

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.

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED AND MULCHED.

ALL DISTURBED, GRADED, OR SOIL STOCKPILE AREAS SHALL BE PERMANENTLY RESTORED WITHIN 14 DAYS OF ANY CONTRACTOR DISTURBANCE. IF ANY DISTURBED, GRADED, OR SOIL STOCKPILE AREAS WILL NOT BE PERMANENTLY RESTORED WITHIN 14 DAYS, THEY SHALL RECEIVE SEED AND MULCH WITHIN 5 DAYS OF THE INITIAL DISTURBANCE. ANY DISTURBED WETLAND AREAS OR DISTURBED AREAS IMMEDIATELY ADJACENT TO WETLAND AREAS SHALL BE TEMPORARY (OR PERMANENTLY) RESTORED WITHIN 48 HOURS OF ANY DISTURBANCE.

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

EXISTING RIGHT OF WAY SHOWN ON PLANS IS BASED ON GIS DATA AND IS APPROXIMATE.

CONTACT THE PROJECT ENGINEER AND THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION, AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC SURVEY MONUMENT.

HMA MIXTURES			
PAVEMENT TYPE	TOTAL LAYER PAVEMENT THICKNESS	LAYERS	LOCATION
4 LT 58-28 S 3 LT 58-28 S	4"	1-3/4" UPPER 2-1/4" LOWER	STH 89 LANES
4 LT 58-28 S	1-3/4"	1-3/4" UPPER	STH 89 SHOULDERS
4 LT 58-28 S 3 LT 58-28 S	4"	1-3/4" UPPER 2-1/4" LOWER	STH 89 PAVEMENT WIDENING AT MGS

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	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.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 = 27.944 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.293 ACRES

SECTION 2 SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
EROSION CONTROL
PERMANENT SIGNING
TRAFFIC CONTROL - DETOUR PLAN

UTILITY CONTACTS

AT&T WI - COMMUNICATION LINE
TOM CROWLEY
435 SOUTH 95TH STREET
MILWAUKEE, WI 53214-1126
PHONE: (262) 501-3499
TC1657@ATT.COM

ATC MANAGEMENT, INC. - ELECTRICITY-TRANSMISSION
CHRIS DAILEY
PO BOX 47
WAUKESHA, WI 53187
PHONE: (262) 506-6884
CDAILEY@ATCLLC.COM

CHARTER COMMUNICATIONS - COMMUNICATION LINE
KYLE SMITH
1348 PLAINFIELD AVE
JANESVILLE, WI 53545
PHONE: (608) 575-1937
KYLE.SMITH@CHARTER.COM

WHITEWATER BROADBAND - COMMUNICATION LINE
BRIAN MEDL
10 W EVERGREEN PARKWAY, SUITE 6
PO BOX 618
ELKHORN, WI 53121
PHONE: 262-458-4220
BRIAN@EDGEBROADBAND.COM

NORTHERN NATURAL GAS CO. - GAS/PETROLEUM
LENNY KLAAS
5557 COUNTY HIGHWAY D
PLATTEVILLE, WI 53818
PHONE: (402) 530-2806
CELL: (608) 778-8514
LEONARD.KLAAS@NNGCO.COM
NOTE: CONTACT NORTHERN GAS 48 HOURS IN ADVANCE
WHENEVER WORK IS WITHIN 25' OF PIPELINES

WE ENERGIES - ELECTRICITY
ERIC KICKHAVER
500 S 116TH ST
WEST ALLIS, WI 53214
PHONE: (414) 944-5917
CELL: (414) 588-7472
DISPATCH: (800) 662-4797

WE ENERGIES - GAS/PETROLEUM
SCOTT HOLSTEIN
700 S KANE STREET
BURLINGTON, WI 53105
PHONE: (262) 763-1084
CELL: (262) 949-0490
DISPATCH: (800) 261-5325

OTHER CONTACTS

WISDOT DESIGN
GARY METZER, PROJECT MANAGER
141 NW BARSTOW ST
P.O. BOX 798
WAUKESHA, WI 53187-0798
(262) 548-5685
GARY.METZER@DOT.WI.GOV

WISCONSIN DNR
CRAIG WEBSTER
DNR SERVICE CENTER
141 NW BARSTOW ROOM 180
WAUKESHA, WI 53188
(262) 574-2141
(414) 303-3011
CRAIG.WEBSTER@WISCONSIN.GOV

SOUTHEASTERN WISCONSIN REGIONAL PLAN
COMMISSION (SWRPC)
ROB MERRY (CHIEF SURVEYOR)
W239 N1812 ROCKWOOD DRIVE
P.O. BOX 1607
WAUKESHA, WI 53187-1607
PHONE (262)953-4289
CELL (920)912-1036
FAX (262)547-1103
E-MAIL: RMERRY@SEWRPC.ORG

SOUTHEASTERN WISCONSIN REGIONAL PLAN
COMMISSION (SWRPC)
ANDY TRAEGER (CONSTRUCTION COORDINATOR)
W239 N1812 ROCKWOOD DRIVE
P.O. BOX 1607
WAUKESHA, WI 53187-1607
PHONE (262)953-4296
CELL (262)853-8463
FAX (262)547-1103
E-MAIL: ATRAEGE@SEWRPC.ORG

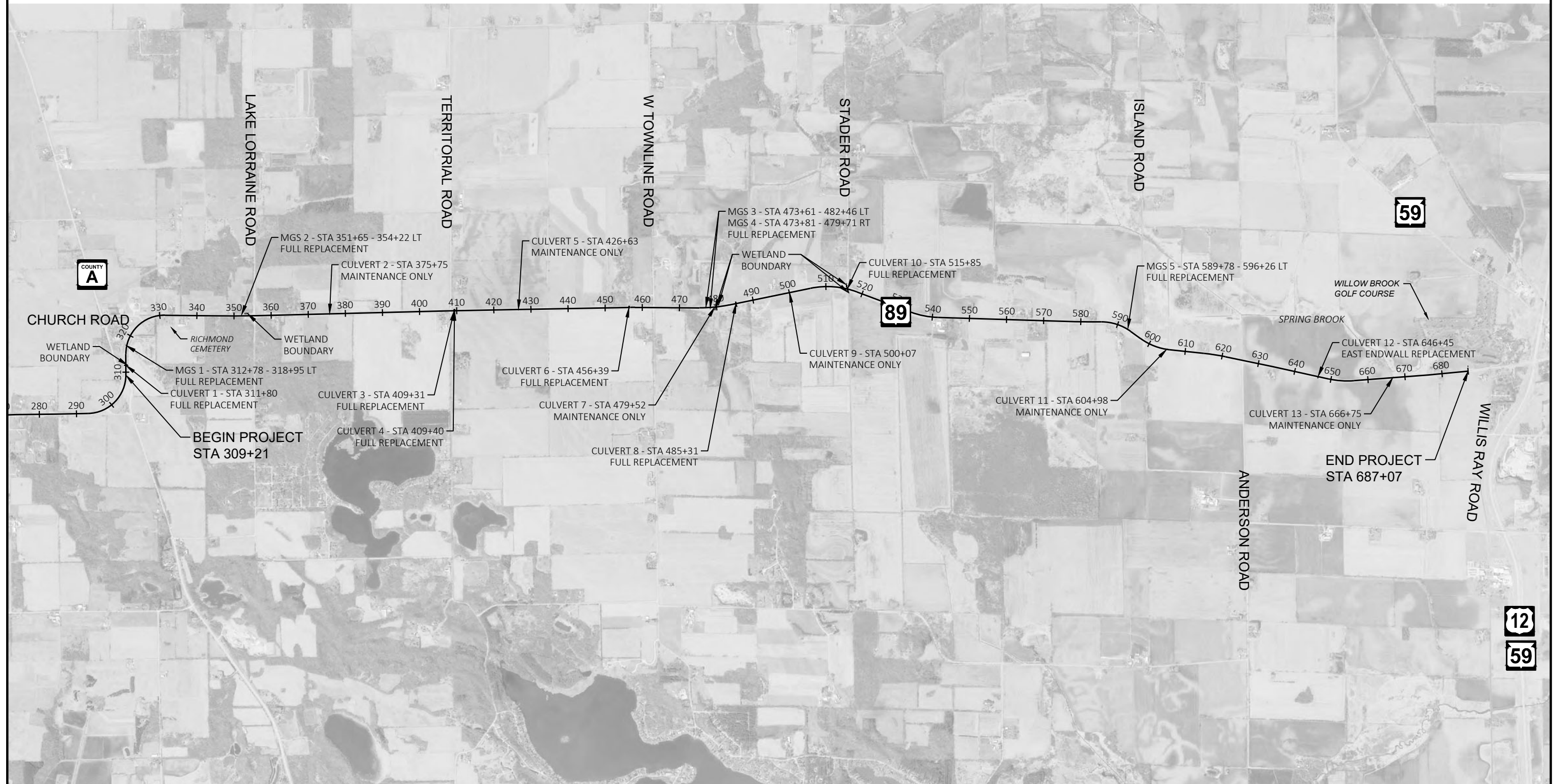
DESIGN CONTACT

AECOM
AUDREY DEMETER, PROJECT MANAGER
1555 N RIVERCENTER DR, SUITE 214
MILWAUKEE, WI 53212
(920) 634-7167
AUDREY.DEMETER@AECOM.COM

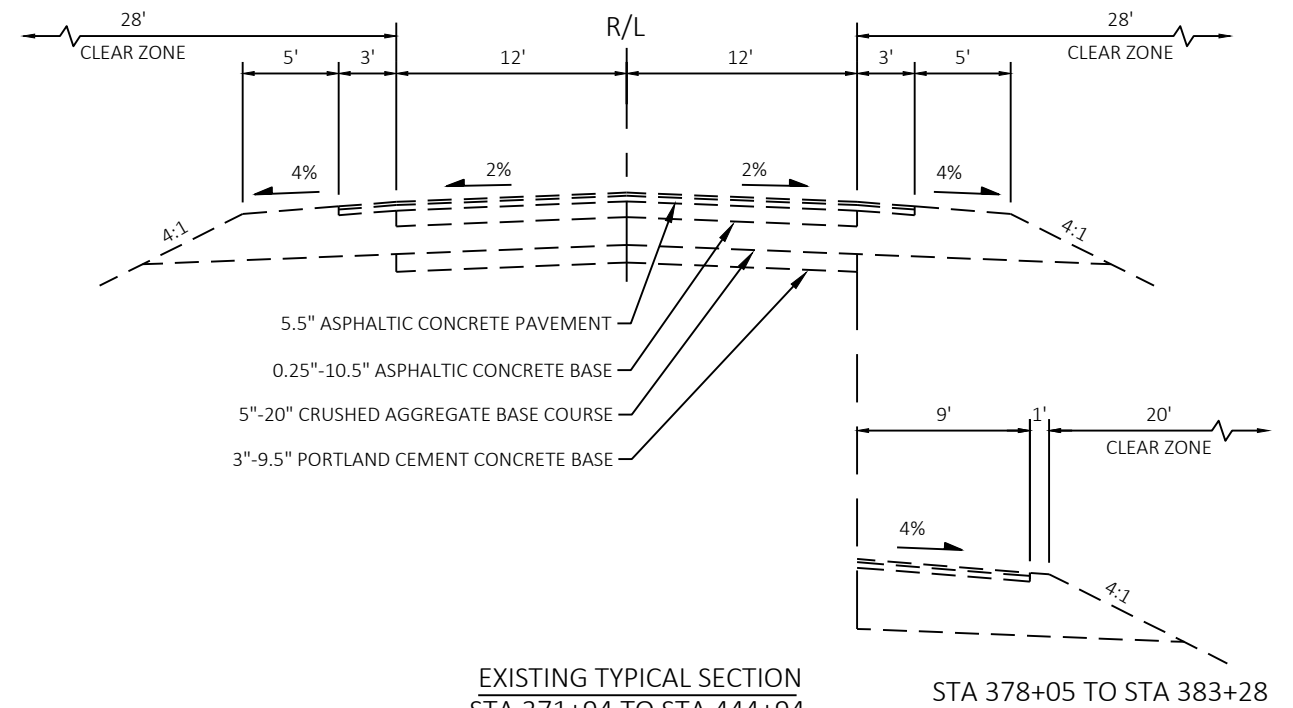
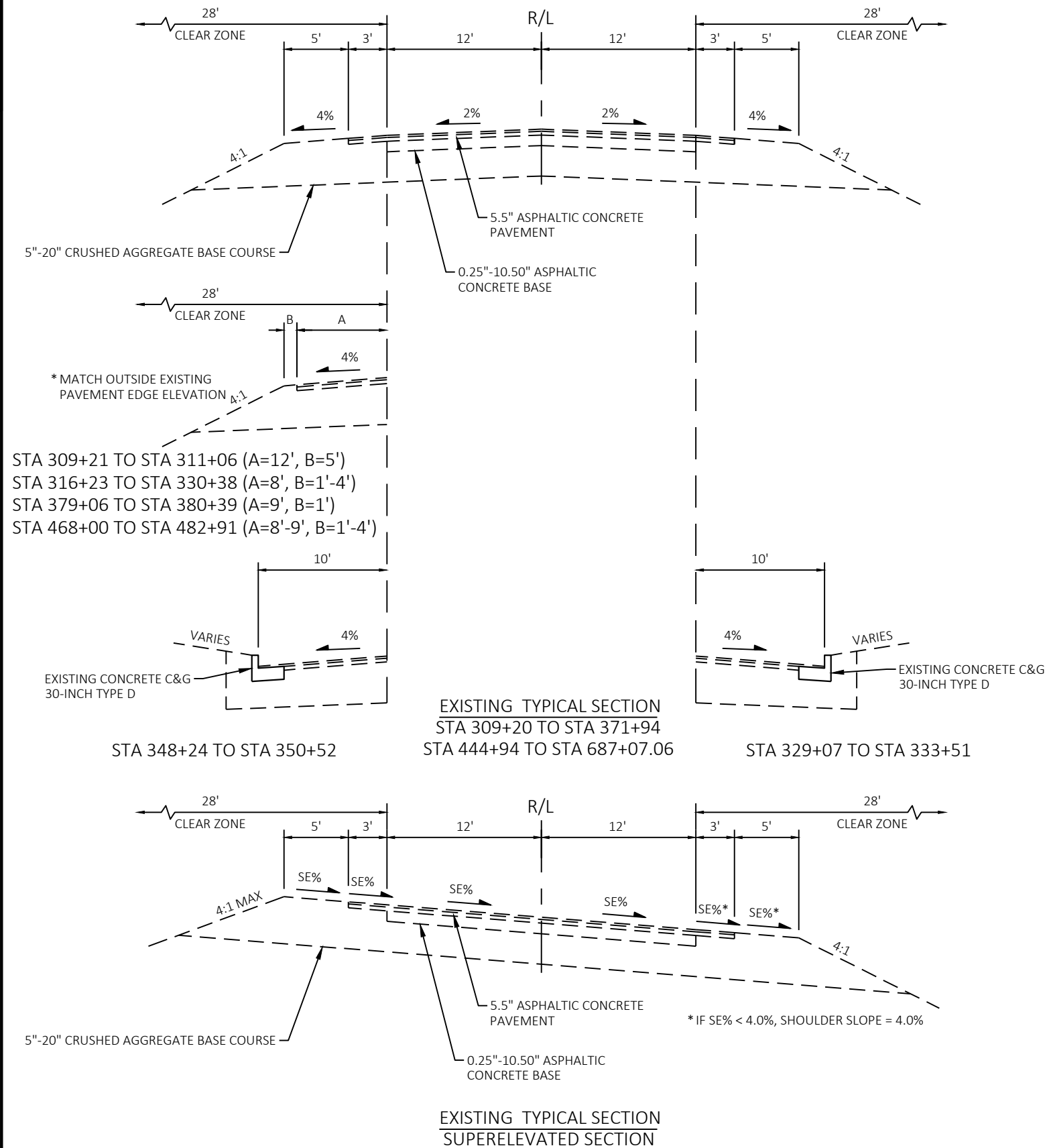


Dial 811 or (800)242-8511

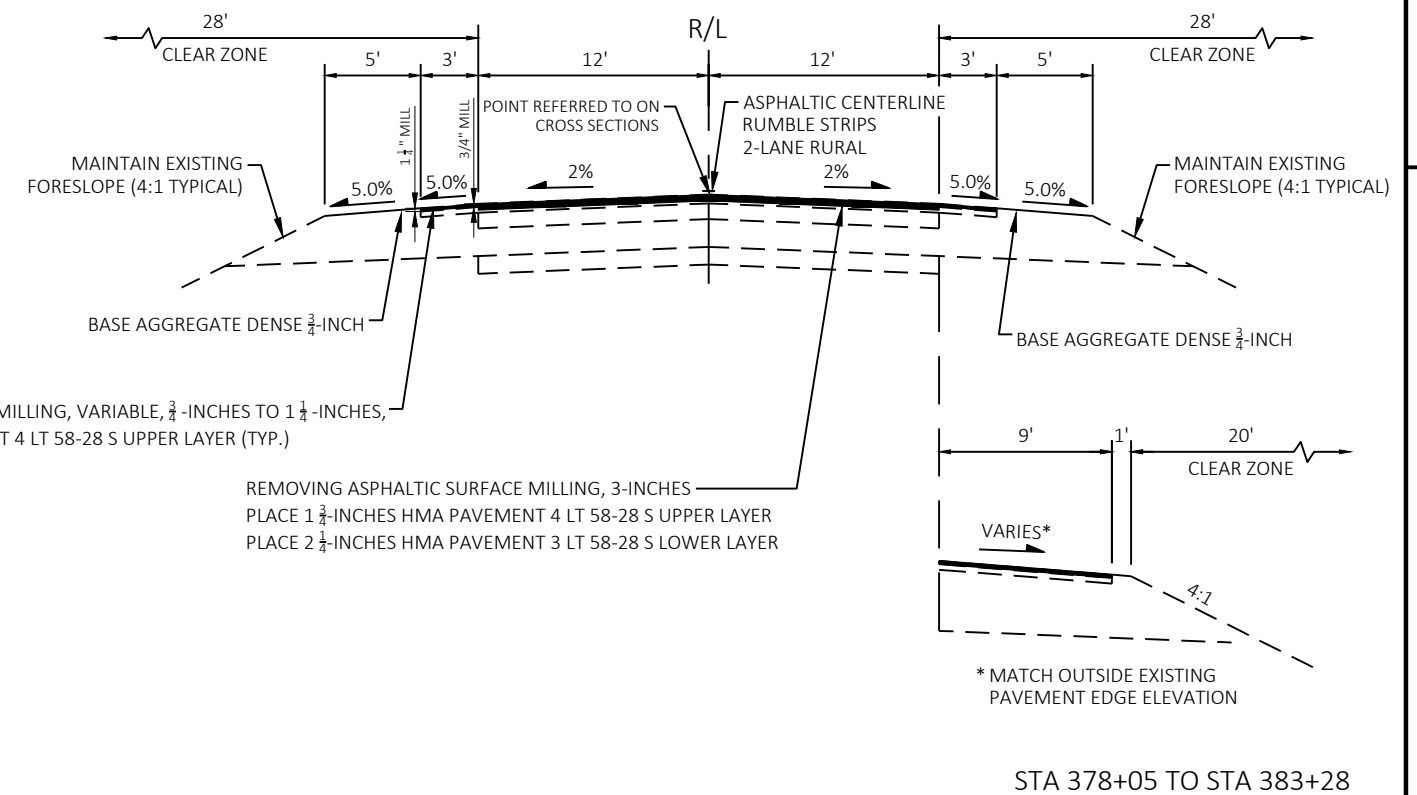
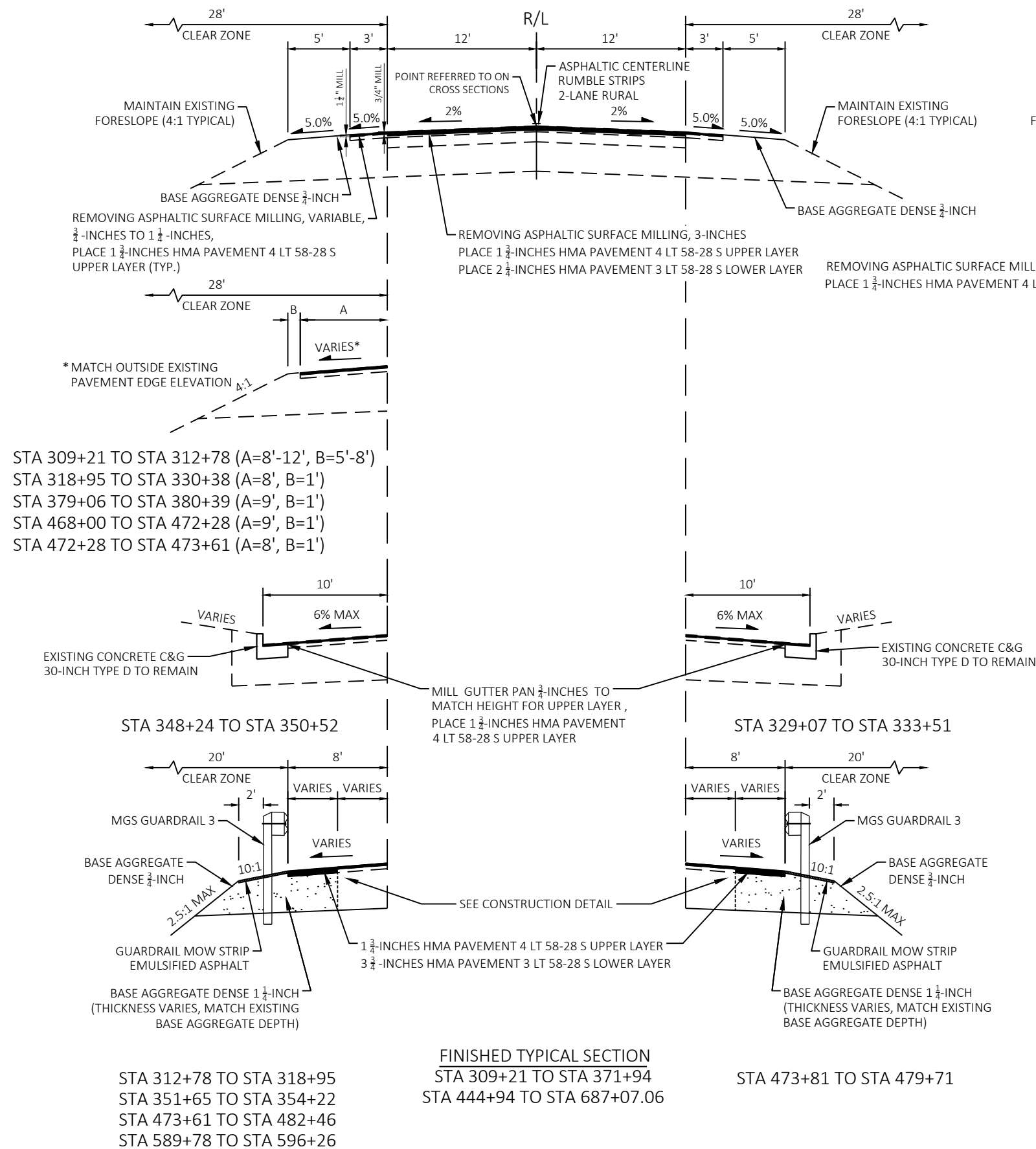
www.DiggersHotline.com



PROJECT NO: 3390-04-70	HWY: STH 89	COUNTY: WALWORTH	PROJECT OVERVIEW	SHEET 3	E
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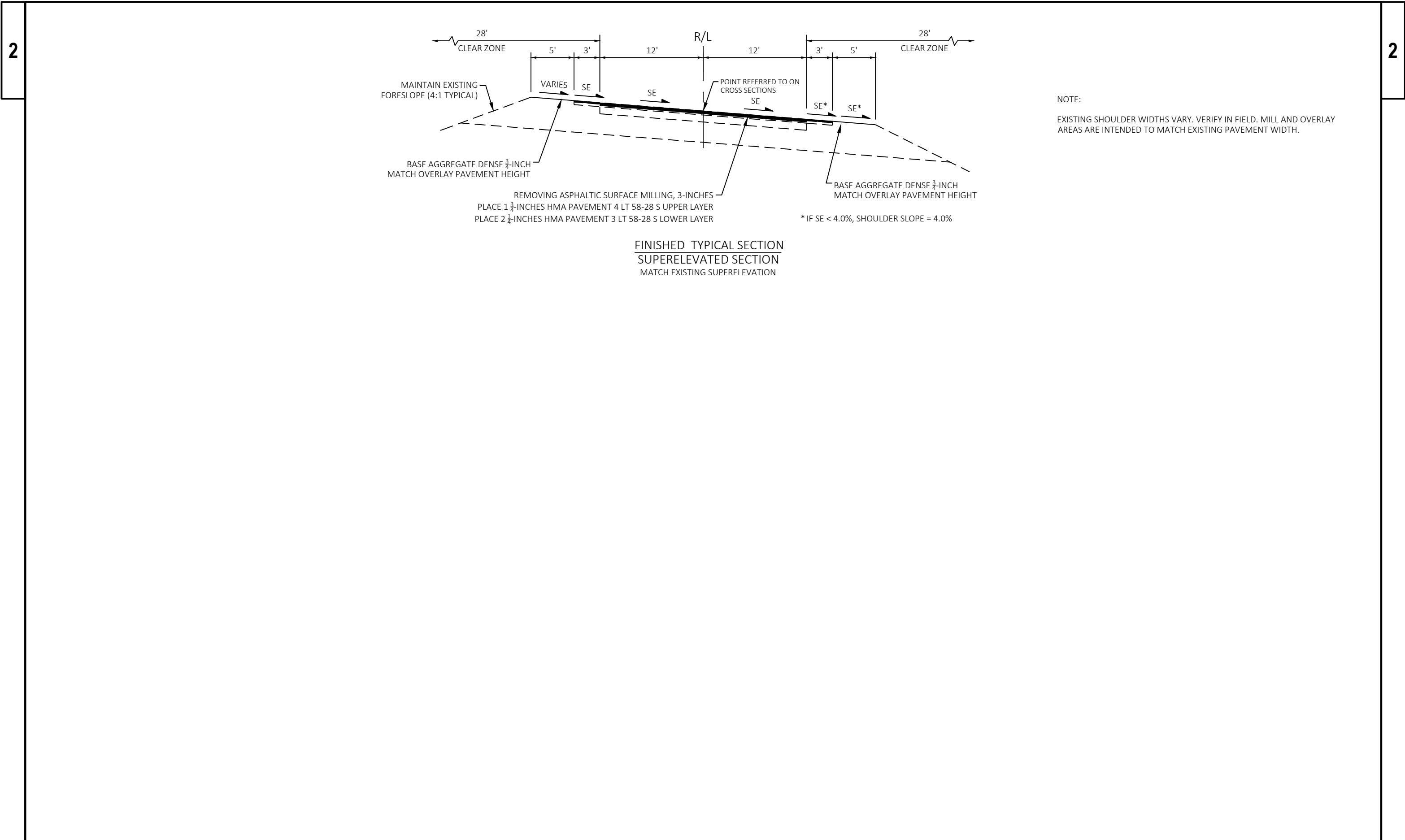
NOTE:
EXISTING SHOULDER WIDTHS VARY. VERIFY IN FIELD.



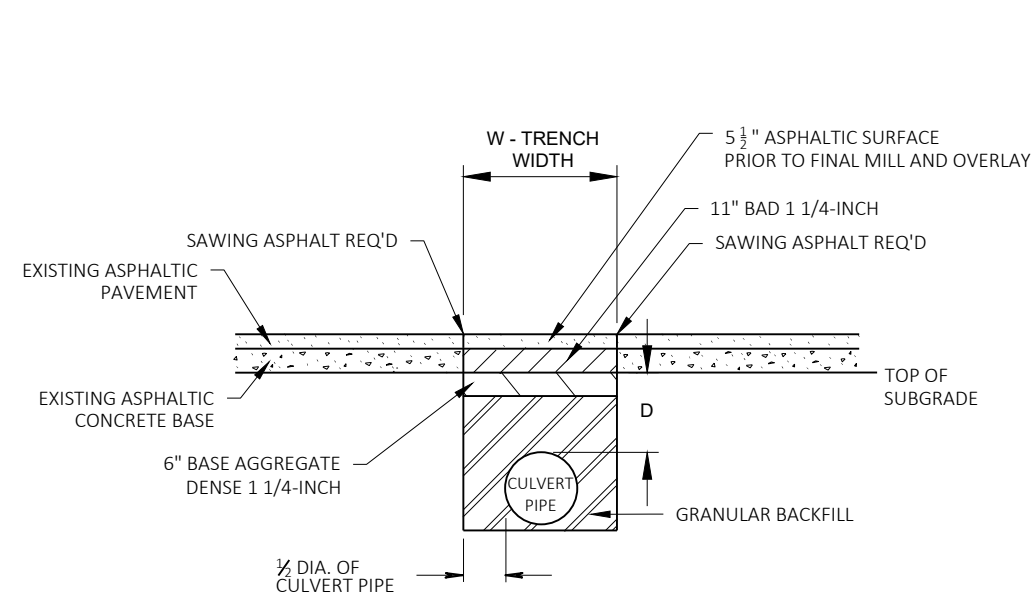
FINISHED TYPICAL SECTION
STA 371+94 TO STA 444+94

NOTE:

EXISTING SHOULDER WIDTHS VARY. VERIFY IN FIELD. MILL AND OVERLAY AREAS ARE INTENDED TO MATCH EXISTING PAVEMENT WIDTH.

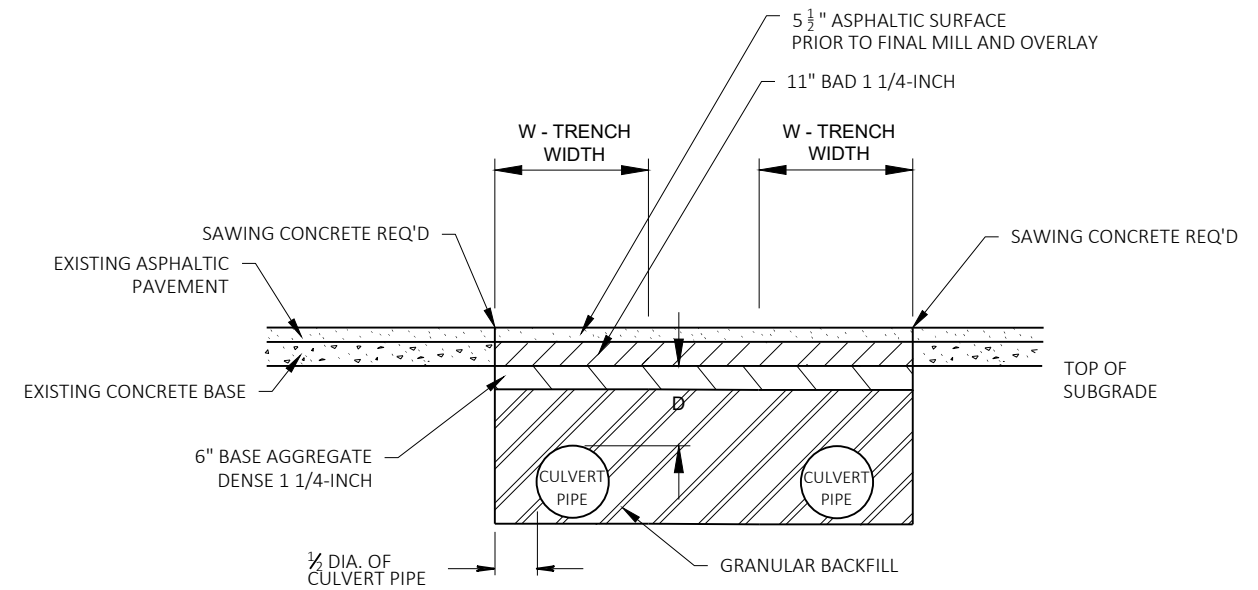


NOTE:
EXISTING SHOULDER WIDTHS VARY. VERIFY IN FIELD. MILL AND OVERLAY AREAS ARE INTENDED TO MATCH EXISTING PAVEMENT WIDTH.



DETAIL FOR CULVERT PIPE INSTALLATION
IN AREAS OF EXISTING PAVEMENT

CULVERTS 1, 6, 8 & 10



DETAIL FOR CULVERT PIPE INSTALLATION
IN AREAS OF EXISTING CONCRETE BASE

CULVERTS 3 & 4

NOTES

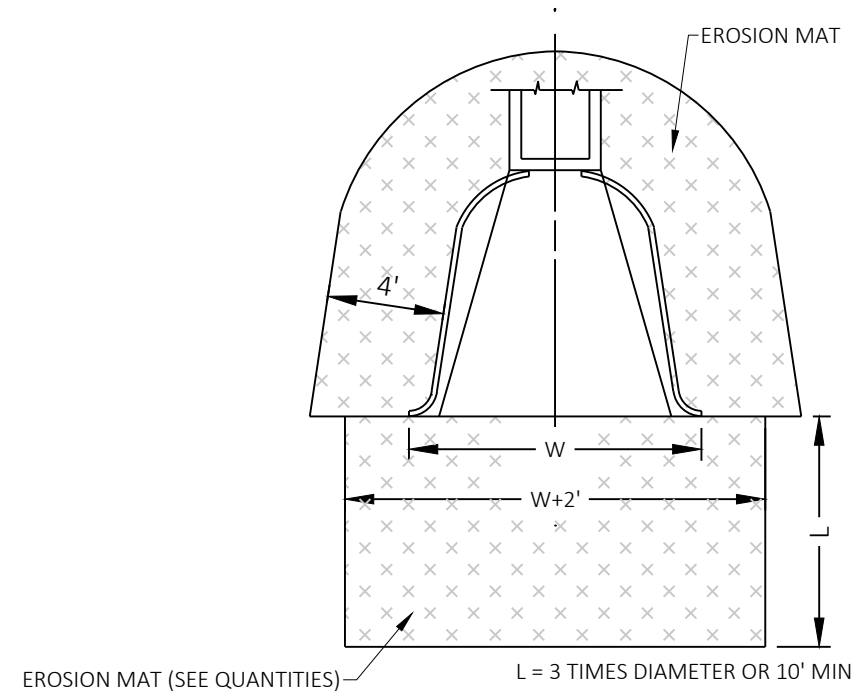
PERFORM CULVERT PIPE INSTALLATION BEFORE MILLING AND PAVING. PAVE ASPHALTIC SURFACE TO MATCH EXISTING ELEVATION. SEE TYPICAL SECTIONS FOR FINAL MILLING AND PAVEMENT LAYERS.

TRENCH BOX REQUIRED FOR DEEPER CULVERT EXCAVATION. ADDITIONAL TRENCH WIDTH REQUIRED.

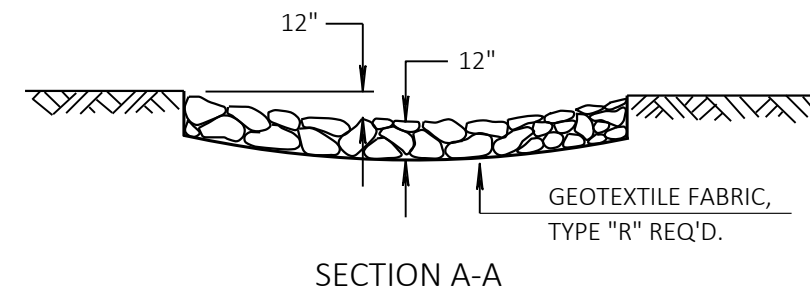
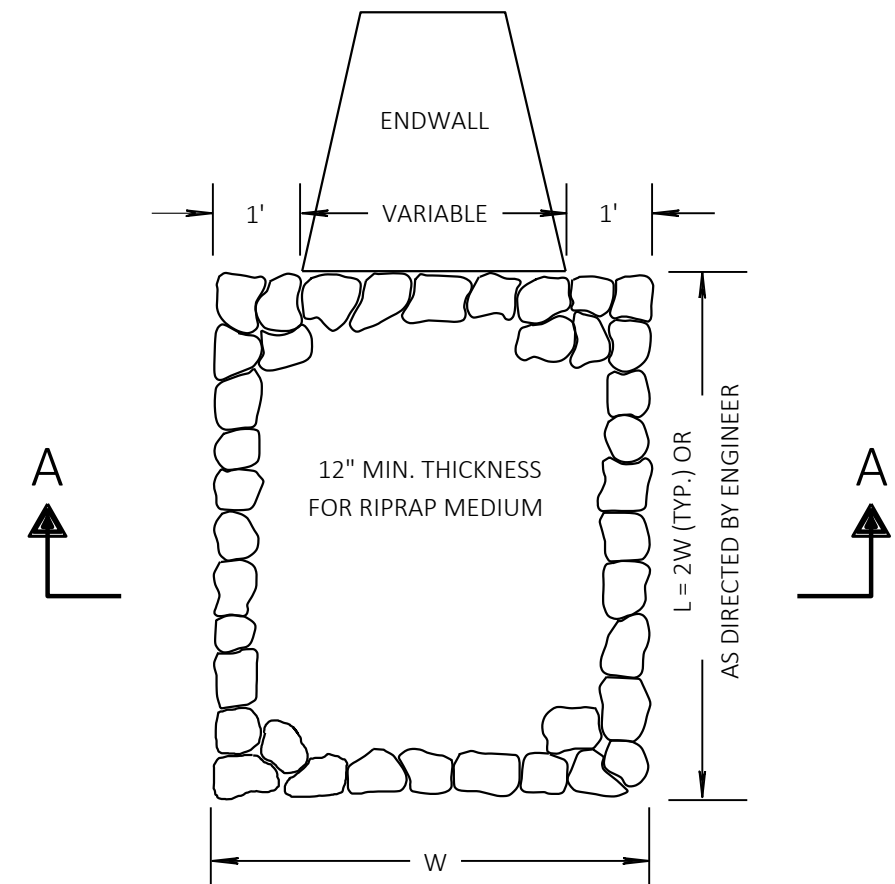
CULVERT PIPE TRANSITION

CULVERT	ROUTE	STA (CL)	DEPTH D (FT)	PIPE DIA (IN)	'W' TRENCH WIDTH (FT)	COMMON EXC (CY)
1	STH 89	311+82	2.8	30	5	85
3	STH 89	409+31	2.2	28X20	4.7	50
4	STH 89	409+40	2.2	28X20	4.7	55
6	STH 89	456+40	1.0	35X24	5.8	55
8	STH 89	485+33	6.8	24	4	170
10	STH 89	515+86	10.5	24	4	315

CULVERT PIPE TRENCH DETAIL

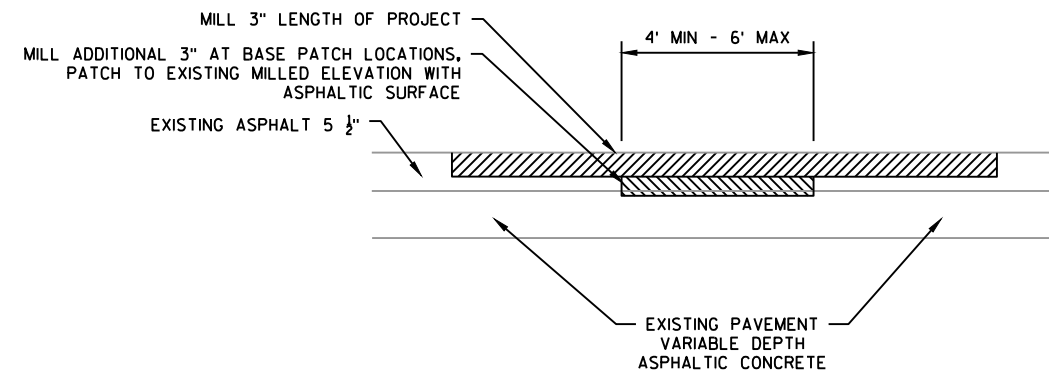


EROSION MAT AT PIPE END



RIPRAP MEDIUM TREATMENT AT CULVERTS

STA 515+86, RT



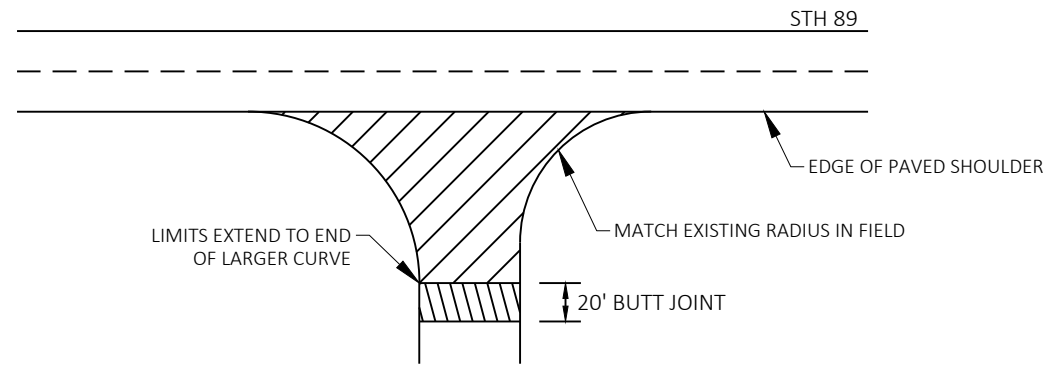
DETAIL OF BASE PATCH, ASPHALT

DETAIL TO BE USED IN LOCATIONS WHERE THE ROADWAY IS FULLY CLOSED (DAY AND NIGHT WORK).

NOTE:
CONTRACTOR TO MILL EXISTING ASPHALTIC PAVEMENT PRIOR TO BASE PATCHING. COORDINATE EXACT LOCATIONS OF BASE PATCHES WITH ENGINEER PRIOR TO PERFORMING BASE PATCH WORK OR AS SHOWN ON THE PLANS.

CONTRACTOR SHALL REMOVE ALL UNSUITABLE MATERIAL, AS APPROVED BY THE ENGINEER, BELOW BASE PATCH AREA AND REPLACE WITH ASPHALTIC SURFACE.

PATCHING MUST BE COMPLETED BY END OF SAME WORKING DAY PRIOR TO OPENING TO LOCAL TRAFFIC.

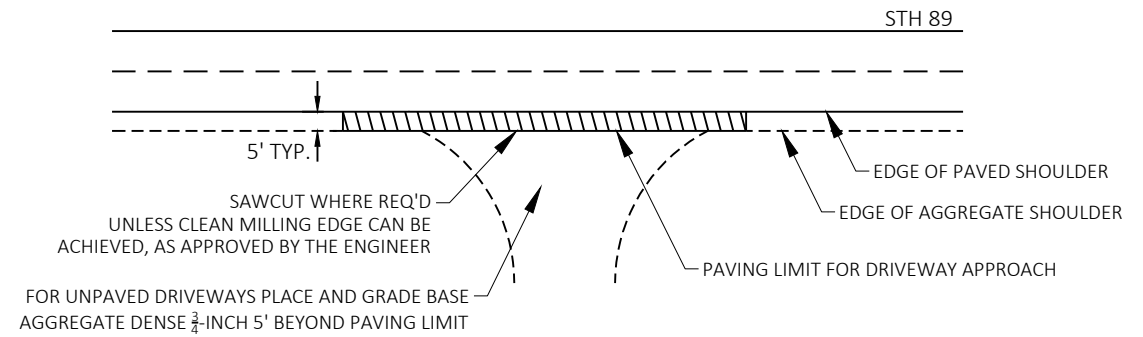


- REMOVING ASPHALTIC SURFACE MILLING 3-INCH
- REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

SIDE ROADS

WITHOUT CURB AND GUTTER

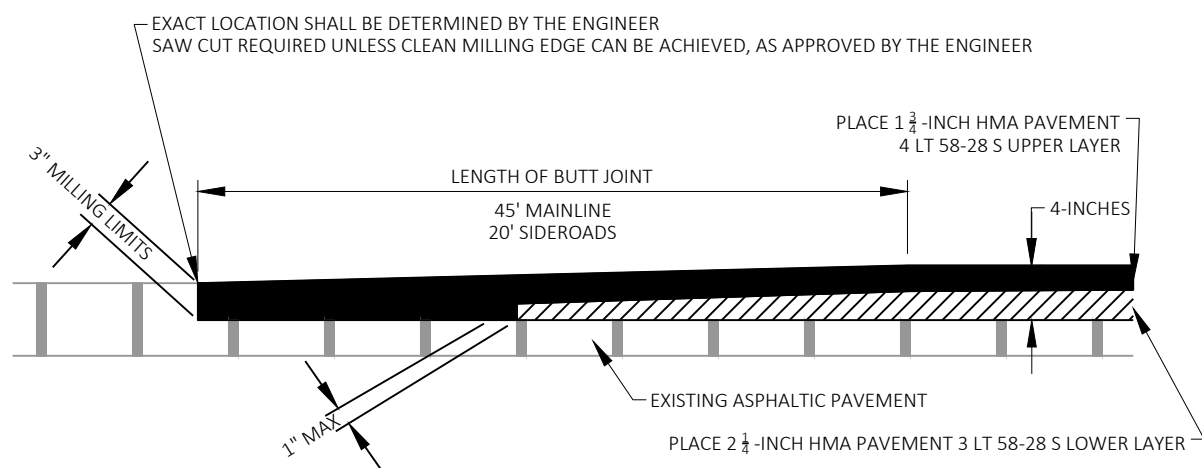
CHURCH ROAD
LAKE LORRAINE ROAD
TERRITORIAL ROAD
W TOWNLINE ROAD
STADER ROAD
ISLAND ROAD
ANDERSON ROAD



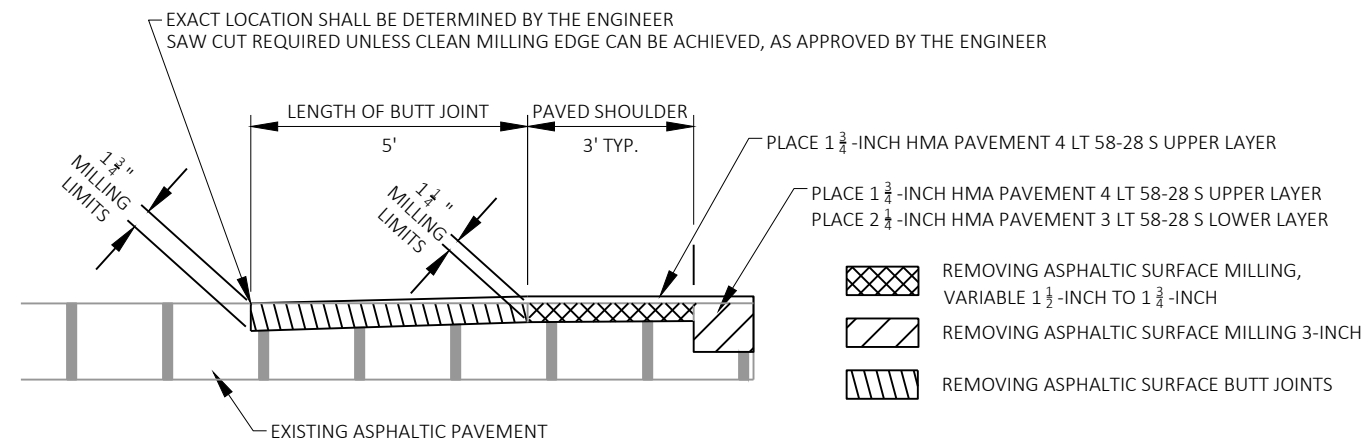
DRIVEWAY OR FIELD ENTRANCE APRON. SEE NOTE BELOW.

- PAVED DRIVEWAY: REMOVING ASPHALTIC SURFACE BUTT JOINTS
PLACE 1.75-INCH HMA PAVEMENT 4 LT 58-28 S
SEE BUTT JOINT DETAIL FOR PAVED DRIVEWAYS
- UNPAVED DRIVEWAY
OR FIELD ENTRANCE: REMOVING ASPHALTIC SURFACE MILLING 1.25-INCH
PLACE 1.75-INCH HMA PAVEMENT 4 LT 58-28 S

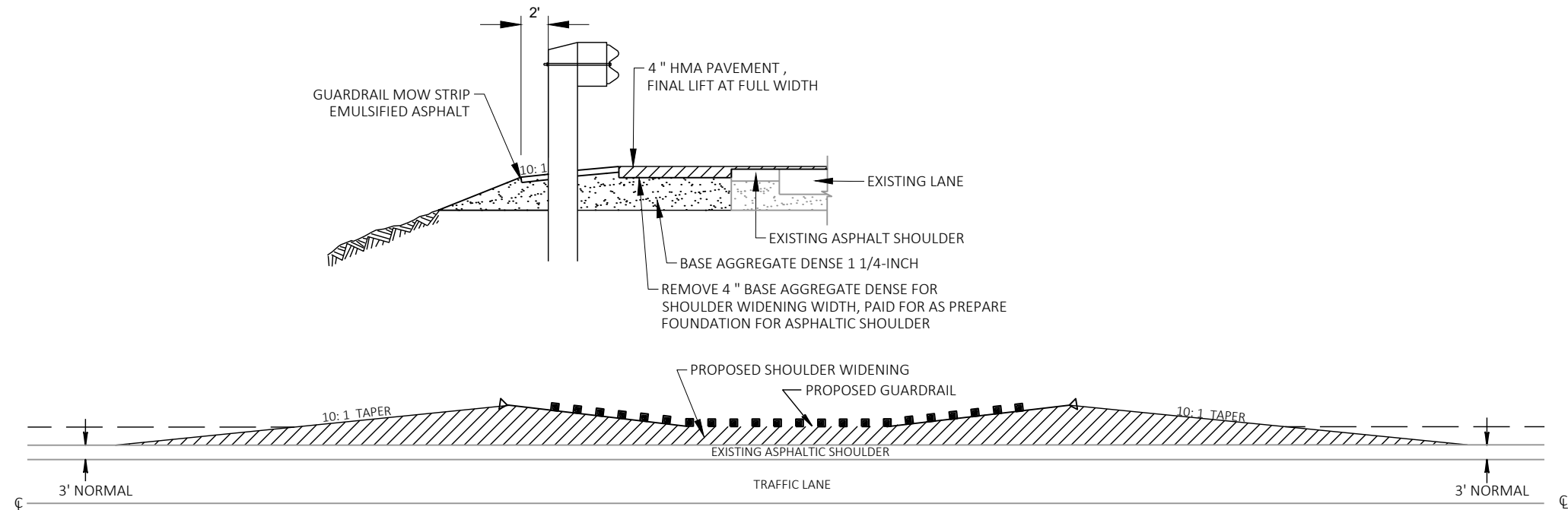
DRIVEWAYS AND FIELD ENTRANCES



BUTT JOINT MAINLINE AND SIDE ROADS



BUTT JOINT PAVED DRIVEWAYS

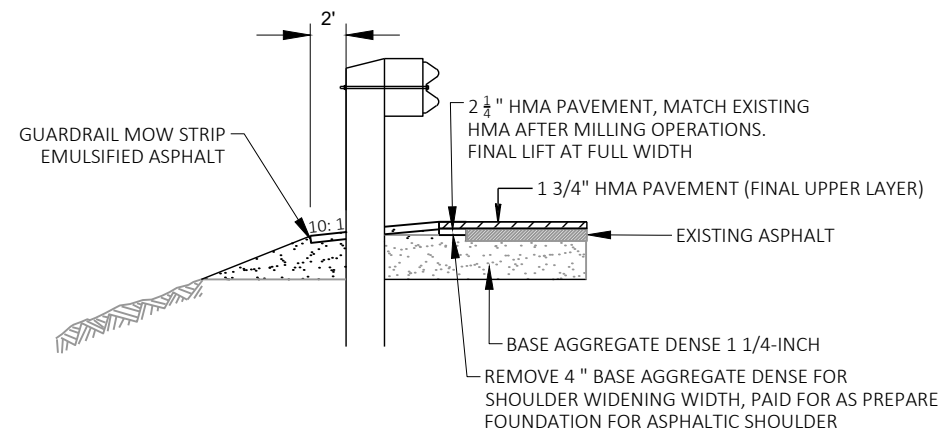


DETAIL FOR ASPHALTIC SHOULDER AT GUARDRAIL

FOR LOCATIONS WITH EXISTING GRAVEL SHOULDER TO FACE OF RAIL

NOTE:
SEE PLAN DETAIL SHEETS FOR ADDITIONAL
GUARDRAIL LAYOUTS AND PAVING LOCATIONS.

SEE FINISHED TYPICAL SECTIONS FOR ADDITIONAL
DIMENSIONS AND PAVEMENT INFORMATION.



PAVEMENT GAPS AT GUARDRAIL

FOR LOCATIONS WITH INCONSISTENT EXISTING
HMA SHOULDER WIDTH TO FACE OF RAIL

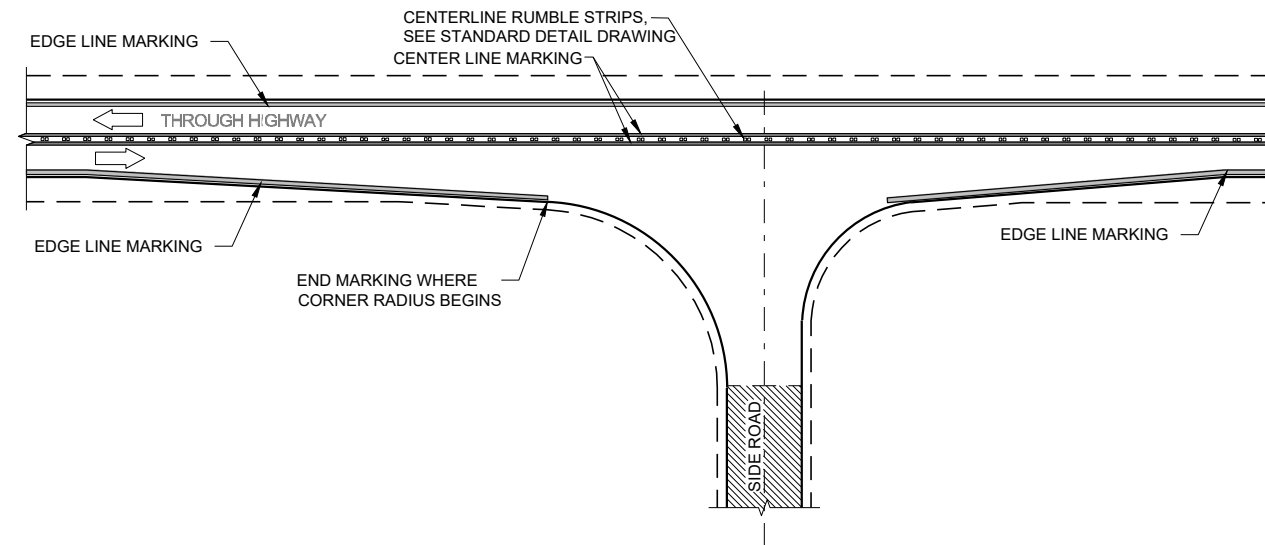
NOTE:
LOCATIONS WHERE EXISTING SHOULDER IS PAVED TO ROUGHLY FACE OF RAIL, FILL GAPS
BETWEEN EXISTING SHOULDER AND NEW RAIL FACE.

WIDEN HMA SHOULDERS AFTER MILLING. PLACE FINAL LIFT AT FULL WIDTH.

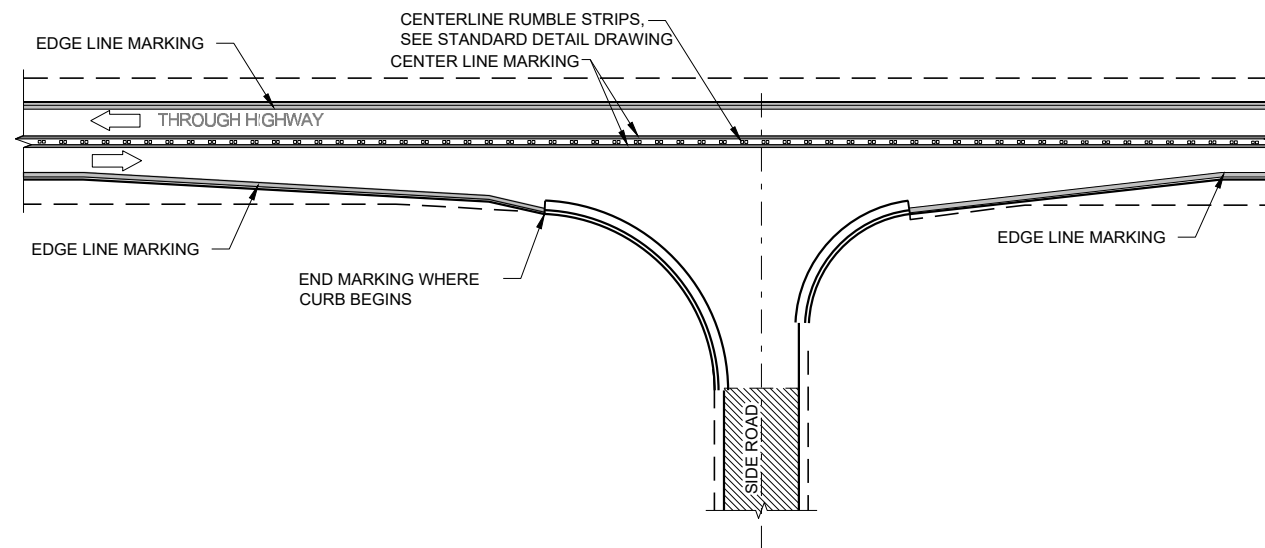
EXISTING SHOULDER WIDTHS VARY. VERIFY IN FIELD.

REFER TO "DETAIL FOR ASPHALTIC SHOULDER AT GUARDRAIL" FOR FINAL GEOMETRICS.

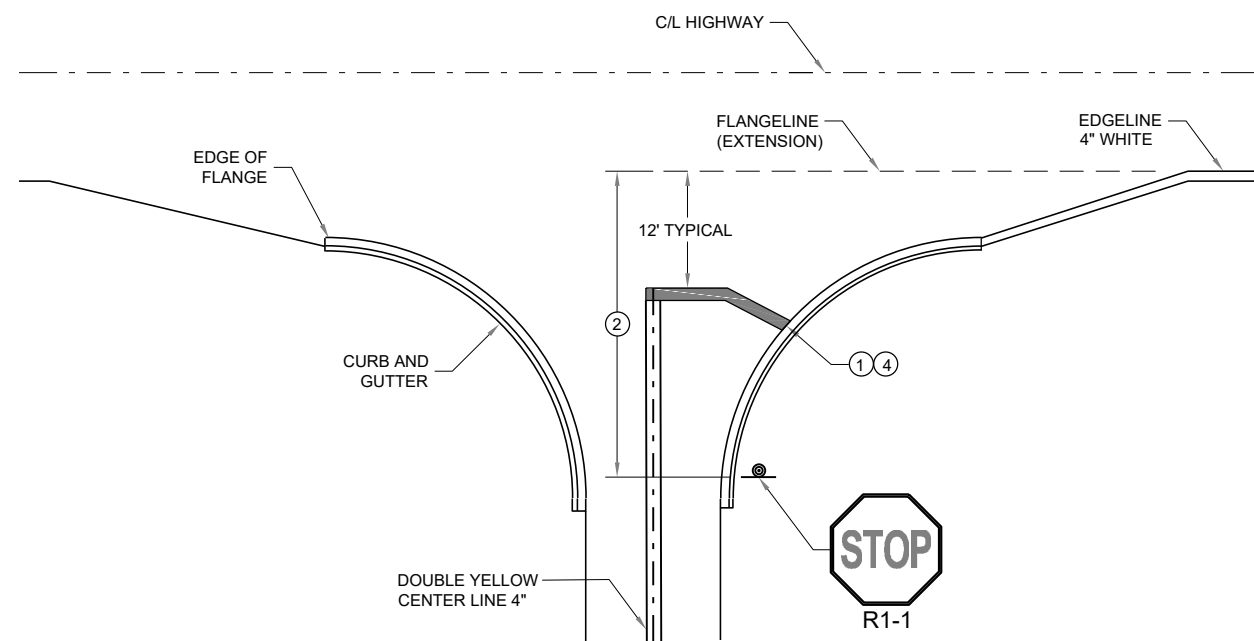
SEE FINISHED TYPICAL SECTIONS FOR ADDITIONAL DIMENSIONS AND PAVEMENT
INFORMATION.



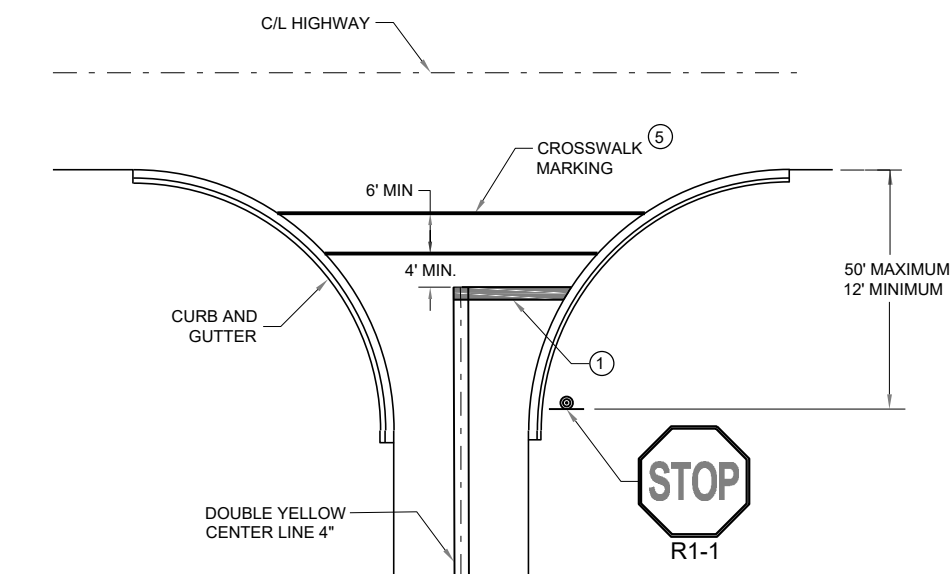
MINOR INTERSECTION WITHOUT CURBS
(TYPICAL MARKING)



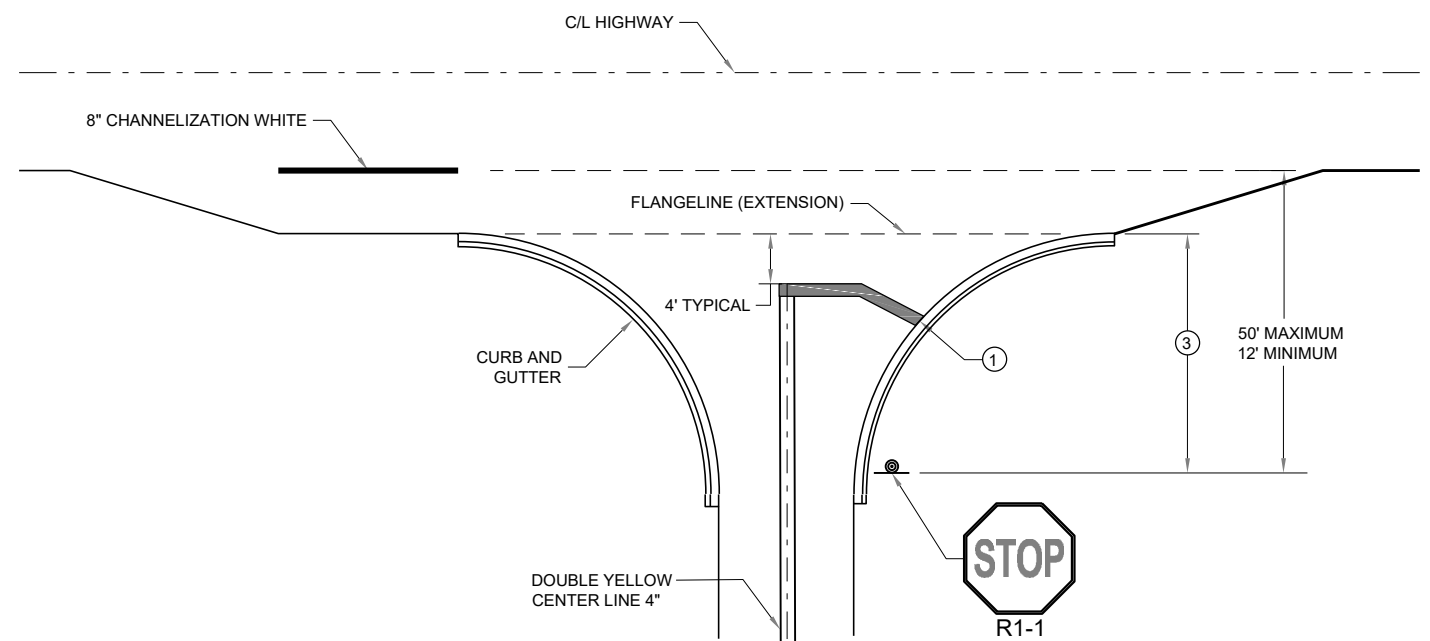
MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



**TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDE ROAD WITH CURB AND GUTTER**



**TYPICAL STOP LINE PAVEMENT MARKING FOR
SIDE ROADS WITH CROSSWALK MARKING**

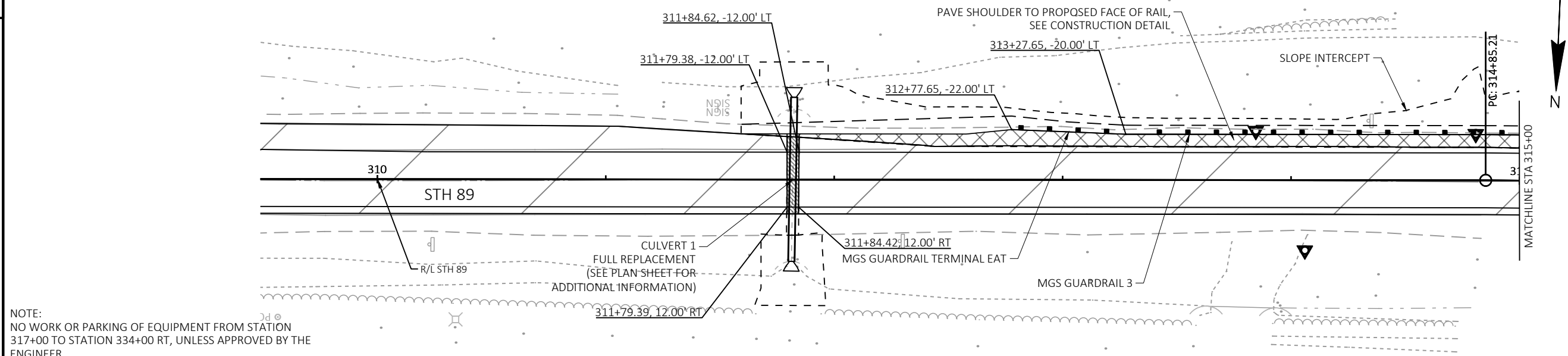


**TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDE ROADS WITH RIGHT TURN LANE**

GENERAL NOTES

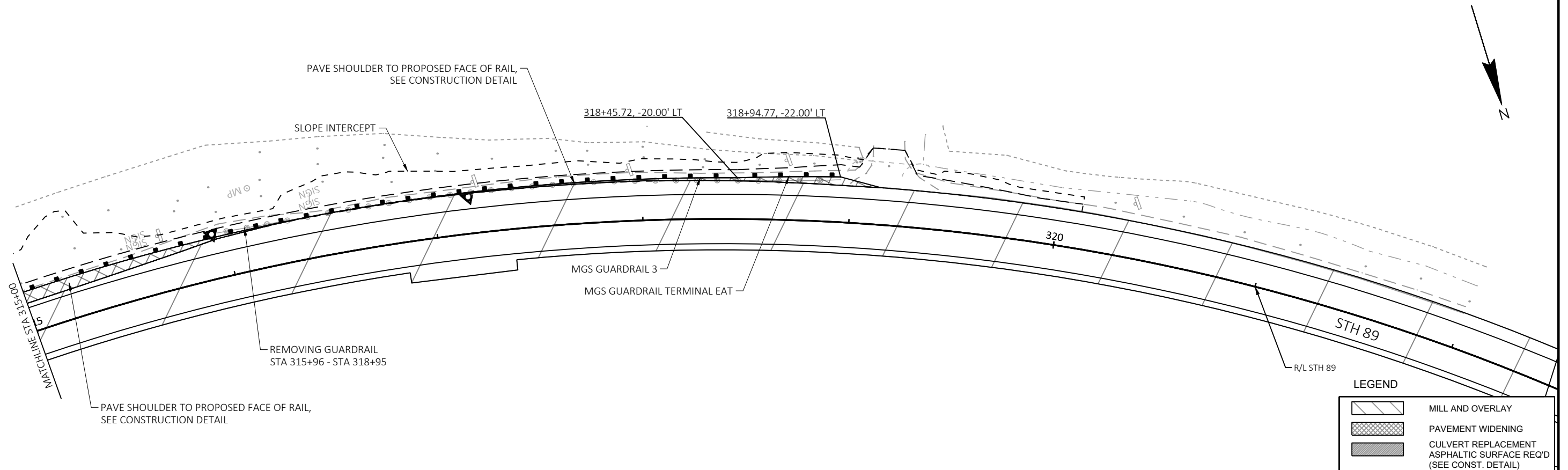
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

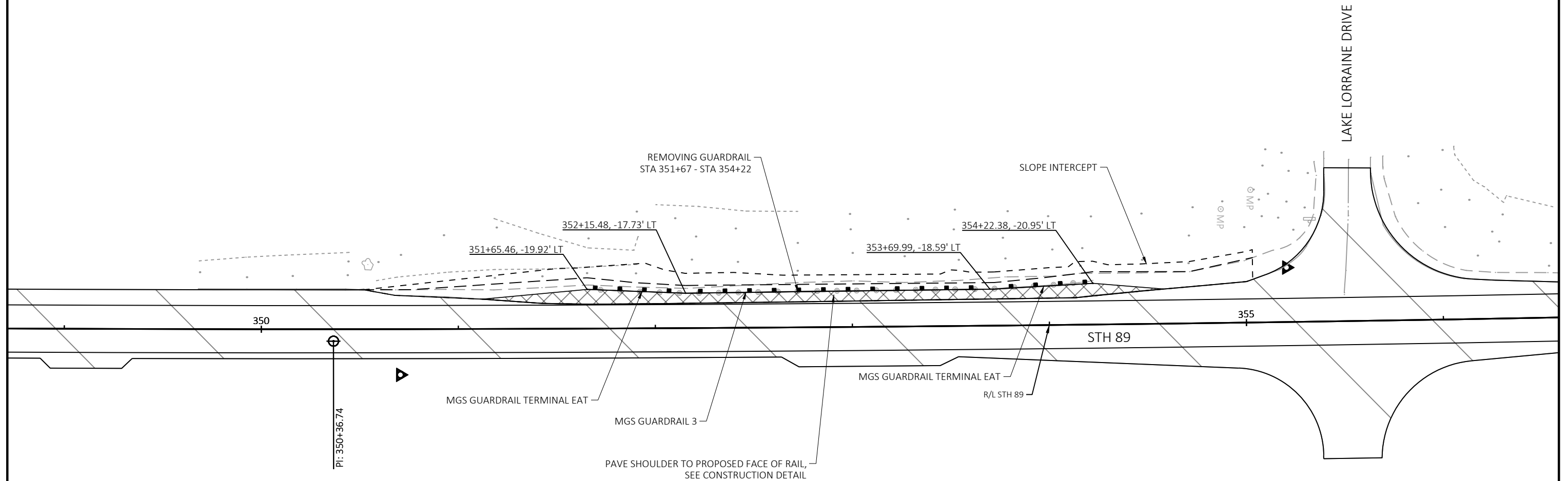
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGE LINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF FLANGELINE EXTENSION AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6\"



NOTE:
NO WORK OR PARKING OF EQUIPMENT FROM STATION
317+00 TO STATION 334+00 RT, UNLESS APPROVED BY THE
ENGINEER.

FOR ALL OTHER AREAS NOT SPECIFIED ALONG THE CORRIDOR,
REMOVE CONSTRUCTION HAZARDS, STORED MATERIALS, AND
EQUIPMENT NOT IN USE; OR IF THE ENGINEER ALLOWS,
DELINEATE AND SHIELD WITH CONCRETE BARRIER FOR
POSTED SPEEDS ABOVE 55 MPH: WITHIN 15 FEET OF THE
TRAVELLED WAY.





