

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

KAUKAUNA - ANGELICA

CULVERT REPLACEMENT

STH 55

SHAWANO COUNTY

STATE PROJECT NUMBER 6524-03-60

SHAWANO - GILLETT

CULVERT REPLACEMENT C-58-024

STH 22

SHAWANO COUNTY

STATE PROJECT NUMBER 9180-17-60

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6524-03-60 (STH 55)	WISC 2019627	1
9180-17-60 (STH 22)	WISC 2019628	1

ORDER OF SHEETS

Section No.	Title
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 = 66

PROJECT ID: 6524-03-60 and 9180-17-60
WITH: 9180-17-60 (STH 22)

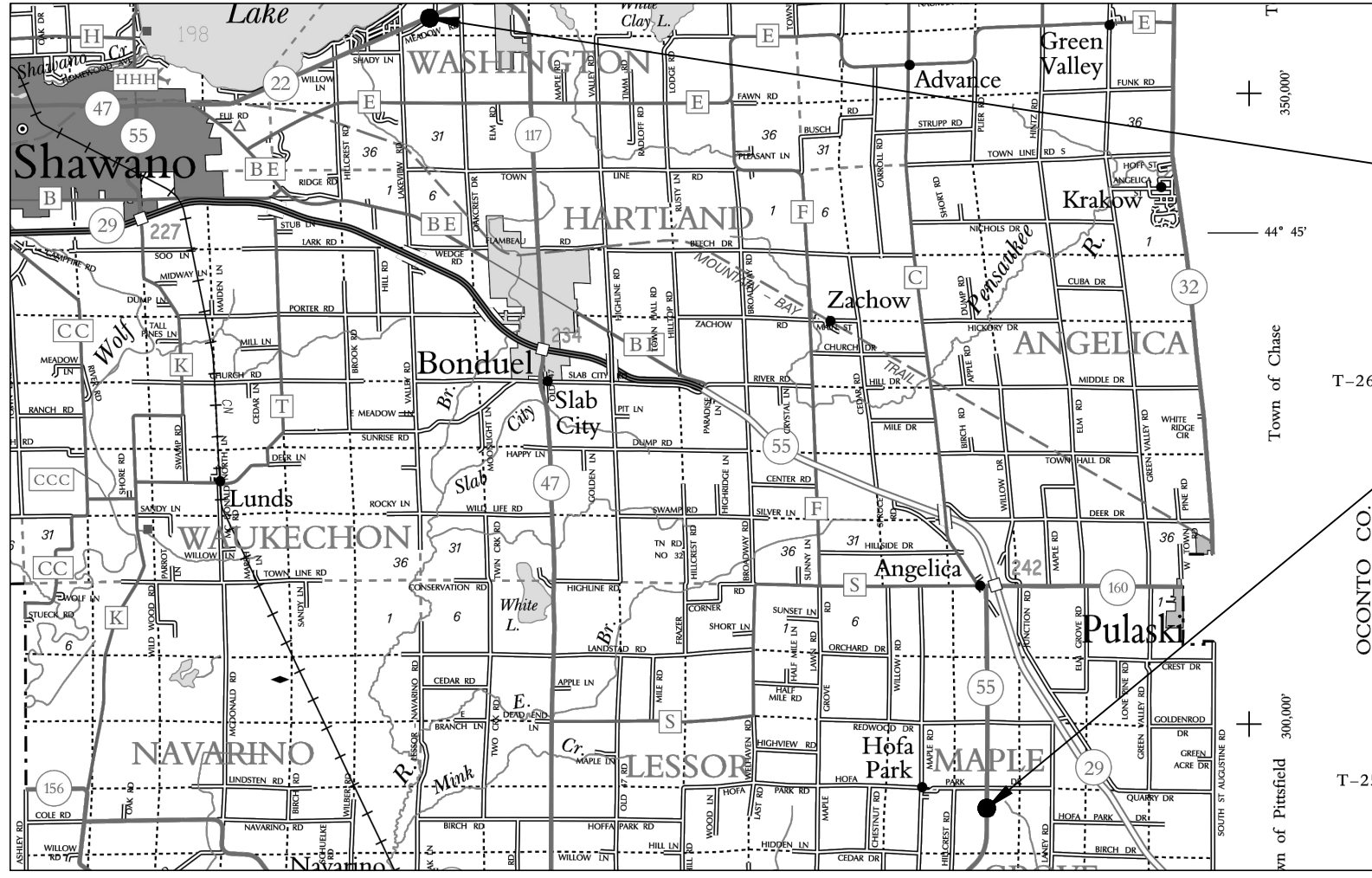


DESIGN DESIGNATION 9180-17-60 6524-03-60

A.A.D.T. 2020	=	5600 (STH 22), 2200 (STH 55)
A.A.D.T. 2040	=	7400 (STH 22), 2500 (STH 55)
D.H.V.	=	320 (STH 22), 480 (STH 55)
D.D.	=	60/40 (STH 22), 60/40 (STH 55)
T.	=	6.2% (STH 22), 22.1% (STH 55)
DESIGN SPEED	=	60 MPH
ESALS	=	1,065,600

CONVENTIONAL SYMBOLS

<p>PLAN</p> <p>CORPORATE LIMITS </p> <p>PROPERTY LINE </p> <p>LOT LINE </p> <p>LIMITED HIGHWAY EASEMENT </p> <p>EXISTING RIGHT OF WAY </p> <p>PROPOSED OR NEW R/W LINE </p> <p>SLOPE INTERCEPT </p> <p>REFERENCE LINE </p> <p>EXISTING CULVERT </p> <p>PROPOSED CULVERT (Box or Pipe) </p> <p>COMBUSTIBLE FLUIDS </p> <p>MARSH AREA </p> <p>WOODED OR SHRUB AREA </p>	<p>PROFILE</p> <p>GRADE LINE </p> <p>ORIGINAL GROUND </p> <p>MARSH OR ROCK PROFILE (To be noted as such) </p> <p>SPECIAL DITCH </p> <p>GRADE ELEVATION </p> <p>CULVERT (Profile View) </p> <p>UTILITIES</p> <p>ELECTRIC </p> <p>FIBER OPTIC </p> <p>GAS </p> <p>SANITARY SEWER </p> <p>STORM SEWER </p> <p>TELEPHONE </p> <p>WATER </p> <p>UTILITY PEDESTAL </p> <p>POWER POLE </p> <p>TELEPHONE POLE </p>
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LAYOUT
SCALE 0 2.5 MI
TOTAL NET LENGTH OF CENTERLINE = 0.2 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.

CULVERT C-58-024
9180-17-60 (STH 22)

CULVERT C-58-076
6524-03-60 (STH 55)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	Surveyor	BECHER HOPPE
Designer	TED SMITH	
Project Manager	JIM VOLKMANN	
Regional Examiner	CHERYL SIMON	
Regional Supervisor	MICHAEL WENDT	

APPROVED FOR THE DEPARTMENT
DATE: 7/8/2019

(Signature)

GENERAL NOTES

1. WHEN THE QUANTITY OF THE ITEM HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE & THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION ON THE MATERIAL AS DIRECTED BY THE ENGINEER.
2. THE LOCATION OF EXISTING & PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLAN.
3. NOT ALL UTILITIES ARE PART OF DIGGERS HOTLINE AND WILL NEED TO BE CONTACTED DIRECTLY.

CONTACTS

PROJECT 6524-03-60 (STH 55)

CENTURY LINK – COMMUNICATIONS LINE
 212 CHURCH AVENUE
 CASCO, WI 54205
 MATT GUNDERSON
 920-837-2344 (O) , 920-896-2867 (M)

NORTHEAST TELEPHONE – COMMUNICATIONS LINE
 5475 GLENDALE AVENUE
 GREEN BAY, WI 54313
 CHRIS HINES
 920-865-3166 (O) , 920-373-4603 (M)

WE ENERGIES – ELECTRIC
 800 S. LYNNDALE DRIVE
 APPLETON, WI 54912
 KENNETH VAN OSS
 920-380-3318

PROJECT 9180-17-60 (STH 22)

FRONTIER COMMUNICATIONS – COMMUNICATIONS LINE
 26 W. 12TH STREET
 CLINTONVILLE, WI 54929
 JAMES JASKOLSKI
 715-823-1227

PACKERLAND BROADBAND – COMMUNICATIONS LINE
 PO BOX 885
 IRON MOUNTAIN, MI 49801
 ANDY HEIGL
 906-774-6621 (O) , 906-221-7536 (M)

WE ENERGIES – ELECTRIC
 800 S. LYNNDALE DRIVE
 APPLETON, WI 54912
 KENNETH VAN OSS
 920-980-3318

AS-BUILT PLANS USED

STH 22 (C-58-023)
 F 039-2(15)
 F 039-2(17)
 9180-11-71

STH 55 (C-58-076)
 6524-01-71



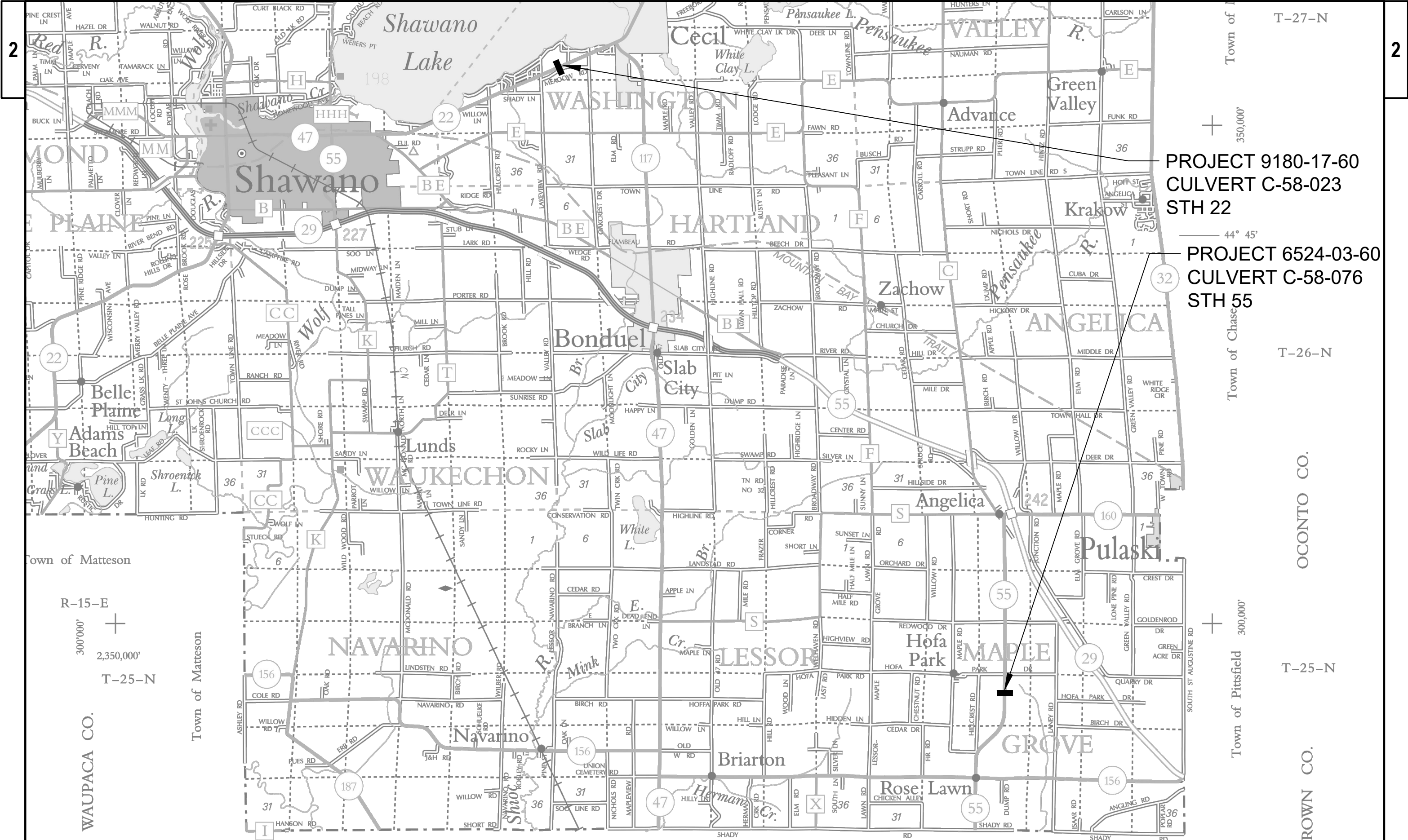
Dial **811** or (800)242-8511

www.DiggersHotline.com

RUNOFF COEFFICIENT TABLE

A	HYDROLOGIC SOIL GROUP											
	B			C			D			E		
	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	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.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 = 0.334 ACRES (STH 22); 0.184 ACRES (STH 55)
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.334 ACRES (STH 22); 0.184 ACRES (STH 55)

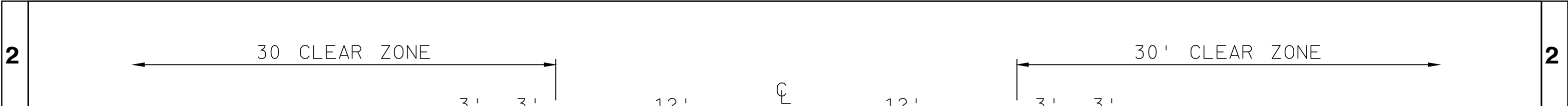


PROJECT 9180-17-60
 CULVERT C-58-023
 STH 22

PROJECT 6524-03-60
 CULVERT C-58-076
 STH 55

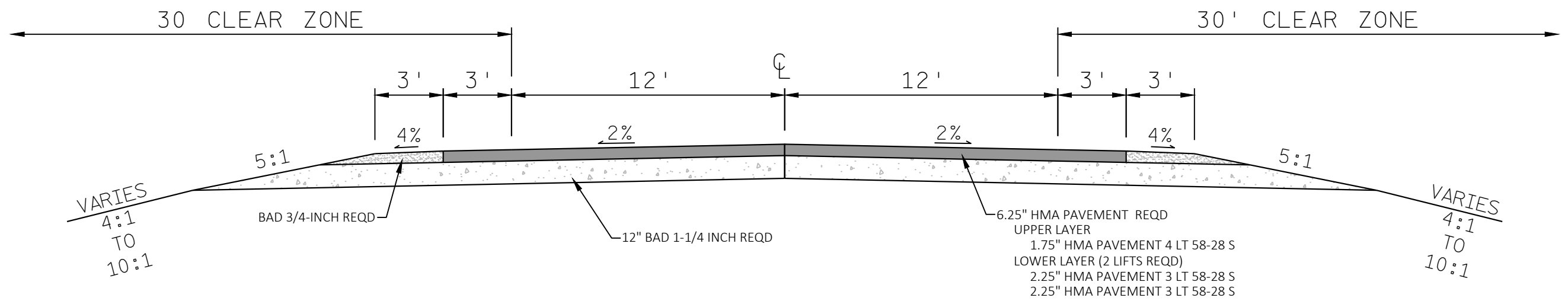
PROJECT NO: 6524-03-60 / 9180-17-60 HWY: STH 55 / STH 22 COUNTY: SHAWANO PROJECT OVERVIEW SHEET E

FILE NAME : N:\PDS\C3D\10094438\SHEETS\PLAN\020201-PO.DWG PLOT DATE : 9/13/2018 1:01 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : ##### WISDOT/CADD SHEET 42



3.5" EXISTING ASPHALTIC PAVEMENT
 10" EXISTING ASPHALTIC SURFACE
 EXISTING C&G

EXISTING TYPICAL SECTION



VARIES
 4:1
 TO
 10:1

BAD 3/4-INCH REQD

12" BAD 1-1/4 INCH REQD

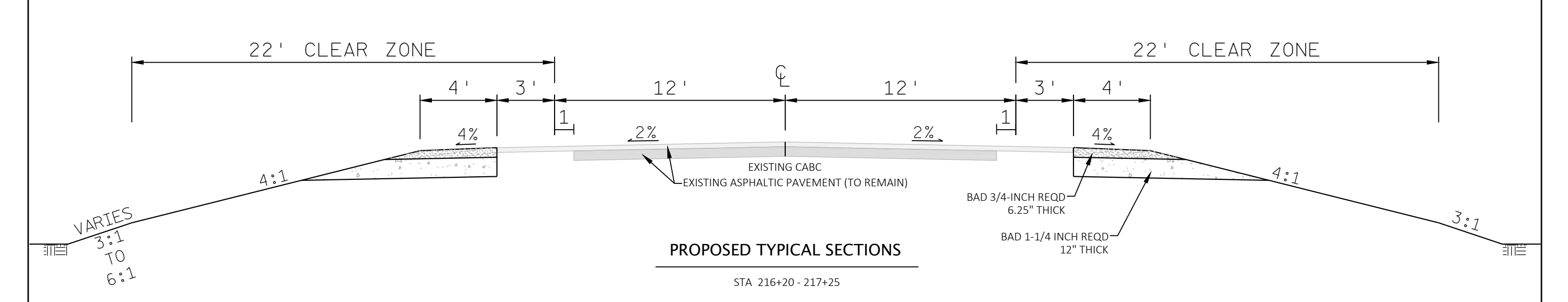
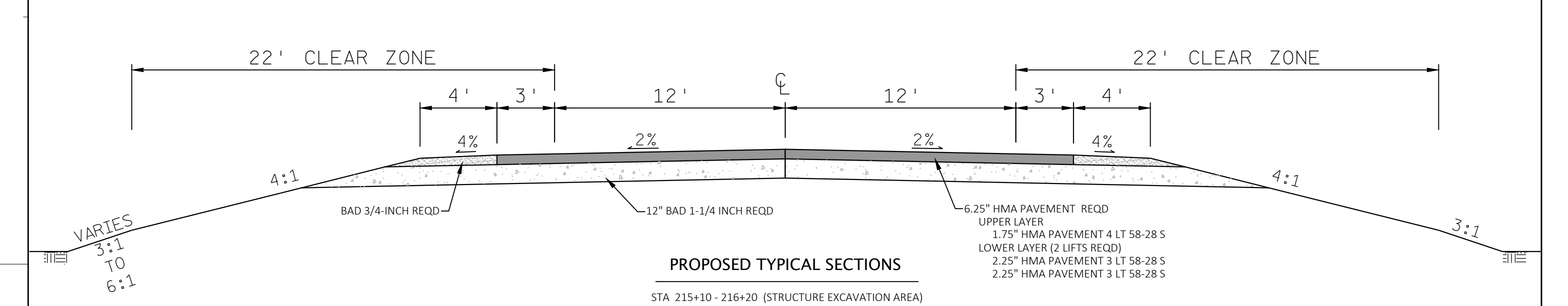
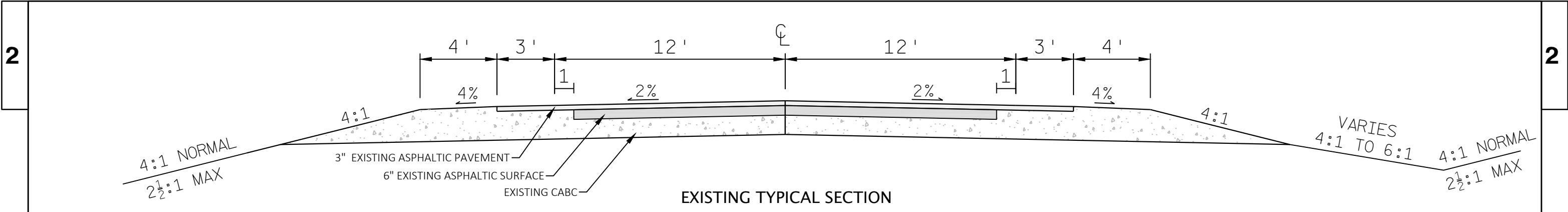
6.25" HMA PAVEMENT REQD
 UPPER LAYER
 1.75" HMA PAVEMENT 4 LT 58-28 S
 LOWER LAYER (2 LIFTS REQD)
 2.25" HMA PAVEMENT 3 LT 58-28 S
 2.25" HMA PAVEMENT 3 LT 58-28 S

VARIES
 4:1
 TO
 10:1

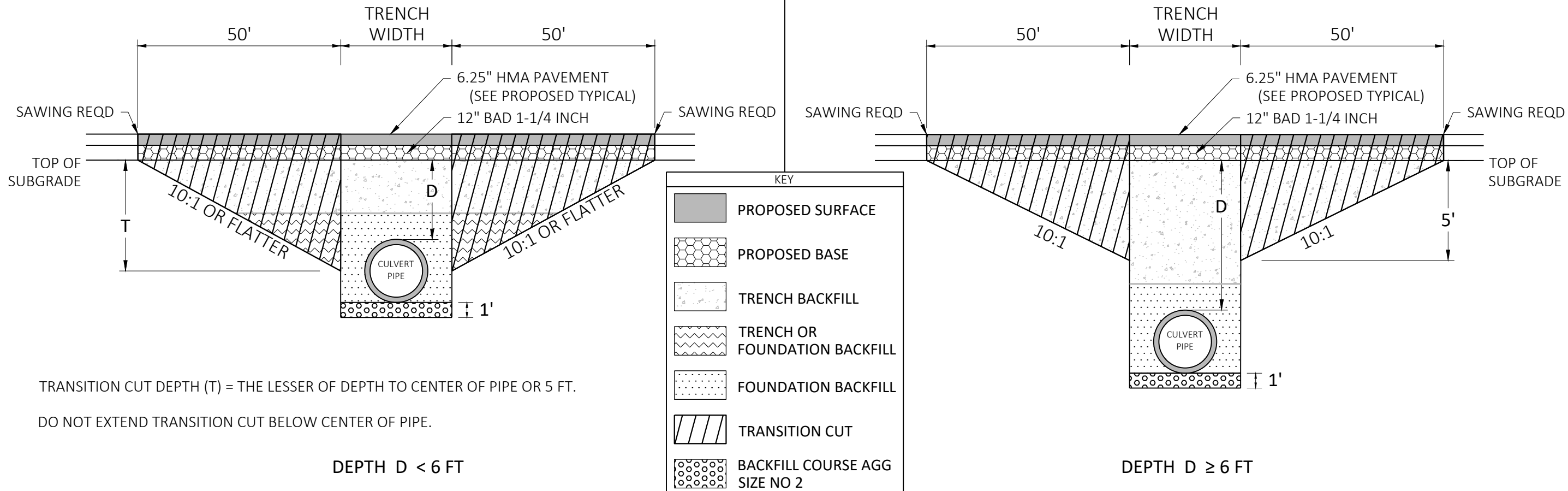
PROPOSED TYPICAL SECTION

STA 187+22 - 188+42

6524-03-60
STH 55
C-58-076



9180-17-60
STH 22
C-58-023

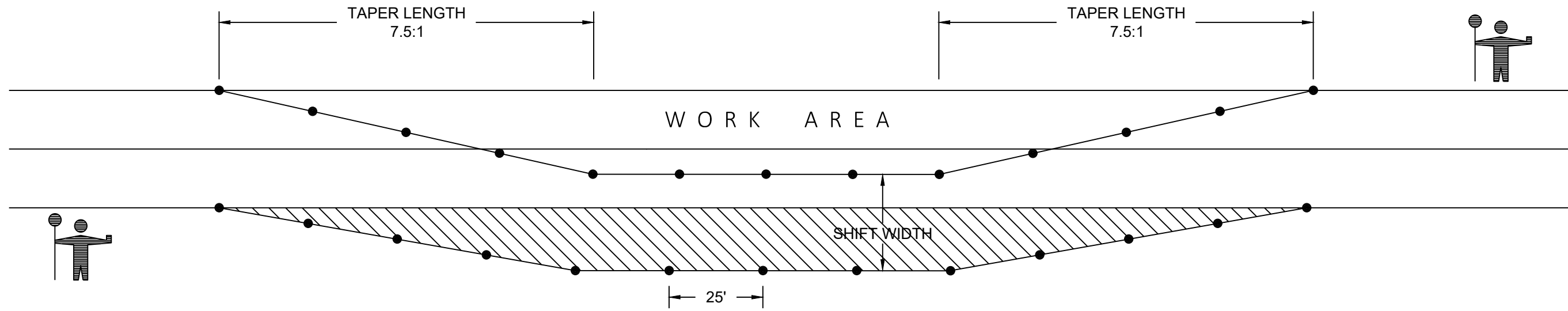


NOTES

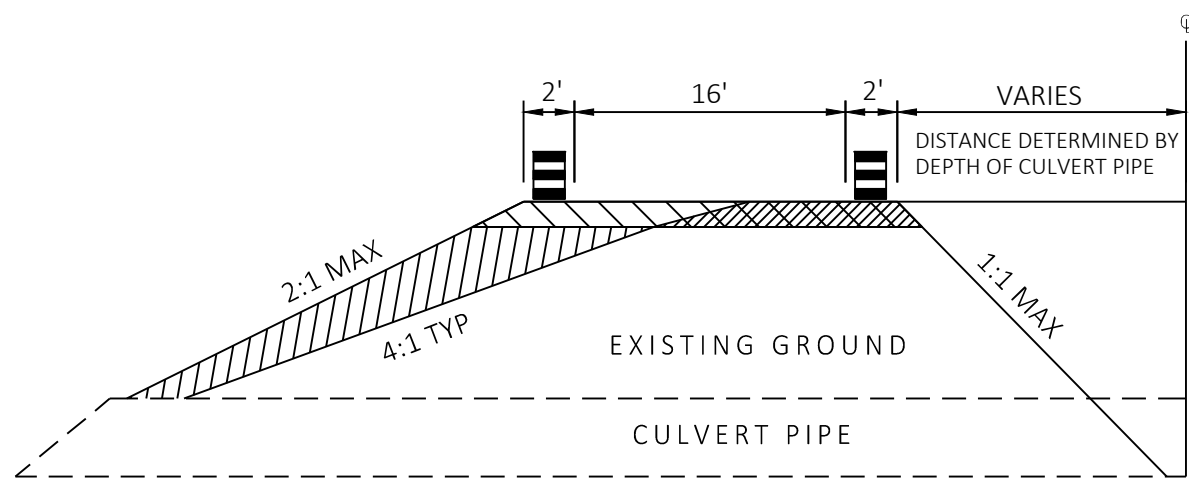
- TRANSITION CUT IS PAID AS EXCAVATION COMMON.
- TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.
- BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.

CULVERT PIPE TRANSITION

LOCATION	ID	DEPTH D	PIPE DIA
STH 55	C-58-076	2.8 FT	58 x 91-INCH RCHE CLASS HE-III



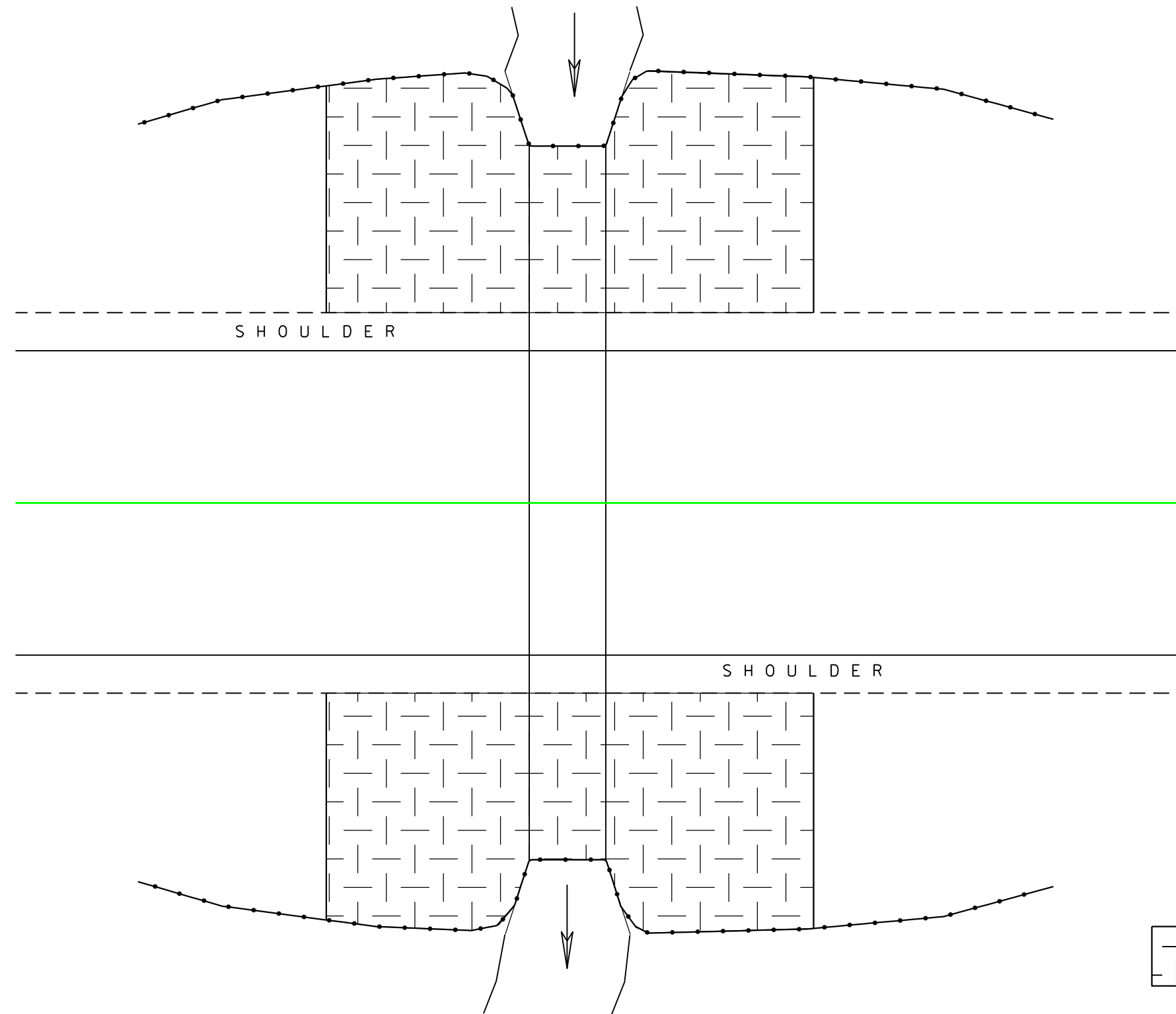
- NOTES
1. EXTEND TAPERS ACROSS THE SHOULDER UNLESS DOING SO WOULD GREATLY CONFLICT WITH THE WORK OPERATION
 2. WHEN WORK IS NOT IN PROGRESS:
 - REMOVE OR COVER ALL LANE CLOSURE SIGNS
 - MOVE ALL DEVICES A SAFE DISTANCE OUTSIDE THE SHOULDER
 - RESTORE LANES TO A SAFE OPERATING CONDITION
 3. USE WITH SDD "TRAFFIC CONTROL FOR LANE CLOSURE"



KEY

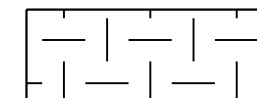
●	TRAFFIC CONTROL DRUM
▨	EXISTING PAVE SURFACE -OR- 6" BASE AGGREGATE DENSE 1 1/4 INCH - INCIDENTAL TO LANE SHIFT SYSTEM
▧	6" BASE AGGREGATE DENSE 1 1/4 INCH - INCIDENTAL TO LANE SHIFT SYSTEM
▩	FILL - INCIDENTAL TO LANE SHIFT SYSTEM

LANE SHIFT DETAIL
 STA 185+10 - 190+40 (STH 55)



S H O U L D E R

S H O U L D E R



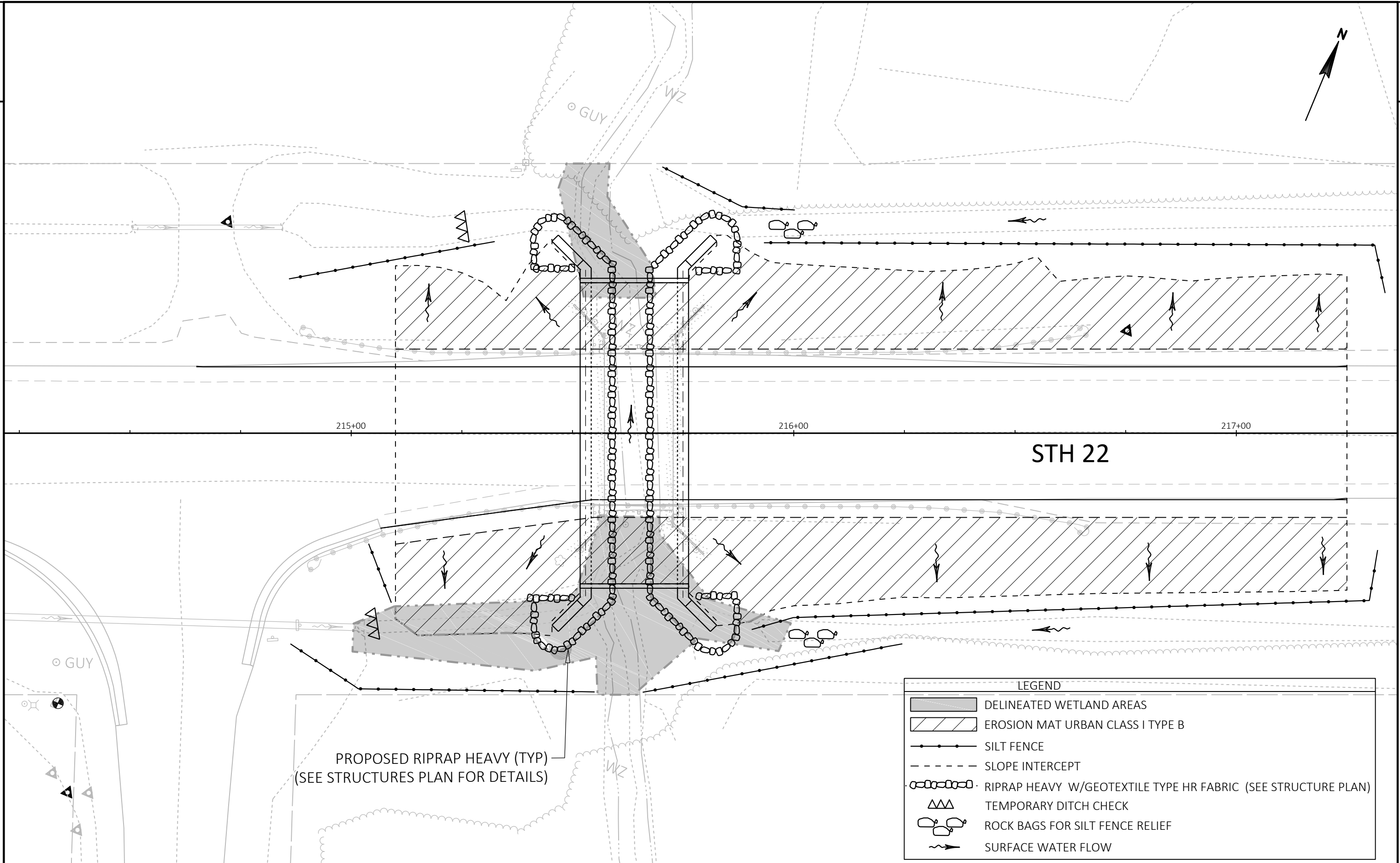
EMAT, TOPSOIL,
FERTILIZER, & SEED



SILT FENCE

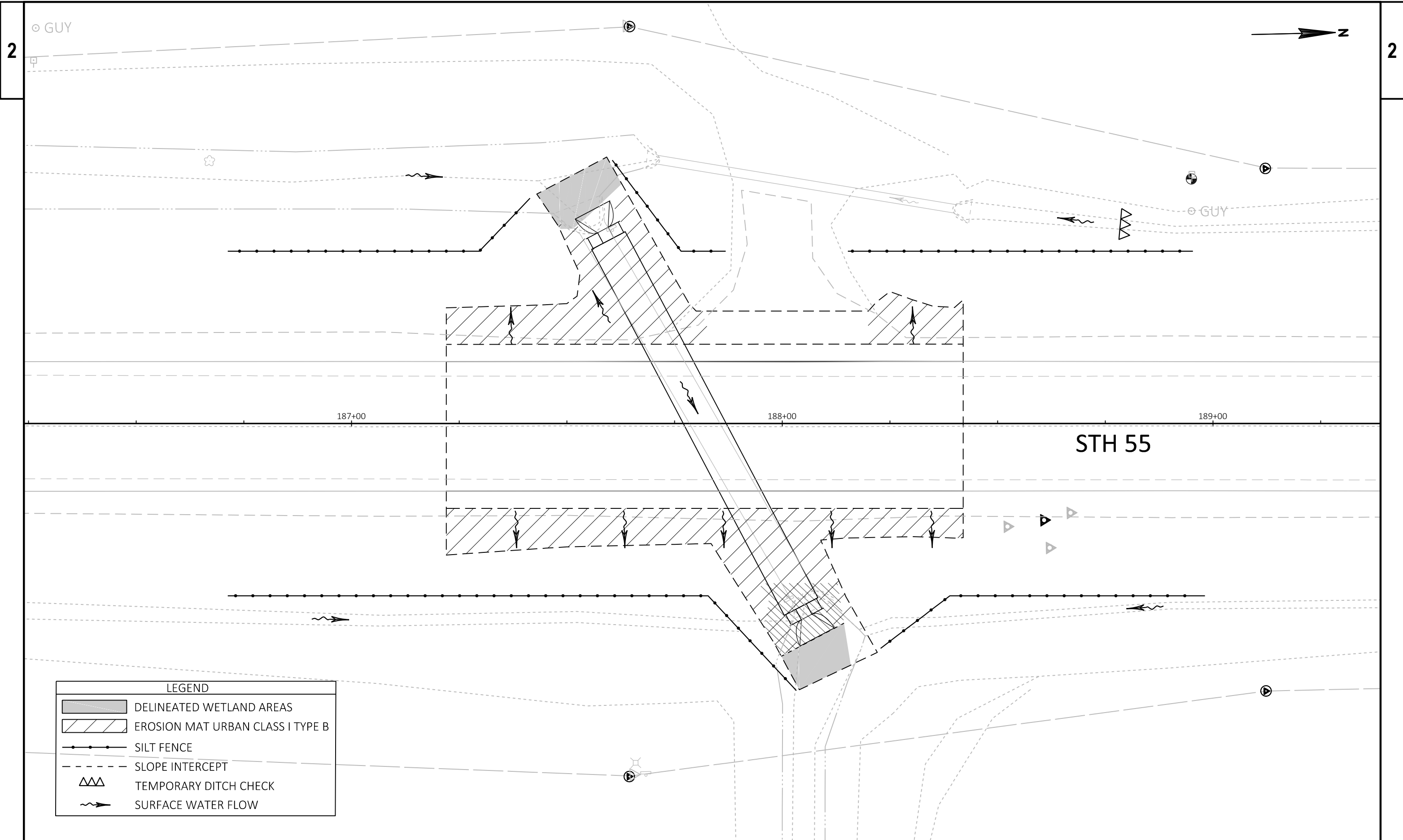
DETAIL FOR EROSION CONTROL AT CULVERT PIPES

STA 215+65 LT&RT (STH 22)
STA 187+82 LT&RT (STH 55)



PROPOSED RIPRAP HEAVY (TYP)
(SEE STRUCTURES PLAN FOR DETAILS)

LEGEND	
	DELINEATED WETLAND AREAS
	EROSION MAT URBAN CLASS I TYPE B
	SILT FENCE
	SLOPE INTERCEPT
	RIPRAP HEAVY W/GEOTEXTILE TYPE HR FABRIC (SEE STRUCTURE PLAN)
	TEMPORARY DITCH CHECK
	ROCK BAGS FOR SILT FENCE RELIEF
	SURFACE WATER FLOW



LEGEND	
	DELINEATED WETLAND AREAS
	EROSION MAT URBAN CLASS I TYPE B
	SILT FENCE
	SLOPE INTERCEPT
	TEMPORARY DITCH CHECK
	SURFACE WATER FLOW

PROJECT NO: 6524-03-60 / 9180-17-60

HWY: STH 55 / STH 22

COUNTY: SHAWANO

EROSION CONTROL

STH 55

SHEET

E

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LAYOUT NAME - 022002-ec

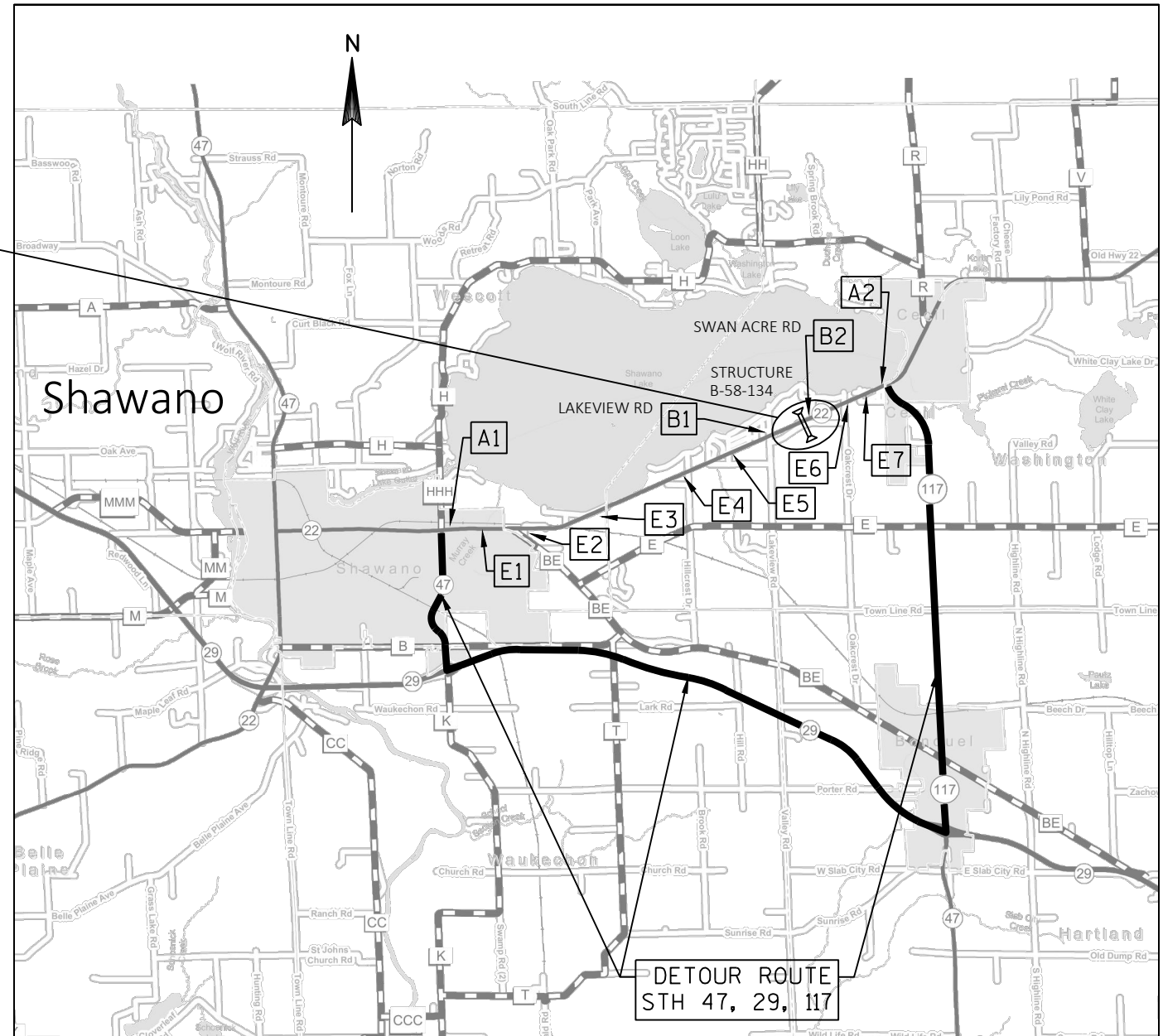
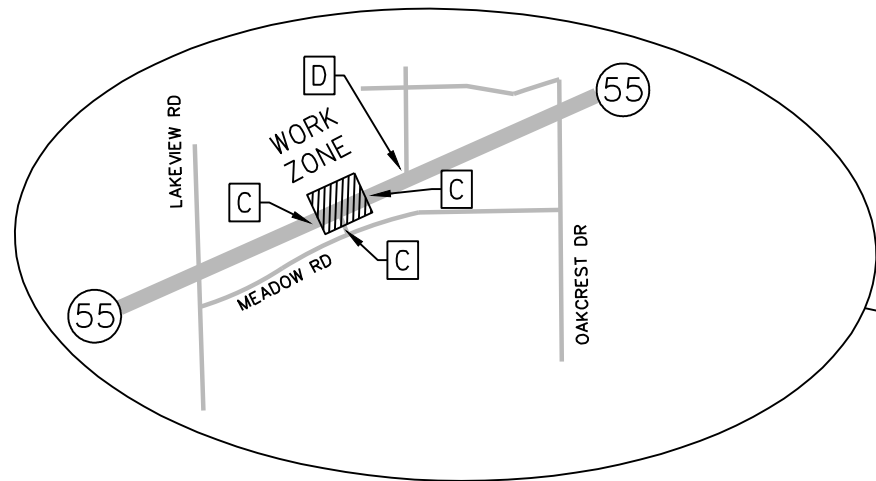
PLOT DATE : 9/13/2018 1:06 PM

