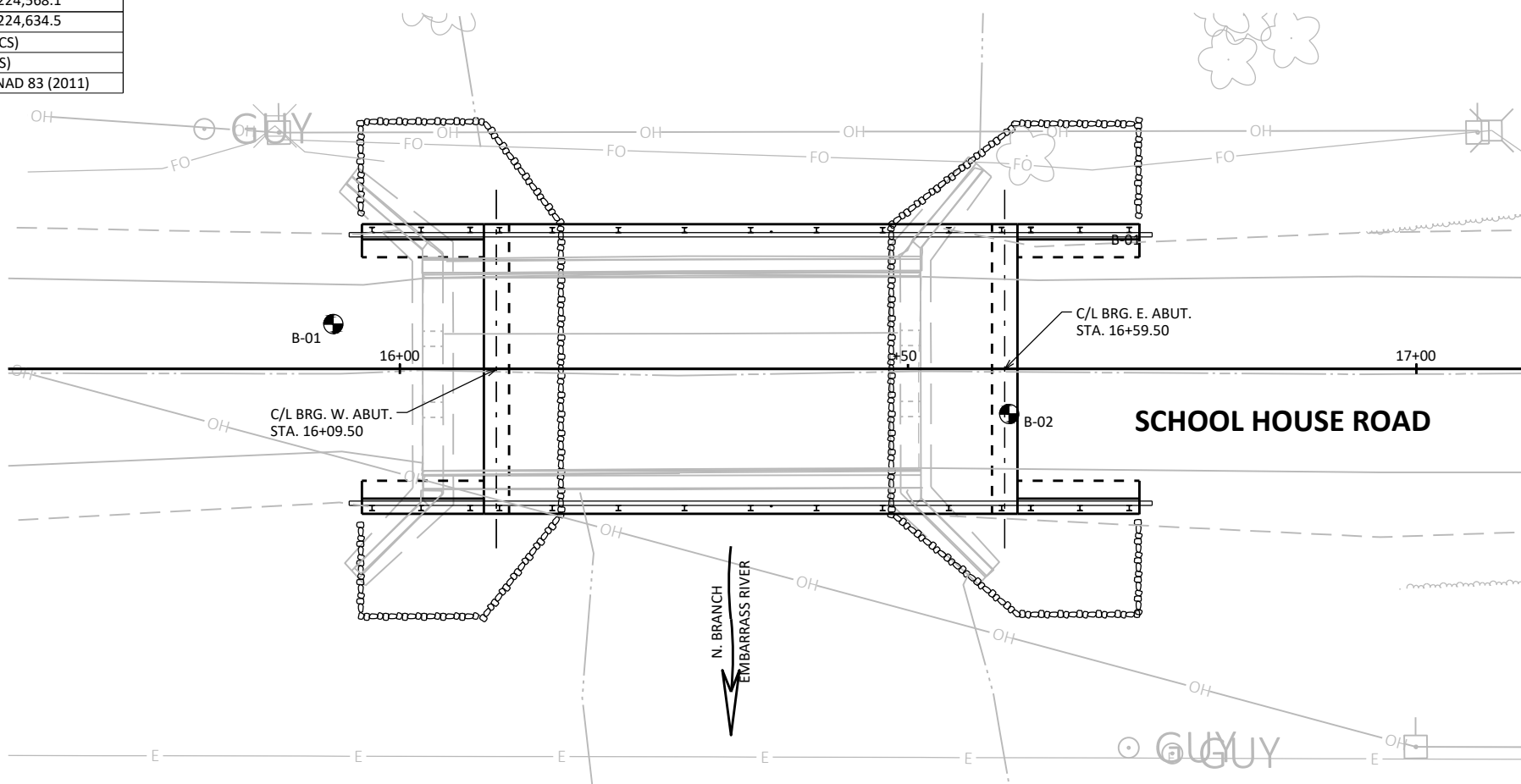
RIPRAP TOE DETAILS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-58-138			
DRAWN BY		ZHC	PLANS CK'D EJC
CROSS SECTION, QUANTITIES, NOTES, & DETAILS		SHEET 2	

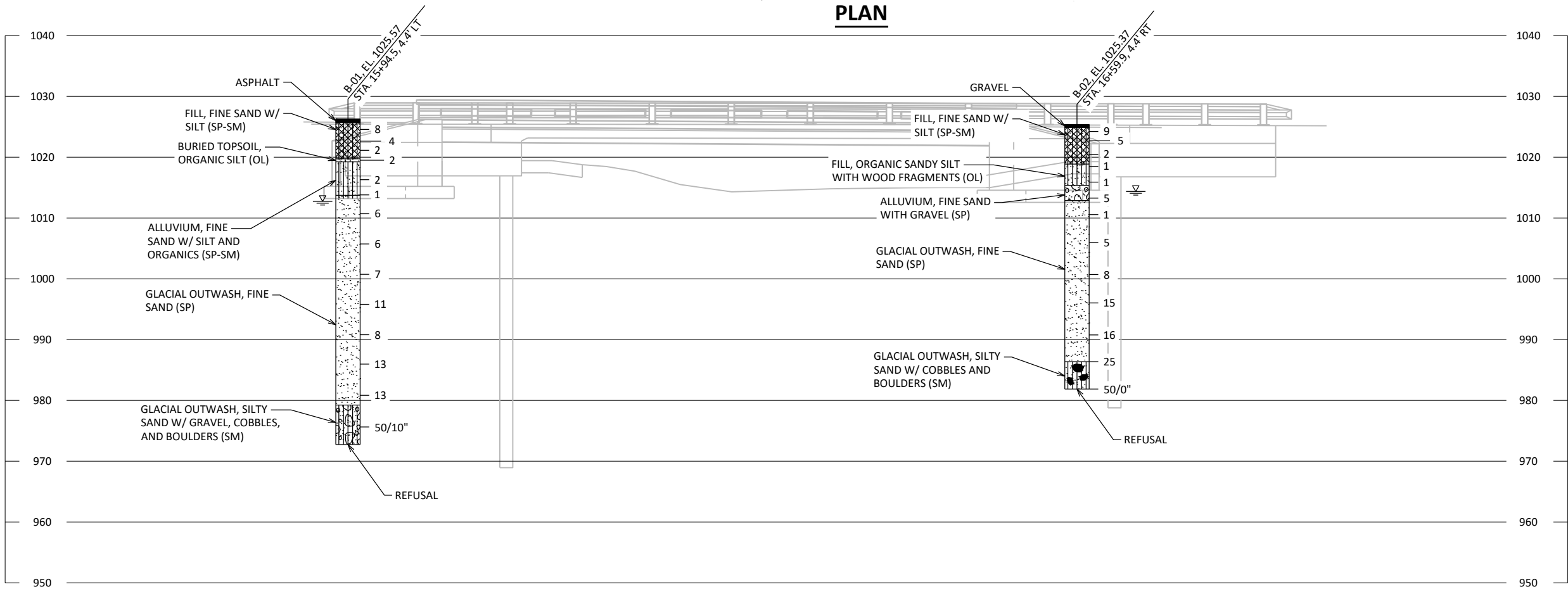
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	5/16/2023	374,485.8	224,568.1
2	5/15/2023	374,476.3	224,634.5
BORINGS COMPLETED BY: ENGINEERING CONSULTING SERVICES (ECS)			
REPORT COMPLETED BY: ENGINEERING CONSULTING SERVICES (ECS)			
ALL COORDINATES REFERENCED TO WISCRS, SHAWANO COUNTY, NAD 83 (2011)			

BORINGS PERFORMED AND REPORT COMPLETED BY:
ENGINEERING CONSULTING SERVICES (ECS)
1060 BREEZEWOOD LANE, SUITE 102
NEENAH, WI 54956

BORINGS WERE PERFORMED ON 5/15/2023 AND 5/16/2023.



PLAN



STATE PROJECT NUMBER

9302-00-70

MATERIAL SYMBOLS

ASPHALT

CONCRETE

SAND

BOULDERS OR COBBLES

SHALE

TOPSOIL

FILL

CLAY

LIMESTONE

SANDSTONE

PEAT

GRAVEL

SILT

BEDROCK (UNKNOWN)

IGNEOUS/META

LEGEND OF BORING

BORING #/EL STA./OFFSET

ST

0.25

17

F-C

COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'

REC=80%, RQD=72%

(1)

(2)

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

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

GROUND WATER ELEVATION

AT TIME OF DRILLING

END OF DRILLING

AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.

DATE

REVISION

BY

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

STRUCTURE

B-58-138

DRAWN BY

ZHC

PLANS CK'D

EJC

SUBSURFACE EXPLORATION

SHEET 3

SCALE =

8

8

NOTES

SEE SHEET 2 FOR TYPICAL FILL SECTION AT WING TIPS.

