

PROJECT ID: 3080-01-72
WITH:

COUNTY: DANE COUNTY

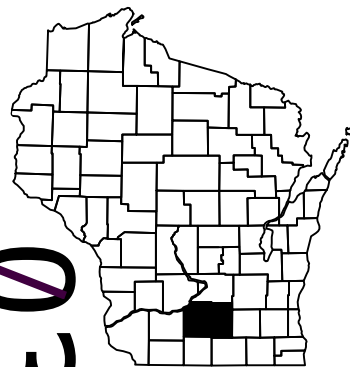
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3080-01-72	WISC 2014294	1

PLAN OF PROPOSED IMPROVEMENT

(MILLPOND ROAD INTERSECTION)

USH 12
DANE COUNTY

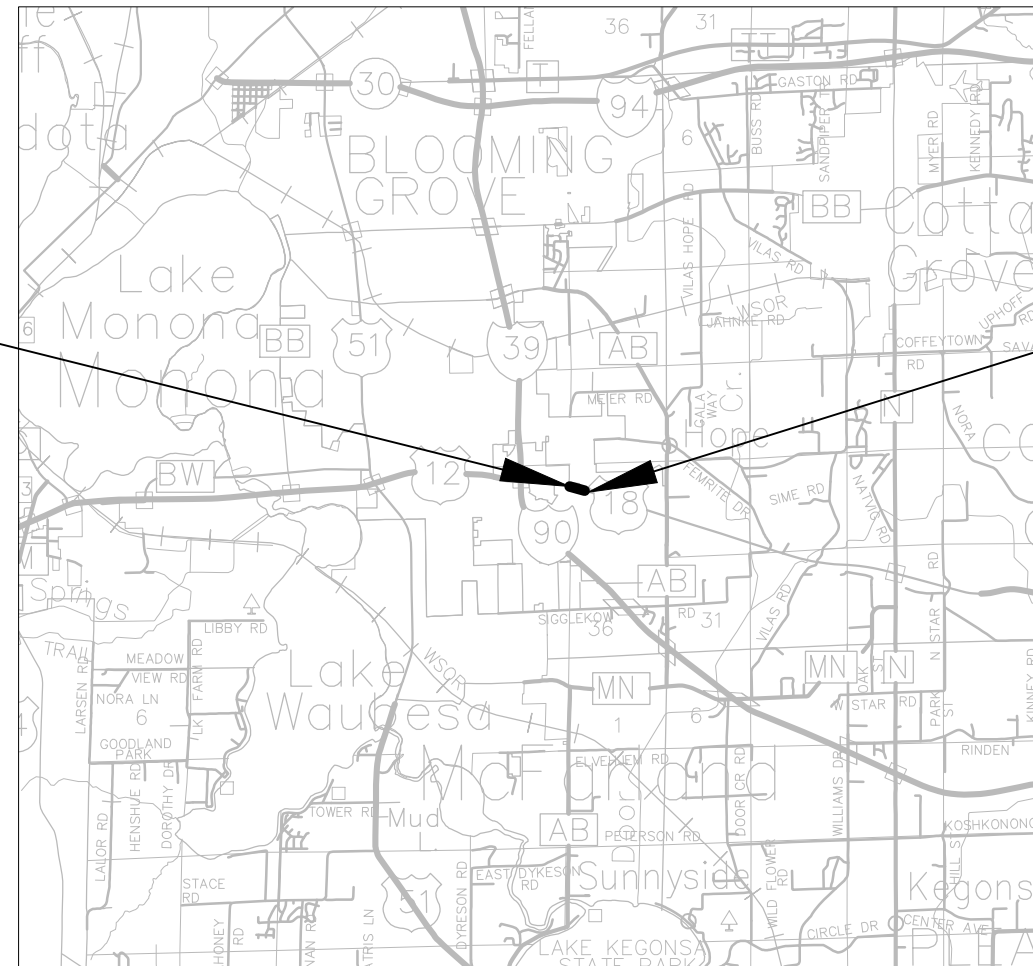
STATE PROJECT NUMBER
3080-01-72

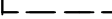
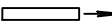


A.A.D.T.	2014	=	17,700
A.A.D.T.	2024	=	21,800
D.H.V.		=	2289
D.D.		=	59/41
T.		=	6.9%
DESIGN SPEED		=	60 MPH
ESALS		=	956,300

BEGIN PROJECT
STA. 137+00 EB
X=853101.84
Y=471962.62

END PROJECT
STA. 147+00 EB

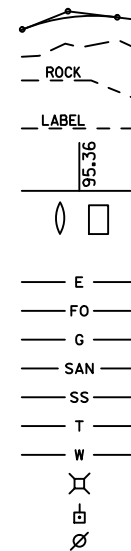


PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

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



LAYOUT

SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.189 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, DANE COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM, NAVD 88 (2007).

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	JOHN MORAN
Designer	CHARLENE BREGAUDIT
Project Manager	AMY COUGHLIN
Regional Examiner	
Regional Supervisor	BRENDA SCHOENFELD
APPROVED FOR THE DEPARTMENT	
DATE: 5/1/14	<i>Brenda Schoenfeld</i> (Signature)
E	

GENERAL NOTES

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 lb/sy/in.

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

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

ALL COORDINATES SHOWN ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM - DANE COUNTY.

SECTIONS AS SHOWN ON THE CROSS-SECTIONS INCLUDE THE THICKNESS OF TOPSOIL. TOPSOIL SHALL BE AT A 4-INCH MINIMUM DEPTH.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINT, ARE TO BE SEEDED AND MULCHED AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATIONS OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

ESTIMATE QUANTITIES OF SALVAGED TOPSOIL, SEEDING, MULCHING AND FERTILIZER HAVE BEEN COMPUTED BY A DIRECT MEASUREMENT ON THE CROSS-SECTION PLUS FIVE (5) FEET BEYOND THE TOE OF SLOPE.

THE EROSION CONTROL ITEMS SHOWN ON THE PLANS, ARE AT SUGGESTED LOCATIONS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS OF EROSION CONTROL ITEMS. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY, THE PRIME CONTRACTOR IS RESPONSIBLE FOR REMOVING THESE ITEMS WHEN NO LONGER NECESSARY.

NUMBER, LOCATION, AND SPACING OF SIGNS AND DEVICES, AS SHOWN IN THE PLANS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING OR PARKING LANE.

STORM SEWER PIPE ELEVATION, LENGTHS AND LOCATIONS, AS SHOWN ON THE PLANS, MAY BE ADJUSTED TO FIT EXISTING FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

INLET PROTECTION IS REQUIRED AT ALL INLETS AS PER DETAIL OR AS DIRECTED BY THE ENGINEER.

ALL CONCRETE PIPE SHALL HAVE THE APRON ENDWALL AND THE FIRST TWO PIPE JOINTS TIED AT THE JOINTS (3 JOINTS TOTAL). JOINT TIES SHALL BE INCIDENTAL TO THE ITEM OF CPRC.

PLACE THE 5" HMA PAVEMENT IN TWO LAYERS, A 3" LOWER LAYER AND 2" UPPER LAYER.

LOCATIONS SHOWN ON THE STORM SEWER SHEET FOR INLETS AND MANHOLES ARE BY STATION AND OFFSET TO THE CENTER OF THE STRUCTURE (SEE DETAILS).

ALL CURB AND GUTTER RADII ARE MEASURED TO FLAG OF CURB UNLESS OTHERWISE NOTED.

DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT OR MATERIALS IN WETLANDS OR WATERWAYS.

CONTRACTOR SHALL EXERCISE EXTREME CARE SO AS NOT TO DAMAGE MAINLINE PAVEMENT STRUCTURE WHEN REMOVING EXISTING TURN LANES OR SHOULDER MATERIAL. IF DAMAGE OCCURS DURING REMOVAL OF THE EXISTING TURN LANE OR SHOULDER MATERIAL, ALL REPAIRS WILL BE DONE AT THE CONTRACTOR'S EXPENSE.

UTILITY CONTACTS

LAWRENCE HUBER ANR PIPELINE COMPANY - GAS/PETROLEUM W3925 PIPELINE LN EDEN, WI 53019 (920) 477-2235 LAWRENCE.HUBER@TRANSCANADA.COM	BRANDON STORM CHARTER COMMUNICATIONS - COMMUNICATION LINE 2701 DANIELS ST. MADISON, WI 53718 (608) 274-3822 BRANDON.STORM@CHARTERCOM.COM
MICHAEL CHRISTOPH CITY OF MADISON ENGINEERING - LIGHTING 1120 SAYLE ST. MADISON, WI 53715 (608) 266-9031 MCRISTOPH@CITYOFMADISON.COM	LUKE SCHUETTE KOCH PIPELINE COMPANY L.P. - GAS/PETROLEUM 13775 CLARK RD ROSEMOUNT, MN 55068 (651) 437-0877 LUKE.SCHUETTE@KOCHPIPELINE.COM
TIM STATZ MADISON GAS AND ELECTRIC COMPANY - ELECTRICITY P.O. BOX 1231 MADISON, WI 53701-1231 (608) 252-4727 TSTATZ@MGE.COM	DENNIS CAWLEY MADISON WATER UTILITY - WATER 119 E OLIN AVE MADISON, WI 53713-1431 (608) 266-4651 DCAWLEY@CITYOFMADISON.COM
TIM STATZ MADISON GAS AND ELECTRIC COMPANY - GAS/PETROLEUM P.O. BOX 1231 MADISON, WI 53701-1231 (608) 252-4727 TSTATZ@MGE.COM	MIKE CHRISTOPH CITY OF MADISON 215 MLK JR. BLVD MADISON, WI 53703 (608) 266-9031

WI DEPARTMENT OF NATURAL
RECOURCES LIASON

ERIC HEGGELUND
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711-5397
(608) 275-3301
ERIC.HEGGELUND@WISCONSIN.GOV

DESIGN CONTACTS

PROJECT LEADER
CHARLENE BREGAUDIT
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PROJECT MANAGER
AMY COUGHLIN
DEPT. OF TRANSPORTATION
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MADISON, WI. 53704
(608) 245-5358





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PROJECT NO: 3080-01-72

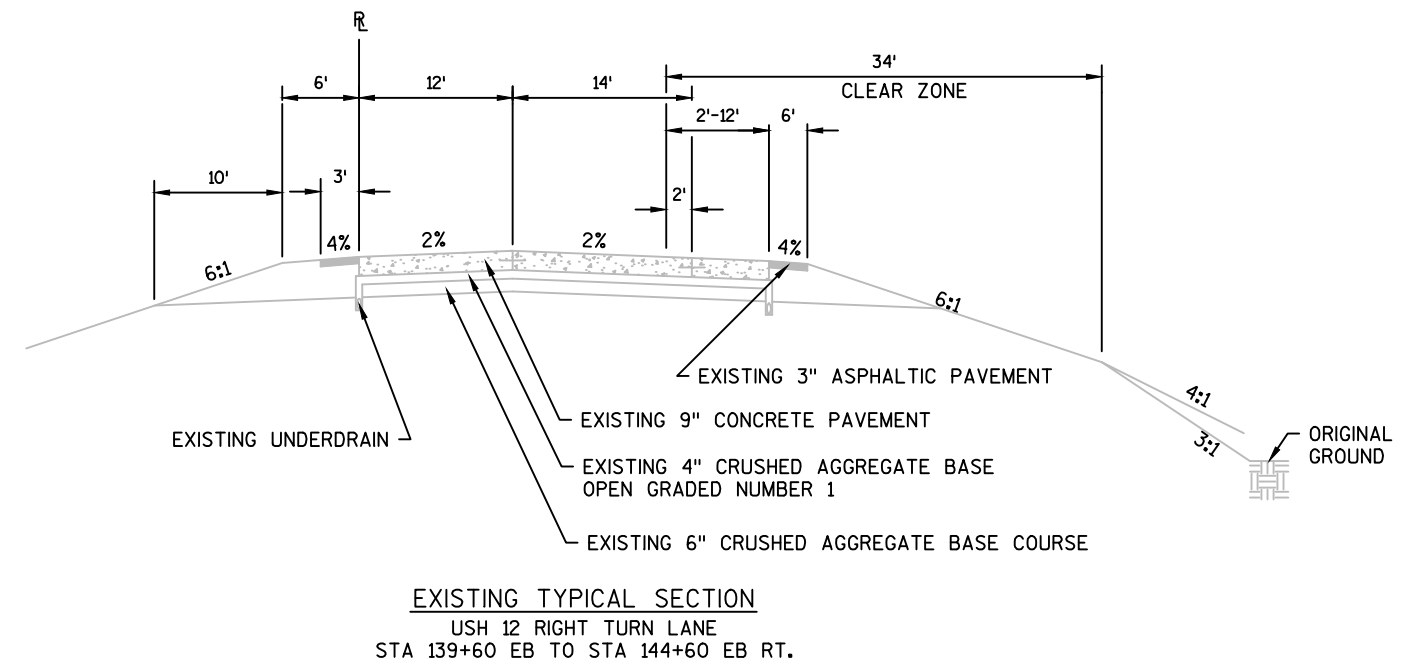
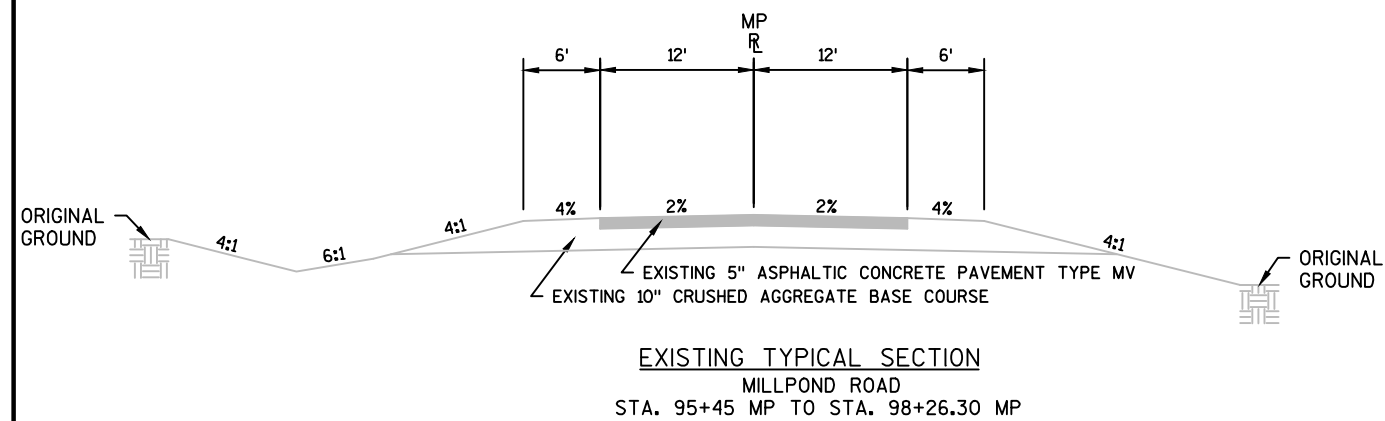
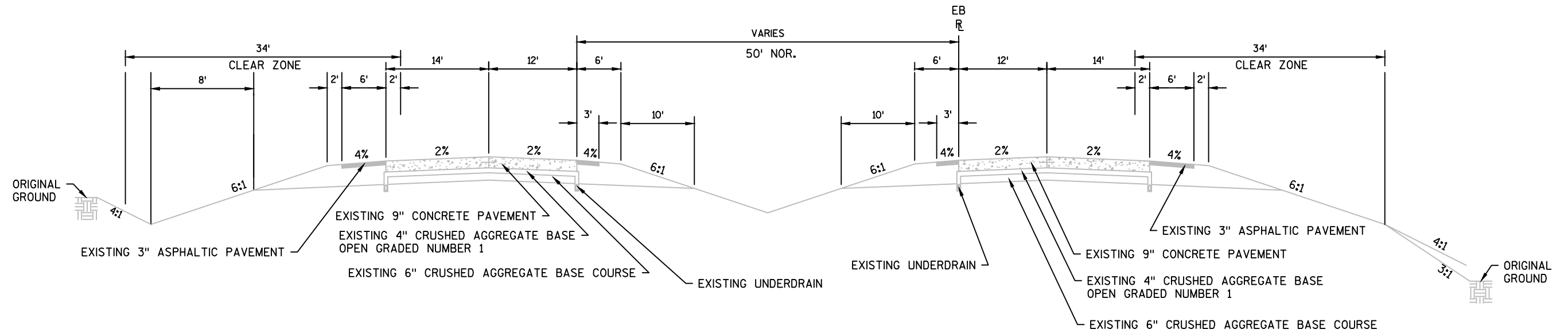
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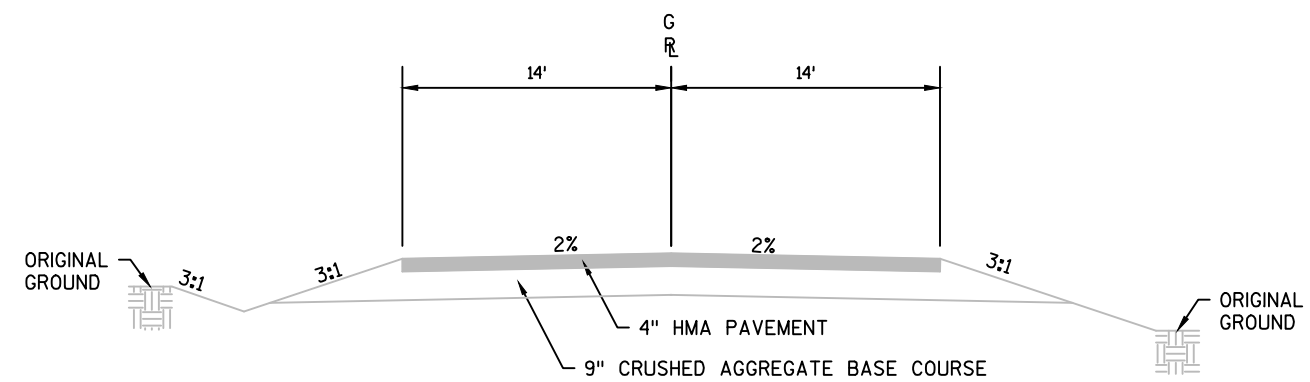
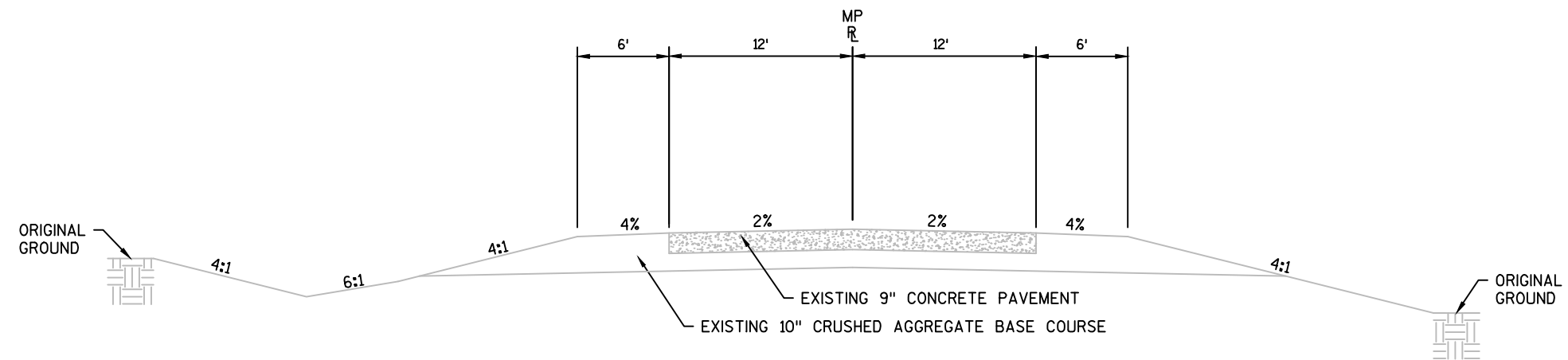
COUNTY: DANE

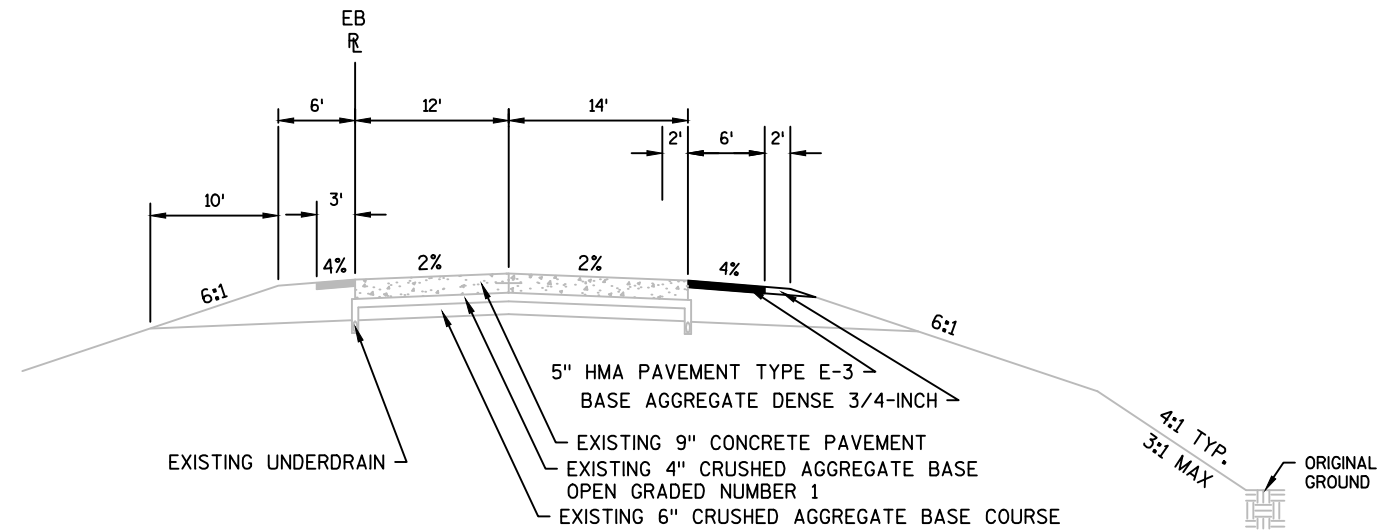
PROJECT OVERVIEW

SHEET

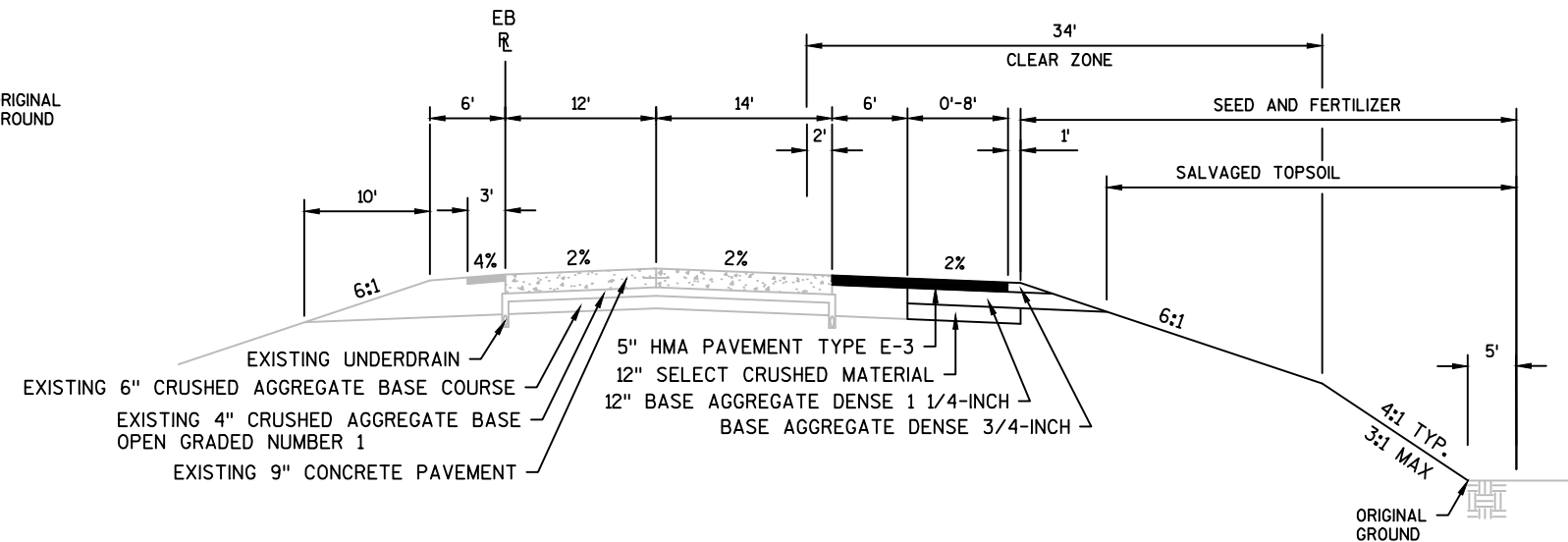
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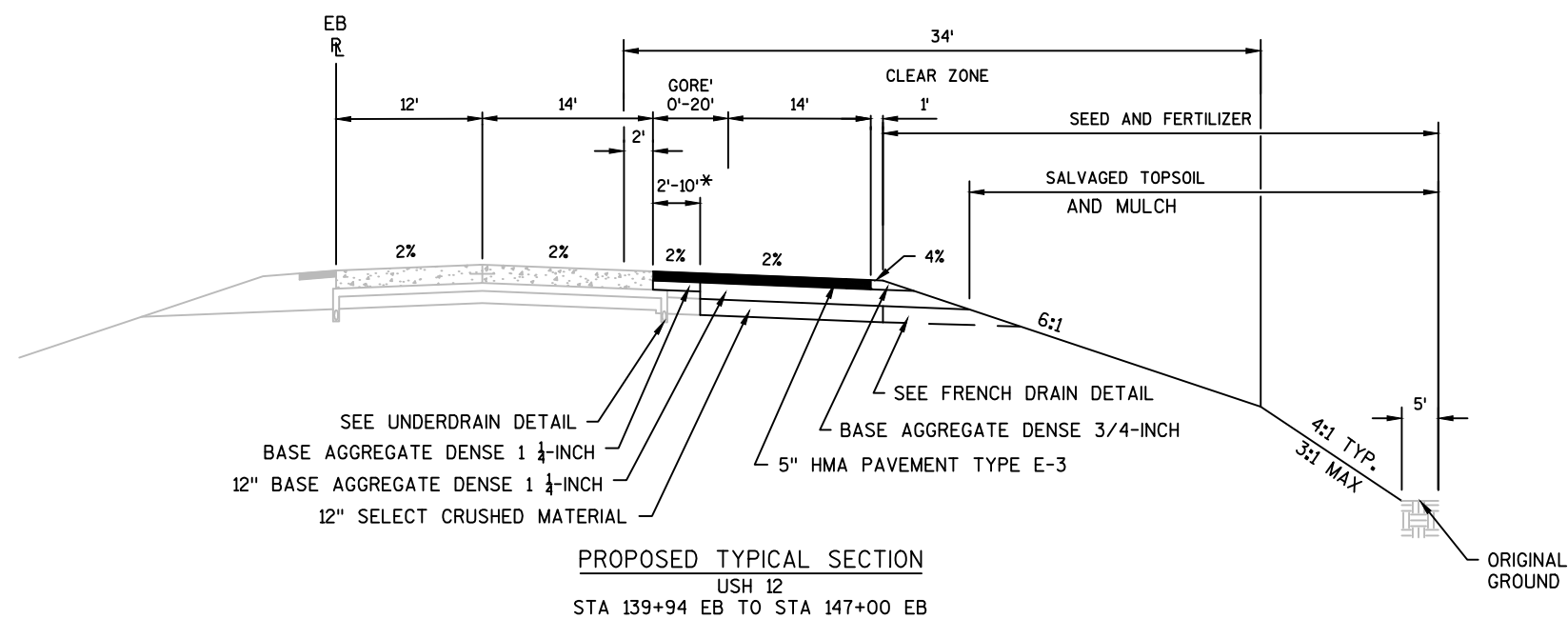




PROPOSED TYPICAL SECTION
USH 12
STA. 137+00 EB TO STA. 138+34 EB

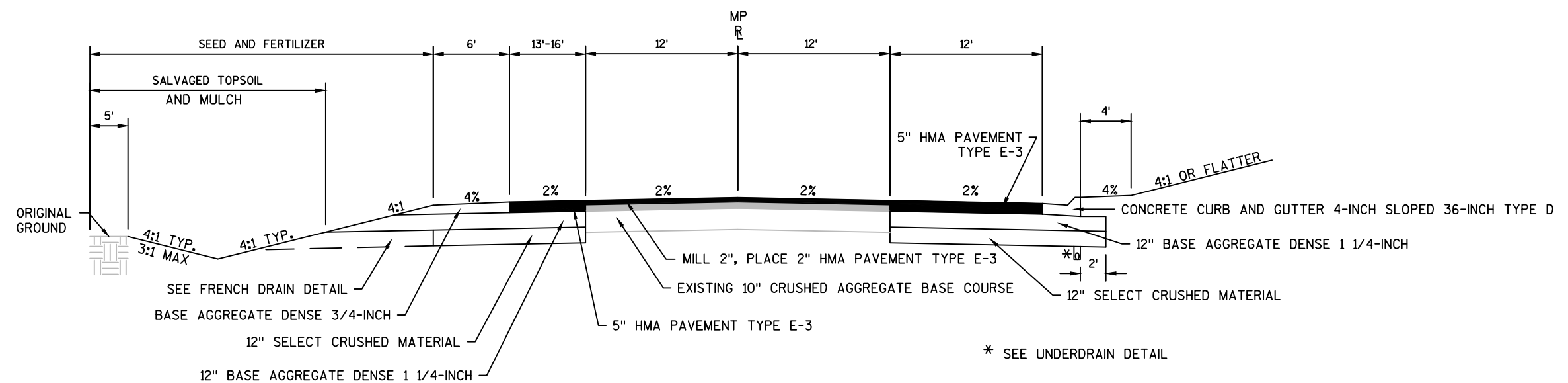
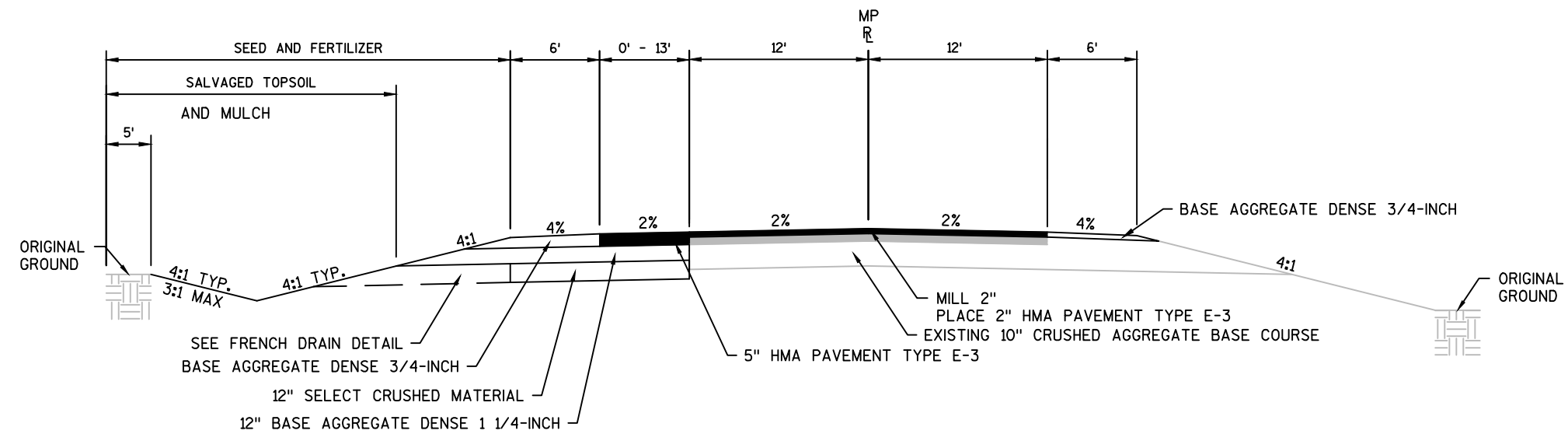


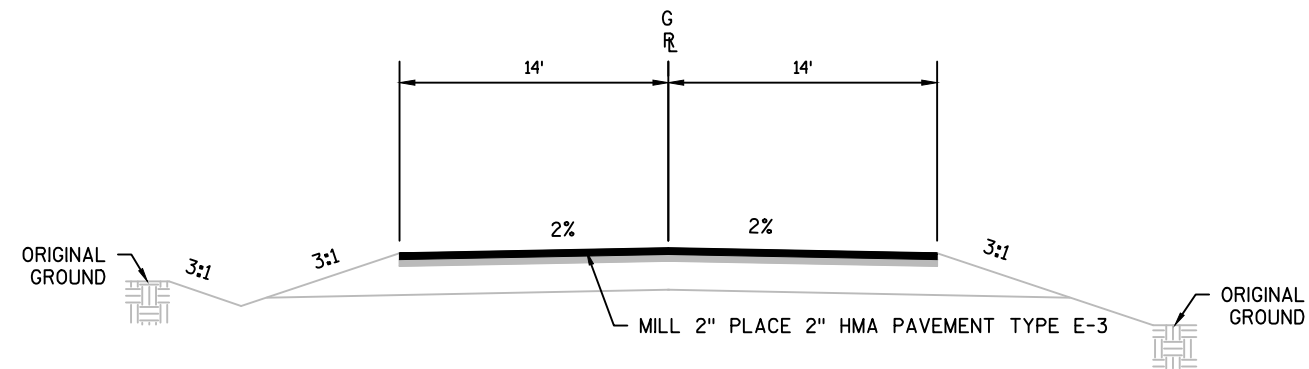
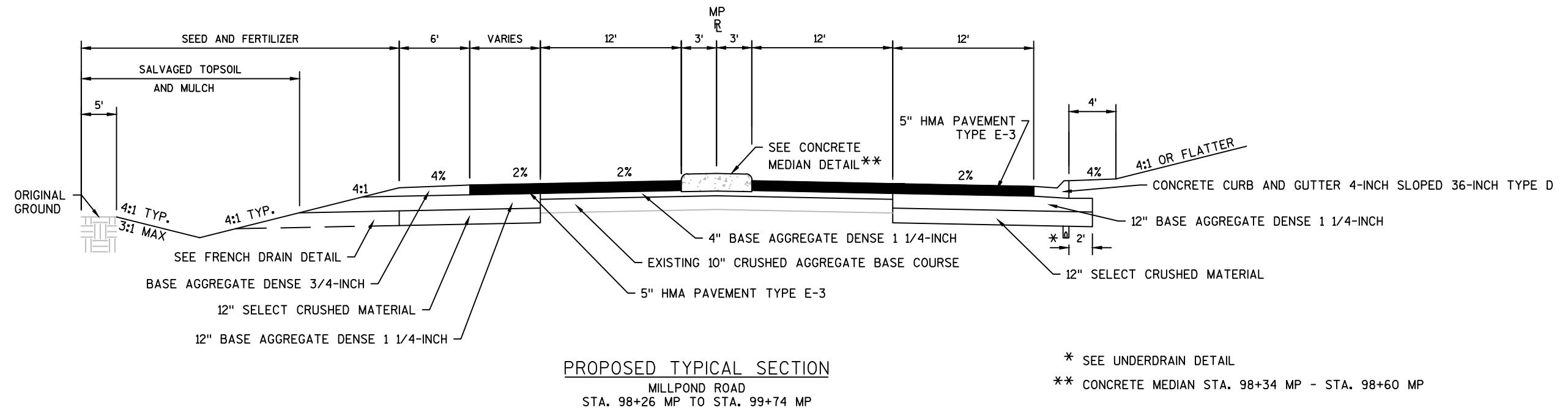
PROPOSED TYPICAL SECTION
USH 12
STA. 138+34 EB TO STA. 139+94 EB

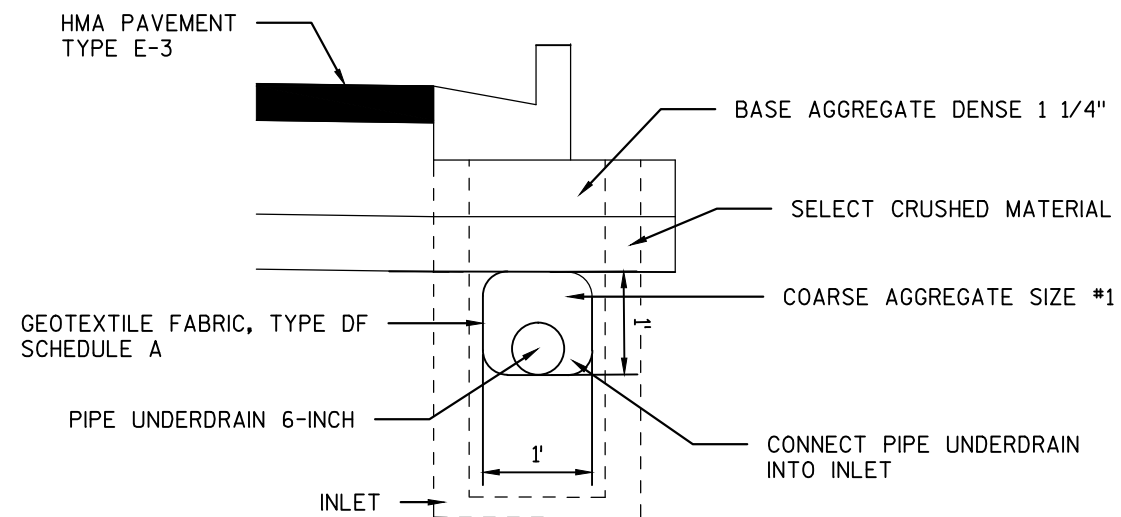


PROPOSED TYPICAL SECTION
USH 12
STA. 139+94 EB TO STA. 147+00 EB

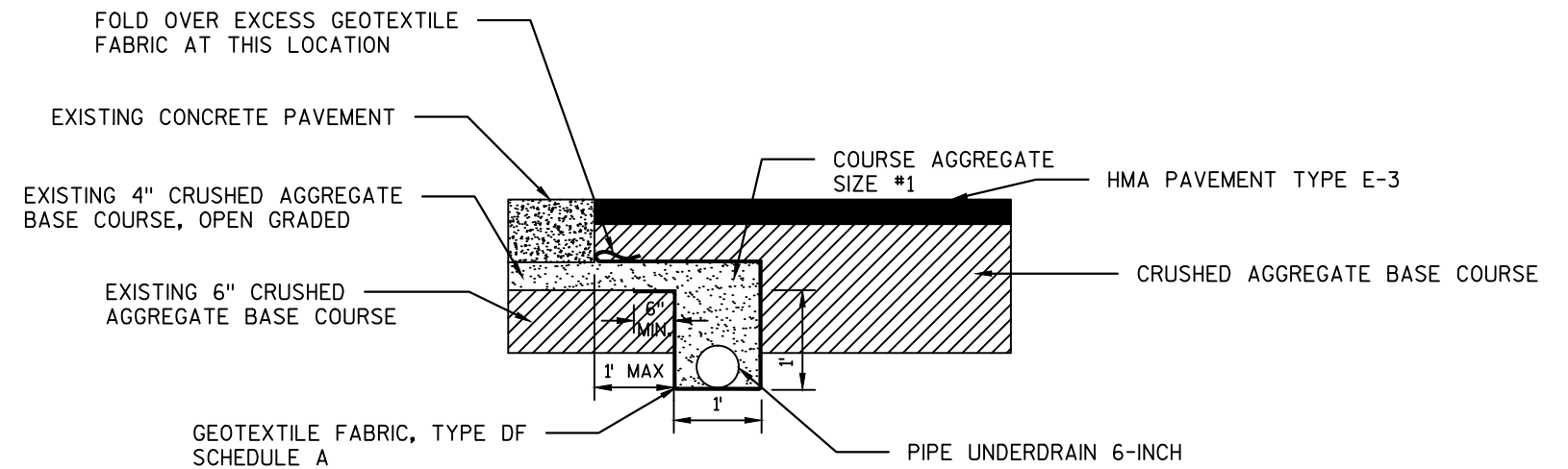
* IN LOCATIONS OF REMOVING PAVEMENT





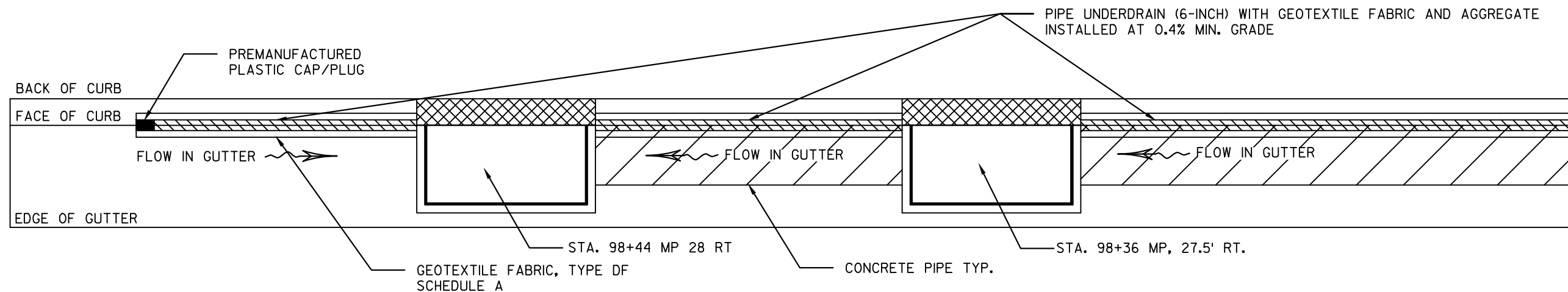


NOTE: PAYMENT FOR UNDERDRAIN CORE HOLES IS INCLUDED IN THE RESPECTIVE INLET BID ITEM.

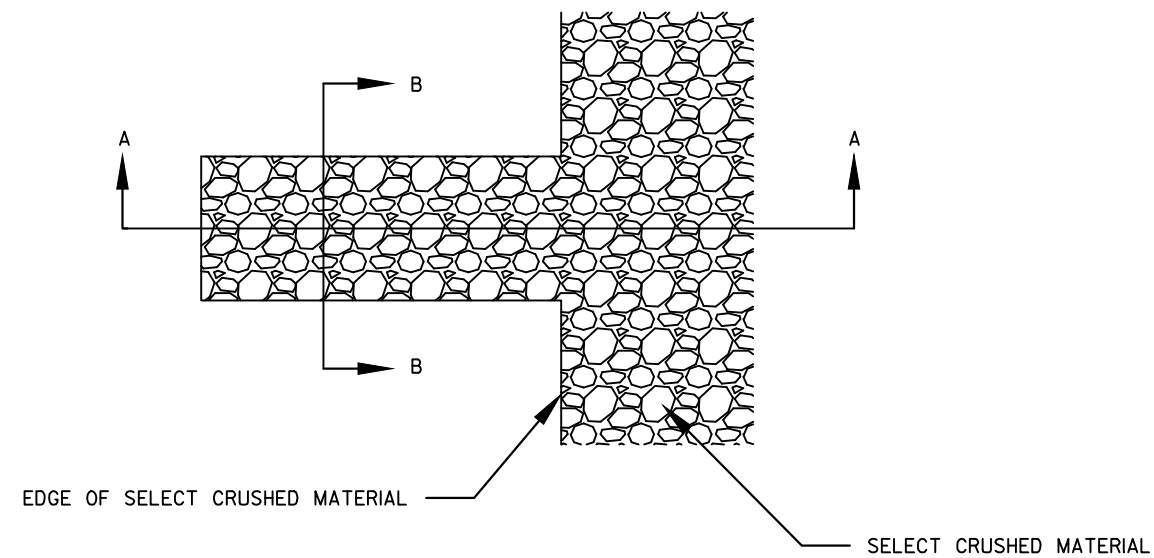
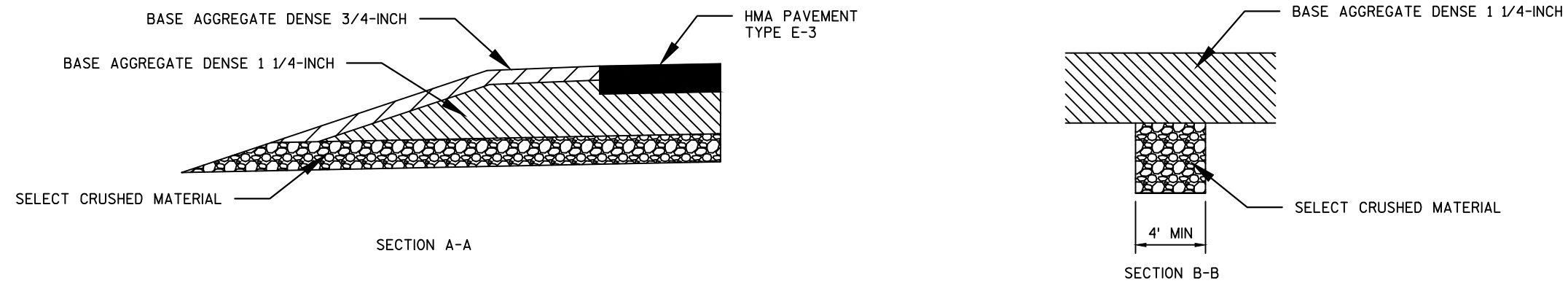


RURAL UNDERDRAIN CONSTRUCTION DETAIL
STA. 139+90 EB TO 144+25 EB RT

NOTE: ATTACH TO EXISTING UNDERDRAIN AT STA. 139+90 EB



URBAN UNDERDRAIN CONSTRUCTION DETAIL
STA. 98+15 MP TO 99+50 MP RT



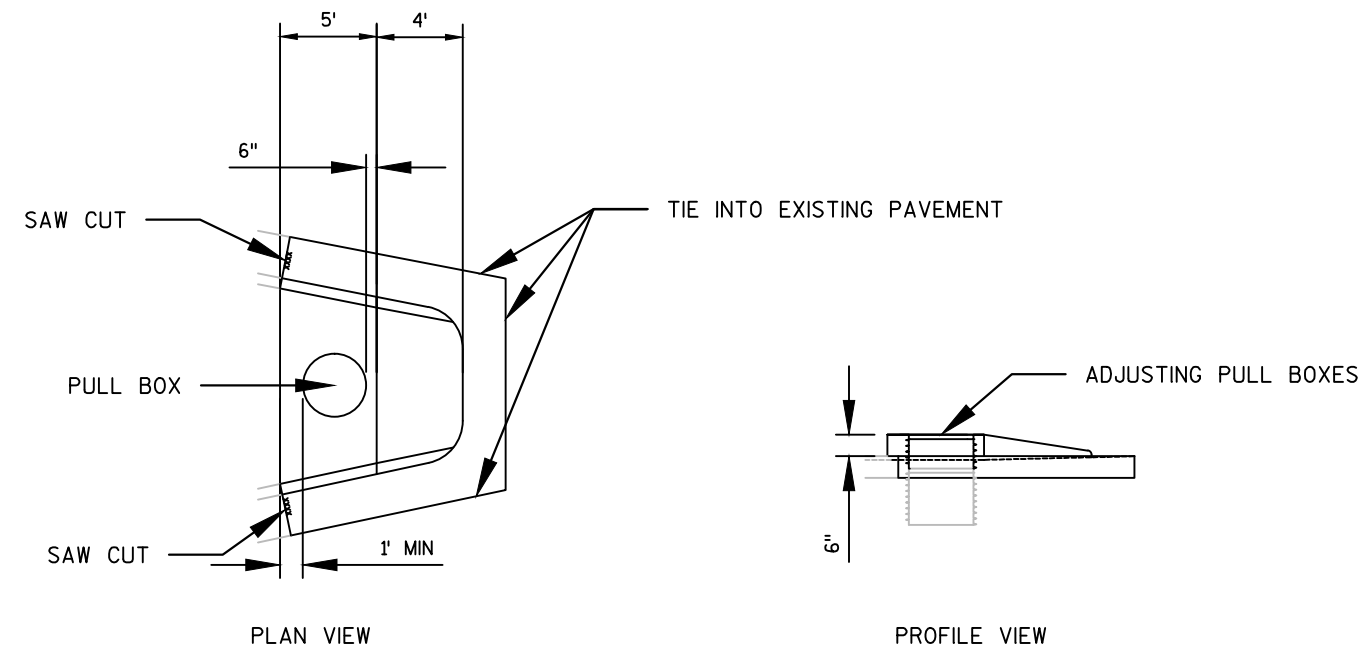
DETAIL FOR FRENCH DRAINS

DRAINS ARE TO BE CONSTRUCTED AT LEAST EVERY 250'
AND AT EACH SAG VERTICAL CURVE IN THE PROFILE.

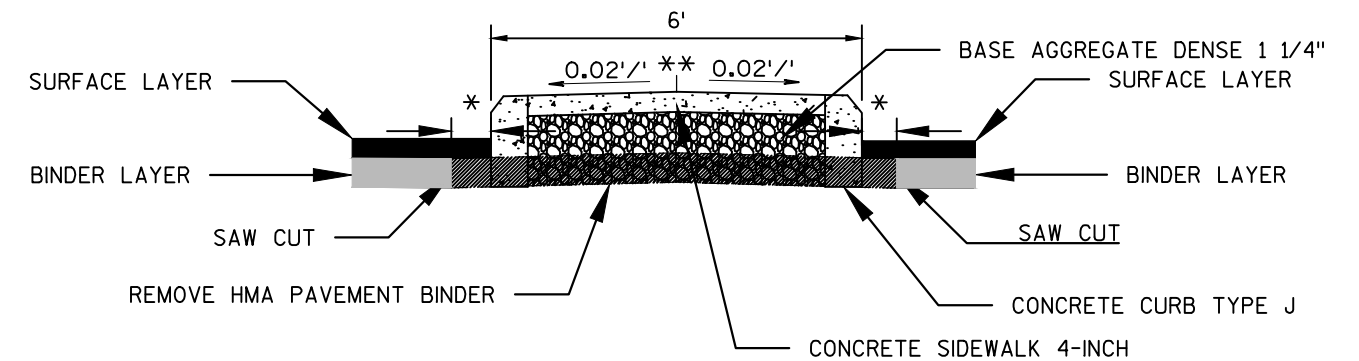
EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL
BE CONSIDERED INCIDENTAL TO THE ITEM SELECT CRUSHED MATERIAL.

DAYLIGHTED SELECT CRUSHED MATERIAL SHALL NOT BE COVERED
WITH TOPSOIL

STA. 138+50 EB RT.
STA. 141+00 EB RT.
STA. 143+50 EB RT.
STA. 97+30 MP LT.
STA. 98+36 MP LT.



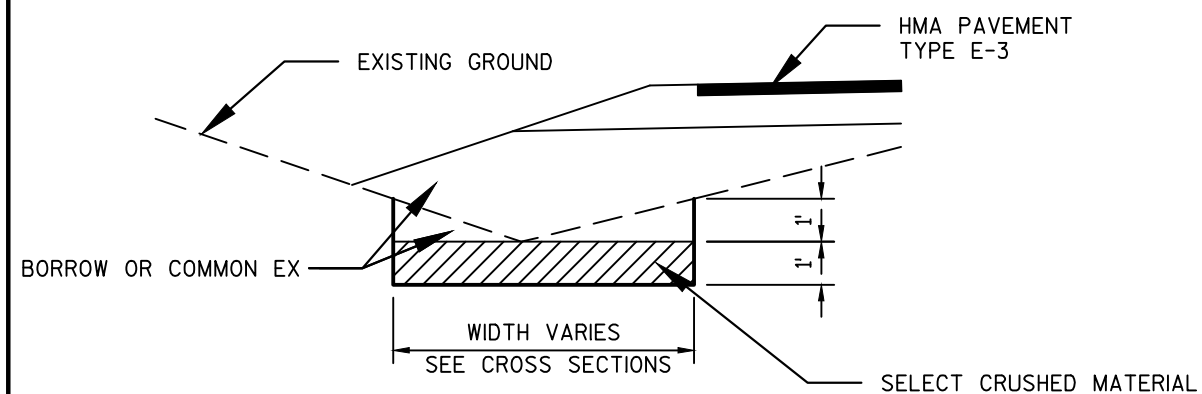
USH 12 MEDIAN CONCRETE
STA. 144+90 EB LT



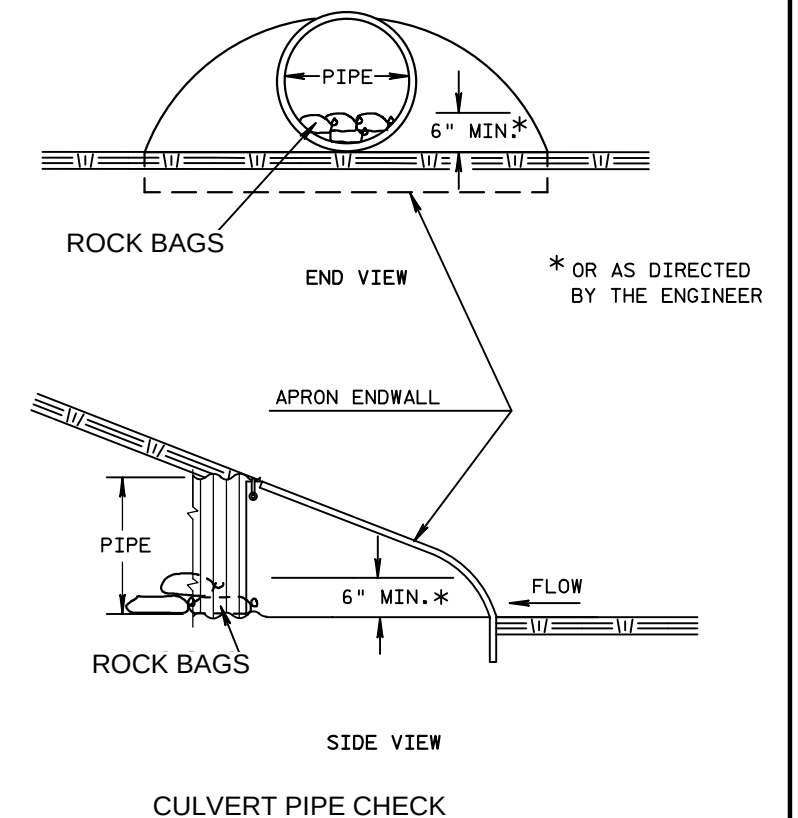
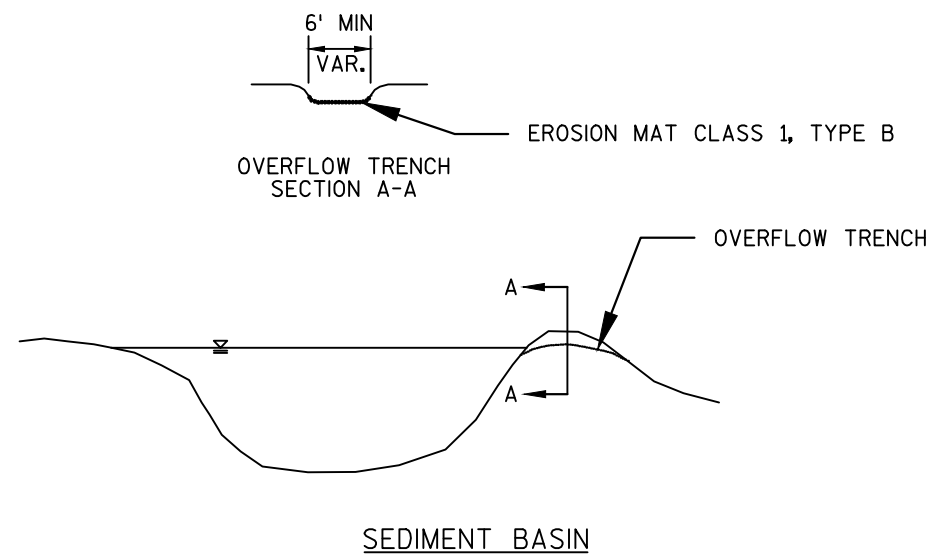
MILLPOND CENTER MEDIAN

- * 0-1" FILL WITH CURB CONCRETE
1-6" FILL WITH HMA PAVEMENT TYPE E-3
- ** LOCATE CROWNLINE EQUALLY
BETWEEN CONCRETE CURBS

STA. 98+34 MP TO 98+60 MP



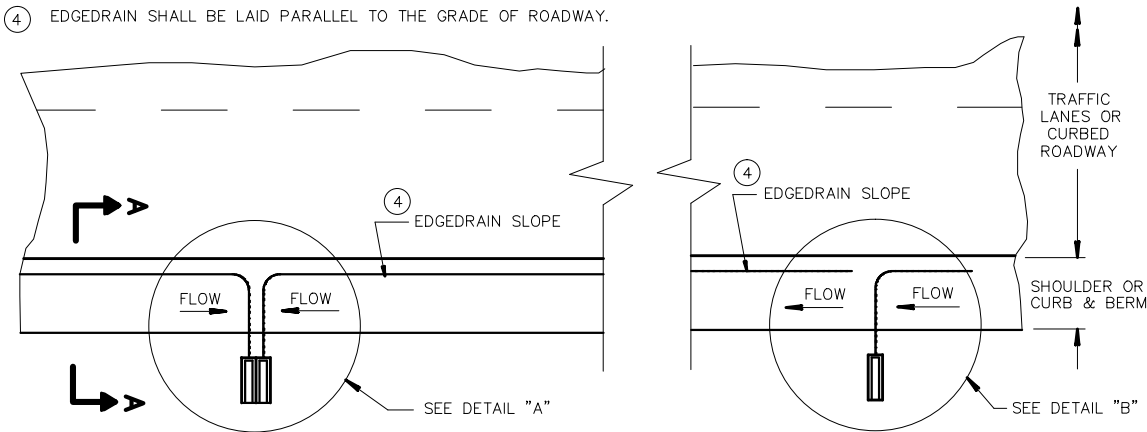
DITCH EXCAVATION BELOW SUBGRADE
STA. 143+00 EB - 144+79 EB RT
STA. 98+03 MP - 99+50 MP LT & RT



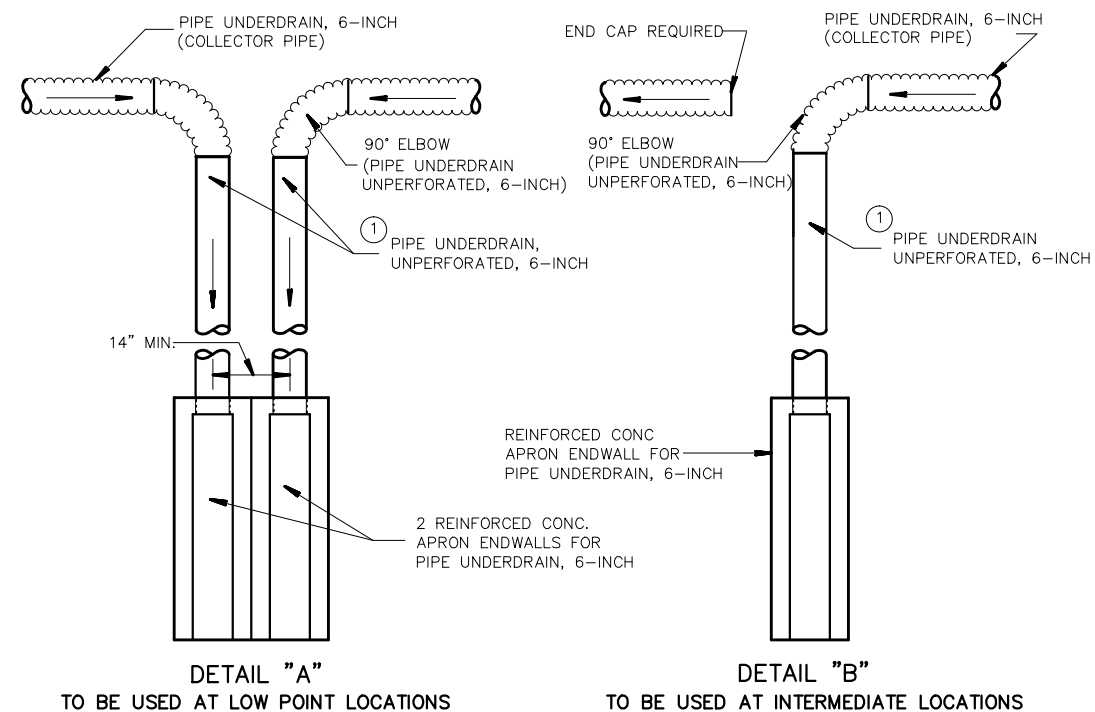
GENERAL NOTES

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.