PLOT BY : BAIER, GERARD M

PLOT NAME :

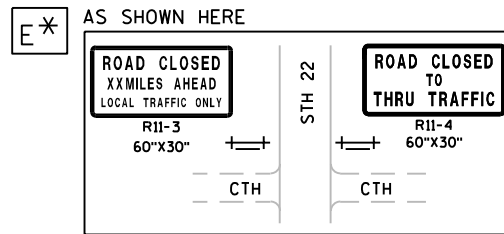
PLOT SCALE : 1 IN:20 FT

WISDOT/CADD SHEET 42



- A* SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL A
- B* SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL C
- C SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL D
- D SEE SDD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES" DETAIL 4

DISTANCES FOR ROAD CLOSED SIGNS		
A1	5	MILES
A2	1	MILES
B1	1	MILES
B2	1	MILES
E1	4	MILES
E2	4	MILES
E3	3	MILES
E4	2	MILES
E5	1	MILES
E6	1	MILES
E7	1	MILES



—+— TYPE III BARRICADE WITH ATTACHED SIGN

GENERAL NOTES

1. THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER
2. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED
3. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE
4. ALL TYPE III BARRICADES SHALL BE 8' WIDE, UNLESS OTHERWISE NOTED. EQUIP WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS PER SDDS
5. MAINTAIN ALL EXITING STOP SIGNS AT ALL TIMES
6. FOR NIGHTTIME OPERATION, ALL DRUMS IN TAPERS SHALL HAVE A TYPE C WARNING LIGHT
7. A FLAGGER MAY BE REQUIRED WHERE CONSTRUCTION VEHICLES ENTER OR LEAVE WORK AREAS IF WARRANTED BY CONDITIONS OR AS DIRECTED BY THE ENGINEER

101

JCT COUNTY HHH NORTH M3-1 24"x12" 22 MI-6 24"x24" DETOUR AHEAD

102

DETOUR M4-8 24"x12" NORTH BUSINESS SOUTH SOUTH 22 29 47 55 M05-1R 21"x21" COVER*

103

DETOUR M4-8 24"x12" NORTH M3-1 24"x12" 22 MI-6 24"x24" M06-1 21"x21"

104

DETOUR M4-8 24"x12" NORTH M3-1 24"x12" 22 MI-6 24"x24" DETOUR AHEAD

105

DETOUR M4-8 24"x12" NORTH BUSINESS SOUTH M3-1 24"x12" 22 SOUTH M3-3 24"x12" 22 MI-6 24"x24" M06-1 21"x21" COVER*

106

DETOUR M4-8 24"x12" SOUTH SOUTH BUSINESS NORTH M3-1 24"x12" 22 MI-6 24"x24"

109

DETOUR M4-8 24"x12" EAST SOUTH SOUTH NORTH M3-1 24"x12" 22 MI-6 24"x24" M05-1L 21"x21"

110

DETOUR M4-8 24"x12" EAST SOUTH SOUTH NORTH M3-1 24"x12" 22 MI-6 24"x24" M06-1 21"x21"

111

DETOUR M4-8 24"x12" EAST SOUTH SOUTH NORTH M3-1 24"x12" 22 MI-6 24"x24"

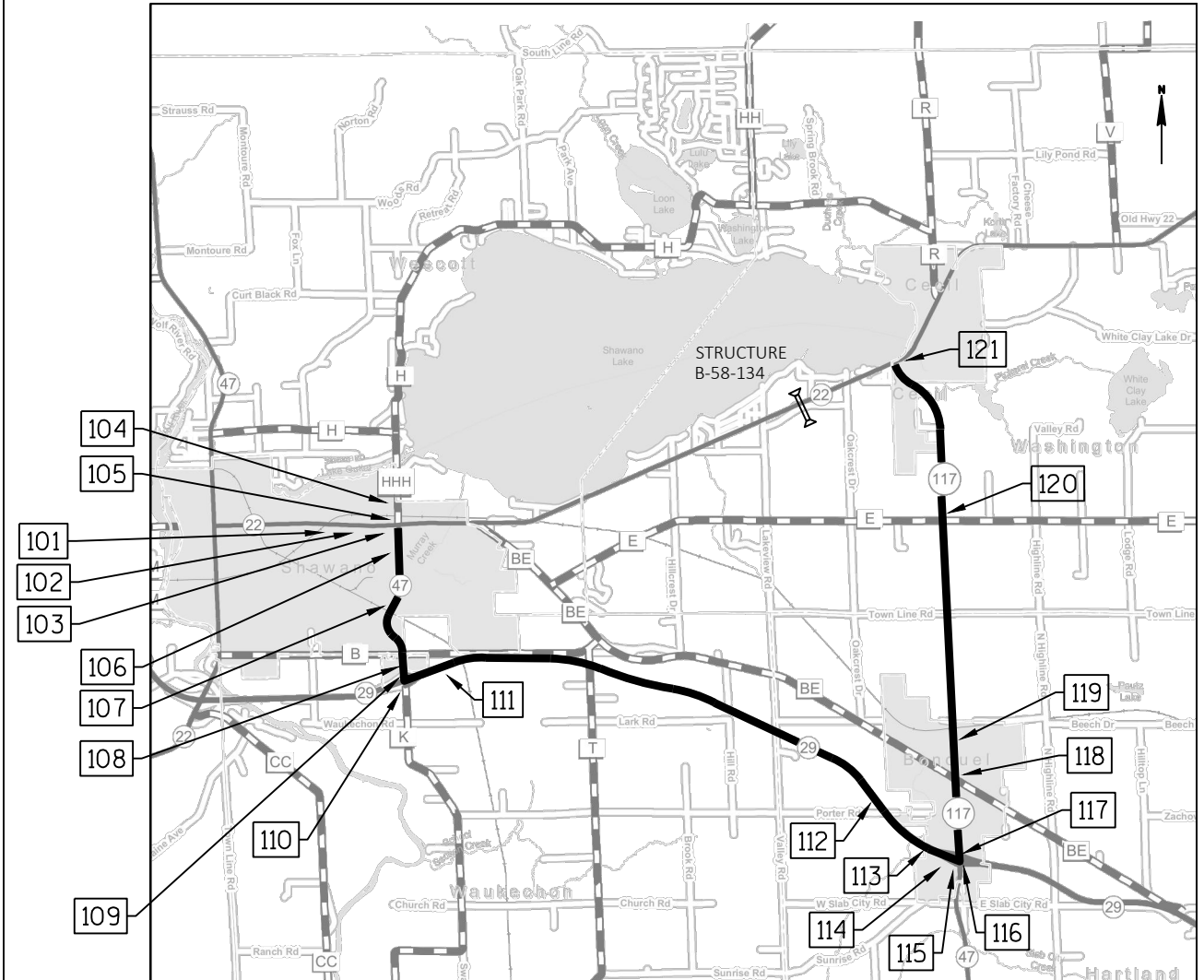
112

EXIT 234 47 117 Bonduel Appleton 1 MILE DETOUR M4-8 24"x12" NORTH M3-1 24"x12" 22 MI-6 24"x24"

113

EXIT 234 47 117 Bonduel Appleton DETOUR M4-8 24"x12" NORTH M3-1 24"x12" 22 MI-6 24"x24" M06-2R 21"x21"

* PAID FOR AS TRAFFIC CONTROL SIGNS



114

DETOUR
M4-8
24"x12"

NORTH SOUTH NORTH

117 47

22

MI-6
24"x24"

M05-1L
21"x21"

115

DETOUR
M4-8
24"x12"

NORTH SOUTH NORTH

117 47

22

MI-6
24"x24"

M06-1
21"x21"

116

DETOUR
M4-8
24"x12"

WEST NORTH NORTH NORTH

29 47 55 117

22

MI-6
24"x24"

M06-1
21"x21"

117

DETOUR
M4-8
24"x12"

WEST NORTH NORTH NORTH

29 47 55 117

22

MI-6
24"x24"

M06-1
21"x21"

118

DETOUR
M4-8
24"x12"

119

NORTH

120

NORTH

22

MI-6
24"x24"

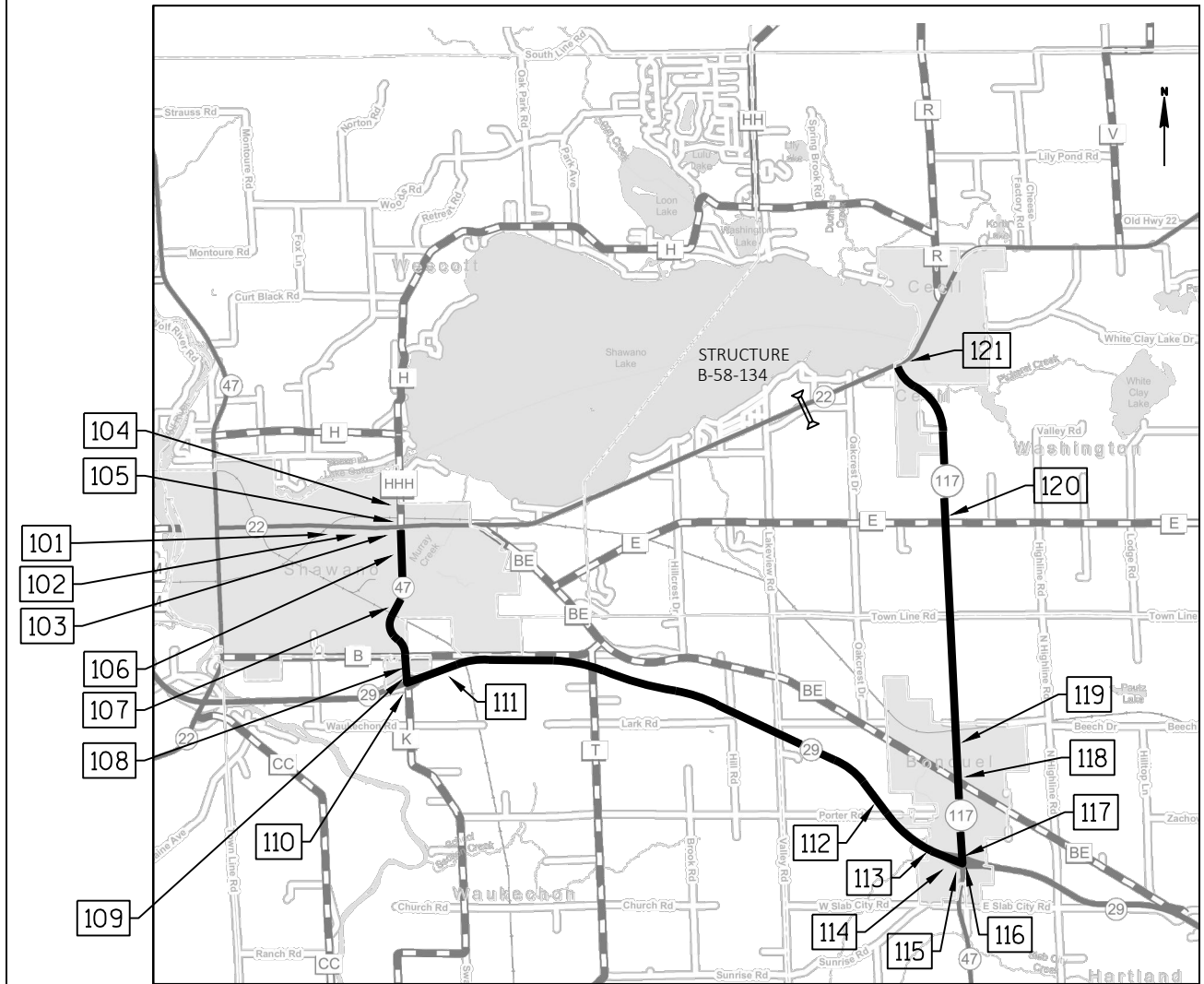
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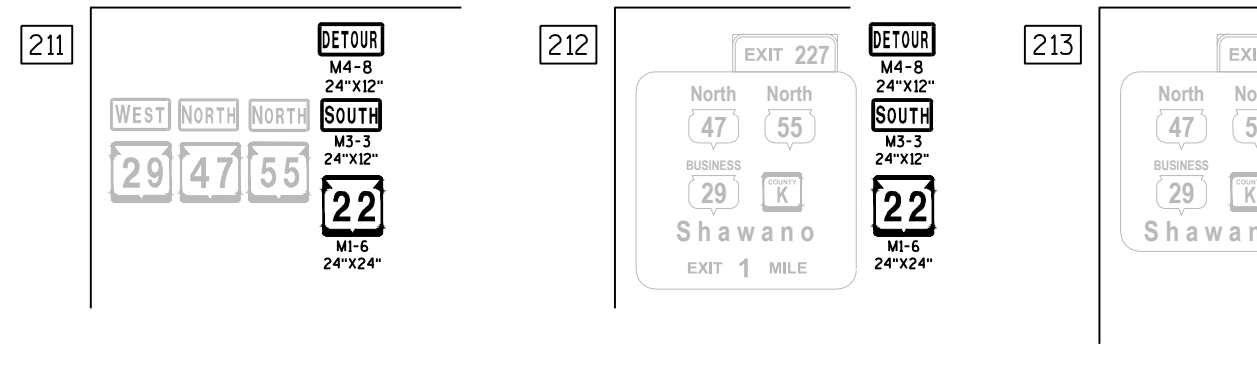
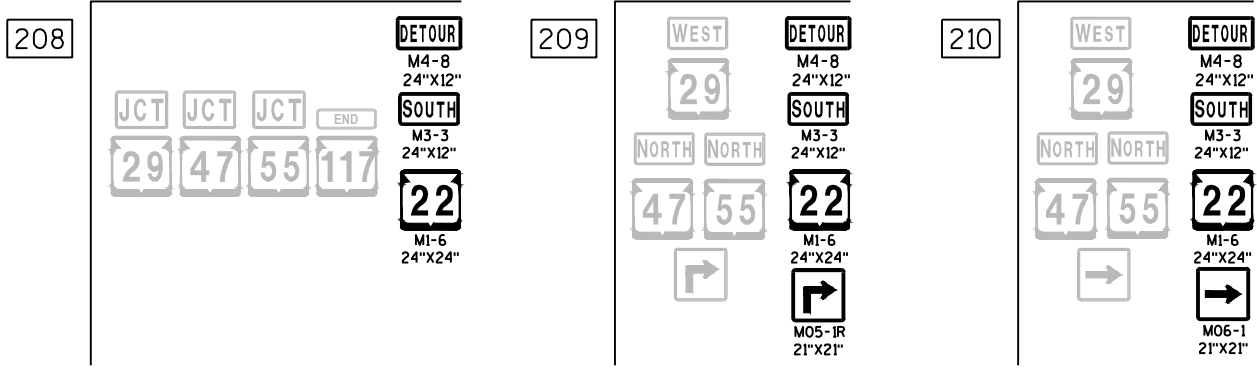
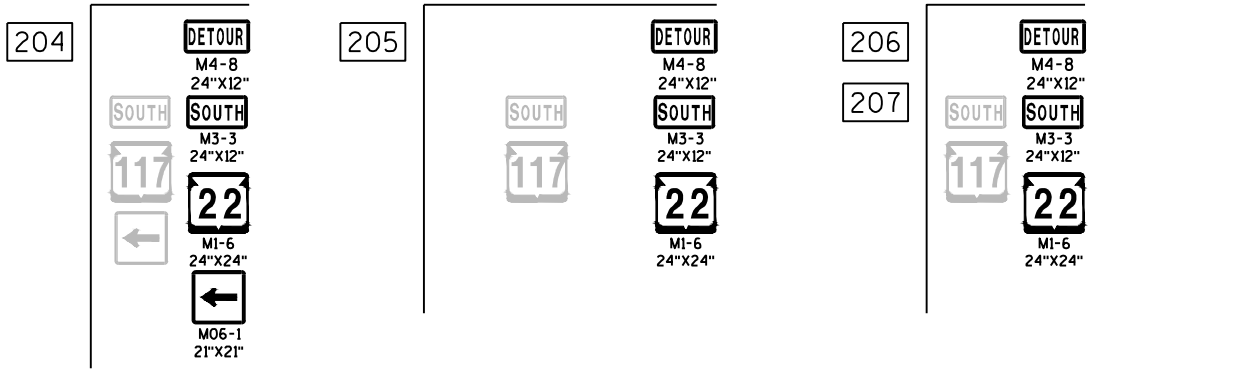
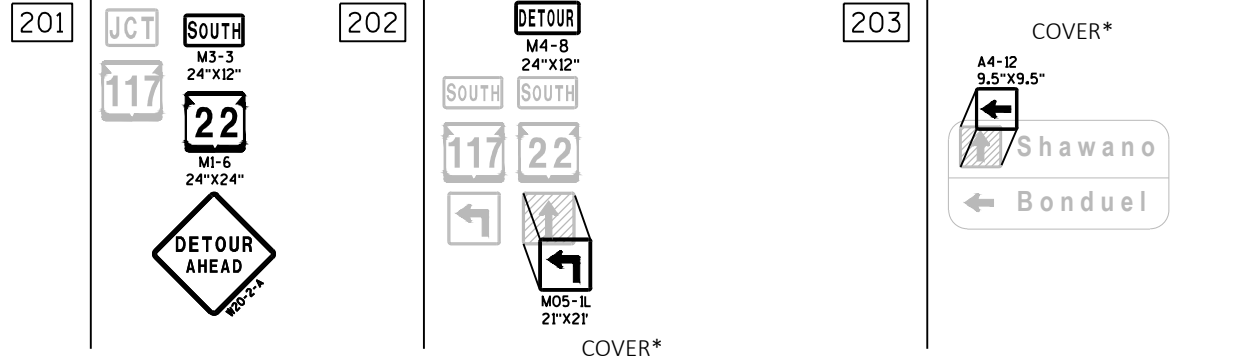
**END
DETOUR**
M4-8A
24"x18"

NORTH

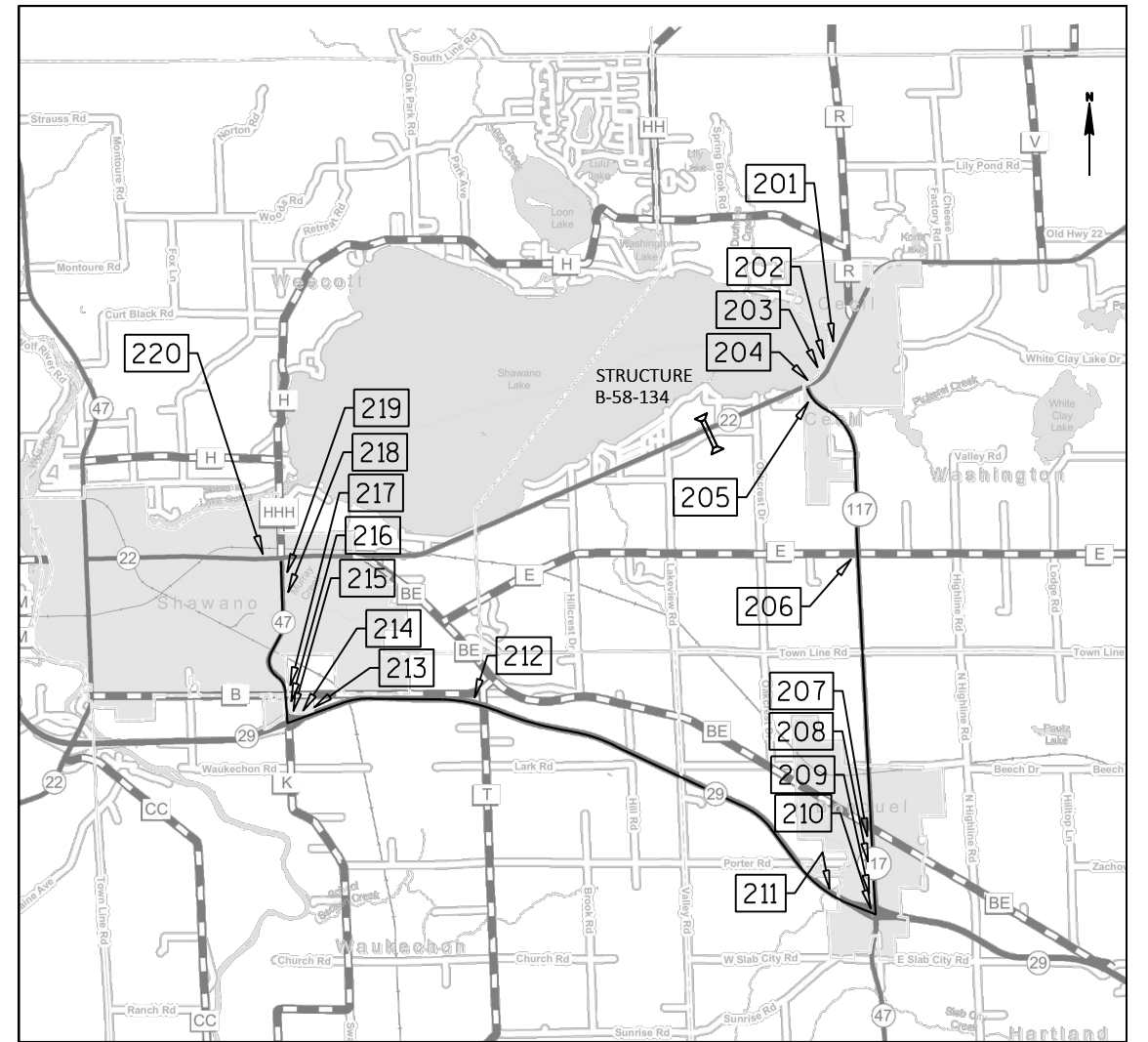
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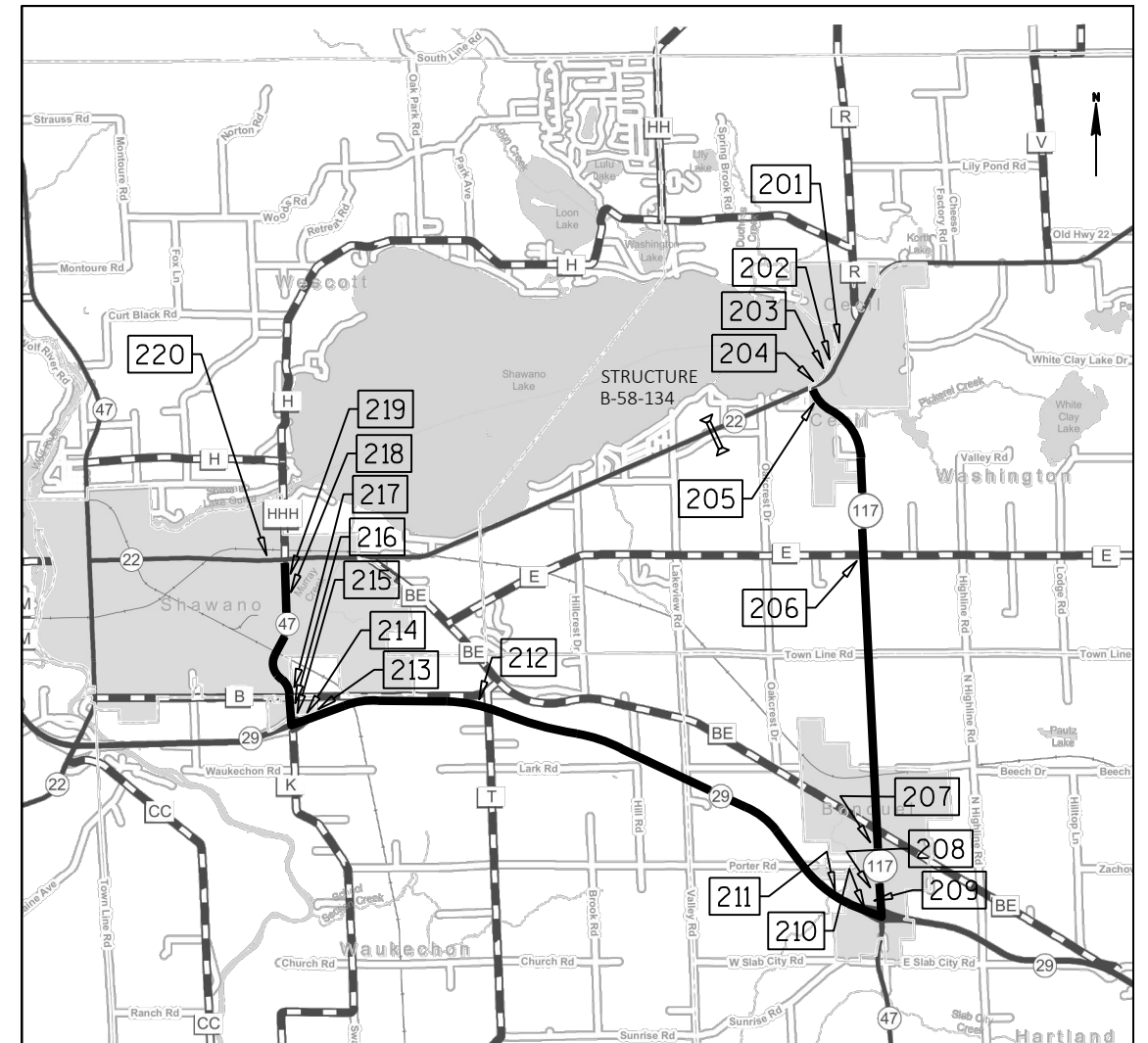
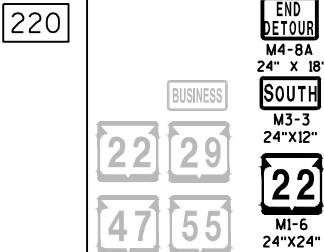
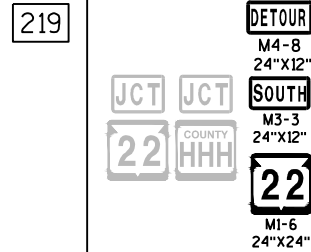
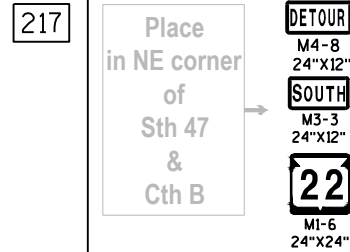
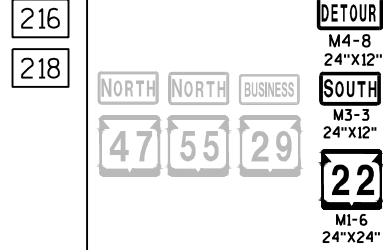
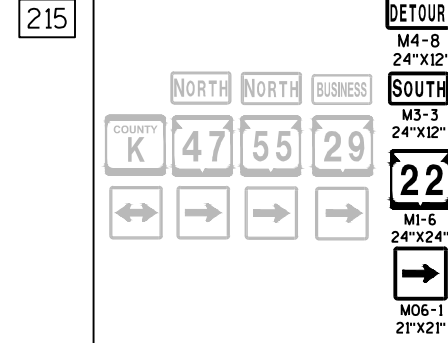
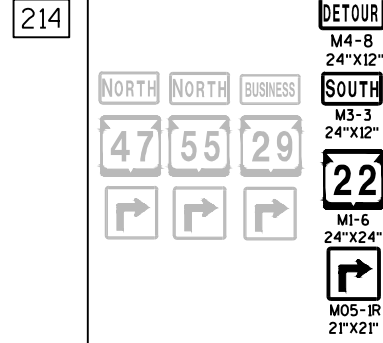
SPEED
LIMIT
40





* PAID FOR AS TRAFFIC CONTROL SIGNS





Estimate Of Quantities

6524-03-60 9180-17-60

Line	Item	Item Description	Unit	Total	Qty	Qty
0002	201.0105	Clearing	STA	4.000		4.000
0004	201.0205	Grubbing	STA	4.000		4.000
0006	203.0200	Removing Old Structure (station) 01. 187+82	LS	1.000	1.000	
0008	203.0210.S	Abatement of Asbestos Containing Material (structure) 01. C-58-023	LS	1.000		1.000
0010	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 215+65	LS	1.000		1.000
0012	204.0110	Removing Asphaltic Surface	SY	11.000		11.000
0014	204.0165	Removing Guardrail	LF	355.000		355.000
0016	205.0100	Excavation Common	CY	1,848.000	963.000	885.000
0018	205.0501.S	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	TON	52.000		52.000
0020	206.1000	Excavation for Structures Bridges (structure) 01. C-58-24	LS	1.000		1.000
0022	208.0100	Borrow	CY	180.000		180.000
0024	209.0300.S	Backfill Coarse Aggregate (size) 01. 2	CY	60.000	60.000	
0026	209.1100	Backfill Granular Grade 1	CY	1,135.000	635.000	500.000
0028	210.1500	Backfill Structure Type A	TON	854.000		854.000
0030	213.0100	Finishing Roadway (project) 01. 6524-03-60	EACH	1.000	1.000	
0032	213.0100	Finishing Roadway (project) 02. 9180-17-60	EACH	1.000		1.000
0034	305.0110	Base Aggregate Dense 3/4-Inch	TON	195.000	70.000	125.000
0036	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,095.000	490.000	605.000
0038	311.0110	Breaker Run	TON	50.000		50.000
0040	455.0605	Tack Coat	GAL	118.000	58.000	60.000
0042	460.2000	Incentive Density HMA Pavement	DOL	260.000	110.000	150.000
0044	460.5223	HMA Pavement 3 LT 58-28 S	TON	230.000	115.000	115.000
0046	460.5224	HMA Pavement 4 LT 58-28 S	TON	95.000	50.000	45.000
0048	502.0100	Concrete Masonry Bridges	CY	207.000		207.000
0050	502.6500	Protective Coating Clear	GAL	1.000		1.000
0052	505.0400	Bar Steel Reinforcement HS Structures	LB	9,280.000		9,280.000
0054	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	24,360.000		24,360.000
0056	516.0500	Rubberized Membrane Waterproofing	SY	34.000		34.000
0058	516.0610.S	Sheet Membrane Waterproofing for Top Slab (structure) 01. C-58-24	SY	207.000		207.000
0060	522.2358	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 58x91-Inch	LF	96.000	96.000	
0062	522.2658	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 58x91-Inch	EACH	2.000	2.000	
0064	550.0500	Pile Points	EACH	24.000		24.000
0066	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	1,440.000		1,440.000
0068	606.0300	Riprap Heavy	CY	185.000		185.000

Estimate Of Quantities

6524-03-60 9180-17-60

Line	Item	Item Description	Unit	Total	Qty	Qty
0070	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	230.000		230.000
0072	618.0100	Maintenance And Repair of Haul Roads (project) 01. 6524-03-60	EACH	1.000	1.000	
0074	618.0100	Maintenance And Repair of Haul Roads (project) 02. 9180-17-60	EACH	1.000		1.000
0076	619.1000	Mobilization	EACH	1.000	0.300	0.700
0078	624.0100	Water	MGAL	30.000	13.000	17.000
0080	625.0100	Topsoil	SY	1,625.000	460.000	1,165.000
0082	628.1504	Silt Fence	LF	1,010.000	460.000	550.000
0084	628.1520	Silt Fence Maintenance	LF	1,010.000	460.000	550.000
0086	628.1905	Mobilizations Erosion Control	EACH	6.000	2.000	4.000
0088	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000	2.000	4.000
0090	628.2008	Erosion Mat Urban Class I Type B	SY	1,430.000	355.000	1,075.000
0092	628.7504	Temporary Ditch Checks	LF	136.000	40.000	96.000
0094	628.7570	Rock Bags	EACH	50.000		50.000
0096	629.0210	Fertilizer Type B	CWT	1.200	0.400	0.800
0098	630.0130	Seeding Mixture No. 30	LB	29.100	8.000	21.100
0100	633.5200	Markers Culvert End	EACH	6.000	2.000	4.000
0102	638.2602	Removing Signs Type II	EACH	4.000		4.000
0104	642.5201	Field Office Type C	EACH	1.000		1.000
0106	643.0300	Traffic Control Drums	DAY	486.000	86.000	400.000
0108	643.0420	Traffic Control Barricades Type III	DAY	828.000		828.000
0110	643.0705	Traffic Control Warning Lights Type A	DAY	1,512.000		1,512.000
0112	643.0900	Traffic Control Signs	DAY	6,808.000	180.000	6,628.000
0114	643.5000	Traffic Control	EACH	1.000	0.200	0.800
0116	645.0111	Geotextile Type DF Schedule A	SY	178.000		178.000
0118	645.0120	Geotextile Type HR	SY	287.000		287.000
0120	645.0220	Geogrid Type SR	SY	70.000		70.000
0122	646.1020	Marking Line Epoxy 4-Inch	LF	820.000	320.000	500.000
0124	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	134.000	54.000	80.000
0126	650.4500	Construction Staking Subgrade	LF	230.000	120.000	110.000
0128	650.5000	Construction Staking Base	LF	230.000	120.000	110.000
0130	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000	
0132	650.6500	Construction Staking Structure Layout (structure) 01. C- 58-24	LS	1.000		1.000
0134	650.8000	Construction Staking Resurfacing Reference	LF	335.000	120.000	215.000
0136	650.9910	Construction Staking Supplemental Control (project) 01. 6524-03-60	LS	1.000	1.000	
0138	650.9910	Construction Staking Supplemental Control (project) 02. 9180-17-60	LS	1.000		1.000
0140	650.9920	Construction Staking Slope Stakes	LF	455.000	240.000	215.000

Estimate Of Quantities

6524-03-60 9180-17-60

Line	Item	Item Description	Unit	Total	Qty	Qty
0142	690.0150	Sawing Asphalt	LF	158.000	60.000	98.000
0144	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	450.000	150.000	300.000
0146	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	900.000	300.000	600.000
0148	SPV.0060	Special 01. Lane Shifts	EACH	2.000	2.000	
0150	SPV.0105	Special 01. Temporary Water Diversion C-58-24	LS	1.000		1.000

REMOVING OLD STRUCTURE, STATION 187+82

PROJECT 6524-03-60, STH 55

203.0200	REMOVING OLD STRUCTURE	STATION 187+82
1		
TOTAL:		1

STATION	LOCATION	(LS)
187+82	STH 55, EXISTING 59x81-INCH METAL ARCH	1

EARTHWORK

PROJECT 6524-03-60, STH 55

STATION	STATION	LOCATION	(CY)	(CY)
STA 187+22	- STA 188+42	ABOVE SUBGRADE	328	-
STA 187+22	- STA 188+42	CULVERT PIPE TRANSITION	635	-
UNDISTRIBUTED			-	635
TOTALS:			963	635

209.1100	GRANULAR BACKFILL	205.0100	EXCAVATION COMMON
460.5223	HMA PAVEMENT	455.0605	TACK COAT
460.5224	HMA PAVEMENT	58-28 S	58-28 S
522.2658	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE	522.2358	CULVERT PIPE REINFORCED CONCRETE
633.5200	HORIZONTAL MARKERS	209.0200.S	BACKFILL COARSE AGGREGATE
633.5200	HORIZONTAL CULVERT END	CLASS HE-III	58x91-INCH
633.5200	ELLIPTICAL CULVERT END	58x91-INCH	58x91-INCH
633.5200	END	2	2
633.5200	END	2	2

(*) ITEM USAGE "AS NEEDED" IF TRENCH EXCAVATION MATERIAL IS INSUFFICIENT TO BACKFILL NEW PIPE. TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.

LANDSCAPING

PROJECT 6524-03-60, STH 55

625.0100	FERTILIZER MIXTURE	630.0130	SEEDING
190	TOPSOIL	629.0210	SEEDING MIXTURE
250	TOPSOIL	NO. 30	
20	UNDISTRIBUTED	0.1	0.1
TOTALS:		460	0.4

STATION	STATION	LOCATION	(SY)	(CWT)	(LB)
STA 187+22	LT - STA 188+42	LT STH 55 CULVERT	190	0.1	3.4
STA 187+22	RT - STA 188+42	RT STH 55 CULVERT	250	0.2	4.5
PROJECT LIMITS			20	0.1	0.1
UNDISTRIBUTED					
TOTALS:			460	0.4	8.0

HMA PAVEMENT

PROJECT 6524-03-60, STH 55

STATION	STATION	LOCATION	COMMENTS	(GAL)	(TON)	(TON)
187+22	- 188+42	STH 55	MAINLINE W/FULL-DEPTH PAVED SHOULDERS	56	110	45
UNDISTRIBUTED				2	5	5
TOTALS:				58	115	50

NOTES: TOPSOIL AREAS INCLUDE 3' FOR ROUNDING PAST THE SLOPE INTERCEPTS. SEED AND FERTILIZER AREAS EQUAL TOPSOIL AREAS.

CUVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HE BACKFILL COARSE AGGREGATE SIZE NO. 2 MARKERS CULVERT END

BASE AGGREGATE DENSE

PROJECT 6524-03-60, STH 55

STATION	STATION	COMMENTS	(TON)	(TON)	(MGAL)
187+22	LT - 188+42	LT SHOULDER	25	-	1
187+22	RT - 188+42	RT SHOULDER	25	-	1
187+22	- 188+42	MAINLINE BASE	-	480	10
188+00	LT	FIELD ENTRANCE	10	-	1
UNDISTRIBUTED			10	10	1
TOTALS:			70	490	13

STATION	COMMENTS	(CY)	(LF)	(EACH)	(EACH)
STA 187+82	STH 55 CULVERT	60	96	2	2
TOTALS:		60	96	2	2

BACKFILL COARSE AGGREGATE SIZE NO. 2 USED AS PIPE BEDDING (SEE CONSTRUCTION DETAIL).

EROSION CONTROL

PROJECT 6524-03-60, STH 55			628.1504	628.1520	628.1905	628.1910	628.2008	628.7504
STATION	STATION	LOCATION	SILT FENCE (LF)	SILT FENCE MAINTENANCE (LF)	MOBILIZATIONS CONTROL (EACH)	MOBILIZATIONS EMERGENCY CONTROL (EACH)	EROSION MAT URBAN CLASS I TYPE B (SY)	TEMPORARY DITCH CHECKS (LF)
PROJECT LIMITS, 6524-03-60, STH 55			-	-	2	2	-	-
STA 187+22 LT	- STA 188+42 LT	STH 55 CULVERT	195	195	-	-	145	20
STA 187+22 RT	- STA 188+42 RT	STH 55 CULVERT	220	220	-	-	180	10
UNDISTRIBUTED			45	45	-	-	30	10
TOTALS:			460	460	2	2	355	40

MARKING LINE

PROJECT 6524-03-60, STH 55					646.1020	646.4520
STATION	STATION	LOCATION	COMMENTS	MARKING LINE EPOXY 4-INCH (YELLOW) (LF)	MARKING LINE SAME DAY EPOXY 4-INCH (WHITE) (LF)	
187+22	- 188+42	EDGELINE	EDGELINE, LT SIDE & RT SIDE	240	-	
187+22	- 188+42	CENTERLINE	SAME DAY PERMANENT MARKING LINE	-	30	
UNDISTRIBUTED				80	24	
TOTALS:				320	54	

CONSTRUCTION STAKING

PROJECT 6524-03-60, STH 55							650.4500	650.5000	650.6000	650.8000	650.9910	650.9920
STATION	STATION	LOCATION	CONSTRUCTION STAKING SUBGRADE (LF)	CONSTRUCTION STAKING BASE (LF)	CONSTRUCTION STAKING PIPE CULVERTS (EACH)	CONSTRUCTION STAKING RESURFACING REFERENCE (LF)	CONSTRUCTION SUPPLEMENTAL CONTROL (PROJECT) (LS)	CONSTRUCTION STAKING SLOPE STAKES (LF)				
STA 187+22	- STA 188+42	STH 55 MAINLINE	120	120	-	120	1	-				
STA 187+22 LT	- STA 188+42 LT	SLOPE EMBANKMENT LT	-	-	-	-	-	120				
STA 187+22 RT	- STA 188+42 RT	SLOPE EMBANKMENT RT	-	-	-	-	-	120				
STA 187+82		CULVERT 58055070	-	-	1	-	-	-				
TOTALS:			120	120	1	120	1	240				

TRAFFIC CONTROL

PROJECT 6524-03-60, STH 55						643.0300	643.0900	643.5000
STATION	STATION	LOCATION	TRAFFIC CONTROL DRUMS (DAY)	TRAFFIC CONTROL SIGNS (DAY)	TRAFFIC CONTROL (EACH)			
PROJECT LIMITS						-	140	0.2
PIPE REPLACEMENT (LANE SHIFTS)								
STA 187+82		STH 55	48	30	-			
UNDISTRIBUTED			38	10	-			
TOTALS:			86	180	0.2			

(*): THIS ITEM PRORATED WITH THE OTHER PROJECT IN THE CONTRACT.