ADJUST A501 BARS INTERFERING WITH PILES.

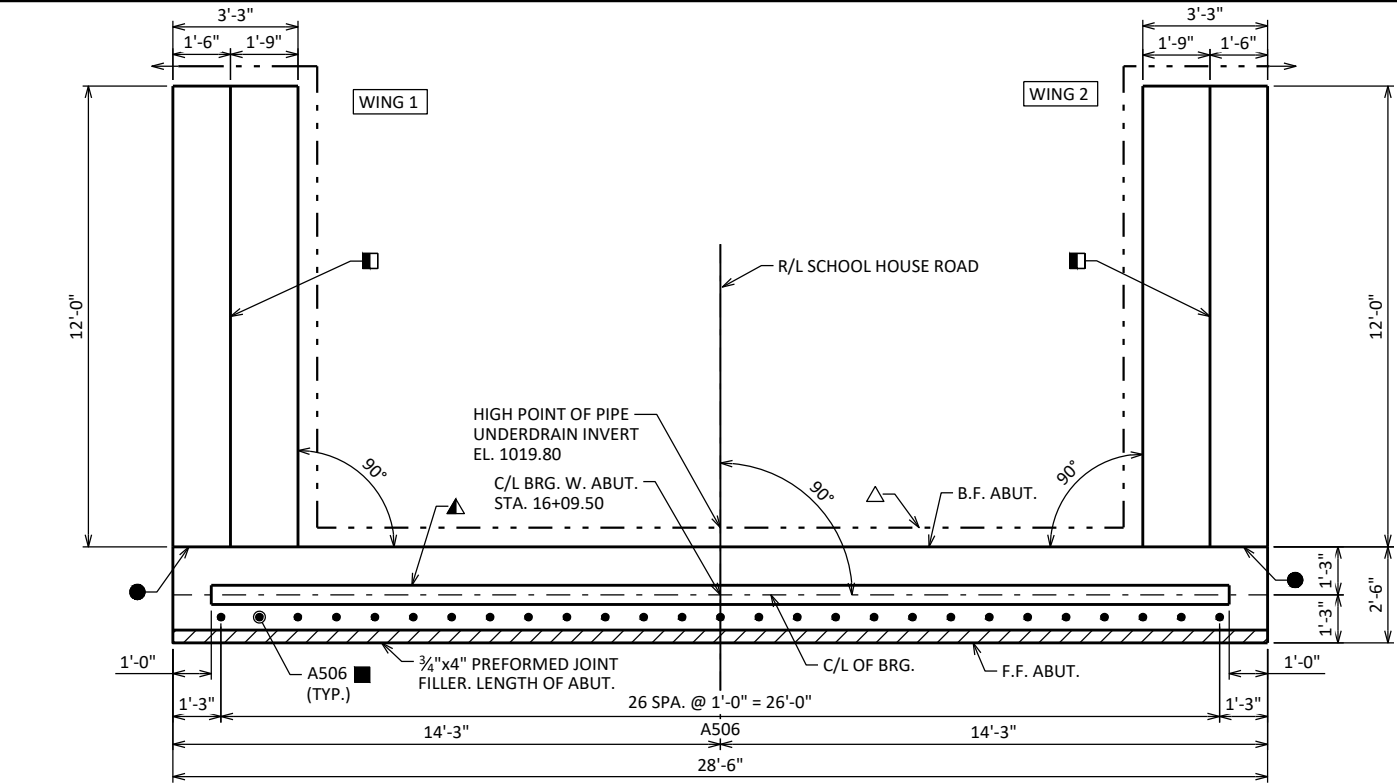
SEE THIS SHEET FOR PILE SPLICE DETAILS.

SEE SHEET 5 FOR REINFORCING DETAILS.

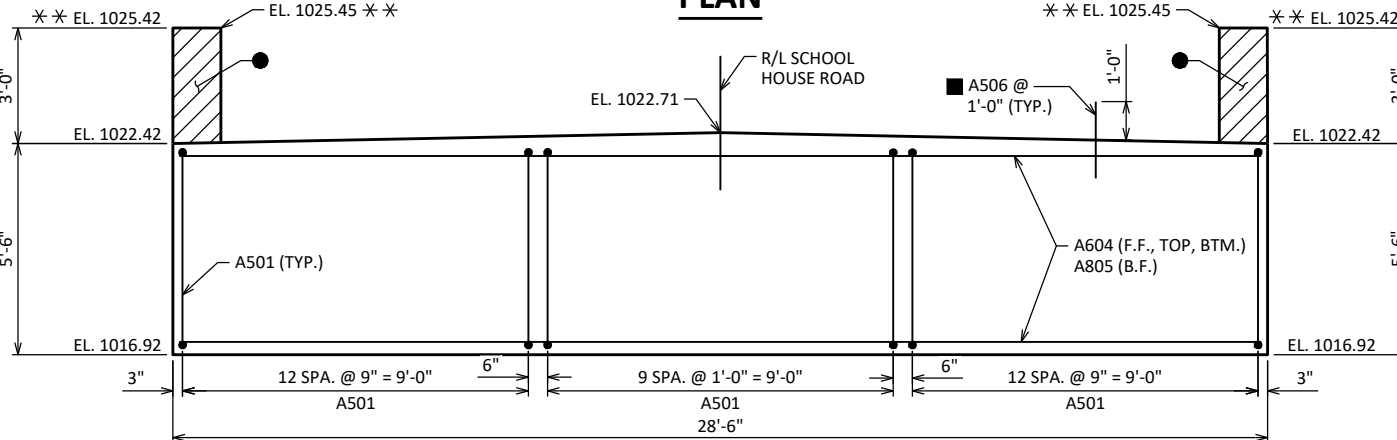
WEST ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 12-IN X 53 LB WITH A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE. ESTIMATED 50 FEET LONG EACH.

LEGEND

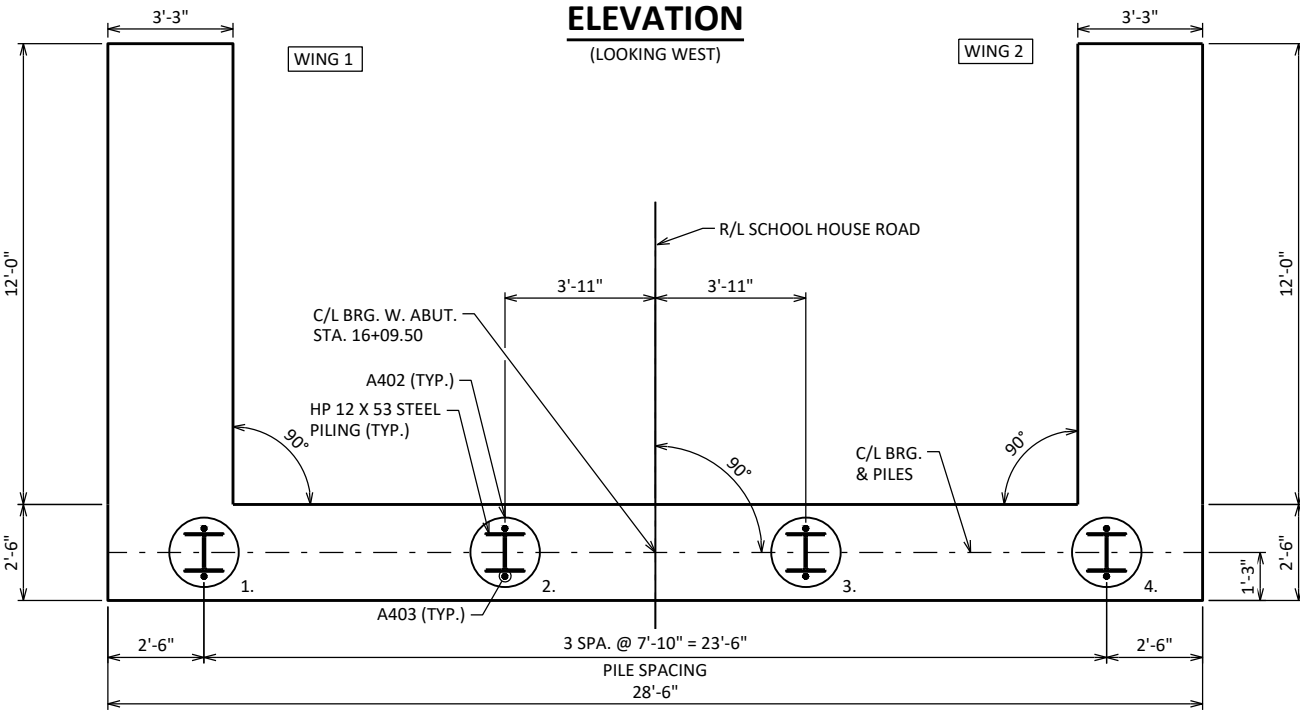
- ½" FILLER, EXTEND FROM ABUT. SEAT TO TOP OF WING (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER 1" DEEP AND HOLD ⅜" BELOW SURFACE OF CONCRETE. EXTEND SEALER 3" BELOW FINISHED ROADWAY SURFACE AT INSIDE FACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- * * ELEVATION GIVEN AT B.F. ABUTMENT.
- △ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. HIGH POINT EL. 1019.80 AT R/L. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE DETAIL ON "EAST ABUTMENT" SHEET.
- A506 BARS AT 1'-0" O.C. THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONCRETE)
- ▲ CONST. JOINT: KEYWAY FORMED BY A BEVELED 2"x6".



