

EAU

APRIL 2022

ORDER OF SHEETS

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

TOTAL SHEETS = 190

PROJECT LOCATION



42

DESIGN DESIGNATION

A.A.D.T.	2024	=	3090
A.A.D.T.	2044	=	3240
D.H.V.		=	225
D.D.		=	60/40
T.		=	10.3%
DESIGN SPEED		=	45 MPH / 55 MPH
ESALS		=	500,000

CONVENTIONAL SYMBOLS

PLAN

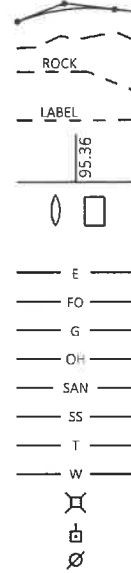
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE

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

NET EXCEPTION TO CL LENGTH
STA 508+95'E' TO 509+37'E'

STRUCTURE B-06-0073
STA 397+95'B' TO 398+42'B'



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

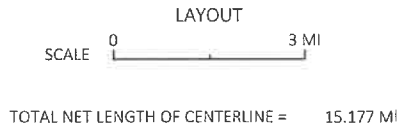
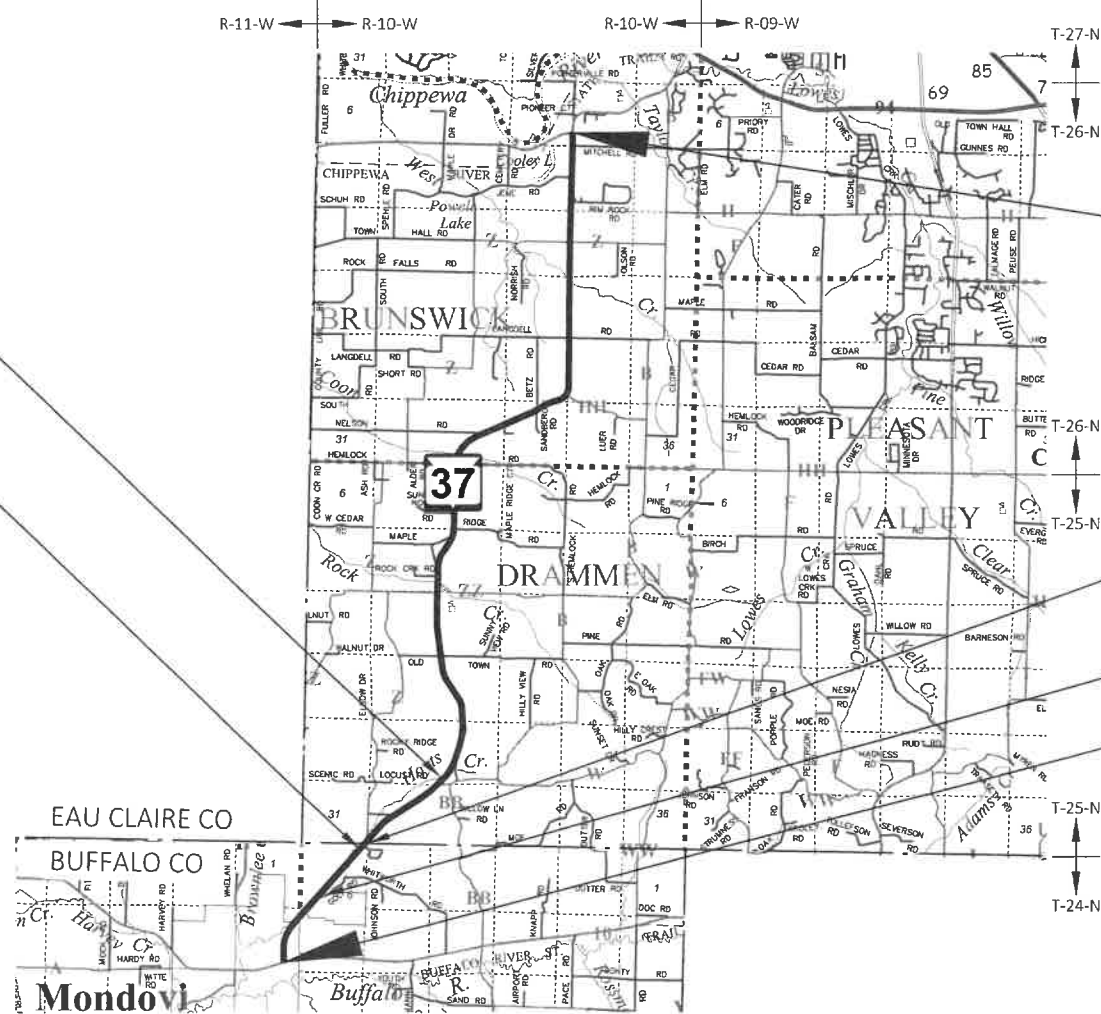
MONDOVI - EAU CLAIRE

USH 10 TO STH 85

STH 37

BUFFALO AND EAU CLAIRE COUNTIES

STATE PROJECT NUMBER
7110-00-70



END PROJECT
STA 1105+00'E'

COORDINATE SYSTEM CHANGE
STA 402+22'B' = STA 402+22'E'
X = 304,799.83
Y = 200,487.57

NET EXCEPTION TO CL LENGTH
STA 364+24'B' TO 364+98'B'

BEGIN PROJECT
STA 302+50'B'
X = 611,971.93
Y = 397,008.45

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), BUFFALO COUNTY AND EAU CLAIRE COUNTY NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7110-00-70	WISC 2022025	1

ORIGINAL PLANS PREPARED BY



MADISON | OCONOMOWOC | EAU CLAIRE | GREEN BAY | WITTENBERG



DATE: _____ (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	WISDOT & CORRE, INC
Designer	CORRE, INC
Project Manager	BRETT HOLLISTER, PE
Regional Examiner	TOU YANG, PE
Regional Supervisor	JIM KOENIG, PE

APPROVED FOR THE DEPARTMENT
DATE: 7/12/2021 (Signature)

E

ORDER OF SECTION 2 SHEETS

WISDOT CONTACT

CONSULTANT CONTACT

DNR CONTACT

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
TRAFFIC CONTROL

AYRES ASSOCIATES, INC.
BRETT HOLLISTER, PE
3343 OAKWOOD HILLS PKWY
EAU CLAIRE, WI 54701
(715) 834-3161
HOLLISTERB@AYRESASSOCIATES.COM

CORRE, INC.
KEVIN MEYER, PE
1802 WARDEN ST
EAU CLAIRE, WI 54703
(715) 299-1894
KMEYER@CORREINC.COM

DNR SERVICE CENTER
LEAH NICOL
1300 W CLAIREMONT AVE
EAU CLAIRE, WI 54701
(715) 934-9014
LEAH.NICOL@WISCONSIN.GOV

GENERAL NOTES

-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 THAT ARE NOT SHOWN.

-PRIOR TO THE PLACEMENT OF MGS GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED, AND COMPACTED UNLESS SHOWN OTHERWISE.

-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 OR TURNING LANE.

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

-ALL DIMENSIONS ARE SHOWN TO THE EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.

-MATCH EXISTING NO PASSING ZONES UNLESS DIRECTED BY THE ENGINEER.

-EXCESS SHOULDER MATERIAL THAT REMAINS AFTER MILLING SHALL REMAIN AS PART OF THE PERMANENT SHOULDER SLOPE.

UTILITY CONTACTS

AT&T WISCONSIN
COMMUNICATION LINE
RICK PODOLAK
304 S DEWEY ST (FLOOR 4)
EAU CLAIRE, WI 54701
(715) 839-5565
RP4514@ATT.COM

CHARTER COMMUNICATIONS
COMMUNICATION LINE
SHANE YODER
1201 MCCANN DR
ALTOONA, WI 54720
(715) 214-1174
SHANE.YODER@CHARTER.COM

CHIPPEWA VALLEY CABLE, INC
COMMUNICATION LINE
MATT HOYT
318 3RD AVE W
DURAND, WI 54736
(715) 672-4204
MATT@NTEC.NET

CINC
COMMUNICATION LINE
DAREN BAUER
105 GARFIELD AVE
EAU CLAIRE, WI 54701
(715) 836-5286
BAUERDP@UWEC.EDU

CITY OF MONDOVI PUBLIC WORKS
WATER/SEWER
BRADLEY HANSON
156 S FRANKLIN ST
MONDOVI, WI 54755
(715) 495-0384
CITY_ADMIN@MONDOVI.COM

DAIRYLAND POWER COOPERATIVE
ELECTRICITY
ROB MALY
3200 EAST AVE S
LA CROSSE, WI 54602
(608) 787-1427
ROB.MALY@DAIRYLANDPOWER.COM

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ELECTRICITY
JOSH VANINGAN
8214 HWY 12
FALL CREEK, WI 54742
(715) 832-1603
JVANINGAN@ECEC.COM

FRONTIER COMMUNICATIONS
COMMUNICATION LINE
CAL KLADE
1851 N 14TH AVE
WAUSAU, WI 54401
(715) 847-1525
CALVIN.KLADE@FTR.COM

KOCH PIPELINE COMPANY LP
GAS/PETROLEUM
STEVE BERNDT
E3660 SPRUCE RD
ELEVA, WI 54738
(608) 287-4053
STEVEN.BERNDT@FHR.COM

MIDWEST NATURAL GAS, INC
GAS/PETROLEUM
RICK SCHERMERHOM
3600 HWY 157 STE 200
LA CROSSE, WI 54602
(608) 780-0210
RICKS@MIDWESTNATURALGAS.COM

WEST WISCONSIN TELCOM
COMMUNICATION LINE
BRADLEY SCHMIDTKNECHT
5808 OLD MILL PLAZA
EAU CLAIRE, WI 54703
(715) 231-0504
BRADS@WWT.COOP

XCEL ENERGY
GAS/PETROLEUM
BRADY GARDOW
PO BOX 8
EAU CLAIRE, WI 54702
(715) 577-0445
BRADY.P.GARDOW@XCELENERGY.COM

XCEL ENERGY
TRANSMISSION
MITCHELL DIENGER
414 NICOLLET MALL 5TH FLOOR
MINNEAPOLIS, MN 55401
(612) 321-3109
MITCHELL.A.DIENGER@XCELENERGY.COM

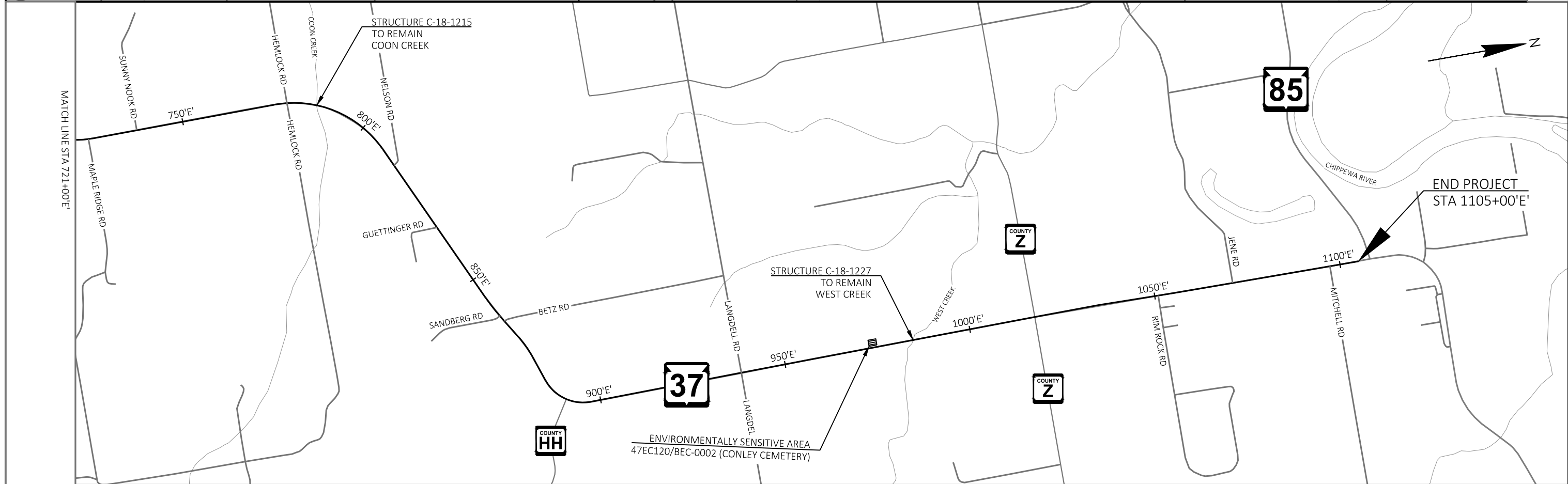
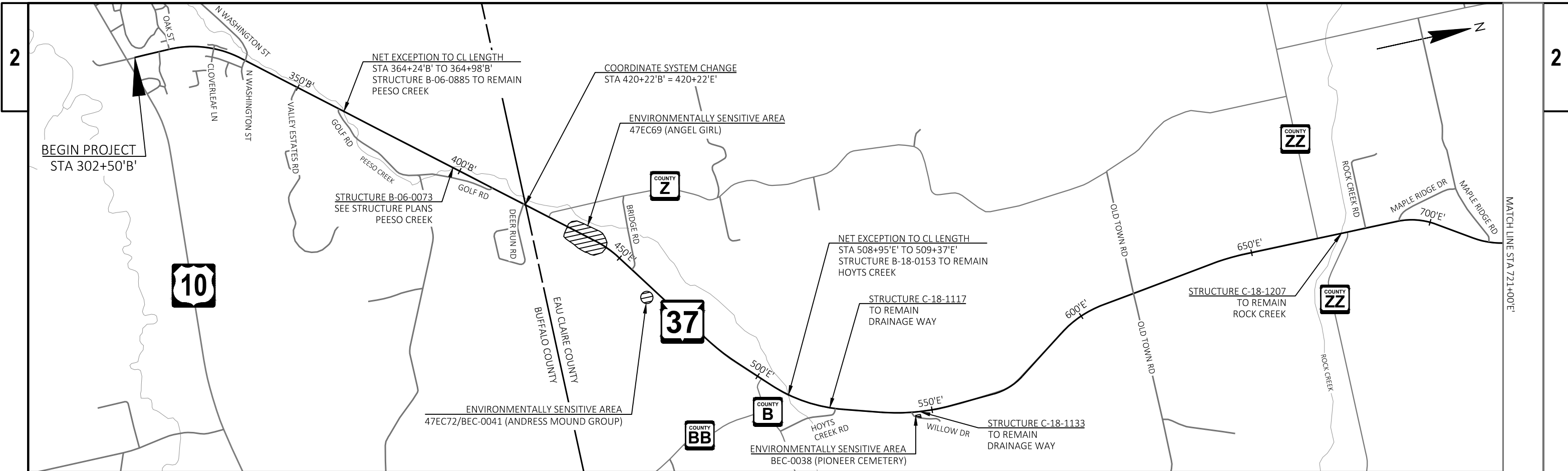
XCEL ENERGY
ALL CORRESPONDENCE
CORISSA SEELY
1414 W HAMILTON AVE
EAU CLAIRE, WI 54702
(715) 737-4097
CORISSA.E.SEELY@XCELENERGY.COM

XCEL ENERGY
DISTRIBUTION
JOHN KEISER
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EAU CLAIRE, WI 54702
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JOHN.KEISER@XCELENERGY.COM



Dial 811 or (800)242-8511

www.DiggersHotline.com



PROJECT NO: 7110-00-70

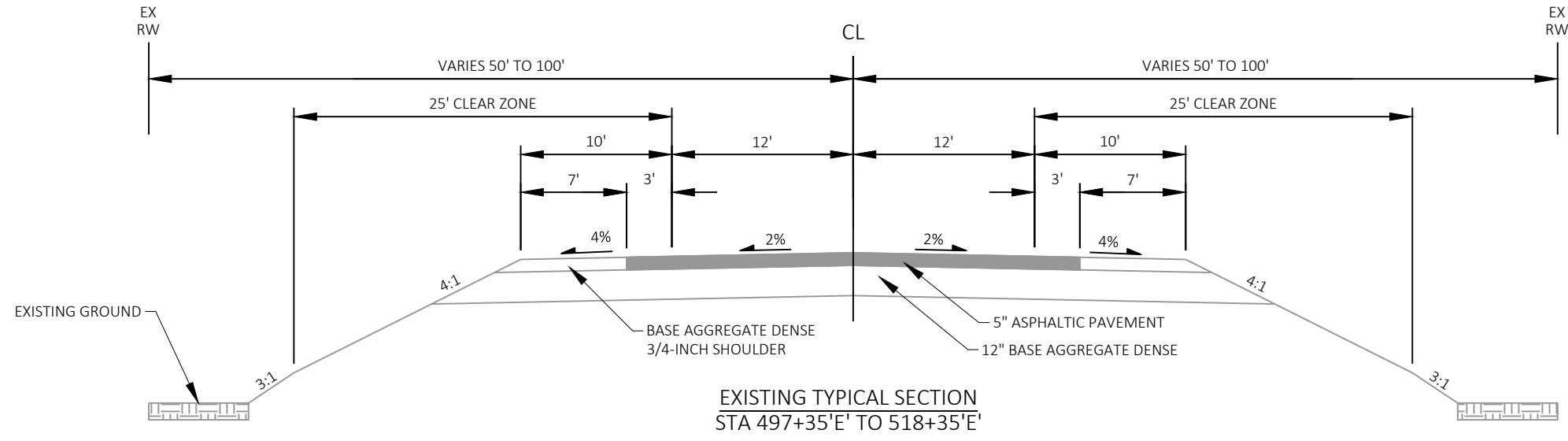
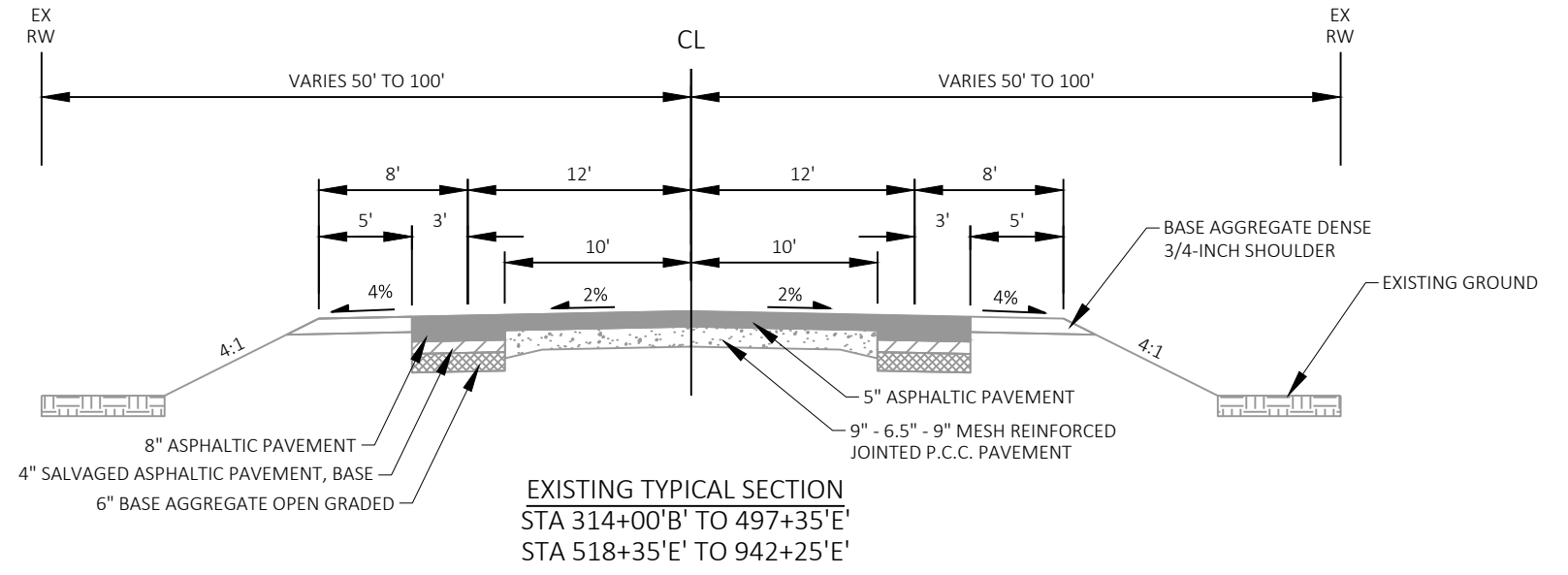
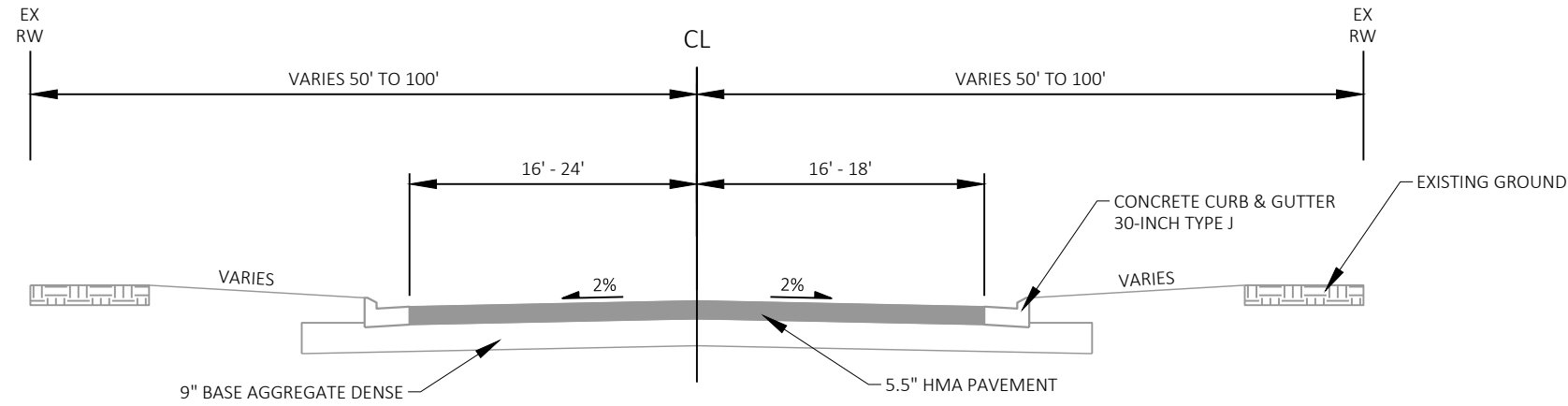
HWY: STH 37

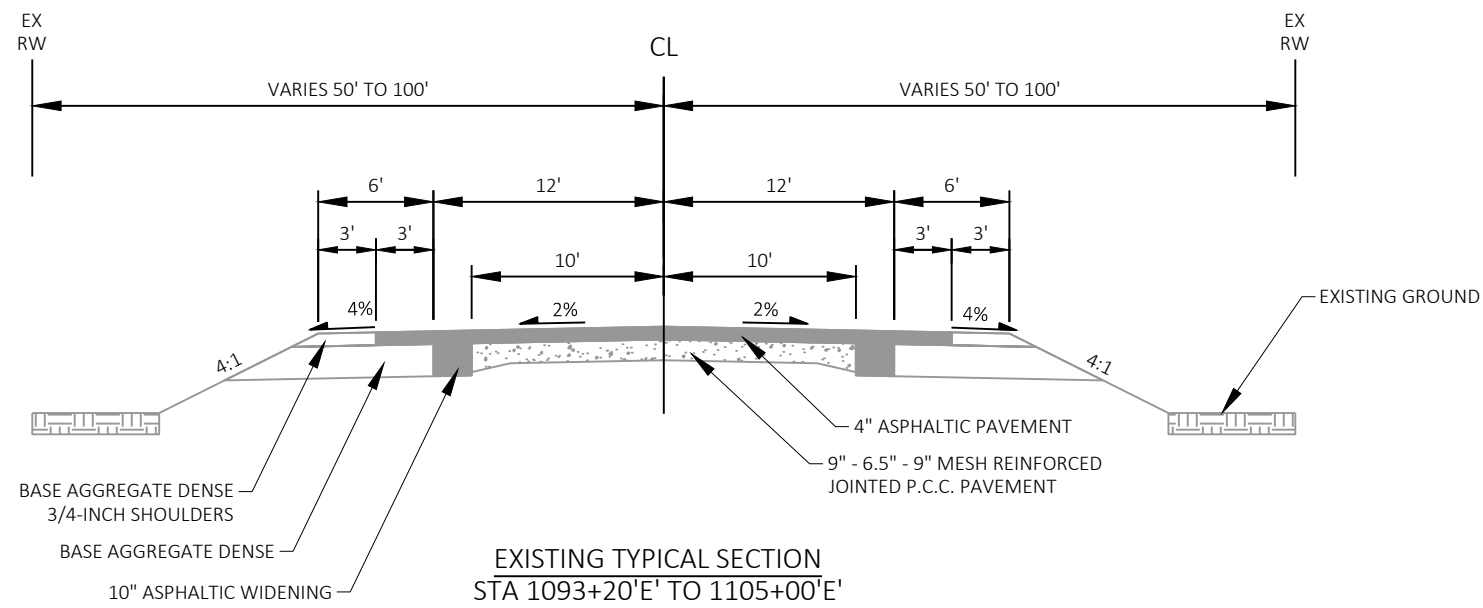
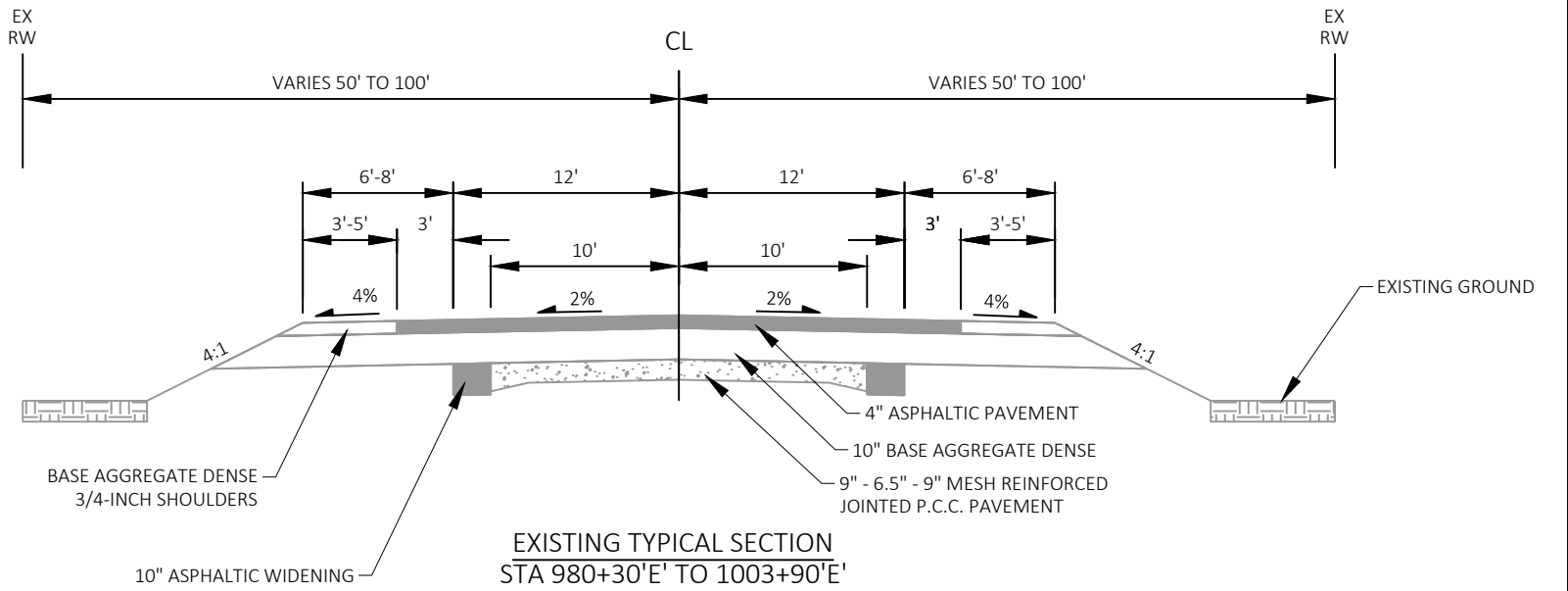
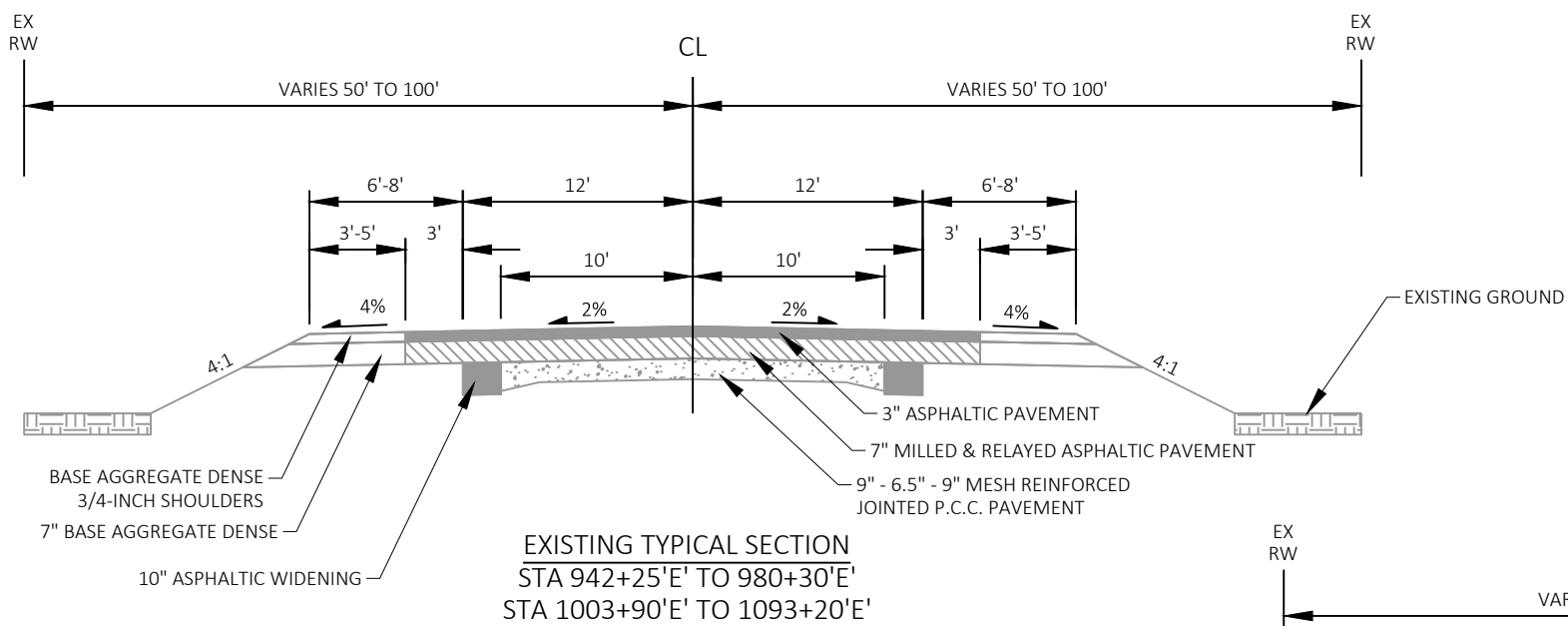
COUNTY: BUFFALO & EAU CLAIRE

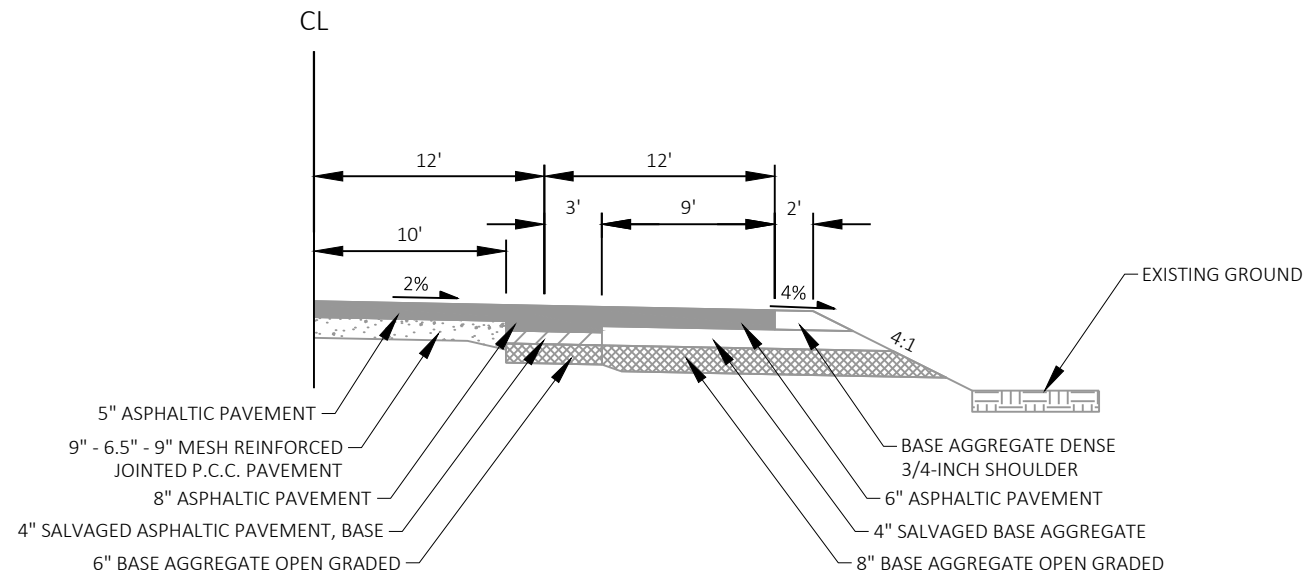
PROJECT OVERVIEW

SHEET

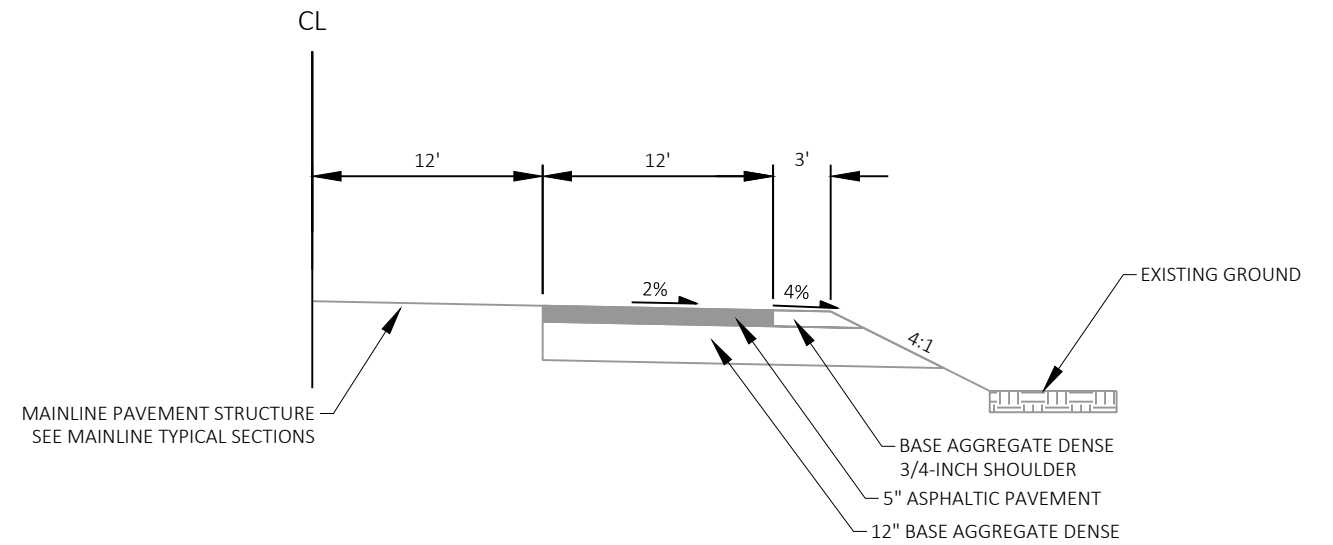
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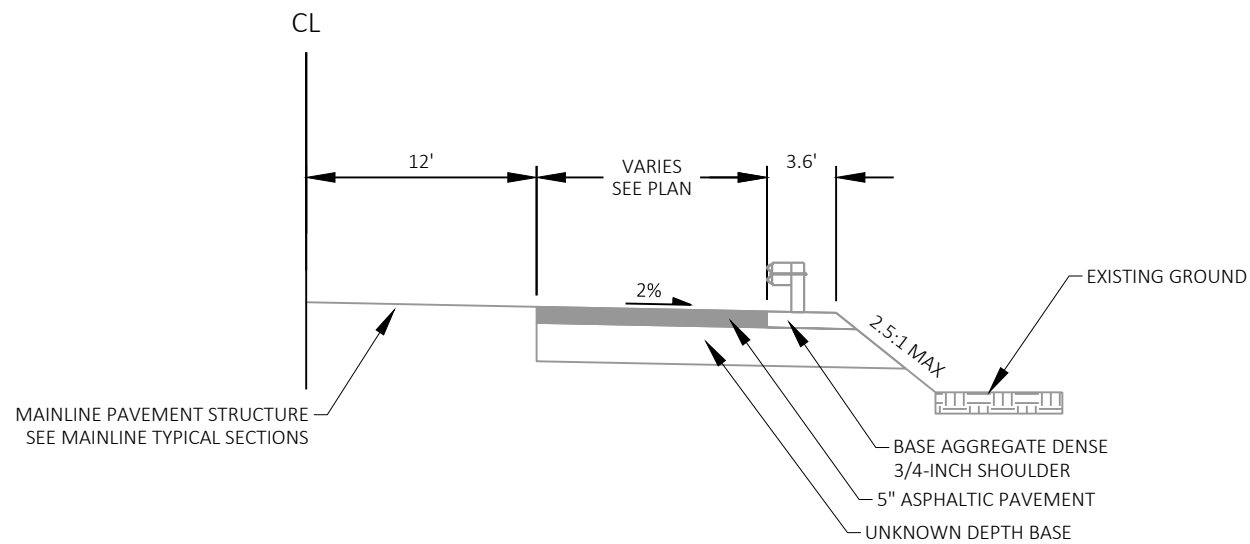




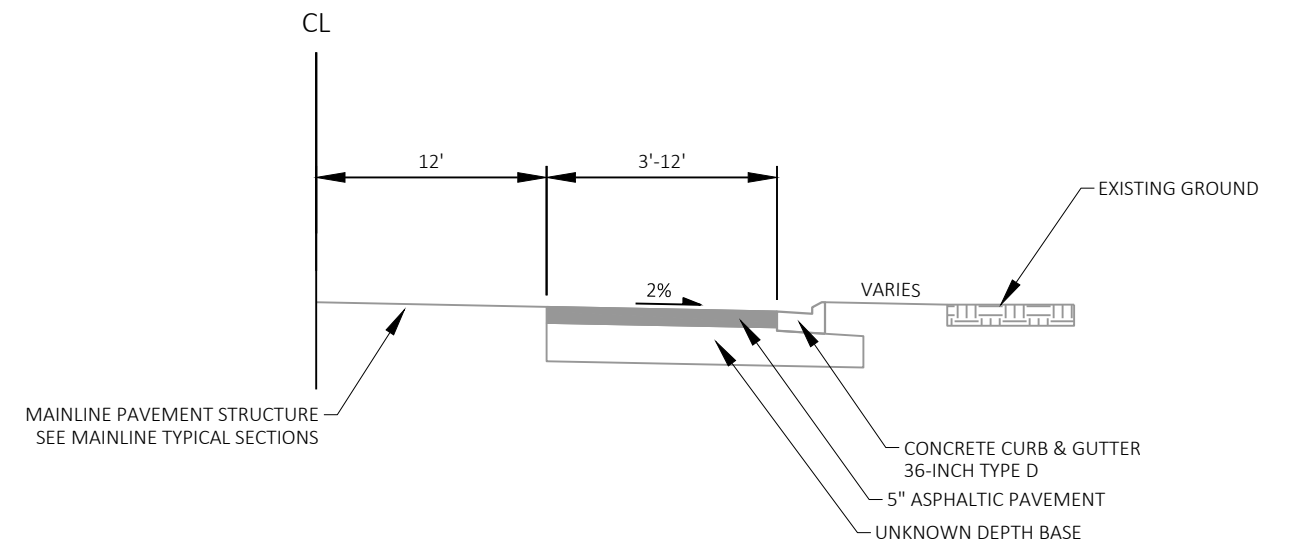
EXISTING TYPICAL TURN/BYPASS LANE HALF SECTION
 SOUTH OF BUFFALO/EAU CLAIRE COUNTY LINE
 SEE PLAN SHEETS FOR LOCATIONS



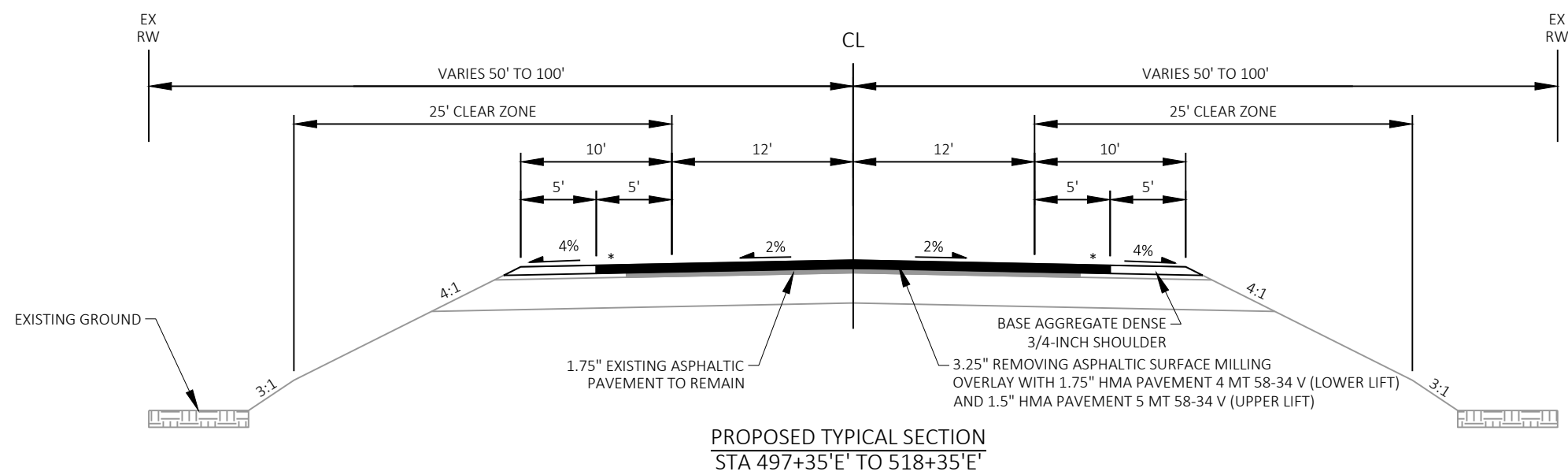
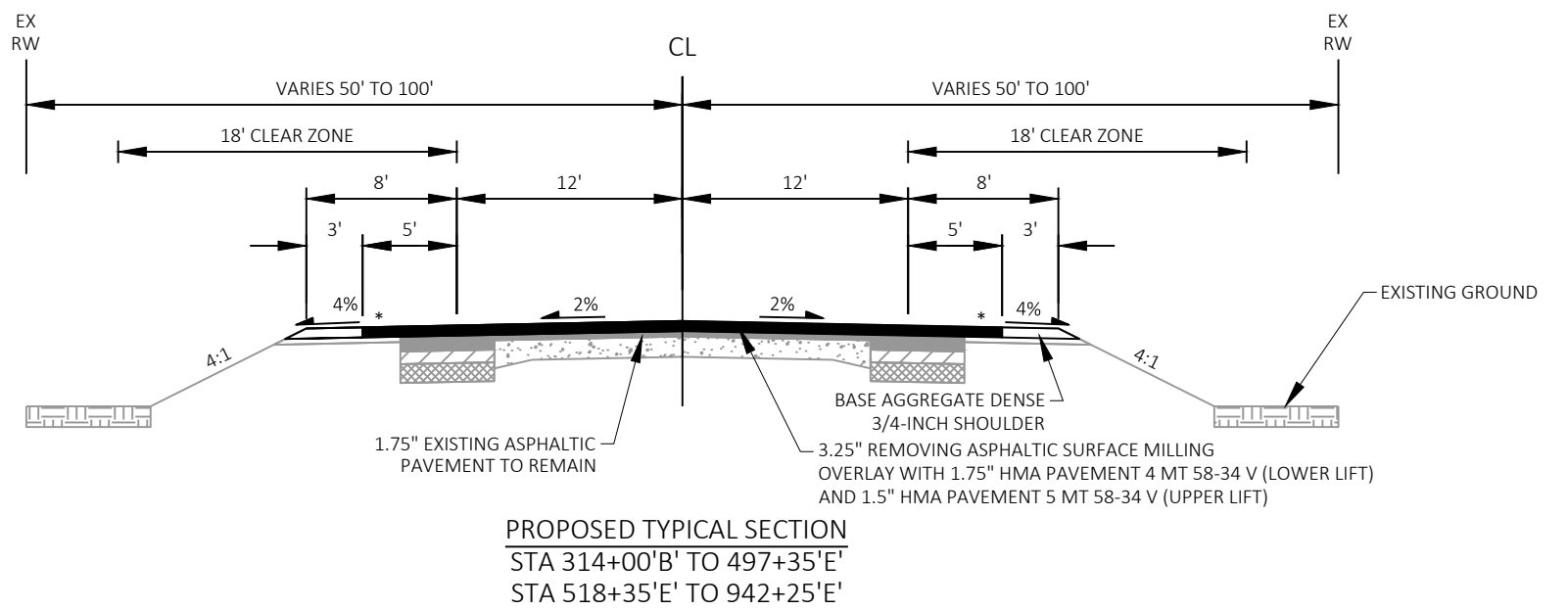
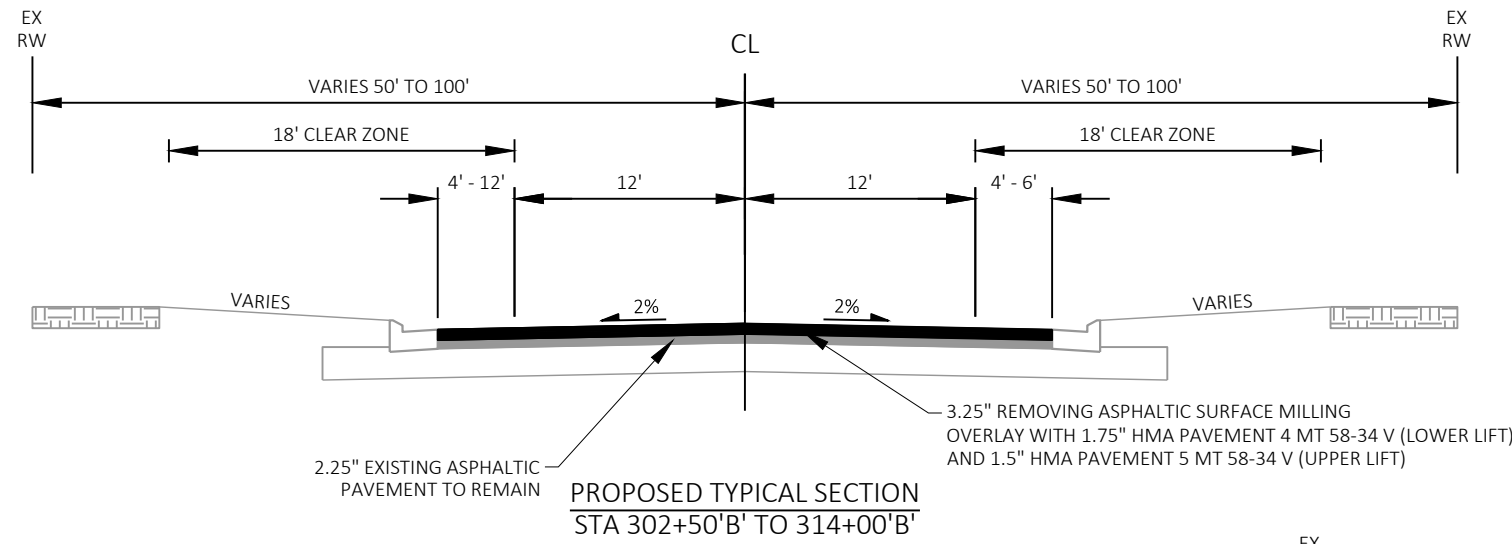
EXISTING TYPICAL TURN/BYPASS LANE HALF SECTION
 NORTH OF BUFFALO/EAU CLAIRE COUNTY LINE
 SEE PLAN SHEETS FOR LOCATIONS



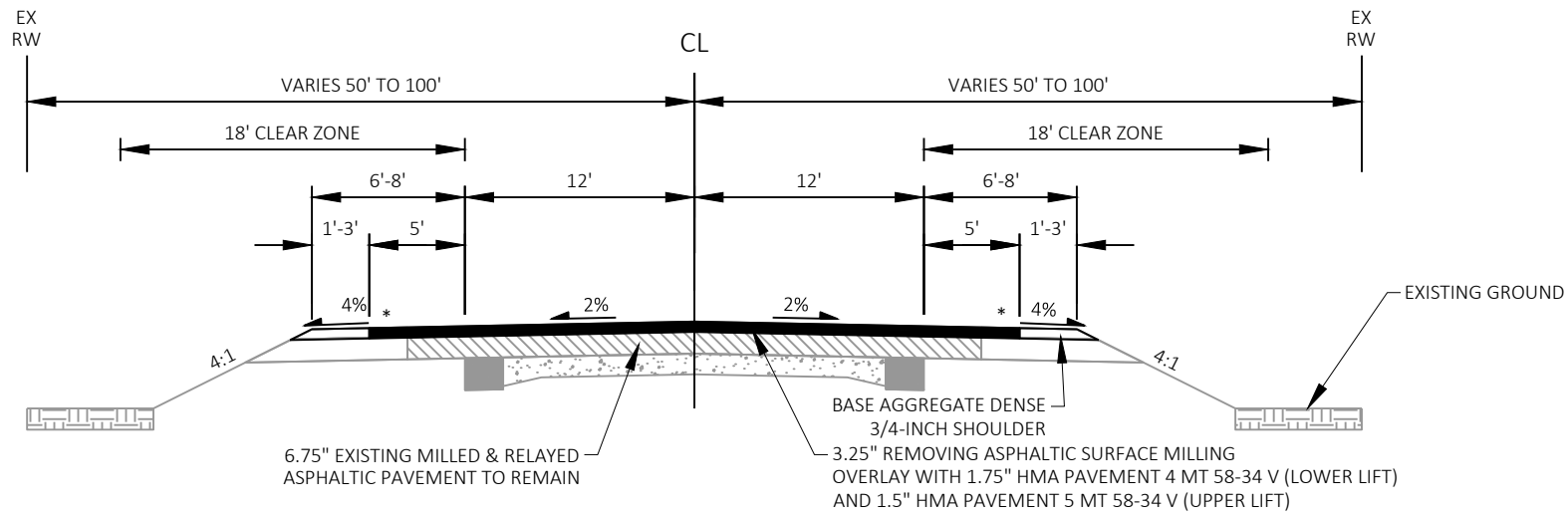
EXISTING TYPICAL BEAMGUARD HALF SECTION
 SEE PLAN SHEETS FOR LOCATIONS



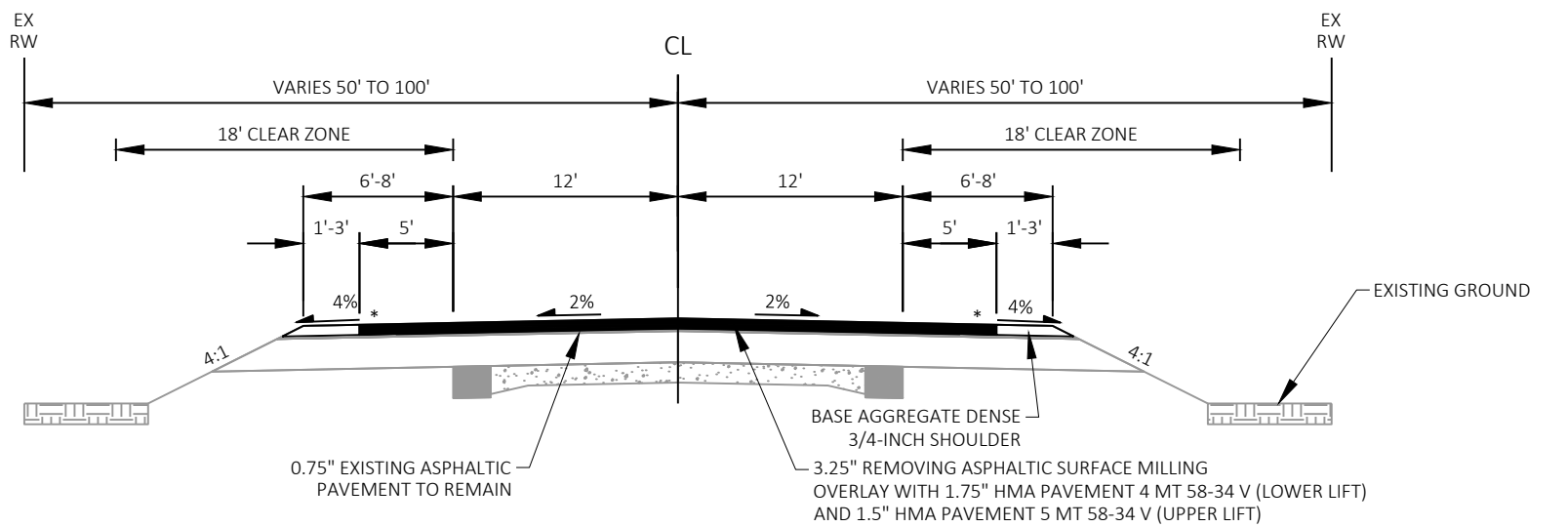
EXISTING TYPICAL CURB & GUTTER HALF SECTION
 SEE PLAN SHEETS FOR LOCATIONS



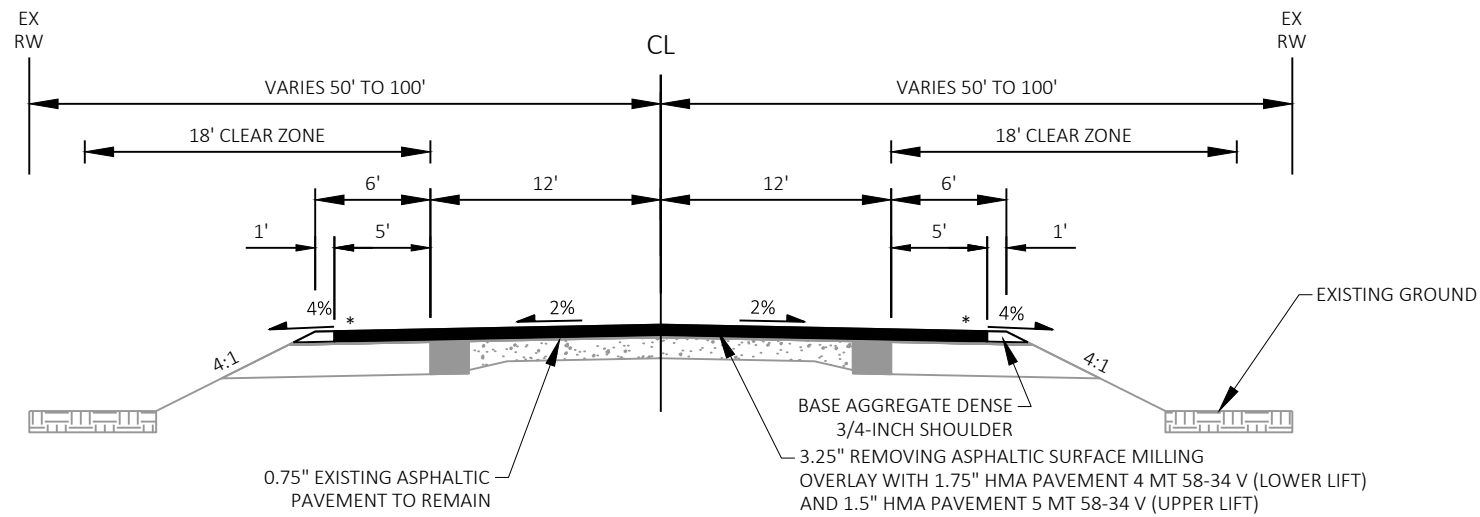
* 2' OF PAVED SHOULDER WIDENING, ASPHALTIC SHOULDER RUMBLE STIRPS 2-LANE RURAL AND PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS TO BE PAID UNDER CATEGORY 0030.



PROPOSED TYPICAL SECTION
 STA 942+25'E TO 980+30'E
 STA 1003+90'E TO 1093+20'E



PROPOSED TYPICAL SECTION
 STA 980+30'E TO 1003+90'E



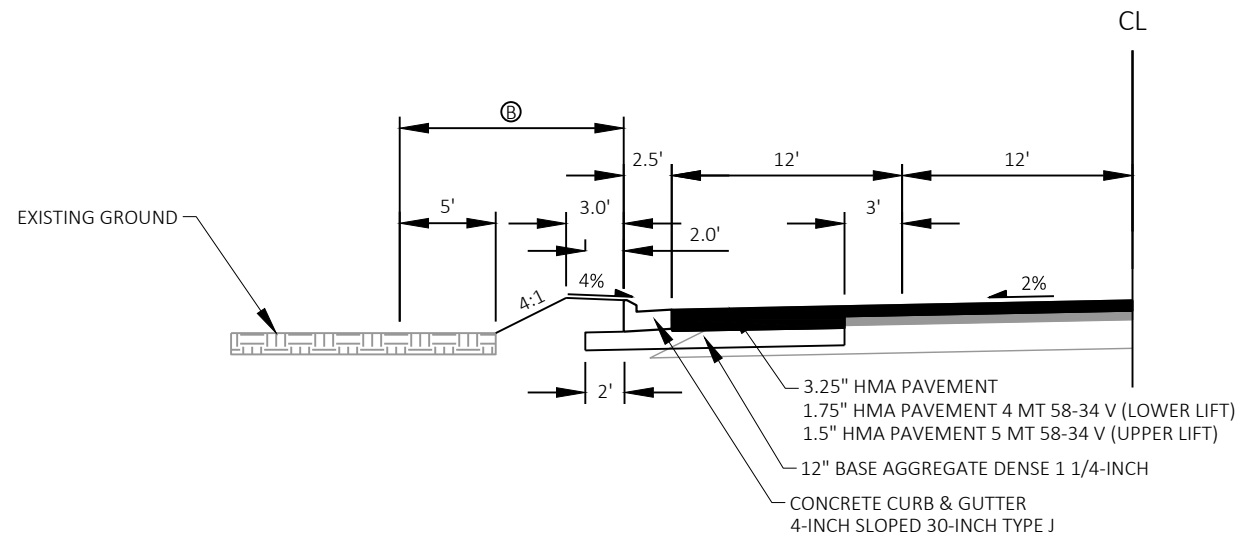
PROPOSED TYPICAL SECTION
 STA 1093+20'E TO 1105+00'E

* 2' OF PAVED SHOULDER WIDENING,
 ASPHALTIC SHOULDER RUMBLE STIRPS 2-LANE
 RURAL AND PREPARE FOUNDATION
 FOR ASPHALTIC SHOULDERS TO BE PAID UNDER
 CATEGORY 0030.

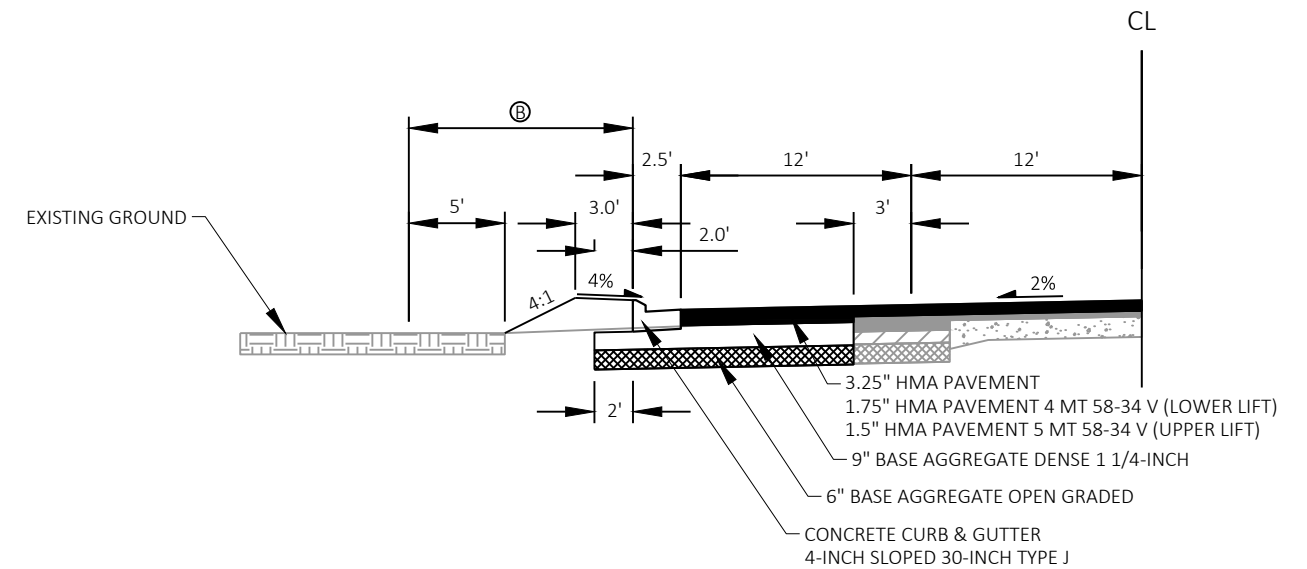
NOTES

- Ⓐ SEEDING MIXTURE #20, FERTILIZER TYPE B
- Ⓑ SEEDING MIXTURE #20, FERTILIZER TYPE B, MULCHING

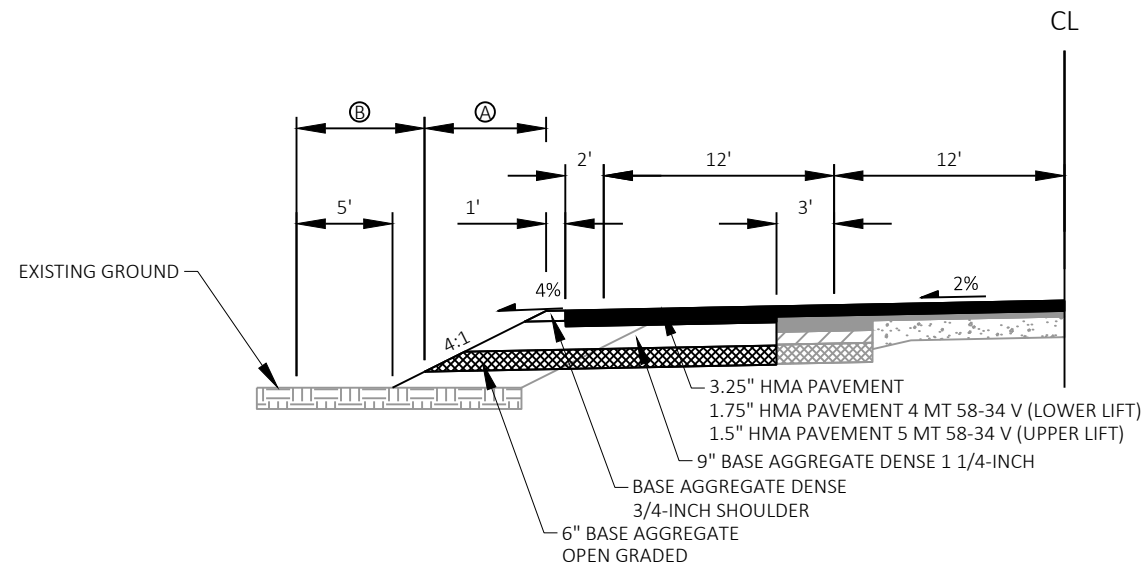
* 2' OF PAVED SHOULDER WIDENING, ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL AND PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS TO BE PAID UNDER CATEGORY 0030.



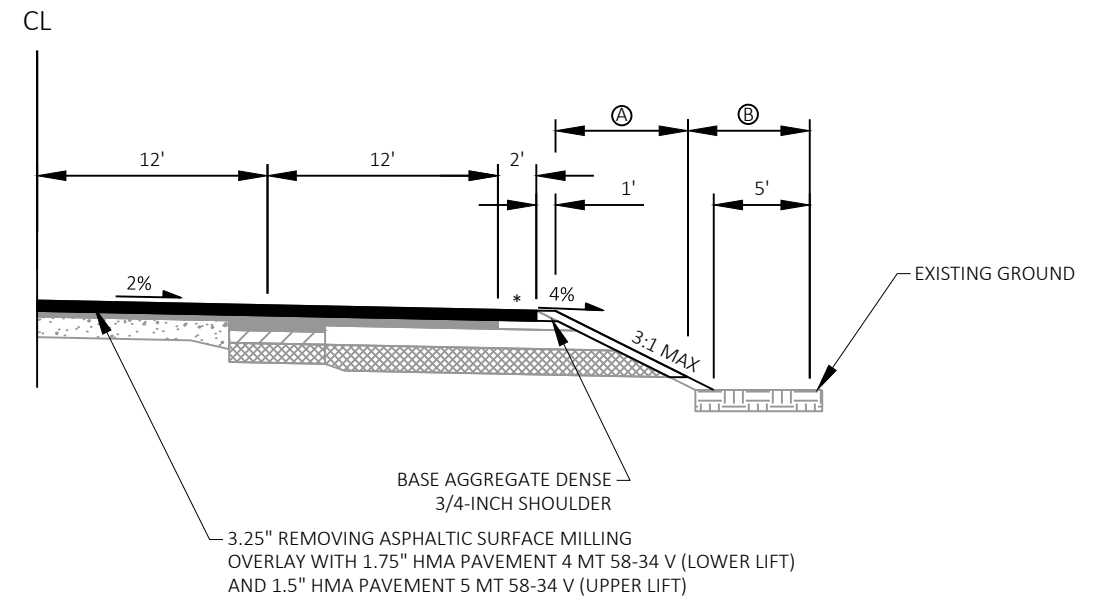
PROPOSED TURN LANE TYPICAL SECTION
STA 312+60'B' TO 314+00'B' LT



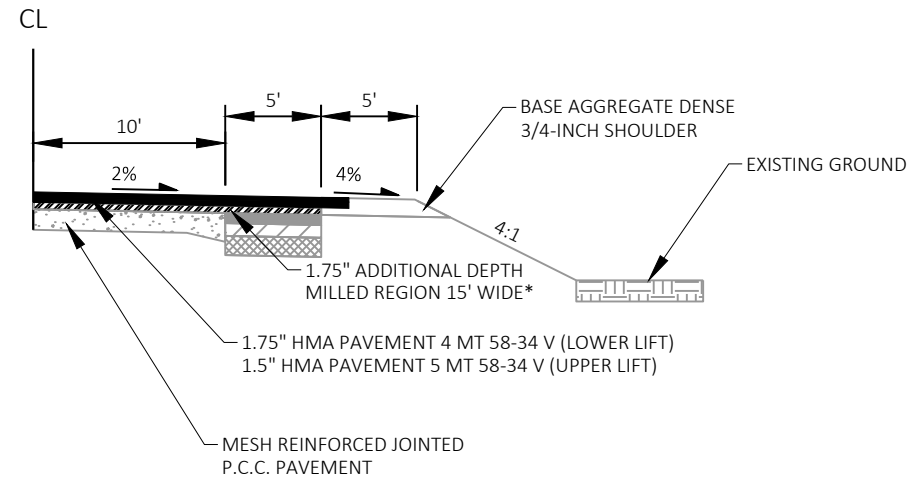
PROPOSED TURN LANE TYPICAL SECTION
STA 314+00'B' TO 316+00'B' LT



PROPOSED TURN LANE TYPICAL SECTION
STA 334+42'B' TO 337+43'B' LT



PROPOSED TYPICAL TURN/BYPASS LANE HALF SECTION
AT EXISTING TURN/BYPASS LANES
SOUTH OF BUFFALO/EAU CLAIRE COUNTY LINE
SEE PLAN SHEETS FOR LOCATIONS

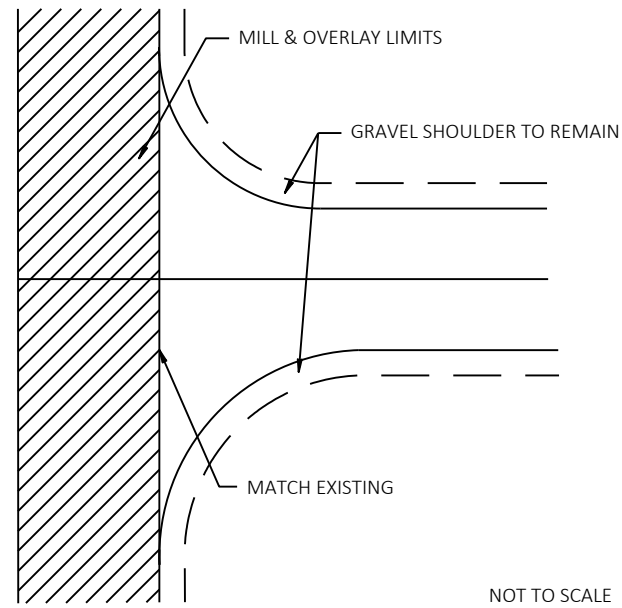


ASPHALTIC BASE PATCHING PARTIAL DEPTH

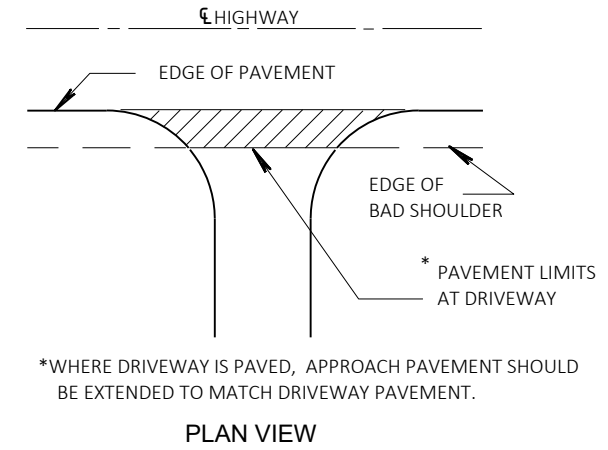
- STA 396+90'B' TO 398+00'B' LT/RT
- STA 398+50'B' TO 399+50'B' LT/RT
- STA 545+45'E' TO 545+55'E' LT/RT
- STA 698+75 'E' TO 699+25'E' LT/RT
- STA 710+00'E' TO 713+00'E' LT/RT
- STA 772+00'E' TO 780+00'E' RT
- STA 843+25'E' TO 844+50'E' RT
- STA 844+00'E' TO 846+00'E' RT
- STA 876+00'E' TO 883+00'E' LT/RT
- STA 939+50'E' TO 942+00'E' RT

* MILL TO 5" DEPTH OR TO TOP OF EXISTING CONCRETE.
THE CONTRACTOR WILL BE REQUIRED TO PAVE ADDITIONAL DEPTH MILLED
AREAS IN THE SAME DAY AS MILLING OPERATIONS.

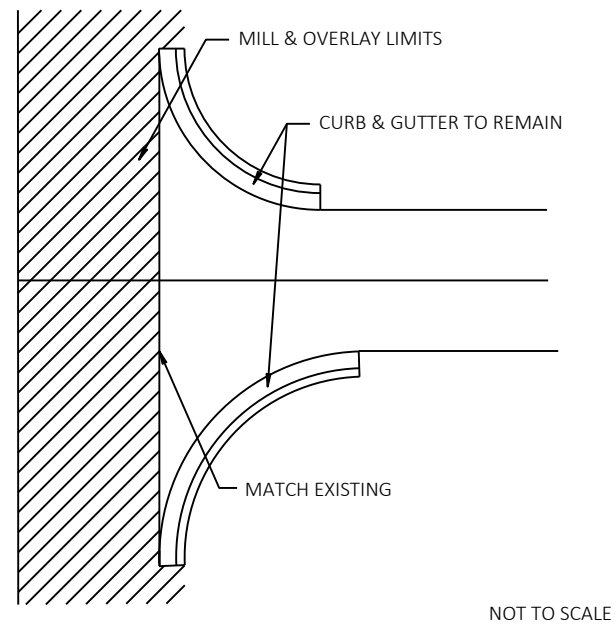
**SIDE ROAD DETAIL
ASPHALTIC SHOULDERS**



**RURAL DRIVEWAY DETAIL
ASPHALTIC SHOULDERS**



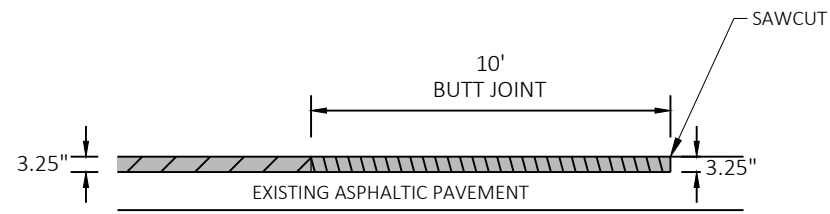
**SIDE ROAD DETAIL
CURB & GUTTER TO REMAIN**



RUNOFF COEFFICIENT TABLE

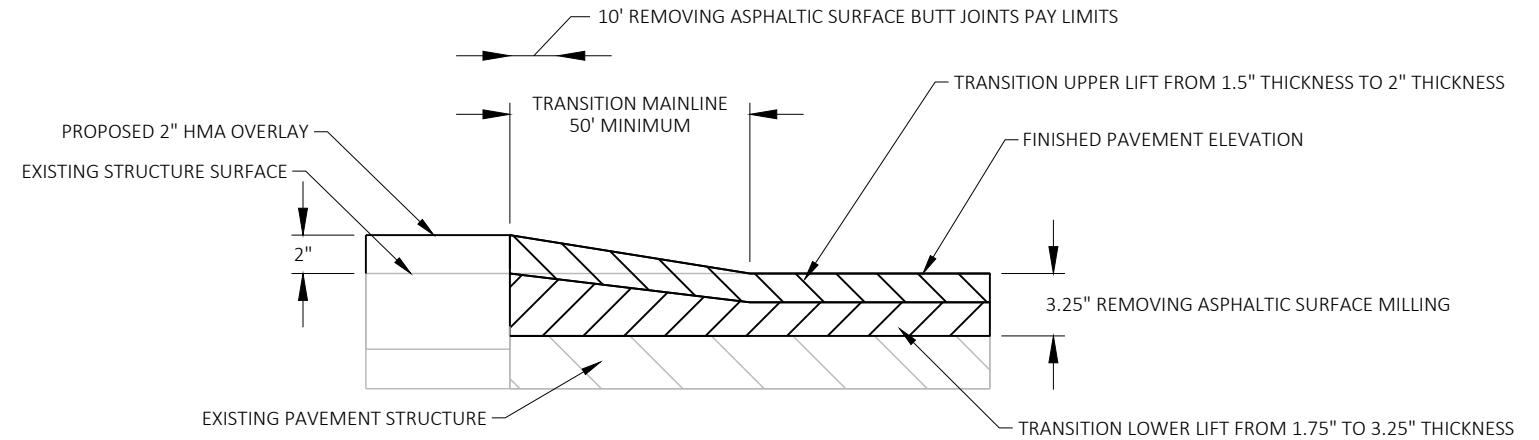
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .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 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 74 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 3.6 ACRES



- HMA PAVEMENT
- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS

BUTT JOINT



**ASPHALTIC TRANSITION
AT B-06-0073**

TRANSITION CONSIDERED INCIDENTAL TO REMOVING ASPHALTIC SURFACE MILLING AND PAVING OPERATIONS.

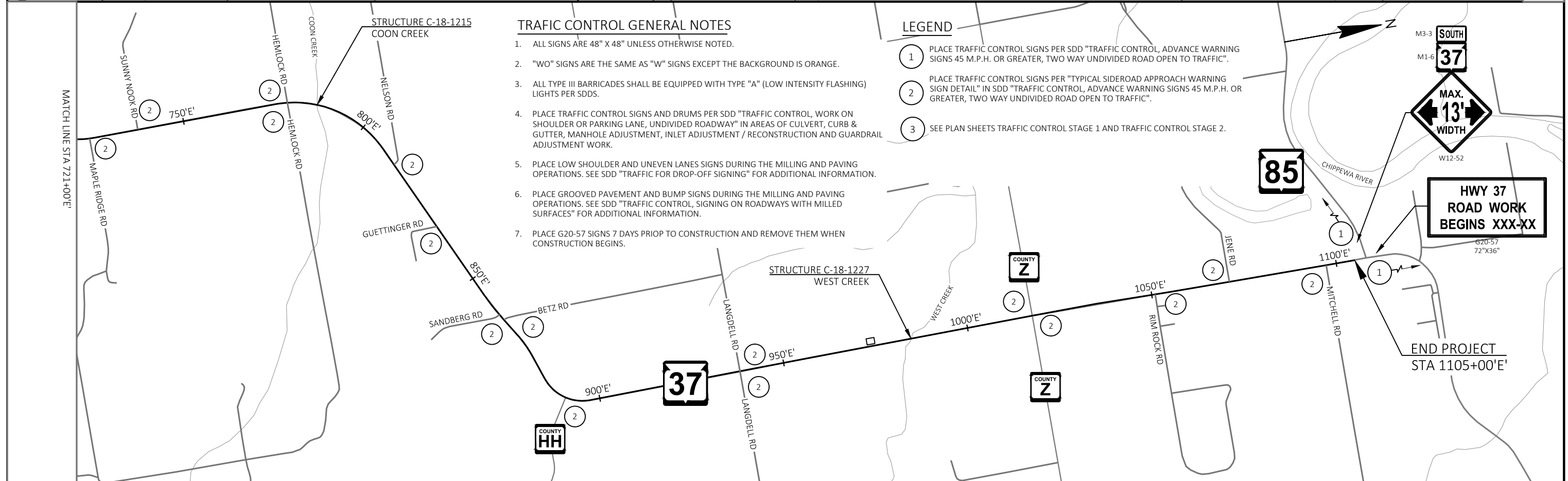
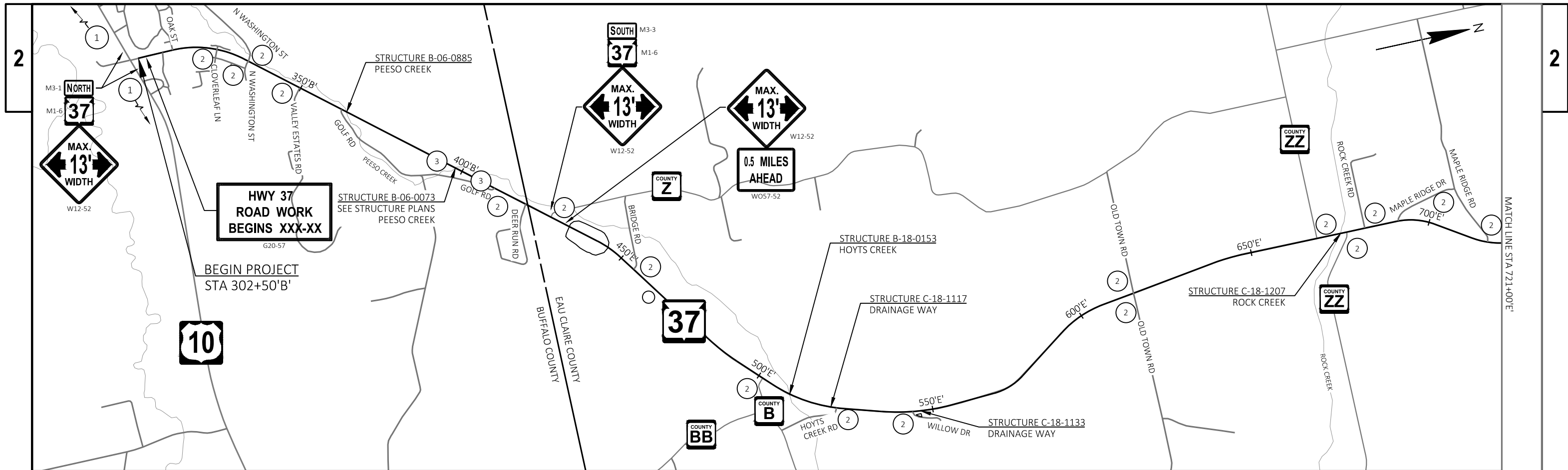
CONTROL POINT TABLE - WCCS BUFFALO COUNTY						
POINT	STATION	OFFSET	Y	X	ELEVATION	DESCRIPTION
CP 32	315+43.37 'B'	-43.99' LT	398305.572	611926.290	848.56'	CP -REBAR
CP 31	324+88.36 'B'	-80.50' LT	399242.619	612143.377	835.83'	CP BM
CP 30	334+29.92 'B'	25.78' RT	399972.834	612757.148	827.43'	CP -REBAR
CP 14	390+33.11 'B'	32.04' RT	404281.419	616339.317	849.71'	CP BM HMOD
CP 1	397+88.59 'B'	19.09' RT	404871.296	616811.504	846.92'	MON CP BM

CONTROL POINT TABLE - WCCS EAU CLAIRE COUNTY						
POINT	STATION	OFFSET	Y	X	ELEVATION	DESCRIPTION
CP 2	507+16.54 'E'	28.96' RT	206159.730	311319.847	882.30'	CP -REBAR
CP 3	523+29.81 'E'	89.63' RT	207520.759	312211.473	892.71'	CP BM
CP 4	544+66.49 'E'	29.12' RT	209604.780	312723.191	920.05'	CP -REBAR
CP 5	549+80.93 'E'	23.26' RT	210119.442	312768.505	915.78'	CP -REBAR
CP 6	561+12.59 'E'	13.49' RT	211252.175	312737.070	955.72'	CP BM
CP 7	564+30.15 'E'	-30.08' LT	211567.560	312679.830	958.27'	CP -REBAR
CP 8	676+81.25 'E'	132.02' RT	222323.624	310638.608	940.08'	CP BM
CP 11	695+77.07 'E'	-22.22' LT	224220.756	310566.119	991.46'	CP -REBAR
CP 12	700+62.94 'E'	-23.80' LT	224673.434	310754.992	1003.49'	CP -SET10INCHSPIKE
CP 10	705+24.25 'E'	-27.36' LT	225063.873	311002.845	1013.54'	CP -REBAR
CP 13	706+54.45 'E'	-13.64' LT	225165.421	311085.480	1015.06'	CP BM -FNDMAG
CP 9	784+44.05 'E'	45.59' RT	232746.582	311985.999	933.13'	CP -REBAR
CP 15	846+28.49 'E'	-40.17' LT	236054.557	316969.092	971.49'	CP MON BM HMOD
CP 16	990+43.55 'E'	-62.53' LT	247969.214	320960.143	846.69'	CP BM

STH 37 - BUFFALO					
SUPERELEVATION TRANS. EVENT POINTS		RATE			
LOCATION	STATION	LEFT OF CROWNLINE		RIGHT OF CROWNLINE	
		LEFT SHOULDER	LEFT LANE	RIGHT LANE	RIGHT SHOULDER
CURVE 1					
MATCH EXIST	300+00'B'	-4.00%	-2.00%	-2.00%	-4.00%
NORMAL CROWN	310+91'B'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	311+44'B'	.00%	.00%	-2.00%	-4.00%
REVERSE CROWN	311+97'B'	2.00%	2.00%	-2.00%	-4.00%
FULL SUPERELEVATION	312+64'B'	4.50%	4.50%	-4.50%	-4.50%
FULL SUPERELEVATION	331+96'B'	4.50%	4.50%	-4.50%	-4.50%
REVERSE CROWN	332+63'B'	2.00%	2.00%	-2.00%	-4.00%
LEVEL CROWN	333+16'B'	.00%	.00%	-2.00%	-4.00%
NORMAL CROWN	333+69'B'	-4.00%	-2.00%	-2.00%	-4.00%

STH 37 - EAU CLAIRE					
SUPERELEVATION TRANS. EVENT POINTS		RATE			
LOCATION	STATION	LEFT OF CROWNLINE		RIGHT OF CROWNLINE	
		LEFT SHOULDER	LEFT LANE	RIGHT LANE	RIGHT SHOULDER
CURVE 2					
NORMAL CROWN	440+64'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	441+17'E'	.00%	.00%	-2.00%	-4.00%
REVERSE CROWN	441+70'E'	2.00%	2.00%	-2.00%	-4.00%
FULL SUPERELEVATION	442+37'E'	4.50%	4.50%	-4.50%	-4.50%
FULL SUPERELEVATION	449+28'E'	4.50%	4.50%	-4.50%	-4.50%
REVERSE CROWN	449+95'E'	2.00%	2.00%	-2.00%	-4.00%
LEVEL CROWN	450+48'E'	.00%	.00%	-2.00%	-4.00%
NORMAL CROWN	451+01'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 3					
NORMAL CROWN	481+83'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	482+36'E'	-4.00%	-2.00%	.00%	.00%
REVERSE CROWN	482+89'E'	-4.00%	-2.00%	2.00%	2.00%
FULL SUPERELEVATION	483+08'E'	-4.00%	-2.70%	2.70%	2.70%
FULL SUPERELEVATION	492+42'E'	-4.00%	-2.70%	2.70%	2.70%
REVERSE CROWN	492+61'E'	-4.00%	-2.00%	2.00%	2.00%
LEVEL CROWN	493+14'E'	-4.00%	-2.00%	.00%	.00%
NORMAL CROWN	493+67'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 4					
NORMAL CROWN	503+18'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	503+71'E'	-4.00%	-2.00%	.00%	.00%
REVERSE CROWN	504+24'E'	-4.00%	-2.00%	2.00%	2.00%
FULL SUPERELEVATION	504+64'E'	-4.00%	-3.50%	3.50%	3.50%
FULL SUPERELEVATION	525+30'E'	-4.00%	-3.50%	3.50%	3.50%
REVERSE CROWN	525+70'E'	-4.00%	-2.00%	2.00%	2.00%
LEVEL CROWN	526+23'E'	-4.00%	-2.00%	.00%	.00%
NORMAL CROWN	526+76'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 5					
NORMAL CROWN	534+86'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	535+39'E'	-4.00%	-2.00%	.00%	.00%
REVERSE CROWN	535+92'E'	-4.00%	-2.00%	2.00%	2.00%
FULL SUPERELEVATION	536+11'E'	-4.00%	-2.70%	2.70%	2.70%
FULL SUPERELEVATION	555+15'E'	-4.00%	-2.70%	2.70%	2.70%
REVERSE CROWN	555+34'E'	-4.00%	-2.00%	2.00%	2.00%
LEVEL CROWN	555+87'E'	-4.00%	-2.00%	.00%	.00%
NORMAL CROWN	556+40'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 6					
NORMAL CROWN	565+84'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	566+37'E'	-4.00%	-2.00%	.00%	.00%
REVERSE CROWN	566+90'E'	-4.00%	-2.00%	2.00%	2.00%
FULL SUPERELEVATION	567+92'E'	-5.80%	-5.80%	5.80%	5.80%
FULL SUPERELEVATION	576+31'E'	-5.80%	-5.80%	5.80%	5.80%
REVERSE CROWN	577+33'E'	-4.00%	-2.00%	2.00%	2.00%
LEVEL CROWN	577+86'E'	-4.00%	-2.00%	.00%	.00%
NORMAL CROWN	578+39'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 7					
NORMAL CROWN	591+57'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	592+10'E'	.00%	.00%	-2.00%	-4.00%
REVERSE CROWN	592+63'E'	2.00%	2.00%	-2.00%	-4.00%
FULL SUPERELEVATION	593+30'E'	4.50%	4.50%	-4.50%	-4.50%
FULL SUPERELEVATION	606+29'E'	4.50%	4.50%	-4.50%	-4.50%
REVERSE CROWN	606+96'E'	2.00%	2.00%	-2.00%	-4.00%
LEVEL CROWN	607+49'E'	.00%	.00%	-2.00%	-4.00%
NORMAL CROWN	608+02'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 8					
NORMAL CROWN	638+09'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	638+62'E'	.00%	.00%	-2.00%	-4.00%
REVERSE CROWN	639+15'E'	2.00%	2.00%	-2.00%	-4.00%
FULL SUPERELEVATION	639+34'E'	2.70%	2.70%	-2.70%	-4.00%
FULL SUPERELEVATION	647+43'E'	2.70%	2.70%	-2.70%	-4.00%
REVERSE CROWN	647+62'E'	2.00%	2.00%	-2.00%	-4.00%
LEVEL CROWN	648+15'E'	.00%	.00%	-2.00%	-4.00%
NORMAL CROWN	648+68'E'	-4.00%	-2.00%	-2.00%	-4.00%

STH 37 - EAU CLAIRE					
SUPERELEVATION TRANS. EVENT POINTS		RATE			
LOCATION	STATION	LEFT OF CROWNLINE		RIGHT OF CROWNLINE	
		LEFT SHOULDER	LEFT LANE	RIGHT LANE	RIGHT SHOULDER
CURVE 9					
NORMAL CROWN	689+51'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	690+04'E'	.00%	.00%	-2.00%	-4.00%
REVERSE CROWN	690+57'E'	2.00%	2.00%	-2.00%	-4.00%
FULL SUPERELEVATION	691+53'E'	5.60%	5.60%	-5.60%	-5.60%
FULL SUPERELEVATION	701+02'E'	5.60%	5.60%	-5.60%	-5.60%
REVERSE CROWN	701+98'E'	2.00%	2.00%	-2.00%	-4.00%
LEVEL CROWN	702+51'E'	.00%	.00%	-2.00%	-4.00%
NORMAL CROWN	703+04'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 10					
NORMAL CROWN	711+03'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	711+56'E'	-4.00%	-2.00%	.00%	.00%
REVERSE CROWN	712+09'E'	-4.00%	-2.00%	2.00%	2.00%
FULL SUPERELEVATION	712+95'E'	-5.20%	-5.20%	5.20%	5.20%
FULL SUPERELEVATION	725+13'E'	-5.20%	-5.20%	5.20%	5.20%
REVERSE CROWN	725+99'E'	-4.00%	-2.00%	2.00%	2.00%
LEVEL CROWN	726+52'E'	-4.00%	-2.00%	.00%	.00%
NORMAL CROWN	727+05'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 11					
NORMAL CROWN	773+46'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	773+99'E'	.00%	.00%	-2.00%	-4.00%
REVERSE CROWN	774+52'E'	2.00%	2.00%	-2.00%	-4.00%
FULL SUPERELEVATION	775+19'E'	4.50%	4.50%	-4.50%	-4.50%
FULL SUPERELEVATION	807+38'E'	4.50%	4.50%	-4.50%	-4.50%
REVERSE CROWN	808+05'E'	2.00%	2.00%	-2.00%	-4.00%
LEVEL CROWN	808+58'E'	.00%	.00%	-2.00%	-4.00%
NORMAL CROWN	809+11'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 12					
NORMAL CROWN	854+77'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	855+31'E'	-4.00%	-2.00%	.00%	.00%
REVERSE CROWN	855+85'E'	-4.00%	-2.00%	2.00%	2.00%
FULL SUPERELEVATION	856+06'E'	-4.00%	-2.80%	2.80%	2.80%
FULL SUPERELEVATION	862+58'E'	-4.00%	-2.80%	2.80%	2.80%
REVERSE CROWN	862+79'E'	-4.00%	-2.00%	2.00%	2.00%
LEVEL CROWN	863+33'E'	-4.00%	-2.00%	.00%	.00%
NORMAL CROWN	863+87'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 13					
NORMAL CROWN	868+10'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	868+63'E'	.00%	.00%	-2.00%	-4.00%
REVERSE CROWN	869+16'E'	2.00%	2.00%	-2.00%	-4.00%
FULL SUPERELEVATION	869+83'E'	4.50%	4.50%	-4.50%	-4.50%
FULL SUPERELEVATION	875+36'E'	4.50%	4.50%	-4.50%	-4.50%
REVERSE CROWN	876+03'E'	2.00%	2.00%	-2.00%	-4.00%
LEVEL CROWN	876+56'E'	.00%	.00%	-2.00%	-4.00%
NORMAL CROWN	877+09'E'	-4.00%	-2.00%	-2.00%	-4.00%
CURVE 14					
NORMAL CROWN	881+56'E'	-4.00%	-2.00%	-2.00%	-4.00%
LEVEL CROWN	882+09'E'	-4.00%	-2.00%	.00%	.00%
REVERSE CROWN	882+62'E'	-4.00%	-2.00%	2.00%	2.00%
FULL SUPERELEVATION	883+69'E'	-6.00%	-6.00%	6.00%	6.00%
FULL SUPERELEVATION	896+86'E'	-6.00%	-6.00%	6.00%	6.00%
REVERSE CROWN	897+93'E'	-4.00%	-2.00%	2.00%	2.00%
LEVEL CROWN	898+46'E'	-4.00%	-2.00%	.00%	.00%
NORMAL CROWN	898+99'E'	-4.00%	-2.00%	-2.00%	-4.00%

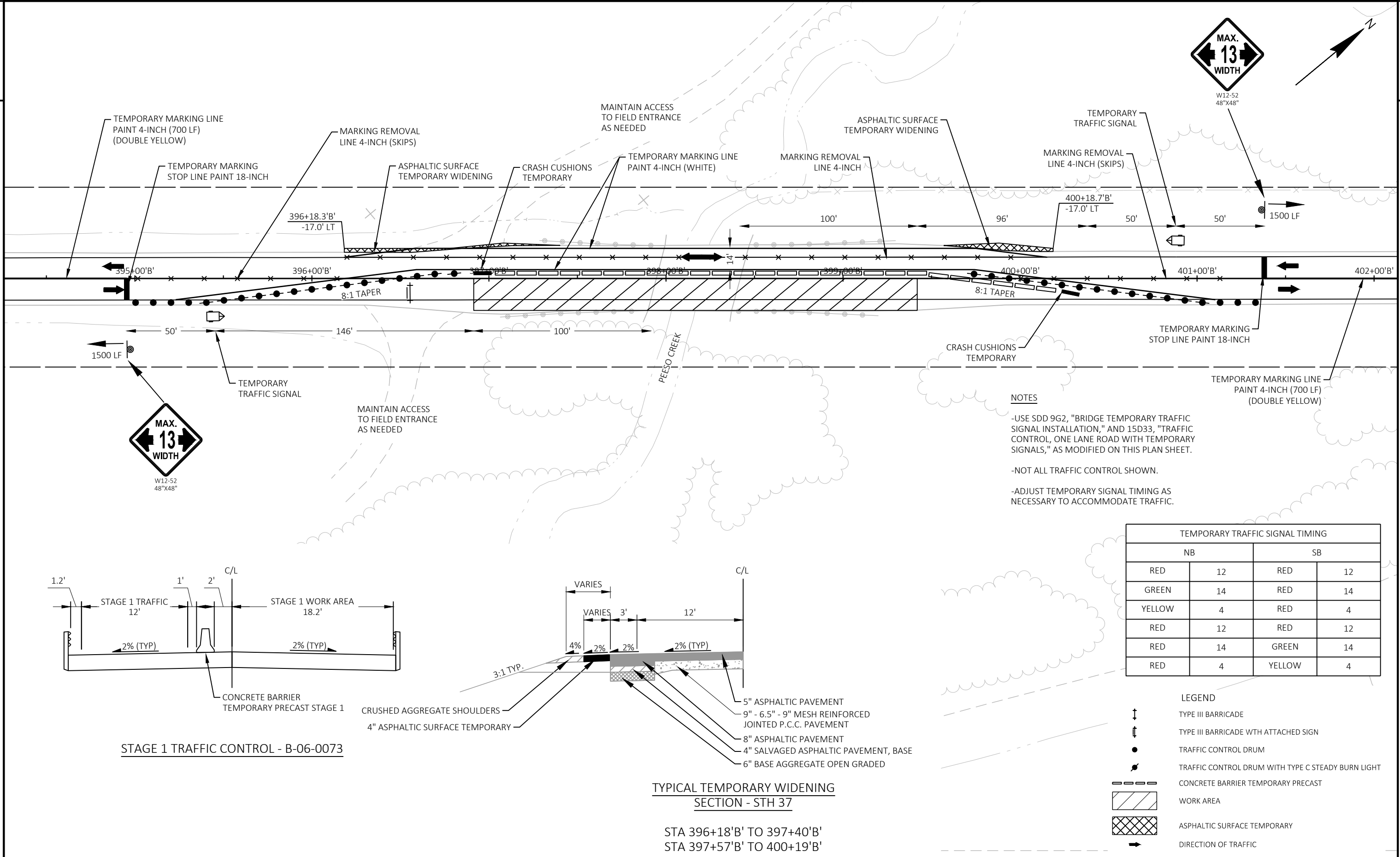


TRAFFIC CONTROL GENERAL NOTES

1. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
2. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
3. ALL TYPE III BARRICADES SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS PER SDDS.
4. PLACE TRAFFIC CONTROL SIGNS AND DRUMS PER SDD "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY" IN AREAS OF CULVERT, CURB & GUTTER, MANHOLE ADJUSTMENT, INLET ADJUSTMENT / RECONSTRUCTION AND GUARDRAIL ADJUSTMENT WORK.
5. PLACE LOW SHOULDER AND UNEVEN LANES SIGNS DURING THE MILLING AND PAVING OPERATIONS. SEE SDD "TRAFFIC FOR DROP-OFF SIGNING" FOR ADDITIONAL INFORMATION.
6. PLACE GROOVED PAVEMENT AND BUMP SIGNS DURING THE MILLING AND PAVING OPERATIONS. SEE SDD "TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES" FOR ADDITIONAL INFORMATION.
7. PLACE G20-57 SIGNS 7 DAYS PRIOR TO CONSTRUCTION AND REMOVE THEM WHEN CONSTRUCTION BEGINS.

LEGEND

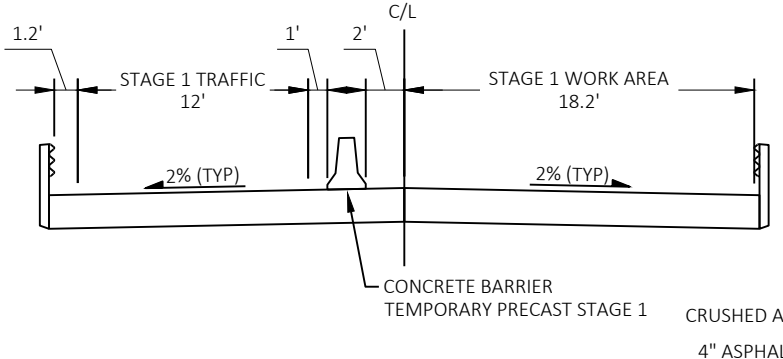
- 1 PLACE TRAFFIC CONTROL SIGNS PER SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC".
- 2 PLACE TRAFFIC CONTROL SIGNS PER "TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL" IN SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC".
- 3 SEE PLAN SHEETS TRAFFIC CONTROL STAGE 1 AND TRAFFIC CONTROL STAGE 2.



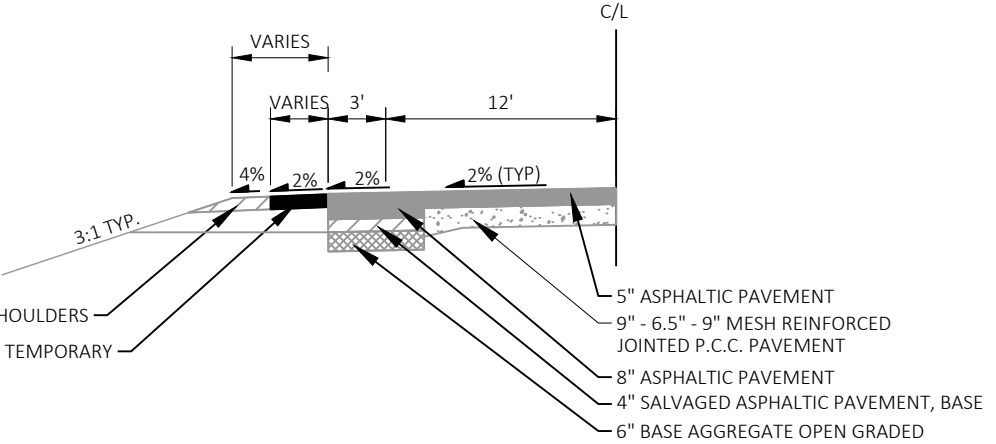
NOTES

- USE SDD 9G2, "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION," AND 15D33, "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS," AS MODIFIED ON THIS PLAN SHEET.
- NOT ALL TRAFFIC CONTROL SHOWN.
- ADJUST TEMPORARY SIGNAL TIMING AS NECESSARY TO ACCOMMODATE TRAFFIC.

TEMPORARY TRAFFIC SIGNAL TIMING				
	NB		SB	
RED	12	RED	12	
GREEN	14	RED	14	
YELLOW	4	RED	4	
RED	12	RED	12	
RED	14	GREEN	14	
RED	4	YELLOW	4	



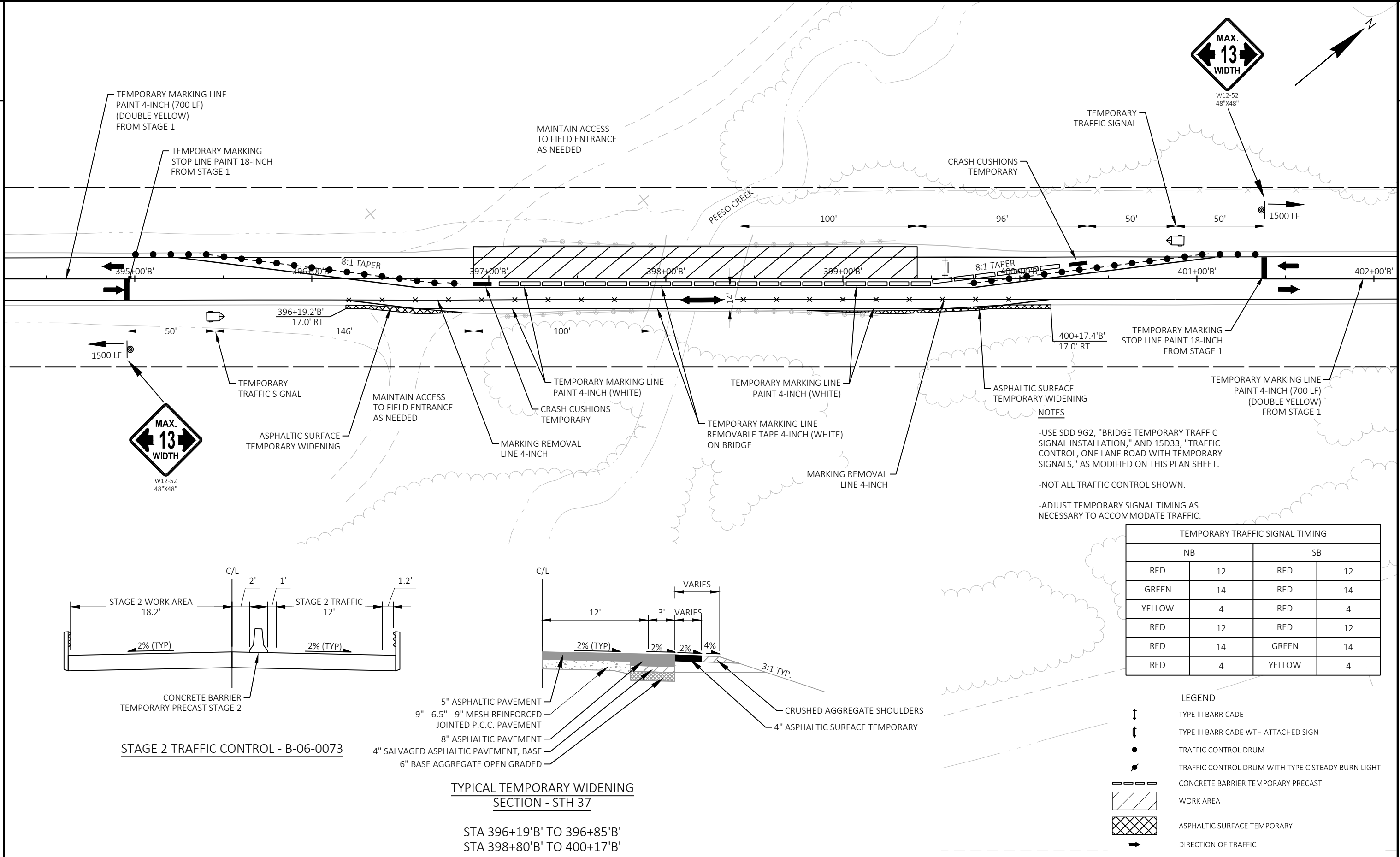
STAGE 1 TRAFFIC CONTROL - B-06-0073



TYPICAL TEMPORARY WIDENING SECTION - STH 37

STA 396+18'B' TO 397+40'B'
STA 397+57'B' TO 400+19'B'

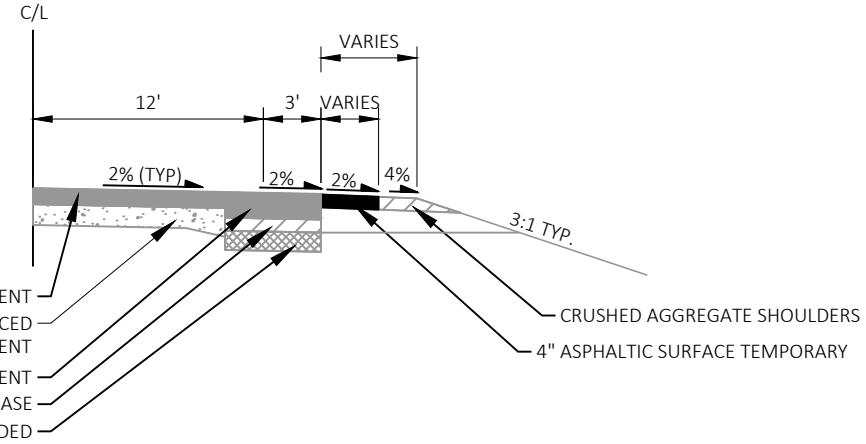
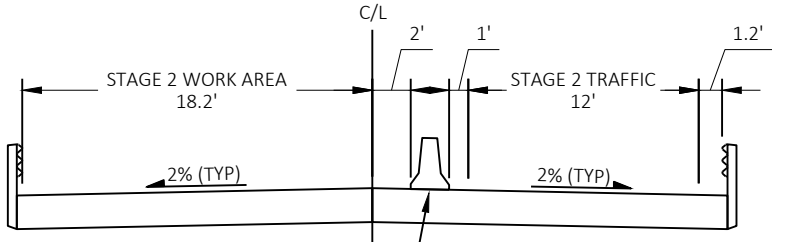
- LEGEND**
- ↑ TYPE III BARRICADE
 - ↑ TYPE III BARRICADE WITH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - ▬ CONCRETE BARRIER TEMPORARY PRECAST
 - ▨ WORK AREA
 - ▩ ASPHALTIC SURFACE TEMPORARY
 - DIRECTION OF TRAFFIC



NOTES

- USE SDD 9G2, "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION," AND 15D33, "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS," AS MODIFIED ON THIS PLAN SHEET.
- NOT ALL TRAFFIC CONTROL SHOWN.
- ADJUST TEMPORARY SIGNAL TIMING AS NECESSARY TO ACCOMMODATE TRAFFIC.

TEMPORARY TRAFFIC SIGNAL TIMING				
	NB		SB	
RED	12	RED	12	
GREEN	14	RED	14	
YELLOW	4	RED	4	
RED	12	RED	12	
RED	14	GREEN	14	
RED	4	YELLOW	4	



TYPICAL TEMPORARY WIDENING SECTION - STH 37

STA 396+19'B' TO 396+85'B'
STA 398+80'B' TO 400+17'B'

- LEGEND**
- ↑ TYPE III BARRICADE
 - ↑ TYPE III BARRICADE WITH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - ▬ CONCRETE BARRIER TEMPORARY PRECAST
 - ▨ WORK AREA
 - ▩ ASPHALTIC SURFACE TEMPORARY
 - DIRECTION OF TRAFFIC

Estimate Of Quantities

7110-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	18.000	18.000
0004	201.0205	Grubbing	STA	18.000	18.000
0006	203.0335	Debris Containment Over Waterway (structure) 01. B-6-73	EACH	1.000	1.000
0008	204.0115	Removing Asphaltic Surface Butt Joints	SY	502.000	502.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	276,710.000	276,710.000
0012	204.0150	Removing Curb & Gutter	LF	207.000	207.000
0014	205.0100	Excavation Common	CY	266.000	266.000
0016	208.0100	Borrow	CY	4,718.000	4,718.000
0018	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 7110-00-70	LS	1.000	1.000
0020	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	1,581.000	1,581.000
0022	213.0100	Finishing Roadway (project) 01. 7110-00-70	EACH	1.000	1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	10,230.000	10,230.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,520.000	1,520.000
0028	310.0110	Base Aggregate Open-Graded	TON	262.000	262.000
0030	455.0605	Tack Coat	GAL	36,865.000	36,865.000
0032	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	2.000
0034	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	2.000	2.000
0036	460.6644	HMA Pavement 4 MT 58-34 V	TON	31,396.000	31,396.000
0038	460.6645	HMA Pavement 5 MT 58-34 V	TON	26,929.000	26,929.000
0040	460.9000.S	Material Transfer Vehicle	EACH	1.000	1.000
0042	465.0125	Asphaltic Surface Temporary	TON	19.000	19.000
0044	465.0315	Asphaltic Flumes	SY	38.000	38.000
0046	465.0425	Asphaltic Shoulder Rumble Strips 2-Lane Rural	LF	131,640.000	131,640.000
0048	465.0450	Asphaltic Intersection Rumble Strips	SY	75.000	75.000
0050	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	66,250.000	66,250.000
0052	509.1500	Concrete Surface Repair	SF	200.000	200.000
0054	516.0600.S	Sheet Membrane Waterproofing	SY	212.000	212.000
0056	520.8700	Cleaning Culvert Pipes	EACH	16.000	16.000
0058	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	82.000	82.000
0060	601.0576	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type J	LF	388.000	388.000
0062	603.8000	Concrete Barrier Temporary Precast Delivered	LF	325.000	325.000
0064	603.8125	Concrete Barrier Temporary Precast Installed	LF	650.000	650.000
0066	606.0200	Riprap Medium	CY	13.000	13.000
0068	614.0905	Crash Cushions Temporary	EACH	4.000	4.000
0070	614.0920	Salvaged Rail	LF	4,141.000	4,141.000
0072	614.2300	MGS Guardrail 3	LF	1,775.000	1,775.000
0074	614.2330	MGS Guardrail 3 K	LF	812.500	812.500
0076	614.2340	MGS Guardrail 3 L	LF	125.000	125.000
0078	614.2350	MGS Guardrail Short Radius	LF	100.000	100.000
0080	614.2500	MGS Thrie Beam Transition	LF	320.000	320.000
0082	614.2610	MGS Guardrail Terminal EAT	EACH	37.000	37.000
0084	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0086	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7110-00-70	EACH	1.000	1.000
0088	619.1000	Mobilization	EACH	1.000	1.000
0090	621.0100	Landmark Reference Monuments	EACH	10.000	10.000
0092	624.0100	Water	MGAL	70.000	70.000
0094	625.0100	Topsoil	SY	500.000	500.000
0096	625.0500	Salvaged Topsoil	SY	23,200.000	23,200.000
0098	627.0200	Mulching	SY	2,960.000	2,960.000

Estimate Of Quantities

7110-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	628.1504	Silt Fence	LF	11,050.000	11,050.000
0102	628.1520	Silt Fence Maintenance	LF	11,050.000	11,050.000
0104	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0106	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0108	628.2004	Erosion Mat Class I Type B	SY	19,640.000	19,640.000
0110	628.2008	Erosion Mat Urban Class I Type B	SY	600.000	600.000
0112	629.0210	Fertilizer Type B	CWT	16.800	16.800
0114	630.0120	Seeding Mixture No. 20	LB	649.000	649.000
0116	630.0500	Seed Water	MGAL	541.000	541.000
0118	633.5200	Markers Culvert End	EACH	24.000	24.000
0120	638.2102	Moving Signs Type II	EACH	21.000	21.000
0122	638.4000	Moving Small Sign Supports	EACH	21.000	21.000
0124	642.5001	Field Office Type B	EACH	1.000	1.000
0126	643.0300	Traffic Control Drums	DAY	3,822.000	3,822.000
0128	643.0420	Traffic Control Barricades Type III	DAY	42.000	42.000
0130	643.0705	Traffic Control Warning Lights Type A	DAY	84.000	84.000
0132	643.0715	Traffic Control Warning Lights Type C	DAY	1,218.000	1,218.000
0134	643.0900	Traffic Control Signs	DAY	3,074.000	3,074.000
0136	643.5000	Traffic Control	EACH	1.000	1.000
0138	645.0120	Geotextile Type HR	SY	26.000	26.000
0140	646.1020	Marking Line Epoxy 4-Inch	LF	100,650.000	100,650.000
0142	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	157,025.000	157,025.000
0144	646.3040	Marking Line Grooved Wet Ref Epoxy 8-Inch	LF	3,549.000	3,549.000
0146	646.9000	Marking Removal Line 4-Inch	LF	825.000	825.000
0148	648.0100	Locating No-Passing Zones	MI	15.200	15.200
0150	649.0105	Temporary Marking Line Paint 4-Inch	LF	201,785.000	201,785.000
0152	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	100,650.000	100,650.000
0154	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	100.000	100.000
0156	649.0805	Temporary Marking Stop Line Paint 18-Inch	LF	24.000	24.000
0158	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	470.000	470.000
0160	650.8000	Construction Staking Resurfacing Reference	LF	80,250.000	80,250.000
0162	650.9910	Construction Staking Supplemental Control (project) 01. 7110-00-70	LS	1.000	1.000
0164	650.9920	Construction Staking Slope Stakes	LF	4,686.000	4,686.000
0166	661.0100	Temporary Traffic Signals for Bridges (structure) 01. B-06-0073	LS	1.000	1.000
0168	690.0150	Sawing Asphalt	LF	163.000	163.000
0170	690.0250	Sawing Concrete	LF	2.500	2.500
0172	740.0440	Incentive IRI Ride	DOL	60,680.000	60,680.000
0174	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,000.000	2,000.000
0176	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,600.000	1,600.000
0178	SPV.0055	Special 01. HMA Pavement PWL QMP, Core Pilot Project; Incentive Density PWL HMA Pavement	DOL	38,890.000	38,890.000
0180	SPV.0055	Special 02. HMA Pavement PWL QMP, Core Pilot Project; Incentive Air Voids HMA Pavement	DOL	58,325.000	58,325.000
0182	SPV.0055	Special 03. Core Pilot Project; Incentive Density HMA Pavement Longitudinal Joints	DOL	32,040.000	32,040.000
0184	SPV.0165	Special 01. Fiber Wrap Reinforcing Non-Structural	SF	290.000	290.000
0186	SPV.0180	Special 01. Ditch Cleaning	SY	5,675.000	5,675.000
0188	SPV.0180	Special 02. Asphalt Base Patch Partial Depth	SY	4,408.000	4,408.000

CATEGORY	STATION	TO	STATION	LOCATION	201.0105	201.0205
					CLEARING STA	GRUBBING STA
0010	490+00'E'	-	494+00'E'	LT	4	4
0010	546+00'E'	-	549+00'E'	LT	3	3
0010	562+00'E'	-	565+00'E'	LT	3	3
0010	862+00'E'	-	865+00'E'	RT	3	3
0010	982+00'E'	-	987+00'E'	LT & RT	5	5
TOTAL 0010					18	18

CATEGORY	STATION	TO	STATION	LOCATION	204.0120	REMARKS
					REMOVING ASPHALTIC SURFACE MILLING SY	
0010	302+60'B'	-	364+14'B'	ML	22,960	ML
0010	312+15'B'			LT	140	OAK ST
0010	333+66'B'			LT	300	WASHINGTON ST
0010	365+08'B'	-	397+85'B'	ML	10,960	ML
0010	398+52'B'	-	420+22'B'	ML	7,590	ML
0010	420+22'B'	-	508+58'E'	ML	30,260	ML
0010	509+47'E'	-	1104+90'E'	ML	203,530	ML
0010	523+40'E'			RT	590	HOYTS CREEK RD
0010	890+80'E'			RT	380	CTH HH
TOTAL 0010					276,710	

CATEGORY	STATION	TO	STATION	LOCATION	204.0115	REMARKS
					REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	
0010	302+50'B'	-	302+60'B'	ML	46	ML
0010	312+15'B'			LT	36	OAK ST
0010	333+66'B'			LT	37	WASHINGTON ST
0010	364+14'B'	-	364+24'B'	ML	47	ML
0010	364+98'B'	-	365+08'B'	ML	47	ML
0010	397+85'B'	-	397+95'B'	ML	42	ML
0010	398+42'B'	-	398+52'B'	ML	42	ML
0010	508+85'E'	-	508+95'E'	ML	54	ML
0010	509+37'E'	-	509+47'E'	ML	54	ML
0010	11+50			RT	27	HOYTS CREEK RD
0010	890+80'E'			RT	32	CTH HH
0010	1104+90'E'	-	1105+00'E'	ML	38	ML
TOTAL 0010					502	

CATEGORY	STATION	TO	STATION	LOCATION	204.0150	REMARKS
					REMOVING CURB & GUTTER LF	
0010	312+30'B'	-	312+57'B'	LT	49	OAK ST
0010	331+82'B'	-	334+51'B'	LT	90	WASHINGTON ST
0010	522+74'E'	-	523+20'E'	RT	68	HOYTS CREEK RD
TOTAL 0010					207	

CATEGORY	STATION	TO	STATION	LOCATION	211.0400	REMARKS
					PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	
0030	313+00'B'	-	1105+00'E'	RT	792	
0030	316+00'B'	-	1105+00'E'	LT	789	
TOTAL 0010					1,581	

CATEGORY	STATION	TO	STATION	LOCATION	211.0100.01	REMARKS
					PREPARE FOUNDATION FOR ASPHALTIC PAVING (PROJECT) (01. 7110-00-70) LS	
0010					1	
TOTAL 0010					1	

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW (16)
			CUT (2)			FACTOR 1.25			
DIVISION 1 (CAT 0040)									
OAK ST TURN LANE	312+59.546/316+00	LT	115	115	60	75	40	40	0
DIVISION 1 SUBTOTAL			115	115	60	75	40	40	0
DIVISION 2 (CAT 0040)									
WASHINGTON ST TURN LANE	334+41.506/337+43.222	LT	148	148	80	100	48	48	0
DIVISION 2 SUBTOTAL			148	148	80	100	48	48	0
DIVISION 3									
GUARDRAIL WIDENING	395+55.703/400+50	LT & RT	2	2	99	124	-122	0	122
DIVISION 3 SUBTOTAL			2	2	99	124	-122	0	122
DIVISION 4									
GUARDRAIL WIDENING	506+23.229/512+21.513	LT & RT	0	0	464	580	-580	0	580
DIVISION 4 SUBTOTAL			0	0	464	580	-580	0	580
DIVISION 5									
GUARDRAIL WIDENING	520+03.328/525+33.876	LT & RT	0	0	629	786	-786	0	786
DIVISION 5 SUBTOTAL			0	0	629	786	-786	0	786
DIVISION 6									
GUARDRAIL WIDENING	544+87.619/549+62.274	LT & RT	0	0	272	340	-340	0	340
DIVISION 6 SUBTOTAL			0	0	272	340	-340	0	340
DIVISION 7									
GUARDRAIL WIDENING	550+37.37/555+42.516	LT & RT	0	0	258	323	-323	0	323
DIVISION 7 SUBTOTAL			0	0	258	323	-323	0	323
DIVISION 8									
GUARDRAIL WIDENING	561+41.365/565+53.576	LT & RT	0	0	51	64	-64	0	64
DIVISION 8 SUBTOTAL			0	0	51	64	-64	0	64
DIVISION 9									
GUARDRAIL WIDENING	671+23.232/675+95.94	LT & RT	1	1	160	200	-199	0	199
DIVISION 9 SUBTOTAL			1	1	160	200	-199	0	199
DIVISION 10									
GUARDRAIL WIDENING	695+81.879/706+27.009	LT	0	0	31	39	-39	0	39
DIVISION 10 SUBTOTAL			0	0	31	39	-39	0	39
DIVISION 11									
GUARDRAIL WIDENING	783+33.553/787+66.764	LT & RT	0	0	150	188	-188	0	188
DIVISION 11 SUBTOTAL			0	0	150	188	-188	0	188
DIVISION 12									
GUARDRAIL WIDENING	982+75.802/987+90.705	LT & RT	0	0	1,663	2,079	-2,079	0	2,079
DIVISION 12 SUBTOTAL			0	0	1,663	2,079	-2,079	0	2,079
GRAND TOTAL			266	266	3,917	4,896	-4,630	88	4,718
TOTAL COMMON EXC			266						
				TOTAL 0010	3			TOTAL 0010	4,718
				TOTAL 0040	263			TOTAL 0040	0
NOTES:									
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100									
(2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.									
(5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL									
(16) EXCESS SHOULDER MATERIAL MAY BE USED AS BORROW IF FOUND SUITABLE BY THE ENGINEER. THIS QUANTITY NOT FACTORED INTO EARTHWORK TABLE.									

