

ORDER OF SHEETS

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

TOTAL SHEETS = 44



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T ALDEN, WEST CHURCH ROAD

APPLE RIVER BRIDGE P-48-0063

LOCAL STR POLK COUNTY

STATE PROJECT NUMBER
8397-00-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8397-00-71	WISC 2022099	1

DESIGN DESIGNATION

A.A.D.T.	2015	=	668
A.A.D.T.	2035	=	734
D.H.V.		=	N/A
D.D.		=	50/50
T.		=	10% MAX
DESIGN SPEED		=	45 MPH
ESALS		=	N/A

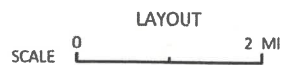
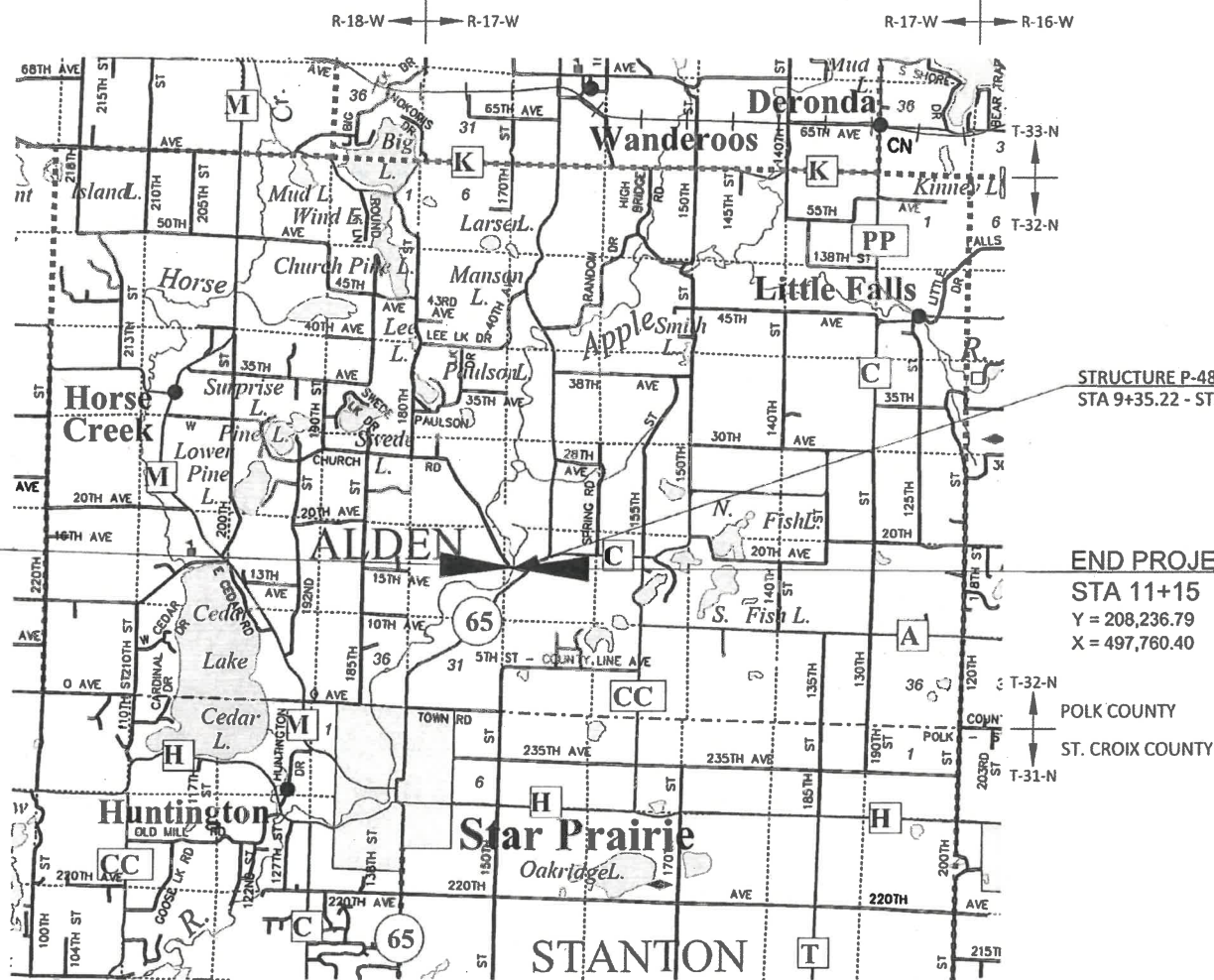
CONVENTIONAL SYMBOLS

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

BEGIN PROJECT
STA 8+85
Y = 208,292.27
X = 497,537.19

STRUCTURE P-48-0063
STA 9+35.22 - STA 10+65.37

END PROJECT
STA 11+15
Y = 208,236.79
X = 497,760.40



TOTAL NET LENGTH OF CENTERLINE = 0.044 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), POLK COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (12A). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

ACCEPTED FOR
POLK COUNTY

Date: 7/26/21
Emil P. [Signature]
(Signature and Title of Official)

ORIGINAL PLANS PREPARED BY

WISCONSIN PROFESSIONAL ENGINEER
JACOB A. FRIBERG
E-43328
RICE LAKE
WI
DATE: 7/26/21
Jacob A. Friberg [Signature]
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	COOPER ENGINEERING
Designer	COOPER ENGINEERING
Project Manager	MATTHEW VAN NATTA, PE
Regional Supervisor	TYLER RONGSTAD, PE
Regional Examiner	TOU YANG, PE

APPROVED FOR THE DEPARTMENT
DATE: 7/26/2021
Matthew Van Natta [Signature]
Digitally signed by Matthew Van Natta
Location: NMR Supervisor
(Signature)

E

LIST OF STANDARD ABBREVIATIONS

ABUT	ABUTMENT	LT.	LEFT
AC	ACRES	LS	LUMP SUM
AGG	AGGREGATE	MH	MANHOLE
AH	AHEAD	N	NORTH
ADT	AVERAGE DAILY TRAFFIC	NC	NORMAL CROWN
AVG.	AVERAGE	PAVT	PAVEMENT
ASPH	ASPHALTIC	PC	POINT OF CURVATURE
BK.	BACK	PE	PRIVATE ENTRANCE
BM	BENCHMARK	PI	POINT OF INTERSECTION
Δ	CENTRAL ANGLE OR DELTA	PL	PROPERTY LINE
℄, C/L	CENTERLINE	PP	POWER POLE
C & G	CURB AND GUTTER	PT	POINT OF TANGENCY
CABC	CRUSHED AGGREGATE BASE COURSE	R	RANGE, RADIUS
CONC.	CONCRETE	RCCP	REINFORCED CONCRETE CULVERT PIPE
COR	CORNER	RD	ROAD
CORR	CORRUGATED	REBAR	REINFORCEMENT BAR
CSCP	CORRUGATED STEEL CULVERT PIPE	REQD	REQUIRED
CSPA	CORRUGATED STEEL PIPE ARCH	RDWY	ROADWAY
CTH	COUNTY TRUNK HIGHWAY	RHF	RIGHT HAND FORWARD
CP.	CULVERT PIPE	RL, R/L	REFERENCE LINE
CY	CUBIC YARD	RR	RAILROAD
CWT.	HUNDREDWEIGHT	RT.	RIGHT
DIA	DIAMETER	R/W	RIGHT-OF-WAY
D	DEGREE OF CURVE	S	SOUTH
DHV	DESIGN HOURLY VOLUME	SAN S	SANITARY SEWER
DWY	DRIVEWAY	SDD	STANDARD DETAIL DRAWING
EBS	EXC. BELOW SUB GRADE	SE	SUPER ELEVATION
ELEV., EL	ELEVATION	SF.	SQUARE FEET
ELEC.	ELECTRIC	SHLDR	SHOULDER
EXC	EXCAVATION	SPECS	SPECIFICATIONS
EXIST	EXISTING	SQ.	SQUARE
E	EAST	SS.	STORM SEWER
FE	FIELD ENTRANCE	SY.	SQUARE YARD
FF.	FACE TO FACE	STH	STATE TRUNK HIGHWAY
FL, F/L	FLOW LINE	ST.	STREET
FS	FULL SUPERELEVATION	STA.	STATION
G	GARAGE	SW	SIDEWALK
GN	GRID NORTH	T	TANGENT
H	HOUSE	TC	TOP OF CURB
		℄, T/L	TRANSIT LINE
		TEL	TELEPHONE
		TEMP	TEMPORARY
		TLE	TEMPORARY LIMITED EASEMENT
		TYP	TYPICAL
		USH	UNITED STATES HIGHWAY
		UG	UNDERGROUND
		V	DESIGN SPEED
		VAR.	VARIABLE
		VERT	VERTICAL
		YD	YARD
HYD	HYDRANT		
I	INTERSECTION ANGLE		
INTERS	INTERSECTION		
INV.	INVERT		
IP	IRON PIN OR PIPE		
LC	LONG CHORD OF CURVE		
LF	LINEAR FOOT		
LHF	LEFT HAND FORWARD		
L	LENGTH OF CURVE		

UTILITY CONTACTS

ELECTRIC

XCEL ENERGY
ASHLEY LARKIN
801 KELLER AVENUE SOUTH
AMERY, WI 54001
PHONE: (715) 268-3218
EMAIL: ashley.d.chapman@xcelenergy.com

ELECTRIC

POLK-BURNETT ELECTRIC COOP
NATE VOLGREN
1001 STATE ROAD 35
CENTURIA, WI 54824
PHONE: (800) 421-0283 x336
EMAIL: nvolgren@polkburnett.com

COMMUNICATIONS

FRONTIER COMMUNICATIONS
GLENN LEFEBVRE
154 EAST 2ND STREET
NEW RICHMOND, WI 54017
PHONE: (715) 493-0017
EMAIL: glen.lefebvre@ftr.com

ALL UTILITIES LISTED ARE MEMBERS OF DIGGERS HOTLINE



OTHER CONTACTS

DESIGN CONSULTANT

COOPER ENGINEERING
JACOB FRIBERG
2600 COLLEGE DRIVE
RICE LAKE, WI 54868
PHONE: (715) 234-7008
EMAIL: jfriberg@cooperengineering.net

POLK COUNTY

HIGHWAY COMMISSIONER
EMIL "MOE" NORBY
900 PHEASANT LANE, PO BOX 248
BALSAM LAKE, WI 54810
PHONE: (715) 485-8723
EMAIL: emil.norby@co.polk.wi.us

WDNR REGIONAL CONTACT

WDNR/WISDOT LIAISON
AMY CRONK
810 W. MAPLE STREET
SPOONER, WI 54801
PHONE: (715) 635-4229
EMAIL: amy.cronk@wisconsin.gov

GENERAL NOTES:

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE BEEN DESIGNATED FOR REMOVAL BY THE ENGINEER.

ACCESS TO ALL RESIDENCES & SIDE ROADS SHALL BE MAINTAINED DURING CONSTRUCTION.

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

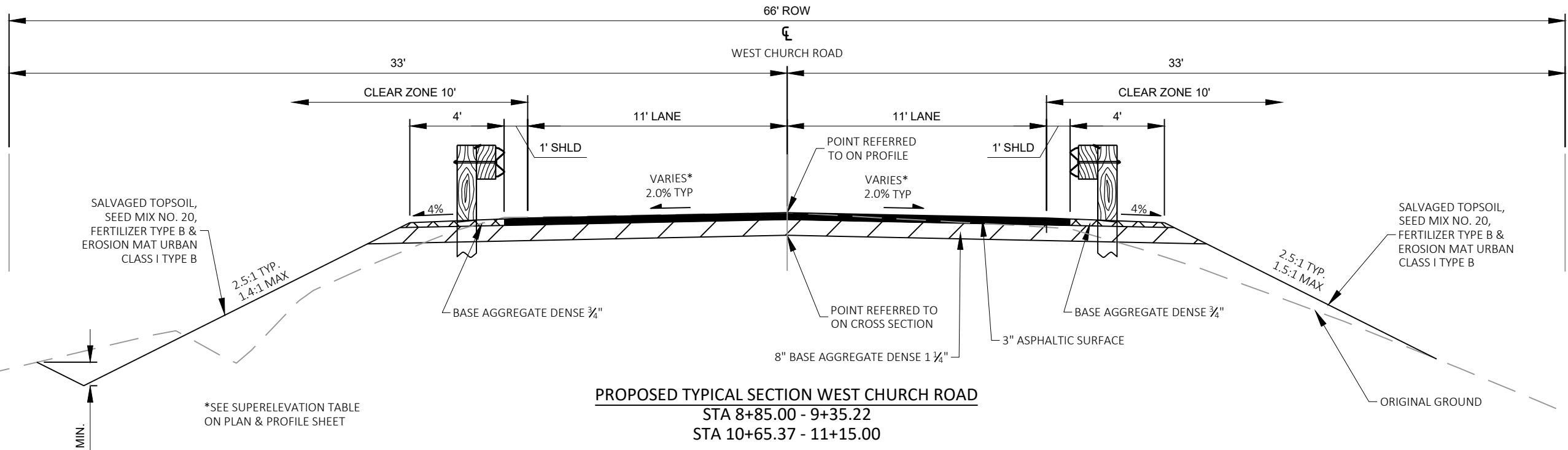
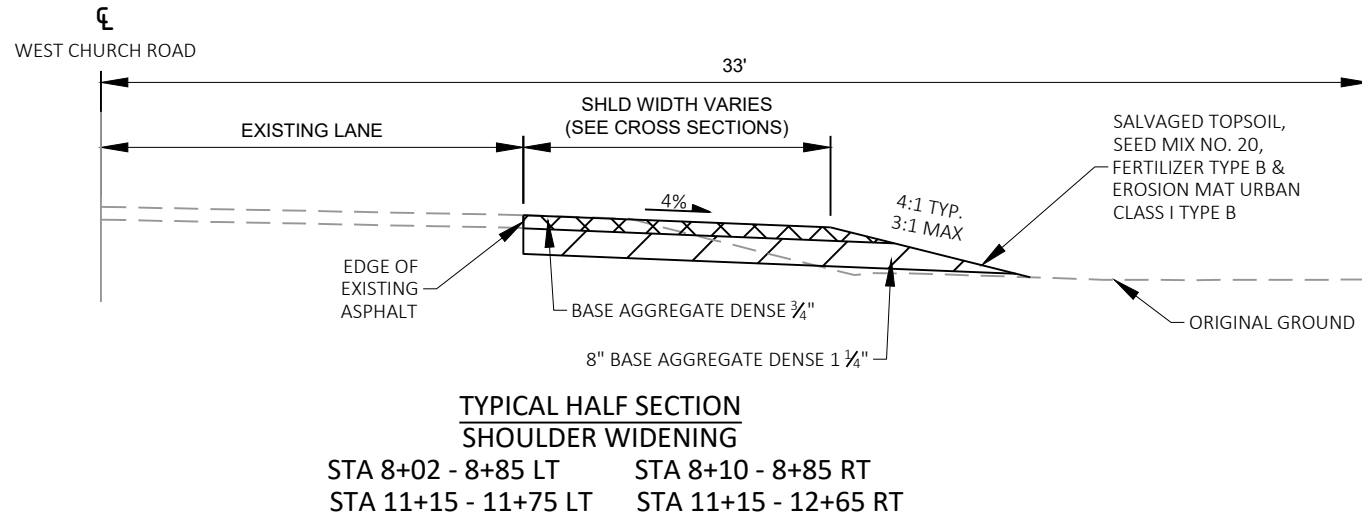
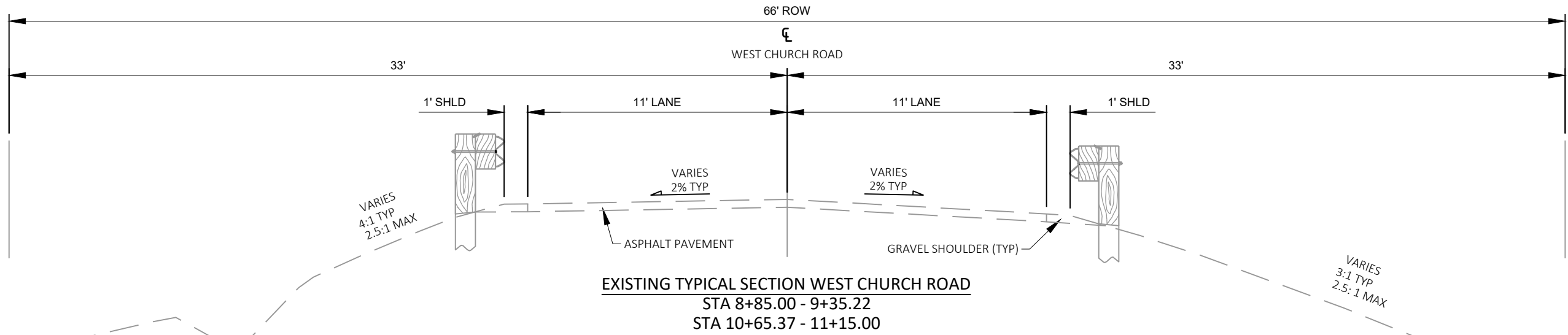
THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

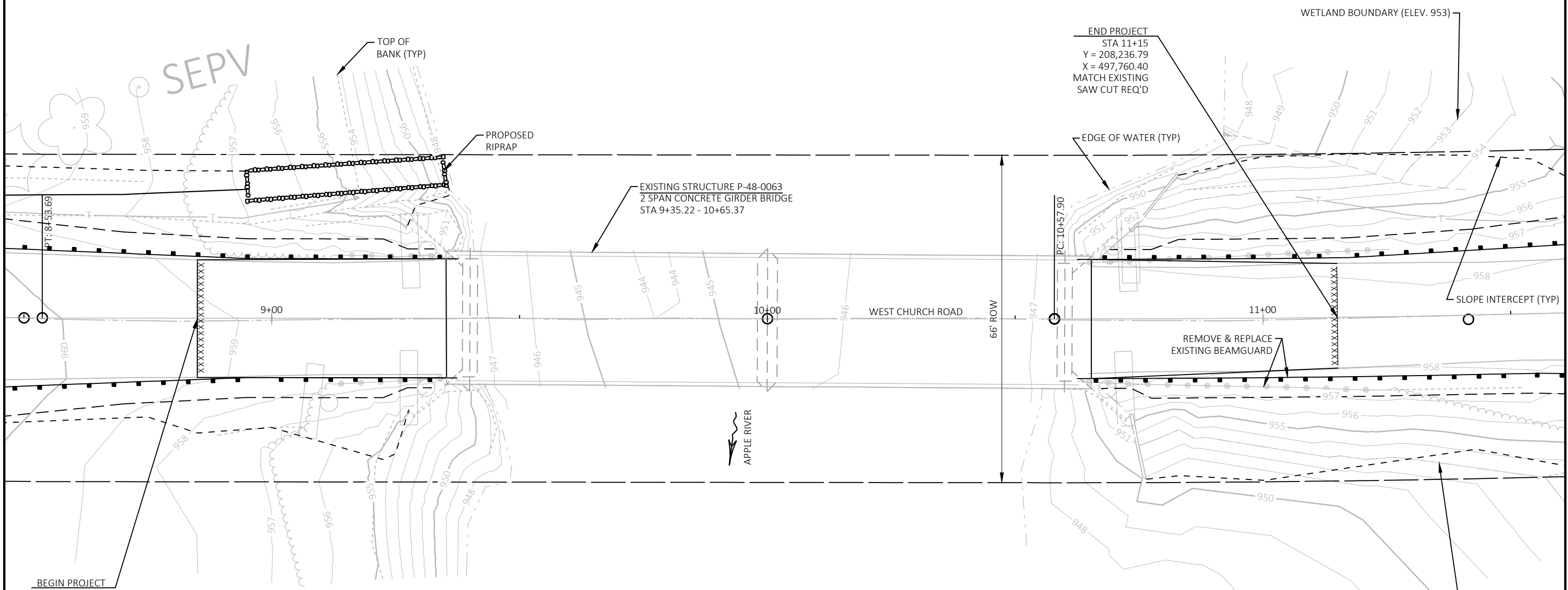
WEST CHURCH ROAD WILL BE CLOSED DURING CONSTRUCTION. A DETOUR ROUTE WILL BE POSTED.

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 0.68 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.32 ACRES

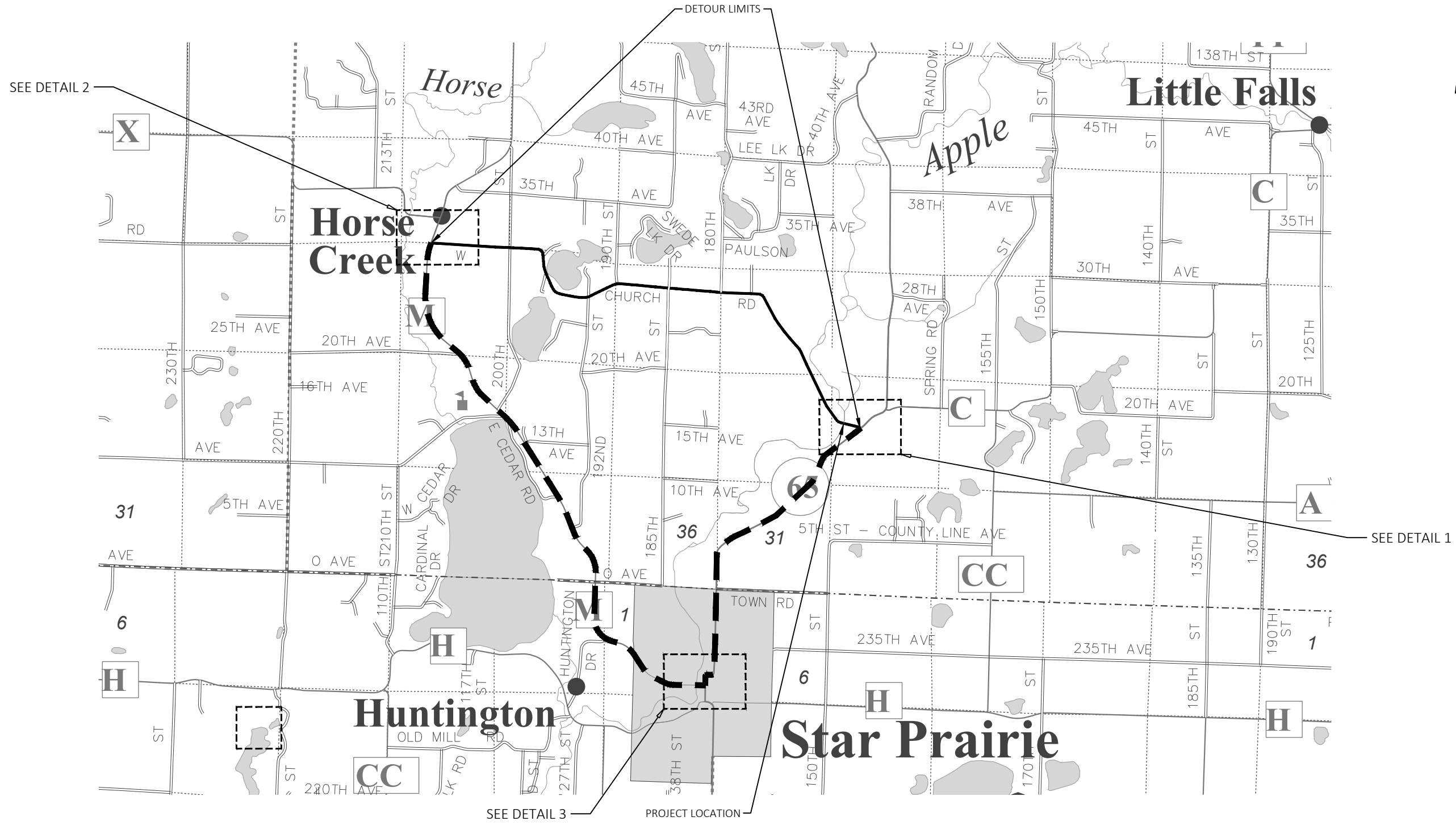




BEGIN PROJECT
 STA 8+85
 Y = 208,292.27
 X = 497,537.19
 MATCH EXISTING
 SAW CUT REQ'D

END PROJECT
 STA 11+15
 Y = 208,236.79
 X = 497,760.40
 MATCH EXISTING
 SAW CUT REQ'D

PROJECT NO: 8397-00-71	HWY: WEST CHURCH ROAD	COUNTY: POLK	EXISTING CONTOUR MAP	SHEET	E
------------------------	-----------------------	--------------	----------------------	-------	---

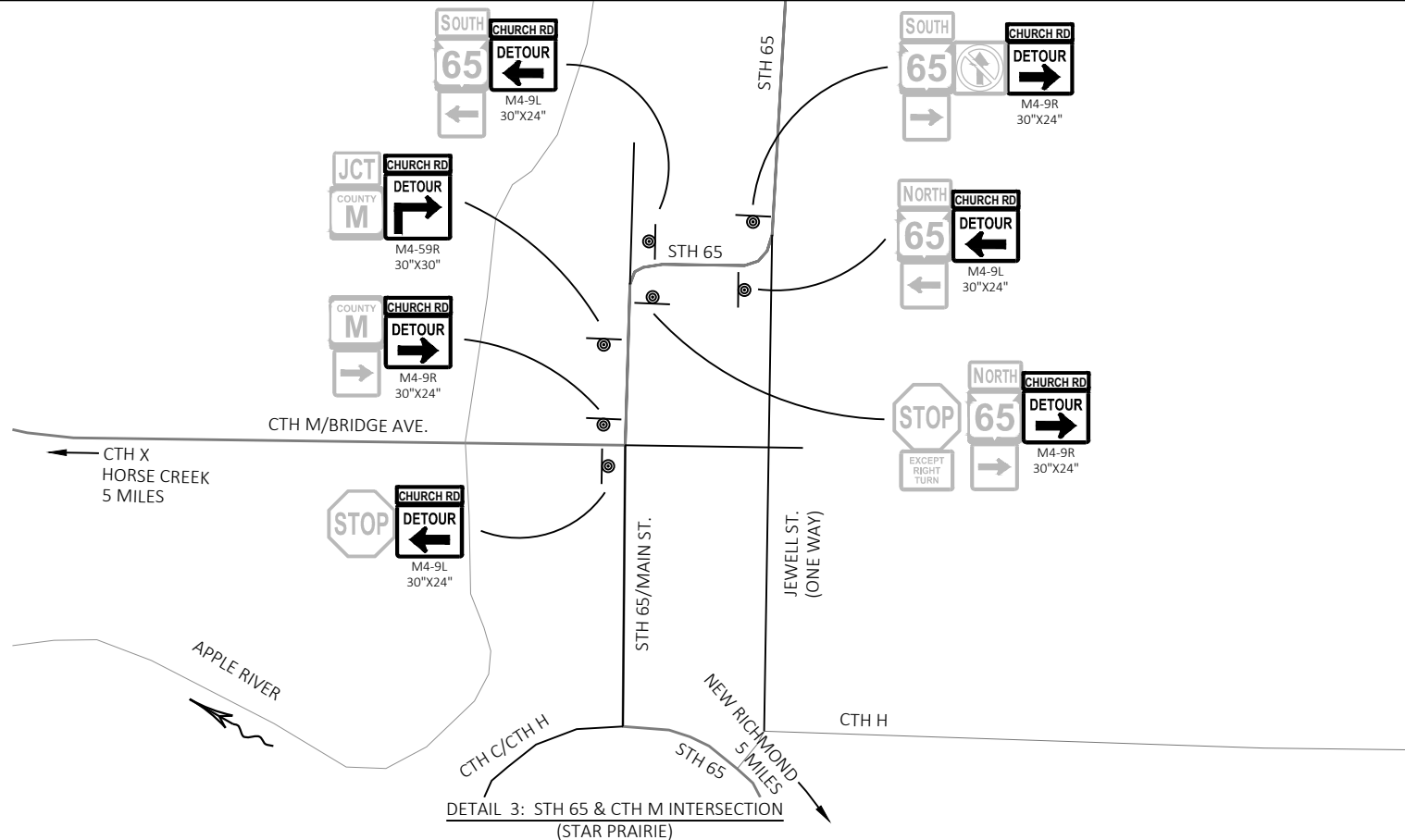
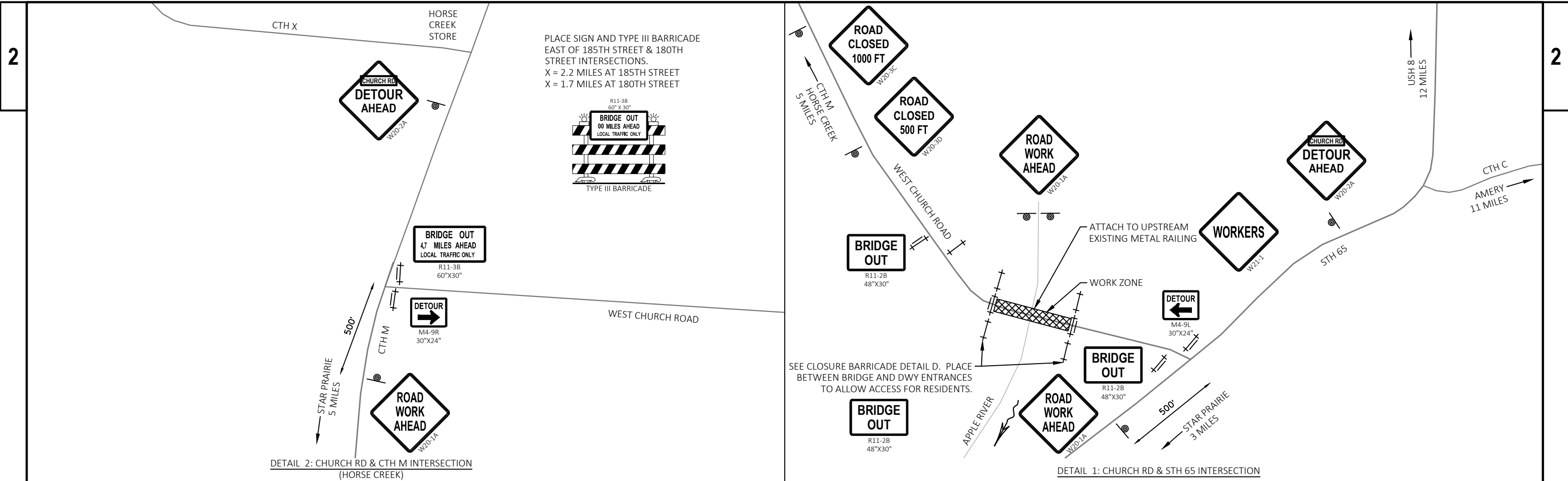


