

RHI

FEB 2015

PROJECT ID: 9180-23-70

COUNTY: SHAWANO

ORDER OF SHEETS

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

TOTAL SHEETS = 44

21

21

DESIGN DESIGNATION

A.A.D.T. (2014)	= 7,100
A.A.D.T. (2032)	= 8,800
D.H.V. (2032)	= 1,000
D.D.	= 62-38
T.	= 5.8%
DESIGN SPEED	= 55 MPH
ESALS	= 1,109,600

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS

PROPERTY LINE

LOT LINE

LIMITED HIGHWAY EASEMENT

EXISTING RIGHT OF WAY

PROPOSED OR NEW R/W LINE

SLOPE INTERCEPT

REFERENCE LINE

EXISTING CULVERT

PROPOSED CULVERT (Box or Pipe)

COMBUSTIBLE FLUIDS

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

GRADE LINE

ORIGINAL GROUND

MARSH OR ROCK PROFILE (To be noted as such)

SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES

ELECTRIC

FIBER OPTIC

GAS

SANITARY SEWER

STORM SEWER

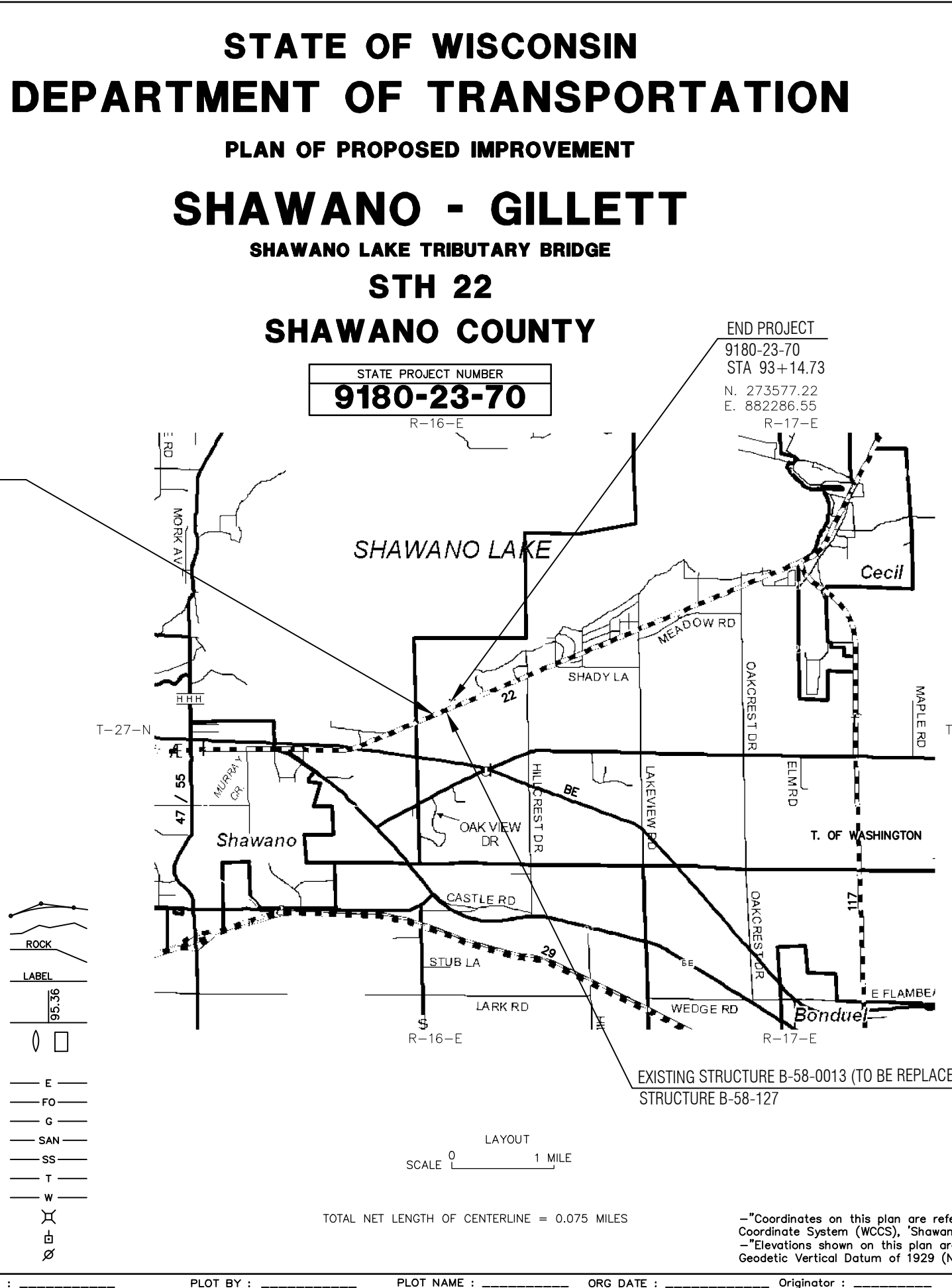
TELEPHONE

WATER

UTILITY PEDESTAL

POWER POLE

TELEPHONE POLE



STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9180-23-70	WISC 2015096	1

ORIGINAL PLANS PREPARED BY
McMAHON
ENGINEERS ARCHITECTS

WISCONSIN
MICHAEL R. SIMON
E-25860
APPLETON
WIS.
PROFESSIONAL ENGINEER

7-24-14
DATE

SIGNATURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
SURVEYOR
DESIGNER
PROJECT MANAGER
REGIONAL EXAMINER
REGIONAL SUPERVISOR
C.O. EXAMINER

McMAHON
McMAHON
JIM VOLKMAN
CHERYL SIMON
ANNA WISNER

APPROVED FOR THE DEPARTMENT
DATE: 12-02-2014

(SIGNATURE)

E

GENERAL NOTES:

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

WHERE THE QUANTITY OF BASE AGGREGATE DENSE AND HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON. THE DEPTH OR THICKNESS OF THE COURSE, AS SHOWN ON THE PLANS, IS APPROXIMATE. THE ACTUAL THICKNESS WILL DEPEND UPON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

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

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREA WITHIN THE FINISHED SHOULDER POINTS, SHALL BE CONSTRUCTED WITH TOPSOIL, SOD, AND FERTILIZER, OR SALVAGED TOPSOIL, TEMPORARY SEED, AND COVERED WITH EROSION MAT. REFER TO EROSION CONTROL DETAIL FOR LOCATIONS.

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES.

FILL AS SHOWN ON THE PLAN SHEETS PERTAINS TO EMBANKMENTS CONSTRUCTED FROM EXCAVATION COMMON OR BORROW. THE SHRINKAGE ALLOWANCE USED TO COMPUTE THE VOLUME OF MATERIAL NECESSARY TO COMPLETE THE FILL IS 25 PERCENT.

THE RUNOFF COEFFICIENTS OF SURFACE DRAINAGE AT THE PROJECT SITE WILL NOT BE CHANGED FROM BEFORE TO AFTER CONSTRUCTION. THE TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES IS 1.0 ACRE.

A FLAGGER MAY BE REQUIRED WHERE CONSTRUCTION VEHICLES ENTER OR LEAVE "WORK ZONES" IF WARRANTED BY CONDITIONS.

UTILITY CONTACTS:

FRONTIER COMMUNICATIONS OF WI LLC – COMMUNICATION LINE
JAMES JASKOLSKI
26 WEST 12TH ST
CLINTONVILLE, WI 54929
(715) 823–1227
james.jaskolski@ftr.com

PACKERLAND BROADBAND – COMMUNICATION LINE
WAYNE CRETTON
105 KENT ST
IRON MOUNTAIN, MI 49801
(906) 774–6621 EXT 2328
wayne.cretton@packerlandbroadband.com

SHAWANO LAKE SANITARY DISTRICT 1 – SEWER & WATER
JERRY WEISNIGHT
N4802 RIVER BEND RD
P.O. BOX 452
SHAWANO, WI 54166
(715) 524–2175

WE ENERGIES – GAS:
CODY BECKMAN
PO BOX 1699
APPLETON, WI 54912–1699
OFFICE: (920) 380–3422
MOBILE: (920) 428–1038
cody.beckman@we-energies.com

WE ENERGIES – ELECTRIC:
STEVE ARMSTRONG
PO BOX 1699
APPLETON, WI 54912–1699
OFFICE: (920) 380–3563
MOBILE: (920) 428–2650
steven.armstrong@we-energies.com

WDNR CONTACT:

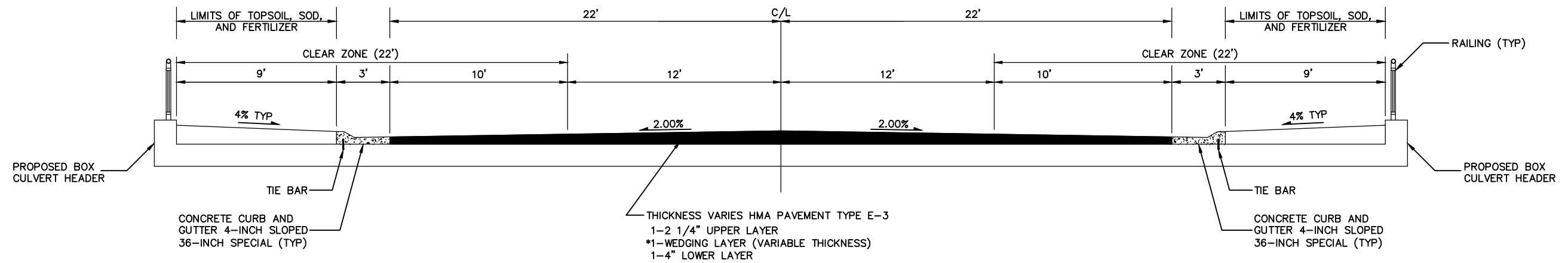
DEPARTMENT OF NATURAL RESOURCES
JIM DOPERALSKI
2984 SHAWANO AVE
GREEN BAY, WI 54313
(920) 662–5119



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



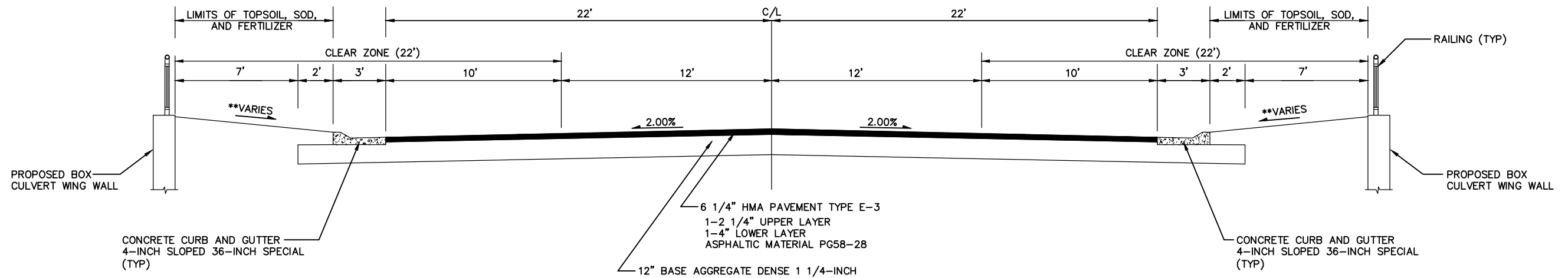
① POINT REFERRED TO ON CROSS SECTIONS



**FINISHED TYPICAL SECTION
STH 22**
91+11.73 - 91+40.73
(TOP OF STRUCTURE B-28-127)

REFER TO CURB PAVING DETAIL FOR LIMITS OF CURB & GUTTER

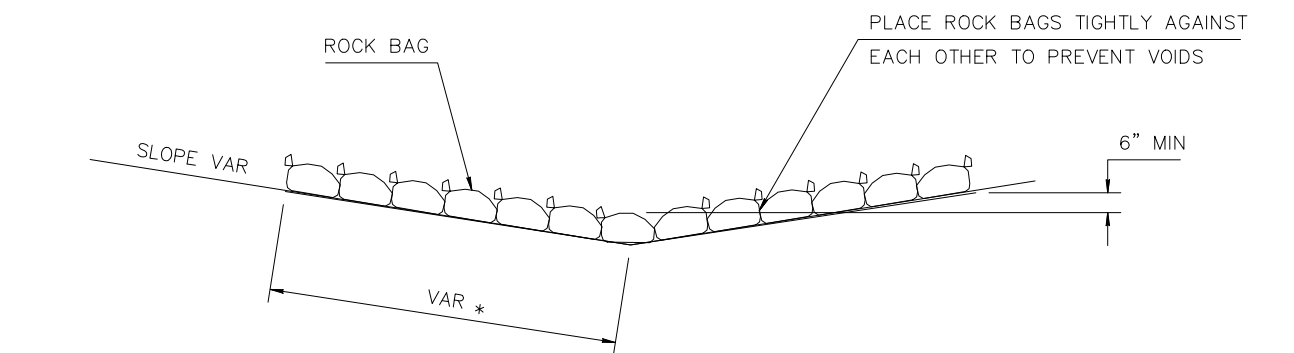
* IN ADDITION TO THE UPPER AND LOWER LAYERS,
A WEDGING LAYER (VARIABLE THICKNESS) IS
REQUIRED OVER THE STRUCTURE IN ORDER TO
MATCH PROPOSED CENTERLINE ELEVATIONS.
TOTAL HMA PAVEMENT OVER THE STRUCTURE IS
APPROXIMATELY 10 INCHES AT CENTERLINE.



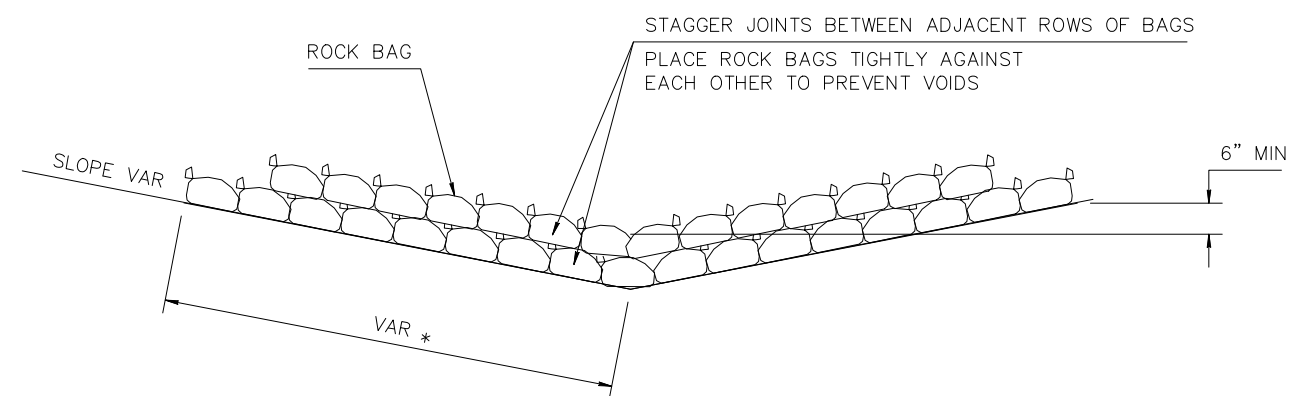
**FINISHED TYPICAL SECTION
STH 22**

90+91.52 - 91+11.73
91+40.73 - 91+70.07

** REFER TO CROSS SECTIONS FOR
ADDITIONAL INFORMATION



SIDE VIEW (SINGLE LAYER)

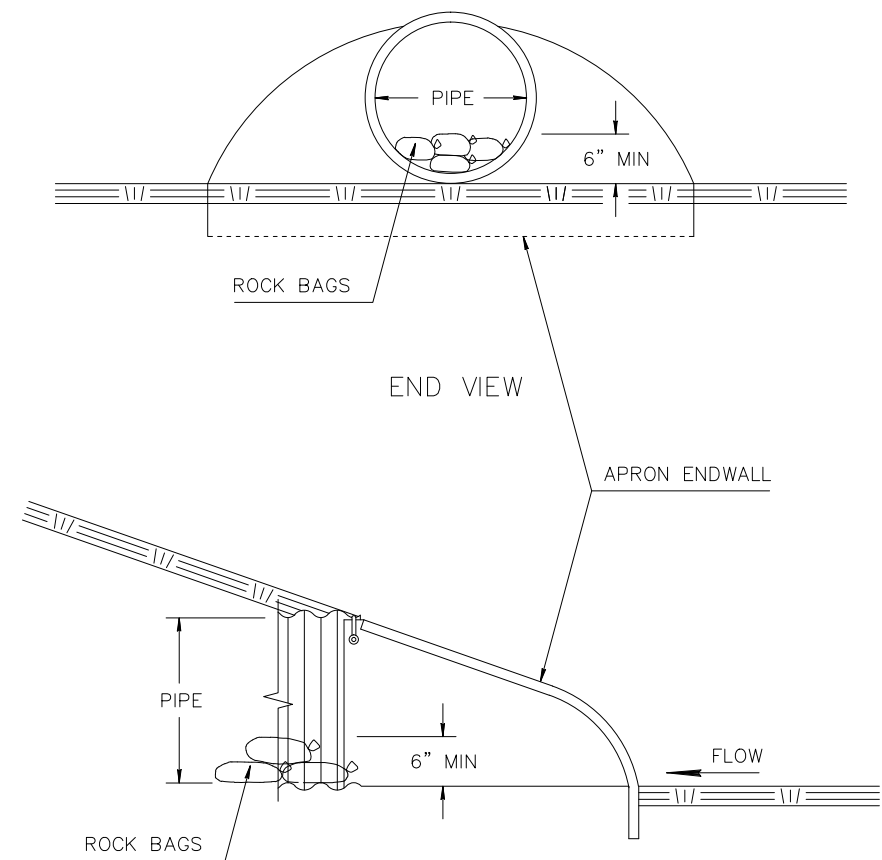


* LENGTH AND NUMBER OF BAGS MAY VARY
DEPENDING ON DESIRED DEPTH OF WATER POOL

SIDE VIEW (MULTIPLE LAYER)

ROCK BAGS DITCH CHECK

PAID AS ROCK BAGS

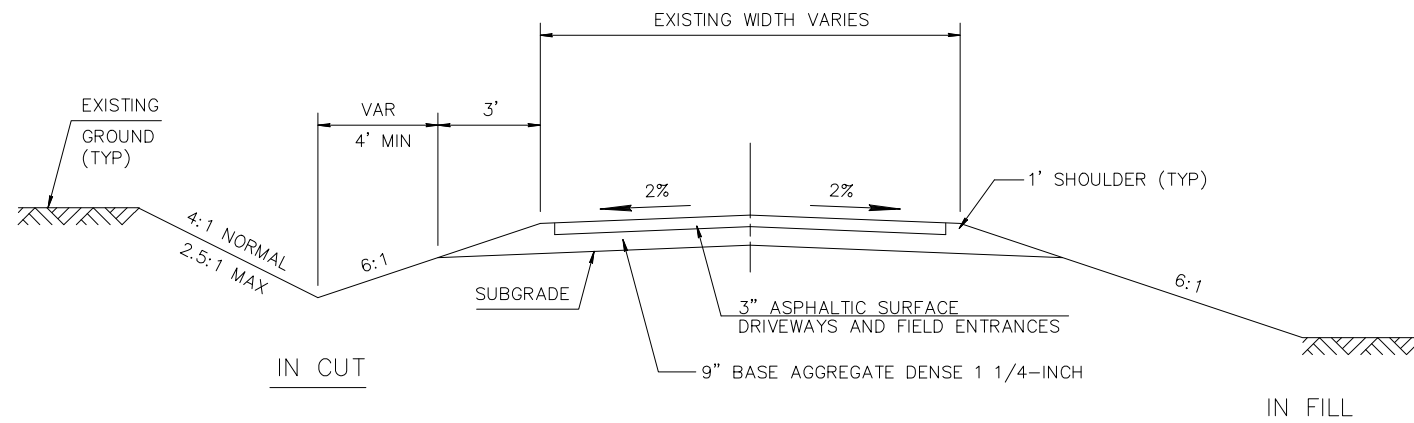


END VIEW

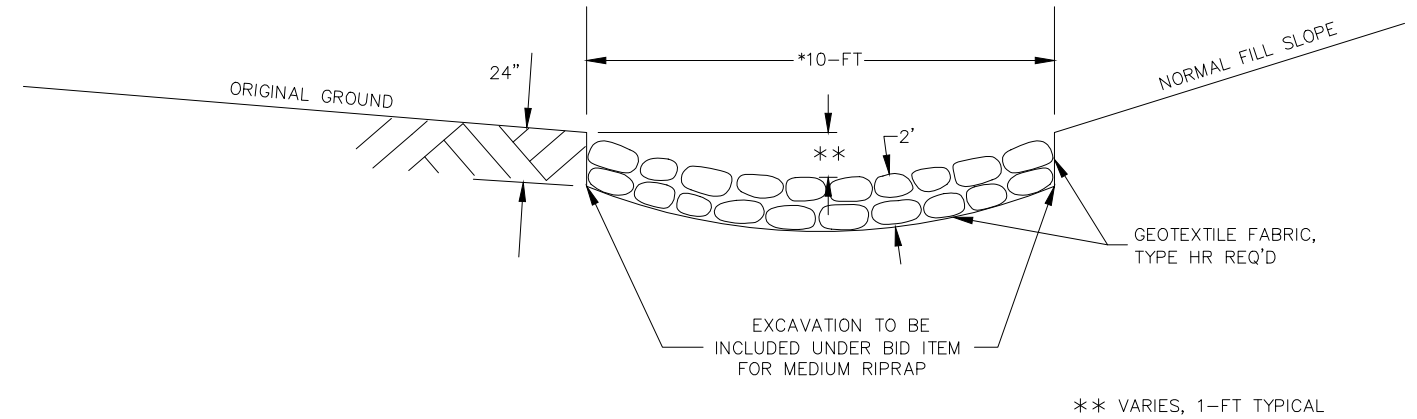
APRON ENDWALL

SIDE VIEW

CULVERT PIPE CHECKS

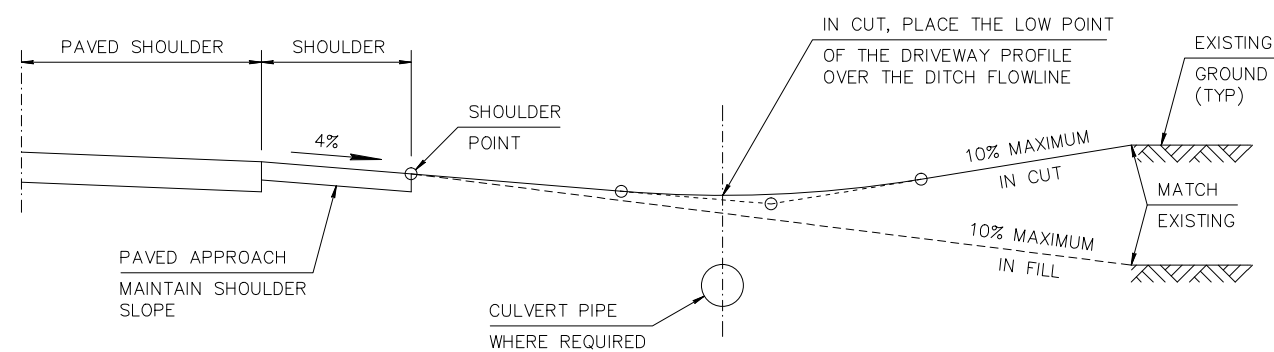


TYPICAL CROSS SECTION FOR PRIVATE DRIVE

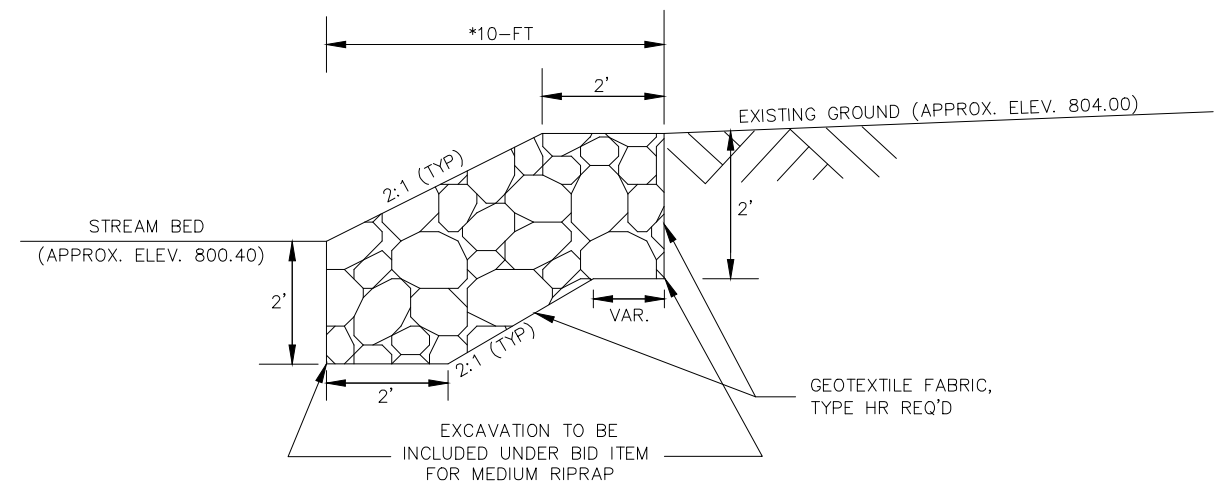


DETAIL FOR MEDIUM RIPRAP IN DITCHES

*DIMENSIONS AND RIPRAP/FABRIC QUANTITIES ARE APPROXIMATE.
ENGINEER MAY ADJUST TO MATCH FIELD CONDITIONS.

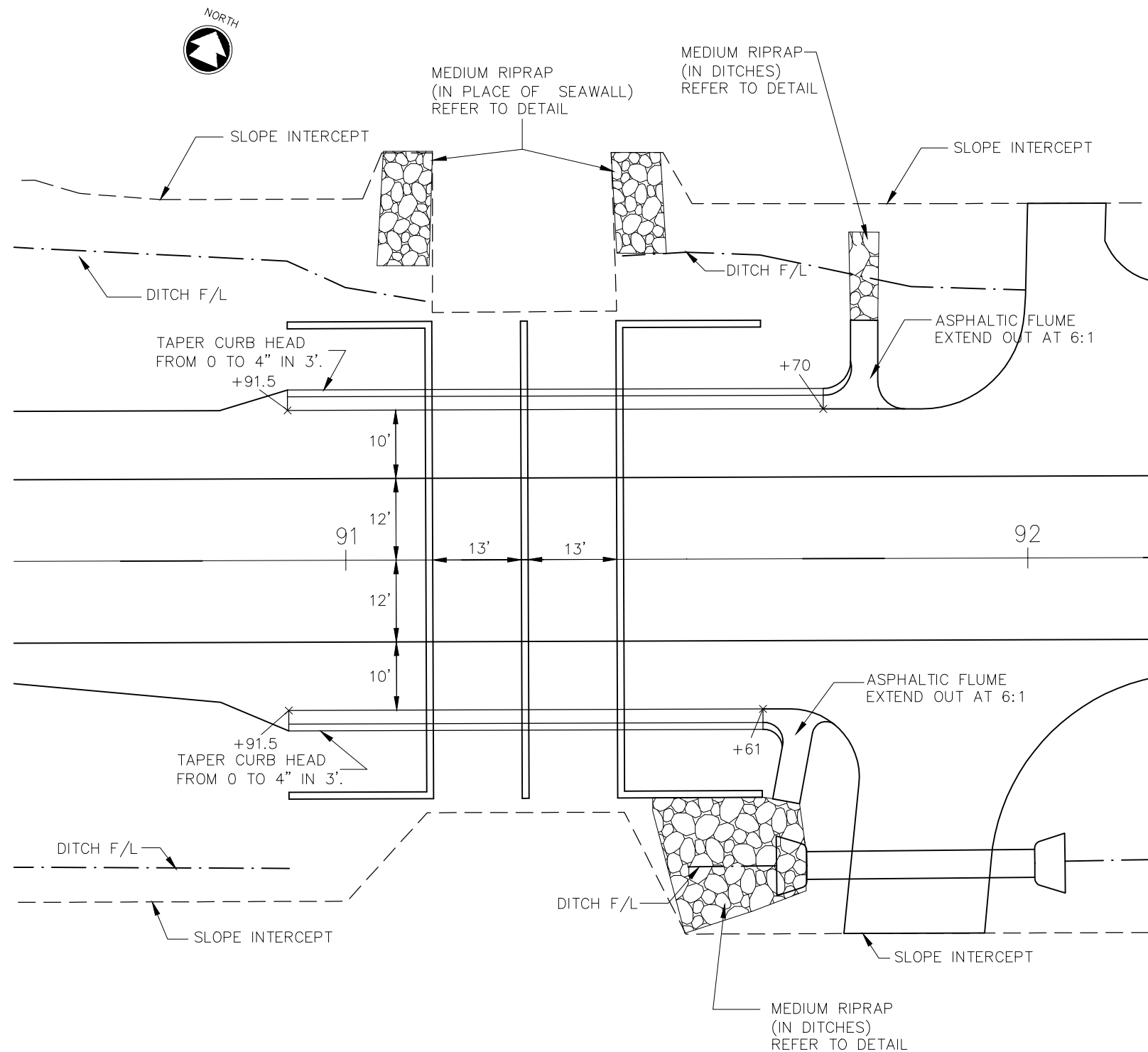


TYPICAL DRIVEWAY PROFILES



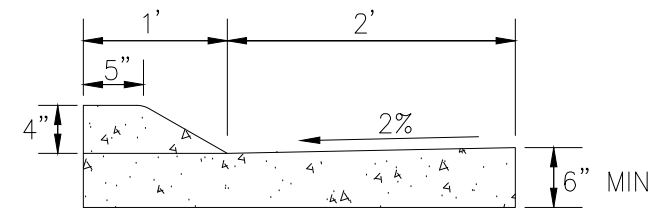
DETAIL FOR MEDIUM RIPRAP IN PLACE OF SEAWALL

*DIMENSIONS AND RIPRAP/FABRIC QUANTITIES ARE APPROXIMATE.
ENGINEER MAY ADJUST TO MATCH FIELD CONDITIONS.