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305.0110 BASE AGGREGATE DENSE 3/4-INCH					
CATEGORY	STATION	TO	STATION	LOCATION	REMARKS
0010	302+50'B'	-	364+24'B'	RT	BOP TO B-06-0885
0010	302+50'B'	-	364+24'B'	LT	BOP TO B-06-0885
0010	364+98'B'	-	397+95'B'	RT	B-06-0885 TO B-06-0073
0010	364+98'B'	-	397+95'B'	LI	B-06-0885 TO B-06-0073
0010	398+42'B'	-	420+22'B'	RI	B-06-0073 TO COUNTY LINE
0010	398+42'B'	-	420+22'B'	LT	B-06-0073 TO COUNTY LINE
0010	420+22'E'	-	508+95'E'	RT	COUNTY LINE TO B-18-0153
0010	420+22'E'	-	508+95'E'	LT	COUNTY LINE TO B-18-0153
0010	509+37'E'	-	616+00'E'	RT	B-18-0153 TO OLD TOWN RD
0010	509+37'E'	-	616+00'E'	LT	B-18-0153 TO OLD TOWN RD
0010	616+00'E'	-	778+50'E'	RT	OLD TOWN RD TO HEMLOCK RD
0010	616+00'E'	-	778+50'E'	LI	OLD TOWN RD TO HEMLOCK RD
0010	778+50'E'	-	938+00'E'	RI	HEMLOCK RD TO LANGDELL RD
0010	778+50'E'	-	938+00'E'	LT	HEMLOCK RD TO LANGDELL RD
0010	938+00'E'	-	1017+50'E'	RT	LANGDELL RD TO CTH Z
0010	938+00'E'	-	1017+50'E'	LT	LANGDELL RD TO CTH Z
0010	1017+50'E'	-	1105+00'E'	RT	CTH Z TO EOP
0010	1017+50'E'	-	1105+00'E'	LT	CTH Z TO EOP
TOTAL 0010					10,730

305.0120 BASE AGGREGATE DENSE 1 1/4-INCH					
CATEGORY	STATION	TO	STATION	LOCATION	REMARKS
0010	395+55'B'	-	400+50'B'	ML	GUARDRAIL WIDENING
0010	506+23'E'	-	512+22'E'	MI	GUARDRAIL WIDENING
0010	520+02'E'	-	525+34'E'	MI	GUARDRAIL WIDENING
0010	544+87'E'	-	549+62'E'	ML	GUARDRAIL WIDENING
0010	550+36'E'	-	555+43'E'	ML	GUARDRAIL WIDENING
0010	561+41'E'	-	565+50'E'	ML	GUARDRAIL WIDENING
0010	671+23'E'	-	675+96'E'	ML	GUARDRAIL WIDENING
0010	695+82'E'	-	706+27'E'	ML	GUARDRAIL WIDENING
0010	783+34'E'	-	787+67'E'	ML	GUARDRAIL WIDENING
0010	982+76'E'	-	987+91'E'	ML	GUARDRAIL WIDENING
TOTAL 0010					1,040
0040	312+15'B'	-	316+00'B'	LT	OAK ST TURN LANE
0040	333+66'B'	-	337+43'B'	LT	WASHINGTON ST TURN LANE
TOTAL 0040					480
PROJECT TOTAL					1520

310.0110 BASE AGGREGATE OPEN-GRADED					
CATEGORY	STATION	TO	STATION	LOCATION	REMARKS
0040	314+00'B'	-	316+00'B'	LT	OAK ST TURN LANE
0040	334+42'B'	-	337+43'B'	LT	WASHINGTON ST TURN LANE
TOTAL 0040					262

CATEGORY	STATION	TO	STATION	LOCATION	TACK COAT			REMARKS
					GAL	TON	TON	
0010	302+50'B'	-	364+24'B'	MI	2,815	2,300	1,970	BOP TO B-06-0885
0010	364+98'B'	-	397+95'B'	ML	1,345	1,100	940	B-06-0885 TO B-06-0073
0010	398+42'B'	-	420+22'B'	ML	925	750	650	B-06-0073 TO COUNTY LINE
0010	420+22'E'	-	508+95'E'	ML	3,725	3,040	2,610	COUNTY LINE TO B-18-0153
0010	509+37'E'	-	616+00'E'	ML	4,435	3,630	3,110	B-18-0153 TO OLD TOWN RD
0010	523+50'E'	-		RT	85	70	60	HOYTS CREEK RD
0010	616+00'E'	-	778+50'E'	ML	5,995	5,720	4,900	OLD TOWN RD TO HEMLOCK RD
0010	778+50'E'	-	938+00'E'	ML	6,975	5,700	4,890	HEMLOCK RD TO LANGDELL RD
0010	890+80'E'	-		RT	50	50	40	CTH HH
0010	938+00'E'	-	1017+50'E'	ML	3,360	2,750	2,360	LANGDELL RD TO CTH Z
0010	1017+50'E'	-	1105+00'E'	ML	3,970	3,240	2,780	CTH Z TO EOP
TOTAL 0010					34,680	28,360	24,310	
0020	397+95'B'	-	398+42'B'	ML	15		24	B-06-0073 OVERLAY
TOTAL 0020					15	0	24	

0030	302+50'B'	-	364+24'B'	RT	55	80	65	BOP TO B-06-0885
0030	302+50'B'	-	364+24'B'	LT	50	70	60	BOP TO B-06-0885
0030	364+98'B'	-	397+95'B'	RT	50	70	60	B-06-0885 TO B-06-0073
0030	364+98'B'	-	397+95'B'	LT	50	70	60	B-06-0885 TO B-06-0073
0030	398+42'B'	-	420+22'B'	RT	30	40	35	B-06-0073 TO COUNTY LINE
0030	398+42'B'	-	420+22'B'	LT	30	40	35	B-06-0073 TO COUNTY LINE
0030	420+22'E'	-	508+95'E'	RT	130	185	155	COUNTY LINE TO B-18-0153
0030	420+22'E'	-	508+95'E'	LT	125	175	150	COUNTY LINE TO B-18-0153
0030	509+37'E'	-	616+00'E'	RT	145	200	170	B-18-0153 TO OLD TOWN RD
0030	509+37'E'	-	616+00'E'	LT	145	205	175	B-18-0153 TO OLD TOWN RD
0030	616+00'E'	-	778+50'E'	RT	220	310	265	OLD TOWN RD TO HEMLOCK RD
0030	616+00'E'	-	778+50'E'	LT	205	290	245	OLD TOWN RD TO HEMLOCK RD
0030	778+50'E'	-	938+00'E'	RT	205	285	245	HEMLOCK RD TO LANGDELL RD
0030	778+50'E'	-	938+00'E'	LI	215	300	255	HEMLOCK RD TO LANGDELL RD
0030	938+00'E'	-	1017+50'E'	RI	115	155	135	LANGDELL RD TO CTH Z
0030	938+00'E'	-	1017+50'E'	LT	105	150	130	LANGDELL RD TO CTH Z
0030	1017+50'E'	-	1105+00'E'	RT	115	160	140	CTH Z TO EOP
0030	1017+50'E'	-	1105+00'E'	LT	100	140	120	CTH Z TO EOP
TOTAL 0030					2,090	2,925	2,500	

0040	312+15'B'	-	316+00'B'	LT	34	47	40	OAK ST TURN LANE
0040	333+66'B'	-	337+43'B'	LT	46	64	55	WASHINGTON ST TURN LANE
TOTAL 0040					80	111	95	
PROJECT TOTAL					35865	31396	26929	

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PWL MIXTURE USE TABLE								
THE FOLLOWING ACCEPTANCE CRITERIA ARE APPLICABLE TO THIS PROJECT:								
LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
12 FOOT DRIVING LANE	302+50'B' TO 1105+00'E'	UPPER LAYER	4 MT 58-34 V	5 MT 58-34 V	17950	1.5-INCHES	INCENTIVE AIR VOIDS HMA PAVEMENT SPV.0055.02	INCENTIVE DENSITY PWL HMA PAVEMENT SPV.0055.01
12 FOOT DRIVING LANE	302+50'B' TO 1105+00'E'	LOWER LAYER	MILLED SURFACE	4 MT 58-34 V	20940	1.75-INCHES		
PAVED SHOULDERS & AUX LANES	302+50'B' TO 1105+00'E'	UPPER LAYER	4 MT 58-34 V	5 MT 58-34 V	8884	1.5-INCHES		
PAVED SHOULDERS & AUX LANES	302+50'B' TO 1105+00'E'	LOWER LAYER	MILLED SURFACE	4 MT 58-34 V	10345	1.75-INCHES		
SIDE ROADS	VARIOUS	UPPER LAYER	4 MT 58-34 V	5 MT 58-34 V	95	1.5-INCHES		
SIDE ROADS	VARIOUS	LOWER LAYER	MILLED SURFACE	4 MT 58-34 V	111	1.75-INCHES		

CATEGORY	LOCATION	460.0105.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS EACH	460.0110.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY EACH
0010	PROJECT	2	2
TOTAL 0010		2	2

CATEGORY	LOCATION	460.9000.S MATERIAL TRANSFER VEHICLE LS
0010	PROJECT	1
TOTAL 0010		1

CATEGORY	STATION TO	STATION	LOCATION	465.0125 ASPHALTIC SURFACE TEMPORARY TON	REMARKS
0010	396+18'B' -	397+40'B'	LT	5	B-06-0073 STAGE 1
0010	399+57'B' -	400+19'B'	LT	4	B-06-0073 STAGE 1
0010	396+19'B' -	396+85'B'	RT	4	B-06-0073 STAGE 2
0010	398+80'B' -	400+17'B'	RT	6	B-06-0073 STAGE 2
TOTAL 0010				19	

CATEGORY	STATION	LOCATION	465.0315 ASPHALTIC FLUMES SY	CATEGORY	STATION TO	STATION	LOCATION	465.0425 ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL LF	465.0450 ASPHALTIC INTERSECTION RUMBLE STRIPS SY	465.0475 ASPHALT CENTERLINE RUMBLE STRIPS 2-LANE RURAL LF	REMARKS
0010	717+75'E'	LT	12	0010	303+00'B' -	303+25'B'	LT	-	25	-	SB LANE
0010	864+58'E'	LT	9	0010	304+25'B' -	304+50'B'	LT	-	25	-	SB LANE
0010	938+01'E'	RT	10	0010	308+25'B' -	308+50'B'	LT	-	25	-	SB LANE
0010	939+00'E'	LT	7	0010	334+50'B' -	1105+00'E'	CL	-	-	66,250	-
TOTAL 0010			38	TOTAL 0010				0	75	66,250	
				0030	334+50'B' -	1105+00'E'	LT	65,820	-	-	TYPE 1
				0030	334+50'B' -	1105+00'E'	RT	65,820	-	-	TYPE 1
TOTAL 0030				TOTAL 0030				131,640	0	0	
PROJECT TOTAL				PROJECT TOTAL				131640	75	66250	

CATEGORY	STATION	LOCATION	520.8700 CLEANING CULVERT PIPES EACH	REMARKS
0010	457+49'E'	ML	1	45 LF 24-INCH CPCS
0010	483+51'E'	ML	1	50 LF 24" CPCS LINED
0010	563+77'E'	ML	1	60 LF 3.5' X 4' BOX
0010	573+20'E'	ML	1	60 LF 24-INCH CPCS
0010	614+54'E'	MI	1	60 LF 24-INCH CPCS LINED
0010	649+07'E'	MI	1	50 LF 18-INCH CPCS LINED
0010	688+87'E'	ML	1	60 LF 24 INCH CPCS LINED
0010	721+13'E'	ML	1	60 LF 24 INCH CPCS LINED
0010	805+67'E'	ML	1	60 LF 24 INCH CPCS LINED
0010	810+75'E'	ML	1	50 LF 24-INCH CPCS LINED
0010	823+92'E'	ML	1	70 LF 3.5' X 6' BOX
0010	835+81'E'	ML	1	50 LF 24-INCH CPCS LINED
0010	850+95'E'	ML	1	60 LF 3.5' X 6' BOX
0010	945+74'E'	ML	1	60 LF 24-INCH CPCS LINED
0010	992+86'E'	ML	1	60 LF 24-INCH CPCS LINED
0010	998+46'E'	ML	1	60 LF 18-INCH CPCS LINED
TOTAL 0010			16	

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CATEGORY	STATION TO	STATION	LOCATION	614.0920 SALVAGED RAIL LF
0010	397+06'B' -	397+90'B'	RT	84
0010	397+29'B' -	398+00'B'	IT	71
0010	398+37'B' -	399+20'B'	RT	83
0010	398+47'B' -	399+30'B'	LI	83
0010	507+90'E' -	508+95'E'	LI	105
0010	508+13'E' -	508+95'E'	RT	82
0010	509+37'E' -	510+16'E'	LT	79
0010	509+37'E' -	510+43'E'	RT	108
0010	521+45'E' -	522+85'E'	RT	141
0010	522+23'E' -	523+65'E'	LT	141
0010	545+90'E' -	548+18'E'	RT	229
0010	546+15'E' -	548+45'E'	LT	229
0010	551+31'E' -	553+58'E'	RT	228
0010	551+92'E' -	554+20'E'	LT	227
0010	563+18'E' -	564+19'E'	LT	102
0010	563+25'E' -	564+28'E'	RT	103
0010	672+41'E' -	674+30'E'	RT	190
0010	672+89'E' -	674+76'E'	LI	188
0010	696+81'E' -	705+15'E'	LI	840
0010	784+75'E' -	786+64'E'	RT	188
0010	784+80'E' -	786+67'E'	LT	188
0010	983+97'E' -	986+21'E'	RT	226
0010	984+41'E' -	986+67'E'	LT	226
TOTAL 0010				4,141

CATEGORY	STATION TO	STATION	LOCATION	601.0557 CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D LF	601.0576 CONCRETE CURB & GUTTER 4-INCH SLOPED 30-INCH TYPE J LF	REMARKS
0040	312+30'B' -	316+00'B'	LT	-	388	OAK ST TURN LANE
0040	333+82'B' -	334+42'B'	LT	82	-	WASHINGTON ST TURN LANE
TOTAL 0040				82	388	

CATEGORY	STATION	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
0010	424+19'E'	RT	7	14
0010	717+75'E'	LT	2	4
0010	938+01'E'	RT	2	4
0010	939+00'E'	LT	2	4
TOTAL 0010			13	26

CATEGORY	STATION TO	STATION	LOCATION	614.0905 CRASH CUSHIONS TEMPORARY EACH	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS	REMARKS
0010	496+91'B' -	400+38'B'	ML	2	OM-3R AND OM-3L	TL-3	BIDIRECTIONAL	L AND R	TEMPORARY BARRIER	B-06-0073 STAGE 1
0010	496+91'B' -	400+38'B'	ML	2	OM-3R AND OM-3L	TL-3	BIDIRECTIONAL	L AND R	TEMPORARY BARRIER	B-06-0073 STAGE 2
TOTAL 0010				4						

CATEGORY	STATION TO	STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2330 MGS GUARDRAIL 3 K LF	614.2340 MGS GUARDRAIL 3 L LF	614.2350 MGS GUARDRAIL SHORT RADIUS LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2630 MGS GUARDRAIL SHORT RADIUS TERMINAL EACH
0010	396+61'B' -	397+90'B'	RT	37.5	-	-	-	40	1	-
0010	397+08'B' -	398+00'B'	LT	-	-	-	-	40	1	-
0010	398+37'B' -	399+28'B'	RT	-	-	-	-	40	1	-
0010	398+47'B' -	399+88'B'	LT	50.0	-	-	-	40	1	-
0010	508+04'E' -	508+95'E'	LT	-	-	-	-	40	1	-
0010	508+05'E' -	508+95'E'	RT	-	-	-	-	40	1	-
0010	509+37'E' -	510+40'E'	LT	12.5	-	-	-	40	1	-
0010	509+37'E' -	510+39'E'	RT	12.5	-	-	-	40	1	-
0010	520+90'E' -	522+86'E'	RT	25.0	-	125.0	87.5	-	2	-
0010	521+73'E' -	524+43'E'	LT	162.5	-	-	-	-	2	-
0010	545+78'E' -	548+21'E'	RT	137.5	-	-	-	-	2	-
0010	546+15'E' -	548+72'E'	LT	150.0	-	-	-	-	2	-
0010	551+28'E' -	553+58'E'	RT	125.0	-	-	-	-	2	-
0010	551+95'E' -	554+52'E'	LT	150.0	-	-	-	-	2	-
0010	562+32'E' -	564+63'E'	RT	125.0	-	-	-	-	2	-
0010	563+01'E' -	564+29'E'	LT	-	50.0	-	12.5	-	1	1
0010	672+14'E' -	674+45'E'	RT	125.0	-	-	-	-	2	-
0010	672+74'E' -	675+05'E'	LT	125.0	-	-	-	-	2	-
0010	696+72'E' -	705+37'E'	LT	-	762.5	-	-	-	2	-
0010	784+25'E' -	786+70'E'	RT	137.5	-	-	-	-	2	-
0010	784+72'E' -	786+77'E'	LT	100.0	-	-	-	-	2	-
0010	983+66'E' -	986+23'E'	RT	150.0	-	-	-	-	2	-
0010	984+44'E' -	987+00'E'	LT	150.0	-	-	-	-	2	-
TOTAL 0010				1,775.0	812.5	125.0	100.0	320	37	1

CATEGORY	STATION TO	STATION	LOCATION	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	REMARKS
0010	396+91'B' -	400+38'B'	ML	325	325	B-06-0073 STAGE 1
0010	396+91'B' -	400+38'B'	ML	-	325	B-06-0073 STAGE 2
TOTAL 0010				325	650	

CATEGORY	LOCATION	621.0100 LANDMARK REFERENCE MONUMENTS EACH
0010	PROJECT	10
TOTAL 0010		10

CATEGORY	LOCATION	624.0100 WATER MGAL	REMARKS
0010	PROJECT	70	COMPACTION & DUST CONTROL
TOTAL 0010		70	

CATEGORY	STATION	TO	STATION	LOCATION	625.0100	625.0500	627.0200	628.1504	628.1520	628.2004	628.2008	629.0210	630.0120	630.0500	REMARKS
					TOPSOIL SY	SALVAGED TOPSOIL SY	MULCHING SY	SILT FENCE LF	SILT FENCE MAINTENANCE LF	EROSION MAT CLASS I TYPE B SY	EROSION MAT URBAN CLASS I TYPE B SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 20 LB	SEED WATER MGAL	
0010	396+75'B'	-	397+95'B'	RT	-	45	-	120	120	-	45	0.1	2	2	GUARDRAIL
0010	397+18'B'	-	397+95'B'	LT	-	30	-	80	80	-	30	0.1	1	1	GUARDRAIL
0010	398+42'B'	-	400+65'B'	RT	-	160	-	240	240	-	160	0.1	5	4	GUARDRAIL
0010	398+42'B'	-	400+65'B'	LT	-	245	-	230	230	-	245	0.2	7	6	GUARDRAIL
0010	418+75'B'	-	419+50'B'	RT	-	85	-	-	-	85	-	0.1	3	2	DITCH CLEANING
0010	420+22'E'	-	421+22'E'	RT	-	115	-	-	-	115	-	0.1	0	3	DITCH CLEANING
0010	480+00'E'	-	482+00'E'	RT	-	230	-	-	-	230	-	0.2	7	6	DITCH CLEANING
0010	489+00'E'	-	501+00'E'	RT	-	1,310	-	-	-	1,310	-	0.9	36	30	DITCH CLEANING
0010	506+15'E'	-	508+95'E'	RT	-	400	-	290	290	400	-	0.3	11	9	GUARDRAIL
0010	506+15'E'	-	508+95'E'	LT	-	350	-	290	290	350	-	0.3	10	8	GUARDRAIL
0010	509+37'E'	-	512+20'E'	RT	-	485	-	300	300	485	-	0.4	14	11	GUARDRAIL
0010	509+37'E'	-	512+20'E'	LT	-	505	-	300	300	505	-	0.4	14	12	GUARDRAIL
0010	520+00'E'	-	522+86'E'	RT	-	720	-	450	450	720	-	0.5	20	17	GUARDRAIL
0010	520+75'E'	-	525+34	LT	-	515	-	500	500	515	-	0.4	14	12	GUARDRAIL
0010	544+50'E'	-	549+60'E'	RT	-	435	-	530	530	435	-	0.3	12	10	GUARDRAIL
0010	544+50'E'	-	545+75'E'	LT	-	165	-	110	110	165	-	0.1	5	4	GUARDRAIL
0010	545+92'E'	-	548+50'E'	LT	-	445	-	420	420	445	-	0.3	13	10	GUARDRAIL
0010	550+30'E'	-	555+50'E'	RT	-	380	-	530	530	380	-	0.3	11	9	GUARDRAIL
0010	551+00'E'	-	555+75'E'	LT	-	655	-	500	500	655	-	0.5	18	15	GUARDRAIL
0010	562+00'E'	-	564+25'E'	LT	-	420	-	270	270	420	-	0.3	12	10	GUARDRAIL
0010	585+00'E'	-	587+00'E'	RT	-	225	-	-	-	225	-	0.2	7	6	DITCH CLEANING
0010	585+50'E'	-	587+50'E'	LT	-	190	-	-	-	190	-	0.2	6	5	DITCH CLEANING
0010	601+00'E'	-	608+50'E'	RT	-	830	-	-	-	830	-	0.6	23	19	DITCH CLEANING
0010	625+00'E'	-	627+00'E'	RT	-	225	-	-	-	225	-	0.2	7	6	DITCH CLEANING
0010	671+00'E'	-	675+00'E'	RT	-	375	-	420	420	375	-	0.3	11	9	GUARDRAIL
0010	671+00'E'	-	676+00'E'	LT	-	600	-	540	540	600	-	0.4	17	14	GUARDRAIL
0010	695+50'E'	-	697+25'E'	LT	-	135	-	190	190	135	-	0.1	4	4	GUARDRAIL
0010	705+00'E'	-	709+00'E'	RT	-	445	-	-	-	445	-	0.3	13	10	DITCH CLEANING
0010	705+00'E'	-	709+00'E'	LT	-	445	-	-	-	445	-	0.3	13	10	DITCH CLEANING
0010	783+25'E'	-	787+75'E'	LT	-	635	-	510	510	635	-	0.4	18	15	GUARDRAIL
0010	785+50'E'	-	787+00'E'	RT	-	35	-	150	150	35	-	0.1	1	1	GUARDRAIL
0010	823+50'E'	-	824+50'E'	LT	-	115	-	-	-	115	-	0.1	4	3	DITCH CLEANING
0010	823+50'E'	-	824+50'E'	RT	-	115	-	-	-	115	-	0.1	4	3	DITCH CLEANING
0010	861+00'E'	-	865+00'E'	RT	-	440	-	-	-	440	-	0.3	12	10	DITCH CLEANING
0010	887+50'E'	-	888+50'E'	LT	-	110	-	-	-	110	-	0.1	3	3	DITCH CLEANING
0010	887+50'E'	-	888+50'E'	RT	-	120	-	-	-	120	-	0.1	4	3	DITCH CLEANING
0010	936+00'E'	-	938+00'E'	RT	-	255	-	-	-	255	-	0.2	7	6	DITCH CLEANING
0010	938+25'E'	-	940+00'E'	RT	-	225	-	-	-	225	-	0.2	7	6	DITCH CLEANING
0010	938+25'E'	-	940+00'E'	LT	-	195	-	-	-	195	-	0.2	6	5	DITCH CLEANING
0010	982+50'E'	-	988+00'E'	RT	-	1,490	-	610	610	1,490	-	1.0	41	34	GUARDRAIL
0010	982+50'E'	-	988+00'E'	LT	-	1,290	-	600	600	1,290	-	0.9	35	29	GUARDRAIL
UNDISTRIBUTED					500	6,050	2,000	2,050	2,050	3,930	120	3.9	164	136	
TOTAL 0010					500	22,240	2,000	10,230	10,230	19,640	600	16.1	622	518	
0040	312+33'B'	-	316+00'B'	LT	-	375	375	410	410	-	-	0.3	11	9	OAK ST TURN LANE
0040	333+84'B'	-	337+43'B'	LT	-	585	585	410	410	-	-	0.4	16	14	WASHINGTON ST TURN LANE
TOTAL 0040					0	960	960	820	820	0	0	0.7	27	23	
PROJECT TOTAL					500	23200	2960	11050	11050	19640	600	16.8	649	541	

CATEGORY	STATION	LOCATION	633.5200 MARKERS CULVERT END EACH	CATEGORY	LOCATION	638.2102	638.4000	REMARKS
						MOVING SIGNS TYPE II EACH	MOVING SMALL SIGN SUPPORTS EACH	
0010	447+82'E'	LT	1	0010	PROJECT	21	21	NO PASSING ZONE
0010	522+55'E'	LT & RT	2		TOTAL 0010	21	21	
0010	552+77'E'	LT & RT	2					
0010	563+77'E'	LT & RT	2					
0010	590+08'E'	LT	1					
0010	595+36'E'	LT	1					
0010	599+10'E'	LT	1					
0010	620+12'E'	LT	1					
0010	673+59'E'	LT & RT	2					
0010	703+43'E'	LT	1					
0010	713+31'E'	RT	1					
0010	785+63'E'	LT & RT	2					
0010	835+81'E'	RT	1					
0010	864+78'E'	RT	1					
0010	985+32'E'	LT & RT	2					
0010	998+46'E'	LT	1					
0010	1020+12'E'	LT	1					
0010	1043+03'E'	RT	1					
			TOTAL 0010					24

CATEGORY	STATION	TO	STATION	LOCATION	643.0300	643.0420	643.0705	643.0715	643.0900	643.5000	REMARKS
					TRAFFIC CONTROL DRUMS DAY	TRAFFIC CONTROL BARRICADES TYPE III DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	TRAFFIC CONTROL SIGNS DAY	TRAFFIC CONTROL EACH	
0010	302+50'B'	-	1105+00'E'	PROJECT	1,260	-	-	-	2,346	1	-
0010	395+00'B'	-	401+38'B'	B-06-0073	861	21	42	609	336	-	STAGE 1
0010	395+00'B'	-	401+38'B'	B-06-0073	861	21	42	609	336	-	STAGE 2
				TOTAL 0010	2,982	42	84	1,218	3,018	1	
0040	312+30'B'	-	316+00'B'	LT	420	-	-	-	28	-	OAK ST TURN LANE
0040	333+80'B'	-	337+43'B'	LT	420	-	-	-	28	-	WASHINGTON ST TURN LANE
				TOTAL 0040	840	0	0	0	56	0	
				PROJECT TOTAL	3,822	42	84	1,218	3,074	1	

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CATEGORY	STATION	TO	STATION	LOCATION	646.1020	646.1040	646.3040	646.9000	649.0105	649.0120	649.0150	649.0805	REMARKS
					MARKING LINE EPOXY 4-INCH LF	MARKING LINE GROOVED WET REF EPOXY 4-INCH LF	MARKING LINE GROOVED WET REF EPOXY 8-INCH LF	MARKING REMOVAL LINE 4-INCH LF	TEMPORARY MARKING LINE PAINT 4-INCH LF	TEMPORARY MARKING LINE EPOXY 4-INCH LF	TEMPORARY REMOVABLE TAPE 4-INCH LF	TEMPORARY MARKING STOP LINE PAINT 18-INCH LF	
0010	395+00'B'	-	401+38'B'	B-06-0073	-	-	-	475	3,790	-	-	24	STAGE 1
0010	395+00'B'	-	401+38'B'	B-06-0073	-	-	-	350	895	-	100	-	STAGE 2
0010	302+50'B'	-	1105+00'E'	CL	-	-	-	-	98,550	-	-	-	MILLED LAYER
0010	302+50'B'	-	1105+000'E'	CL	-	-	-	-	98,550	-	-	-	LOWER LAYER
0010	302+50'B'	-	1105+000'E'	CL	-	-	-	-	-	100,650	-	-	STH 37 YELLOW CENTERLINE
0010	302+50'B'	-	1105+000'E'	LT	-	78,450	-	-	-	-	-	-	STH 37 WHITE EDGE LINE
0010	302+50'B'	-	1105+000'E'	RT	-	78,050	-	-	-	-	-	-	STH 37 WHITE EDGE LINE
0010	302+50'B'	-	1105+000'E'	CL	100,650	-	-	-	-	-	-	-	STH 37 YELLOW CENTERLINE AFTER RUMBLES
0010	302+50	-	303+94	LT	-	-	144	-	-	-	-	-	USH 10
0010	312+59	-	314+59	LT	-	-	200	-	-	-	-	-	OAK ST
0010	323+32	-	324+07	RT	-	-	75	-	-	-	-	-	CLOVERLEAF LN
0010	332+04	-	333+04	RT	-	-	100	-	-	-	-	-	WASHINGTON ST
0010	334+41	-	336+31	LT	-	-	190	-	-	-	-	-	WASHINGTON ST
0010	348+35	-	349+35	RT	-	-	100	-	-	-	-	-	VALLEY ESTATES RD
0010	348+73	-	351+23	LT	-	62.5	-	-	-	-	-	-	BYPASS LANE
0010	361+25	-	362+25	RT	-	-	100	-	-	-	-	-	GOLF RD
0010	428+34	-	430+34	LT	-	-	200	-	-	-	-	-	CTH Z
0010	499+46	-	500+96	RT	-	-	150	-	-	-	-	-	CTH B
0010	669+26	-	671+26	LT	-	-	200	-	-	-	-	-	CTH ZZ
0010	675+31	-	676+21	RT	-	-	90	-	-	-	-	-	CTH ZZ
0010	715+44	-	717+94	RT	-	62.5	-	-	-	-	-	-	BYPASS LANE
0010	717+77	-	719+77	LT	-	-	200	-	-	-	-	-	MAPLE RIDGE RD
0010	775+69	-	777+69	RT	-	-	200	-	-	-	-	-	HEMLOCK RD
0010	779+00	-	781+00	LT	-	-	200	-	-	-	-	-	HEMLOCK RD
0010	811+35	-	813+85	RT	-	62.5	-	-	-	-	-	-	BYPASS LANE
0010	813+49	-	815+49	LT	-	-	200	-	-	-	-	-	NELSON RD
0010	861+86	-	864+66	RT	-	75	-	-	-	-	-	-	BYPASS LANE
0010	888+09	-	890+09	RT	-	-	200	-	-	-	-	-	CTH HH
0010	889+81	-	892+34	LT	-	75	-	-	-	-	-	-	BYPASS LANE
0010	935+49	-	937+49	RT	-	-	200	-	-	-	-	-	LANGDELL RD
0010	938+96	-	940+96	LT	-	-	200	-	-	-	-	-	LANGDELL RD
0010	1014+91	-	1016+91	RT	-	-	200	-	-	-	-	-	CTH Z
0010	1018+39	-	1020+39	LT	-	-	200	-	-	-	-	-	CTH Z
0010	1049+87	-	1052+37	LT	-	62.5	-	-	-	-	-	-	BYPASS LANE
0010	1069+43	-	1071+93	LT	-	62.5	-	-	-	-	-	-	BYPASS LANE
0010	1071+51	-	1073+51	LT	-	-	200	-	-	-	-	-	JENE RD
0010	1096+31	-	1098+81	LT	-	62.5	-	-	-	-	-	-	BYPASS LANE
TOTAL 0010					100,650	157,025	3,549	825	201,785	100,650	100	24	

648.0100 LOCATING NO- PASSING ZONES					
CATEGORY	STATION	TO	STATION	LOCATION	MI
0010	302+50	-	1105+00		15.2
TOTAL 0010					15.2

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CATEGORY	STATION	TO	STATION	LOCATION	IF	IF	IS	IF	REMARKS
0010	302+50'B'	-	1105+00'E'	ML	-	80,250	-	-	
0010	302+50'B'	-	1105+00'E'	PROJECT	-	-	-	-	
0010	396+00'B'	-	397+58'B'	LI & RI	-	-	-	158	GUARDRAIL REPLACEMENT
0010	398+78'B'	-	400+00'B'	LT & RT	-	-	-	122	GUARDRAIL REPLACEMENT
0010	507+00'E'	-	508+55'E'	LT & RT	-	-	-	155	GUARDRAIL REPLACEMENT
0010	509+89'E'	-	512+00'E'	LT & RT	-	-	-	211	GUARDRAIL REPLACEMENT
0010	520+90'E'	-	525+00'E'	LT & RT	-	-	-	410	GUARDRAIL REPLACEMENT
0010	545+00'E'	-	549+00'E'	LT & RT	-	-	-	400	GUARDRAIL REPLACEMENT
0010	551+00'E'	-	555+00'E'	LT & RT	-	-	-	400	GUARDRAIL REPLACEMENT
0010	562+00'E'	-	555+00'E'	LT & RT	-	-	-	300	GUARDRAIL REPLACEMENT
0010	672+00'E'	-	675+05'E'	LT & RT	-	-	-	305	GUARDRAIL REPLACEMENT
0010	696+00'E'	-	706+00'E'	LT	-	-	-	1,000	GUARDRAIL REPLACEMENT
0010	784+00'E'	-	787+00'E'	LT & RT	-	-	-	300	GUARDRAIL REPLACEMENT
0010	983+00'E'	-	987+00'E'	LT & RT	-	-	-	400	GUARDRAIL REPLACEMENT
TOTAL 0010					0	80,250	-	4,161	
0040	312+75'B'	-	316+00'B'	LT	388	-	-	325	OAK ST TURN LANE
0040	335+00'B'	-	337+00'B'	LT	82	-	-	200	WASHINGTON ST TURN LANE
TOTAL 0040					470	0	0	525	
PROJECT TOTAL					470	80,250	-	4,686	

SPV.0180.02
SPECIAL (02.
ASPHALT BASE
PATCH PARTIAL
DEPTH)

CATEGORY	STATION	TO	STATION	LOCATION	SY
0010	396+90'B'	-	398+00'B'	LI/RI	183
0010	398+50'B'	-	399+50'B'	LT/RT	167
0010	545+45'E'	-	545+55'E'	LT/RT	17
0010	698+75'E'	-	699+25'E'	LT/RT	83
0010	710+00'E'	-	713+00'E'	LT/RT	500
0010	777+00'E'	-	780+00'E'	RT	1,333
0010	843+25'E'	-	844+50'E'	RI	208
0010	844+00'E'	-	845+00'E'	RT	333
0010	876+00'E'	-	883+00'E'	LT/RT	1,167
0010	939+50'E'	-	942+00'E'	RT	417
TOTAL 0010					4,408

CATEGORY	STATION	LOCATION	LF	LF	REMARKS
0010	302+50'B'	ML	41	-	STH 37
0010	312+15'B'	LT	31	2.5	OAK ST
0010	333+66'B'	LT	33	-	WASHINGTON ST
0010	890+80'E'	RT	28	-	CTH HH
0010	1105+00'E'	ML	30	-	STH 37
TOTAL 0010			163	2.5	

CATEGORY	STATION	TO	STATION	LOCATION	SY
0010	418+75'B'	-	419+50'B'	RT	85
0010	420+22'E'	-	421+22'E'	RT	115
0010	480+00'E'	-	482+00'E'	RI	230
0010	489+00'E'	-	501+00'E'	RI	1,310
0010	585+00'E'	-	587+00'E'	RT	225
0010	585+50'E'	-	587+50'E'	LT	190
0010	601+00'E'	-	608+50'E'	RT	830
0010	625+00'E'	-	627+00'E'	RT	225
0010	705+00'E'	-	709+00'E'	RT	445
0010	705+00'E'	-	709+00'E'	LT	445
0010	823+50'E'	-	824+50'E'	LI	115
0010	823+50'E'	-	824+50'E'	RI	115
0010	861+00'E'	-	865+00'E'	RT	440
0010	887+50'E'	-	888+50'E'	LT	110
0010	887+50'E'	-	888+50'E'	RT	120
0010	936+00'E'	-	938+00'E'	RT	255
0010	938+25'E'	-	940+00'E'	RT	225
0010	938+25'E'	-	940+00'E'	LT	195
TOTAL 0010					5,675

PROJECT NO: 7110-00-70

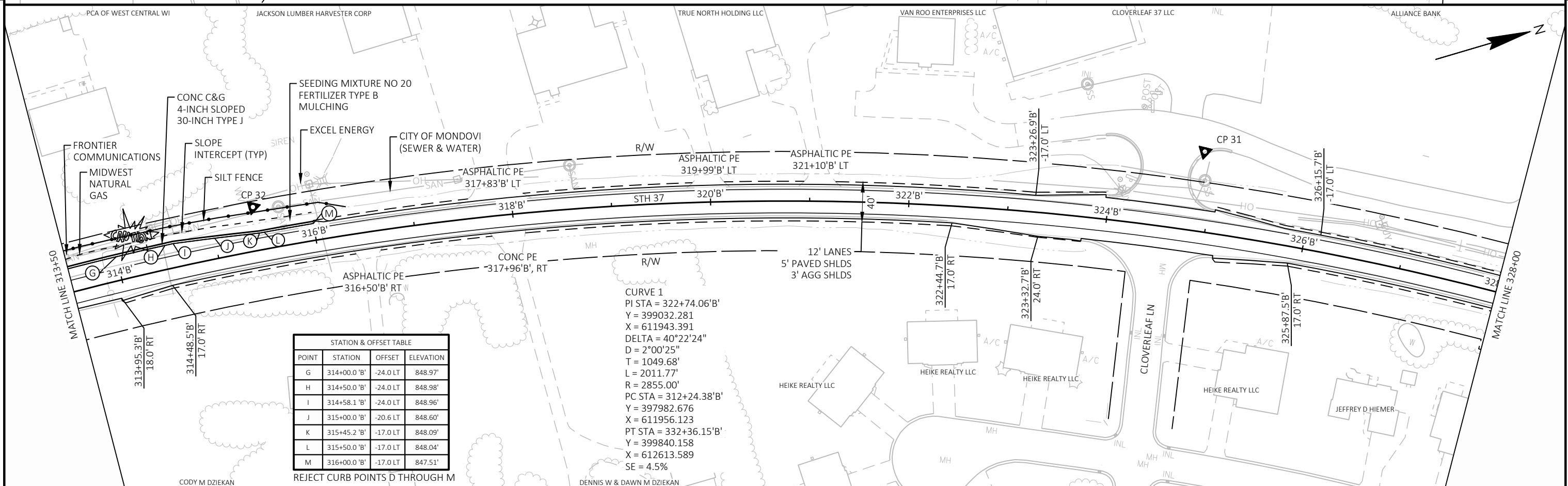
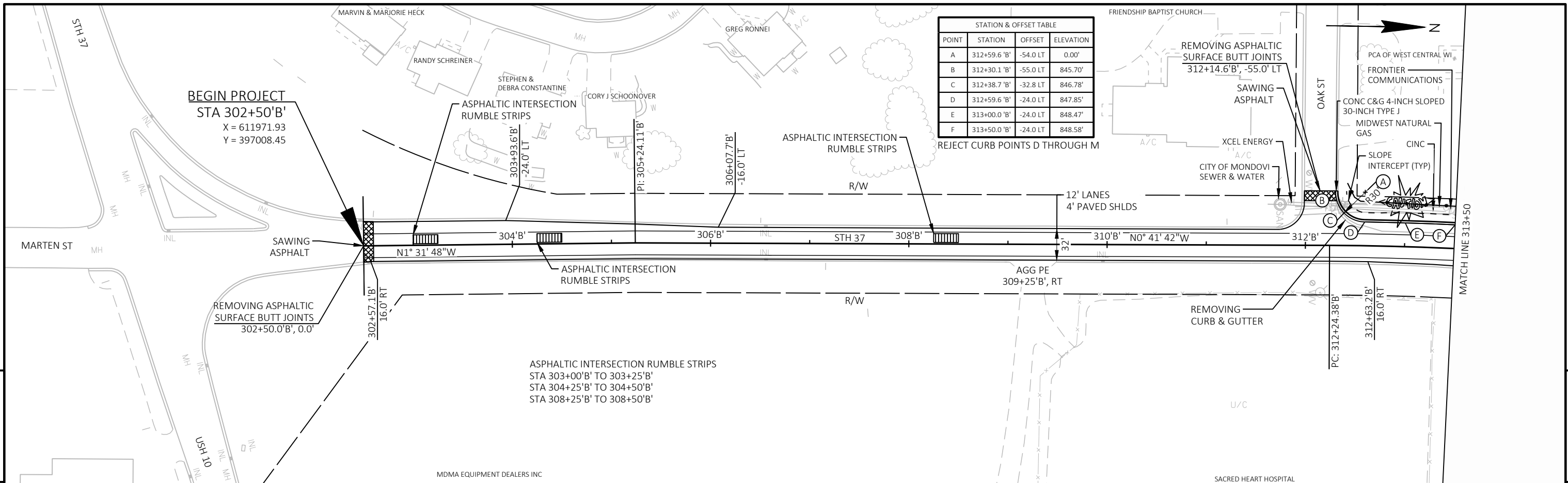
HWY: STH 37

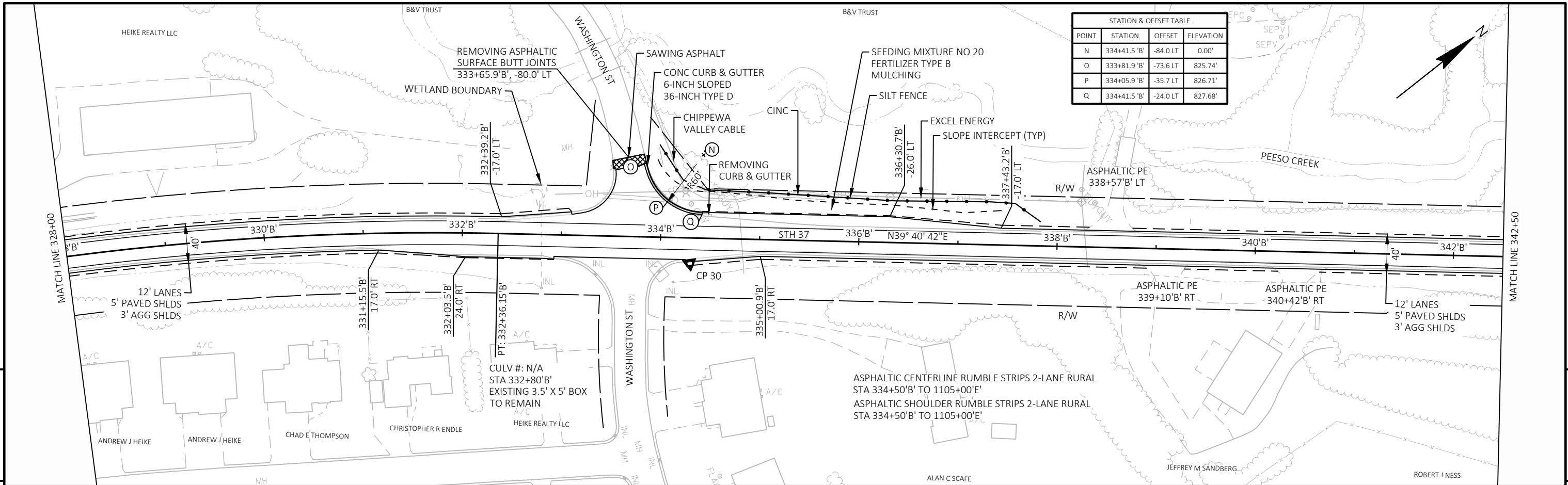
COUNTY: BUFFALO & EAU CLAIRE

MISCELLANEOUS QUANTITIES

SHEET

E

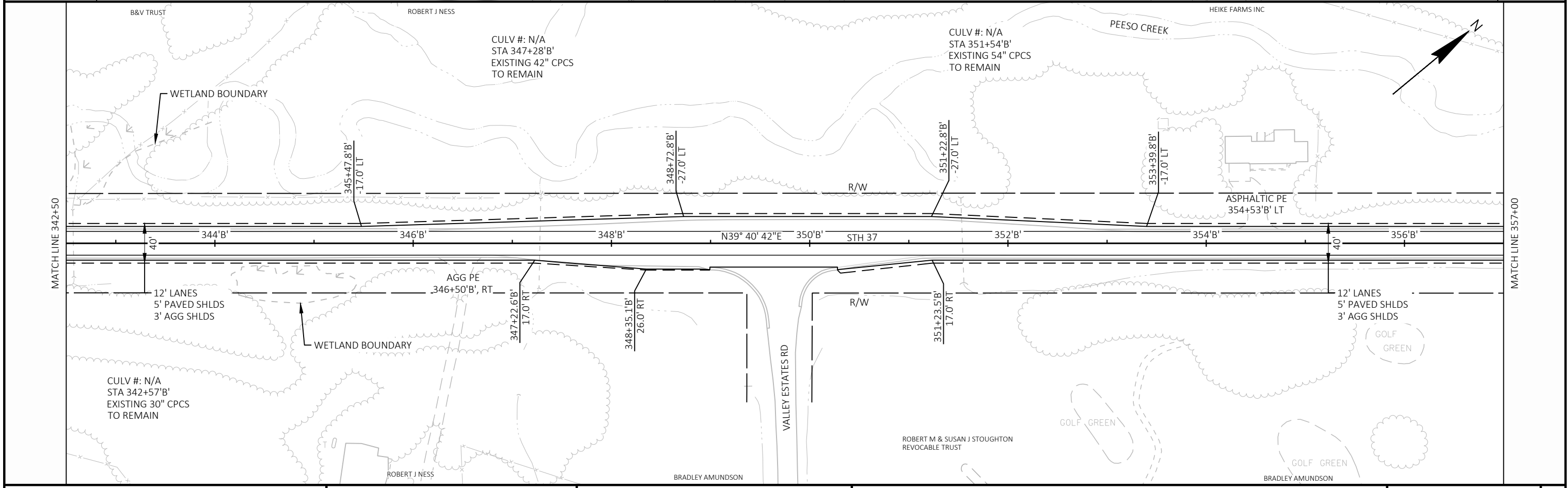




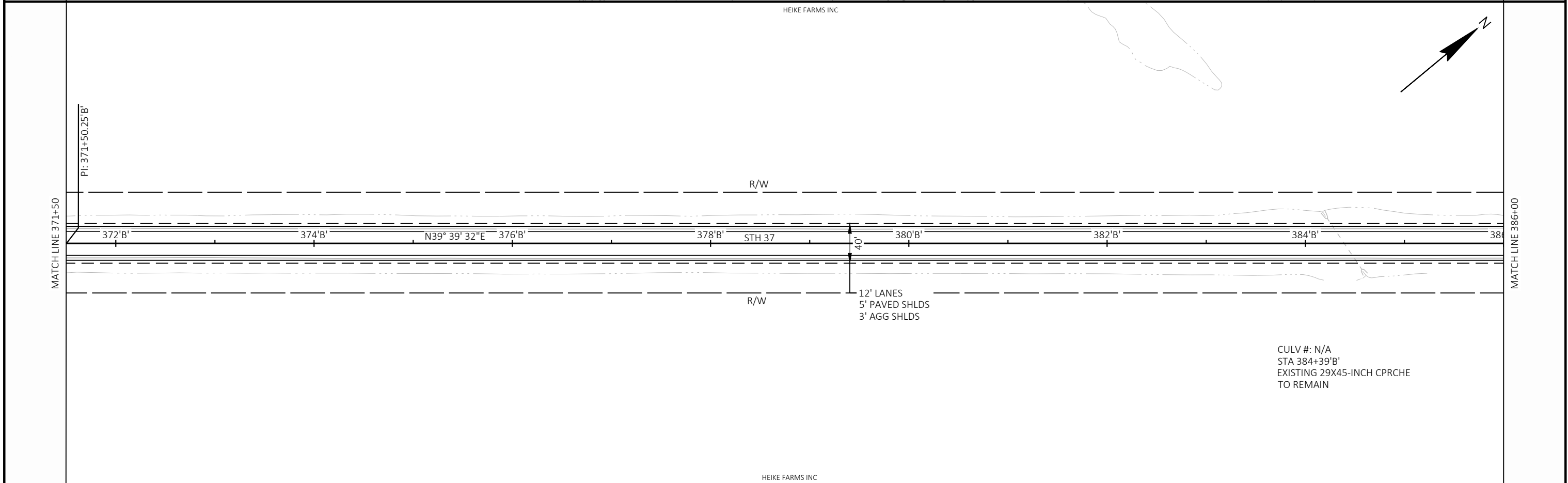
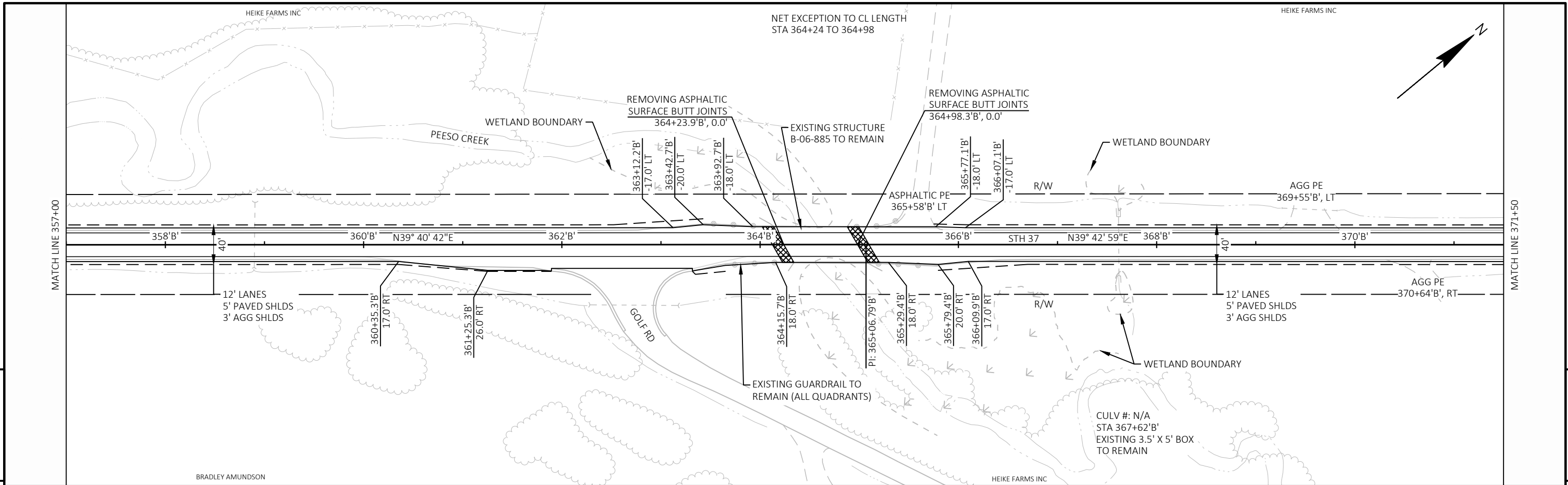
POINT	STATION	OFFSET	ELEVATION
N	334+41.5 'B'	-84.0 LT	0.00'
O	333+81.9 'B'	-73.6 LT	825.74'
P	334+05.9 'B'	-35.7 LT	826.71'
Q	334+41.5 'B'	-24.0 LT	827.68'

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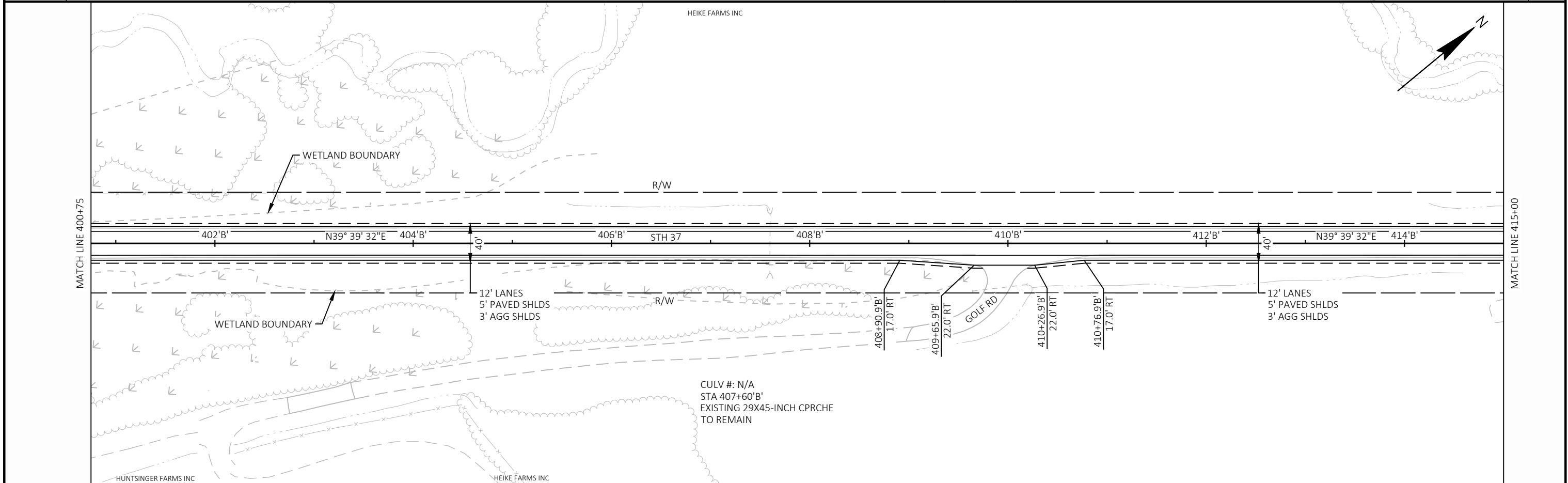
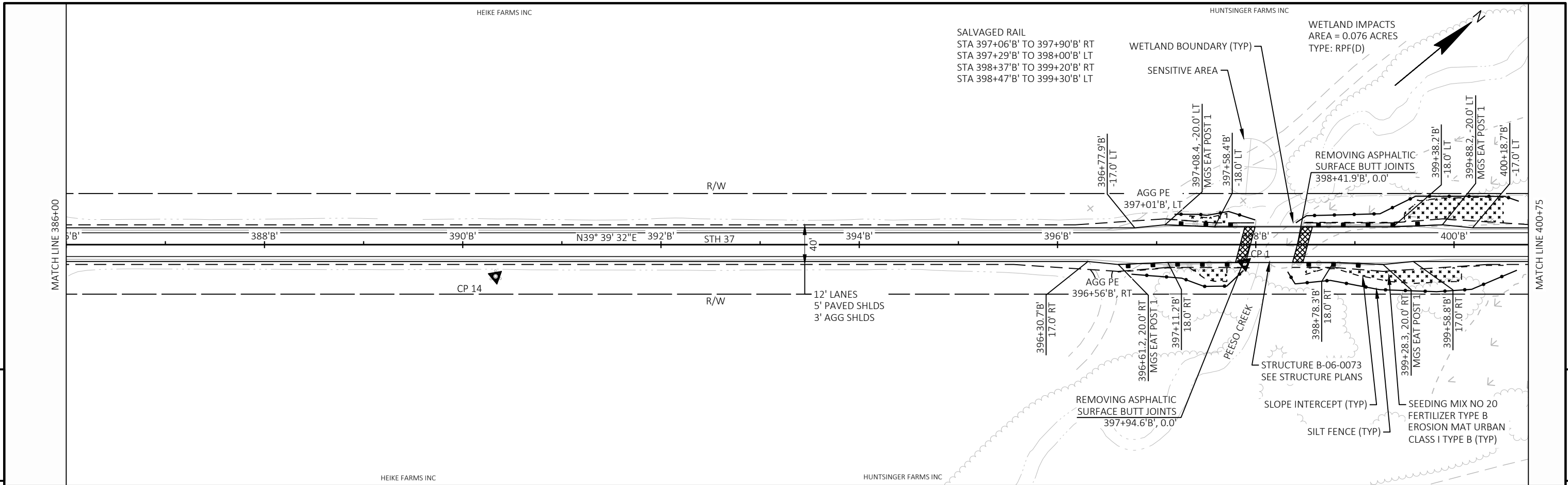
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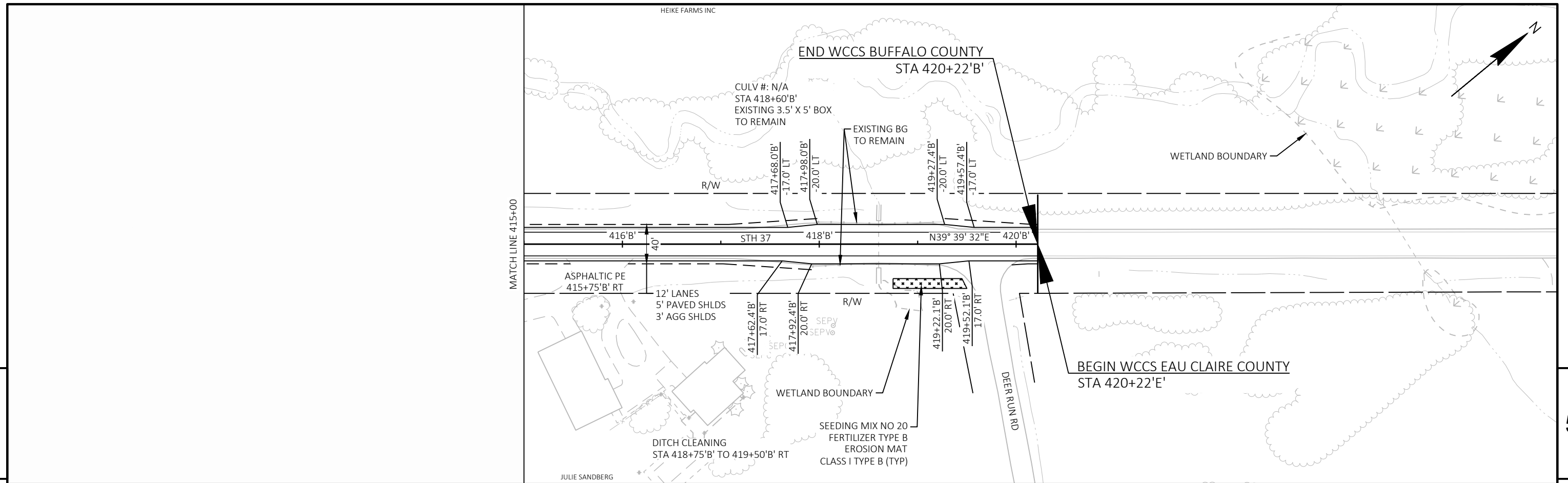
PROJECT NO: 7110-00-70 HWY: STH 37 COUNTY: BUFFALO & EAU CLAIRE STH 37 - WCCS BUFFALO SHEET E



PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS BUFFALO	SHEET	E
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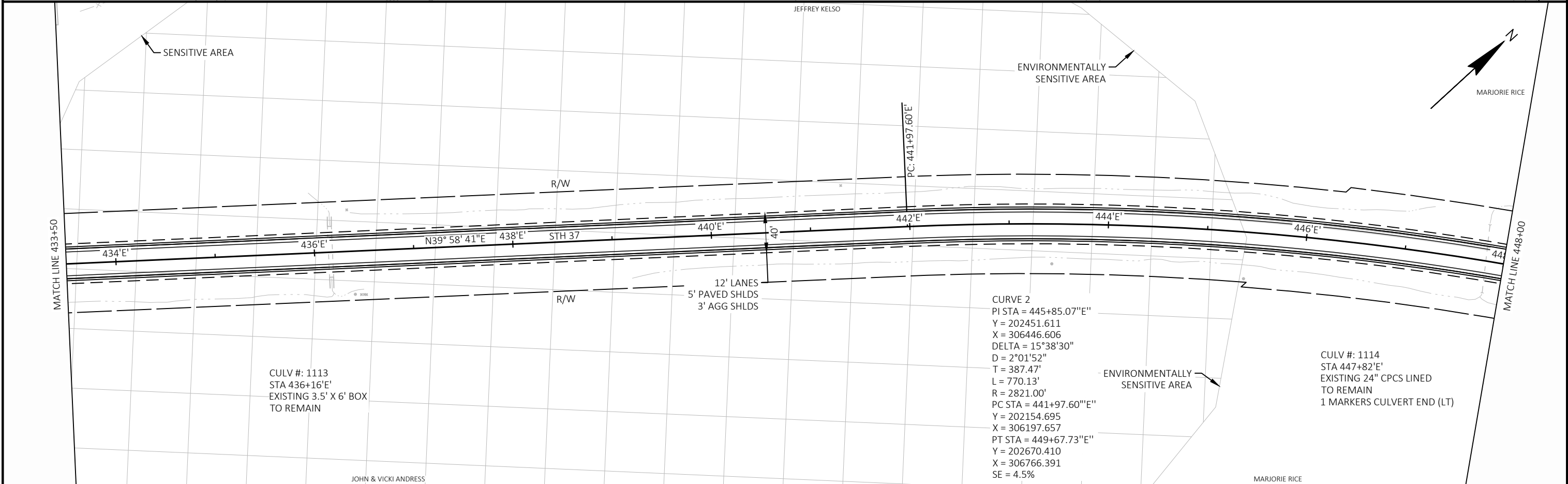
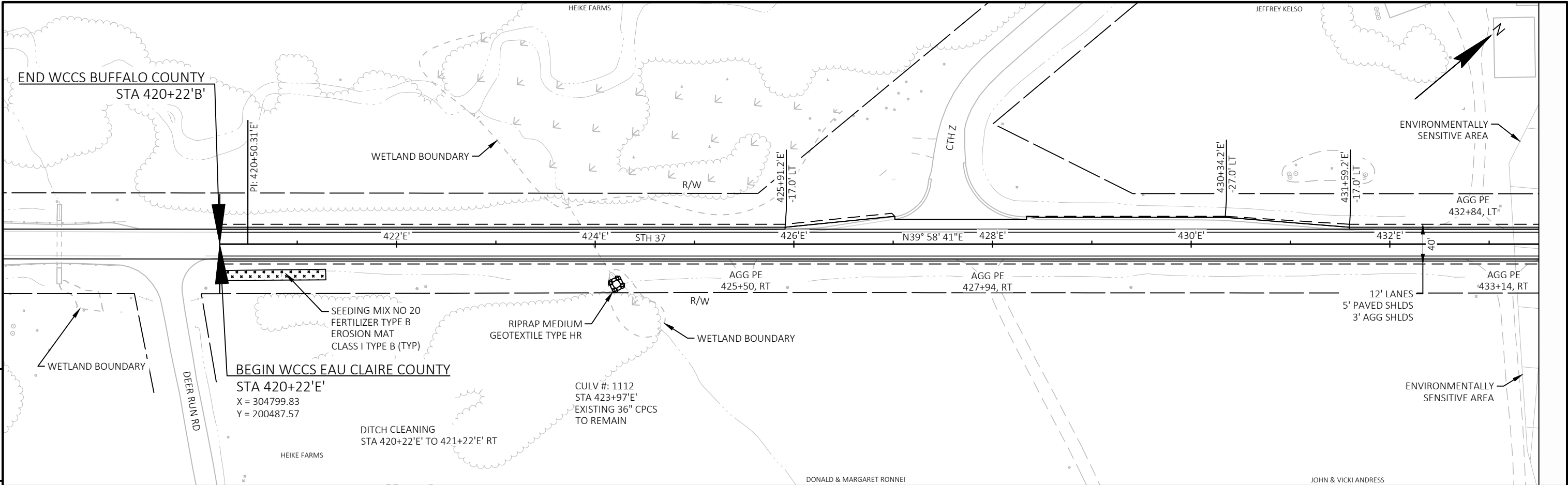
PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS BUFFALO	SHEET	E
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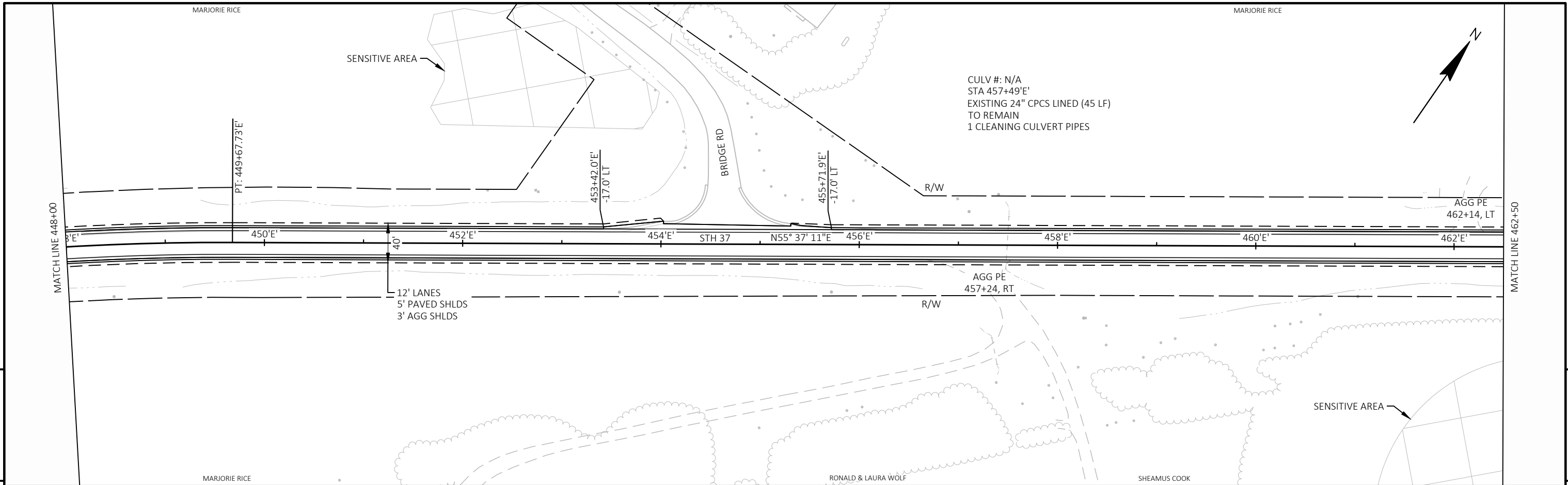
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS BUFFALO	SHEET	E
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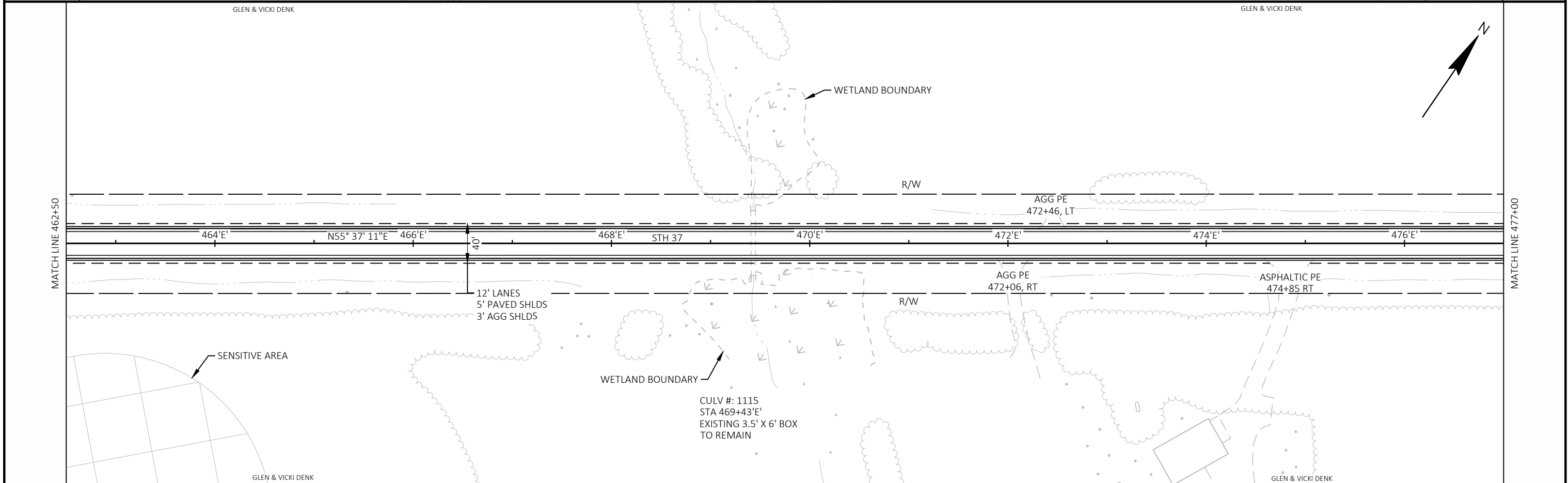


PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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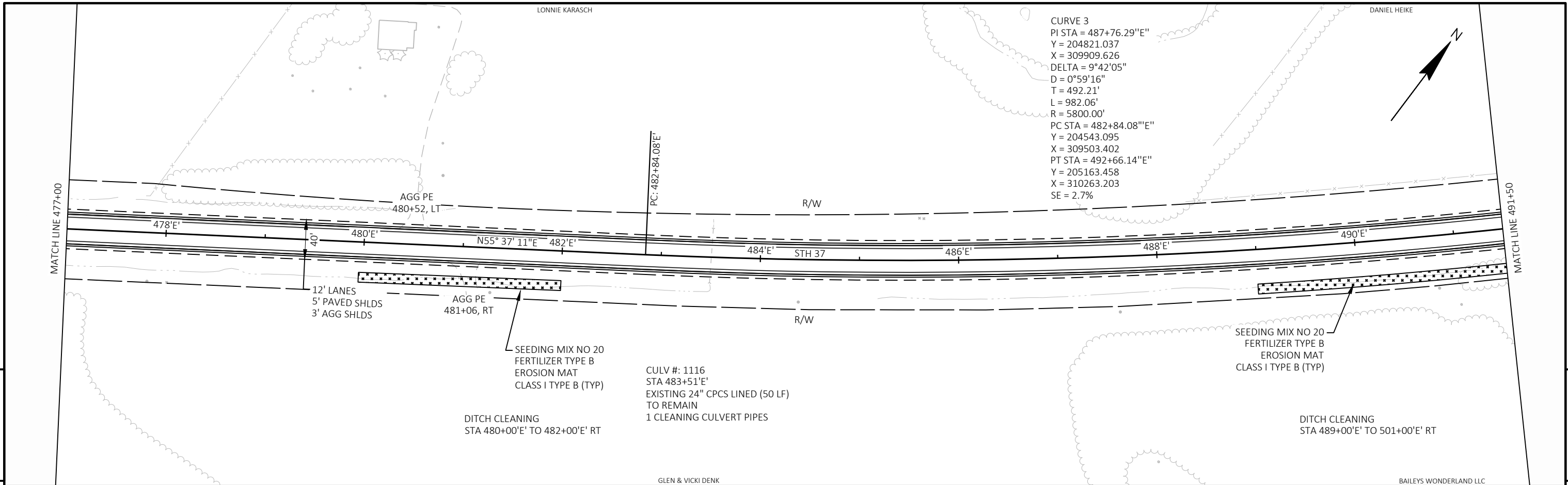
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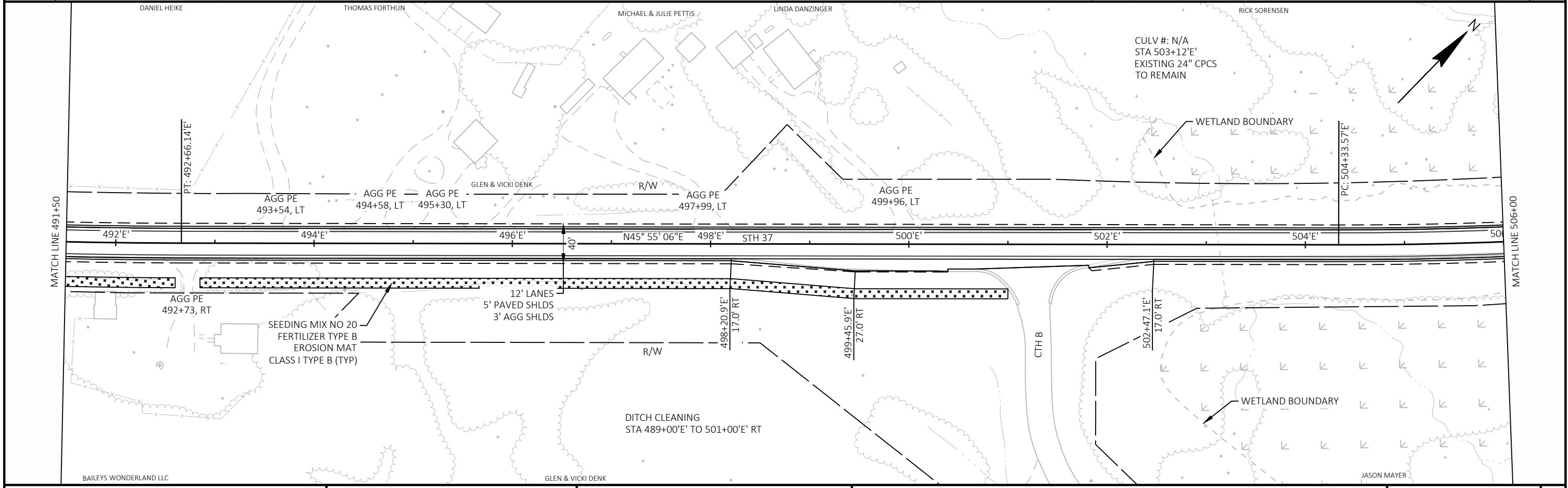
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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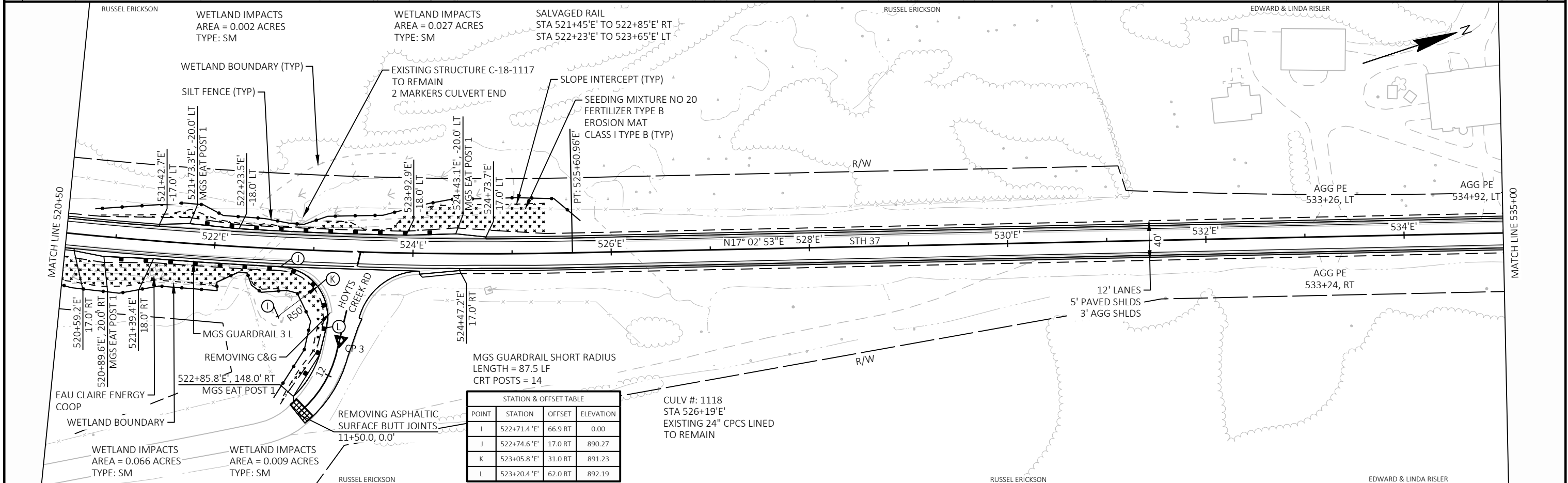
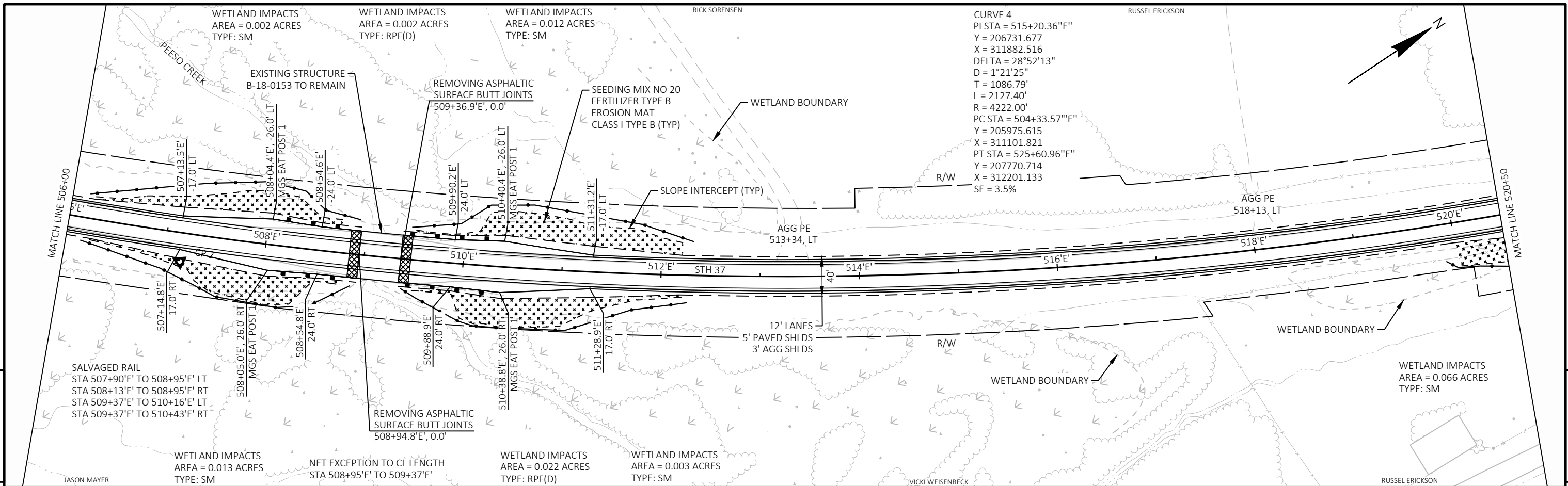


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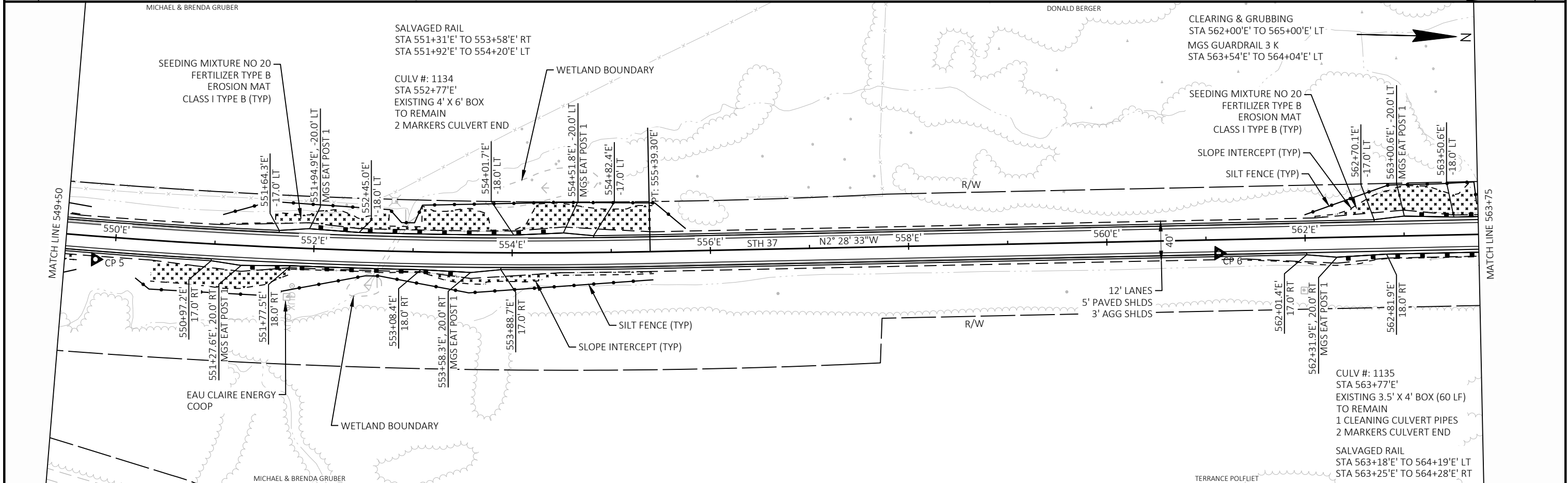
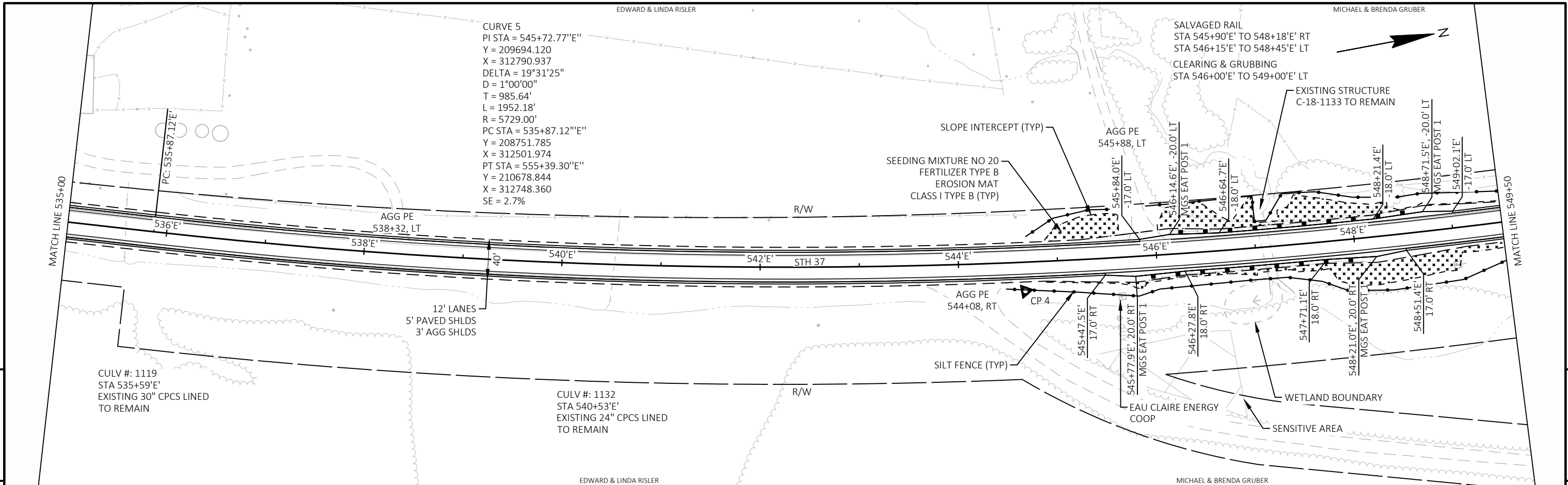
PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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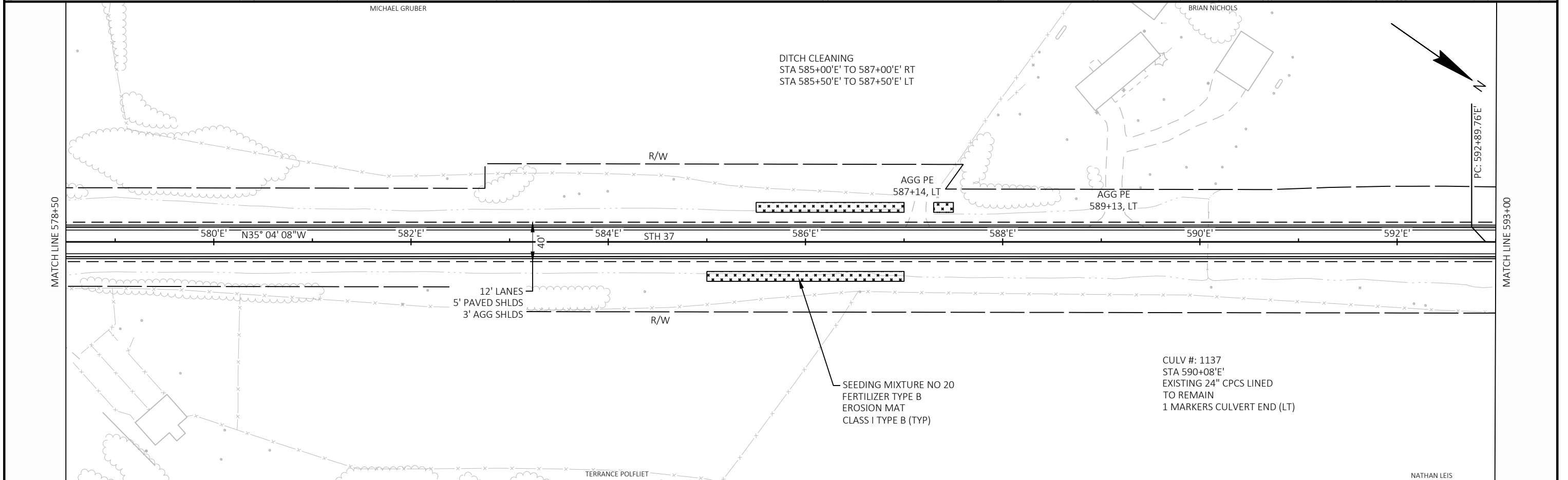
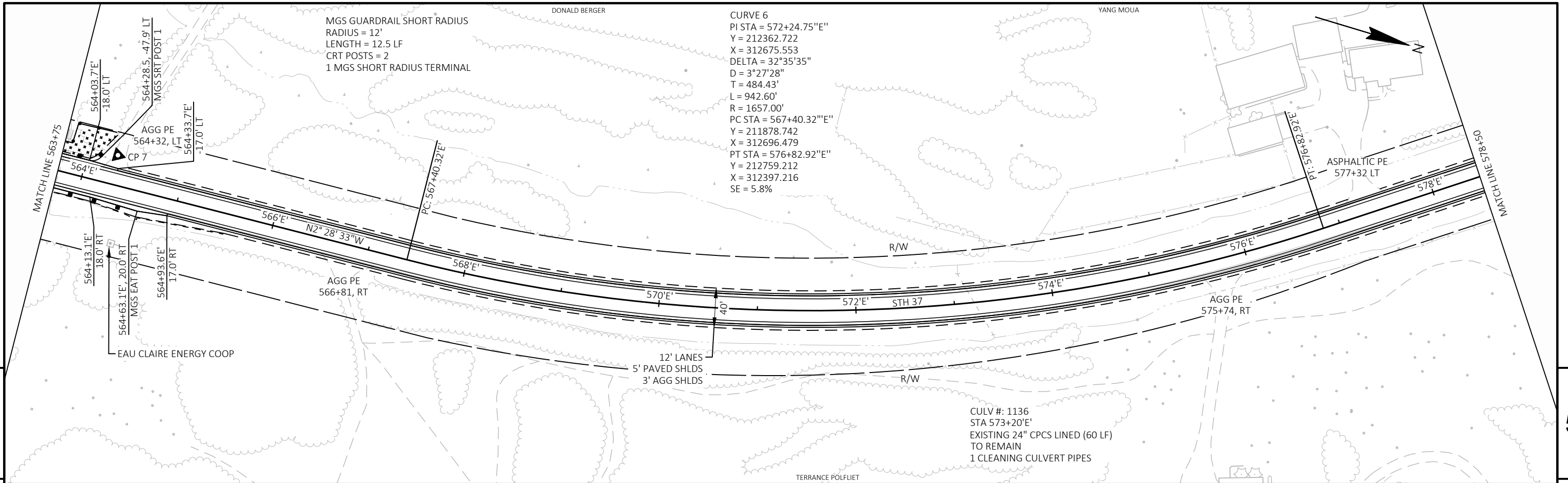
STATION & OFFSET TABLE

POINT	STATION	OFFSET	ELEVATION
I	522+71.4'E	66.9 RT	0.00
J	522+74.6'E	17.0 RT	890.27
K	523+05.8'E	31.0 RT	891.23
L	523+20.4'E	62.0 RT	892.19

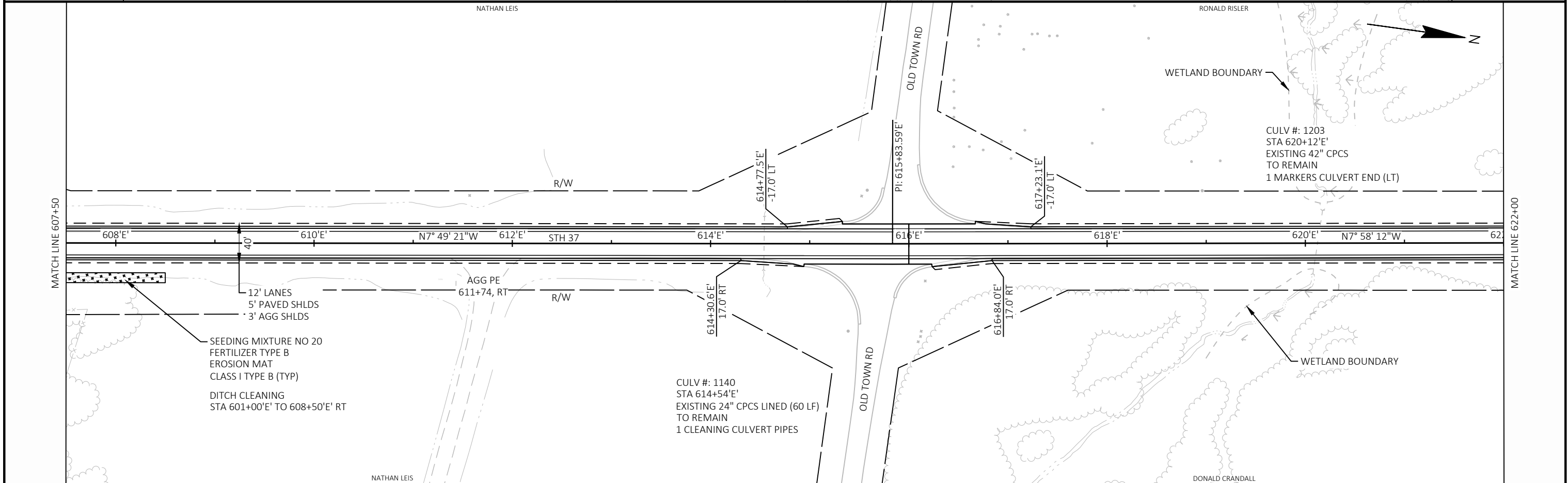
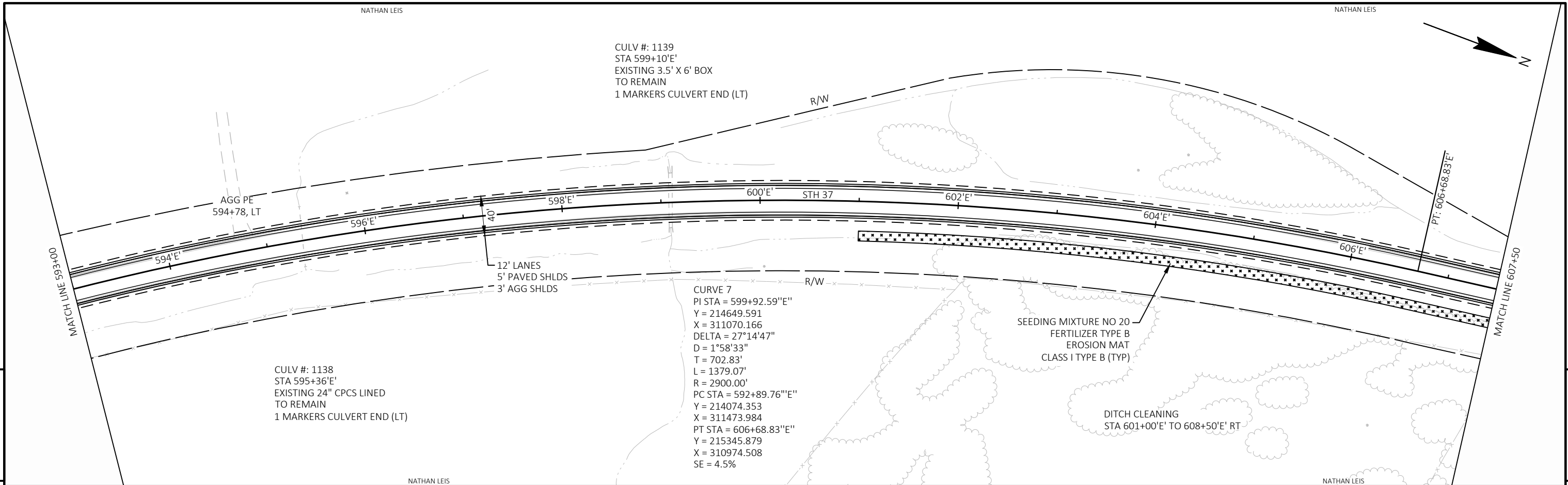
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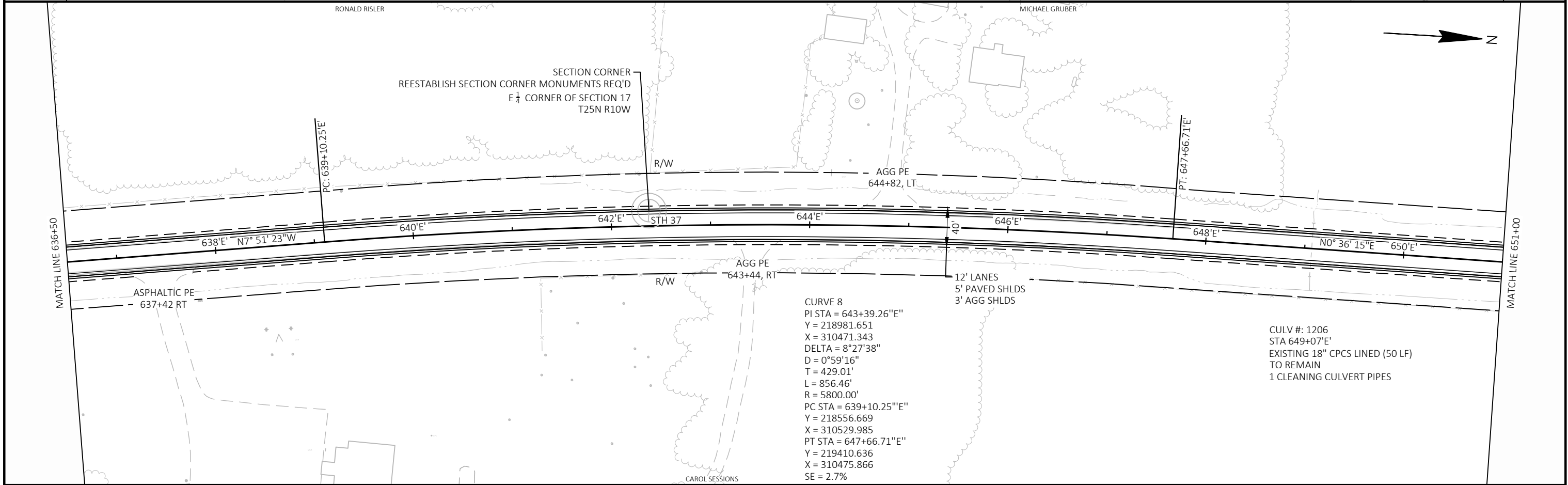
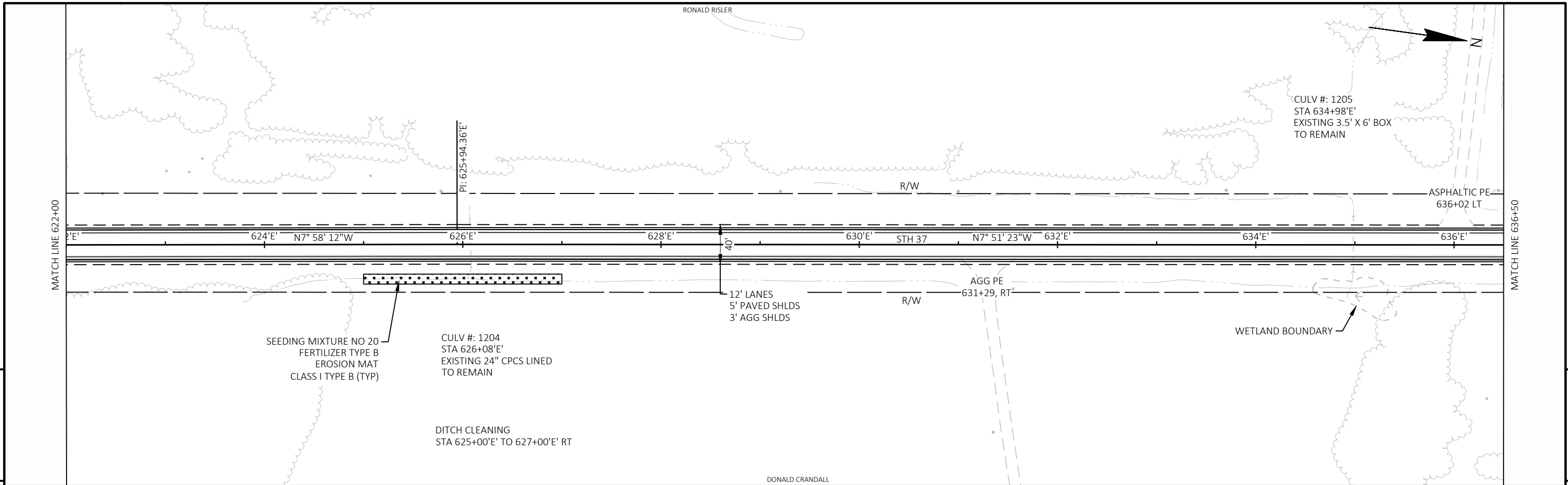
PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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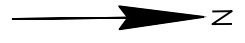
PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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MICHAEL GRUBER

RAYMOND & CAROL BRANTNER

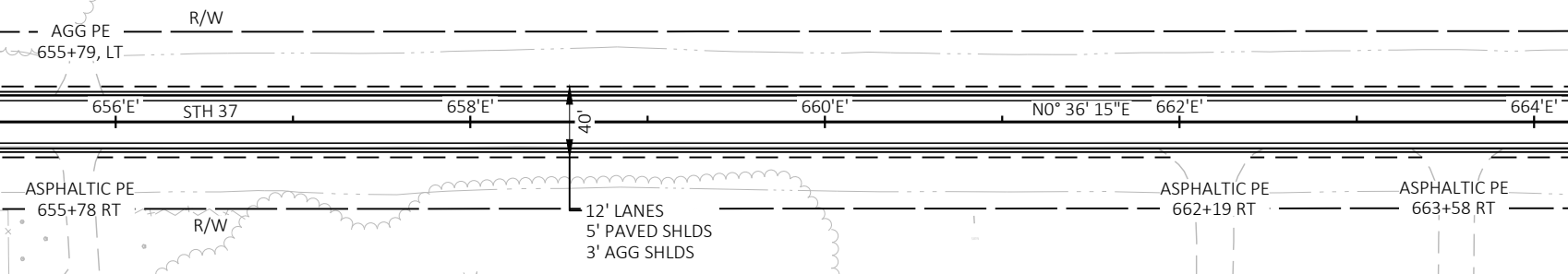


MATCH LINE 651+00

MATCH LINE 665+50

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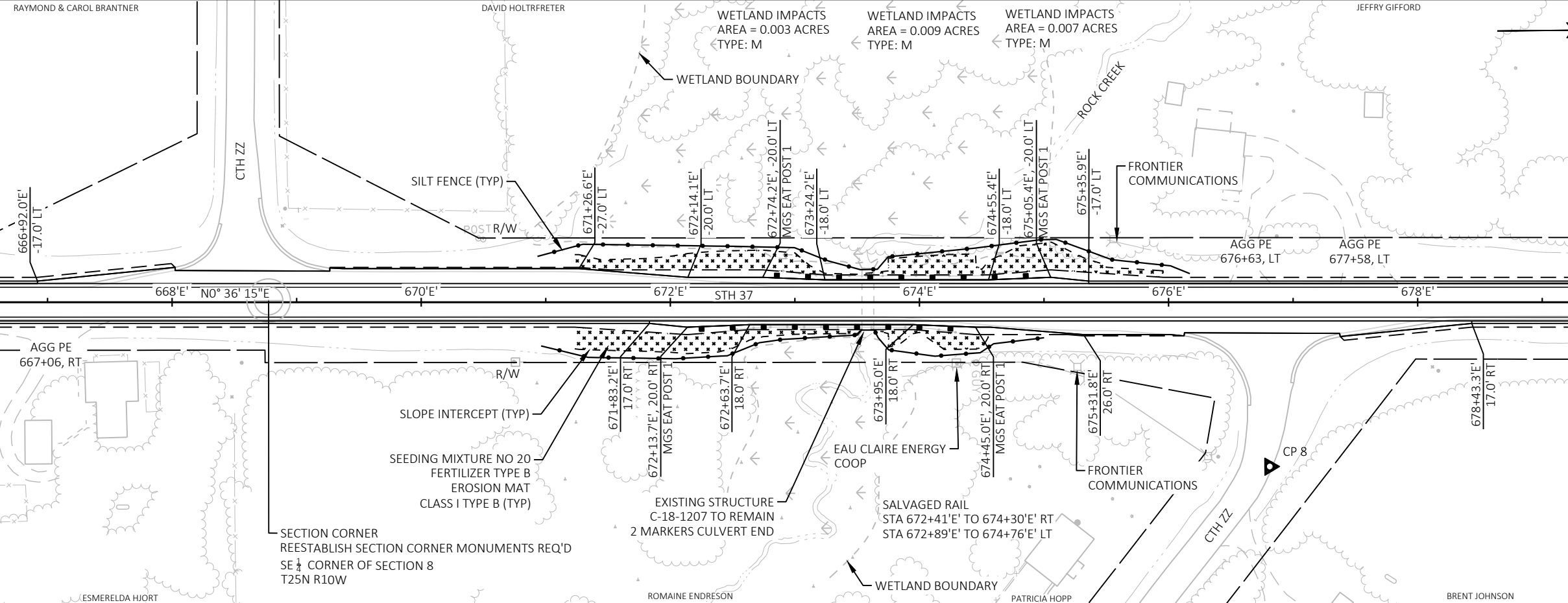


CAROL SESSIONS RAYMOND & CAROL BRANTNER DAVID HOLTRFRETER GARY & PAULA GRITZMAKER ANTHONY SCHOOL JOINT SCHOOL DISTRICT NO 1



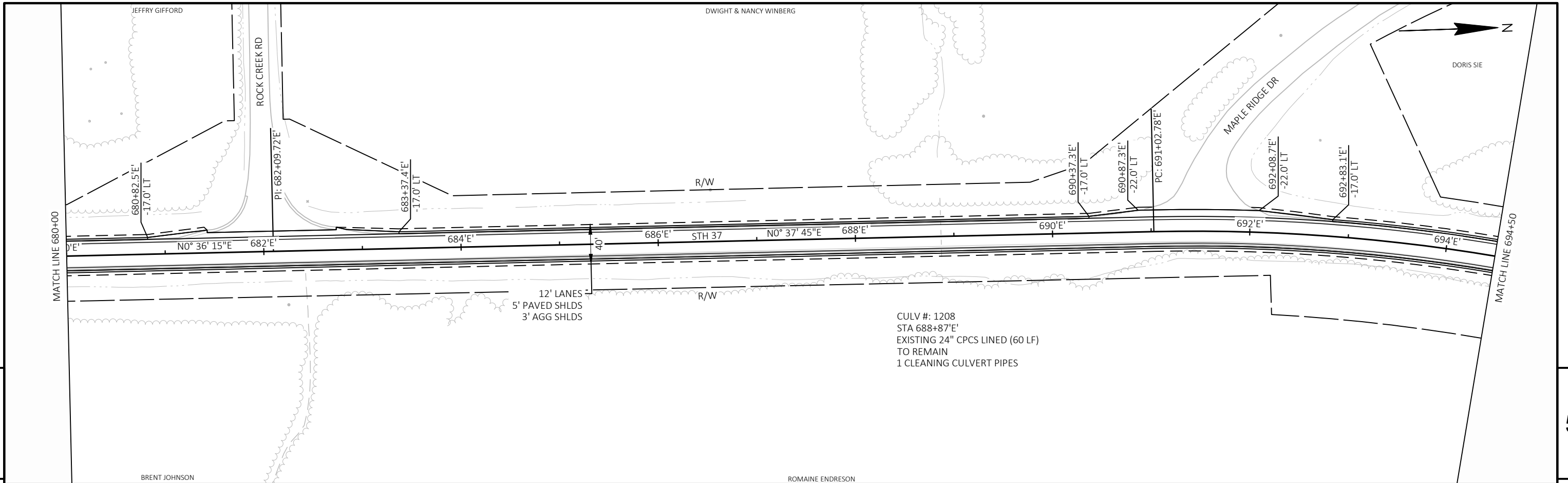
MATCH LINE 665+50

MATCH LINE 680+00



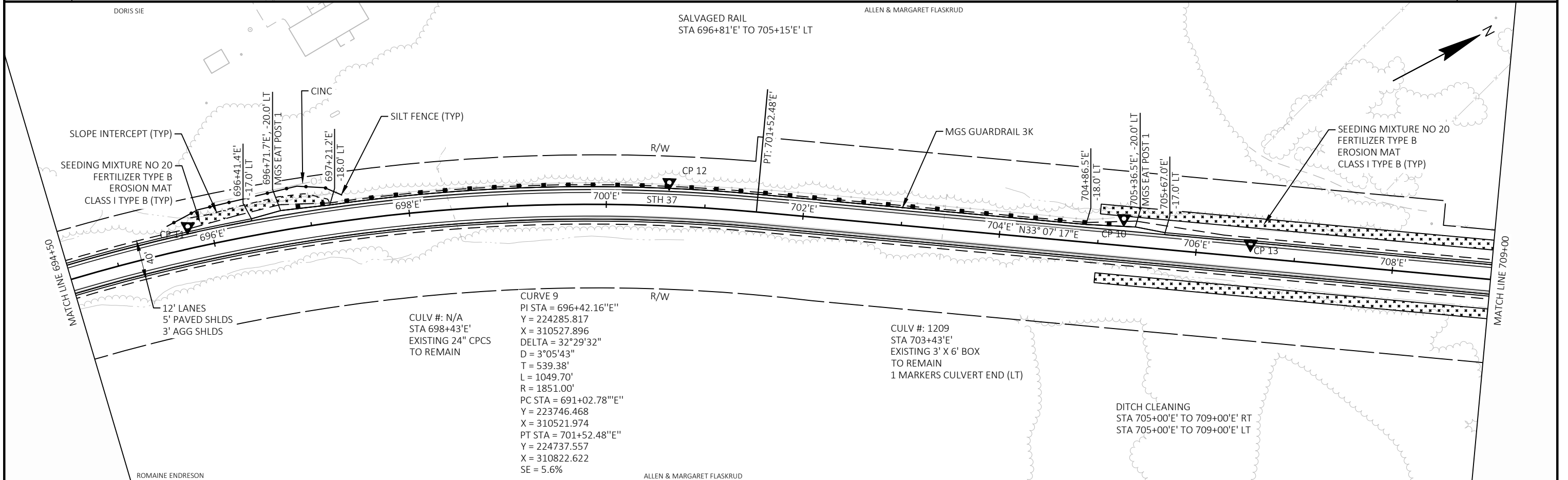
ESMERELDA HJORT Romaine ENDRESON PATRICIA HOPP BRENT JOHNSON

PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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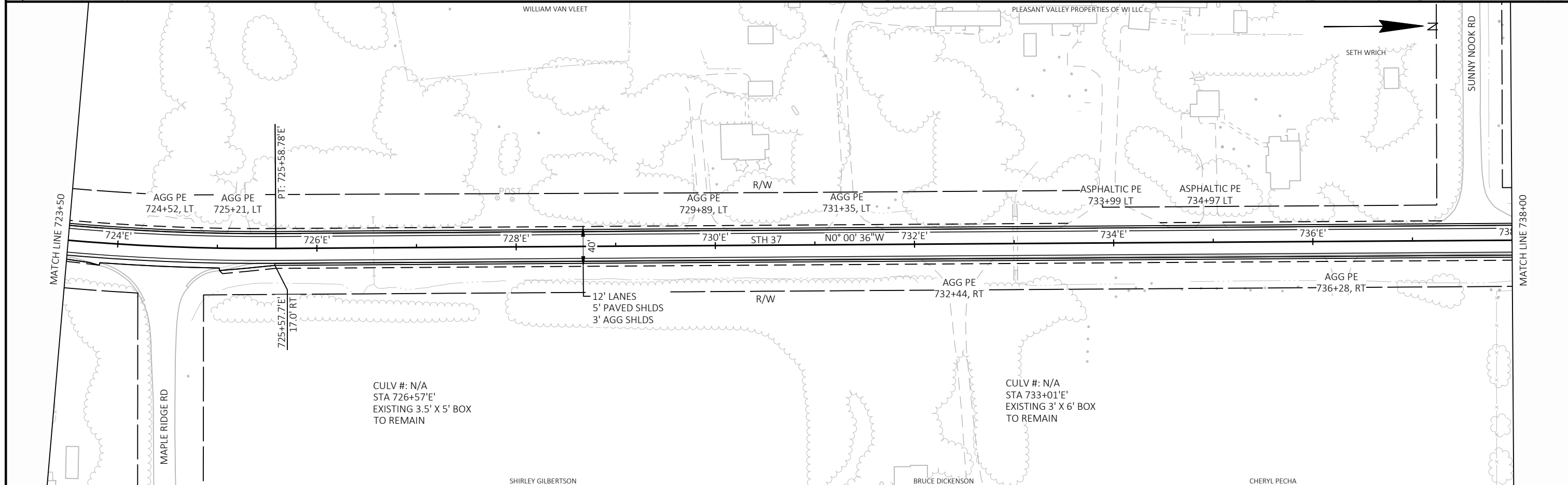
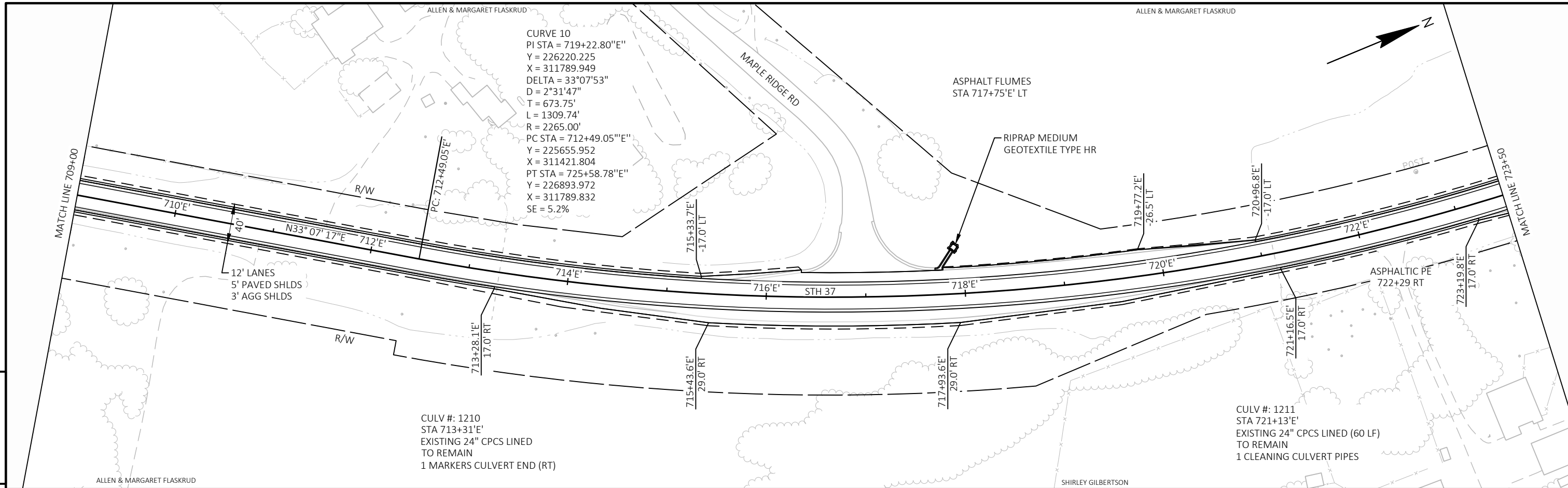


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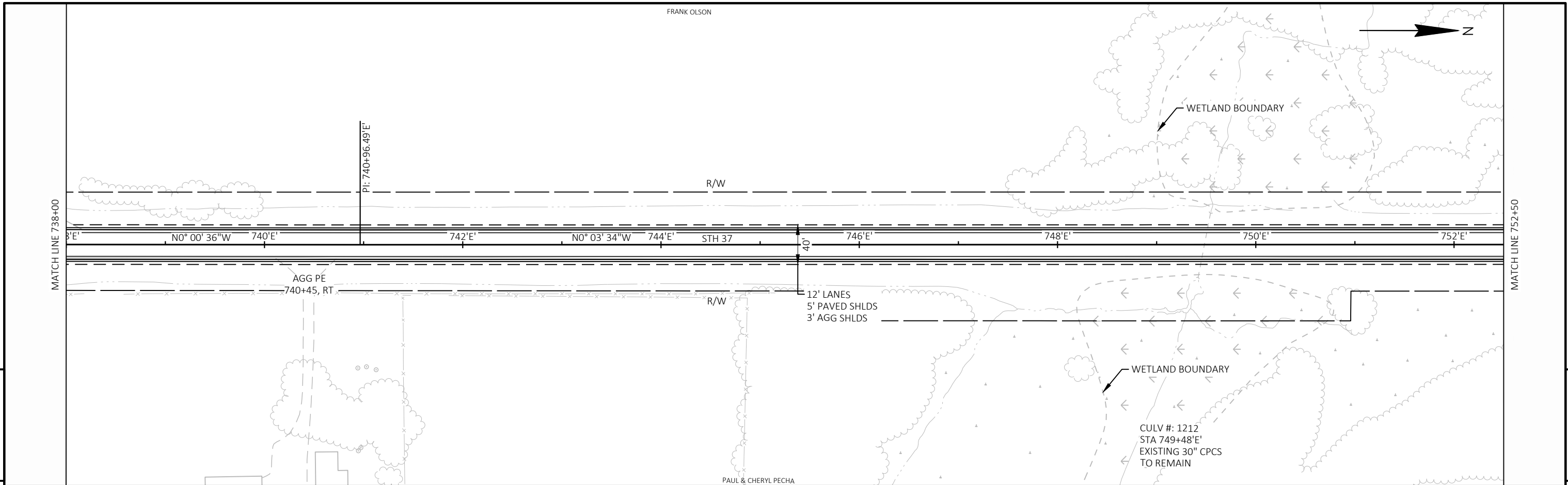
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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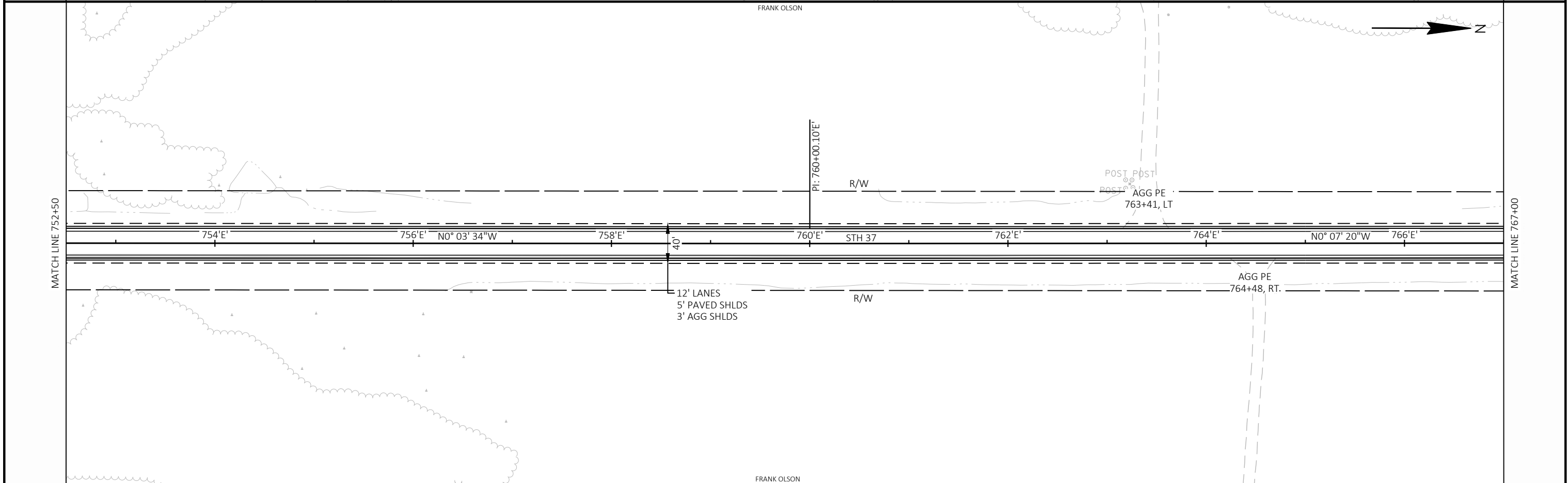


PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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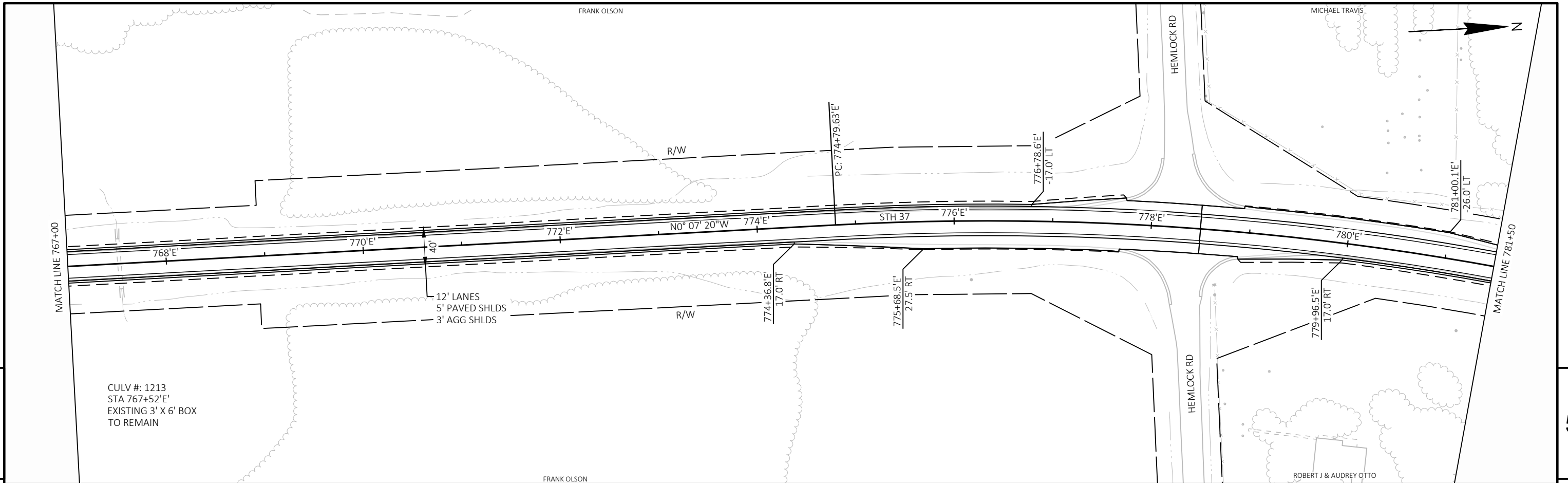


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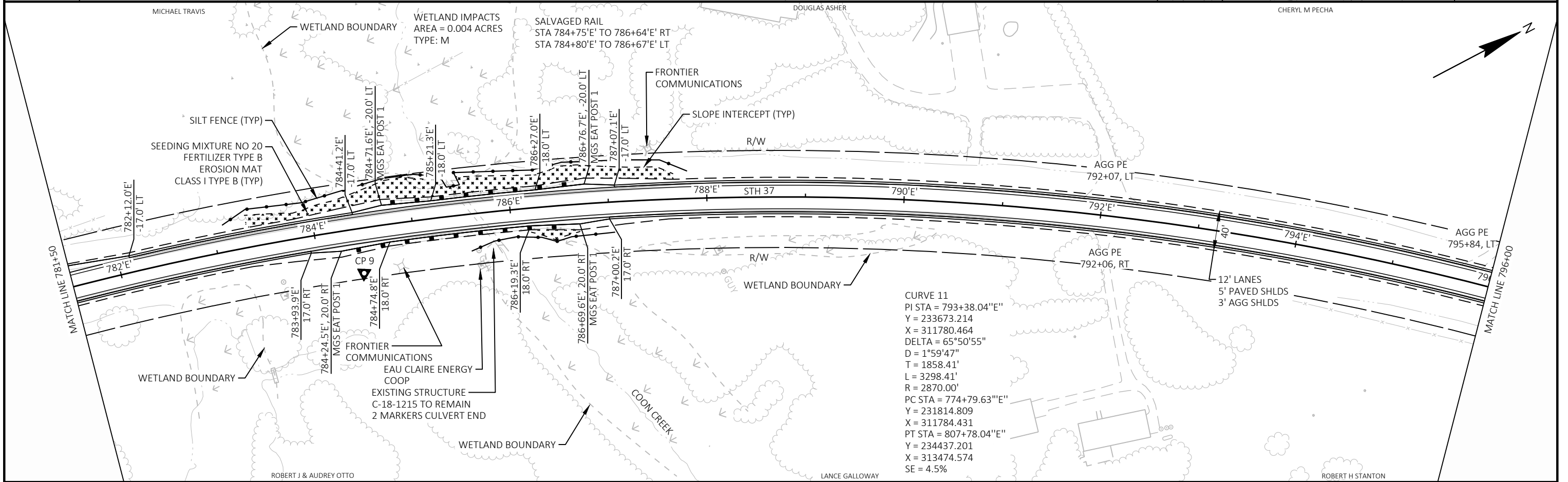


PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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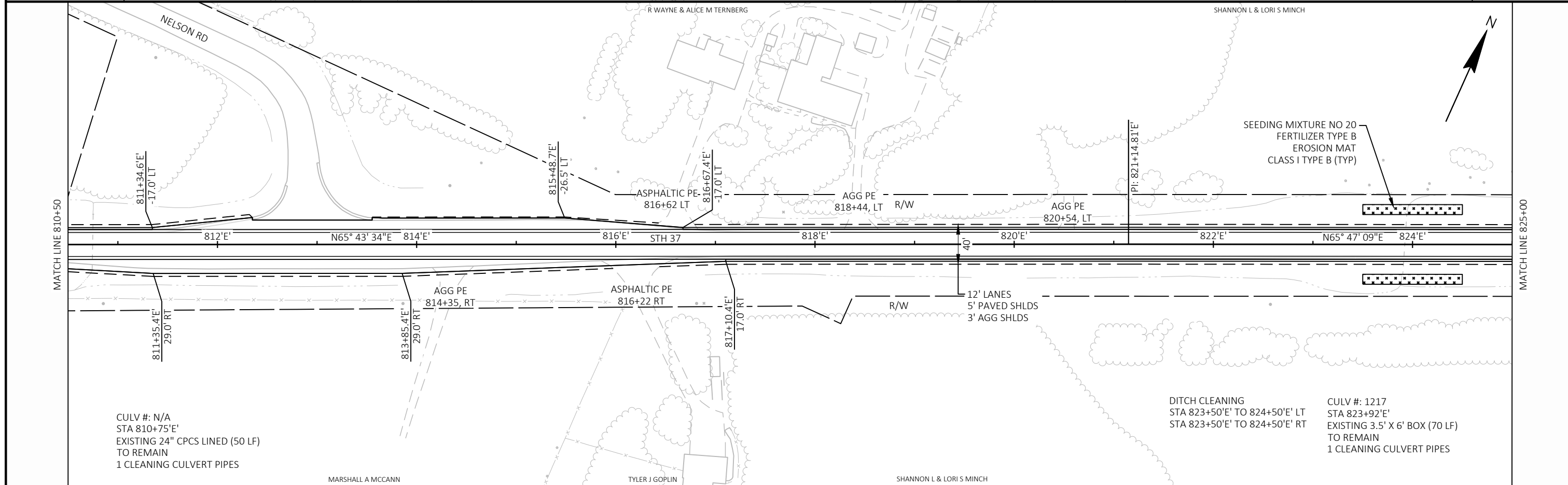
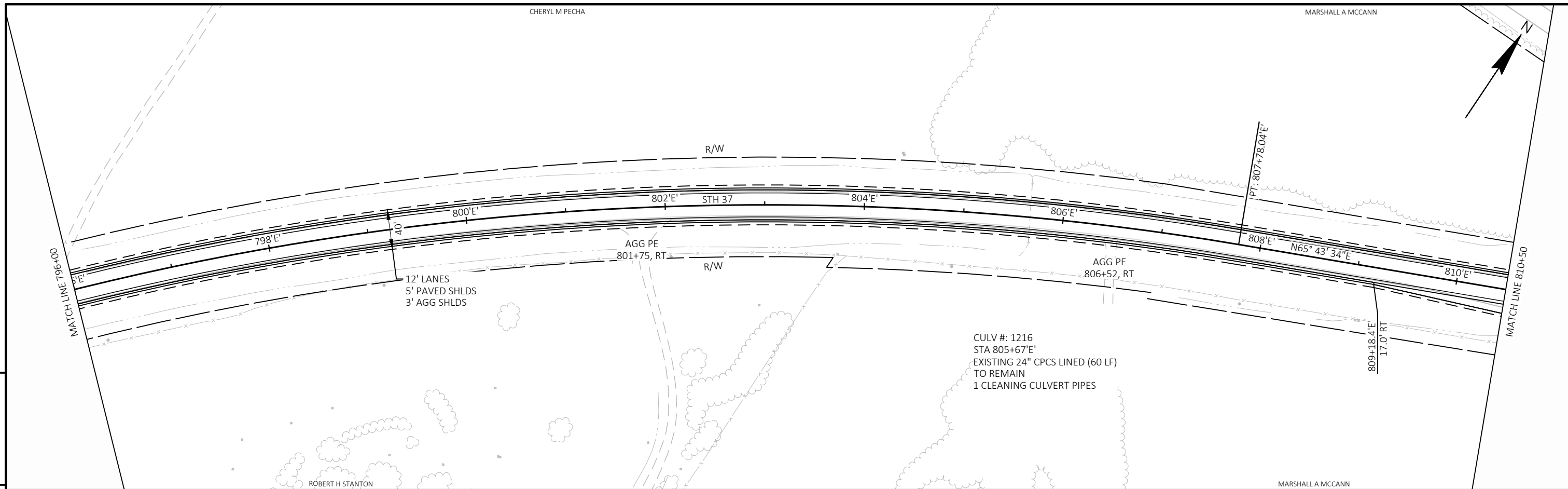


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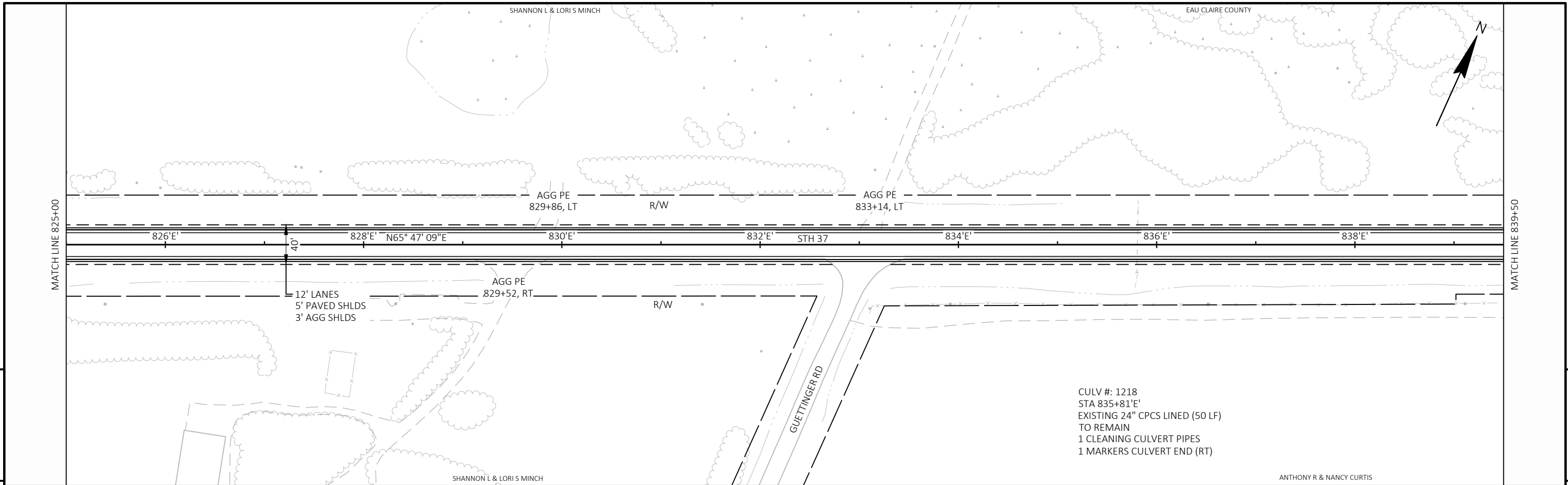
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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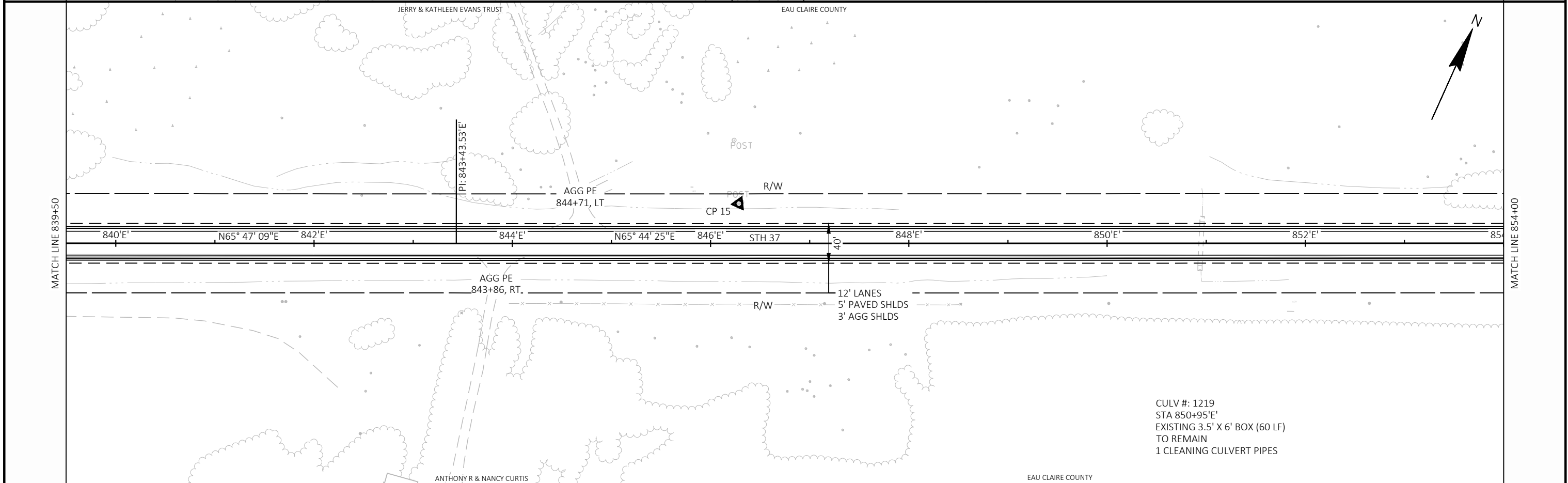


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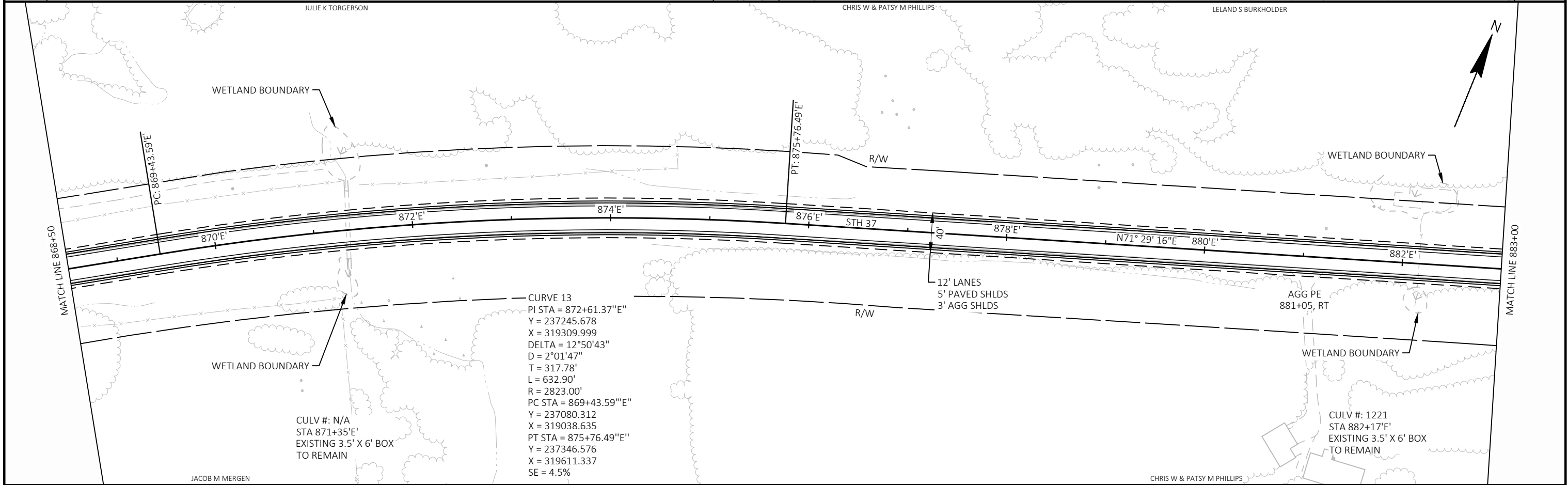
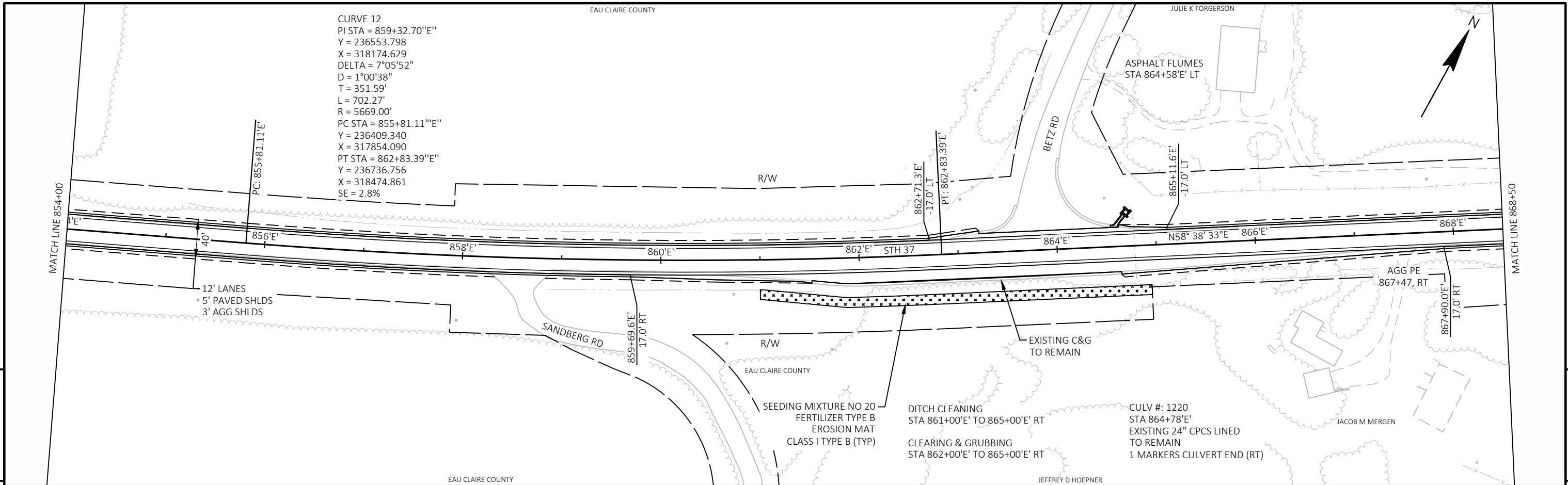