--- DETOUR ROUTE - STH 65, CTH M

DETOUR ROUTE

1. ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF TRAFFIC CONTROL DEVICES (WMUTCD)
2. THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
3. DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW-INTENSITY FLASHING) LIGHTS.
4. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACK-GROUND SHALL BE ORANGE
5. ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED

PROJECT NO: 8397-00-71	HWY: WEST CHURCH ROAD	COUNTY: POLK	DETOUR PLAN
SHEET			E



REFER TO STANDARD DETAIL DRAWING "BARRICADES AND SIGNS FOR MAINLINE CLOSURE", "BARRICADES AND SIGNS FOR VARIOUS CLOSURES", & "DETOUR SIGNING FOR MAINLINE CLOSURES" FOR MORE DETAIL

Estimate Of Quantities

8397-00-71

Line	Item	Item Description	Unit	Total	Qty
0002	204.0165	Removing Guardrail	LF	180.000	180.000
0004	205.0100	Excavation Common	CY	160.000	160.000
0006	213.0100	Finishing Roadway (project) 01. 8397-00-71	EACH	1.000	1.000
0008	305.0110	Base Aggregate Dense 3/4-Inch	TON	75.000	75.000
0010	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	350.000	350.000
0012	455.0605	Tack Coat	GAL	20.000	20.000
0014	465.0105	Asphaltic Surface	TON	50.000	50.000
0016	502.3200	Protective Surface Treatment	SY	335.000	335.000
0018	509.0301	Preparation Decks Type 1	SY	235.000	235.000
0020	509.0302	Preparation Decks Type 2	SY	100.000	100.000
0022	509.0500	Cleaning Decks	SY	335.000	335.000
0024	509.1500	Concrete Surface Repair	SF	1.000	1.000
0026	509.2000	Full-Depth Deck Repair	SY	1.000	1.000
0028	509.2500	Concrete Masonry Overlay Decks	CY	40.000	40.000
0030	509.9025.S	Epoxy Injection Crack Repair	LF	10.000	10.000
0032	606.0200	Riprap Medium	CY	20.000	20.000
0034	614.2300	MGS Guardrail 3	LF	62.500	62.500
0036	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0038	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0040	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8397-00-71	EACH	1.000	1.000
0042	619.1000	Mobilization	EACH	1.000	1.000
0044	624.0100	Water	MGAL	5.000	5.000
0046	625.0500	Salvaged Topsoil	SY	800.000	800.000
0048	628.1504	Silt Fence	LF	690.000	690.000
0050	628.1520	Silt Fence Maintenance	LF	690.000	690.000
0052	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0054	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0056	628.2008	Erosion Mat Urban Class I Type B	SY	800.000	800.000
0058	628.7504	Temporary Ditch Checks	LF	20.000	20.000
0060	629.0210	Fertilizer Type B	CWT	0.500	0.500
0062	630.0120	Seeding Mixture No. 20	LB	25.000	25.000
0064	630.0500	Seed Water	MGAL	25.000	25.000
0066	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0068	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0070	638.2602	Removing Signs Type II	EACH	4.000	4.000
0072	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0074	642.5001	Field Office Type B	EACH	1.000	1.000
0076	643.0300	Traffic Control Drums	DAY	325.000	325.000
0078	643.0420	Traffic Control Barricades Type III	DAY	975.000	975.000
0080	643.0705	Traffic Control Warning Lights Type A	DAY	2,015.000	2,015.000
0082	643.0900	Traffic Control Signs	DAY	2,210.000	2,210.000
0084	643.5000	Traffic Control	EACH	1.000	1.000
0086	645.0120	Geotextile Type HR	SY	60.000	60.000
0088	650.4500	Construction Staking Subgrade	LF	283.000	283.000
0090	650.5000	Construction Staking Base	LF	283.000	283.000
0092	650.9910	Construction Staking Supplemental Control (project) 01. 8397-00-71	LS	1.000	1.000
0094	650.9920	Construction Staking Slope Stakes	LF	283.000	283.000
0096	690.0150	Sawing Asphalt	LF	46.000	46.000
0098	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 10+00	EACH	1.000	1.000

Estimate Of Quantities

8397-00-71

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

3

CATEGORY	POST #1 STA	LOCATION	REMOVING	MGS	MGS	MGS
			GUARDRAIL	GUARDRAIL	THRIE BEAM	GUARDRAIL
			204.0165	614.2300	614.2500	614.2610
			LF	LF	LF	EA
0010	8+45	RT	25	-	39.4	1
0010	8+45	LT	25	-	39.4	1
0010	15+06	RT	65	12.5	39.4	1
0010	15+21	LT	65	50	39.4	1
TOTAL 0010			180	62.5	157.6	4

3

CATEGORY	STATION TO STATION	SIDE	EXCAVATION	SALVAGED/	AVAILABLE	UNEXPANDED	EXPANDED	MASS
			COMMON	UNUSEABLE	MATERIAL	FILL	FILL	ORDINATE
			205.0100	PAVEMENT	MATERIAL	FILL	(FACTOR =	+/-
			CY	CY	CY	CY	CY	CY
0010	8+00 - 9+35	LT/RT	90	15	75	20	25	50
0010	10+65 - 12+75	LT/RT	70	15	55	60	75	-20
TOTAL 0010			160	30	130	80	100	30

CATEGORY	STATION TO STATION	SIDE	BASE	BASE	ASPHALTIC		SAWING		
			AGGREGATE	AGGREGATE	TACK COAT	SURFACE	WATER	ASPHALT	
			305.0110	305.0120	455.0605	465.0105	624.0100	690.0150	
			INCHES	TON	TON	GAL	TON	MGAL	LF
0010	8+02 - 8+85	LT	10	35	-	-	0.5	-	-
0010	8+10 - 8+85	RT	10	35	-	-	0.5	-	-
0010	8+85 - 9+35	LT/RT	3.0	10	85	10	25	1.2	24
0010	10+65 - 11+15	LT/RT	3.0	10	85	10	25	1.2	22
0010	11+15 - 11+75	LT	10	35	-	-	0.5	-	-
0010	11+15 - 12+65	RT	25	75	-	-	1.1	-	-
TOTAL 0010			75	350	20	50	5	46	-

CATEGORY	LOCATION	EROSION MAT		TEMPORARY		SEEDING		GEOTEXTILE	
		RIPRAP	SALVAGED	URBAN CLASS I	DITCH	FERTILIZER	SEEDING	SEED WATER	TYPE HR
		606.0200	625.0500	628.2008	628.7504	629.0210	630.0120	630.0500	645.0120
		CY	SY	SY	LF	CWT	LB	MGAL	SY
0010	P-48-63 NW	15	170	170	16	0.11	5	5	45
0010	P-48-63 SW	-	70	70	-	0.04	3	3	-
0010	P-48-63 NE	-	150	150	-	0.09	5	5	-
0010	P-48-63 SE	-	245	245	-	0.16	7	7	-
0010	UNDISTRIBUTED	5	165	165	4	0.10	5	5	15
TOTAL 0010		20	800	800	20	0.5	25	25	60

PROJECT NO: 8397-00-71

HWY: WEST CHURCH ROAD

COUNTY: POLK

MISCELLANEOUS QUANTITIES

SHEET

E

3

CATEGORY	LOCATION	SILT FENCE	
		SILT FENCE	MAINTENANCE
		628.1504 LF	628.1520 LF
0010	P-48-63 NW	130	130
0010	P-48-63 SW	135	135
0010	P-48-63 NE	95	95
0010	P-48-63 SE	190	190
0010	UNDISTRIBUTED	140	140
TOTAL 0010		690	690

CATEGORY	LOCATION	MOBILIZATIONS	
		MOBILIZATIONS	EMERGENCY
		628.1905 EROSION CONTROL EA	628.1910 EROSION CONTROL EA
0010	PROJECT	3	2
TOTAL 0010		3	2

CATEGORY	STATION	SIDE	POSTS	SIGNS	REMOVING	REMOVING	REMARKS
			WOOD	TYPE II	SIGNS	SMALL SIGN	
			4x6-INCH	REFLECTIVE	TYPE II	SUPPORTS	
			x 12 FT	F	EA	EA	
			634.0612 EA	637.2230 SF	638.2602 EA	638.3000 EA	
0010	9+32	RT	1	3	1	1	W5-52R
0010	9+32	LT	1	3	1	1	W5-52L
0010	10+68	RT	1	3	1	1	W5-52L
0010	10+68	LT	1	3	1	1	W5-52R
TOTAL 0010			4	12	4	4	

3

CATEGORY	DAYS	TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		REMARKS		
		TRAFFIC CONTROL	BARRICADES	WARNING LIGHTS	TRAFFIC CONTROL					
		DRUMS	TYPE III	TYPE A	SIGNS					
		643.0300	643.0420	643.0705	643.0900					
		#	DAYS	#	DAYS	#	DAYS	#	DAYS	
0010	65			3	195	4	260	1	65	ROAD CLOSED DETAIL D WEST SIDE
0010	65			3	195	4	260	1	65	ROAD CLOSED DETAIL D EAST SIDE
0010	65			6	390	12	780	10	650	ADVANCED ROAD CLOSED DETAIL A WEST SIDE
0010	65			2	130	4	260	5	325	ADVANCED ROAD CLOSED DETAIL B EAST SIDE
0010	65							14	910	DETOUR ROUTE THROUGH STAR PRAIRIE
0010	65							3	195	APPLE RIVER WARNING SIGNS
0010	65	5	325	1	65	7	455			UNDISTRIBUTED
TOTAL 0010			325		975		2,015		2,210	

CATEGORY	STATION TO STATION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION
		STAKING	STAKING	STAKING
		SUBGRADE	BASE	SLOPE STAKES
		650.4500 LF	650.5000 LF	650.9920 LF
0010	8+16 - 9+27	111	111	111
0010	10+73 - 12+45	172	172	172
TOTAL 0010		283	283	283

PROJECT NO: 8397-00-71

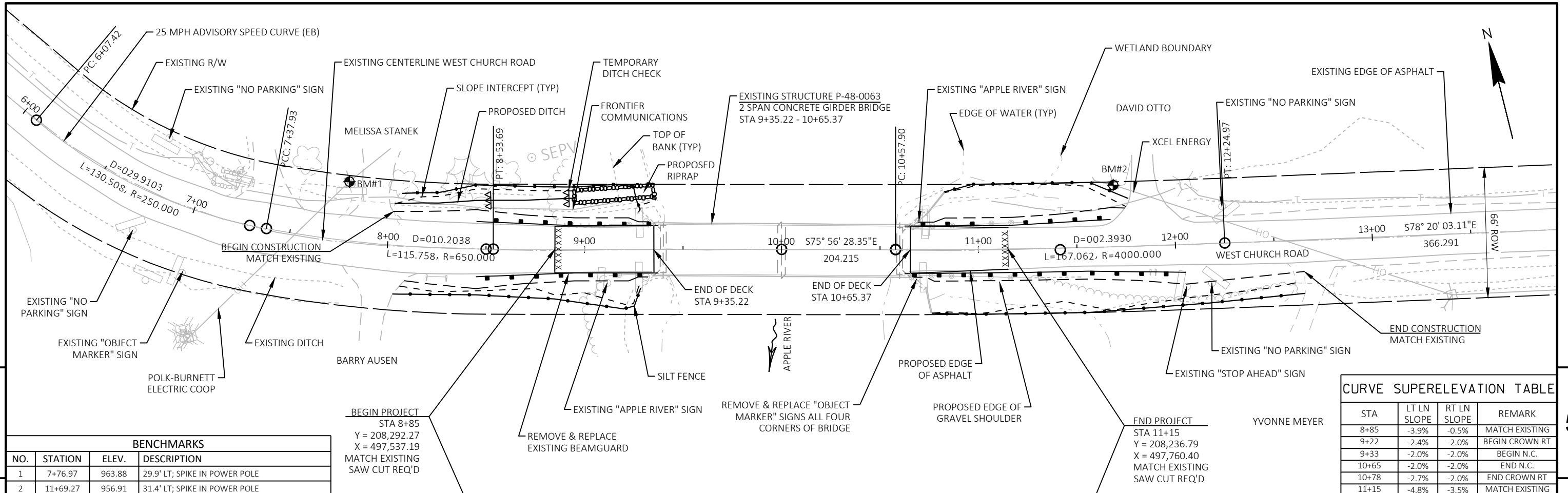
HWY: WEST CHURCH ROAD

COUNTY: POLK

MISCELLANEOUS QUANTITIES

SHEET

E

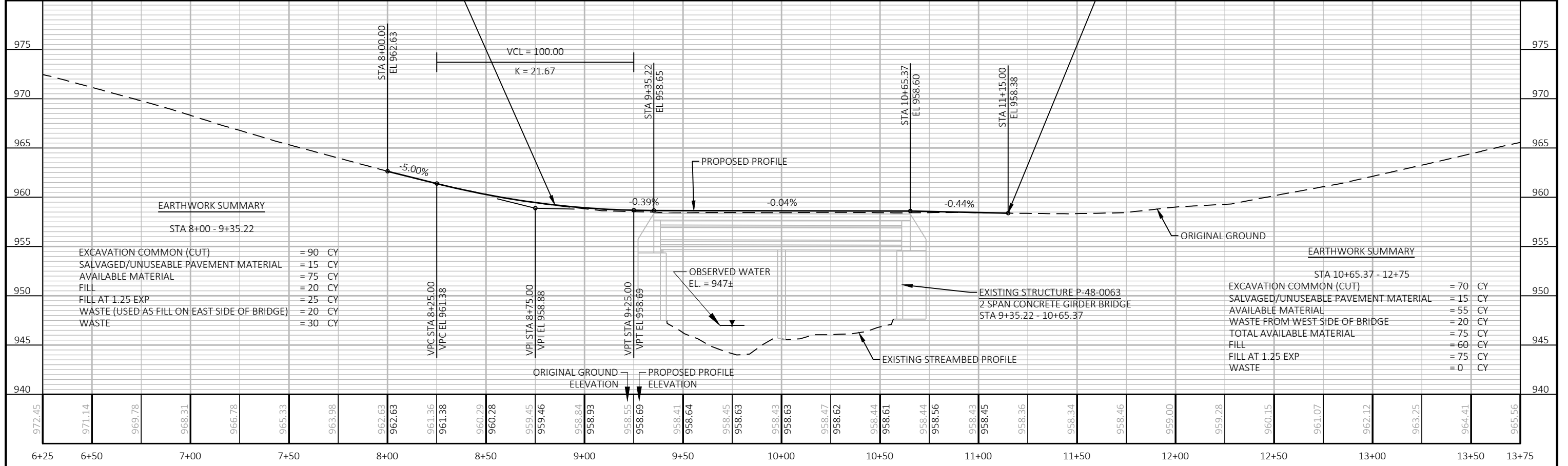


STA	LT LN SLOPE	RT LN SLOPE	REMARK
8+85	-3.9%	-0.5%	MATCH EXISTING
9+22	-2.4%	-2.0%	BEGIN CROWN RT
9+33	-2.0%	-2.0%	BEGIN N.C.
10+65	-2.0%	-2.0%	END N.C.
10+78	-2.7%	-2.0%	END CROWN RT
11+15	-4.8%	-3.5%	MATCH EXISTING

BEGIN PROJECT
 STA 8+85
 Y = 208,292.27
 X = 497,537.19
 MATCH EXISTING
 SAW CUT REQ'D

END PROJECT
 STA 11+15
 Y = 208,236.79
 X = 497,760.40
 MATCH EXISTING
 SAW CUT REQ'D

NO.	STATION	ELEV.	DESCRIPTION
1	7+76.97	963.88	29.9' LT; SPIKE IN POWER POLE
2	11+69.27	956.91	31.4' LT; SPIKE IN POWER POLE

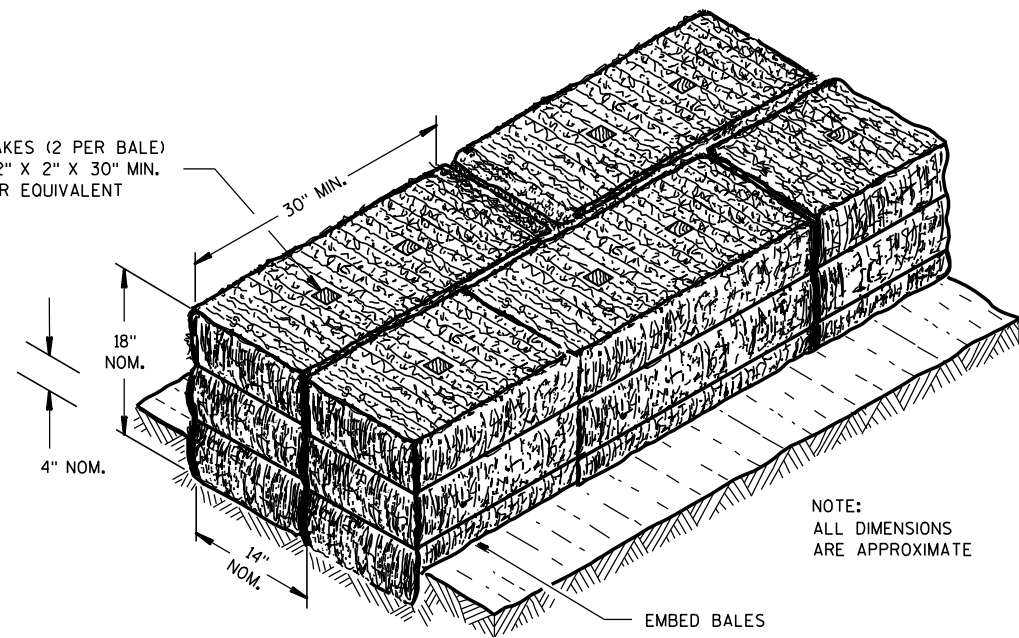


PROJECT NO: 8397-00-71 HWY: WEST CHURCH ROAD COUNTY: POLK PLAN AND PROFILE: WEST CHURCH ROAD SHEET: 5

Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

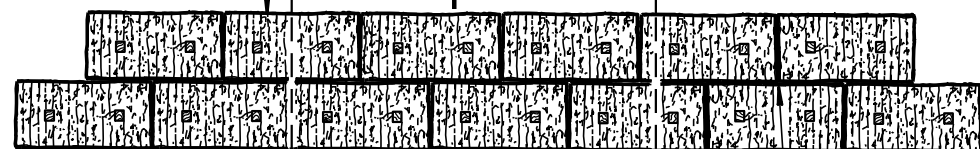
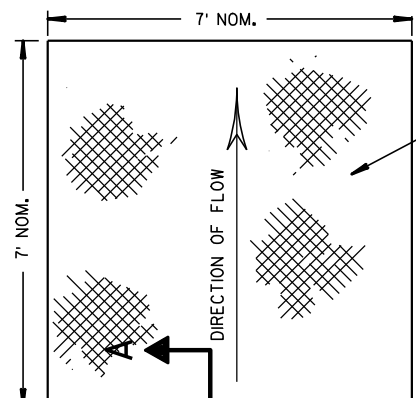
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

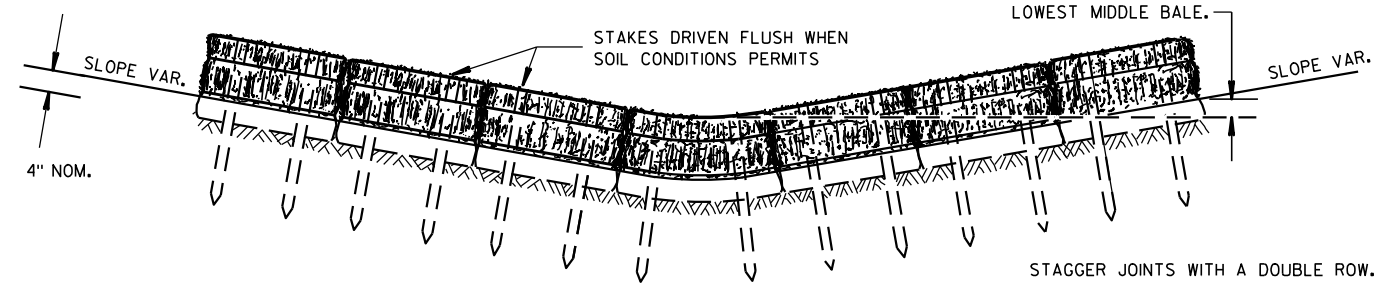
EMBED BALES

SECTION A-A



PLAN VIEW

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



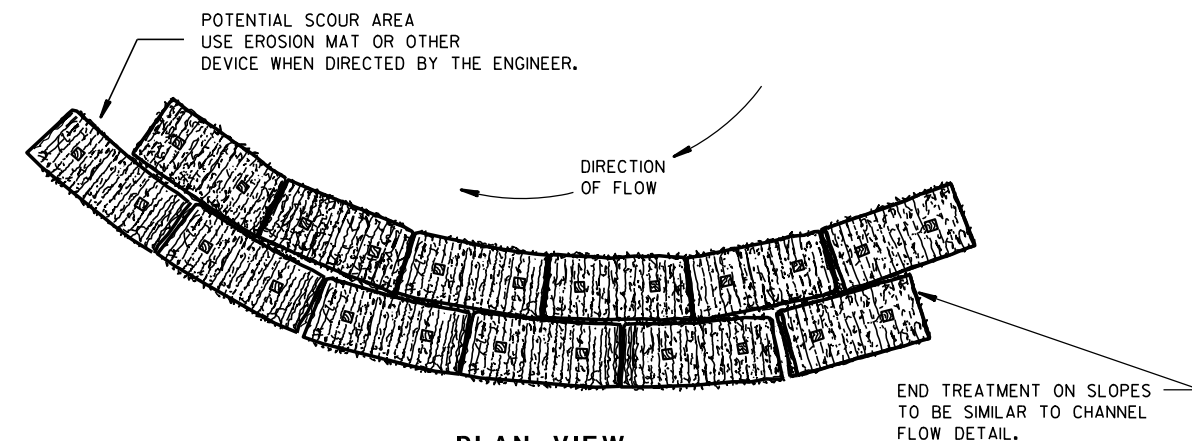
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

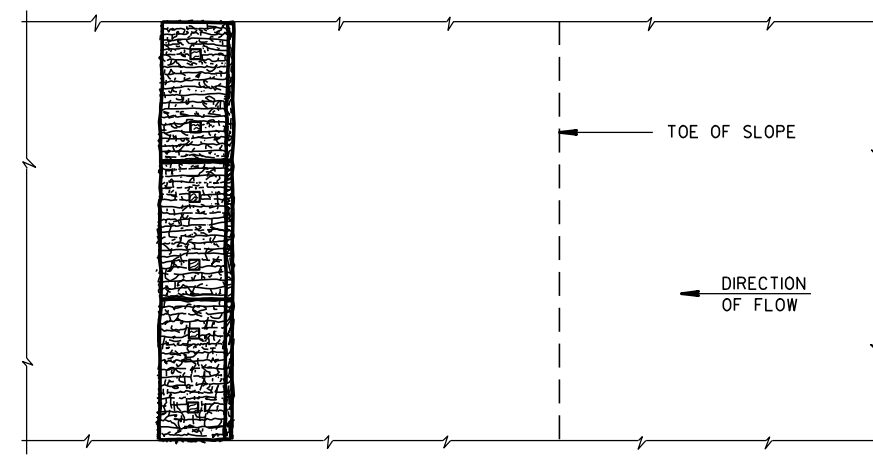
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

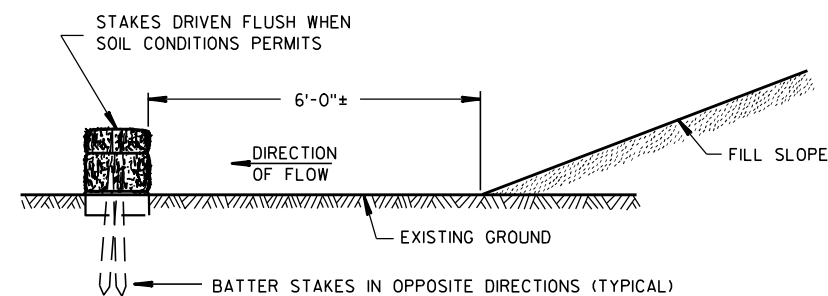


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

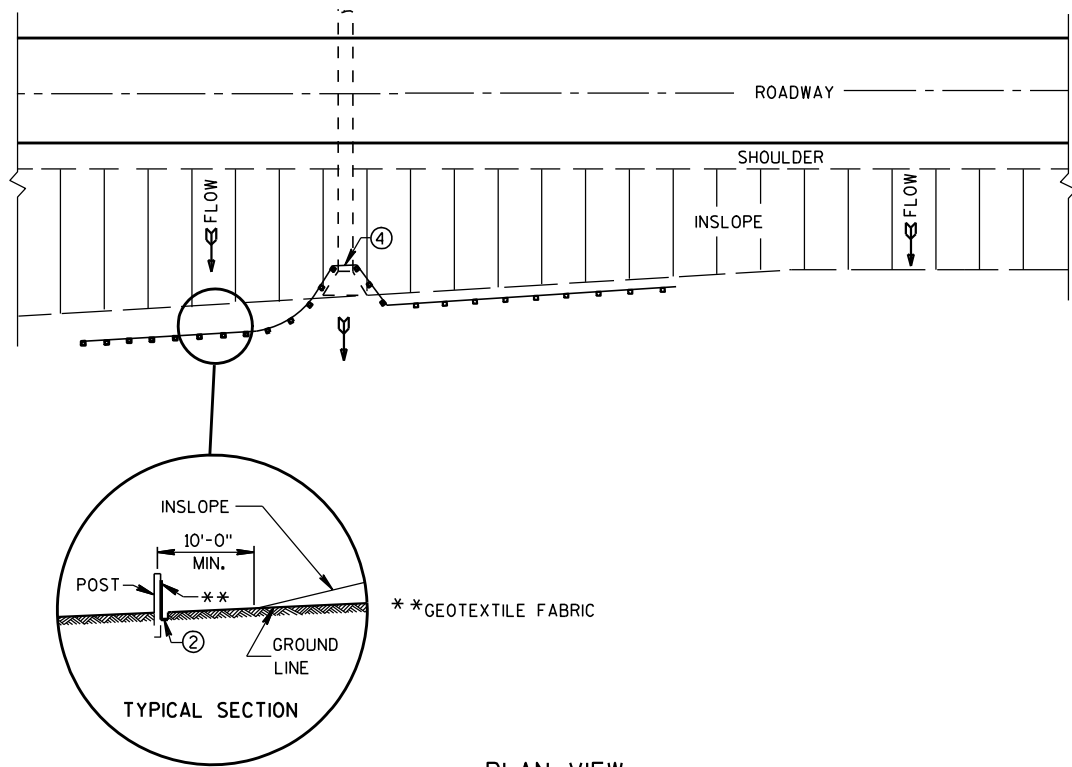
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

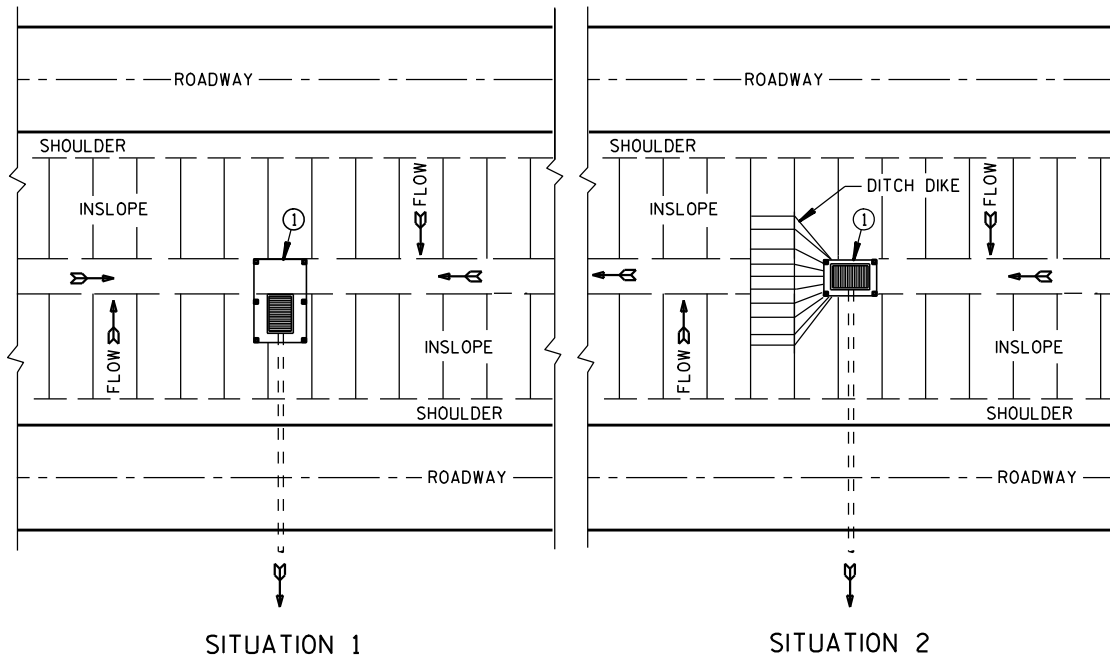
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

