

LAX MAY 2021

PROJECT ID: 1014-00-77

COUNTY: SAUK

ORDER OF SHEETS

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

TOTAL SHEETS = 138



DESIGN DESIGNATION	1014-00-07
A.A.D.T.	2021 = 39,460
A.A.D.T.	2041 = 43,650
D.H.V.	= 3,300
D.D.	= 58/42
T.	= 27.3%
DESIGN SPEED	= 70 MPH
ESALS	= 30,000,000

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

WISCONSIN DELLS - PORTAGE

ISHNALA ROAD TO SCHEPPS ROAD, EB ONLY

IH 90

SAUK COUNTY

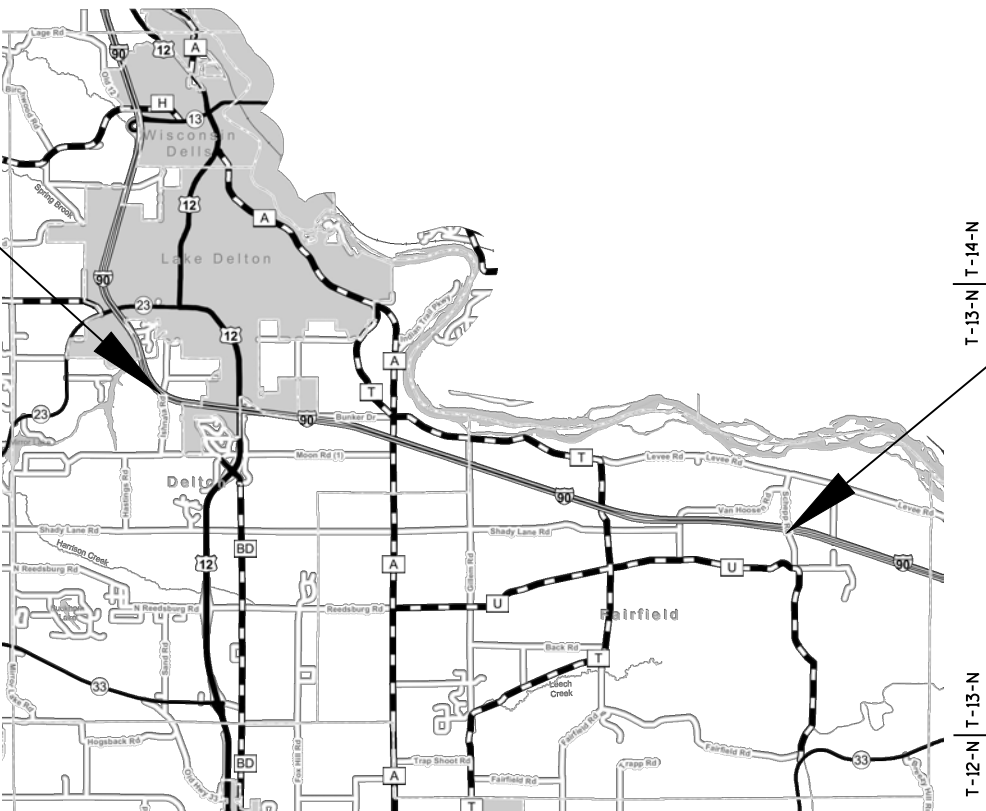
STATE PROJECT NUMBER
1014-00-77

R-6-E | R-7-E

R-7-E | R-8-E

BEGIN PROJECT  
STA 303+15  
X = 535245.40  
Y = 78235.16

END PROJECT  
STA 741+46  
X = 575977.49  
Y = 69380.24



LAYOUT  
SCALE 0 2.5 MI

TOTAL NET LENGTH OF CENTERLINE = 8.301 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), SAUK COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1014-00-77	WISC 2021353	1

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	WISDOT
Designer	SAM KUBE
Project Manager	JOHN BANTER
Regional Examiner	SW REGION
Regional Supervisor	JIM SAVOLDELLI

APPROVED FOR THE DEPARTMENT  
DATE: 3/11/2021

E

GENERAL NOTES

- THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.
- THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, BIKE OR PARKING LANE.
- HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN. HMA WILL BE PAVED IN TWO 1.75 IN LIFTS.
- CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY THIS OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.
- THE QUANTITY OF THE ITEMS FOR EROSION PROTECTION INCLUDES AN UNDISTRIBUTED AMOUNT FOR PROTECTION, CONTROL AND ABATEMENT OF WATER POLLUTION RESULTING FROM SOIL EROSION. THE DISTRIBUTION AND LOCATION OF THESE MATERIALS ARE TO BE DETERMINED BY THE ENGINEER.
- DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE TOPSOILED (SALVAGED), FERTILIZED, SEEDED, AND COVERED WITH E-MAT AS DIRECTED BY THE ENGINEER.
- TACK SHALL BE APPLIED AT A RATE OF 0.05 GAL/SY BETWEEN NEW HMA LAYERS AND A RATE OF 0.07 GAL/SY ON EXISTING PAVEMENT.

UTILITY CONTACTS

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wekoenig@att.net

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ALLIANT ENERGY - ELECTRICITY  
ALLIANT ENERGY - GAS/PETROLEUM  
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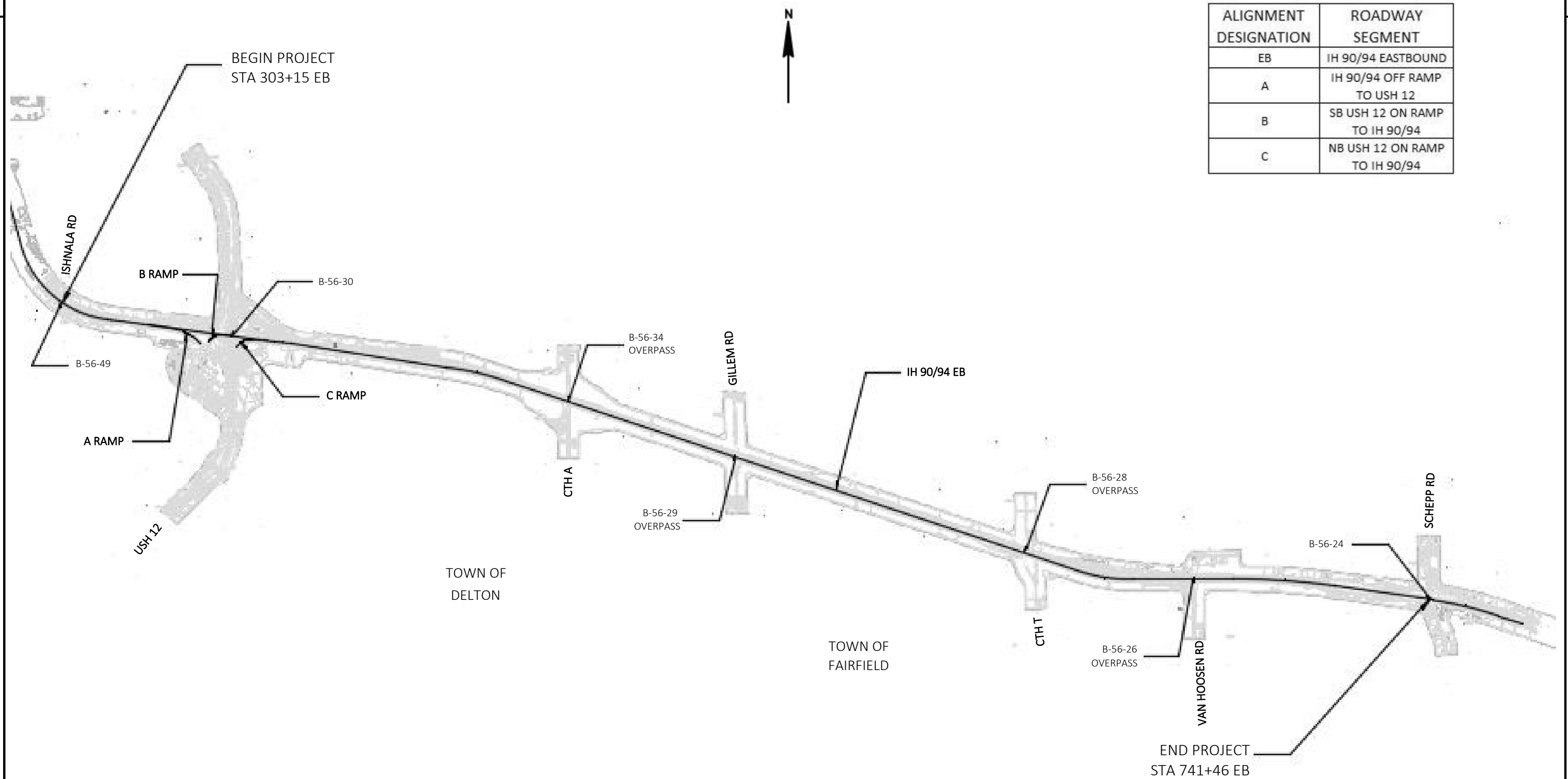
ORDER OF SECTION 2 SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- TRAFFIC CONTROL AND CONSTRUCTION STAGING
- DETOUR PLAN
- PAVEMENT MARKING
- PLAN VIEW

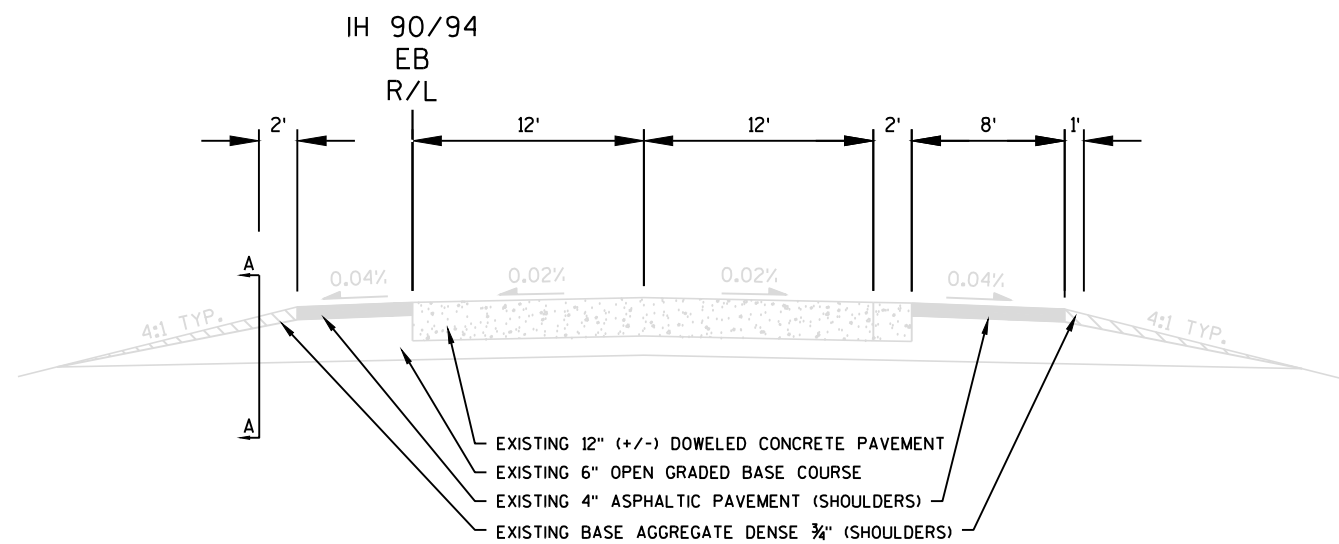


STANDARD ABBREVIATIONS

AC	ACRE	LC.	LONG CHORD
AGG	AGGREGATE	LS	LUMP SUM
<	ANGLE	M.P.	MARKER POST
AE, AEW	APRON ENDWALL	MGAL	1000 GALLONS
ASPH.	ASPHALTIC	N.C.	NORMAL CROWN
A.D.T.	AVERAGE DAILY TRAFFIC	N	NORTH
A.A.D.T.	ANNUAL AVERAGE DAILY TRAFFIC	NB	NORTHBOUND
B.F.	BACK FACE	NOR	NORMAL
BM	BENCHMARK	NO.	NUMBER
BTWN	BETWEEN	PAV'T	PAVEMENT
CTR.	CENTER	P.L.E.	PERMANENT LIMITED EASEMENT
C/L	CENTER LINE	P.C.	POINT OF CURVATURE
Δ	CENTRAL ANGLE OR DELTA	P.I.	POINT OF INTERSECTION
C.E.	COMMERCIAL ENTRANCE	P.T.	POINT OF TANGENCY
CONST.	CONSTRUCTION	PCC	PORTLAND CEMENT CONCRETE
CMCP	CORRUGATED METAL CULVERT PIPE	P.E.	PRIVATE ENTRANCE
CMP	CORRUGATED METAL PIPE	PGL	PROFILE GRADE LINE
CO.	COUNTY	P.L.	PROPERTY LINE
CTH	COUNTY TRUNK HIGHWAY	R	RADIUS OR RANGE
CR.	CREEK	R/L	REFERENCE LINE
CABC	CRUSHED AGGREGATE BASE COURSE	R.C.C.P.	REINFORCED CONCRETE CULVERT PIPE
CY	CUBIC YARD	REQ'D	REQUIRED
CP	CONTROL POINT OR CULVERT PIPE	RT	RIGHT
C&G	CURB AND GUTTER	R.H.F.	RIGHT HAND FORWARD
D	DEGREE OF CURVE	R/W	RIGHT OF WAY
D.H.V.	DESIGN HOURLY VOLUME	RD.	ROAD
DIA.	DIAMETER	SHLD.	SHOULDER(S)
D.D.	DIRECTIONAL DISTRIBUTION	SHR.	SHRINKAGE
DISCH.	DISCHARGE	S	SOUTH
DMS	DYNAMIC MESSAGE SIGN	SB	SOUTHBOUND
EA	EACH	S.F.	SQUARE FOOT (FEET)
E	EAST	SDD	STANDARD DETAIL DRAWING(S)
EB	EASTBOUND	STH	STATE TRUNK HIGHWAY
ELEC.	ELECTRIC(AL), ELEC. CABLE	STA.	STATION
EL., ELEV.	ELEVATION	S.E.	SUPERELEVATION
ESALS	EQUIVALENT SINGLE AXLE LOADS	S/L	SURVEY LINE
EXC.	EXCAVATION	SYM	SYMMETRICAL
EXIST	EXISTING	T.	PERCENT TRUCKS
F.F.	FACE TO FACE	TEL.	TELEPHONE
FERT.	FERTILIZER	TEMP.	TEMPORARY
F.E.	FIELD ENTRANCE	T.L.E.	TEMPORARY LIMITED EASEMENT
F/L, F.L.	FLOW LINE	T.O.C.	TOP OF CURB
GALV.	GALVANIZE	TYP	TYPICAL
H.S.	HIGH STRENGTH	UNCL.	UNCLASSIFIED
CWT	HUNDRED WEIGHT	U.G.	UNDERGROUND (CABLE)
INL	INLET	VAR	VARIABLE
INTER.	INTERSECTION	V.C.	VERTICAL CURVE
IH	INTERSTATE HIGHWAY	V.P.C.	VERTICAL POINT OF CURVATURE
JT.	JOINT	V.P.I.	VERTICAL POINT OF INTERSECTION
LT	LEFT	V.P.T.	VERTICAL POINT OF TANGENCY
L.H.F.	LEFT HAND FORWARD	Wt.	WEIGHT
L.	LENGTH OF CURVE	W	WEST
L.F.	LINEAR FOOT (FEET)	WB	WESTBOUND