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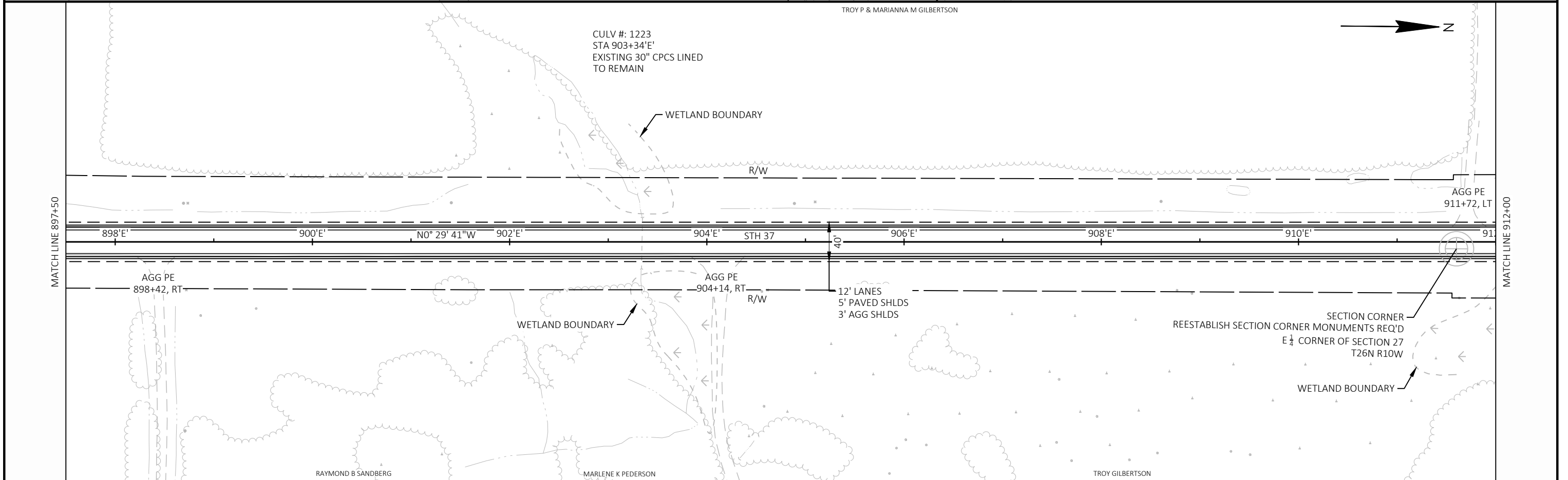
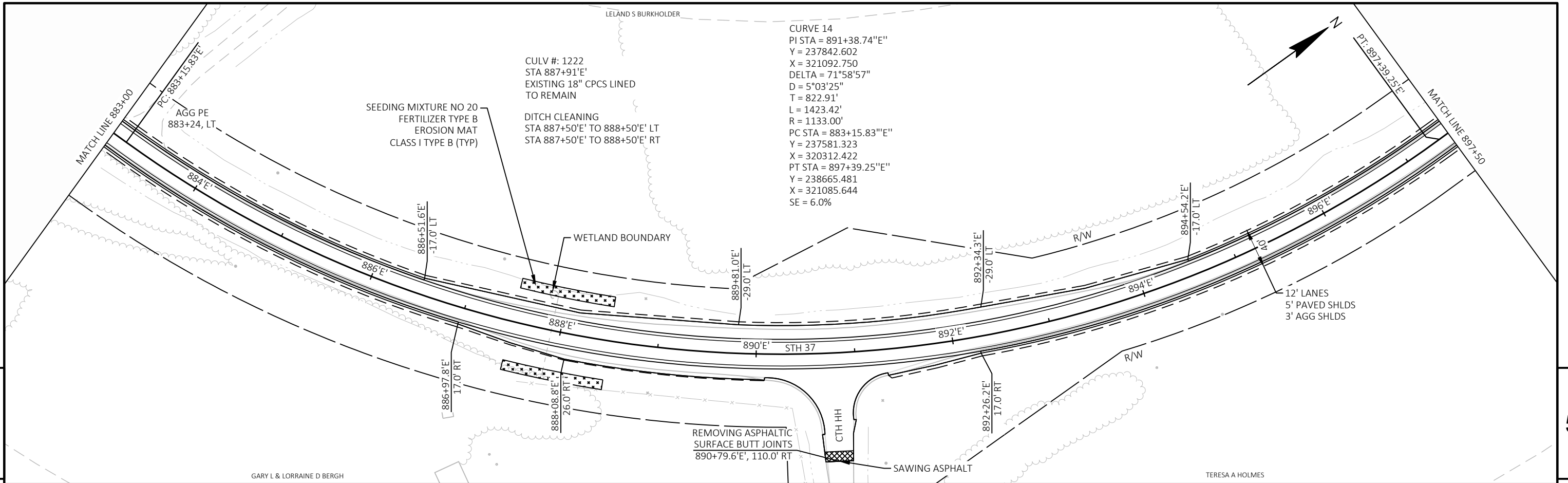
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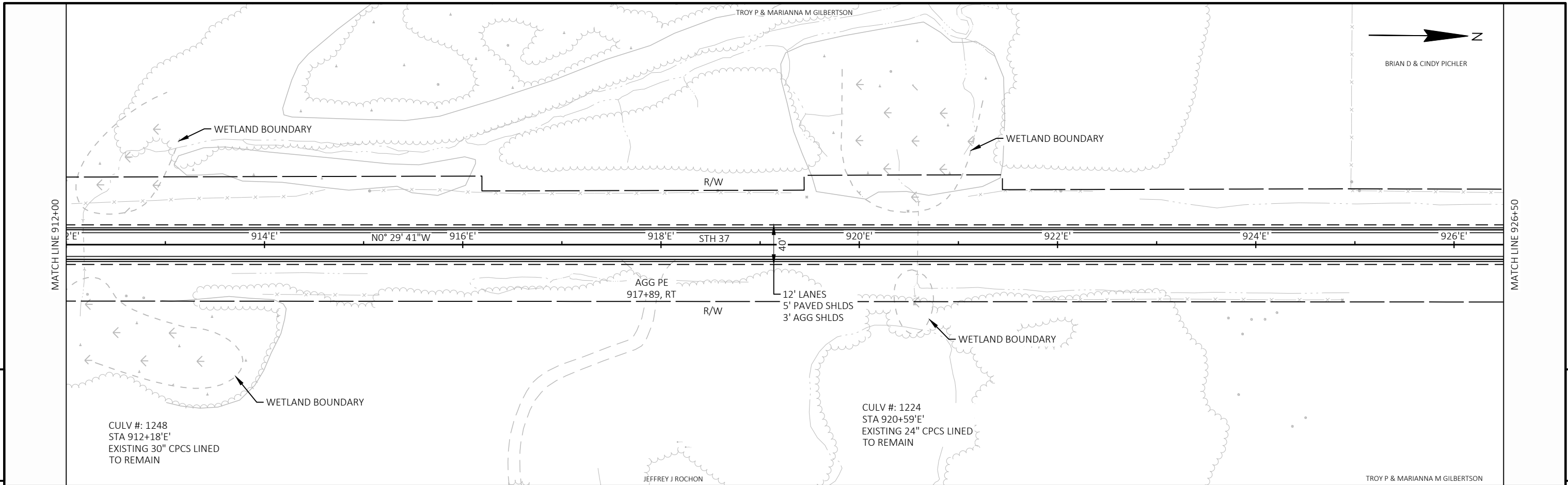
PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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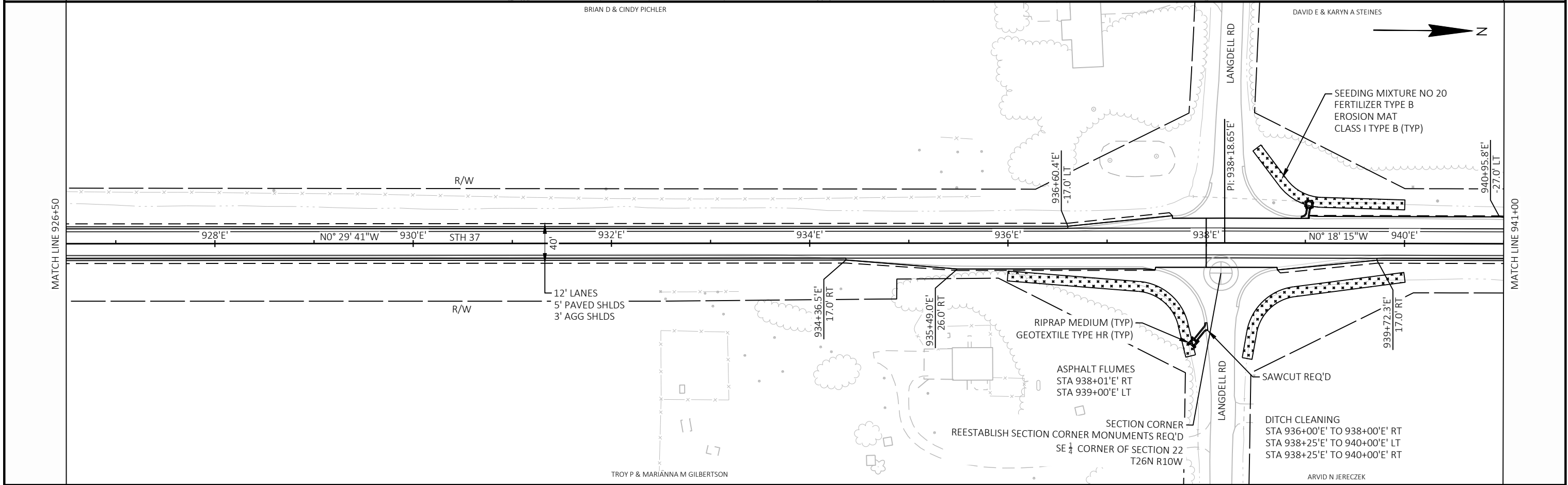


PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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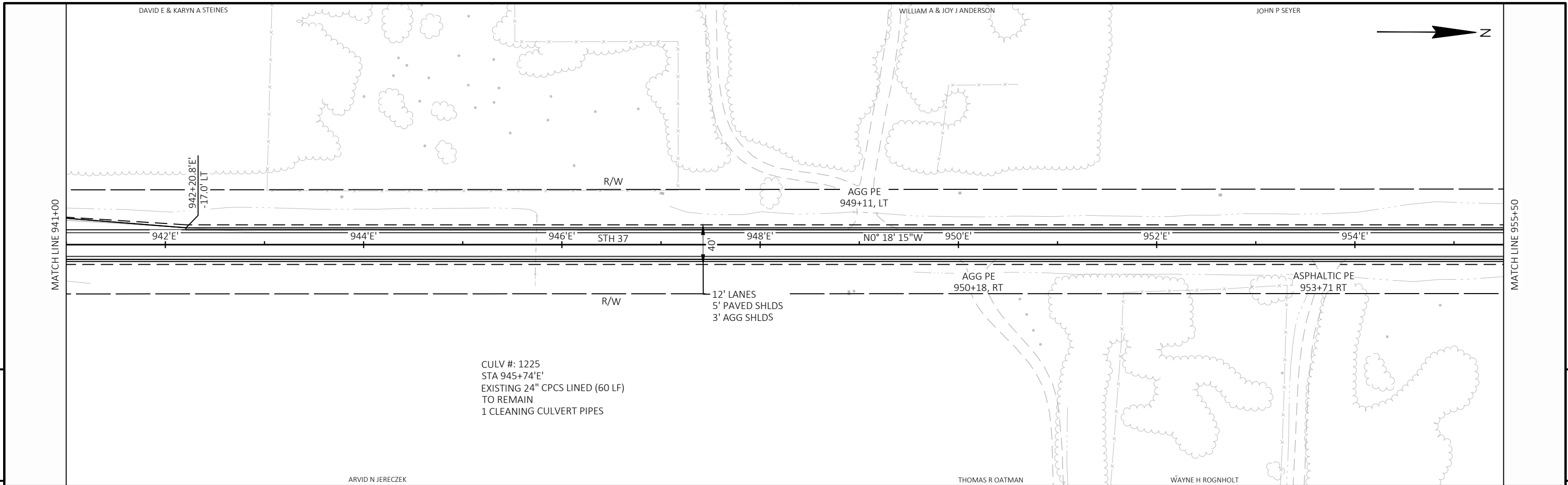


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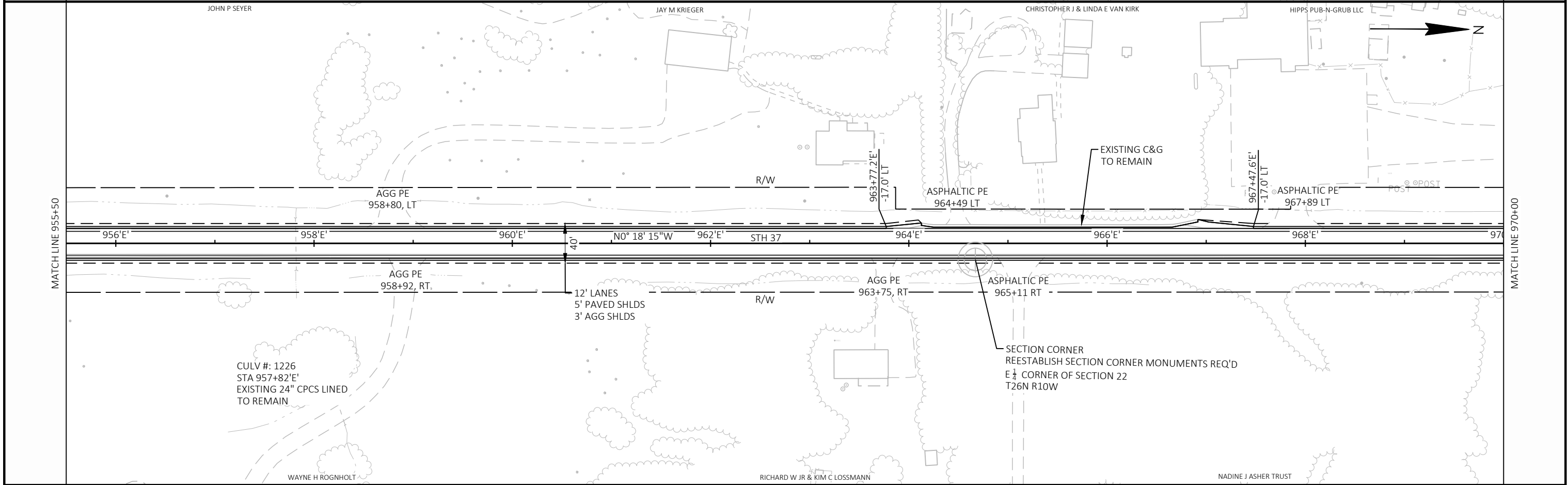


PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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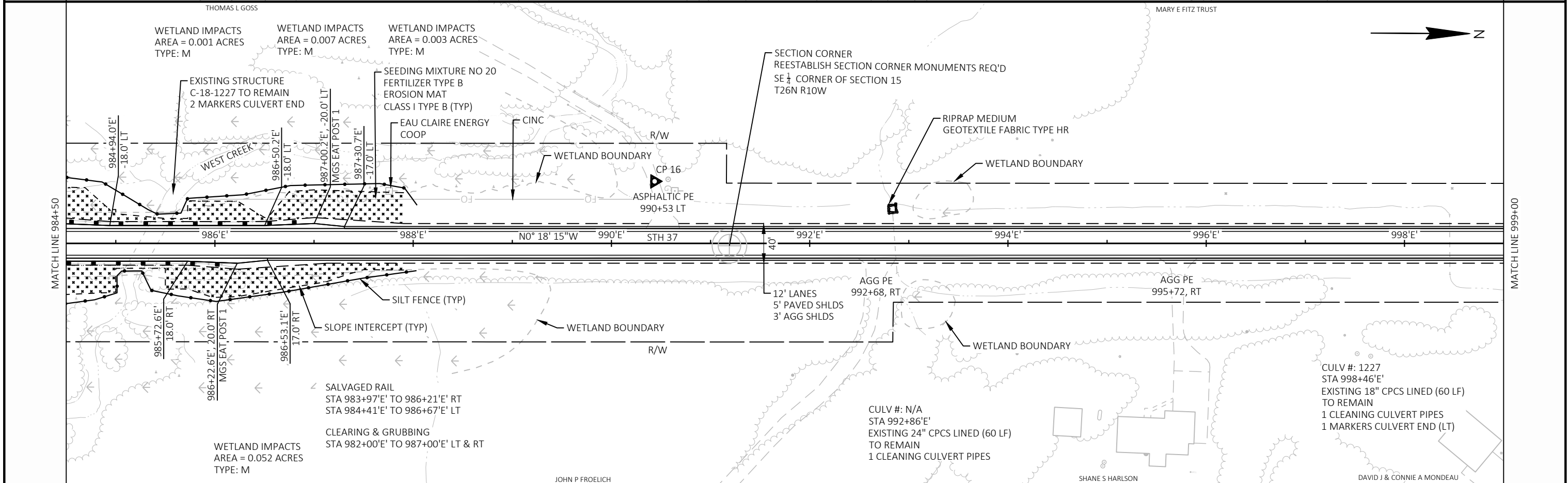
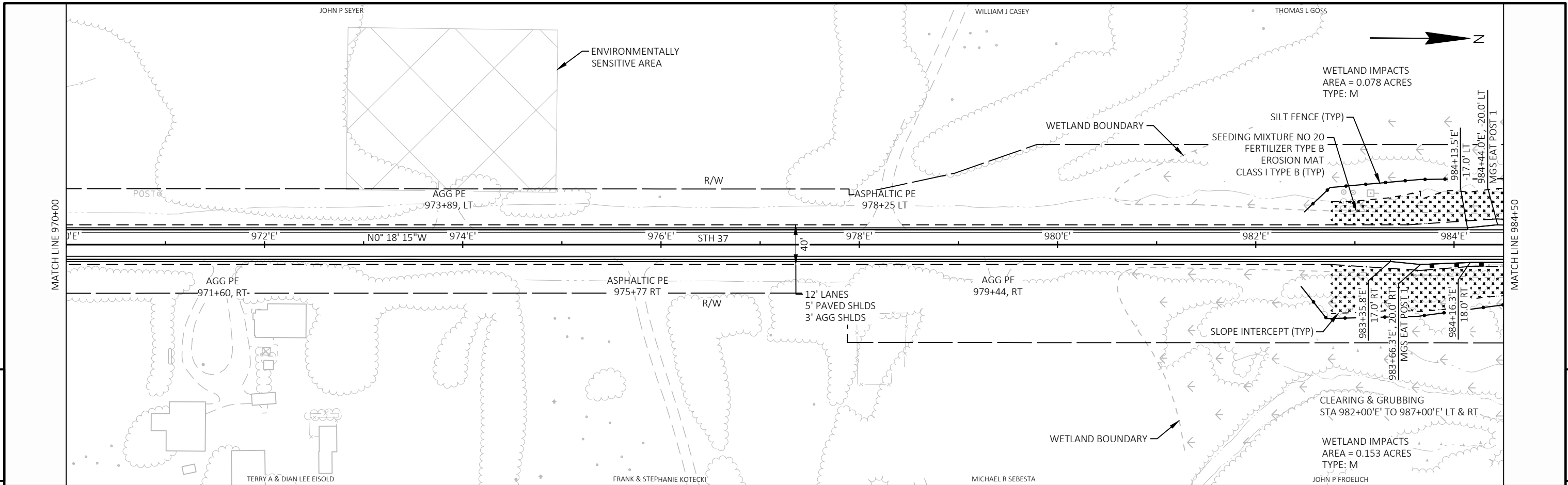


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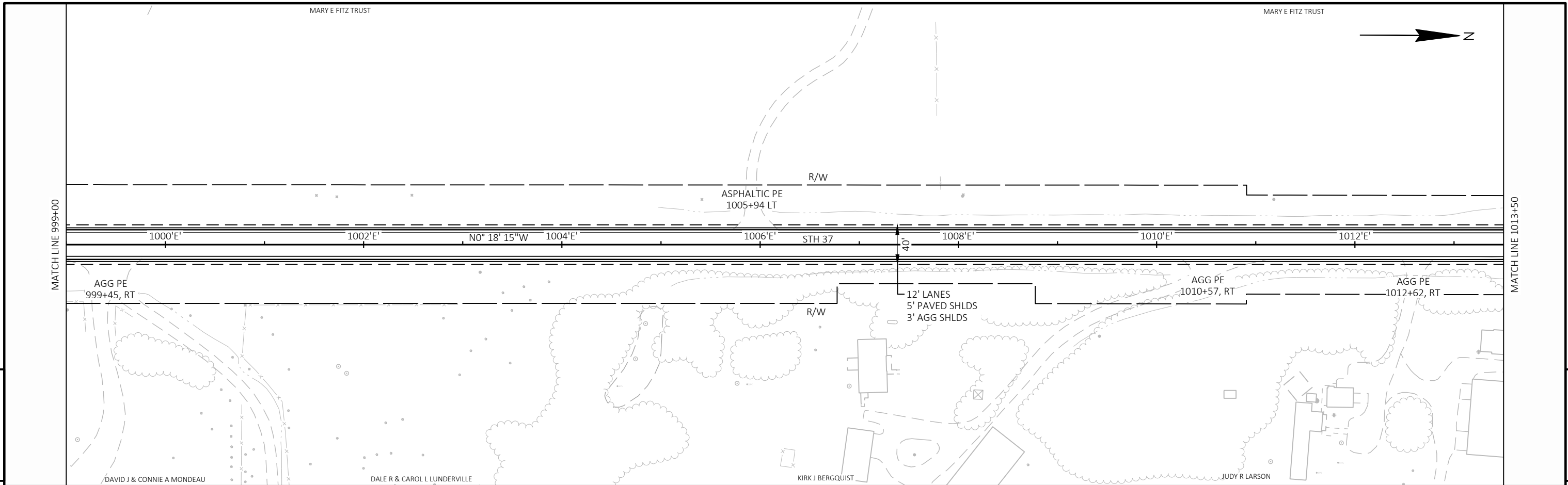
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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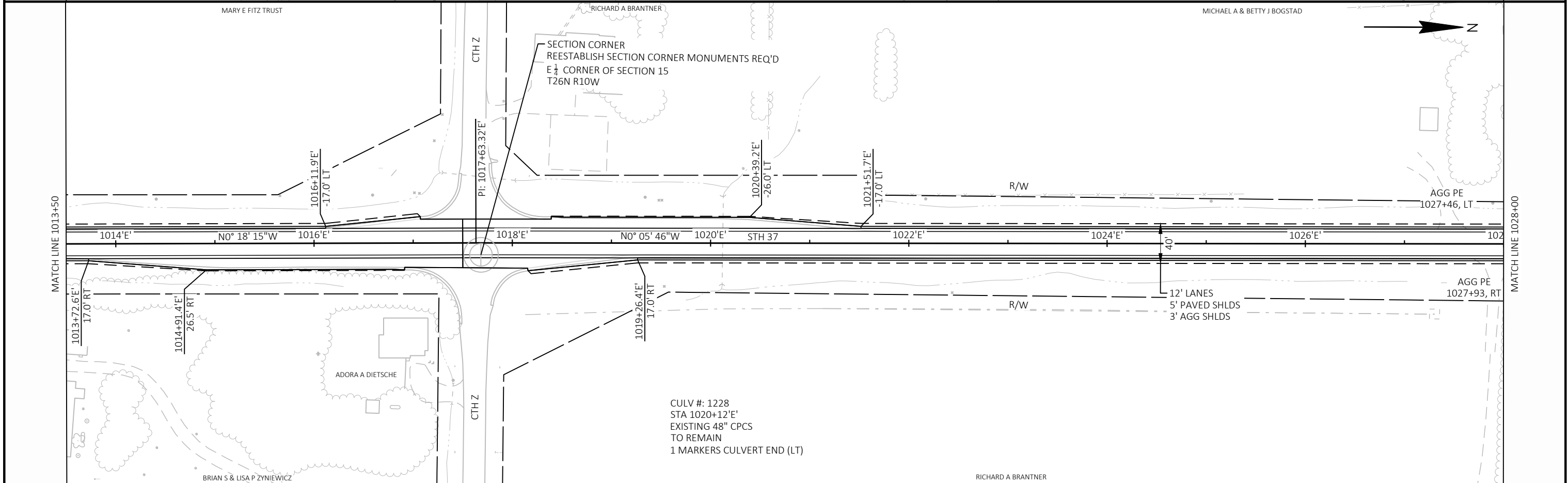


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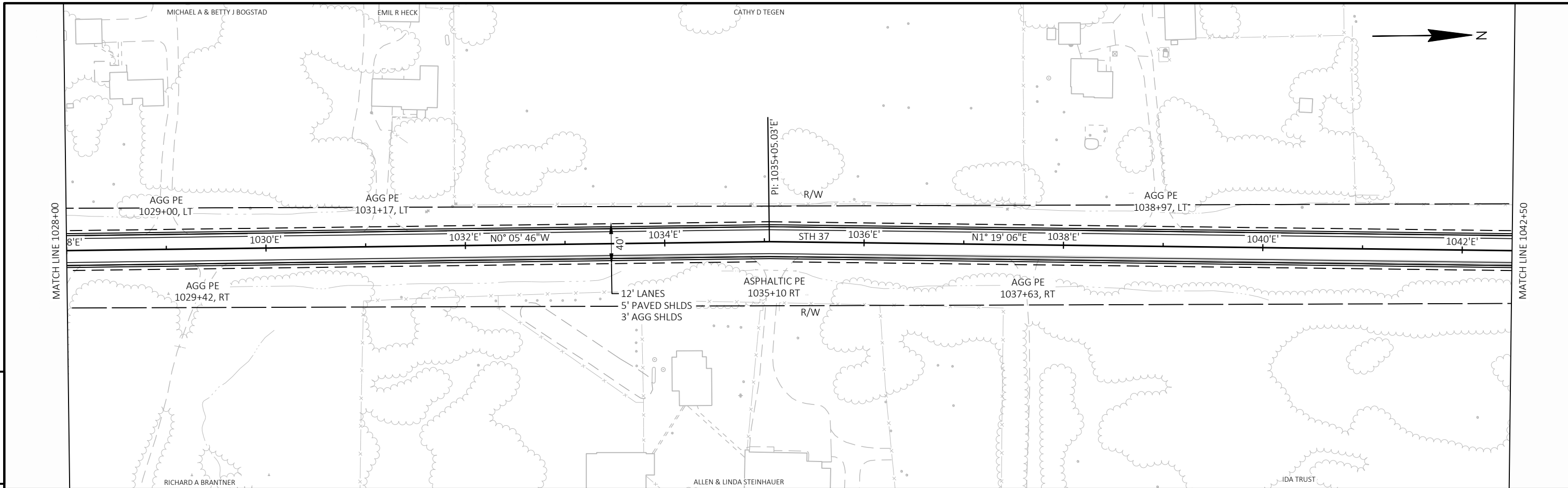


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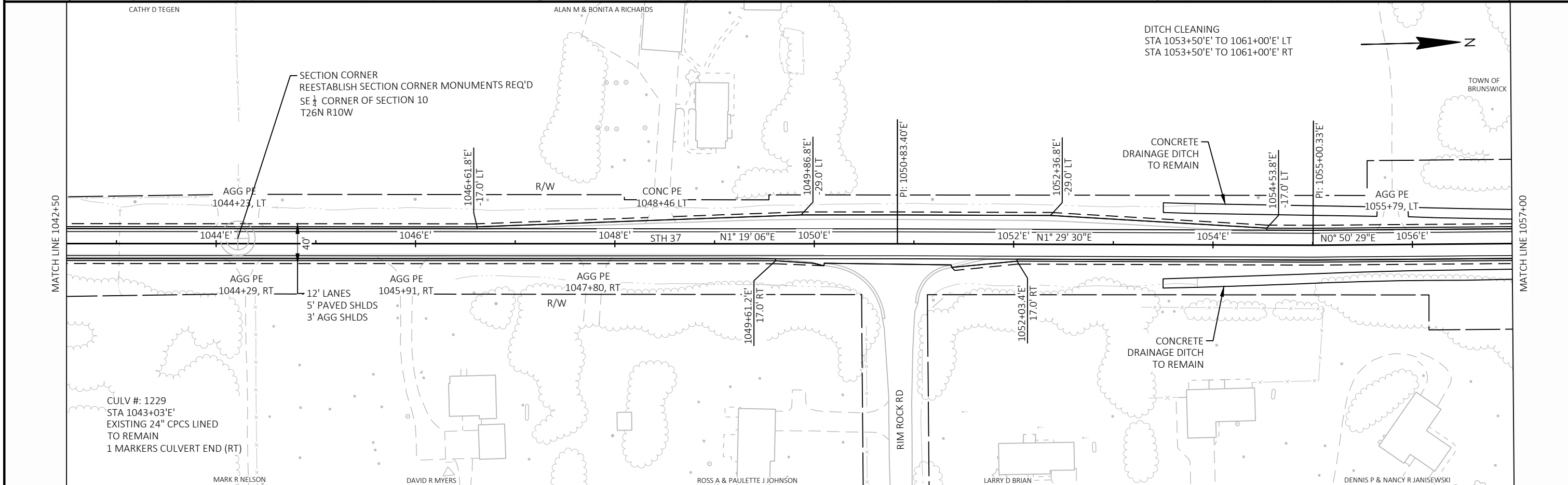


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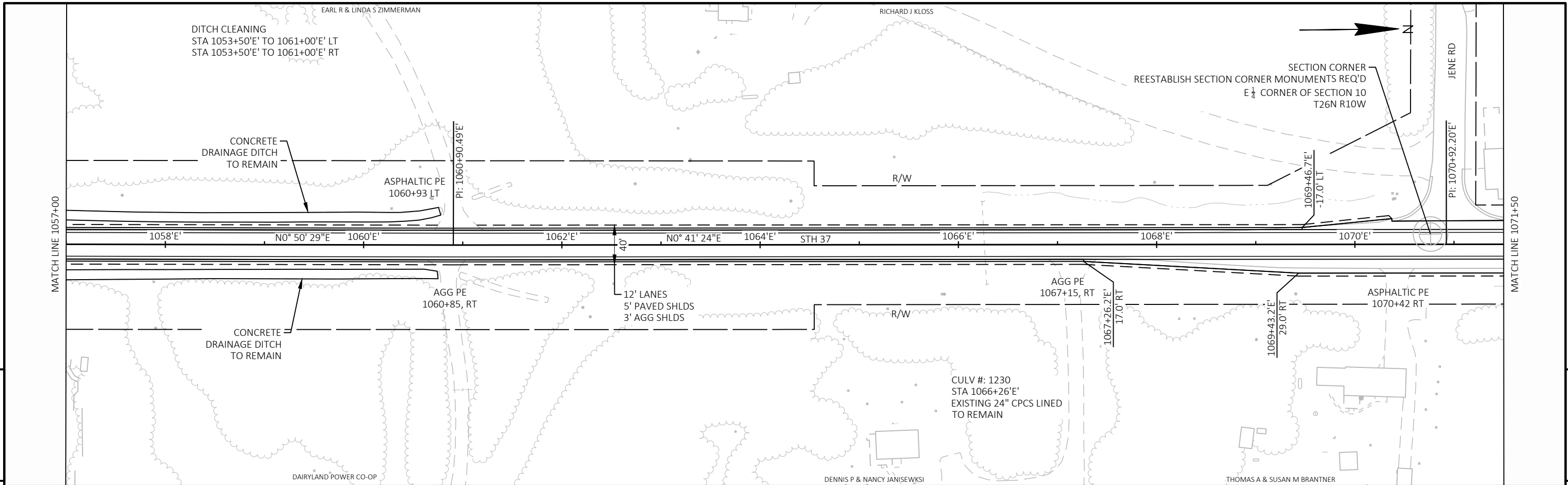


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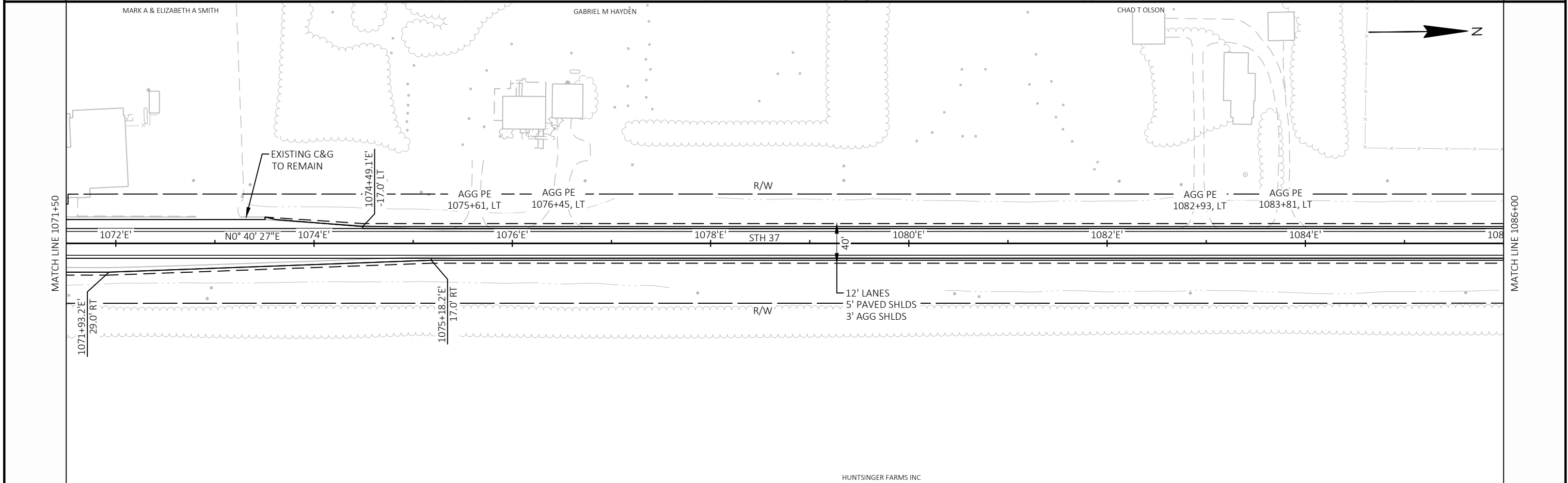


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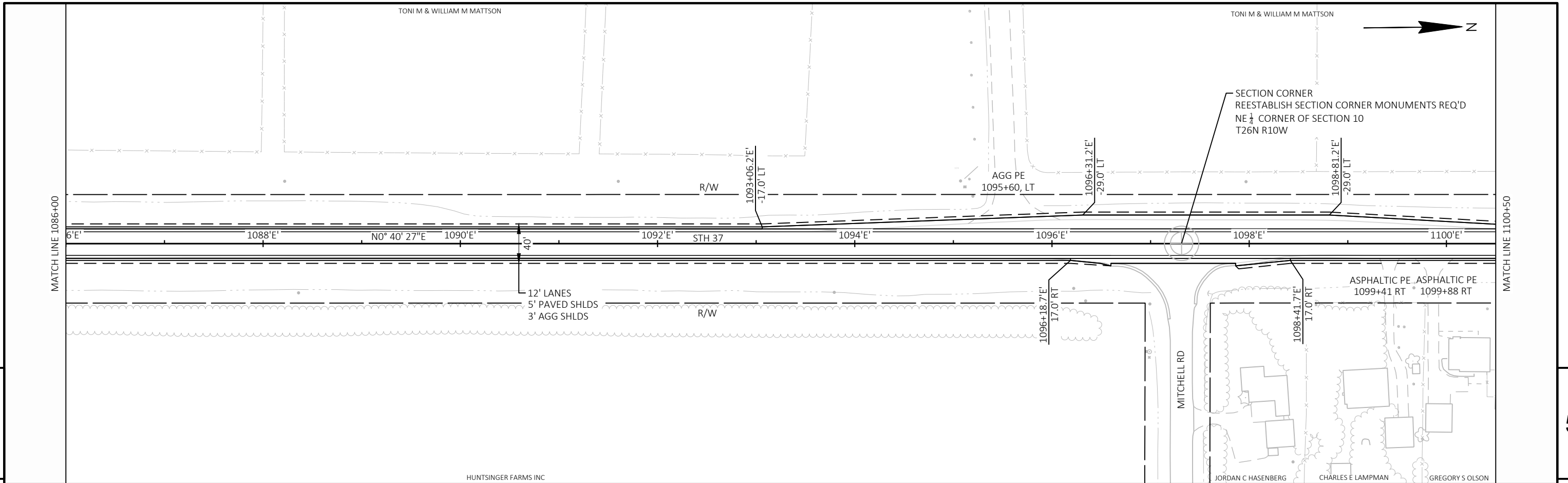


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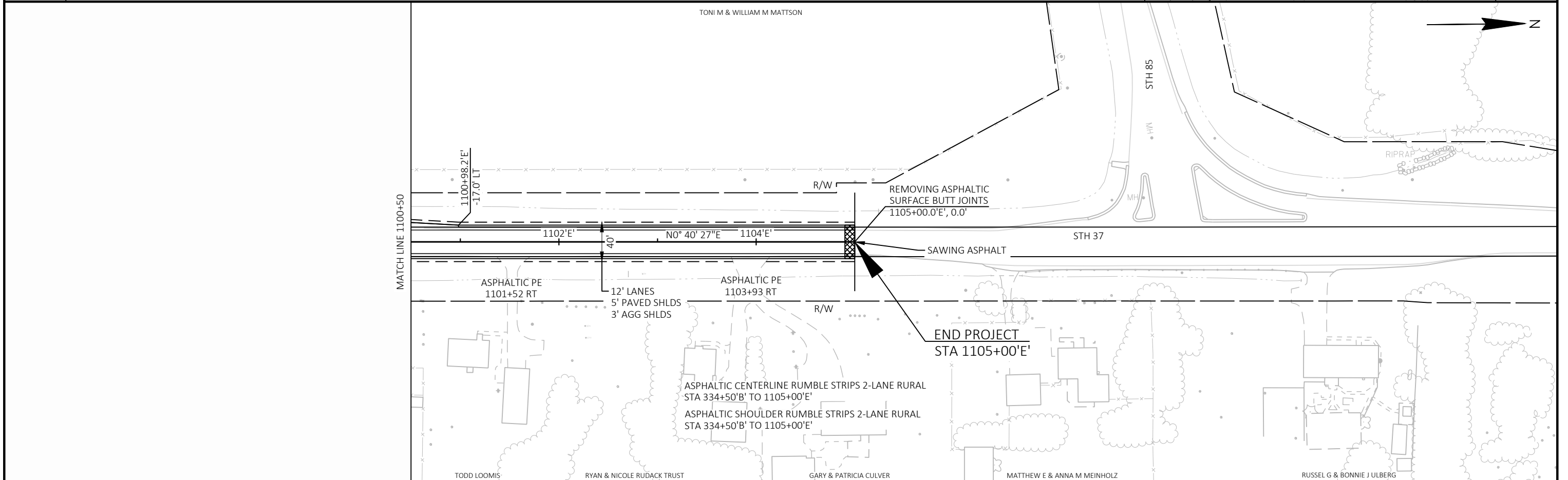


PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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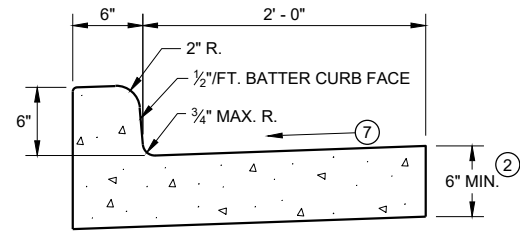
PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	STH 37 - WCCS EAU CLAIRE	SHEET	E
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Standard Detail Drawing List

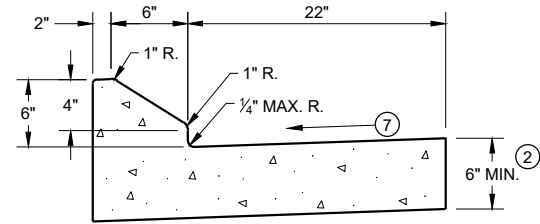
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
09G02-05A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
13A08-01	ASPHALTIC RUMBLE STRIPS AT INTERSECTION
13A10-02A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02B	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13C19-03	HMA LONGITUDINAL JOINTS
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
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
14B43-04A	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04B	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04C	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
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)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B53-01A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-08F	ADVANCED WIDTH RESTRICTION SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M. P. H. OR LESS
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

Standard Detail Drawing List

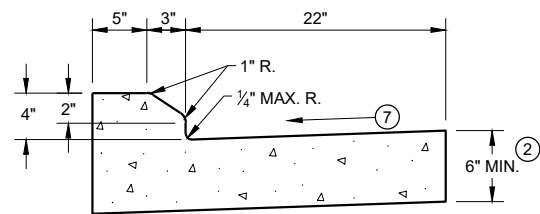
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C35-04A	PAVEMENT MARKING (INTERSECTIONS)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D33-06	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES
15D51-01	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY



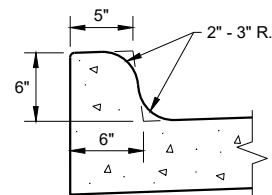
TYPES A^① & D



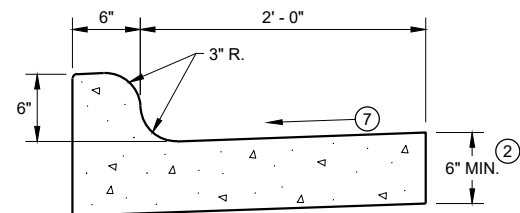
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

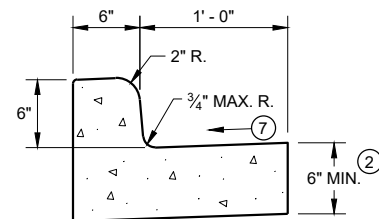


TYPES K^① & L
(OPTIONAL CURB SHAPE)



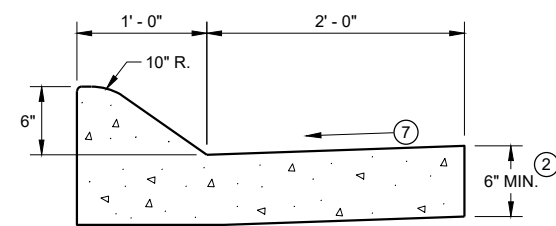
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

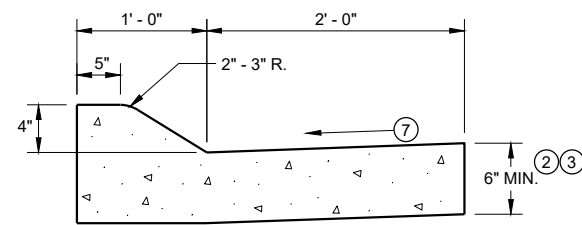


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

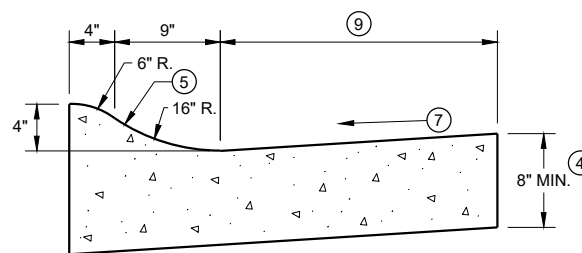


6" SLOPED CURB TYPES A^① & D



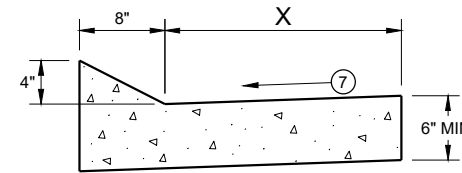
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

TBT & TBTT	X
30"	22"
36"	28"

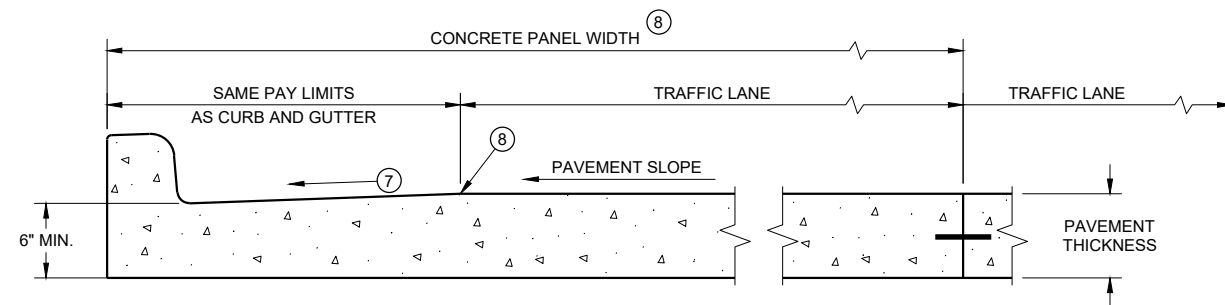


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

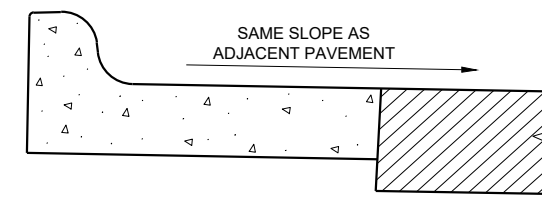
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

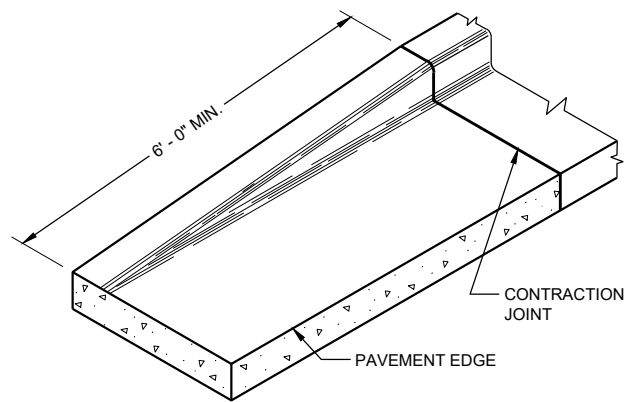
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

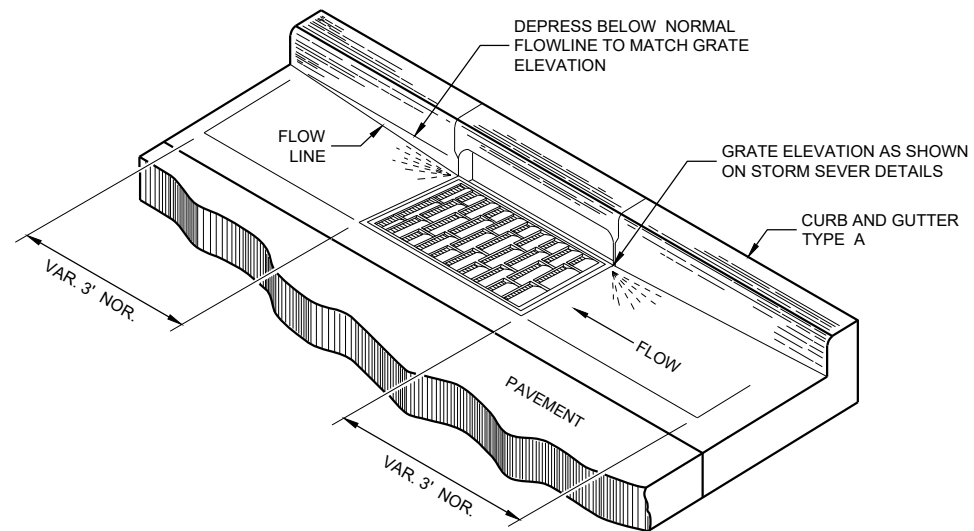
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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 GUTTERS TYPES A, G, K, R, AND TBTT.
- 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 USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ 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.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS
(TYPICAL H INLET COVER SHOWN)

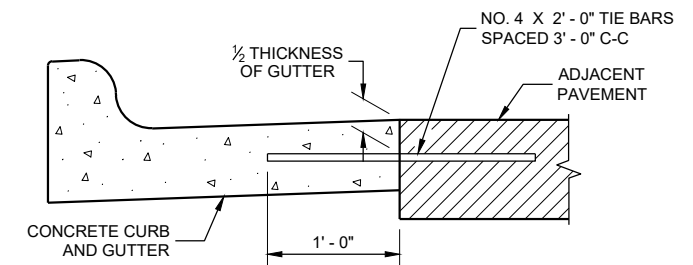
GENERAL NOTES

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

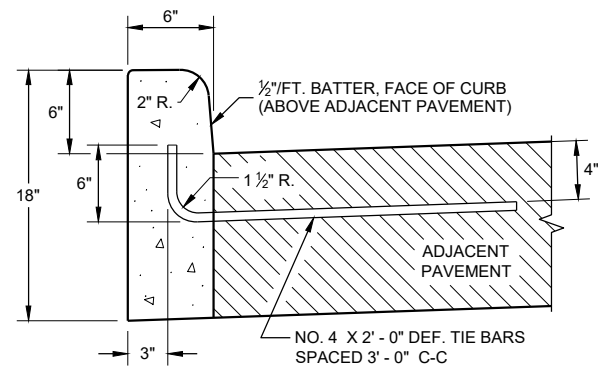
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

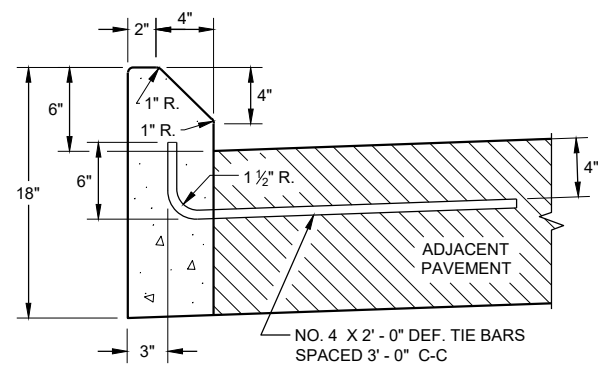
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



TYPICAL TIE BAR LOCATION ①

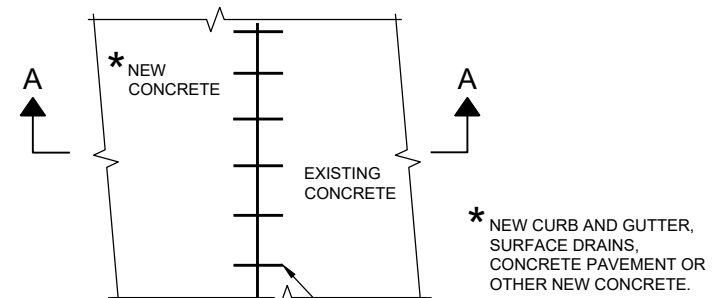


TYPES A ① & D

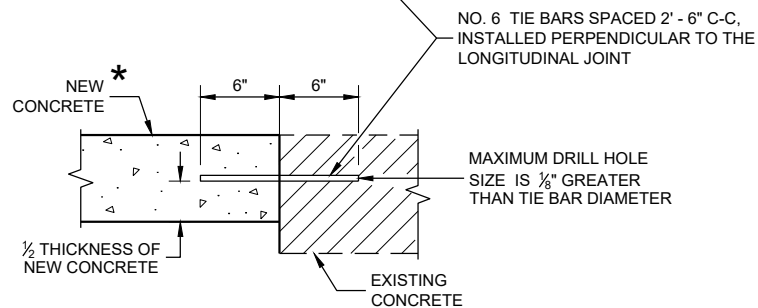


TYPES G ① & J

CONCRETE CURB

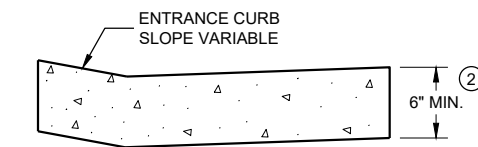


PLAN VIEW



SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT



DRIVEWAY ENTRANCE CURB ⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

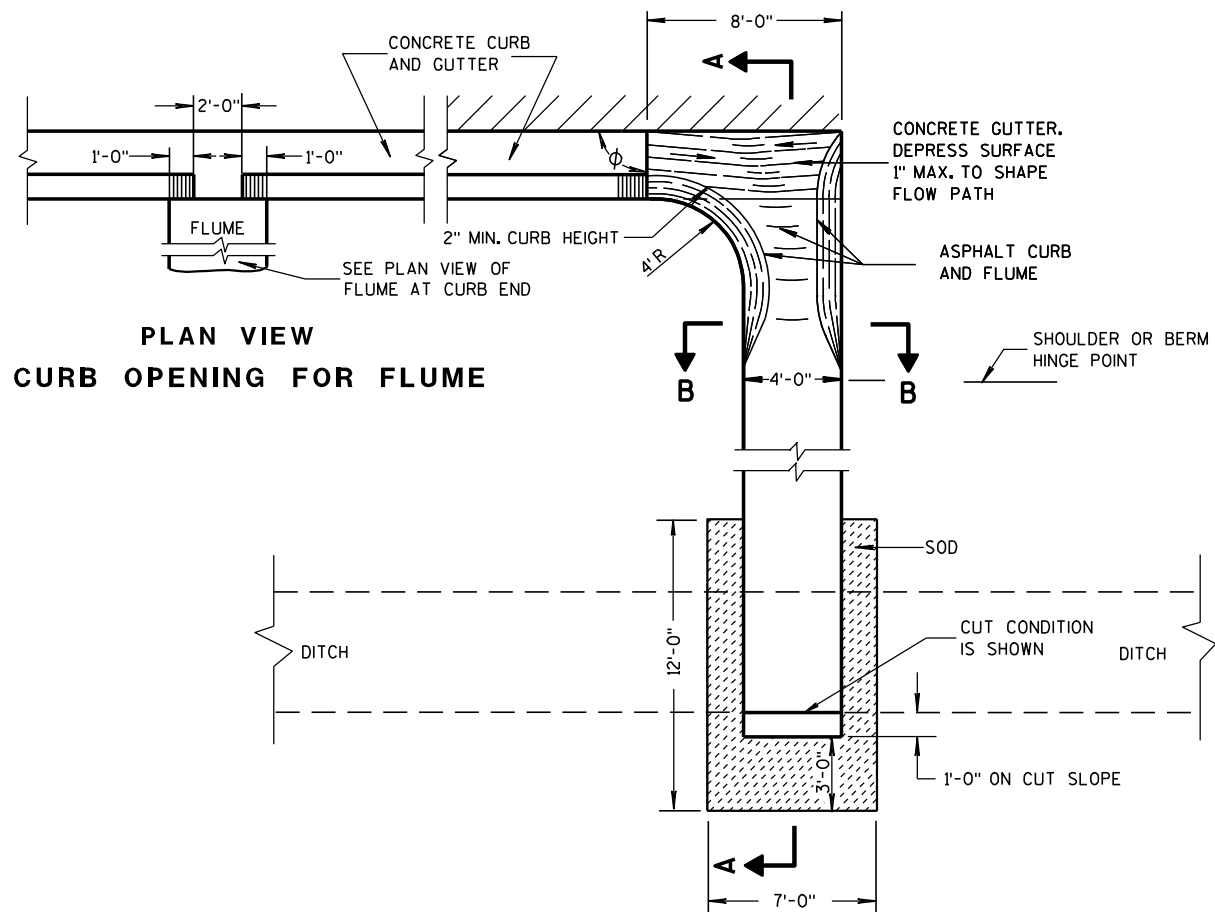
APPROVED
February 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

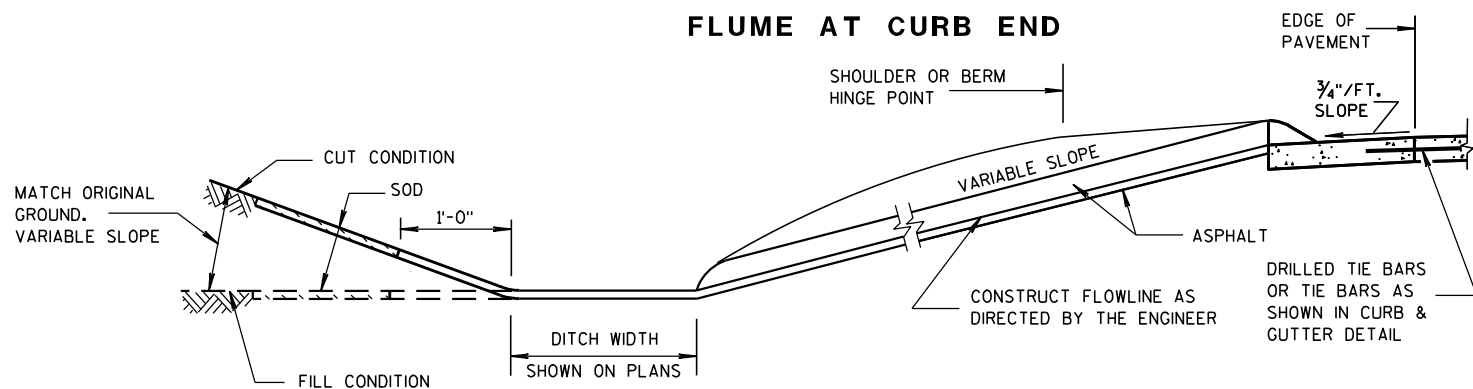
ASPHALTIC FLUME

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

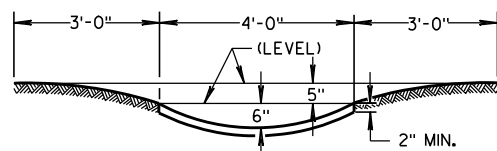
INCREASE ϕ FROM RIGHT ANGLE TO BEST FIT FIELD CONDITIONS



PLAN VIEW FLUME AT CURB END



SECTION B-B



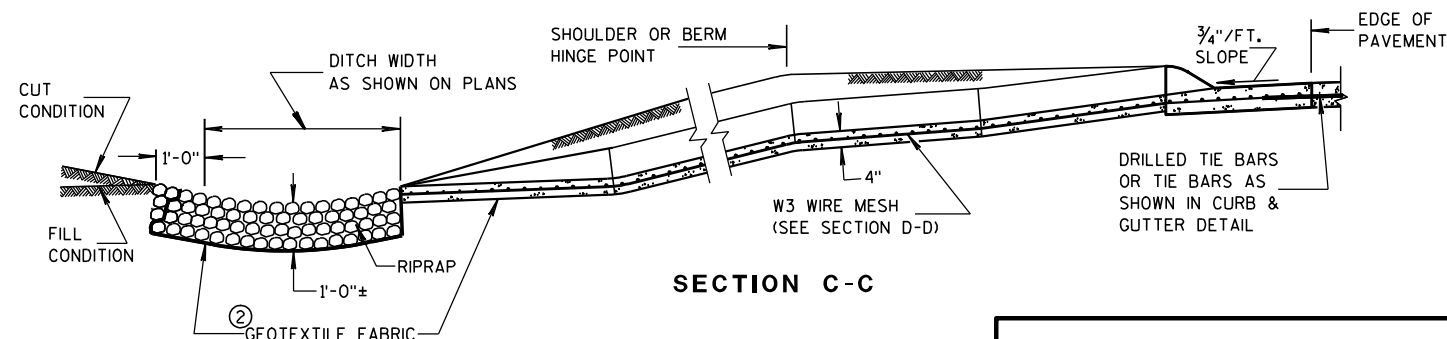
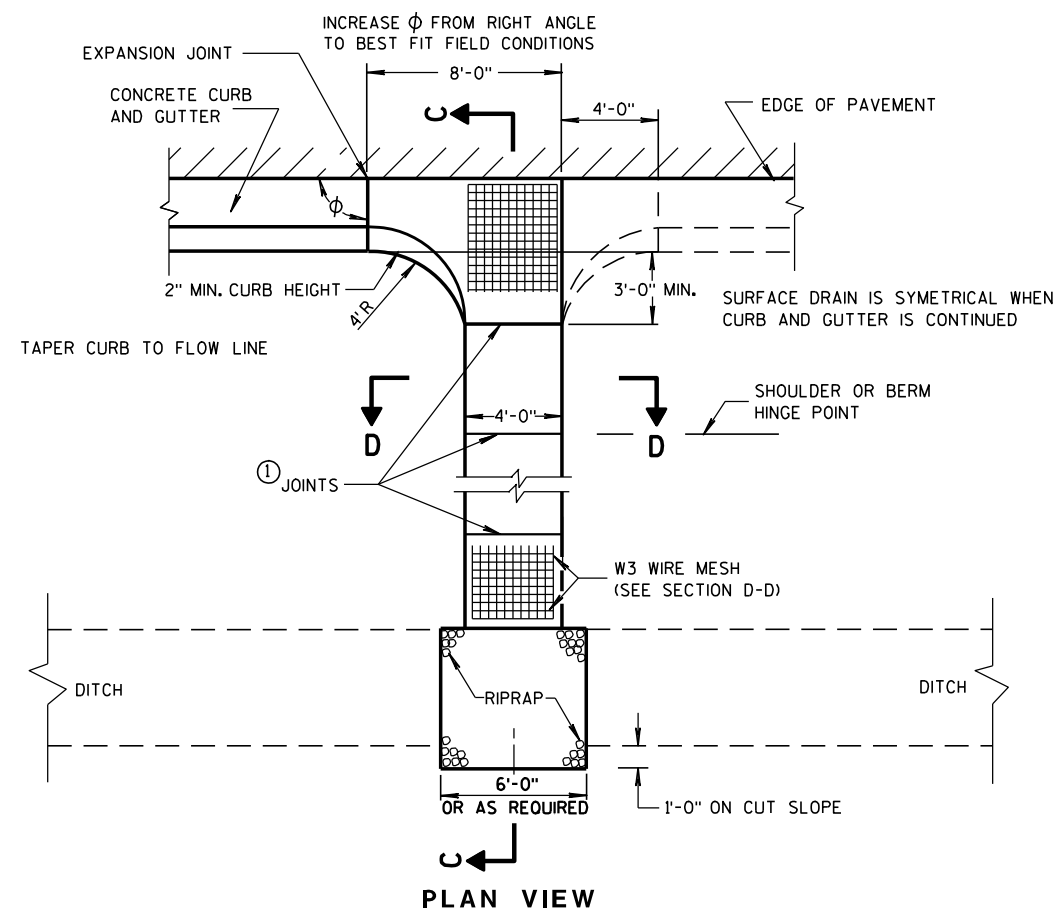
GENERAL NOTES

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

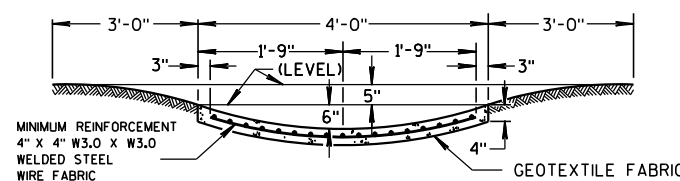
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- 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



SECTION D-D

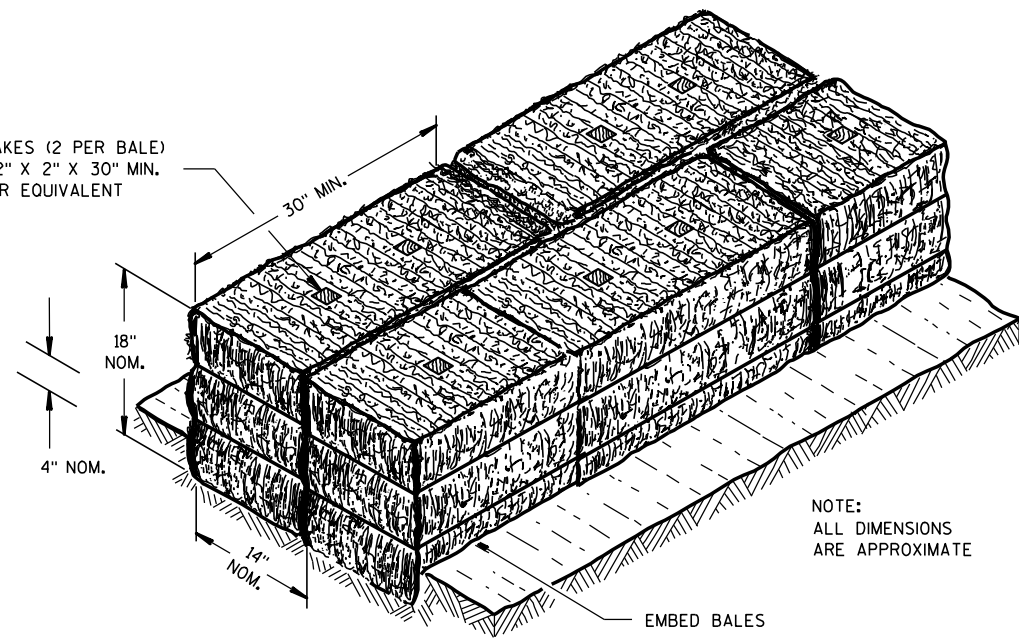


CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

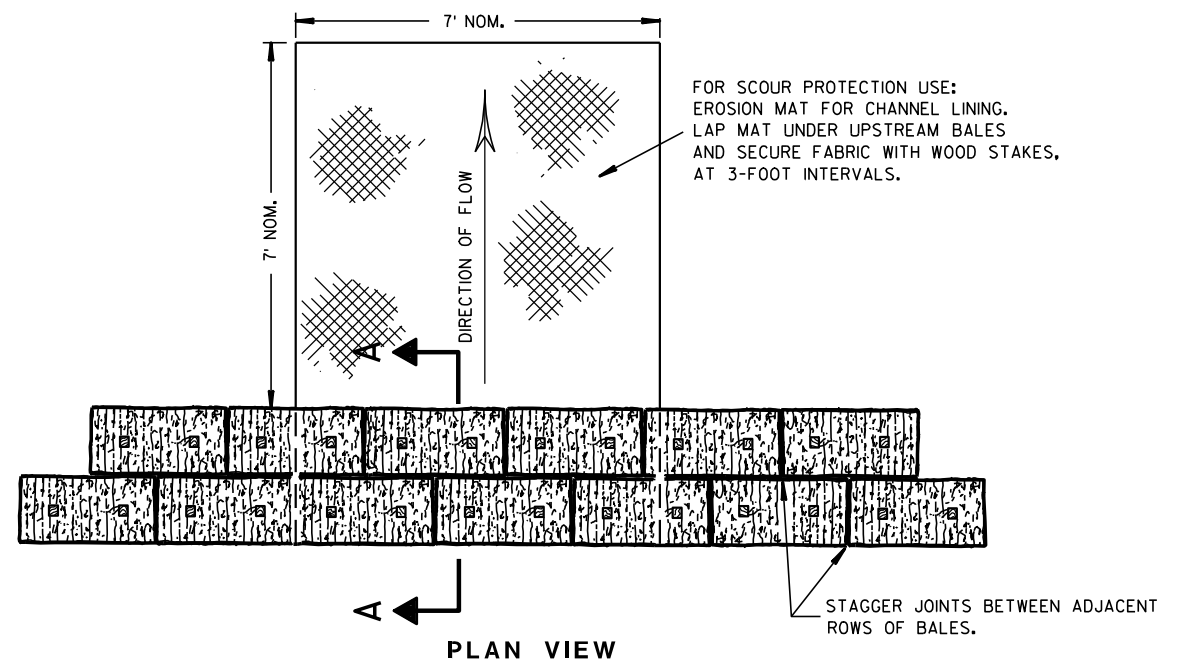
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

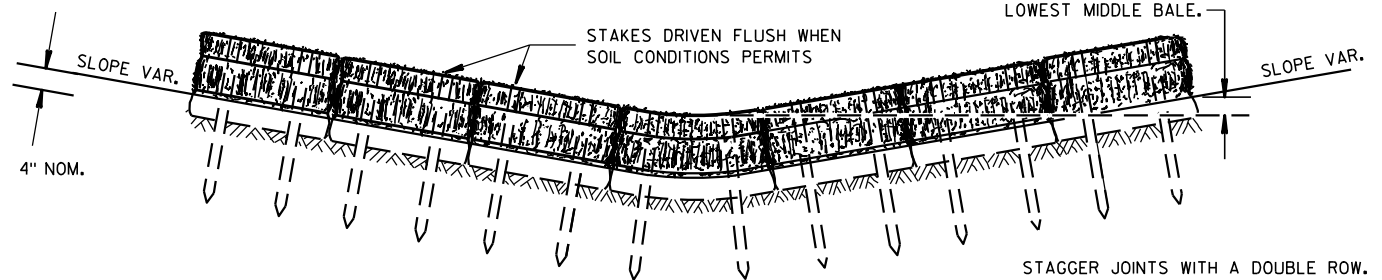
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



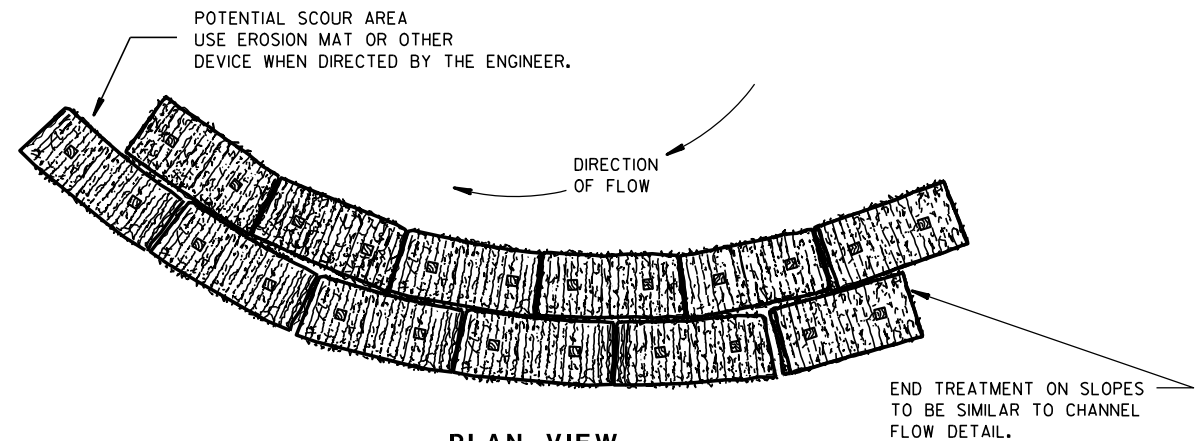
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

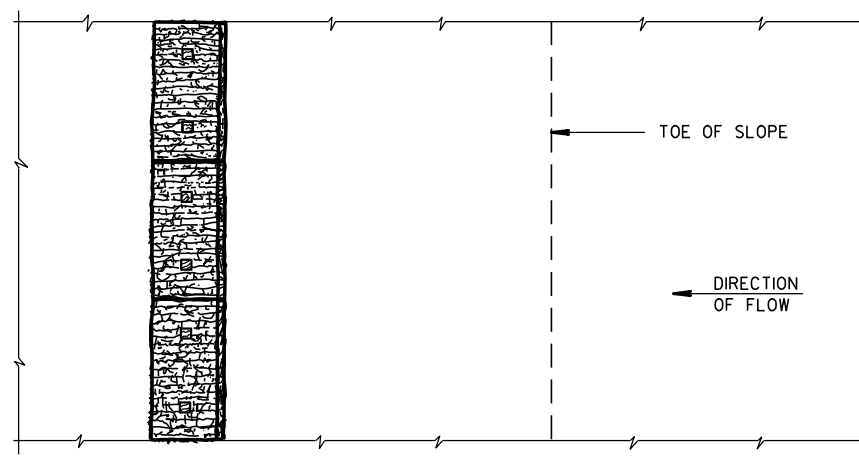
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

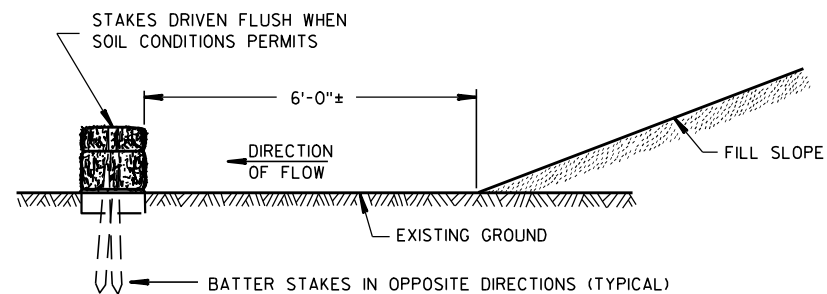


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

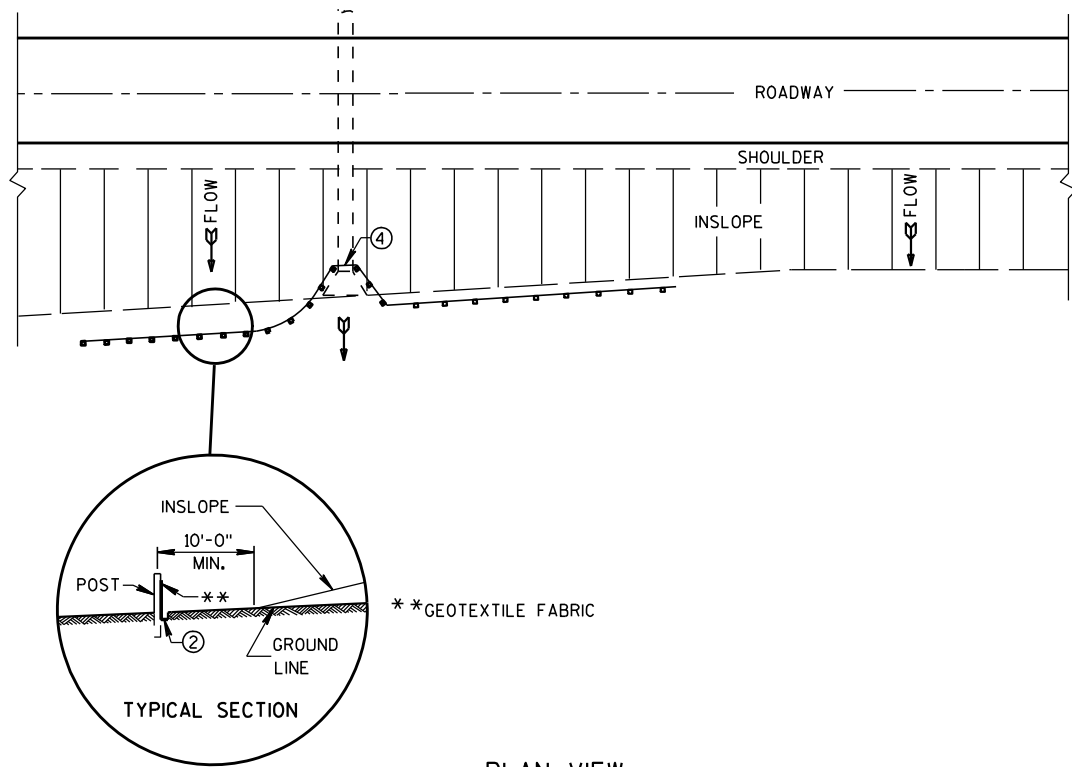
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

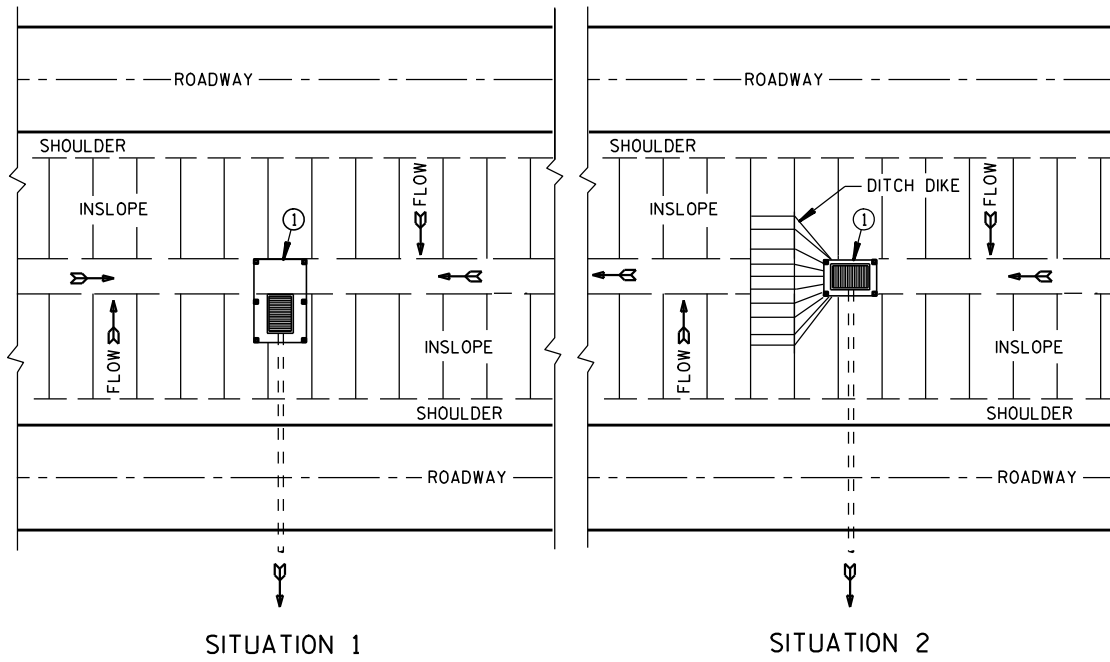
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

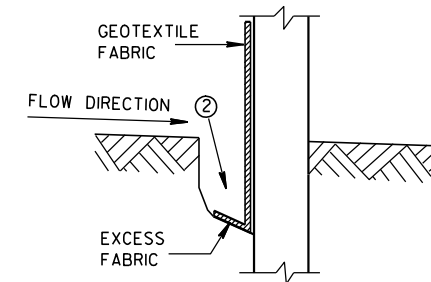


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

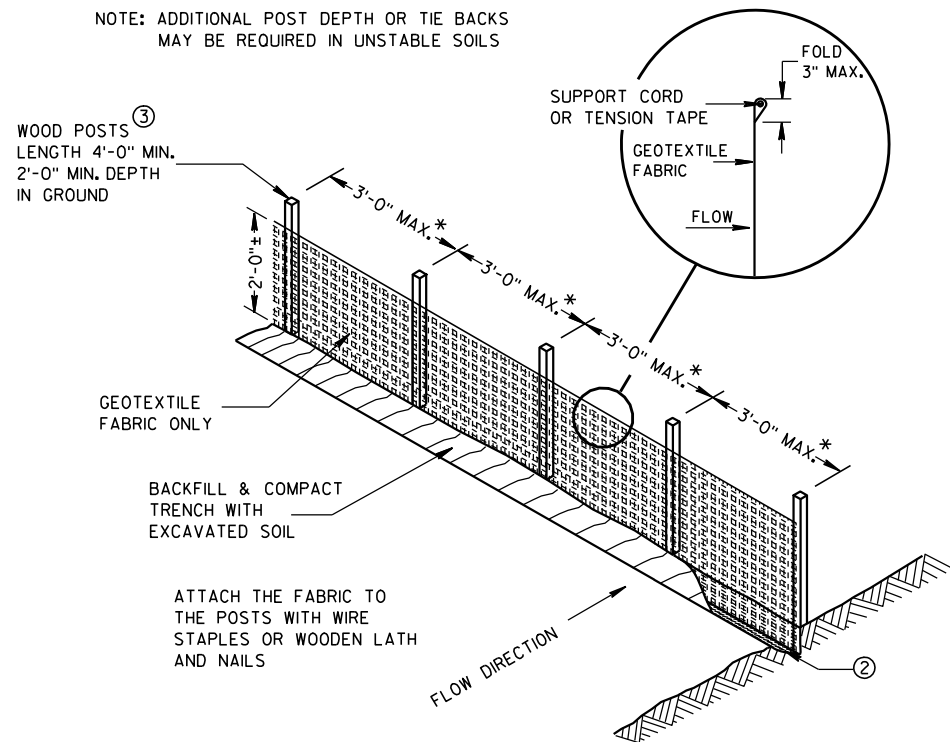
GENERAL NOTES

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

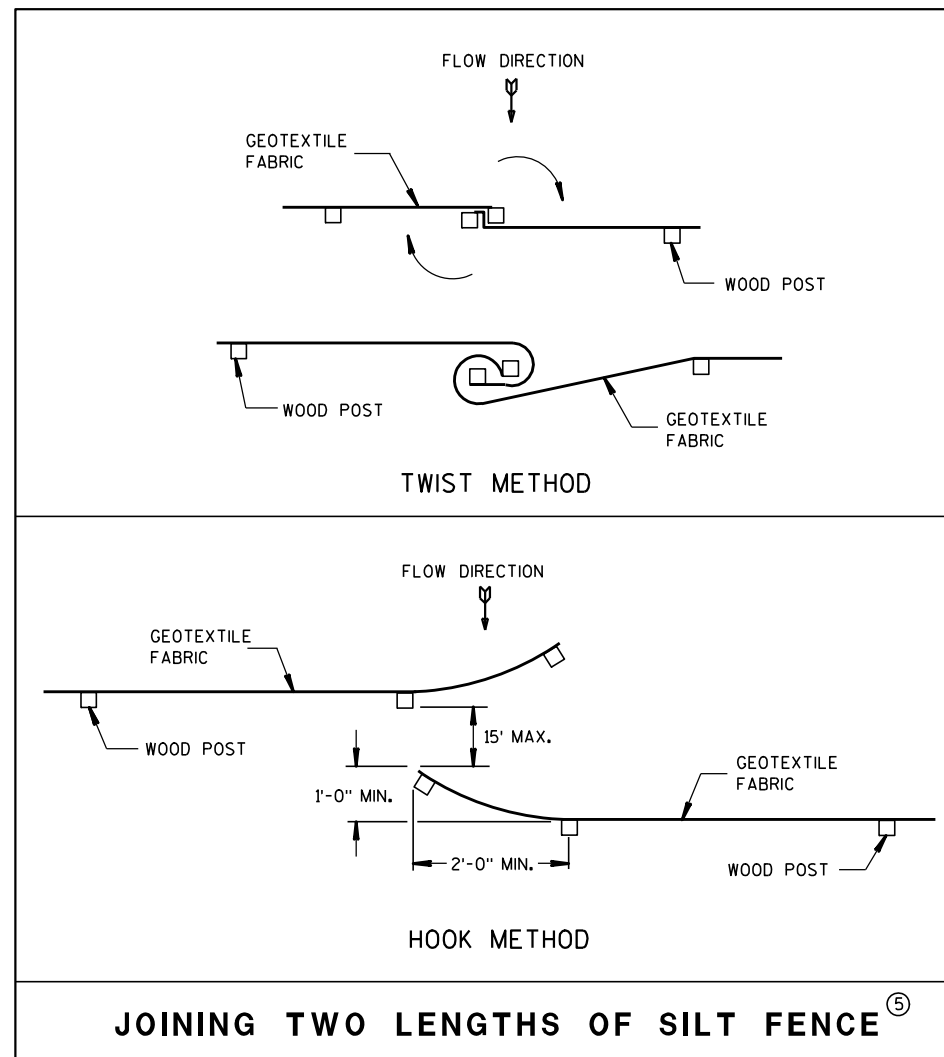
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS 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.



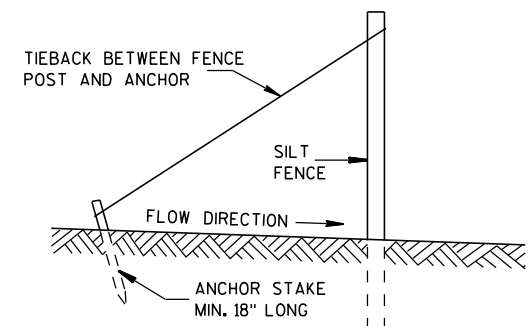
TRENCH DETAIL



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤

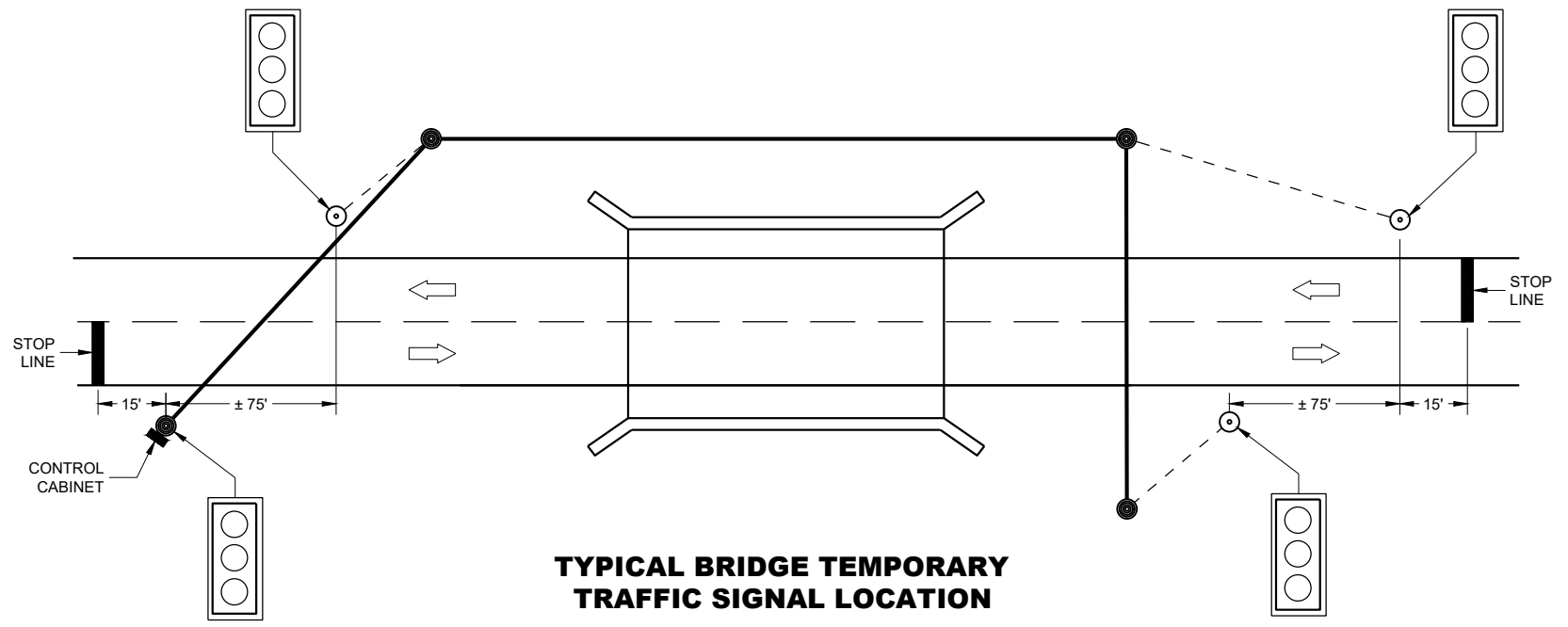


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

LEGEND

- WOOD POLE (NON-BREAKAWAY)
- WOOD POST (BREAKAWAY)
- - - SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- ➔ DIRECTION OF TRAFFIC
- LED TRAFFIC SIGNAL WITH BACKPLATE
3-12"

GENERAL NOTES

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

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAY BE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY POLES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

WOOD POLES (NON-BREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAM GUARD, ETC.).

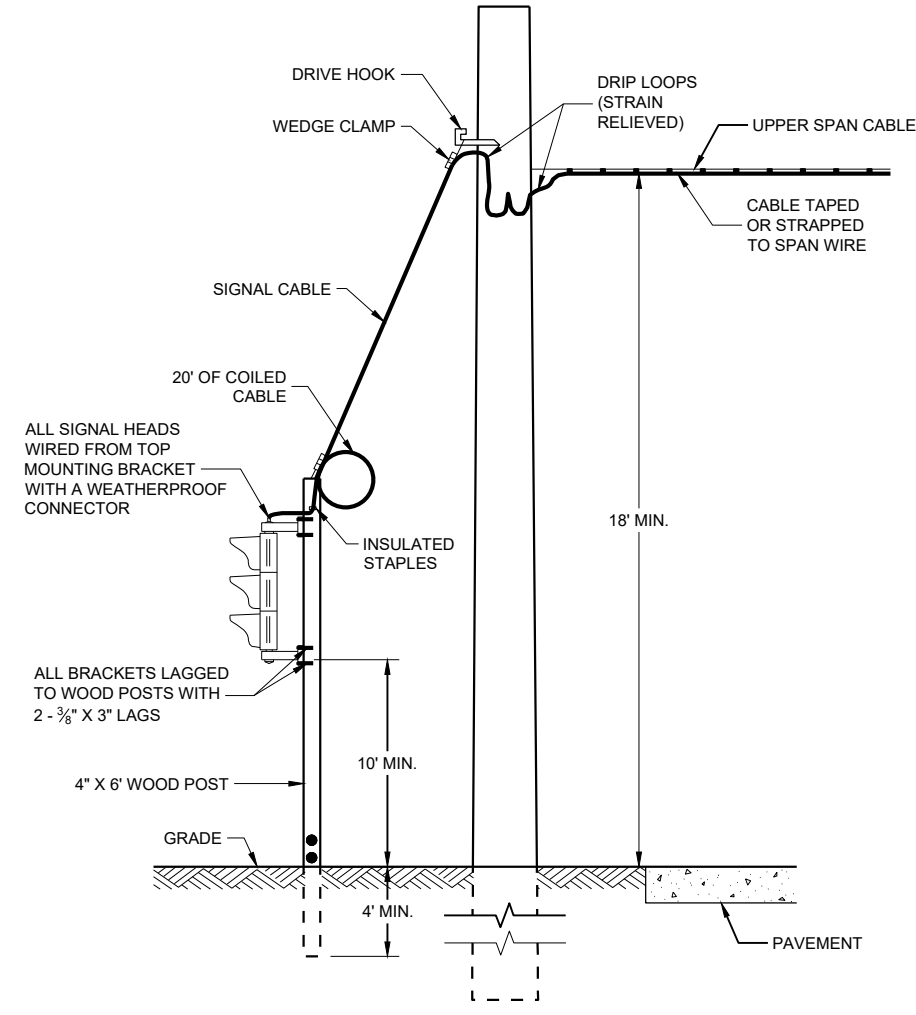
WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

VERTICAL CLEARANCE ETC. PER NEC.

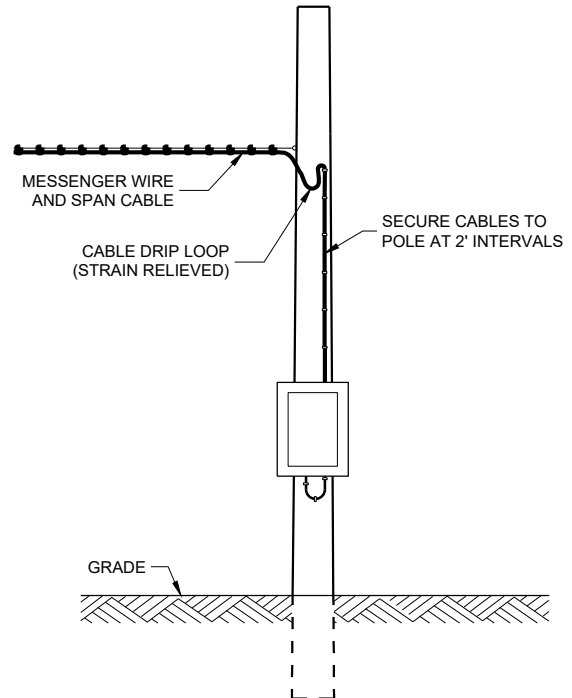
TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

EACH TRAFFIC SIGNAL SHALL HAVE A BACKPLATE.

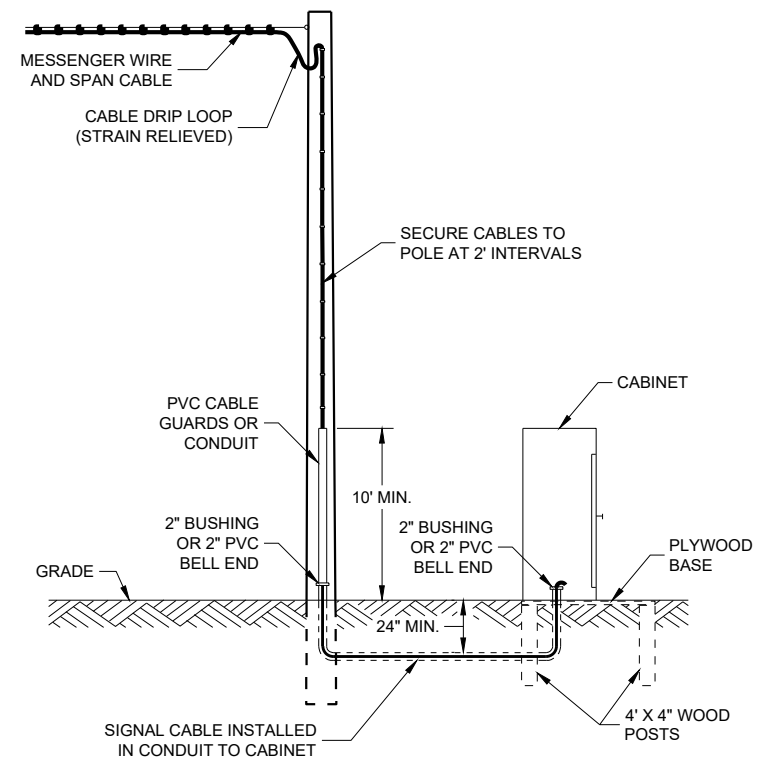
SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



TYPICAL DROP TO TRAFFIC SIGNAL FACE



POLE MOUNT CABINET INSTALLATION



GROUND MOUNT CABINET INSTALLATION

MINIMUM POLE LENGTHS	CLASS	POLE BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE*
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/CURBS	2 FT

* NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Ahmet Demirelek
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

6

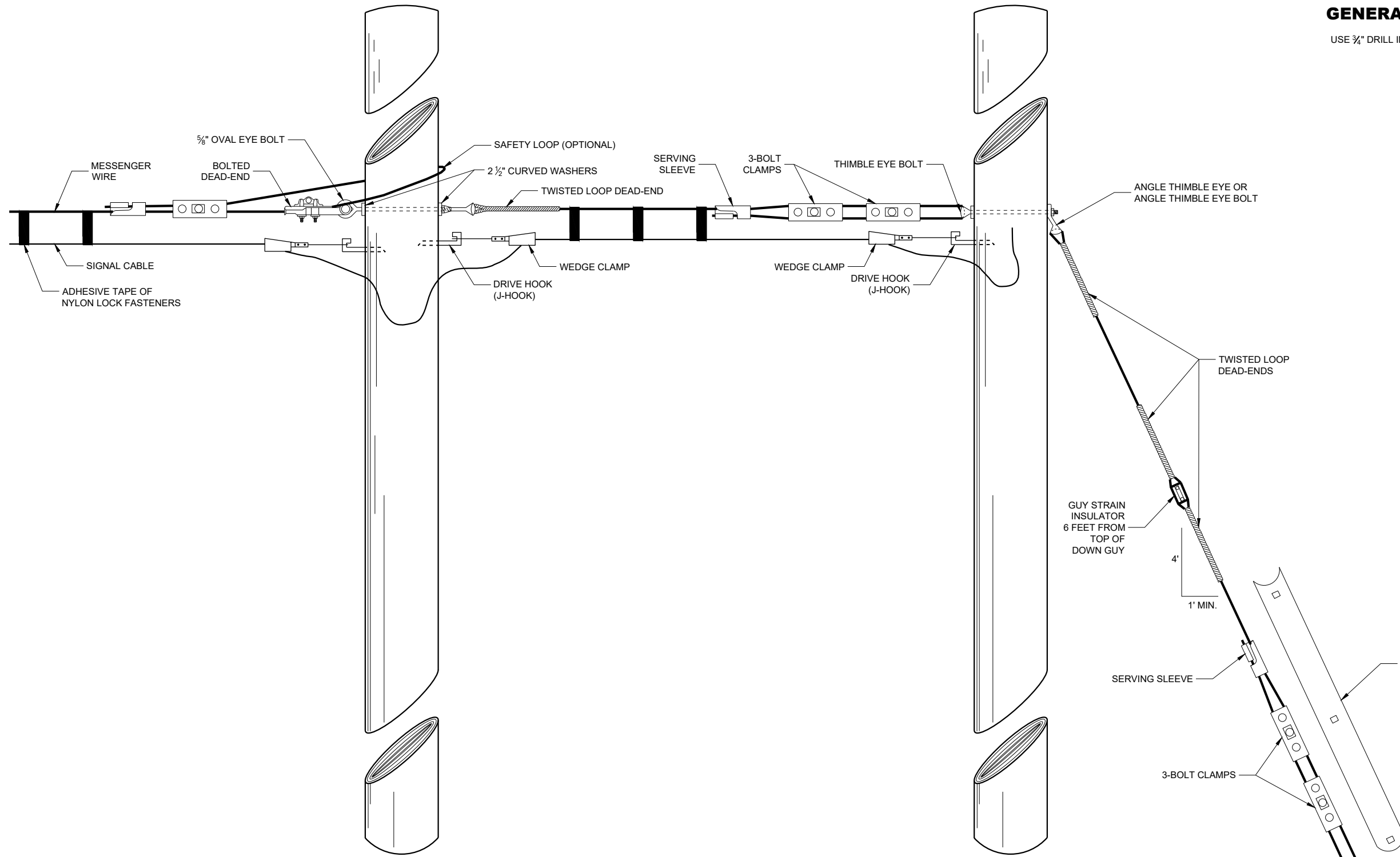
6

SDD09G02 - 05a

SDD09G02 - 05a

GENERAL NOTES

USE 3/4" DRILL IN WOOD POLE TO PROVIDE FOR 5/8" BOLTS.



SPAN WIRE POLE

GUY POLE

TYPICAL DEAD-ENDINGS OR GUYING

6

6

SDD09G02 - 05b

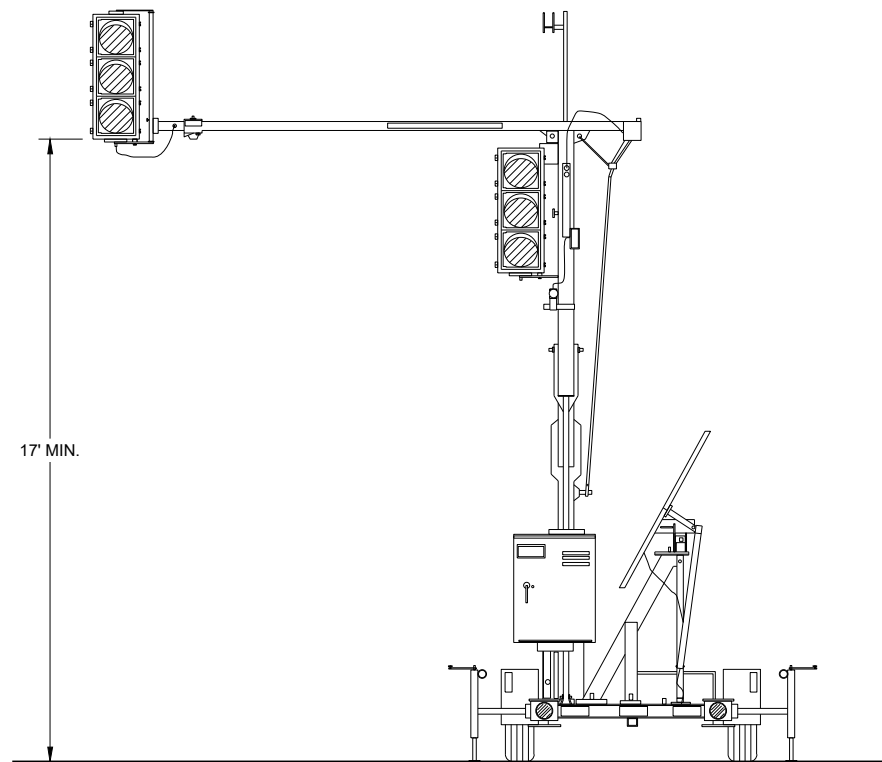
SDD09G02 - 05b

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2015 /S/ Ahmet Demerbilek
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

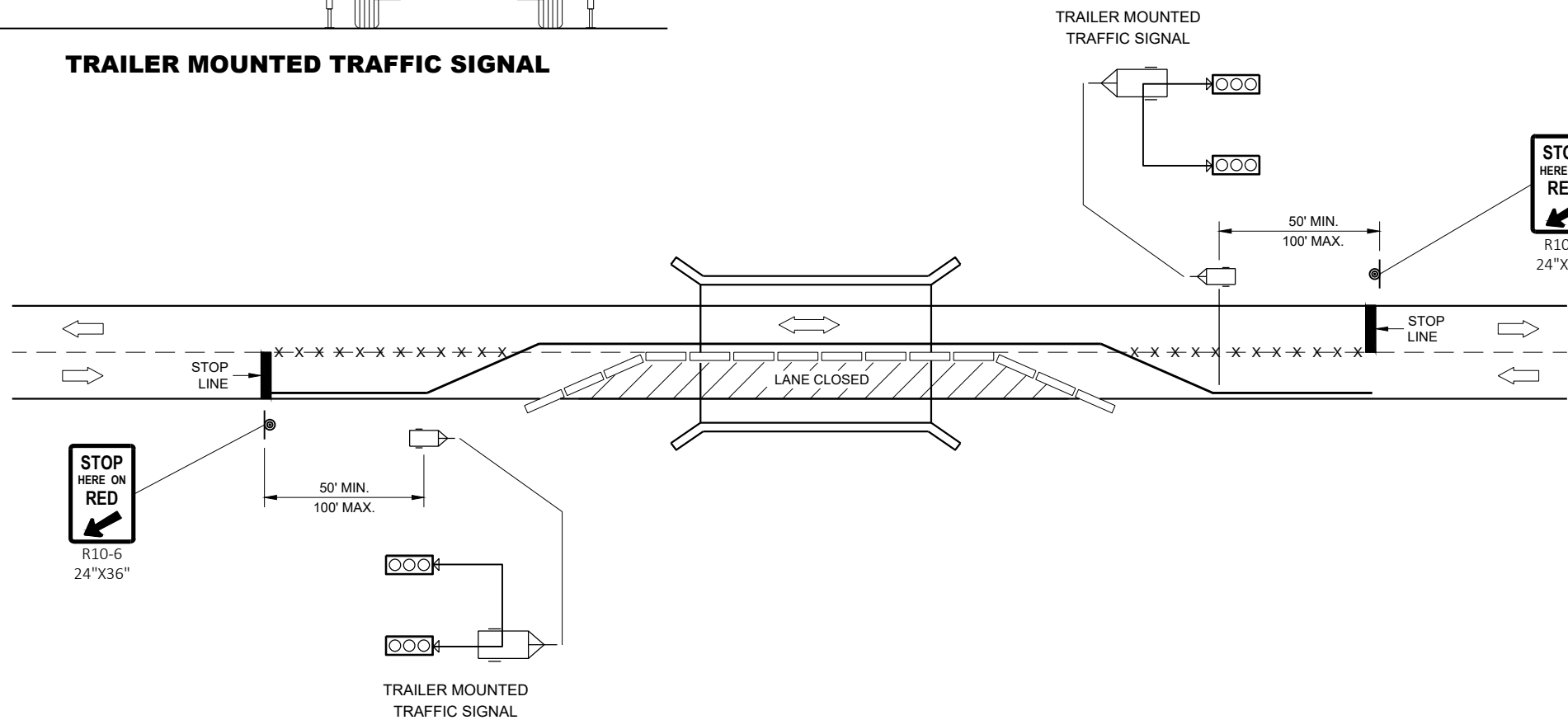


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES






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

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

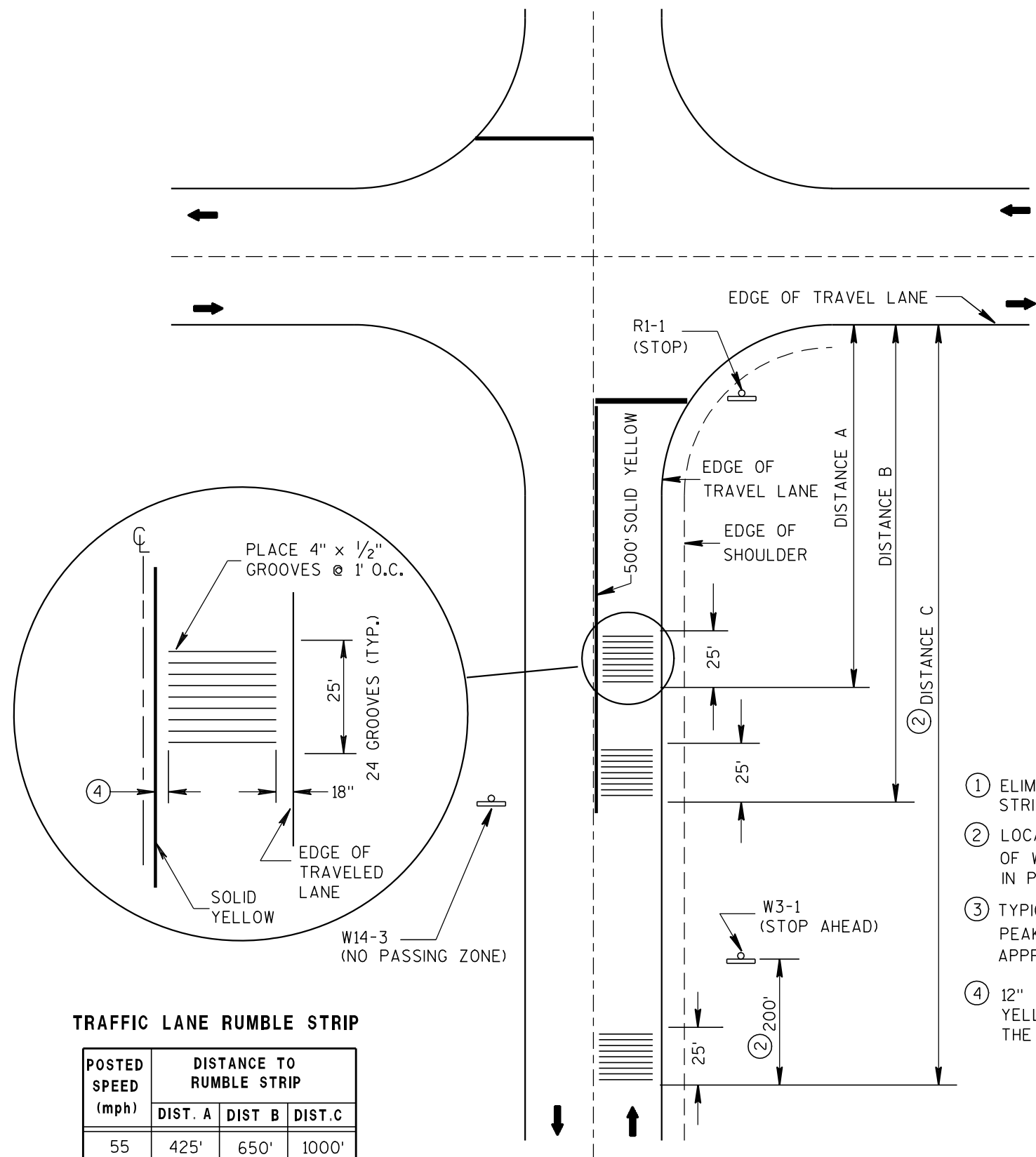
-  POST MOUNTED SIGN
-  TEMPORARY PRECAST CONCRETE BARRIER
-  TRAILER MOUNTED TRAFFIC SIGNAL
-  REMOVE PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2015 /S/ Ahmet Demerbilek
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA



TRAFFIC LANE RUMBLE STRIP

POSTED SPEED (mph)	DISTANCE TO RUMBLE STRIP		
	DIST. A	DIST. B	DIST. C
55	425'	650'	1000'
50	325'	450'	800'
45	275'	400'	650'
40	225'	①	550'
35	175'	①	475'
≤ 30	125'	①	425'

ARROW SYMBOL (➔) SHOWS DIRECTION OF TRAVEL

**PLAN VIEW
RUMBLE STRIP LOCATION**

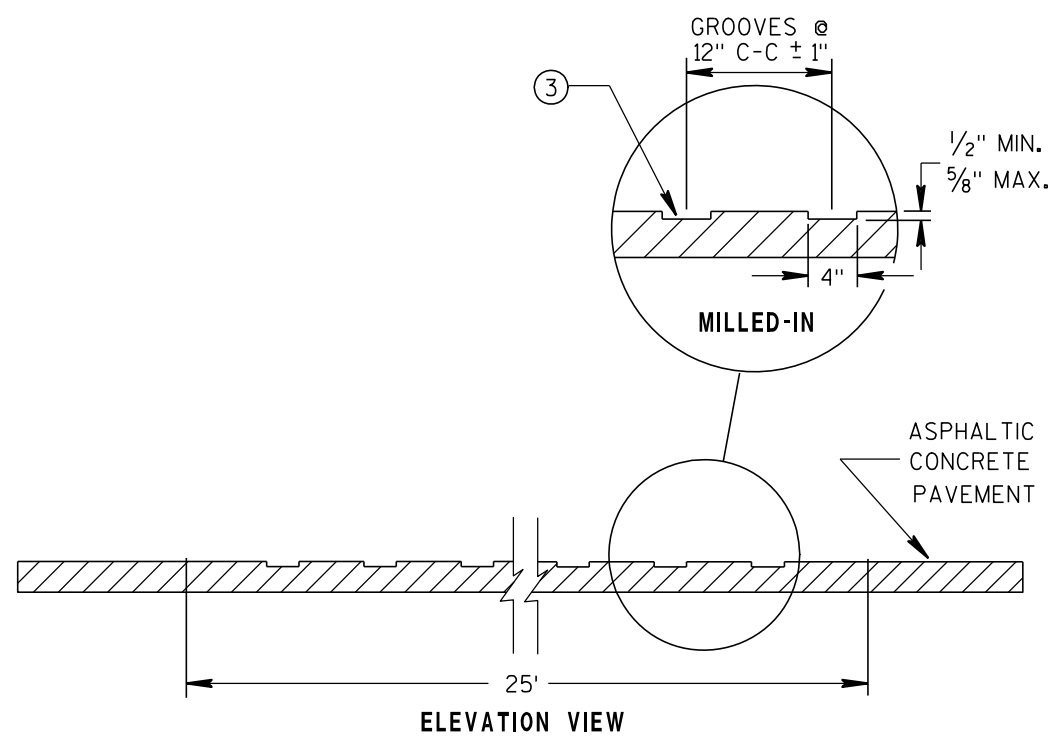
- ① ELIMINATE THE MIDDLE SET OF RUMBLE STRIPS.
- ② LOCATE RUMBLE STRIP 200' IN ADVANCE OF W3-1 SIGN AS SHOWN. IF W3-1 IS NOT IN PLACE, USE DISTANCE C.
- ③ TYPICAL VERTICAL VARIATION BETWEEN PEAKS AND VALLEYS WITHIN THE CUT APPROXIMATELY 1/16"
- ④ 12" CLEAR BETWEEN THE SOLID YELLOW LINE AND THE EDGE OF THE RUMBLE.

GENERAL NOTES

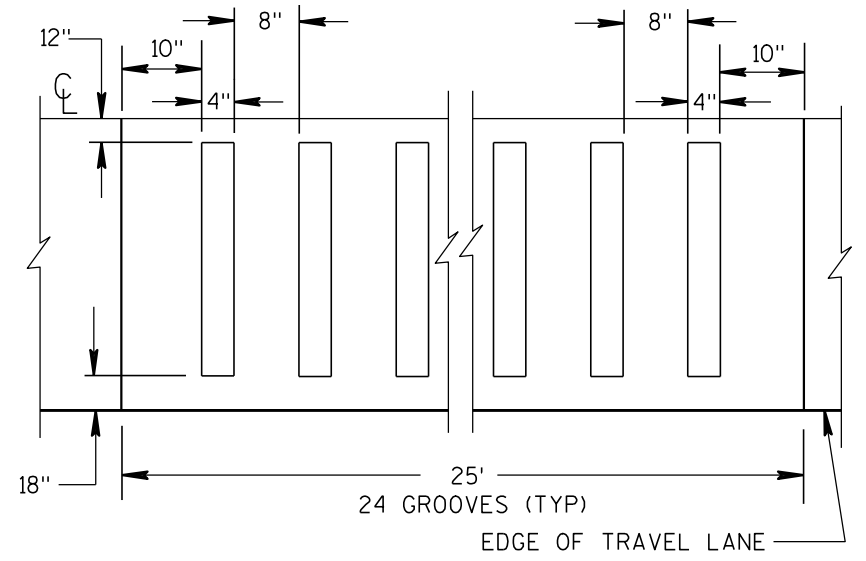
CONTRACTOR SHALL CONFIRM RUMBLE STRIP LOCATION WITH THE ENGINEER PRIOR TO INSTALLATION. THE ENGINEER MAY MODIFY THE RUMBLE STRIP LOCATION AS FIELD CONDITIONS DICTATE.

WHEN ASPHALTIC PAVEMENT IS NEW IN THE RUMBLE AREA THE CONTRACTOR SHALL ALLOW THE PAVEMENT TO CURE A MINIMUM OF 7 DAYS PRIOR TO RUMBLE INSTALLATION.

PAVEMENT MARKING AND SIGNING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.