LEGEND

	MILL AND OVERLAY
	PAVEMENT WIDENING
	CULVERT REPLACEMENT ASPHALTIC SURFACE REQ'D (SEE CONST. DETAIL)

PROJECT NO: 3390-04-70

HWY: STH 89

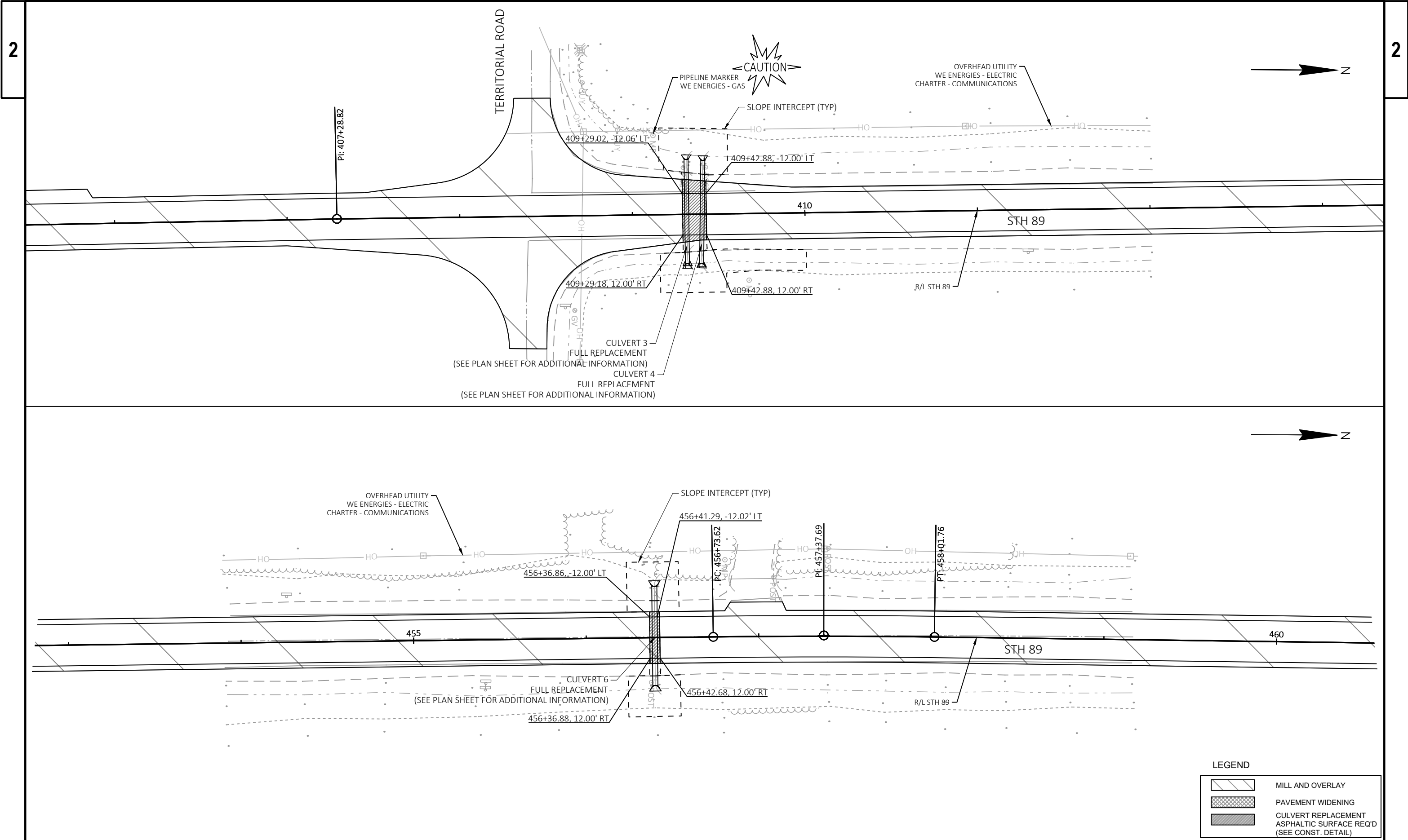
COUNTY: WALWORTH

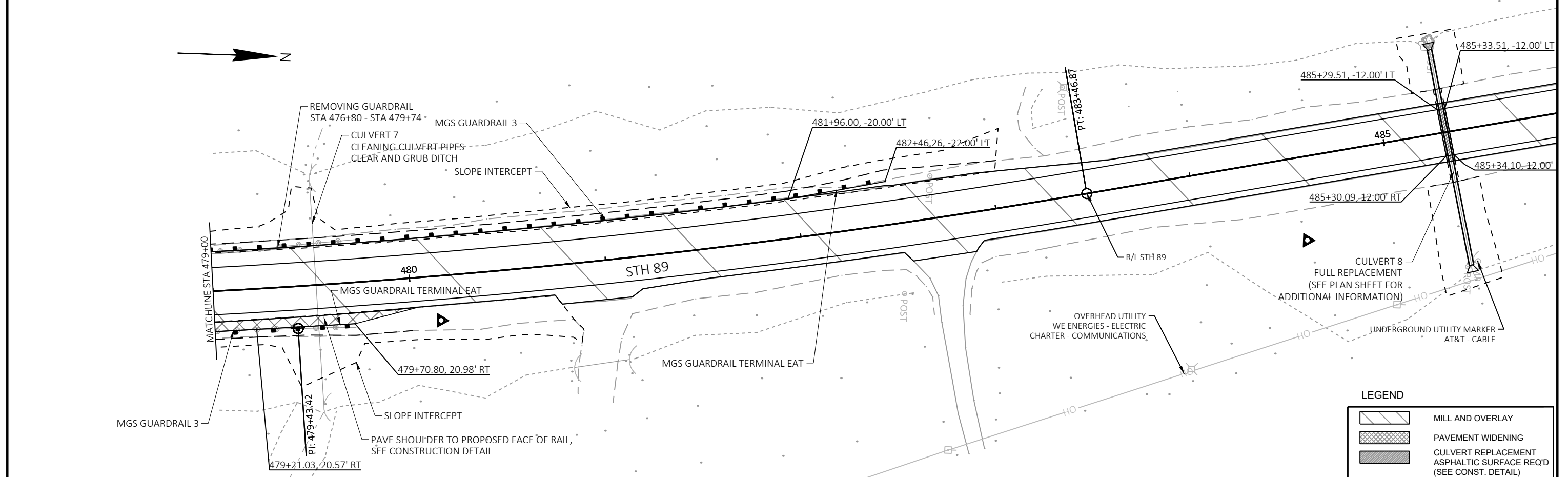
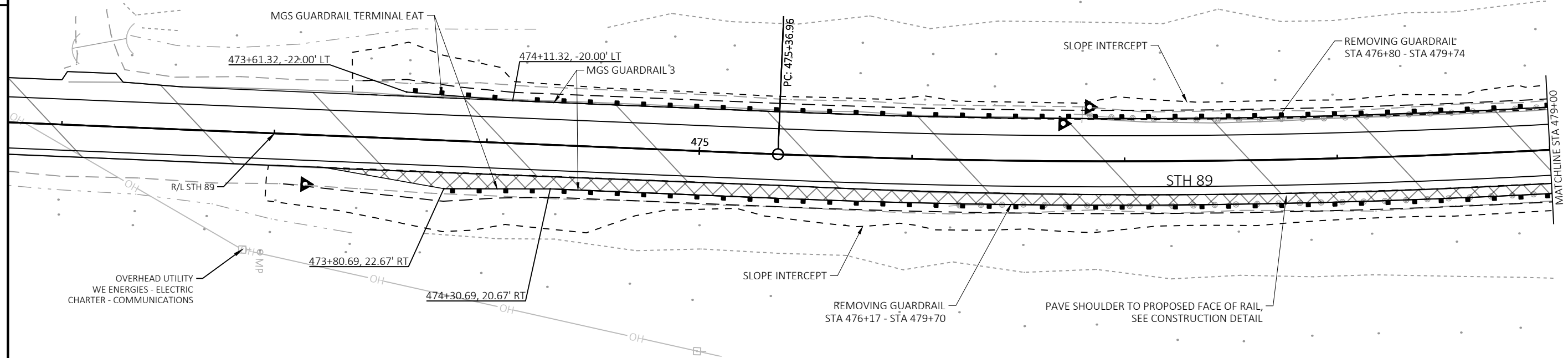
PLAN DETAILS

SHEET

15

E





PROJECT NO: 3390-04-70

HWY: STH 89

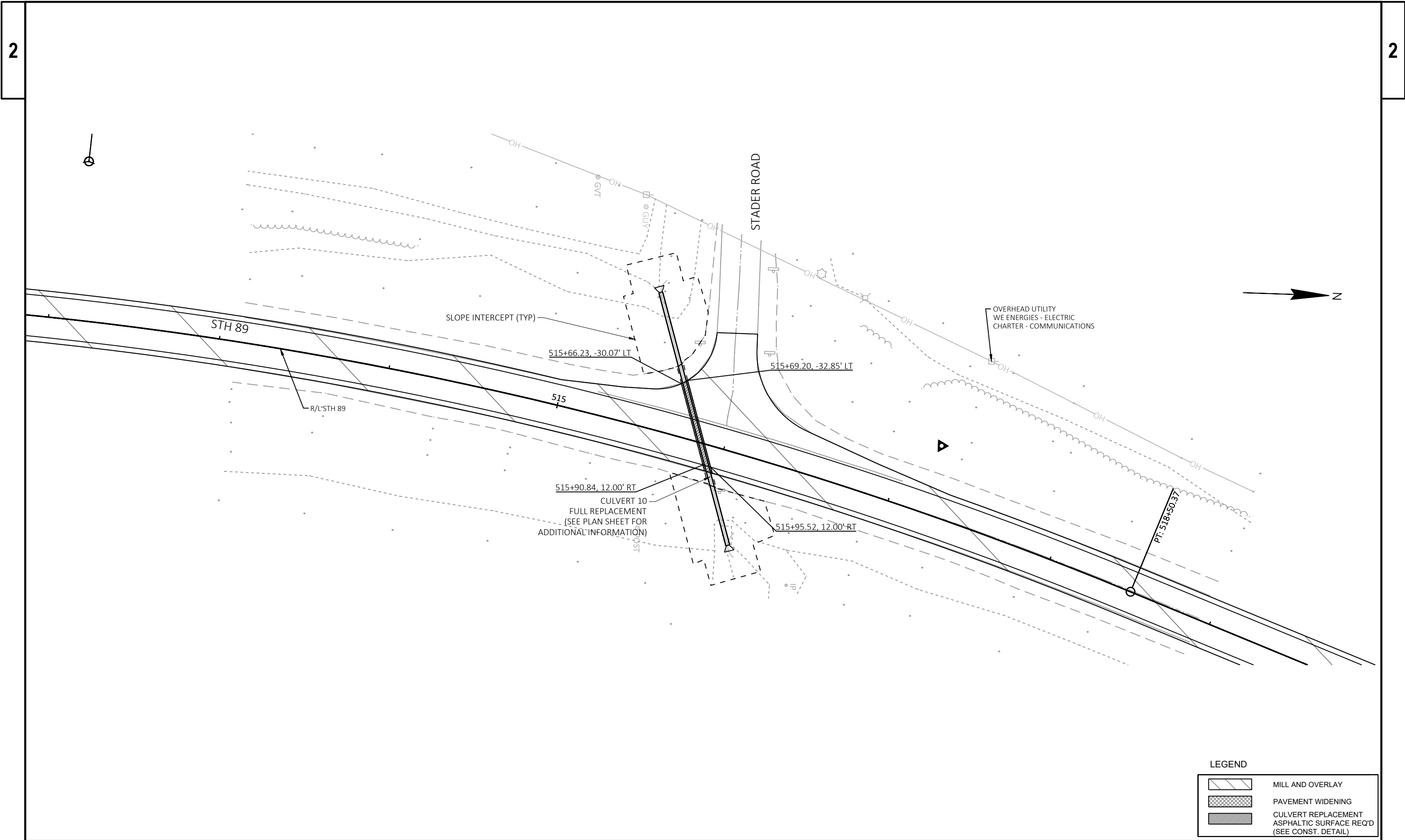
COUNTY: WALWORTH

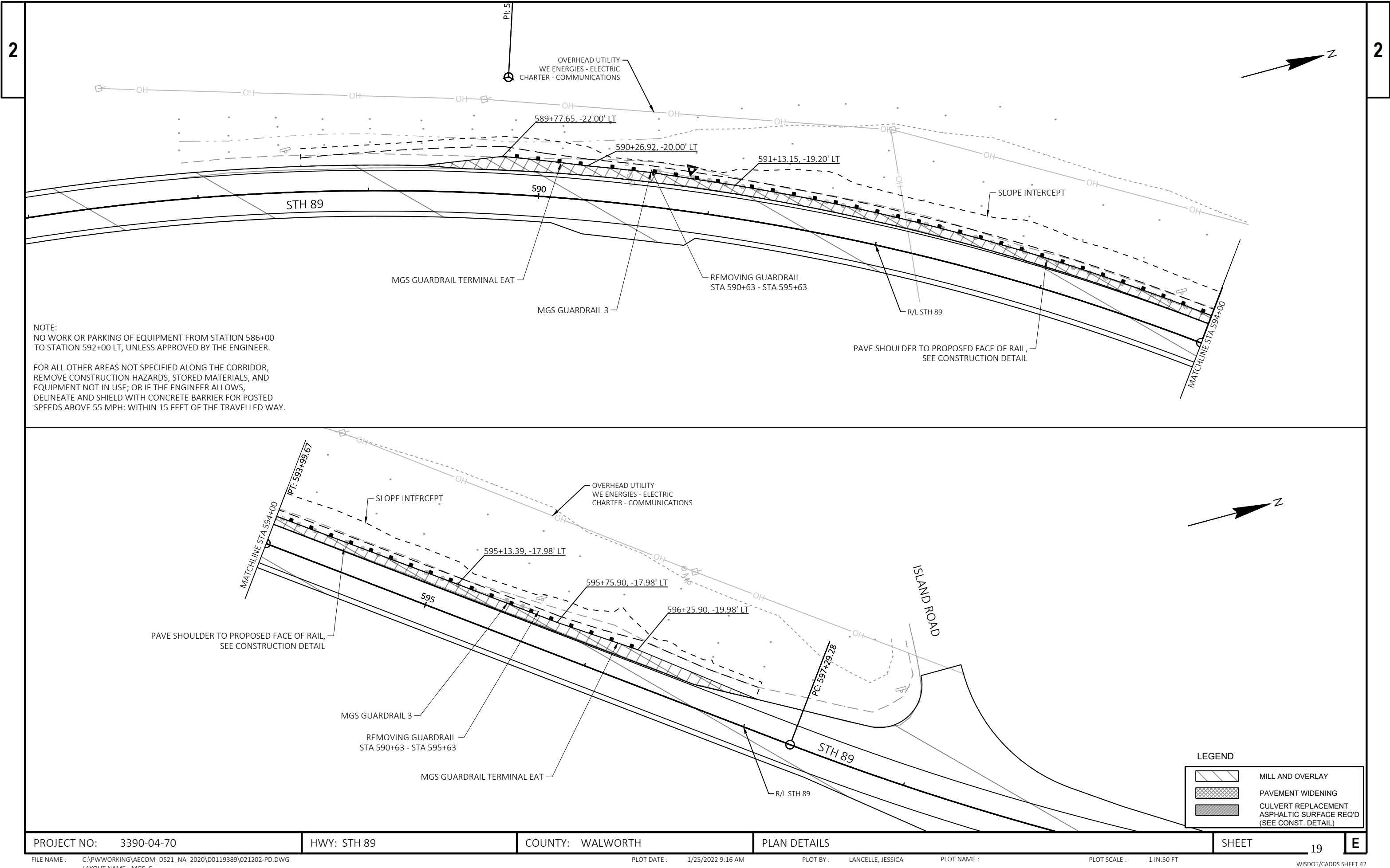
PLAN DETAILS

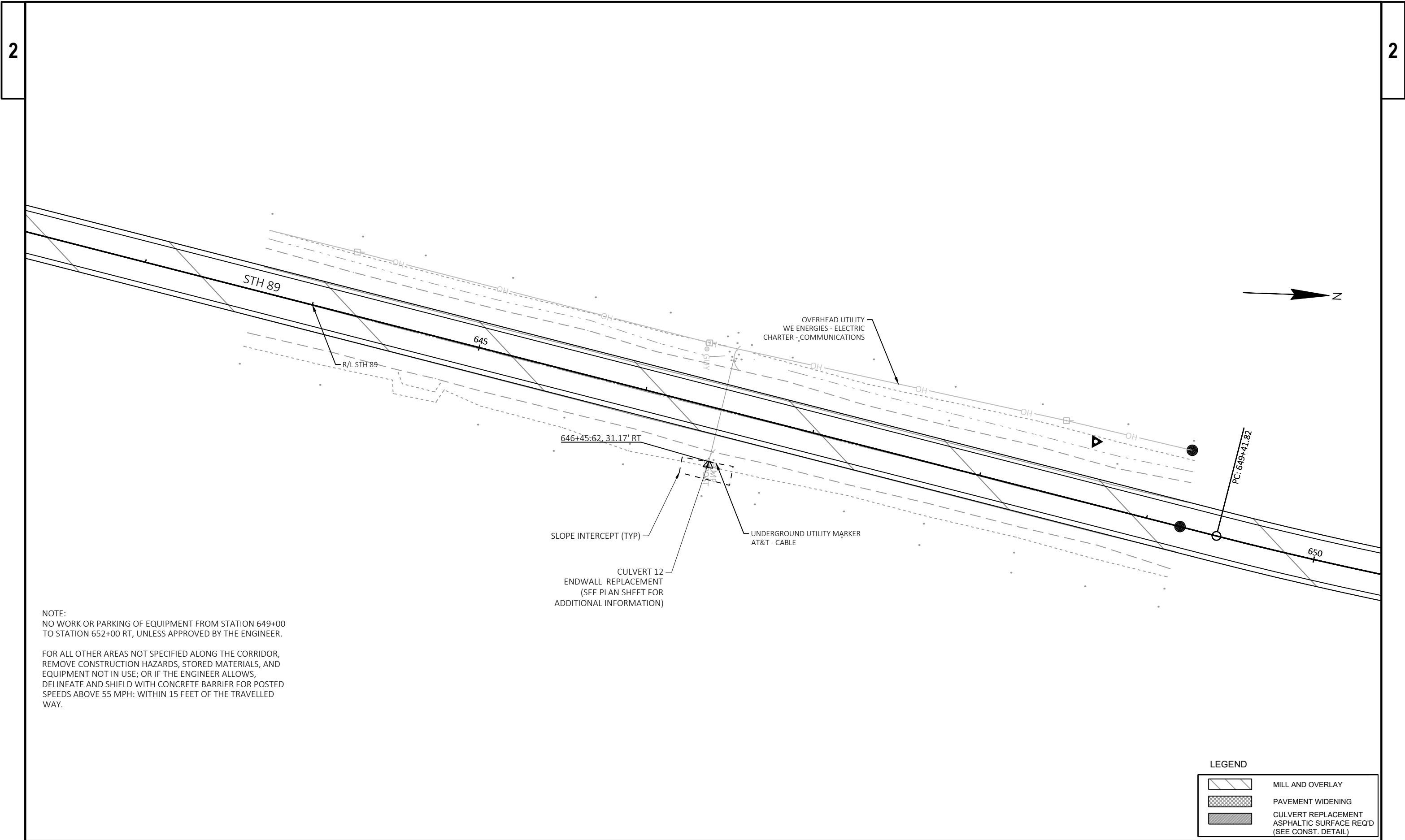
SHEET

17

E

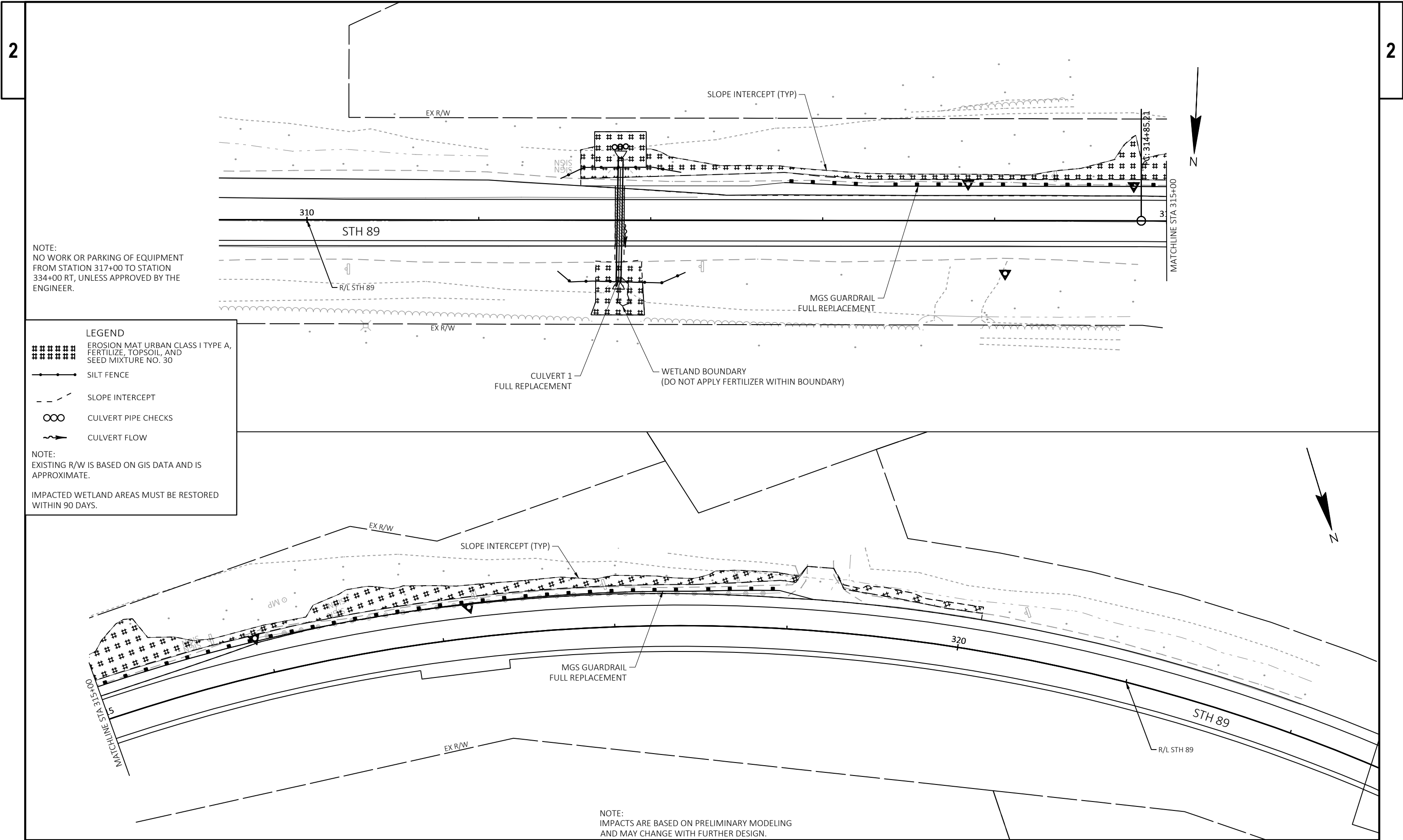


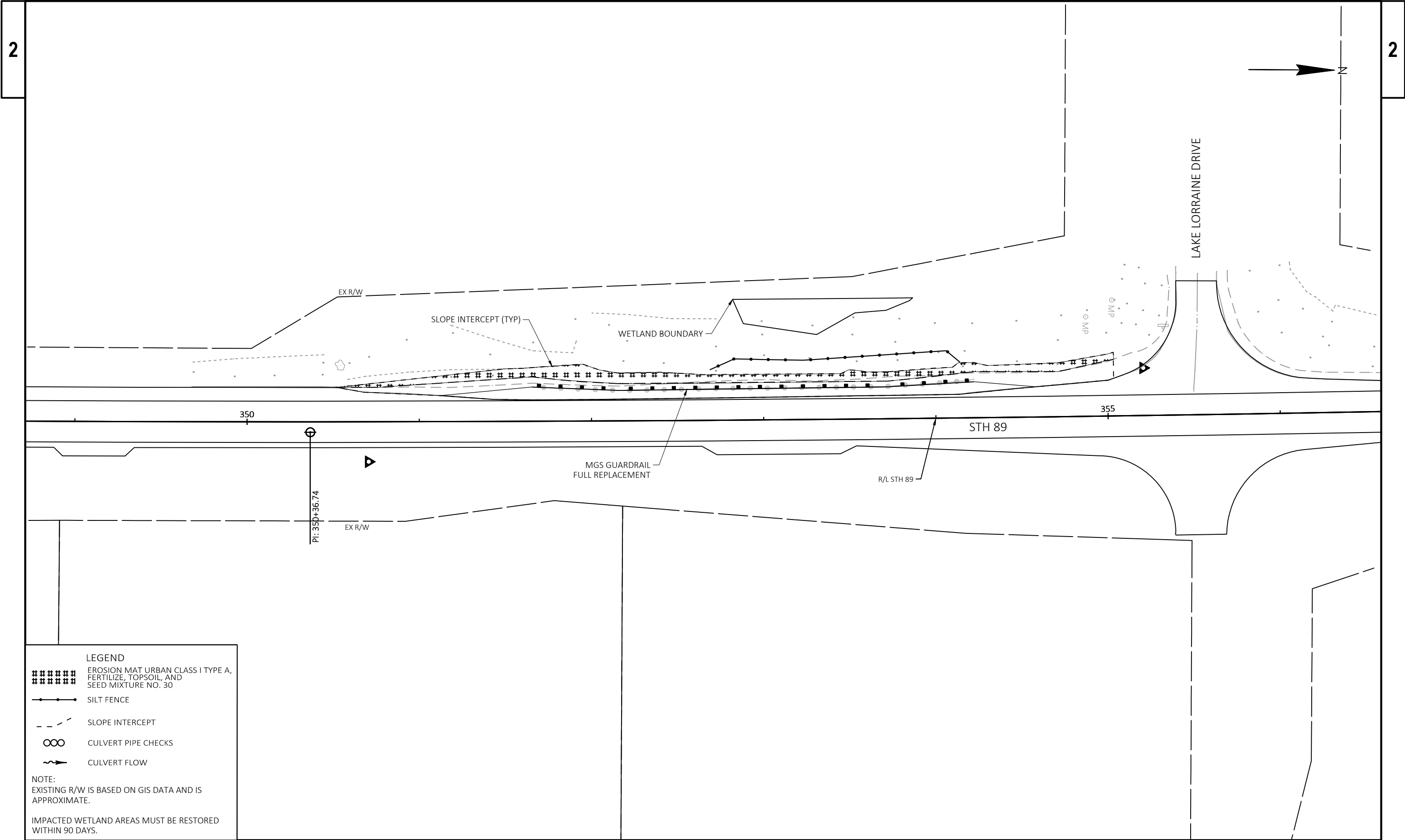


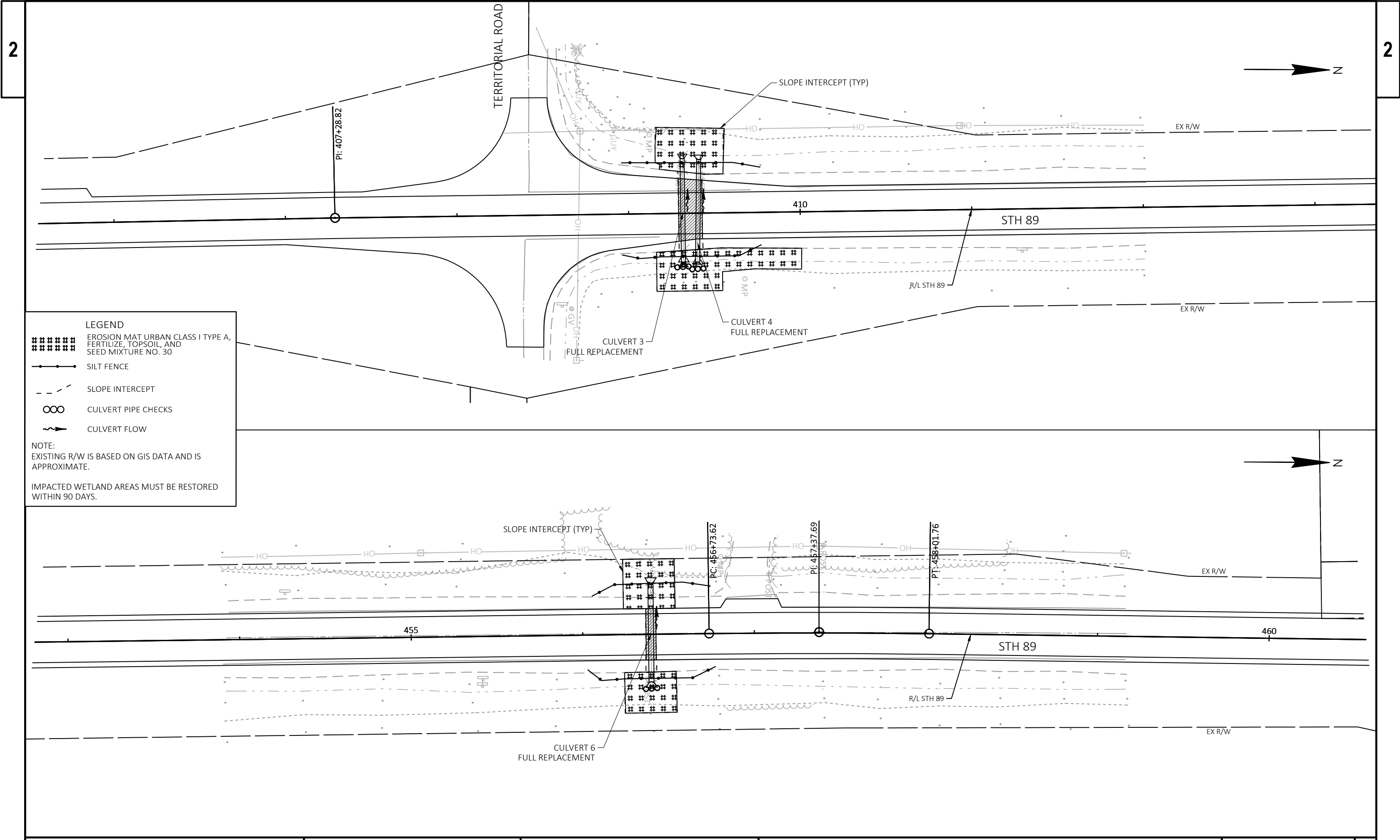


NOTE:
NO WORK OR PARKING OF EQUIPMENT FROM STATION 649+00
TO STATION 652+00 RT, UNLESS APPROVED BY THE ENGINEER.

FOR ALL OTHER AREAS NOT SPECIFIED ALONG THE CORRIDOR,
REMOVE CONSTRUCTION HAZARDS, STORED MATERIALS, AND
EQUIPMENT NOT IN USE; OR IF THE ENGINEER ALLOWS,
DELINEATE AND SHIELD WITH CONCRETE BARRIER FOR POSTED
SPEEDS ABOVE 55 MPH: WITHIN 15 FEET OF THE TRAVELLED
WAY.





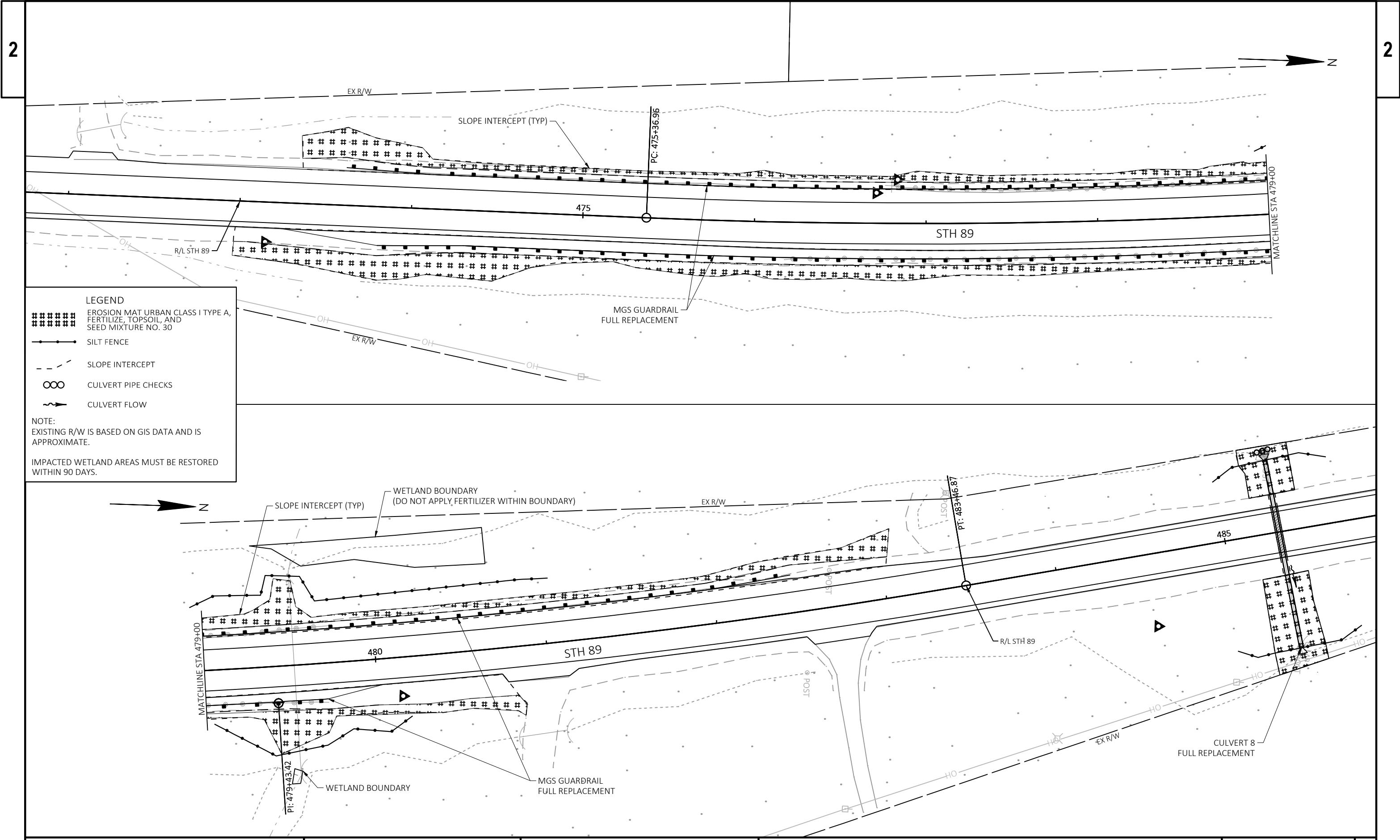


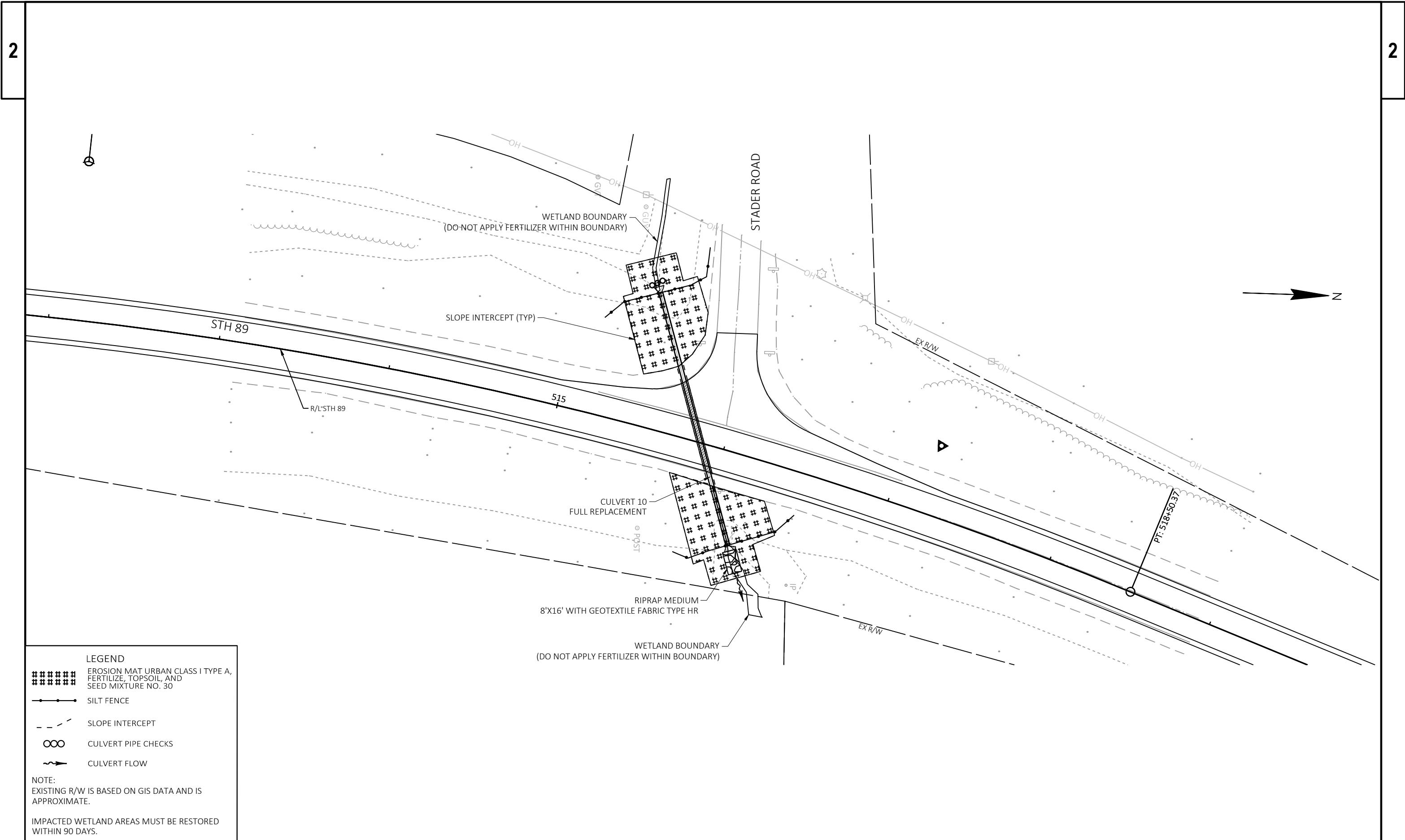
LEGEND

- ##### EROSION MAT URBAN CLASS I TYPE A, FERTILIZE, TOPSOIL, AND SEED MIXTURE NO. 30
- SILT FENCE
- - - SLOPE INTERCEPT
- ∞ CULVERT PIPE CHECKS
- ~ CULVERT FLOW

NOTE:
EXISTING R/W IS BASED ON GIS DATA AND IS APPROXIMATE.

IMPACTED WETLAND AREAS MUST BE RESTORED WITHIN 90 DAYS.





LEGEND

EROSION MAT URBAN CLASS I TYPE A, FERTILIZE, TOPSOIL, AND SEED MIXTURE NO. 30

—●— SILT FENCE

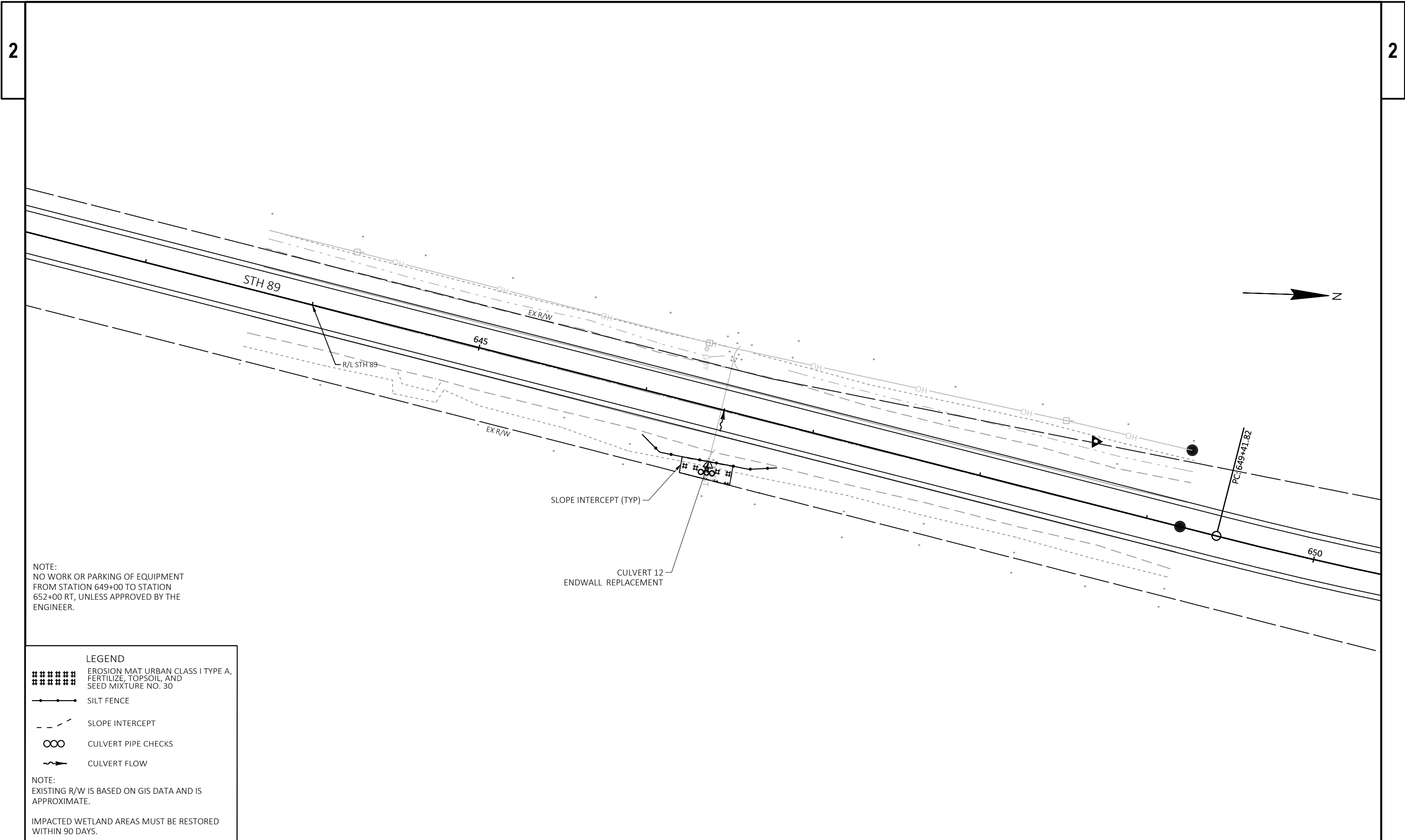
- - - SLOPE INTERCEPT

∞ CULVERT PIPE CHECKS

~> CULVERT FLOW

NOTE:
EXISTING R/W IS BASED ON GIS DATA AND IS APPROXIMATE.

IMPACTED WETLAND AREAS MUST BE RESTORED WITHIN 90 DAYS.



	EXISTING SIGN MOUNTED ON POST(S)
	EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
	PROPOSED SIGN MOUNTED ON POST(S)
	PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
	VARIABLE MESSAGE SIGN
	EXISTING LIGHT OR SIGNAL POLE
	SIGN BRIDGE
	CANTILEVER SIGN BRIDGE
	DENOTES SIGN NUMBER
	INDICATES SIGN SIZE

SIGNS SHALL BE CAREFULLY REMOVED FROM SIGN SUPPORTS. THE SIGNS SHALL BE PALLETIZED FOR HANDLING WITH A FORKLIFT (SEE STANDARD SPEC 638.3.4). THE REGIONAL SIGN SHOP (414-266-1165) SHALL BE NOTIFIED THREE WORKING DAYS PRIOR TO DELIVERY OF THE SIGNS.

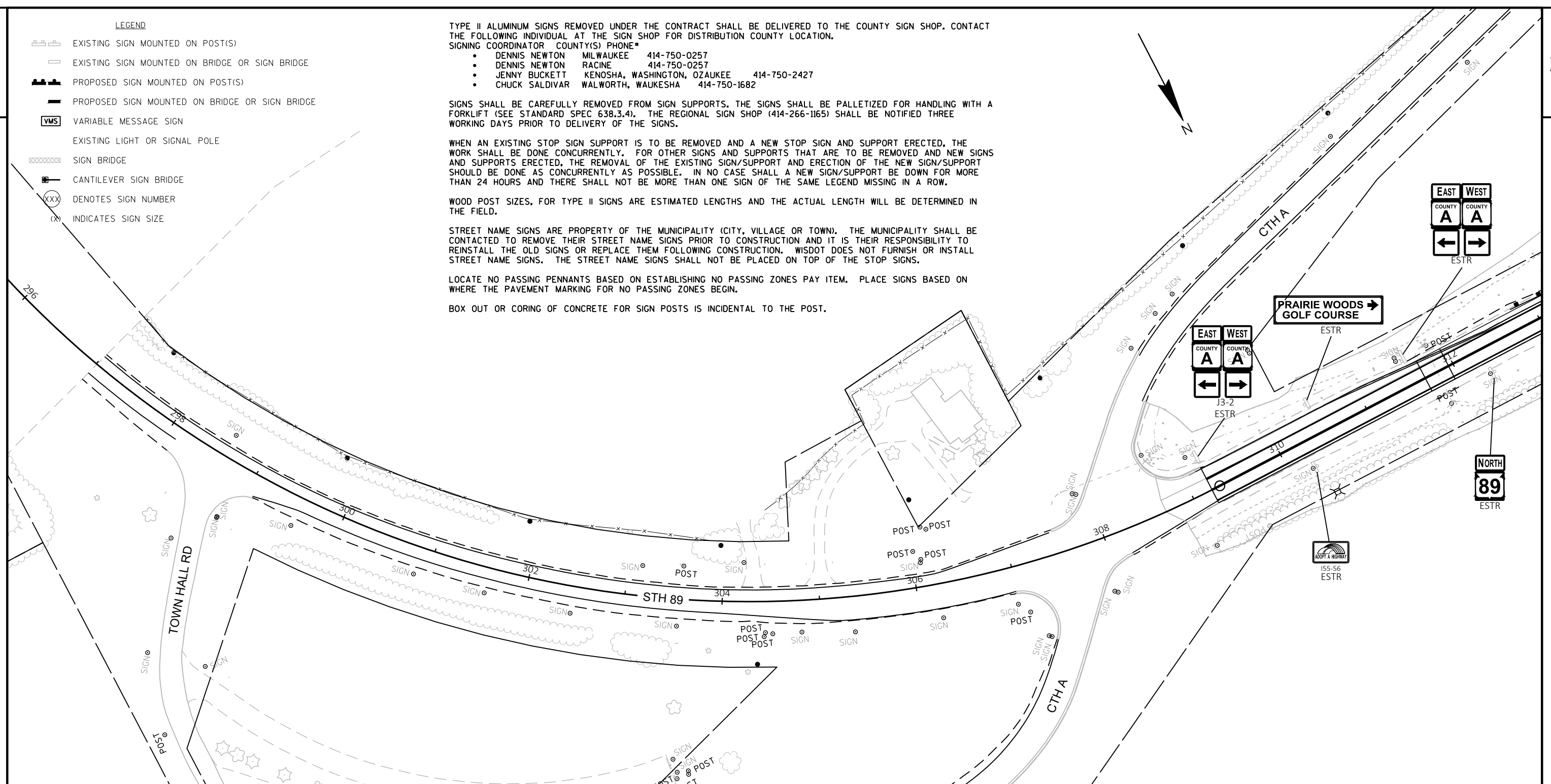
WHEN AN EXISTING STOP SIGN SUPPORT IS TO BE REMOVED AND A NEW STOP SIGN AND SUPPORT ERECTED, THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

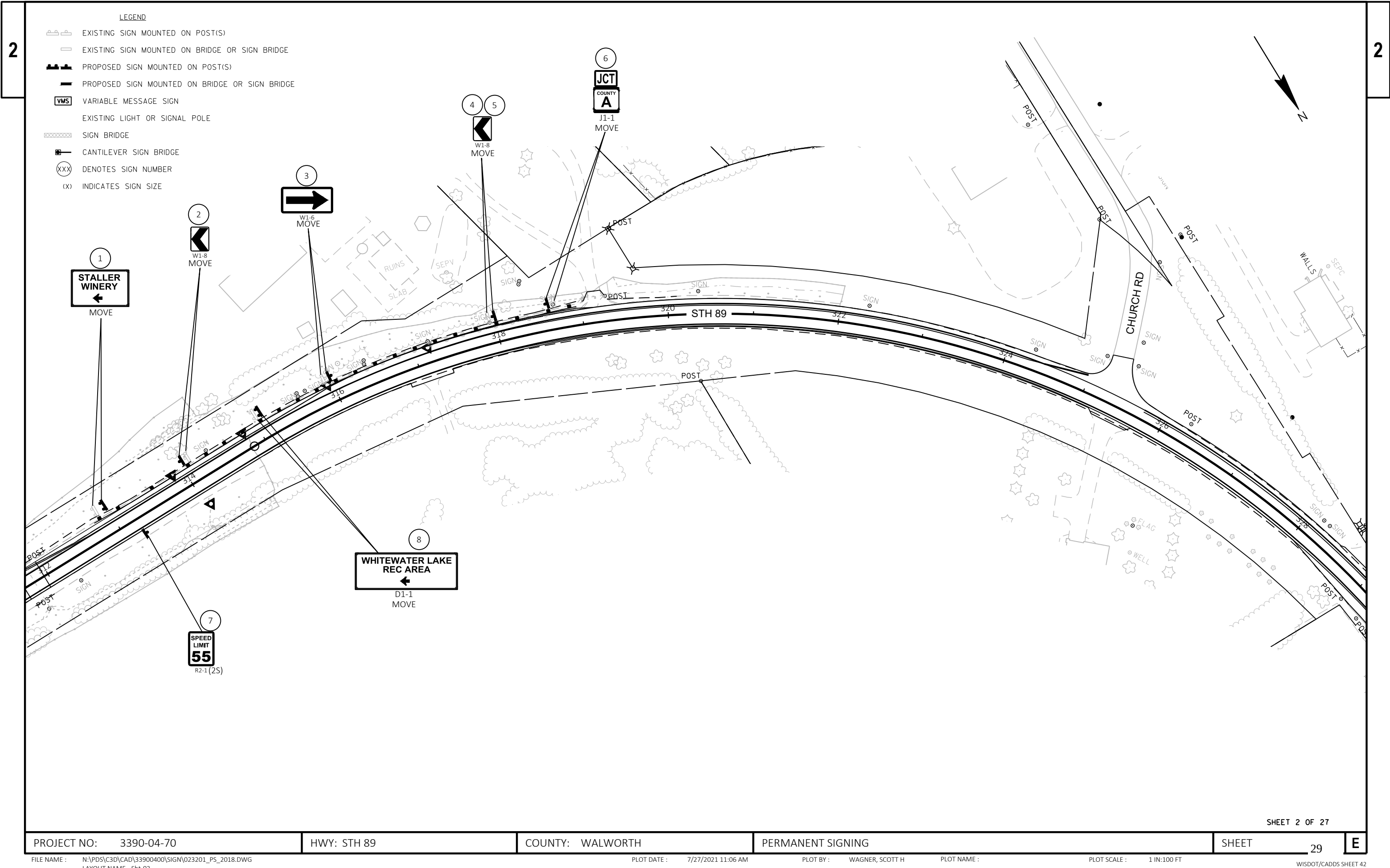
WOOD POST SIZES, FOR TYPE II SIGNS ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

STREET NAME SIGNS ARE PROPERTY OF THE MUNICIPALITY (CITY, VILLAGE OR TOWN). THE MUNICIPALITY SHALL BE CONTACTED TO REMOVE THEIR STREET NAME SIGNS PRIOR TO CONSTRUCTION AND IT IS THEIR RESPONSIBILITY TO REINSTALL THE OLD SIGNS OR REPLACE THEM FOLLOWING CONSTRUCTION. WISDOT DOES NOT FURNISH OR INSTALL STREET NAME SIGNS. THE STREET NAME SIGNS SHALL NOT BE PLACED ON TOP OF THE STOP SIGNS.

LOCATE NO PASSING PENNANTS BASED ON ESTABLISHING NO PASSING ZONES PAY ITEM. PLACE SIGNS BASED ON WHERE THE PAVEMENT MARKING FOR NO PASSING ZONES BEGIN.

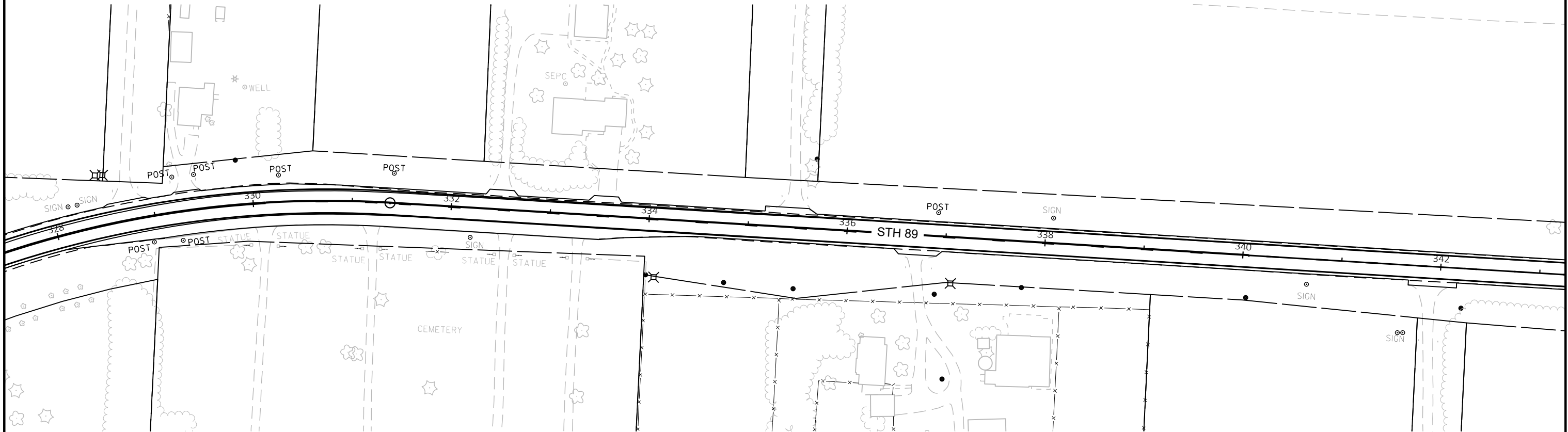
BOX OUT OR CORING OF CONCRETE FOR SIGN POSTS IS INCIDENTAL TO THE POST.



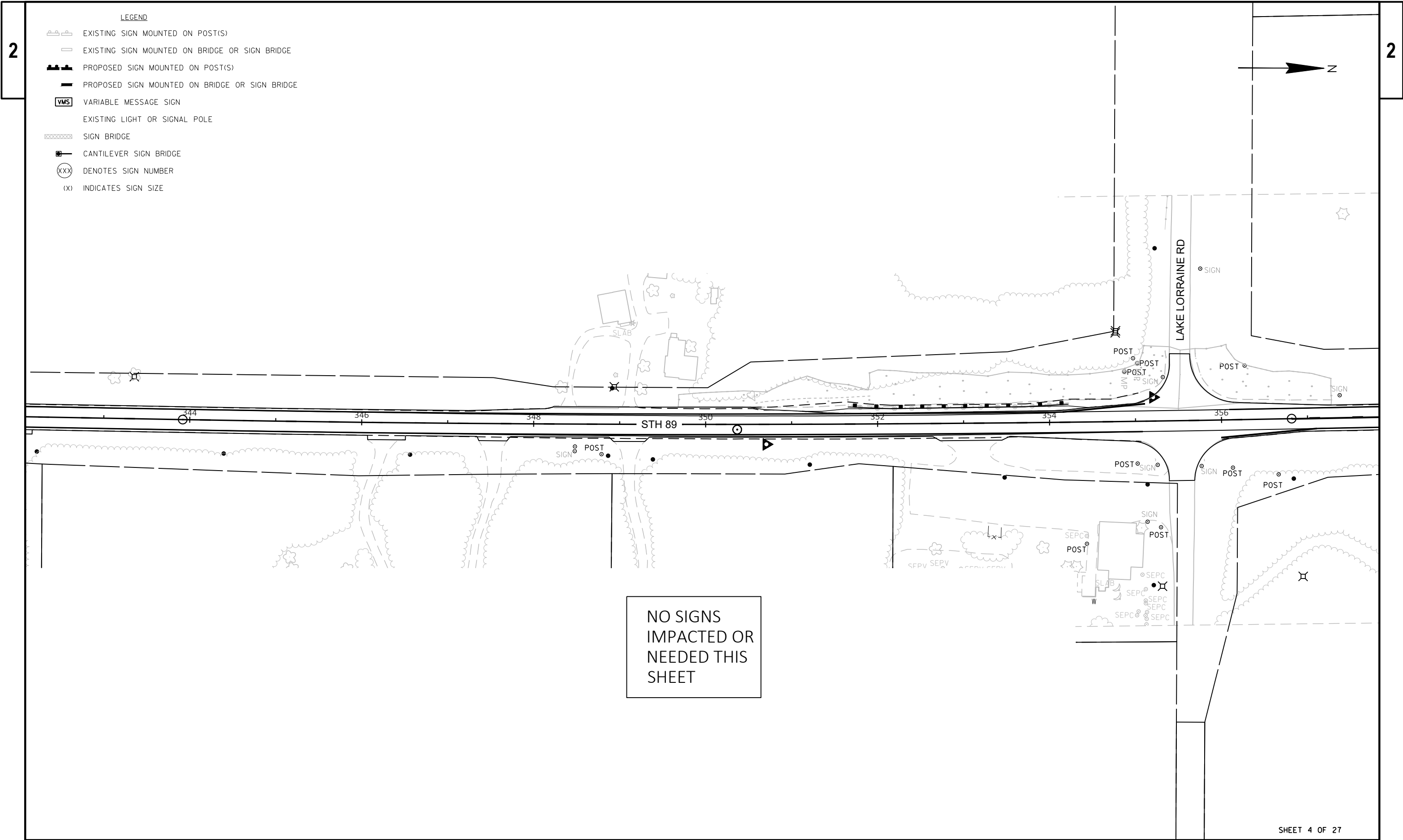


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- CANTILEVER SIGN BRIDGE
- DENOTES SIGN NUMBER
- INDICATES SIGN SIZE



NO SIGNS
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NEEDED THIS
SHEET



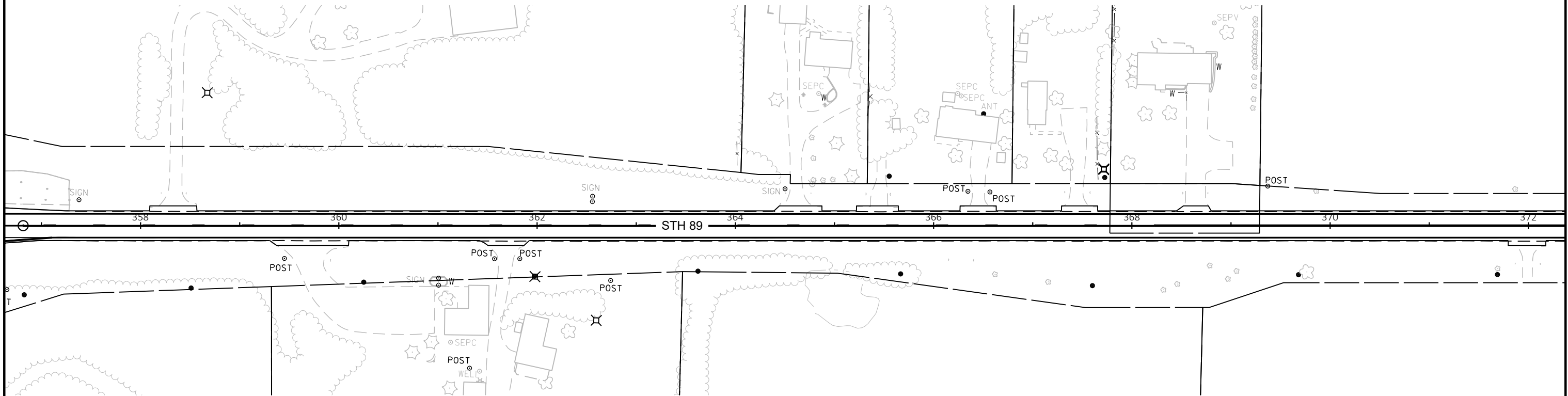
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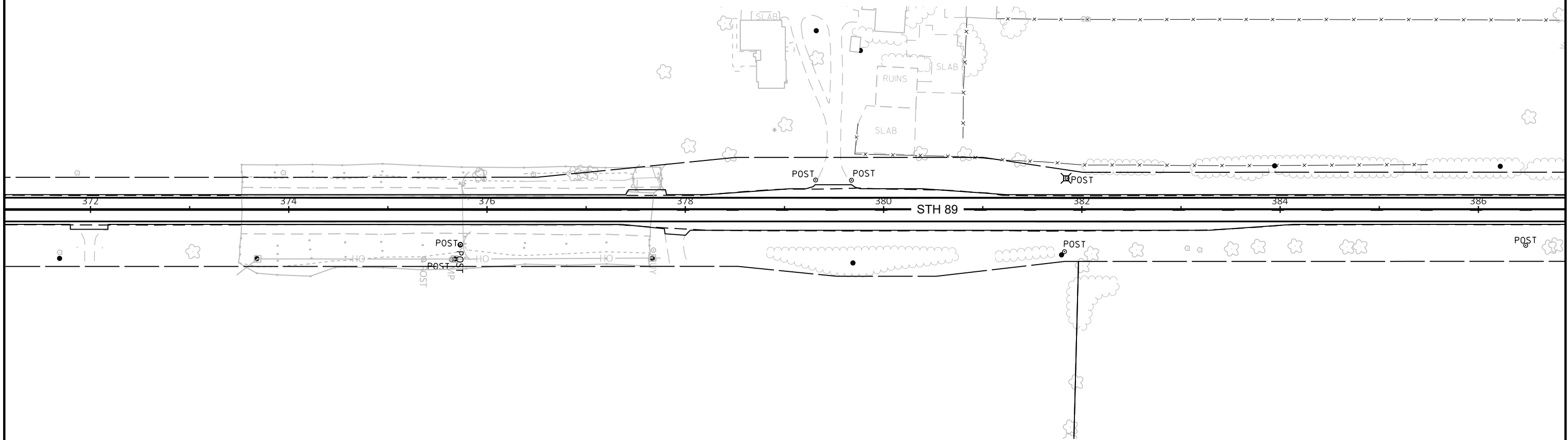
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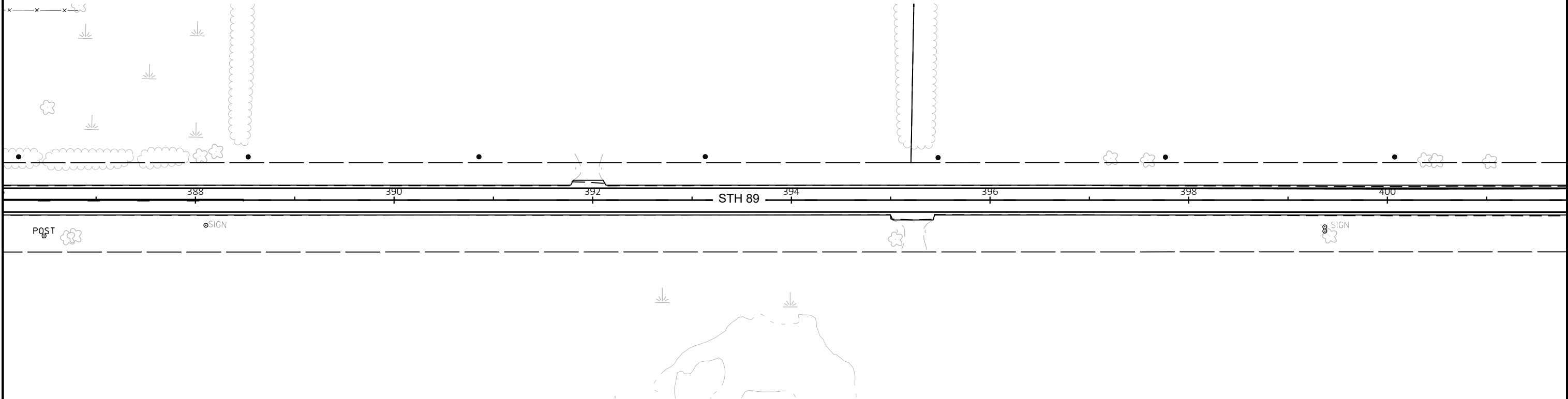
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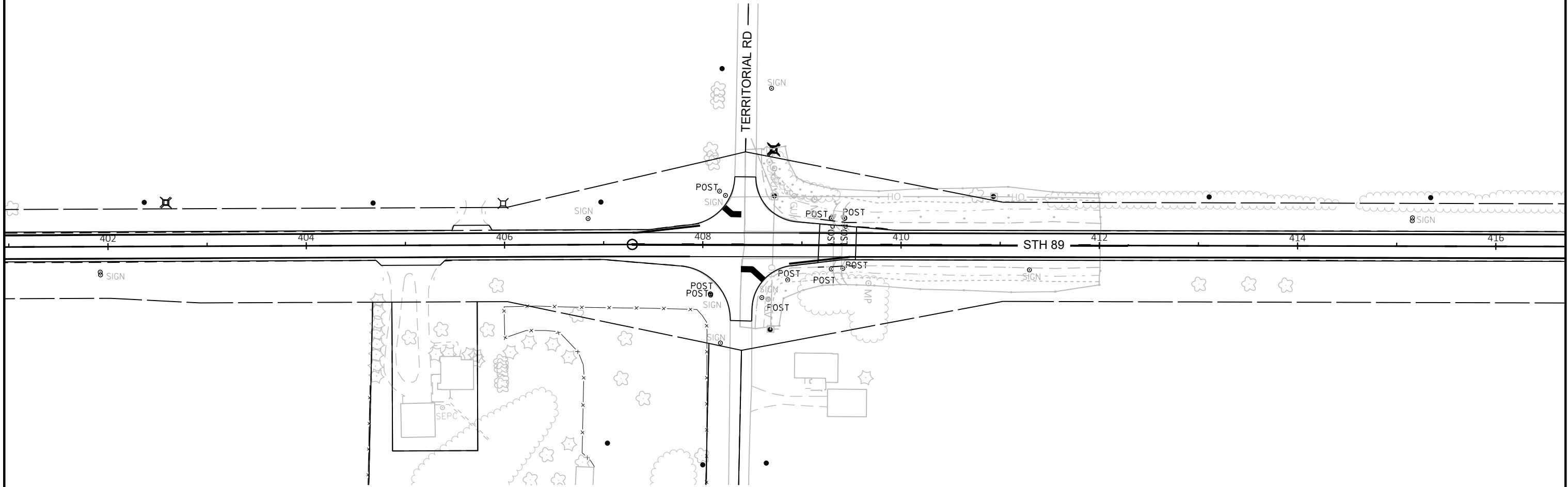
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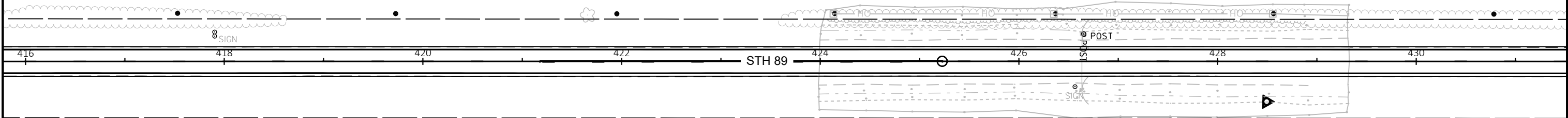
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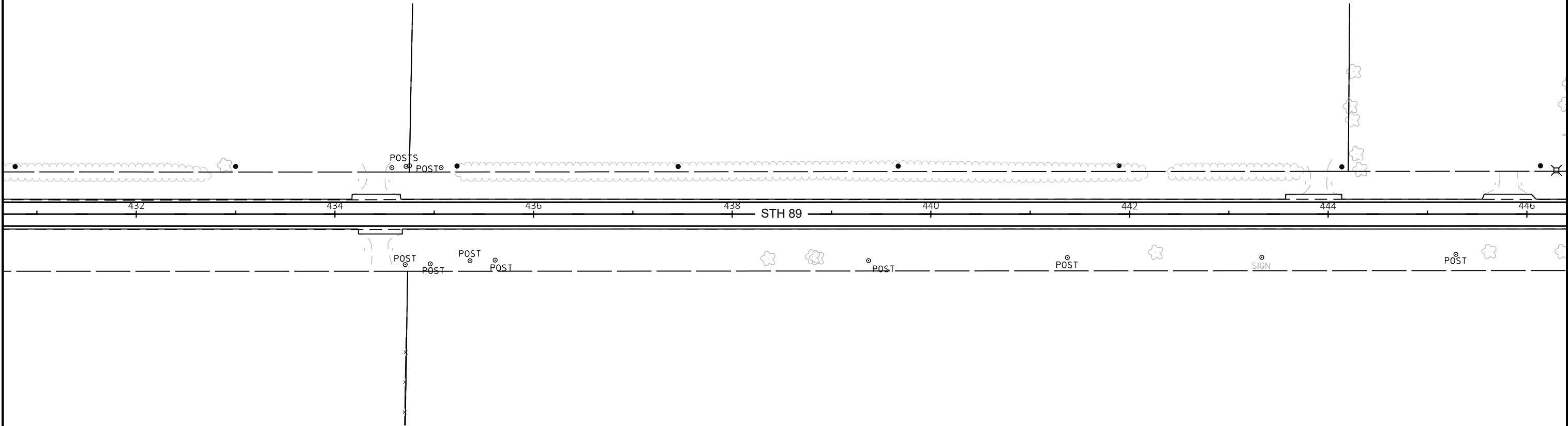
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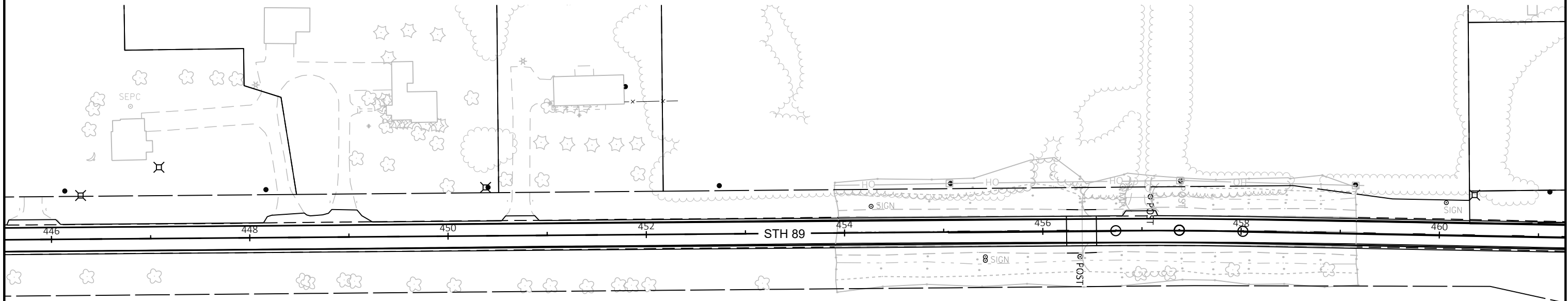
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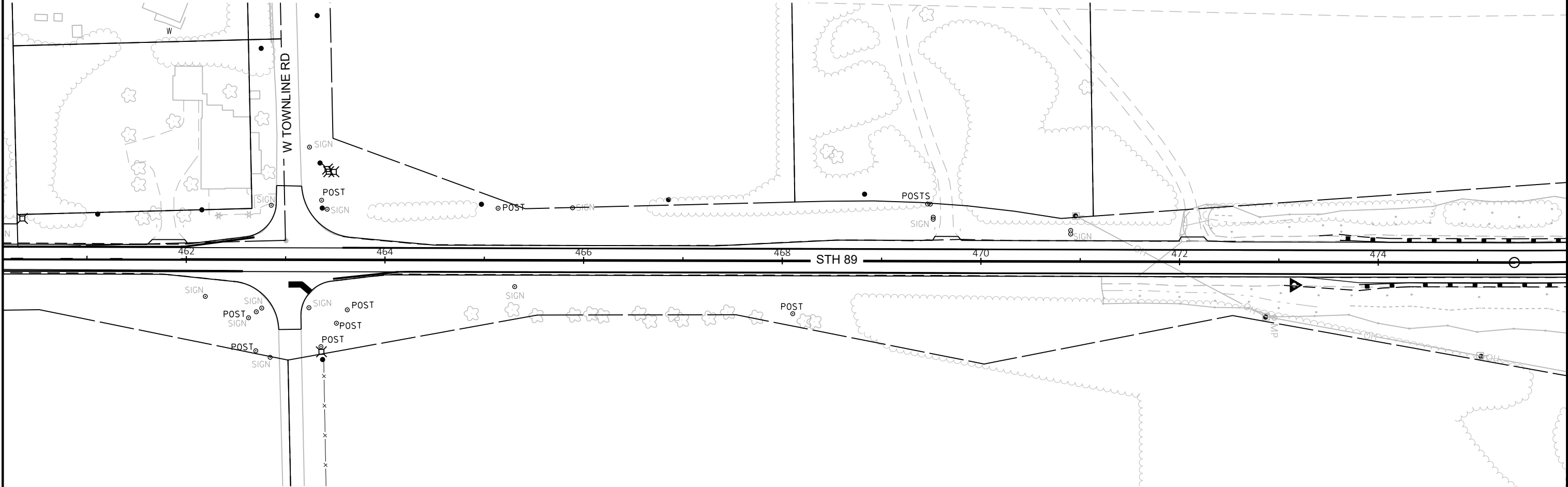
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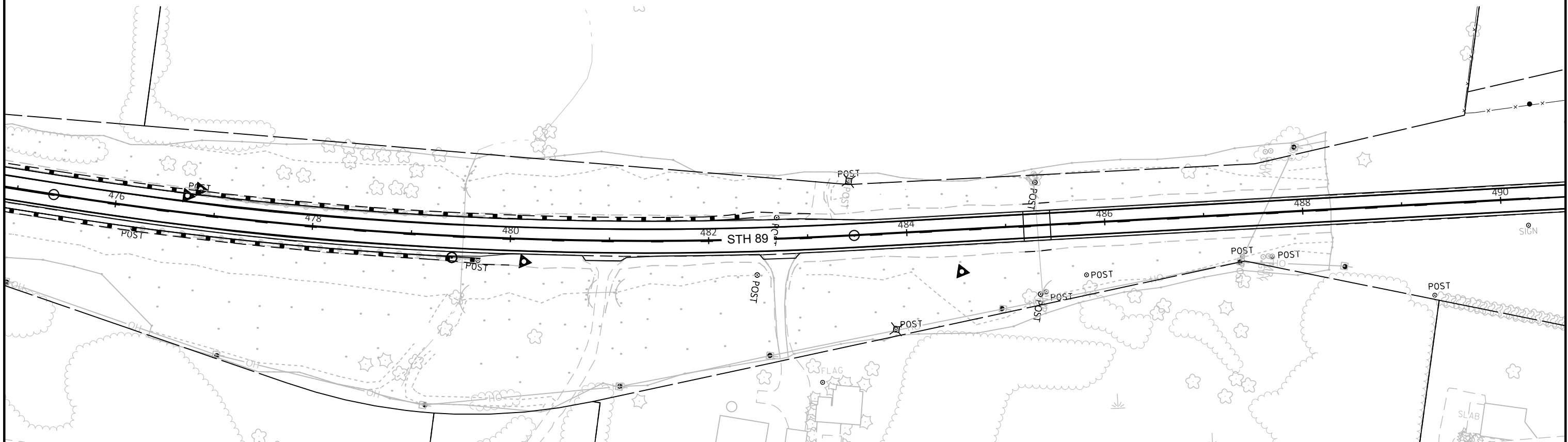
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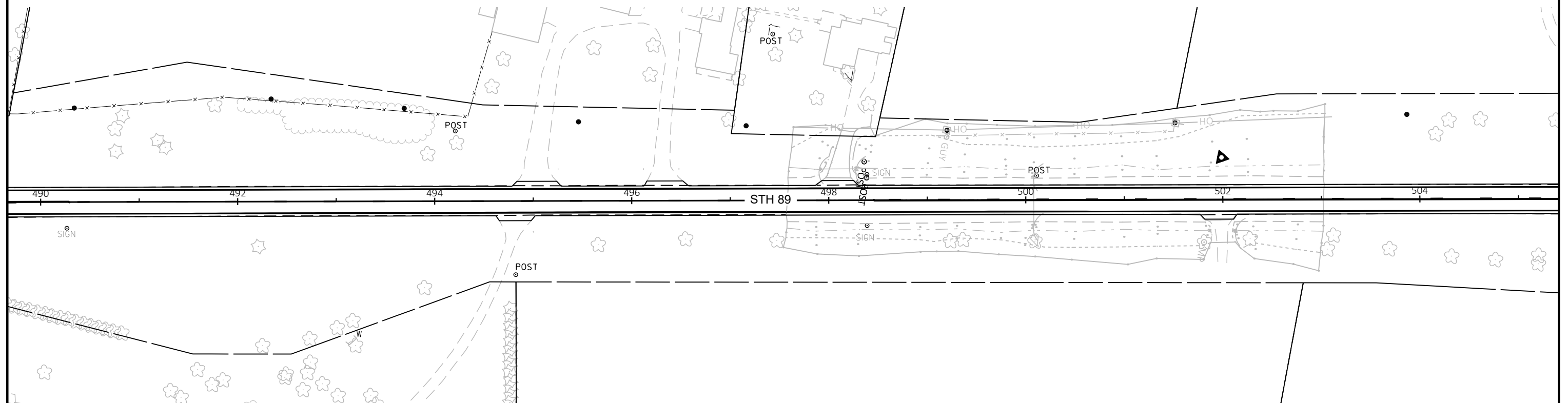
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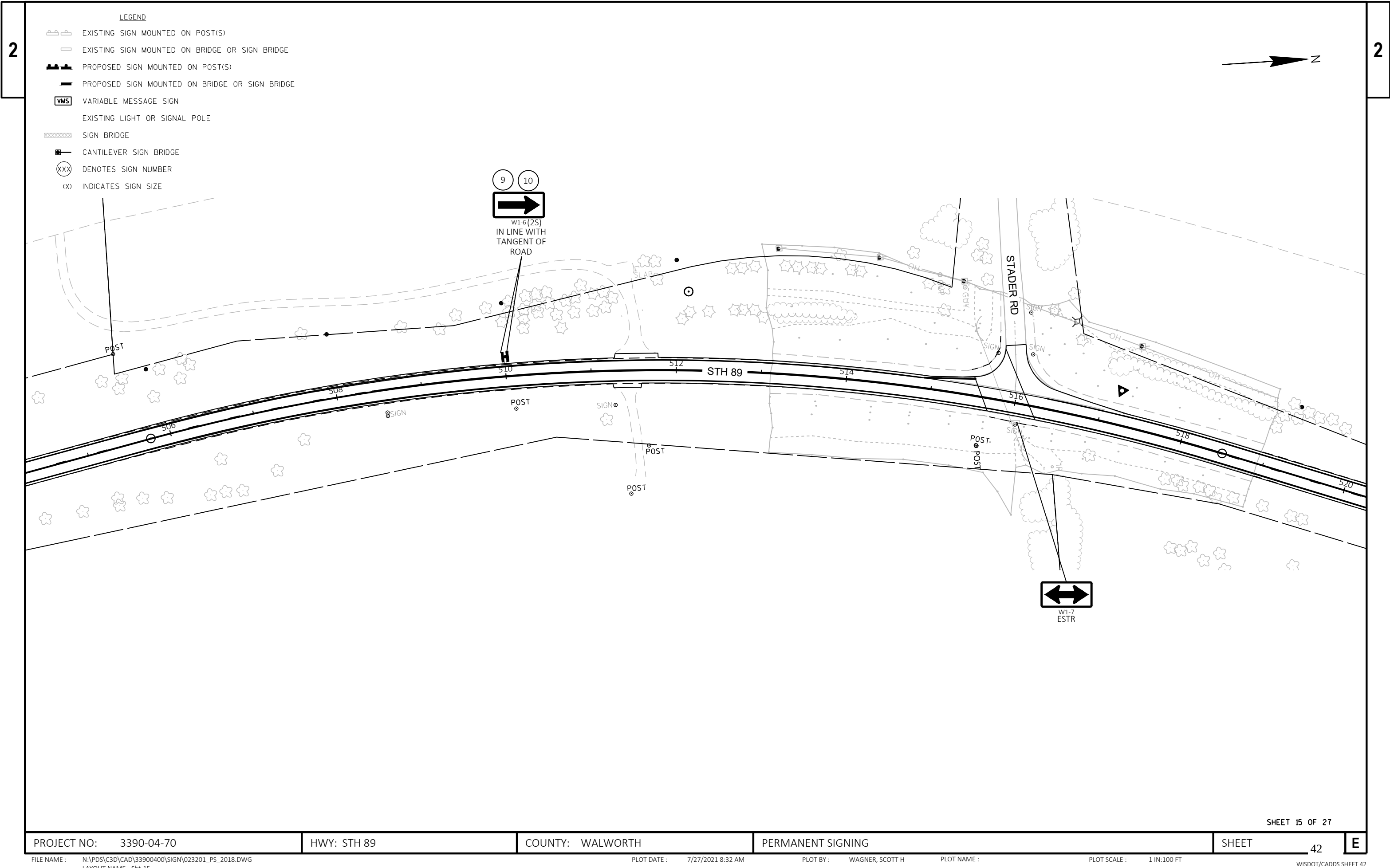