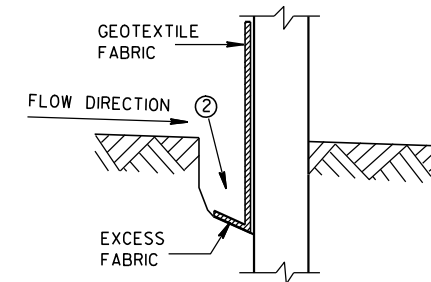


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

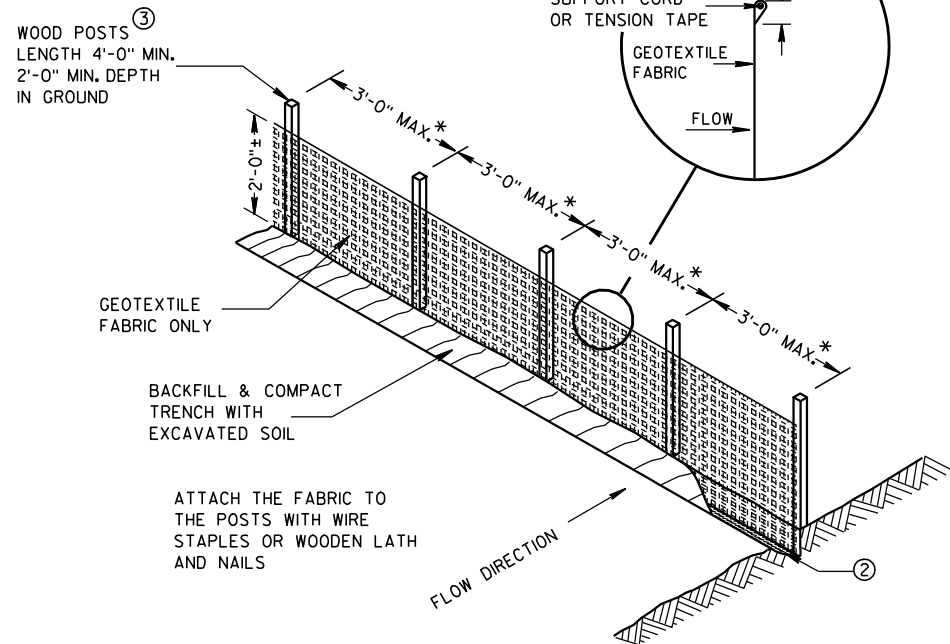
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



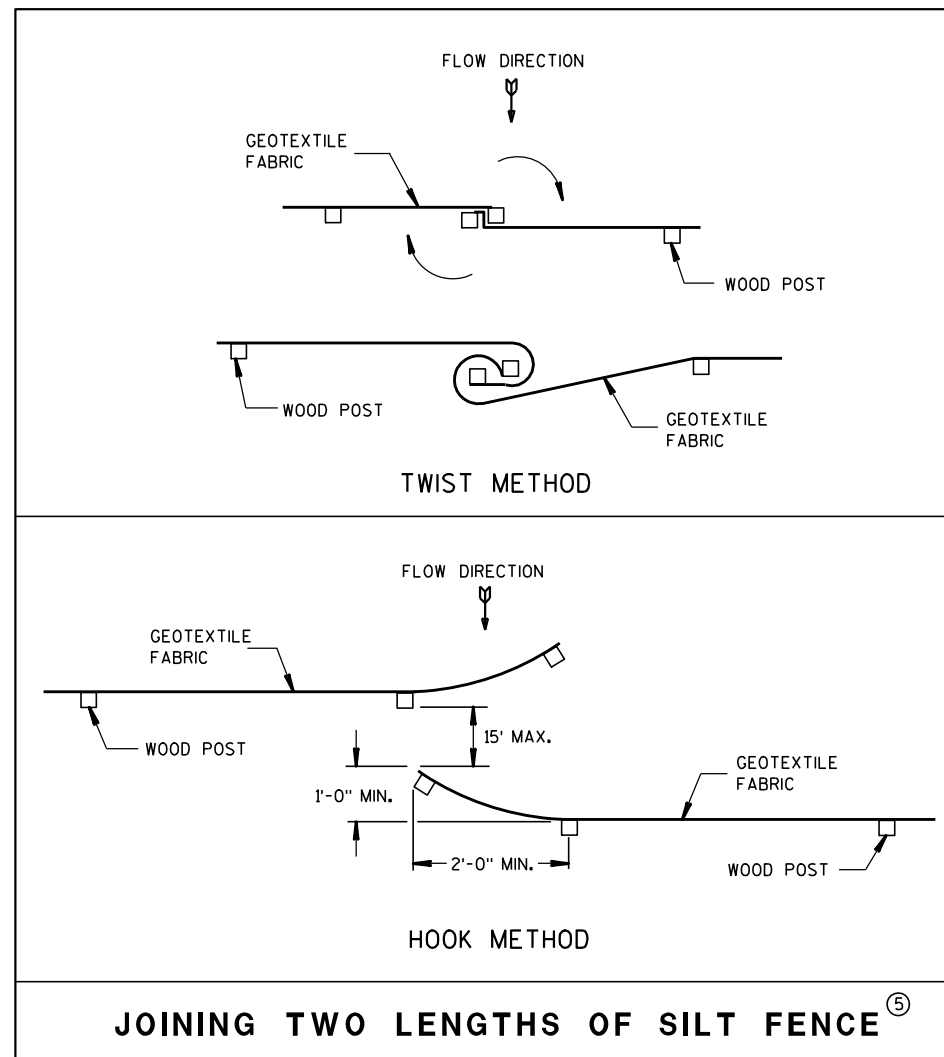
TRENCH DETAIL

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

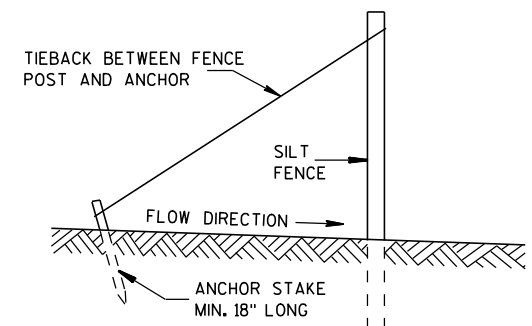


SILT FENCE

* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤



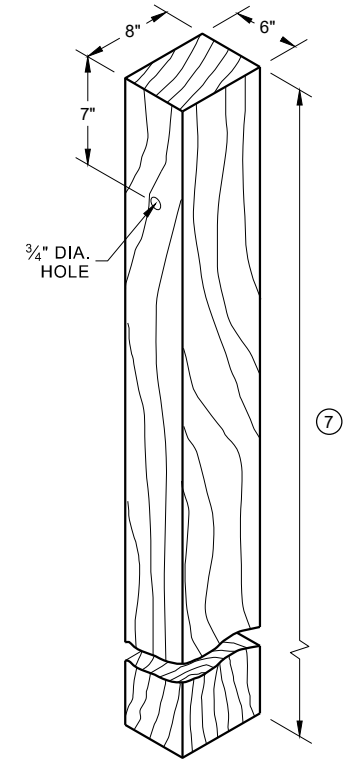
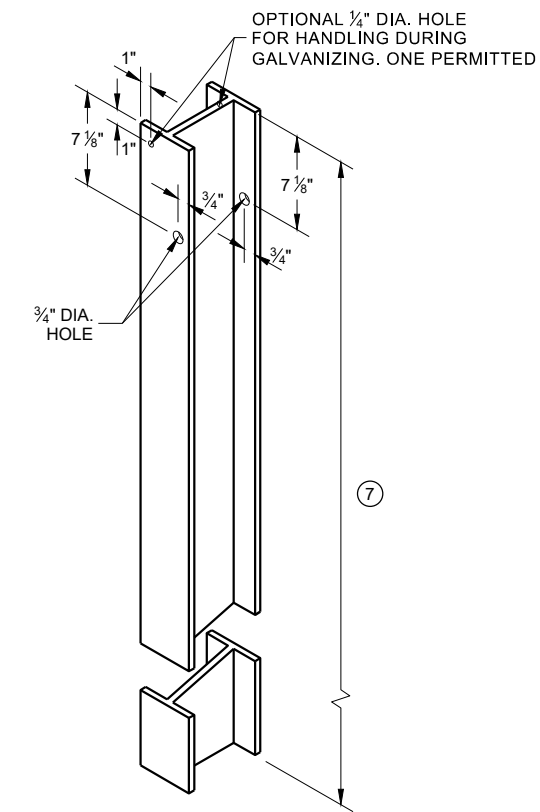
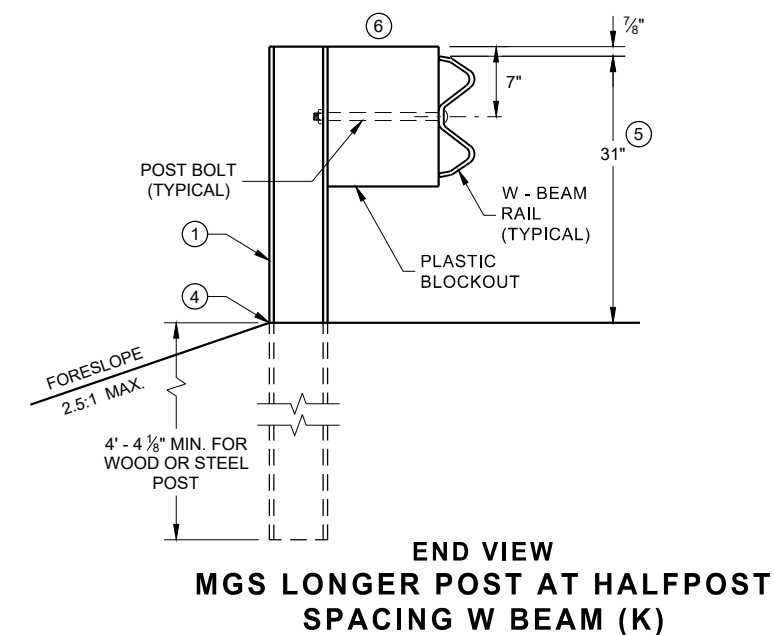
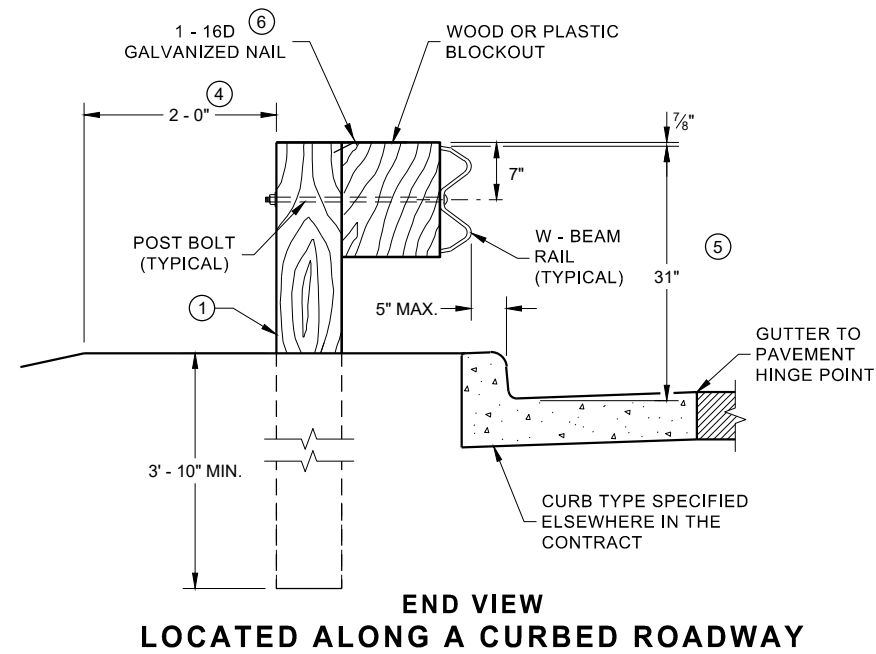
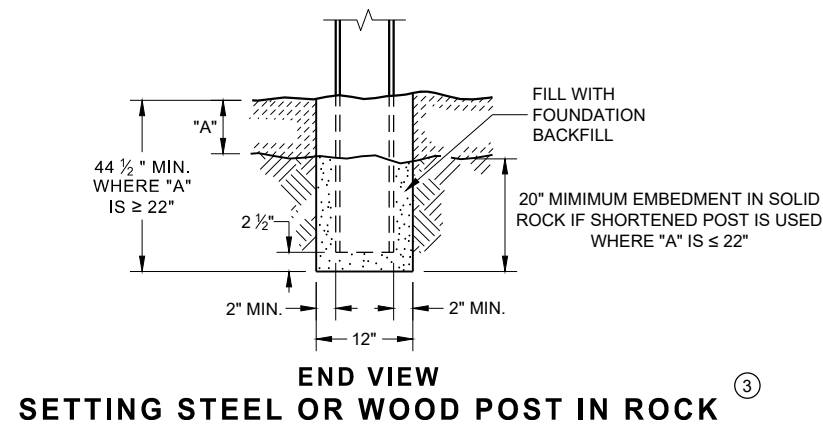
SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

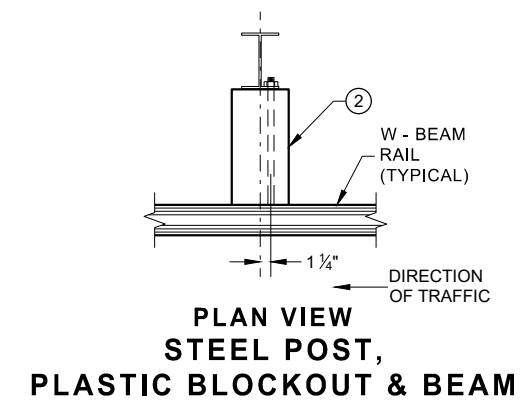
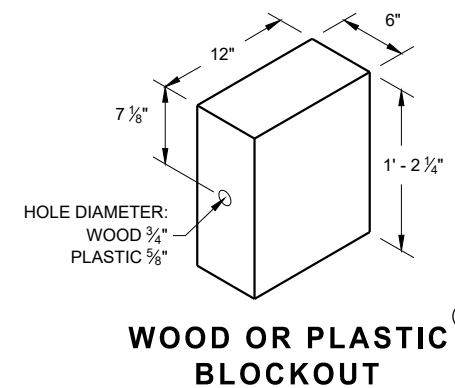
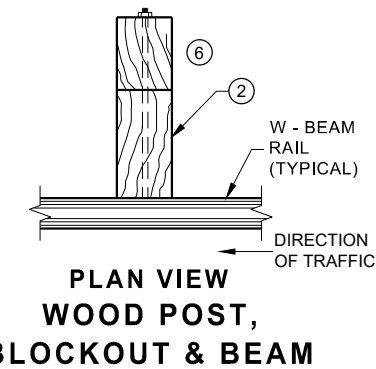
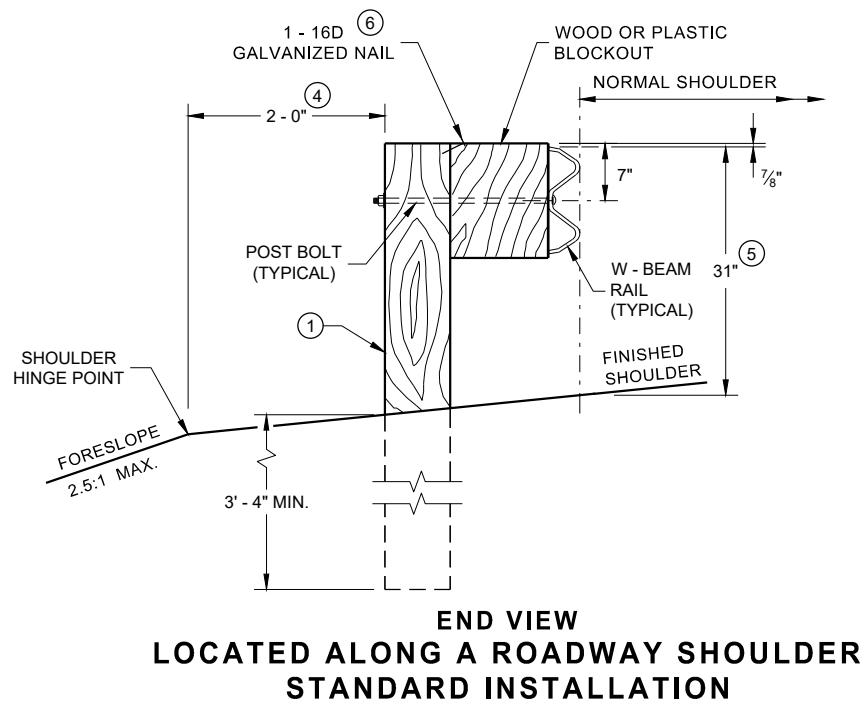
APPROVED
4-29-05 /S/ Beth Canestra
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

- WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



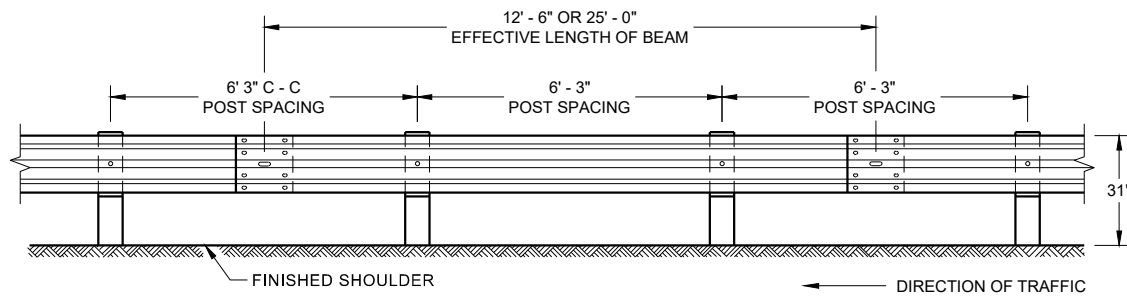
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) ①

WOOD POST (6" X 8") NOMINAL ①

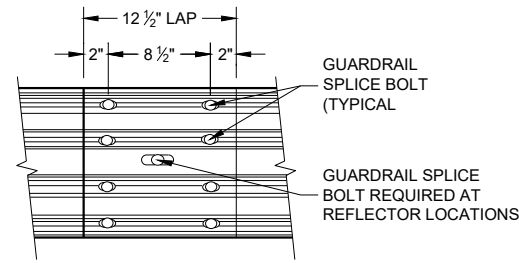


MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



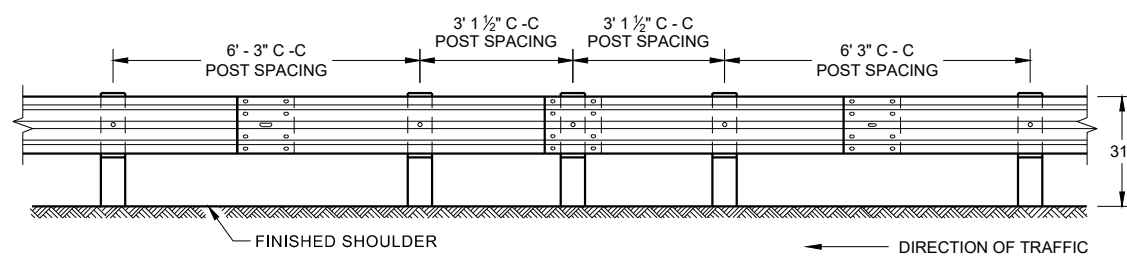
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



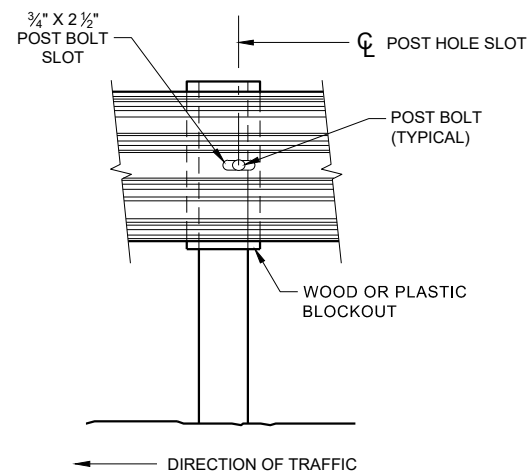
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

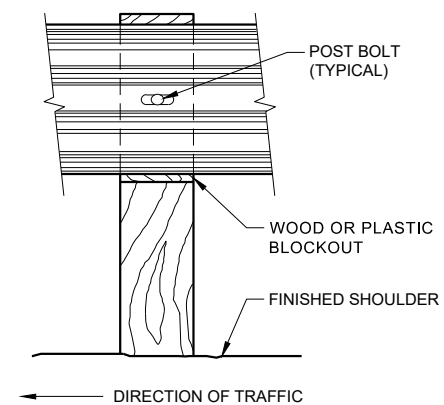
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



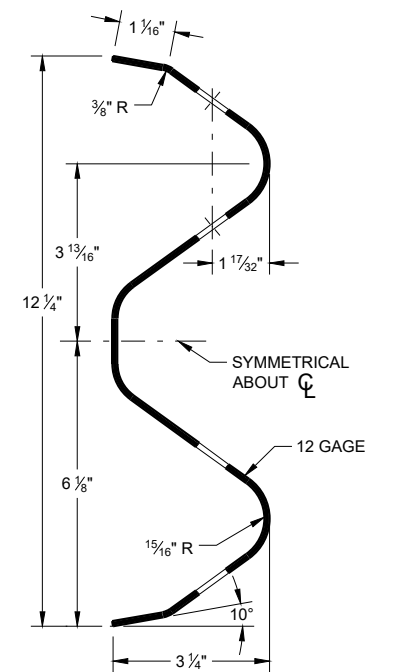
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



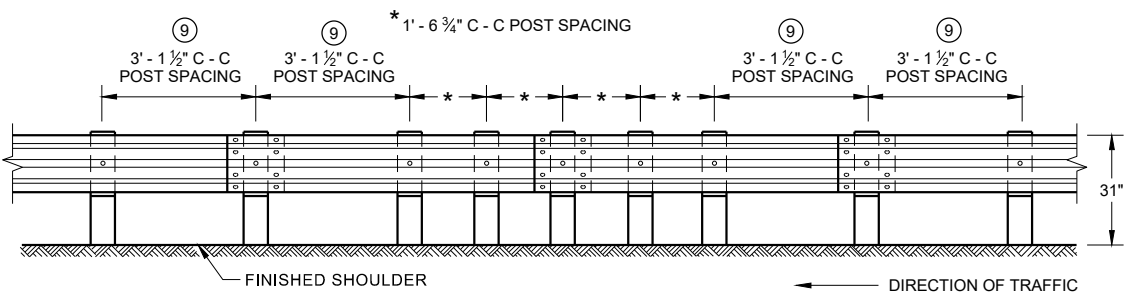
FRONT VIEW AT STEEL POST



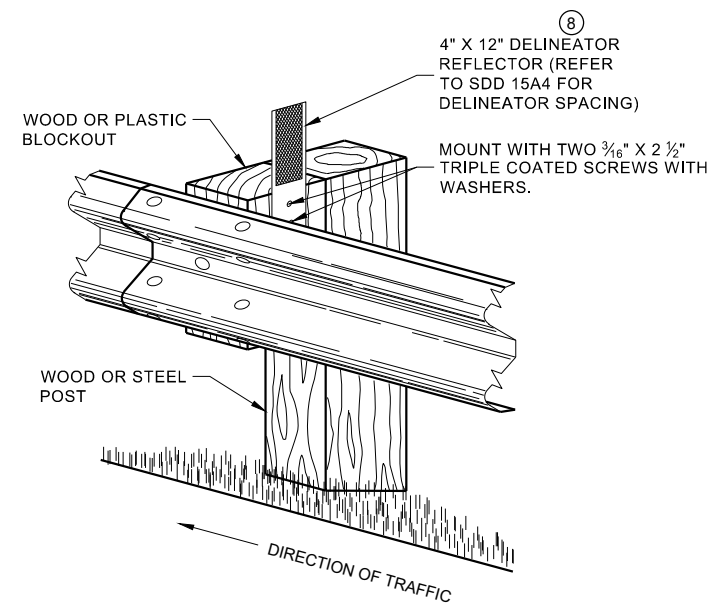
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



**FRONT VIEW
QUARTER POST SPACING (QS)**



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

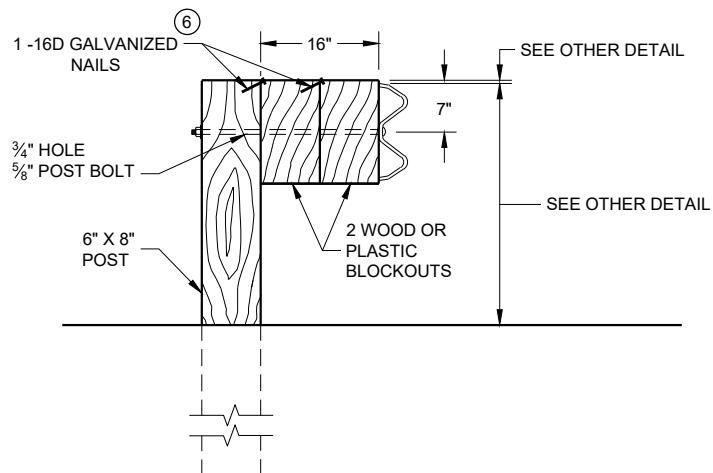
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

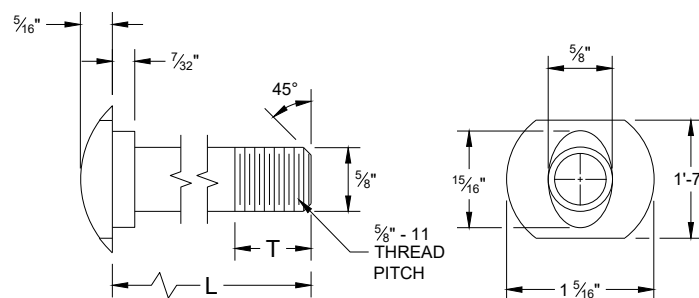


DETAIL FOR 16" BLOCKOUT DEPTH

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

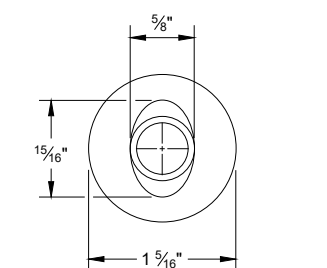
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

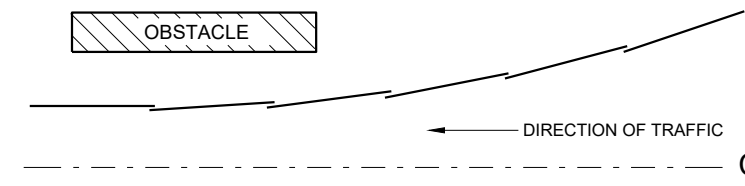


POST BOLT TABLE

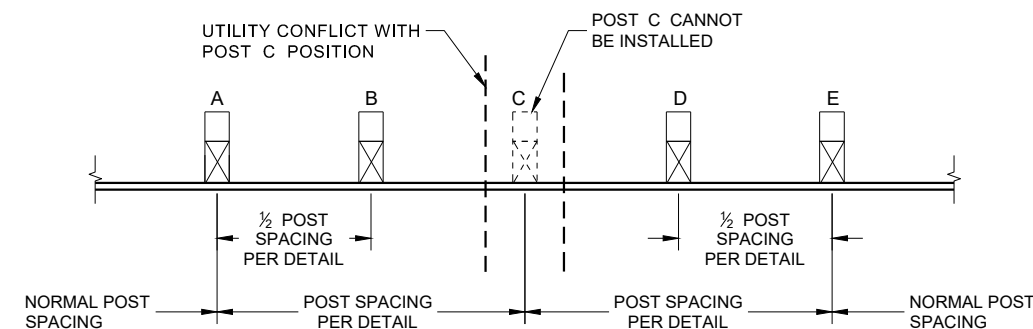
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



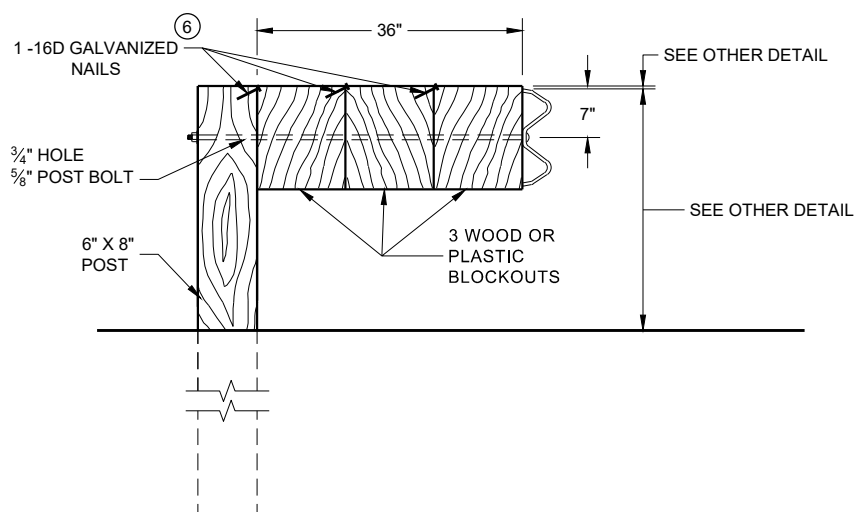
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**