ELEVATION VIEW

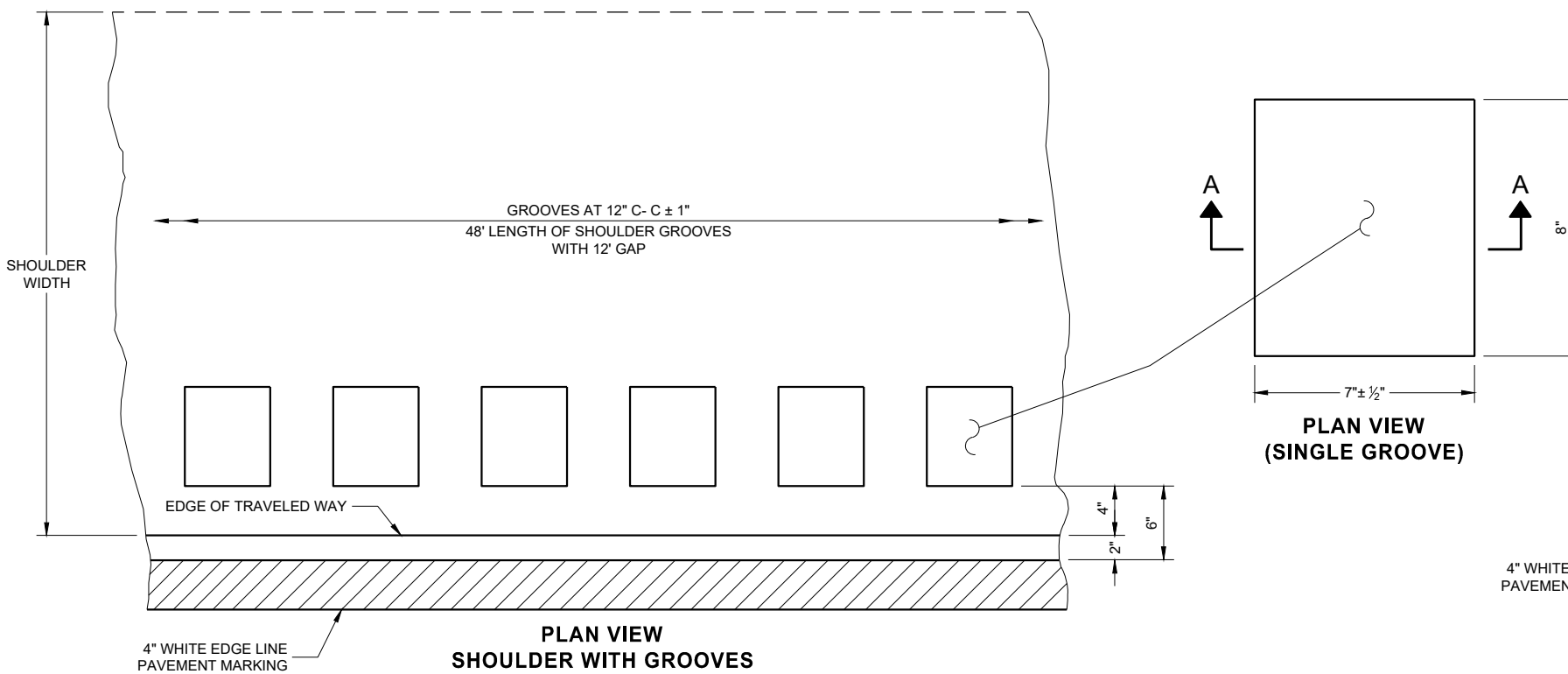


**PLAN VIEW
ASPHALTIC PAVEMENT
MILLED-IN**

**ASPHALTIC RUMBLE STRIPS
AT INTERSECTION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/17/2011 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



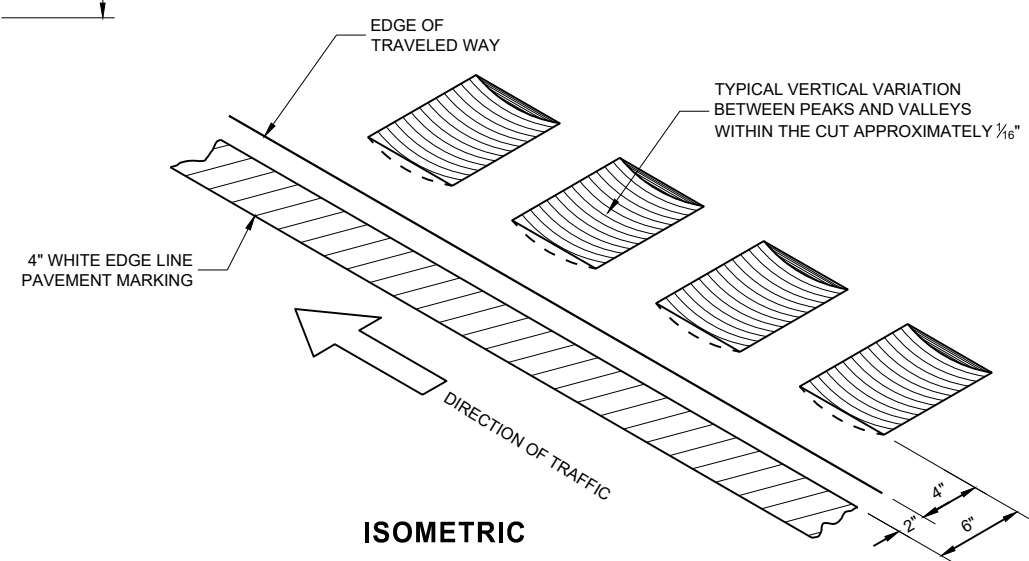
PLAN VIEW SHOULDER WITH GROOVES
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP

GENERAL NOTES

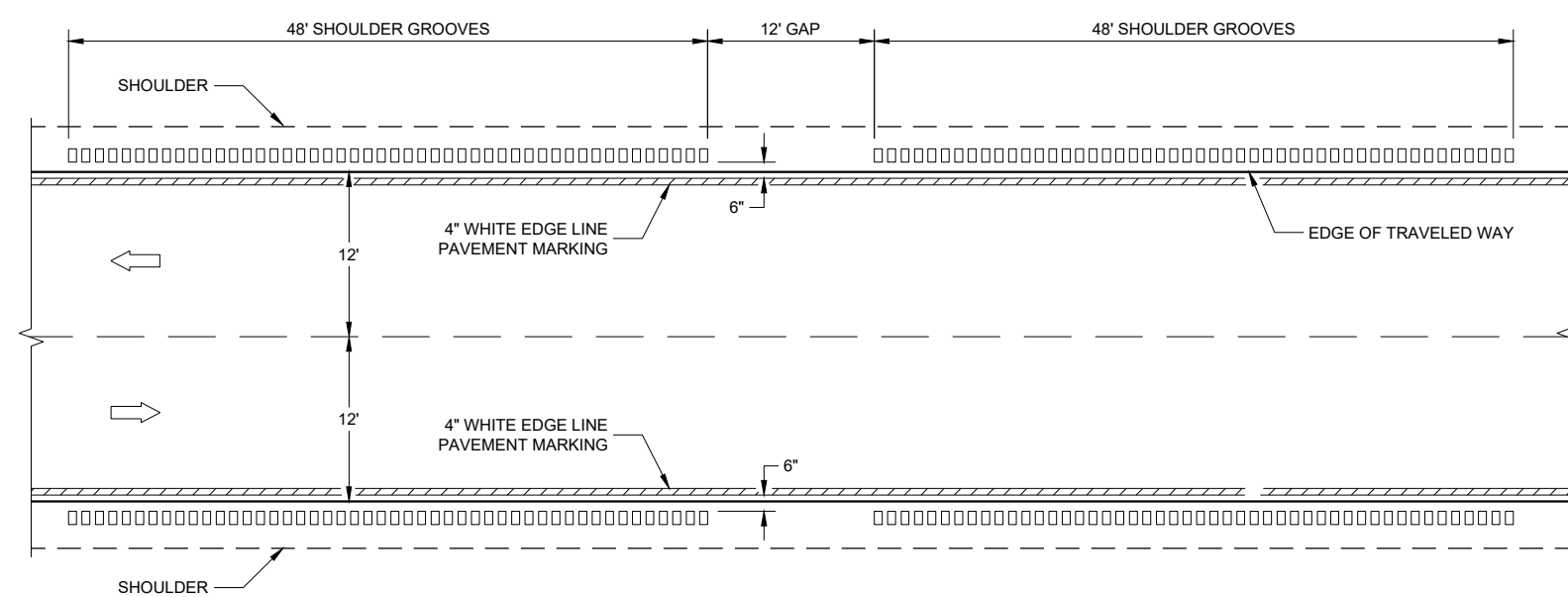
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

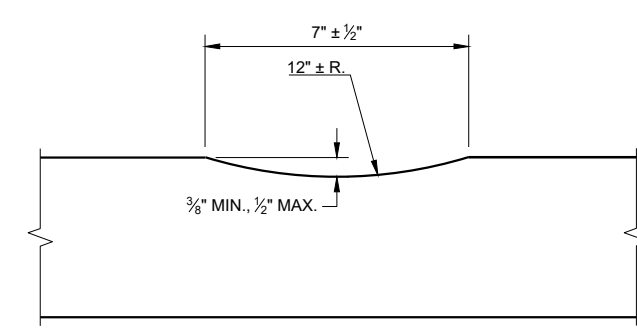
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



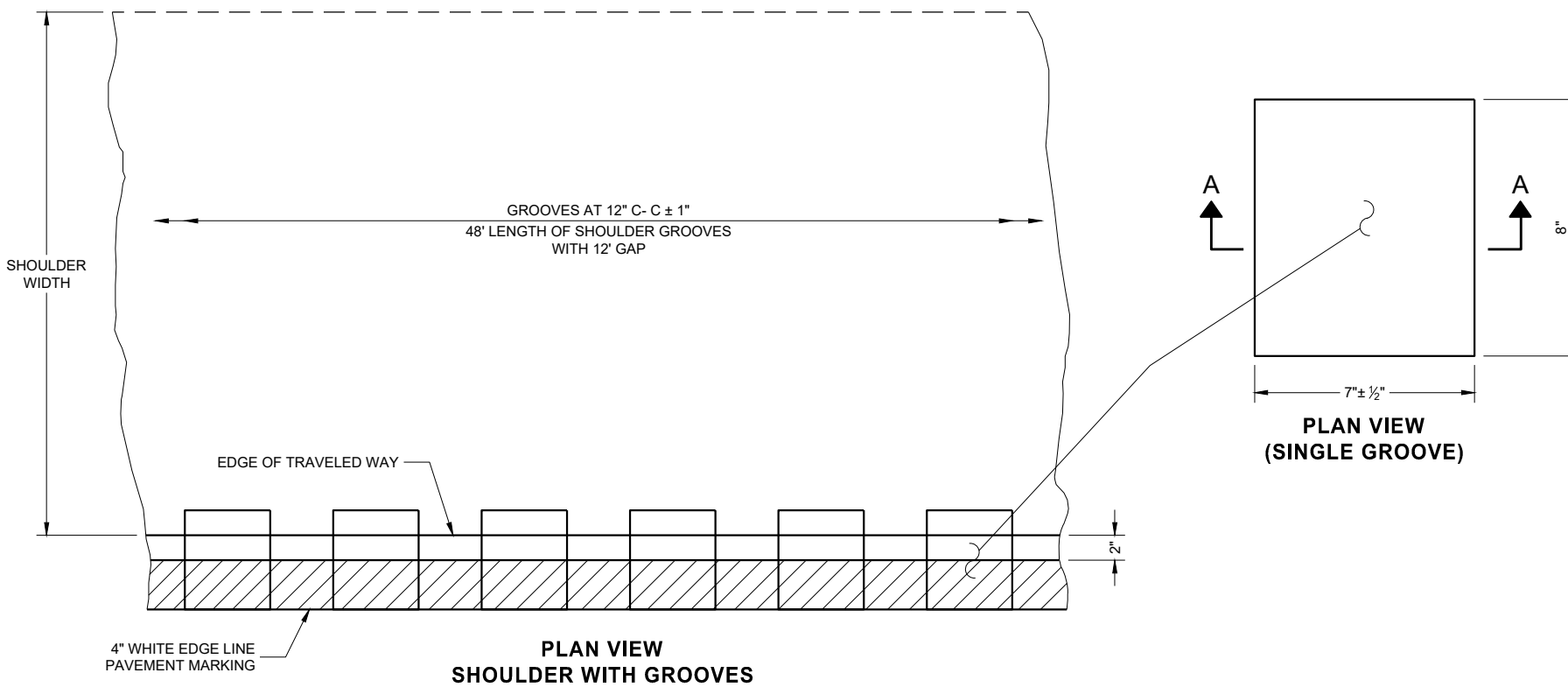
TYPE 1
2 - LANE SHOULDER RUMBLE STRIP



SECTION A - A

2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



6

6

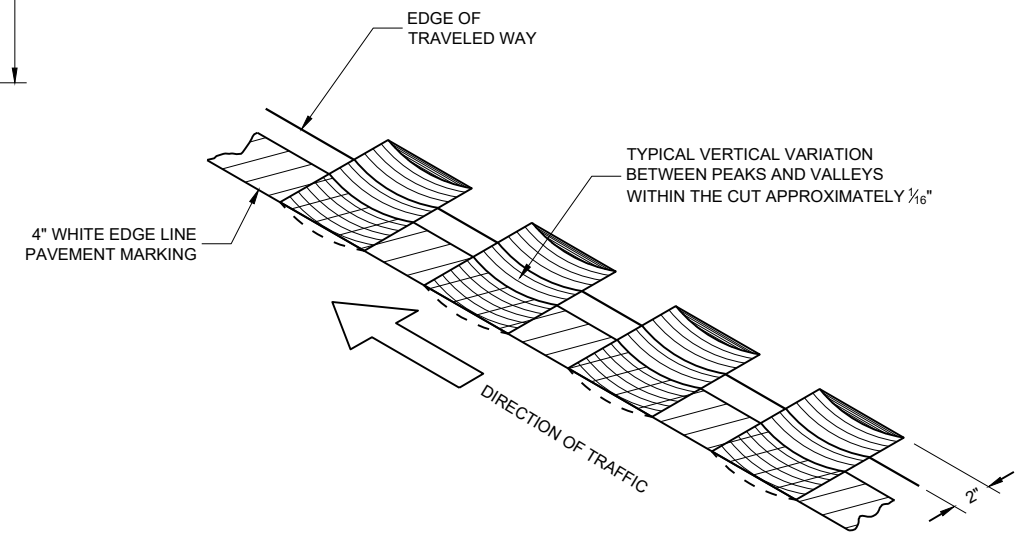
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP

GENERAL NOTES

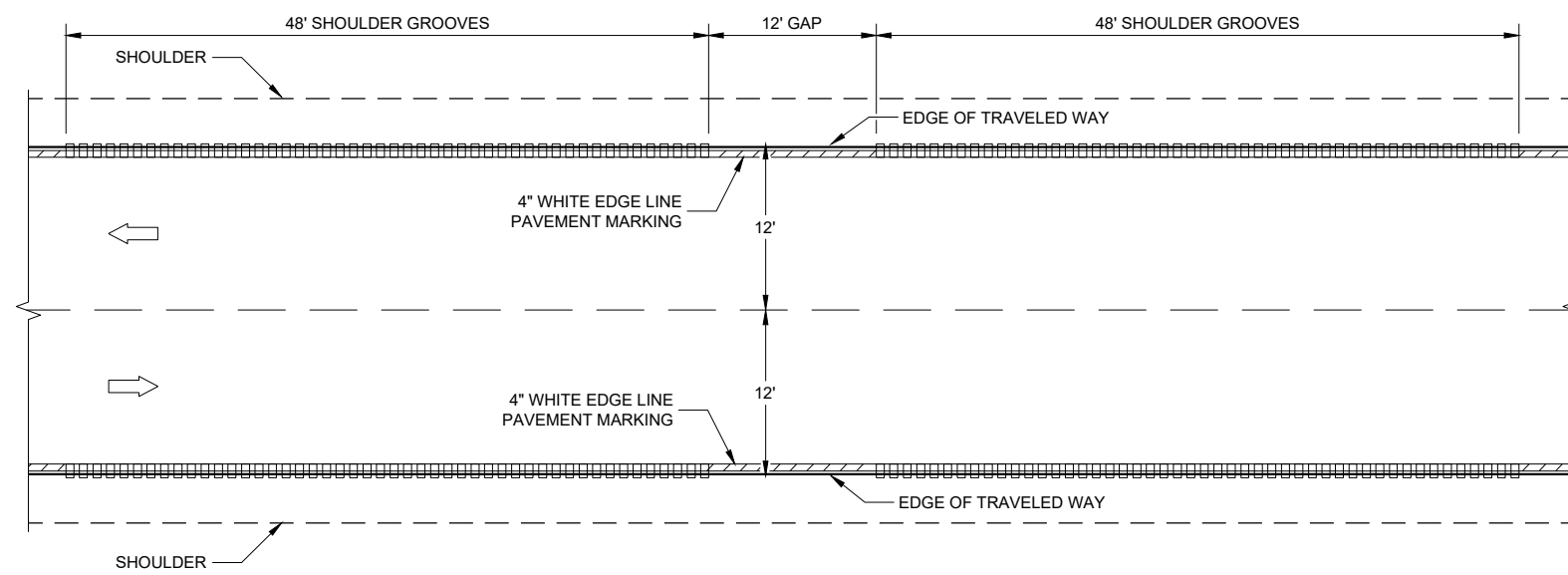
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

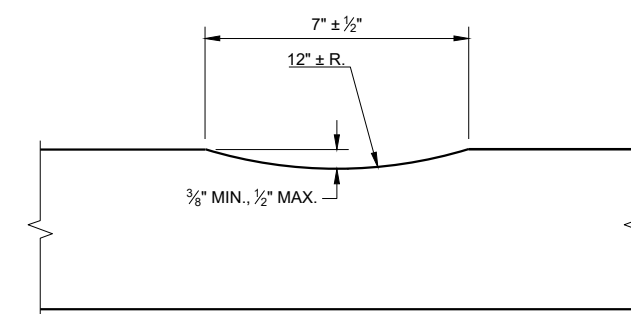
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



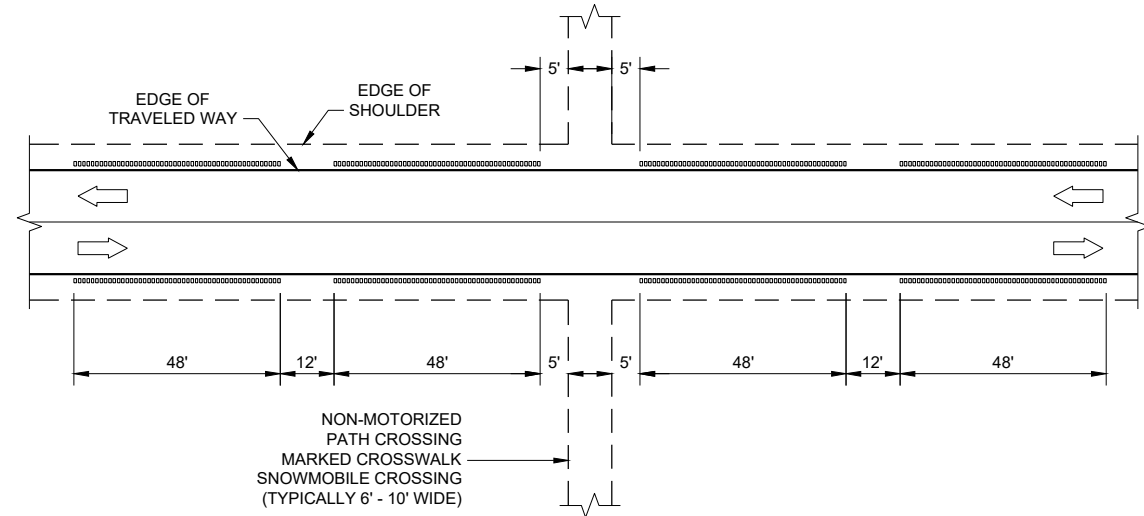
TYPE 2
2 - LANE SHOULDER RUMBLE STRIP



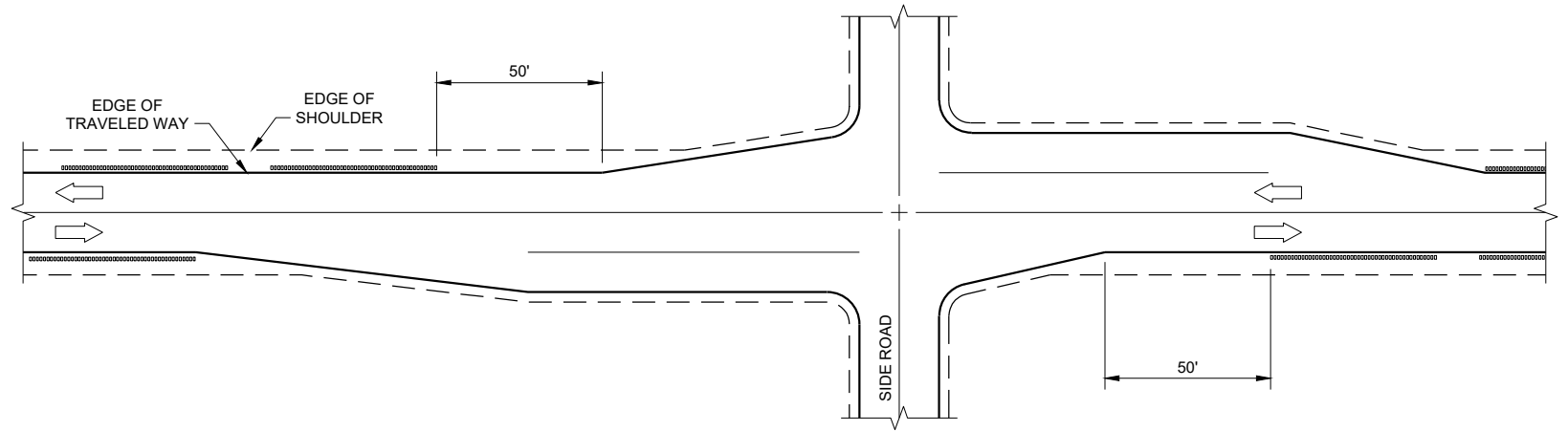
SECTION A - A

**2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING**

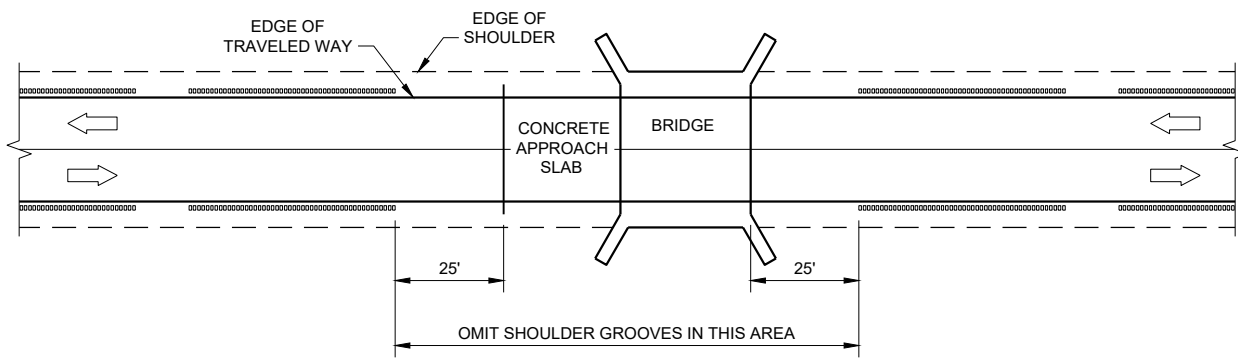
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



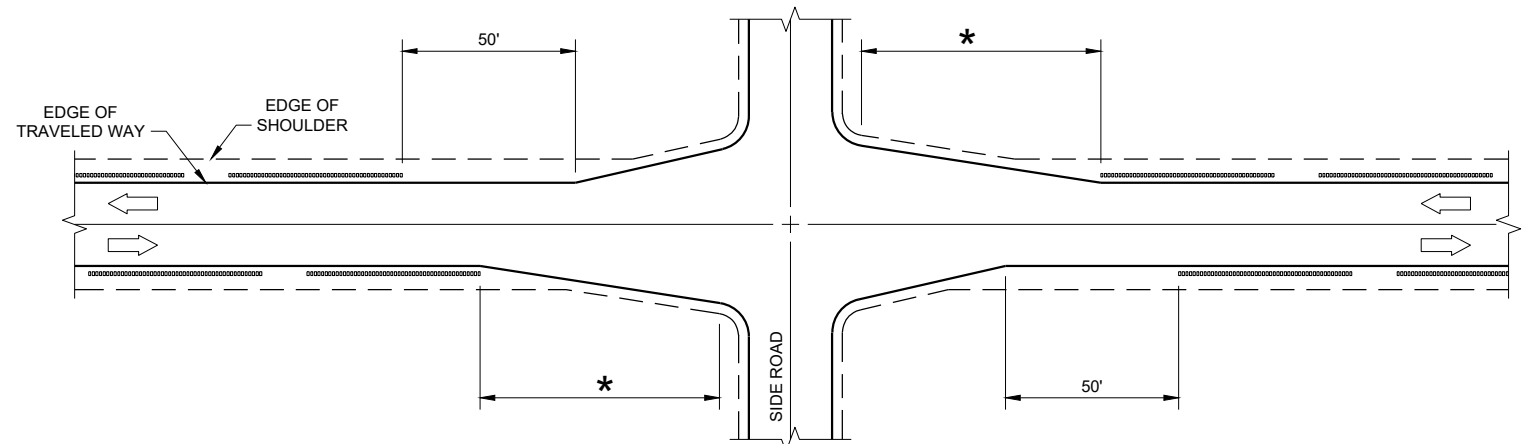
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



SHOULDER GROOVES AT RIGHT TURN LANE

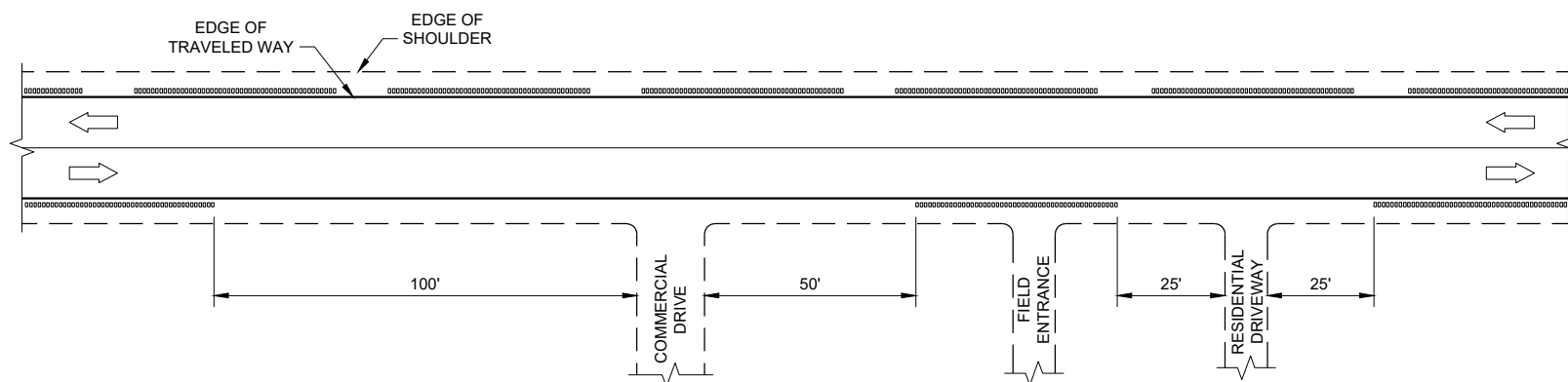


SHOULDER GROOVES AT BRIDGES



* GREATER OF 100' OR APPROACH TAPER LENGTH

SHOULDER GROOVES AT INTERSECTIONS WITH APPROACH TAPER



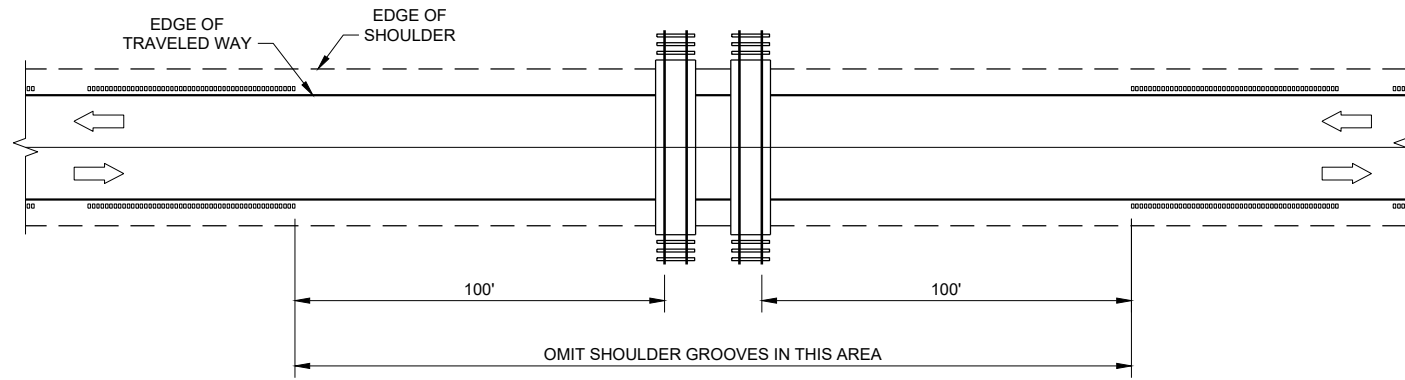
SHOULDER GROOVES AT DRIVEWAYS^①

GENERAL NOTES

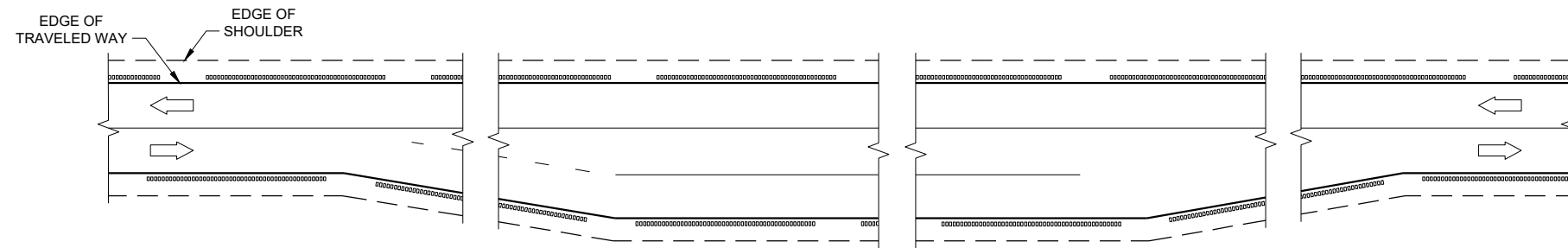
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

**2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING**

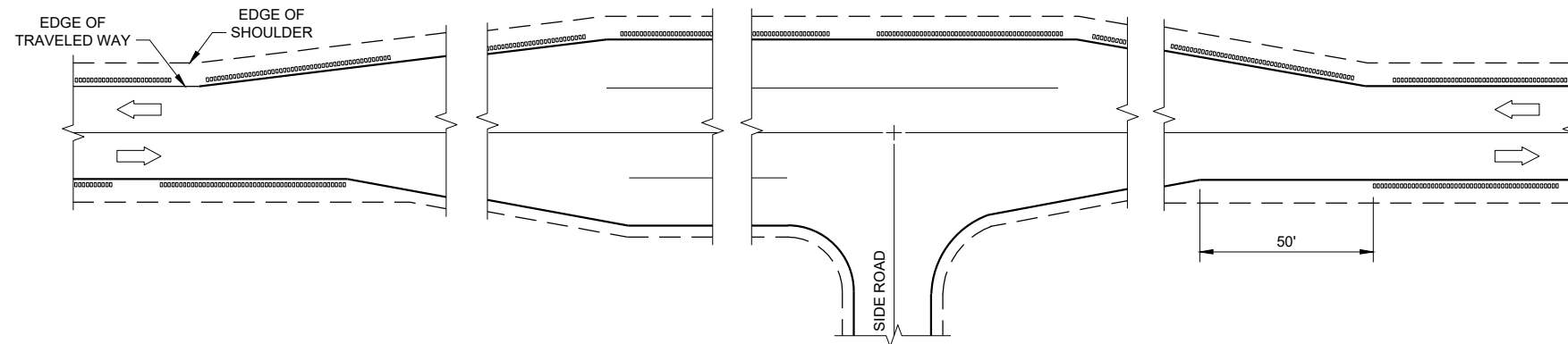
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



SHOULDER GROOVES AT BYPASS LANES

**2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

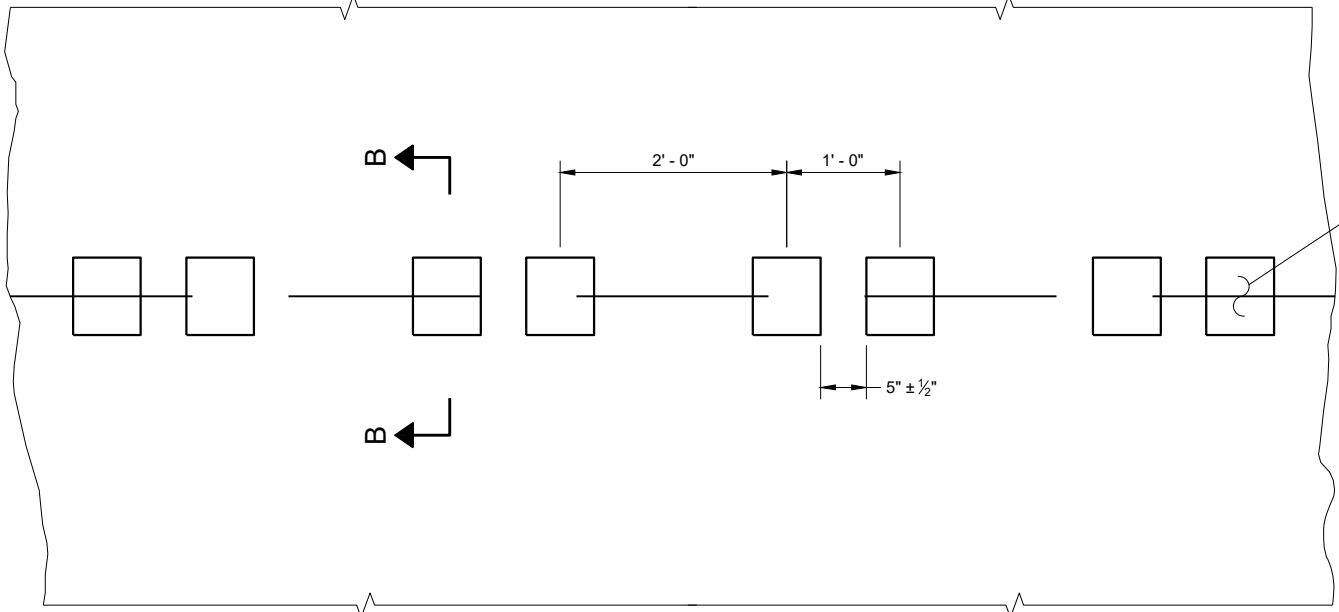
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTERLINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

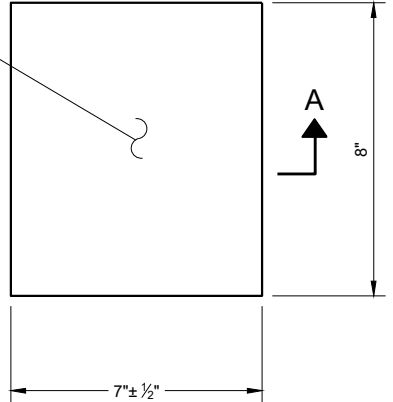
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

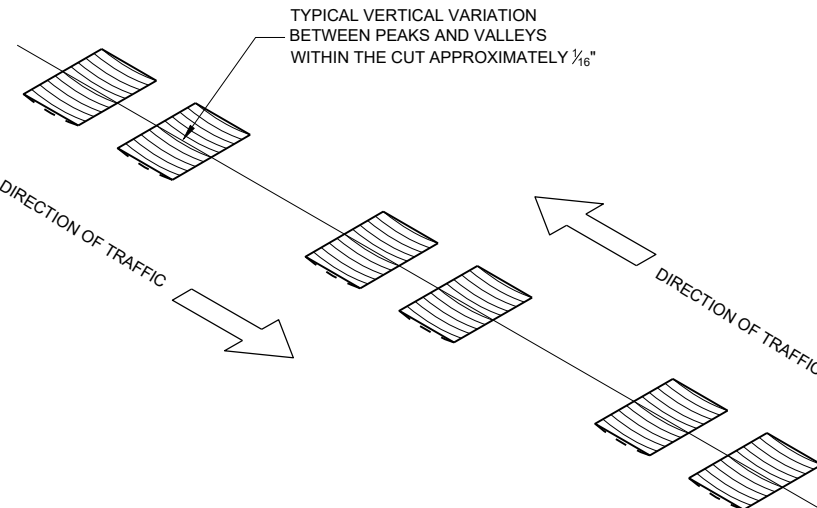
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



**PLAN VIEW
SHOULDER WITH GROOVES**

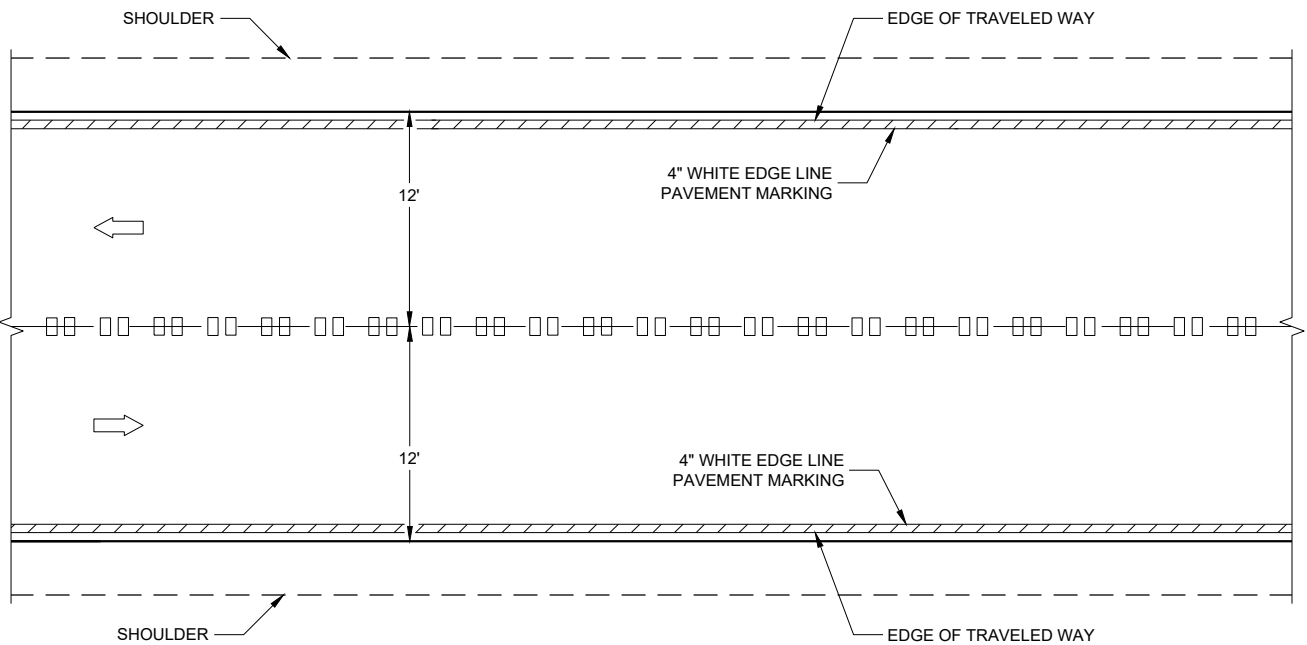


**PLAN VIEW
(SINGLE GROOVE)**

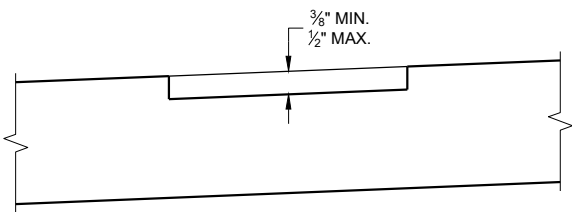


ISOMETRIC

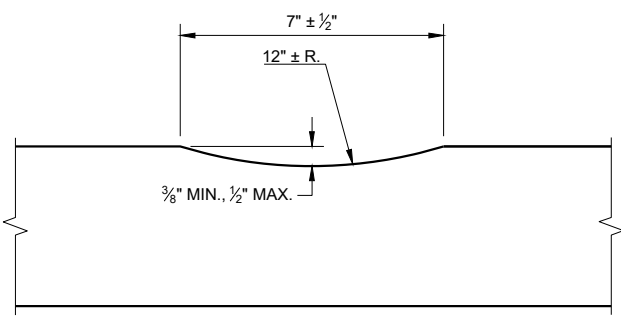
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



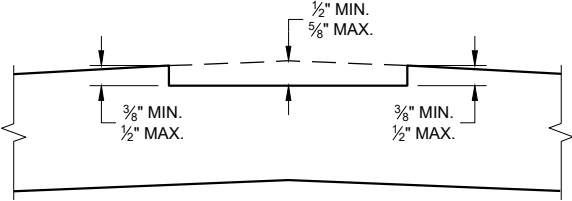
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



**SECTION B - B
SUPERELEVATED ROADWAY**



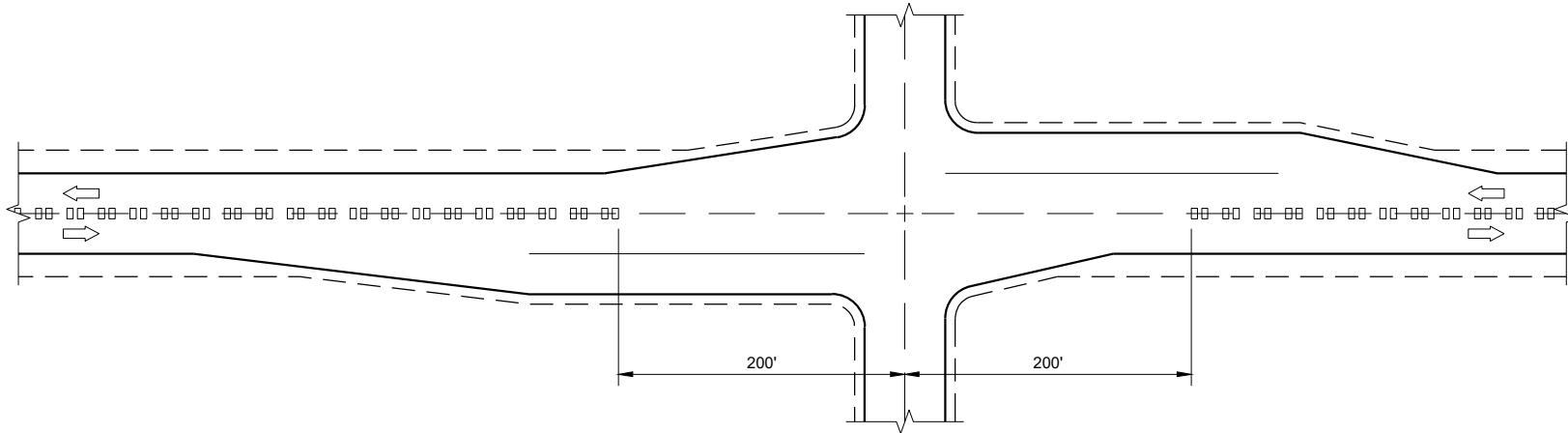
SECTION A - A



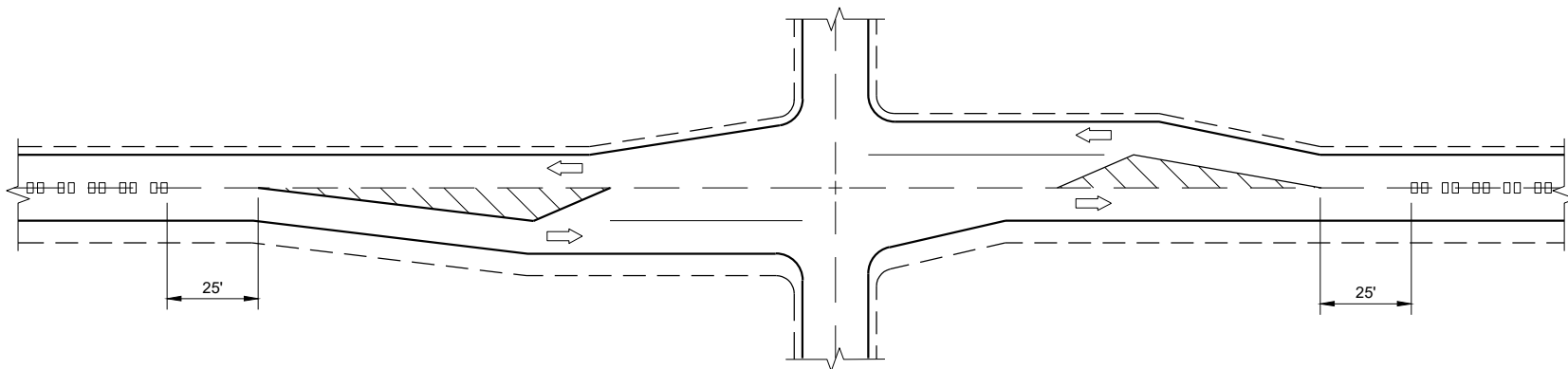
**SECTION B - B
CROWNED ROADWAY**

**2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING**

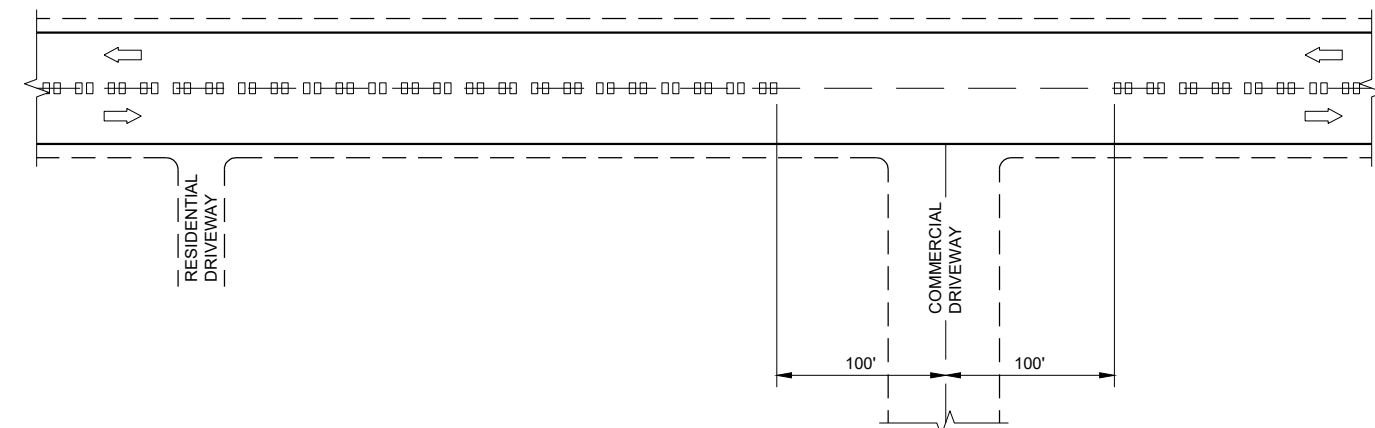
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



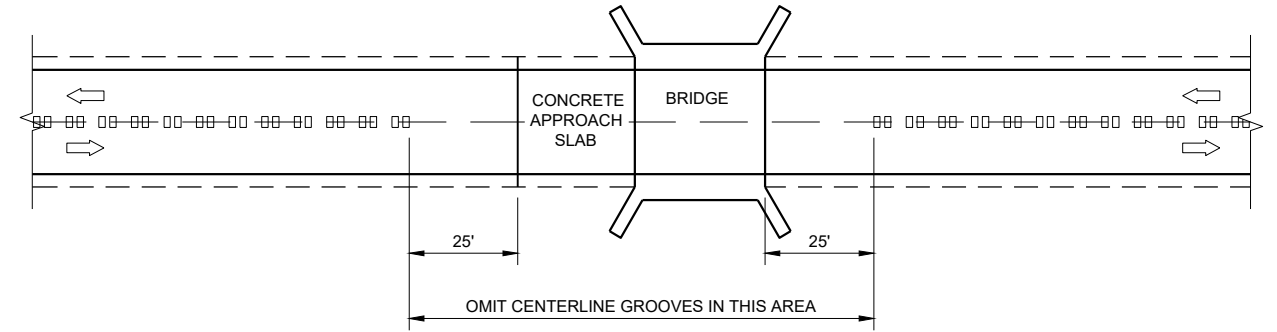
**CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)**



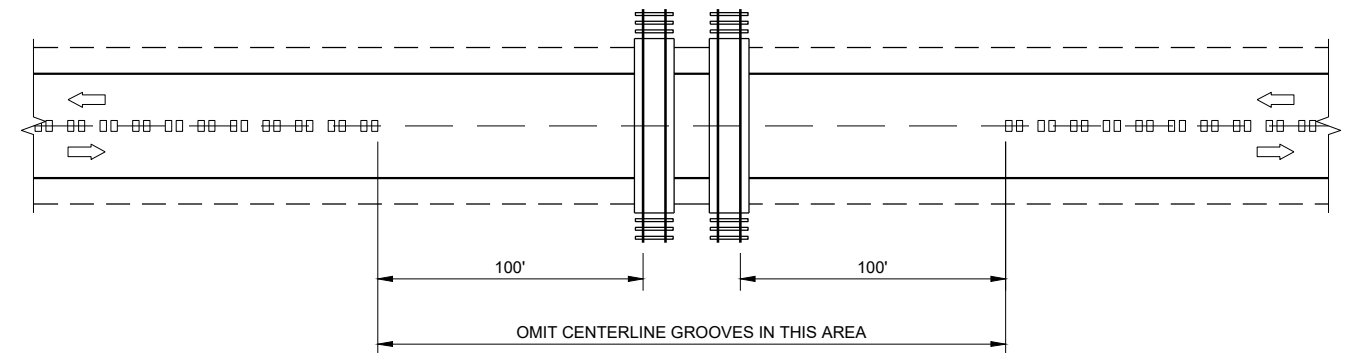
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

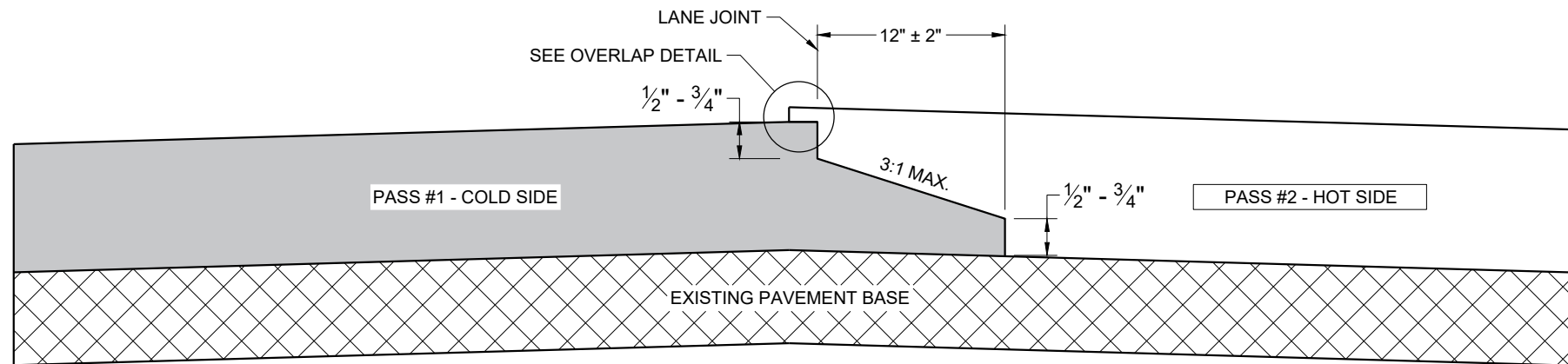
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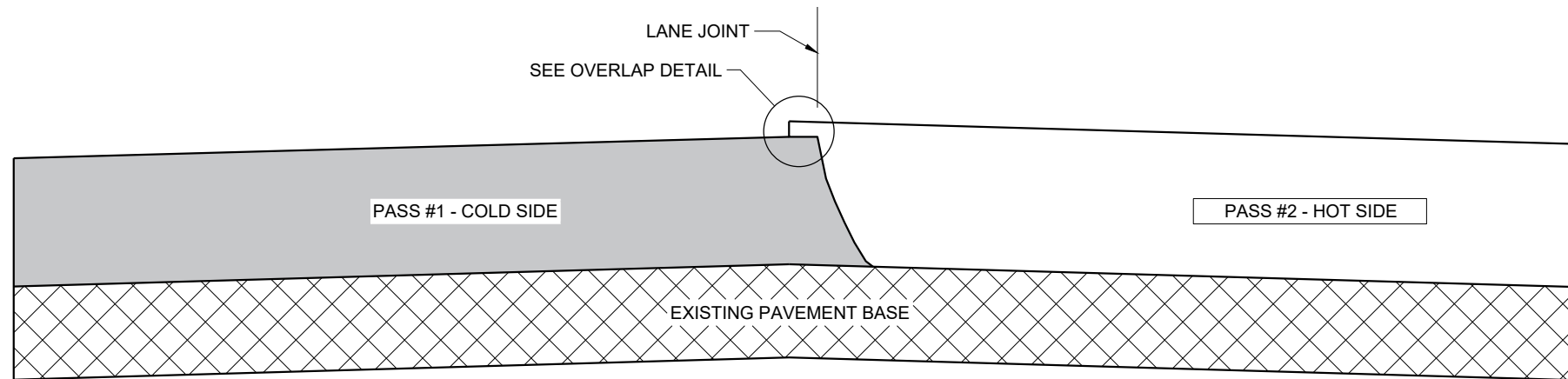
SDD 13A11 - 03b

SDD 13A11 - 03b

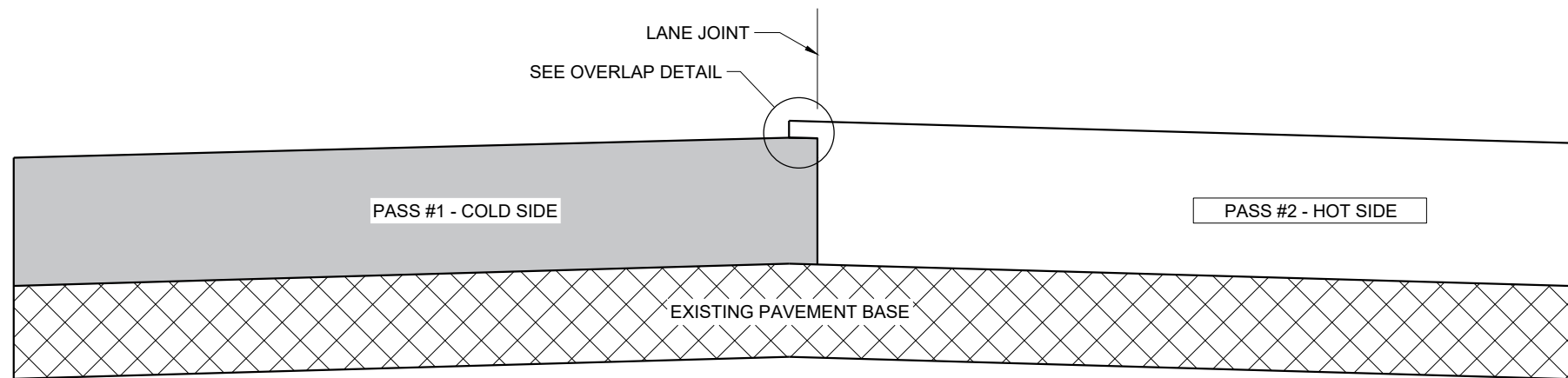
2-LANE RURAL CENTERLINE RUMBLE STRIP, MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)**

GENERAL NOTES

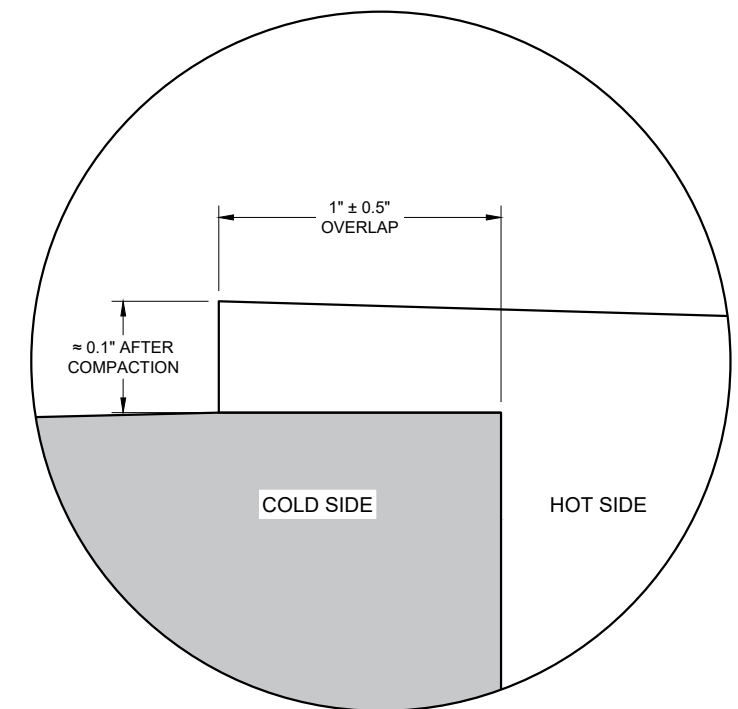
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



OVERLAP DETAIL (TYPICAL)

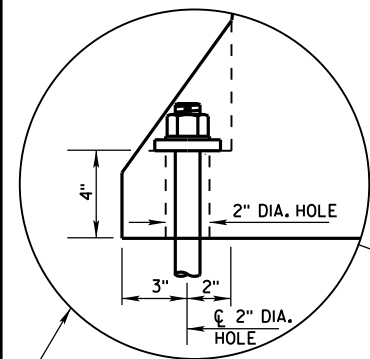
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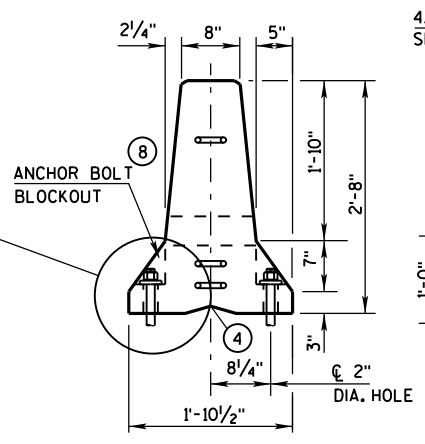
SDD 13C19 - 03

SDD 13C19 - 03

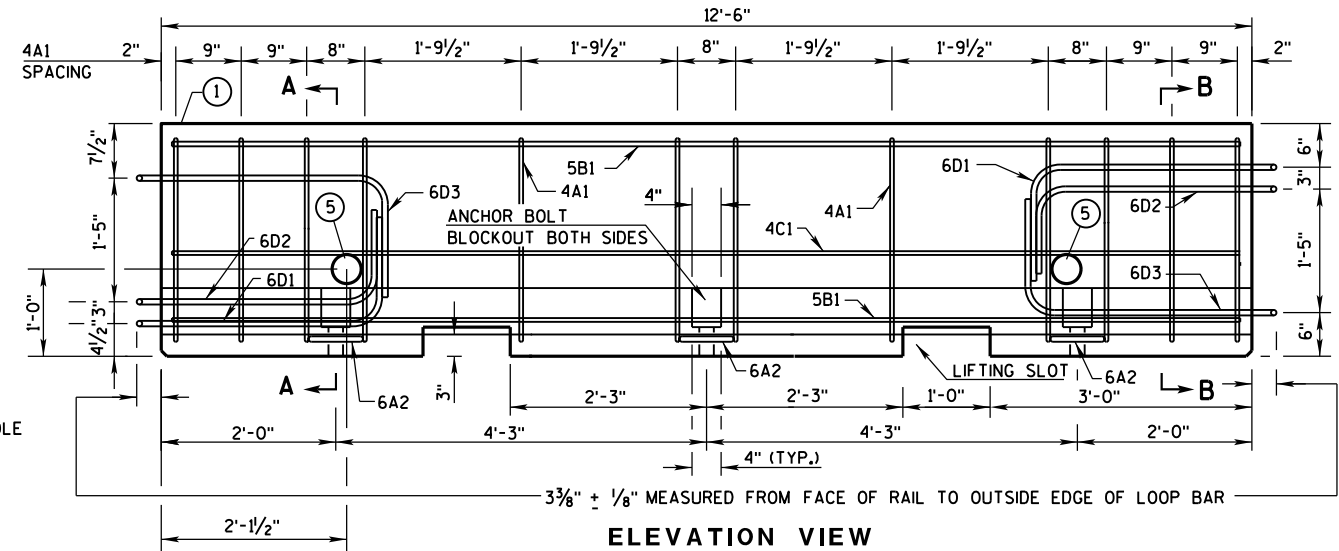
HMA LONGITUDINAL JOINTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2020 DATE	/S/ Steven Hefel HMA PAVEMENT ENGINEER
FHWA	



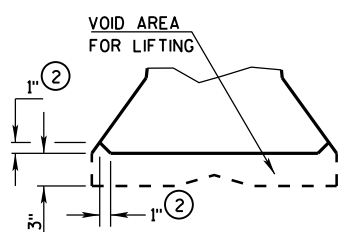
ANCHOR ON TRAFFIC SIDE (8) ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL)



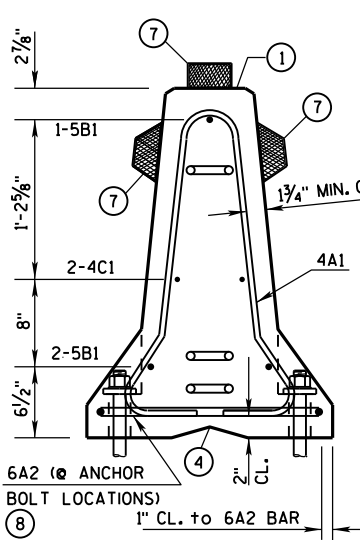
END VIEW



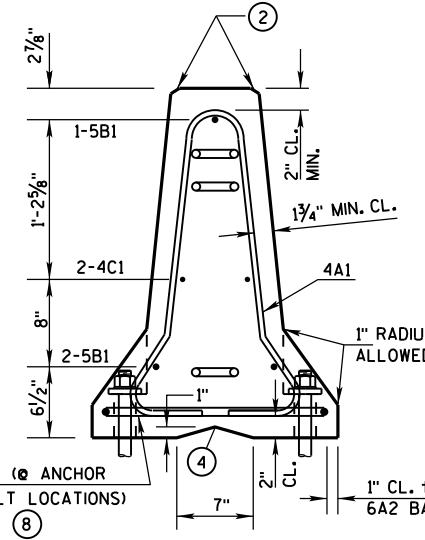
ELEVATION VIEW



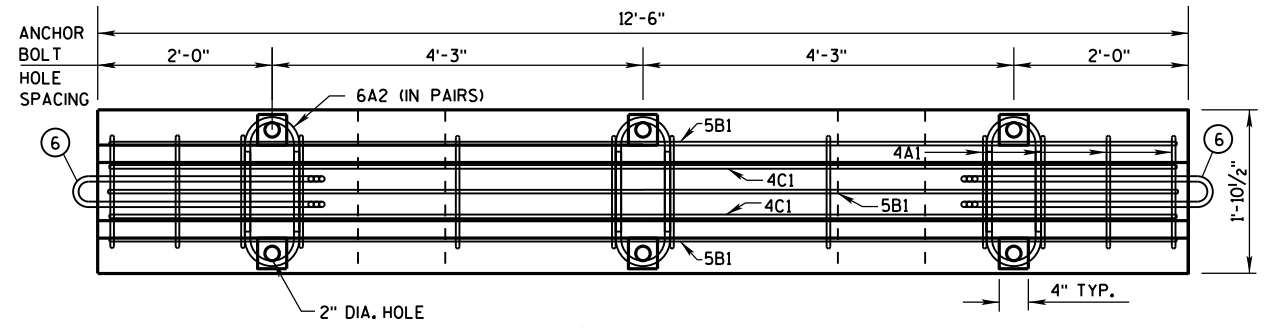
DETAIL "B" LIFTING SLOT DETAIL



SECTION A-A (STIRRUP PLACEMENT)



SECTION B-B (STIRRUP PLACEMENT)



PLAN VIEW

DETAILS OF BARRIER SECTION

GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(d) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

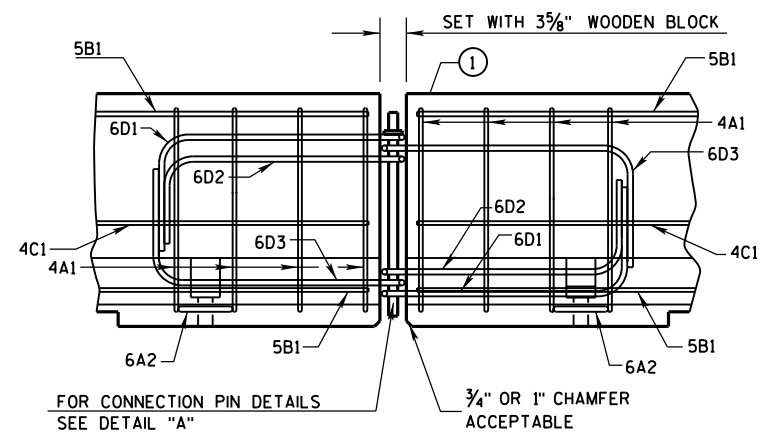
CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

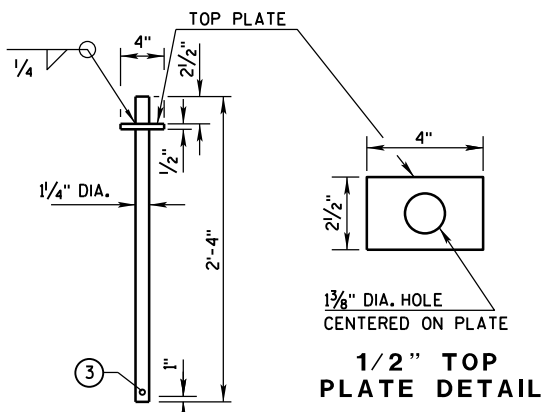
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- 1 MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE: WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- 2 1" CHAMFER TO PREVENT SPALLING.
- 3 A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- 4 "V" NOTCH IS OPTIONAL.
- 5 THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- 6 NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- 7 USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURER'S INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- 8 SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- 9 1" CHAMFER OPTIONAL.

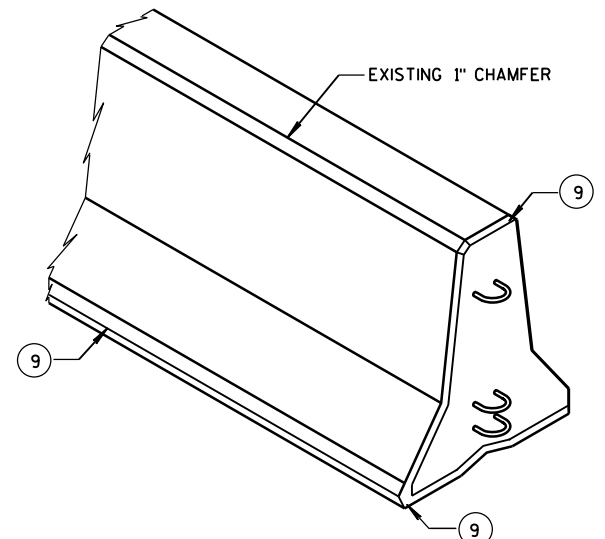
f'c = 4,000 psi



DETAILS OF BARRIER CONNECTION



DETAIL "A" CONNECTION PIN (A36 STEEL (10.9 LB EACH))



CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

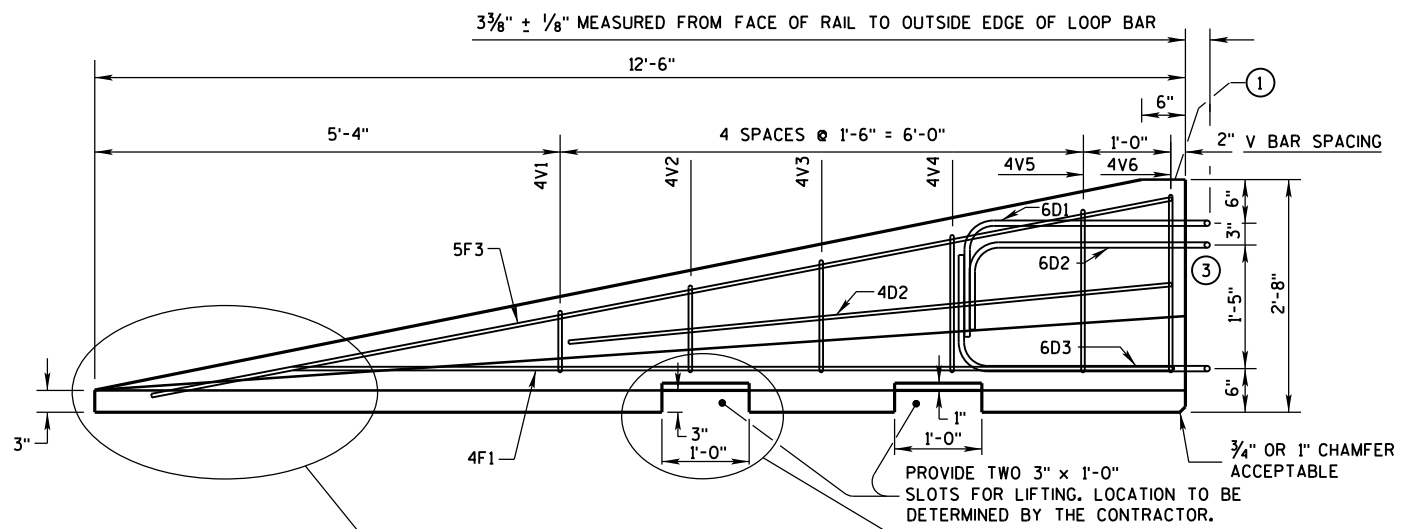
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

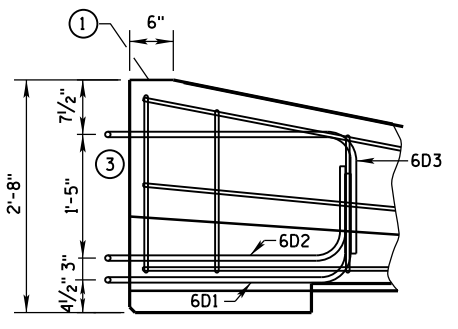
S.D.D. 14 B 7-15a

S.D.D. 14 B 7-15a



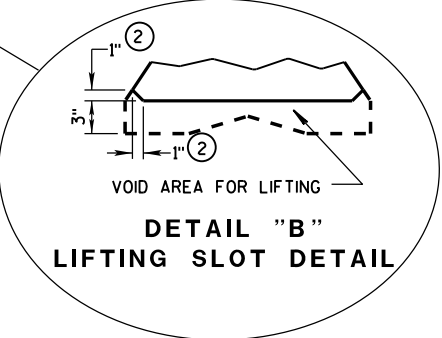
SIDE ELEVATION

(FOR CONNECTION TO LEFT END OF BARRIER)



SIDE ELEVATION

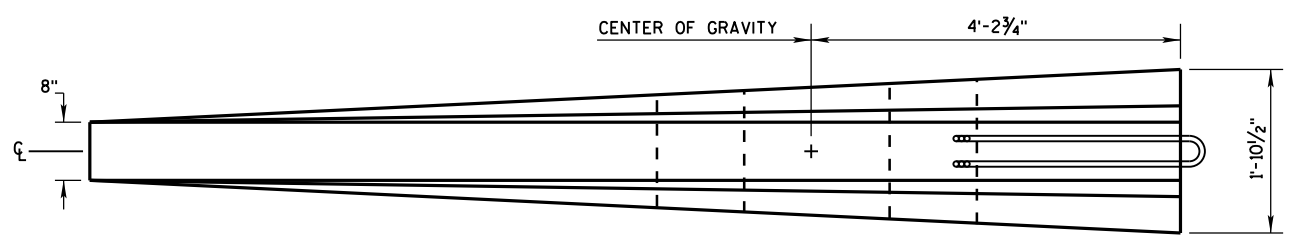
LOOP BAR ASSEMBLY INVERTED FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



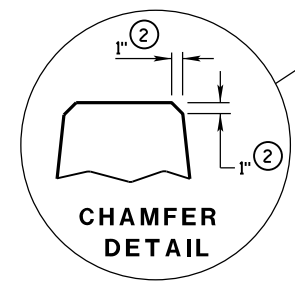
DETAIL "B" LIFTING SLOT DETAIL

GENERAL NOTES

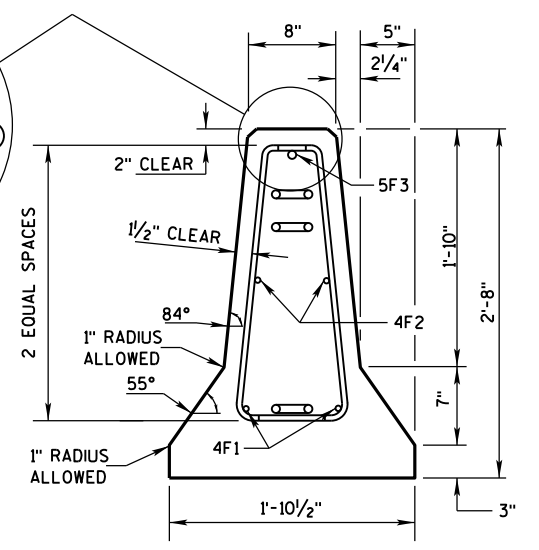
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
a. TYPE WICBTP
b. MANUFACTURER
c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



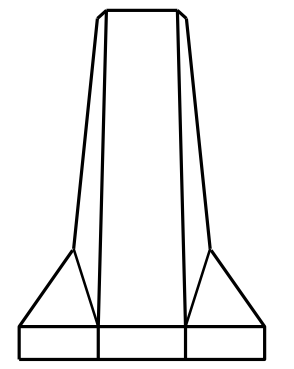
PLAN VIEW



CHAMFER DETAIL

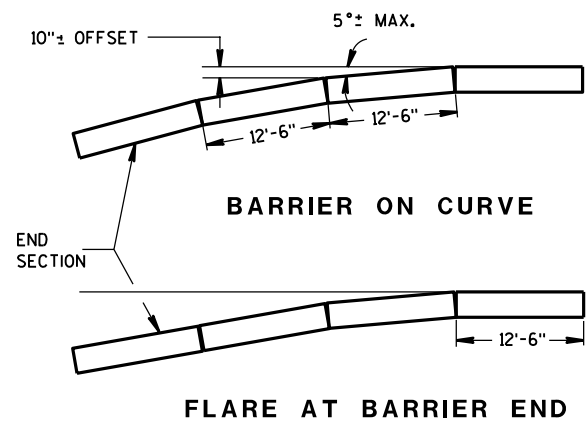


END SECTION



FRONT ELEVATION

DETAILS OF BARRIER TAPER SECTION



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

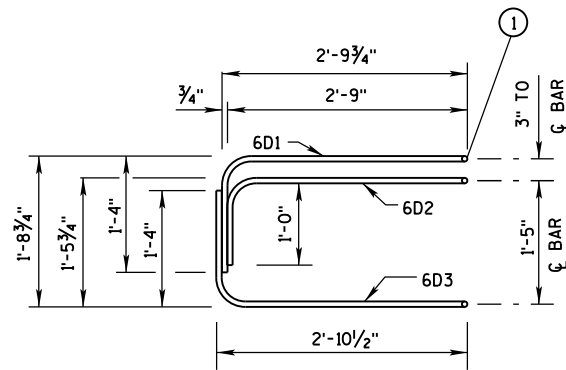
① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

**BARRIER TAPER SECTION
BILL OF MATERIALS**

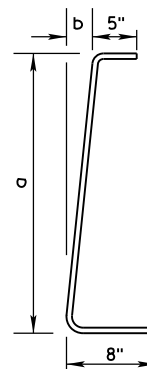
(PER 12'-6" BARRIER TAPER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"

LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"

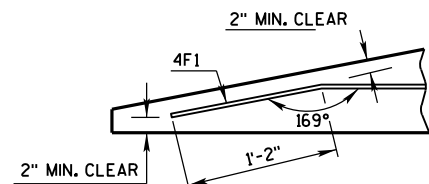


**ELEVATION
LOOP BAR ASSEMBLY**



BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY



**DETAIL "C"
BENT BAR DETAIL**

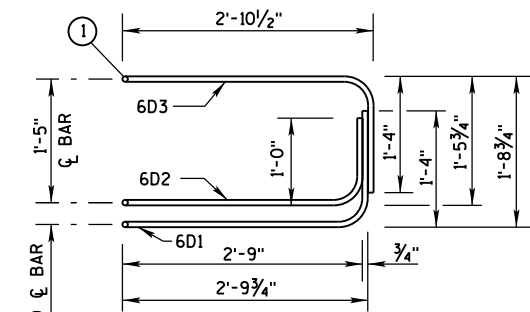
TAPER BARRIER SECTION

**BARRIER SECTION
BILL OF MATERIALS**

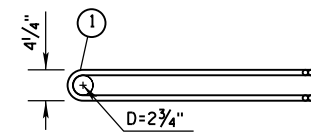
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"

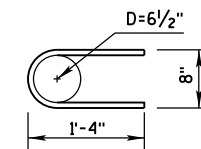
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



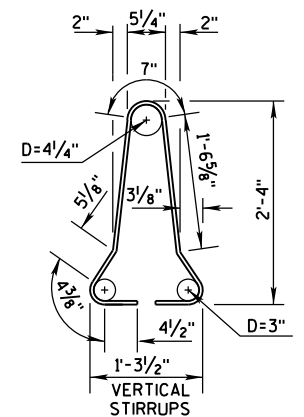
ELEVATION VIEW



**PLAN VIEW
LOOP BAR ASSEMBLY**
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2

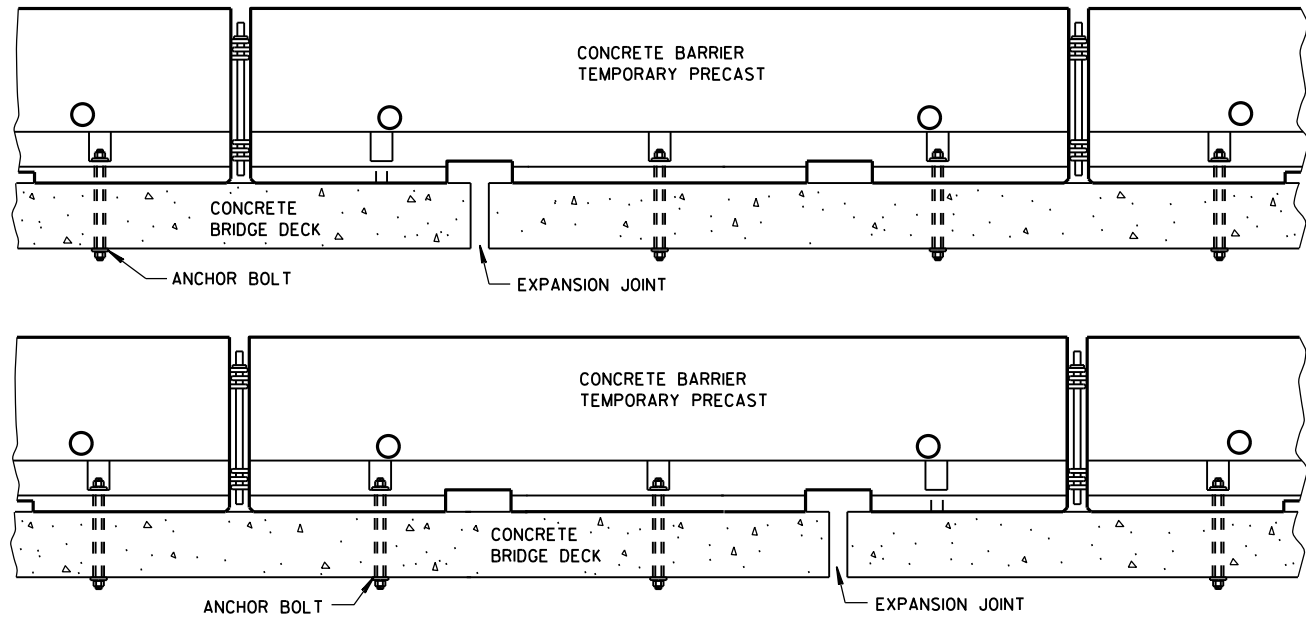


4A1

BARRIER SECTION

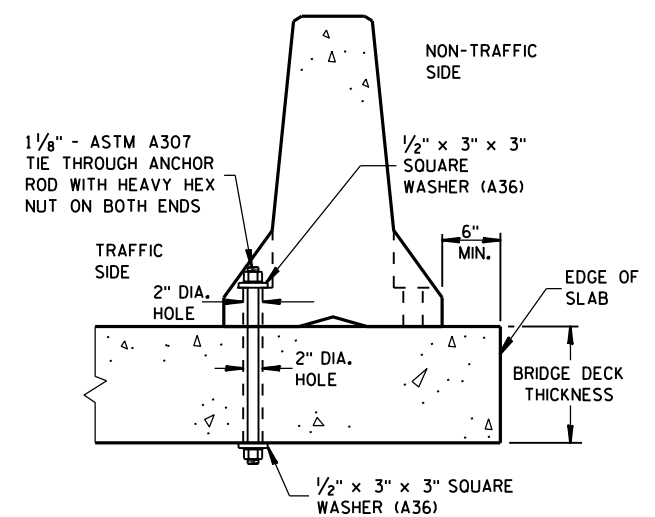
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



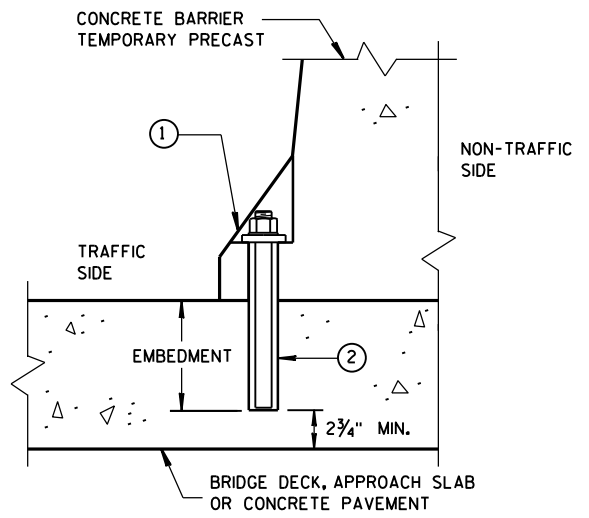
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

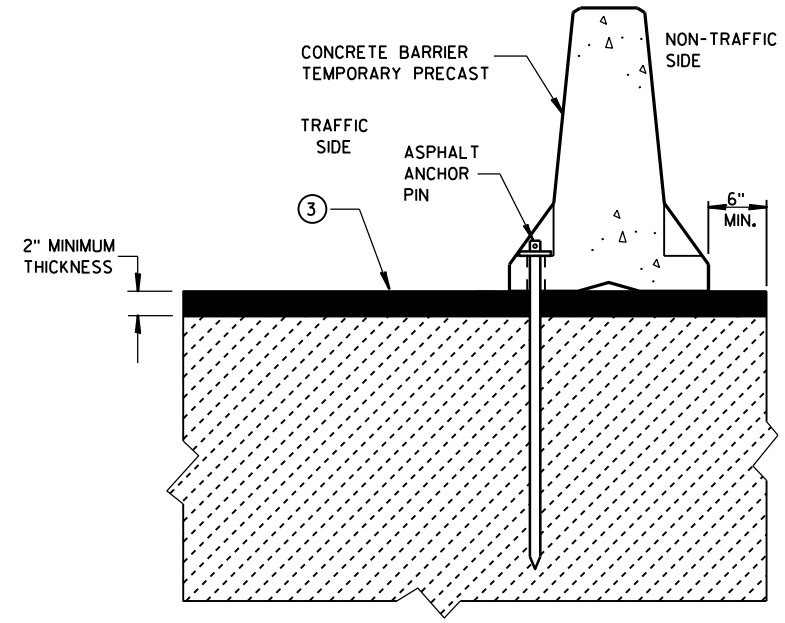
(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

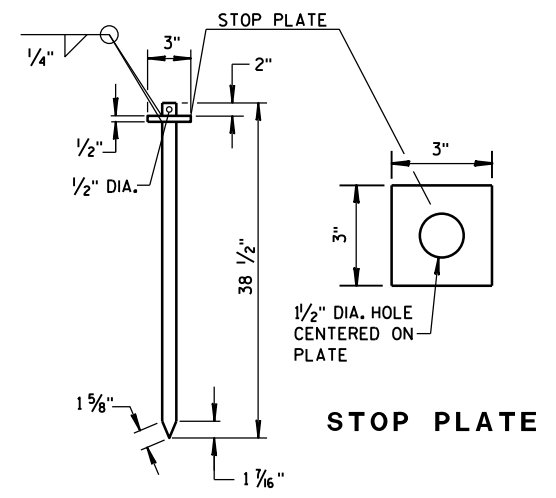
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

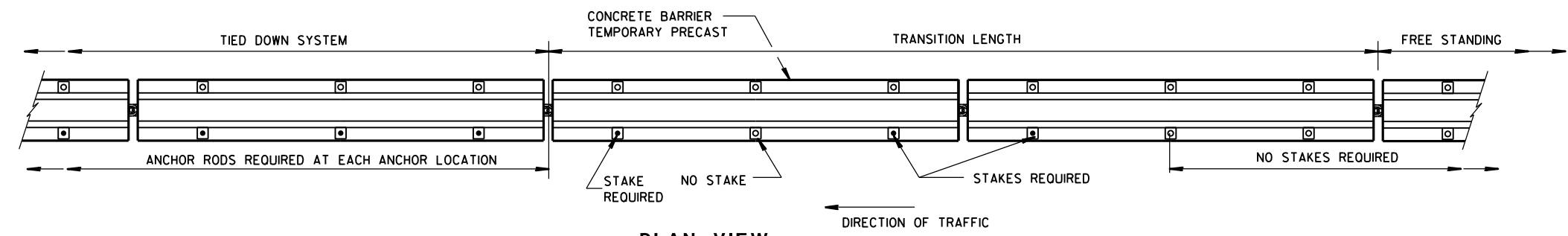
- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE



ASPHALT ANCHOR PIN (ASTM A36 STEEL)



FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

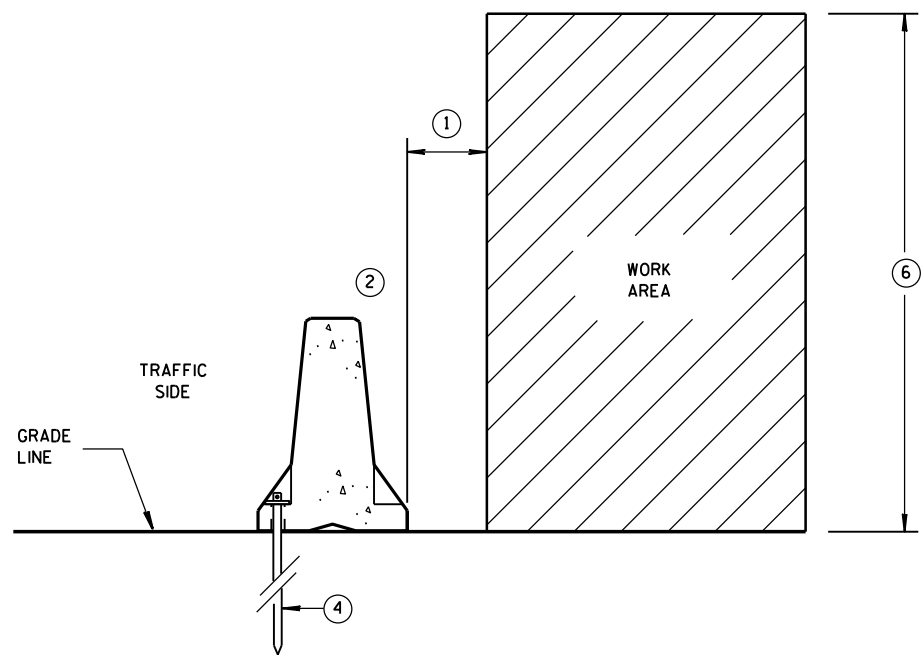
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

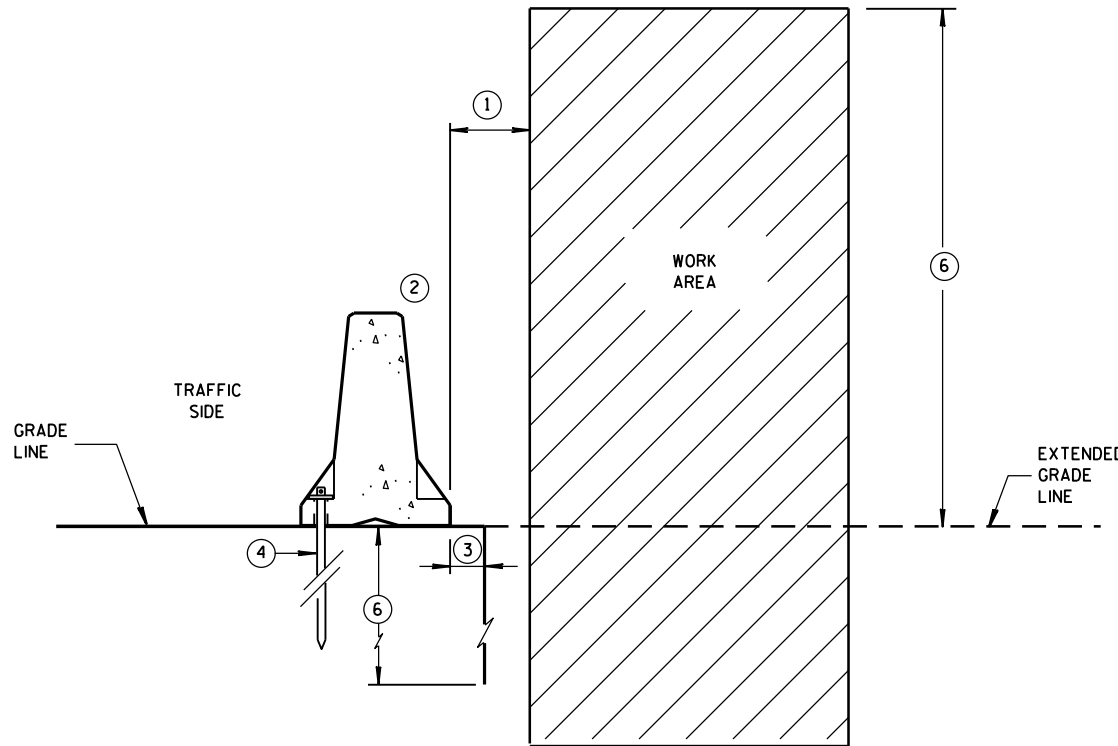
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

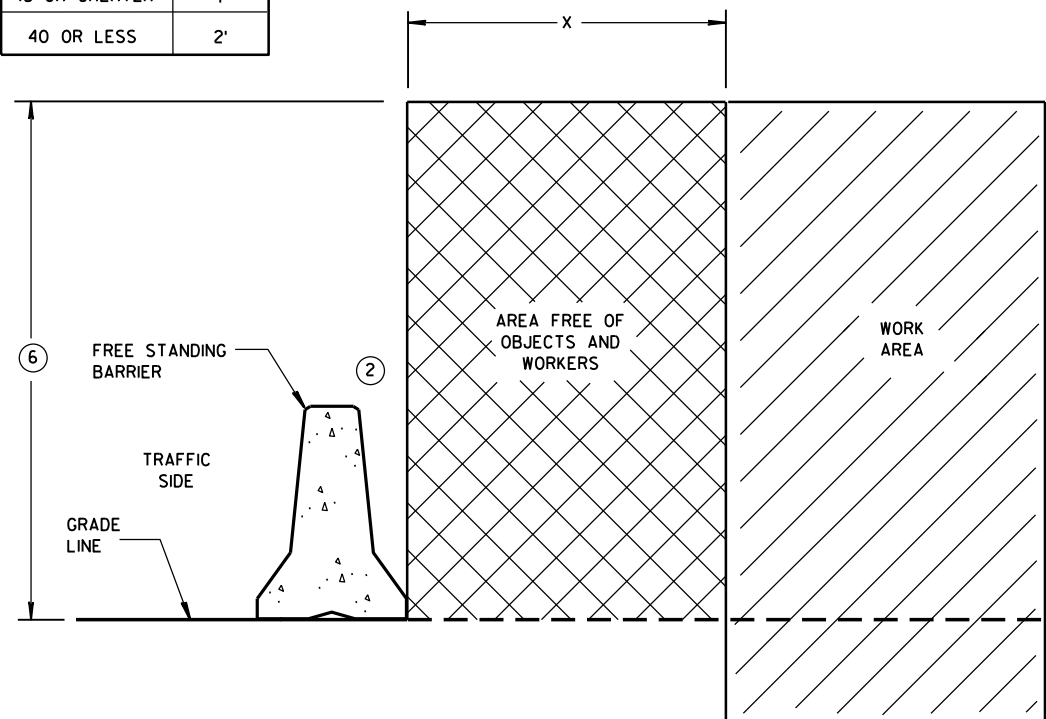


ANCHORED BARRIER SPACE REQUIREMENTS FOR HAZARDS EXTENDED ABOVE THE GRADE LINE

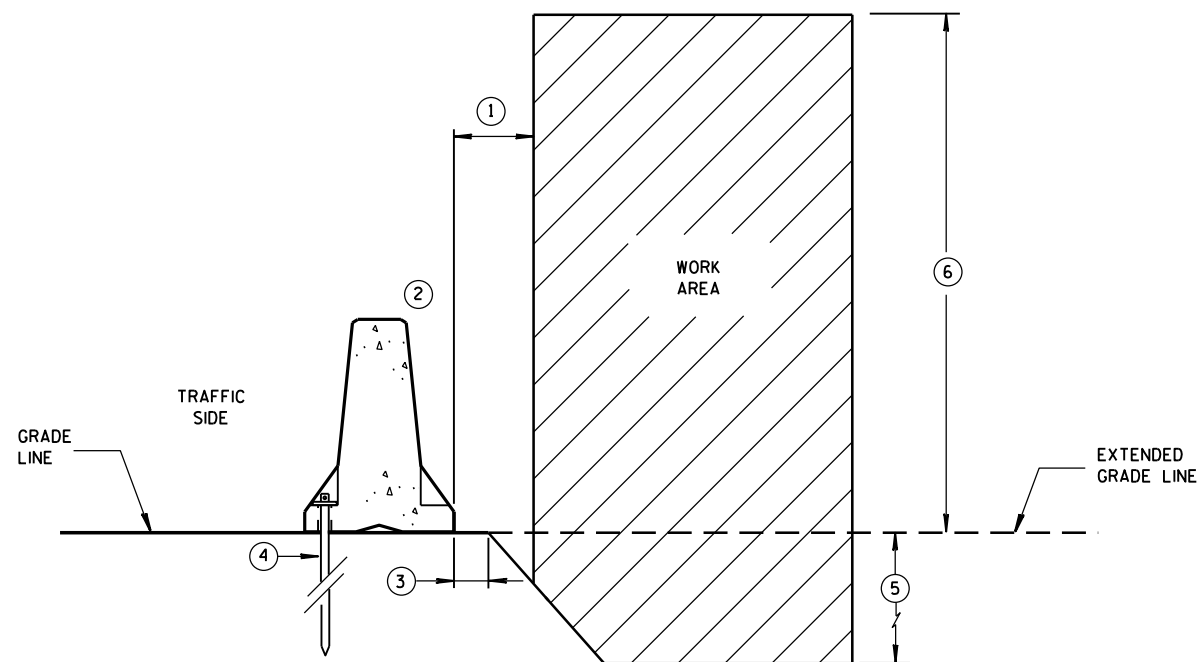


ANCHORED BARRIER SPACE REQUIREMENTS ON VERTICAL DROP OFFS

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



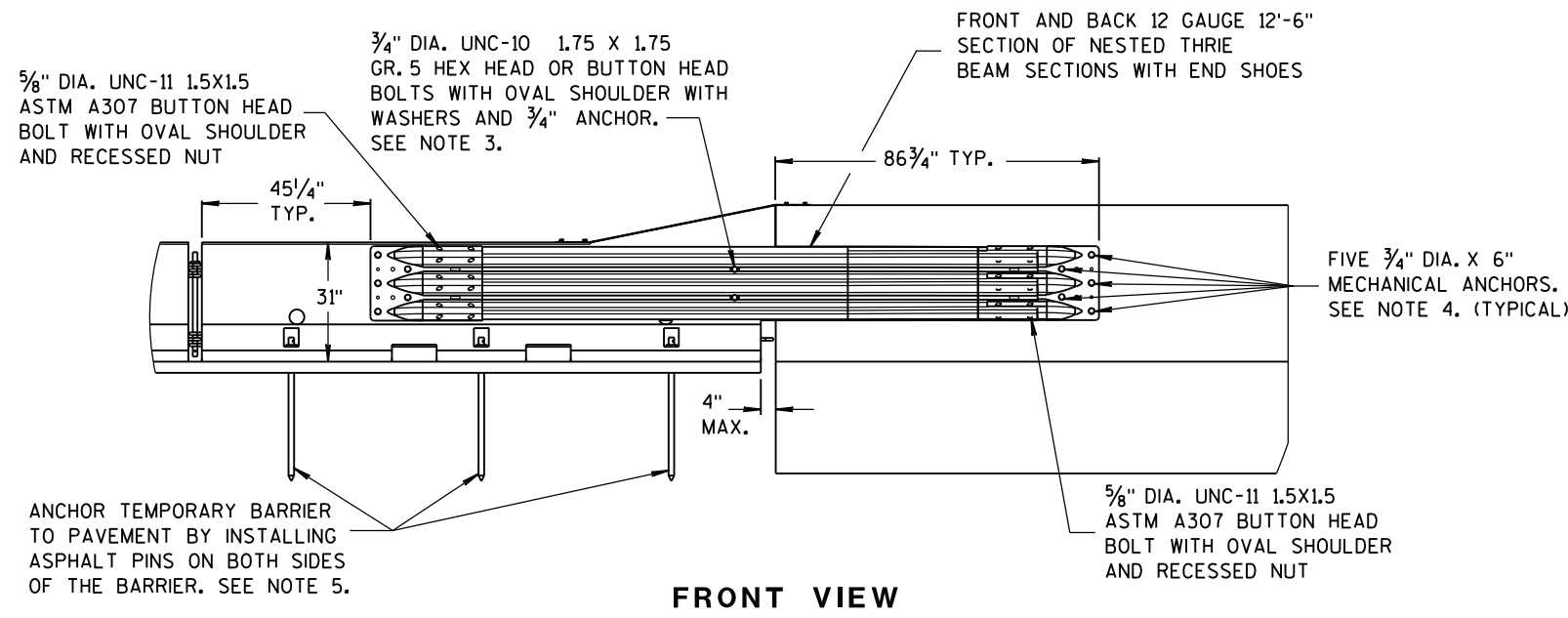
FREE STANDING BARRIER SPACE REQUIREMENTS



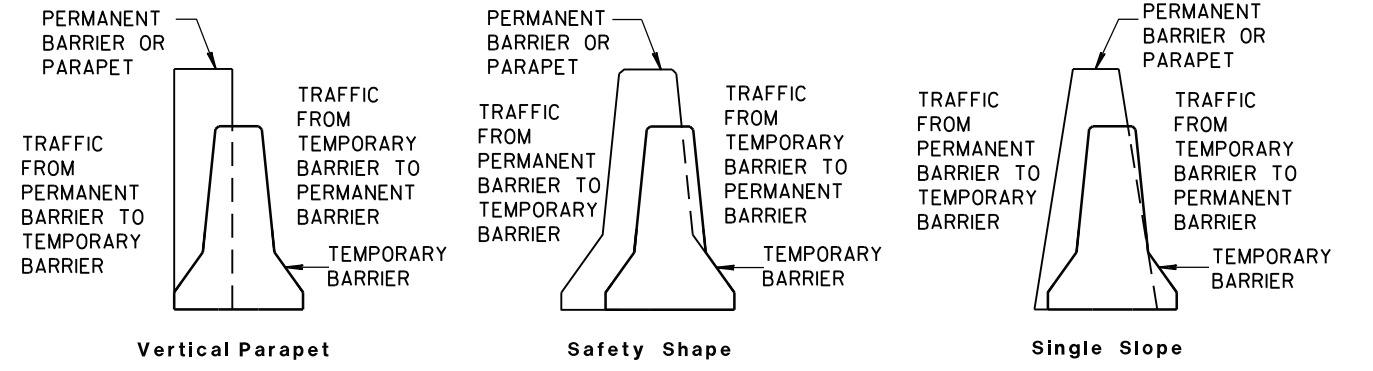
ANCHORED BARRIER SPACE REQUIREMENTS ON SLOPES

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

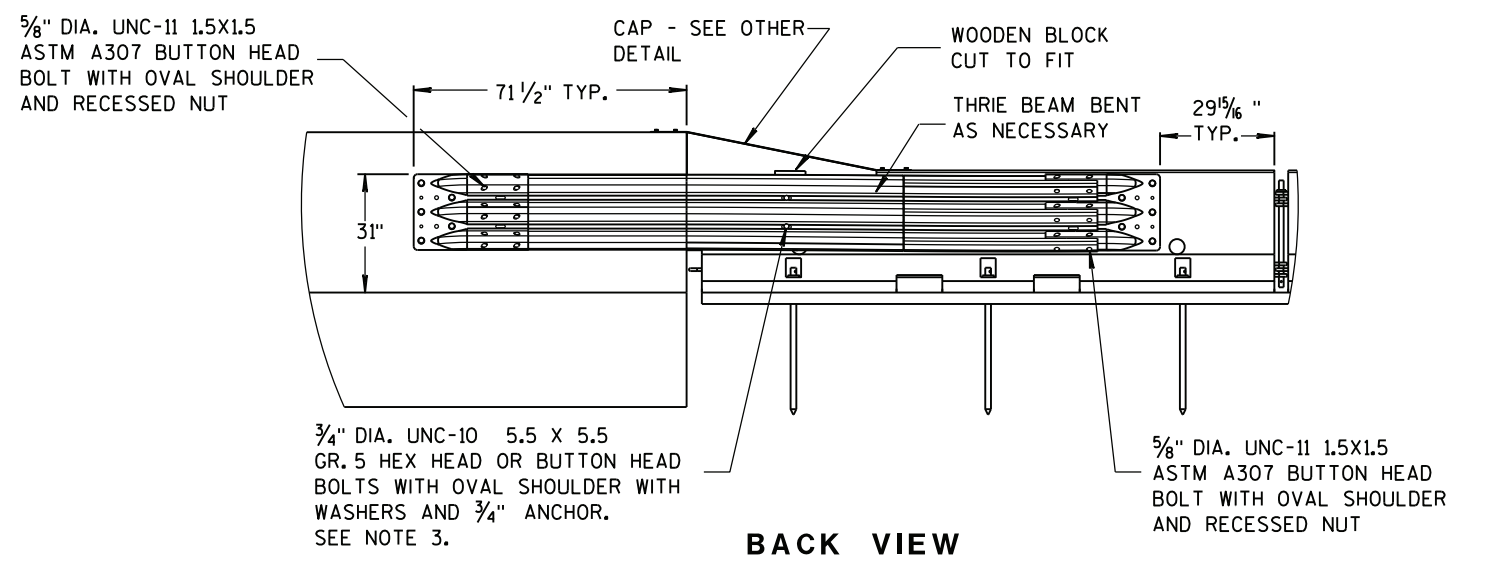


FRONT VIEW

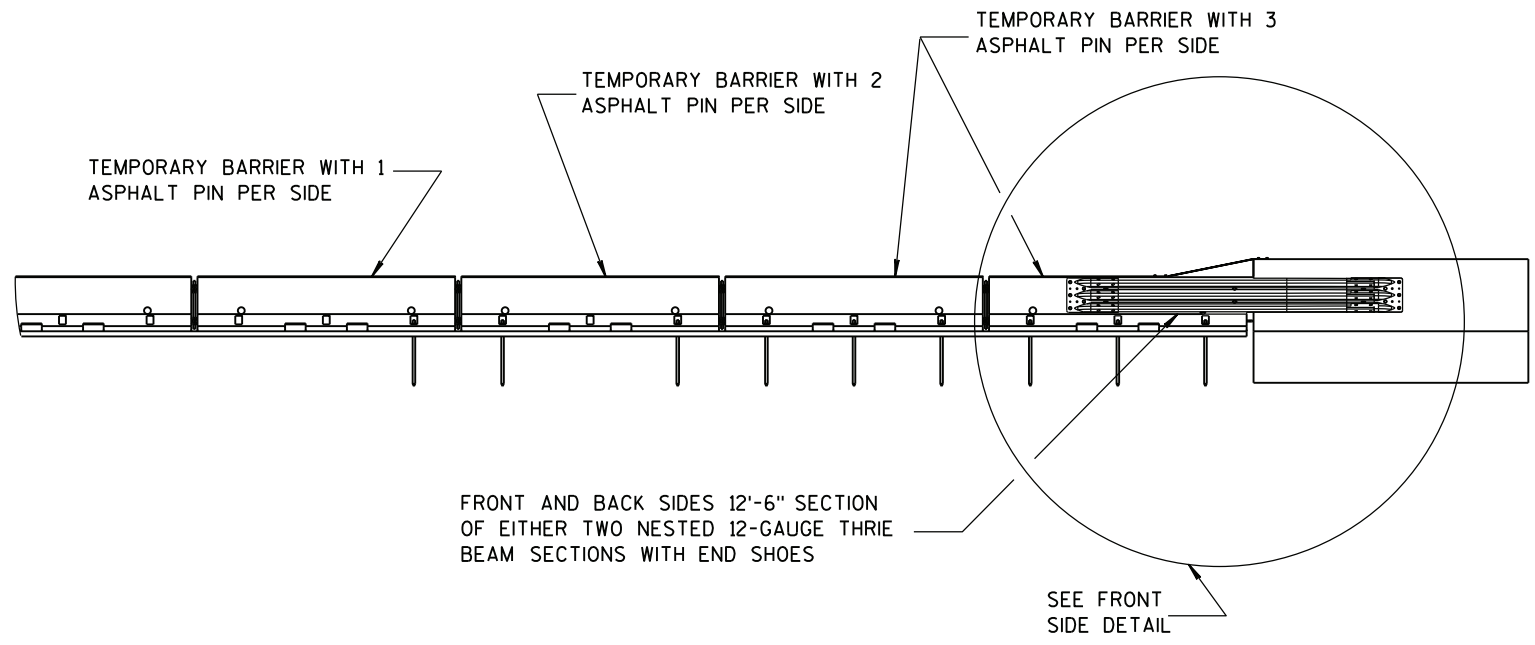


TEMPORARY BARRIER PLACEMENT FOR TRANSITION TO TIED DOWN SYSTEM

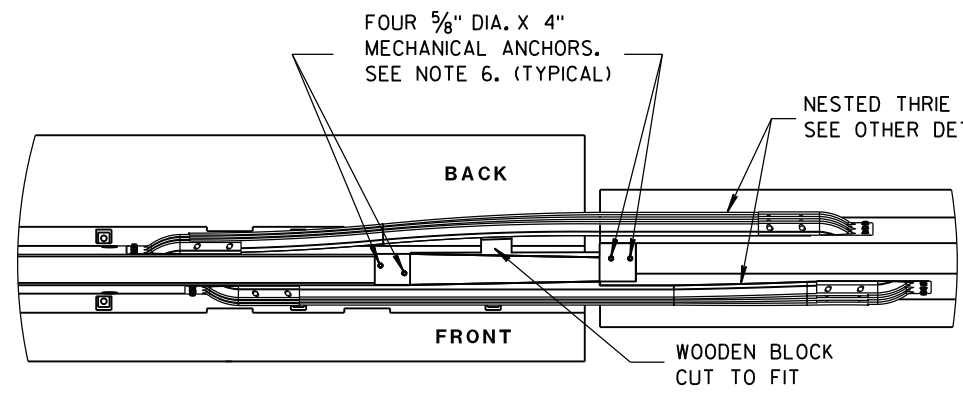
- NOTES**
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
 2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
 3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
 4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
 5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
 6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW

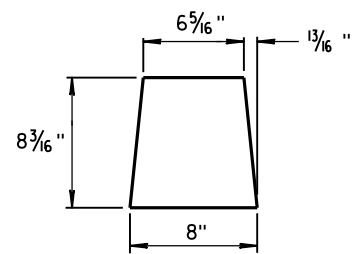


PLAN VIEW

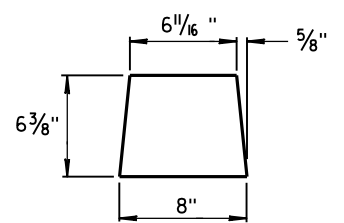
TRANSITION TO TIED DOWN SYSTEM

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

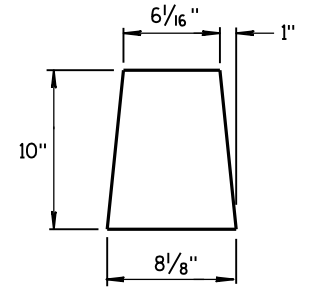
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



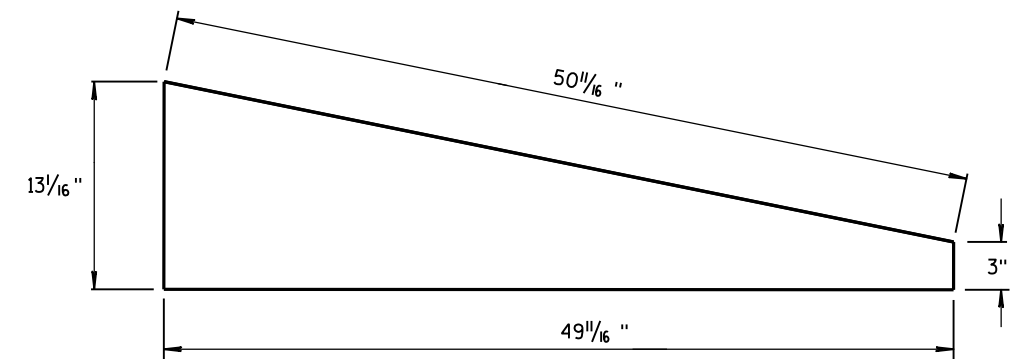
GUSSET 1



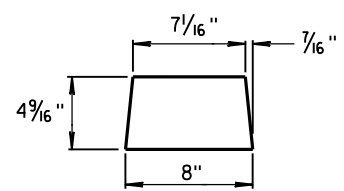
GUSSET 2



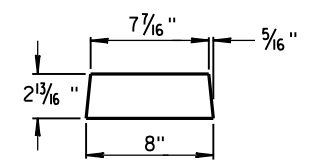
END PLATE



SIDE PLATE

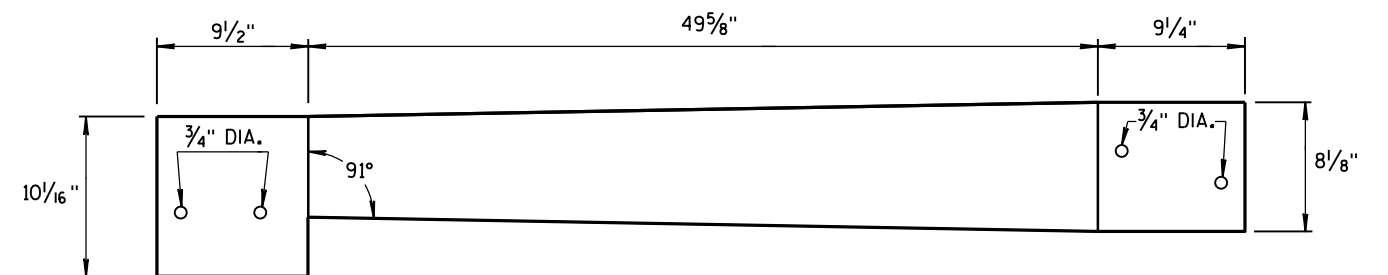


GUSSET 3

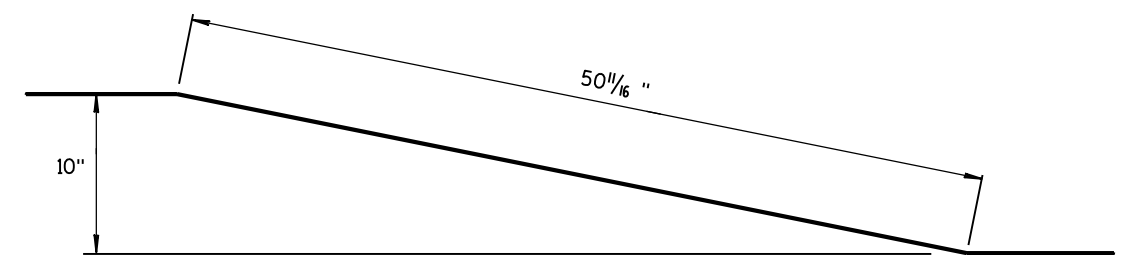


GUSSET 4

GUSSETS

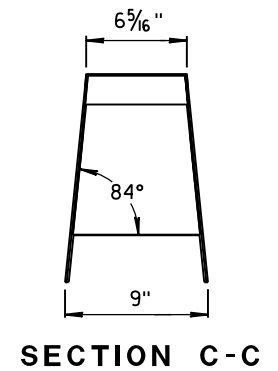
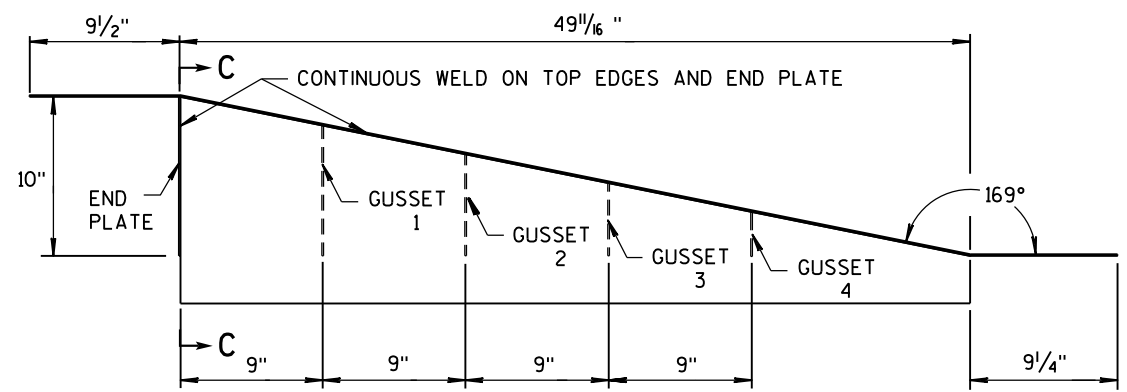
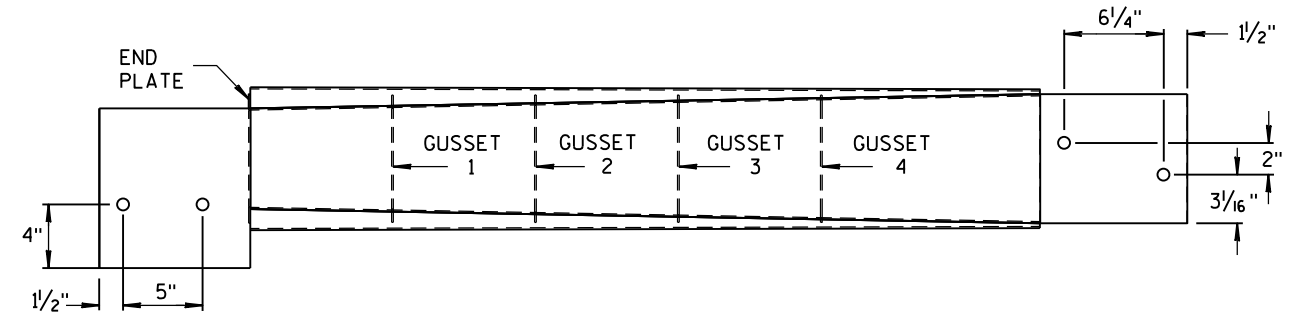


TOP PLATE



SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

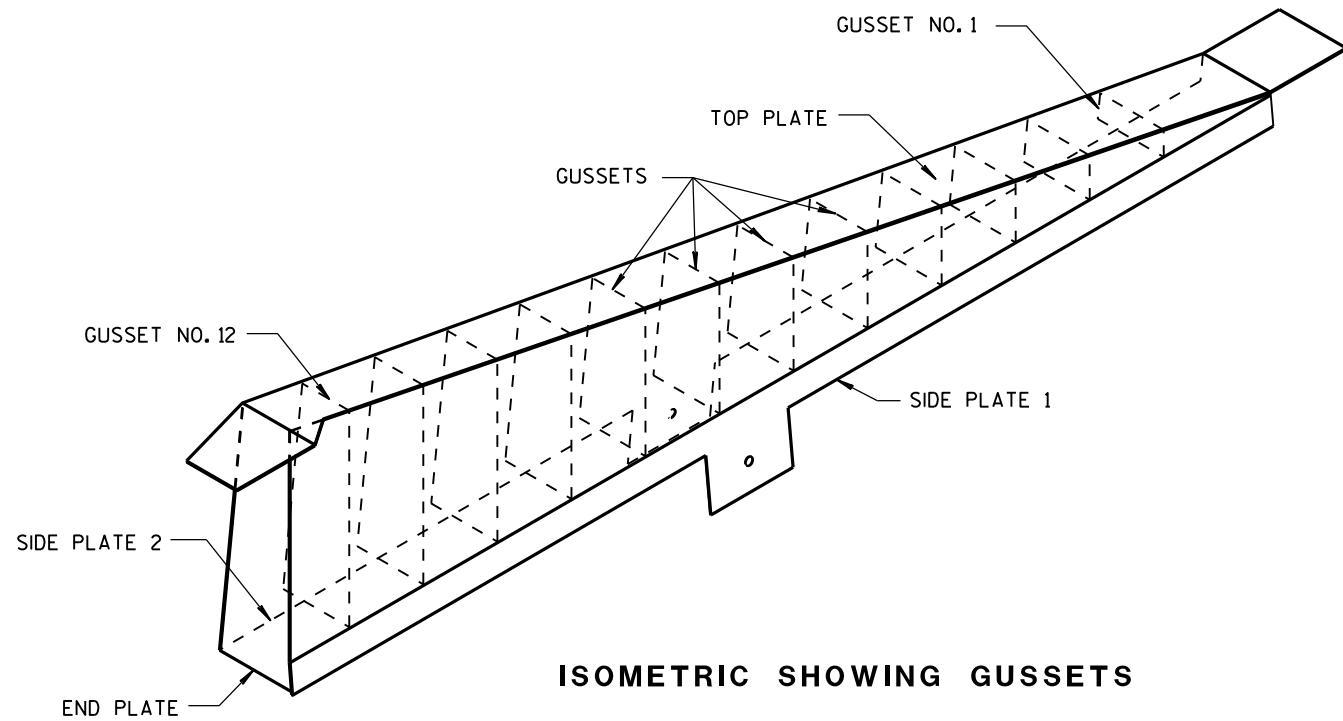
NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

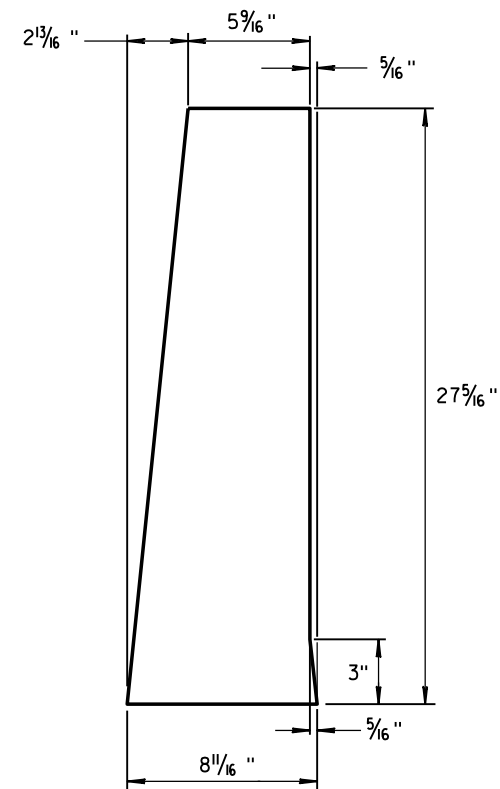
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

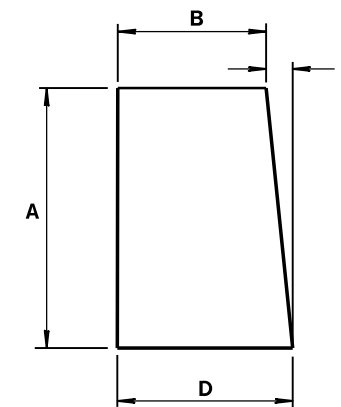


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



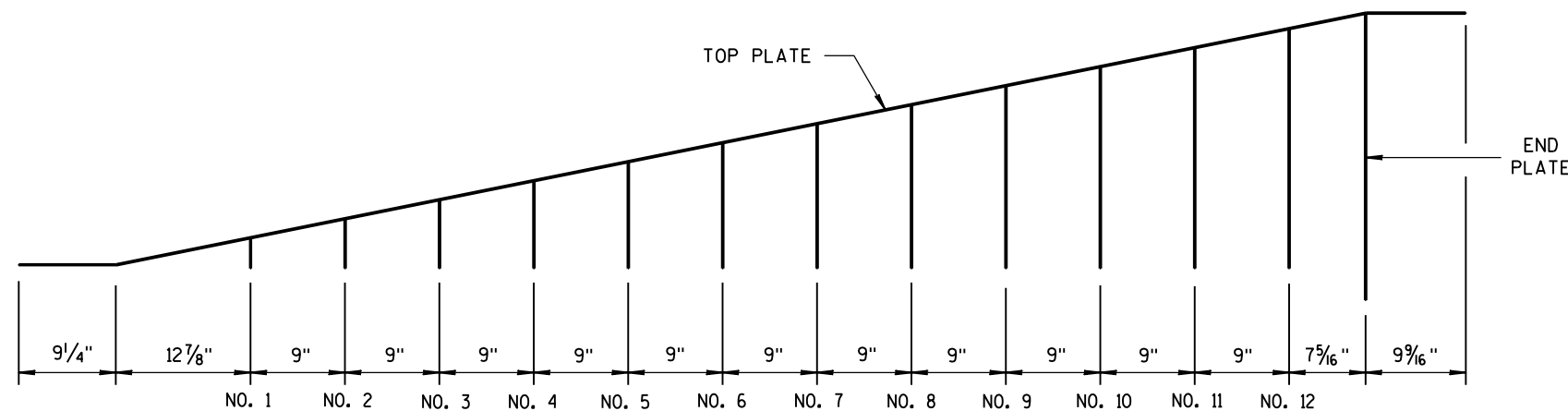
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16"	7 7/16"	1/2"	8
3	6 1/2"	7 3/8"	1 1/16"	8 1/16"
4	8 5/16"	7 3/16"	7/8"	8 1/16"
5	10 1/8"	7"	1 1/16"	8 1/16"
6	11 5/16"	6 13/16"	1 1/4"	8 1/16"
7	13 3/4"	6 5/8"	1 7/16"	8 1/16"
8	15 3/16"	6 7/16"	1 9/16"	8 1/16"
9	17 3/8"	6 1/4"	1 13/16"	8 1/16"
10	19 3/16"	6 1/16"	1 15/16"	8 1/16"
11	21"	5 7/8"	2 3/16"	8 1/16"
12	22 13/16"	5 11/16"	2 5/16"	8 1/16"

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.

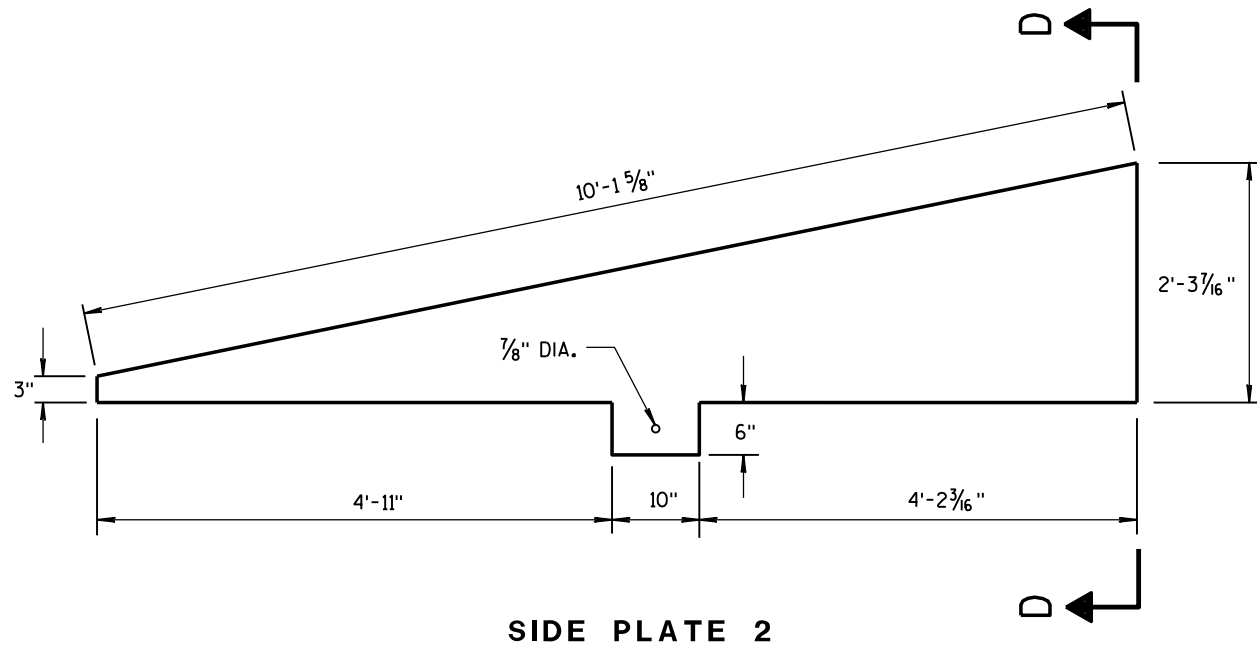


GUSSET LOCATION

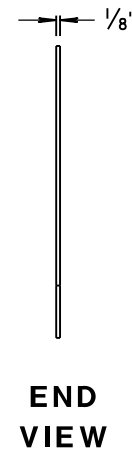
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

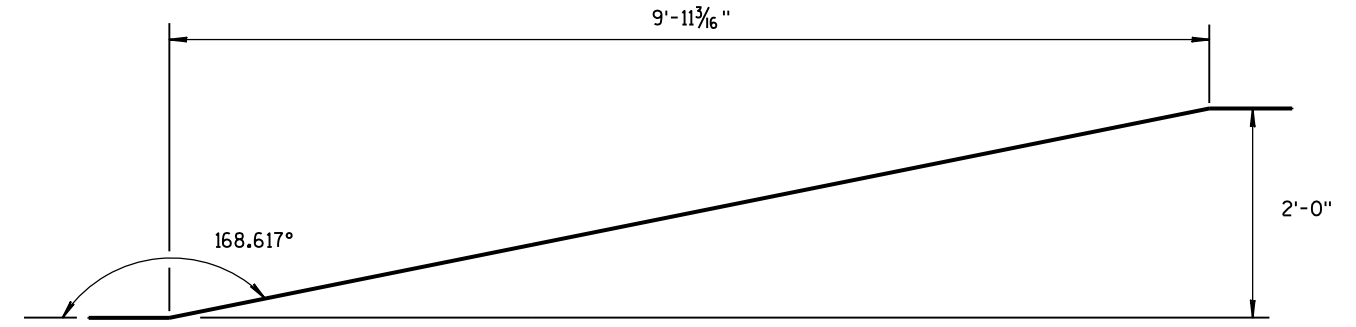
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



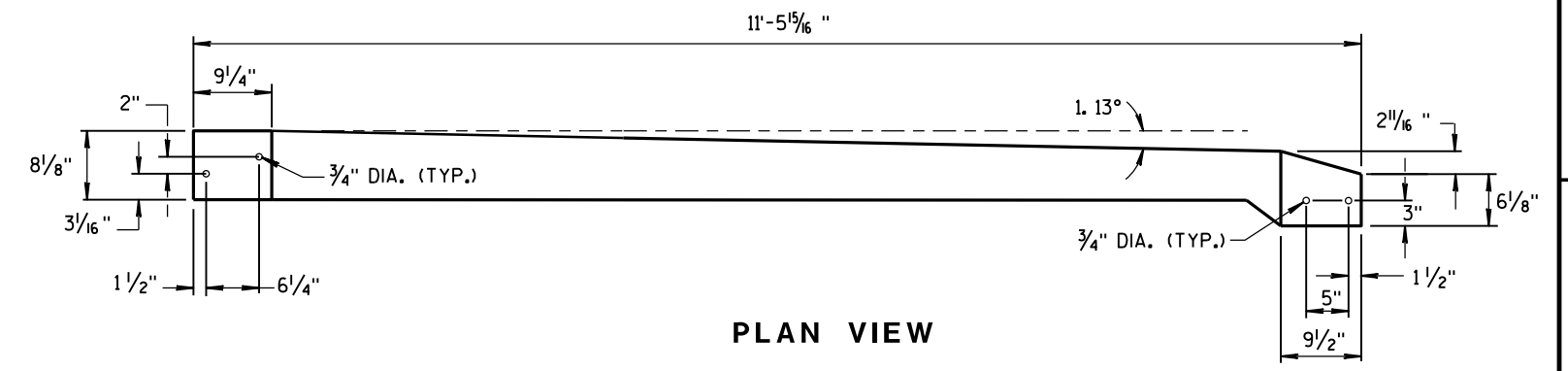
SIDE PLATE 2



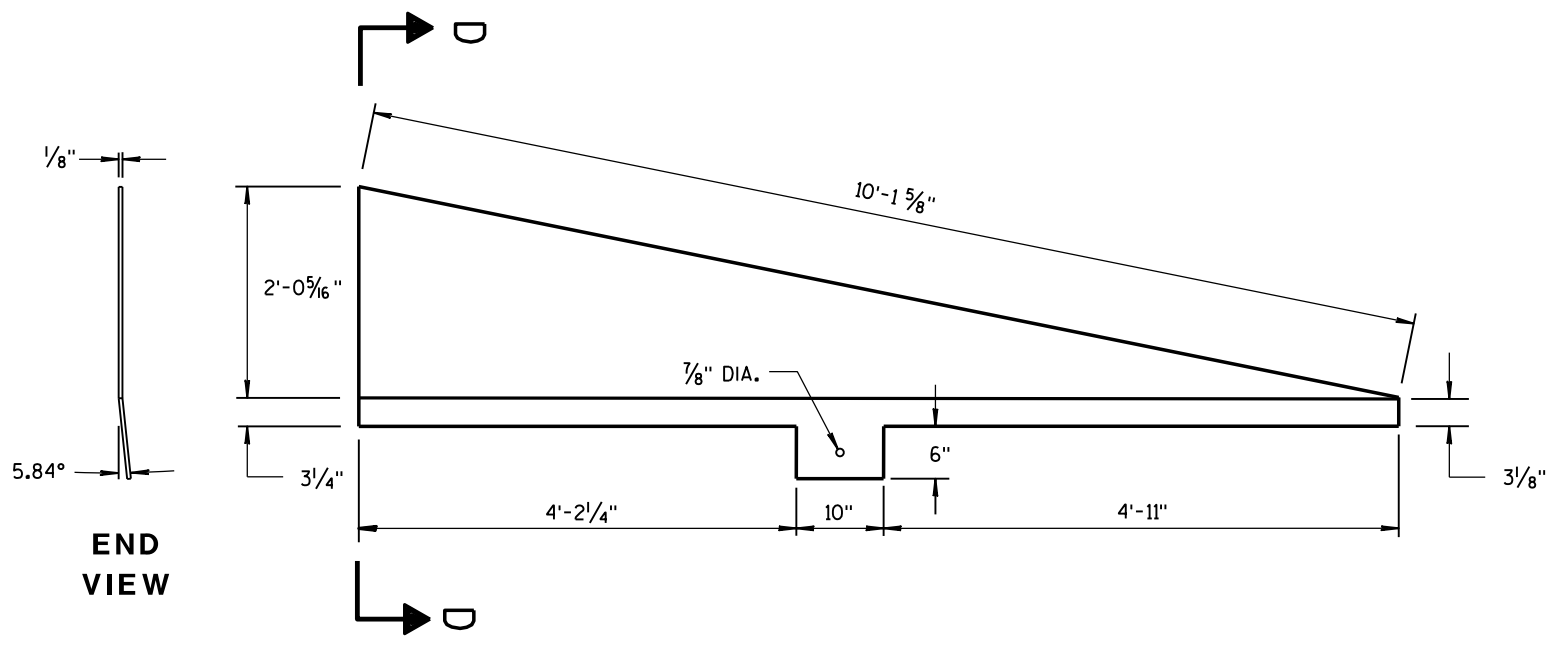
END VIEW



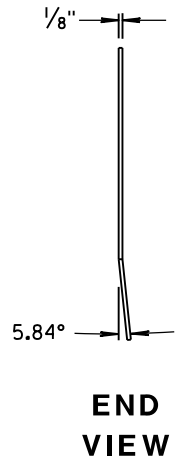
SIDE VIEW
TOP PLATE



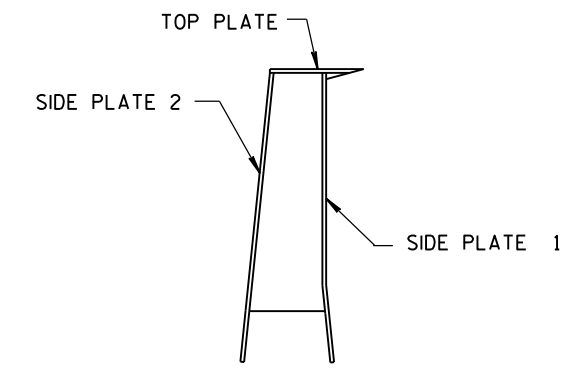
PLAN VIEW
TOP PLATE



SIDE PLATE 1



END VIEW



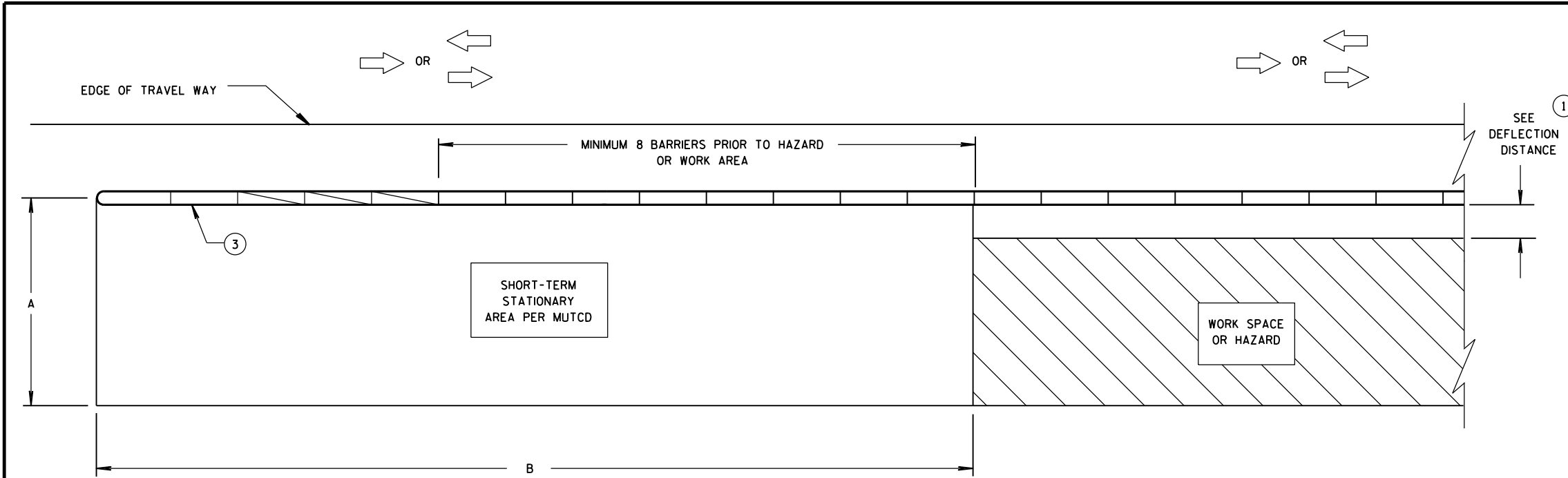
SECTION D-D

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARD DEVELOPMENT
FHWA UNIT SUPERVISOR



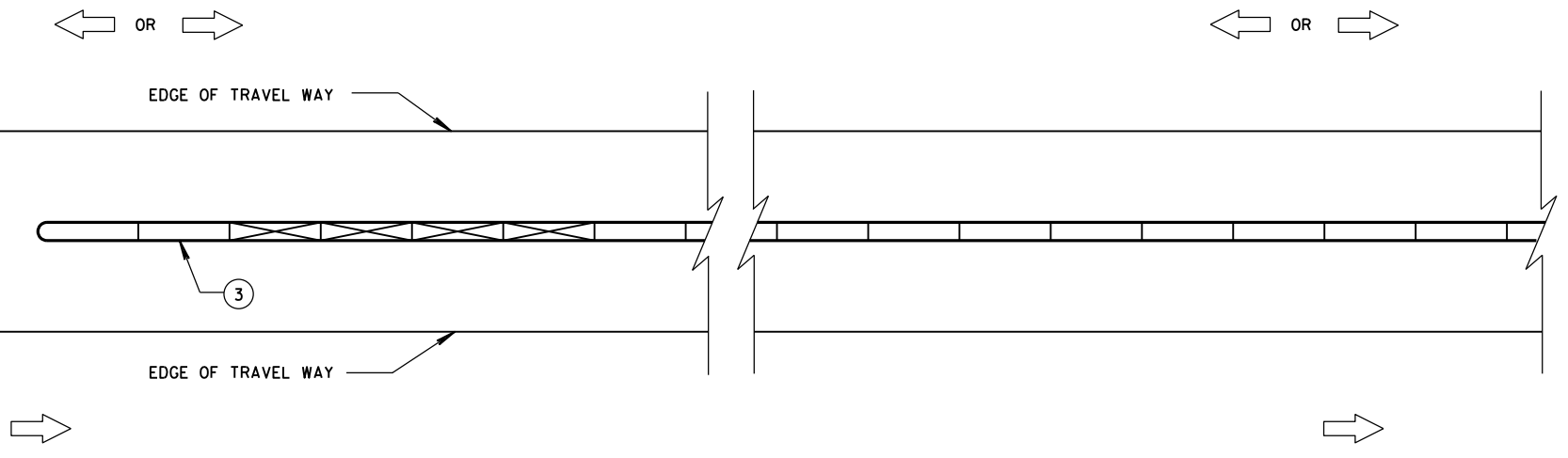
DIMENSION A TABLE ⁽²⁾

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER**

DIMENSION B TABLE ⁽²⁾

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER**

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

- ⁽¹⁾ FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ⁽²⁾ VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ⁽³⁾ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

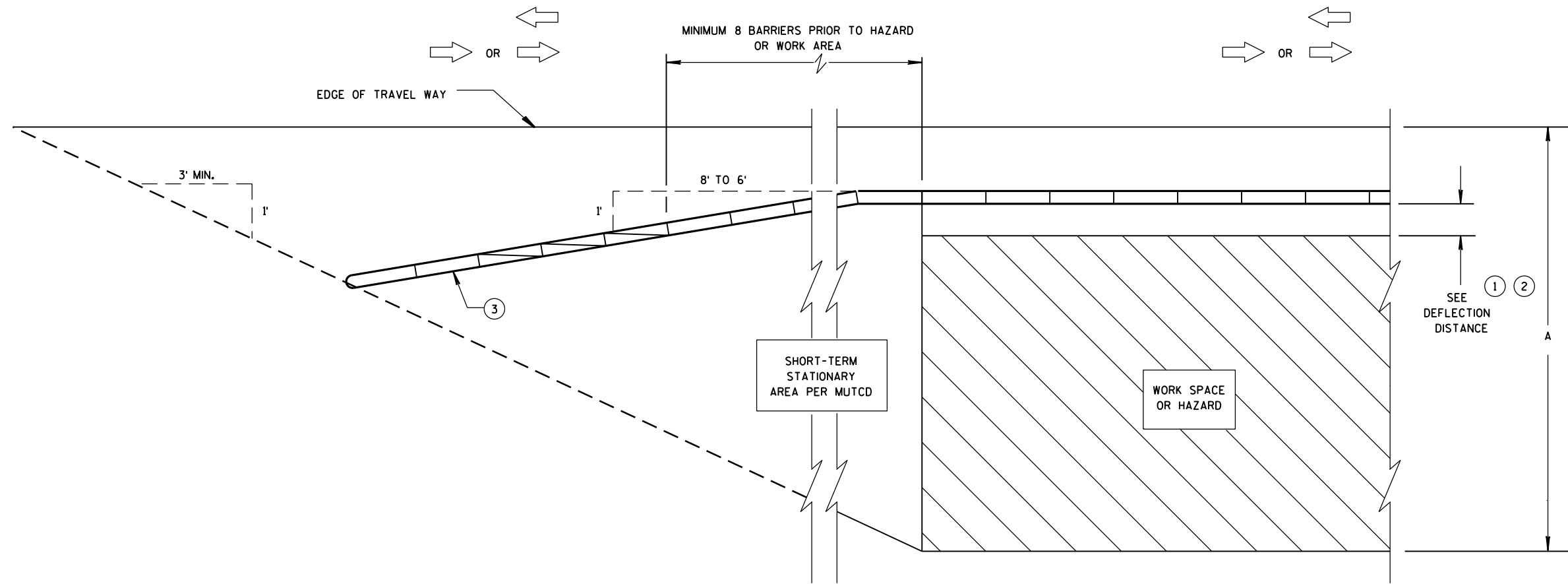
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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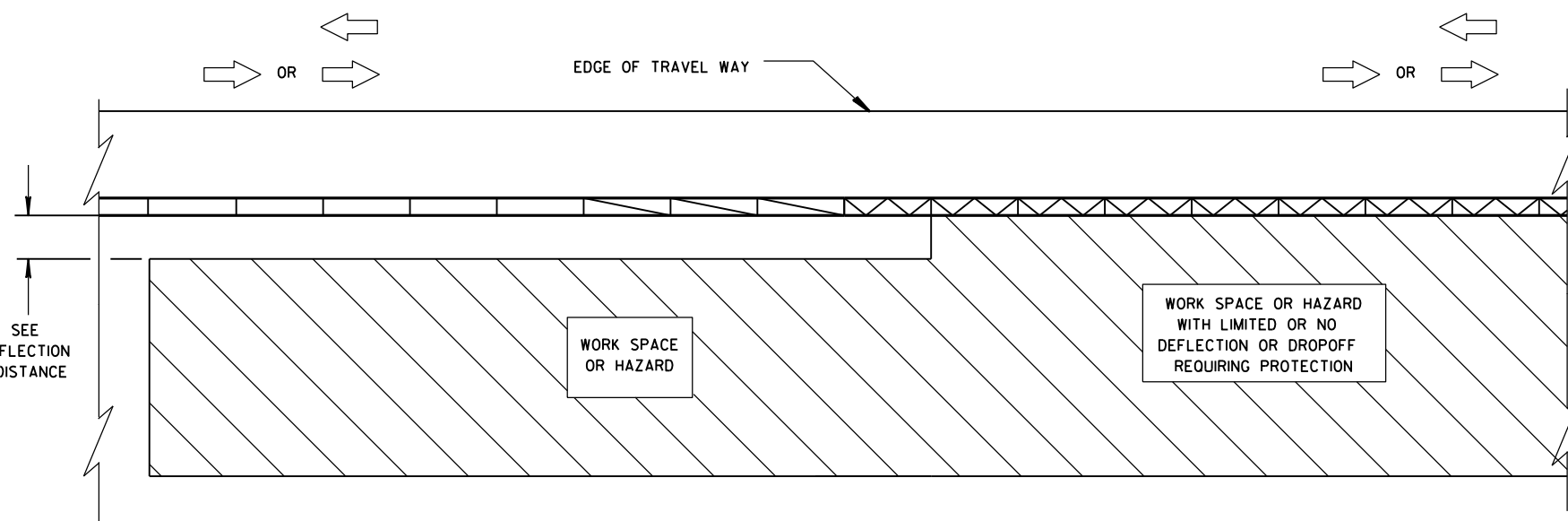
6

S.D.D. 14 B 8-2a

S.D.D. 14 B 8-2a



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

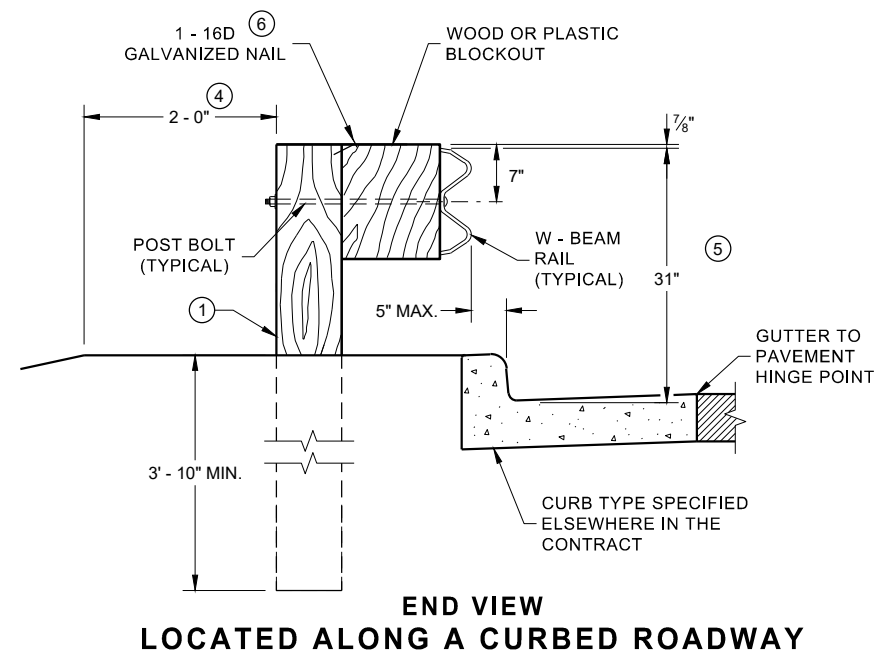
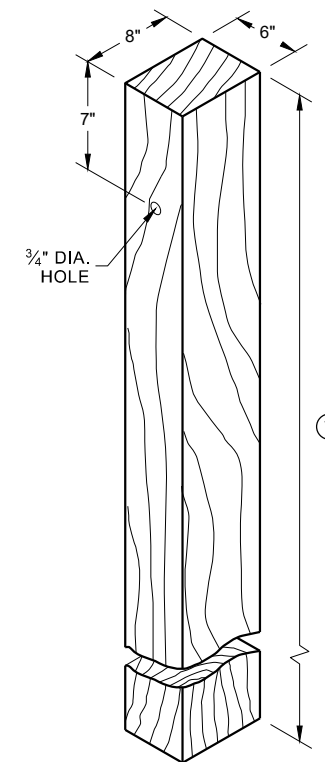
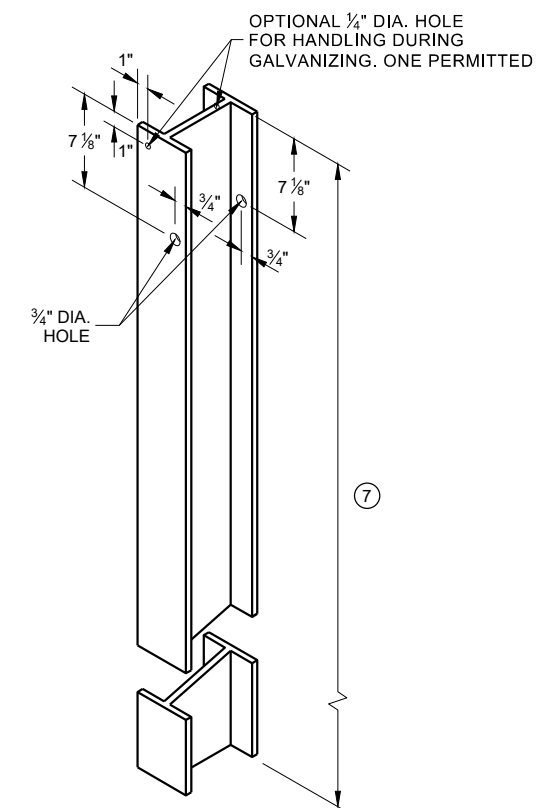
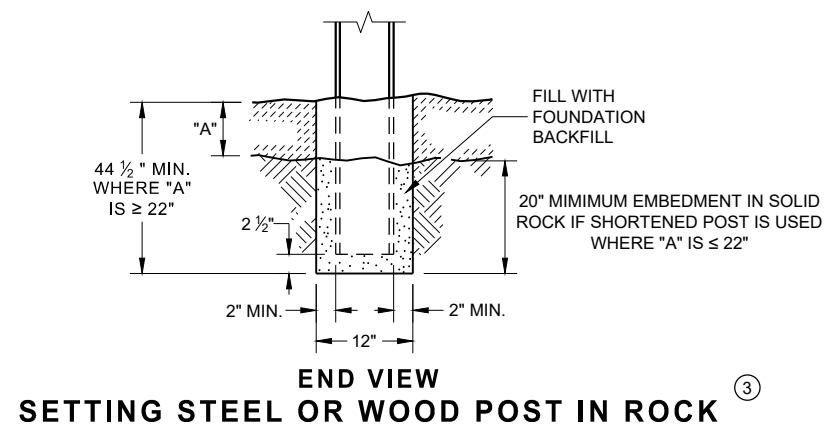
LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

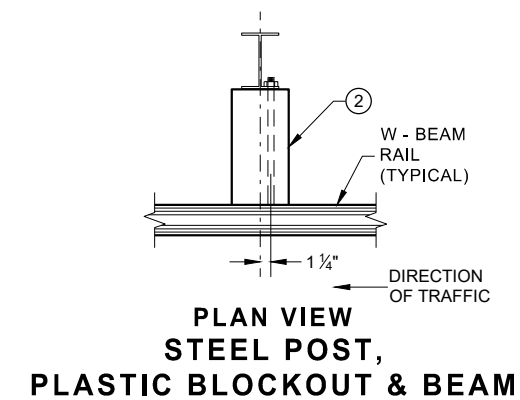
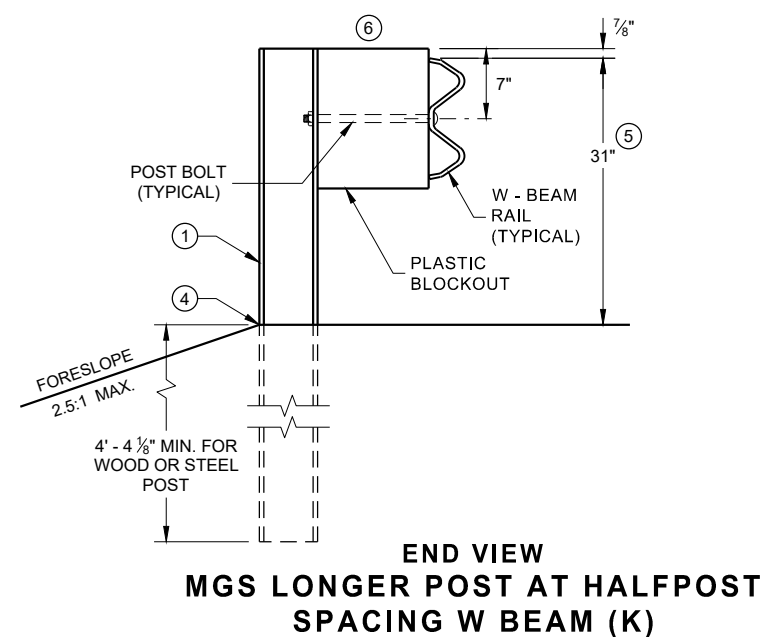
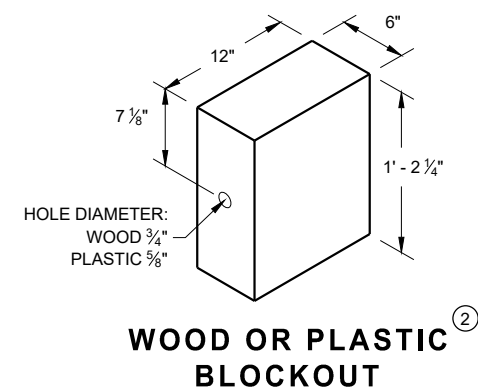
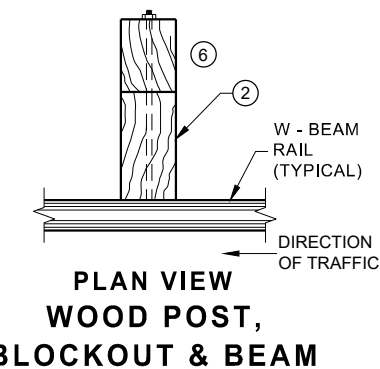
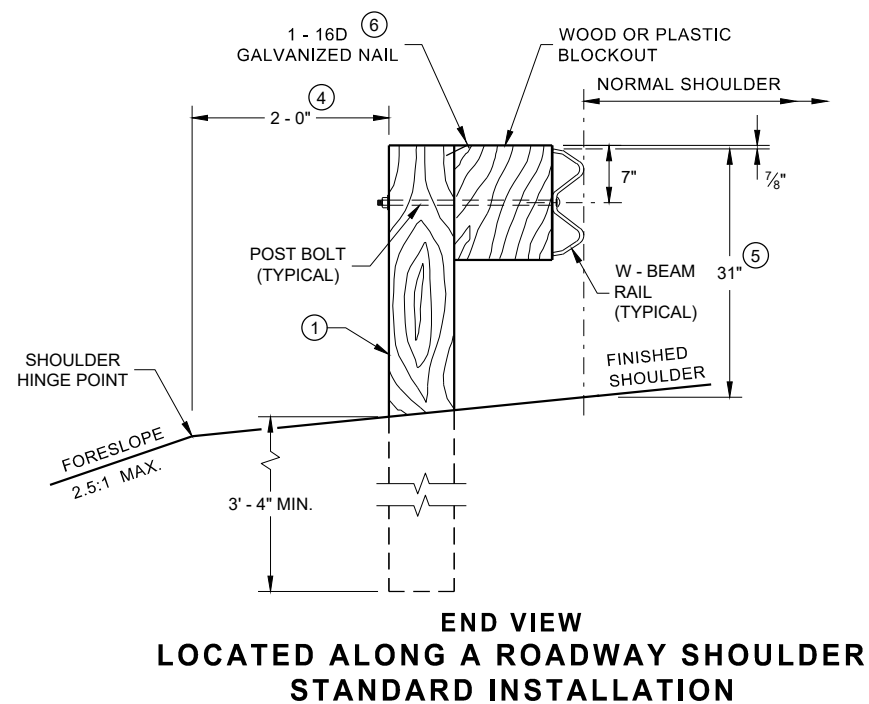
STATE OF WISCONSIN
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- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ 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.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ 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".
- 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



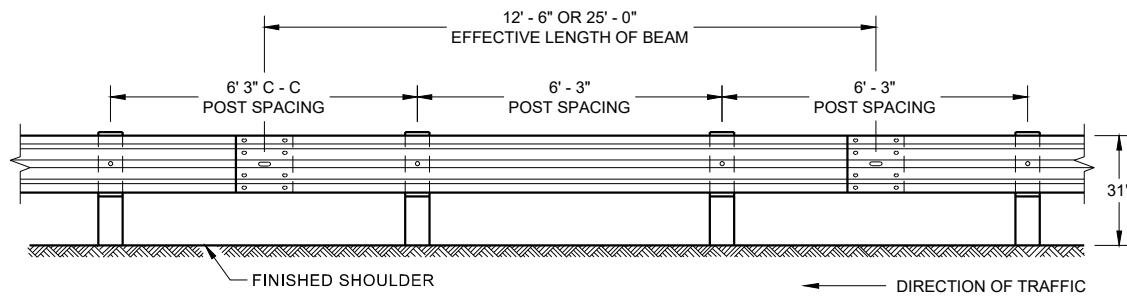
**STEEL POST & HOLE PUNCHING DETAIL
(W 6 X 9)** ①

**WOOD POST
(6" X 8") NOMINAL** ①

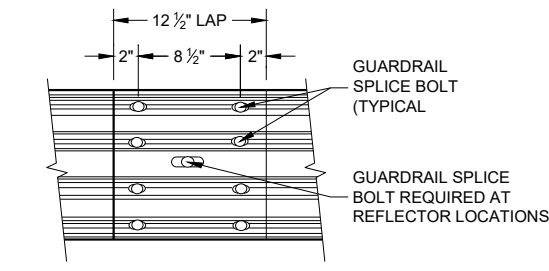


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



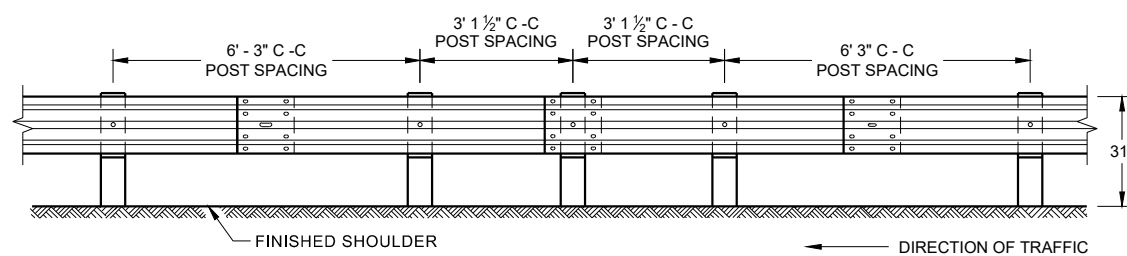
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



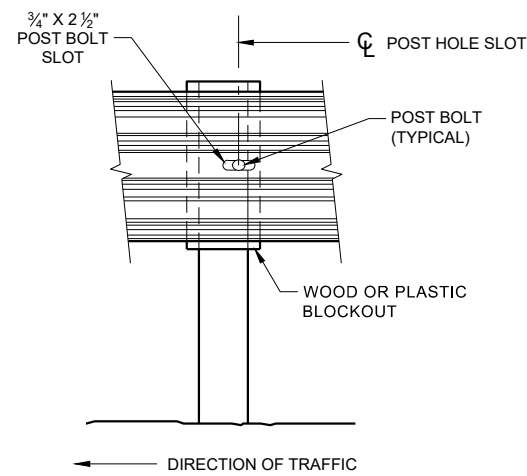
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

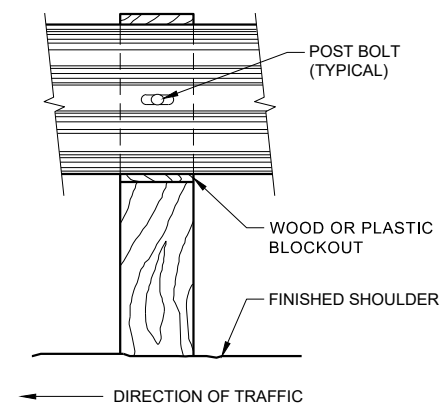
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER 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.