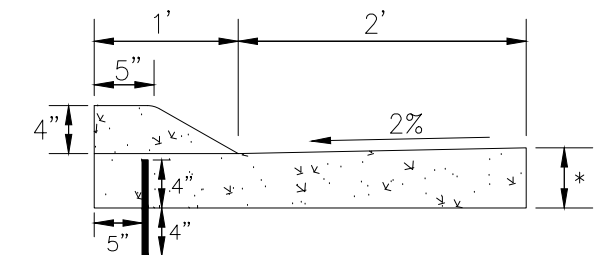


CURB PAVING DETAIL

NOTE: LIMITS OF MEDIUM RIPRAP ARE TO BE DETERMINED BY THE ENGINEER.



CURB AND GUTTER ON ROADWAY



DRILLED TIE BAR

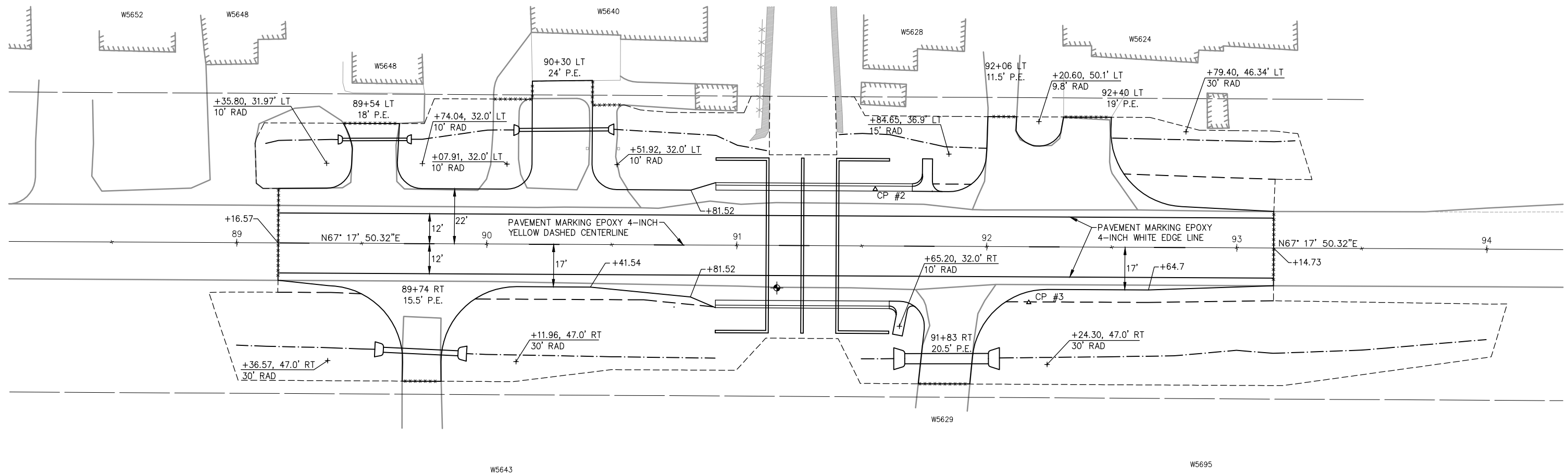
CURB AND GUTTER ON BOX CULVERT

*THICKNESS VARIES OVER BOX CULVERT. MINIMUM THICKNESS ON TOP OF THE PROPOSED BOX CULVERT IS 4.5".

PROVIDE CONSTRUCTION JOINTS IN THE CURB AND GUTTER CONSTRUCTED ON TOP OF THE BOX CULVERT AT THE CENTER AND ON EACH END OF THE BOX CULVERT. INSTALL DRILLED TIE BARS BEGINNING AT 2- FEET FROM THE CENTER OF THE OUTSIDE WALLS AND AT 2- FEET ON CENTER IN THE CURB AND GUTTER CONSTRUCTED OVER THE BOX CULVERT. DO NOT TIE CURB AND GUTTER ON ROADWAY TO THE CURB AND GUTTER CONSTRUCTED ON TOP OF BOX.

CONCRETE CURB AND GUTTER
4-INCH SLOPED 36-INCH SPECIAL

REFER TO SDD "PAVEMENT MARKING (MAINLINE)
FOR PAVEMENT MARKING INFORMATION NOT SHOWN
ON THIS DETAIL.



CONTROL POINT TABLE					
POINT NO.	NORTHING	EASTING	STATION	LOCATION	DESCRIPTION
1	273374.27	881746.11	87+37.83	21.35' LT	MAG NAIL
2	273541.16	882128.86	91+55.35	22.75' LT	MAG NAIL
3	273518.75	882204.88	92+16.79	22.31' RT	MAG NAIL
4	273688.87	882491.94	95+47.29	24.03' LT	MAG NAIL

BENCH MARKS		
LOCATION	DESCRIPTION	ELEVATION
86+82, 56' RT	SPIKE IN POWER POLE	805.85
91+16, 17' RT	DISC ON SW CORNER OF EXISTING BOX	807.72
95+11, 55' RT	SPIKE IN POWER POLE	804.92

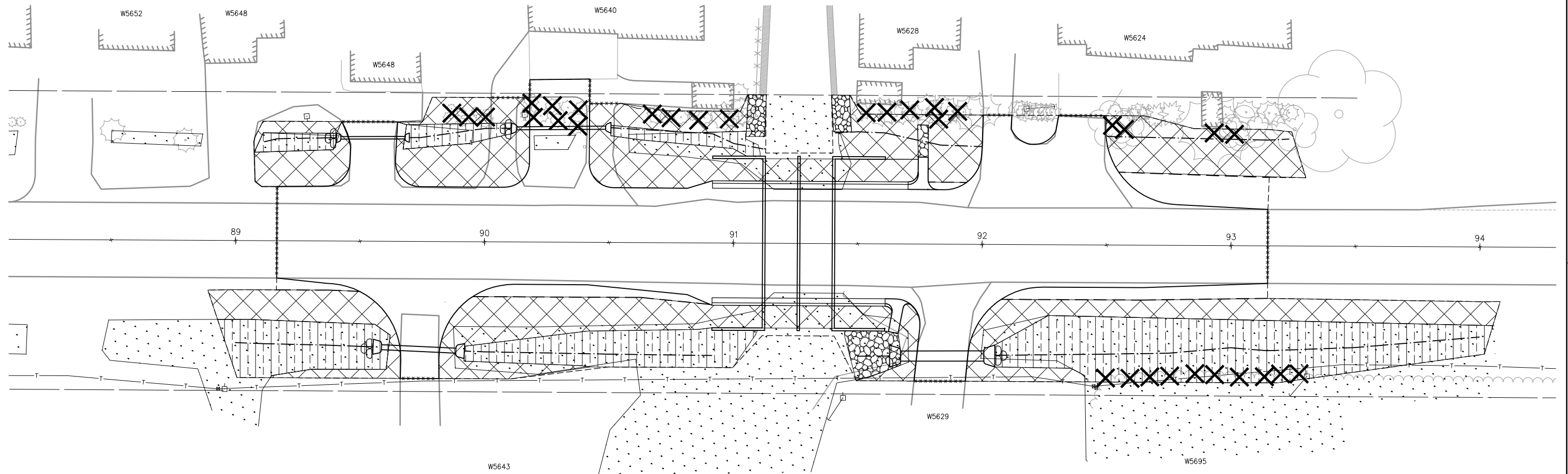
NOTES:

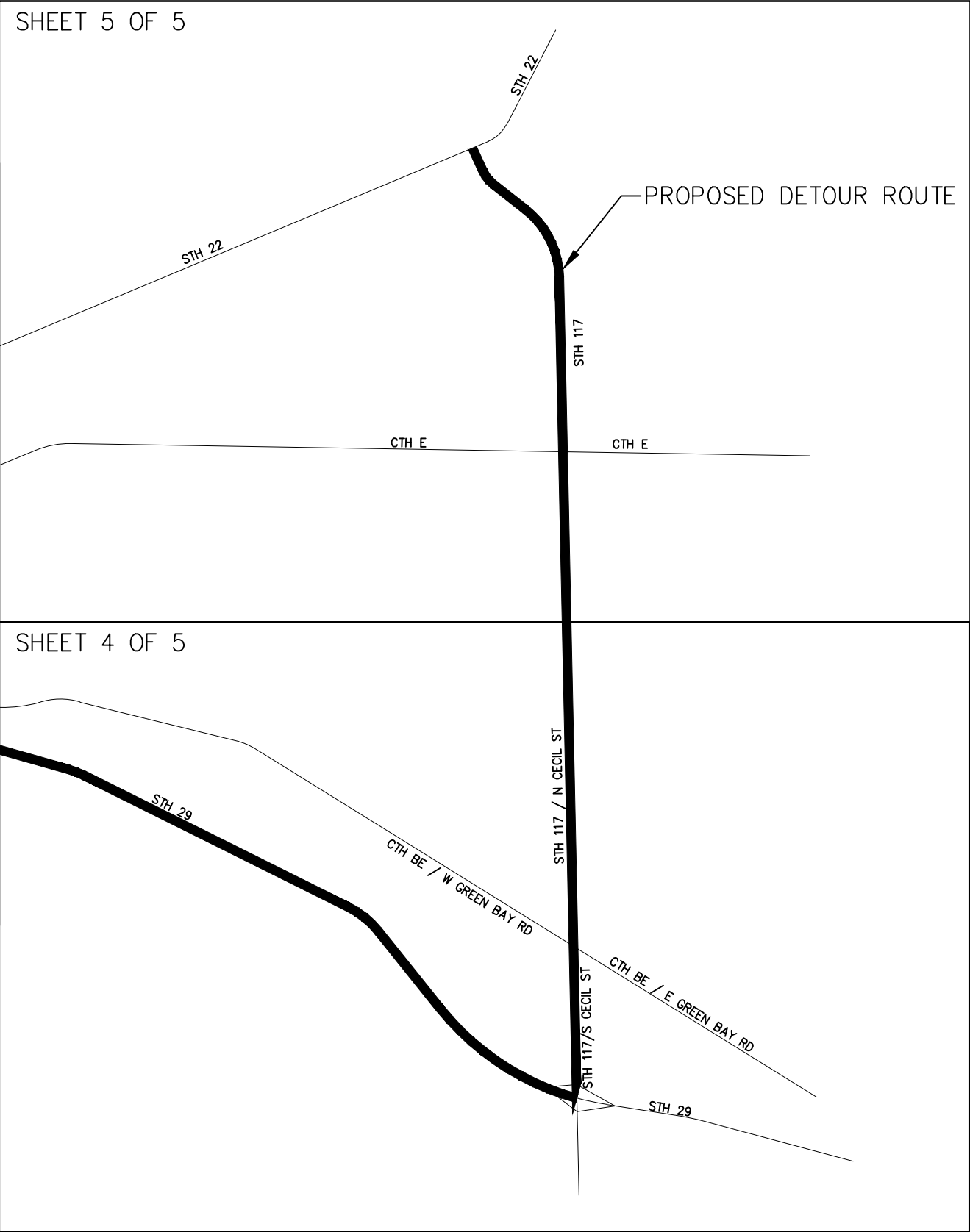
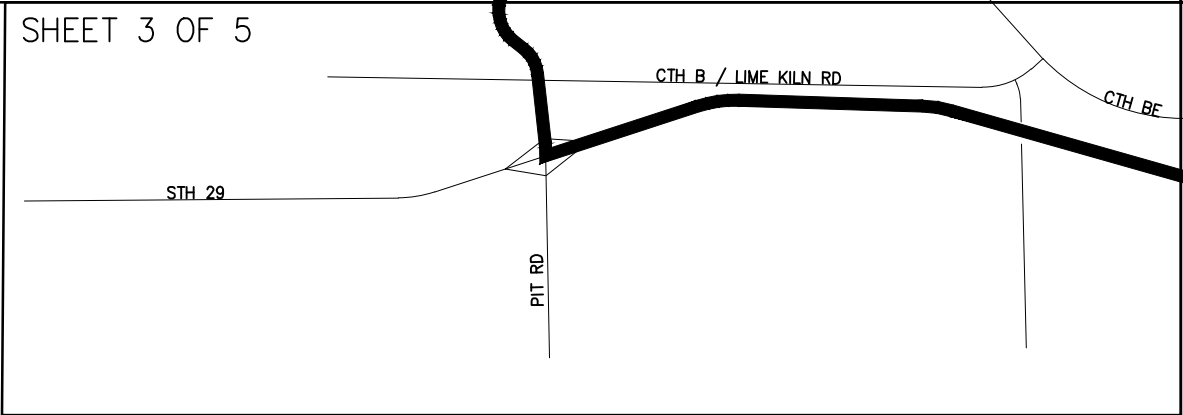
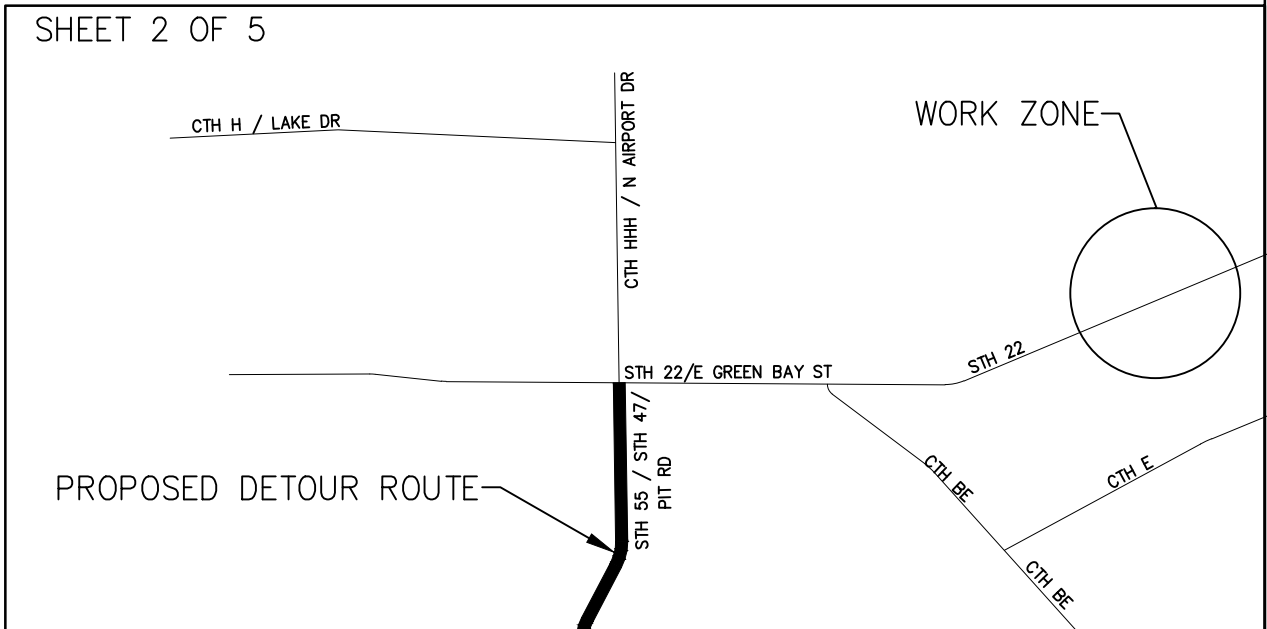
ALL EXISTING WETLAND AREAS TO BE RESTORED WITH SALVAGED MARSH MATERIAL
SALVAGING AND PLACING THE MARSH MATERIAL TO BE PAID FOR AS SALVAGED TOPSOIL.

EXISTING WETLAND INFORMATION SHOWN ON THIS DETAIL IS FOR CONDITIONS PRIOR TO
WORK PERFORMED BY UTILITIES. THE ACTUAL QUANTITIES FOR SALVAGABLE MARSH,
TREE REMOVAL, RIPRAP, ETC. MAY VARY.

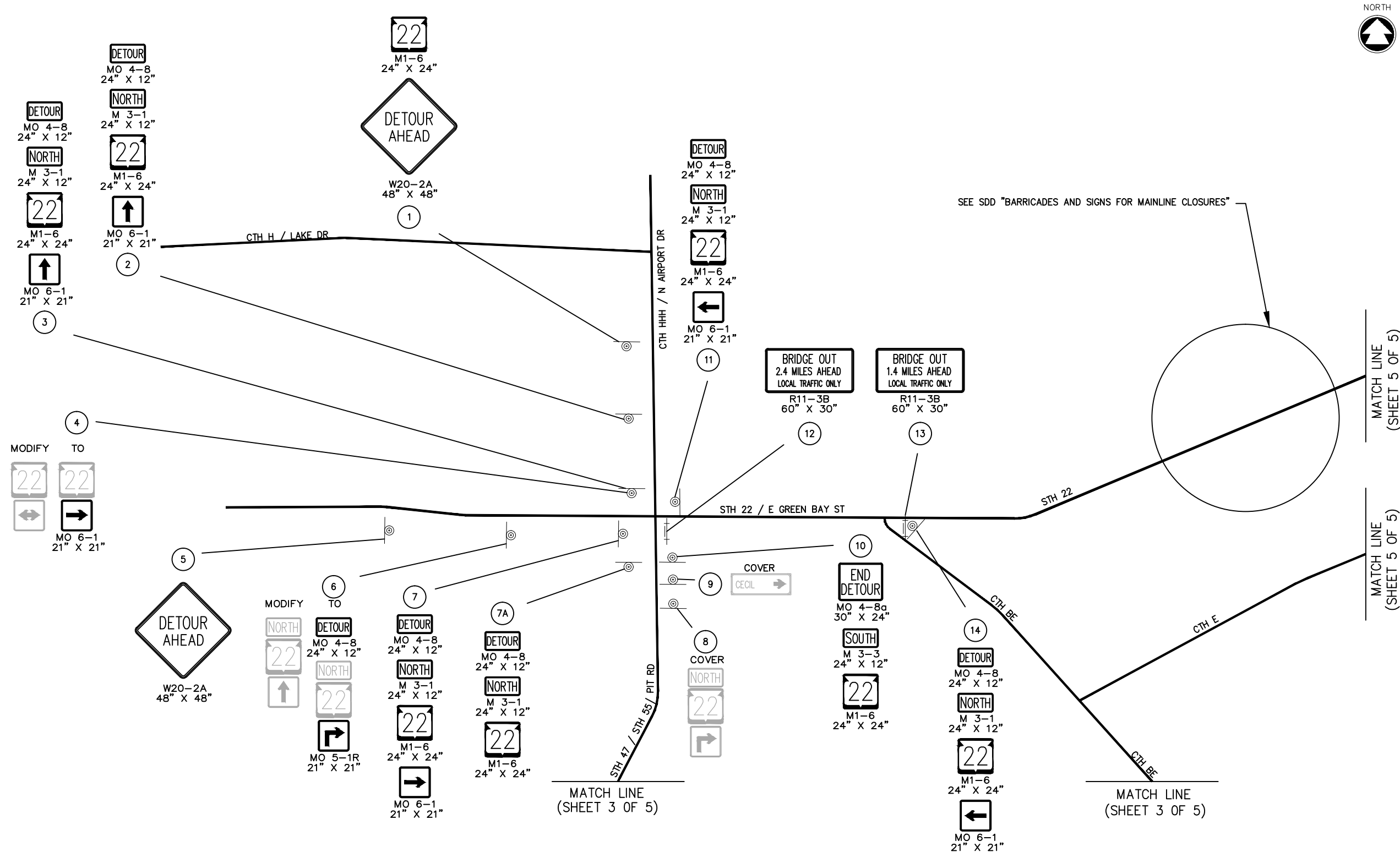
LEGEND

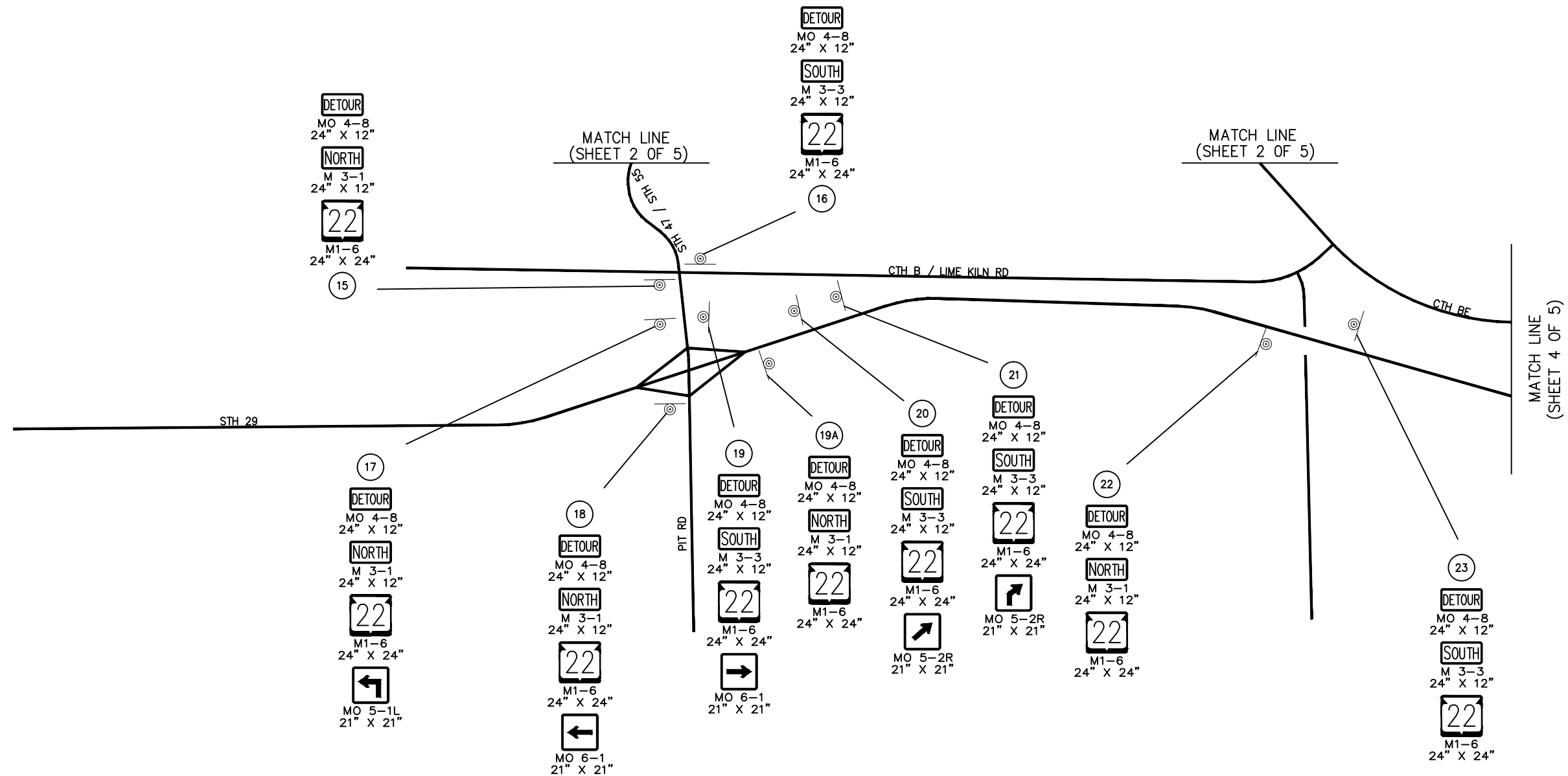
- TOP SOIL, SOD LAWN, AND FERTILIZER TYPE B
- SALVAGED MARSH MATERIAL (REFER TO NOTES),
TEMPORARY SEED, FERTILIZER, AND EROSION
MAT URBAN CLASS II TYPE C (PERMITTED
WETLAND IMPACTS).
- MEDIUM RIPRAP AND GEOTEXTILE FABRIC TYPE HR
- CULVERT PIPE CHECKS
- WETLANDS
- TREE REMOVAL