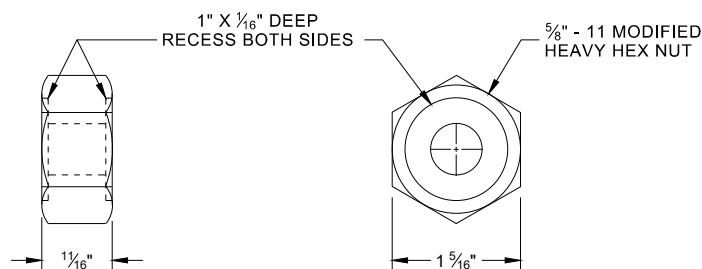


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

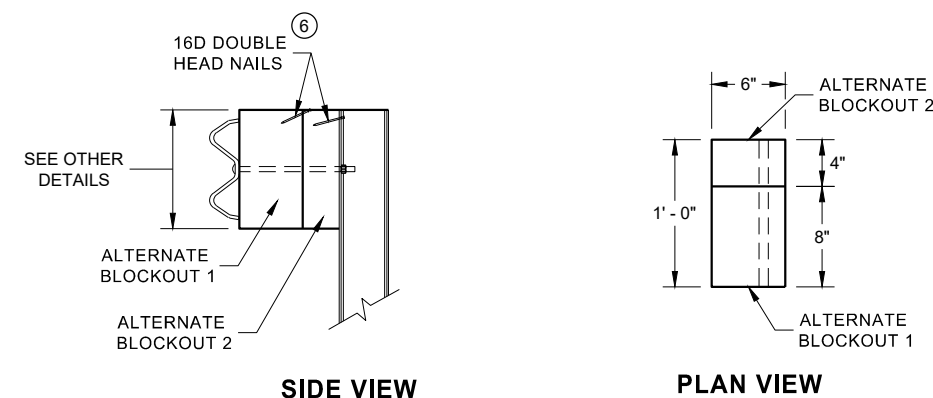


DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



**POST BOLT, SPLICE BOLT
AND RECESS NUT**

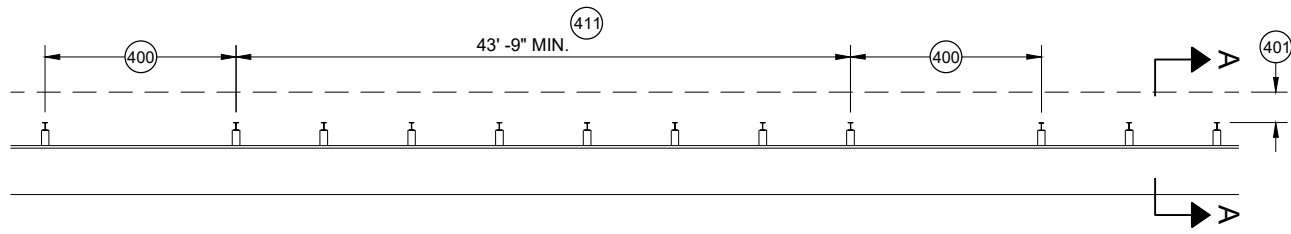


**ALTERNATE WOOD
BLOCKOUT DETAIL**

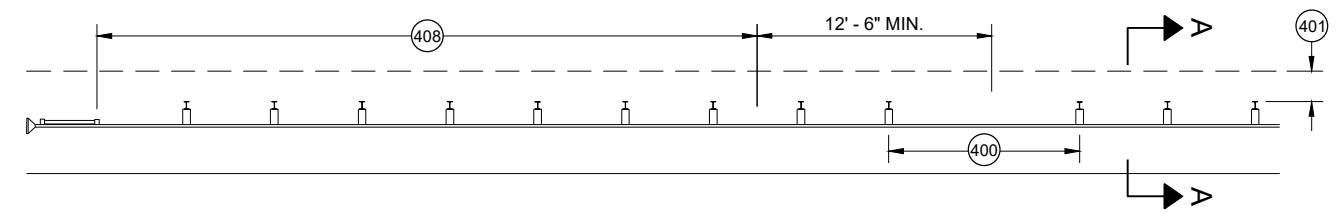
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

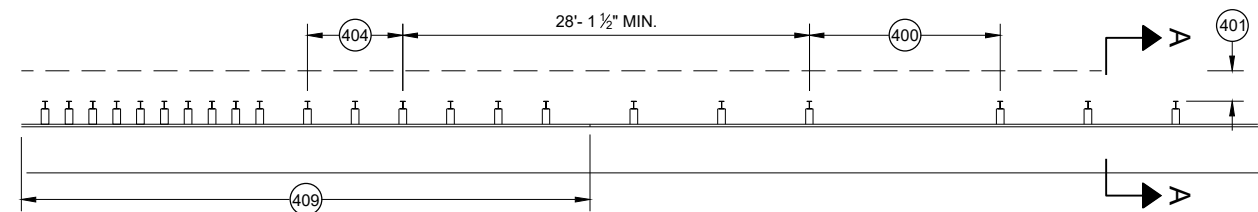
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



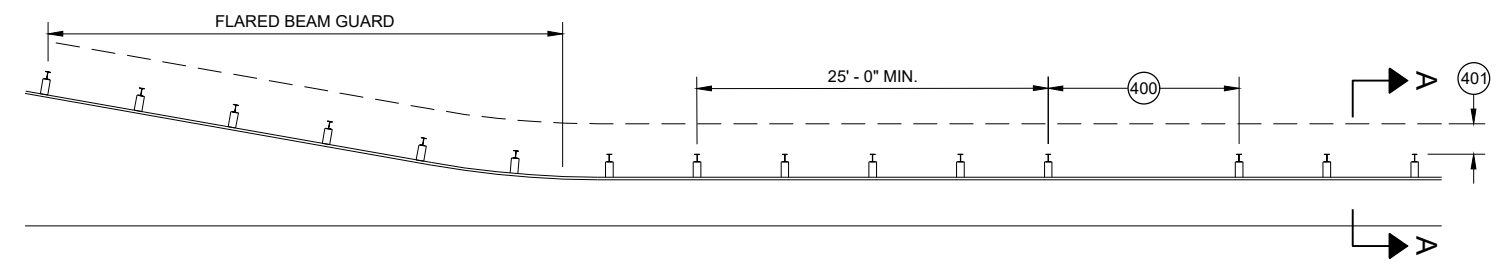
MISSING POST IN MGS GUARDRAIL



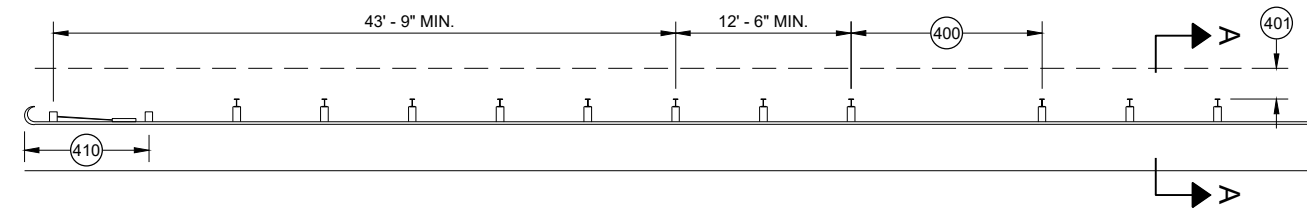
MISSING POST IN MGS GUARDRAIL NEAR EAT



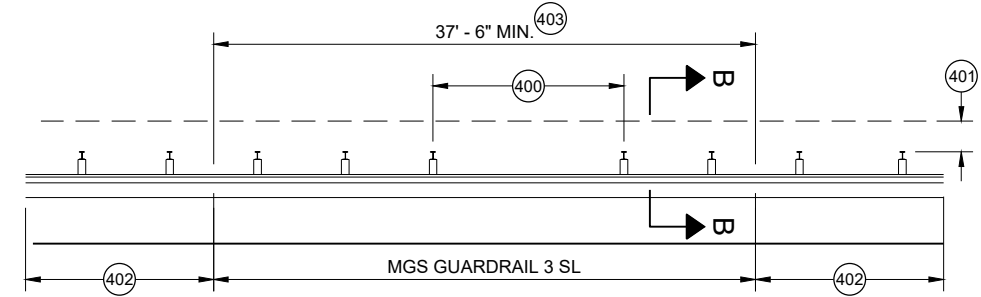
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

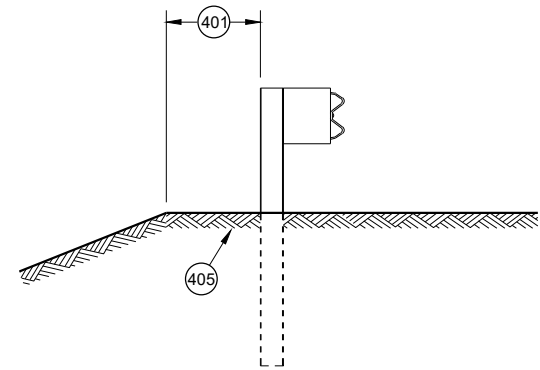


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

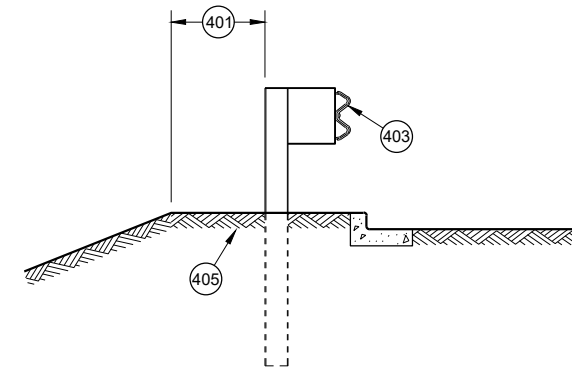


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- 400 MAX SPAN 12' - 6"
- 401 2' MIN.
- 402 MGS GUARDRAIL 3
- 403 NESTING BEAM GUARD
- 404 ASYMMETRIC TRANSITION
- 405 SOIL WELL DRAINED AND COMPACTED
- 406 SEE OTHER DRAWINGS IN THIS SDD
- 407 SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- 408 SEE SDD 14B44
- 409 SEE SDD 14B45
- 410 SEE SDD 14B47
- 411 MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A



SECTION B - B

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
 - (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
 - (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
 - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
 - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

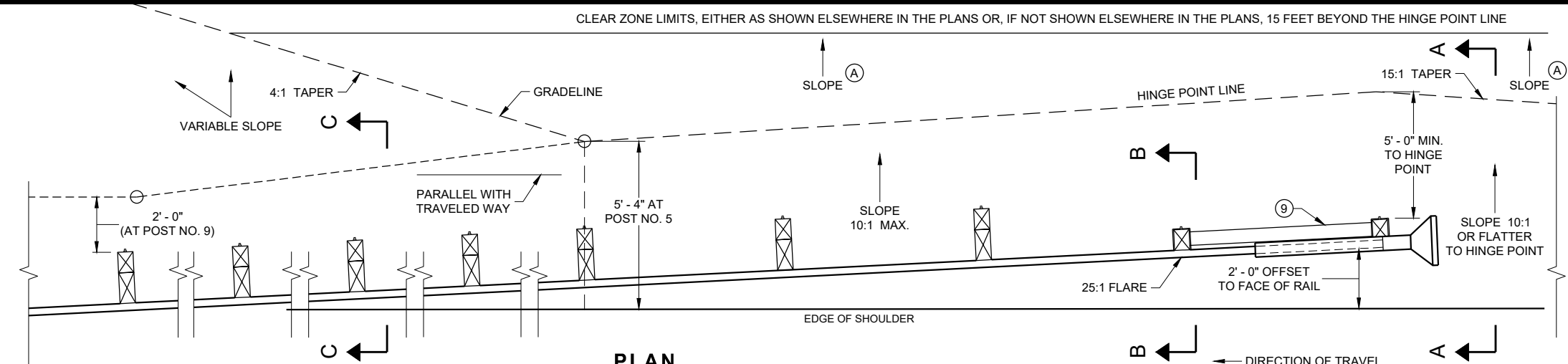
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

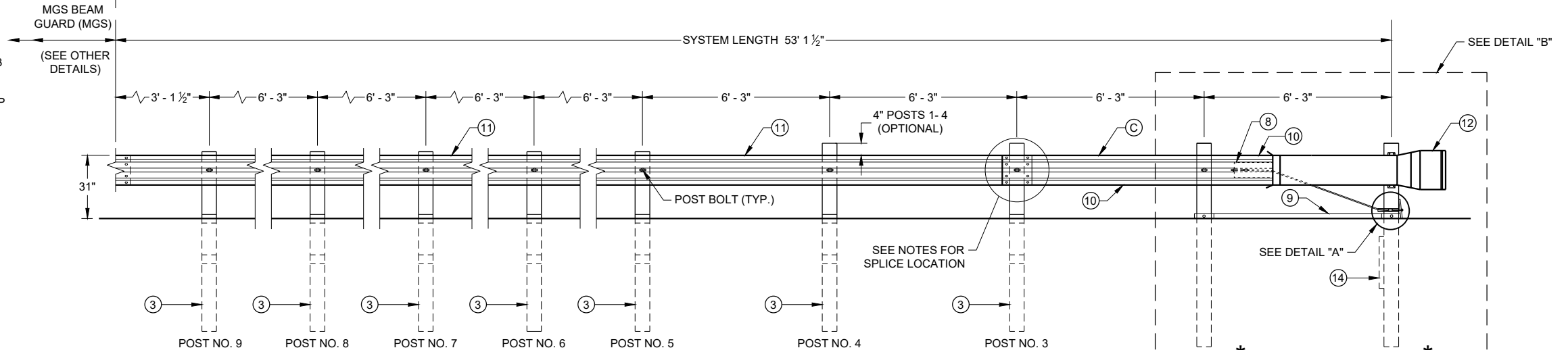
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

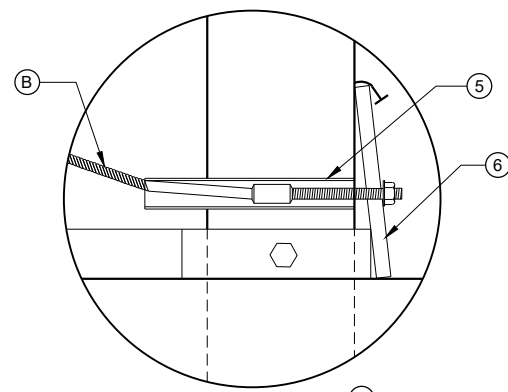
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



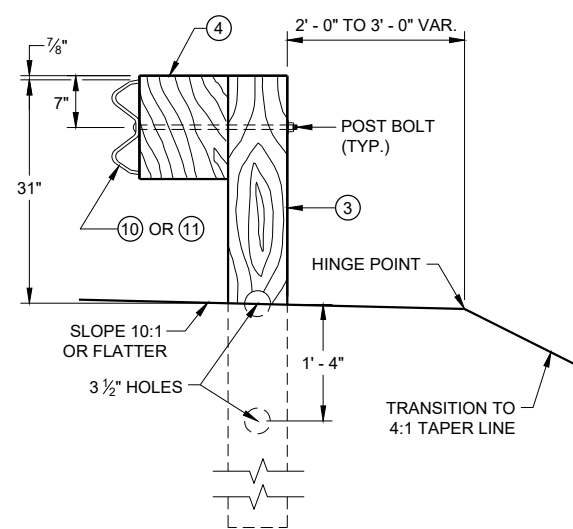
PLAN



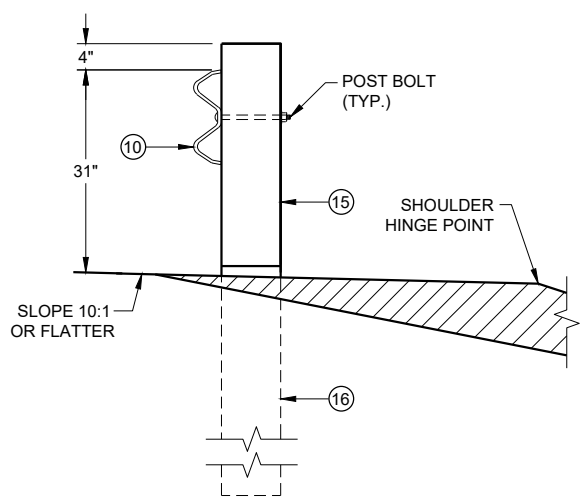
ELEVATION



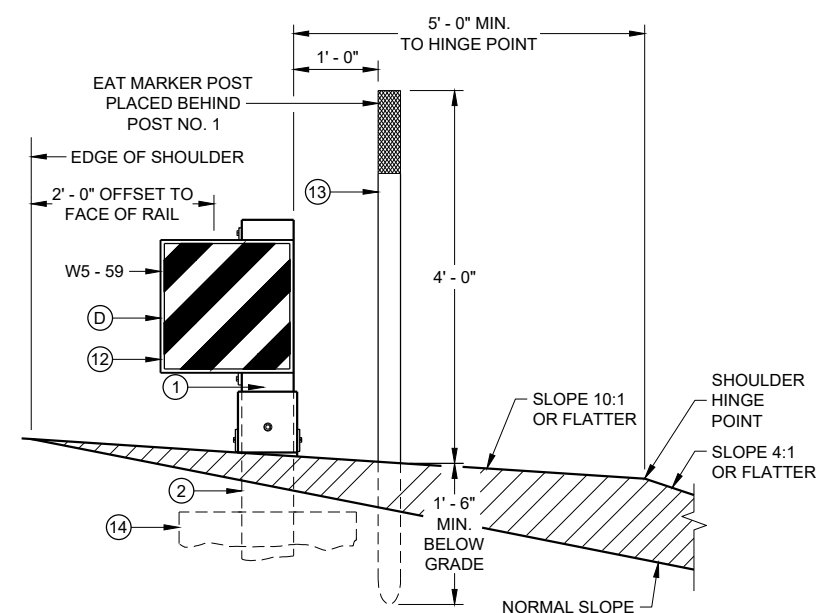
DETAIL "A"



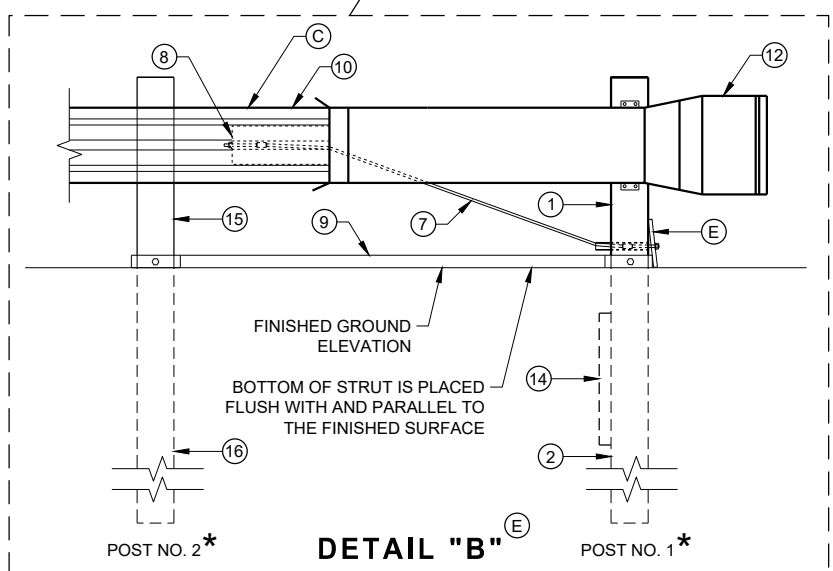
**SECTION C - C
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B
TYPICAL AT POST NO. 2***



**SECTION A - A
TYPICAL AT POST NO. 1***



DETAIL "B"

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

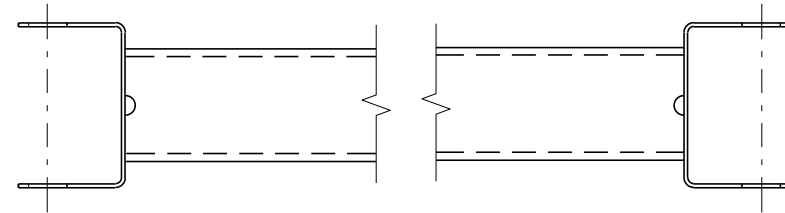
6

SDD 14B44 - 04a

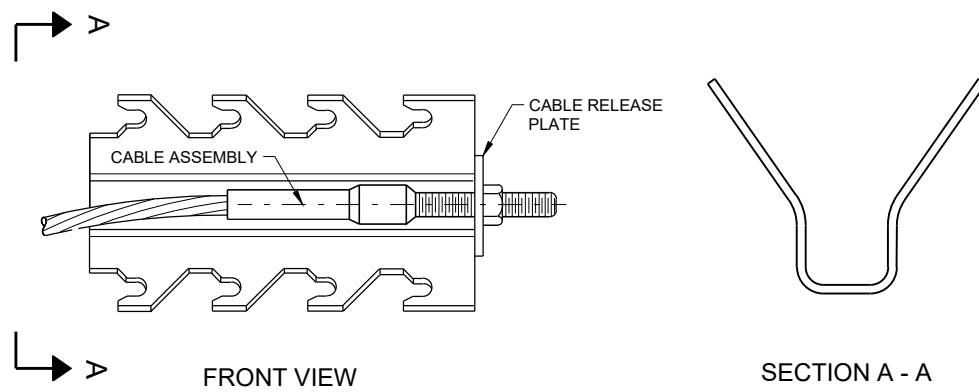
SDD 14B44 - 04a

BILL OF MATERIALS

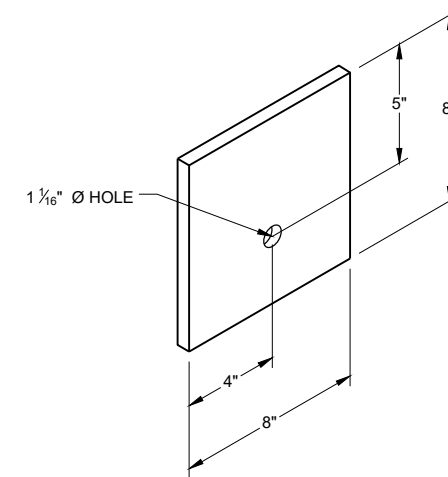
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



GENERIC GROUND STRUT ⑨ ⑤



GENERIC ANCHOR CABLE BOX ⑨ ⑤



BEARING PLATE ⑥ ⑤

6

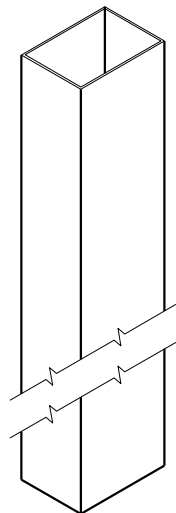
6

SDD 14B44 - 04b

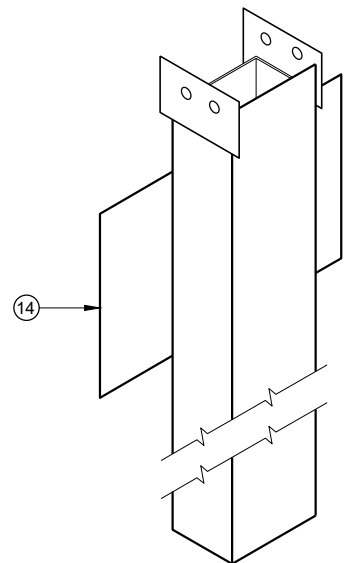
SDD 14B44 - 04b

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

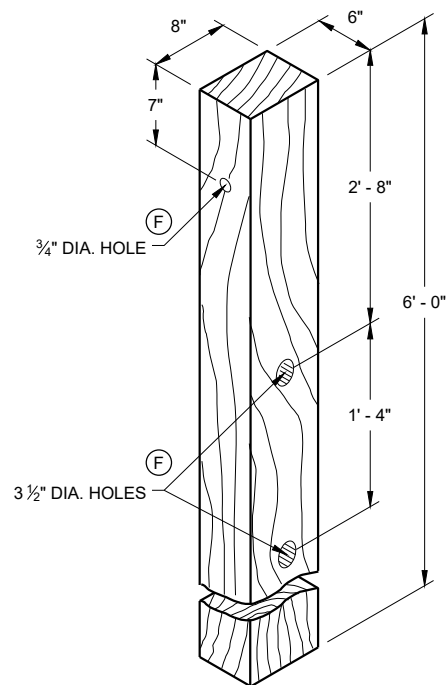
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



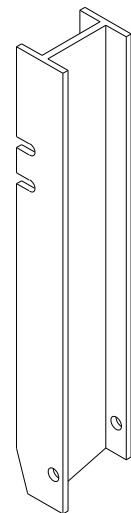
UPPER POST NO. 1 ⁽¹⁾ (E)



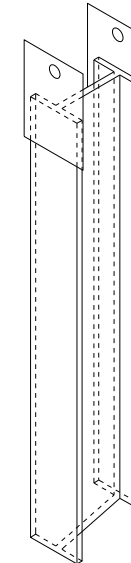
LOWER POST NO. 1 ⁽²⁾ (E)



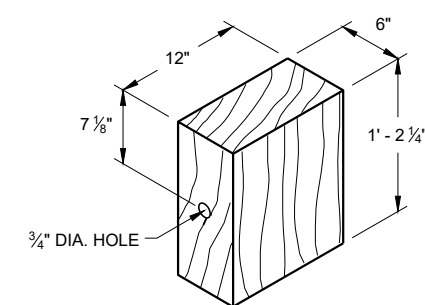
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

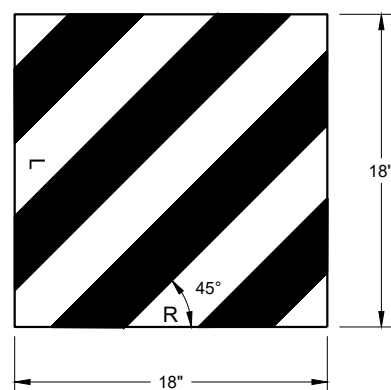


LOWER POST NO. 2 ⁽¹⁶⁾ (E)



WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

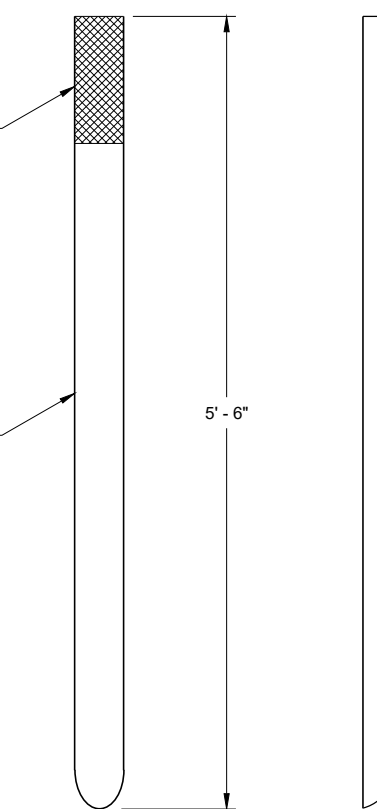
6



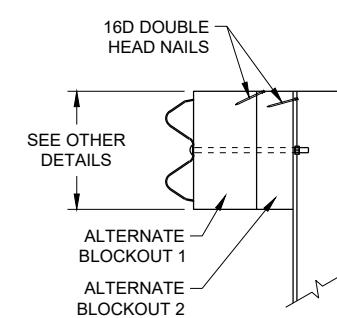
W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.