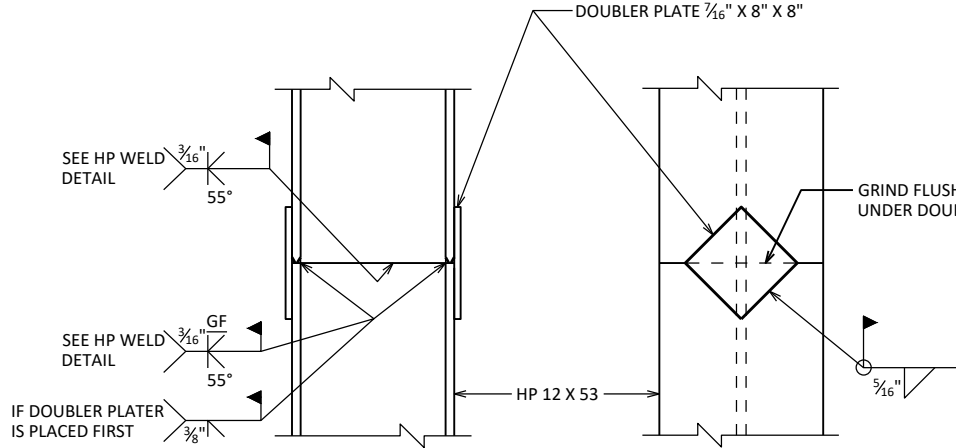
PLAN



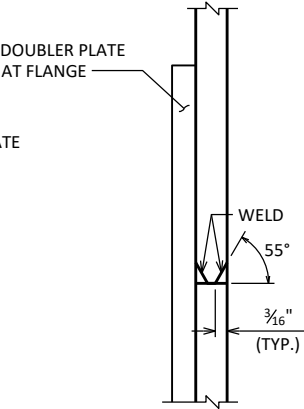
ELEVATION
(LOOKING WEST)



PILE PLAN



STEEL 'HP' SHAPES



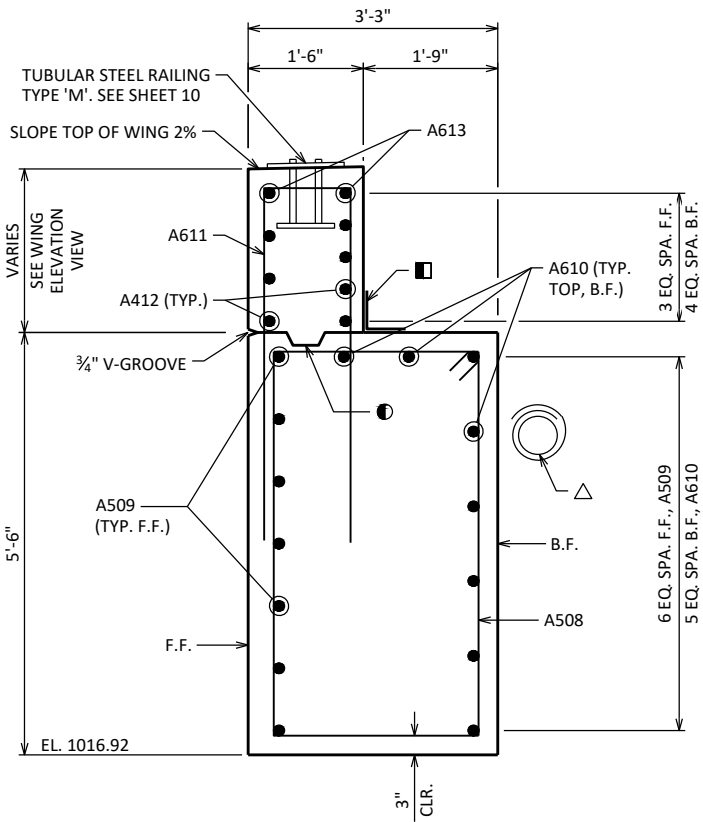
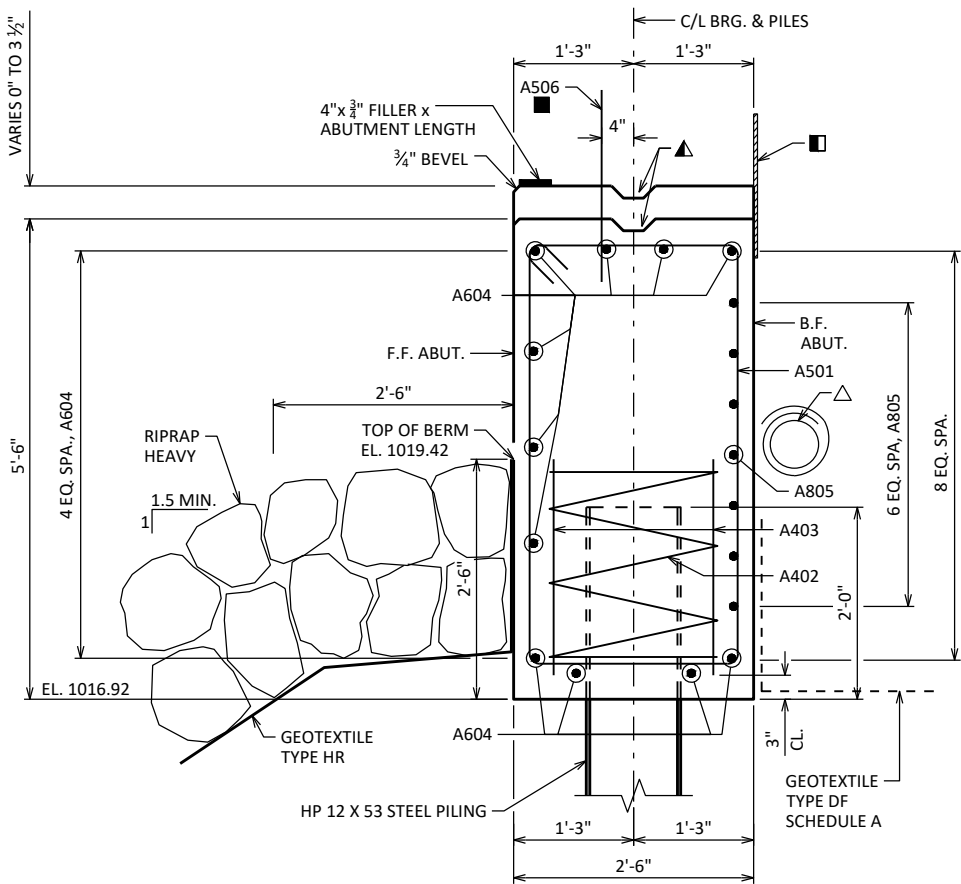
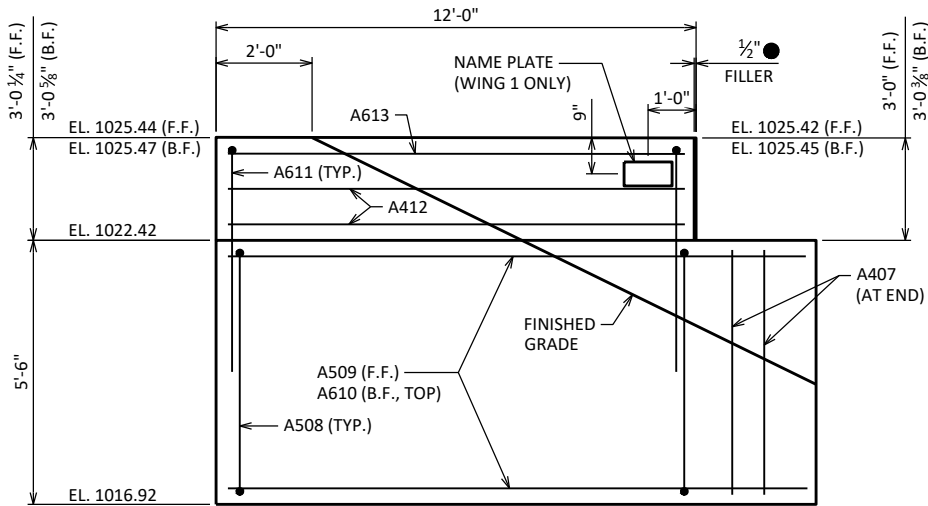
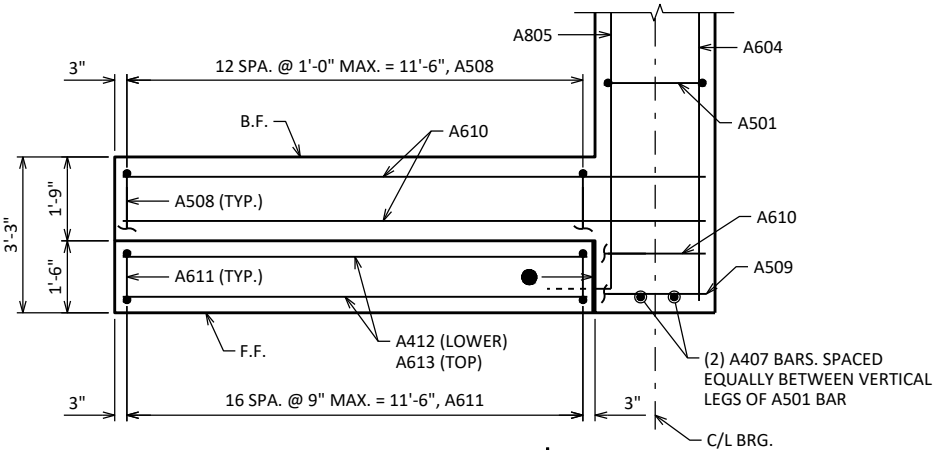
HP WELD DETAIL
(FLANGE SHOWN, WEB SIMILAR)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-58-138			
DRAWN BY ZHC		PLANS CK'D EJC	
WEST ABUTMENT		SHEET 4	