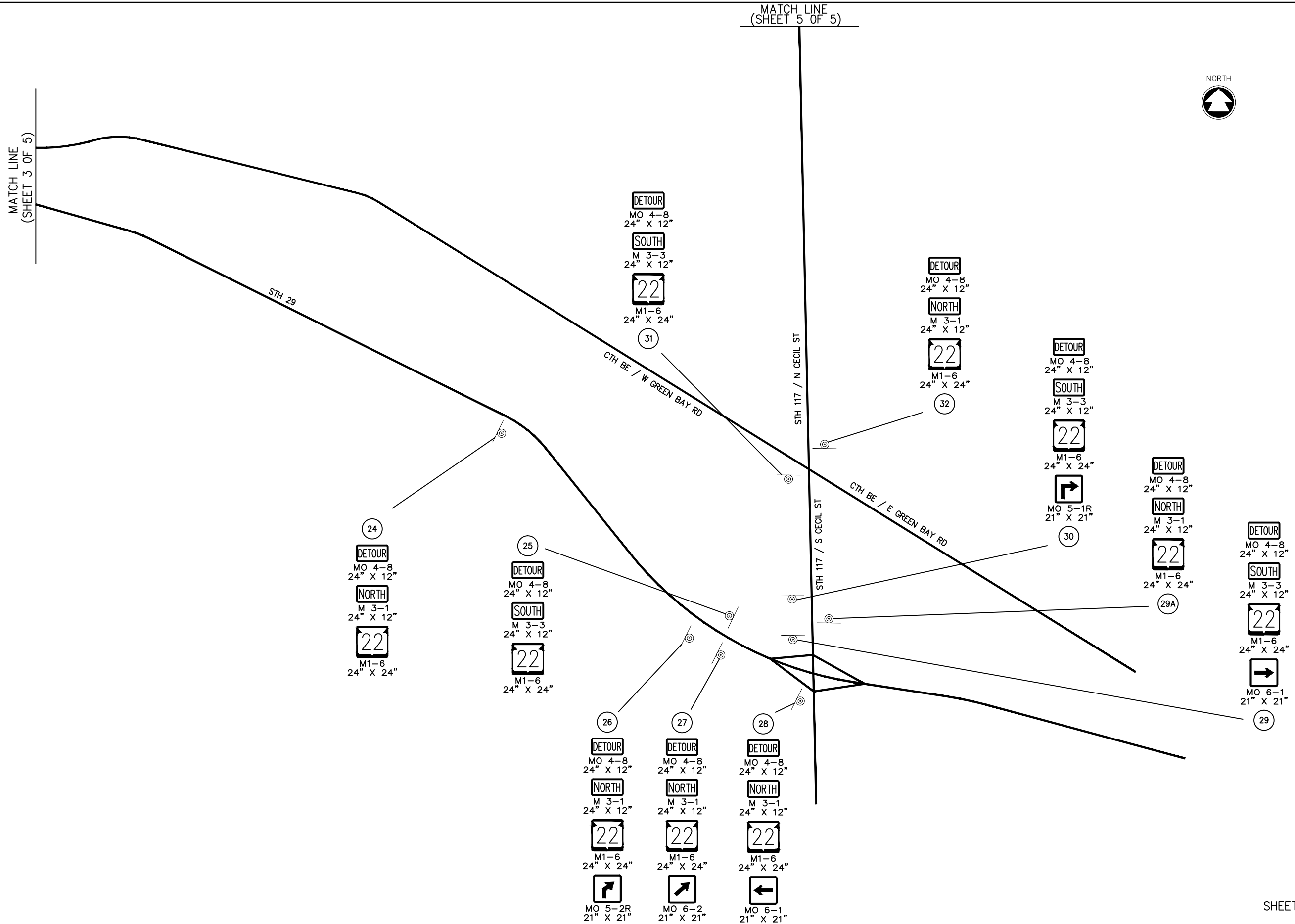


SHEET 1 OF 5

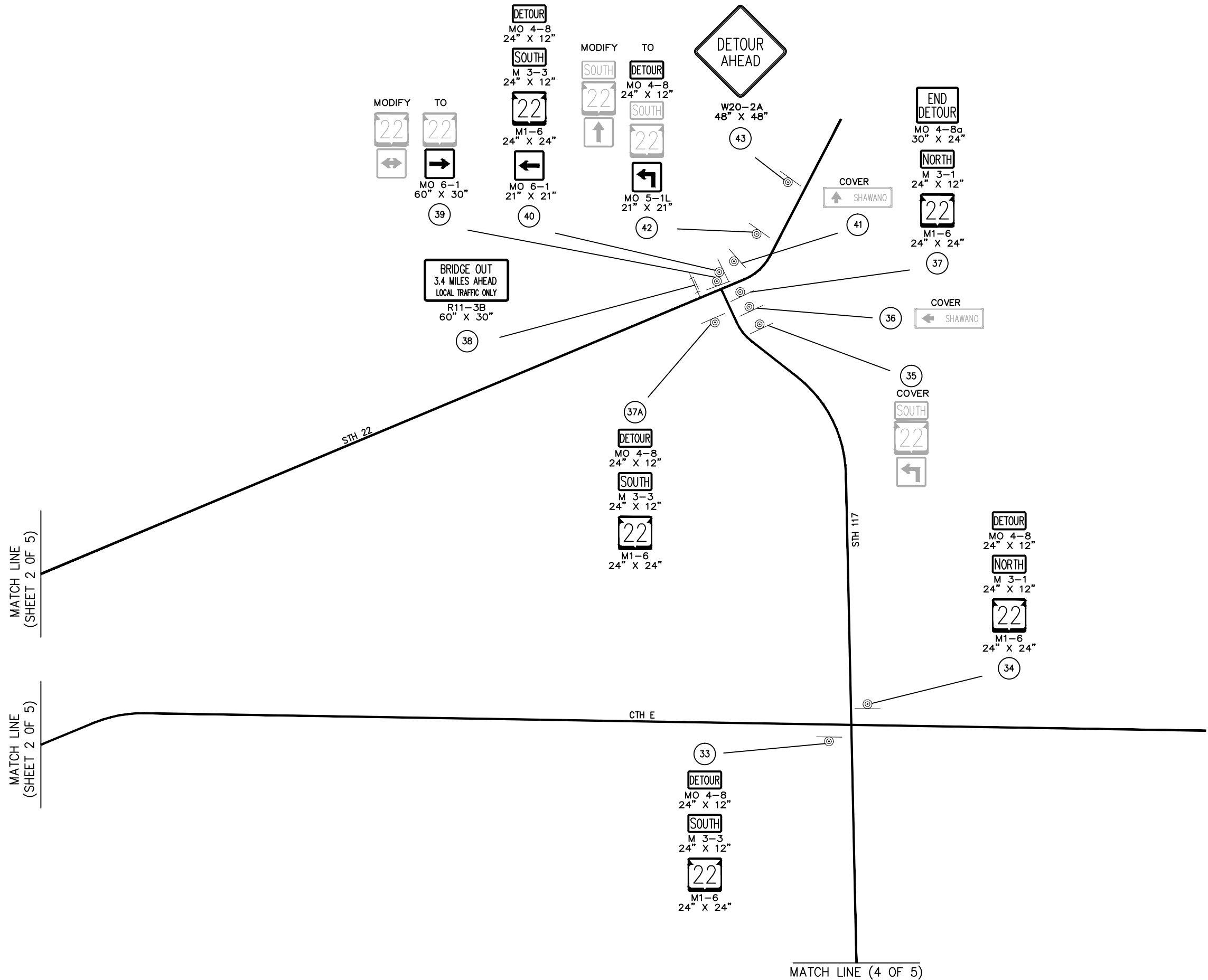




SHEET 3 OF 5



SHEET 4 OF 5



DATE 09DEC14		E S T I M A T E O F Q U A N T I T I E S			
LINE		9180-23-70			
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	4.000	4.000
0020	201.0205	GRUBBING	STA	4.000	4.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	5.000	5.000
0040	203.0210.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL (STRUCTURE) 01. B-58-0013	LS	1.000	1.000
0050	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. STA. 91+26.23	LS	1.000	1.000
0060	204.0165	REMOVING GUARDRAIL	LF	251.000	251.000
0070	205.0100	EXCAVATION COMMON	CY	1,384.000	1,384.000
0080	206.2000	EXCAVATION FOR STRUCTURES CULVERTS (STRUCTURE) 01. B-58-127	LS	1.000	1.000
0090	210.0100	BACKFILL STRUCTURE	CY	1,510.000	1,510.000
0100	213.0100	FINISHING ROADWAY (PROJECT) 01. 9180-23-70	EACH	1.000	1.000
0110	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	90.000	90.000
0120	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	1,783.000	1,783.000
0130	311.0110	BREAKER RUN	TON	150.000	150.000
0140	311.0115	BREAKER RUN	CY	91.000	91.000
0150	416.0610	DRILLED TIE BARS	EACH	24.000	24.000
0160	455.0105	ASPHALTIC MATERIAL PG58-28	TON	37.000	37.000
0170	455.0605	TACK COAT	GAL	44.000	44.000
0180	460.1103	HMA PAVEMENT TYPE E-3	TON	670.000	670.000
0190	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	430.000	430.000
0200	465.0120	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	TON	103.000	103.000
0210	465.0315	ASPHALTIC FLUMES	SY	16.000	16.000
0220	504.0100	CONCRETE MASONRY CULVERTS	CY	330.000	330.000
0230	505.0410	BAR STEEL REINFORCEMENT HS CULVERTS	LB	27,380.000	27,380.000
0240	505.0610	BAR STEEL REINFORCEMENT HS COATED CULVERTS	LB	17,460.000	17,460.000
0250	511.1200	TEMPORARY SHORING (STRUCTURE) 01. B-58-127	SF	9,192.000	9,192.000
0260	513.7010	RAILING STEEL TYPE C2 (STRUCTURE) 01. B-58-127	LS	1.000	1.000
0270	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8.000	8.000
0280	516.0610.S	SHEET MEMBRANE WATERPROOFING FOR TOP SLAB (STRUCTURE) 01. B-58-127	SY	229.000	229.000
0290	521.0112	CULVERT PIPE CORRUGATED STEEL 12-INCH	LF	26.000	26.000
0300	521.0115	CULVERT PIPE CORRUGATED STEEL 15-INCH	LF	36.000	36.000
0310	521.0124	CULVERT PIPE CORRUGATED STEEL 24-INCH	LF	30.000	30.000
0320	521.0749	PIPE ARCH CORRUGATED STEEL 49X33-INCH	LF	34.000	34.000
0330	521.1012	APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH	EACH	2.000	2.000
0340	521.1015	APRON ENDWALLS FOR CULVERT PIPE STEEL 15-INCH	EACH	2.000	2.000
0350	521.1024	APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH	EACH	2.000	2.000
0360	521.1249	APRON ENDWALLS FOR PIPE ARCH STEEL 49X33-INCH	EACH	2.000	2.000
0370	606.0200	RIPRAP MEDIUM	CY	47.000	47.000
0380	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 9180-23-70	EACH	1.000	1.000
0390	619.1000	MOBILIZATION	EACH	1.000	1.000
0400	624.0100	WATER	MGAL	40.000	40.000
0410	625.0100	TOPSOIL	SY	1,540.000	1,540.000

DATE 09DEC14		E S T I M A T E O F Q U A N T I T I E S			
LINE				9180-23-70	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0420	625.0500	SALVAGED TOPSOIL	SY	864.000	864.000
0430	628.1504	SILT FENCE	LF	200.000	200.000
0440	628.1520	SILT FENCE MAINTENANCE	LF	200.000	200.000
0450	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	6.000	6.000
0460	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	4.000	4.000
0470	628.2027	EROSION MAT CLASS II TYPE C	SY	864.000	864.000
0480	628.7555	CULVERT PIPE CHECKS	EACH	17.000	17.000
0490	628.7570	ROCK BAGS	EACH	10.000	10.000
0500	629.0210	FERTILIZER TYPE B	CWT	1.600	1.600
0510	630.0200	SEEDING TEMPORARY	LB	23.000	23.000
0520	631.0300	SOD WATER	MGAL	35.000	35.000
0530	631.1000	SOD LAWN	SY	1,540.000	1,540.000
0540	638.2602	REMOVING SIGNS TYPE II	EACH	4.000	4.000
0550	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	4.000	4.000
0560	642.5201	FIELD OFFICE TYPE C	EACH	1.000	1.000
0570	643.0100	TRAFFIC CONTROL (PROJECT) 01. 9180-23-70	EACH	1.000	1.000
0580	643.0300	TRAFFIC CONTROL DRUMS	DAY	400.000	400.000
0590	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	800.000	800.000
0600	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	1,280.000	1,280.000
0610	643.0900	TRAFFIC CONTROL SIGNS	DAY	640.000	640.000
0620	643.0920	TRAFFIC CONTROL COVERING SIGNS TYPE II	EACH	5.000	5.000
0630	643.2000	TRAFFIC CONTROL DETOUR (PROJECT) 01. 9180-23-70	EACH	1.000	1.000
0640	643.3000	TRAFFIC CONTROL DETOUR SIGNS	DAY	4,680.000	4,680.000
0650	645.0105	GEOTEXTILE FABRIC TYPE C	SY	274.000	274.000
0660	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	71.000	71.000
0670	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	848.000	848.000
0680	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	399.000	399.000
0690	650.5000	CONSTRUCTION STAKING BASE	LF	399.000	399.000
0700	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-58-127	LS	1.000	1.000
0710	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 9180-23-70	LS	1.000	1.000
0720	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	399.000	399.000
0730	690.0150	SAWING ASPHALT	LF	234.000	234.000
0740	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,980.000	1,980.000
0750	999.1500.S	CRACK AND DAMAGE SURVEY	LS	1.000	1.000
0760	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	300.000	300.000
0770	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	600.000	600.000
0780	SPV.0090	SPECIAL 01. CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH SPECIAL	LF	149.000	149.000
0790	SPV.0105	SPECIAL 01. SALVAGED STREAM BED MATERIAL	LS	1.000	1.000
0800	SPV.0105	SPECIAL 02. RESEARCH AND RELOCATE EXISTING PROPERTY MONUMENTS	LS	1.000	1.000
0810	SPV.0105	SPECIAL 03. VERIFY AND REPLACE EXISTING PROPERTY MONUMENTS	LS	1.000	1.000

CLEARING AND GRUBBING			
STATION	LOCATION	201.0105	201.0205
		CLEARING STA	GRUBBING STA
89+50 - 93+50	LT & RT	4	4
PROJECT TOTALS		4	4

REMOVING SMALL PIPE CULVERTS			
203.0100			
STATION	LOCATION	EACH	REMARKS
88+98	40' LT	1	26' - 12" CMP
89+55	40' LT	1	26' - 12" CMP
89+74	44' RT	1	30' - 24" CMP
90+46	41' LT	1	26' - 15" CMP
91+85	37" RT	1	31' - 49 x 33 CMP
PROJECT TOTAL		5	

REMOVING GUARDRAIL		
204.0165		
STATION	LOCATION	LF
90+74 - 91+86	LT	113
90+25 - 91+62	RT	138
PROJECT TOTAL		251

EARTHWORK SUMMARY						
From/To Station	Location	Common Excavation (item # 205.0100)	Available Material	Unexpanded Fill	*Expanded Fill	Mass Ordinate +/-
		Cut			Factor 1.25	
88+88.92 - 94+08.22	STH 22	1,384	1,384	386	483	902
TOTALS		1,384	1,384	386	483	902
TOTAL COMMON EXC		1,384				

*EXPANSION FACTOR FOR FILL = 25%

MASS ORDINATE: POSITIVE QUANTITY INDICATES AN EXCESS OF MATERIAL ON THE PROJECT

ASPHALTIC ITEMS				
STATION	455.0105	455.0605	460.1103	465.0120
	ASPHALTIC MATERIAL PG58-28 TON	TACK COAT GAL	HMA PAVEMENT TYPE E-3 TON	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON
89+16.57 - 93+14.73	37	44	670	103
PROJECT TOTALS				
	37	44	670	103

BASE AGGREGATE AND BREAKER RUN				
STATION	LOCATION	305.0110	305.0120	311.0110
		DENSE 3/4-INCH TON	DENSE 1 1/4-INCH TON	BREAKER RUN TON
89+16.57 - 93+14.73	MAINLINE	90	1,533	--
89+16.57 - 93+14.73	DRIVEWAYS	--	250	--
89+16.57 - 93+14.73	UNDISTRIBUTED	--	--	150
PROJECT TOTALS		90	1783	150

ASPHALTIC FLUME SUMMARY		
STATION	LOCATION	465.0315
		ASPHALTIC FLUMES SY
91+76	LT	8
91+66	RT	8
PROJECT TOTALS		16

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH SPECIAL & DRILLED TIE BARS

STATION	LOCATION	SPV.0090.01 LF	416.0610 EACH
90+92 - 91+70	LT	79	12
90+92 - 91+61	RT	70	12
PROJECT TOTAL		149	24

CULVERT PIPE CORRUGATED STEEL

STATION	LOCATION	521.0112 12-INCH LF	521.0115 15-INCH LF	521.0124 24-INCH LF	521.1012 APRON ENDWALL 12-INCH EACH	521.1015 APRON ENDWALL 15-INCH EACH	521.1024 APRON ENDWALL 24-INCH EACH	THICKNESS (INCHES)	
								STEEL	ALUMINUM
89+55	41' LT	26	--	--	2	--	--	0.064	0.060
89+74	44' RT	--	--	30	--	--	2	0.064	0.075
90+31	45' LT	--	36	--	--	2	--	0.064	0.060
PROJECT TOTALS		26	36	30	2	2	2		

PIPE ARCH STEEL

STATION	LOCATION	521.0749 PIPE ARCH 49 x 33 LF	521.1249 APRON ENDWALL 49 x 33 EACH	THICKNESS (INCHES) STEEL
91+84	44' RT	34	2	0.109
PROJECT TOTALS		34	2	

RIPRAP

STATION	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE FABRIC TYPE HR SY
91+11	LT	9	14
91+41	LT	8	12
91+53	RT	4	6
91+77	LT	26	39
PROJECT TOTALS		47	71

WATER

624.0100

STATION	*LOCATION	MGAL
89+16.57 - 93+14.73	STH 22	40
PROJECT TOTAL		40

*FOR BASE AGGREGATE DENSE
COMPACTION AND DUST CONTROL.

SILT FENCE

STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
88+88.92 - 94+08.22	UNDISTRIBUTED	200	200
PROJECT TOTALS		200	200

MOBILIZATIONS

STATION	LOCATION	628.1905 EROSION CONTROL EACH	628.1910 EMERGENCY EROSION CONTROL EACH
88+88.92 - 94+08.22	STAGE 1	3	2
88+88.92 - 94+08.22	STAGE 2	3	2
PROJECT TOTALS		6	4

CULVERT PIPE CHECKS

628.7555

STATION	LOCATION	EACH
89+55	41' LT	2
89+74	44' RT	2
90+31	45' LT	3
91+84	44' RT	5
UNDISTRUBUTED	--	5
PROJECT TOTAL		17

ROCK BAGS

628.7570

STATION	*LOCATION	EACH
UNDISTRUBUTED	--	10
PROJECT TOTAL		10

*ROCK BAGS ARE TO BE USED AS DITCH CHECKS OR
SILT FENCE RELIEF

LANDSCAPING SUMMARY

STATION	LOCATION	625.0100	625.0500	630.0200	628.2027	629.0210	631.0300	631.1000
		TOPSOIL SY	SALVAGED TOPSOIL SY	SEEDING TEMPORARY LB	EROSION MAT TYPE II CLASS C SY	FERTILIZER TYPE B CWT	SOD WATER MGAL	SOD LAWN SY
88+88.92 - 94+08.22	LT	850	97	3	97	0.6	19	850
88+88.92 - 94+08.22	RT	690	767	21	767	1.0	16	690
PROJECT TOTALS		1,540	864	23	864	1.6	35	1,540

REMOVING SIGN SUMMARY

STATION	LOCATION	638.2602	638.3000	DESCRIPTION
		REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
91+16	LT & RT	2	2	OBJECT MARKERS
91+44	LT & RT	2	2	OBJECT MARKERS
PROJECT TOTALS		4	4	

COVERING SIGNS TYPE II

643.0920		EACH	DESCRIPTION
LOCATION			
DETOUR ROUTE		5	ALL ITEMS TO BE COMPLETED IN A SINGLE CYLCE
PROJECT TOTAL		5	

TRAFFIC CONTROL

LOCATION	SERVICE PERIOD (DAYS)	643.0300		643.0420		643.0705		643.0900		643.3000	
		DRUMS		BARRICADES		WARNING LIGHTS		SIGNS		DETOUR SIGNS	
		(NO.)	(DAYS)	(NO.)	(DAYS)	(NO.)	(DAYS)	(NO.)	(DAYS)	(NO.)	(DAYS)
ENTIRE PROJECT	40	--	--	17	680	26	1,040	13	520	112	4,480
UNDISTRIBUTED	40	10	400	3	120	6	240	3	120	5	200
PROJECT TOTALS			400		800		1,280		640		4,680

PAVEMENT MARKING EPOXY 4-INCH

646.0106			
STATION	LOCATION	LF	DESCRIPTION
89+16.57 - 93+14.73	NORTH EDGE LINE	377	WHITE
89+16.57 - 93+14.73	DASHED CENTER LINE	94	YELLOW
89+16.57 - 93+14.73	SOUTH EDGE LINE	377	WHITE
PROJECT TOTAL		848	

CONSTRUCTION STAKING

STATION	LOCATION	650.4500	650.5000	650.6500	650.9910	650.9920
		SUBGRADE LF	BASE LF	STRUCTURE LS	SUPPLEMENTAL CONTROL LS	SLOPE STAKES LF
89+16.57 - 93+14.73	STH 22	399	399	1	1	399
PROJECT TOTALS		399	399	1	1	399

SAWING ASPHALT

690.0150		
STATION	LOCATION	LF
89+16.57	WEST MATCH POINT	37
89+54	40' LT DRIVEWAY	23
89+74	55' RT DRIVEWAY	16
90+10	58' LT DRIVEWAY	56
90+48	56' LT DRIVEWAY	22
91+83	55' RT DRIVEWAY	21
92+06	52' LT DRIVEWAY	12
92+40	52' LT DRIVEWAY	19
93+14.7	EAST MATCH POINT	30
PROJECT TOTAL		234

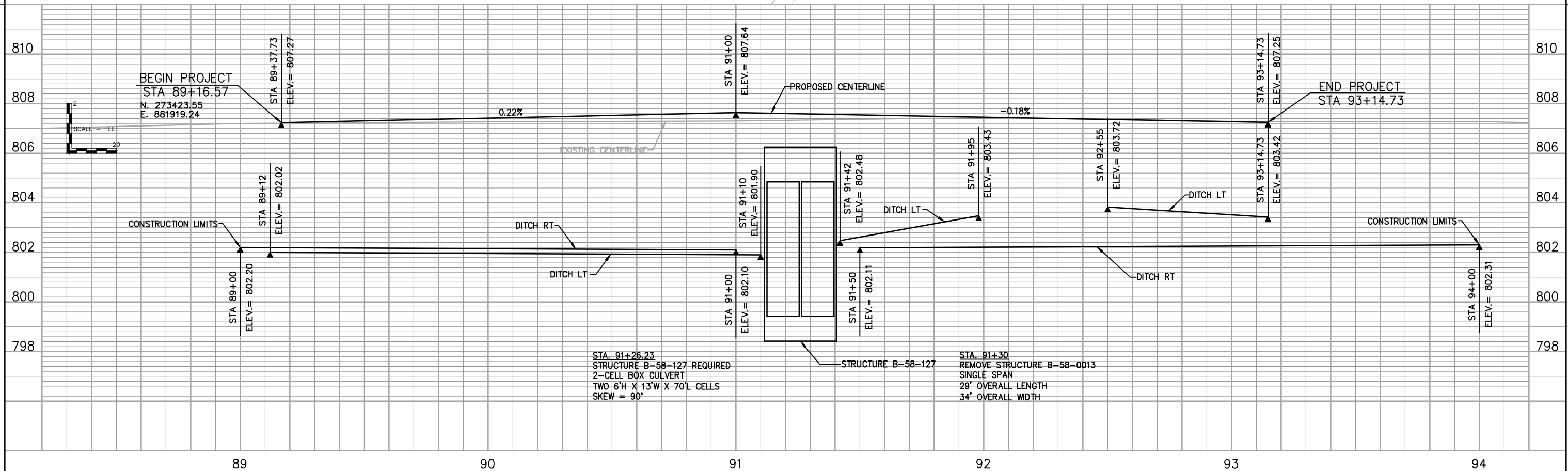
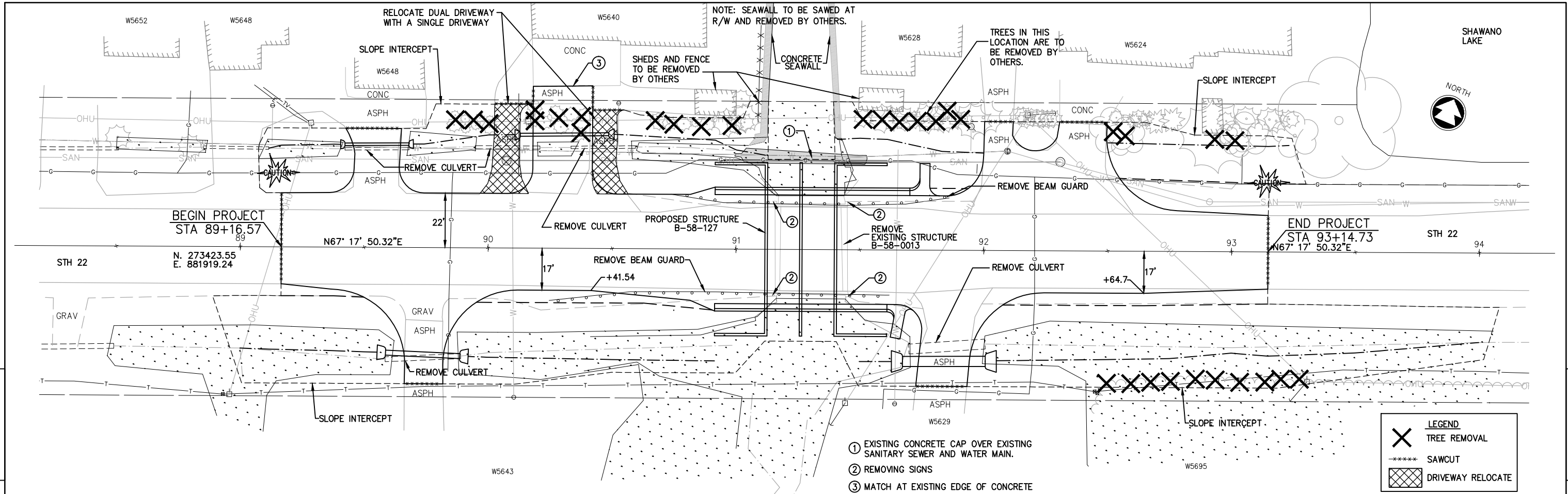
RESEARCH AND LOCATE EXISTING PROPERTY MONUMENTS

SPV.0105.02	
STATION	LS
89+16.57 - 93+14.70	1
PROJECT TOTAL	1

VERIFY AND REPLACE EXISTING PROPERTY MONUMENTS

SPV.0105.03	
STATION	LS
89+16.57 - 93+14.70	1
PROJECT TOTAL	
	1

W:\PROJECTS\W0082\910275\05 - PLAN AND PROFILE\01 PP.dwg, Model, 12/1/2014 3:31:44 PM, rkubat, 1:40



PROJECT NO: 9180-23-70	HWY: STH 22	COUNTY: SHAWANO	PLAN AND PROFILE	SHEET	5
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rkubat, W:\PROJECTS\W0082\910275\05 - PLAN AND PROFILE\01 PP.dwg, model, Plot Date: 12/1/2014 3:31 PM, xrefs: (x-proposed sth 22, 2011 existing conditions topo, x-plss_corners, x-parcels, x-contour, x-sections, x-bld-ctr, x-nordin points 08-06-13)

WSDOT/CADDs SHEET 40

Standard Detail Drawing List

08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
12A03-10	NAME PLATE (STRUCTURES)
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C08-16A	PAVEMENT MARKING (MAINLINE)

6



PLAN VIEW
FLUME AT CURB END



6

S.D.D. 8 D 4-5

- ① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

EXPANSION JOINT

CONCRETE CURB AND GUTTER

2" MIN. CURB HEIGHT

4" R

TAPER CURB TO FLOW LINE

INCREASE ϕ FROM RIGHT ANGLE TO BEST FIT FIELD CONDITIONS

8'-0"

4'-0"

EDGE OF PAVEMENT

3'-0" MIN.