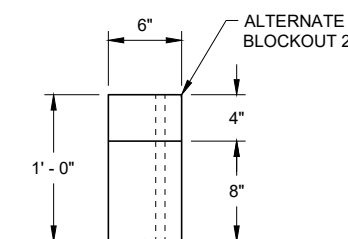
E.A.T. MARKER
POST (YELLOW)



FRONT VIEW SIDE VIEW
E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

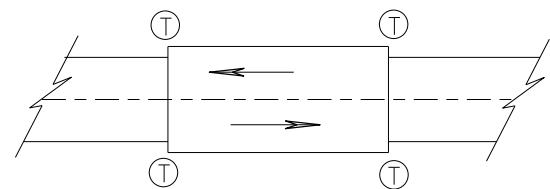
SDD 14B44 - 04c

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

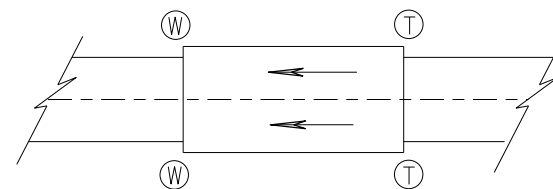
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

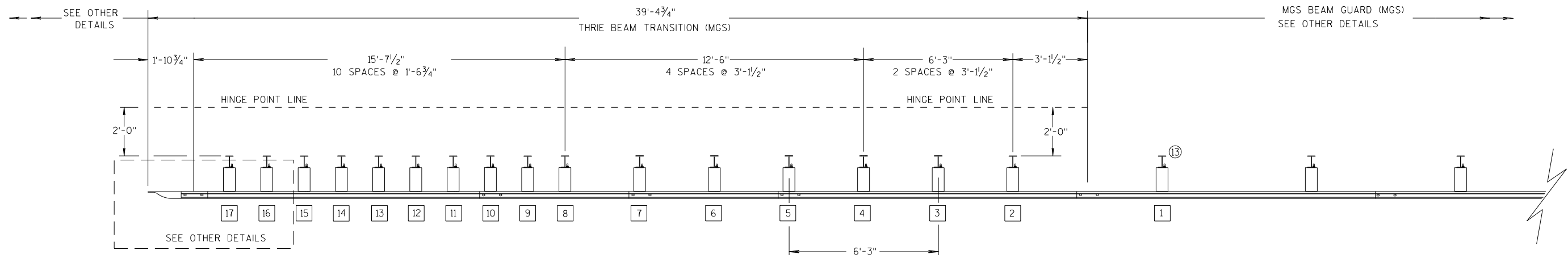
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

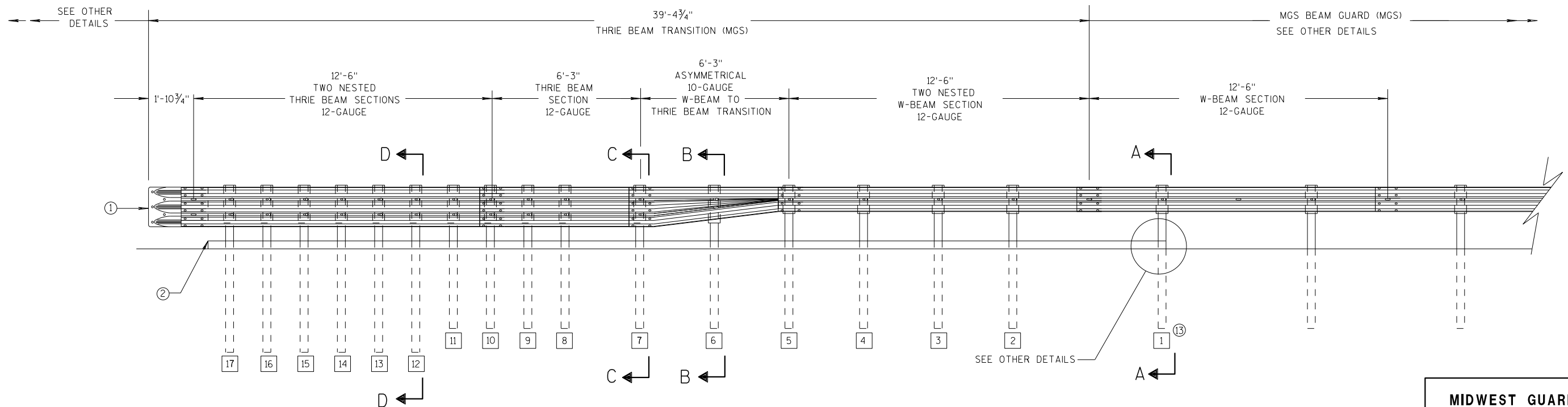
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

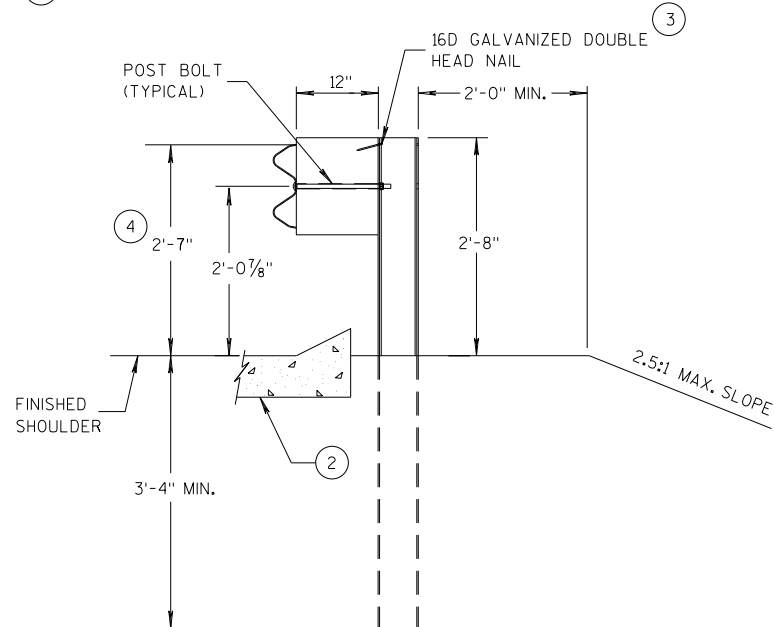
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

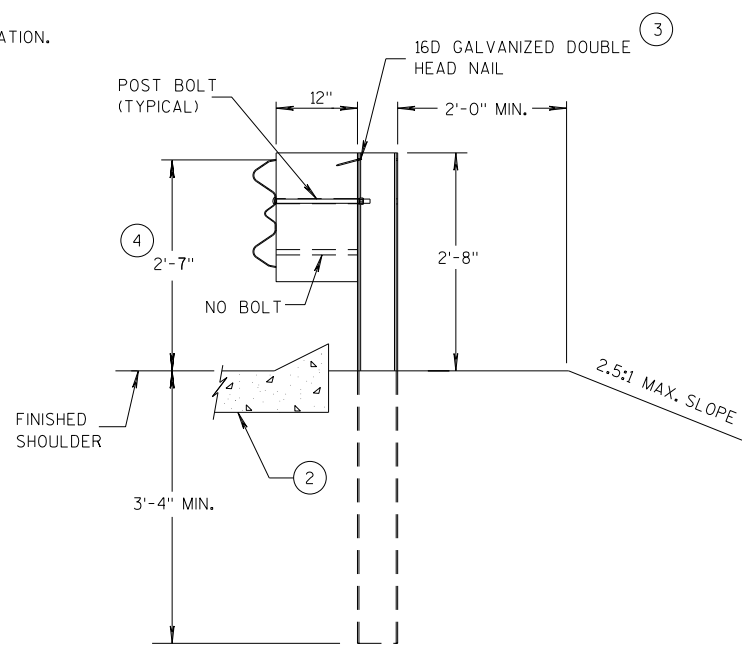
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

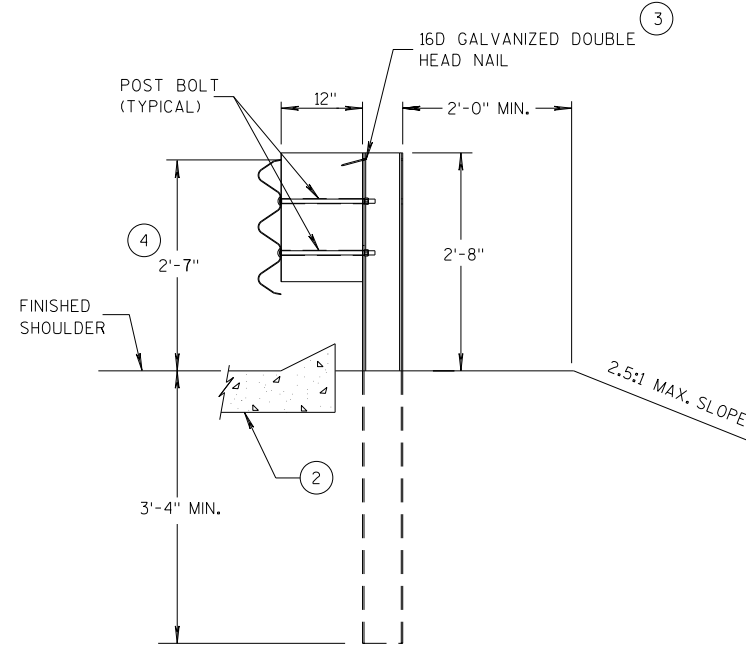
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



**SECTION C-C
POSTS 7-11**

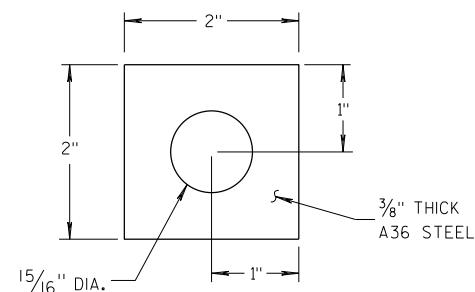
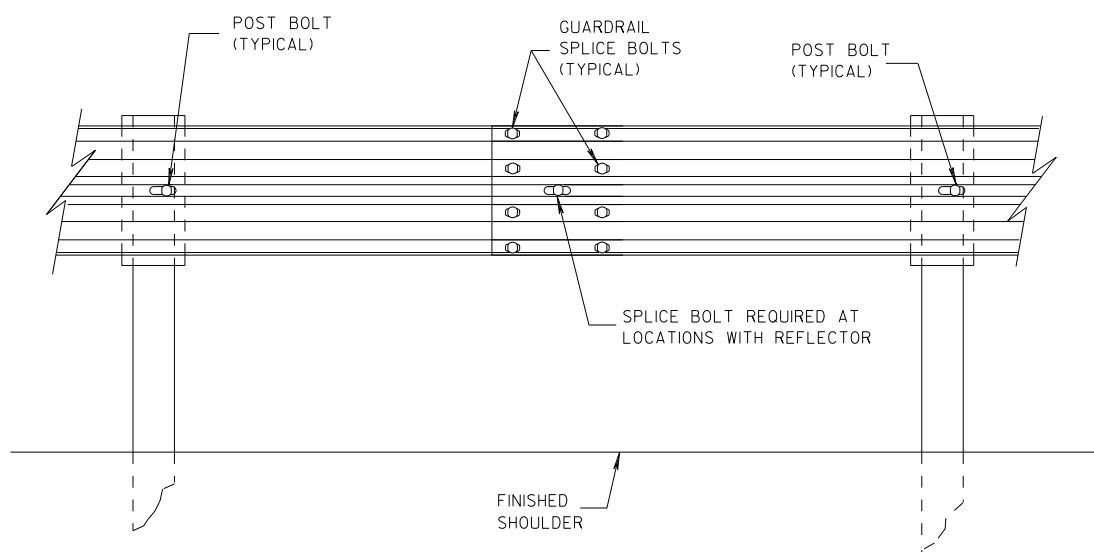
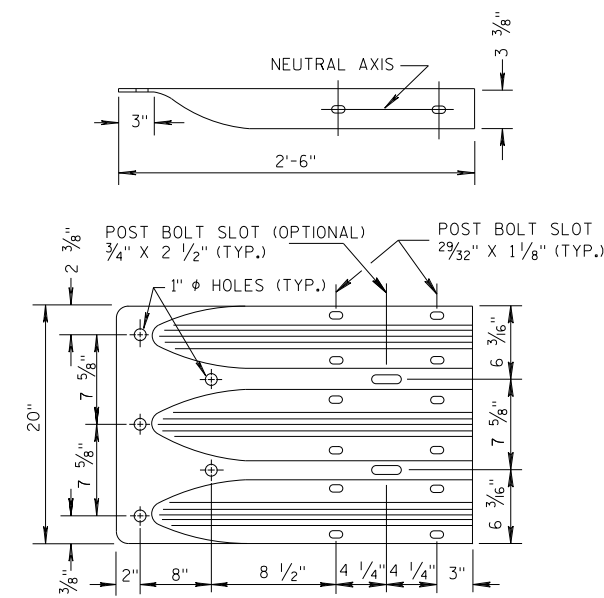


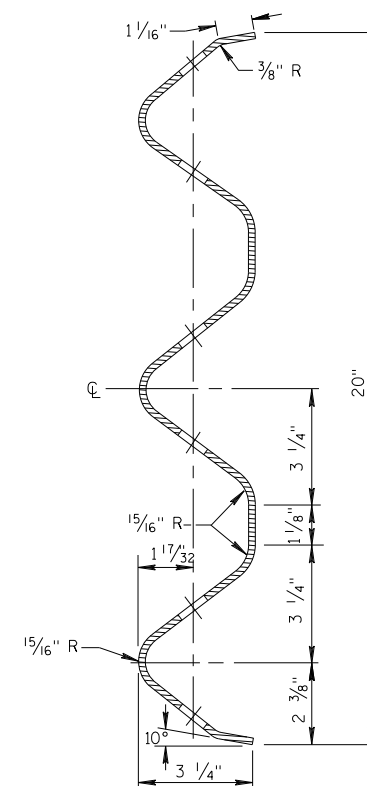
PLATE WASHER DETAIL



SPLICE DETAIL



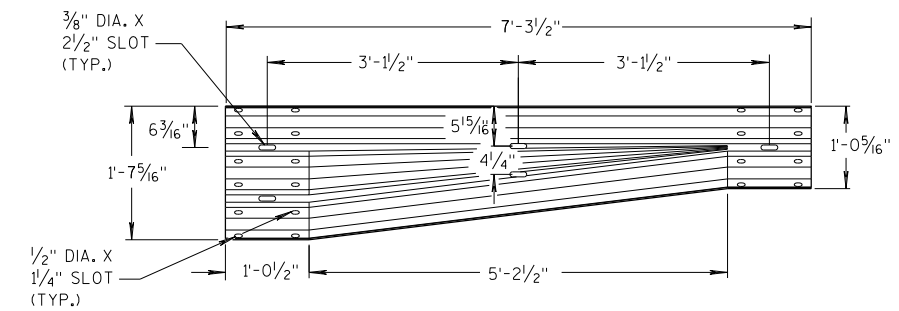
**THRIE BEAM
TERMINAL CONNECTOR**



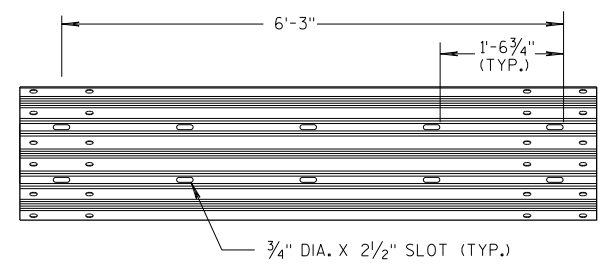
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

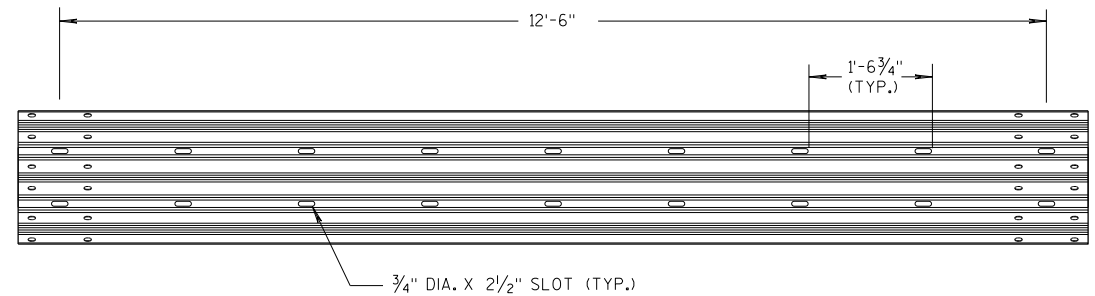
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



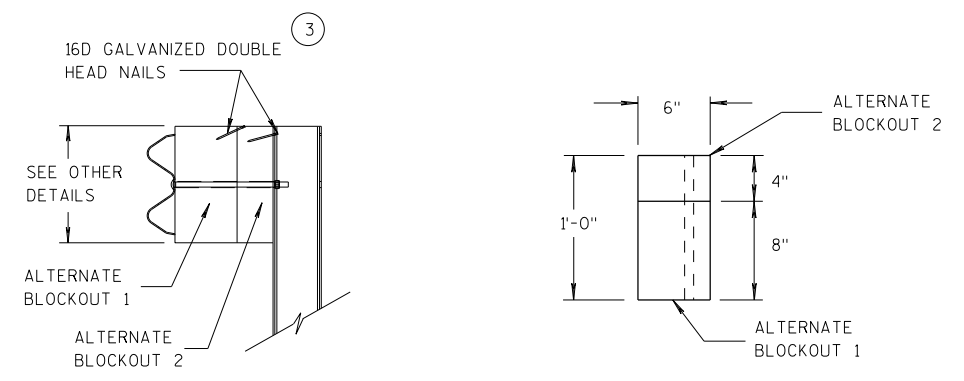
W-BEAM TO THRIE BEAM TRANSITION SECTION



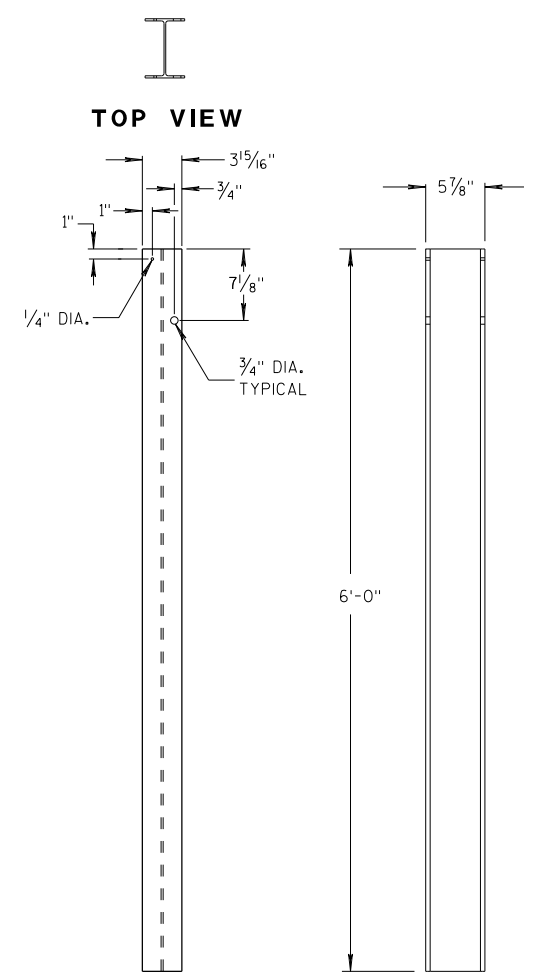
6'-3\"/>



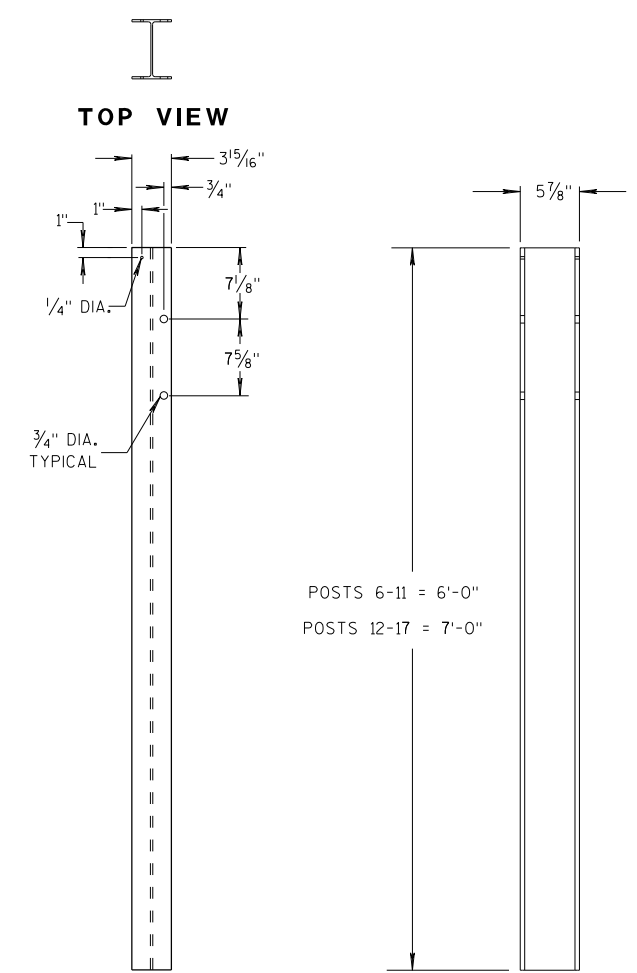
12'-6\"/>



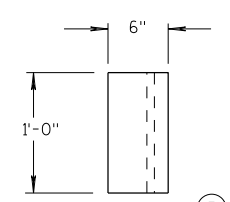
ALTERNATE WOOD BLOCKOUT DETAIL



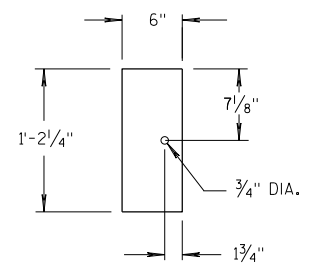
STEEL POSTS 1-5



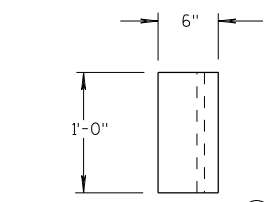
STEEL POSTS 6-17



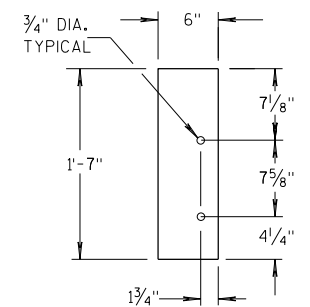
TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 1-5**



TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 6-17**

GENERAL NOTES

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

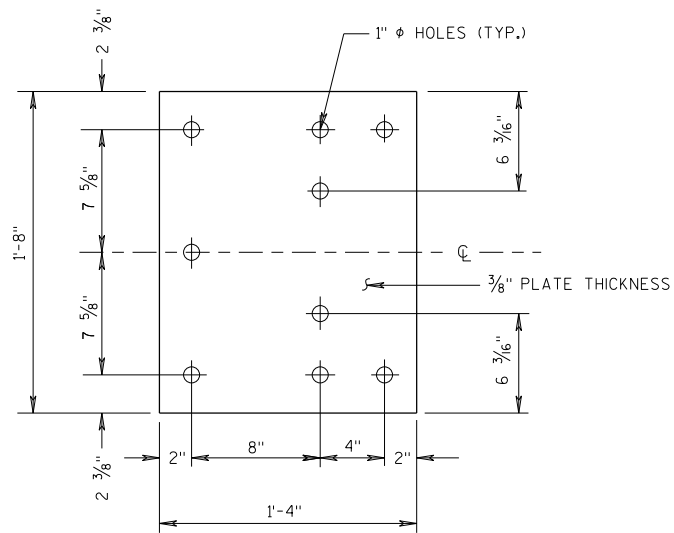
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

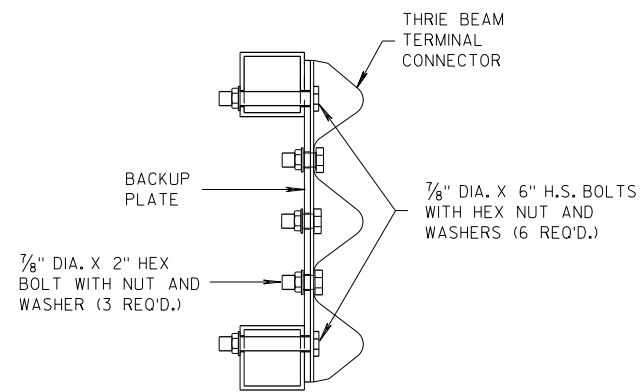
6

S.D.D. 14 B 45-5c

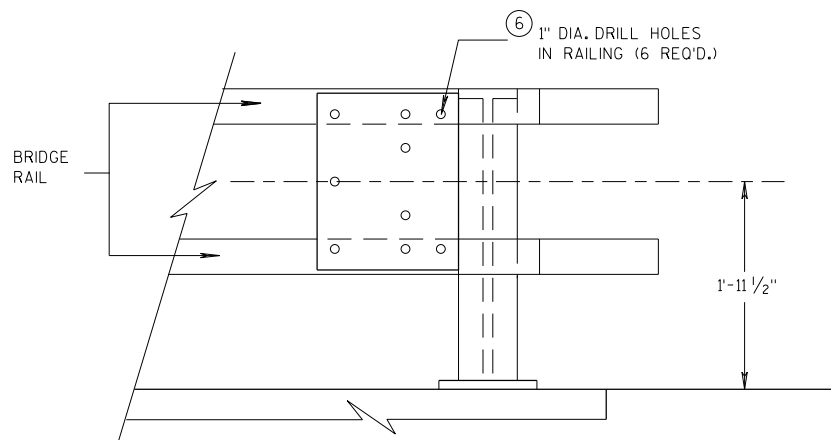
S.D.D. 14 B 45-5c



BACK-UP PLATE DETAIL



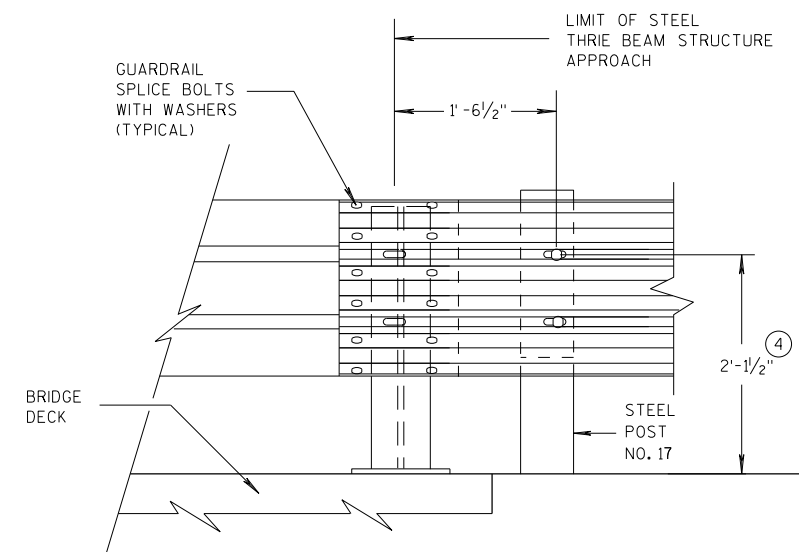
SECTION J-J



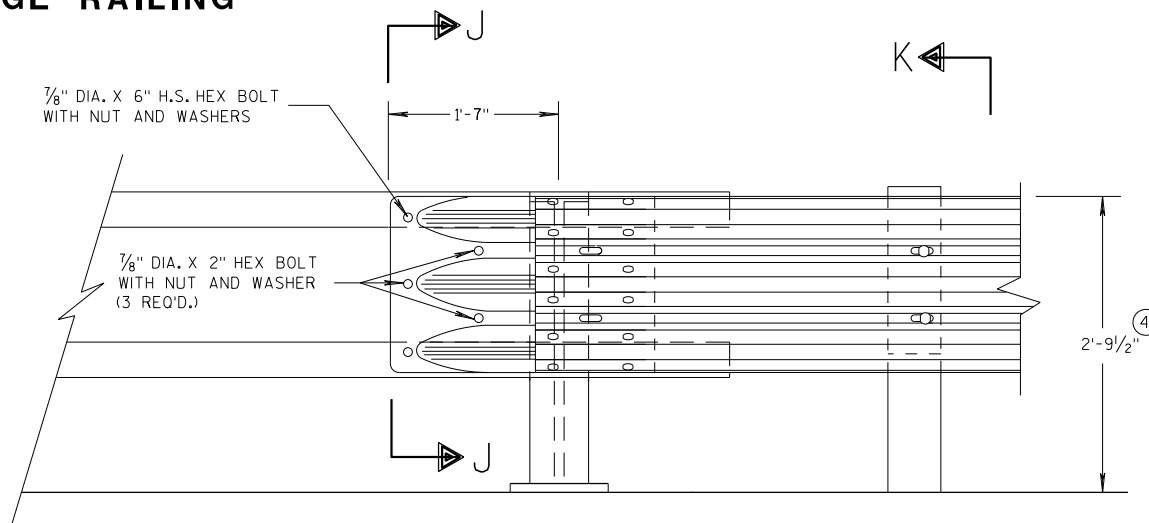
BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1'$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

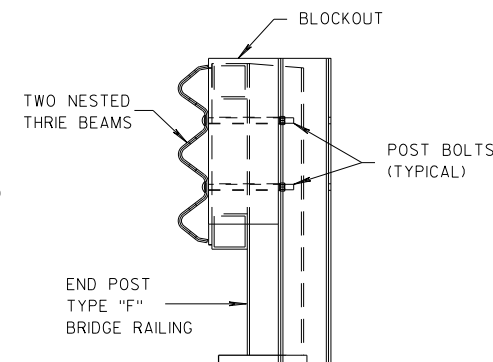


FRONT VIEW THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

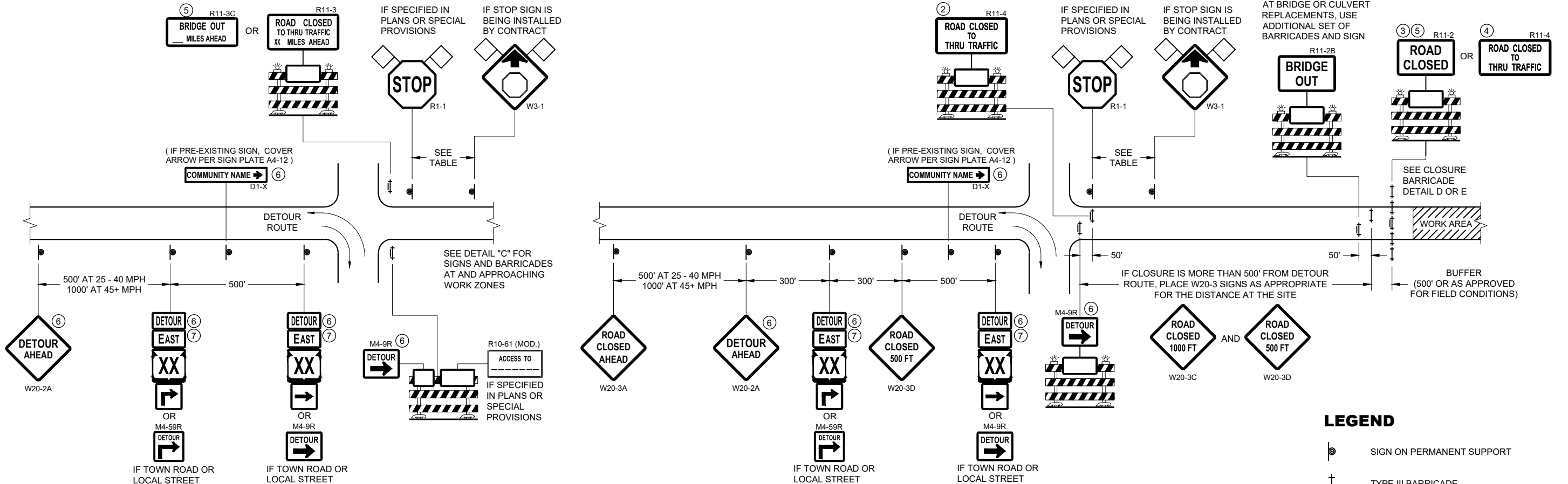
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