SAWING ASPHALT

PROJECT 6524-03-60, STH 55			690.0150
STATION	LOCATION		SAWING ASPHALT (LF)
STA 187+22	CULVERT 58055070		30
STA 188+42	CULVERT 58055070		30
TOTAL:			60

LANE SHIFTS

PROJECT 6524-03-60, STH 55			SPV.0060.01
STATION	LOCATION		LANE SHIFTS (EACH)
STA 187+82 LT	LT-SIDE, CULVERT 58055070		1
STA 187+82 RT	RT-SIDE, CULVERT 58055070		1
TOTAL:			2

CLEARING
GRUBBING

PROJECT 9180-17-60, STH 22						201.0105	201.0205
						CLEARING	GRUBBING
STATION	STATION	LOCATION	COMMENTS	(STA)	(STA)		
215+25	LT 217+25	LT	STH 22, C-58-024	2	2		
215+25	RT 217+25	RT	STH 22, C-58-024	2	2		
TOTALS:				4	4		

NOTE: NO TIME-OF-YEAR RESTRICTIONS FOR TREE REMOVAL

REMOVING GUARDRAIL

PROJECT 9180-17-60, STH 22					204.0165
					REMOVING
					GUARDRAIL
STATION	-	STATION	LOCATION	(LF)	
214+92	LT	- 216+64	LT STH 22, EXISTING STRUCTURE C-58-023	172	
214+93	RT	- 216+67	RT STH 22, EXISTING STRUCTURE C-58-023	183	
TOTALS:				355	

BASE AGGREGATE DENSE

PROJECT 9180-17-60, STH 22						305.0110	305.0120	
						BASE	BASE	
						AGGREGATE	AGGREGATE	624.0100
						DENSE	DENSE	WATER
						³ / ₄ -INCH	1 ¹ / ₄ -INCH	
STATION	STATION	COMMENTS	(TON)	(TON)	(MGAL)			
215+10	- 216+20	MAINLINE BASE	-	440	9			
215+10	LT - 217+25	LT SHOULDER	55	-	1			
215+10	RT - 217+25	RT SHOULDER	55	-	1			
216+20	LT - 217+25	LT SHOULDER REPAIR	-	75	2			
216+20	RT - 217+25	RT SHOULDER REPAIR	-	75	2			
214+65	LT - 215+10	LT SHOULDER	5	-	1			
214+68	LT	FIELD ENTRANCE	10	-	1			
UNDISTRIBUTED			0	15	1			
TOTALS:			125	605	17			

REMOVING ASPHALTIC SURFACE

PROJECT 9180-17-60, STH 22						204.0110
						REMOVING
						ASPHALTIC
						SURFACE
STATION	-	STATION	OFFSETS	LOCATION	(SY)	
214+65	-	215+10	15' LT - 17' LT	WIDENED PAVEMENT AT OLD GUARDRAIL	5	
216+20	-	216+70	15' LT - 17' LT	WIDENED PAVEMENT AT OLD GUARDRAIL	6	
TOTALS:					11	

EARTHWORK

PROJECT 9180-17-60, STH 22						205.0100	209.1100	
						EXCAVATION	208.0100	GRANULAR
						COMMON	BORROW	BACKFILL
						(CY)	(CY)	GRADE 1
						(CY)	(CY)	(CY)
STATION	STATION	LOCATION						
STA 215+10	-	STA 217+25		STH 22	375	180	-	
STA 215+10	-	STA 216+20		CULVERT PIPE TRANSITION	500	-	-	
UNDISTRIBUTED					10	-	500	
TOTALS:					885	180	500	

BREAKER RUN
GEOGRID TYPE SR

PROJECT 9180-17-60, STH 22						311.0110	645.0220
						BREAKER	GEOGRID
						RUN	TYPE SR
						(TON)	(SY)
STATION	STATION	LOCATION					
STA 215+10	-	STA 216+20		CULVERT PIPE TRANSITION	50	70	
TOTALS:					50	70	
					(*)	(*)	

(*) ITEM USAGE "AS NEEDED" IF TRENCH EXCAVATION MATERIAL IS INSUFFICIENT TO BACKFILL NEW STRUCTURE AND IF BACKFILL GRANULAR GRADE 1 IS ALSO INSUFFICIENT AS A BACKFILL.

HMA PAVEMENT

STATION	STATION	LOCATION	COMMENTS	455.0605 TACK COAT (GAL)	460.5223 HMA PAVEMENT 3 LT 58-28 S (TON)	460.5224 HMA PAVEMENT 4 LT 58-28 S (TON)
215+10	-	215+54	STH 22	24	42	16
215+54		216+20	STH 22	31	63	24
UNDISTRIBUTED				5	10	5
PROJECT LIMITS						
UNDISTRIBUTED				5	10	5
TOTALS:				60	115	45

LANDSCAPING

STATION	STATION	LOCATION	625.0100 TOPSOIL (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0130 SEEDING MIXTURE NO. 30 (LB)
STA 215+10 LT	-	STA 217+25 LT	565	0.4	10.2
STA 215+10 RT	-	STA 217+25 RT	550	0.3	9.9
PROJECT LIMITS			50	0.1	1.0
UNDISTRIBUTED					
TOTALS:			1165	0.8	21.1

NOTES: TOPSOIL AREAS INCLUDE 3' FOR ROUNDING PAST THE SLOPE INTERCEPTS.
SEED AND FERTILIZER AREAS EQUAL TOPSOIL AREAS.

EROSION CONTROL

STATION	STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)	628.1905 EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EROSION CONTROL (EACH)	628.2008 EROSION MAT URBAN CLASS I TYPE B (SY)	628.7504 TEMPORARY DITCH CHECKS (LF)	628.7570 ROCK BAGS (EACH)
PROJECT LIMITS, 9180-17-60, STH 22			-	-	4	4	-	-	-
STA 214+80 LT	-	STA 217+40 LT	250	250	-	-	525	24	20
STA 214+80 RT	-	STA 217+40 RT	300	300	-	-	550	24	20
UNDISTRIBUTED			0	0	-	-	0	48	10
TOTALS:			550	550	4	4	1075	96	50

MARKING LINE

STATION	STATION	LOCATION	COMMENTS	646.1020 MARKING LINE (LF)	646.4520 MARKING LINE SAME DAY EPOXY (LF)
215+10	-	217+25	EDGELINE	440	-
215+10	-	217+25	CENTERLINE	-	55
UNDISTRIBUTED				60	25
TOTALS:				500	80

TRAFFIC CONTROL

LOCATION	643.0300 TRAFFIC CONTROL DRUMS (DAY)	643.0420 TRAFFIC CONTROL BARRICADES TYPE III (DAY)	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A (DAY)	643.0900 TRAFFIC CONTROL SIGNS (DAY)
PROJECT 9180-17-60, STH 22	-	-	0.8	-
DETOUR (STH 22)	-	828	-	6048
STH 22 OPEN TO TRAFFIC	360	-	-	180
UNDISTRIBUTED	40	-	-	-
TOTALS:	400	828	0.8	6228

REMOVING SIGNS TYPE II

STATION	COMMENTS	638.2602 REMOVING SIGNS TYPE II (EACH)
STA 215+56 LT	BRIDGE MARKER SIGNS	1
STA 215+56 RT	BRIDGE MARKER SIGNS	1
STA 215+74 LT	BRIDGE MARKER SIGNS	1
STA 215+74 RT	BRIDGE MARKER SIGNS	1
TOTALS:		4

MARKERS CULVERT END

STATION	COMMENTS	633.5200 MARKERS CULVERT END (EACH)
STA 215+51, 34' LT	STH 22 STRUCTURE	1
STA 215+51, 34' RT	STH 22 STRUCTURE	1
STA 215+77, 34' LT	STH 22 STRUCTURE	1
STA 215+77, 34' RT	STH 22 STRUCTURE	1
TOTALS:		4

(*): THIS ITEM PRORATED WITH OTHER PROJECT IN THE CONTRACT.

CONSTRUCTION STAKING

PROJECT 9180-17-60, STH 22

650.9910
CONSTRUCTION
STAKING 650.9920

STATION	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE (LF)	650.5000 CONSTRUCTION STAKING BASE (LF)	650.6500 CONSTRUCTION STRUCTURE LAYOUT C-58-24 (LS)	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE (LF)	650.9910 SUPPLEMENTAL CONTROL (PROJECT) 9155-14-70 (LS)	650.9920 CONSTRUCTION STAKING SLOPE STAKES (LF)
STA 215+10	- STA 216+20	STH 22	110	110	1	-	-	-
STA 215+10	- STA 217+25	STH 22	-	-	-	215	1	215
			110	110	1	215	1	215

SAWING ASPHALT

PROJECT 9180-17-60, STH 22

690.0150
SAWING
ASPHALT

STATION	LOCATION	(LF)
STA 215+10	STH 22	38
STA 216+20	STH 22	30
STA 217+25	STH 22	30
TOTAL:		98

ABATMENT OF ASBESTOS CONTAINING MATERIAL C-58-023

PROJECT 9180-17-60, STH 22

203.0210.S
ABATMENT OF ASBESTOS
CONTAINING MATERIAL
C-58-023

STATION	LOCATION	(LS)
215+65	STH 22, TOPS OF EXISTING TIMBER PILING	1
TOTAL:		1

TEMPORARY WATER DIVERSION

PROJECT 9180-17-60, STH 22

SPV.0105.01
TEMPORARY
WATER
DIVERSION -
UNNAMED
WATERWAY TO
SHAWANO LAKE

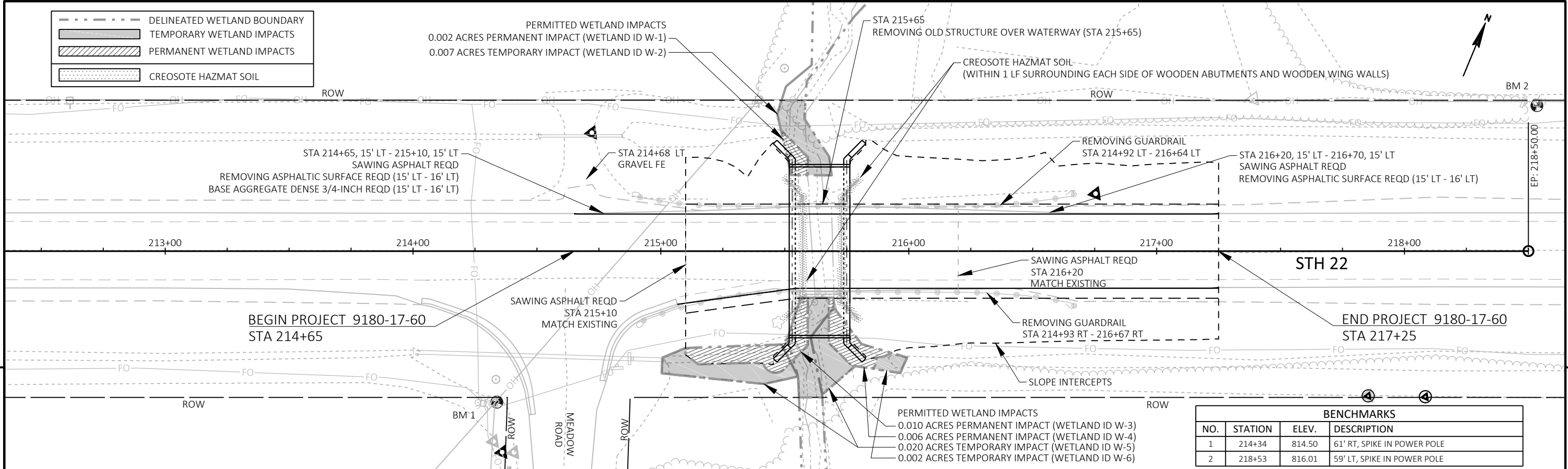
STATION	LOCATION	(LS)
STA 215+64	STH 22, C-58-24	1
TOTAL:		1

	DELINEATED WETLAND BOUNDARY
	TEMPORARY WETLAND IMPACTS
	PERMANENT WETLAND IMPACTS
	CREOSOTE HAZMAT SOIL

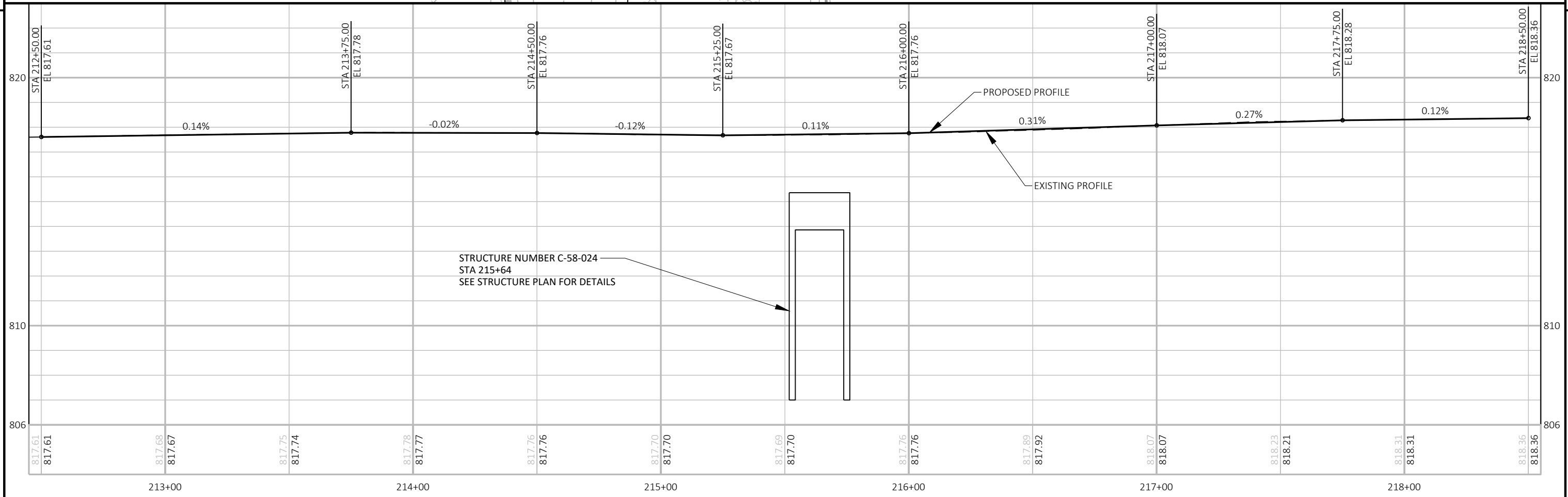
PERMITTED WETLAND IMPACTS
 0.002 ACRES PERMANENT IMPACT (WETLAND ID W-1)
 0.007 ACRES TEMPORARY IMPACT (WETLAND ID W-2)

STA 215+65
 REMOVING OLD STRUCTURE OVER WATERWAY (STA 215+65)

CREOSOTE HAZMAT SOIL
 (WITHIN 1 LF SURROUNDING EACH SIDE OF WOODEN ABUTMENTS AND WOODEN WING WALLS)

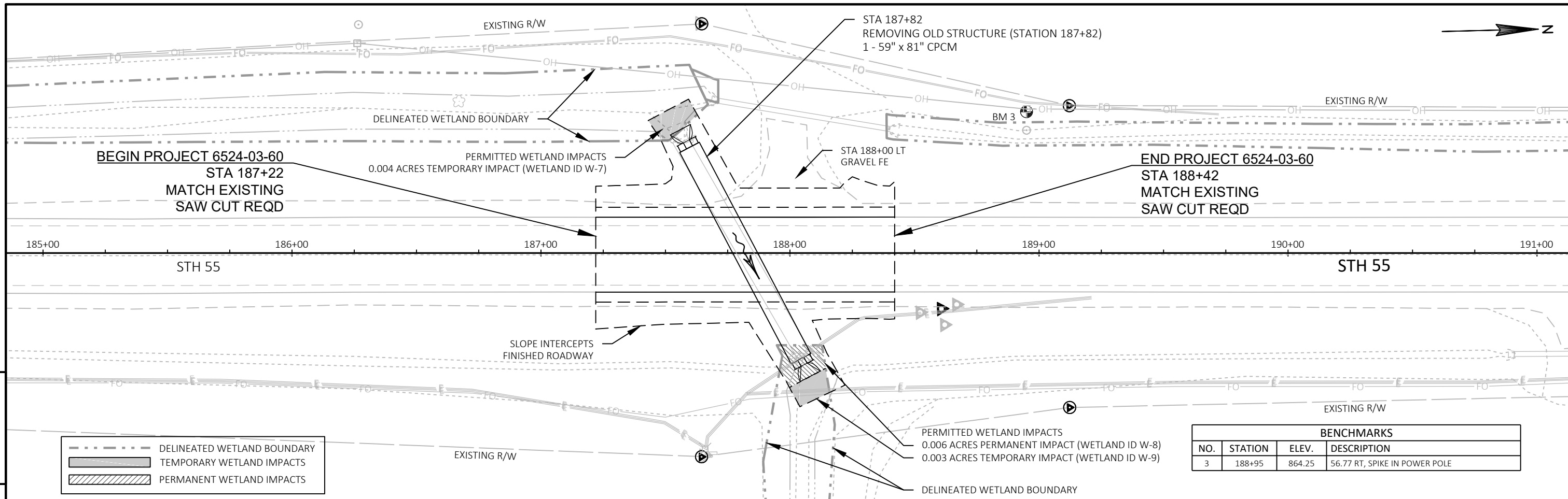


BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
1	214+34	814.50	61' RT, SPIKE IN POWER POLE
2	218+53	816.01	59' LT, SPIKE IN POWER POLE

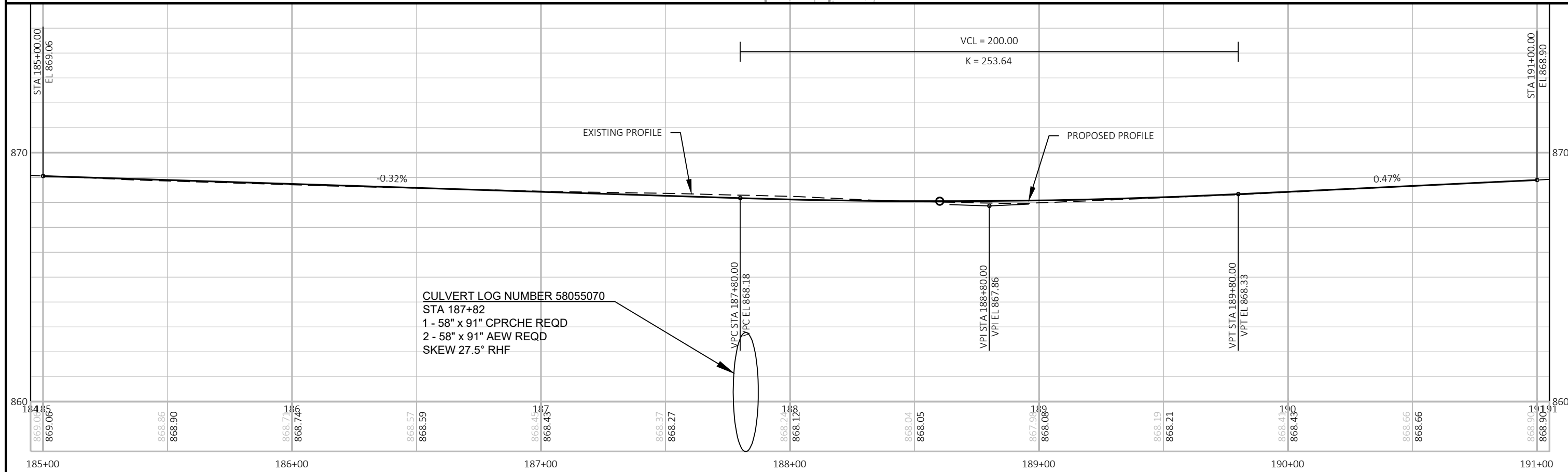


STRUCTURE NUMBER C-58-024
 STA 215+64
 SEE STRUCTURE PLAN FOR DETAILS

PROJECT NO: 6524-03-60 / 9180-17-60	HWY: STH 55 / STH 22	COUNTY: SHAWANO	PLAN AND PROFILE: PROPOSED STRUCTURE C-58-24 - STH 22	SHEET	E
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BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
3	188+95	864.25	56.77 RT, SPIKE IN POWER POLE

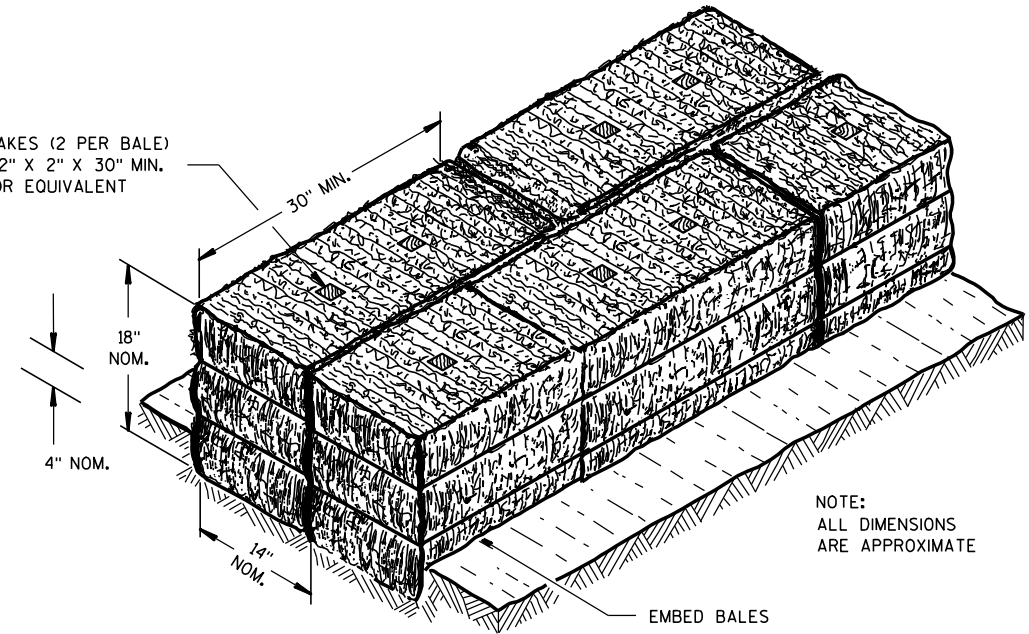


PROJECT NO: 6524-03-60 / 9180-17-60	HWY: STH 55 / STH 22	COUNTY: SHAWANO	PLAN AND PROFILE: PIPE 58-055-070 - STH 55	SHEET	E
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Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-07A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-07B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-07C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

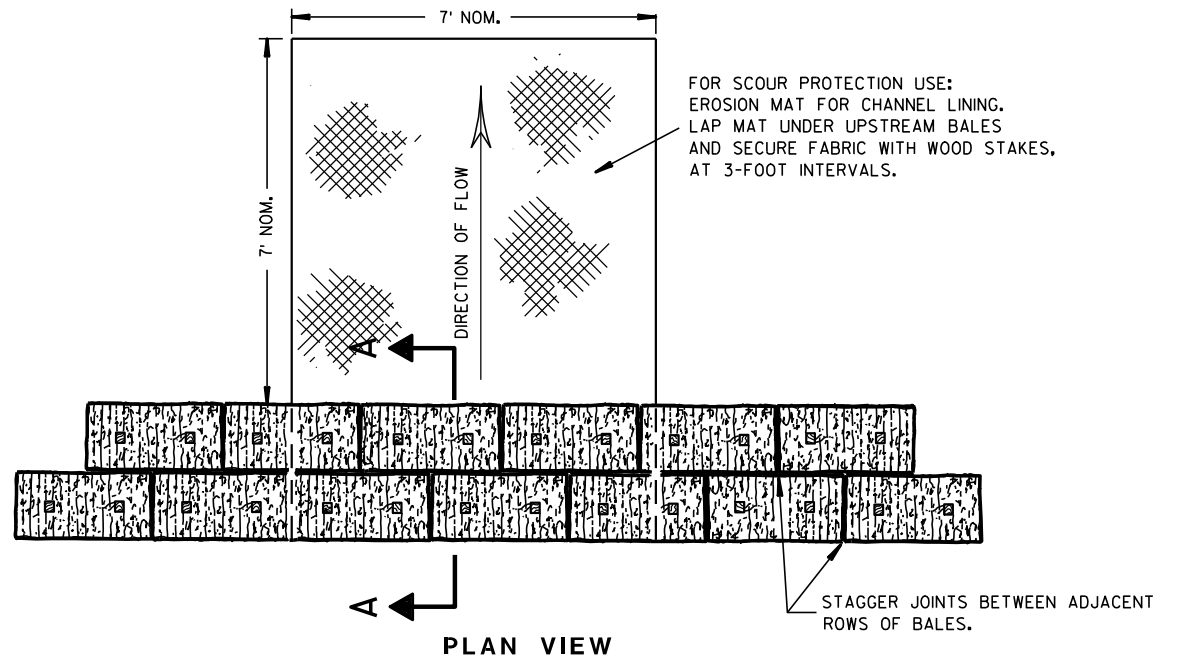
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

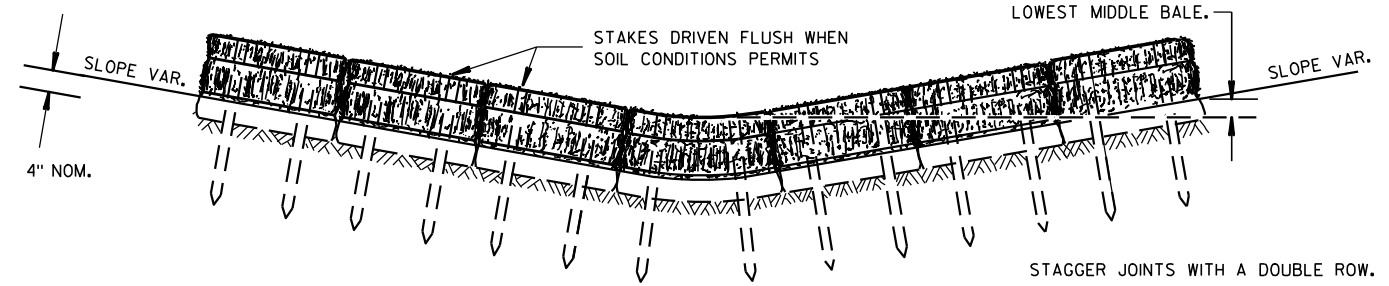
SECTION A-A



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL BE EQUAL TO OR GREATER THAN TOP OF LOWEST MIDDLE BALE.



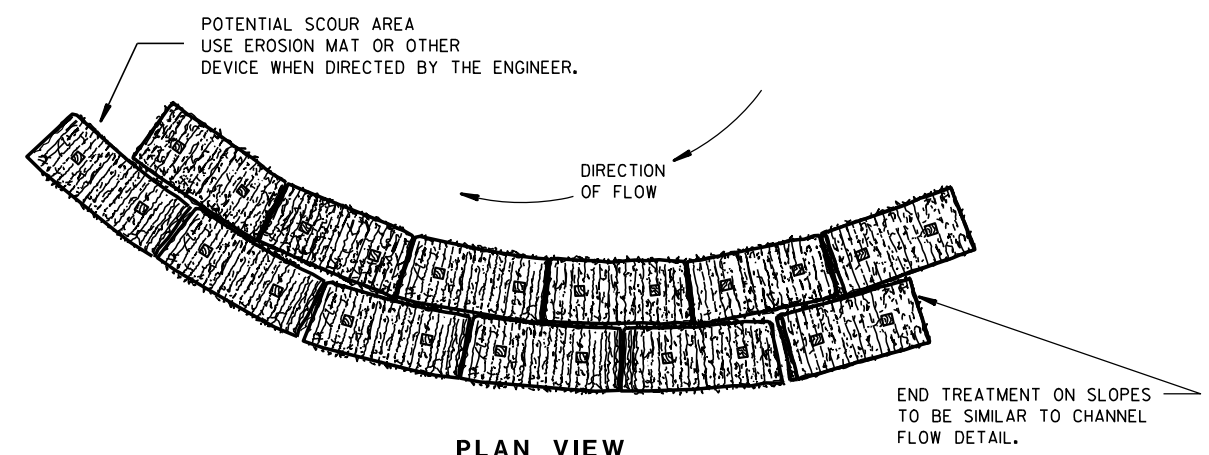
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

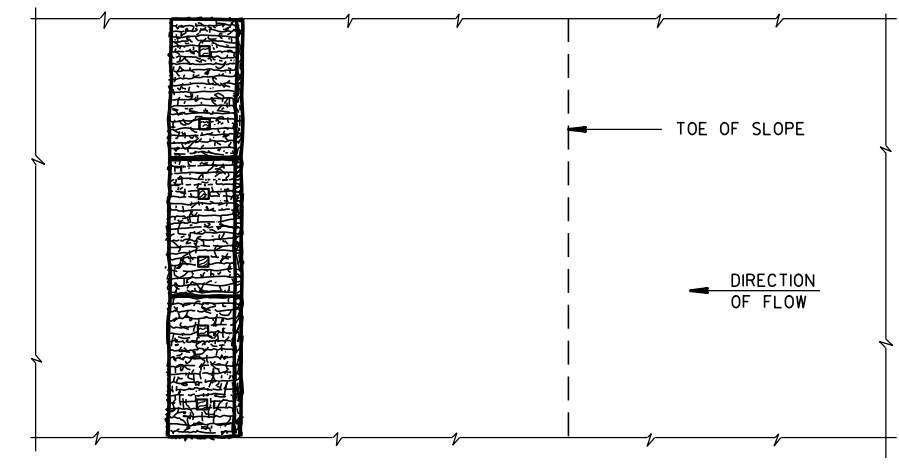
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

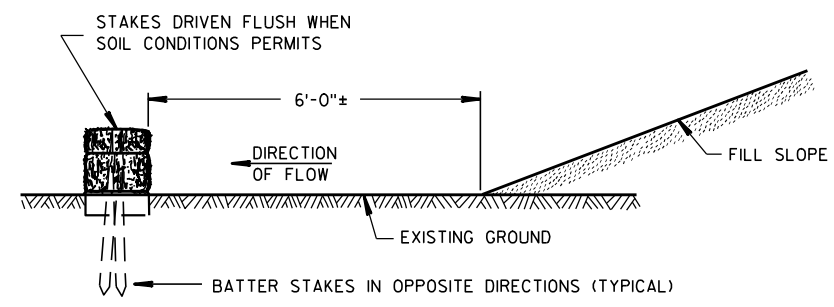


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

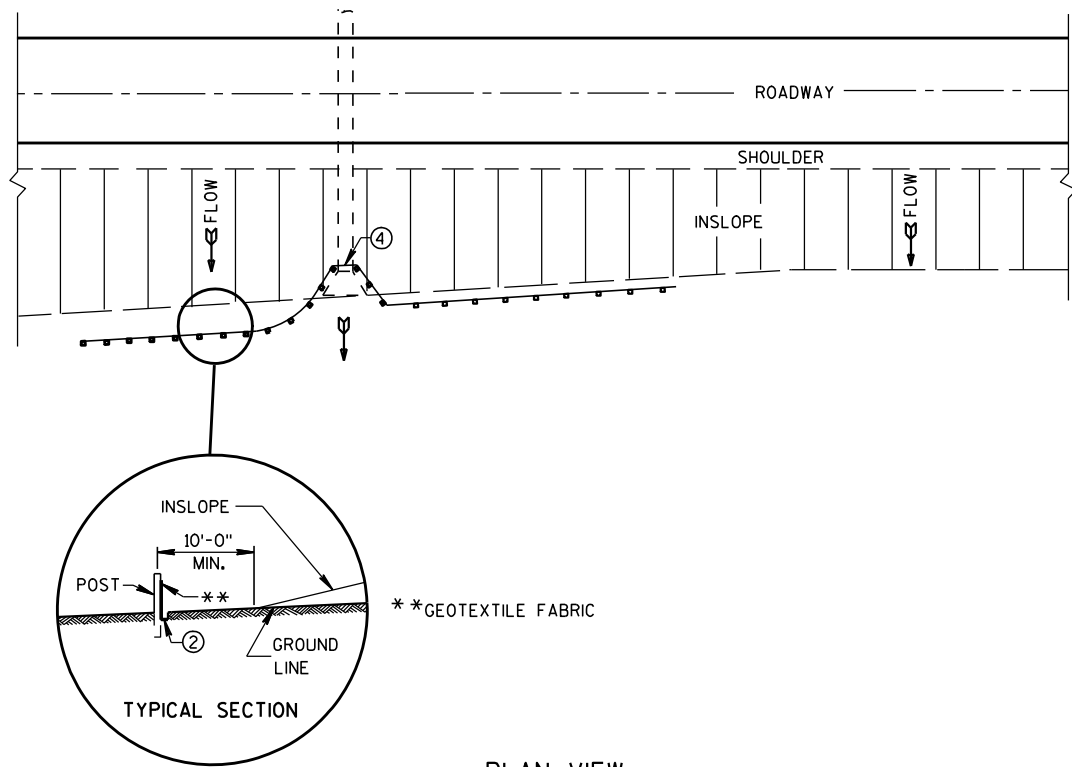
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

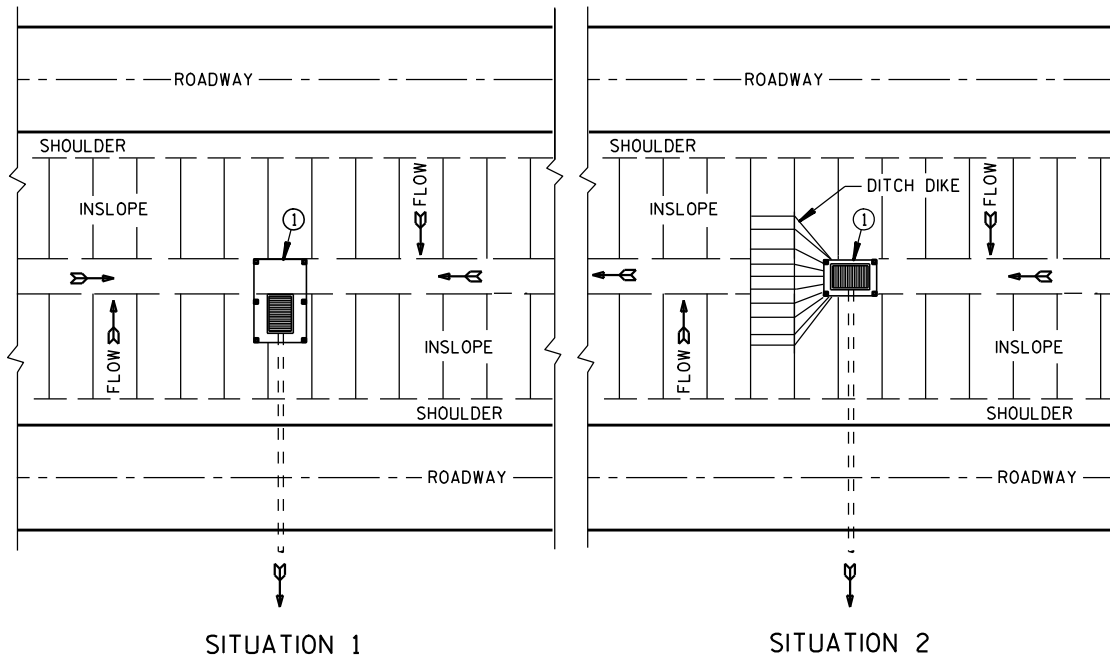
TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

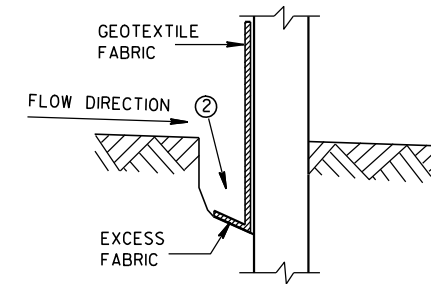


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

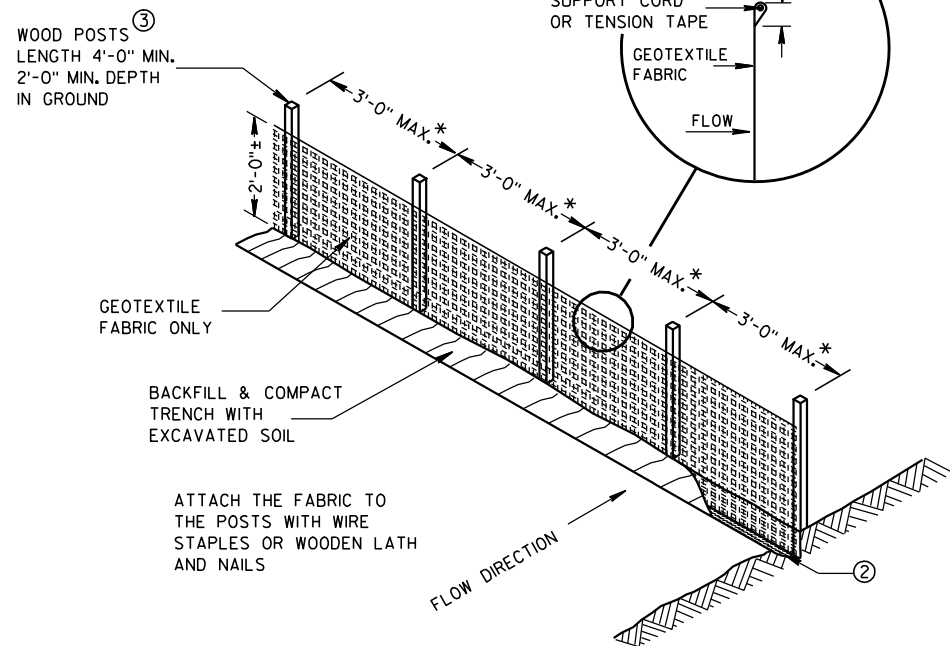
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

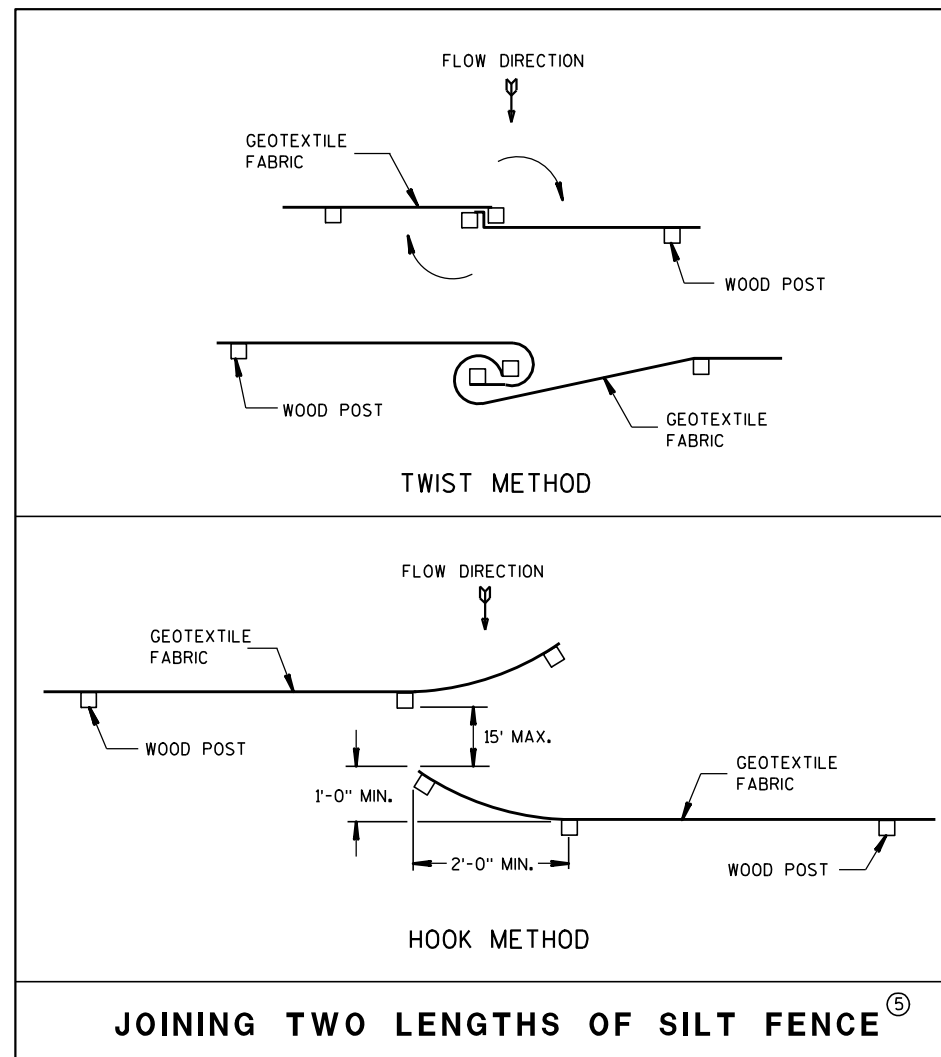


TRENCH DETAIL

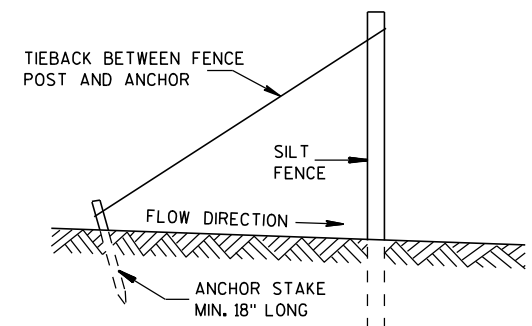
NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤

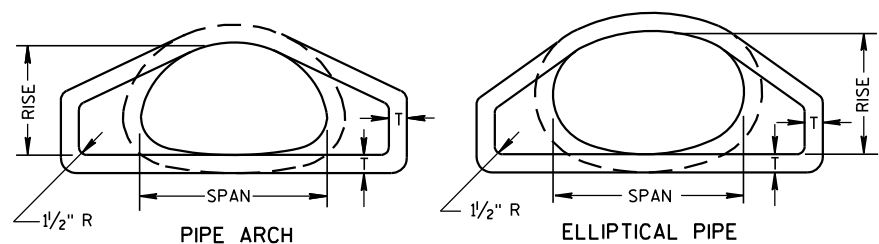


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

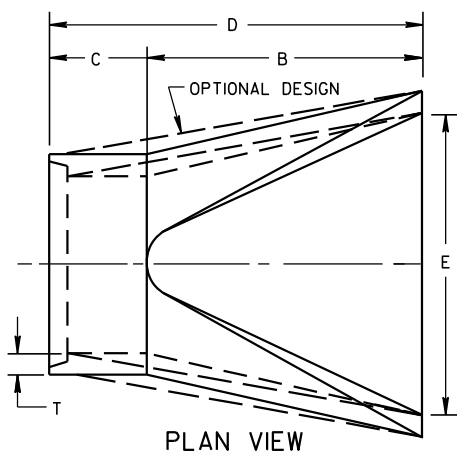
SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

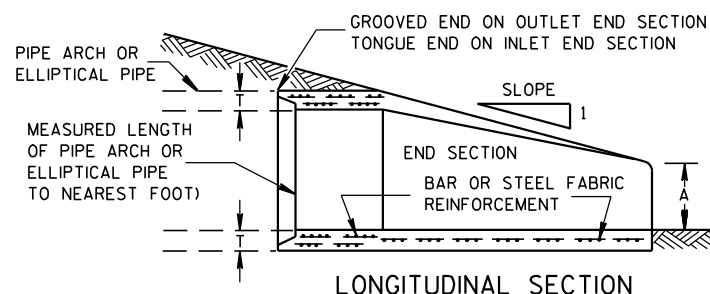
APPROVED
4-29-05 /S/ Beth Canestra
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



END VIEW

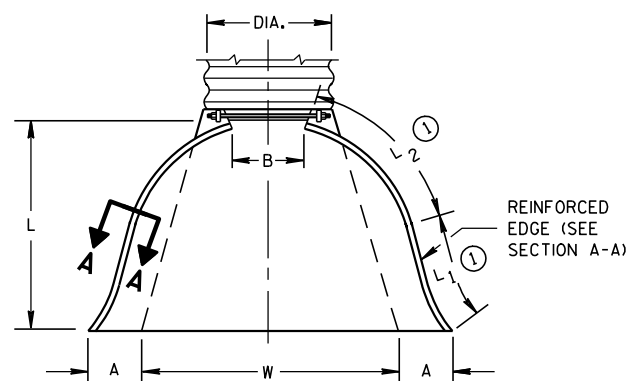


PLAN VIEW



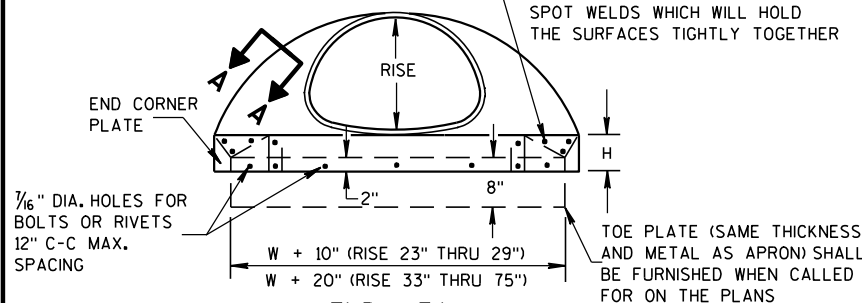
LONGITUDINAL SECTION

CONCRETE ENDWALLS

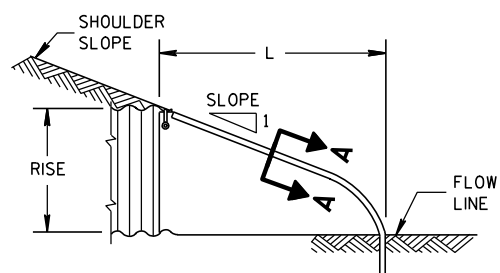


PLAN VIEW

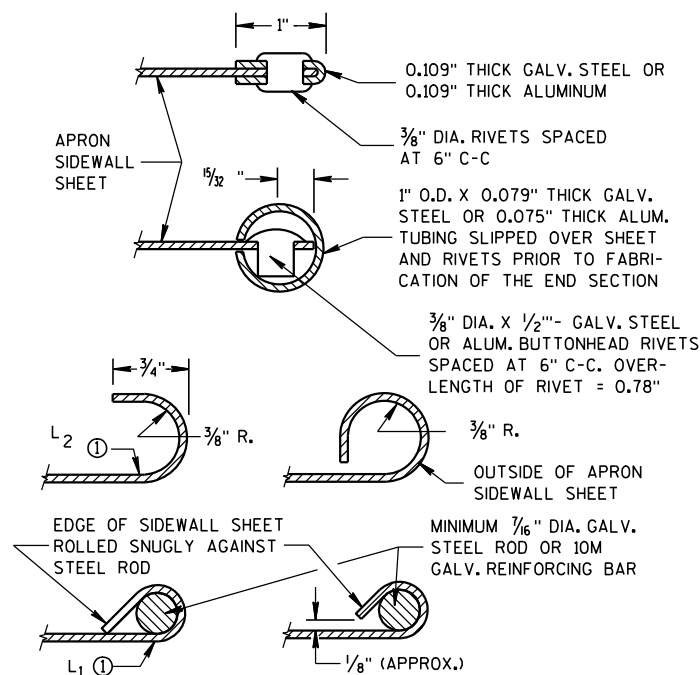
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW



SIDE ELEVATION
METAL ENDWALLS



SECTION A-A

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 (±1")	L2 (±1")	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 (±1")	L2 (±1")	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

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

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

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

**NOMINAL SIZE

GENERAL NOTES

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

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

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

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

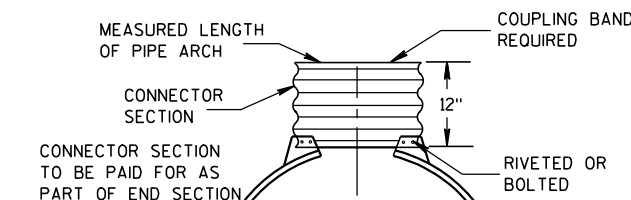
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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.