SURFACE DRAIN IS SYMMETRICAL WHEN CURB AND GUTTER IS CONTINUED

SHOULDER OR BERM HINGE POINT

JOINTS

W3 WIRE MESH (SEE SECTION D-D)

RIPRAP

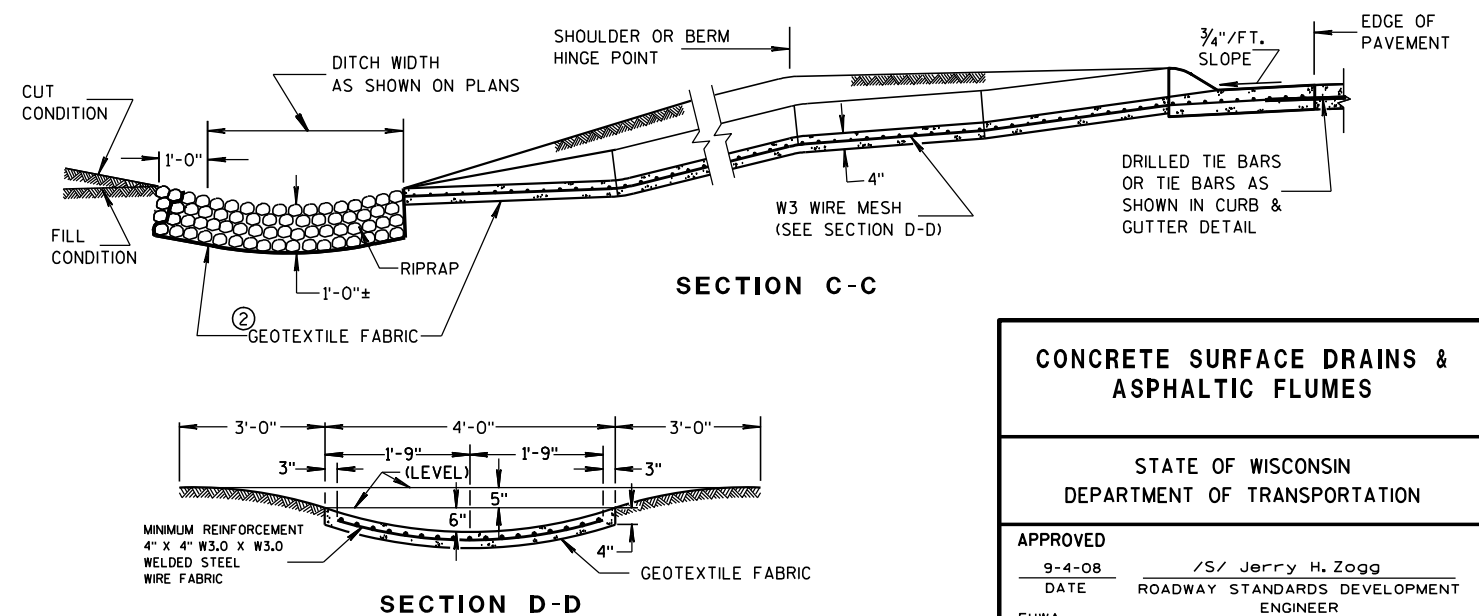
6'-0" OR AS REQUIRED

1'-0" ON CUT SLOPE

DITCH

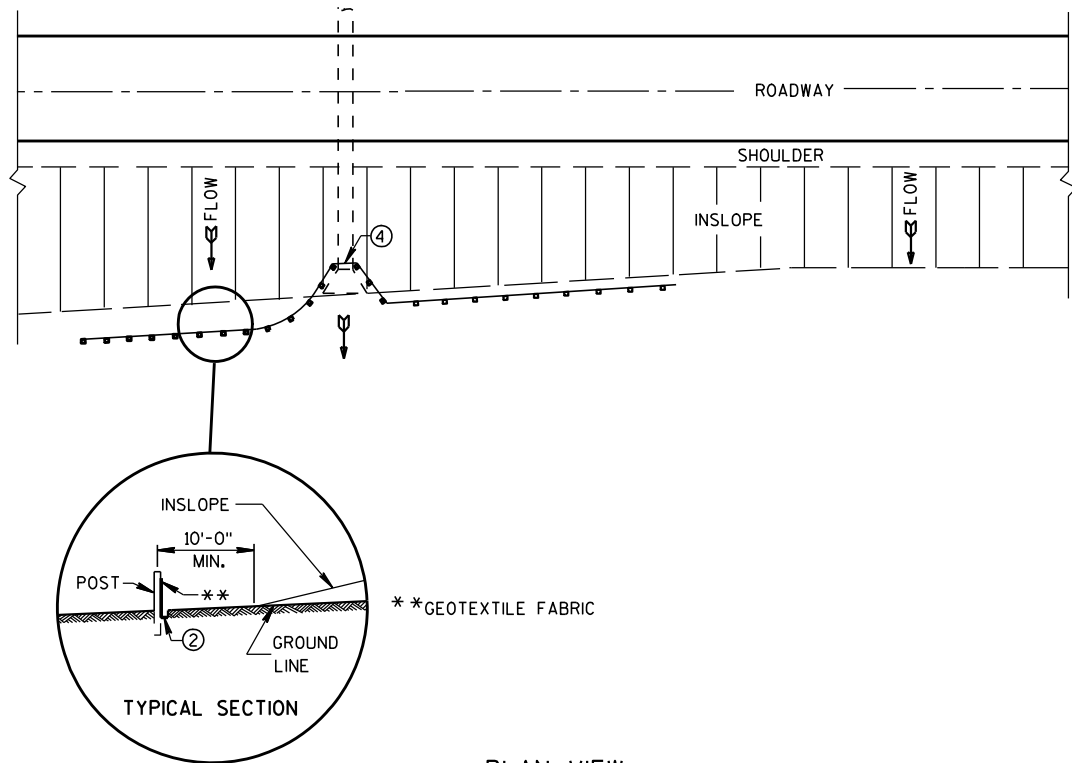
PLAN VIEW

PLAN VIEW

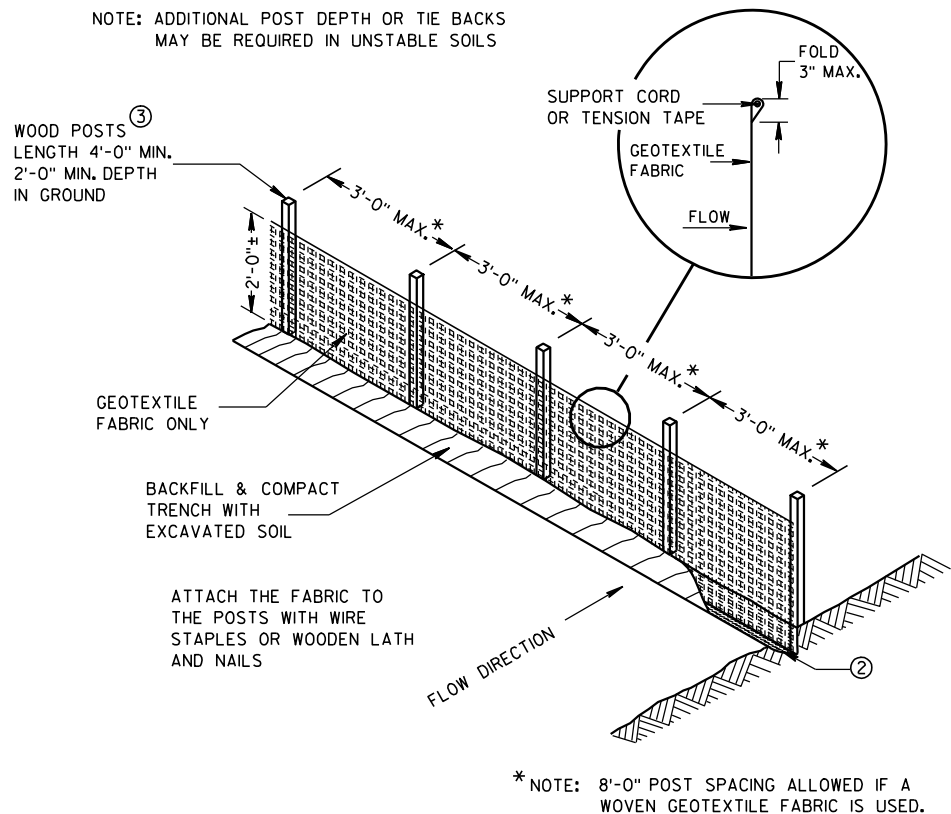


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

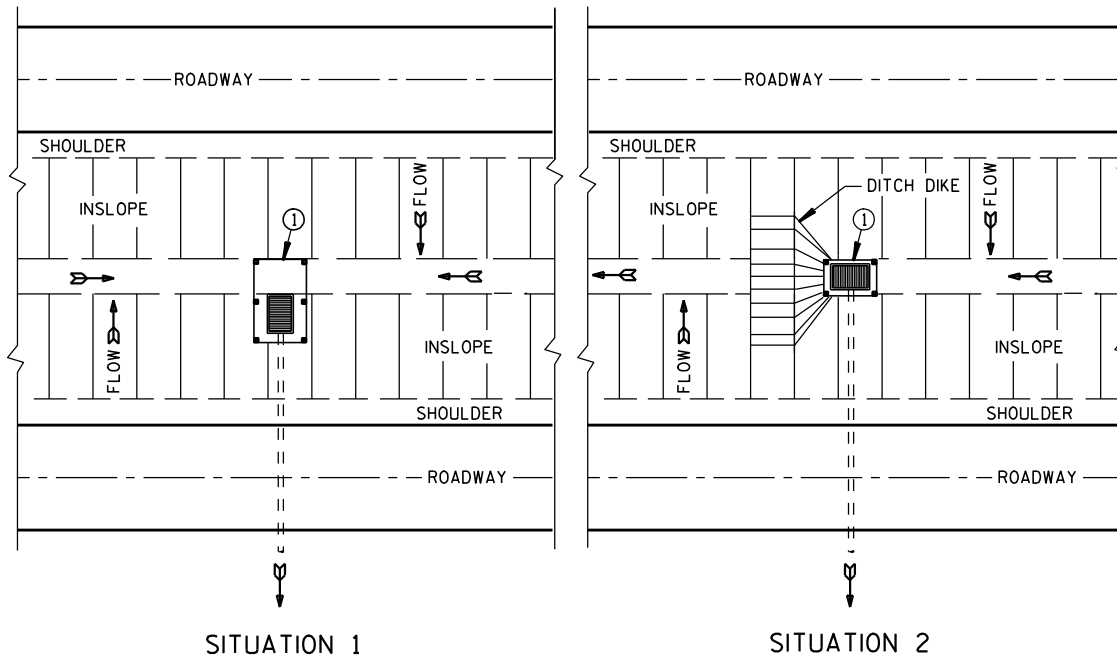
APPROVED
9-4-08 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



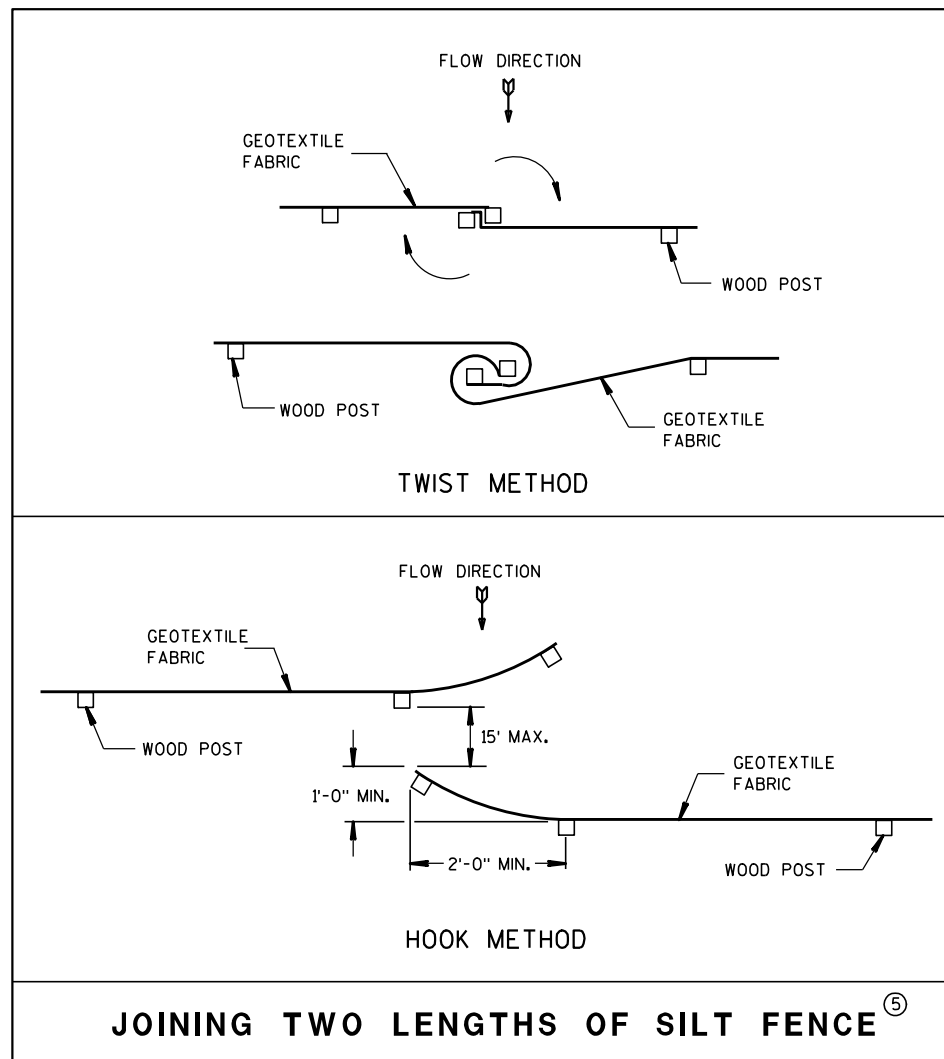
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

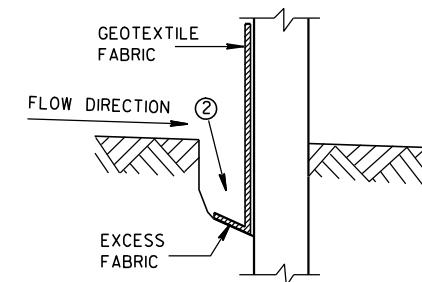


JOINING TWO LENGTHS OF SILT FENCE ⑤

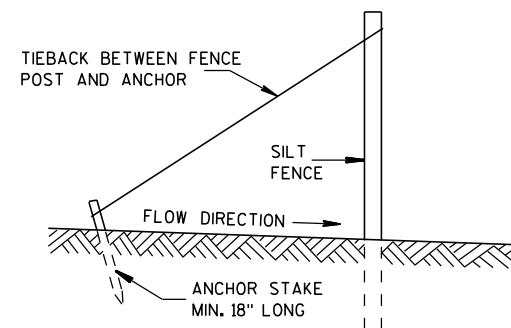
GENERAL NOTES

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

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



TRENCH DETAIL

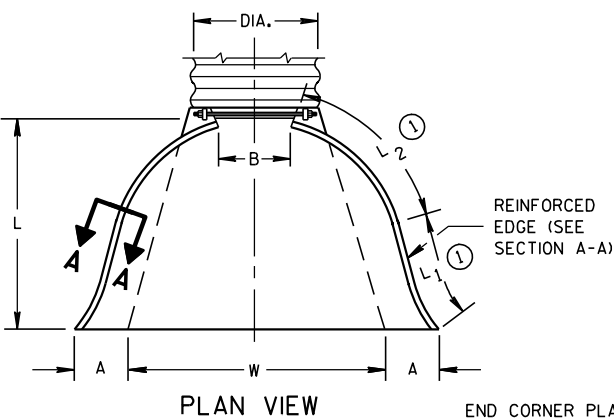


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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

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.

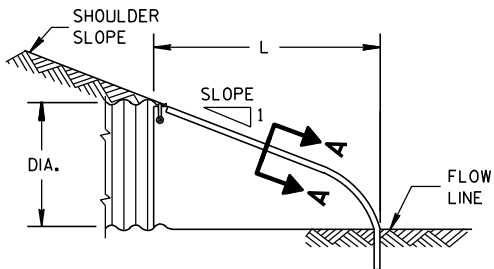
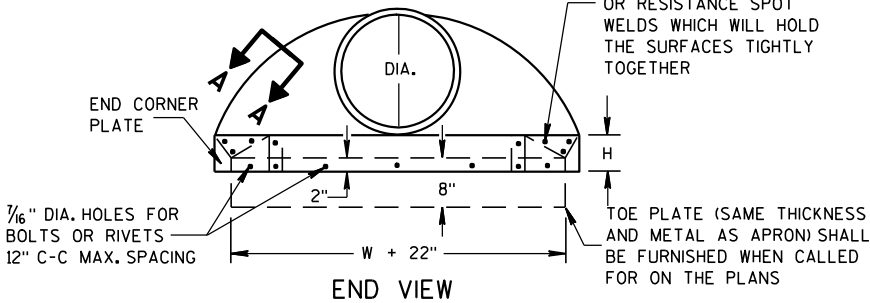
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



REINFORCED
EDGE (SEE
SECTION A-A)

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

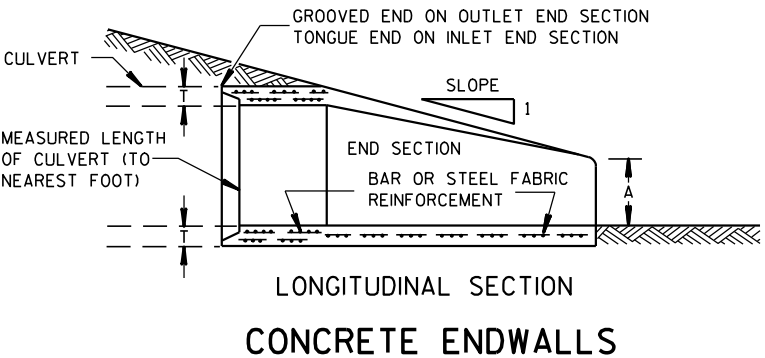
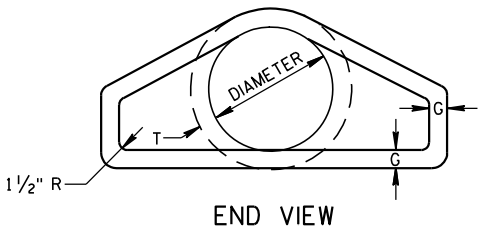
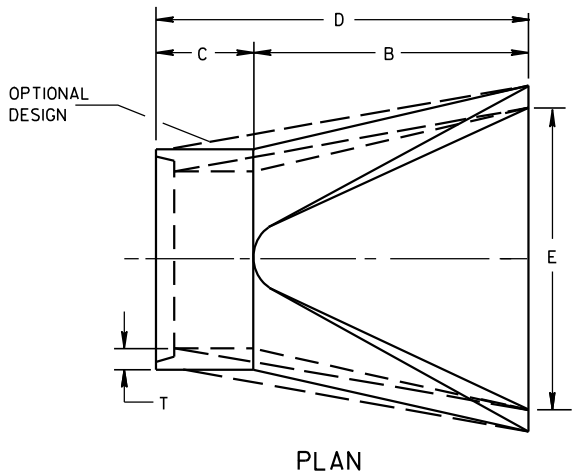
TOE PLATE (SAME THICKNESS
AND METAL AS APRON) SHALL
BE FURNISHED WHEN CALLED
FOR ON THE PLANS



SIDE ELEVATION
METAL ENDWALLS

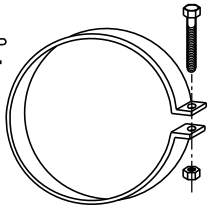
REINFORCED CONCRETE APRON ENDWALLS											
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE			
	T	A	B	C	D	E	G				
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1			
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1			
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1			
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1			
24	3	9 1/2	43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

* MINIMUM
** MAXIMUM

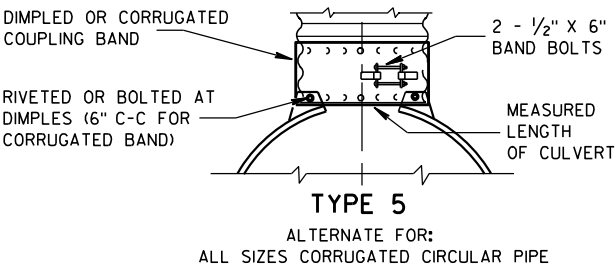
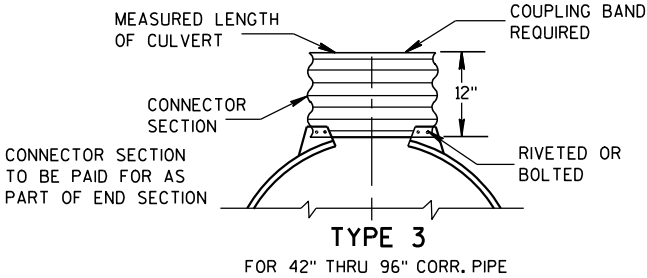
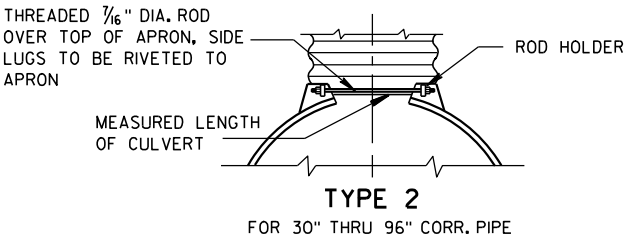
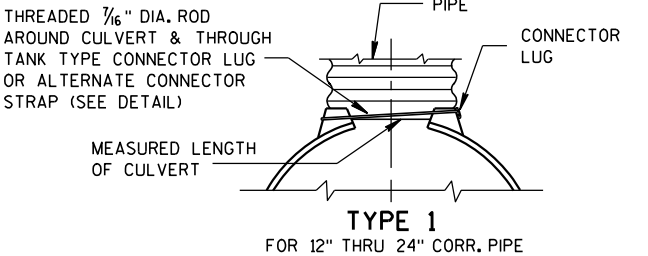


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



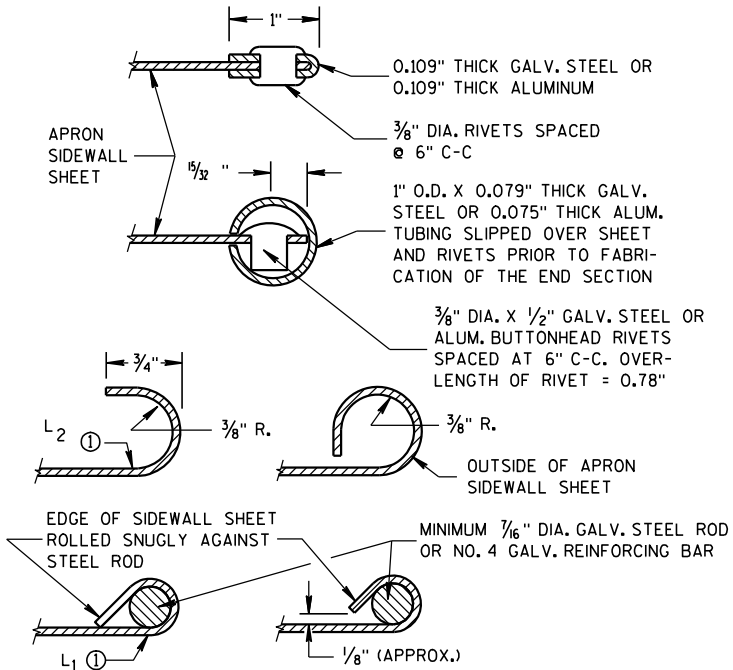
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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.

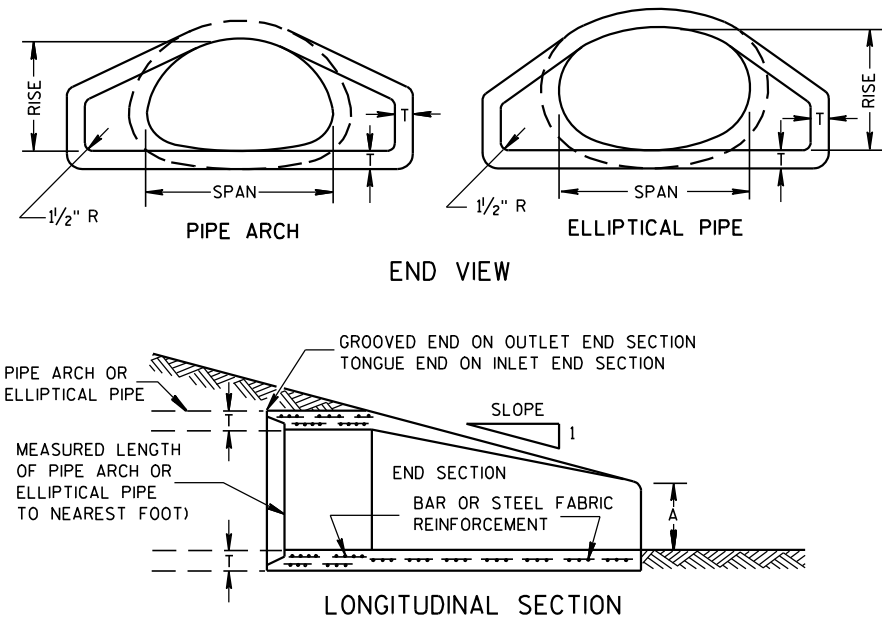
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

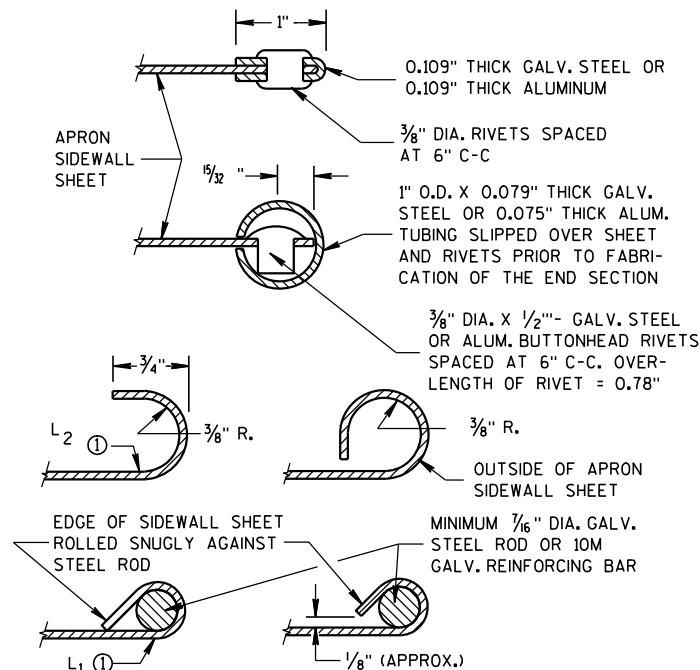
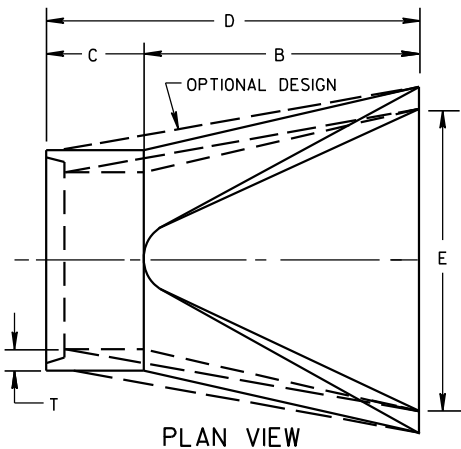
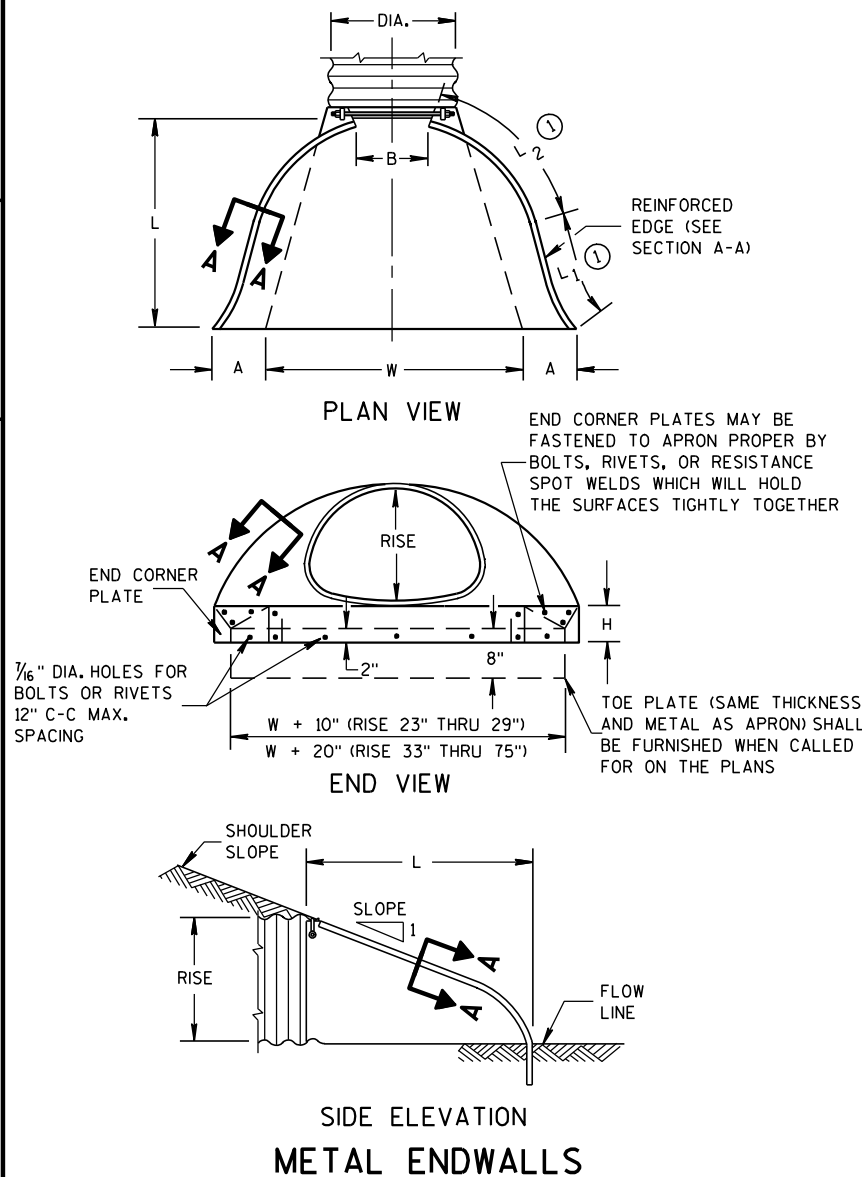
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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	



CONCRETE ENDWALLS



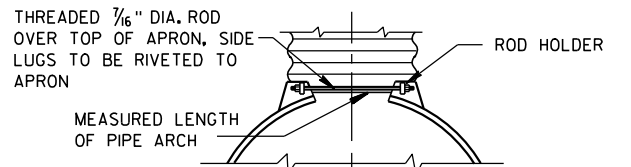
SECTION A-A

2- 2⅓" X ½" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1½")	L1 ①	L 2 ①	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2½ to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19⅜	36	2½ to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21¾	42	2½ to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27½	48	2½ to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37⅝	60	2½ to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45⅝	75	2½ to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54¾	85	2½ to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2½ to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72¾	102	2¼ to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82¼	114	2¼ to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
					A	B	H	L	L1	L2	W		
	SPAN	RISE	STEEL	ALUM.	(±1")	(MAX.)	(±1")	(±1 1/2")	①	①	(±2")		
48	53	41	.109	.105	18	26	12	63	24	72¾	90	2½ to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82¼	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1½ to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1½ to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1½ to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1½ to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1½ to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1½ to 1	3 Pc.