SCALE =

LEGEND

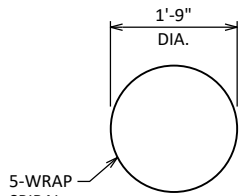
- ▲ CONST. JOINT: KEYWAY FORMED BY A BEVELED 2"x6".
- OPTIONAL CONST. JOINT FORMED BY A BEVELED 2"x6" KEYWAY WITH MEMBRANE ON BACKFACE.
- △ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. HIGH POINT EL. 1019.80 AT R/L. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN PER DETAIL ON "EAST ABUTMENT" SHEET.
- ½" FILLER TO EXTEND FROM ABUTMENT SEAT TO TOP OF WING (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅜" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- BARS @ 1'-0" CTRS. BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)



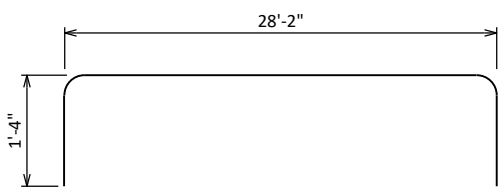
WEST ABUTMENT
BILL OF BARS

UNCOATED: 1,700 LBS
COATED: 1,780 LBS

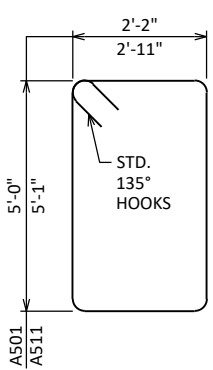
BAR MARK	NO. REQ'D	LENGTH	BENT	COAT	LOCATION
A501	36	15'-0"	X		LOWER BODY - VERT.
A402	4	28'-0"	X		LOWER BODY - PILES - SPIRAL
A403	8	2'-3"			LOWER BODY - PILES - VERT.
A604	11	28'-2"			LOWER BODY - TOP, BOT., & F.F. - HORIZ.
A805	7	30'-5"	X		LOWER BODY - B.F. - HORIZ.
A506	27	2'-0"		X	LOWER BODY - VERT. - TOP
A407	4	5'-1"			LOWER BODY - VERT. - ENDS
A508	26	16'-8"	X	X	LOWER WING - VERT. - WINGS 1 & 2
A509	14	14'-2"		X	LOWER WING - F.F. - HORIZ. - WINGS 1 & 2
A610	16	14'-2"		X	LOWER WING - B.F., TOP - HORIZ. - WINGS 1 & 2
A611	34	10'-8"	X	X	UPPER WING - VERT. - WINGS 1 & 2
A412	14	11'-7"		X	UPPER WING - F.F., B.F. - HORIZ. - WINGS 1 & 2
A613	4	11'-7"		X	UPPER WING - TOP - HORIZ. - WINGS 1 & 2



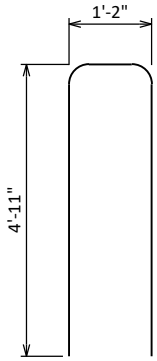
A402



A805



A501, A508



A611

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-58-138			
DRAWN BY ZHC		PLANS CK'D EJC	
WEST ABUTMENT DETAILS		SHEET 5	

SCALE =

NOTES

SEE SHEET 2 FOR TYPICAL FILL SECTION AT WING TIPS.

ADJUST B501 BARS INTERFERING WITH PILES.

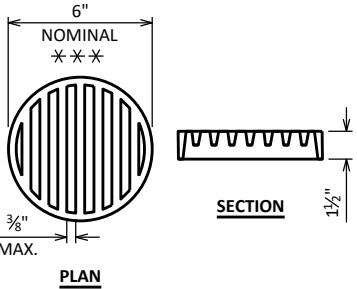
SEE SHEET 4 FOR PILE SPLICE DETAILS.

SEE SHEET 7 FOR REINFORCING DETAILS.

EAST ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 12-IN X 53 LB WITH A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE. ESTIMATED 40 FEET LONG EACH.

LEGEND

- ½" FILLER, EXTEND FROM ABUT. SEAT TO TOP OF WING (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER 1" DEEP AND HOLD ⅜" BELOW SURFACE OF CONCRETE. EXTEND SEALER 3" BELOW FINISHED ROADWAY SURFACE AT INSIDE FACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- * * ELEVATION GIVEN AT B.F. ABUTMENT.
- △ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. HIGH POINT EL. 1019.80 AT R/L. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE DETAIL ON THIS SHEET.
- B506 BARS AT 1'-0" O.C. THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONCRETE)
- ▲ CONST. JOINT: KEYWAY FORMED BY A BEVELED 2"x6".



RODENT SHIELD DETAIL

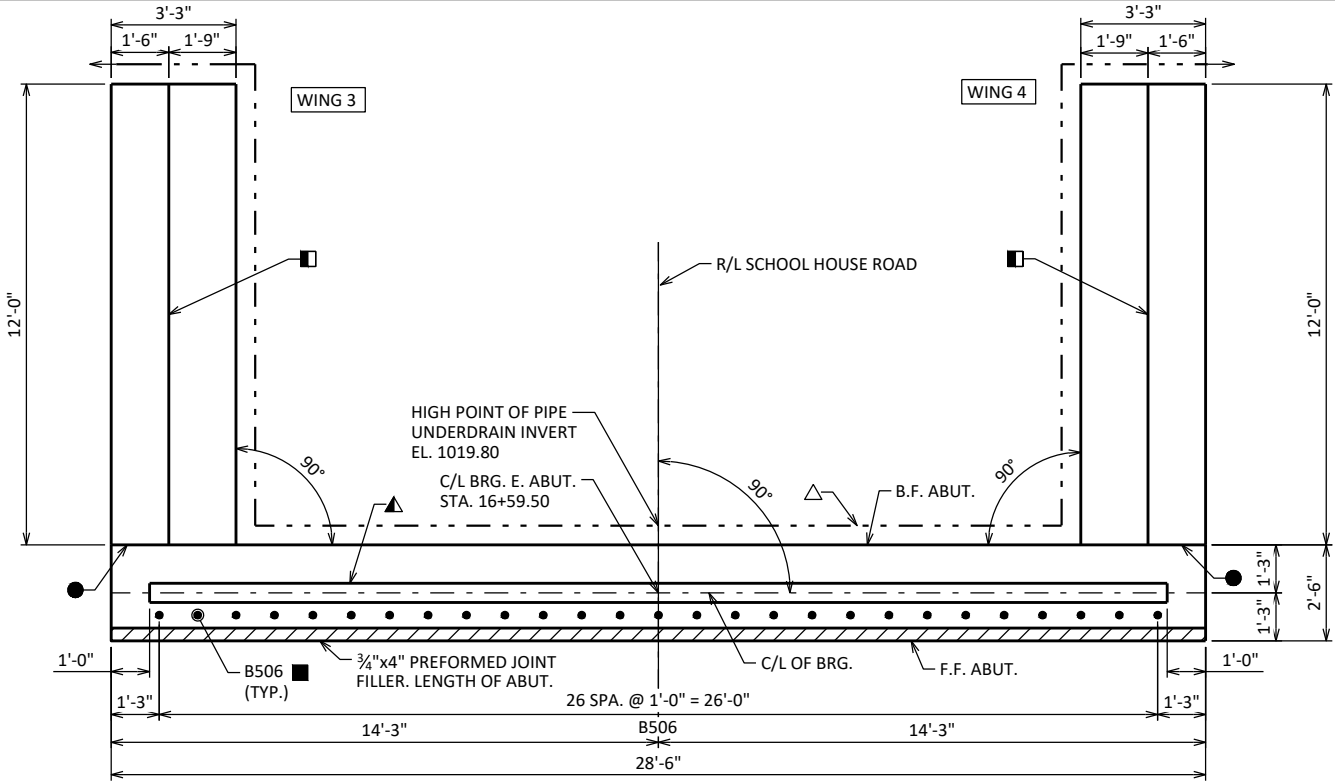
* * * DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