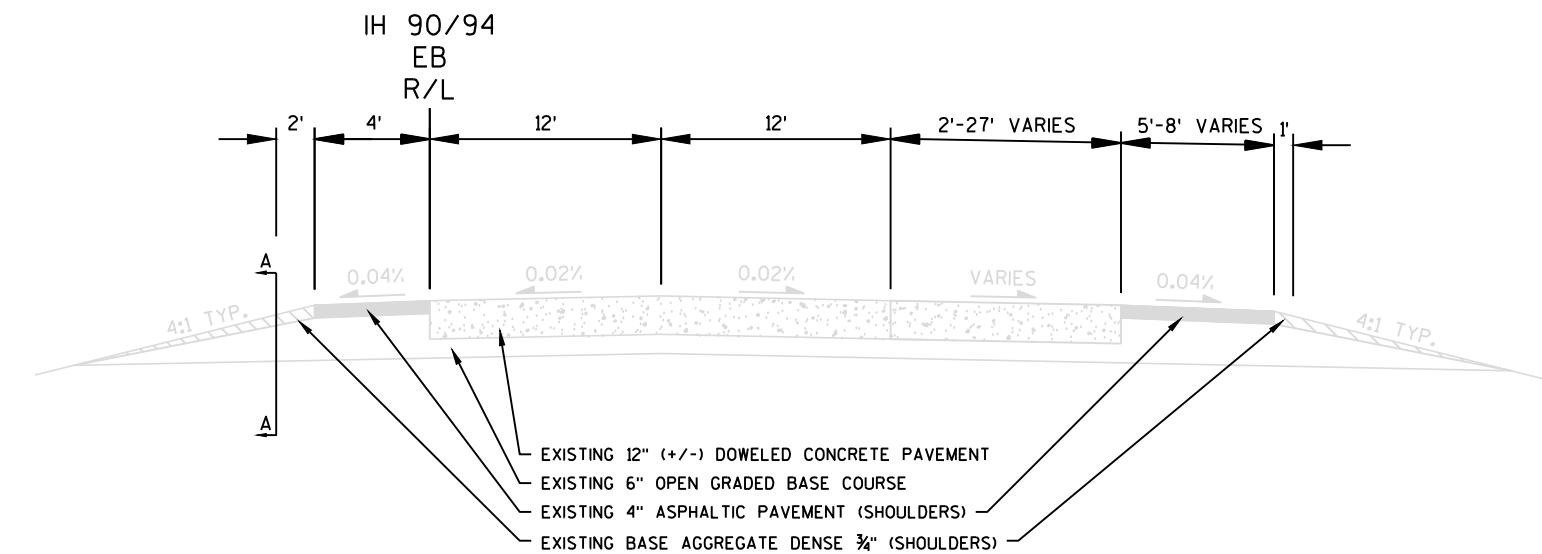


ALIGNMENT DESIGNATION	ROADWAY SEGMENT
EB	IH 90/94 EASTBOUND
A	IH 90/94 OFF RAMP TO USH 12
B	SB USH 12 ON RAMP TO IH 90/94
C	NB USH 12 ON RAMP TO IH 90/94



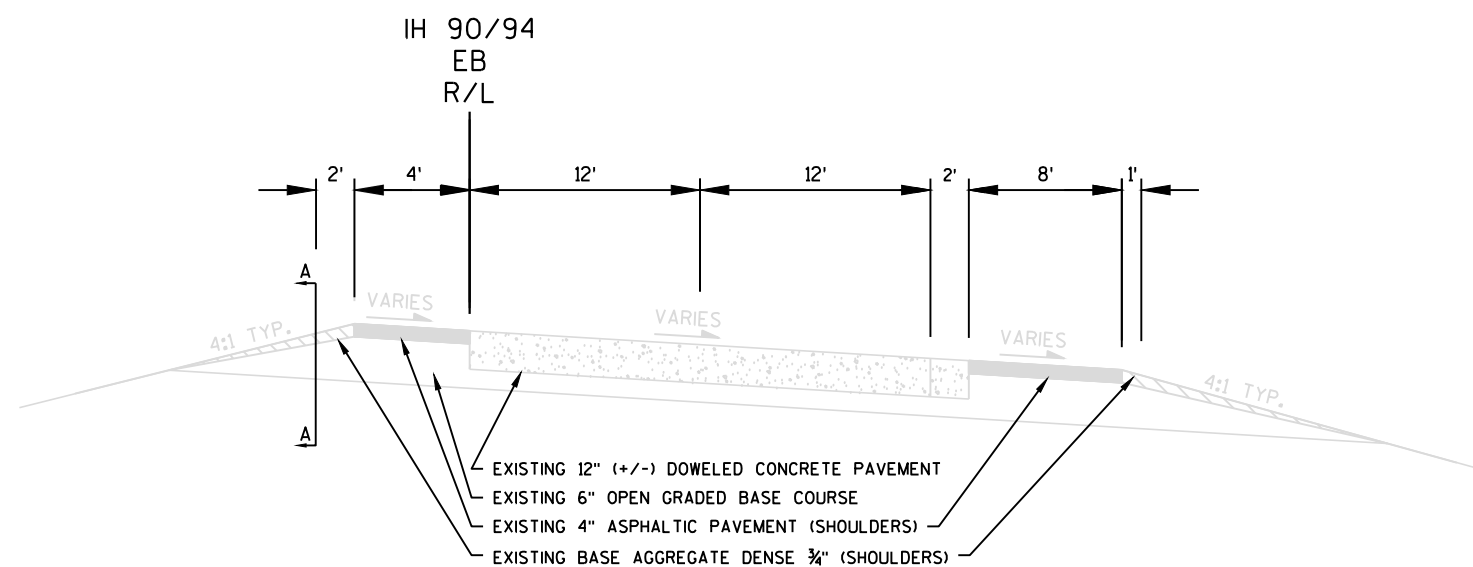
TYPICAL EXISTING MAINLINE TANGENT SECTION

STA 319+50 EB - STA 334+54 EB  
STA 340+05 EB - STA 353+88 EB  
STA 381+18 EB - STA 423+29 EB  
STA 446+36 EB - STA 631+31 EB  
STA 653+25 EB - STA 680+60 EB  
STA 716+42 EB - STA 741+46 EB



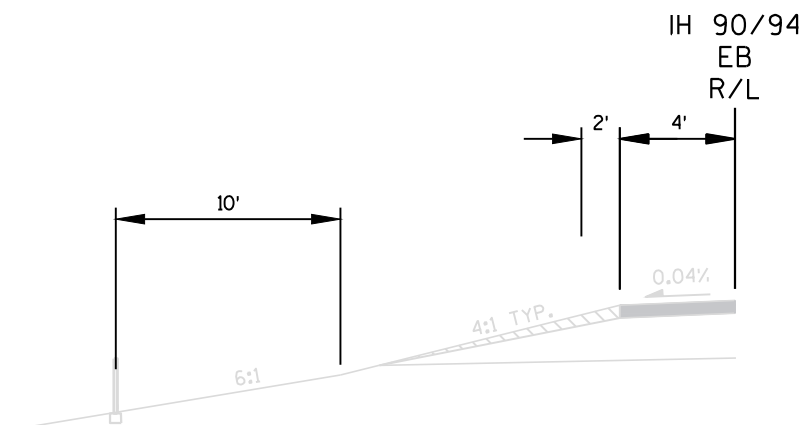
TYPICAL EXISTING SECTION

STA 334+54 EB - 340+05 EB  
STA 353+88 EB - 355+32 EB  
STA 357+53 EB - 381+18 EB



TYPICAL EXISTING MAINLINE SUPERELEVATED SECTION

STA 303+15 EB - STA 319+50 EB  
STA 423+29 EB - STA 446+38 EB  
STA 631+31 EB - STA 653+25 EB  
STA 680+60 EB - STA 716+42 EB

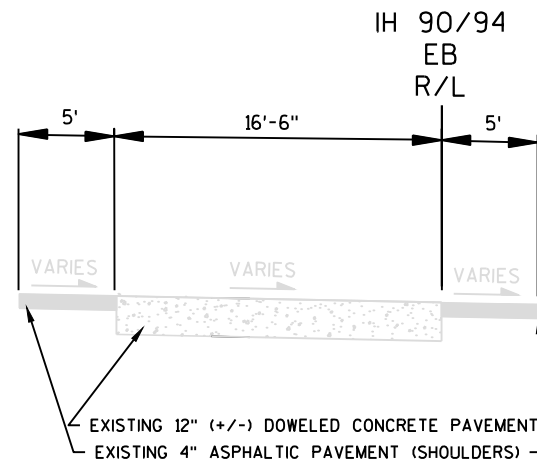


SECTION A-A: TYPICAL EXISTING MEDIAN CABLE GUARD

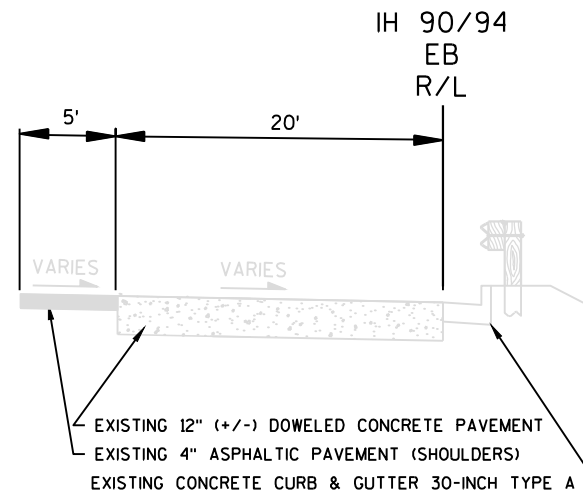
STA 303+95 EB - STA 352+55 EB  
STA 358+70 EB - STA 385+55 EB  
STA 426+45 EB - STA 463+75 EB  
STA 656+15 EB - STA 669+20 EB