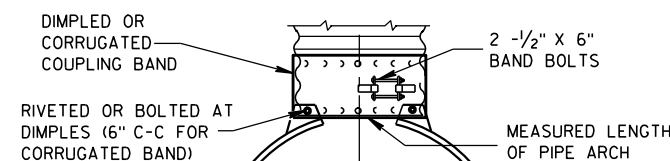
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHES

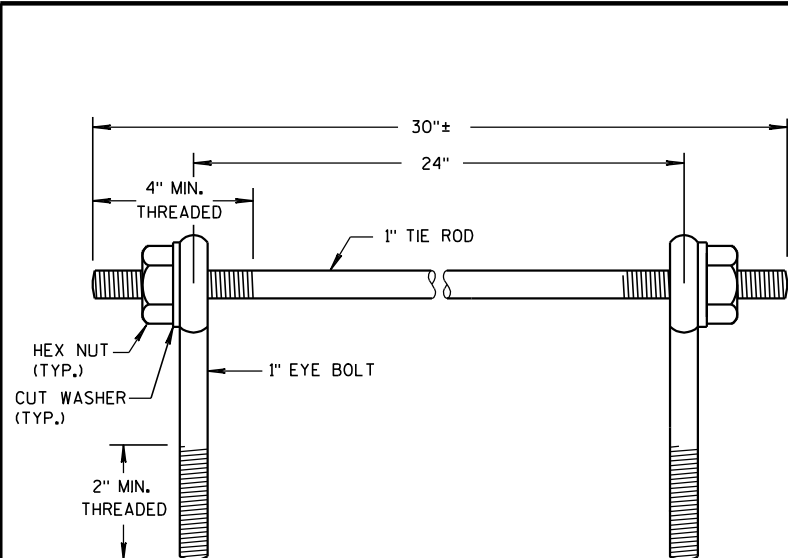
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

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

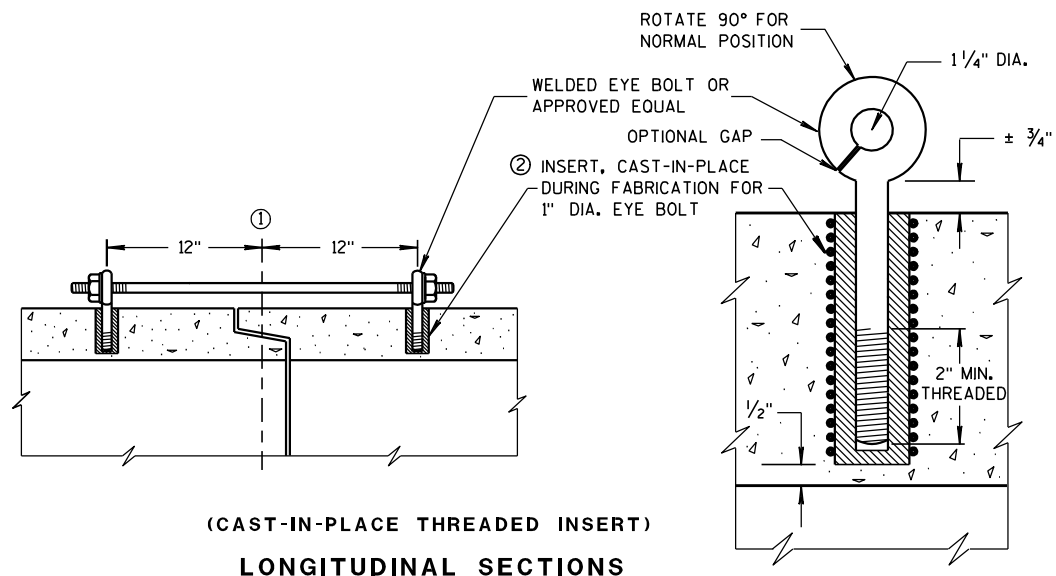
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST-IN-PLACE THREADED INSERT) LONGITUDINAL SECTIONS

GENERAL NOTES

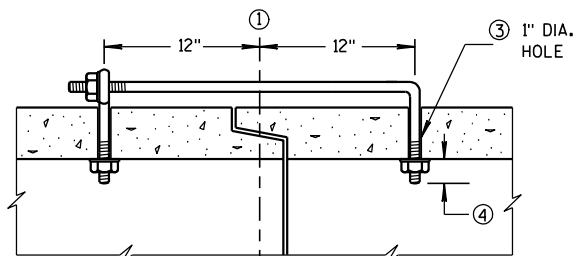
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

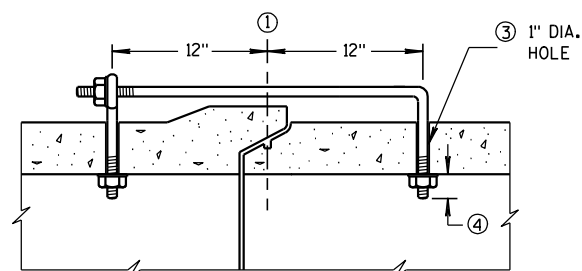
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- ① ϕ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ϕ OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE) LONGITUDINAL SECTION

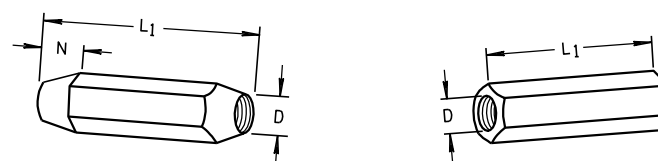
EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	

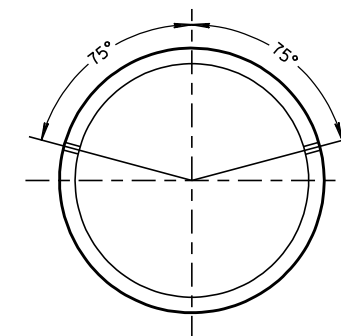
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/6

DIMENSIONS SHOWN ARE IN INCHES

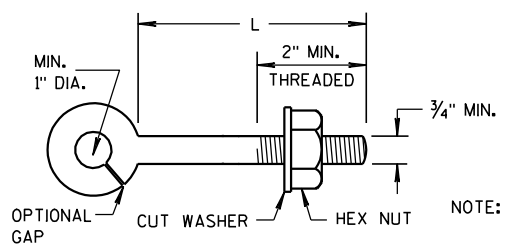


TAPERED PLAIN RIGHT AND LEFT THREADS SLEEVE NUTS



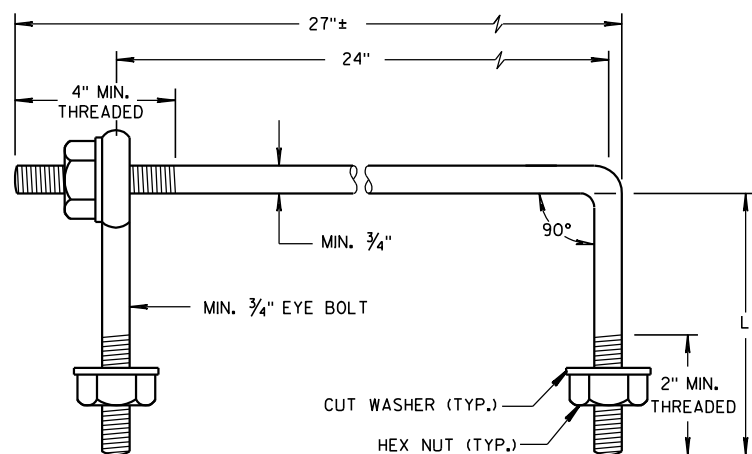
PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



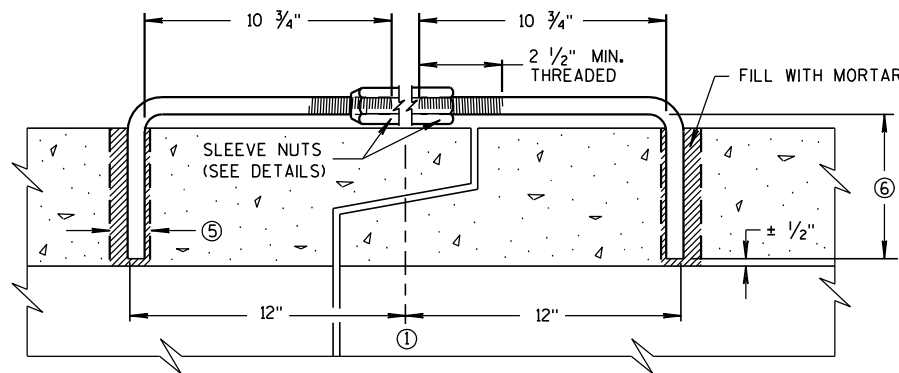
EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



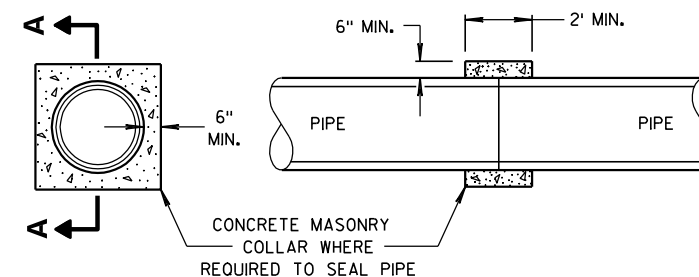
EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE) EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE) ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



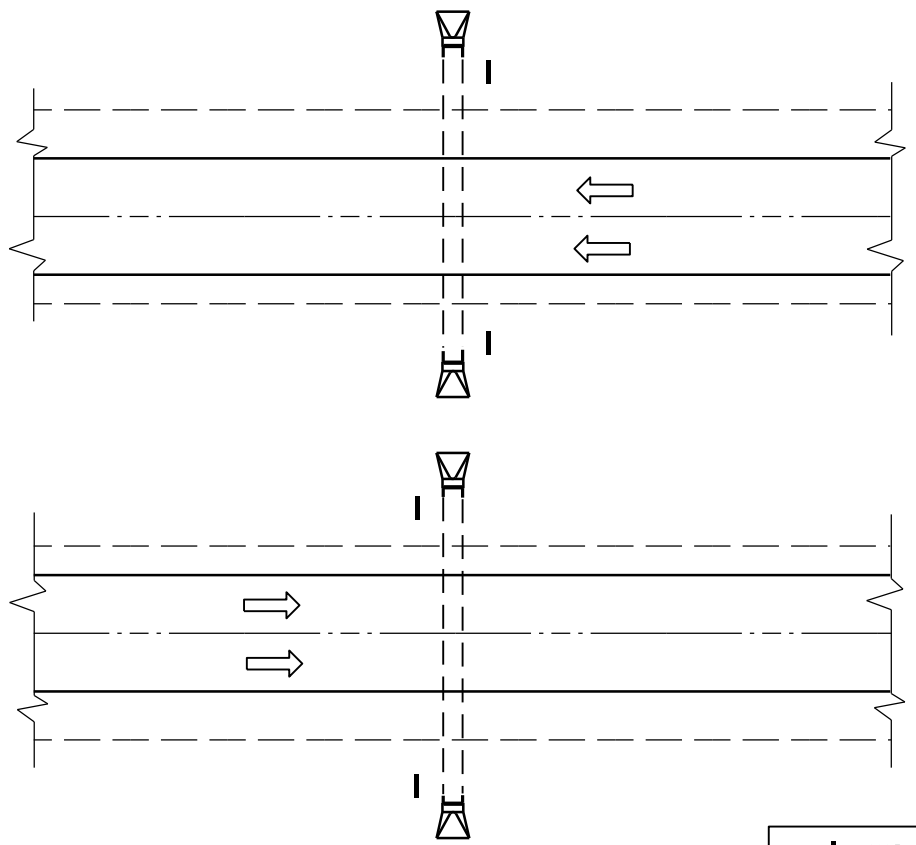
SECTION A-A

CONCRETE COLLAR DETAIL

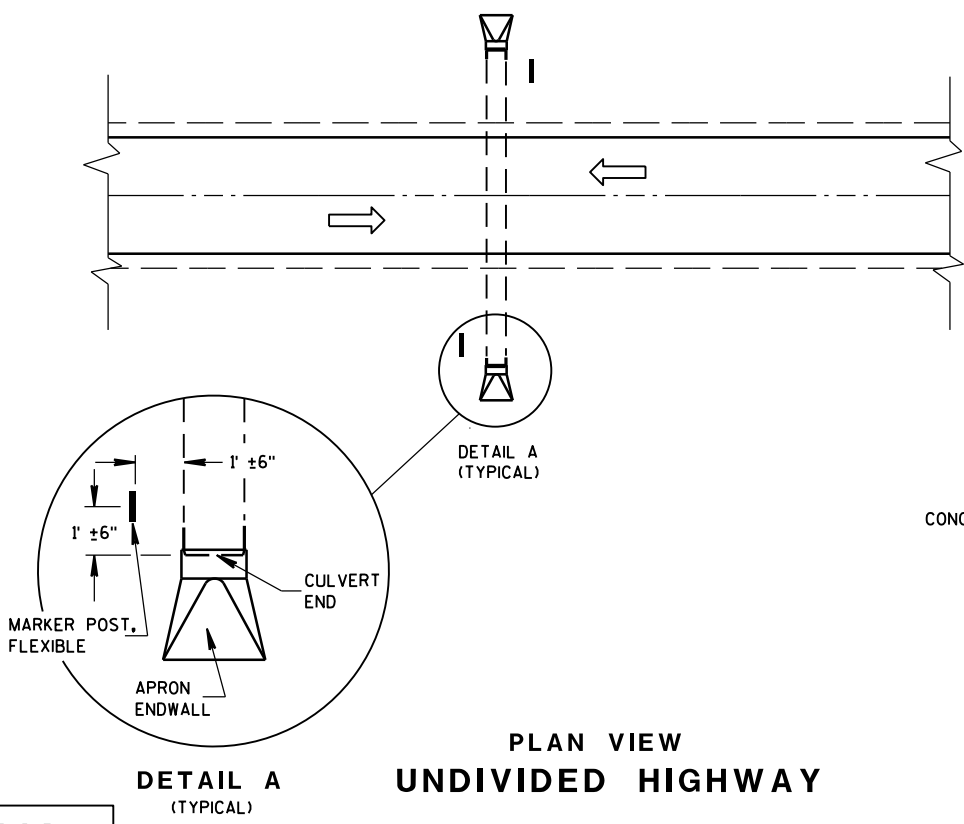
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED 6/5/2012 DATE /S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER FHWA

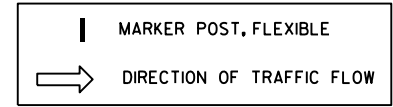


PLAN VIEW
DIVIDED HIGHWAY



PLAN VIEW
UNDIVIDED HIGHWAY

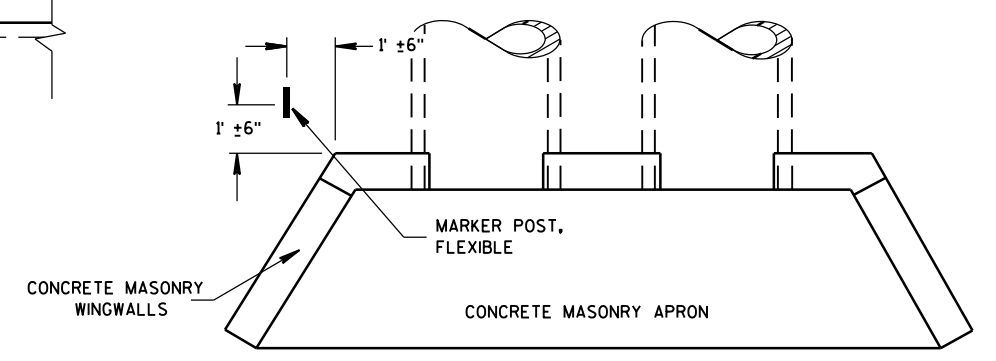
DETAIL A
(TYPICAL)



FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

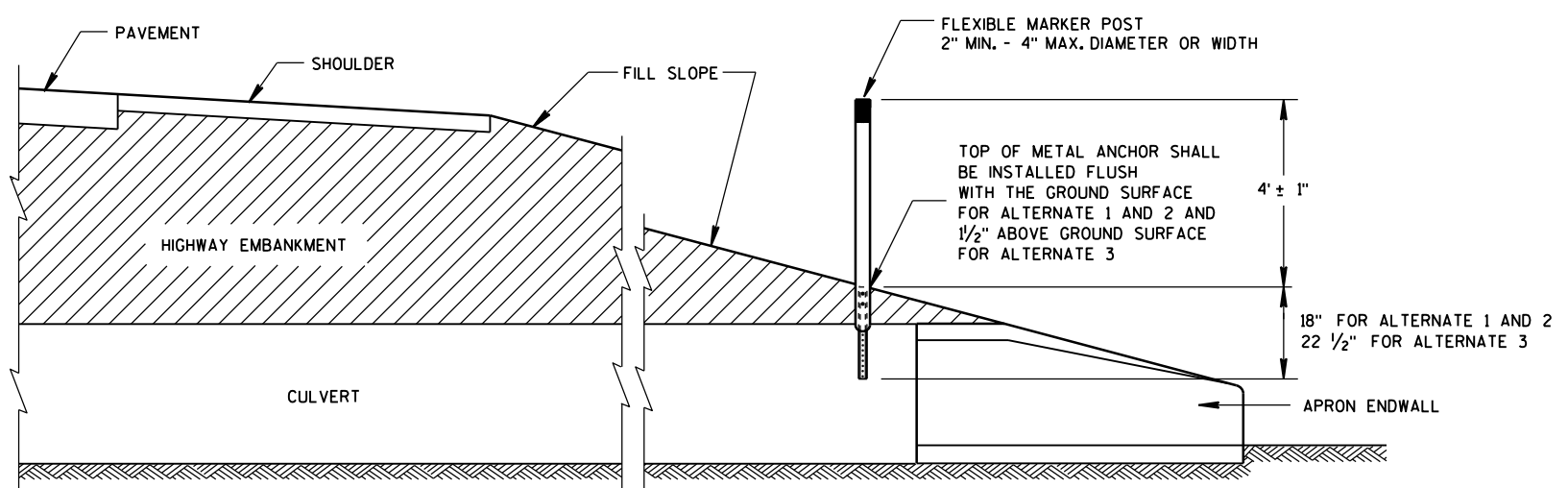
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

6

6



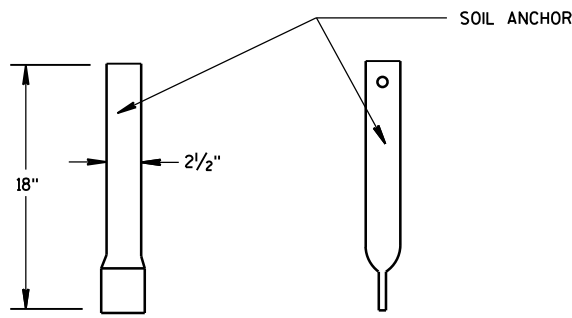
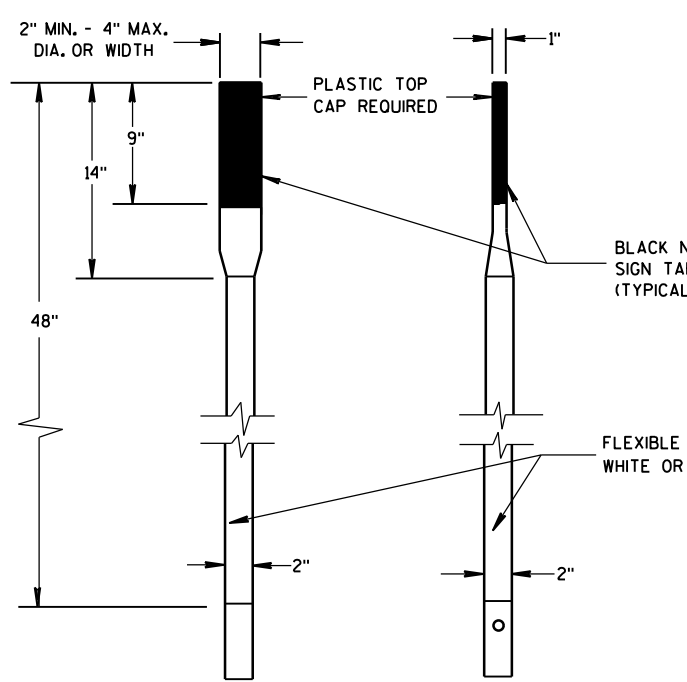
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

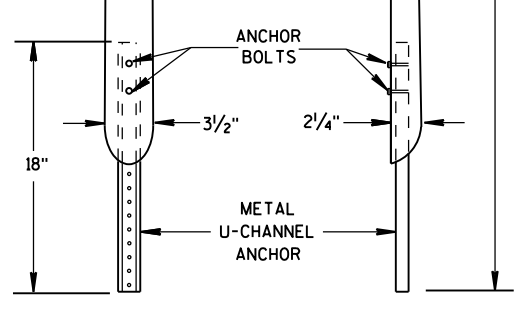
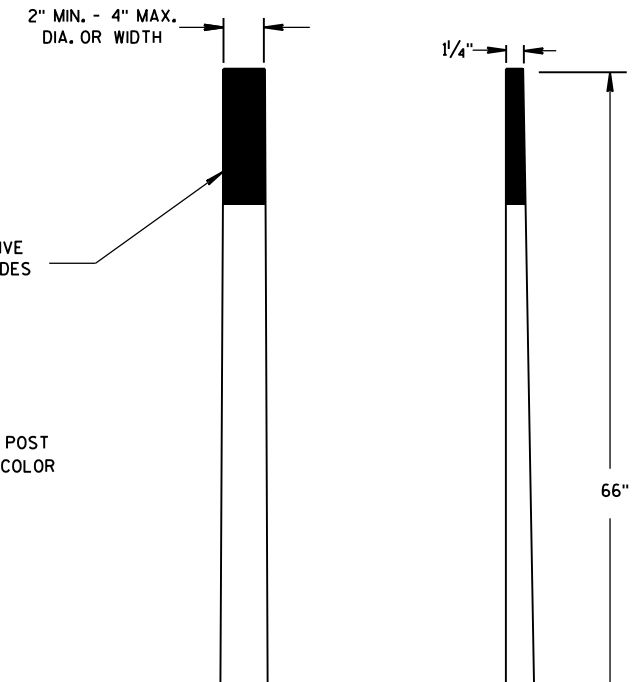
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

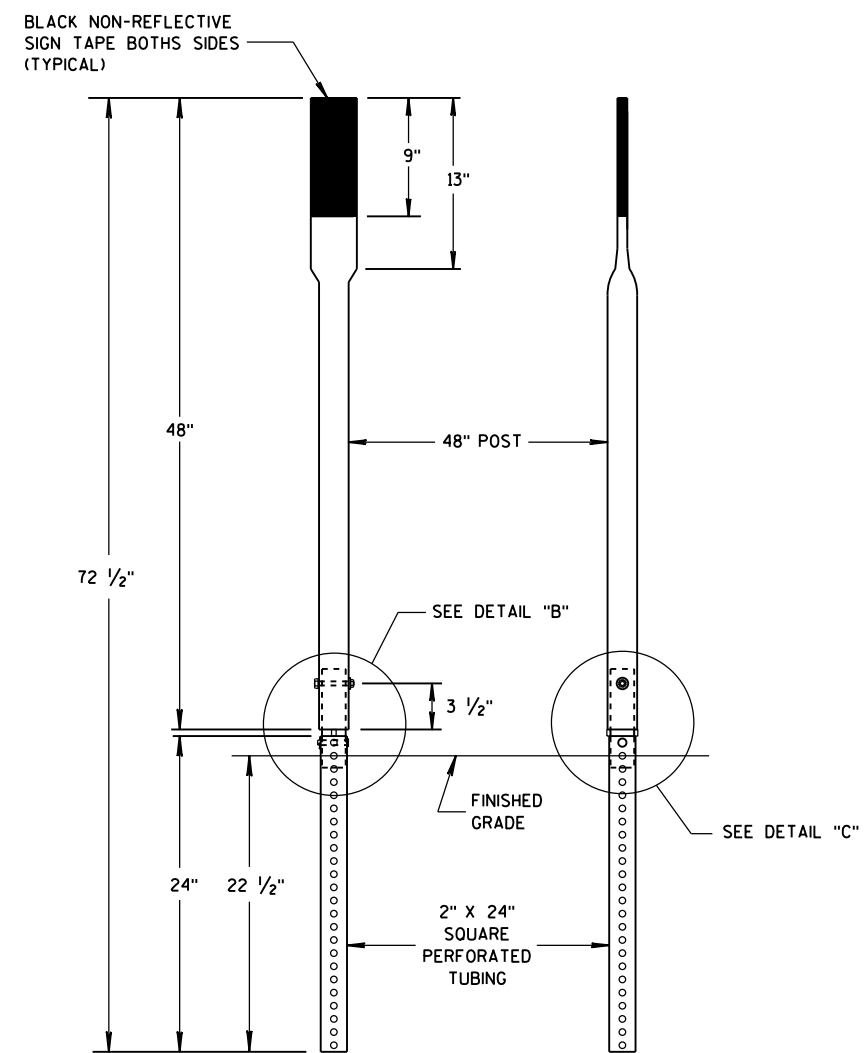
S.D.D. 15 A 3-2a



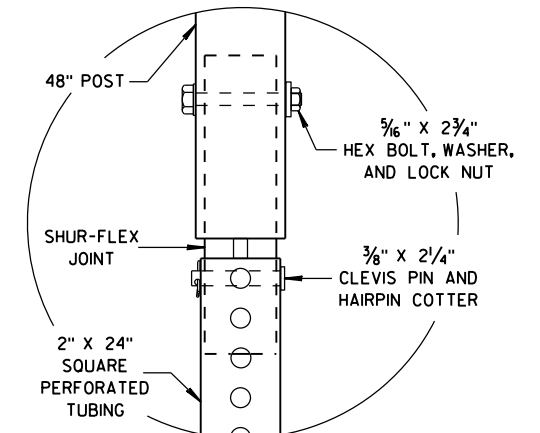
FRONT VIEW SIDE VIEW
ALTERNATE 1



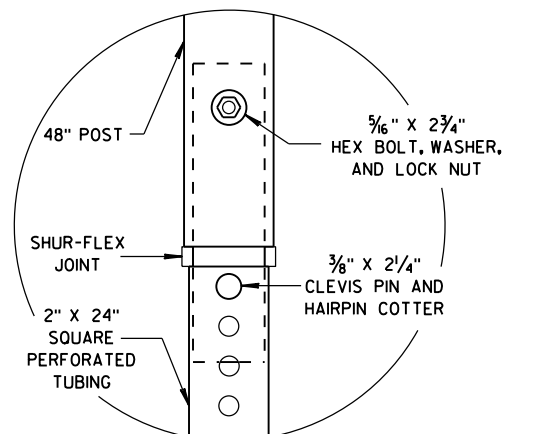
FRONT VIEW SIDE VIEW
ALTERNATE 2



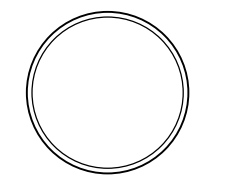
FRONT VIEW SIDE VIEW
ALTERNATE 3



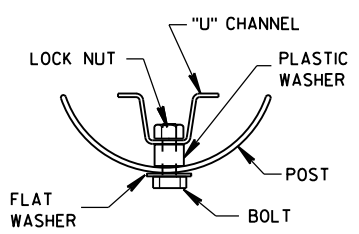
DETAIL B



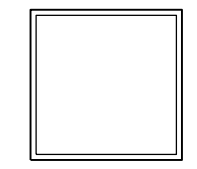
DETAIL C



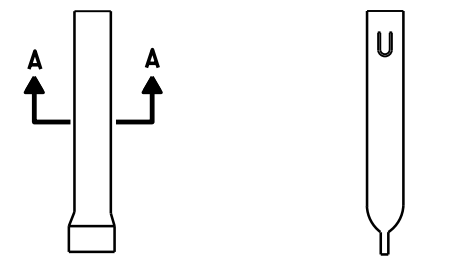
SECTION A-A



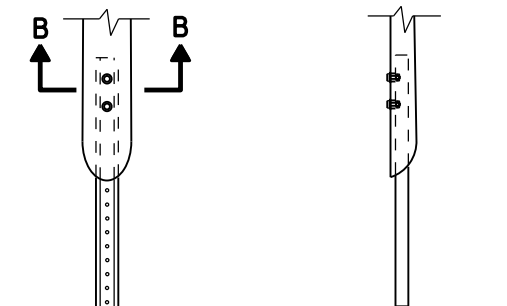
SECTION B-B



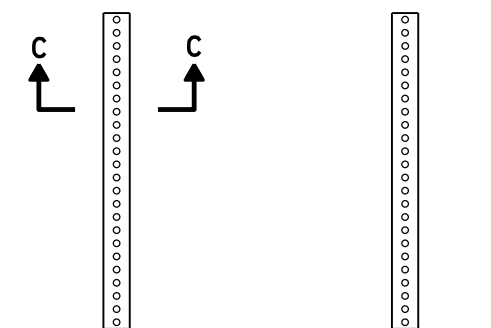
SECTION C-C



FRONT VIEW SIDE VIEW
ALTERNATE 1



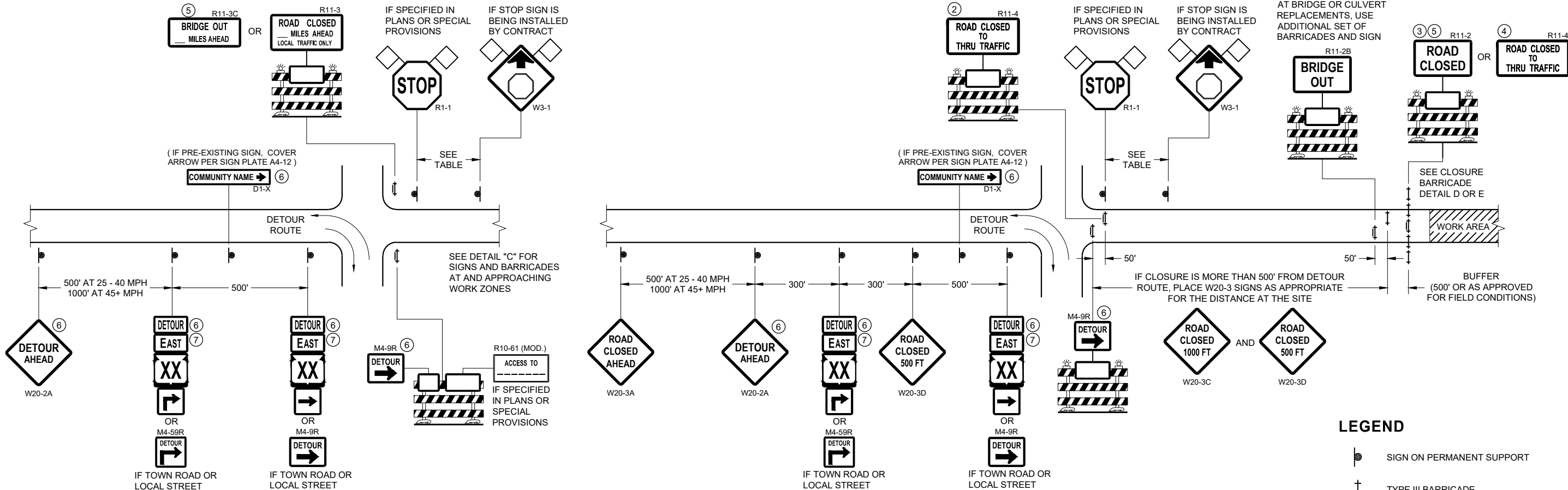
FRONT VIEW SIDE VIEW
ALTERNATE 2



FRONT VIEW SIDE VIEW
ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST FOR CULVERT END	
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)

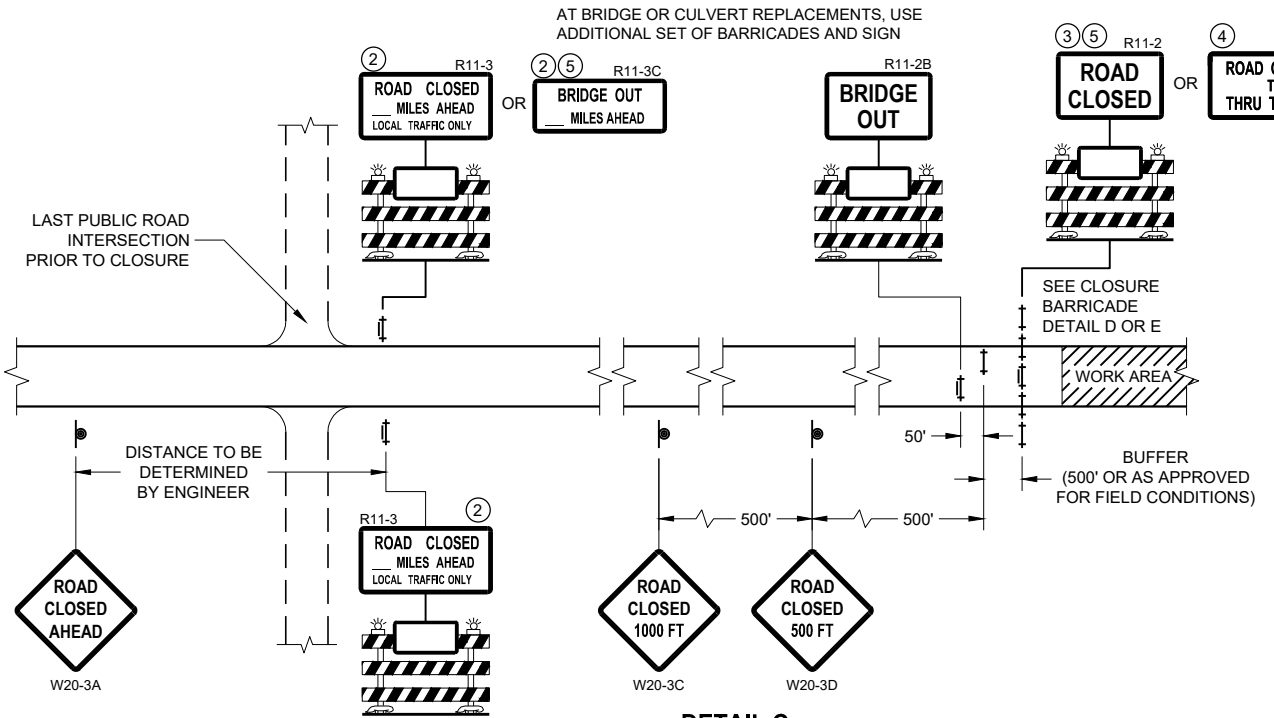
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
 WORK ZONE LESS THAN 1/2 MILE FROM
 DETOUR ROUTE (1000 FEET IF URBAN)

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
 OR OR M1 - 4 M1 - 6 M1 - 5A
 OR M05 - 1 M06 - 1



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

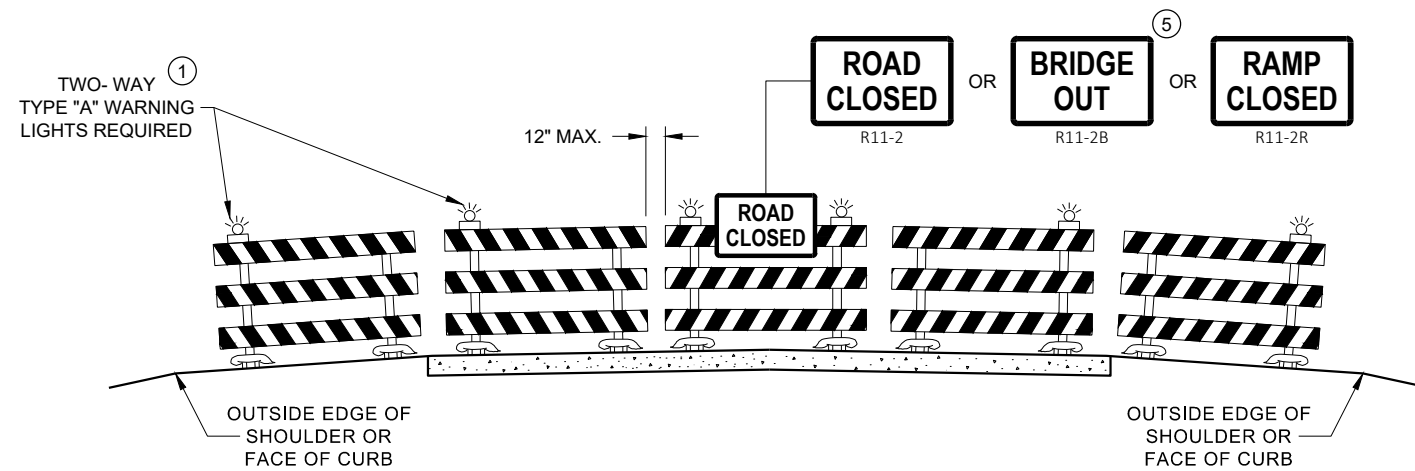
SEE SDD 15C2-SHEET "b"
 FOR GENERAL NOTES
 AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS
 FOR MAINLINE CLOSURES**

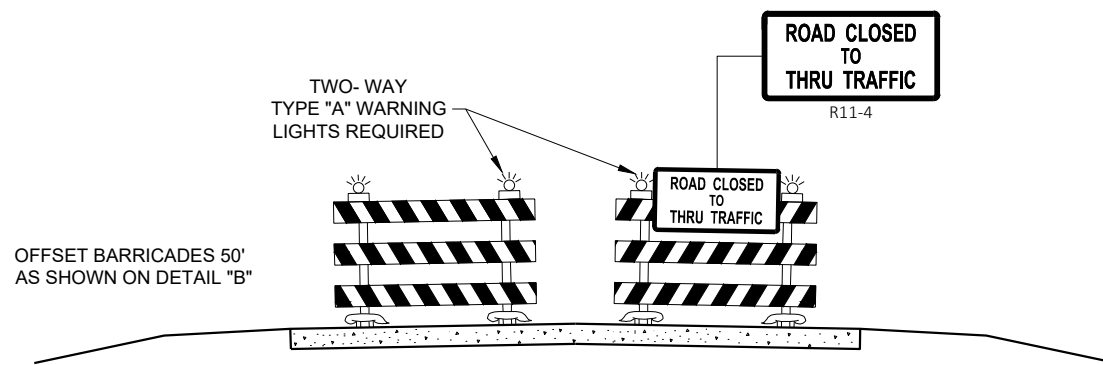
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