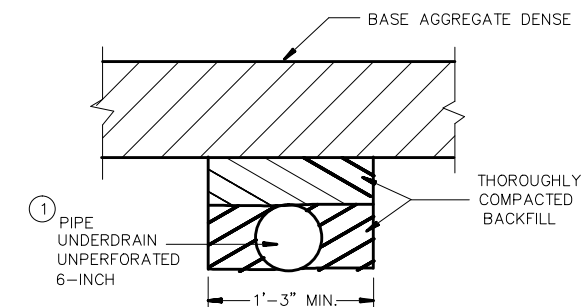
- ① UNPERFORATED PIPE UNDERDRAIN AND FITTINGS FURNISHED FOR OUTFALL PIPE SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:
POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.
TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D 3034, SDR 23.5 PVC SEWER PIPE.
- ② MAXIMUM SPACING OF EDGEDRAIN OUTLETS SHALL BE 250 FEET UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.
- ③ EDGEDRAIN SHALL BE CONNECTED TO INLETS REGARDLESS OF FLOW DIRECTION FOR DRAINAGE AND MAINTENANCE ACCESS.
- ④ EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



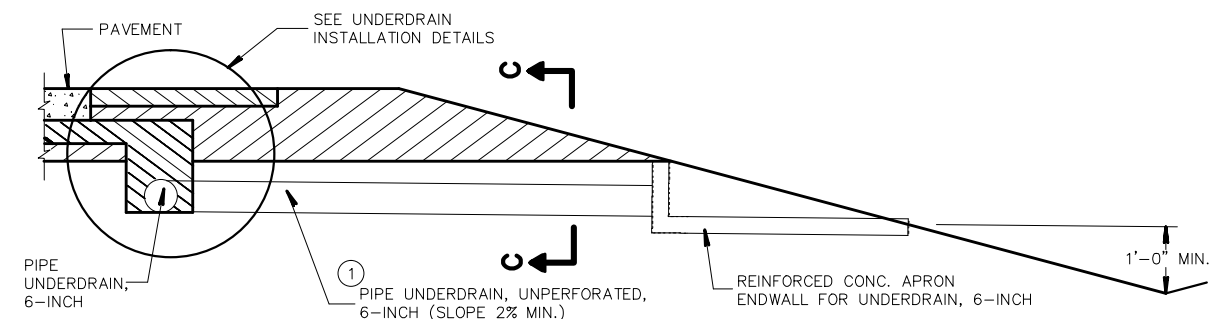
PLAN VIEW
ROADWAY WITH SHOULDERS OR CURBS
(EDGEDRAIN OUTLETS TO ROADSIDE) ②



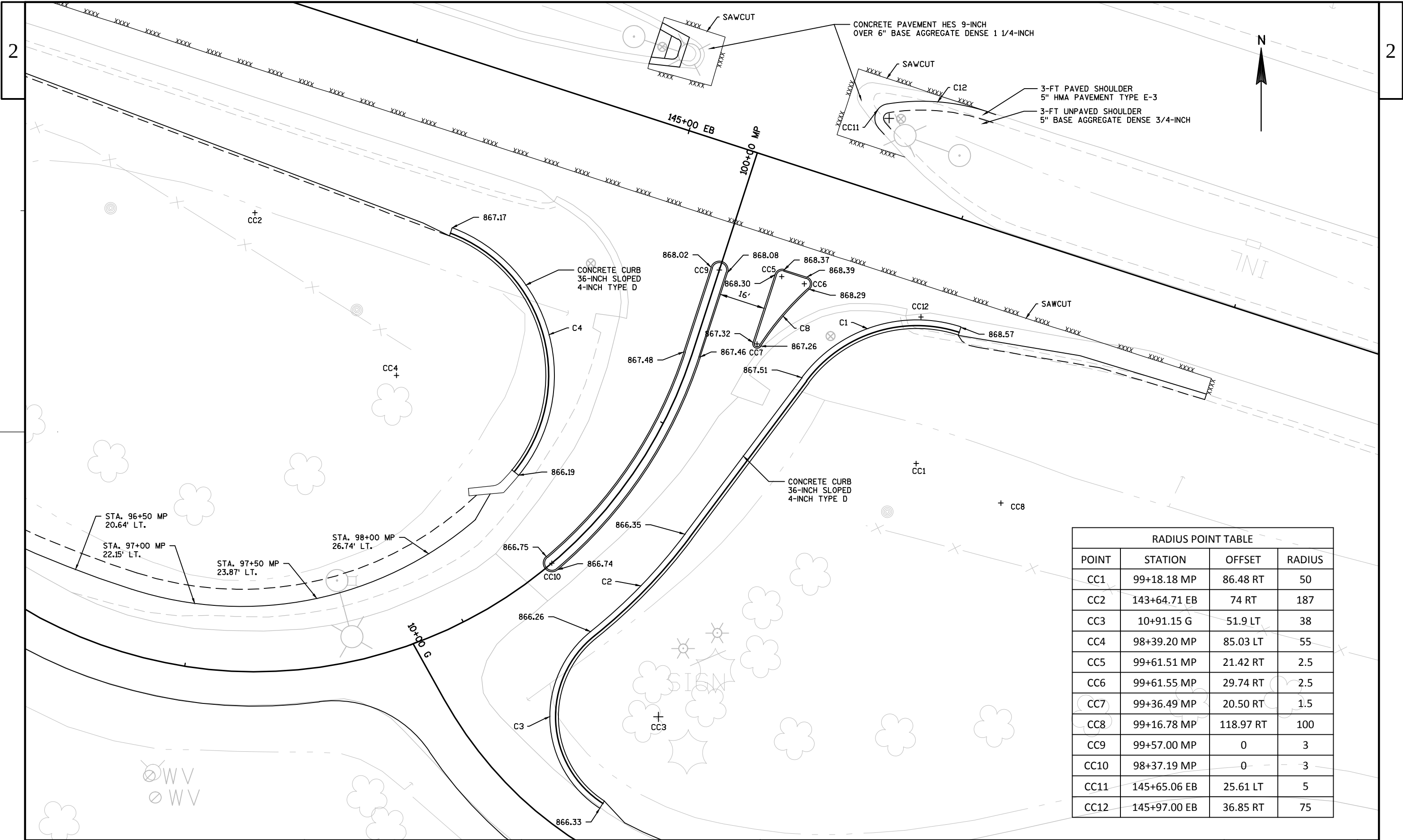
TYPICAL DRAIN OUT DETAILS



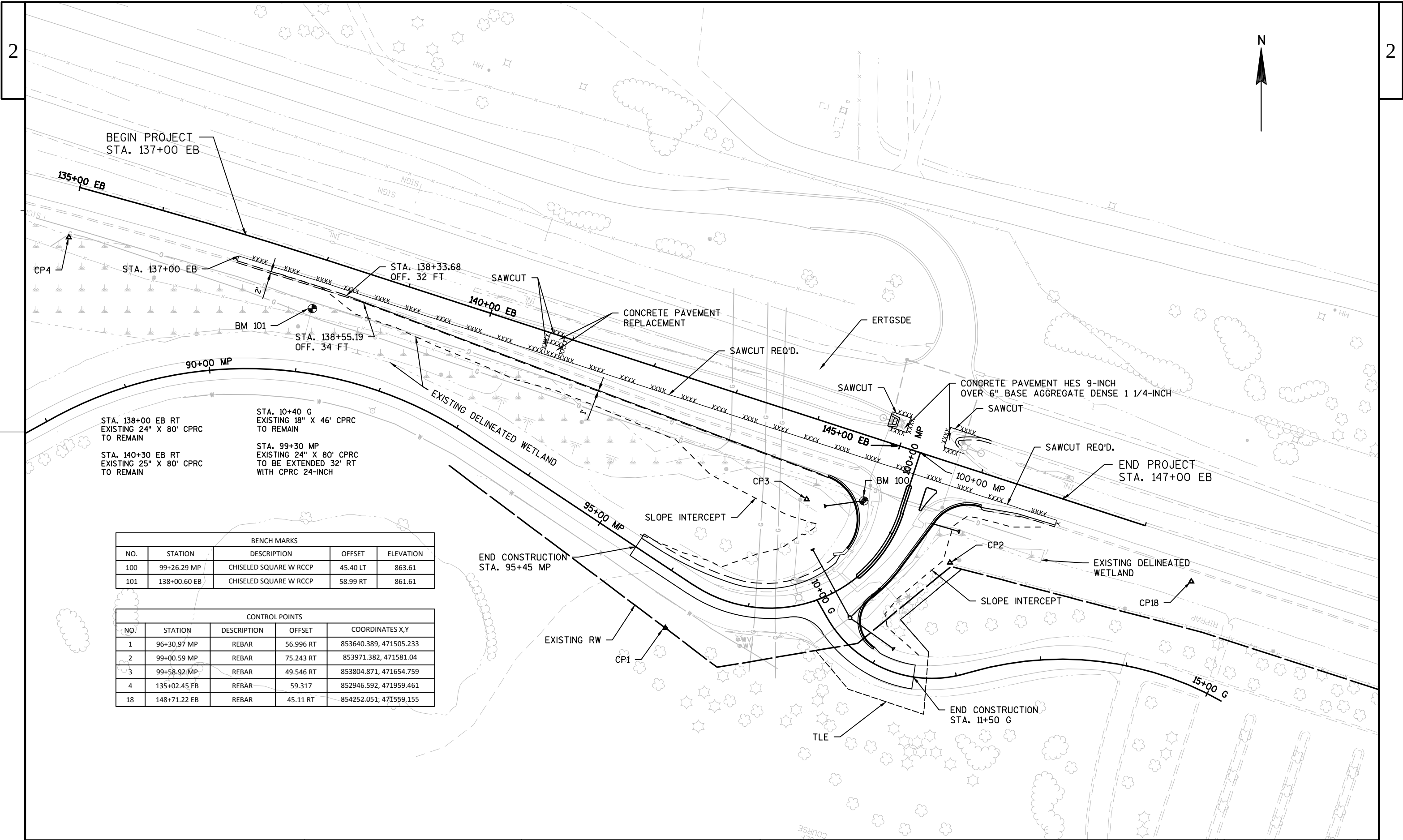
SECTION C-C
(TRENCH FOR OUTFALL PIPE)



SECTION A-A
RURAL CROSS SECTION



RADIUS POINT TABLE			
POINT	STATION	OFFSET	RADIUS
CC1	99+18.18 MP	86.48 RT	50
CC2	143+64.71 EB	74 RT	187
CC3	10+91.15 G	51.9 LT	38
CC4	98+39.20 MP	85.03 LT	55
CC5	99+61.51 MP	21.42 RT	2.5
CC6	99+61.55 MP	29.74 RT	2.5
CC7	99+36.49 MP	20.50 RT	1.5
CC8	99+16.78 MP	118.97 RT	100
CC9	99+57.00 MP	0	3
CC10	98+37.19 MP	0	3
CC11	145+65.06 EB	25.61 LT	5
CC12	145+97.00 EB	36.85 RT	75



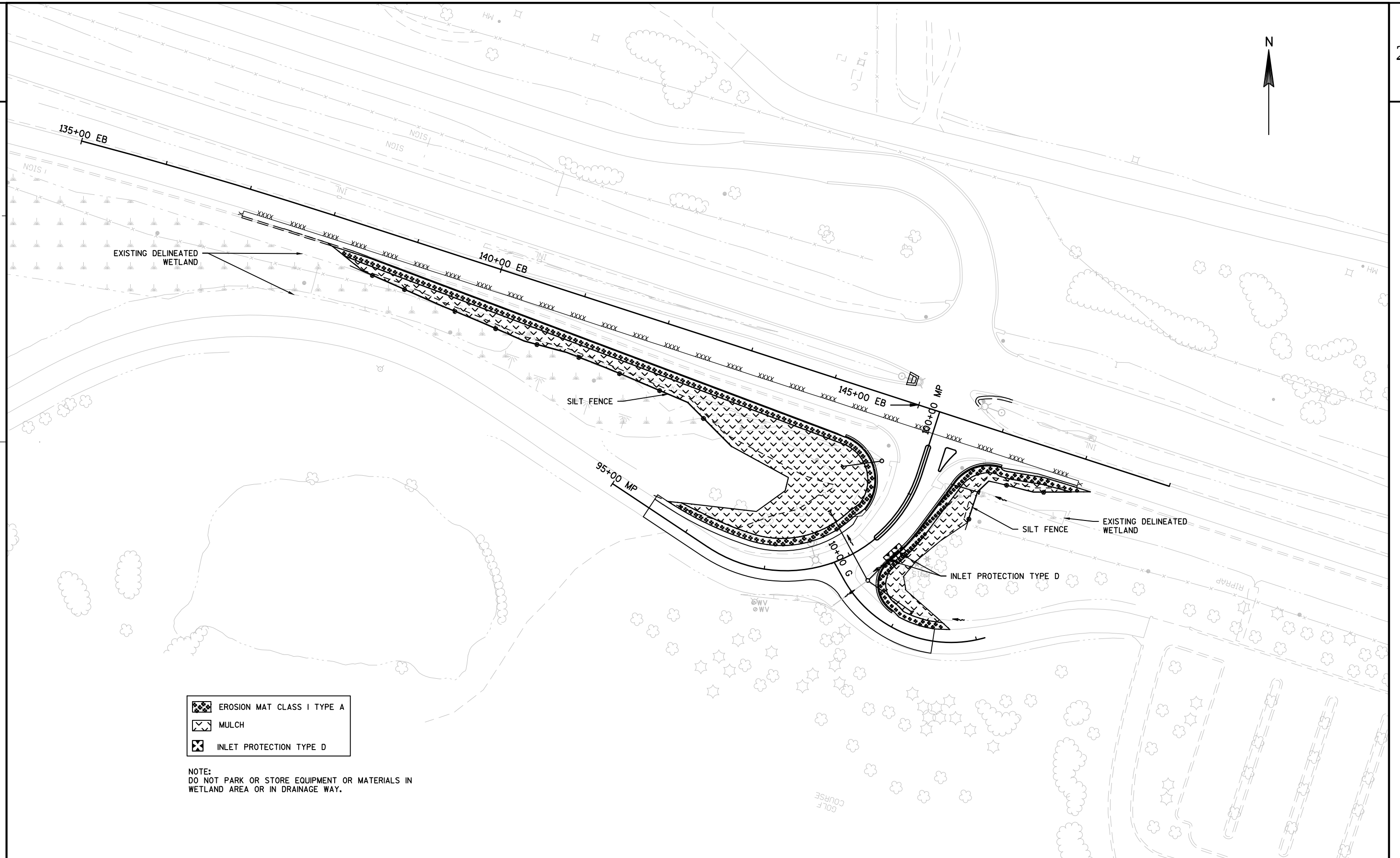
BENCH MARKS				
NO.	STATION	DESCRIPTION	OFFSET	ELEVATION
100	99+26.29 MP	CHISELED SQUARE W RCCP	45.40 LT	863.61
101	138+00.60 EB	CHISELED SQUARE W RCCP	58.99 RT	861.61

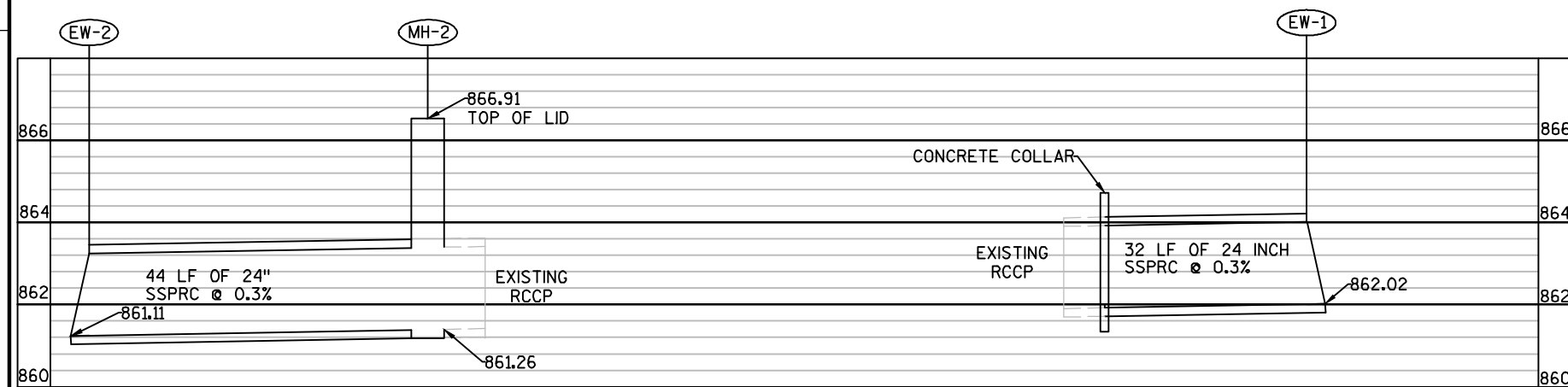
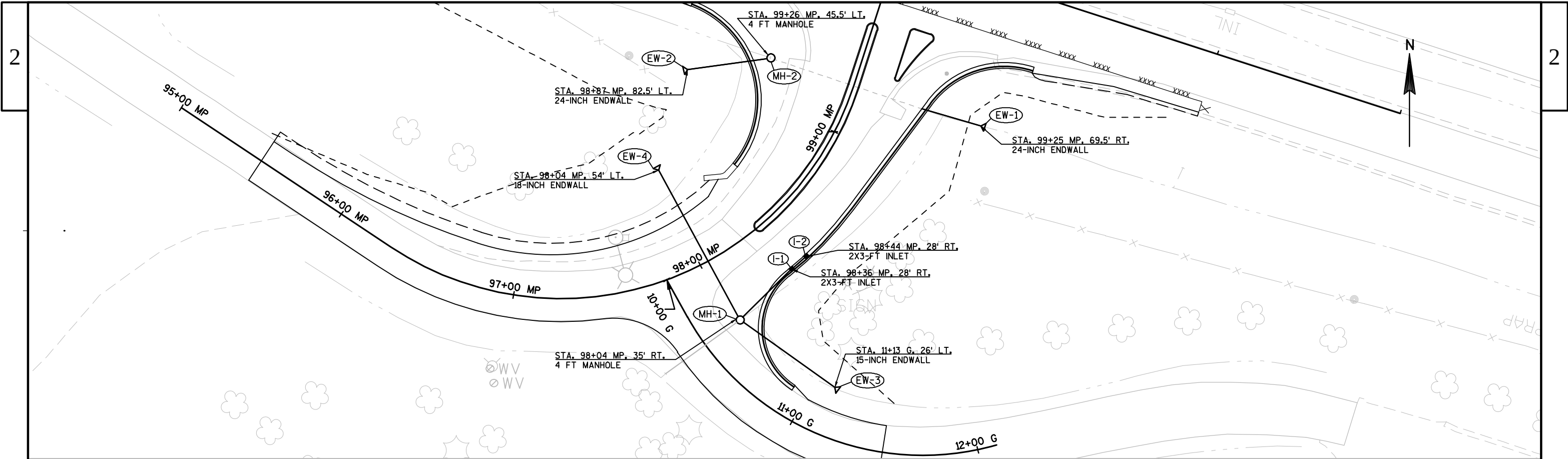
CONTROL POINTS				
NO.	STATION	DESCRIPTION	OFFSET	COORDINATES X,Y
1	96+30.97 MP	REBAR	56.996 RT	853640.389, 471505.233
2	99+00.59 MP	REBAR	75.243 RT	853971.382, 471581.04
3	99+58.92 MP	REBAR	49.546 RT	853804.871, 471654.759
4	135+02.45 EB	REBAR	59.317	852946.592, 471959.461
18	148+71.22 EB	REBAR	45.11 RT	854252.051, 471559.155

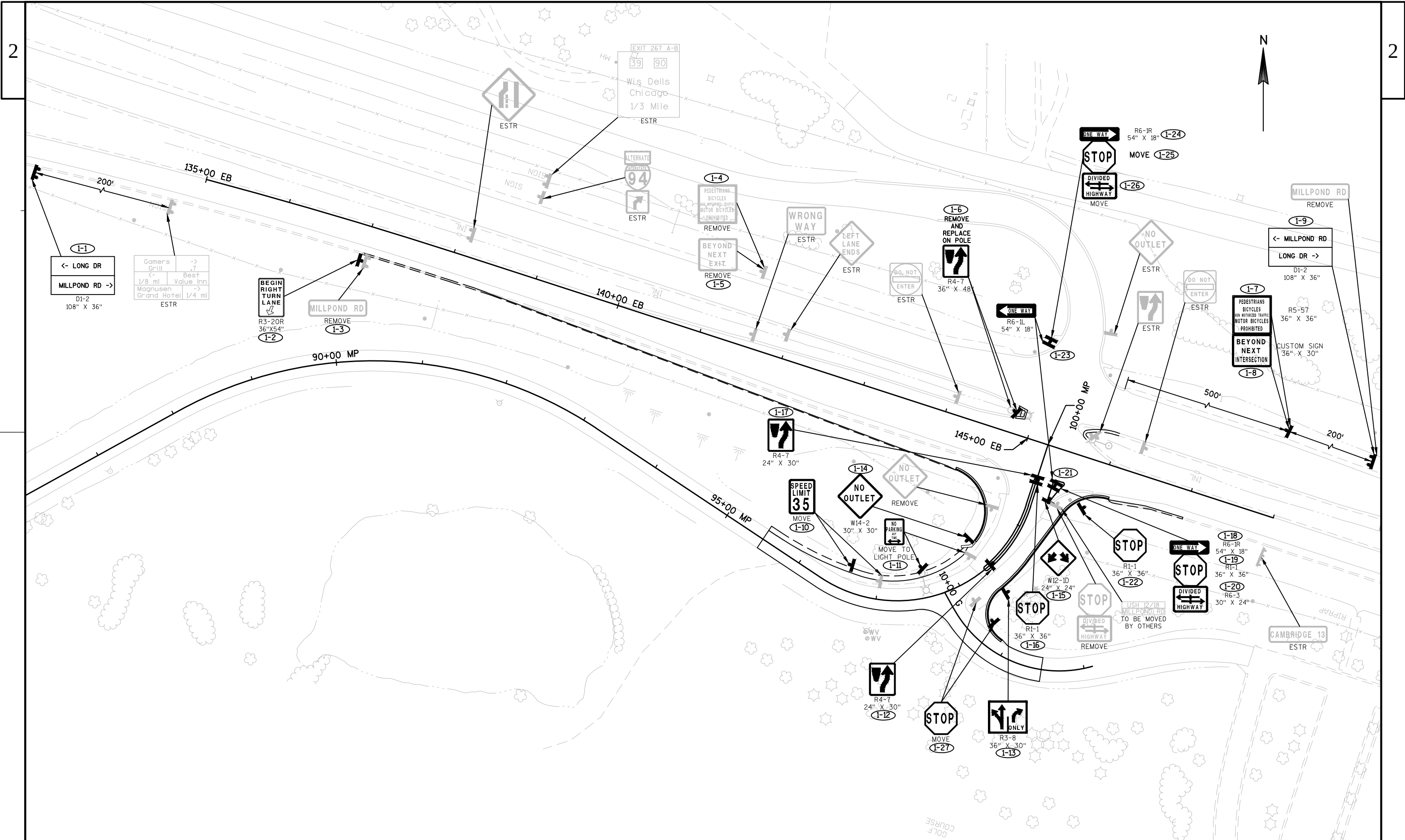
RUNOFF COEFFICIENT TABLE

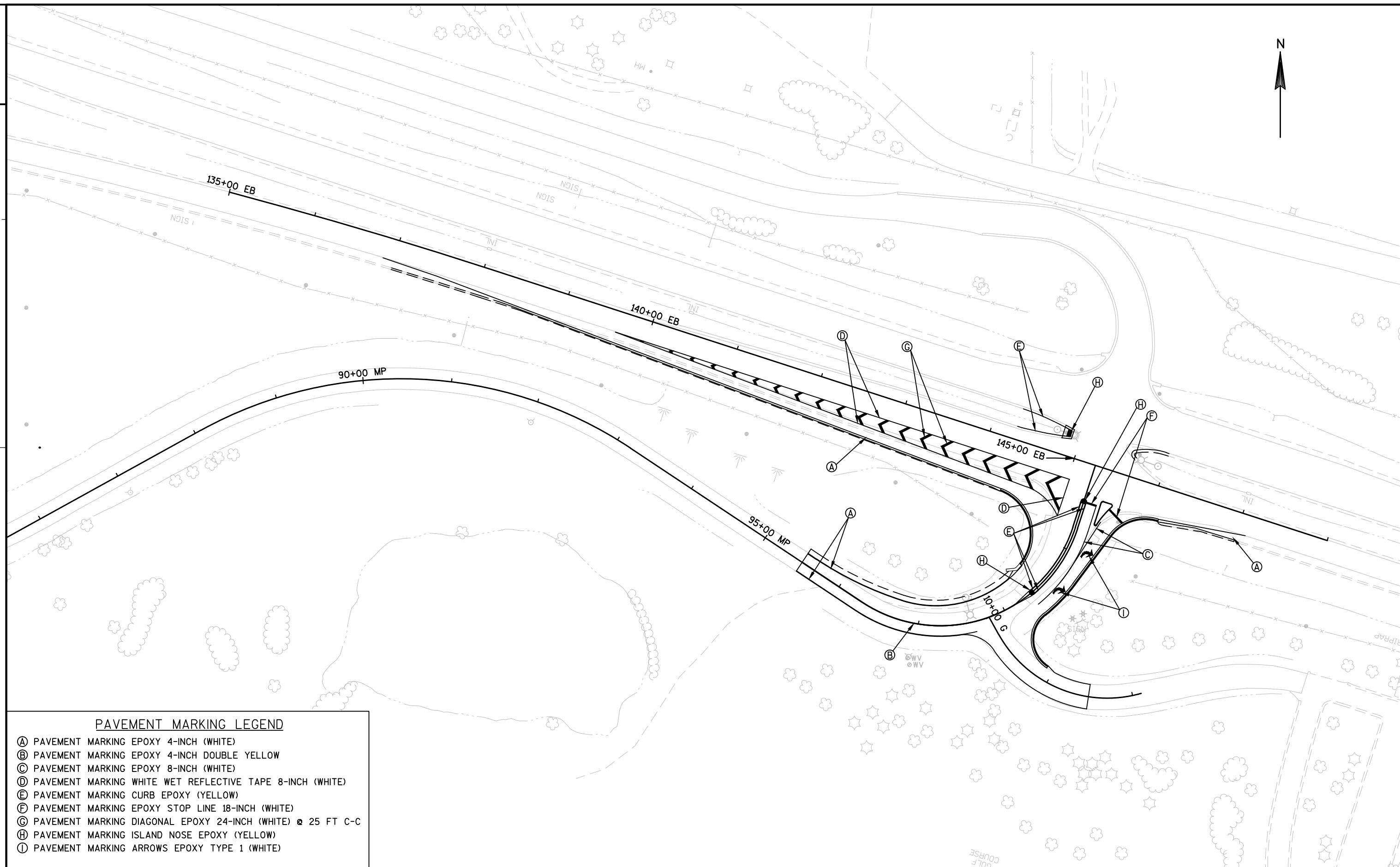
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.8 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .81											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOUDERS	.40 - .60											

TOTAL PROJECT AREA = 4.23 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.92 ACRES









PROJECT NO:3080-01-72

HWY: USH 12

COUNTY: DANE

PERMANENT PAVEMENT MARKING

SHEET

E

FILE NAME : N:\PDS\C3D\30800102\PLAN SHEETS\023202_PM.DWG

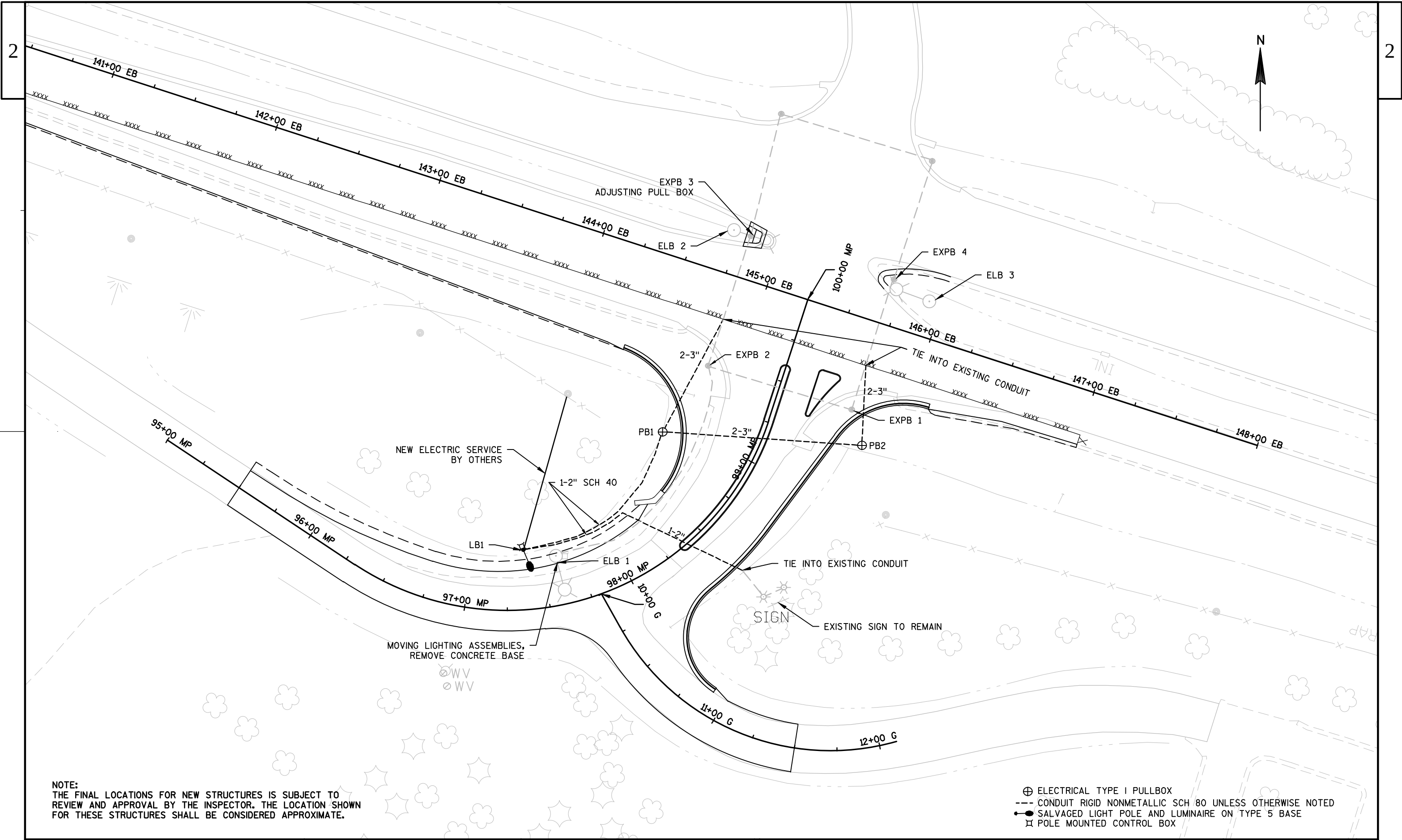
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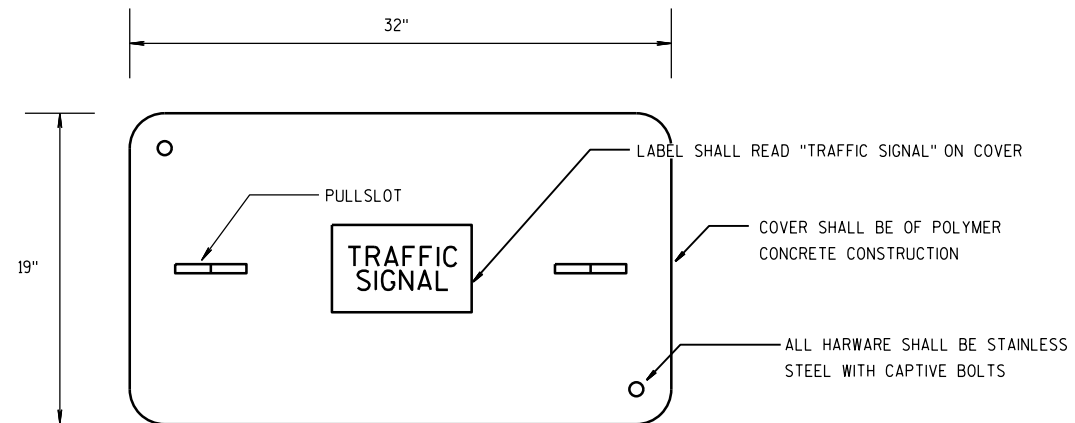
PLOT BY : JOHNSON, JOHN R

PLOT NAME :

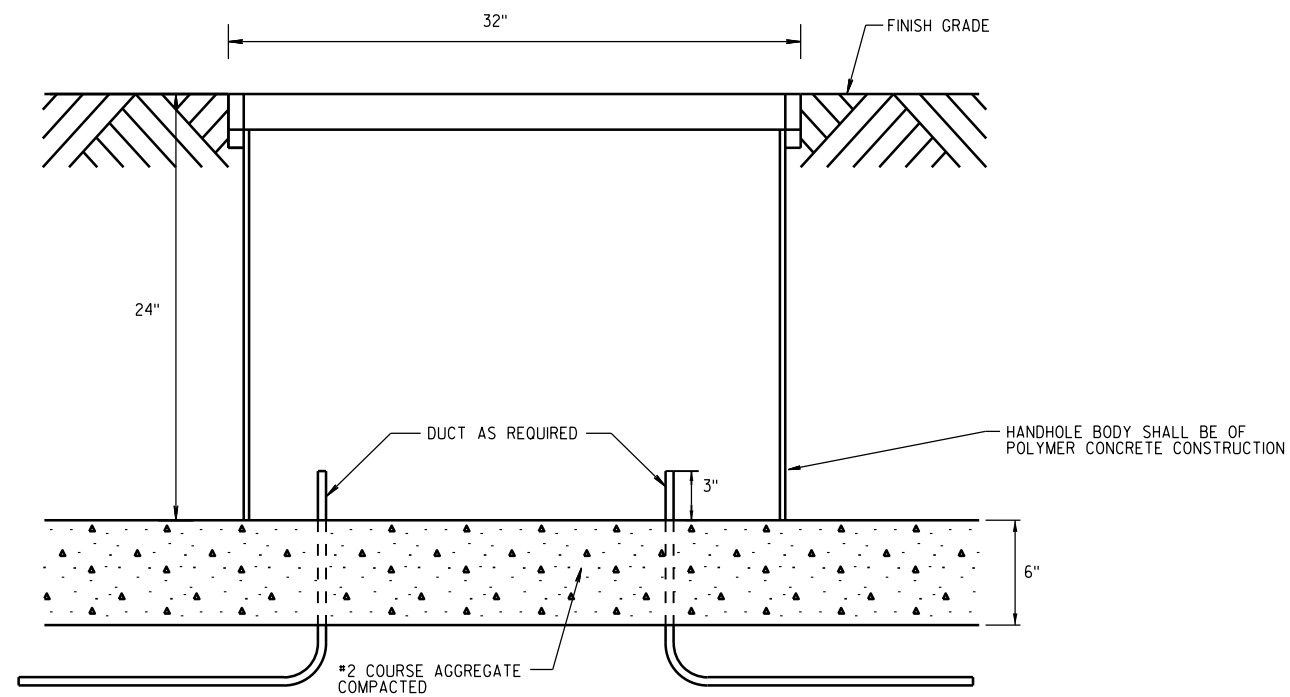
PLOT SCALE : 1" = 100' -XREF

WISDOT/CADDs SHEET 42





*15,000 LBS MAXIMUM LOAD OVER A 10" X 10"
TEST AREA RATING FOR COVER AND BOX



ELECTRICAL PULLBOX TYPE I

USE SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 MPH OR LESS, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC".

USE SDD "TRAFFIC CONTROL, LANE CLOSURE SPEED REDUCTION".

USE SDD "TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH".



END
ROAD WORK
G20-2A
48" X 24"



END
ROAD WORK
G20-2A
48" X 24"



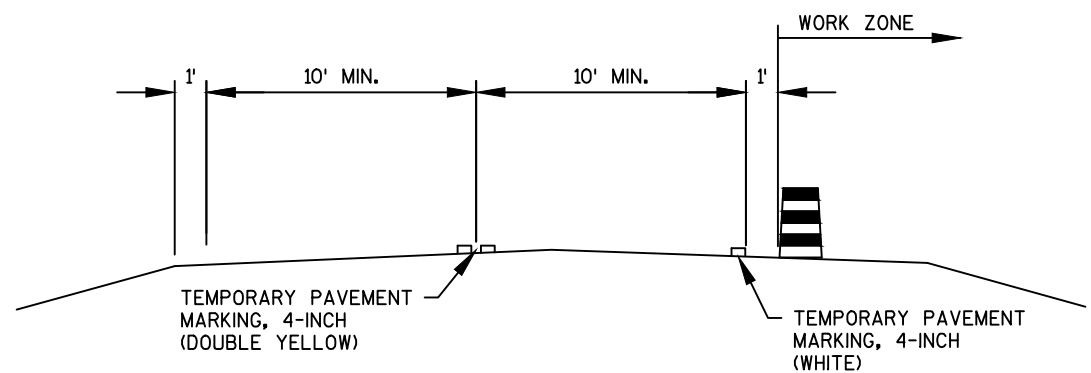
USH 12 MEDIAN WORK:
-WORK ON ONE MEDIAN NOSE AT A TIME.
-CLOSE LEFT TURN LANE AND MEDIAN THROUGH LANE AND PROVIDE A 200' LEFT TURN LANE IN THROUGH LANE.
-SEE STAGE 2 TEMPORARY TURN LANE LAYOUT FOR DIMENSIONS AND PAVEMENT MARKING.

EXCAVATION AS NEEDED TO BALANCE EARTHWORK FOR STAGE 1



END
ROAD WORK
G20-2A
48" X 24"

STAGE 1 MILLPOND TYPICAL



TEMPORARY PAVEMENT MARKING
STOP LINE 18-INCH

REMOVE EXISTING CENTERLINE PAVEMENT
MARKING ON MILL POND ROAD

TEMPORARY PAVEMENT MARKING
4-INCH (DOUBLE YELLOW)

TEMPORARY PAVEMENT
MARKING, 4-INCH
(WHITE)

3' DASH, 9' GAP

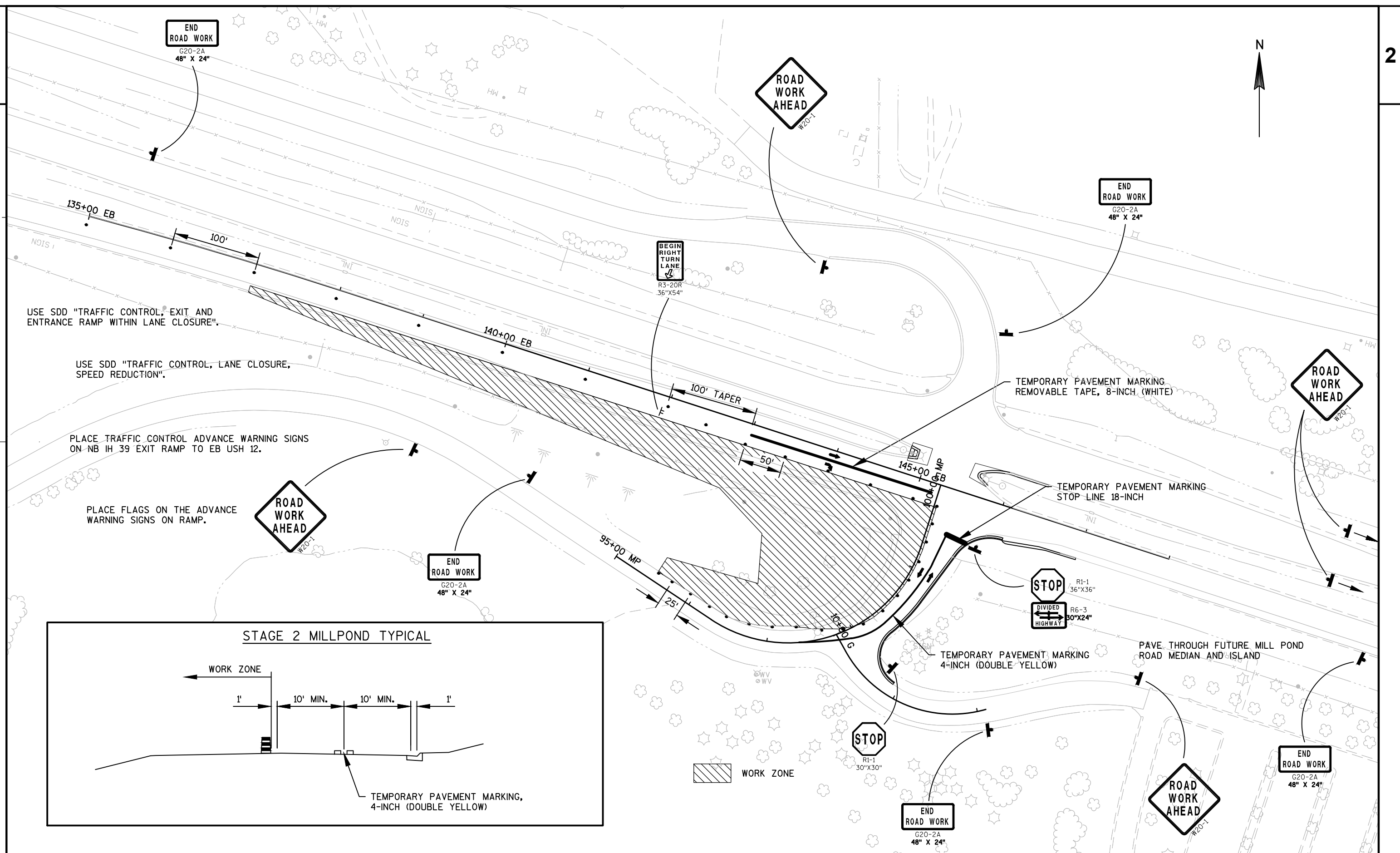


WORK ZONE

END
ROAD WORK
G20-2A
48" X 24"



END
ROAD WORK
G20-2A
48" X 24"



PROJECT NO:3080-01-72

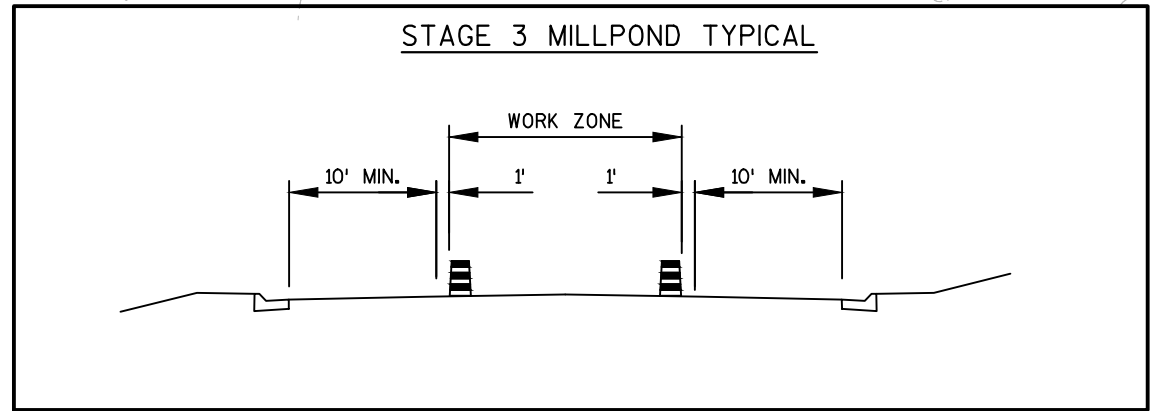
HWY: USH 12

COUNTY: DANE

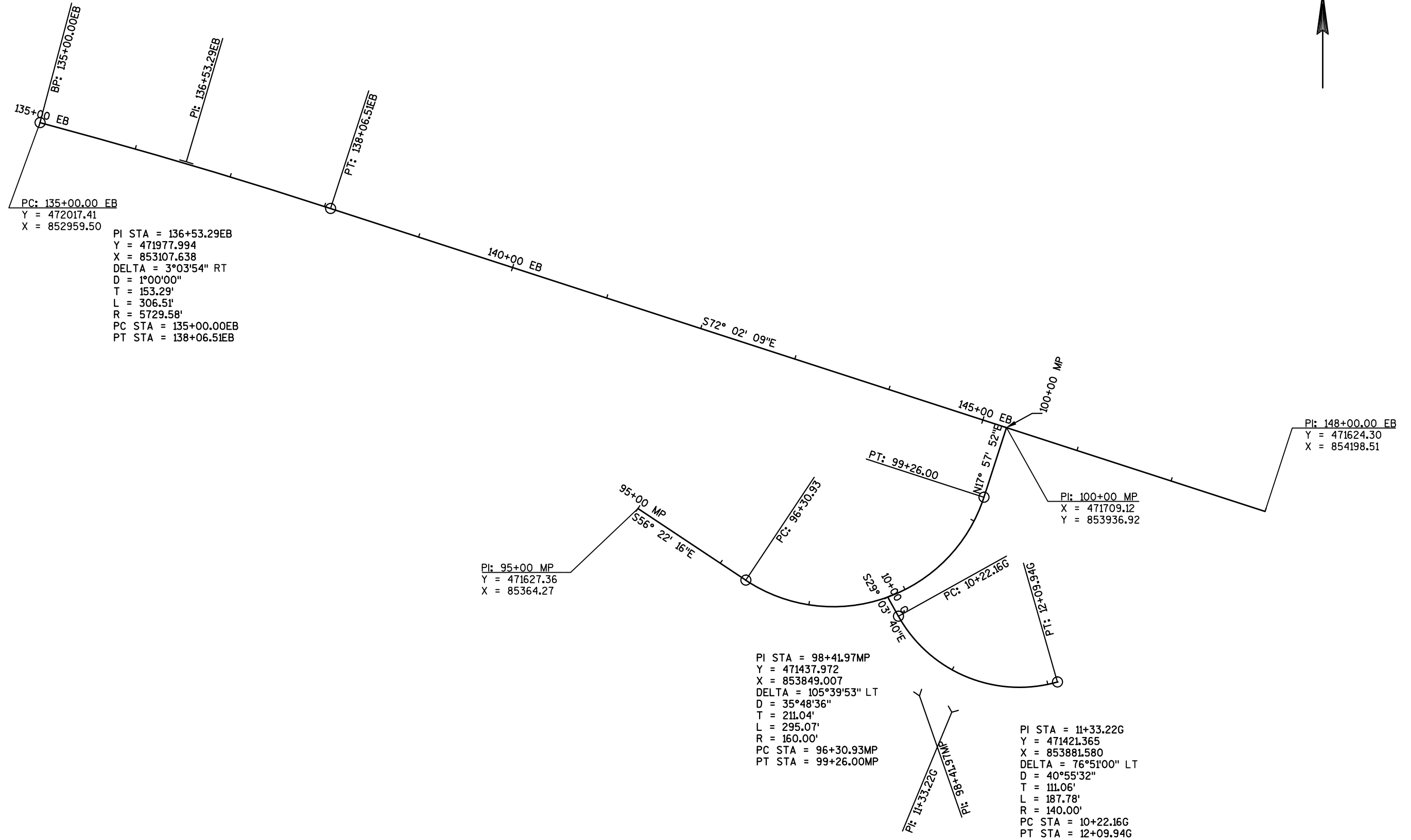
TRAFFIC CONTROL - STAGE 2

SHEET

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DATE 18NOV14		E S T I M A T E O F Q U A N T I T I E S			
LINE		3080-01-72			
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	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	1.000	1.000
0040	204.0100	REMOVING PAVEMENT	SY	1,326.000	1,326.000
0050	204.0120	REMOVING ASPHALTIC SURFACE MILLING	SY	1,152.000	1,152.000
0060	204.0170	REMOVING FENCE	LF	260.000	260.000
0070	204.0195	REMOVING CONCRETE BASES	EACH	1.000	1.000
0080	204.9090.S	REMOVING (ITEM DESCRIPTION) 01. PIPE UNDERDRAIN	LF	655.000	655.000
0090	205.0100	EXCAVATION COMMON	CY	3,047.000	3,047.000
0100	213.0100	FINISHING ROADWAY (PROJECT) 01. 3080-01-72	EACH	1.000	1.000
0110	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	220.000	220.000
0120	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	2,442.000	2,442.000
0130	312.0110	SELECT CRUSHED MATERIAL	TON	1,545.000	1,545.000
0140	415.1090	CONCRETE PAVEMENT HES 9-INCH	SY	94.000	94.000
0150	416.0610	DRILLED TIE BARS	EACH	51.000	51.000
0160	416.0620	DRILLED DOWEL BARS	EACH	74.000	74.000
0170	416.1720	CONCRETE PAVEMENT REPLACEMENT	SY	45.000	45.000
0180	455.0105	ASPHALTIC MATERIAL PG58-28	TON	58.000	58.000
0190	455.0605	TACK COAT	GAL	265.000	265.000
0200	460.1103	HMA PAVEMENT TYPE E-3	TON	1,062.000	1,062.000
0210	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	810.000	810.000
0220	465.0315	ASPHALTIC FLUMES	SY	6.000	6.000
0230	520.8000	CONCRETE COLLARS FOR PIPE	EACH	1.000	1.000
0240	522.1015	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 15-INCH	EACH	1.000	1.000
0250	522.1018	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	EACH	1.000	1.000
0260	522.1024	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH	EACH	2.000	2.000
0270	601.0120	CONCRETE CURB TYPE J	LF	300.000	300.000
0280	601.0553	CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE D	LF	365.000	365.000
0290	602.0405	CONCRETE SIDEWALK 4-INCH	SF	940.000	940.000
0300	608.0312	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	LF	48.000	48.000
0310	608.0315	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH	LF	62.000	62.000
0320	608.0324	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH	LF	76.000	76.000
0330	608.0418	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 18-INCH	LF	90.000	90.000
0340	611.0540	MANHOLE COVERS TYPE K	EACH	2.000	2.000
0350	611.0636	INLET COVERS TYPE HM-S	EACH	2.000	2.000
0360	611.2004	MANHOLES 4-FT DIAMETER	EACH	2.000	2.000
0370	611.3230	INLETS 2X3-FT	EACH	2.000	2.000
0380	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	30.000	30.000
0390	612.0806	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH	EACH	1.000	1.000
0400	616.0100	FENCE WOVEN WIRE (HEIGHT) 01. 4.5-FT	LF	250.000	250.000
0410	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 3080-01-72	EACH	1.000	1.000
0420	619.1000	MOBILIZATION	EACH	1.000	1.000
0430	620.0300	CONCRETE MEDIAN SLOPED NOSE	SF	155.000	155.000
0440	624.0100	WATER	MGAL	29.000	29.000

DATE 18NOV14		E S T I M A T E O F Q U A N T I T I E S			
LINE					3080-01-72
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0450	625.0500	SALVAGED TOPSOIL	SY	4,225.000	4,225.000
0460	627.0200	MULCHING	SY	3,050.000	3,050.000
0470	628.1504	SILT FENCE	LF	650.000	650.000
0480	628.1520	SILT FENCE MAINTENANCE	LF	650.000	650.000
0490	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	2.000	2.000
0500	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	1.000	1.000
0510	628.2006	EROSION MAT URBAN CLASS I TYPE A	SY	1,175.000	1,175.000
0520	628.7020	INLET PROTECTION TYPE D	EACH	2.000	2.000
0530	628.7504	TEMPORARY DITCH CHECKS	LF	30.000	30.000
0540	628.7555	CULVERT PIPE CHECKS	EACH	6.000	6.000
0550	629.0210	FERTILIZER TYPE B	CWT	2.700	2.700
0560	630.0130	SEEDING MIXTURE NO. 30	LB	60.000	60.000
0570	630.0140	SEEDING MIXTURE NO. 40	LB	20.000	20.000
0580	630.0200	SEEDING TEMPORARY	LB	115.000	115.000
0590	633.5200	MARKERS CULVERT END	EACH	4.000	4.000
0600	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	4.000	4.000
0610	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	5.000	5.000
0620	634.0618	POSTS WOOD 4X6-INCH X 18-FT	EACH	7.000	7.000
0630	637.2210	SIGNS TYPE II REFLECTIVE H	SF	167.880	167.880
0640	637.2230	SIGNS TYPE II REFLECTIVE F	SF	10.250	10.250
0650	638.2102	MOVING SIGNS TYPE II	EACH	5.000	5.000
0660	638.2602	REMOVING SIGNS TYPE II	EACH	8.000	8.000
0670	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	12.000	12.000
0680	642.5201	FIELD OFFICE TYPE C	EACH	1.000	1.000
0690	643.0100	TRAFFIC CONTROL (PROJECT) 01. 3080-01-72	EACH	1.000	1.000
0700	643.0300	TRAFFIC CONTROL DRUMS	DAY	1,114.000	1,114.000
0710	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	19.000	19.000
0720	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	20.000	20.000
0730	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	185.000	185.000
0740	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	10.000	10.000
0750	643.0900	TRAFFIC CONTROL SIGNS	DAY	630.000	630.000
0760	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	1,897.000	1,897.000
0770	646.0126	PAVEMENT MARKING EPOXY 8-INCH	LF	195.000	195.000
0780	646.0600	REMOVING PAVEMENT MARKINGS	LF	580.000	580.000
0790	646.0883.S	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH	LF	1,127.000	1,127.000
0800	647.0156	PAVEMENT MARKING ARROWS EPOXY TYPE 1	EACH	2.000	2.000
0810	647.0456	PAVEMENT MARKING CURB EPOXY	LF	133.000	133.000
0820	647.0566	PAVEMENT MARKING STOP LINE EPOXY 18-INCH	LF	33.000	33.000
0830	647.0606	PAVEMENT MARKING ISLAND NOSE EPOXY	EACH	3.000	3.000
0840	647.0746	PAVEMENT MARKING DIAGONAL EPOXY 24-INCH	LF	382.000	382.000
0850	649.0100	TEMPORARY PAVEMENT MARKING 4-INCH	LF	1,000.000	1,000.000
0860	649.0701	TEMPORARY PAVEMENT MARKING 8-INCH	LF	1,000.000	1,000.000
0870	649.0801	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH	LF	600.000	600.000
0880	649.1100	TEMPORARY PAVEMENT MARKING STOP LINE 18-INCH	LF	22.000	22.000
0890	650.4000	CONSTRUCTION STAKING STORM SEWER	EACH	8.000	8.000
0900	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	1,245.000	1,245.000
0910	650.5000	CONSTRUCTION STAKING BASE	LF	1,395.000	1,395.000
0920	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	387.000	387.000
0930	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 3080-01-72	LS	1.000	1.000

DATE 18NOV14		E S T I M A T E O F Q U A N T I T I E S			
LINE					3080-01-72
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0940	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	1,095.000	1,095.000
0950	652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	160.000	160.000
0960	652.0325	CONDUIT RIGID NONMETALLIC SCHEDULE 80 2-INCH	LF	80.000	80.000
0970	652.0335	CONDUIT RIGID NONMETALLIC SCHEDULE 80 3-INCH	LF	470.000	470.000
0980	653.0900	ADJUSTING PULL BOXES	EACH	1.000	1.000
0990	653.0905	REMOVING PULL BOXES	EACH	2.000	2.000
1000	654.0105	CONCRETE BASES TYPE 5	EACH	1.000	1.000
1010	655.0615	ELECTRICAL WIRE LIGHTING 10 AWG	LF	510.000	510.000
1020	655.0620	ELECTRICAL WIRE LIGHTING 8 AWG	LF	467.000	467.000
1030	655.0625	ELECTRICAL WIRE LIGHTING 6 AWG	LF	1,401.000	1,401.000
1040	690.0150	SAWING ASPHALT	LF	673.000	673.000
1050	690.0250	SAWING CONCRETE	LF	1,157.000	1,157.000
1060	SPV.0060	SPECIAL 01. MOVING LIGHTING ASSEMBLIES	EACH	1.000	1.000
1070	SPV.0060	SPECIAL 02. ELECTRICAL PULL BOX TYPE 1	EACH	2.000	2.000
1080	SPV.0090	SPECIAL 01. PIPE UNDERDRAIN (6-INCH) WITH GEOTEXTILE FABRIC AND AGGREGATE	LF	570.000	570.000

3

CLEARING AND GRUBBING				
STATION	TO	STATION	LOCATION	
			201.0105 CLEARING STA	201.0205 GRUBBING STA
96+00 MP	-	99+00 MP	LT & RT	3
TOTAL			3	3

REMOVAL ITEMS				
STATION	TO	STATION	LOCATION	
			203.0100 REMOVING SMALL PIPE CULVERTS EACH	204.0170 REMOVING FENCE LF
140+38 EB			RT	1
141+75 EB	-	144+31 EB	RT	-
TOTAL			1	260

PAVEMENT REMOVALS									
			204.0100 REMOVING PAVEMENT SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF			
STATION	TO	STATION	LOCATION	SY	SY	LF	LF	REMARKS	
STAGE 1	98+00		RT	-	-	17	-	PIPE INSTALLATION	
	98+00 MP	-	98+26 MP	CL	-	26	-	-	
	98+26 MP	-	99+25 MP	RT	145	-	-	-	
	98+26 MP	-	99+74 MP	CL	-	-	148	-	
	144+80 EB	-	145+01 EB	LT	51	-	85	WEST USH 12 MEDIAN	
	145+25 EB	-	147+00 EB	RT	279	-	175	-	
	145+52 EB	-	146+00 EB	LT	27	-	98	EAST USH 12 MEDIAN	
	147+00 EB		RT	-	-	6	-	EAST PROJECT LIMIT	
STAGE 2	95+50 MP	-	98+00 MP	LT	-	235	-	ASPHALT SHOULDER REMOVAL	
	98+00 MP	-	98+26 MP	LT	-	20	-	PIPE INSTALLATION	
	98+26 MP	-	99+25 MP	CL	-	26	-	-	
	137+00 EB		RT	-	-	6	-	WEST PROJECT LIMIT	
	139+94 EB	-	145+25 EB	RT	596	-	531	-	
	140+73 EB	-	140+90 EB	RT	-	-	120	CONCRETE PAVEMENT REPLACEMENT	
STAGE 3	98+34 MP	-	99+60 MP	LT & RT	-	258	-	MEDIAN ISLAND	
	99+35 MP	-	99+64 MP	RT	-	73	-	PORKCHOP ISLAND	
STAGE 4	10+50 G	-	11+50 G	LT & RT	-	314	-	-	
	95+50 MP	-	98+00 MP	LT & RT	-	838	-	-	
TOTAL				1326	1152	673	1157		

3

EARTHWORK											
					205.0100	(1)	(2)	(3)		(4)	
					EXCAVATION	UNUSABLE	AVAILABLE	UNEXPANDED	EXPANDED	MASS	
					COMMON	ASPHALT	MATERIAL	FILL	FILL	ORDINATE	
					CY	MATERIAL	MATERIAL	CY	FACTOR = 1.25	BALANCE	REMARKS
	STATION	TO	STATION	LOCATION		CY	CY	CY	CY	CY	
DIVISION 1	98+00 MP	-	99+25 MP	MILLPOND RD RT	164	5	159	248	310	-151	-
(STAGE 1)	98+00 MP	-	99+30 MP	RT DITCH	59	0	59	19	24	35	SEE EXCAVATION DETAIL
	145+25 EB	-	147+00 EB	USH 12 RT	146	7	139	18	23	116	-
	10+50 G	-	11+50 G	DRIVEWAY	34	0	34	59	74	-40	-
DIVISION 1 SUBTOTAL					403	12	391	344	431	-40	
DIVISION 2	95+50 MP	-	99+25 MP	MILLPOND RD LT	1376	17	1359	176	220	1139	-
(STAGE 2)	98+00 MP	-	99+30 MP	LT DITCH	89	0	89	24	30	59	-
	98+34 MP		98+60 MP	MEDIAN + ISLAND	36	9	27	-	-	27	-
	137+00 EB	-	145+25 EB	USH 12 RT	1025	39	986	340	425	561	-
	143+00 EB	-	144+79 EB	USH 12 DITCH	118	0	118	24	30	88	-
DIVISION 2 SUBTOTAL					2644	65	2579	564	705	1874	
PROJECT TOTAL					3047	77	2970	908	1136	1834	
(1) UNUSABLE ASPHALT MATERIAL IS INCLUDED IN COMMON EXCAVATION											
(2) AVAILABLE MATERIAL = COMMON EXCAVATION - UNUSABLE ASPHALT MATERIAL											
(3) EXPANDED FILL = UNEXPANDED FILL x 1.25											
(4) MASS ORDINATE = AVAILABLE MATERIAL - EXPANDED FILL. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.											
(5) USE DIVISION 2 EXCAVATION COMMON OUTSIDE OF EXISTING ROADWAY TO BALANCE DIVISION 1.											

PROJECT NO: 3080-01-72	HWY: USH 12	COUNTY: DANE	MISCELLANEOUS QUANTITIES	SHEET:	E
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BASE COURSE ITEMS								
CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0120	312.0110	REMARKS
					BASE AGGREGATE DENSE 3/4-INCH	BASE AGGREGATE DENSE 1 1/4-INCH	SELECT CRUSHED MATERIAL	
STAGE 1	10+50 G	-	11+50 G	LT	-	25	23	-
	97+96 MP	-	99+25 MP	RT	-	285	224	-
	98+00 MP	-	99+30 MP	RT	-	-	9	DITCH
	144+80 EB	-	145+01 EB	LT	-	7	-	WEST USH 12 MEDIAN
	145+25 EB	-	147+00 EB	RT	-	222	103	-
	145+52 EB	-	145+97 EB	LT	-	12	-	EAST USH 12 MEDIAN
	146+11 EB	-	147+00 EB	RT	11	-	-	-
STAGE 2	95+50 MP	-	98+50 MP	LT	33	-	-	-
	95+50 MP	-	99+25 MP	LT	-	503	322	-
	97+30 MP	-		LT	-	-	4	FRENCH DRAIN
	98+00 MP	-	99+30 MP	LT	-	-	17	DITCH
	98+36 MP	-		LT	-	-	4	FRENCH DRAIN
	137+00 EB	-	138+33 EB	RT	13	-	-	-
	138+33 EB	-	139+94 EB	RT	12	134	53	-
	138+50 EB	-		RT	-	-	4	FRENCH DRAIN
	139+94 EB	-	145+25 EB	RT	33	1185	765	-
	141+00 EB	-		RT	-	-	4	FRENCH DRAIN
	143+00 EB	-	144+79 EB	RT	-	-	9	DITCH
	143+50 EB	-		RT	-	-	4	FRENCH DRAIN
STAGE 3	98+35 MP	-	99+60 MP	CL	-	53	-	MILLPOND MEDIAN
	99+36 MP	-	99+64 MP	RT	-	16	-	MILLPOND PORKCHOP MEDIAN
STAGE 4	10+50 G	-	11+50 G	LT & RT	26	-	-	-
	95+50 MP	-	98+00 MP	LT & RT	70	-	-	-
	95+50 MP	-	98+50 MP	LT	22	-	-	-
TOTAL					220	2442	1545	

CONCRETE PAVEMENT HES 9-INCH					
				415.1090	
STATION	TO	STATION	LOCATION	SY	REMARKS
144+80 EB	-	145+01 EB	LT	47	WEST USH 12 MEDIAN
145+52 EB	-	145+97 EB	LT	47	EAST USH 12 MEDIAN
TOTAL				94	
CONCRETE PAVEMENT REPLACEMENT					
				416.1720	
STATION	TO	STATION	LOCATION	SY	REMARKS
140+73 EB	-	140+90 EB	RT	45	APPROXIMATE LOCATION
TOTAL				45	

ASPHALTIC ITEMS									
	STATION	TO	STATION	LOCATION	455.0105	455.0605	460.1103	465.0315	REMARKS
					ASPHALTIC MATERIAL PG58-28	TACK COAT GAL	HMA PAVEMENT TYPE E-3	ASPHALTIC FLUMES SY	
STAGE 1	10+50 G	-	10+91 G	LT	0	-	2	-	-
	97+96 MP	-	99+25 MP	RT	4	-	80	-	-
	145+25 EB	-	147+00 EB	RT	4	-	66	-	-
	145+60 EB	-	145+97 EB	LT	0	1	6	-	EAST USH 12 MEDIAN
STAGE 2	95+67 MP	-	99+25 MP	LT	6	-	101	-	-
	137+00 EB	-	144+69 EB	RT	24	94	439	-	-
	144+69 EB	-	145+25 EB	RT	3	-	51	-	-
STAGE 4	10+50 G	-	11+50 G	LT & RT	2	20	37	-	FINAL LIFT
	95+50 MP	-	99+25 MP	LT & RT	11	111	208	-	FINAL LIFT
	98+28 MP	-	98+50 MP	LT	-	-	-	6	-
	144+69 EB	-	147+00 EB	RT	4	39	72	-	FINAL LIFT
TOTAL					58	265	1062	6	

3

ANCILLARY CONCRETE ITEMS											STORM SEWER													
416.0610 416.0620 601.0120 601.0553 602.0405 620.0300											STORM SEWER													
CONCRETE CURB											STORM SEWER PIPE REINFORCED CONCRETE													
DRILLED CONCRETE AND GUTTER CONCRETE CONCRETE											520.8000 CONCRETE COLLARS FOR PIPE													
DRILLED DOWEL CURB 4-INCH SLOPED SIDEWALK MEDIAN											608.0312 608.0315 608.0324 608.0418													
TIE BARS BARS TYPE J 36-INCH TYPE D 4-INCH SLOPED NOSE											CLASS III CLASS III CLASS III CLASS IV													
											12-INCH 15-INCH 24-INCH 18-INCH													
STATION	TO	STATION	LOCATION	EACH	EACH	LF	LF	SF	SF	REMARKS	STATION	TO	STATION	LOCATION	EACH	LF	LF	LF	LF					
98+09 MP		99+64 MP	RT	-	-	-	250	-	-	-	10+40 G	-	11+13 G	LT	-	-	62	-	-					
98+34 MP	-	98+39 MP	CL	-	-	-	-	-	22	MILLPOND RD MEDIAN	98+05 MP	-	98+05 MP	LT & RT	-	-	-	-	90					
98+39 MP	-	99+55 MP	CL	-	-	240	-	700	-	MILLPOND RD MEDIAN	98+05 MP	-	98+36 MP	RT	-	38	-	-	-					
98+50 MP	-	99+42 MP	LT	-	-	-	105	-	-	-	98+87 MP	-	99+26 MP	LT	-	-	-	44	-					
99+35 MP	-	99+40 MP	RT	-	-	-	-	-	16	PORKCHOP MEDIAN	98+36 MP	-	98+44 MP	RT	-	10	-	-	-					
99+36 MP	-	99+62 MP	RT	-	-	60	-	200	-	PORKCHOP MEDIAN	99+26 MP	-	99+26 MP	RT	1	-	-	32	-					
99+55 MP	-	99+60 MP	CL	-	-	-	-	-	23	MILLPOND RD MEDIAN	TOTAL									1	48	62	76	90
99+58 MP	-	99+64 MP	RT	-	-	-	-	-	19	PORKCHOP MEDIAN														
140+73 EB		140+90 EB	RT	12	42	-	-	-	-	CONCRETE PAVEMENT REPAIR														
144+79 EB	-	145+01	LT	16	18	-	10	40	-	WEST USH 12 MEDIAN														
144+84 EB	-	144+90 EB	LT	-	-	-	-	-	75	-														
145+52 EB	-	145+97 EB	LT	23	14	-	-	-	-	EAST USH 12 MEDIAN														
TOTAL				51	74	300	365	940	155															

STORM SEWER STRUCTURES												
						APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE						
						522.1015 522.1018 522.1024						
						611.0540 611.0636 611.2004 611.3230 633.5200 650.4000						
						CONSTRUCTION STAKING						
						MANHOLE COVERS INLET COVERS MANHOLES INLETS MARKERS						
						TYPE K TYPE HM-S 4-FT DIAMETER 2X3-FT CULVERT END						
STATION	TO	STATION	LOCATION	15-INCH	18-INCH	24-INCH	TYPE K	TYPE HM-S	4-FT DIAMETER	2X3-FT	MARKERS	CONSTRUCTION
				EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	STAKING
11+13 G			LT	1	-	-	-	-	-	-	-	1
11+15 G			LT	-	-	-	-	-	-	-	1	-
98+04 MP			LT	-	1	-	-	-	-	-	-	1
98+05 MP			RT	-	-	-	1	-	1	-	-	1
98+06 MP			LT	-	-	-	-	-	-	-	1	-
98+35 MP	-	98+37 MP	RT	-	-	-	-	1	-	1	-	1
98+43 MP	-	98+45 MP	RT	-	-	-	-	1	-	1	-	1
98+87 MP			LT	-	-	1	-	-	-	-	-	1
99+25 MP			RT	-	-	-	-	-	-	-	1	-
99+26 MP			LT	-	-	-	1	-	1	-	-	1
99+27 MP			RT	-	-	1	-	-	-	-	-	1
144+36 EB			RT	-	-	-	-	-	-	-	1	-
TOTAL				1	1	2	2	2	2	2	4	8

PIPE UNDERDRAIN								FENCE WOVEN WIRE (4.5-FT)				WATER			
204.9090.S 612.0206 612.0806 SPV.0090.01								616.0100				624.0100			
REMOVING (PIPE UNDERDRAIN) PIPE UNDERDRAIN UNPERFORATED 6-INCH APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH								PIPE UNDERDRAIN (6-INCH) WITH GEOTEXTILE FABRIC AND AGGREGATE				LOCATION MGAL			
STATION	TO	STATION	LOCATION	LF	LF	EACH	LF	STATION	TO	STATION	LOCATION	LF	PROJECT	MGAL	
98+15 MP	-	99+50 MP	RT	-	-	-	135	141+75 EB	-	144+25 EB	RT	250	29		
139+90 EB	-	144+25 EB	RT	-	-	-	435	TOTAL							29
139+90 EB	-	146+45 EB	RT	655	-	-	-								
141+50 EB			RT	-	30	1	-								
UNDISTRIBUTED			-	-	-	-	-								
TOTAL				655	30	1	570								

PROJECT NO: 3080-01-72			HWY: USH 12			COUNTY: DANE			MISCELLANEOUS QUANTITIES				SHEET:		E
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3

3

3

EROSION CONTROL

				625.0500	627.0200	628.1504	628.1520	628.1905	628.1910	628.2006	628.7020	628.7504	628.7555	629.0210	630.0130	630.0140	630.0200
				SALVAGED	MULCHING	SILT FENCE	SILT FENCE	MOBILIZATIONS	MOBILIZATIONS	EROSION MAT	INLET	TEMPORARY	CULVERT	FERTILIZER	SEEDING	SEEDING	SEEDING
				TOPSOIL		MAINTENANCE		EROSION CONTROL	EROSION CONTROL	URBAN CLASS I	PROTECTION	DITCH	PIPE	TYPE B	MIXTURE	MIXTURE	TEMPORARY
STATION	TO	STATION	LOCATION	SY	SY	LF	LF	EACH	EACH	SY	EACH	LF	EACH	CWT	NO. 30	NO. 40	LB
11+13	G		LT	-	-	-	-	-	-	-	-	-	2	-	-	-	-
98+00	MP	- 99+70	MP	RT	895	550	160	160	-	-	345	-	-	0.6	-	20	25
98+30	MP	- 98+50	MP	RT	-	-	-	-	-	-	2	-	-	-	-	-	-
99+26			LT	-	-	-	-	-	-	-	-	-	4	-	-	-	-
138+25	EB	- 144+73	EB	RT	3330	2500	-	-	-	830	-	-	-	2.1	60	-	90
138+30	EB	- 143+12	EB	RT	-	-	490	490	-	-	-	-	-	-	-	-	-
142+75	EB		RT	-	-	-	-	-	-	-	-	15	-	-	-	-	-
143+50	EB		RT	-	-	-	-	-	-	-	-	15	-	-	-	-	-
PROJECT		PROJECT		-	-	-	-	2	1	-	-	-	-	-	-	-	-
TOTAL				4225	3050	650	650	2	1	1175	2	30	6	2.7	60	20	115

PERMANENT TYPE II SIGNS

					634.0614	634.0616	634.0618	637.2210	637.2230	638.2102	638.2602	638.3000		
					POSTS WOOD	POSTS WOOD	POSTS WOOD	SIGNS TYPE II	SIGNS TYPE II	MOVING SIGNS	REMOVING SIGNS	REMOVING SMALL		
					4X6-INCH 14-FT	4X6-INCH 16-FT	4X6-INCH 18-FT	REFLECTIVE H	REFLECTIVE F	TYPE II	TYPE II	SIGN SUPPORTS		
STATION	LOCATION	NUMBER ON	SIGN SIZE	SIGN PLATE	EACH	EACH	EACH	SF	SF	EACH	EACH	EACH	REMARKS	
132+80	EB	RT	1-1	108 X 36	D1-2	-	-	2	27	-	-	-	-	-
137+00	EB	RT	1-2	36 X 54	R3-20R	-	-	1	13.5	-	-	-	-	-
137+00	EB	RT	1-3	-	-	-	-	-	-	-	1	2	-	-
141+50	EB	LT	1-4	-	-	-	-	-	-	-	1	1	-	-
141+50	EB	LT	1-5	-	-	-	-	-	-	-	1	-	-	-
144+80	EB	LT	1-6	36 X 48	R4-7	-	-	-	12	-	-	1	1	ATTACH TO LIGHT POLE
150+00	EB	LT	1-7	36 X 36	R5-57	-	-	1	9	-	-	-	-	-
150+00	EB	LT	1-8	36 X 30	CUSTOM	-	-	-	7.5	-	-	-	-	-
152+00	EB	LT	1-9	108 X 36	D1-2	-	-	2	27	-	1	2	-	-
96+60	MP	LT	1-10	-	-	1	-	-	-	1	-	1	-	-
97+60	MP	LT	1-11	-	-	-	-	-	-	1	-	1	ATTACH TO LIGHT POLE	-
98+40	MP	LT	1-12	24 X 30	R4-7	1	-	-	5	-	-	-	-	-
98+40	MP	RT	1-13	36 X 30	R3-4B	1	-	-	7.5	-	-	-	-	-
98+50	MP	LT	1-14	30 X 30	W14-2	-	1	-	-	6.25	1	1	-	-
99+30	MP	RT	1-15	24 X 24	W12-1D	1	-	-	-	4	-	-	-	-
99+50	MP	LT	1-16	36 X 36	R1-1	-	1	-	7.46	-	-	-	-	-
99+50	MP	LT	1-17	24 X 30	R4-7	-	-	-	5	-	-	-	-	-
99+50	MP	RT	1-18	54 X 18	R6-1R	-	1	-	6.75	-	-	-	-	-
99+50	MP	LT	1-19	36 X 36	R1-1	-	-	-	7.46	-	1	1	-	-
99+50	MP	LT	1-20	30 X 24	R6-3	-	-	-	5	-	1	-	-	-
99+50	MP	RT	1-21	54 X 18	R6-1L	-	-	-	6.75	-	-	-	-	-
99+50	MP	RT	1-22	36 X 36	R1-1	-	1	-	7.46	-	-	-	-	-
101+10	MP	LT	1-23	54 X 18	R6-1L	-	-	1	6.75	-	-	1	-	-
101+10	MP	LT	1-24	54 X 18	R6-1R	-	-	-	6.75	-	-	-	-	-
101+10	MP	LT	1-25	-	-	-	-	-	-	-	1	-	-	-
101+10	MP	LT	1-26	-	-	-	-	-	-	1	-	-	-	-
10+70	G	LT	1-27	-	-	1	-	-	-	1	-	1	-	-
TOTAL					4	5	7	167.88	10.25	5	8	12		

TRAFFIC CONTROL											
	643.0300	643.0420	643.0705	643.0715	643.0800	643.0900	TEMPORARY PAVEMENT MARKING				
							649.0100		649.0701	649.0801	649.1100
							4-INCH		8-INCH	REMOVABLE	STOP LINE
							(YELLOW)	(WHITE)	TAPE 8-INCH	18-INCH	
							DRUMS	BARRICADES	LIGHTS	LIGHTS	ARROW
DAY	TYPE III	TYPE A	TYPE C	BOARDS	DAY	LF	LF	LF	LF	LF	
STAGE 1	446	8	10	70	5	248	500	235	-	-	10
STAGE 2	516	10	10	115	5	272	500	-	1000	600	12
STAGE 3	38	-	-	-	-	26	-	-	-	-	-
STAGE 4	114	1	-	-	-	84	-	-	-	-	-
TOTAL	1114	19	20	185	10	630	1000		1000	600	22

PAVEMENT MARKING													
				646.0106	646.0126	646.0600	646.0883.S	647.0156	647.0456	647.0566	647.0606	647.0746	
				EPOXY	EPOXY	REMOVING	GROOVED WET	ARROWS	CURB	STOP LINE	ISLAND	DIAGONAL	
				4-INCH	8-INCH	PAVEMENT	REFLECTIVE	EPOXY	EPOXY	EPOXY	NOSE	EPOXY	
				(WHITE)	(YELLOW)	MARKINGS	TAPE 8-INCH	TYPE 1	(YELLOW)	18-INCH	EPOXY	24-INCH	
				LF	LF	LF	(WHITE)	(WHITE)	(YELLOW)	(WHITE)	(YELLOW)	(WHITE)	
STATION	TO	STATION	LOCATION	LF	LF	LF	LF	EACH	LF	LF	EACH	LF	REMARKS
95+50 MP	-	97+64 MP	RT	223	-	-	-	-	-	-	-	-	-
95+50 MP	-	98+35 MP	CL	-	572	-	-	-	-	-	-	-	-
95+50 MP	-	98+50 MP	LT	269	-	-	-	-	-	-	-	-	-
98+34 MP	-	98+34 MP	CL	-	-	-	-	-	-	-	1	-	SLOPED NOSE TYPE I
98+34 MP	-	99+57 MP	RT	-	-	195	-	-	-	-	-	-	-
98+39 MP	-	98+44 MP	CL	-	-	-	-	-	10	-	-	-	-
98+53 MP	-	98+65 MP	RT	-	-	-	-	1	-	-	-	-	-
98+99 MP	-	99+11 MP	RT	-	-	-	-	1	-	-	-	-	-
99+50 MP	-	99+55 MP	CL	-	-	-	-	-	10	-	-	-	-
99+57 MP	-	99+57 MP	RT	-	-	-	-	-	-	33	-	-	-
99+60 MP	-	99+60 MP	CL	-	-	-	-	-	-	-	1	-	SLOPED NOSE TYPE I
136+85 EB	-	139+80 EB	RT	-	-	-	295	-	-	-	-	-	-
137+00 EB	-	144+32 EB	RT	744	-	-	-	-	-	-	-	-	-
139+63 EB	-	145+02 EB	RT	-	-	-	-	1127	-	-	-	382	-
142+65 EB	-	145+00 EB	RT	-	-	-	235	-	-	-	-	-	-
144+28 EB	-	144+84 EB	LT	-	-	-	-	-	113	-	-	-	-
144+84 EB	-	144+90 EB	LT	-	-	-	-	-	-	-	1	-	SLOPED NOSE TYPE I
146+11 EB	-	147+00 EB	RT	89	-	-	-	-	-	-	-	-	-
146+60 EB	-	147+10 EB	RT	-	-	50	-	-	-	-	-	-	-
SUBTOTAL				1325	572	-	-	-	-	-	-	-	-
TOTAL					1897	195	580	1127	2	133	33	3	382

CONSTRUCTION STAKING

				650.4500	650.5000	650.5500	650.9910	650.9920
						CURB GUTTER AND CURB & GUTTER	SUPPLEMENTAL CONTROL	SLOPE STAKES
				SUBGRADE	BASE			
STATION	TO	STATION	LOCATION	LF	LF	LF	LS	LF
10+50	G	-	11+00 G	LT & RT	50	50	-	50
95+80	MP	-	99+25 MP	LT & RT	345	345	-	345
98+09	MP	-	99+64 MP	RT	-	-	250	-
98+50	MP	-	99+42 MP	LT	-	-	105	-
137+00	EB	-	147+00 EB	RT	-	1000	-	-
138+50	EB	-	144+50 EB	RT	-	-	-	600
138+50	EB	-	145+00 EB	RT	700	-	-	-
			144+80 EB	LT	-	-	32	-
145+50	EB	-	147+00 EB	RT	150	-	-	-
146+00	EB	-	147+00 EB	RT	-	-	-	100
PROJECT				-	-	-	1	-
TOTAL				1245	1395	387	1	1095

ELECTRICAL ITEMS

					CONDUIT RIGID NONMETALLIC						ELECTRICAL WIRE LIGHTING					REMARKS
					652.0225	652.0325	652.0335	653.0900	653.0905	654.0105	655.0615	655.0620	655.0625	SPV.0060.01	SPV.0060.02	
					SCHEDULE 40	SCHEDULE 80	SCHEDULE 80	ADJUSTING	REMOVING	CONCRETE	10 AWG	8 AWG	6 AWG	MOVING	ELECTRICAL	
FROM	TO	OFFSET	STRUCTURE	204.0195 REMOVING CONCRETE BASES EACH	2-INCH LF	2-INCH LF	3-INCH LF	PULL BOXES EACH	PULL BOXES EACH	BASES TYPE 5 EACH	LF	LF	LF	LIGHTING ASSEMBLIES EACH	PULL BOX TYPE 1 EACH	
LB1	PB1	-	-	-	100	-	-	-	-	-	-	110	330	-	-	3#6, 1#8
PB1	EXPB3	-	-	-	-	-	150	-	-	-	-	125	375	-	-	2 DUCTS, 3#6, 1#8
EXPB3	ELB2	-	-	-	-	-	-	-	-	-	-	6	18	-	-	3#6, 1#8
PB1	PB2	-	-	-	-	-	230	-	-	-	-	120	360	-	-	2 DUCTS, 3#6, 1#8
PB2	EXPB4	-	-	-	-	-	90	-	-	-	-	100	300	-	-	2 DUCTS, 3#6, 1#8
EXPB4	ELB3	-	-	-	-	-	-	-	-	-	-	6	18	-	-	3#6, 1#8
LB1	SIGN	-	-	-	60	80	-	-	-	-	510	-	-	-	-	3#10
STATION																
97+35	MP	33' LT	LB1	-	-	-	-	-	-	1	-	-	-	1	-	VERIFY LOCATION WITH INSPECTOR
97+60	MP	25' LT	-	1	-	-	-	-	-	-	-	-	-	-	-	-
98+85	MP	52' LT	PB1	-	-	-	-	-	-	-	-	-	-	-	1	-
99+30	MP	55' RT	PB2	-	-	-	-	-	-	-	-	-	-	-	1	-
99+47	MP	43' LT	-	-	-	-	-	-	1	-	-	-	-	-	-	-
99+47	MP	43' RT	-	-	-	-	-	-	1	-	-	-	-	-	-	-
144+83	EB	27' LT	EXPB3	-	-	-	-	1	-	-	-	-	-	-	-	-
TOTAL				1	160	80	470	1	2	1	510	467	1401	1	2	

R/W PROJECT NUMBER	3080-01-22	SHEET NUMBER	4.1	TOTAL SHEETS	3
FEDERAL PROJECT NUMBER					
PLAT OF RIGHT-OF-WAY REQUIRED FOR					
C MADISON					
(MILLPOND ROAD INTERSECTION)					
USH 12	DANE COUNTY				
CONSTRUCTION PROJECT NUMBER					

CONVENTIONAL ABBREVIATIONS			CONVENTIONAL UTILITY SYMBOLS		
ACCESS POINT/ DRIVEWAY CONNECTION	AP	RECORDED AS	WATER	—W—	
ACCESS RIGHTS	AR	REFERENCE LINE	GAS	—G—	
ACRES	AC.	RELEASE OF RIGHTS	TELEPHONE	—T—	
AND OTHERS	ET.AL.	REMAINING	OVERHEAD	—OH—	
CENTERLINE	C/L	RIGHT-OF-WAY	TRANSMISSION LINES	—E—	
CERTIFIED SURVEY MAP	CSM	SECTION	ELECTRIC	—E—	
CORNER	COR.	STATION	CABLE TELEVISION	—TV—	
DOCUMENT	DOC.	TEMPORARY LIMITED EASEMENT	FIBER OPTIC	—FO—	
EASEMENT	EASE.	VOLUME	SANITARY SEWER	—SAN—	
HIGHWAY EASEMENT	H.E.		STORM SEWER	—SS—	
LAND CONTRACT	LC				
MONUMENT	MON.				
PAGE	P.				
PERMANENT LIMITED EASEMENT	P.L.E.				
PRIVATE DRIVE	P.D.				
PROPERTY LINE	PL				

CURVE DATA		
LONG CHORD	LCH	
LONG CHORD BEARING	LCB	
RADIUS	R	
DEGREE OF CURVE	D	
CENTRAL ANGLE OR DELTA	Δ	
LENGTH OF CURVE	L	
TANGENT	T	

CONVENTIONAL SYMBOLS		
SECTION LINE	—S—	
QUARTER LINE	—Q—	
SIXTEENTH LINE	—S—	
NEW REFERENCE LINE	—N—	
NEW R/W LINE	—N—	
EXISTING R/W LINE	—E—	
PROPERTY LINE	—P—	
LOT, TIE AND OTHER MINOR LINES	—L—	
CORPORATE LIMITS	—C—	
FEE ACQUISITION AREA (HATCHING VARIES BY OWNER)	—F—	
TEMPORARY LIMITED EASEMENT AREA	—T—	
EASEMENT (HIGHWAY PERMANENT LIMITED OR RESTRICTED DEVELOPMENT) AREAS	—E—	
BUILDING	—B—	
BRIDGE	—B—	
PARCEL NUMBER	—P—	
UTILITY PARCEL NUMBER	—U—	

NOTATION FOR COMBUSTIBLE FLUIDS	—C—	
NOTATION FOR HIGH VOLTAGE TRANS-MISSION LINES	—H—	
ELECTRIC POLE	—E—	
TELEPHONE POLE	—T—	
PEDESTAL (LABEL TYPE - (COMMUNICATIONS, ELECTRIC))	—P—	
NO ACCESS (BY PARCEL ACQUISITION)	—N—	
NO ACCESS (BY STATUTORY AUTHORITY)	—N—	
ACCESS RESTRICTED (BY PREVIOUS PROJECT/CONTROL)	—A—	

NOTES:

COORDINATES AND BEARINGS ON THIS PLAT ARE ORIENTED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DANE COUNTY ZONE, NAD83(2007) ADJUSTMENT. THE COORDINATES SHOWN ARE GRID COORDINATES AND ARE TO BE USED AS GRID AND GROUND VALUES ON THIS PLAT.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT BY OTHERS.