NOT TO SCALE

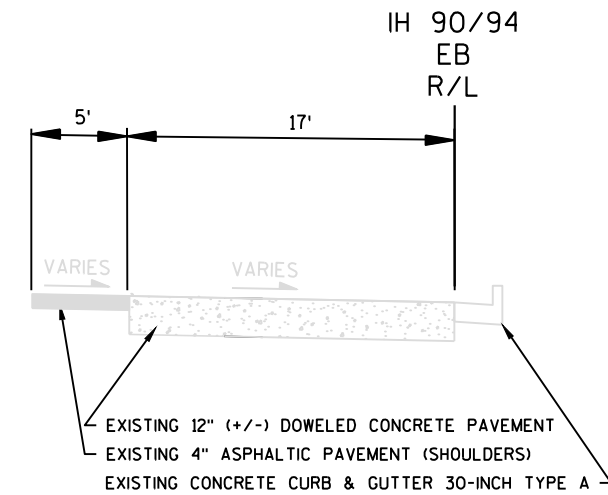




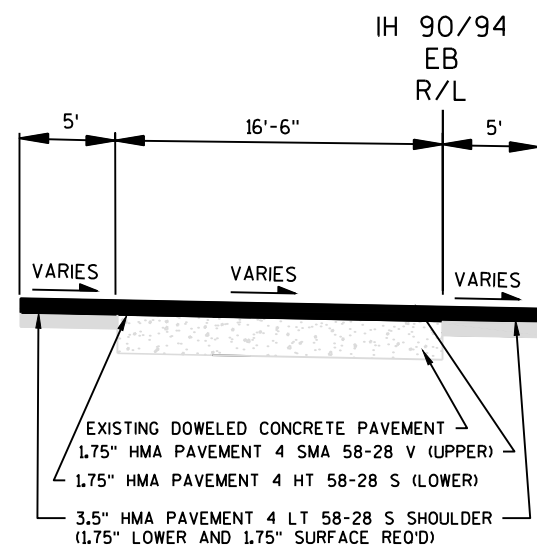
TYPICAL EXISTING A RAMP SECTION  
STA 340+05 A - STA 344+70 A



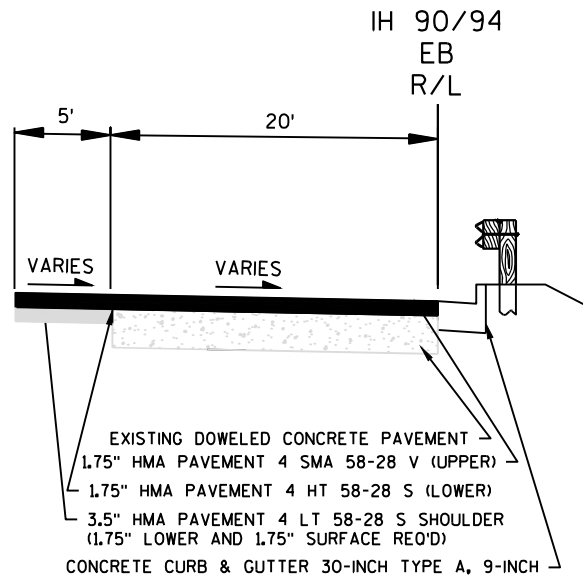
TYPICAL EXISTING B RAMP SECTION  
STA 349+80 B - STA 353+88 B



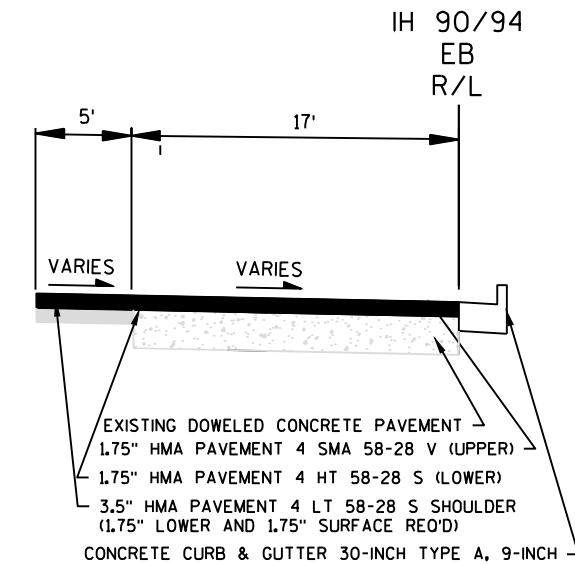
TYPICAL EXISTING C RAMP SECTION  
STA 356+37 C - STA 363+53 C



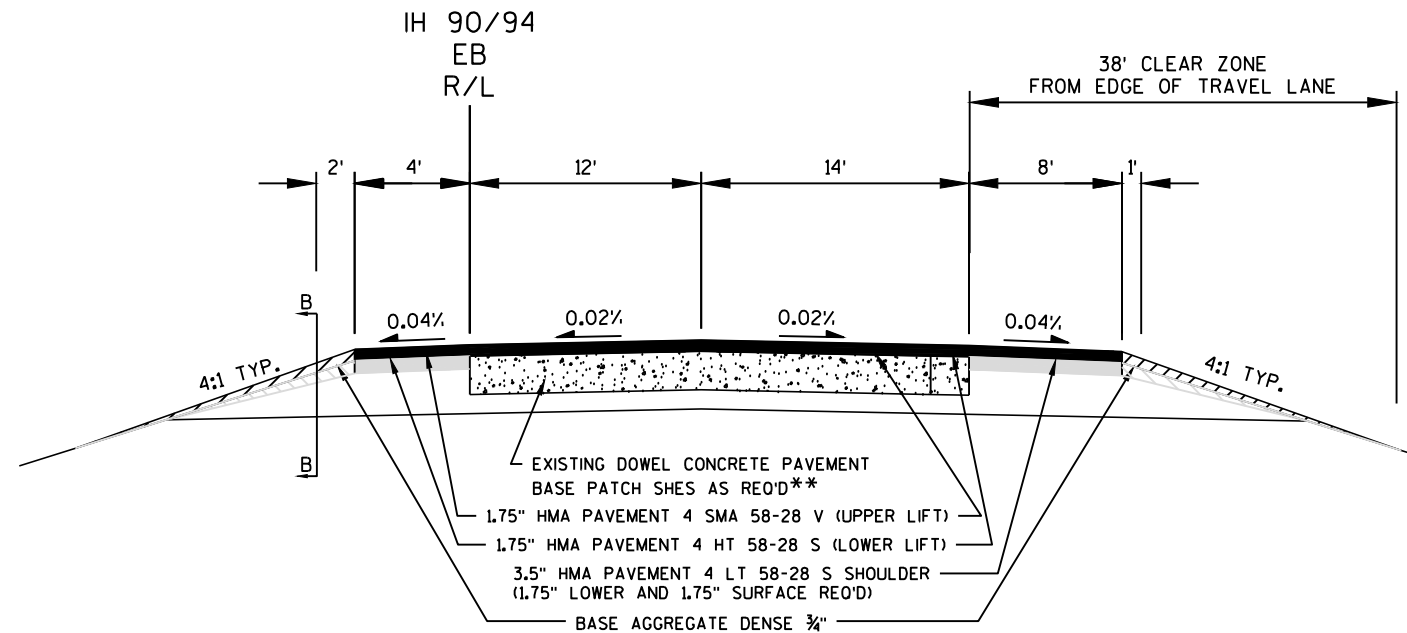
TYPICAL PROPOSED A RAMP SECTION  
STA 340+05 A - STA 344+70 A



TYPICAL PROPOSED B RAMP SECTION  
STA 349+80 B - STA 353+88 B

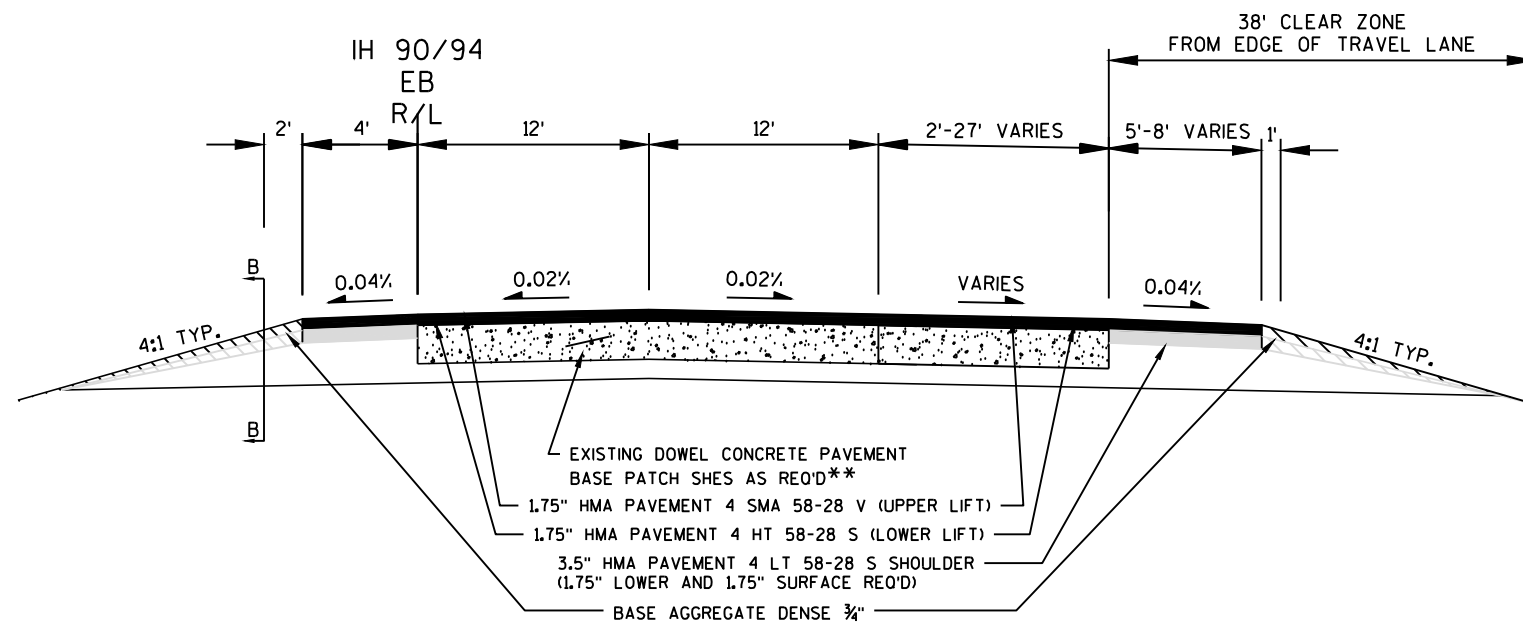


TYPICAL PROPOSED C RAMP SECTION  
STA 356+37 C - STA 363+53 C



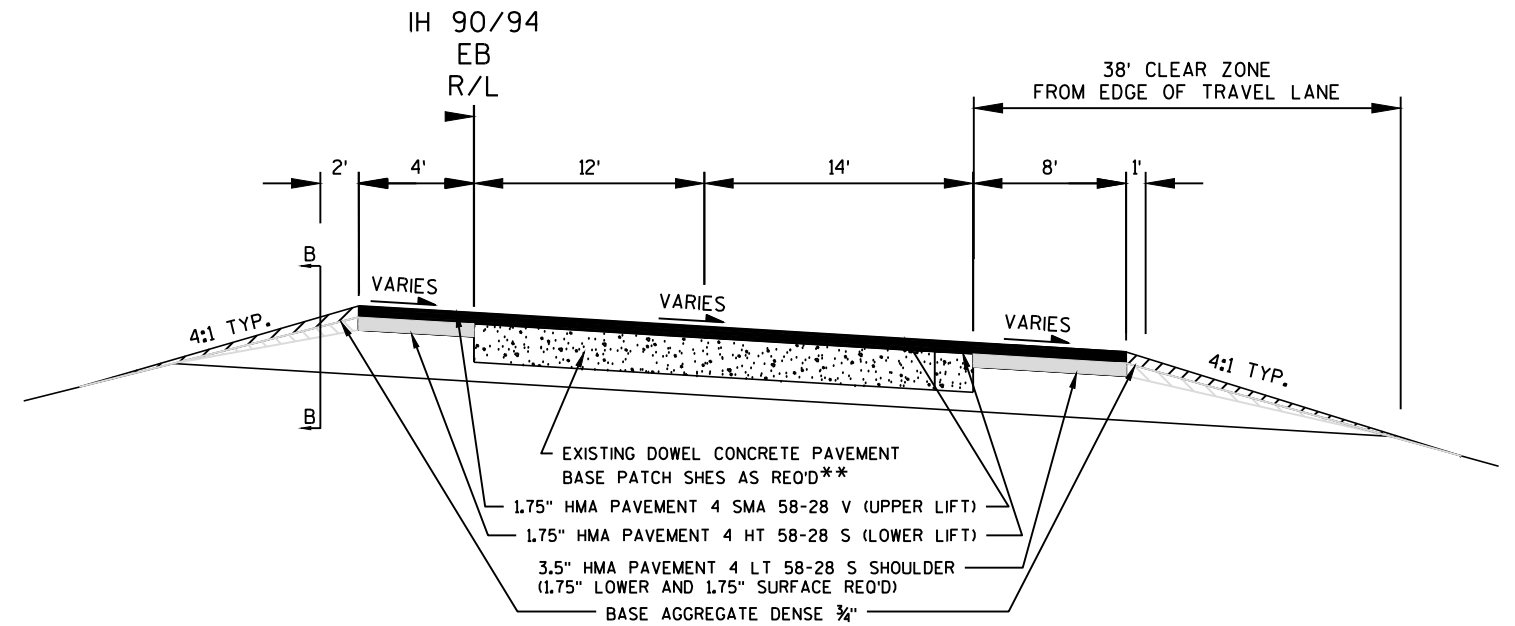
TYPICAL PROPOSED MAINLINE TANGENT SECTION

STA 319+50 EB - STA 334+54 EB  
STA 340+05 EB - STA 353+88 EB  
STA 381+18 EB - STA 423+29 EB  
STA 446+36 EB - STA 631+31 EB  
STA 653+25 EB - STA 680+60 EB  
STA 716+42 EB - STA 741+46 EB



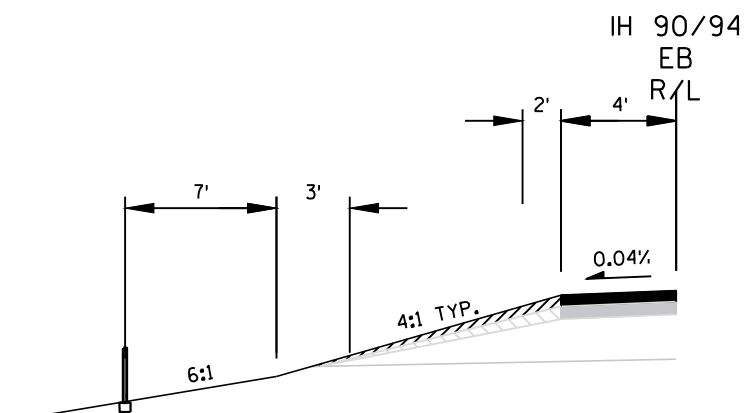
TYPICAL PROPOSED SECTION

STA 334+54 EB - 340+05 EB  
STA 353+88 EB - 355+32 EB  
STA 357+53 EB - 381+18 EB



TYPICAL PROPOSED MAINLINE SUPERELEVATED SECTION

STA 303+15 EB - STA 319+50 EB  
STA 423+29 EB - STA 446+38 EB  
STA 631+31 EB - STA 653+25 EB  
STA 680+60 EB - STA 716+42 EB

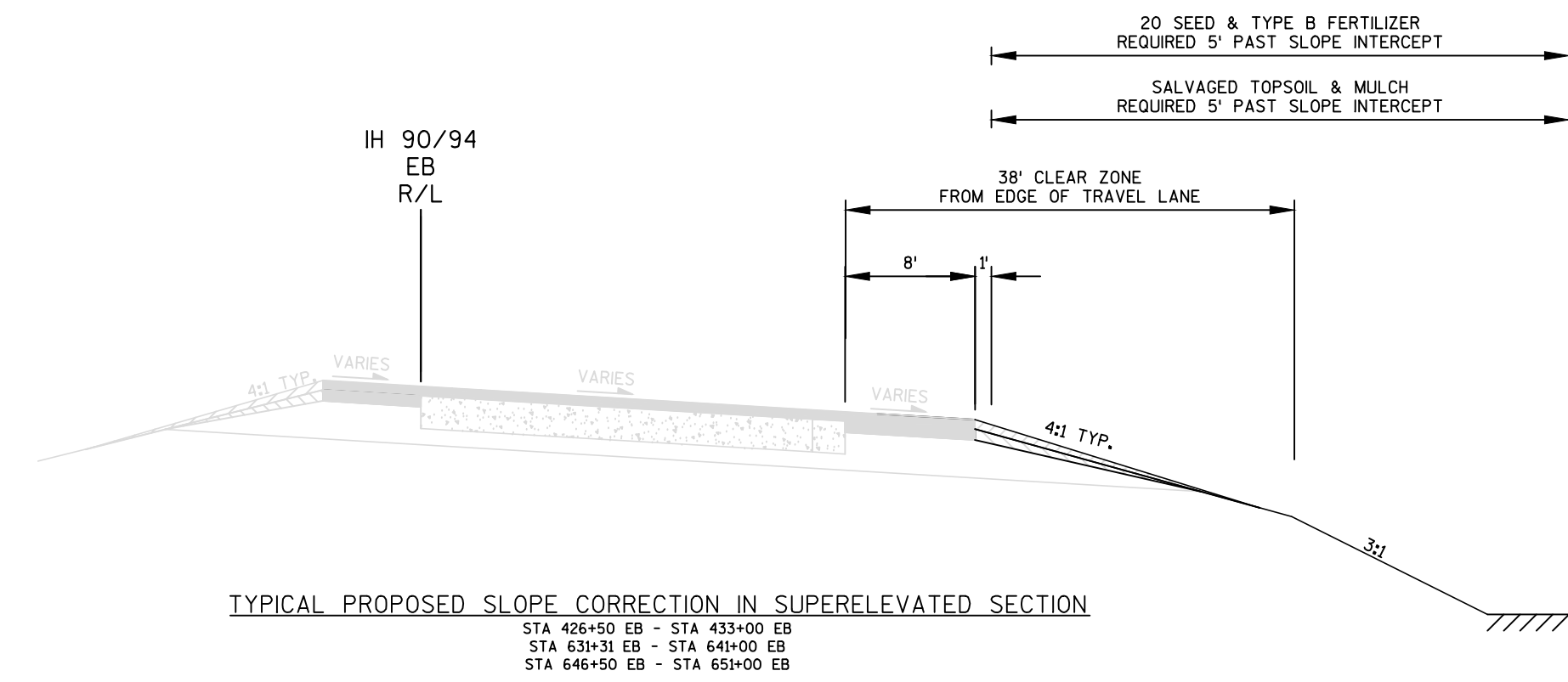
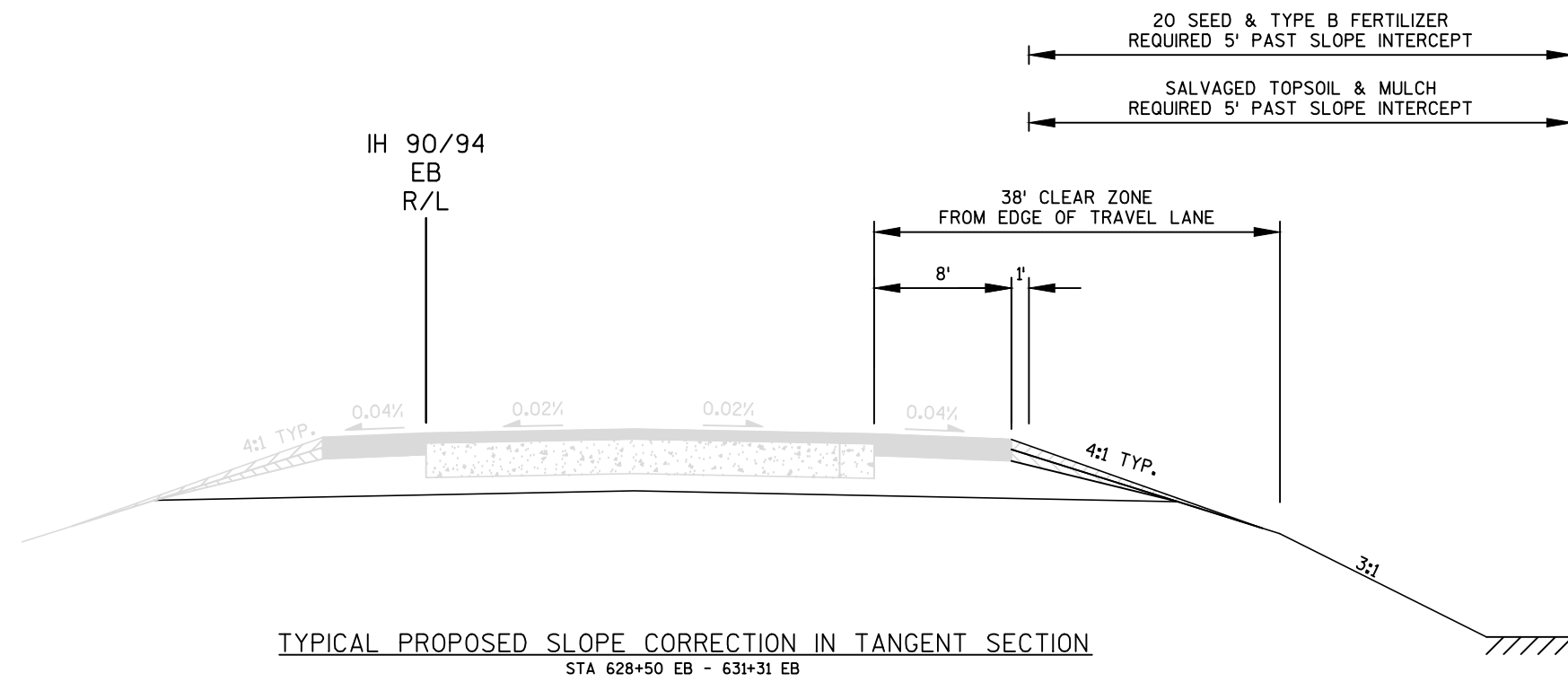