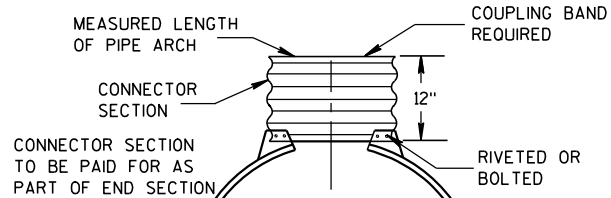
NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL SEE GENERAL NOTES



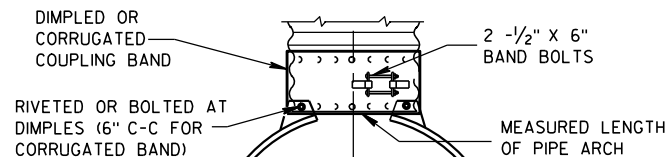
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHES

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

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH									
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	29	18	3	8½	39	33	72	48	3 to 1
30	36	22	3½	9½	50	46	96	60	3 to 1
36	44	27	4	11⅞	60	36	96	72	3 to 1
42	51	31	4½	15⅞	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5½	25½	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28½	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE									
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅞	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48	6½	30	60	36	96	96	2½ to 1

**NOMINAL SIZE

GENERAL NOTES

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

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

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

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

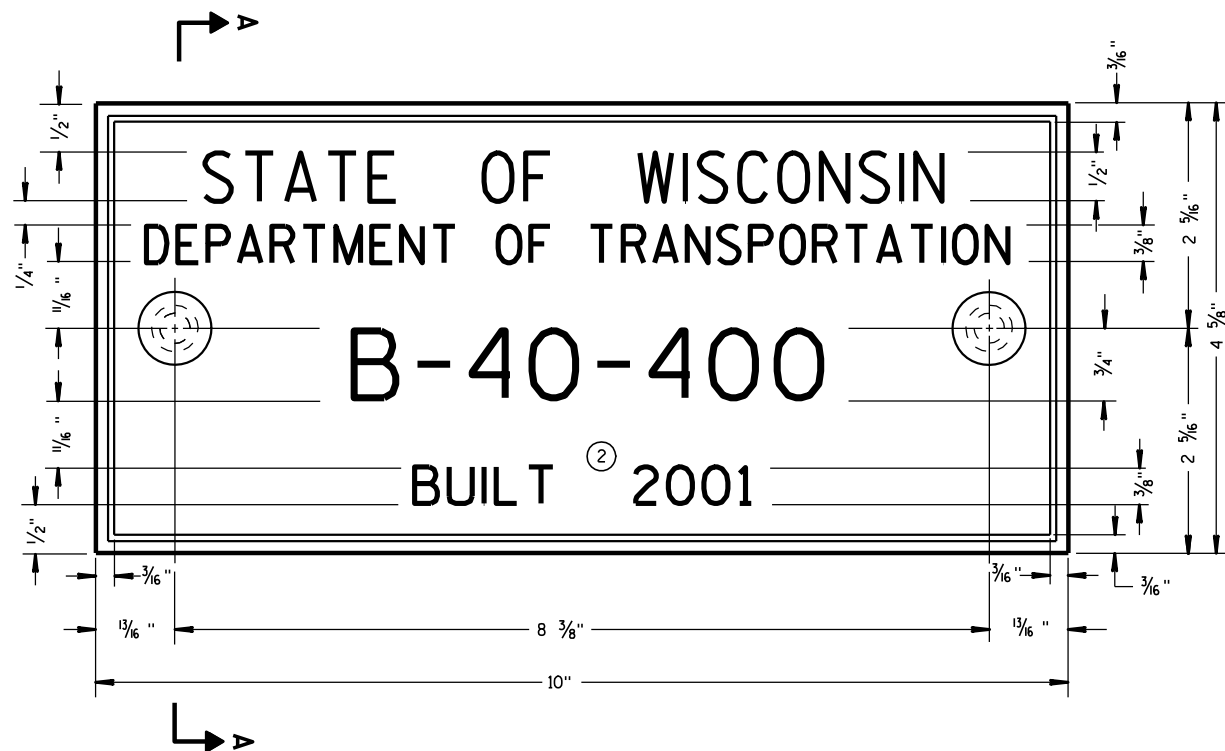
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

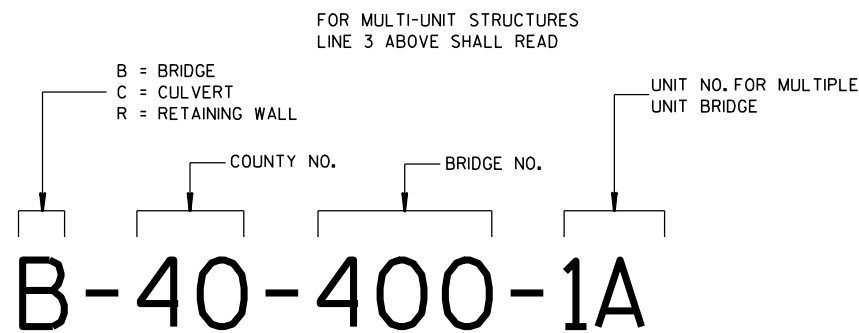
APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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



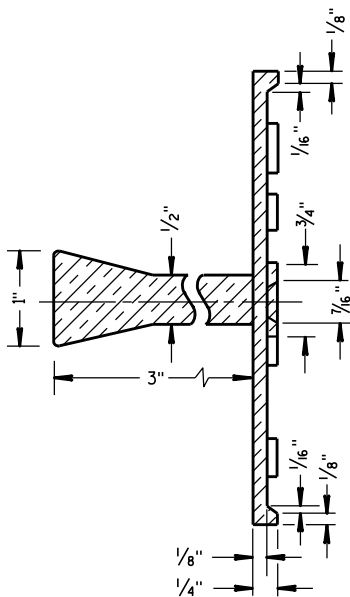
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

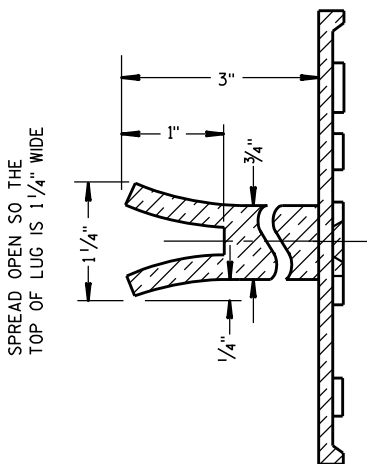
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

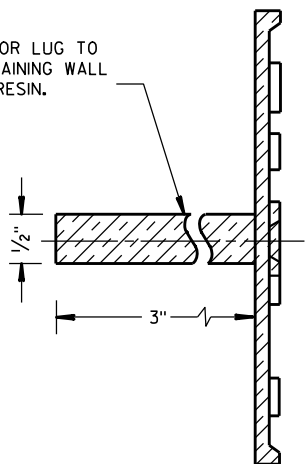


SECTION A-A



ALTERNATE LUG

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

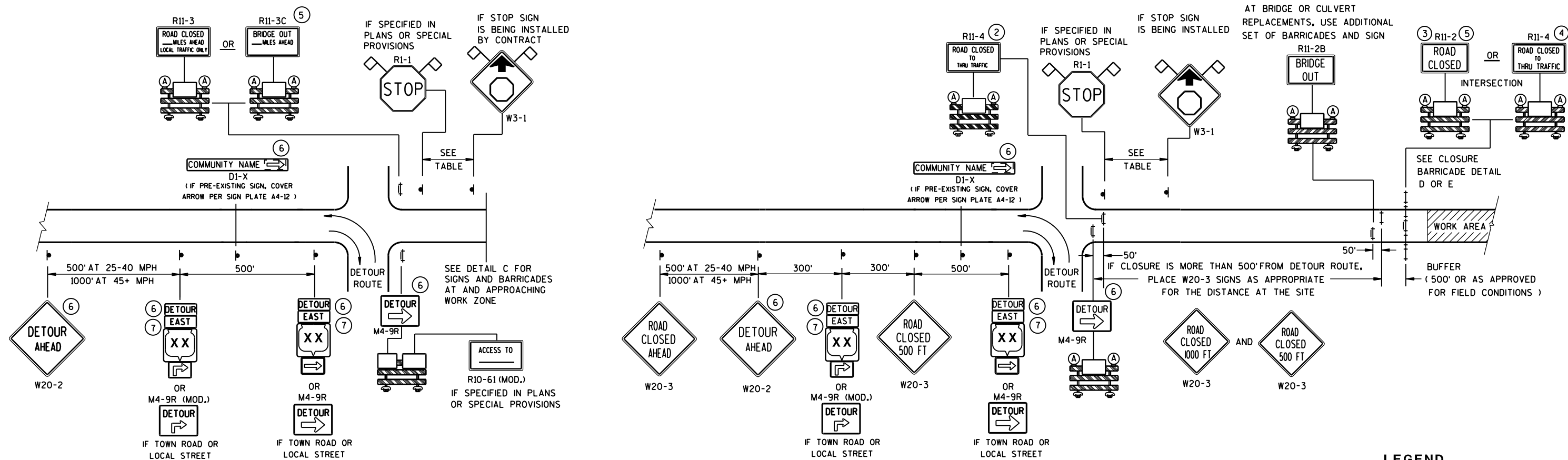


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

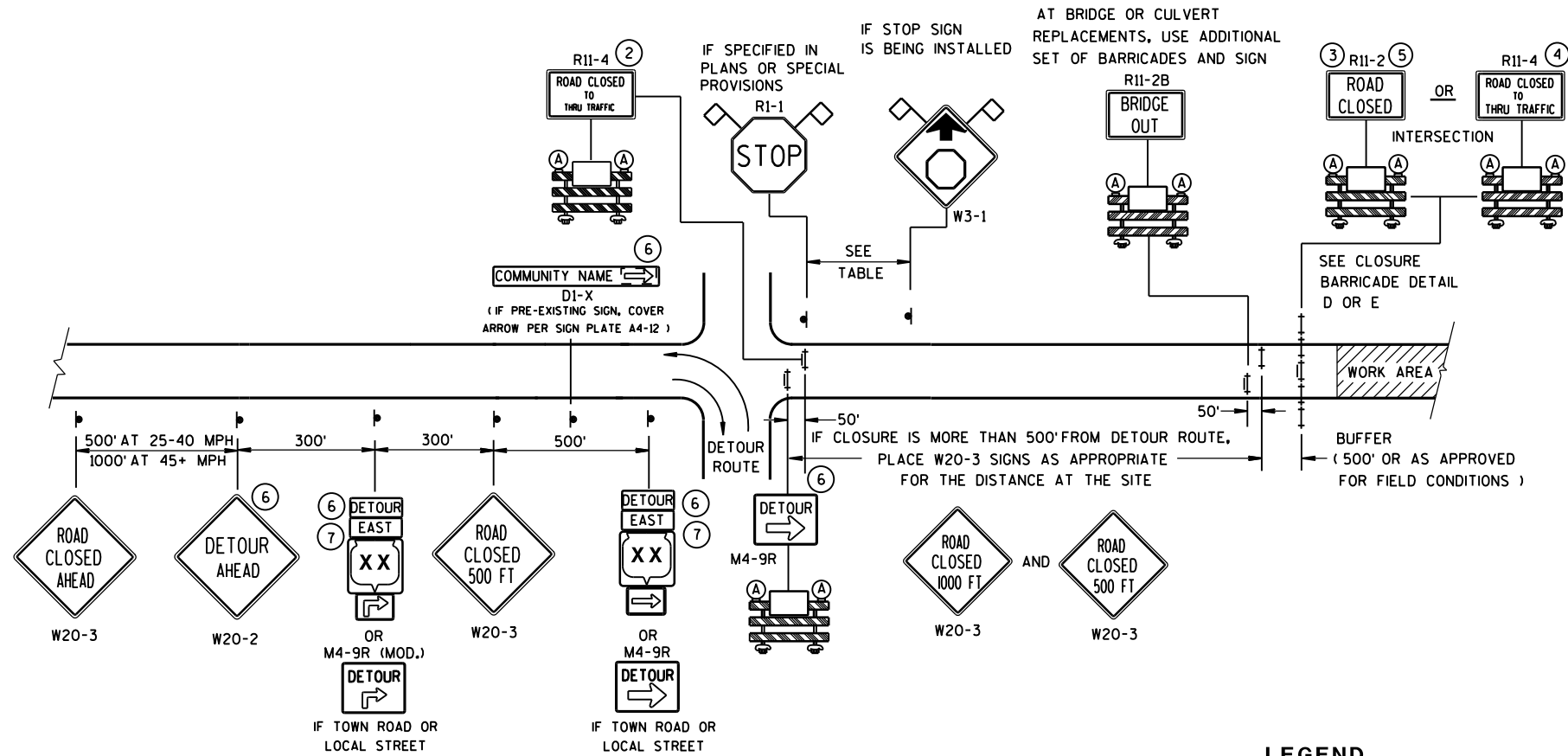
APPROVED
3/26/10
DATE
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

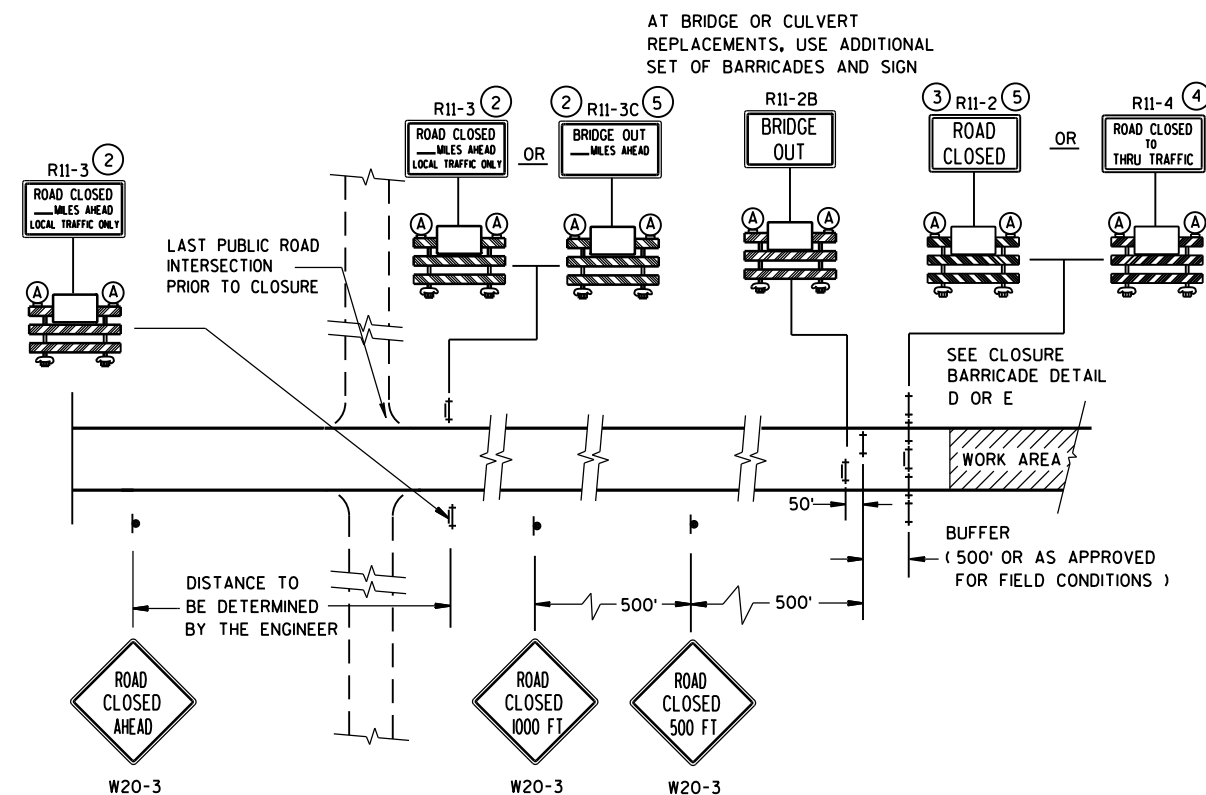
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



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

LEGEND

- | | |
|---|--|
|  | SIGN ON PERMANENT SUPPORT |
|  | TYPE III BARRICADE |
|  | TYPE III BARRICADE WITH
ATTACHED SIGN |
|  | TYPE "A" WARNING LIGHT (FLASHING) |

 WORK AREA

DETOUR M4-8
EAST M3-X

 OR  OR 

M1-4 M1-5A M1-6

 OR 
M05-1 M06-1

 FLAGS, 16" X 16" MIN., (ORANGE)

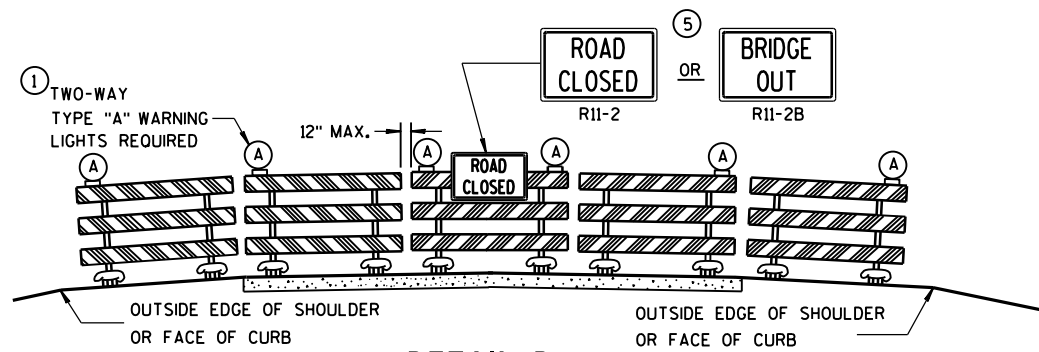
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

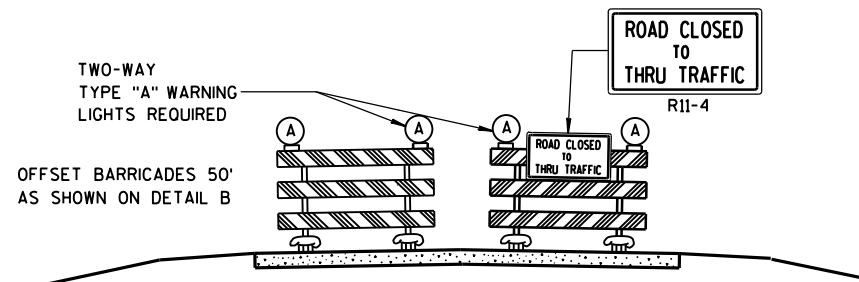
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".

M4-9 SHALL BE 30" X 24".

M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-8 SHALL BE 24" X 12". (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.

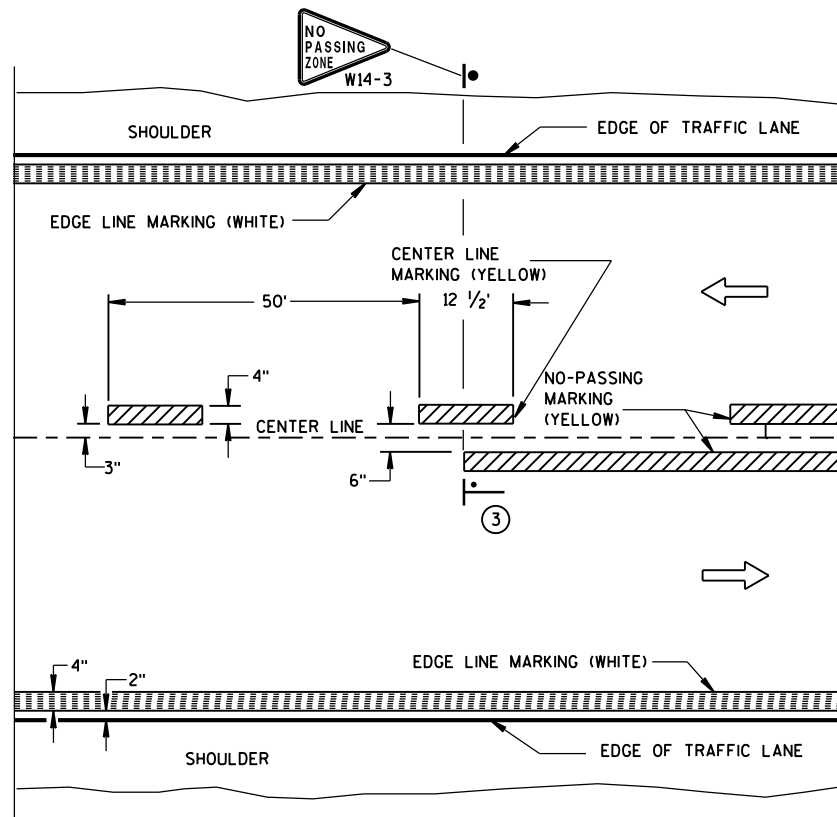
R1-1 SHALL BE 36" X 36".

- 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.

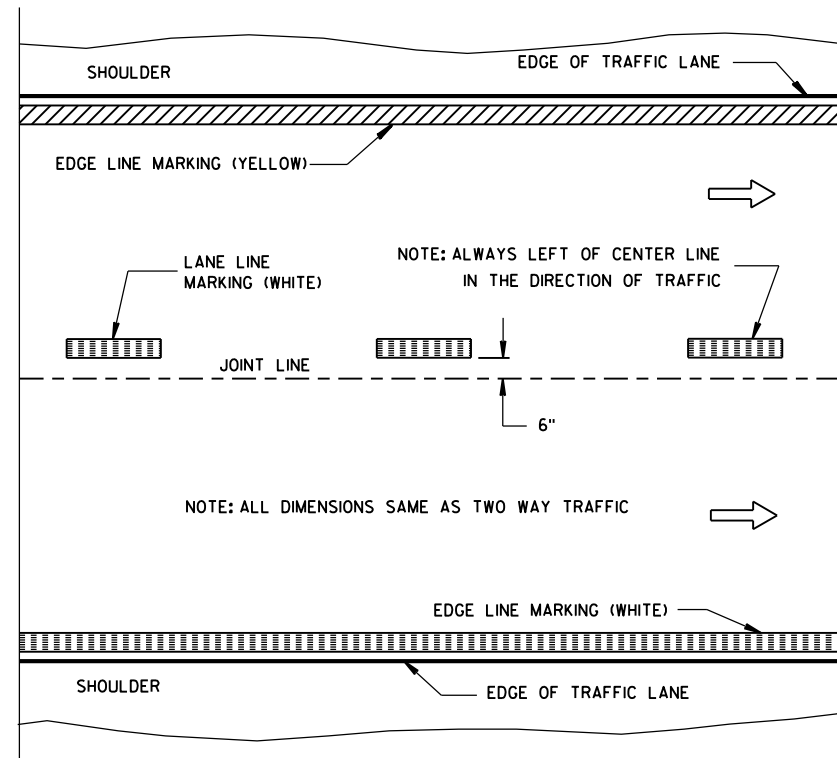
BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

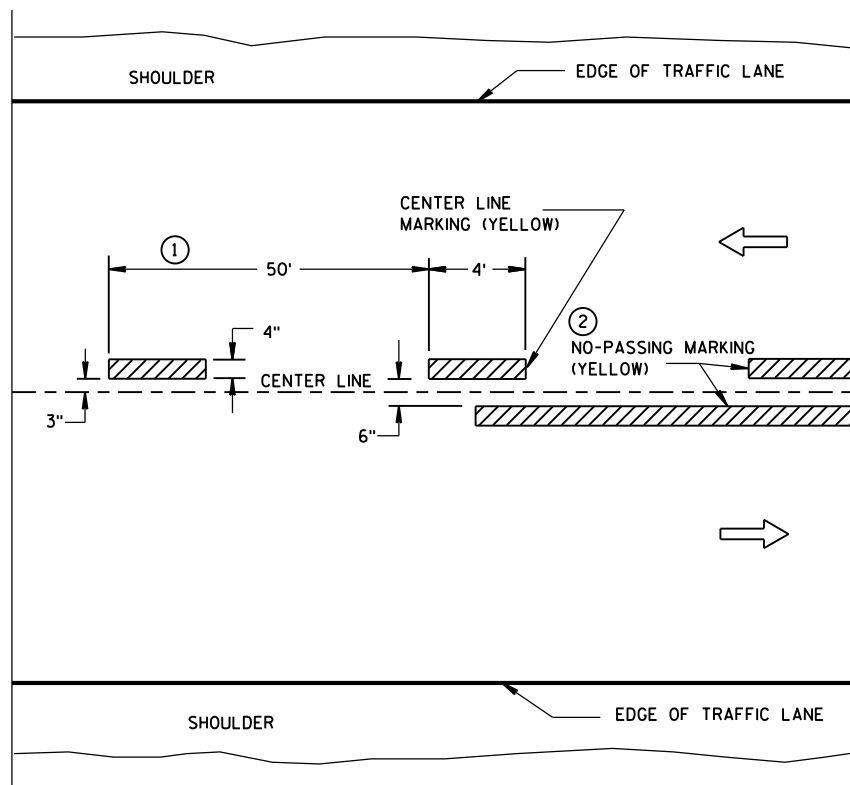


TWO WAY TRAFFIC

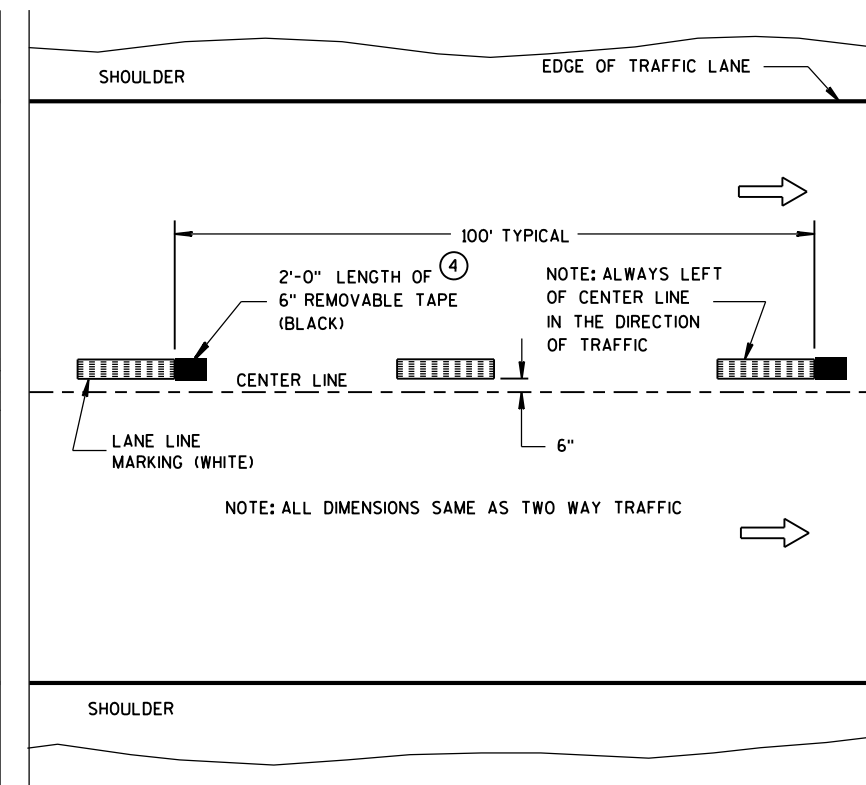


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

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

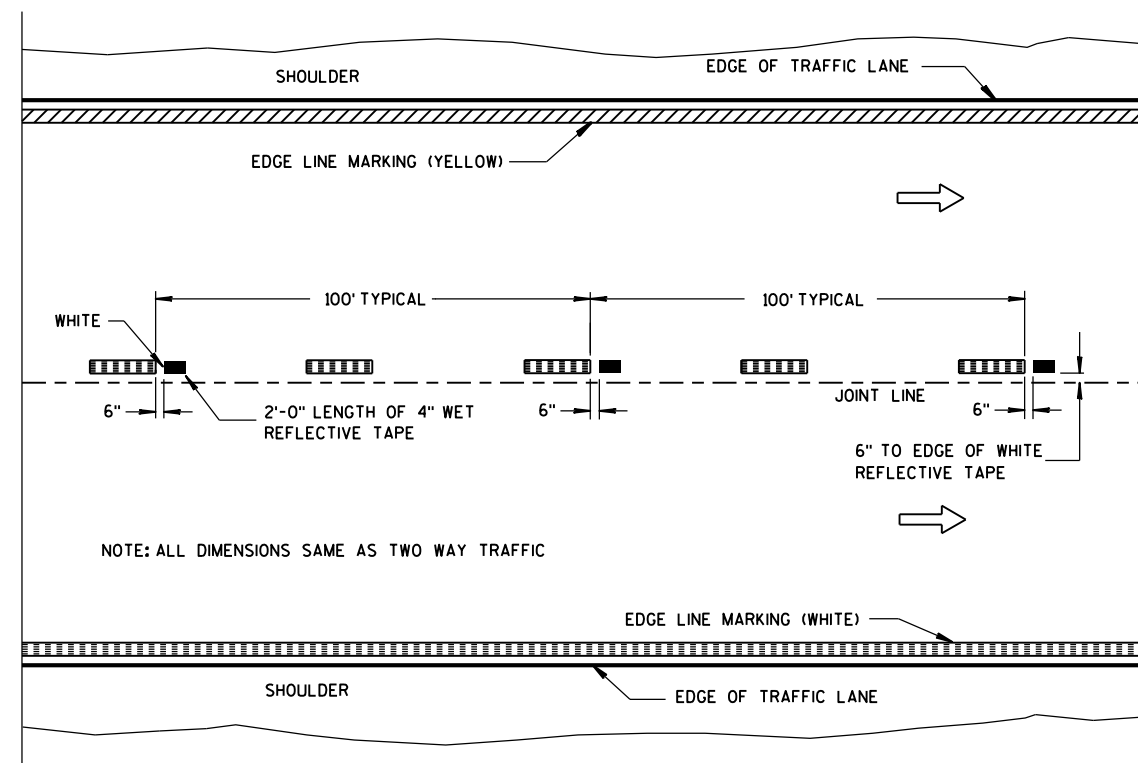
GENERAL NOTES

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.
- ④ CONCRETE ONLY.