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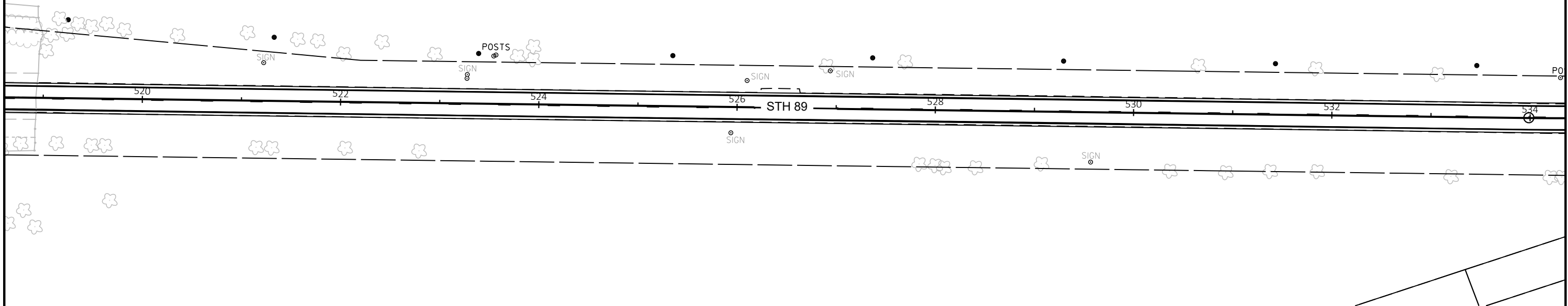


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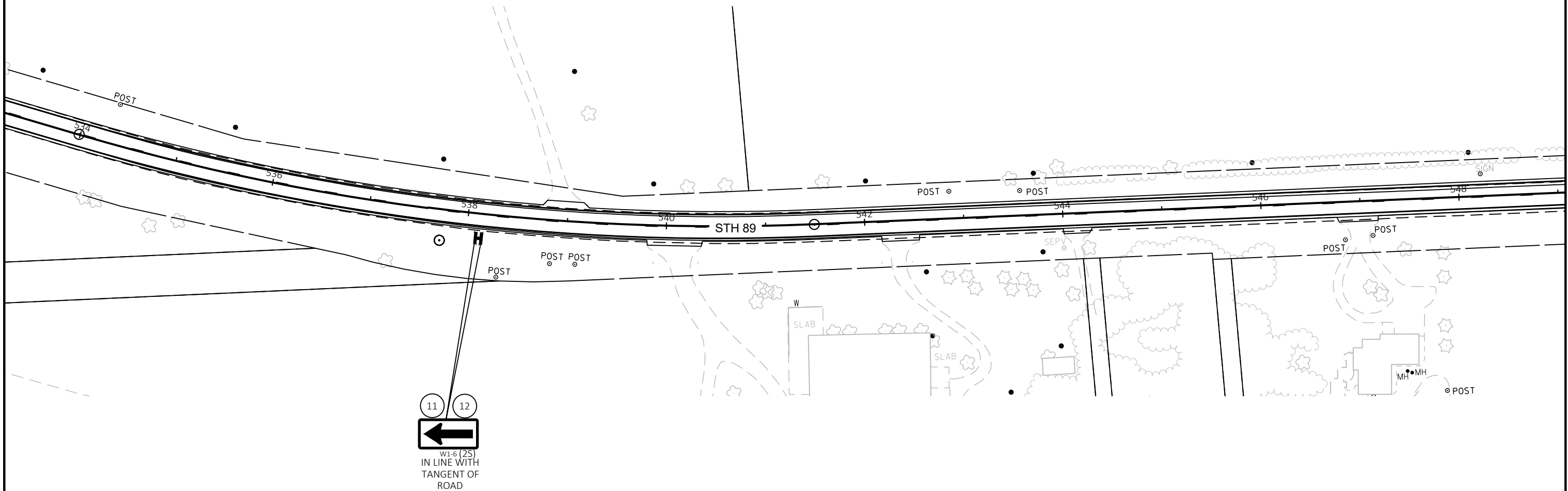
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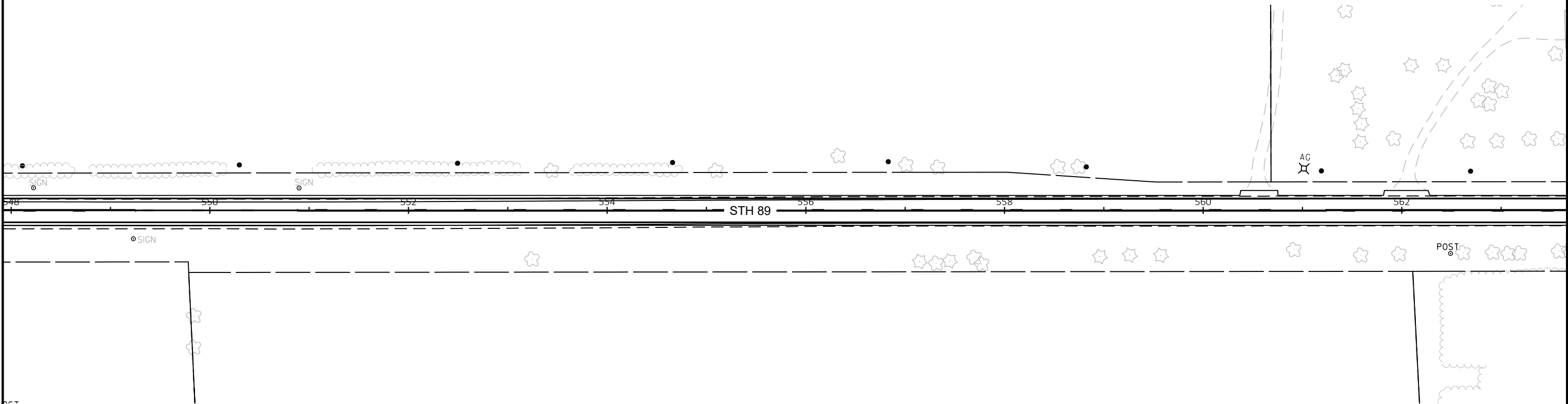
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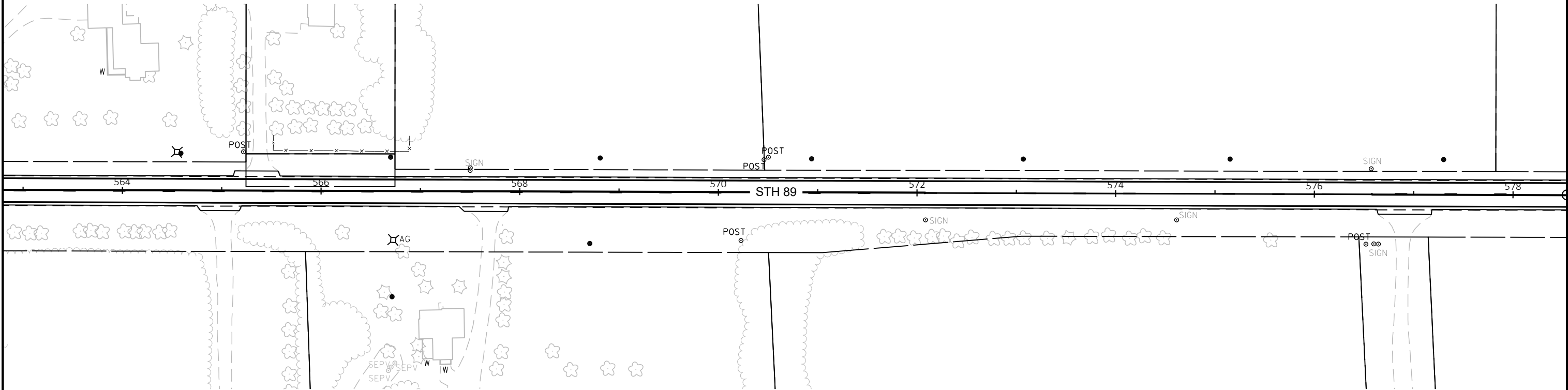
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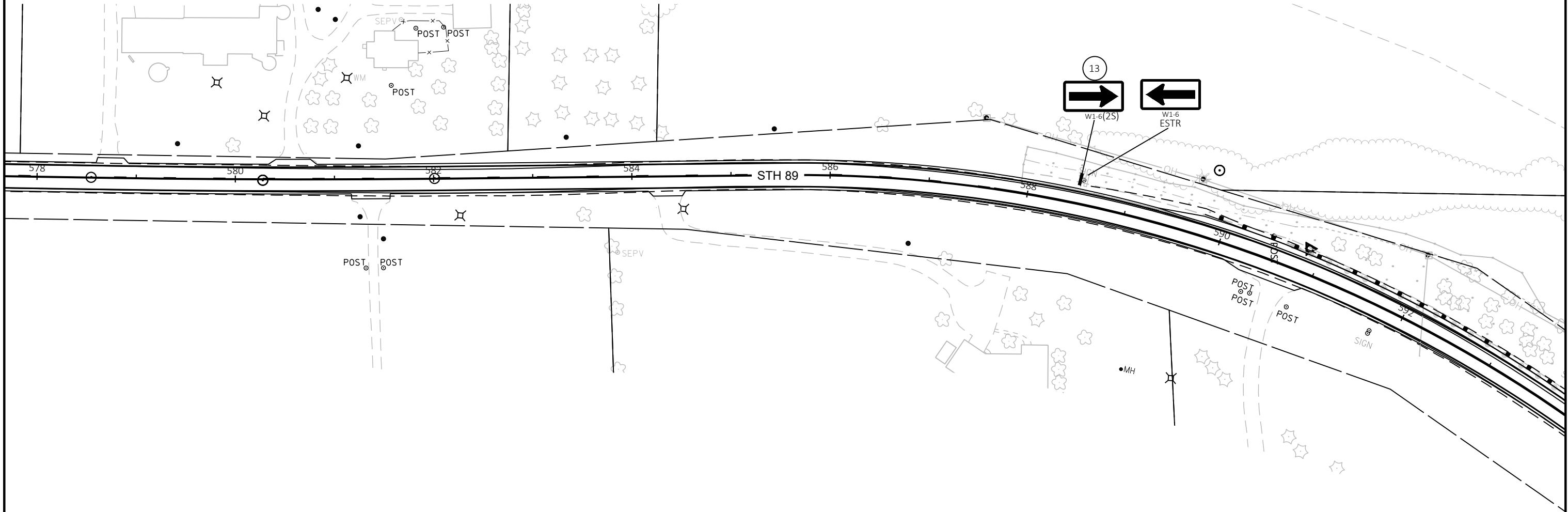
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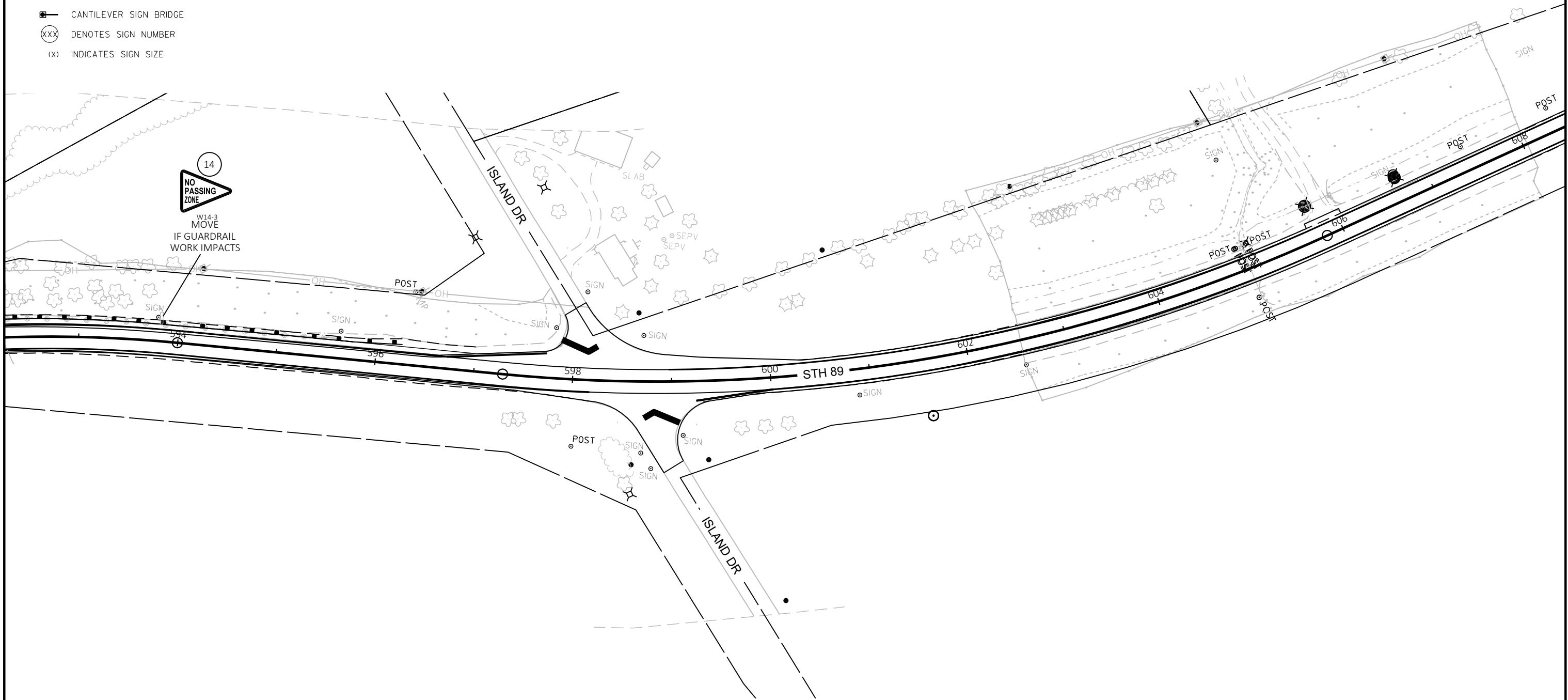
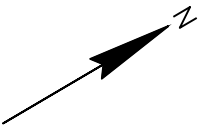
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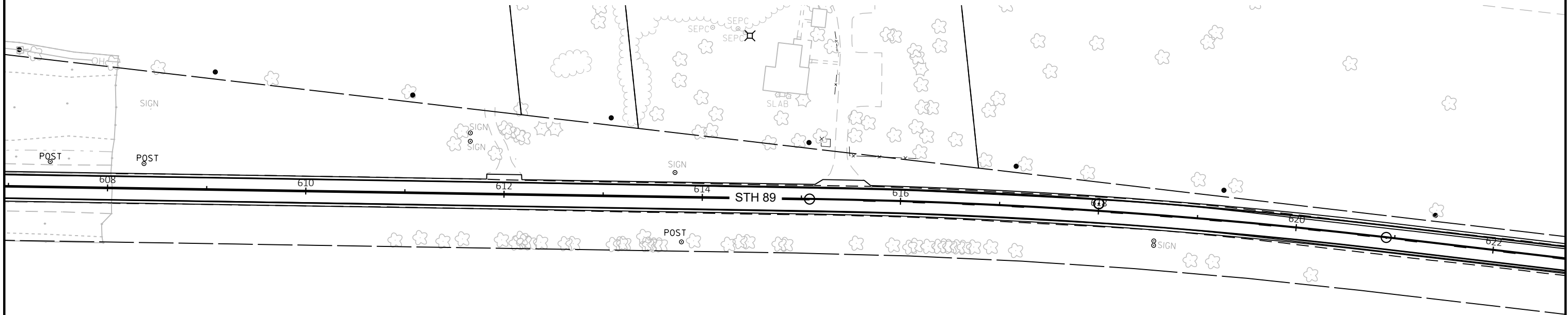
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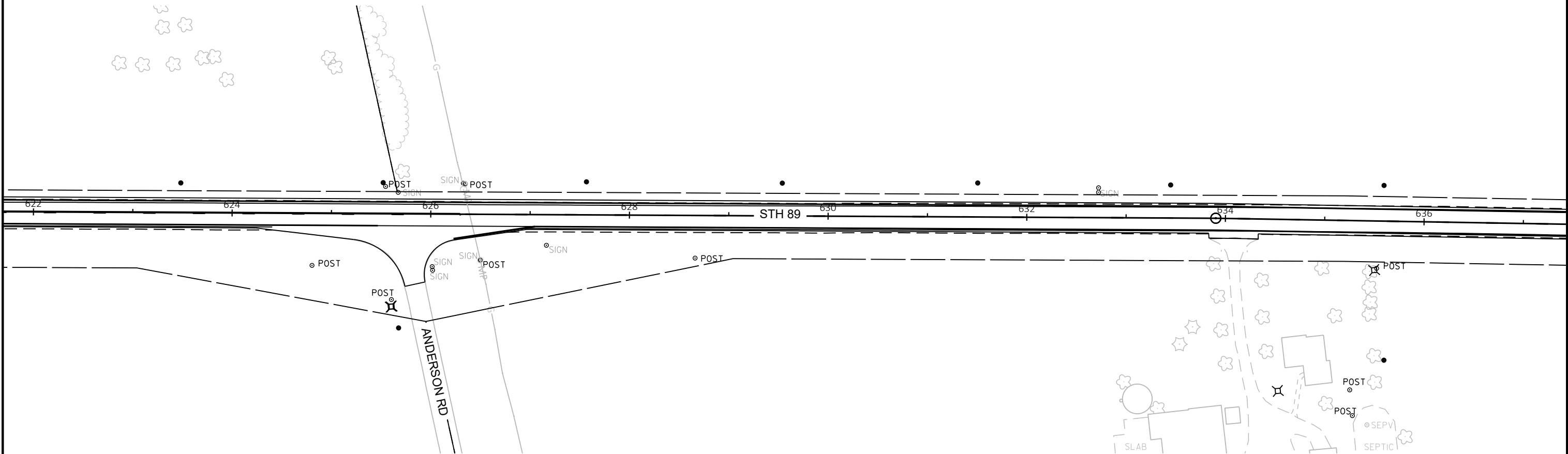
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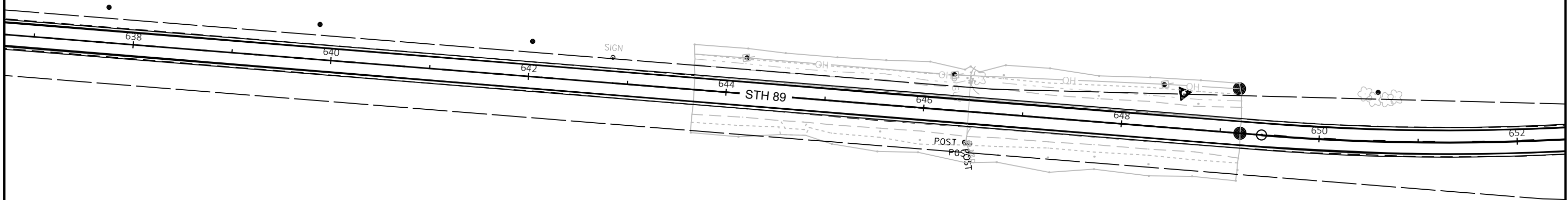
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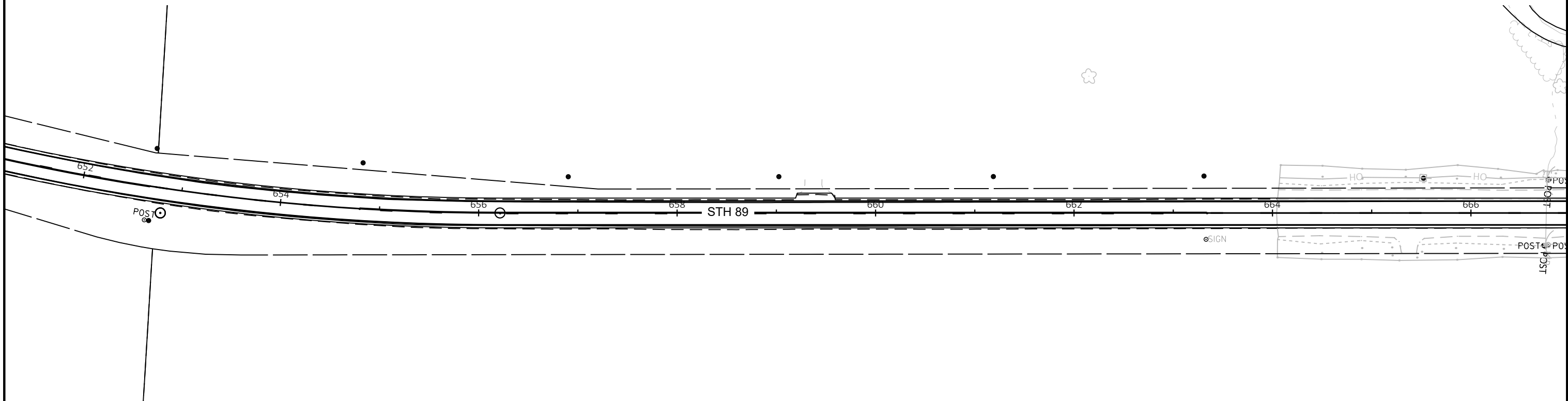
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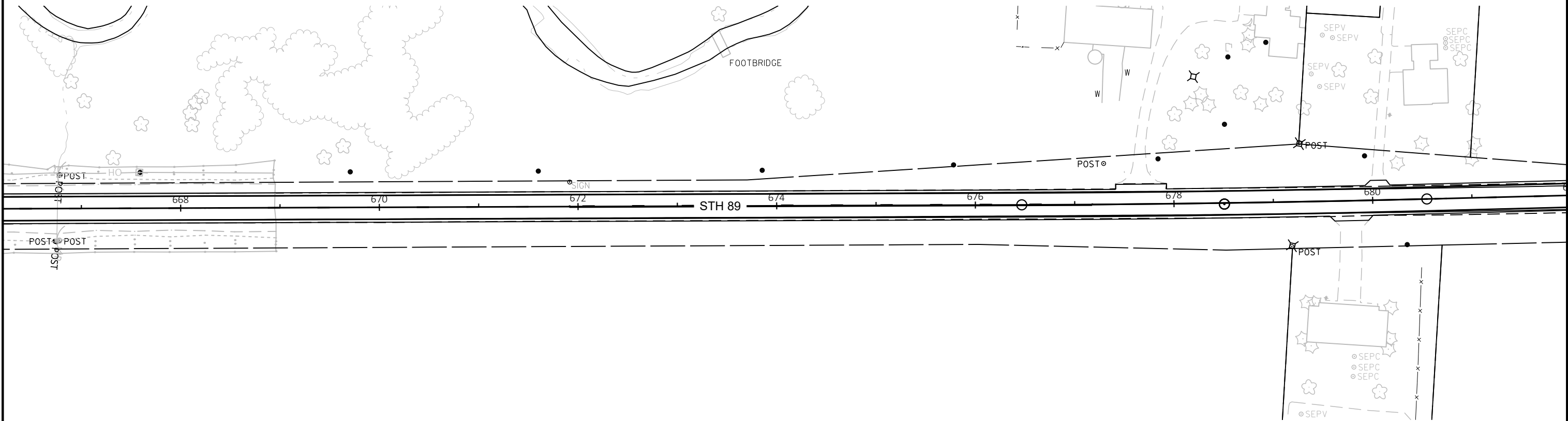
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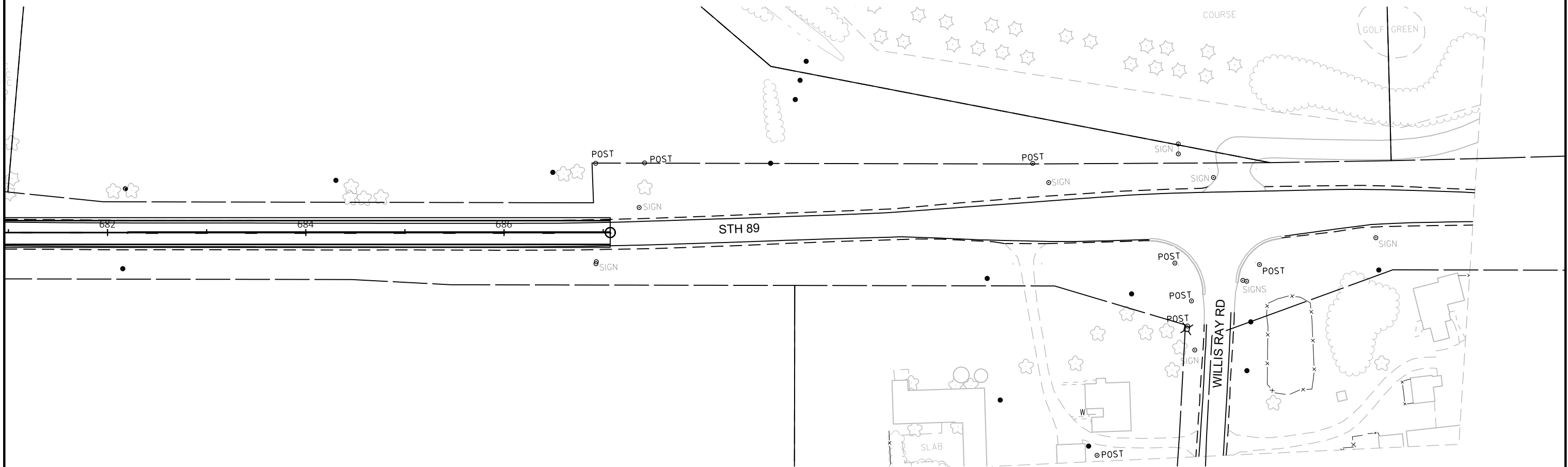
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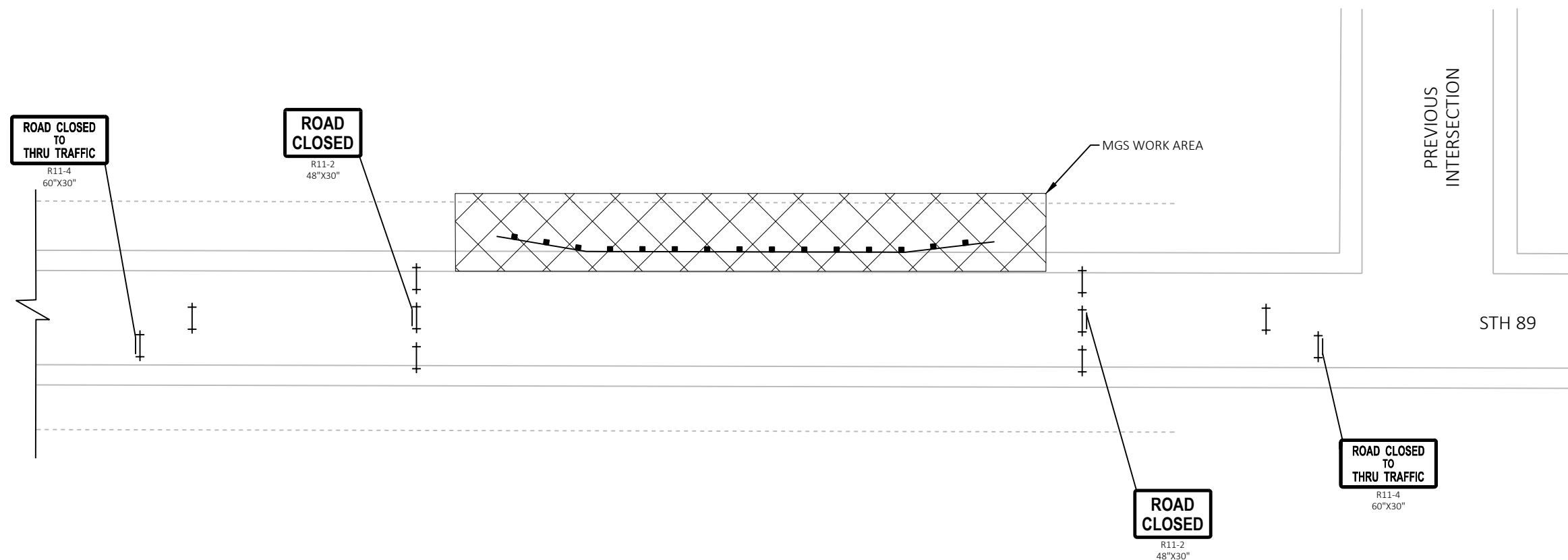
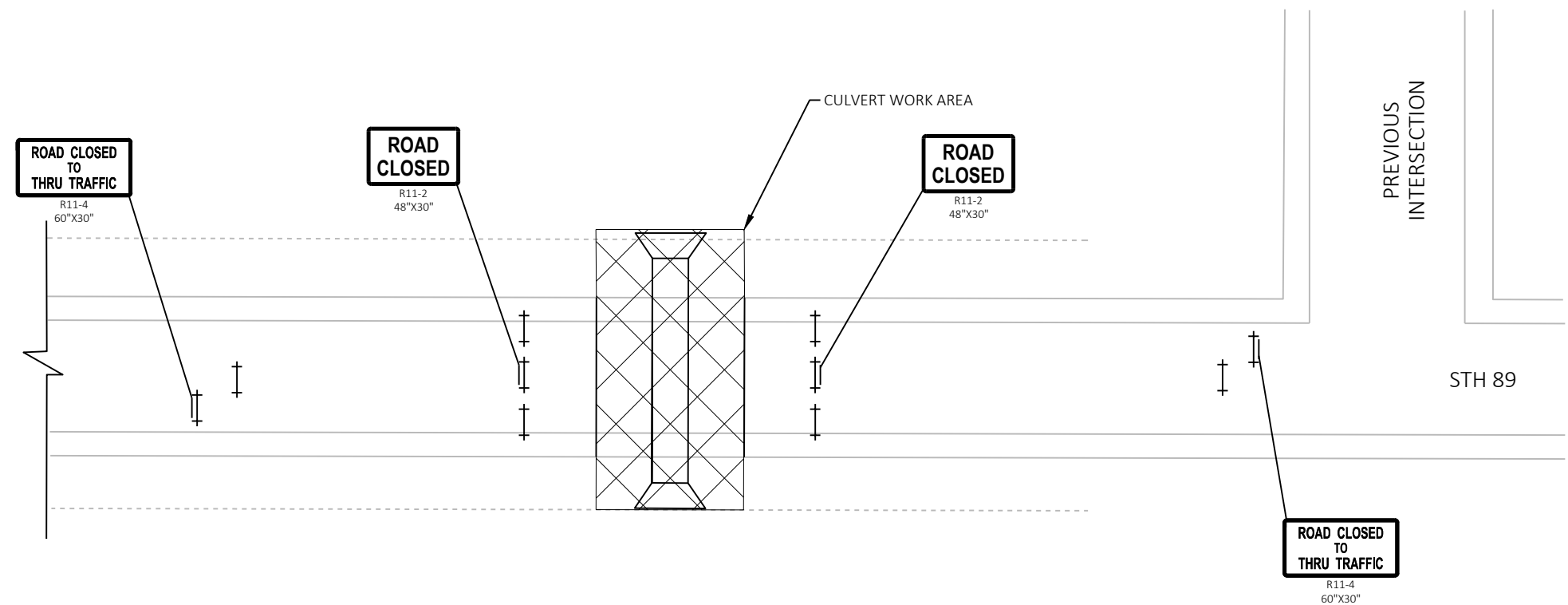
GENERAL TRAFFIC CONTROL NOTES

STH 89 WILL BE UNDER FULL ROAD CLOSURE. MAINTAIN ACCESS TO LOCAL TRAFFIC ONLY. DO NOT BLOCK DRIVEWAYS OR FIELD ENTRANCES WITHOUT PRIOR PROPERTY OWNER NOTICE AND APPROVAL.

WORK MAY BE PERFORMED AT MULTIPLE LOCATIONS WITHIN THE CORRIDOR AT THE SAME TIME. DO NOT COMPLETE ADJACENT CULVERT REPLACEMENTS CONCURRENTLY THAT DO NOT HAVE SIDE ROAD ACCESS BETWEEN WORK ZONES (CULVERTS 3/4 AND CULVERT 6 OR CULVERT 8 AND CULVERT 10). DO NOT START WORK AT NEW LOCATION WITHOUT PRIOR FIELD ENGINEER APPROVAL.

REFER TO SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR SIGN SPACING, PLACEMENT, AND OVERALL LAYOUT.

REFER TO DETOUR PLAN FOR ROUTE AND SIGNAGE.



GENERAL TRAFFIC CONTROL NOTES

WORK WILL BE COMPLETED UNDER A FULL CLOSURE OF STH 89

1. COMPLETE CULVERT REPLACEMENTS
2. COMPLETE MGS REPLACEMENTS
3. COMPLETE MILL AND OVERLAY OPERATIONS

SEE STANDARD DETAIL DRAWINGS "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" AND "DETOUR SIGNING FOR MAINLINE CLOSURES"

IH 43 AND FREEWAY SECTIONS OF USH 12 REQUIRE SIZE 3 SIGNS.

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 1,000 FEET DISTANCE TO EXISTING SIGNS

ANY SIGNS TEMPORARY OR EXISTING WHICH CONFLICT WITH 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.

W-SERIES, M4-8, M5-X, AND M6-X SERIES SIGNS SHALL USE ORANGE BACKGROUNDS.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS SO THE DRIVER HAS A CLEAR OF VIEW OF THE SIGN.

ALL FIXED MESSAGE SIGNS SHALL HAVE CAPITAL LETTERS AND NUMERALS. 6-INCH CAPS SHALL BE SERIES C.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO MANUFACTURING.

DETOUR NOTES

A SIGNED DETOUR ROUTE WILL USE THE FOLLOWING ROADWAYS

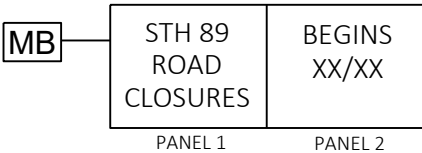
NORTH:
USE IH 43 NB FROM DARIEN TO ELKHORN
CONTINUE NORTH ON USH 12
END DETOUR AT STH 89 IN WHITEWATER

SOUTH:
USE USH 12 SOUTH FROM WHITEWATER TO ELKHORN
CONTINUE SOUTH ON IH 43
END DETOUR AT USH 14 IN DARIEN

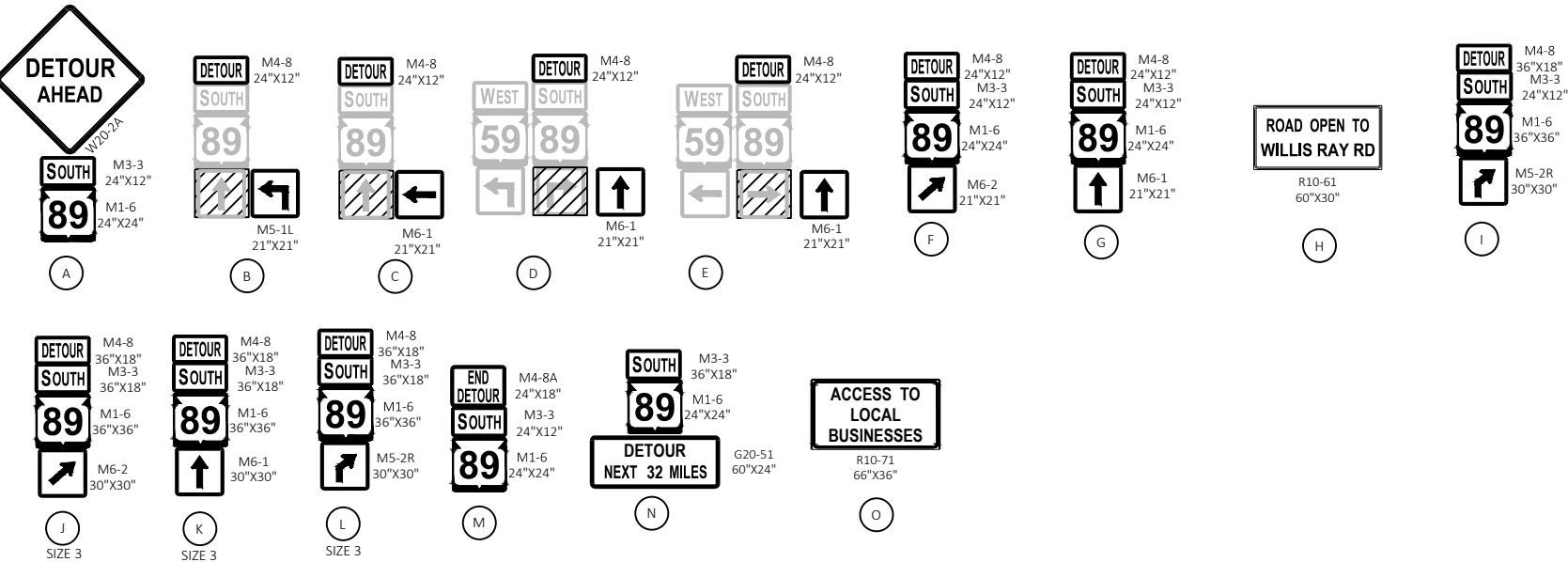
PORTABLE CHANGEABLE MESSAGE SIGNS

PLACE SIGNS 7 DAYS PRIOR TO CONSTRUCTION START ON STH 89 SOUTH OF USH12 AND NORTH OF CTH A. REMOVE WHEN CONSTRUCTION STARTS.

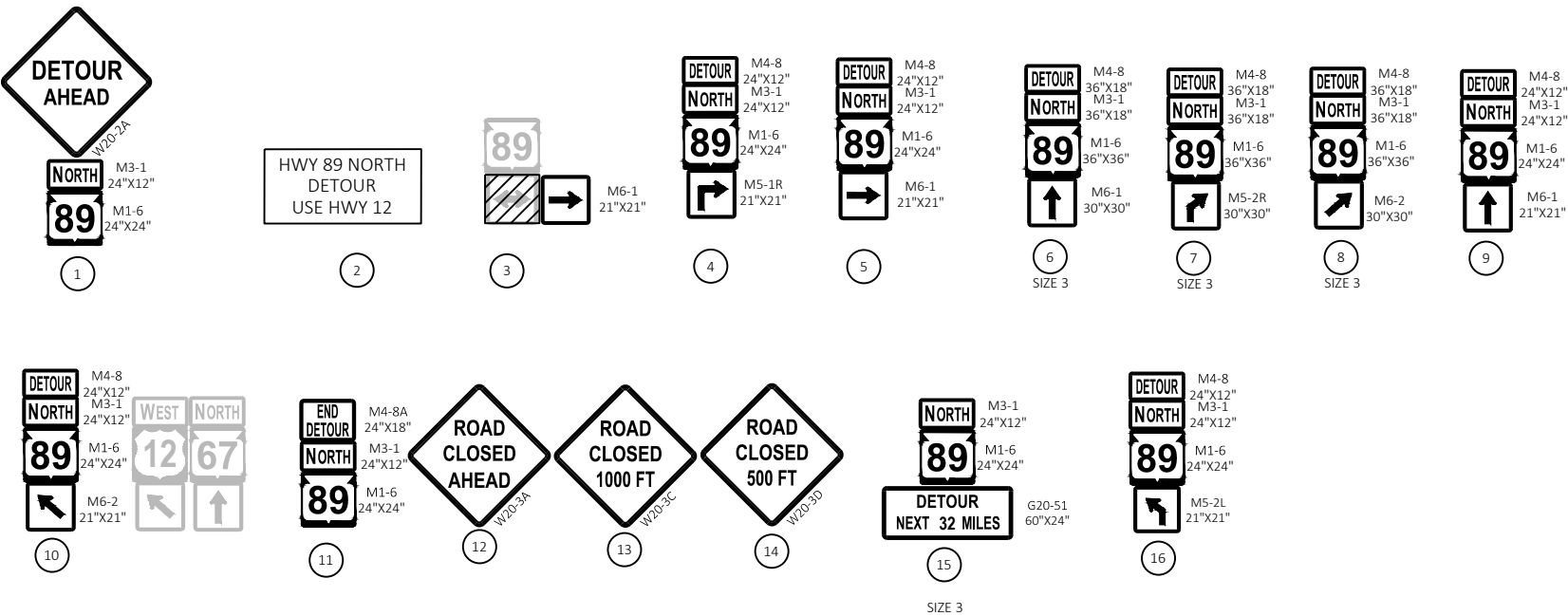
FIELD ENGINEER TO APPROVE MESSAGE BEFORE INSTALLATION.

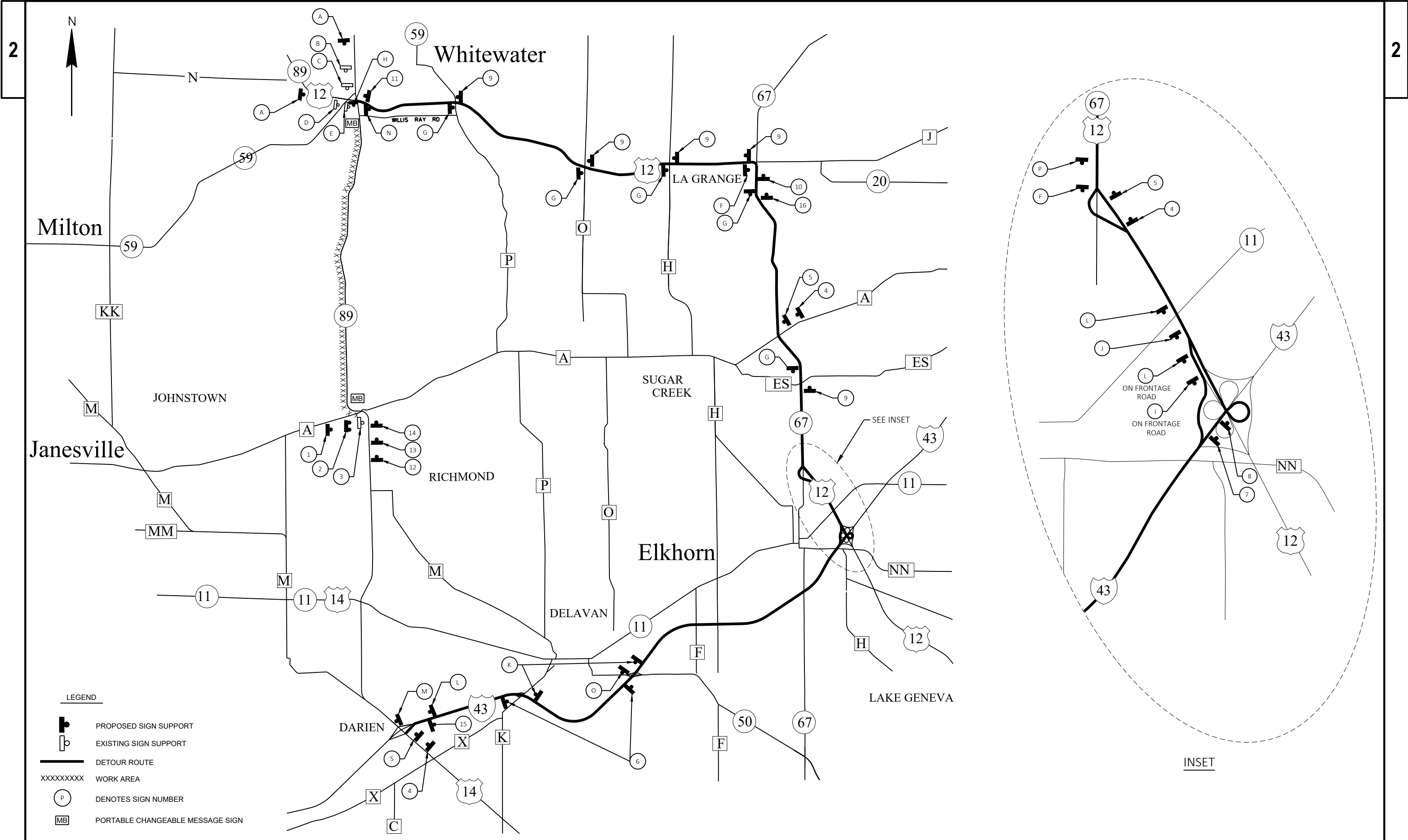


SOUTH DETOUR



NORTH DETOUR





Estimate Of Quantities

3390-04-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	42.000	42.000
0004	201.0205	Grubbing	STA	42.000	42.000
0006	203.0100	Removing Small Pipe Culverts	EACH	6.000	6.000
0008	204.0100	Removing Concrete Pavement	SY	60.000	60.000
0010	204.0115	Removing Asphaltic Surface Butt Joints	SY	1,580.000	1,580.000
0012	204.0125	Removing Asphaltic Surface Milling	TON	25,833.000	25,833.000
0014	204.0165	Removing Guardrail	LF	1,715.000	1,715.000
0016	205.0100	Excavation Common	CY	1,954.000	1,954.000
0018	209.1500	Backfill Granular Grade 1	TON	635.000	635.000
0020	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	25.000	25.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	2,333.000	2,333.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,468.000	2,468.000
0026	455.0605	Tack Coat	GAL	17,900.000	17,900.000
0028	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	2.000
0030	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	5.000	5.000
0032	460.2005	Incentive Density PWL HMA Pavement	DOL	22,580.000	22,580.000
0034	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	15,120.000	15,120.000
0036	460.2010	Incentive Air Voids HMA Pavement	DOL	26,680.000	26,680.000
0038	460.5223	HMA Pavement 3 LT 58-28 S	TON	13,354.000	13,354.000
0040	460.5224	HMA Pavement 4 LT 58-28 S	TON	13,321.000	13,321.000
0042	465.0105	Asphaltic Surface	TON	2,184.000	2,184.000
0044	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	34,986.000	34,986.000
0046	520.1024	Apron Endwalls for Culvert Pipe 24-Inch	EACH	5.000	5.000
0048	520.1030	Apron Endwalls for Culvert Pipe 30-Inch	EACH	2.000	2.000
0050	520.8700	Cleaning Culvert Pipes	EACH	6.000	6.000
0052	521.1228	Apron Endwalls for Pipe Arch Steel 28x20-Inch	EACH	4.000	4.000
0054	521.1235	Apron Endwalls for Pipe Arch Steel 35x24-Inch	EACH	2.000	2.000
0056	521.3124	Culvert Pipe Corrugated Steel 24-Inch	LF	264.000	264.000
0058	521.3130	Culvert Pipe Corrugated Steel 30-Inch	LF	67.000	67.000
0060	521.3728	Pipe Arch Corrugated Steel 28x20-Inch	LF	111.000	111.000
0062	521.3735	Pipe Arch Corrugated Steel 35x24-Inch	LF	56.000	56.000
0064	606.0200	Riprap Medium	CY	5.000	5.000
0066	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	1,460.000	1,460.000
0068	614.2300	MGS Guardrail 3	LF	2,500.000	2,500.000
0070	614.2610	MGS Guardrail Terminal EAT	EACH	10.000	10.000
0072	618.0100	Maintenance And Repair of Haul Roads (project) 01. 3390-04-70	EACH	1.000	1.000
0074	619.1000	Mobilization	EACH	1.000	1.000
0076	625.0100	Topsoil	SY	4,582.000	4,582.000
0078	628.1504	Silt Fence	LF	1,370.000	1,370.000
0080	628.1520	Silt Fence Maintenance	LF	1,370.000	1,370.000
0082	628.1905	Mobilizations Erosion Control	EACH	14.000	14.000
0084	628.1910	Mobilizations Emergency Erosion Control	EACH	7.000	7.000
0086	628.2006	Erosion Mat Urban Class I Type A	SY	4,582.000	4,582.000
0088	628.7555	Culvert Pipe Checks	EACH	20.000	20.000
0090	628.7570	Rock Bags	EACH	60.000	60.000
0092	629.0210	Fertilizer Type B	CWT	2.900	2.900
0094	630.0130	Seeding Mixture No. 30	LB	82.400	82.400
0096	630.0200	Seeding Temporary	LB	123.600	123.600
0098	630.0500	Seed Water	MGAL	107.000	107.000

Estimate Of Quantities

3390-04-70					
Line	Item	Item Description	Unit	Total	Qty
0100	633.5200	Markers Culvert End	EACH	22.000	22.000
0102	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	18.000	18.000
0104	637.2210	Signs Type II Reflective H	SF	25.000	25.000
0106	637.2230	Signs Type II Reflective F	SF	60.000	60.000
0108	638.2102	Moving Signs Type II	EACH	13.000	13.000
0110	638.2602	Removing Signs Type II	EACH	5.000	5.000
0112	638.3000	Removing Small Sign Supports	EACH	15.000	15.000
0114	642.5001	Field Office Type B	EACH	1.000	1.000
0116	643.0420	Traffic Control Barricades Type III	DAY	5,052.000	5,052.000
0118	643.0705	Traffic Control Warning Lights Type A	DAY	7,896.000	7,896.000
0120	643.0900	Traffic Control Signs	DAY	15,056.000	15,056.000
0122	643.1000	Traffic Control Signs Fixed Message	SF	18.000	18.000
0124	643.5000	Traffic Control	EACH	1.000	1.000
0126	645.0120	Geotextile Type HR	SY	20.000	20.000
0128	646.1020	Marking Line Epoxy 4-Inch	LF	40,831.000	40,831.000
0130	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	74,977.000	74,977.000
0132	646.6120	Marking Stop Line Epoxy 18-Inch	LF	153.000	153.000
0134	648.0100	Locating No-Passing Zones	MI	8.000	8.000
0136	650.6000	Construction Staking Pipe Culverts	EACH	6.000	6.000
0138	650.8000	Construction Staking Resurfacing Reference	LF	37,786.000	37,786.000
0140	650.9911	Construction Staking Supplemental Control (project) 01. 3390-04-70	EACH	1.000	1.000
0142	650.9920	Construction Staking Slope Stakes	LF	3,530.000	3,530.000
0144	690.0150	Sawing Asphalt	LF	1,410.000	1,410.000
0146	690.0250	Sawing Concrete	LF	70.000	70.000
0148	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0150	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	2,280.000	2,280.000
0152	SPV.0180	Special 01. Base Patching Asphaltic Full Depth	SY	1,300.000	1,300.000

CLEARING & GRUBBING

		201.0105	201.0205
		CLEARING	GRUBBING
LOCATION	STA	STA	STA
CULVERT 1	311+82	0.5	0.5
CULVERT 2		0.5	0.5
CULVERT 3	409+31	0.5	0.5
CULVERT 4	409+40	0.5	0.5
CULVERT 5		0.5	0.5
CULVERT 6	456+40	0.5	0.5
CULVERT 7		0.5	0.5
CULVERT 8	485+33	0.5	0.5
CULVERT 9		0.5	0.5
CULVERT 10	515+86	0.5	0.5
CULVERT 11		0.5	0.5
CULVERT 12	646+45	0.5	0.5
CULVERT 13		0.5	0.5
MGS 1	311+70	319+00	7.5
MGS 2	351+00	354+50	3.5
MGS 3	473+50	482+50	9
MGS 4	473+00	480+00	7
MGS 5	588+50	597+00	8.5
		42.0	42.0

REMOVING PAVEMENT

					204.0100
					REMOVING
					CONCRETE
					PAVEMENT
LOCATION	STA	STA	SIDE	SY	
CULVERT 3&4	409+31	409+40	LT/RT	60	
TOTALS				60	

MILLING ITEMS

				204.0115	204.0125
				REMOVING	REMOVING
				ASPHALTIC	ASPHALTIC
				SURFACE BUTT	SURFACE
				JOINTS	MILLING
LOCATION	STA	STA	SIDE	SY	TON
STH 89	309+21	687+07	LT/RT	1,580	23,603
BASE PATCHING	309+21	687+07	LT/RT	-	2,230
TOTALS				1,580	25,833

REMOVING GUARDRAIL

					204.0165
					REMOVING
					GUARDRAIL
LOCATION	STA	STA	SIDE	LF	
STH 89	315+95.96	318+94.77	LT	305	
STH 89	351+67.22	354+22.26	LT	256	
STH 89	476+79.96	479+73.88	LT	293	
STH 89	476+17.74	479+70.90	RT	356	
STH 89	590+63.84	595+63.39	LT	505	
TOTALS				1,715	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE SPECIFIED.

EARTHWORK									
DIVISION	205.0100 COMMON EXCAVATION (1)		SALVAGED/ UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	208.0100 BORROW	COMMENT
	CUT (2)	EBS EXCAVATION (3)				FACTOR			
						1.25			
MGS 1 - CULVERT 1									
	271	0	12	259	83	104	155	0	
SUBTOTAL	271	0	12	259	83	104	155		
MGS 2									
	200	0	0	200	1	1	199	0	
SUBTOTAL	200	0	0	200	1	1	199		
CULVERT 3/4									
	33	0	7	26	0	0	26	0	
SUBTOTAL	33	0	7	26	0	0	26		
CULVERT 6									
	12	0	2	10	0	0	10	0	
SUBTOTAL	12	0	2	10	0	0	10		
MGS 3/4									
	1,041	0	0	1,041	60	75	966	0	
SUBTOTAL	1,041	0	0	1,041	60	75	966		
CULVERT 8									
	10	0	2	8	0	0	8	0	
SUBTOTAL	10	0	2	8	0	0	8		
CULVERT 10									
	14	0	2	12	0	0	12	0	
SUBTOTAL	14	0	2	12	0	0	12		
MGS 5									
	353	0	0	353	63	79	274	0	
SUBTOTAL	353	0	0	353	63	79	274		
DRIVEWAY 333+50 (UNDISTRIBUTED)									
	20	0	0	20	0	0	20	0	
SUBTOTAL	20	0	0	20	0	0	20		
GRAND TOTAL	1,954	0	25	1,909	207	259	1,650	0	
TOTAL COMMON EXC	1,954								

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
(13) EXPANDED FILL FACTOR = 1.25
(14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL
WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

BASE AGGREGATE

LOCATION	STA	STA	209.1500	211.0400	305.0110	305.0120
			BACKFILL GRANULAR GRADE 1	FOUNDATION FOR ASPHALTIC SHOULDERS	BASE AGGREGATE DENSE 3/4-INCH	BASE AGGREGATE DENSE 1 1/4-INCH
PROJECT - 5' SHLDR	309+21	687+07	-	-	2333	-
CULVERT 1	311+82	-	57	-	-	28
MGS 1	312+77.65	318+94.77	-	6	-	466
MGS 2	351+65.46	354+22.38	-	3	-	299
CULVERT 3/4	409+31	409+40	106	-	-	69
CULVERT 6	456+40	-	28	-	-	28
MGS 3	473+61.32	482+46.26	-	9	-	571
MGS 4	473+80.69	479+70.80	-	-	-	432
CULVERT 8	485+33	-	133	-	-	32
CULVERT 10	515+86	-	311	-	-	50
MGS 5	589+77.65	596+25.90	-	7	-	488
DRIVEWAY	319+20	-	-	-	-	5
TOTAL			635	25	2333	2468

PAVING ITEMS

LOCATION	STA	STA	SIDE	455.0605	460.5223	460.5224	465.0105
				TACK COAT GAL	HMA PAVEMENT 3 LT 58-28 S TON	HMA PAVEMENT 4 LT 58-28 S TON	ASPHALTIC SURFACE TON
				CULVERT REPLACEMENT AREAS	LT/RT	-	64
				BASE PATCHING	UNDSTRIIBUTED	LT/RT	882
STH 89 MILL & OVERLAY	309+21	687+07	LT/RT	16,764	13,201	13,202	-
STH 89 PAVT WIDENING	309+21	687+07	LT/RT	254	153	119	-
TOTAL				17,900	13,354	13,321	2,184

HMA TEST STRIPS

			460.0105.S	460.0110.S
			HMA PERCENT WITHIN LIMITS PWL TEST STRIP	HMA PERCENT WITHIN LIMITS PWLT TEST STRIP
LOCATION	STA	STA	VOLUMETRICS	DENSITY
PROJECT	309+21	687+07	2	5
TOTAL			2	5

RUMBLE STRIPS

			465.0475
			ASPHALT CENTER
			LINE RUMBLE
			STRIPS 2-LANE
			RURAL
LOCATION	STA	STA	LF
STH 89	309+21	687+07	34,986
TOTALS			34,986

3

CULVERTS													
			203.0100	520.8700	633.5200	521.3124	521.3130	521.3728	521.3735	520.1024	520.1030	521.1228	521.1235
			REMOVING SMALL PIPE CULVERTS	CLEANING CULVERT PIPES	MARKERS CULVERT END	CULVERT PIPE CORRUGATED STEEL 24-INCH	CULVERT PIPE CORRUGATED STEEL 30-INCH	PIPE ARCH CORRUGATED STEEL 28X20-INCH	PIPE ARCH CORRUGATED STEEL 35X24-INCH	APRON ENDWALLS FOR CULVERT PIPE 24-INCH	APRON ENDWALLS FOR CULVERT PIPE 30-INCH	APRON ENDWALLS FOR PIPE ARCH STEEL 28X20-INCH	APRON ENDWALLS FOR PIPE ARCH STEEL 35X24-INCH
LOCATION	STA	LENGTH (FT)	EA	EA	EA	LF	LF	LF	LF	EACH	EACH	EACH	EACH
CULVERT 1	311+82	67	1	-	2	-	67	-	-	-	2	-	-
CULVERT 2			-	1	2	-	-	-	-	-	-	-	-
CULVERT 3	409+31	55	1	-	2	-	-	55	-	-	-	2	-
CULVERT 4	409+40	56	1	-	2	-	-	56	-	-	-	2	-
CULVERT 5			-	-	-	-	-	-	-	-	-	-	-
CULVERT 6	456+40	56	1	-	2	-	-	-	56	-	-	-	2
CULVERT 7			-	1	-	-	-	-	-	-	-	-	-
CULVERT 8	485+33	112	1	-	2	112	-	-	-	2	-	-	-
CULVERT 9			-	1	2	-	-	-	-	-	-	-	-
CULVERT 10	515+86	152	1	-	2	152	-	-	-	2	-	-	-
CULVERT 11			-	1	2	-	-	-	-	-	-	-	-
CULVERT 12	646+45		-	1	2	-	-	-	-	1	-	-	-
CULVERT 13			-	1	2	-	-	-	-	-	-	-	-
TOTAL			6	6	22	264	67	111	56	5	2	4	2

3

MOW STRIP

614.0397 GURADRAIL MOW STRIP EMULSIFIED ASPHALT				
LOCATION	STA	STA	SIDE	SY
MGS 1	312+77.65	318+94.77	LT	303
MGS 2	351+65.46	354+22.38	LT	142
MGS 3	473+61.32	482+46.26	LT	414
MGS 4	473+80.69	479+70.80	RT	287
MGS 5	589+77.65	596+25.90	LT	314
TOTAL				1460

BEAM GUARD

614.2300 614.2610 MGS MGS GUARDRAIL 3 GUARDRAIL TERMINAL EAT					
LOCATION	STA	STA	SIDE	LF	EACH
STH 89	312+77.65	318+94.77	LT	525	2
STH 89	351+65.46	354+22.38	LT	162.5	2
STH 89	473+61.32	482+46.26	LT	775	2
STH 89	473+80.69	479+70.80	RT	487.5	2
STH 89	589+77.65	596+25.90	LT	550	2
TOTALS				2,500	10

HAUL ROADS

618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS (3390-04-70)	
PROJECT	EACH
3390-04-70	1
TOTAL	1

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE SPECIFIED.

EROSION CONTROL AND RESTORATION													
	628.1504	628.1520	628.7555	628.2006	629.0210	625.0100	628.7570	630.0130	630.0200	630.0500	645.0120	606.0200	
		SILT FENCE	CULVERT PIPE	EROSION MAT	URBAN CLASS I	FERTILIZER		SEED MIXTURE	SEEDING	SEED	GEOTEXTILE	RIPRAP	
		MAINTENANCE	CHECKS	TYPE A		TYPE B	TOPSOIL	NO. 30	TEMPORARY	WATER	FABRIC	MEDIUM	
LOCATION	LF	LF	EACH	SF	SY	CWT	SY	LB	LB	MGAL	TYPE HR	CY	
CULVERT 1	150	150	3	1485	165	0.1	165	3.0	4.5	4	-	-	
CULVERT 2	-	-	-	-	-	-	-	-	-	-	-	-	
CULVERT 3/4	165	165	5	2515	280	0.2	280	5.0	7.5	7	-	-	
CULVERT 5	-	-	-	-	-	-	-	-	-	-	-	-	
CULVERT 6	150	150	3	1590	177	0.1	177	3.2	4.8	4	-	-	
CULVERT 7	-	-	-	-	-	-	-	-	-	-	-	-	
CULVERT 8	150	150	3	2345	261	0.2	261	4.7	7.0	6	-	-	
CULVERT 9	-	-	-	-	-	-	-	-	-	-	-	-	
CULVERT 10	160	160	3	4780	532	0.3	532	9.6	14.3	12	20	5	
CULVERT 11	-	-	-	-	-	-	-	-	-	-	-	-	
CULVERT 12	85	85	3	310	35	0.0	35	0.6	0.9	1	-	-	
CULVERT 13	-	-	-	-	-	-	-	-	-	-	-	-	
MGS 1	-	-	-	6028	670	0.4	670	12.1	18.1	16	-	-	
MGS 2	150	150	-	2276	253	0.2	253	4.6	6.8	6	-	-	
MGS 3	230	230	-	5905	657	0.4	657	11.8	17.7	15	-	-	
MGS 4	130	130	-	6155	684	0.4	684	12.3	18.5	16	-	-	
MGS 5	-	-	-	6797	756	0.5	756	13.6	20.4	17	-	-	
DRIVEWAY 333+50	-	-	-	1000	112	0.1	112	2.0	3.0	3	-	-	
TOTAL	1370	1370	20		4582	2.9	4582	82.4	123.6	107	20	5	

EROSION CONTROL MOBILIZATIONS		
	628.1905	628.1910
	MOBILIZATIONS	MOBILIZATIONS
	EROSION	EMERGENCY
	CONTROL	EROSION CONTROL
LOCATION	EACH	EACH
PROJECT	14	7
TOTAL	14	7

FIELD OFFICE	
	642.5001
	TYPE B
PROJECT	EACH
3390-04-70	1
TOTAL	1

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE SPECIFIED.

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TRAFFIC CONTROL

LOCATION	DIM	643.0420		643.0705		643.0900		643.1000		CONTRACT DAYS
		TRAFFIC		TRAFFIC		TRAFFIC		TRAFFIC		
		CONTROL		CONTROL		CONTROL		CONTROL		
		BARRICADES		WARNING LIGHTS		SIGNS		FIXED MESSAGE		
		TYPE III		TYPE A				SIGN		
		NO.	DAY	NO.	DAY	NO.	DAY	SF		
DETOUR ROUTE	-	-	-	-	-	163	11,899	-	73	
STH 89 CLOSURE	-	44	3,212	88	6,424	34	2,482	-	73	
CULVERT CLOSURES (6 TOTAL)	-	70	1,073	56	859	24	368	-	15	
MGS CLOSURES (5 TOTAL)	-	50	767	40	613	20	307	-	15	
HWY 89 NORTH DETOUR USE HWY 12	36X72	-	-	-	-	-	-	18	-	
TOTAL			5,052		7,896		15,056	18		

MARKINGS

LOCATION	STA	STA	646.1040		646.1020		646.6120		648.0100	
			MARKING LINE							
			GROOVED WET							
			REFLECTIVE		MARKING LINE EPOXY 4-INCH		MARKING STOP LINE		LOCATING NO-	
			EPOXY 4-INCH		YELLOW		EPOXY 18-INCH		PASSING ZONES	
			WHITE	SOLID YELLOW	DASHED YELLOW		WHITE			MI
			LF	LF	LF		LF			
PROJECT	309+21	687+07	74,977	33,689	7,142		153			8
		TOTAL	74,977	33,689	7,142		153			8
				40,831						

CONSTRUCTION STAKING

STATION		STATION	LOCATION	650.6000		650.8000		650.9911		650.9920	
				CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		CONSTRUCTION	
				STAKING		STAKING		STAKING		STAKING	
				PIPE		RESURFACING		SUPPLEMENTAL		SLOPE	
				CULVERTS		REFERENCE		CONTROL		STAKES	
				EACH	LF			3390-04-70			
								EACH		LF	
309+21	-	687+07	PROJECT	-	37786			1		-	
	311+80		CULVERT 1	1	-			-		-	
	375+75		CULVERT 2	-	-			-		-	
409+31	-	409+40	CULVERT 3/4	2	-			-		-	
	426+63		CULVERT 5	-	-			-		-	
	456+39		CULVERT 6	1	-			-		-	
	479+52		CULVERT 7	-	-			-		-	
	485+31		CULVERT 8	1	-			-		-	
	500+07		CULVERT 9	-	-			-		-	
	515+85		CULVERT 10	1	-			-		-	
	604+98		CULVERT 11	-	-			-		-	
	646+45		CULVERT 12	-	-			-		-	
	666+75		CULVERT 13	-	-			-		-	
311+70	-	319+00	MGS 1	-	-			-		730	
351+00	-	354+50	MGS 2	-	-			-		350	
473+50	-	482+50	MGS 3	-	-			-		900	
473+00	-	480+00	MGS 4	-	-			-		700	
588+50	-	597+00	MGS 5	-	-			-		850	
TOTAL				6	37,786			1		3,530	

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SAWING

LOCATION	STA	STA	SIDE	690.0150		690.025	
				SAWING		SAWING	
				ASPHALT		CONCRETE	
				LF	LF		
STH 89	309+21	687+07	LT/RT	1,410	-		
CULVERT 3&4	409+31	409+40	LT/RT	-	70		
TOTALS				1,410	70		

BASE PATCHING ASPHALTIC FULL DEPTH

LOCATION	STA	STA	SIDE	SPV.0180.01	
				BASE PATCHING	
				ASPHALTIC	
				FULL DEPTH	
				SY	
UNDSITRIBUTED	309+21	687+07	LT/RT	1,300	
TOTALS				1,300	

TRAFFIC CONTROL

PROJECT	643.5000	
	TRAFFIC	
	CONTROL	
	EACH	
3390-04-00	1	
TOTAL	1	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE SPECIFIED.