SECTION B-B: TYPICAL MEDIAN CABLE GUARD

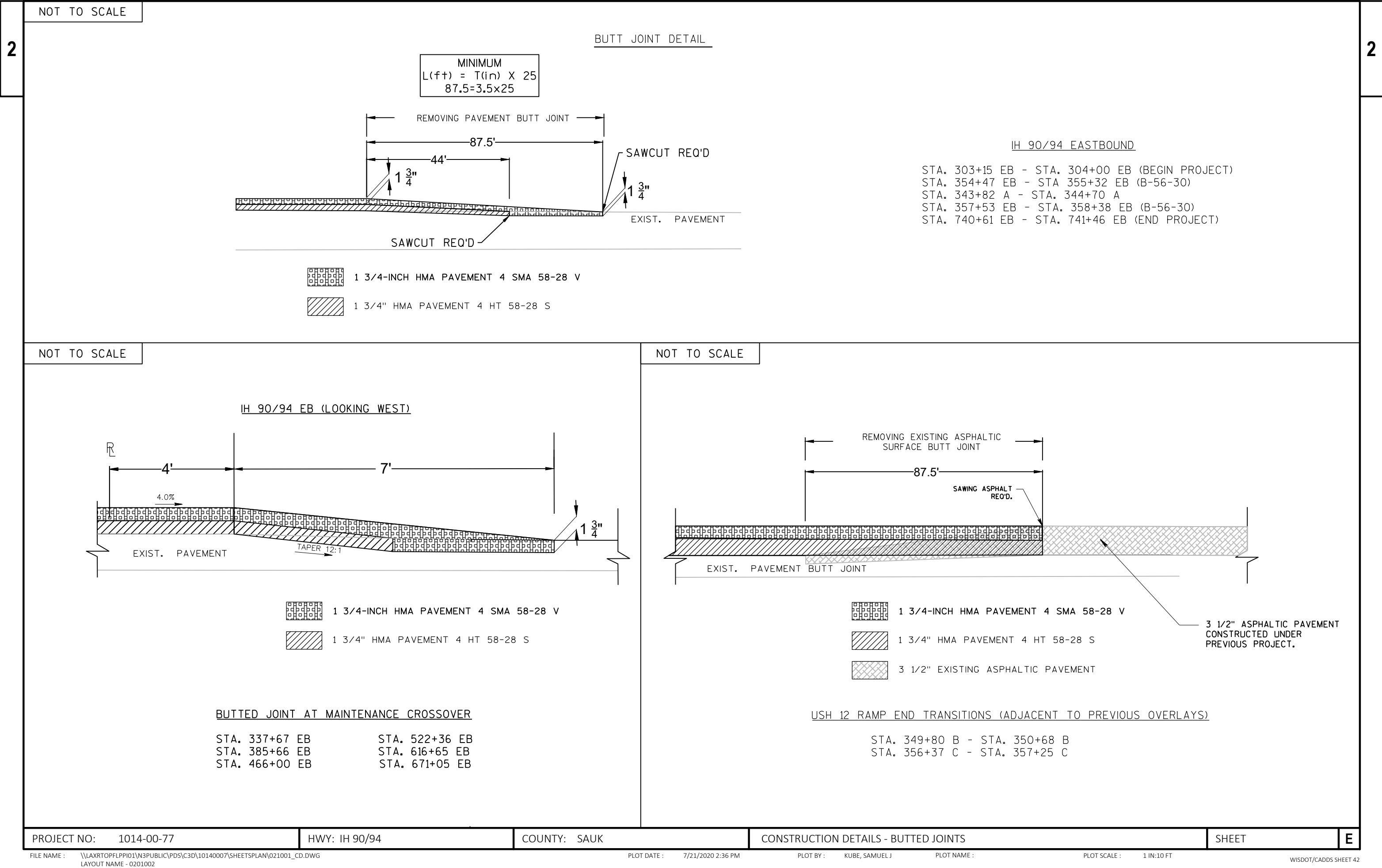
STA 303+95 EB - STA 352+55 EB  
STA 358+70 EB - STA 385+55 EB  
STA 426+45 EB - STA 463+75 EB  
STA 656+15 EB - STA 669+20 EB

\*\*DAMAGE TO SHOULDERS DURING CONCRETE BASE PATCH  
OPERATIONS SHALL BE REPAIRED PRIOR TO OPENING  
TO TRAFFIC AND WILL BE INCIDENTAL TO THE ITEM

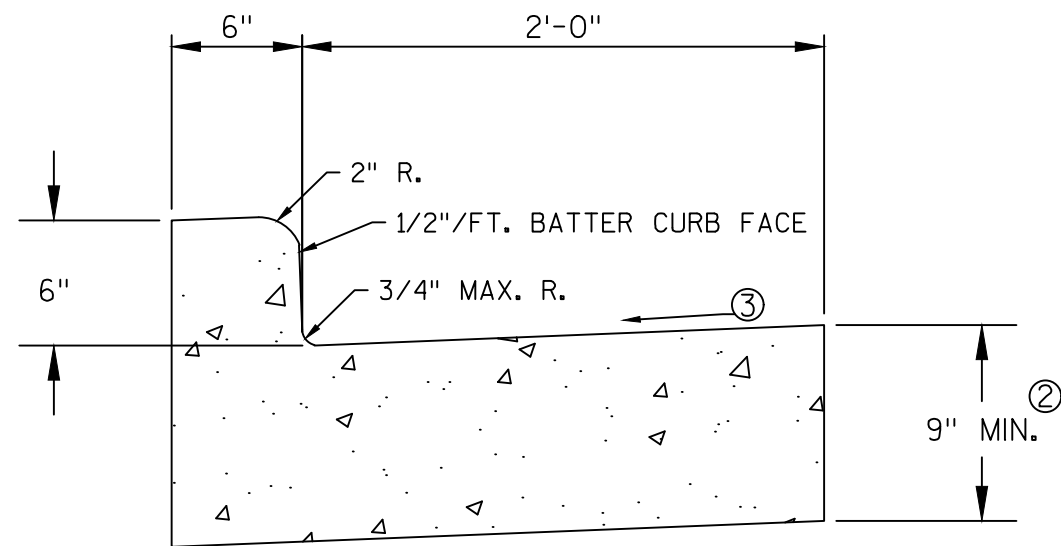
NOT TO SCALE



NOT TO SCALE



CONCRETE CURB & GUTTER 30-INCH TYPE A<sup>①</sup>, 9-INCH



## GENERAL NOTES

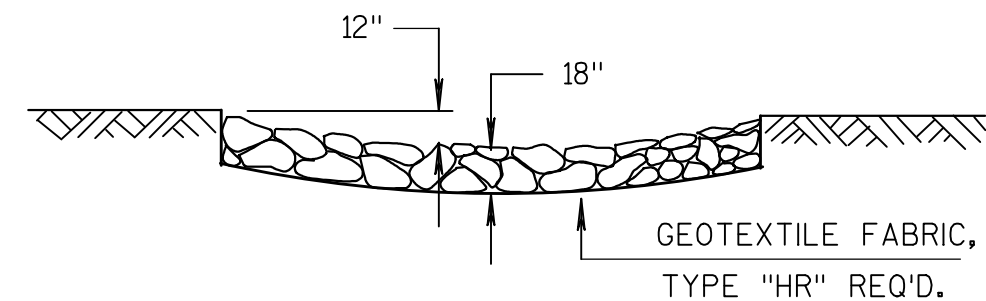
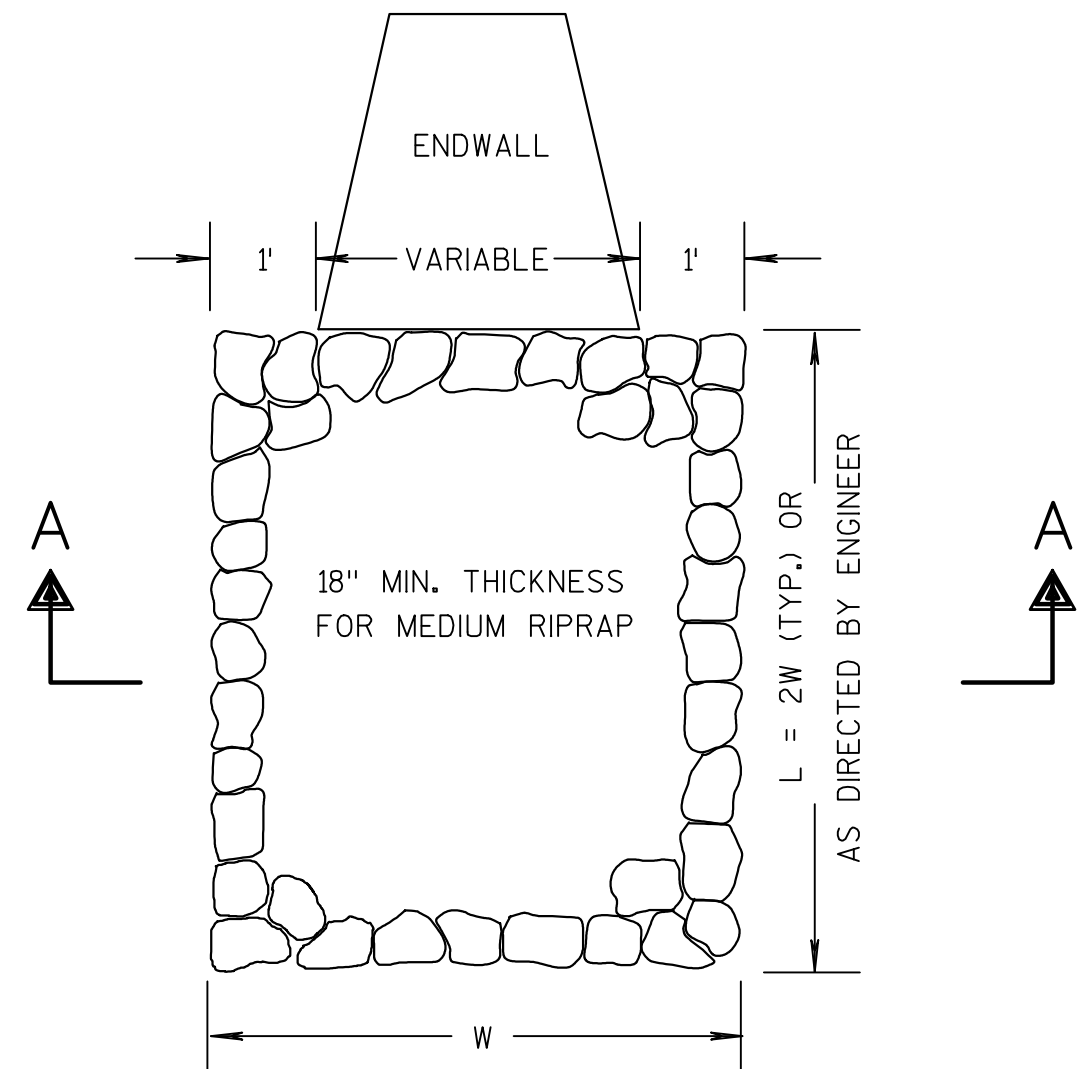
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

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

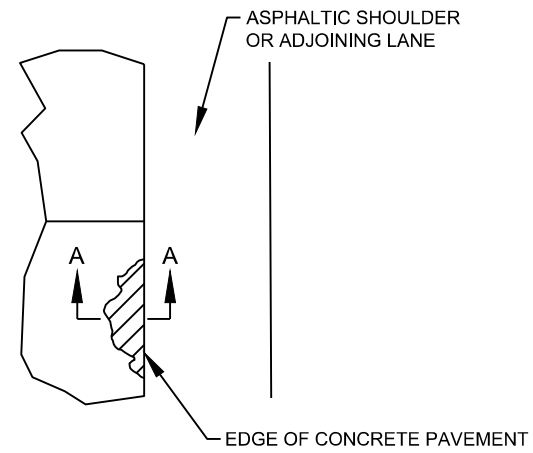
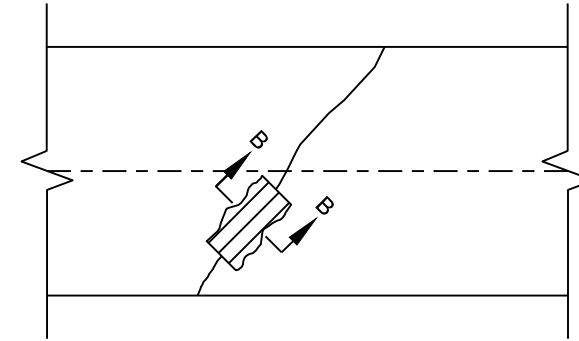
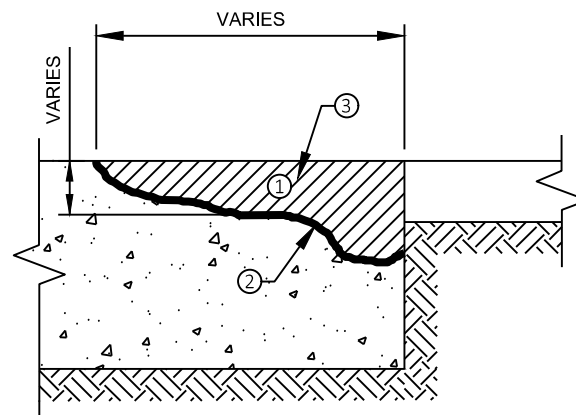
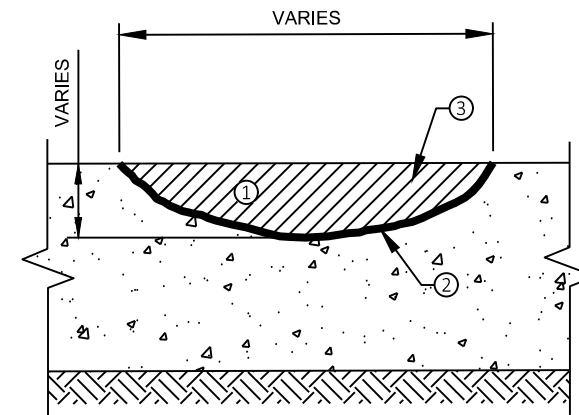
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPE A.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.