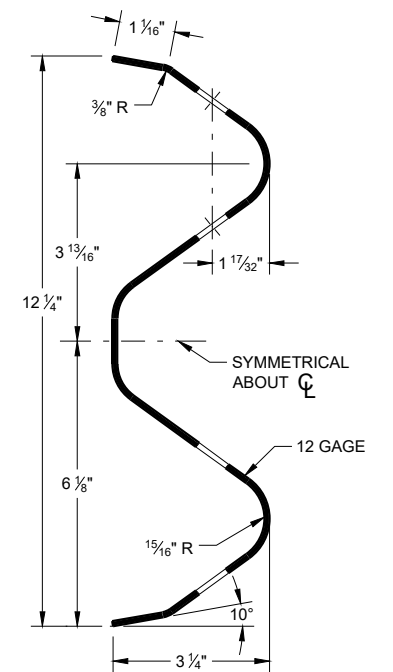
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



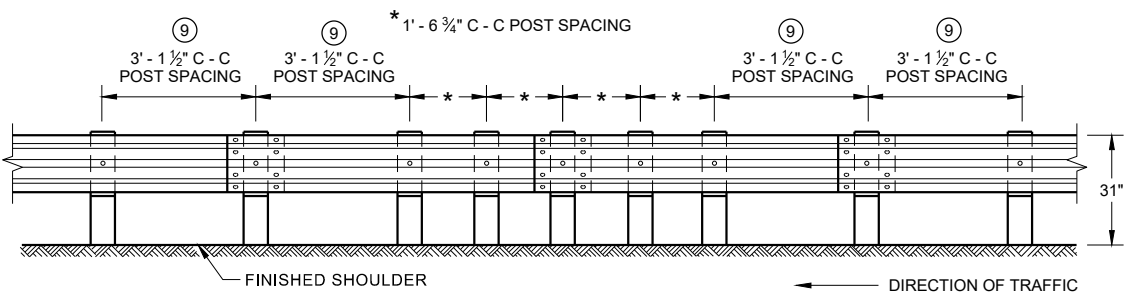
FRONT VIEW AT STEEL POST



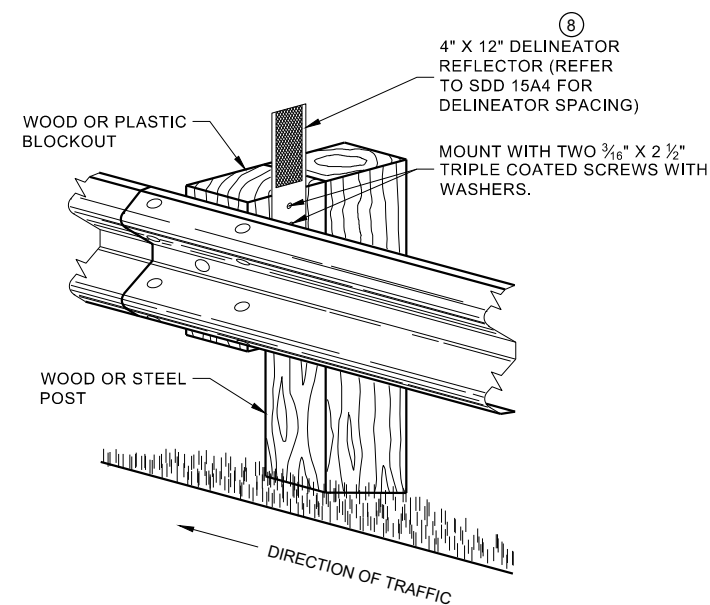
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



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



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

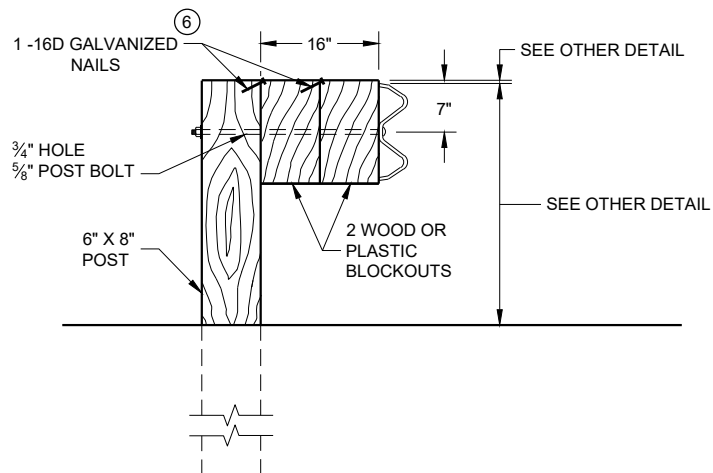
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B42 - 07b

SDD 14B42 - 07b

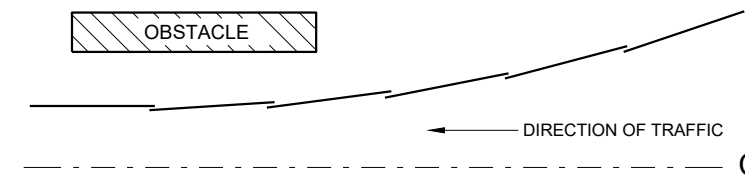
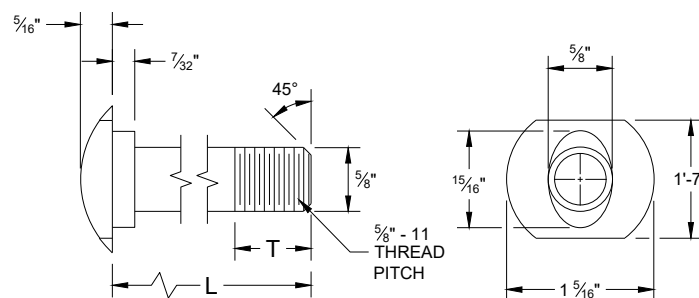


DETAIL FOR 16" BLOCKOUT DEPTH

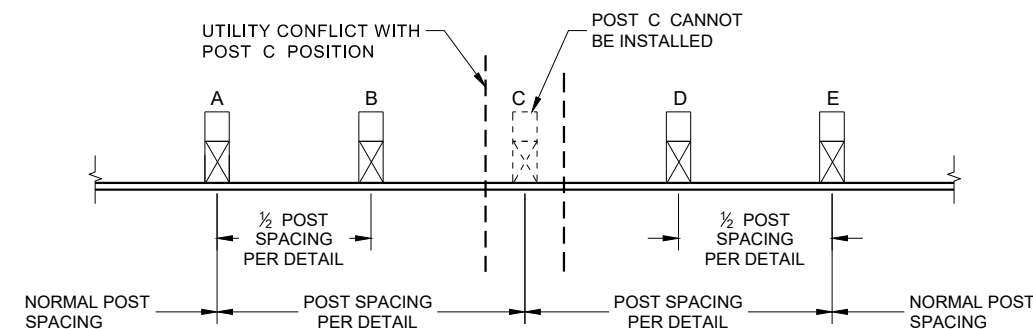
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

NOTE:

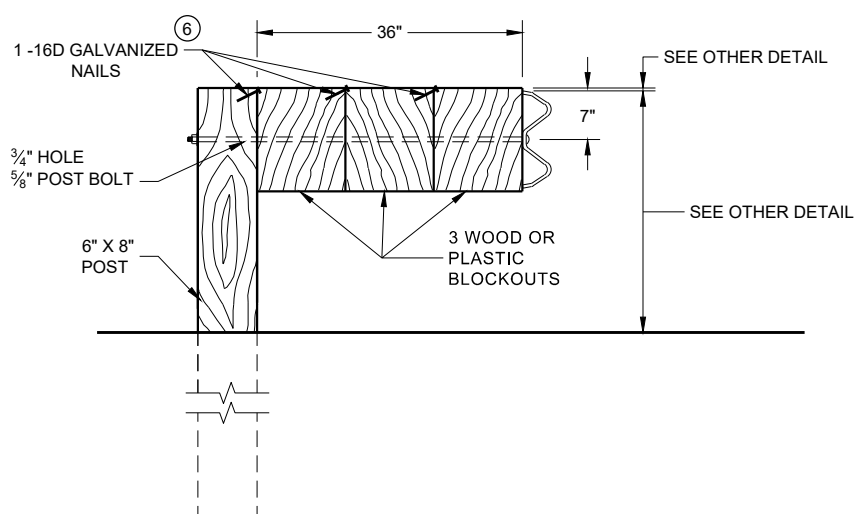
1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.



**PLAN VIEW
BEAM LAPPING DETAIL**



**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

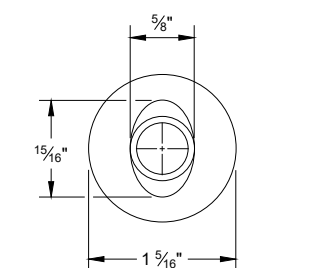


DETAIL FOR 36" BLOCKOUT DEPTH

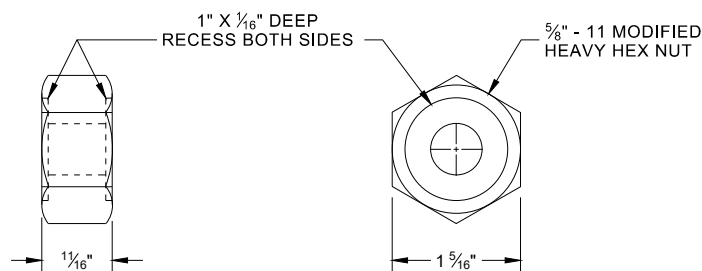
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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

POST BOLT TABLE

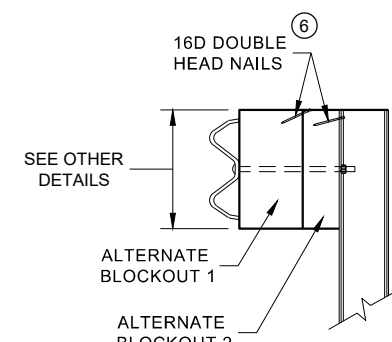
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



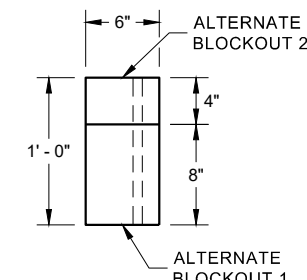
ALTERNATE BOLT HEAD



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



SIDE VIEW



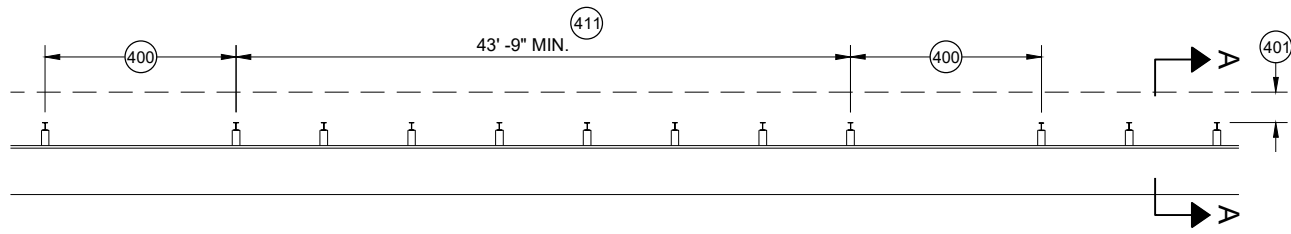
PLAN VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

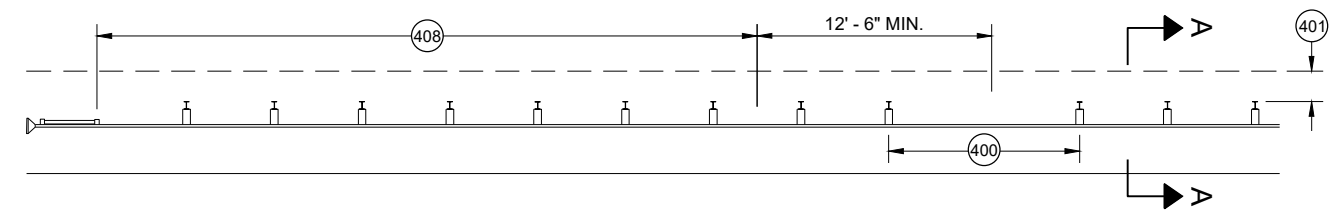
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

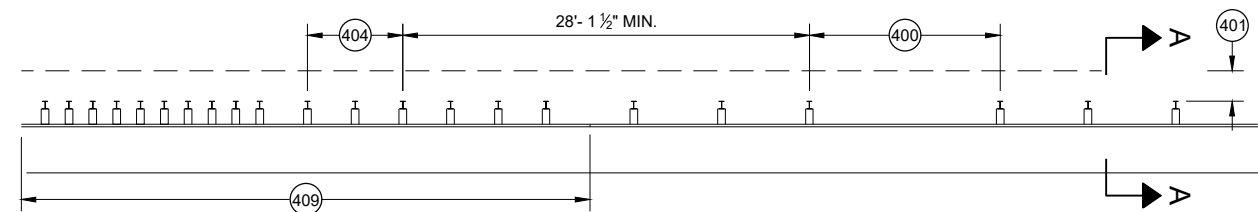
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



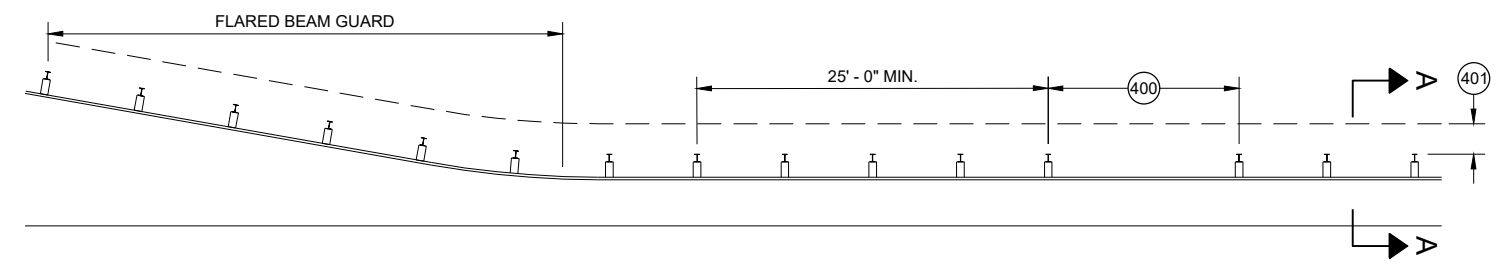
MISSING POST IN MGS GUARDRAIL



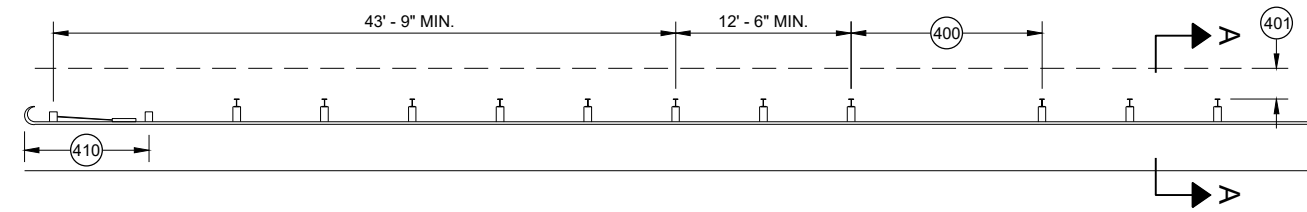
MISSING POST IN MGS GUARDRAIL NEAR EAT



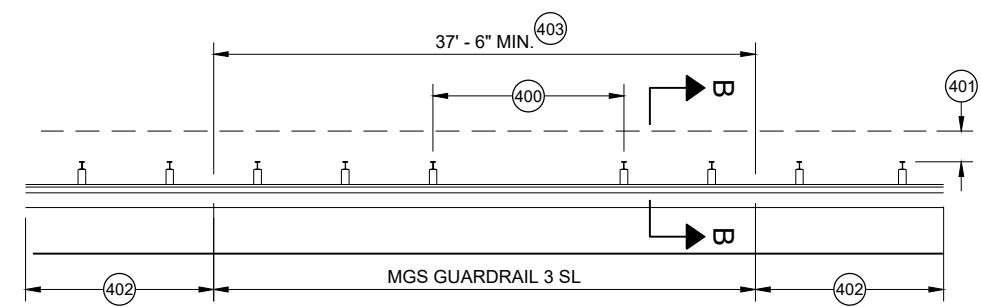
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

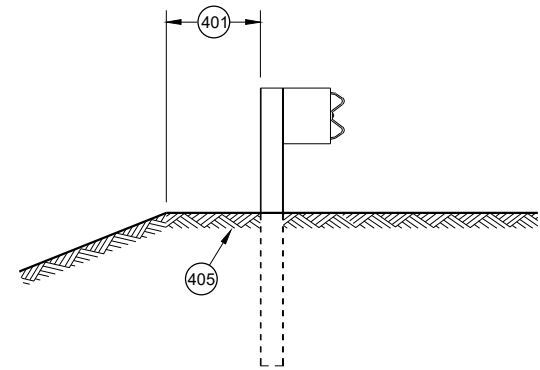


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

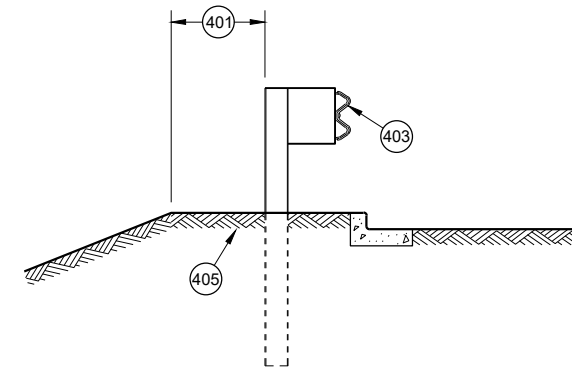


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- 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>	

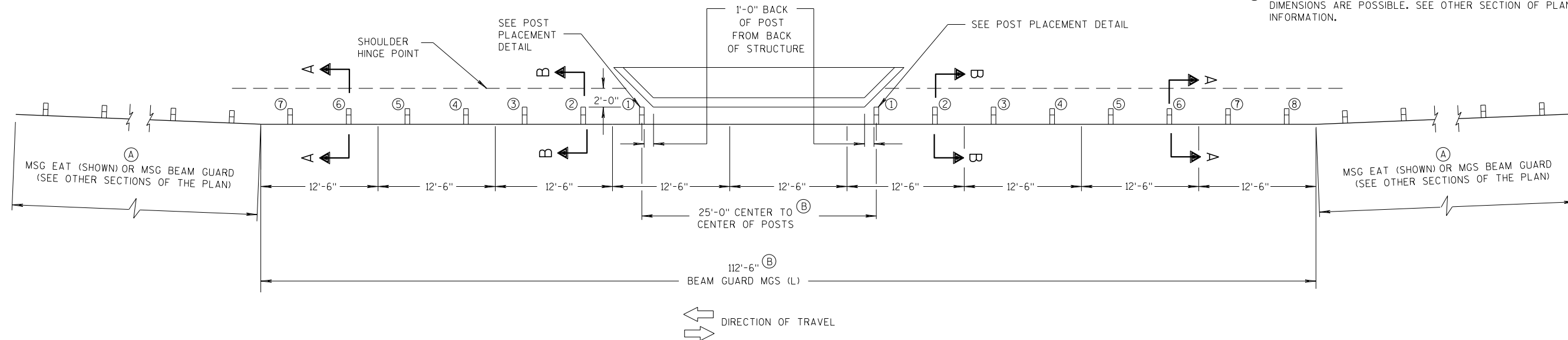
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

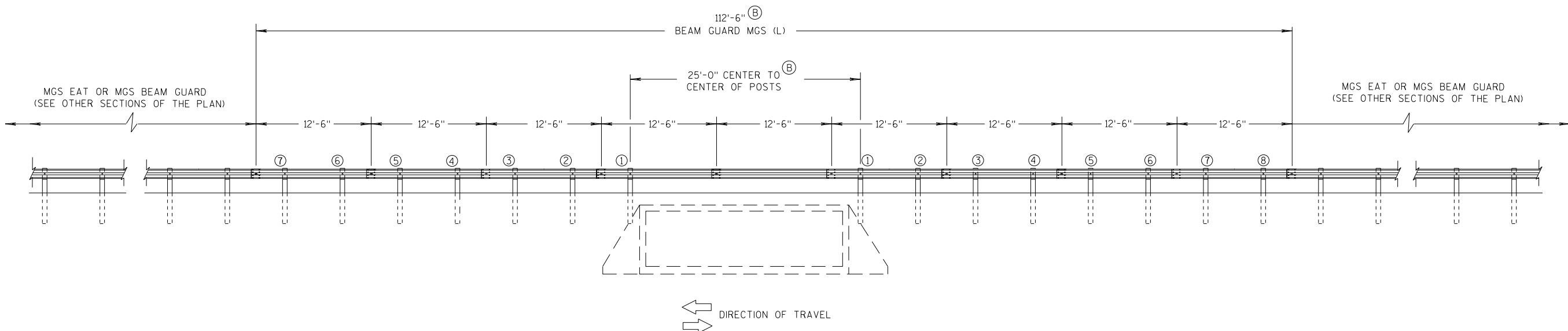
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN, IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) TWO-WAY TRAFFIC

<p>MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)</p>
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>

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S.D.D. 14 B 43-4a

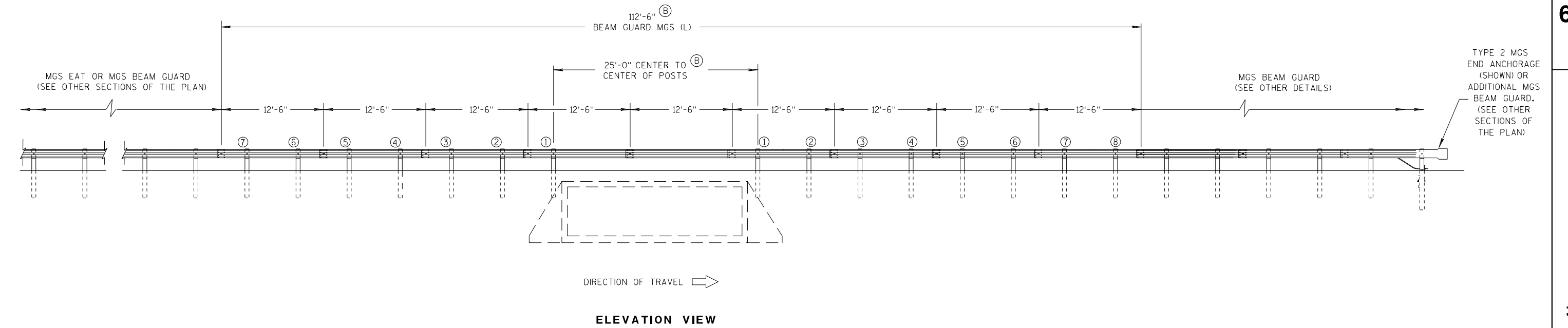
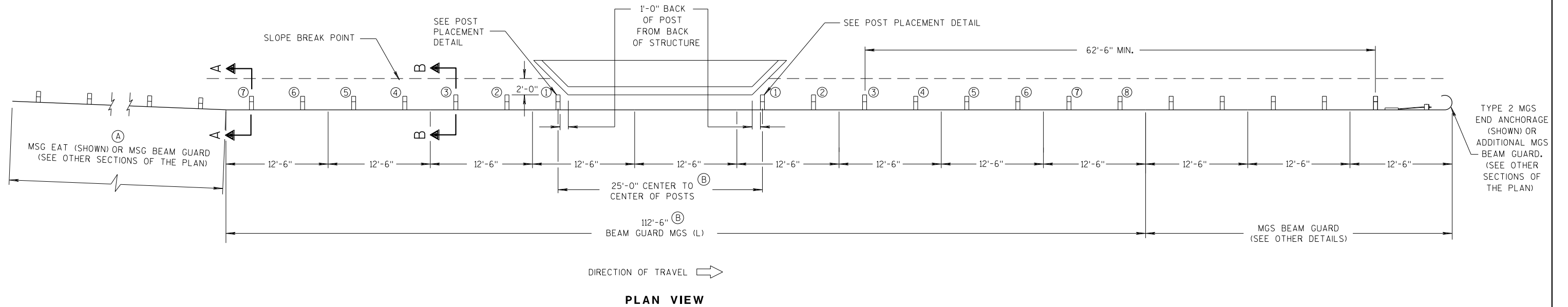
S.D.D. 14 B 43-4a

GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

SEE SDD 14 B 42 FOR MORE DETAILS.

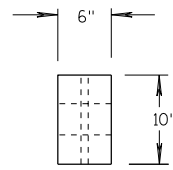
- (A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.
- (B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



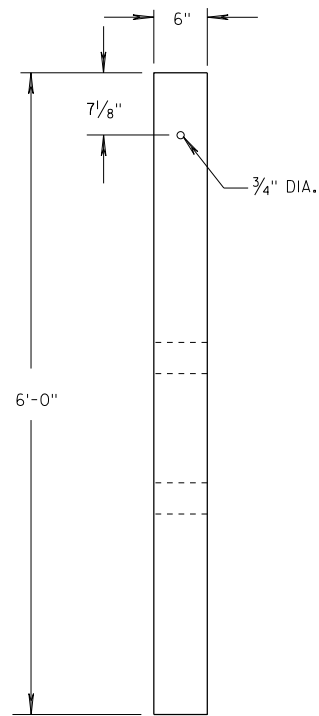
MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC

**MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)**

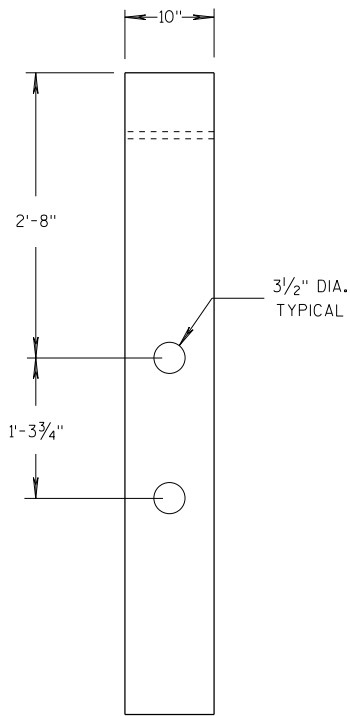
STATE OF WISCONSIN
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PLAN VIEW

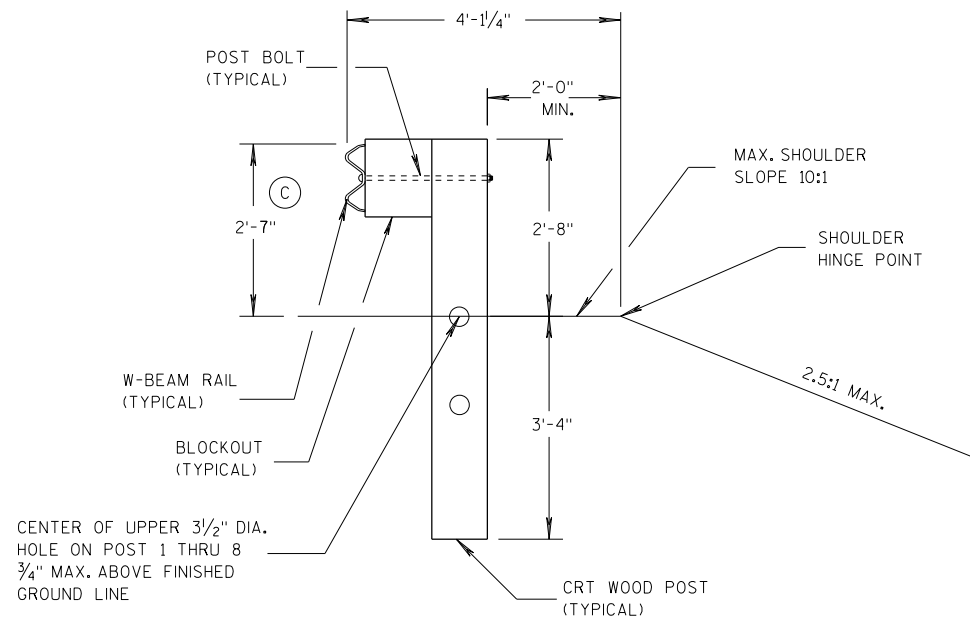


FRONT VIEW

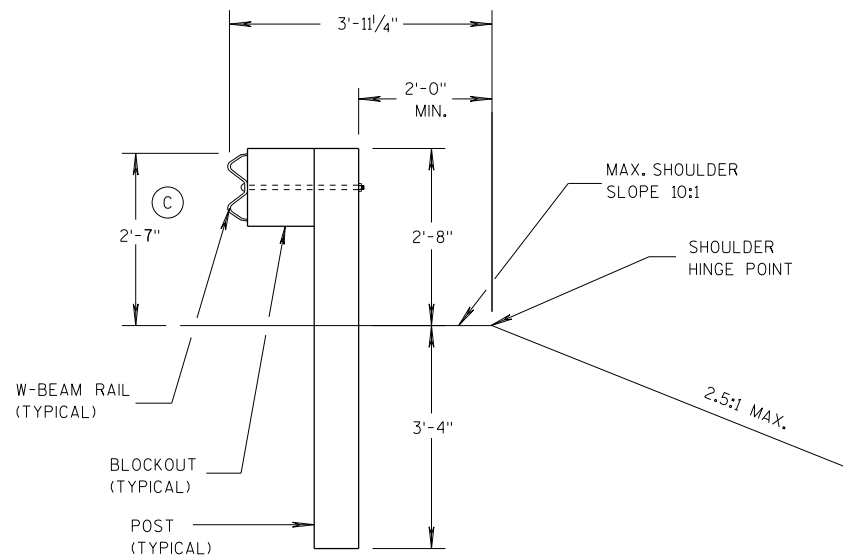


SIDE VIEW

CRT WOOD POST



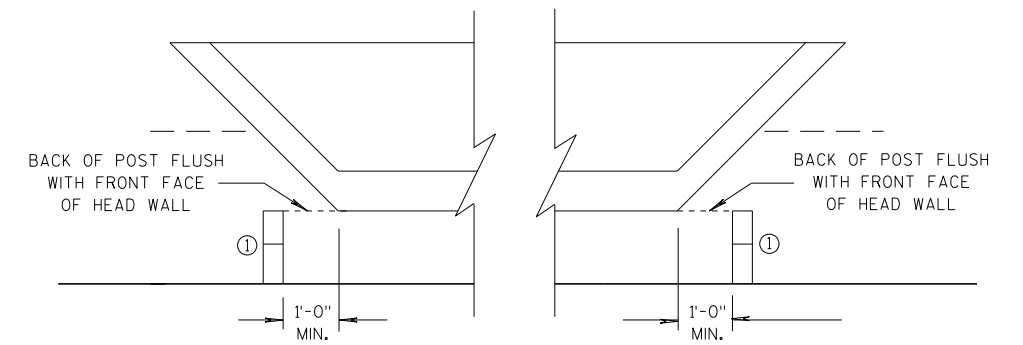
SECTION B-B
POSTS NO. 1-3
SEE OTHER DETAILS



SECTION A-A
POSTS NO. 4-8
SEE OTHER DETAILS

GENERAL NOTES

(C) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



POST PLACEMENT DETAIL

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/s/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

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.

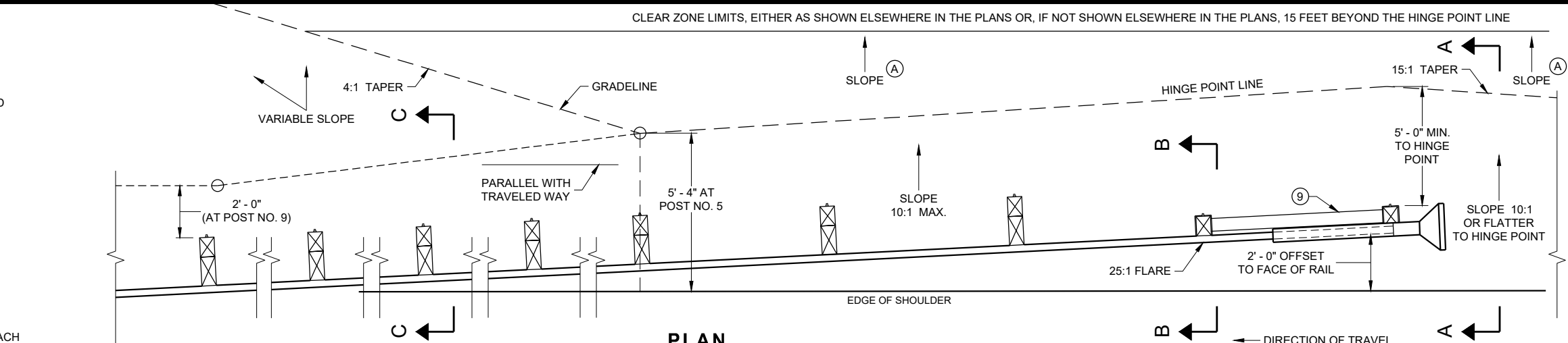
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

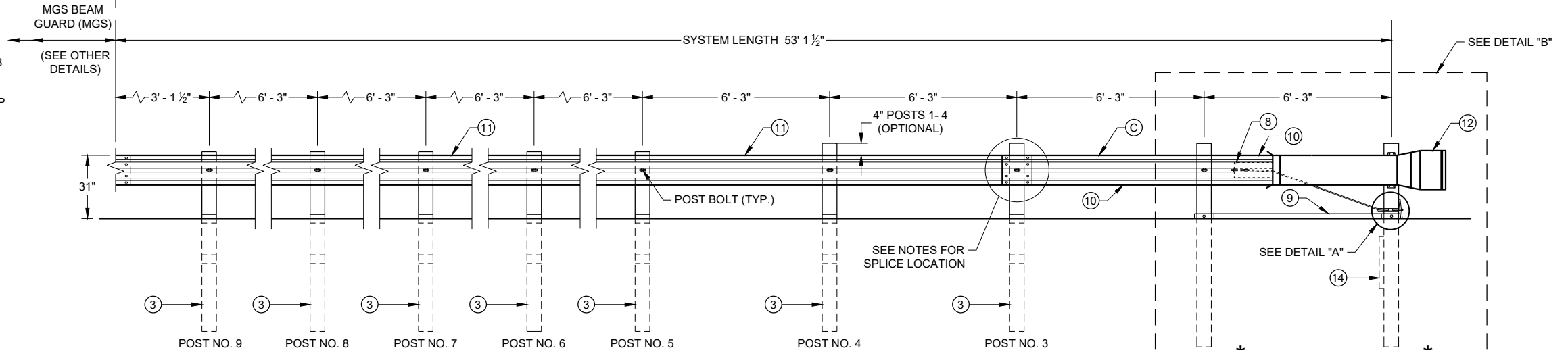
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

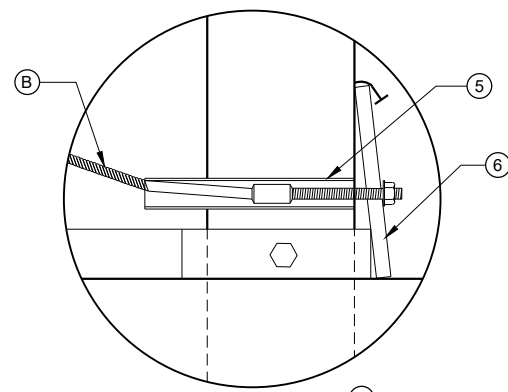
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



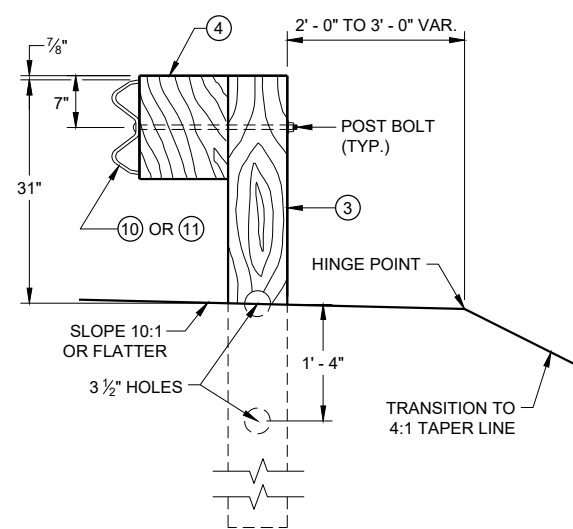
PLAN



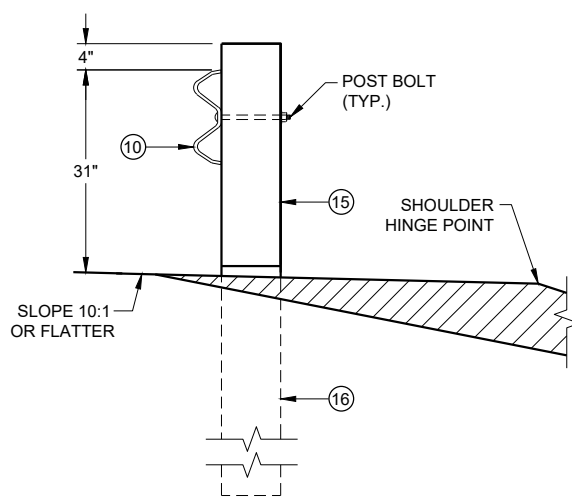
ELEVATION



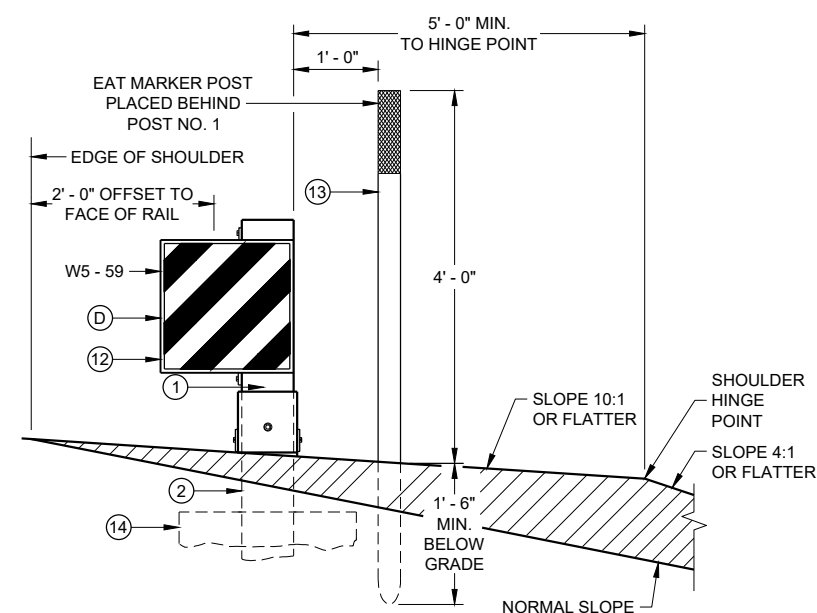
DETAIL "A"



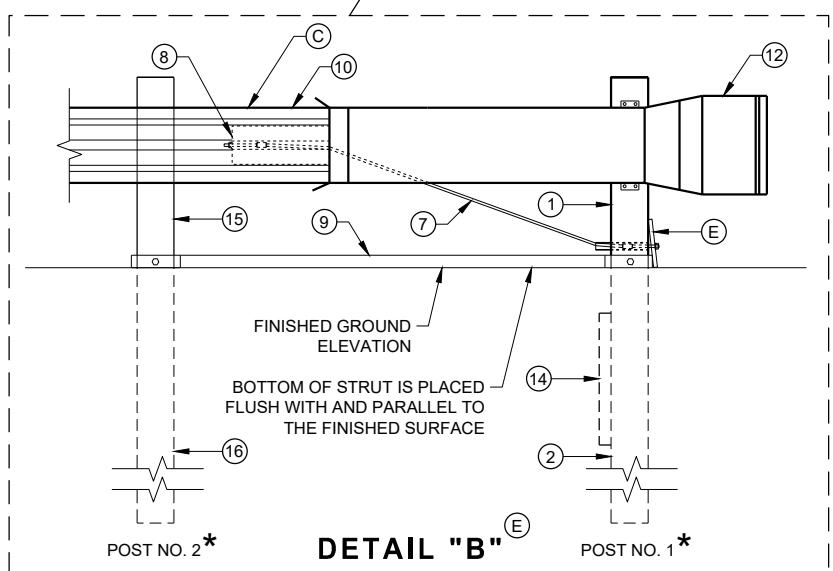
**SECTION C - C
TYPICAL AT POST NOS. 3 - 9**



**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

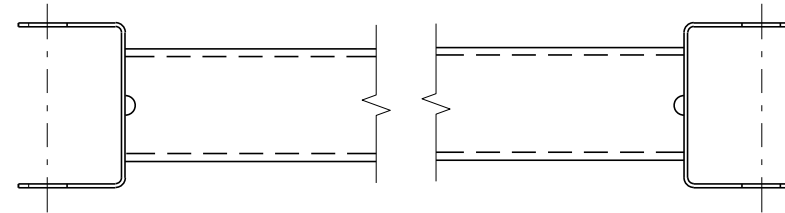
6

SDD 14B44 - 04a

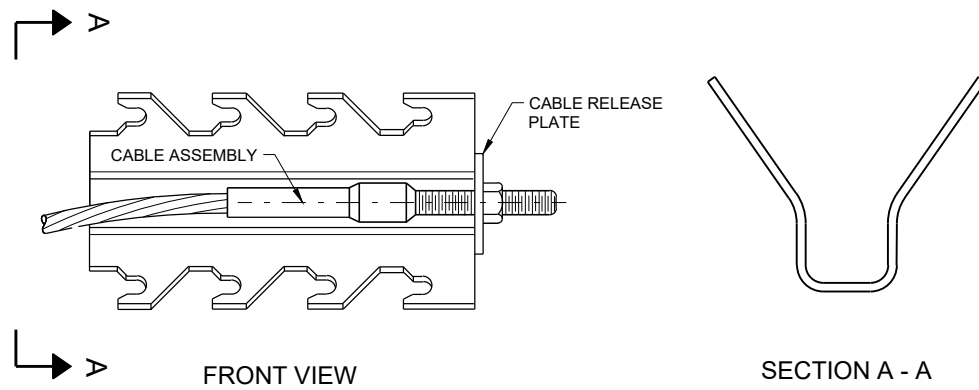
SDD 14B44 - 04a

BILL OF MATERIALS

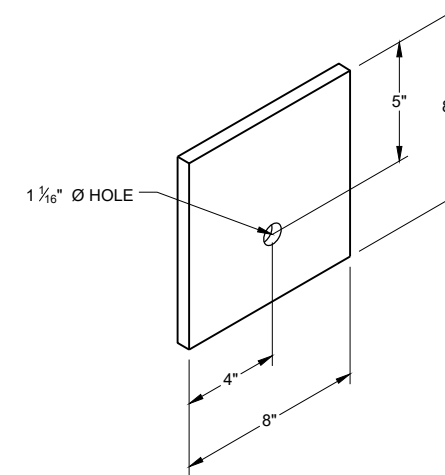
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL 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

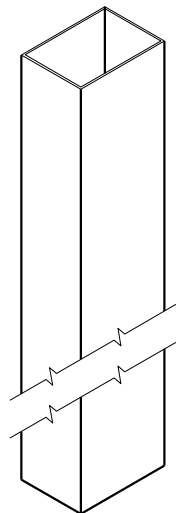
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SDD 14B44 - 04b

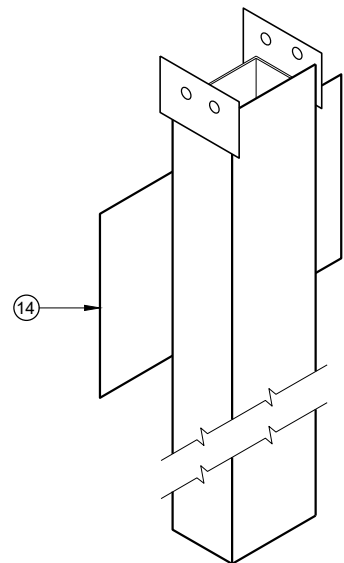
SDD 14B44 - 04b

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

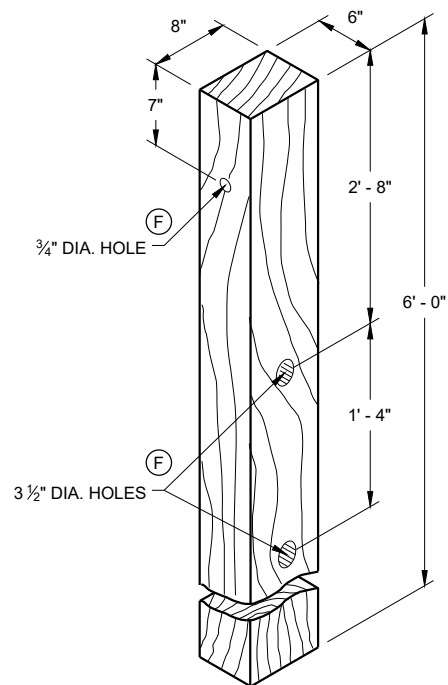
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



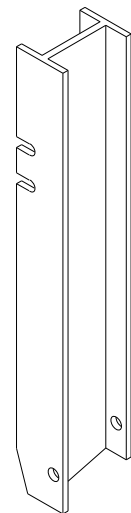
UPPER POST NO. 1 ⁽¹⁾ (E)



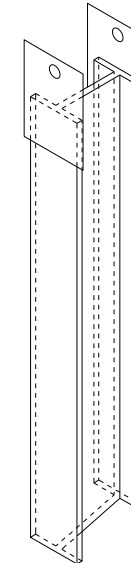
LOWER POST NO. 1 ⁽²⁾ (E)



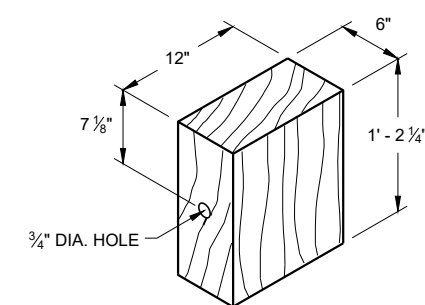
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

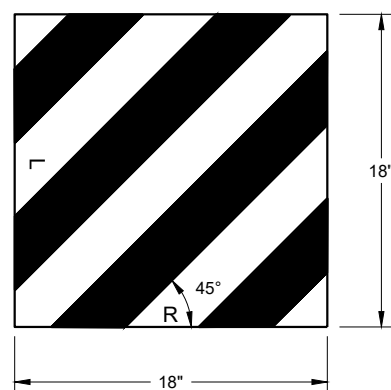


LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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

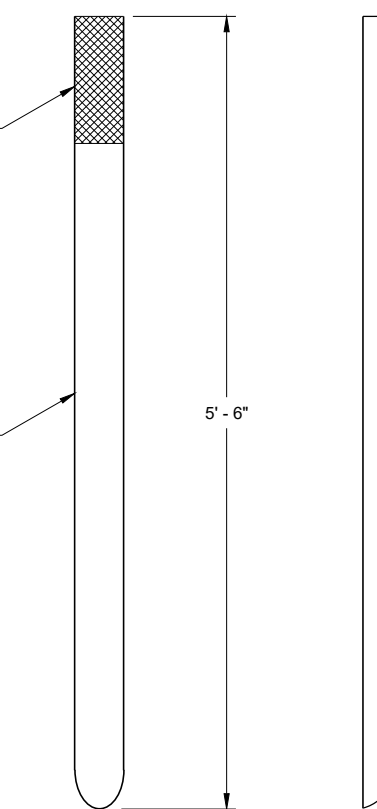
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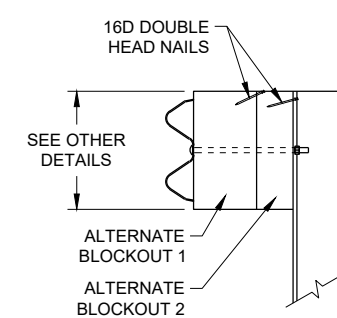
REFLECTIVE SHEETING DETAIL ^(E)

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

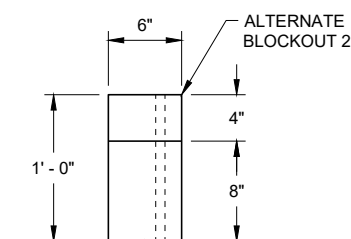
E.A.T. MARKER
POST (YELLOW)



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



SIDE VIEW



TOP VIEW

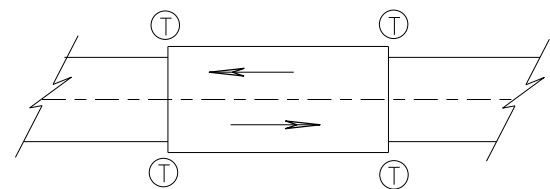
ALTERNATE WOOD
BLOCKOUT DETAIL

6

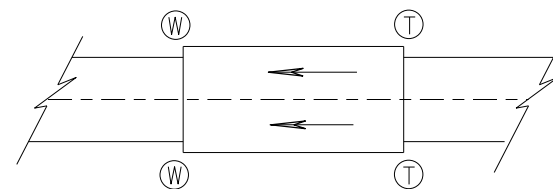
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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

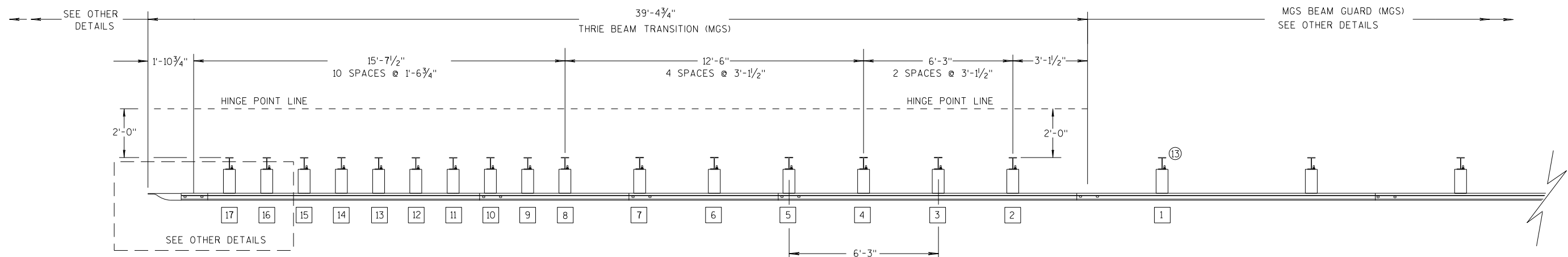
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

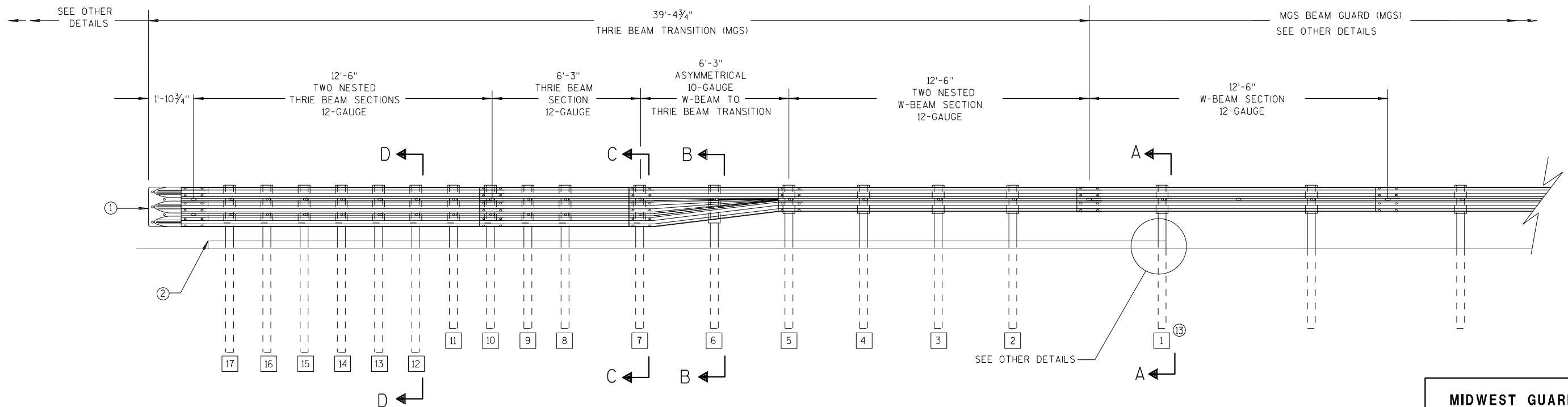
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

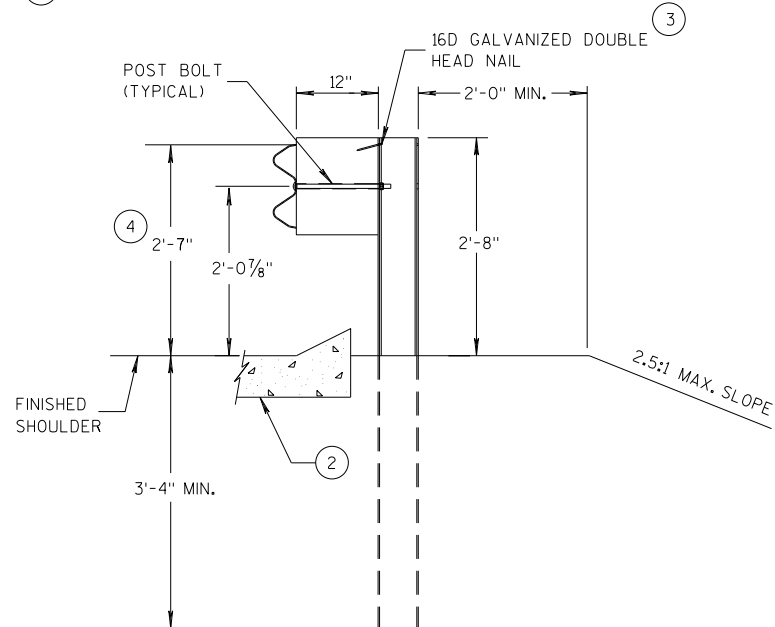
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

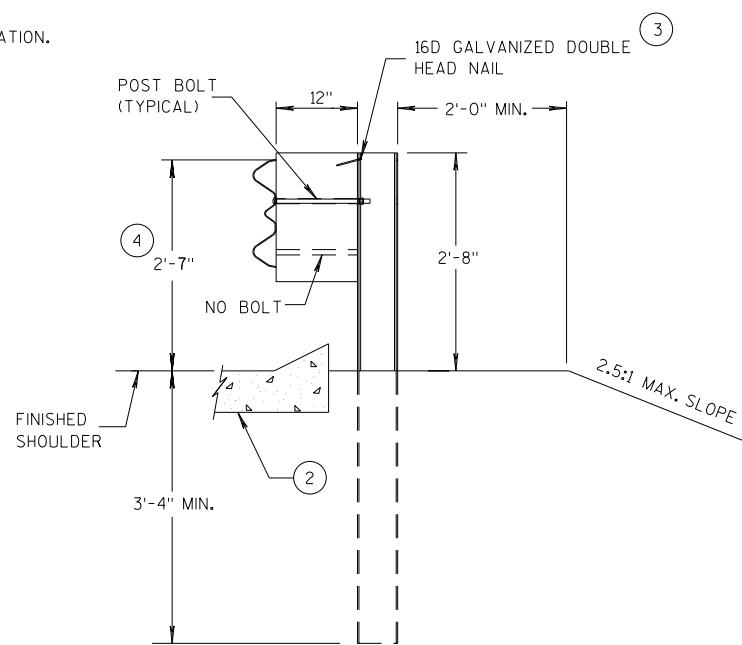
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

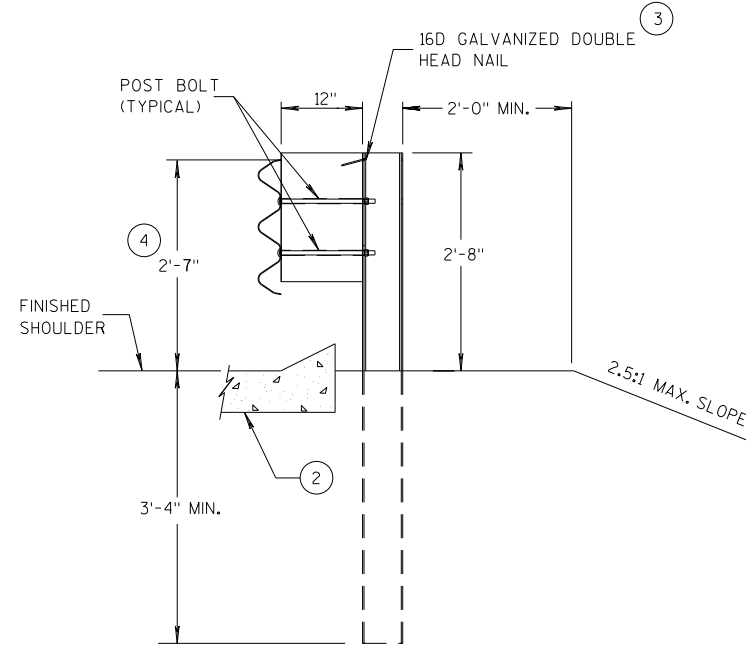
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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

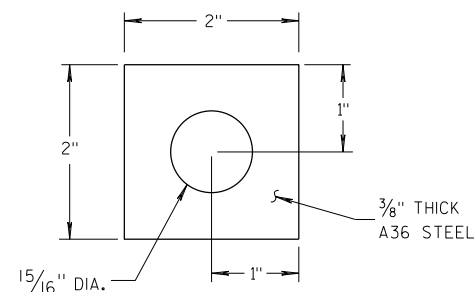
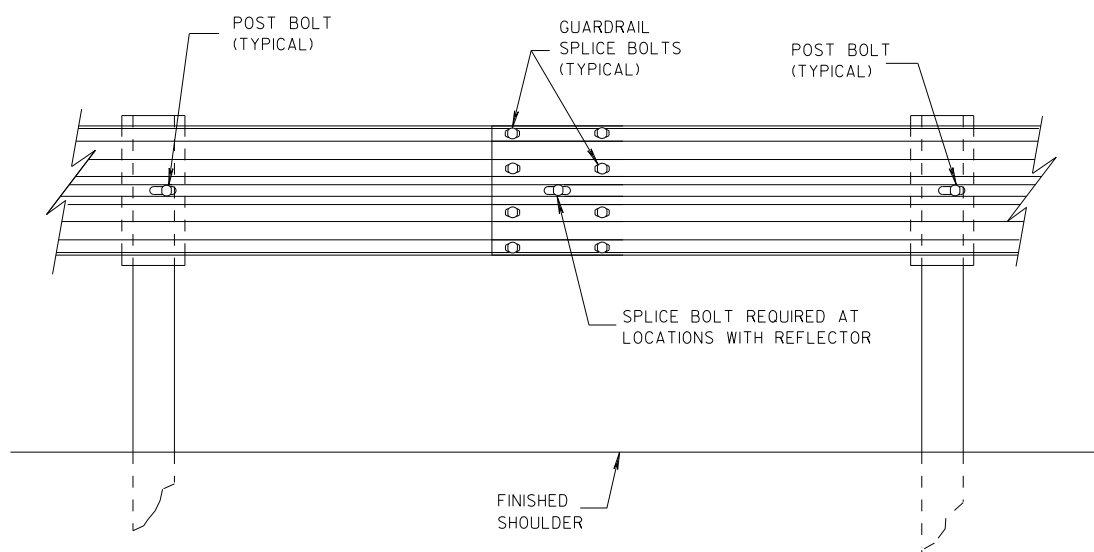
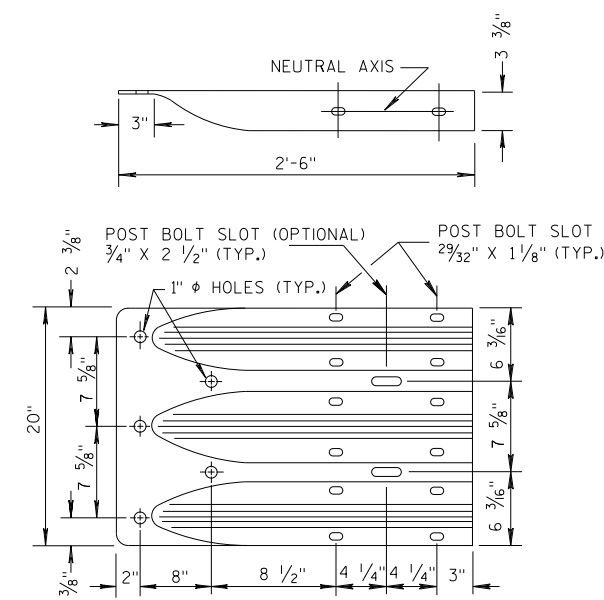


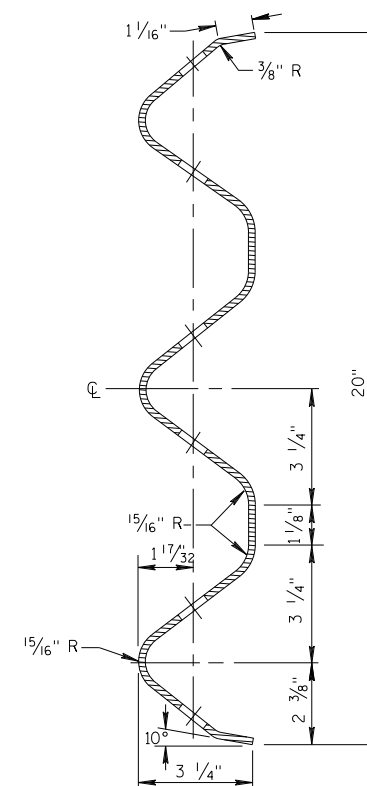
PLATE WASHER DETAIL



SPlice DETAIL



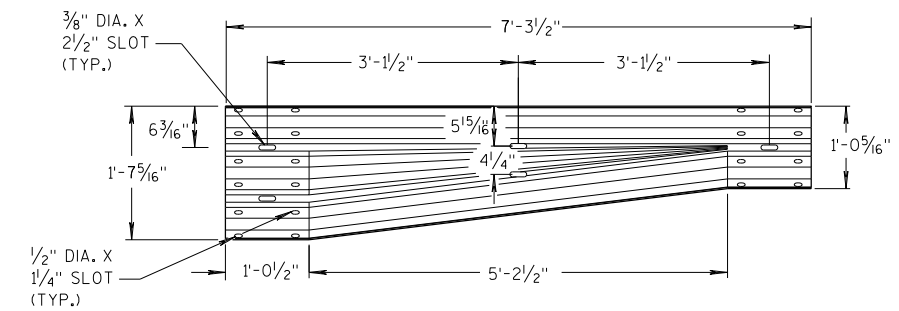
**THRIE BEAM
TERMINAL CONNECTOR**



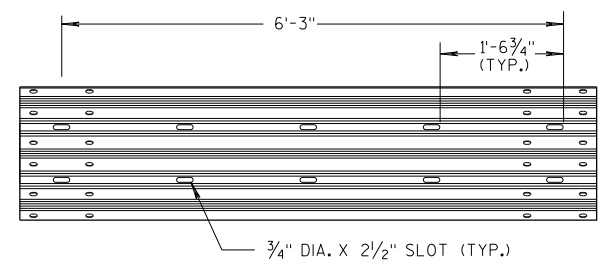
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

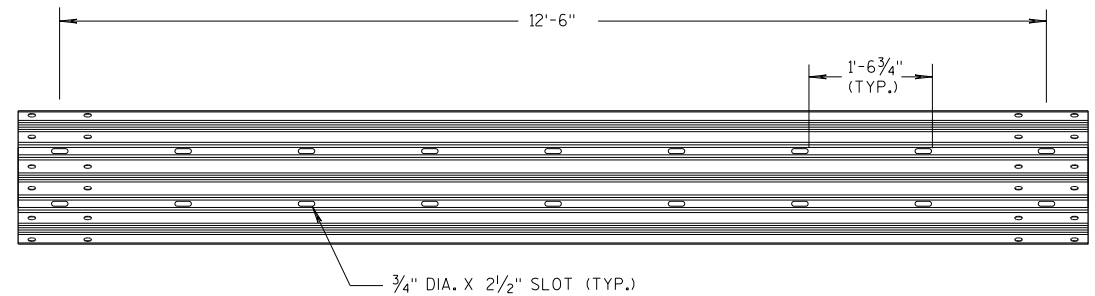
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



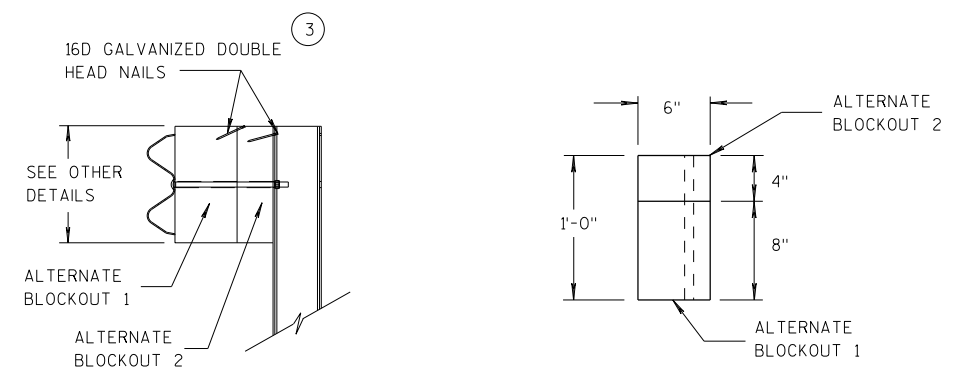
W-BEAM TO THRIE BEAM TRANSITION SECTION



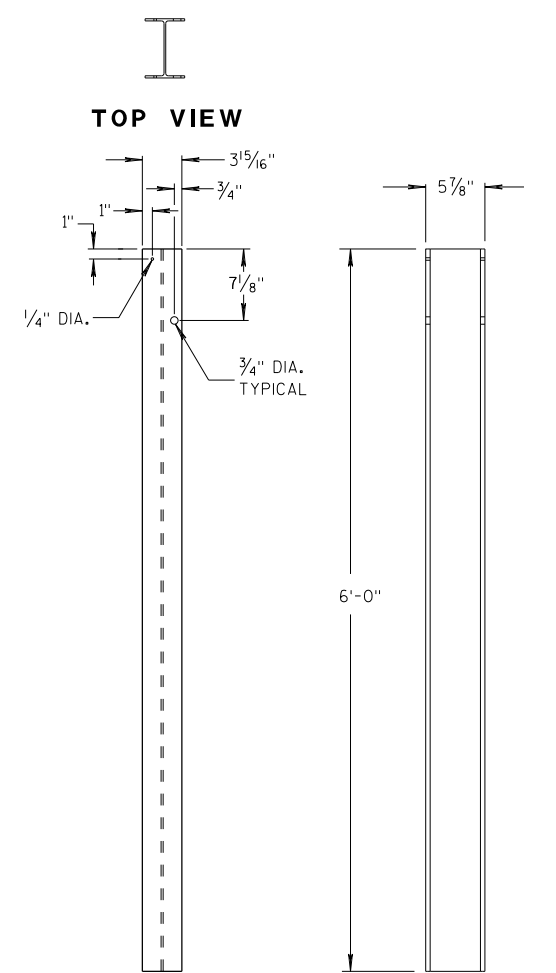
6'-3\"/>



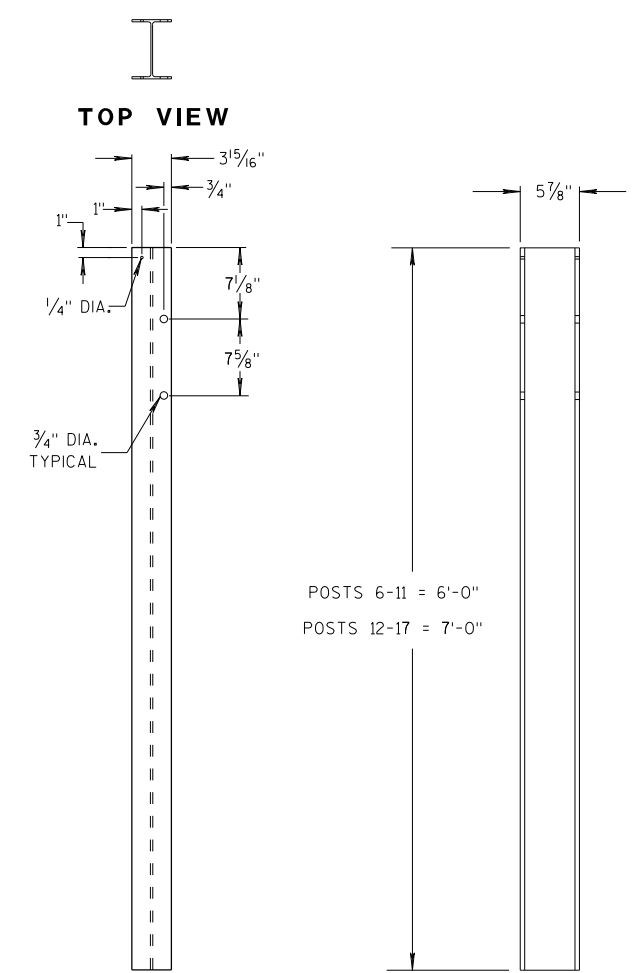
12'-6\"/>



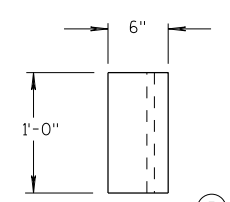
ALTERNATE WOOD BLOCKOUT DETAIL



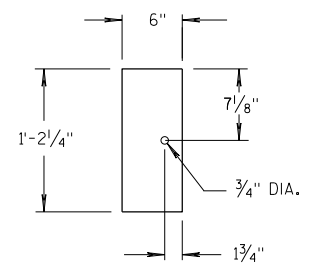
STEEL POSTS 1-5



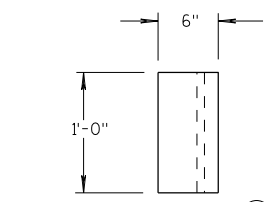
STEEL POSTS 6-17



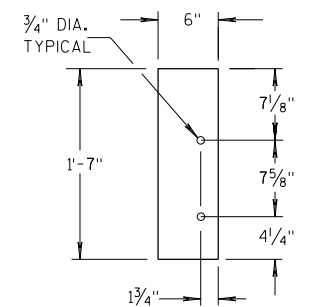
TOP VIEW



**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)**

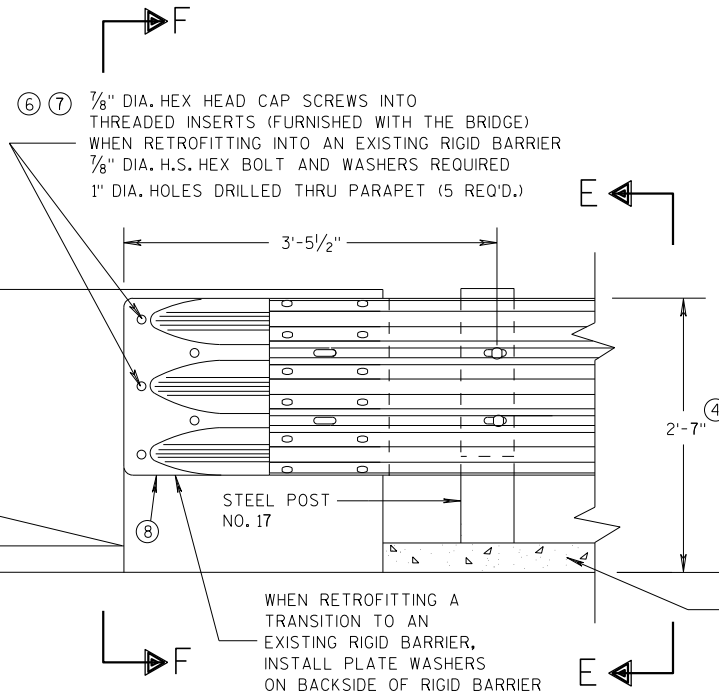
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

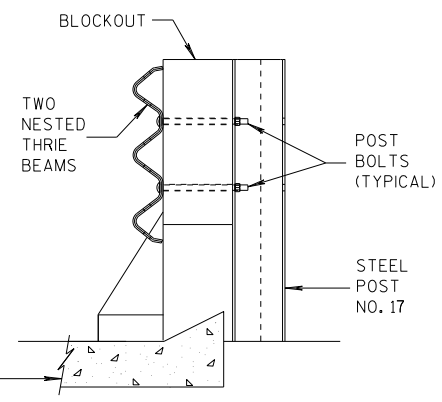
S.D.D. 14 B 45-5c

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



FRONT VIEW

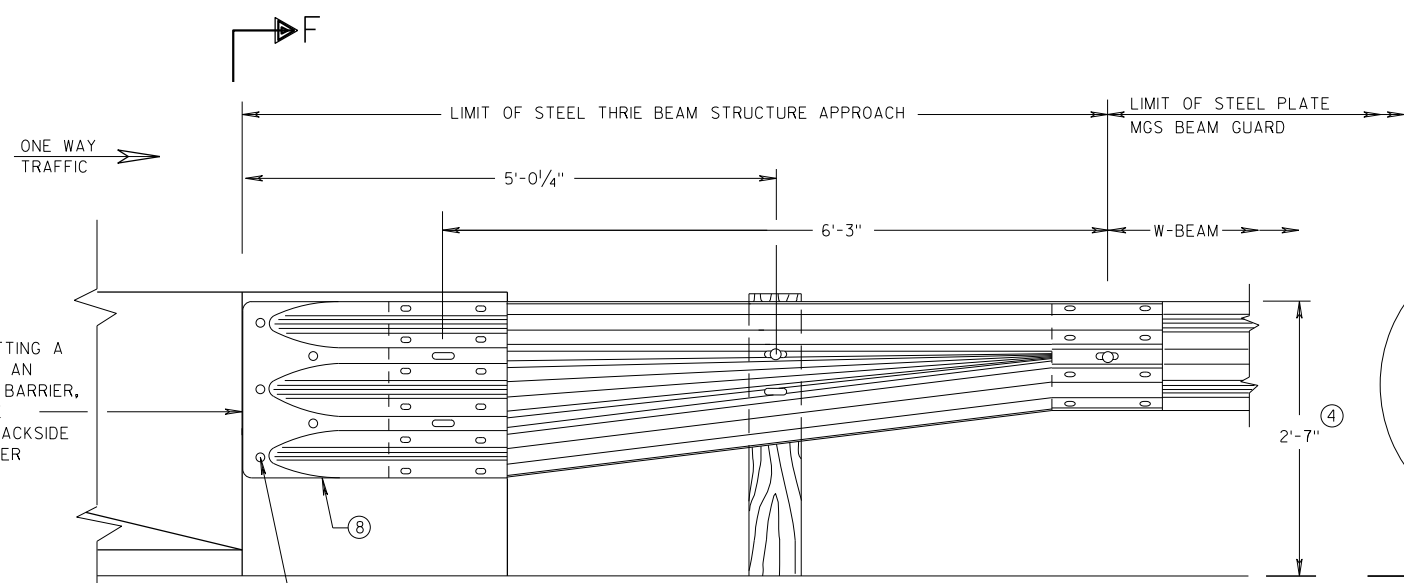
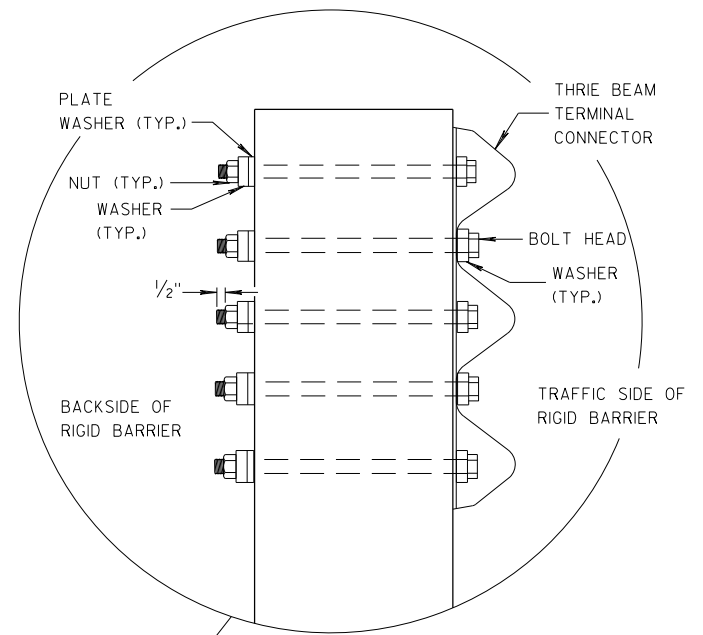
THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



SECTION E-E

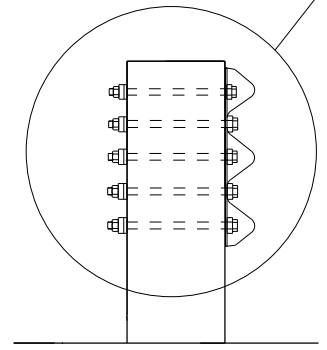
GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
 - (4) TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
 - (6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
 - (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
 - (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

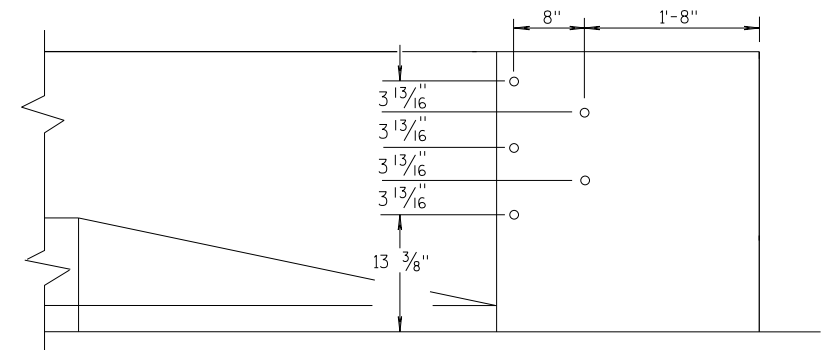


FRONT VIEW

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



SECTION F-F



DRILL HOLE LOCATION

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

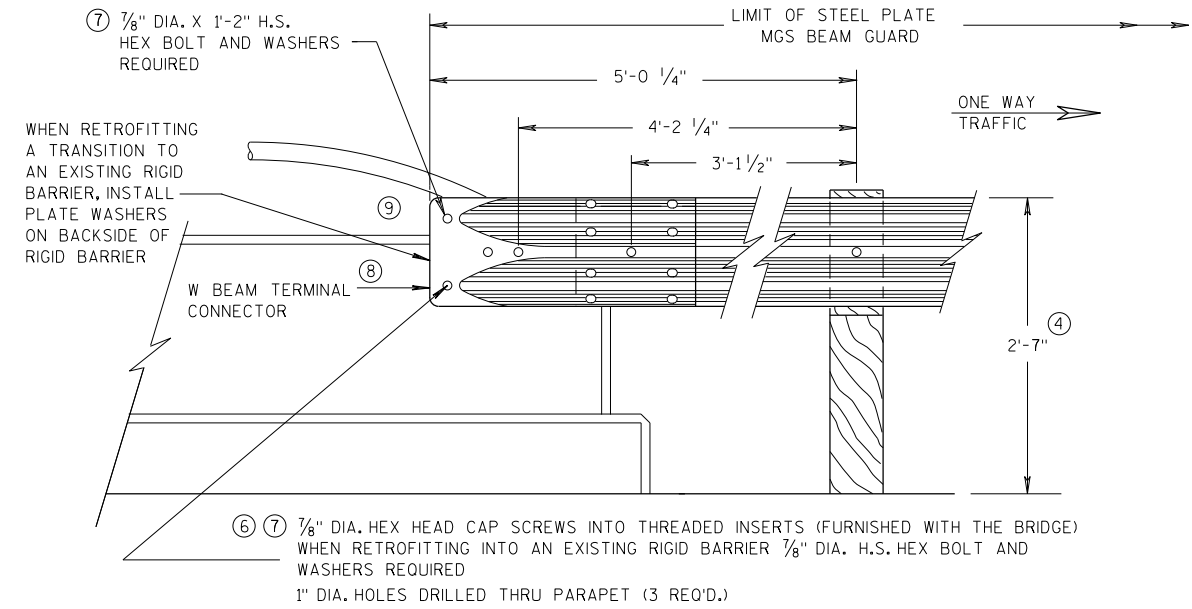
S.D.D. 14 B 45-5d

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

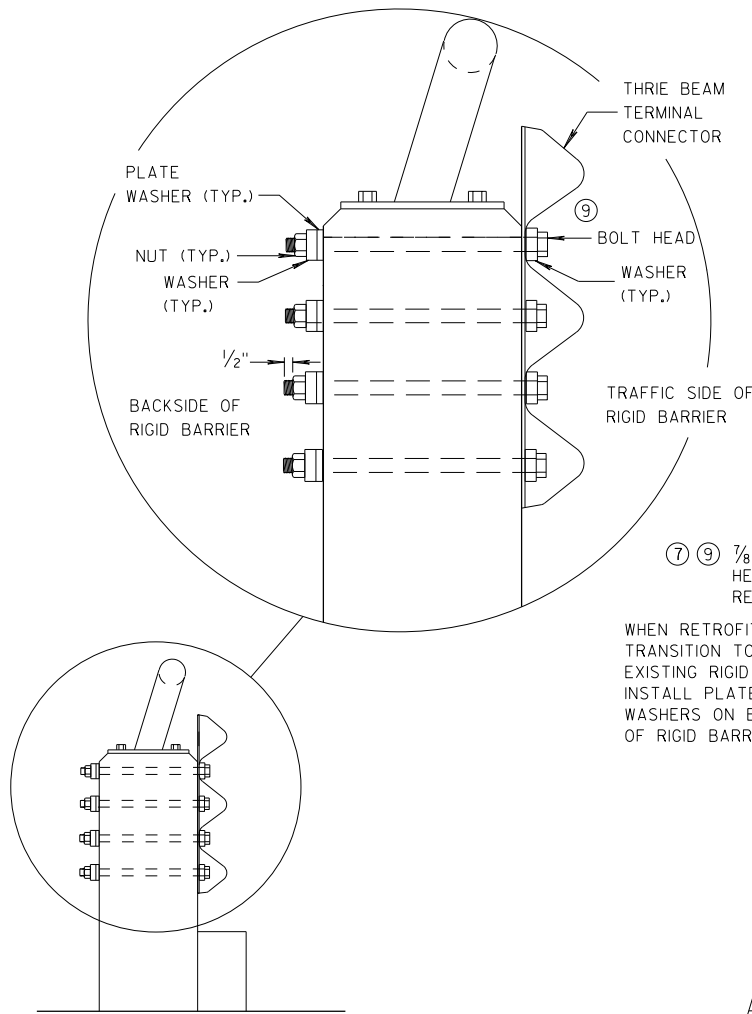
GENERAL NOTES

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

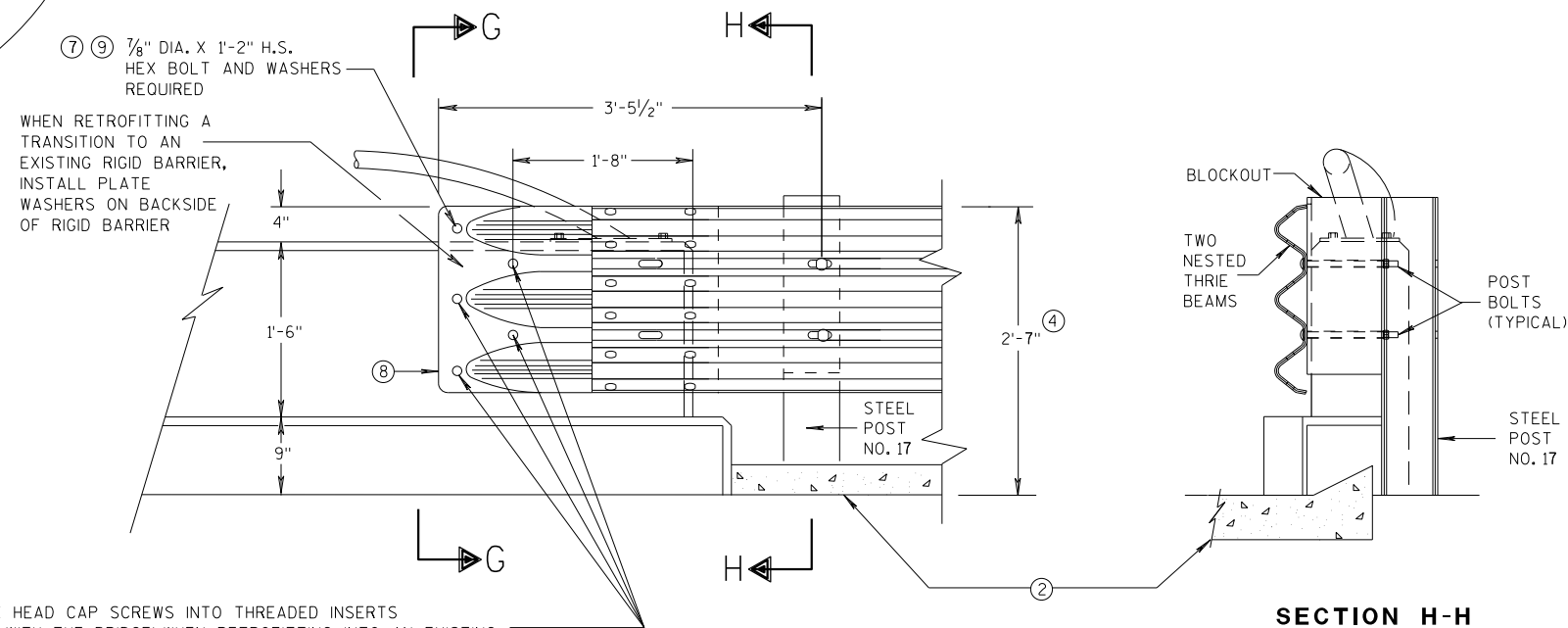
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



FRONT VIEW
W BEAM CONNECTION TO VERTICAL FACE PARAPET
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

SECTION H-H

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

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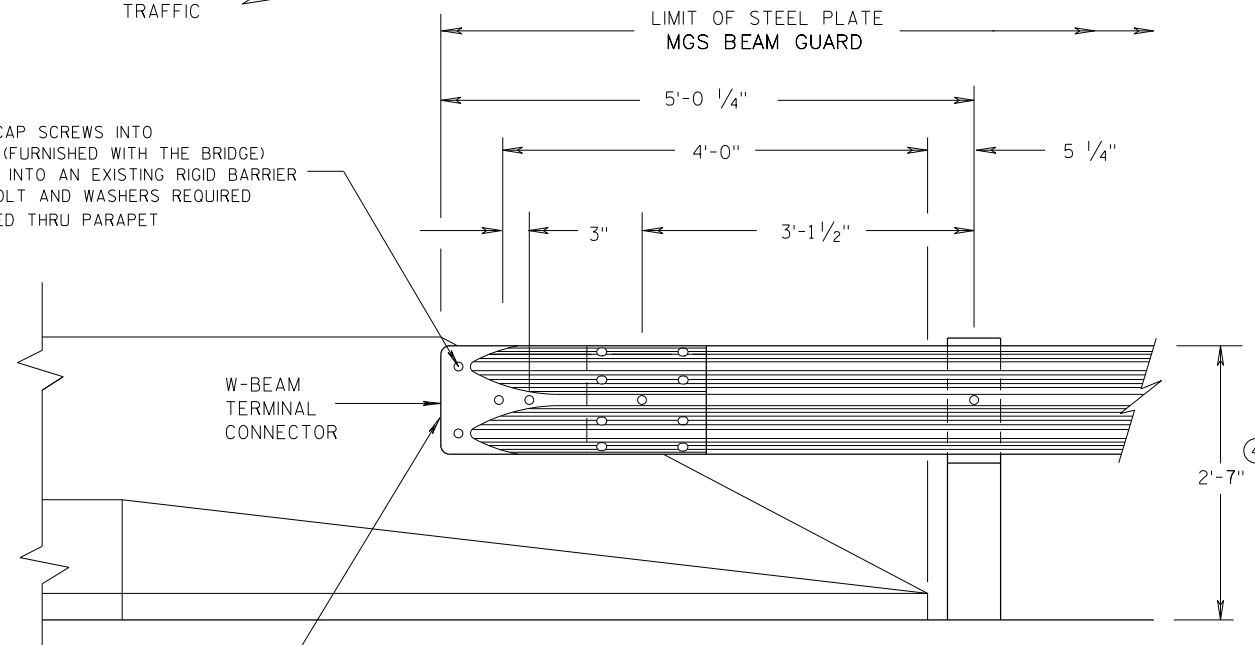
6

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

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

ONE WAY
TRAFFIC

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(4 REQ'D.)



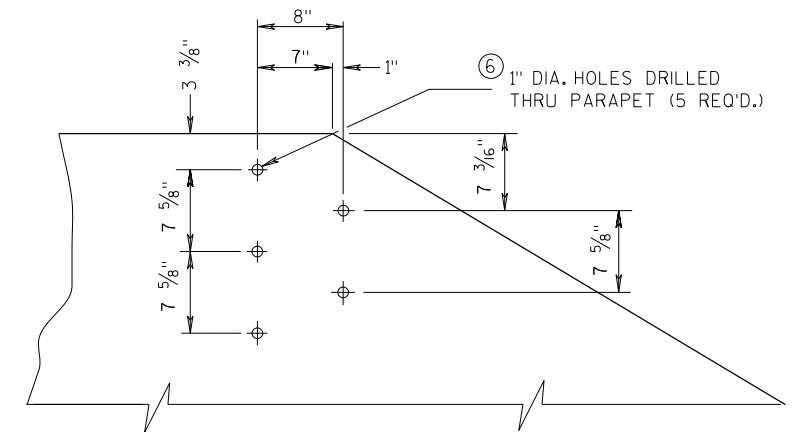
FRONT VIEW

**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

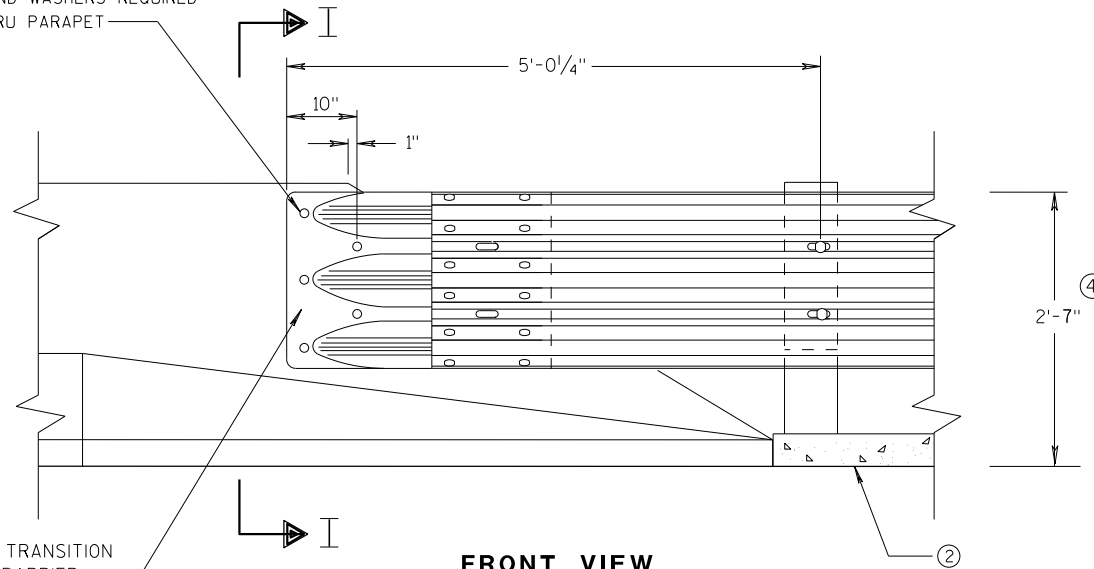
GENERAL NOTES

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



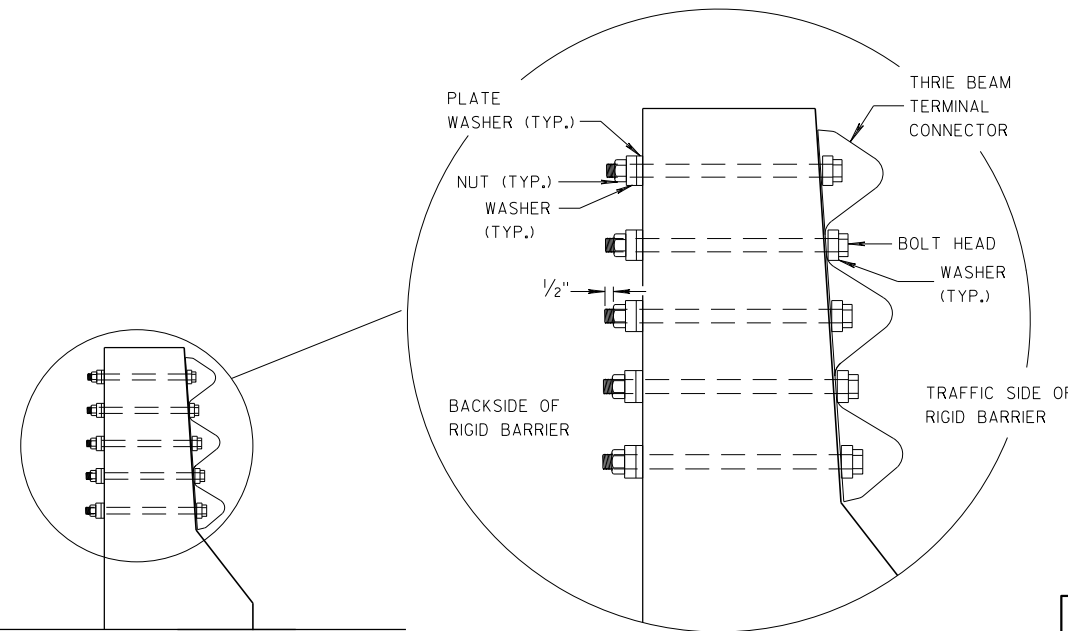
**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(5 REQ'D.)



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



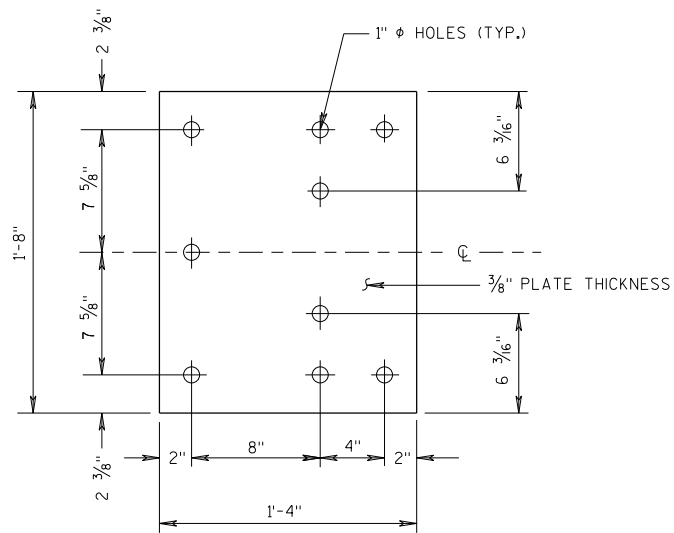
SECTION I-I

WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.

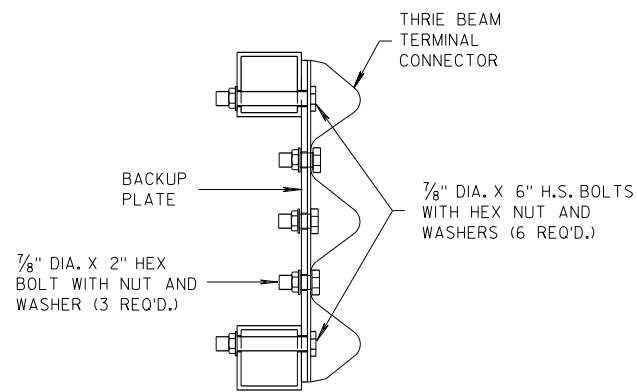
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

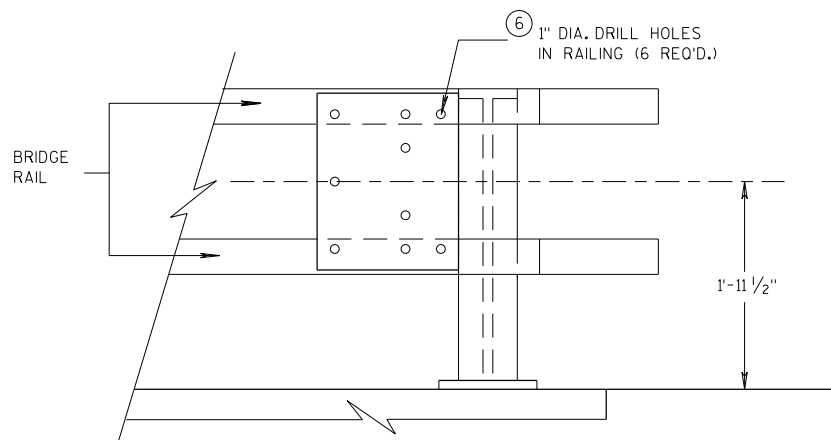
APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



BACK-UP PLATE DETAIL



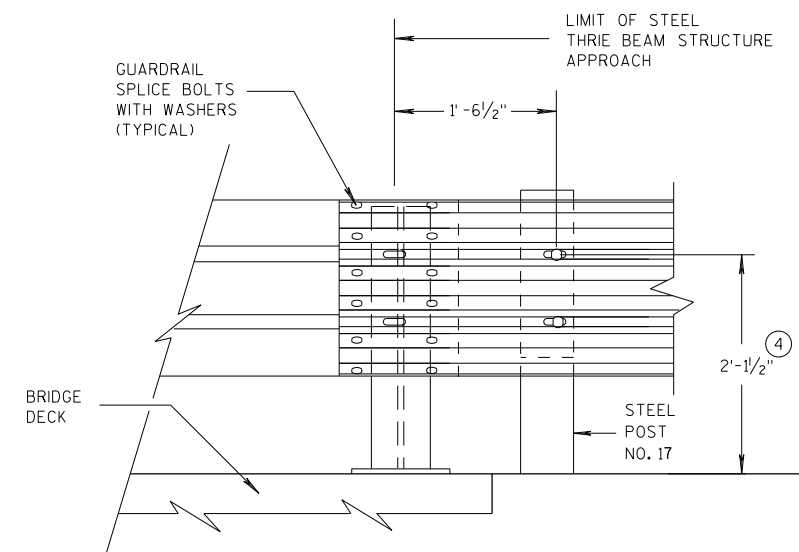
SECTION J-J



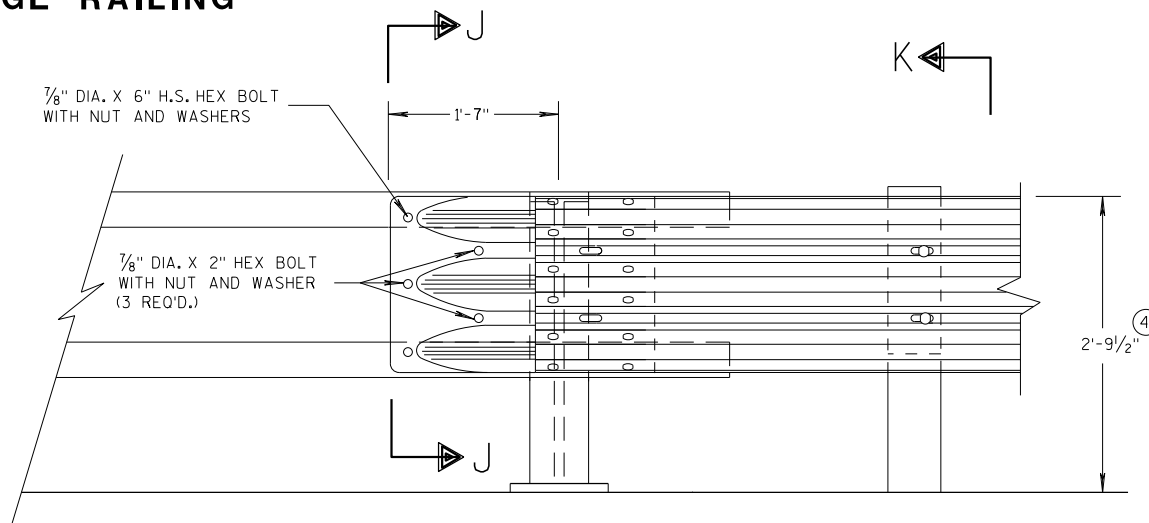
BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

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.