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

FHWA



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



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

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1
- M06 - 1

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

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

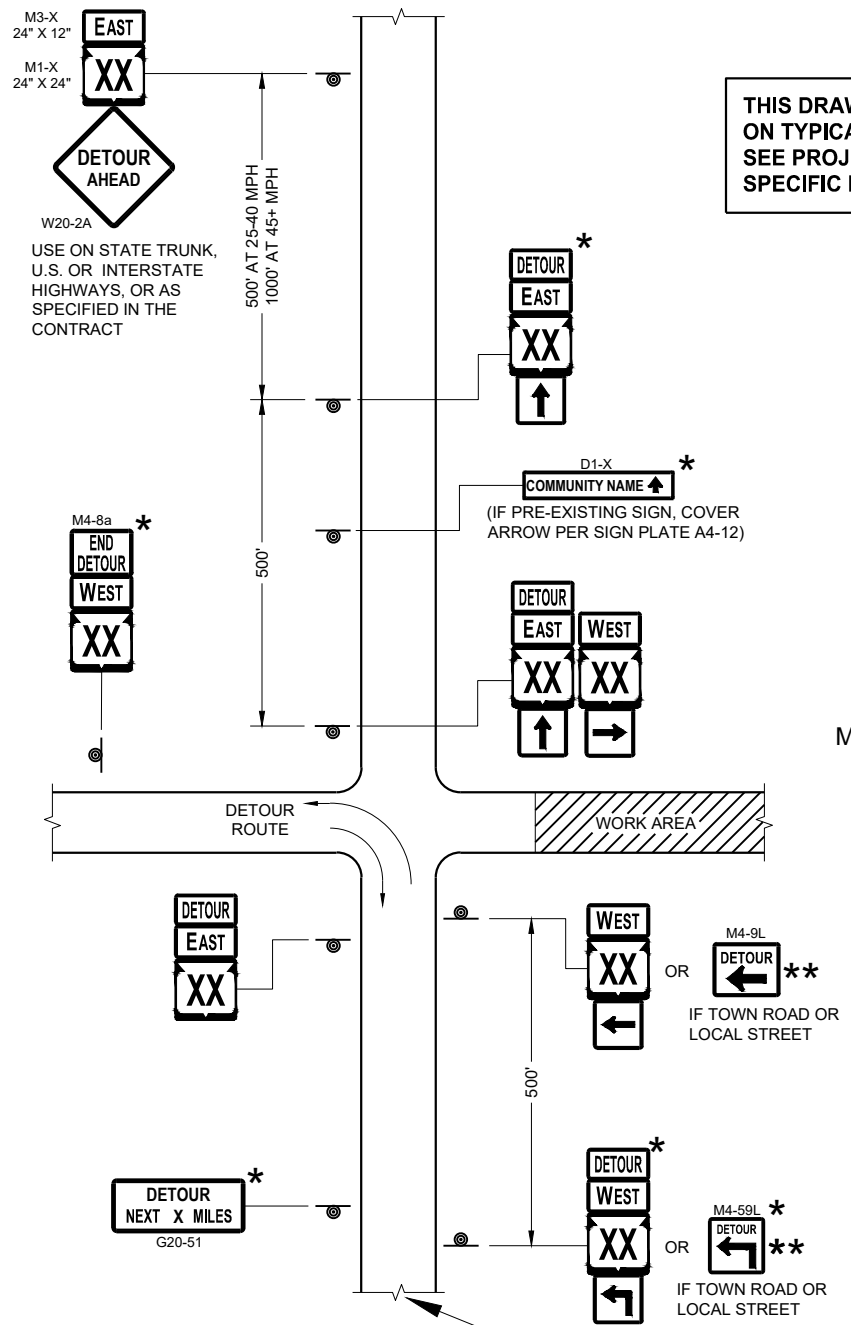
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

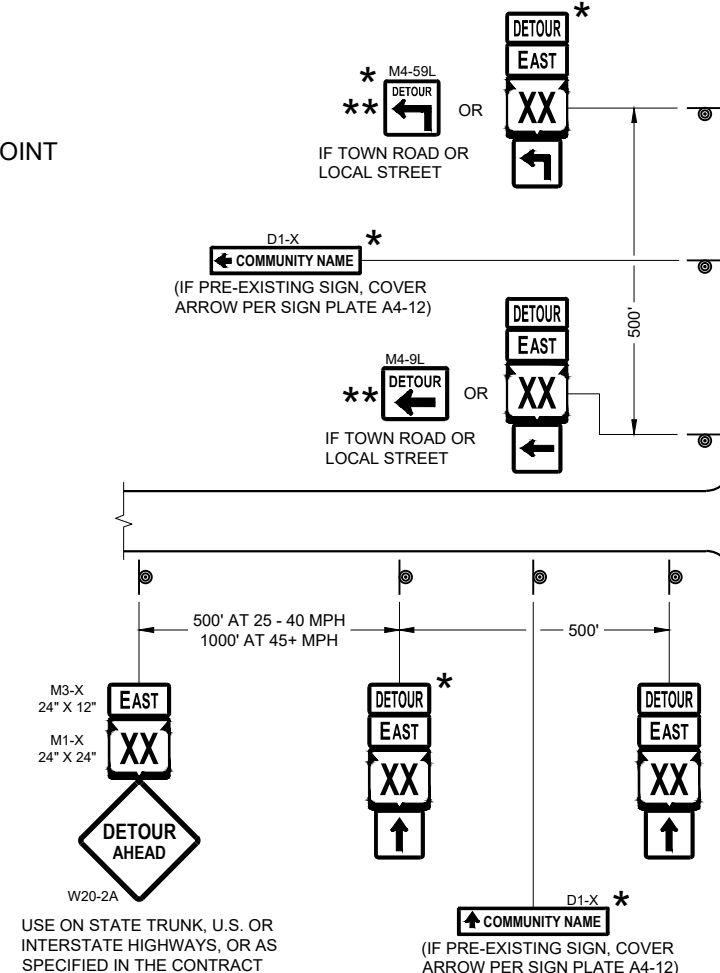
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-9R SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2 SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

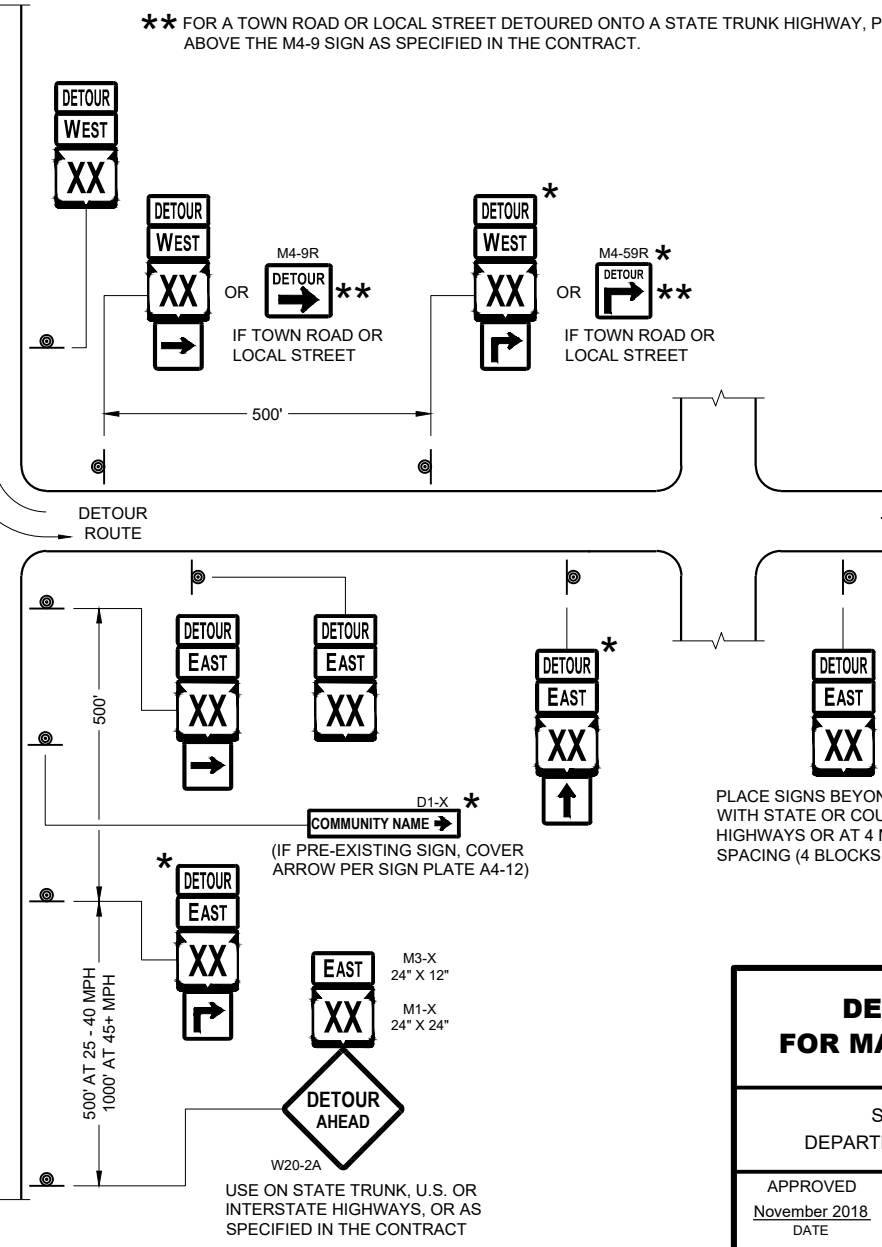
THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.



MATCH POINT



DETAIL F
DETOUR SIGNING



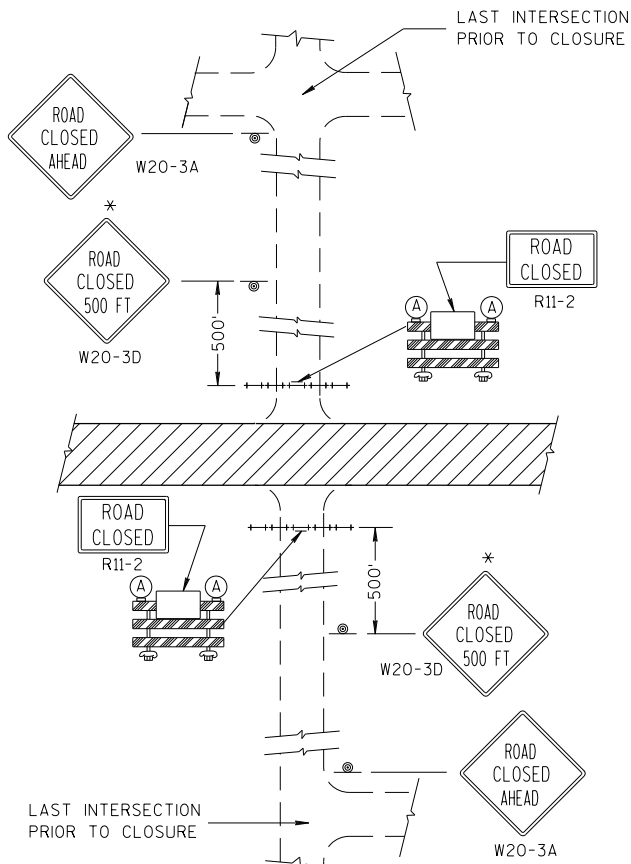
SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

DETOUR SIGNING FOR MAINLINE CLOSURES

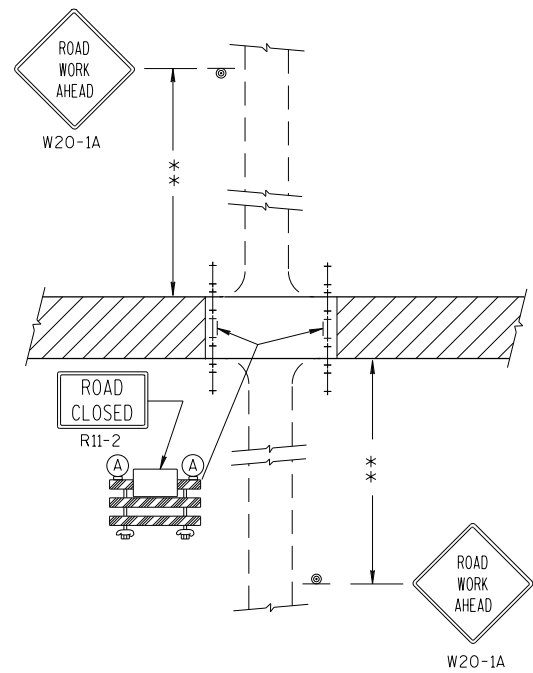
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

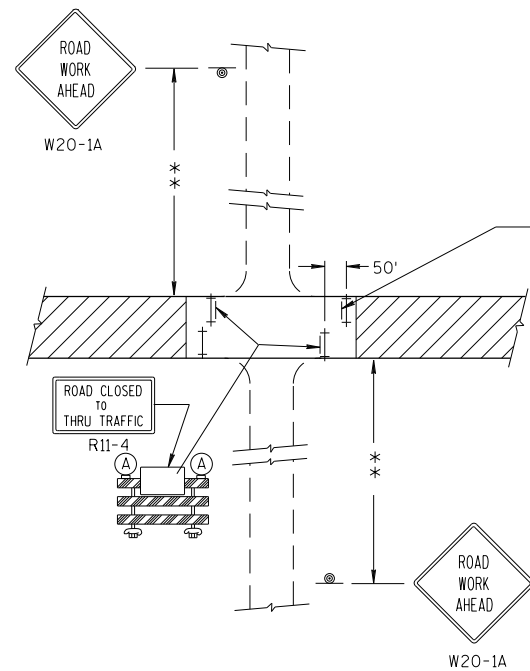
FHWA



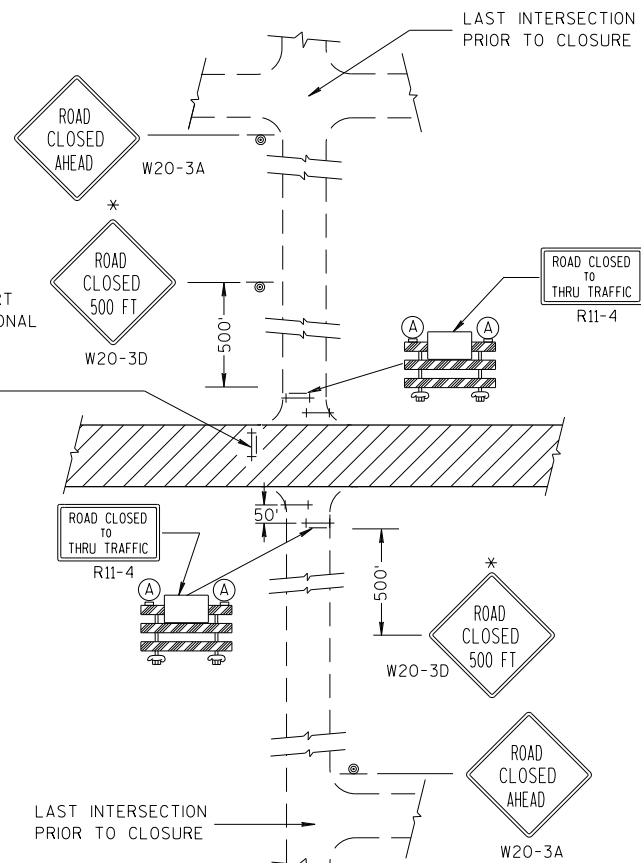
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

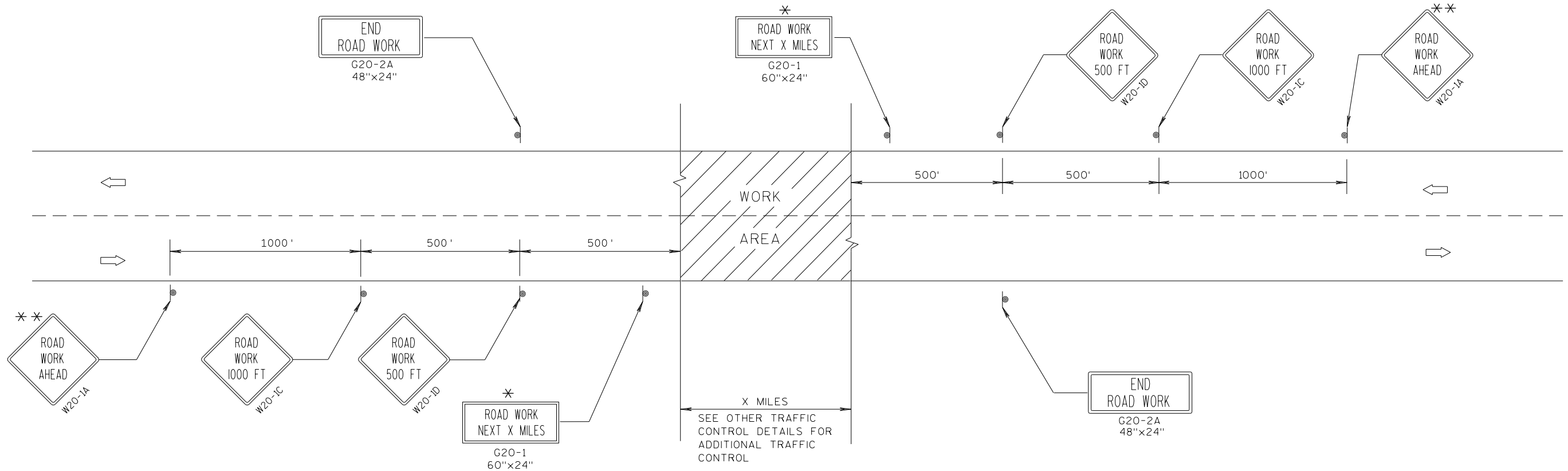
LEGEND

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

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 7/2018 /S/ Andrew Heidtke
WORK ZONE ENGINEER
FHWA



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

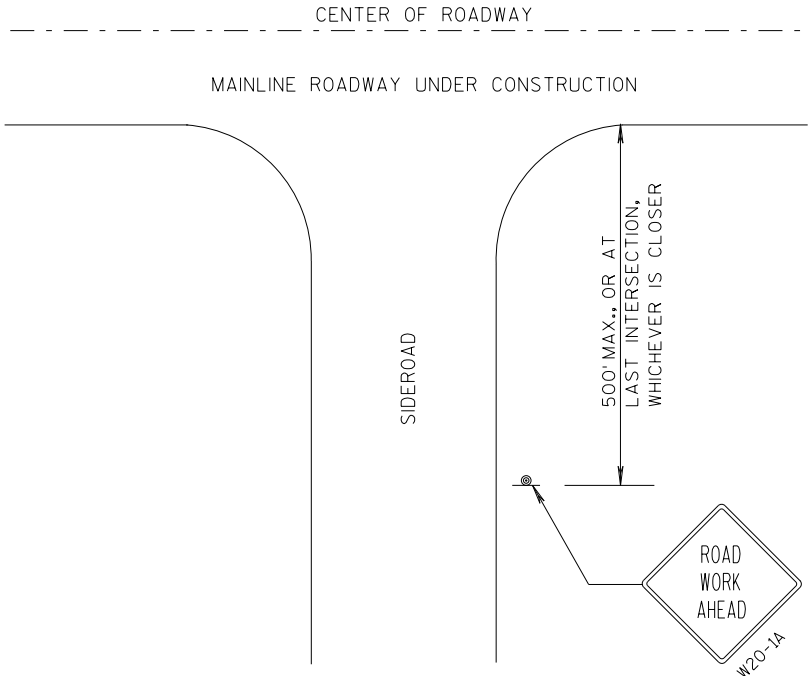
IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

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

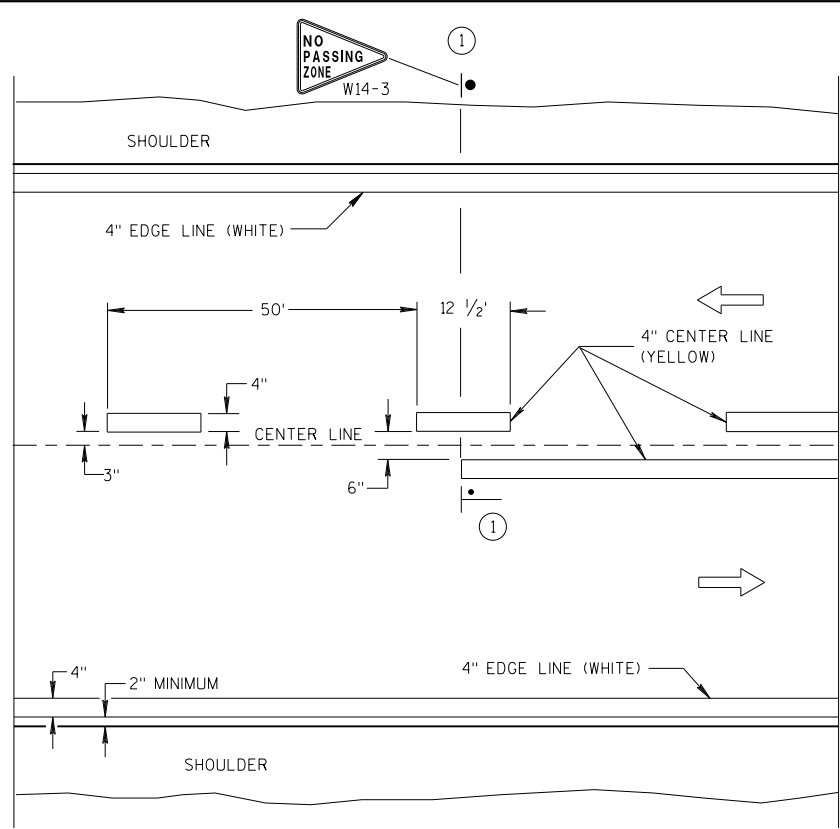
* * PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

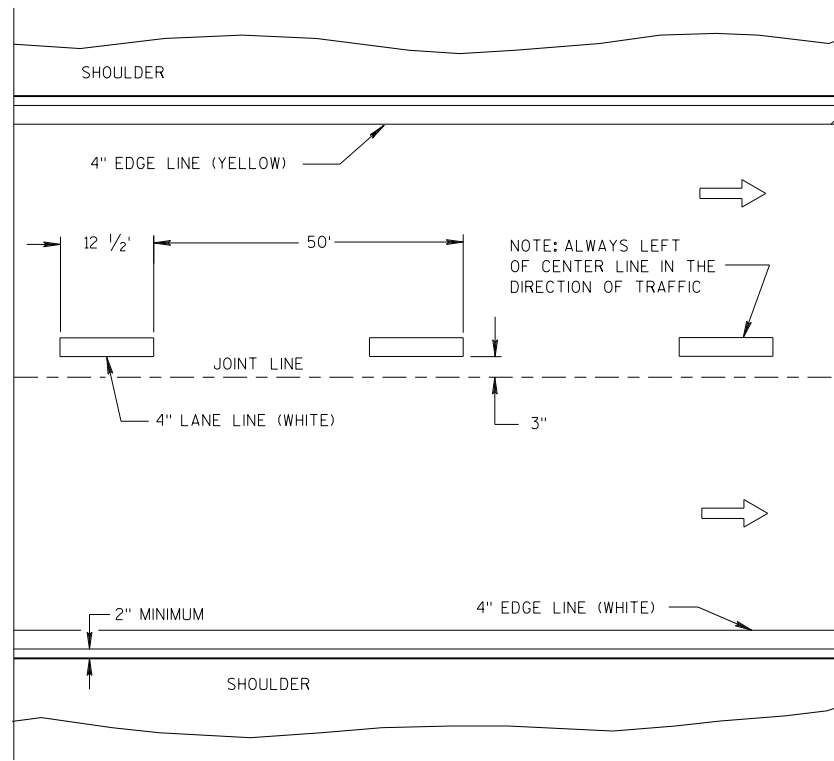
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA



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

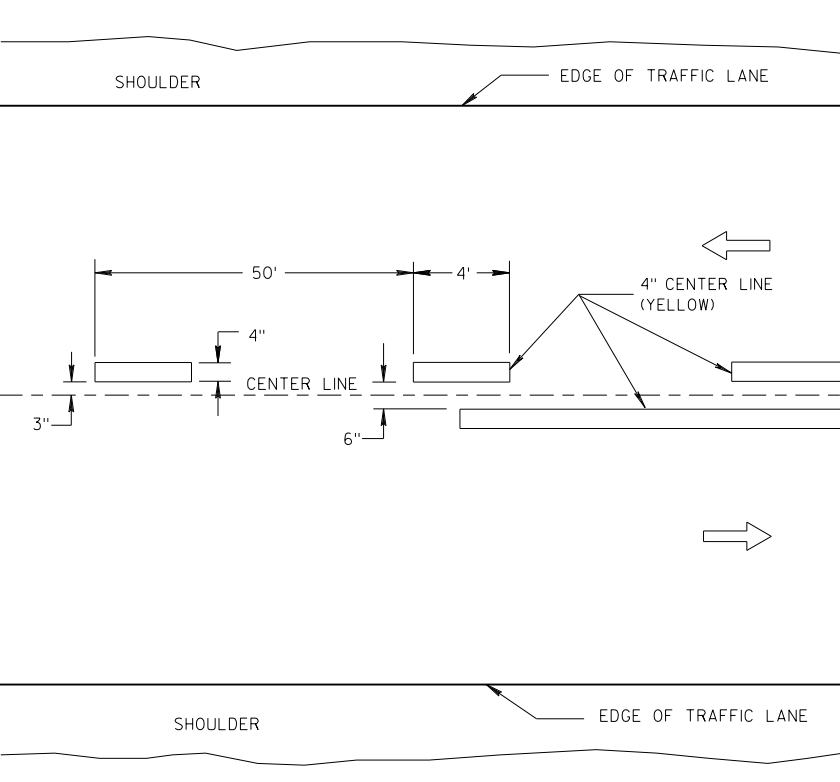


TWO WAY TRAFFIC

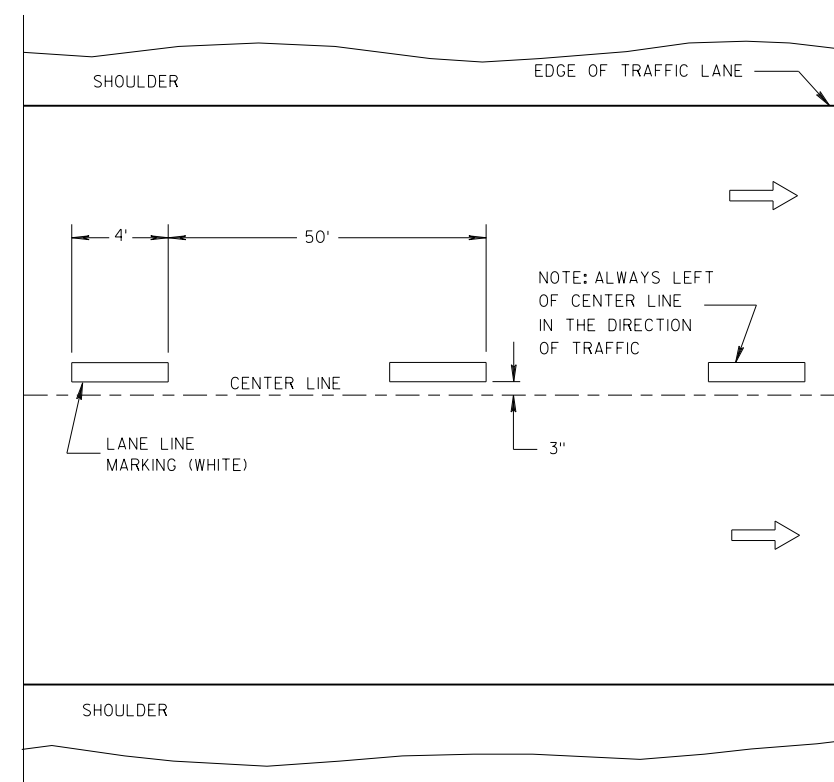


ONE WAY TRAFFIC

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.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

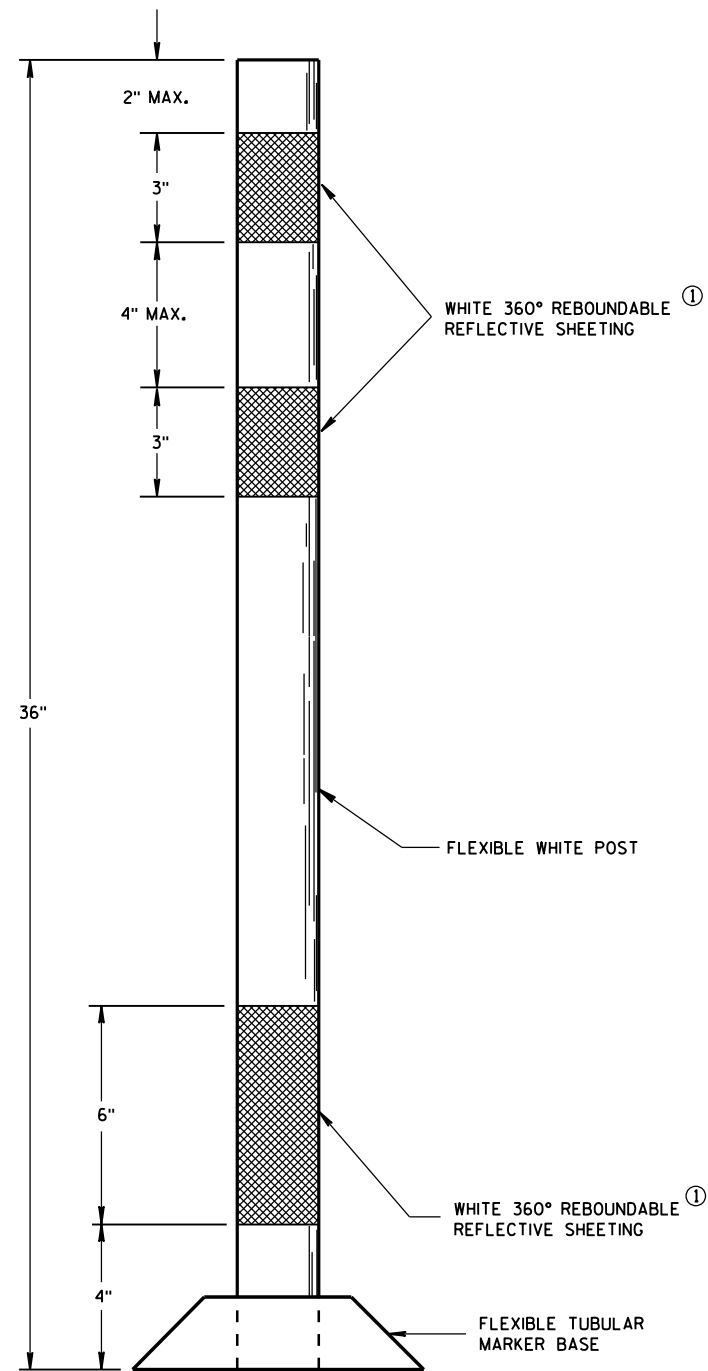
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

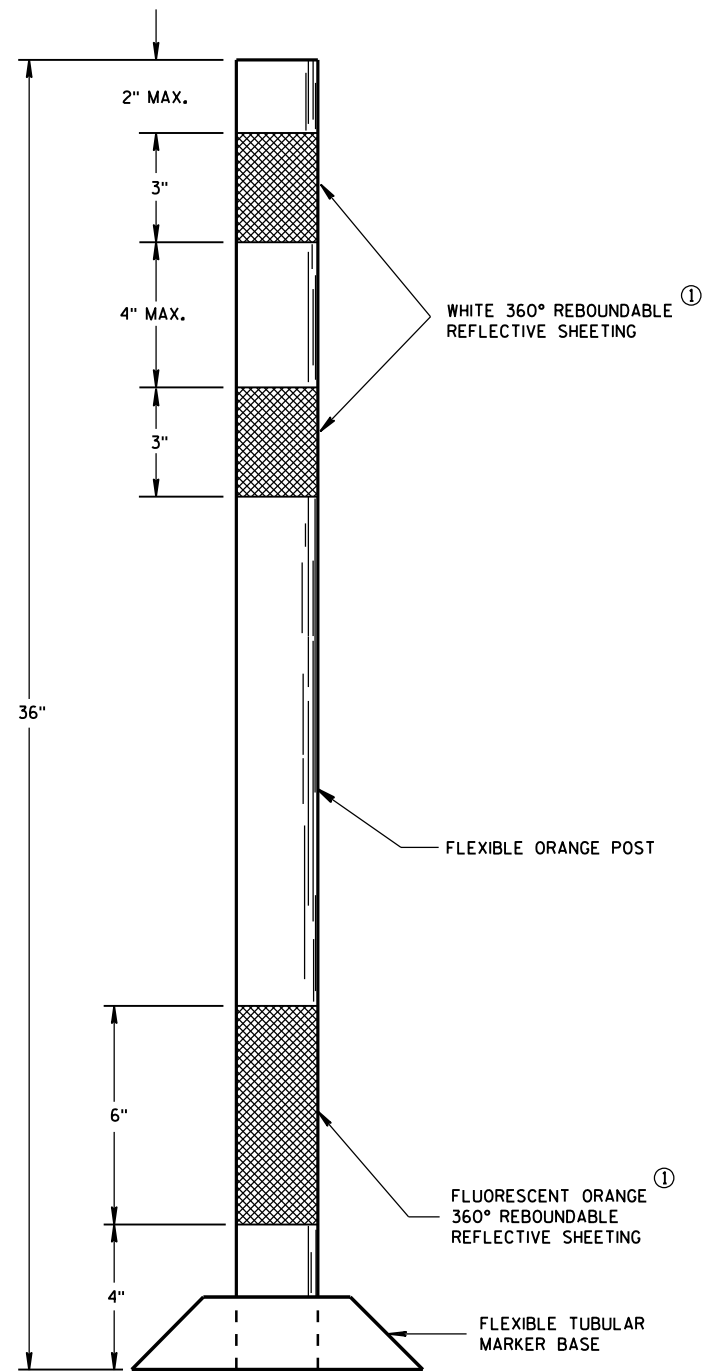
LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 7/2018 /S/ Matthew R. Rauch
STATE SIGNING AND MARKING ENGINEER
FHWA



**FLEXIBLE
TUBULAR MARKER POST
PERMANENT CROSSOVER**



**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 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 June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

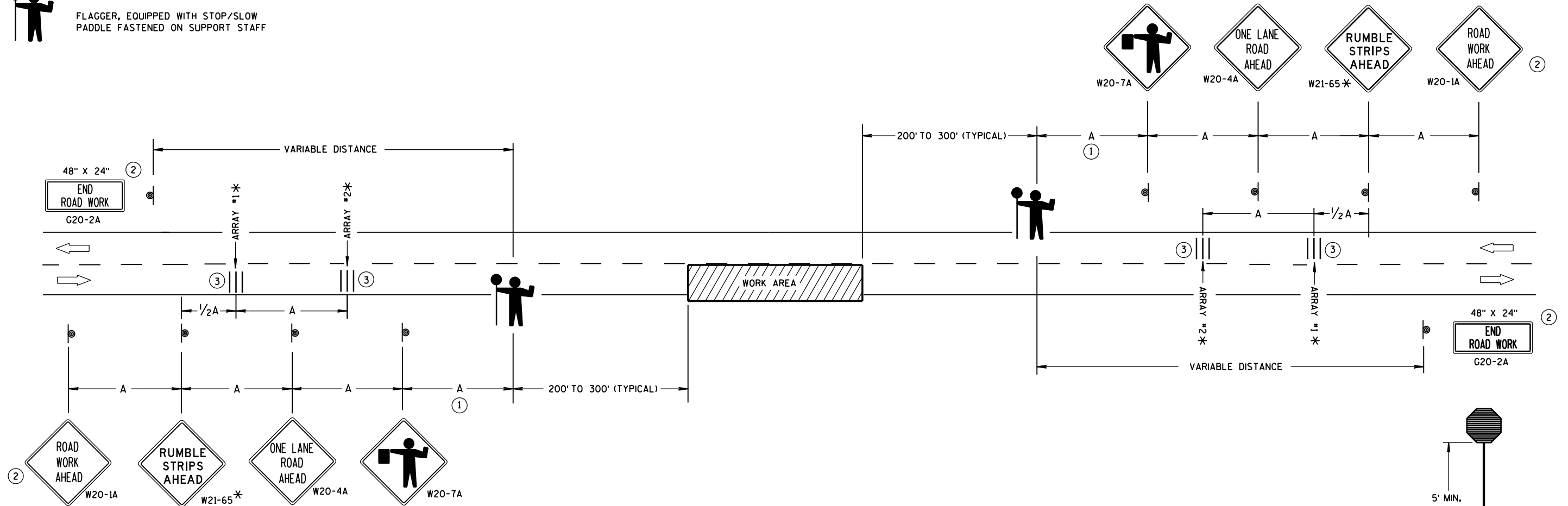
-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING A
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING A.



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

- ① FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- ③ EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heldtke WORK ZONE ENGINEER
FHWA	

GENERAL NOTES

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

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

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

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

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

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

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

TABLE A

SHOULDER TAPER LENGTH (FEET)		SHOULDER TAPER LENGTH (FEET)				BUFFER SPACE (FEET)
S	W	4	6	8	10	
30	20	30	40	50	200	
35	30	45	55	70	250	
40	40	55	75	90	305	
45	60	90	120	150	360	
50	70	100	135	170	425	
55	75	110	150	185	495	

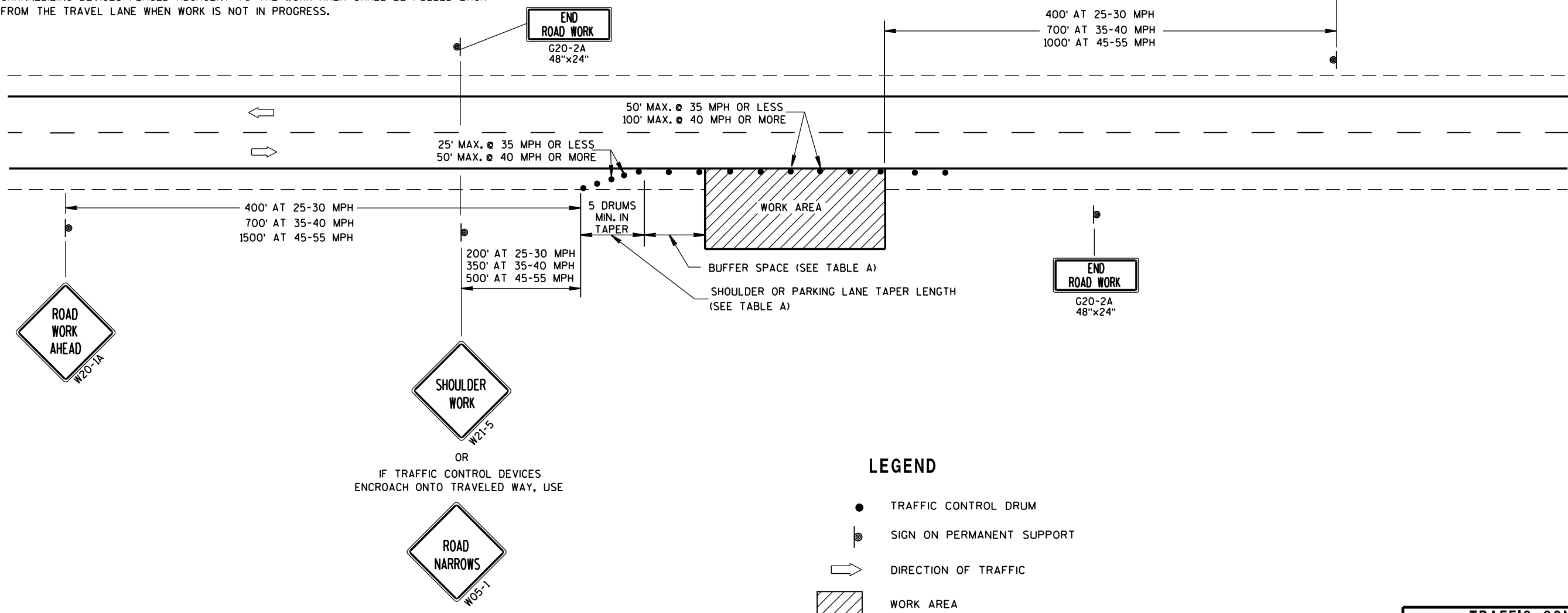
SHOULDER TAPER LENGTH = $\frac{1}{3}L$

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH

L = WS AT 45 MPH OR GREATER

L = $\frac{WS^2}{60}$ AT 40 MPH OR LESS



LEGEND

- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ➔ DIRECTION OF TRAFFIC
- ▨ WORK AREA

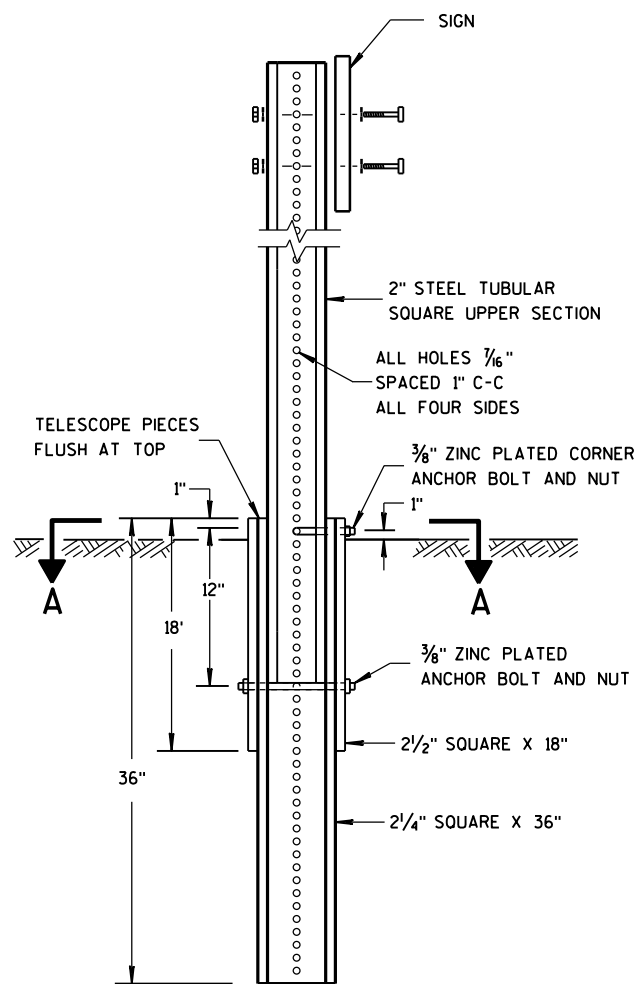
TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED July 14, 2015 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

6

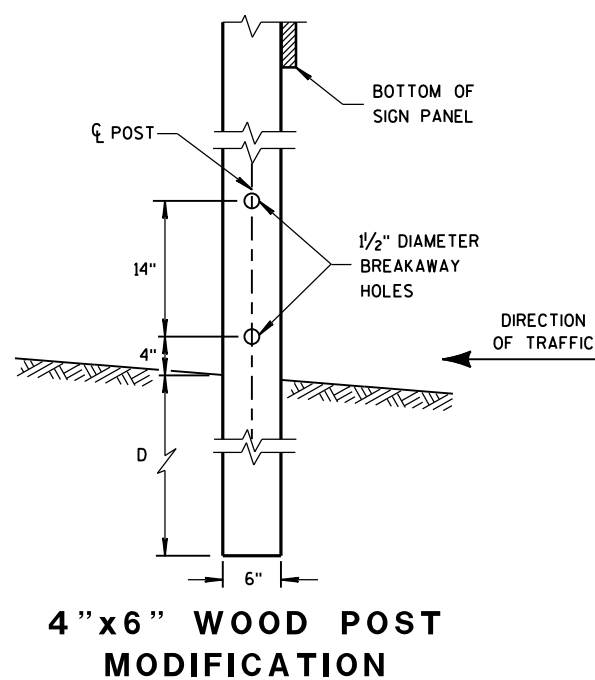
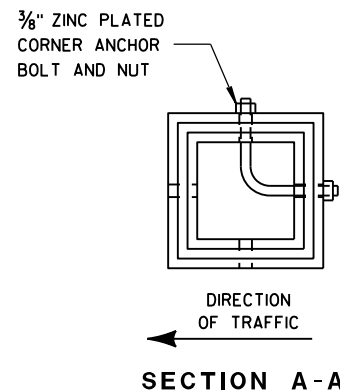
6

S.D.D. 15 D 28-3

S.D.D. 15 D 28-3



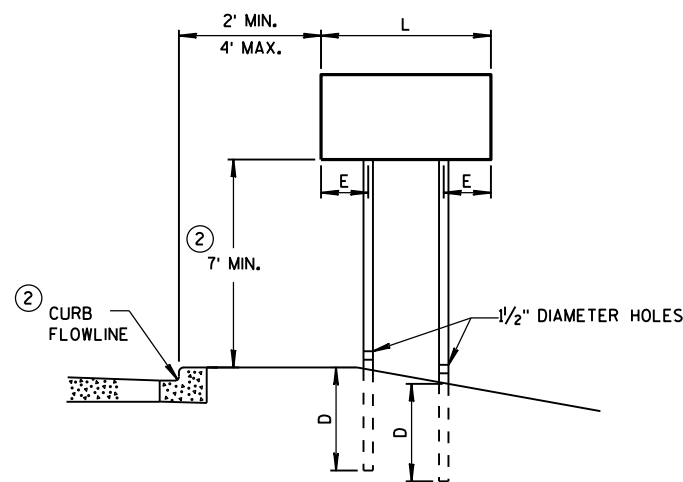
DETAIL OF TUBULAR STEEL SIGN POST



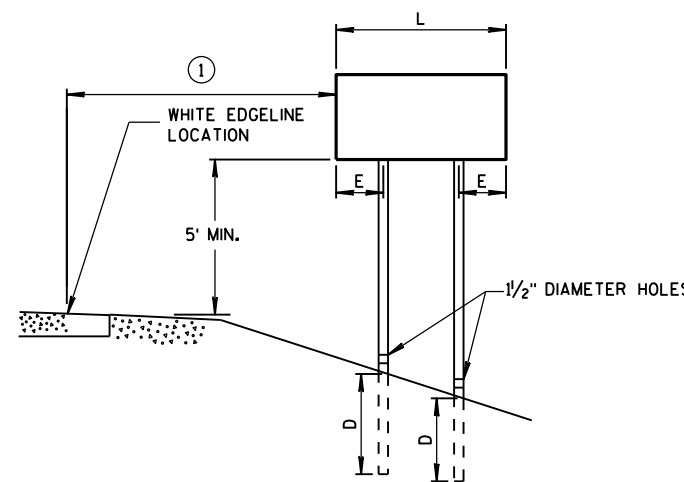
4" X 6" WOOD POST MODIFICATION

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA



RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL 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).
 SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

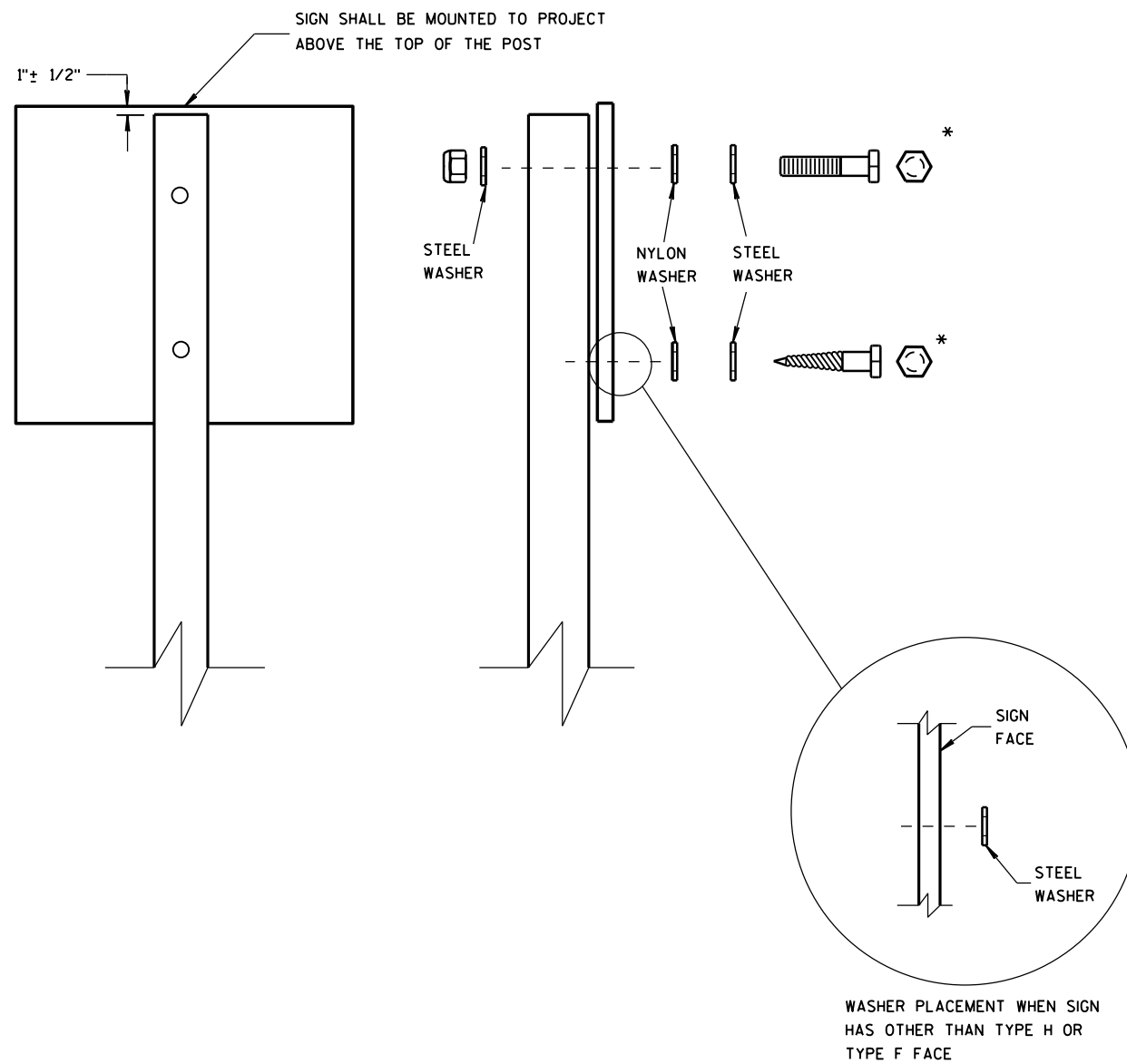
4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE ③

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION



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.

