

NCL
PROJECT ID: 6925-00-70
WITH: N/A

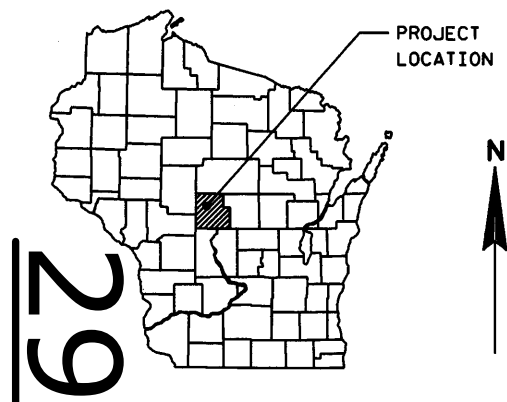
COUNTY: WOOD

APR 13
ORDER OF SHEETS

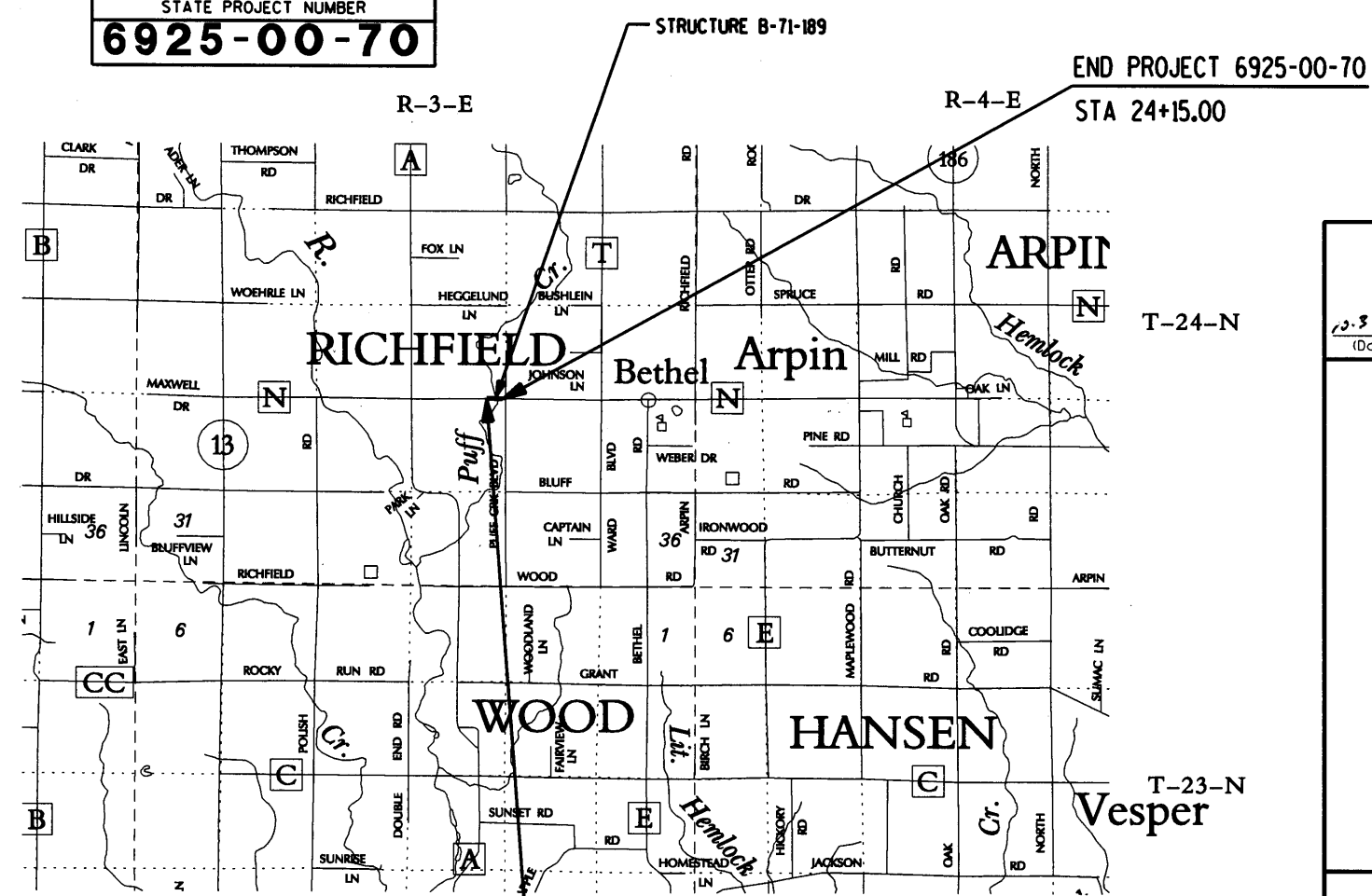
Section No. 1	Title
Section No. 2	Typical Sections and Details (includes Erosion Control)
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section No. 9	Computer Earthwork Data
Section No. 9	Cross Sections
TOTAL SHEETS = 66	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
STH 13 - STH 186
PUFF CREEK BRIDGE, TN OF RICHFIELD
CTH N
WOOD COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6925-00-70	WISC 2013227	1



STATE PROJECT NUMBER
6925-00-70



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.168 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN
COUNTY COORDINATE SYSTEM (WCCS), WOOD COUNTY.

DESIGN DESIGNATION

A.A.D.T. 2013	= 1,300
A.A.D.T. 2033	= 1,560
D.H.V.	= 186
D.D.	= 60/40
T.	= 11.4%
DESIGN SPEED	= 55 MPH
ESALS	= 386,900

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	PL + 58.1
PROPERTY LINE	PL + 58.1
LOT LINE	PL + 58.1
LIMITED HIGHWAY EASEMENT	PL + 58.1
EXISTING RIGHT OF WAY	PL + 58.1
PROPOSED OR NEW R/W LINE	PL + 58.1
SLOPE INTERCEPT	PL + 58.1
REFERENCE LINE	PL + 58.1
EXISTING CULVERT	PL + 58.1
PROPOSED CULVERT (Box or Pipe)	PL + 58.1
COMBUSTIBLE FLUIDS	PL + 58.1
WETLAND AREA	PL + 58.1
WOODED OR SHRUB AREA	PL + 58.1

PROFILE	
GRADE LINE	PL + 58.1
ORIGINAL GROUND	PL + 58.1
MARSH OR ROCK PROFILE (To be noted as such)	PL + 58.1
SPECIAL DITCH	PL + 58.1
GRADE ELEVATION	PL + 58.1
CULVERT (Profile View)	PL + 58.1
UTILITIES	PL + 58.1
ELECTRIC	PL + 58.1
FIBER OPTIC	PL + 58.1
GAS	PL + 58.1
SANITARY SEWER	PL + 58.1
STORM SEWER	PL + 58.1
TELEPHONE	PL + 58.1
OVERHEAD LINE	PL + 58.1
UTILITY PEDESTAL	PL + 58.1
POWER POLE	PL + 58.1
TELEPHONE POLE	PL + 58.1

ACCEPTED FOR
WOOD COUNTY

3-3-12
(Date)

Paul J. Harrison
(SIGNATURE)

ORIGINAL PLANS PREPARED BY
OMNI ASSOCIATES

WISCONSIN
JUDITH ANN WILSON
E-22940
NEENAH, WI
PROFESSIONAL ENGINEER
9-27-12

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	OMNI ASSOCIATES
Designer	OMNI ASSOCIATES
Management Consultant	CEDAR CORP
C.O. Examiner	

APPROVED FOR DISTRICT OFFICE

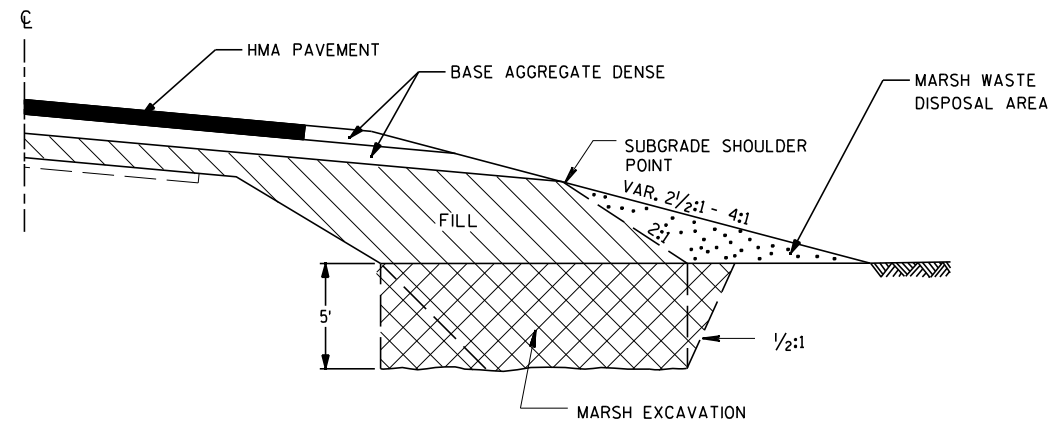
DATE: 10-26-12
(Management Consultant Signature)

E

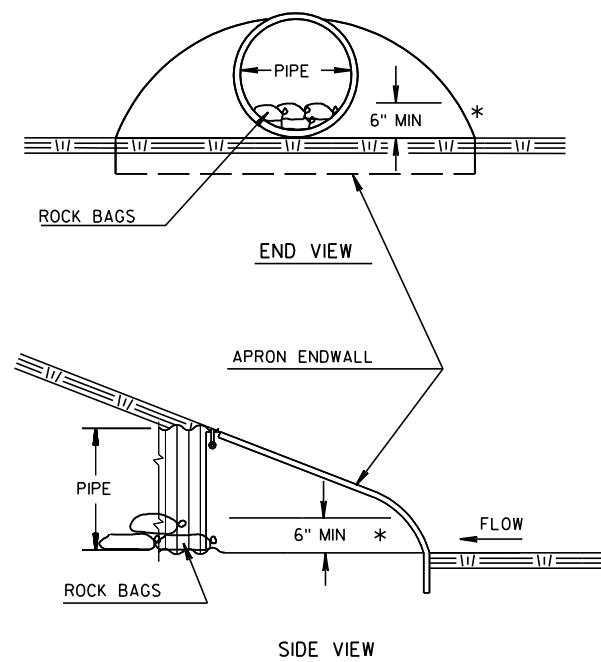
2	GENERAL NOTES THE LOCATIONS OF EXISTING AND PROPOSED UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. FILL AS SHOWN ON THE PLANS PERTAINS TO EMBANKMENTS CONSTRUCTED FROM COMMON EXCAVATION. THE ALLOWANCE USED FOR EXPANDING THE FILLS TO COMPUTE THE VOLUME OF MATERIAL REQUIRED IS 30 PERCENT. ALL FILL VOLUMES SHOWN ARE THE ACTUAL VOLUMES. WHEN THE QUANTITY OF BASE AGGREGATE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF MATERIAL AS DIRECTED BY THE ENGINEER. HMA PAVEMENT 5" DEPTH TYPE E-1 2" UPPER LAYER (12.5 mm NOMINAL SIZE AGGREGATE) 3" LOWER LAYER (19 mm NOMINAL SIZE AGGREGATE) NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER. ALL DISTURBED AREAS, NOT OTHERWISE SURFACED ARE TO BE TOPSOILED, FERTILIZED, TEMPORARY SEEDED, SEEDED AND COVERED WITH EROSION MAT OR MULCH. SEED MIXTURE NO. 20 SHALL BE USED ON ALL DISTURBED AREAS, EXCEPT WETLANDS SHALL BE SEEDED WITH MIXTURE NO. 60. WETLAND AREAS ARE SHOWN ON THE PLANS. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO WORK WITHIN THE SLOPE INTERCEPTS IN THE WETLAND AREAS. THE EXACT LOCATIONS OF ALL EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD. THE WISCONSIN DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR A MONUMENT WHICH SHALL BE SET IN THE STRUCTURE AS DESIGNATED BY THE ENGINEER. DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES. PLAN ELEVATIONS = USGS DATUM, NAVD 88 EROSION CONTROL NOTES RUNOFF COEFFICIENTS FOR THIS PROJECT: EXISTING PAVEMENT 0.95, EXISTING SLOPES 0.30, NEW PAVEMENT 0.95, NEW SLOPES 0.30. TOTAL PROJECT AREA = 2.12 ACRES TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.77 ACRES	2
CONTACTS ELECTRIC ALLIANT ENERGY 2710 JEFFERSON STREET WISCONSIN RAPIDS, WI 54495 ATTN: TRUDI BAKKEN TELEPHONE: 715-424-7048 EMAIL: trudibakken@alliantenergy.com TELEPHONE TDS TELECOM 10 COLLEGE AVENUE, SUITE 218A APPLETON, WI 54911 ATTN: STEVE JAKUBIEC TELEPHONE: 920-882-4166 EMAIL: steve.jakubiec@tdstelecom.com WOOD COUNTY DOUG PASSINAU, HIGHWAY COMMISSIONER 555 - 17TH AVENUE NORTH WISCONSIN RAPIDS, WI 54495 TELEPHONE: 715-421-8875 EMAIL: dpassinau@co.wood.wi.us DESIGN CONSULTANT JUDY WILSON, P.E. OMNNI ASSOCIATES, INC. ONE SYSTEMS DRIVE APPLETON, WI 54914 TELEPHONE: 920-830-6129 EMAIL: judy.wilson@omnni.com DNR LIAISON MARC HERSHFIELD DEPARTMENT OF NATURAL RESOURCES 473 GRIFFITH AVENUE WISCONSIN RAPIDS, WI 54494 TELEPHONE: 715-421-7867 EMAIL: marc.hershfield@wisconsin.gov		
DIGGERSHOTLINE Toll Free (800) 242-8511 Hearing Impaired TDD (800) 542-2289 www.DiggersHotline.com ** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE		
PROJECT NO: 6925-00-70 HWY: CTH N COUNTY: WOOD GENERAL NOTES SHEET: E		

2





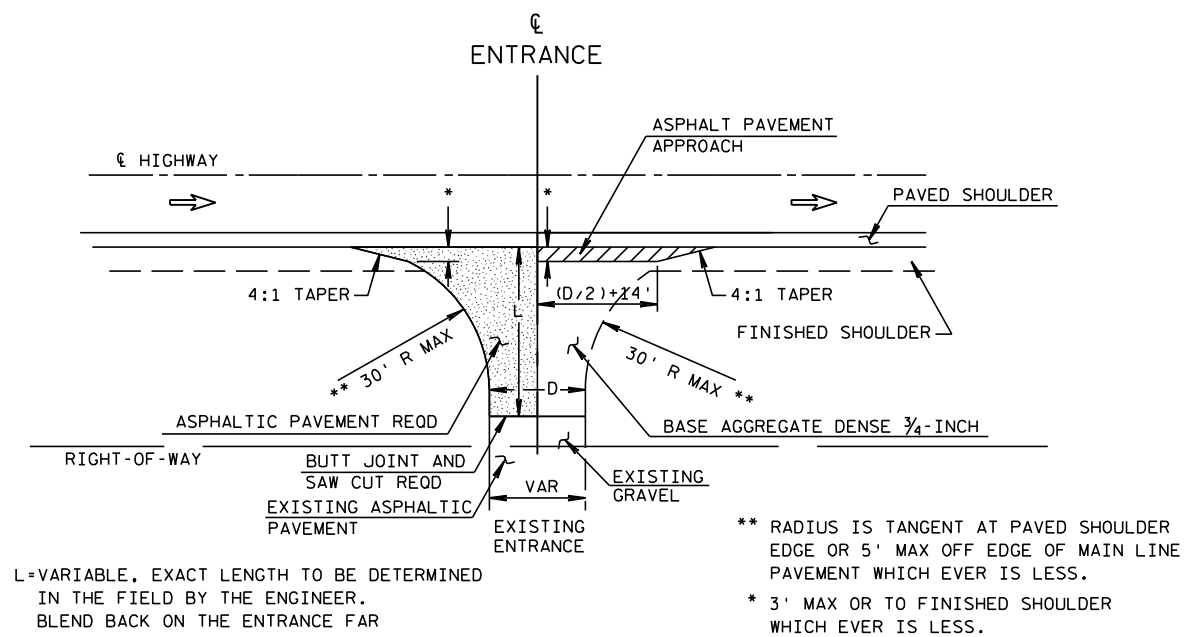
TYPICAL MARSH EXCAVATION DETAIL



* OR AS DIRECTED BY THE ENGINEER.

CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)
PROJECT 6925-00-70

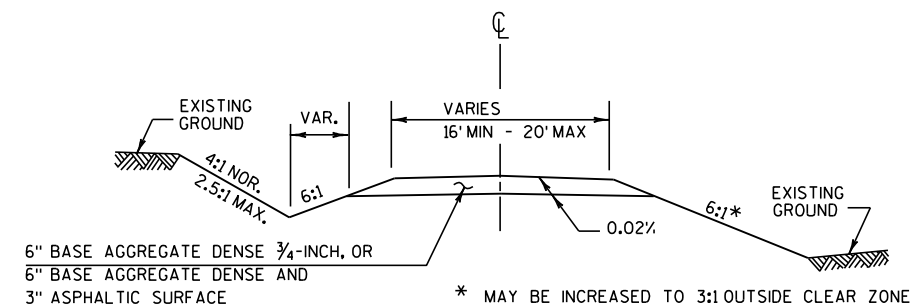


L=VARIABLE, EXACT LENGTH TO BE DETERMINED
IN THE FIELD BY THE ENGINEER.
BLEND BACK ON THE ENTRANCE FAR
ENOUGH TO GET A SMOOTH PROFILE.

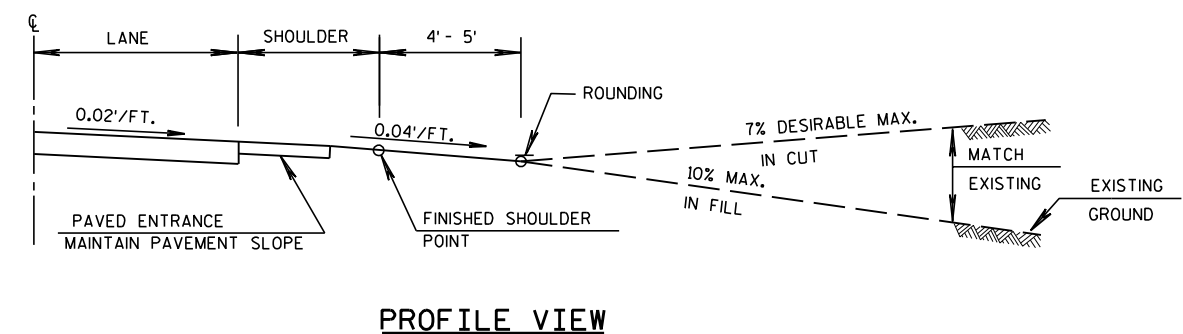
D=DRIVEWAY WIDTH
SEE PLAN AND PROFILE

PLAN VIEW

NOTE: ONLY THE BASE AGGREGATE DENSE DRIVEWAY
USED IN THIS CONTRACT



TYPICAL CROSS SECTION



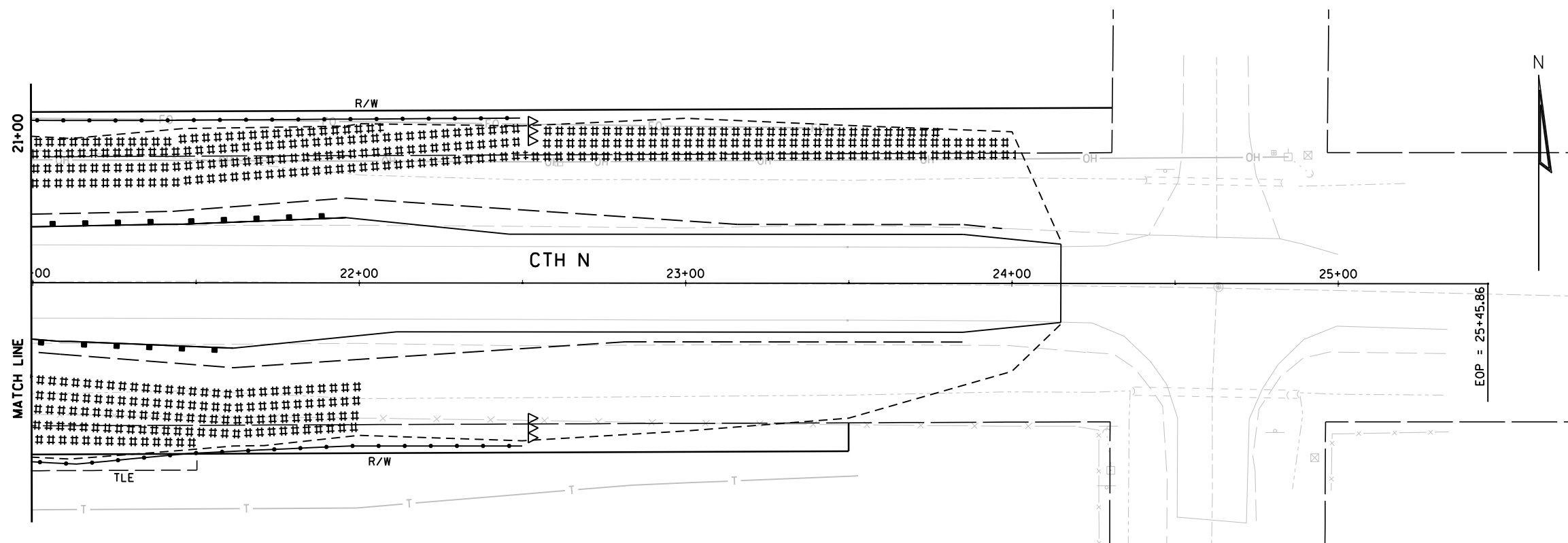
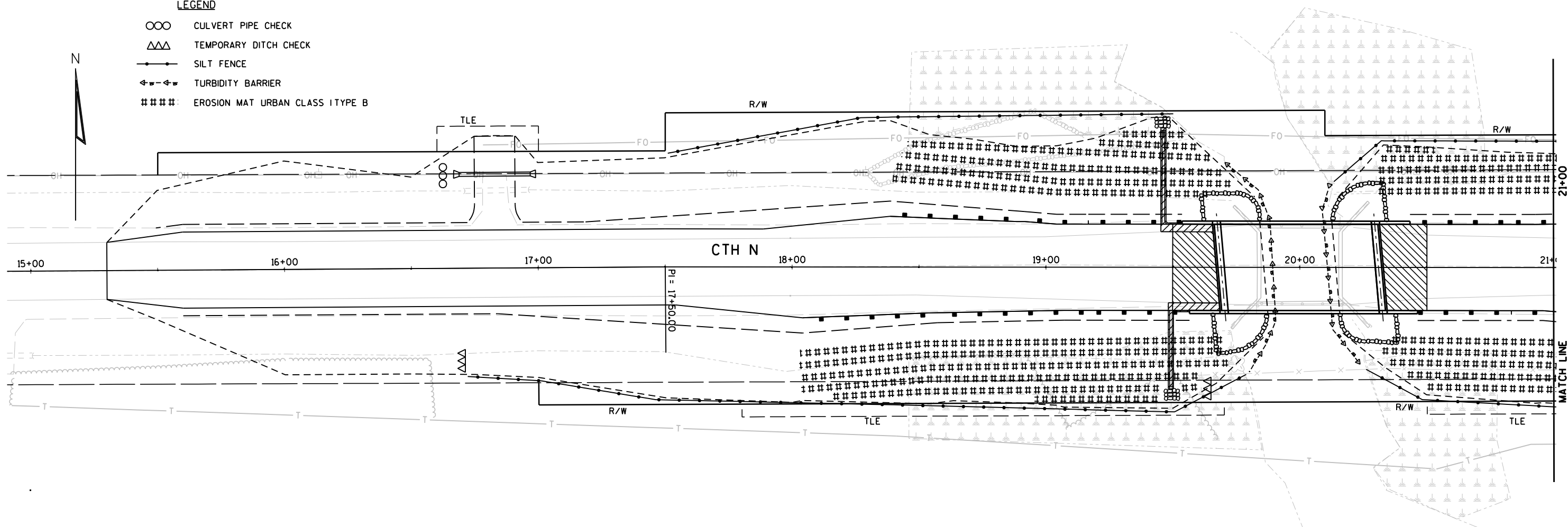
PROFILE VIEW

RURAL DRIVEWAY INTERSECTION DETAIL

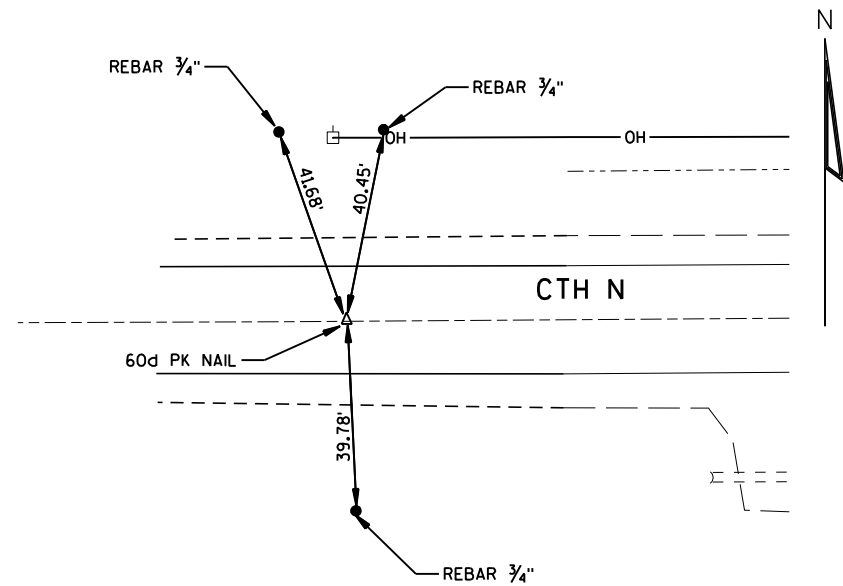
PROJECT 6925-00-72

LEGEND

- OOO CULVERT PIPE CHECK
△△△ TEMPORARY DITCH CHECK
—●— SILT FENCE
←- - -→ TURBIDITY BARRIER
EROSION MAT URBAN CLASS I TYPE B



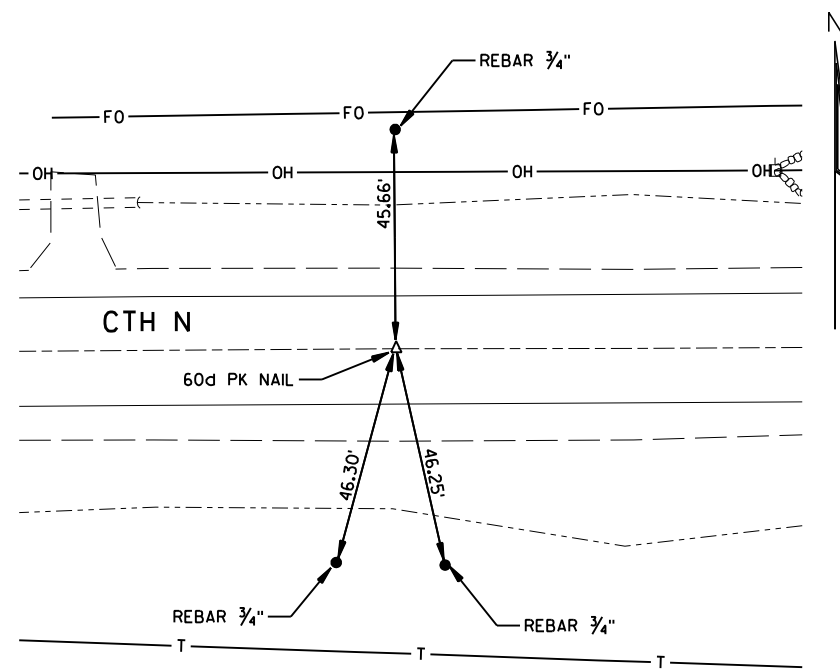
2



PISTA. 14+00

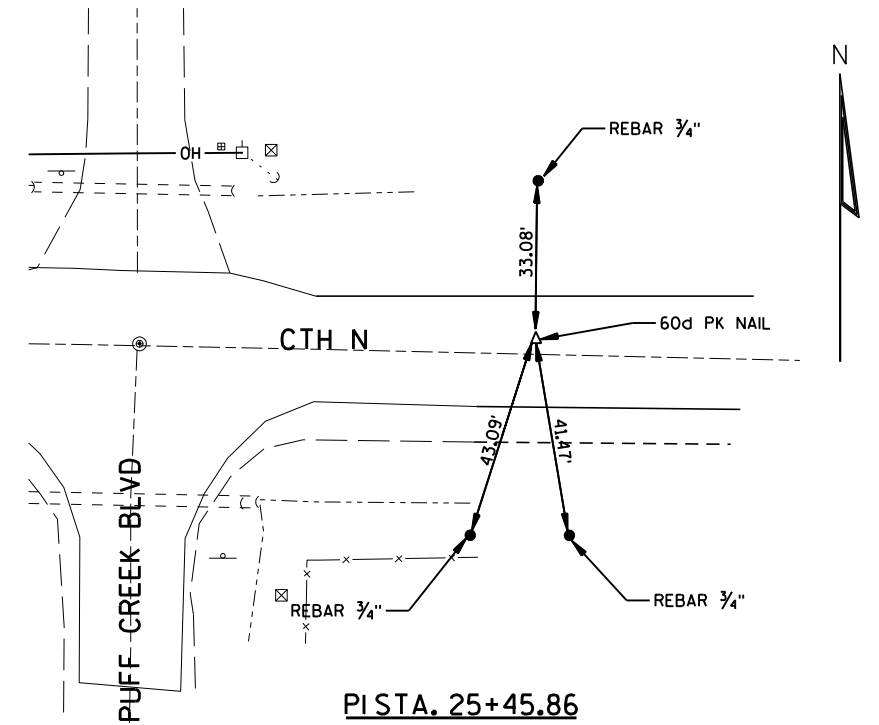
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2



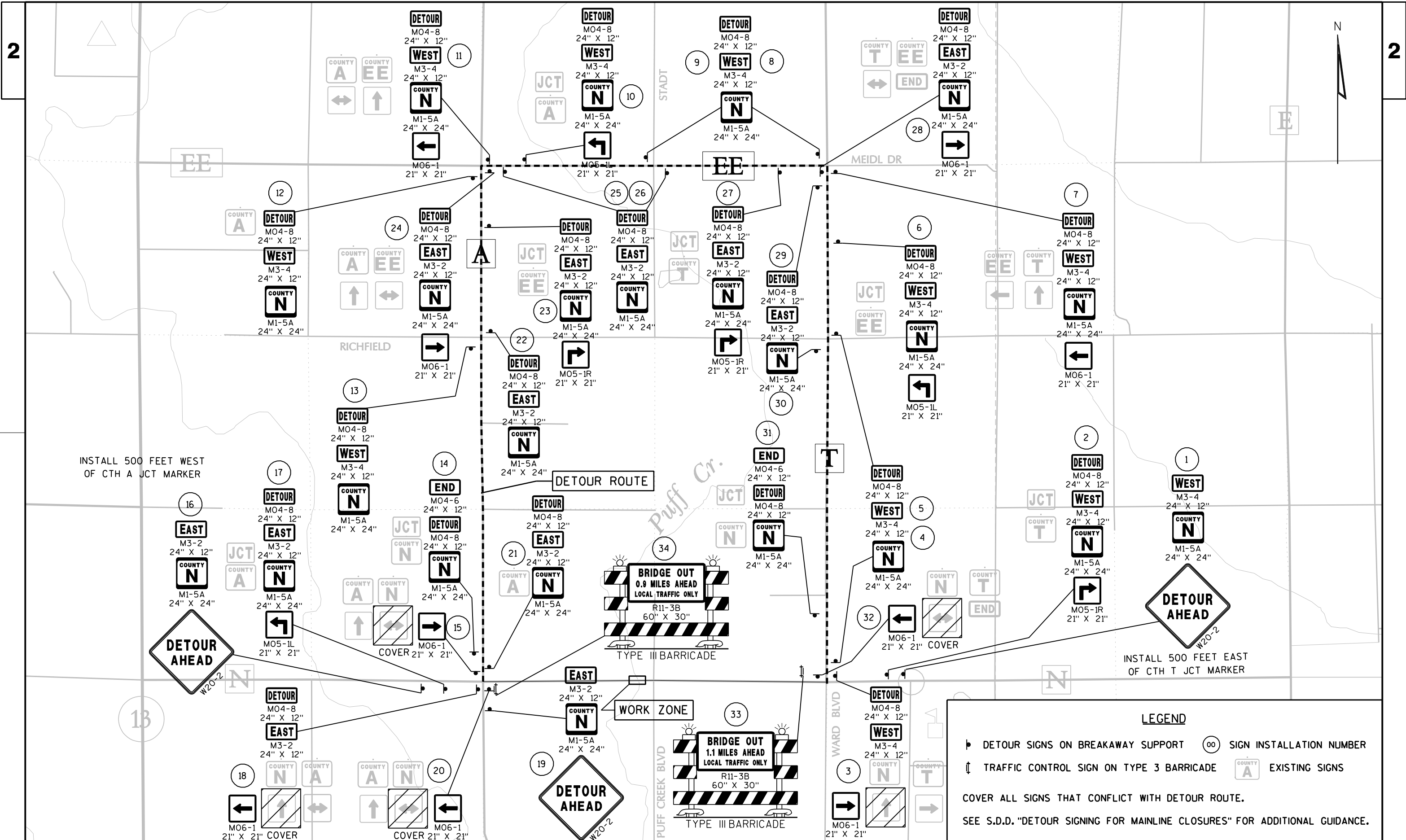
PISTA. 17+50

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E = 651968.602



PISTA. 25+45.86

N = 506410.070
E = 652764.462



DATE 05FEB13		E S T I M A T E O F Q U A N T I T I E S			
LINE		6925-00-70			
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	3.000	3.000
0020	201.0205	GRUBBING	STA	3.000	3.000
0030	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. 20+00	LS	1.000	1.000
0040	205.0100	EXCAVATION COMMON **P**	CY	700.000	700.000
0050	205.0400	EXCAVATION MARSH	CY	430.000	430.000
0060	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-71-189	LS	1.000	1.000
0070	208.0100	BORROW	CY	6,690.000	6,690.000
0080	209.0100	BACKFILL GRANULAR	CY	650.000	650.000
0090	210.0100	BACKFILL STRUCTURE	CY	280.000	280.000
0100	213.0100	FINISHING ROADWAY (PROJECT) 01. 6925-00-70	EACH	1.000	1.000
0110	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	290.000	290.000
0120	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	3,250.000	3,250.000
0130	415.0410	CONCRETE PAVEMENT APPROACH SLAB	SY	119.000	119.000
0140	416.1010	CONCRETE SURFACE DRAINS	CY	8.000	8.000
0150	455.0105	ASPHALTIC MATERIAL PG58-28	TON	45.000	45.000
0160	455.0605	TACK COAT	GAL	72.000	72.000
0170	460.1101	HMA PAVEMENT TYPE E-1	TON	820.000	820.000
0180	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	530.000	530.000
0190	502.0100	CONCRETE MASONRY BRIDGES	CY	189.000	189.000
0200	502.3200	PROTECTIVE SURFACE TREATMENT	SY	313.000	313.000
0210	503.0136	PRESTRESSED GIRDER TYPE I 36-INCH	LF	315.000	315.000
0220	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	4,680.000	4,680.000
0230	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	22,540.000	22,540.000
0240	506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	10.000	10.000
0250	506.4000	STEEL DIAPHRAGMS (STRUCTURE) 01. B-71-189	EACH	4.000	4.000
0260	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	18.000	18.000
0270	520.0124	CULVERT PIPE CLASS III 24-INCH	LF	34.000	34.000
0280	520.1024	APRON ENDWALLS FOR CULVERT PIPE 24-INCH	EACH	2.000	2.000
0290	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	360.000	360.000
0300	606.0200	RIPRAP MEDIUM	CY	6.000	6.000
0310	606.0300	RIPRAP HEAVY	CY	150.000	150.000
0320	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	40.000	40.000
0330	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	110.000	110.000
0340	614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4.000	4.000
0350	614.2300	MGS GUARDRAIL 3	LF	175.000	175.000
0360	614.2500	MGS THRIE BEAM TRANSITION	LF	158.000	158.000
0370	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	4.000	4.000
0380	619.1000	MOBILIZATION	EACH	1.000	1.000
0390	624.0100	WATER	MGAL	22.000	22.000
0400	625.0100	TOPSOIL **P**	SY	5,900.000	5,900.000
0410	627.0200	MULCHING	SY	3,400.000	3,400.000
0420	628.1504	SILT FENCE	LF	1,250.000	1,250.000
0430	628.1520	SILT FENCE MAINTENANCE	LF	2,500.000	2,500.000
0440	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4.000	4.000
0450	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0460	628.2008	EROSION MAT URBAN CLASS I TYPE B	SY	2,500.000	2,500.000
0470	628.6005	TURBIDITY BARRIERS	SY	260.000	260.000
0480	628.7504	TEMPORARY DITCH CHECKS	LF	50.000	50.000
0490	628.7555	CULVERT PIPE CHECKS	EACH	3.000	3.000

DATE 05FEB13		E S T I M A T E O F Q U A N T I T I E S			
LINE				6925-00-70	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0500	629.0210	FERTILIZER TYPE B	CWT	5.000	5.000
0510	630.0120	SEEDING MIXTURE NO. 20 **P**	LB	200.000	200.000
0520	630.0160	SEEDING MIXTURE NO. 60	LB	10.000	10.000
0530	630.0200	SEEDING TEMPORARY	LB	100.000	100.000
0540	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	4.000	4.000
0550	637.0202	SIGNS REFLECTIVE TYPE II	SF	12.000	12.000
0560	638.2602	REMOVING SIGNS TYPE II	EACH	4.000	4.000
0570	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	4.000	4.000
0580	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0590	643.0100	TRAFFIC CONTROL (PROJECT) 01. 6925-00-70	EACH	1.000	1.000
0600	643.0300	TRAFFIC CONTROL DRUMS	DAY	100.000	100.000
0610	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	1,600.000	1,600.000
0620	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	2,400.000	2,400.000
0630	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,200.000	1,200.000
0640	643.0920	TRAFFIC CONTROL COVERING SIGNS TYPE II	EACH	5.000	5.000
0650	643.2000	TRAFFIC CONTROL DETOUR (PROJECT) 01. 6925-00-70	EACH	1.000	1.000
0660	643.3000	TRAFFIC CONTROL DETOUR SIGNS	DAY	10,000.000	10,000.000
0670	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	230.000	230.000
0680	646.0103	PAVEMENT MARKING PAINT 4-INCH	LF	3,020.000	3,020.000
0690	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	825.000	825.000
0700	650.5000	CONSTRUCTION STAKING BASE	LF	825.000	825.000
0710	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-71-189	LS	1.000	1.000
0720	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 6925-00-70	LS	1.000	1.000
0730	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	825.000	825.000
0740	690.0150	SAWING ASPHALT	LF	46.000	46.000
0750	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,134.000	1,134.000
0760	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	1,200.000	1,200.000
0770	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	600.000	600.000

CLEARING AND GRUBBING

STATION	LOCATION	201.0105 CLEARING STATION	201.0205 GRUBBING STATION
16+00 - 17+00	CTH N	1	1
18+00 - 20+00	CTH N	2	2
TOTAL		3	3

BASE AGGREGATE DENSE AND WATER

STATION TO STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	624.0100 WATER
		TON	TON	MGAL
15+30 - STRUCTURE	CTH N	140	1,720	11.5
STA 16+83, LEFT, DWY	CTH N	26	---	0.5
STRUCTURE - 24+15	CTH N	124	1,530	10.0
TOTALS		290	3,250	22

EARTHWORK SUMMARY

DIVISION	FROM/TO STATION	LOCATION	EXCAVATION COMMON 205.0100 (1)		SALVAGED/ UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL	EXCAVATION MARSH 205.0400 (6)	REDUCED MARSH IN DISPOSAL AREA (8)	UNEXPANDED FILL	EXPANDED FILL	MASS ORDINATE +/- (14)	WASTE (15)	BORROW 208.0100	EXPANDED MARSH BACKFILL (BACKFILL GRANULAR) 209.0100
			CUT	EBS EXCAVATION										FACTOR 1.50
DIVISION 1	15+30 - 19+67	CTH N WEST	410	0	178	502	270	162	2,947	3,621	-3,119	178	3,120	410
	20+32 - 24+15	CTH N EAST	290	0	156	294	160	96	3,068	3,864	-3,569	156	3,570	240
DIVISION 1	TOTALS		700	0	334	796	430	258	6,015	7,484	-6,688	334	6,690	650

- 1) CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
- 2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- 6) EXCAVATION MARSH - TO BE BACKFILLED WITH BACKFILL GRANULAR MATERIAL.
- 8) REDUCED VOLUME OF EXCAVATED MARSH MATERIAL TO BE PLACED IN DESIGNATED MARSH DISPOSAL AREAS, OUTSIDE THE 2:1 EMBANKMENT SLOPE. SEE CONSTRUCTION DETAIL.
- 14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
- 15) THIS QUANTITY INCLUDES ASPHALT FROM THE EXISTING ROADWAY AND WAS NOT UTILIZED IN THE PROPOSED EMBANKMENT. IT IS CONSIDERED WASTE MATERIAL AND WILL NEED TO BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

CONCRETE PAVEMENT APPROACH SLAB

STATION TO STATION	LOCATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
19+50.86 - STRUCTURE	CTH N	54
STRUCTURE - 20+49.41	CTH N	65
TOTAL		119

CONCRETE SURFACE DRAINS

STATION TO STATION	LOCATION	416.1010 CY
19+45.37 - STRUCTURE, LT	CTH N	4
19+48.36- STRUCTURE, RT	CTH N	4
TOTAL		8

ASPHALTIC ITEMS

STATION TO STATION	LOCATION	455.0105 ASPHALTIC MATERIAL PG58-28 TON	455.0605 TACK COAT GAL	460.1101 HMA PAVEMENT TYPE E-1 TON
15+30 - STRUCTURE	CTH N	24	38	440
STRUCTURE - 24+15	CTH N	21	34	380
TOTALS		45	72	820

STEEL PLATE BEAM GUARD

		614.2300 MGS GUARDRAIL 3	614.2500 MGS THRIE BEAM TRANSITION	614.2610 MGS GUARDRAIL TERMINAL EAT
STATION TO STATION	LOCATION	LF	LF	EACH
18+04.05 - STRUCTURE, RT	CTH N	62.5	39.4	1
18+38.55 - STRUCTURE, LT	CTH N	25	39.4	1
STRUCTURE - 21+61.45, RT	CTH N	25	39.4	1
STRUCTURE - 21+95.95, LT	CTH N	62.5	39.4	1
TOTALS		175	157.6	4
ROUNDED TOTALS		175	158	4

CULVERT PIPE CLASS III AND APRON ENDWALL

STATION	LOCATION	520.0124 CULVERT PIPE CLASS III 24-INCH LF	THICKNESS		INLET ELEVATION	DISCHARGE ELEVATION	520.1024 APRON ENDWALLS FOR CULVERT PIPE 24-INCH EACH
			STEEL	ALUMINUM			
			INCHES	INCHES			
16+83, 37' LT	CTH N	34	0.064	0.060	1123.10	1121.70	2
TOTALS		34					2

EROSION CONTROL ITEMS

		606.0200 RIPRAP MEDIUM	628.1504 SILT FENCE	628.1520 SILT FENCE MAINTENANCE	628.1905 MOBILIZATIONS EROSION CONTROL	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL	628.2008 EROSION MAT URBAN CLASS I TYPE B	628.7504 TEMPORARY DITCH CHECKS	628.7555 CULVERT PIPE CHECKS	645.0120 GEOTEXTILE FABRIC TYPE HR
STATION TO STATION	LOCATION	CY	LF	LF	EACH	EACH	SY	LF	EACH	SY
15+30 - STRUCTURE, LT	CTH N	2.5	210	420	---	---	300	10	3	4
15+30 - STRUCTURE, RT	CTH N	2.5	320	640	---	---	530	10	---	4
STRUCTURE - 24+15, LT	CTH N	0	250	500	---	---	640	10	---	---
STRUCTURE - 24+15, RT	CTH N	0	230	460	---	---	500	10	---	---
UNDISTRIBUTED	CTH N	1	240	480	4	2	530	10	---	2
TOTALS		6	1,250	2,500	4	2	2,500	50	3	10

TURBIDITY BARRIER

STATION	LOCATION	628.6005 SY
19+90	CTH N	130
20+10	CTH N	130
TOTAL		260

LANDSCAPING

		625.0100 TOPSOIL	627.0200 MULCHING	630.0200 SEEDING TEMPORARY	630.0120 SEEDING NO 20	630.0160 SEEDING NO 60	629.0210 FERTILIZER TYPE B
STATION TO STATION	LOCATION	SY	SY	LB	LB	LB	CWT
15+30 - STRUCTURE, LT	CTH N	1,200	900	20	41	---	1.0
15+30- STRUCTURE, RT	CTH N	1,290	760	22	44	---	1.0
STRUCTURE - 24+15, LT	CTH N	1,130	490	19	38	---	1.0
STRUCTURE - 24+15 RT	CTH N	1,060	560	18	36	---	1.0
UNDISTRIBUTED	CTH N	1,220	690	21	41	10	1.0
TOTALS		5,900	3,400	100	200	10	5.0

REMOVING SIGNS TYPE II AND REMOVING SMALL SIGN SUPPORTS

			638.2602 REMOVING SIGNS TYPE II	638.3000 REMOVING SMALL SIGN SUPPORTS
STATION	LOCATION	DESCRIPTION	EACH	EACH
19+83, RT	CTH N	OBJECT MARKER	1	1
19+83, LT	CTH N	OBJECT MARKER	1	1
20+17, RT	CTH N	OBJECT MARKER	1	1
20+17, LT	CTH N	OBJECT MARKER	1	1
TOTALS			4	4

PAVEMENT MARKING PAINT

STATION	LOCATION	646.0103		
		4-INCH DASHED YELLOW LF	4-INCH SOLID YELLOW LF	4-INCH WHITE EDGE LINE LF
15+00 - 17+50	CTH N EB	60	---	250
15+00 - 17+50	CTH N WB	---	250	250
17+50 - 24+30	CTH N EB	---	680	680
17+50 - 24+30	CTH N WB	170	---	680
TOTAL		3,020		

SIGNS REFLECTIVE TYPE II & POSTS WOOD

STATION	LOCATION	CODE	SIGN SIZE	634.0614	637.0202
			HORIZ X VERT IN X IN	POSTS WOOD 4X6-INCH X 14-FT EACH	SIGNS REFLECTIVE TYPE II SF
19+52, LT	CTH N	W5-52R	12 X 36	1	3
19+55, RT	CTH N	W5-52L	12 X 36	1	3
20+45, LT	CTH N	W5-52L	12 X 36	1	3
20+48, RT	CTH N	W5-52R	12 X 36	1	3
TOTALS				4	12

TRAFFIC CONTROL

STAGE / LOCATION	SERVICE PERIOD DAYS	643.0300		643.0420		643.0705		643.0900		REMARKS
		NO	DRUMS DAYS	NO	BARRICADES TYPE III DAYS	NO	WARNING LIGHTS TYPE A DAYS	NO	SIGNS DAYS	
CTH N BRIDGE CLOSURE	100		0	16	1,600	24	2,400	12	1,200	NOTE A
UNDISTRIBUTED			100							

PROJECT TOTALS 100 1,600 2,400 1,200

NOTE A. INCLUDES SIGN 5 AND SIGN 18 QUANTITIES FROM DETOUR SIGNS TABLE.