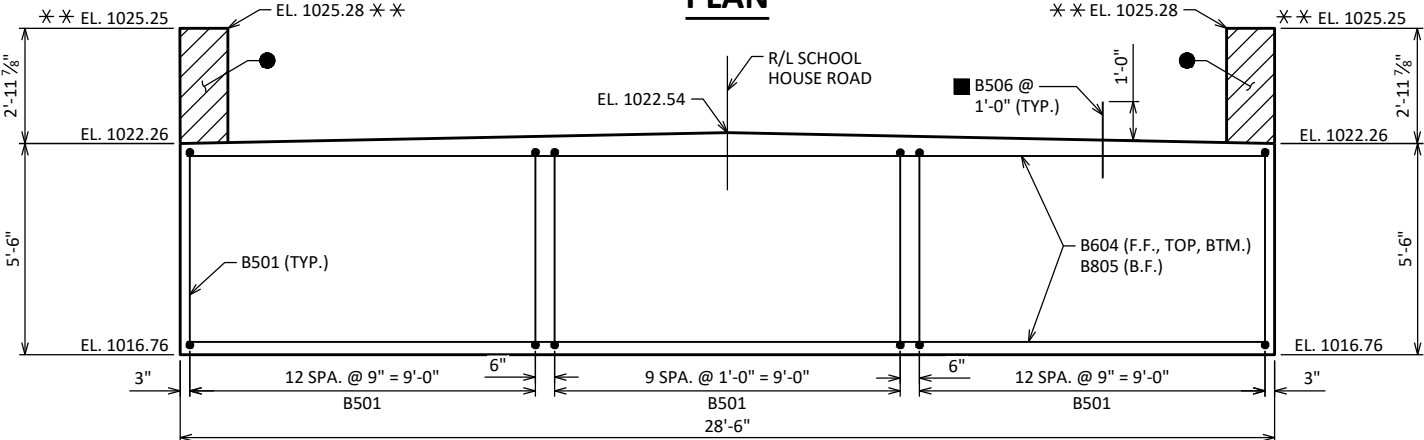
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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

NO.	DATE	REVISION	BY
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STRUCTURE B-58-138			
DRAWN BY ZHC		PLANS CK'D EJC	
EAST ABUTMENT		SHEET 6	

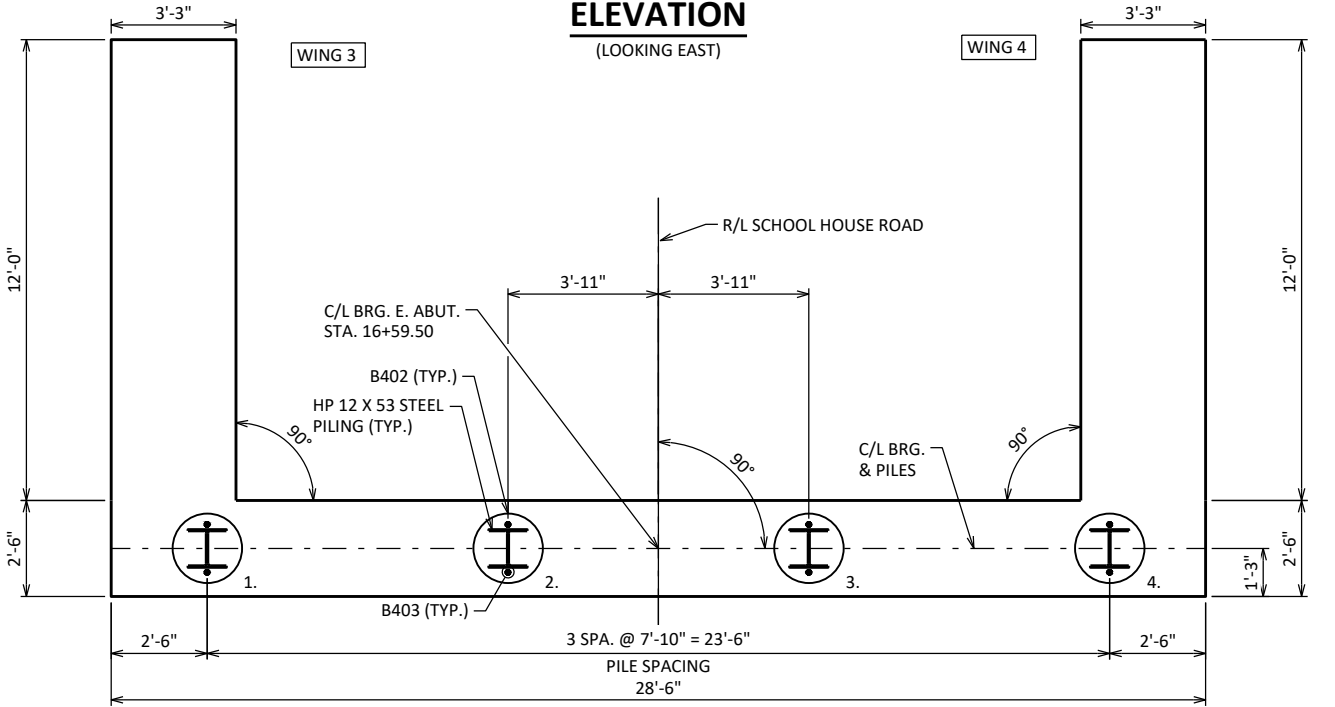
SCALE =



PLAN



ELEVATION
(LOOKING EAST)

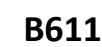
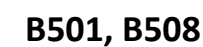


PILE PLAN

- ▲ **CONST. JOINT: KEYWAY FORMED BY A BEVELED 2"x6".**
- **OPTIONAL CONST. JOINT FORMED BY A BEVELED 2"x6" KEYWAY WITH MEMBRANE ON BACKFACE.**
- △ **PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. HIGH POINT EL. 1019.10 AT R/L. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN PER DETAIL ON "EAST ABUTMENT" SHEET.**
- **½" FILLER TO EXTEND FROM ABUTMENT SEAT TO TOP OF WING (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅜" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.**
- **18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.**
- **BARs @ 1'-0" CTRS. BARs MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)**



BAR MARK	NO. REQ'D	LENGTH	BENT	COAT	LOCATION
B501	36	15'-0"	X		LOWER BODY - VERT.
B402	4	28'-0"	X		LOWER BODY - PILES - SPIRAL
B403	8	2'-3"			LOWER BODY - PILES - VERT.
B604	11	28'-2"			LOWER BODY - TOP, BOT., & F.F. - HORIZ.
B805	7	30'-5"	X		LOWER BODY - B.F. - HORIZ.
B506	27	2'-0"		X	LOWER BODY - VERT. - TOP
B407	4	5'-1"			LOWER BODY - VERT. - ENDS
B508	26	16'-8"	X	X	LOWER WING - VERT. - WINGS 3 & 4
B509	14	14'-2"		X	LOWER WING - F.F. - HORIZ. - WINGS 3 & 4
B610	16	14'-2"		X	LOWER WING - B.F., TOP - HORIZ. - WINGS 3 & 4
B611	34	10'-8"	X	X	UPPER WING - VERT. - WINGS 3 & 4
B412	14	11'-7"		X	UPPER WING - F.F., B.F. - HORIZ. - WINGS 3 & 4
B613	4	11'-7"		X	UPPER WING - TOP - HORIZ. - WINGS 3 & 4