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)

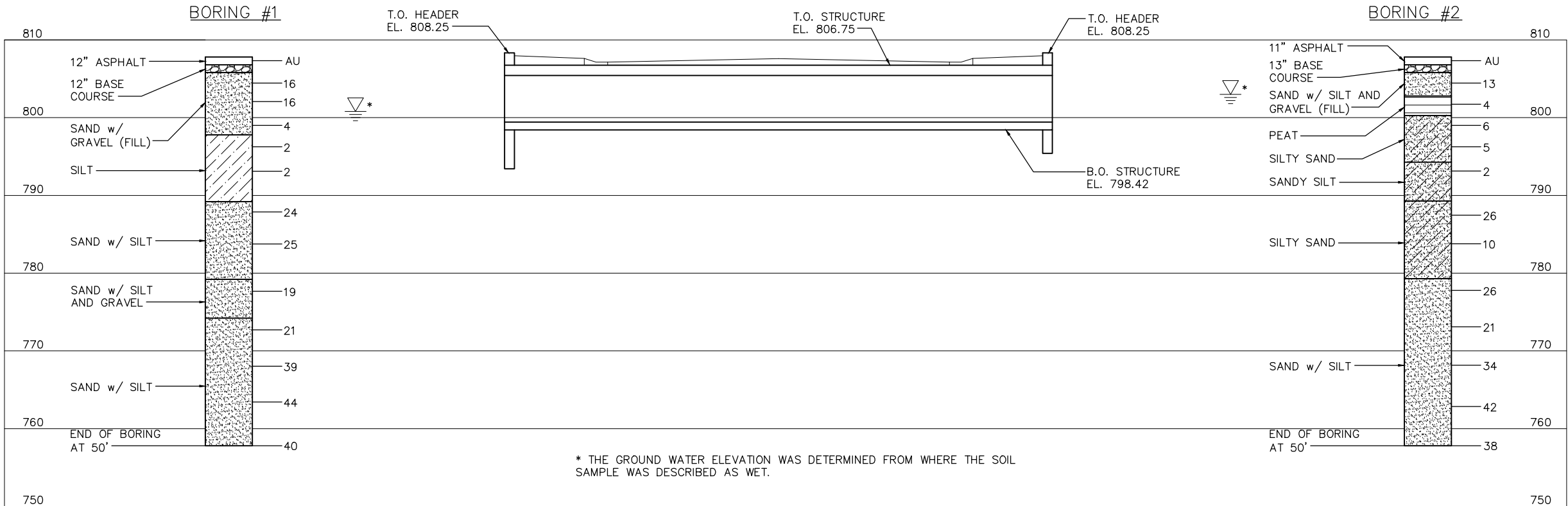
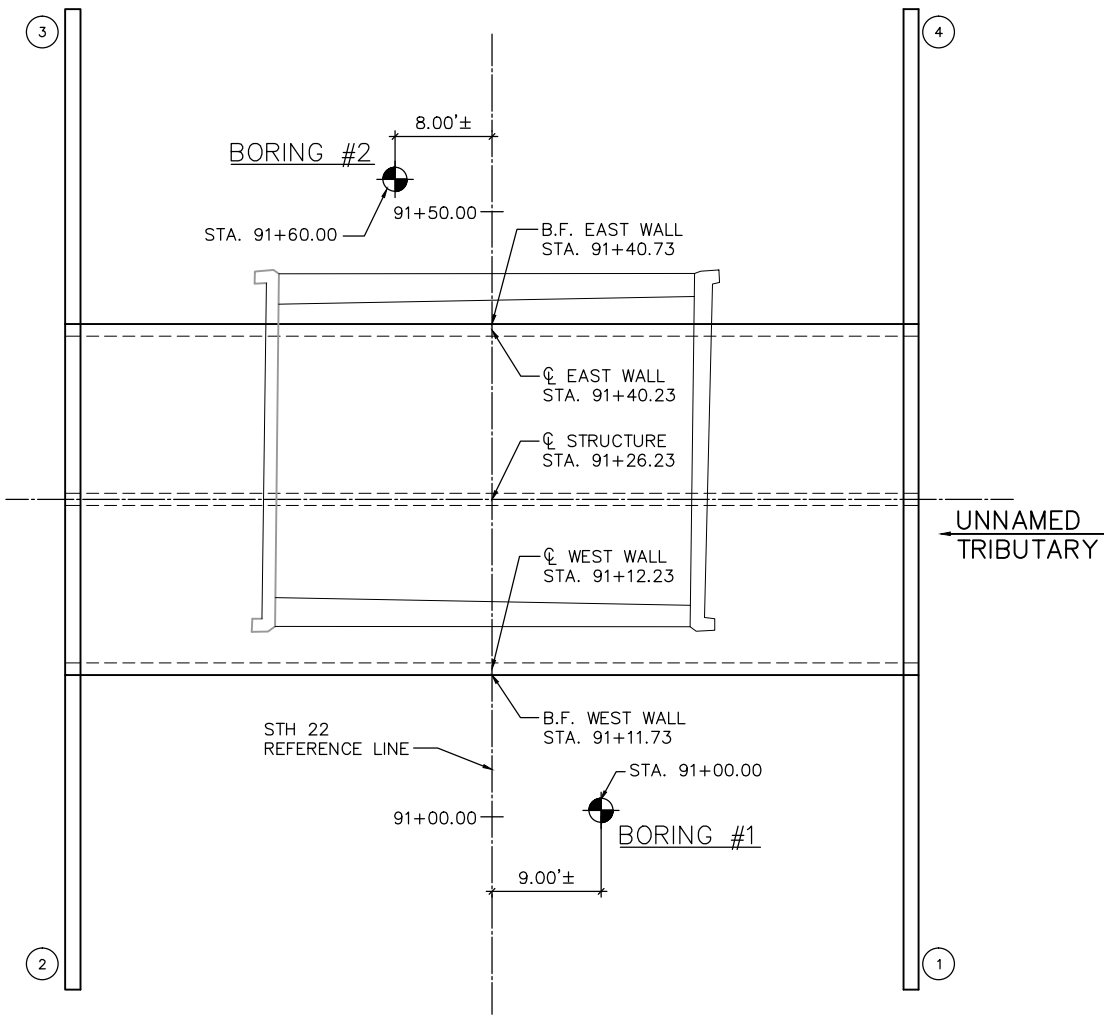
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-2013
DATE
FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

BORINGS PERFORMED BY:
MIDWEST ENGINEERING SERVICES, INC.
GREEN BAY, WI

REPORT DATED:
NOVEMBER 27, 2012



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

STATE PROJECT NUMBER

9180-23-70

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 (Fc)
F. Boulders or COBBLES
Sand (Fm)
Silty Clay
So Limestone

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" 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.

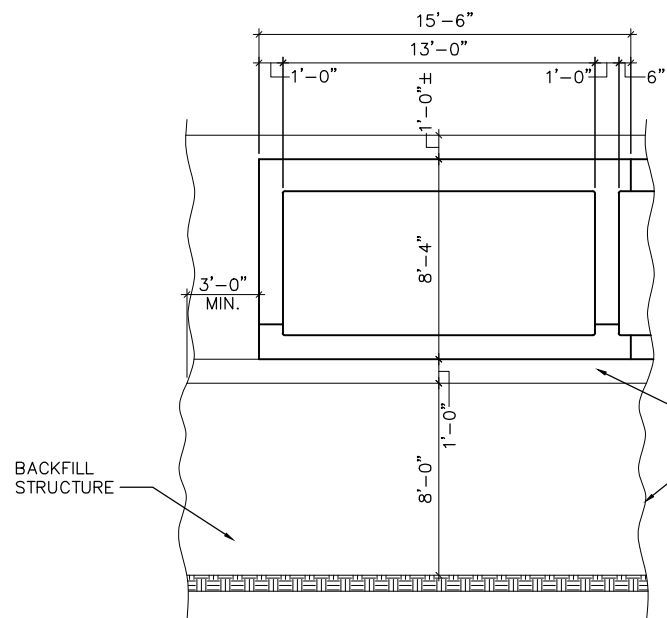
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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 WISCONSIN DEPARTMENT OF TRANSPORTATION 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.

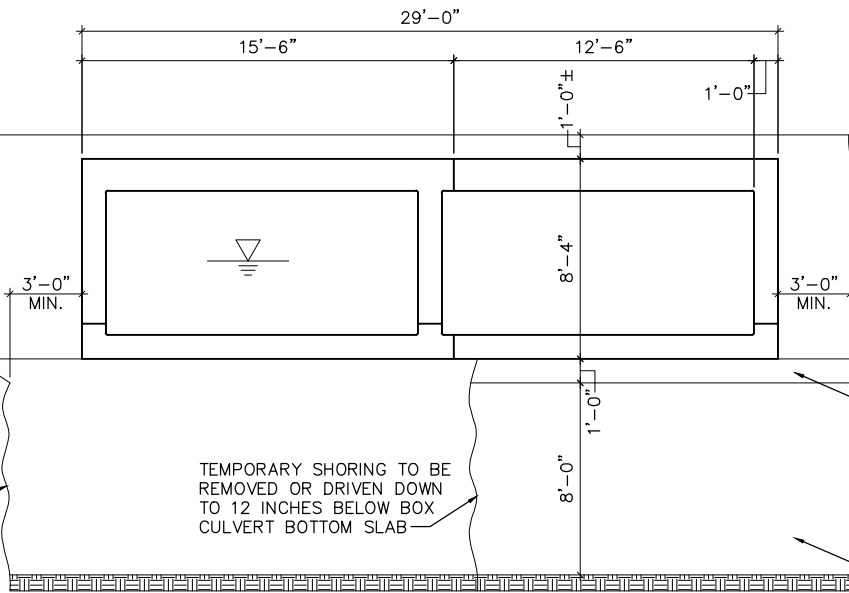
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-58-127			
DRAWN BY		SEG	PLANS DJB
SUBSURFACE EXPLORATION		SHEET 2 OF 8	

file= SCALE =

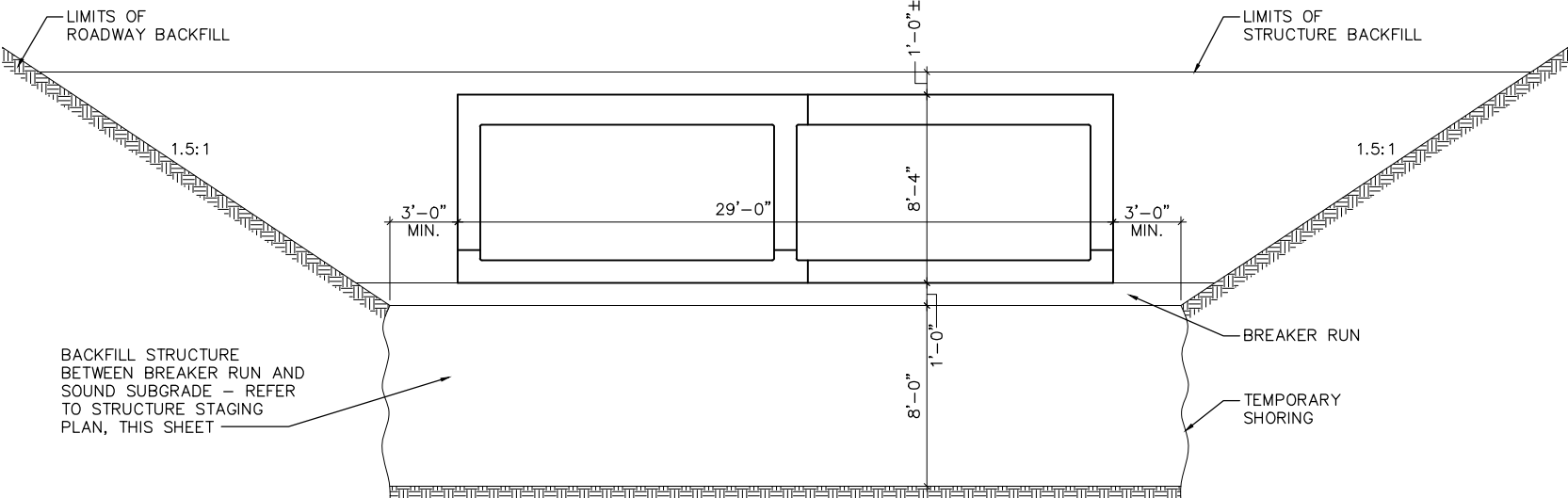
g:\projects\w0082\910215\00-Bridge Structure\05-Backfill EXCAVATION.dwg, layout1, Plot Date: 12/2/2014 1:26 PM, xref:none



EXCAVATION SECTION – STAGE 1
LOOKING NORTH



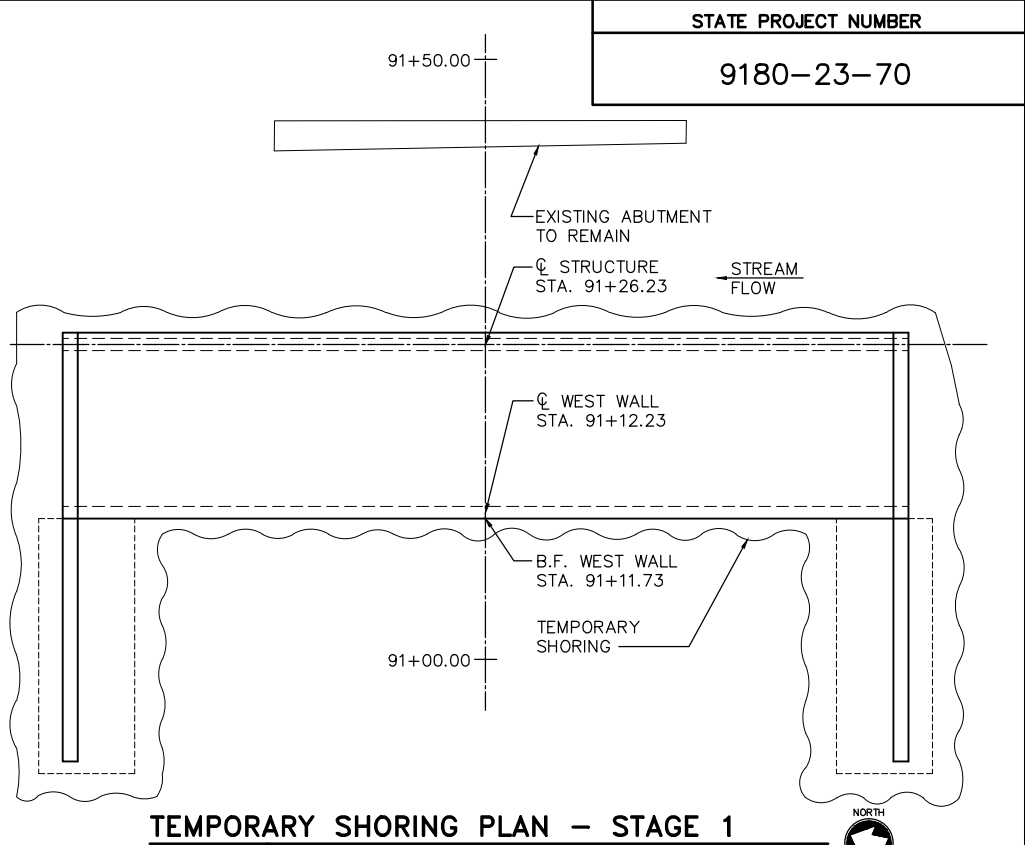
EXCAVATION SECTION – STAGE 2
LOOKING NORTH



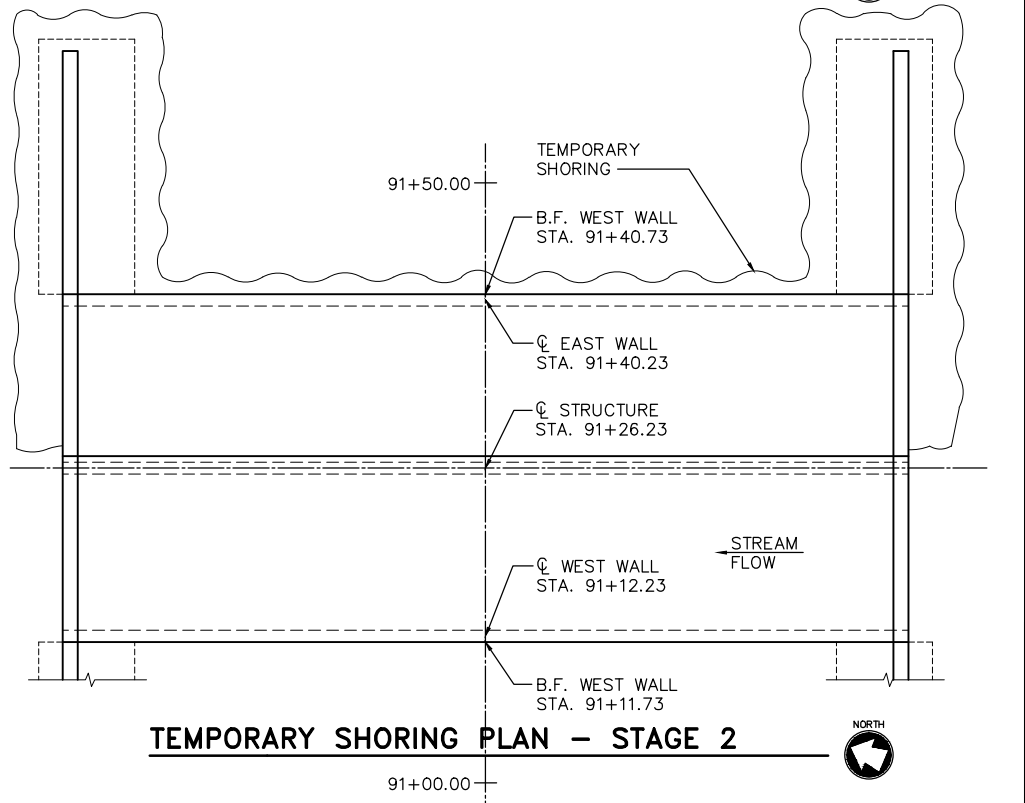
LIMITS OF EXCAVATION AND BACKFILL STRUCTURE LIMITS
LOOKING NORTH

DESCRIPTION OF STAGING PLAN:

1. DEMOLISH EXISTING BRIDGE DECK & WEST ABUTMENT. EAST ABUTMENT TO REMAIN IN PLACE.
2. INSTALL TEMPORARY SHORING TO DIVERT FLOW TO EAST SIDE OF STREAM, BETWEEN TEMPORARY SHORING & EAST ABUTMENT.
3. CONSTRUCT WEST CELL OF BOX CULVERT & WING WALLS. DEPTH OF EXCAVATION UNTIL REACHING SOUND SUBGRADE SHALL BE DETERMINED BY PROJECT ENGINEER. PROVIDE ADDITIONAL TEMPORARY SHORING AS NECESSITATED BY SUBGRADE CONDITIONS. REMOVE OR BURY TEMPORARY SHORING & PROVIDE BACKFILL STRUCTURE.
4. RECONFIGURE TEMPORARY SHORING TO DIVERT STREAM FLOW INTO WEST CELL OF BOX CULVERT.
5. DEMOLISH EXISTING EAST ABUTMENT. CONSTRUCT EAST CELL OF BOX CULVERT & WINGWALLS. DEPTH OF EXCAVATION UNTIL REACHING SOUND SUBGRADE SHALL BE DETERMINED BY PROJECT ENGINEER. PROVIDE ADDITIONAL TEMPORARY SHORING AS NECESSITATED BY SUBGRADE CONDITIONS. REMOVE OR BURY TEMPORARY SHORING & PROVIDE BACKFILL STRUCTURE.



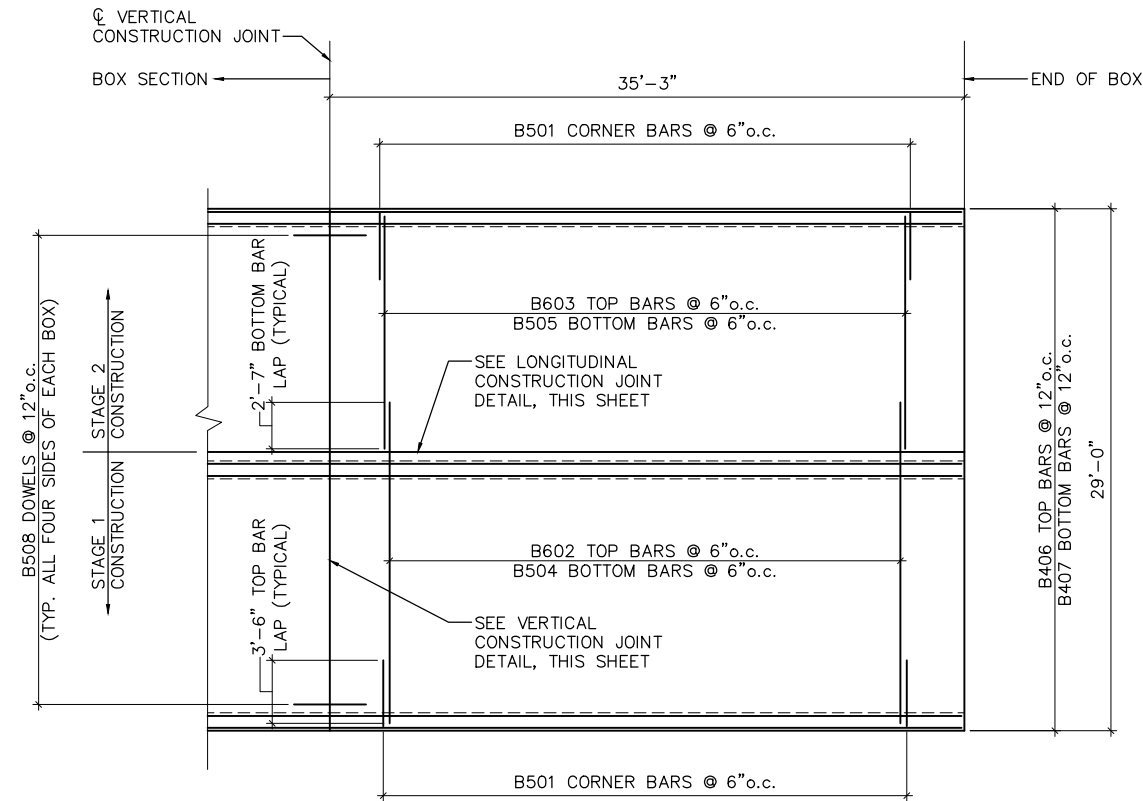
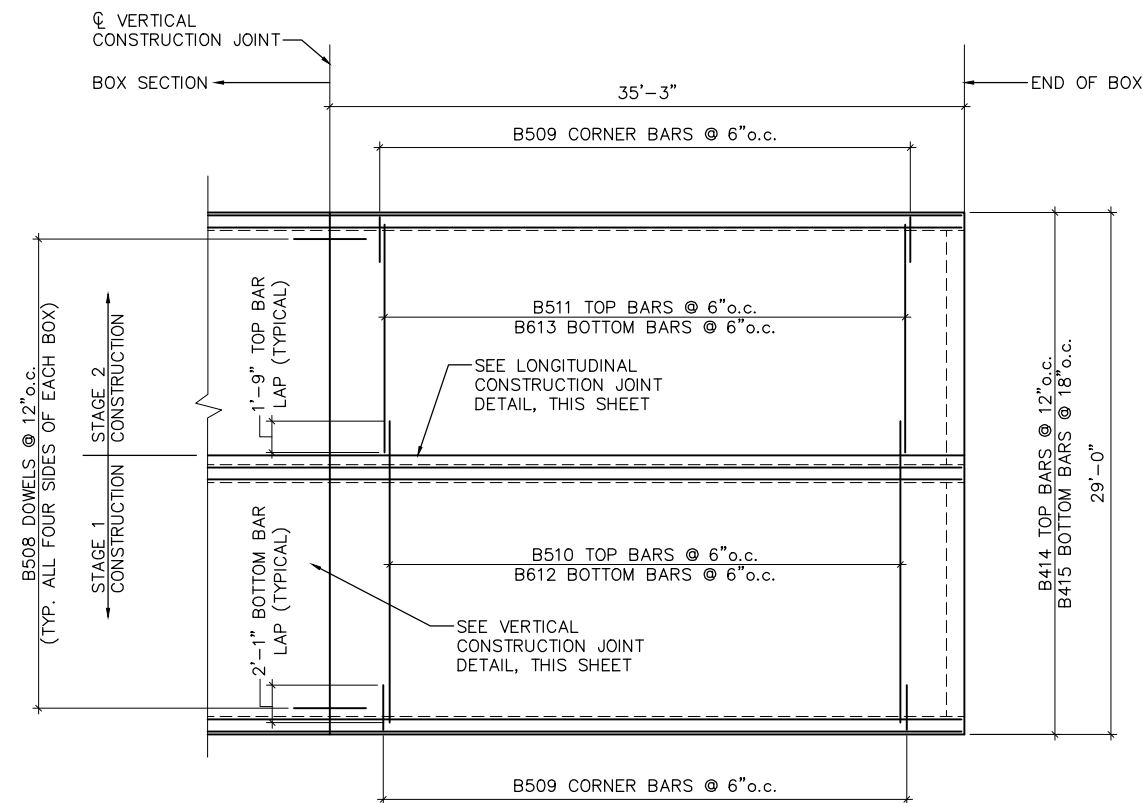
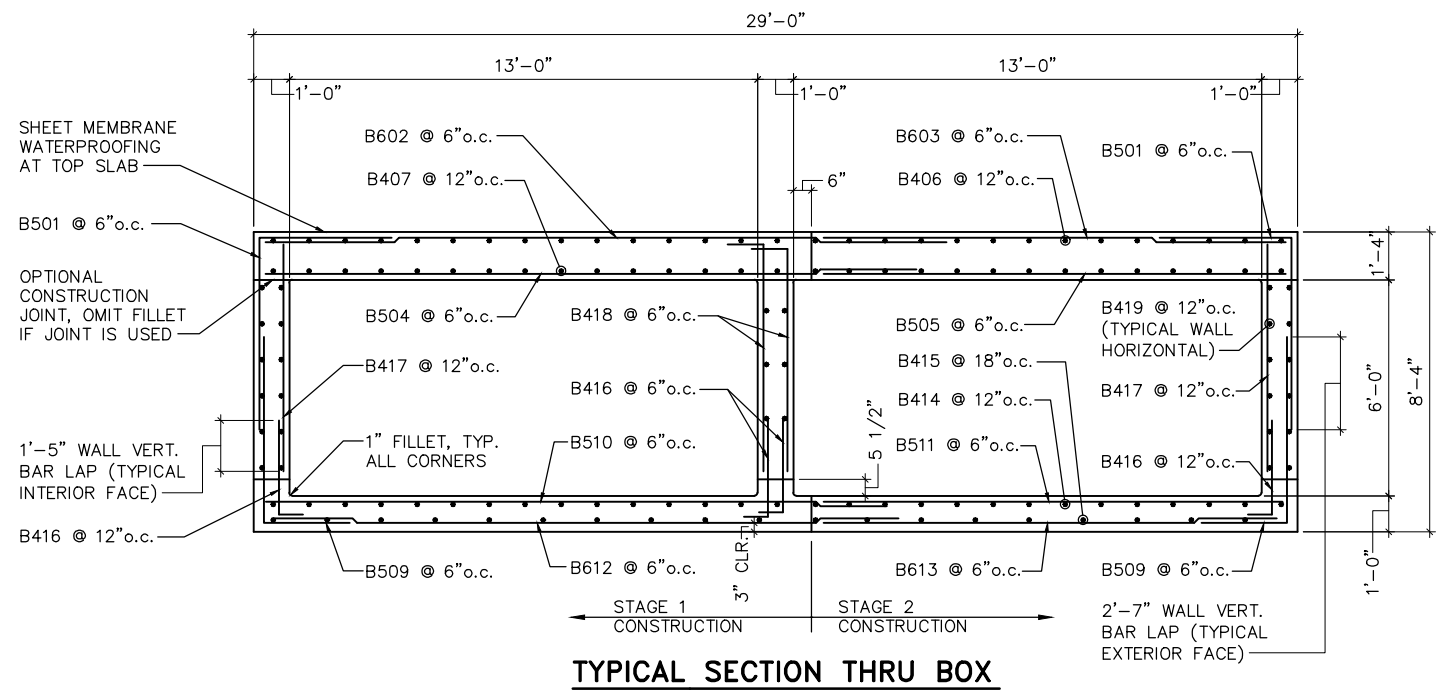
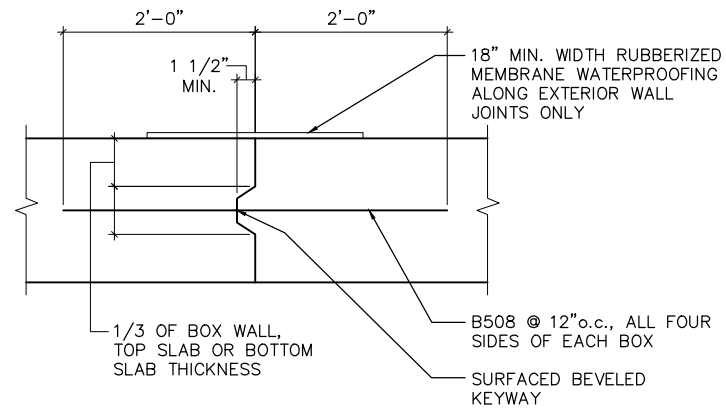
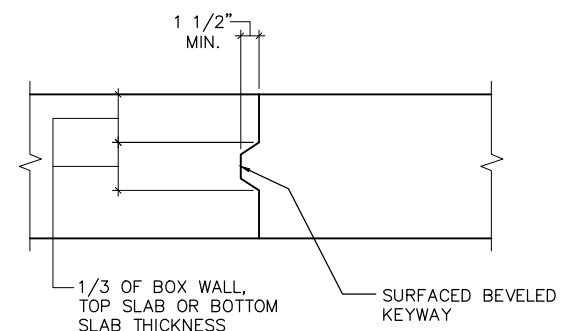
TEMPORARY SHORING PLAN – STAGE 1