CONSTRUCTION STAKING

STATION TO STATION	LOCATION	650.4500	650.5000	CATEGORY 0020	650.9910	650.9920
		SUBGRADE LF	BASE LF	650.6500 STRUCTURE LAYOUT LS	SUPPLEMENTAL CONTROL LS	SLOPE STAKES LF
15+30 - STRUCTURE	CTH N	440	440	---	---	440
STRUCTURE B-71-189	CTH N	---	---	1	---	---
STRUCTURE - 24+15	CTH N	385	385	---	---	385
TOTALS		825	825	1	1	825

SAWING ASPHALT

STATION	LOCATION	690.0150 SAWING ASPHALT LF
15+30	CTH N	23
24+15	CTH N	23
TOTAL		46

TRAFFIC CONTROL DETOUR SIGNS

SIGN NO.	LOCATION	DETOUR DIRECTION	SIGN CODE	SIZE W X H	NUMBER SIGNS IN SERVICE	643.3000 DETOUR SIGNS DAYS	643.0920 COVERING SIGNS TYPE II		SIGN MESSAGE	REMARKS
							NUMBER OF CYCLES	EACH		
1	500 FT EAST OF CTH T JCT SIGN ON CTH N	WESTBOUND	M 3-4 M 1-5A W 20-2	24 X 12 24 X 24 48 X 48	1 1 1	100 100 100			WEST CTH N DETOUR AHEAD	
2	NEXT TO JCT CTH T SIGN ON CTH N	WESTBOUND	MO 4-8 M 3-4 M 1-5A MO 5-1R	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR WEST CTH N ADVANCE ARROW RIGHT TURN	
3	NEXT TO CTH N AHEAD & CTH T RIGHT SIGN JUST EAST OF CTH T ON CTH N	WESTBOUND	MO 4-8 M 3-4 M 1-5A MO 6-1R	24 X 12 24 X 12 24 X 24 21 X 21	1 1 0 1	100 100 --- 100	1	1	DETOUR WEST CTH N ARROW RIGHT	USE EXISTING CTH N SIGN COVER EXISTING AHEAD ARROW
4	JUST NORTH OF CTH N ON CTH T RIGHT SHOULDER	WESTBOUND	MO 4-8 M 3-4 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR WEST CTH N	
5	JUST NORTH OF RICHFIELD DR ON CTH T RIGHT SHOULDER	WESTBOUND	MO 4-8 M 3-4 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR WEST CTH N	
6	NEXT TO JCT CTH EE SIGN ON CTH T RIGHT SHOULDER	WESTBOUND	MO 4-8 M 3-4 M 1-5A MO 5-1L	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR WEST CTH N ADVANCE ARROW LEFT TURN	
7	NEXT TO CTH EE LEFT & CTH T AHEAD SIGN JUST SOUTH OF CTH EE ON CTH T	WESTBOUND	MO 4-8 M 3-4 M 1-5A MO 6-1L	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR WEST CTH N ARROW LEFT	
8	JUST WEST OF CTH T ON CTH EE LEFT SHOULDER	WESTBOUND	MO 4-8 M 3-4 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR WEST CTH N	
9	JUST WEST OF STADT RD ON CTH EE LEFT SHOULDER	WESTBOUND	MO 4-8 M 3-4 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR WEST CTH N	
10	NEXT TO JCT CTH A SIGN ON CTH EE LEFT SHOULDER	WESTBOUND	MO 4-8 M 3-4 M 1-5A MO 5-1L	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR WEST CTH N ADVANCE ARROW LEFT TURN	
11	NEXT TO CTH A <--> & CTH EE AHEAD SIGN JUST EAST OF CTH A	WESTBOUND	MO 4-8 M 3-4 M 1-5A MO 6-1L	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR WEST CTH N ARROW LEFT	
12	JUST SOUTH OF CTH EE ON CTH A LEFT SHOULDER	WESTBOUND	MO 4-8 M 3-4 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR WEST CTH N	
13	JUST SOUTH OF RICHFIELD DR ON CTH A LEFT SHOULDER	WESTBOUND	MO 4-8 M 3-4 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR WEST CTH N	

PAGE SUBTOTAL 4,400 1

TRAFFIC CONTROL DETOUR SIGNS - CONTINUED

SIGN NO.	LOCATION	DETOUR DIRECTION	SIGN CODE	SIZE W X H	NUMBER SIGNS IN SERVICE	643.3000 DETOUR SIGNS DAYS	643.0920 COVERING SIGNS TYPE II		SIGN MESSAGE	REMARKS
							NUMBER OF CYCLES	EACH		
14	NEXT TO JCT CTH N SIGN ON CTH A LEFT SHOULDER	WESTBOUND	MO 4-6 MO 4-8 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			END DETOUR CTH N	
15	NEXT TO CTH A AHEAD & CTH N <--> SIGN	WESTBOUND	MO 6-1	21 X 21	1	100	1	1	ARROW RIGHT	COVER <--> SIGN
16	500 FT WEST OF CTH A JCT SIGN ON CTH N	EASTBOUND	M 3-2 M 1-5A W 20-2	24 X 12 24 X 24 48 X 48	1 1 1	100 100 100			EAST CTH N DETOUR AHEAD	
17	NEXT TO JCT CTH A SIGN ON CTH N	EASTBOUND	MO 4-8 M 3-2 M 1-5A MO 5-1L	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR EAST CTH N ADVANCE ARROW LEFT TURN	
18	NEXT TO CTH N AHEAD & CTH A <--> SIGN	EASTBOUND	MO 4-8 M 3-2 M 1-5A MO 6-1L	24 X 12 24 X 12 24 X 24 21 X 21	1 1 0 1	100 100 --- 100	1	1	DETOUR EAST CTH N ARROW LEFT	USE EXISTING CTH N SIGN COVER EXISTING AHEAD ARROW
19	500 FT SOUTH OF CTH N ON CTH A RIGHT SHOULDER	EASTBOUND	M 3-2 M 1-5A W 20-2	24 X 12 24 X 24 48 X 48	1 1 1	100 100 100			EAST CTH N DETOUR AHEAD	
20	NEXT TO CTH A AHEAD & CTH N <--> SIGN	EASTBOUND	MO 6-1	21 X 21	1	100	1	1	ARROW LEFT	COVER <--> SIGN
21	JUST NORTH OF CTH N ON CTH A RIGHT SHOULDER	EASTBOUND	MO 4-8 M 3-2 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR EAST CTH N	
22	JUST NORTH OF RICHFIELD DR ON CTH A RIGHT SHOULDER	EASTBOUND	MO 4-8 M 3-2 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR EAST CTH N	
23	NEXT TO JCT CTH EE SIGN SOUTH OF CTH EE	EASTBOUND	MO 4-8 M 3-2 M 1-5A MO 5-1R	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR EAST CTH N ADVANCE ARROW RIGHT TURN	
24	NEXT TO CTH A AHEAD & CTH EE <--> SIGN	EASTBOUND	MO 4-8 M 3-2 M 1-5A MO 6-1R	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR EAST CTH N ARROW RIGHT	
25	JUST EAST OF CTH A ON CTH RIGHT SHOULDER	EASTBOUND	MO 4-8 M 3-2 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR EAST CTH N	
26	JUST EAST OF STADT RD ON CTH EE RIGHT SHOULDER	EASTBOUND	MO 4-8 M 3-2 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR EAST CTH N	
27	NEXT TO JCT CTH T SIGN ON CTH EE RIGHT SHOULDER	EASTBOUND	MO 4-8 M 3-2 M 1-5A MO 5-1R	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR EAST CTH N ADVANCE ARROW RIGHT TURN	

PAGE SUBTOTAL 4,200 3

TRAFFIC CONTROL DETOUR SIGNS - CONTINUED

SIGN NO.	LOCATION	DETOUR DIRECTION	SIGN CODE	SIZE W X H	NUMBER SIGNS IN SERVICE	643.3000	643.0920 COVERING SIGNS TYPE II		SIGN MESSAGE	REMARKS
						DETOUR SIGNS	NUMBER OF CYCLES	EACH		
28	NEXT TO CTH T <--> & CTH EE END SIGN	EASTBOUND	MO 4-8 M 3-2 M 1-5A MO 6-1R	24 X 12 24 X 12 24 X 24 21 X 21	1 1 1 1	100 100 100 100			DETOUR EAST CTH N ARROW RIGHT	
29	JUST SOUTH OF CTH EE ON CTH T LEFT SHOULDER	EASTBOUND	MO 4-8 M 3-2 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR EAST CTH N	
30	JUST SOUTH OF RICHFIELD DR ON CTH T LEFT SHOULDER	EASTBOUND	MO 4-8 M 3-2 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			DETOUR EAST CTH N	
31	NEXT TO JCT CTH N SIGN ON CTH T LEFT SHOULDER	EASTBOUND	MO 4-6 MO 4-8 M 1-5A	24 X 12 24 X 12 24 X 24	1 1 1	100 100 100			END DETOUR CTH N	
32	NEXT TO CTH N <--> & CTH T END SIGN	EASTBOUND	MO 6-1	21 X 21	1	100	1	1	ARROW LEFT	COVER <--> SIGN
33	JUST WEST OF CTH T ON CTH N	EASTBOUND	R11-3B	60 X 30	0	---			BRIDGE OUT 1.1 MILES AHEAD LOCAL TRAFFIC ONLY	NOTE A
34	JUST EAST OF CTH A ON CTH N	WESTBOUND	R11-3B	60 X 30	0	---			BRIDGE OUT 0.9 MILES AHEAD LOCAL TRAFFIC ONLY	NOTE A
PAGE SUBTOTAL						1,400		1		
PROJECT TOTALS						10,000		5		

NOTE: DETOUR ESTIMATED TO BE IN OPERATION FOR 100 DAYS
NOTE A: BRIDGE OUT SIGN INCLUDED UNDER TRAFFIC CONTROL SIGNS.

LEVELS ON = 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63

Conventional Signs and Abbreviations

SECTION LINE	AC	ACRES	R	RADIUS
QUARTER LINE	Δ	CENTRAL ANGLE	R.	RANGE
TOWNSHIP AND RANGE LINE	C/L	CENTERLINE	R/L	REFERENCE LINE
PROPOSED OR NEW CENTERLINE	COR.	CORNER	R/W	RIGHT OF WAY
PROPOSED OR NEW R/W LINE	CTH	COUNTY TRUNK HIGHWAY	1/4 LINE	QUARTER LINE
EXISTING R/W LINE	D	DEGREE OF CURVE	1/8 LINE	SIXTEENTH LINE
LOT LINE	E.	EAST	S.	SOUTH
PROPERTY LINE	L	LENGTH OF CURVE	SEC	SECTION
COUNTY LINE LIMITS	LC	LONG CHORD	SEC LINE	SECTION LINE
SLOPE INTERCEPTS	LCB	LONG CHORD BEARING	STH	STATE TRUNK HIGHWAY
R/W POINT	MI	MILE	SF	SQUARE FEET
FENCE	N.	NORTH	STA	STATION
SECTION OR QUARTER CORNER	PC	POINT OF CURVATURE	T.	TOWN
POWER POLE	PI	POINT OF INTERSECTION	T	TANGENT LENGTH OF CURVE
TELEPHONE PEDESTAL	PT	POINT OF TANGENCY	TI	TEMPORARY INTEREST
UNDERGROUND TELEPHONE CABLE	PLE	PERMANENT LIMITED EASEMENT	USH	UNITED STATES HIGHWAY
NO ACCESS (BY ACQUISITION)	P/L	PROPERTY LINE	W.	WEST
NO ACCESS (BY STATUTORY AUTHORITY)				
NO ACCESS (BY PREVIOUS PROJECT)				

	FEE ACQUISITION
	TEMPORARY INTEREST
	PERMANENT LIMITED EASEMENT
	RIGHT-OF-WAY TYPE 2 MONUMENTS SET AT NEWLY ACQUIRED R/W ANGLE POINTS

BEGIN RELOCATION ORDER

STATION 114+50.00

1592.71' EAST OF AND 6.04' NORTH OF THE SOUTH QUARTER CORNER OF SECTION 22, T24N, R3E, TOWN OF RICHFIELD, WOOD COUNTY, WISCONSIN
Y - 506405.258
X - 651668.631

PT. NO.	Y-COOR.	X-COOR.
9	506450.230	652649.252
14	506446.888	651768.473
15	506455.638	651768.440
16	506456.396	651968.439
17	506471.396	651968.382
20	506463.980	652649.383
26	506364.957	651918.785
27	506356.207	651918.819
36	506358.674	652568.814
37	506367.424	652568.781
42	506462.383	652228.418
43	506472.383	652228.380

NOTES:

COORDINATES AND BEARINGS SHOWN ON THIS PLAT ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, (WOOD) COUNTY ZONE, NAD 83 (2007) ADJUSTMENT. THE COORDINATES, THE COORDINATES SHOWN ARE GRID COORDINATES AND ARE TO BE USED AS GRID OR GROUND VALUES ON THIS PLAT.

RIGHT OF WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY OR OTHER SURVEYS OF PUBLIC RECORD. RIGHT OF WAY MONUMENTS ARE TYPE 2 (TYPICALLY 3/4" X 24" REBAR) AND ARE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

BASIS OF EXISTING RIGHT OF WAY ARE FROM WOOD COUNTY RIGHT-OF-WAY ACQUISITION DEEDS VOLUME 456, PAGE 599 AND VOL 457, PAGE 32 ESTABLISHING THE RIGHT-OF-WAY 41.25 FEET FROM SECTION LINE.

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

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES. EXCLUDING RIGHT-OF-WAY LINES, THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

REFERENCE LINE FOR RIGHT-OF-WAY PLAT IS BASED ON THE CENTER OF RIGHT-OF-WAY WHICH IS THE SECTION LINE. THE REFERENCE LINE OF THIS RIGHT-OF-WAY PLAT IS DIFFERENT FROM THE CONSTRUCTION REFERENCE LINE WHICH IS BASED ON CENTERLINE OF PAVEMENT.

ALLIANT ENERGY
F.K.A. WISCONSIN POWER
AND LIGHT COMPANY
CONVEYANCE OF RIGHTS
VOL. 506, PG.(s) 109-110,
DOC. NO. 603521

TROY ROBUS
& KELLY L. ROBUS

LOT 1
CSM 9417

WALLACE STEFFEK
& JULIE STEFFEK

TDS TELECOM
F.K.A. CENTRAL STATE
TELEPHONE COMPANY
1 ROD CONVEYANCE OF
EASEMENT
VOL. 938, PG. 117,
DOC. NO. 846768

PUFF
CREEK

END RELOCATION ORDER
STATION 124+63.24

BEING THE SOUTHEAST CORNER
OF SECTION 22, T24N, R3E, TOWN
OF RICHFIELD, WOOD COUNTY,
WISCONSIN
Y - 506409.103
X - 652681.861

WAUPACA
MONUMENT FOUND
Y - 506409.103
X - 652681.861

ACCEPTED FOR
WOOD COUNTY

10-3-12
(Date)

David A. Yurk
Commissioner
(Signature & Title of Official)

ORIGINAL PLANS PREPARED BY

OMNI
ASSOCIATES
APPLETON, WISCONSIN



3-28-2012
(Date)

David A. Yurk
(Signature)

WOOD COUNTY
TOWN OF RICHFIELD

SECTION 22

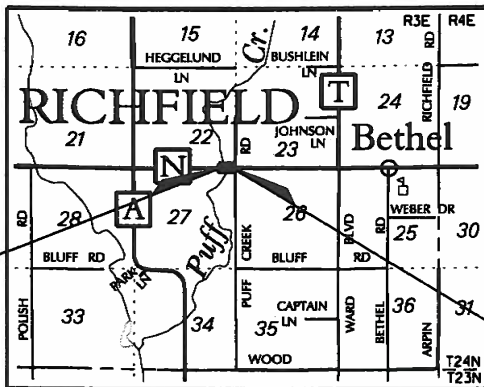
CTH N

SECTION 27
TOWN OF RICHFIELD
WOOD COUNTY

SCHEDULE OF LANDS AND INTERESTS

PARCEL NO.	OWNER	INTEREST REQUIRED	AREA ACRES REQUIRED	NEW	EXISTING	TOTAL	TLE AREA
1	WALLACE STEFFEK & JULIE STEFFEK	FEE	0.11 AC	---	---	0.11 AC	---
2	ANDREW HUBER & PEGGY HUBER	FEE TLE	0.13 AC	---	---	0.13 AC	0.03 AC
3	TROY ROBUS & KELLY L. ROBUS	FEE TLE	0.20 AC	---	---	0.20 AC	0.01 AC
90	TDS TELECOM	RELEASE OF RIGHTS	---	---	---	---	---

"OWNERS" NAMES ARE SHOWN AS REFERENCE PURPOSES ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO PORTAGE COUNTY



LAYOUT

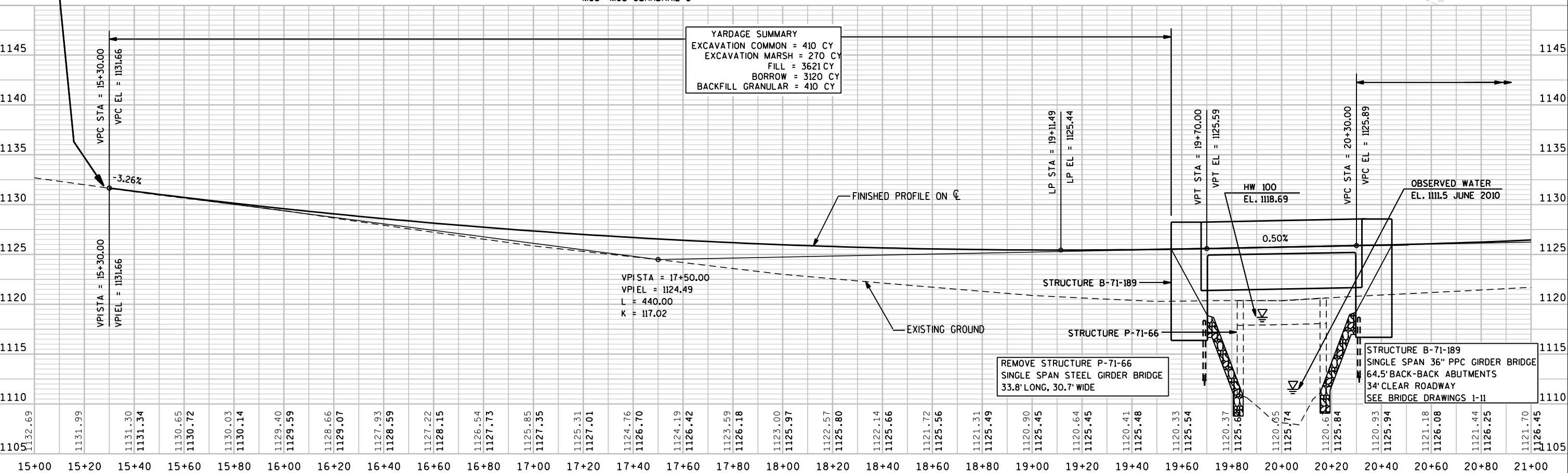
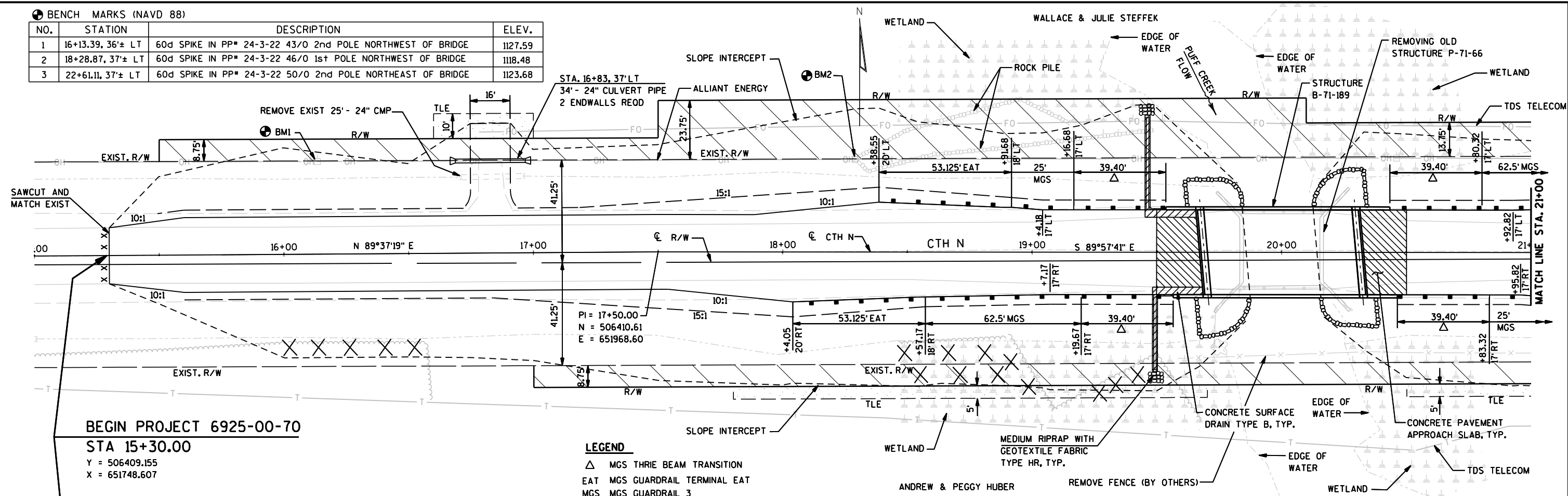
SCALE 0 1/2 1 MI.

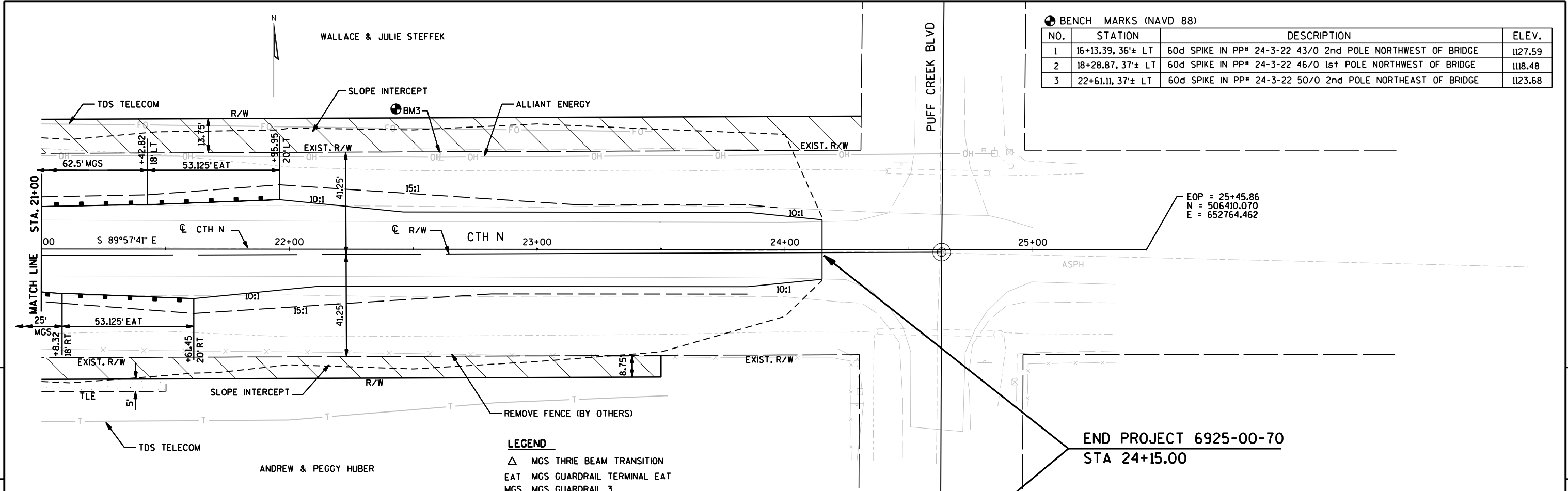
TOTAL NET LENGTH OF CENTERLINE = 0.192 MI.

0 50' 100' 200'
SCALE: 1"=100'



BENCH MARKS (NAVD 88)			
NO.	STATION	DESCRIPTION	ELEV.
1	16+13.39, 36'± LT	60d SPIKE IN PP# 24-3-22 43/0 2nd POLE NORTHWEST OF BRIDGE	1127.59
2	18+28.87, 37'± LT	60d SPIKE IN PP# 24-3-22 46/0 1st POLE NORTHWEST OF BRIDGE	1118.48
3	22+61.11, 37'± LT	60d SPIKE IN PP# 24-3-22 50/0 2nd POLE NORTHEAST OF BRIDGE	1123.68

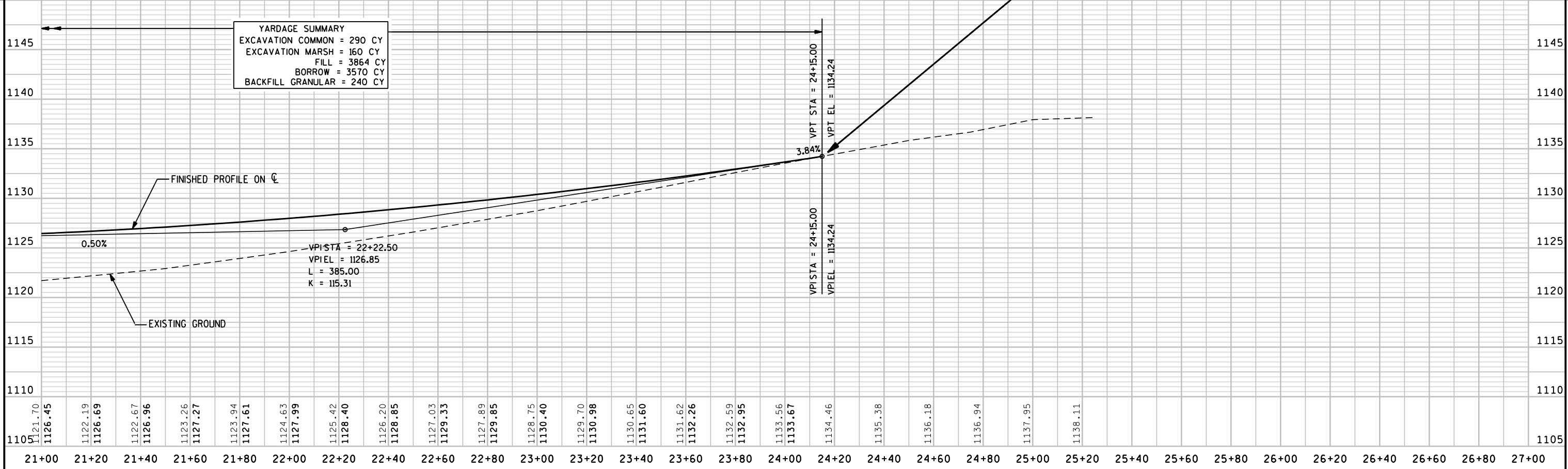




BENCH MARKS (NAVD 88)			
NO.	STATION	DESCRIPTION	ELEV.
1	16+13.39, 36'± LT	60d SPIKE IN PP# 24-3-22 43/0 2nd POLE NORTHWEST OF BRIDGE	1127.59
2	18+28.87, 37'± LT	60d SPIKE IN PP# 24-3-22 46/0 1st POLE NORTHWEST OF BRIDGE	1118.48
3	22+61.11, 37'± LT	60d SPIKE IN PP# 24-3-22 50/0 2nd POLE NORTHEAST OF BRIDGE	1123.68

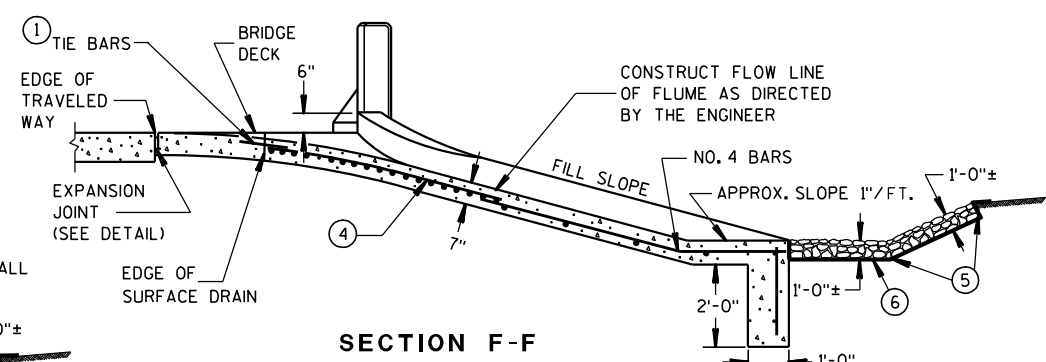
- LEGEND**
- △ MGS THRIE BEAM TRANSITION
 - EAT MGS GUARDRAIL TERMINAL EAT
 - MGS MGS GUARDRAIL 3

YARDAGE SUMMARY	
EXCAVATION COMMON	= 290 CY
EXCAVATION MARSH	= 160 CY
FILL	= 3864 CY
BORROW	= 3570 CY
BACKFILL GRANULAR	= 240 CY

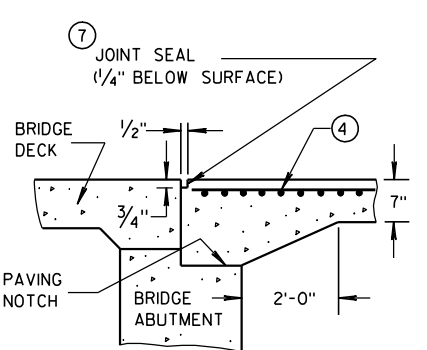


Standard Detail Drawing List

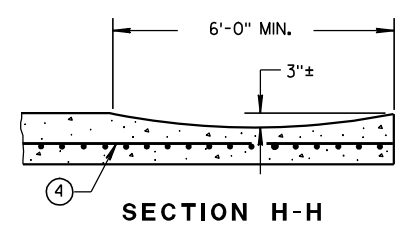
08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13B02-06	CONCRETE PAVEMENT APPROACH SLAB
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-02A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-02B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-02C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-02D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-05	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-14A	PAVEMENT MARKING (MAINLINE)



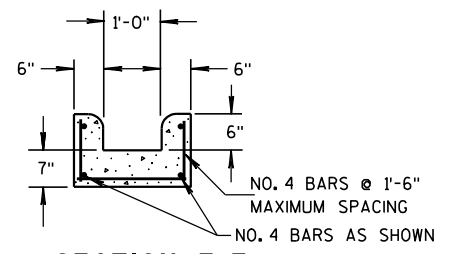
SECTION F-F



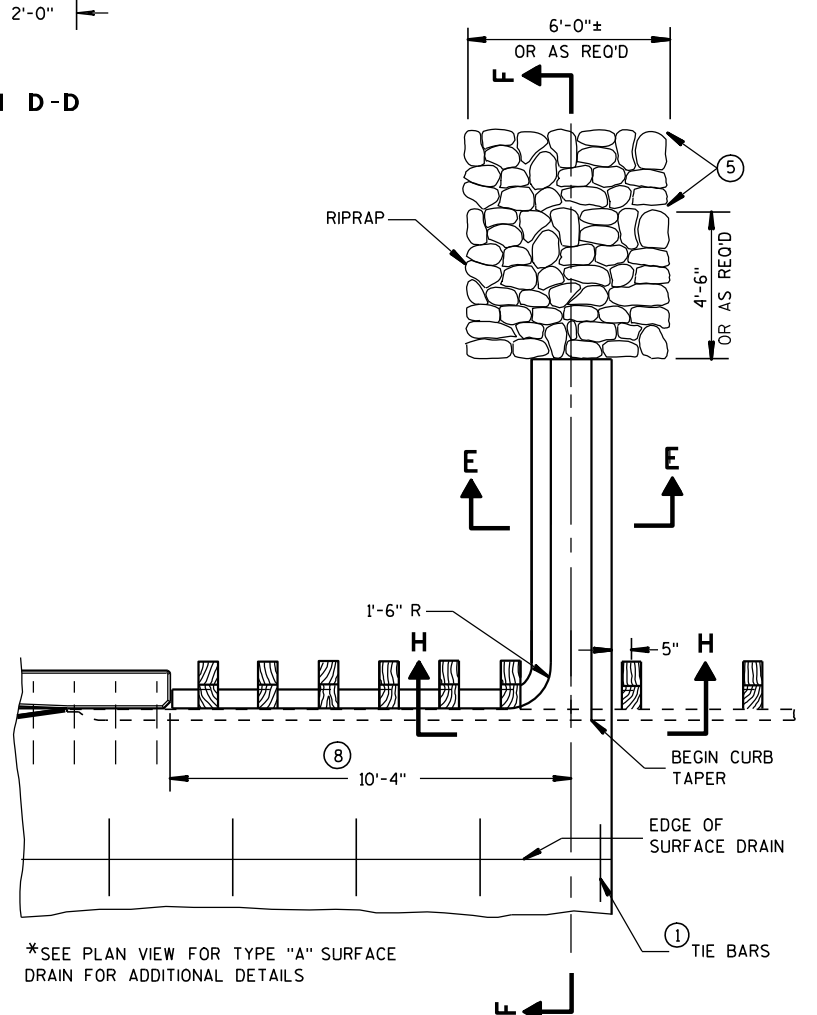
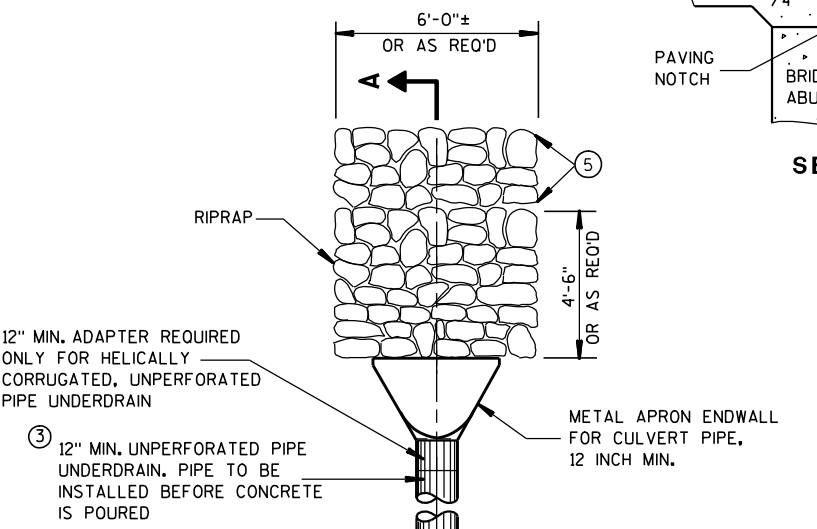
SECTION D-D



SECTION H-H

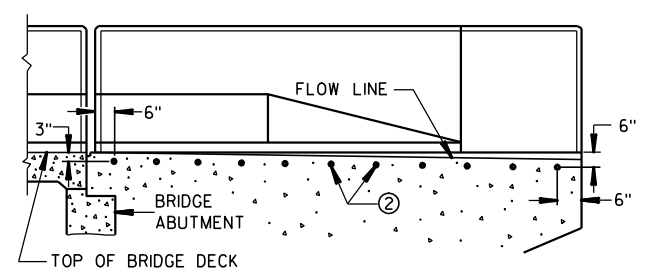


SECTION E-E



* PARTIAL PLAN VIEW
SURFACE DRAIN WITHOUT PIPE
TYPE "B"

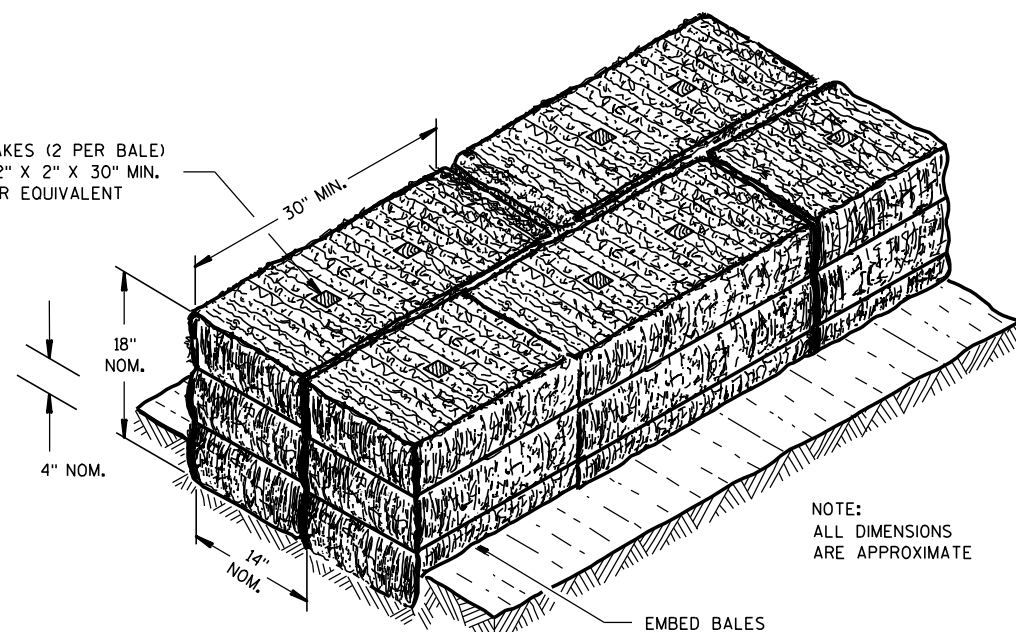
⑧ THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1 1/2".