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

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

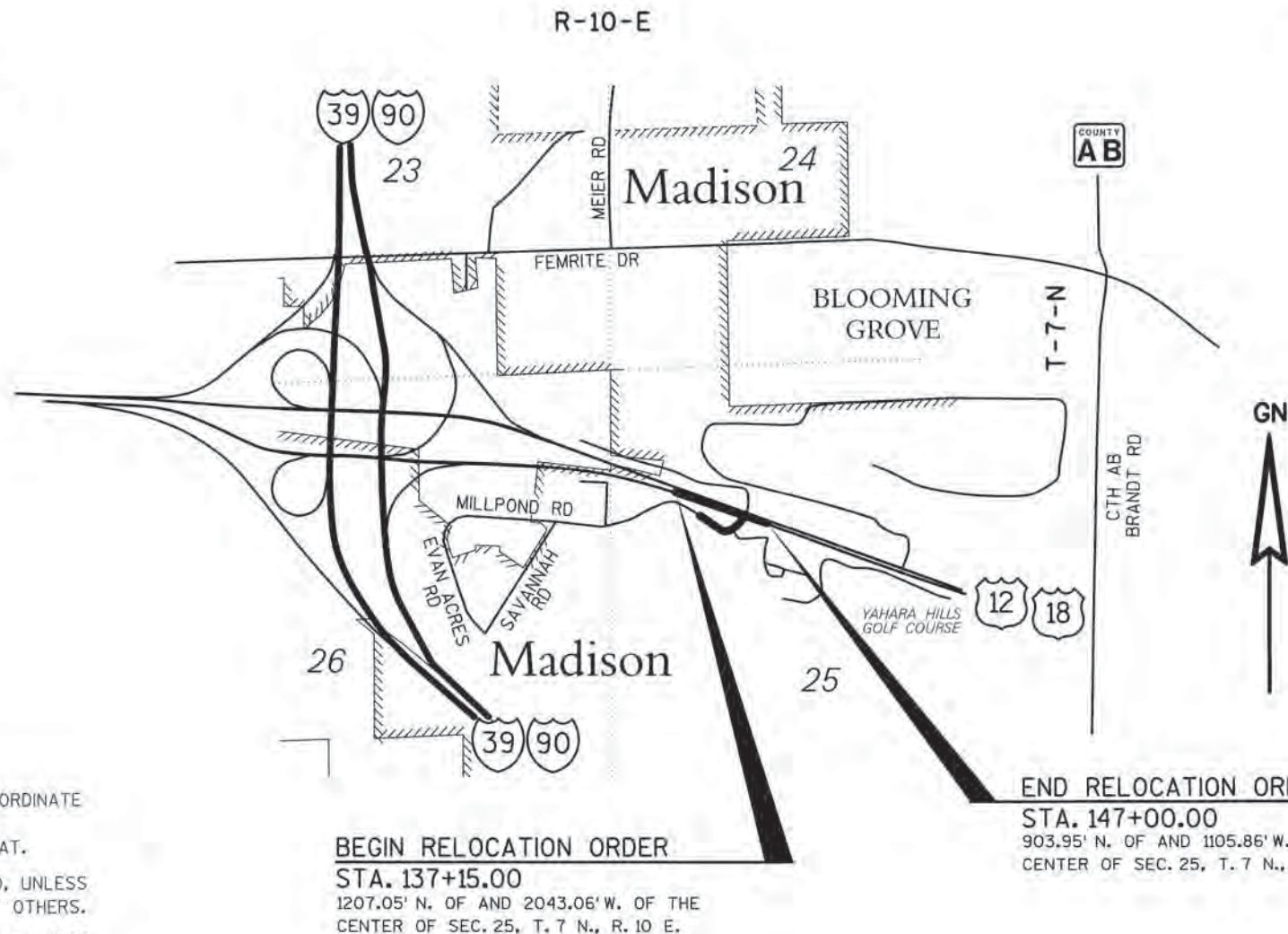
EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN IS BASED ON THE FOLLOWING POINTS OF REFERENCE: EXISTING HIGHWAY RIGHT-OF-WAY FOR USH 12/18 AND MILL POND ROAD ESTABLISHED FROM PREVIOUS PROJECT 3080-00-21.

EXISTING ACCESS CONTROL ALONG USH 12/18 ESTABLISHED FROM PREVIOUS PROJECTS F04-2(3) & 3080-00-21.

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

FOR THE LATEST ACCESS/DRIVEWAY INFORMATION CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN MADISON.

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



LAYOUT
SCALE 0 1/2 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.186 MI.

ORIGINAL PLAT PREPARED BY

AVRES ASSOCIATES



THIS SURVEY IS PREPARED AT THE REQUEST OF THE DEPARTMENT. THE FIELD SURVEY WAS PERFORMED IN JULY 2013. THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

(SIGNATURE) *Jamey L. Reid*
DATE: 9/19/2013
(PRINTED NAME) JAMEY L. REID
(REGISTRATION NUMBER) S-2559

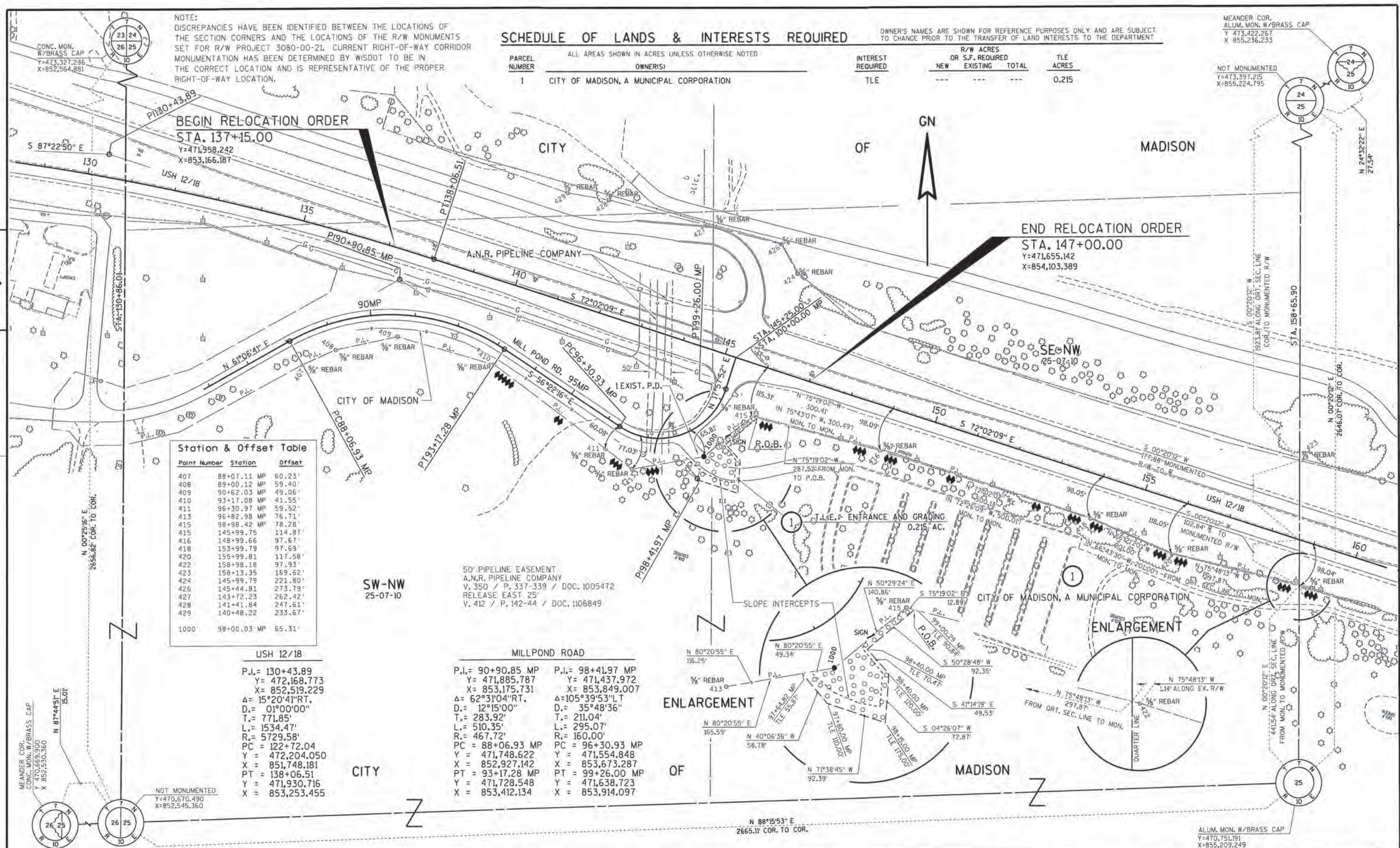
REVISION DATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED FOR THE DEPARTMENT

DATE: 11/13/13 *[Signature]*
(Signature)

E



NOTE:
DISCREPANCIES HAVE BEEN IDENTIFIED BETWEEN THE LOCATIONS OF THE SECTION CORNERS AND THE LOCATIONS OF THE R/W MONUMENTS SET FOR R/W PROJECT 3080-01-22. CURRENT RIGHT-OF-WAY CORRIDOR MONUMENTATION HAS BEEN DETERMINED BY WISDOT TO BE IN THE CORRECT LOCATION AND IS REPRESENTATIVE OF THE PROPER RIGHT-OF-WAY LOCATION.

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W ACRES OR S.F. REQUIRED	TLE ACRES
1	CITY OF MADISON, A MUNICIPAL CORPORATION	TLE	---	0.215

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE DEPARTMENT

MEANDER COR.
ALUM. MON. W/BRASS CAP
Y=473,422.267
X=855,236.233

NOT MONUMENTED
Y=473,397.215
X=855,224.795

Station & Offset Table

Point Number	Station	Offset
407	88+01.11 MP	60.23'
408	89+00.12 MP	59.40'
409	90+62.03 MP	49.06'
410	93+11.08 MP	41.55'
411	96+30.97 MP	59.52'
413	96+82.98 MP	76.71'
415	98+98.42 MP	78.28'
415	145+99.75	114.87'
416	148+99.66	97.67'
418	153+99.79	97.69'
420	155+99.81	117.58'
422	158+98.18	97.93'
423	158+13.35	169.62'
424	145+99.79	221.80'
426	145+44.81	273.79'
427	143+72.23	262.42'
428	141+41.84	247.61'
429	140+48.22	233.67'
1000	98+00.03 MP	65.31'

USH 12/18

P.I.= 130+43.89
Y= 472,168.773
X= 852,519.229
Δ= 15°20'41"RT.
D.= 01°00'00"
T.= 771.85'
L.= 1534.47'
R.= 5729.58'
PC = 122+72.04
Y = 472,204.050
X = 851,748.181
PT = 138+06.51
Y = 471,930.716
X = 853,253.455

MILLPOND ROAD

P.I.= 90+90.85 MP
Y= 471,885.787
X= 853,175.731
Δ= 62°31'04"RT.
D.= 12°15'00"
T.= 283.92'
L.= 510.35'
R.= 467.72'
PC = 88+06.93 MP
Y = 471,748.622
X = 852,927.142
PT = 93+17.28 MP
Y = 471,728.548
X = 853,412.134

P.I.= 98+41.97 MP
Y= 471,437.972
X= 853,849.007
Δ= 105°39'53"LT
D.= 35°48'36"
T.= 211.04'
L.= 295.07'
R.= 160.00'
PC = 96+30.93 MP
Y = 471,554.848
X = 853,673.287
PT = 99+26.00 MP
Y = 471,638.723
X = 853,914.097

REVISION DATE	DATE	SCALE, FEET	HWY: USH 12	STATE R/W PROJECT NUMBER 3080-01-22	PLAT SHEET 4.2
	GRID FACTOR N/A	0 100 200	COUNTY: DANE	CONSTRUCTION PROJECT NUMBER	PS&E SHEET E

R/W MONUMENT POINT NUMBER AND COORDINATE TABLE

R/W MONUMENT POINT NUMBER AND COORDINATE TABLE		
POINT	Y	X
407	471695.962	852956.372
408	471728.581	853030.505
409	471757.409	853170.347
410	471694.052	853388.969
411	471505.254	853640.376
413	471459.420	853700.675
415	471576.797	853972.596
416	471500.654	854263.192
418	471346.385	854738.937
420	471265.771	854923.065
422	471192.438	855212.953
423	471473.114	855214.774
424	471897.036	854076.469
426	471963.454	854040.206
427	472005.859	853872.539
428	472062.829	853648.809
429	472078.446	853555.450
1000	471487.182	853863.924

REVISION DATE

DATE 9-19-2013

GRID FACTOR N/A

HWY: USH 12

COUNTY: DANE

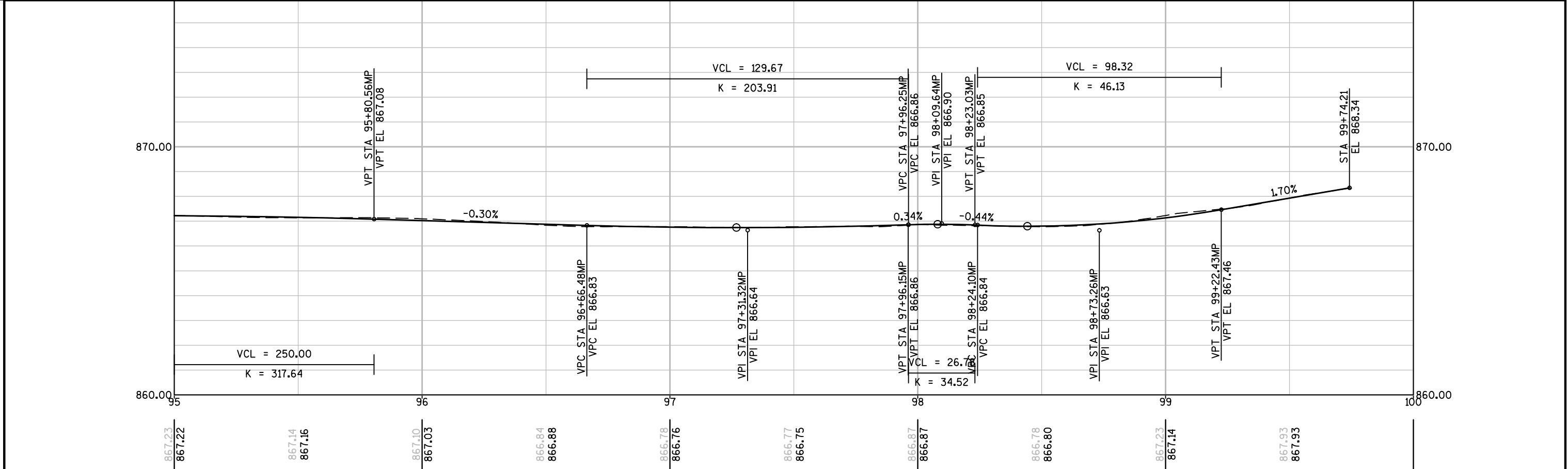
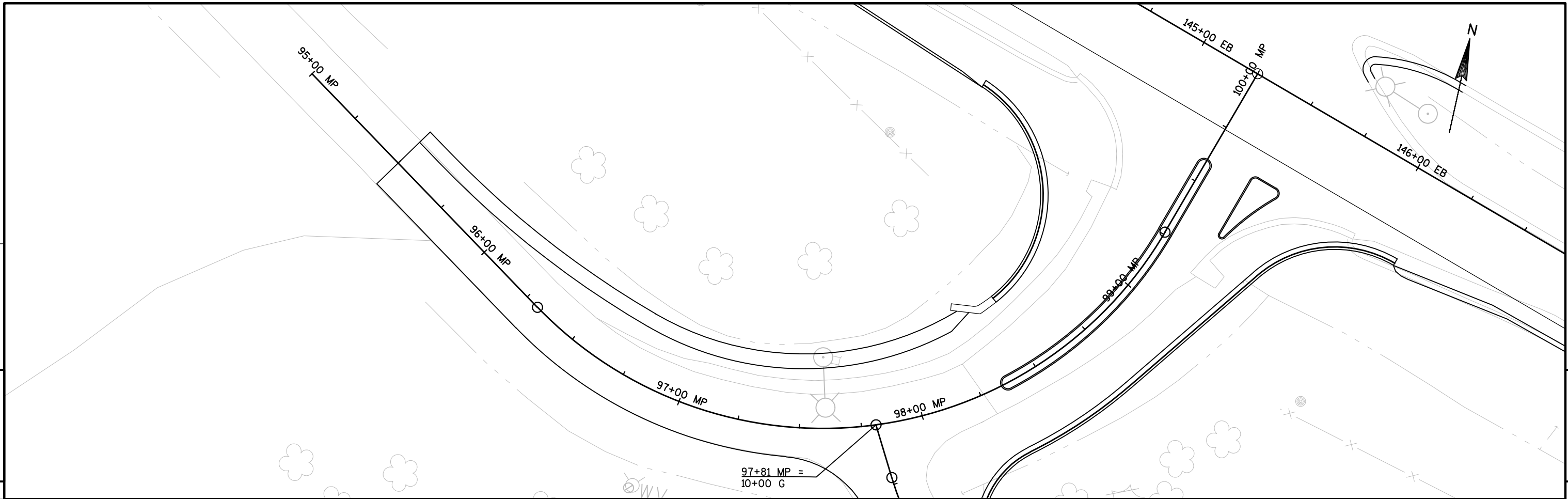
STATE R/W PROJECT NUMBER 3080-01-22

CONSTRUCTION PROJECT NUMBER

PLAT SHEET 43

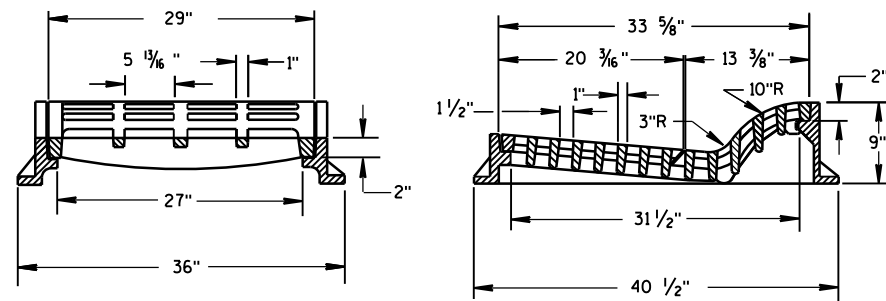
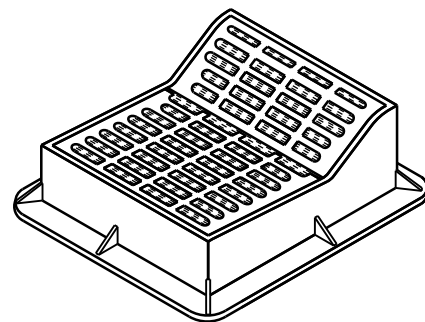
PS&E SHEET

E



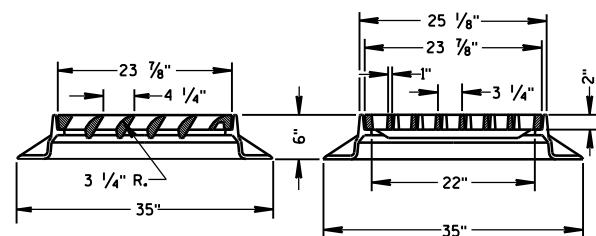
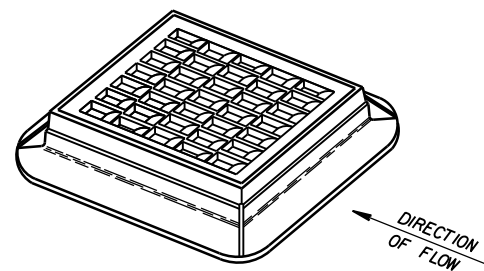
Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C07-01	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
09B02-07	CONDUIT
09B04-10	PULL BOX
09C02-06	CONCRETE BASES, TYPES 1, 2 & 5
11B02-02	CONCRETE MEDIAN NOSE
13C01-16	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C09-11A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-11B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-11C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C05-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C07-12C	PAVEMENT MARKING ARROWS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C08-16F	PAVEMENT MARKING (ISLANDS)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D12-04	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D15-01	TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE
15D21-02	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

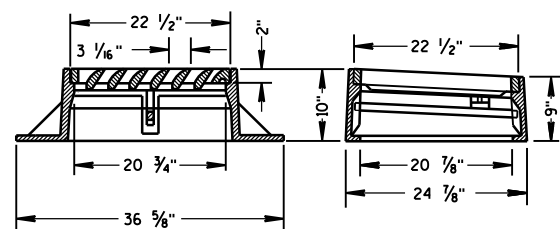
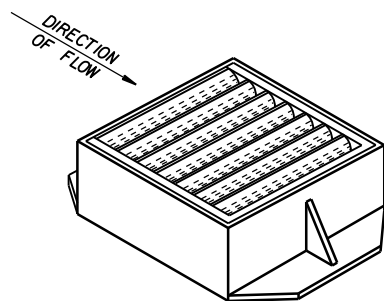


TYPE "F"

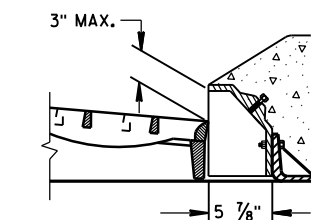
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



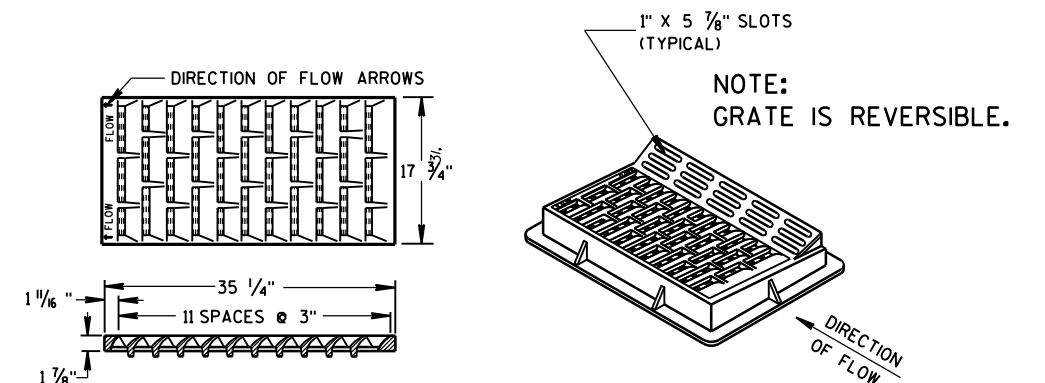
TYPE "S"



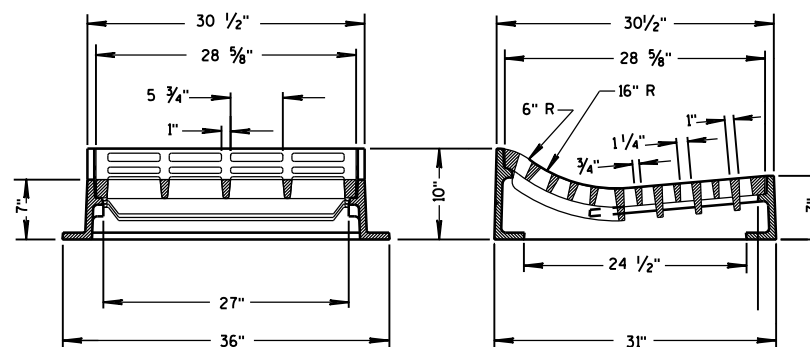
TYPE "V"

ALTERNATIVE CURB BOX
FOR TYPE "HM" COVERUSE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLENOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

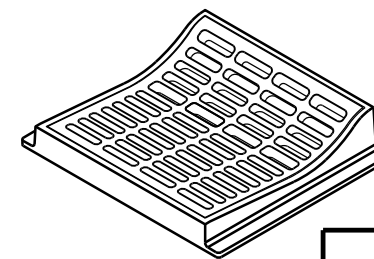
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING
SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND
THE APPLICABLE SPECIAL PROVISIONS.DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION
FOR EQUIVALENT CAPACITY AND STRENGTH.

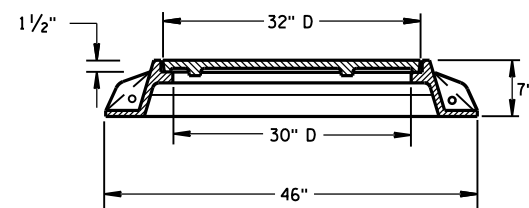
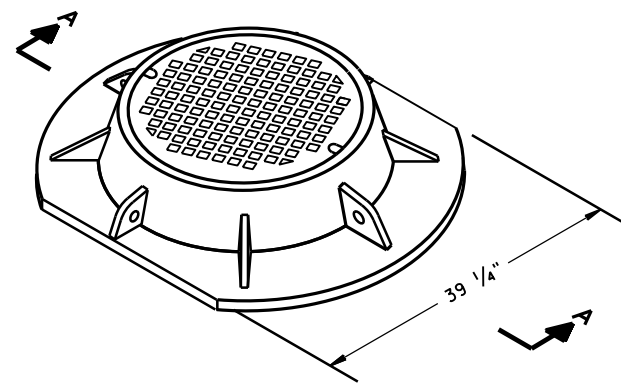
TYPE "HM"

USE WITH TYPES A & D CONCRETE
CURB & GUTTER, 36 INCH.NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

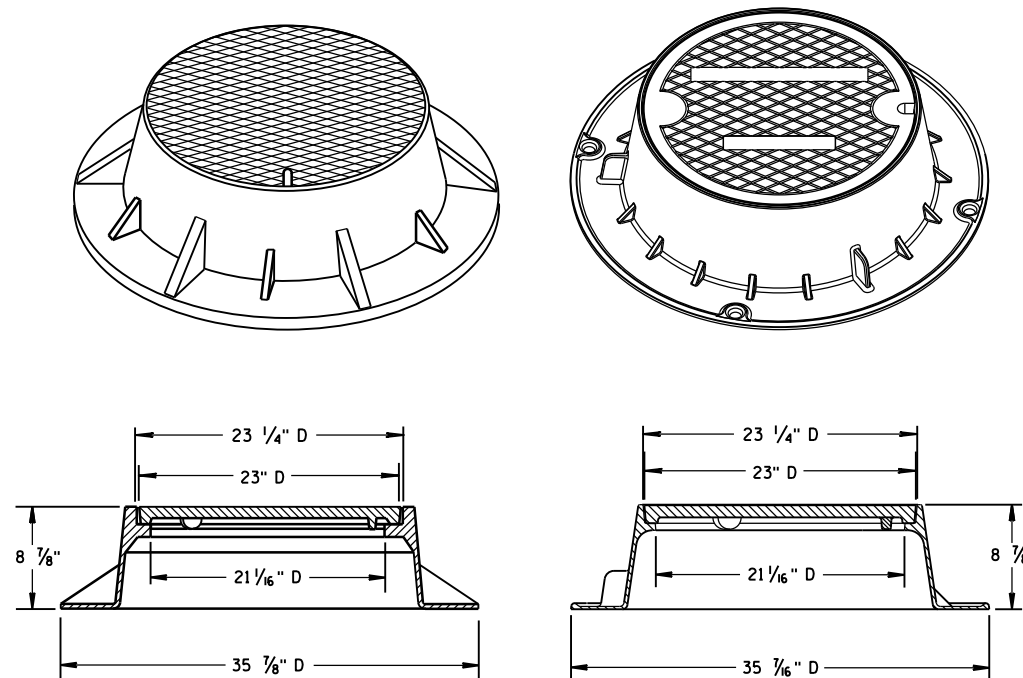
TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.

INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-SSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
11/27/2013
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

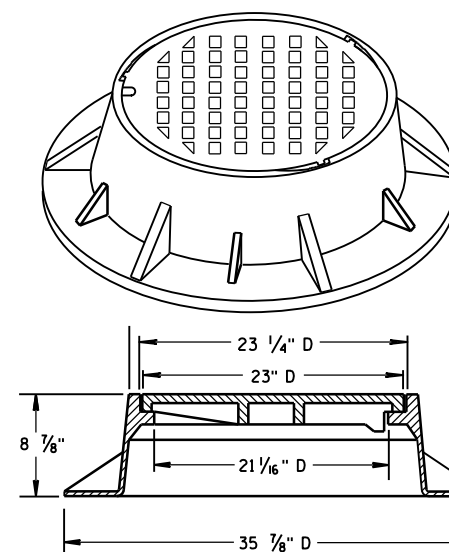
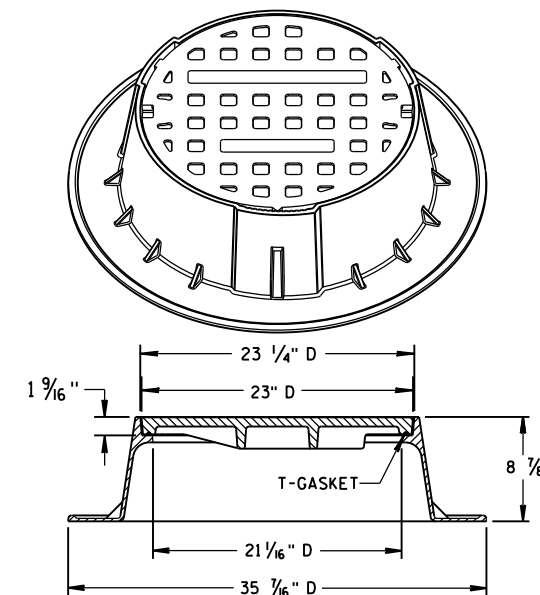


SECTION A-A
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

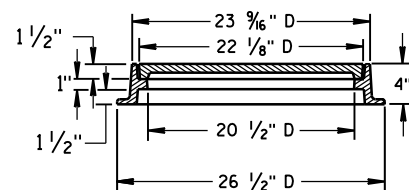
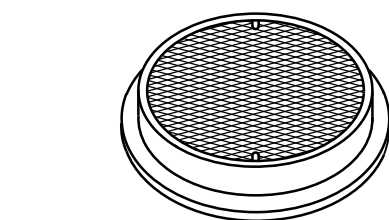


TYPE "J" SPECIAL

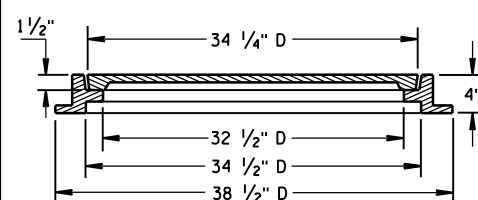
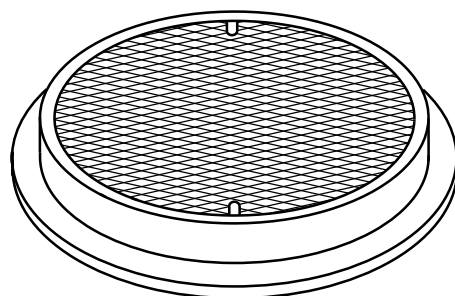
TYPE "B" NON-ROCKING SELF-SEAL LID

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

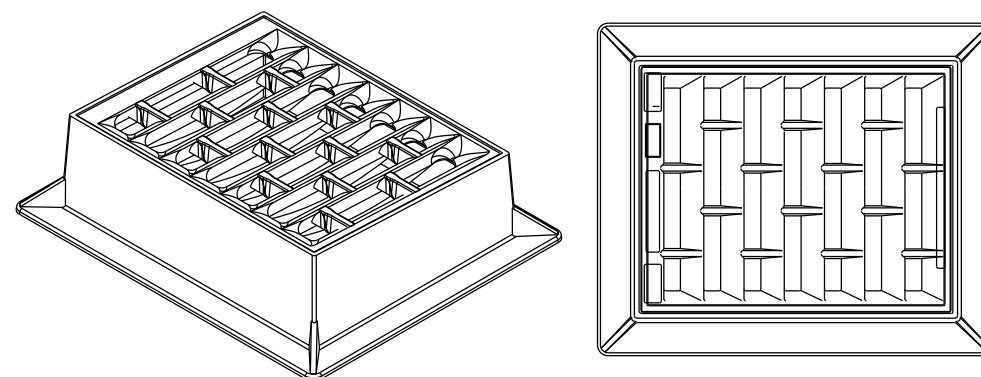
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

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.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

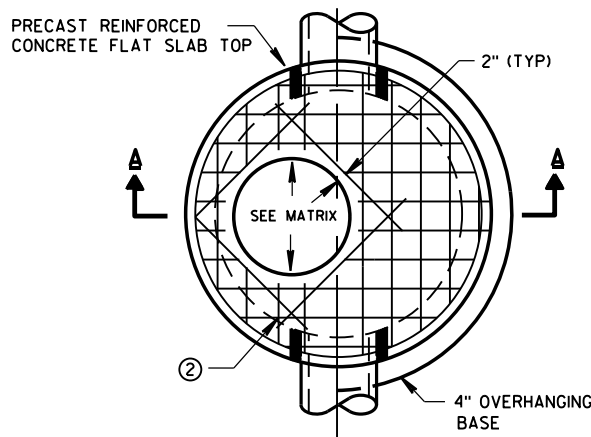
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

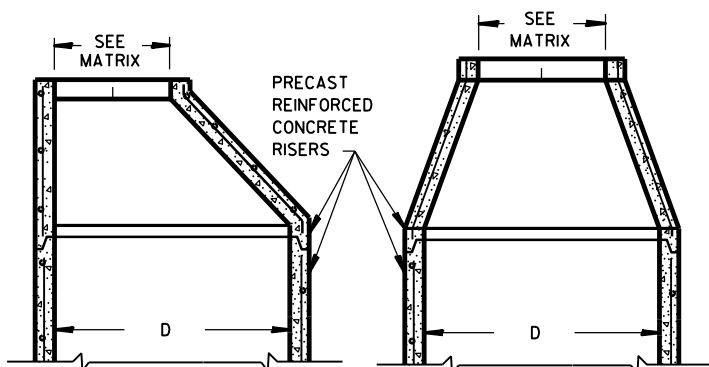
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

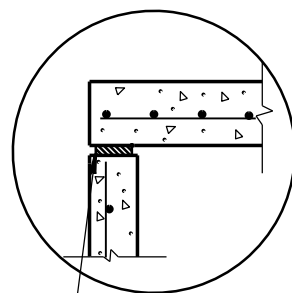


PLAN VIEW CIRCULAR OPENING

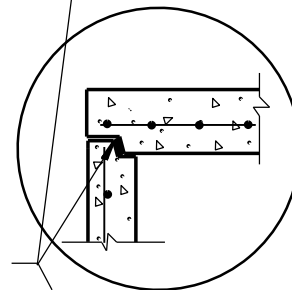


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

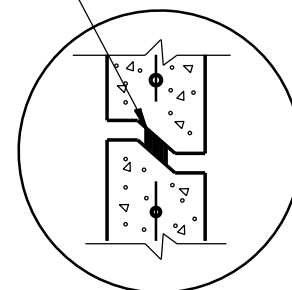
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



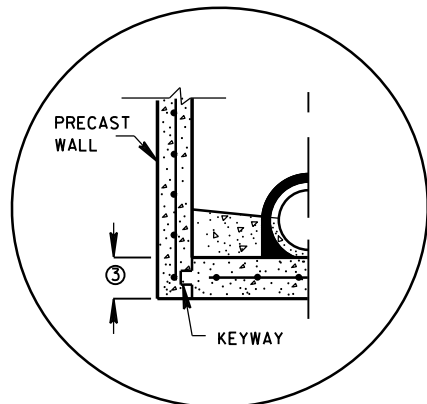
TOP WITH PLAIN END JOINT



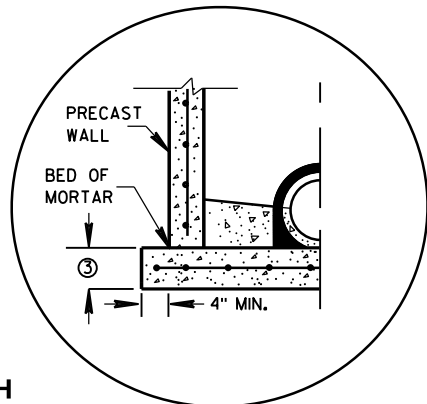
TOP WITH TONGUE AND GROOVE JOINT



DETAIL "B"

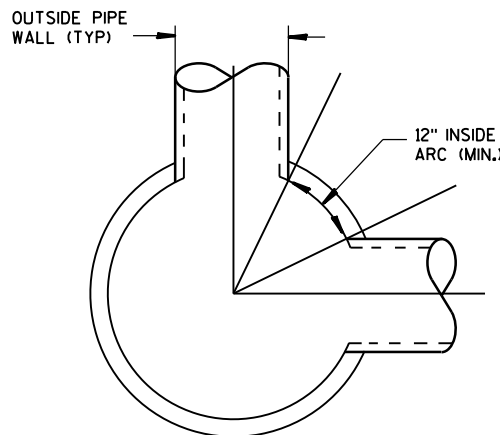


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



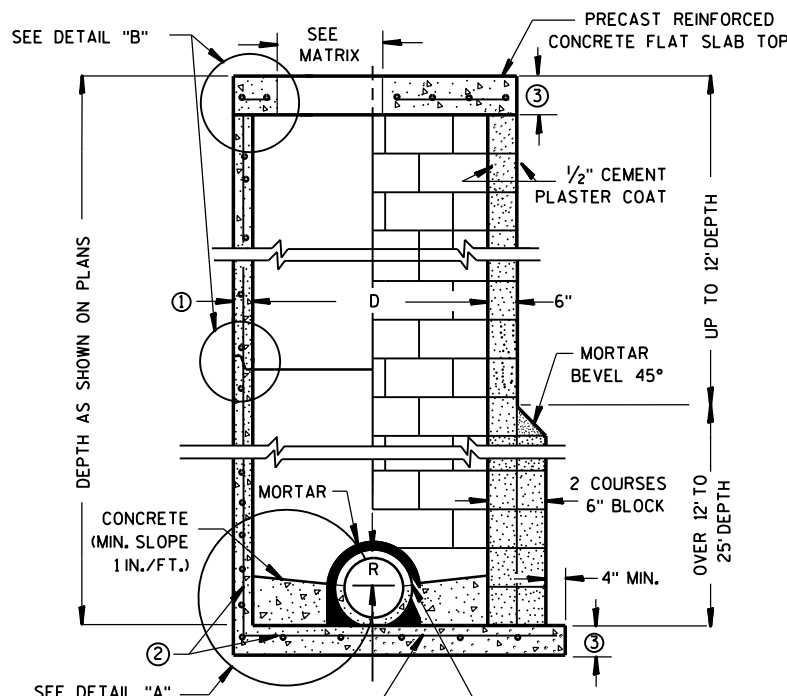
SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

SPLIT PIPE OR FORM CONCRETE TO FIT

PRECAST REINFORCED CONCRETE BLOCK WITH CONCRETE WITH MONOLITHIC BASE CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

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. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED. CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.
- ② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

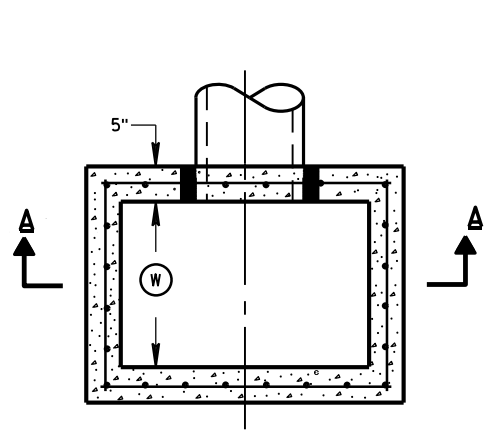
PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

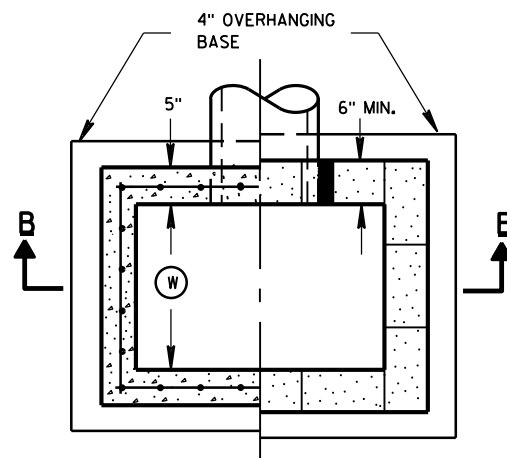
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

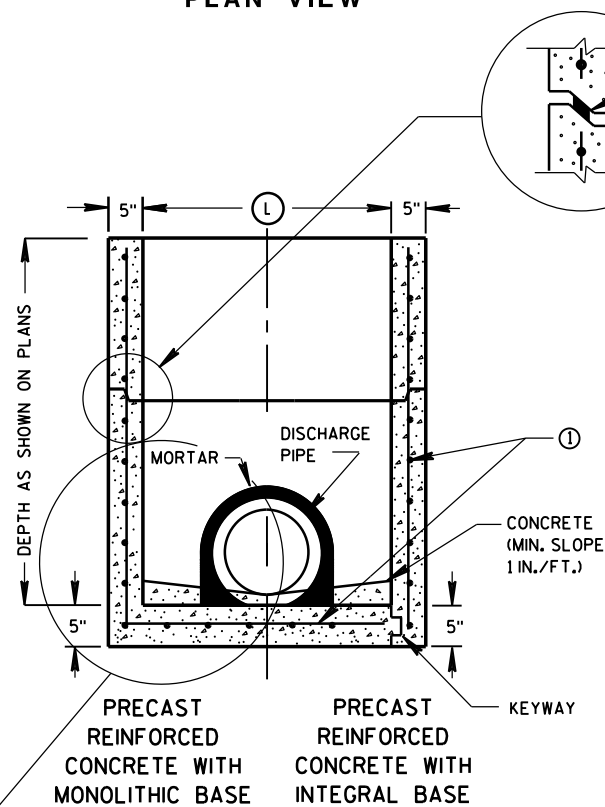


PLAN VIEW

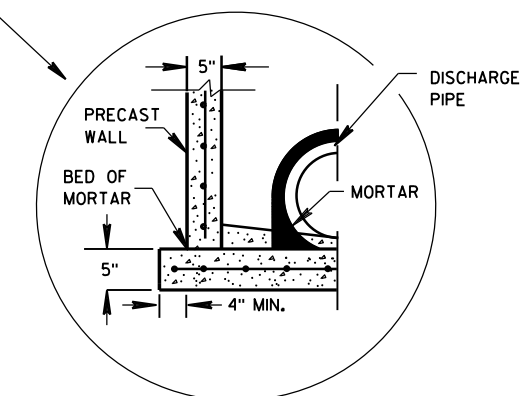


PLAN VIEW

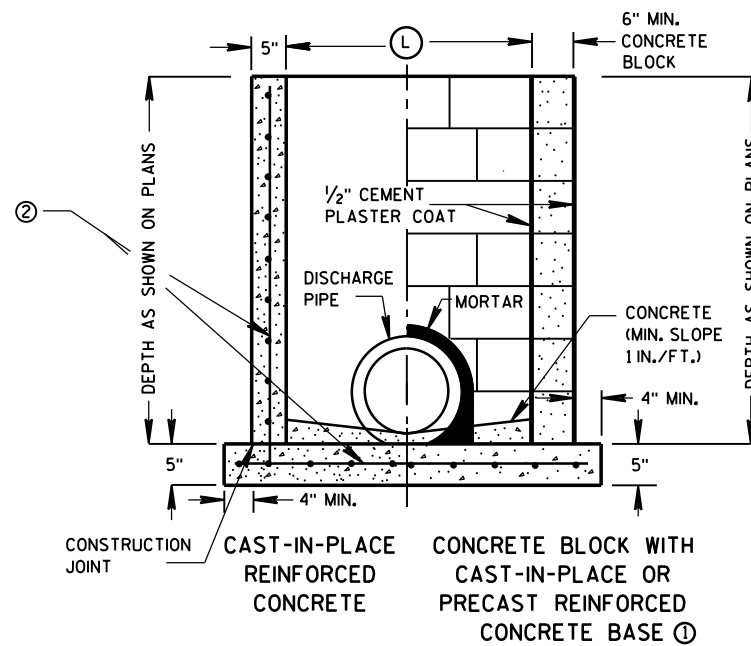
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION



SECTION B-B

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

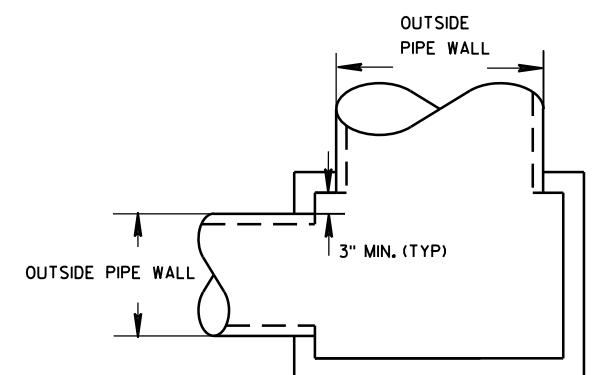
- FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH ① (FT)	LENGTH ② (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24

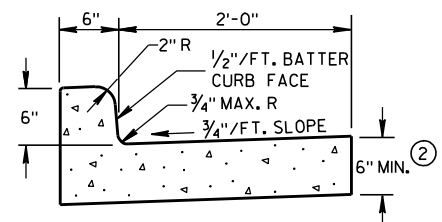


DETAIL "A"

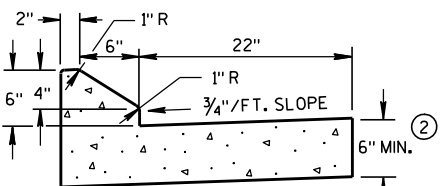
INLETS 2X2-FT, 2X2.5-FT,
2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

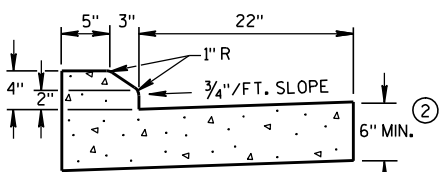
APPROVED
6/5/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER



TYPES A & D ①

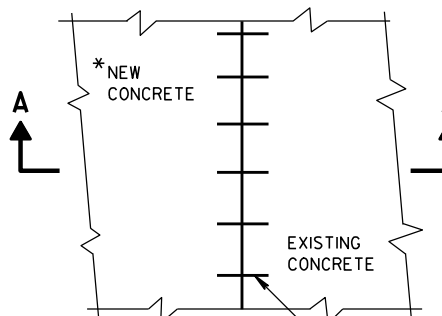


6" SLOPED CURB TYPES G & J ①



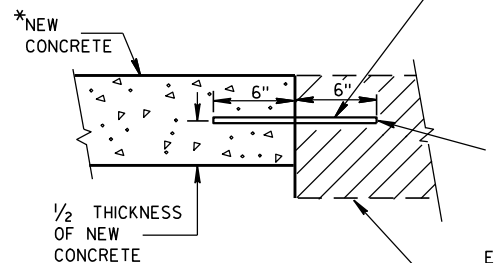
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"



PLAN VIEW

* NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.

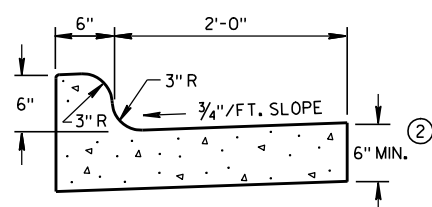


SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

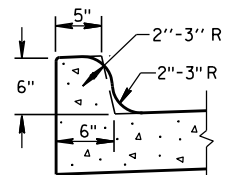
NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

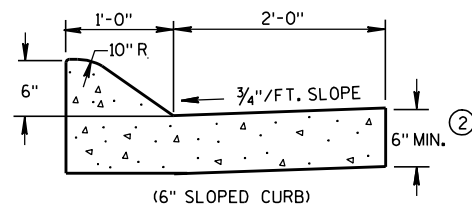
EXISTING
CONCRETE



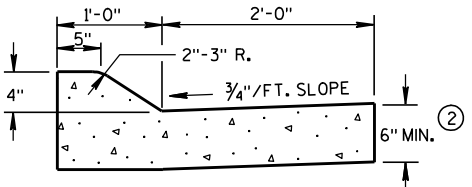
TYPES K & L ①



OPTIONAL CURB SHAPE
FOR TYPES K & L ①

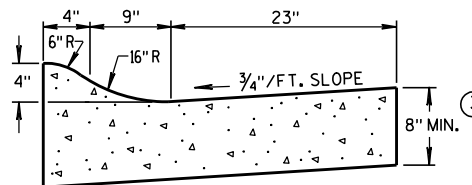


(6" SLOPED CURB)

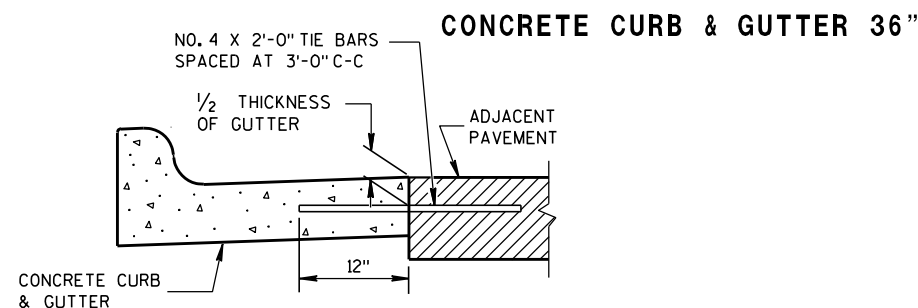


(4" SLOPED CURB)

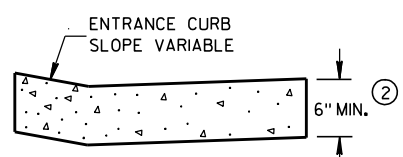
TYPES A & D ①



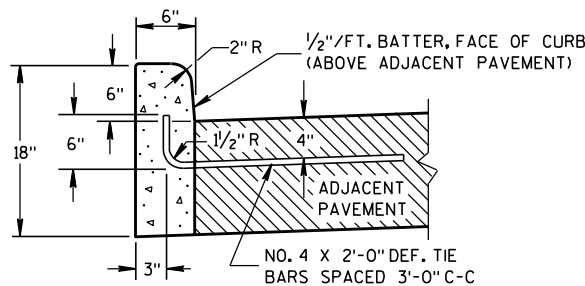
4" SLOPED CURB TYPES R & T ① ④



TYPICAL TIE BAR LOCATION ①

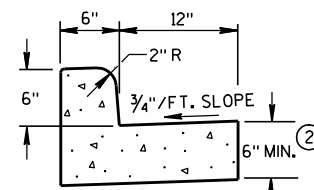


DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

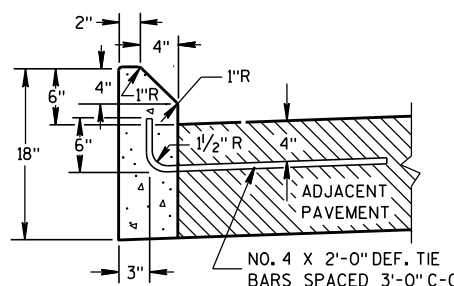


TYPES A & D ①

CONCRETE CURB



TYPES A & D
CONCRETE CURB & GUTTER 18"



TYPES G & J ①

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

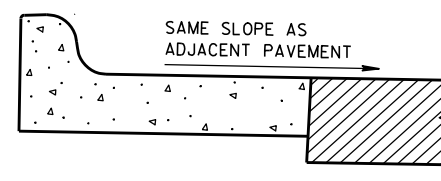
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

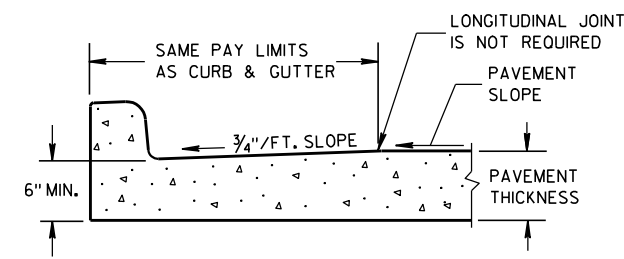
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

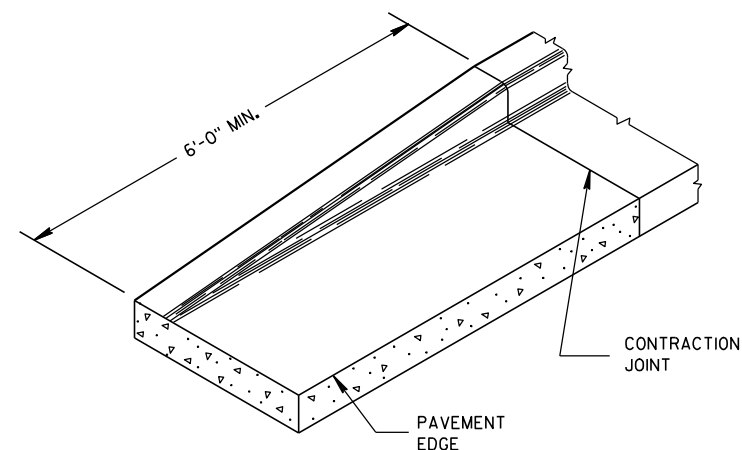
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



REVERSE SLOPE GUTTER ⑤
(TYPICAL FOR ALL CURB & GUTTER TYPES)



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/4/08

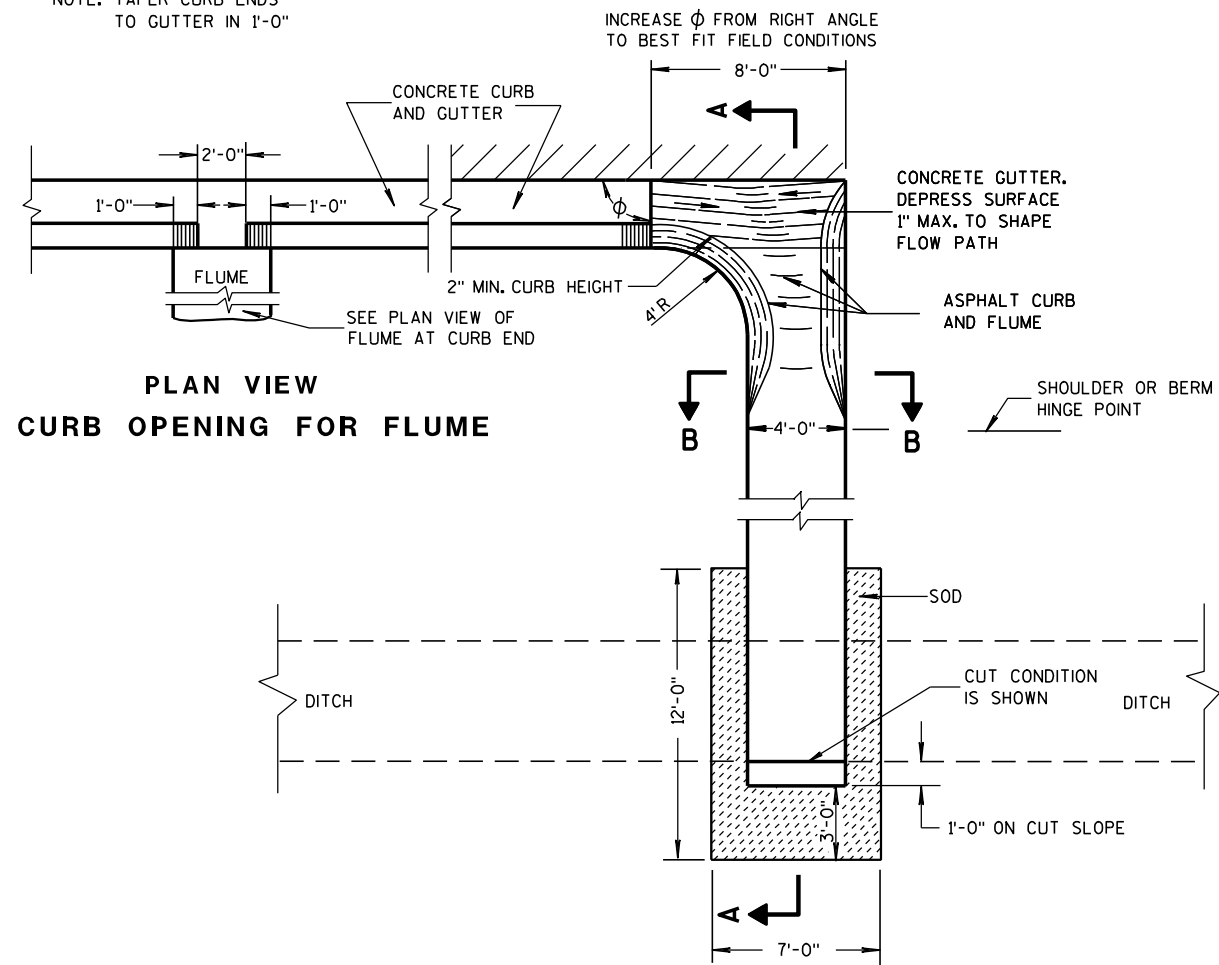
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

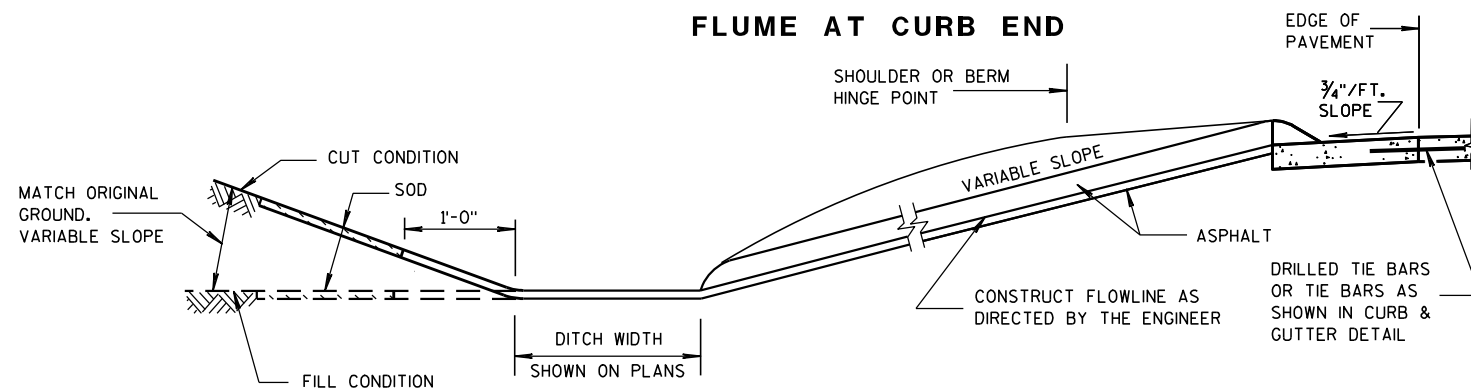
ASPHALTIC FLUME

NOTE: TAPER CURB ENDS
TO GUTTER IN 1'-0"