3

3

TYPE II PERMANENT SIGNING3390-04-70

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE			637.2210	637.2230	638.2102	638.2602	638.3000	634.0618	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION		
			W [IN.]	x x	H [IN.]	SIGNS TYPE II REFLECTIVE H [SF]	SIGNS TYPE II RELFECTIVE F [SF]	MOVING SIGNS TYPE II [EA]	REMOVING SIGNS TYPE II (EA)	REM SMALL SIGN SUP [EA]	POSTS WOOD 4" X 6" X 18' [EA]				
1	W1-8	STALLER WINERY						1		2	2				
2								1	1	1					
3	W1-6							1		1	1				
4	W1-8							1	1						
5	W1-8							1	1						
6	J1-1							1	1						
7	R2-1(2S)	SPEED LIMIT 55 WHITEWATER LAKE REC AREA	24	X	30	5.000		1		2	1	9	CLIPS TO ANGLE SIGN INCIDENTAL		
8	D1-1										2			2	
9	W1-6(2S)		48	X	24									8.000	1
10	W1-6(2S)		48	X	24									8.000	
11	W1-6(2S)		48	X	24									8.000	1
12	W1-6(2S)		48	X	24						11	CLIPS TO ANGLE SIGN INCIDENTAL MOUNT ON BACK OF EXISTING W1-6 SIGN. CLIPS TO ANGLE SIGN INCIDENTAL			
13	W1-6(2S)		48	X	24									8.000	
14	W14-3												1		1
UNDISTRIBUTED						20.000	20.000	5	5	5	5				
						25.000	60.000	13	5	15	18				

5

5



PI STA = 350+36.74
Y = 384489.879
X = 707198.721
DELTA = 2°10'08"
D = 0°10'05"
T = 644.94'
L = 1289.72'
R = 34070.47'
PC STA = 343+91.80
PT STA = 356+81.52

REMOVE AND REPLACE MGS
GUARDRAIL AND EAT (2)
SEE PLAN DETAILS

PAVE SHOULDER TO
FACE OF RAIL

LEGEND

- MILL AND OVERLAY
- PAVEMENT WIDENING
- CULVERT REPLACEMENT
ASPHALTIC SURFACE REQ'D

NOTE: EXISTING R/W BASED ON GIS
DATA AND IS APPROXIMATE.

CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION	NORTHING	EASTING
CP 909	350+70.55	23.20 RT	3/8" REBAR	996.417'	384,523.902	707,215.591

PROJECT NO: 3390-04-70

HWY: STH 89

COUNTY: WALWORTH

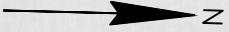
PLAN SHEETS

SHEET

68

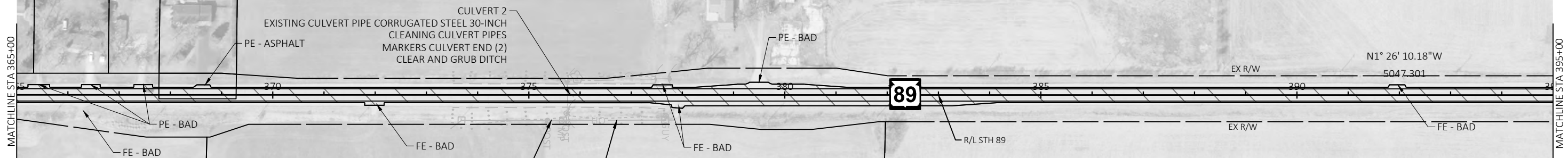
E

NOTE:
NO WORK OR PARKING OF EQUIPMENT
FROM STATION 369+00 TO STATION
382+00 RT, UNLESS APPROVED BY THE
ENGINEER.



5

MATCHLINE STA 365+00



MATCHLINE STA 395+00

5

LEGEND

- MILL AND OVERLAY
- PAVEMENT WIDENING
- CULVERT REPLACEMENT
- ASPHALTIC SURFACE REQ'D

NOTE: EXISTING R/W BASED ON GIS
DATA AND IS APPROXIMATE.



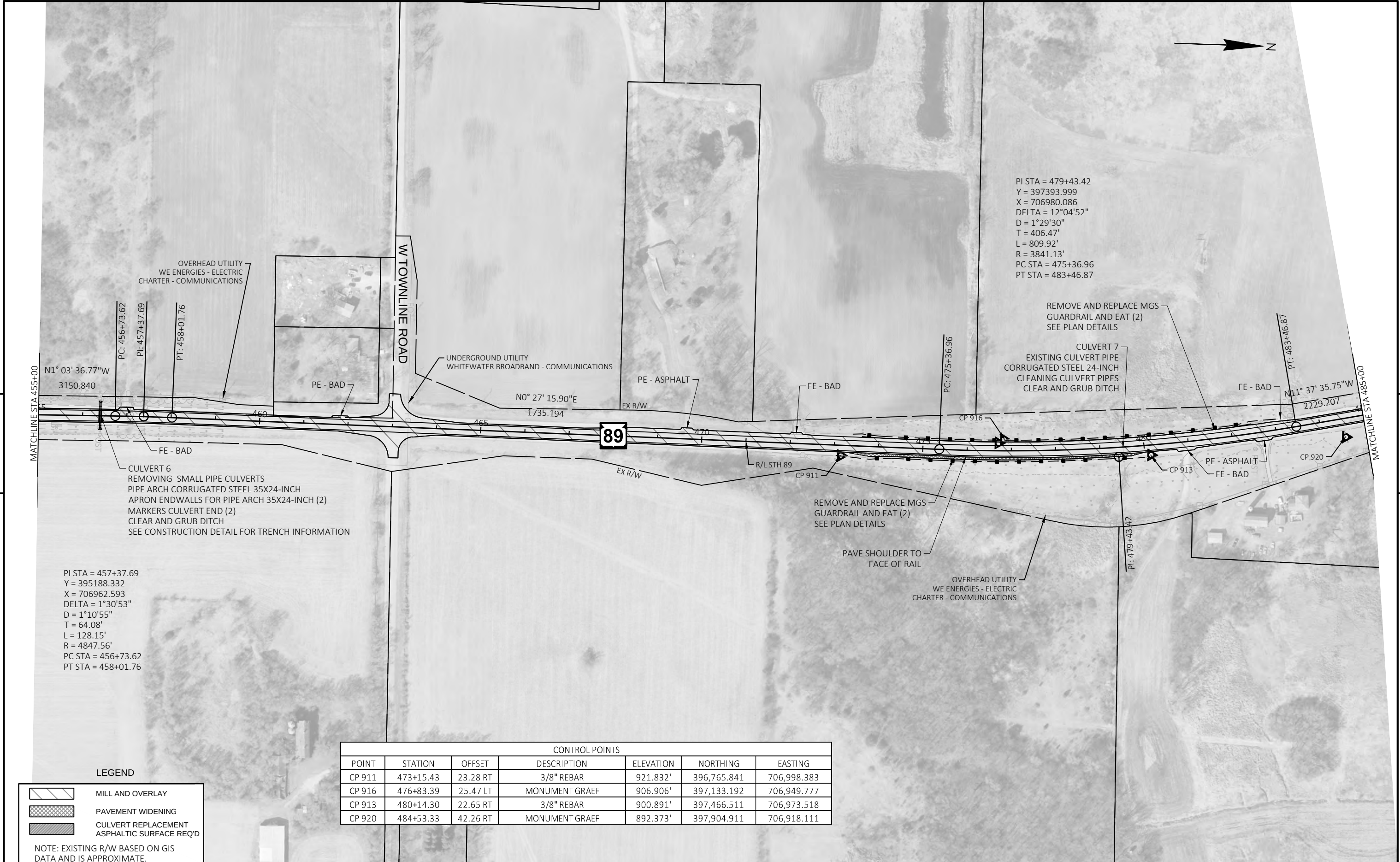
5

5

5

5





PI STA = 457+37.69
Y = 395188.332
X = 706962.593
DELTA = 1°30'53"
D = 1°10'55"
T = 64.08'
L = 128.15'
R = 4847.56'
PC STA = 456+73.62
PT STA = 458+01.76

PI STA = 479+43.42
Y = 397393.999
X = 706980.086
DELTA = 12°04'52"
D = 1°29'30"
T = 406.47'
L = 809.92'
R = 3841.13'
PC STA = 475+36.96
PT STA = 483+46.87

LEGEND

- MILL AND OVERLAY
- PAVEMENT WIDENING
- CULVERT REPLACEMENT
- ASPHALTIC SURFACE REQ'D

NOTE: EXISTING R/W BASED ON GIS DATA AND IS APPROXIMATE.

CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION	NORTHING	EASTING
CP 911	473+15.43	23.28 RT	3/8" REBAR	921.832'	396,765.841	706,998.383
CP 916	476+83.39	25.47 LT	MONUMENT GRAEF	906.906'	397,133.192	706,949.777
CP 913	480+14.30	22.65 RT	3/8" REBAR	900.891'	397,466.511	706,973.518
CP 920	484+53.33	42.26 RT	MONUMENT GRAEF	892.373'	397,904.911	706,918.111

PROJECT NO: 3390-04-70

HWY: STH 89

COUNTY: WALWORTH

PLAN SHEETS

SHEET

72

E



CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION	NORTHING	EASTING
CP 921	501+98.68	42.60 LT	REBAR	887.083'	399,597.346	706,483.243

LEGEND

MILL AND OVERLAY

PAVEMENT WIDENING

CULVERT REPLACEMENT

ASPHALTIC SURFACE REQ'D

NOTE: EXISTING R/W BASED ON GIS DATA AND IS APPROXIMATE.



5

5

LEGEND

	MILL AND OVERLAY
	PAVEMENT WIDENING
	CULVERT REPLACEMENT ASPHALTIC SURFACE REQ'D

NOTE: EXISTING R/W BASED ON GIS DATA AND IS APPROXIMATE.

CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION	NORTHING	EASTING
CP 922	517+18.90	40.32 LT	REBAR	867.577'	401,116.967	706,465.556



LEGEND

	MILL AND OVERLAY
	PAVEMENT WIDENING
	CULVERT REPLACEMENT ASPHALTIC SURFACE REQ'D

NOTE: EXISTING R/W BASED ON GIS DATA AND IS APPROXIMATE.

NOTE:
NO WORK OR PARKING OF EQUIPMENT
FROM STATION 586+00 TO STATION
592+00 LT, UNLESS APPROVED BY THE
ENGINEER.



PI STA = 580+27.71
Y = 407289.165
X = 707350.854
DELTA = 1°33'11"
D = 0°26'54"
T = 173.20'
L = 346.38'
R = 12778.94'
PC STA = 578+54.50
PT STA = 582+00.88

OVERHEAD UTILITY
WE ENERGIES - ELECTRIC
CHARTER - COMMUNICATIONS

PAVE SHOULDER TO
FACE OF RAIL

PI STA = 601+66.01
Y = 409226.184
X = 708060.655
DELTA = 30°05'09"
D = 3°31'33"
T = 436.72'
L = 853.28'
R = 1625.00'
PC STA = 597+29.28
PT STA = 605+82.57

CULVERT 11
EXISTING CULVERT PIPE ARCH CORRUGATED STEEL 49X33-INCH
CLEANING CULVERT PIPES
MARKERS CULVERT END (2)
CLEAR AND GRUB DITCH

REMOVE AND REPLACE MGS
GUARDRAIL AND EAT (2)
SEE PLAN DETAILS

PI STA = 589+92.95
Y = 408254.428
X = 707353.774
DELTA = 35°51'36"
D = 4°15'31"
T = 435.33'
L = 842.04'
R = 1345.39'
PC STA = 585+57.63
PT STA = 593+99.67

LEGEND

- MILL AND OVERLAY
- PAVEMENT WIDENING
- CULVERT REPLACEMENT
- ASPHALTIC SURFACE REQ'D

NOTE: EXISTING R/W BASED ON GIS
DATA AND IS APPROXIMATE.

CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION	NORTHING	EASTING
CP 915	590+87.11	24.81 LT	MONUMENT GRAEF	893.949'	408,344.294	707,433.983

PROJECT NO: 3390-04-70

HWY: STH 89

COUNTY: WALWORTH

PLAN SHEETS

SHEET

76

E



NOTE:
NO WORK OR PARKING OF EQUIPMENT
FROM STATION 649+00 TO STATION
652+00 RT, UNLESS APPROVED BY THE
ENGINEER.

CULVERT 12
CLEANING CULVERT PIPES
APRON ENDWALLS FOR CULVERT PIPE 24-INCH (1)
MARKERS CULVERT END (2)
CLEAR AND GRUB DITCH

OVERHEAD UTILITY
WE ENERGIES - ELECTRIC
CHARTER - COMMUNICATIONS

CP 923

PC: 649+41.82

PI STA = 652+84.09
Y = 414278.411
X = 708963.124
DELTA = 16°51'11"
D = 2°28'48"
T = 342.26'
L = 679.59'
R = 2310.42'
PC STA = 649+41.82
PT STA = 656+21.41

PT: 656+21.41

FE - BAD

N4° 26' 07.80"W
2025.281

89

UNDERGROUND UTILITY MARKER
AT&T - CABLE

R/L STH 89

PI: 652+84.09

LEGEND

- MILL AND OVERLAY
- PAVEMENT WIDENING
- CULVERT REPLACEMENT
ASPHALTIC SURFACE REQ'D

NOTE: EXISTING R/W BASED ON GIS
DATA AND IS APPROXIMATE.

CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION	NORTHING	EASTING
CP 923	648+60.37	35.78 LT	REBAR	850.740'	413,872.300	708,837.069

PROJECT NO: 3390-04-70

HWY: STH 89

COUNTY: WALWORTH

PLAN SHEETS

SHEET

78

E



Standard Detail Drawing List

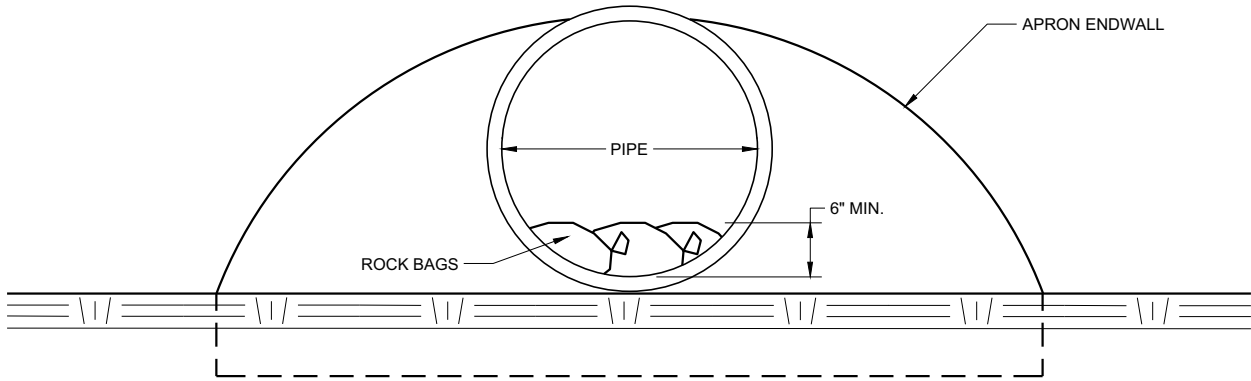
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13C19-03	HMA LONGITUDINAL JOINTS
14B28-04A	GUARDRAIL MOW STRIP
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-08	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING



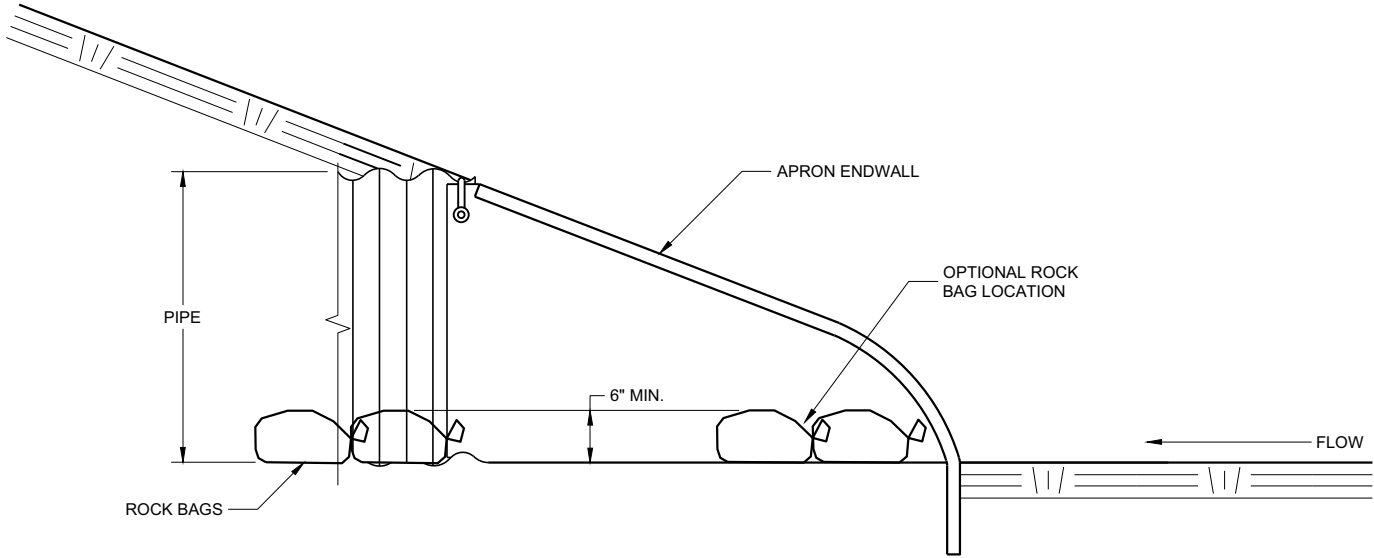
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS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



SILT FENCE
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED <u>4-29-05</u> DATE <u>/S/ Beth Connolly</u> CHIEF ROADWAY DEVELOP <u>81</u> ENGINEER FHWA



END VIEW



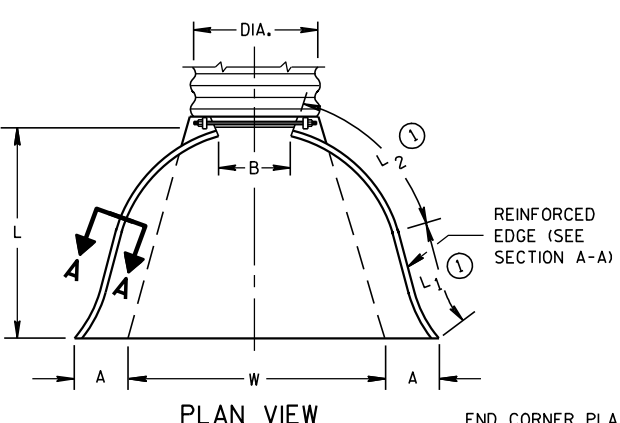
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI 82	
FHWA		

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

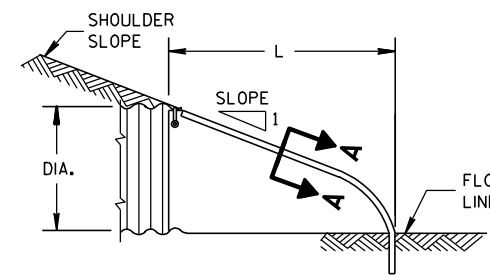
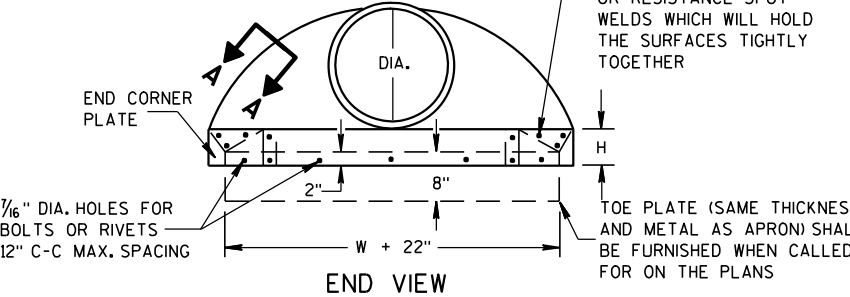
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



REINFORCED
EDGE (SEE
SECTION A-A)

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

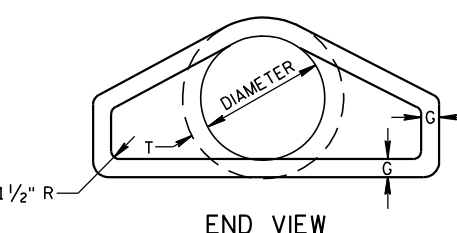
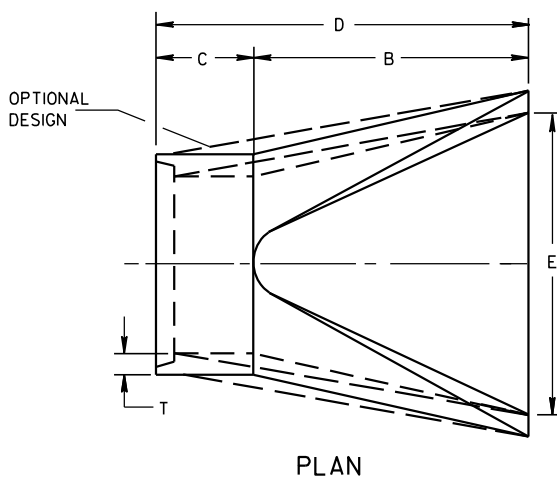
TOE PLATE (SAME THICKNESS
AND METAL AS APRON) SHALL
BE FURNISHED WHEN CALLED
FOR ON THE PLANS



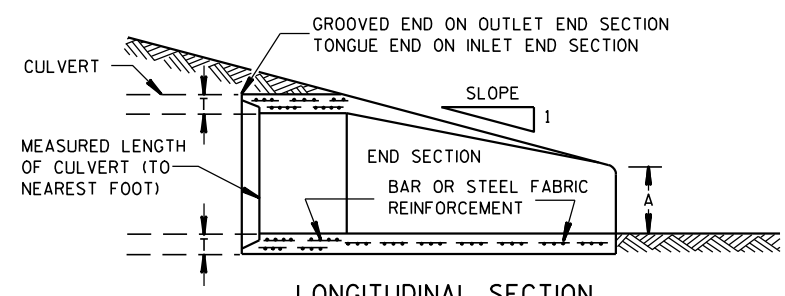
SIDE ELEVATION
METAL ENDWALLS

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

*MINIMUM
**MAXIMUM

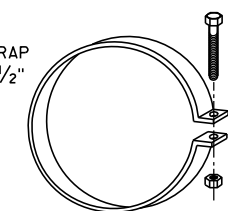


END VIEW

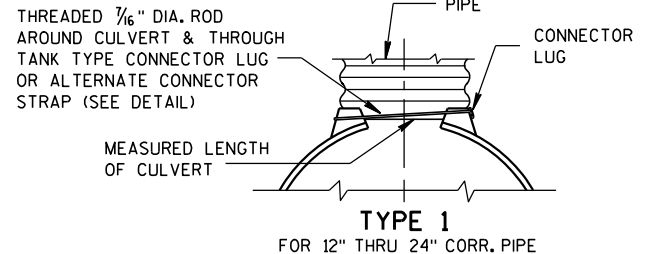


LONGITUDINAL SECTION
CONCRETE ENDWALLS

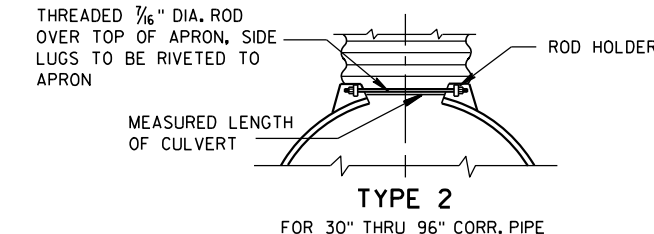
1" WIDE, 12 GA. (0.109"
THICK) GALVANIZED STRAP
WITH STANDARD 6" X 1/2"
BAND BOLT AND NUT



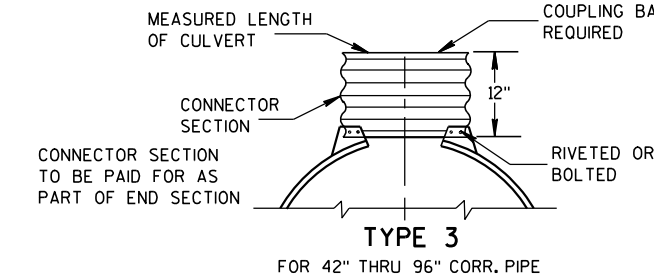
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



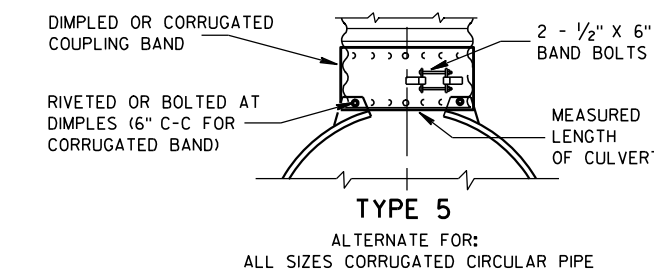
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

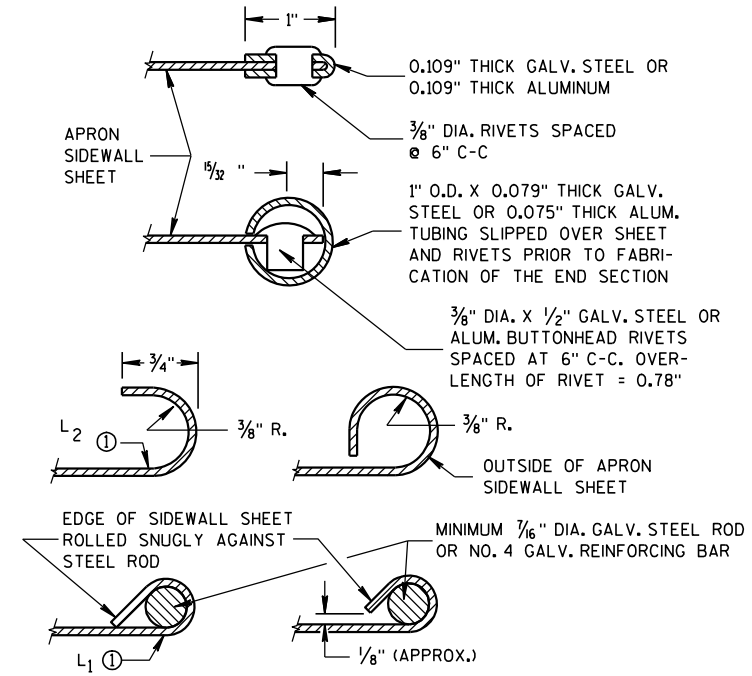
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

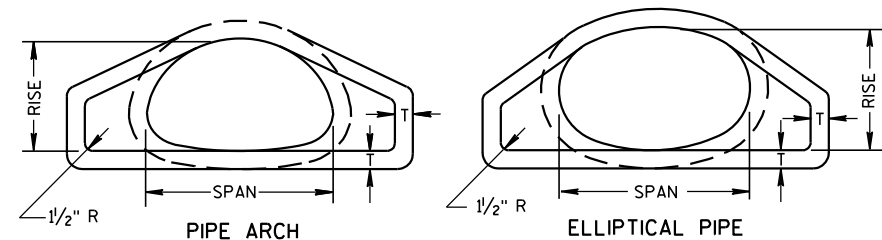
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

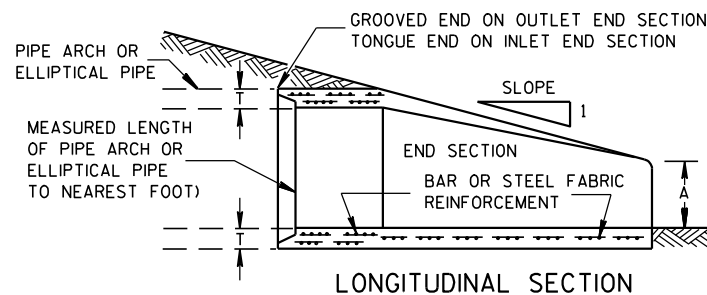
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
/S/ Rory L. Rhinehart
CHIEF ROADWAY DEVELOPER
NEER
FHWA

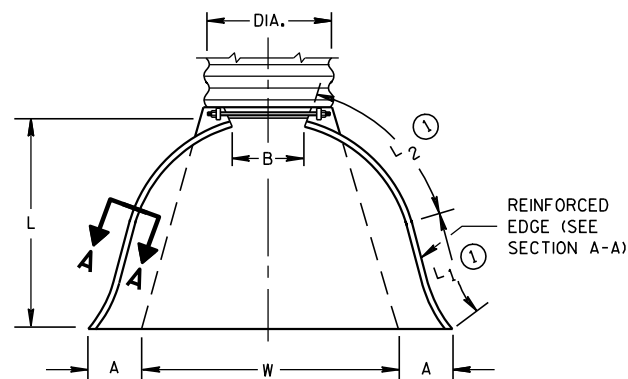


END VIEW



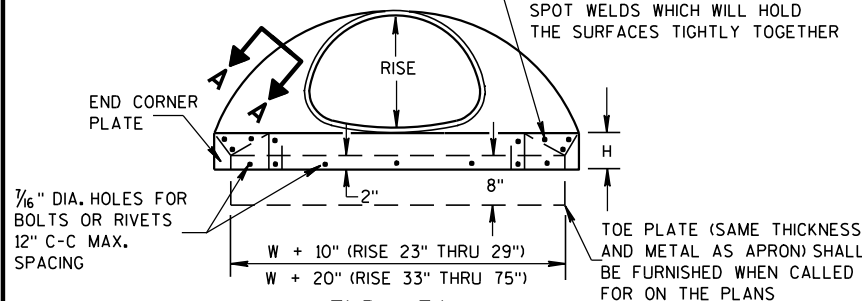
LONGITUDINAL SECTION

CONCRETE ENDWALLS

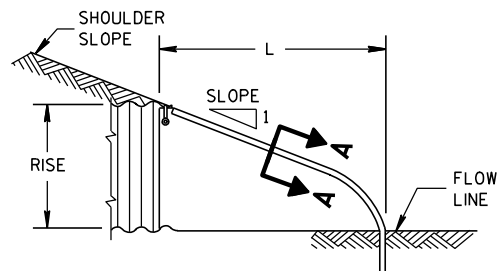


PLAN VIEW

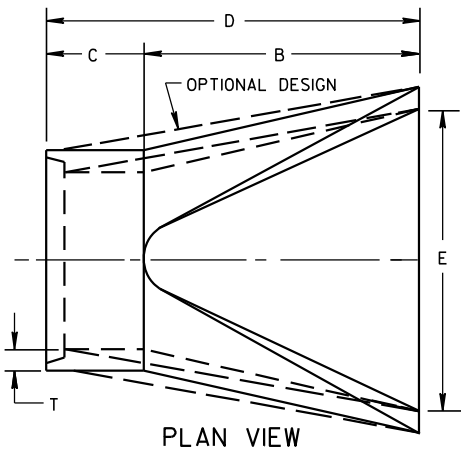
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



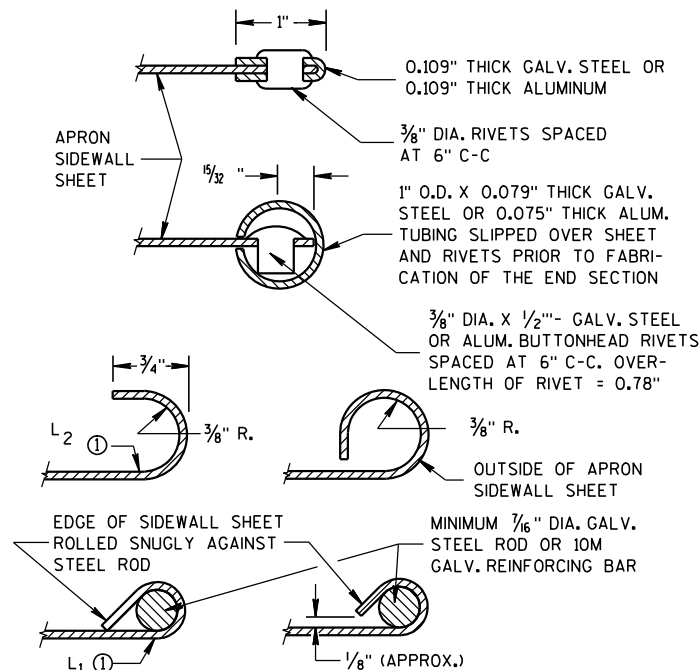
END VIEW



SIDE ELEVATION
METAL ENDWALLS



PLAN VIEW



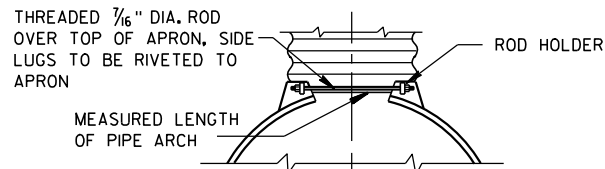
SECTION A-A

2- 2⅔" X ½" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A	B	H	L	L1	L 2	W		
					(±1")	(MAX.)	(±1")	(±1½")	①	①	(±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2½ to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19⅜	36	2½ to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21¾	42	2½ to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27½	48	2½ to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37⅝	60	2½ to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45⅝	75	2½ to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54¾	85	2½ to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2½ to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72¾	102	2¼ to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82¼	114	2¼ to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A	B	H	L	L ₁	L ₂	W		
					(±1")	(MAX.)	(±1")	(±1 1/2")	①	①	(±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

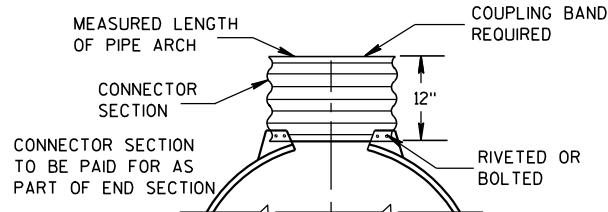
NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



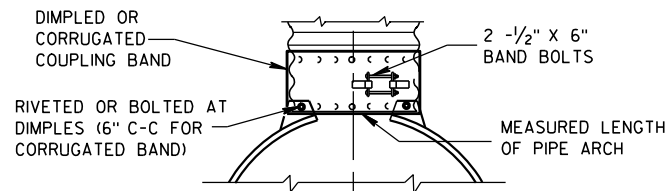
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHES
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH										
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE	
	** SPAN	** RISE	T	A	B	C	D	E		
24	29	18	3	8 1/2	39	33	72	48	3 to 1	
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1	
36	44	27	4	11 1/8	60	36	96	72	3 to 1	
42	51	31	4 1/2	15 1/8	60	36	96	78	3 to 1	
48	58	36	5	21	60	36	96	84	3 to 1	
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1	
60	73	45	6	31	60	36	96	96	3 to 1	
72	88	54	7	31	60	39	99	120	2 to 1	
84	102	62	8	28 1/2	83	19	102	144	2 to 1	

REINFORCED CONCRETE ELLIPTICAL PIPE										
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE	
	** SPAN	** RISE	T	A	B	C	D	E		
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1	
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1	
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1	
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1	
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1	
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1	
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1	

**NOMINAL SIZE

GENERAL NOTES

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

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

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

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

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

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

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/94

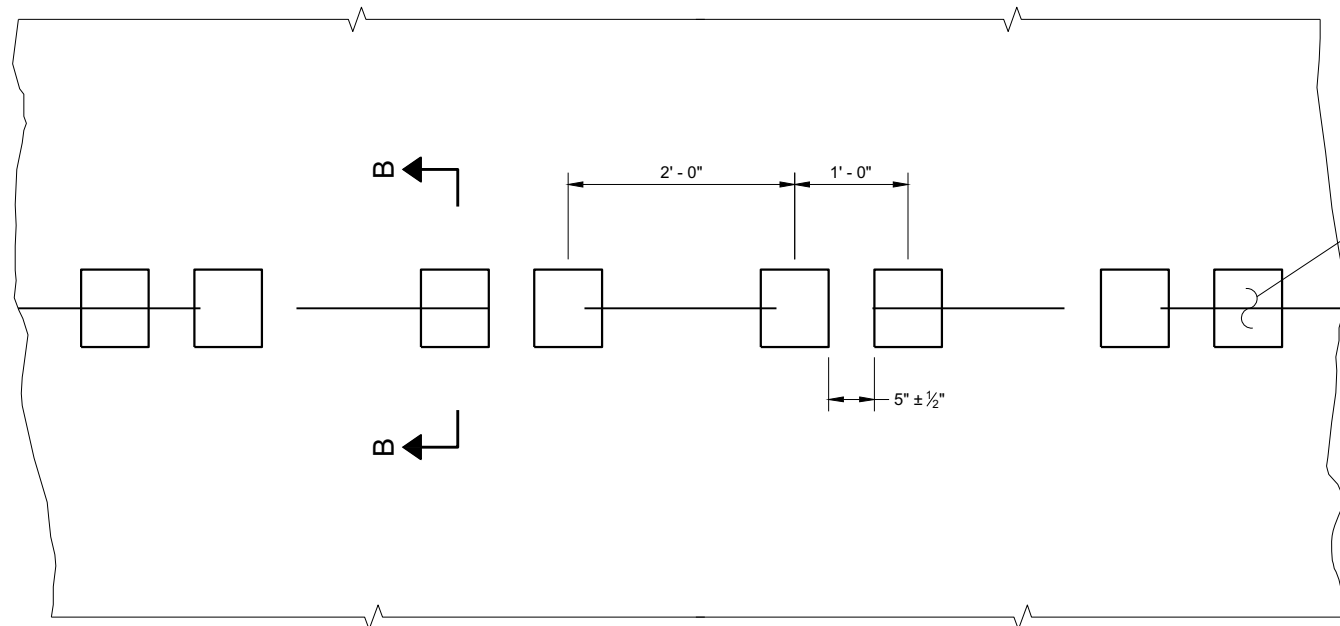
DATE

FHWA

/S/ Rory L. Rhinehart

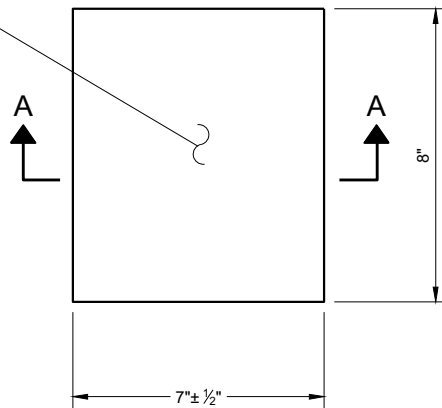
CHIEF ROADWAY DEVELOPER

84 ENGINEER



PLAN VIEW
SHOULDER WITH GROOVES

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

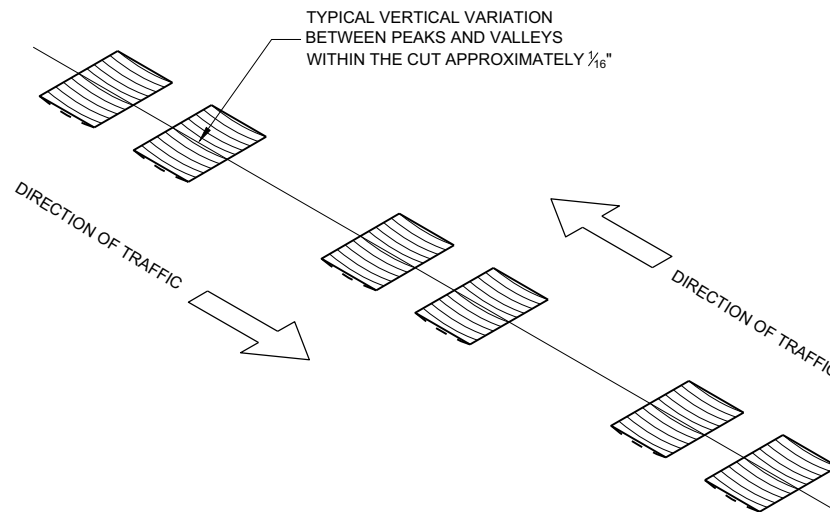
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

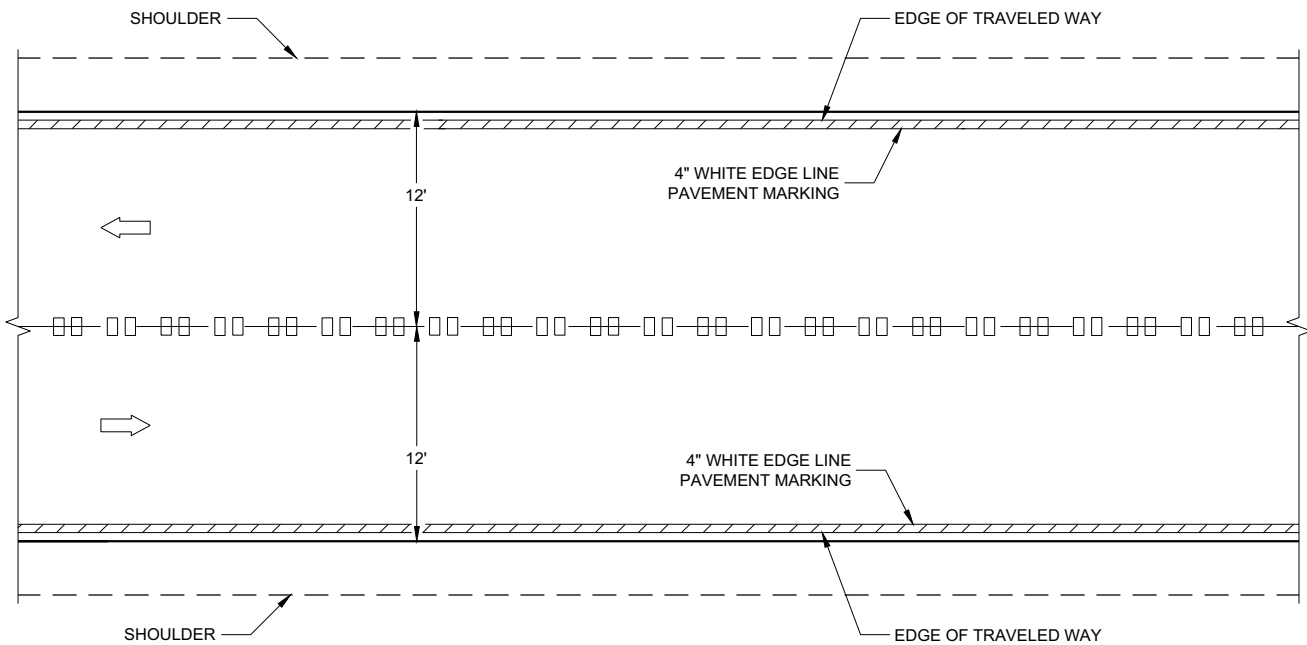
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

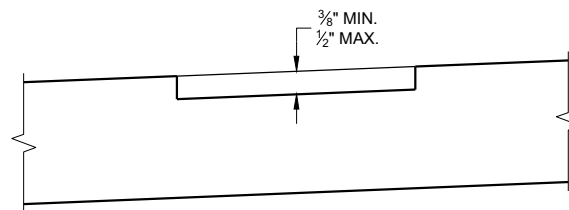
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



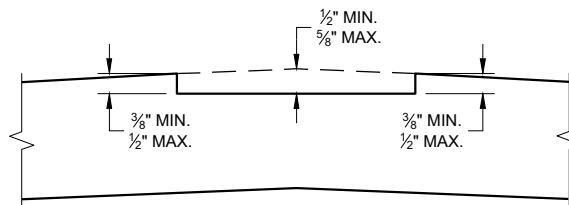
ISOMETRIC



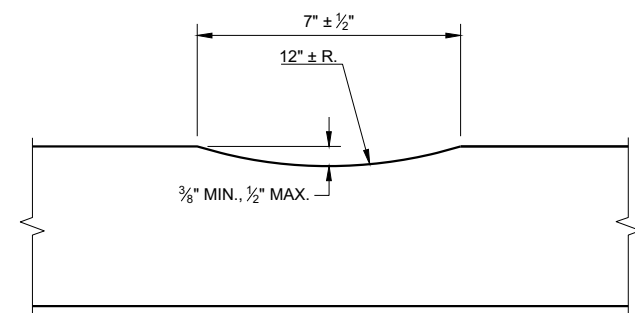
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



SECTION B - B
SUPERELEVATED ROADWAY



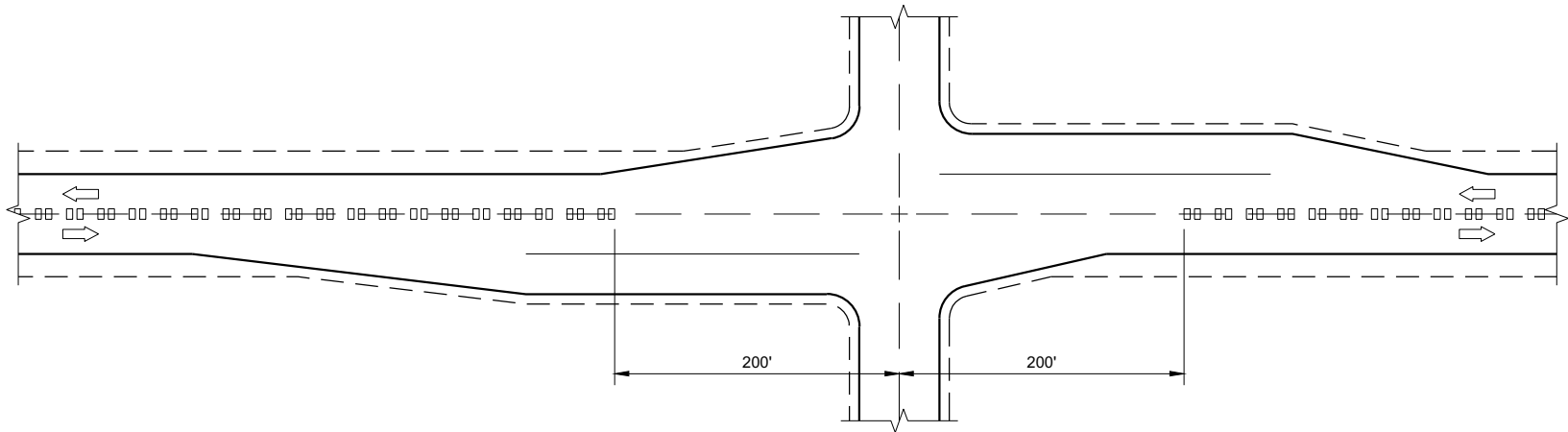
SECTION B - B
CROWNED ROADWAY



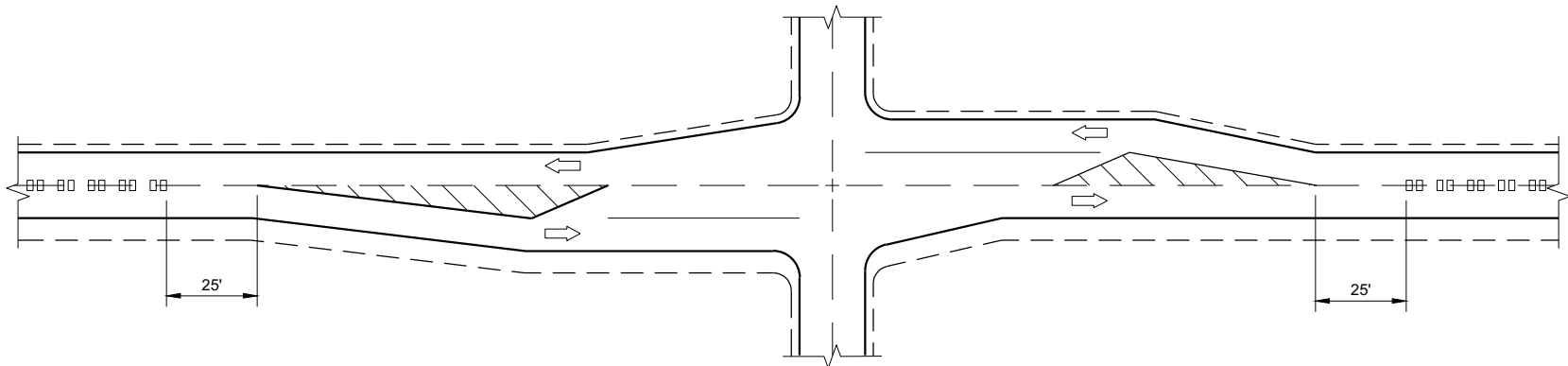
SECTION A - A

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

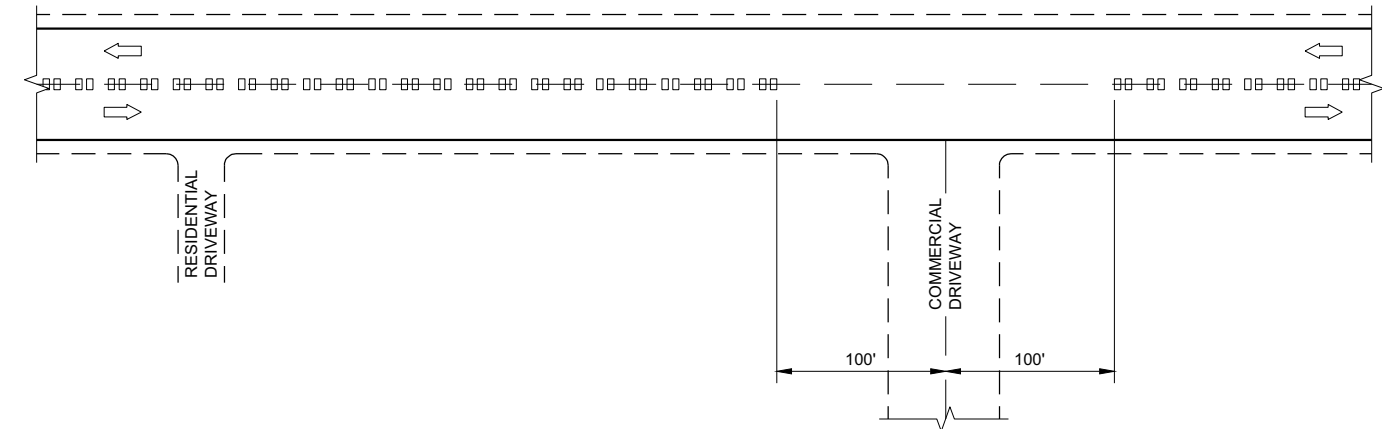
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 85



CENTERLINE GROOVES AT INTERSECTIONS



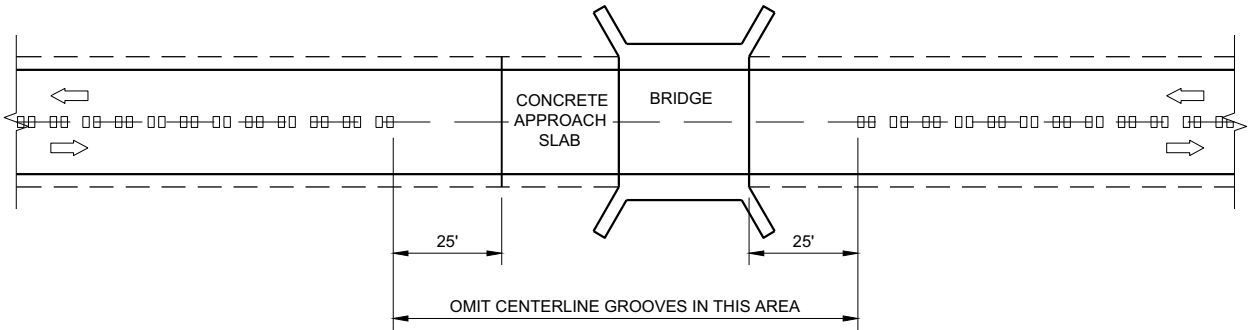
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



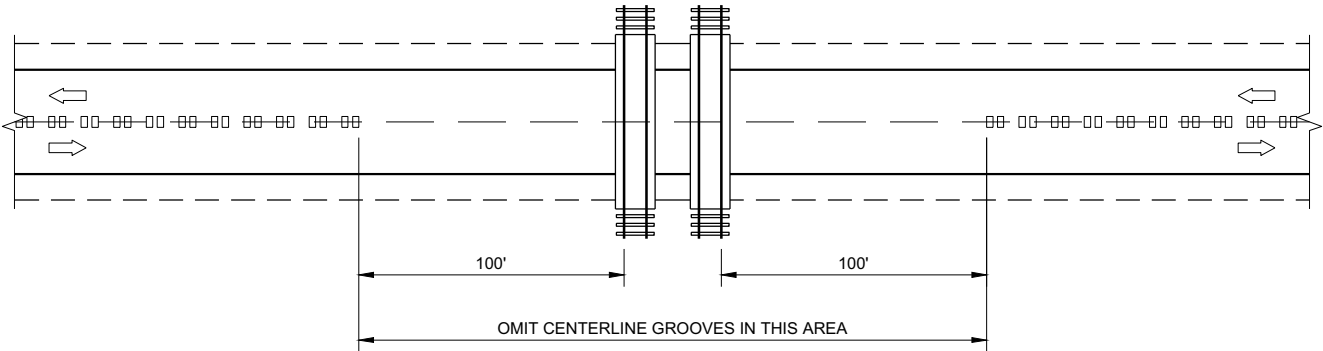
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



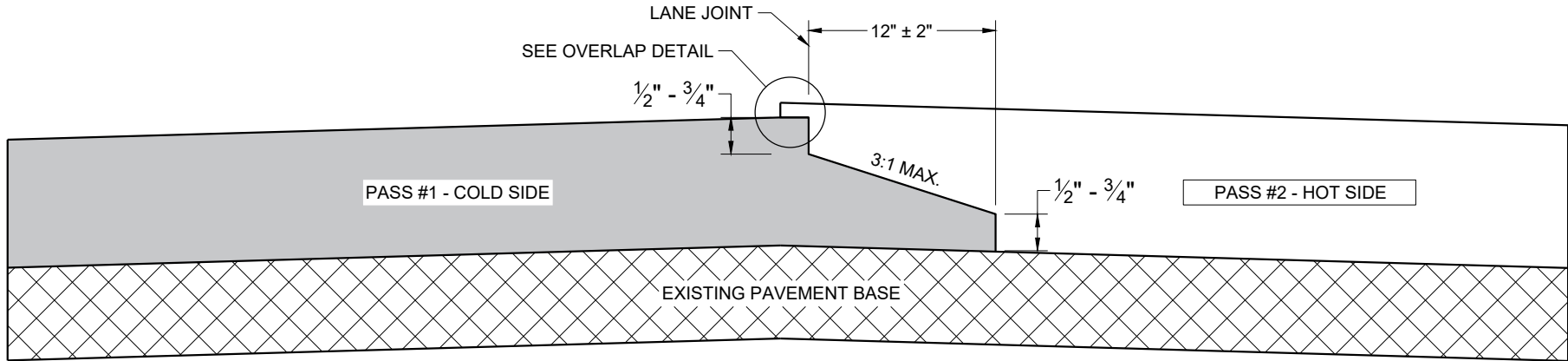
CENTERLINE GROOVES AT RAILROADS

2-LANE RURAL
CENTERLINE RUMBLE STRIP,
MILLING

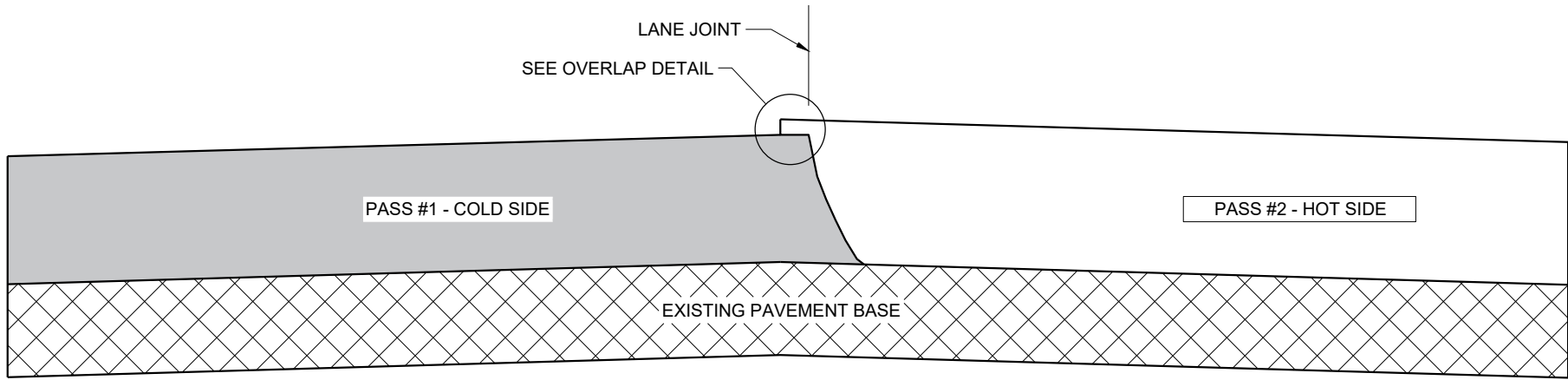
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

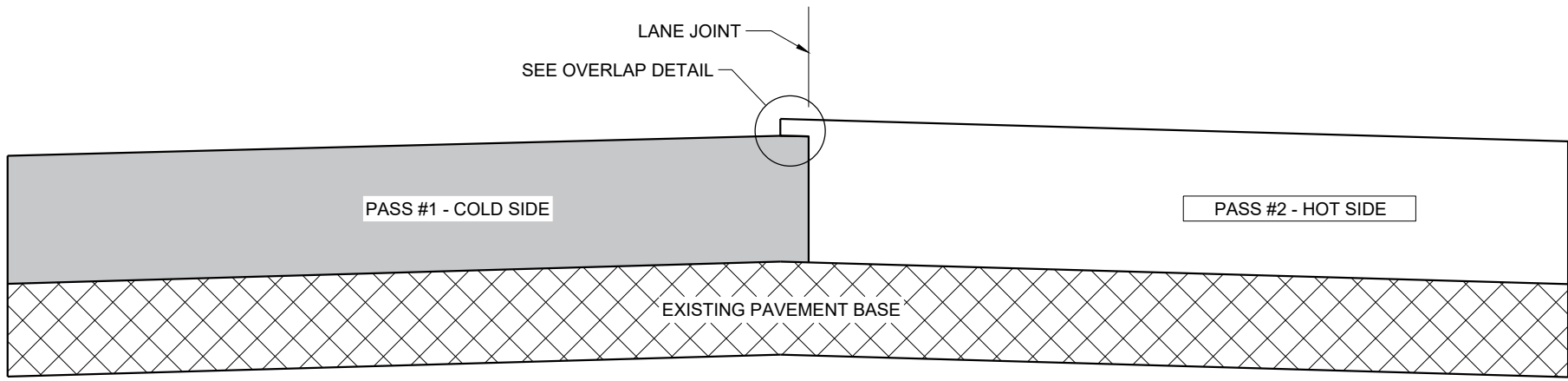
FHWA



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



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

GENERAL NOTES

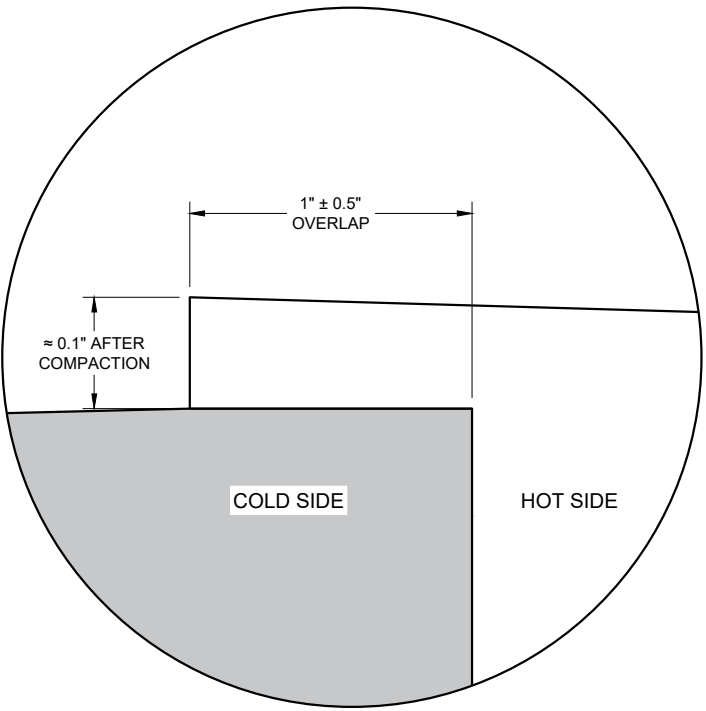
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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.



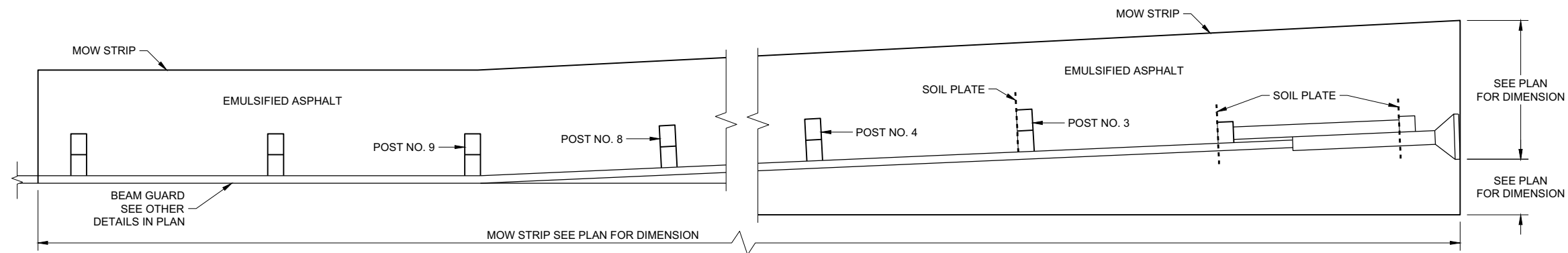
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 87

FHWA

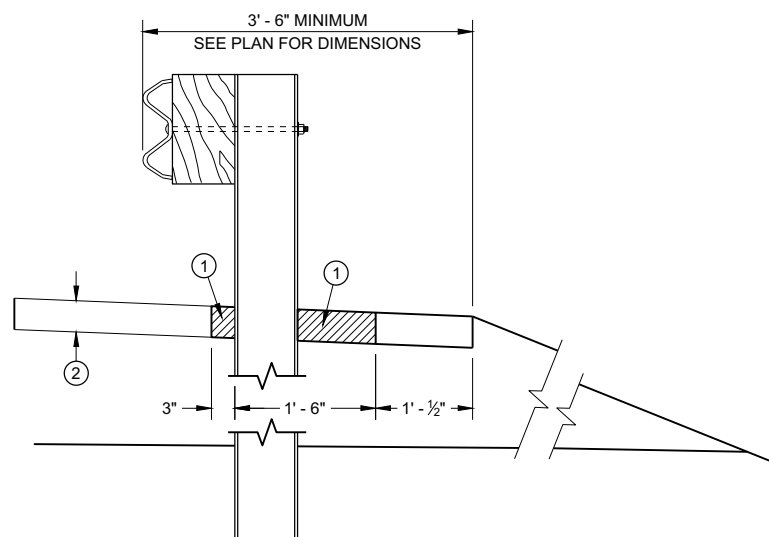


PLAN VIEW
MOW STRIP LAYOUT FOR ENERGY ABSORBING TERMINAL

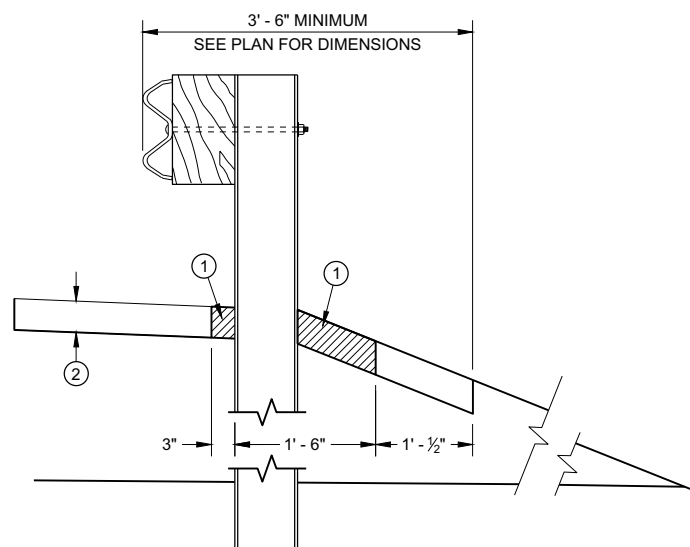
GENERAL NOTES

ONLY USE STEEL POSTS IN CONCRETE AND ASPHALT MOW STRIPS.