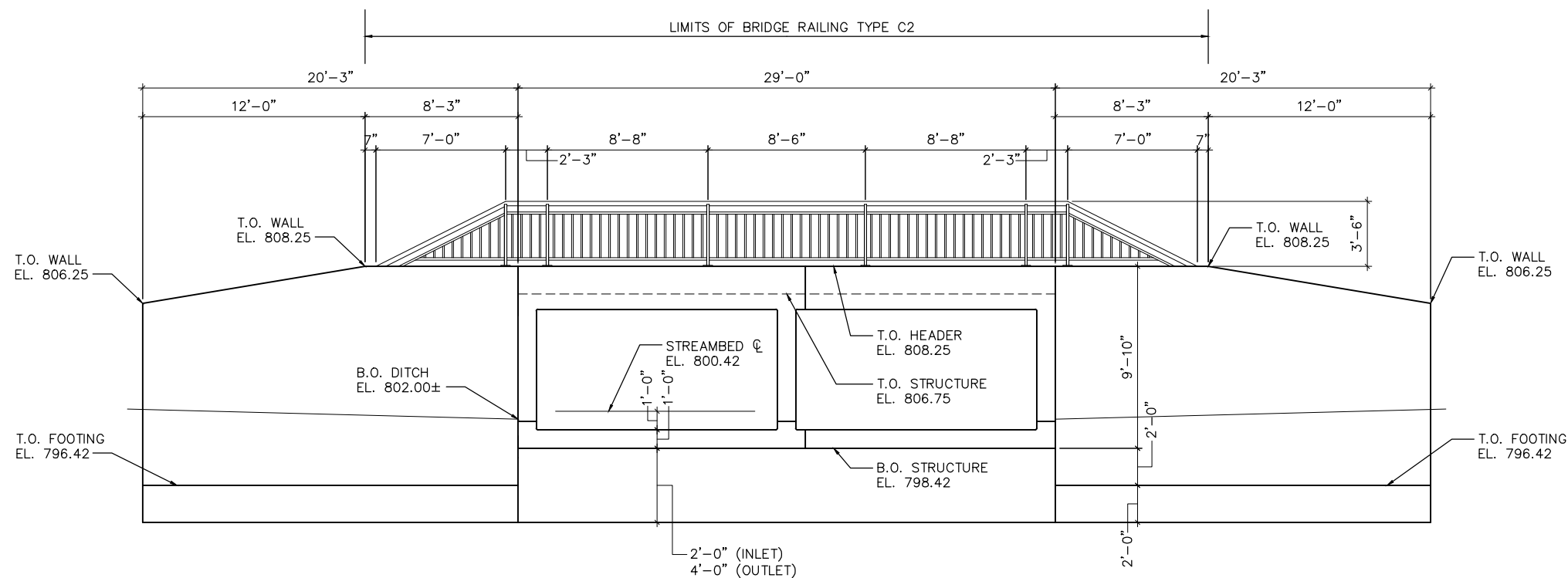
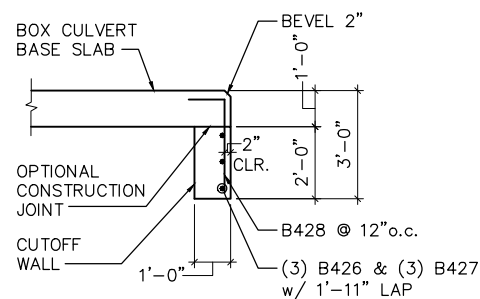
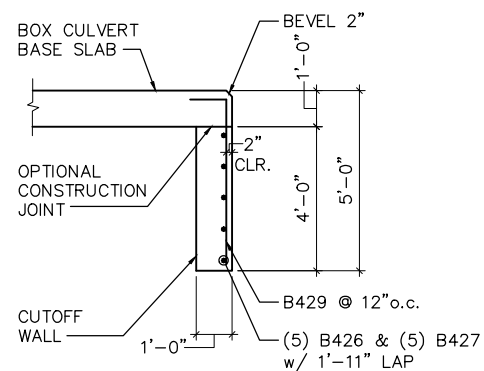
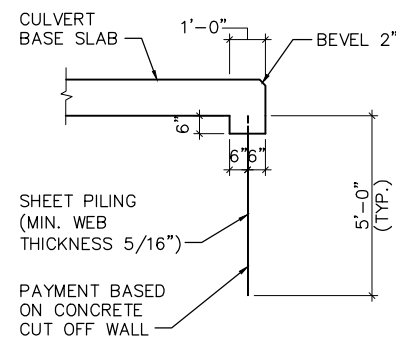
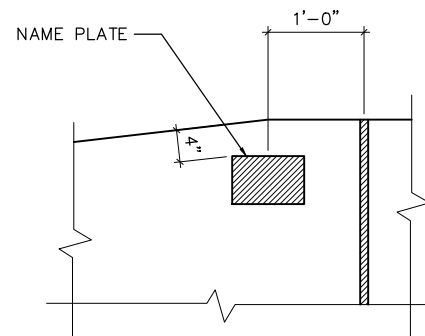
TEMPORARY SHORING PLAN – STAGE 2

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-58-127	
DRAWN BY		SEG	PLANS CK'D. DJB
BACKFILL EXCAVATION & TEMP. SHORING		SHEET 3 OF 8	

file= SCALE =

**TOP SLAB REINFORCEMENT PLAN**(SYMMETRIC ABOUT $\bar{C}$ EXCEPT AS NOTED)**BOTTOM SLAB REINFORCEMENT PLAN**(SYMMETRIC ABOUT $\bar{C}$ EXCEPT AS NOTED)**TYPICAL SECTION THRU BOX****VERTICAL CONSTRUCTION JOINT****LONGITUDINAL CONSTRUCTION JOINT**

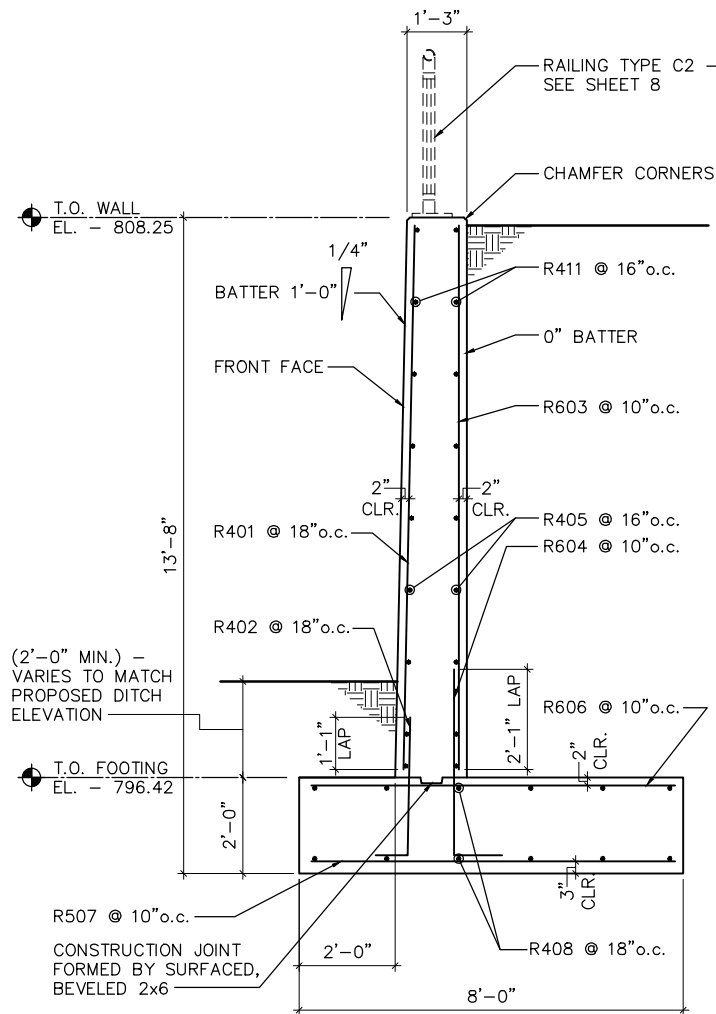
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-58-127	
DRAWN BY		SEG	PLANS CK'D. DJB
BOX PLANS, SECTION, & DETAILS		SHEET 4 OF 8	

**ELEVATION****INLET CUTOFF WALL****OUTLET CUTOFF WALL****ALTERNATE CUTOFF WALL****NAME PLATE LOCATION**

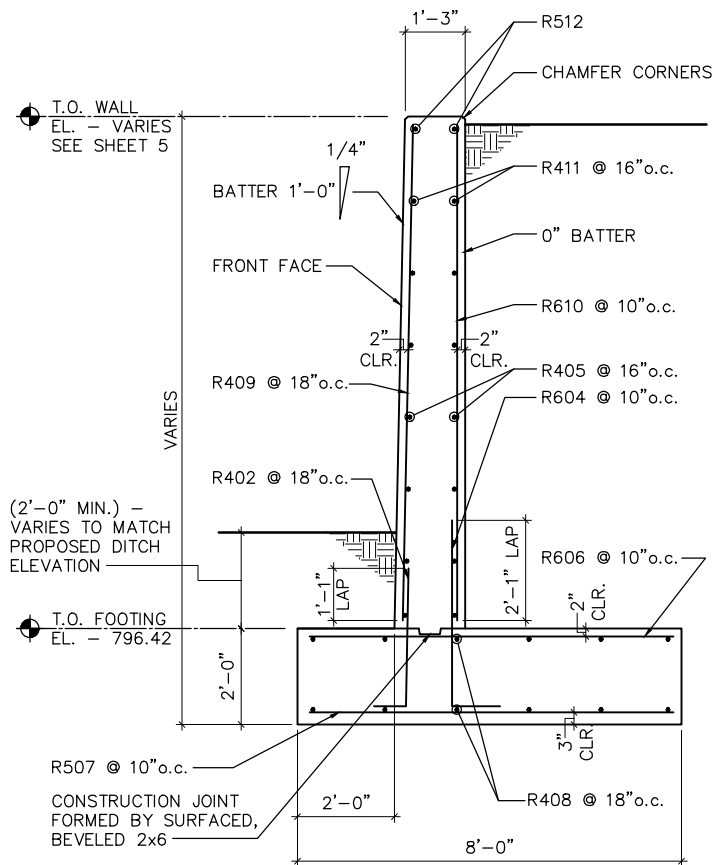
(WING WALL 1)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-58-127	
DRAWN BY		SEG	PLANS CK'D. DJB
WING WALL ELEVATION & DETAILS		SHEET 5 OF 8	

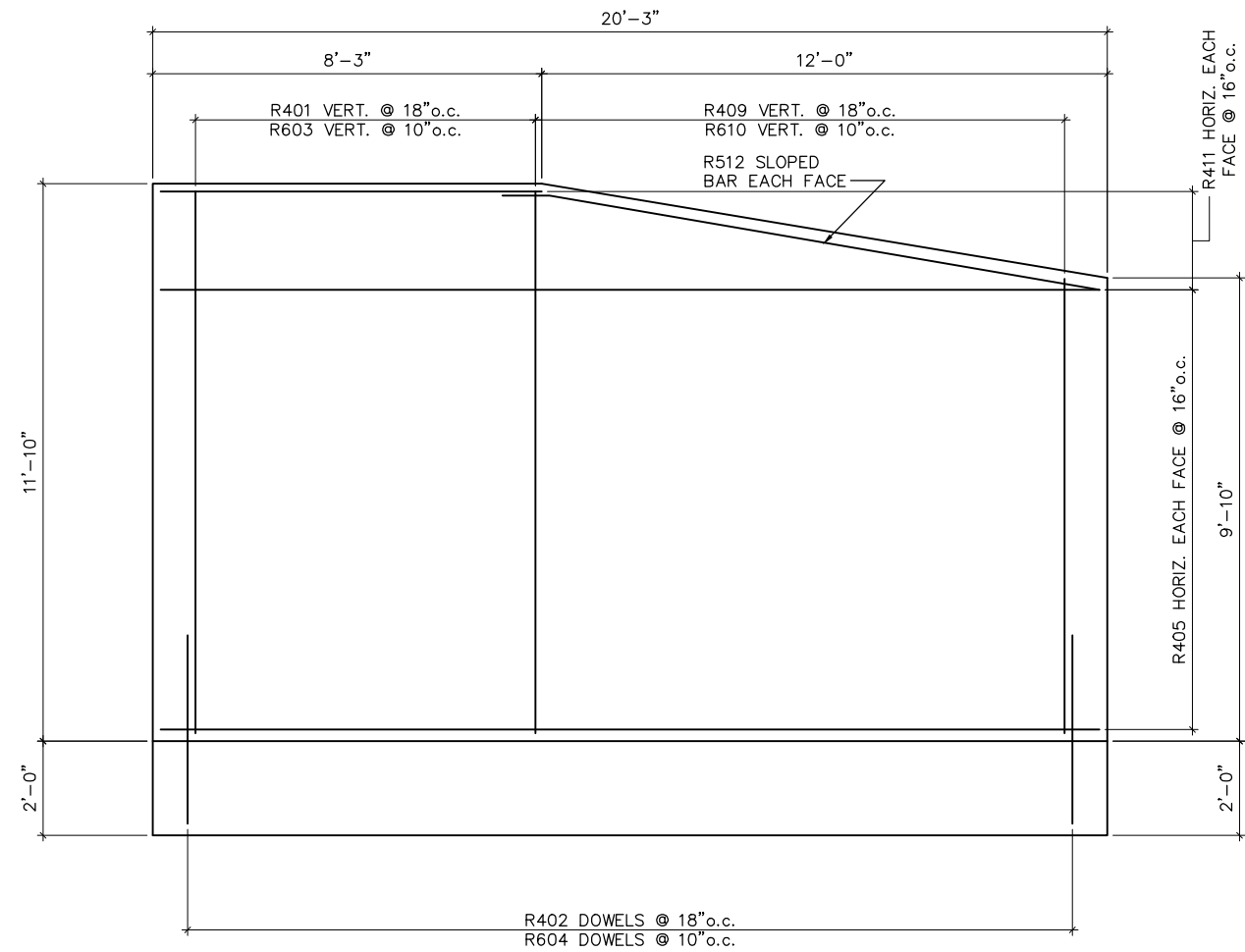
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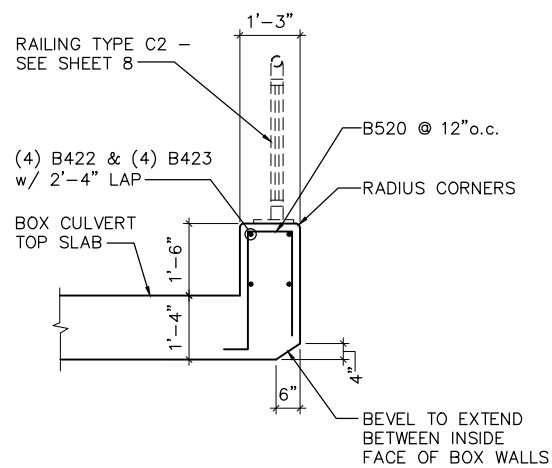
FULL HEIGHT WALL AT CULVERT



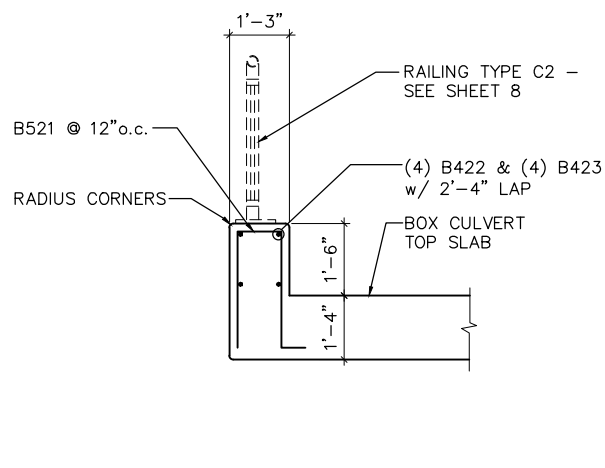
SLOPED WALL AT CULVERT



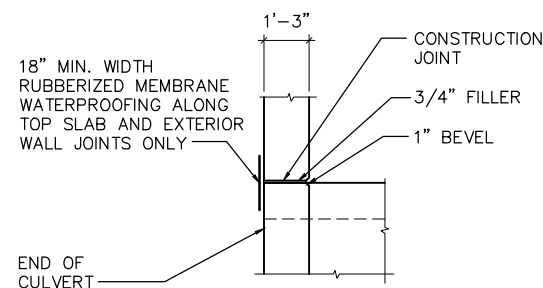
WING WALL ELEVATION



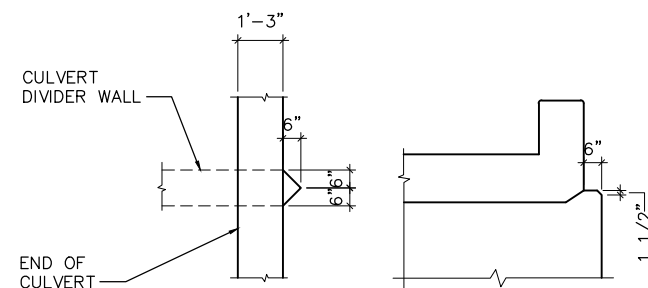
INLET HEADER



OUTLET HEADER

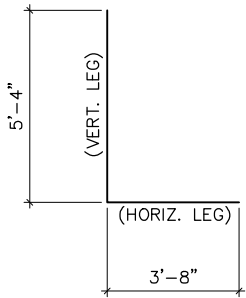


WINGWALL TO CULVERT

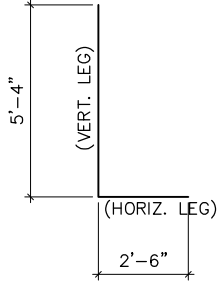


INLET NOSE

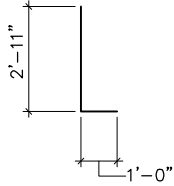
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-58-127	
DRAWN BY		SEG	PLANS C&D
WING WALL SECTION & DETAILS		SHEET 6 OF 8	



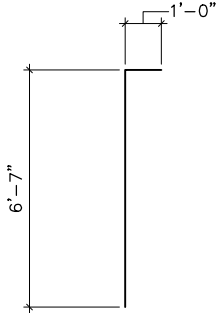
B501



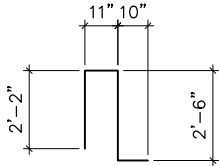
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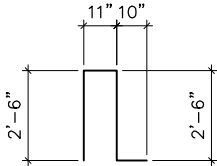
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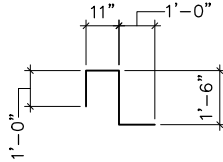
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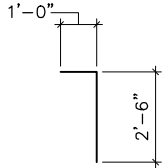
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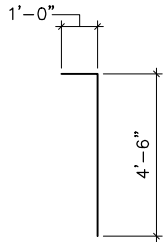
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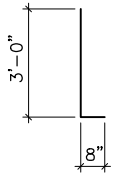
B624



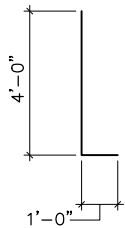
B428



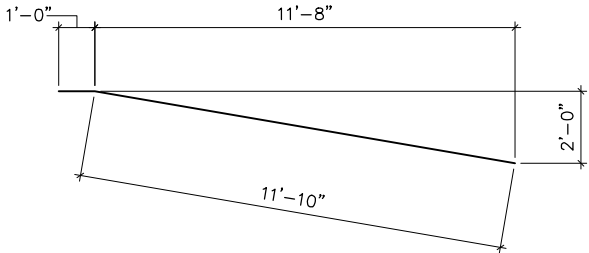
B429



R402



R604



R512

BILL OF BARS

BAR MARK	NO. REQ'D.		LENGTH	BENT	SERIES	LOCATION
	COATED	UNCOATED				
B501	280		9'-0"	X		BOX CORNERS – TOP CORNER
B602	140		18'-10"			TOP SLAB – TOP TRANSVERSE (STAGE 1)
B603	140		13'-0"			TOP SLAB – TOP TRANSVERSE (STAGE 2)
B504	140		18'-1"			TOP SLAB – BOTTOM TRANSVERSE (STAGE 1)
B505	140		13'-2"			TOP SLAB – BOTTOM TRANSVERSE (STAGE 2)
B406	56		34'-11"			TOP SLAB – TOP LONGITUDINAL
B407	56		34'-11"			TOP SLAB – BOTTOM LONGITUDINAL
B508		74	4'-0"			SLAB & WALL DOWELS – LONGITUDINAL
B509		280	7'-10"	X		BOX CORNERS – BOTTOM CORNER
B510		140	17'-3"			BOTTOM SLAB – TOP TRANSVERSE (STAGE 1)
B511		140	13'-2"			BOTTOM SLAB – TOP TRANSVERSE (STAGE 2)
B612		140	17'-2"			BOTTOM SLAB – BOTTOM TRANSVERSE (STAGE 1)
B613		140	12'-9"			BOTTOM SLAB – BOTTOM TRANSVERSE (STAGE 2)
B414		58	34'-11"			BOTTOM SLAB – TOP LONGITUDINAL
B415		40	34'-11"			BOTTOM SLAB – BOTTOM LONGITUDINAL
B416		420	3'-11"	X		INNER & OUTER WALL – VERTICAL DOWEL
B417		140	6'-7"			OUTER WALL – INTERIOR VERTICAL
B418		280	7'-7"	X		INNER WALL – VERTICAL
B419		72	34'-11"			OUTER & INNER WALL – LONGITUDINAL
B520	29		6'-5"	X		HEADER – BENT BAR
B521	29		6'-9"	X		HEADER – BENT BAR
B422	8		17'-10"			HEADER – LONGITUDINAL (STAGE 1)
B423	8		13'-2"			HEADER – LONGITUDINAL (STAGE 2)
B624	40		4'-5"	X		HEADER – RAILING BENT BAR
B625	20		4'-0"			HEADER – RAILING LONGITUDINAL BAR
B426		8	17'-5"			CUTOFF WALL – LONGITUDINAL (STAGE 1)
B427		8	13'-2"			CUTOFF WALL – LONGITUDINAL (STAGE 2)
B428		30	3'-6"	X		CUTOFF WALL – INLET BENT BAR
B429		30	5'-6"	X		CUTOFF WALL – OUTLET BENT BAR
R401		24	11'-6"			FRONT FACE – VERTICAL
R402		60	3'-8"	X		FRONT FACE – VERTICAL DOWEL
R603		40	11'-6"			BACK FACE – VERTICAL
R604		100	5'-0"	X		BACK FACE – VERTICAL DOWEL
R405		56	19'-11"			WALL – HORIZONTAL
R606		100	7'-8"			FOOTING – TOP TRANSVERSE
R507		100	7'-8"			FOOTING – BOTTOM TRANSVERSE
R408		48	20'-11"			FOOTING – TOP & BOTTOM LONGITUDINAL
R409		36	10'-6"		▲	FRONT FACE – VERTICAL (SLOPED SERIES)
R610		60	10'-6"		▲	BACK FACE – VERTICAL (SLOPED SERIES)
R411		16	13'-11"		▲	WALL – HORIZONTAL (SLOPED SERIES)
R512		8	12'-10"	X		WALL – HORIZONTAL SLOPED BAR

▲ LENGTH SHOWN IS AN AVERAGE LENGTH FOR USE CALCULATING BAR WEIGHT ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

STATE PROJECT NUMBER

9180-23-70

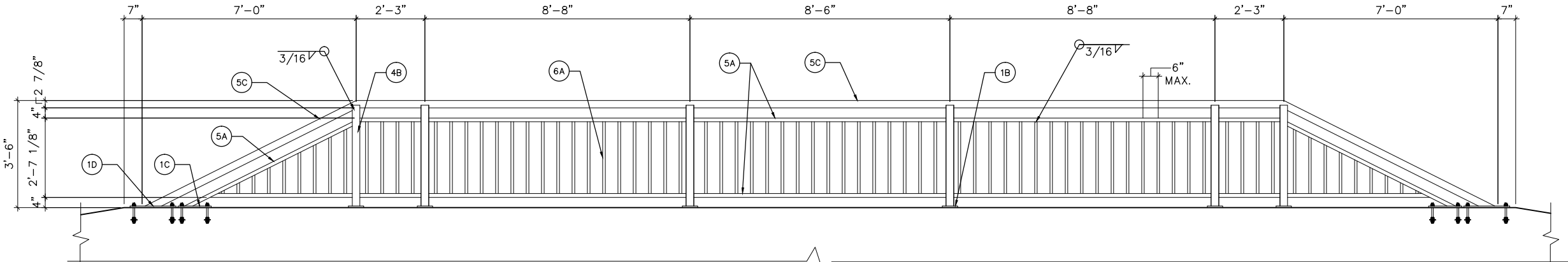
BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
R409	4 SERIES OF 9	9'-6" TO 11'-6"
R610	4 SERIES OF 15	9'-6" TO 11'-6"
R411	8 SERIES OF 2	7'-11" TO 19'-11"

(BUNDLE AND TAG EACH SERIES SEPARATELY)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-58-127	
	DRAWN BY	SEG	PLANS CK'D. DJB
BILL OF BARS		SHEET 7 OF 8	

file= SCALE =



LEGEND:

- (1B) PLATE 5/8"x6"x10" WITH 3/4"x1 1/2" SLOTTED HOLES.
- (1C) PLATE 5/8"x8"x1'-1" WITH 3/4"x1 1/2" SLOTTED HOLES.
- (1D) PLATE 5/8"x8"x1'-6" WITH 3/4"x1 1/2" SLOTTED HOLES.
- (2B) 1/4"x5"x9" ANCHOR PLATE WITH 11/16" DIA. HOLES FOR THR'D. RODS NO. 3.
- (2C) 1/4"x2 1/2"x7 1/4" ANCHOR PLATE WITH 11/16" DIA. HOLES FOR THR'D. RODS NO. 3.
- (3) 5/8" DIA. x 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. (ALTERNATE RAIL POST ANCHORAGE: 4 EQUIVALENT STAINLESS STEEL CONCRETE MASONRY ANCHORS TYPE S 5/8". EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS.)
- (4B) STRUCTURAL TUBING 3"x3"x3/16". PLACE VERTICAL. WELD TO NO. 1 & 5.
- (5A) STRUCTURAL TUBING 3"x1 1/2"x3/16 RAILS. WELD TO NO. 1 & 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- (5C) STRUCTURAL TUBING 2 1/2" DIA. (STANDARD SIZE) (2.875" O.D.). WELD TO NO. 1 & 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- (6A) BAR 1"x1" PICKETS. WELD TO NO. 5. (SPACE AT 6" MAX. C TO C SPACING). PLACE VERTICAL.
- (9A) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. PROVIDE "SLIDING FIT".
- (9B) CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.).
- (10A) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JOINTS.) (1'-4" @ STRIP SEAL EXP. JOINTS)
- (10B) CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.). (1'-4" @ FIELD ERECTION JOINTS.) (1'-4" @ STRIP SEAL EXP. JOINTS)

RAILING NOTES:

BID ITEM SHALL BE "RAILING STEEL TYPE C2 GALVANIZED B-58-127", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

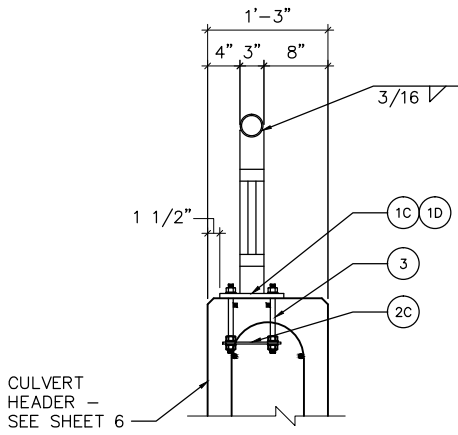
ALL MATERIAL (EXCEPT NO. 3) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE "BRIDGE SPECIAL PROVISIONS". THE RAILING SHALL BE PAINTED FEDERAL COLOR NO. FS 17038, 03120F (BLACK).