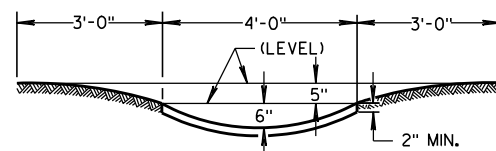


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

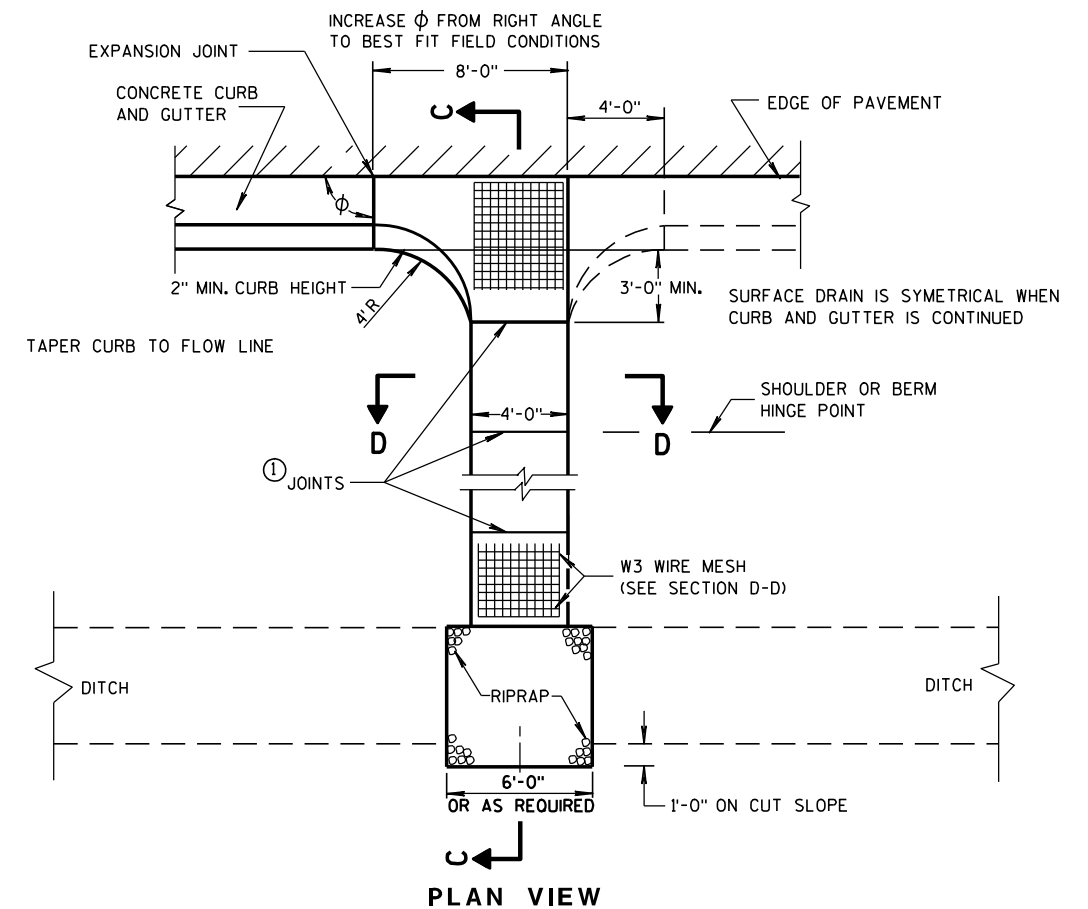
GENERAL NOTES

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

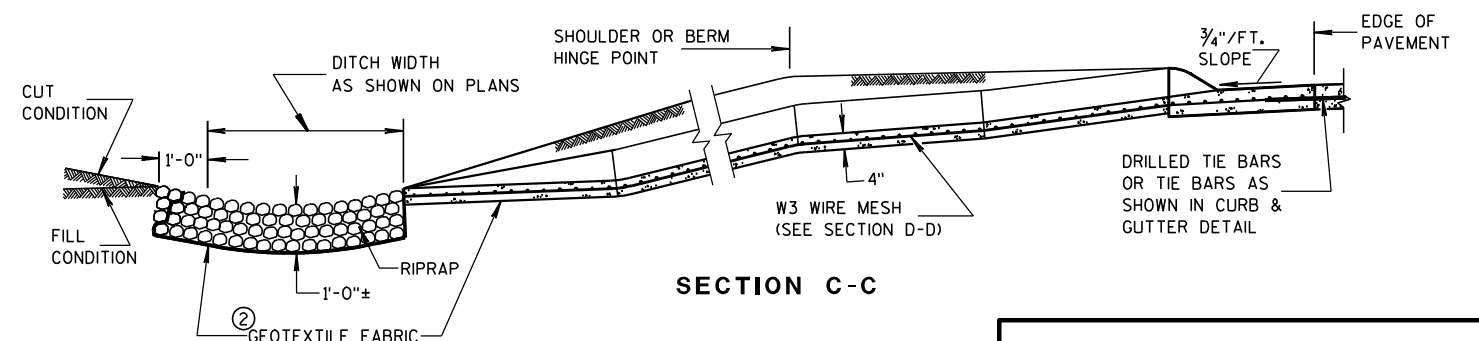
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE 1/8" TO 1/4" INCH WIDE BY 1 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

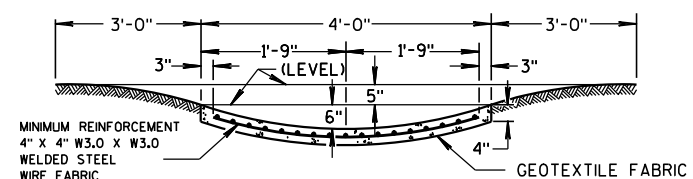
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

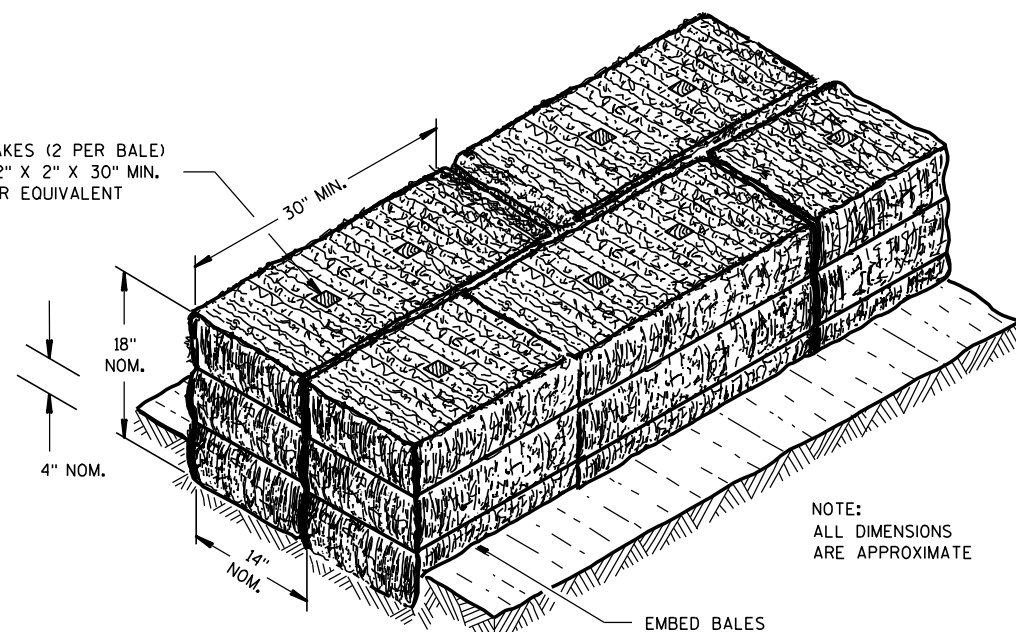
9-4-08

DATE

FHWA

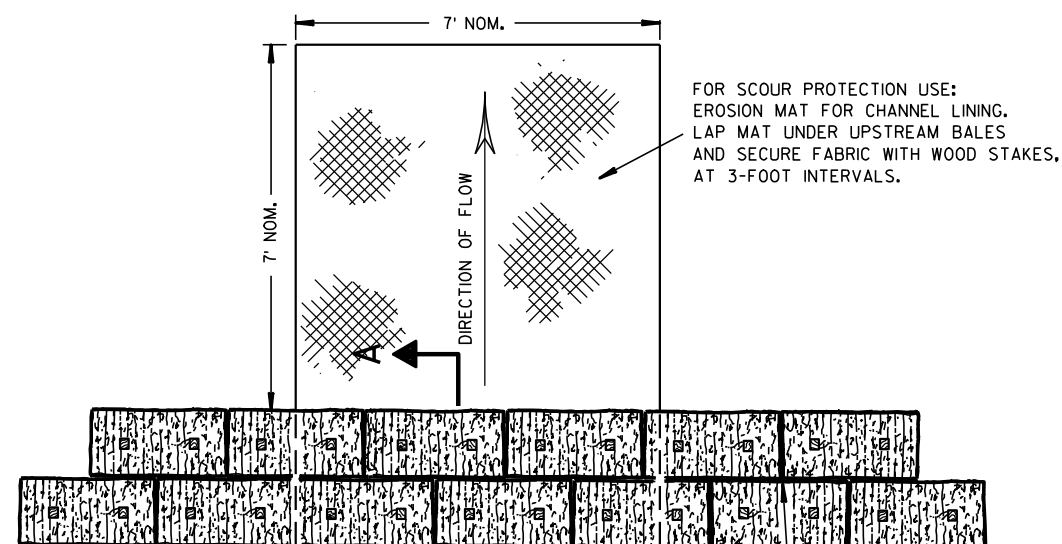
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

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



SECTION A-A

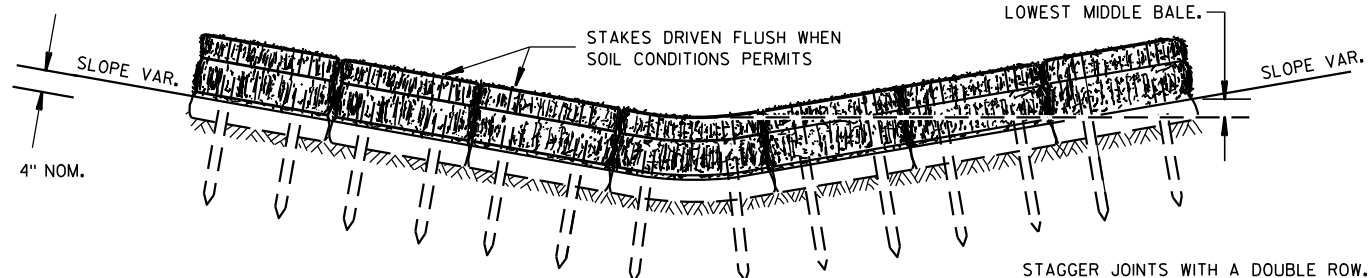
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

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



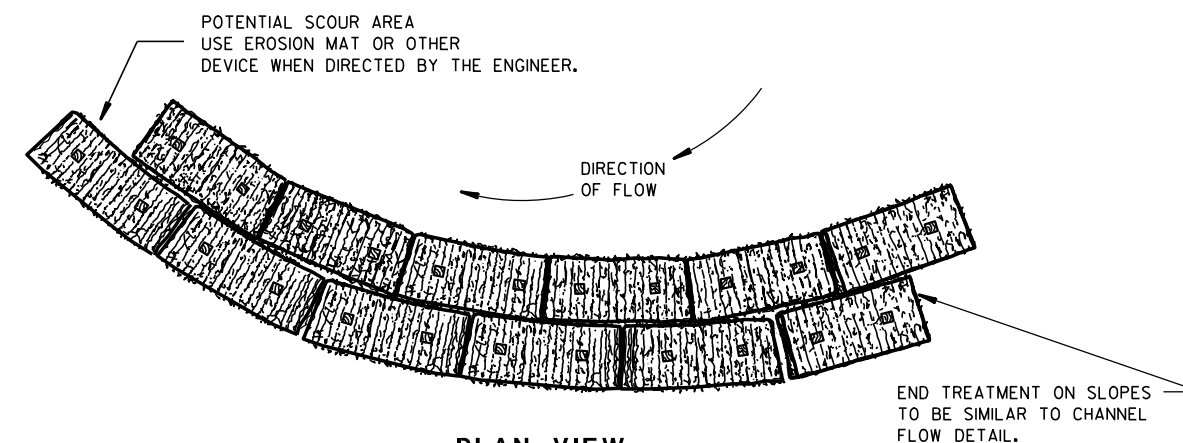
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

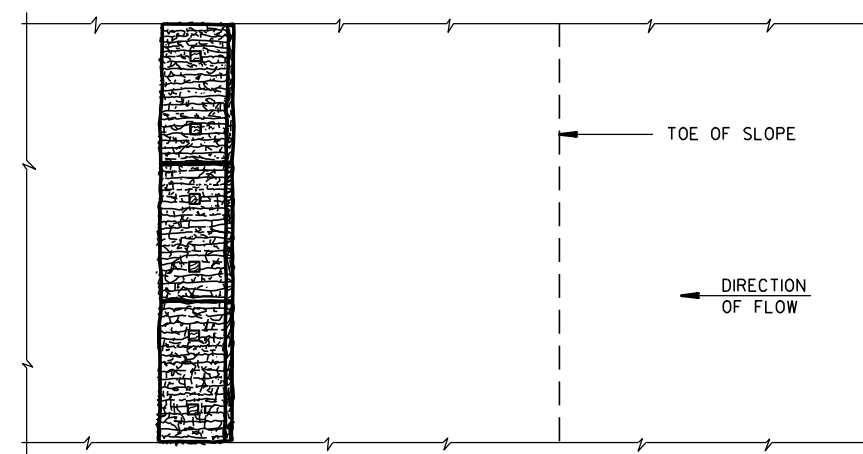
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

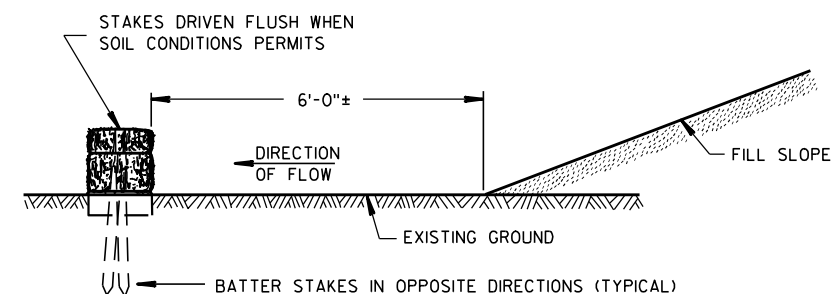


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

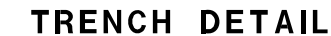
6/04/02
DATE

FHWA

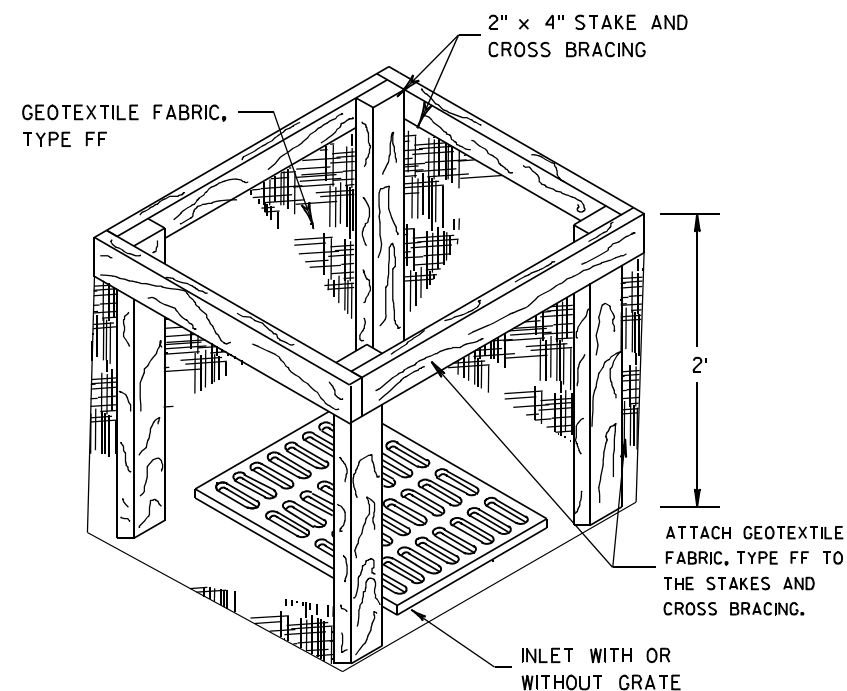
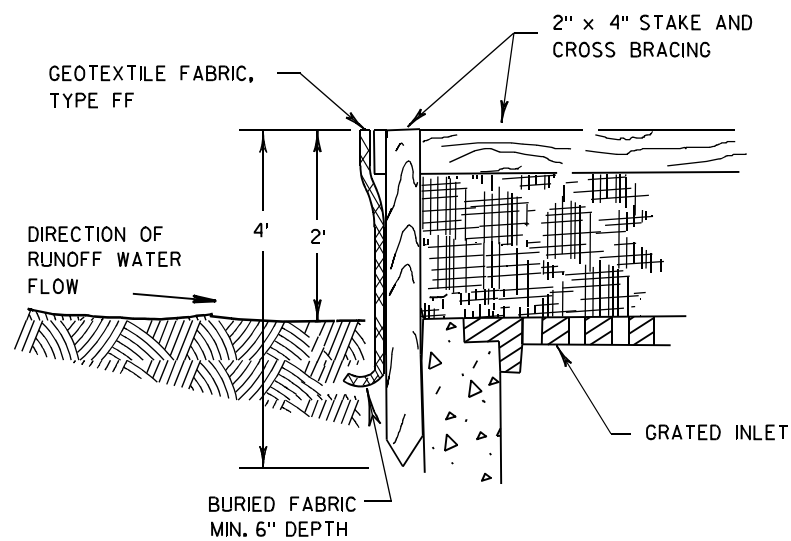
/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



- 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



INLET PROTECTION, TYPE A

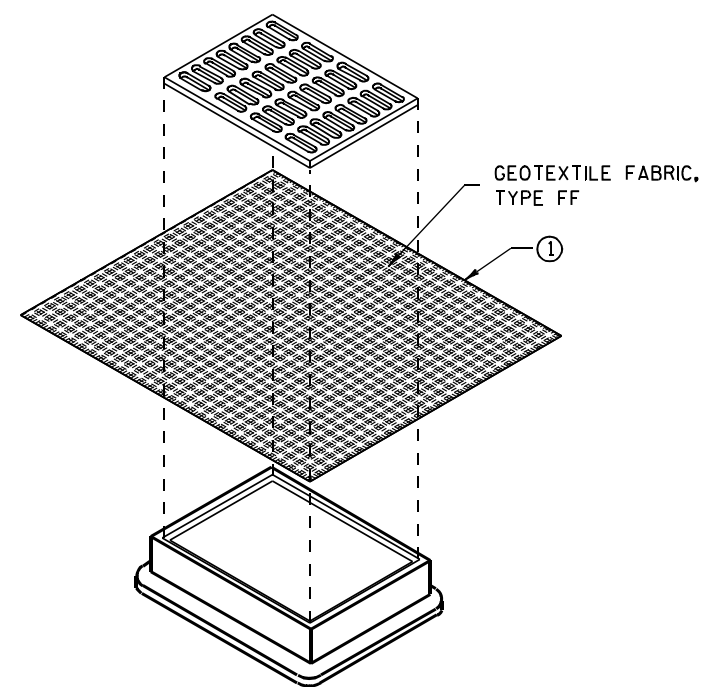
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

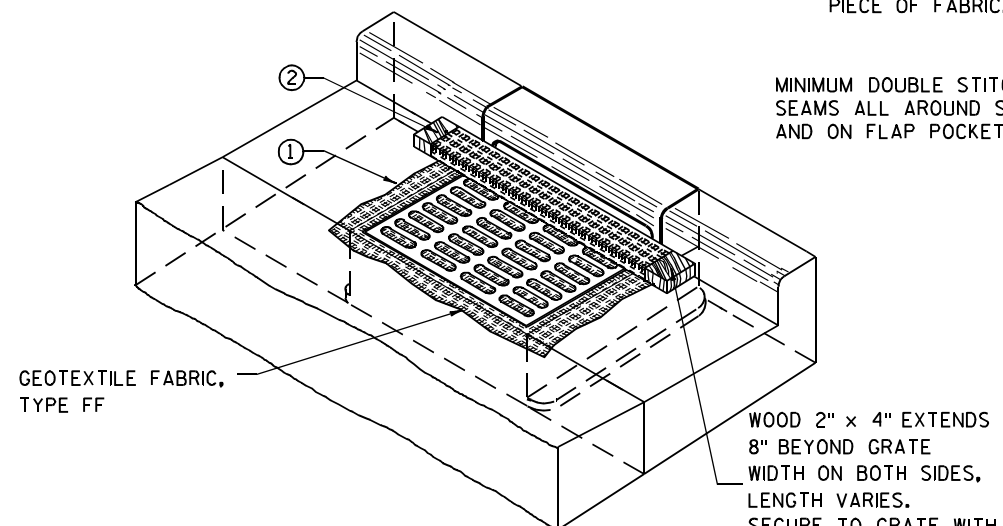
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

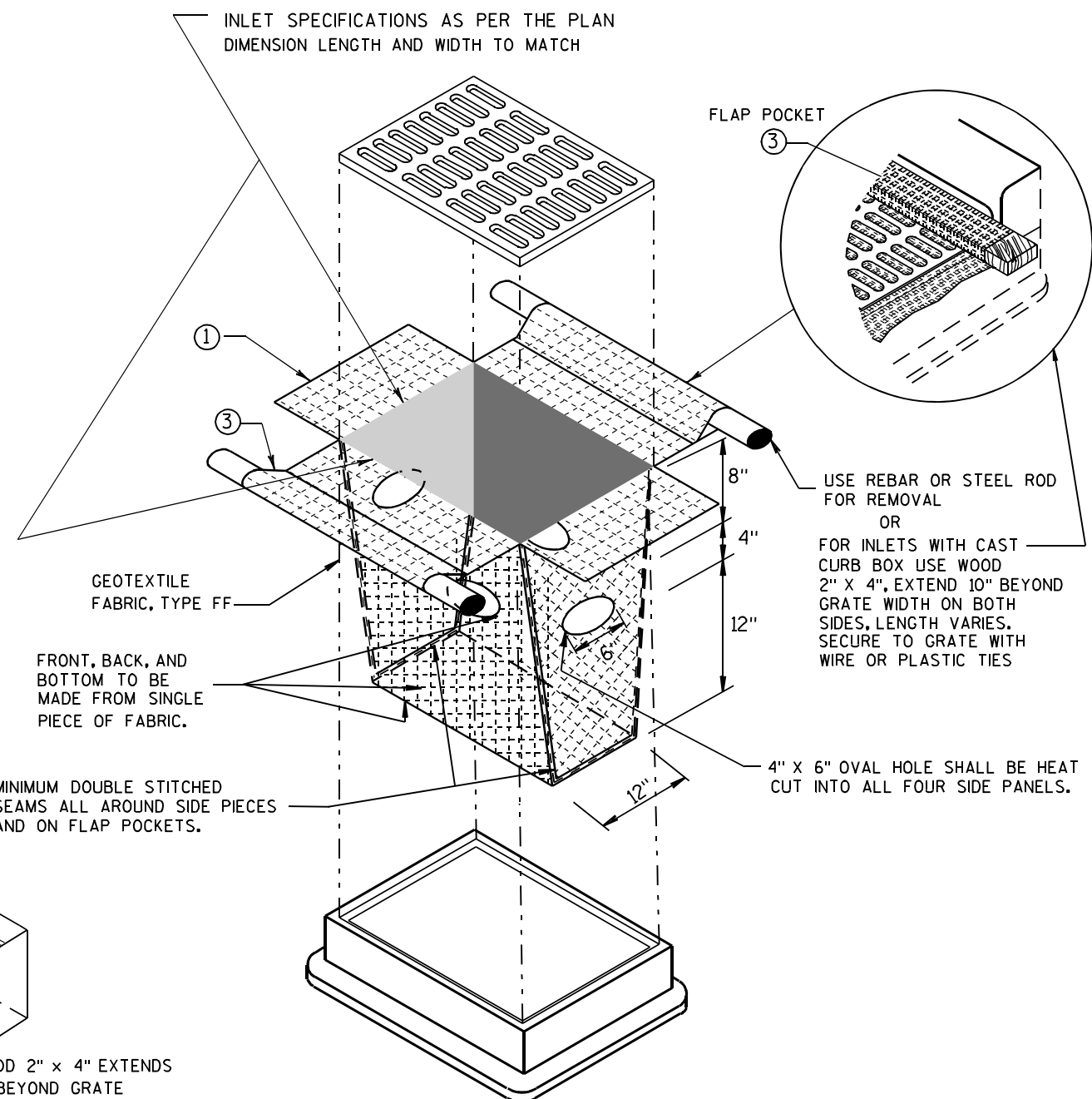
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

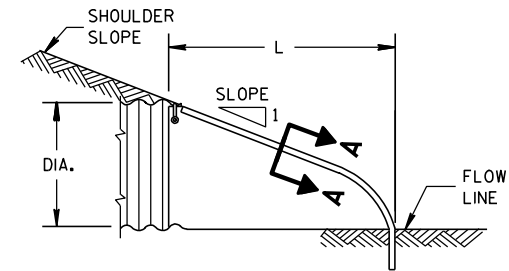
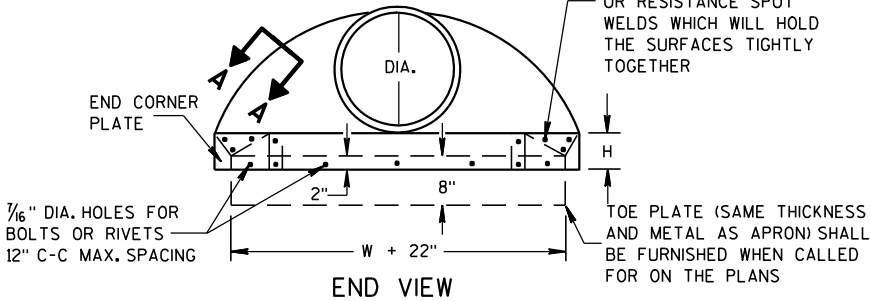
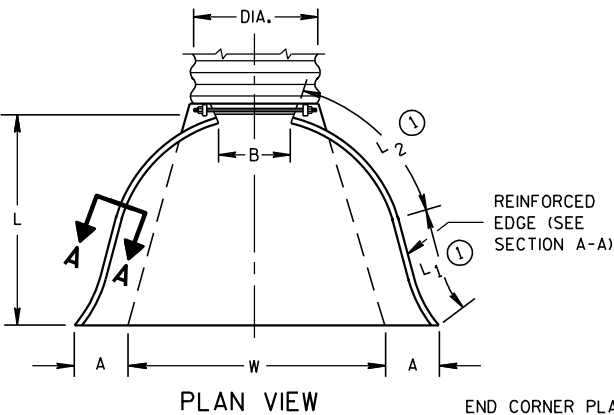
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Cannestra
DATE
FHWA 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.

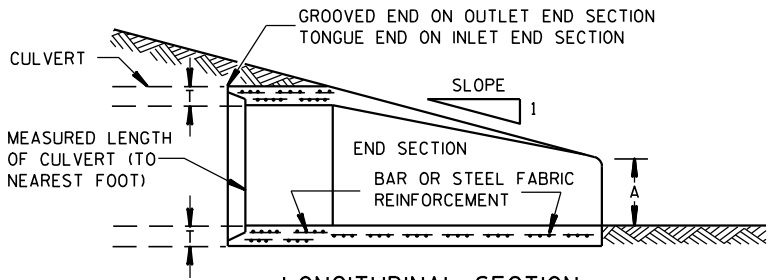
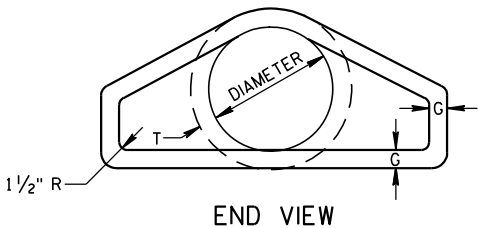
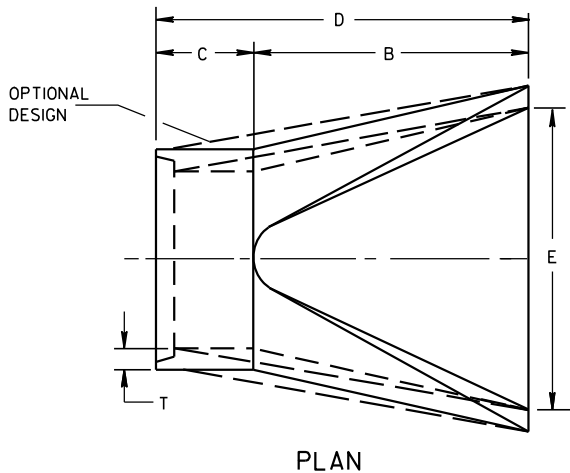
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



METAL ENDWALLS

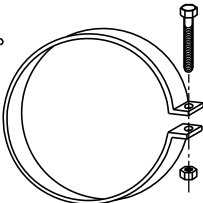
REINFORCED CONCRETE APRON ENDWALLS											
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE			
	T	A	B	C	D	E	G				
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1			
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1			
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1			
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1			
24	3	9 1/2	43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

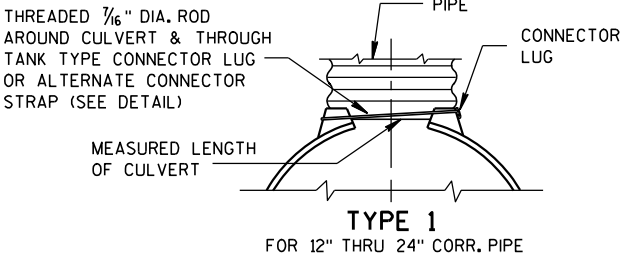


CONCRETE ENDWALLS

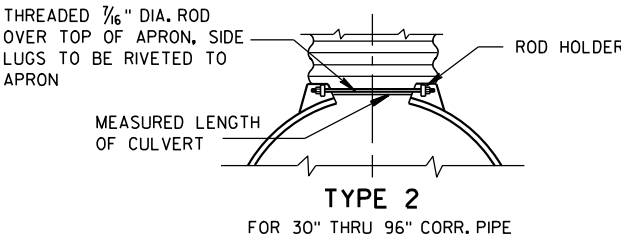
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



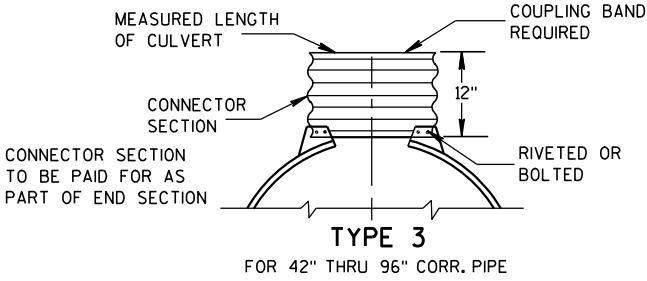
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



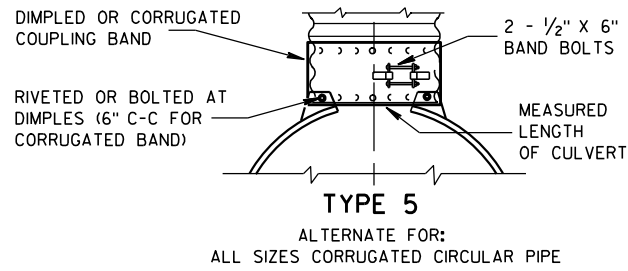
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



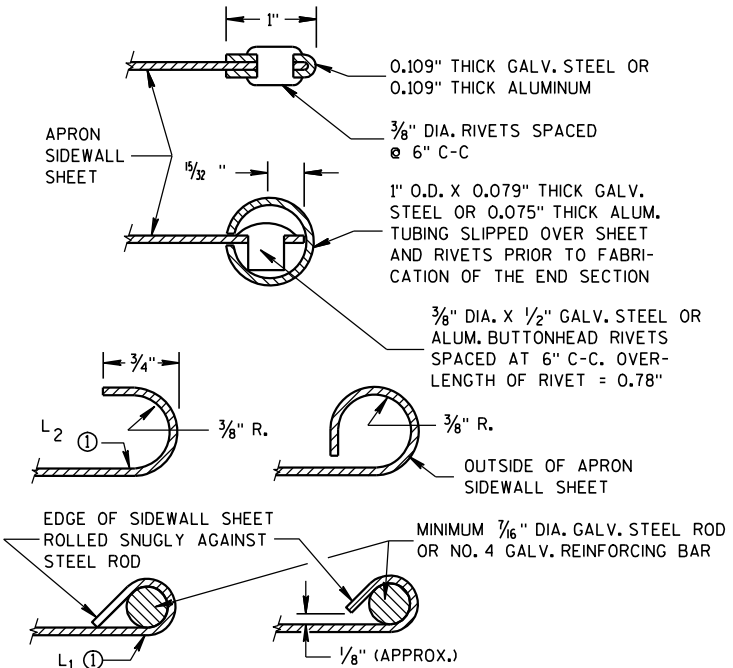
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

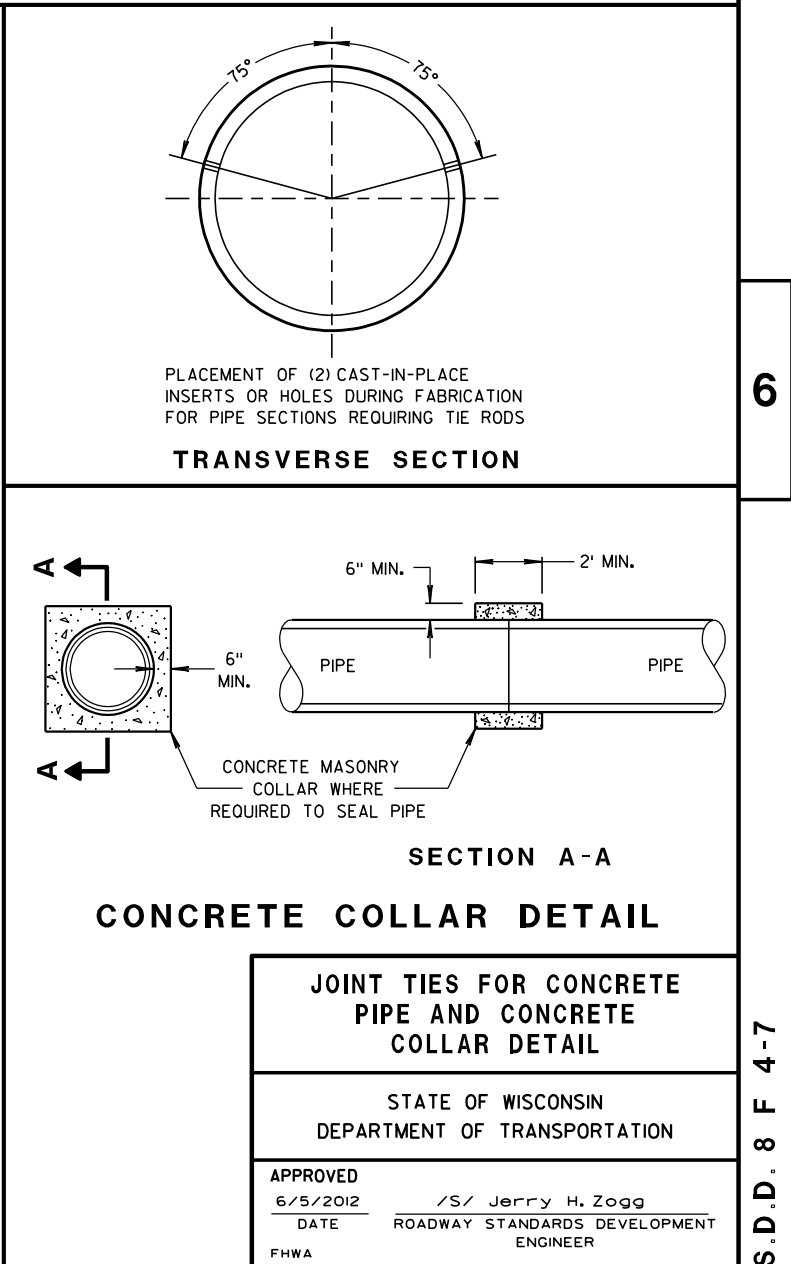
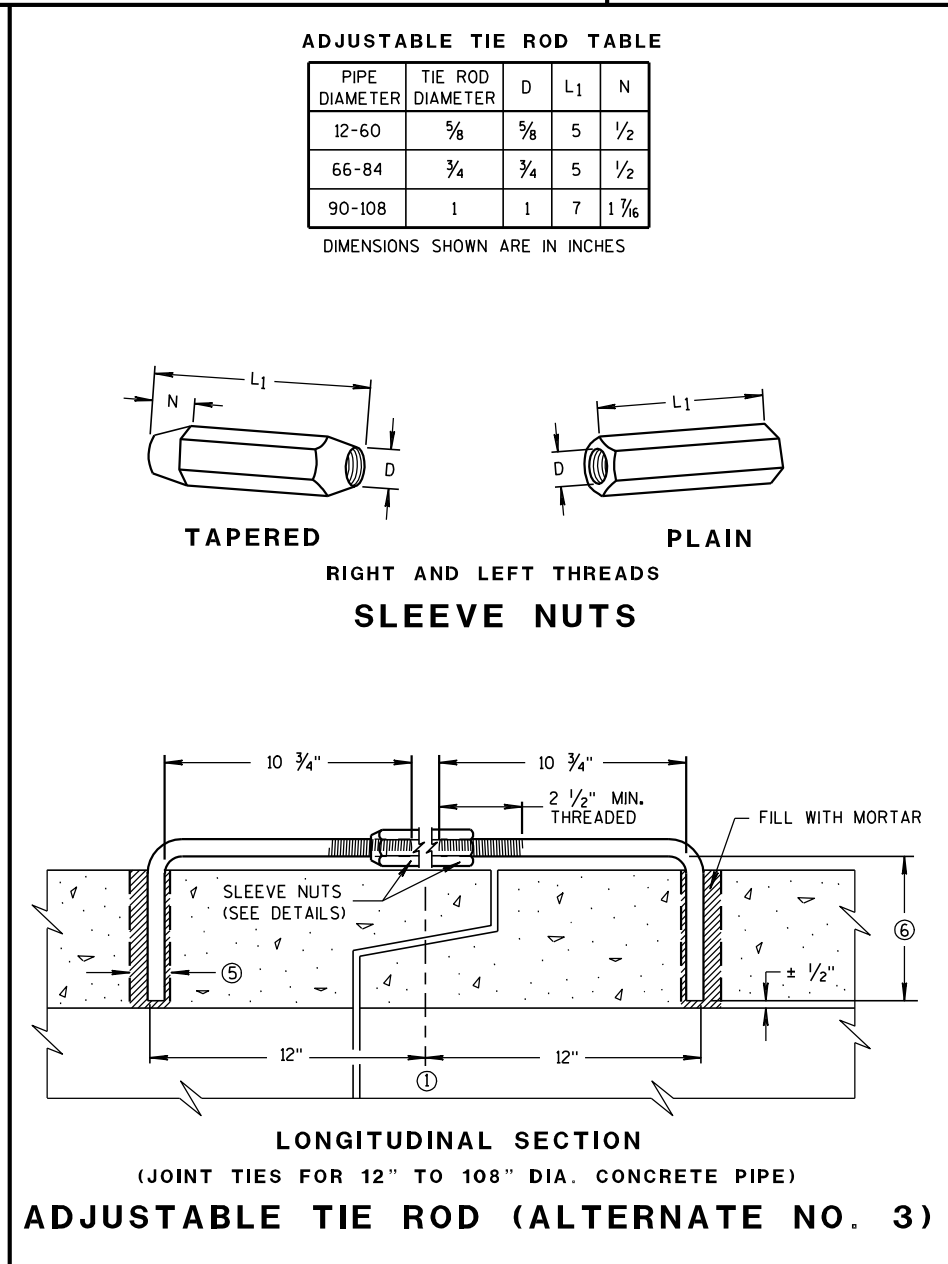
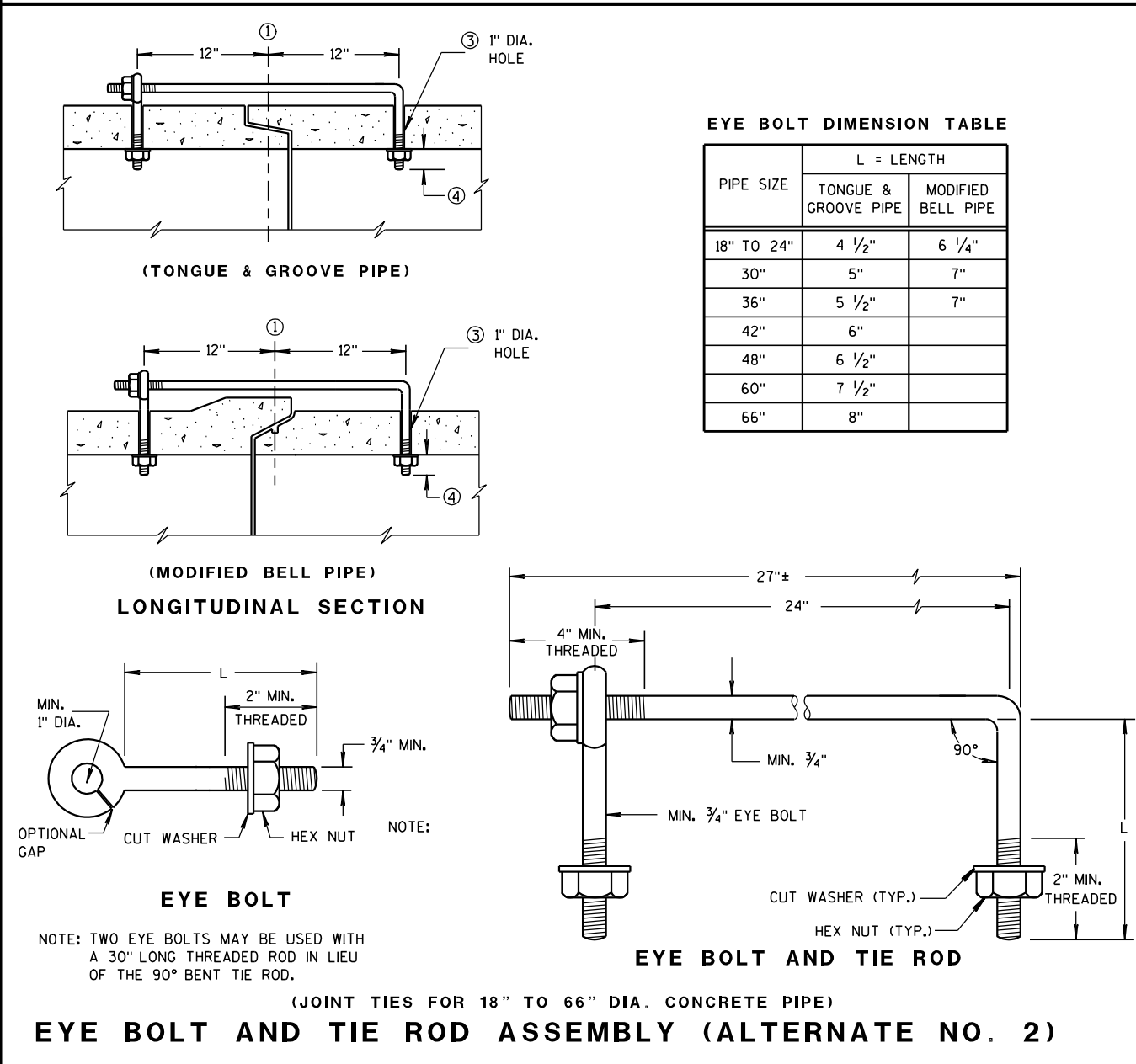
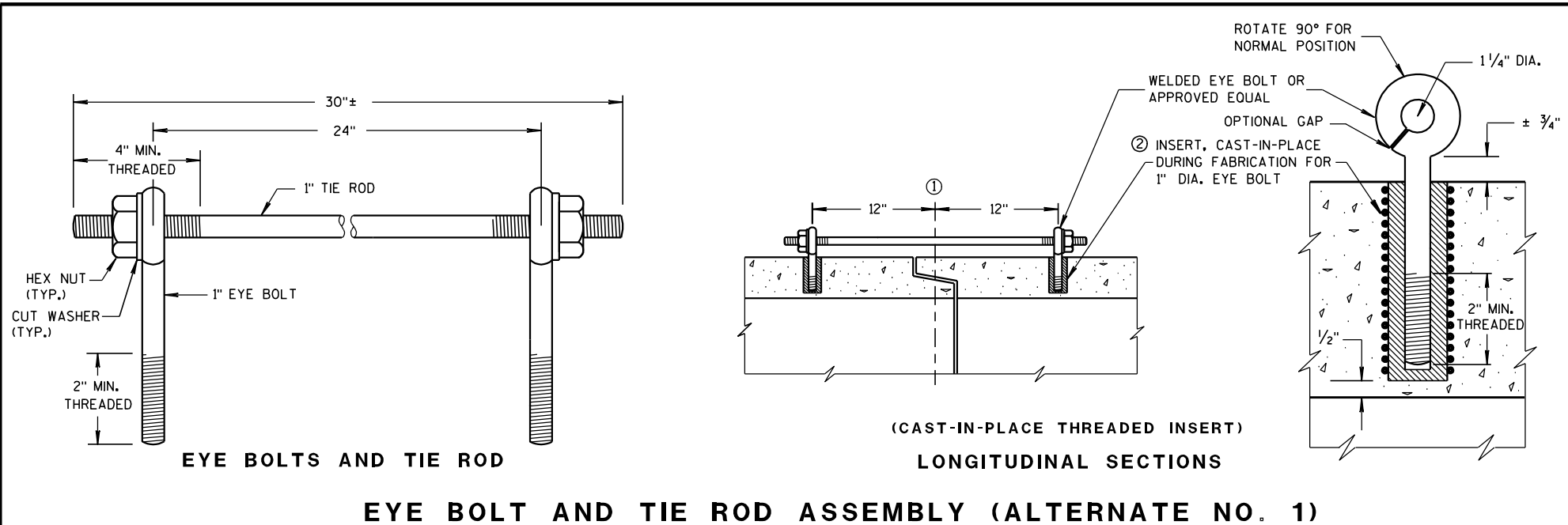
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

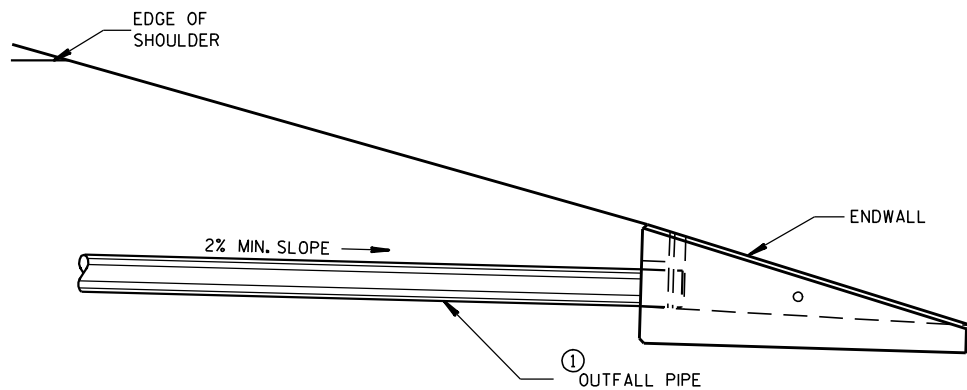
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

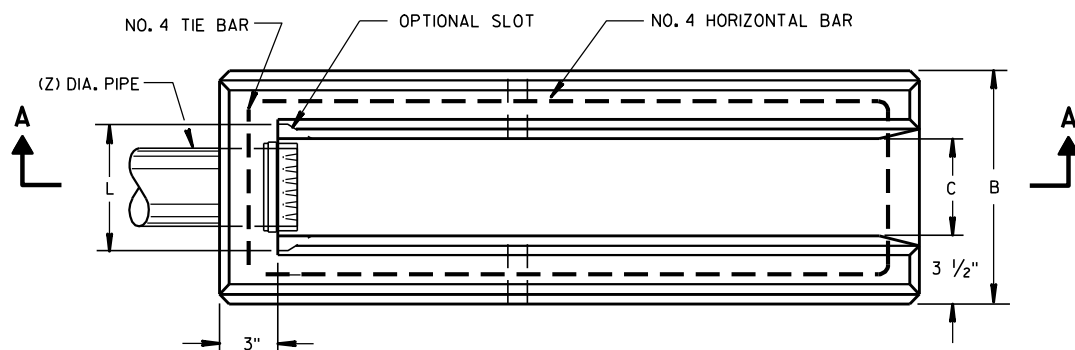


DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

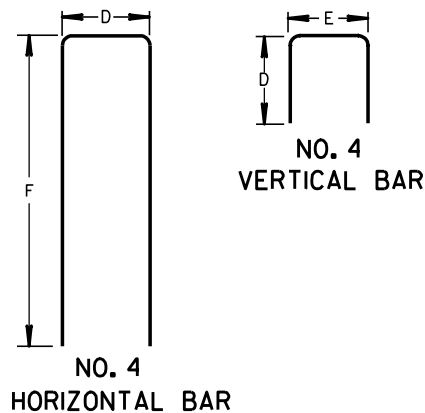
** APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



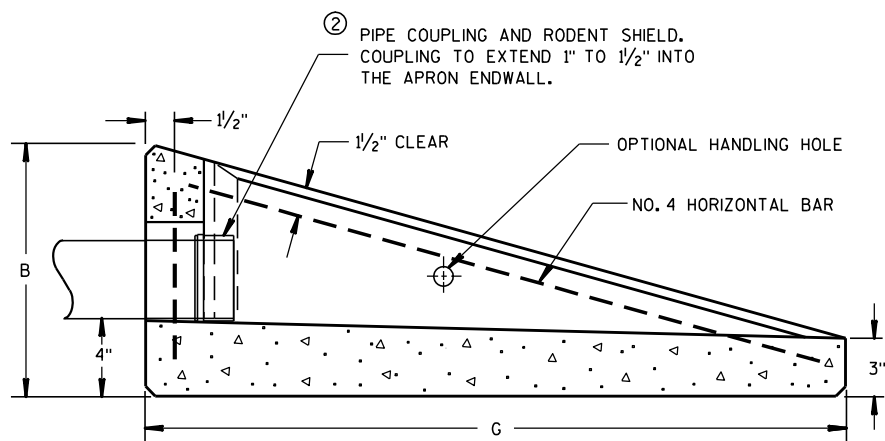
INSTALLATION DETAIL



PLAN VIEW

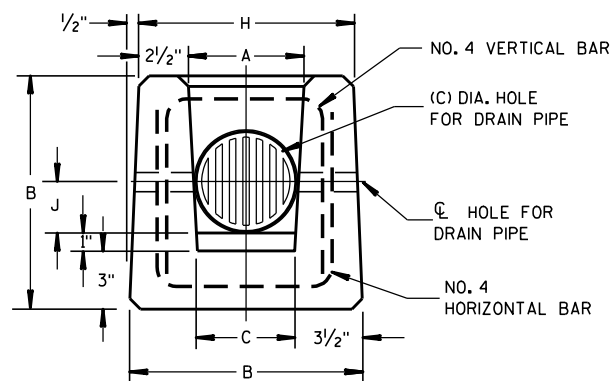


BAR STEEL REINFORCEMENT DETAILS



SECTION A-A

CONCRETE APRON ENDWALL FOR UNDERDRAIN



END VIEW

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.

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

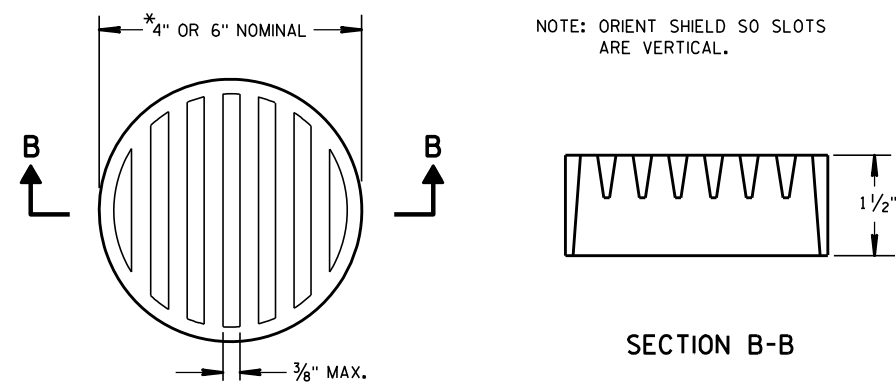
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

- ① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

- ② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



② RODENT SHIELD

*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

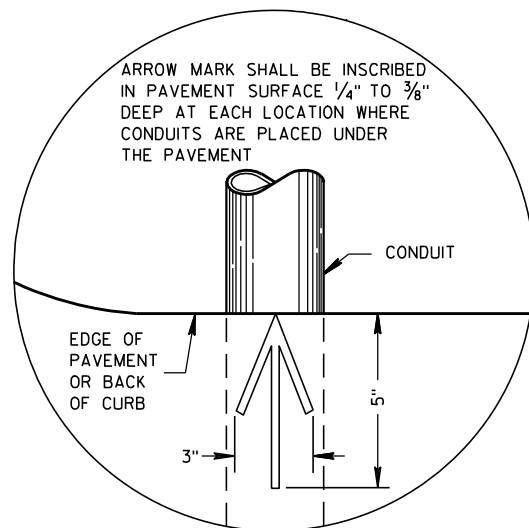
APPROVED

3/10/98

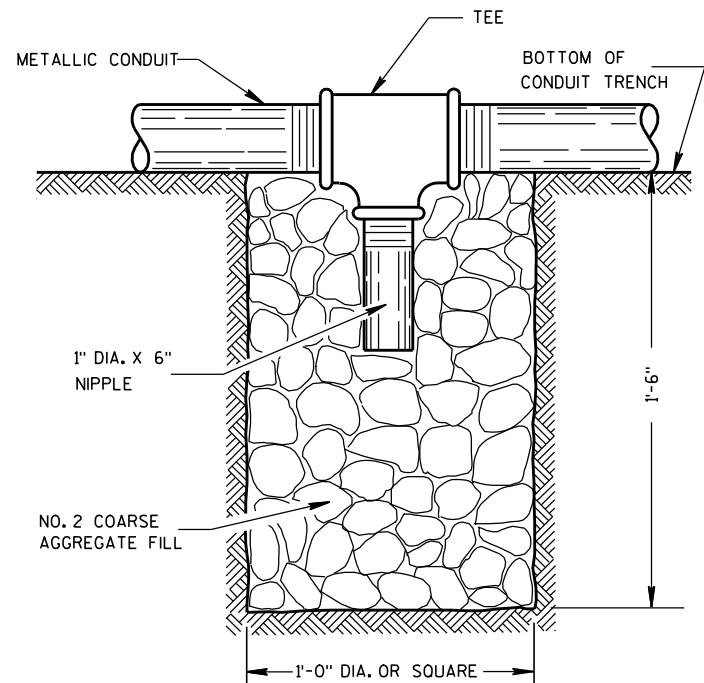
DATE

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

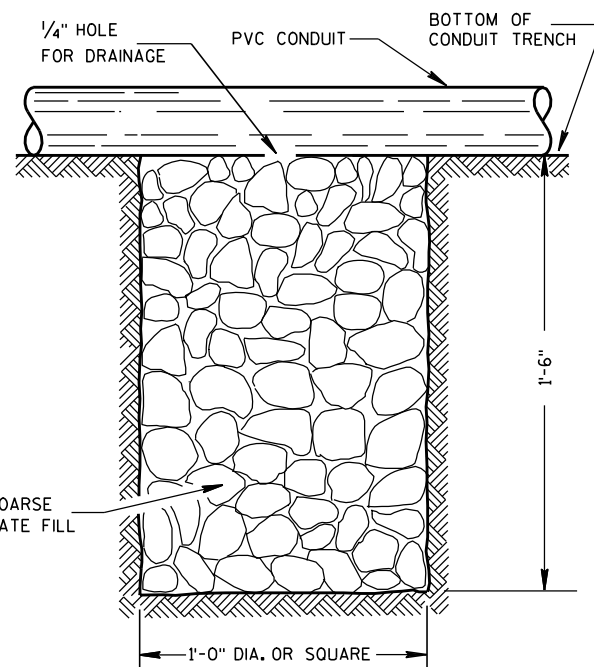


**PLAN VIEW
ARROW MARK**



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR METALLIC CONDUIT



NOTE: INSTALL AT LOCATIONS WHERE PVC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSON TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

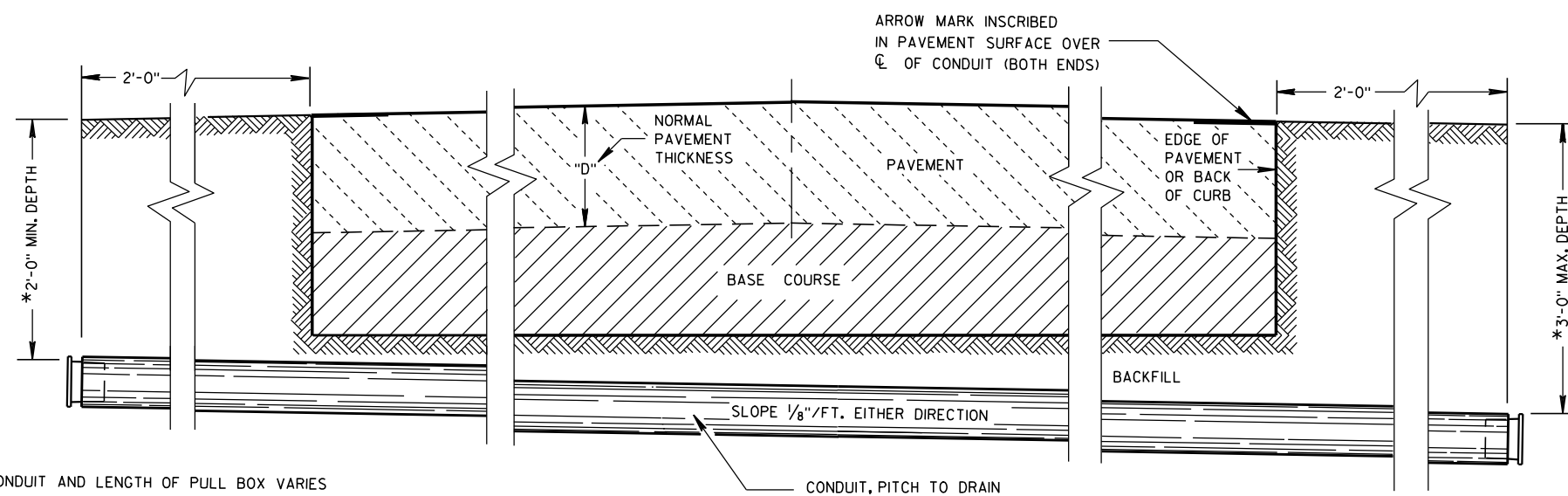
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

POLY ROPE OR A PULL WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

**SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS**

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/23/03

DATE

FHWA

/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGINEER FOR HWYS

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

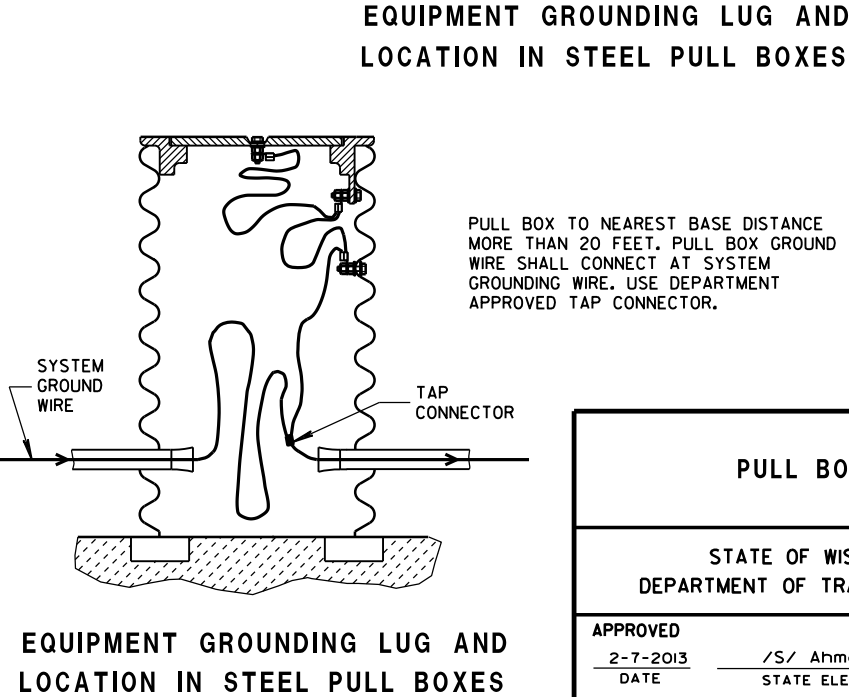
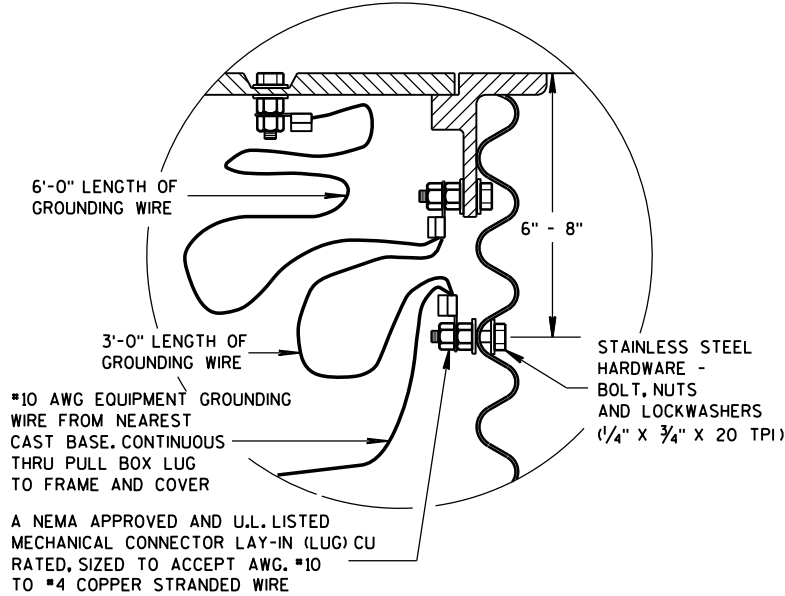
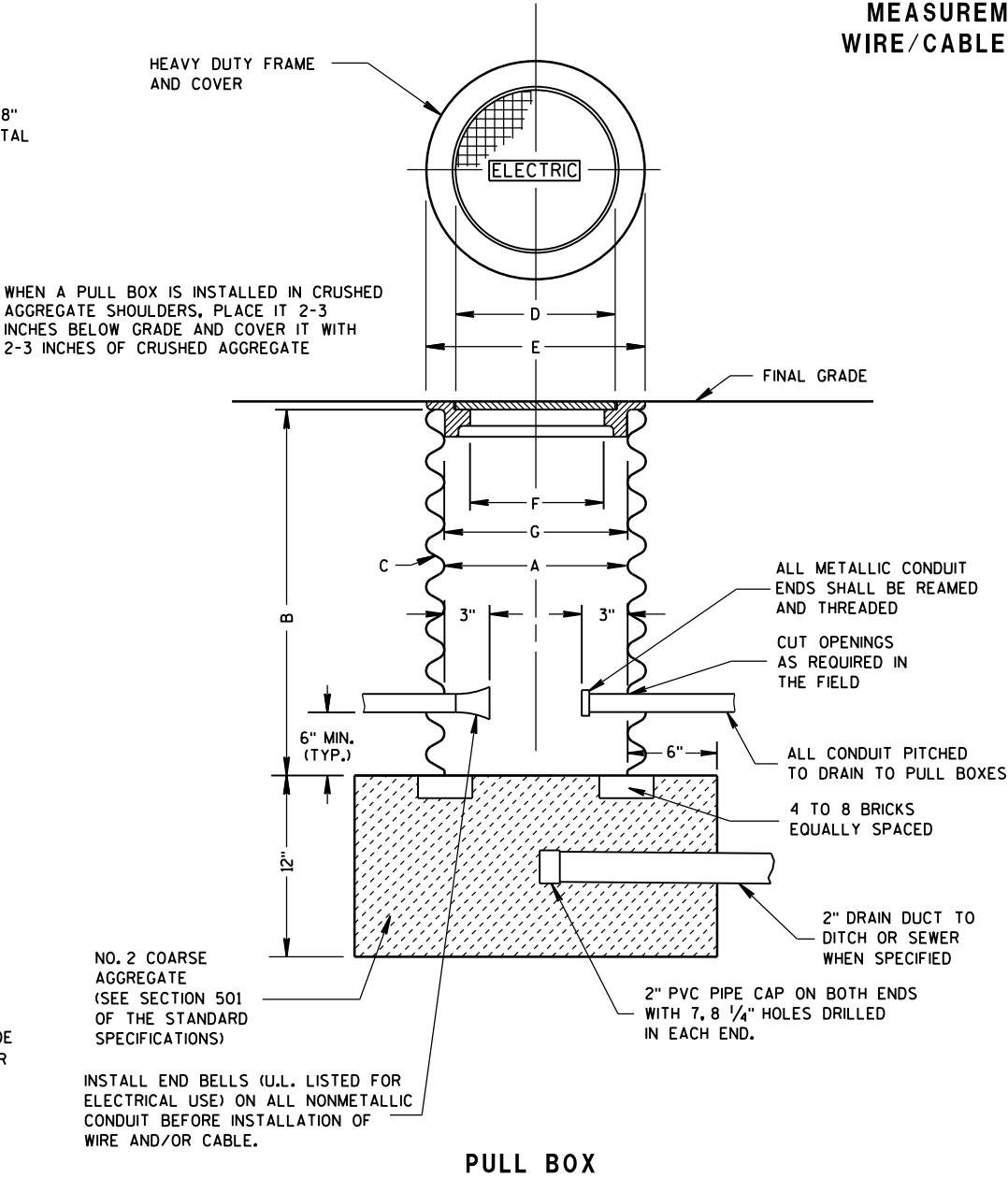
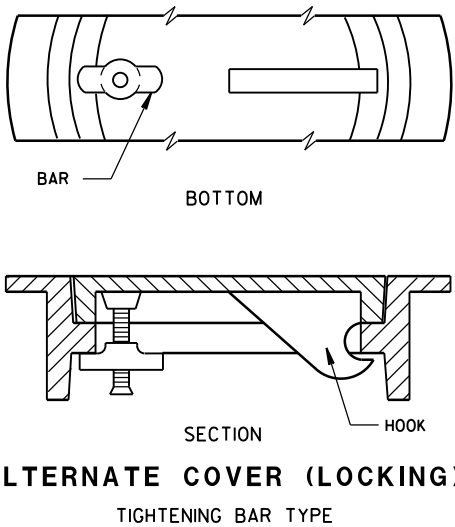
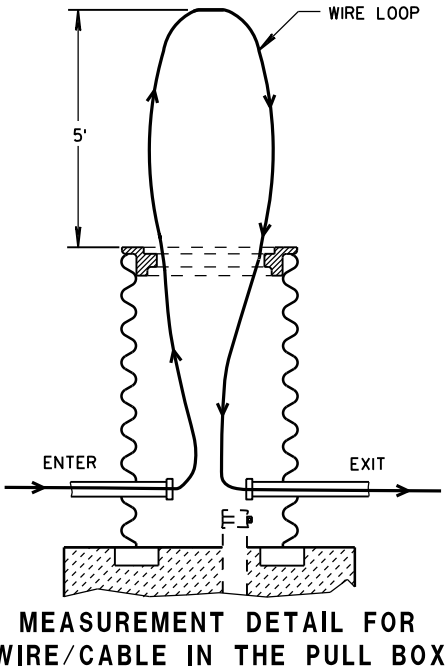
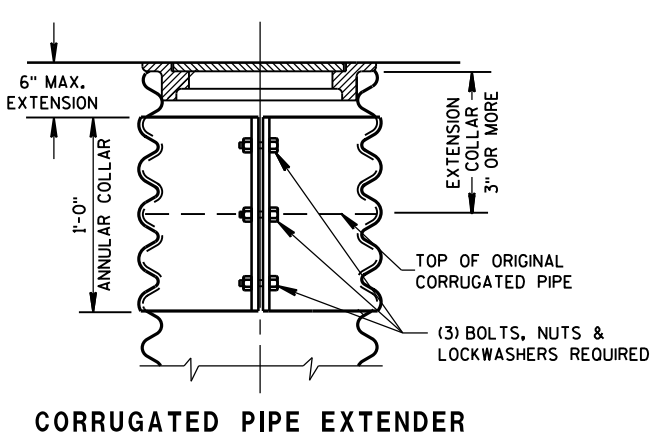
GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE.

GROUNDING LUGS ARE NOT REQUIRED IN PULL BOXES WHEN VOLTAGES OF LESS THAN 50 VOLTS AC ARE THE ONLY VOLTAGES ENCOUNTERED IN THE BOXES.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

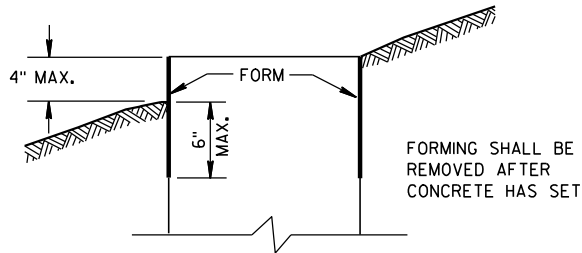
S.D.D. 9B2, "CONDUIT", APPLIES TO THIS DRAWING.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.



PULL BOX	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2-7-2013 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

GENERAL NOTES (CONTINUED)

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 2 AND TYPE 5 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE OF THE TYPE 2 AND TYPE 5 BASES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD, ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-449, OR ASTM A-687 (GRADE 105).