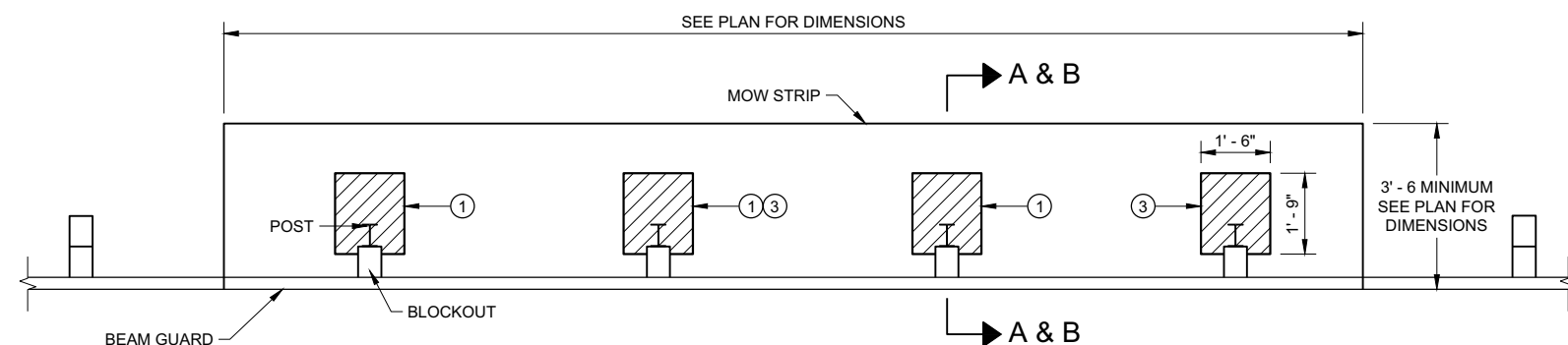
- ① CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
- ② DEPTH OF MOW STRIP:
ASPHALT - 4"
CONCRETE - 4"
EMULSIFIED ASPHALT - 1" OR LESS
- ③ FOR EMULSIFIED ASPHALT, MOW STRIP STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS)



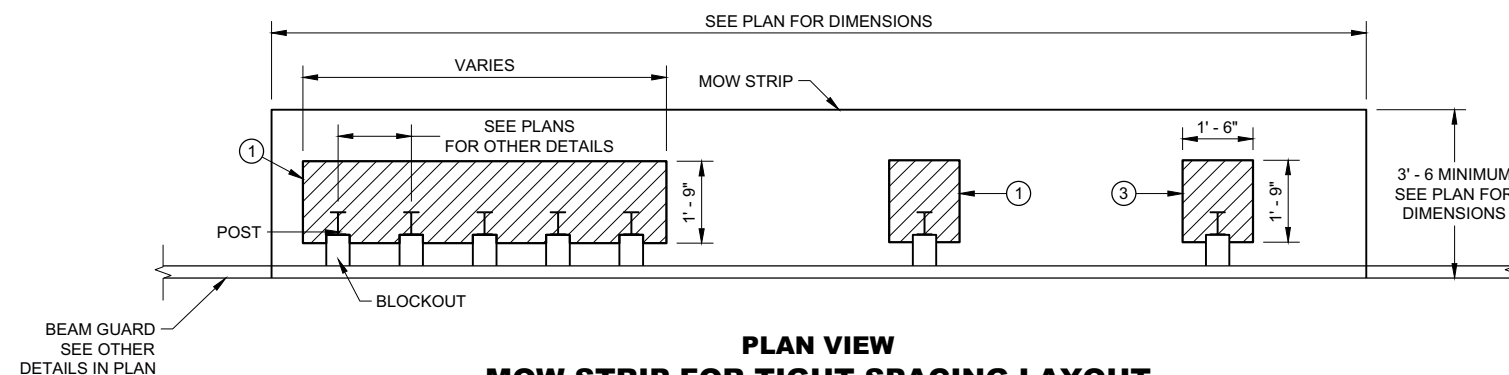
SECTION A - A



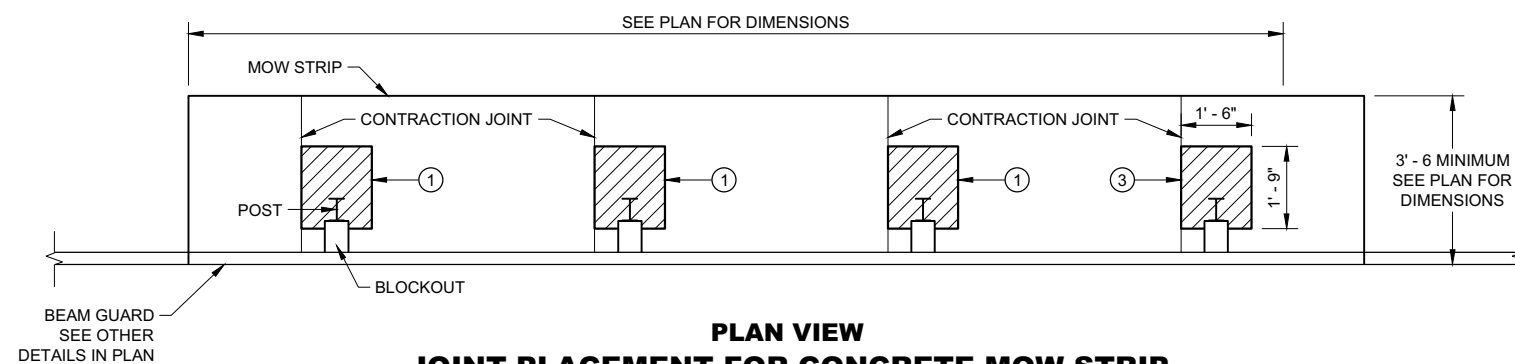
SECTION B - B



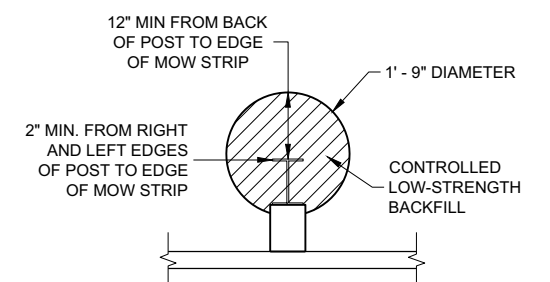
PLAN VIEW
MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



PLAN VIEW
MOW STRIP FOR TIGHT SPACING LAYOUT



PLAN VIEW
JOINT PLACEMENT FOR CONCRETE MOW STRIP

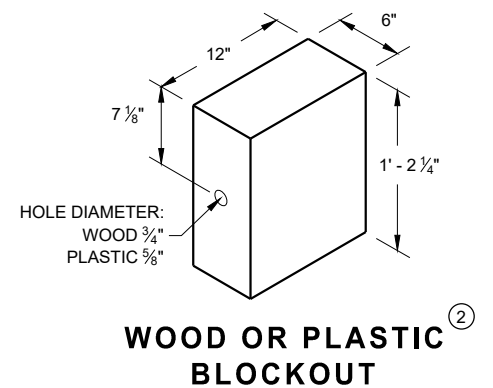
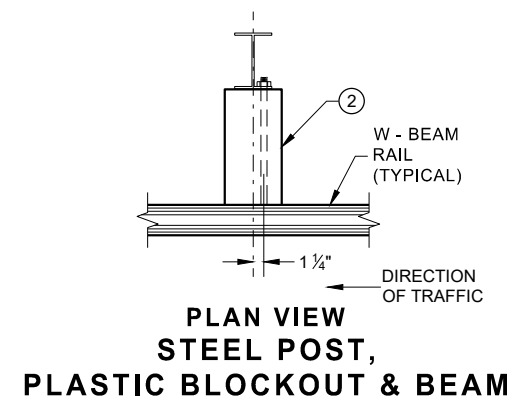
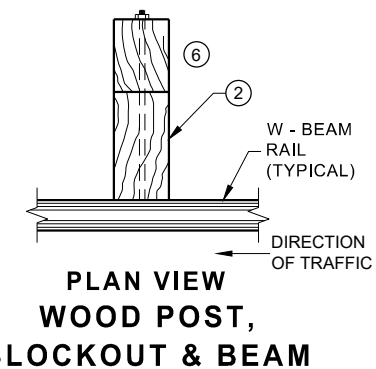
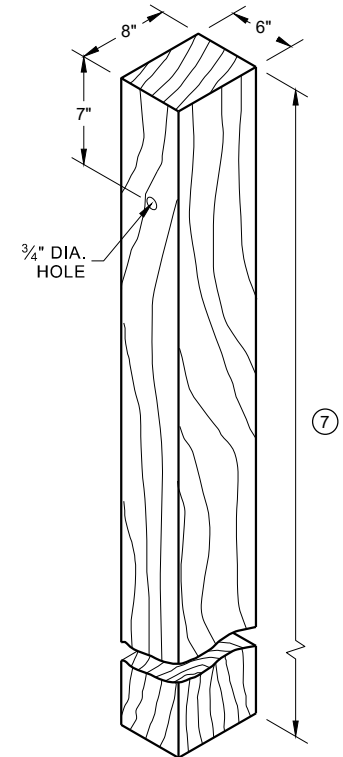
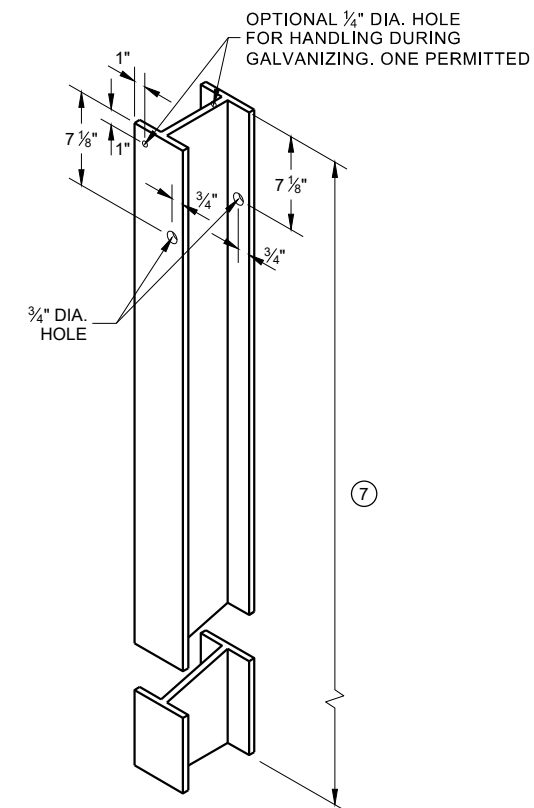
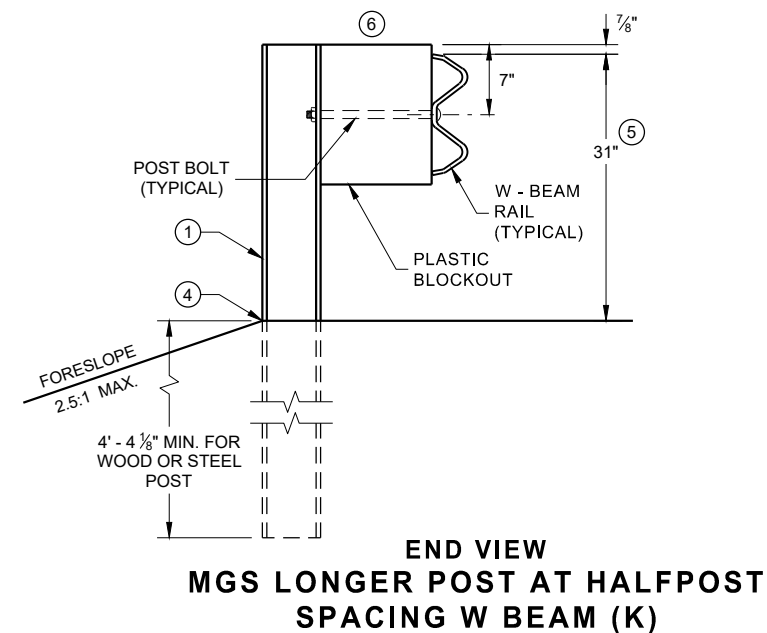
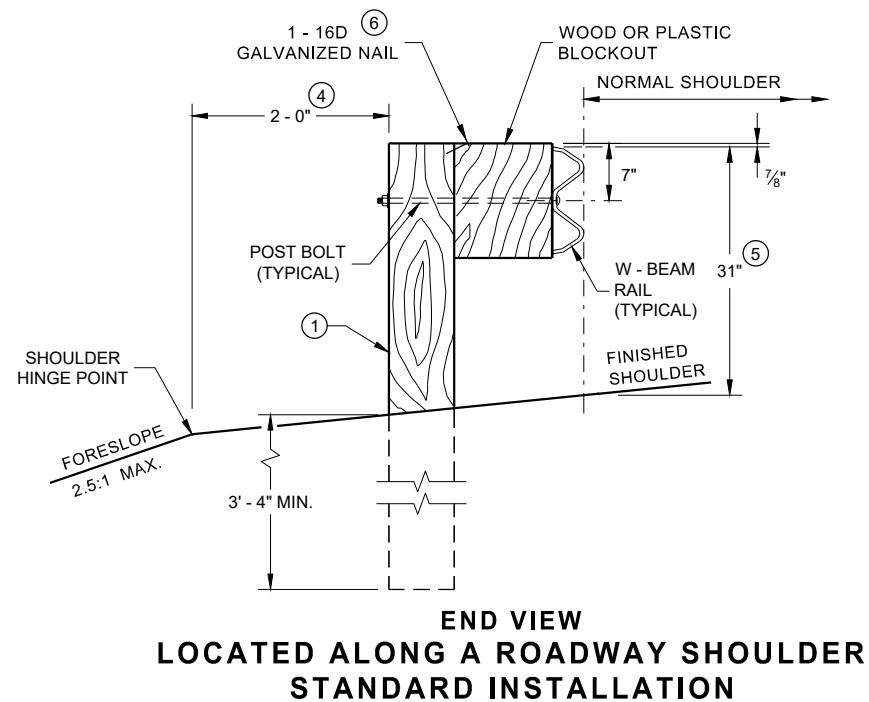
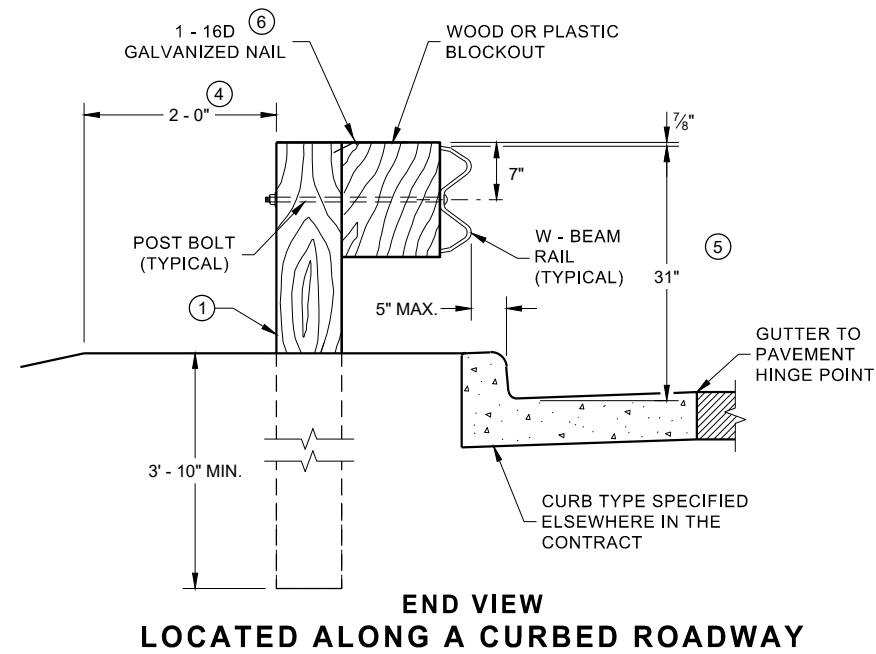
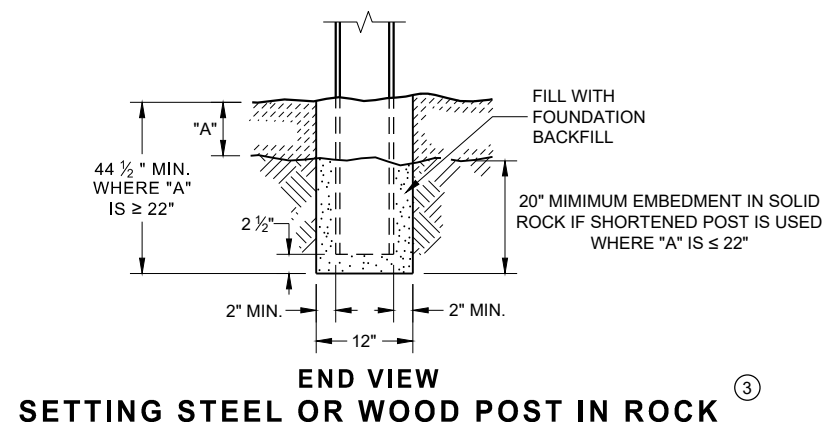


ALTERNATIVE HMA
MOW STRIP DESIGN

GUARDRAIL MOW STRIP

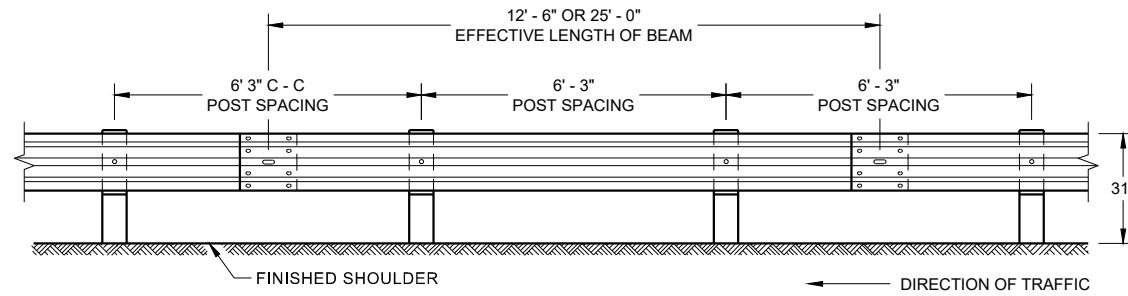
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 88

- 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".

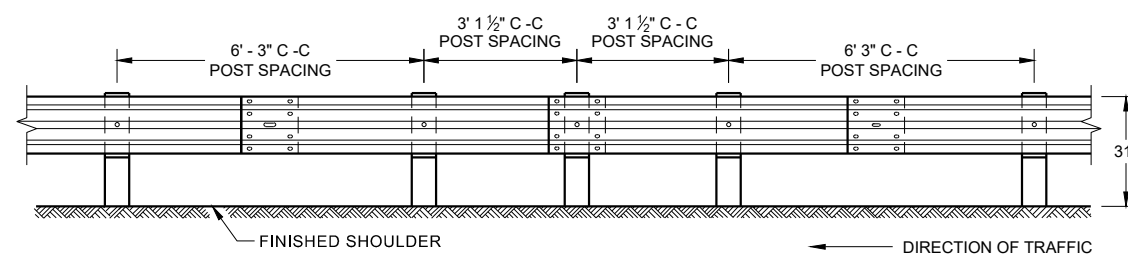


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

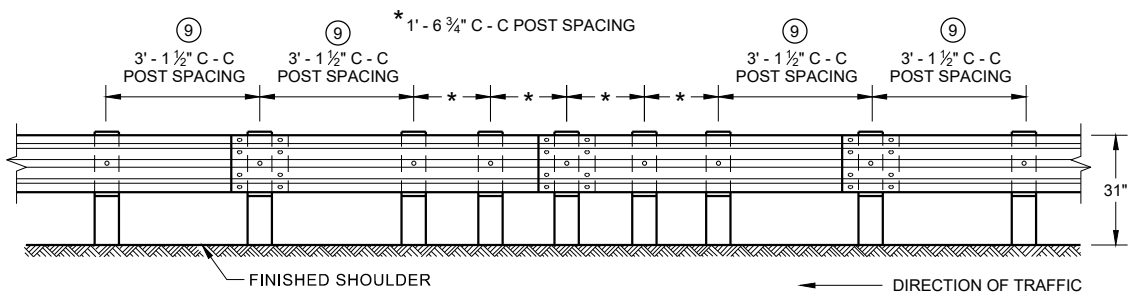
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 89



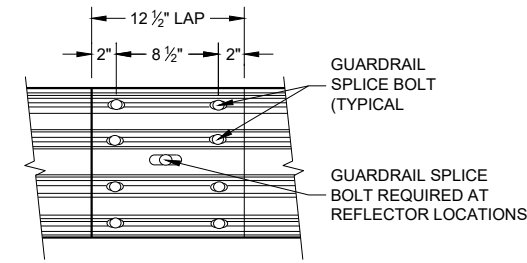
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



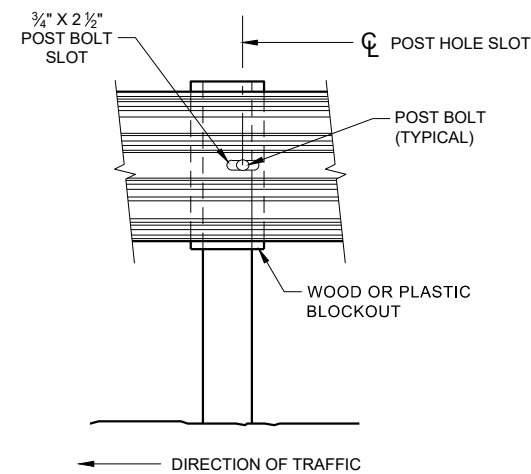
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



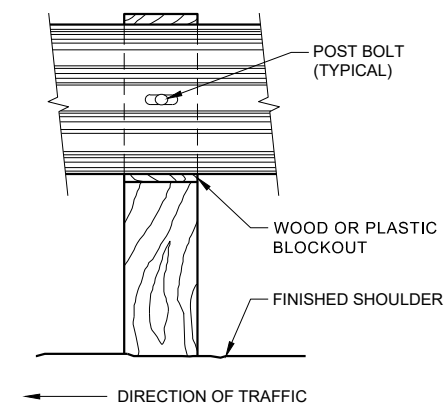
**FRONT VIEW
QUARTER POST SPACING (QS)**



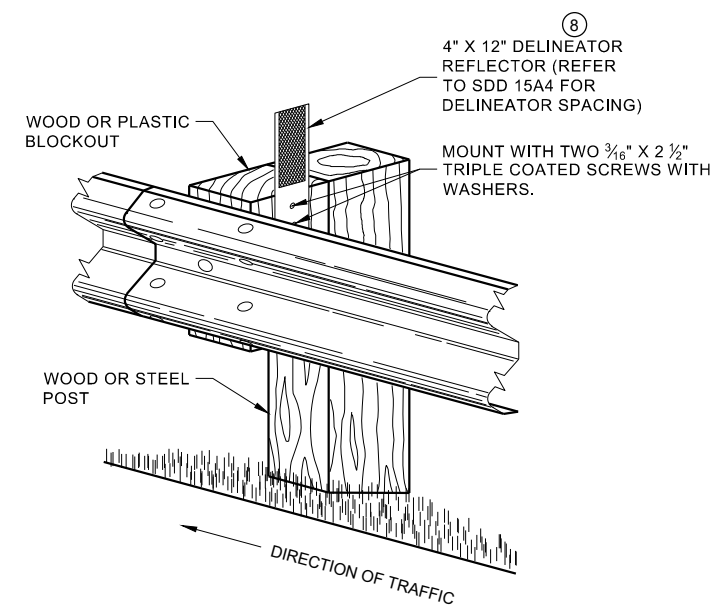
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



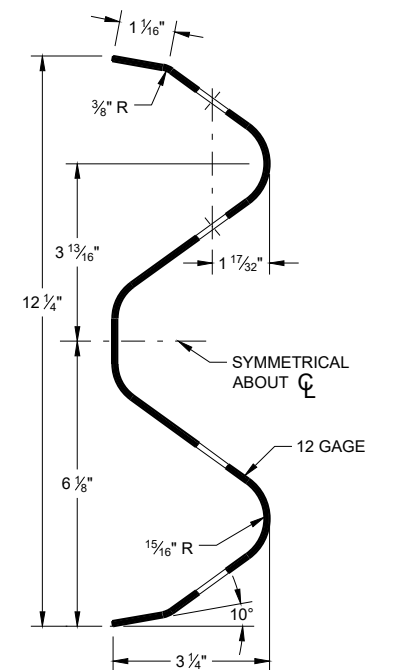
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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 3/4" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/4" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A 3/4" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
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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.

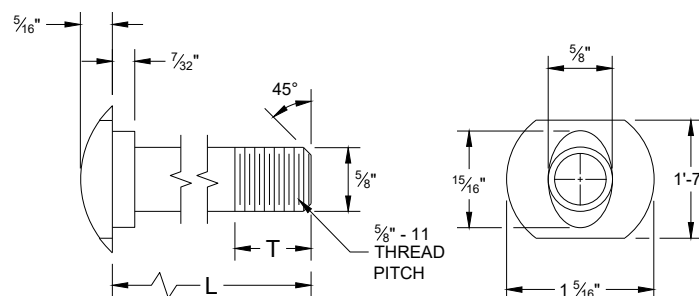


NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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.

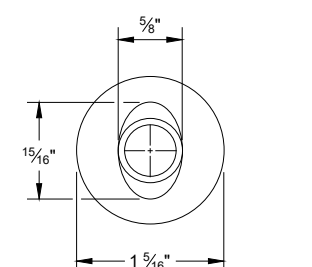
NOTE:

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

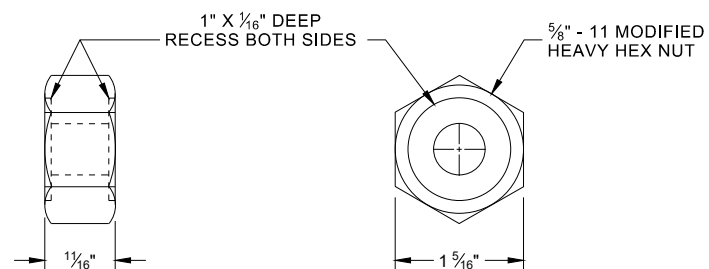


POST BOLT TABLE

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

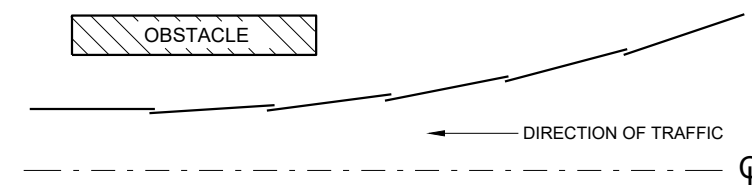


ALTERNATE BOLT HEAD

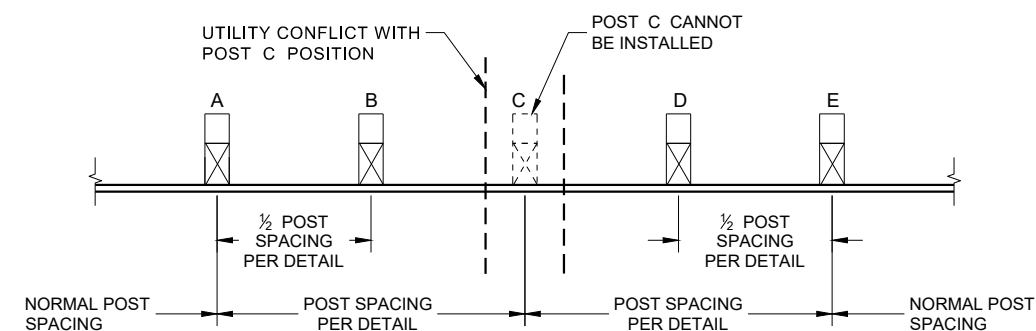


POST BOLT, SPLICE BOLT AND RECESS NUT

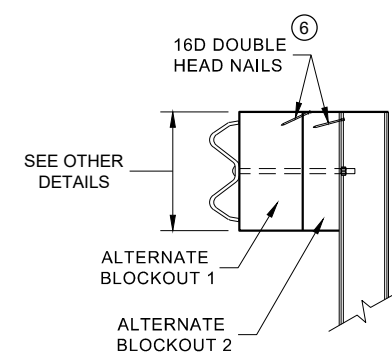
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



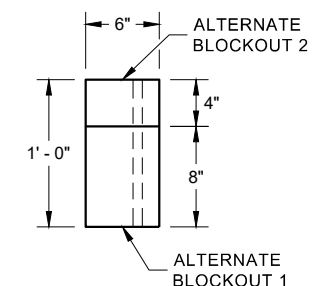
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW

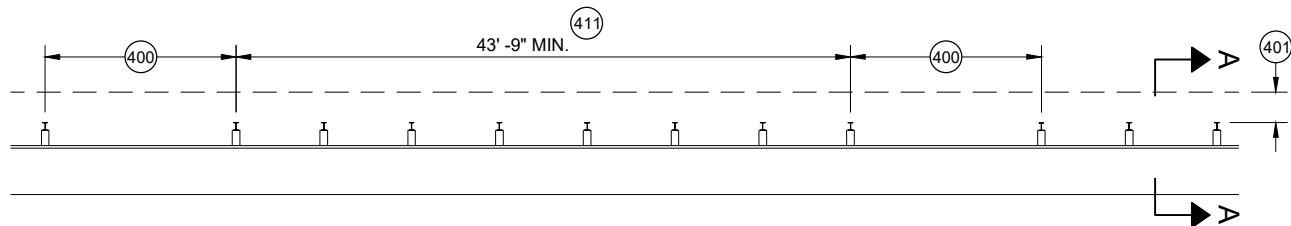


PLAN VIEW

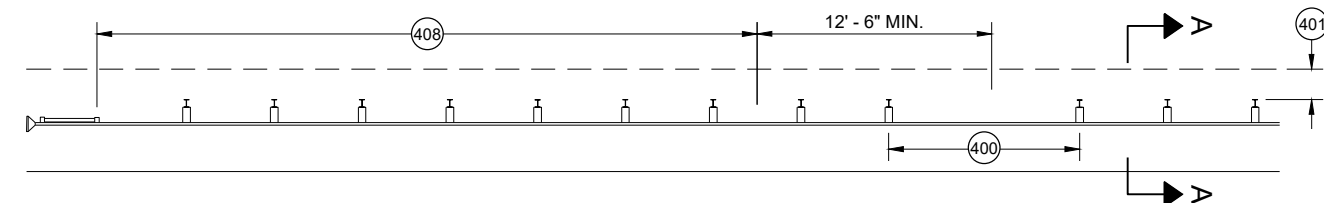
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

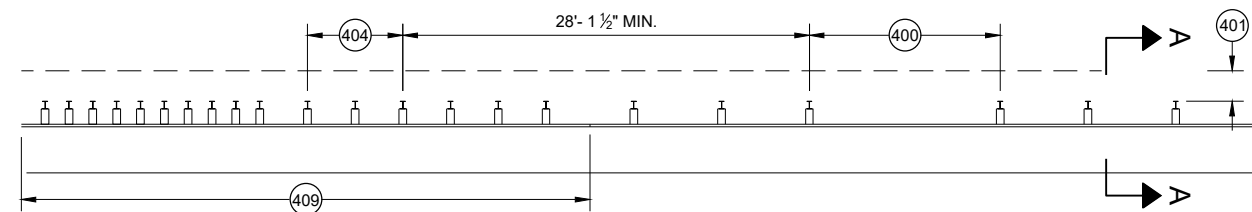
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 91



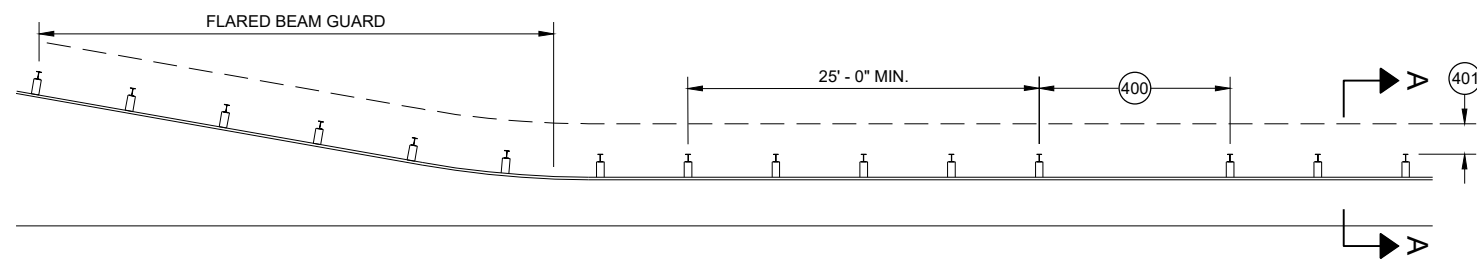
MISSING POST IN MGS GUARDRAIL



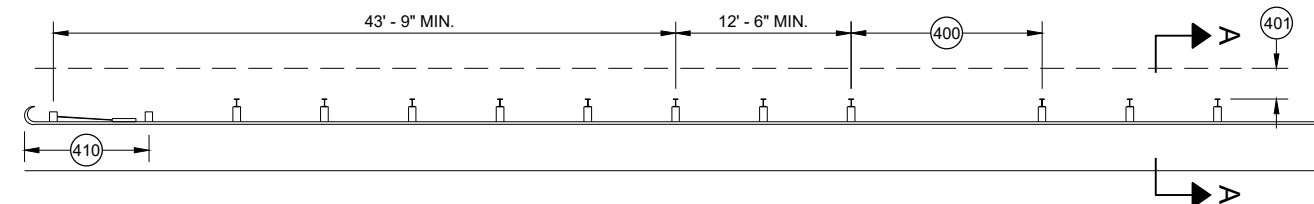
MISSING POST IN MGS GUARDRAIL NEAR EAT



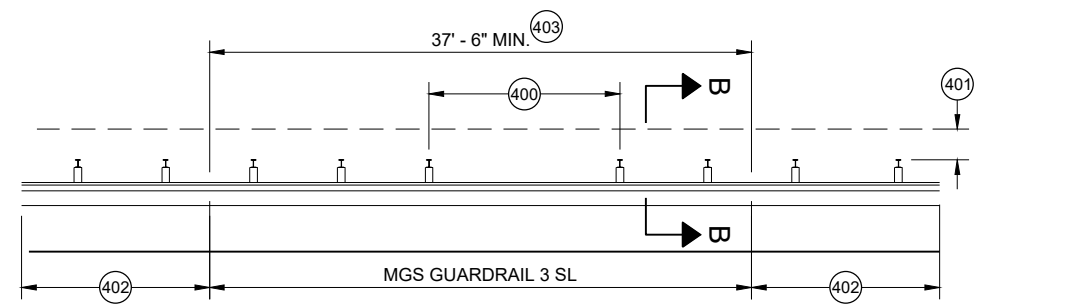
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

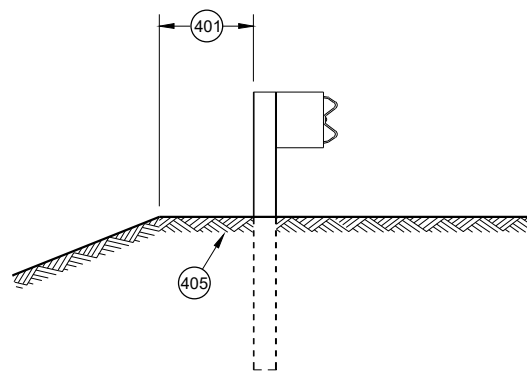


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

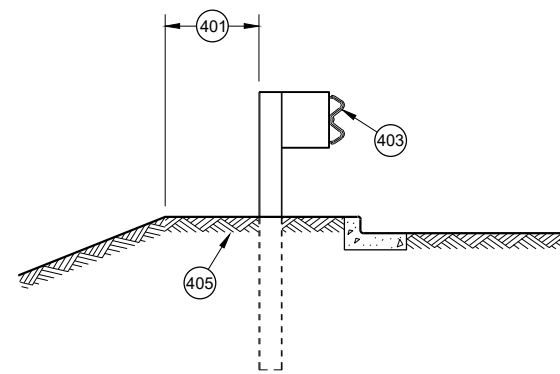


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (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

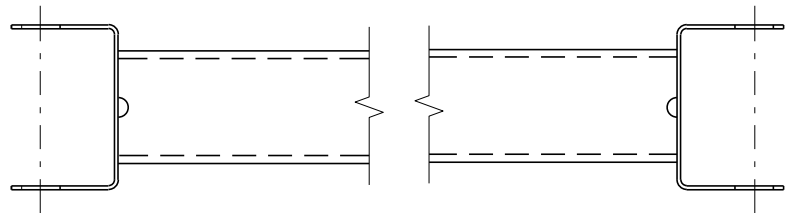
FHWA

- A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) 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.

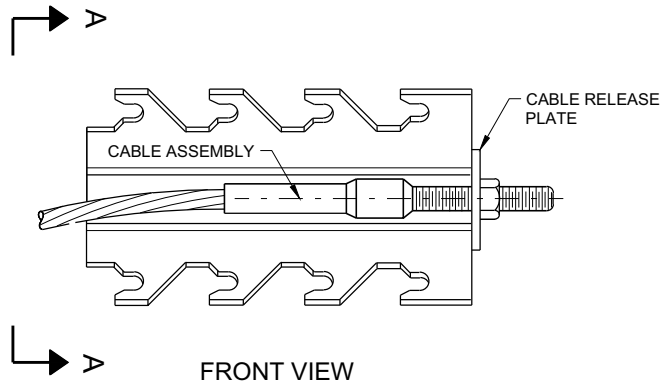
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

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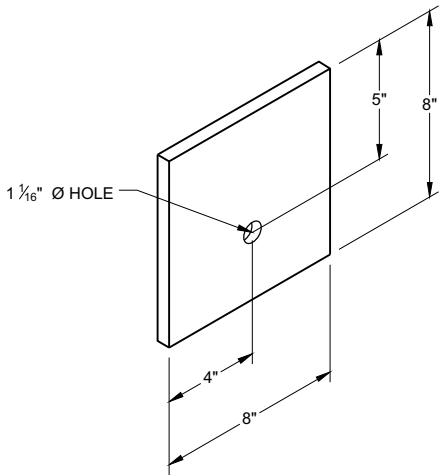
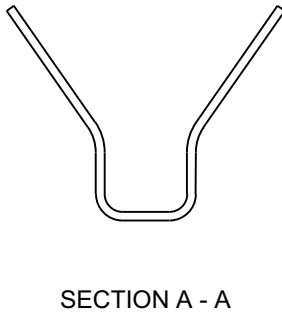


GENERIC GROUND STRUT⁹ ^E

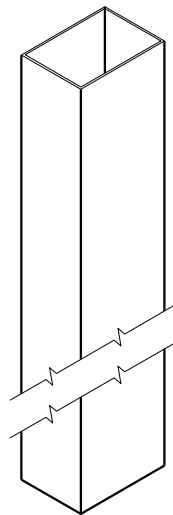
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED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



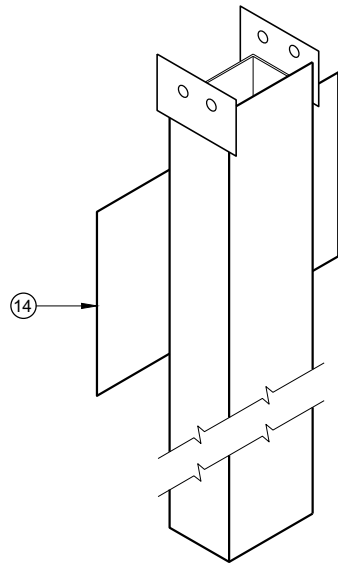
GENERIC ANCHOR CABLE BOX⁹ ^E



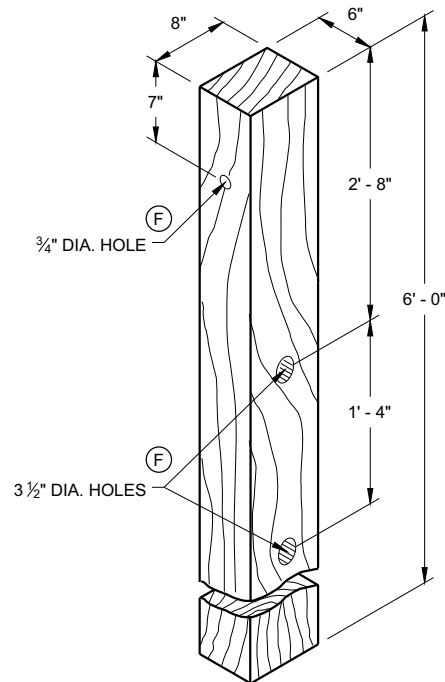
BEARING PLATE⁶ ^E



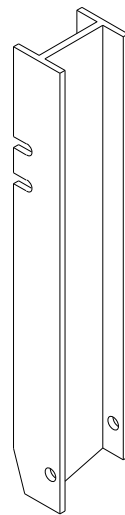
UPPER POST NO. 1 ⁽¹⁾ (E)



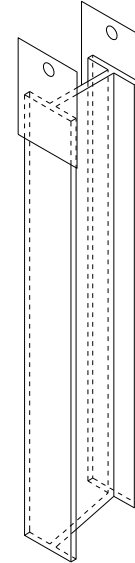
LOWER POST NO. 1 ⁽²⁾ (E)



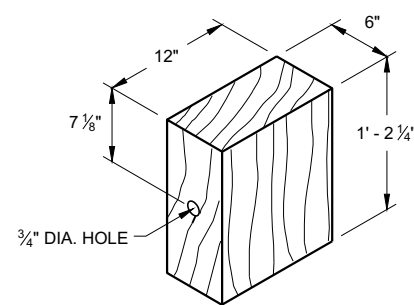
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



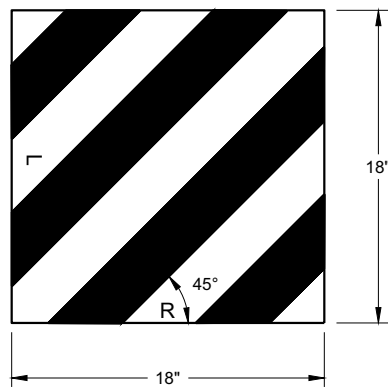
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



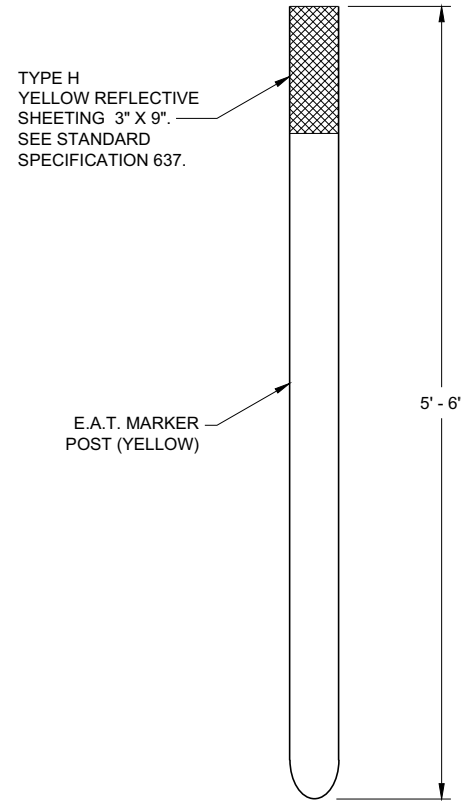
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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



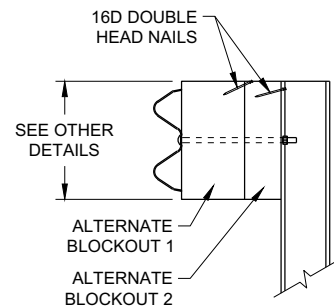
REFLECTIVE SHEETING DETAIL ^(E)



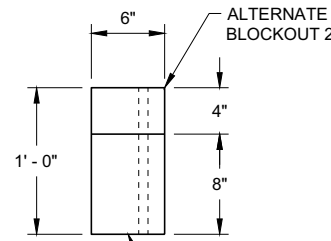
FRONT VIEW

SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



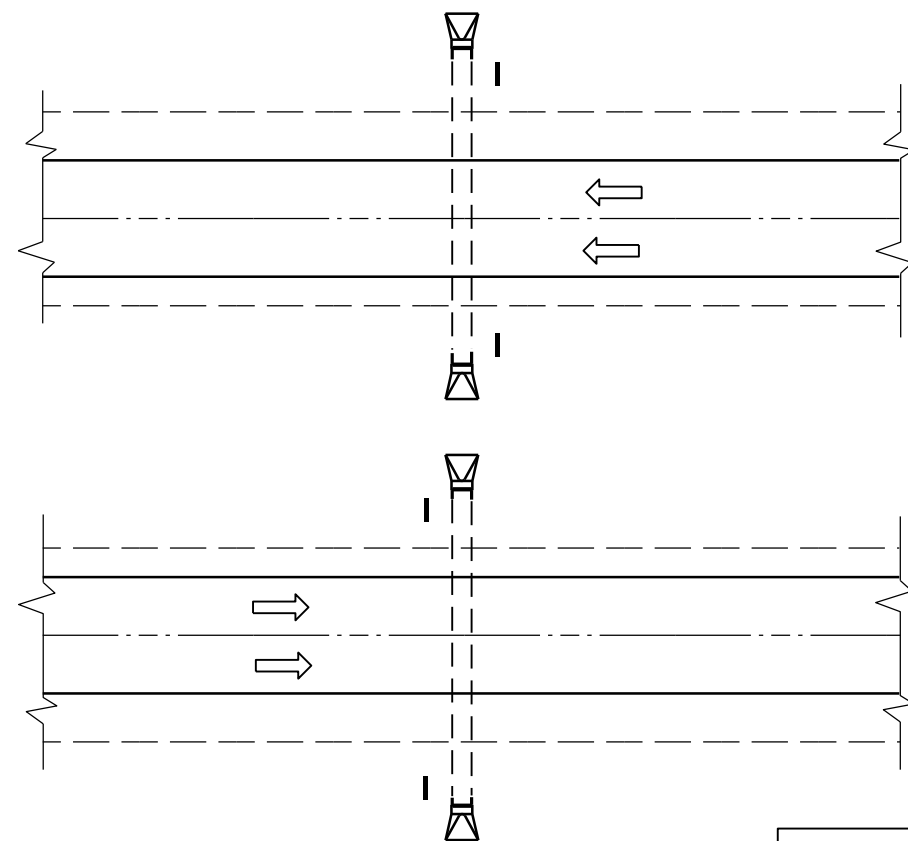
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

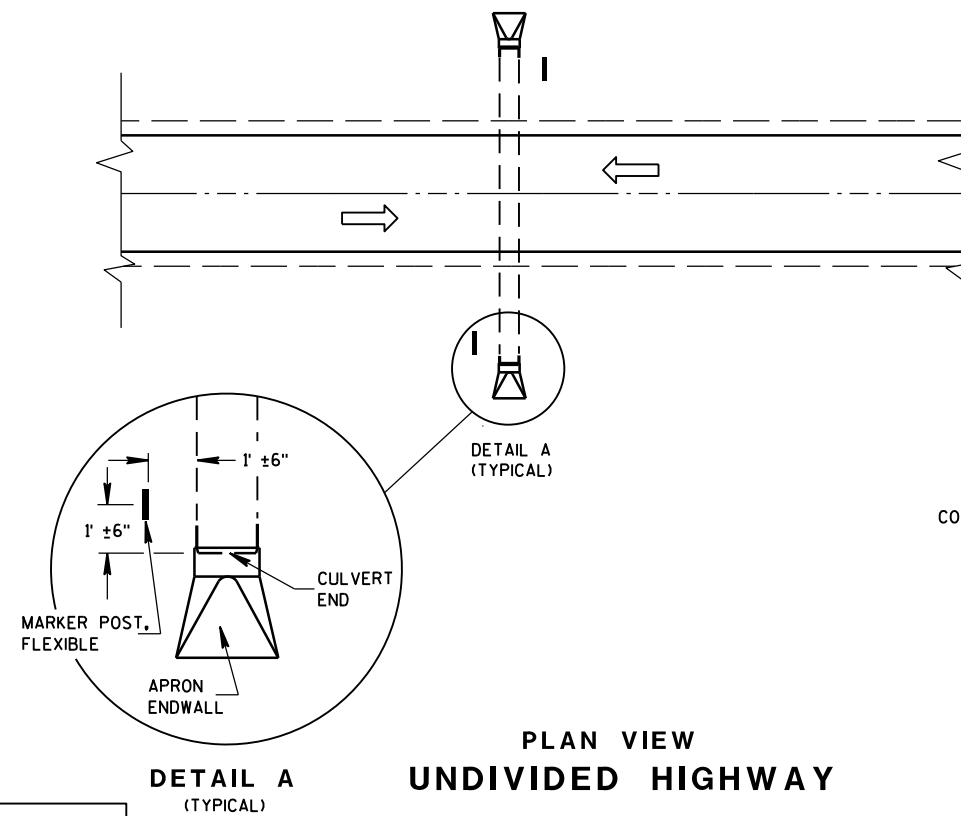
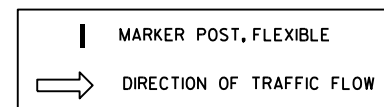
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
DIVIDED HIGHWAY

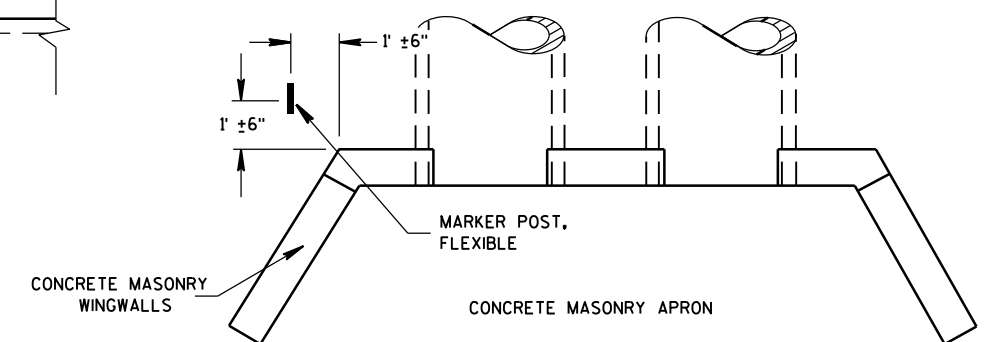


PLAN VIEW
UNDIVIDED HIGHWAY

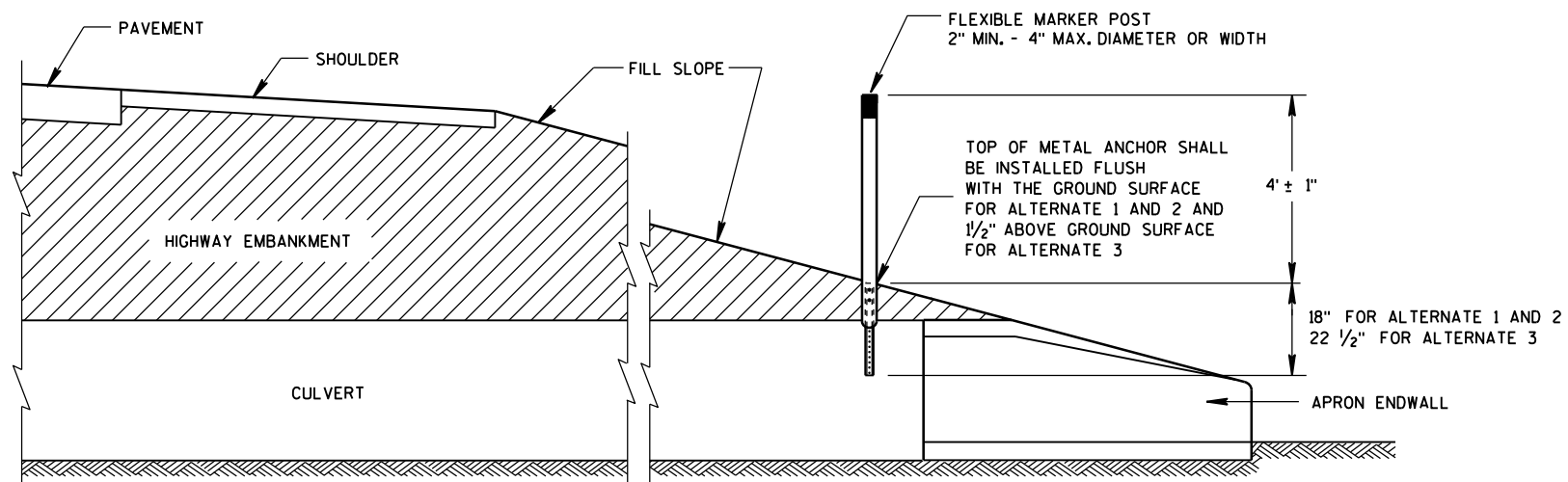
FLEXIBLE MARKER POST LOCATION

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.



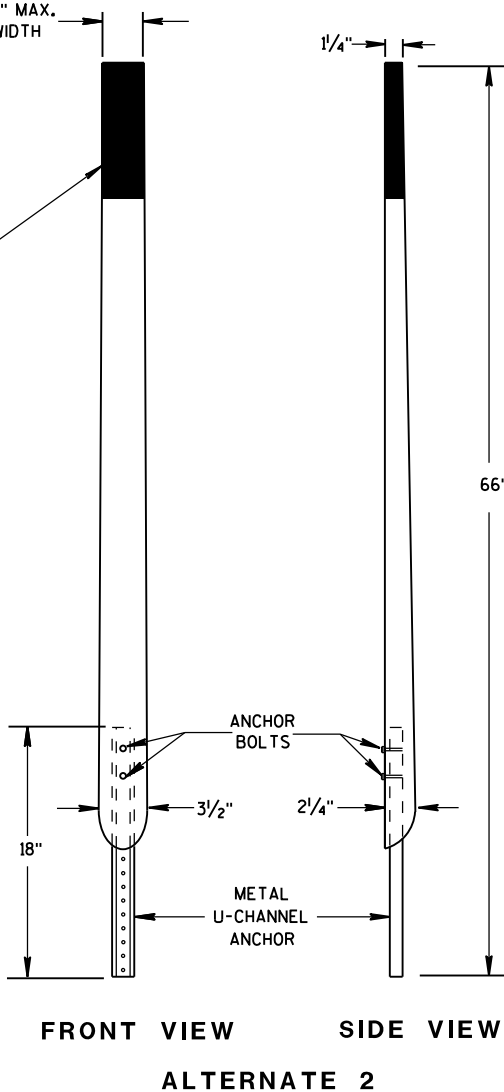
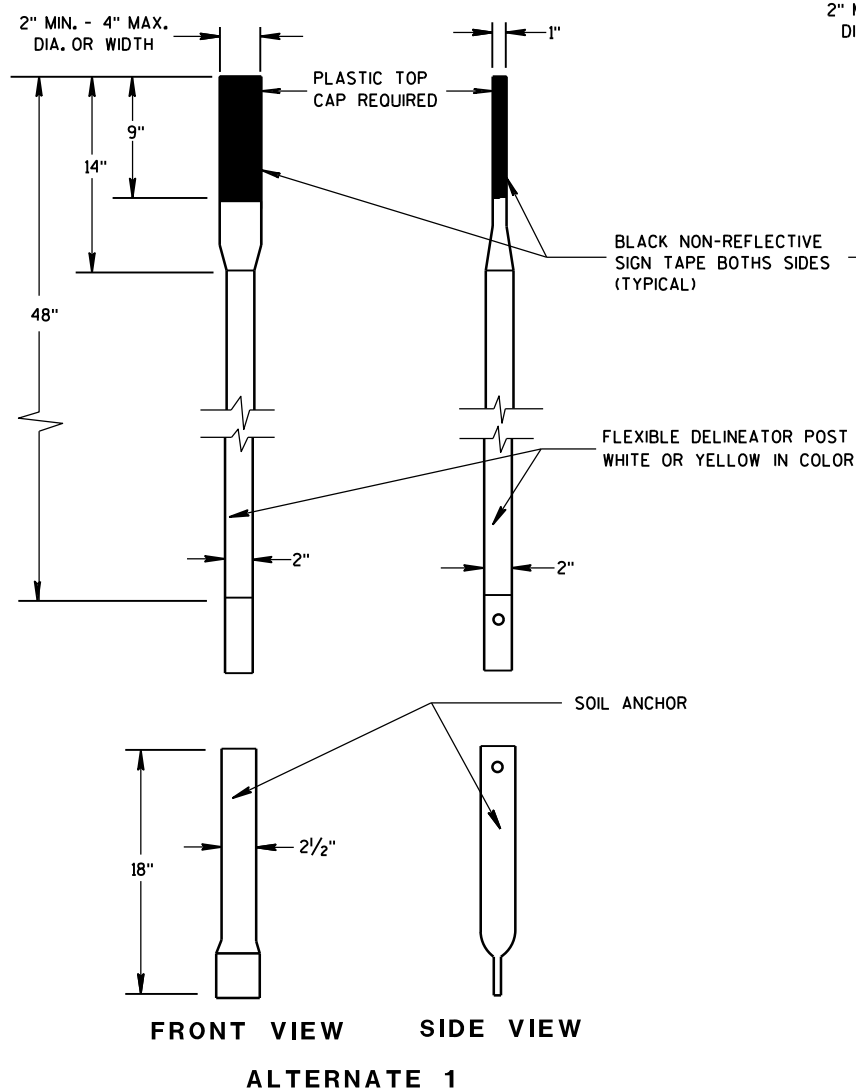
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



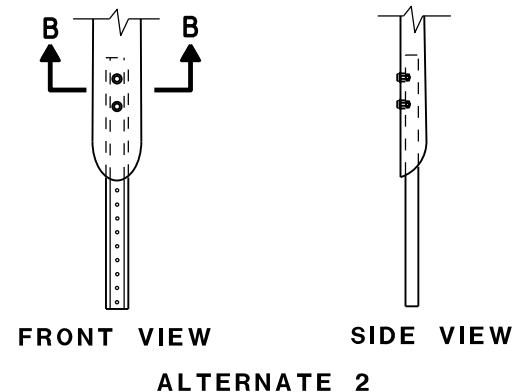
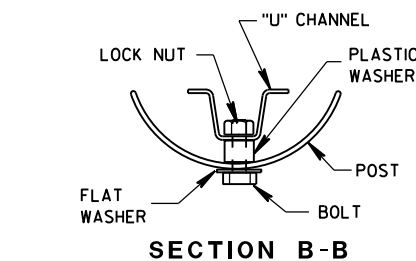
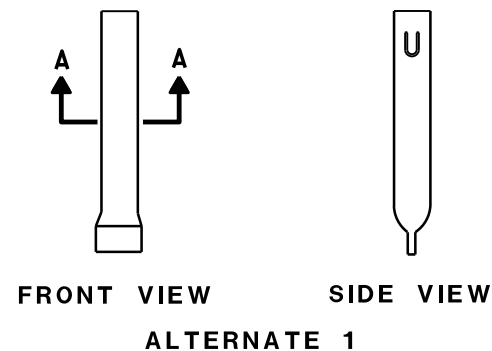
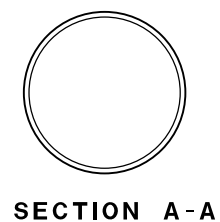
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

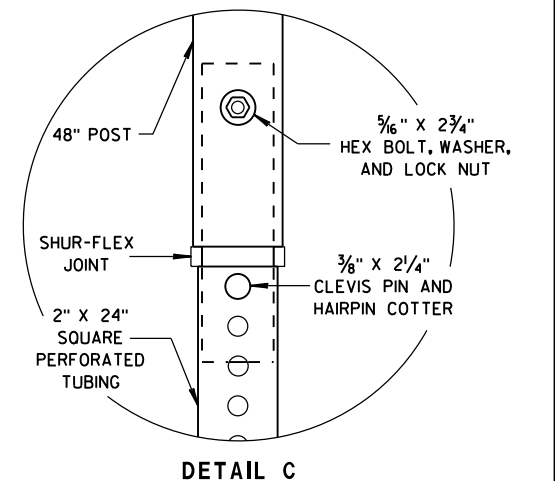
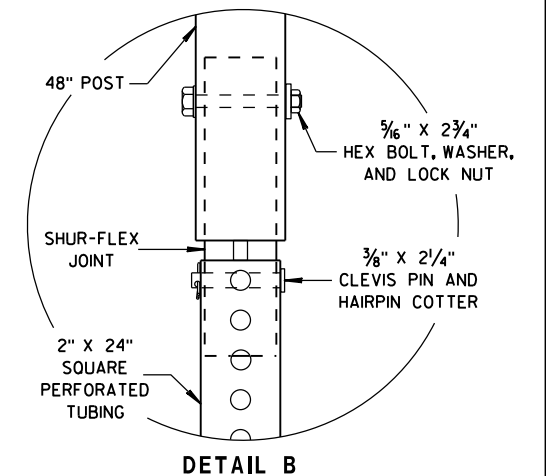
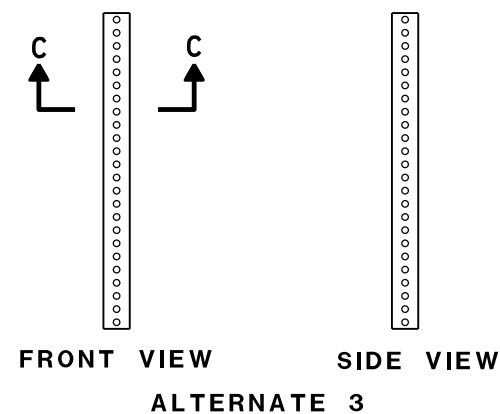
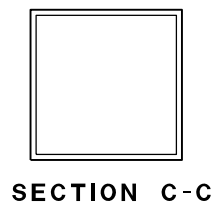
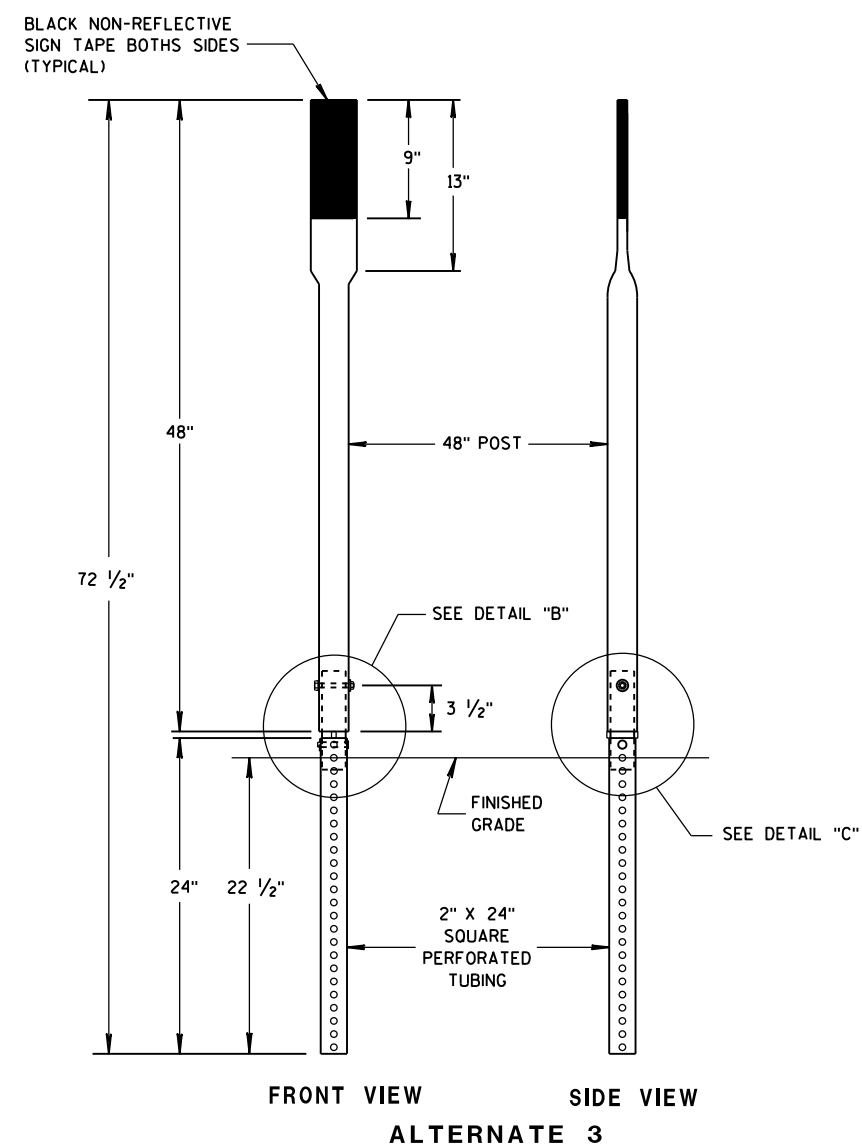
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FLEXIBLE MARKER POSTS



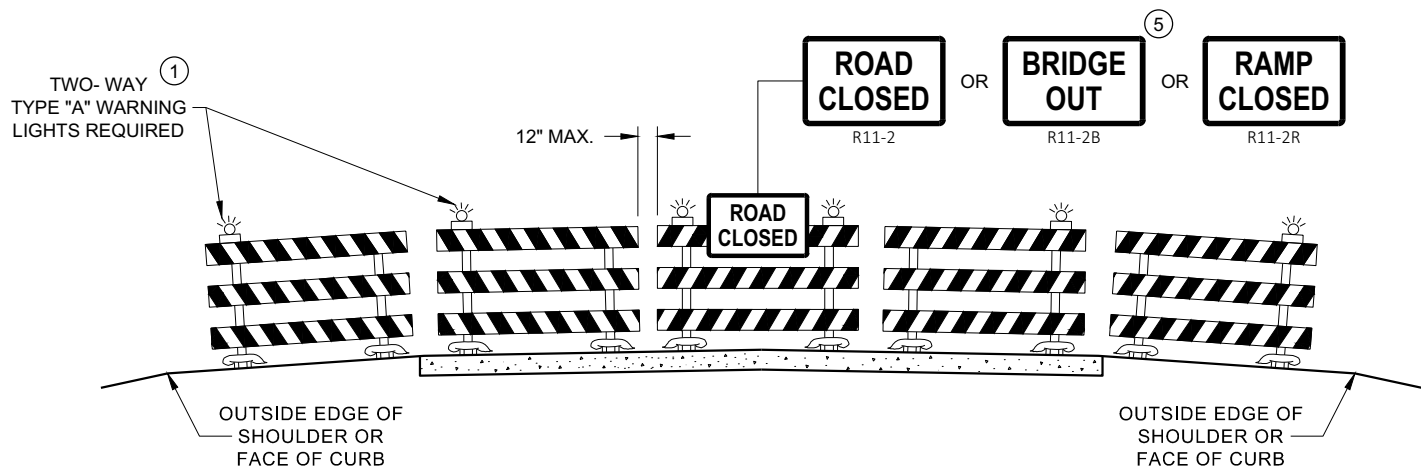
FLEXIBLE MARKER POST ANCHORS



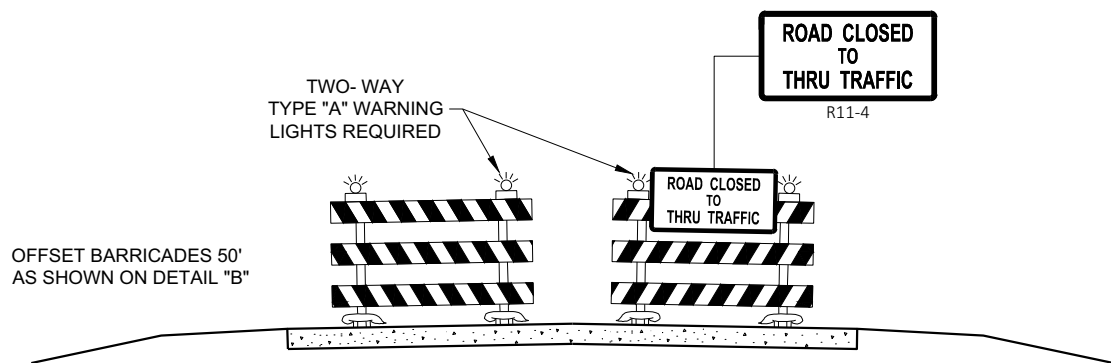
FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER
FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

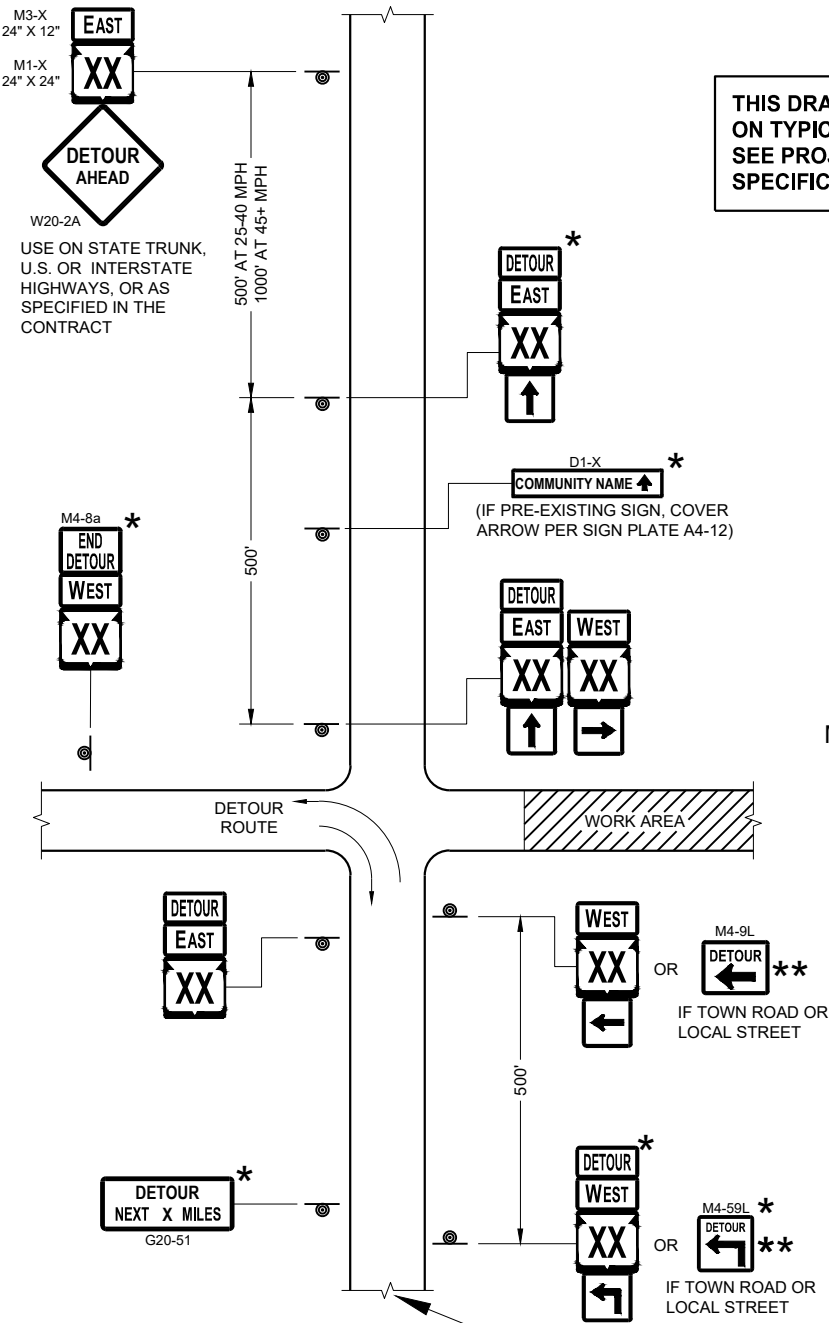
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 99

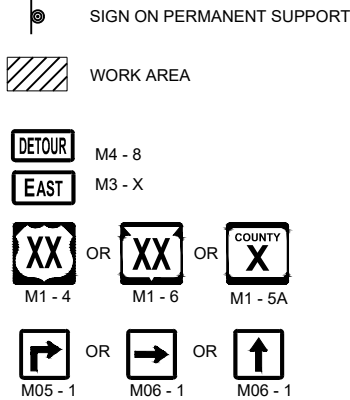
FHWA



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

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

LEGEND



GENERAL NOTES

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

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

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

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

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

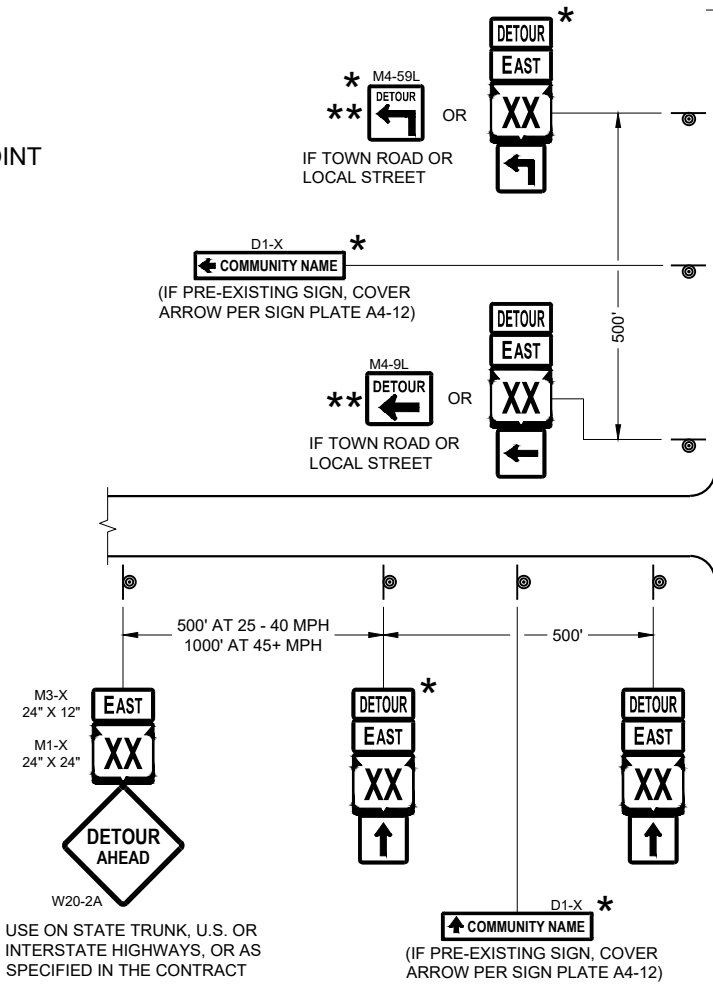
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

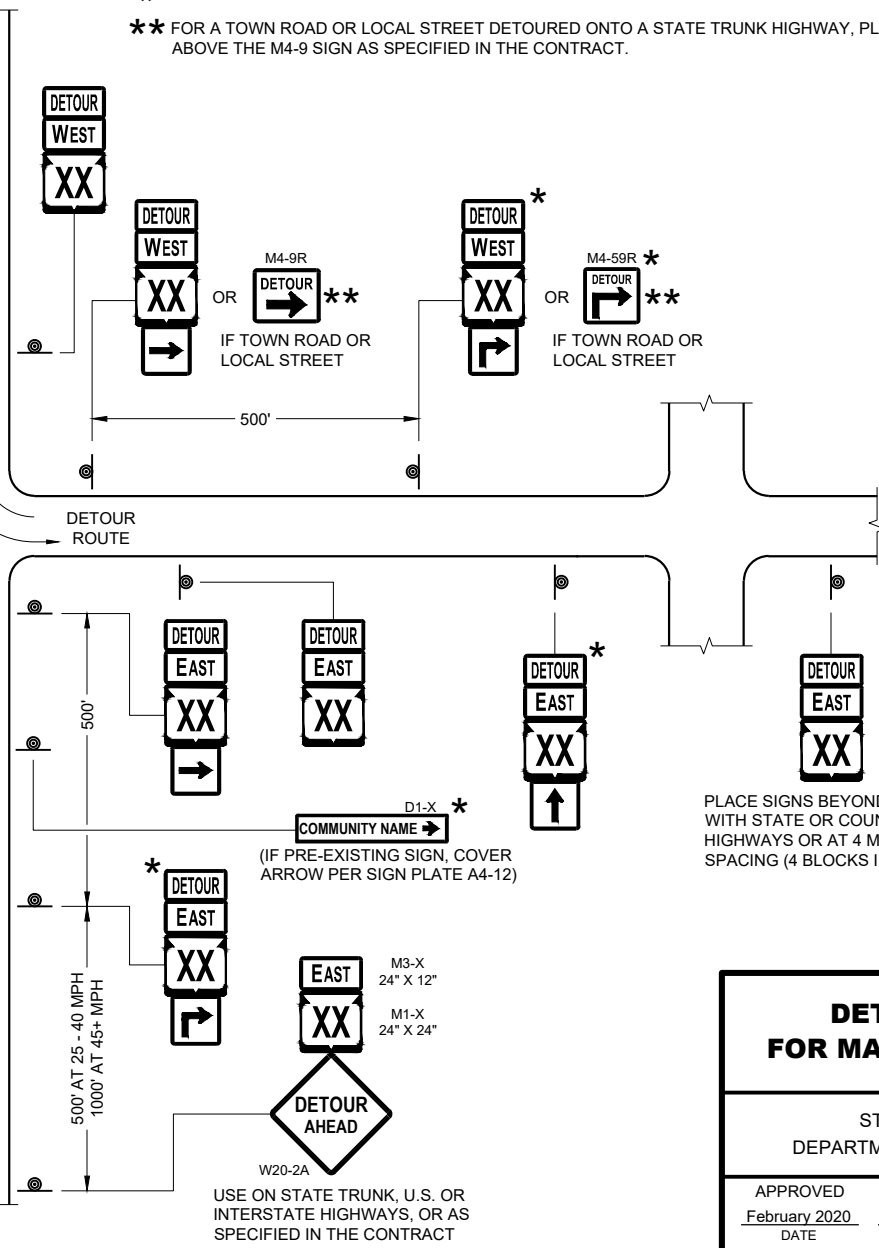
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING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

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

MATCH POINT



DETAIL F
DETOUR SIGNING

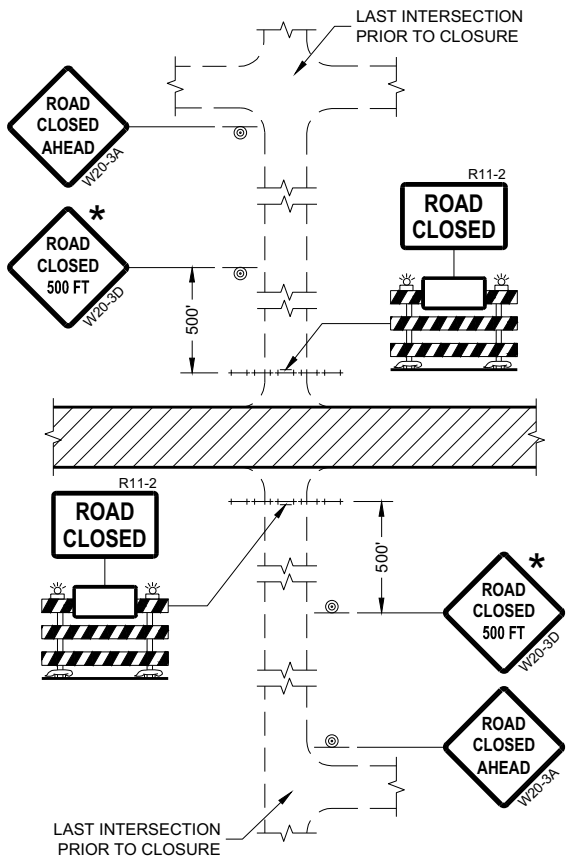


**DETOUR SIGNING
FOR MAINLINE CLOSURES**

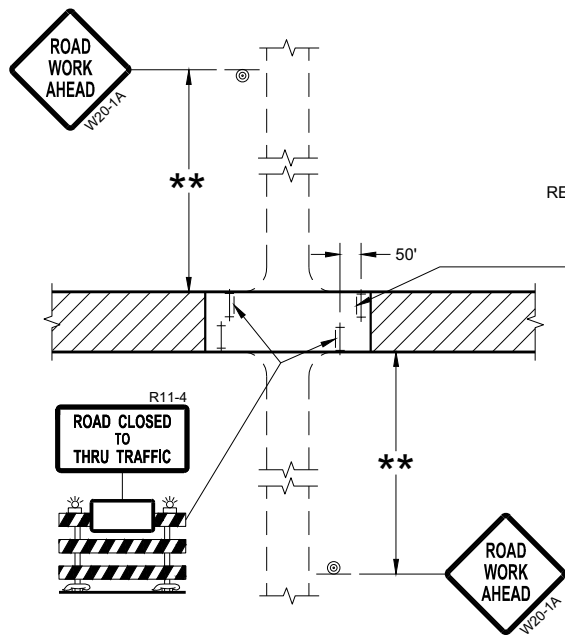
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 100