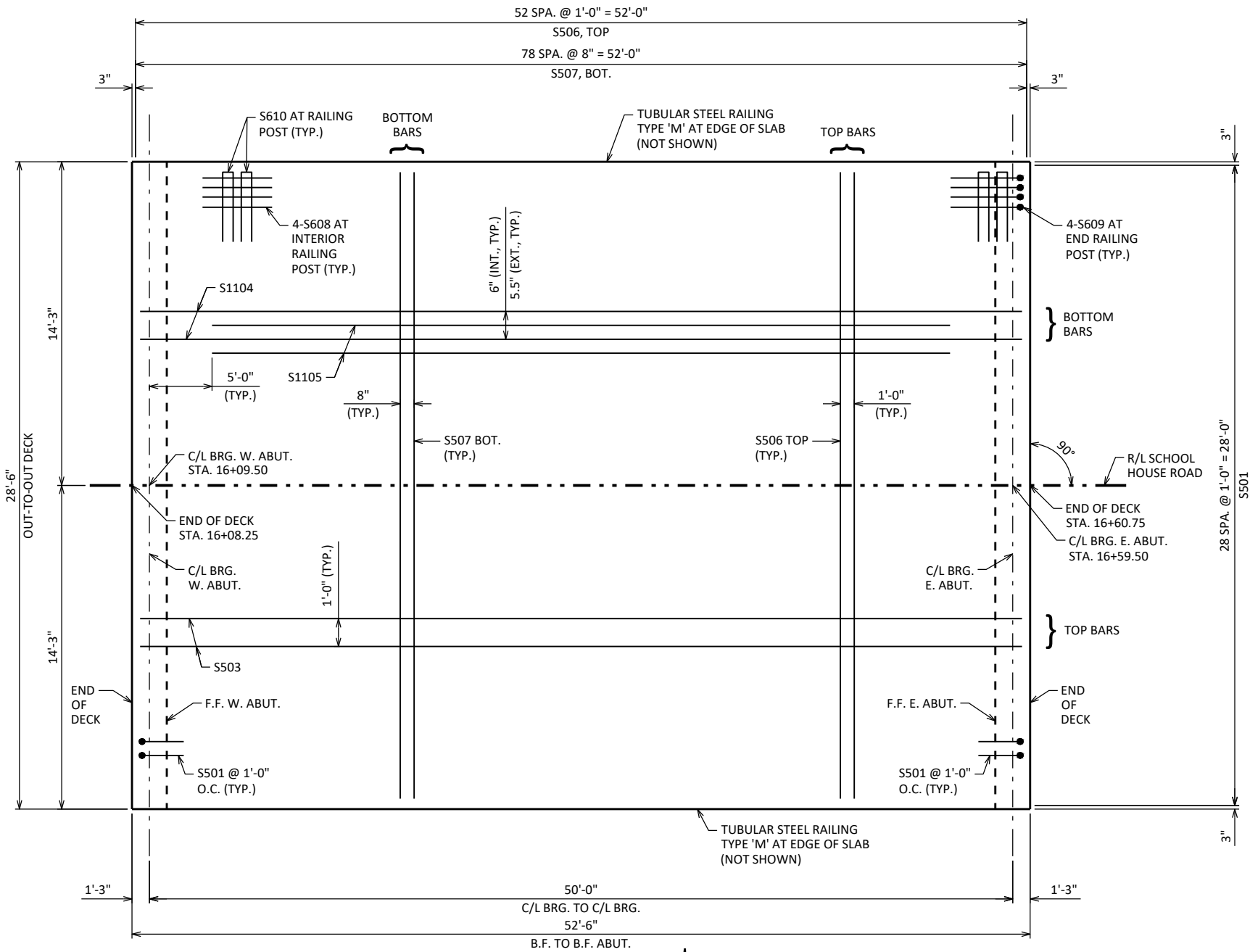


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-58-138	
	DRAWN BY	ZHC	PLANS CK'D EJC
EAST ABUTMENT DETAILS		SHEET 7	

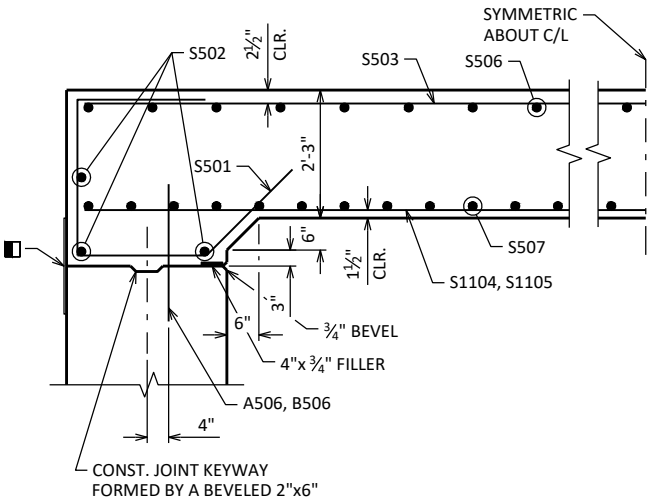
SCALE -

LEGEND

- CONST. JOINT: KEYWAY FORMED BY A BEVELED 2"x6".
- 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



PLAN



PART LONGITUDINAL SECTION

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-58-138			
DRAWN BY ZHC		PLANS CK'D EJC	
SUPERSTRUCTURE PLAN AND SECTION		SHEET 8	

SCALE =

NOTES

FILL IN THE TABLE OF "SURVEY TOP OF SLAB ELEVATIONS" FOR EACH SPAN ON AS BUILT PLANS.

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.

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

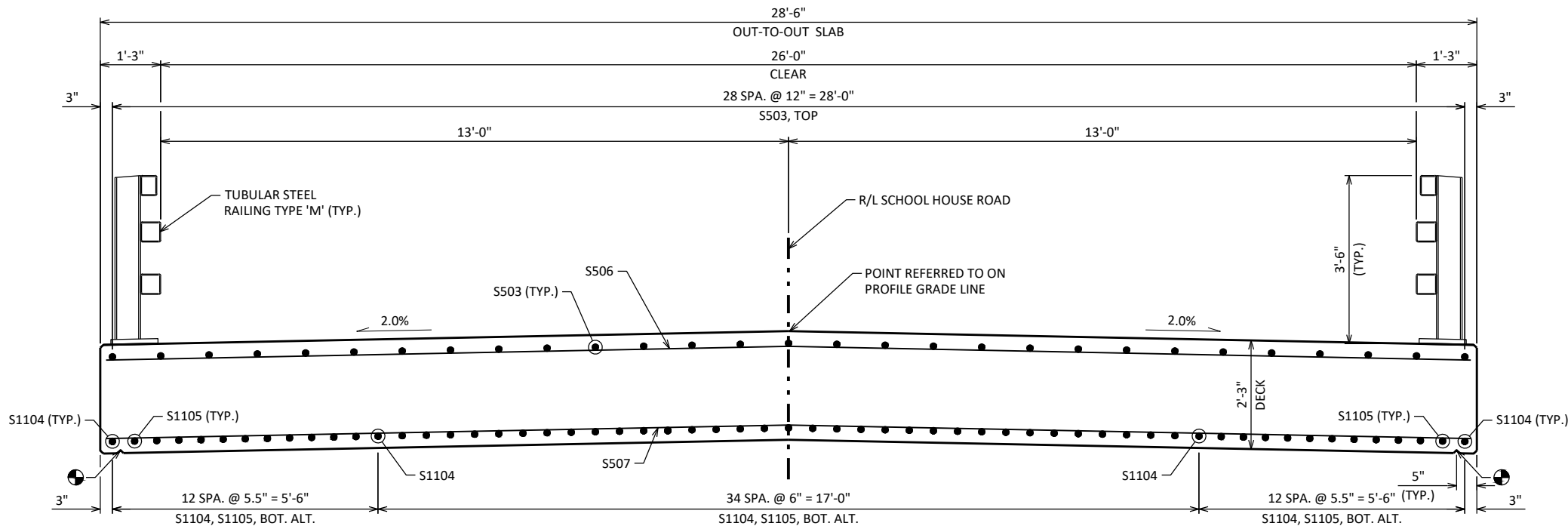
LEGEND

● ¾" V-GROOVE REQ'D. EXTEND TO 6" FROM F.F. OF ABUT. DIAPHRAGMS.