6

6

S.D.D. 14 B 45-59

S.D.D. 14 B 45-59



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

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

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

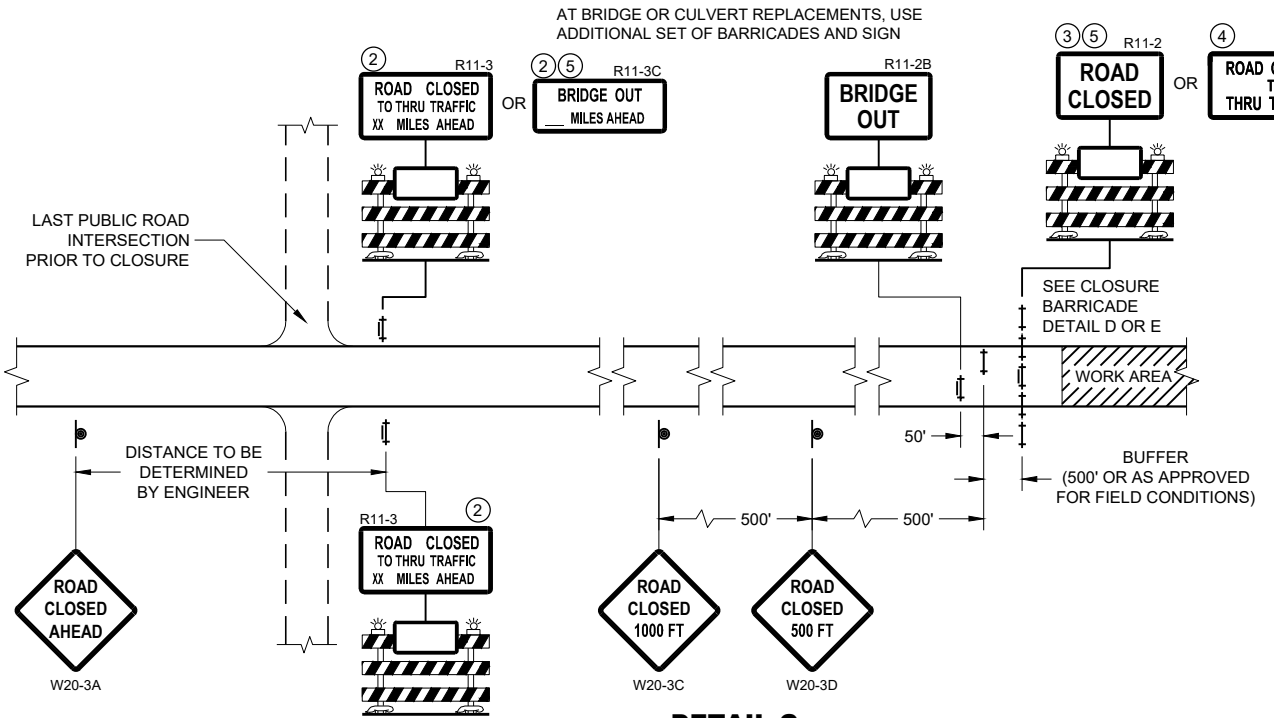
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

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

- M4 - 8
- M3 - X
- OR OR M1 - 4 M1 - 6 M1 - 5A
- OR M05 - 1 M06 - 1



**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

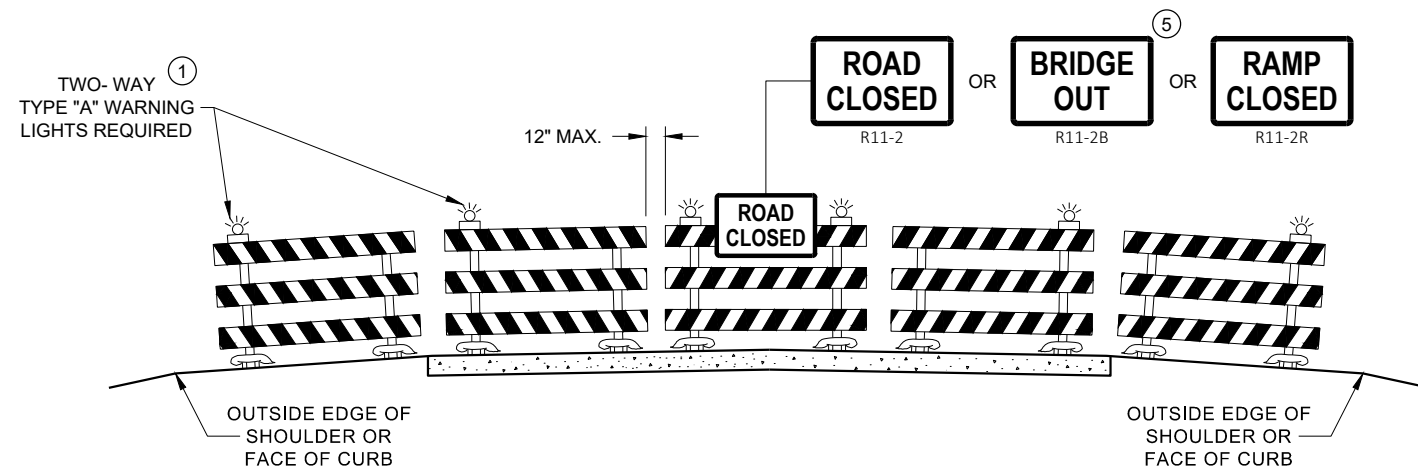
SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

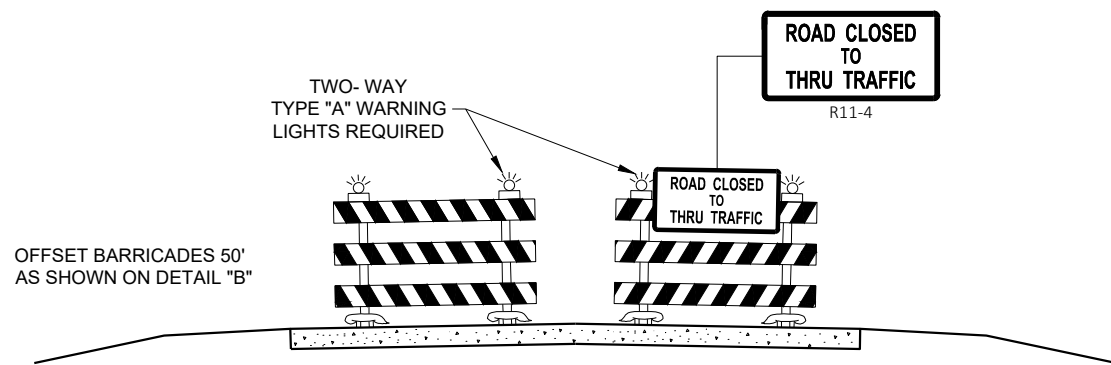
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE DATE WORK ZONE ENGINEER

FHWA



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



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

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4 OR XX M1 - 6 OR COUNTY X M1 - 5A
- M05 - 1 OR M06 - 1 OR M06 - 1

GENERAL NOTES

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

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

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

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

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

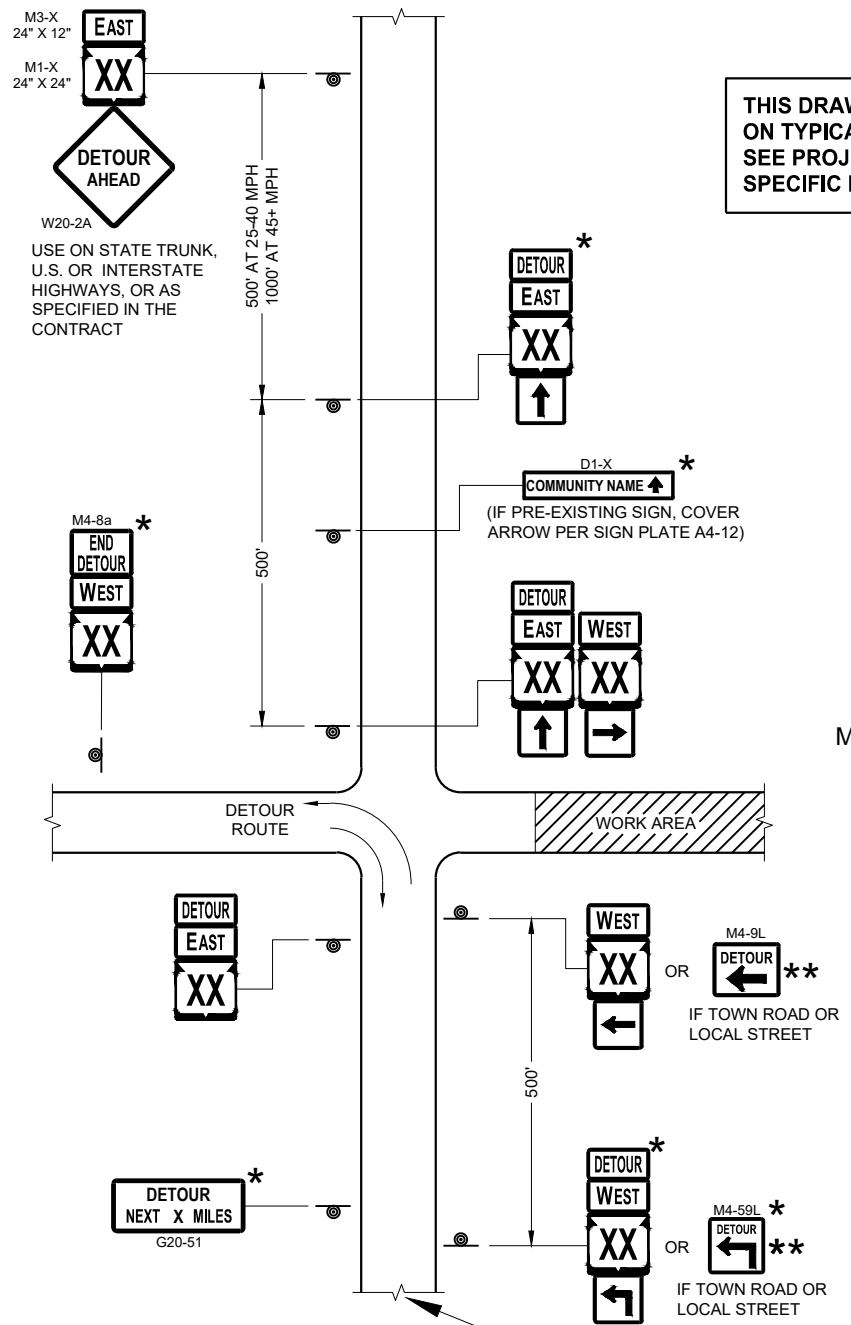
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

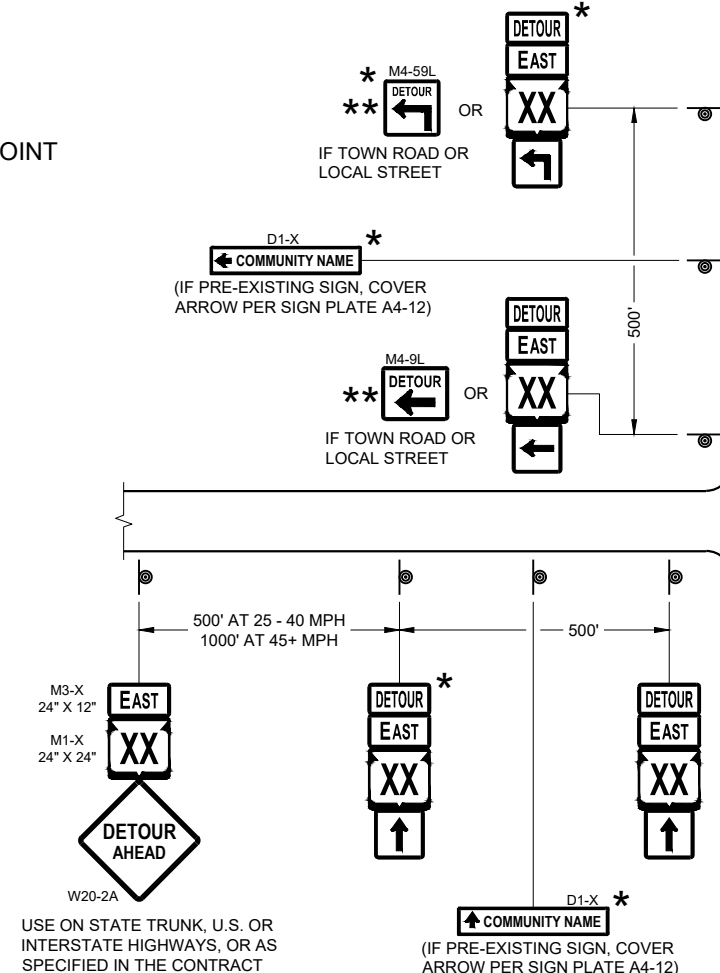
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

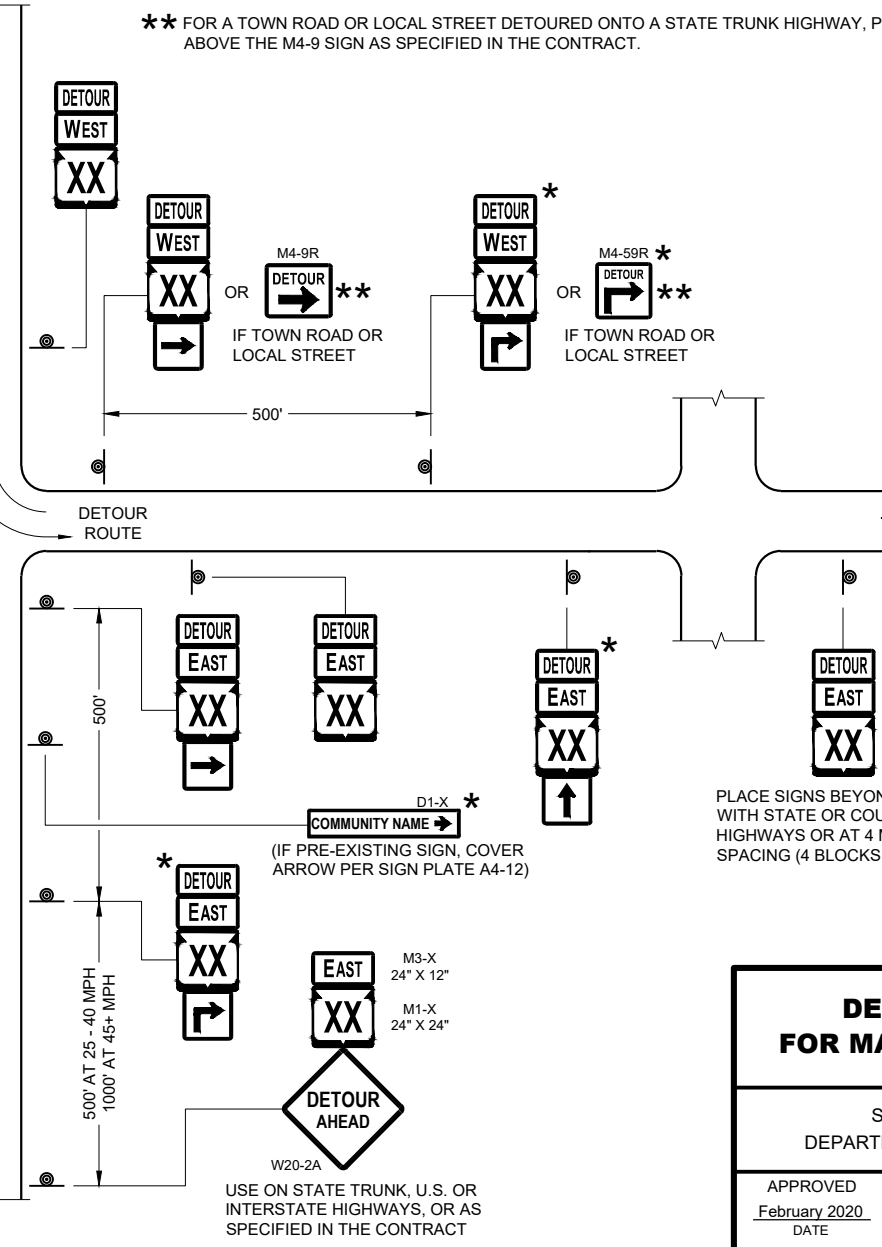
THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.



MATCH POINT



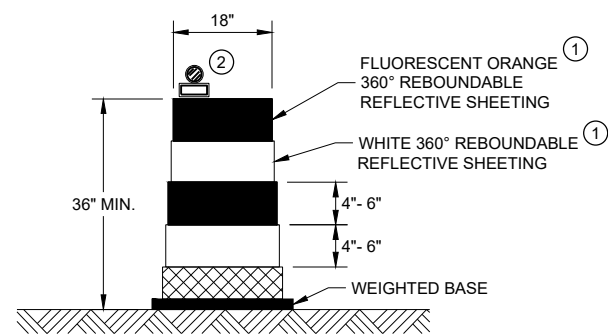
DETAIL F
DETOUR SIGNING



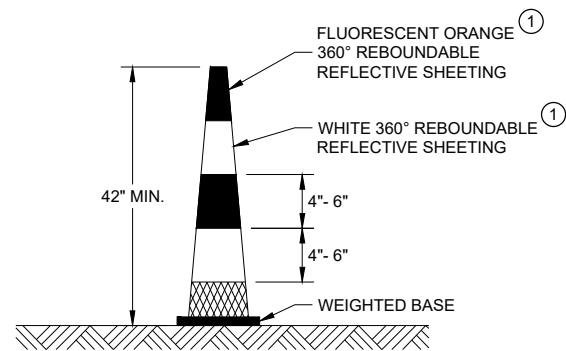
PLACE SIGNS BEYOND INTERSECTIONS WITH STATE OR COUNTY TRUNK HIGHWAYS OR AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF URBAN AREA)

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

DETOUR SIGNING FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

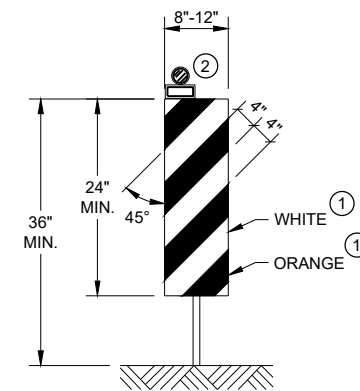


DRUM



42" CONE

DO NOT USE IN TAPERS
 1/2 SPACING OF DRUMS

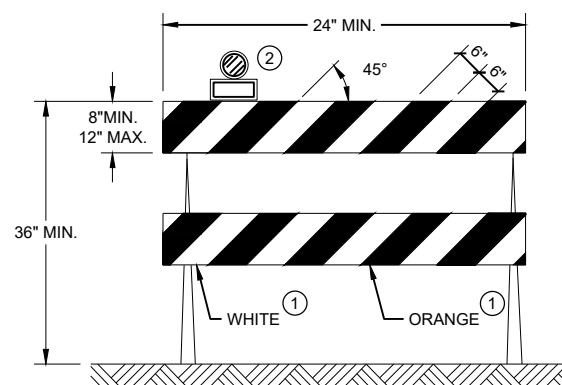


VERTICAL PANEL

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

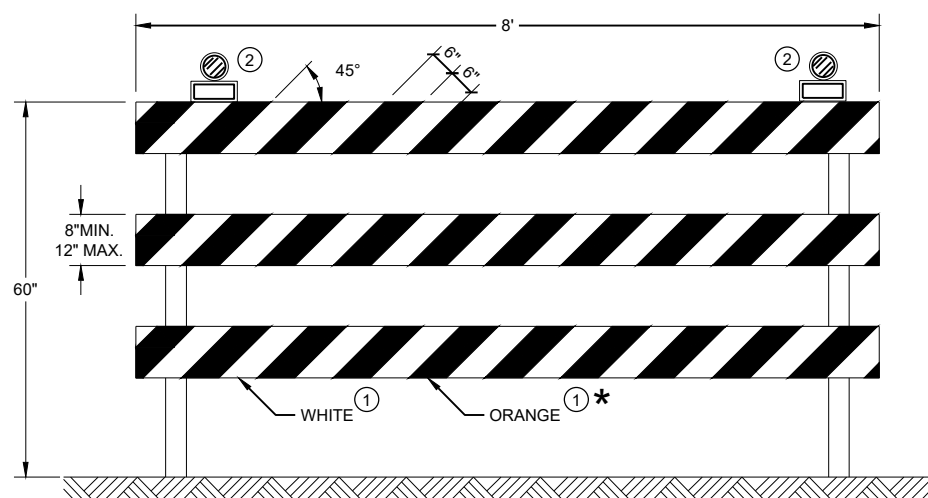
GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

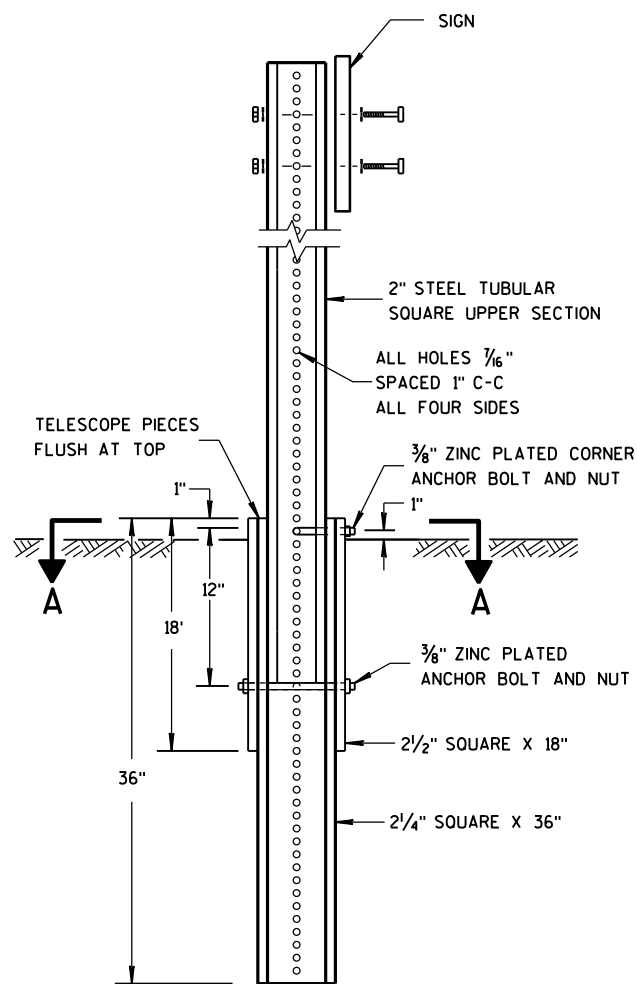


TYPE III BARRICADE

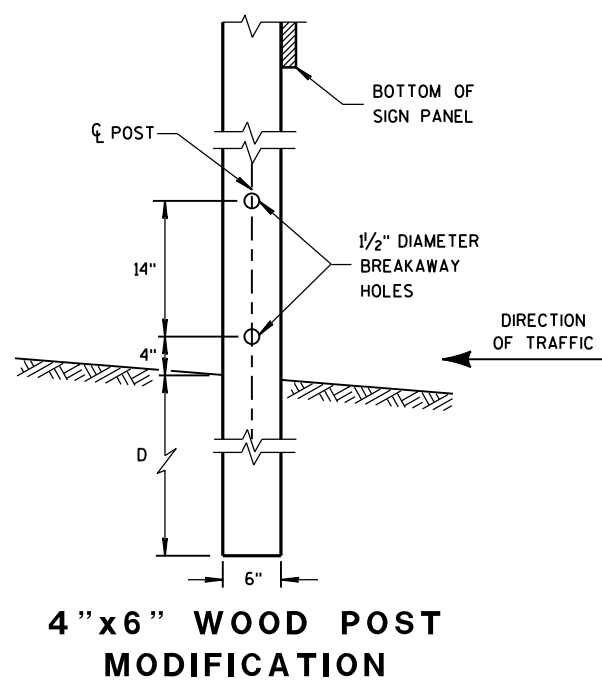
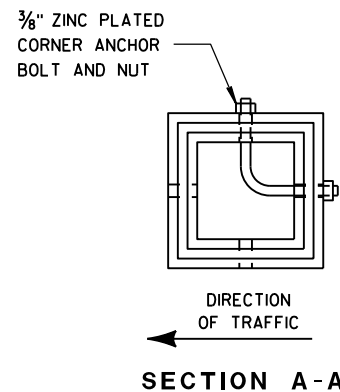
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	



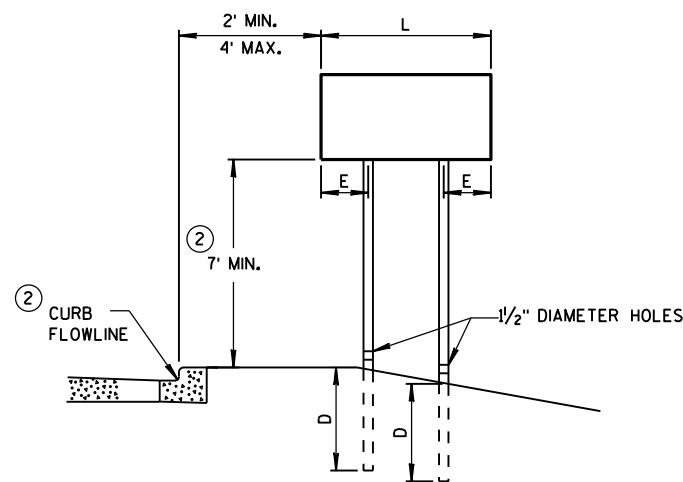
DETAIL OF TUBULAR STEEL SIGN POST



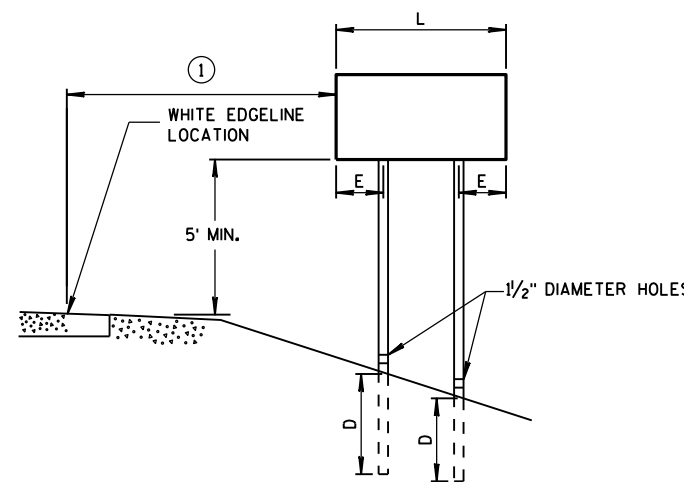
4" X 6" WOOD POST MODIFICATION

GENERAL NOTES

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



URBAN AREA



RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

WOOD POST EMBEDMENT DEPTH

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

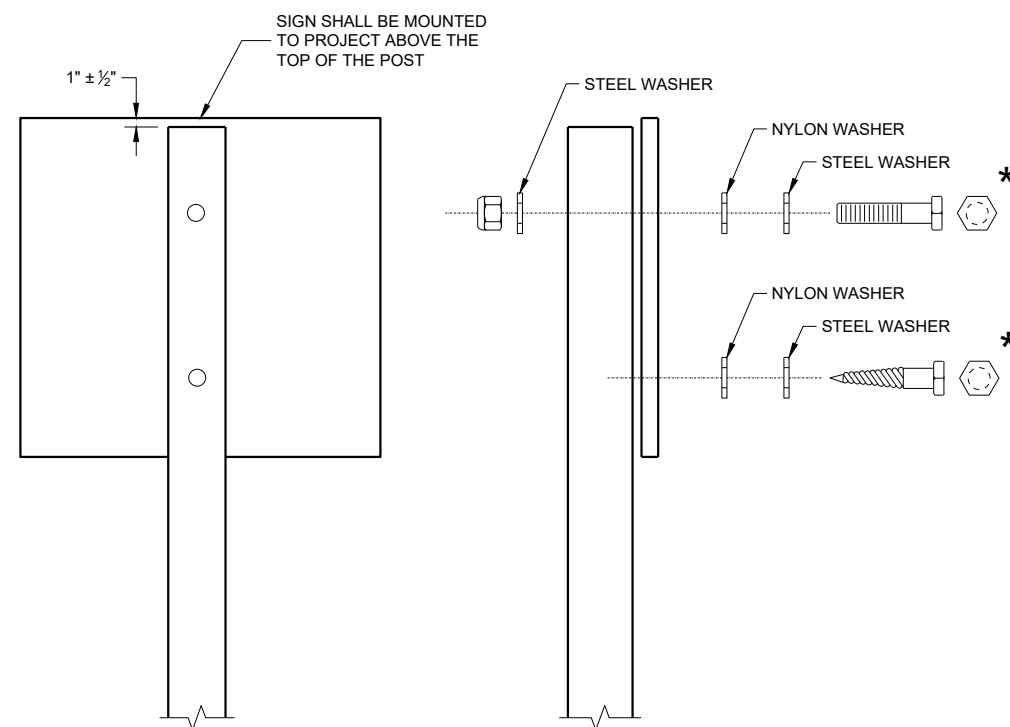
4" X 6" WOOD POST

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

SEE NOTE ③

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POST (4" x 6")