SECTION A-A

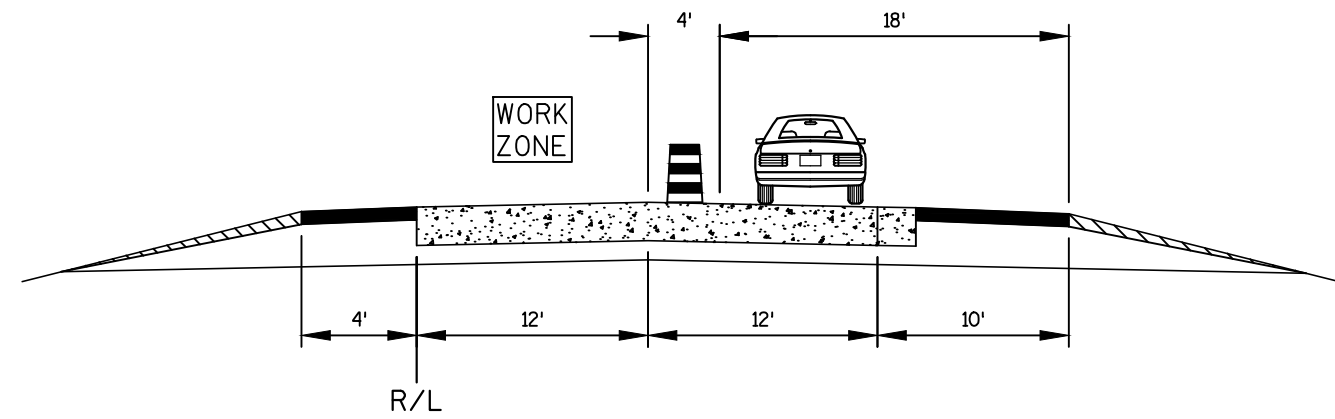
## MEDIUM RIPRAP TREATMENT AT CULVERTS

PLAN VIEWPLAN VIEWSECTION A-ASECTION B-B

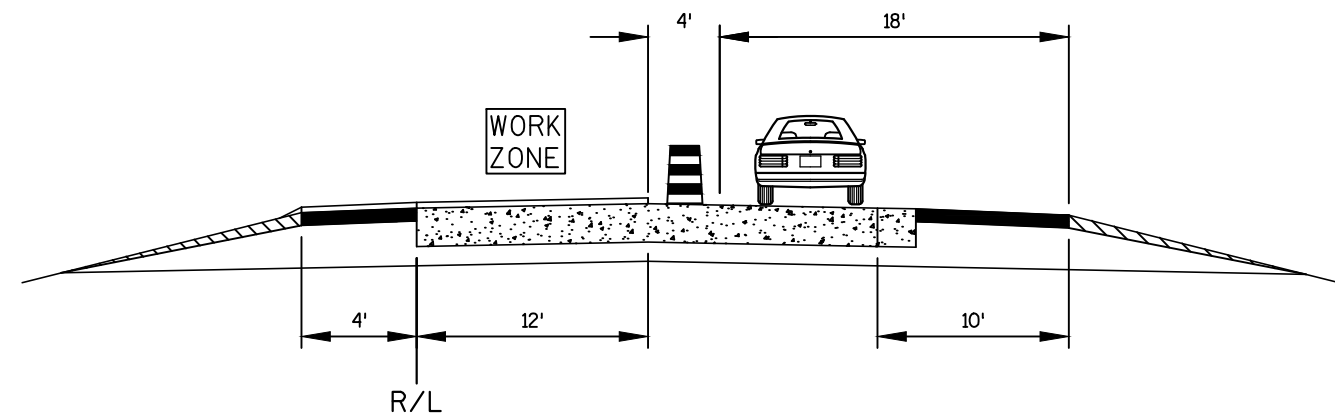
- ① REMOVE ALL UNSOUND AND DETERIORATED MATERIAL
- ② BLOW OUT REPAIR AREAS WITH 80 PSI MINIMUM COMPRESSED AIR - TACK COAT REQUIRED - PAID FOR UNDER CONCRETE JOINT AND CRACK CLEANING
- ③ HMA PAVEMENT SURFACE

CONCRETE JOINT AND CRACK CLEANING

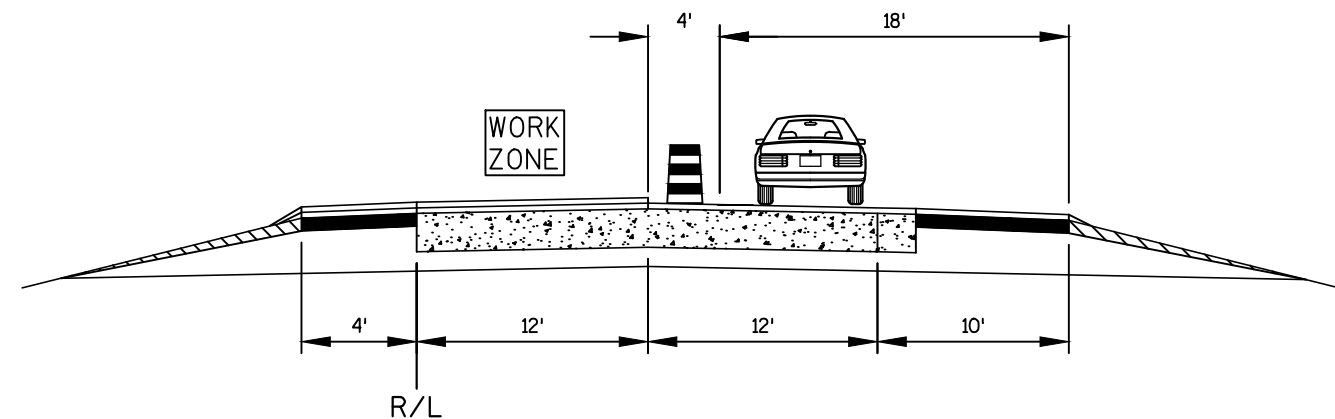




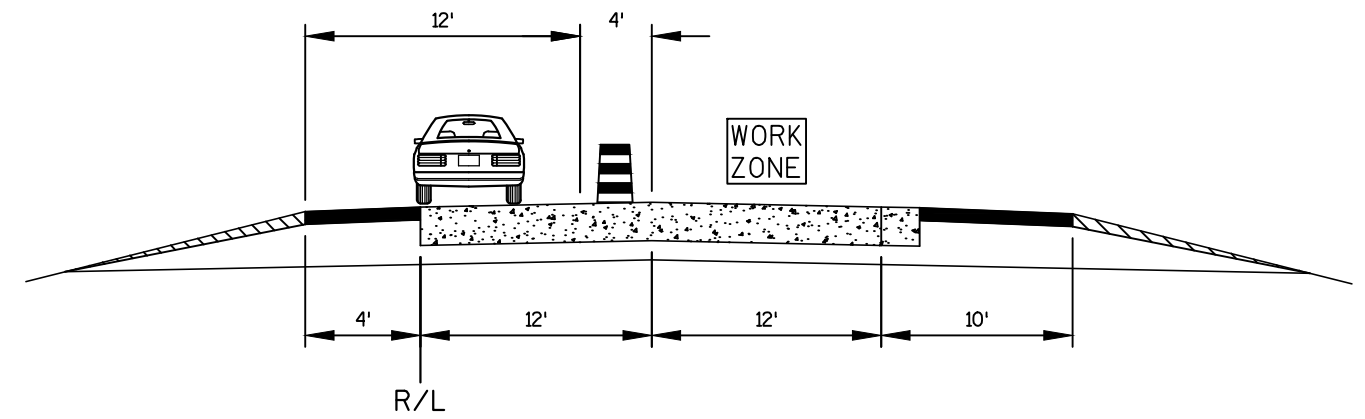
TYPICAL SECTION: MEDIAN LANE CLOSED  
STAGE 1A: BASE PATCHING



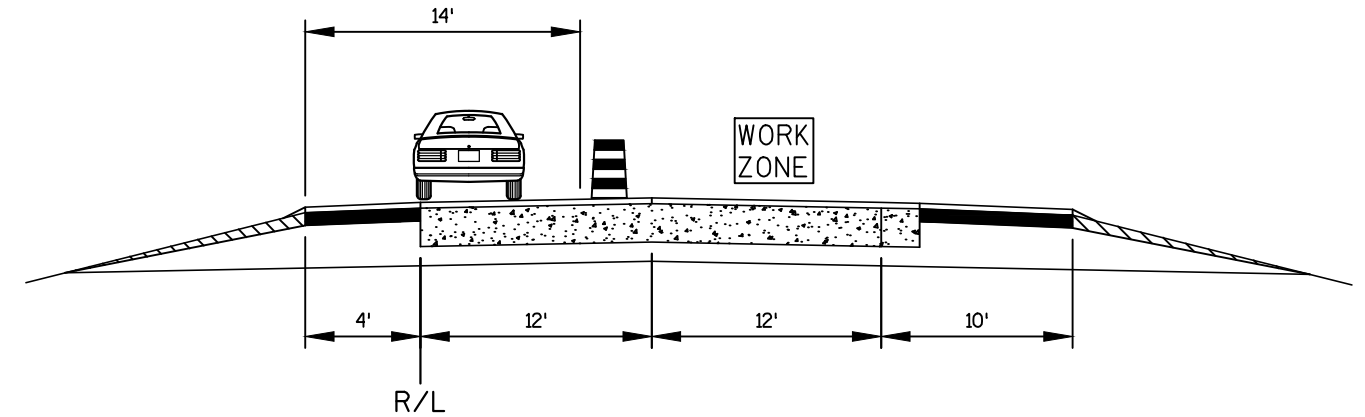
TYPICAL SECTION: MEDIAN LANE CLOSED  
STAGE 2A: ASPHALT BINDER



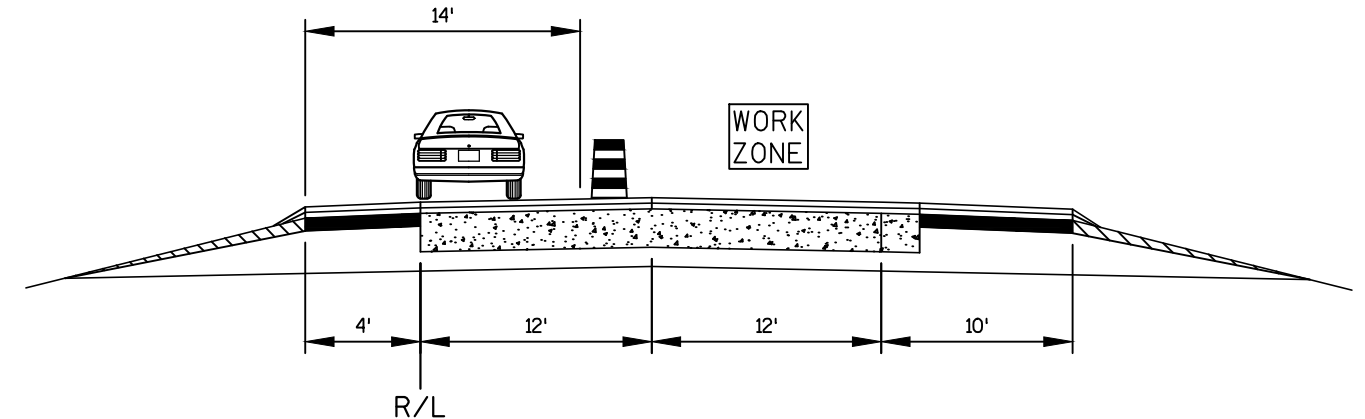
TYPICAL SECTION: MEDIAN LANE CLOSED  
STAGE 2C: HMA PAVEMENT SURFACE



TYPICAL SECTION: OUTSIDE LANE CLOSED  
STAGE 1B: BASE PATCHING



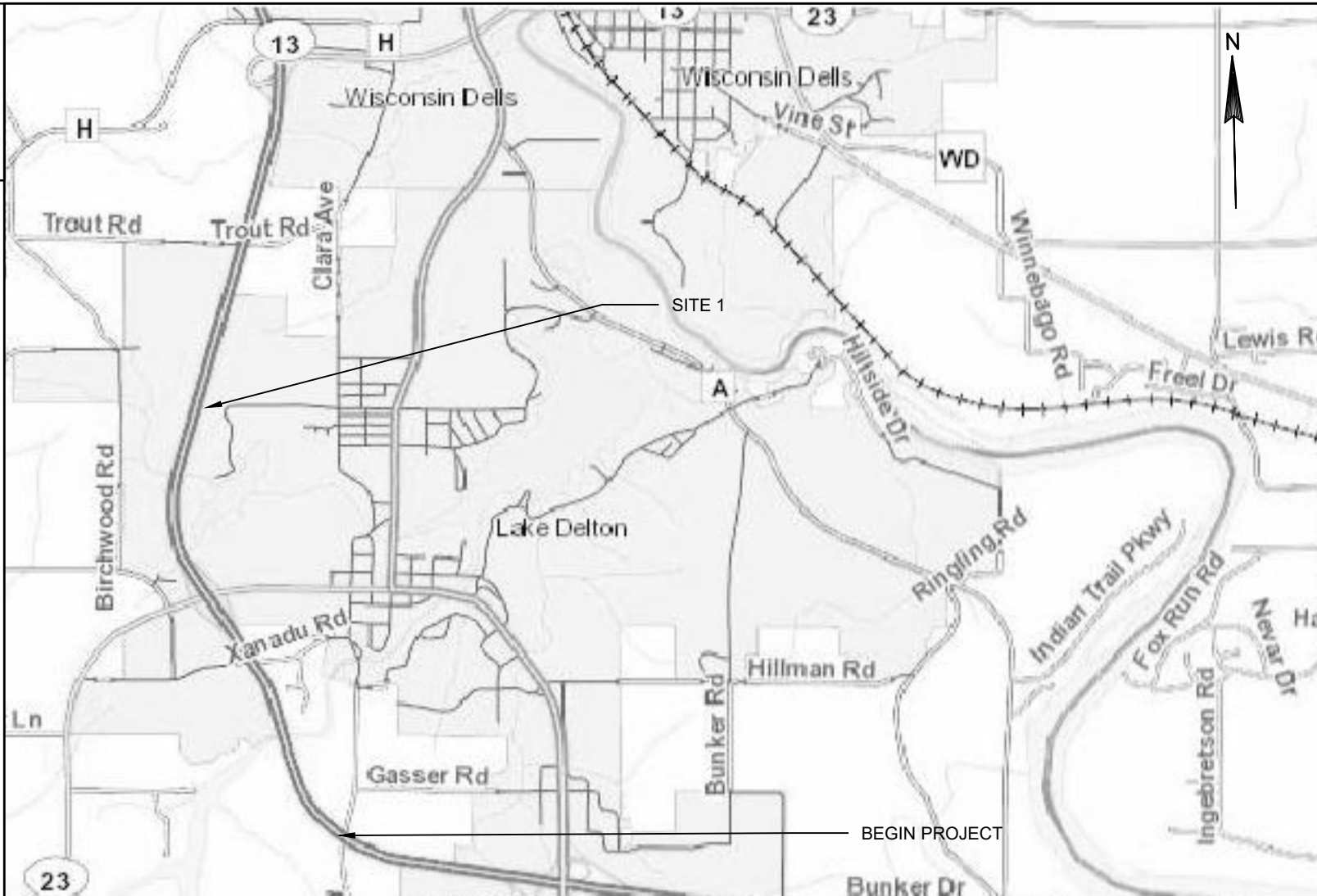
TYPICAL SECTION: OUTSIDE LANE CLOSED  
STAGE 2B: ASPHALT BINDER



TYPICAL SECTION: OUTSIDE LANE CLOSED  
STAGE 2D: HMA PAVEMENT SURFACE

## TRAFFIC CONTROL AND PAVING OPERATIONS

NOT TO SCALE



THE FIELD ENGINEER WILL MAKE THE FINAL DETERMINATION TO THE PLACEMENT OF PCMS BOARDS BASED UPON EXISTING CONDITIONS AND STAGING.