LOCATION OF TIE BARS IN WINGWALL

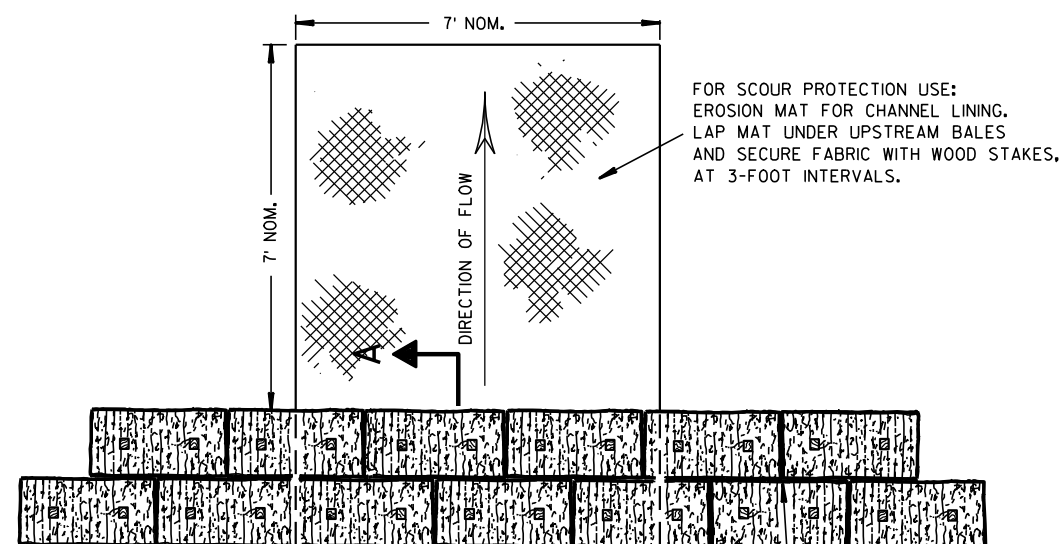
APPROVED <u>9/4/08</u> DATE FHWA	<u>/S/ Jerry H. Zogg</u> ROADWAY STANDARDS DEVELOPMENT ENGINEER
---	---

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

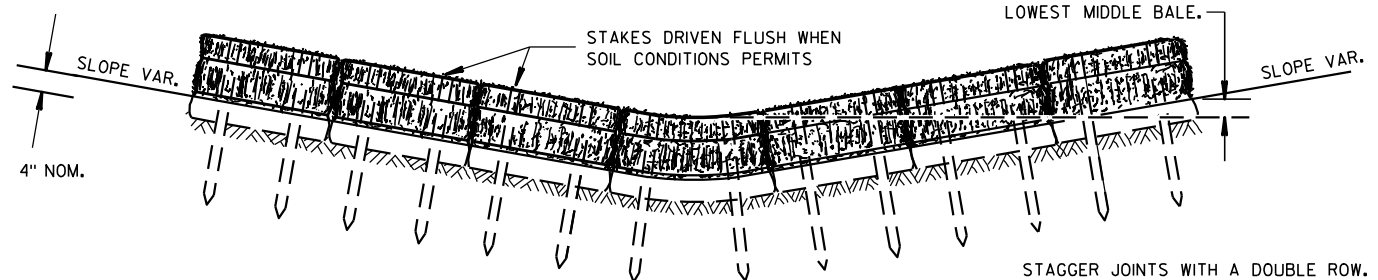


NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

SECTION A-A



PLAN VIEW



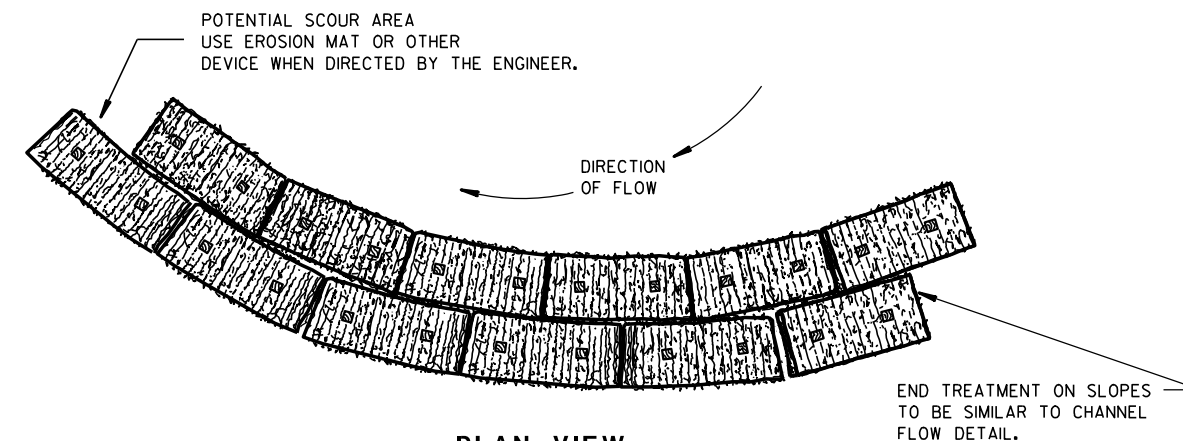
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

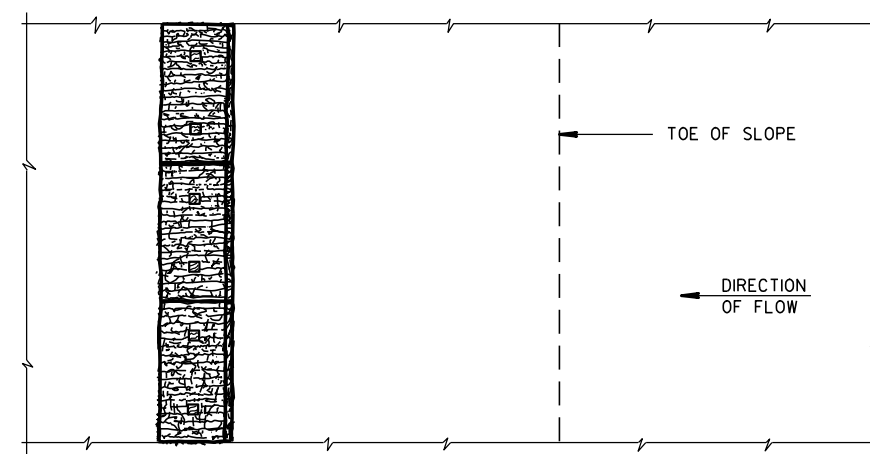
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

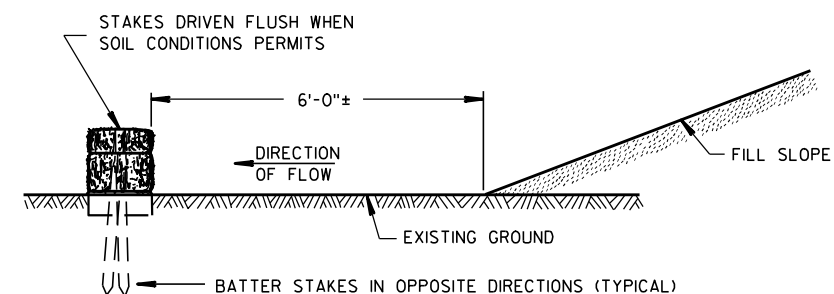


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

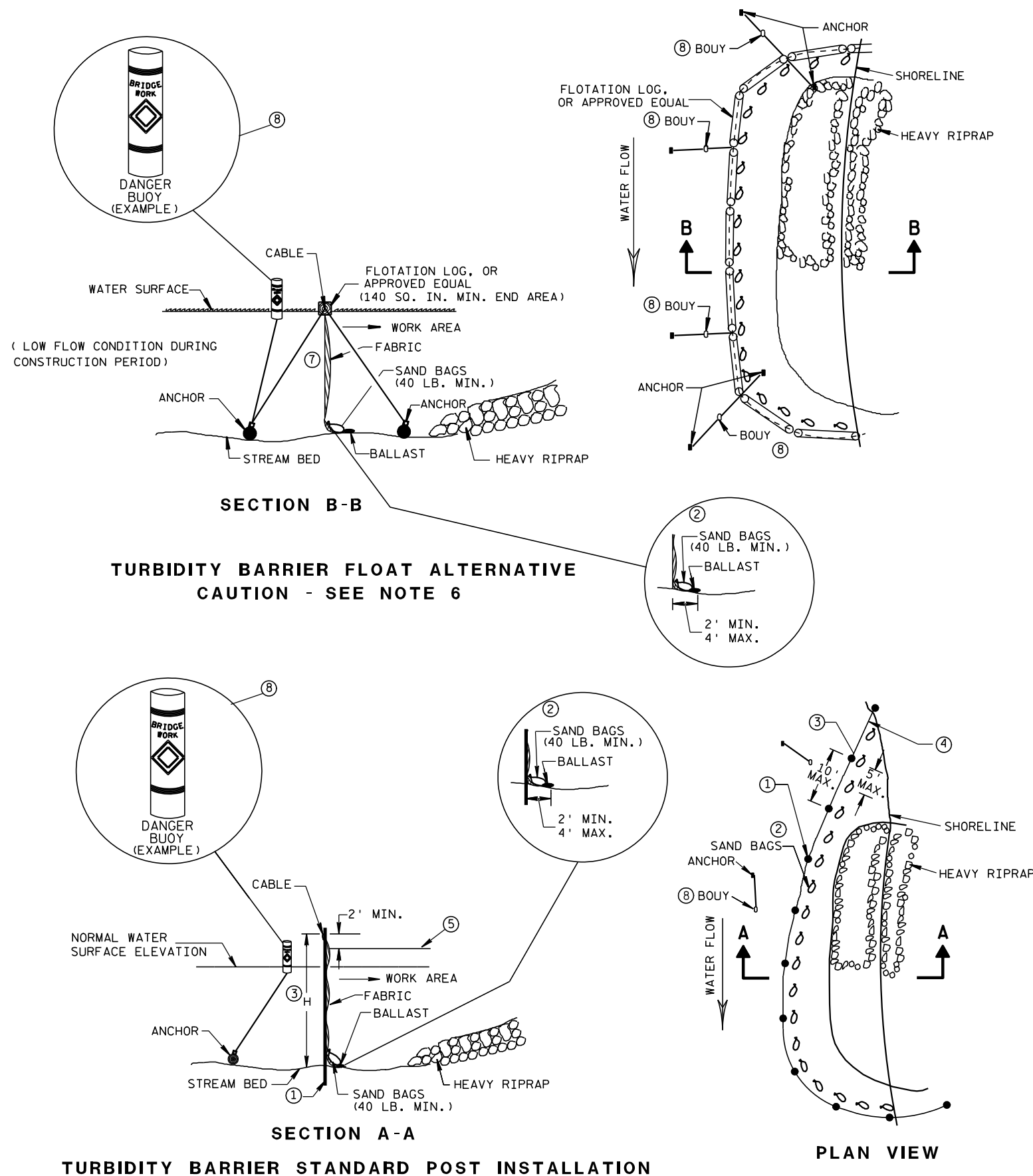
FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



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

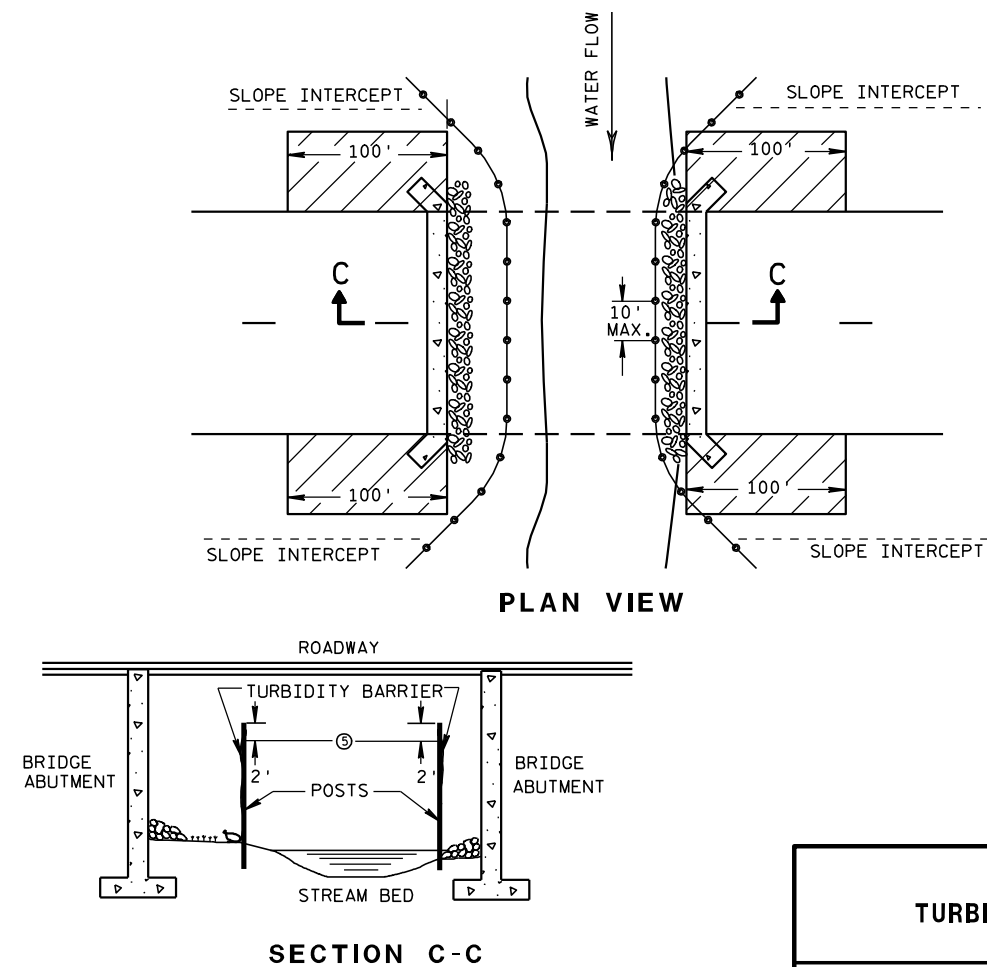


GENERAL NOTES

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

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

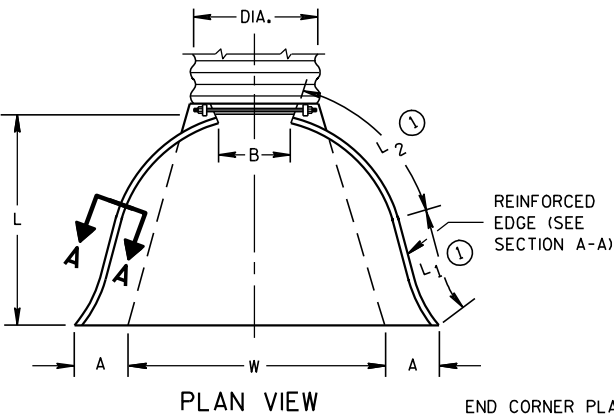
6/04/02
DATE

FHWA

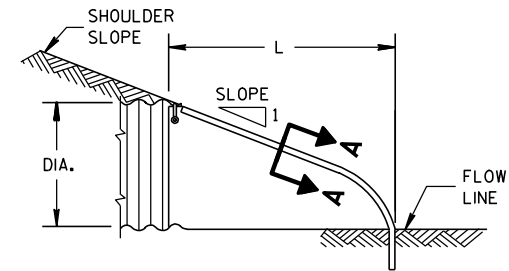
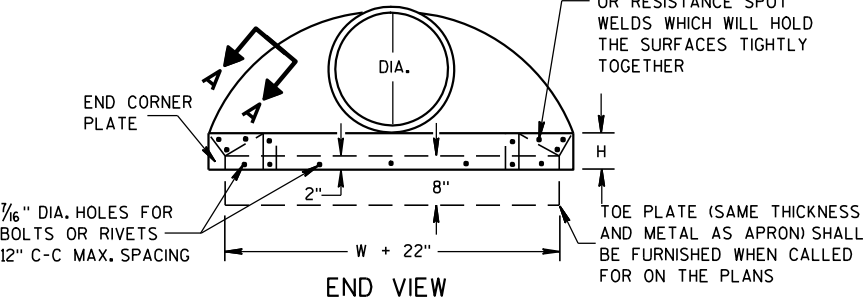
/S/ Beth Connestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

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

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



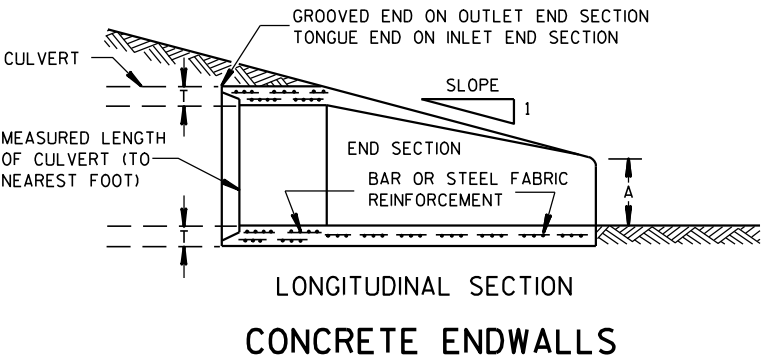
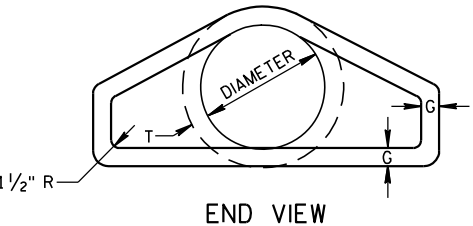
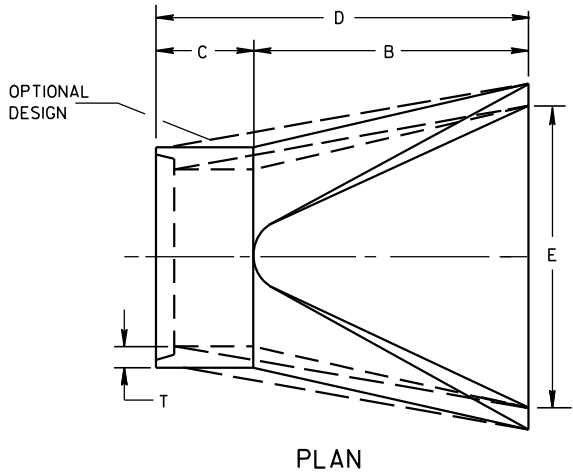
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



SIDE ELEVATION
METAL ENDWALLS

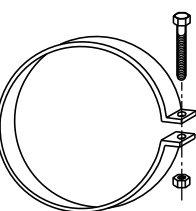
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9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

* MINIMUM
** MAXIMUM

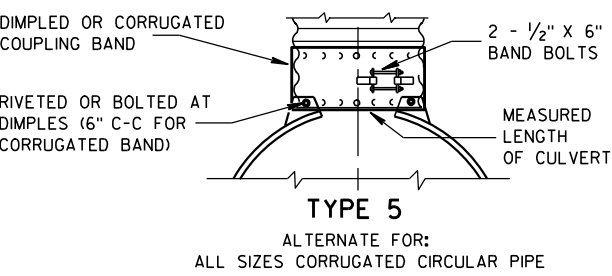
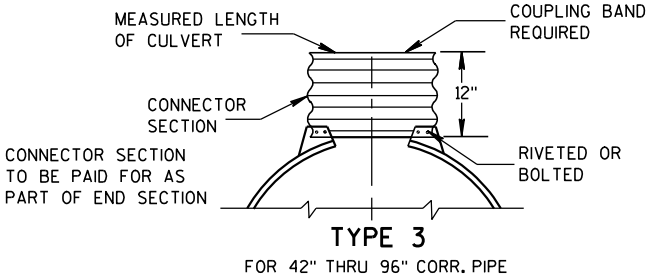
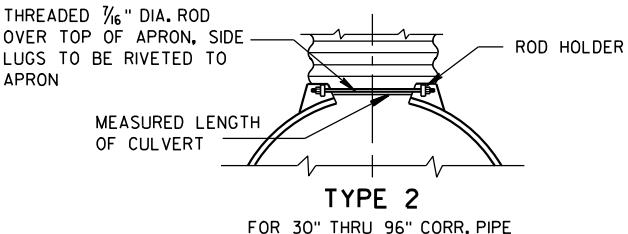
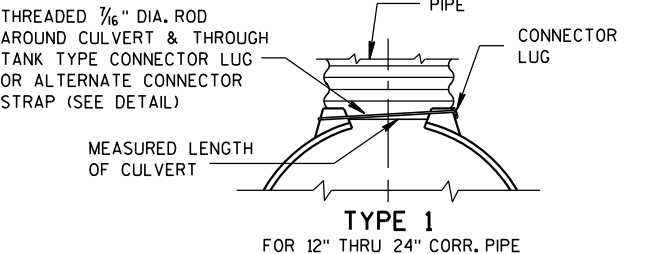


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



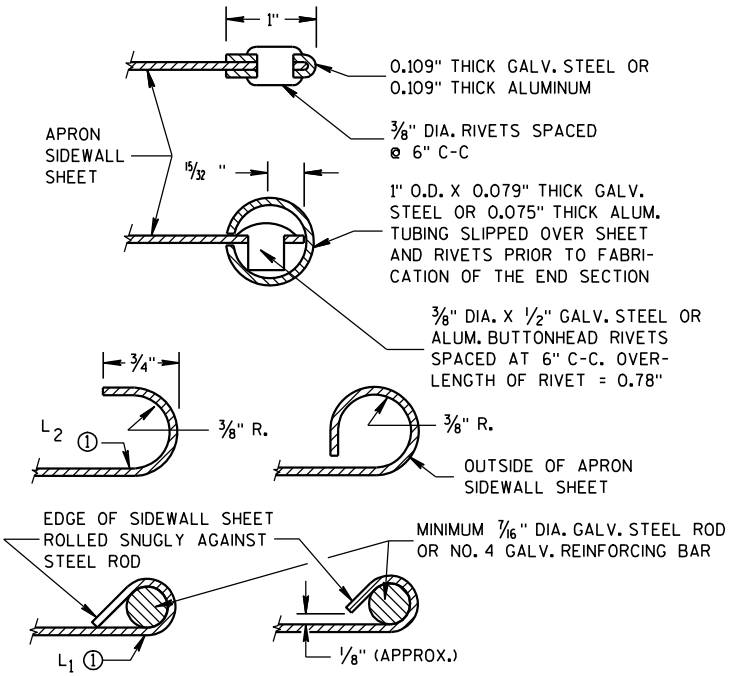
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

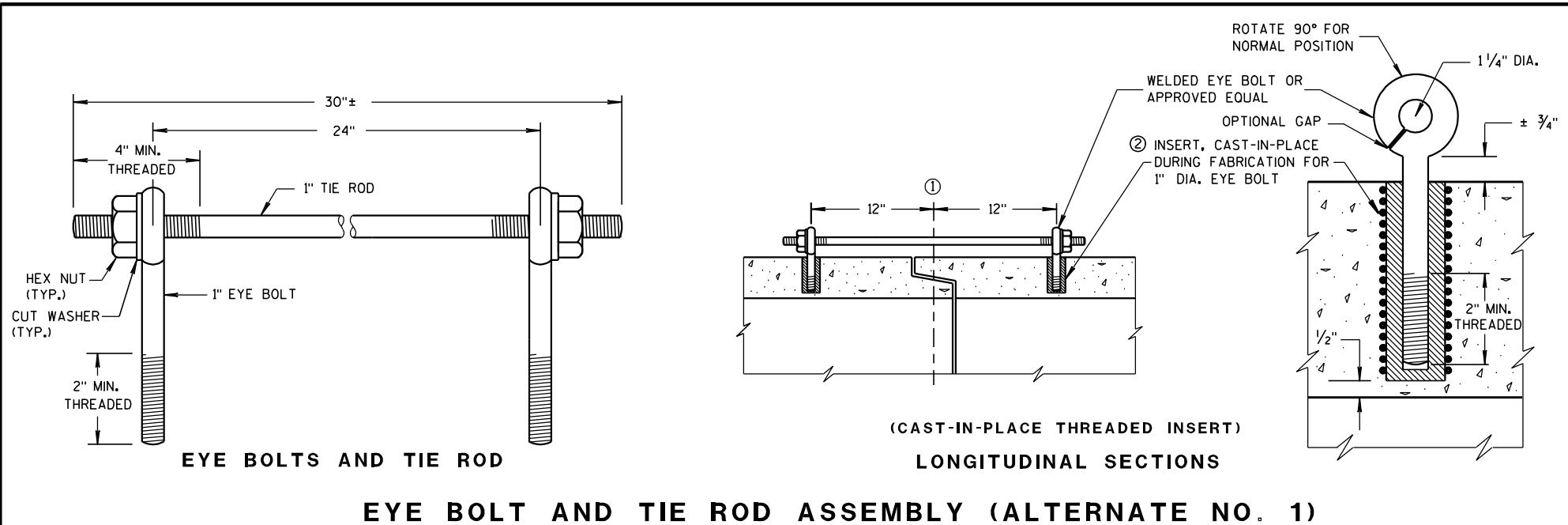
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



GENERAL NOTES

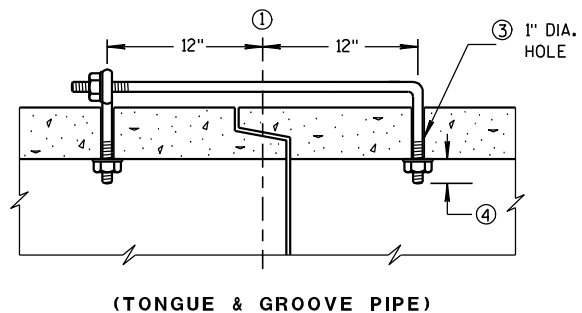
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

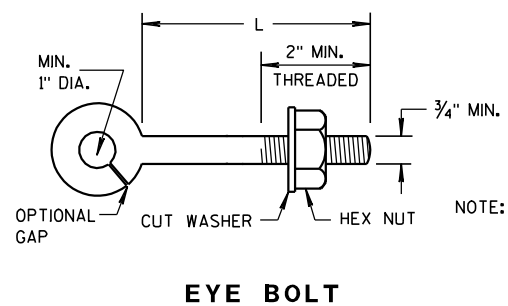
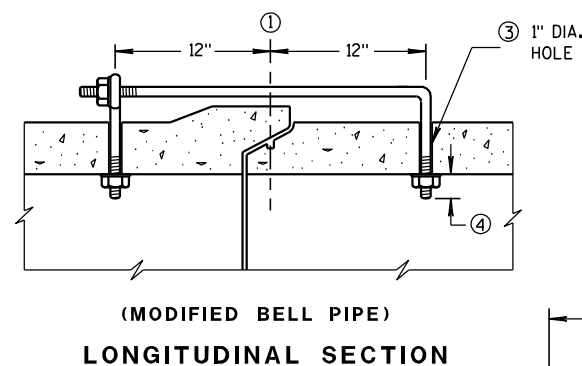
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 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.



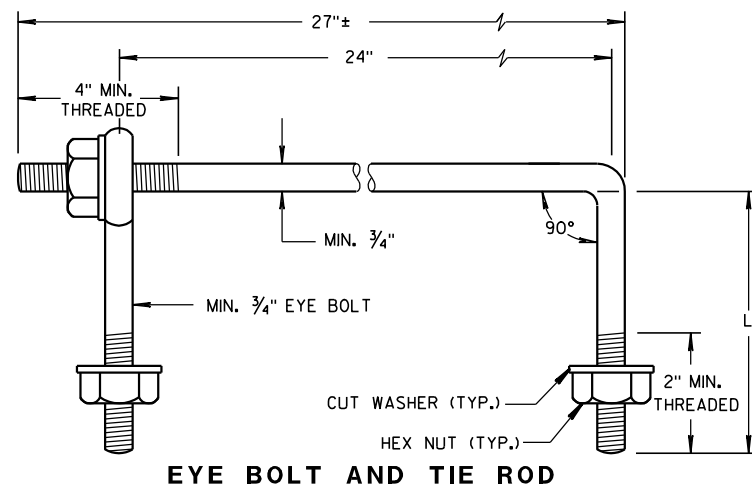
EYE BOLT DIMENSION TABLE

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"	



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

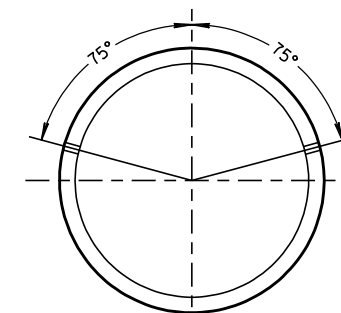
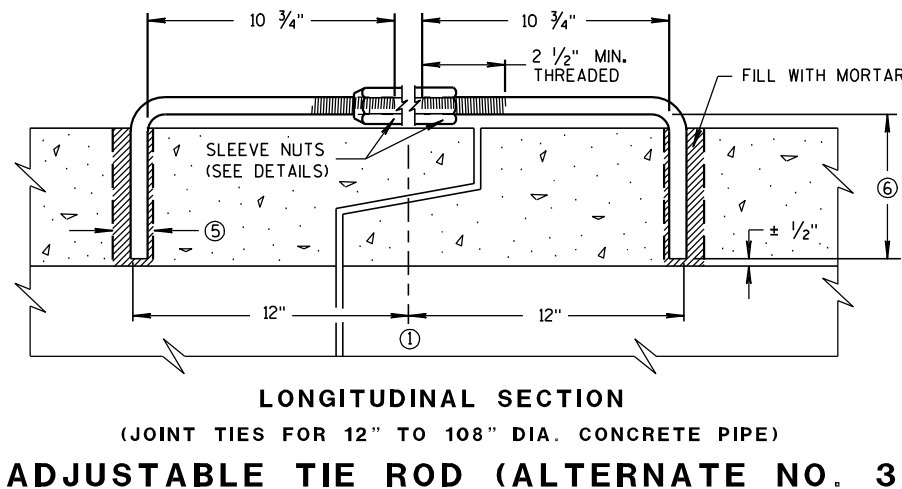
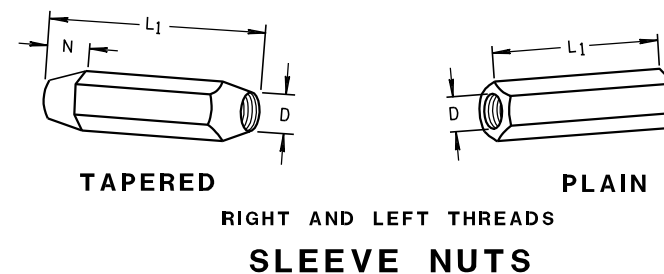
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)
EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



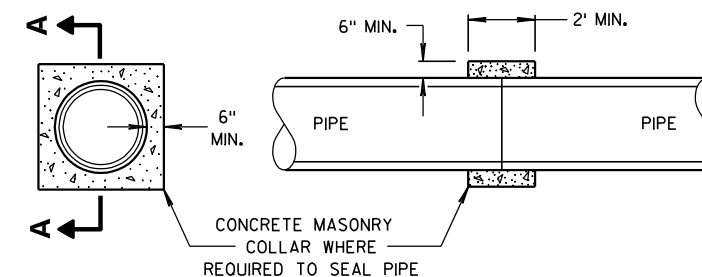
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	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 1/16

DIMENSIONS SHOWN ARE IN INCHES



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

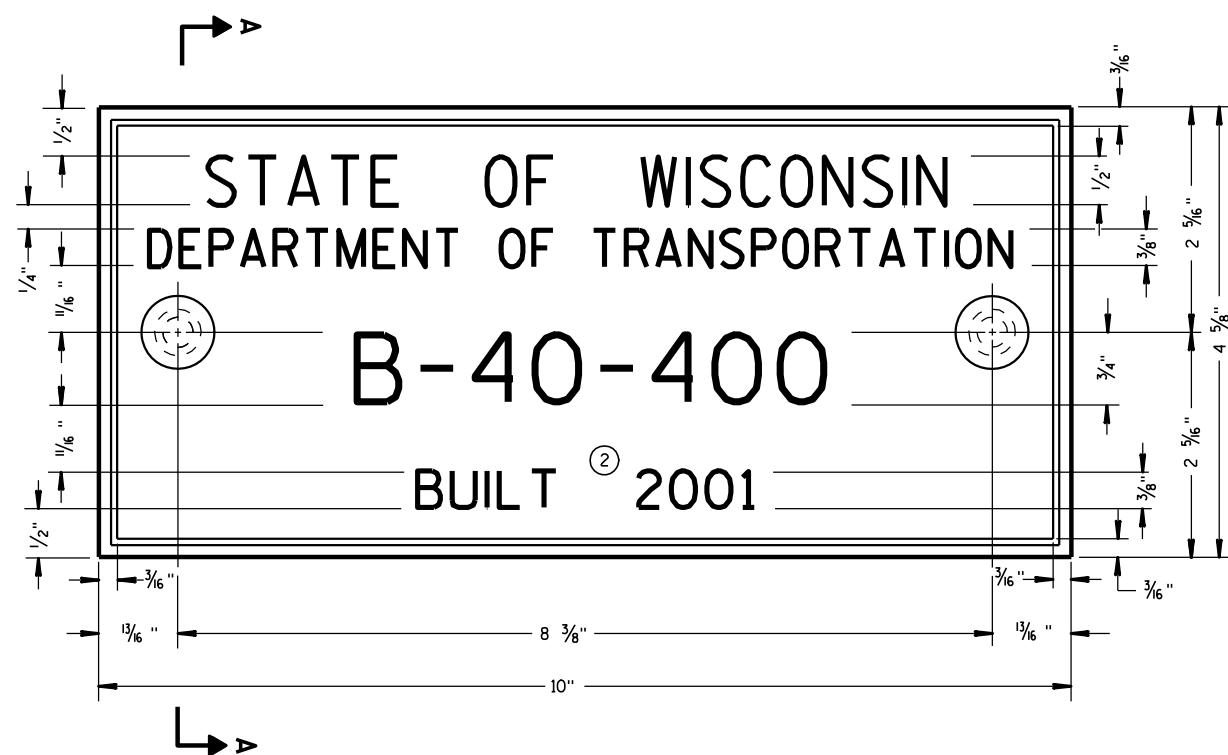


CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

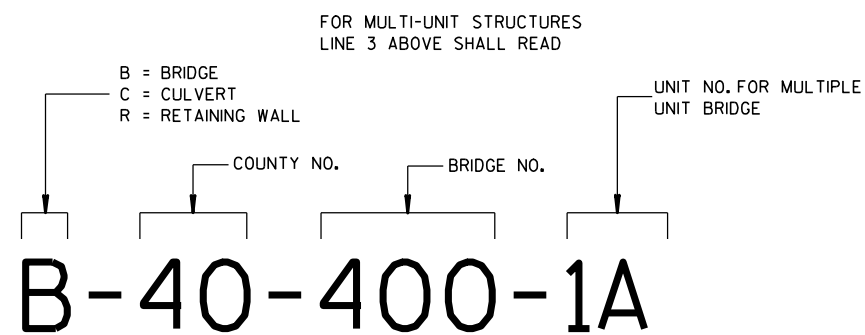
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



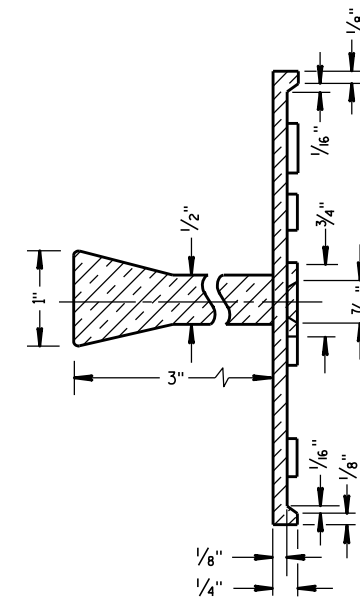
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

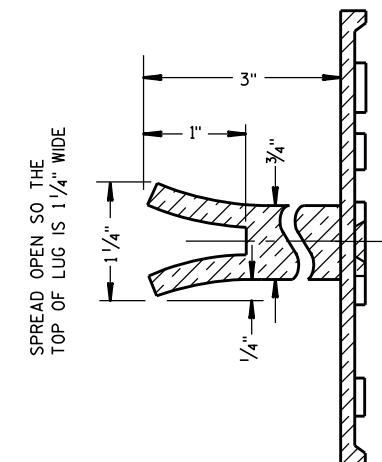
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

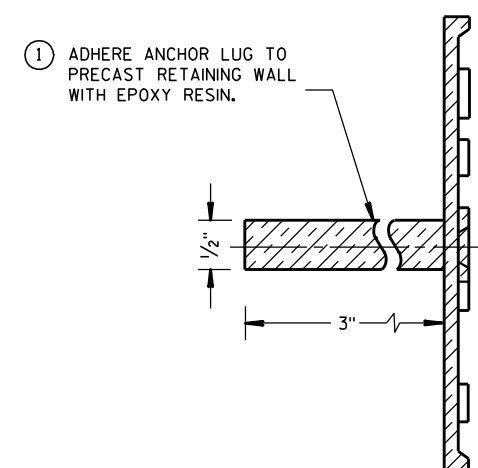
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE
(STRUCTURES)

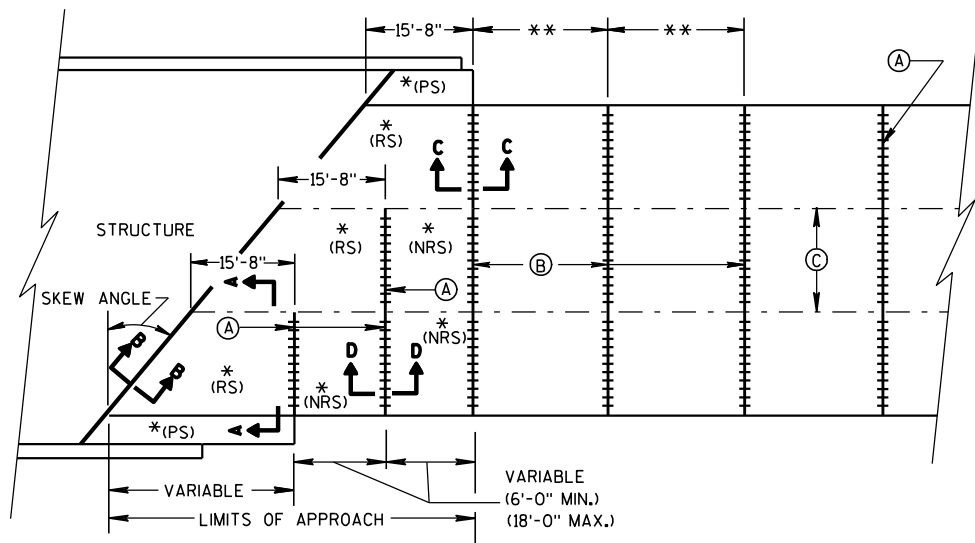
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

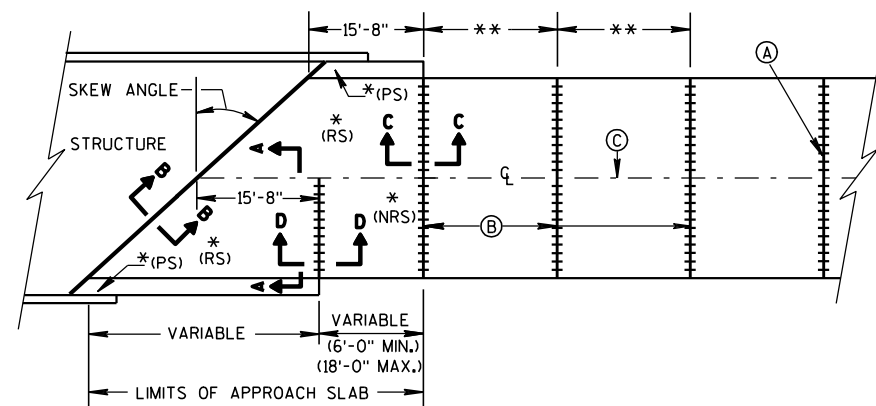
3/26/10
DATE

FHWA

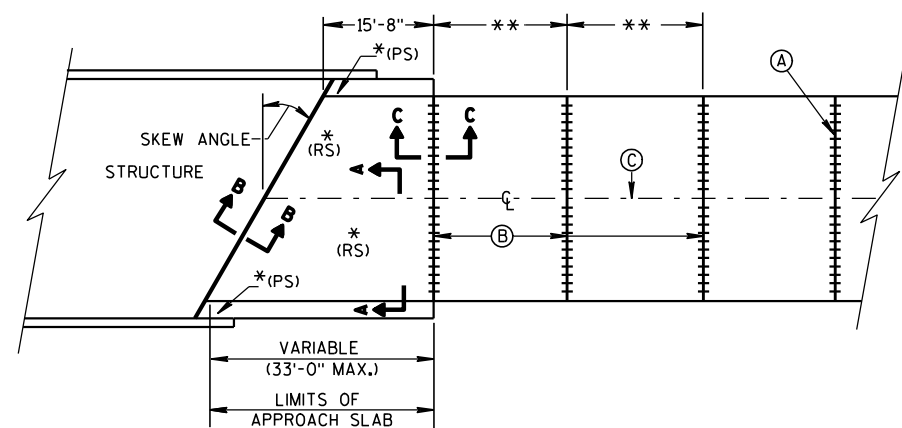
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



**SKewed APPROACH
(PAVEMENT MORE THAN 2 LANES)**

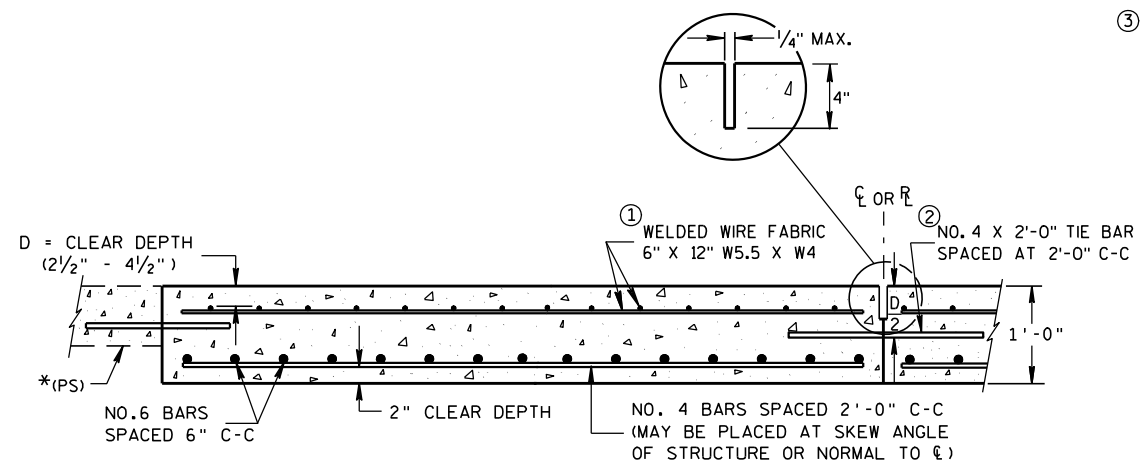


**SKews >30°
(PAVEMENT WIDTH ≤ 30')**

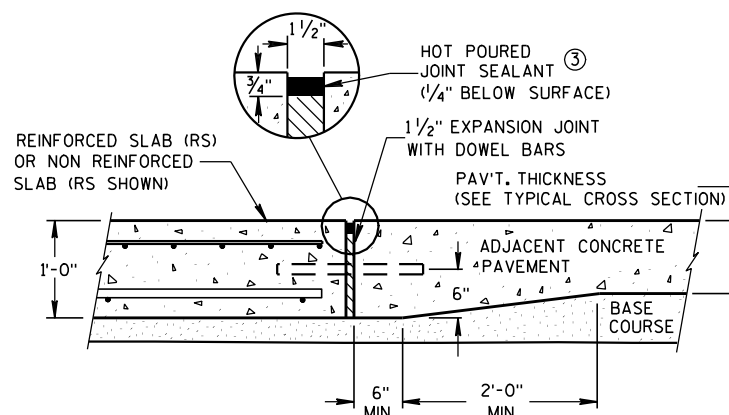


**SKews ≤ 30°
(PAVEMENT WIDTH ≤ 30')**
APPROACH SLAB AND ADJACENT PAVEMENT

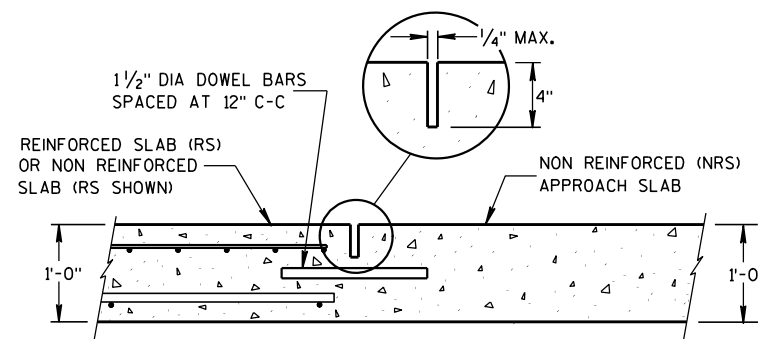
- * (RS) = REINFORCED CONCRETE SLAB
 * (PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN
 (SEE DETAILS ELSEWHERE IN THE PLAN)
 * (NRS) = NON-REINFORCED CONCRETE SLAB
 ** STANDARD TRANSVERSE JOINT SPACING
 (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
 (A) STANDARD CONTRACTION JOINT NORMAL TO R_L OR R_C
 (B) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO R_L OR R_C
 (C) STANDARD LONGITUDINAL JOINT AND TIE BARS.



**SECTION A-A
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**



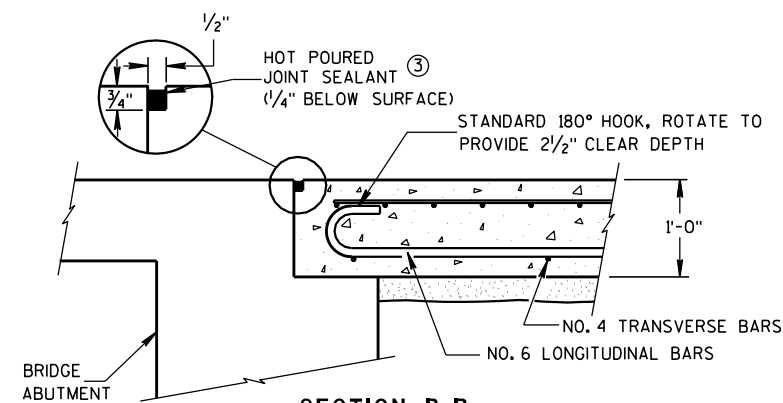
**SECTION D-D
CONTRACTION JOINT**

GENERAL NOTES

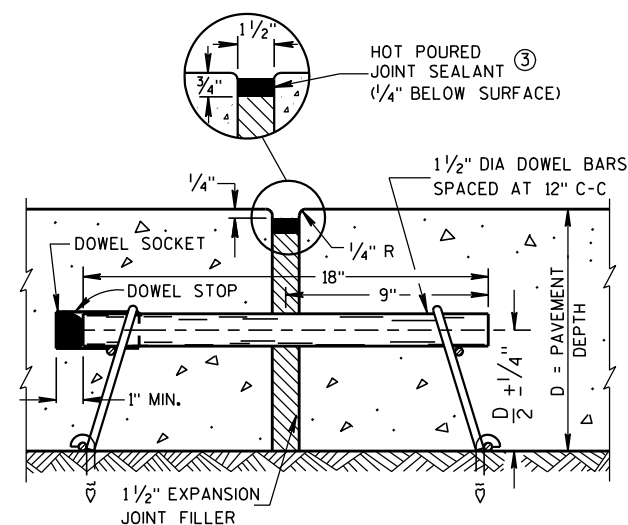
APPROACH SLABS ABUTTING AN HMA PAVEMENT OVER BASE COURSE DO NOT NEED TO BE DOWELED.

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

- THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.



**SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT**



EXPANSION JOINT

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/11/2009

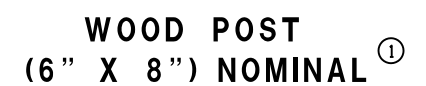
DATE

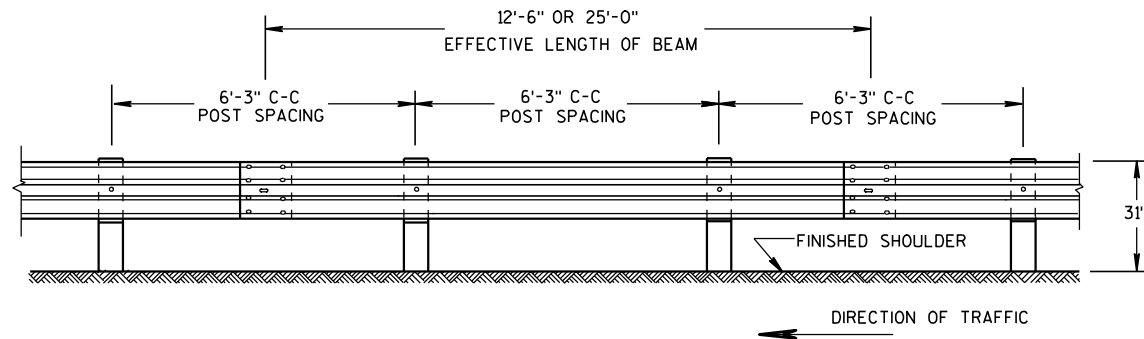
FHWA

/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER

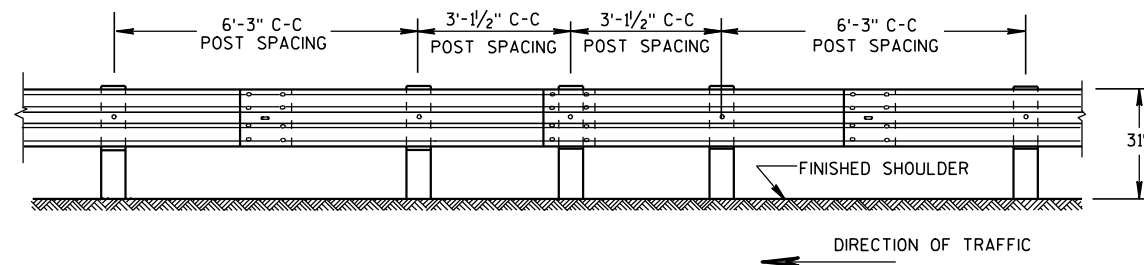
S.D.D. 14 B 42-2a

- S.D.D. 14 B 42-2a**

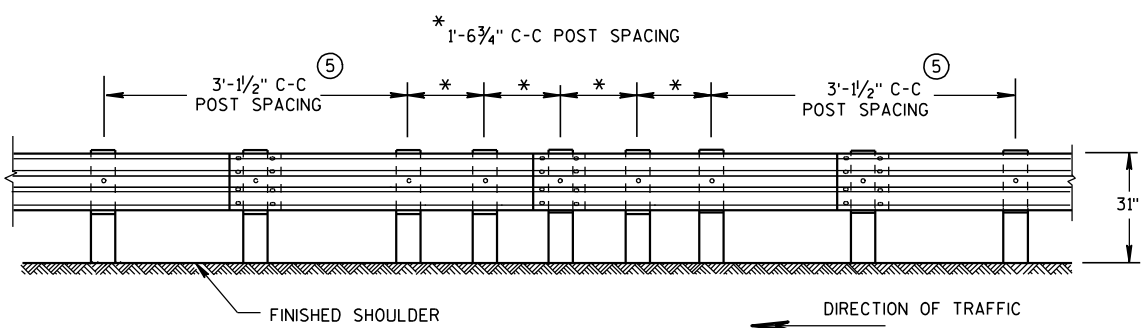




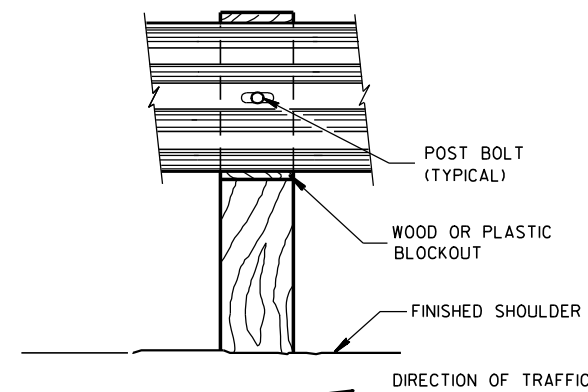
FRONT VIEW
POST SPACING STANDARD INSTALLATION



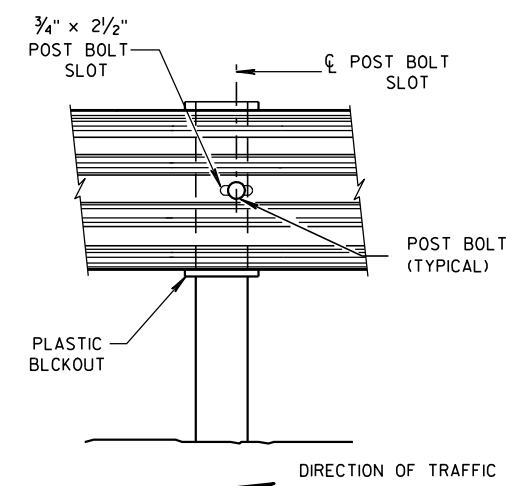
FRONT VIEW
**HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



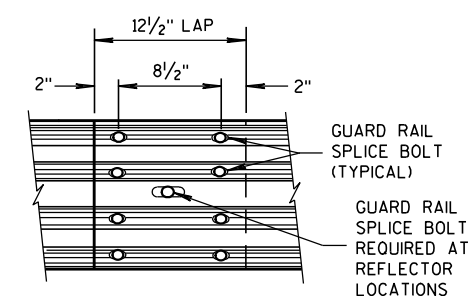
FRONT VIEW
QUARTER POST SPACING (QS)



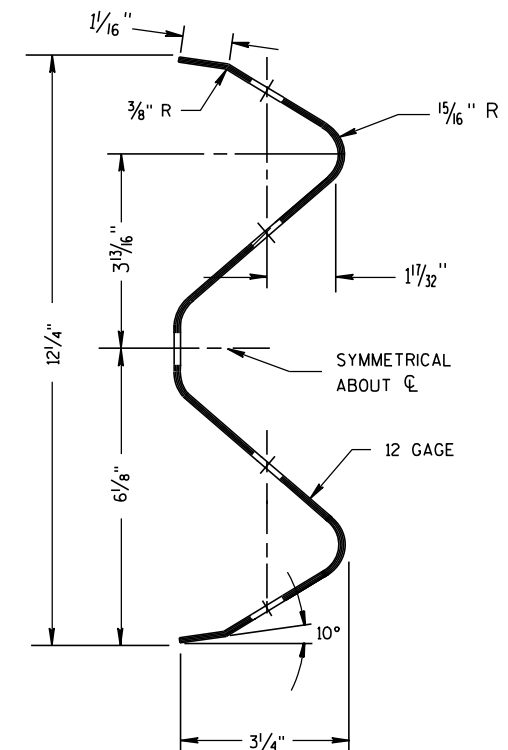
FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



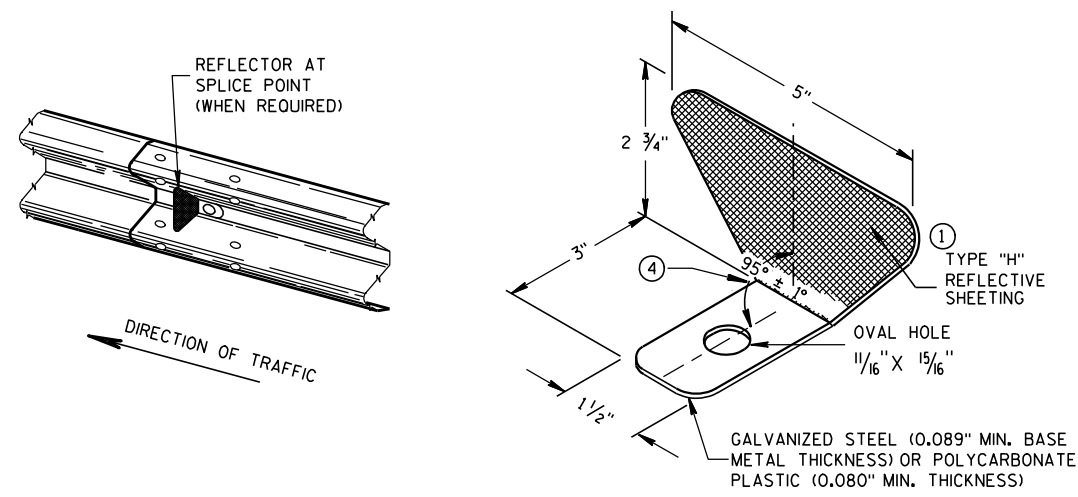
FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL

REFLECTOR SPACING

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2	



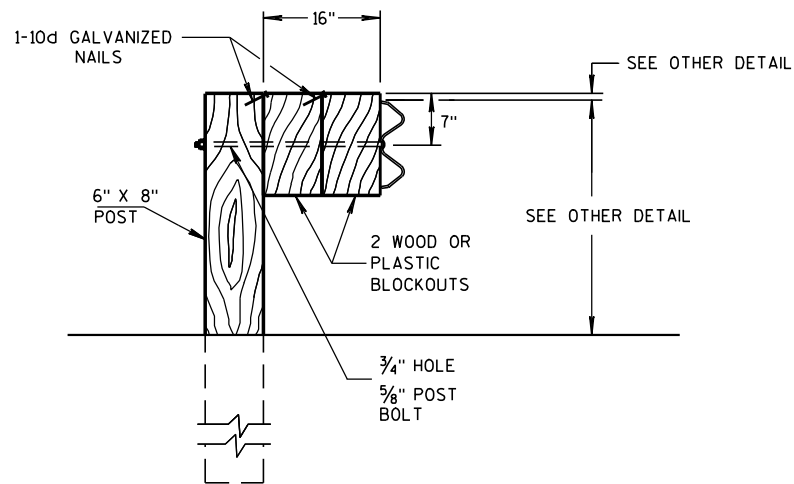
ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

- 1 PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
 - 2 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - 3 REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
 - 4 PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
 - 5 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

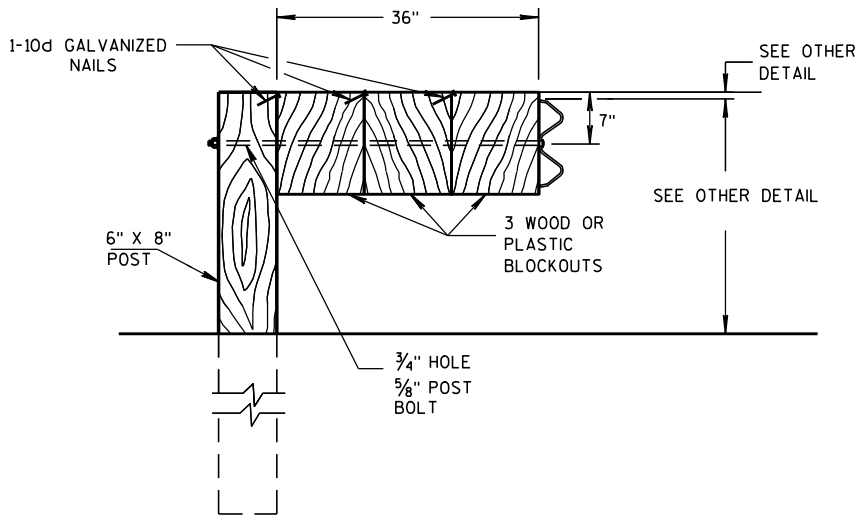
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

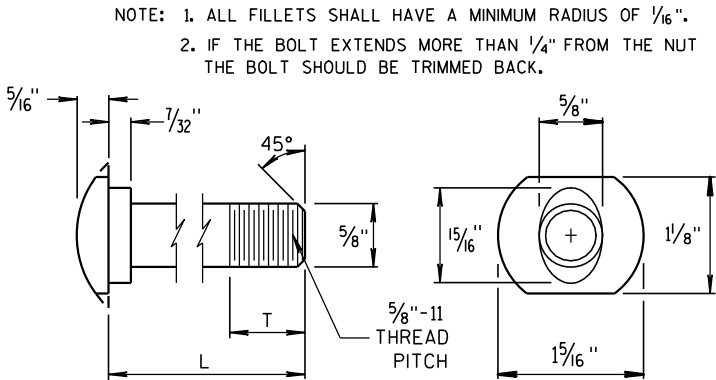
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



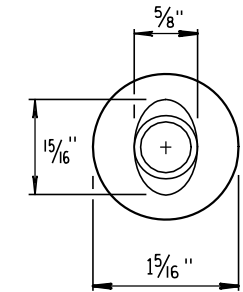
DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

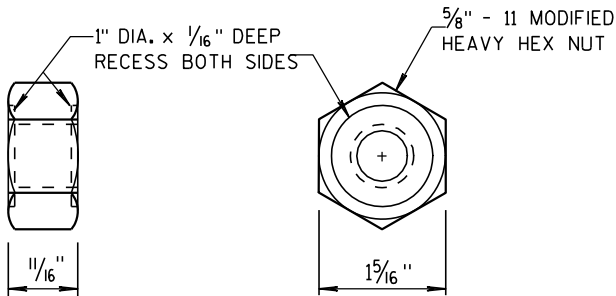
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



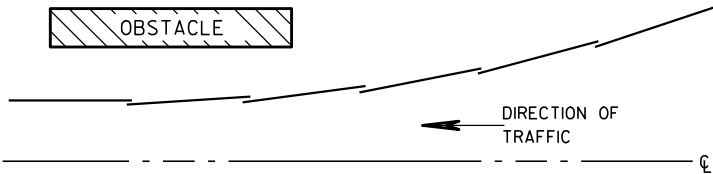
POST BOLT TABLE



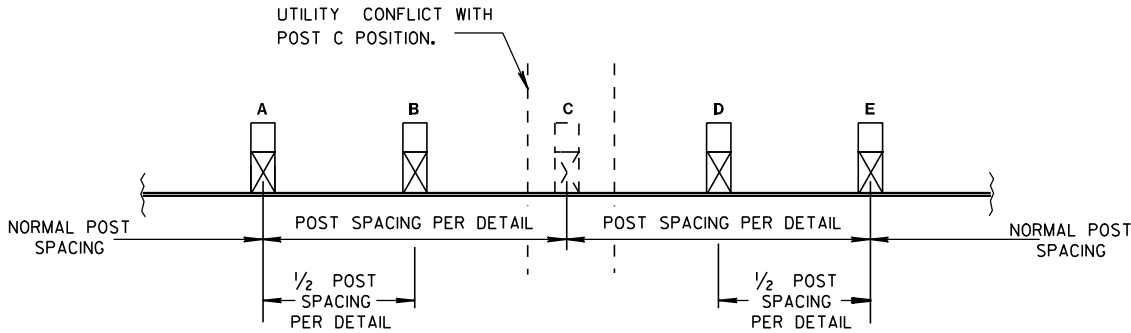
ALTERNATE BOLT HEAD



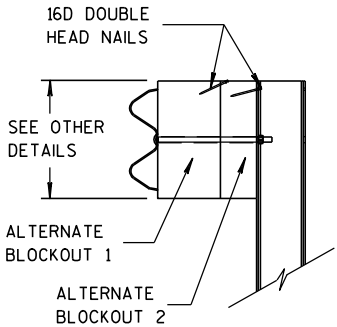
POST BOLT AND RECESS NUT



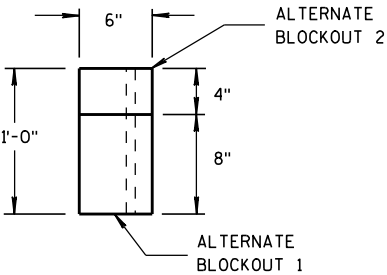
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/15/2011
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

6

- S.D.D. 14 B 44-1a

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

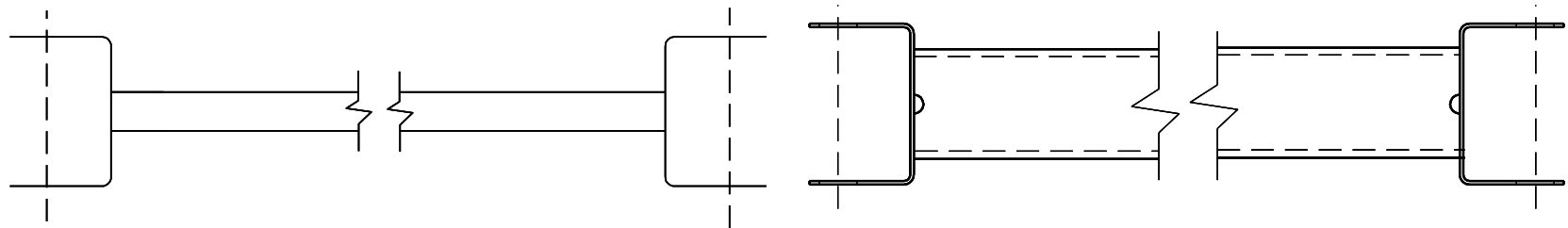
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3
THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE (+ 3/4")

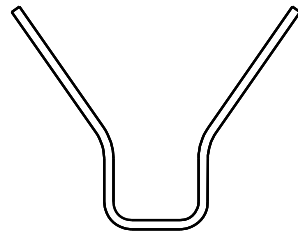
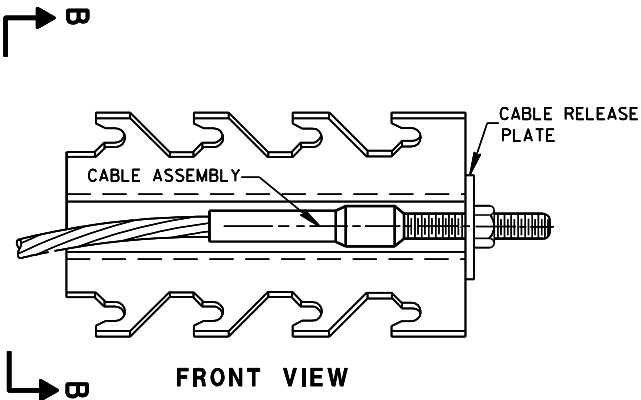


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

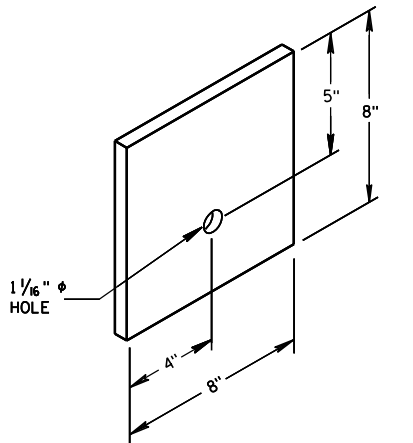
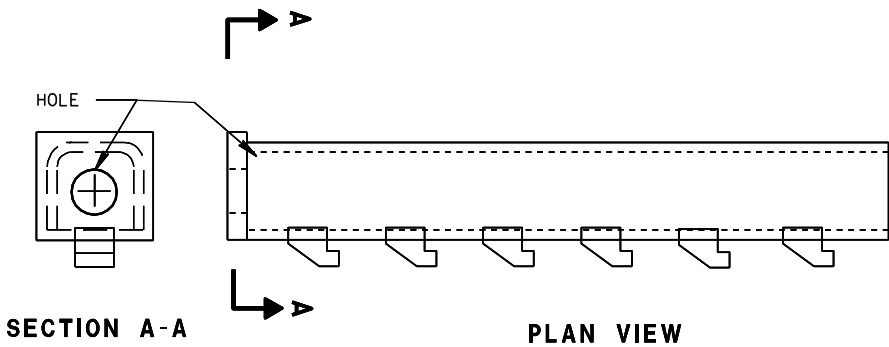
BILL OF MATERIALS	
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL, MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



⑨ H
GENERIC GROUND STRUT



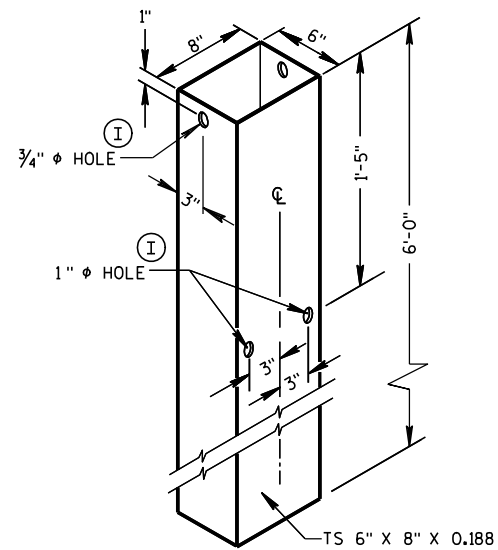
SECTION B-B
⑧ H
GENERIC ANCHOR CABLE BOX



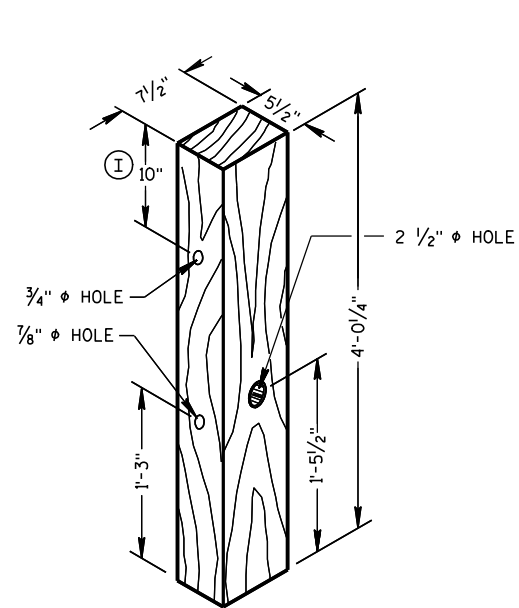
⑥
BEARING PLATE

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

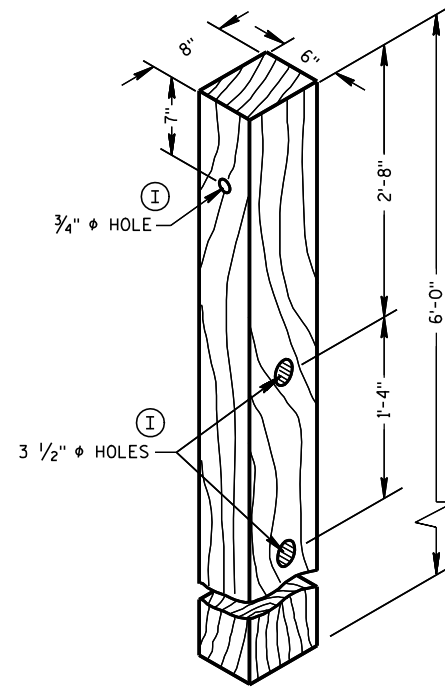
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



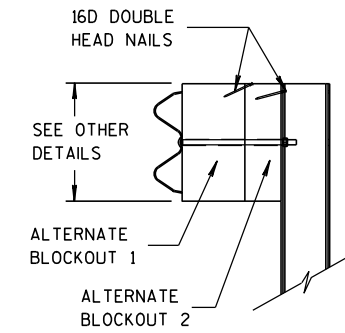
FOUNDATION TUBE ②



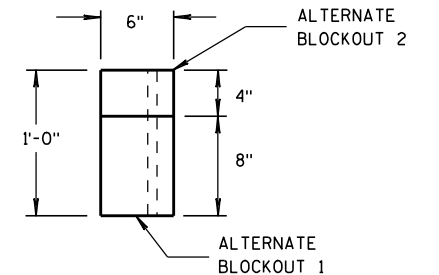
WOOD BREAKAWAY POST ①



WOOD CRT POST ③

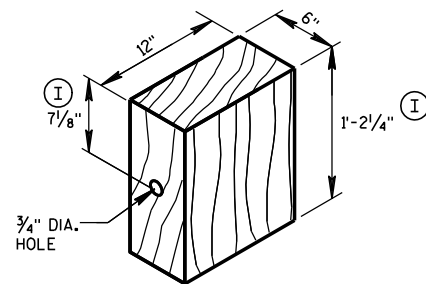


SIDE VIEW



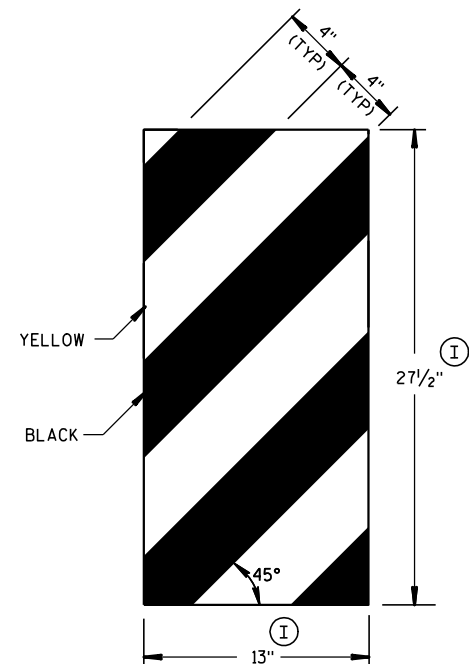
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

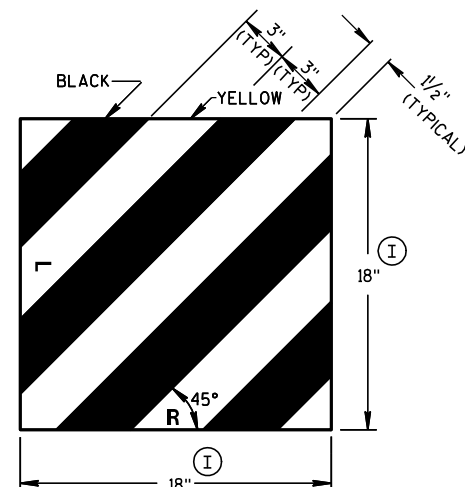


WOOD BLOCKOUT ④

YELLOW REFLECTIVE TAPE
3" X 9" TYPE H
REFLECTIVE SHEETING



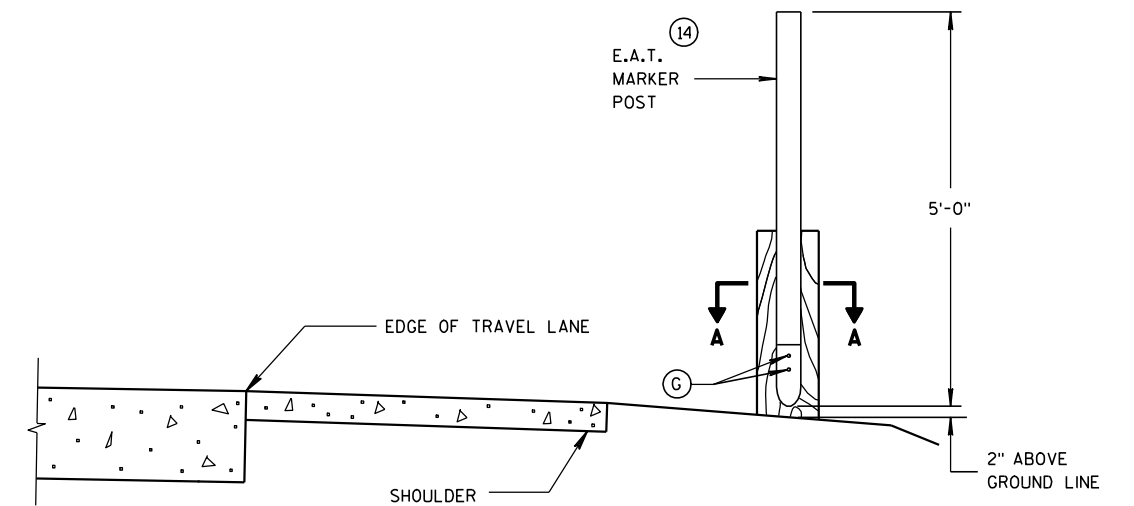
GENERIC REFLECTIVE SHEETING ⑬ ④



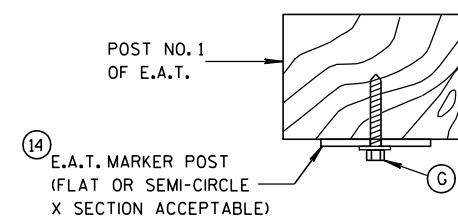
FRONT VIEW

SIDE VIEW

E.A.T. MARKER POST ⑭



TYPICAL INSTALLATION OF E.A.T.
MARKER POST BACKSIDE OF POST NO. 1
(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

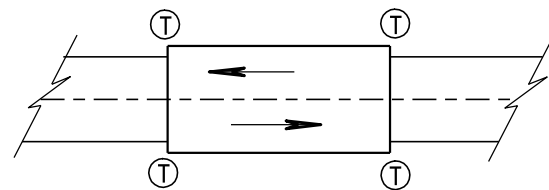
APPROVED

5/23/2011

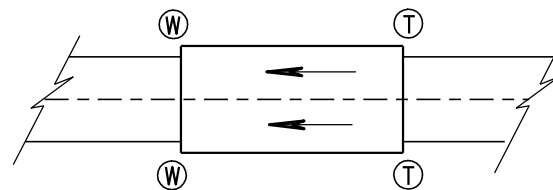
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TWO WAY TRAFFIC



ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

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

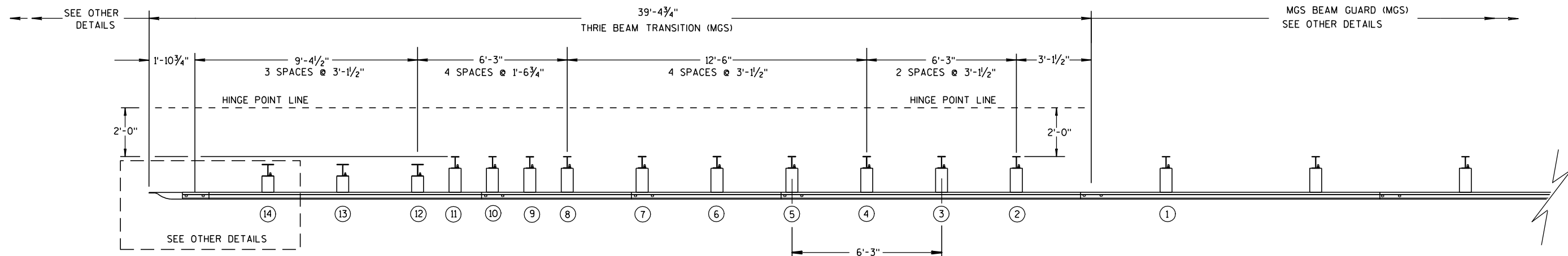
IF ROCK IS ENCOUNTERED DURING EXCAVATION, SEE STANDARD DETAIL DRAWING 14 B 42.

TRANSITION USES STEEL POSTS ONLY.

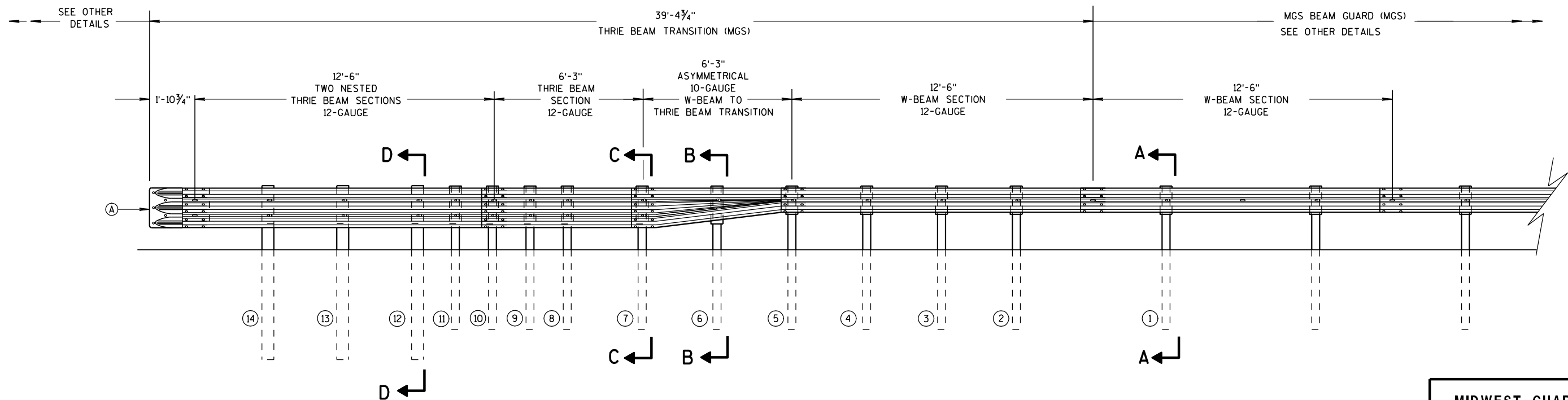
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

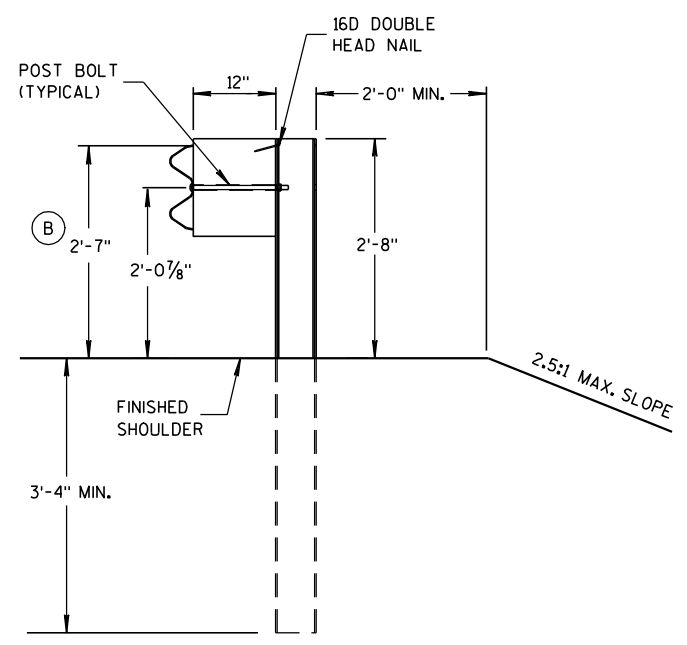
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

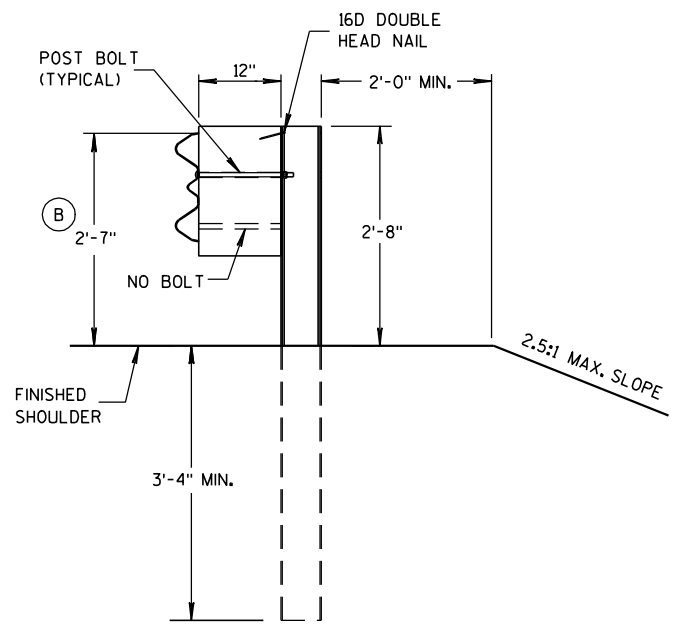
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

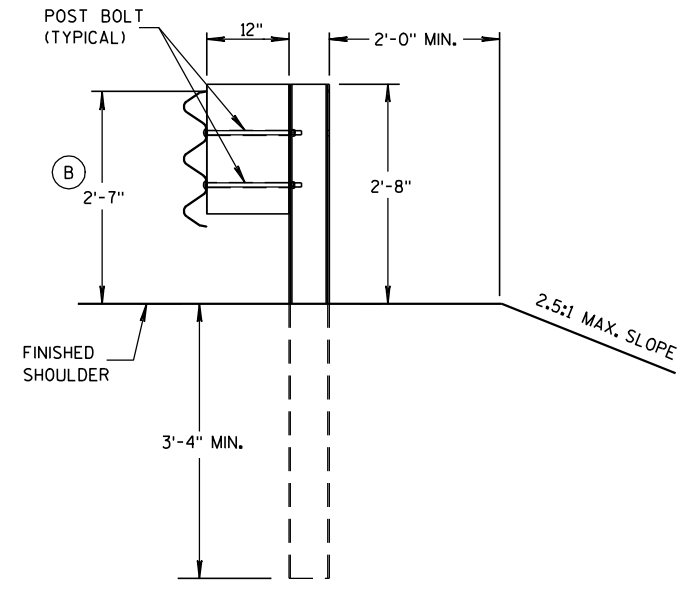
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



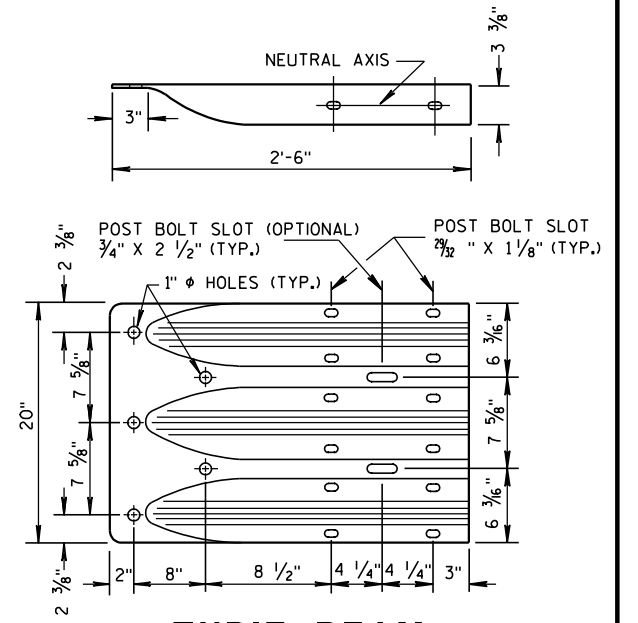
SECTION A-A
POSTS 1-5



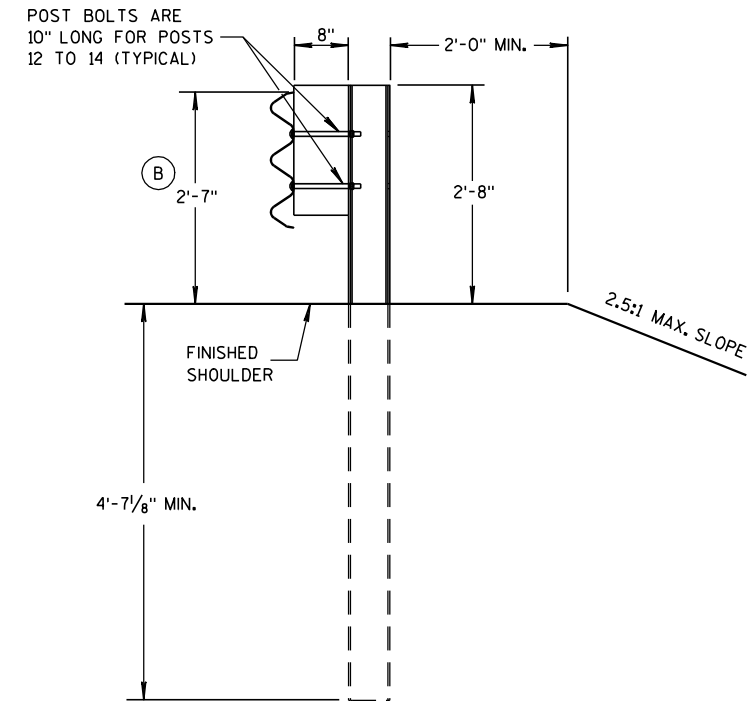
SECTION B-B
POST 6



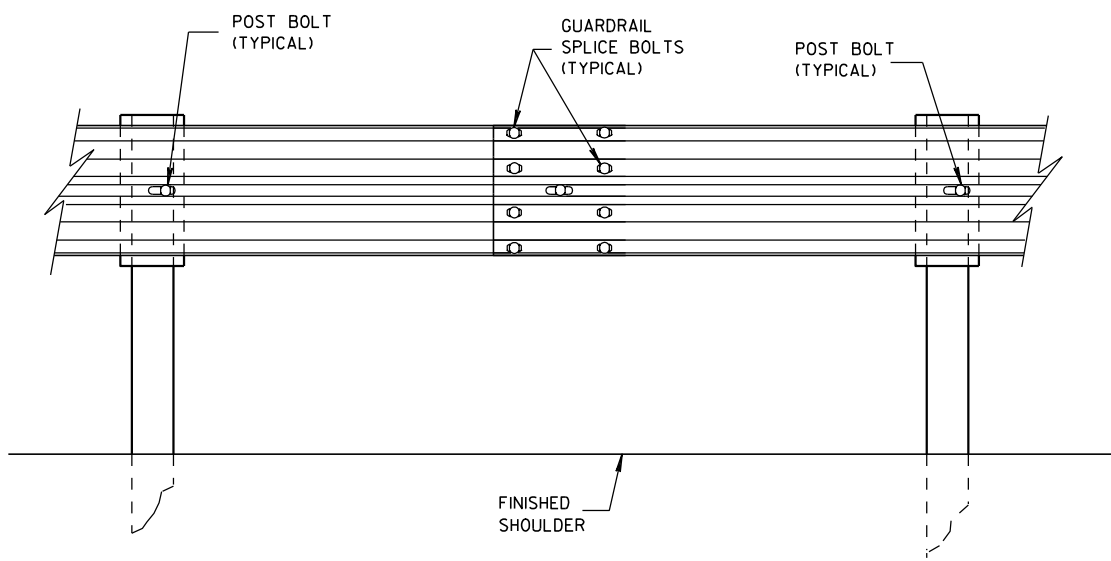
SECTION C-C
POSTS 7-11



THRIE BEAM
TERMINAL CONNECTOR



SECTION D-D
POSTS 12-14



SPLICE DETAIL

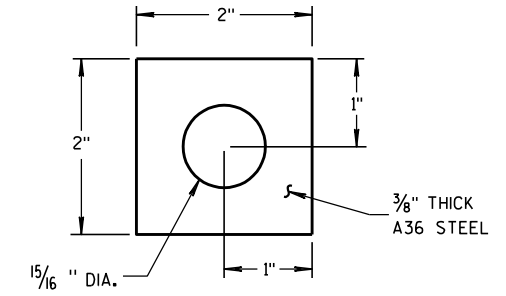
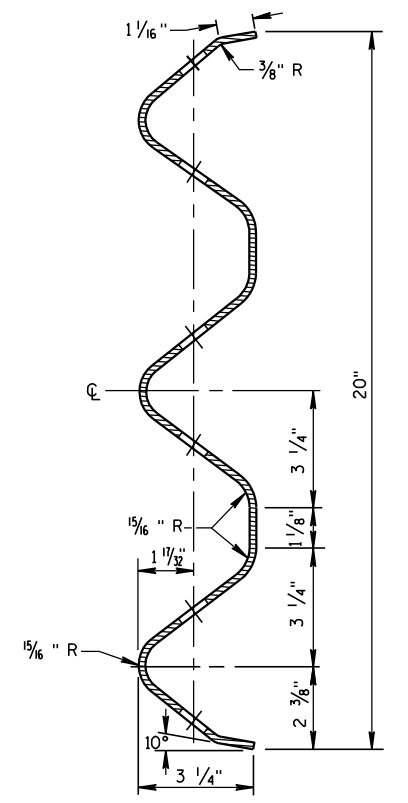