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

RIVETS - 5/32" (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 FOR ALL TYPE H SIGNS

* 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /s/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
 INVENTORY RATING FACTOR: RF = 1.12
 OPERATING RATING FACTOR: RF = 1.45
 WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 230(KIPS)

EARTH LOAD:

DESIGNED FOR 0.5 FT. TO 3.0 FT. OF FILL

MATERIAL PROPERTIES:

CONCRETE MASONRY:
 SUPERSTRUCTURE _____ f'c = 4,000 P.S.I.
 ALL OTHER _____ f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT:

GRADE 60 _____ fy = 60,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10X42 PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 120 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 60'-0" LONG. PILE POINTS ARE REQUIRED.

** 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.

HYDRAULIC DATA

100 YEAR FREQUENCY

Q₁₀₀ = 280 C.F.S.
 VEL₁₀₀ = 3.1 F.P.S.
 HW₁₀₀ = EL. 813.86
 WATERWAY AREA = 91 SQ. FT.
 DRAINAGE AREA = 2.6 SQ. MI.
 ROADWAY OVERTOPPING = N/A
 SCOUR CRITICAL CODE = 8

2 YEAR FREQUENCY

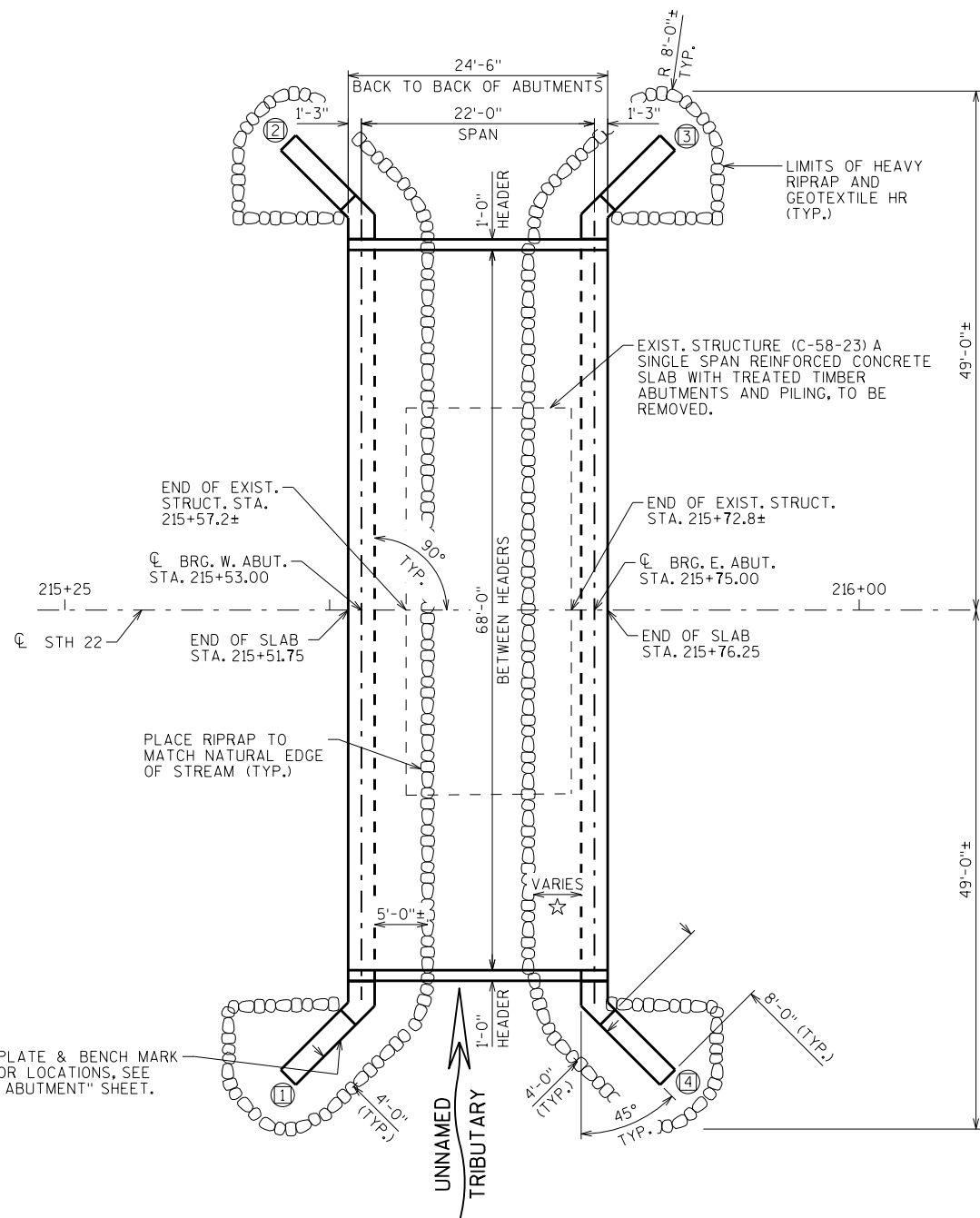
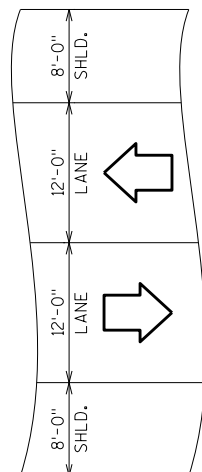
Q₂ = 55 C.F.S.
 VEL₂ = 1.2 F.P.S.
 HW₂ = EL. 812.11

TRAFFIC VOLUME

STH 22

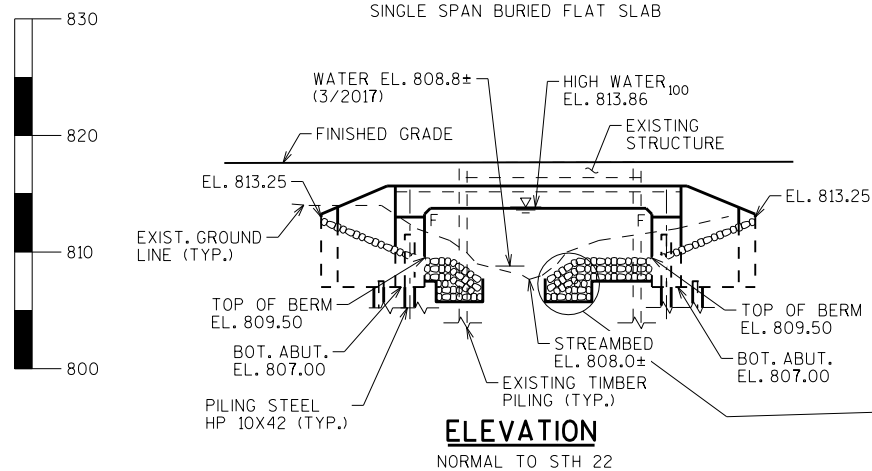
ADT = 5,600 (2020)
 R.D.S. = 60 M.P.H.

Ⓢ INDICATES WING NUMBER



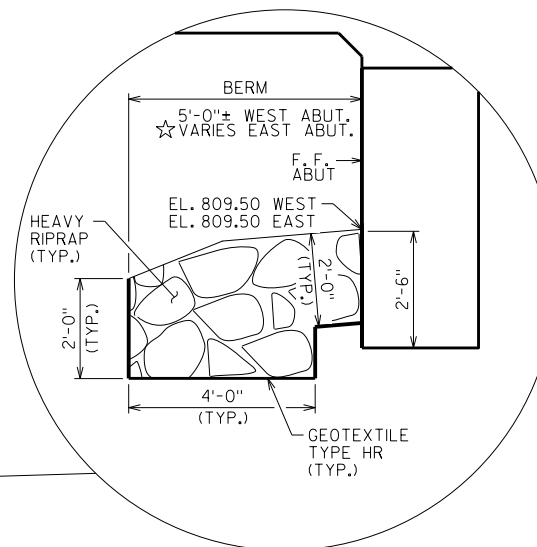
PLAN

SINGLE SPAN BURIED FLAT SLAB



ELEVATION

NORMAL TO STH 22



☆ PLACE RIPRAP TO MATCH NATURAL EDGE OF STREAM AT ELEV. 809±. (APPROX. 5'-6"± TO 8'-0"± WIDTH)

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT DETAILS
6. EAST ABUTMENT
7. EAST ABUTMENT DETAILS
8. SUPERSTRUCTURE
9. SUPERSTRUCTURE DETAILS
10. ALTERNATE CONSTRUCTION JOINT

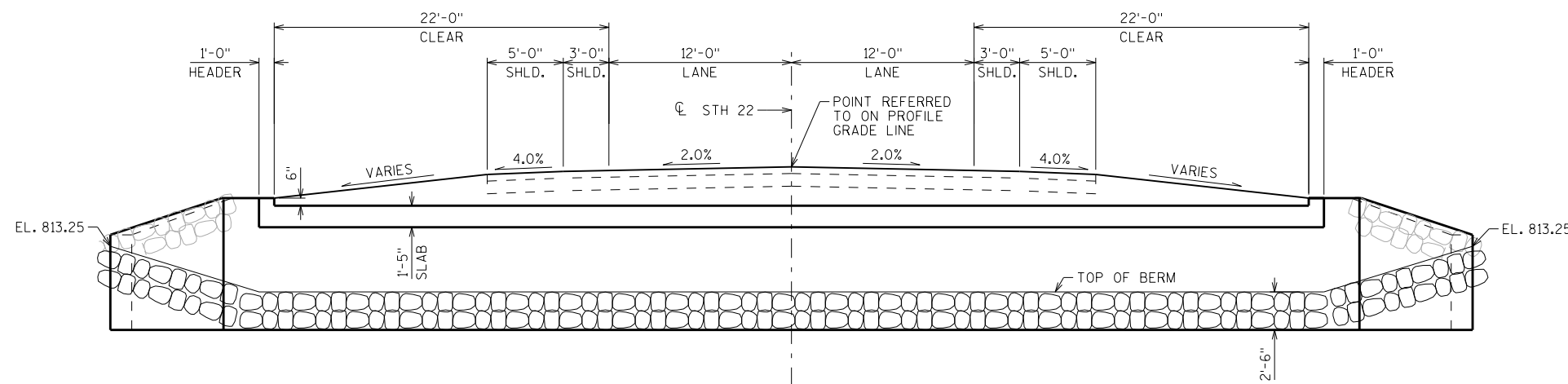
STRUCTURE DESIGN CONTACTS:

DAN MONROE (608) 266-8490
 LAURA SHADEWALD (608) 267-9592

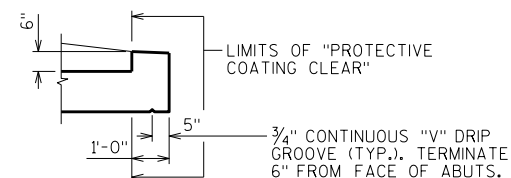
NO.	DATE	REVISION	BY
ACCEPTED		William C. Dehn, P.E. CHIEF STRUCTURES DESIGN ENGINEER	
DATE		7/3/19	
STRUCTURE C-58-24			
STH 22 OVER UNNAMED TRIBUTARY			
COUNTY	SHAWANO	TOWN	WASHINGTON
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	DLM	DESIGNED CK'D.	JLR
DRAWN BY	MJH	PLANS CK'D.	MWB
GENERAL PLAN			SHEET 1 OF 10

8

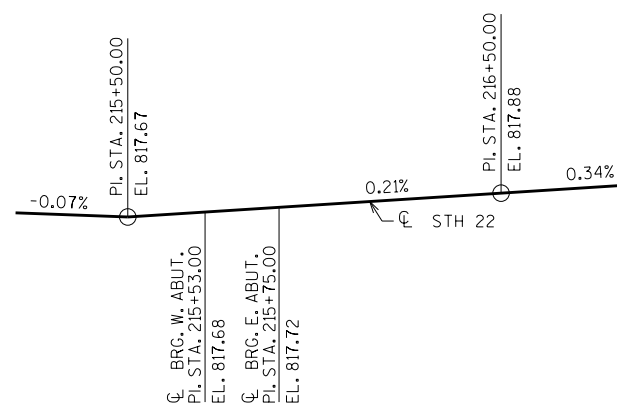
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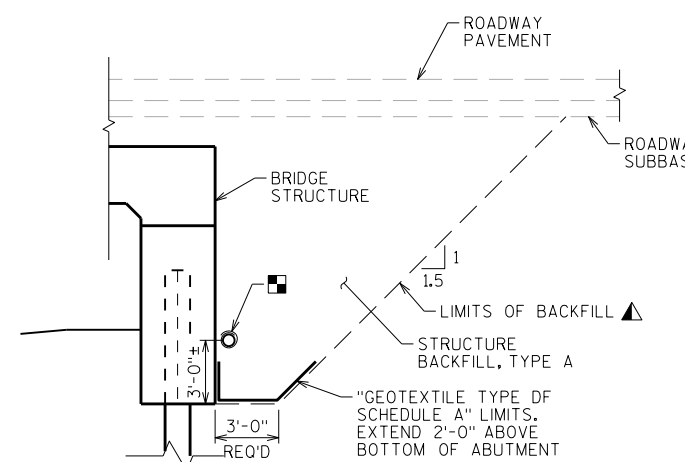
CROSS SECTION THRU ROADWAY LOOKING EAST



EDGE OF DECK DETAIL

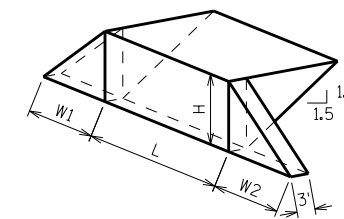


PROFILE GRADE LINE - STH 22



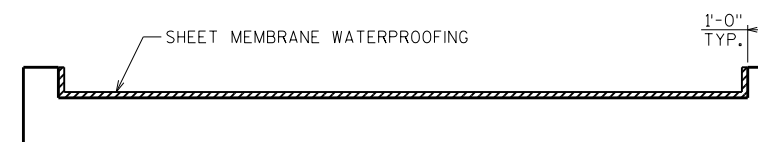
TYPICAL SECTION THRU ABUTMENT

- ▲ 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.

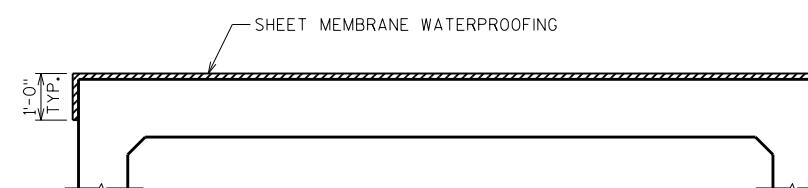


ABUTMENT BACKFILL DIAGRAM FOR WINGS PARALLEL TO ABUTMENT

L = OUT TO OUT OF ABUTMENT BODY (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
W1 = WING 1 LENGTH (FT)
W2 = WING 2 LENGTH (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H) + (3.0')(0.5)(W1+W2)(H)$
 $V_{CY} = V_{CF} (EF) / 2.7$
 $V_{TON} = V_{CY} (2.0)$



CROSS SECTION THRU STRUCTURE SHOWING SHEET MEMBRANE WATERPROOFING LIMITS



ELEVATION THRU STRUCTURE SHOWING SHEET MEMBRANE WATERPROOFING LIMITS

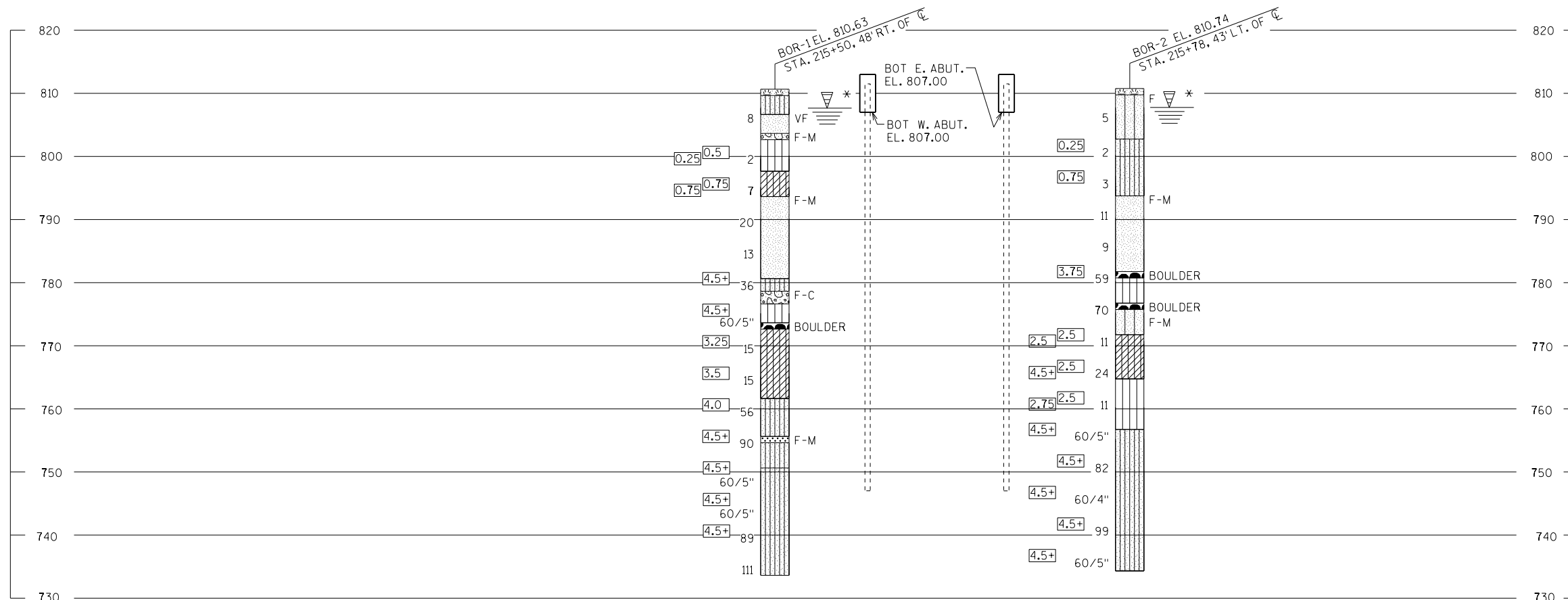
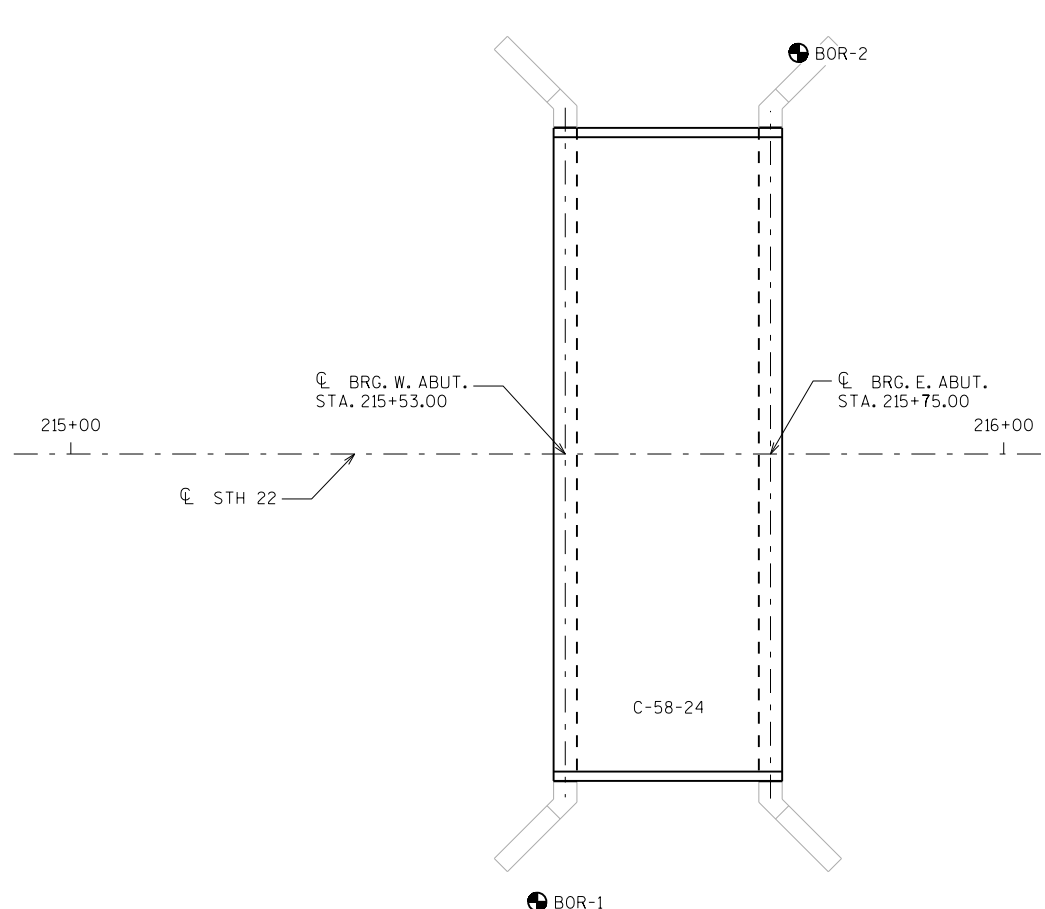
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 215+65±	LS	—	—	—	1
205.0501.S	EXCAVATION, HAULING AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	—	26	26	52
206.1000	EXCAVATION FOR STRUCTURES BRIDGES C-58-24	LS	—	—	—	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	—	427	427	854
502.0100	CONCRETE MASONRY BRIDGES	CY	101	53	53	207
502.6500	PROTECTIVE COATING CLEAR	GAL	1	—	—	1
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	—	4,640	4,640	9,280
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	17,360	3,500	3,500	24,360
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	—	17	17	34
516.0610.S	SHEET MEMBRANE WATERPROOFING FOR TOP SLAB C-58-24	SY	207	—	—	207
550.0500	PILE POINTS	EACH	—	12	12	24
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	—	720	720	1,440
606.0300	RIPRAP HEAVY	CY	—	88	97	185
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	—	115	115	230
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	—	89	89	178
645.0120	GEOTEXTILE TYPE HR	SY	—	137	150	287
	NON-BID ITEMS					
	FILLER	SIZE	—	—	—	1/2", 3/4"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
		DRAWN BY MJH	PLANS CK'D. MWB
CROSS SECTION & QUANTITIES			SHEET 2

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	3/14/2018	278252	893600
2	3/19/2018	278347	893590

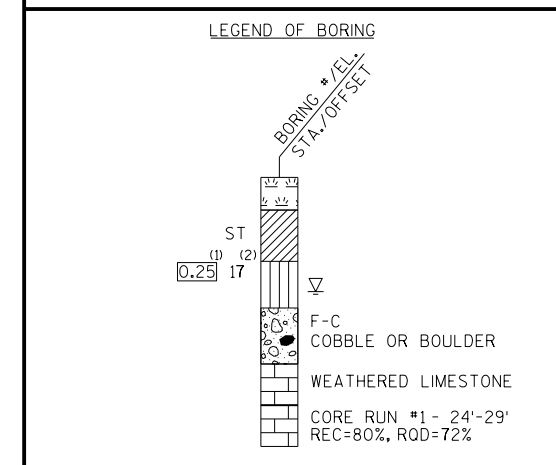
BORINGS COMPLETED BY: WISDOT
 REPORT COMPLETED BY: WISDOT
 ALL COORDINATES REFERENCED TO WCCS NAD 83(91) SHAWANO COUNTY
 COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT



STATE PROJECT NUMBER
9180-17-60

MATERIAL SYMBOLS

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



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
 (2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION
 ▽ AT TIME OF DRILLING
 ▽ END OF DRILLING
 ▽ AFTER DRILLING

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

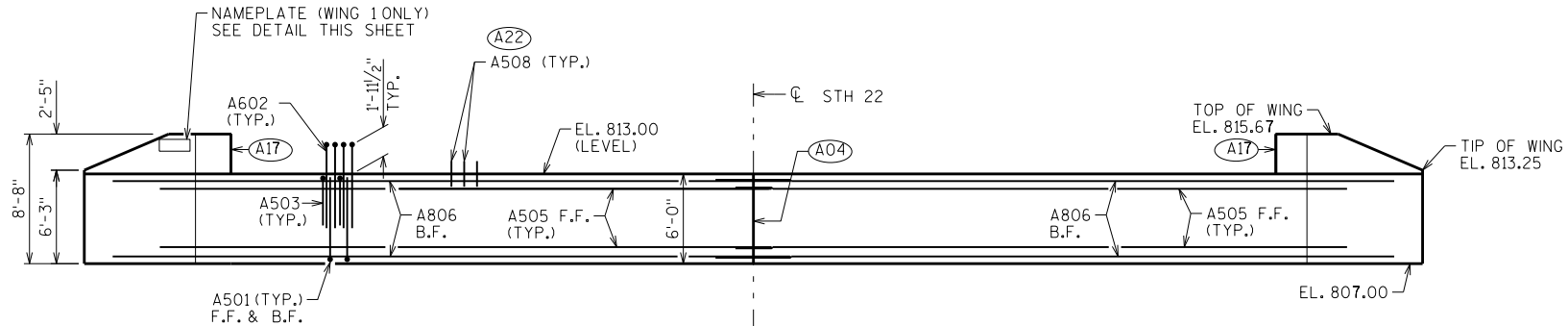
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
DRAWN BY TLP/MJH		PLANS CK'D. MWB	
SUBSURFACE EXPLORATION			SHEET 3

* THE GROUND WATER ELEVATION WAS DETERMINED FROM WHERE THE SOIL SAMPLE WAS DESCRIBED AS WET.

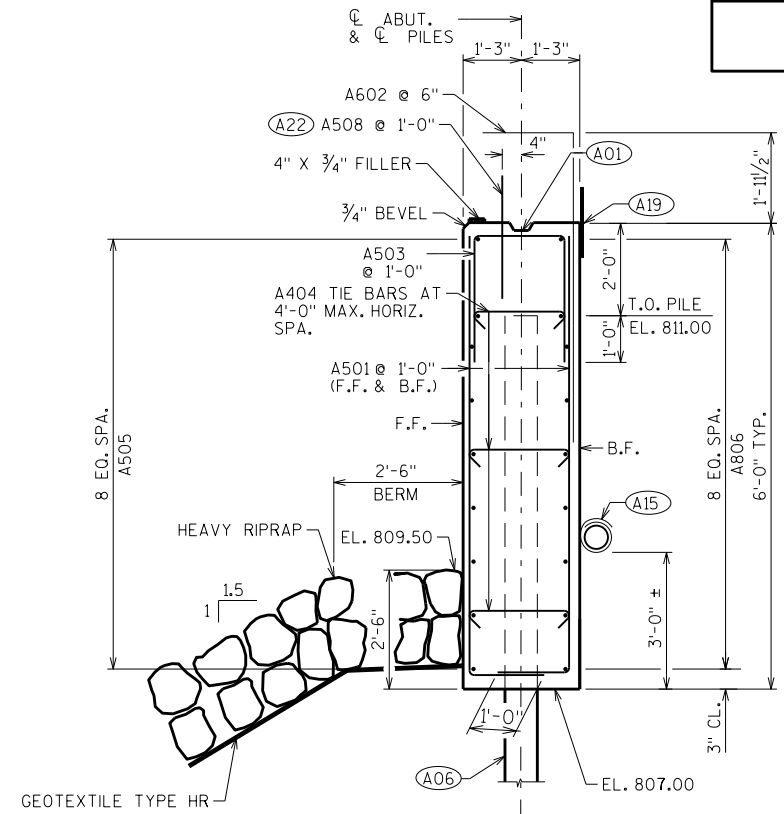
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SCALE = 10.00

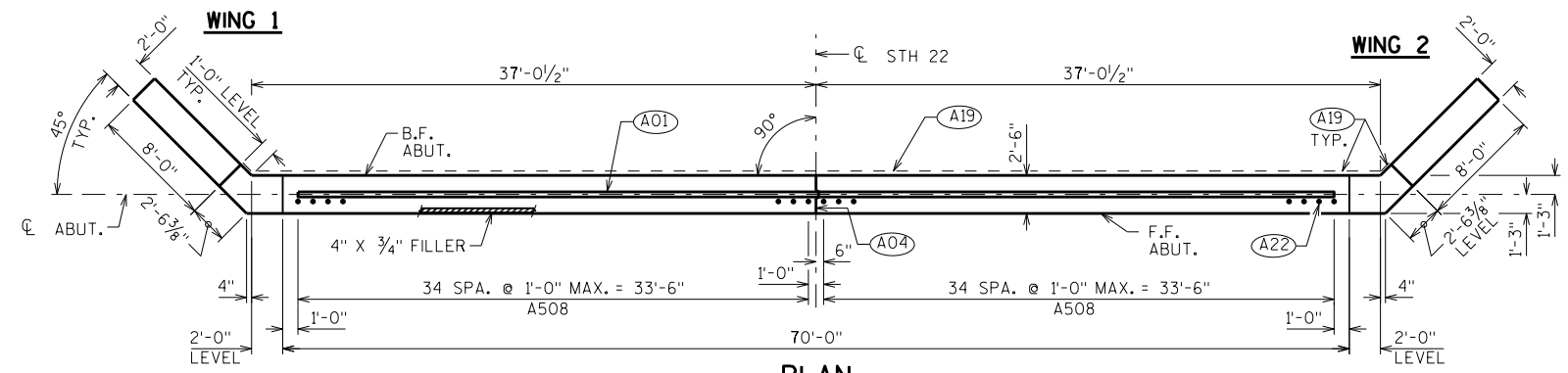


ELEVATION - LOOKING WEST

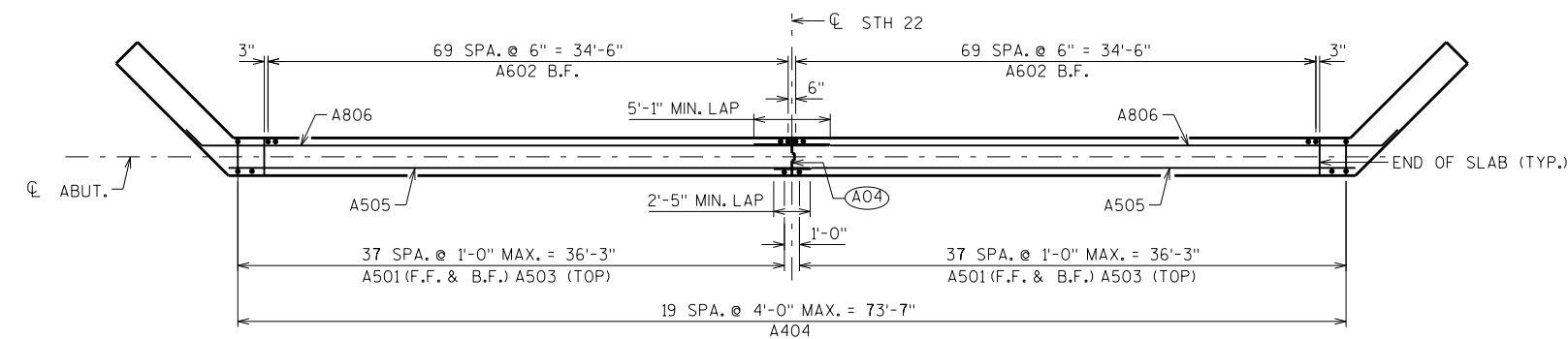


SECTION THRU ABUTMENT BODY

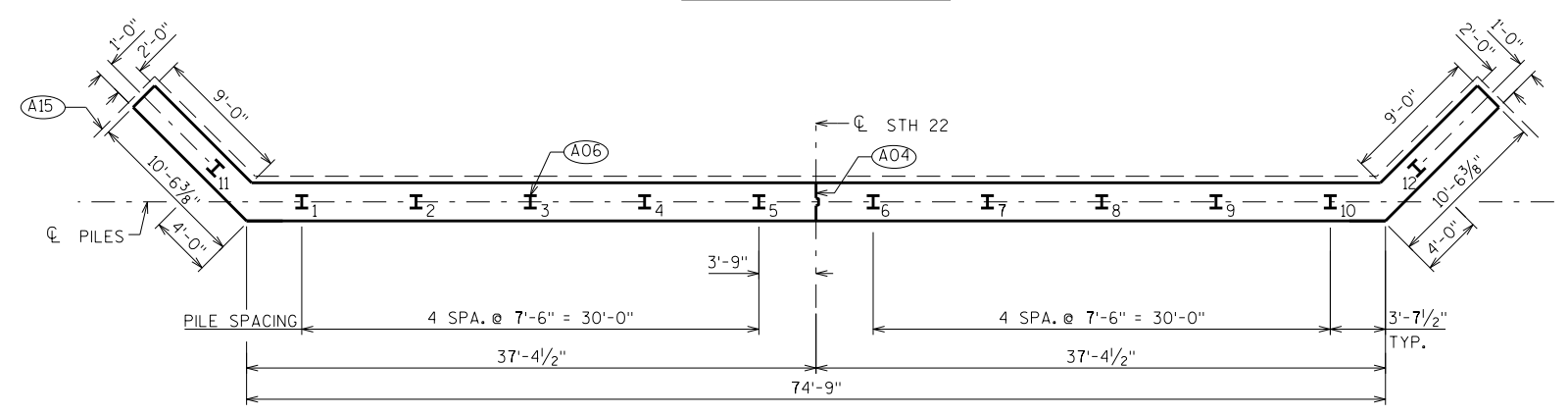
DO NOT PLACE BACKFILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.



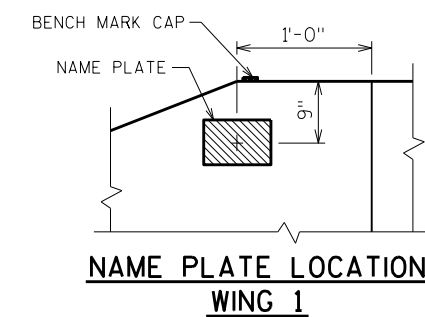
PLAN



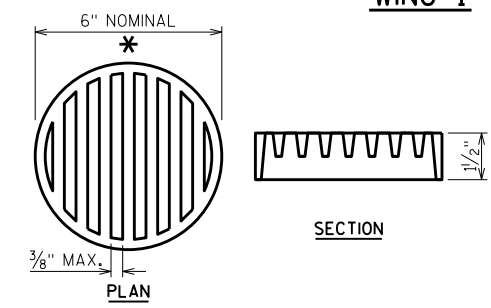
REINFORCING PLAN



PILE PLAN



NAME PLATE LOCATION WING 1



RODENT SHIELD DETAIL

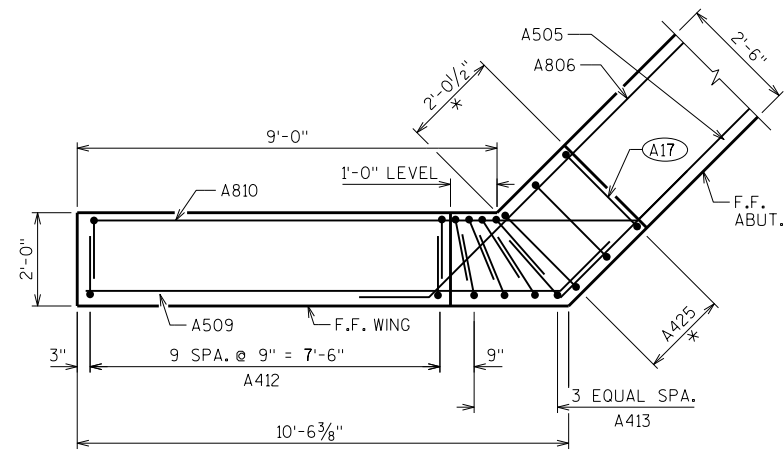
* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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.