SURVEY TOP OF SLAB ELEVATIONS

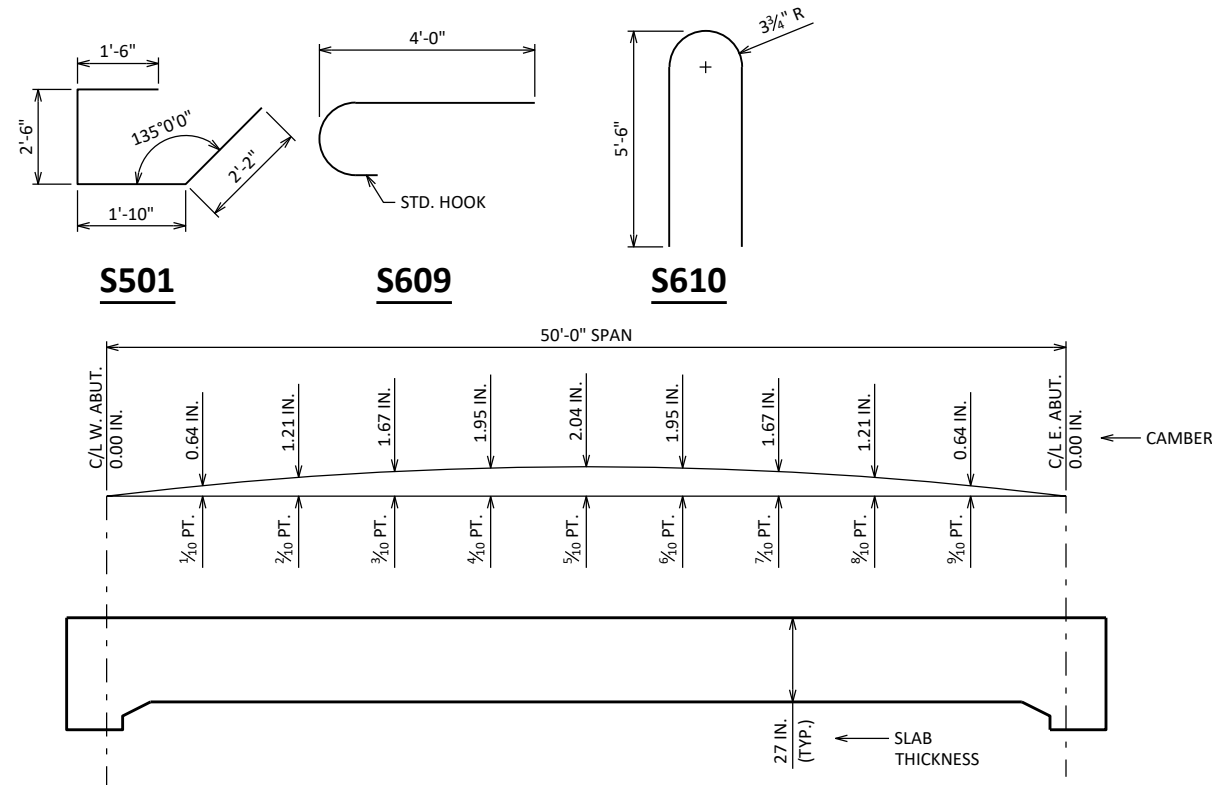
	W. ABUT.	5/10 PT.	E. ABUT.
NORTH EDGE OF SLAB			
CROWN ON R/L			
SOUTH EDGE OF SLAB			

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



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.

RAILINGS ON TOP OF THE SLAB SHALL BE PLACED 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
PLUS 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

TOP OF DECK ELEVATIONS

LOCATION	NORTH EDGE OF SLAB		C/L BRIDGE		SOUTH EDGE OF SLAB	
	14.25' LT		-		14.25' RT	
	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.
C/L W. ABUT.	16+09.50	1025.42	16+09.50	1025.71	16+09.50	1025.42
0.1L POINT	16+14.50	1025.41	16+14.50	1025.70	16+14.50	1025.41
0.2L POINT	16+19.50	1025.40	16+19.50	1025.69	16+19.50	1025.40
0.3L POINT	16+24.50	1025.39	16+24.50	1025.67	16+24.50	1025.39
0.4L POINT	16+29.50	1025.38	16+29.50	1025.66	16+29.50	1025.38
0.5L POINT	16+34.50	1025.36	16+34.50	1025.64	16+34.50	1025.36
0.6L POINT	16+39.50	1025.34	16+39.50	1025.63	16+39.50	1025.34
0.7L POINT	16+44.50	1025.32	16+44.50	1025.61	16+44.50	1025.32
0.8L POINT	16+49.50	1025.30	16+49.50	1025.59	16+49.50	1025.30
0.9L POINT	16+54.50	1025.28	16+54.50	1025.57	16+54.50	1025.28
C/L E. ABUT.	16+59.50	1025.26	16+59.50	1025.54	16+59.50	1025.26

ELEVATIONS SHOWN ARE FINISHED GRADE ELEVATIONS.

SUPERSTRUCTURE

BILL OF BARS

BAR MARK	NO. REQ'D	LENGTH	BENT	COAT	LOCATION
S501	58	7'-9"	X	X	ABUT. DIAPHRAGM - VERT.
S502	6	28'-2"		X	ABUT. DIAPHRAGM - HORIZ.
S503	29	52'-2"		X	SLAB - LONGIT. - TOP
S1104	30	52'-2"		X	SLAB - LONGIT. - BOTTOM
S1105	29	40'-0"		X	SLAB - LONGIT. - BOTTOM
S506	53	28'-2"		X	SLAB - TRANS. - TOP
S507	79	28'-2"		X	SLAB - TRANS. - BOTTOM
S608	56	6'-0"		X	SLAB - TUBULAR RAILING - INT. POST
S609	16	4'-8"	X	X	SLAB - TUBULAR RAILING - END POST
S610	36	11'-4"	X	X	SLAB - TUBULAR RAILING

COATED: 21,810 LBS

NO.	DATE	REVISION	BY
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STRUCTURE B-58-138			
DRAWN BY		ZHC	PLANS CK'D EJC
SUPERSTRUCTURE CROSS SECTION AND DETAILS		SHEET 9	

SCALE =

- ① W6x25 WITH $1\frac{1}{8}" \times 1\frac{1}{2}"$ HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6 CUT BOTTOM OF POST TO MATCH CROSS SLOPE OR ROADWAY. PLACE POST VERTICAL. PLACE NORMAL TO GRADE LINE.
- ② PLATE $1\frac{1}{4}" \times 11\frac{3}{4}" \times 1'-8"$ WITH $1\frac{1}{16}"$ DIA. OVERSIZE HOLES FOR ANCHOR BOLTS NO. 3 WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - $1\frac{1}{8}"$ 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 SUPERSTRUCTURE, USE 1'-3" LONG. (AN EQUIVALENT TREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D FOR CONSTRUCTABILITY.)
- ④ $\frac{5}{8}" \times 11" \times 1'-8"$ ANCHOR PLATE (GALVANIZED) WITH $1\frac{3}{16}"$ DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ $\frac{7}{8}"$ DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, $\frac{3}{16}" \times 1\frac{5}{8}" \times 1\frac{5}{8}"$ MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION).
- ⑦ NOT USED.
- ⑧ NOT USED.
- ⑨ SPLICE SLEEVE FABRICATED FROM $\frac{1}{4}"$ PLATE. PROVIDE "SLIDING FIT".
- ⑩ $\frac{3}{8}" \times 3\frac{5}{8}" \times 2'-4"$ PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A $\frac{3}{8}" \times 2\frac{5}{8}" \times 2'-4"$ PLATE USED IN NO. 5, $\frac{3}{8}" \times 3\frac{5}{8}" \times 2'-4"$ PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ $\frac{7}{8}"$ DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE $1\frac{5}{16}" \times 1\frac{1}{4}"$ LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS. PROVIDE $1\frac{5}{16}"$ DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- ⑫ NOT USED.
- ⑬ NOT USED.
- ⑭ NOT USED.
- ⑮ NOT USED.