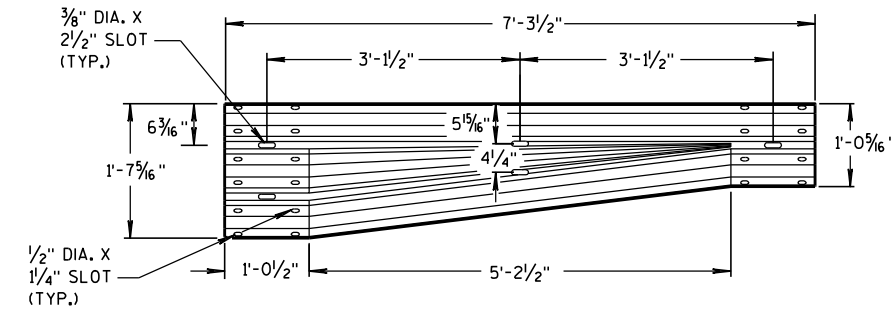
PLATE WASHER DETAIL



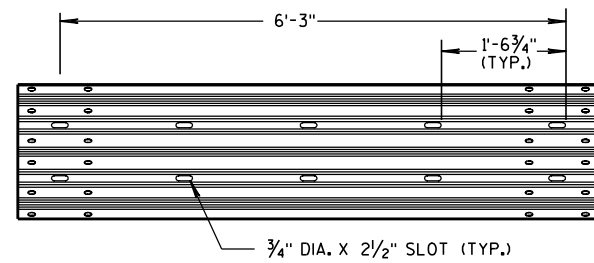
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

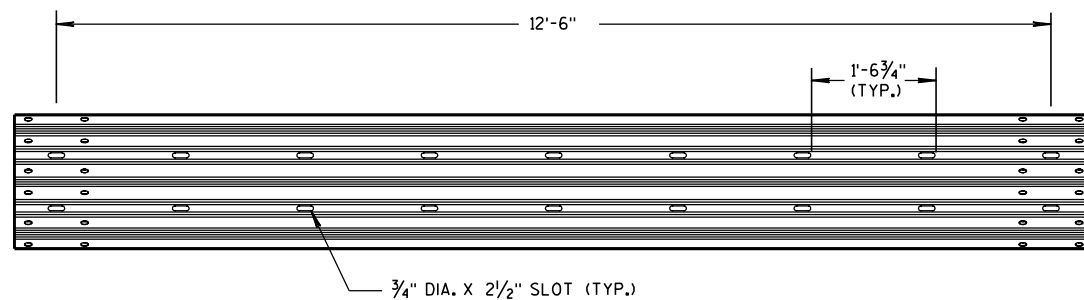
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



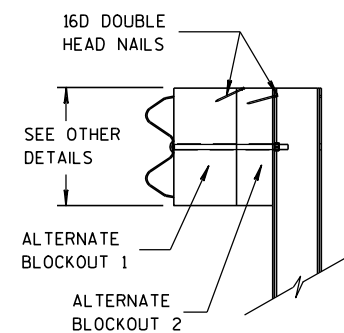
W-BEAM TO THRIE BEAM TRANSITION SECTION



6'-3" THRIE BEAM SECTION

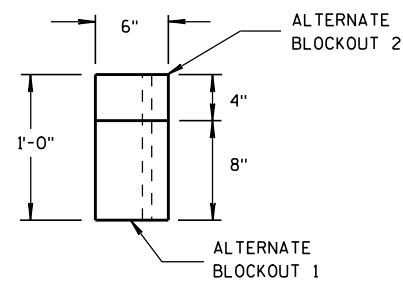


12'-6" THRIE BEAM SECTION

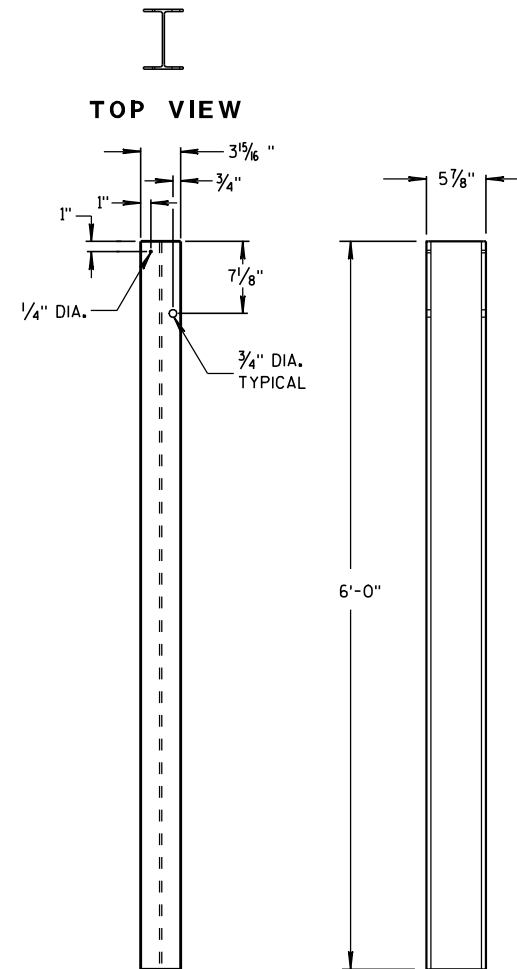


SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL



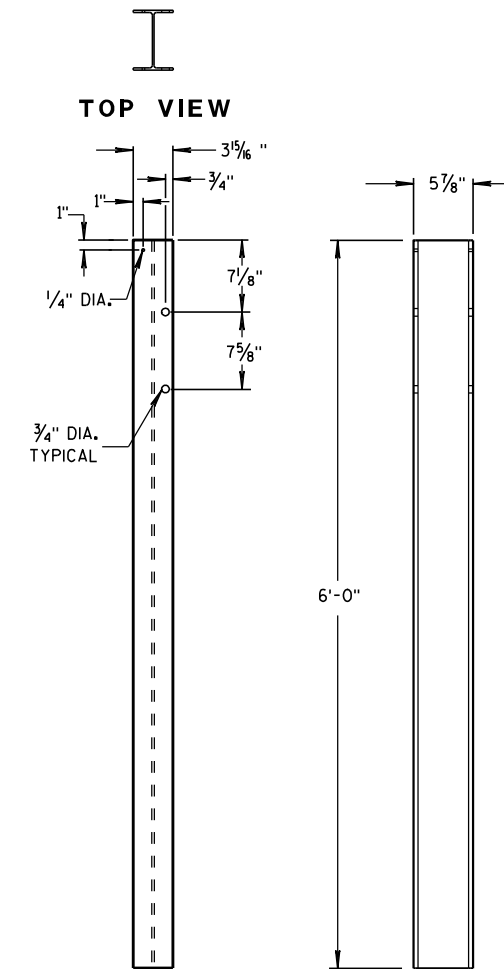
TOP VIEW



FRONT VIEW

SIDE VIEW

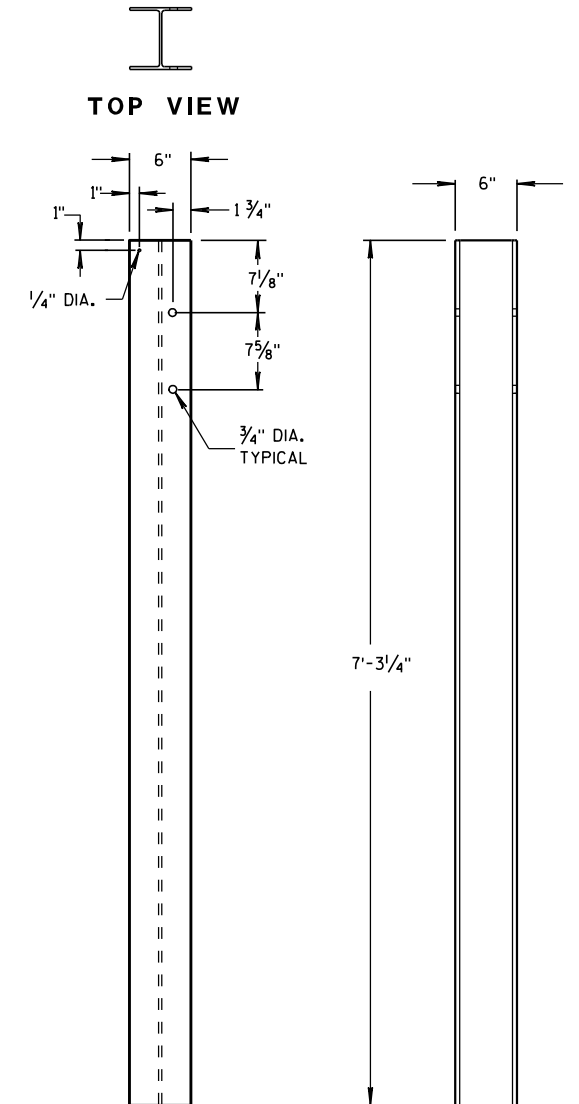
STEEL POSTS 1-5



FRONT VIEW

SIDE VIEW

STEEL POSTS 6-11

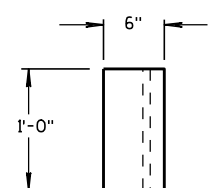


FRONT VIEW

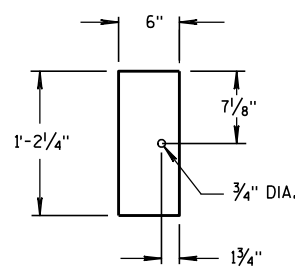
SIDE VIEW

STEEL POSTS 12-14

① WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

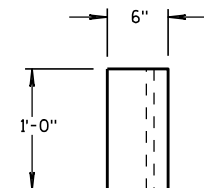


TOP VIEW

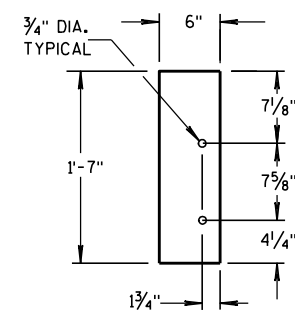


FRONT VIEW

BLOCKOUT
POSTS 1-5

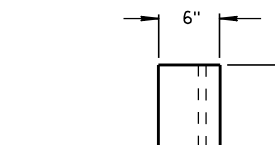


TOP VIEW

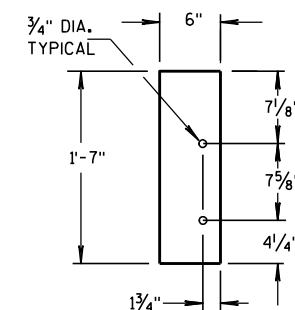


FRONT VIEW

BLOCKOUT
POSTS 6-11



TOP VIEW



FRONT VIEW

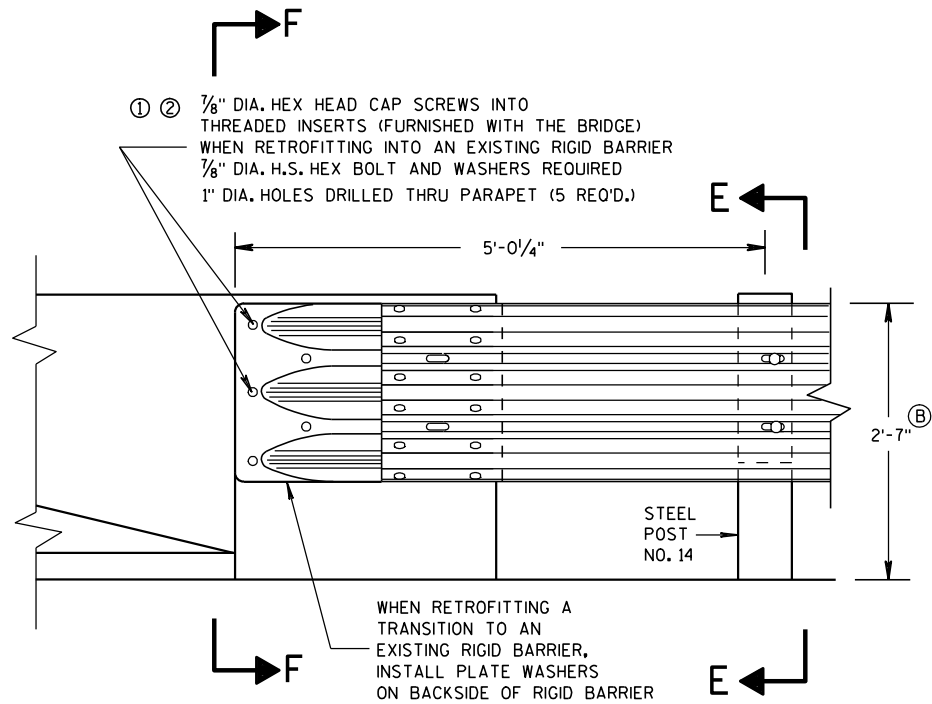
BLOCKOUT
POSTS 12-14

STEEL POST SIZES

POST NUMBER	SECTION TYPE	LENGTH
①	W6x9	72"
②	W6x9	72"
③	W6x9	72"
④	W6x9	72"
⑤	W6x9	72"
⑥	W6x9	72"
⑦	W6x9	72"
⑧	W6x9	72"
⑨	W6x9	72"
⑩	W6x9	72"
⑪	W6x9	72"
⑫	W6x15	87 7/8"
⑬	W6x15	87 7/8"
⑭	W6x15	87 7/8"

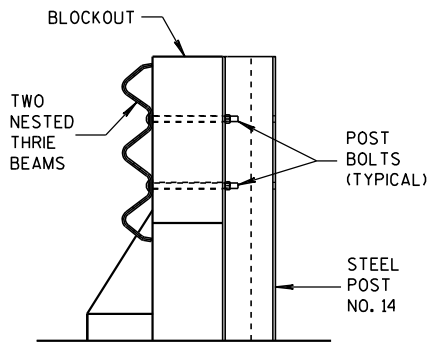
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS

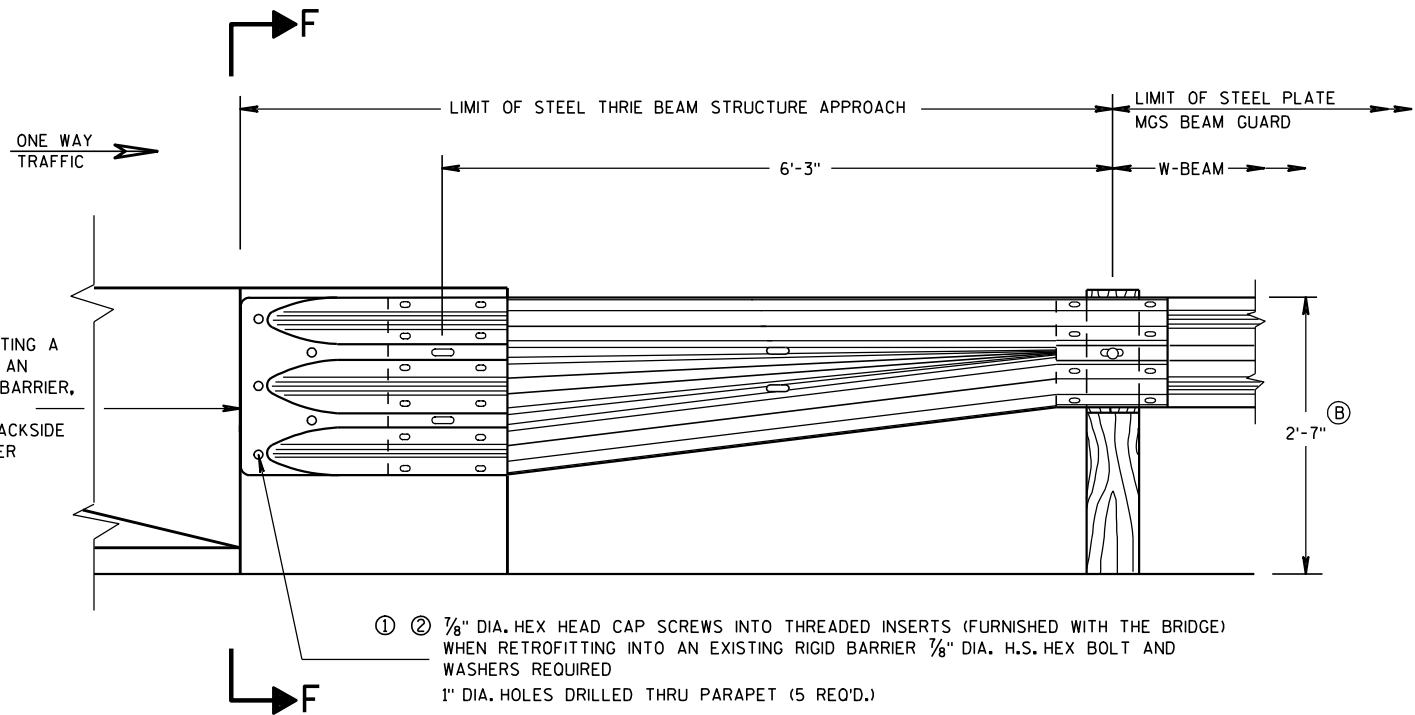


SECTION E-E

GENERAL NOTES

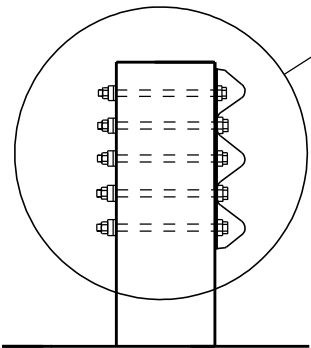
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ① INCLUDE THE PAYMENT FOR DRILLING BOLT HOLES THROUGH THE PARAPET, AND ALL BOLTS, NUTS AND WASHERS IN THE ITEM "STEEL THRIE BEAMSTRUCTURAL APPROACH".
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM. CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- (B) TOLERANCE FOR TOP OF BEAM IS ± 1".

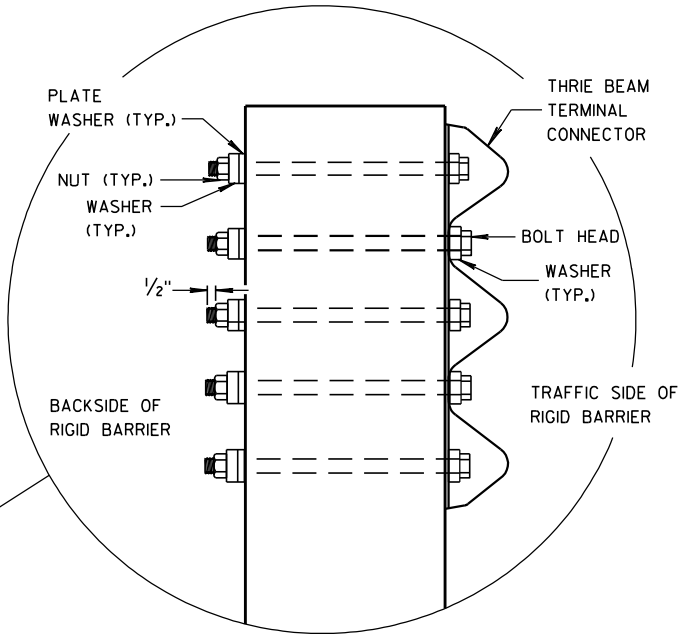


FRONT VIEW

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



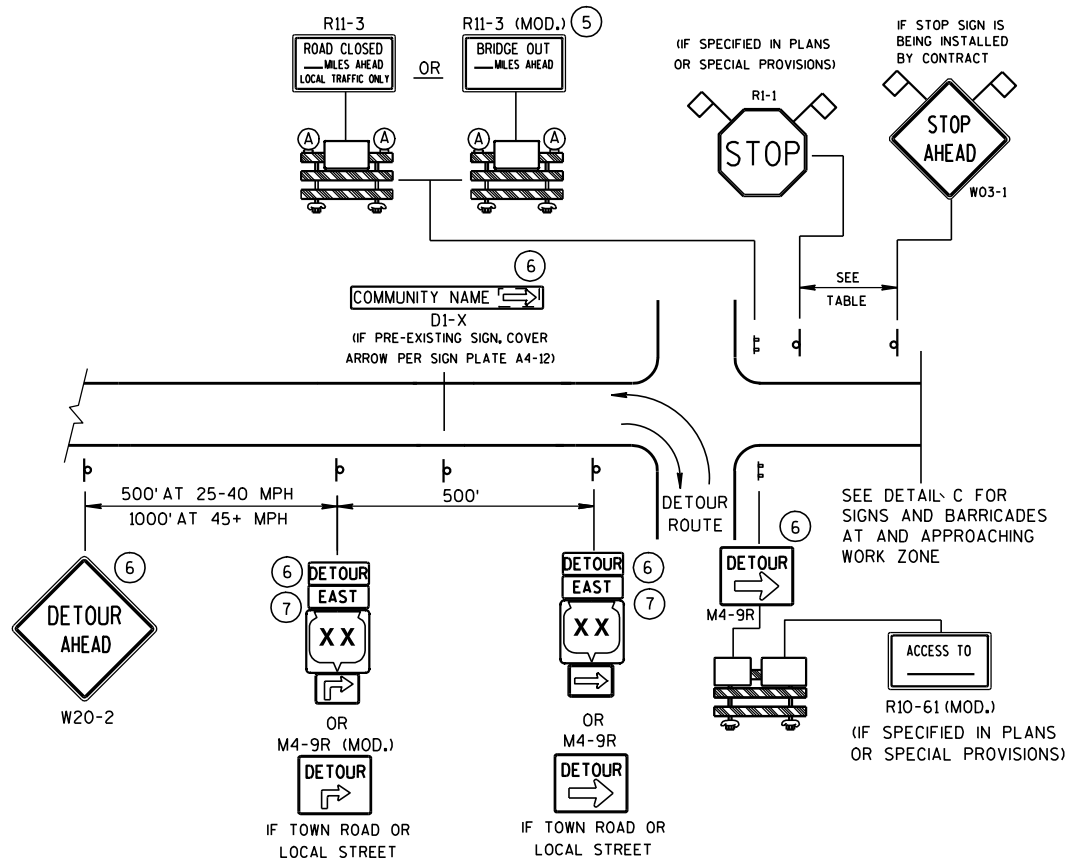
SECTION F-F



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

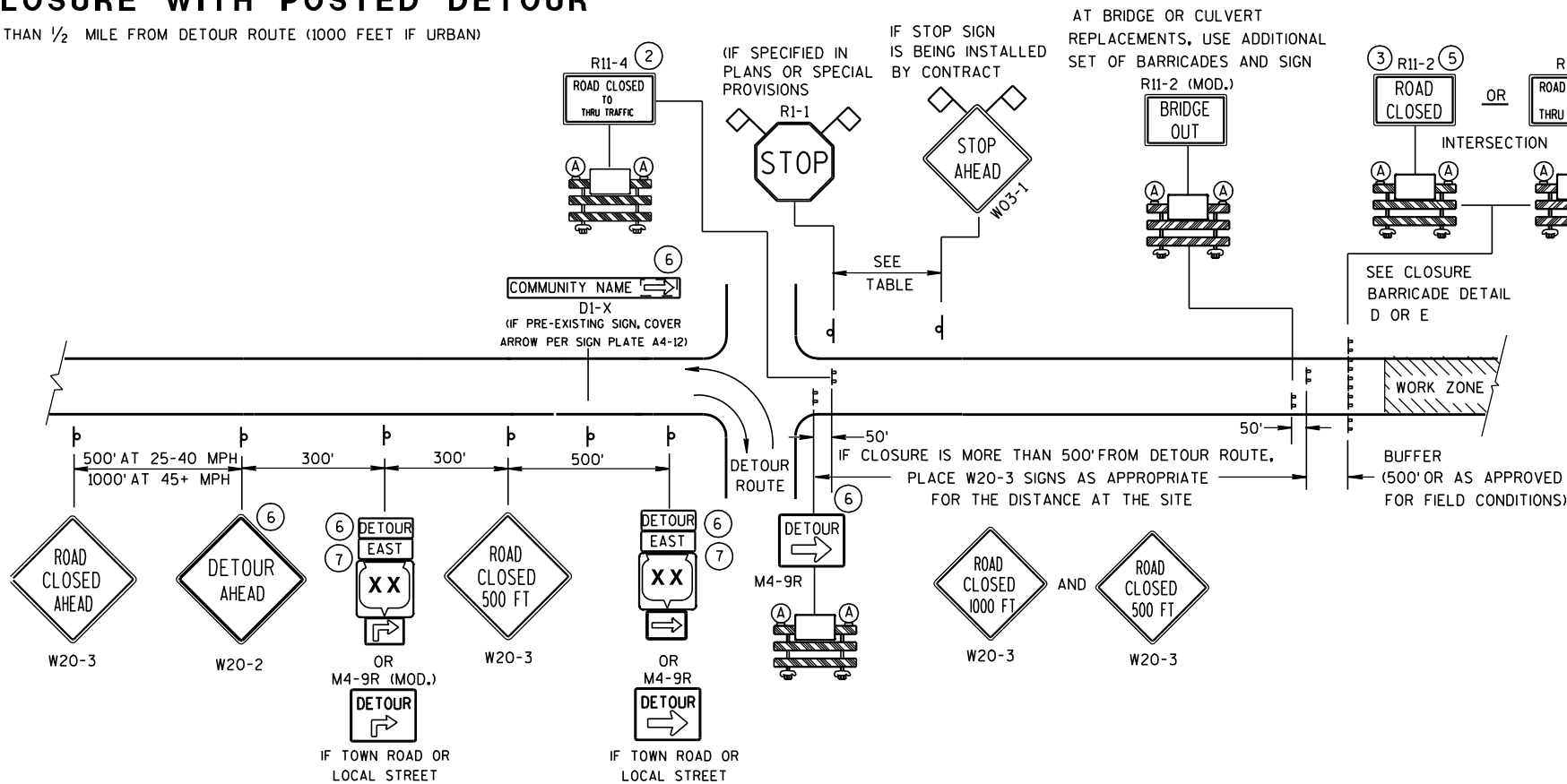
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/8/2012 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



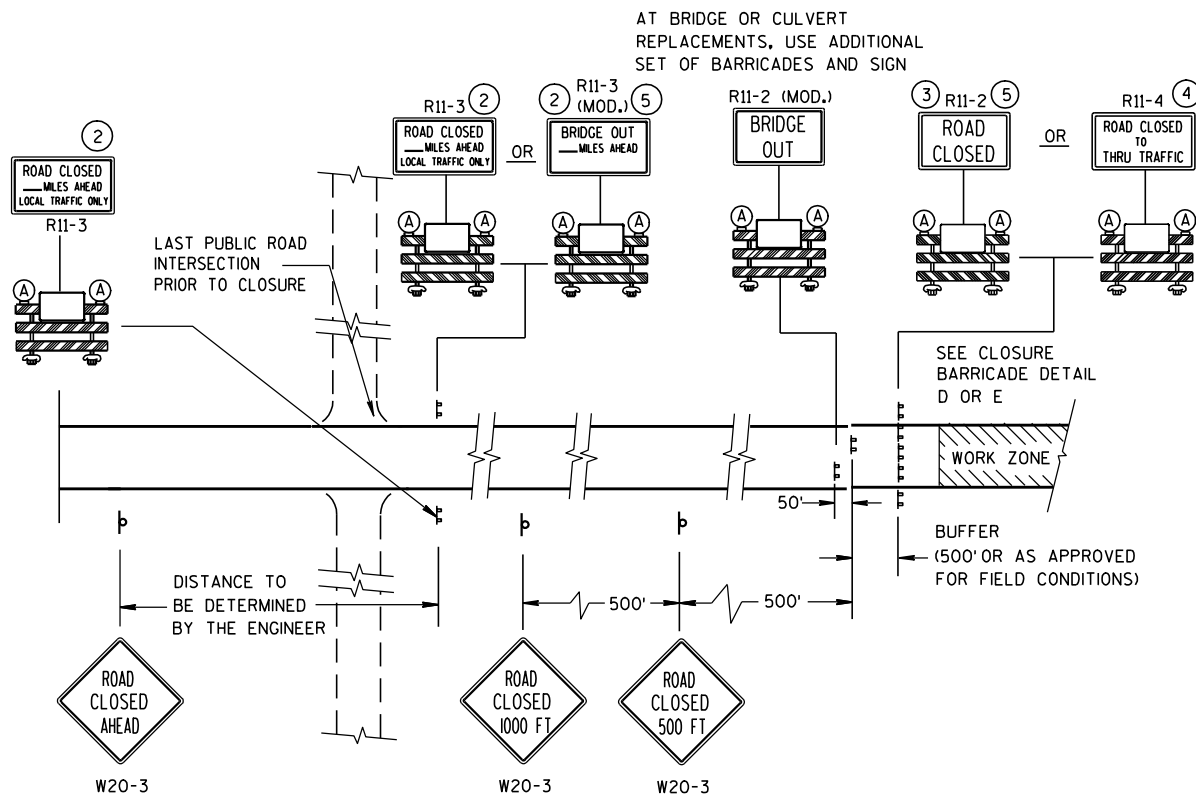
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN 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)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

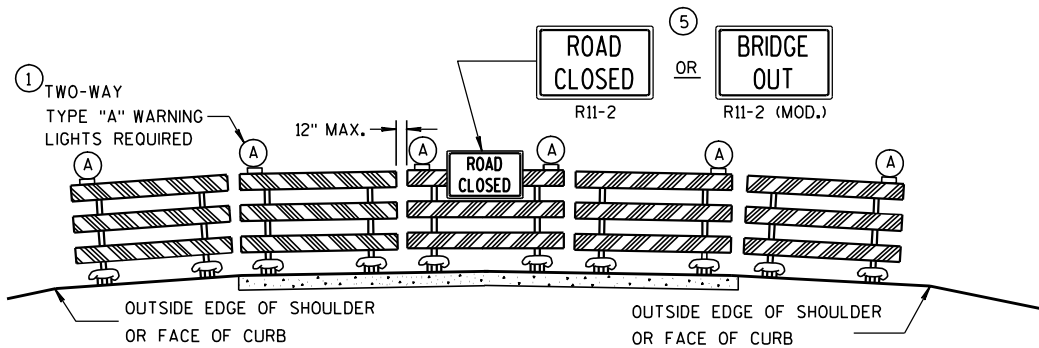
SEE SDD 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

LEGEND

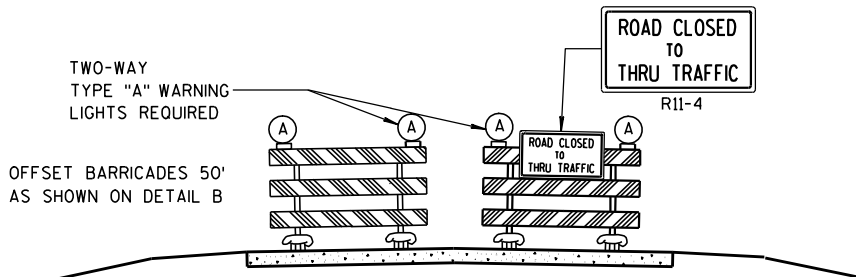
- POST MOUNTED SIGN
- TYPE III BARRICADES
- TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR EAST M4-8 M3-X
- MI-4 OR MI-5A OR MI-6
- MO5-1 OR MO6-1
- FLAGS, 16" X 16" MIN., (ORANGE)

**BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-4a 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 BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

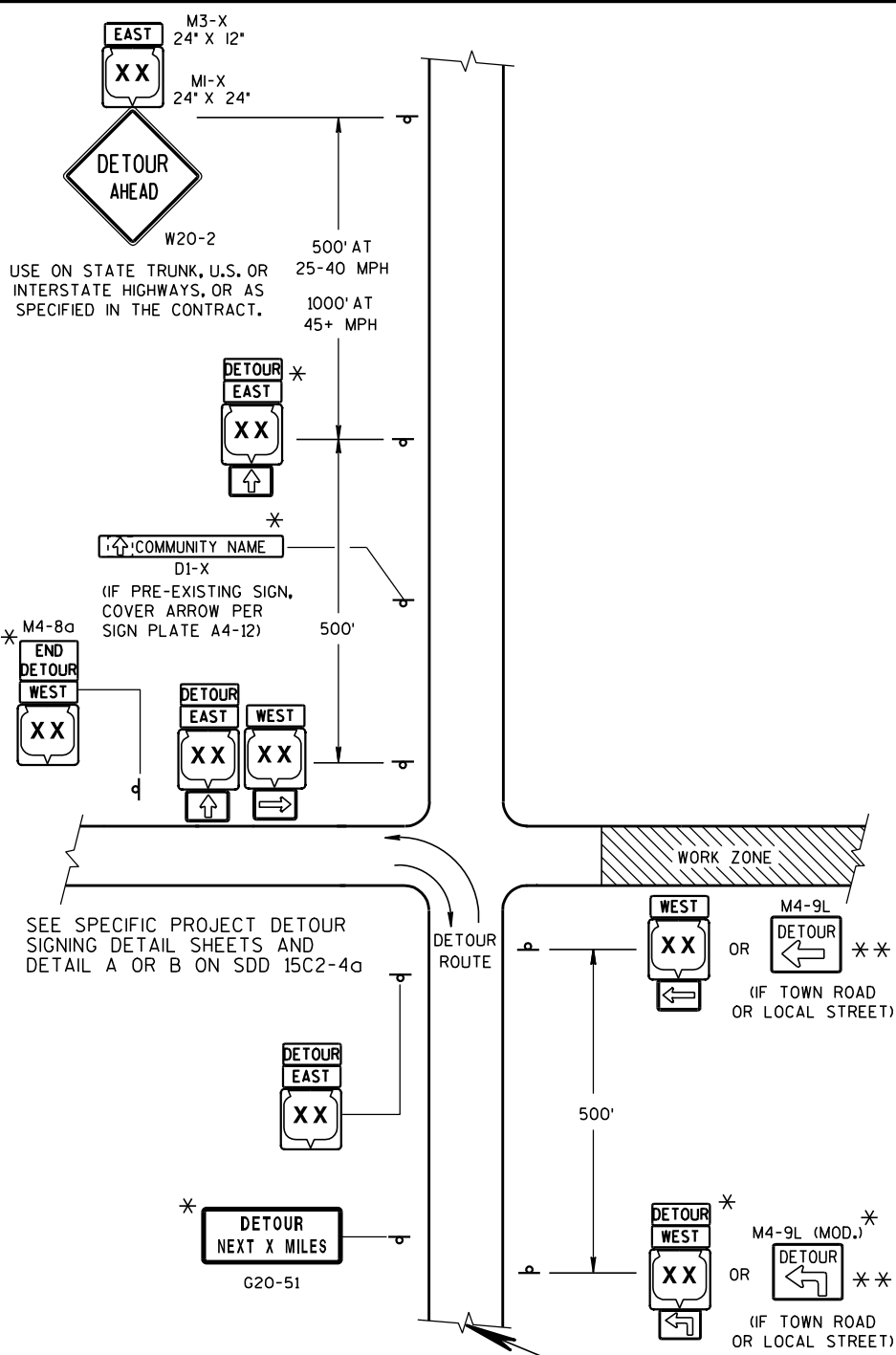
"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND 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". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- 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 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 LANE 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 MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
9/16/03 DATE	/S/ Thomas N. Notbohm CHIEF SIGNS AND MARKING ENGINEER
FHWA	



LEGEND

POST MOUNTED SIGN

WORK ZONE

DETOUR EAST M4-8 M3-X

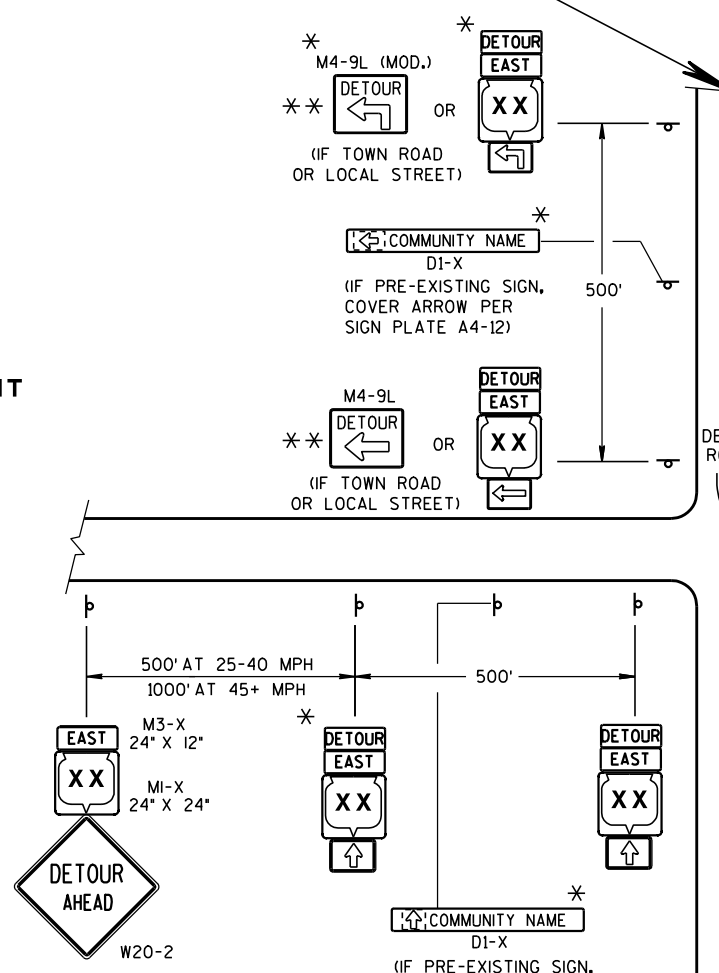
M1-4 OR COUNTY M1-5A OR M1-6

M05-1 OR M06-1 OR M06-1

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



USE ON STATE TRUNK, U.S. OR INTERSTATE HIGHWAYS, OR AS SPECIFIED IN THE CONTRACT.

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 AND 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". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)

M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-9 SHALL BE 30" X 24".

M4-8a SHALL BE 24" X 18".

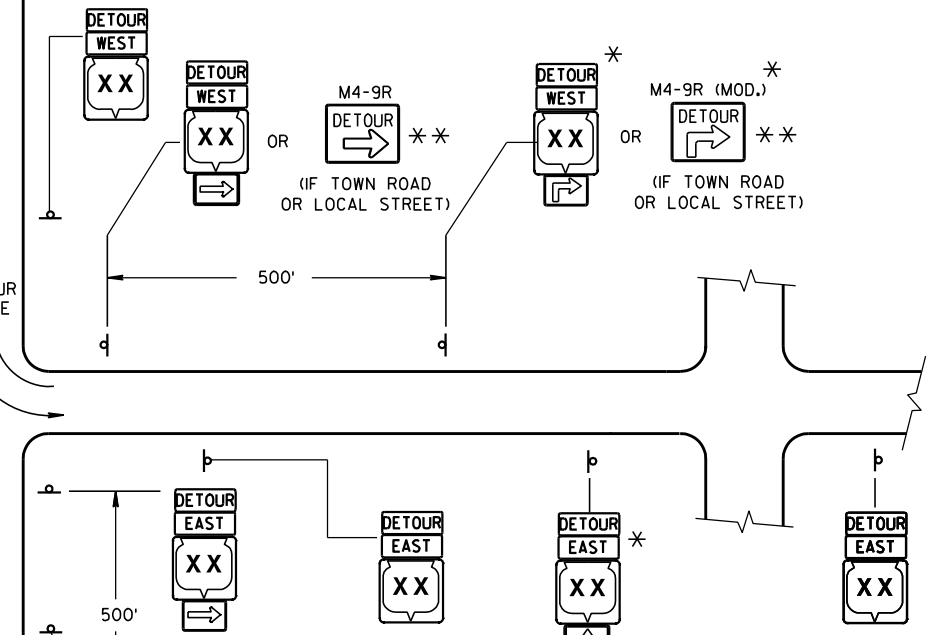
G20-51 SHALL BE 60" X 24".

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.

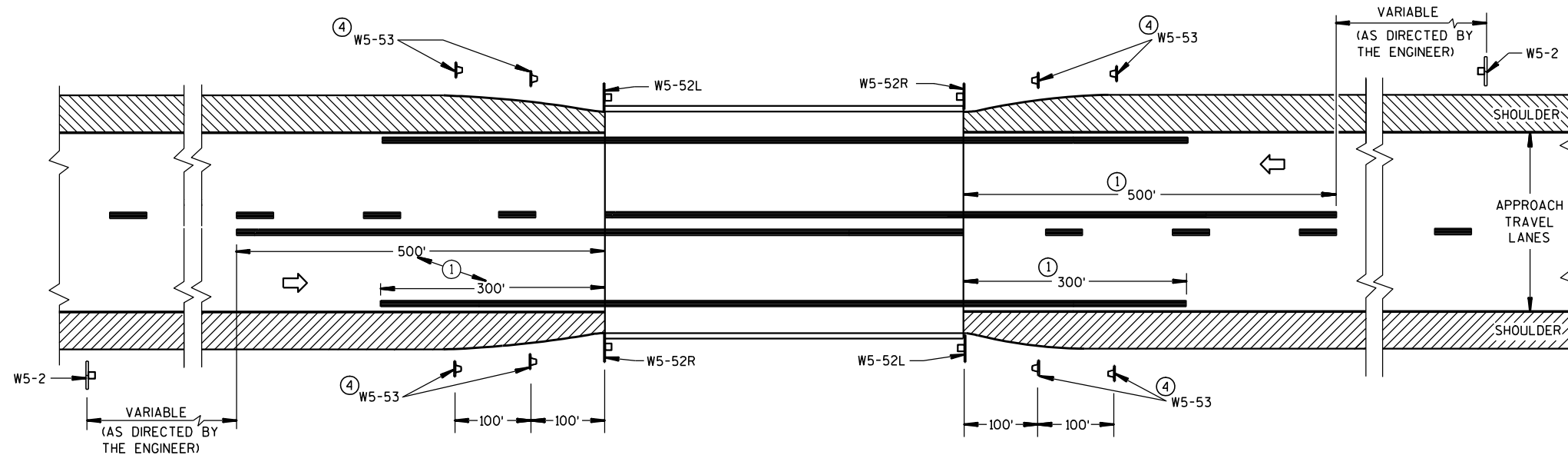


PLACE SIGNS BEYOND INTERSECTIONS WITH STATE OR COUNTY TRUNK HIGHWAYS OR AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF URBAN AREA.)