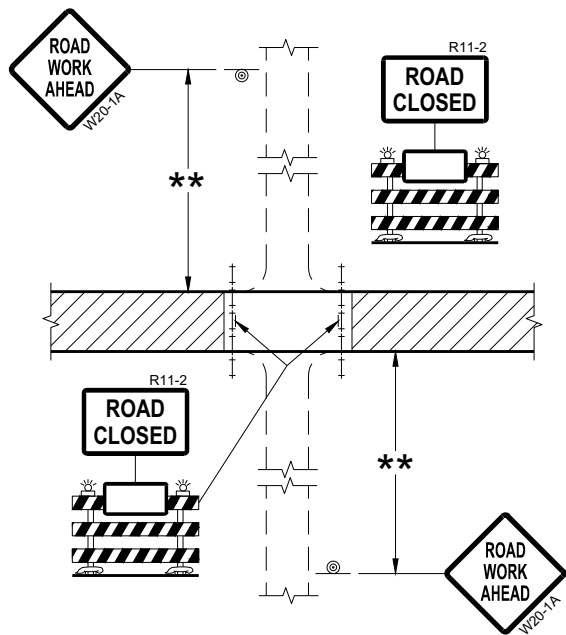
FHWA



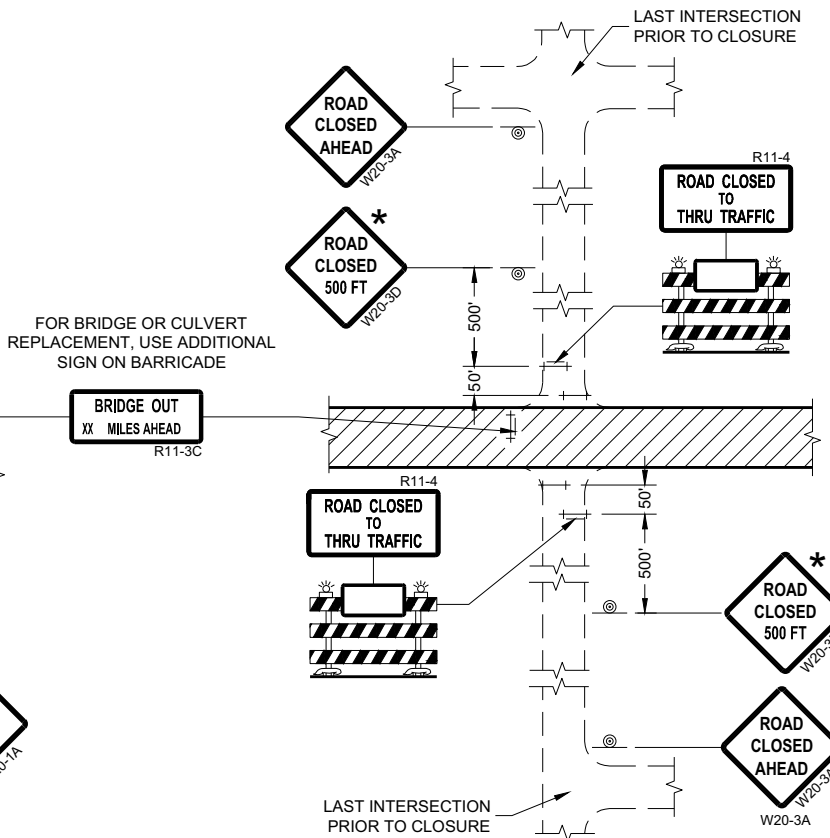
DETAIL 1
(NO ACCESS TO PROJECT)



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



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO 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

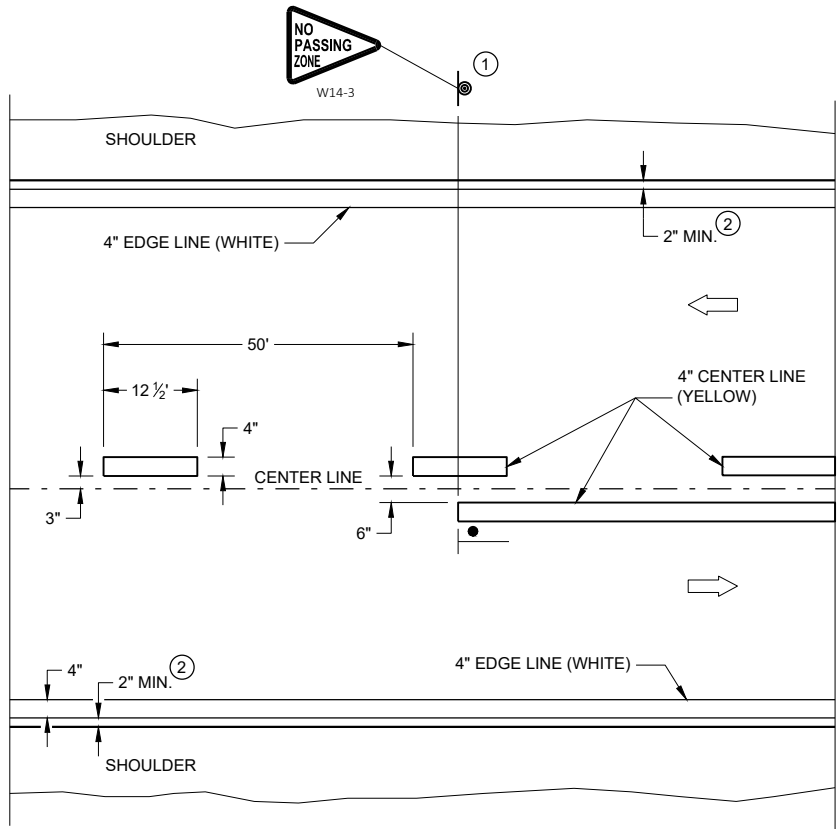
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

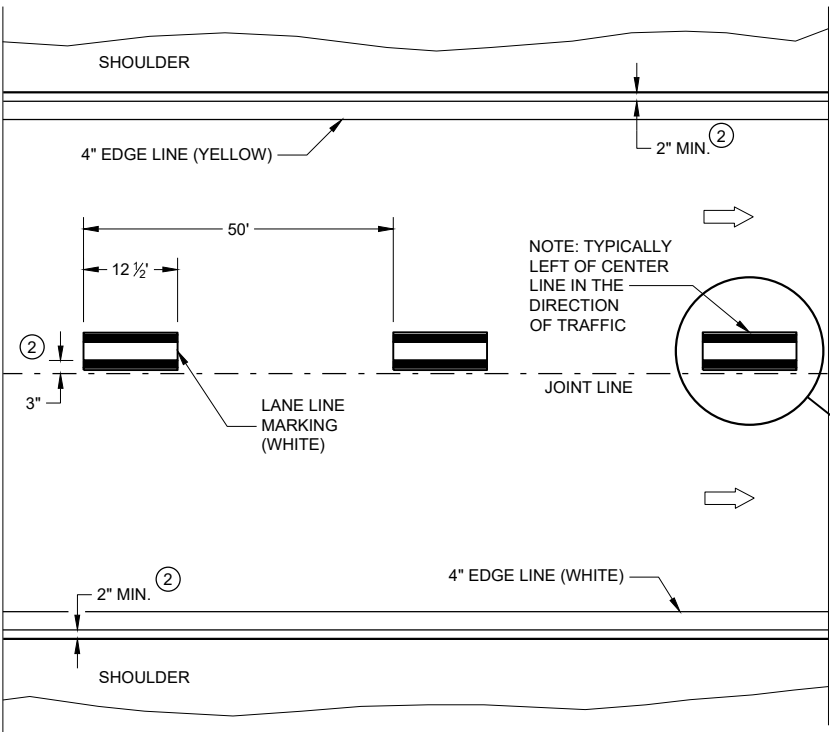
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 101

FHWA

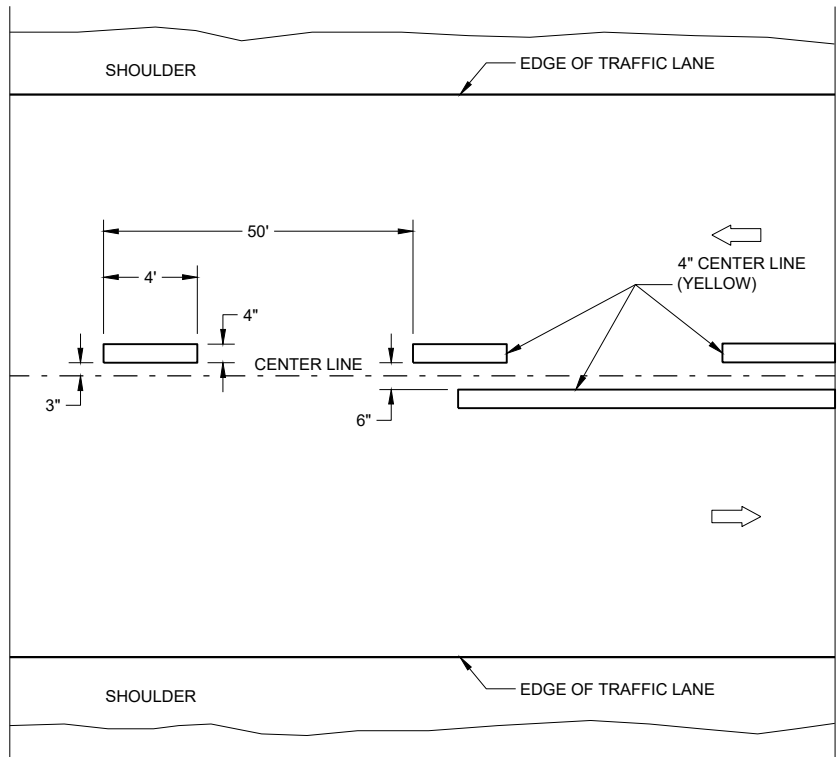


TWO WAY TRAFFIC

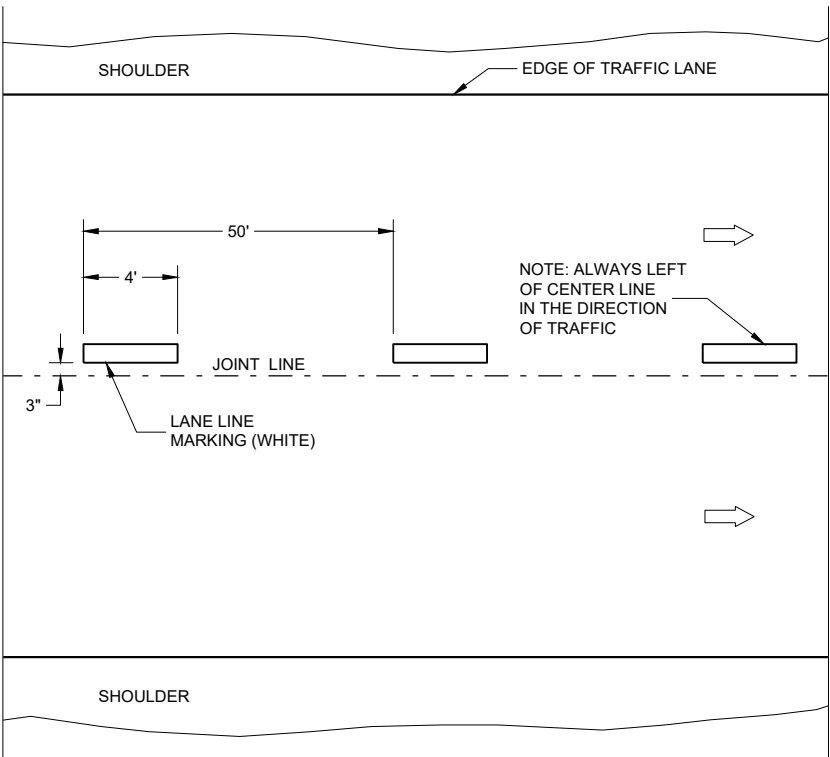


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

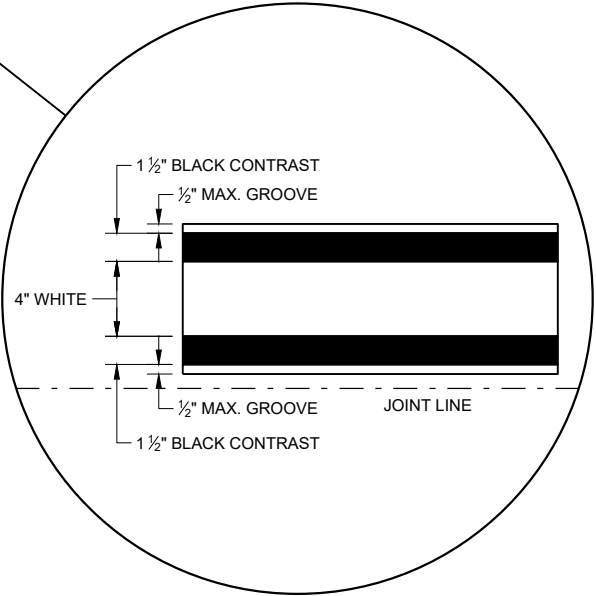
GENERAL NOTES

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

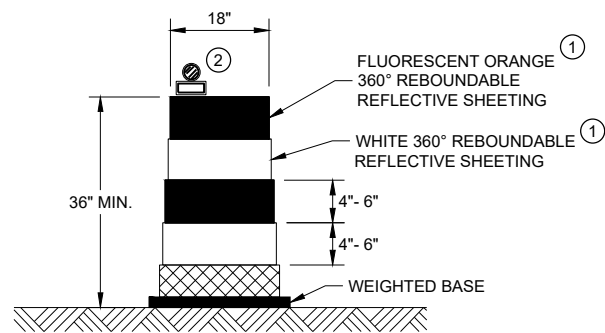


LONGITUDINAL MARKING
(MAINLINE)

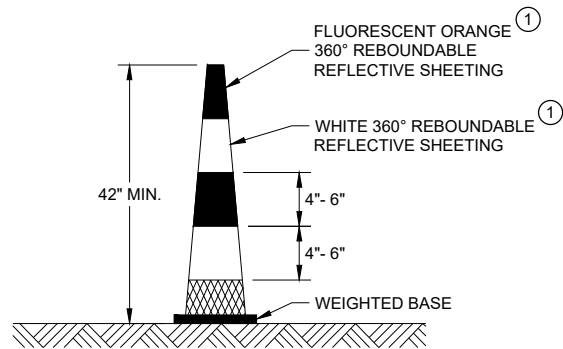
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND N
ENGINEER 102

FHWA

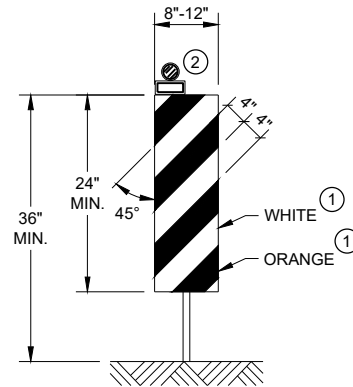


DRUM



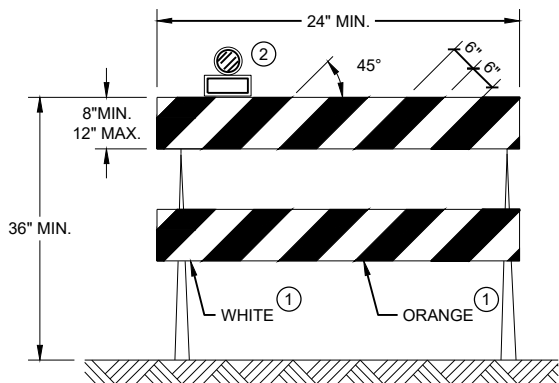
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



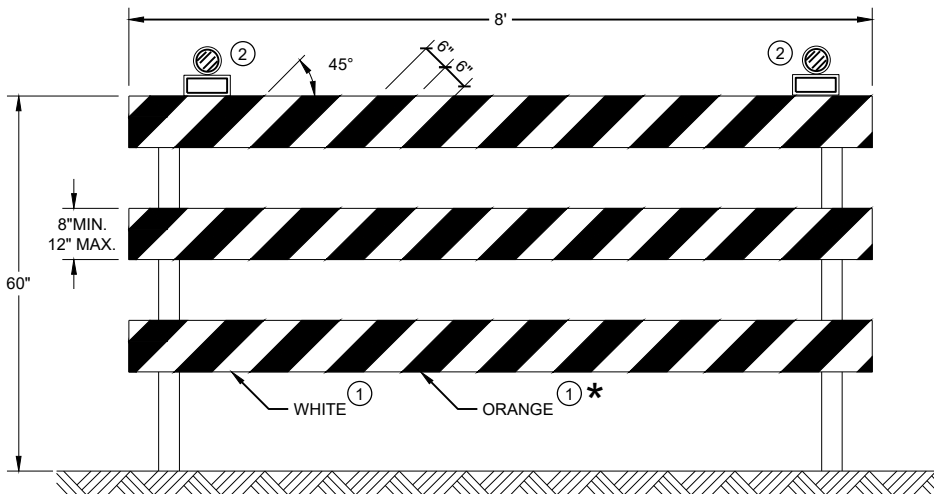
VERTICAL PANEL

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 103

FHWA

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

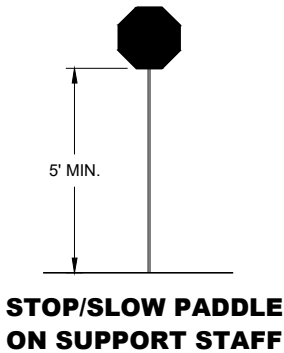
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- 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 PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM 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.

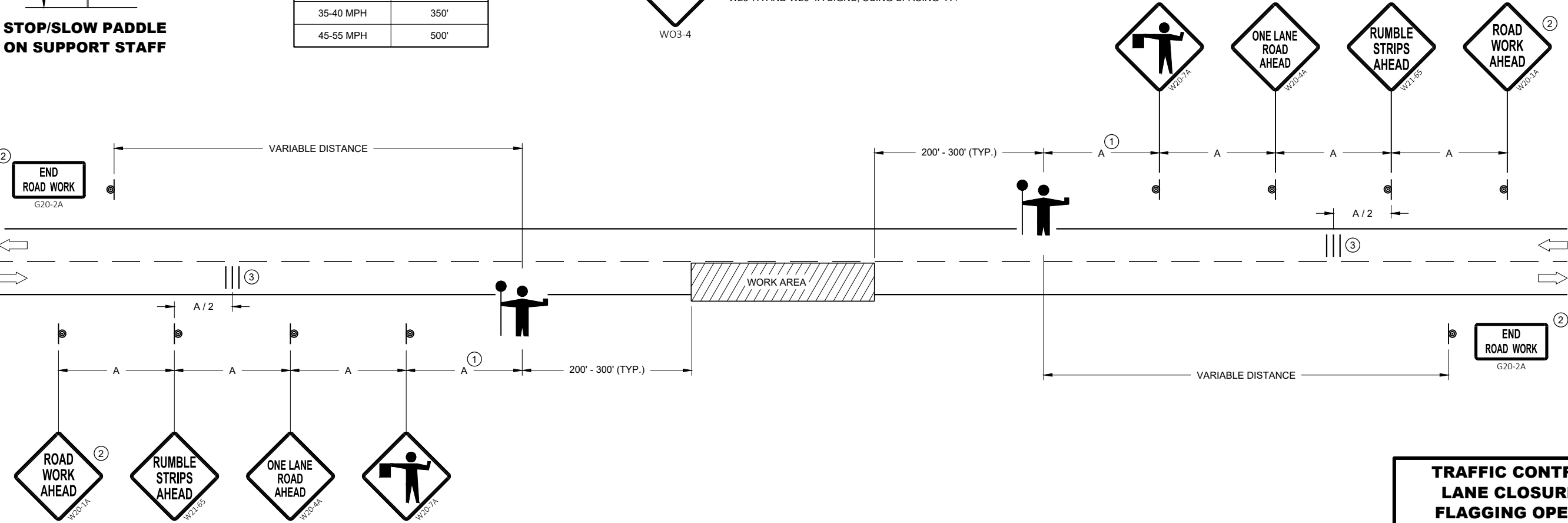


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 104

FHWA

LEGEND

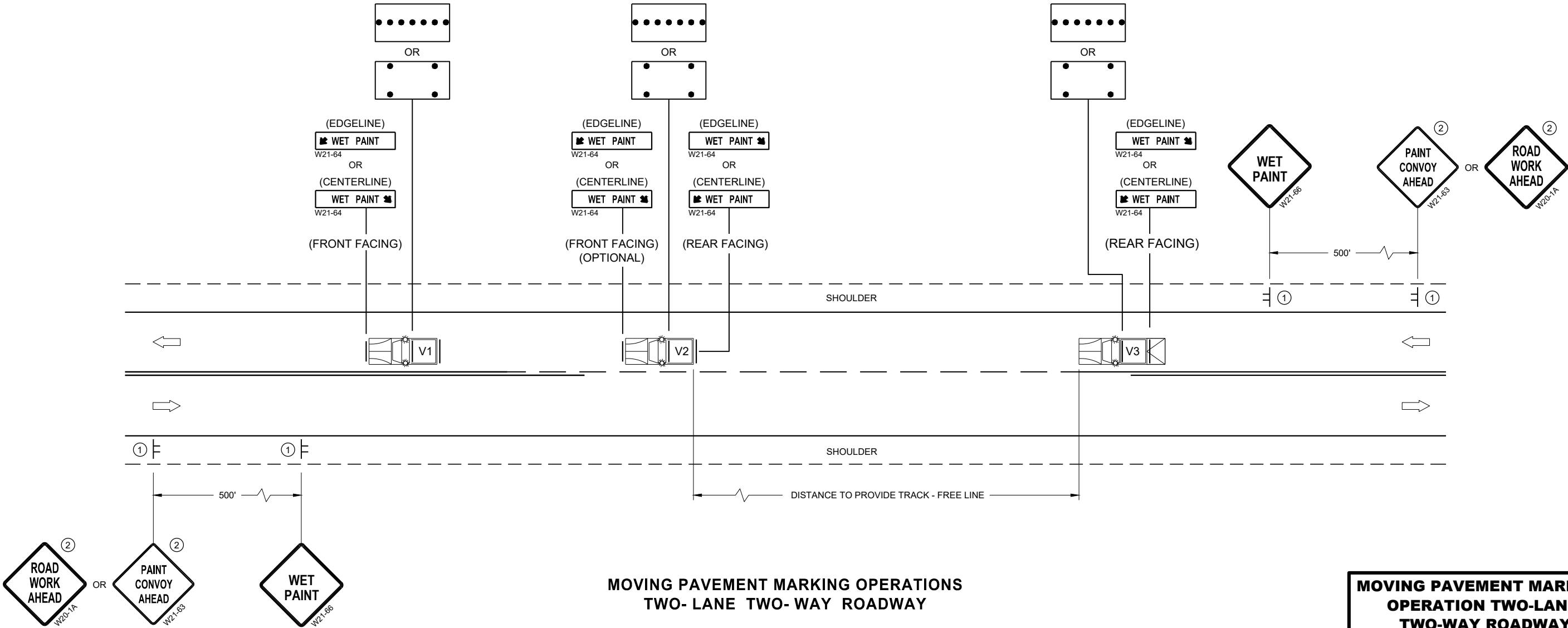
- V1 LEAD VEHICLE
- V2 MARKING VEHICLE
- V3 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC
-  FLASHING ARROW PANEL (CAUTION)

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 .

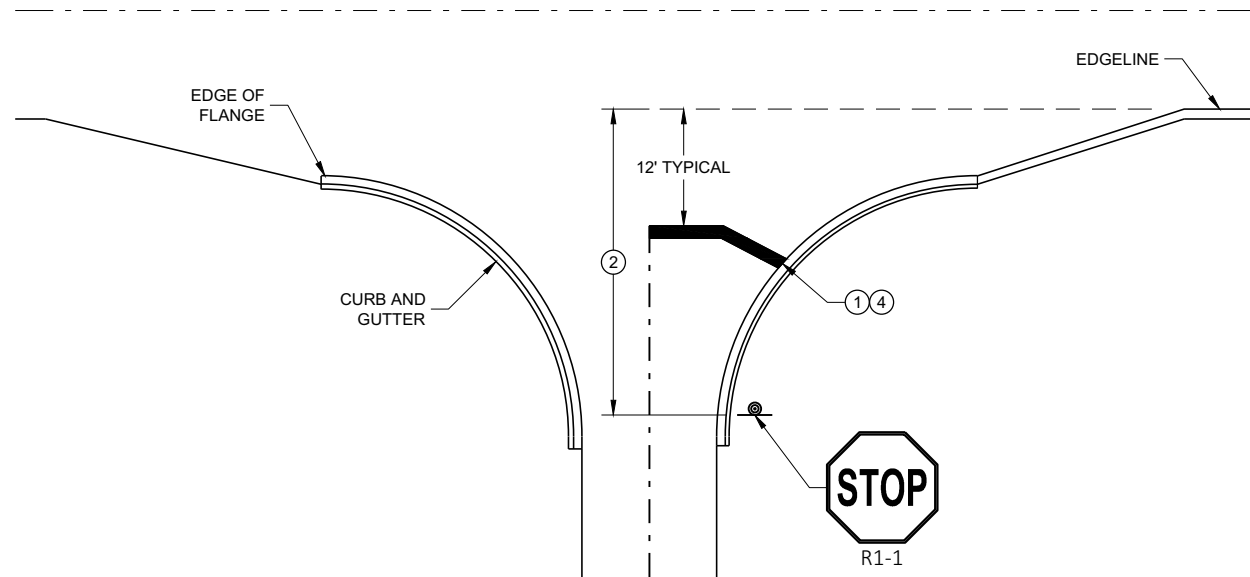
- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.



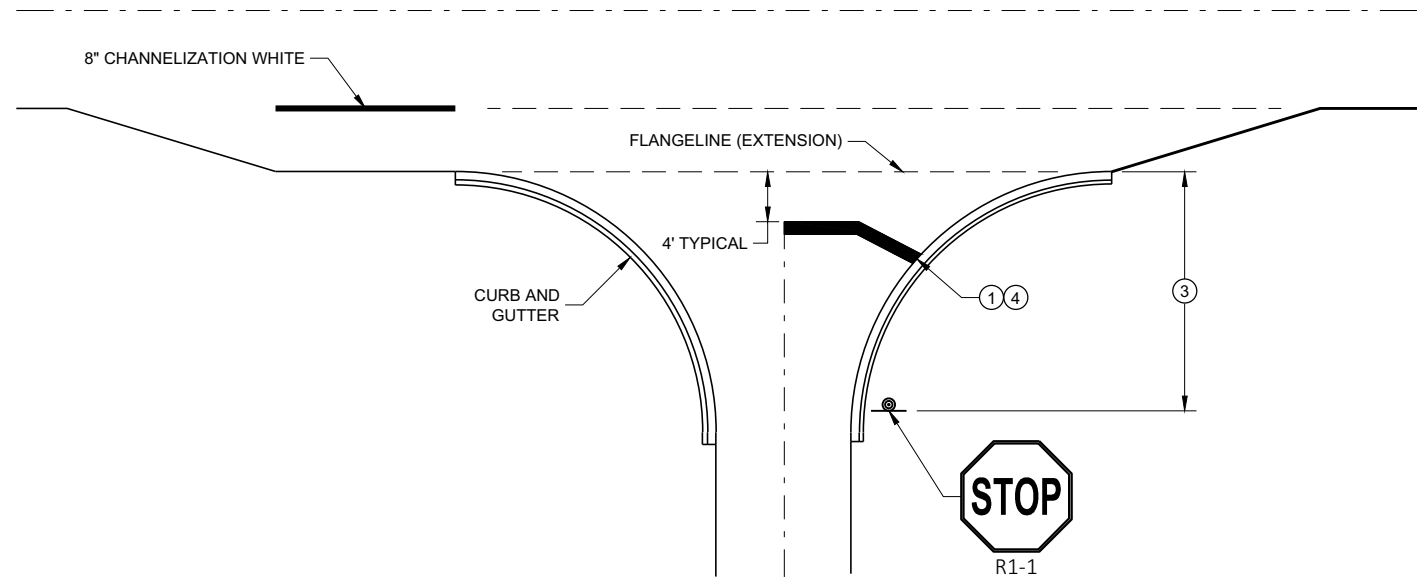
MOVING PAVEMENT MARKING
OPERATION TWO-LANE
TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

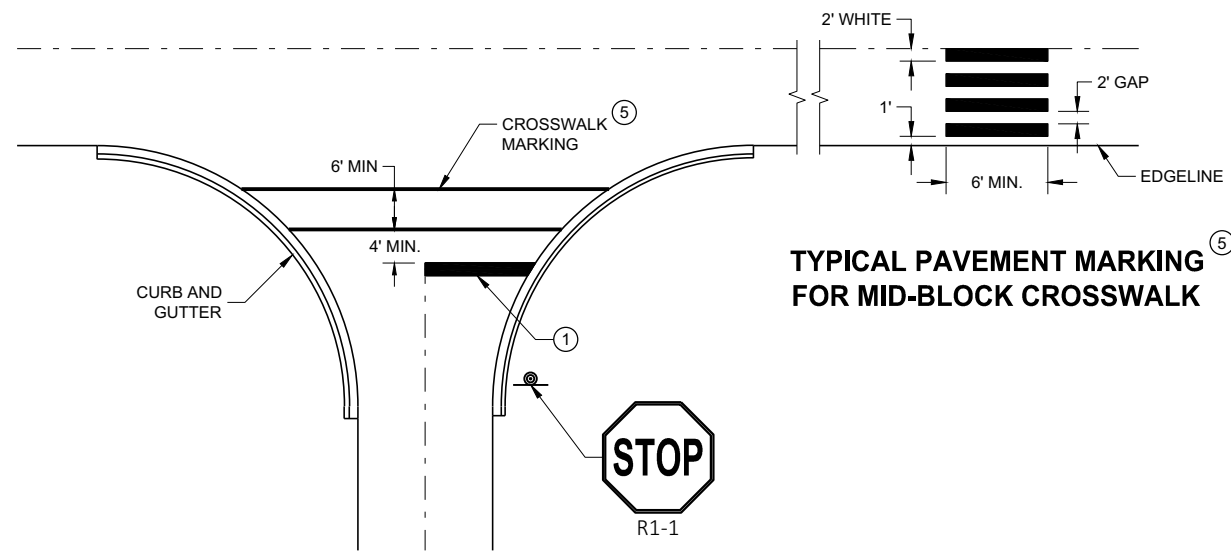
APPROVED
November 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 105
FHWA



TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER

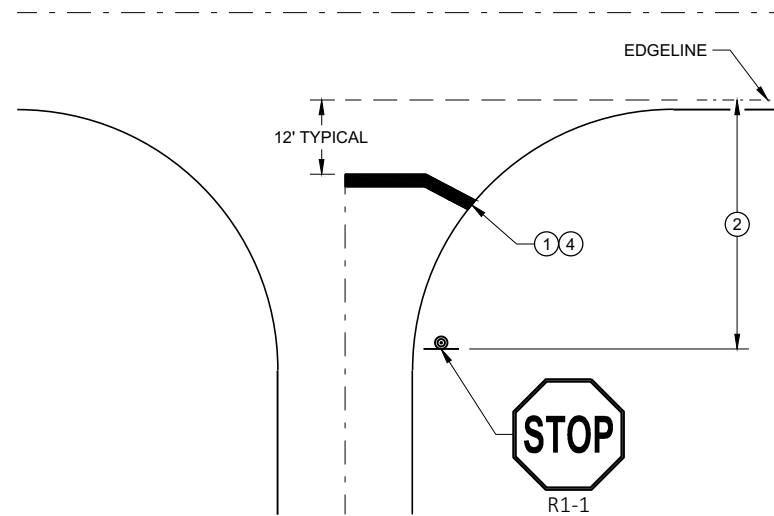


TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING

TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGE LINE LOCATION.

- 1 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- 2 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGE LINE.
- 3 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
- 4 MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- 5 LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.

STOP LINE AND CROSSWALK PAVEMENT MARKING

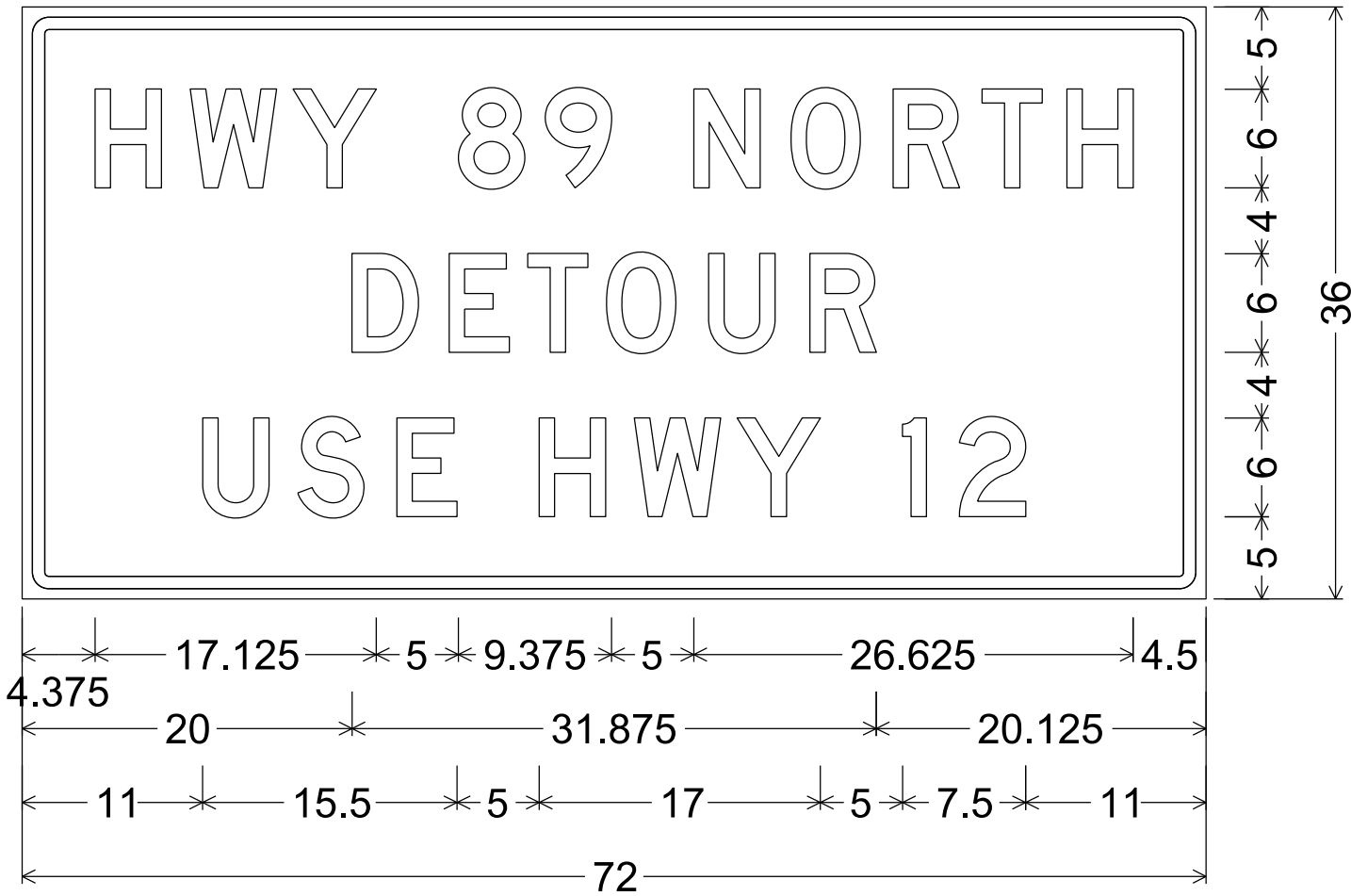
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MAP ENGINEER 106
FHWA

7

NOTES

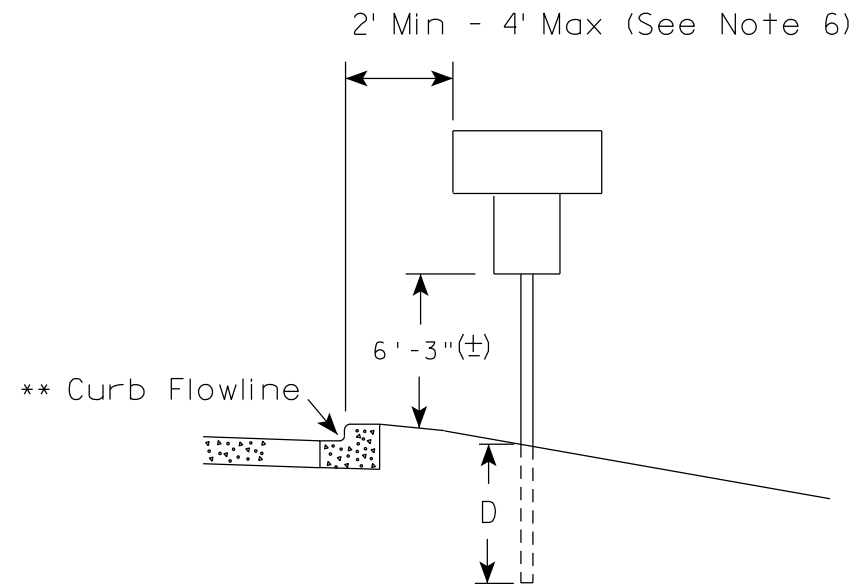
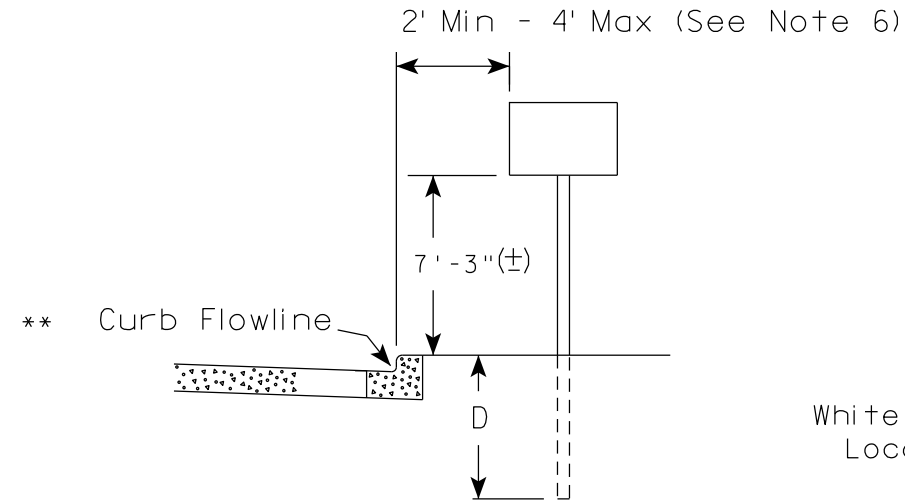
- 1. Fixed Message Sign - Type II Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - D



1.625" Radius, 0.750" Border, 0.625" Indent

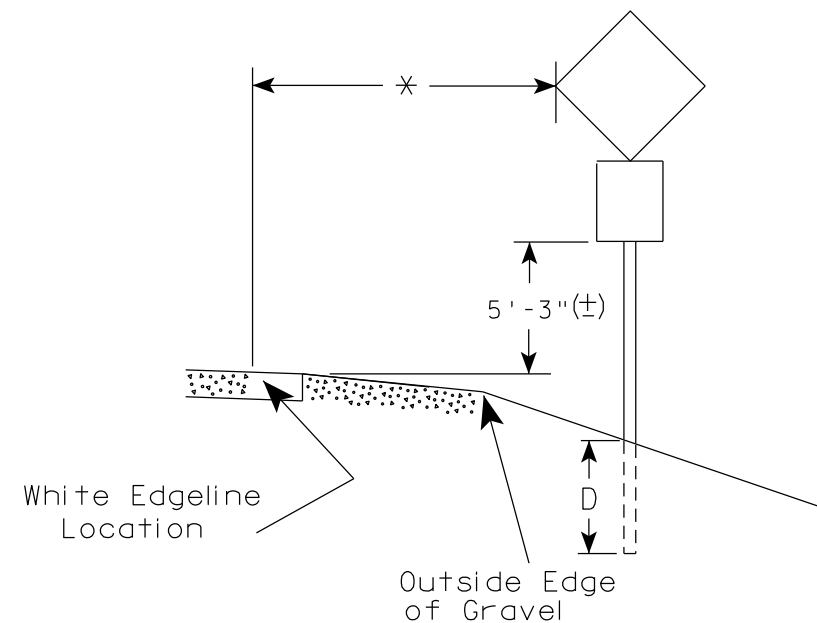
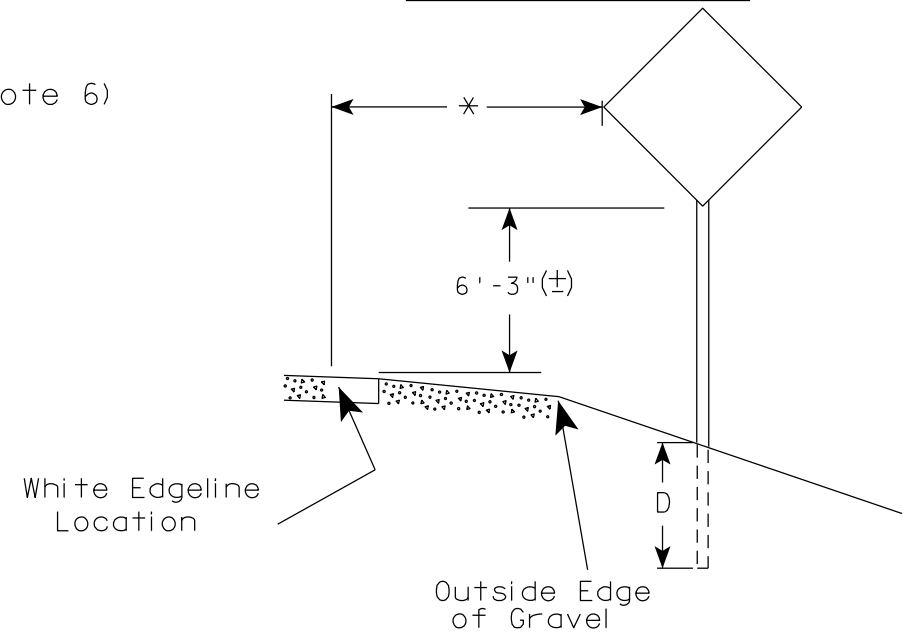
7

URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

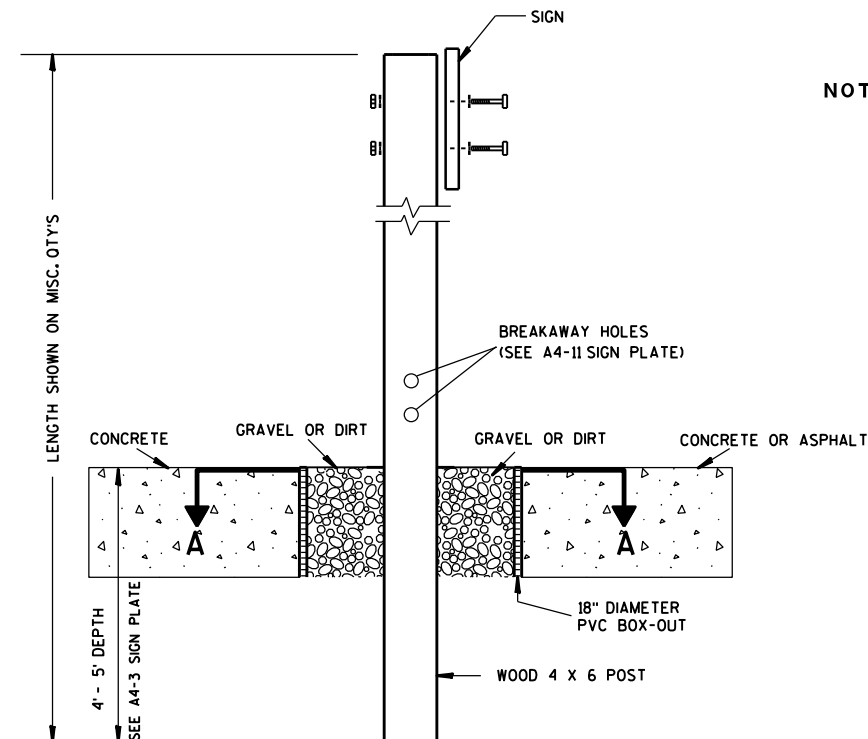
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 108

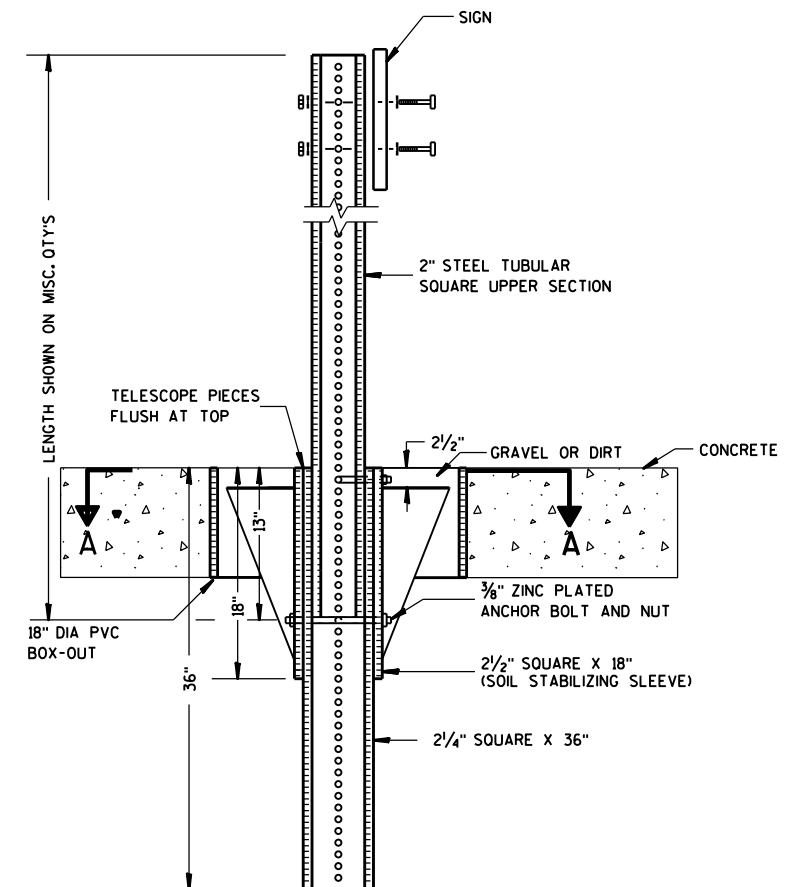
E



ELEVATION VIEW

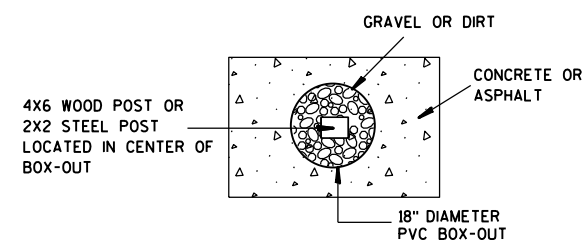
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 109 A4-3B.1

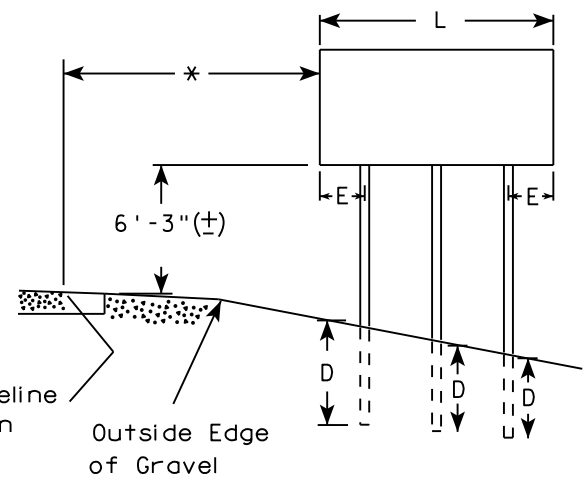
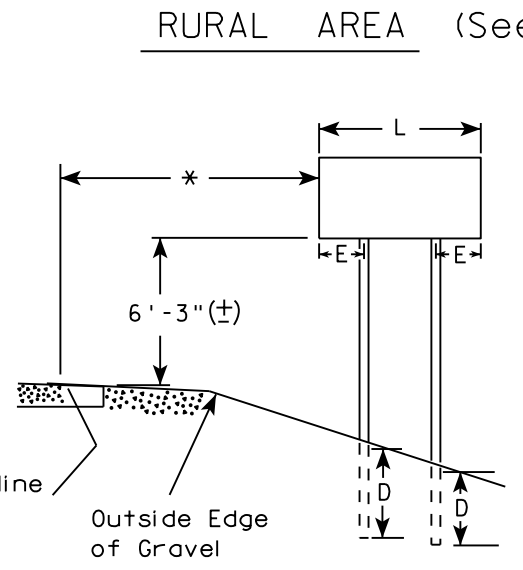
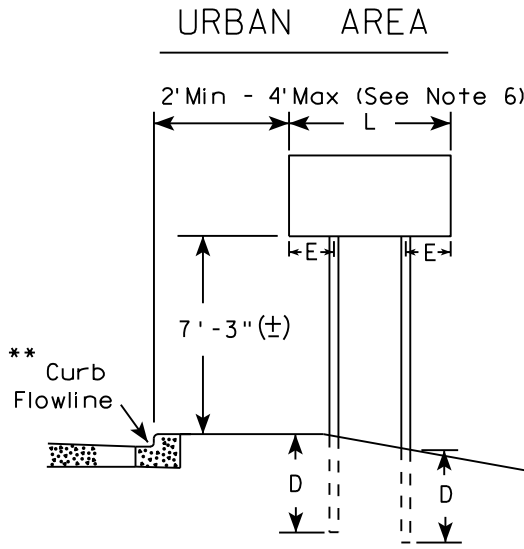
PROJECT NO:

HWY:

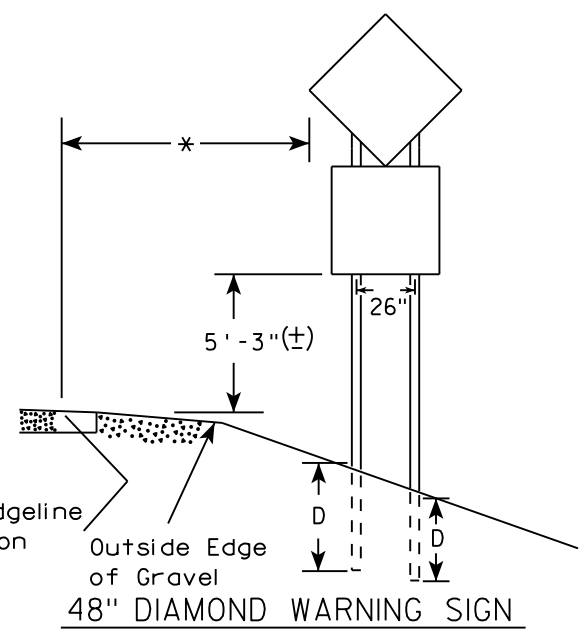
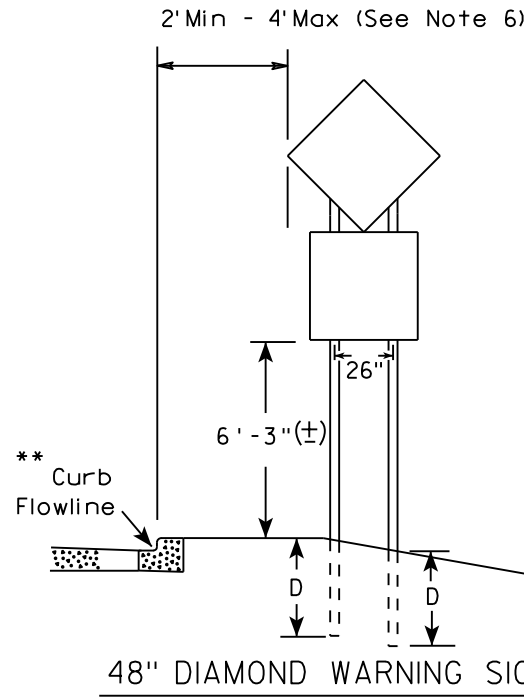
COUNTY:

SHEET NO:

E



- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. J-Assemblies are considered to be one sign for mounting height.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).



- * 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.
- ** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.
- *** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

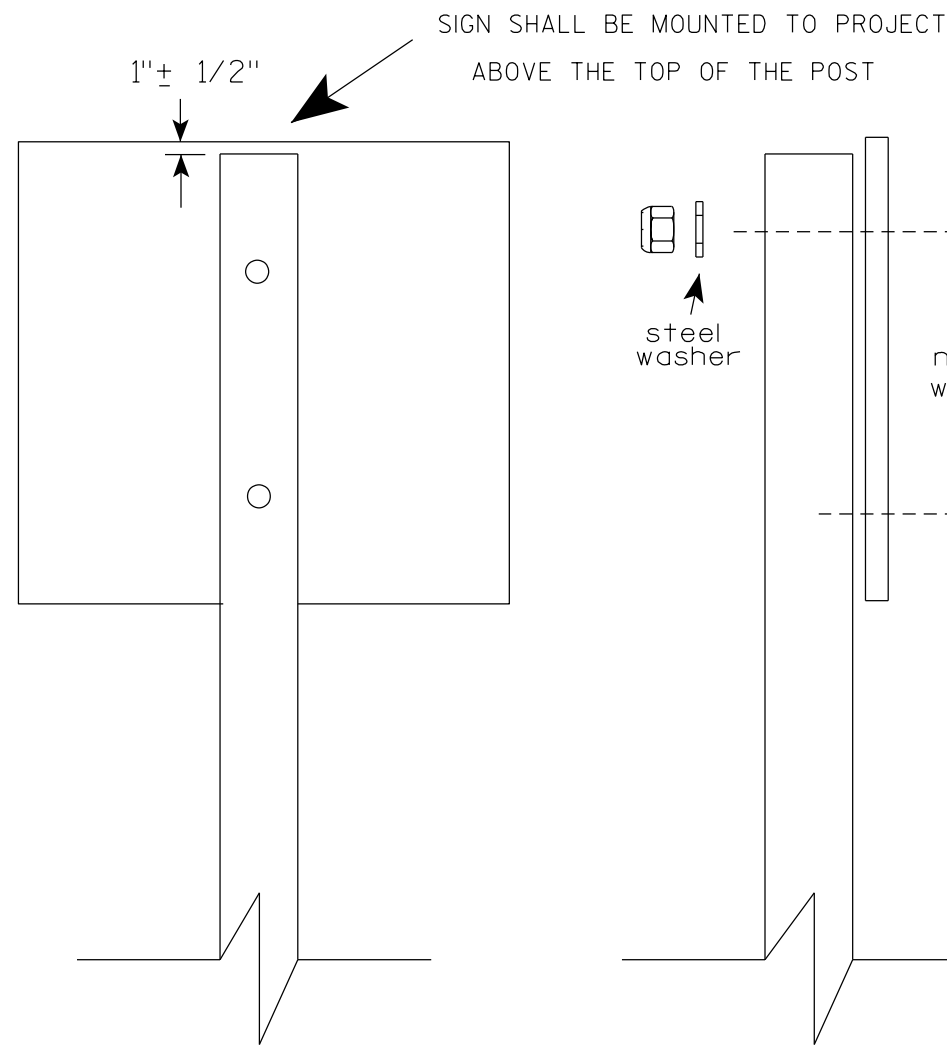
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15



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

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

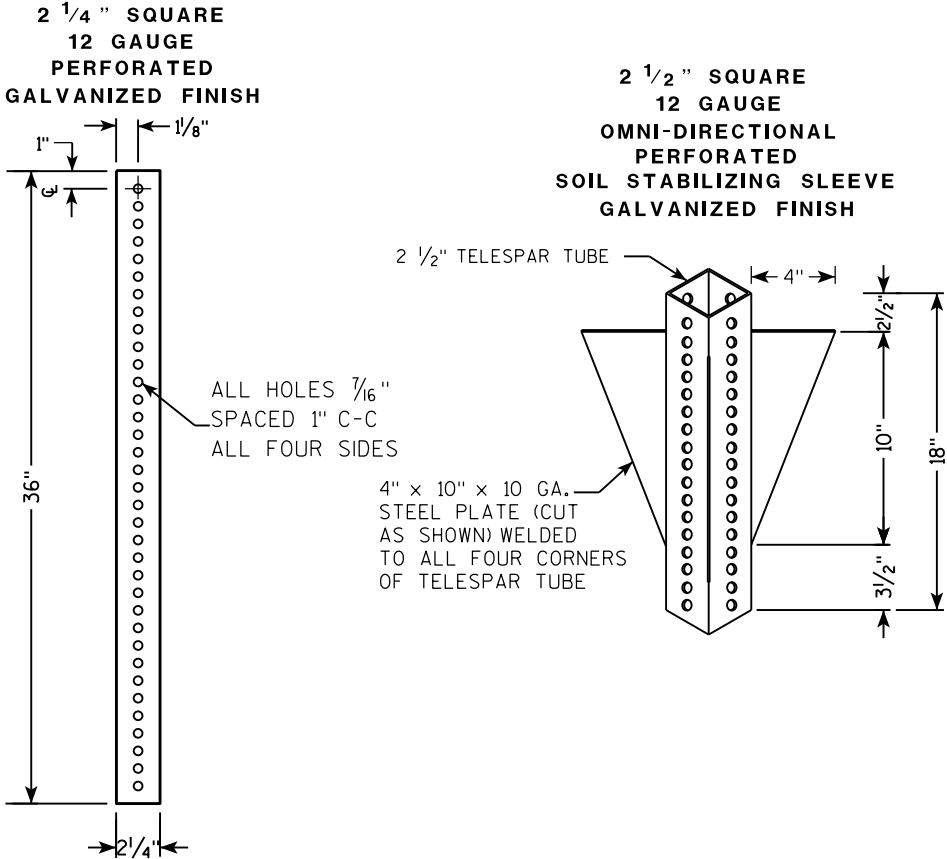
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

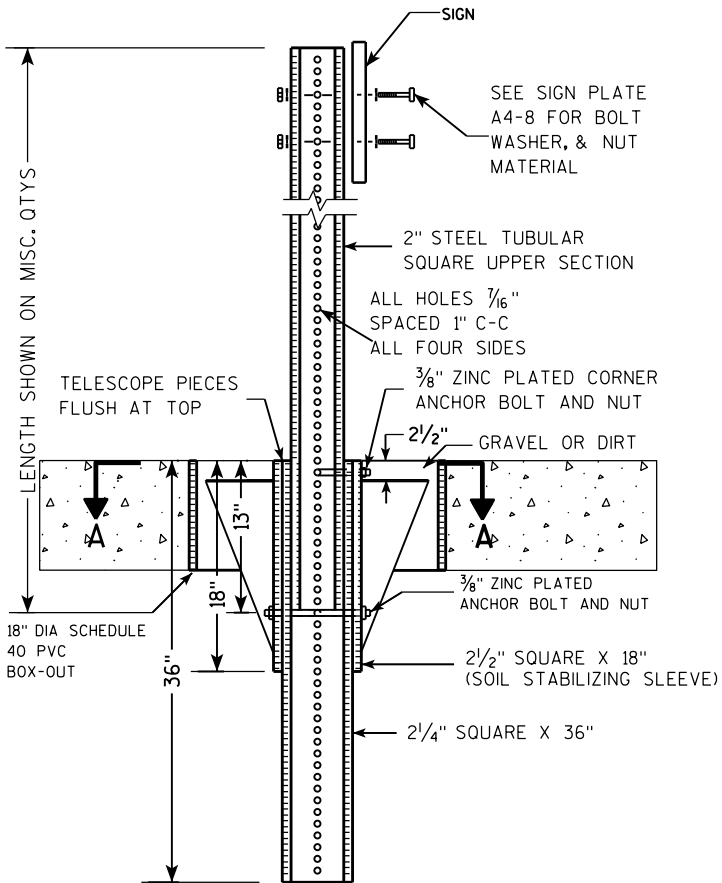
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

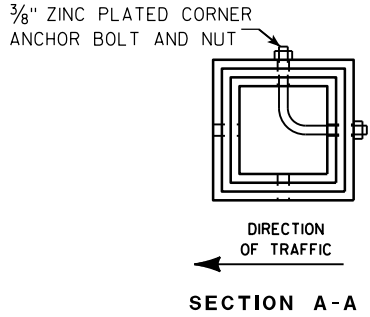
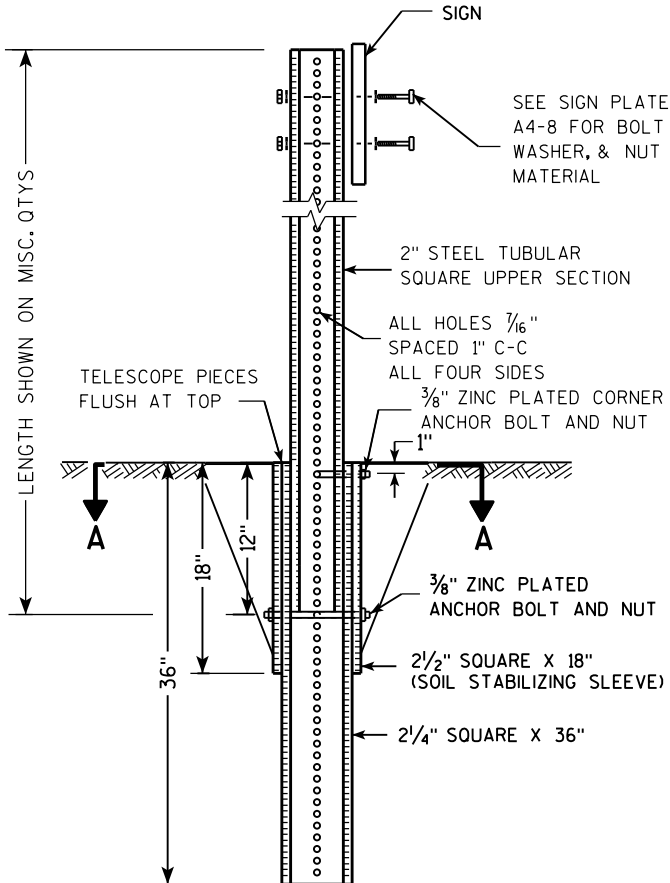
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required 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

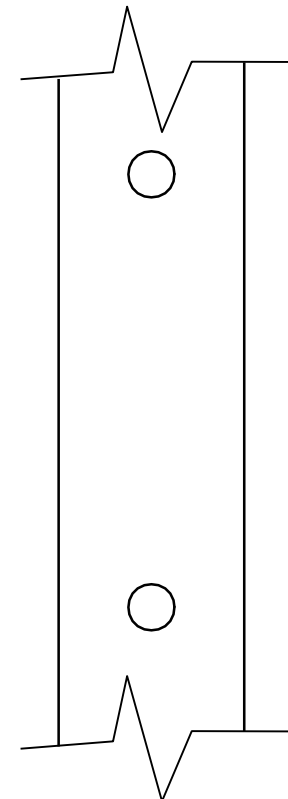
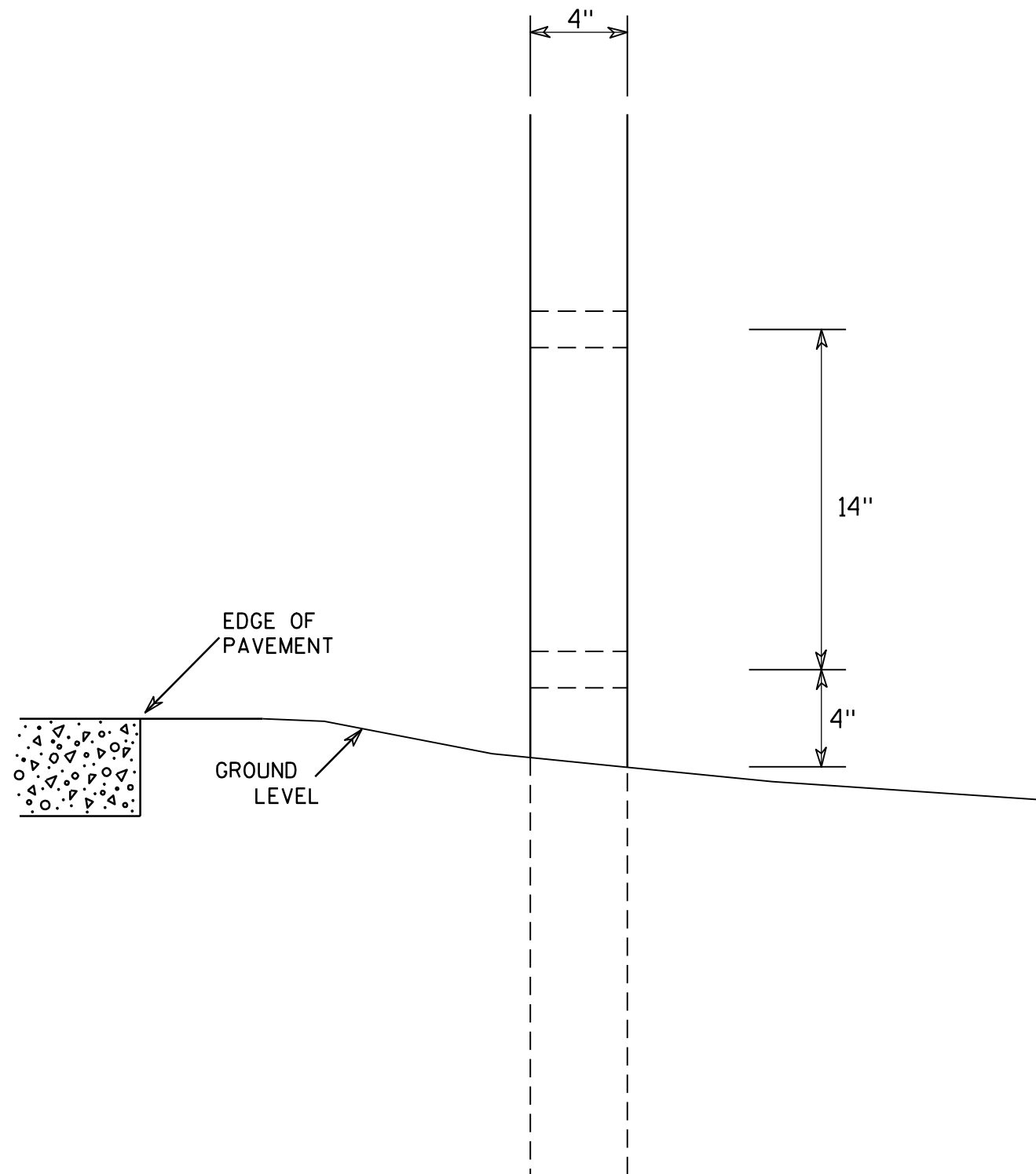
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 112 14-9.9



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1 1/2" diameter holes drilled perpendicular to the roadway centerline.