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

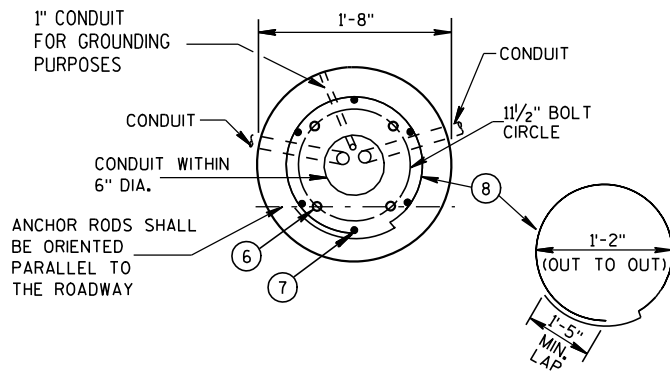
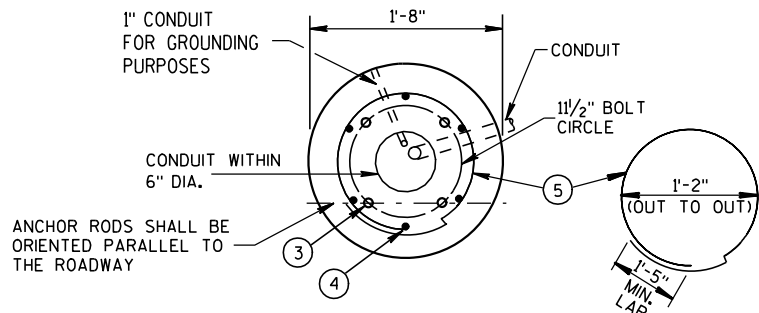
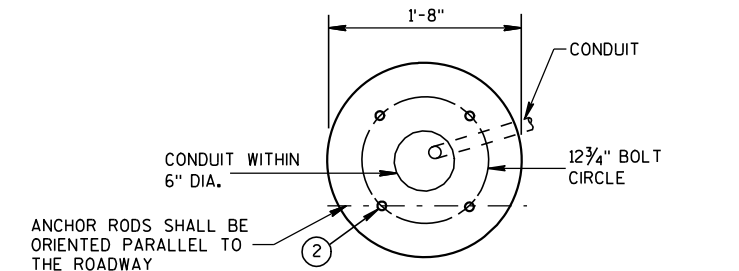
WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

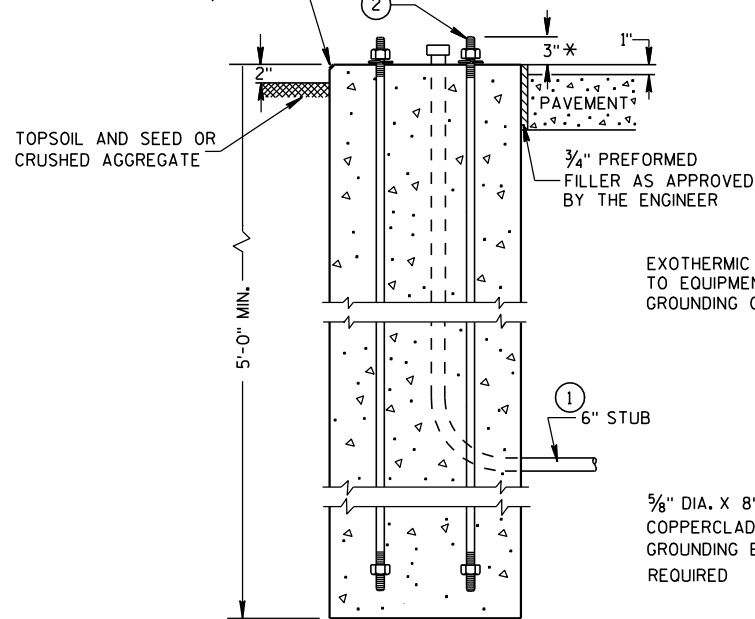
- 1 THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.
- 2 (4) 1" DIA. X 3'-6" ANCHOR RODS.
- 3 (4) 1" DIA. X 5'-0" ANCHOR RODS.
- 4 (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.
- 5 (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.
- 6 (4) 1" DIA. X 3'-6" ANCHOR RODS.
- 7 (6) NO. 4 X 4'-8" BAR STEEL REINFORCEMENT.
- 8 (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.



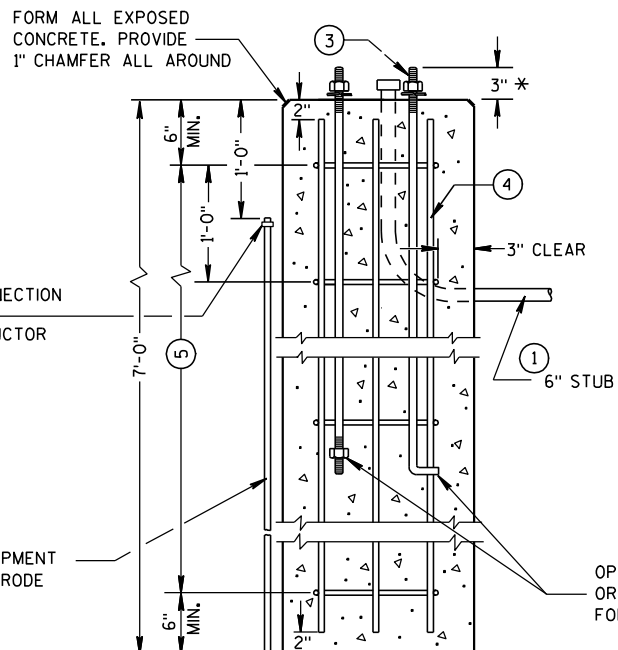
FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

HALF SECTION IN UNPAVED AREA (TYPICAL FOR TYPES 1, 2 & 5)

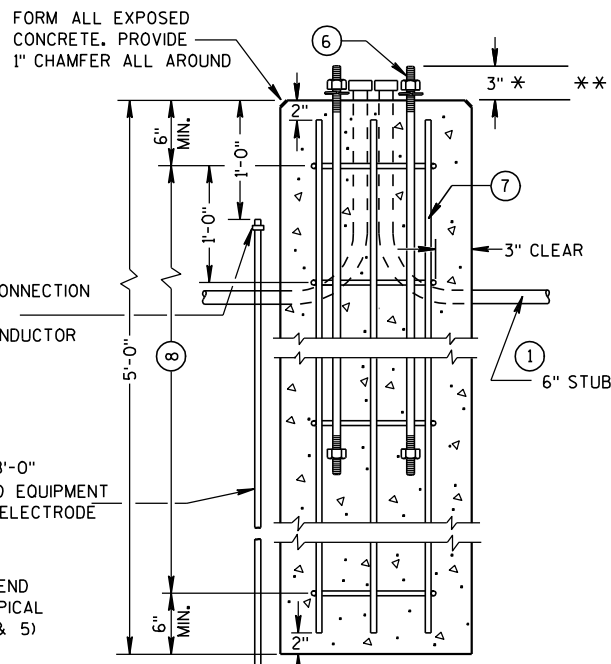
HALF SECTION IN PAVEMENT (TYPICAL FOR TYPES 1, 2 & 5)



TYPE 1



TYPE 2



TYPE 5

CONCRETE BASES

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2 3/4" OR LONGER THAN 3 1/4" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

** FOR NONBREAKAWAY INSTALLATIONS, 4 1/2" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

CONCRETE BASES, TYPES 1, 2 & 5

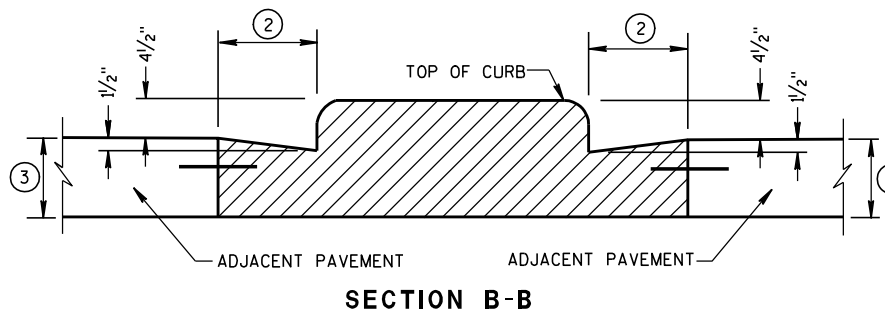
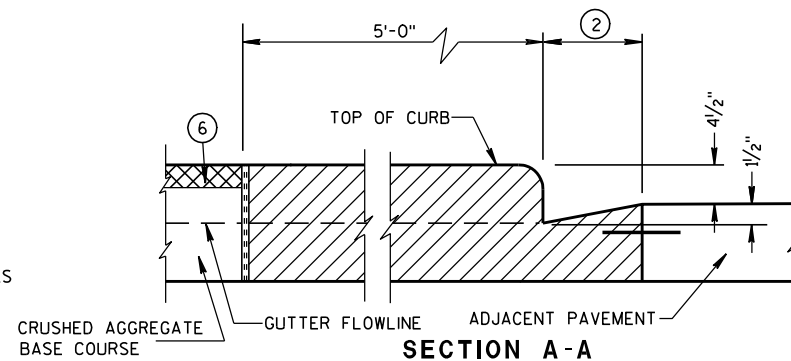
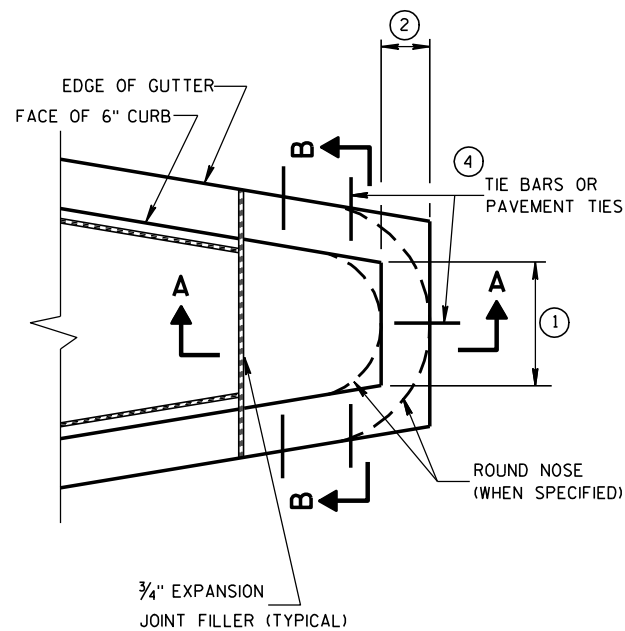
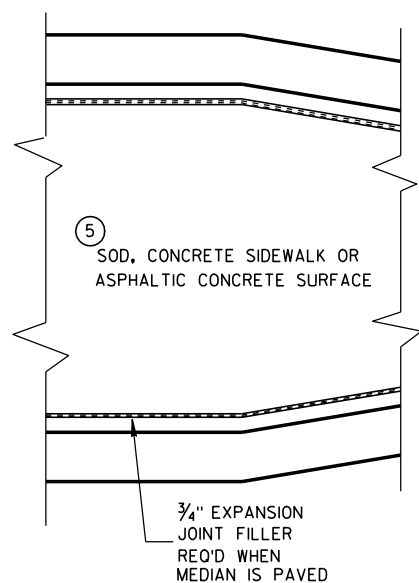
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

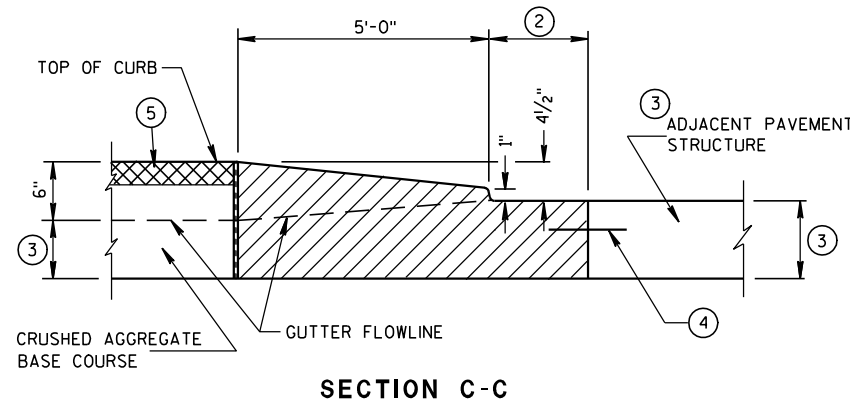
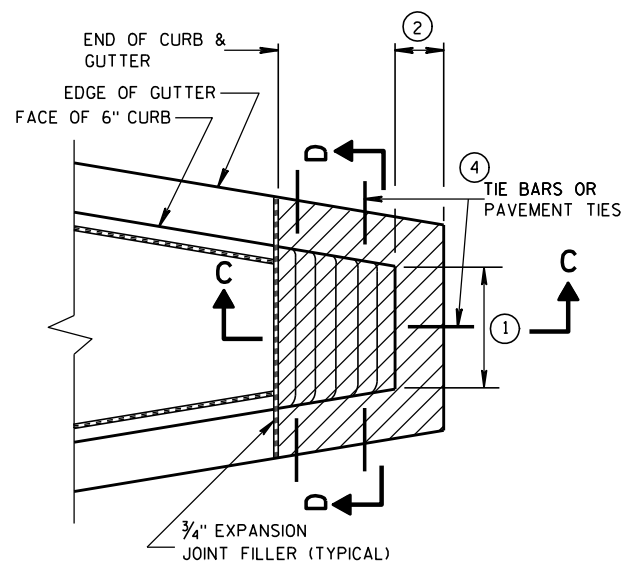
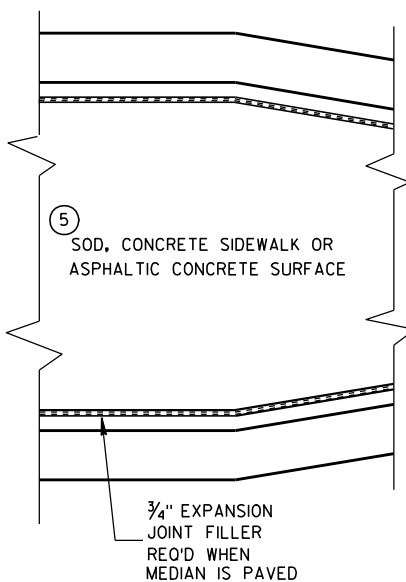
3/3/10
DATE

FHWA

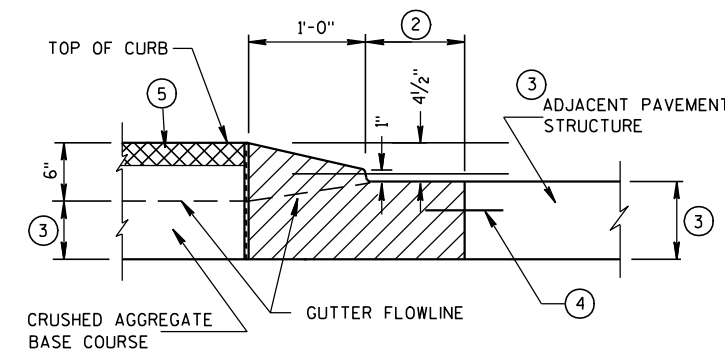
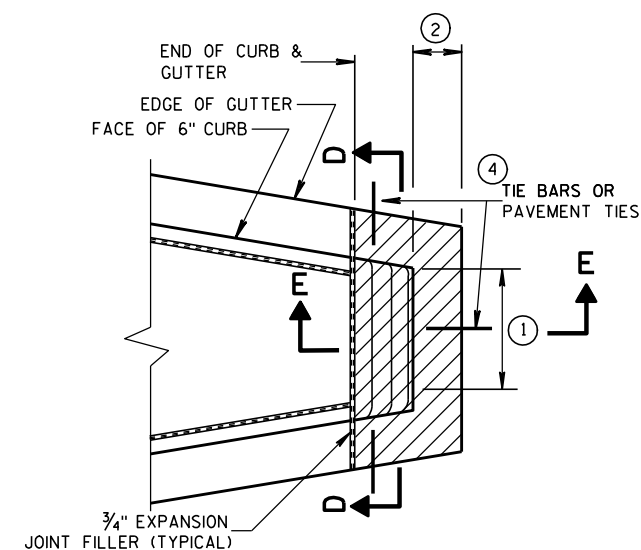
/S/ Joanna L. Bush
STATE ELECTRICAL ENGINEER FOR HWYS



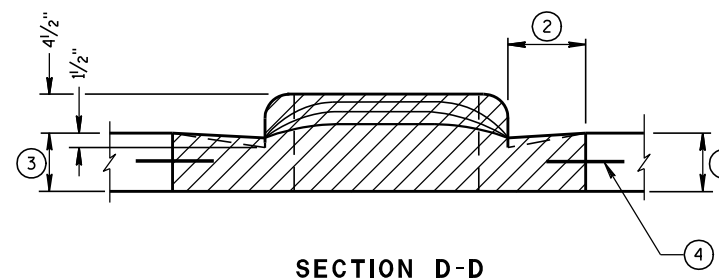
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



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 SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
 - (1) NEW OR EXISTING CONCRETE PAVEMENT.
 - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
 - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

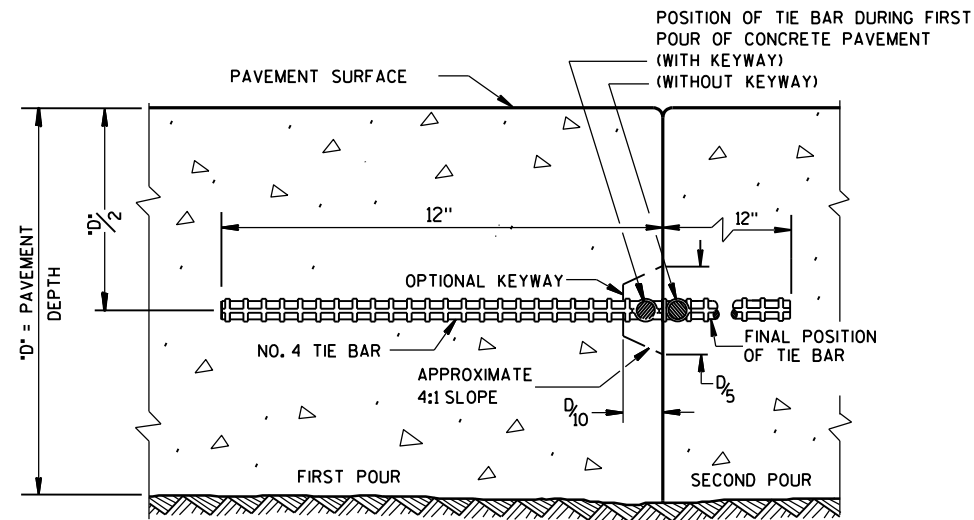
APPROVED

6/8/2006

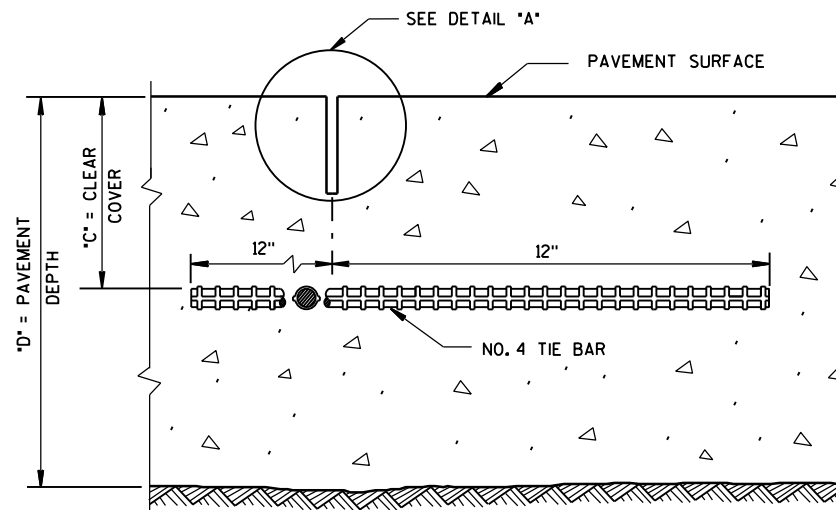
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



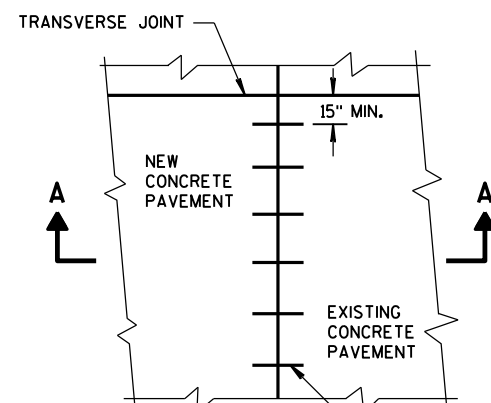
CONSTRUCTION JOINT



SAWED JOINT

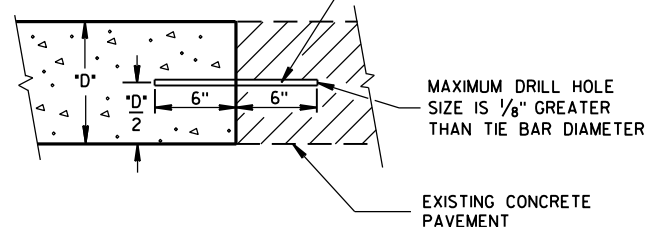
GENERAL NOTES

- DO NOT SEAL OR FILL LONGITUDINAL JOINTS.
- CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

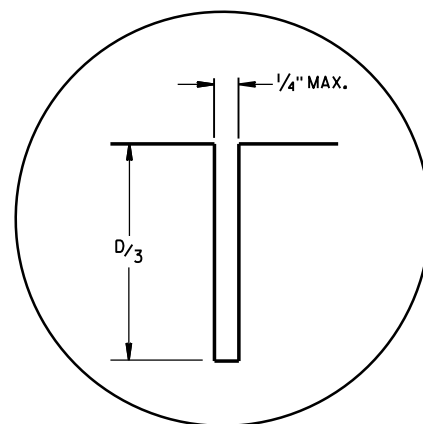


PLAN VIEW

NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



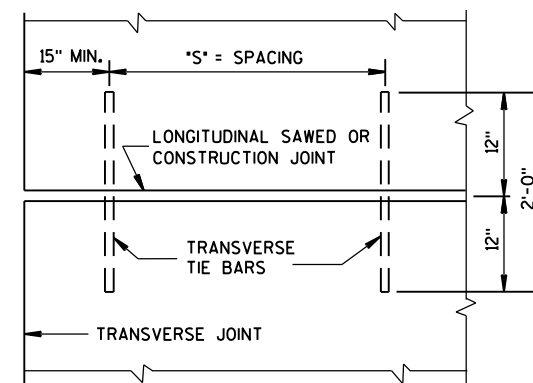
**SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT**



DETAIL "A"

TIE BAR TABLE

PAVEMENT DEPTH "D"	CLEAR COVER "C"	MAXIMUM TIE BAR SPACING "S"	
		PAVEMENT WIDTH 24' OR 26'	≥ 30'
6, 6 1/2"	3" ± 1/2"	48"	42"
7, 7 1/2"	3 1/4" ± 1"	45"	36"
8, 8 1/2"	3 3/4" ± 1"	39"	30"
9, 9 1/2"	4 1/4" ± 1"	33"	27"
10, 10 1/2"	4 3/4" ± 1"	30"	24"
11, 11 1/2"	5 1/4" ± 1"	27"	21"
12"	5 3/4" ± 1"	24"	21"

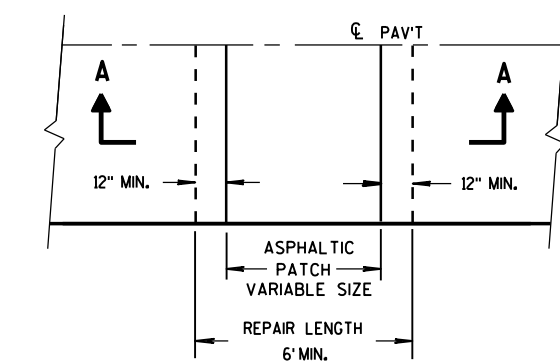


**PLAN VIEW
SHOWING LOCATION OF TIE BARS**

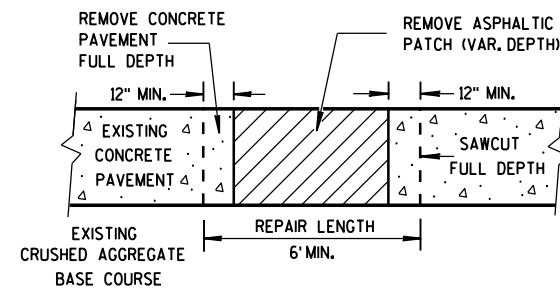
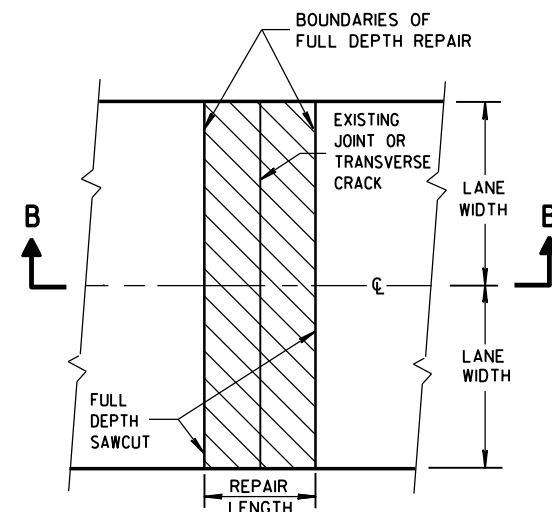
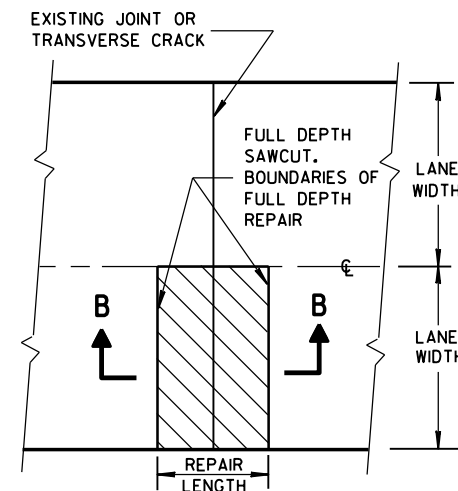
**CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-3-2013 /S/ Deb Bischoff
DATE PAVEMENT POLICY & DESIGN ENGINEER
FHWA



PLAN VIEW

SECTION A-A
HMA PATCH REMOVALPLAN VIEW
(DOUBLE LANE REPAIR)PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL

(SEE NOTE)

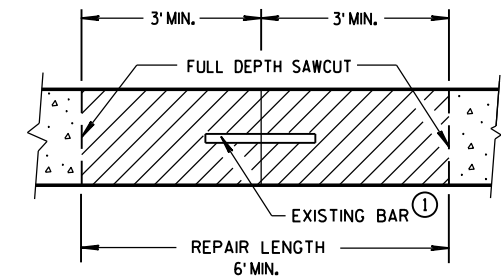
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES. ADDITIONAL SAW CUTS ARE NOT PAID FOR BY THE DEPARTMENT.

PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MIGHT NOT EXIST.

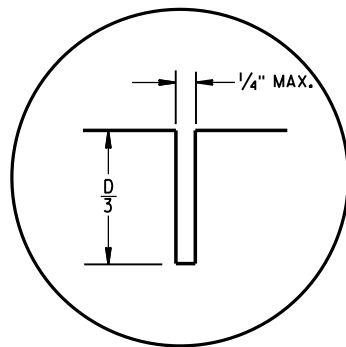
SECTION B-B
CONCRETE REMOVAL

CONCRETE PAVEMENT REPAIR
AND REPLACEMENT

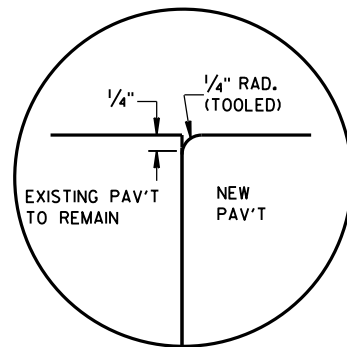
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

TIE BAR TABLE

PAVEMENT DEPTH "D"	CLEAR COVER "C"	MAXIMUM TIE BAR SPACING "S"	
		PAVEMENT WIDTH 24' OR 26'	≥ 30'
6, 6 1/2"	3" ± 1/2"	48"	42"
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8, 8 1/2"	3 3/4" ± 1"	39"	30"
9, 9 1/2"	4 1/4" ± 1"	33"	27"
10, 10 1/2"	4 3/4" ± 1"	30"	24"
11, 11 1/2"	5 1/4" ± 1"	27"	21"
12"	5 3/4" ± 1"	24"	21"

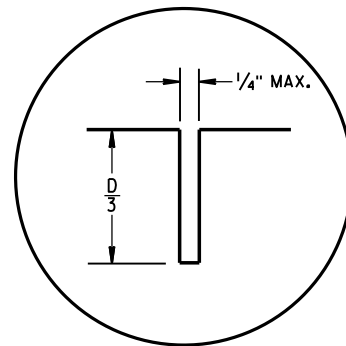


C1

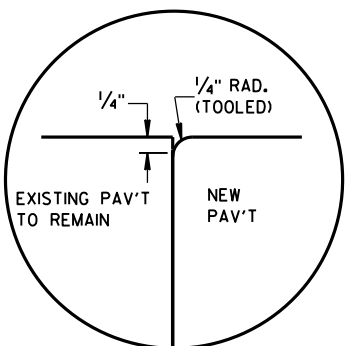


C2

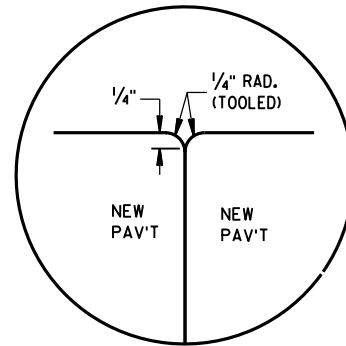
TRANSVERSE JOINTS



L1

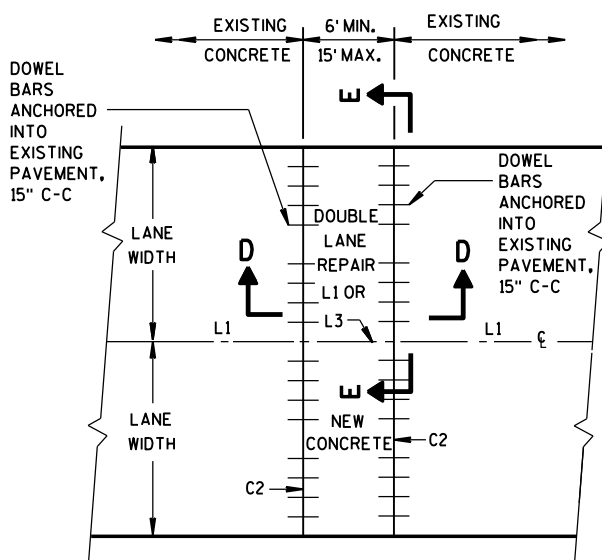


L2



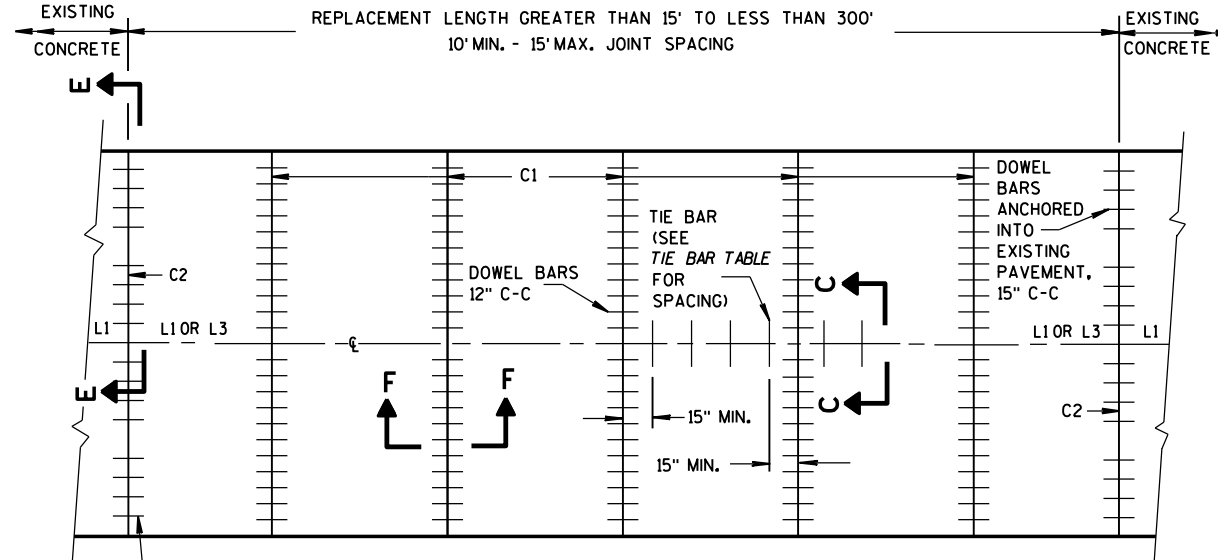
L3

LONGITUDINAL JOINTS



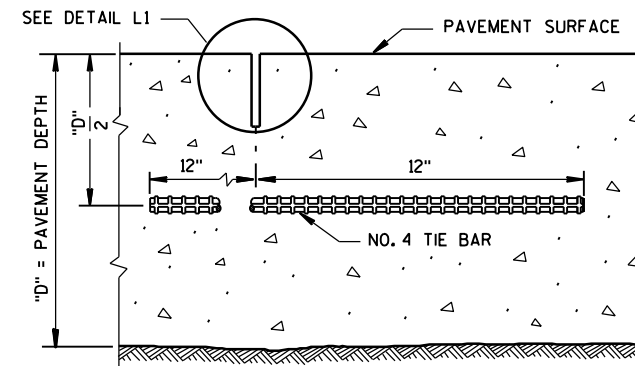
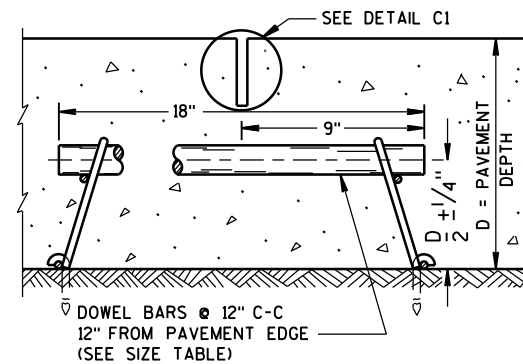
PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

SECTION C-C
SAWED LONGITUDINAL JOINTSECTION F-F
CONTRACTION JOINT

GENERAL NOTES

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

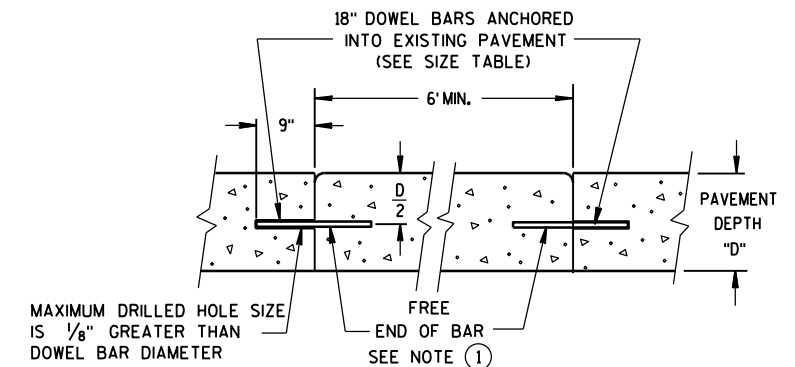
CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

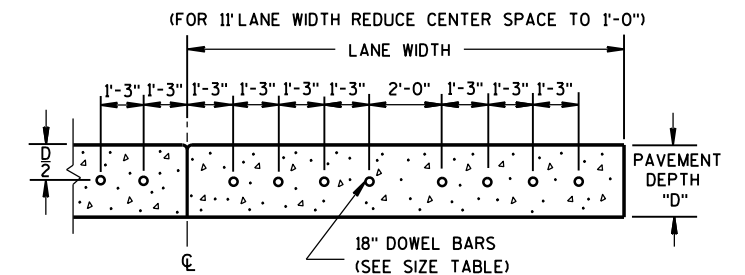
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



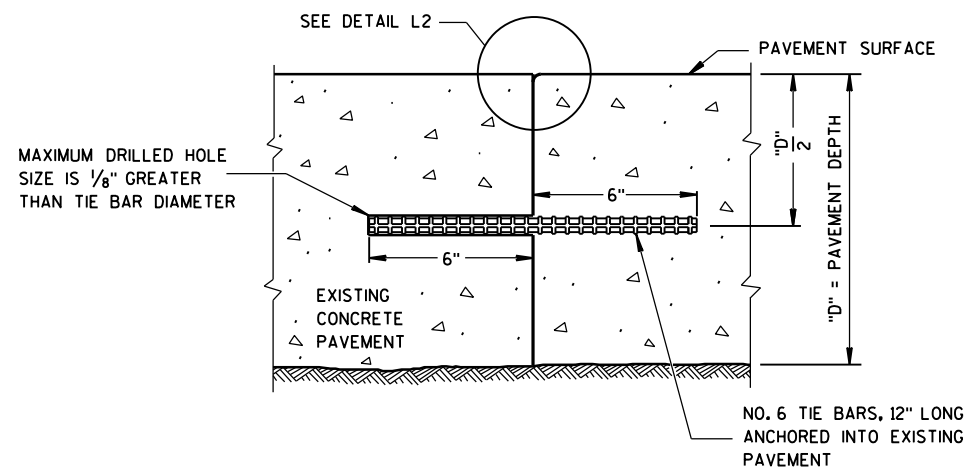
SECTION D-D

SECTION E-E
DRILLED DOWEL BAR CONSTRUCTION JOINTPAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6, 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

CONCRETE PAVEMENT
REPAIR AND REPLACEMENT

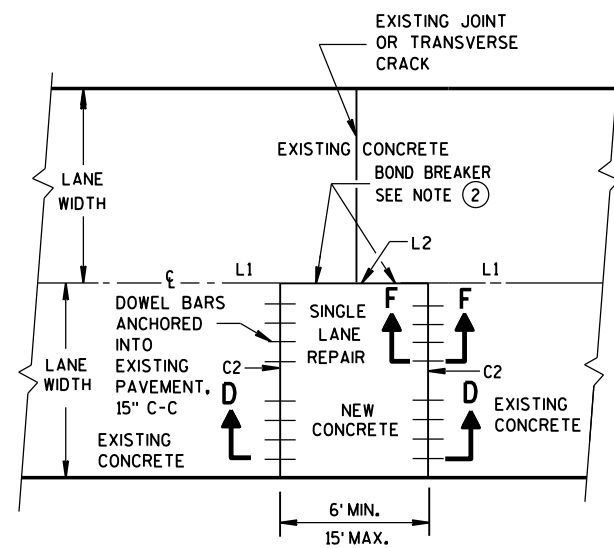
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



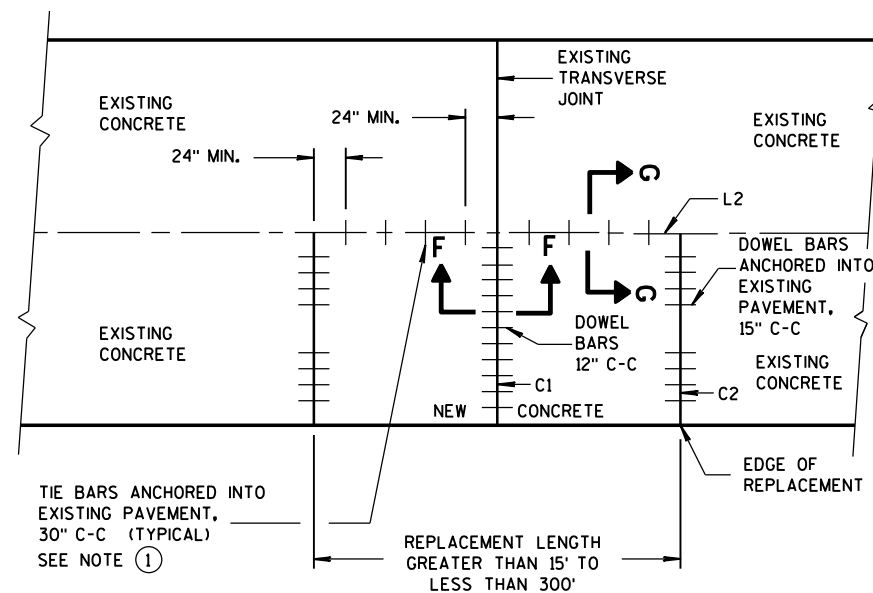
SECTION G-G
TIE BARS ANCHORED
INTO EXISTING PAVEMENT

GENERAL NOTES

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES AND TO SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.



PLAN VIEW
SINGLE LANE
CONCRETE PAVEMENT REPAIR



PLAN VIEW
SINGLE LANE
CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

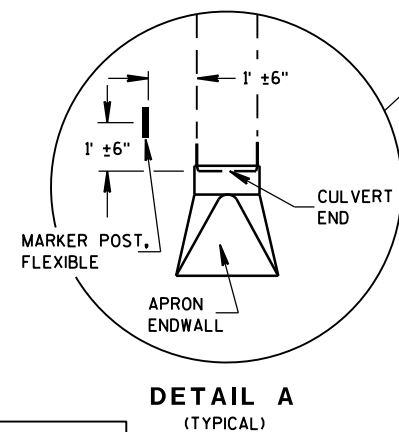
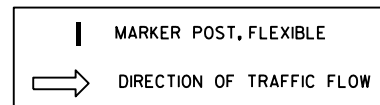
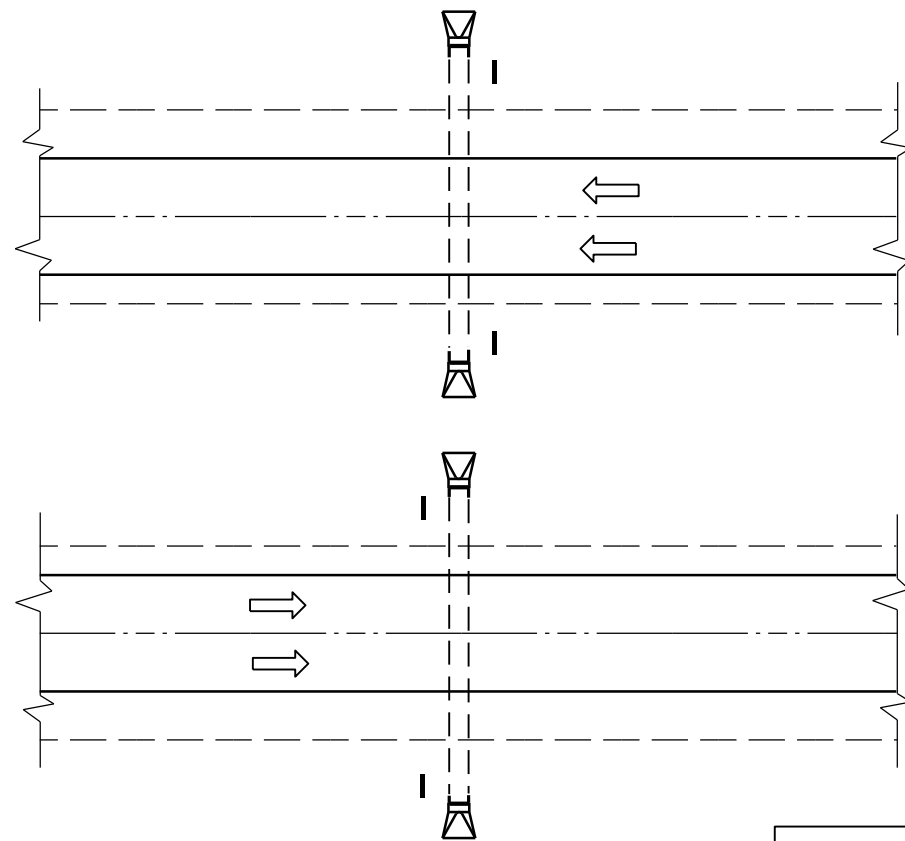
APPROVED

12-2013
DATE

FHWA

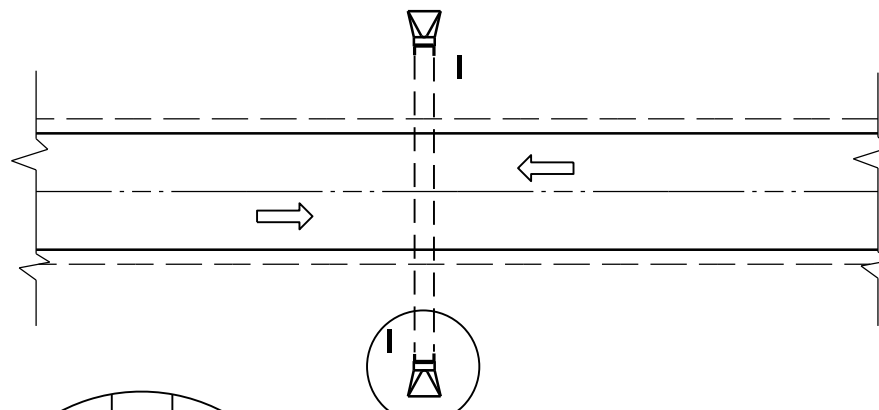
/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER

PLAN VIEW
DIVIDED HIGHWAY

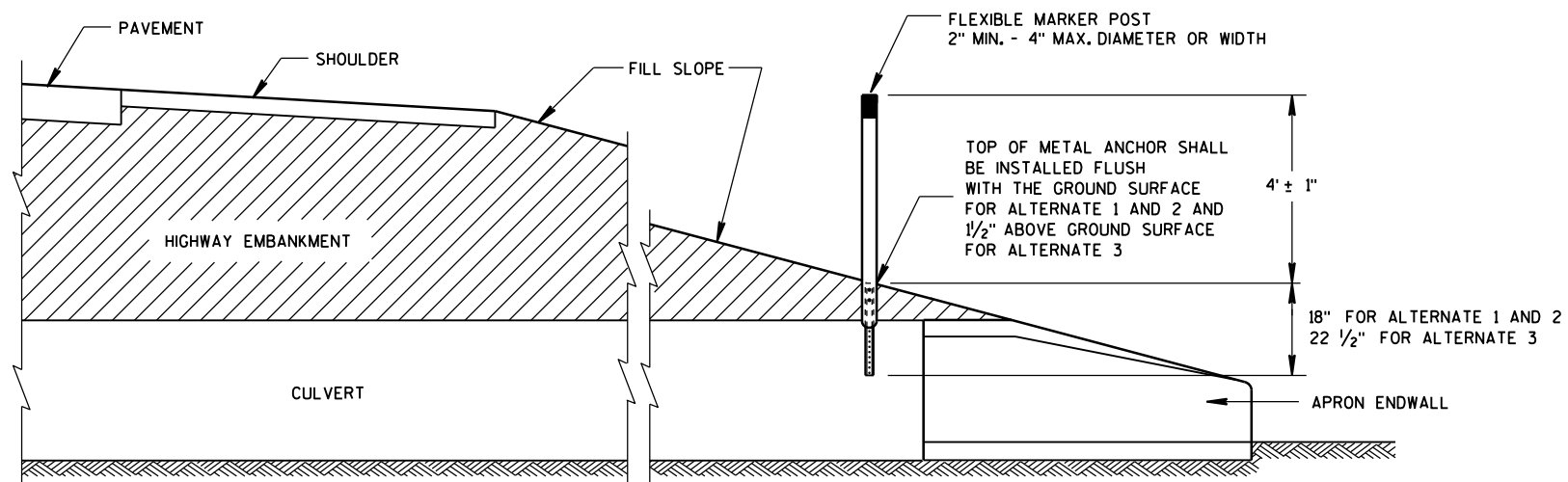


DETAIL A
(TYPICAL)

PLAN VIEW
UNDIVIDED HIGHWAY



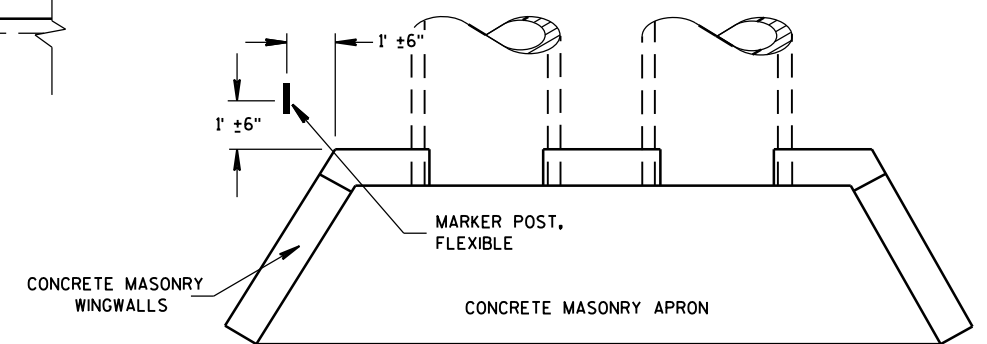
FLEXIBLE MARKER POST LOCATION



CROSS SECTION
FLEXIBLE MARKER POST

GENERAL NOTES

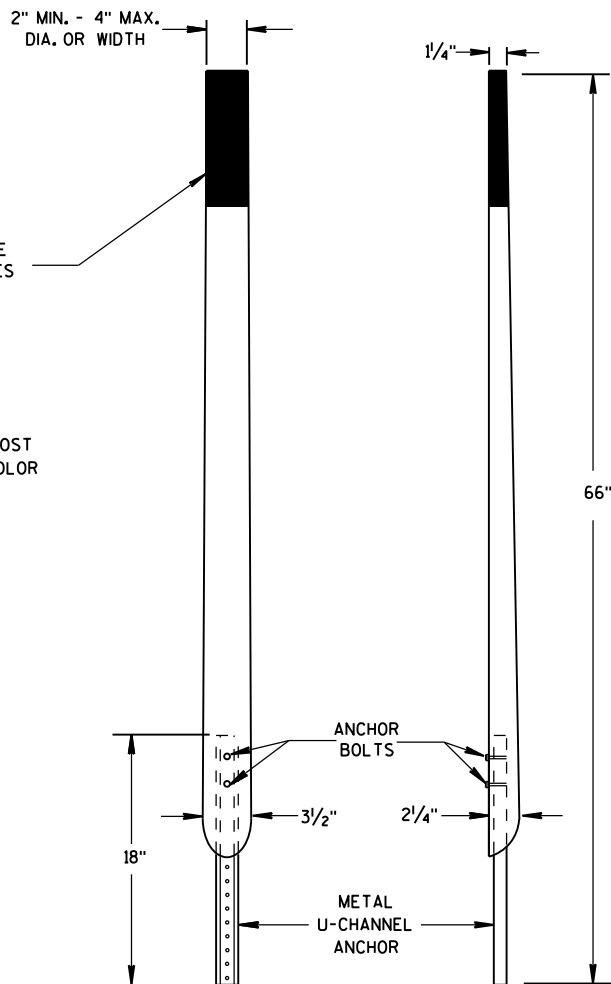
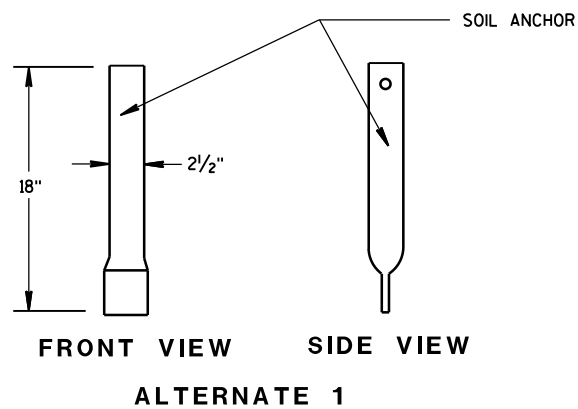
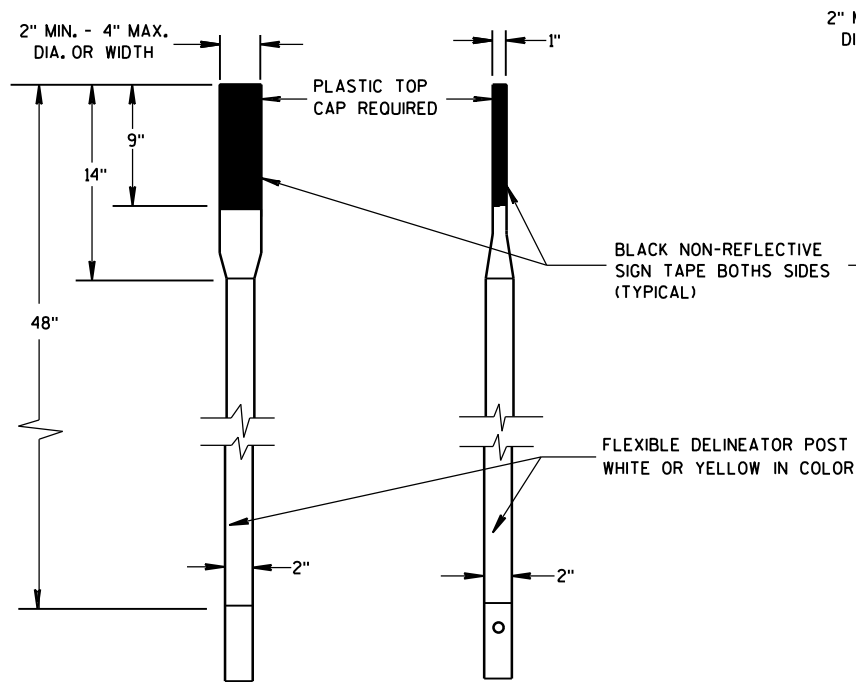
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

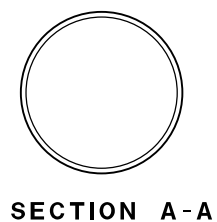
FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

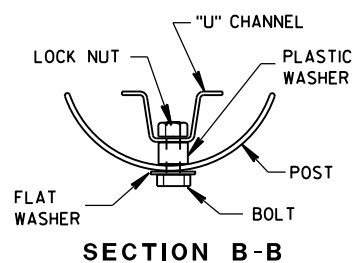
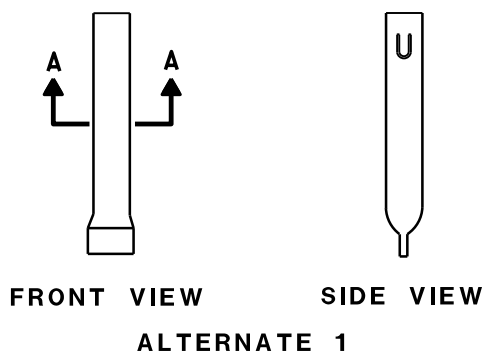


FRONT VIEW SIDE VIEW
ALTERNATE 2

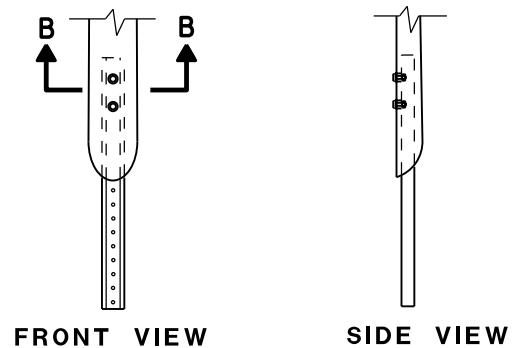
FLEXIBLE MARKER POSTS



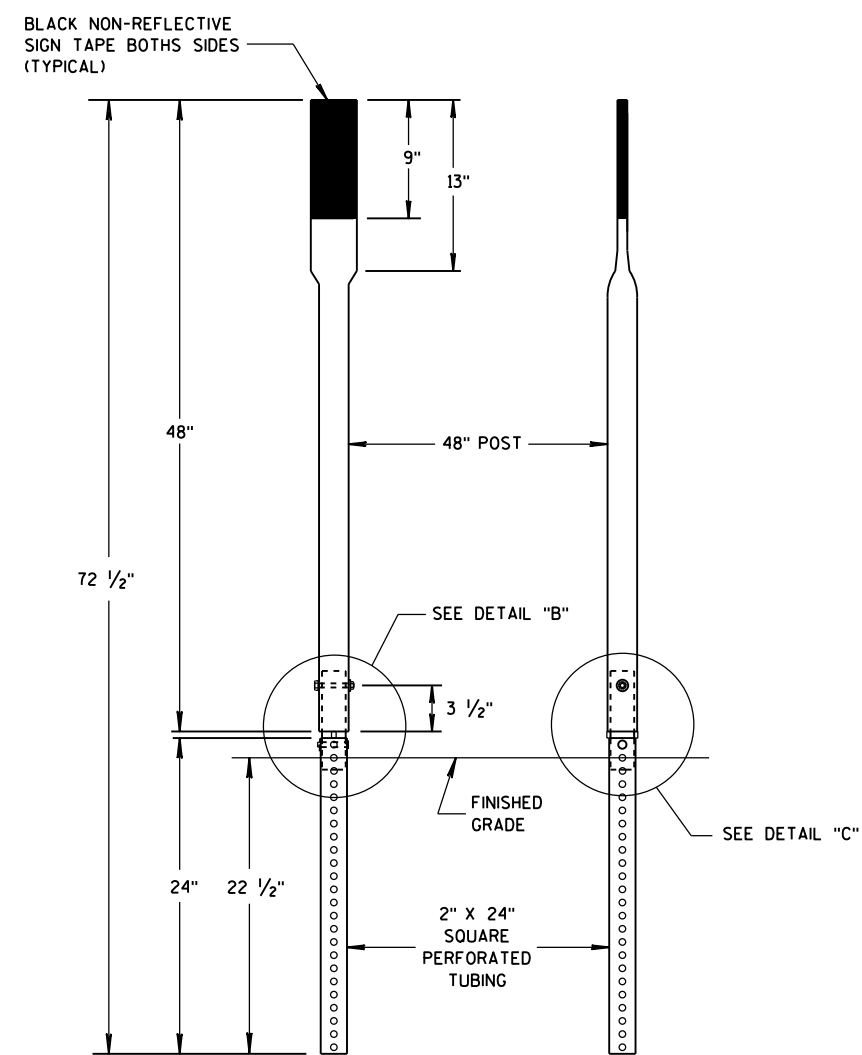
SECTION A-A



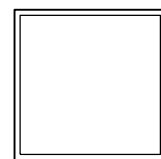
SECTION B-B



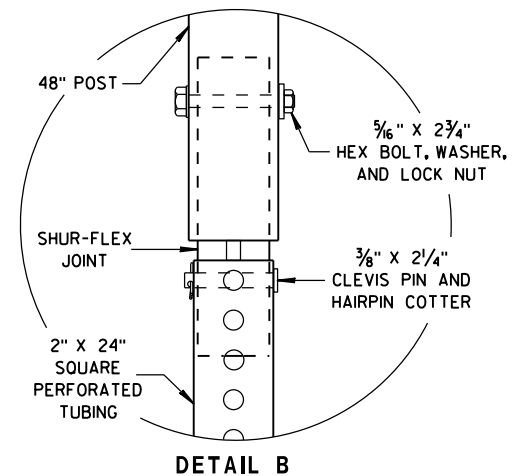
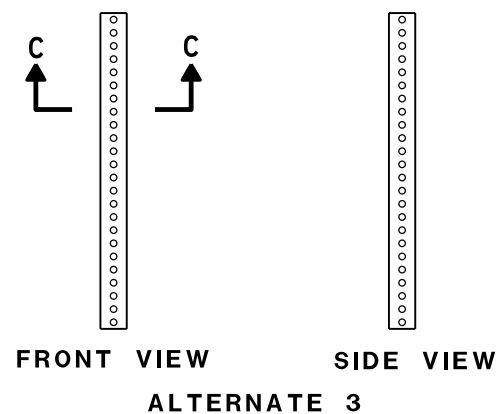
FRONT VIEW SIDE VIEW
ALTERNATE 2
FLEXIBLE MARKER POST ANCHORS



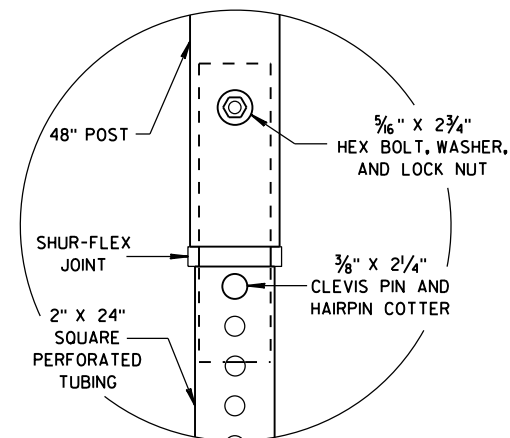
FRONT VIEW SIDE VIEW
ALTERNATE 3



SECTION C-C



DETAIL B



DETAIL C

FLEXIBLE MARKER POST FOR CULVERT END

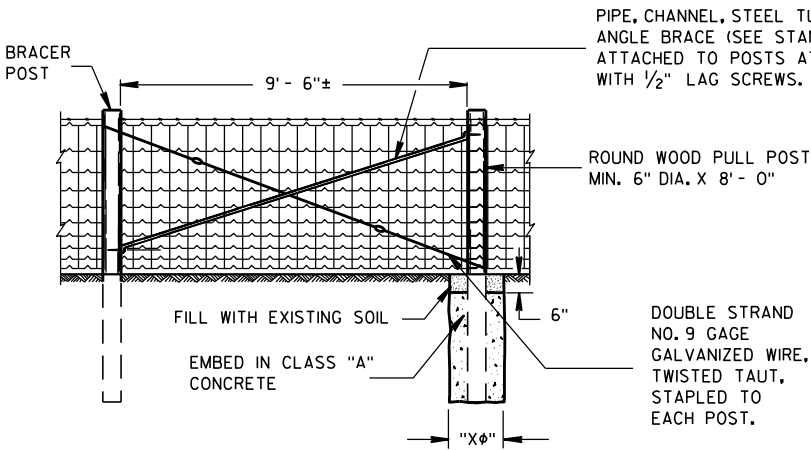
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012
DATE
FHWA

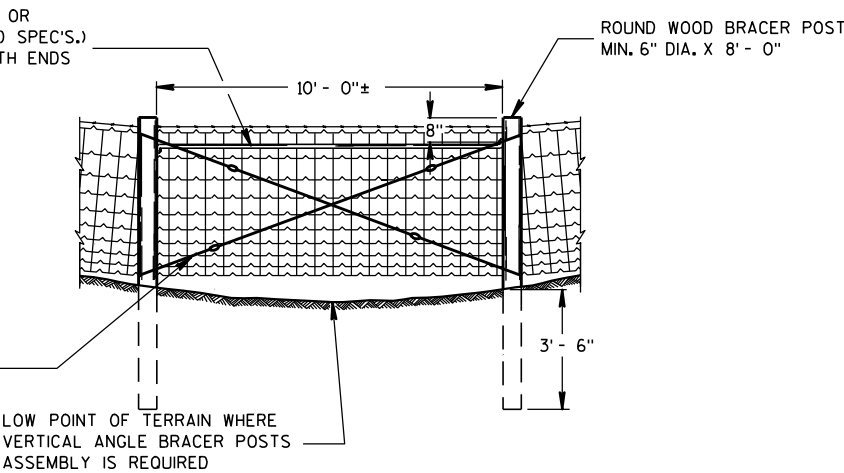
/S/ Travis Feltes
STATE TRAFFIC ENGINEER OF DESIGN

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY



VERTICAL ANGLE BRACER POSTS ASSEMBLY

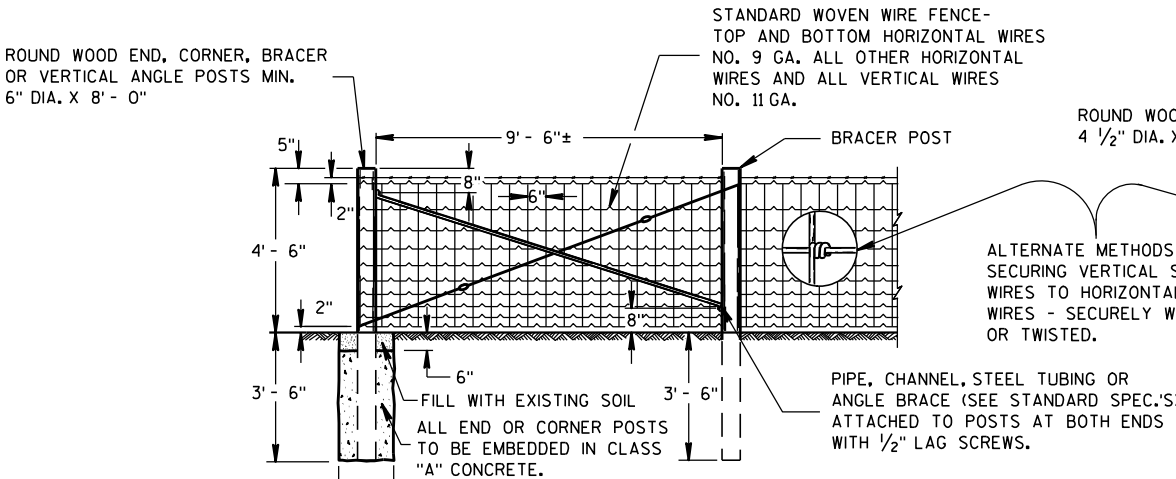
GENERAL NOTES

"Xφ" = DIAMETER OF THE POST PLUS 12".

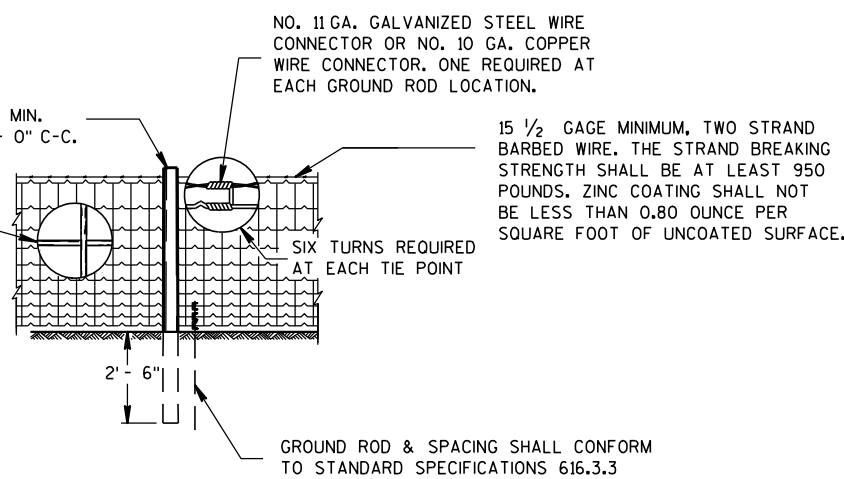
FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

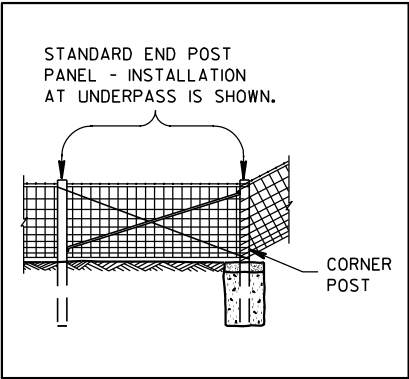


END OR CORNER POSTS ASSEMBLY

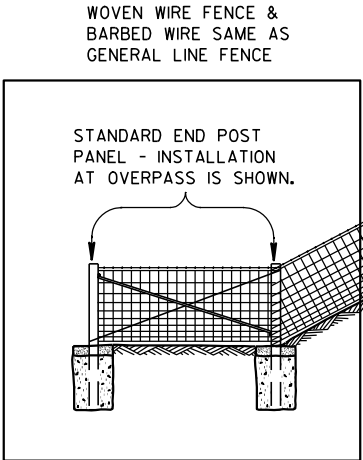


LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



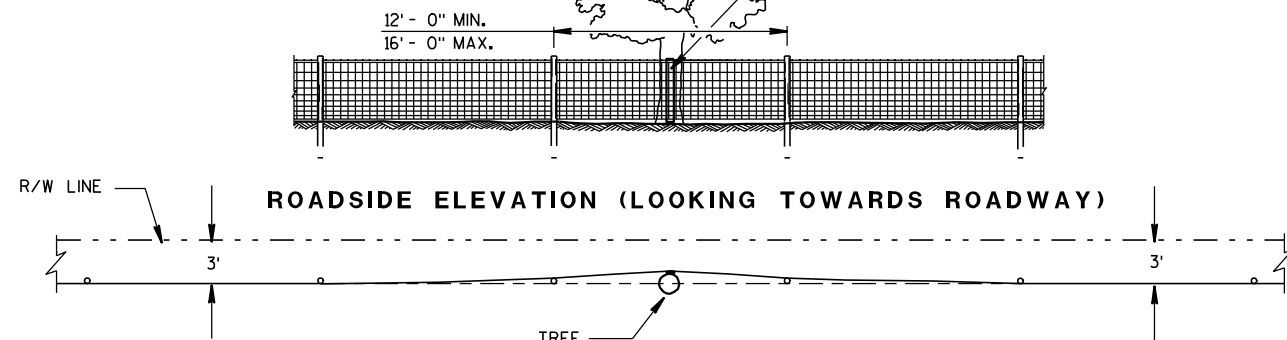
FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

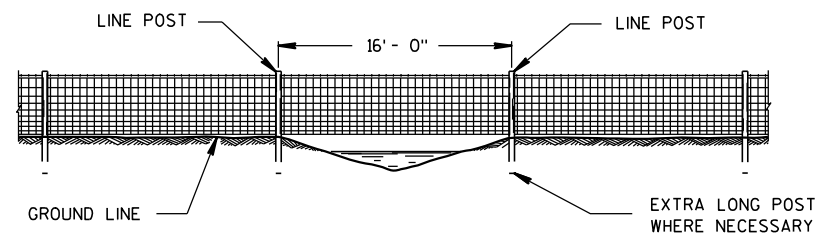
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

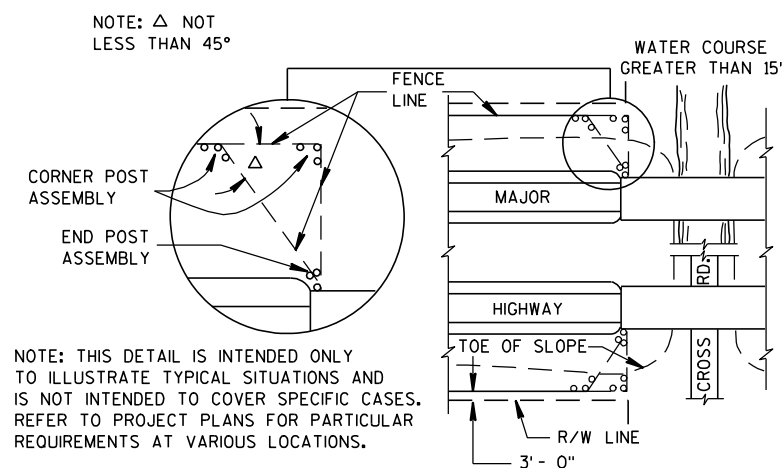
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE

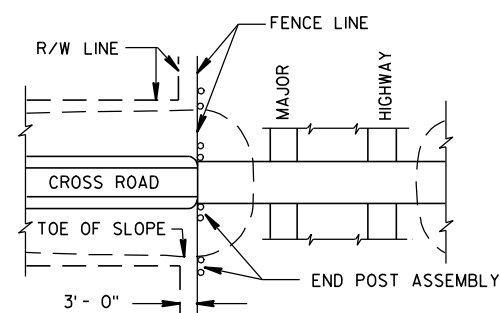


FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH

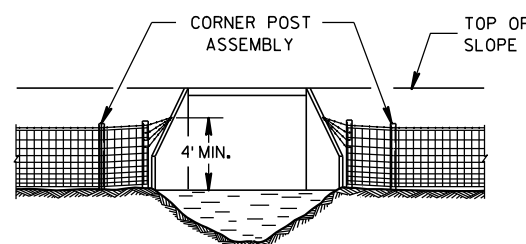


PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES

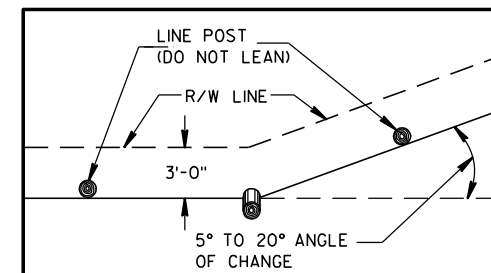
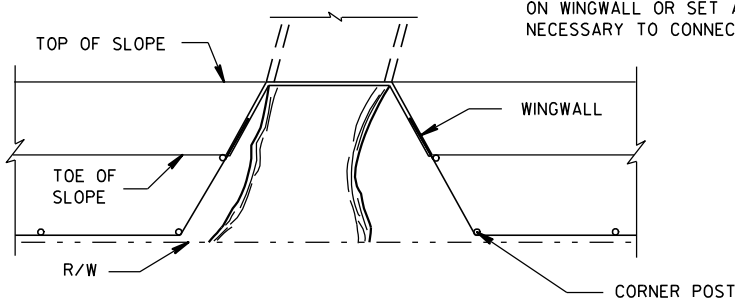


PLAN VIEW
MAJOR HIGHWAY UNDERPASS

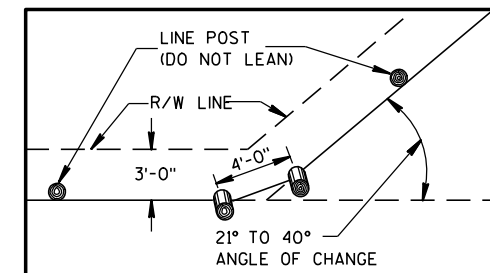


FENCE INSTALLATION TO WINGWALLS

NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



PLAN VIEW
SINGLE POST CORNER

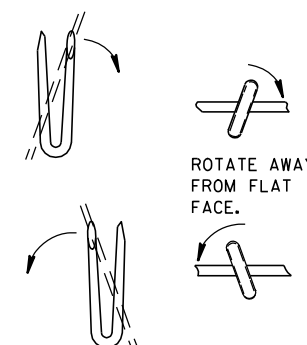


PLAN VIEW
DOUBLE POST CORNER

RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



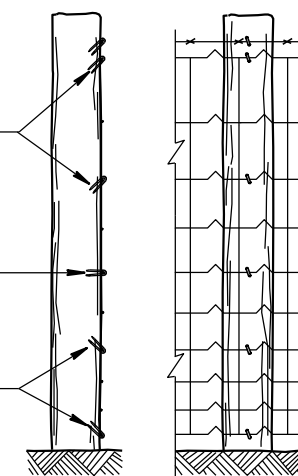
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

STAPLES LEVEL FOR LEVEL GROUND.

SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



END ELEVATION
FARM SIDE ELEVATION
FENCE MOUNTING DETAIL

FENCE WOVEN WIRE

STATE OF WISCONSIN
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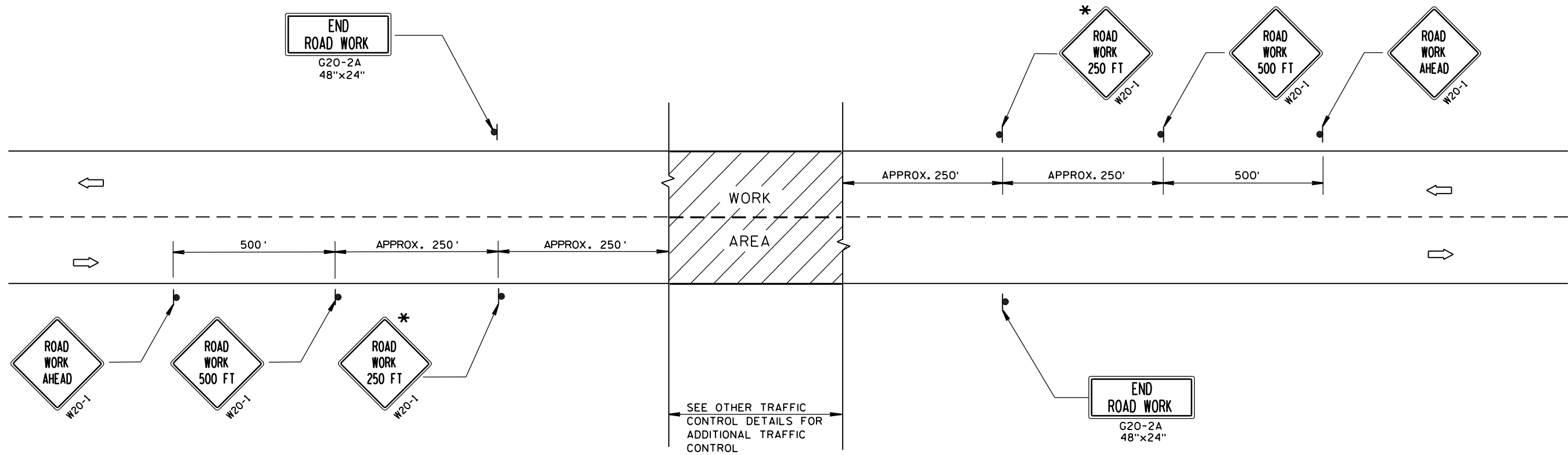
APPROVED

4/4/2008

DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

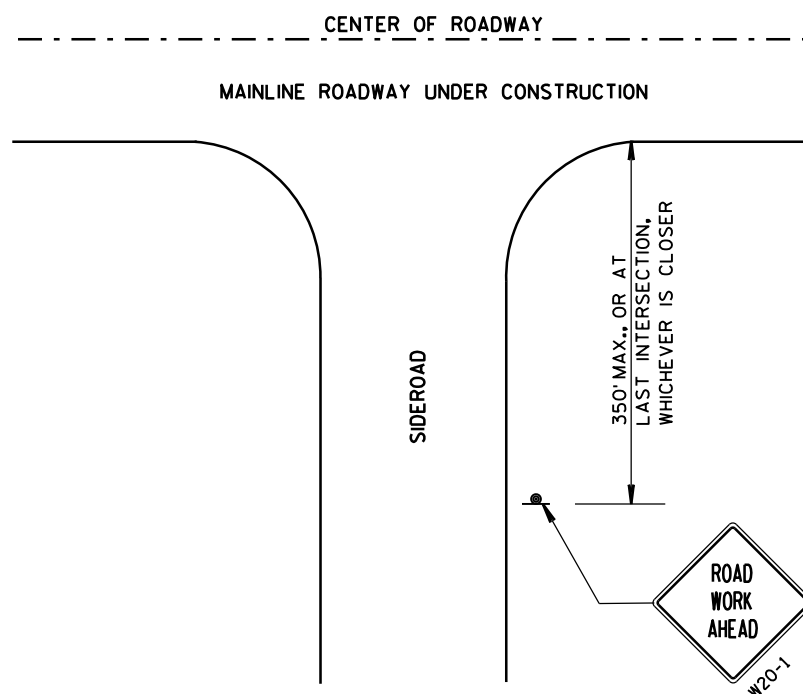
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

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

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

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



LEGEND

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

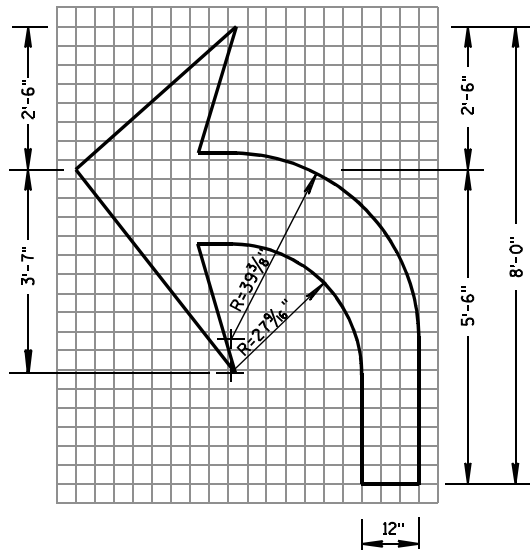
TRAFFIC CONTROL, ADVANCE
WARNING SIGNS 40 M.P.H.
OR LESS TWO-WAY UNDIVIDED
ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

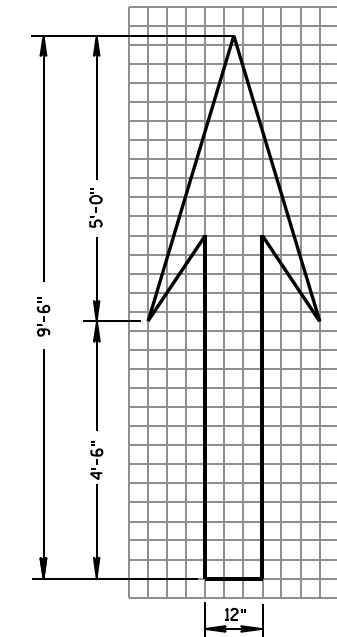
APPROVED

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

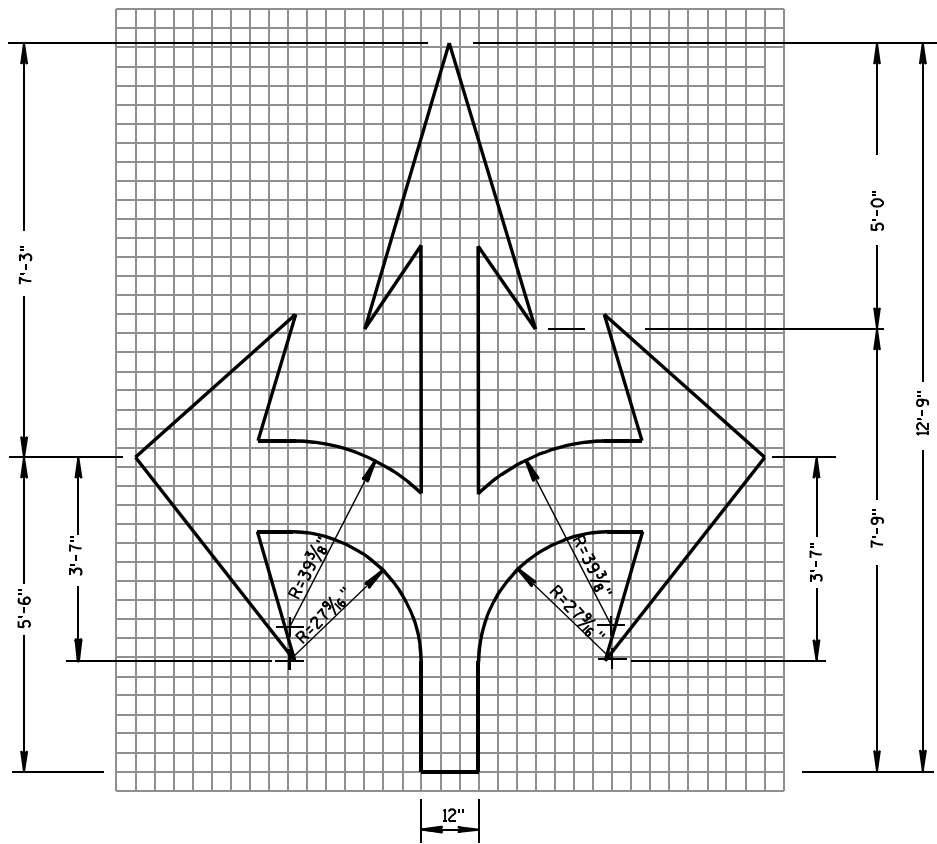
FHWA



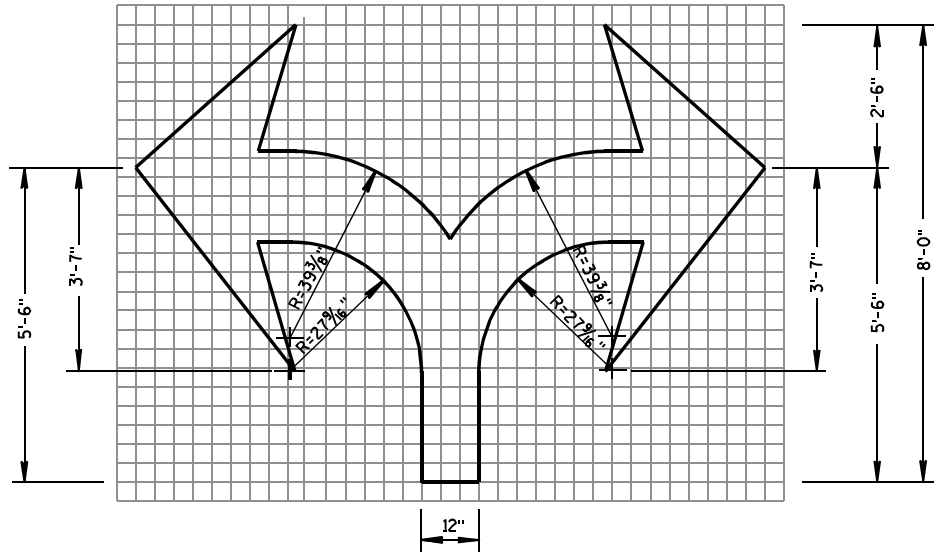
TYPE 2



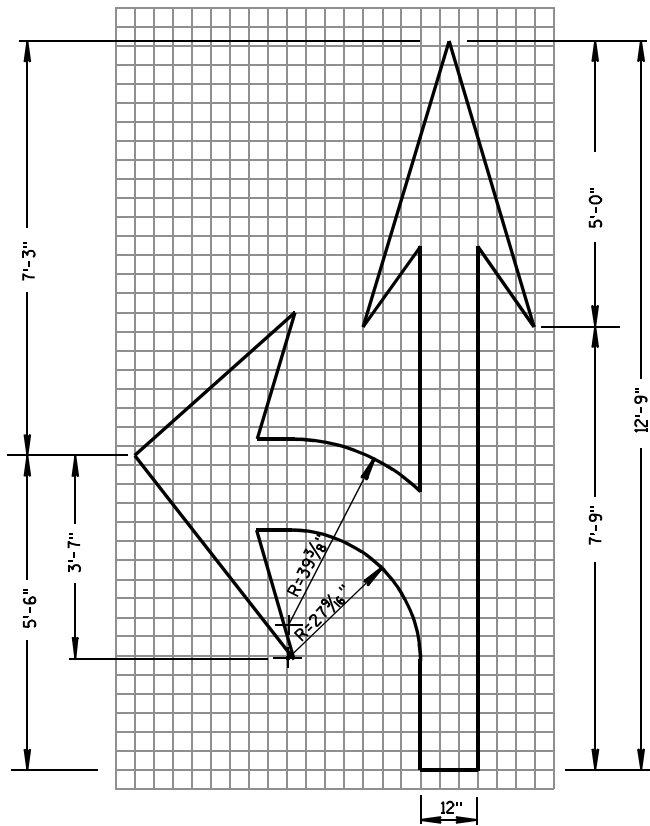
TYPE 1



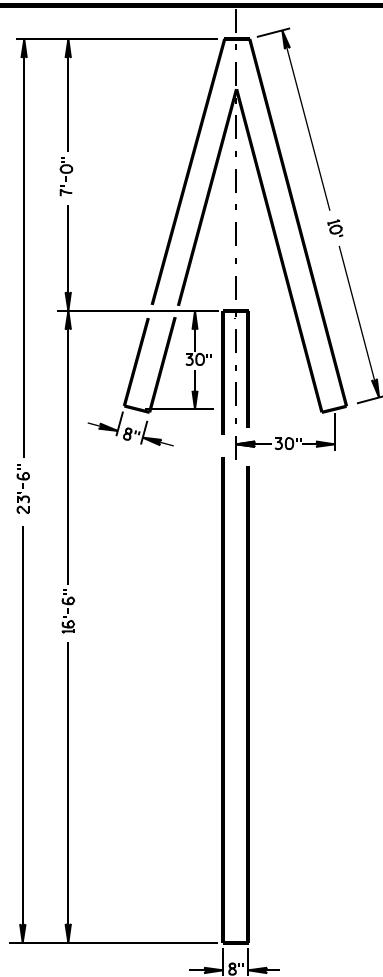
TYPE 6



TYPE 7



TYPE 3

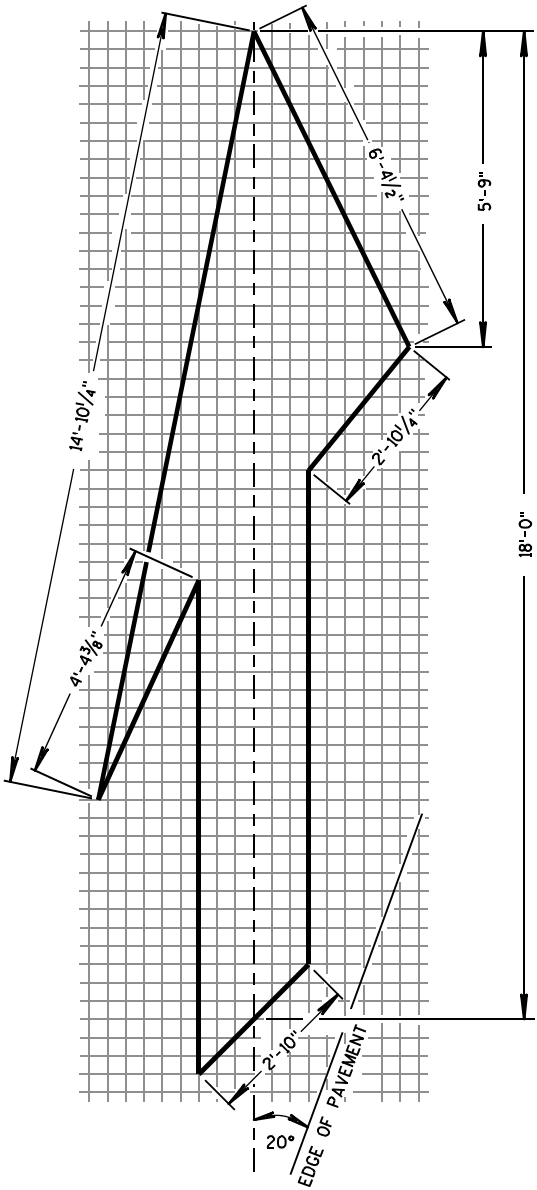


TYPE 4

GENERAL NOTES

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

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



TYPE 5 LANE DROP ARROW

PAVEMENT MARKING ARROWS

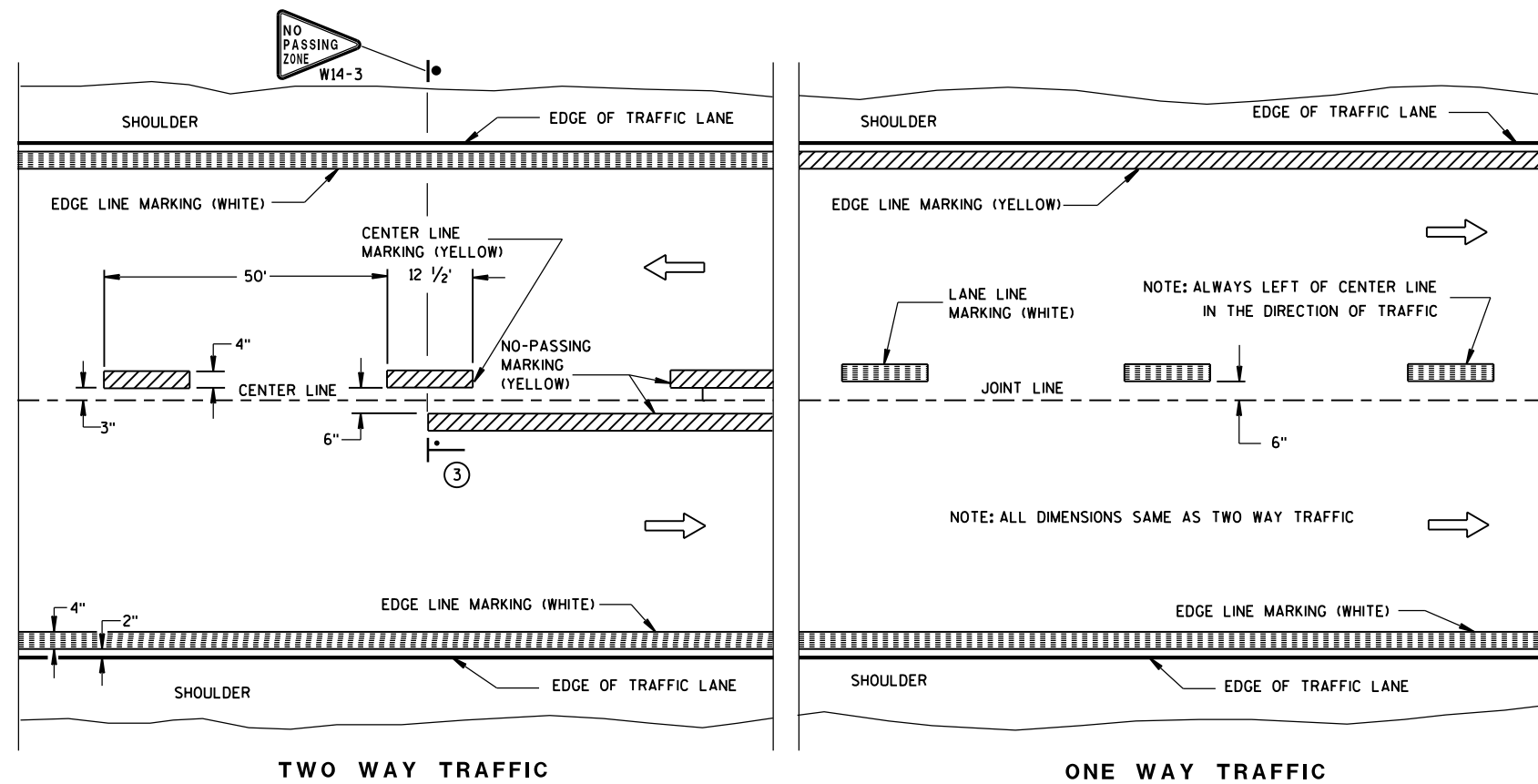
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

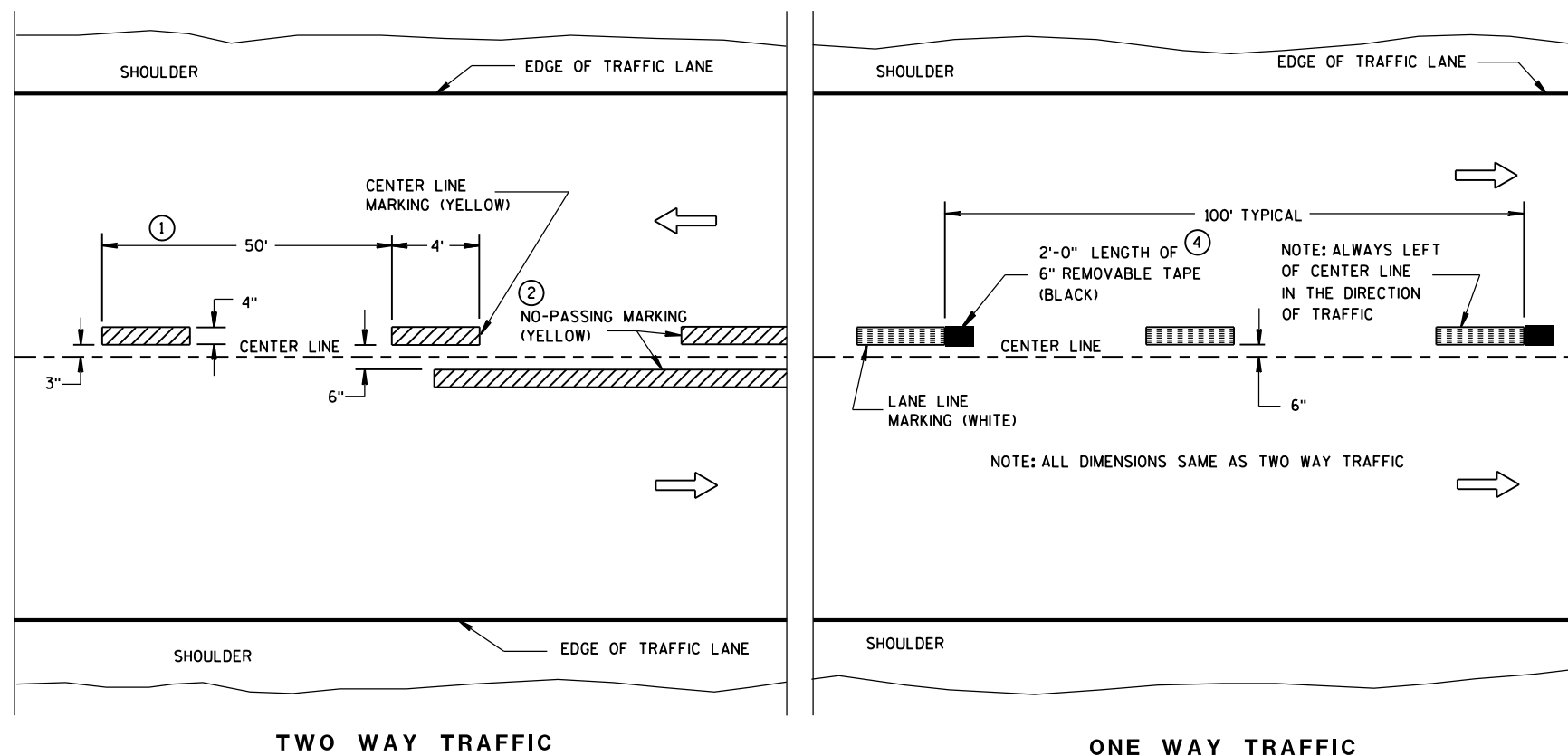
7/1/11
DATE

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

FHWA



PERMANENT PAVEMENT MARKING



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

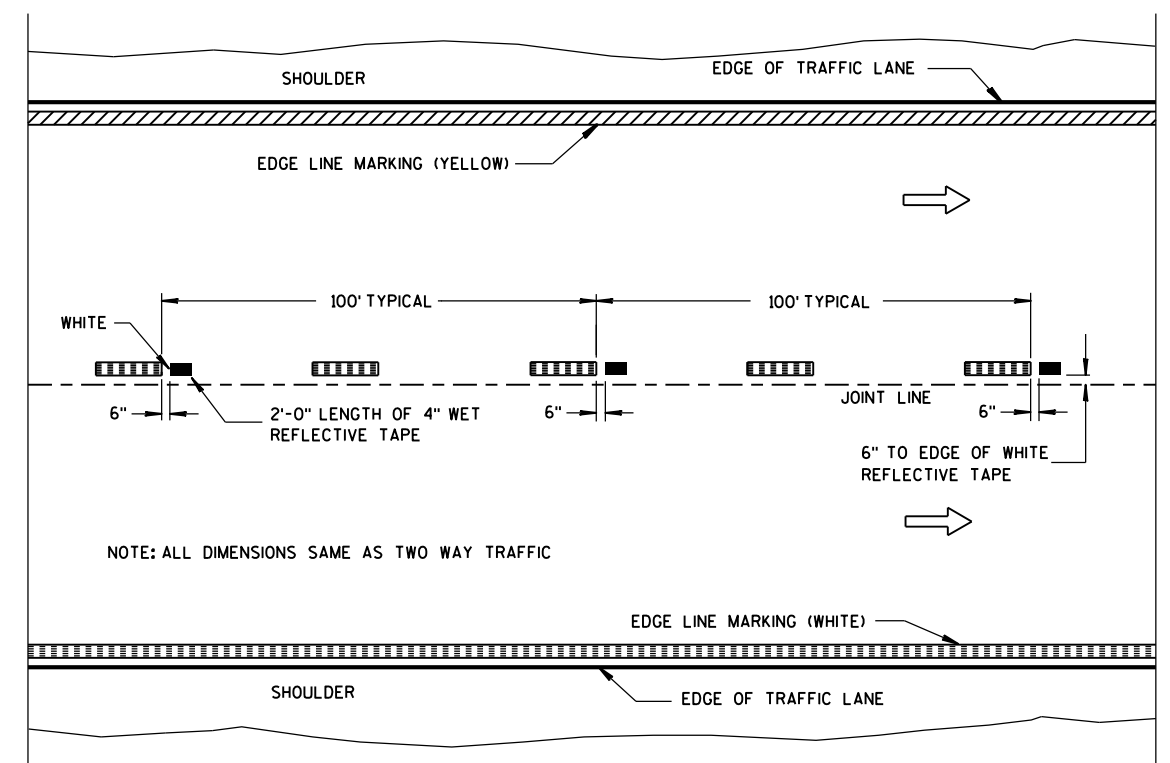
GENERAL NOTES

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

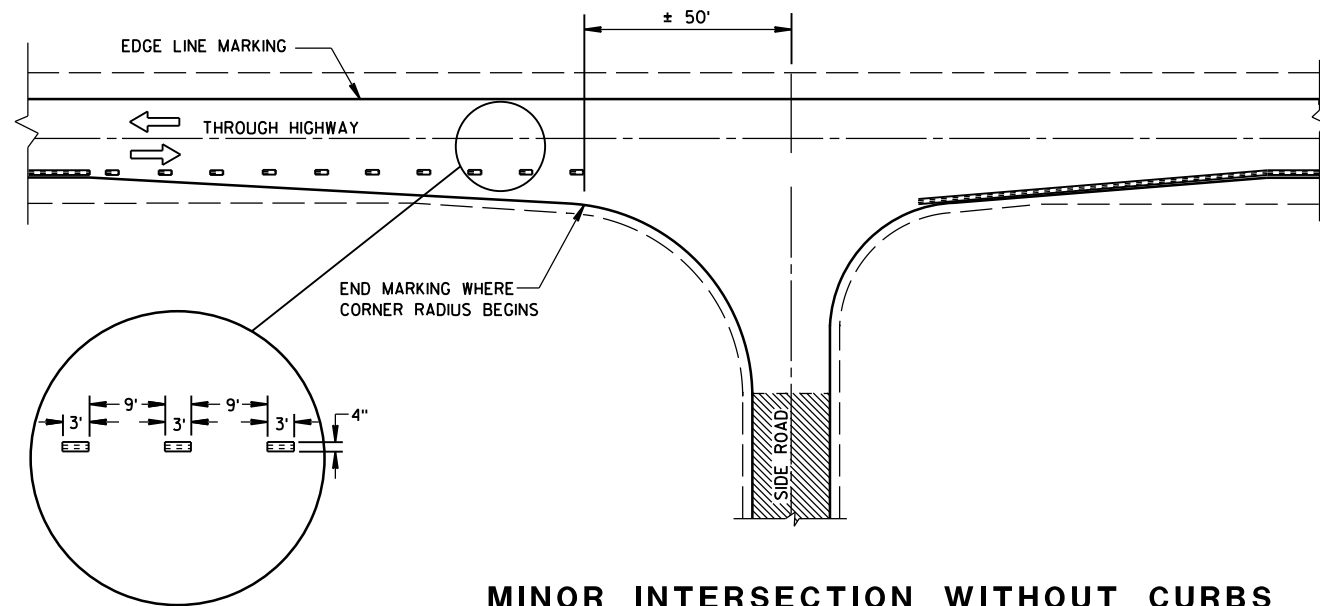
LEGEND

-  "T" MARKING
-  POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

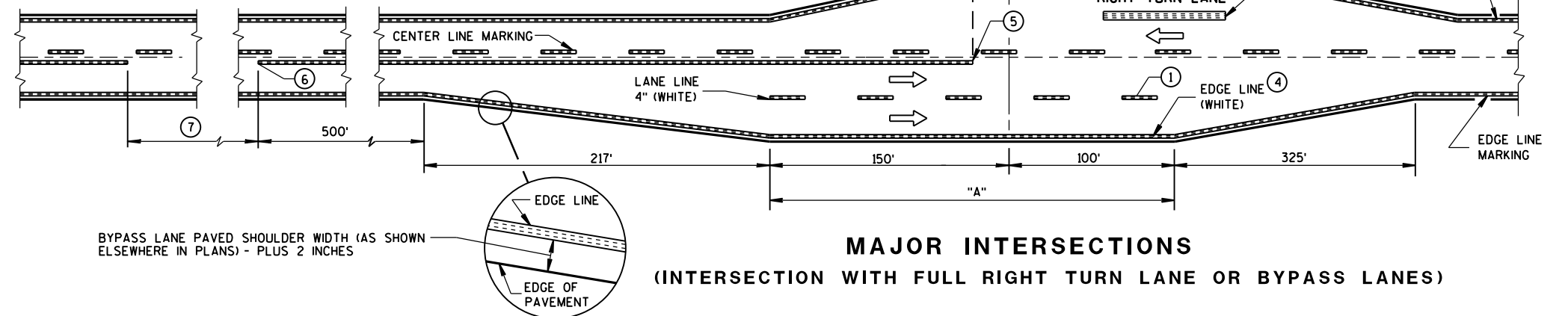
APPROVED
5-13-2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER
FHWA



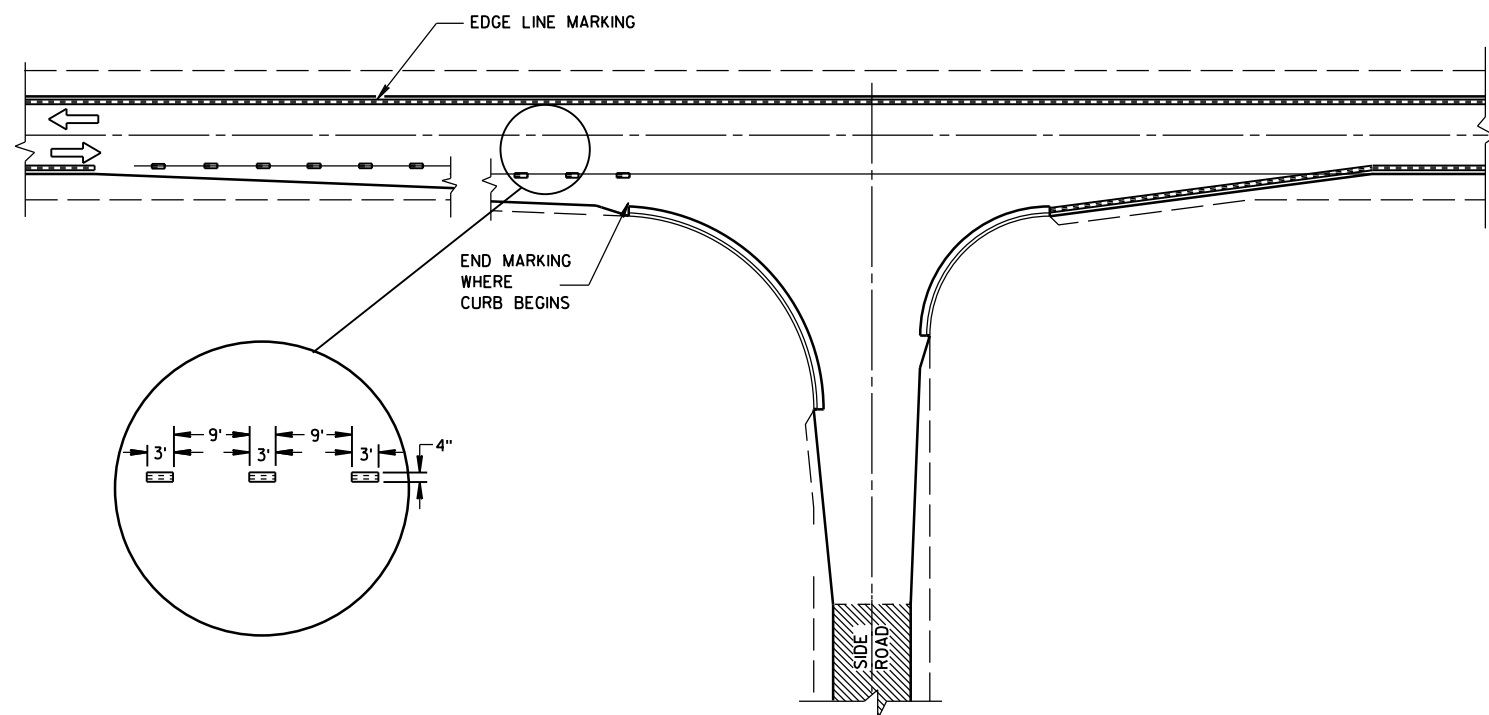
MINOR INTERSECTION WITHOUT CURBS

⑦

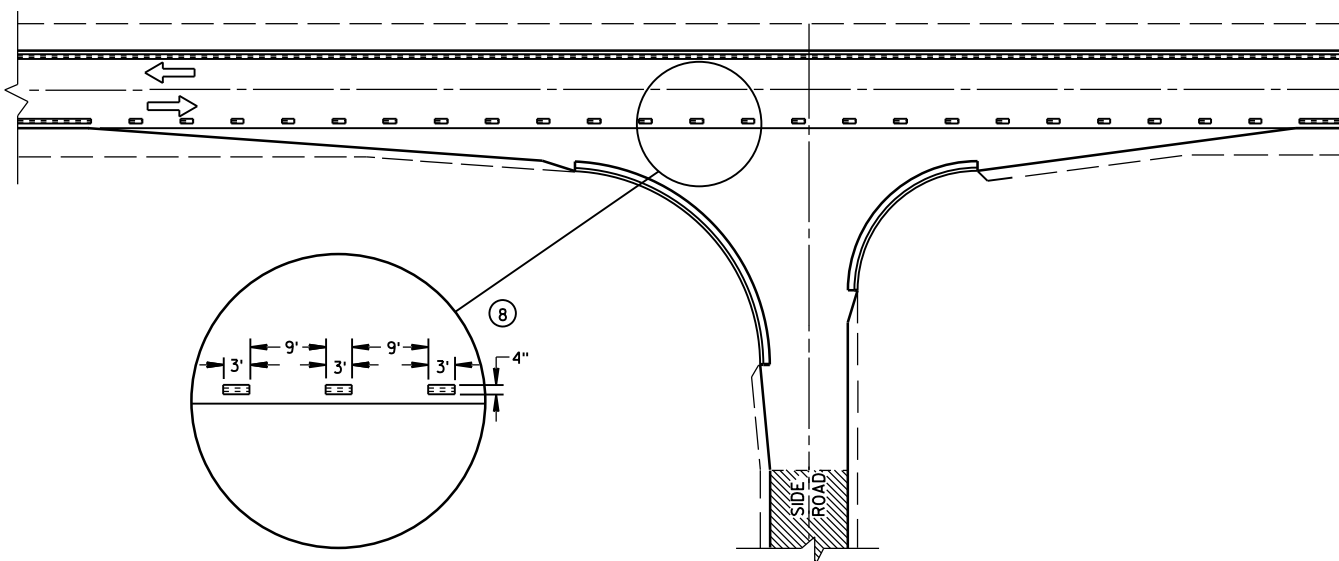
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



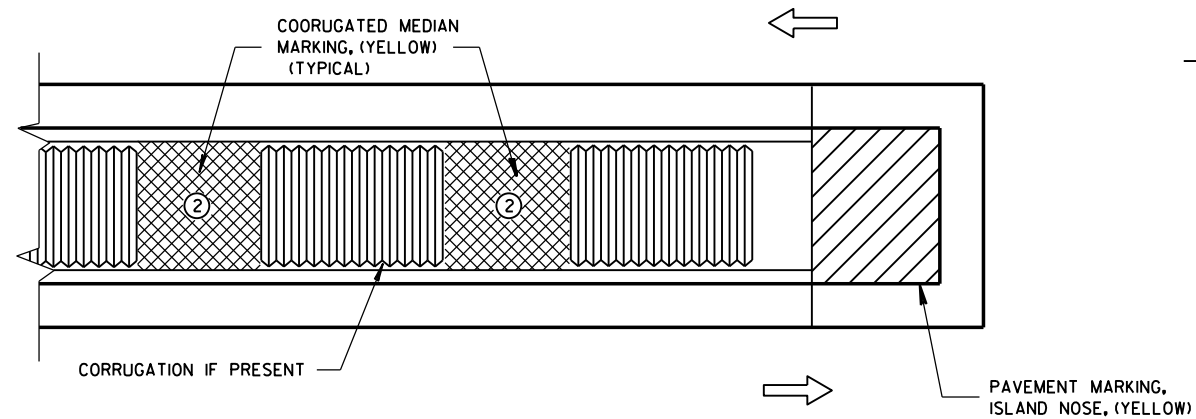
MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



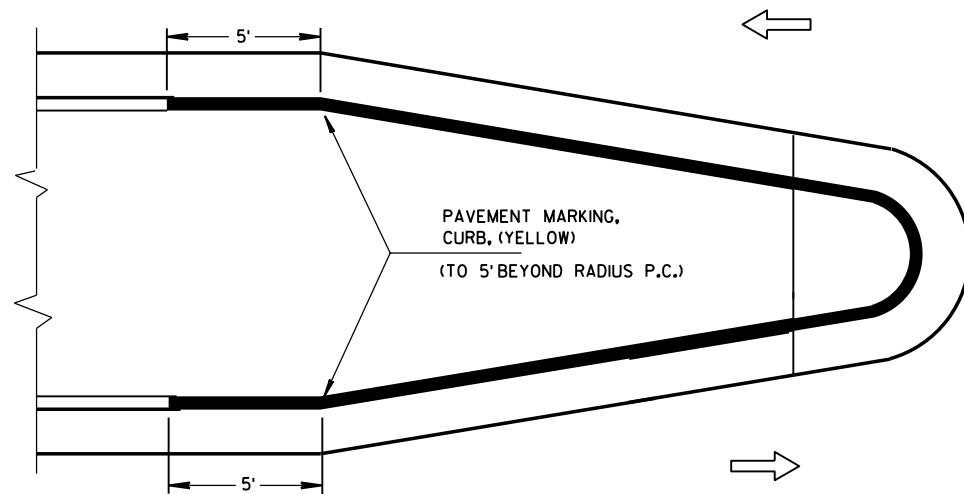
MINOR INTERSECTION WITH CURBS
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

GENERAL NOTES

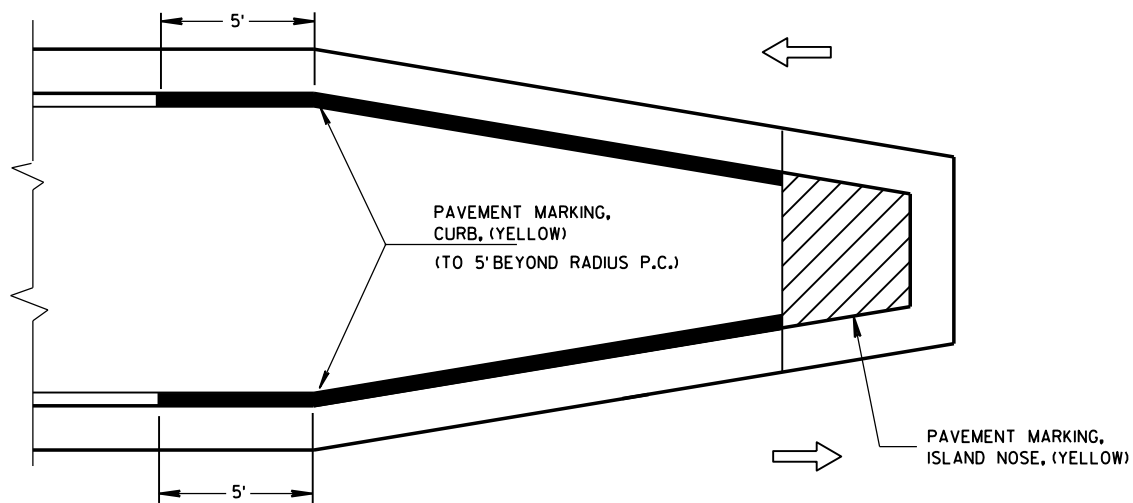
- EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
 - ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
 - ③ ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.
 - ④ THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.
 - ⑤ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.
 - ⑥ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
 - ⑦ IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.
 - ⑧ 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

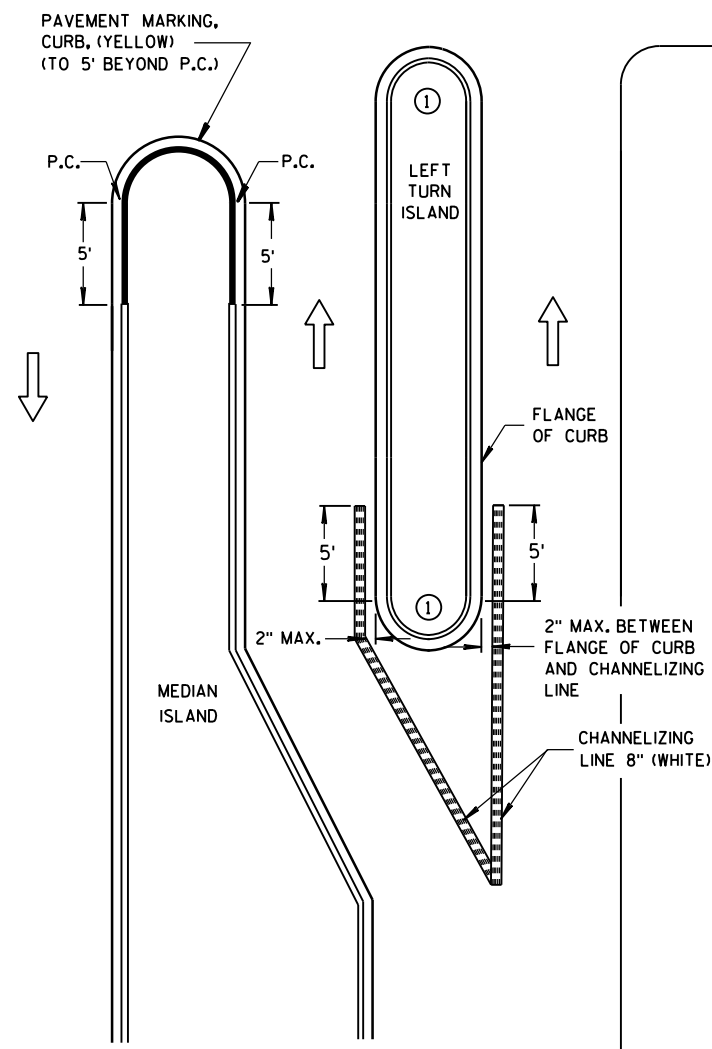


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

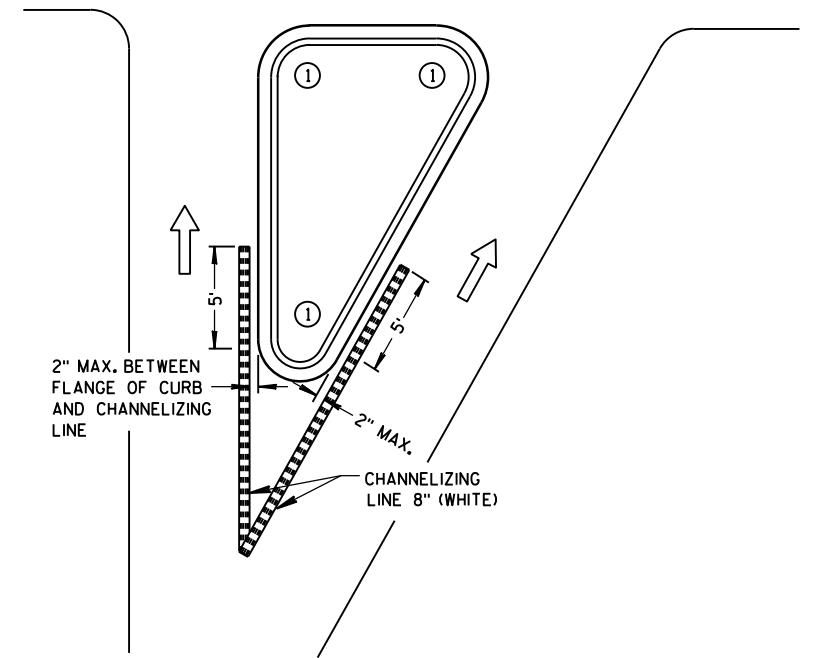
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

- 1 DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.
- 2 WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN, THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND

LEGEND

- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING (ISLANDS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

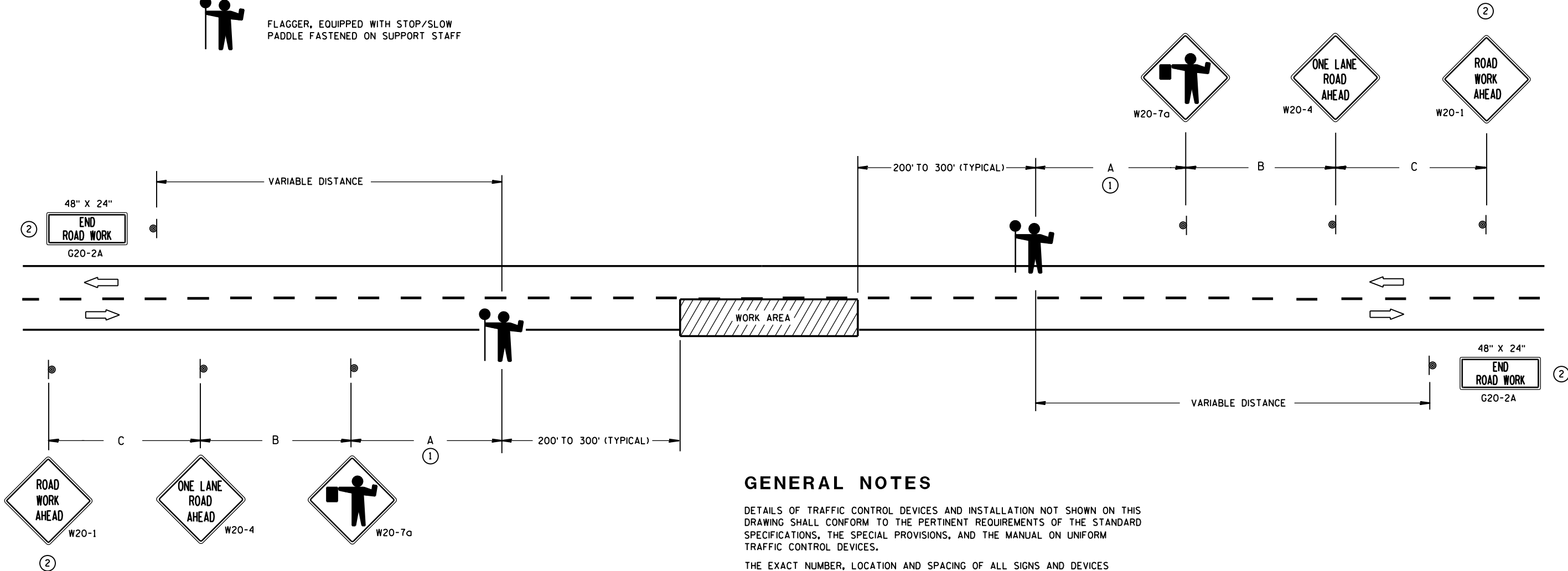
-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



GENERAL NOTES

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

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

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

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

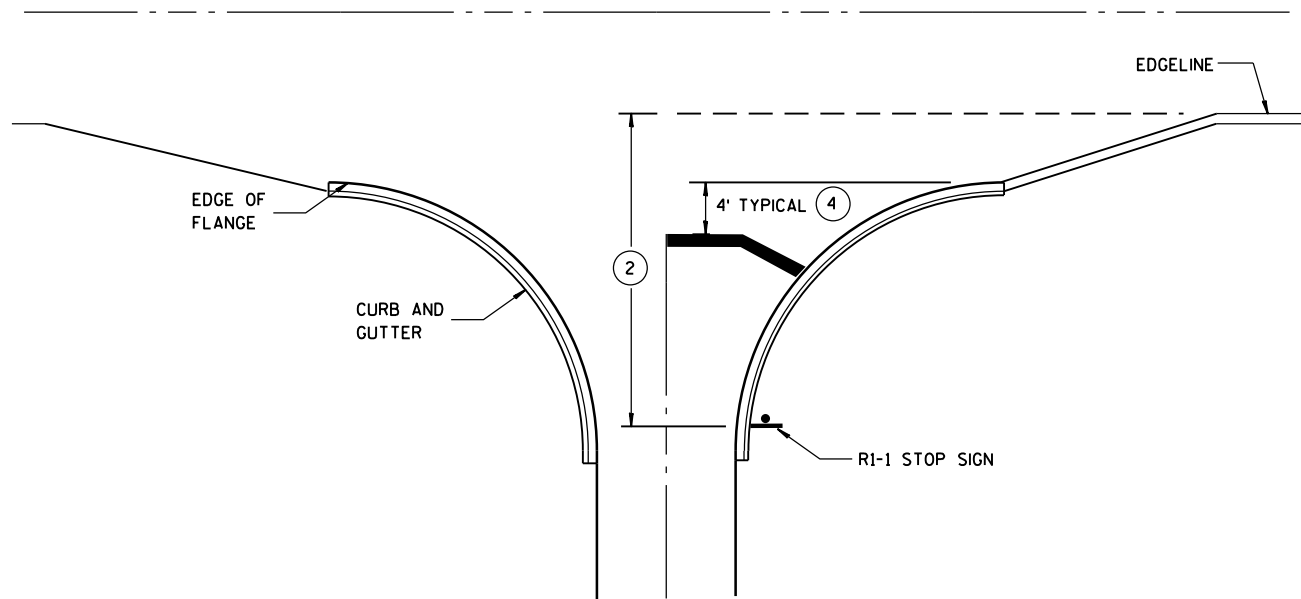
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

- ① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

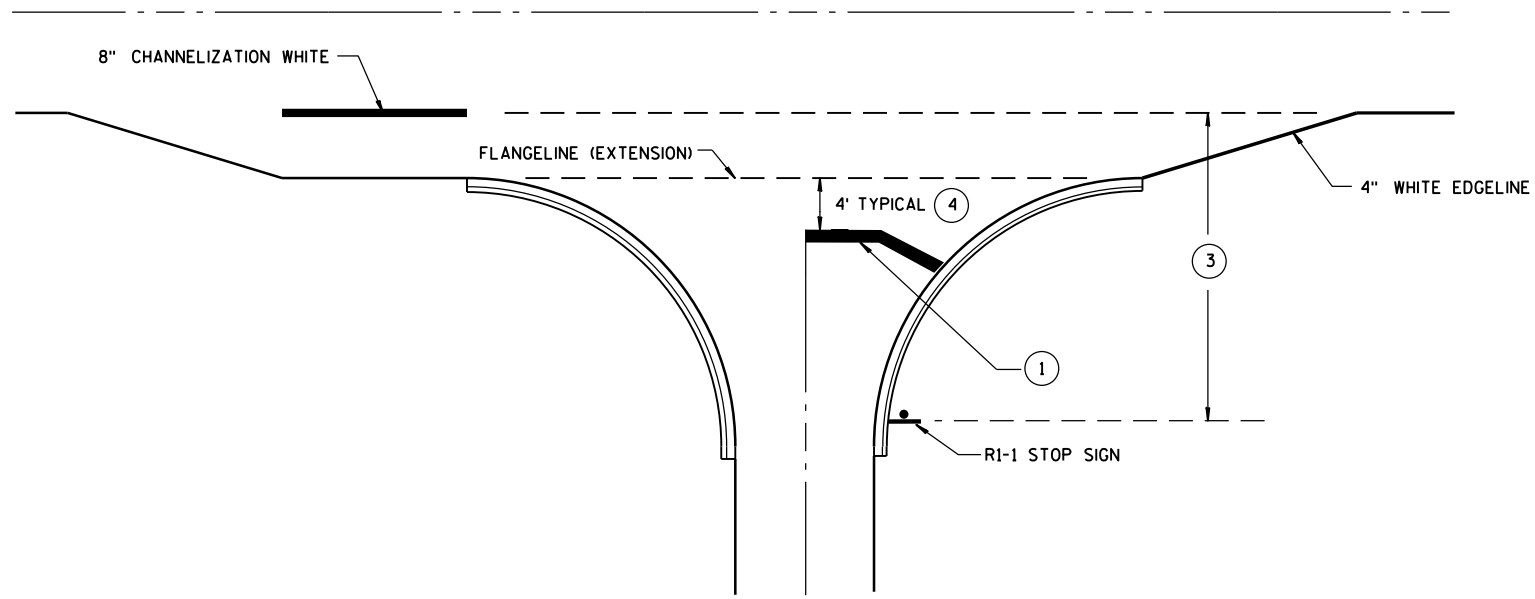
TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

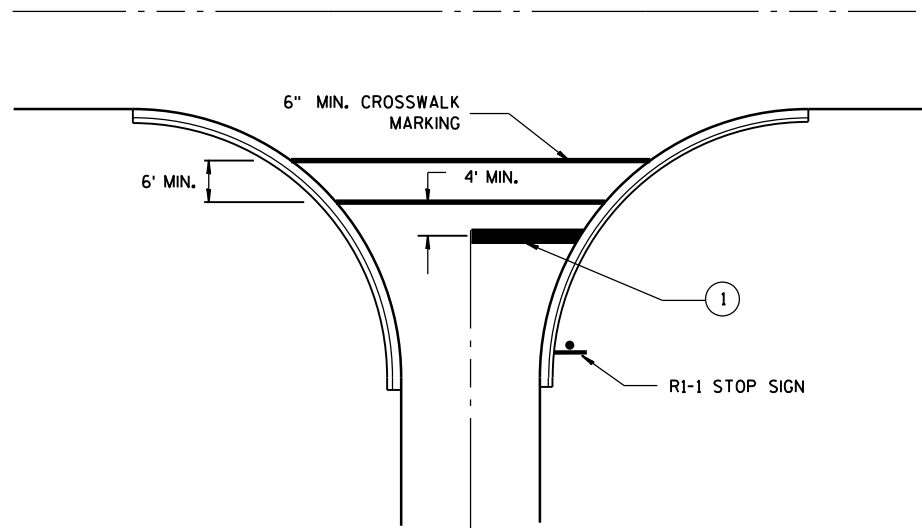
APPROVED
8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



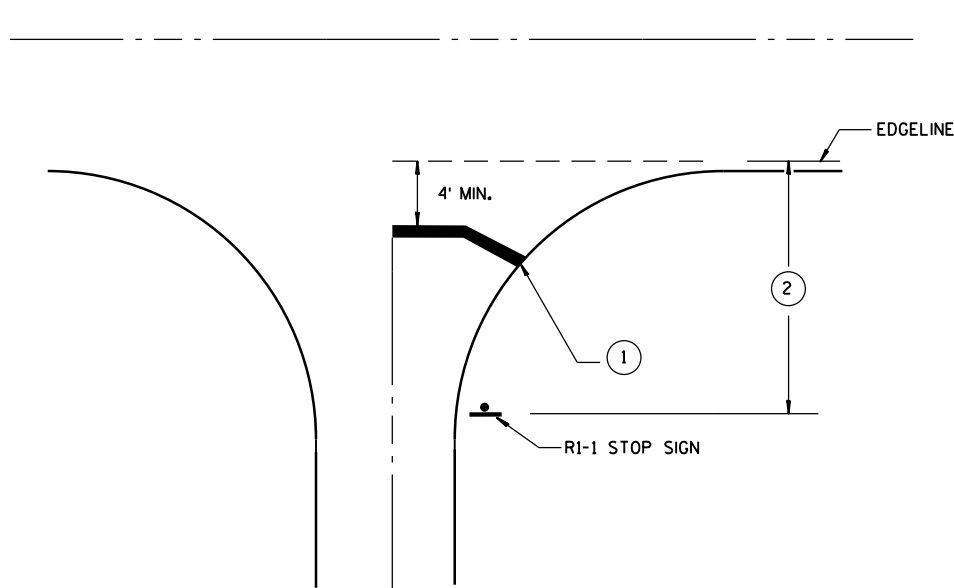
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGE LINE THAN NO STOP LINE IS REQUIRED.
- ③ IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
- ④ MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES.

STOP LINE AND CROSSWALK
PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/30/2013 DATE /S/ Travis Feltz
STATE TRAFFIC ENGINEER
FHWA

 TYPE III BARRICADE WITH ATTACHED SIGN
 SIGN ON PERMANENT SUPPORT
 TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
 TRAFFIC CONTROL DRUM
 FLASHING ARROW BOARD
 TYPE "A" WARNING LIGHT (FLASHING)
 REMOVING PAVEMENT MARKING
 DIRECTION OF TRAFFIC
 WORK AREA

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

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

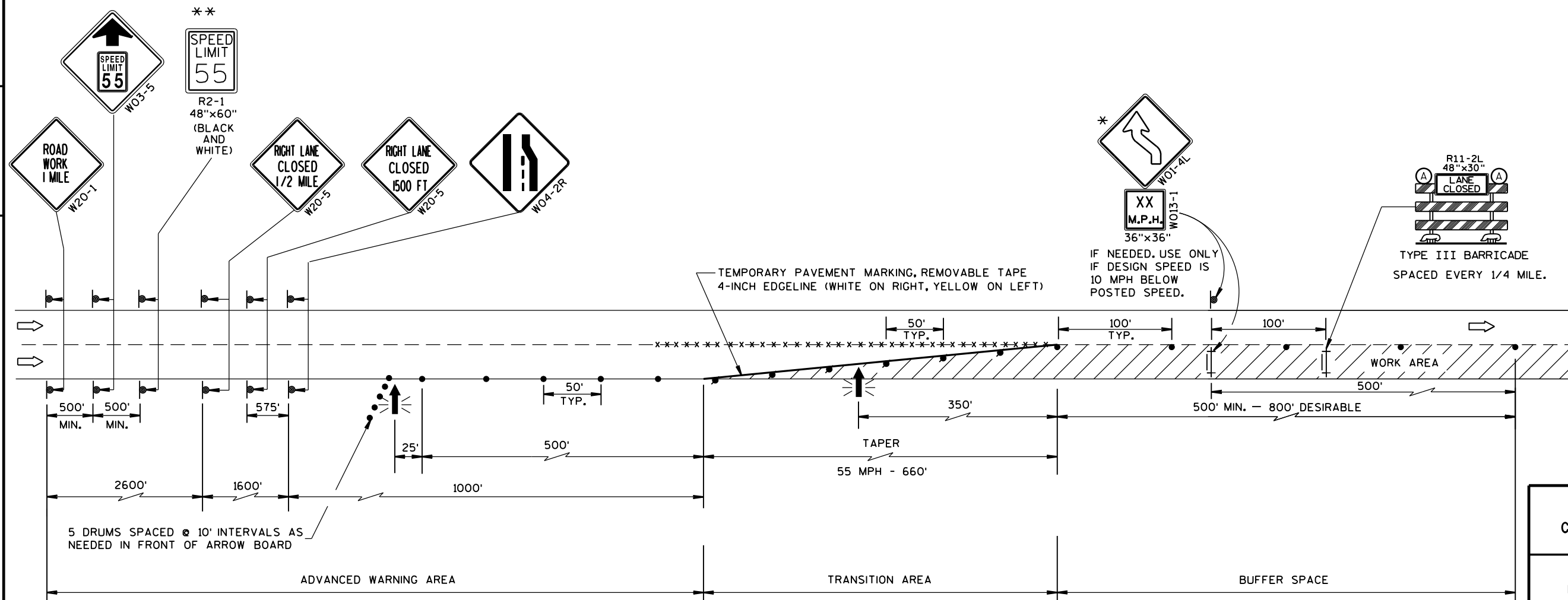
CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL
DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

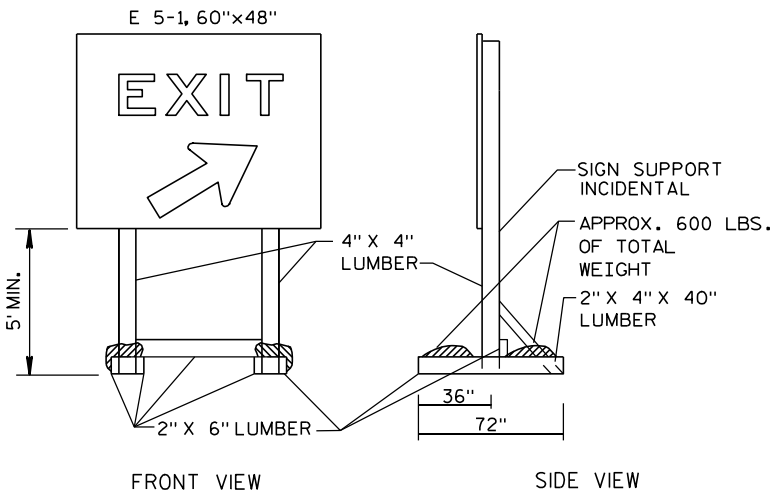
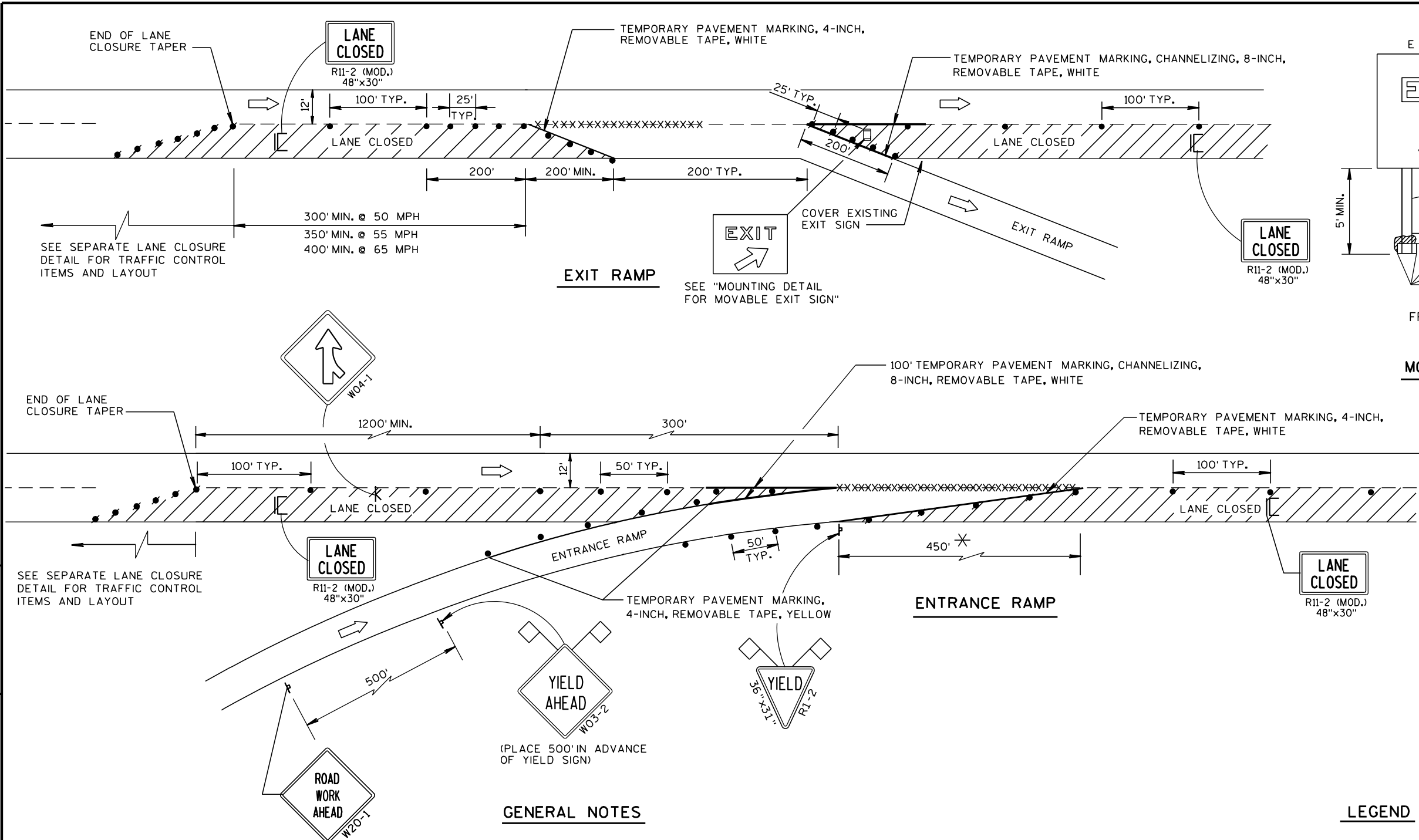
*** A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES. INCLUDE A 65 MPH RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIREABLE) BEYOND THE "END OF ROADWORK" SIGN.