GENERAL NOTES FOR SIGNS PCMS

CONSIDER GEOMETRICS WHEN LOCATING PCMS SO THE DRIVER HAS A CLEAR VIEW OF THE BOARD FOR A MINIMUM OF 1000 FEET IN FRONT OF THE PCMS.

PCMS SHOULD BE PLACED AS FAR AWAY FROM LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY. IN ADVANCE OF HIGHWAY CONSTRUCTION PROJECTS, THE SIGNS SHOULD BE PLACED ON THE BACKSLOPE BEYOND THE DITCH. THE LOCATION SELECTED SHOULD BE AT OR SLIGHTLY ABOVE THE ELEVATION OF THE ROADWAY. FOR INTERMITTENT WORK SUCH AS FREEWAY LANE CLOSURE, OR WHERE SITE CONDITIONS DO NOT ALLOW OTHERWISE, THE SIGNS MAY BE PLACED ON THE SHOULDER. THE SITE SHOULD BE VISITED TO ASSURE VISIBILITY, SAFETY, AND MAINTENANCE CONSIDERATIONS. A TAPER OF REFLECTORIZED DRUMS OR BARRICADES SHOULD BE PLACED AHEAD OF PCMS PLACED ON THE SHOULDER IF IT IS NOT SHIELDED BY A BARRIER.

SITE NO.	ROADWAY CONDITION CONSTRUCTION	PHASE 1 (2 SEC. )	PHASE 2 (2 SEC. )
* SITE 1	GENERAL	ROAD WORK	STARTING 'DATE'
SITE 1	OPERATIONAL BACKUPS (NO INCIDENT)	TRAFFIC DELAY AHEAD	USE ALT ROUTE
SITE 1	INCIDENT BACKUPS	INCIDENT AHEAD	USE ALT ROUTE
SITE 1	BLOCKED HIGHWAY	INCIDENT AHEAD	ALT ROUTE EXIT XXX

SITE NO.	APPROXIMATE LOCATION
1	MAINTENANCE CROSSOVER 0.75 MILES EAST OF MILE POST 88

\* MESSAGE BOARD IN OPERATION A MINIMUM OF 7 DAYS PRIOR TO THE START OF WORK



FRAME 1	FRAME 2
EXIT 92 CLOSED	USE EXIT 89

PCMS

TO

M4-5 or MM4-5 or MP4-5

12

M1-54  
24"x24"



M5-2R or MMS-2R or M05-2R or MP5-2R  
21"x21"

TO

M4-5 or MM4-5 or MP4-5

12

M1-54  
24"x24"



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

TO

M4-5 or MM4-5 or MP4-5

12

M1-54  
24"x24"



TO

M4-5 or MM4-5 or MP4-5

12

M1-54  
24"x24"



MB6-1 or MK6-1 or MN6-1 or MR6-1  
21"x21"

TO

M4-5 or MM4-5 or MP4-5

12

M1-54  
24"x24"

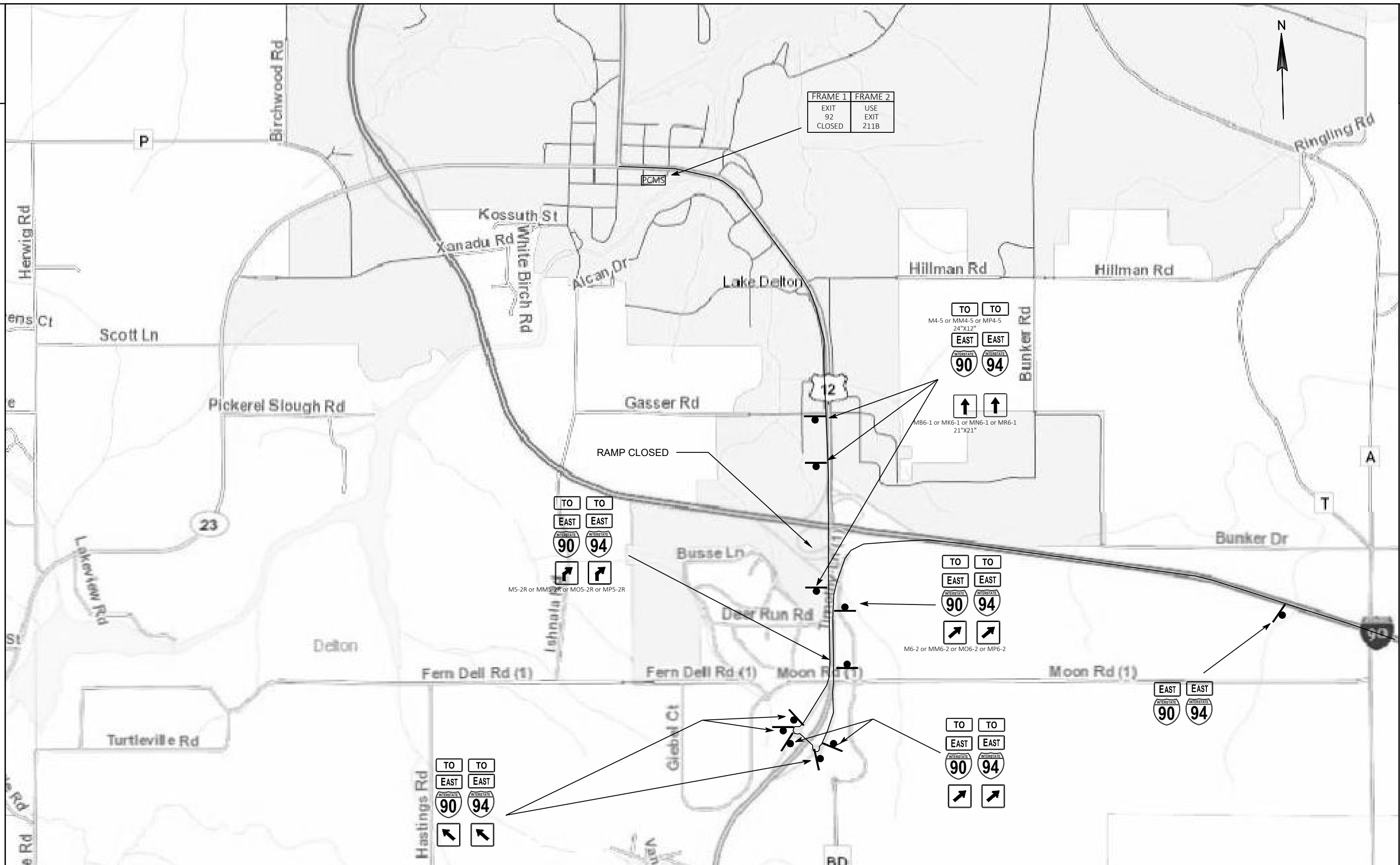


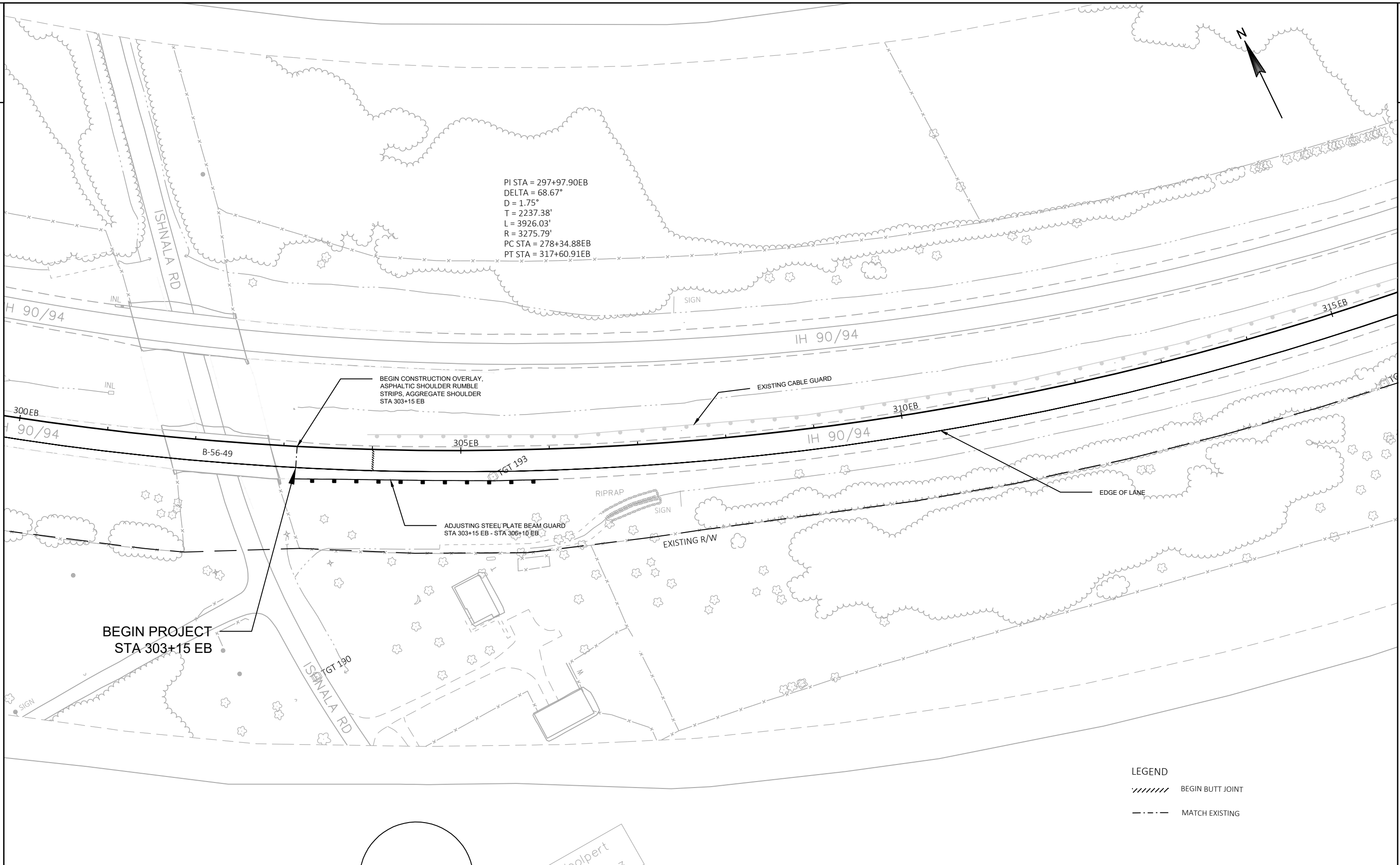
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M1-54  
24"x24"