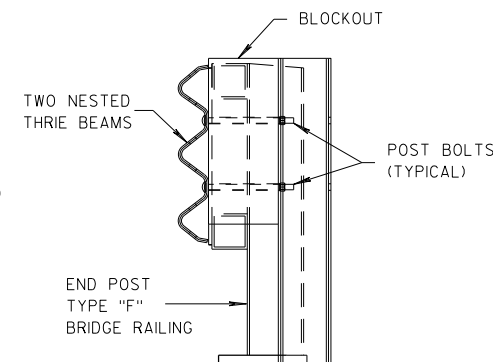


**FRONT VIEW
THRIE BEAM CONNECTION TO
STEEL RAILING TYPE "W"**



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	

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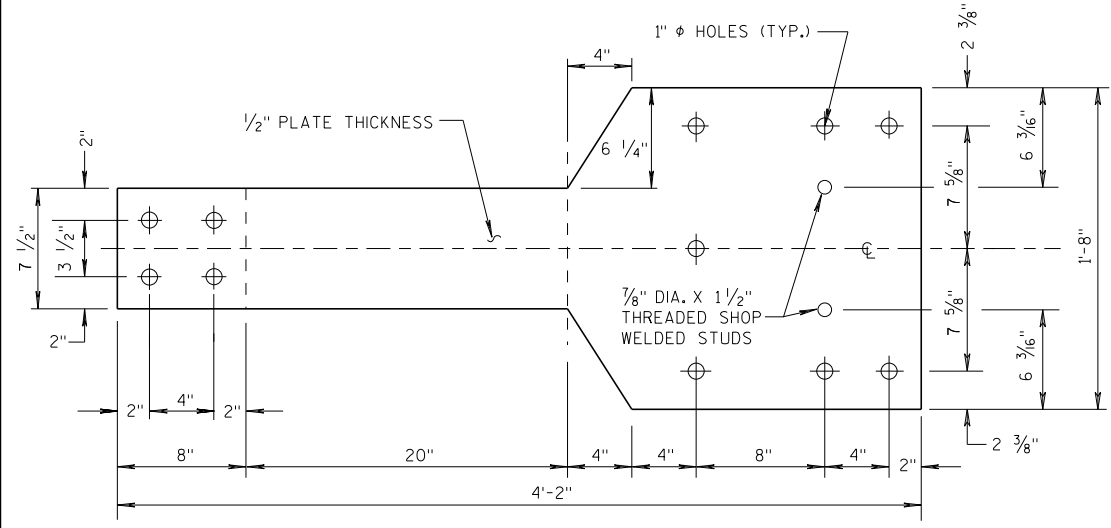
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S.D.D. 14 B 45-59

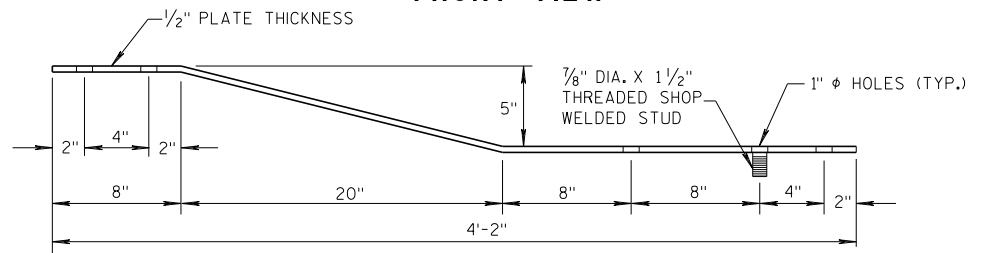
S.D.D. 14 B 45-59

GENERAL NOTES

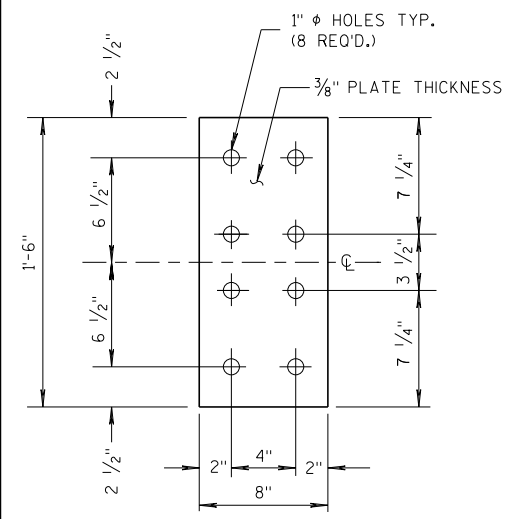
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



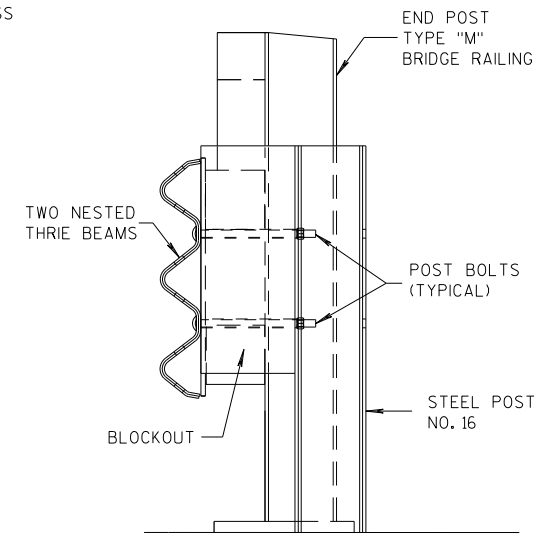
FRONT VIEW



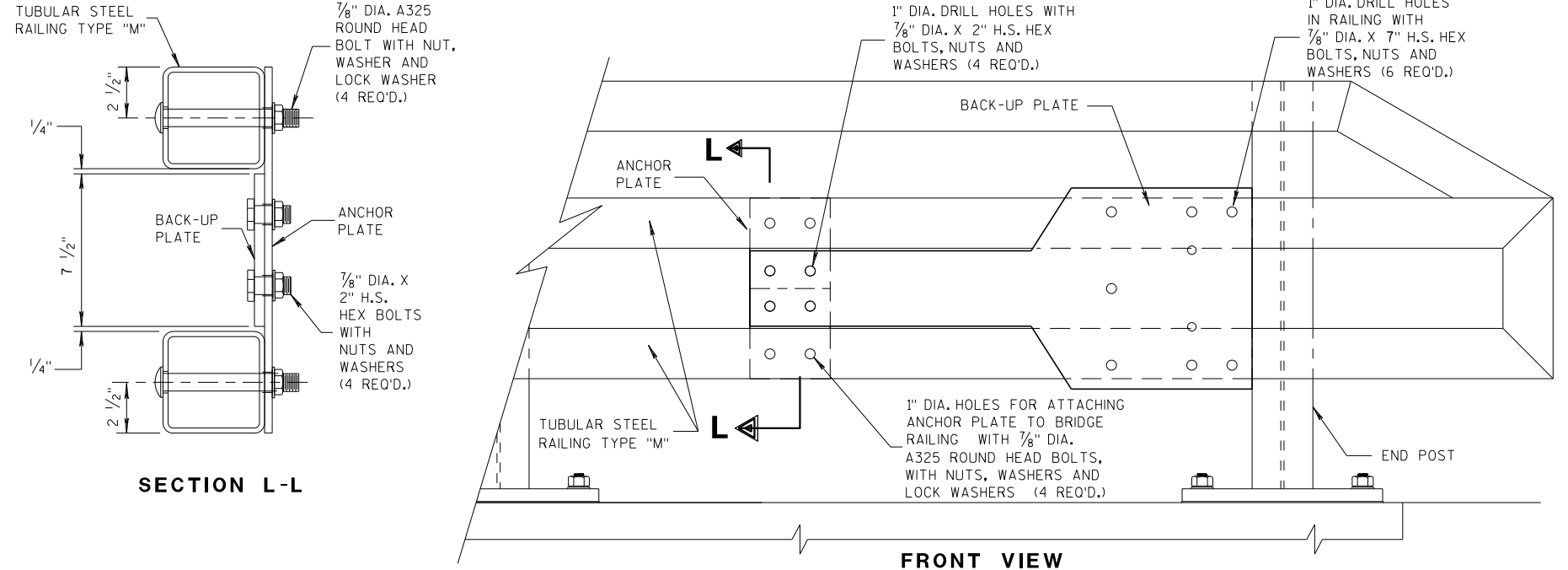
**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**



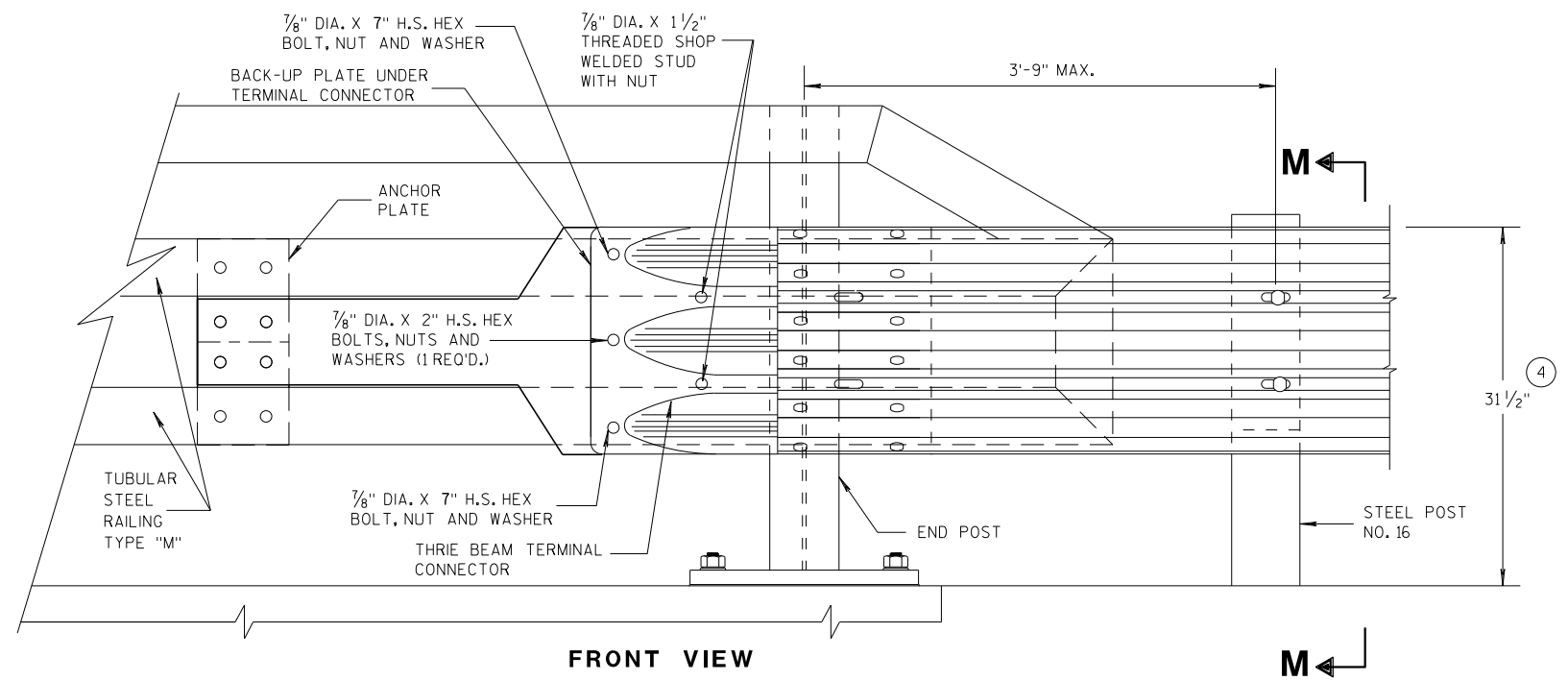
**FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"**



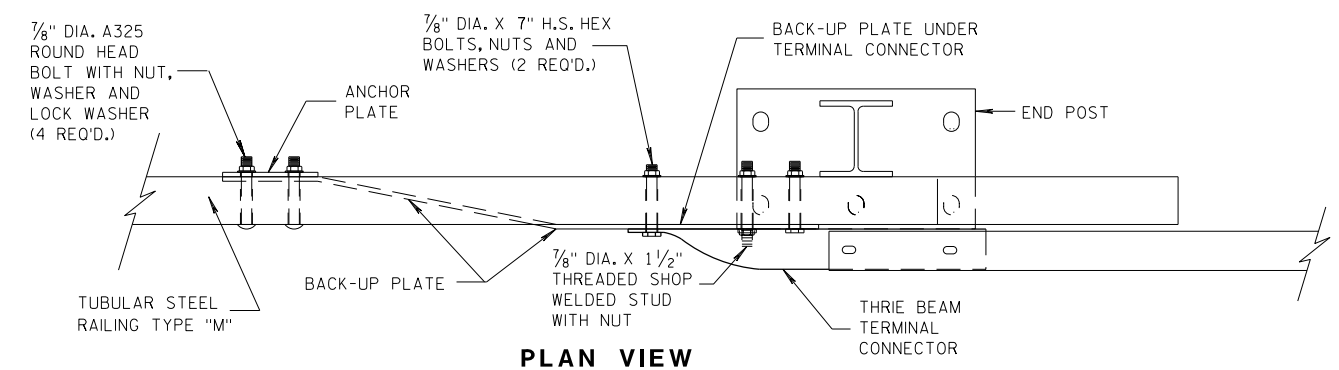
SECTION M-M



ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

6

6

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

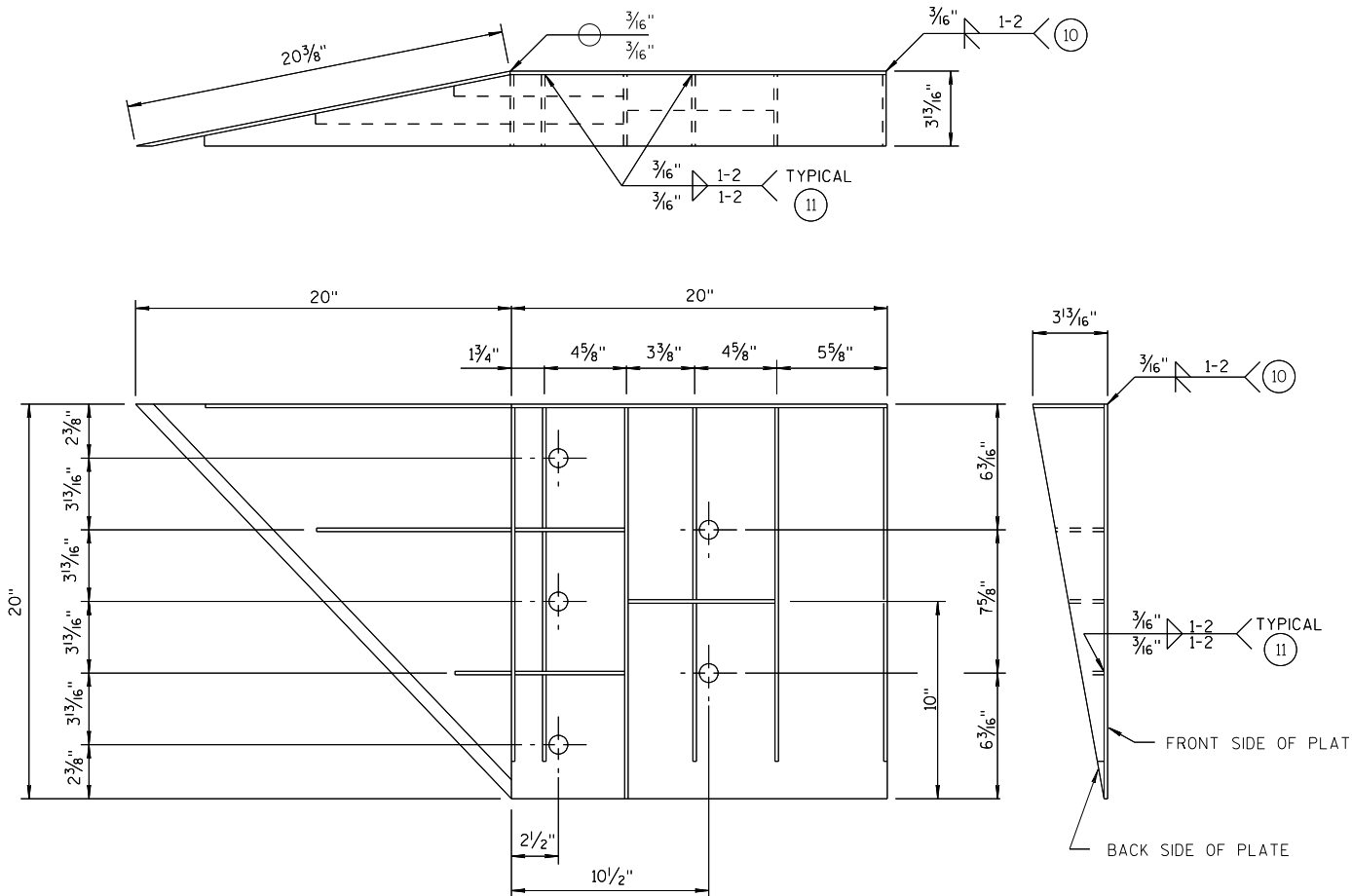
S.D.D. 14 B 45-5h

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

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- (10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- (11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

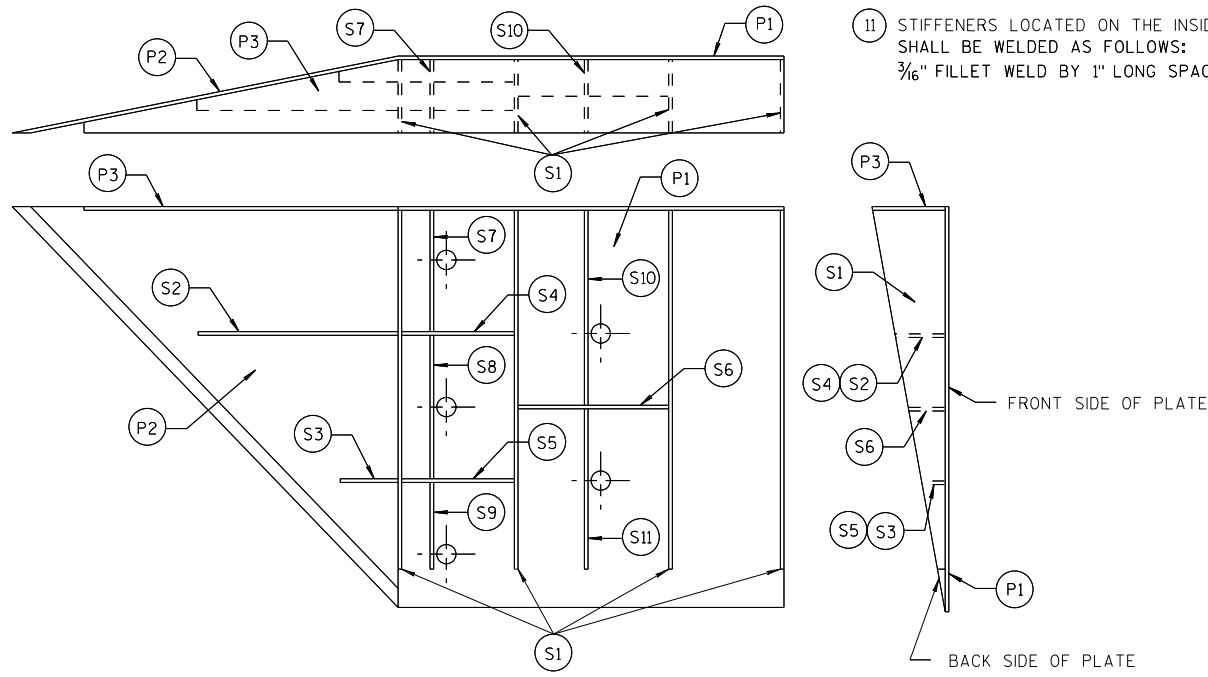


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 3/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

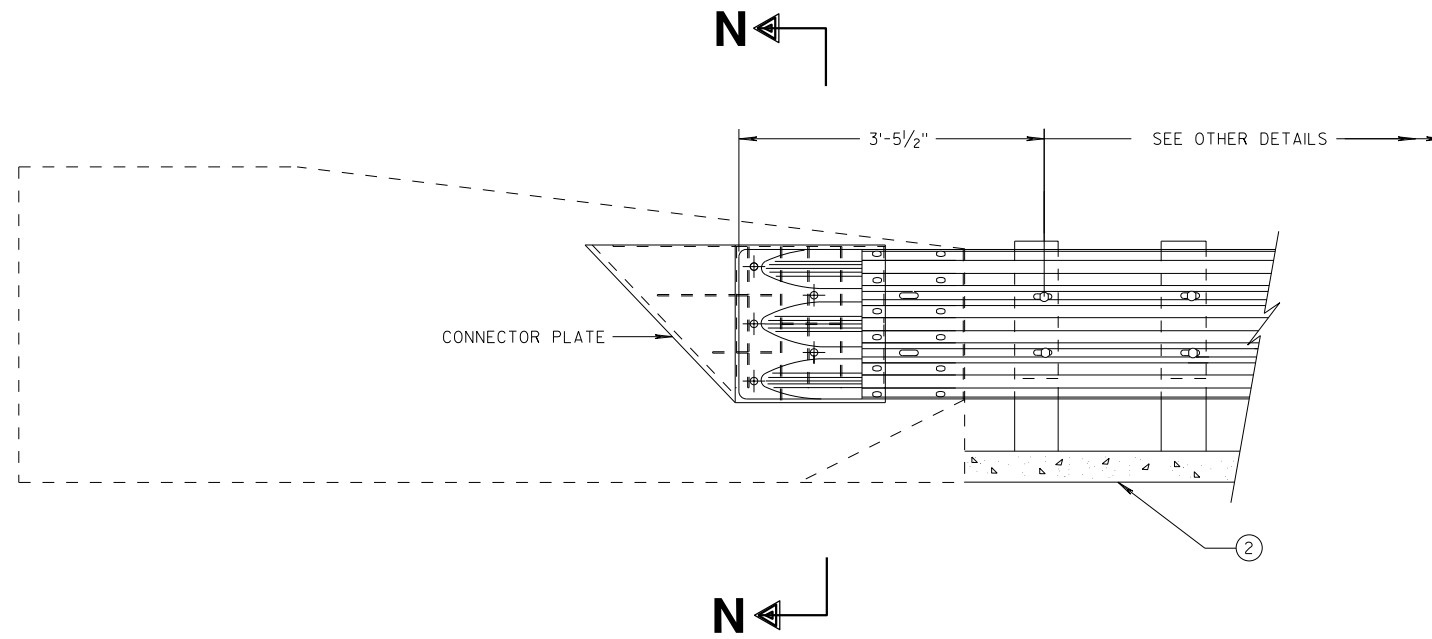
FHWA

GENERAL NOTES

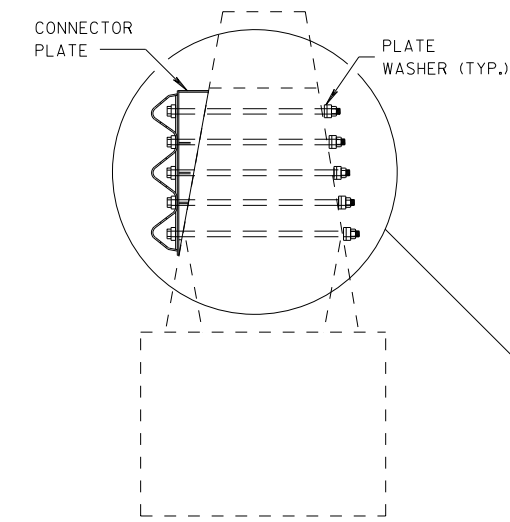
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

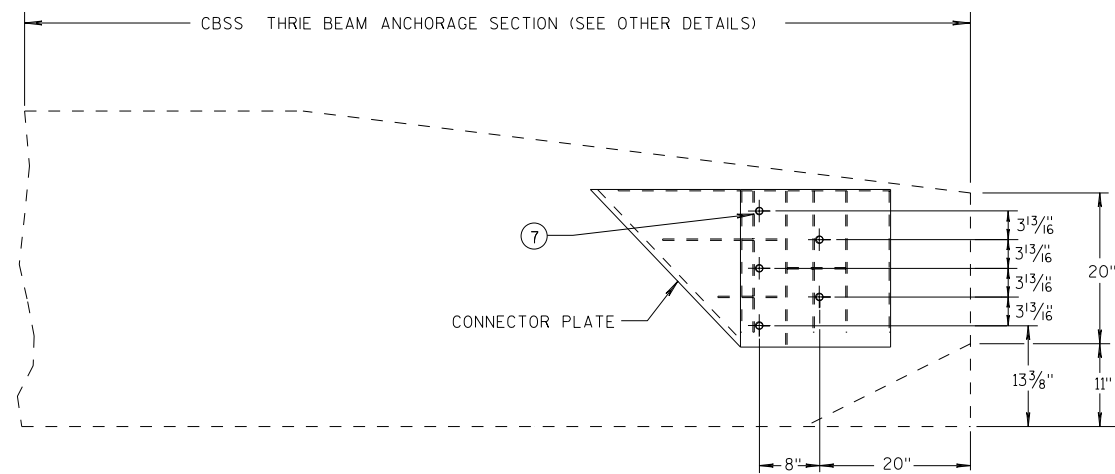
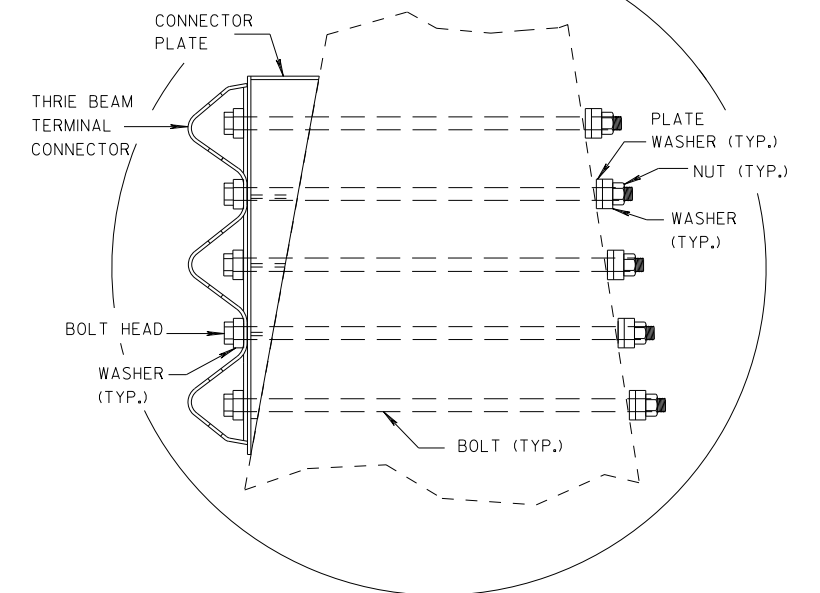
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



SECTION N-N

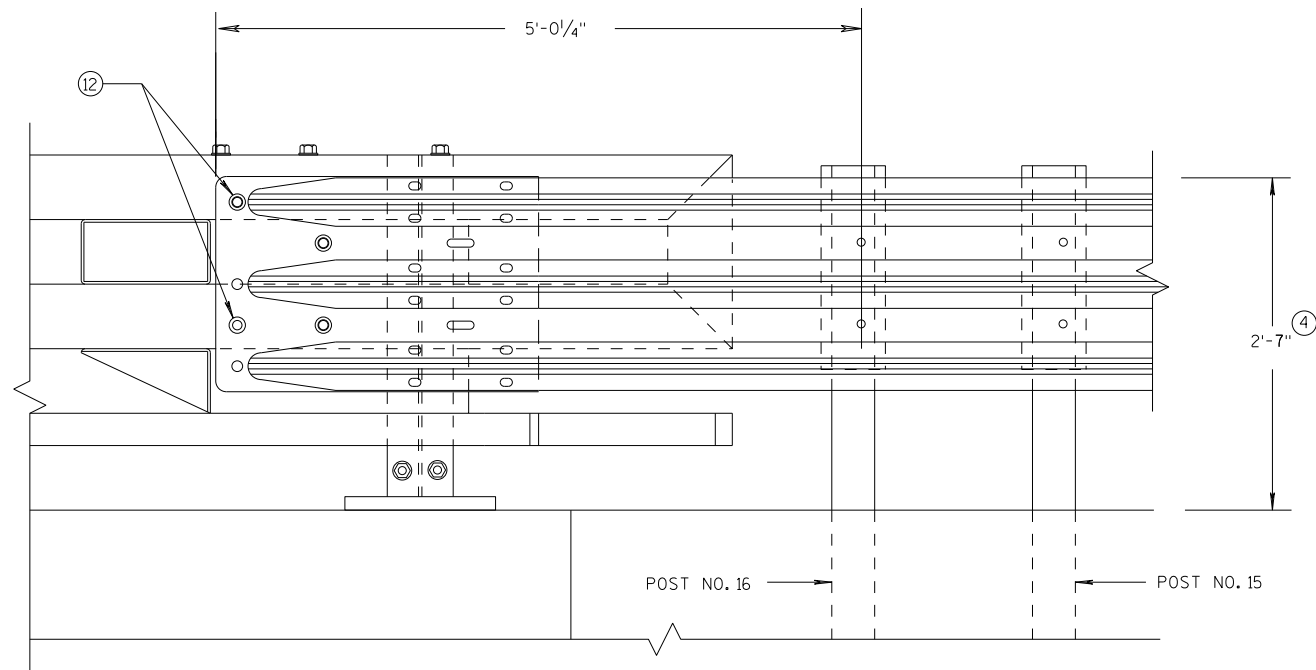


SINGLE SLOPE CONNECTION PLATE PLACEMENT

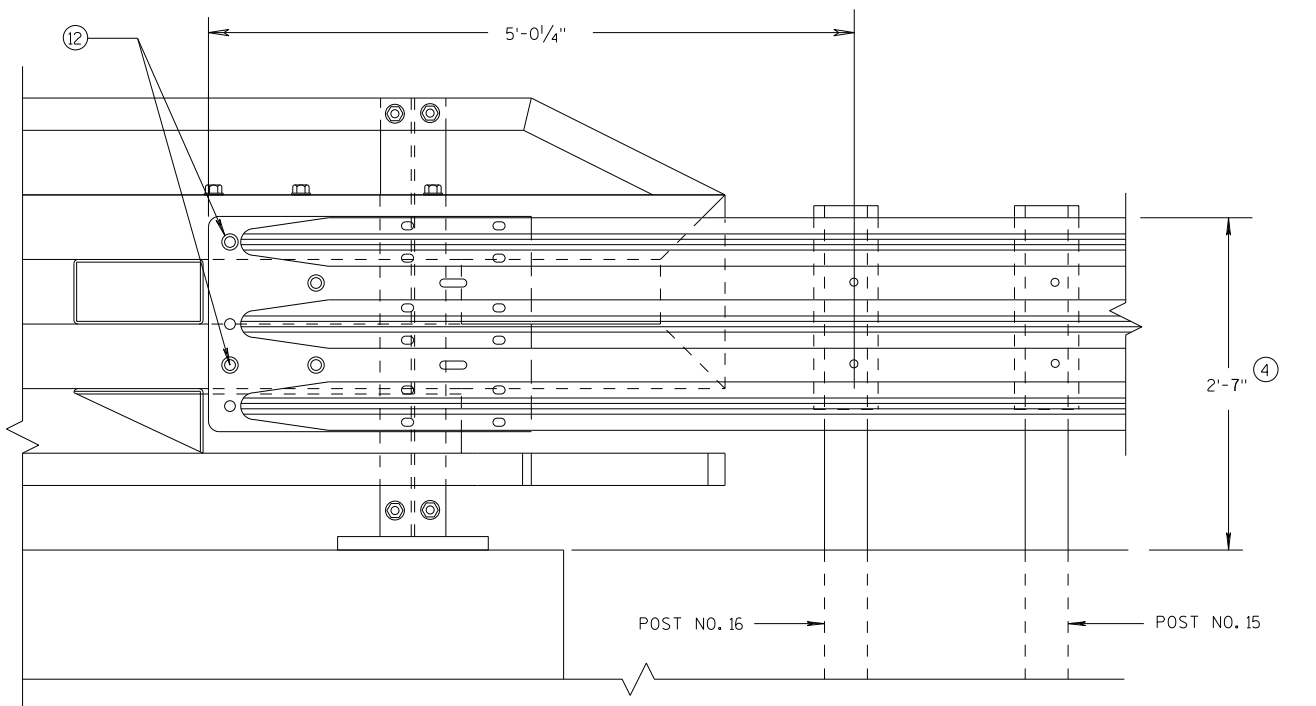
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT**



**ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT**

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

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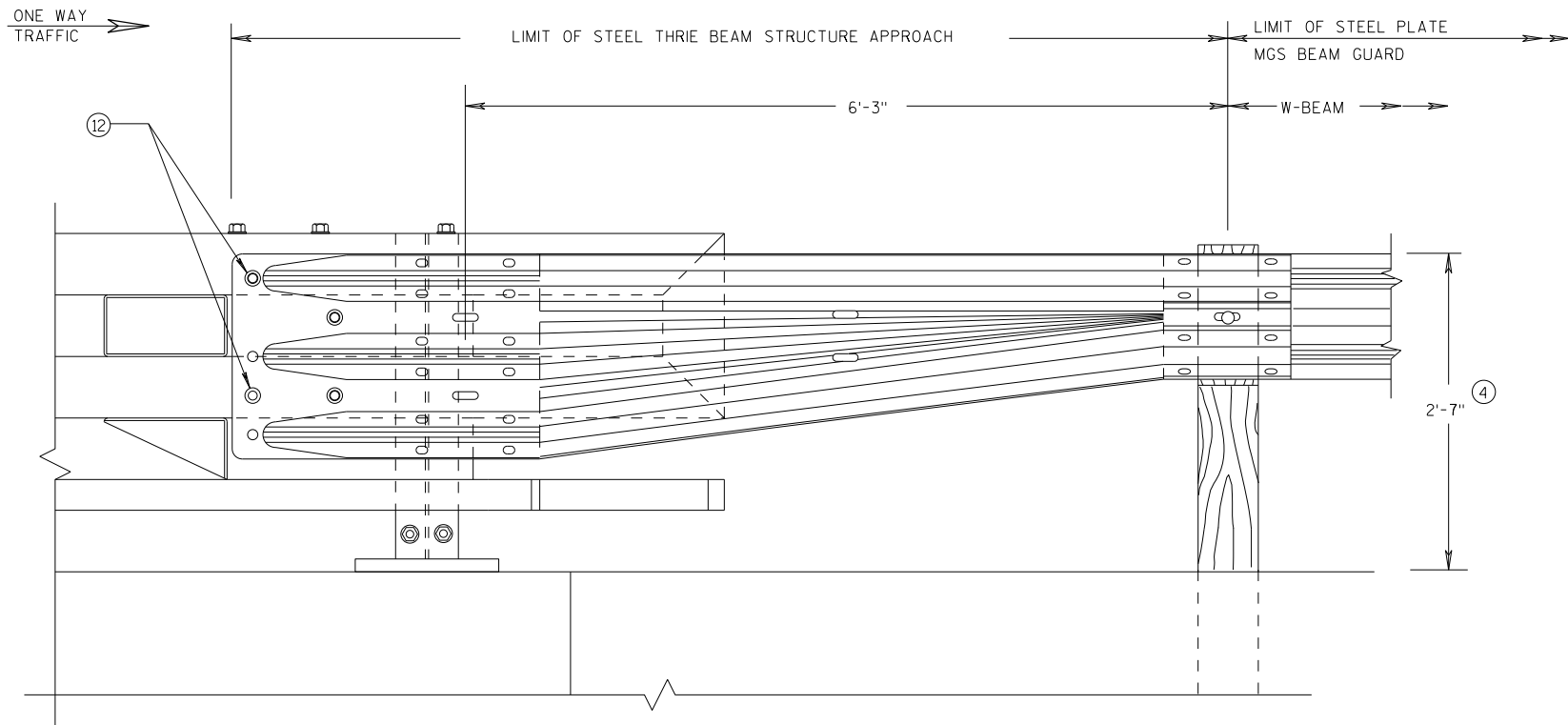
S.D.D. 14 B 45-5k

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

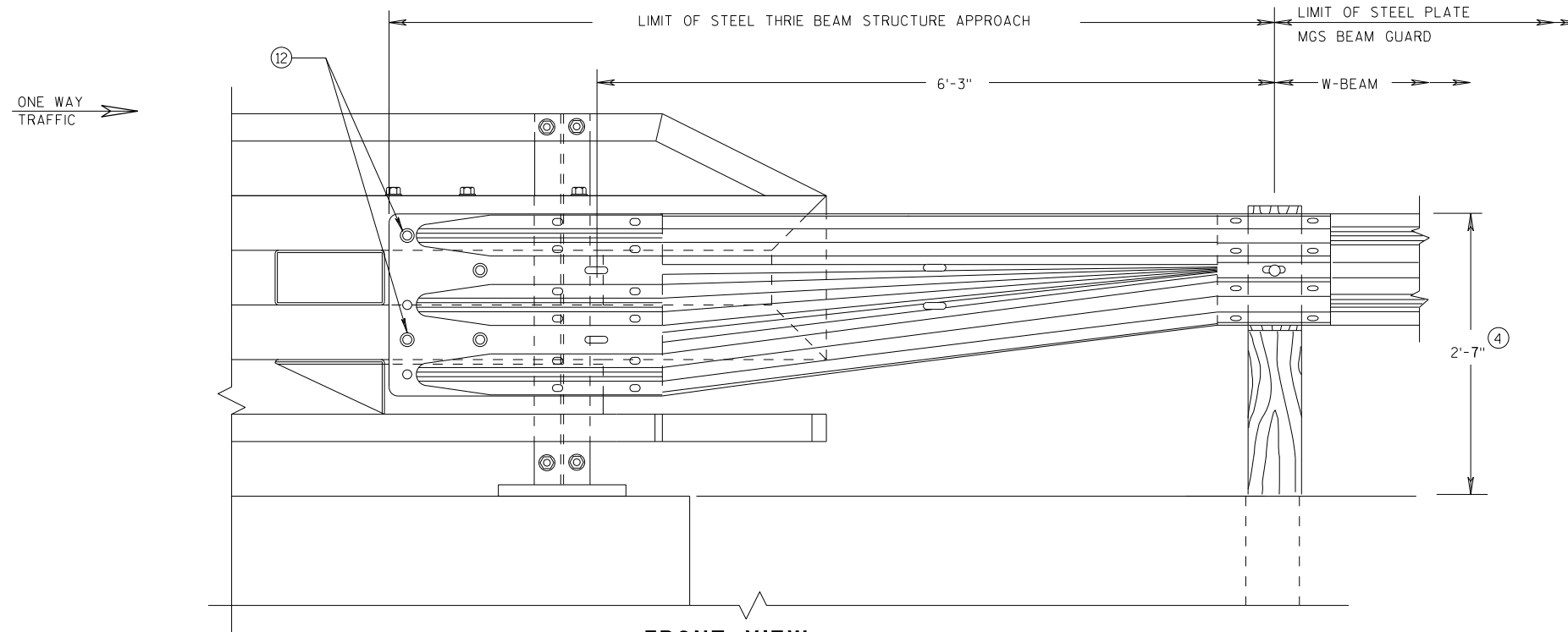
APPROVED
DATE 7/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.

FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY3"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

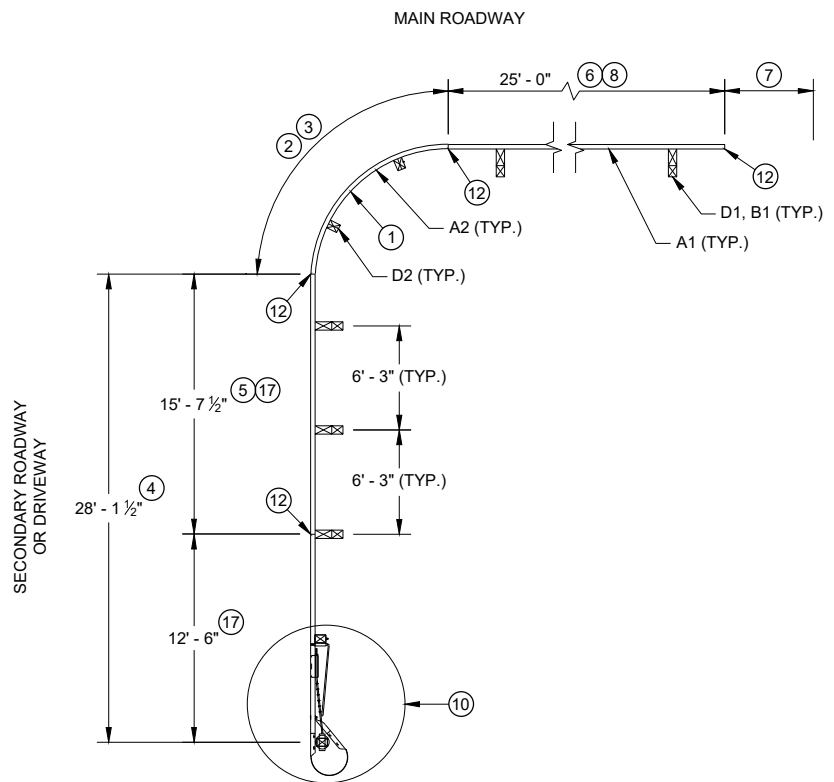
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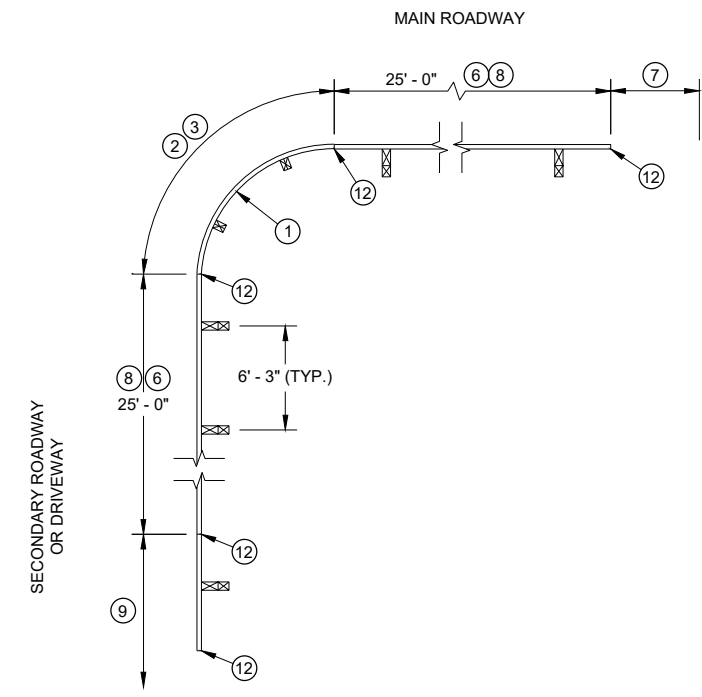
S.D.D. 14 B 45-5L

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

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



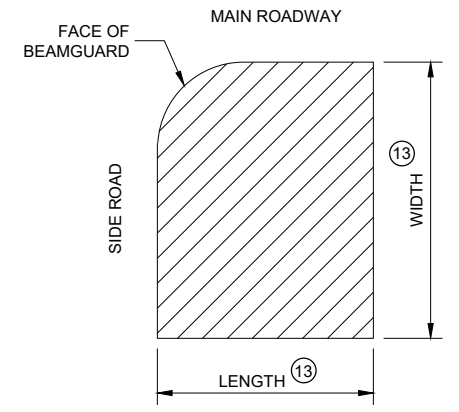
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY



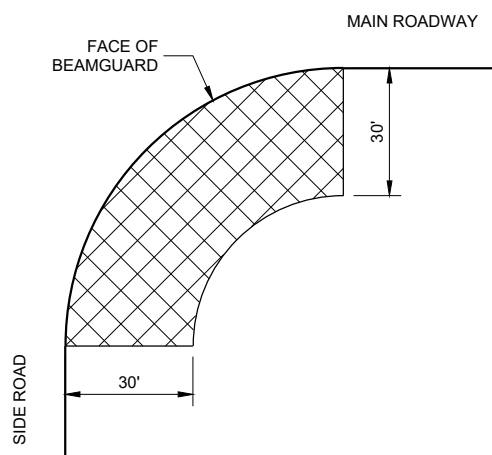
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY

TABLE FOR RADIUS OF 32' AND LESS

RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS

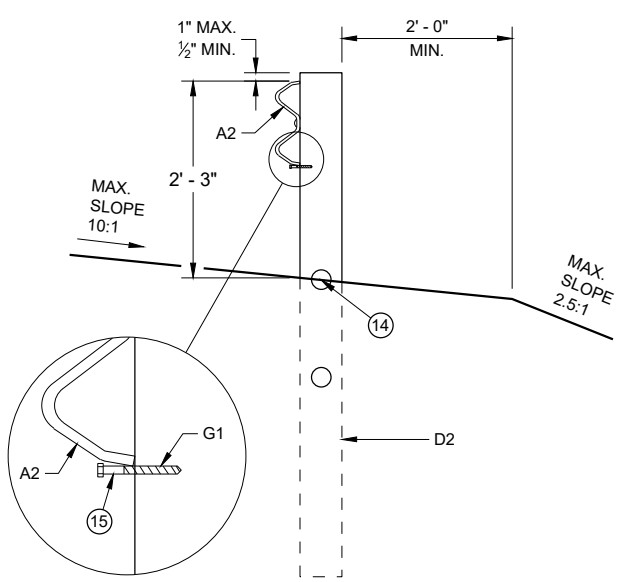


AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'

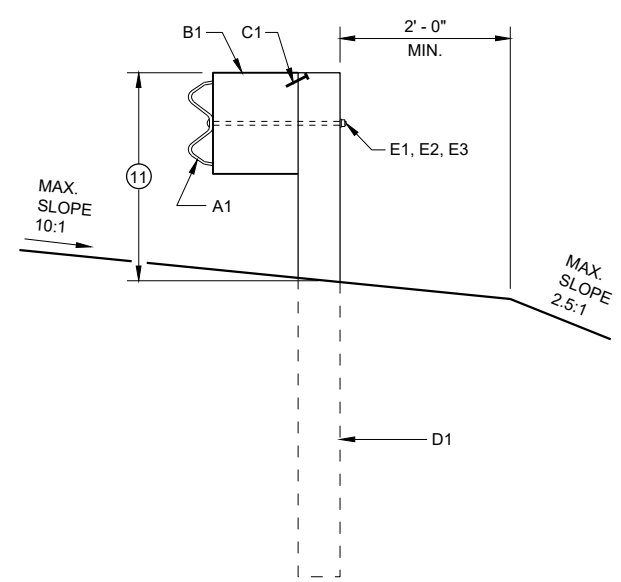
GENERAL NOTES

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

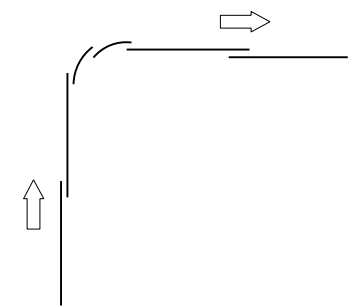
- ① RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- ② CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- ③ WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- ④ MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- ⑤ ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- ⑥ MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- ⑦ BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- ⑧ TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- ⑨ ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- ⑩ SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- ⑪ HEIGHT VARIES. SEE NOTE ⑧ AND ⑧.
- ⑫ BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- ⑬ SEE TABLE FOR VALUES.
- ⑭ MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- ⑮ DRILL POST 1 5/8" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- ⑯ SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- ⑰ TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).



CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



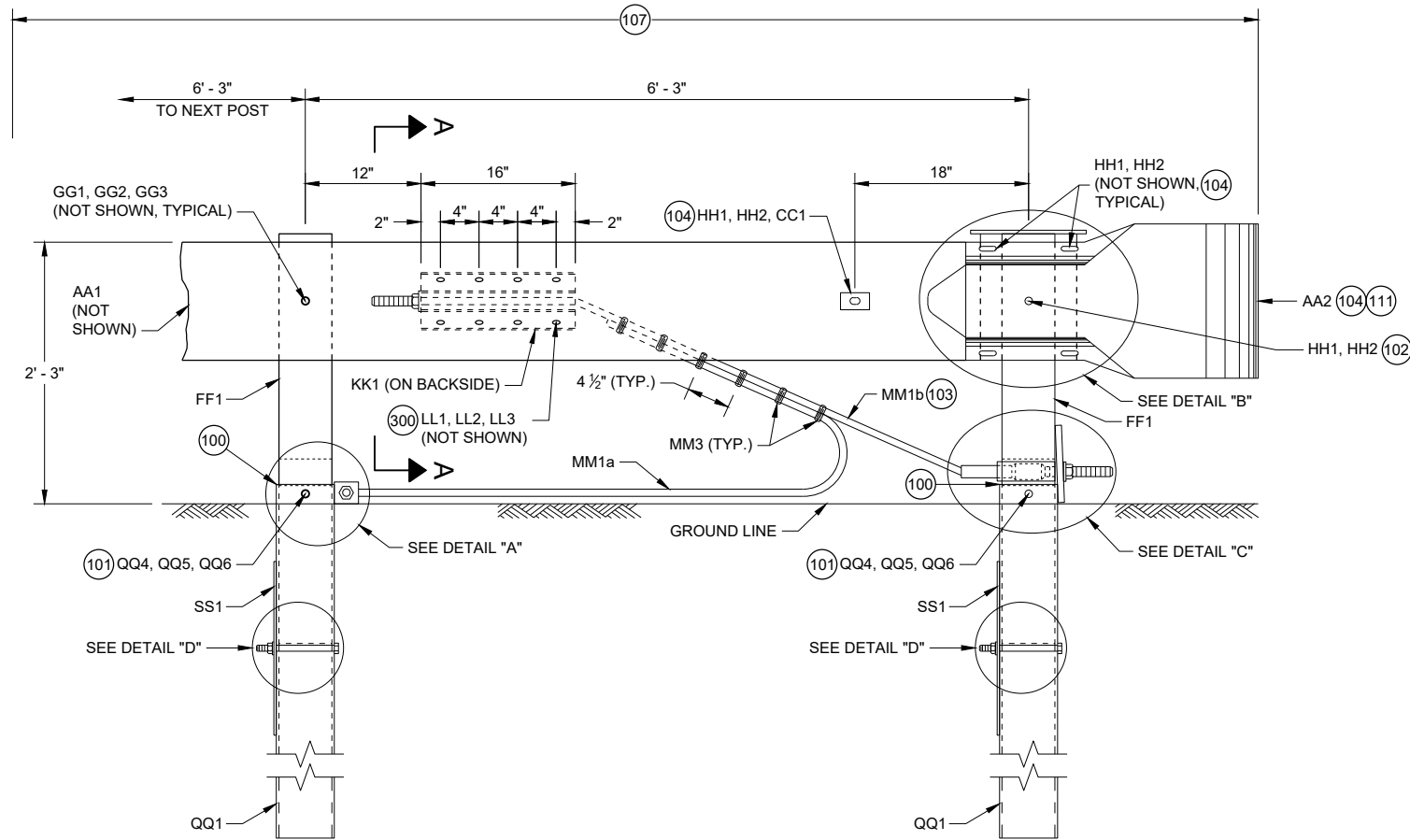
BEAM GUARD POSTS
IN HEIGHT TRANSITION



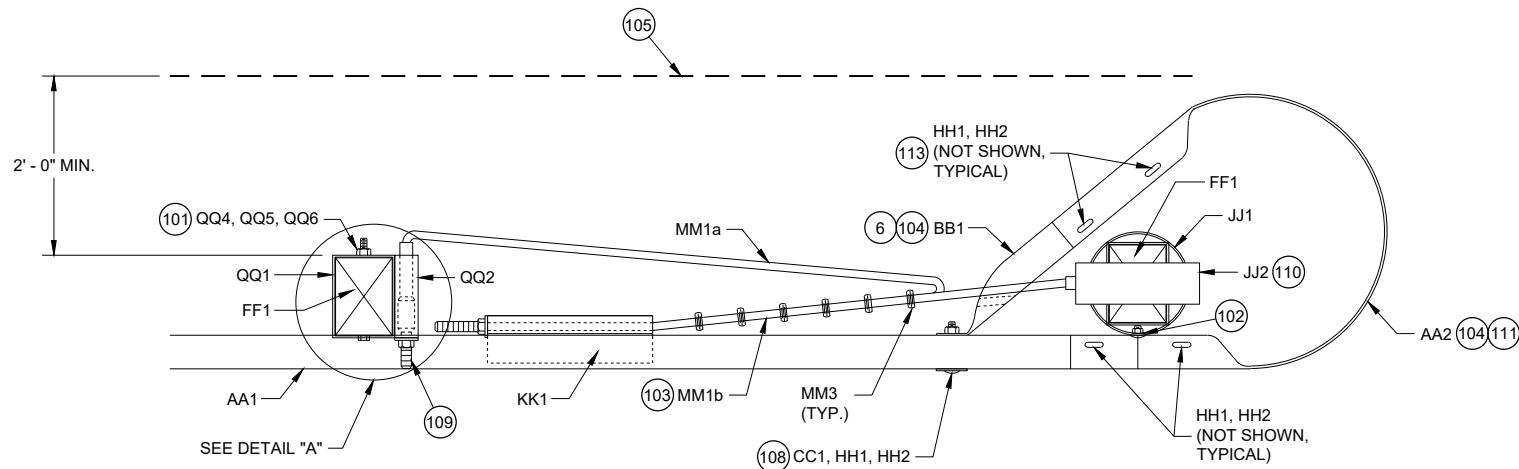
LAP SPLICE DETAIL

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION



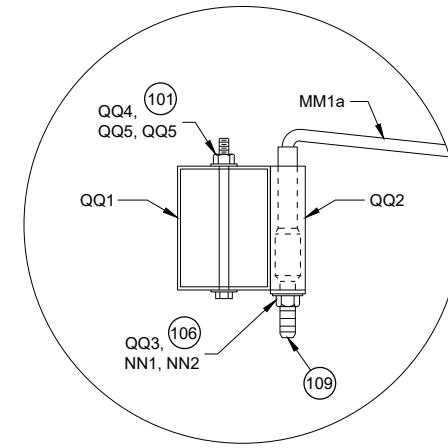
**PROFILE VIEW
SHORT RADIUS TERMINAL**



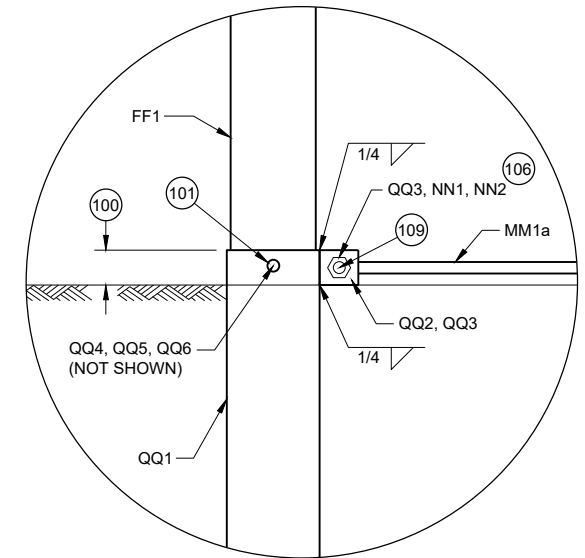
**TOP VIEW
SHORT RADIUS TERMINAL**

GENERAL NOTES

- (100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- (101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- (102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- (103) CABLE IS TAUT.
- (104) ADJUST AA2 AND BB1 TO FIT.
- (105) BREAK POINT OF SHOULDER.
- (106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- (107) PAY LIMIT FOR BEAM GUARD.
- (108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- (109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- (110) SEE STEEL PIPE ASSEMBLY DETAILS.
- (111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- (112) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- (113) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.



**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



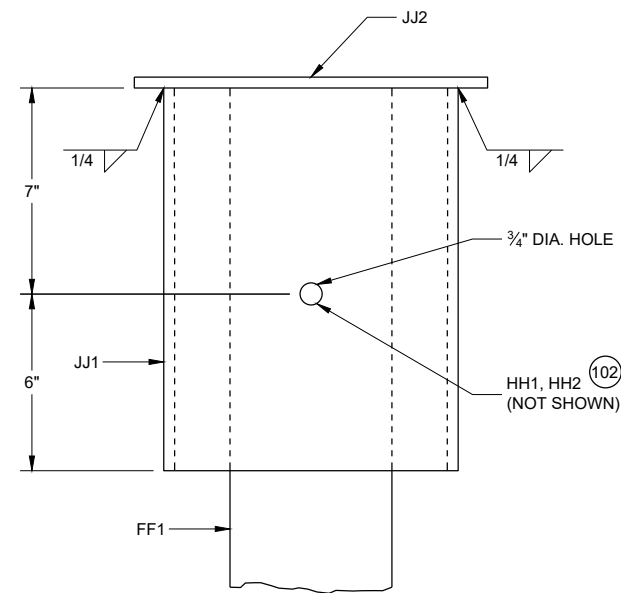
**PROFILE VIEW
DETAIL "A"**

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

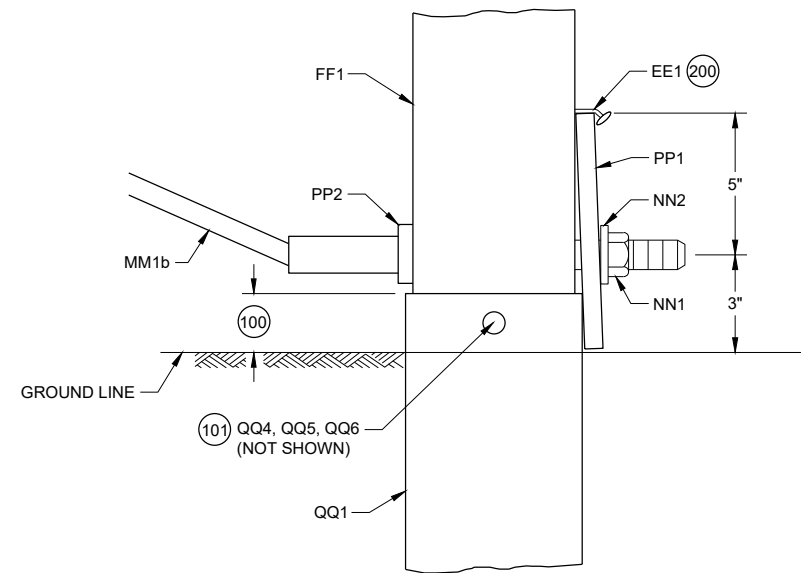
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

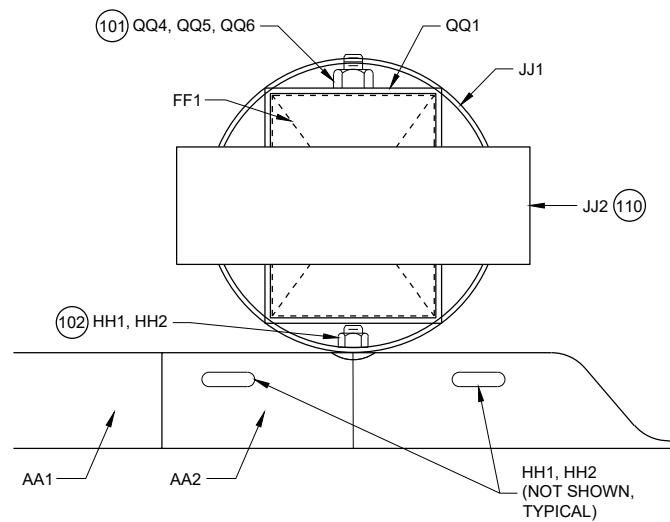
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.



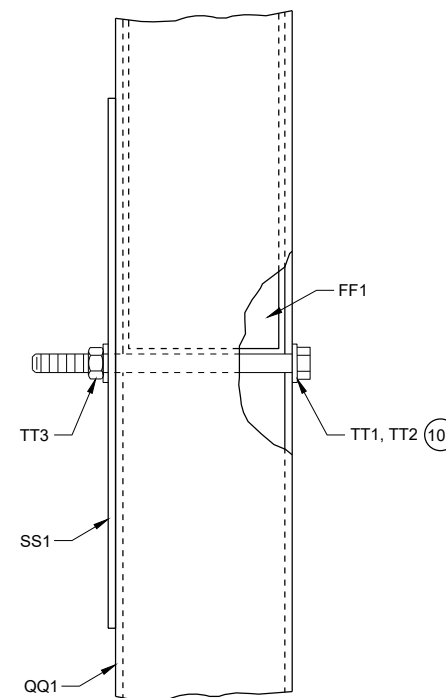
**PROFILE VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)**



**PROFILE VIEW
DETAIL "C"**



**PLAN VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY**



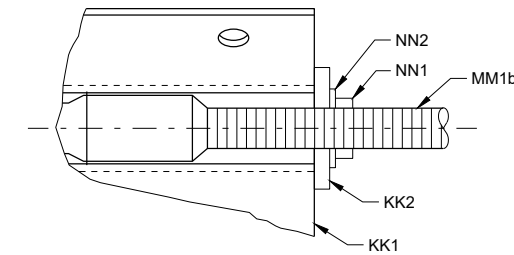
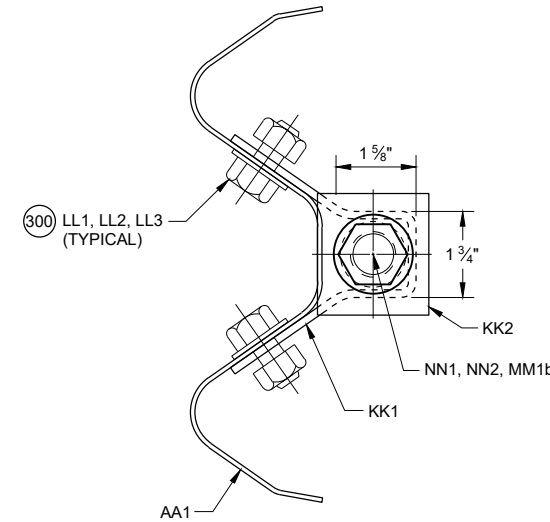
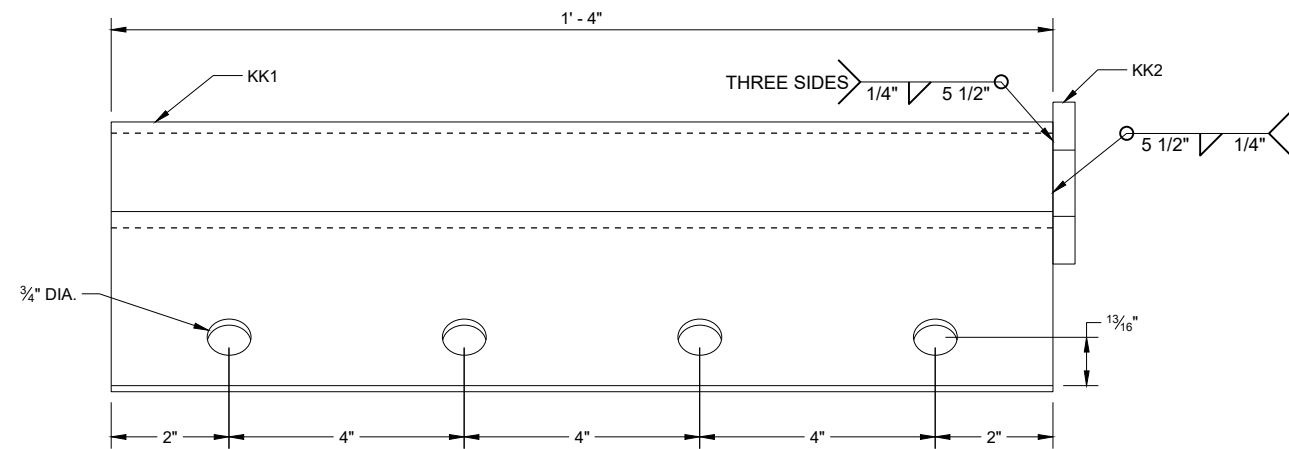
**PROFILE VIEW
DETAIL "D"**

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

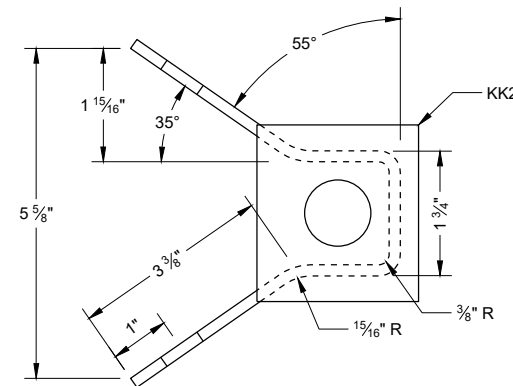
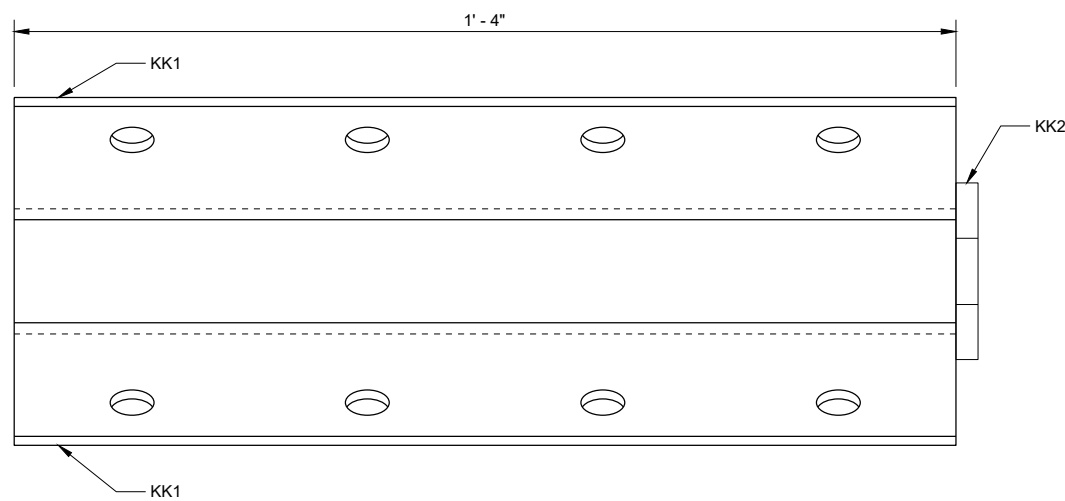
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

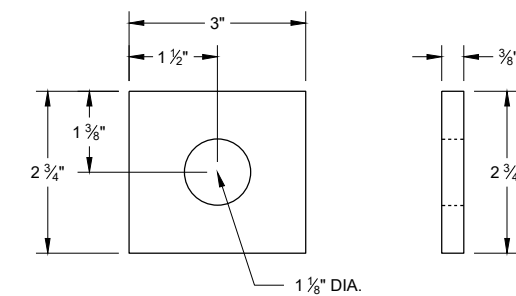
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.



SECTION A - A



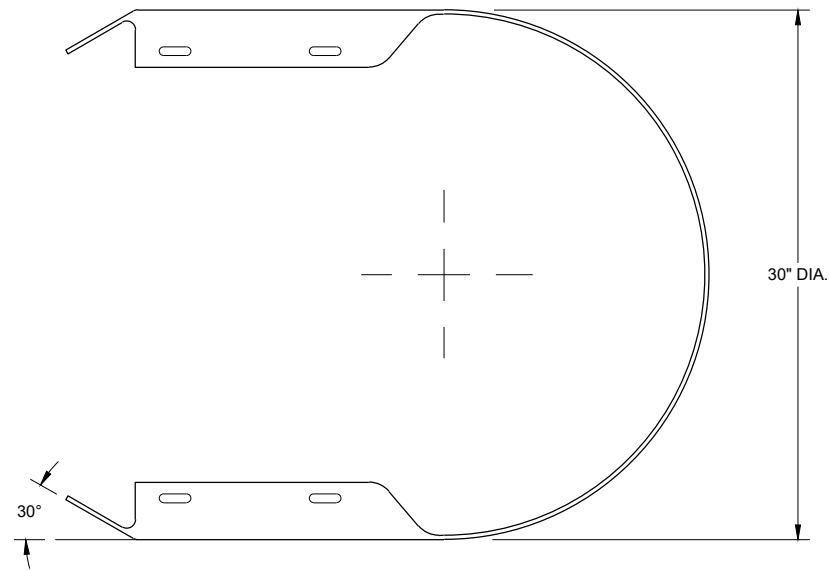
ANCHOR BRACKET BEARING PLATE (KK2)



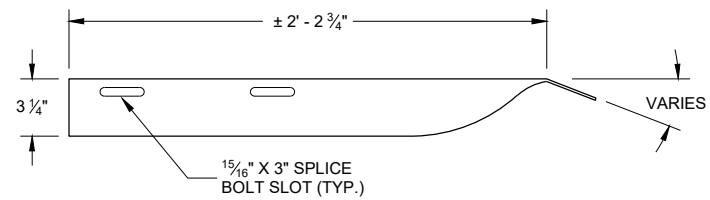
ANCHOR BRACKET (KK1, KK2)

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



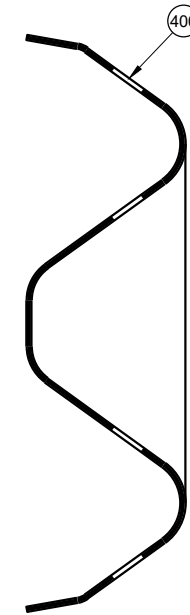
TOP VIEW



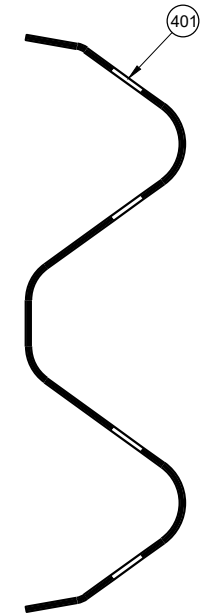
TOP VIEW

GENERAL NOTES

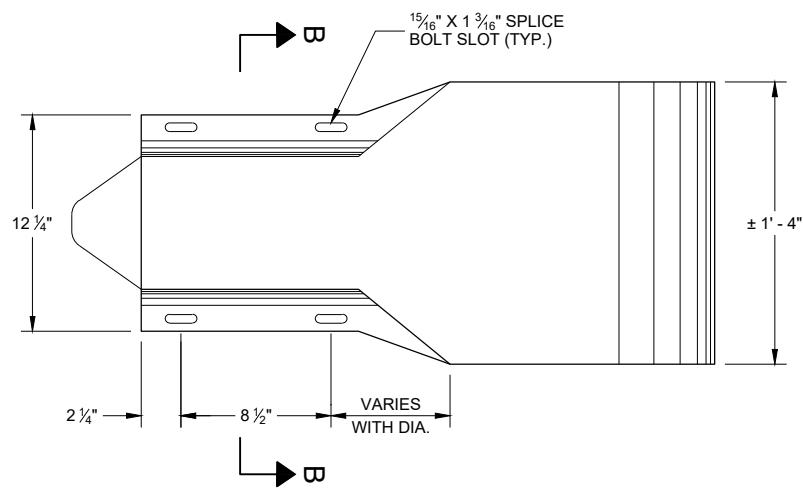
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



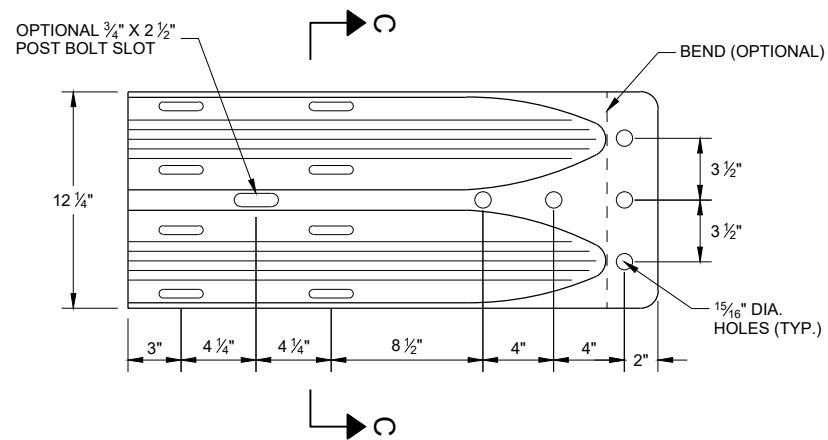
SECTION B - B



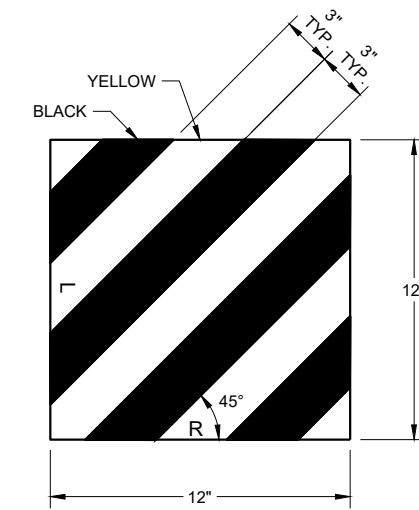
SECTION C - C



PROFILE VIEW
W BEAM
END SECTION BUFFER (AA2)



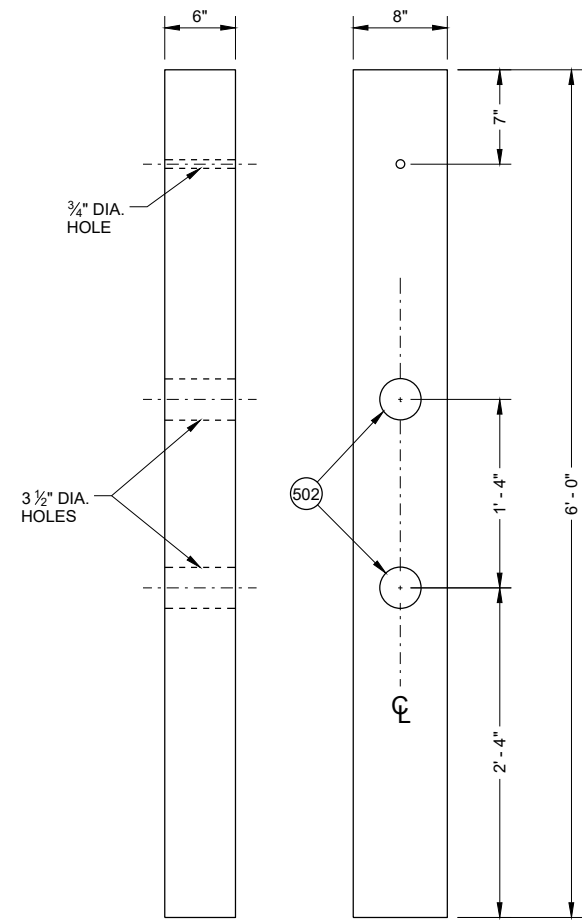
PROFILE VIEW
W BEAM
TERMINAL CONNECTOR (BB1)



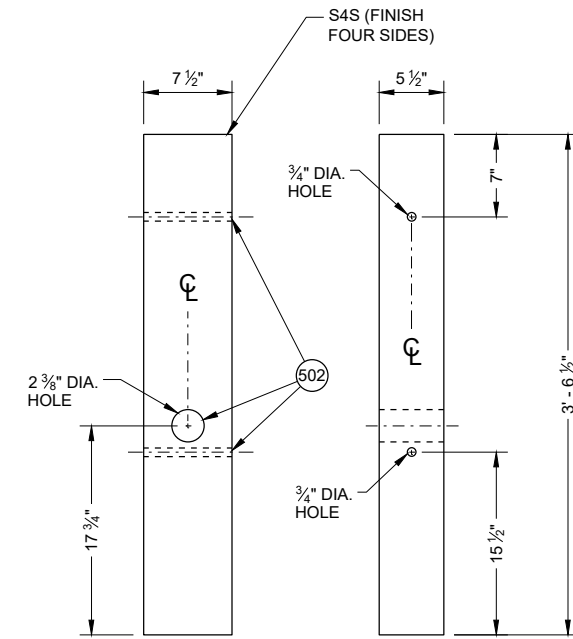
REFLECTIVE SHEETING (UU1, UU2)

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

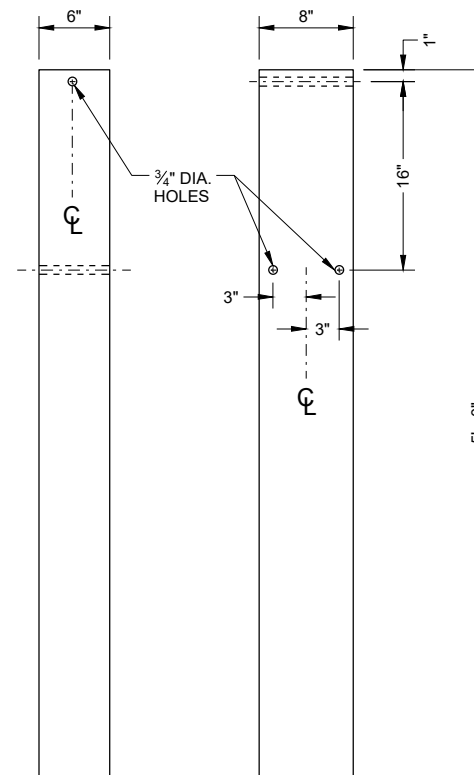
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



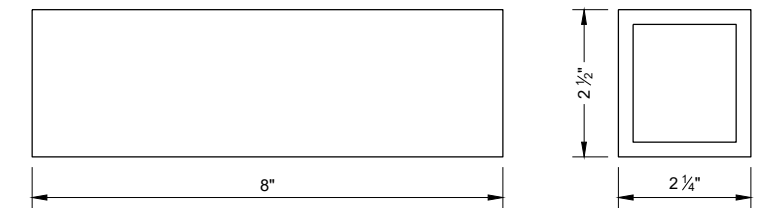
**FRONT VIEW SIDE VIEW
CONTROLLED RELEASE
POST (CRT) (DD2)**



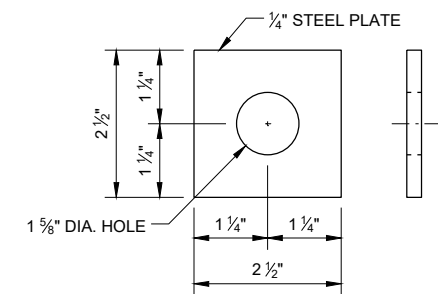
**FRONT VIEW SIDE VIEW
WOOD BREAKAWAY POST (FF1)**



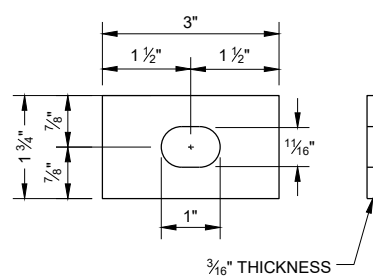
**FRONT VIEW SIDE VIEW
FOUNDATION TUBE (QQ1)**



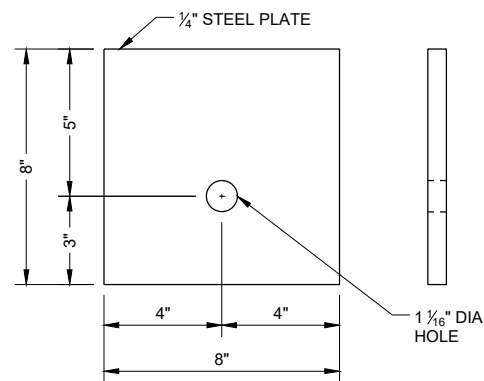
**FOUNDATION TUBE -
ANCHOR CABLE TUBE (QQ2)**



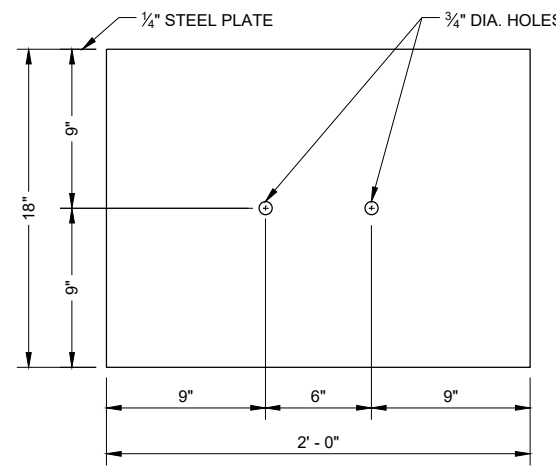
**ANCHOR CABLE TUBE
END PLATE (QQ3)**



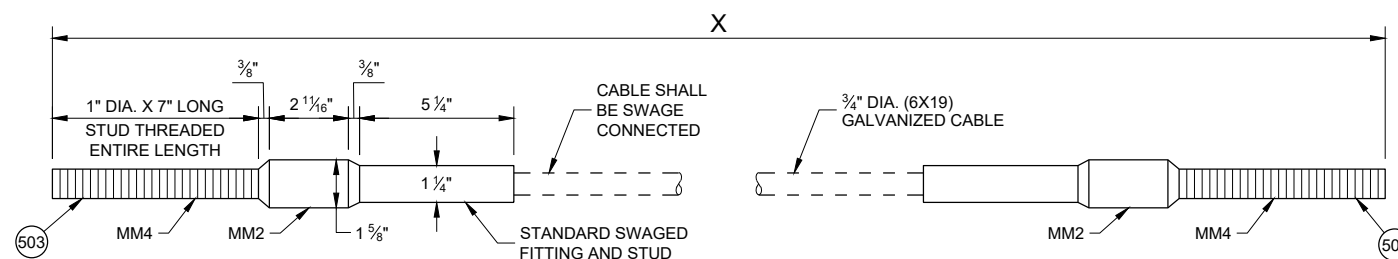
**RECTANGULAR PLATE
WASHER (CC1)**



BEARING PLATE (PP1)



SOIL PLATE (SS1)



CABLE ASSEMBLY (MM1a, MM1b)

"X" LENGTH

MM1b	9' - 0"
MM1b	6' - 8"

GENERAL NOTES

- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

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SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
ASTM A563 GRADE A HEAVY HEX HEAD			
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS $\frac{3}{8}$ " X 4" X 1' - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	$\frac{3}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{3}{8}$ " DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	$\frac{3}{4}$ "
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

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SDD 14B53 - 01h

SDD 14B53 - 01h

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/8"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 1/2" X 2 1/2" X 1/4"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5/8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

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SDD 14B53 - 01i

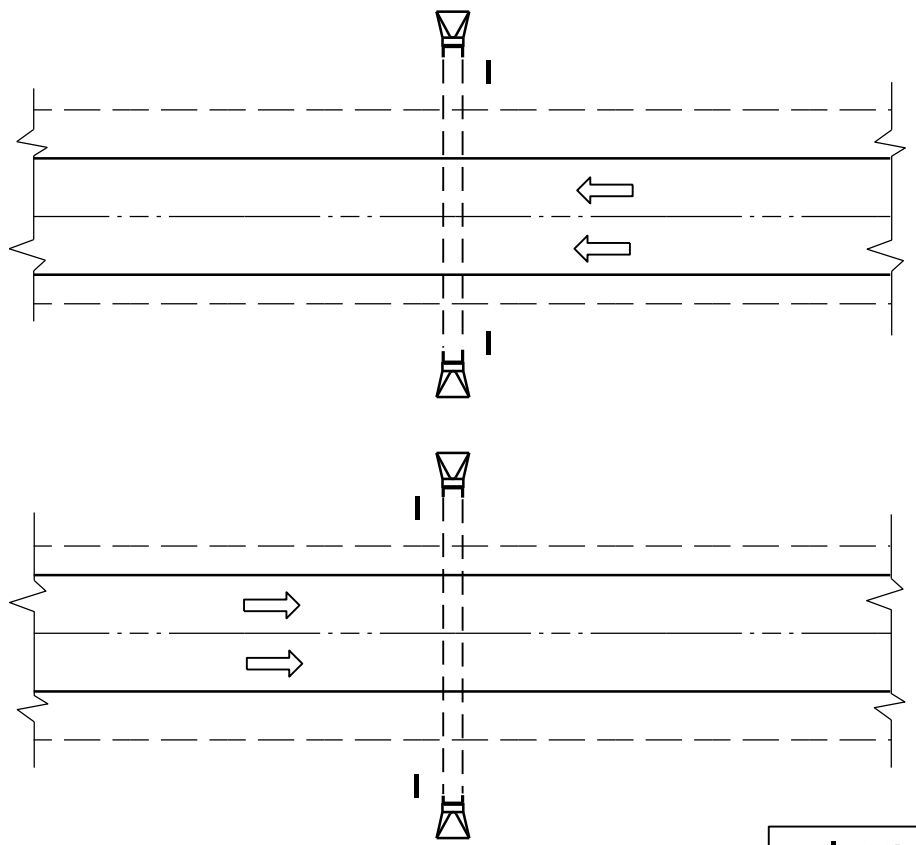
SDD 14B53 - 01i

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

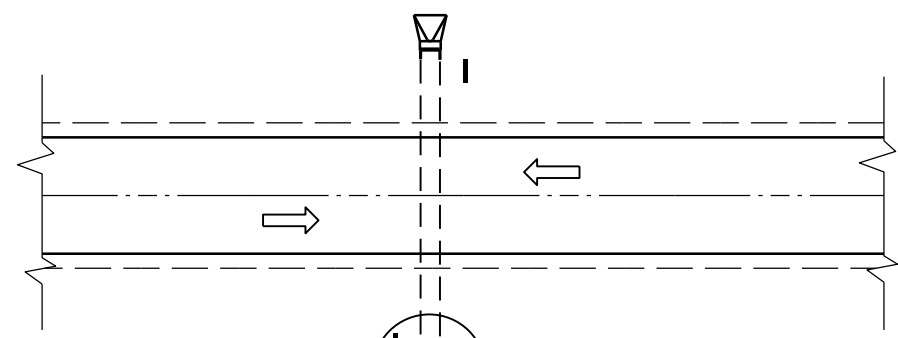
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

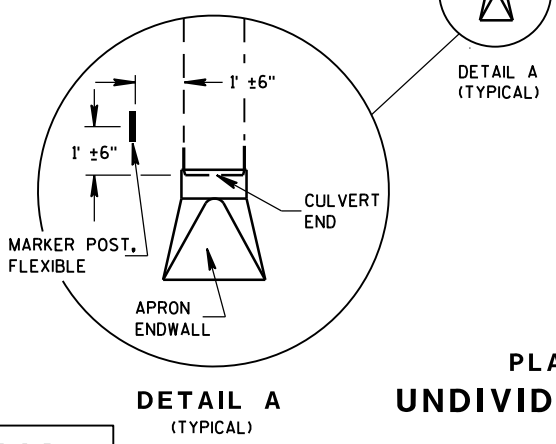
FHWA



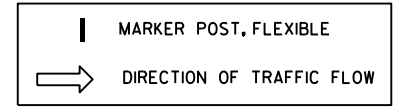
PLAN VIEW
DIVIDED HIGHWAY



PLAN VIEW
UNDIVIDED HIGHWAY

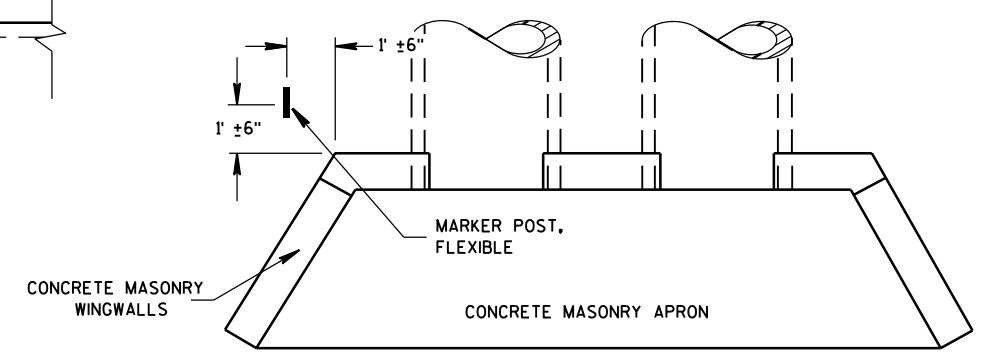


DETAIL A
(TYPICAL)



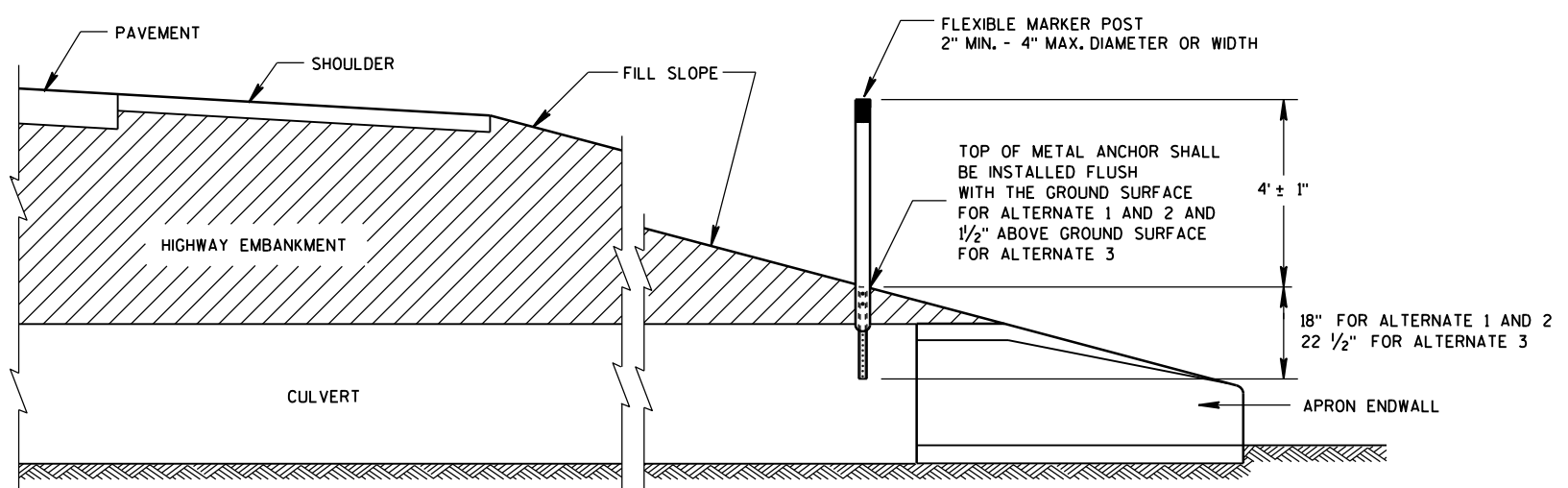
GENERAL NOTES

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 LOCATION



CROSS SECTION
FLEXIBLE MARKER POST

**FLEXIBLE MARKER POST
FOR CULVERT END**

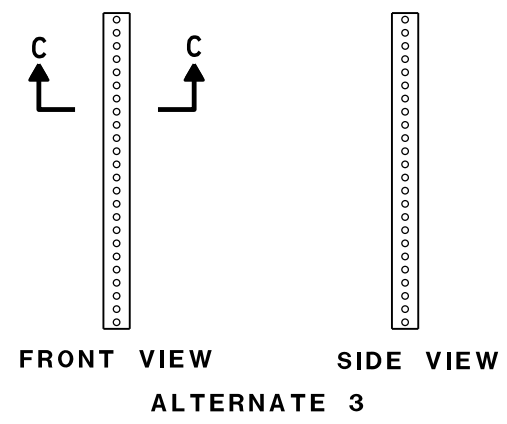
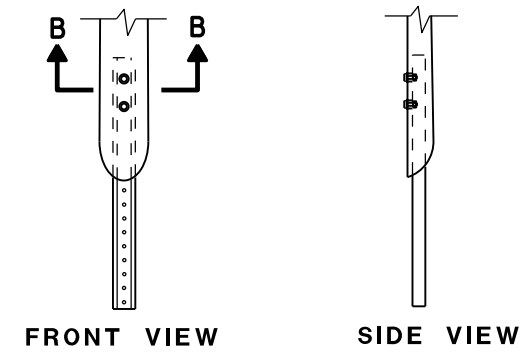
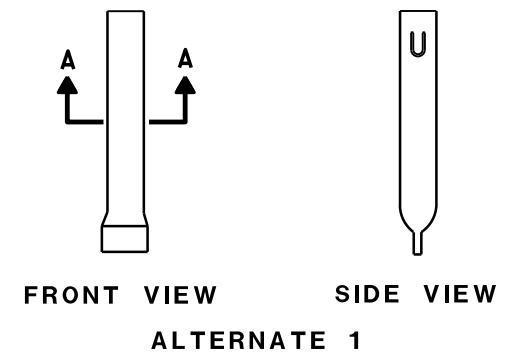
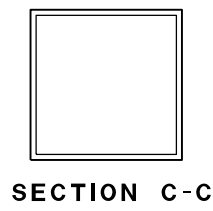
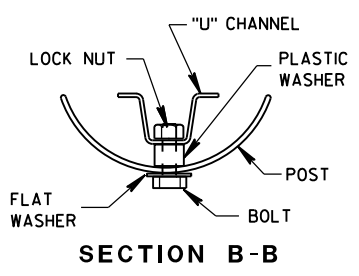
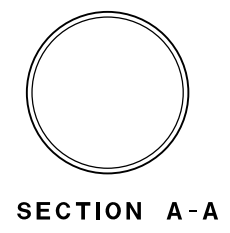
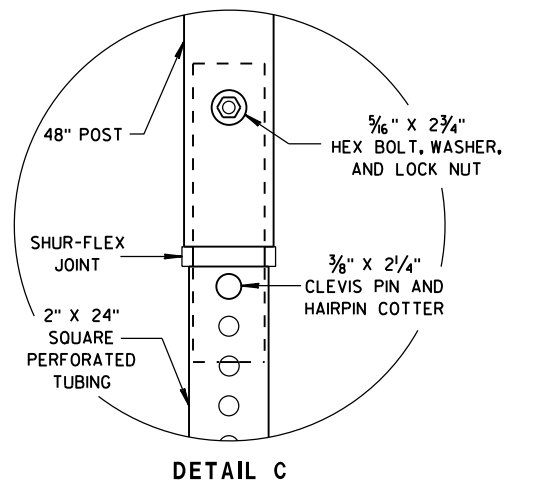
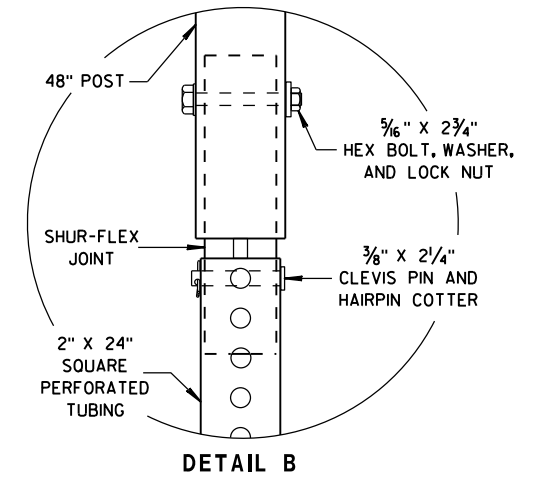
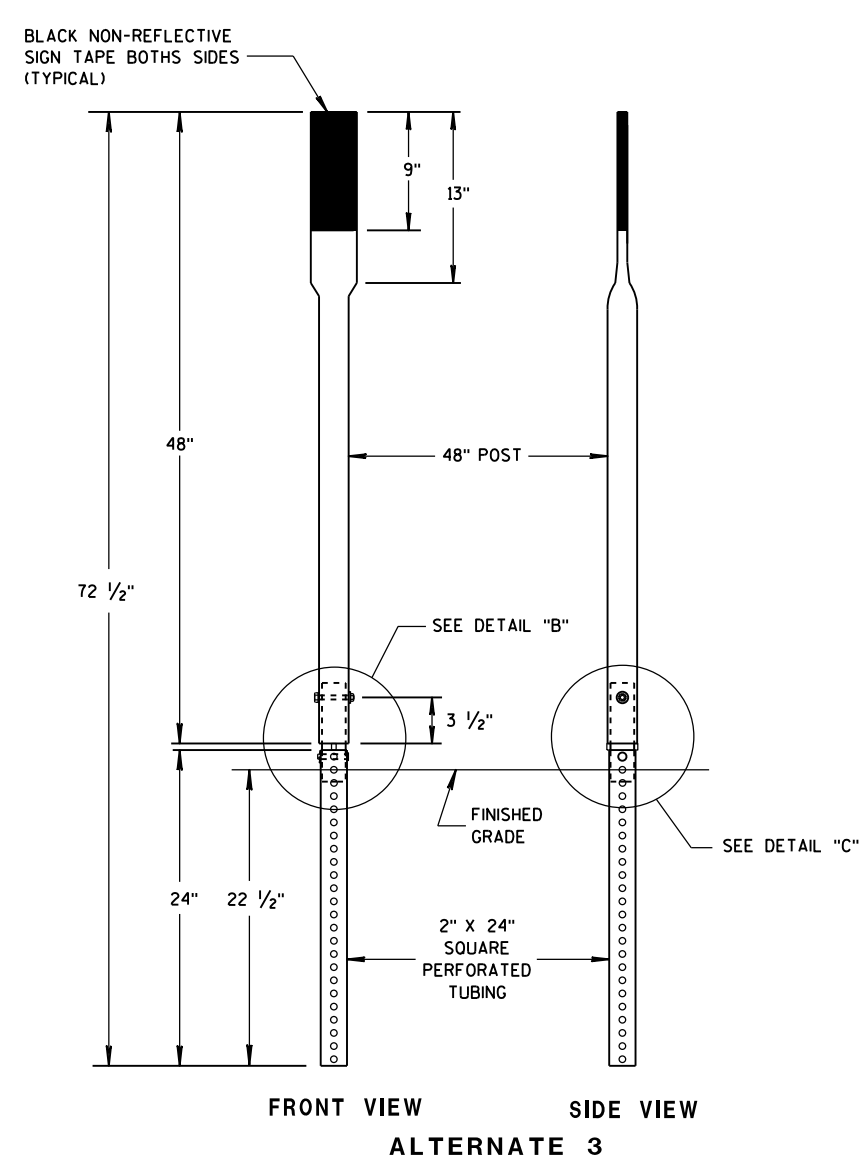
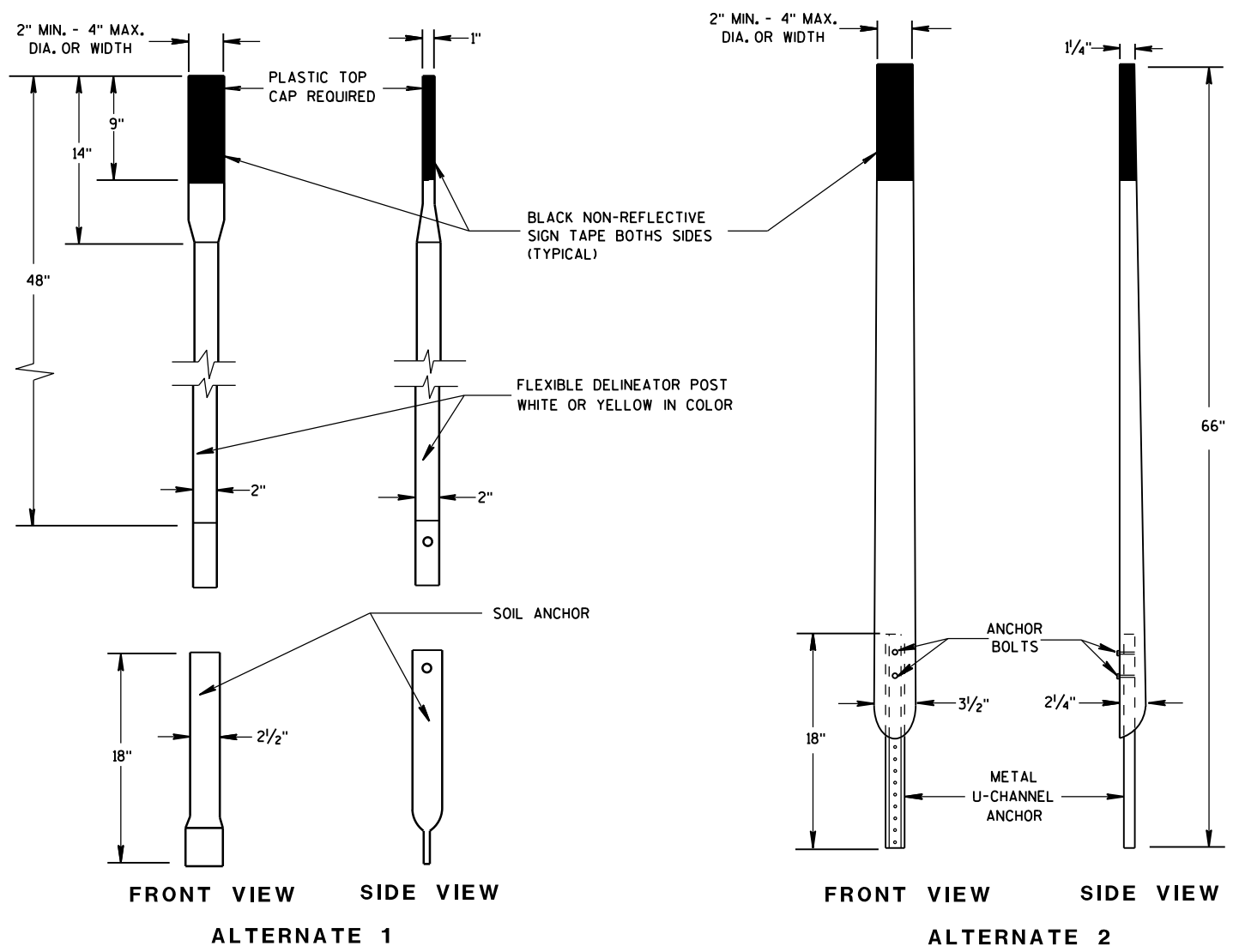
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

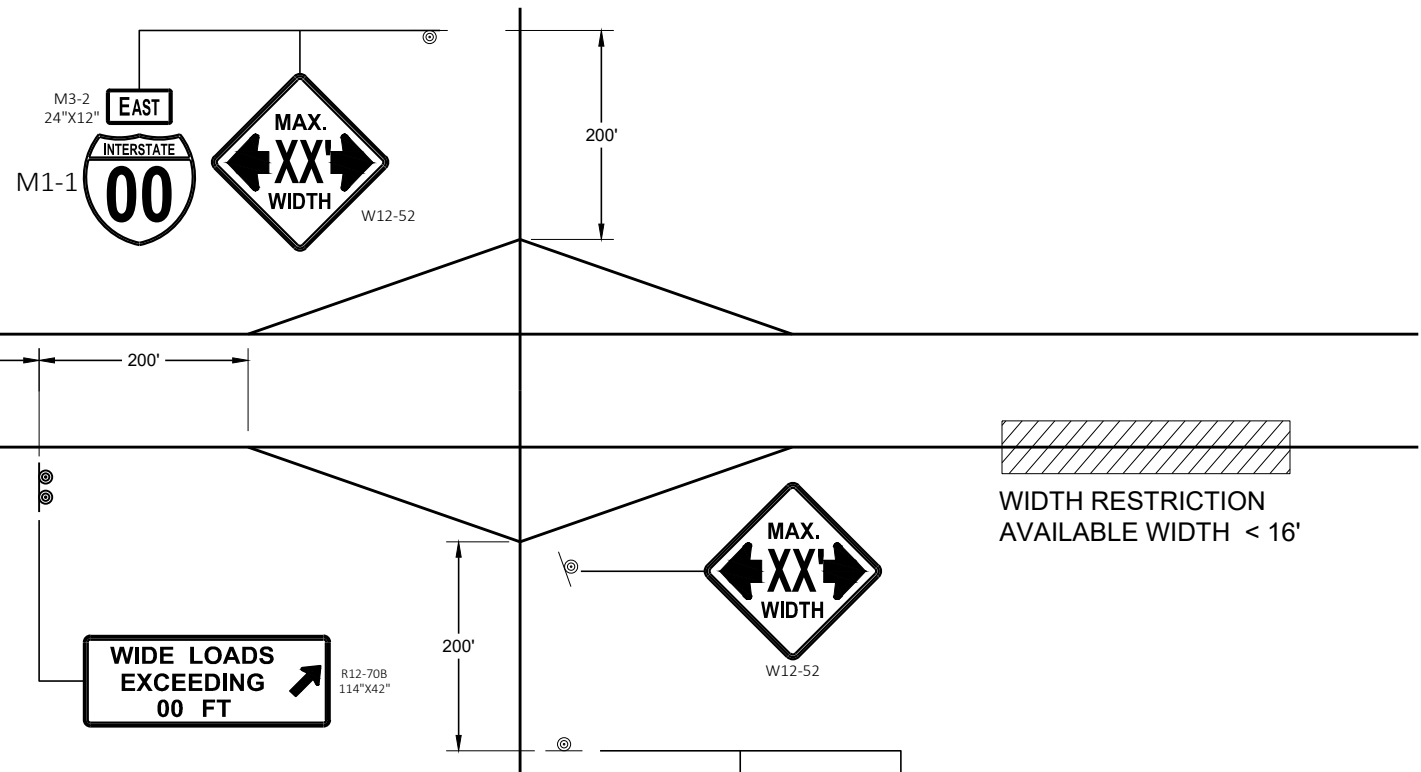
S.D.D. 15 A 3-2a

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

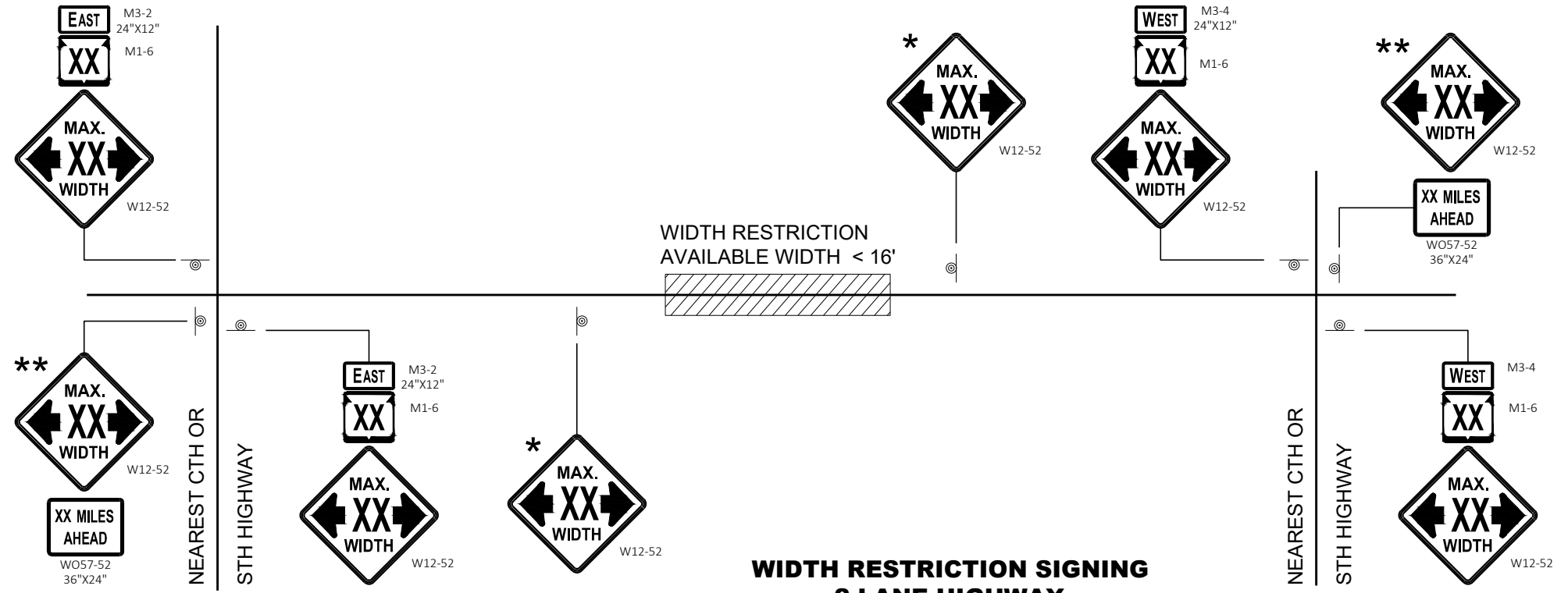


FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



WIDTH RESTRICTION SIGNING



**WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY**

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

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

THE SPACING BETWEEN 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.

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

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

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

* PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.

** SIGN SHALL BE VISIBLE FROM ROADWAY.

*** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.

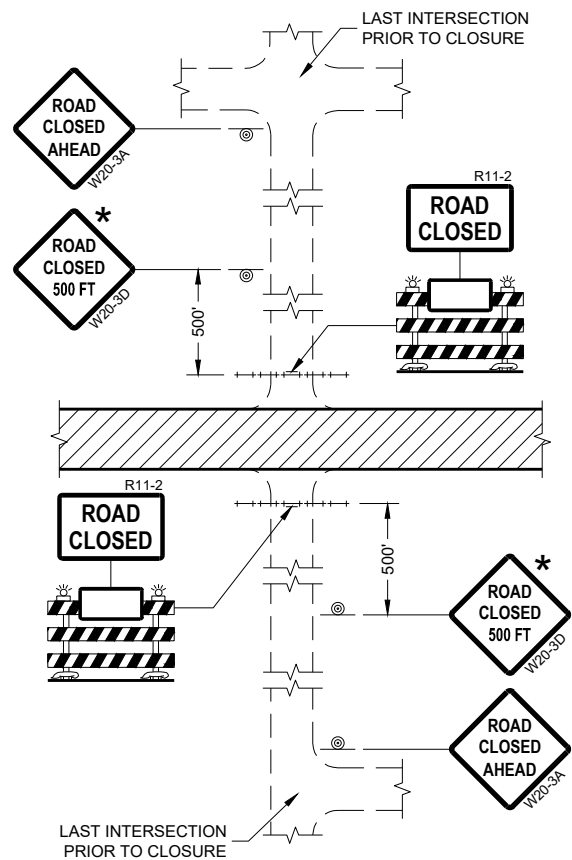


WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

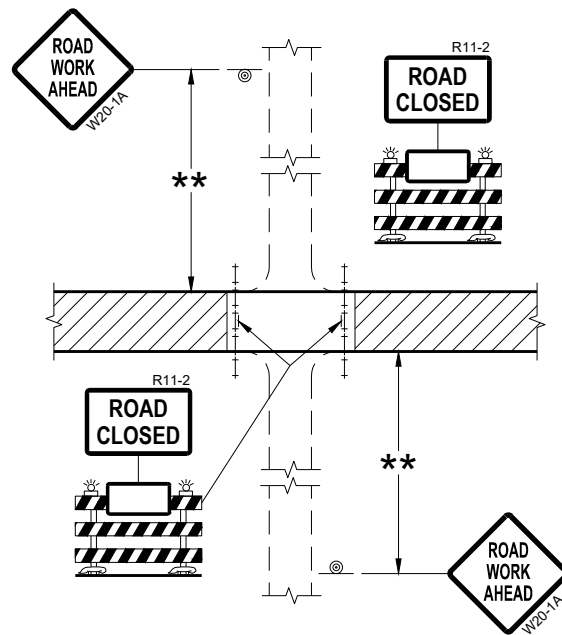
ADVANCED WIDTH RESTRICTION SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

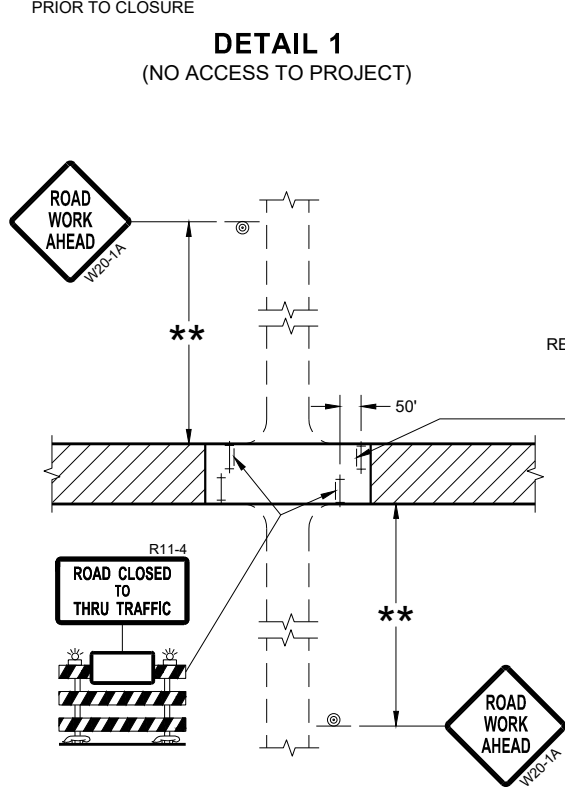
APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



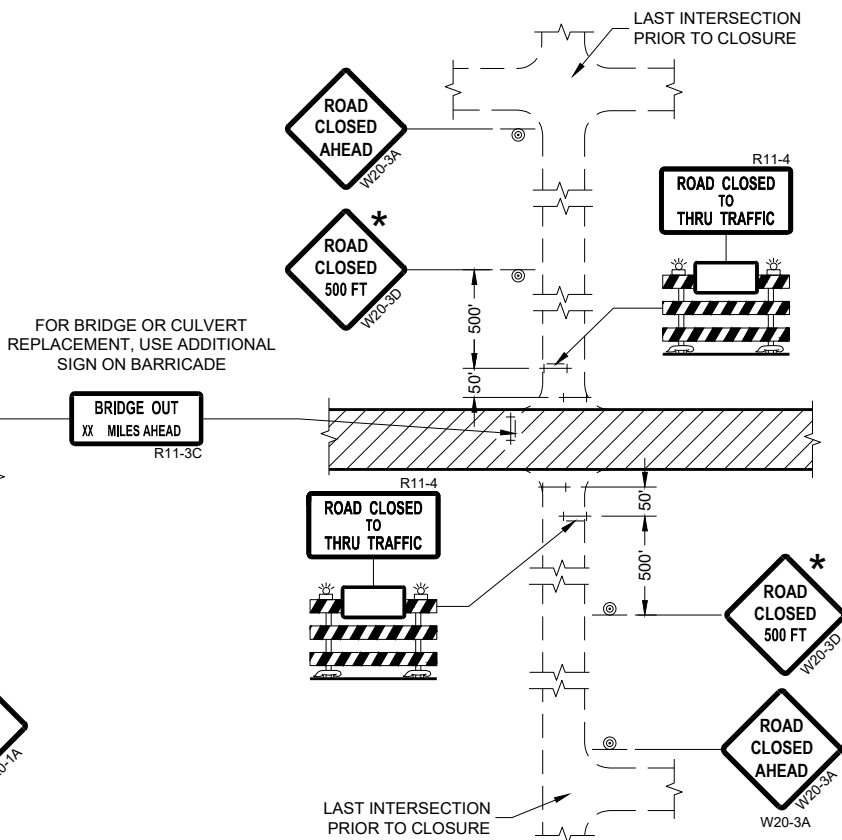
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

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

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

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

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




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

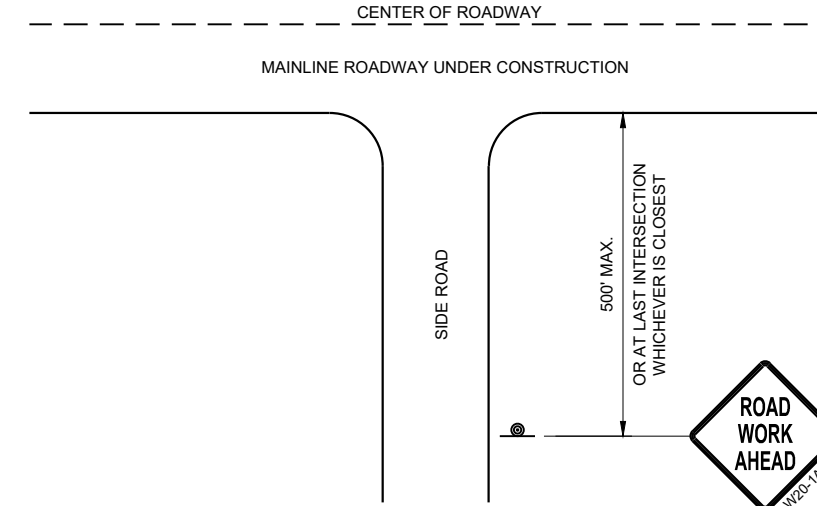
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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 REESTABLISHED.

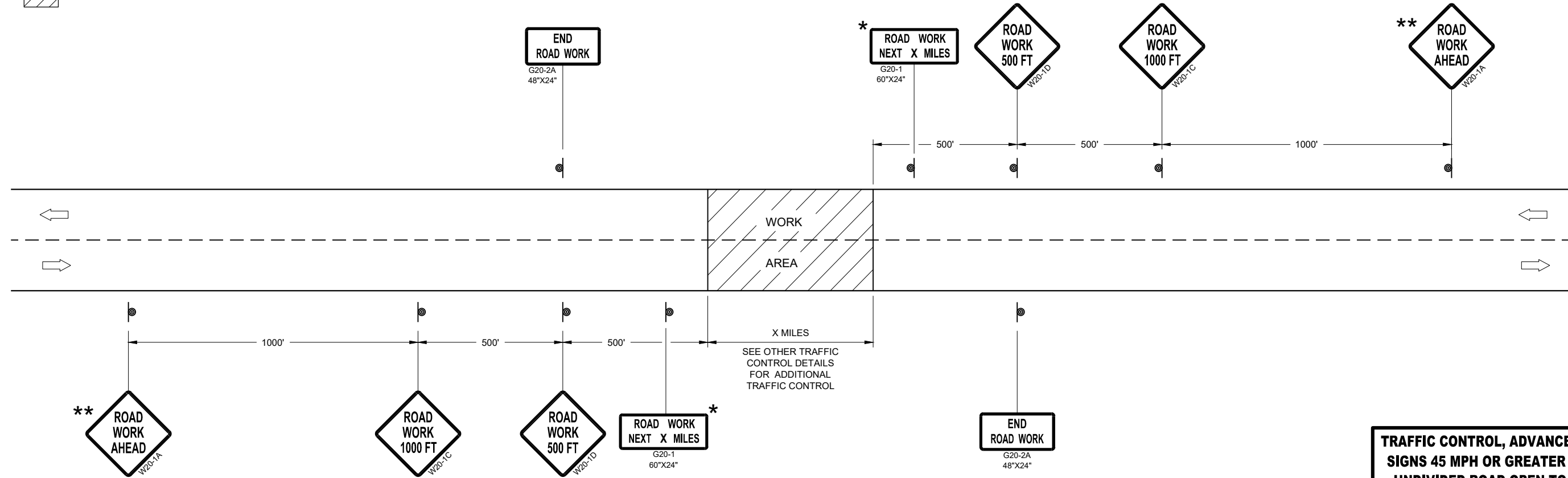
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



**TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL**



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

**TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED _____
DATE July 2018 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

GENERAL NOTES

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

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




ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"X36" SIGNS MAY BE USED INSTEAD OF 48" X 48" SIGNS.

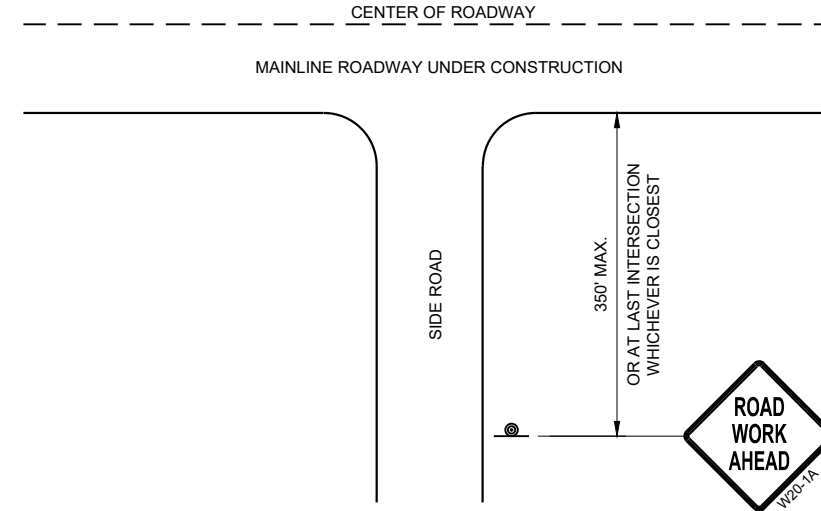
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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 REESTABLISHED.

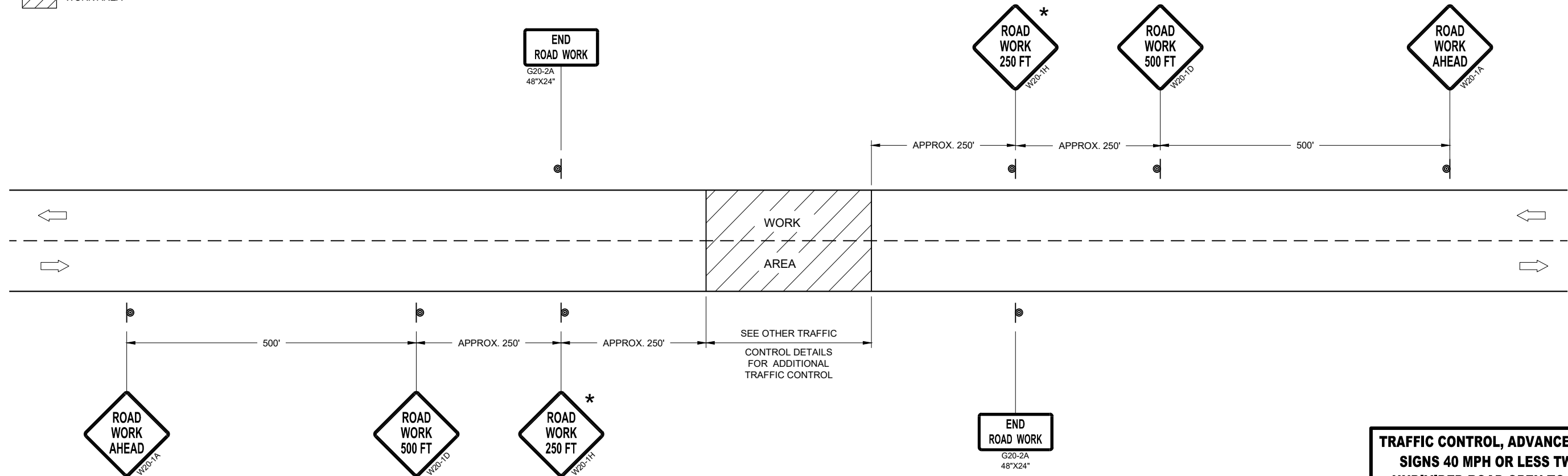
* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FEET" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

LEGEND

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



**TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL**



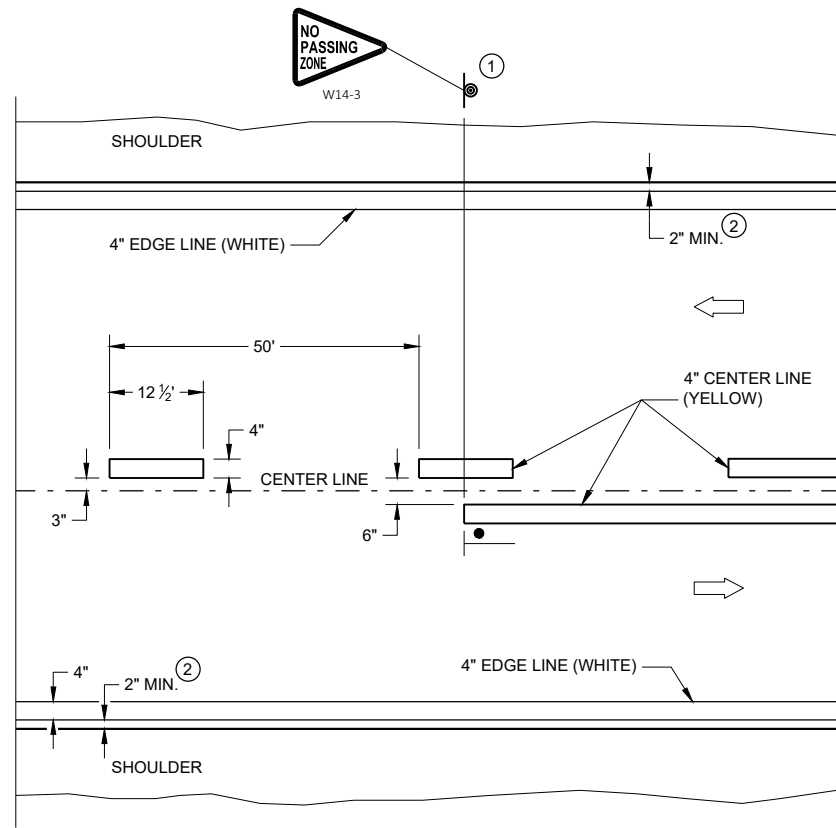
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40MPH OR LESS

**TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 40 MPH OR LESS TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC**

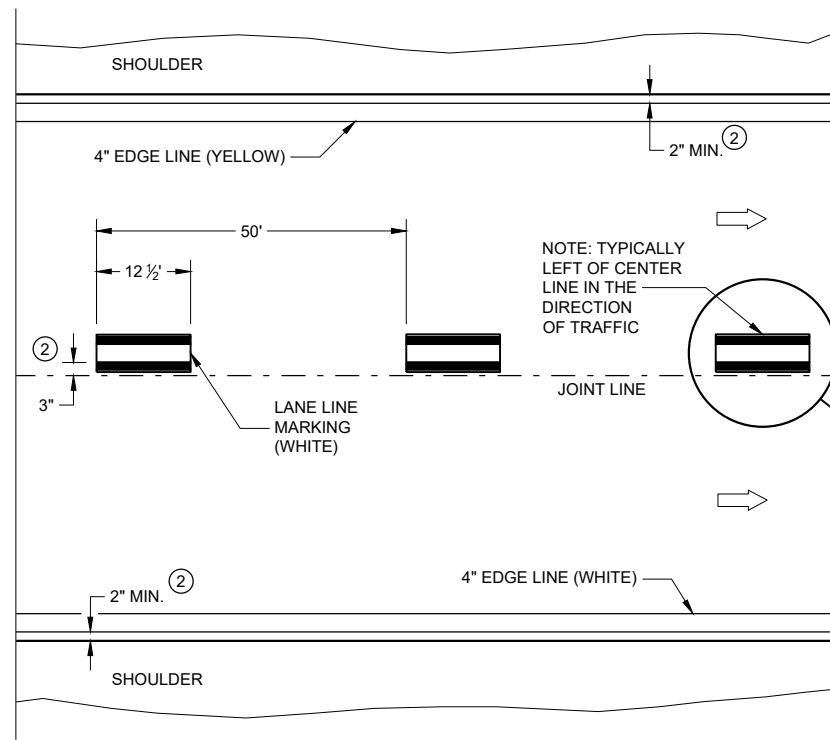
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

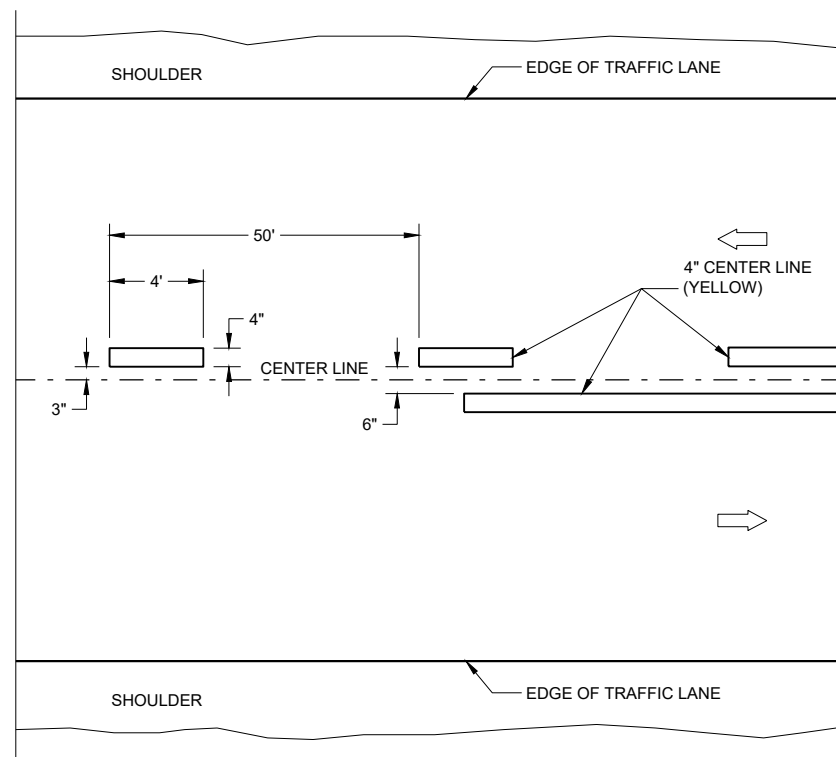


TWO WAY TRAFFIC

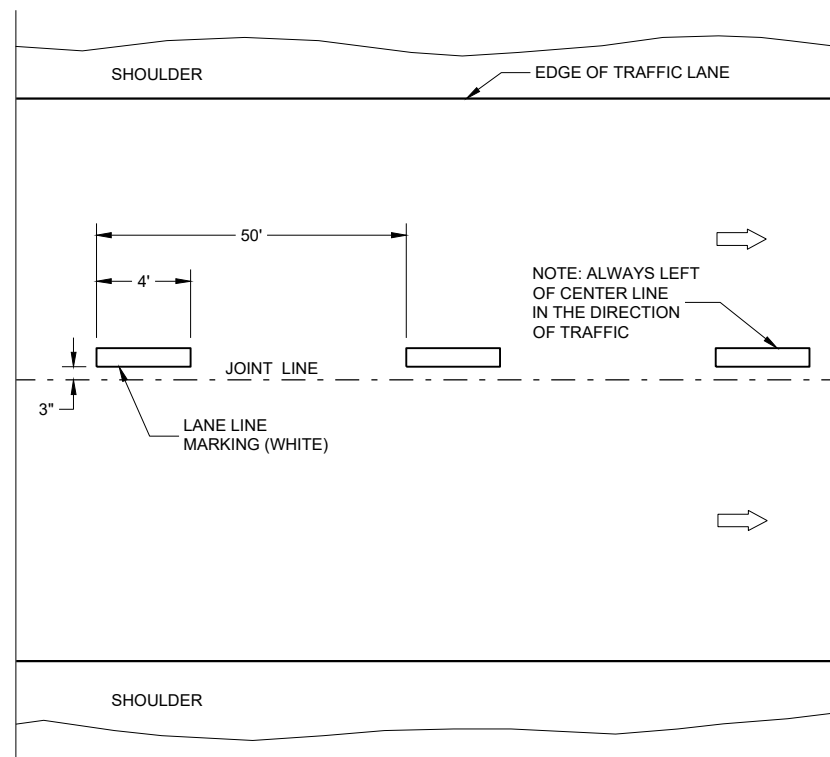


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

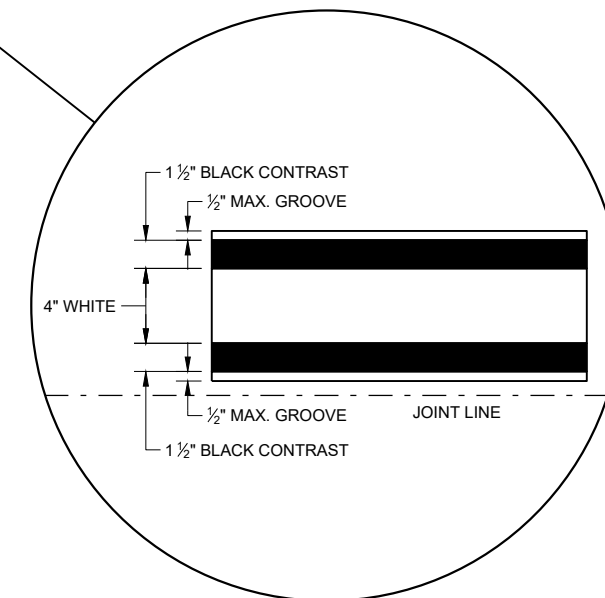
GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

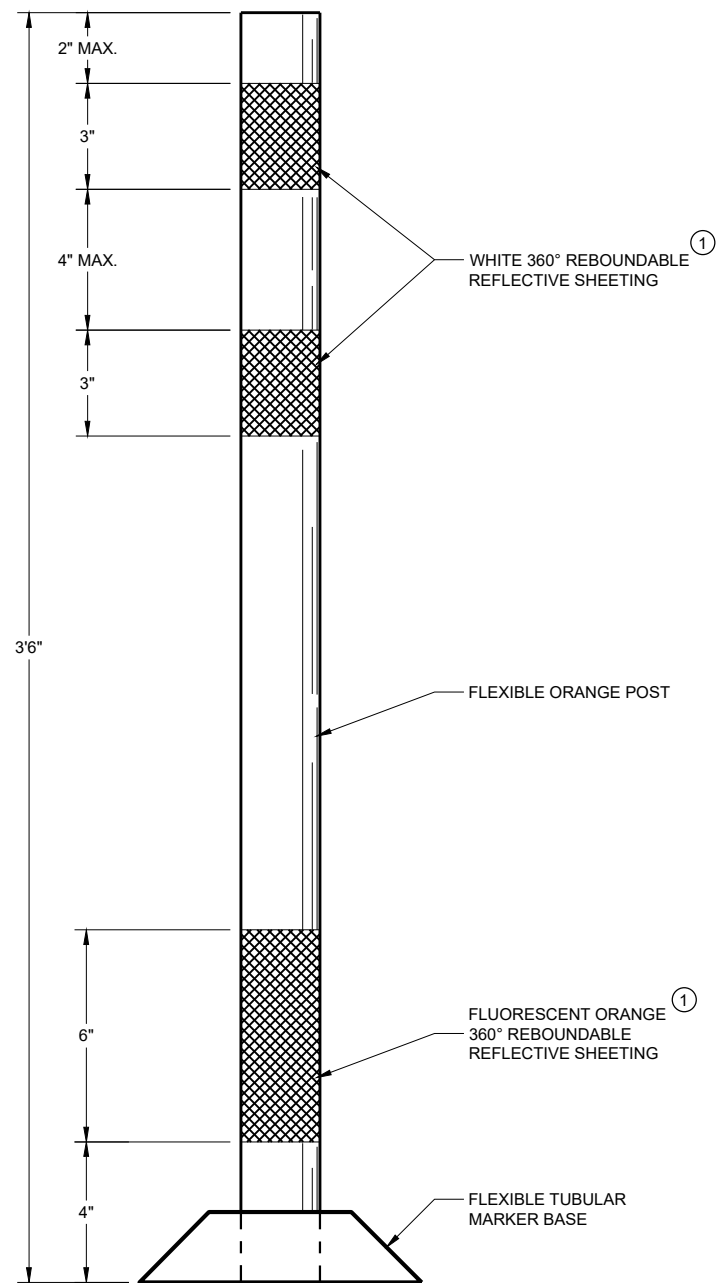
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



**LONGITUDINAL MARKING
(MAINLINE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND MARKING
ENGINEER



FLEXIBLE TUBULAR MARKER POST WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

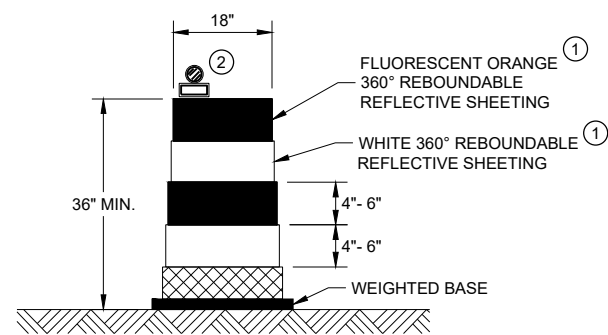
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

**CHANNELIZING DEVICES
FLEXIBLE TUBULAR
MARKER POST**

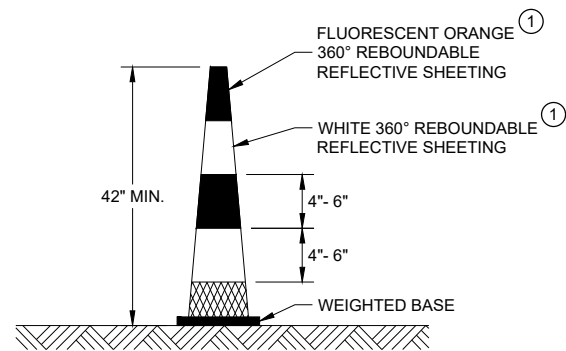
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

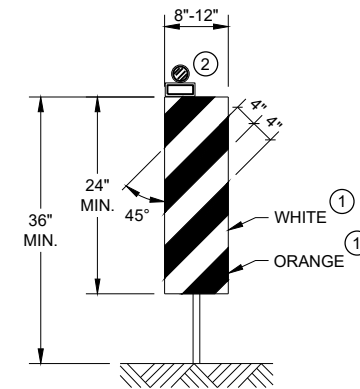


DRUM



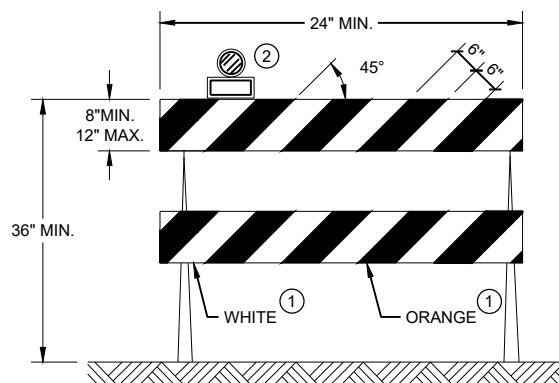
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



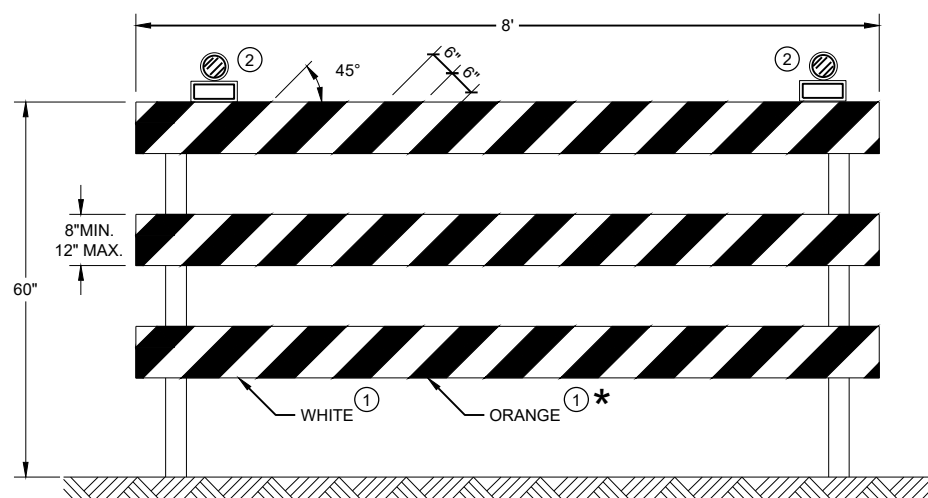
VERTICAL PANEL

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



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.

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.

**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

LEGEND

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

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.

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

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

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND 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.

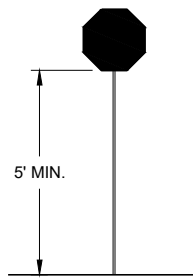
WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

- FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.
- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' 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.
- WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.