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

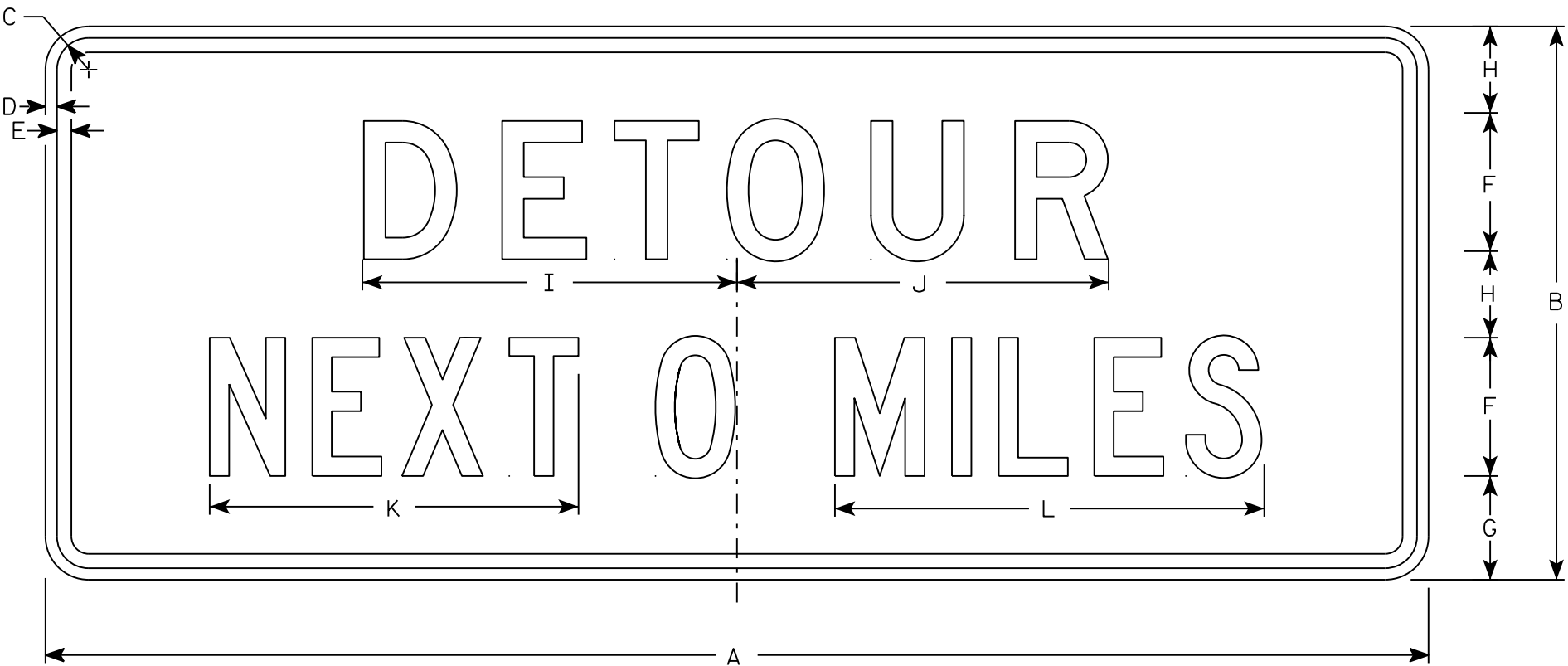
COUNTY:

SHEET NO: 113

E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - Line 1 is D and Line 2 is C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Round distance to nearest whole Mile and substitute appropriate numerals and optically adjust spacing to achieve proper balance



G20-51

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	60	24	1 3/8	1/2	5/8	6	4 1/2	3 3/4	16 1/4	16 1/8	16	18 5/8															10
3																											
4	60	24	1 3/8	1/2	5/8	6	4 1/2	3 3/4	16 1/4	16 1/8	16	18 5/8															10
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 114

E

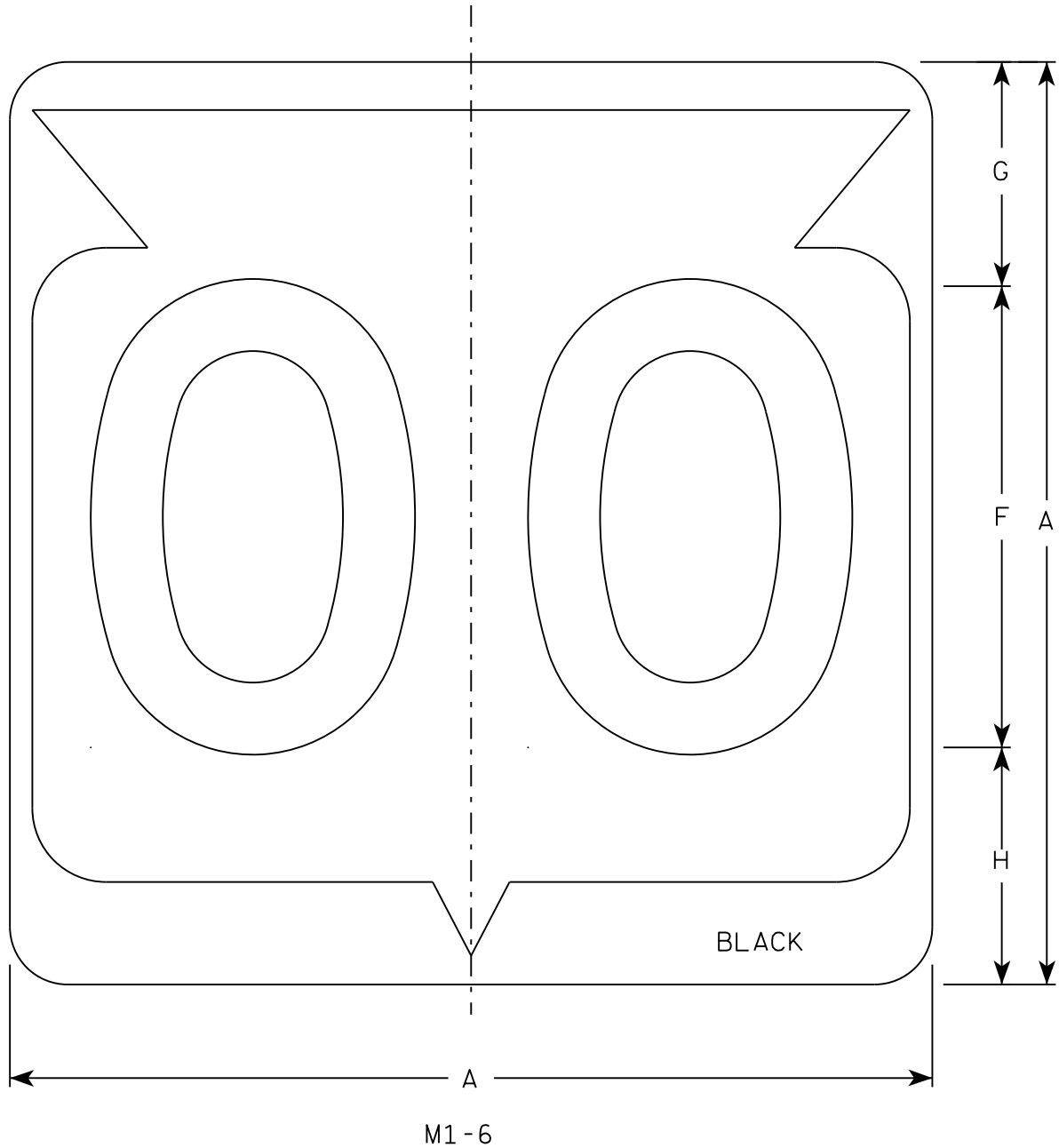
STANDARD SIGN
G20-51

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

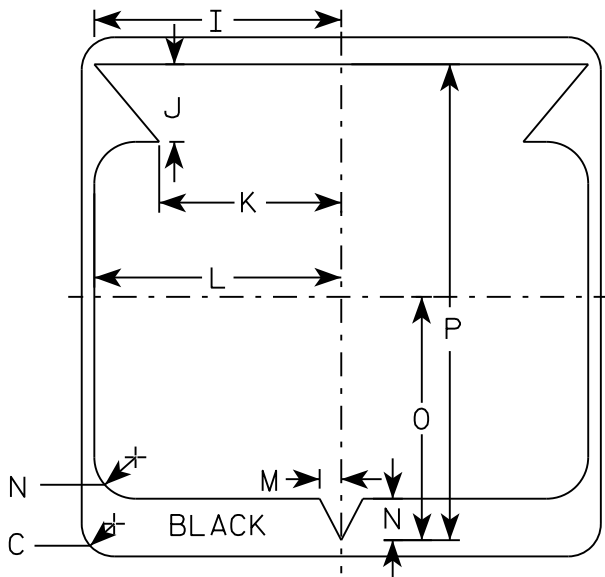
DATE 3/14/17 PLATE NO. G20-51.2

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D except 3 number signs Series C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 115

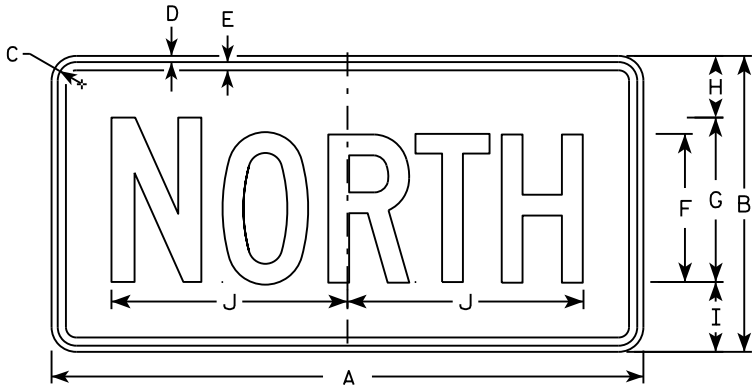
E

STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

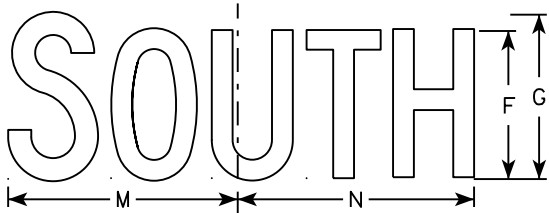
DATE 3/16/18 PLATE NO. M1-6.10



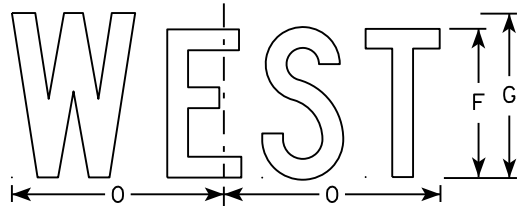
M3-1
MM3-1
MP3-1



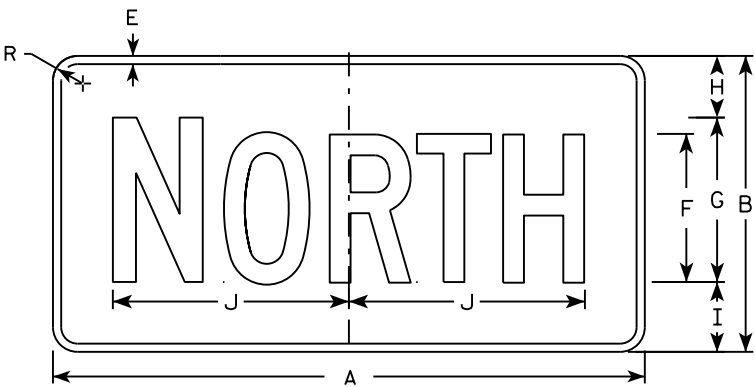
M3-2
MM3-2
MP3-2



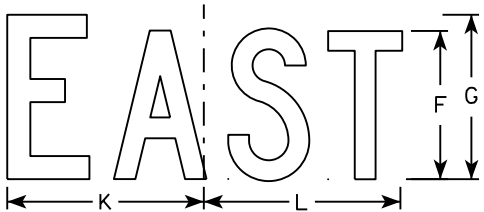
M3-3
MM3-3
MP3-3



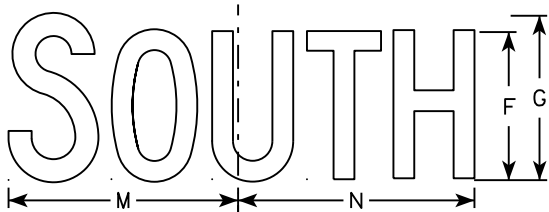
M3-4
MM3-4
MP3-4



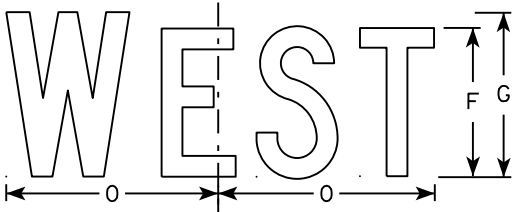
MB3-1
MK3-1
MN3-1



MB3-2
MK3-2
MN3-2



MB3-3
MK3-3
MN3-3



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

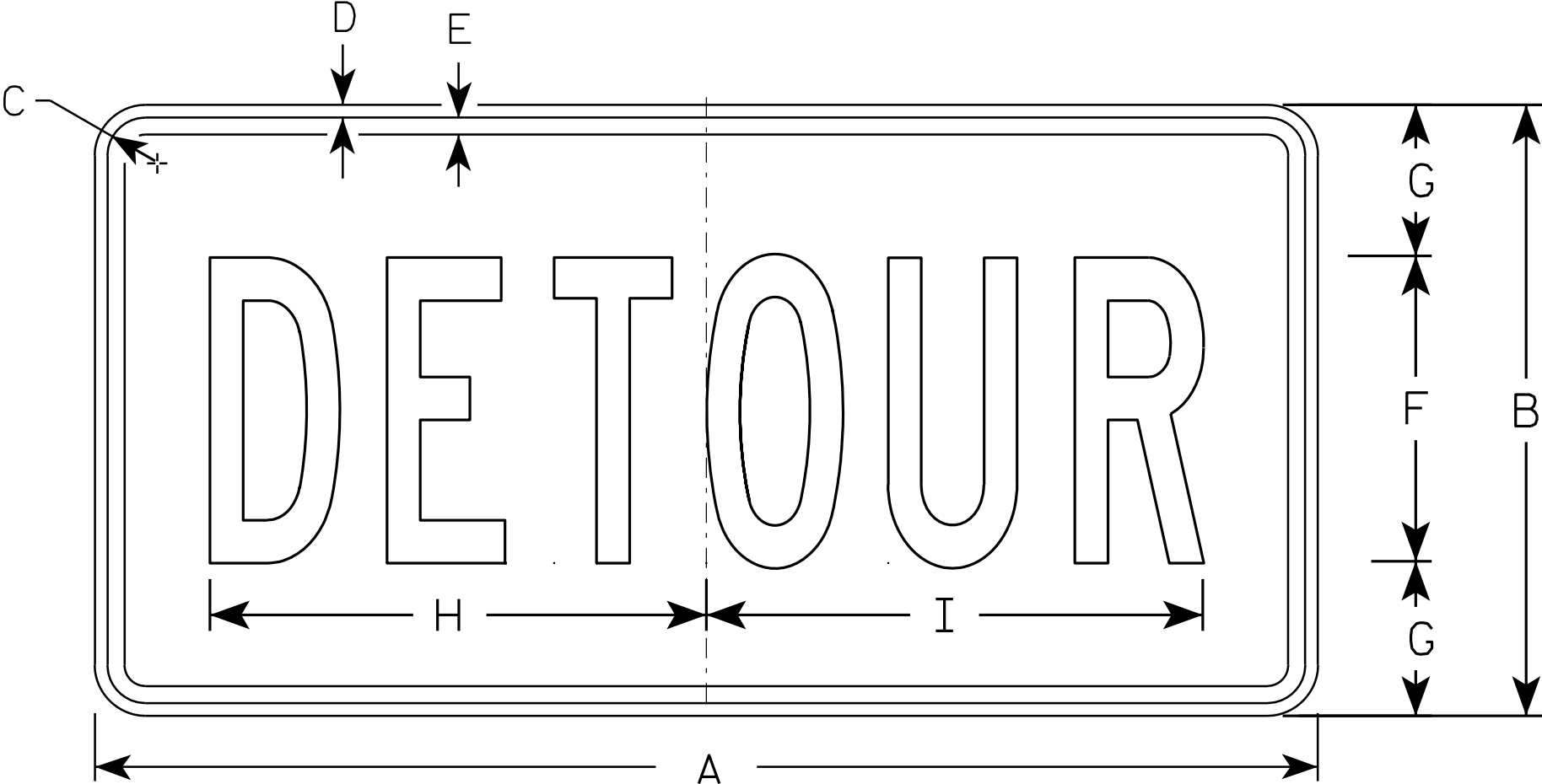
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. 116 M3-1.14

NOTES

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



M4 - 8

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Areg sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

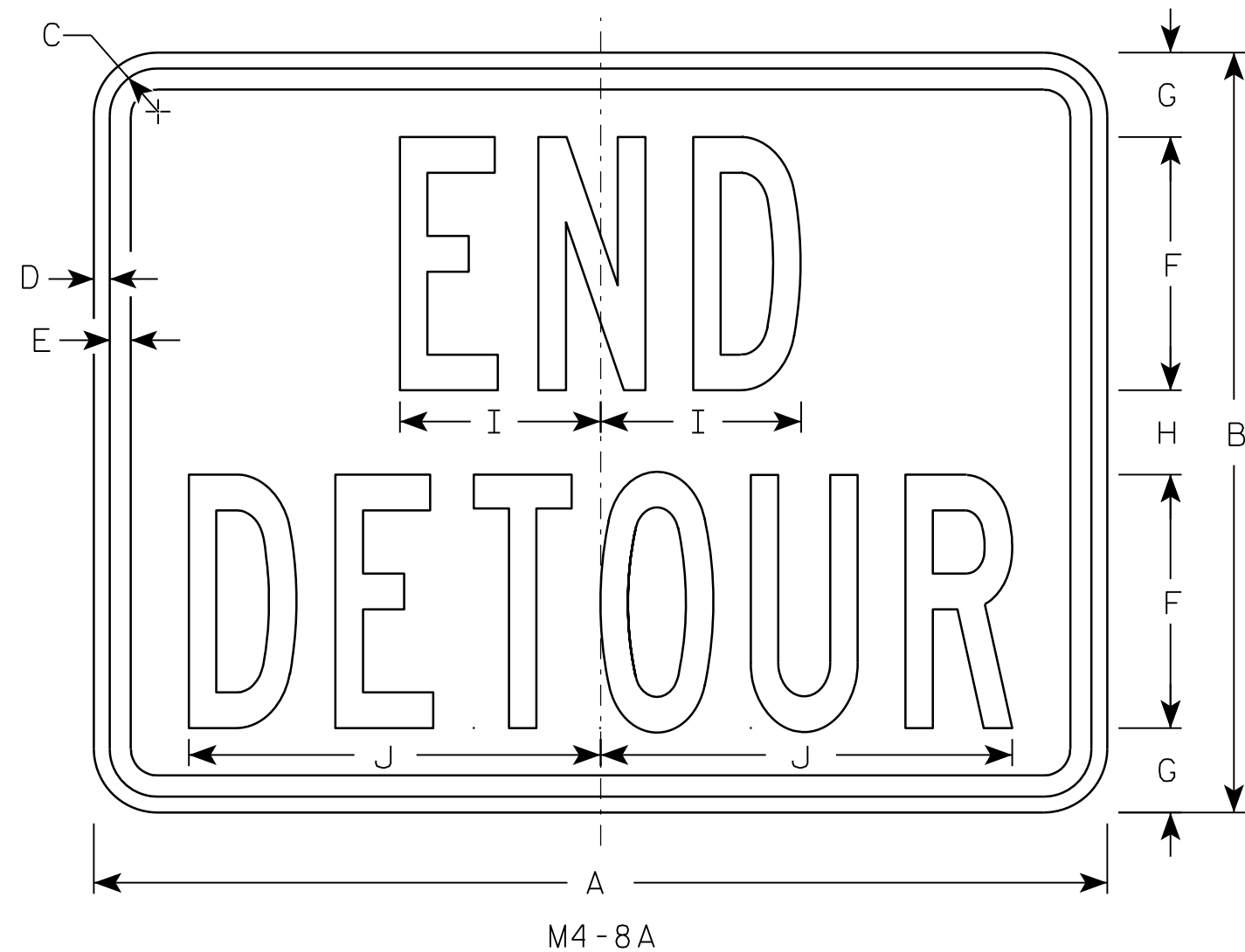
STANDARD SIGN
M4 - 8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

7



NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

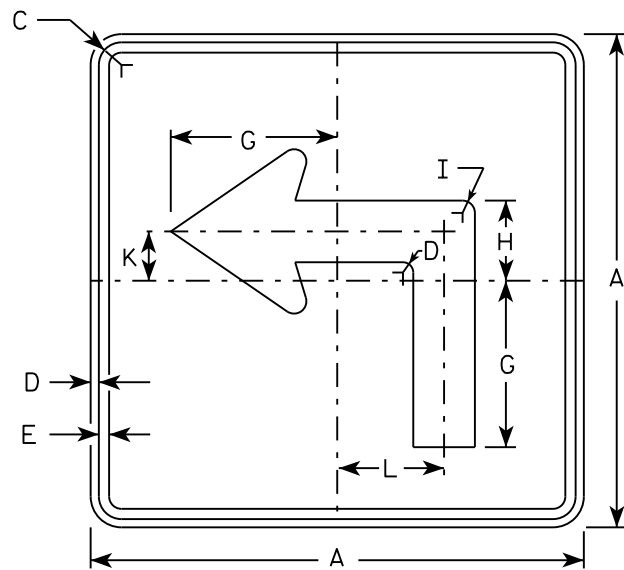
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 118	E
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STANDARD SIGN
M4-8A

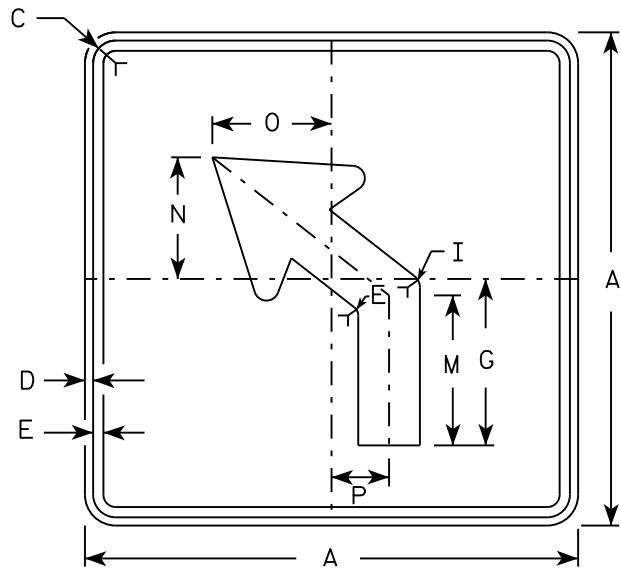
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

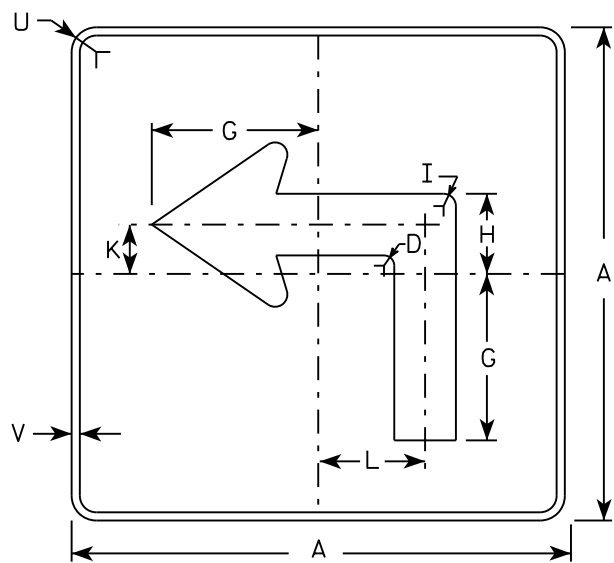
DATE 3/9/11 PLATE NO. M4-8A.2



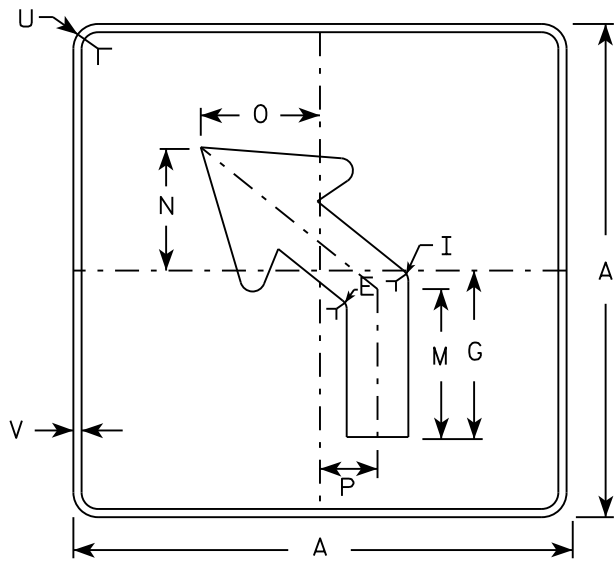
M5-1L
MM5-1L
M05-1L
MP5-1L



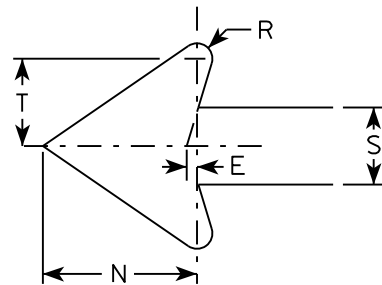
M5-2L
MM5-2L
M05-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



NOTES

- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | |
|-----------------|---|
| M5-1 and M5-2 | Background - White |
| | Message - Black |
| MB5-1 and MB5-2 | Background - Blue |
| | Message - White |
| MK5-1 and MK5-2 | Background - Green |
| | Message - White |
| MM5-1 and MM5-2 | Background - White |
| | Message - Green |
| MN5-1 and MN5-2 | Background - Brown |
| | Message - White |
| M05-1 and M05-2 | Background - Orange - Type F Reflective |
| | Message - Black |
| MP5-1 and MP5-2 | Background - White - Type H Reflective |
| | Message - Blue |
| MR5-1 and MR5-2 | Background - Brown |
| | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

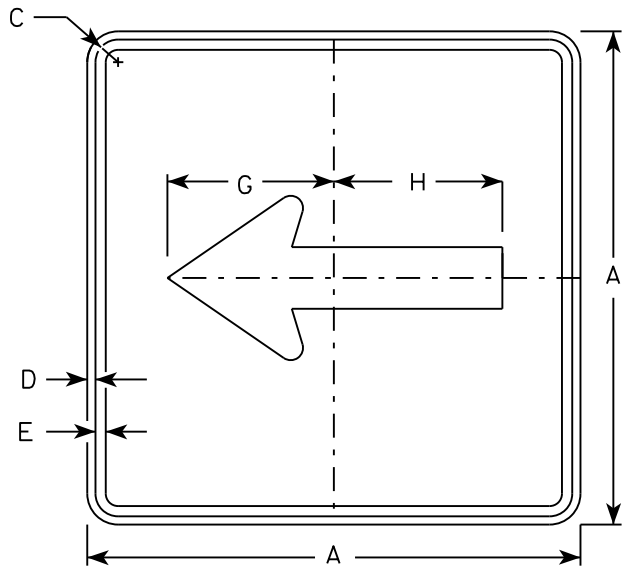
E

STANDARD SIGN
M5-1 & M5-2

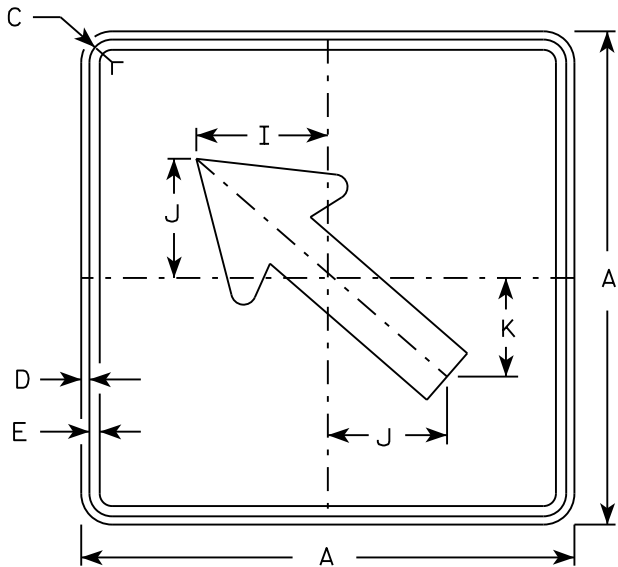
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

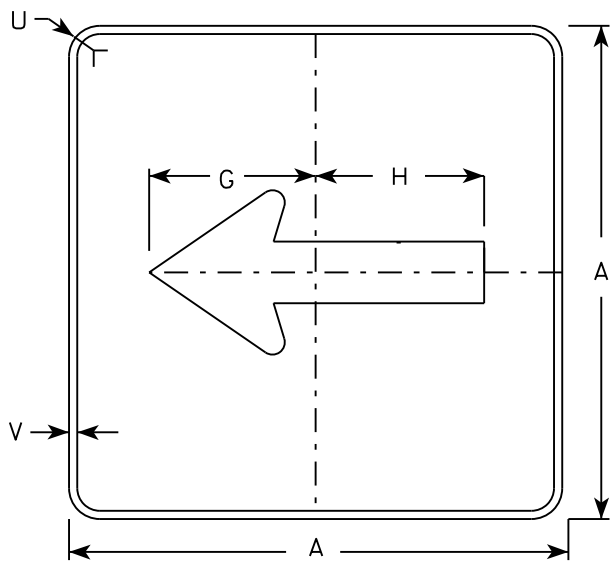
DATE 10/15/15 PLATE 119 M5-1.13



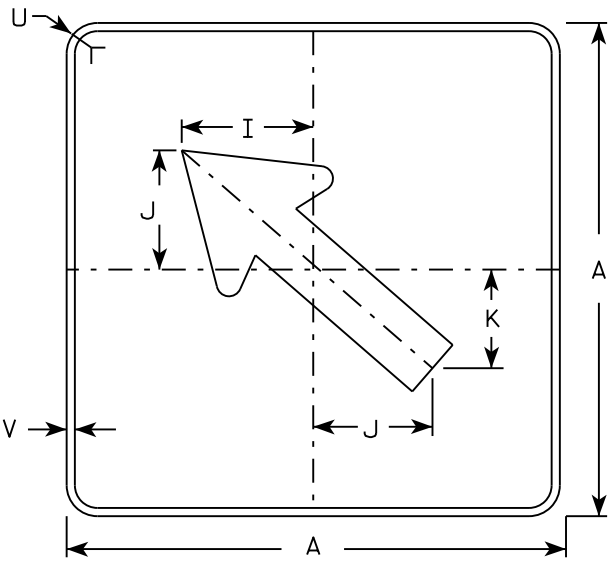
M6 - 1
MM6 - 1
M06 - 1
MP6 - 1



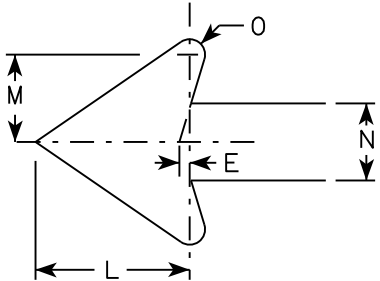
M6 - 2
MM6 - 2
M06 - 2
MP6 - 2



MB6 - 1
MK6 - 1
MN6 - 1
MR6 - 1



MB6 - 2
MK6 - 2
MN6 - 2
MR6 - 2



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

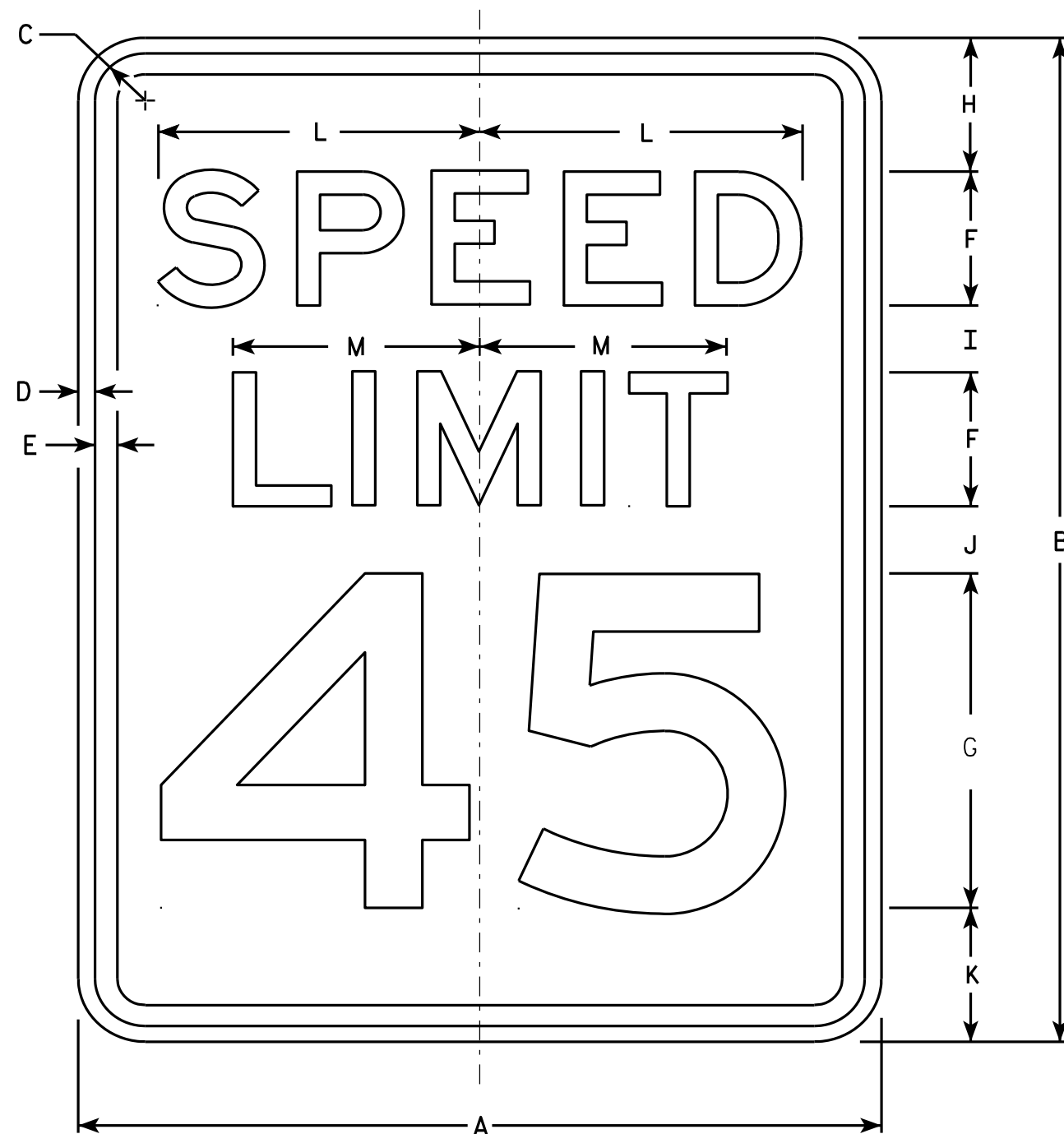
E

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLAT 120 M6-1.15



NOTES

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

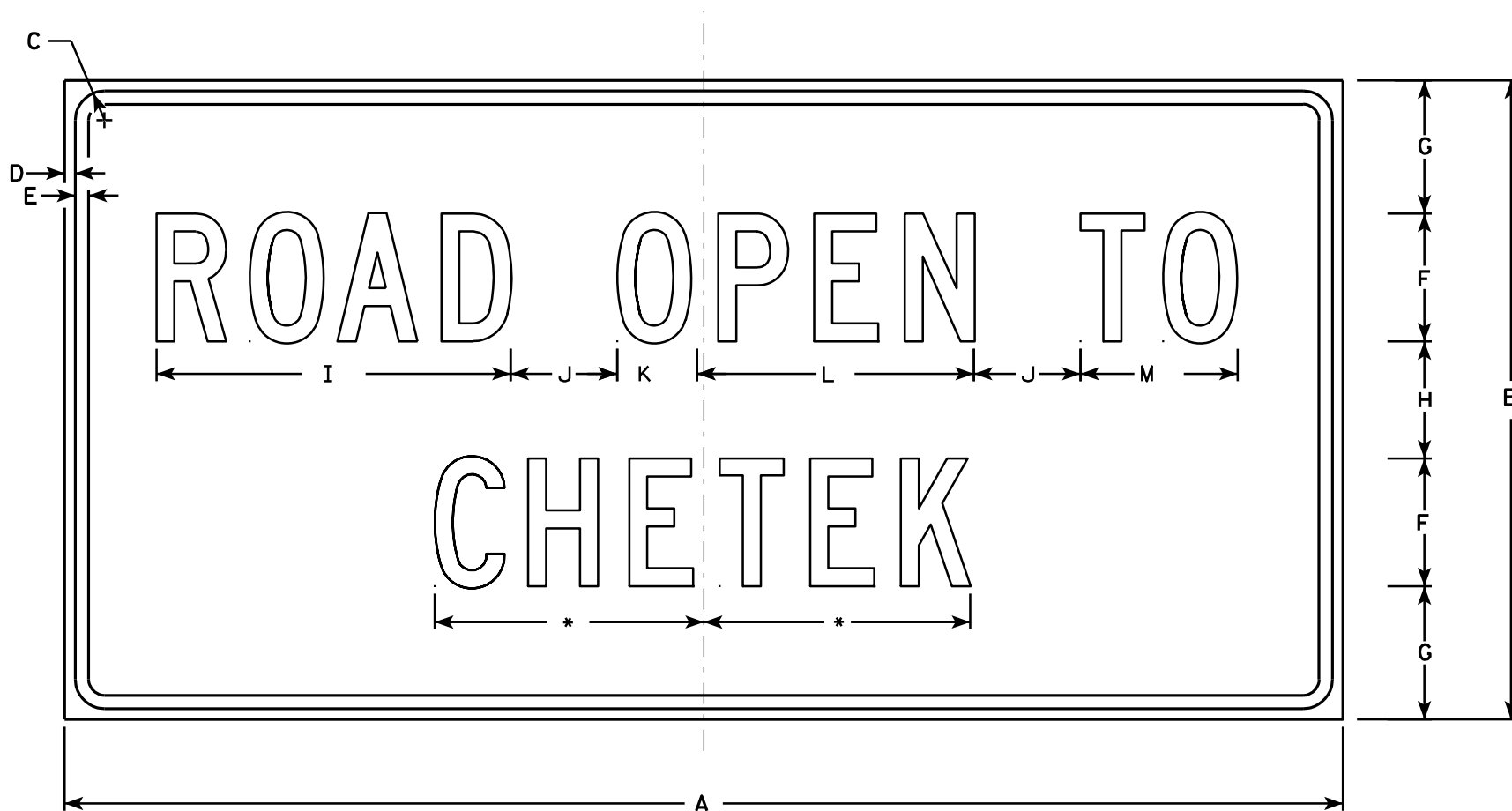
R2-1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN R2-1

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: HWY: COUNTY: SHEET NO: 121 E



R10-61

*See note 5

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 3⁄8	1⁄2	5⁄8	4	5 1⁄2	5	10 3⁄4	2	2 1⁄8	8 3⁄8	4 5⁄8														6.0
2S	60	30	1 3⁄8	1⁄2	5⁄8	6	6 1⁄4	5 1⁄2	16 5⁄8	5	3 3⁄4	13	7 3⁄8														12.5
2M	60	30	1 3⁄8	1⁄2	5⁄8	6	6 1⁄4	5 1⁄2	16 5⁄8	5	3 3⁄4	13	7 3⁄8														12.5
3																											
4																											
5																											

STANDARD SIGN R10-61	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/4/11	PLATE NO. R10-61.5

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 122	E
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R10-71



R10-71L



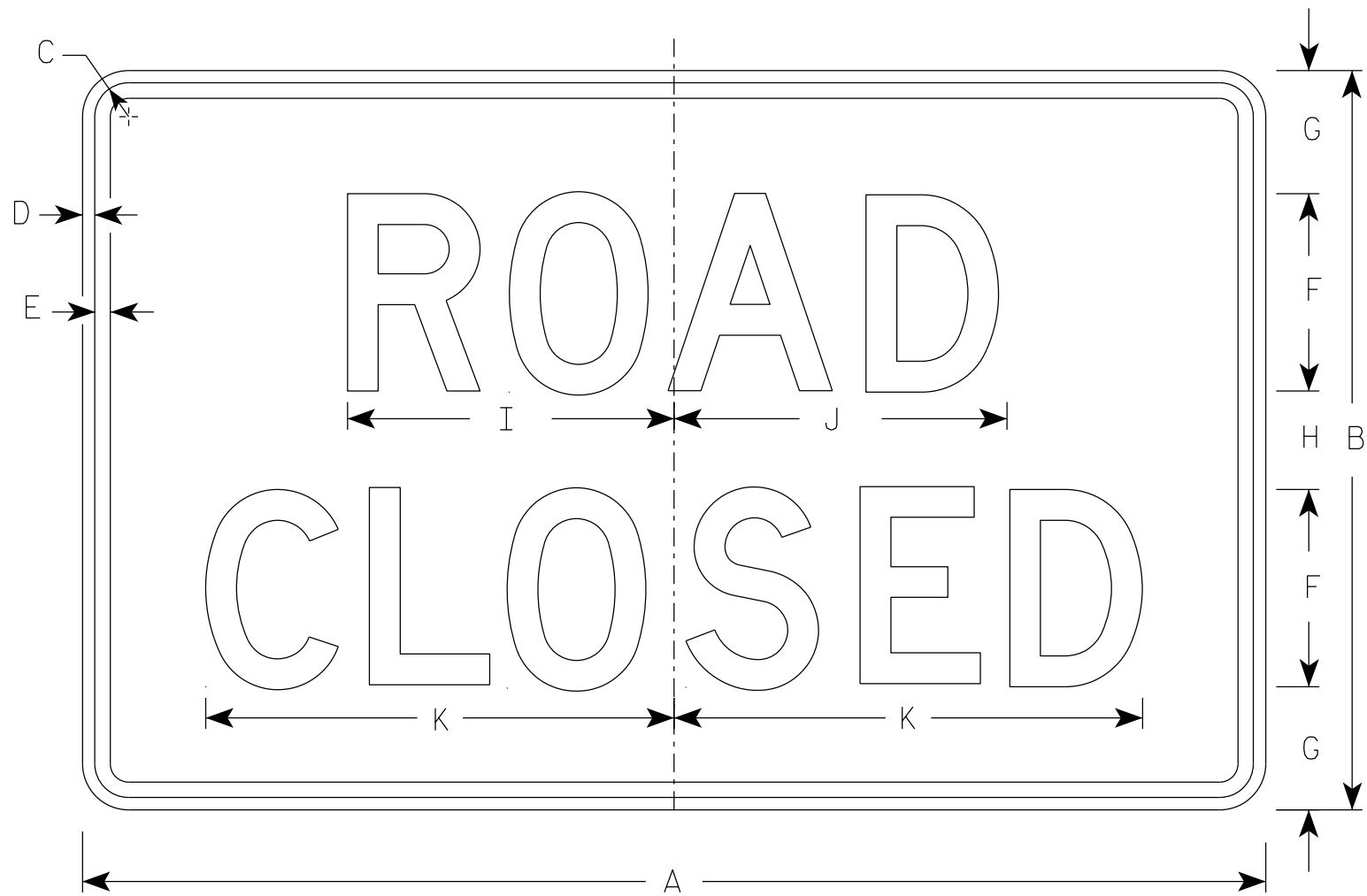
R10-71R

NOTES

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

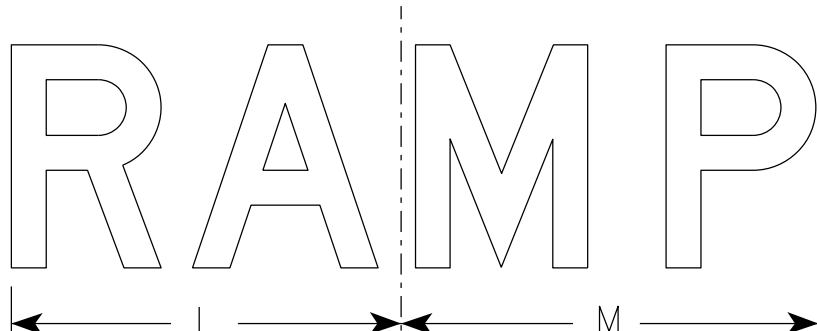
																											R10-71L&R	R10-71
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. ft.
1																												
2S	72	36	2 1/4	3/4	1	18	5	4	6	20 5/8	11 3/4	9 1/8	8 1/2	12 7/8	9 7/8	16 1/8	23 7/8	30	5 5/8	26 3/4	66	23 5/8	8 3/4	13	26 7/8	27	18.0	16.5
2M	72	36	2 1/4	3/4	1	18	5	4	6	20 5/8	11 3/4	9 1/8	8 1/2	12 7/8	9 7/8	16 1/8	23 7/8	30	5 5/8	26 3/4	66	23 5/8	8 3/4	13	26 7/8	27	18.0	16.5
3																												
4																												
5																												

STANDARD SIGN	
R10-71	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 4/4/11	PLATE NO. R10-71.3

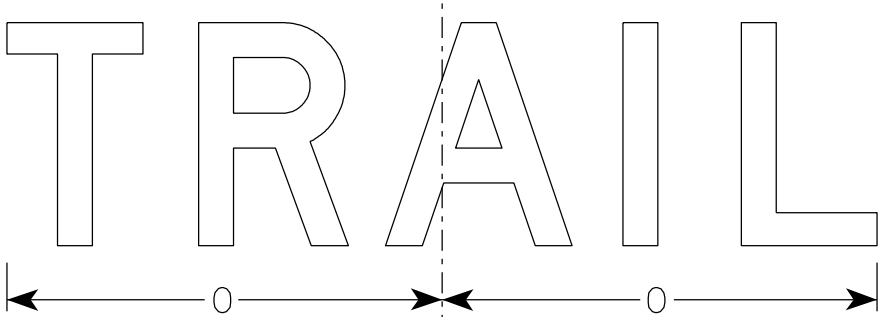


R11-2

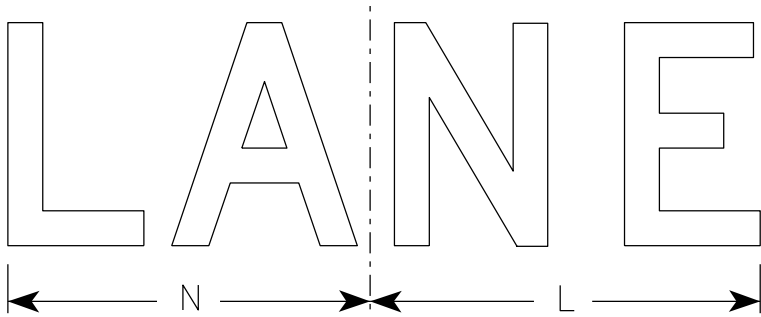
- NOTES
1. Sign is Type II - Type H Reflective
 2. Color:
Background - White
Message - Black
 3. Message Series - D
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 5. Modify the message as required.



R11-2R



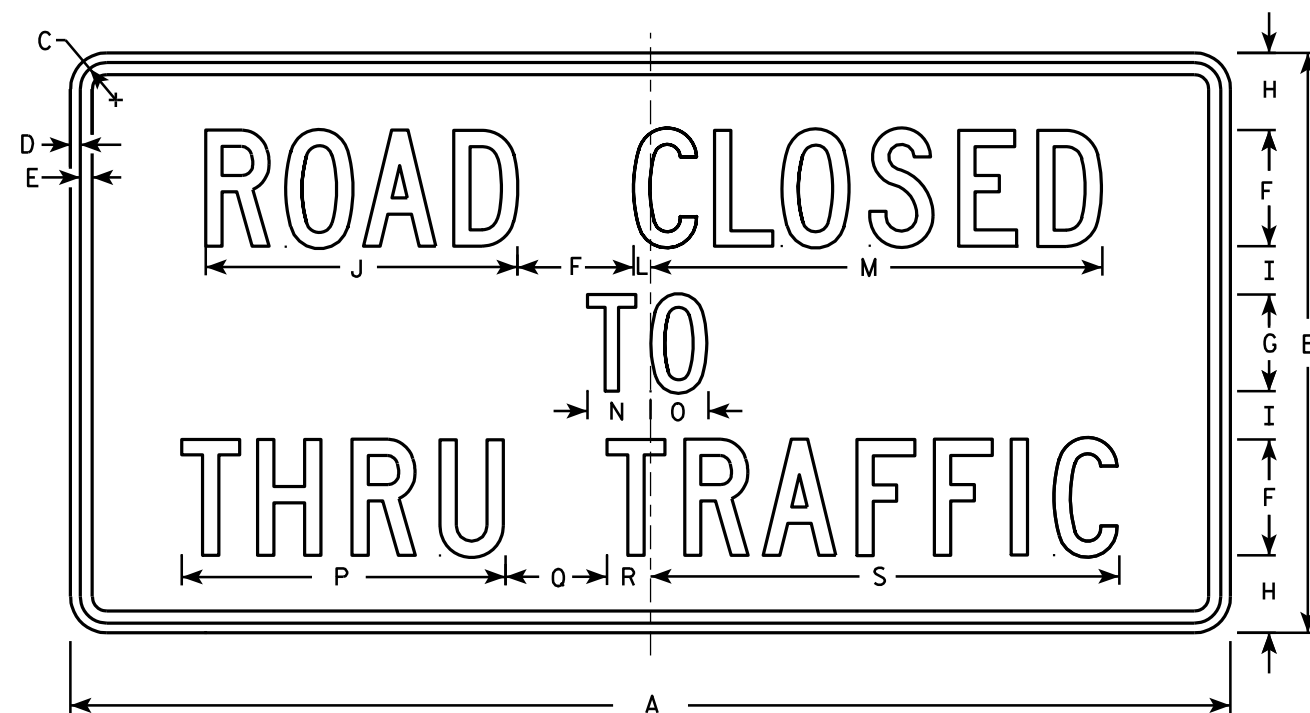
R11-2T



R11-2L

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0
2M	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0
3	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0
4	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0
5	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0

STANDARD SIGN R11-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/29/2021	PLATE NO. R11-2.11



R11-4

NOTES

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

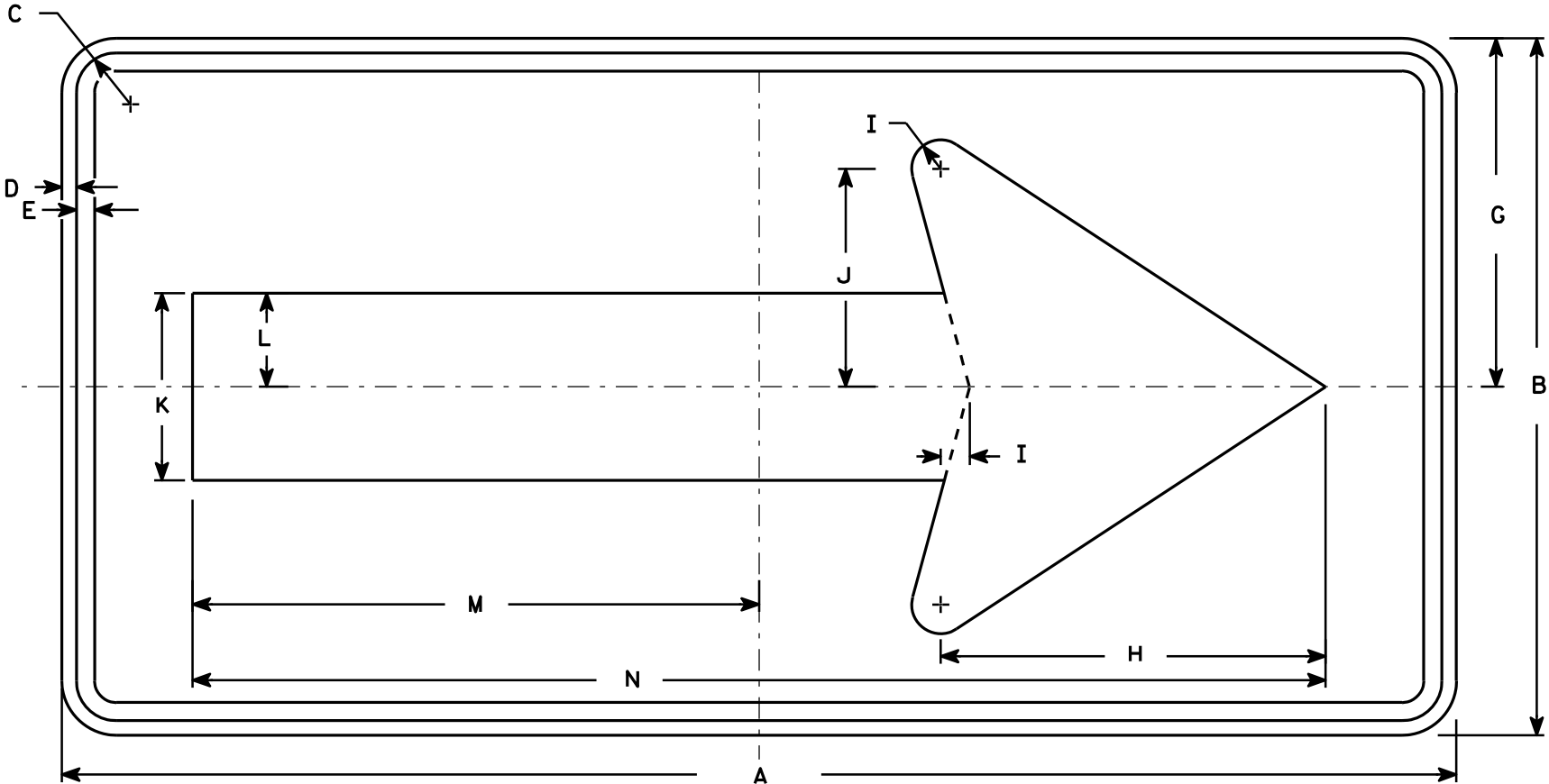
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	30	1 3⁄8	½	5⁄8	6	5	4	2 ½	16 ⅛		7⁄8	23 3⁄8	3 ¼	3	16 ¾	5 ¼	2 ¼	24 ¼								12.5
2M	60	30	1 3⁄8	½	5⁄8	6	5	4	2 ½	16 ⅛		7⁄8	23 3⁄8	3 ¼	3	16 ¾	5 ¼	2 ¼	24 ¼								12.5
3																											
4																											
5																											

STANDARD SIGN	
R11 - 4	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 4/1/11	PLATE NO. R11-4.3

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 125		E
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NOTES

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



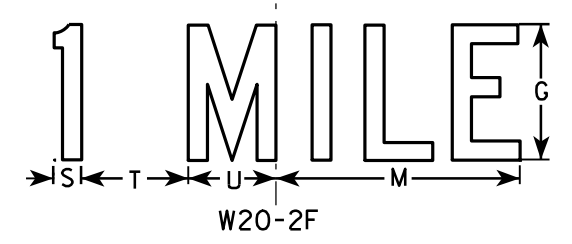
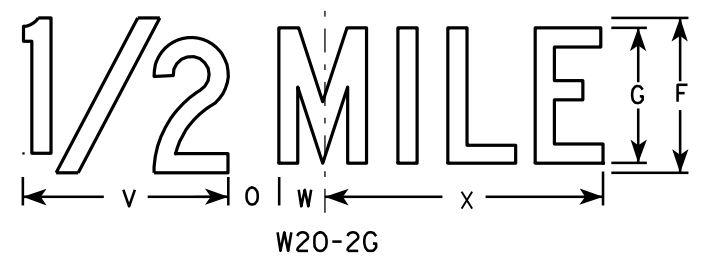
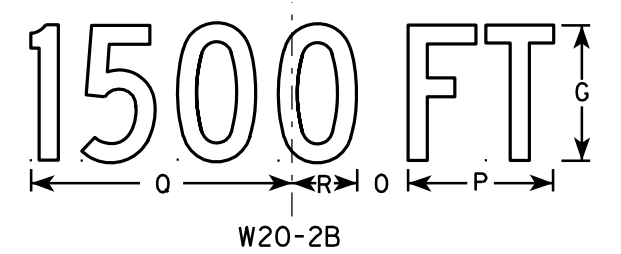
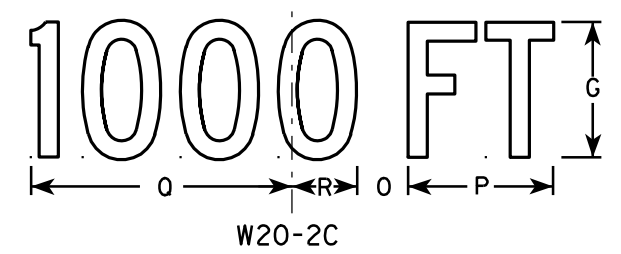
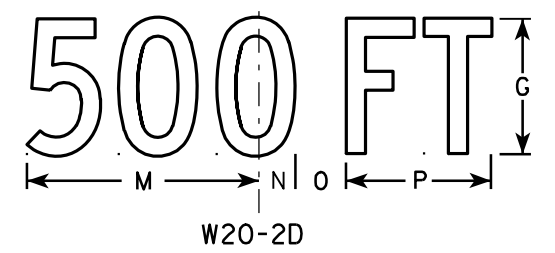
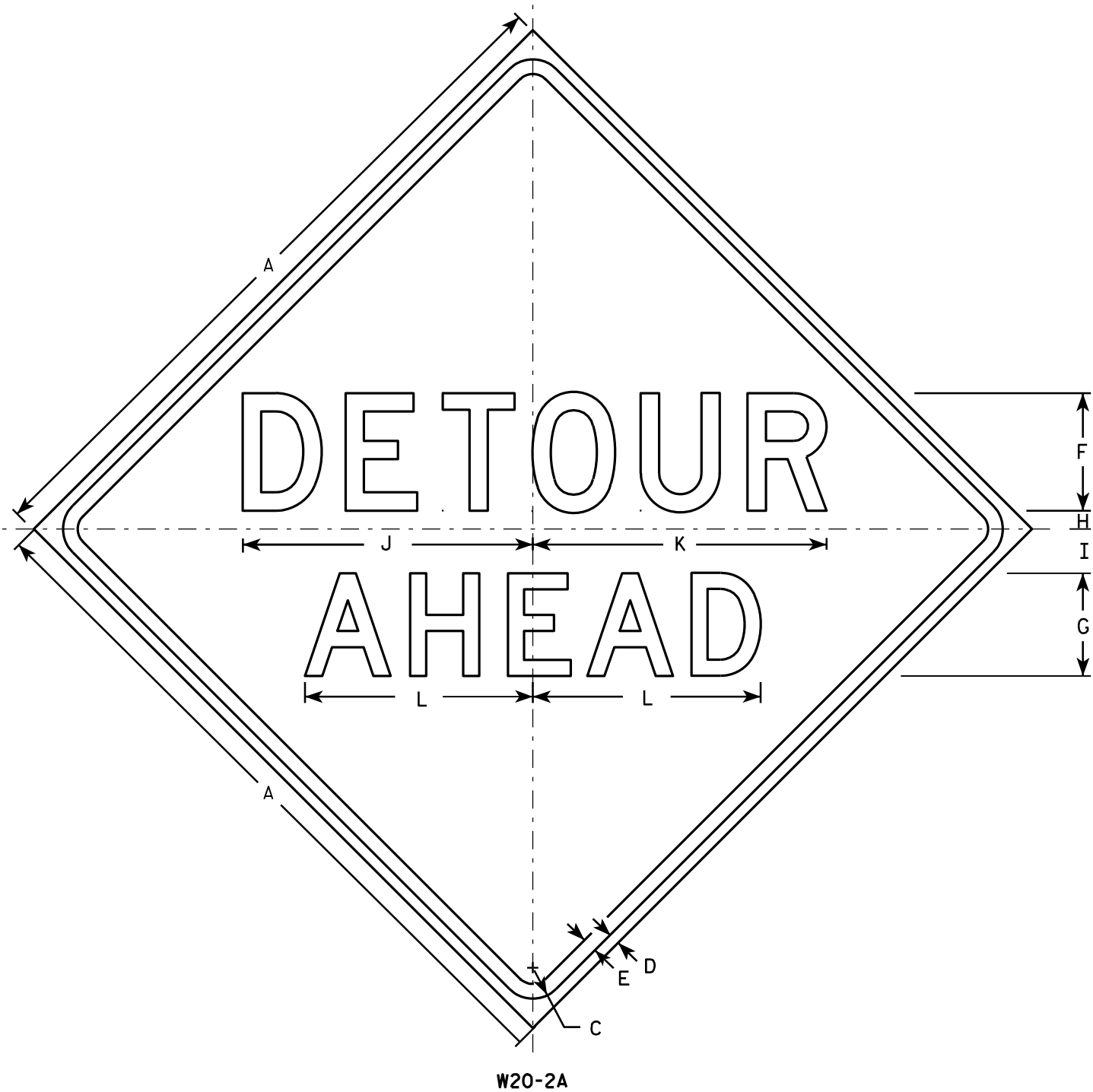
W1-6

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	3/8		9	10	3/4	5 5/8	4 3/4	2 3/8	14 5/8	29 1/4													4.5
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	96	48	2 1/4	3/4	1		24	26 1/2	2	15	13	6 1/2	39	78													32.0

STANDARD SIGN
W1-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/7/10 PLATE NO. W1-6.8



NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - See note 5
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN
W20-2A,B,C,D,F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

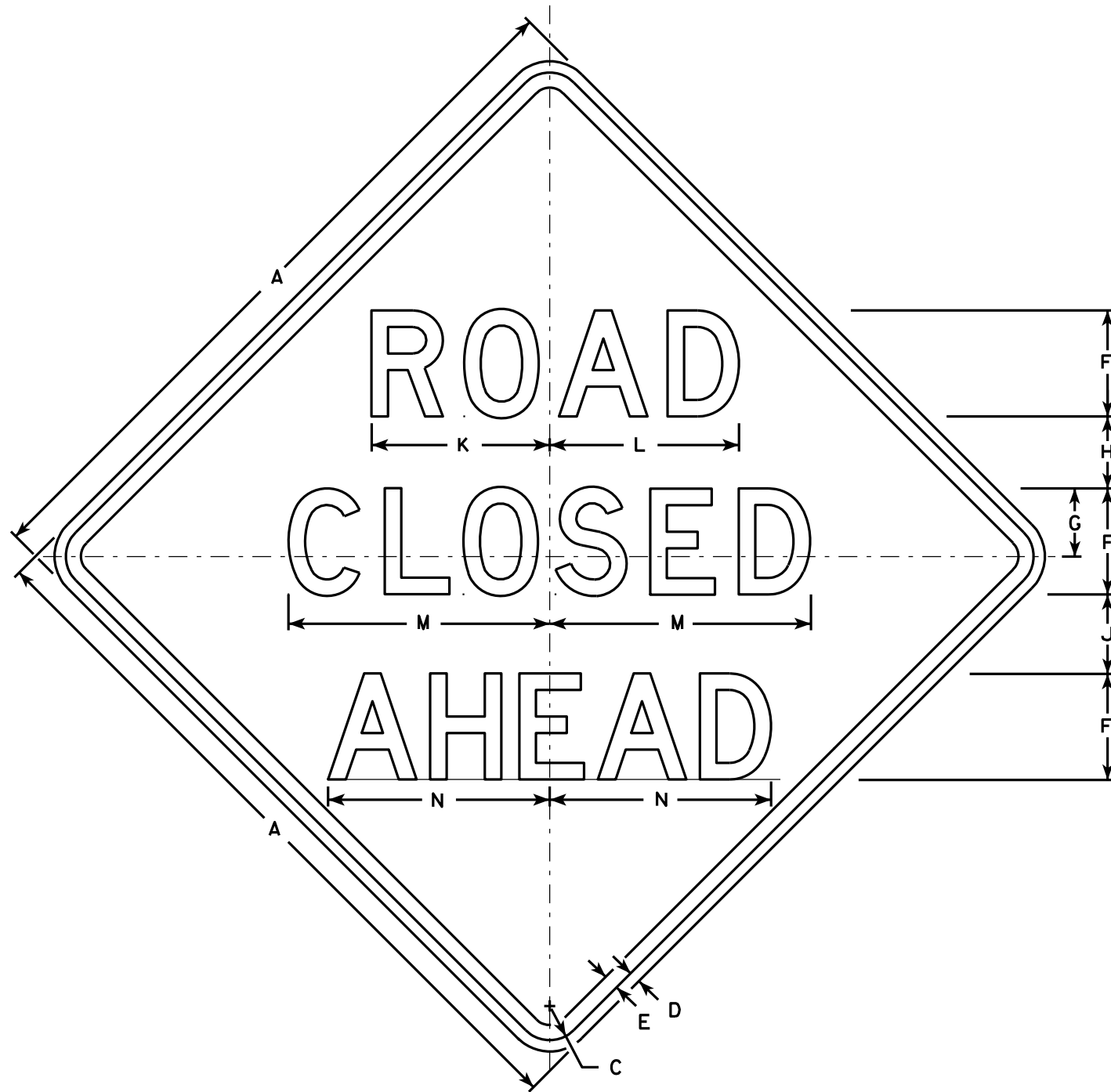
PROJECT NO:

HWY:

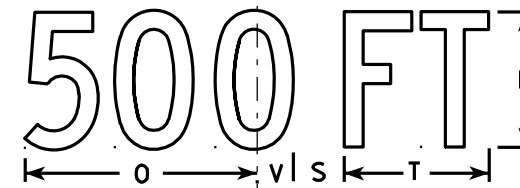
COUNTY:

SHEET NO: 127

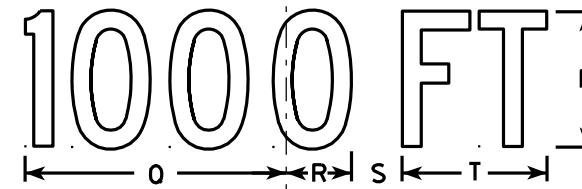
E



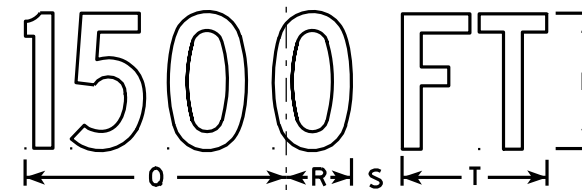
W20-3A



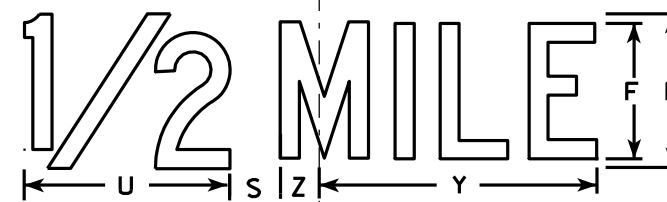
W20-3D



W20-3C



W20-3B



W20-3G



W20-3F

NOTES

- Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Orange
Message - Black
- Message Series - see note 5
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 128

E

MGS 1

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
311+59.21	0.00	13.81	0.00	5.75	0	0	0	0	0	0
311+79.376	20.17	56.58	13.75	16.32	26	5	8	26	10	11
311+81.628	2.25	61.42	13.75	13.54	5	1	1	31	11	14
311+84.655	3.03	62.65	13.75	11.79	7	2	1	38	13	18
312+00	15.35	12.58	0.00	9.31	21	4	6	59	20	27
312+50	50.00	13.79	0.00	0.32	24	0	9	83	31	40
312+77.668	27.67	14.18	0.00	0.20	14	0	0	97	31	54
313+00	22.33	14.80	0.00	0.00	12	0	0	109	31	66
313+02.65	2.65	14.58	0.00	0.00	1	0	0	110	31	67
313+27.65	25.00	12.95	0.00	0.00	13	0	0	123	31	80
313+50	22.35	12.82	0.00	0.00	11	0	0	134	31	91
314+00	50.00	12.62	0.00	0.00	24	0	0	158	31	115
314+50	50.00	10.39	0.00	0.59	21	0	1	179	33	135
315+00	50.00	8.12	0.00	7.04	17	0	7	196	41	143
315+50	50.00	8.15	0.00	3.01	15	0	9	211	53	147
316+50	100.00	0.28	0.00	7.43	16	0	19	227	76	139
317+00	50.00	4.11	0.00	2.06	4	0	9	231	88	132
317+50	50.00	4.12	0.00	1.19	8	0	3	239	91	136
318+00	50.00	3.61	0.00	1.76	7	0	3	246	95	139
318+45.708	45.71	5.64	0.00	0.17	8	0	2	254	98	145
318+50	4.29	5.97	0.00	0.33	1	0	0	255	98	146
318+70.246	20.25	6.33	0.00	3.42	5	0	1	260	99	149
318+94.776	24.53	1.87	0.00	2.55	4	0	3	264	103	150
319+00	5.22	1.99	0.00	1.53	0	0	0	264	103	150
319+50	50.00	1.15	0.00	0.08	3	0	1	267	104	151
320+00	50.00	1.76	0.00	0.00	3	0	0	270	104	154
320+10.98	10.98	1.75	0.00	0.00	1	0	0	271	104	155
Column totals					271	12	83			

MGS 2										
STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
350+76.215	0.00	0.88	0.00	0.00	0	0	0	0	0	0
351+00	23.79	0.92	0.00	0.00	1	0	0	1	0	1
351+50	50.00	16.17	0.00	0.43	16	0	0	17	0	17
351+67.221	17.22	15.73	0.00	0.51	10	0	0	27	0	27
351+90.484	23.26	15.09	0.00	1.81	13	0	1	40	1	39
352+00	9.52	14.03	0.00	0.57	5	0	0	45	1	44
352+15.495	15.49	12.92	0.00	0.22	8	0	0	53	1	52
353+00	84.51	12.54	0.00	0.00	40	0	0	93	1	92
353+50	50.00	13.29	0.00	0.06	24	0	0	117	1	116
353+70.086	20.09	13.99	0.00	0.00	10	0	0	127	1	126
353+97.335	27.25	17.07	0.00	0.00	16	0	0	143	1	142
354+00	2.67	17.27	0.00	0.00	2	0	0	145	1	144
354+22.378	22.38	17.23	0.00	0.12	14	0	0	159	1	158
354+50	27.62	7.24	0.00	0.00	13	0	0	172	1	171
355+00	50.00	19.68	0.00	0.00	25	0	0	197	1	196
355+03.504	3.50	21.58	0.00	0.00	3	0	0	200	1	199
Column totals					200	0	1			

CULVERT 3 & 4										
STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
409+29.192	0.00	67.09	13.75	0.00	0	0	0	0	0	0
409+31.573	2.38	66.50	13.75	0.01	6	1	0	6	0	5
409+36.94	5.37	65.36	13.75	0.03	13	3	0	19	0	15
409+40.431	3.49	64.82	13.75	0.01	8	2	0	27	0	21
409+42.816	2.38	64.47	13.75	0.04	6	1	0	33	0	26
Column totals					33	7	0			

CULVERT 6

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
456+36.881	0.00	55.38	13.75	0.42	0	0	0	0	0	0
456+39.793	2.91	55.30	13.75	0.26	6	1	0	6	0	5
456+42.653	2.86	54.73	13.75	0.77	6	1	0	12	0	10
Column totals					12	2	0			

MGS 3 & 4

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
472+42.877	0.00	13.52	0.00	0.00	0	0	0	0	0	0
472+50	7.12	12.40	0.00	0.00	3	0	0	3	0	3
472+62.376	12.38	28.72	0.00	0.29	9	0	0	12	0	12
473+00	37.62	29.31	0.00	1.44	40	0	1	52	1	51
473+50	50.00	29.64	0.00	10.94	55	0	11	107	15	92
473+61.327	11.33	29.72	0.00	18.12	12	0	6	119	23	97
473+80.698	19.37	30.51	0.00	14.45	22	0	12	141	38	104
473+86.317	5.62	30.86	0.00	11.23	6	0	3	147	41	106
474+00	13.68	31.24	0.00	3.65	16	0	4	163	46	117
474+05.688	5.69	31.29	0.00	1.65	7	0	1	170	48	123
474+11.319	5.63	31.22	0.00	0.95	7	0	0	177	48	130
474+30.646	19.33	29.53	0.00	1.69	22	0	1	199	49	150
474+50	19.35	28.87	0.00	1.78	21	0	1	220	50	170
475+00	50.00	28.51	0.00	0.01	53	0	2	273	53	221
475+50	50.00	27.11	0.00	0.52	52	0	0	325	53	273
476+00	50.00	27.49	0.00	0.59	51	0	1	376	54	322
476+50	50.00	28.18	0.00	1.28	52	0	2	428	56	372
477+00	50.00	27.47	0.00	2.06	52	0	3	480	60	420
477+50	50.00	30.16	0.00	0.50	53	0	2	533	63	471
478+00	50.00	29.32	0.00	0.21	55	0	1	588	64	524
478+50	50.00	29.03	0.00	0.18	54	0	0	642	64	578
479+00	50.00	27.94	0.00	0.38	53	0	1	695	65	630
479+21.026	21.03	28.77	0.00	0.35	22	0	0	717	65	652
479+46.049	25.02	28.88	0.00	5.48	27	0	3	744	69	675
479+50	3.95	29.05	0.00	5.14	4	0	1	748	70	678
479+70.796	20.80	33.53	0.00	0.03	24	0	2	772	73	700
480+00	29.20	32.70	0.00	0.00	36	0	0	808	73	736
480+50	50.00	28.97	0.00	0.00	57	0	0	865	73	793
480+88.62	38.62	42.89	0.00	0.00	51	0	0	916	73	844
481+00	11.38	11.62	0.00	0.00	11	0	0	927	73	855
481+50	50.00	12.07	0.00	0.00	22	0	0	949	73	877
481+96.008	46.01	12.51	0.00	0.00	21	0	0	970	73	898
482+00	3.99	12.49	0.00	0.00	2	0	0	972	73	900
482+21.129	21.13	13.39	0.00	0.31	10	0	0	982	73	910
482+46.26	25.13	12.35	0.00	0.93	12	0	1	994	74	920
482+50	3.74	12.19	0.00	0.69	2	0	0	996	74	922
483+00	50.00	19.43	0.00	0.45	29	0	1	1,025	75	950
483+20	20.00	22.78	0.00	0.00	16	0	0	1,041	75	966
Column totals					1041	0	60			

CULVERT 8

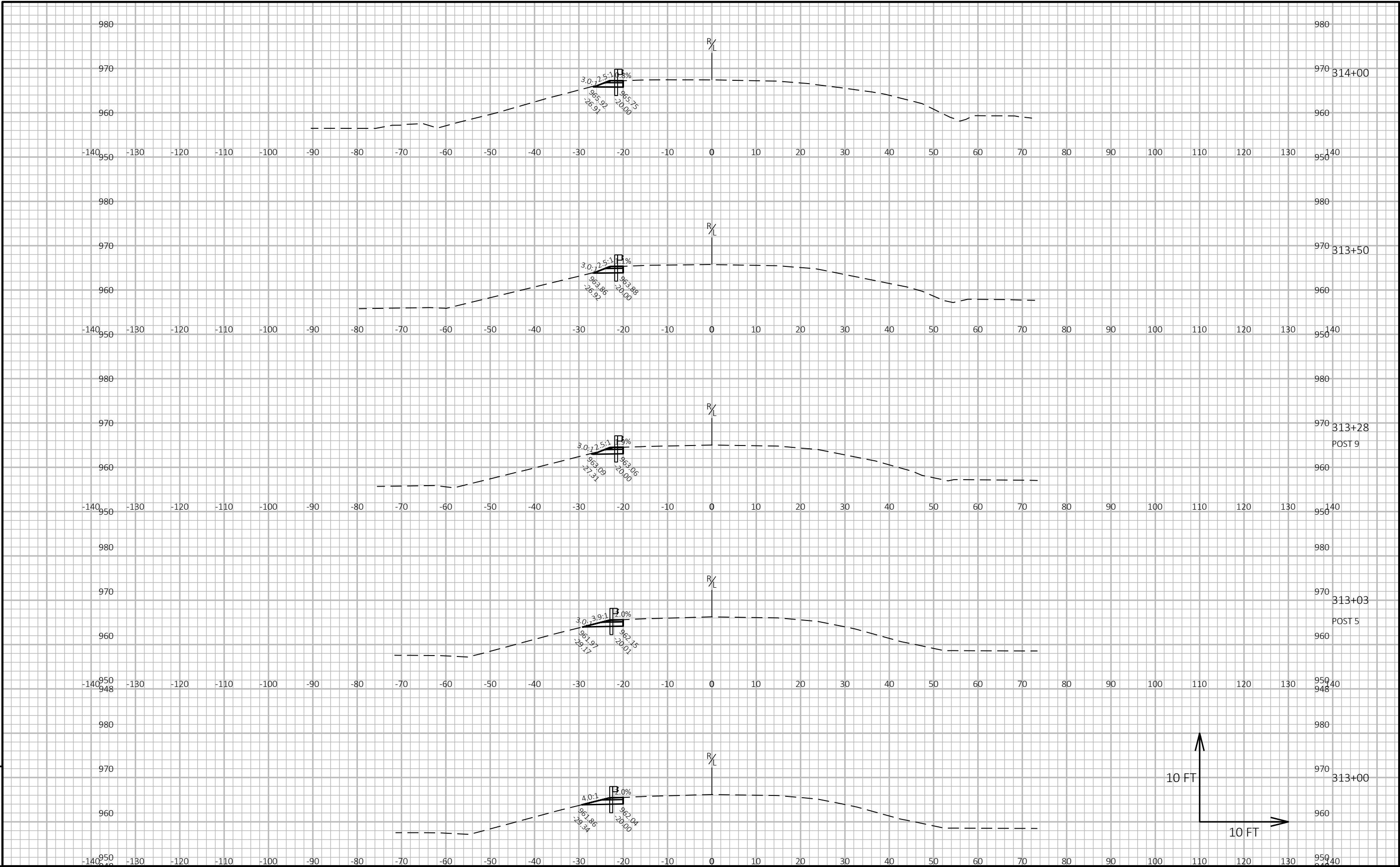
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		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
485+29.803	0.00	68.65	13.75	0.19	0	0	0	0	0	0
485+31.807	2.00	68.57	13.75	0.22	5	1	0	5	0	4
485+33.804	2.00	68.46	13.75	0.24	5	1	0	10	0	8
Column totals					10	2	0			