TRAFFIC CONTROL, LANE
CLOSURE, SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3-2014 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



FRONT VIEW SIDE VIEW
NOTE: ALL LUMBER DIMENSIONS ARE NOMINAL
MOUNTING DETAIL FOR MOVABLE EXIT SIGN

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2 (MOD.) "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 7 OR MORE CONTINUOUS DAYS AND NIGHTS.

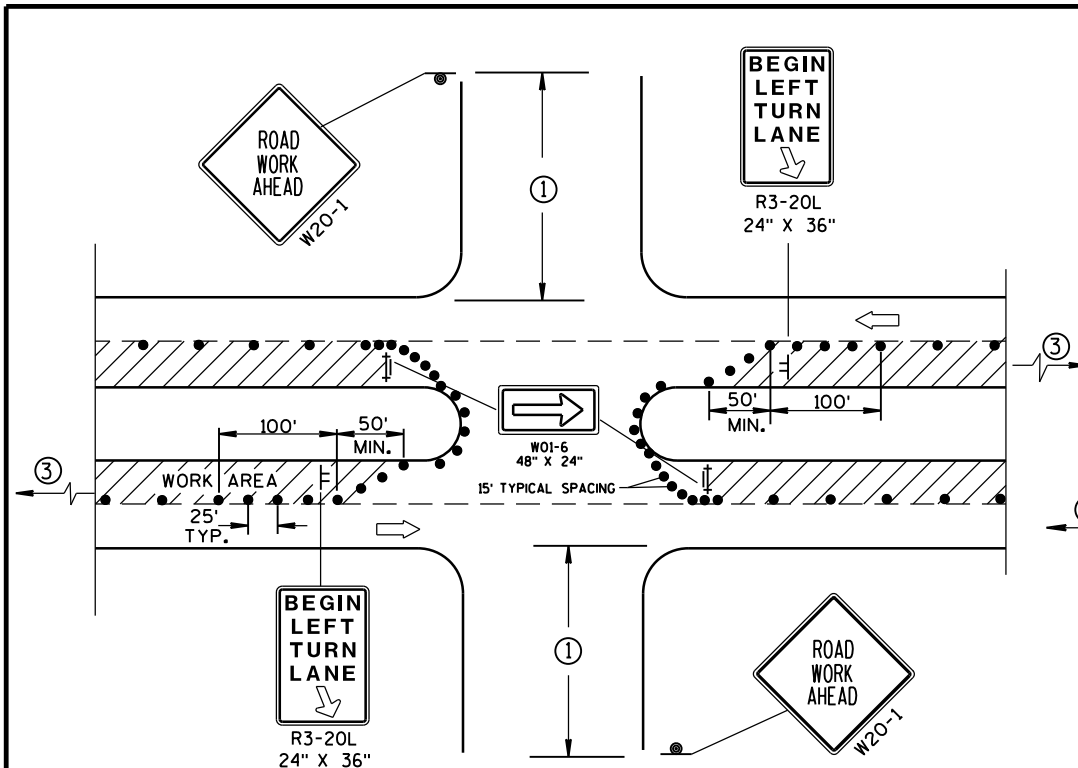
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

* LENGTH OF OPENING MAY BE REDUCED TO 150 FEET DURING STAGING OF WORK IN IMMEDIATE AREA OF RAMP TAPER.

LEGEND

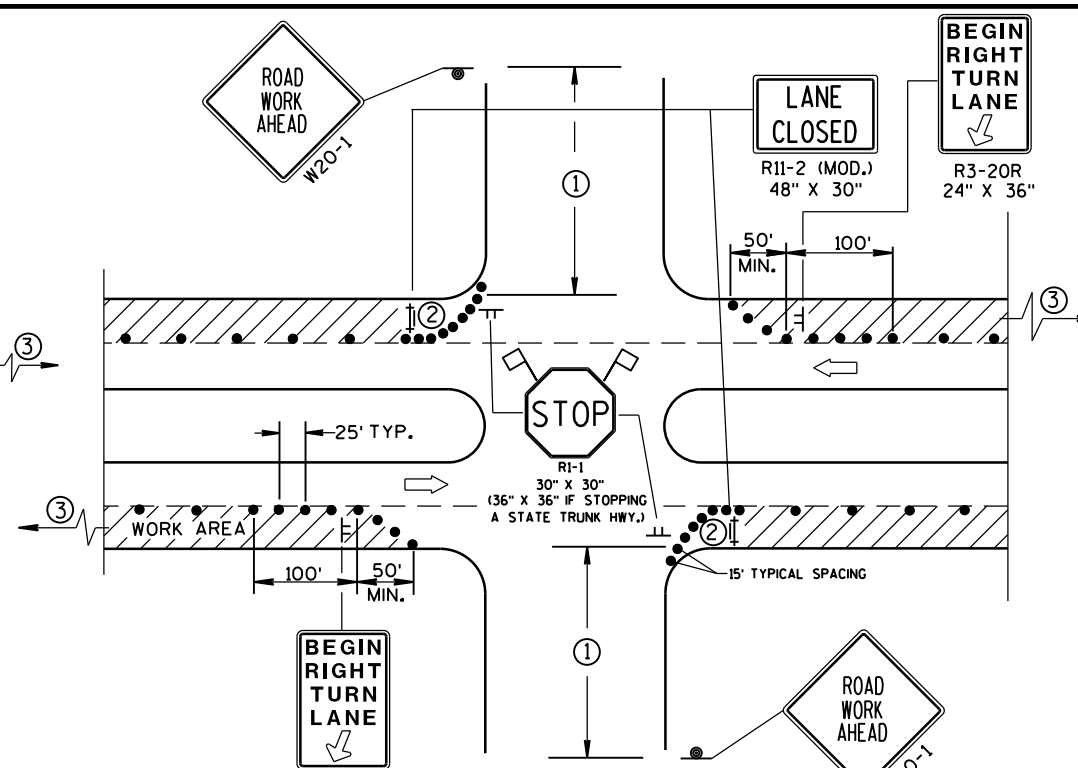
- POST MOUNTED SIGN
- SIGN ON PORTABLE SUPPORT
- TRAFFIC CONTROL, DRUM
- TRAFFIC CONTROL, DRUM WITH WARNING LIGHT, TYPE C (STEADY-BURN)
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE (8' EQUIVALENT) WITH SIGN
- FLAGS, 16"x16" MIN., ORANGE
- DIRECTION OF TRAFFIC FLOW

TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/24/2000 DATE	/S/ Chester J. Spang CHIEF SIGNS AND MARKING ENGINEER
FHWA	



DETAIL A
FOR LEFT LANE CLOSURE AT
INTERSECTION OR MEDIAN OPENING

PROVIDE TURN LANES AT
INTERSECTIONS WHENEVER
STAGING OF WORK ALLOWS.
TAPER AND TURN LANE
LENGTHS BASED ON FIELD
CONDITIONS AS APPROVED
BY THE ENGINEER.



DETAIL B
FOR RIGHT LANE CLOSURE
AT INTERSECTION

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35-40 MPH.
200' IF 25-30 MPH.
- ② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL
DRIVEWAYS.
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.

GENERAL NOTES

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

THE SPACING BETWEEN 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.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE
CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY
DISTRICT TRAFFIC UNIT.

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD
HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR
THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE
SUPPORTS.

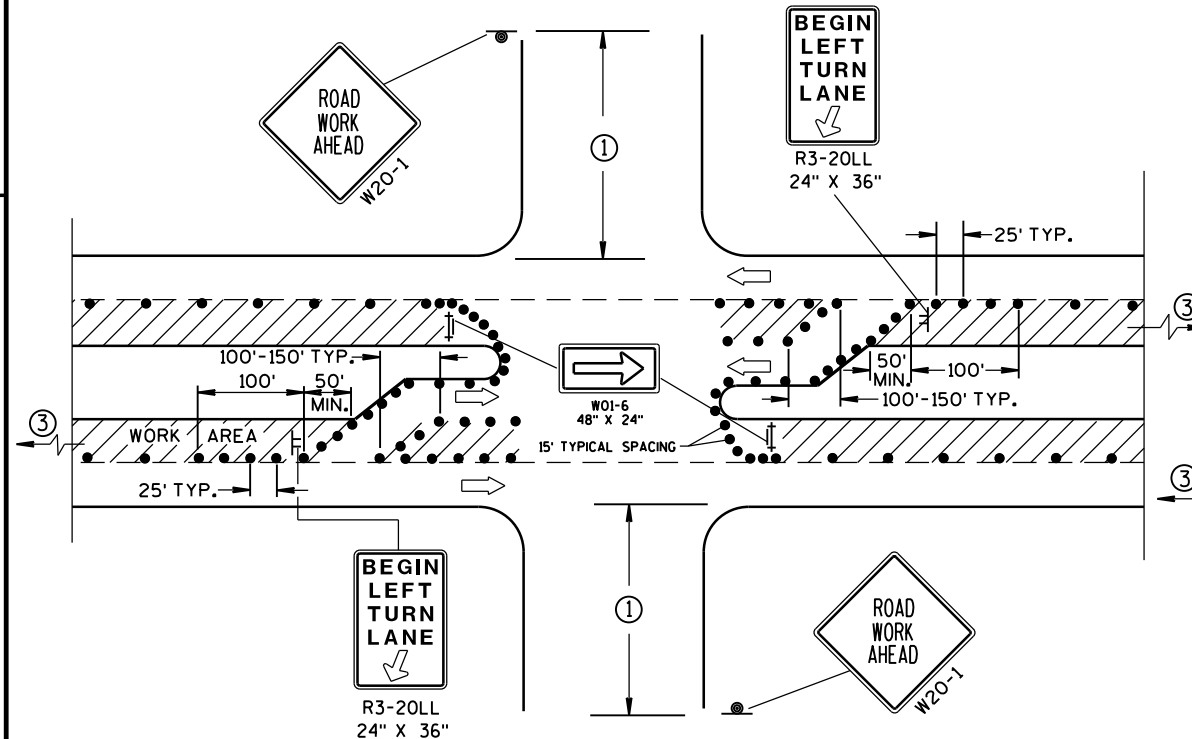
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL
"IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY
THE ENGINEER.

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

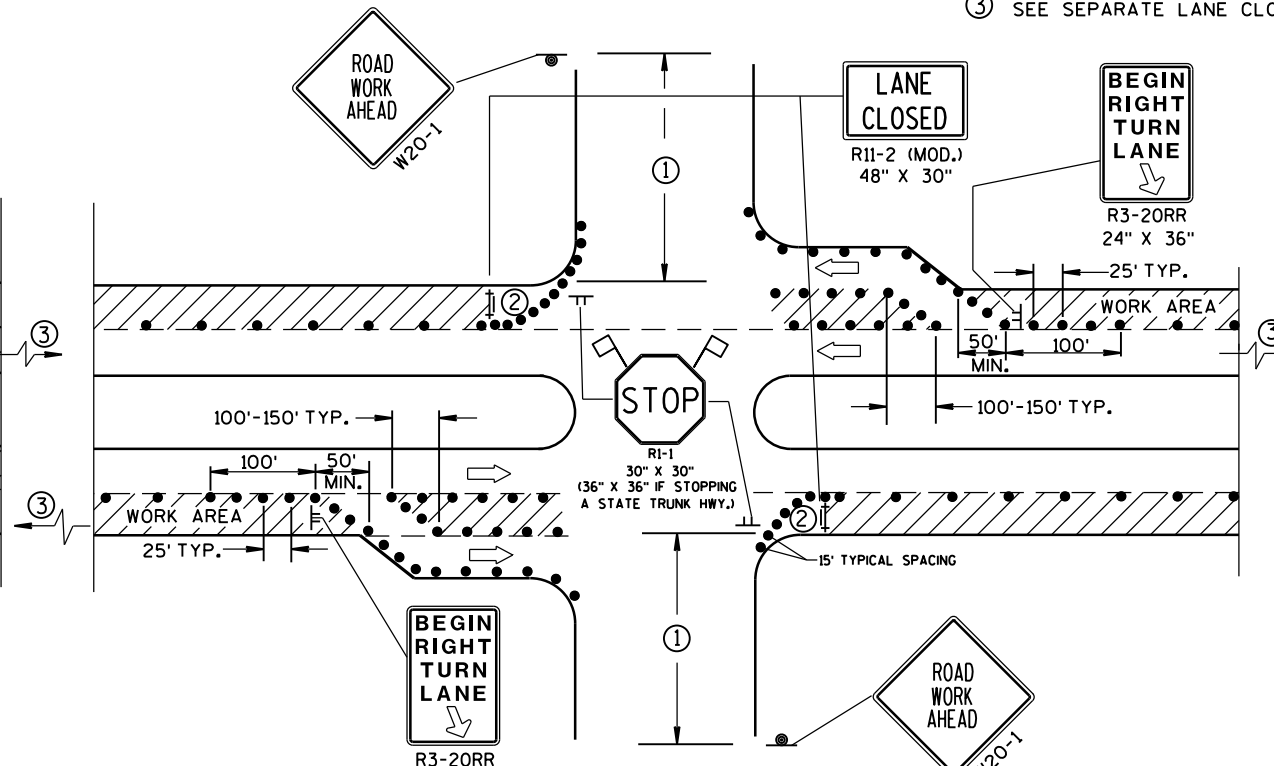
BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION
SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR,
FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

LEGEND

- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ⊢ SIGN ON TEMPORARY SUPPORT (5' MIN.
MOUNTING HEIGHT)
- ⊢ TYPE III BARRICADE WITH ATTACHED SIGN
AND TYPE "A" WARNING LIGHT (FLASHING)
- ➡ DIRECTION OF TRAFFIC
- ⚑ FLAGS, 16" X 16" MIN., (ORANGE)
- ▨ WORK AREA



DETAIL C
FOR LEFT LANE CLOSURE AT INTERSECTION OR
MEDIAN OPENING (WITH LEFT TURN BAY OPEN)



DETAIL D
FOR RIGHT LANE CLOSURE AT INTERSECTION
(WITH RIGHT TURN BAY OPEN)

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

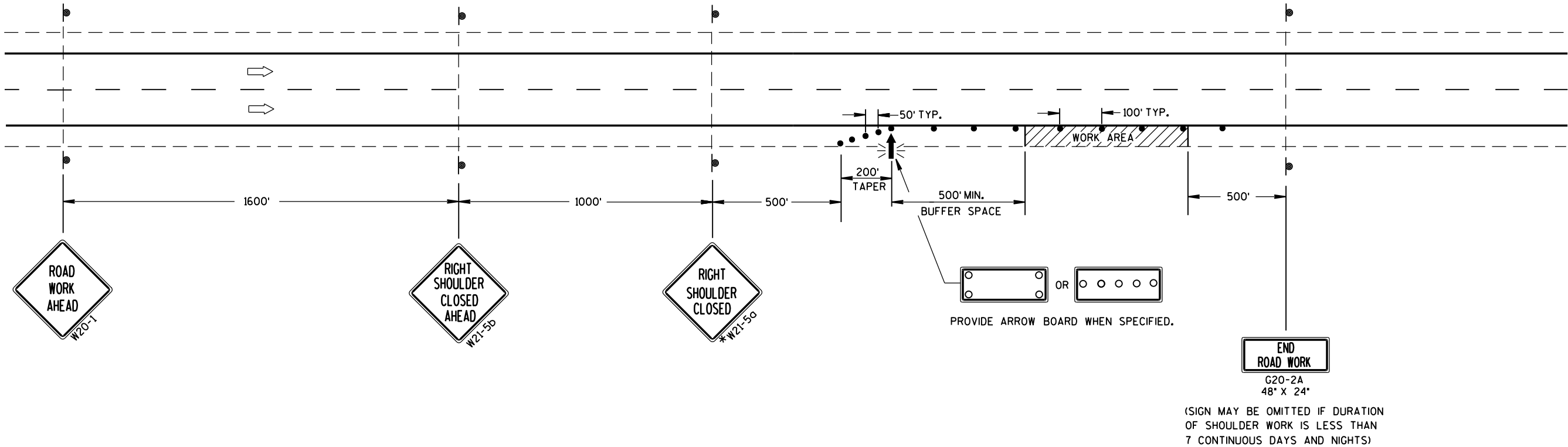
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

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

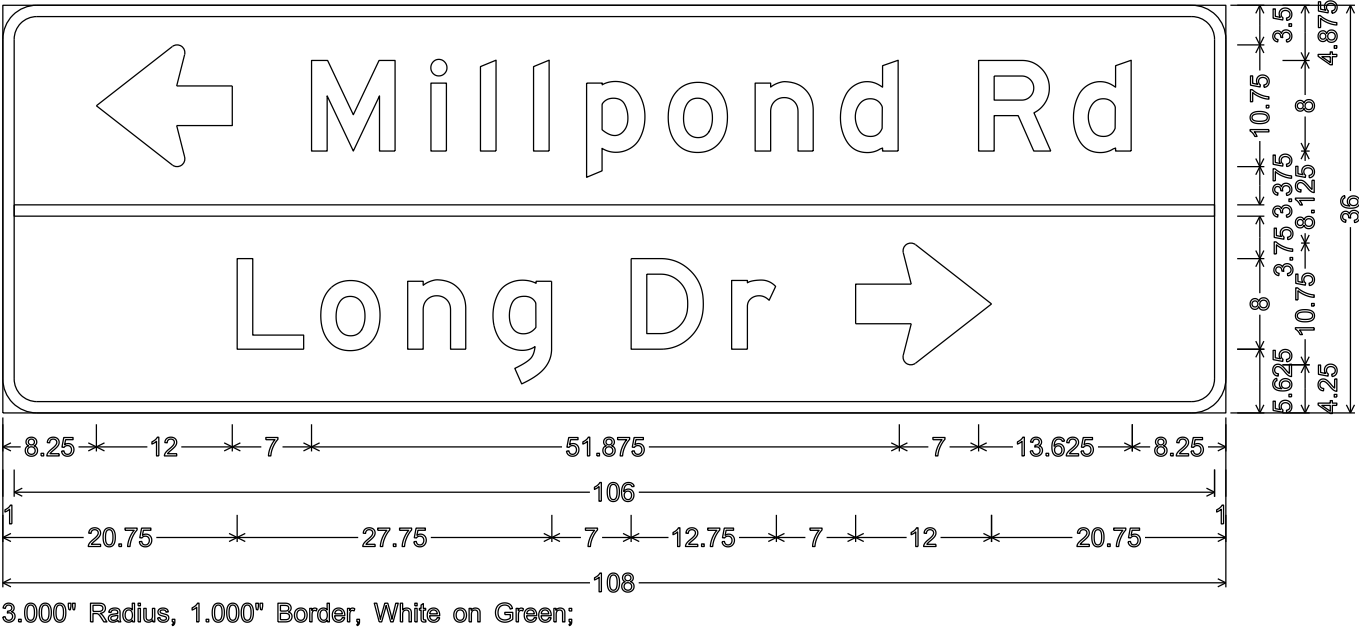
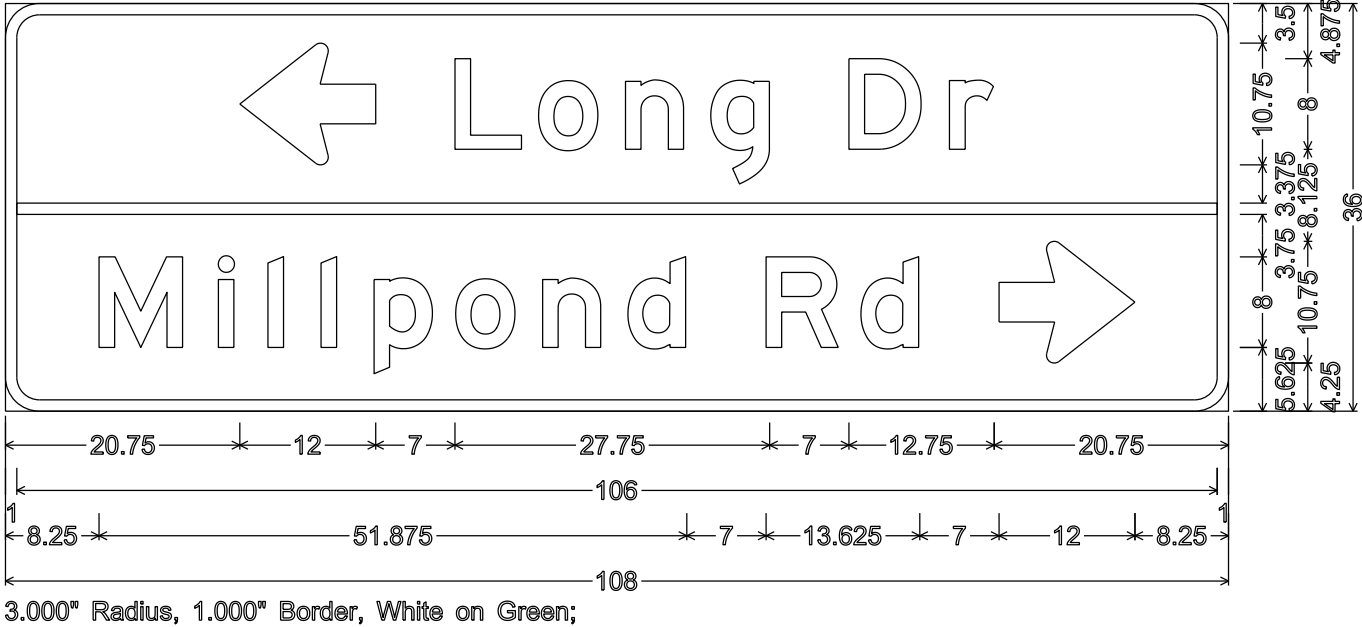
*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

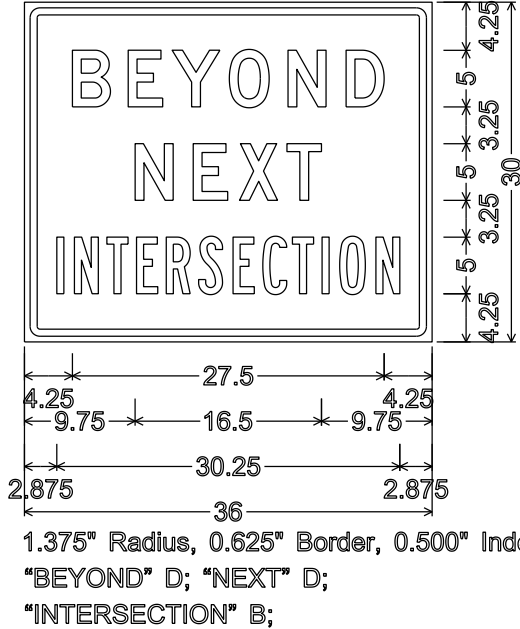
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

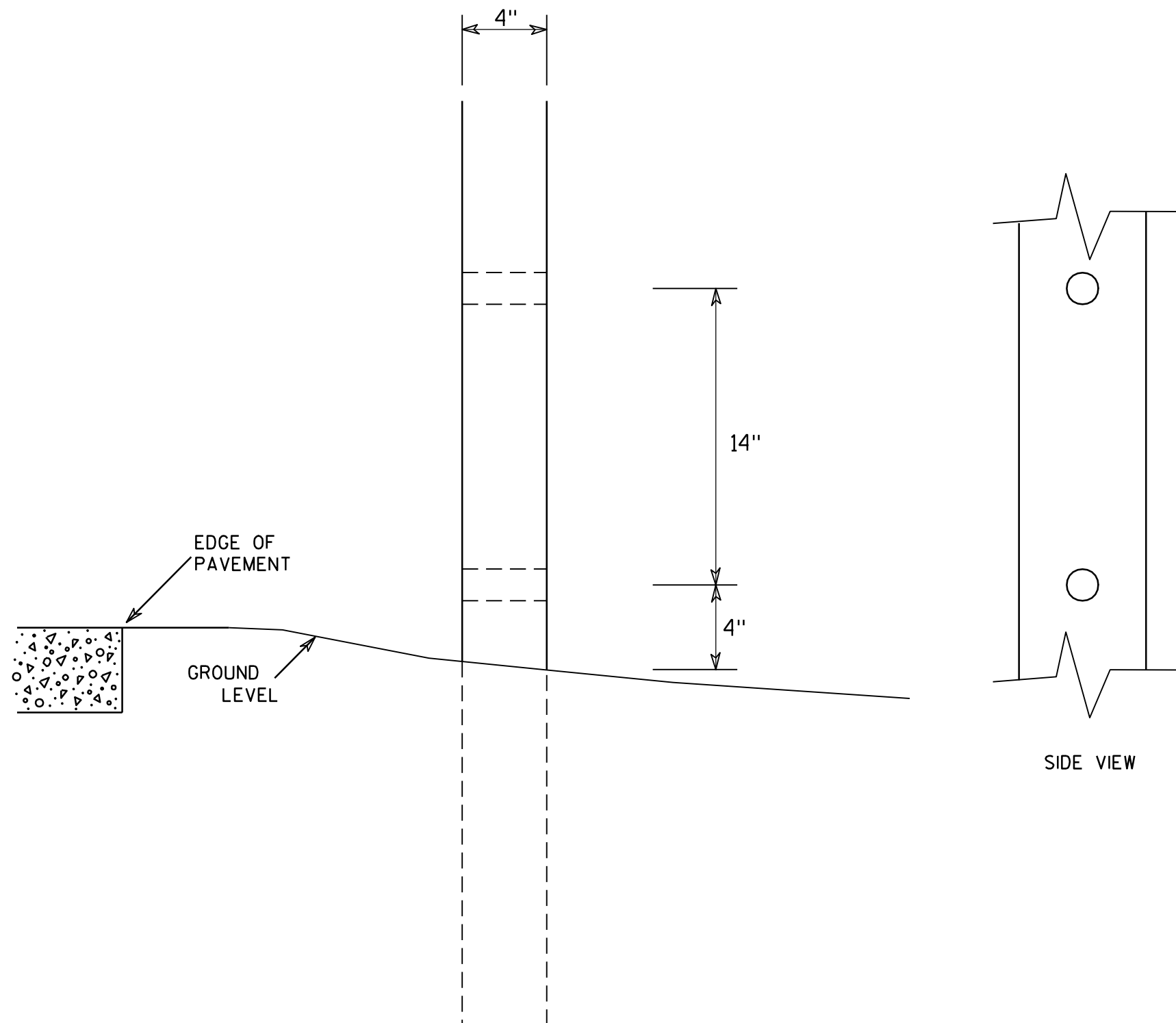


NOTES

- 1. All Signs are Type II - Type H Reflective
- 2. Color:
 - Background - Green except as noted
 - Message - White except as noted
- 3. Message Series - E except as noted



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:

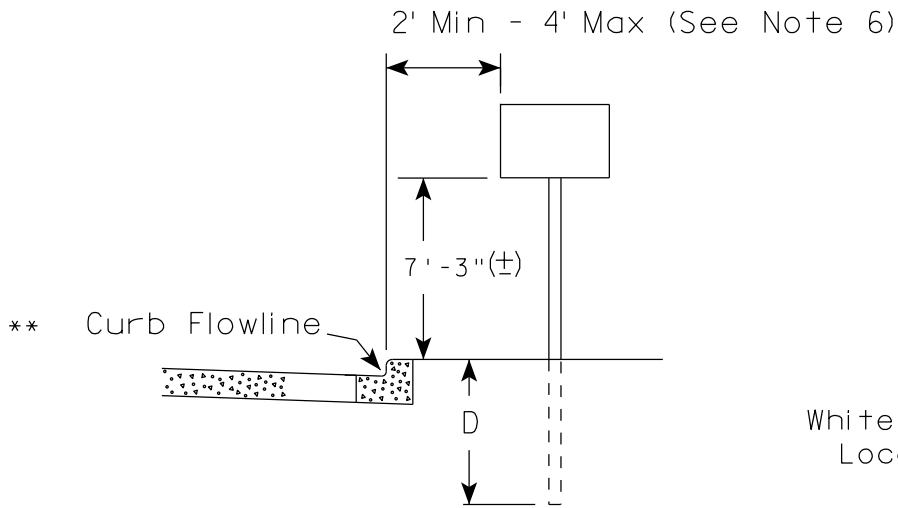
HWY:

COUNTY:

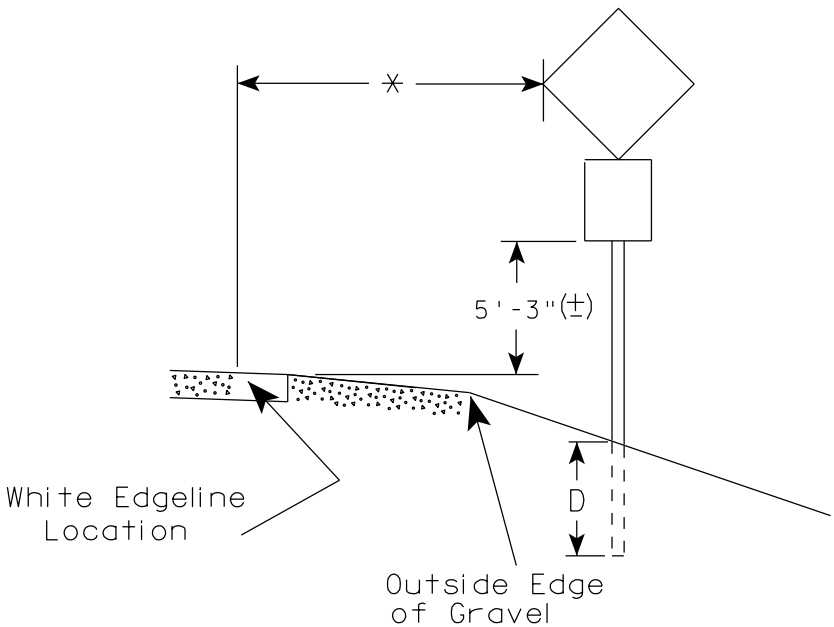
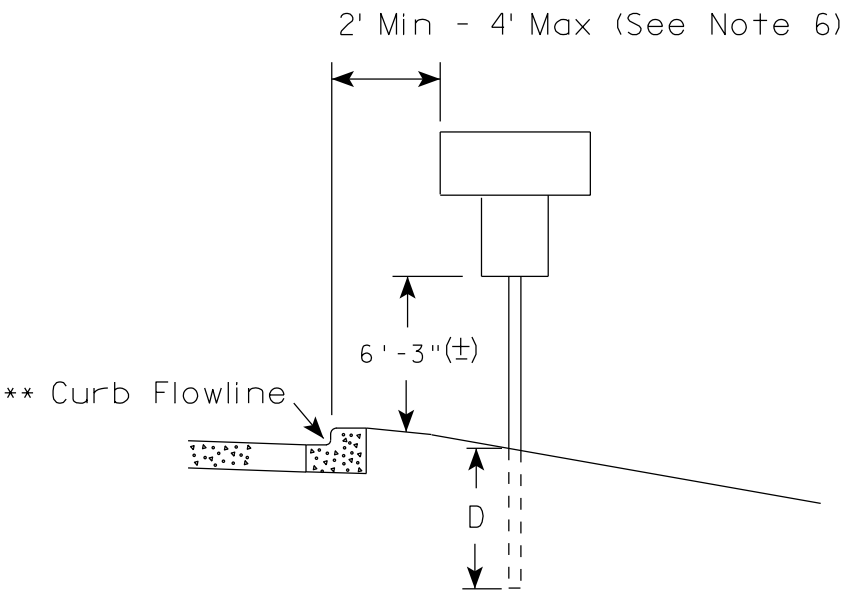
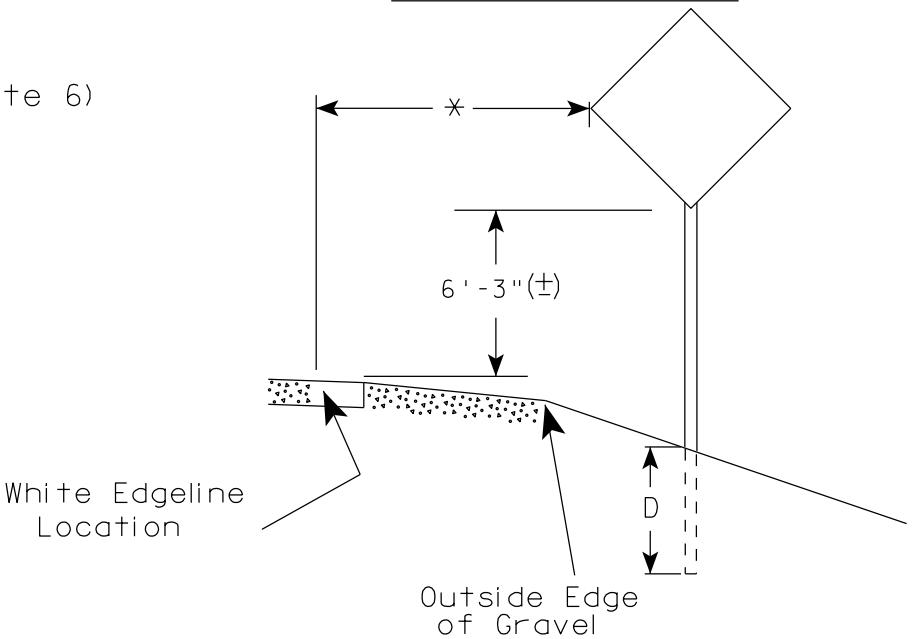
SHEET NO:

E

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, 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), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

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.

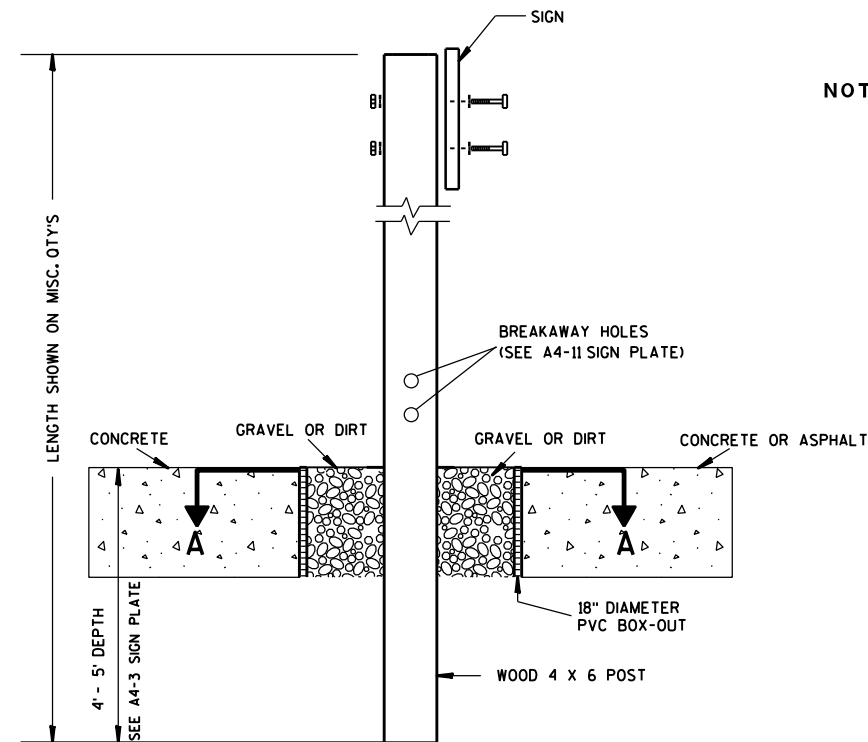
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

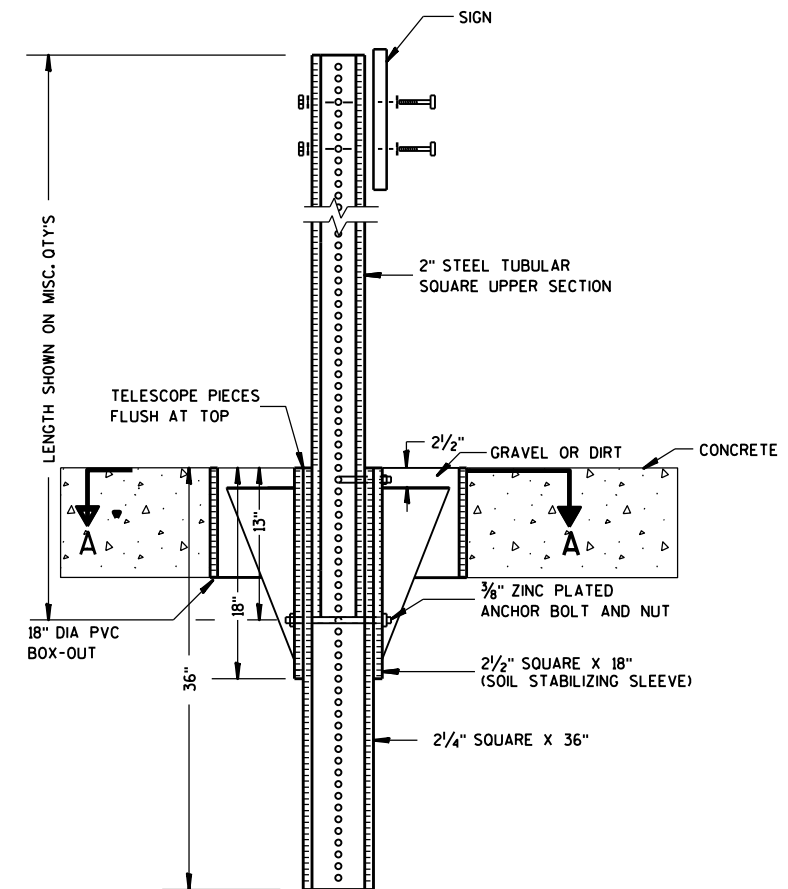
DATE 9/30/13 PLATE NO. A4-3.18



ELEVATION VIEW

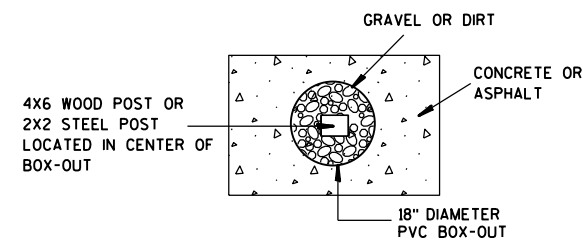
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

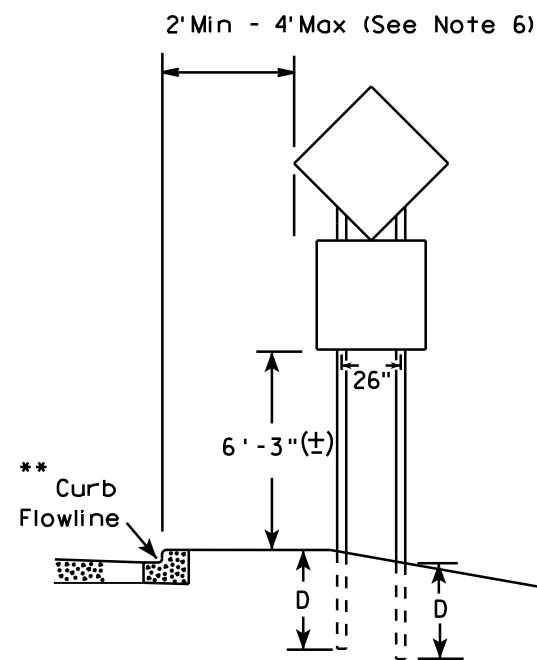
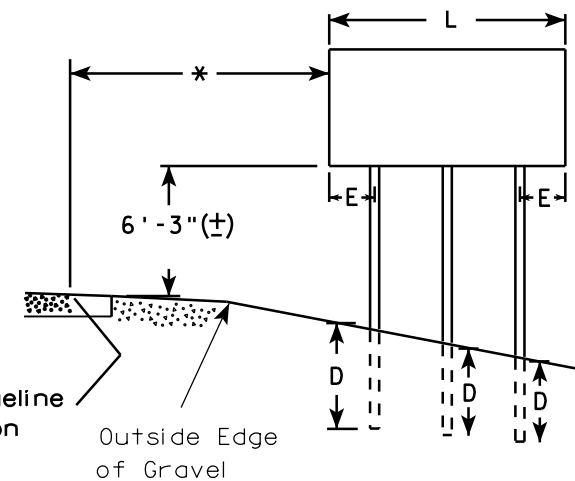
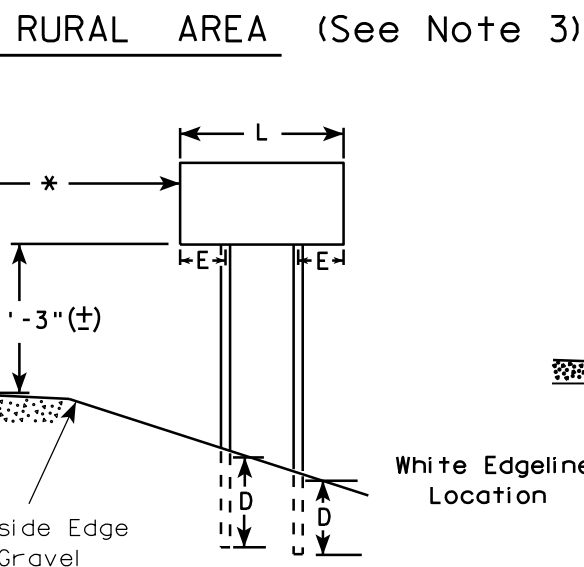
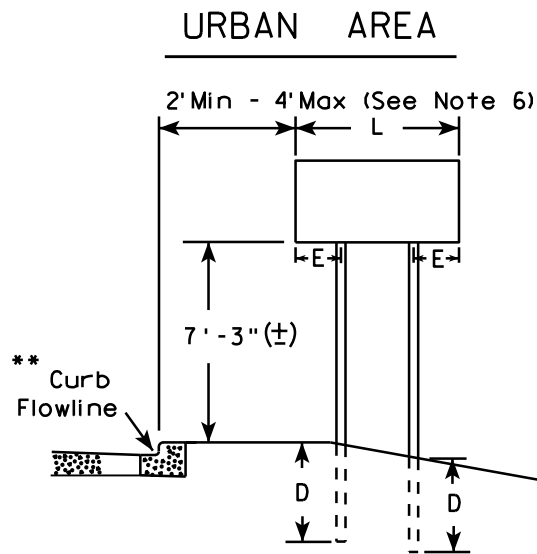
PROJECT NO:

HWY:

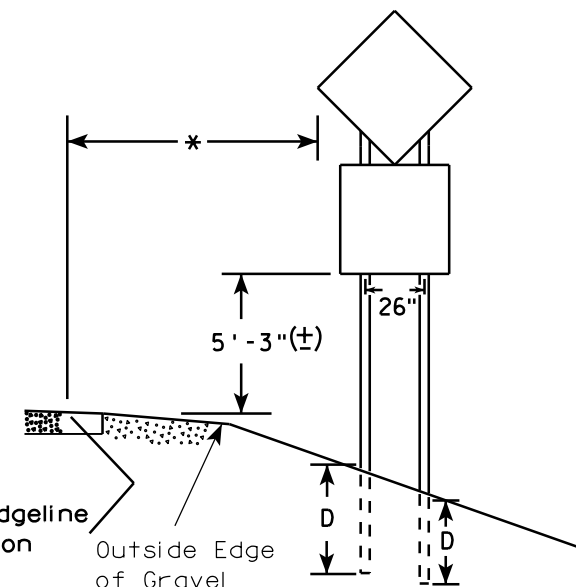
COUNTY:

SHEET NO:

E



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

- GENERAL NOTES**
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

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

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

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

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

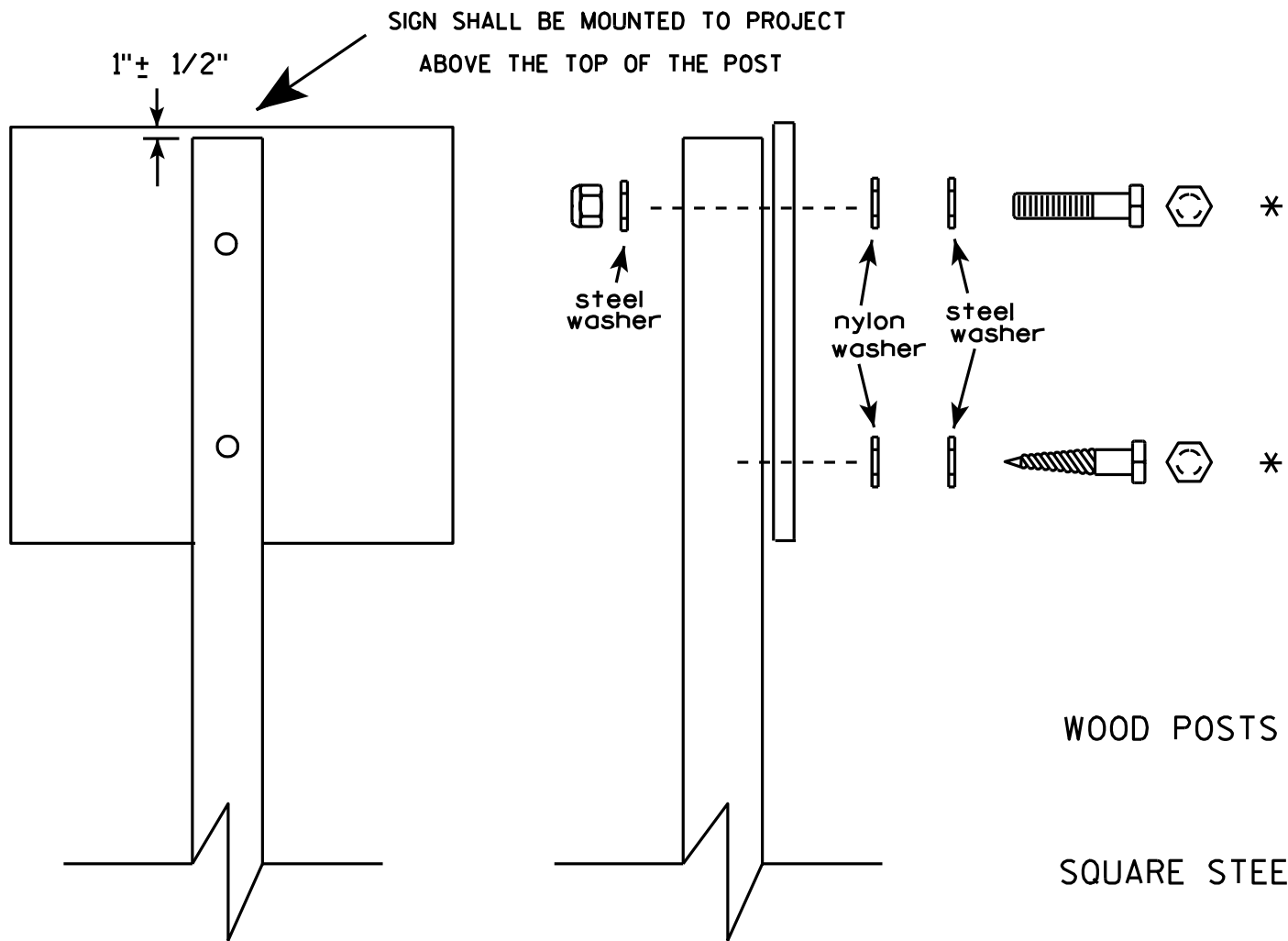
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/29/14 PLATE NO. A4-4.13

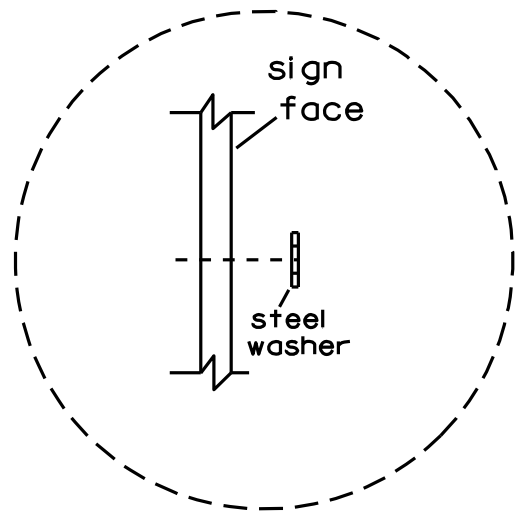


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- 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.

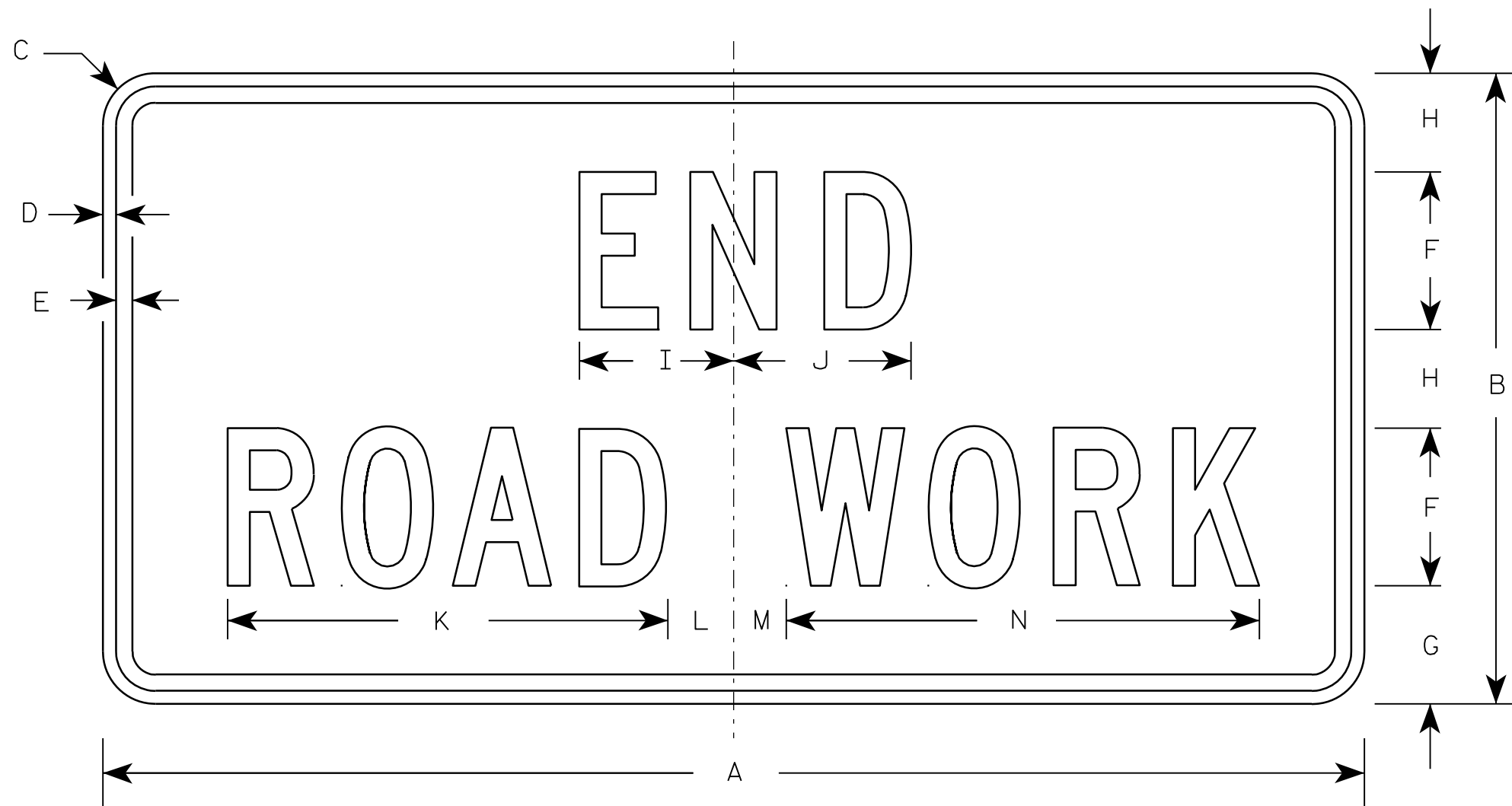


Washer Placement when Sign Has Other Than Type H or Type F Face

* 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

7



G20-2A

Metric equivalent
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

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.	Area sq. m.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

NOTES

- Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Orange
Message - Black
- Message Series - C
- 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.

7

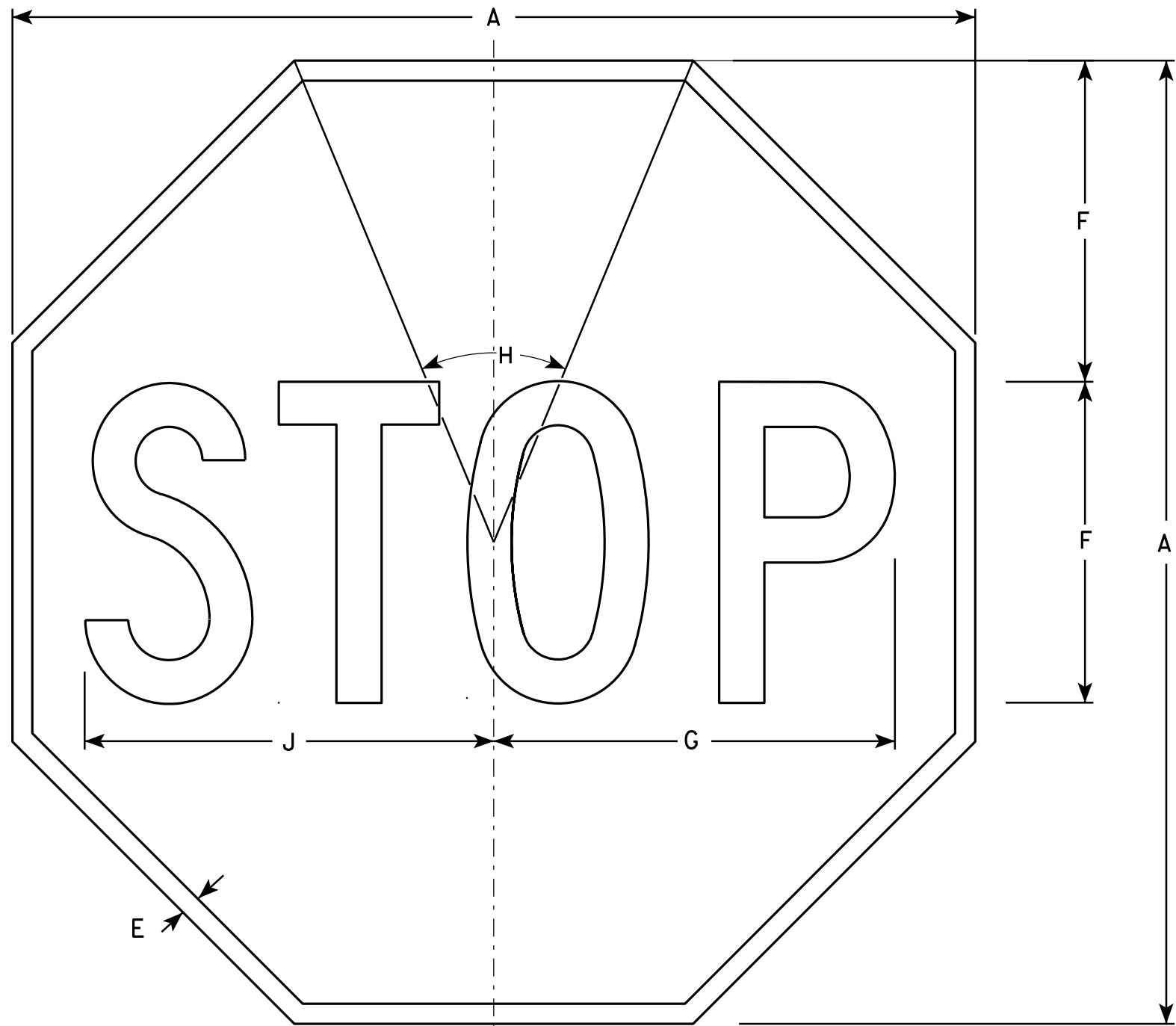
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Red
Message - White
- 3. Message Series - C

R1-1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24				3/8	8	10	45°		10 1/4																	3.31
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN
R1 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1.12

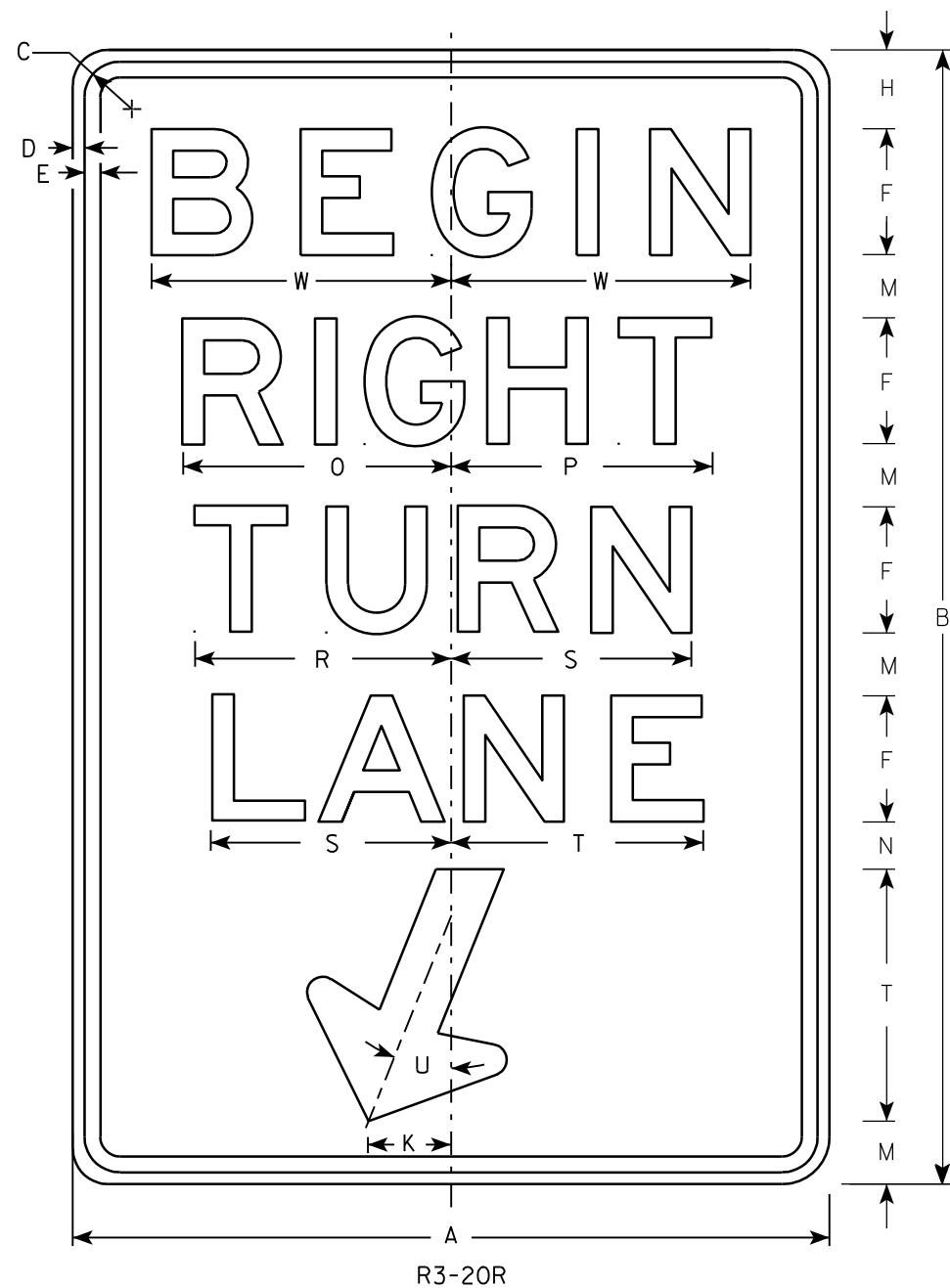
PROJECT NO:

HWY:

COUNTY:

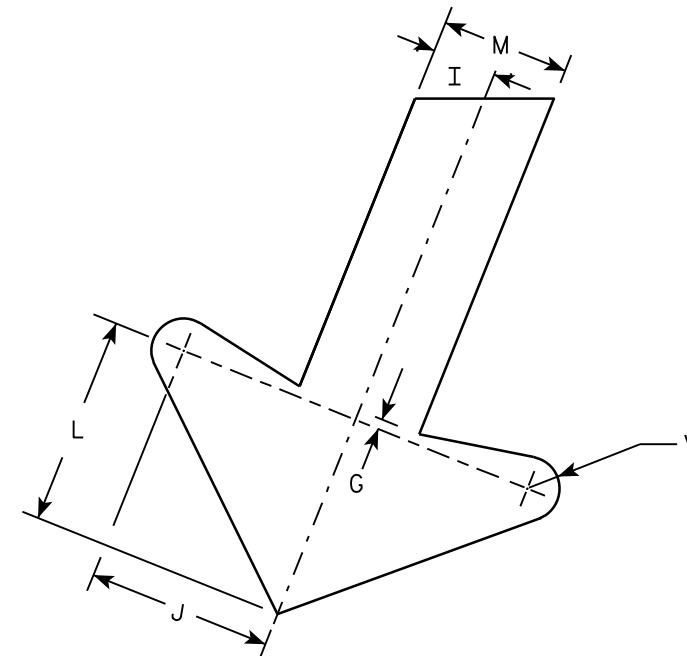
SHEET NO:

E



NOTES

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



ARROW DETAIL

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	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	8 1/2	8 1/4		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	8 1/2	8 1/4		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	12 3/4	12 1/2		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

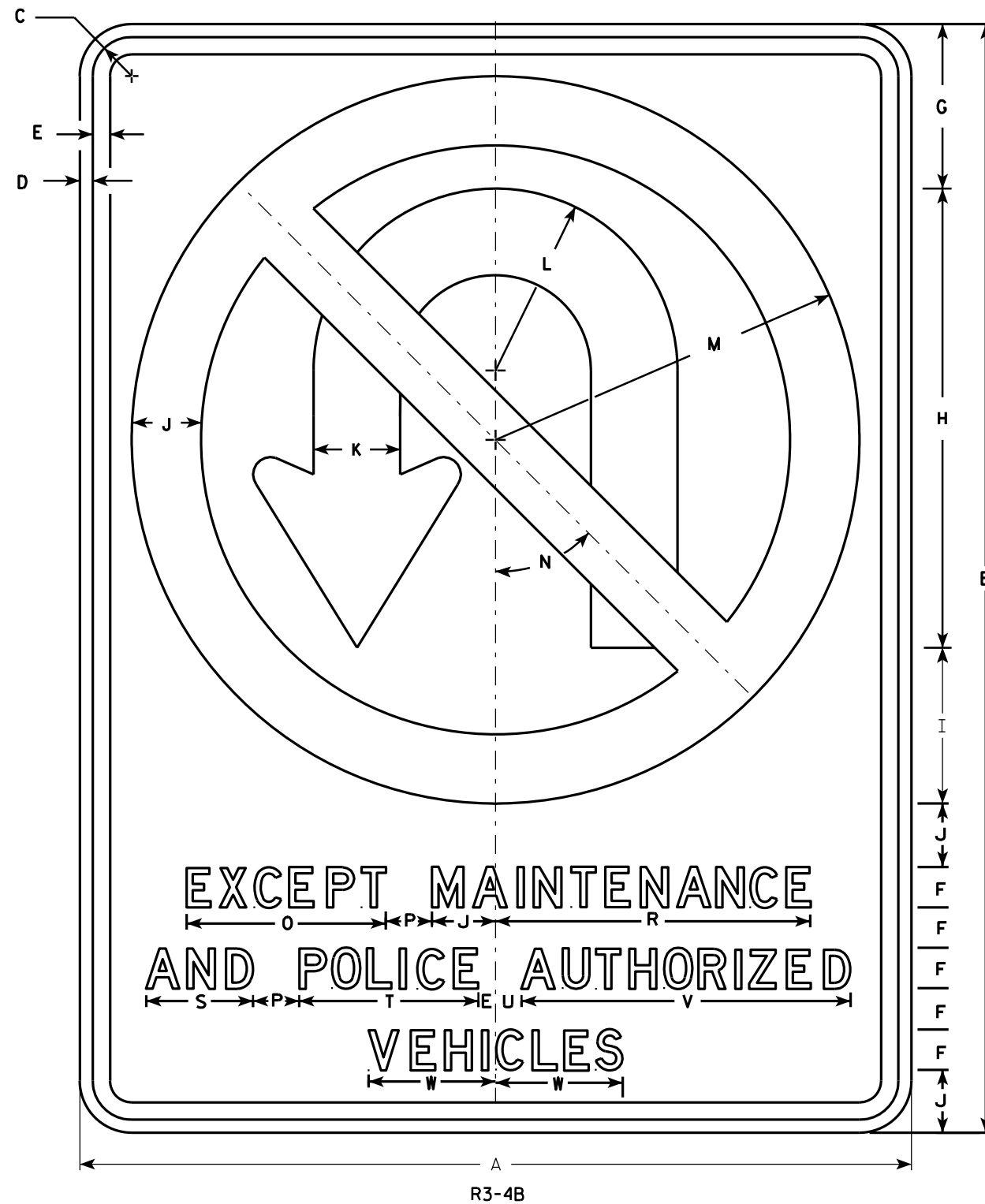
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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STANDARD SIGN
R3-20R

WISCONSIN DEPT OF TRANSPORTATION

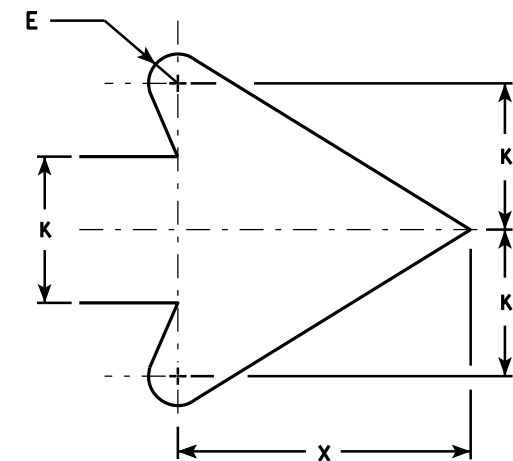
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 10/18/10 PLATE NO. R3-20R.6



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 4
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. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

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																											
2M																											
3																											
4	36	48	1 5⁄8	5⁄8	¾	1 ¾	7 1⁄8	19 7⁄8	6 ¾	2 ¾	3 ¾	7 7⁄8	15 ¾	45°	8 5⁄8	2		13 5⁄8	4 5⁄8	7 ¾	1 1⁄8	14 1⁄4	5 1⁄2	7 5⁄8			12.0
5	36	48	1 5⁄8	5⁄8	¾	1 ¾	7 1⁄8	19 7⁄8	6 ¾	2 ¾	3 ¾	7 7⁄8	15 ¾	45°	8 5⁄8	2		13 5⁄8	4 5⁄8	7 ¾	1 1⁄8	14 1⁄4	5 1⁄2	7 5⁄8			12.0

STANDARD SIGN R3-4B

WISCONSIN DEPT OF TRANSPORTATION

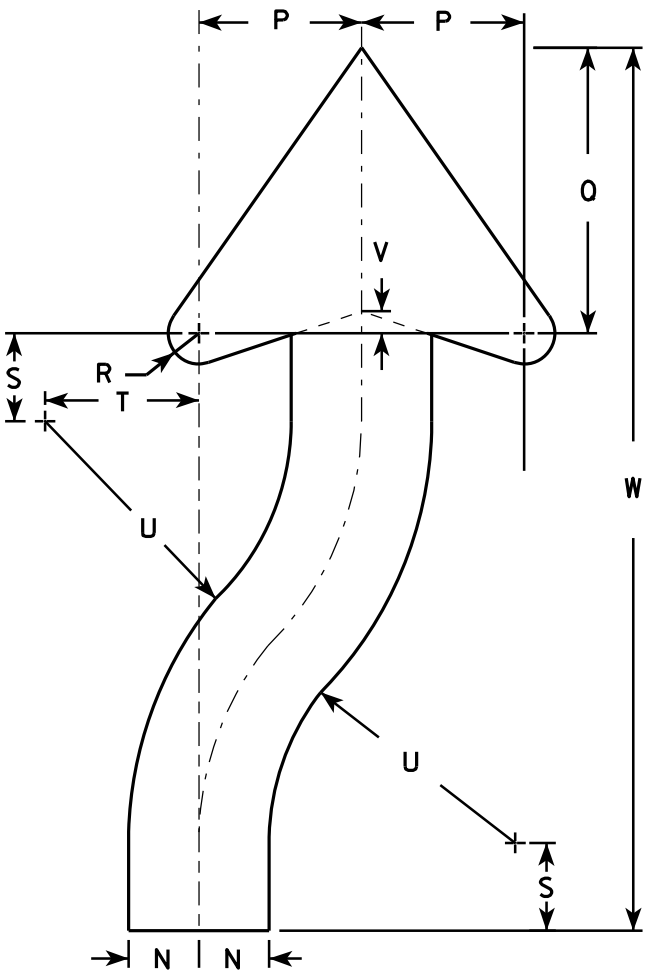
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/17/2011 PLATE NO. R3-4B.2

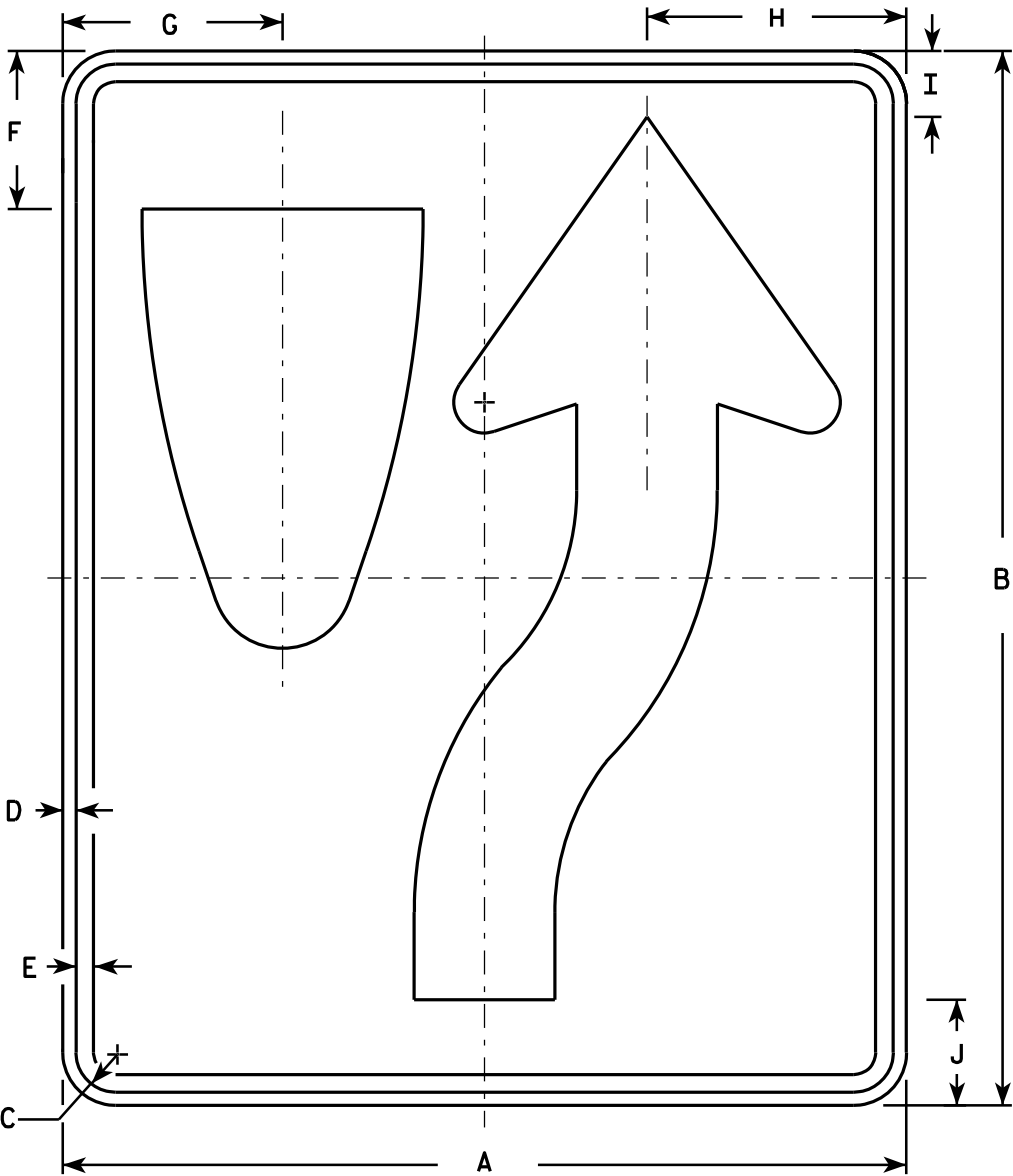
PROJECT NO: HWY: COUNTY: SHEET NO: E

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
- 2. Color:
Background - White
Message - Black
- 3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
- 4. R4-8 is the same as R4-7 except Legend is reversed.