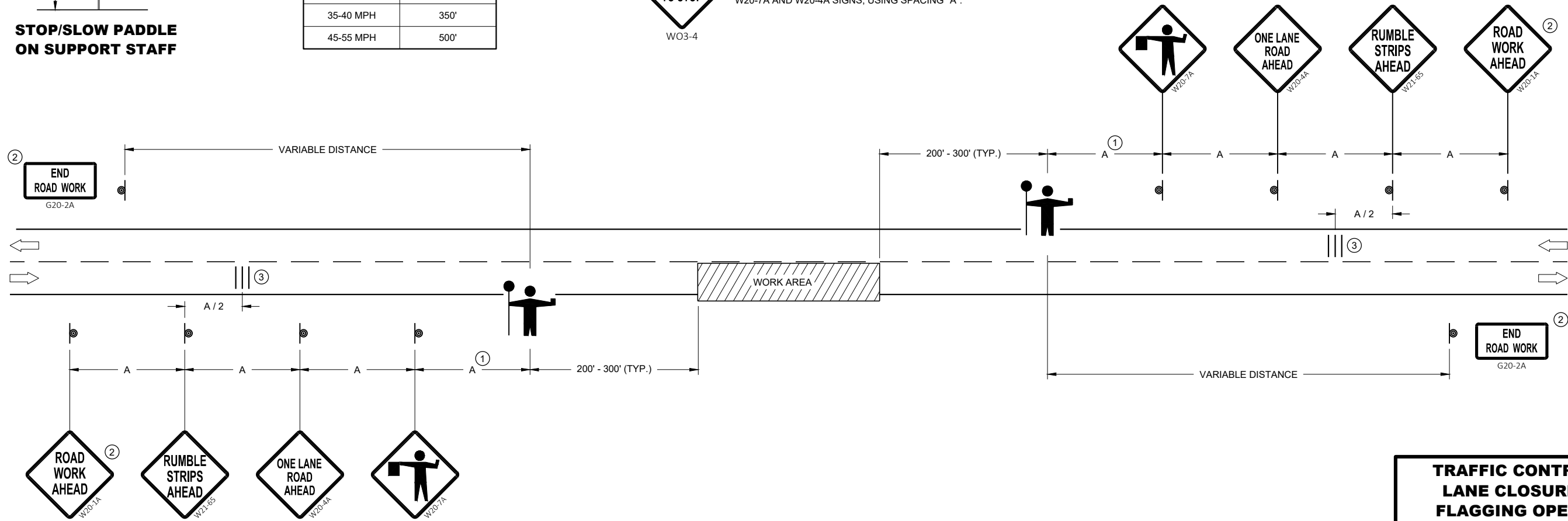
STOP/SLOW PADDLE ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION





TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2019 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

- V1 LEAD VEHICLE
- V2 MARKING VEHICLE
- V3 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC
-  FLASHING ARROW PANEL (CAUTION)

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

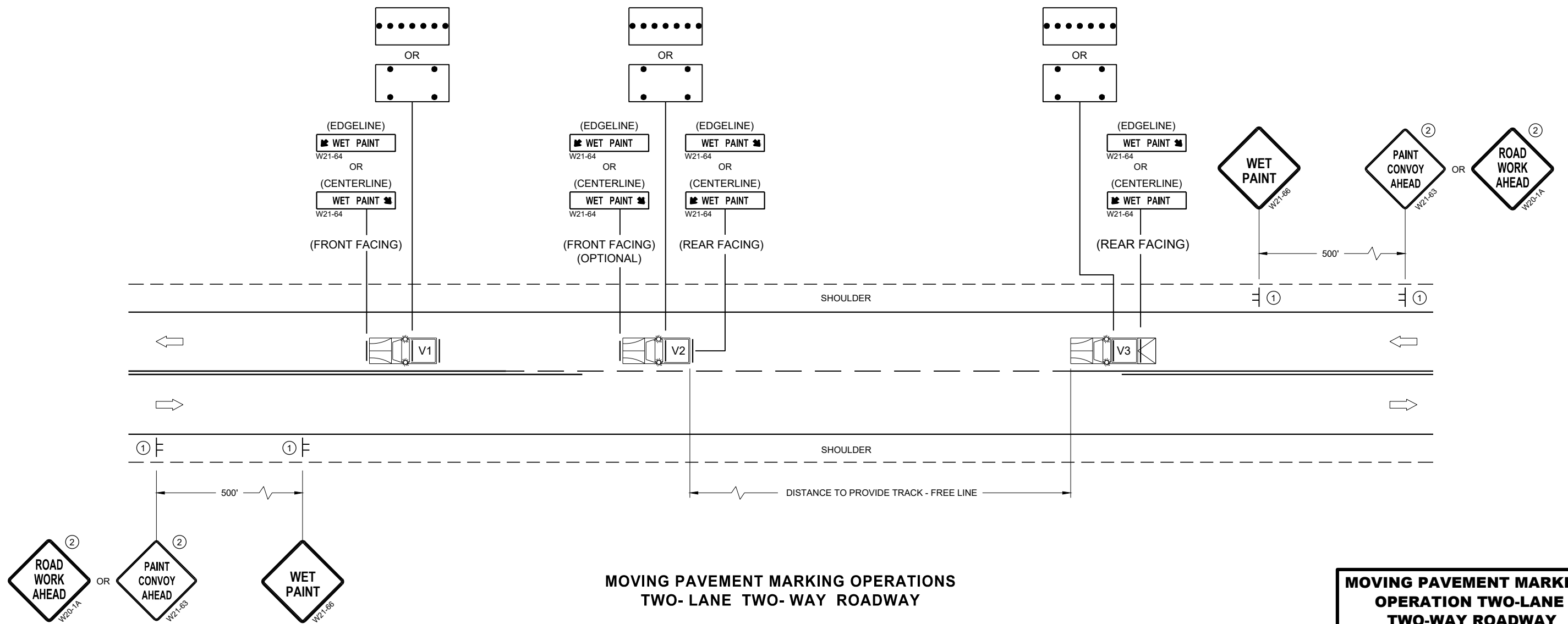
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.

6

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**MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY**

SDD 15C19 - 06a

SDD 15C19 - 06a

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2019 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

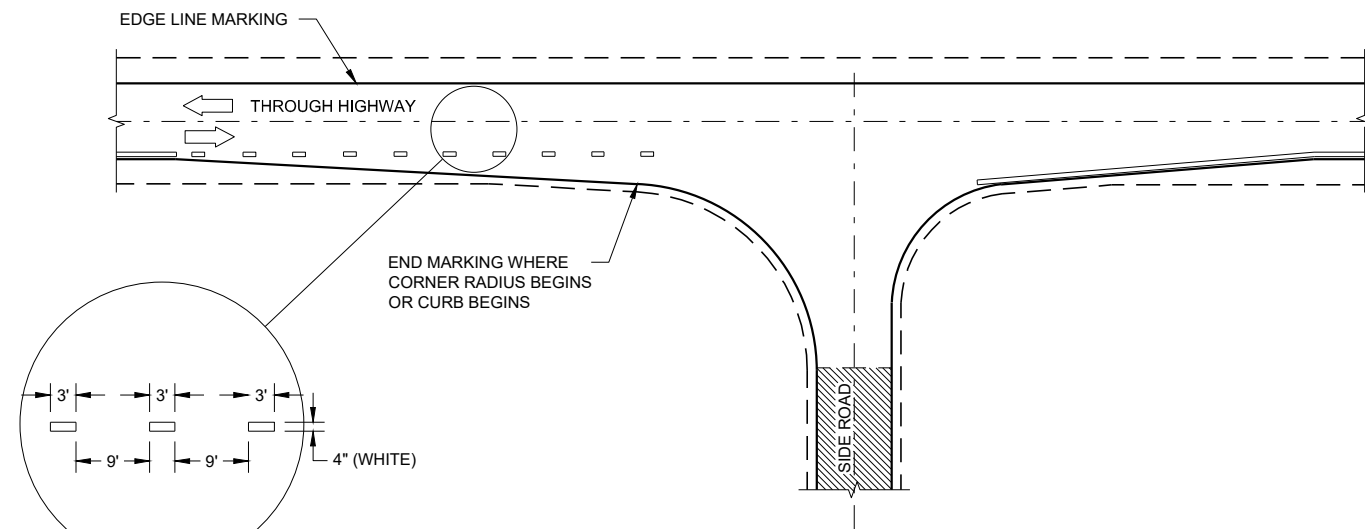
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

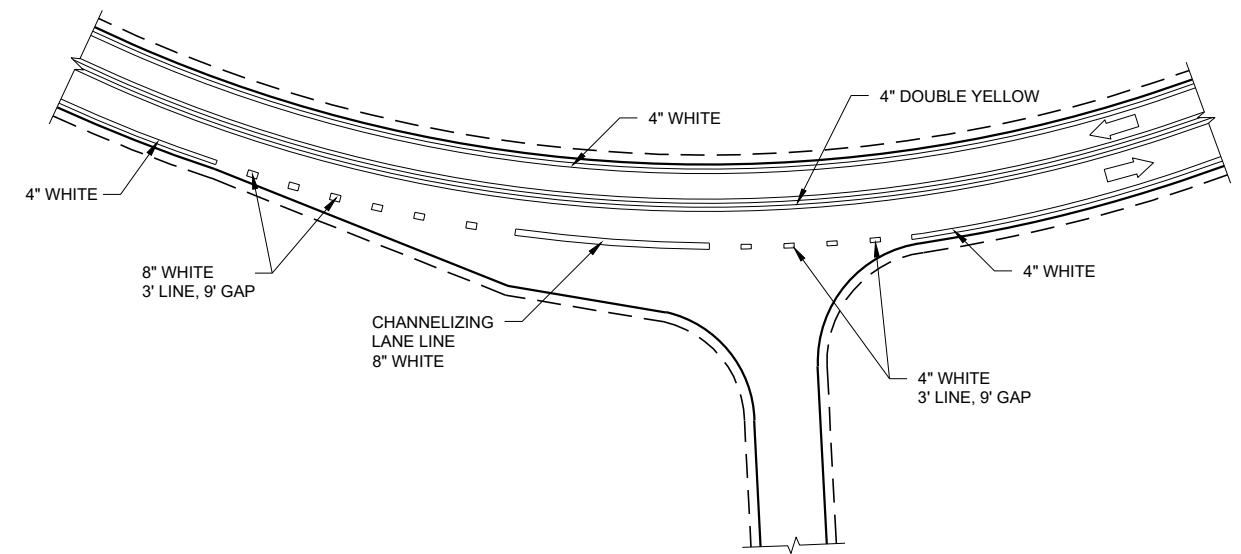
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

LEGEND

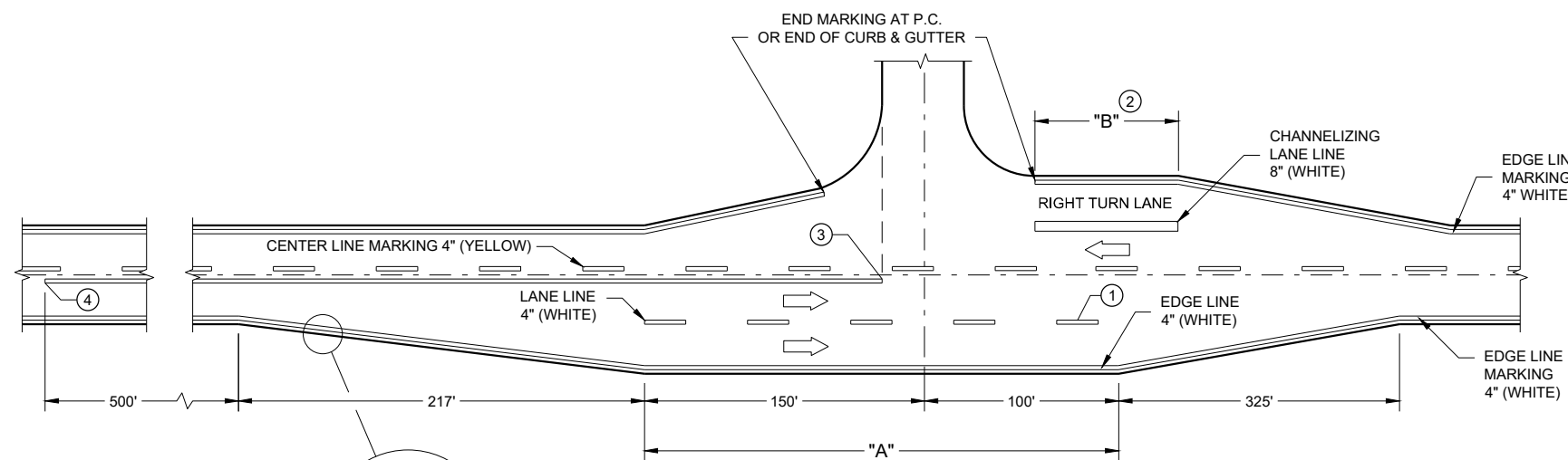
➡ DIRECTION OF TRAVEL



MINOR INTERSECTION



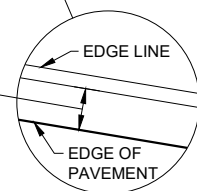
INTERSECTION ON OUTSIDE OF CURVE



MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)





BYPASS LANE PAVED SHOULDER WIDTH (AS SHOWN ELSEWHERE IN PLANS) - PLUS 2 INCHES



PAVEMENT MARKING (INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

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 THE REGIONAL TRAFFIC UNIT.

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

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

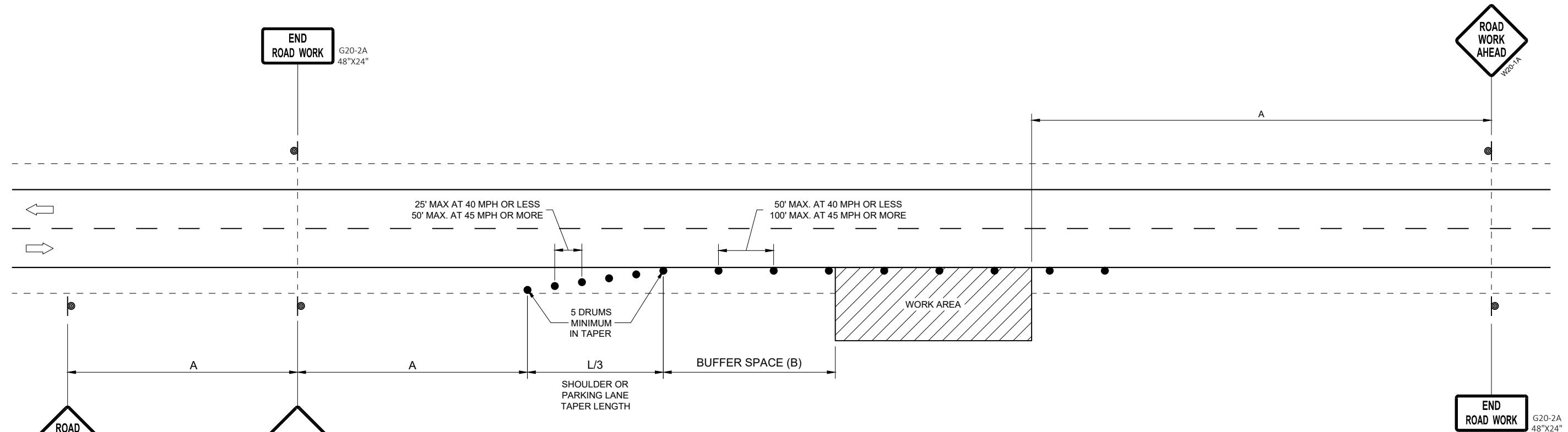
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

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POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

OR
IF TRAFFIC CONTROL DEVICES ENCROACH ONTO TRAVELED WAY, USE



TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

SDD 15D28 - 04

SDD 15D28 - 04

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLAGS, 16" X 16" MIN. (ORANGE)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- ASPHALTIC PAVEMENT WIDENING
- CONCRETE BARRIER TEMPORARY PRECAST
- TEMPORARY SIGNAL. SEE SDD 09G02 FOR EXACT PLACEMENT

WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)

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

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

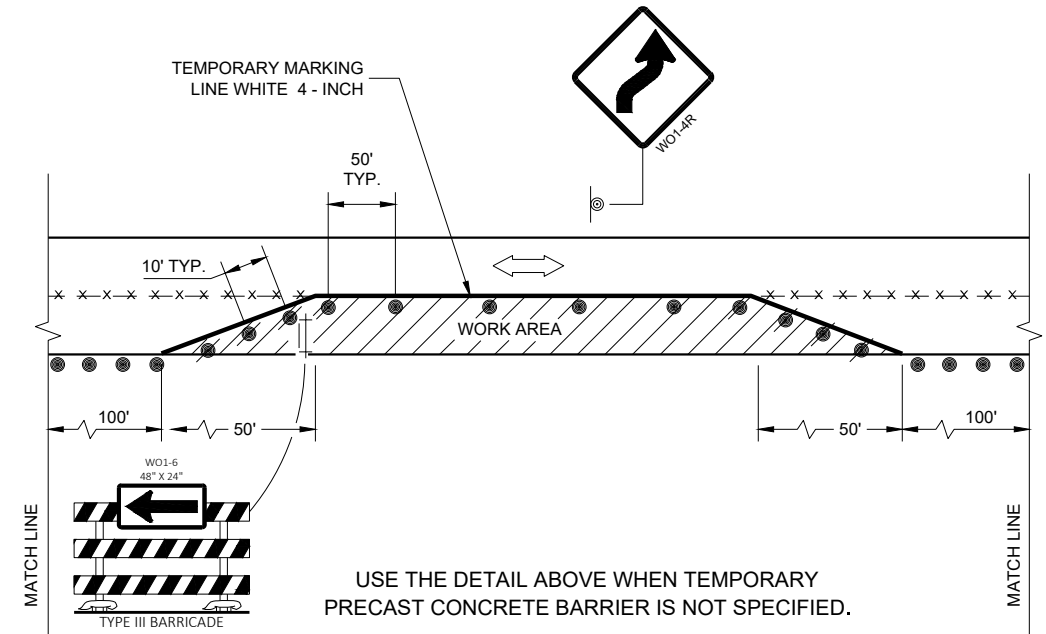
ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

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

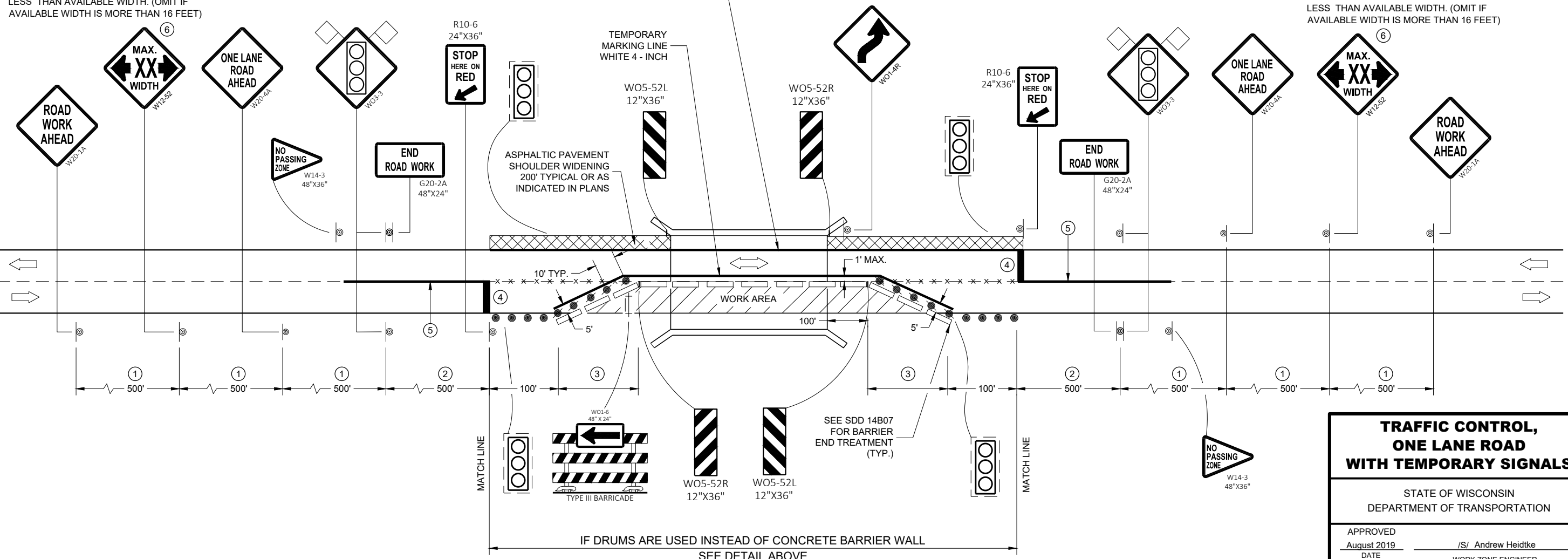
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

- ① 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
- ② USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
- ③ DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
- ④ TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18 - INCH.
- ⑤ 700 FOOT TEMPORARY MARKING LINE, DOUBLE YELLOW 4 - INCH . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
- ⑥ SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.



TEMPORARY MARKING LINE WHITE 4 - INCH (STOPLINE TO STOPLINE). REMOVE EXISTING EDGELINE AND OFFSET THE TEMPORARY EDGELINE IF THE DISTANCE FROM THE EDGELINE TO CONCRETE BARRIER WALL IS LESS THAN 9 FEET.



**TRAFFIC CONTROL,
ONE LANE ROAD
WITH TEMPORARY SIGNALS**

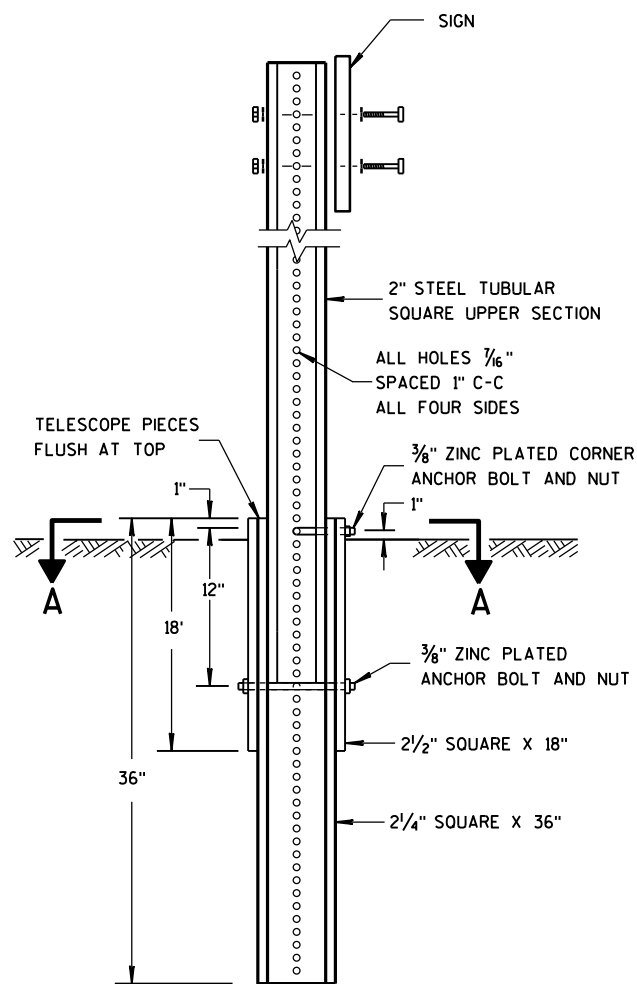
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED _____
August 2019 _____ /S/ Andrew Heidtke
DATE DATE WORK ZONE ENGINEER

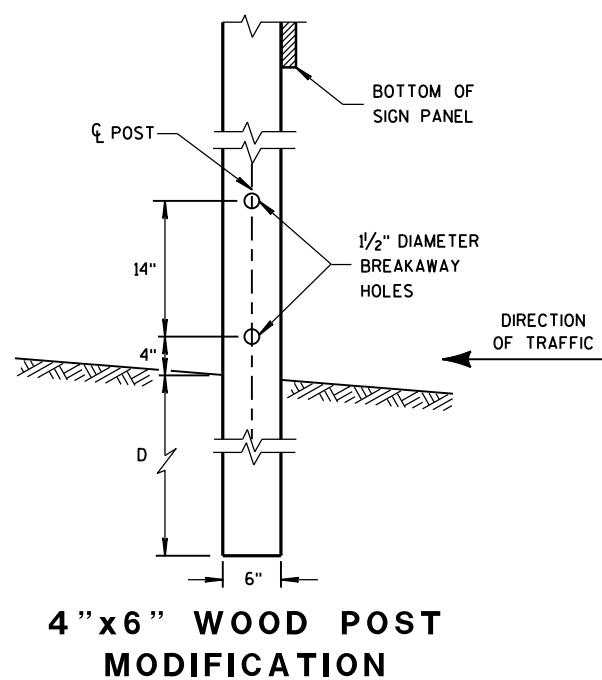
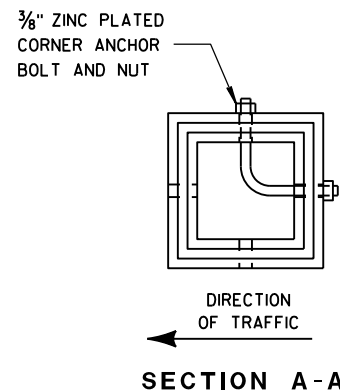
FHWA

SDD 15D33 - 06

SDD 15D33 - 06



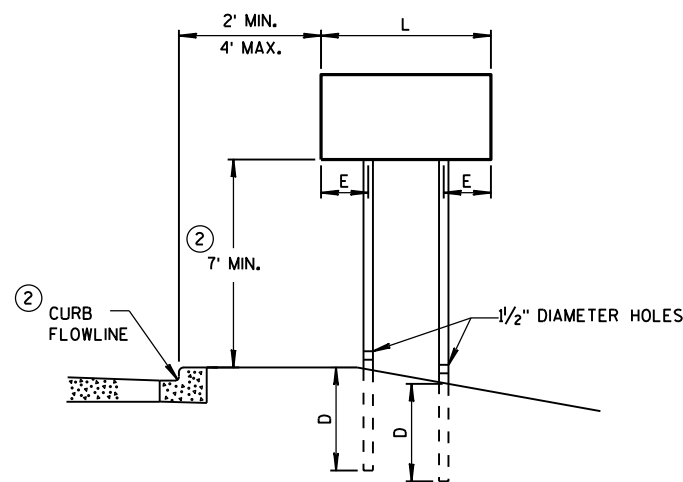
DETAIL OF TUBULAR STEEL SIGN POST



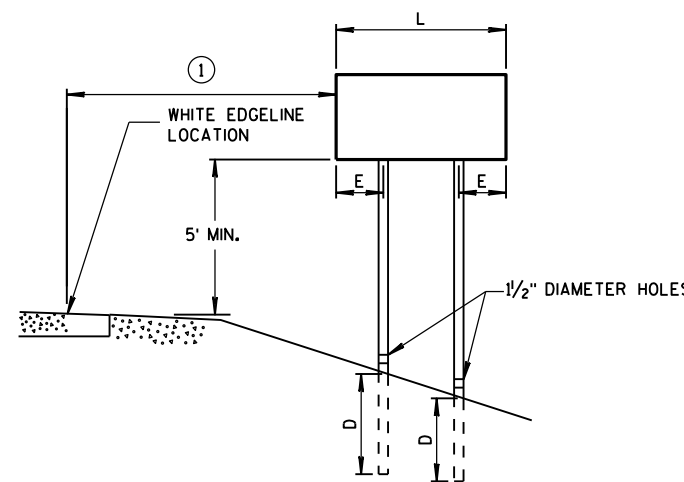
4" X 6" WOOD POST MODIFICATION

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'

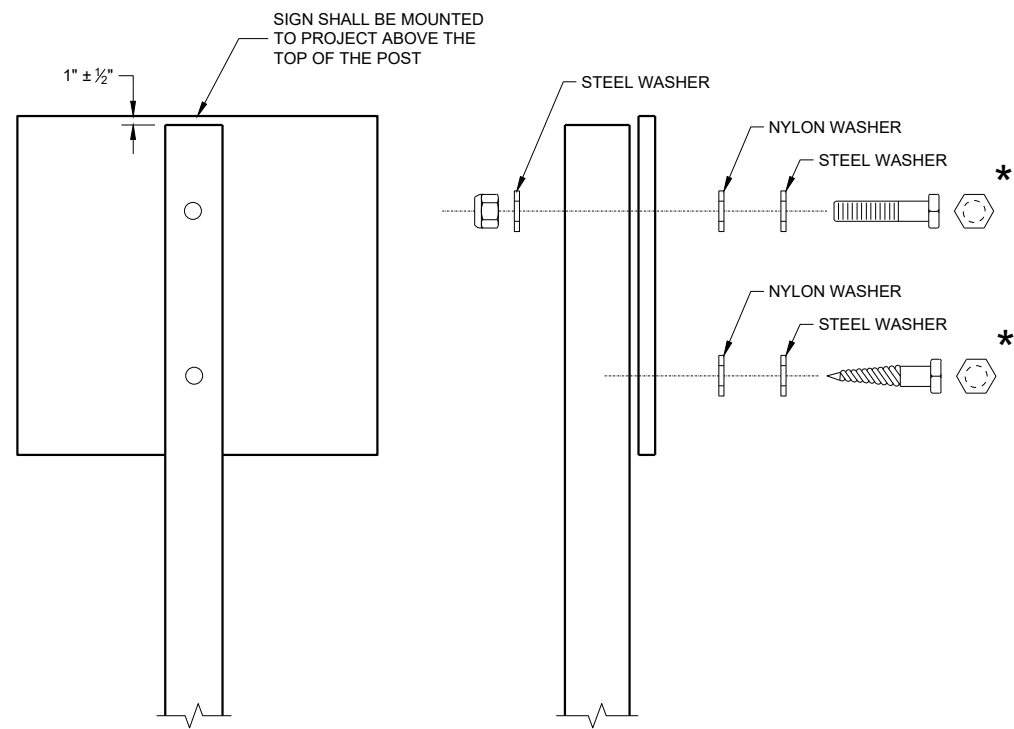
4" X 6" WOOD POST

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.

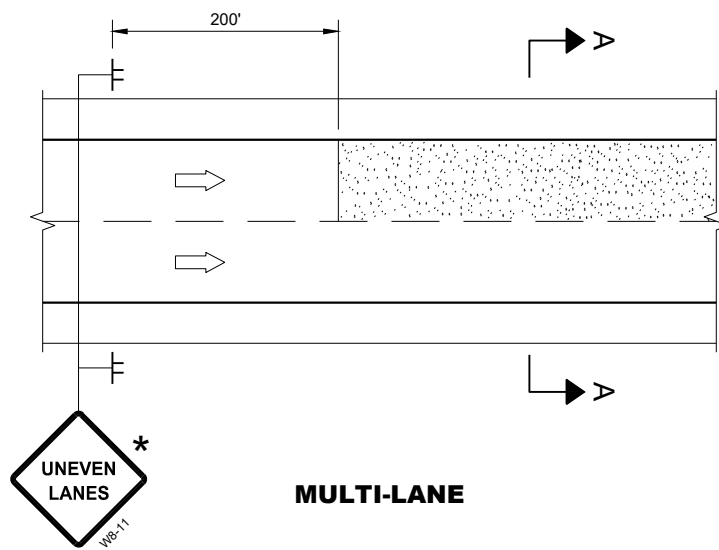
WOOD POST (4" x 6")
LAG SCREWS - 3/8" x 3"
MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

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

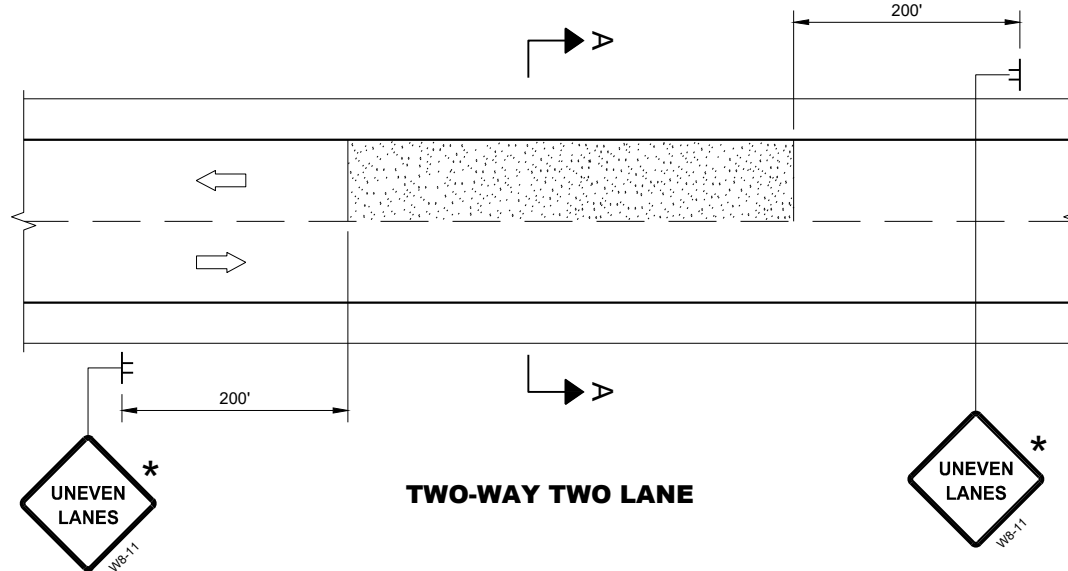
WASHERS (ALL POSTS) -
1 1/4" O.D. x 3/8" I.D. x 1/16" STEEL
1 1/4" O.D. x 3/8" I.D. x 0.080 NYLON

* 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.

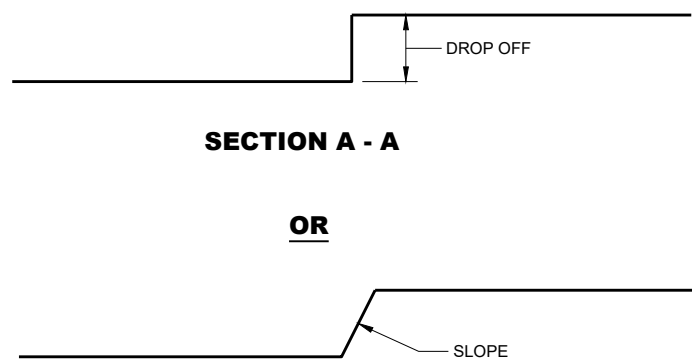
ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



MULTI-LANE



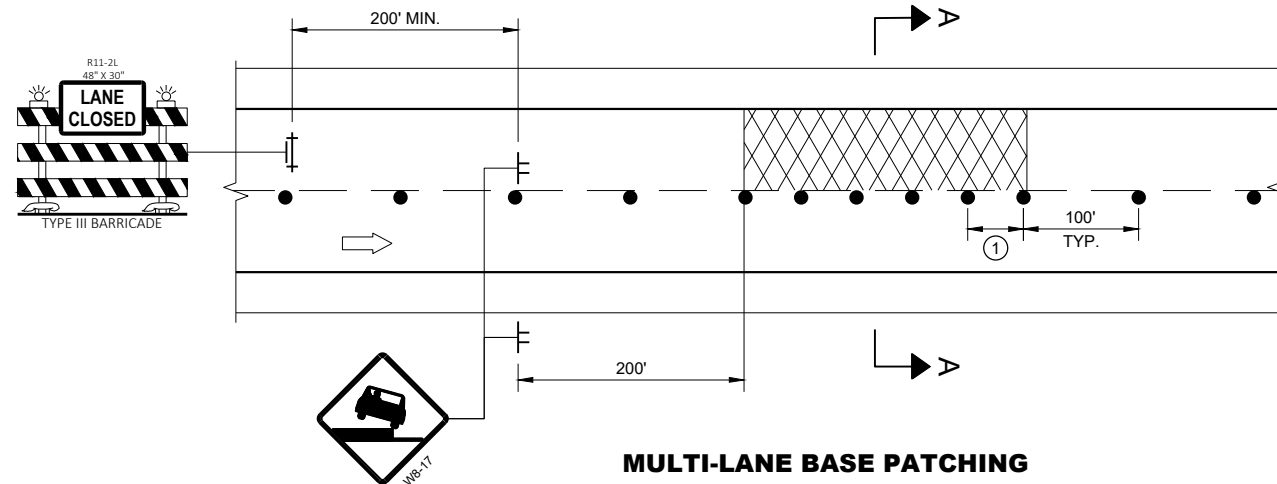
TWO-WAY TWO LANE



SECTION A - A

OR

SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS

GENERAL NOTES

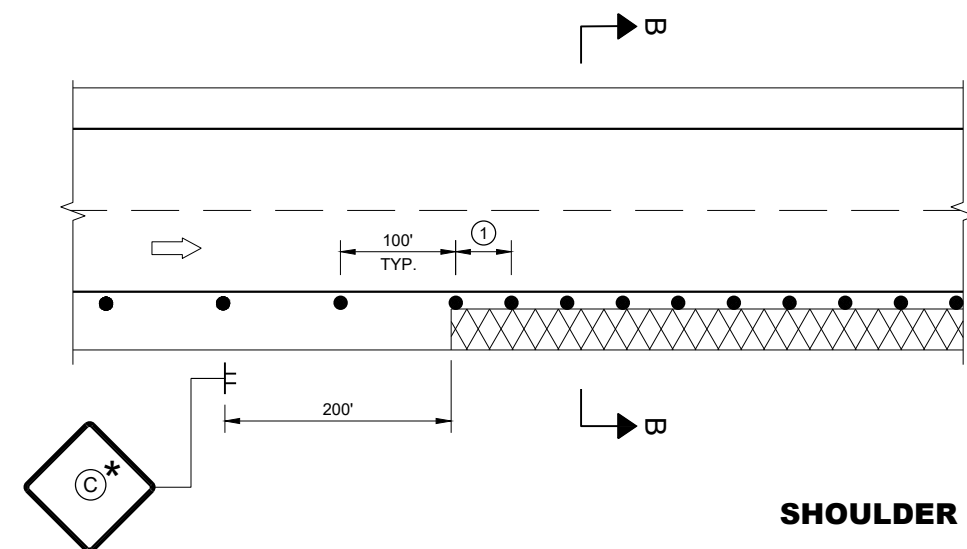
- FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.
- * IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.
- ① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

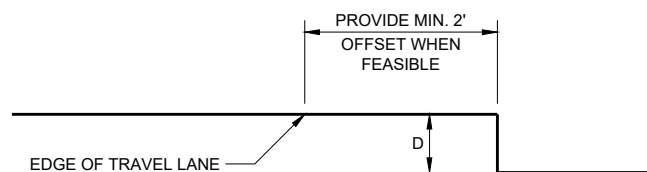
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

6

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SHOULDER DROP-OFFS



SECTION B - B

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	 LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	 SHOULDER DROP - OFF W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

SDD 15D39 - 02

SDD 15D39 - 02

**TRAFFIC CONTROL,
DROP-OFF SIGNING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

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

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

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

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

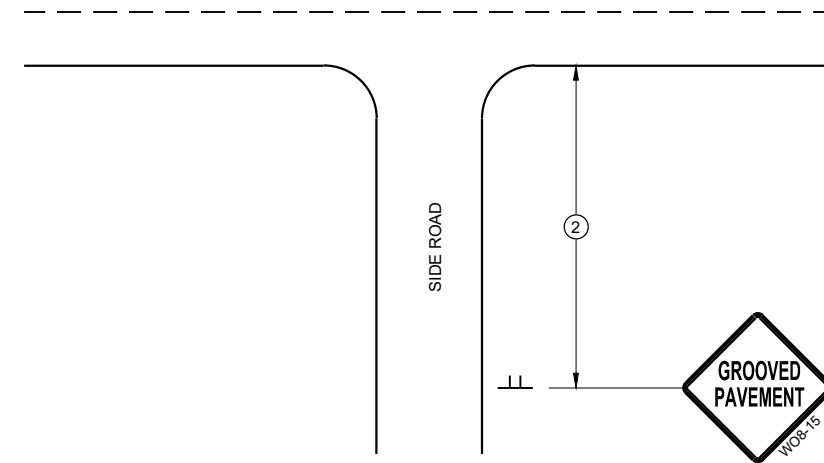
SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

- ① PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ② PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

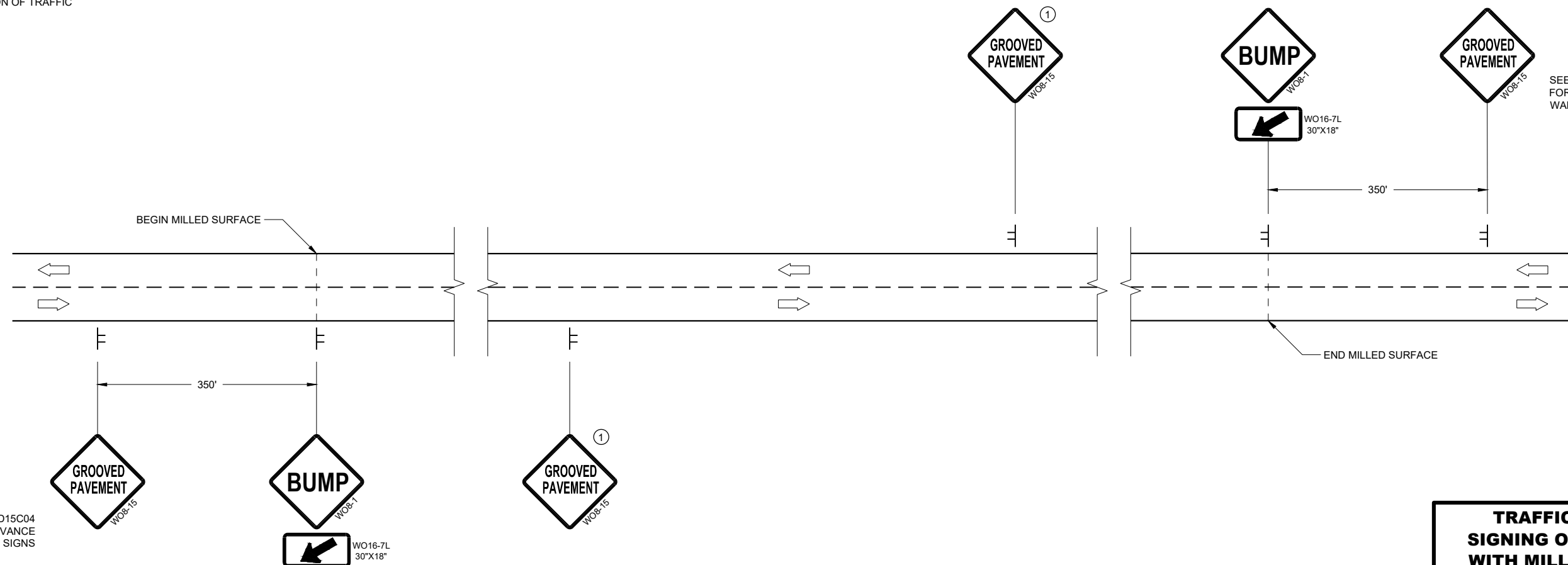
LEGEND

⌄ SIGN ON TEMPORARY SUPPORT

➡ DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH SIGN DETAIL



SEE SDD15C04 FOR ADVANCE WARNING SIGNS

SEE SDD15C04 FOR ADVANCE WARNING SIGNS

DETAIL FOR SIGNING ON MILLED SURFACES





TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

- V1 WORK VEHICLE
- V2 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  FLASHING ARROW PANEL (CAUTION)
-  WORK AREA
-  DIRECTION OF TRAFFIC

POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

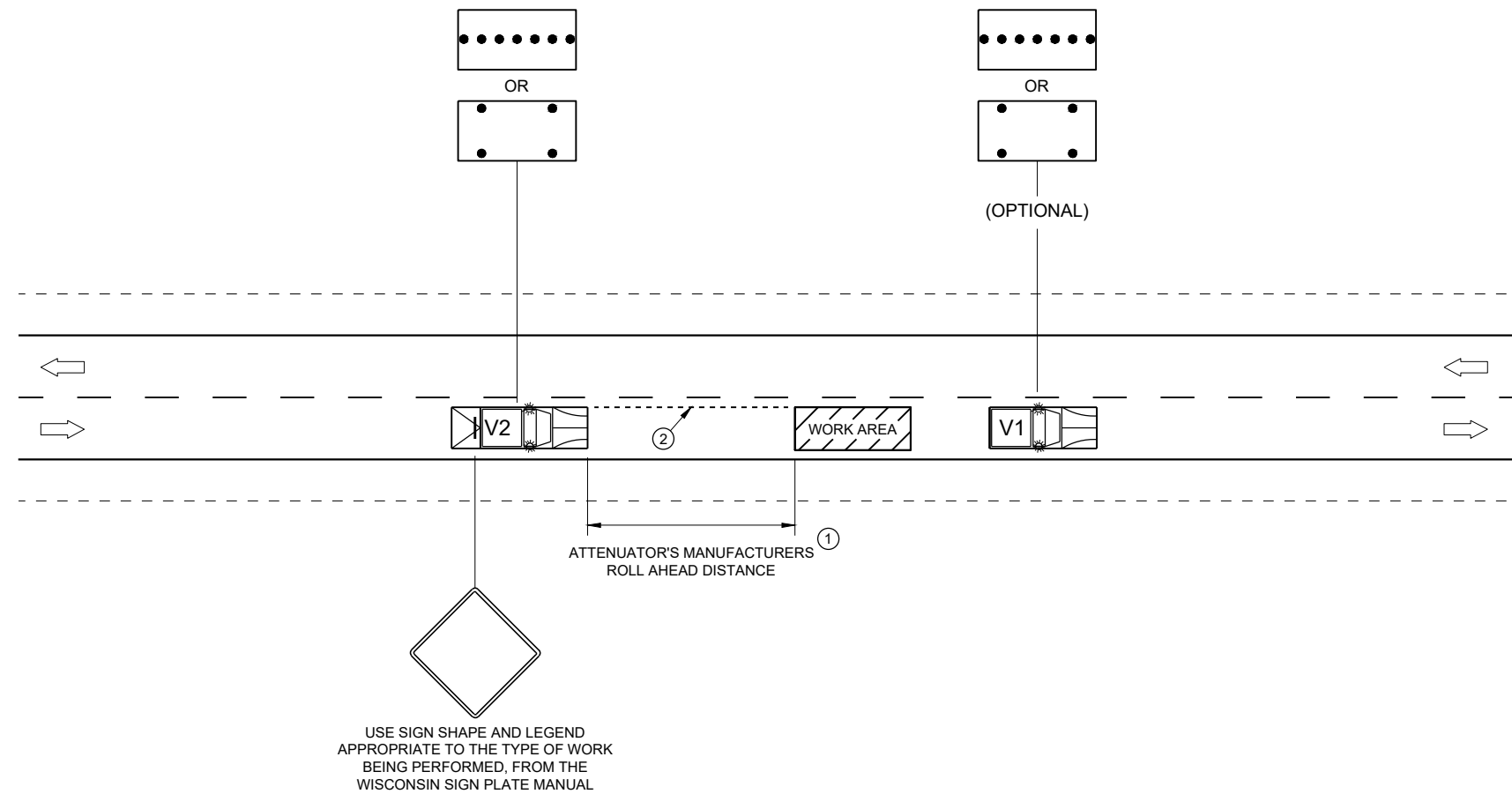
MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

- ① DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ② ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.



6

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SDD 15D51 - 01

SDD 15D51 - 01

**TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

DESIGN DATA

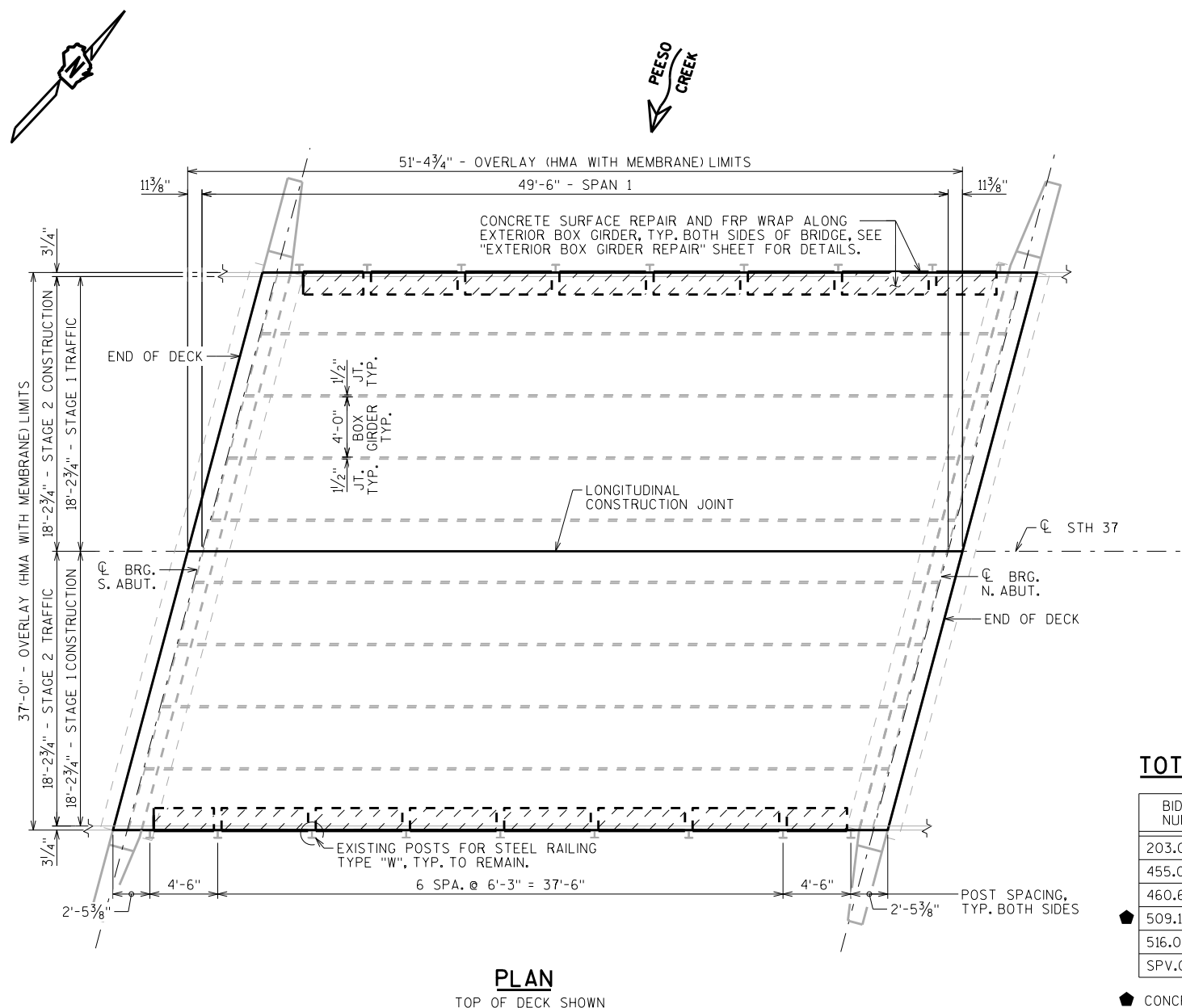
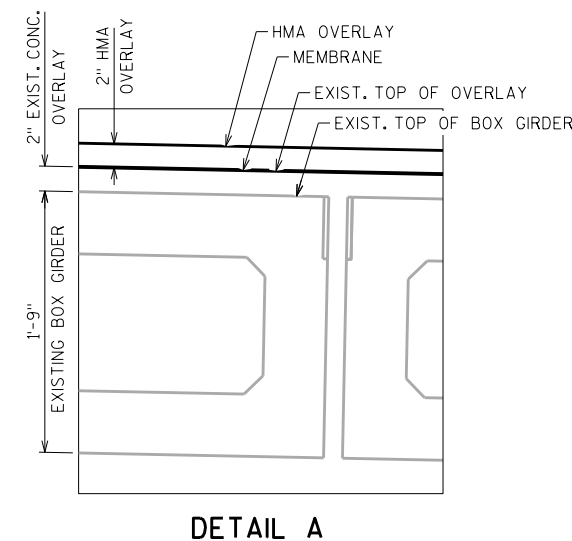
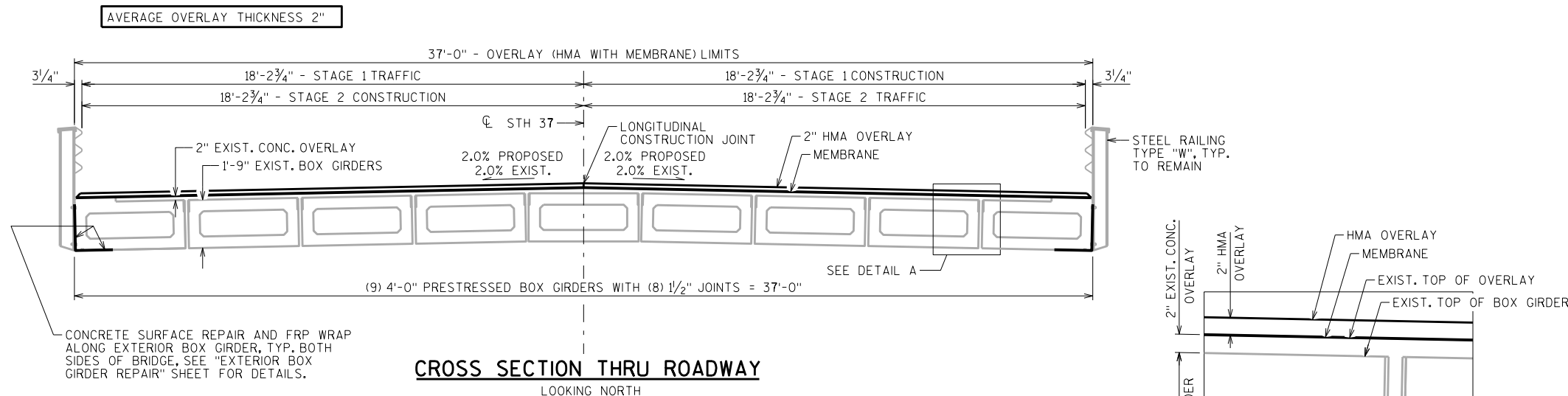
LIVE LOAD:
 INVENTORY RATING: HS-16
 OPERATING RATING: HS-26
 WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 160 (KIPS)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
 DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
 ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "HMA PAVEMENT 5 MT 58-34 V".
 PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON AN OVERLAY THICKNESS OF 2" PLACED ABOVE THE DECK SURFACE. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.
 THE PLAN QUANTITY FOR THE BID ITEM "HMA PAVEMENT 5 MT 58-34 V" IS BASED ON THE AVERAGE OVERLAY THICKNESS.

TRAFFIC VOLUME

STH 37
 ADT = 4,100 (2042)
 R.D.S. = 60 M.P.H.



TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
203.0335	DEBRIS CONTAINMENT OVER WATERWAY B-6-73	EA	1
455.0605	TACK COAT	GAL	15
460.6645	HMA PAVEMENT 5 MT 58-34 V	TON	24
509.1500	CONCRETE SURFACE REPAIR	SF	200
516.0600.S	SHEET MEMBRANE WATERPROOFING	SY	212
SPV.0165	FIBER WRAP REINFORCING NON-STRUCTURAL	SF	290

CONCRETE SURFACE REPAIR ON EXTERIOR BOX GIRDERS TO BE DETERMINED IN THE FIELD BY THE ENGINEER

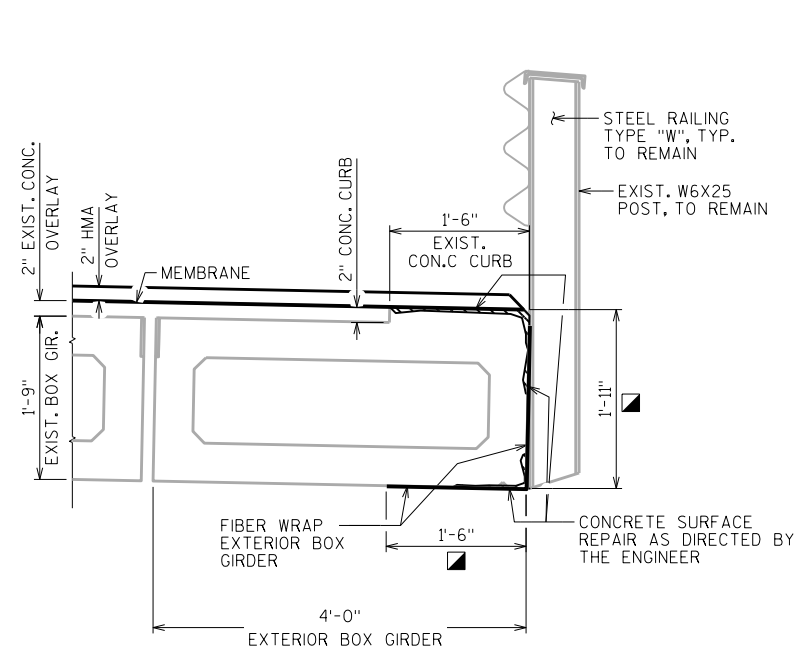
LIST OF DRAWINGS

- HMA OVERLAY WITH MEMBRANE
- EXTERIOR BOX GIRDER REPAIR

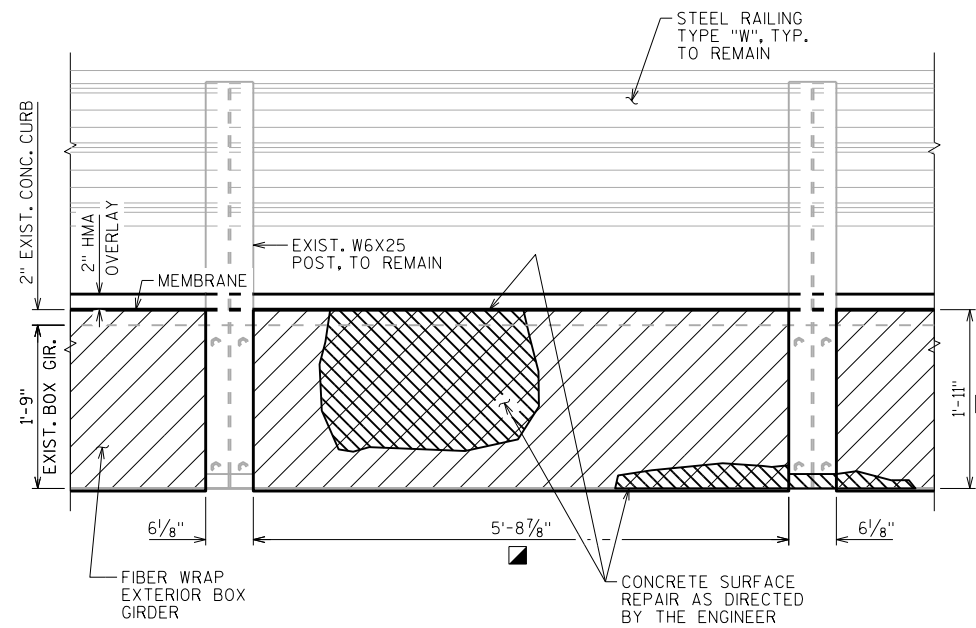
STRUCTURE DESIGN CONTACTS:

EMILY KUEHNE (608) 266-5089
 DOMINIQUE BECHLE (608) 261-8205

NO.	DATE	REVISION	BY
 ACCEPTED <i>[Signature]</i> DMB 7/20/21 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-6-73			
STH 37 OVER PEESO CREEK			
COUNTY	BUFFALO	TOWN	NAPLES
DESIGN SPEC.	REHABILITATION N/A		
DESIGNED BY	EMK	DESIGNED CK'D.	KCY
DRAWN BY	EMK	PLANS CK'D.	SCL
HMA OVERLAY WITH MEMBRANE			SHEET 1 OF 2

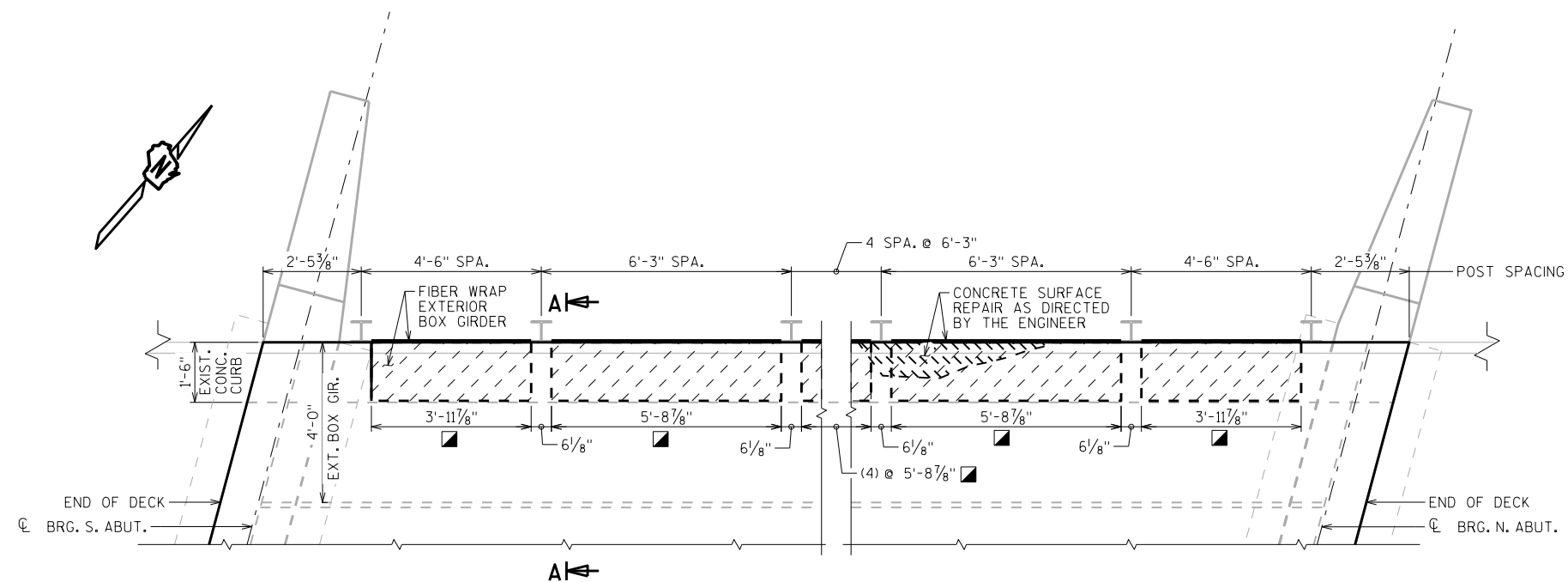


SECTION A-A



ELEVATION

LOOKING AT F.F. OF EXTERIOR BOX GIRDER



PLAN

TOP OF DECK SHOWN AT WEST SIDE OF STRUCTURE, EAST SIDE SIMILAR

NOTES

WORK PERFORMED FOR EXTERIOR BOX GIRDER REPAIRS SHALL BE INCLUDED IN THE BID ITEMS "CONCRETE SURFACE REPAIR" AND "FIBER WRAP REINFORCING NON-STRUCTURAL".

USE CAUTION WHEN PERFORMING CONCRETE SURFACE REPAIR TO NOT EXPOSE ADDITIONAL PRESTRESSING STRANDS IN THE BOX GIRDERS OR THE POST TENSIONING DUCT NEAR MIDSPAN.

PERFORM "CONCRETE SURFACE REPAIR" PRIOR TO INSTALLATION OF "FIBER WRAP REINFORCING NON-STRUCTURAL".

PERFORM "CONCRETE SURFACE REPAIR" TO THE BOTTOM, SIDE AND TOP CURB OF THE EXTERIOR BOX GIRDERS AS DIRECTED BY THE ENGINEER.

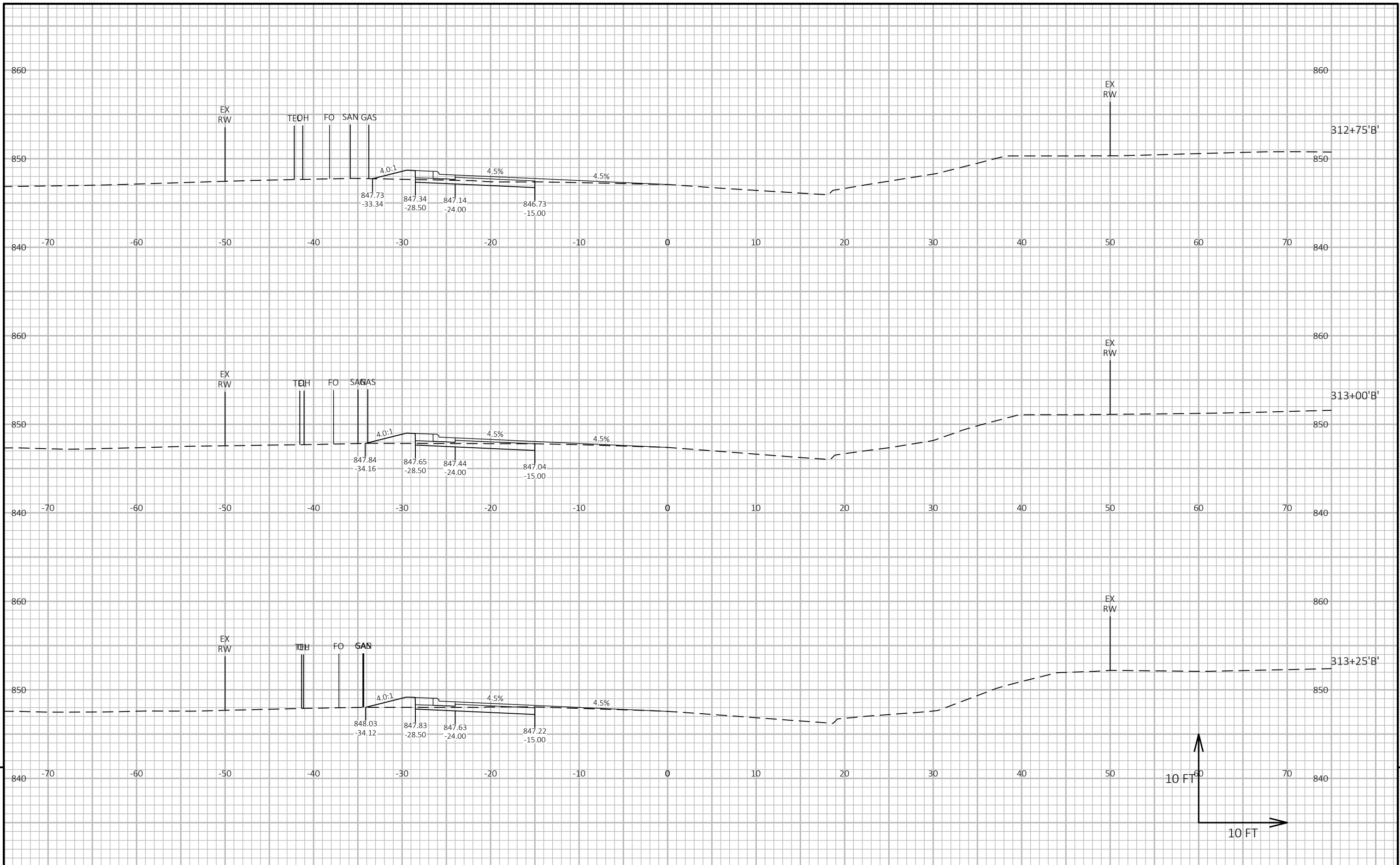
AT EAST EXTERIOR BOX GIRDER TRIM OFF THE (1) SEVERED PRESTRESSING STRAND AS DIRECTED BY THE ENGINEER. WORK SHALL BE INCLUDED IN THE "CONCRETE SURFACE REPAIR" BID ITEM.

■ LIMITS OF FIBER WRAP EXTERIOR BOX GIRDER

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-6-73			
DRAWN BY		EMK	PLANS CK'D. SCL
EXTERIOR BOX GIRDER REPAIR		SHEET 2	



9

10 FT

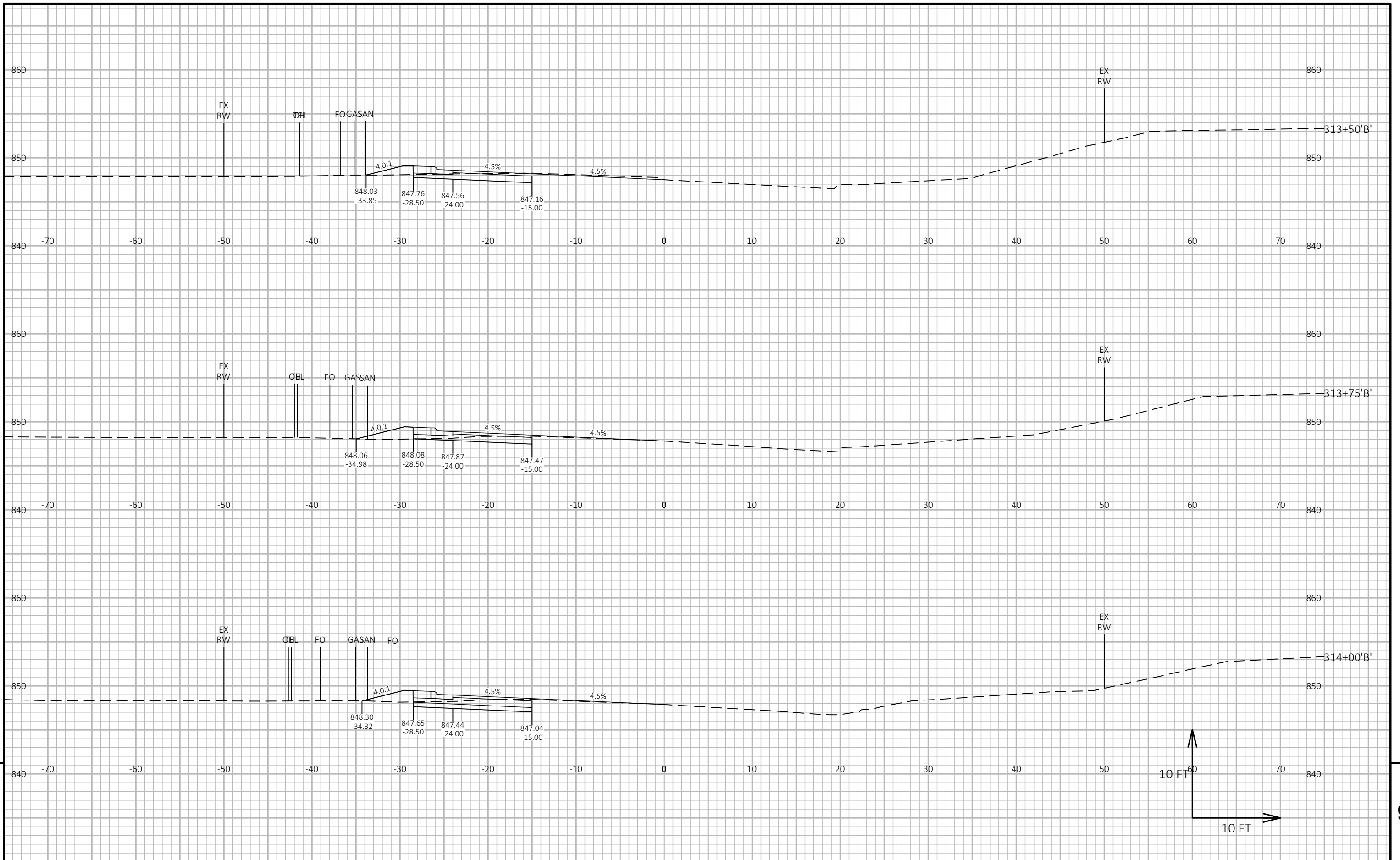
10 FT

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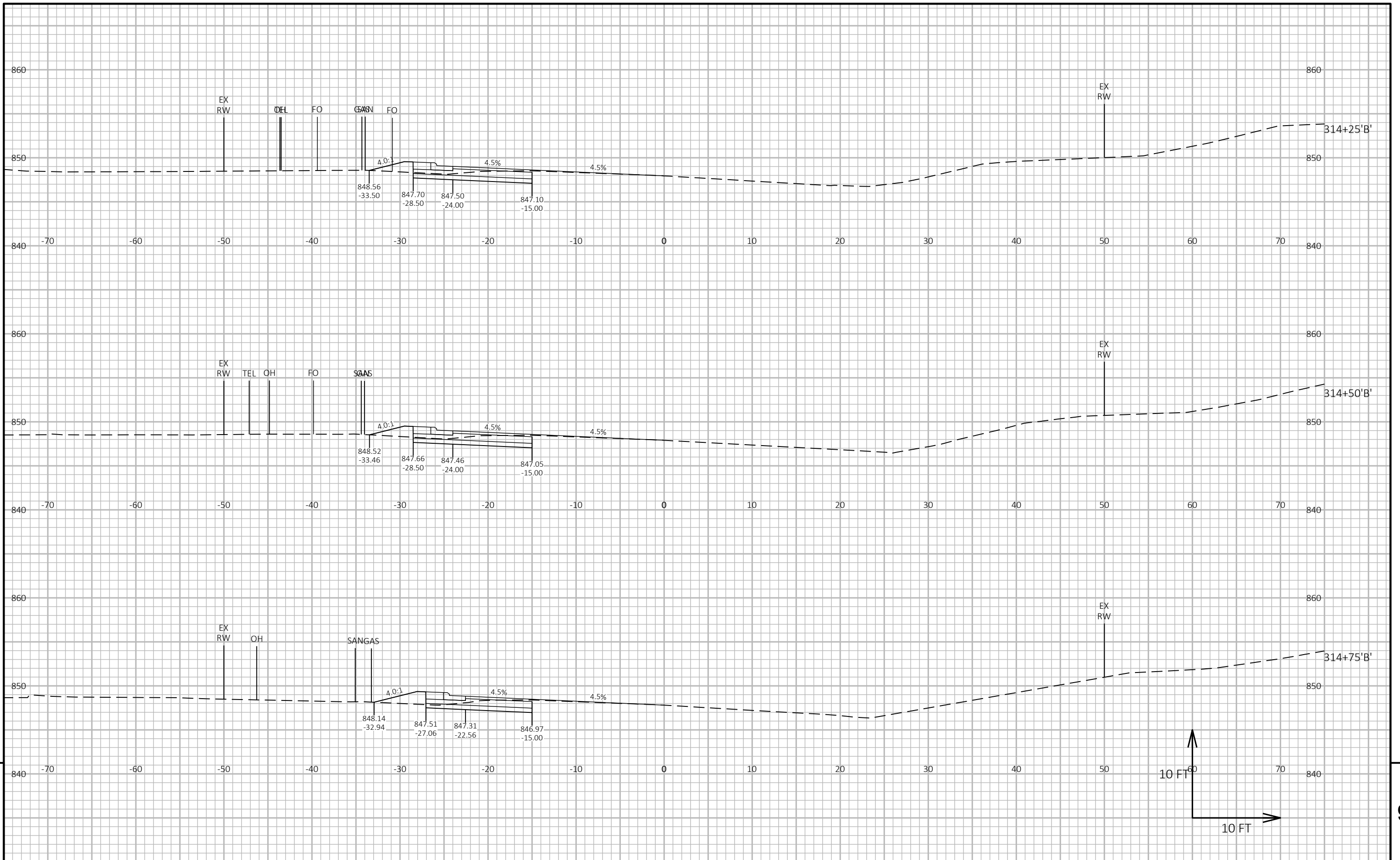
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FILE NAME : G:\SHARED DRIVES\PROJECTS\WI - NW REGION\7110-00-00_EAU CLAIRE CO_STH 37\500_CADD\501_C3D_2018\71100000\090201-XS-WCCS BUFFALO.DWG PLOT DATE : 10/28/2020 12:04 PM PLOT BY : JOSH WEISS PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 01



PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS BUFFALO	SHEET 9
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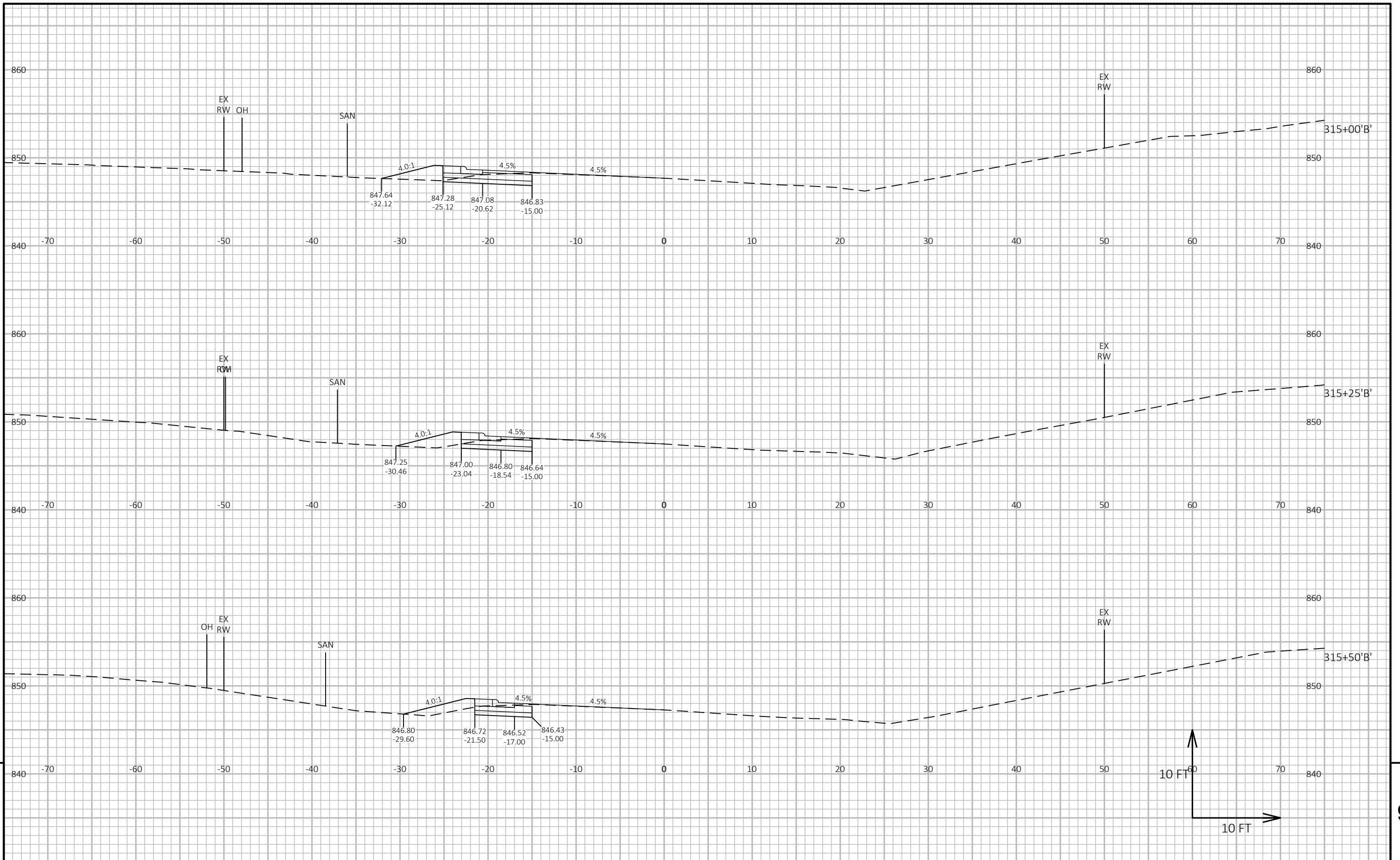


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PROJECT NO: 7110-00-70 HWY: STH 37 COUNTY: BUFFALO & EAU CLAIRE CROSS SECTIONS: STH 37 - WCCS BUFFALO SHEET E

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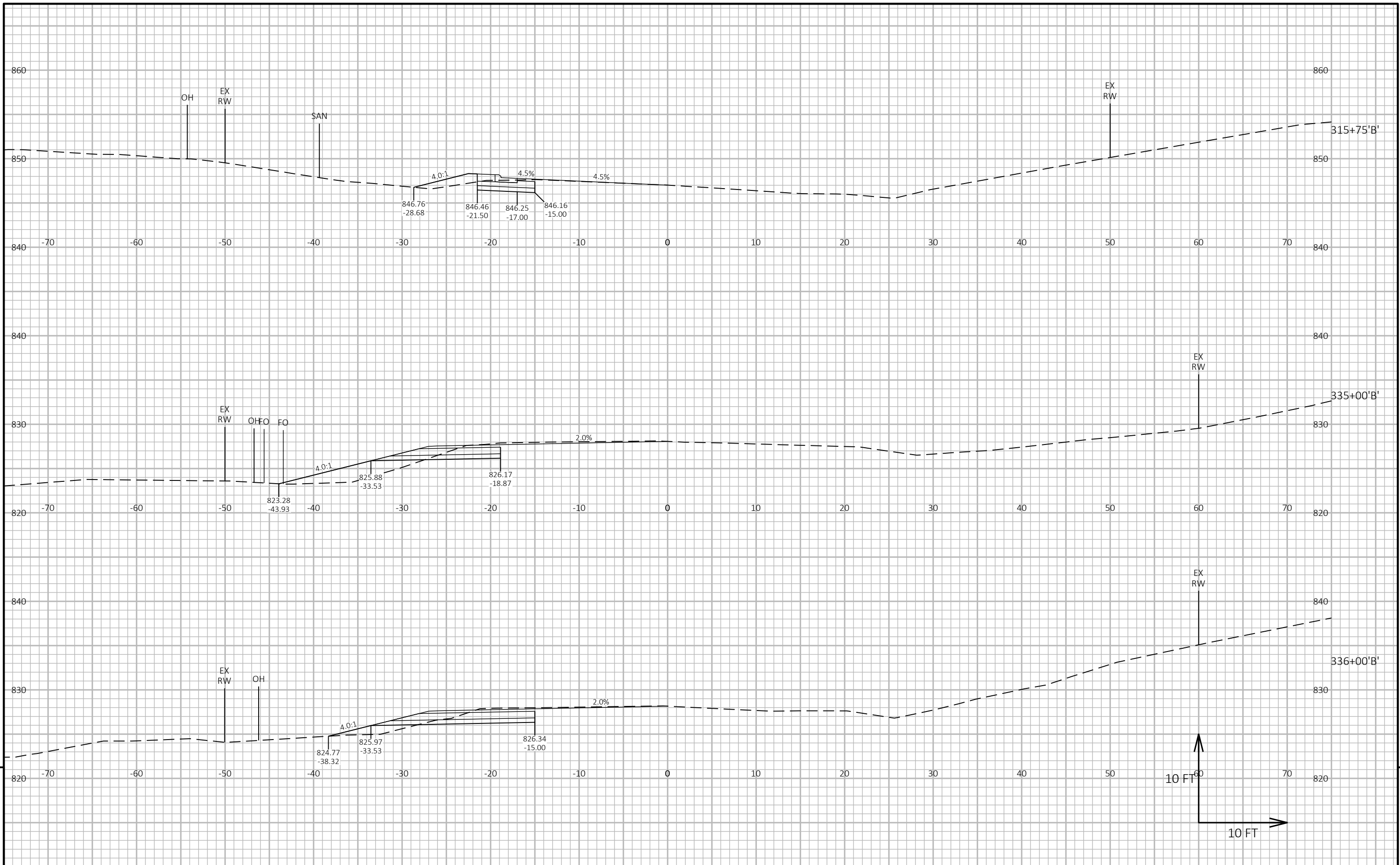
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COUNTY: BUFFALO & EAU CLAIRE

CROSS SECTIONS: STH 37 - WCCS BUFFALO

SHEET

E



PROJECT NO: 7110-00-70

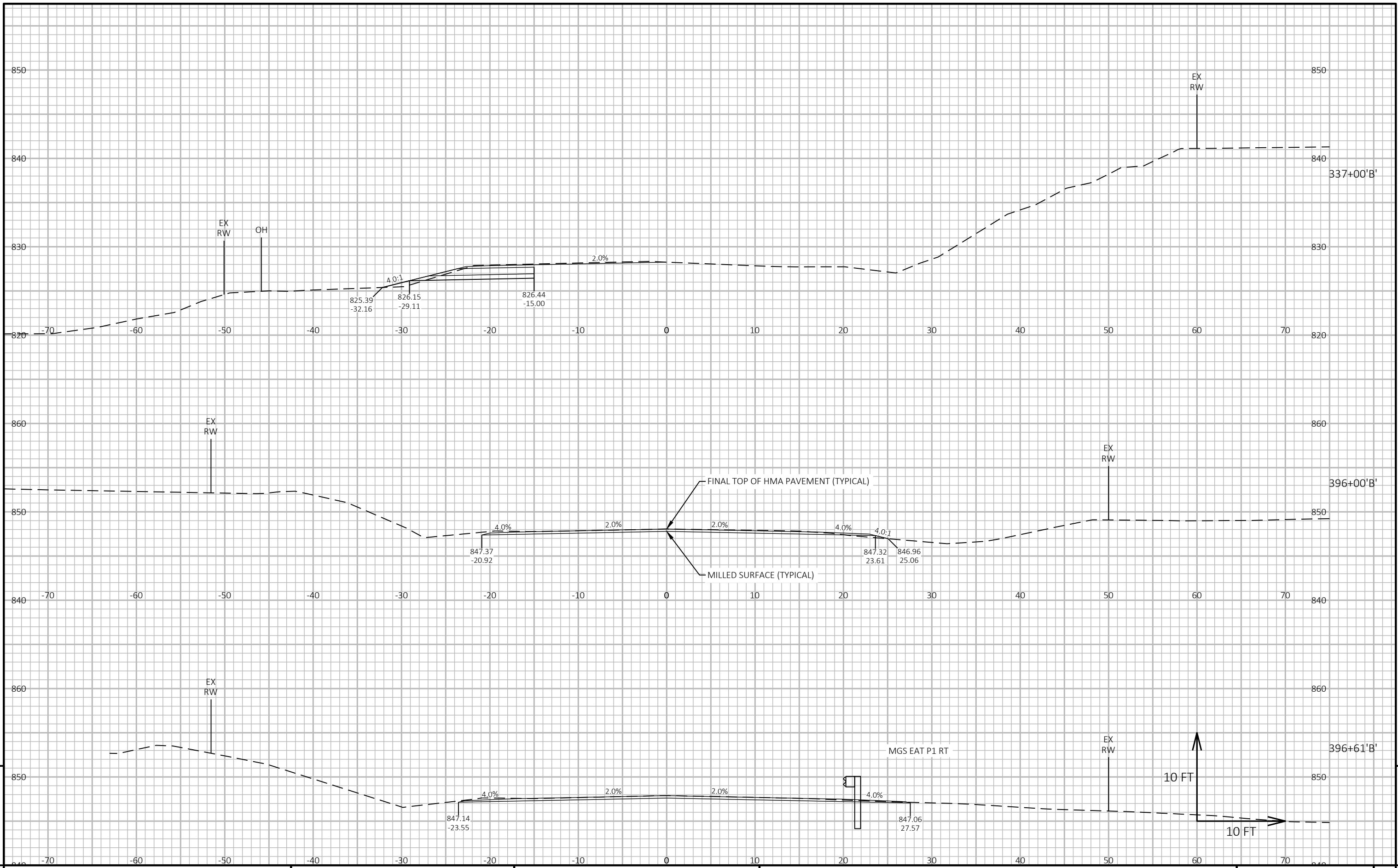
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SHEET

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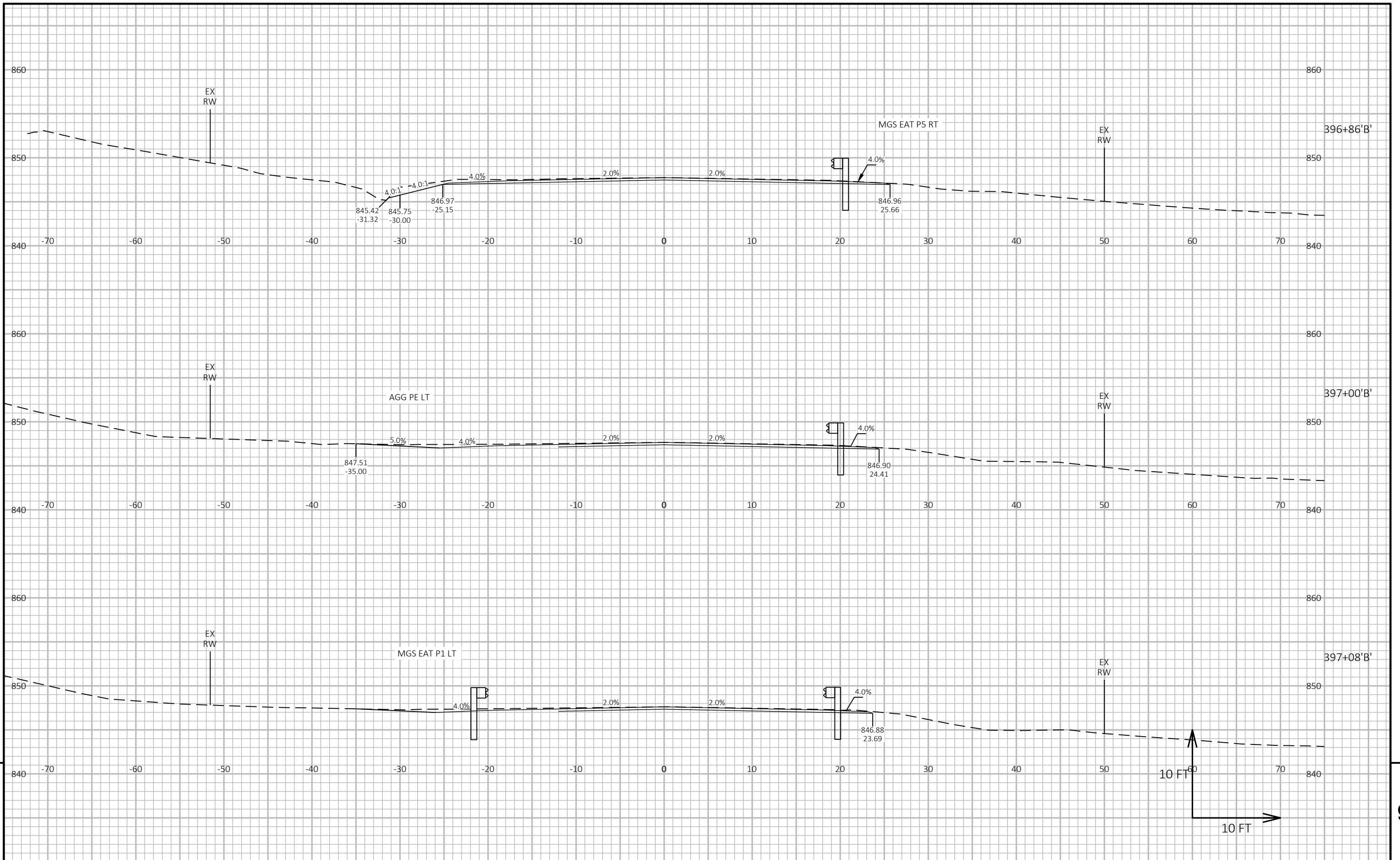
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COUNTY: BUFFALO & EAU CLAIRE

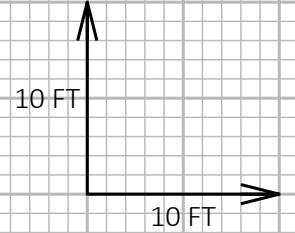
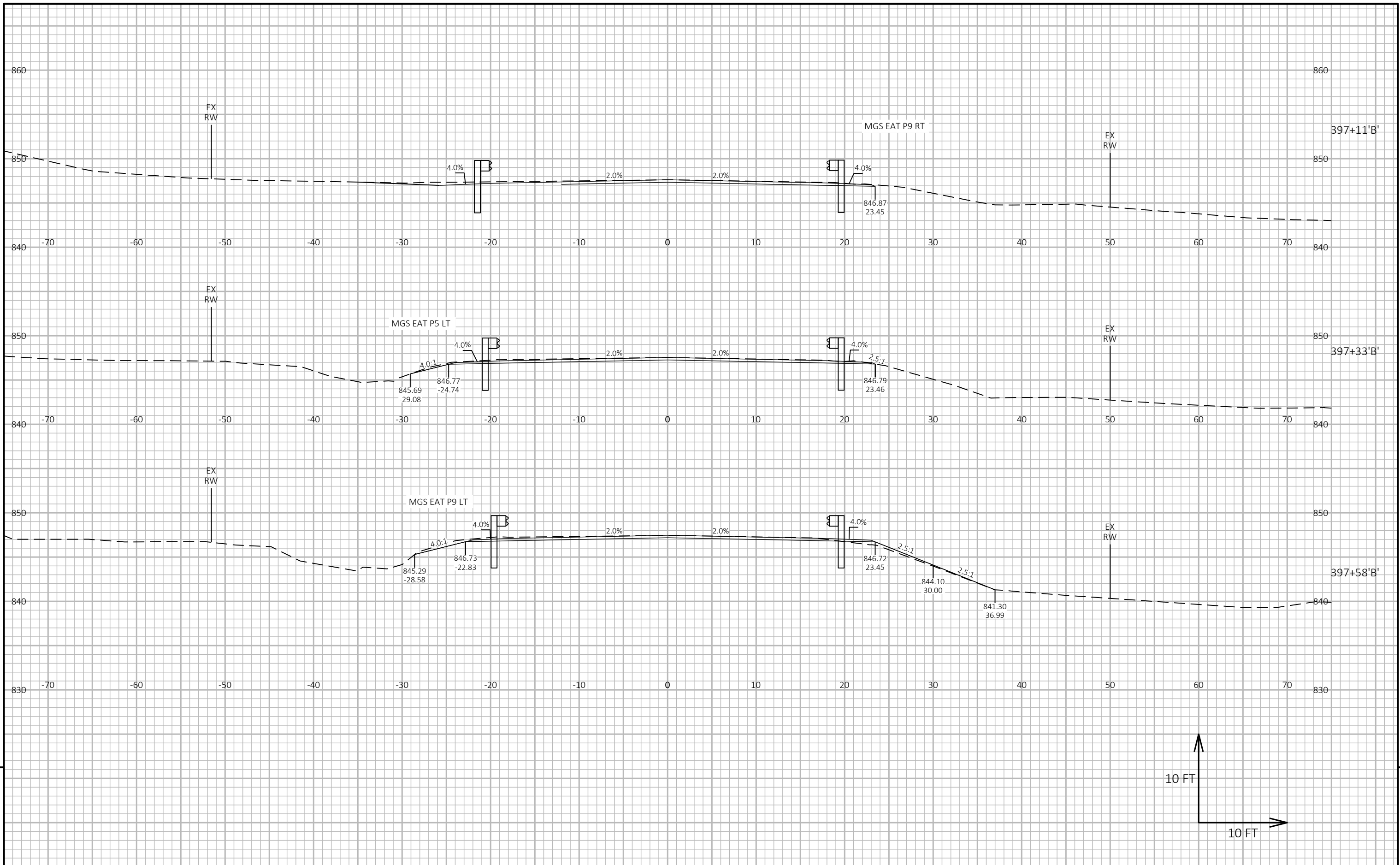
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SHEET

E



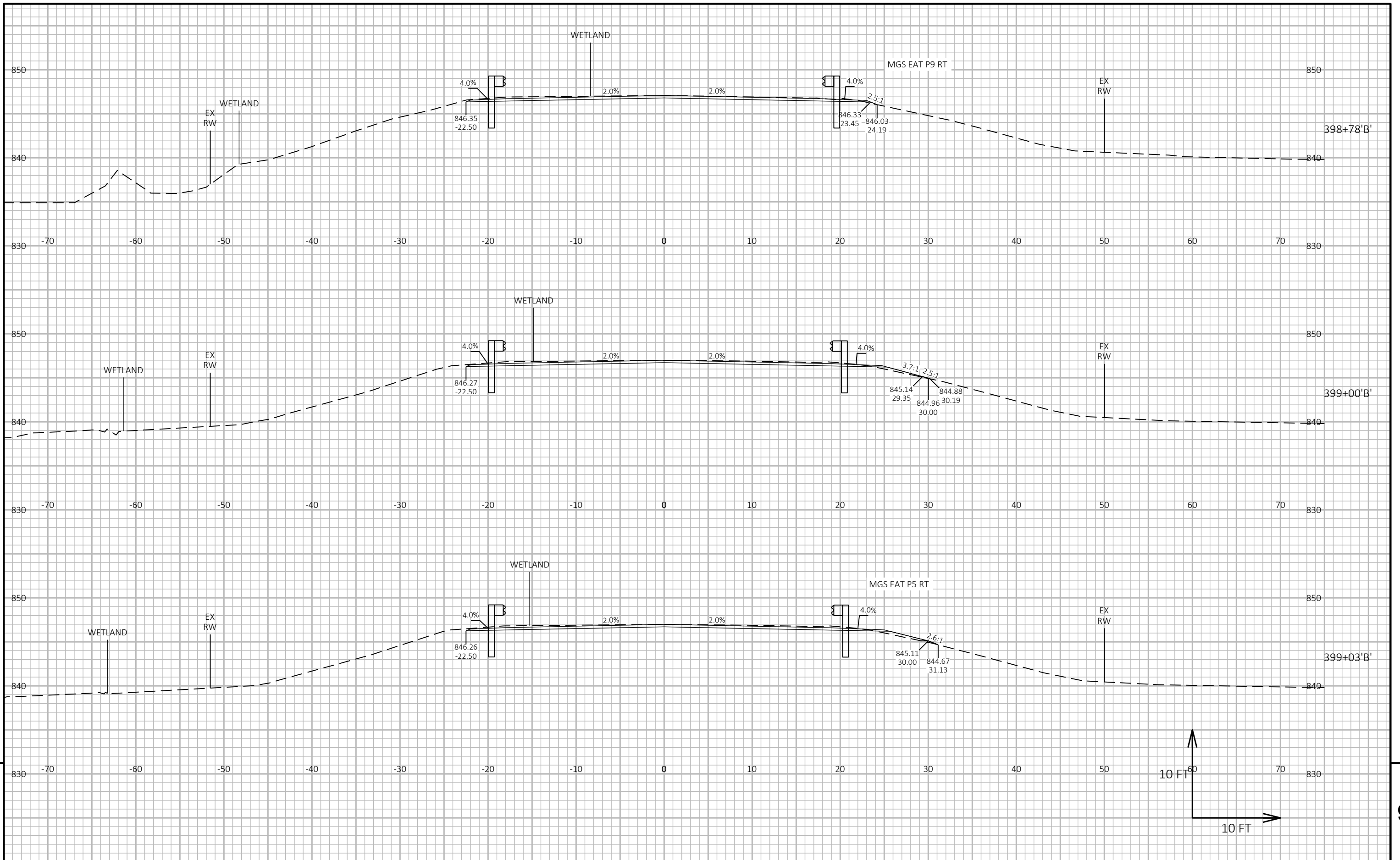
PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS BUFFALO	SHEET 9
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS BUFFALO	SHEET	E
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PROJECT NO: 7110-00-70

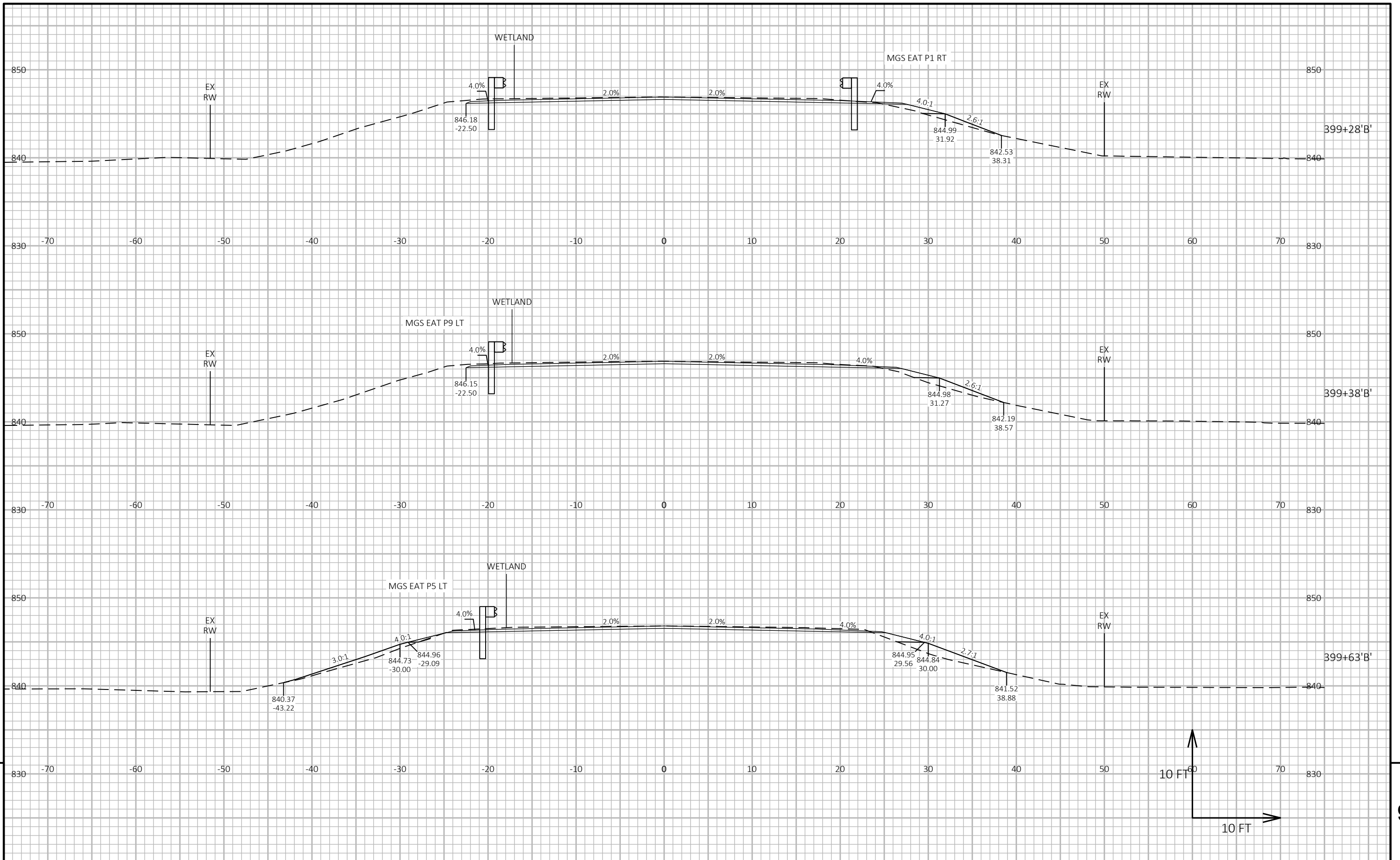
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COUNTY: BUFFALO & EAU CLAIRE

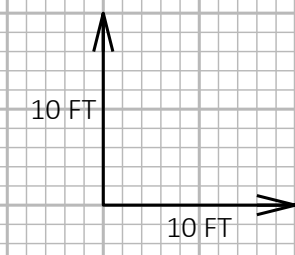
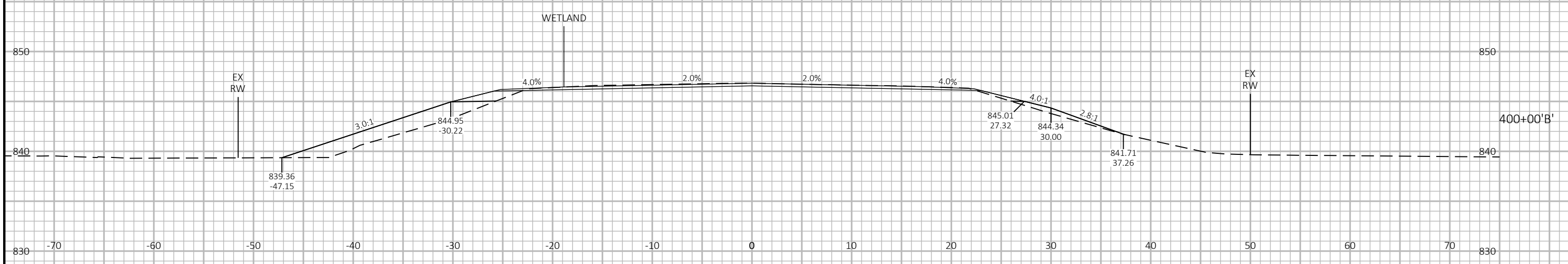
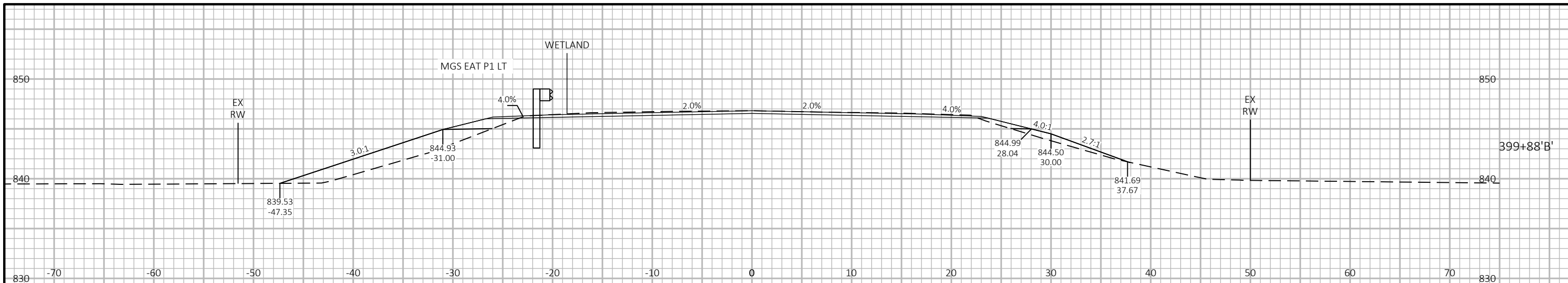
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SHEET

E



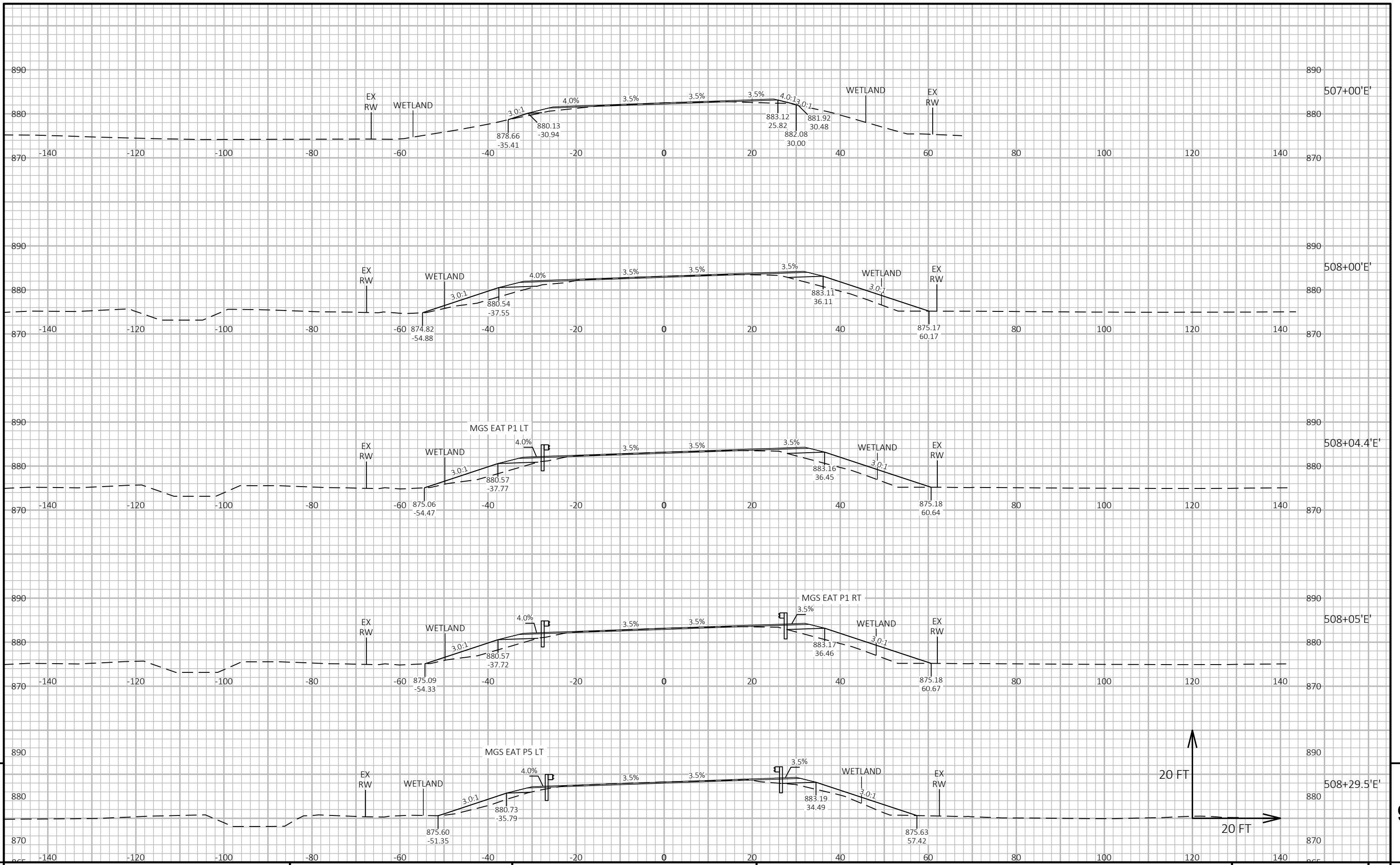
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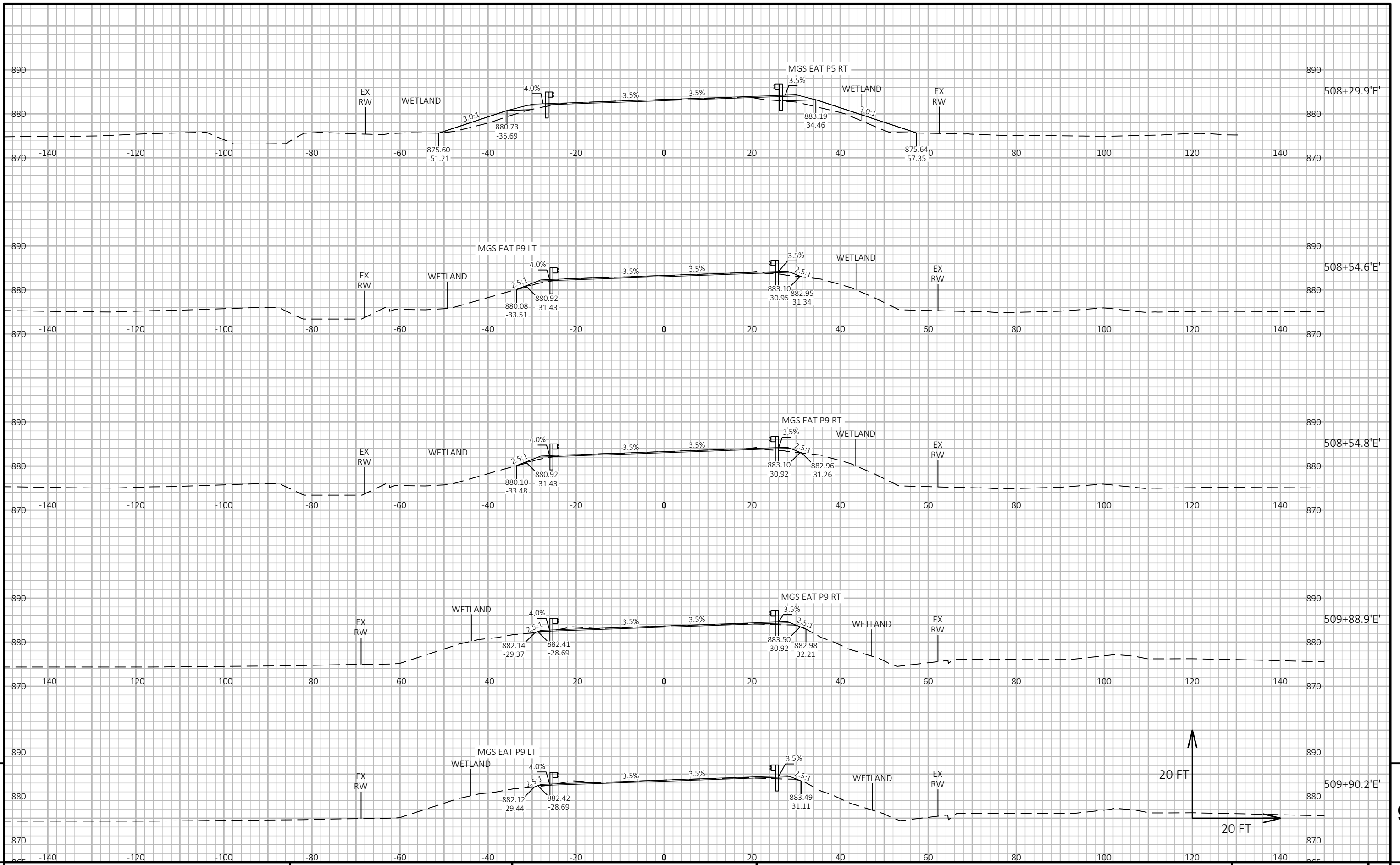
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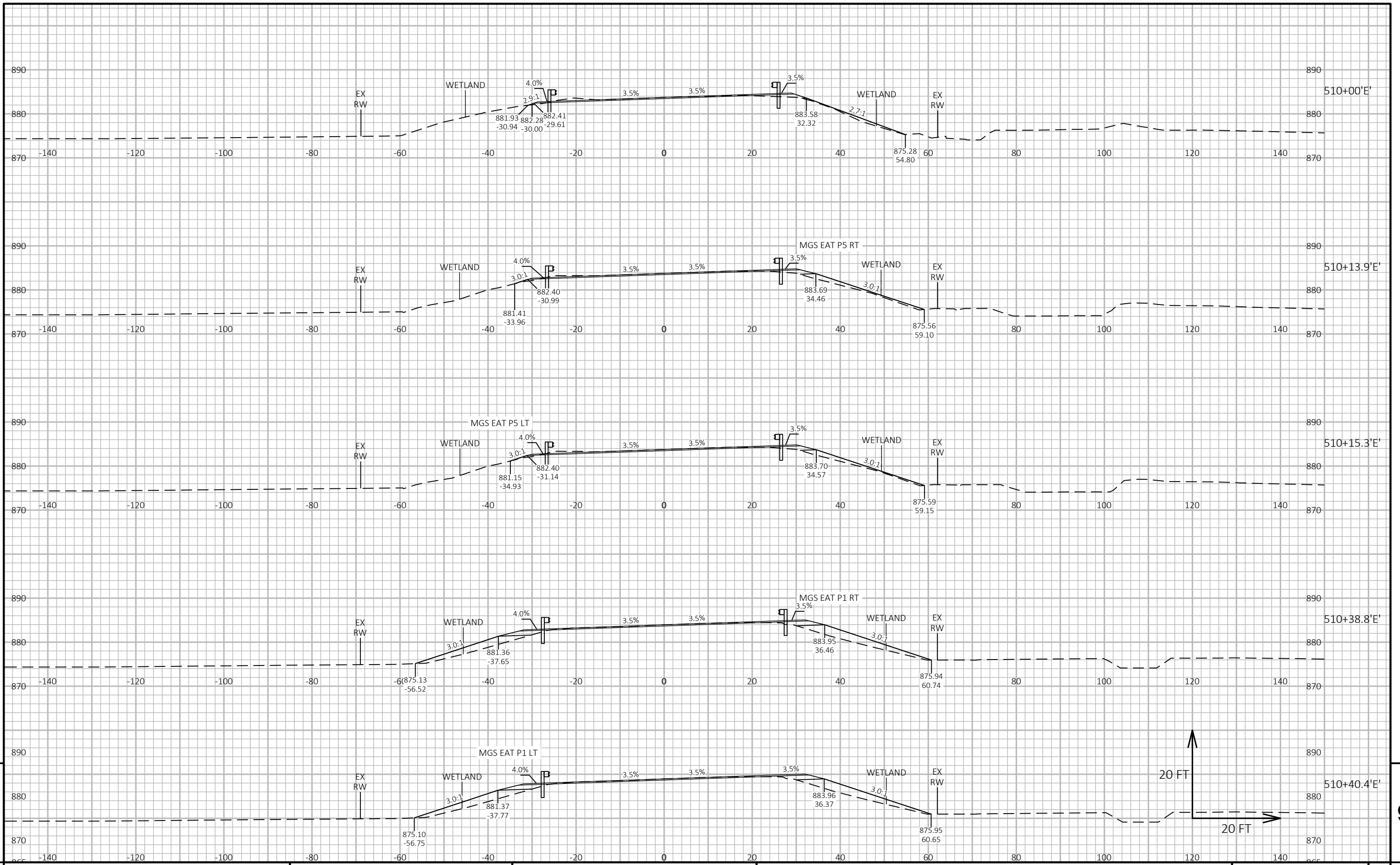
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FILE NAME : G:\SHARED DRIVES\PROJECTS\WI - NW REGION\7110-00-00_EAU CLAIRE_CO_STH 37\500_CADD\501_C3D_2018\71100000\090201-XS-WCCS EAU CLAIRE.DWG PLOT DATE : 10/28/2020 12:07 PM PLOT BY : JOSH WEISS PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:20 FT VERT. WISDOT/CADD SHEET 49

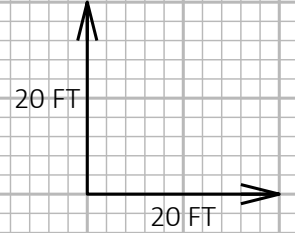
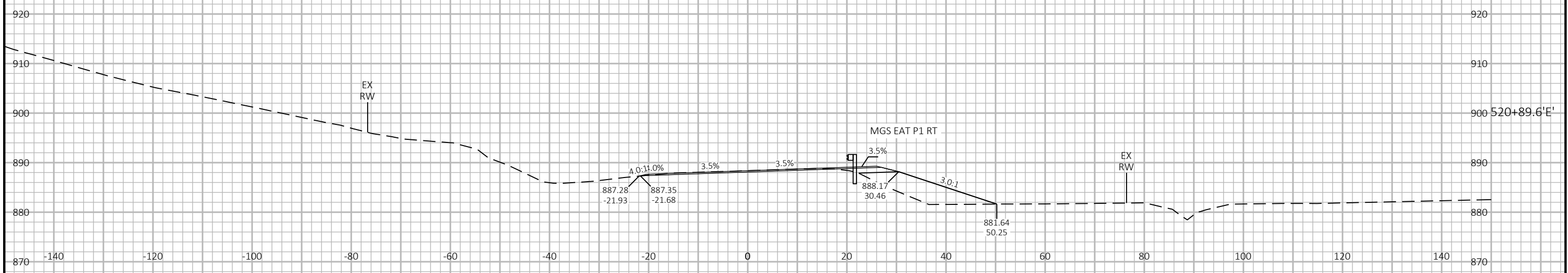
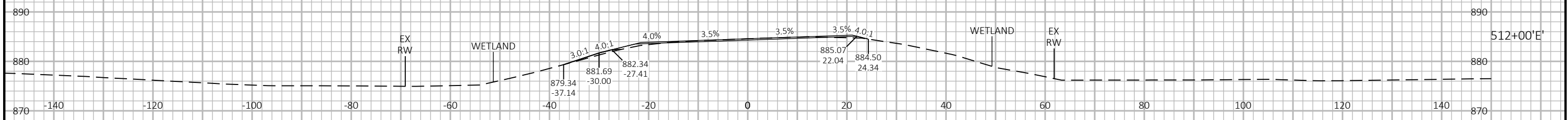
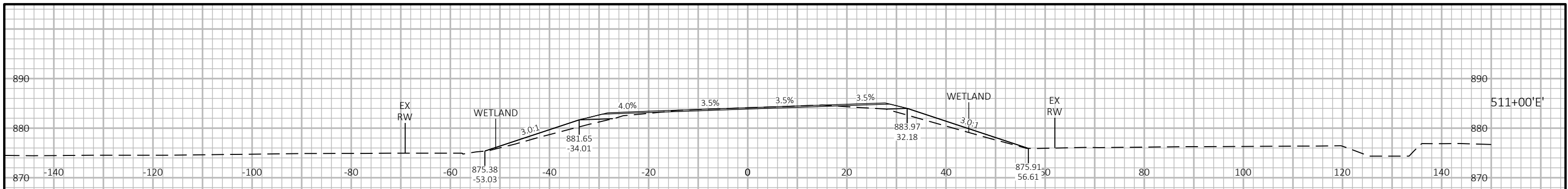
LAYOUT NAME - 01



PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	9
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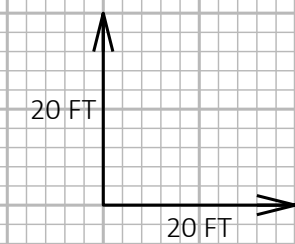
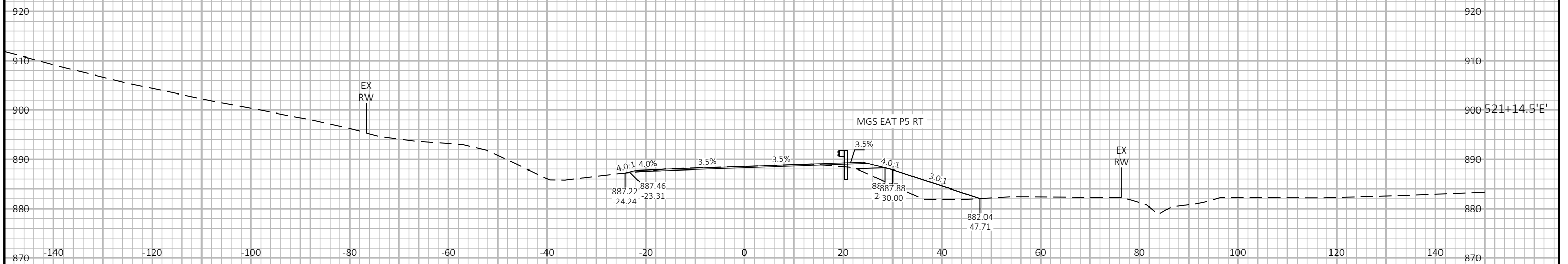
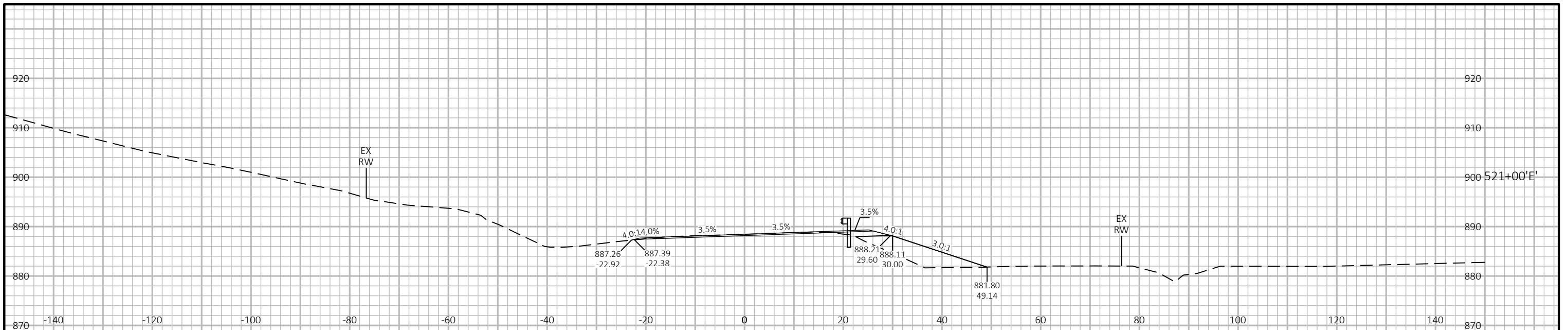
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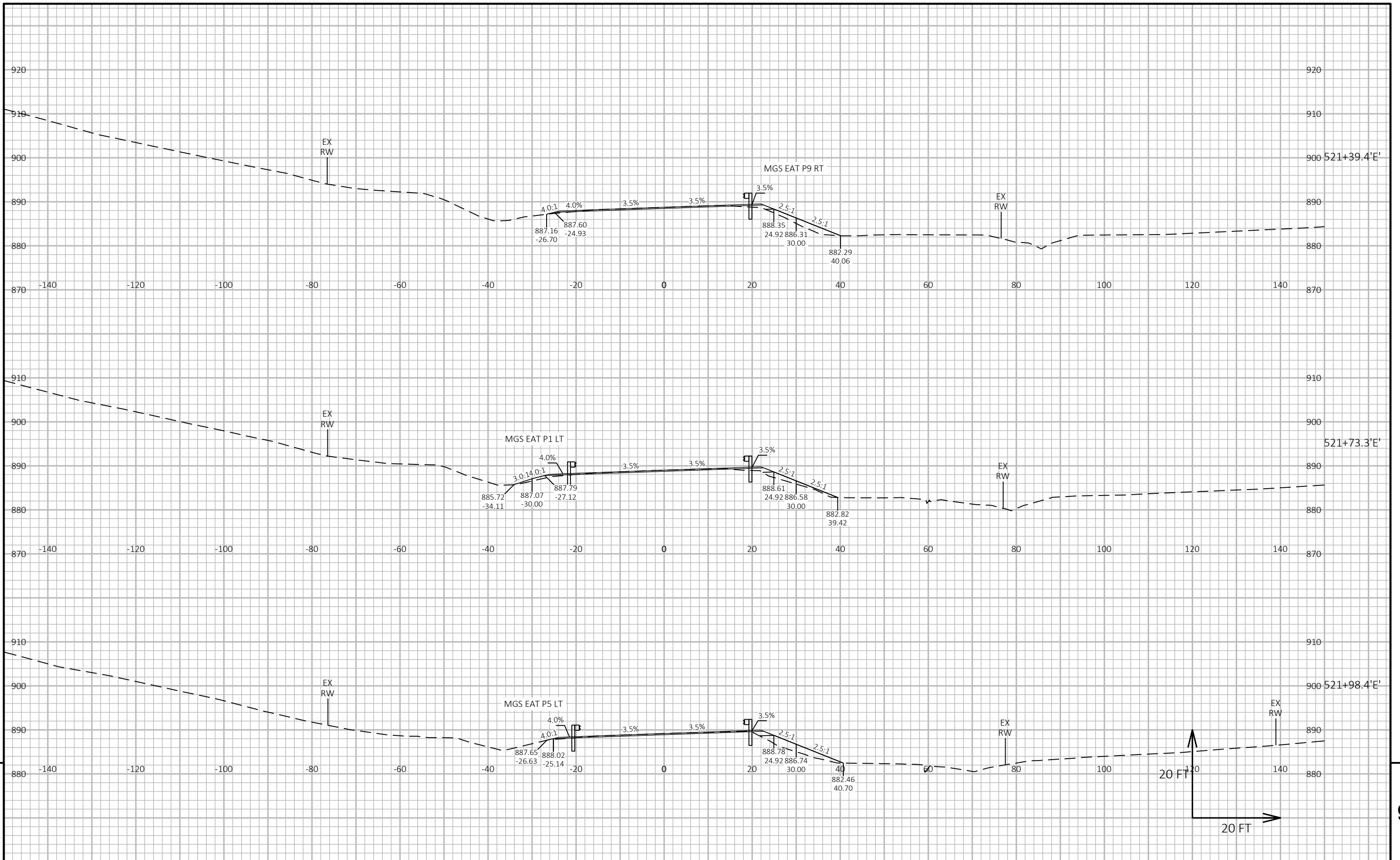
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	E
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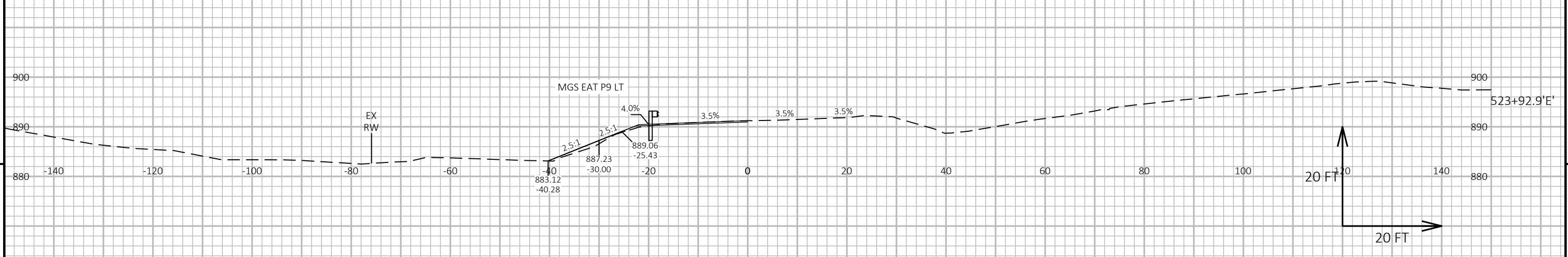
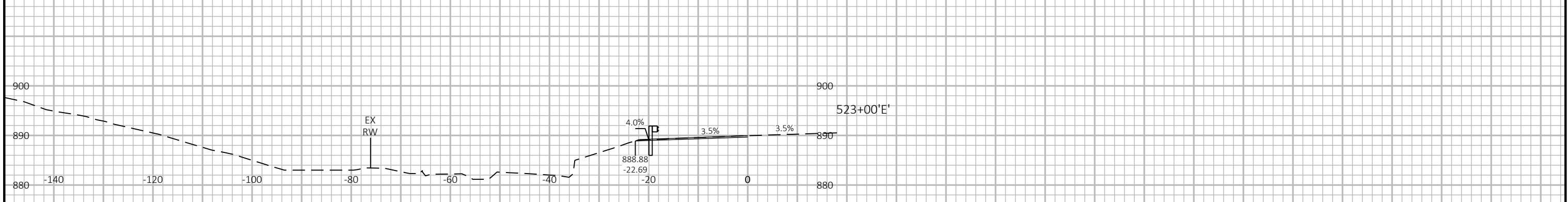
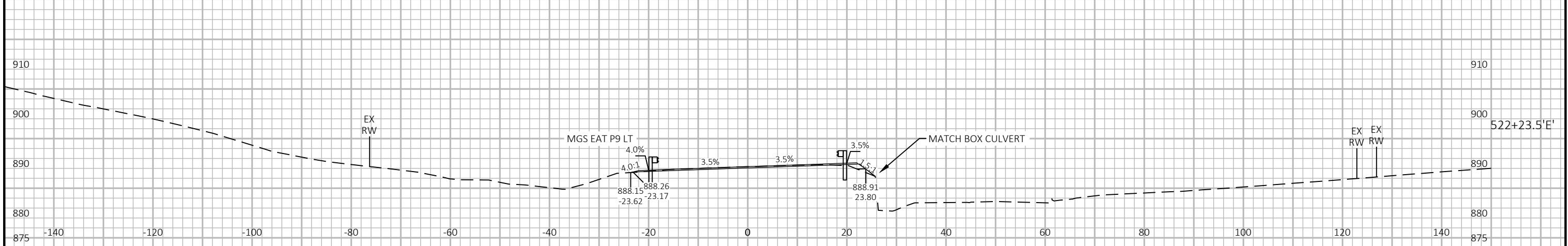
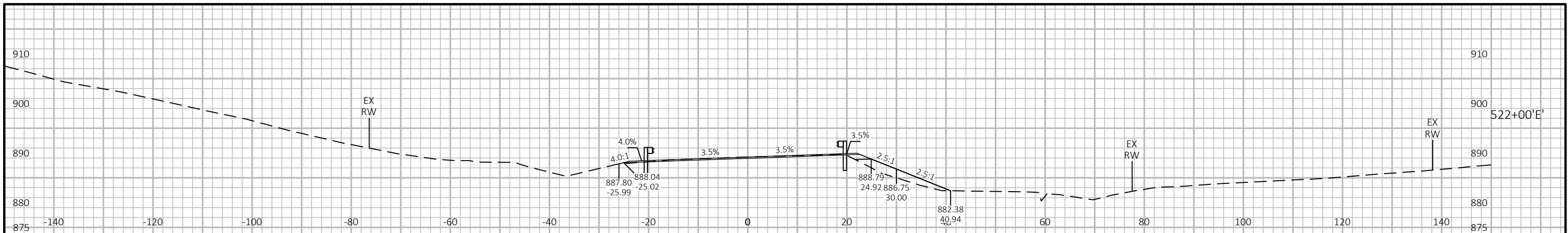