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

- ▲ PLACE REINFORCING BELOW TOP MAT OF SLAB REINFORCEMENT.
- ▲ TIE TO TOP MAT OF STEEL.
- ✱ ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.
- $\frac{1}{4}$ " TO $\frac{3}{4}$ " AT ABUTMENTS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-38-138			
DRAWN BY		ZHC	PLANS CK'D EJC
TUBULAR STEEL RAILING TYPE 'M'		SHEET 10	



LOCATION MUST BE SHOWN
ON SHOP DRAWINGS



REINFORCEMENT AT CORNERS



NOTE: CONNECTIONS AT LOWER RAILS SHOWN.
CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

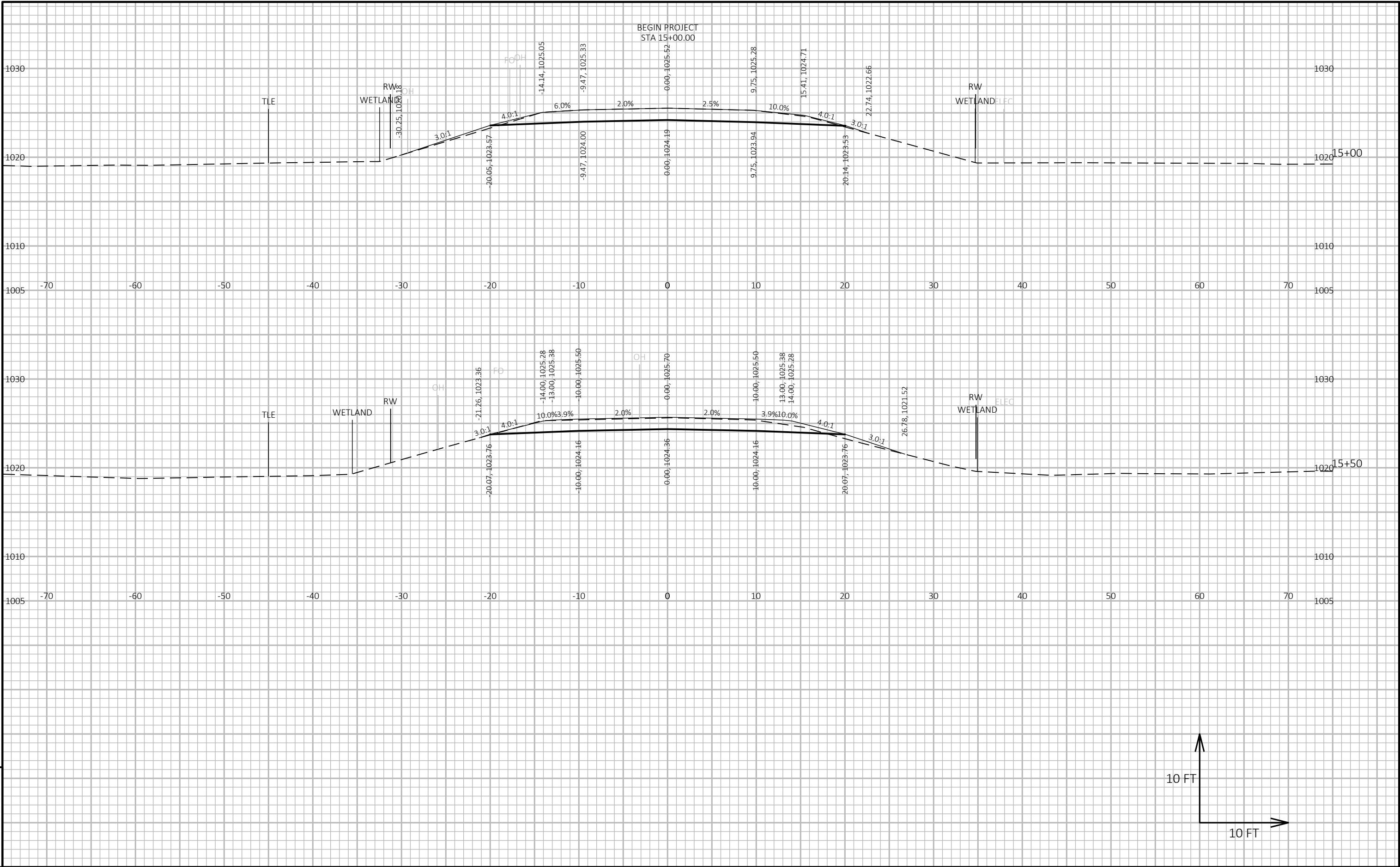


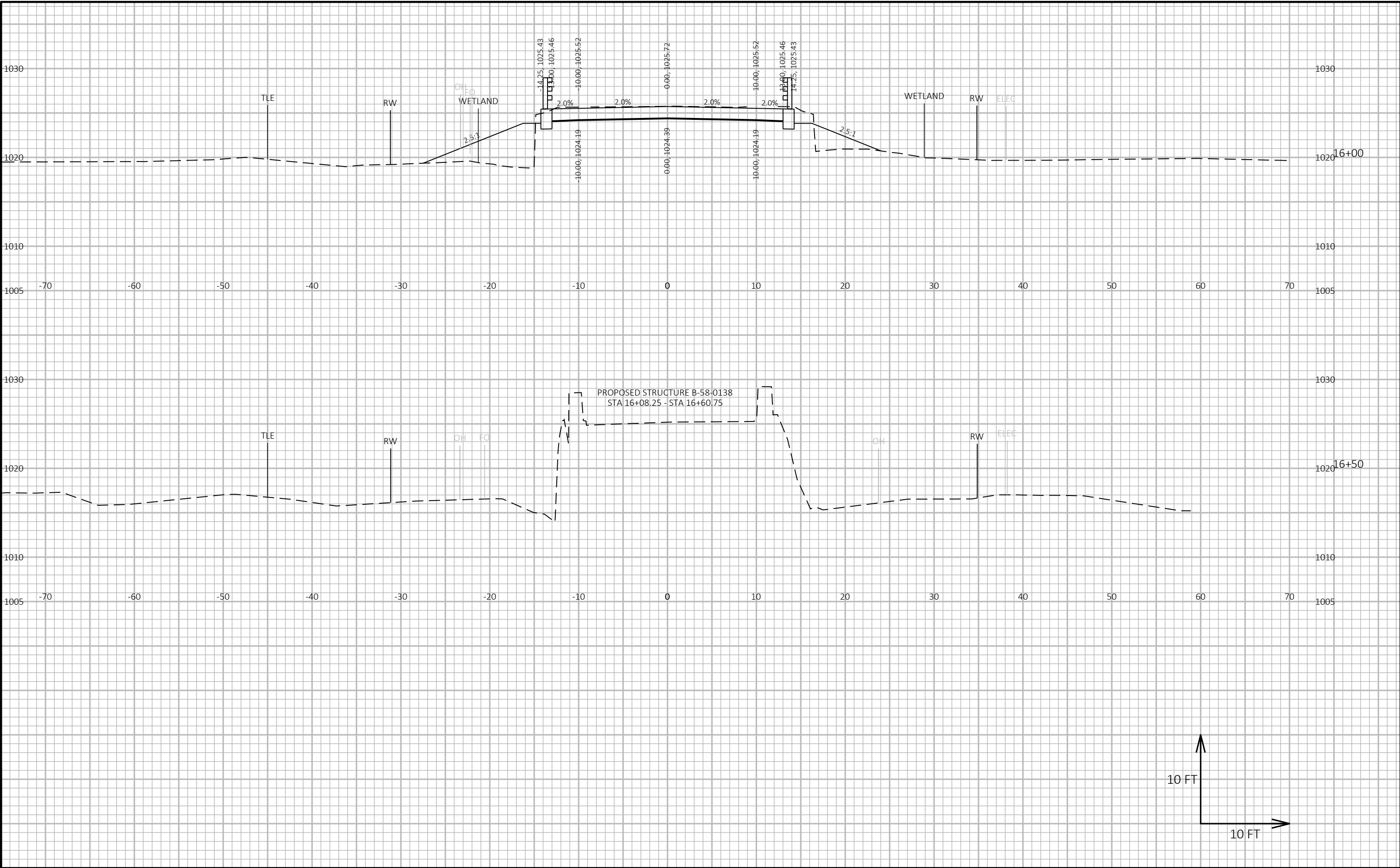
SCHOOL HOUSE ROAD		AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
STATION	DISTANCE	CUT	FILL	EBS (5% OF CUT)	CUT NOTE 1	FILL	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 2
15+00	0	42.9	2.0	2.1	0	0	0	0	0	0
15+50	50	39.5	2.3	2.0	76	4	4	76	5	71
16+00	50	44.1	0.0	2.2	77	2	4	153	8	146
16+08	8	44.0	0.0	2.2	13	0	1	166	8	159
16+61	0	33.1	0.0	1.7	0	0	0	166	8	159
17+00	39	40.9	0.5	2.0	53	0	3	219	8	212
17+10	10	44.6	0.0	2.2	16	0	1	235	8	228
COLUMN TOTALS					235	6	13			

NOTES:

1) CUT: CUT INCLUDES SALVAGED PAVEMENT MATERIAL

2) MASS ORDINATE: MASS ORDINATE = (CUT) - (FILL * FILL FACTOR)







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