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

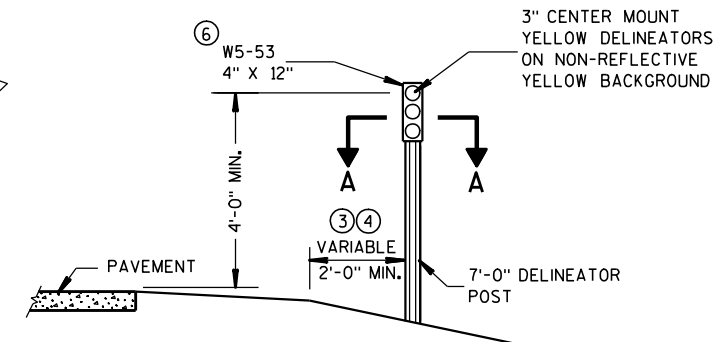
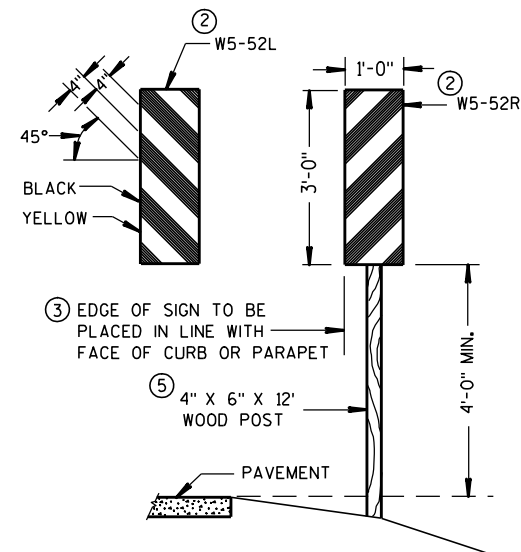
APPROVED
9-16-03 DATE /S/ Thomas N. Notbohm
CHIEF SIGNS AND MARKING ENGINEER
FHWA



SITUATION 1

WARRANTING CRITERION:

BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



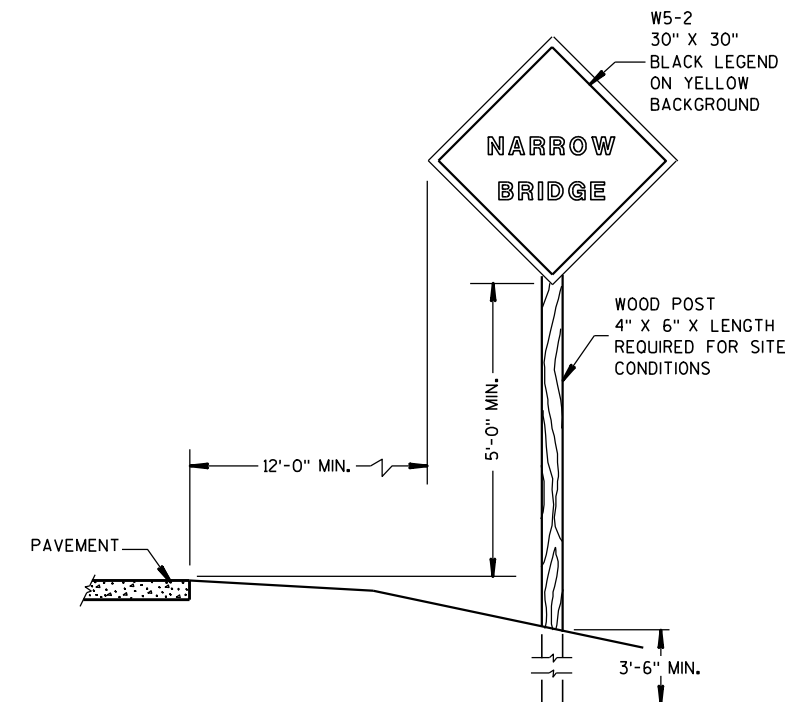
OBJECT MARKER PLACEMENT

GENERAL NOTES

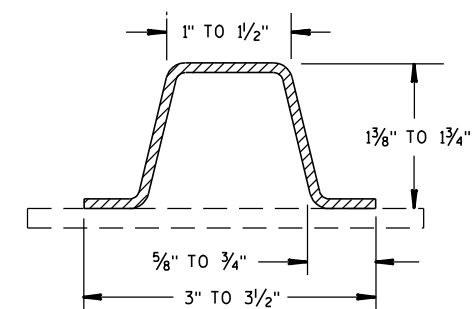
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R AND W5-52L SHALL BE COVERED WITH TYPE H REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.
- ④ OBJECT MARKERS (W5-53) SHALL BE LOCATED ALONG A LINE FLARED AWAY FROM THE BRIDGE CORNER TO DELINEATE THE NARROWING OF THE SHOULDER OR BERM.
- ⑤ A 12 FOOT DELINEATOR POST MAY BE USED INSTEAD OF A WOOD POST.
- ⑥ NON-BID ITEM. INCIDENTAL TO OTHER ITEMS.



SIGN PLACEMENT



SECTION A-A

(MINIMUM WEIGHT 1.9 LBS. PER FT. AFTER GALVANIZING)

SIGNING & MARKING FOR TWO LANE BRIDGES

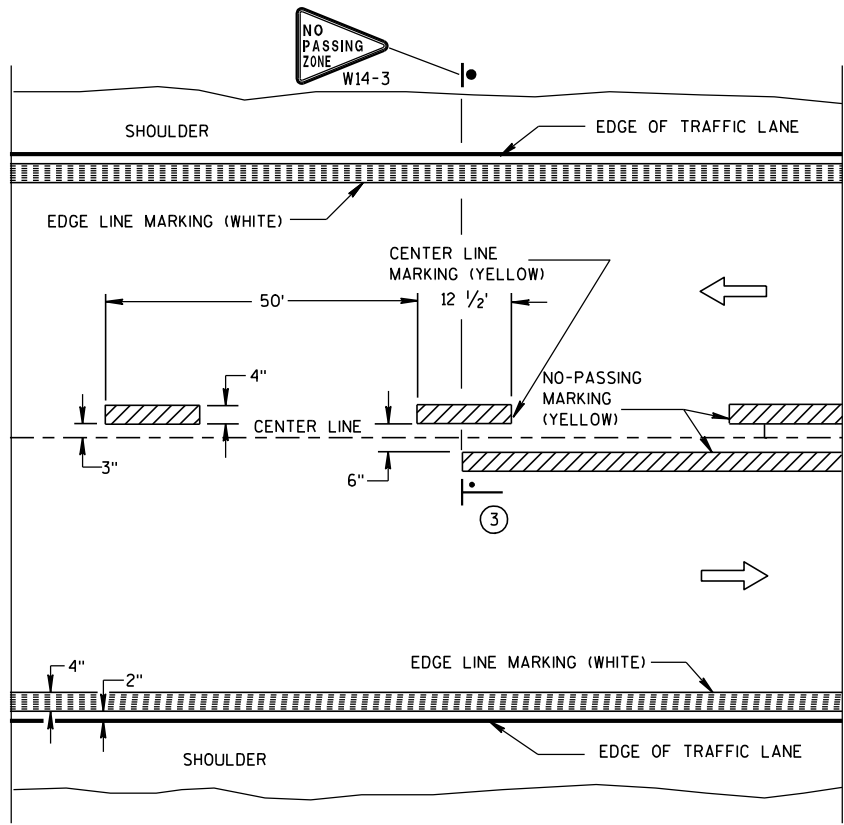
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

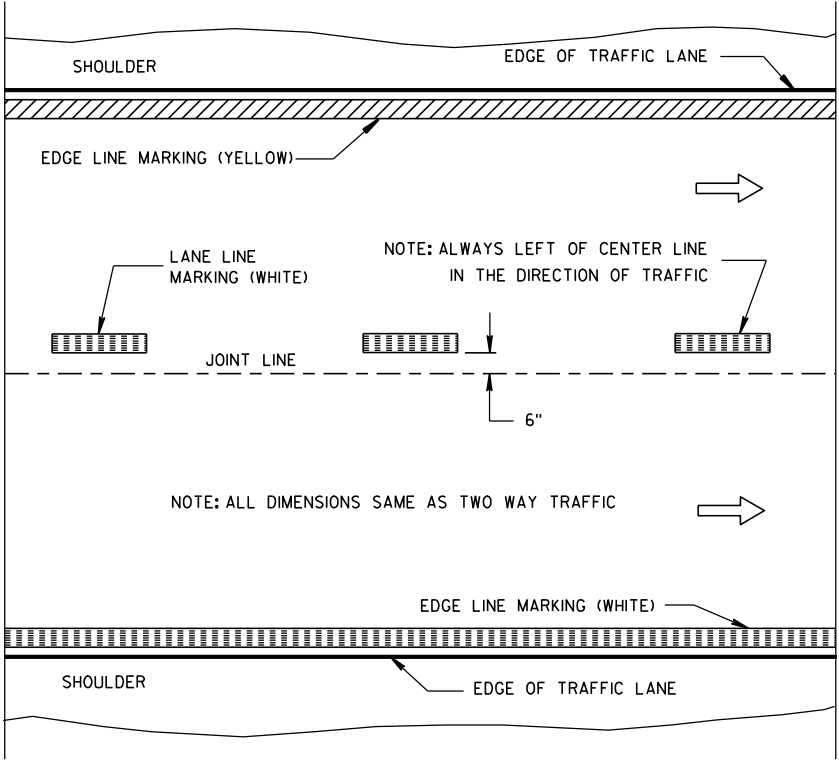
9/5/06
DATE

FHWA

/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN

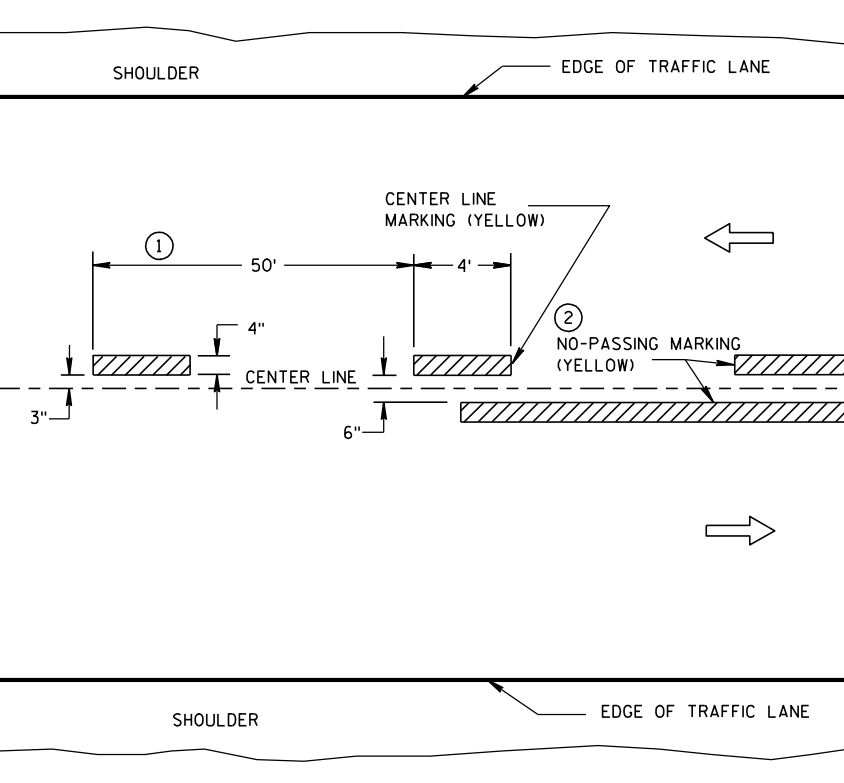


TWO WAY TRAFFIC

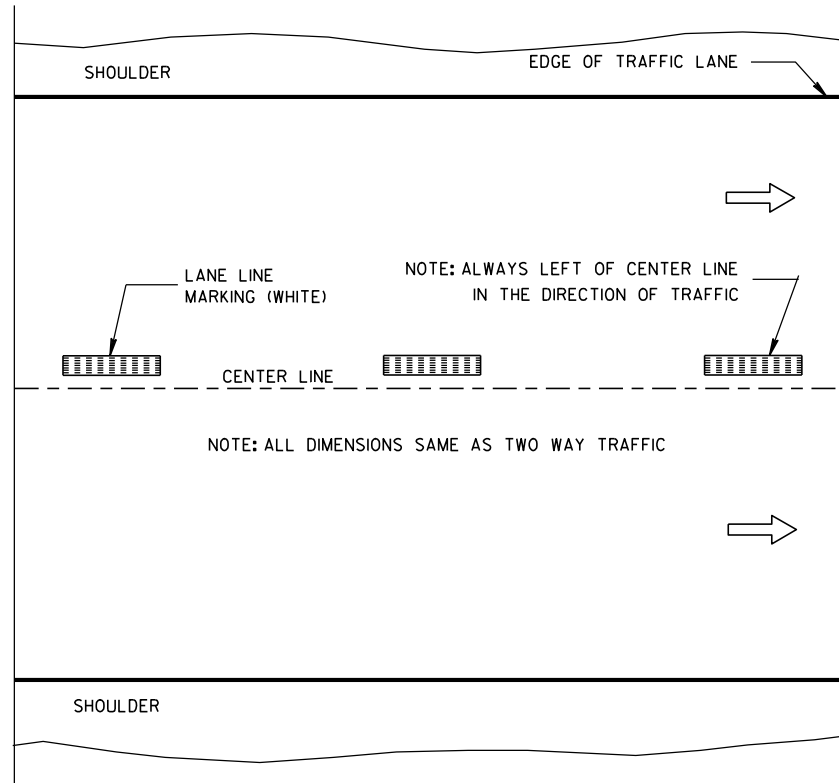


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

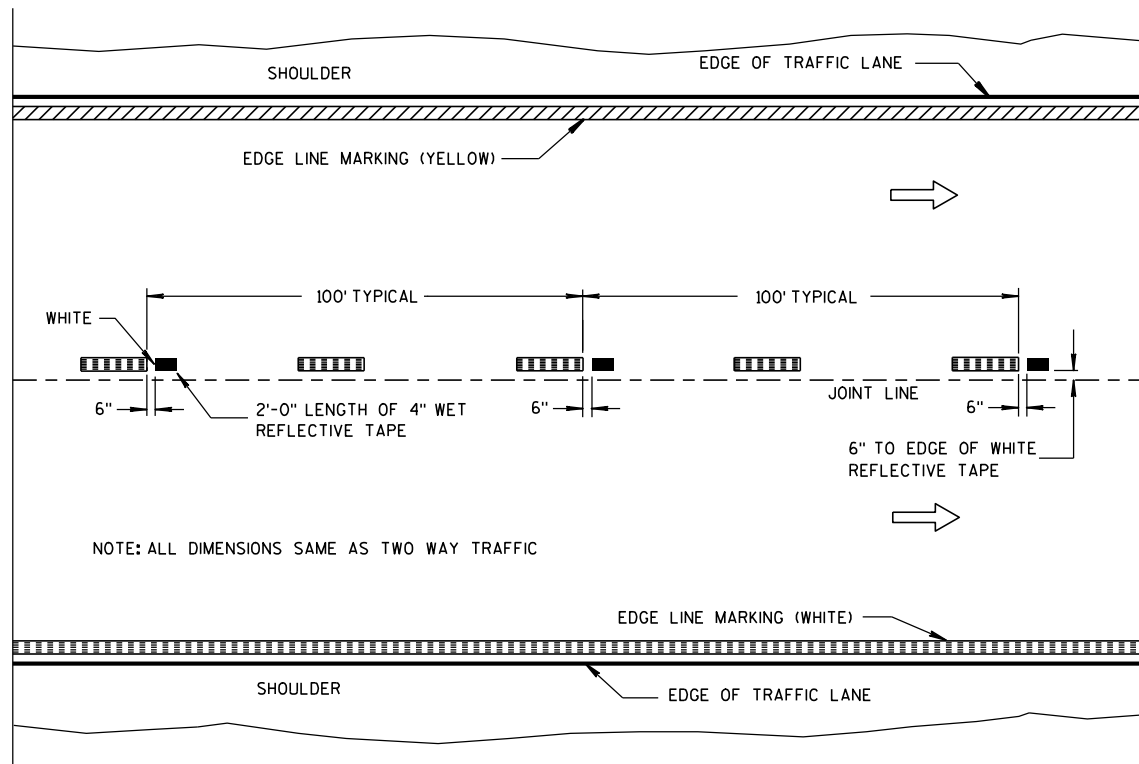
GENERAL NOTES

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

- 1 HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- 2 NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- 3 NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

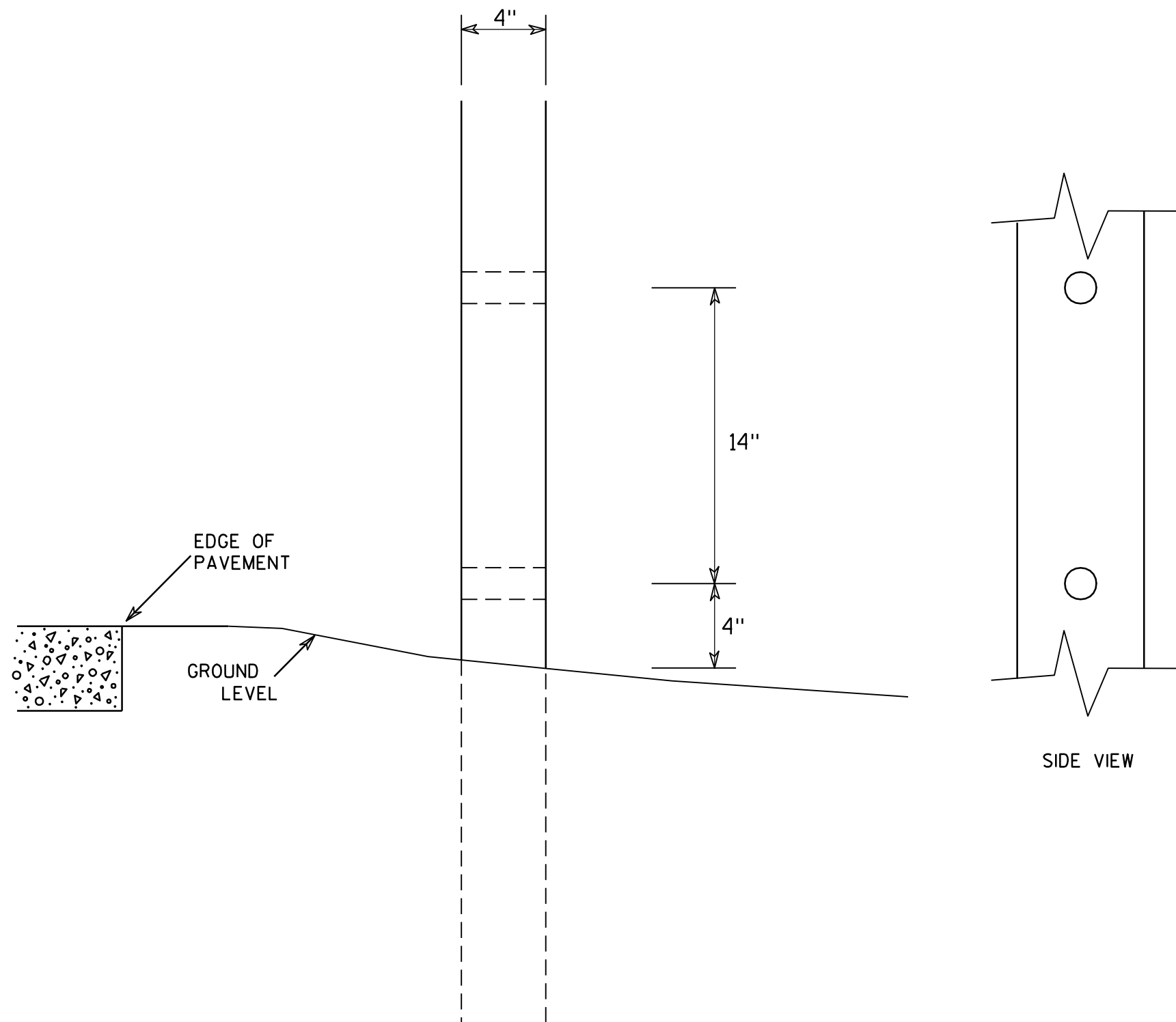
- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6-23-11 /S/ Thomas N. Notbohm
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

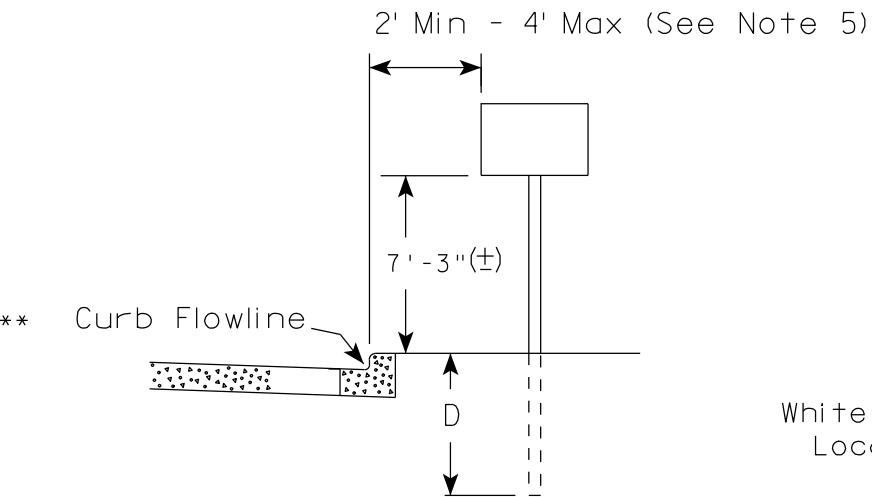
HWY:

COUNTY:

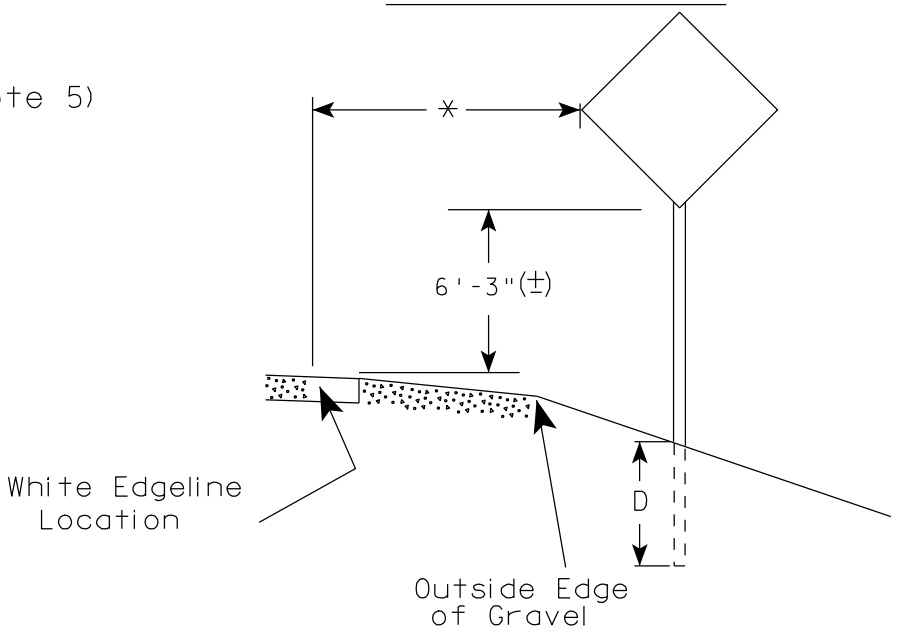
SHEET NO:

E

URBAN AREA



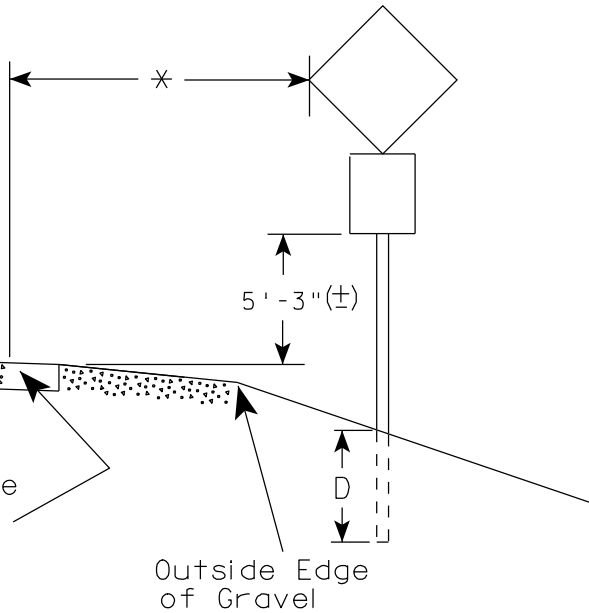
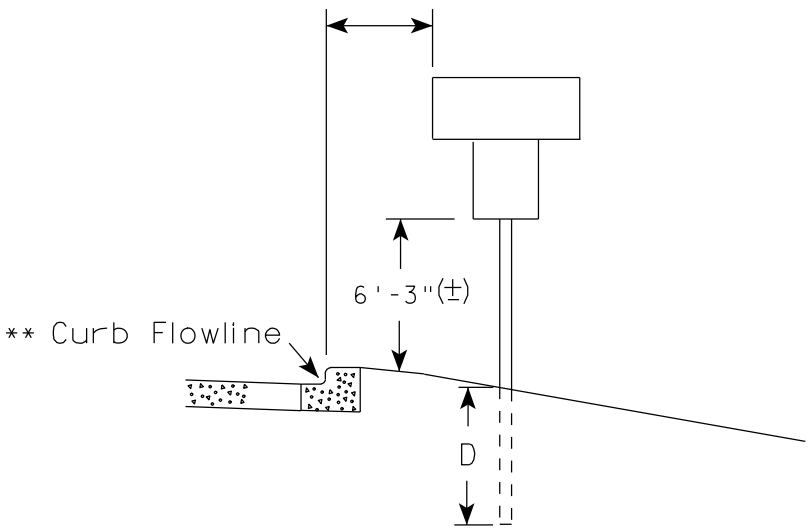
RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

2' Min - 4' Max (See Note 5)



POST EMBEDMENT DEPTH

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

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

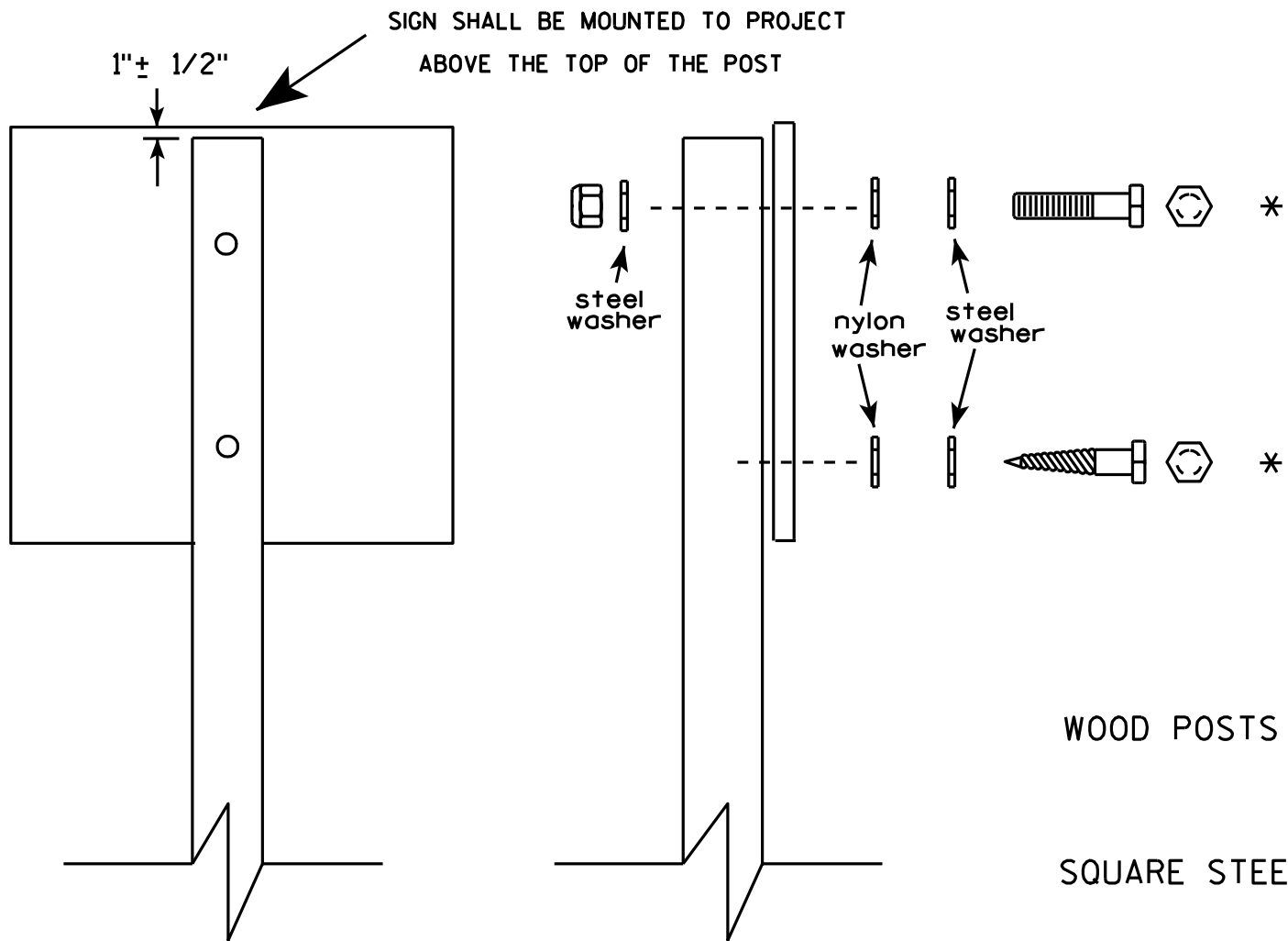
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-3.16

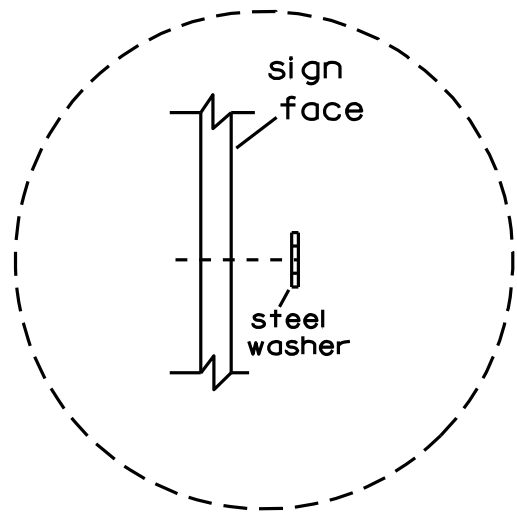


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- 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.

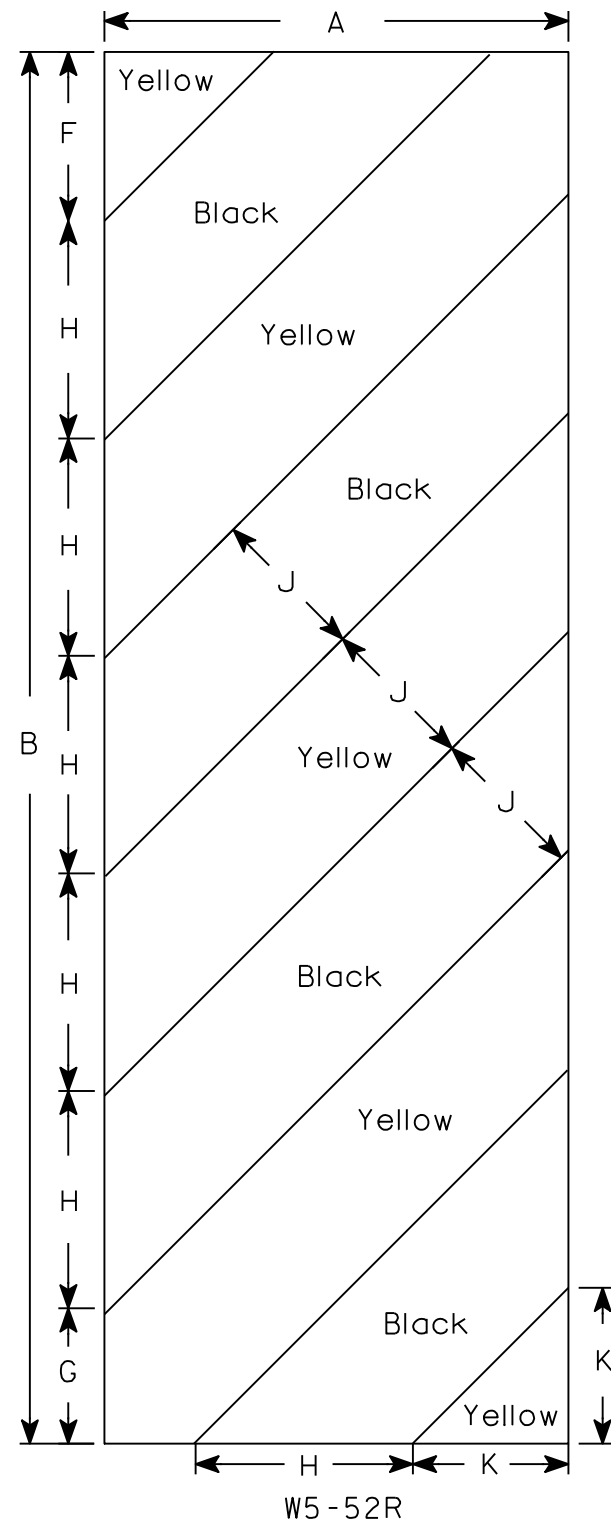
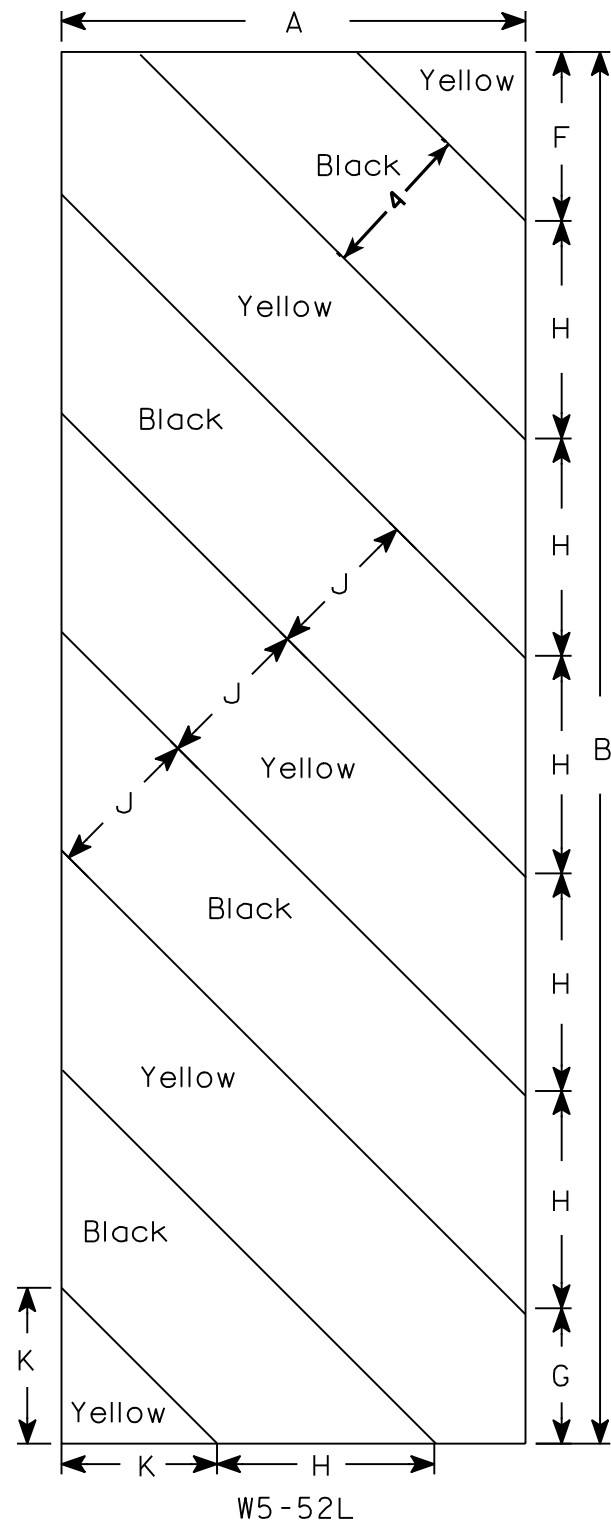
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" X 3"
- MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
- RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
- 1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7



NOTES

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

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

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/22/11 PLATE NO. W5-52.8

** 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.



NO.	STATION	DESCRIPTION	ELEV.
BM1	16+13 , 36' LT	60D SPIKE IN PP# 24-3-22 43/0	1127.59
BM2	18+29 , 37' LT	60D SPIKE IN PP# 24-3-22 46/0	1118.48
BM3	22+61 , 37' LT	60D SPIKE IN PP# 24-3-22 50/0	1123.68

Q₁₀₀ _____ 2400 C.F.S.
VELOCITY _____ 8.7 F.P.S.
HIGH WATER _____ EL. 1118.69 (100 YEAR)
HIGH WATER _____ EL. 1115.20 (2 YEAR)
WATERWAY AREA _____ 276.5 S.F.
DRAINAGE AREA _____ 11.0 SQ. MILES
OVERTOPPING FREQUENCY = N/A
SCOUR CRITICAL CODE = 8



CONCRETE MASONRY	
SUPERSTRUCTURE	$f'c = 4,000 \text{ PSI}$
ALL OTHER	$f'c = 3,500 \text{ PSI}$
HIGH STRENGTH BAR STEEL	
REINFORCEMENT, GRADE 60	$f_y = 60,000 \text{ PSI}$
36" PRESTRESSED GIRDERS	
CONCRETE MASONRY	$f'c = 8,000 \text{ PSI}$
STRANDS, 0.5" ϕ ULTIMATE	
TENSILE STRENGTH	$f_y = 270,000 \text{ PSI}$

1. GENERAL PLAN
2. SUBSURFACE EXPLORATION
3. ABUTMENT PLAN
4. ABUTMENT DETAILS
5. 36" PRESTRESSED GIRDER DETAILS
6. STEEL DIAPHRAGM
7. SUPERSTRUCTURE
8. SUPERSTRUCTURE DETAILS
9. SLOPED FACE PARAPET TYPE LF

ADT = 1,300 (2013)
1,560 (2033)
RDS = 55 M.P.H.

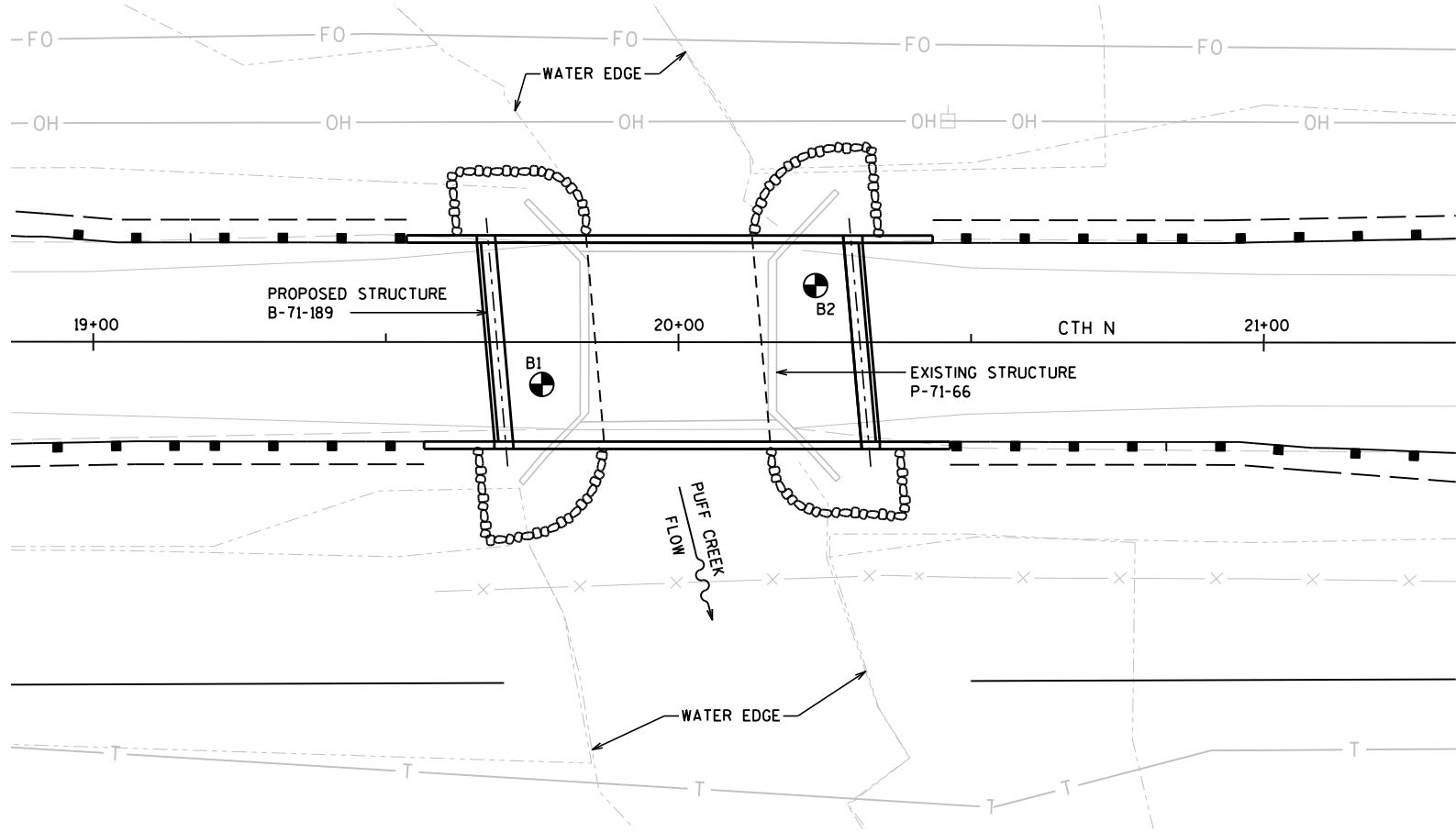
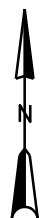
KRISTOFER OLSON
OMNI ASSOCIATES, INC.
(920) 735-6900

WILLIAM DREHER
(608) 266-8489



ITEM NO.	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STA 20+00)	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES (B-71-189)	LS	-----	-----	-----	1
210.0100	BACKFILL STRUCTURE	CY	-----	140	140	280
502.0100	CONCRETE MASONRY BRIDGES	CY	107	41	41	189
502.3200	PROTECTIVE SURFACE TREATMENT	SY	313	-----	-----	313
503.0136	PRESTRESSED GIRDER TYPE 136-INCH	LF	315	-----	-----	315
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	-----	2340	2340	4,680
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	17940	2320	2280	22,540
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	10	-----	-----	10
506.4000	STEEL DIAPHRAGMS (B-71-189)	EACH	4	-----	-----	4
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-----	9	9	18
550.1100	PIILING STEEL HP 10-INCH X 42 LB	LF	-----	210	150	360
606.0300	RIPRAP HEAVY	CY	-----	75	75	150
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	-----	20	20	40
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-----	55	55	110
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	-----	-----	4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	-----	110	110	220
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

NO.	DATE	REVISION						BY	
ORIGINAL PLANS PREPARED BY									
									
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION									
ACCEPTED	<i>William C. Dieker</i>						KAR	01/29/13	
CHIEF STRUCTURES DESIGN ENGINEER DATE									
STRUCTURE B-71-189									
CTH N OVER PUFF CREEK									
COUNTY	WOOD				TOWN	RICHFIELD			
DESIGN SPEC. AASHTO LRFD DESIGN SPEC. 4TH EDITION							LOAD	HL-93	
DESIGNED BY	KRO	DESIGN CK'D.	JAW	DRAWN BY	BRE	PLANS CK'D.	KR		
GENERAL PLAN						SHEET 1 OF 9			



ABBREVIATIONS
F—Fine M—Medium C—Coarse
Ws—Weathered So—Sound

MATERIAL SYMBOLS
Topsoil Silt Sandstone
Sand Peat Limestone
Gravel Clay Igneous Rock

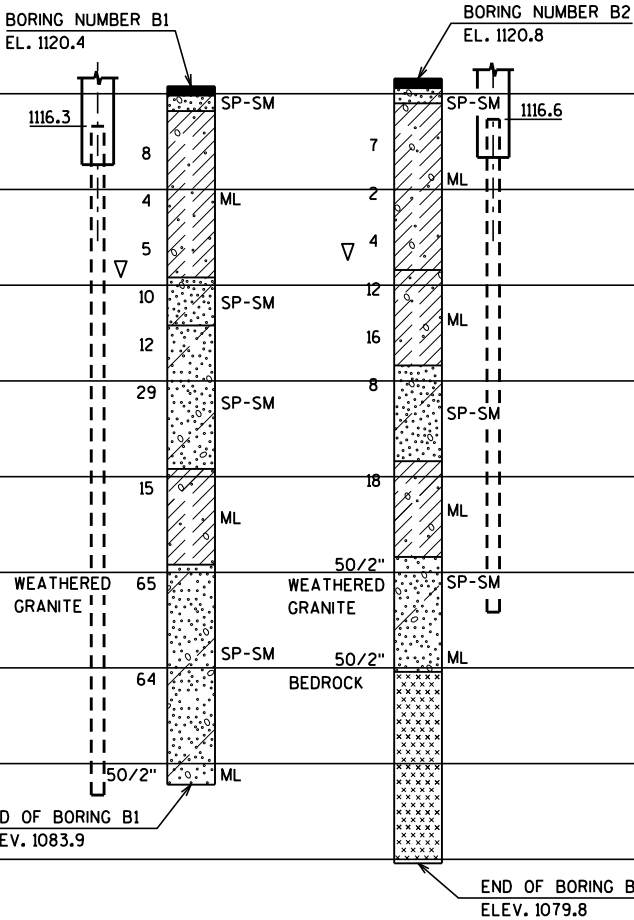
LEGEND OF PROBING
Probing No.
Sta.
Elevation
95/6=95 Blows for 6" Penetration
Probing taken with a 350*wt.
Falling 18" on a 2" O.D. Point.
7 Average Blows Per Foot
Refusal 95/6

LEGEND OF BORING
Boring No.
Sta.
Elev.
Unconfined Strength—7.7
Blows Per Ft. Using 140* Wt. Falling 30"
Wash Sample
Shelby Tube — S.T.
Ground Water Elevation
No Ground Water Observed Above This Elevation
Sandy Gravel
F.
Boulders or Cobbles
Sand
Silty Clay
So
Limestone

Unless otherwise specified, the blows per foot at the locations indicated are based on driving a 0.0.x1.4" I.D. split spoon sampler with a 140* hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pipe.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION
To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area, the Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-71-189			
DRAWN BY		BRE	PLANS CK'D. KRO
SUBSURFACE EXPLORATION		SHEET 2 OF 9	



LEGEND
CAVE
WATER ENCOUNTERED

LEGEND

● 1/2" FILLER INCLUDED IN WING LENGTH, SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

■ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

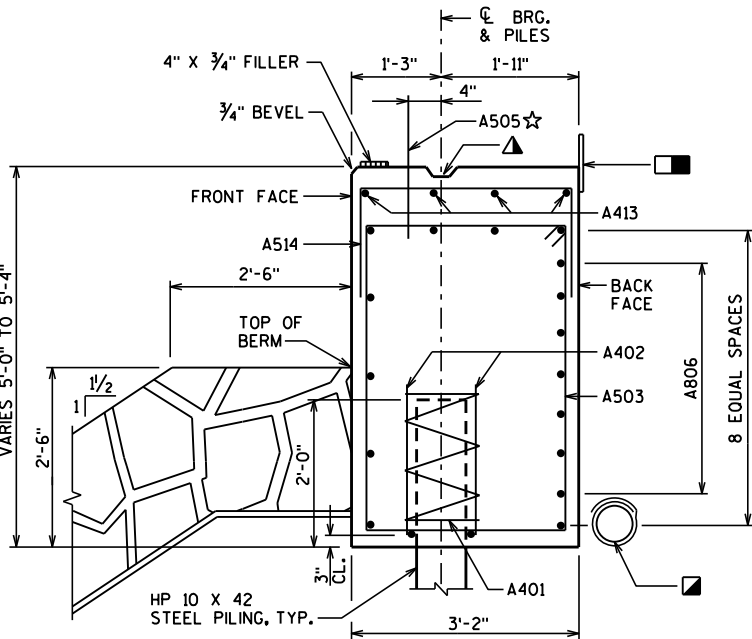
▲ KEYED CONST. JOINT FORMED BY BEVELED 2" x 6".