- LAG SCREWS - 3/8" x 3"
- MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")

- MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS
- RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH, GRIP RANGE 0.042 - 0.375 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 0.080 NYLON

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

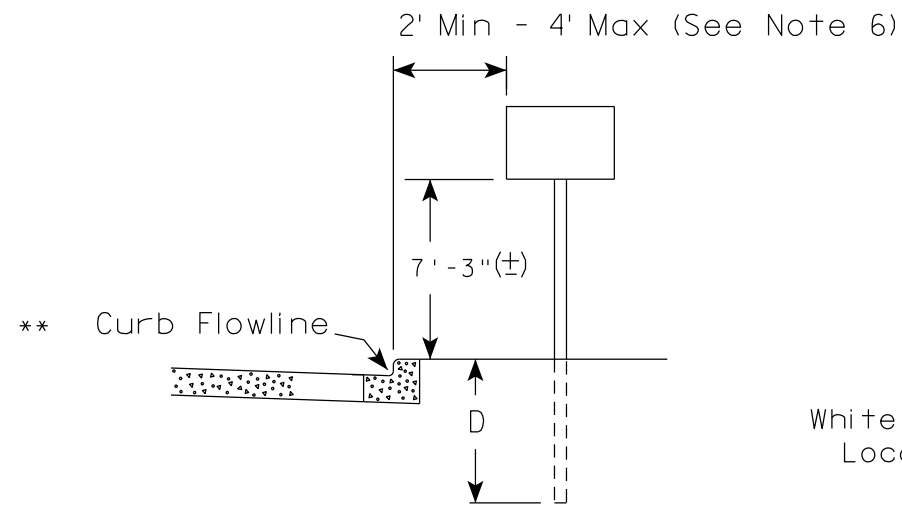
ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

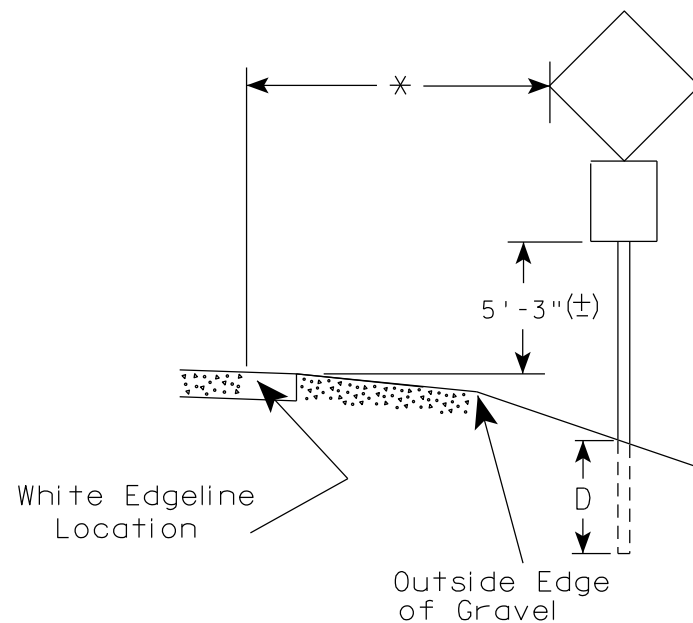
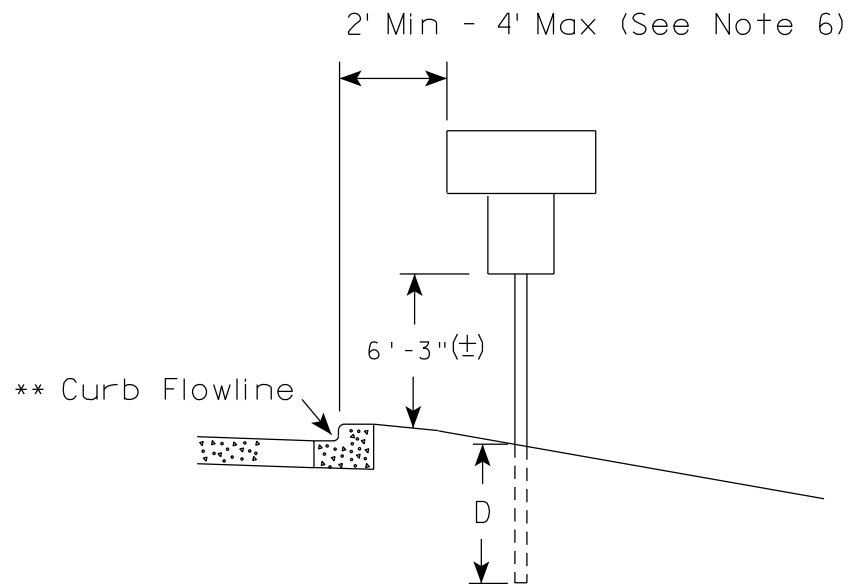
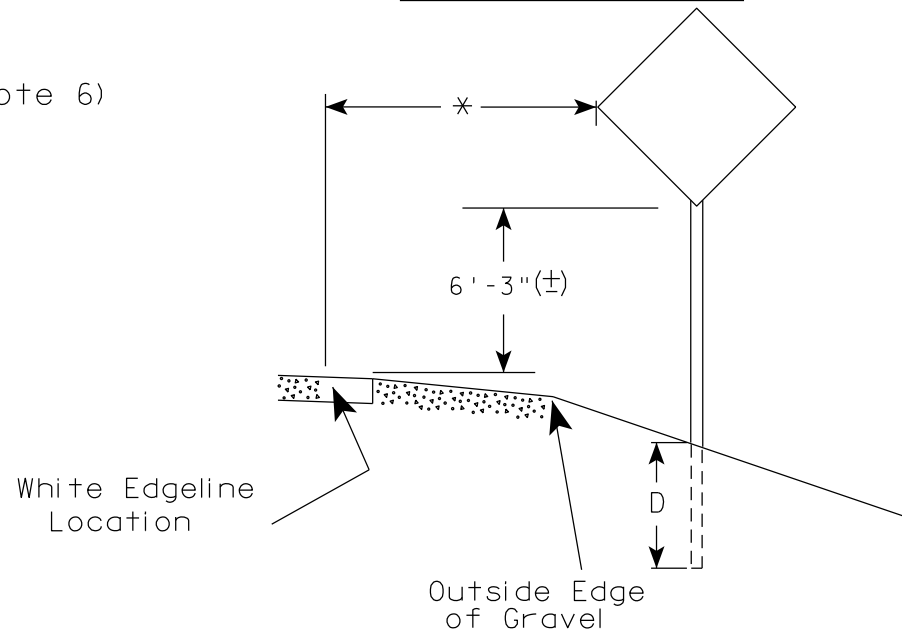
APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

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.

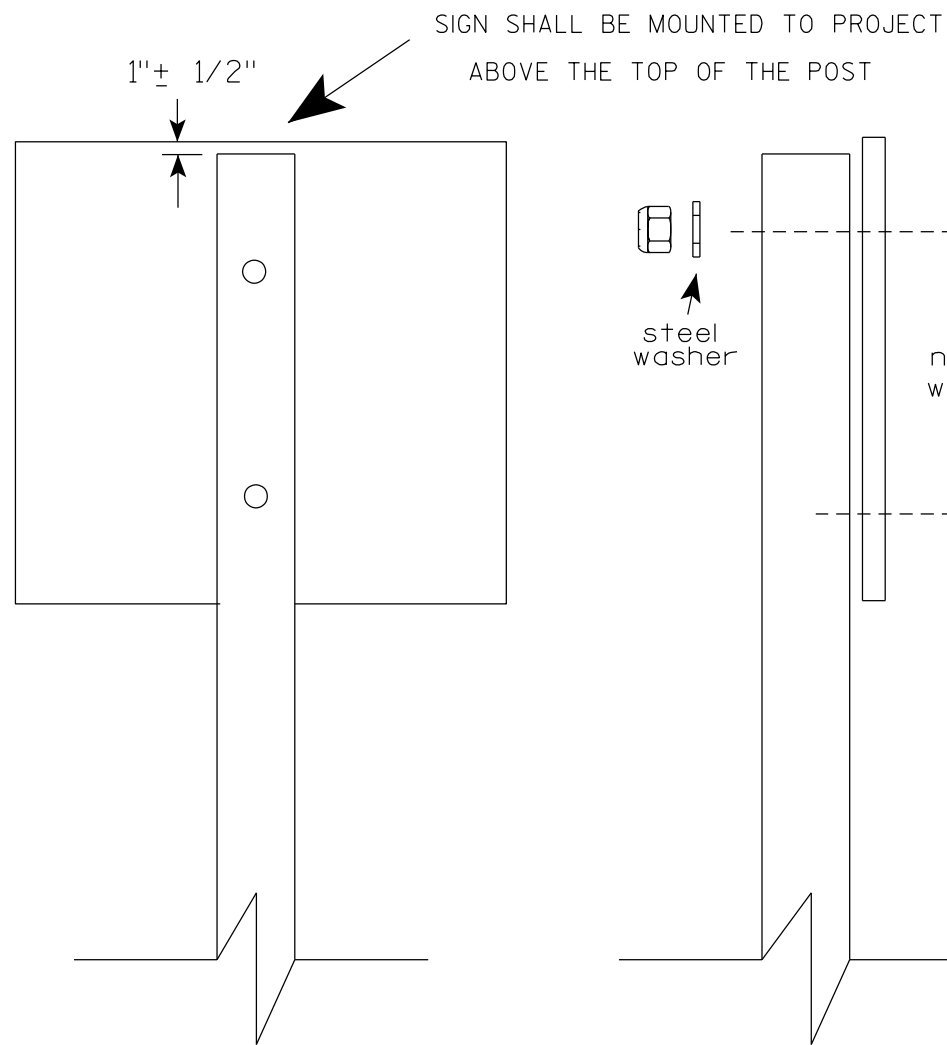
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/13/2020 PLATE NO. A4-3.22



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

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

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

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

MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

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

RIVETS - $\frac{9}{32}$ " (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 $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL

1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

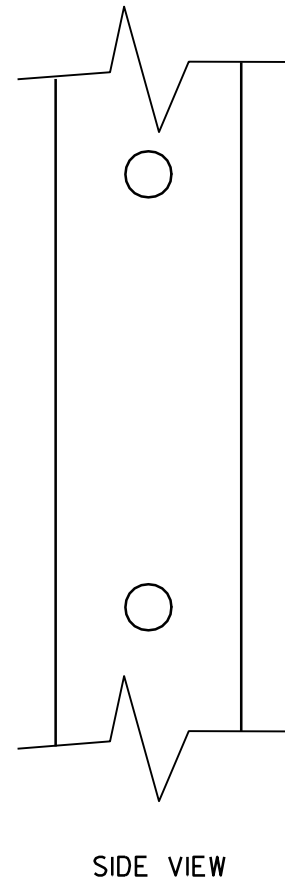
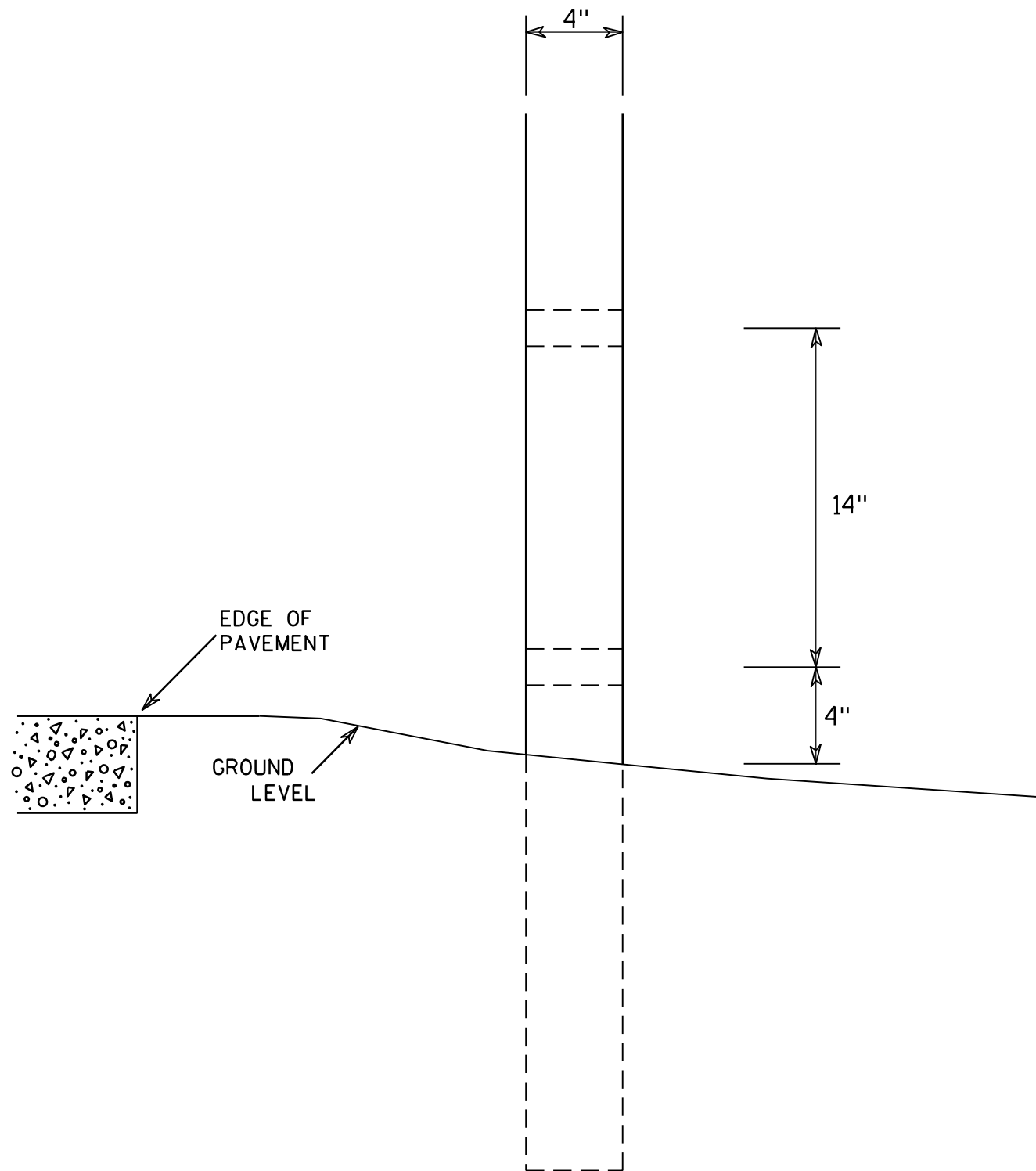
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

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




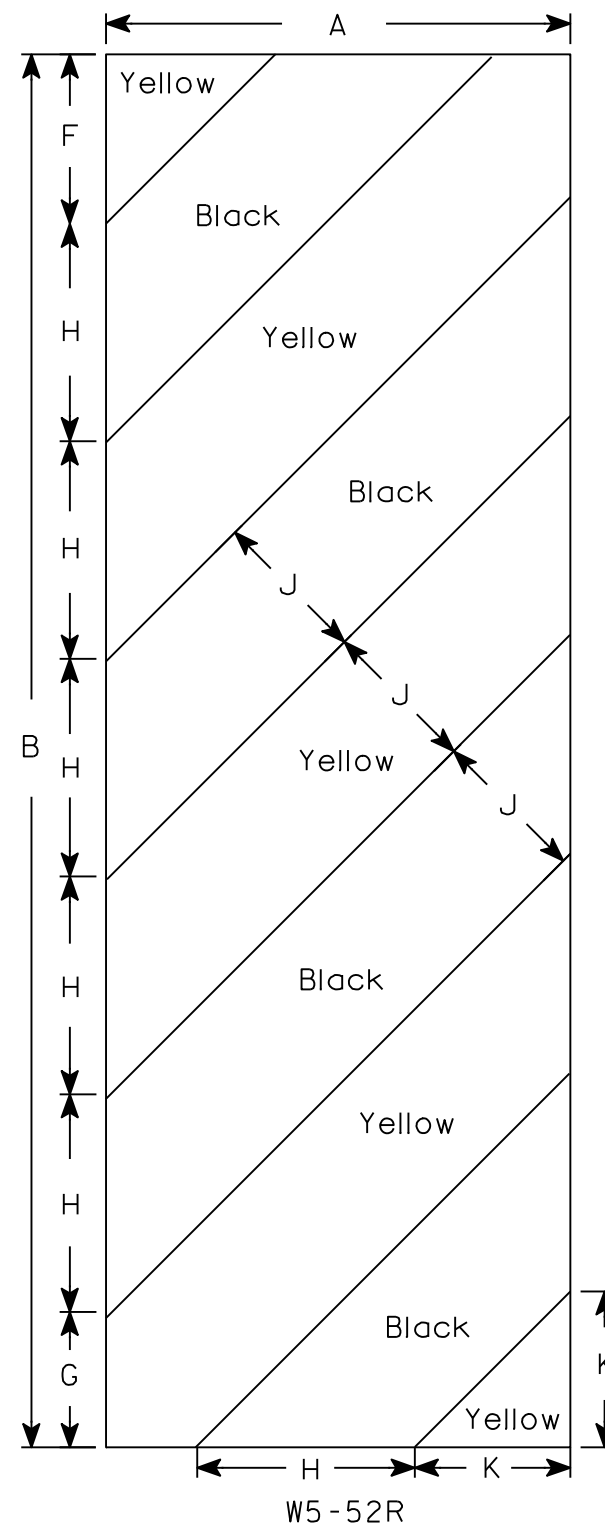
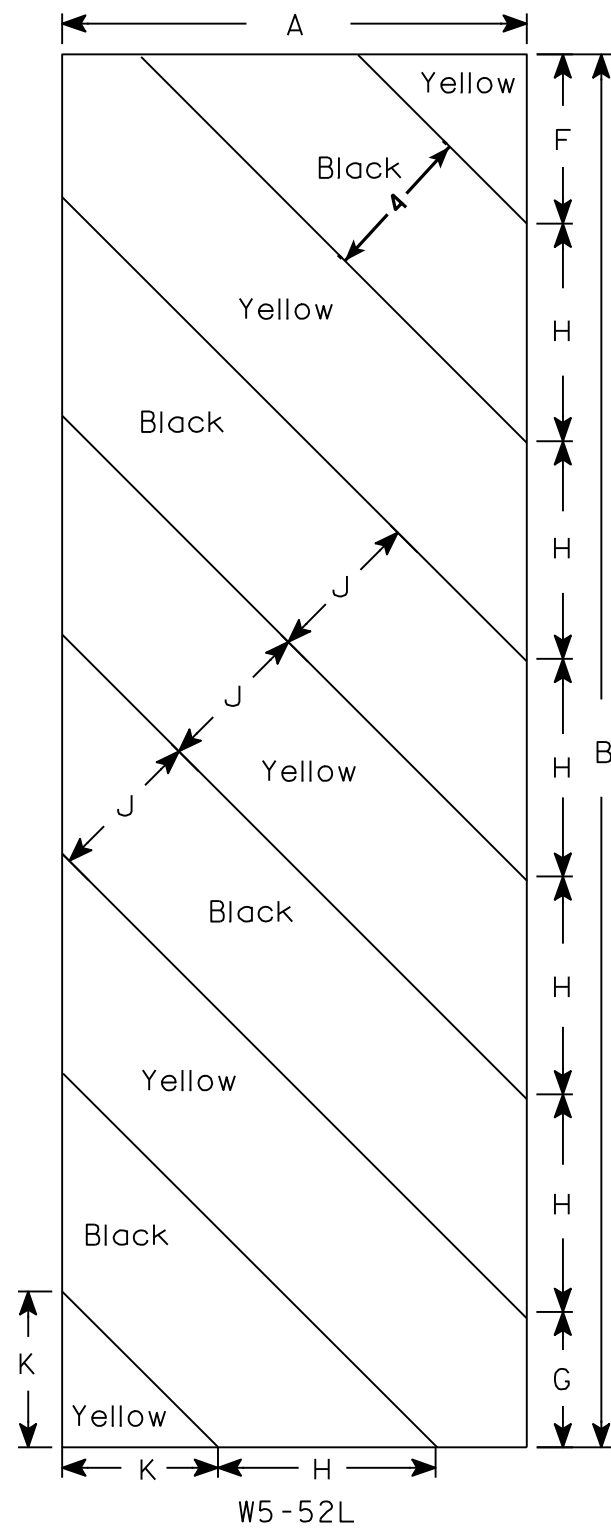
GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	 <small>for State Traffic Engineer</small>
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>



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.
4. Alternate colors of stripes as shown.

7

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																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

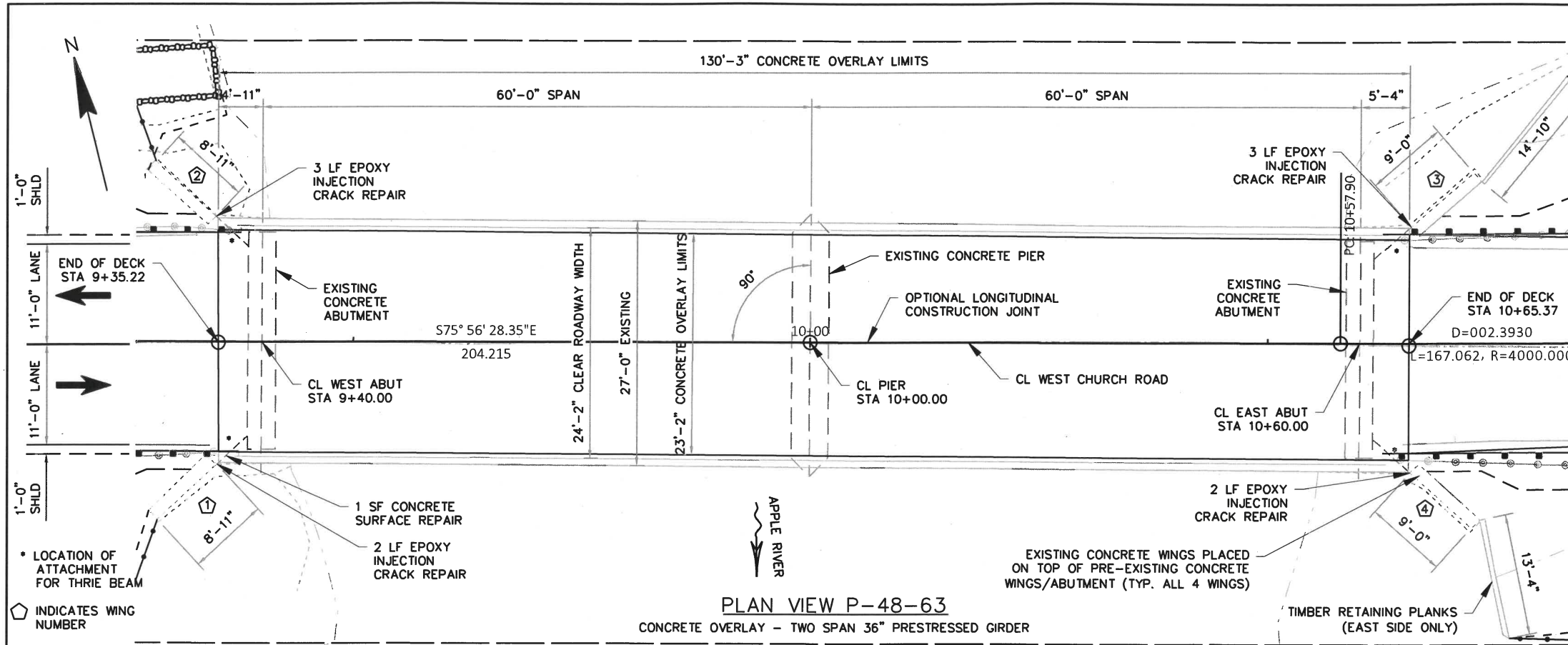
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

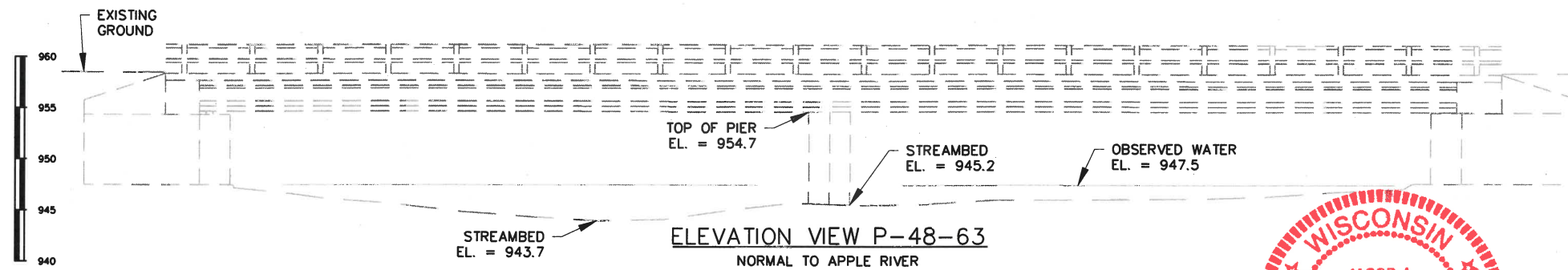
DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



GENERAL NOTES

- THE BRIDGE WILL BE CLOSED TO ALL TRAFFIC DURING CONSTRUCTION.
- DRAWINGS SHALL NOT BE SCALED.
- DIMENSIONS SHOWN ARE BASED ON FIELD SURVEY AND STRUCTURE INSPECTION REPORTS.
- ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1 INCH DEEP SAW CUT, UNLESS SPECIFIED OTHERWISE.
- UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.
- PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.
- SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS"
- A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".
- THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS 1/2-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.
- PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".
- ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECK".
- PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON THE MINIMUM OVERLAY THICKNESS OF 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2 3/4". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.
- CONCRETE SURFACE REPAIR AS DIRECTED BY FIELD ENGINEER. QUANTITIES SHOWN ARE APPROXIMATE.
- ALL STATIONS AND ELEVATIONS ARE IN FEET.
- ELEVATIONS SHOWN ON THE PLANS ARE REFERENCES TO THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- THE COORDINATE SYSTEM FOR THIS PROJECT IS WISCONSIN COUNTY COORDINATE SYSTEM (WCCS) - POLK COUNTY.