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

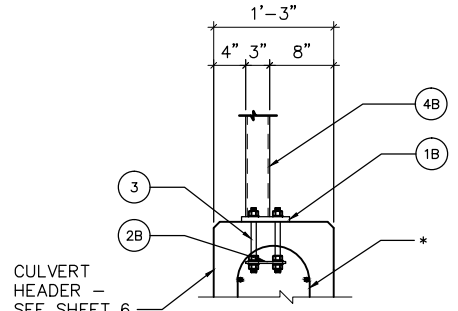
VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

ELEVATION OF PARAPET



END VIEW



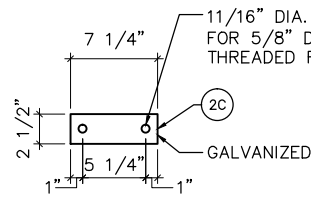
SECTION THRU PARAPET

*ADJUST LOCATIONS OF BARS TO ALLOW PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING.

ANCHORAGE FOR END RAIL

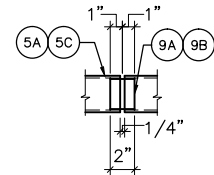
NOTE: USE 8" THREADED ROD AT PLATE 1D WHEN ADJACENT TO BEAM GUARD ANCHOR ASSEMBLY.

NOTE: ANCHOR PLATES NOT REQ'D WHEN TYPE "S" ANCHORS ARE USED.



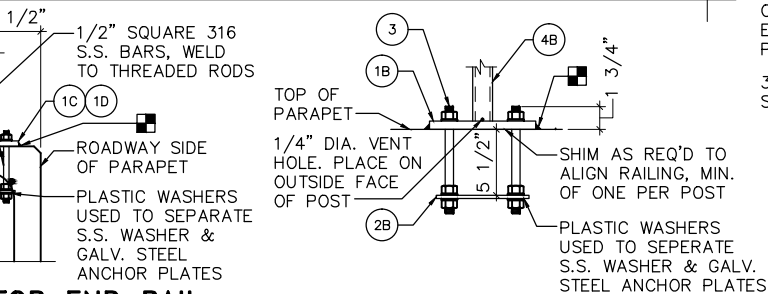
END RAIL ANCHOR PLATE

FOR END RAIL BASE PLATES (1C)(1D)
2 REQ'D. PER END RAIL BASE PLATE



SHOP RAIL SPLICE DETAIL

(LOCATIONS MUST BE SHOWN ON SHOP DRAWINGS)

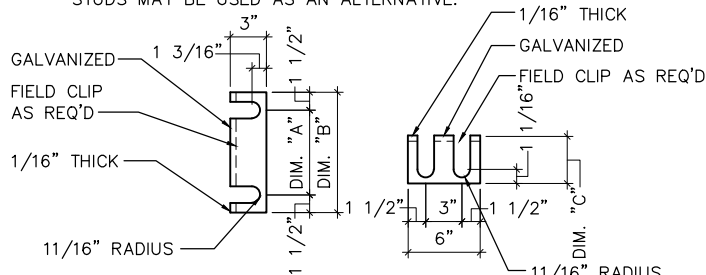


ANCHORAGE FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN TYPE "S" ANCHORS ARE USED.

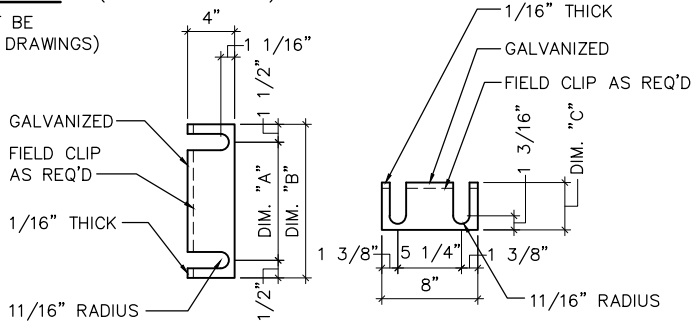
FIELD ERECTION JOINT DETAIL

*MIN. 5/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATIVE.



RAIL POST SHIM DETAIL

6"x10" BASE PLATE (1B) DIM. "A"=7", DIM. "B"=10", DIM. "C"=5"
(2 SETS PER POST)

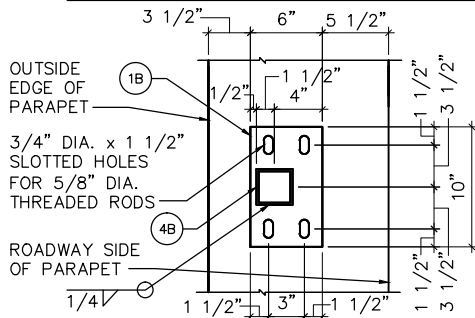


END RAIL SHIM DETAIL

8"x1'-1" BASE PLATE (1C) DIM. "A"=10", DIM. "B"=1'-1", DIM. "C"=6 1/2"
8"x1'-6" BASE PLATE (1D) DIM. "A"=1'-3", DIM. "B"=1'-6", DIM. "C"=9"
(2 SETS PER POST)

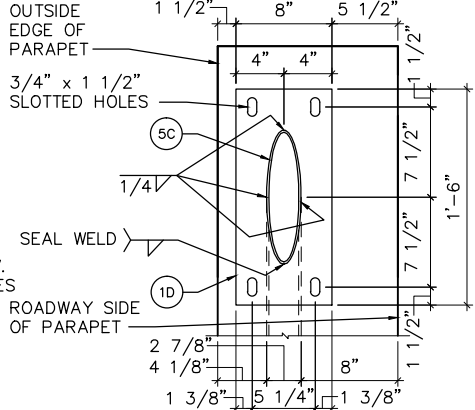
STATE PROJECT NUMBER

9180-23-70



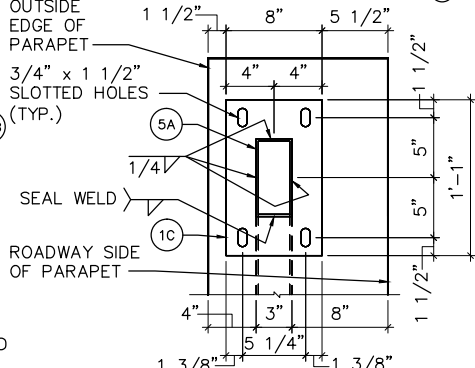
TYP. RAIL POST BASE PLATE

FOR 3" x 3" x 3/16" POSTS (4B)



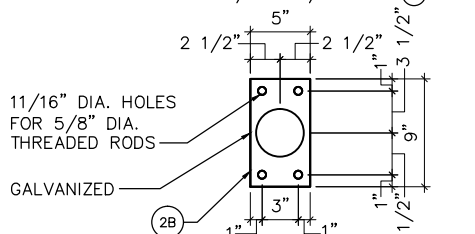
END RAIL BASE PLATE

FOR 2 1/2" STANDARD PIPE RAIL (5C)



END RAIL BASE PLATE

FOR 3" x 1 1/2" x 3/16" RAIL (5A)

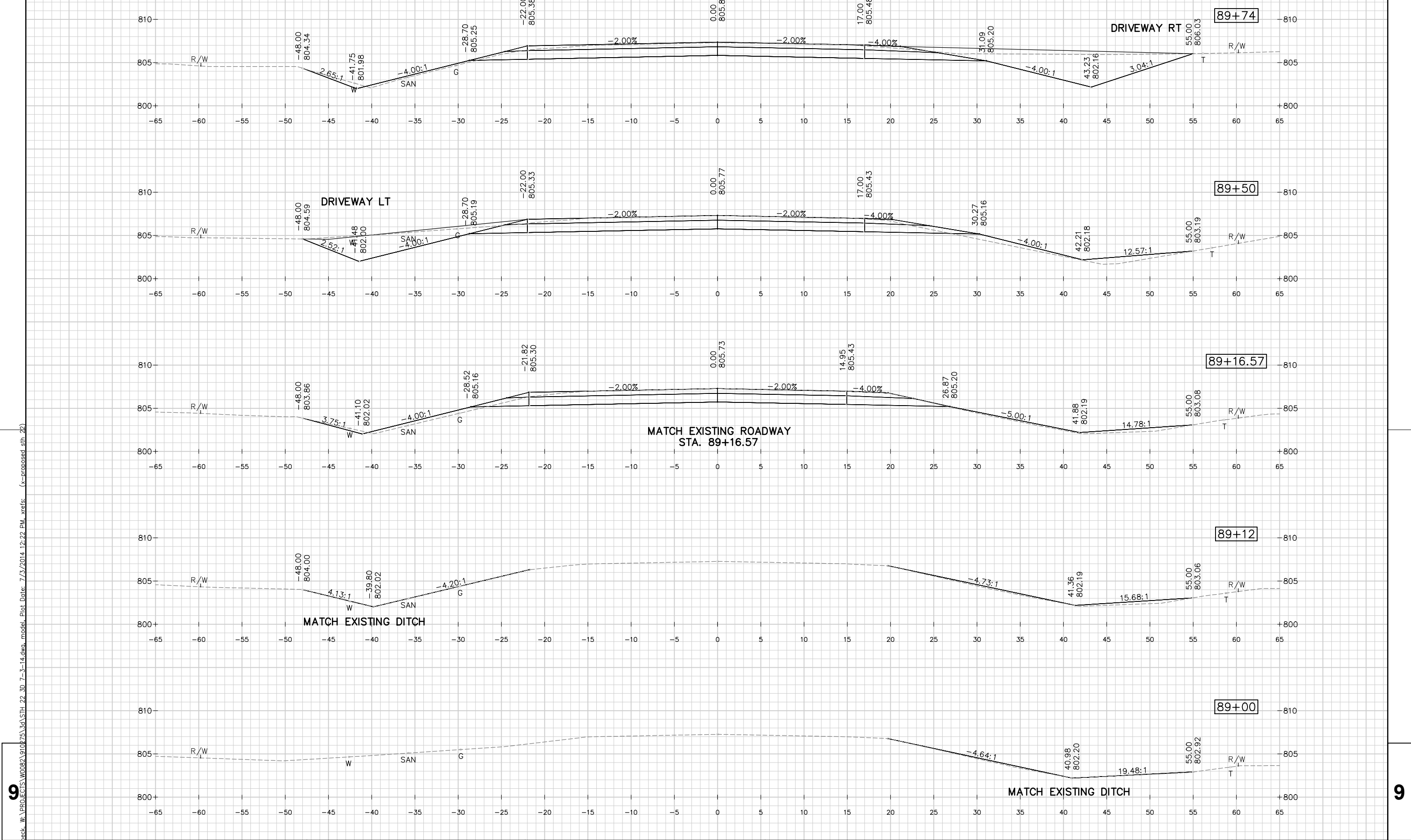


TYPICAL ANCHOR PLATE

FOR 3" x 3" x 3/16" POSTS (4B)

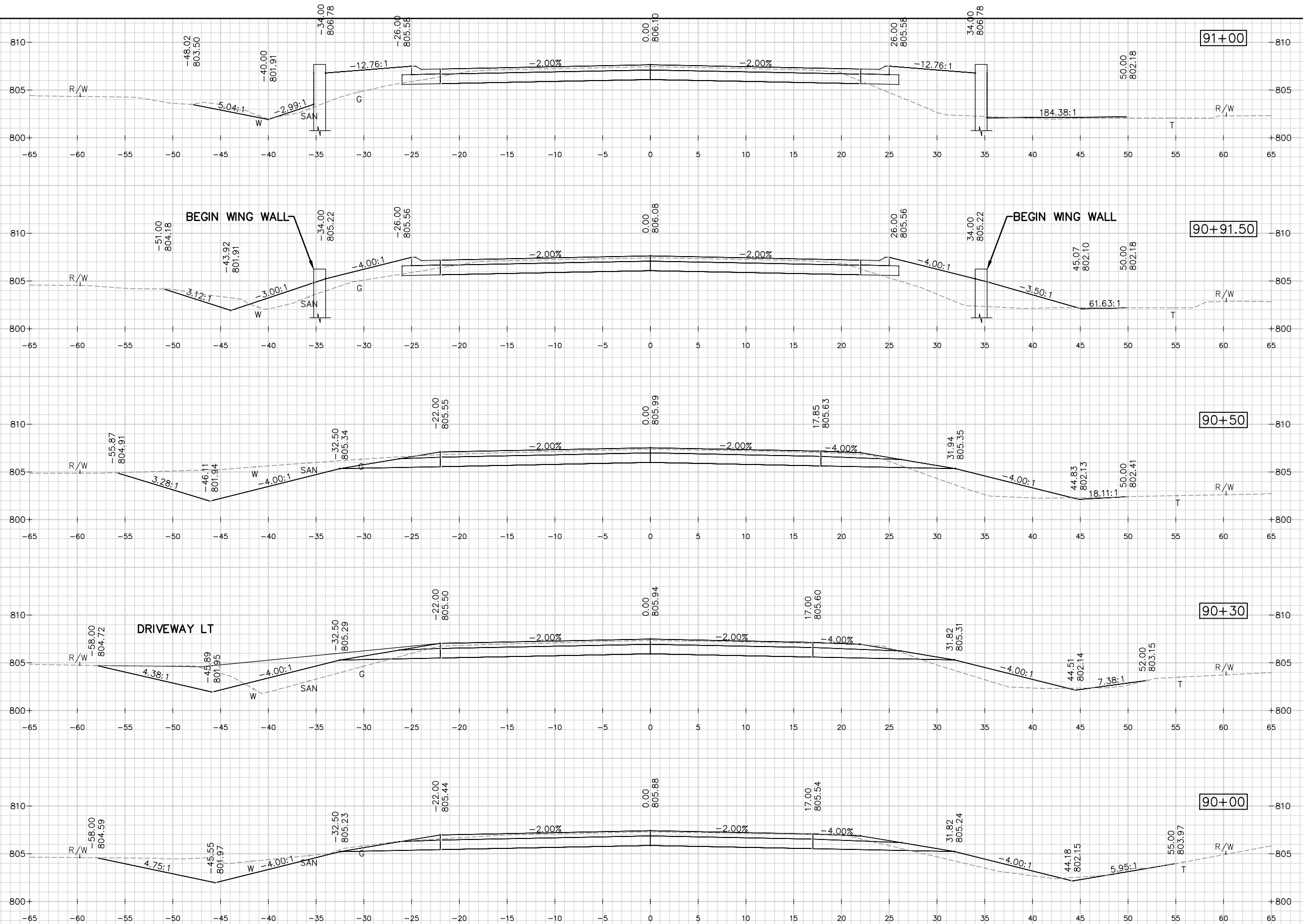
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-58-127	
DRAWN BY		SEG	PLANS CK'D. DJB
COMBINATION RAILING TYPE C2		SHEET 8 OF 8	

Total Volume Table							
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol	MASS HAUL
89+00.00	1.95	0.06	0.00	0.00	0.00	0.00	0.00
89+12.00	5.76	0.00	2.14	0.01	2.14	0.01	−2.13
89+16.57	10.10	71.21	1.68	6.03	3.82	6.04	2.22
89+50.00	10.67	105.03	16.07	109.11	19.89	115.15	95.26
89+74.00	2.53	126.39	7.33	102.85	27.23	218.00	190.77
90+00.00	10.24	102.42	7.69	110.17	34.92	328.16	293.25
90+30.00	30.97	90.95	28.62	107.43	63.54	435.59	372.05
90+50.00	20.30	119.22	23.74	77.84	87.28	513.43	426.15
90+91.50	56.55	65.78	73.82	142.17	161.10	655.60	494.50
91+00.00	56.05	61.25	22.15	20.00	183.25	675.59	492.34
91+11.73	88.45	62.17	39.24	26.81	222.49	702.40	479.92
91+40.73	117.78	62.14	0.00	0.00	222.49	702.40	479.92
91+50.00	58.66	90.13	37.86	26.14	260.35	728.54	468.19
91+60.90	53.33	75.87	28.26	33.51	288.61	762.05	473.44
91+83.00	0.00	128.44	27.28	83.62	315.89	845.67	529.77
92+00.00	21.76	113.86	8.56	76.28	324.45	921.95	597.49
92+50.00	22.54	98.26	51.28	196.41	375.73	1118.36	742.62
92+64.73	22.02	90.72	15.19	51.55	390.93	1169.91	778.98
93+00.00	19.55	81.10	33.94	112.23	424.87	1282.13	857.27
93+14.73	21.85	82.93	14.12	44.74	438.98	1326.88	887.90
93+50.00	11.31	1.84	27.07	55.37	466.06	1382.25	916.19
93+60.00	9.26	1.57	4.76	0.63	470.82	1382.88	912.06
94+00.00	3.40	0.00	11.72	1.16	482.54	1384.04	901.50



9

W:\PROJECTS\W0082\9180\23\STH 22_30_7-3-14.dwg, model, Plot Date: 7/3/2014 12:22 PM, xref: (x=proposed sth 22)



PROJECT NUMBER: 9180-23-70

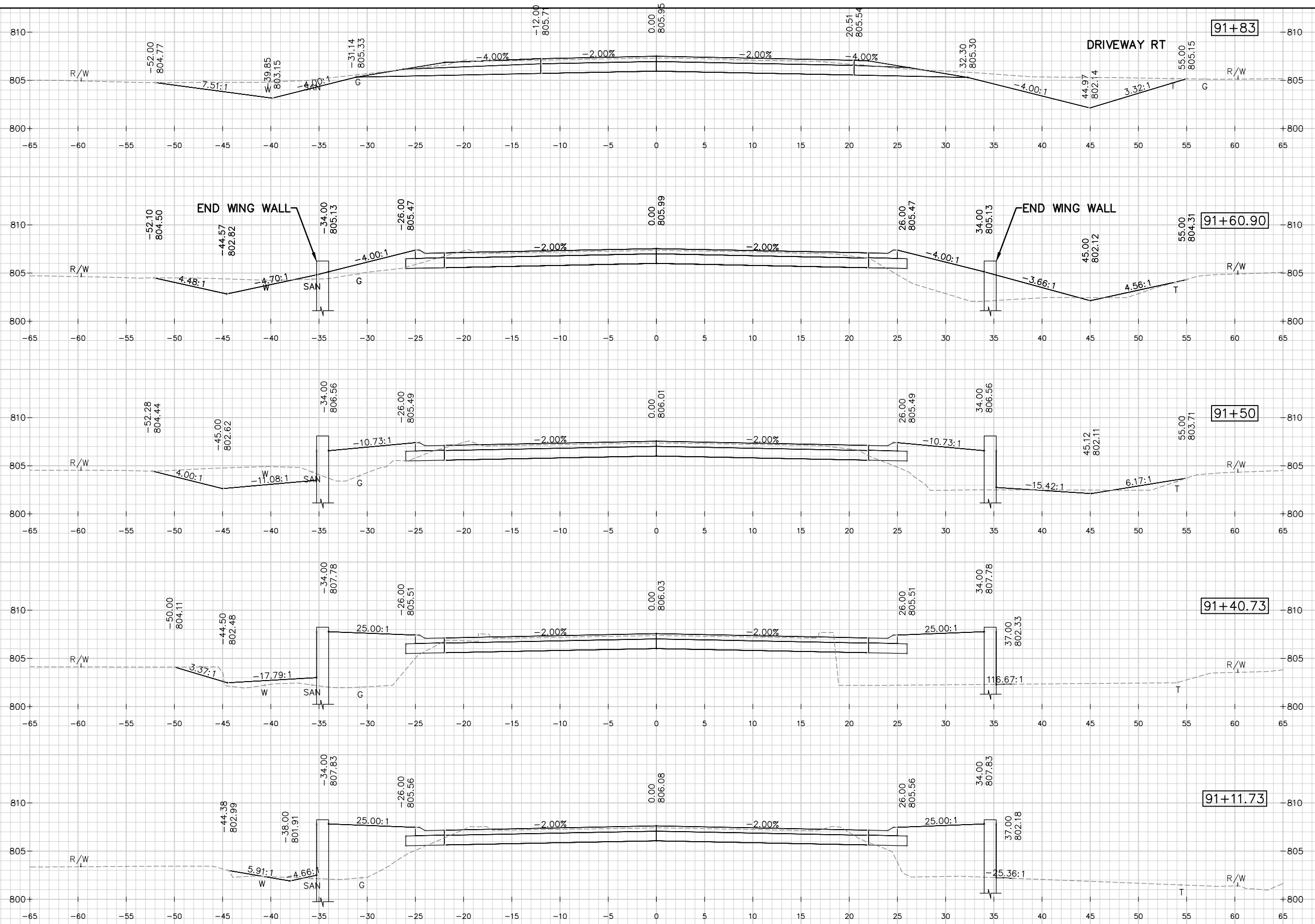
HWY: STH 22

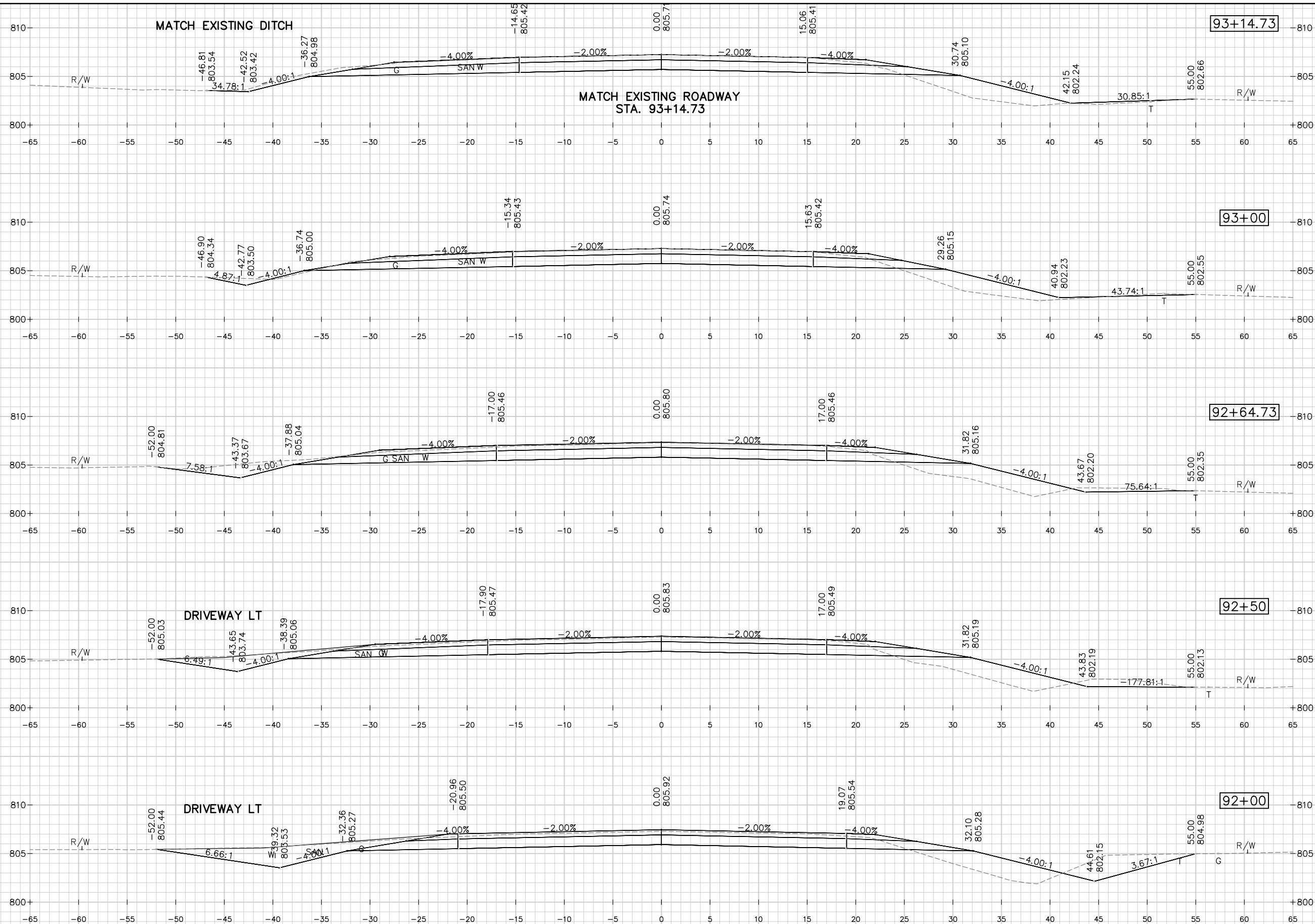
COUNTY: SHAWANO

CROSS SECTIONS

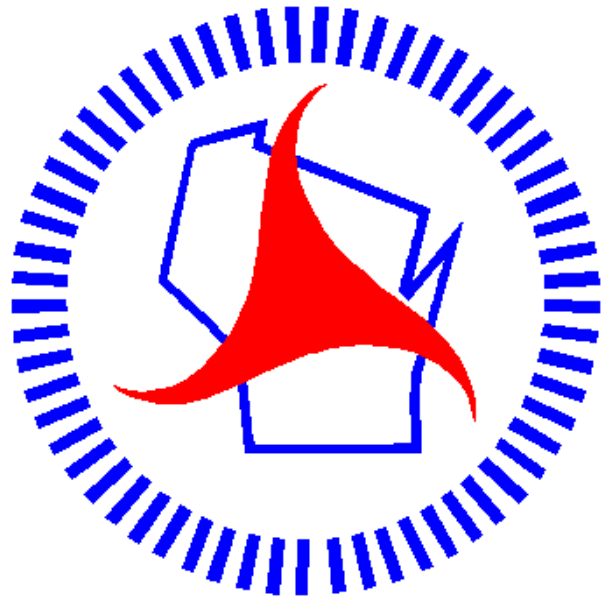
SHEET:

E









Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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