▣ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SOUTH SLOPES. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

☆ A505 BARS AT 1'-0". THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE. ESTIMATED LENGTH = 35' AT THE WEST ABUTMENT AND 25' AT THE EAST ABUTMENT.

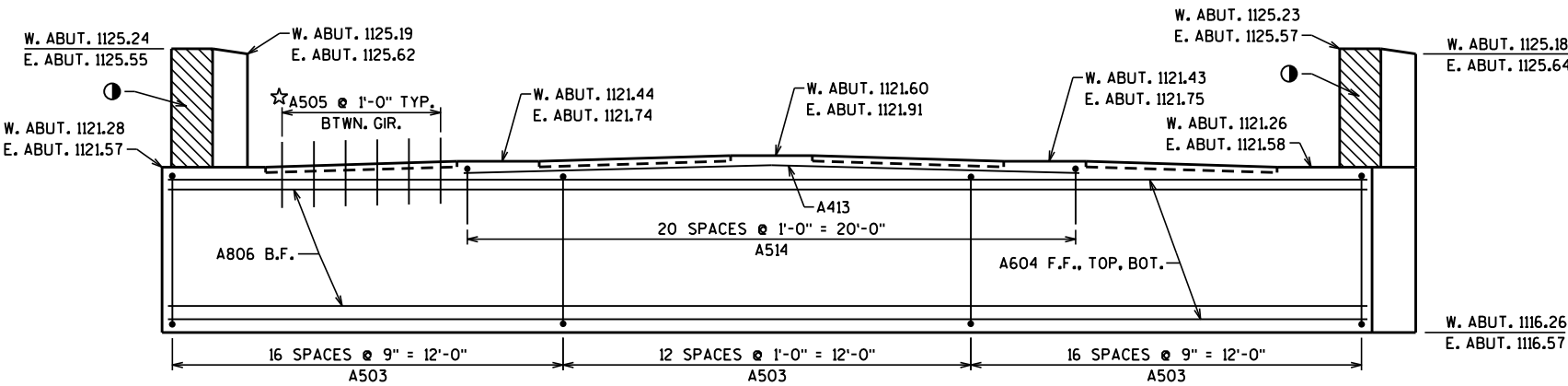
SEE SHEET 4 FOR WINGWALL DETAILS, BILL OF REINFORCEMENT AND BAR BENDING DIAGRAMS.



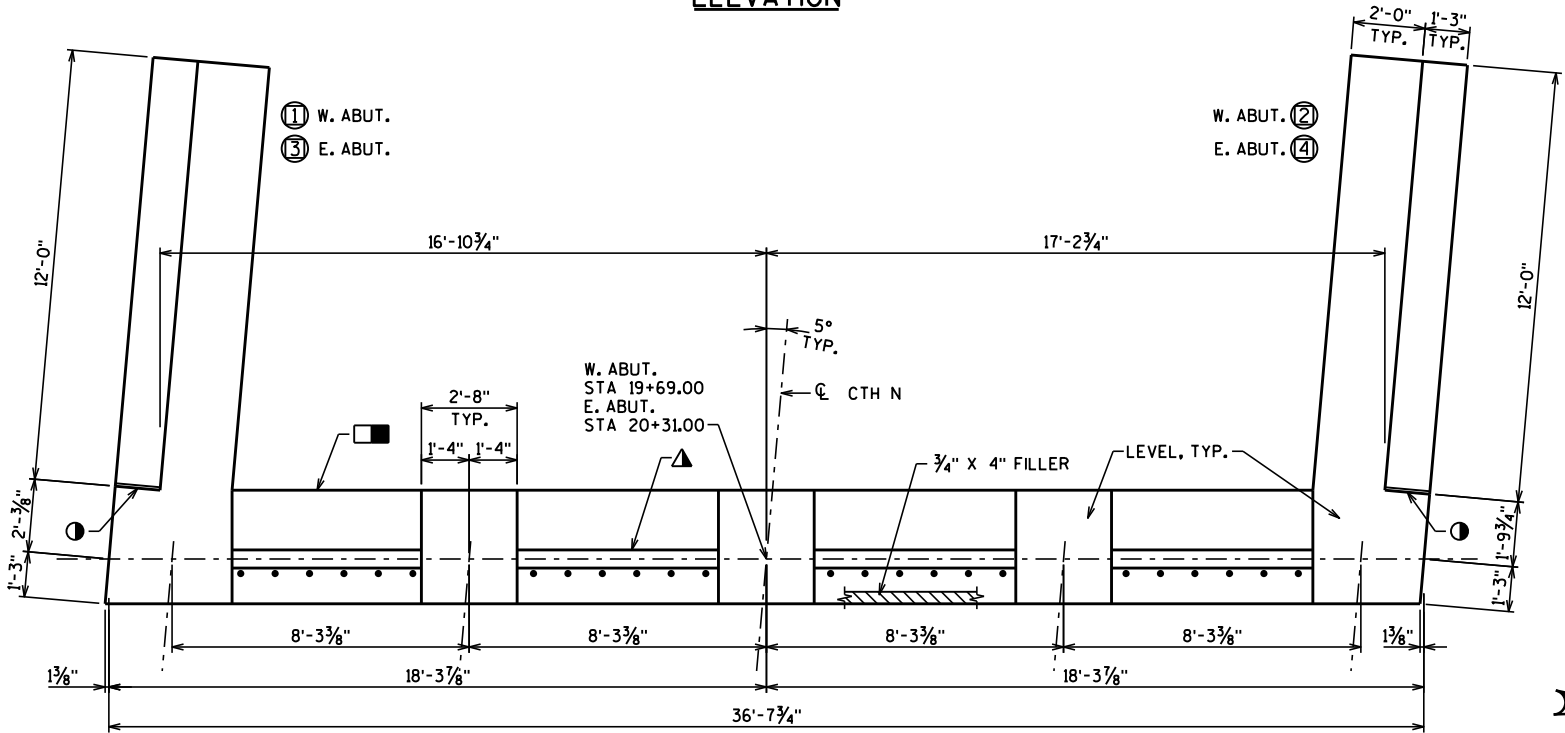
SECTION THRU BODY

HORIZ. BARS NOT OTHERWISE IDENTIFIED ARE A604 BARS

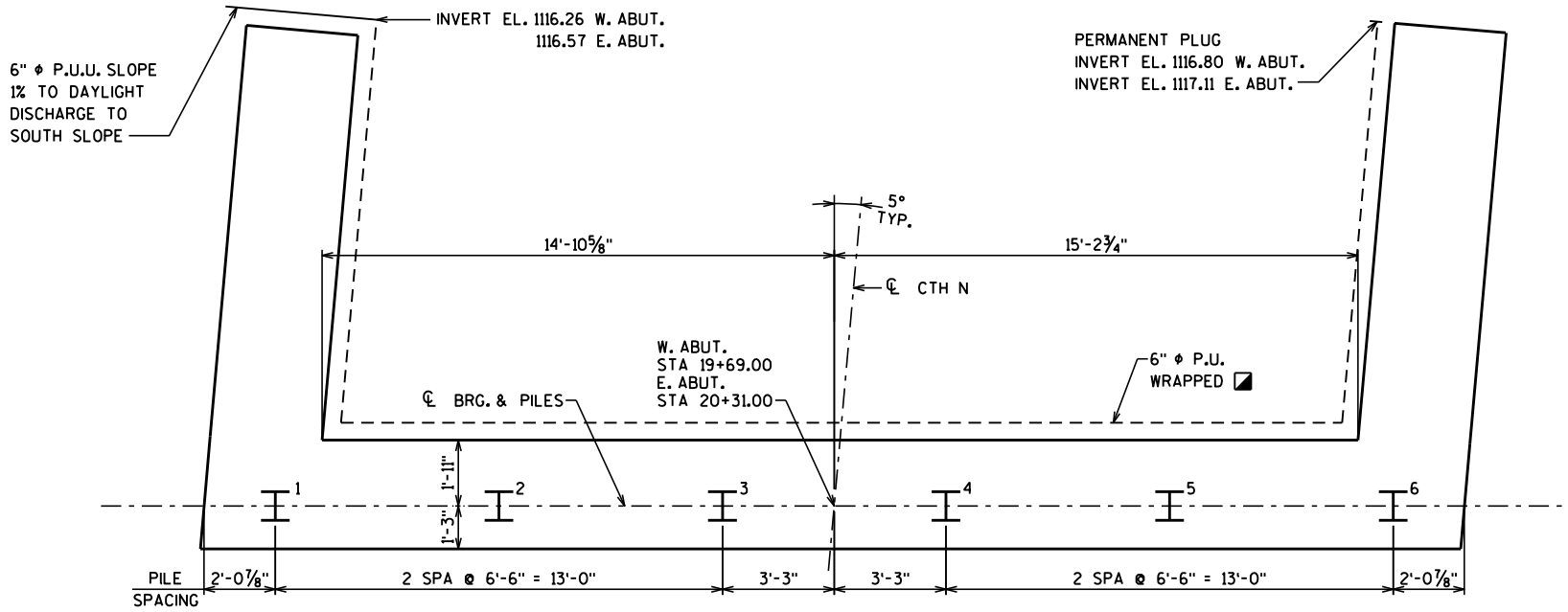
NO.	DATE	REVISION
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION		
STRUCTURE B-71-189		
DRAWN BY BRE		PLANS CK'D.
ABUTMENT PLAN		SHEET 3



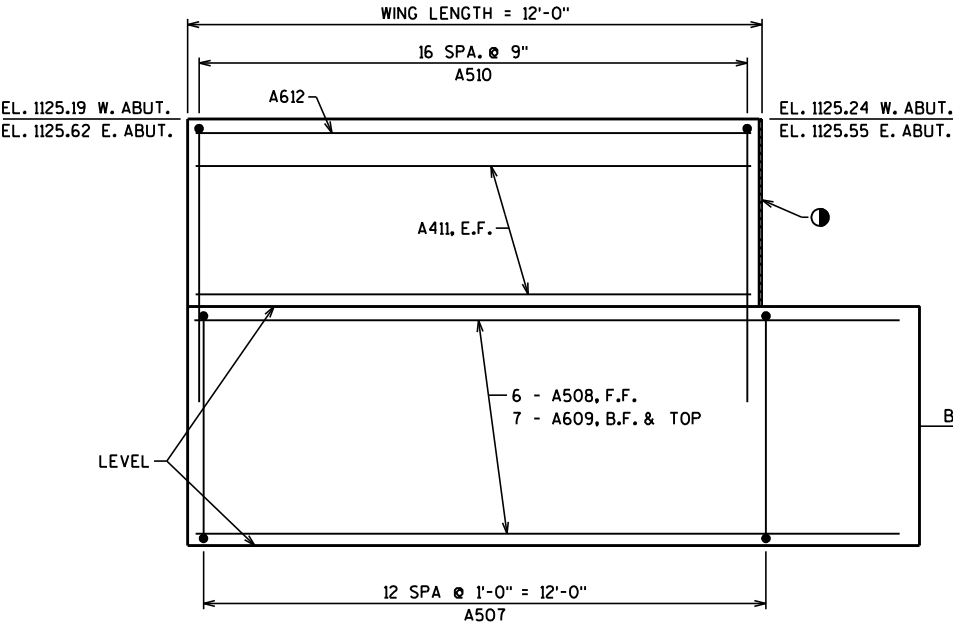
ELEVATION



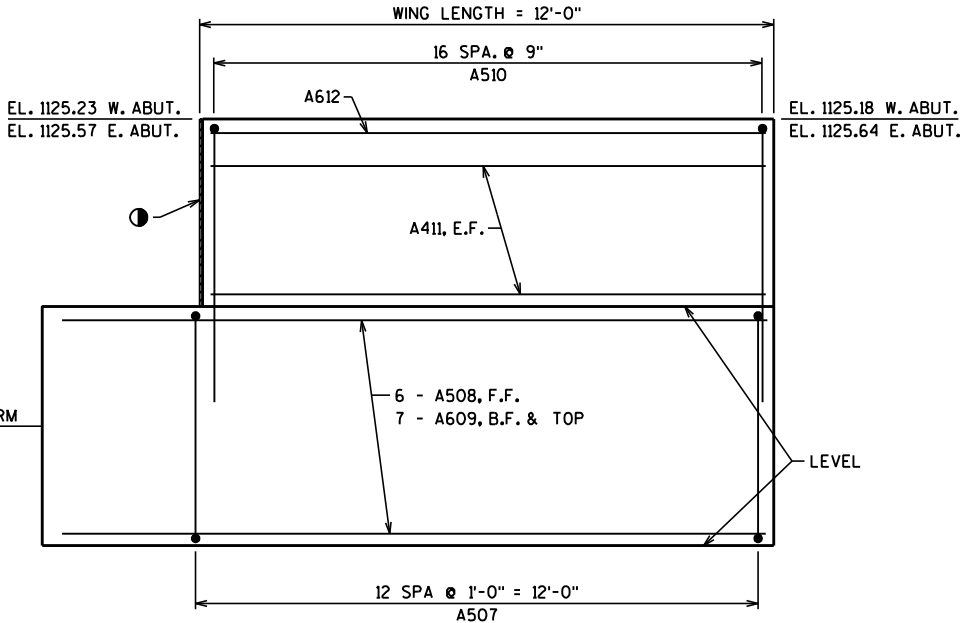
PLAN



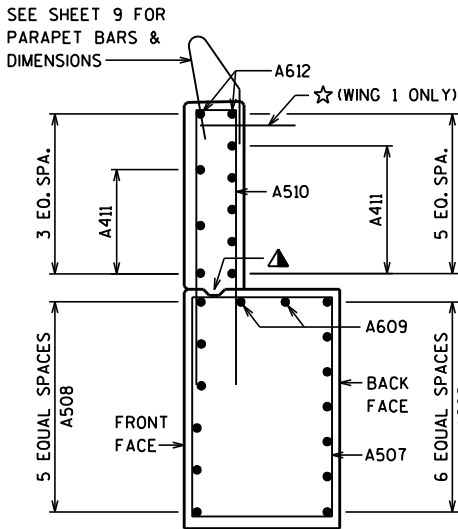
PILE PLAN



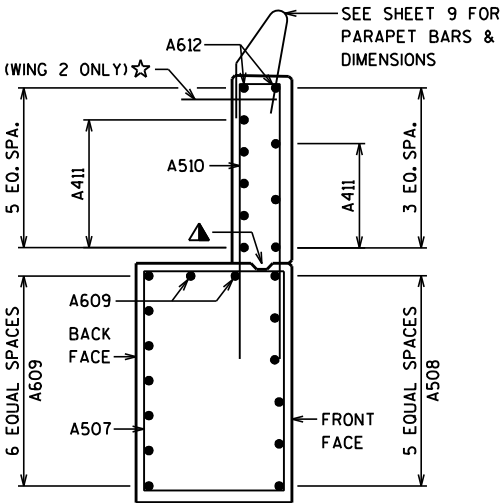
WING 1 & 3 ELEVATION



WING 2 & 4 ELEVATION



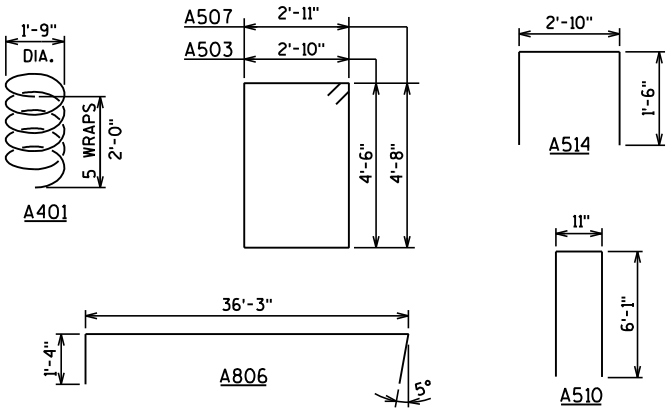
WING 1 & 3 SECTION



WING 2 & 4 SECTION

BILL OF BARS

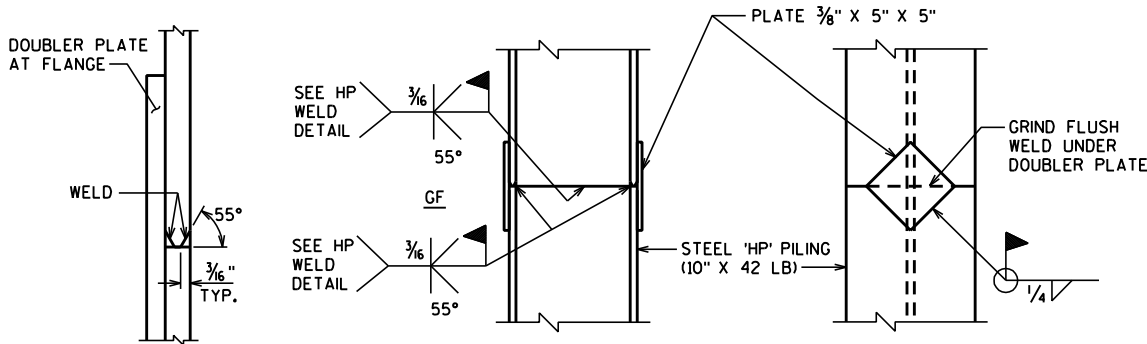
BAR MARK	COAT	NO. REQ'D. W. ABUT. E. ABUT.	LENGTH	BENT	LOCATION
A401		6 6	28'-0"	X	BODY - ONE PER PILE
A402		12 12	2'-3"		BODY - TWO PER PILE
A503		45 45	15'-3"	X	BODY - STIRRUPS
A604		11 11	36'-3"		BODY - HORIZONTAL
A505	X	24 24	2'-0"		BODY - VERTICAL, DOWEL
A806		7 7	38'-6"	X	BODY - HORIZONTAL B.F.
A507	X	26 26	15'-9"	X	WINGS - STIRRUPS
A508	X	6 6	14'-11"		WINGS 1 & 3 HORIZONTAL, F.F.
A609	X	9 9	13'-11"		WINGS 1 & 3 HORIZONTAL, B.F. & TOP
A510	X	34 34	12'-10"	X	WINGS - VERTICAL
A411	X	16 16	11'-7"		WINGS - HORIZONTAL
A612	X	4 4	11'-7"		WINGS - HORIZONTAL, TOP
A413		4 4	20'-0"		BODY - HORIZONTAL UNDER GIRDER 2-4
A514		21 21	5'-7"	X	BODY - TOP UNDER GIRDER 2-4
A515	X	6 6	14'-8"		WINGS 2 & 4 HORIZONTAL, F.F.
A616	X	9 9	14'-1"		WINGS 2 & 4 HORIZONTAL, B.F. & TOP
A417	X	24	2'-0"		WINGS 1 & 2 HORIZONTAL (WEST ABUT.)



BAR BENDING DIAGRAMS

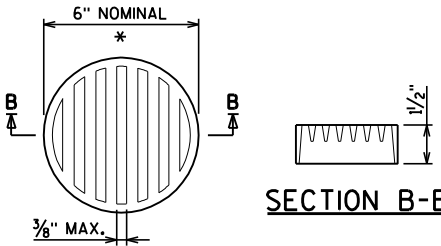
NOTES:

- ▲ OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" X 6". (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED.)
- 1/2" FILLER, SEALER (EXTEND TO TOP OF WING)
- ☆ A417 BARS SPACED @ 1'-0" CTRS. EMBED 1'-0" INTO WING CONC. LOCATE 3" DOWN FROM TOP OF WING @ BACKFACE TO 6" DOWN @ WING TIP. (DRILLED IN EPOXY ANCHORED #4 BARS 2'-0" LONG MAY BE USED.) COST INCIDENTAL TO BID ITEM "BAR STEEL REINFORCEMENT HS COATED BRIDGES".



HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

STEEL 'HP' SHAPES
STEEL 'HP' PILE MATERIAL SHALL BE A.S.T.M. DESIGNATION A36.



RODENT SCREEN DETAIL

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

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

THE RODENT SCREEN 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 SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SHEET METAL SCREWS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-71-189			
DRAWN BY		BRE	PLANS CK'D. KRO
ABUTMENT DETAILS		SHEET 4 OF 9	

GIRDER NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL BE TROWEL FINISHED.

DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

STRANDS SHALL BE FLUSH WITH THE END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, ENDS OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, ONE OPTION IS AVAILABLE:

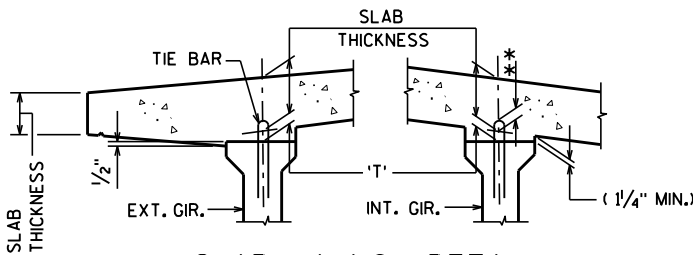
USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF, (608)266-5161.

PRESTRESSING STRANDS SHALL BE 0.5" DIA. -7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 psi.

BEND EACH END OF #4 STIRRUPS $4\frac{1}{2}$ " AND #5 STIRRUPS 6".

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.



SLAB HAUNCH DETAIL

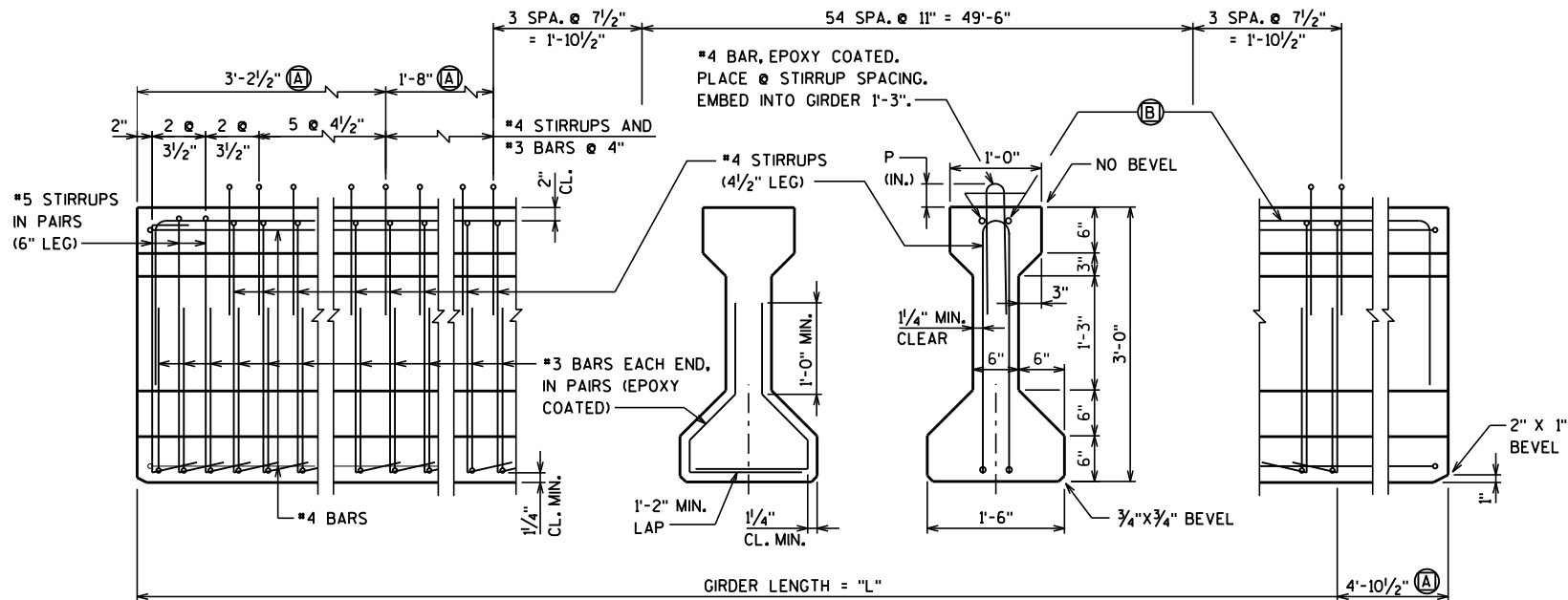
IF $1\frac{1}{4}$ " MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN $\frac{1}{2}$ " OR.

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

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT $\frac{1}{2}$ OF SUBSTRUCTURE UNITS & AT $\frac{1}{10}$ POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- SLAB THICKNESS
= HAUNCH HEIGHT 'T'

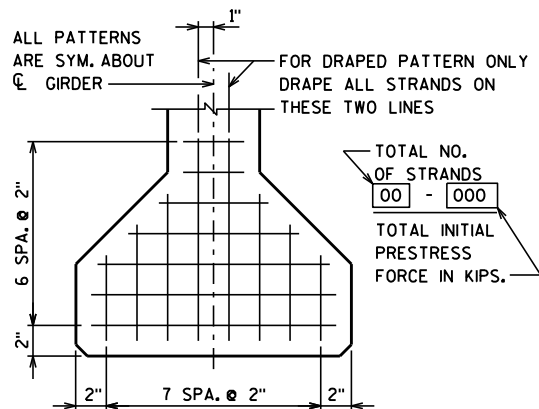
NOTE: AN AVERAGE HAUNCH "T" OF $2\frac{1}{2}$ " WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES"



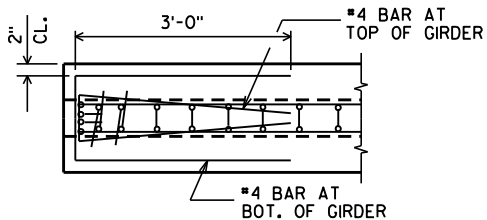
SIDE VIEW & TYP. SECTION IN SPAN

(A) DETAIL TYP. AT EACH END

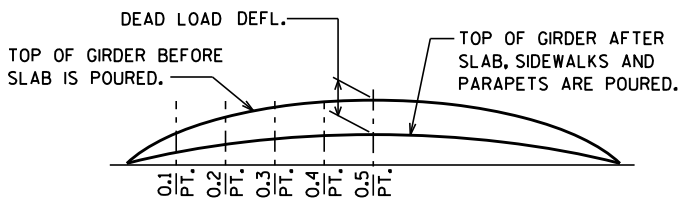
(B) (2) #4 - BARS BEND DOWN 16 BAR DIA. AT ENDS, 1'-11" MIN. LAP



TYP. STRAND PATTERN

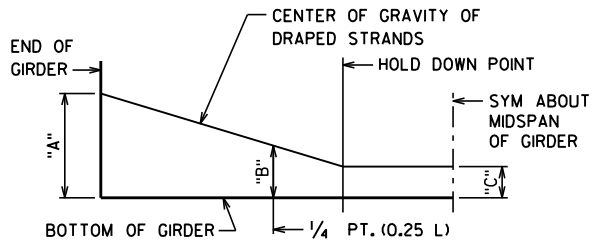


TOP VIEW OF GIRDER ENDS



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEAD LOAD DEFLECTIONS ARE THEORETICAL AND MAY VARY FROM ACTUAL FIELD CONDITIONS

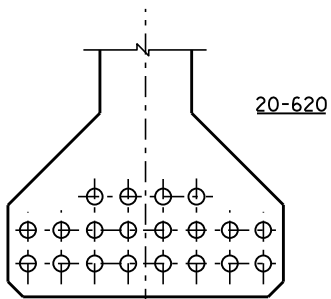


DRAPED STRAND PROFILE

* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	1.8

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

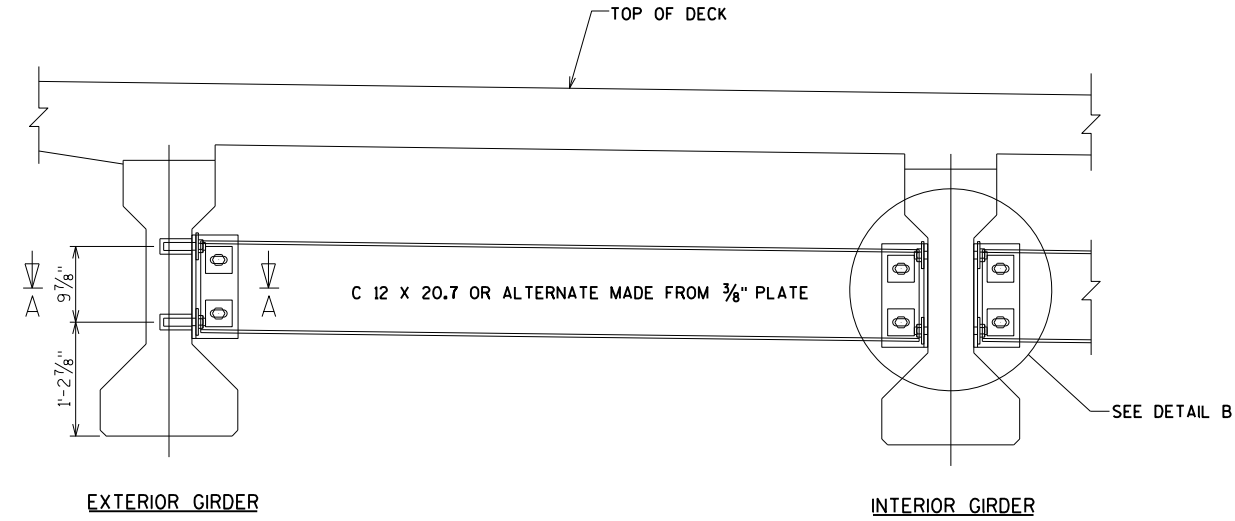


DRAPED PATTERN

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

GIRDER DATA																			
SPAN	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)					CONC. STRGTH. f'c (p.s.i.)	"P" 1ST 1/2 OF GIRDER	"P" MID 1/2 OF GIRDER	"P" END 1/2 OF GIRDER	DIA. OF STRAND	DRAPED PATTERN					UNDRAPED PATTERN		
		1/10	2/10	3/10	4/10	5/10						TOTAL NO. OF STRANDS	f'ci (p.s.i.) *	(IN.)				TOTAL NO. OF STRANDS	f'ci (p.s.i.) *
														"A"	"B" MIN.	"B" MAX.	"C"		
1	63'-0"	0.29	0.56	0.78	0.92	0.97	8000	7"	6"	7"	0.5"	20	6800	32	11	14	4	---	---

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-71-189			
DRAWN BY		BRE	PLANS CK'D. KRO
36" PRESTRESSED GIRDER DETAILS		SHEET 5 OF 9	



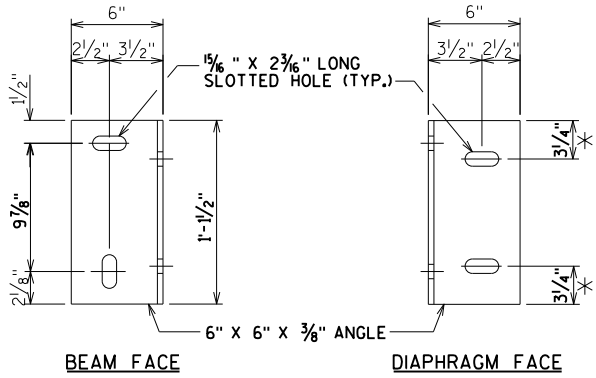
PART TRANSVERSE SECTION AT DIAPHRAGM

NOTES

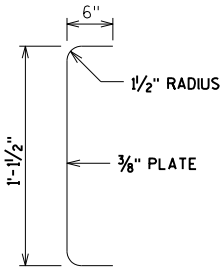
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-71-189", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT. ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

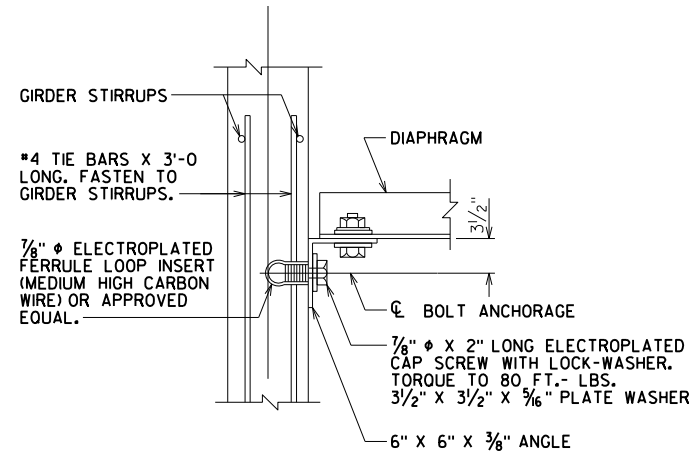
ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S10 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.



DIAPHRAGM SUPPORT

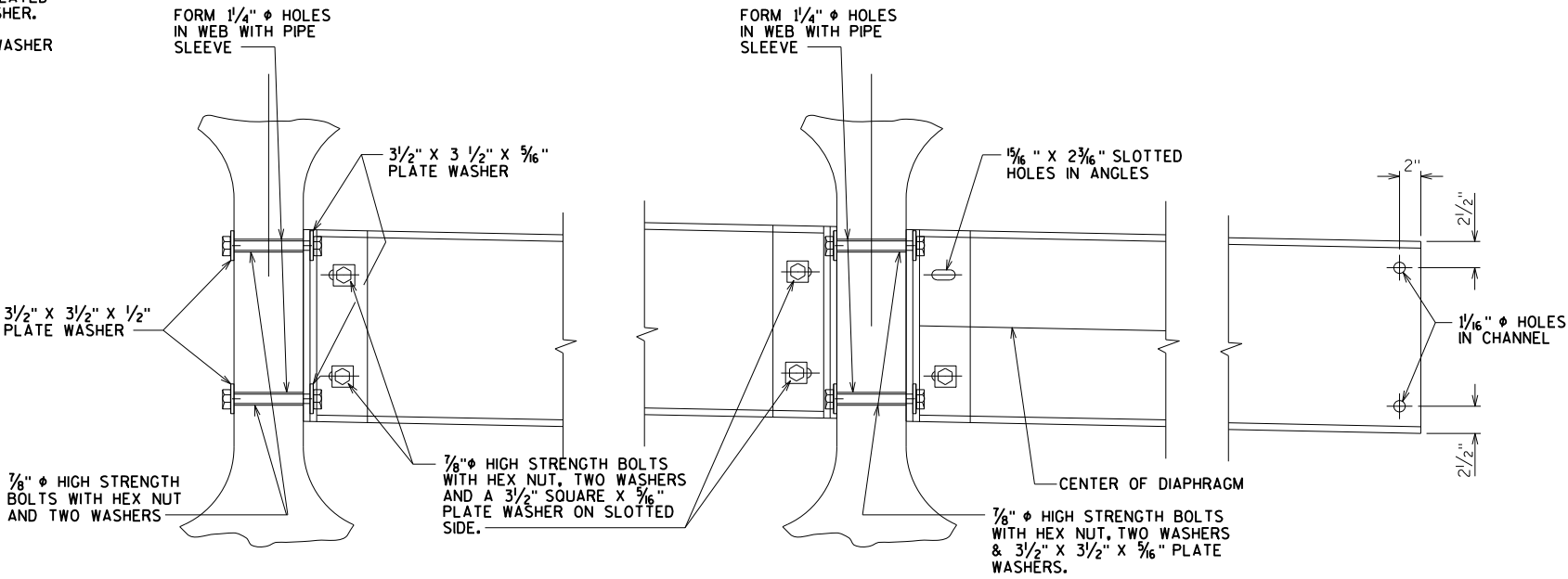


SECTION THRU ALTERNATE DIAPHRAGM



SECTION A-A

(FOR EXTERIOR ATTACHMENT)

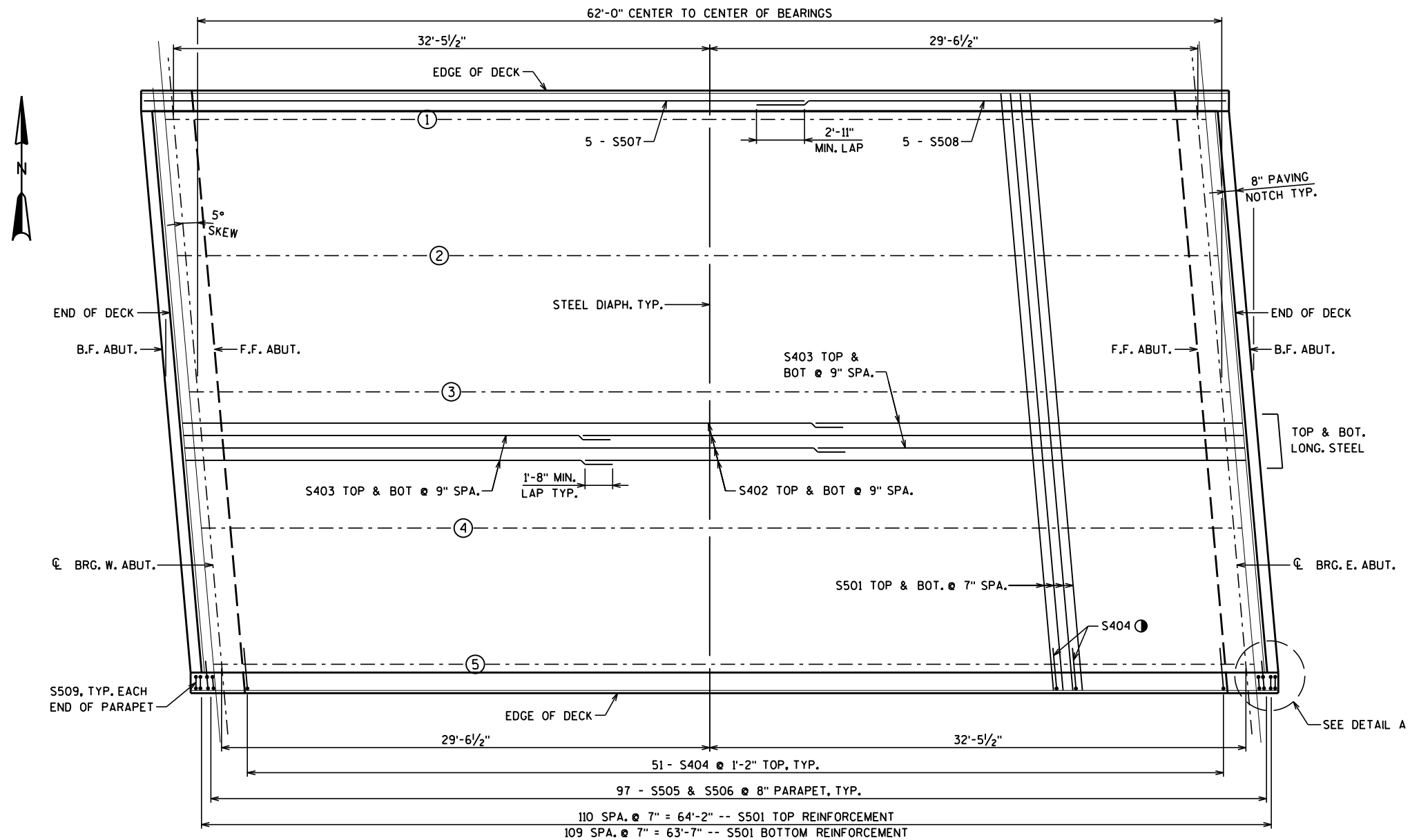


(FOR STAGGERED DIAPHRAGM)

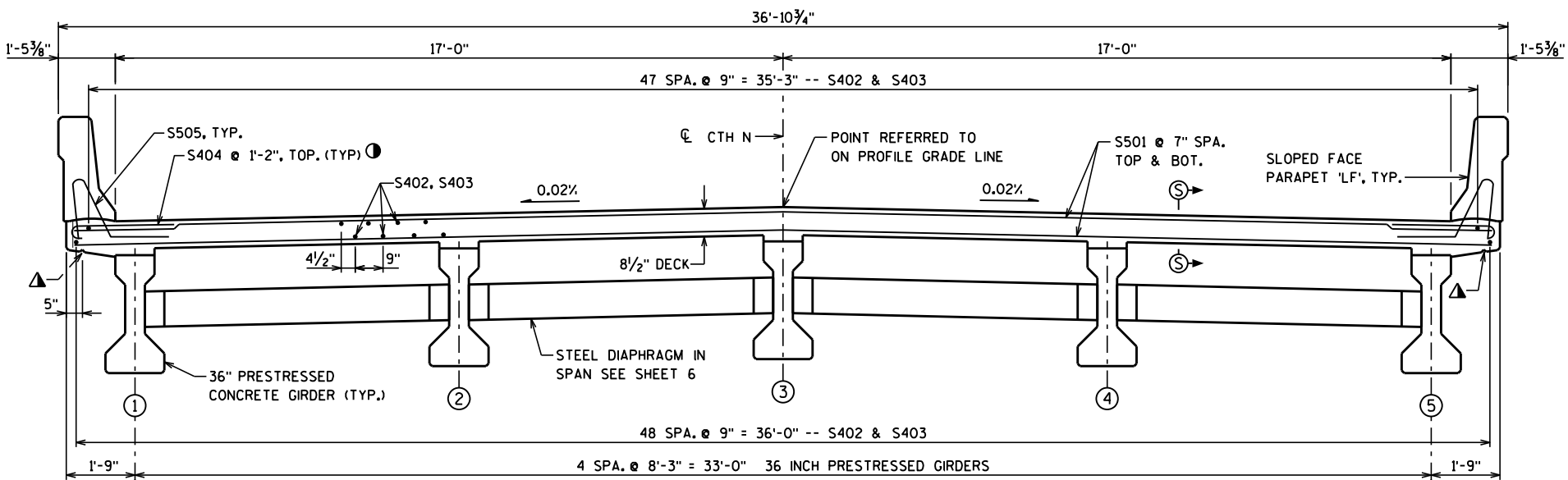
(FOR CONTINUOUS LINE OF DIAPHRAGMS)

DETAIL B

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-71-189			
DRAWN BY		BRE	PLANS CK'D. KRO
STEEL DIAPHRAGM		SHEET 6 OF 9	



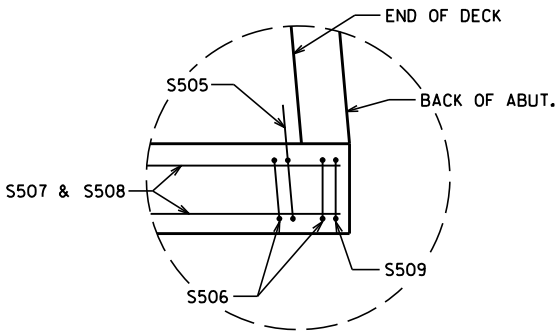
PLAN



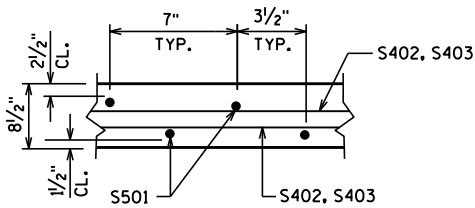
CROSS SECTION THRU ROADWAY

NOTES:

- LAP S404 ONTO EVERY OTHER TRANSVERSE BAR IN THE TOP MAT AS SHOWN
- ▲ 3/4" V-GROOVE. EXTEND V-GROOVE TO 3" FROM FRONT FACE OF ABUTMENT DIAPHRAGM.