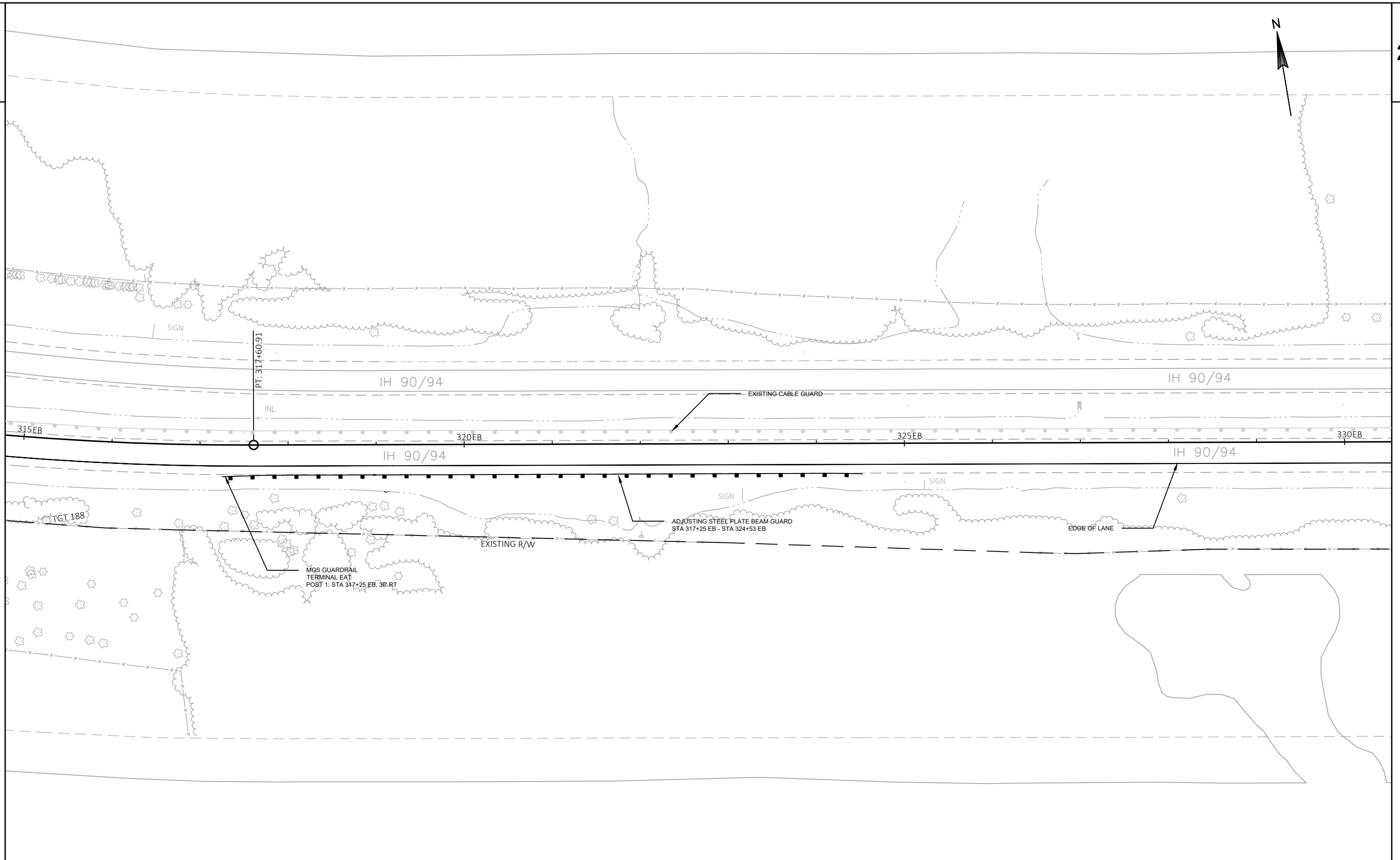
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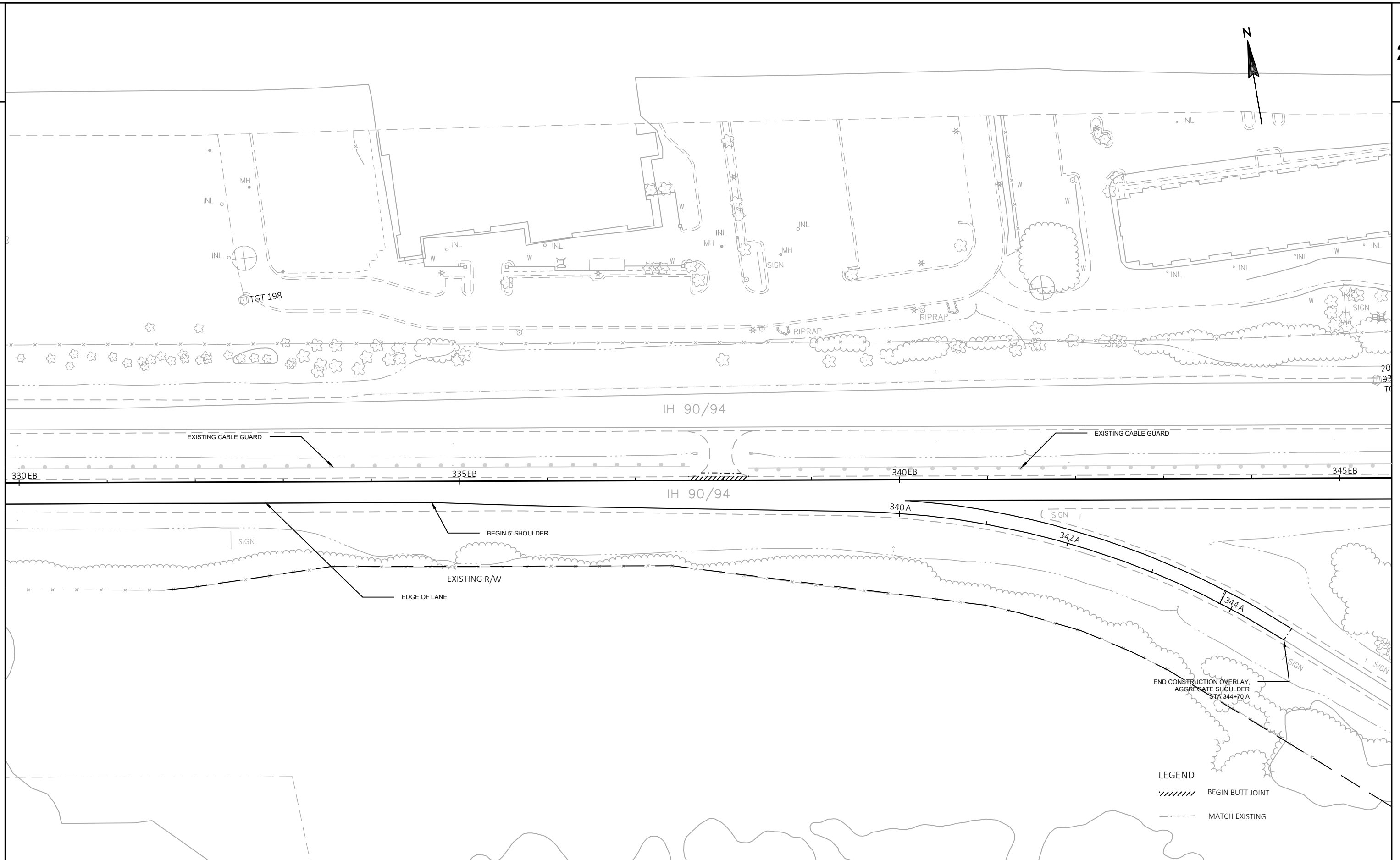




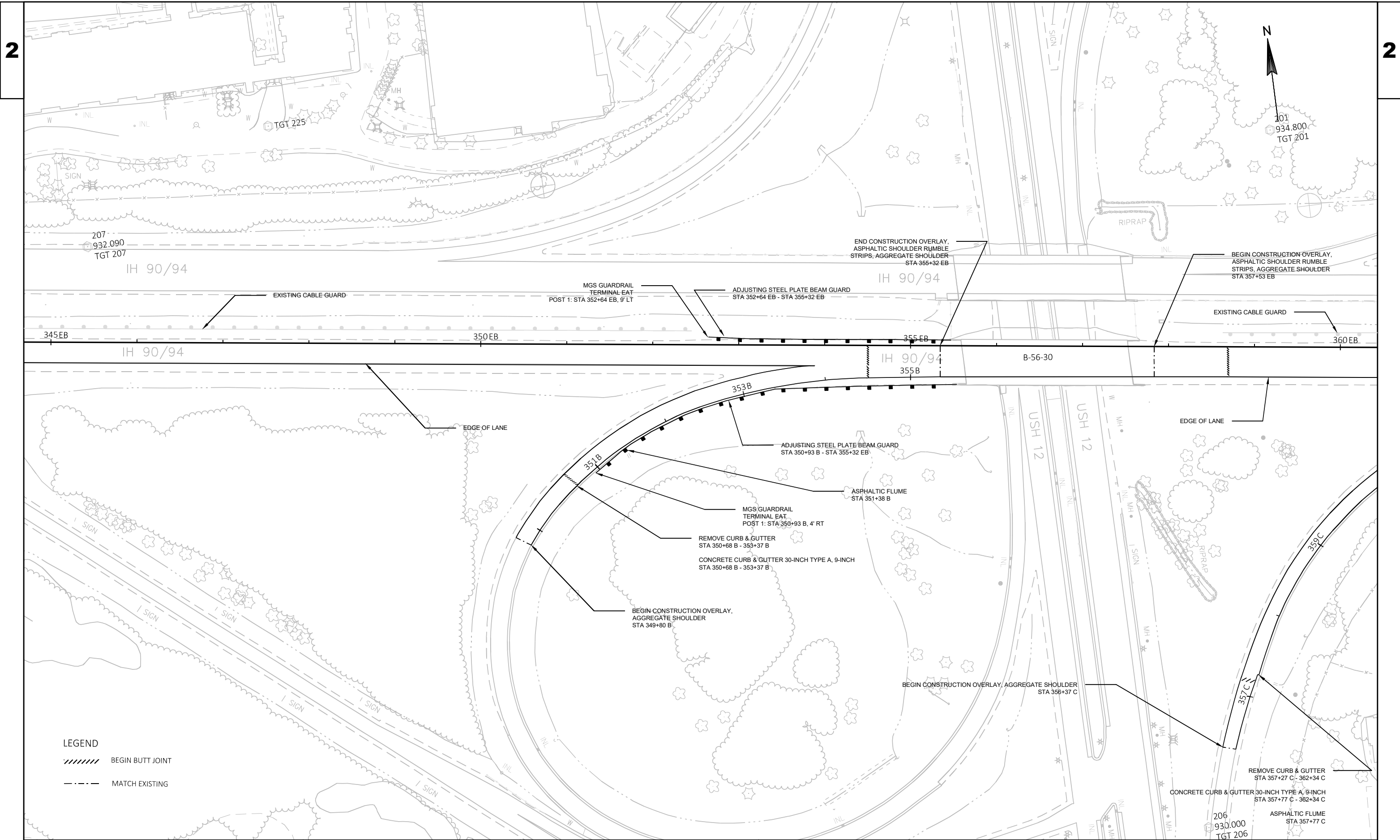


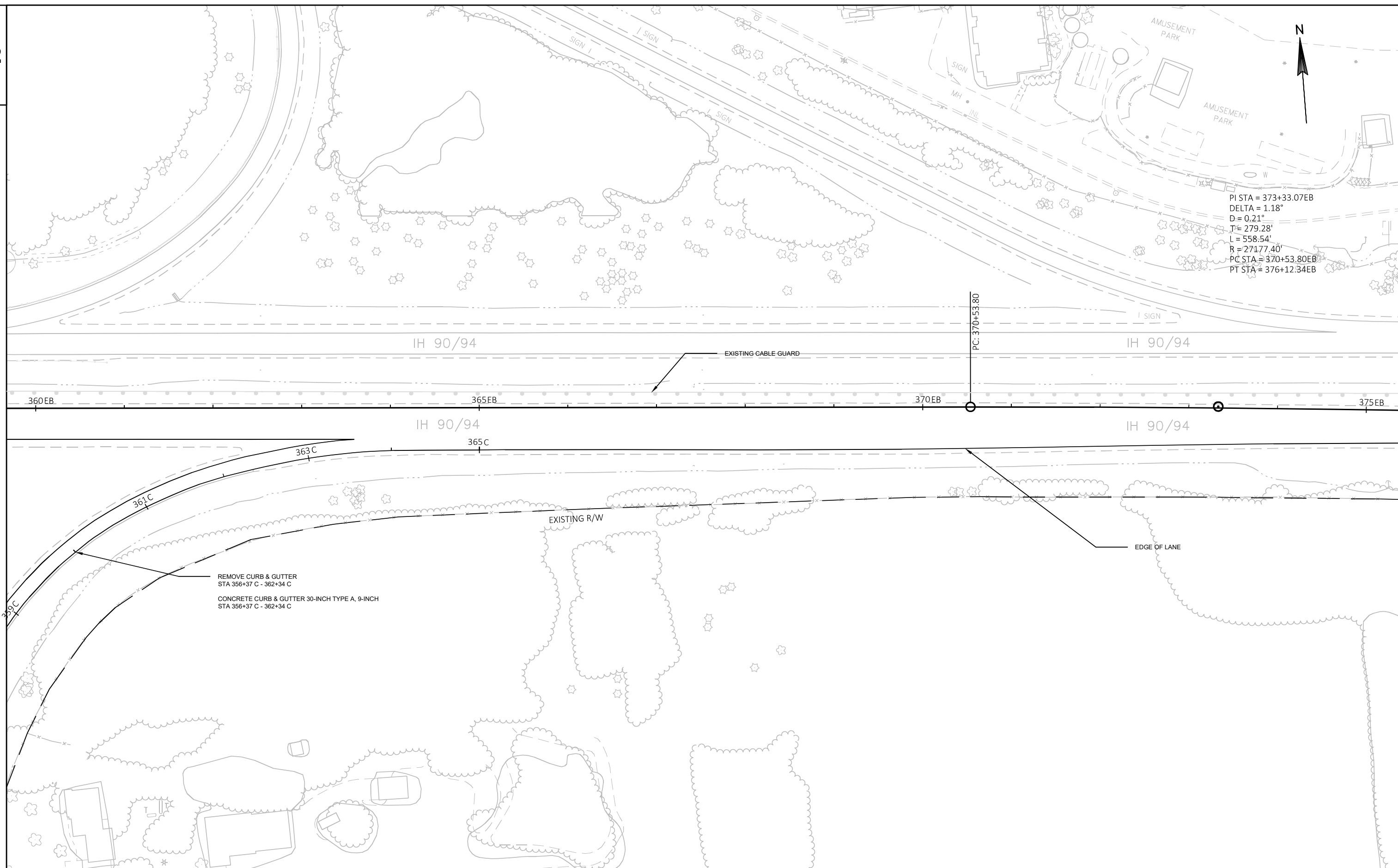


PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	-----	<b>E</b>
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PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	E
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PROJECT NO:1014-00-77