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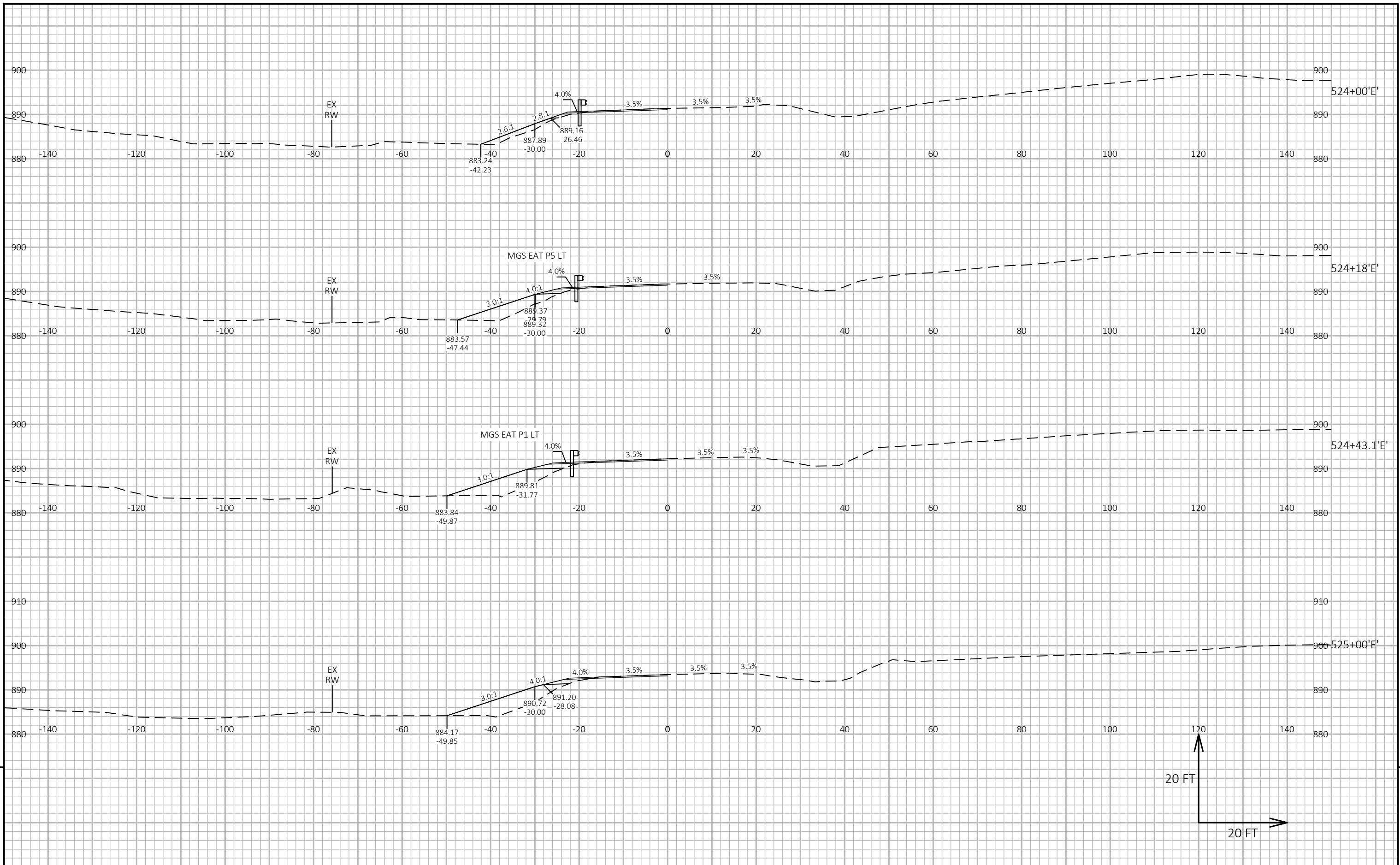
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	E
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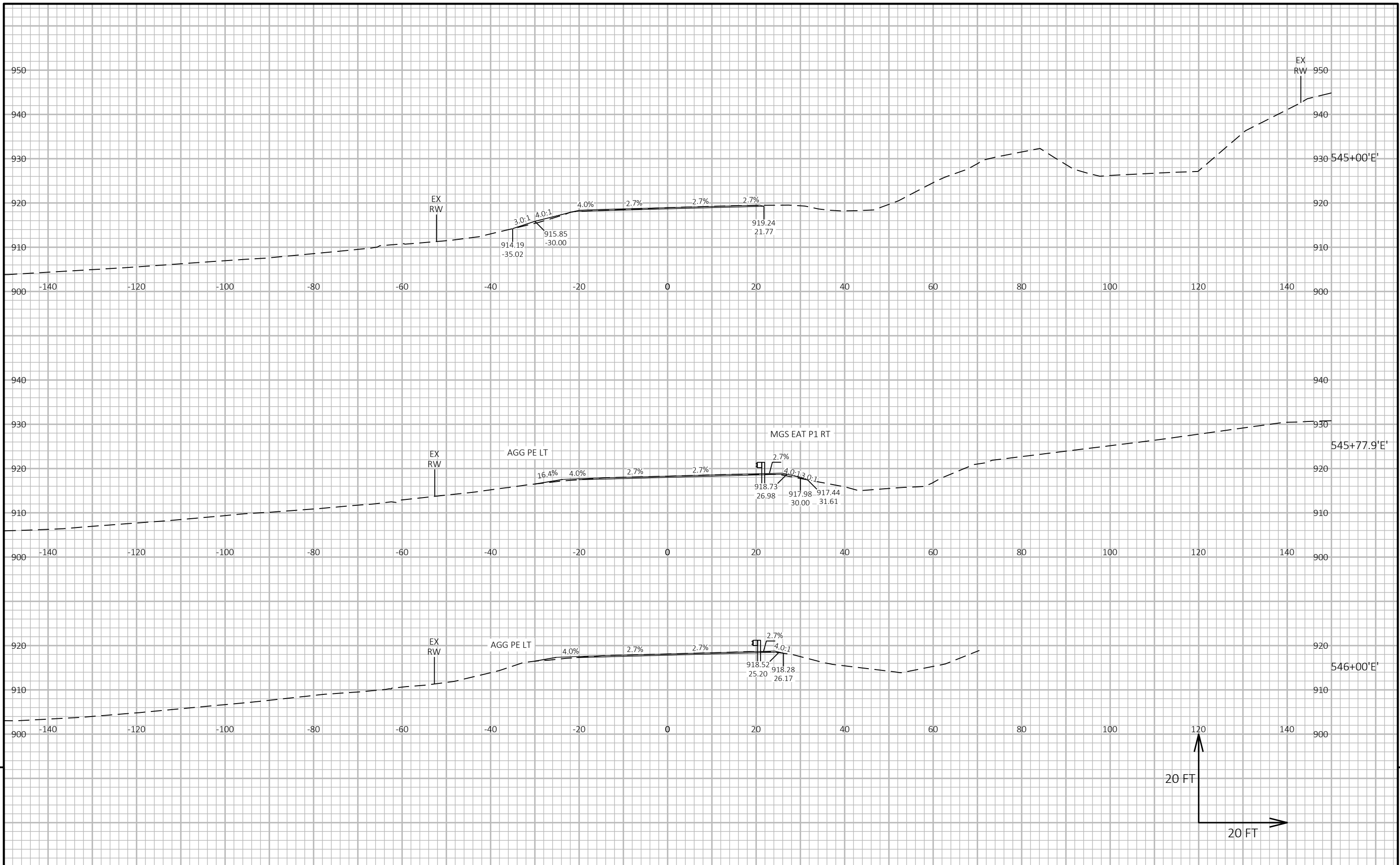
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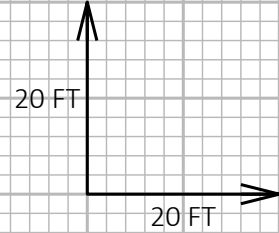
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	E
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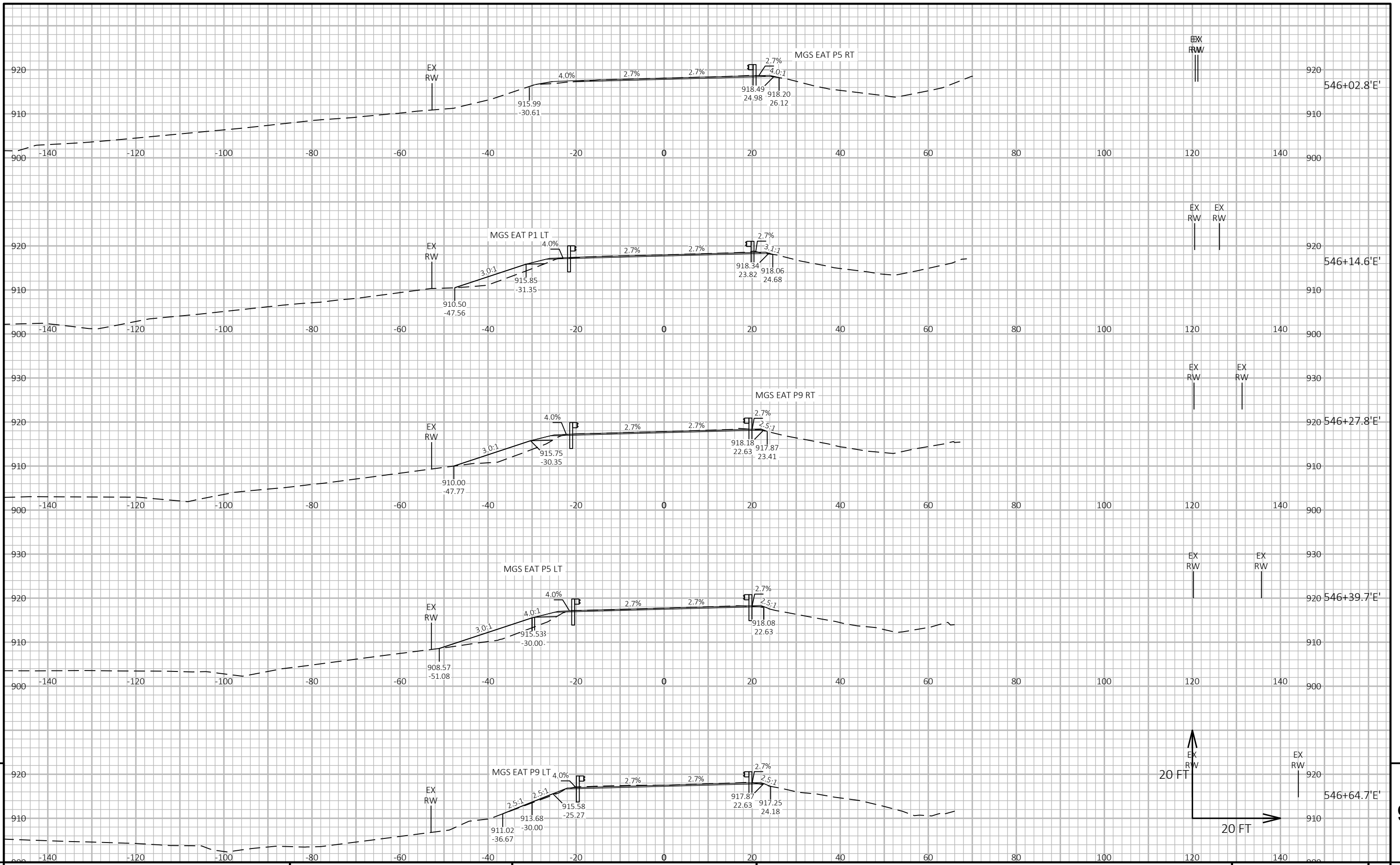


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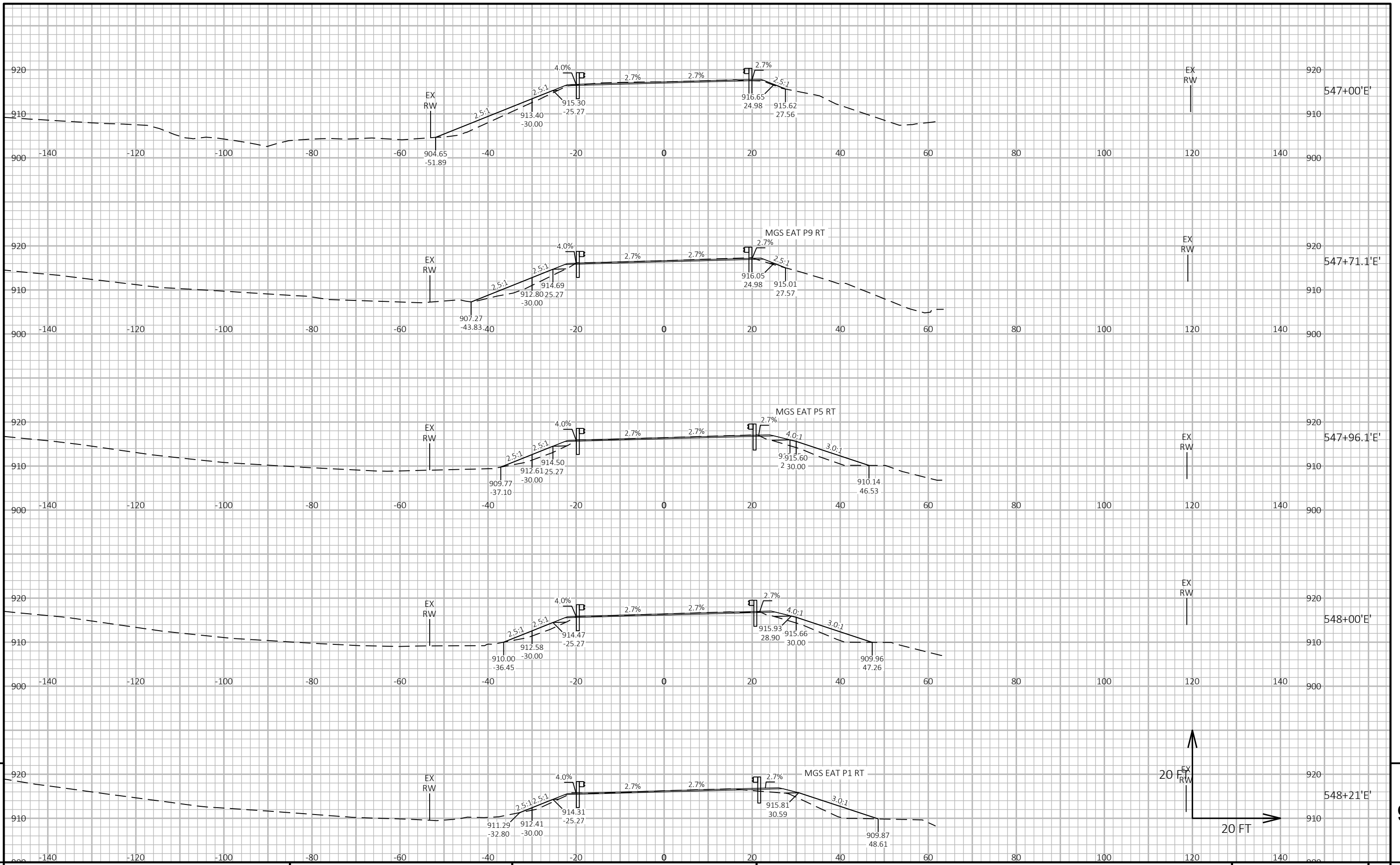
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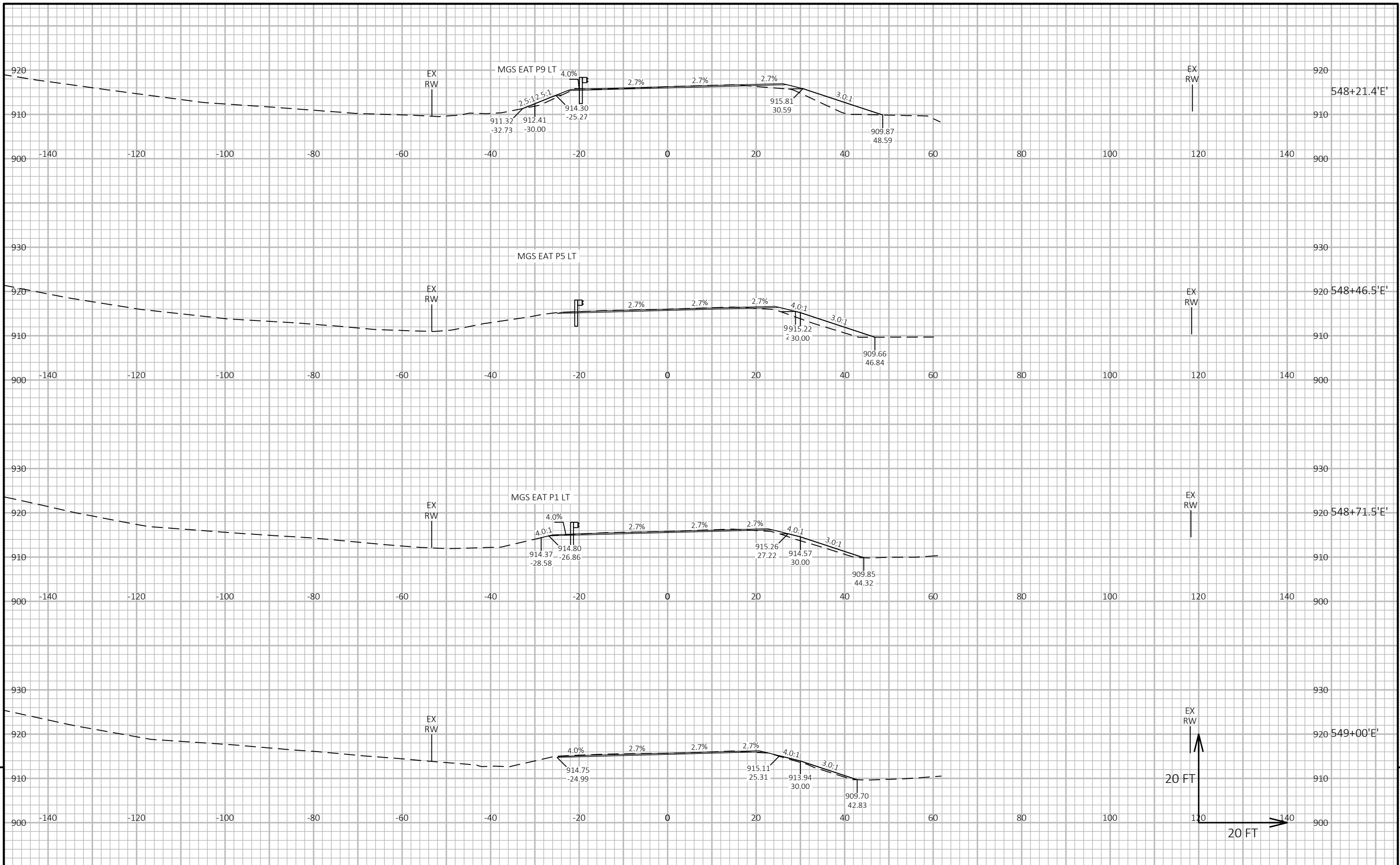
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LAYOUT NAME - 10



PROJECT NO: 7110-00-70 HWY: STH 37 COUNTY: BUFFALO & EAU CLAIRE CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE SHEET 9



PROJECT NO: 7110-00-70

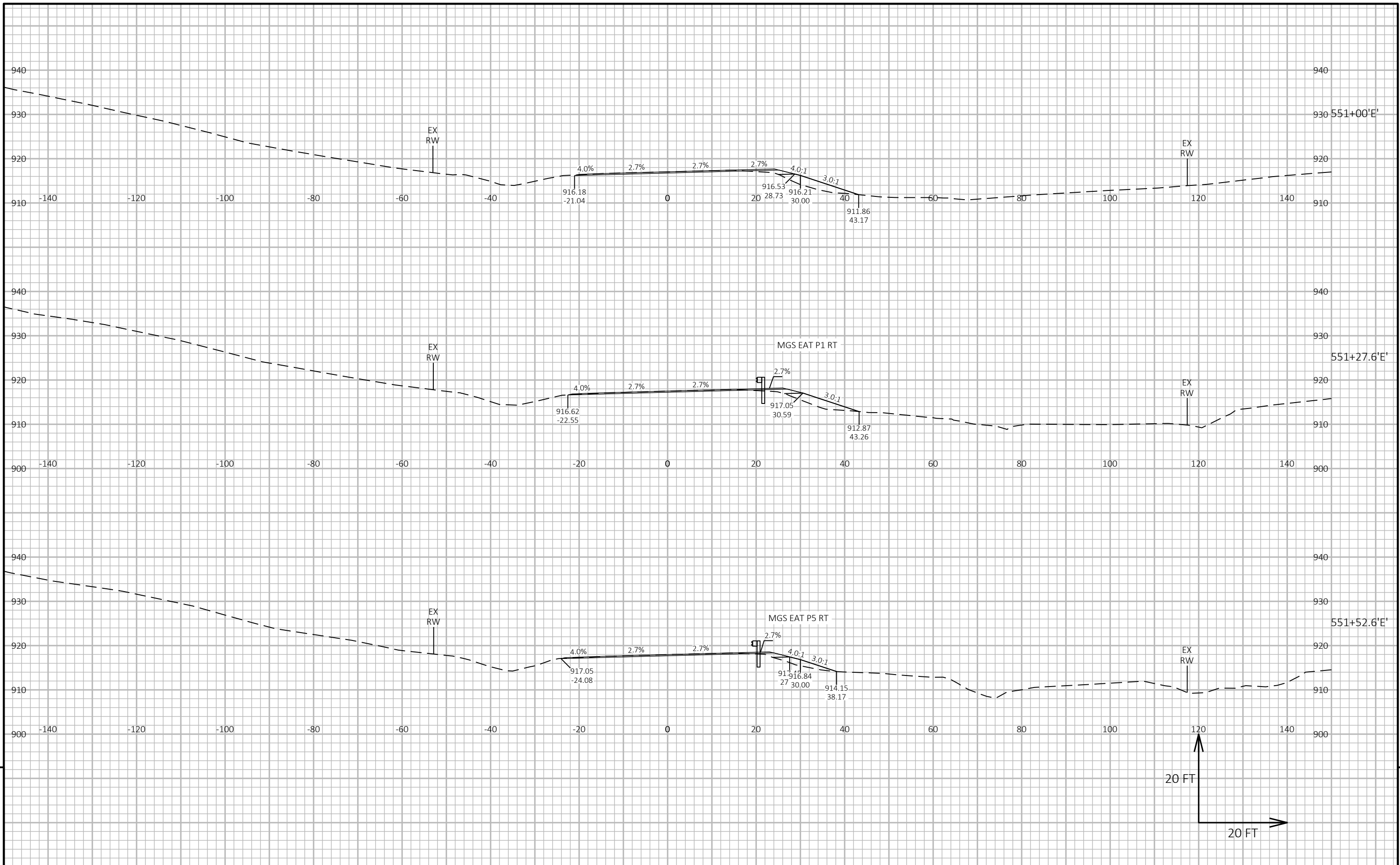
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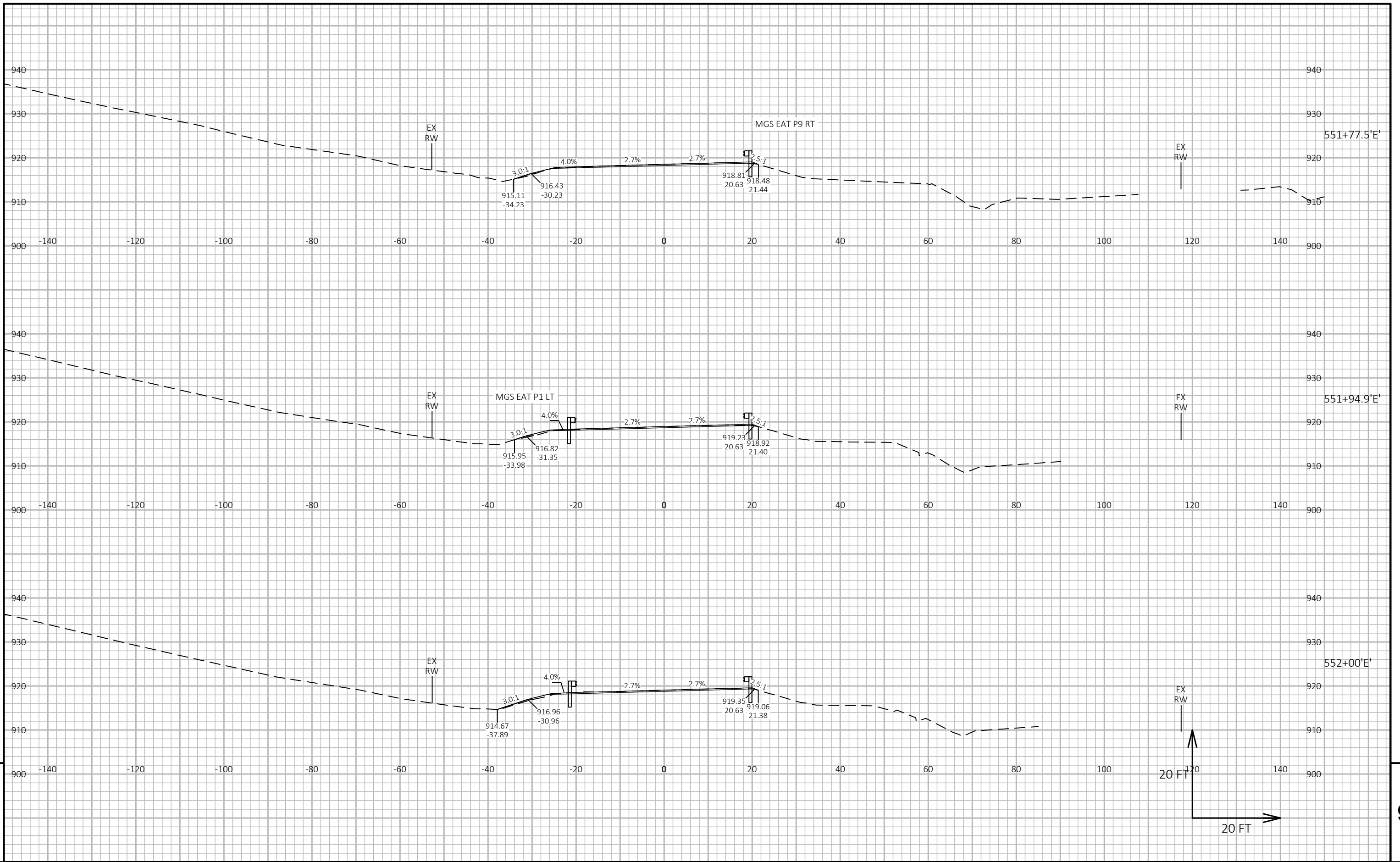
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SHEET

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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	9
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PROJECT NO: 7110-00-70

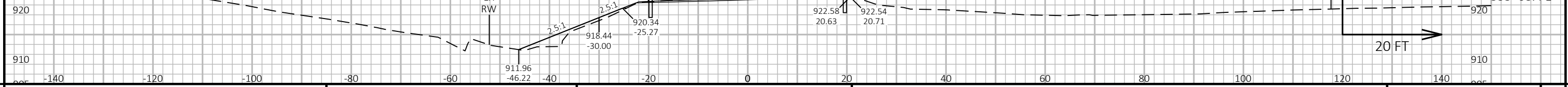
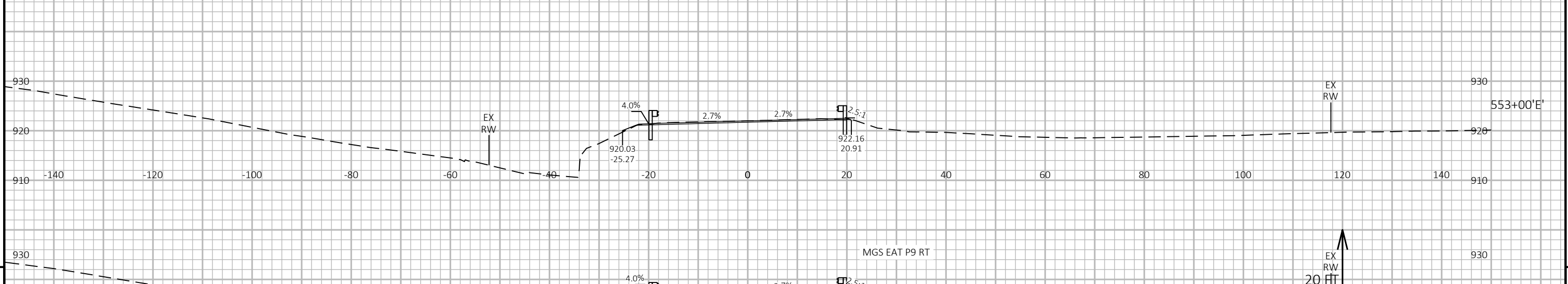
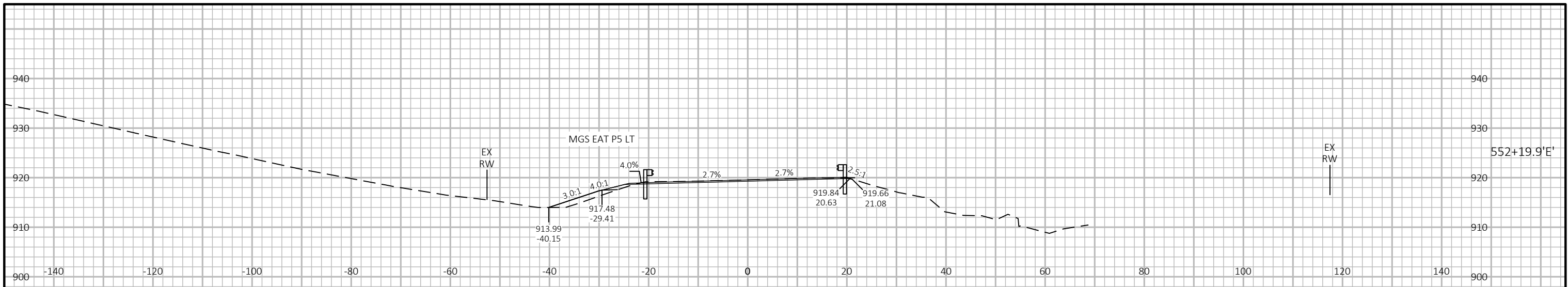
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COUNTY: BUFFALO & EAU CLAIRE

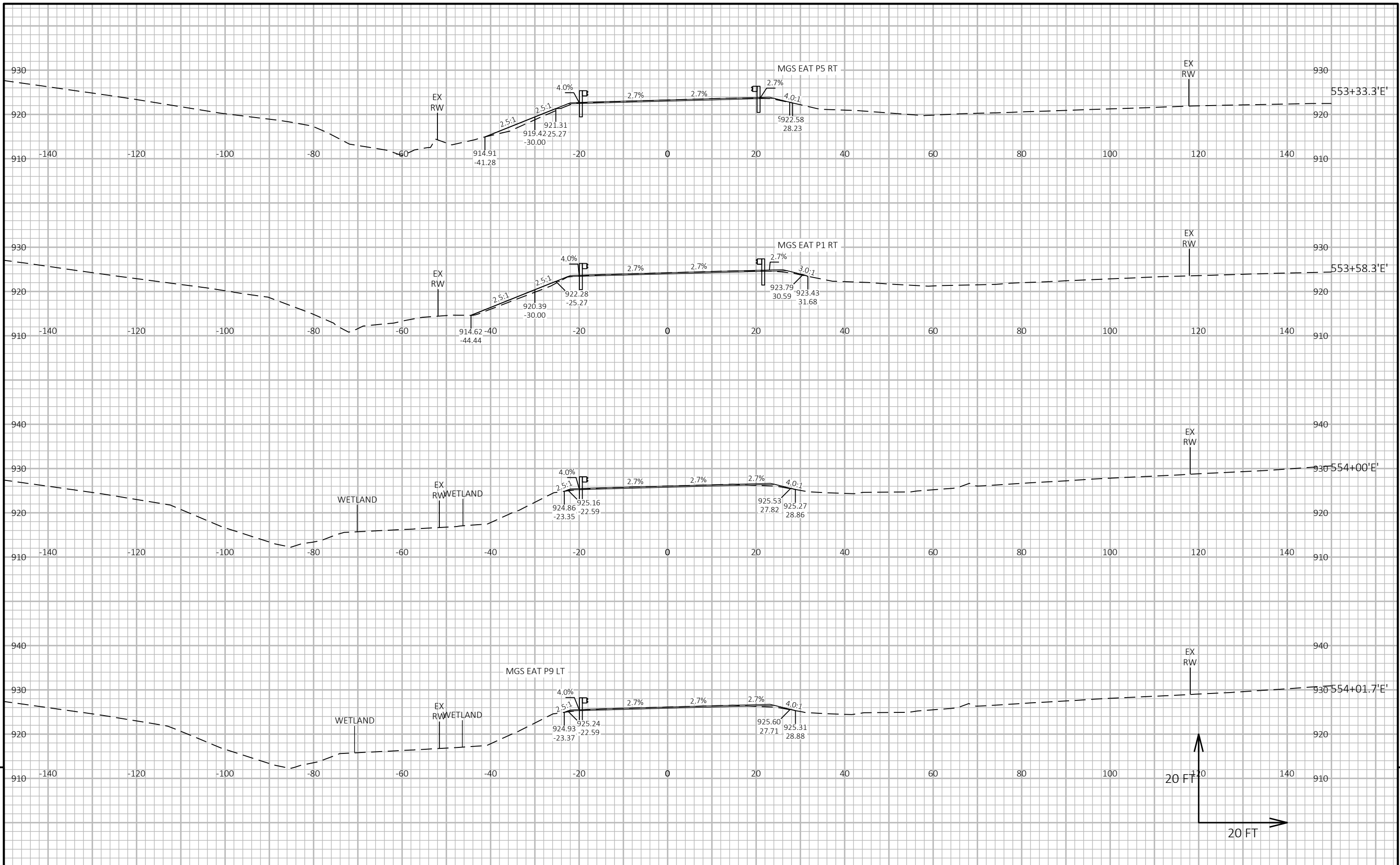
CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE

SHEET

E



PROJECT NO: 7110-00-70 HWY: STH 37 COUNTY: BUFFALO & EAU CLAIRE CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE SHEET 9



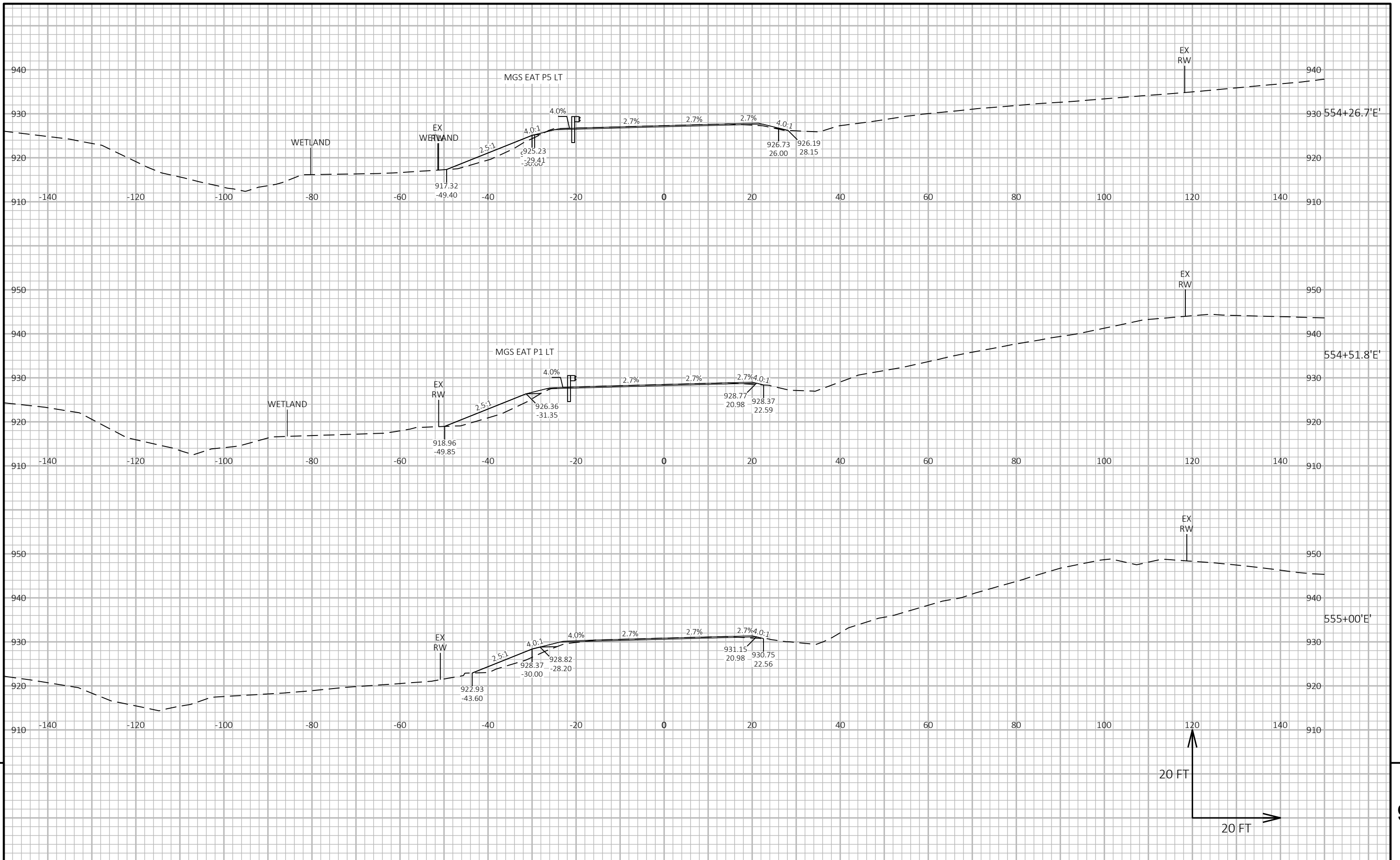
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PROJECT NO: 7110-00-70 HWY: STH 37 COUNTY: BUFFALO & EAU CLAIRE CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE SHEET E

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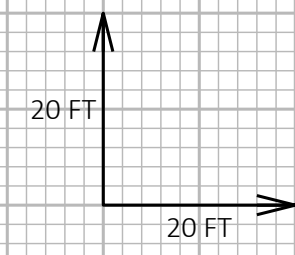
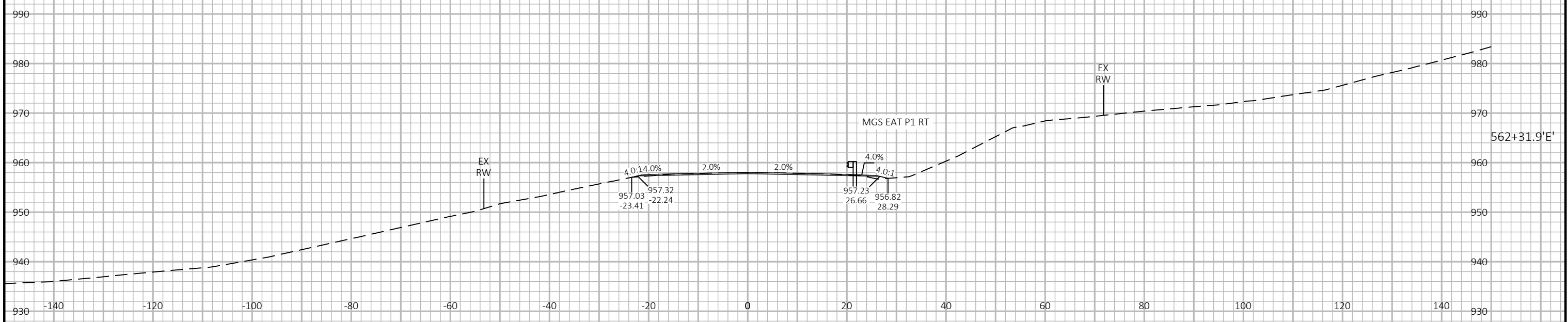
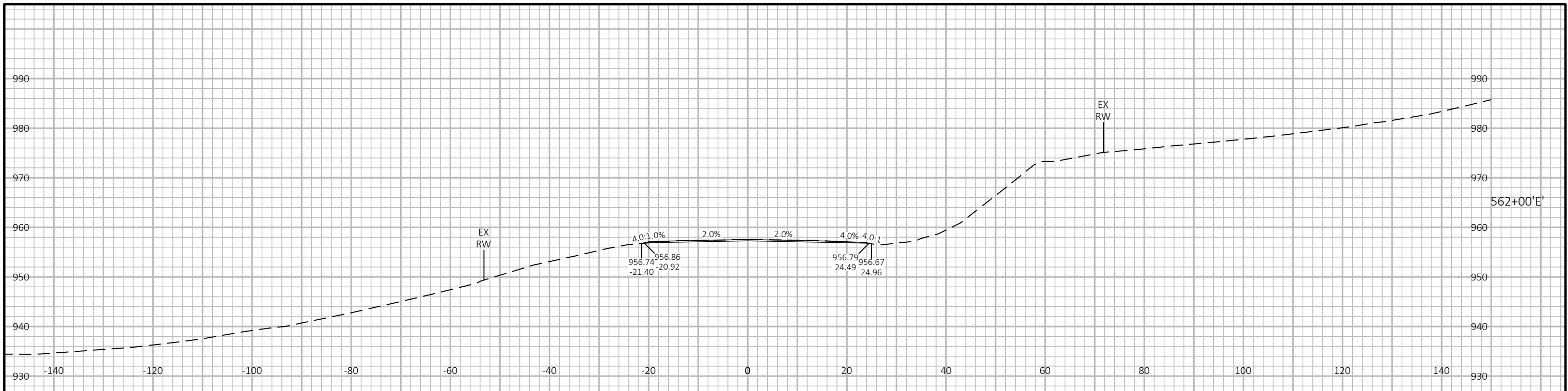
LAYOUT NAME - 16



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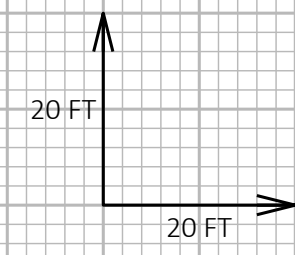
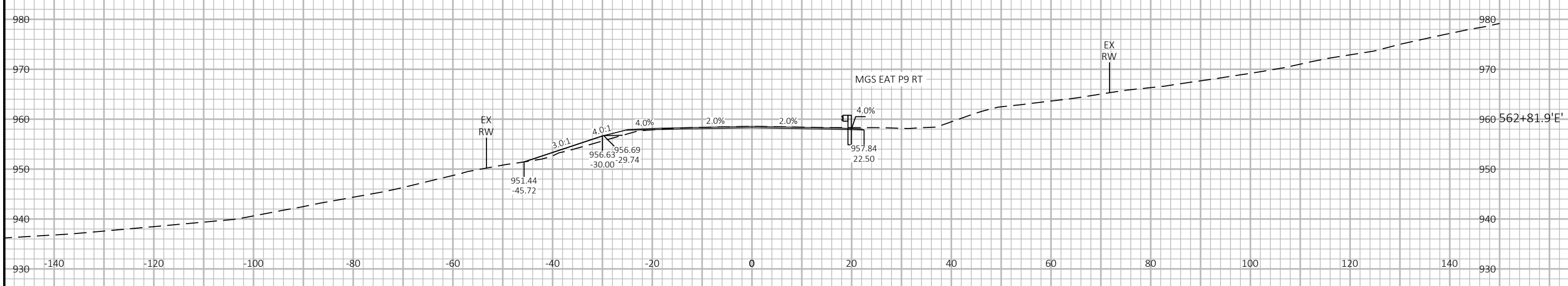
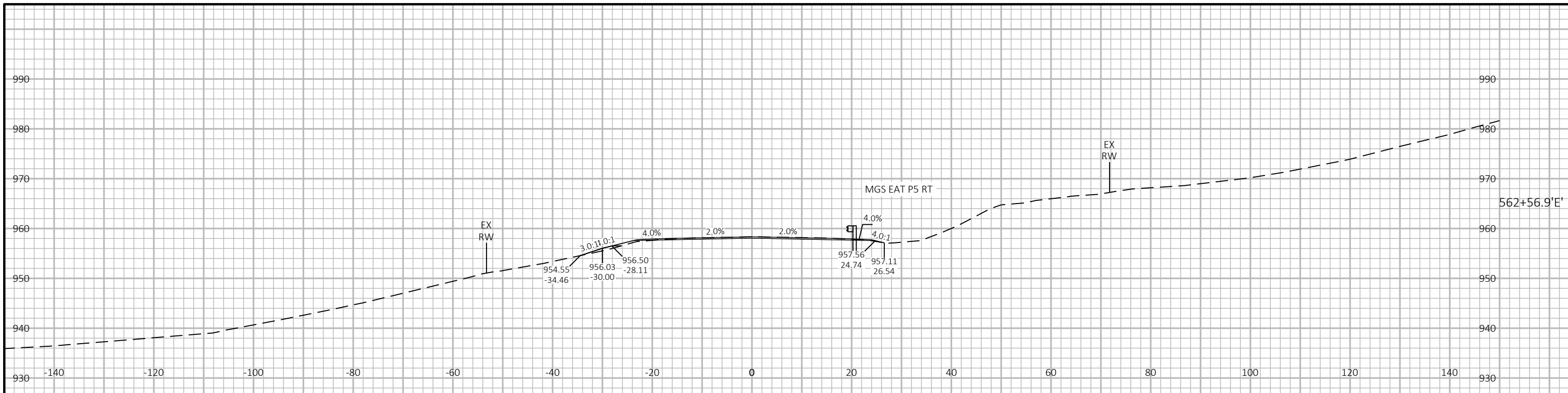
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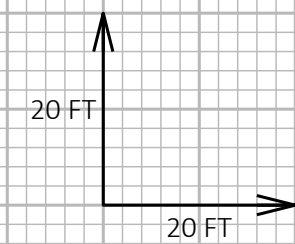
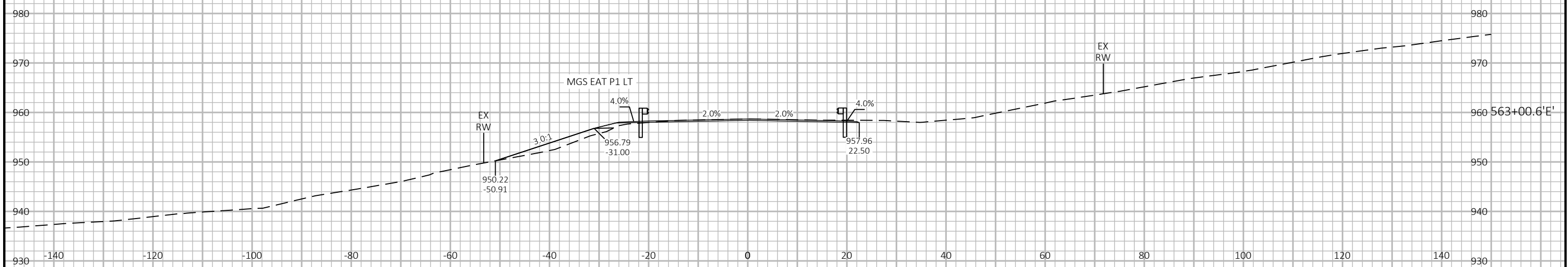
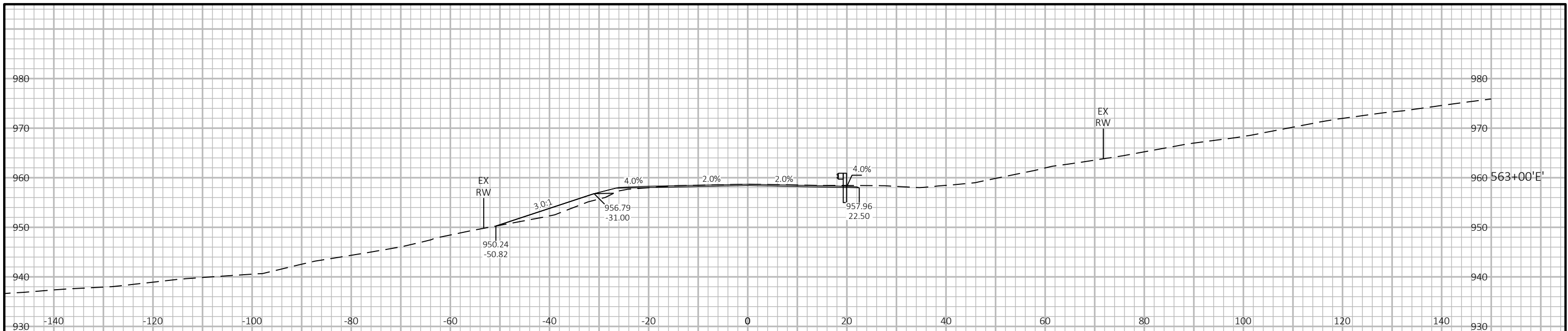
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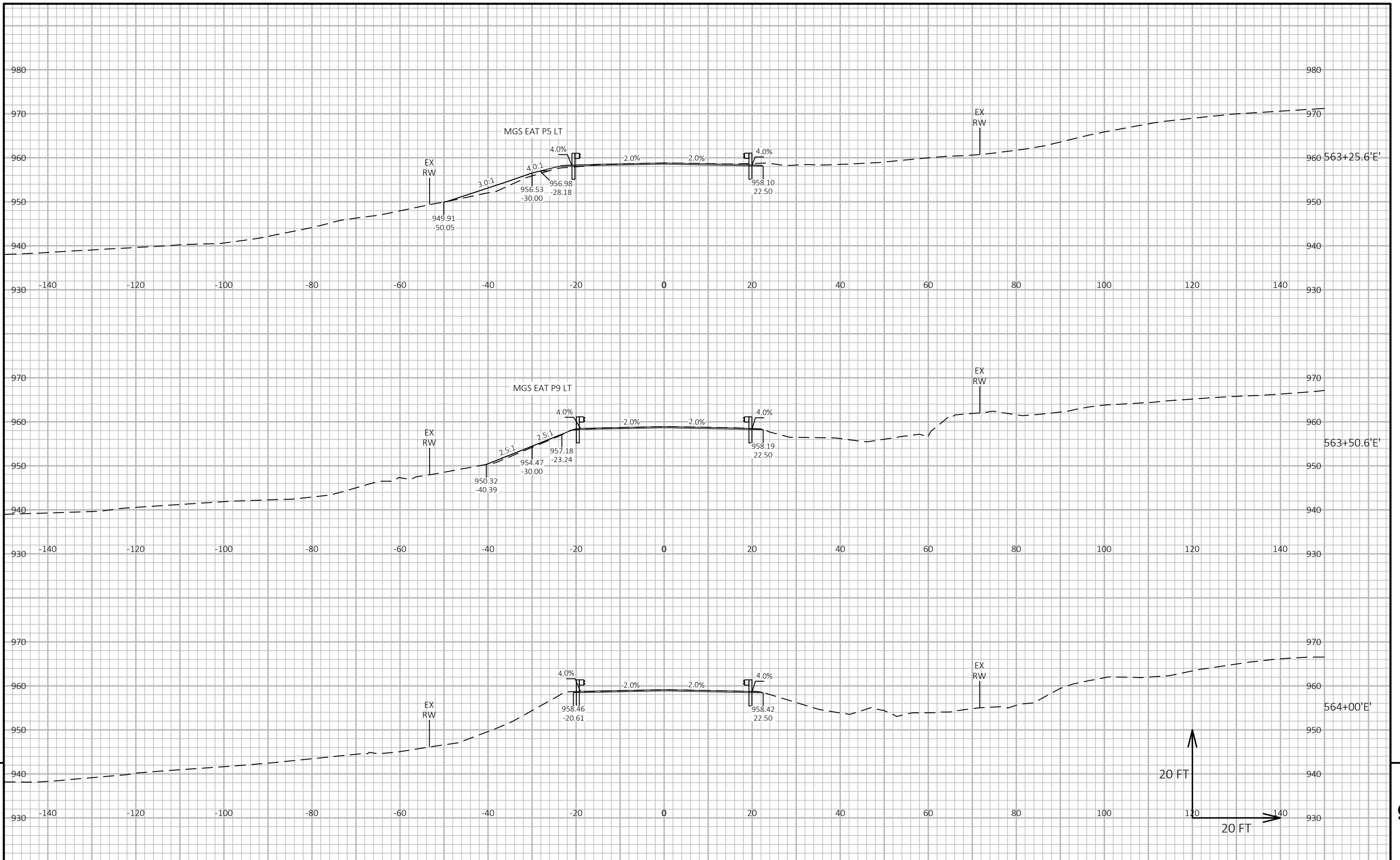
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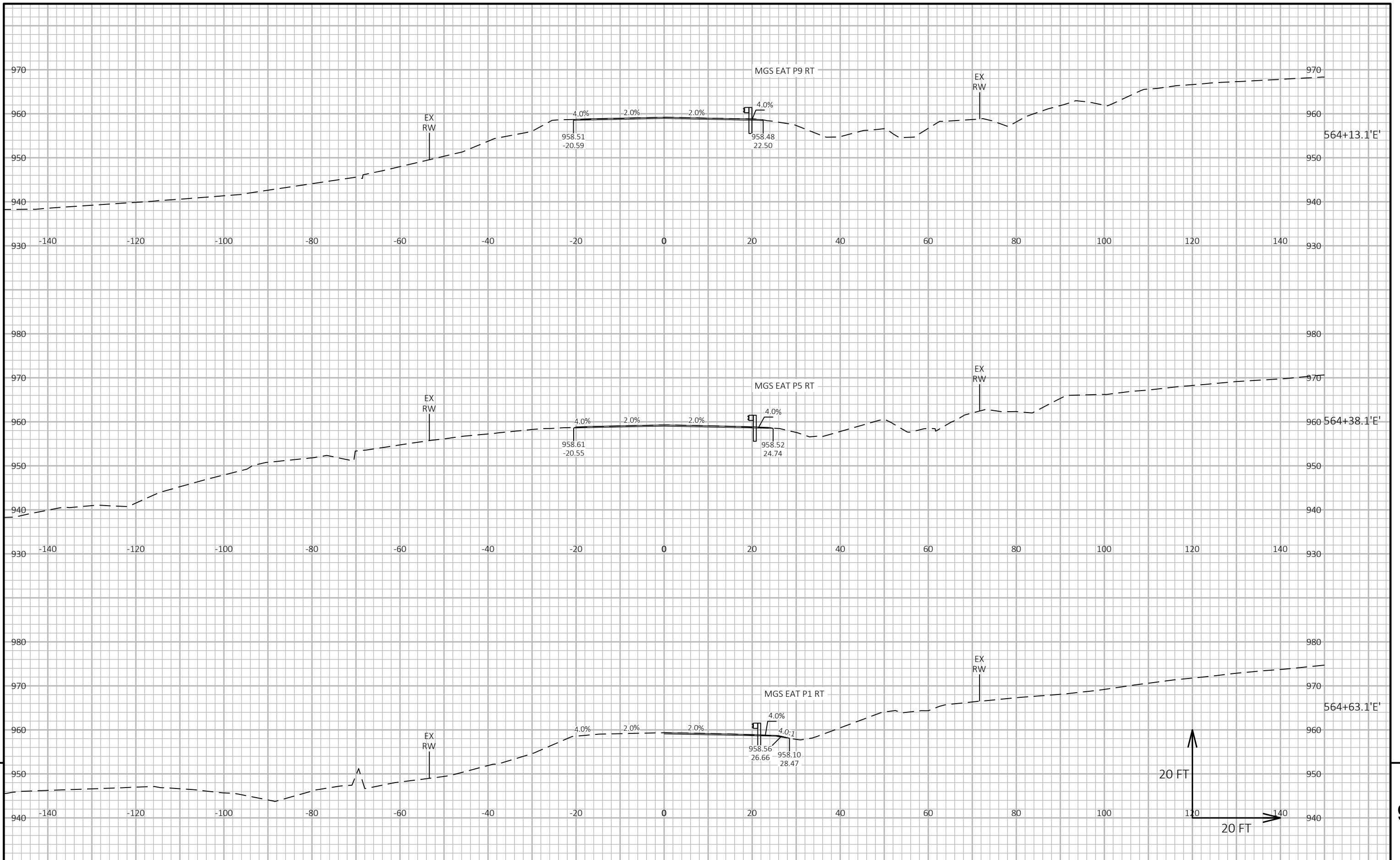
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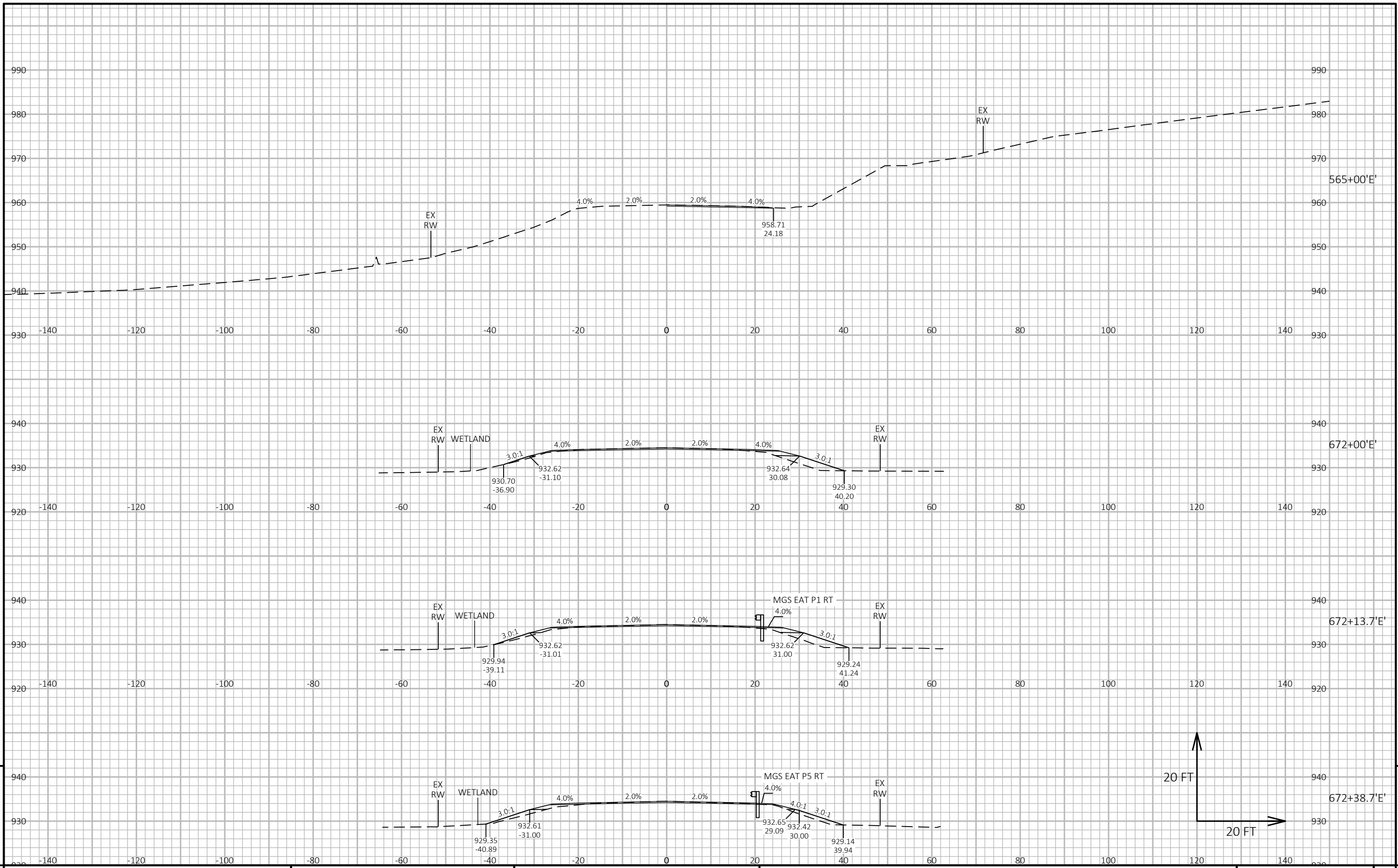
PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	E
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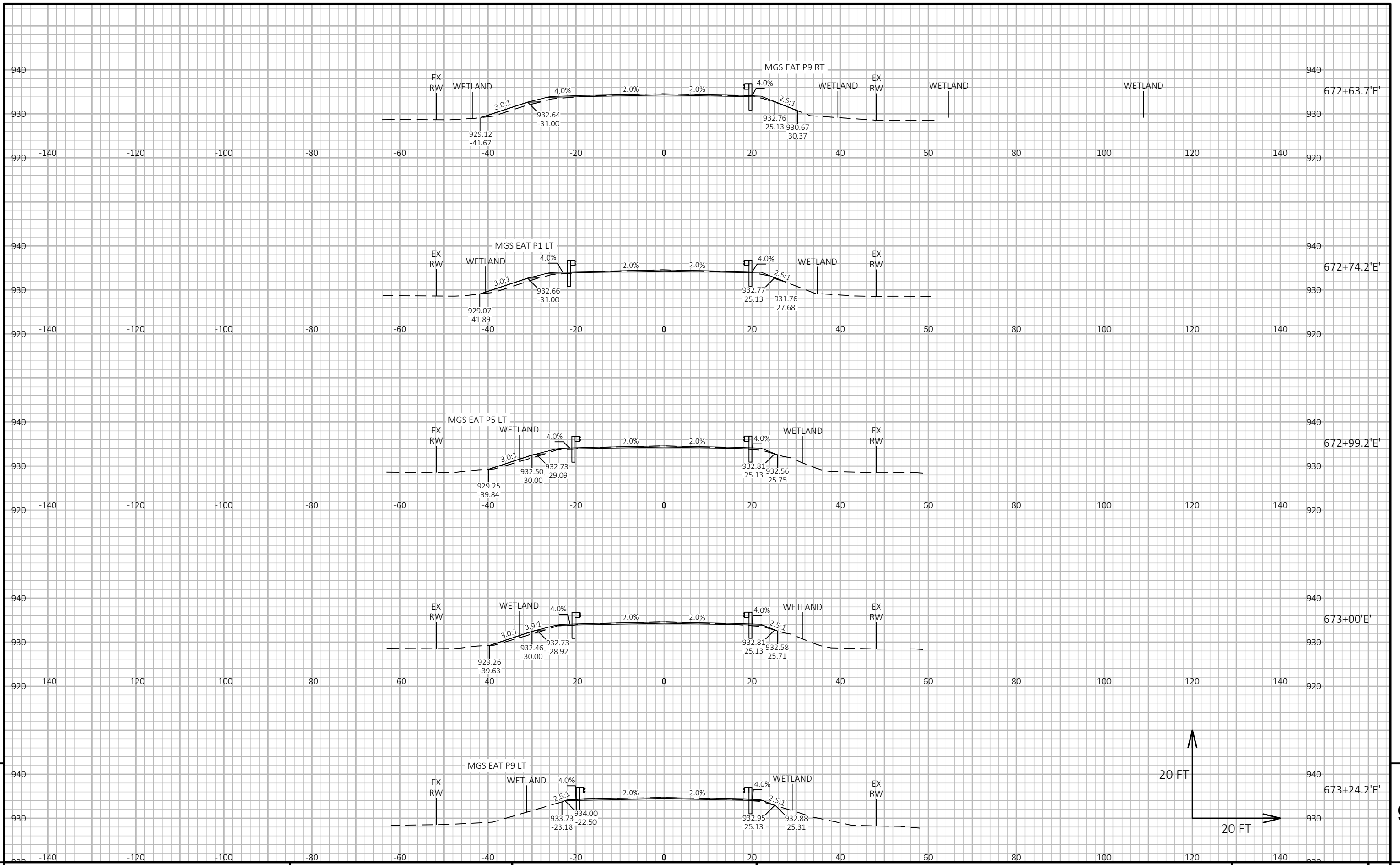
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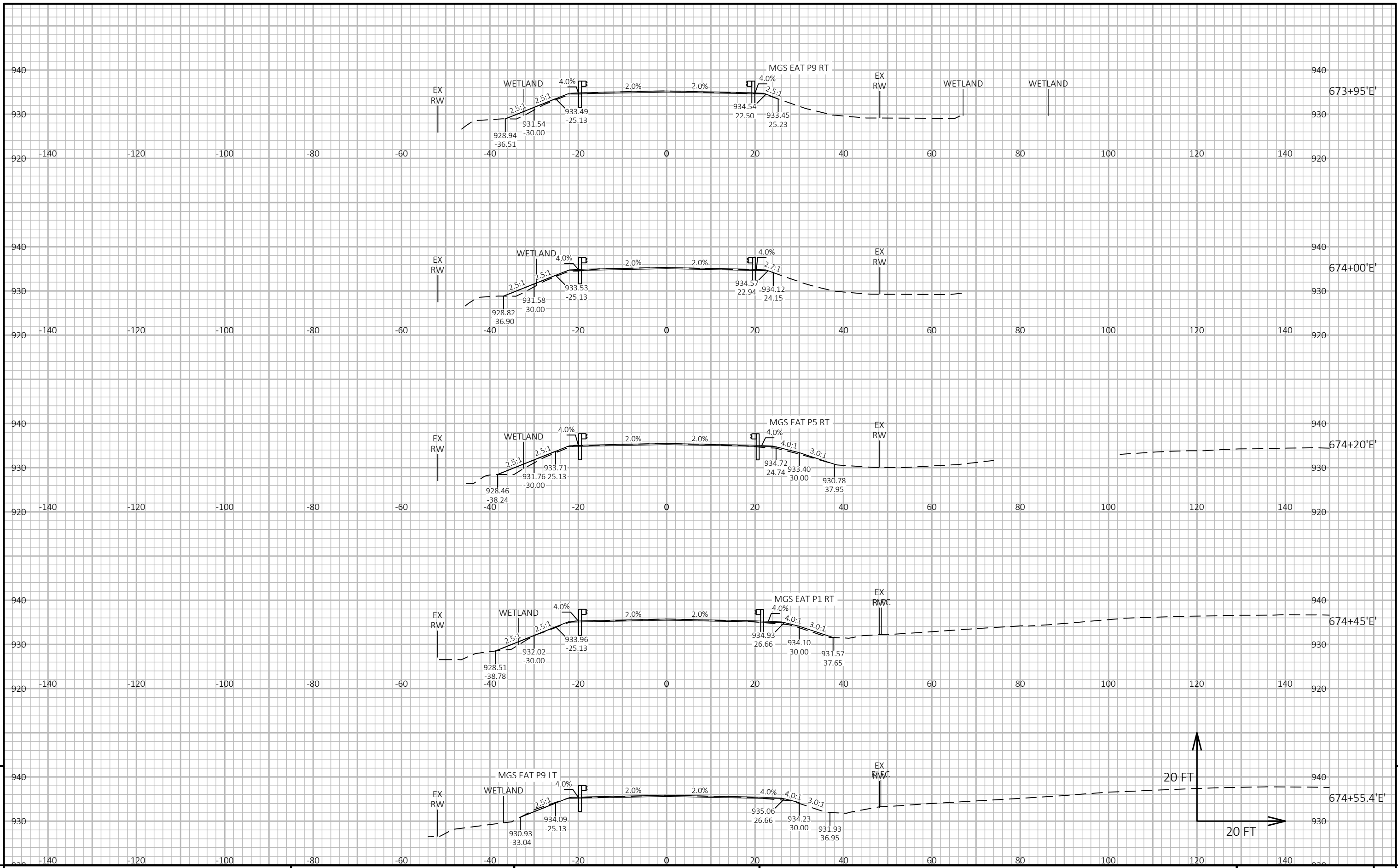
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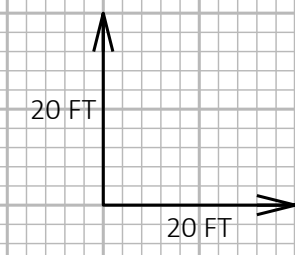
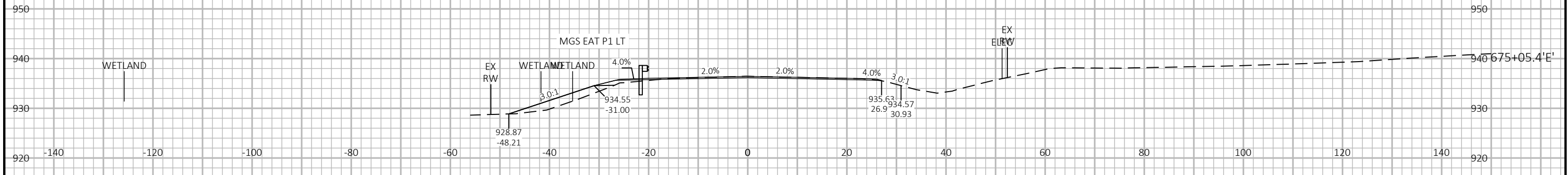
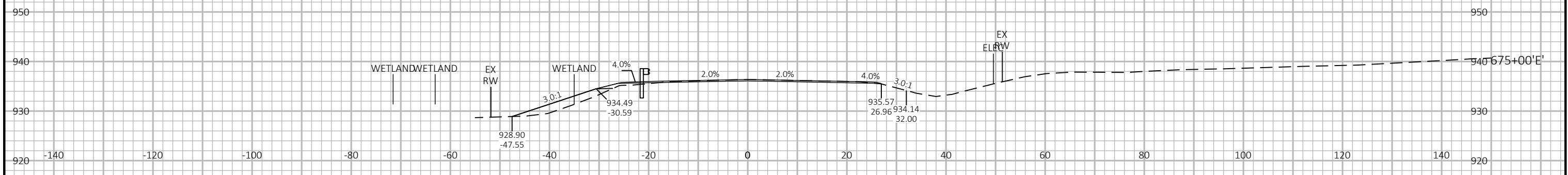
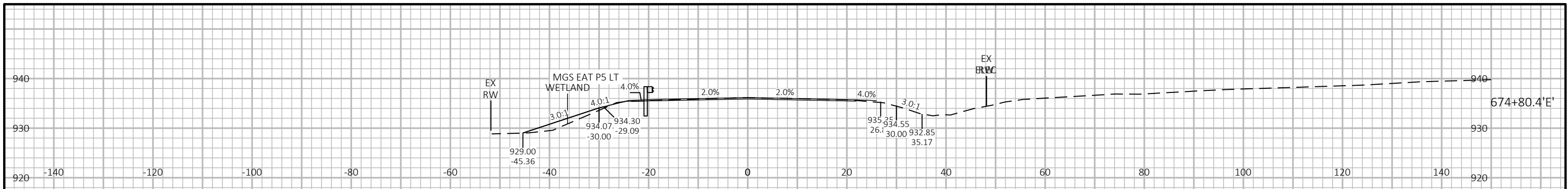
PROJECT NO: 7110-00-70 HWY: STH 37 COUNTY: BUFFALO & EAU CLAIRE CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE SHEET 9



PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET 9
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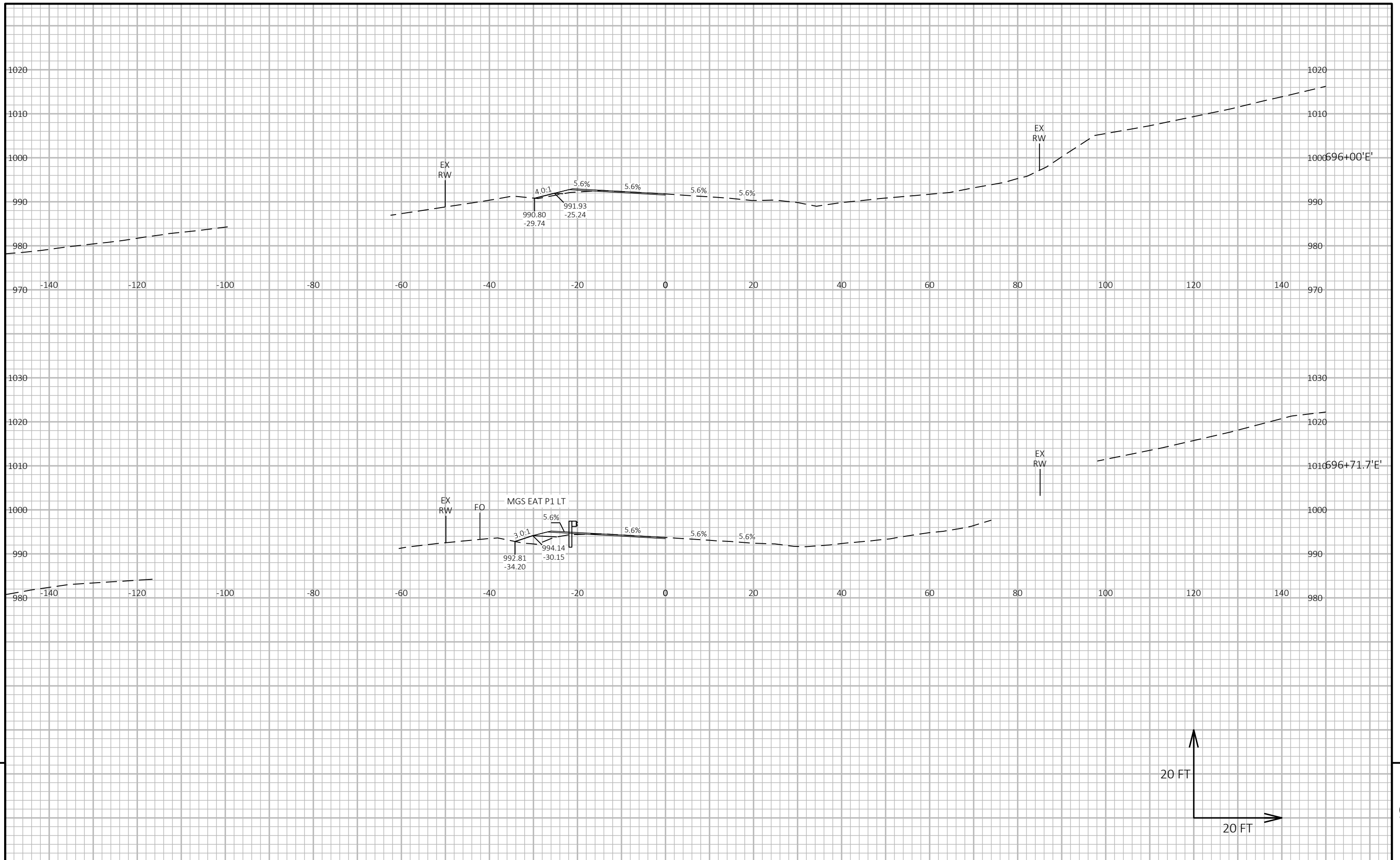
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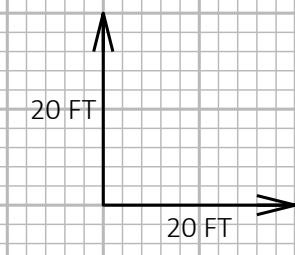
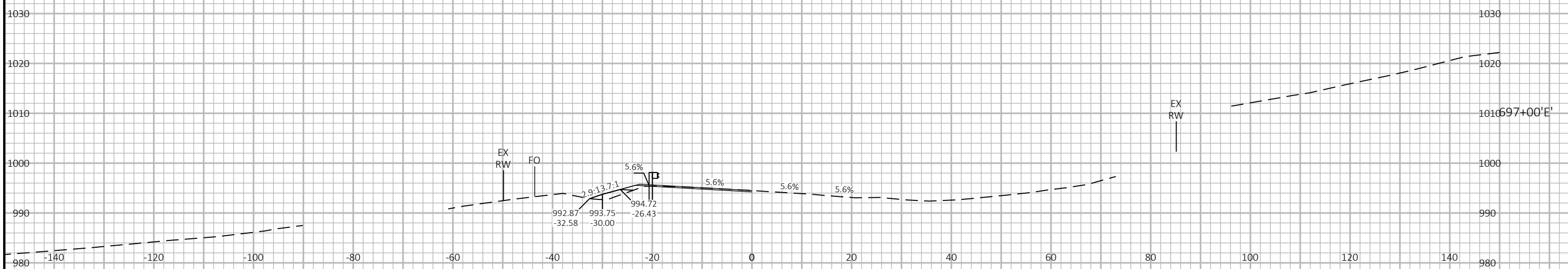
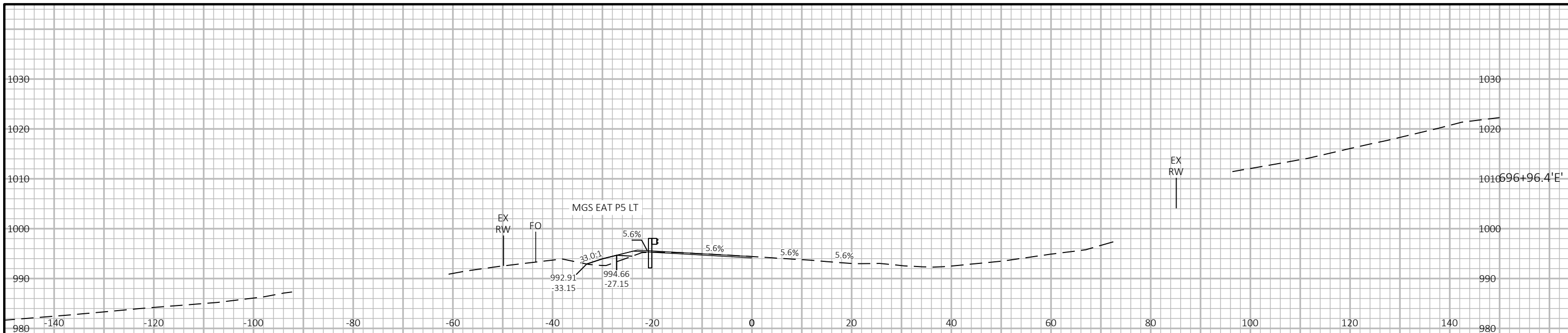
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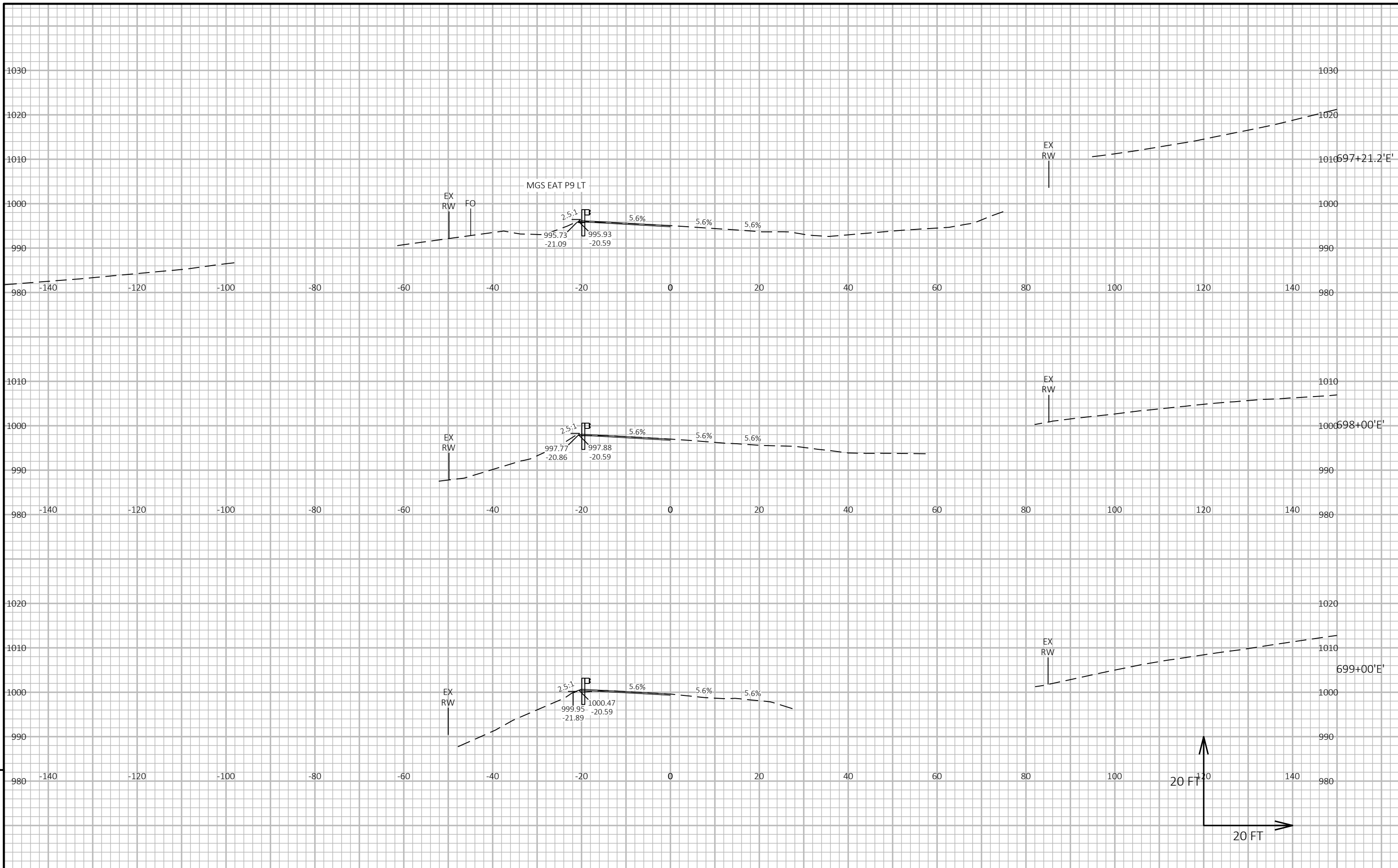
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	E
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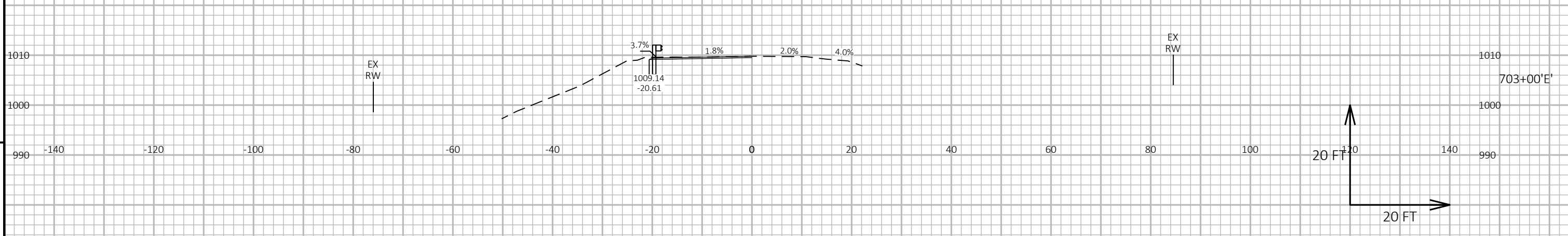
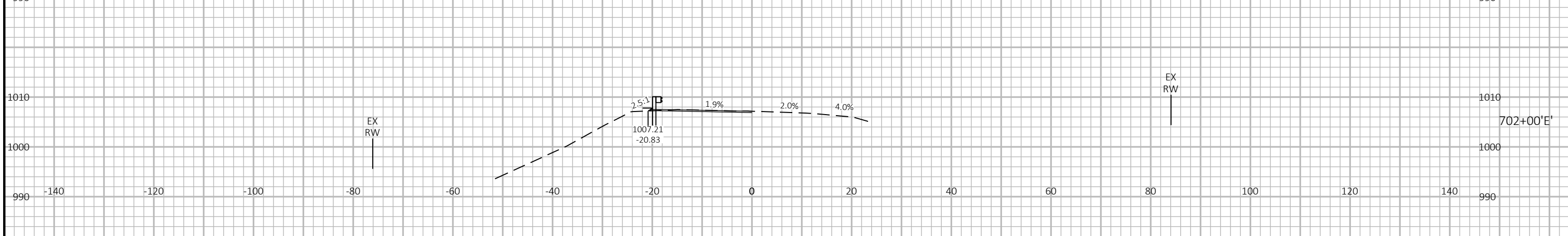
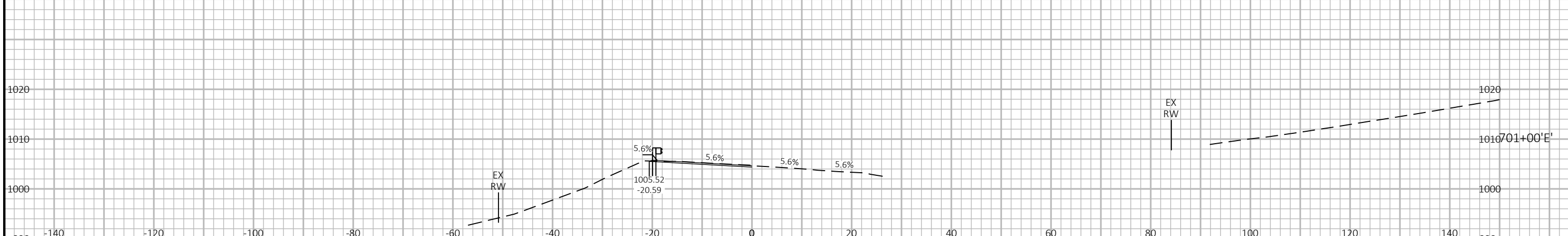
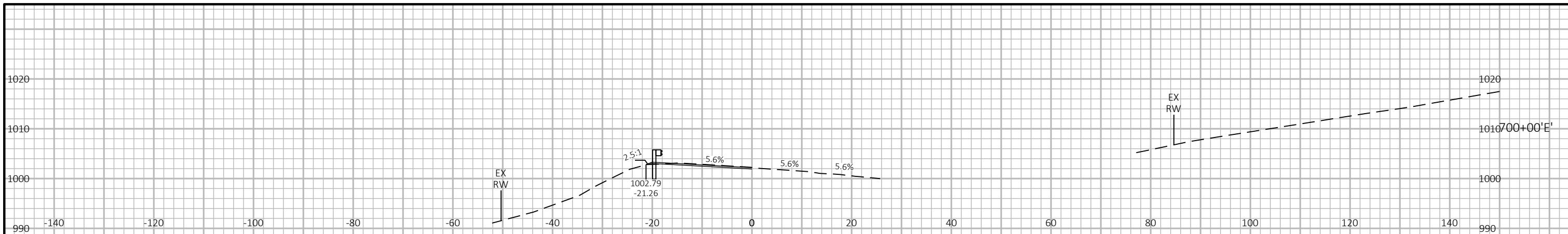
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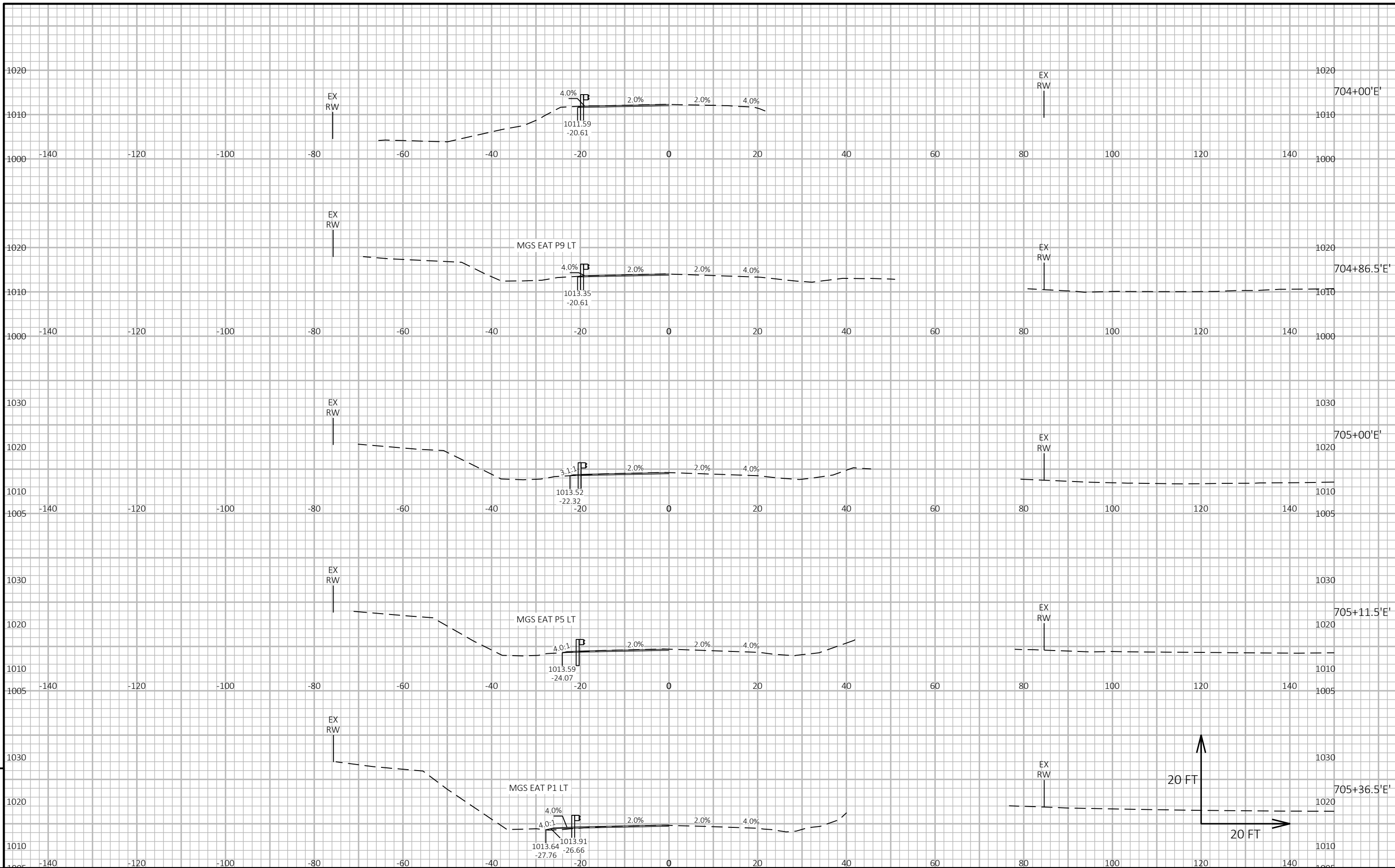
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SHEET

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PROJECT NO: 7110-00-70 HWY: STH 37 COUNTY: BUFFALO & EAU CLAIRE CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE SHEET 9



PROJECT NO: 7110-00-70

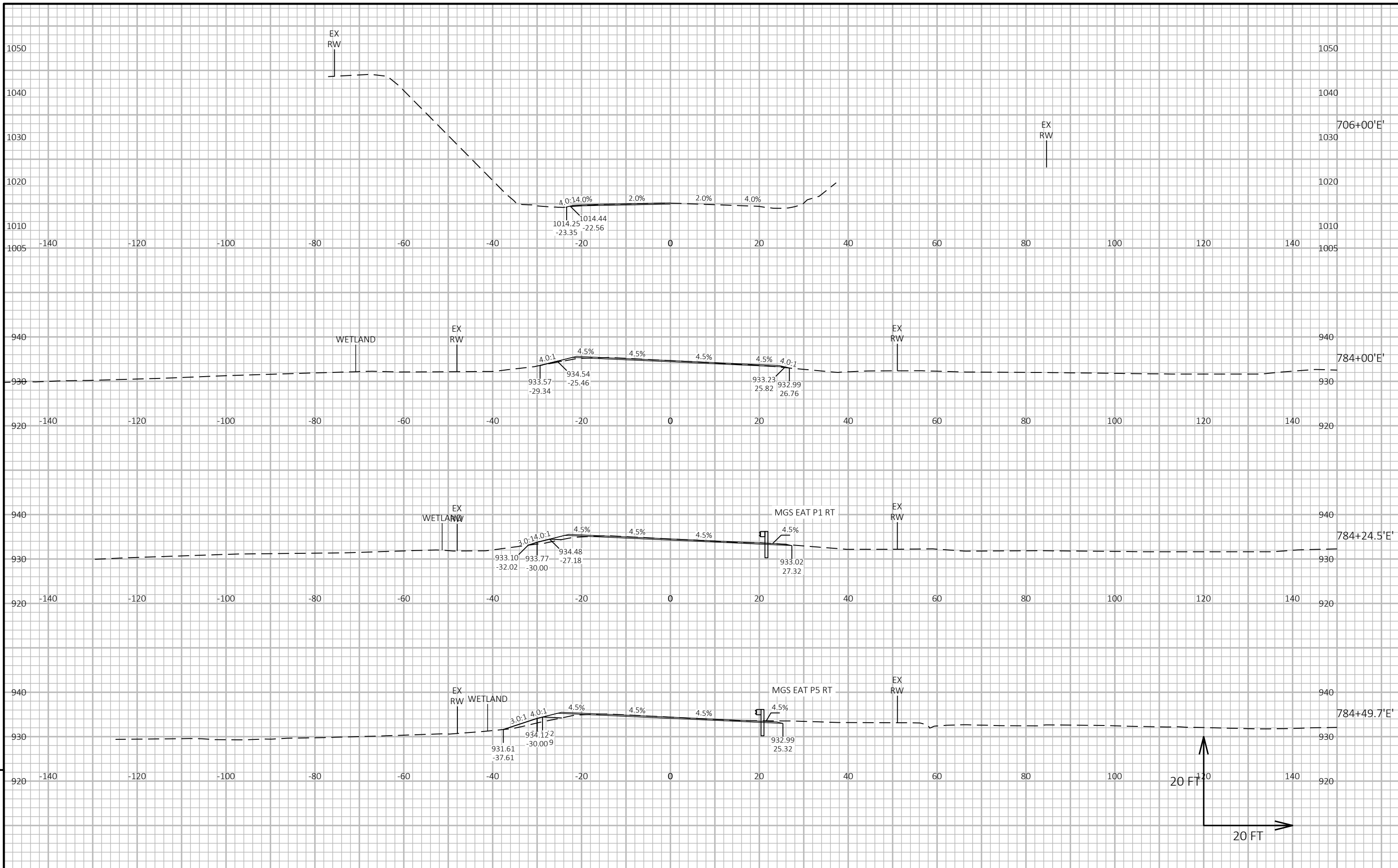
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COUNTY: BUFFALO & EAU CLAIRE

CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE

SHEET

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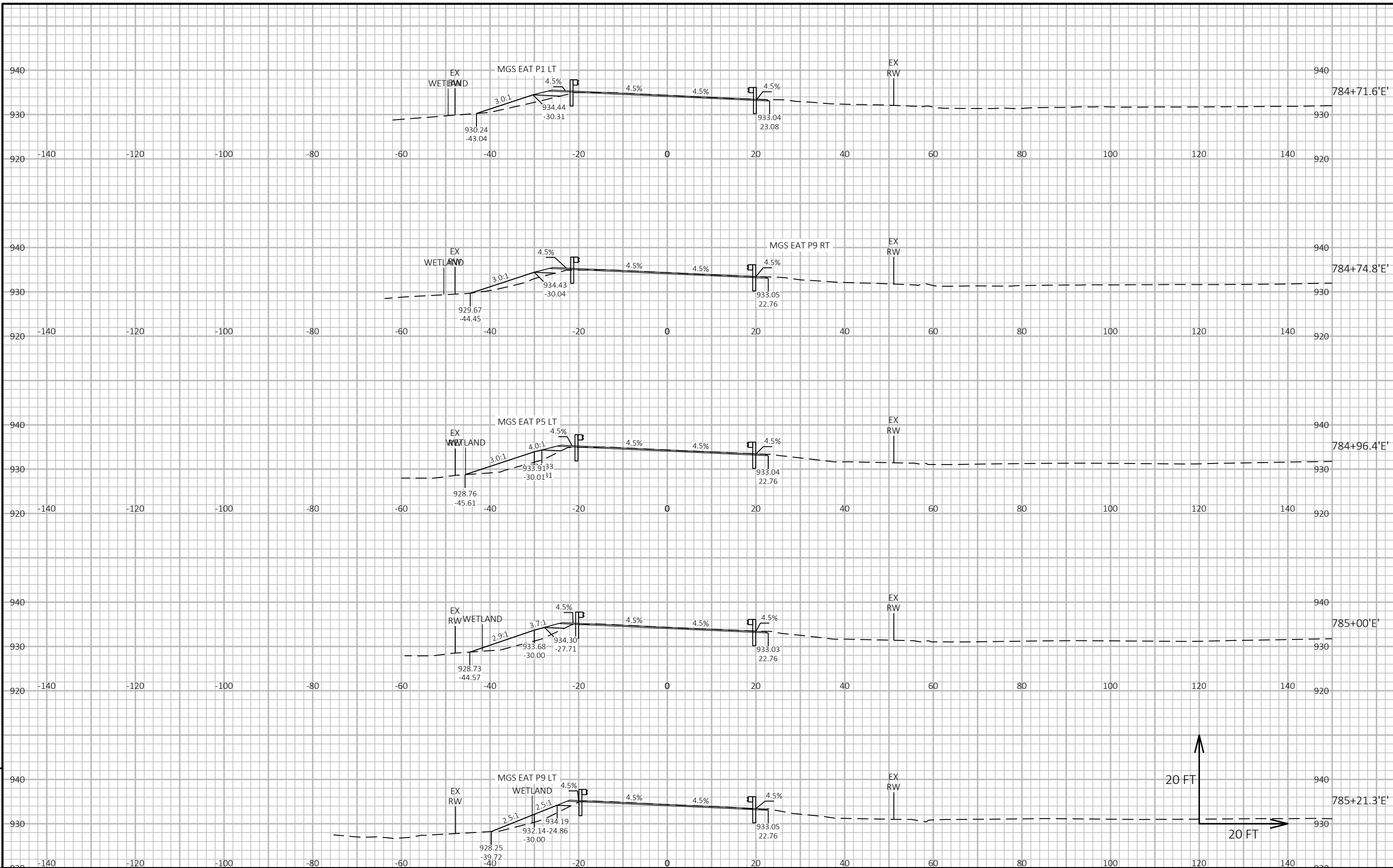


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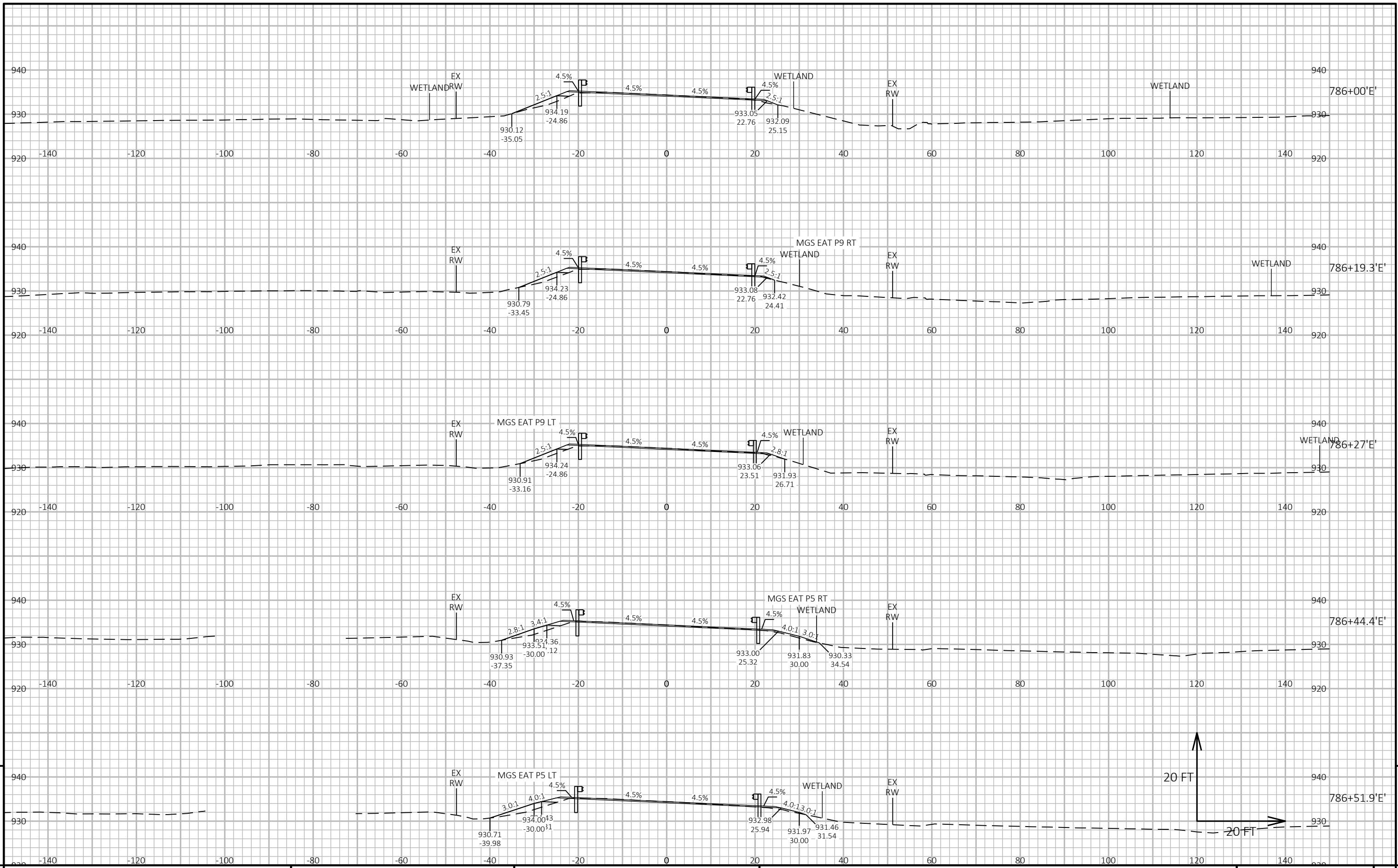
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	E
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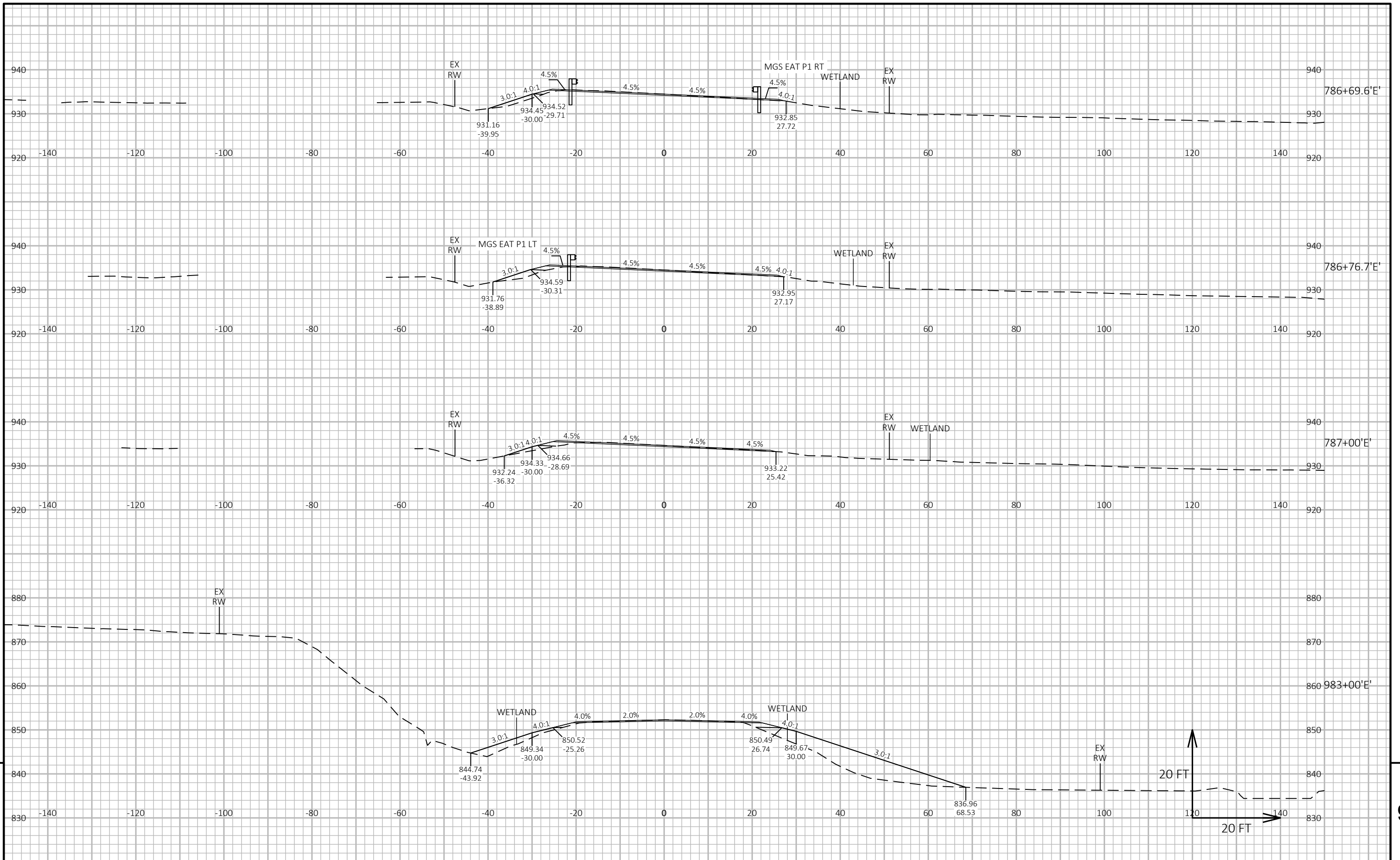
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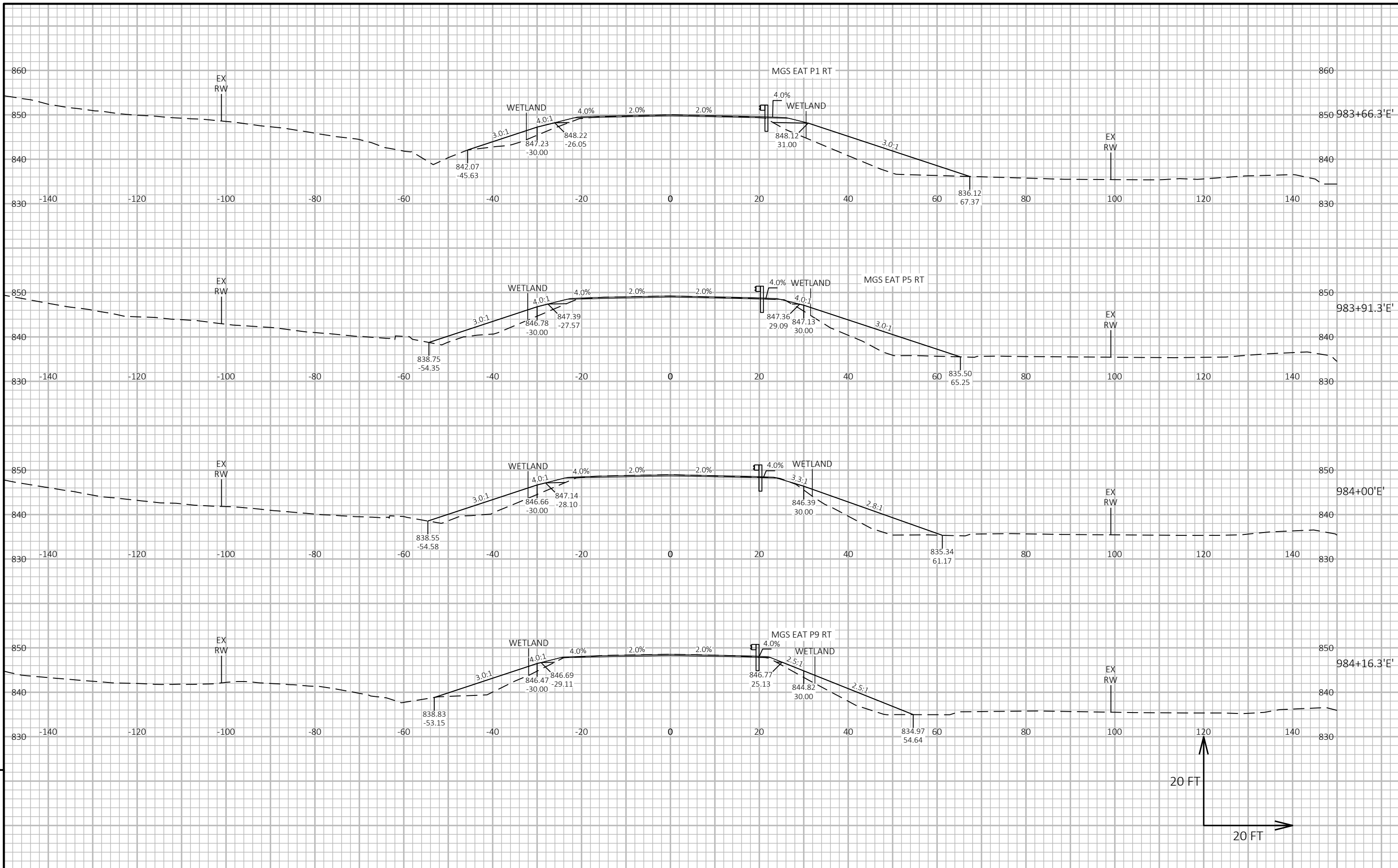
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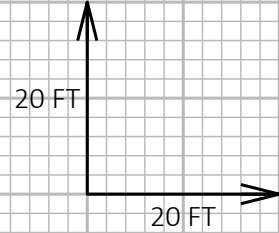


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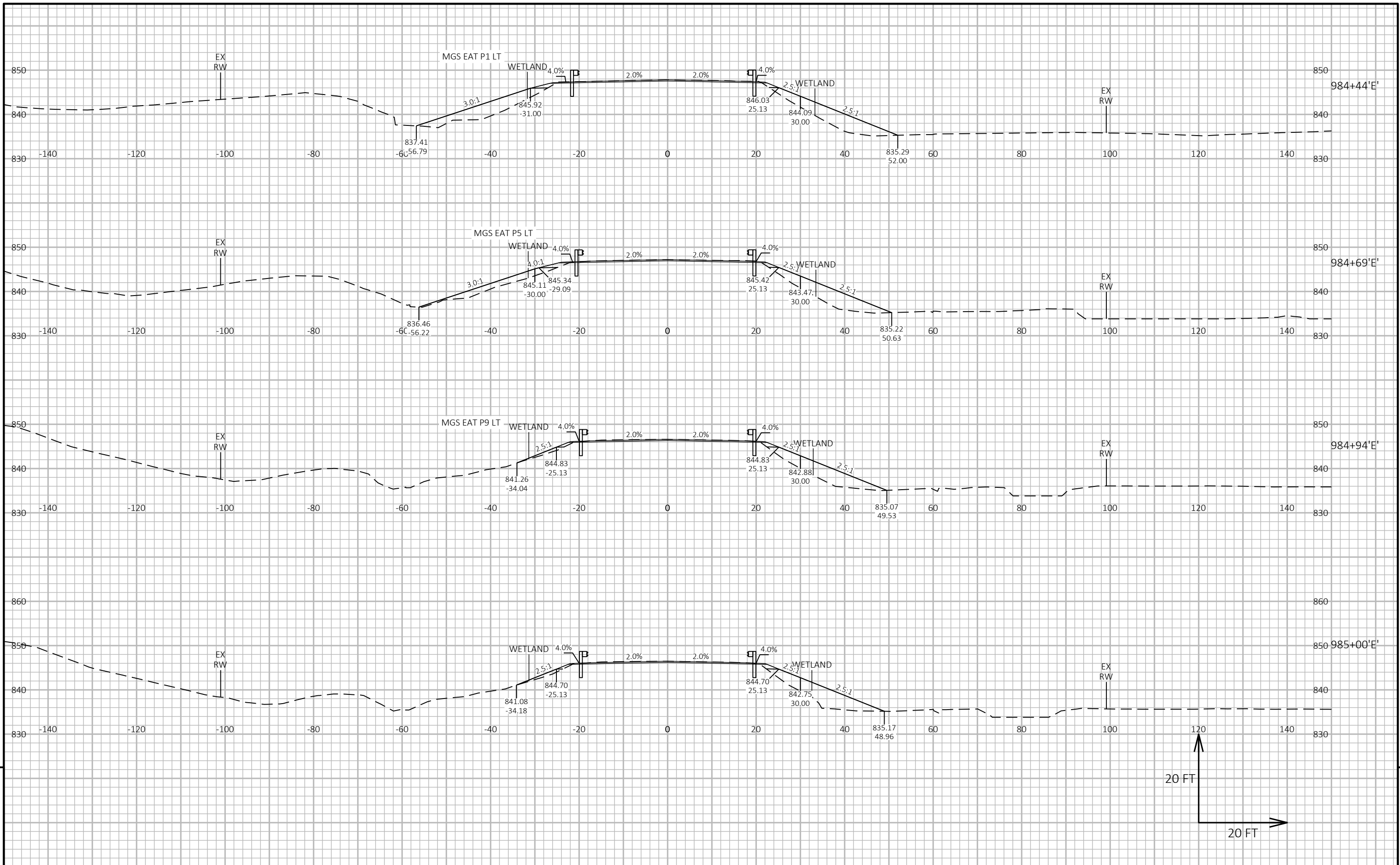


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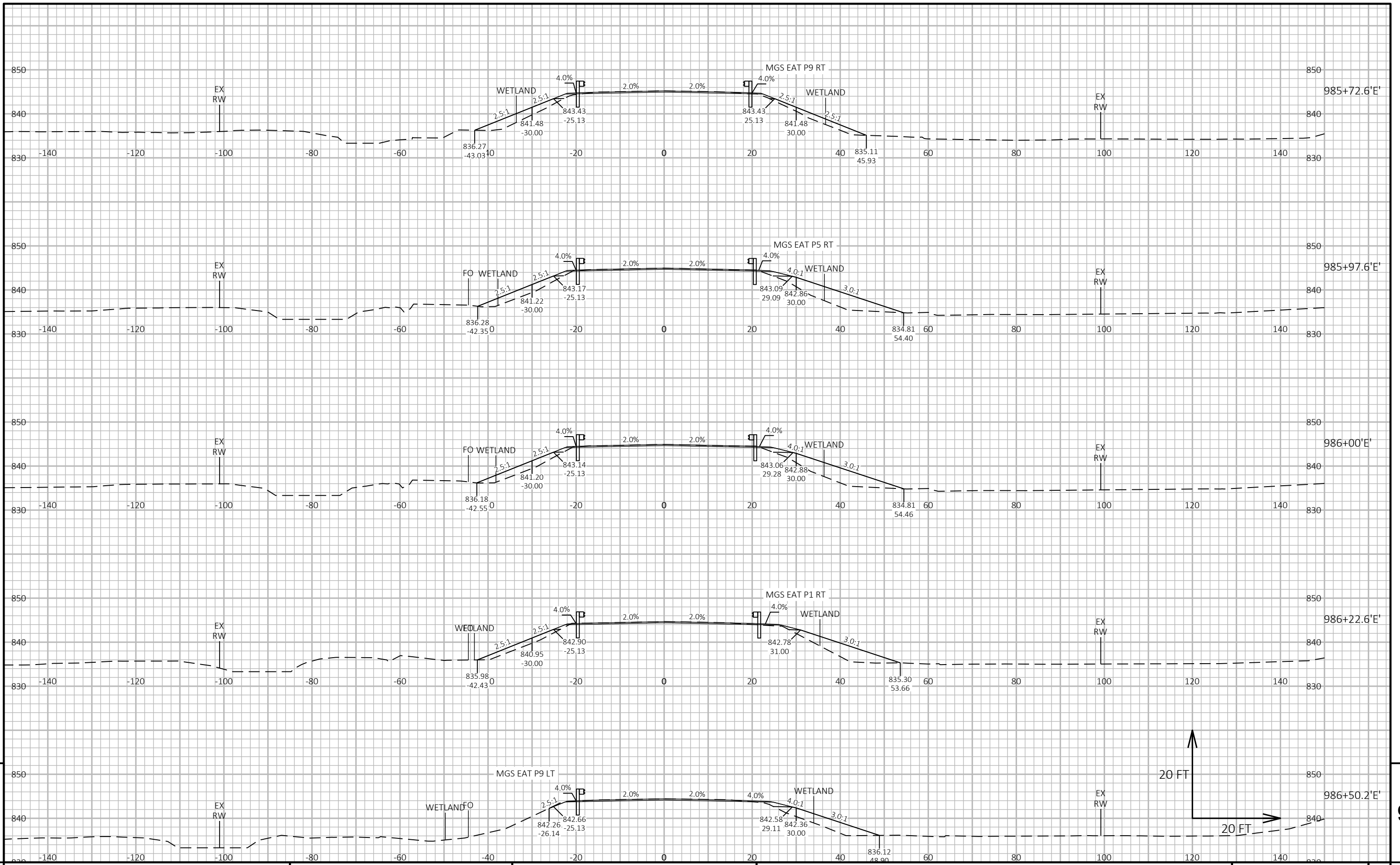
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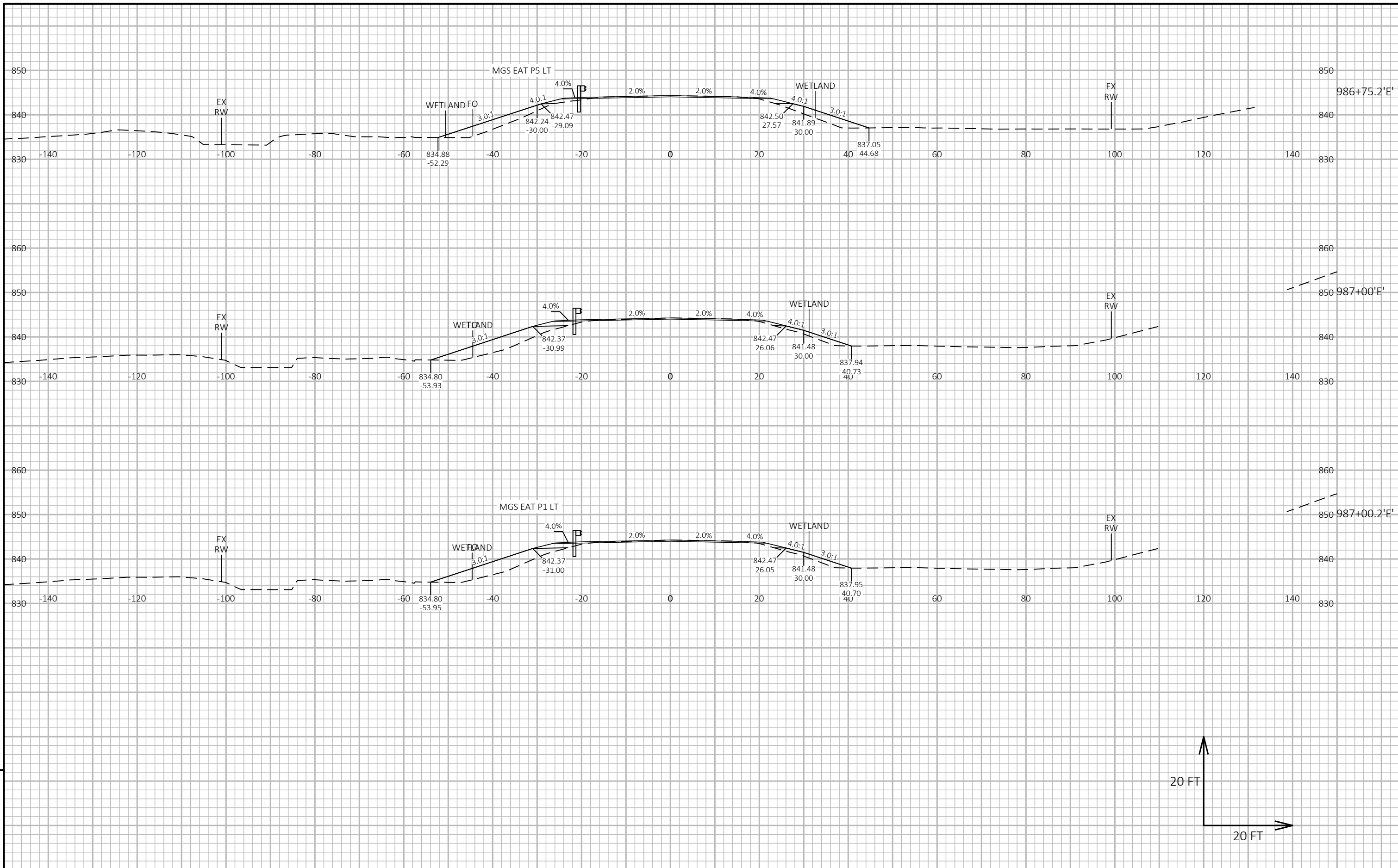
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PROJECT NO: 7110-00-70	HWY: STH 37	COUNTY: BUFFALO & EAU CLAIRE	CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE	SHEET	E
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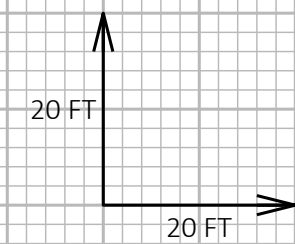


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PROJECT NO: 7110-00-70

HWY: STH 37

COUNTY: BUFFALO & EAU CLAIRE

CROSS SECTIONS: STH 37 - WCCS EAU CLAIRE

SHEET

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FILE NAME : G:\SHARED DRIVES\PROJECTS\WI - NW REGION\7110-00-00_EAU CLAIRE CO_STH 37\500_CADD\501_C3D_2018\71100000\SHETSPLAN\090201-XS-WCCS EAU CLAIRE.DWG

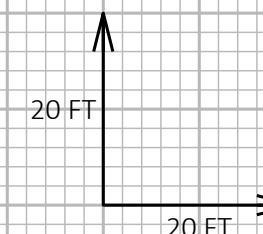
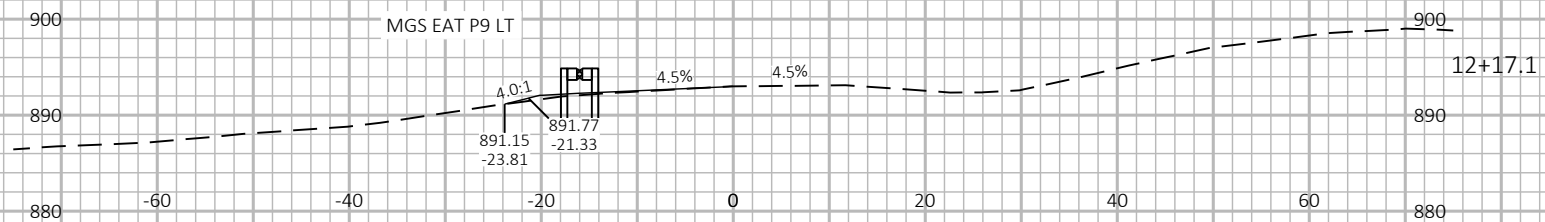
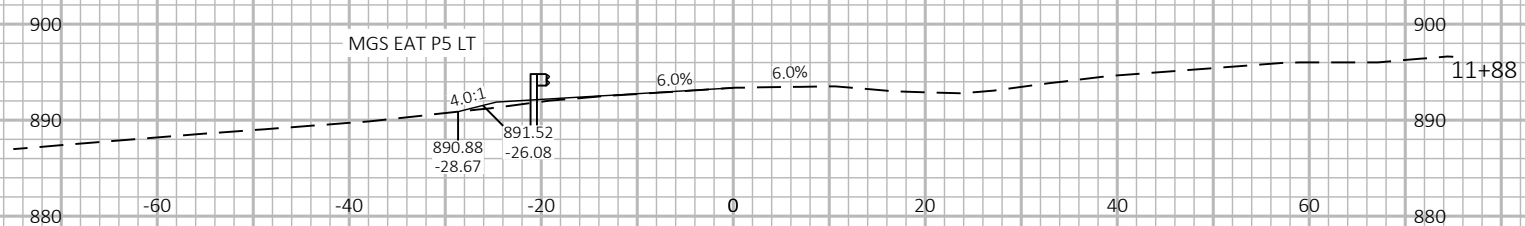
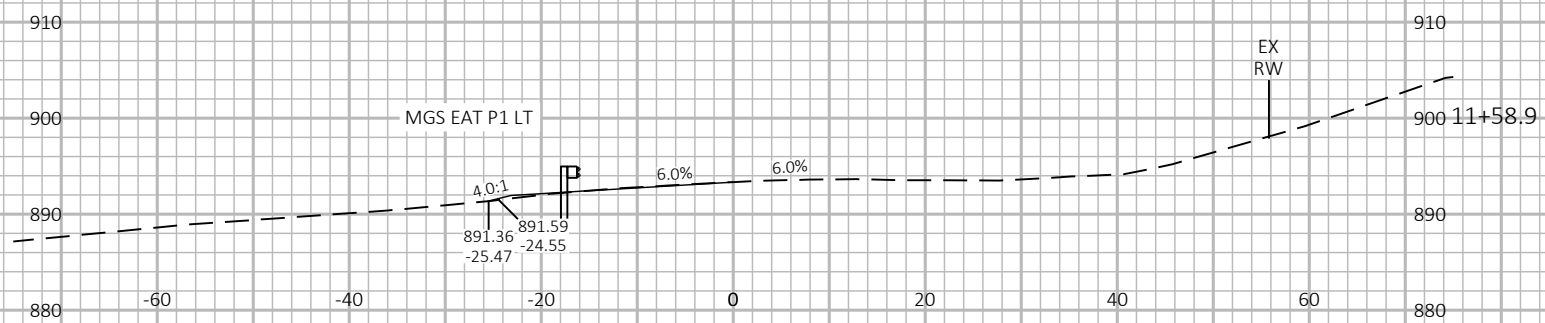
PLOT DATE : 10/28/2020 12:12 PM

PLOT BY : JOSH WEISS

PLOT NAME :

PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:20 FT VERT.

WISDOT/CADD SHEET 49



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Notes



Wisconsin Department of Transportation

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