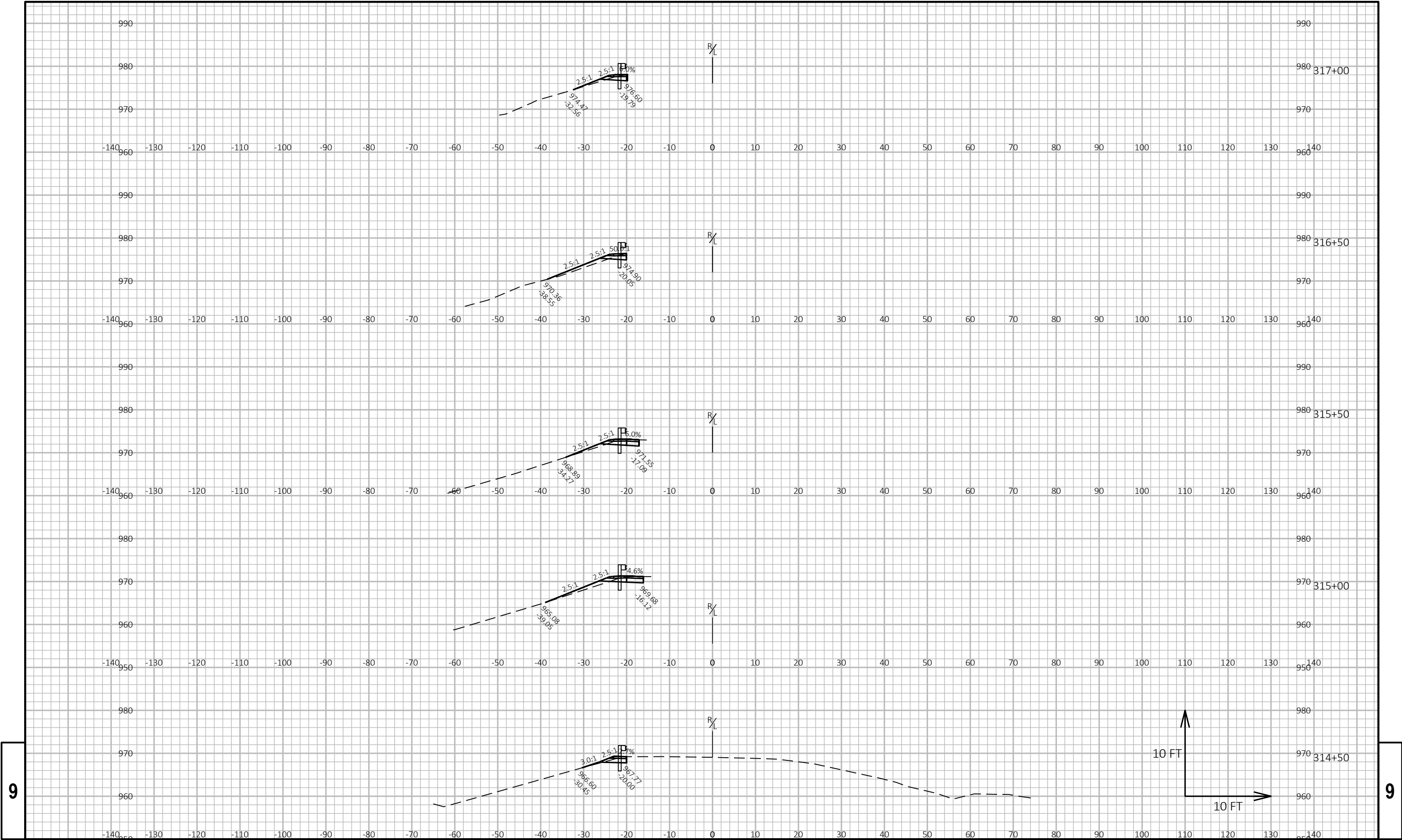
CULVERT 10

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
						NOTE 1	NOTE 2	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
515+83.712	51583.71	0.00	75.93	0.00	0.26	0	0	0	0	0	0
515+84.00	51584.00	0.29	76.06	13.75	0.27	1	0	0	1	0	1
515+86.042	51586.04	2.04	76.06	13.75	0.27	6	1	0	7	0	6
515+88	51588.00	1.96	76.06	13.75	0.27	6	1	0	13	0	11
515+88.36	51588.36	0.36	75.92	0.00	0.27	1	0	0	8	0	12
Column totals						14	2	0			

MGS 5

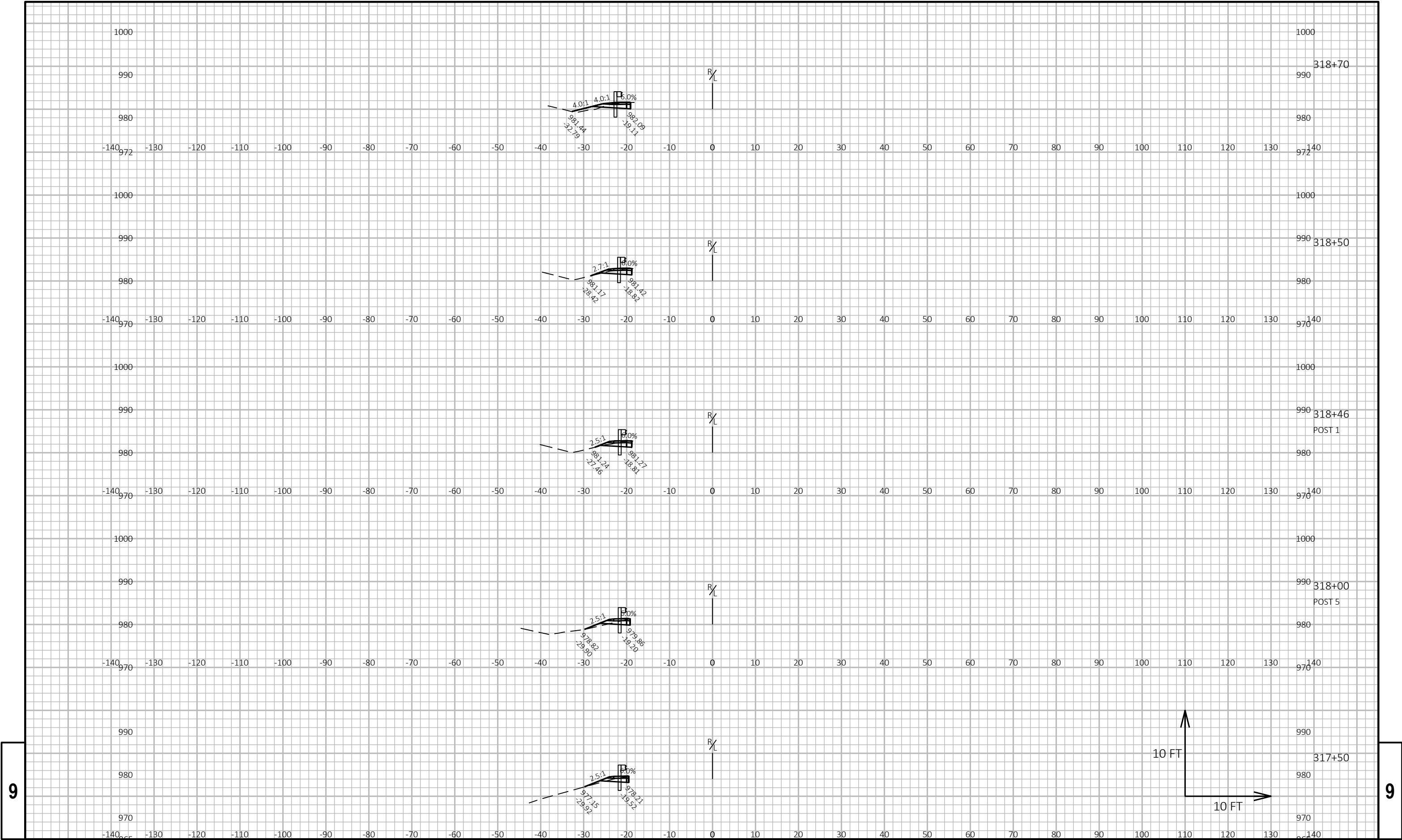
STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
588+60.954	0.00	10.79	0.00	0.00	0	0	0	0	0	0
589+00	39.05	10.19	0.00	0.00	15	0	0	15	0	15
589+50	50.00	10.86	0.00	1.67	19	0	2	34	3	32
589+77.651	27.65	10.11	0.00	5.14	11	0	3	45	6	39
590+00	22.35	10.77	0.00	6.40	9	0	5	54	13	42
590+02.284	2.28	10.77	0.00	6.13	1	0	1	55	14	41
590+26.918	24.63	11.23	0.00	1.31	10	0	3	65	18	48
590+50	23.08	11.66	0.00	0.00	10	0	1	75	19	56
591+00	50.00	11.06	0.00	0.00	21	0	0	96	19	77
591+50	50.00	9.99	0.00	3.26	19	0	3	115	23	93
592+00	50.00	9.84	0.00	2.20	18	0	5	133	29	104
592+50	50.00	9.19	0.00	3.45	18	0	5	151	35	116
593+00	50.00	8.18	0.00	5.21	16	0	8	167	45	122
593+50	50.00	8.40	0.00	5.24	15	0	10	182	58	125
594+00	50.00	9.54	0.00	2.60	17	0	7	199	66	133
594+50	50.00	11.41	0.00	2.57	19	0	5	218	73	146
595+00	50.00	11.54	0.00	1.31	21	0	4	239	78	162
595+50	50.00	15.38	0.00	0.00	25	0	1	264	79	185
595+75.896	25.90	14.82	0.00	0.20	14	0	0	278	79	199
596+00	24.10	12.33	0.00	0.62	12	0	0	290	79	211
596+00.895	0.89	12.28	0.00	0.71	0	0	0	290	79	211
596+25.895	25.00	13.03	0.00	0.37	12	0	0	302	79	223
596+50	24.11	12.52	0.00	0.02	11	0	0	313	79	234
597+00	50.00	11.63	0.00	0.00	22	0	0	335	79	256
597+44.503	44.50	9.89	0.00	0.00	18	0	0	353	79	274
Column totals					353	0	63			





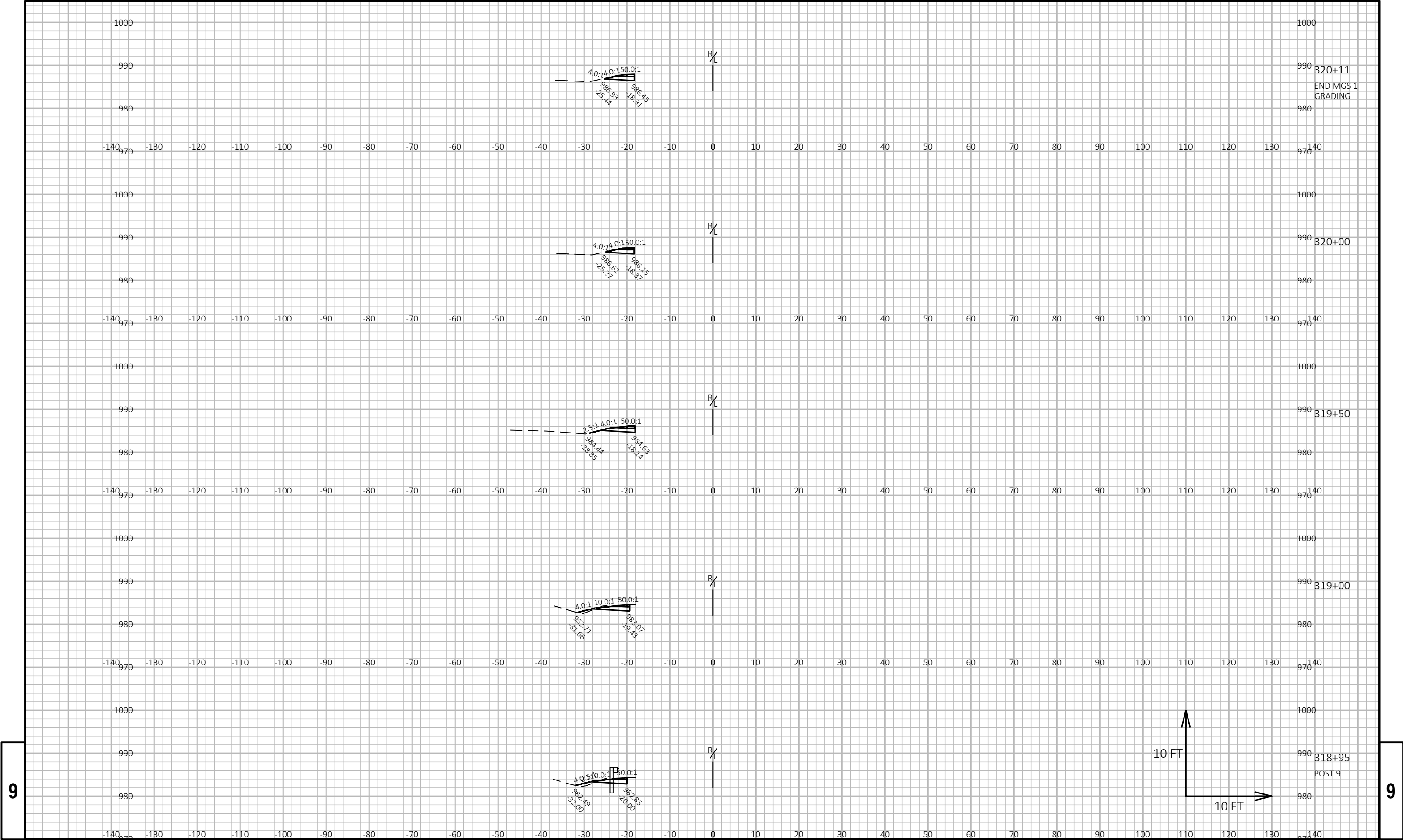
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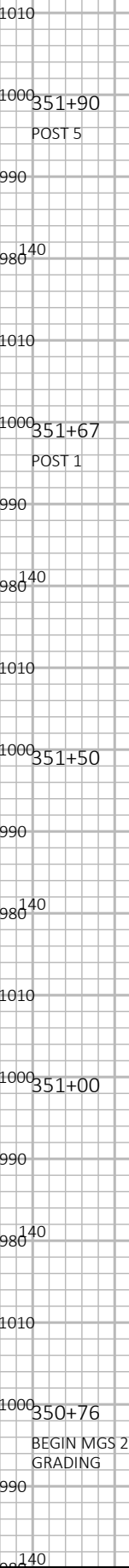
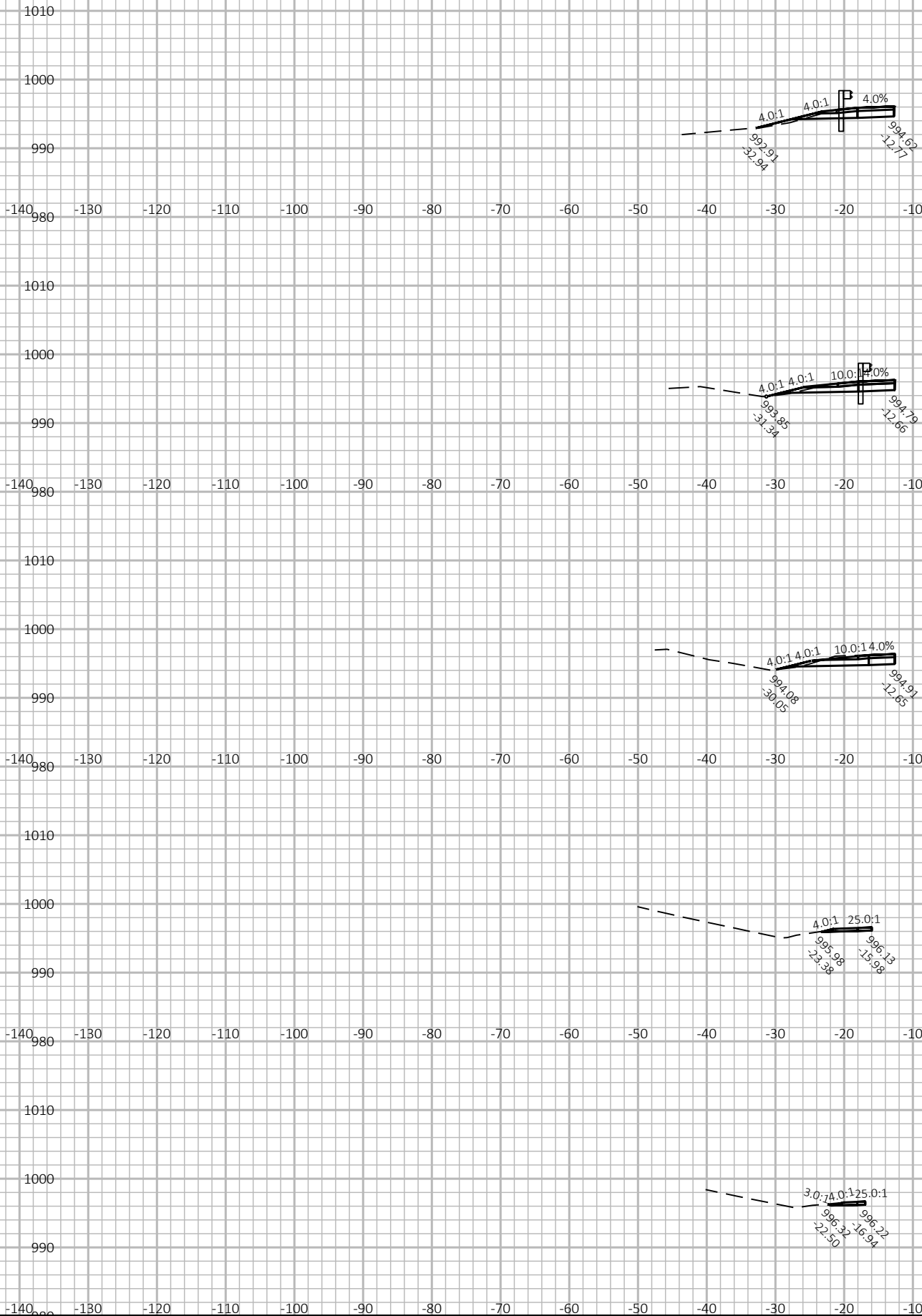
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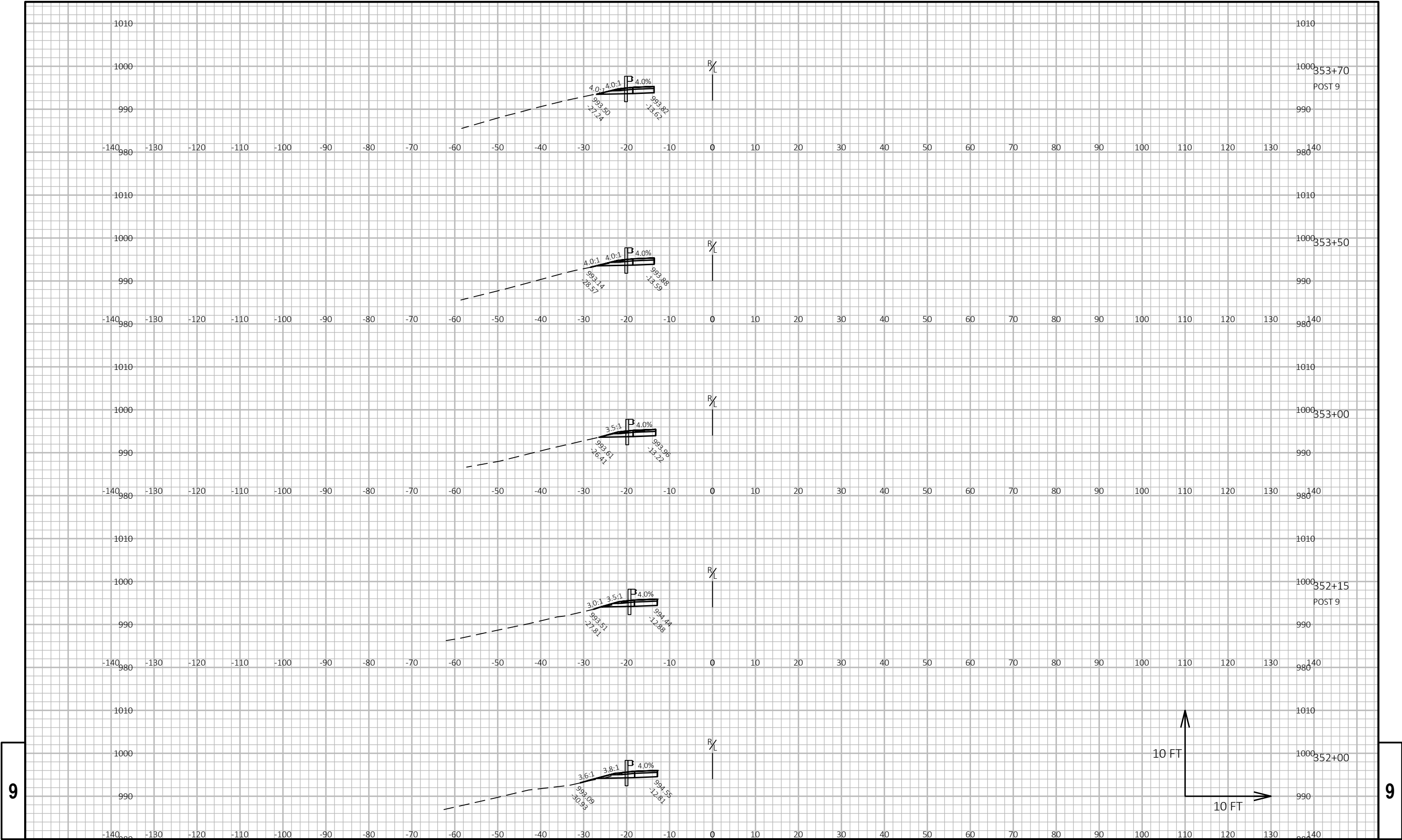
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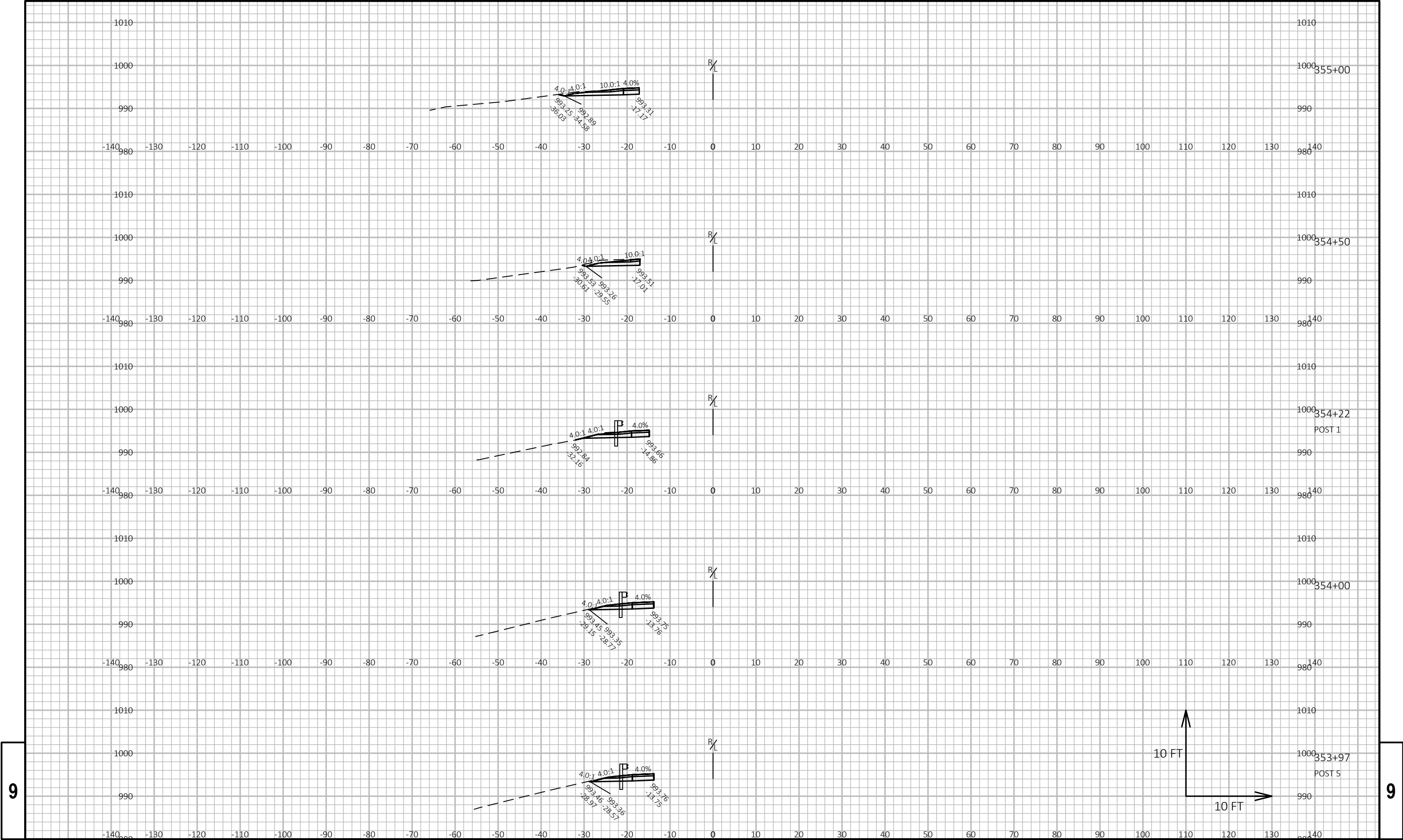


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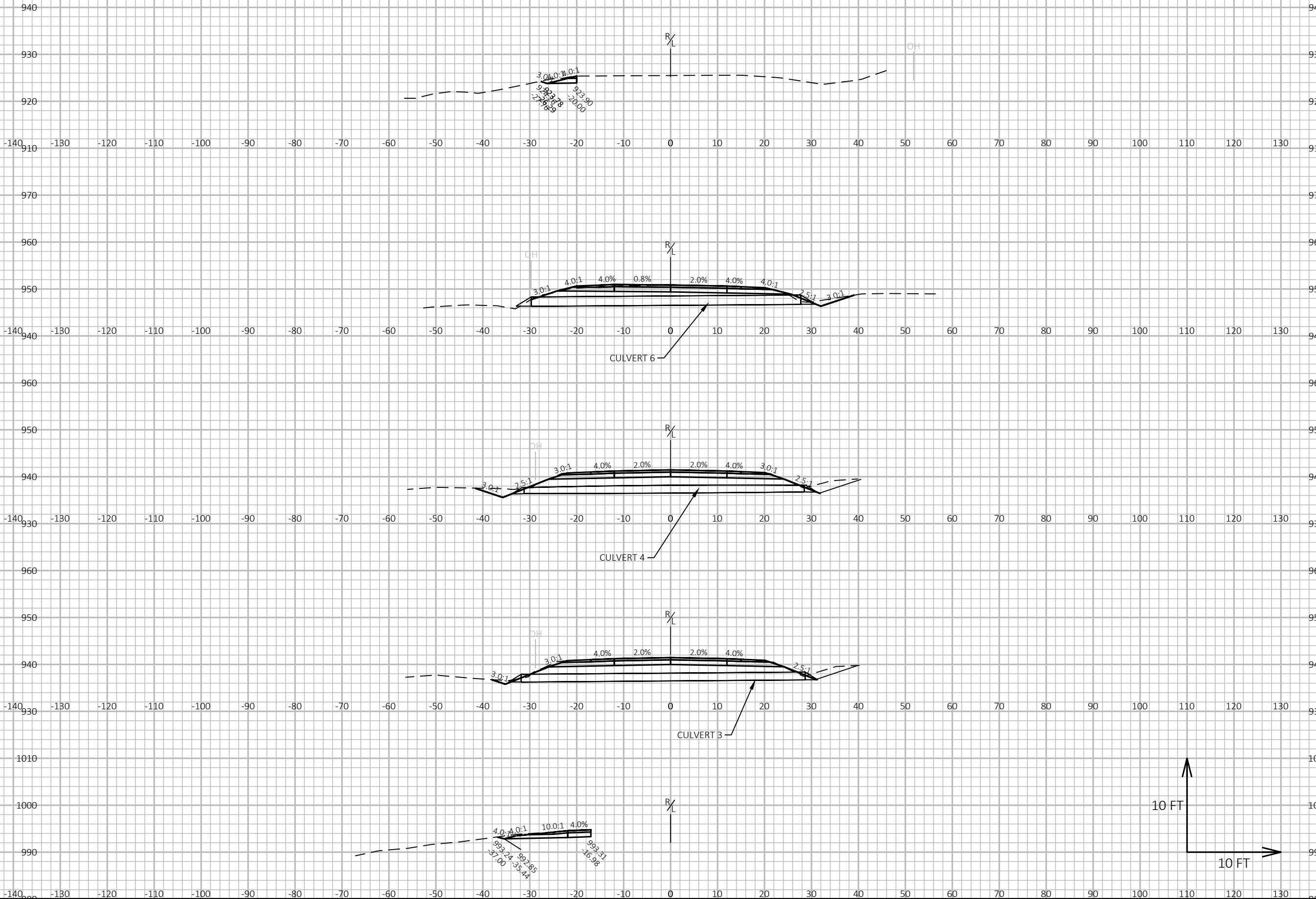
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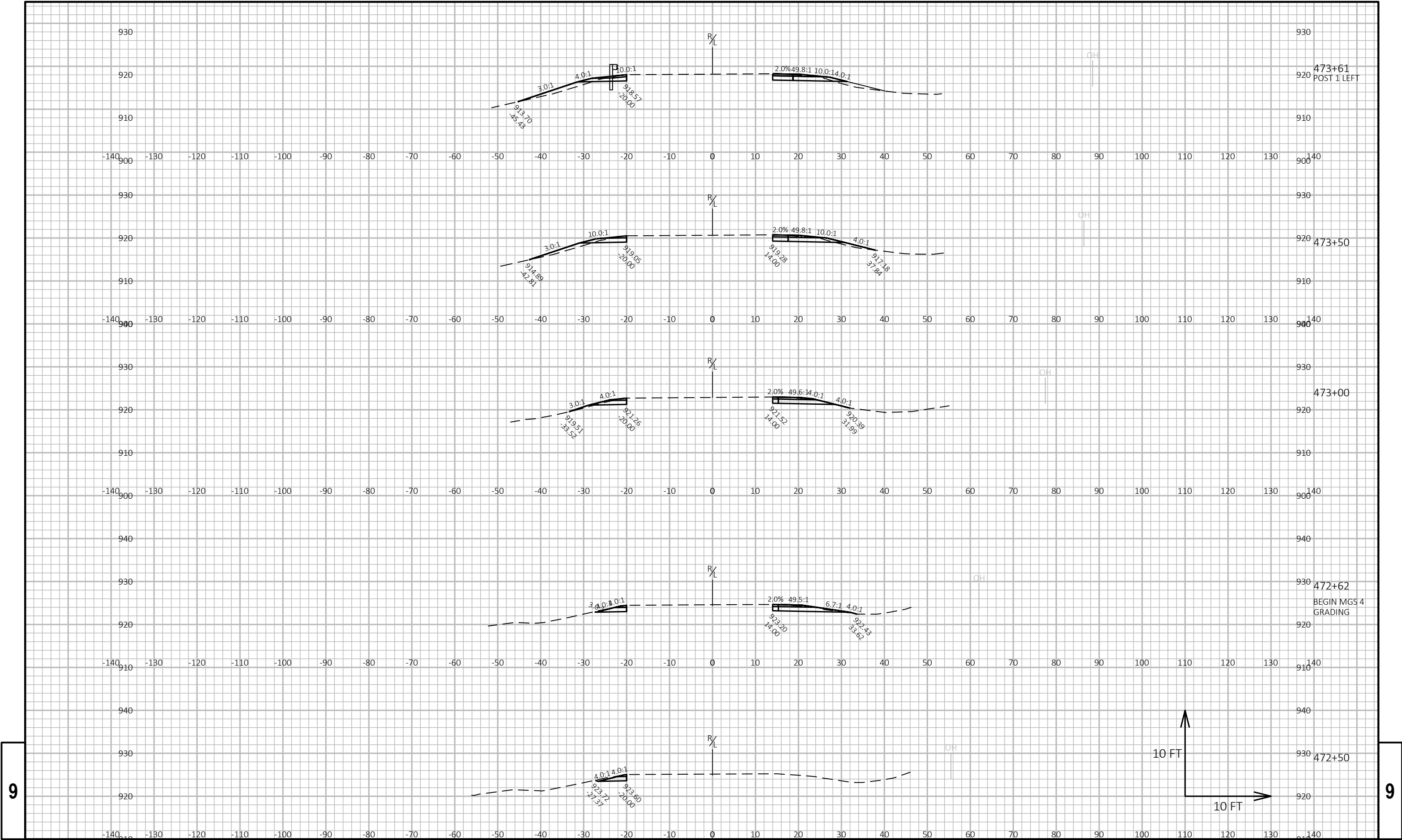
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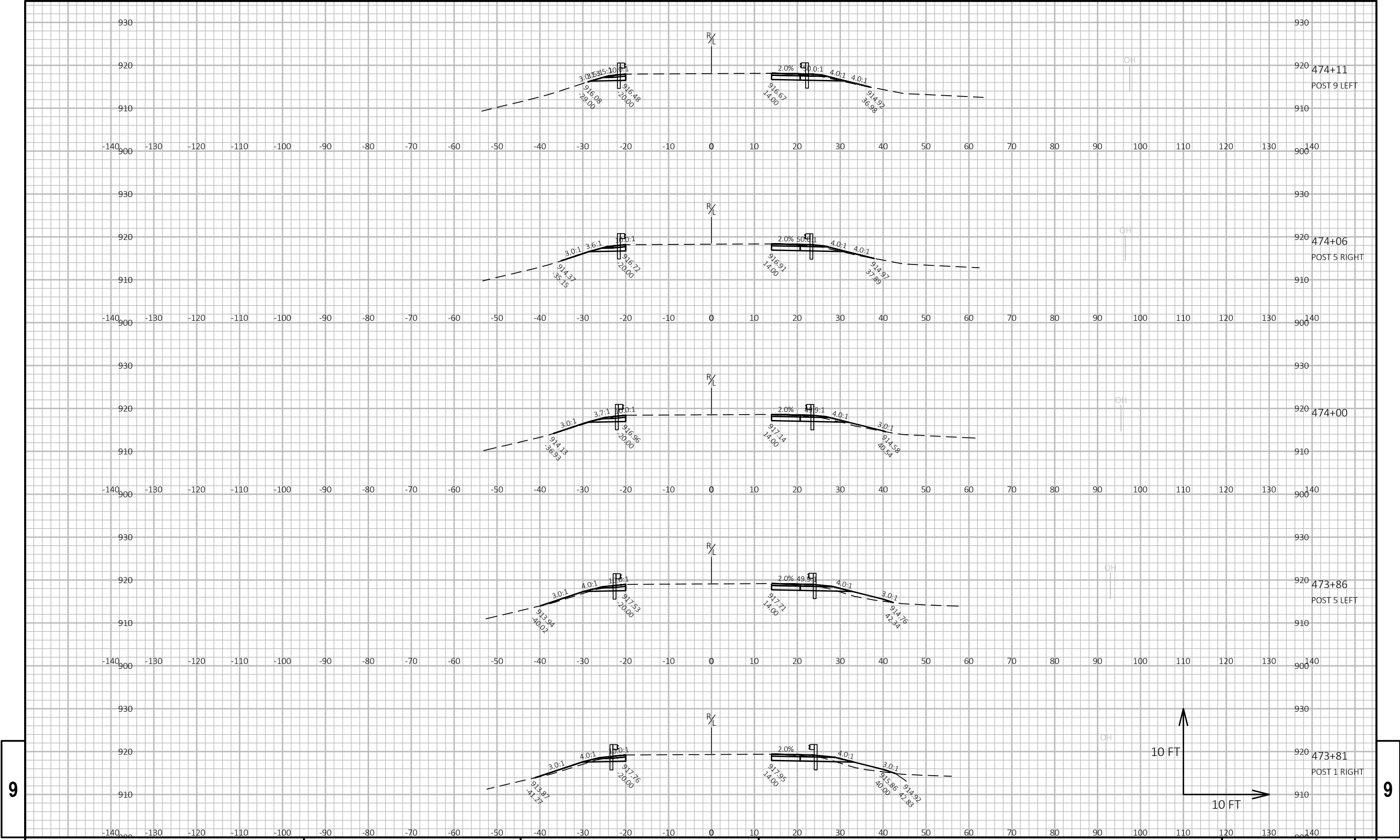
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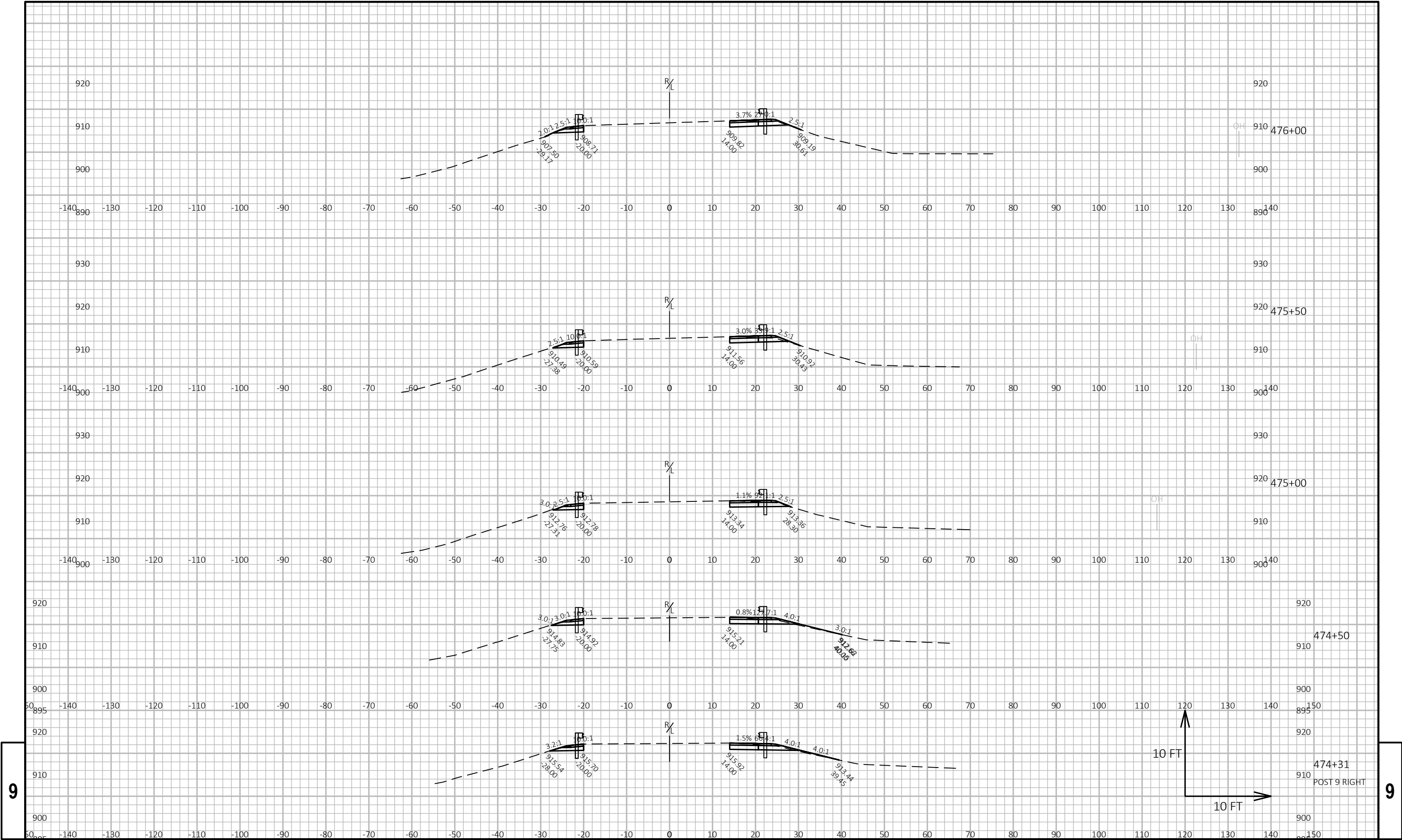
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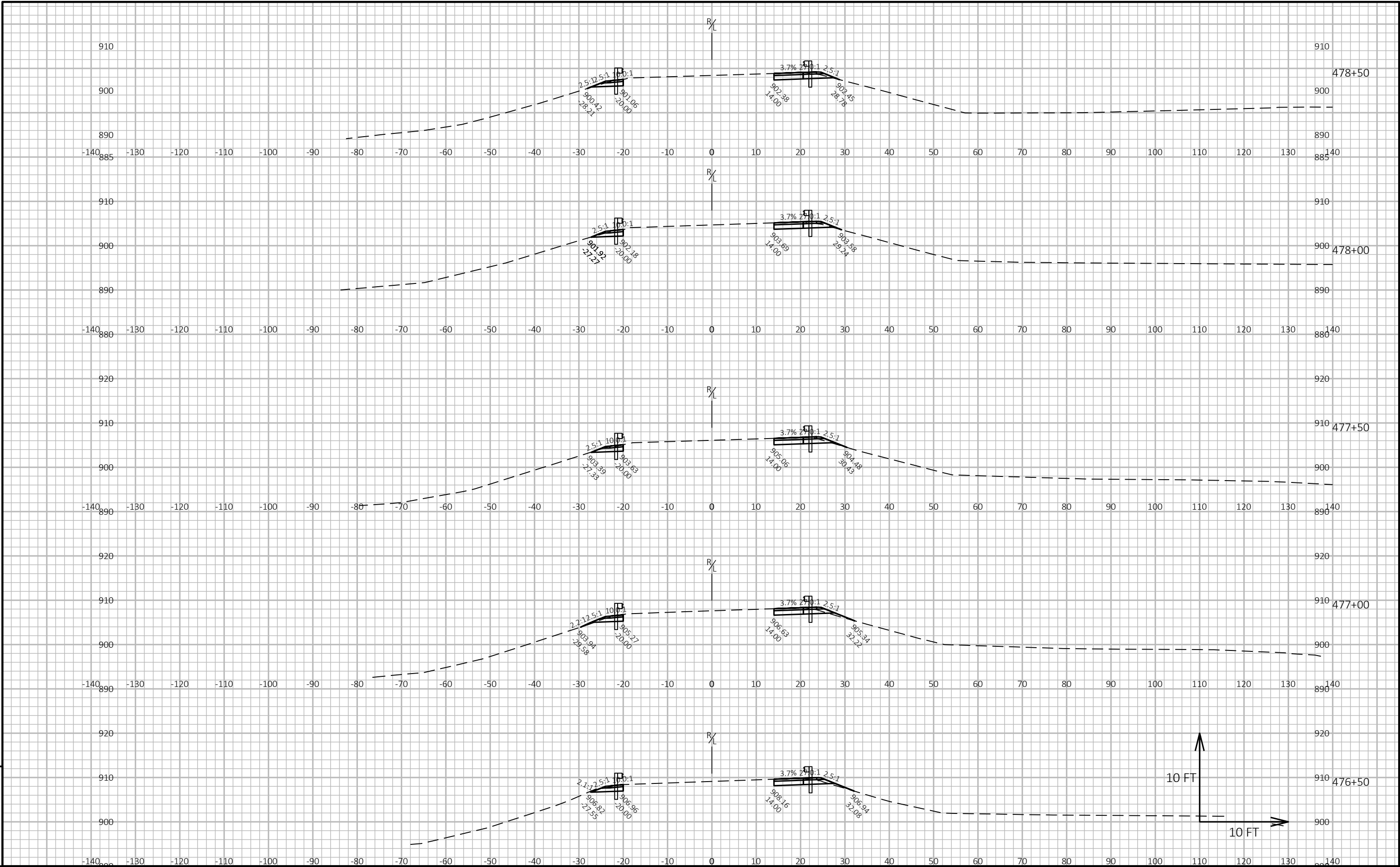
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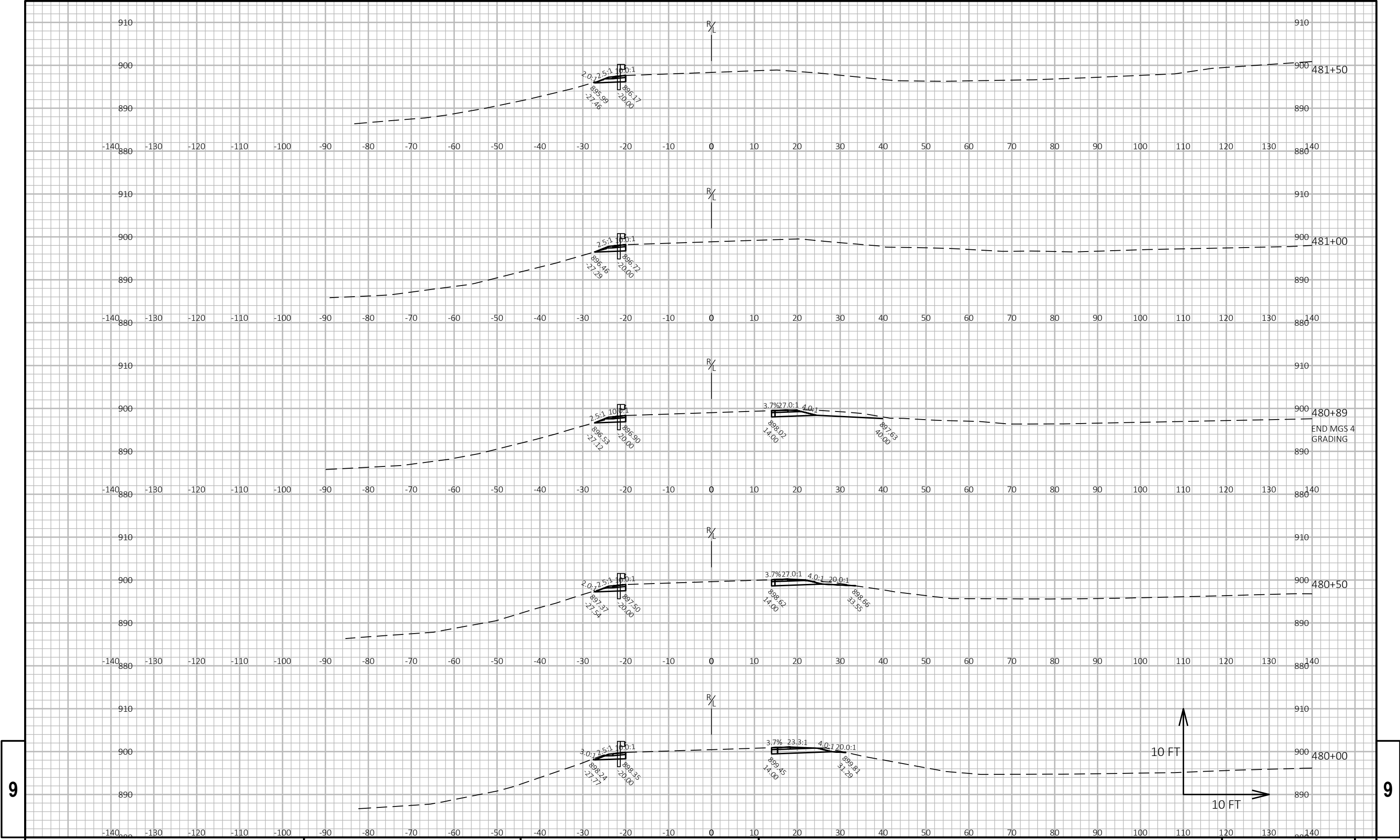
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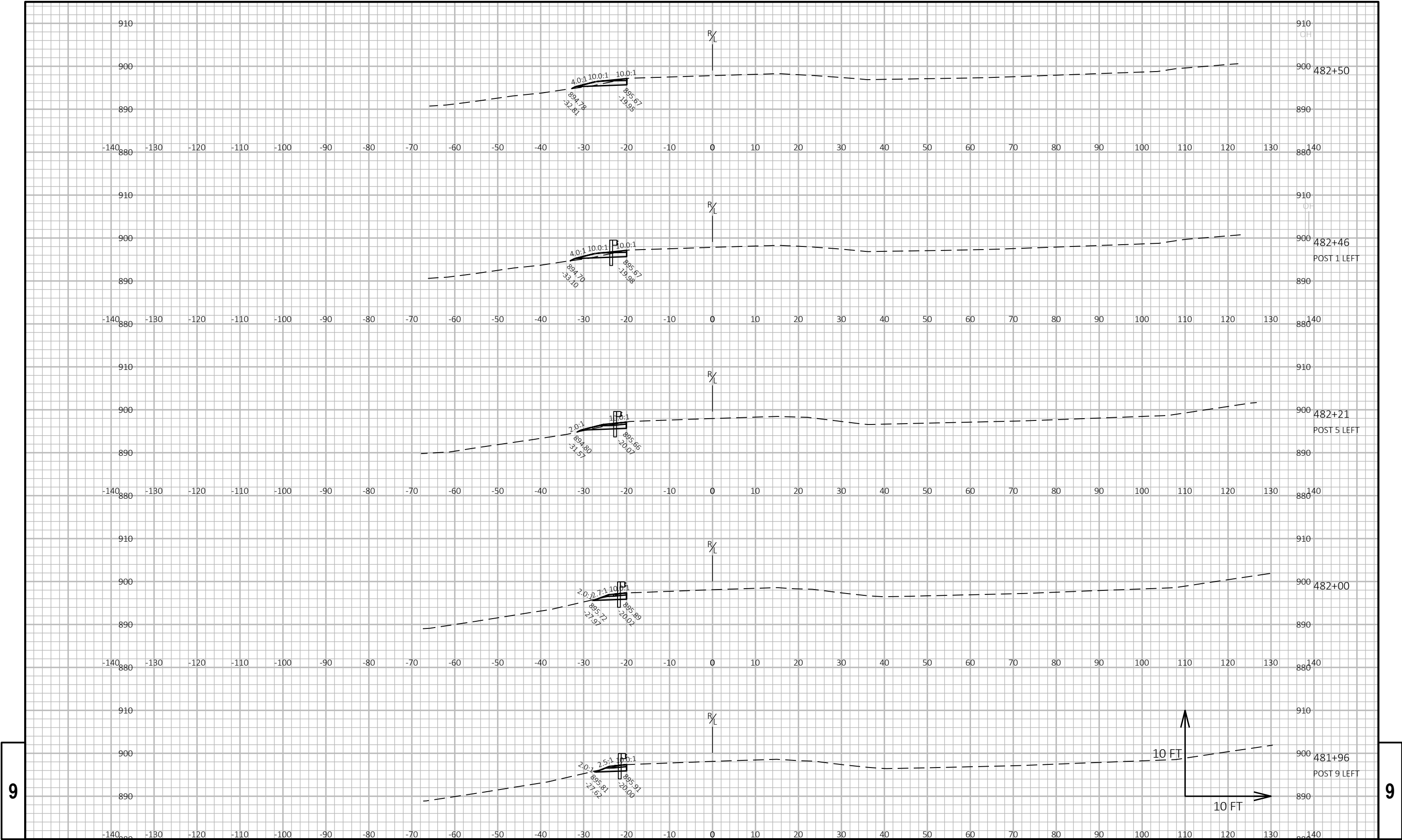
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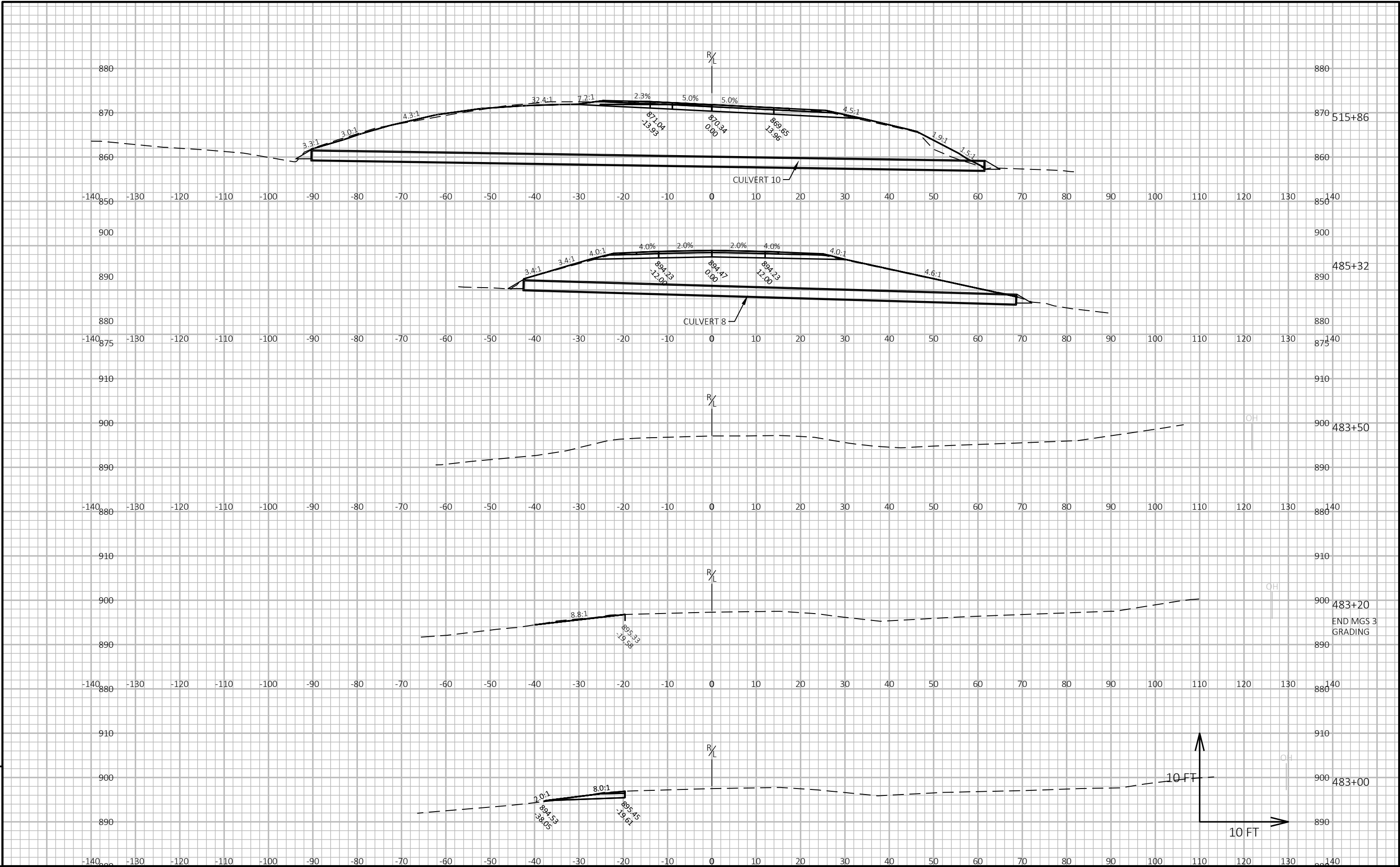
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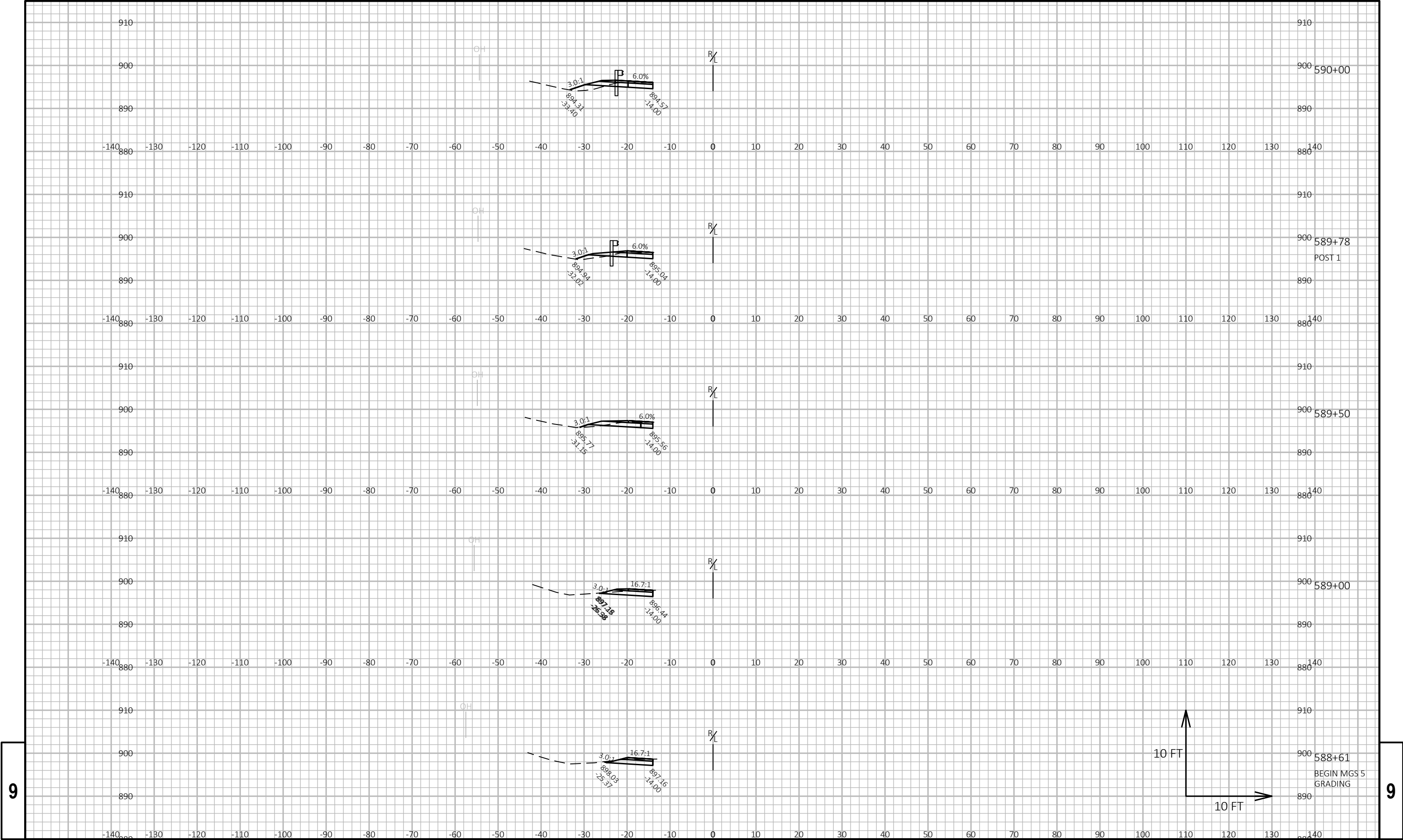
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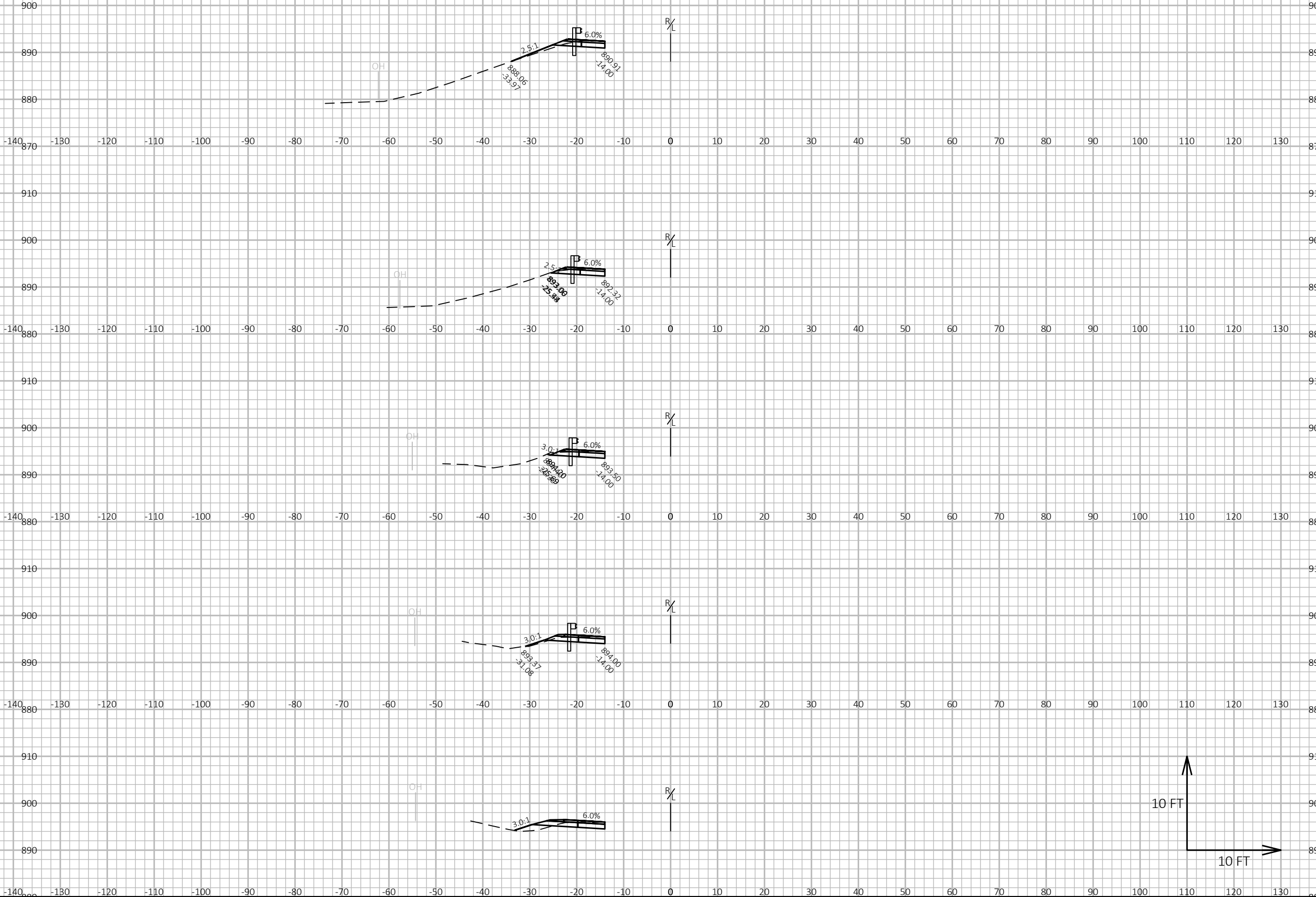




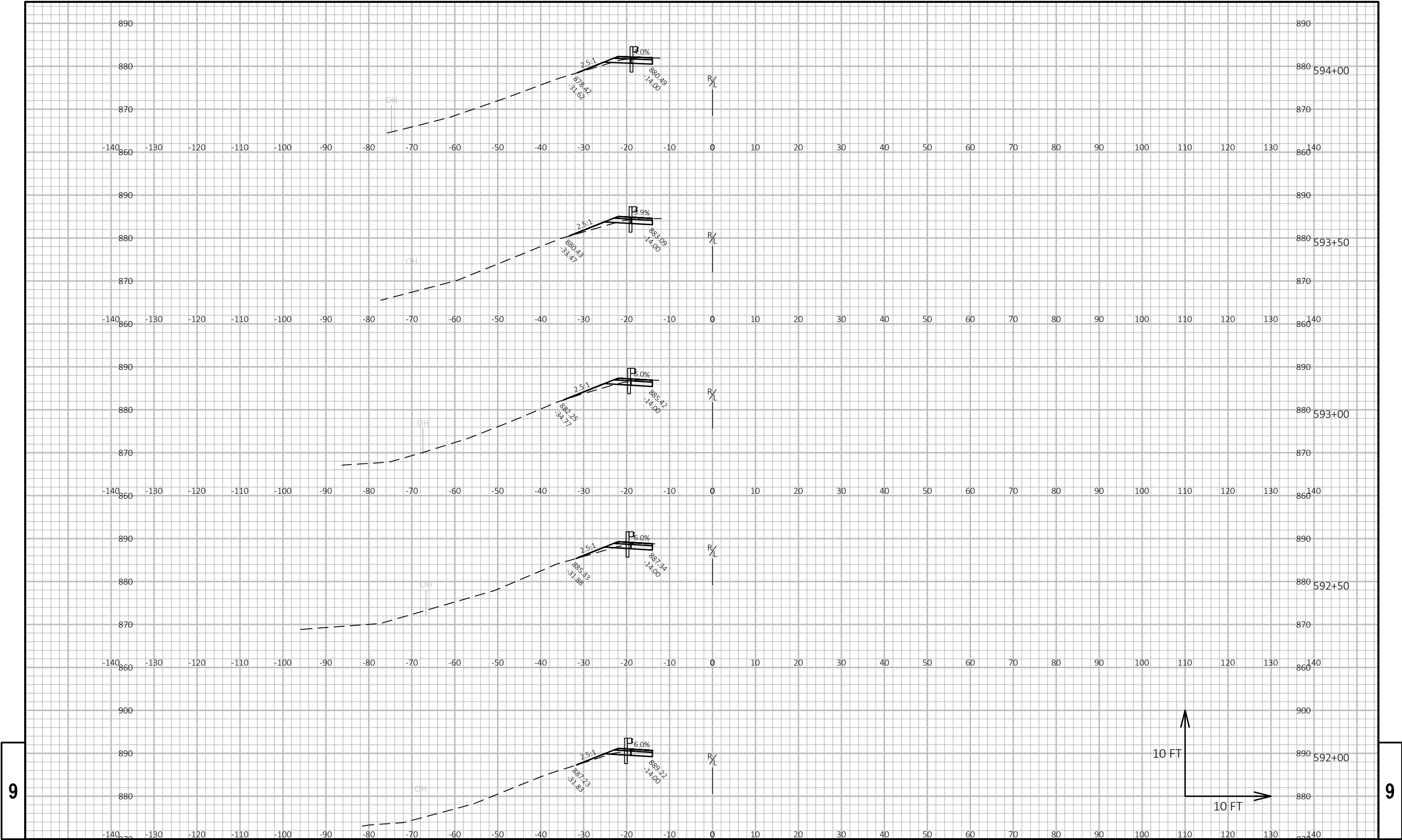
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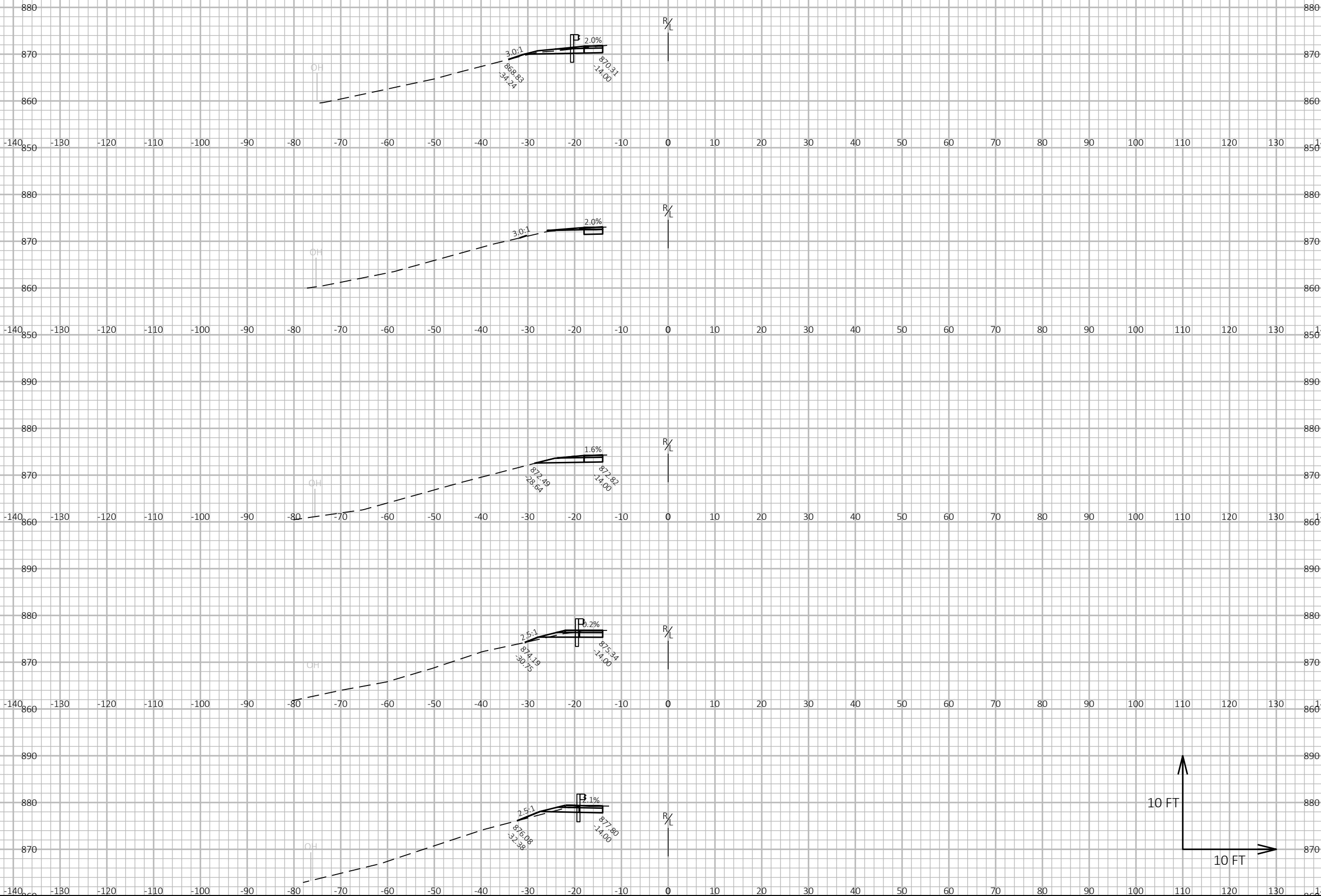
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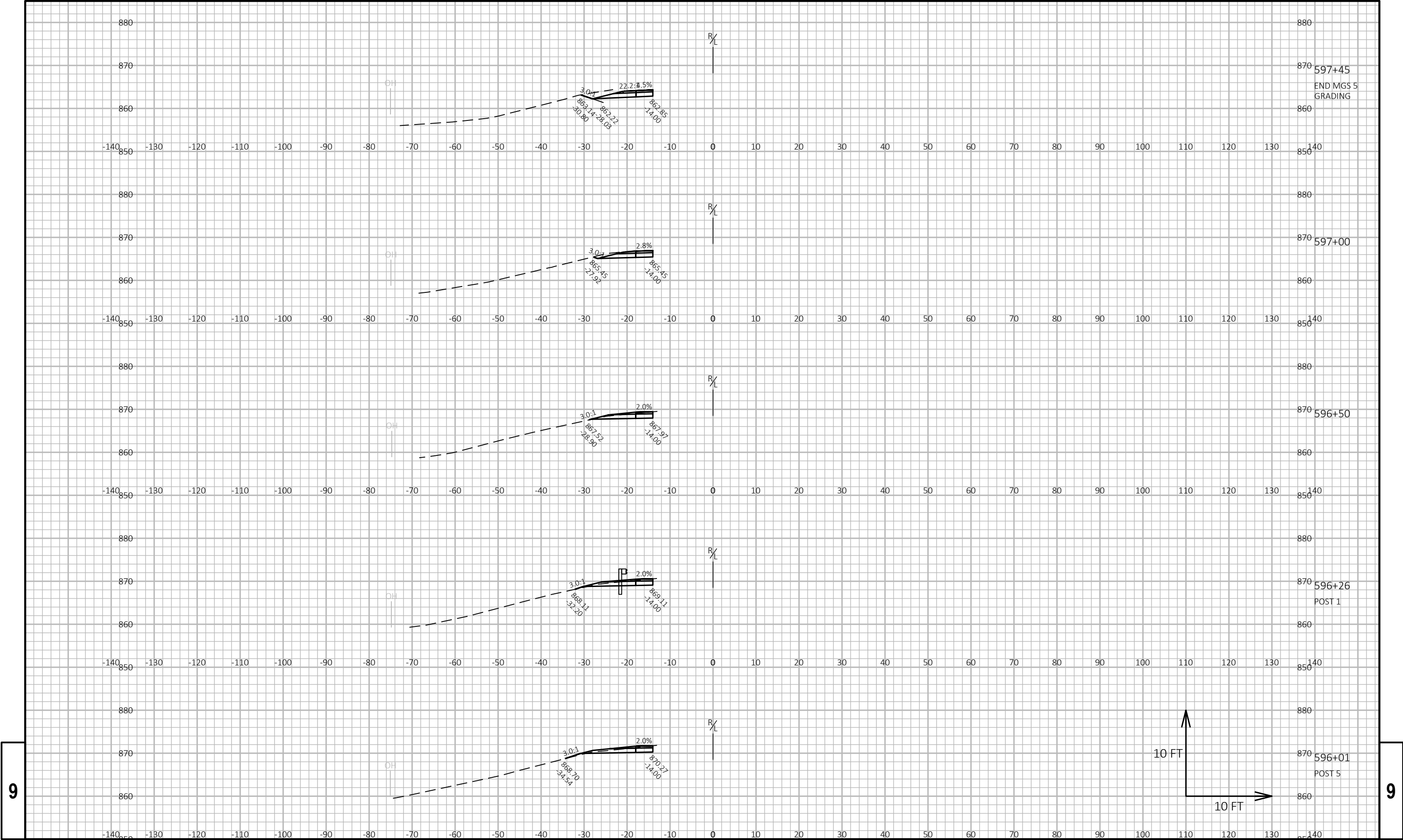
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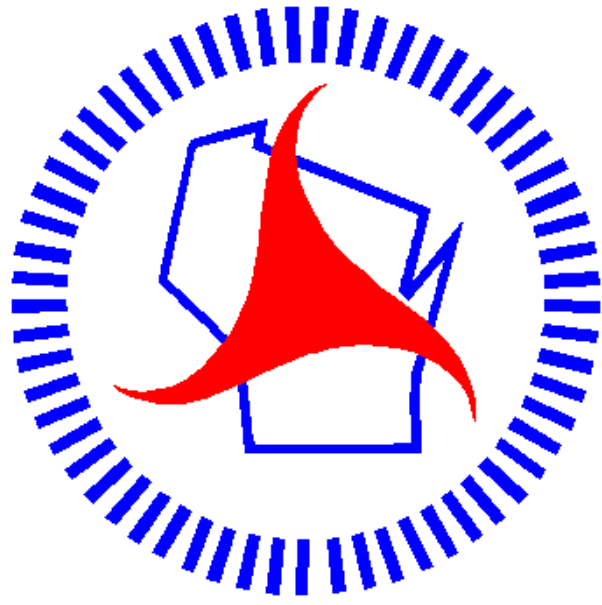
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Notes



Wisconsin Department of Transportation

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