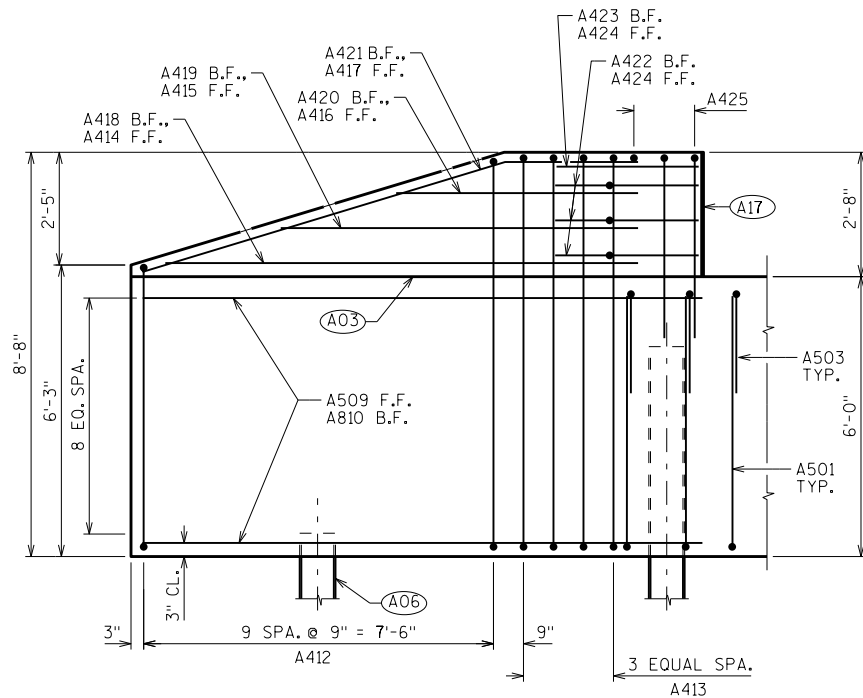
- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- (A04) VERT. CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 8. 3/4" "V" GROOVE @ THE FRONT FACE AND 18" RMW @ BACKFACE. FOR OPTIONAL DETAILS SEE "ALTERNATE CONSTRUCTION JOINT" SHEET.
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 60'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A22) A508 BARS @ 1'-0" CTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
		DRAWN BY MJH	PLANS CK'D. MWB
WEST ABUTMENT			SHEET 4



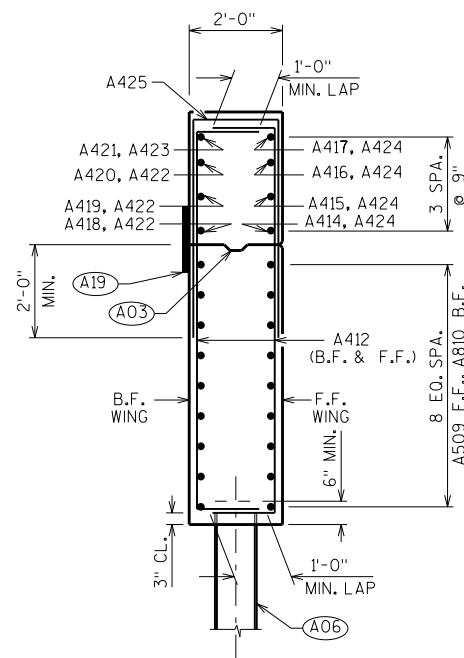
WING PLAN

WING 1 SHOWN, WING 2 MIRRORED
(ONLY SHOWING LOWER REINFORCEMENT)



WING ELEVATION

WING 1 SHOWN, WING 2 MIRRORED



SECTION THRU WING

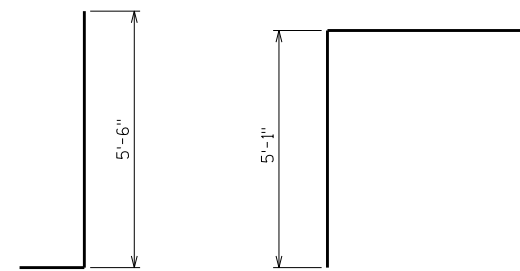
- * INCLUDES 1/2" FILLER
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6, (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 60'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

BILL OF BARS

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

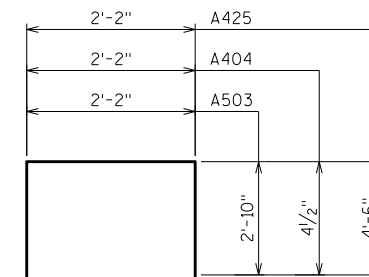
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		152	7'-0"	X		BODY - VERT. - F.F. & B.F.
A602	X	140	9'-4"	X		BODY - VERT. - B.F. CORNER BARS
A503		76	7'-7"	X		BODY - VERT. - TOP
A404		60	2'-9"	X		BODY - VERT. - TIE BARS
A505		18	38'-7"			BODY - HORIZ. - F.F.
A806		18	43'-6"	X		BODY - HORIZ. - B.F.
		NOT USED				
A508	X	70	2'-0"			DOWEL BARS
A509	X	18	11'-8"	X		WINGS 1&2 - HORIZ. - F.F.
A810	X	18	13'-4"	X		WINGS 1&2 - HORIZ. - B.F.
		NOT USED				
A412	X	40	9'-7"	X	▲	WINGS 1&2 - VERT. - F.F. & B.F.
A413	X	16	10'-2"	X	▲	WINGS 1&2 - VERT. - F.F. & B.F.
A414	X	2	9'-10"			WINGS 1&2 - HORIZ. - F.F.
A415	X	2	7'-5"			WINGS 1&2 - HORIZ. - F.F.
A416	X	2	4'-11"			WINGS 1&2 - HORIZ. - F.F.
A417	X	2	10'-5"	X		WINGS 1&2 - HORIZ. - F.F. - TOP
A418	X	2	8'-6"			WINGS 1&2 - HORIZ. - B.F.
A419	X	2	6'-0"			WINGS 1&2 - HORIZ. - B.F.
A420	X	2	3'-6"			WINGS 1&2 - HORIZ. - B.F.
A421	X	2	8'-11"	X		WINGS 1&2 - HORIZ. - B.F. - TOP
A422	X	6	4'-3"	X		WINGS 1&2 - HORIZ. - B.F.
A423	X	2	2'-11"	X		WINGS 1&2 - HORIZ. - B.F. - TOP
A424	X	8	4'-5"	X		WINGS 1&2 - HORIZ. - F.F.
A425	X	6	11'-0"	X		WINGS 1&2 - VERT.

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

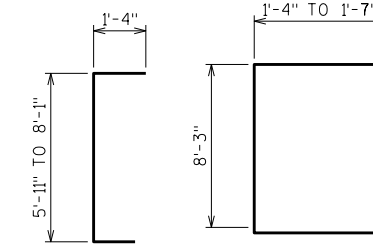


A501

A602



A503, A404, A425



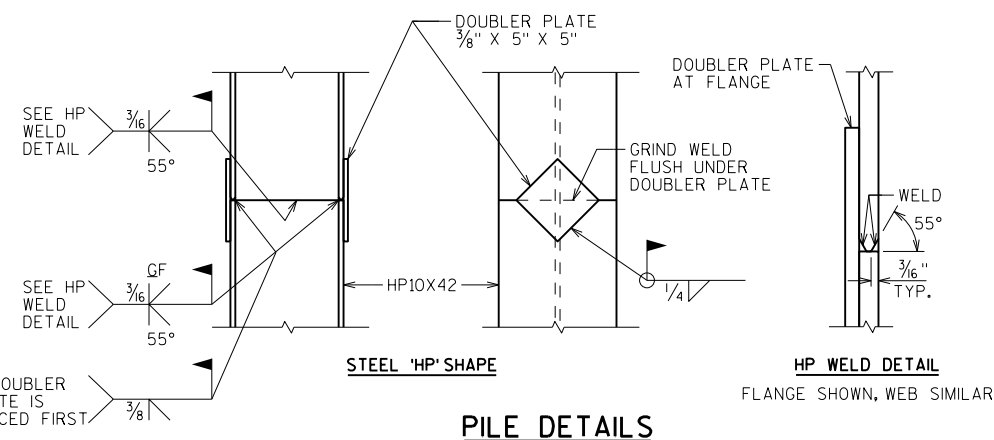
A412

A413

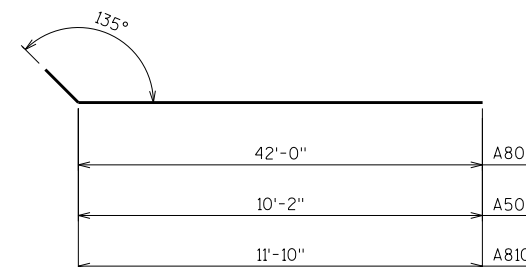
BAR SERIES TABLE

MARK	NO. REQ'D.	LENGTH
A412	4 SERIES OF 10	8'-5" TO 10'-9"
A413	4 SERIES OF 4	10'-11" TO 11'-5"

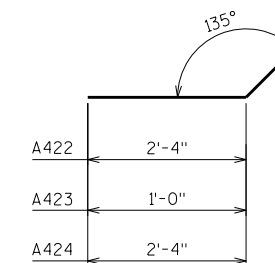
BUNDLE AND TAG EACH SERIES SEPARATELY.



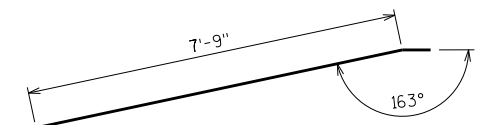
PILE DETAILS



A806, A509, A810

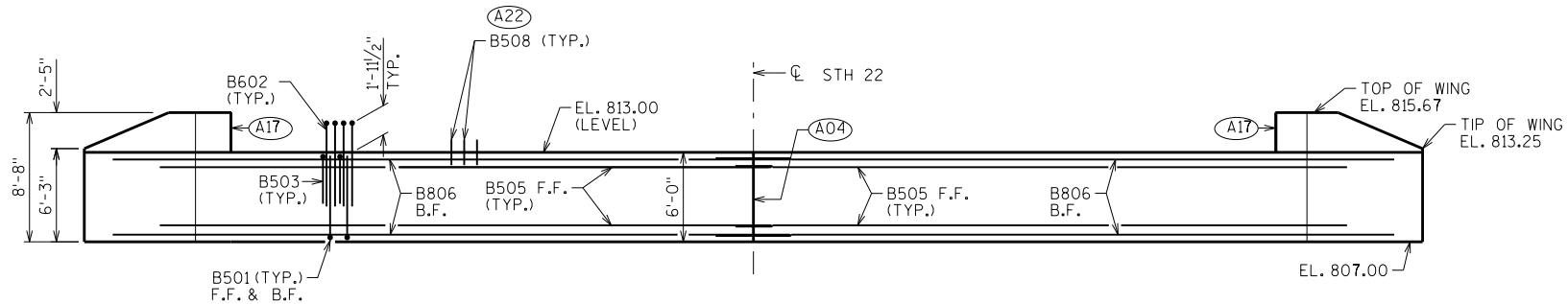


A422, A423, A424

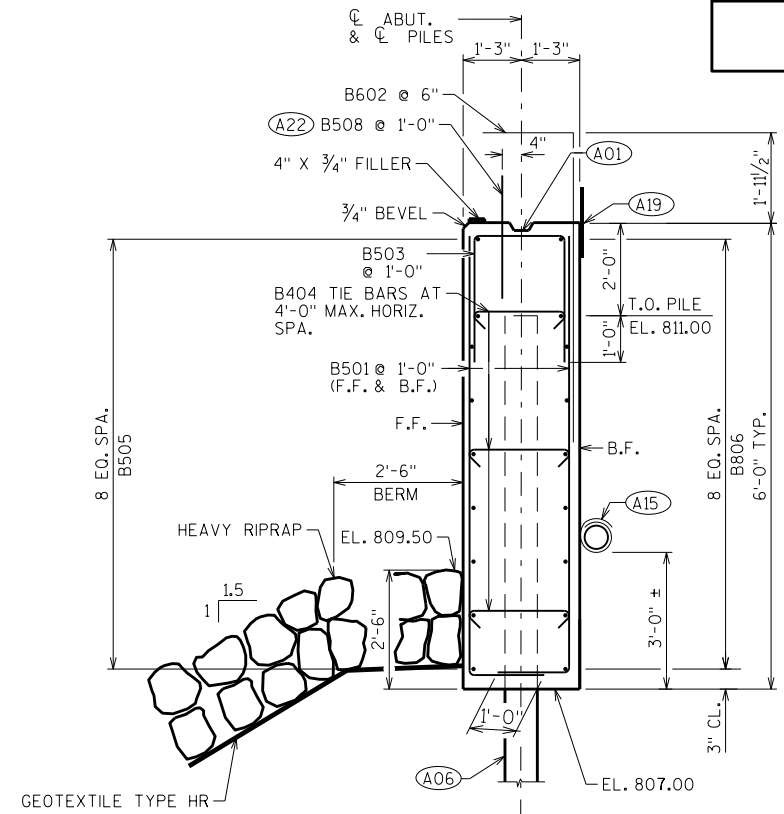


A417, A421

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
DRAWN BY MJH		PLANS CK'D. MWWB	
WEST ABUTMENT DETAILS		SHEET 5	

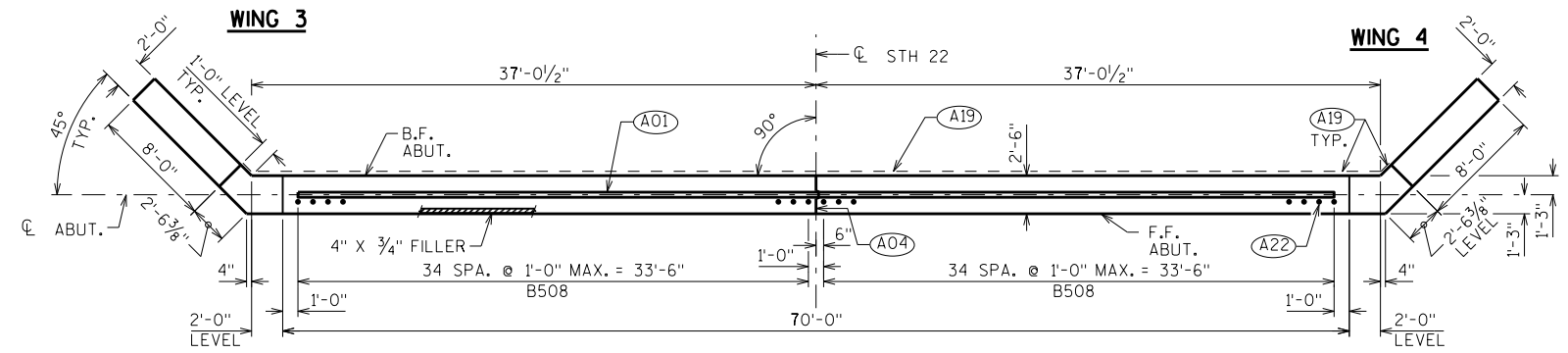


ELEVATION - LOOKING EAST

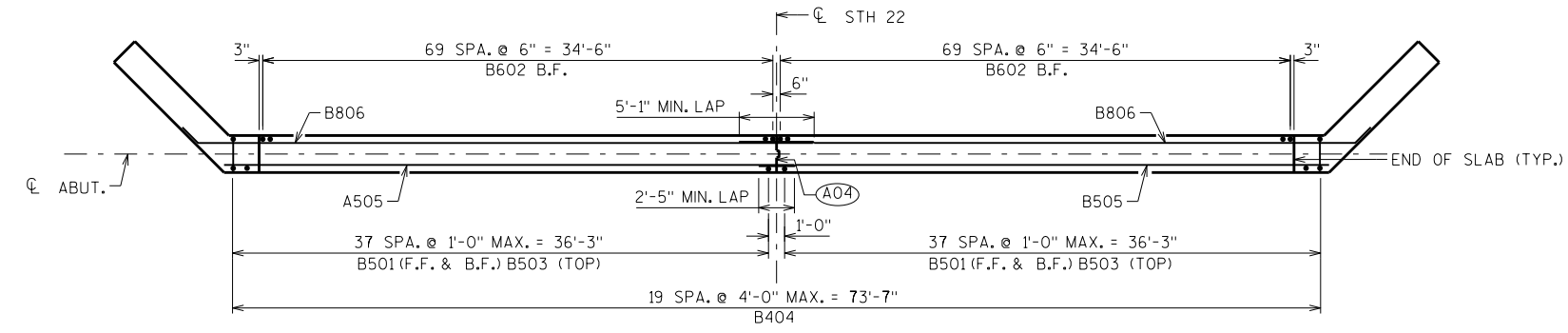


SECTION THRU ABUTMENT BODY

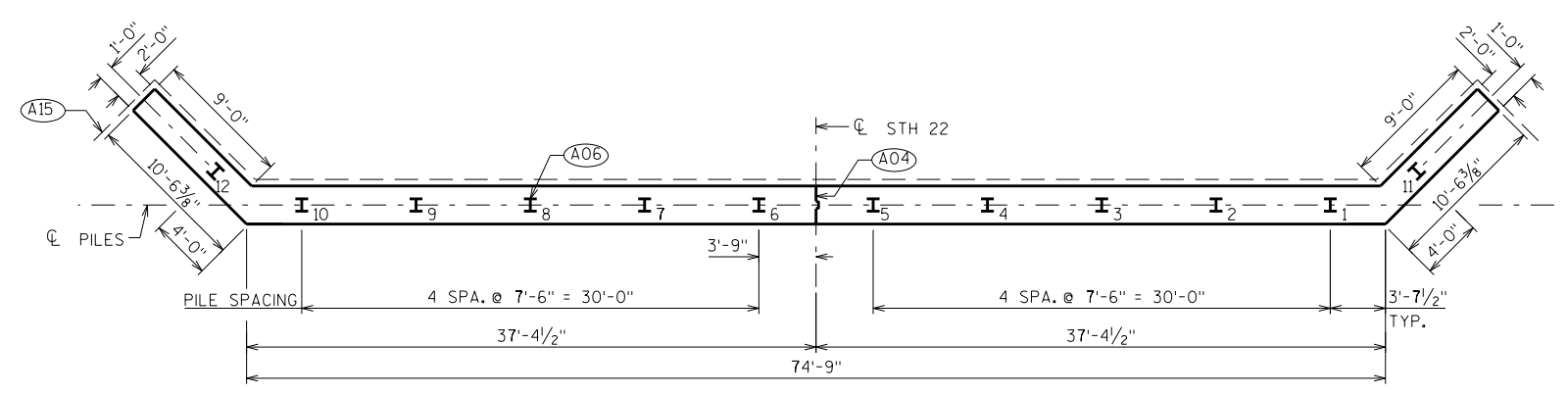
DO NOT PLACE BACKFILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.



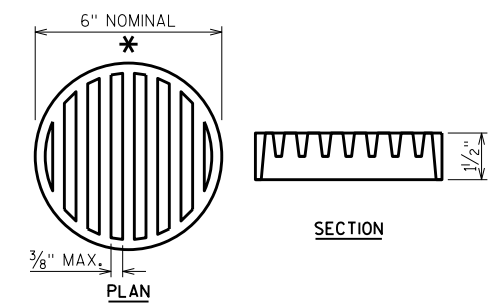
PLAN



REINFORCING PLAN



PILE PLAN



RODENT SHIELD DETAIL

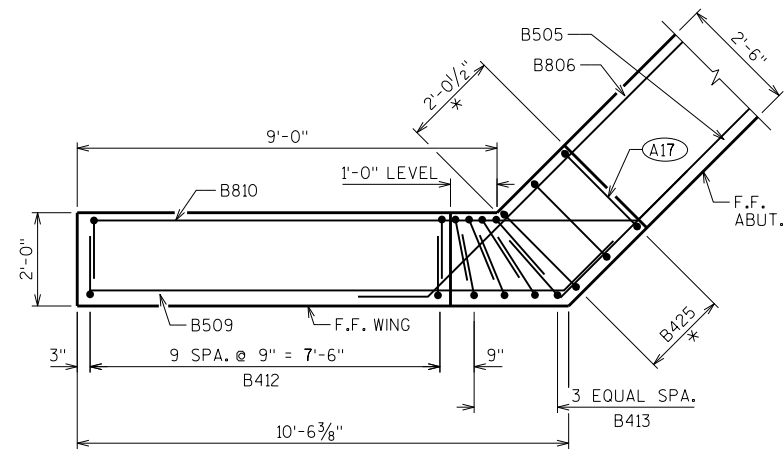
* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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.

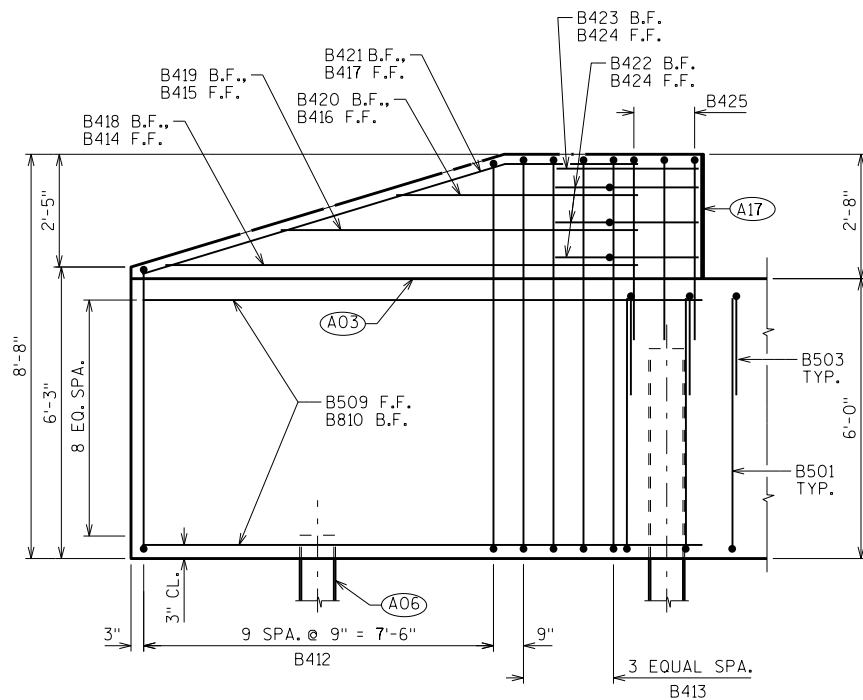
- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- (A04) VERT. CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 8. 3/4" "V" GROOVE @ THE FRONT FACE AND 18" RMW @ BACKFACE. FOR OPTIONAL DETAILS SEE "ALTERNATE CONSTRUCTION JOINT" SHEET.
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 60'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A22) B508 BARS @ 1'-0" CTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
		DRAWN BY MJH	PLANS CK'D. MWB
EAST ABUTMENT			SHEET 6



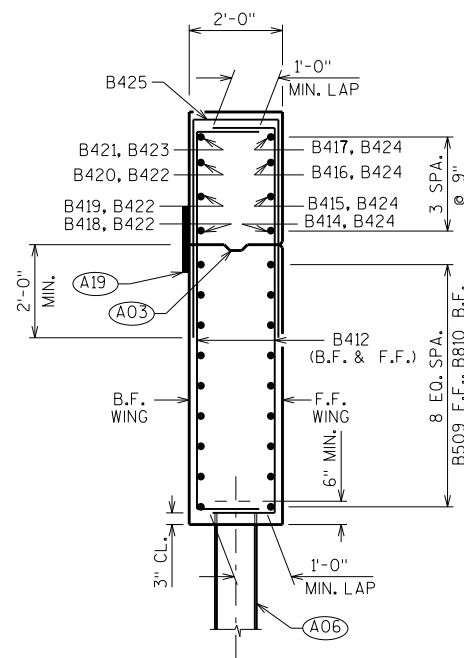
WING PLAN

WING 3 SHOWN, WING 4 MIRRORED
(ONLY SHOWING LOWER REINFORCEMENT)



WING ELEVATION

WING 3 SHOWN, WING 4 MIRRORED



SECTION THRU WING

* INCLUDES 1/2" FILLER

(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6, (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).

(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 60'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

(A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

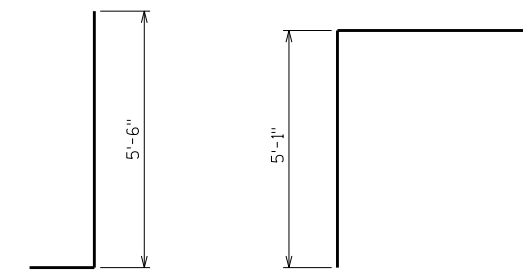
(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

BILL OF BARS

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

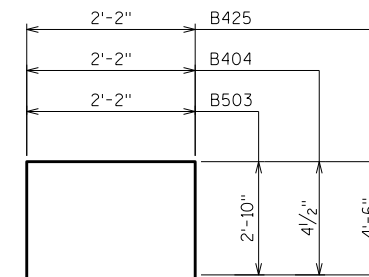
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		152	7'-0"	X		BODY - VERT. - F.F. & B.F.
B602	X	140	9'-4"	X		BODY - VERT. - B.F. CORNER BARS
B503		76	7'-7"	X		BODY - VERT. - TOP
B404		60	2'-9"	X		BODY - VERT. - TIE BARS
B505		18	38'-7"			BODY - HORIZ. - F.F.
B806		18	43'-6"	X		BODY - HORIZ. - B.F.
		NOT USED				
B508	X	70	2'-0"			DOWEL BARS
B509	X	18	11'-8"	X		WINGS 3&4 - HORIZ. - F.F.
B810	X	18	13'-4"	X		WINGS 3&4 - HORIZ. - B.F.
		NOT USED				
B412	X	40	9'-7"	X	▲	WINGS 3&4 - VERT. - F.F. & B.F.
B413	X	16	10'-2"	X	▲	WINGS 3&4 - VERT. - F.F. & B.F.
B414	X	2	9'-10"			WINGS 3&4 - HORIZ. - F.F.
B415	X	2	7'-5"			WINGS 3&4 - HORIZ. - F.F.
B416	X	2	4'-11"			WINGS 3&4 - HORIZ. - F.F.
B417	X	2	10'-5"	X		WINGS 3&4 - HORIZ. - F.F. - TOP
B418	X	2	8'-6"			WINGS 3&4 - HORIZ. - B.F.
B419	X	2	6'-0"			WINGS 3&4 - HORIZ. - B.F.
B420	X	2	3'-6"			WINGS 3&4 - HORIZ. - B.F.
B421	X	2	8'-11"	X		WINGS 3&4 - HORIZ. - B.F. - TOP
B422	X	6	4'-3"	X		WINGS 3&4 - HORIZ. - B.F.
B423	X	2	2'-11"	X		WINGS 3&4 - HORIZ. - B.F. - TOP
B424	X	8	4'-5"	X		WINGS 3&4 - HORIZ. - F.F.
B425	X	6	11'-0"	X		WINGS 3&4 - VERT.

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

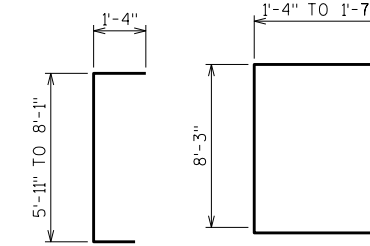


B501

B602



B503, B404, B425



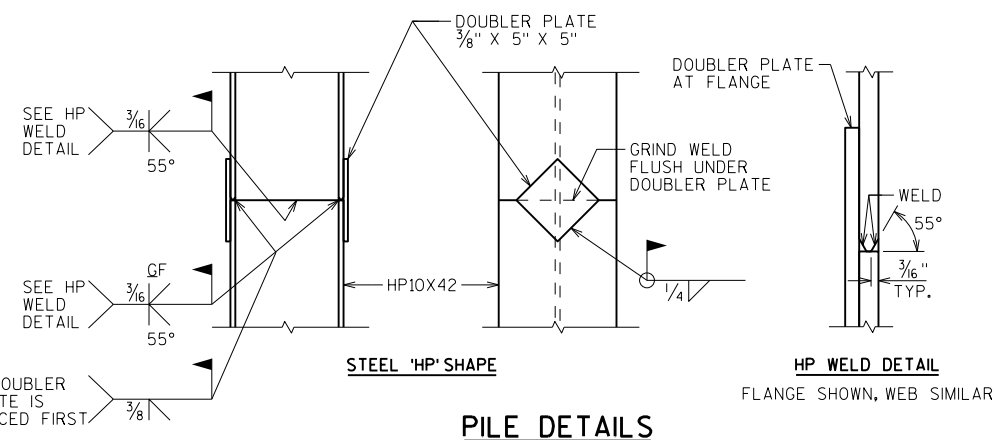
B412

B413

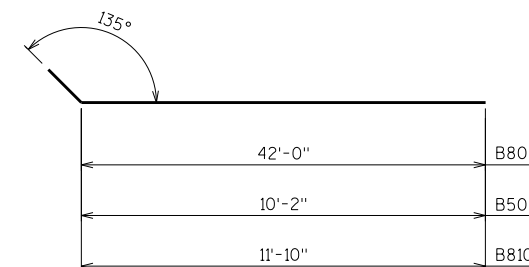
BAR SERIES TABLE

MARK	NO. REQ'D.	LENGTH
B412	4 SERIES OF 10	8'-5" TO 10'-9"
B413	4 SERIES OF 4	10'-11" TO 11'-5"

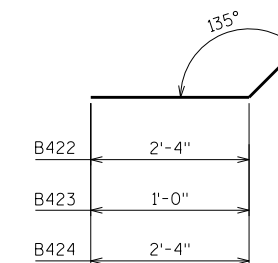
BUNDLE AND TAG EACH SERIES SEPARATELY.



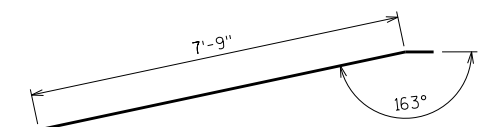
PILE DETAILS



B806, B509, B810

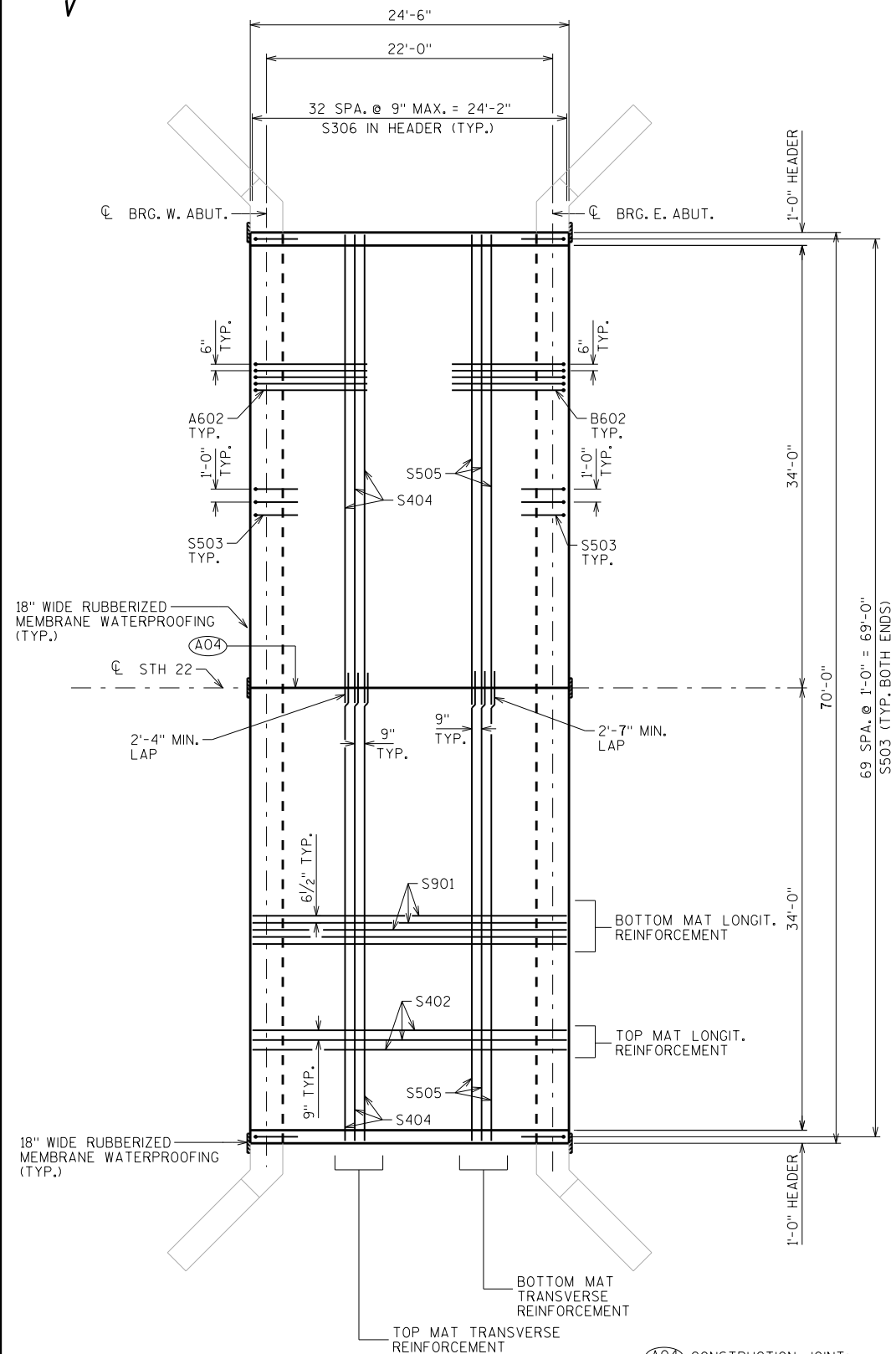


B422, B423, B424



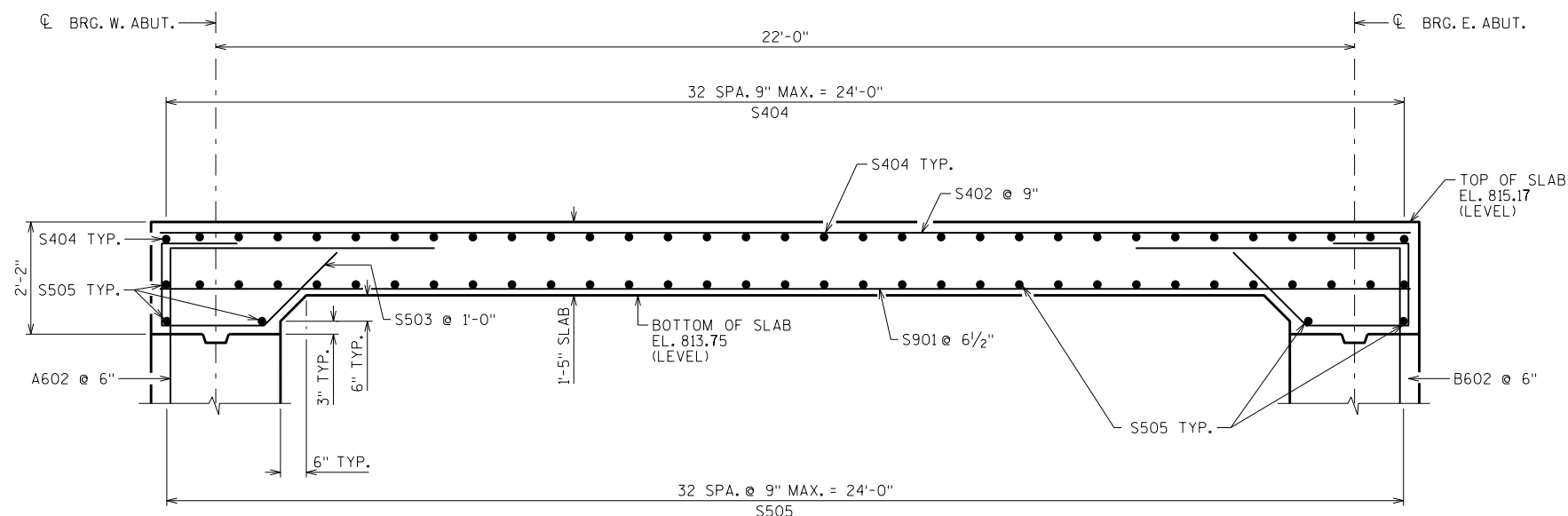
B417, B421

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
DRAWN BY MJH		PLANS CK'D. MWWB	
EAST ABUTMENT DETAILS			SHEET 7

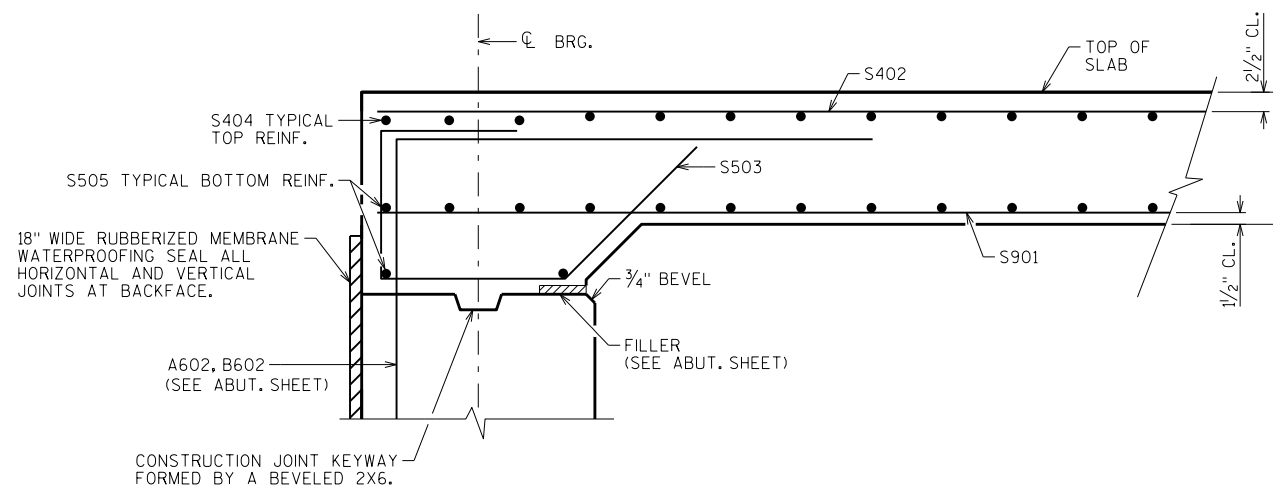


PLAN

(A04) CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 X 8.



LONGITUDINAL SECTION THRU SLAB



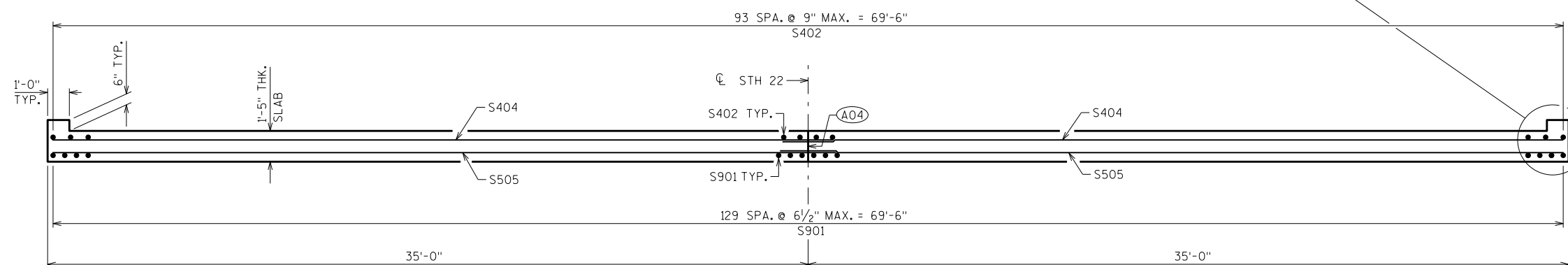
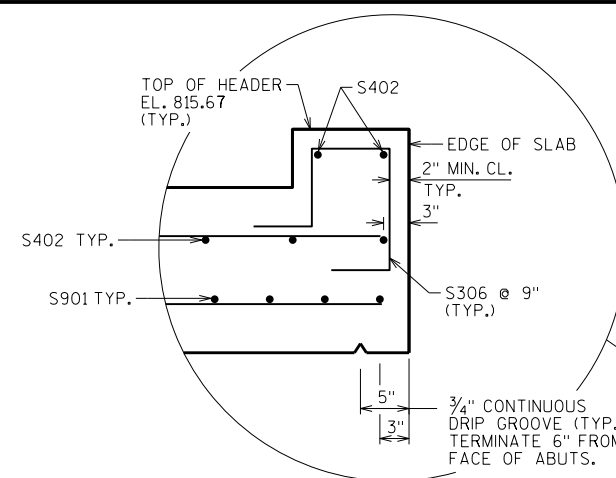
REINF. DETAIL AT ABUT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
DRAWN BY		PLANS CK'D.	MWB
SUPERSTRUCTURE		SHEET 8	

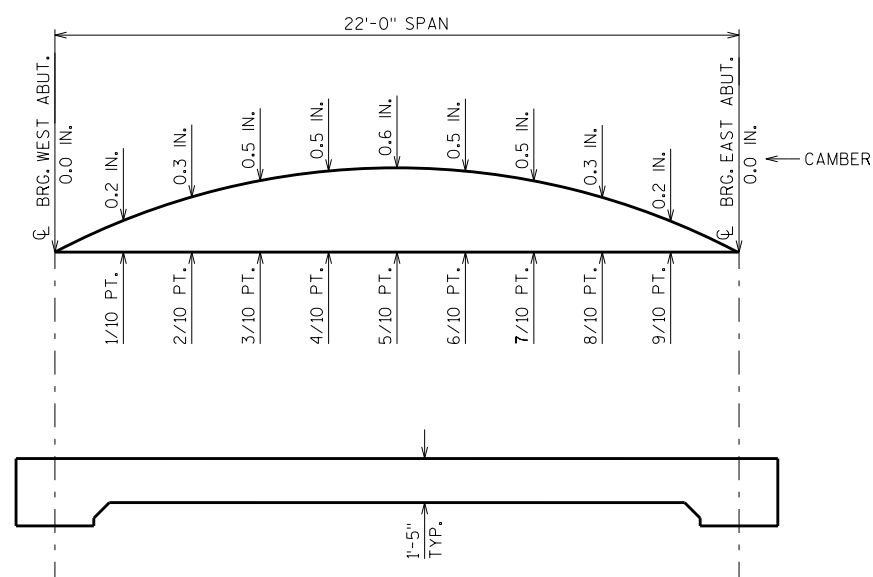
BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S901	X	130	24'-2"			SLAB - LONGITUDINAL - BOTTOM
S402	X	98	24'-2"			SLAB/HEADER - LONGITUDINAL - TOP
S503	X	140	6'-11"	X		SLAB - VERT. AT ABUTS
S404	X	66	35'-11"			SLAB - TRANSVERSE - TOP
S505	X	74	36'-1"			SLAB - TRANSVERSE - BOTTOM
S306	X	66	3'-2"	X		HEADER - VERT.



CROSS SECTION THRU SLAB - LOOKING EAST

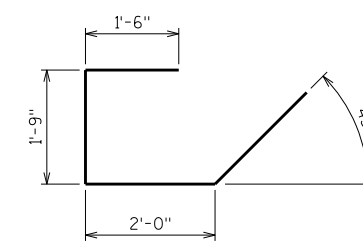


CAMBER AND SLAB THICKNESS DIAGRAM

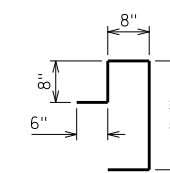
CAMBER SPAN AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. CAMBER BASED ON 3 TIMES THE DEAD LOAD DEFLECTION.

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.