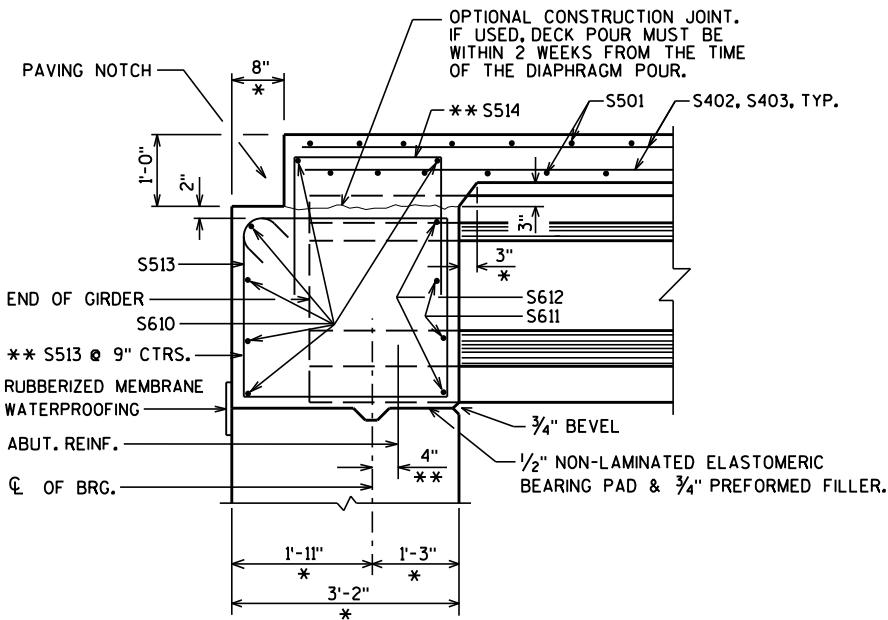


DETAIL A



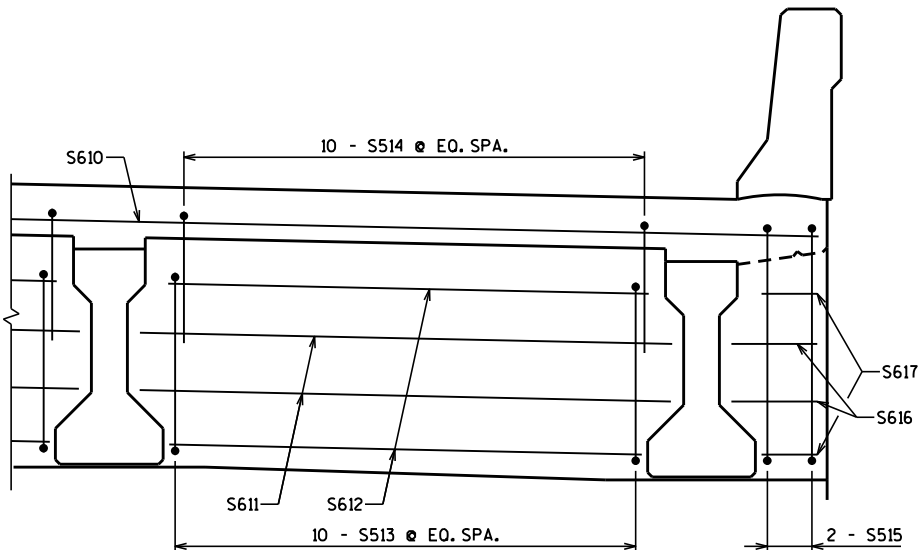
SECTION S-S

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-71-189			
DRAWN BY		BRE	PLANS CK'D. KRO
SUPERSTRUCTURE		SHEET 7 OF 9	



AT ABUTMENTS
PART LONGIT. SECTION

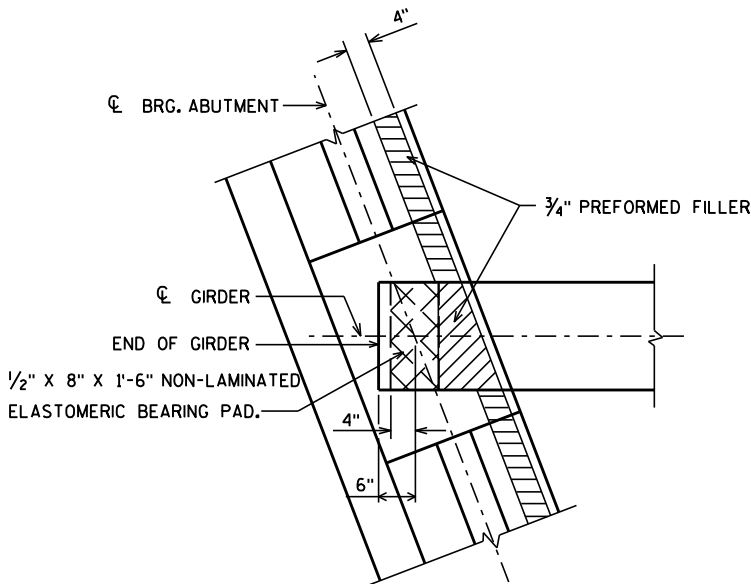
* DIMENSION IS TAKEN NORMAL TO
CL SUBSTRUCTURE UNITS.
** DIMENSION IS TAKEN PARALLEL
TO CL GIRDER.



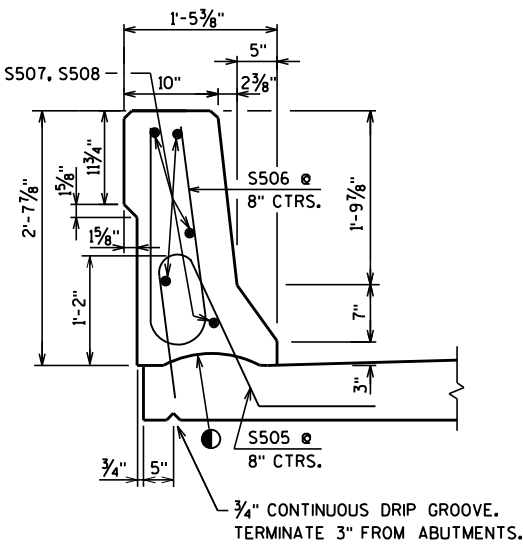
DIAPHRAGM DETAILS AT ABUTMENTS

BILL OF BARS

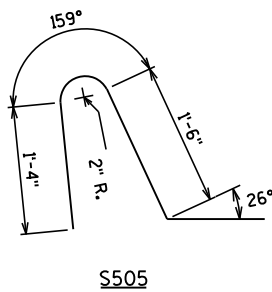
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	X	221	36'-3"		TRANS. TOP & BOTTOM
S402	X	97	40'-0"		LONG. TOP & BOTTOM
S403	X	97	25'-10"		LONG. TOP & BOTTOM
S404	X	102	3'-1"	X	TRANSVERSE AT OVERHANG
S505	X	194	4'-2"	X	PARAPET VERTICAL
S506	X	198	4'-10"	X	PARAPET VERTICAL
S507	X	10	40'-0"		PARAPET HORIZONTAL
S508	X	10	28'-5"		PARAPET HORIZONTAL
S509	X	4	4'-7"	X	PARAPET VERTICAL ENDS
S610	X	12	36'-3"		DIAPH. HORIZONTAL B.F.
S611	X	16	7'-5"		DIAPH. HORIZONTAL F.F.
S612	X	16	6'-5"		DIAPH. HORIZONTAL F.F.
S513	X	80	11'-3"	X	DIAPH. VERTICAL
S514	X	80	5'-9"	X	DIAPH. VERTICAL
S515	X	8	13'-1"	X	DIAPH. ENDS VERTICAL
S616	X	8	1'-2"		DIAPH. ENDS HORIZONTAL
S617	X	8	0'-8"		DIAPH. ENDS HORIZONTAL



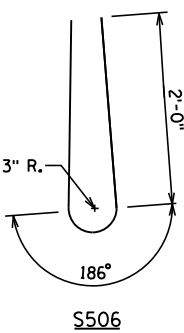
BEARING PAD DETAIL



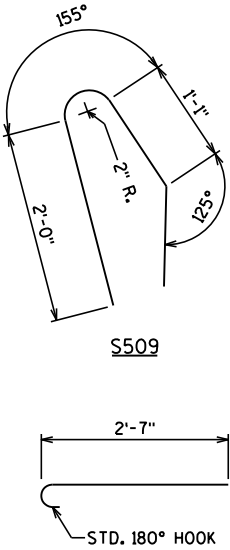
SECTION THRU PARAPET ON BRIDGE



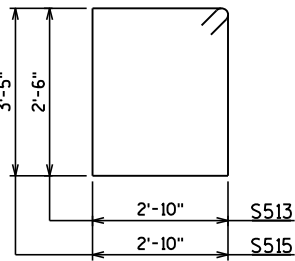
S505



S506

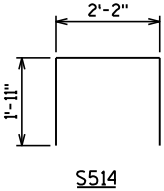


S509

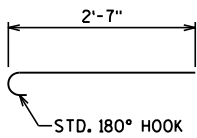


S513

S515



S514



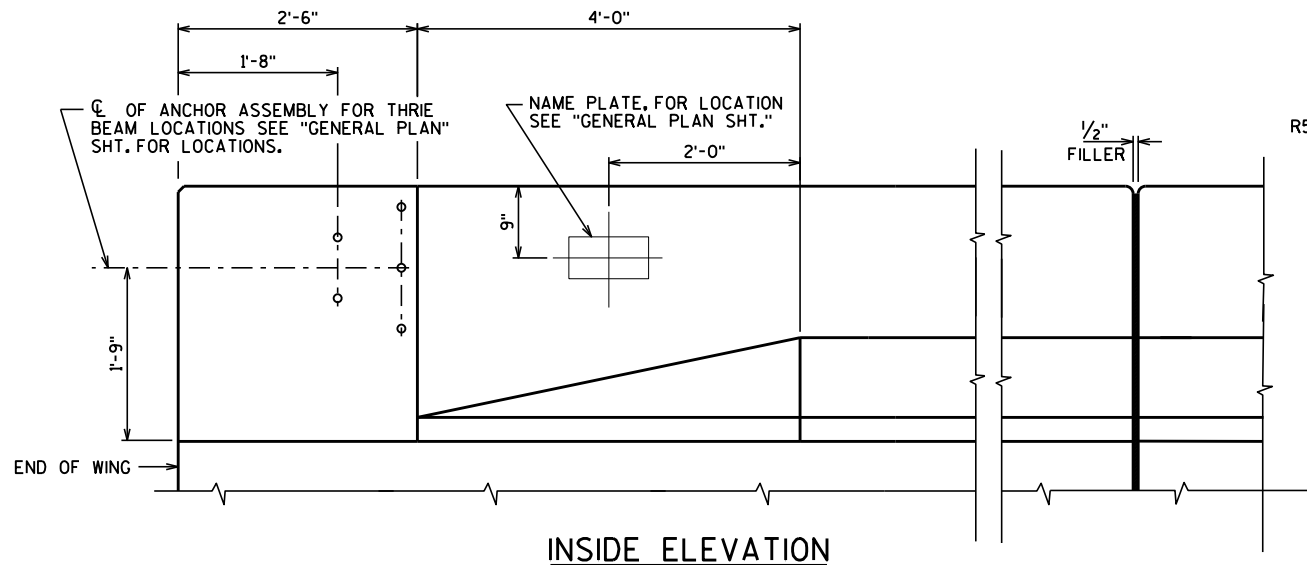
S404

BAR BEND DIAGRAMS

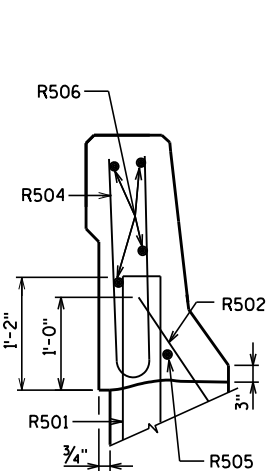
TOP OF DECK ELEVATIONS

LOCATION	W.ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	E. ABUT.
N. EDGE	1125.24	1125.27	1125.30	1125.33	1125.36	1125.39	1125.42	1125.45	1125.48	1125.52	1125.55
GIRDER 1	1125.25	1125.28	1125.31	1125.34	1125.37	1125.40	1125.43	1125.46	1125.50	1125.53	1125.56
GIRDER 2	1125.42	1125.45	1125.48	1125.51	1125.54	1125.57	1125.60	1125.63	1125.66	1125.70	1125.73
GIRDER 3	1125.59	1125.62	1125.65	1125.68	1125.71	1125.74	1125.77	1125.80	1125.83	1125.86	1125.90
GIRDER 4	1125.42	1125.45	1125.49	1125.52	1125.55	1125.58	1125.61	1125.64	1125.67	1125.70	1125.73
GIRDER 5	1125.26	1125.29	1125.32	1125.36	1125.39	1125.42	1125.45	1125.48	1125.51	1125.54	1125.57
S. EDGE	1125.25	1125.28	1125.32	1125.35	1125.38	1125.41	1125.44	1125.47	1125.50	1125.53	1125.56

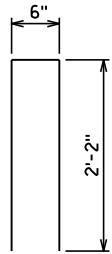
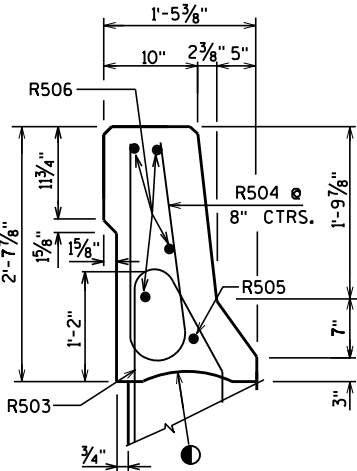
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-71-189			
DRAWN BY		BRE	PLANS CK'D. KRO
SUPERSTRUCTURE DETAILS		SHEET 8 OF 9	



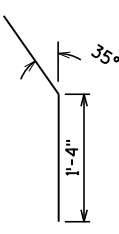
SECTION A



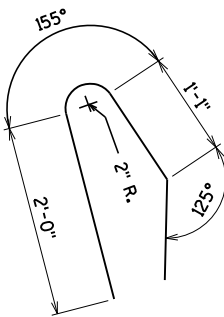
SECTION C



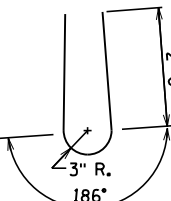
R501



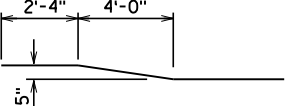
R502



R503

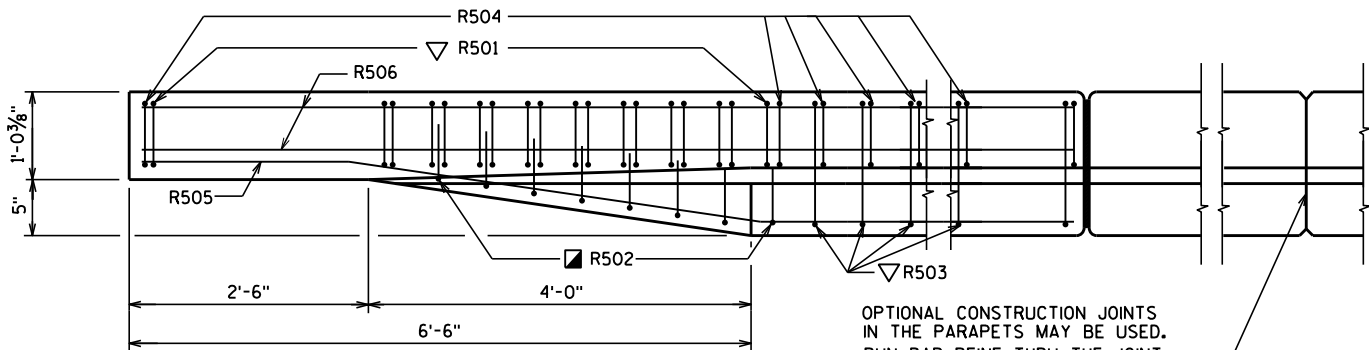


R504

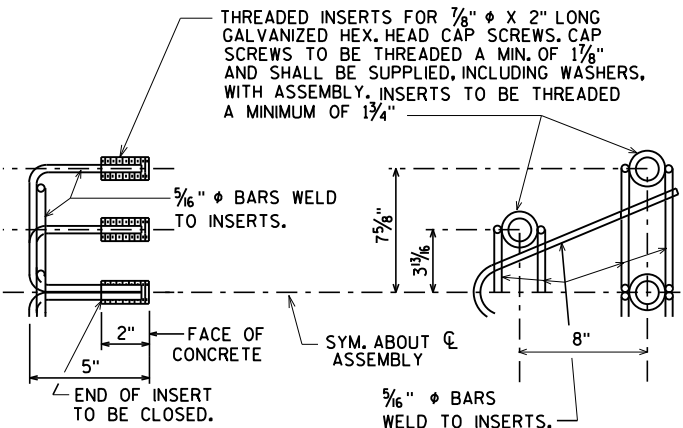


R505

BAR BEND DIAGRAMS



PLAN



DETAIL OF ANCHOR ASSEMBLY

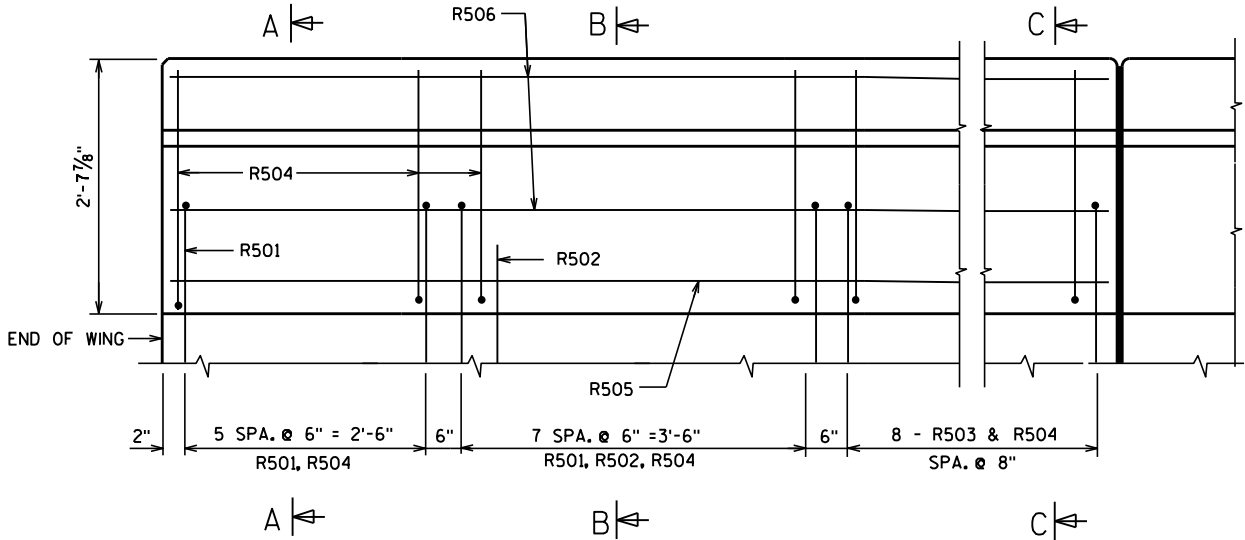
NOTE: HEX. HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

NOTES

- CONST. JOINT - STRIKE OFF AS SHOWN.
- R502 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R502 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ R501 AND R503 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

BILL OF BARS

BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	LOCATION
R501	X	28	28	4'-7"	X	WINGS - PARAPET VERTICAL
R502	X	16	16	2'-4"	X	WINGS - PARAPET VERTICAL
R503	X	16	16	4'-7"	X	WINGS - PARAPET VERTICAL
R504	X	44	44	4'-10"	X	WINGS - PARAPET VERTICAL
R505	X	2	2	11'-7"	X	WINGS - PARAPET HORIZONTAL
R506	X	8	8	11'-7"		WINGS - PARAPET HORIZONTAL



OUTSIDE ELEVATION

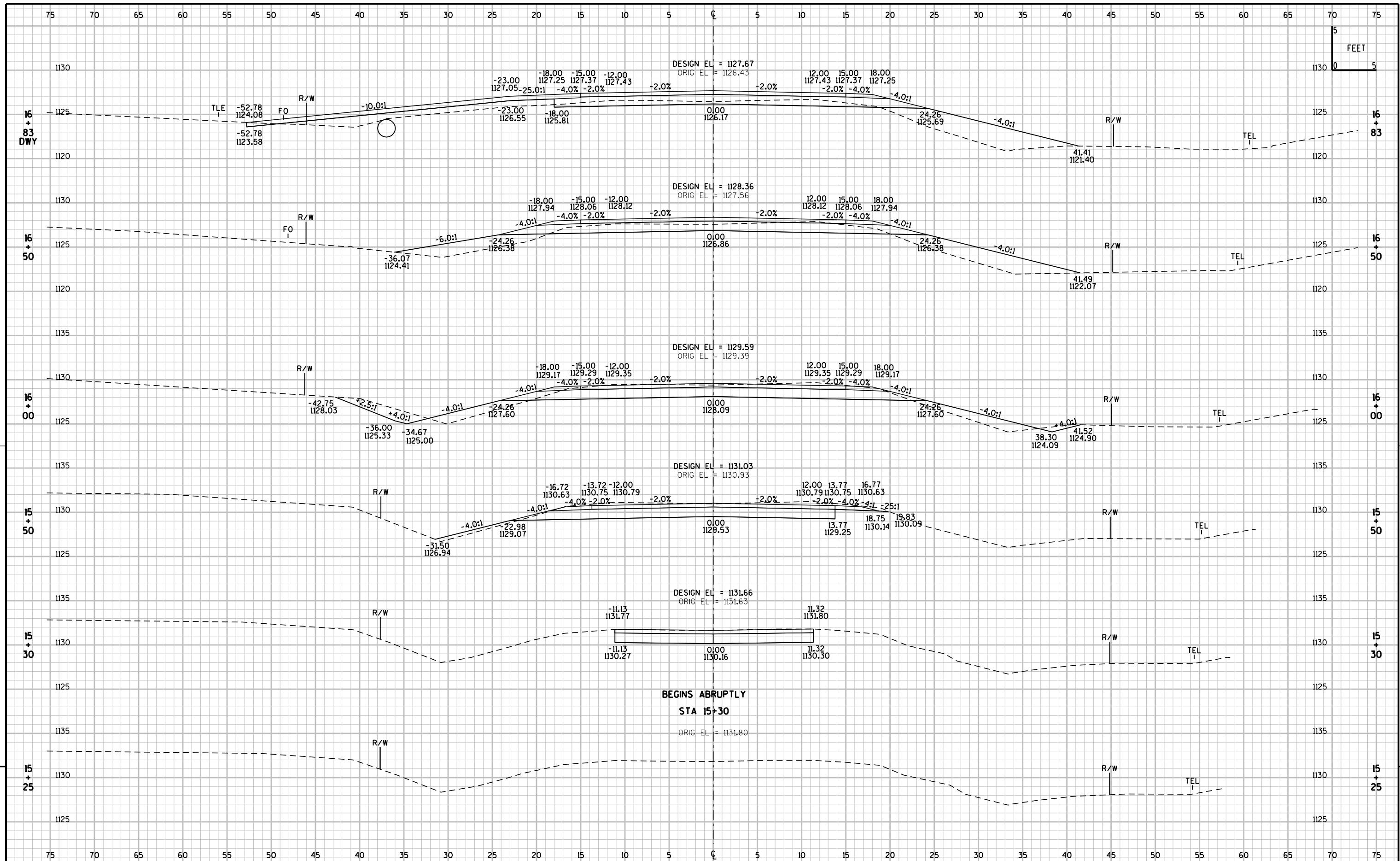
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-71-189			
DRAWN BY		BRE	PLANS CK'D. KRO
SLOPED FACE PARAPET TYPE LF			SHEET 9 OF 9

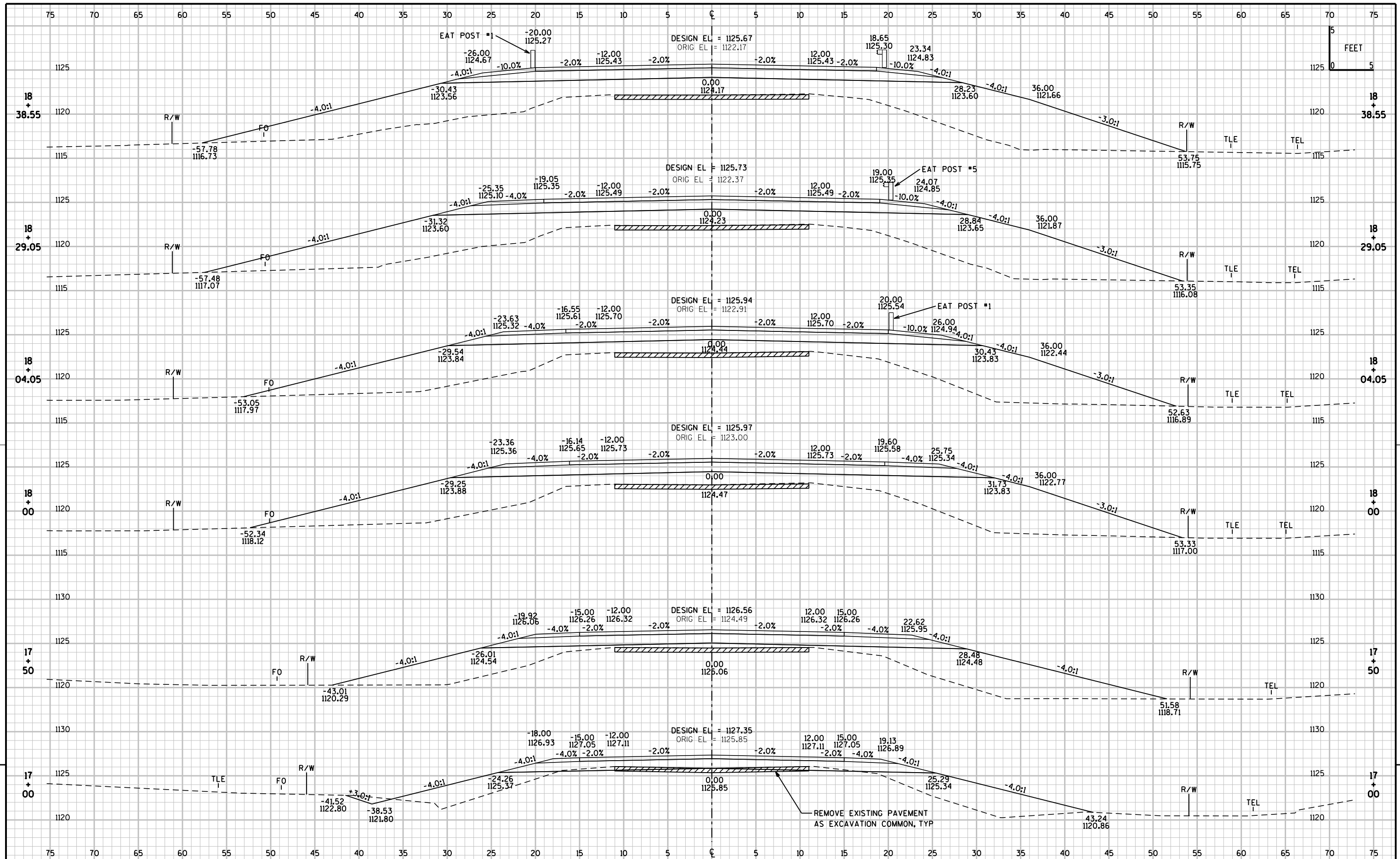
CTH N - WEST

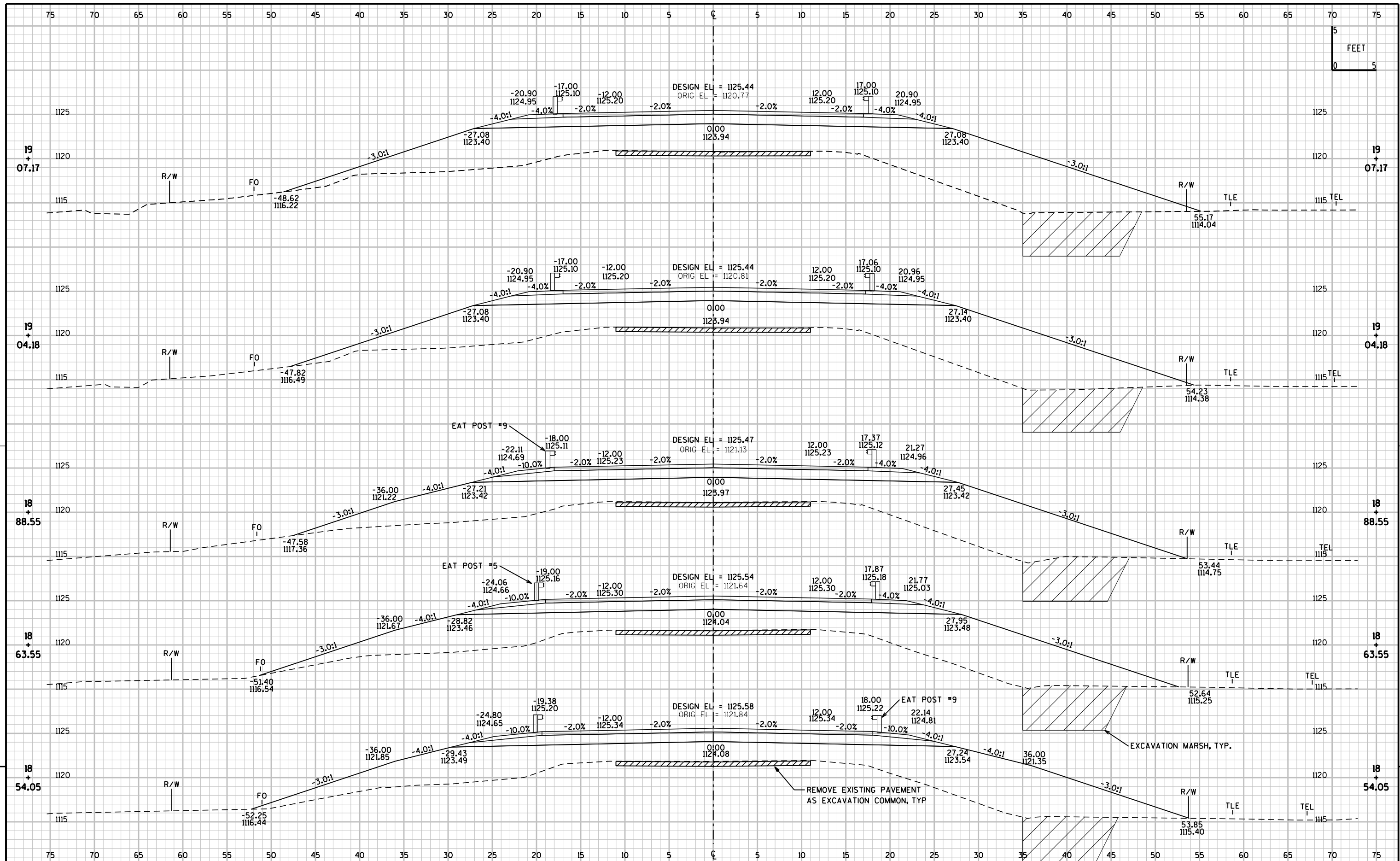
STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)				Mass Ordinate
	Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.3	Expanded Marsh Backfill 1.50	Reduced Marsh in Fill 0.60	
15+30.00	34	11	0	0	0	0	0	0	0	0	0	0	0
15+50.00	57	11	3	0	33	8	1	0	33	1	0	0	24
16+00.00	68	11	20	0	115	20	21	0	149	29	0	0	91
16+50.00	32	11	46	0	93	20	61	0	242	108	0	0	85
17+00.00	15	11	81	0	44	20	117	0	286	261	0	0	-44
17+50.00	11	11	170	0	24	20	233	0	310	563	0	0	-343
18+00.00	11	11	279	0	20	20	416	0	330	1105	0	0	-884
18+04.05	11	11	280	0	2	2	42	0	332	1159	0	0	-939
18+29.05	11	11	322	0	10	10	278	0	342	1521	0	0	-1301
18+38.55	11	11	328	0	4	4	114	0	346	1670	0	0	-1449
18+54.05	11	11	316	48	6	6	185	14	352	1899	21	8	-1665
18+63.55	11	11	312	53	4	4	110	18	356	2029	47	19	-1777
18+88.55	11	11	340	53	10	10	302	49	366	2383	120	48	-2083
19+04.18	11	11	363	60	6	6	203	33	373	2622	169	68	-2289
19+07.17	11	11	370	60	1	1	41	7	374	2670	179	72	-2330
19+50.00	16	11	408	73	21	17	618	106	395	3390	338	135	-2941
19+67.07	22	11	238	74	12	7	204	46	407	3620	407	163	-3119
STRUCTURE	0	0	0	0	0	0	0	0	407	3620	407	163	-3119
ENDS ABRUPTLY	0	0	0	0	0	0	0	0	407	3620	407	163	-3119

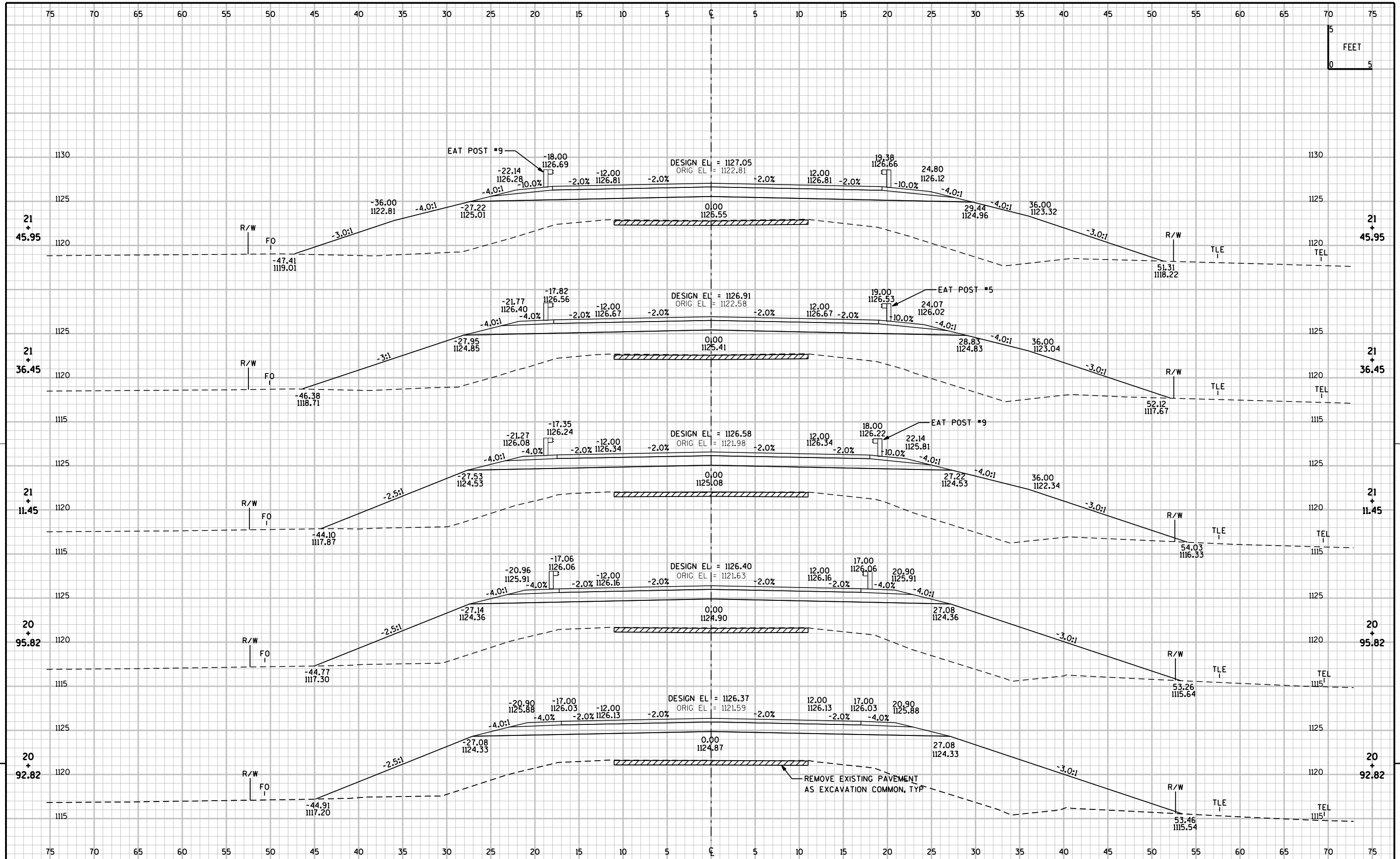
CTH N - EAST

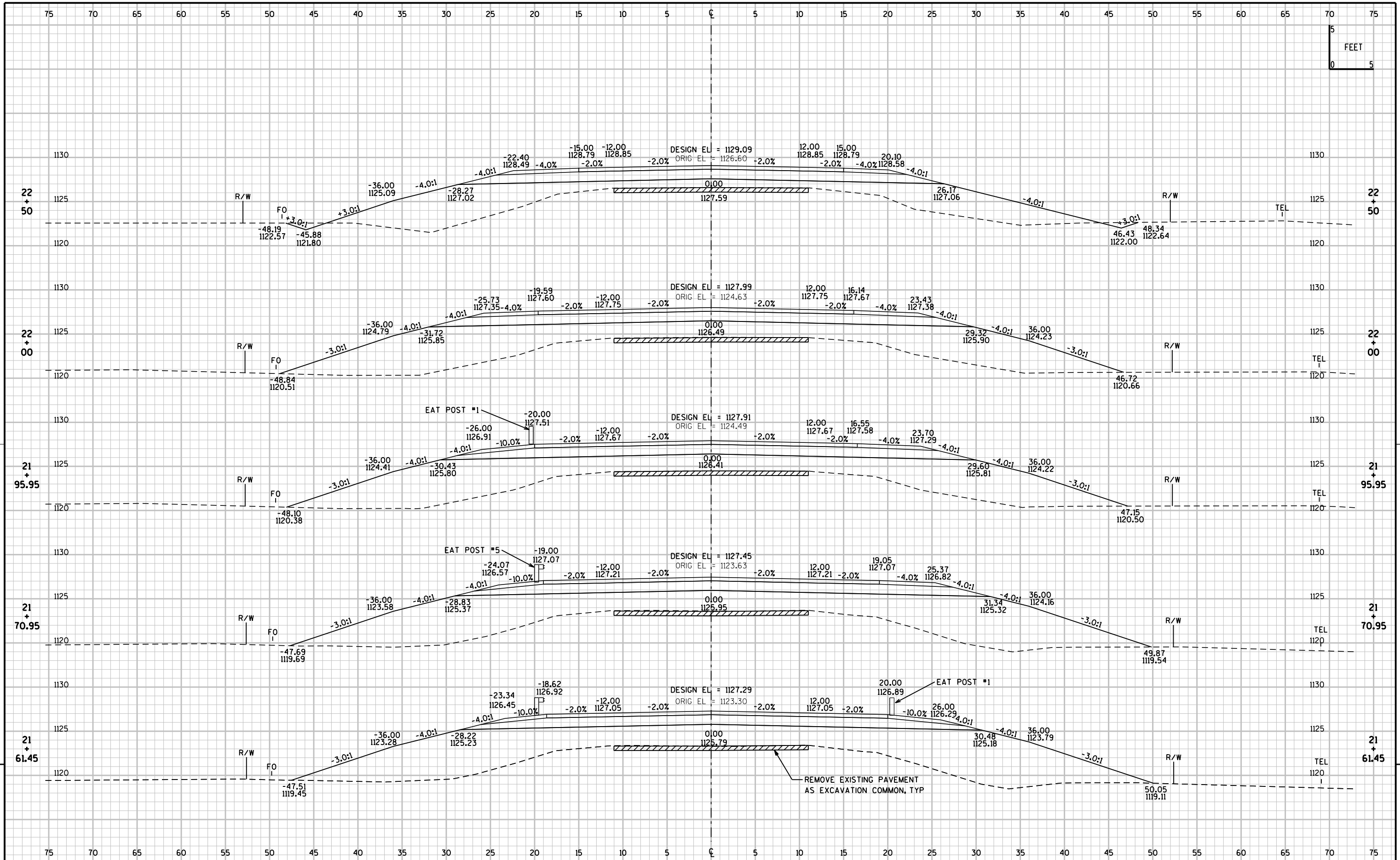
STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)				Mass Ordinate
	Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Cut	Expanded Fill	Expanded Marsh Backfill	Reduced Marsh in Fill	
									1.00	1.3	1.50	0.60	
STRUCTURE	0	0	0	0	0	0	0	0	0	0	0	0	0
BEGINS ABRPUTLY	0	0	0	0	0	0	0	0	0	0	0	0	0
20+32.93	11	11	318	0	0	0	0	0	0	0	0	0	0
20+50.00	11	11	409	147	7	7	230	46	7	263	70	28	-216
20+92.82	11	11	373	0	17	17	620	117	24	978	245	98	-815
20+95.82	11	11	370	0	1	1	41	0	26	1031	245	98	-868
21+11.45	11	11	361	0	6	6	211	0	32	1306	245	98	-1143
21+36.45	11	11	342	0	10	10	325	0	42	1729	245	98	-1566
21+45.95	11	11	337	0	4	4	119	0	46	1884	245	98	-1721
21+61.45	11	11	319	0	6	6	188	0	52	2129	245	98	-1966
21+70.95	11	11	310	0	4	4	111	0	56	2273	245	98	-2110
21+95.95	11	11	268	0	10	10	267	0	66	2621	245	98	-2458
22+00.00	11	11	265	0	2	2	40	0	68	2673	245	98	-2510
22+50.00	14	11	180	0	23	20	413	0	91	3209	245	98	-3044
23+00.00	25	11	113	0	36	20	271	0	127	3562	245	98	-3381
23+50.00	34	11	54	0	55	20	154	0	182	3763	245	98	-3547
24+00.00	59	11	21	0	87	20	70	0	269	3854	245	98	-3571
24+15.00	34	11	0	0	26	6	6	0	295	3861	245	98	-3559



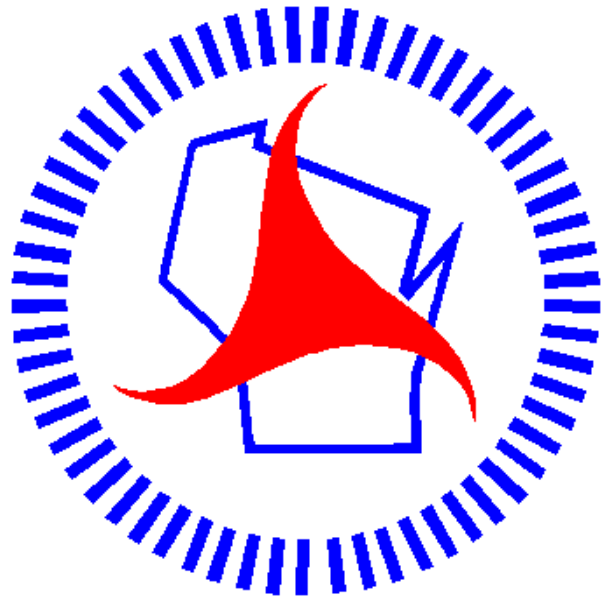








Notes



Wisconsin Department of Transportation

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