DESIGN DATA

LIVE LOADS:
INVENTORY RATING = HS-24
OPERATING RATING = HS-41
WISCONSIN STANDARD PERMIT VEHICLE (WS-SPV) = 250 KIPS

MATERIAL PROPERTIES:
CONCRETE MASONRY OVERLAY DECKS $f_c = 4,000$ PSI

TRAFFIC DATA

A.D.T. (2015) = 668
A.D.T. (2035) = 734
R.D.S. = 45 MPH

CONTACTS

BRIDGE OFFICE:
CONTACT: AARON BONK
PHONE: (608) 261-0261

CONSULTANT:
CONTACT: COOPER ENGINEERING
PHONE: (715) 234-7008

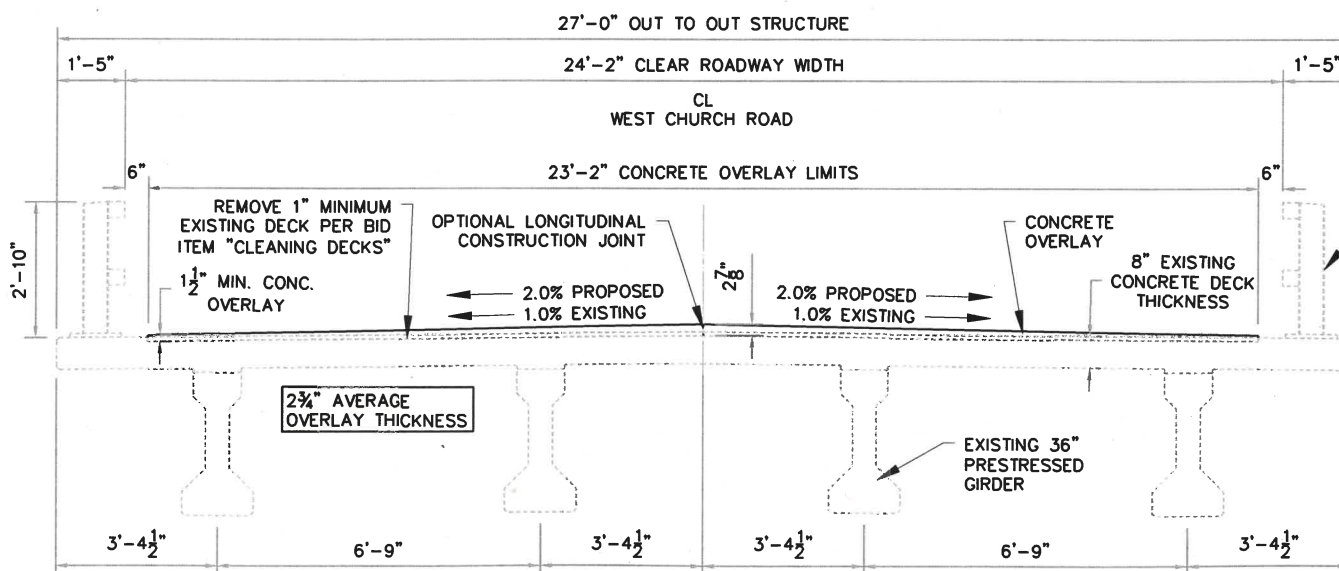


LIST OF DRAWINGS

- 1. CONCRETE OVERLAY

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	TOTAL
502.3200	PROTECTIVE SURFACE TREATMENT	SY	335
509.0301	PREPARATION DECKS TYPE 1	SY	235
509.0302	PREPARATION DECKS TYPE 2	SY	100
509.0500	CLEANING DECKS	SY	335
509.1500	CONCRETE SURFACE REPAIR	SF	1
509.2000	FULL-DEPTH DECK REPAIR	SY	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	40
509.9025.5	EPOXY INJECTION CRACK REPAIR	LF	10



REVISION	BY

COOPER ENGINEERING
2600 COLLEGE DRIVE, P.O. BOX 230
RICE LAKE, WISCONSIN 54868-0230
TELEPHONE (715) 234-7008
FAX (715) 234-1025

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED: *[Signature]* SDR 08/19/21
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE P-48-63

WEST CHURCH ROAD OVER APPLE RIVER

COUNTY POLK TOWN/CITY/VILLAGE ALDEN

DESIGN SPEC. REHABILITATION N/A

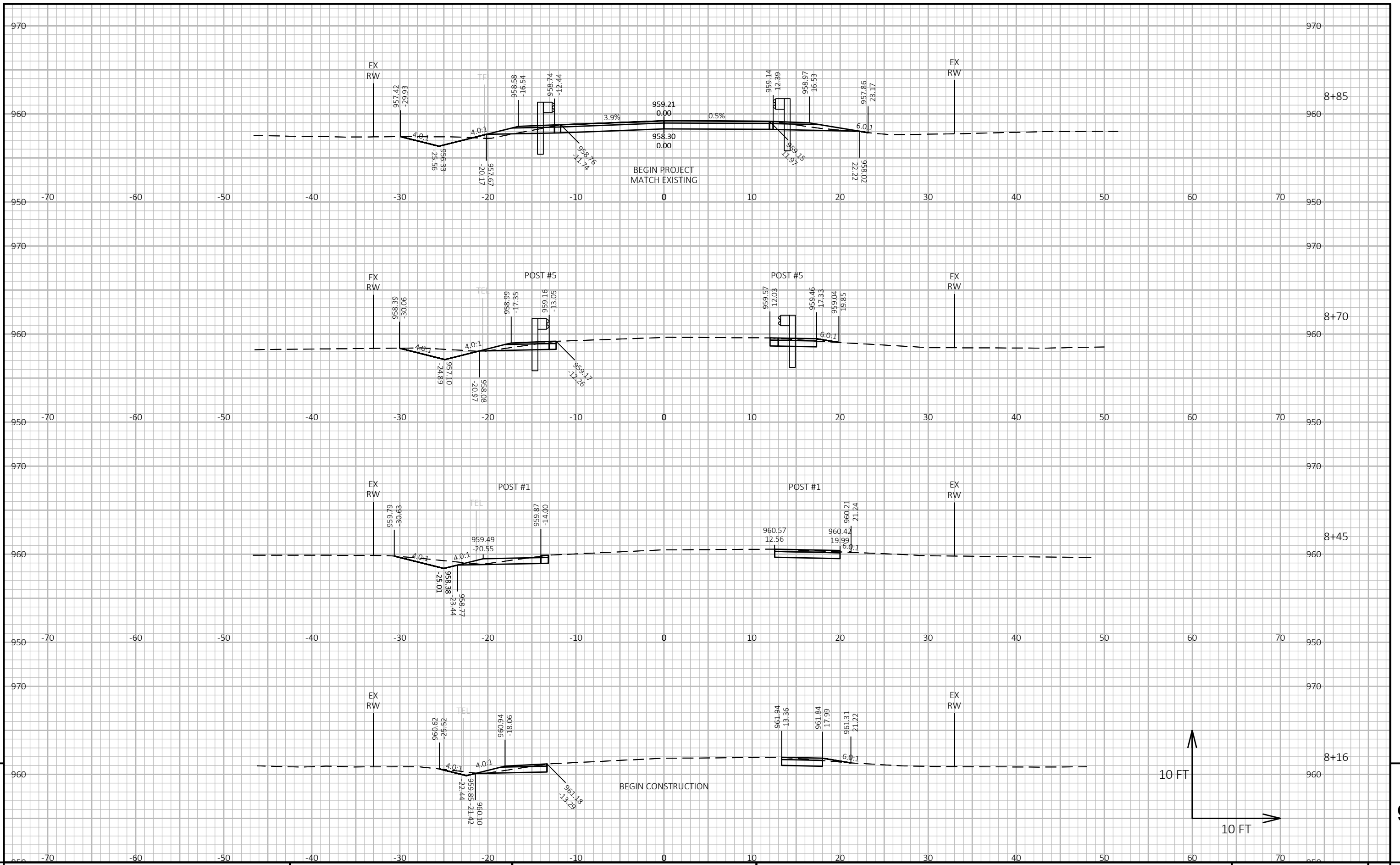
DESIGNED BY JF DESIGN CK'D. SP DRAWN BY JF PLANS CK'D. SP

CONCRETE OVERLAY SHEET 1 OF 1

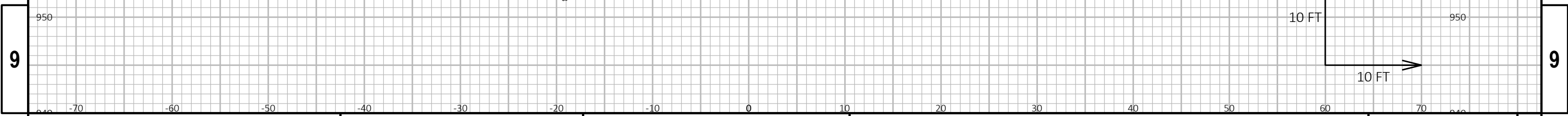
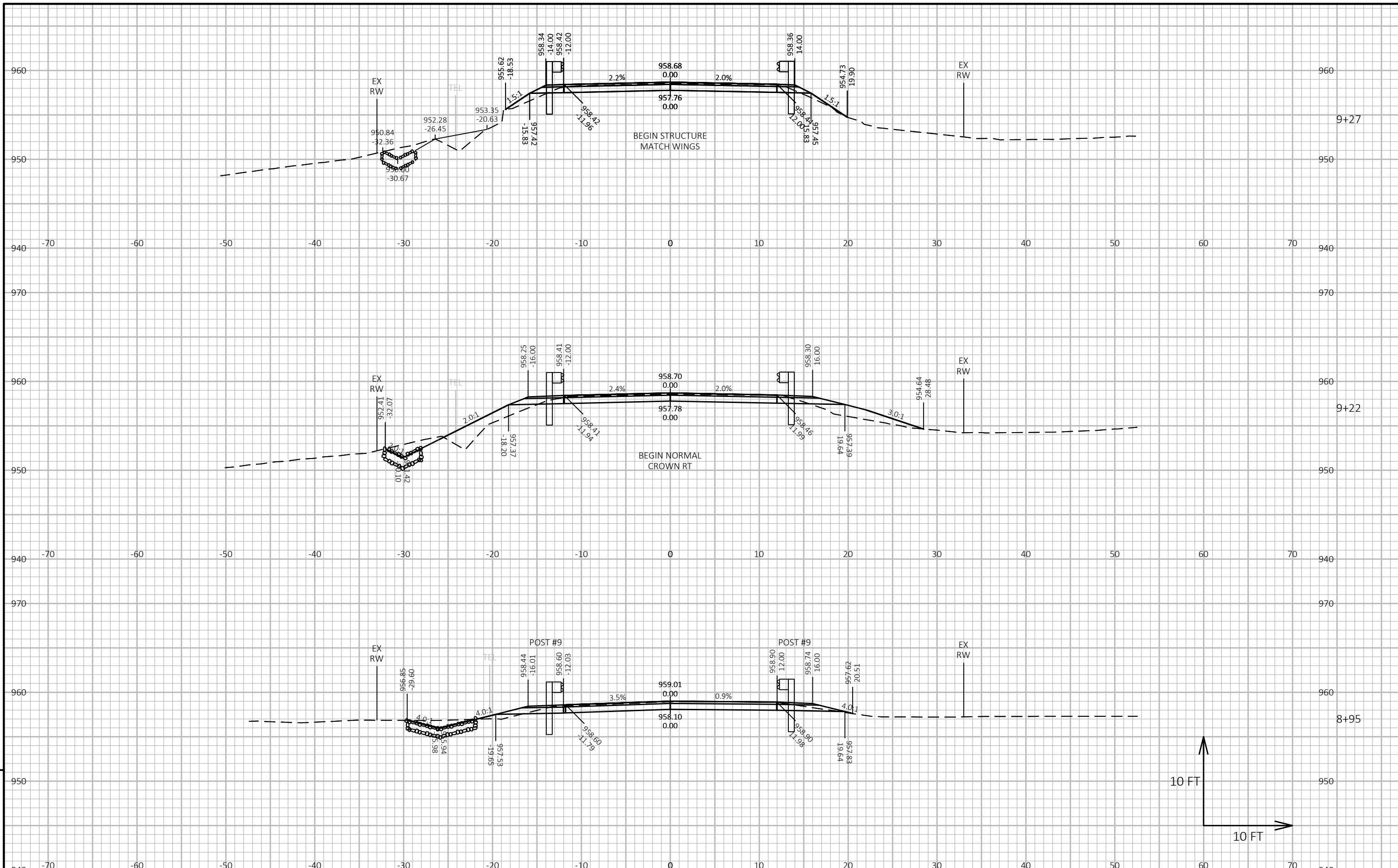
WEST CHURCH ROAD

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/ UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	MASS ORDINATE NOTE 5
8+00	0	0.00	0.00	0.00	0	0	0	0	0	0
8+16	16	7.65	0.00	0.49	2	0	0	2	0	2
8+45	29	13.86	0.00	0.10	12	0	0	14	0	14
8+70	25	13.07	0.00	0.40	12	0	0	26	0	26
8+85	15	32.12	7.11	1.23	13	2	0	39	0	37
8+95	10	29.33	6.96	1.65	11	3	1	50	1	44
9+22	27	27.70	6.84	22.19	29	7	12	79	16	51
9+27	5	20.63	6.87	17.78	4	1	4	83	21	49
9+35	8	21.17	6.93	5.48	7	2	3	90	25	50
BRIDGE								90	25	50
10+65	0	19.89	8.35	0.00	3	0	0	93	25	53
10+73	8	20.19	8.16	1.67	6	2	0	99	25	57
10+78	5	19.51	8.09	16.35	4	2	2	103	28	57
10+83	5	19.92	8.09	34.08	4	1	5	107	34	53
11+00	17	22.60	8.20	17.73	13	5	15	120	53	43
11+15	15	25.71	8.12	10.98	13	5	8	133	63	41
11+17	2	5.86	0.00	12.07	1	0	1	134	64	40
11+42	25	7.51	0.00	10.34	6	0	9	140	75	35
11+55	13	7.34	0.00	7.38	4	0	4	144	80	34
11+67	12	8.22	0.00	9.06	3	0	4	147	85	32
11+80	13	2.72	0.00	5.69	3	0	4	150	90	30
12+05	25	3.40	0.00	3.03	3	0	4	153	95	28
12+45	40	3.43	0.00	0.00	5	0	2	158	98	31
12+65	20	0.00	0.00	0.00	2	0	2	160	100	30
COLUMN TOTAL					160	30	80			

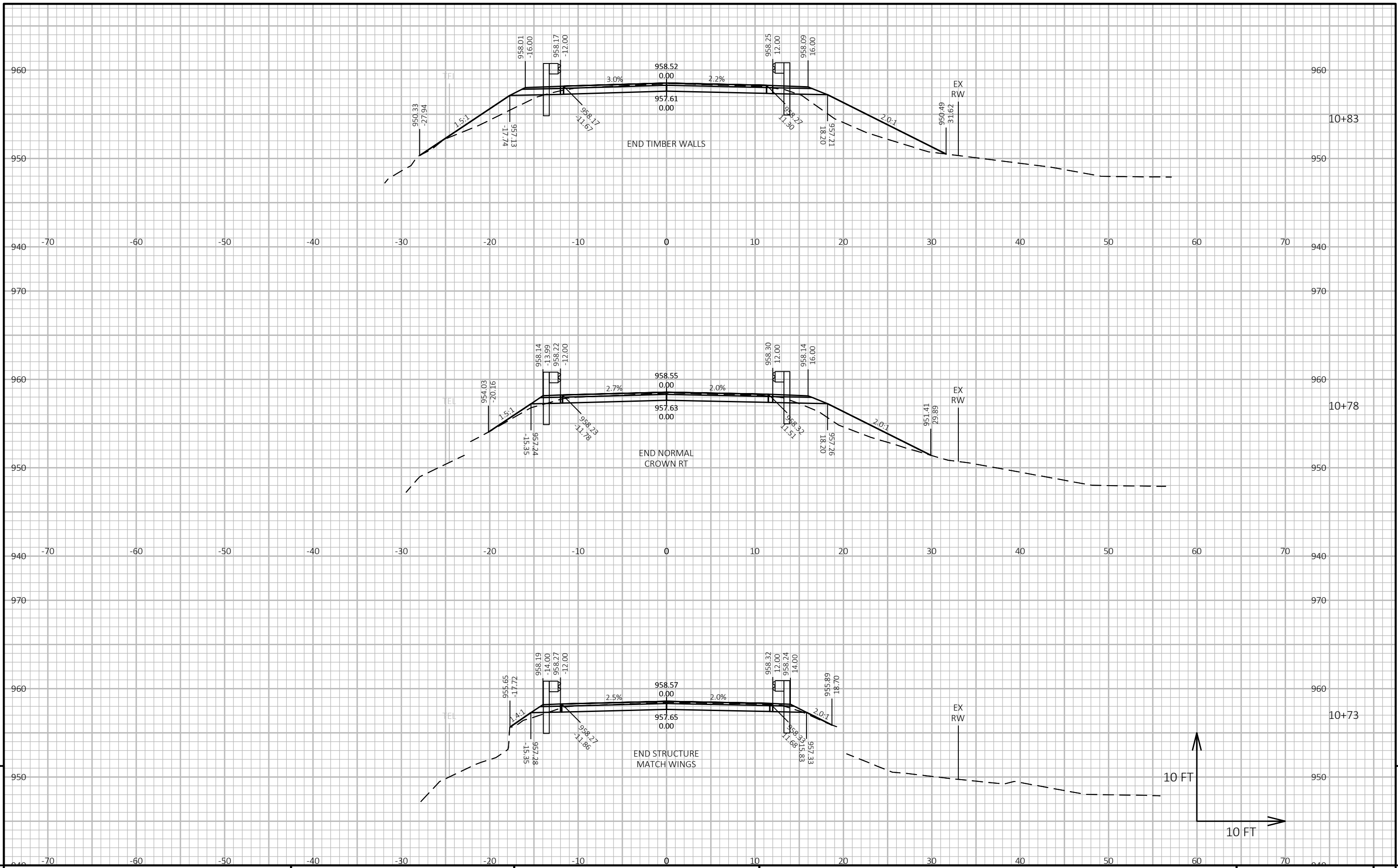
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - EXPANDED FILL	(FILL) x (FILL FACTOR)
5 - MASS ORDINATE	[CUT - SALVAGED PAVT - (FILL x FILL FACTOR)]



PROJECT NO: 8397-00-71 HWY: WEST CHURCH ROAD COUNTY: POLK CROSS SECTIONS: WEST CHURCH ROAD SHEET E



PROJECT NO: 8397-00-71 HWY: WEST CHURCH ROAD COUNTY: POLK CROSS SECTIONS: WEST CHURCH ROAD SHEET E

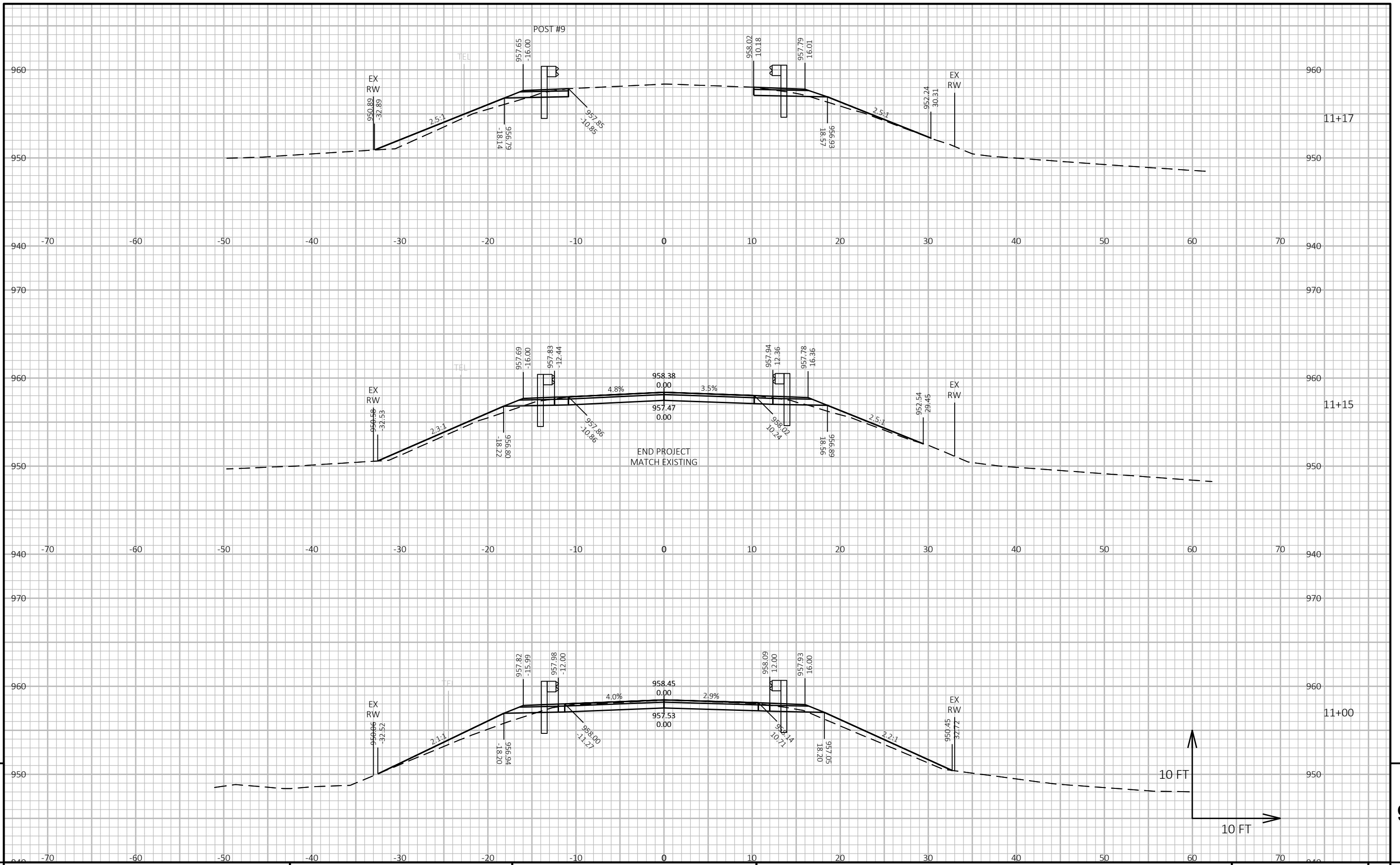


9

9

PROJECT NO: 8397-00-71 HWY: WEST CHURCH ROAD COUNTY: POLK CROSS SECTIONS: WEST CHURCH ROAD SHEET E

FILE NAME: G:\2020-PROJ\20258231\C3D\SHEETSPLAN\090201_XS.DWG PLOT DATE: 4/13/2021 10:07 AM PLOT BY: JACOB FRIBERG PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



PROJECT NO: 8397-00-71

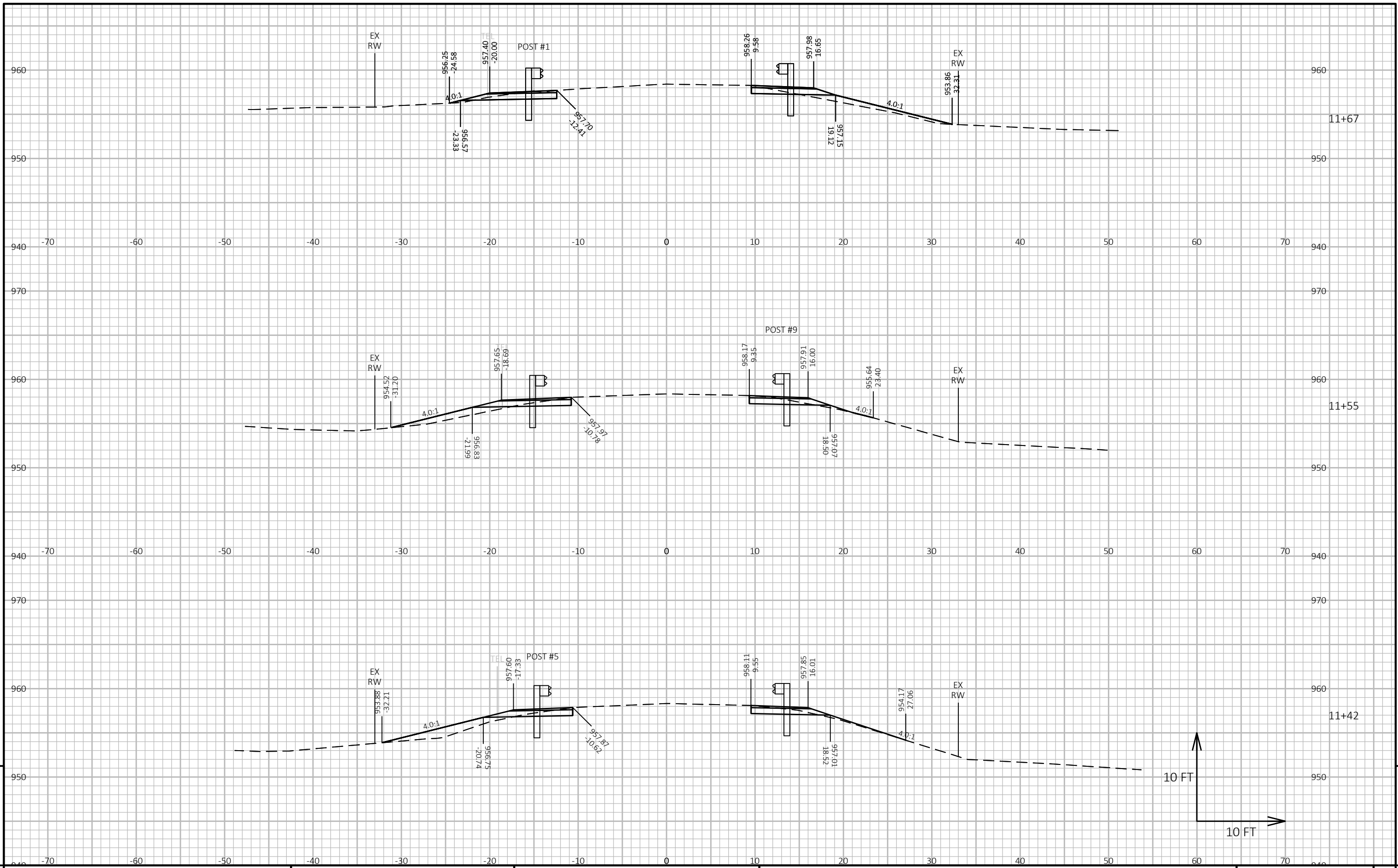
HWY: WEST CHURCH ROAD

COUNTY: POLK

CROSS SECTIONS: WEST CHURCH ROAD

SHEET

E



9

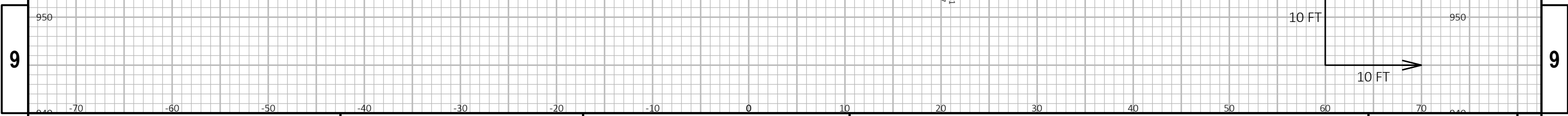
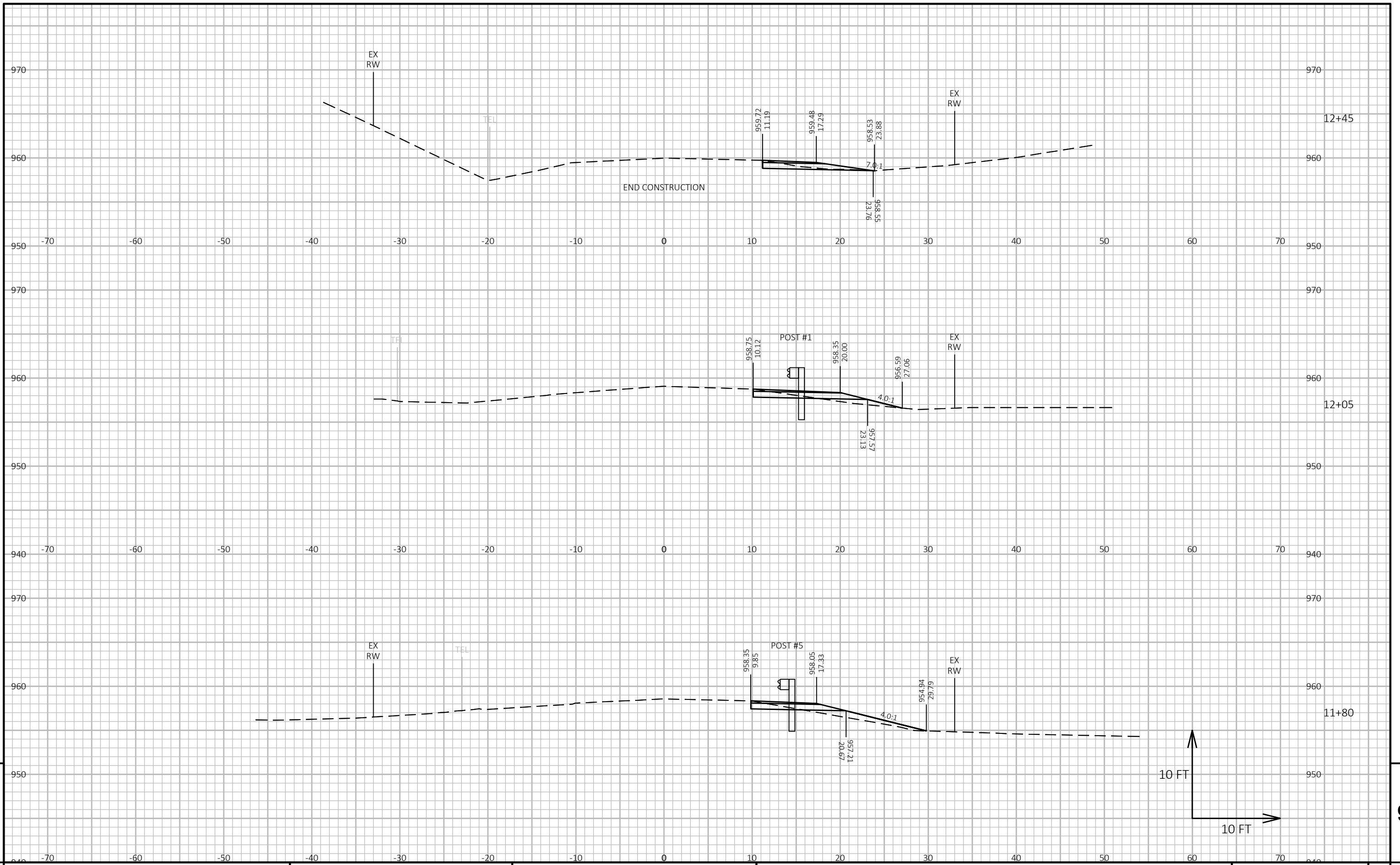
10 FT

10 FT

9

PROJECT NO: 8397-00-71 HWY: WEST CHURCH ROAD COUNTY: POLK CROSS SECTIONS: WEST CHURCH ROAD SHEET E

FILE NAME: G:\2020-PROJ\20258231\C3D\SHEETSPLAN\090201_XS.DWG PLOT DATE: 4/13/2021 10:07 AM PLOT BY: JACOB FRIBERG PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



PROJECT NO: 8397-00-71 HWY: WEST CHURCH ROAD COUNTY: POLK CROSS SECTIONS: WEST CHURCH ROAD SHEET E



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

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