ARROW DETAIL



R4-7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

STANDARD SIGN
R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

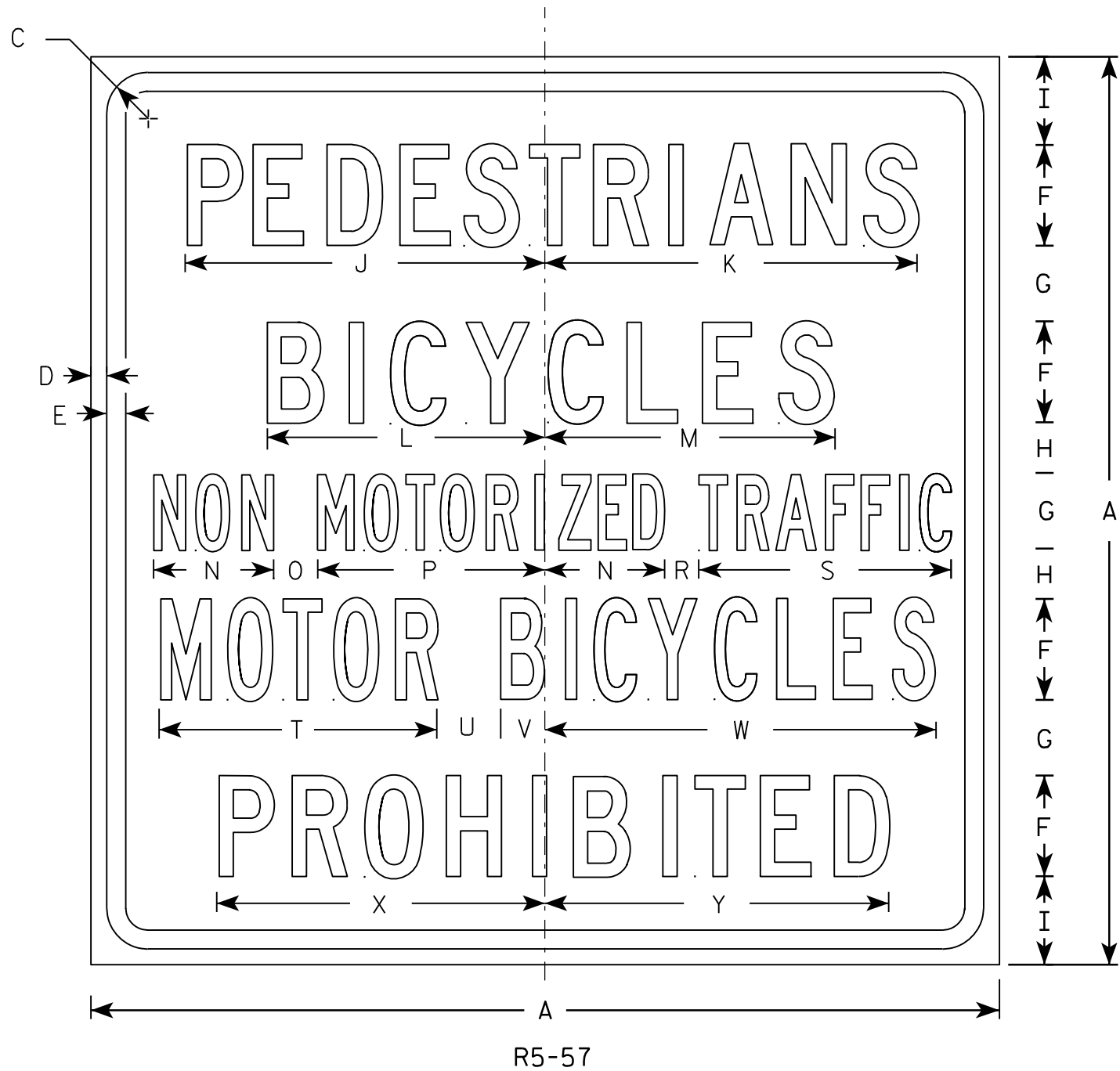
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

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

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																											
2M																											
3																											
4	36		1 5⁄8	5⁄8	3⁄4	4	3	2	3 1⁄2	14 1⁄4	14 7⁄8	11	11 1⁄2	4 3⁄4	1 3⁄4	9		1 3⁄8	10	11	2 1⁄2	1 3⁄4	15 1⁄2	13	13 5⁄8		9.0
5	36		1 5⁄8	5⁄8	3⁄4	4	3	2	3 1⁄2	14 1⁄4	14 7⁄8	11	11 1⁄2	4 3⁄4	1 3⁄4	9		1 3⁄8	10	11	2 1⁄2	1 3⁄4	15 1⁄2	13	13 5⁄8		9.0

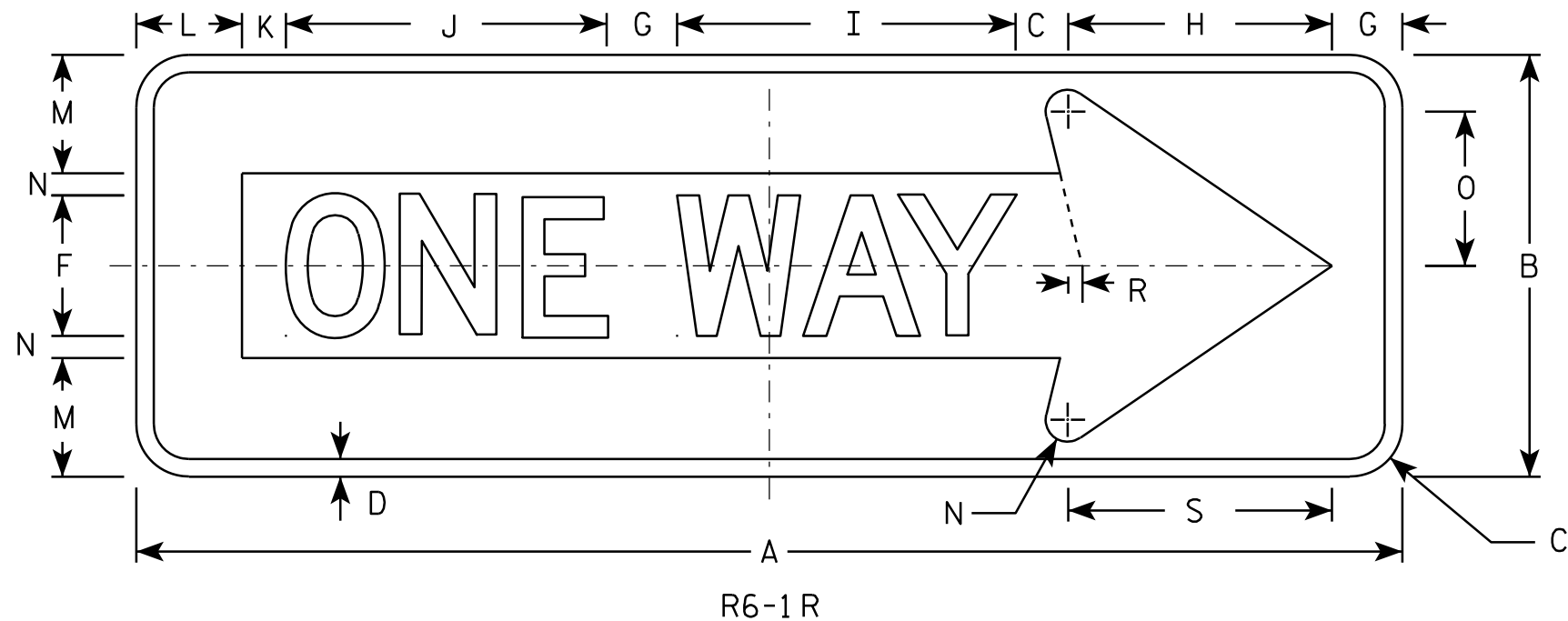
STANDARD SIGN
R5-57

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

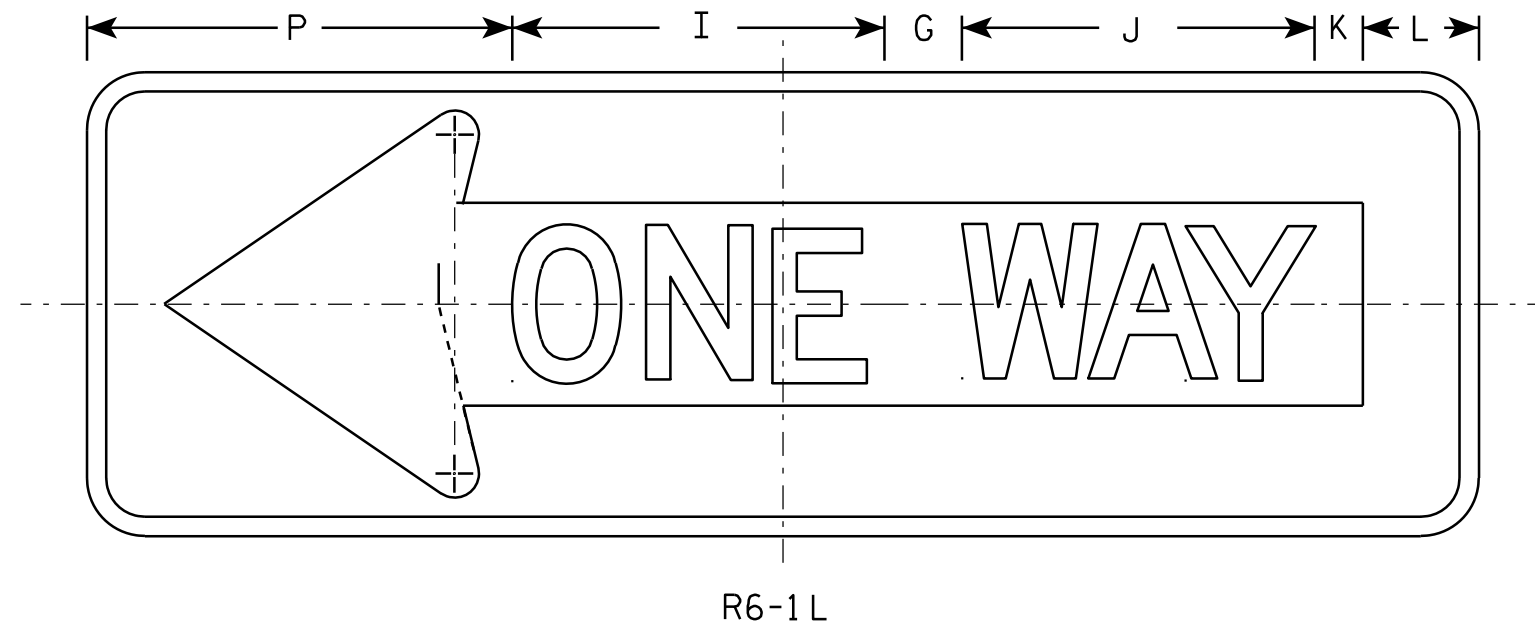
DATE 3/29/2011 PLATE NO. R5-57.10

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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NOTES

- Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - BLACK
Message - BLACK LEGEND & WHITE ARROW & BORDER
- Message Series - D
- 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.



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	36	12	1 1/2	1/2		4	2	7 1/2	9 5/8	9 1/8	1 1/4	3	3 3/8	5/8	4 3/8	11		3/8	7 1/2								3.0
2M	54	18	2 1/4	3/4		6	3	11 1/4	14 1/2	13 5/8	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4								6.75
3	54	18	2 1/4	3/4		6	3	11 1/4	14 1/2	13 5/8	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4								6.75
4	54	18	2 1/4	3/4		6	3	11 1/4	14 1/2	13 5/8	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4								6.75
5																											

STANDARD SIGN R6-1 L & R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 12/17/10 PLATE NO. R6-1.2

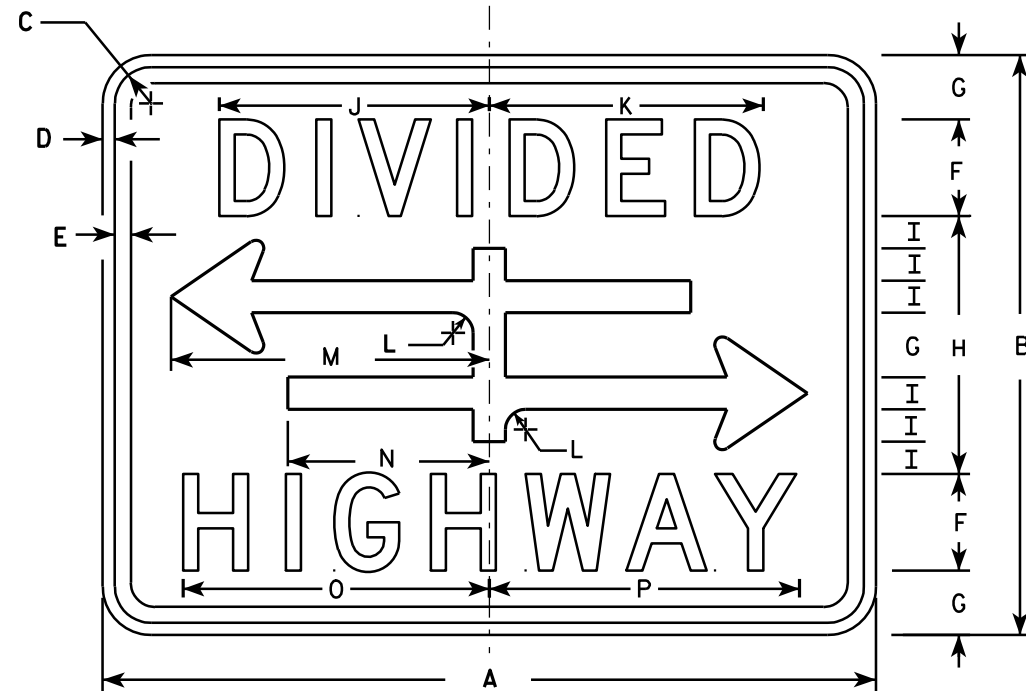
PROJECT NO:

SHEET NO:

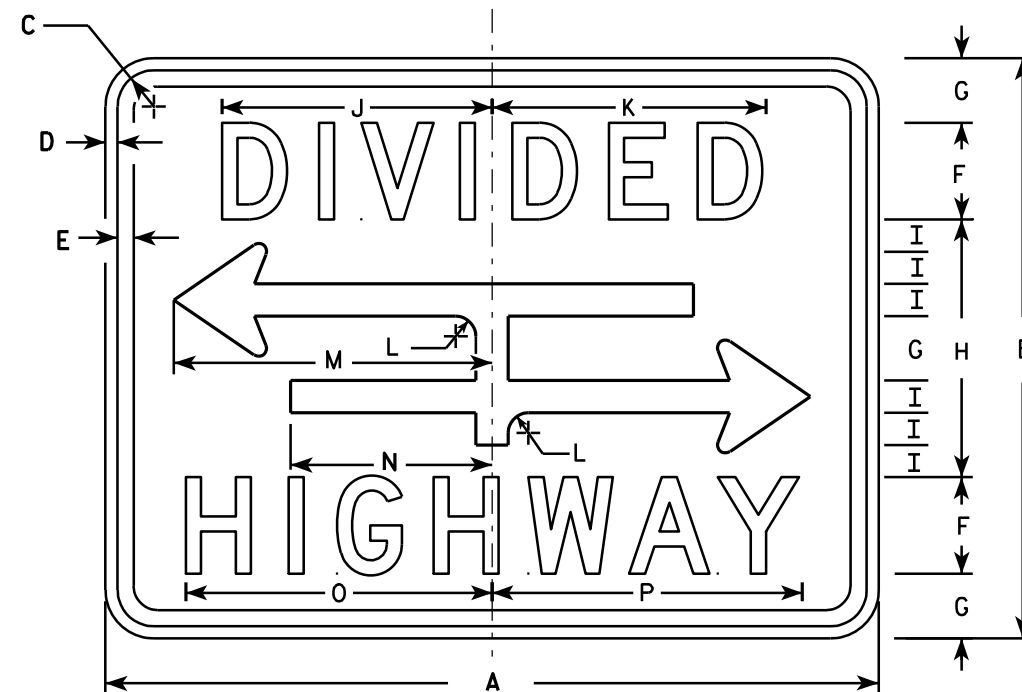
E

NOTES

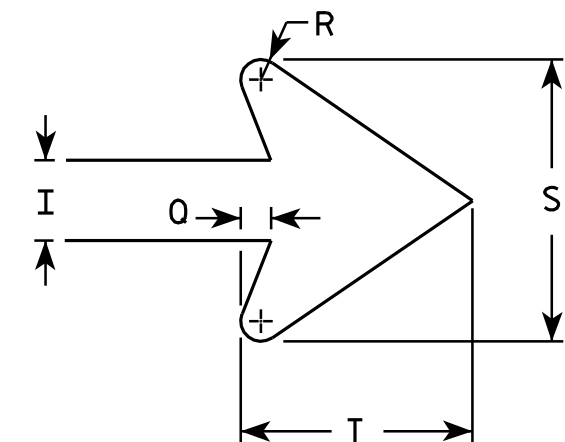
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as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



R6-3



R6-3A



ARROW DETAIL

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

STANDARD SIGN R6-3 & R6-3A

WISCONSIN DEPT OF TRANSPORTATION

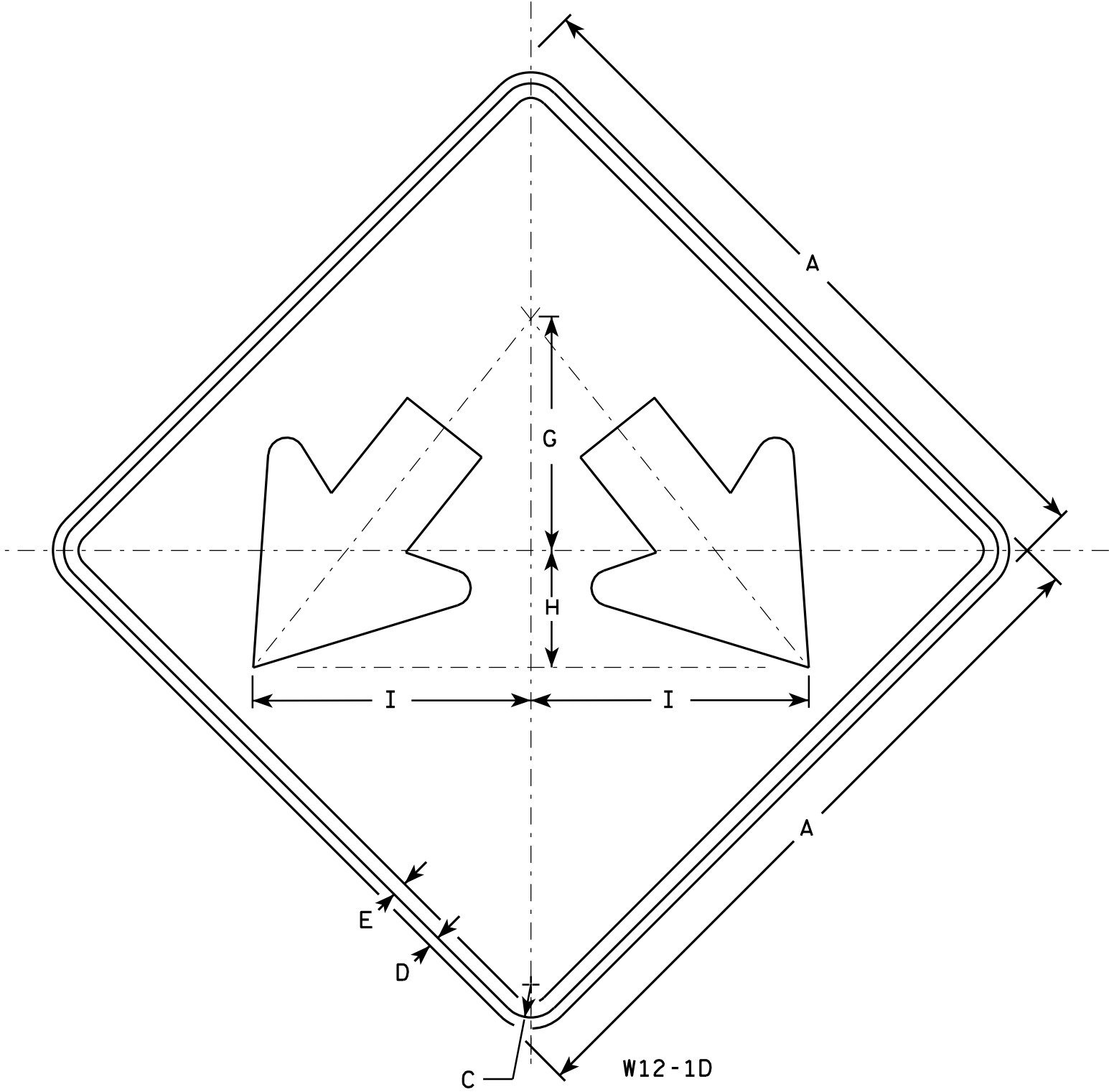
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R6-3.5

PROJECT NO:

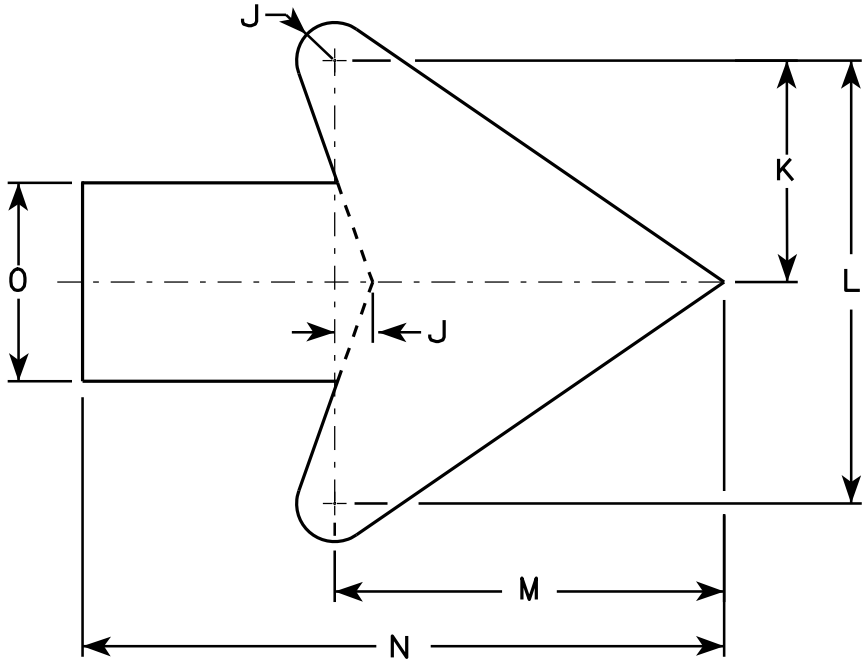
SHEET NO:

E



NOTES

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



Arrow Detail

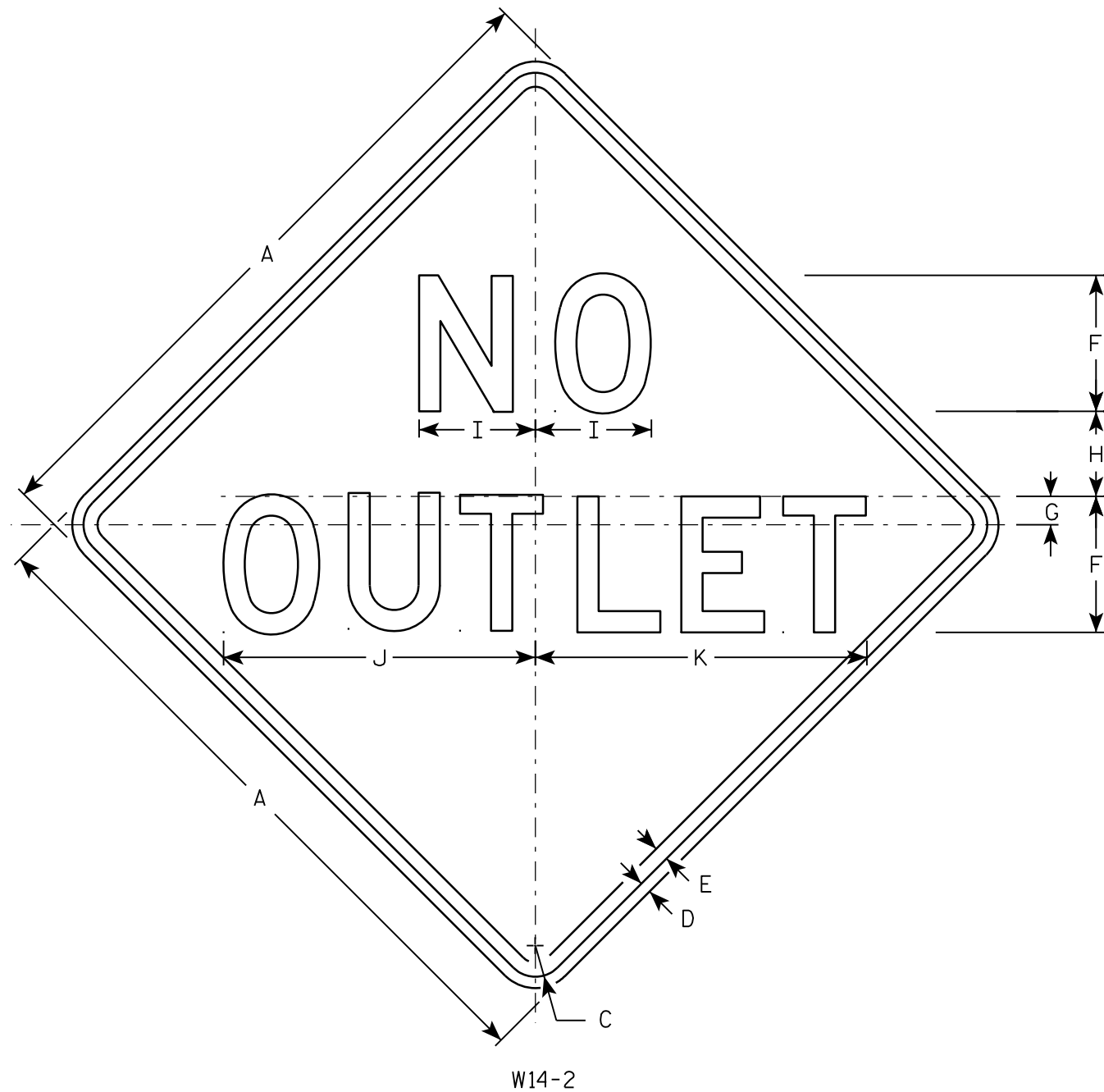
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2M	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0
5	48		2 1/4	3/4	1		16	8	19	1 1/4	7 1/4	14 1/2	12 3/4	21	6 1/4												16.0

STANDARD SIGN
W12-1D

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W12-1D.15



NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	5	1	2 3/4	4 1/8	11 3/4	12 3/8																4.0
2S	30		1 3/8	1/2	5/8	6	1 1/4	3 3/4	5 1/8	13 3/4	14 5/8																6.25
2M	30		1 3/8	1/2	5/8	6	1 1/4	3 3/4	5 1/8	13 3/4	14 5/8																6.25
3	36		1 5/8	5/8	3/4	7	1 3/8	4 5/8	6	16 1/8	17 1/8																9.0
4																											
5																											

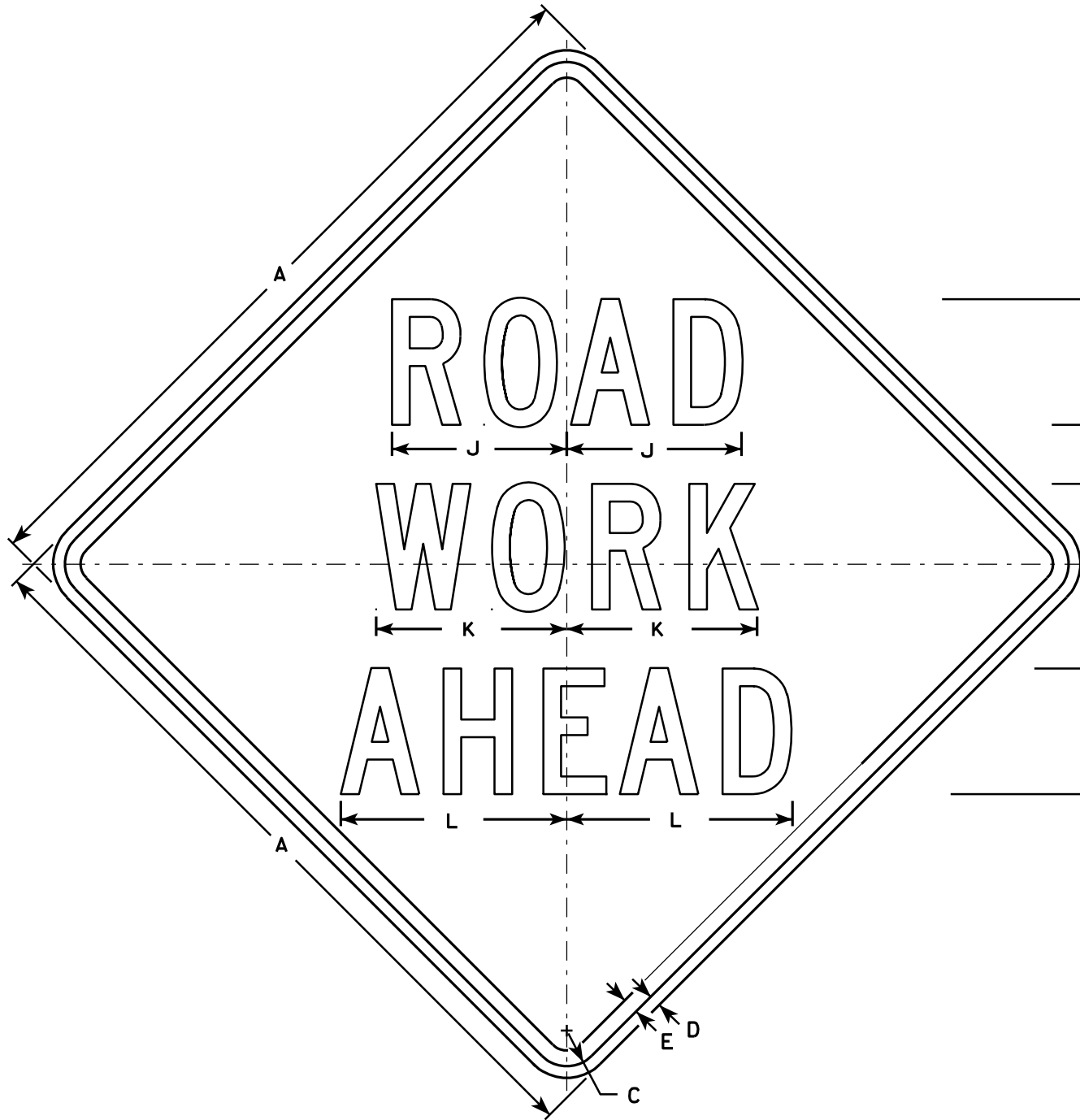
STANDARD SIGN

W14-2

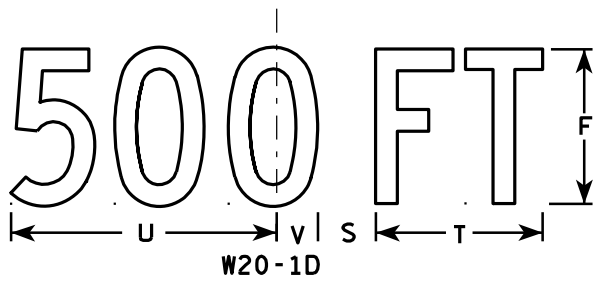
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

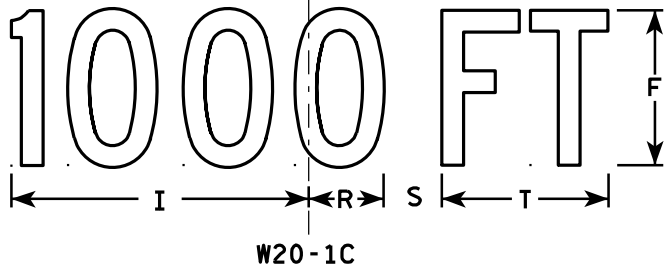
DATE 3/13/13 PLATE NO. W14-2.3



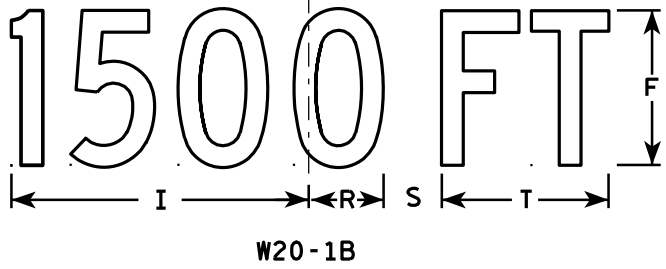
W20-1A



W20-1D



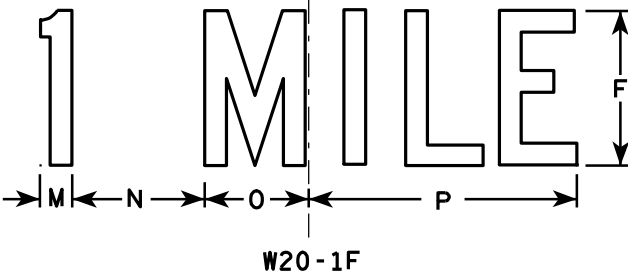
W20-1C



W20-1B



W20-1G



W20-1F

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	1 7/8	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

PROJECT NO:

SHEET NO:

E

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
For State Traffic Engineer

DATE 3/18/11
PLATE NO. W20-1.9

EB-LINE EARTHWORK

Station	Cut Area (SF)	Incremental Cut Volume (CY)	Fill Area (SF)	Incremental Fill Volume (CY)	Cumulative Cut Volume (CY)	Cumulative Fill Volume (CY)	Mass Ordinate (CY)
137+00.000	2	0	0	0	0	0	0
138+00.000	2	8	1	2	8	2	6
139+00.000	15	32	1	3	40	5	36
140+00.000	26	77	6	12	117	17	100
141+00.000	39	121	5	21	238	38	200
142+00.000	33	134	10	28	372	65	306
143+00.000	43	141	25	64	512	129	383
144+00.000	127	315	33	108	827	237	591
144+50.000	43	158	39	67	985	304	682
145+00.000	0	40	0	36	1025	340	686
145+25.000	0	0	0	0	1025	340	686
145+50.000	30	14	0	0	1039	340	700
146+00.000	20	46	6	6	1086	346	740
147+00.000	26	85	0	12	1171	358	813

Earthwork Values in table have not been expanded.
Fill Expansion Factor for Common Excavation = 1.25

MP-LINE EARTWORK

Station	Cut Area (SF)	Incremental Cut Volume (CY)	Fill Area (SF)	Incremental Fill Volume (CY)	Cumulative Cut Volume (CY)	Cumulative Fill Volume (CY)	Mass Ordinate (CY)
95+50.000	2	0	1	0	0	0	0
96+00.000	64	62	0	1	62	1	61
96+50.000	108	160	0	0	221	1	221
96+75.000	133	112	0	0	333	1	332
97+00.000	149	131	1	1	464	1	462
97+25.000	158	142	2	1	606	2	603
97+50.000	144	140	3	2	745	5	741
97+75.000	129	126	3	3	872	8	864
98+00.000	150	129	8	5	1001	13	988
98+25.000	127	128	43	24	1129	37	1092
98+50.000	132	120	71	53	1249	90	1160
98+75.000	150	131	103	81	1380	170	1210
99+00.000	75	104	122	104	1484	275	1210
99+25.000	44	55	199	149	1540	424	1116

Earthwork Values in table have not been expanded.
Fill Expansion Factor for Common Excavation = 1.25

G-LINE EARTHWORK

Station	Cut Area (SF)	Incremental Cut Volume (CY)	Fill Area (SF)	Incremental Fill Volume (CY)	Cumulative Cut Volume (CY)	Cumulative Fill Volume (CY)	Mass Ordinate (CY)
10+50.000	14	0	41	0	0	0	0
10+75.000	15	14	43	39	14	39	-25
11+00.000	6	10	0	20	24	59	-35
11+25.000	5	5	0	0	29	59	-30
11+50.000	6	5	0	0	34	59	-25

Earthwork Values in table have not been expanded.
Fill Expansion Factor for Common Excavation = 1.25

STAGE 1 EARTHWORK

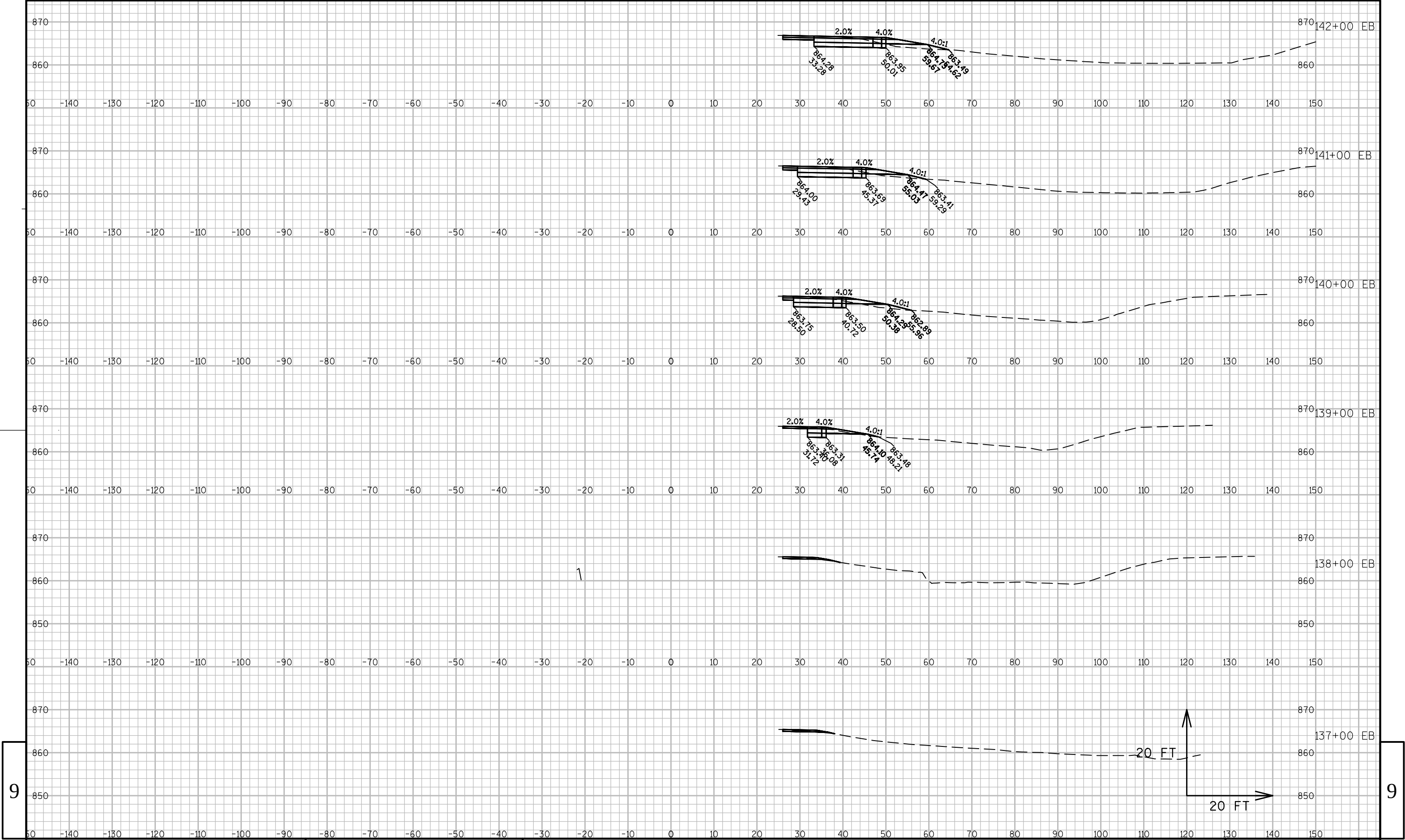
Station	Cut Area (SF)	Incremental Cut Volume (CY)	Fill Area (SF)	Incremental Fill Volume (CY)	Cumulative Cut Volume (CY)	Cumulative Fill Volume (CY)	Mass Ordinate (CY)
G-LINE							
10+50	14	0	41	0	0	0	0
10+75	15	14	43	39	14	39	-25
11+00	6	10	0	20	24	59	-35
11+25	5	5	0	0	29	59	-30
11+50	6	5	0	0	34	59	-25
MP-LINE							
97+75	0	0	0	0	0	0	0
98+00	37	17	1	0	17	0	17
98+25	28	30	38	18	47	18	29
98+50	36	30	49	41	77	59	18
98+75	35	32	70	55	109	114	-5
99+00	30	30	63	61	139	175	-36
99+25	24	25	94	73	164	248	-84
EB-LINE							
145+25	0	0	0	0	0	0	0
145+50	30	14	0	0	14	0	14
146+00	20	46	6	6	60	6	54
147+00	26	85	0	12	146	18	128

Earthwork Values in table have not been expanded.
Fill Expansion Factor for Common Excavation = 1.25

STAGE 2 EARTHWORK

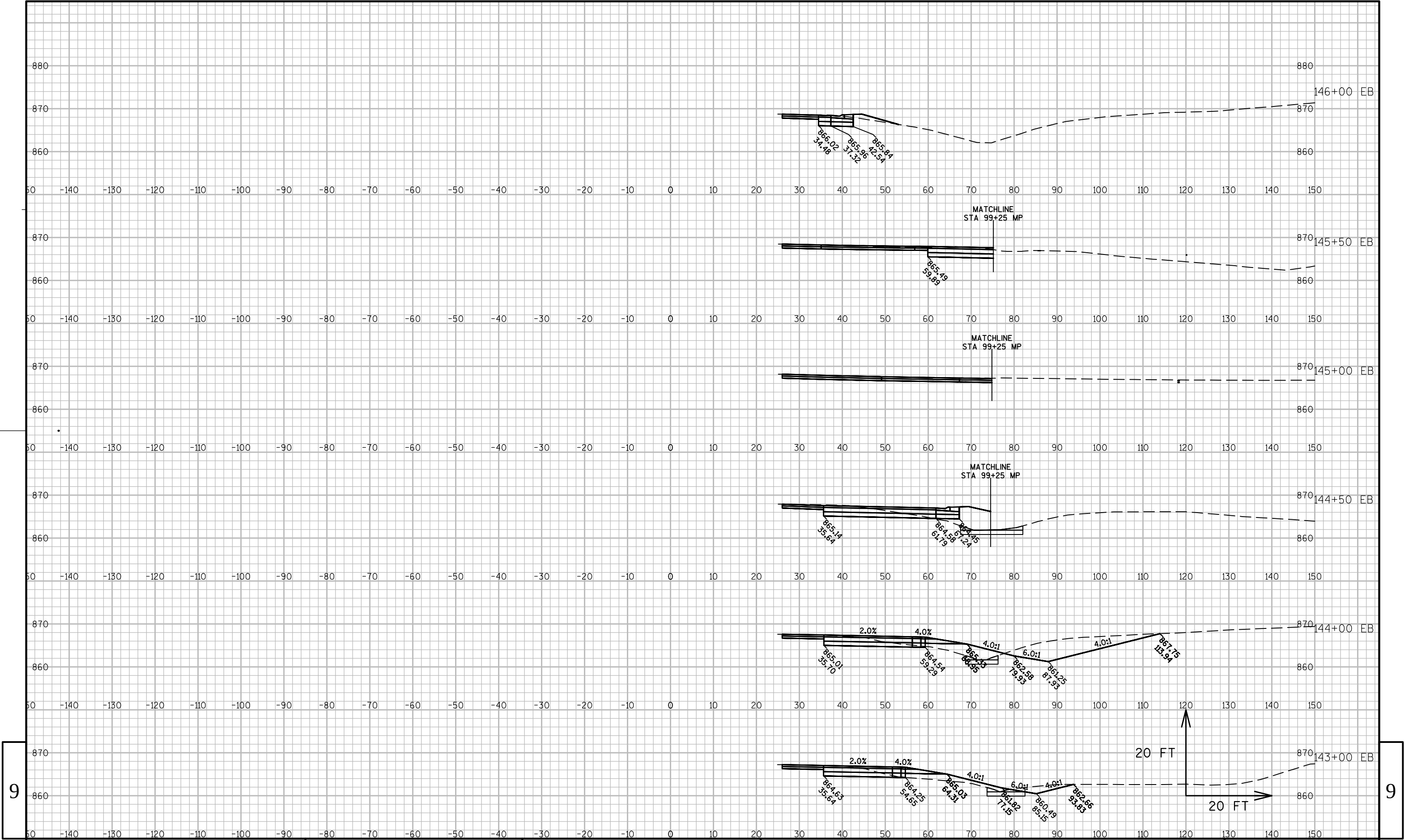
Station	Cut Area (SF)	Incremental Cut Volume (CY)	Fill Area (SF)	Incremental Fill Volume (CY)	Cumulative Cut Volume (CY)	Cumulative Fill Volume (CY)	Mass Ordinate (CY)
Millpond Rd							
95+50	2	0	1	0	0	0	0
96+00	64	62	0	1	62	1	61
96+50	108	160	0	0	221	1	221
96+75	133	112	0	0	333	1	332
97+00	149	131	1	1	464	1	462
97+25	158	142	2	1	606	2	603
97+50	144	140	3	2	745	5	741
97+75	129	126	3	3	872	8	864
98+00	113	112	7	5	984	13	971
98+25	99	98	5	6	1082	19	1064
98+50	96	90	21	12	1173	31	1142
98+75	116	98	34	25	1271	56	1215
99+00	46	75	60	43	1346	99	1246
99+25	20	31	105	76	1376	176	1200
USH 12							
137+00	2	0	0	0	0	0	0
138+00	2	8	1	2	8	2	6
139+00	15	32	1	3	40	5	36
140+00	26	77	6	12	117	17	100
141+00	39	121	5	21	238	38	200
142+00	33	134	10	28	372	65	306
143+00	43	141	25	64	512	129	383
144+00	127	315	33	108	827	237	591
144+50	43	158	39	67	985	304	682
145+00	0	40	0	36	1025	340	686
145+25	0	0	0	0	1025	340	686

Earthwork Values in table have not been expanded.
Fill Expansion Factor for Common Excavation = 1.25



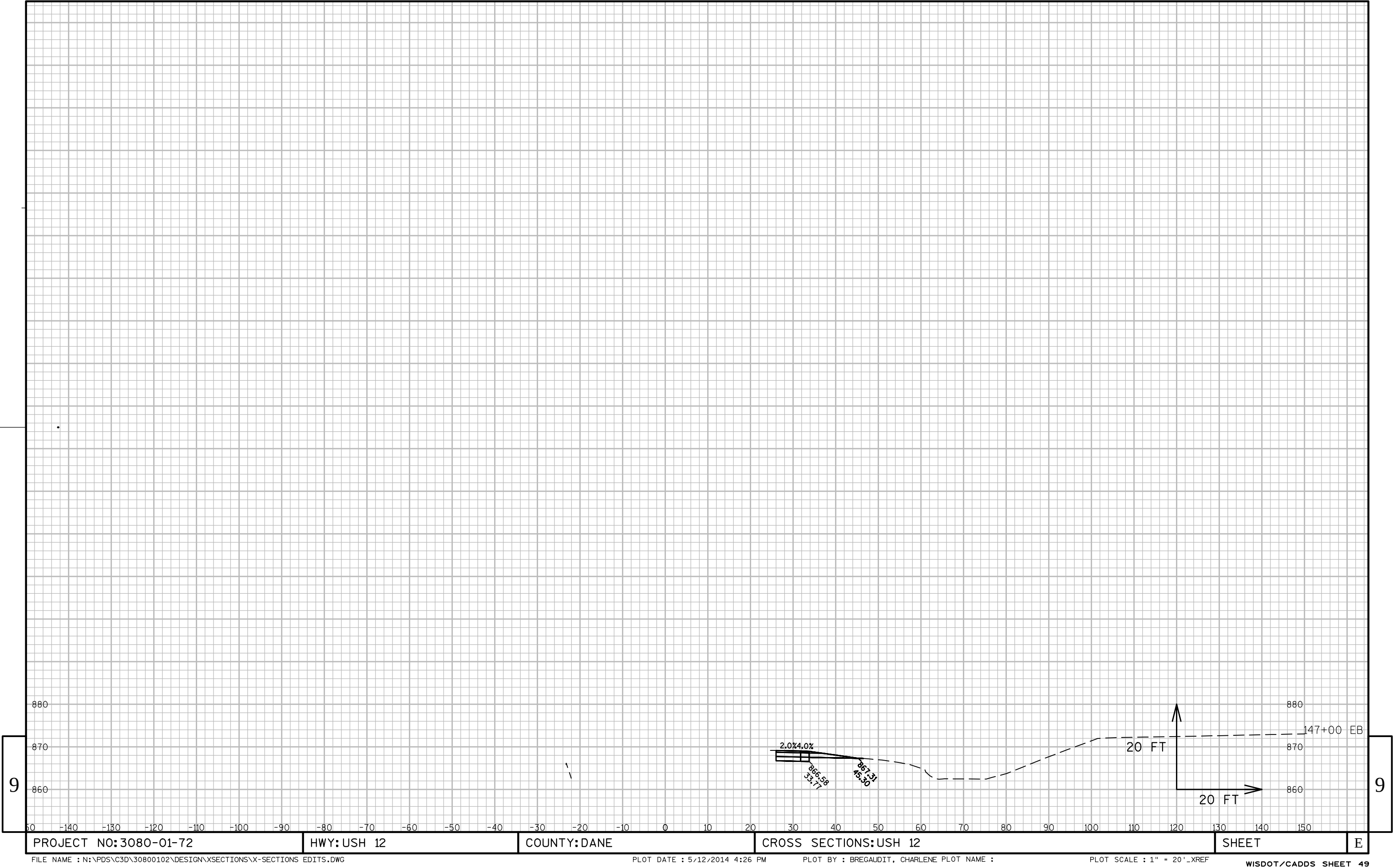
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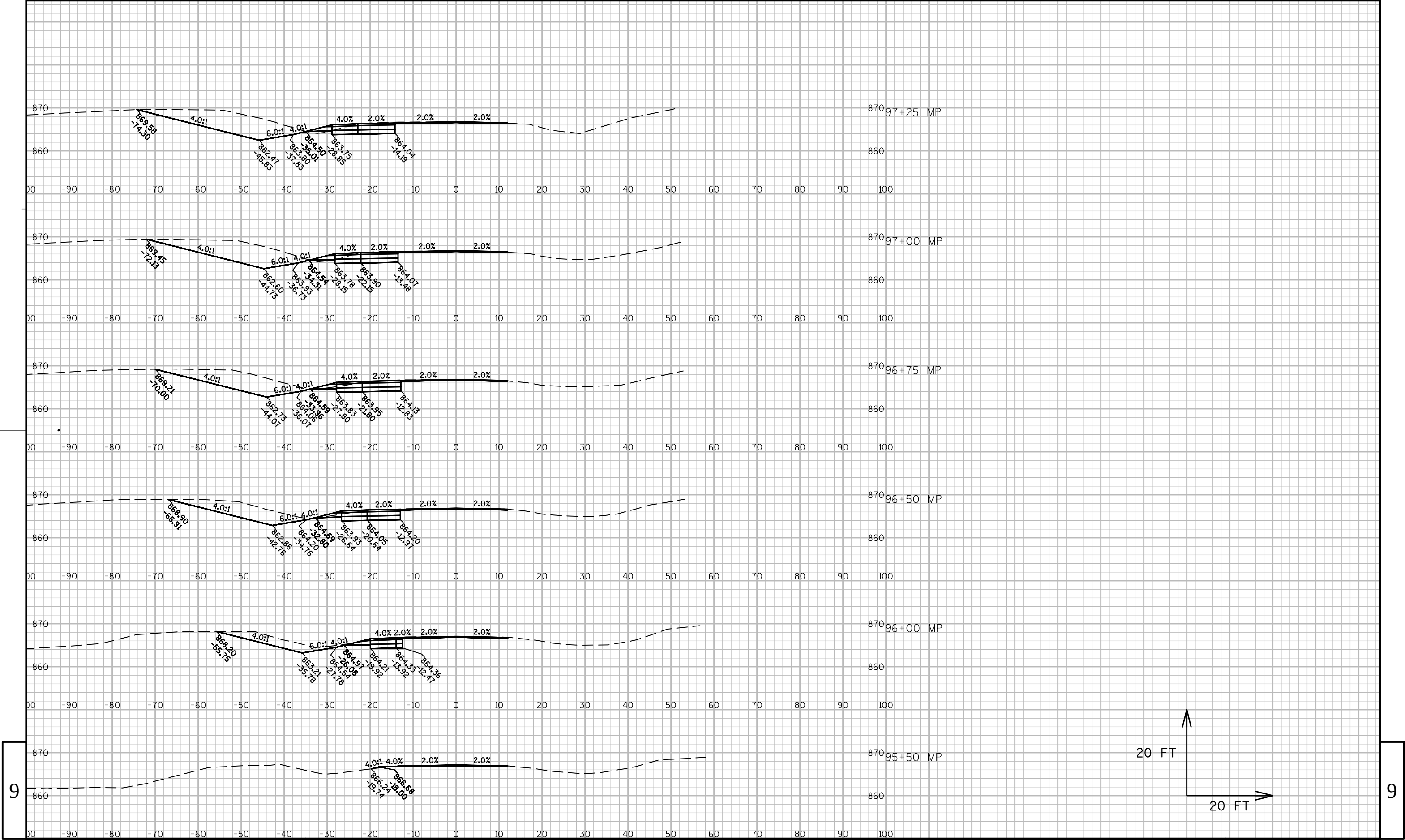
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PROJECT NO:3080-01-72

HWY: USH 12

COUNTY: DANE

CROSS SECTIONS: MILLPOND ROAD

SHEET

E

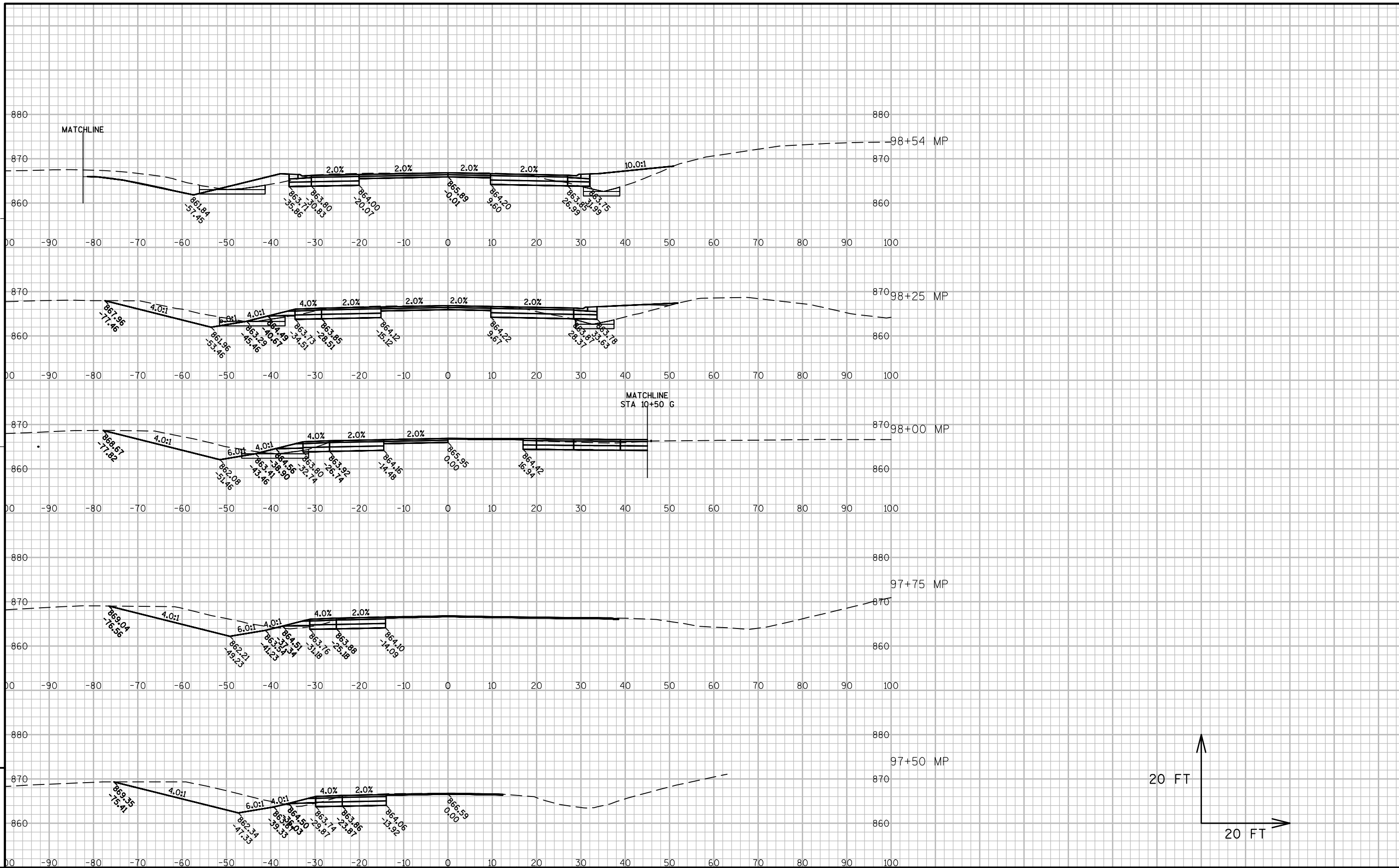
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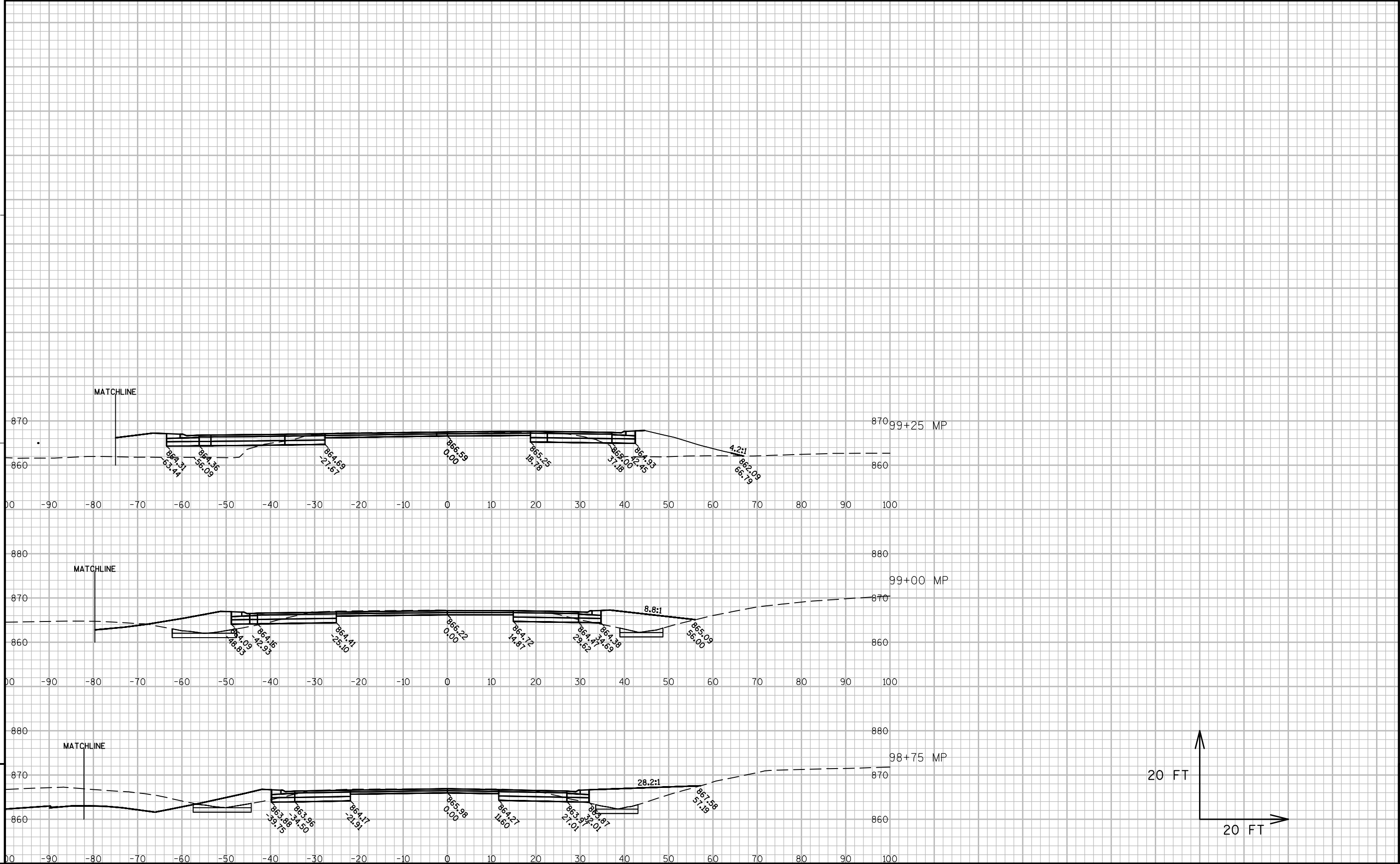
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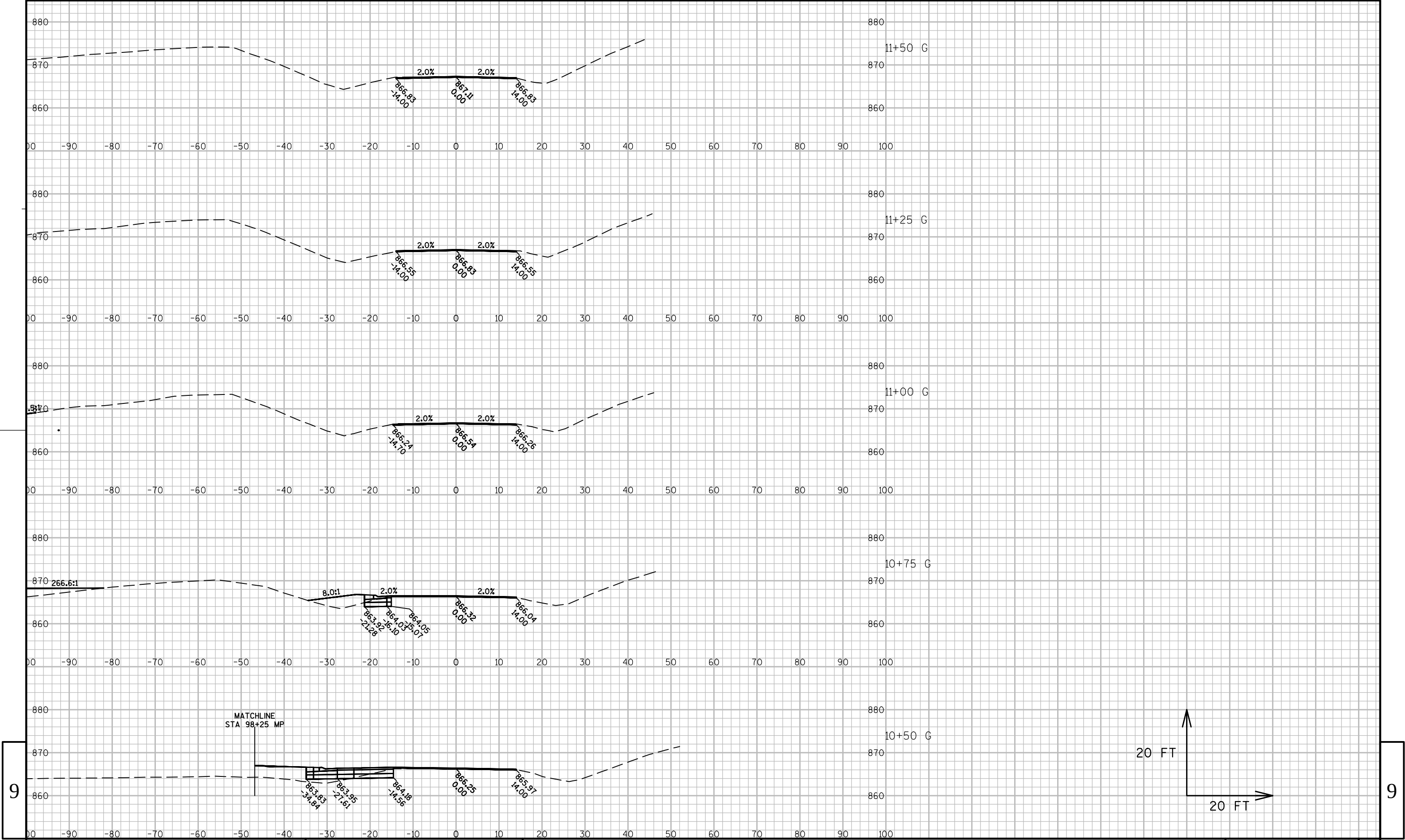
PLOT BY : BREGAUDIT, CHARLENE PLOT NAME :

PLOT SCALE : 1" = 20' _XREF

WISDOT/CADDs SHEET 49



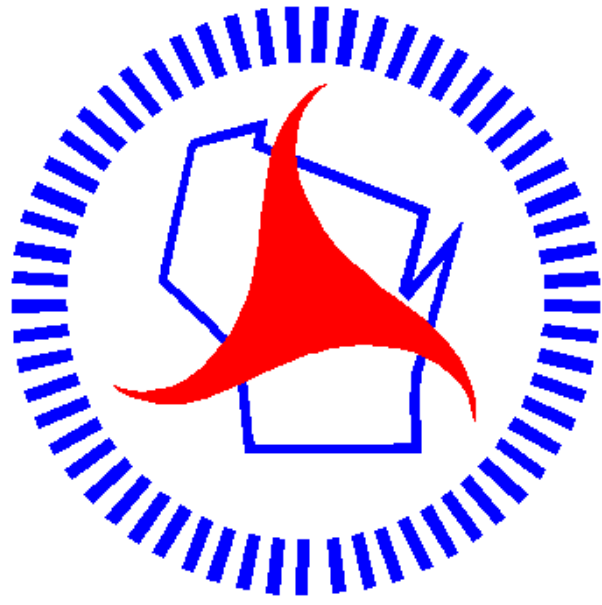




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Notes



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