S503



S306

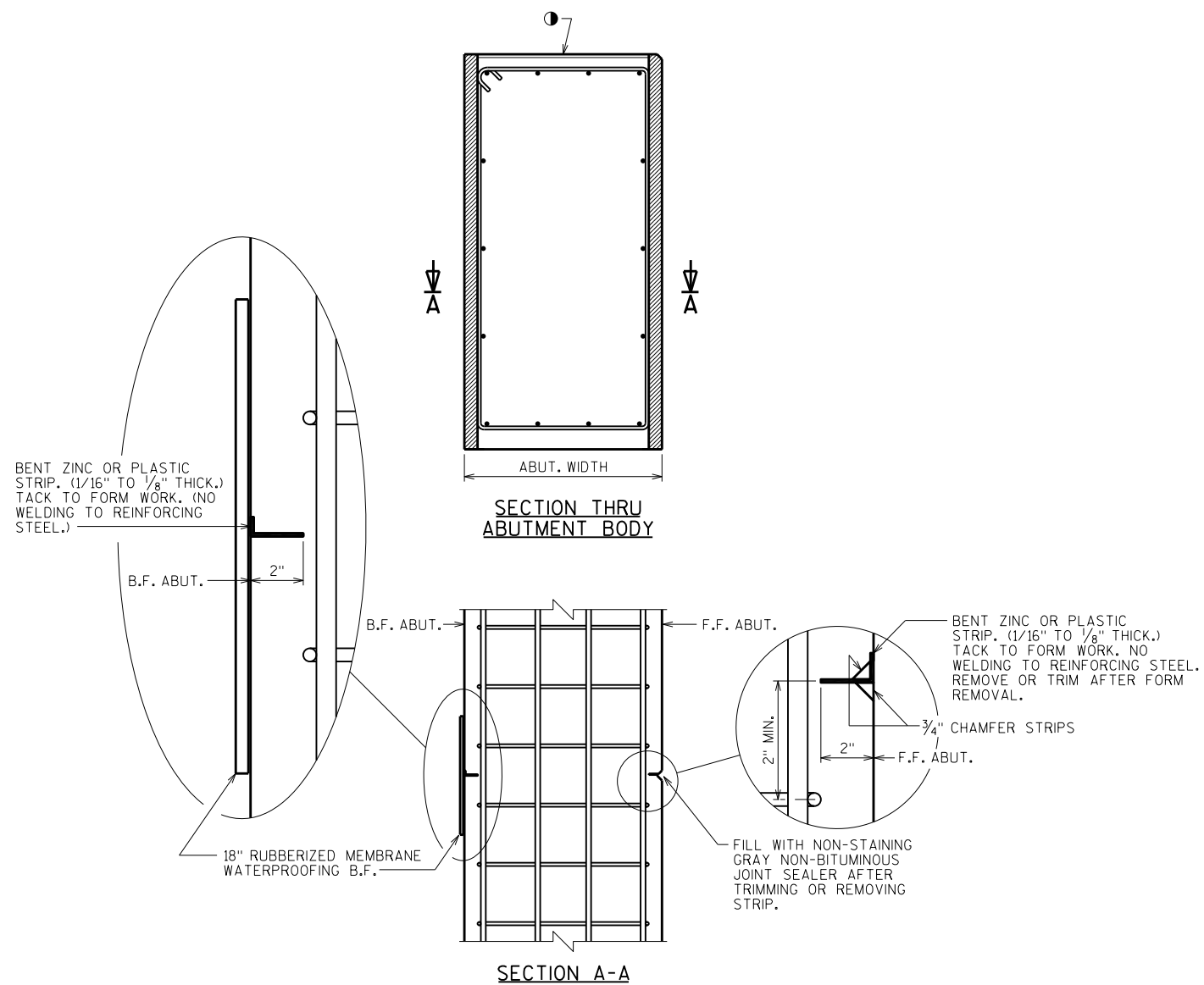
A04 LONGITUDINAL CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 X 8.

NOTES

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

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
DRAWN BY		PLANS CHECKED	
M J H		M W B	
SUPERSTRUCTURE DETAILS			SHEET 9



ALTERNATE CONSTRUCTION JOINT AT ABUTMENT

NOTES

PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

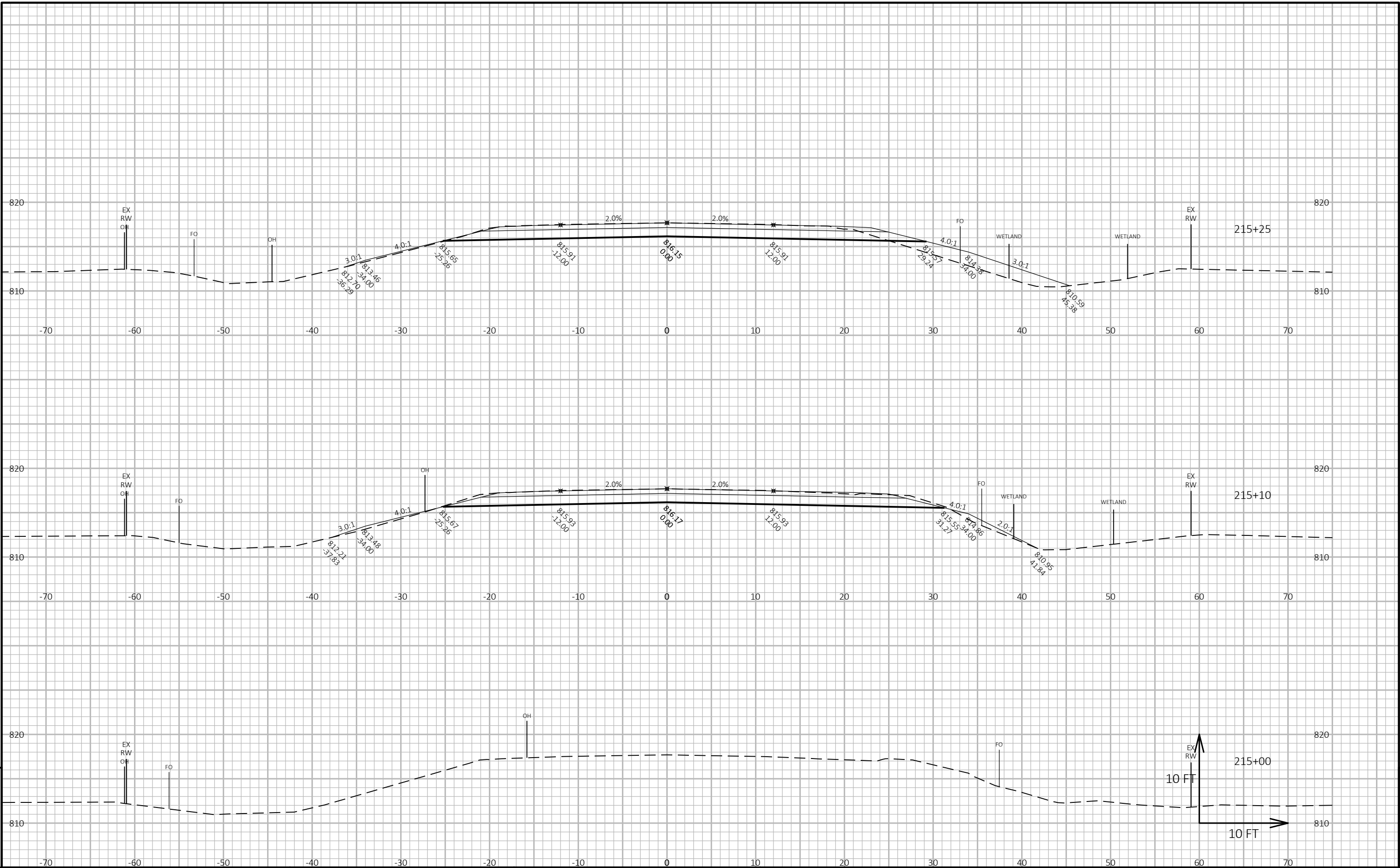
VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

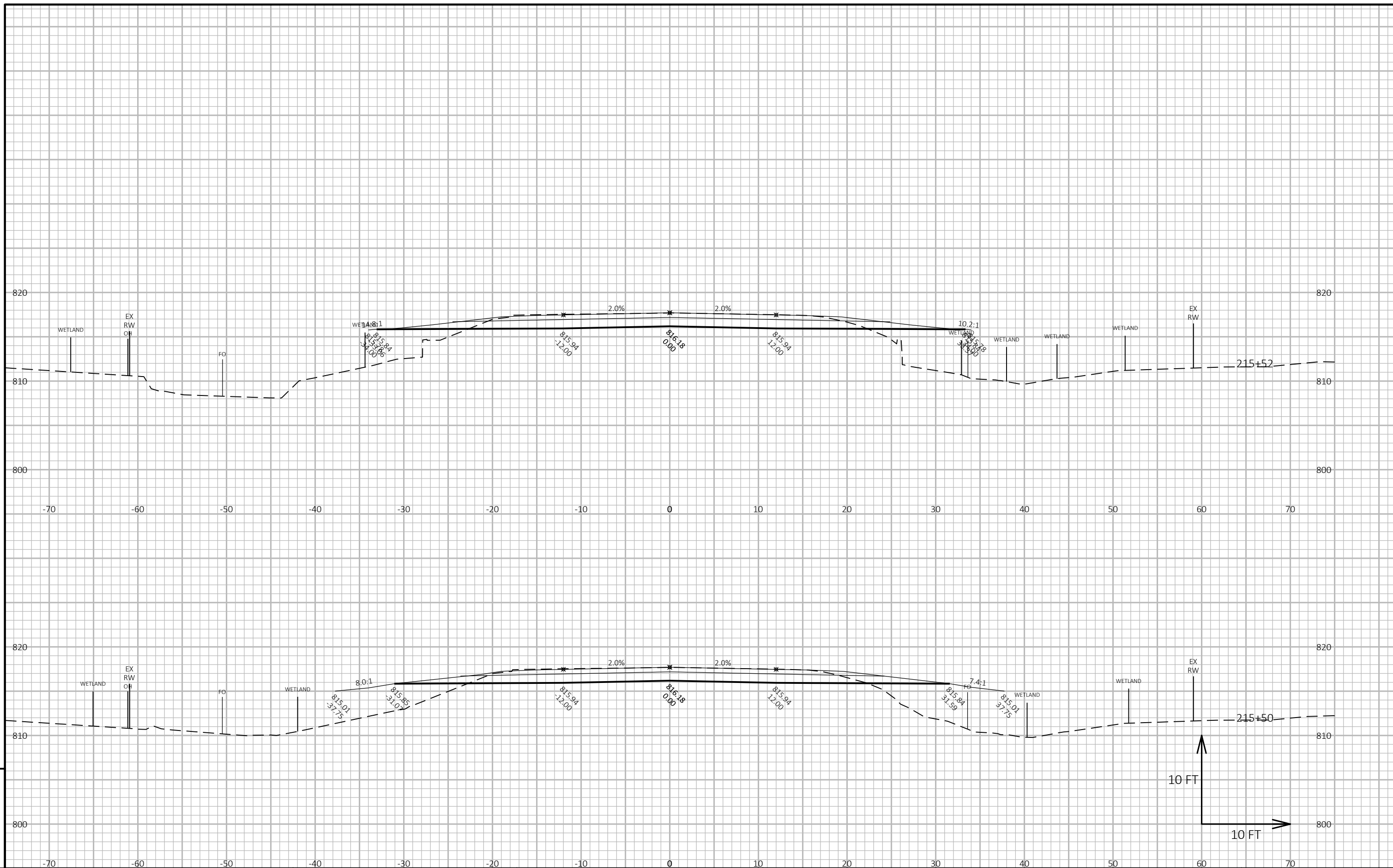
SAW CUTTING JOINT IS NOT ALLOWED.

● USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-58-24			
DRAWN BY		MJH	PLANS CK'D. MWB
ALTERNATE CONSTRUCTION JOINT			SHEET 10



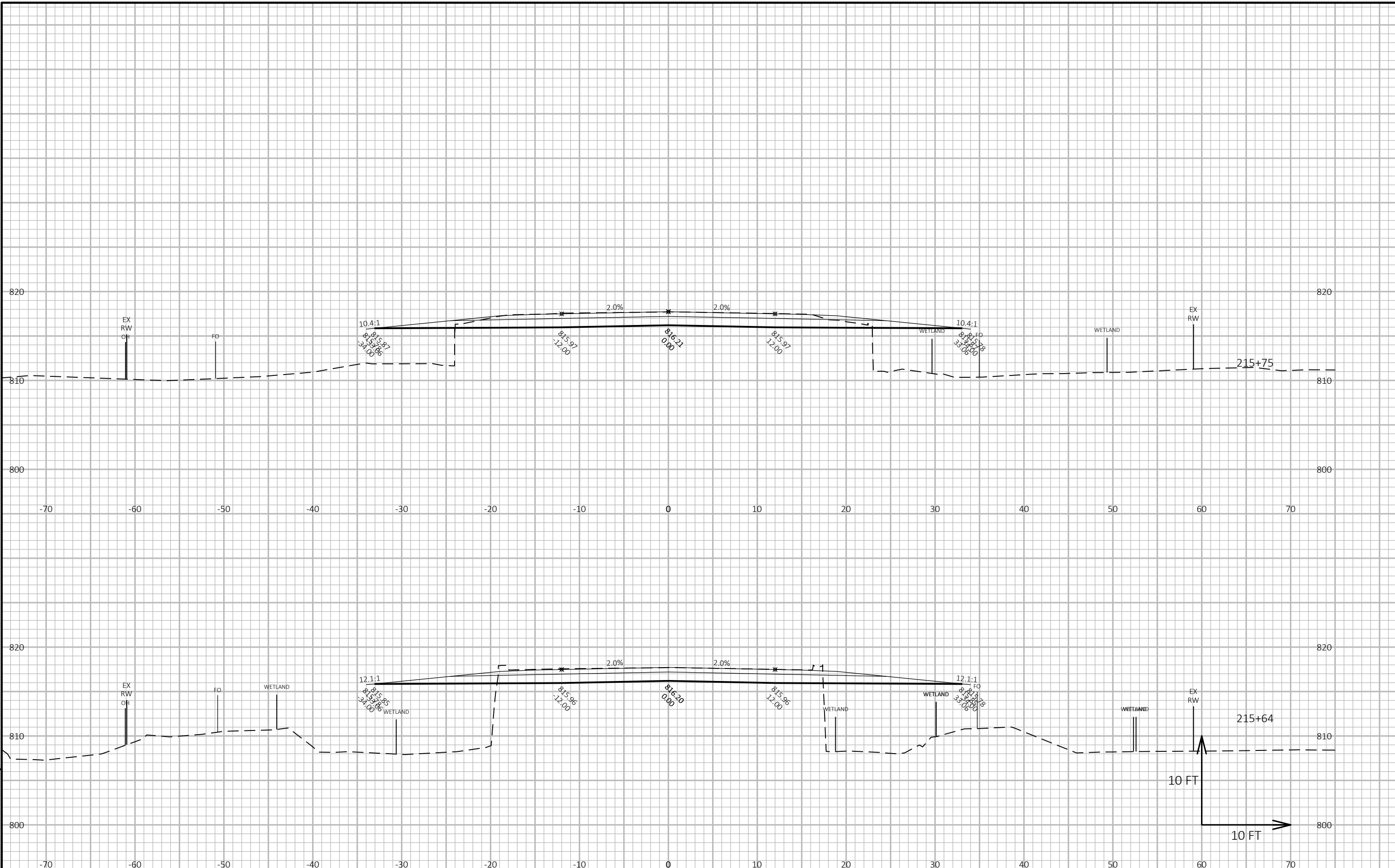
PROJECT NO: 6524-03-60 / 9180-17-60 HWY: STH 22 & STH 55 COUNTY: SHAWANO CROSS SECTIONS: STH 22 (C-58-24) SHEET 9



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PROJECT NO: 6524-03-60 / 9180-17-60	HWY: STH 22 & STH 55	COUNTY: SHAWANO	CROSS SECTIONS: STH 22 (C-58-24)	SHEET	E
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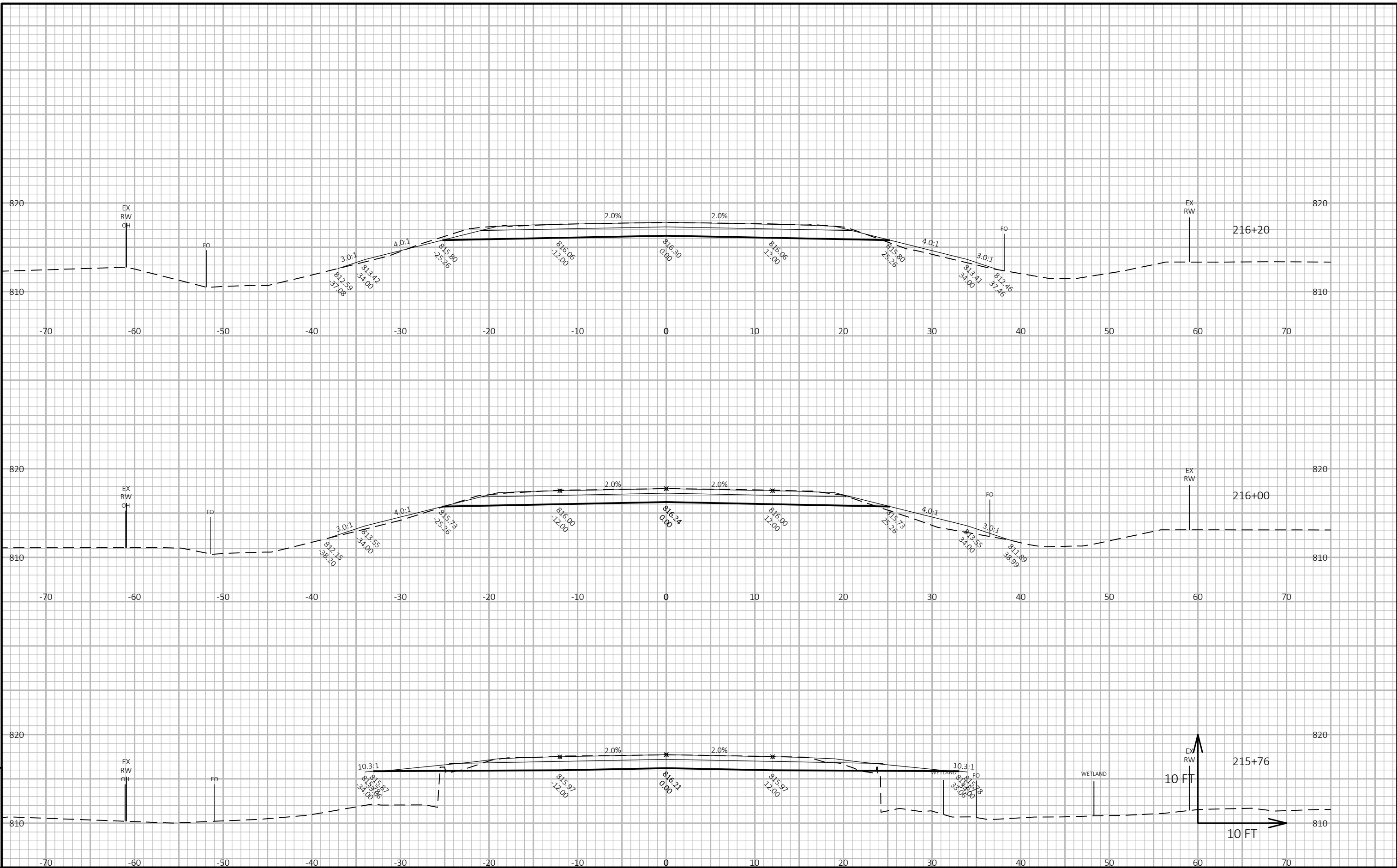


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PROJECT NO: 6524-03-60 / 9180-17-60 HWY: STH 22 & STH 55 COUNTY: SHAWANO CROSS SECTIONS: STH 22 (C-58-24) SHEET E

FILE NAME : N:\PDS\C3D\10094438\SHEETS\PLAN\090101_XS.DWG PLOT DATE : 5/21/2018 2:27 PM PLOT BY : SMITH, THEODORE A PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

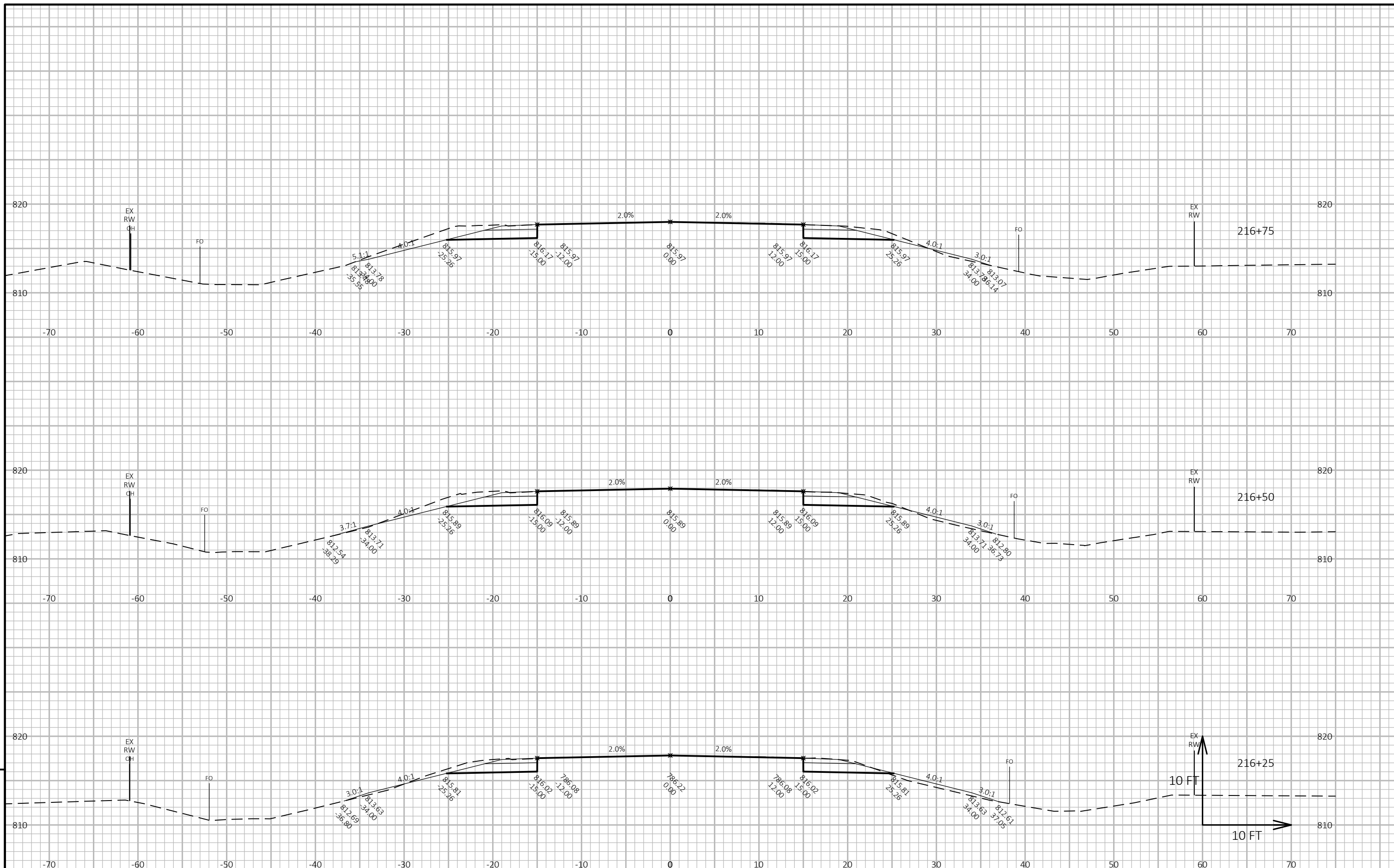


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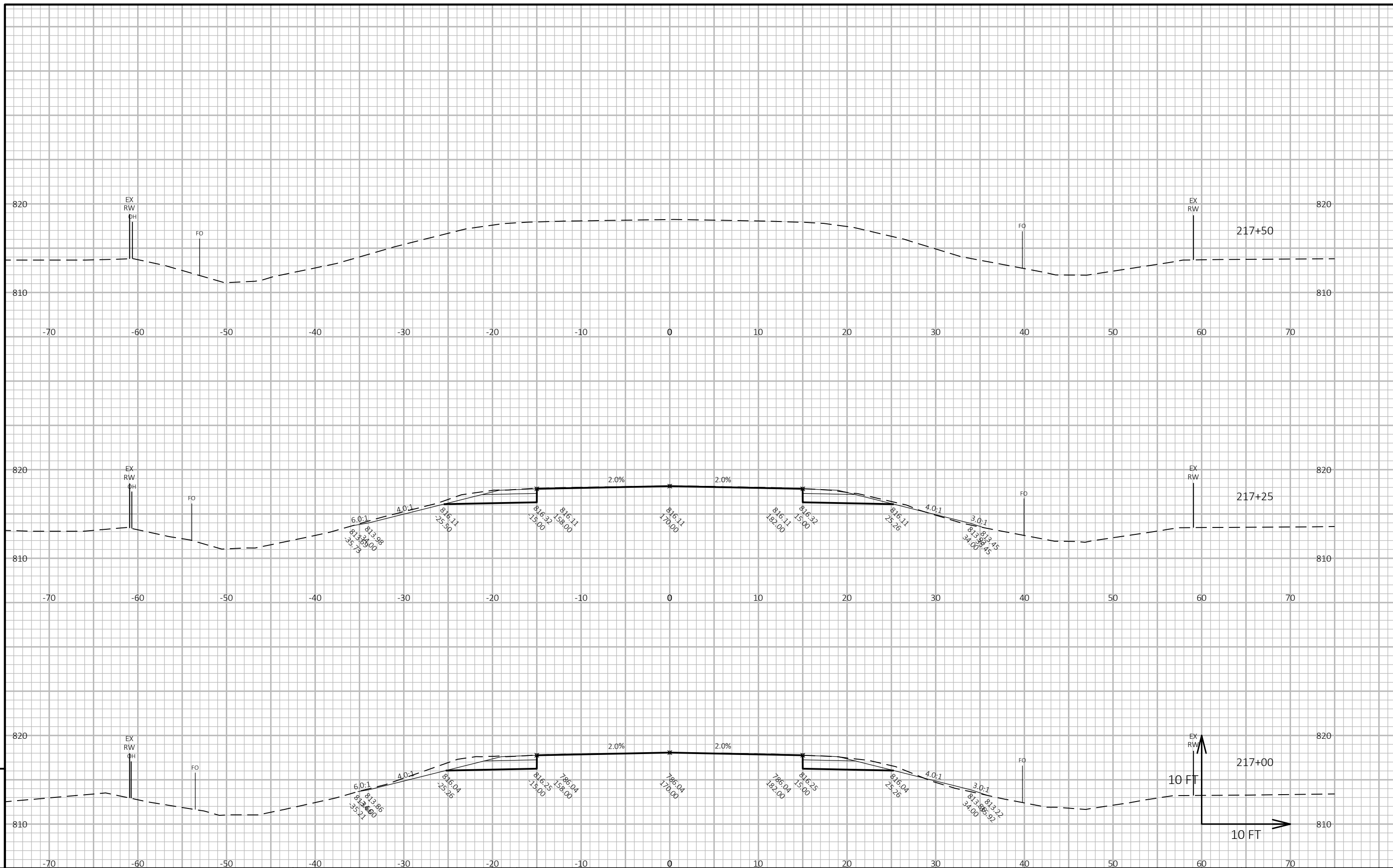
PROJECT NO: 6524-03-60 / 9180-17-60 HWY: STH 22 & STH 55 COUNTY: SHAWANO CROSS SECTIONS: STH 22 (C-58-24) SHEET E

FILE NAME : N:\PDS\C3D\10094438\SHEETSPLAN\090101_XS.DWG PLOT DATE : 5/21/2018 2:27 PM PLOT BY : SMITH, THEODORE A PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - Section Sheet - (4)



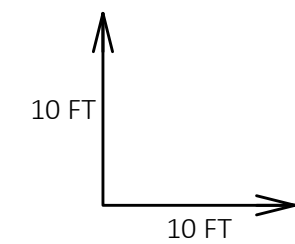
PROJECT NO: 6524-03-60 / 9180-17-60 HWY: STH 22 & STH 55 COUNTY: SHAWANO CROSS SECTIONS: STH 22 (C-58-24) SHEET 9



PROJECT NO: 6524-03-60 / 9180-17-60 HWY: STH 22 & STH 55 COUNTY: SHAWANO CROSS SECTIONS: STH 22 (C-58-24) SHEET E

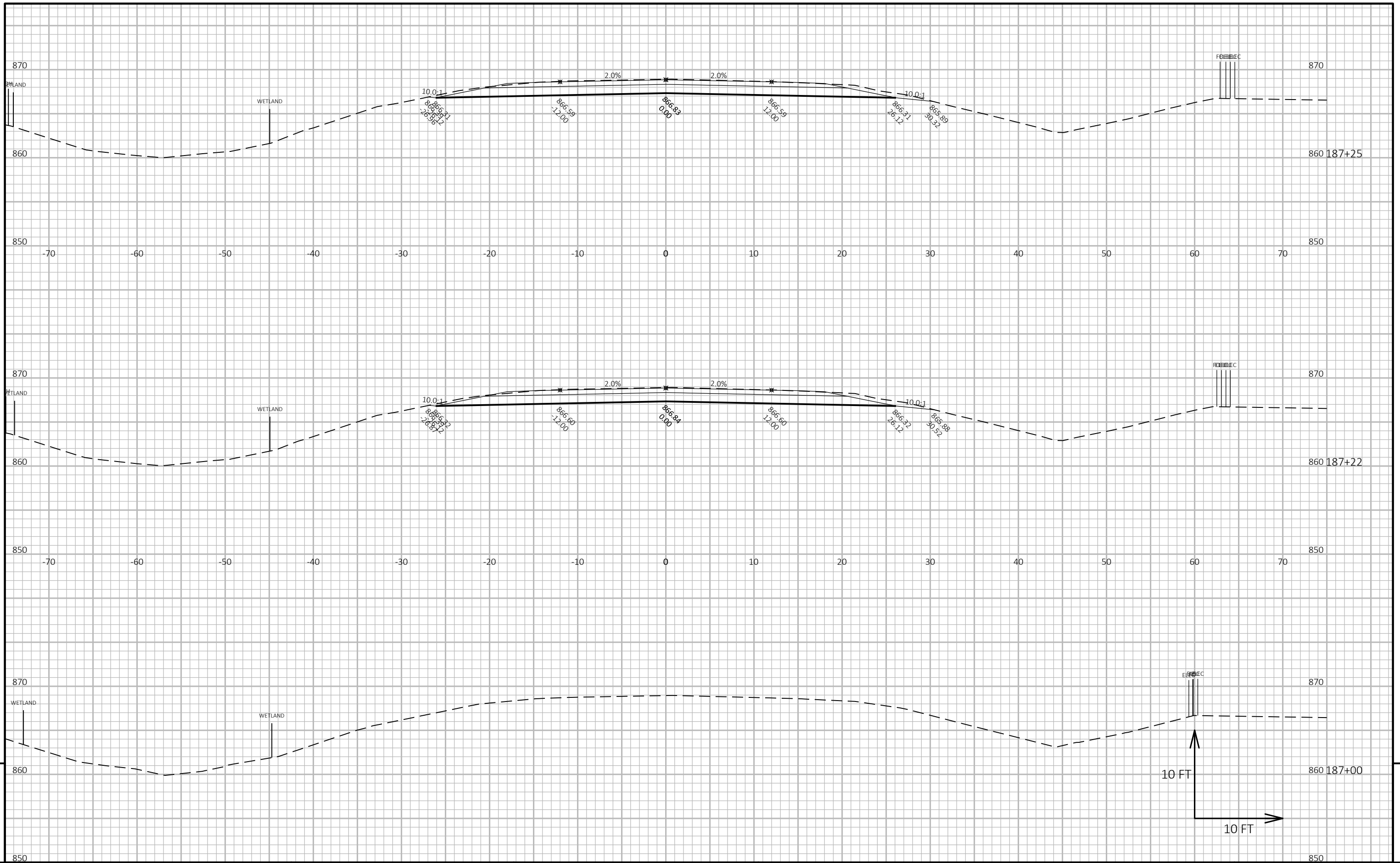
Division -- AliProf-STH22-revised-bestfit

STATION	Real Station	Distance	AREA (SF)					Incremental Vol (CY) (Unadjusted)					Cumulative Vol (CY)									
			Cut	Salvaged/Unusable		Marsh Exc	Rock Exc	EBS	Cut	Salvaged/Unusable		Marsh Exc	Rock Exc	EBS	Cut	Expanded	Expanded	Expanded	Expanded	Reduced Marsh in Fill	Reduced EBS in Fill	Mass Ordinate
				Pavement	Material					Fill	Fill					Marsh Backfill	Rock	EBS Backfill	Note 1			
215+10	21510.00	0.00	77.62	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	
215+25	21525.00	15.00	67.82	0.00	2.66	0.00	0.00	0.00	40	0	1	0	0	40	1	0	0	0	0	0	39	
215+50	21550.00	25.00	61.03	0.00	36.76	0.00	0.00	0.00	60	0	18	0	0	100	25	0	0	0	0	0	75	
215+51.75	21551.75	1.75	61.48	0.00	58.69	0.00	0.00	0.00	4	0	3	0	0	104	29	0	0	0	0	0	75	
215+64	21564.00	12.25	56.99	0.00	213.15	0.00	0.00	0.00	27	0	62	0	0	131	109	0	0	0	0	0	22	
215+75	21575.00	11.00	62.83	0.00	87.06	0.00	0.00	0.00	24	0	61	0	0	155	188	0	0	0	0	0	-33	
215+76.25	21576.25	1.25	61.40	0.00	69.99	0.00	0.00	0.00	3	0	4	0	0	158	193	0	0	0	0	0	-35	
216+00	21600.00	23.75	66.34	0.00	0.40	0.00	0.00	0.00	56	0	31	0	0	214	233	0	0	0	0	0	-19	
216+20	21620.00	20.00	69.11	0.00	0.14	0.00	0.00	0.00	50	0	0	0	0	265	234	0	0	0	0	0	31	
216+25	21625.00	5.00	24.31	0.00	0.27	0.00	0.00	0.00	9	0	0	0	0	273	234	0	0	0	0	0	40	
216+50	21650.00	25.00	27.74	0.00	0.17	0.00	0.00	0.00	24	0	0	0	0	297	234	0	0	0	0	0	63	
216+75	21675.00	25.00	29.19	0.00	0.08	0.00	0.00	0.00	26	0	0	0	0	324	234	0	0	0	0	0	90	
217+00	21700.00	25.00	27.82	0.00	0.00	0.00	0.00	0.00	26	0	0	0	0	350	234	0	0	0	0	0	116	
217+25	21725.00	25.00	26.10	0.00	0.00	0.00	0.00	0.00	25	0	0	0	0	375	234	0	0	0	0	0	141	
									375	0	180	0	0	0								



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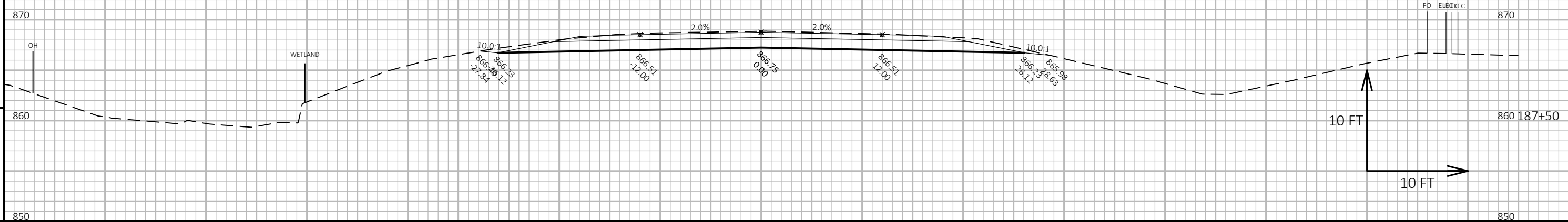
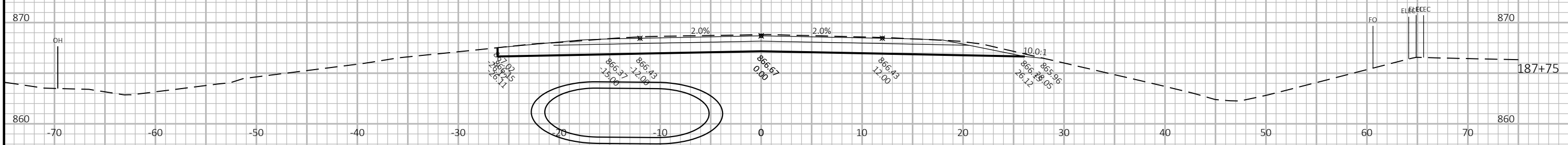
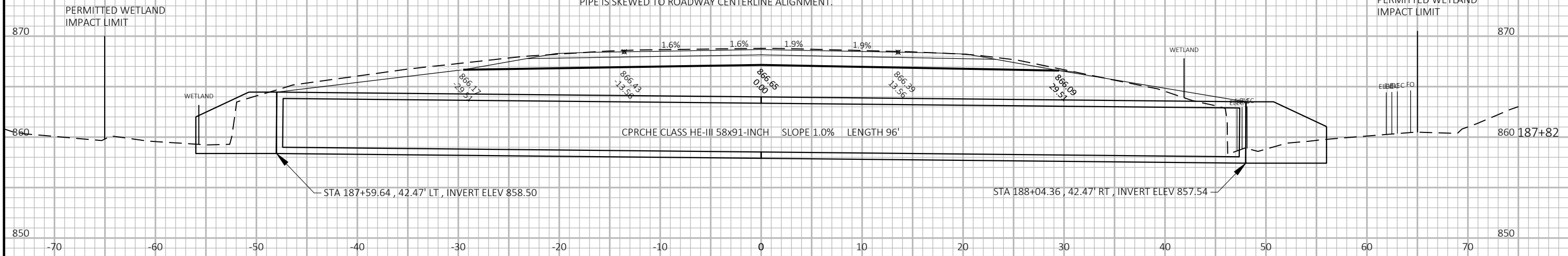


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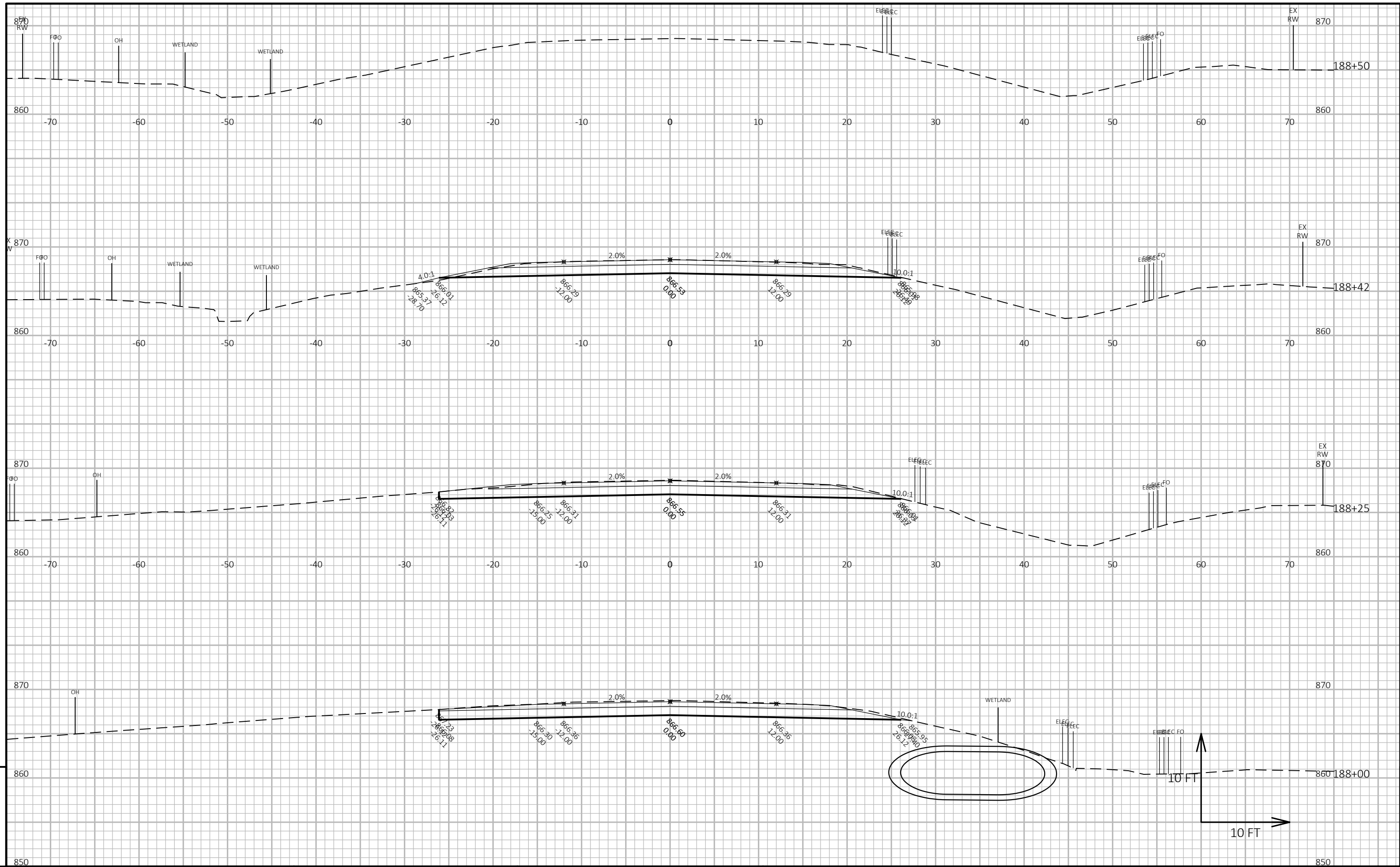
PROJECT NO: 6524-03-60 / 9180-17-60	HWY: STH 22 & STH 55	COUNTY: SHAWANO	CROSS SECTIONS: STH 55 (PIPE 58-055-070)	SHEET	E
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STATION 187+82 CROSS SECTION IS CUT ALONG THE CENTERLINE OF THE PIPE.
 PIPE IS SKEWED TO ROADWAY CENTERLINE ALIGNMENT.



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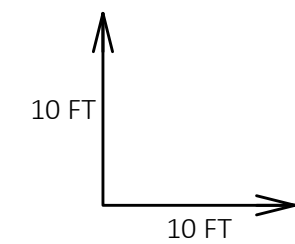
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PROJECT NO: 6524-03-60 / 9180-17-60	HWY: STH 22 & STH 55	COUNTY: SHAWANO	CROSS SECTIONS: STH 55 (PIPE 58-055-070)	SHEET	E
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Division – AliProf-STH55-bestfit

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)									
			Cut	Salvaged/Unusable					Cut	Salvaged/Unusable					Cut	Fill	Marsh Backfill	Rock	EBS Backfill	Reduced Marsh in Fill	Reduced EBS in Fill	Mass Ordinate		
				Pavement	Material	Fill	Marsh Exc	Rock Exc		EBS	Pavement	Material	Fill	Marsh Exc									Rock Exc	EBS
187+22	18722.00	0.00	71.25	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187+25	18725.00	3.00	71.42	0.00	0.00	0.00	0.00	0.00	8	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8
187+50	18750.00	25.00	73.15	0.00	0.00	0.00	0.00	0.00	67	0	0	0	0	0	75	0	0	0	0	0	0	0	0	75
187+75	18775.00	25.00	75.27	0.00	0.00	0.00	0.00	0.00	69	0	0	0	0	0	144	0	0	0	0	0	0	0	0	144
187+82	18782.00	7.00	83.75	0.00	0.00	0.00	0.00	0.00	21	0	0	0	0	0	164	0	0	0	0	0	0	0	0	164
188+00	18800.00	18.00	76.29	0.00	0.00	0.00	0.00	0.00	53	0	0	0	0	0	218	0	0	0	0	0	0	0	0	218
188+25	18825.00	25.00	71.01	0.00	0.00	0.00	0.00	0.00	68	0	0	0	0	0	286	0	0	0	0	0	0	0	0	286
188+42	18842.00	17.00	64.78	0.00	0.21	0.00	0.00	0.00	43	0	0	0	0	0	328	0	0	0	0	0	0	0	0	328
									328	0	0	0	0	0										



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Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

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