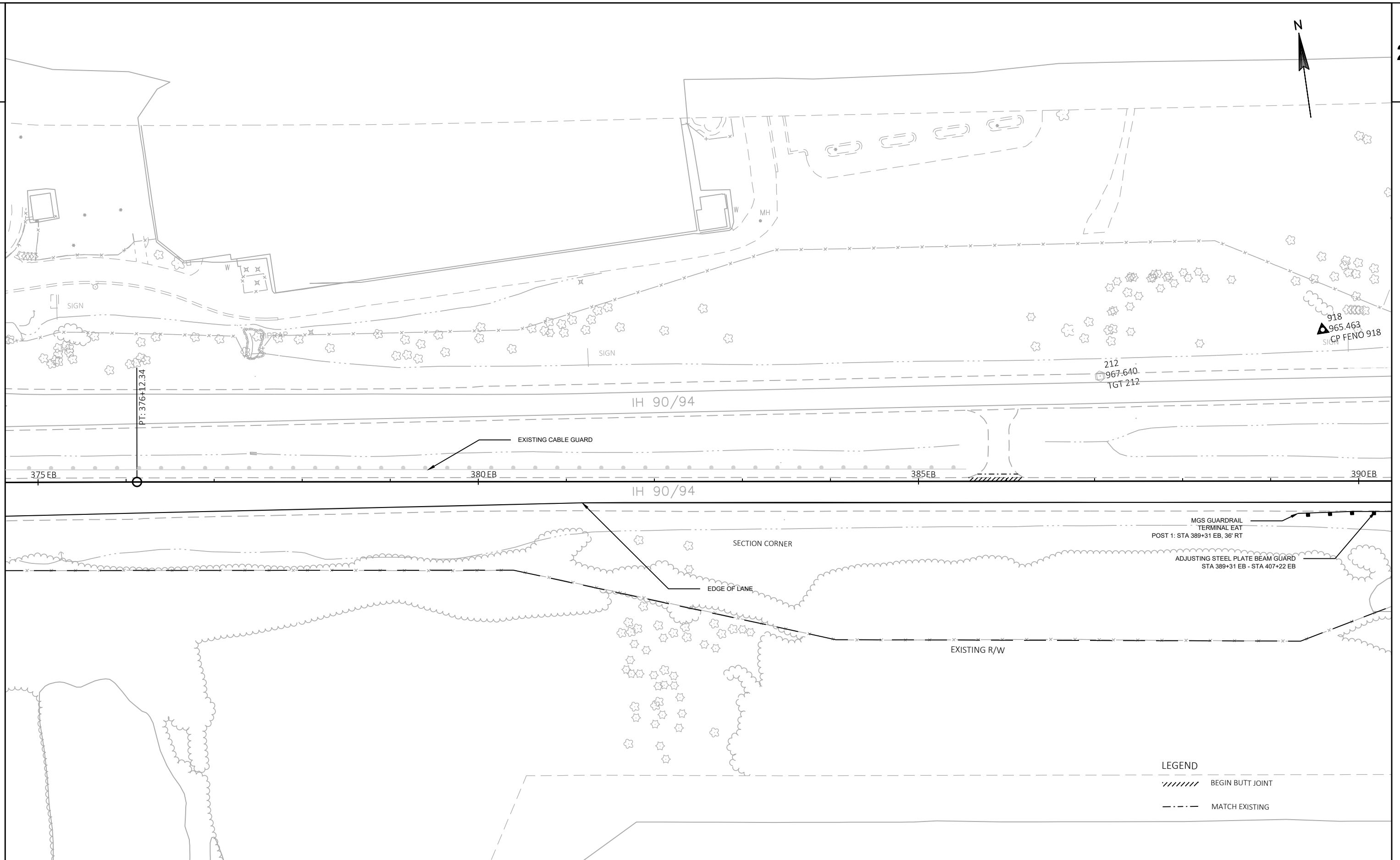
HWY: IH 90/94

COUNTY: SAUK

PLAN DETAILS

SHEET

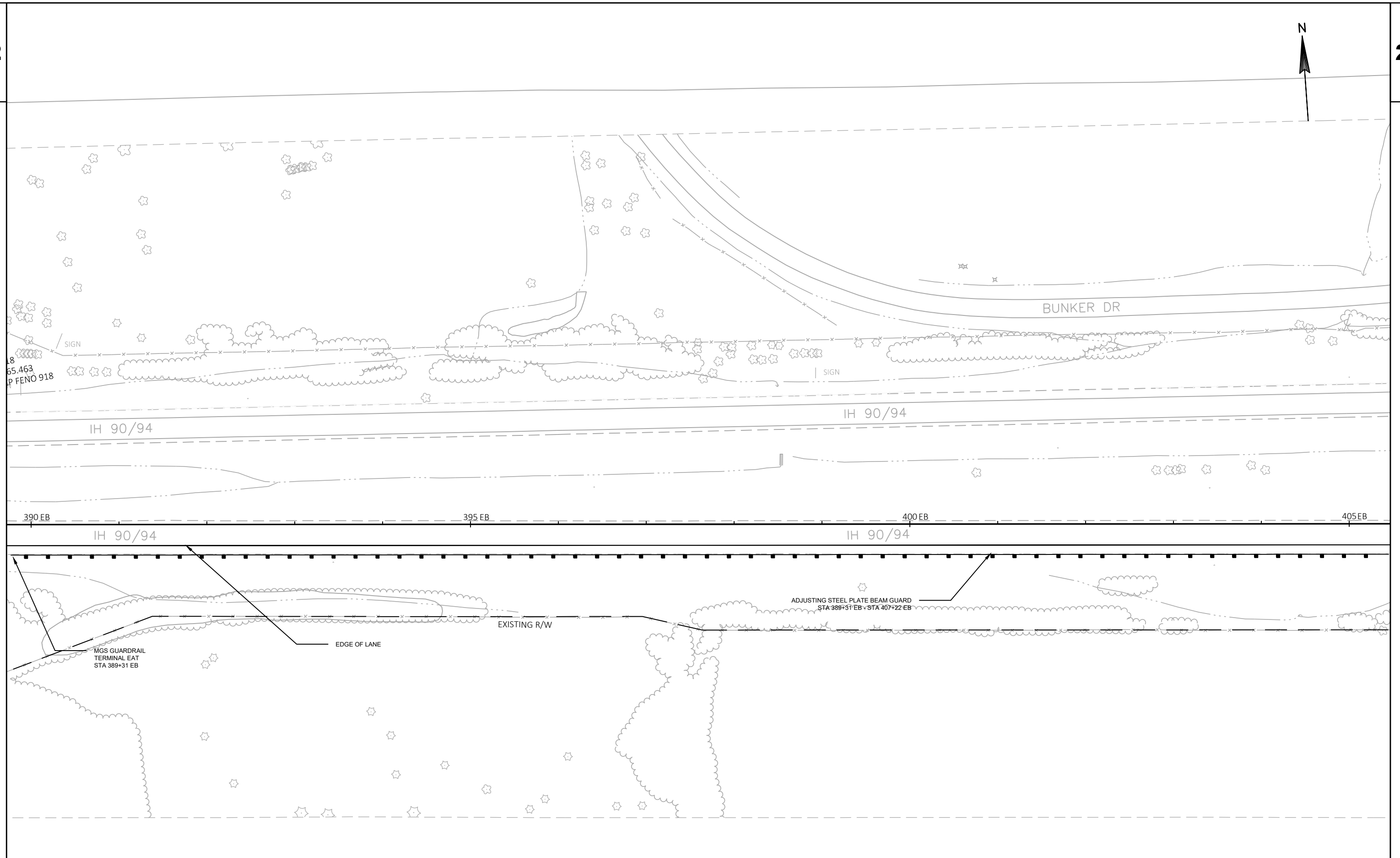
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PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	E
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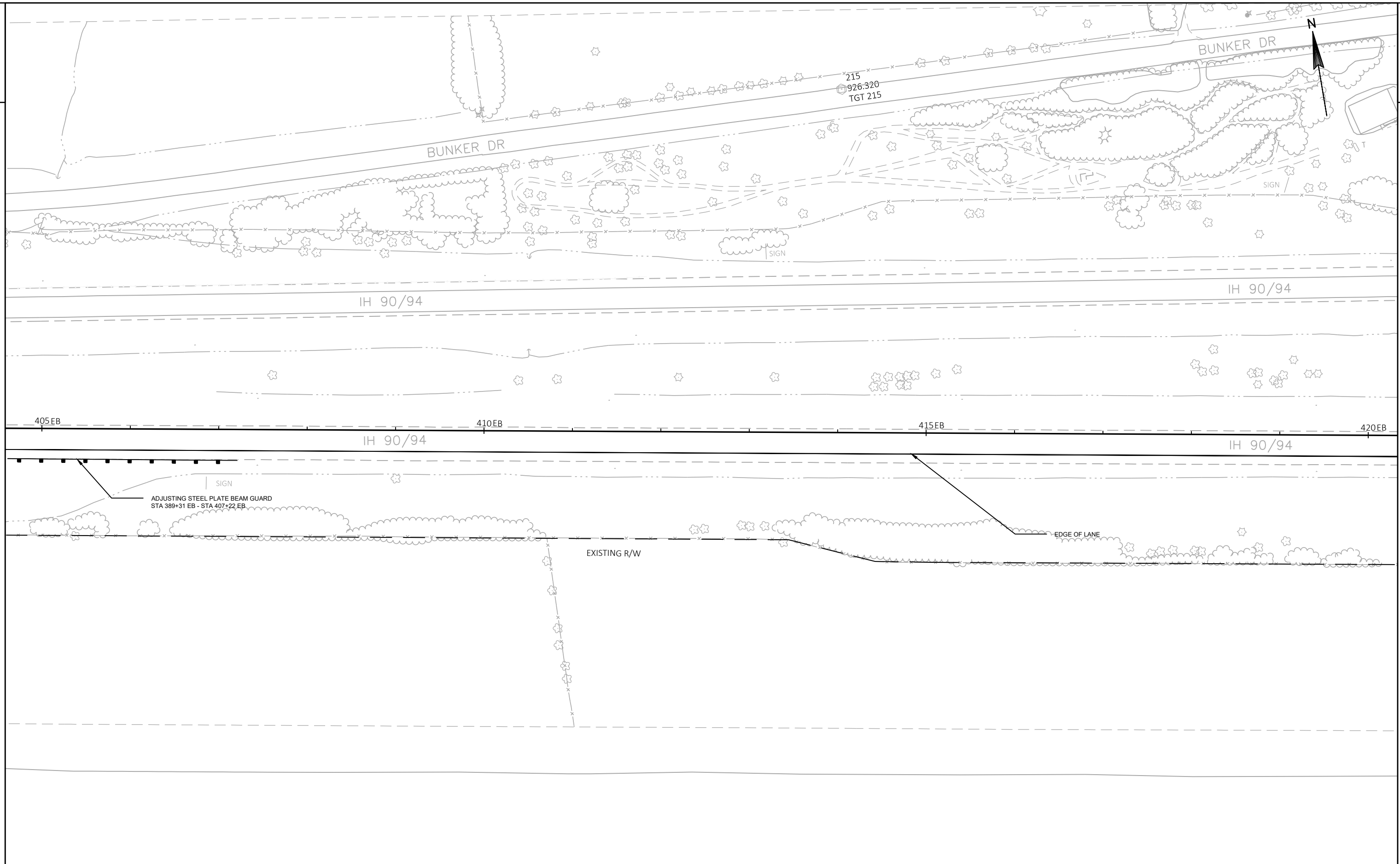
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2

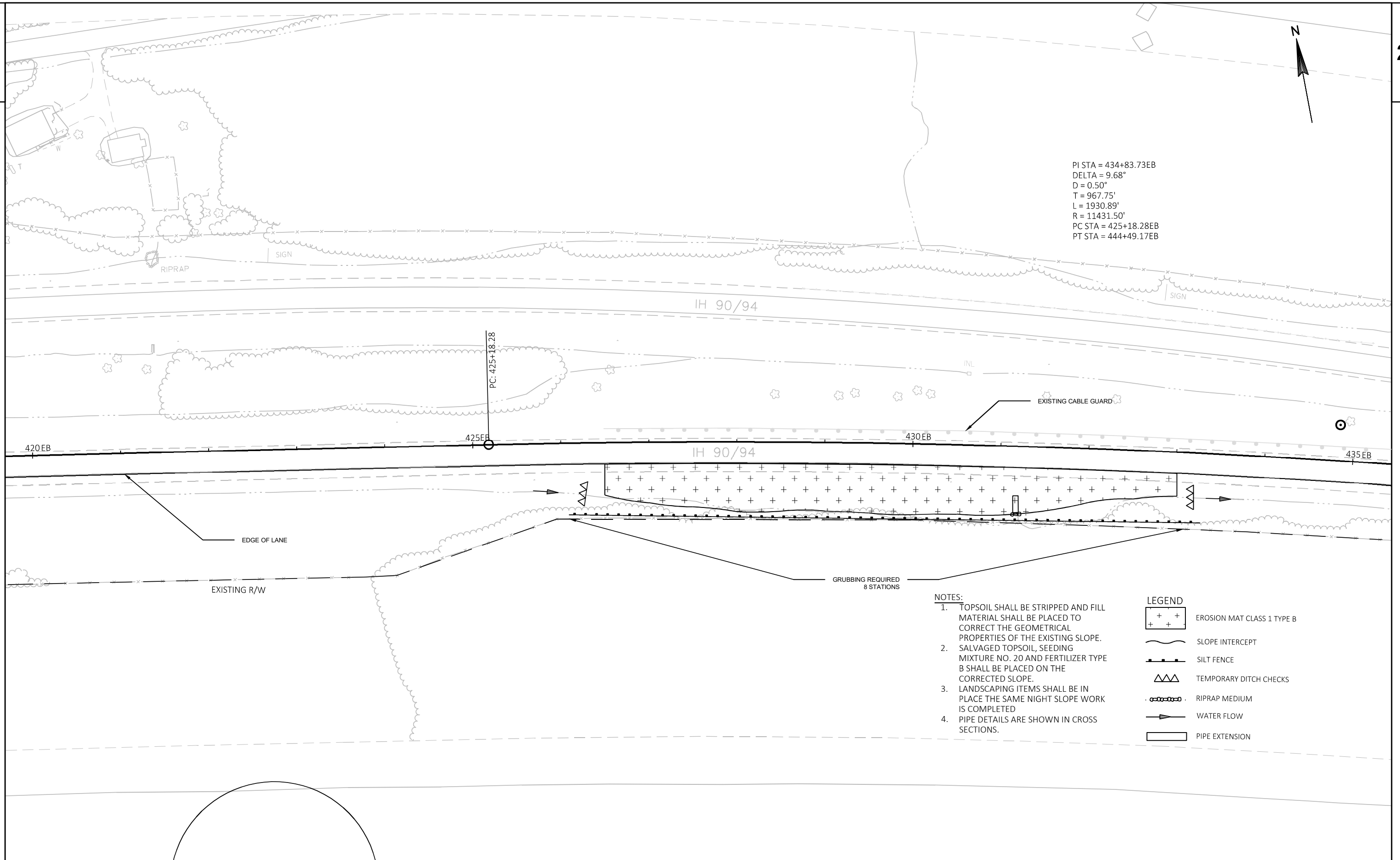


PROJECT NO:1014-00-77	HWY:IH 90/94	COUNTY:SAUK	PLAN DETAILS	SHEET	-----	<b>E</b>
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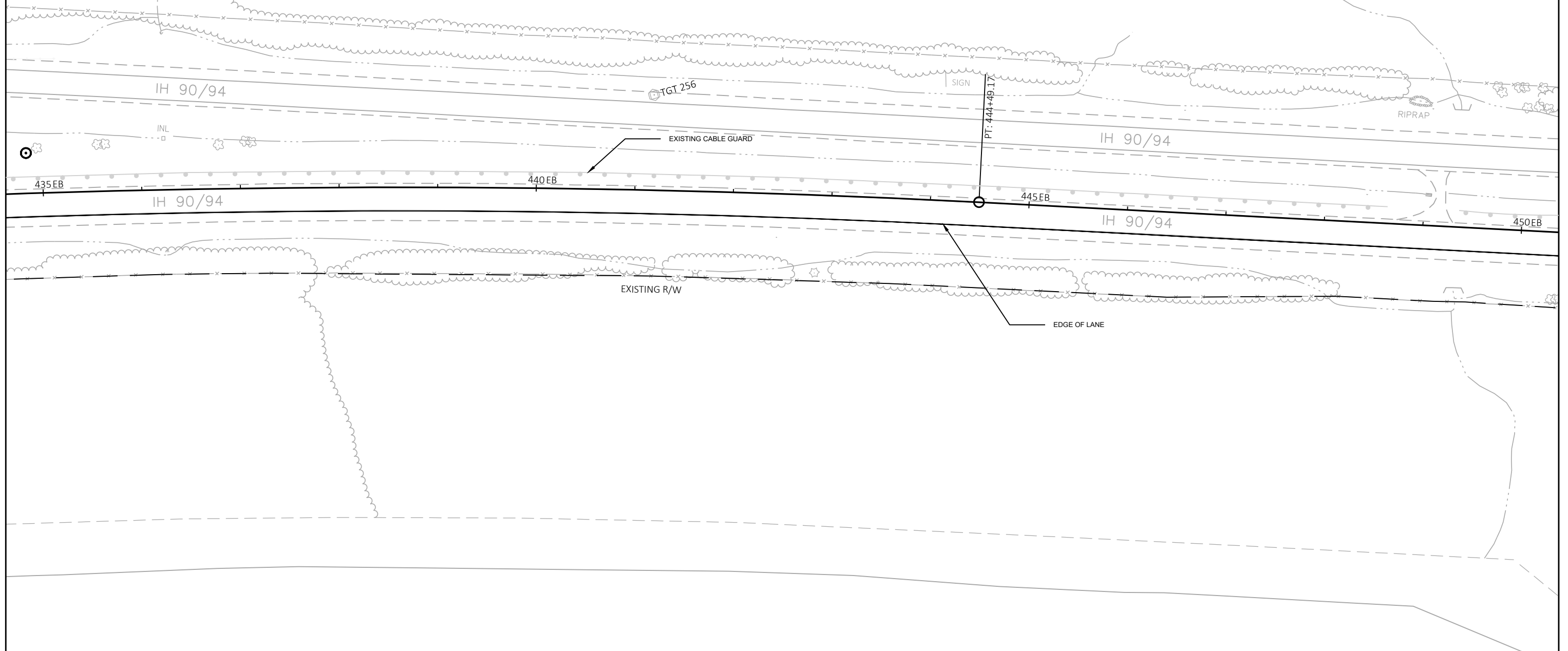




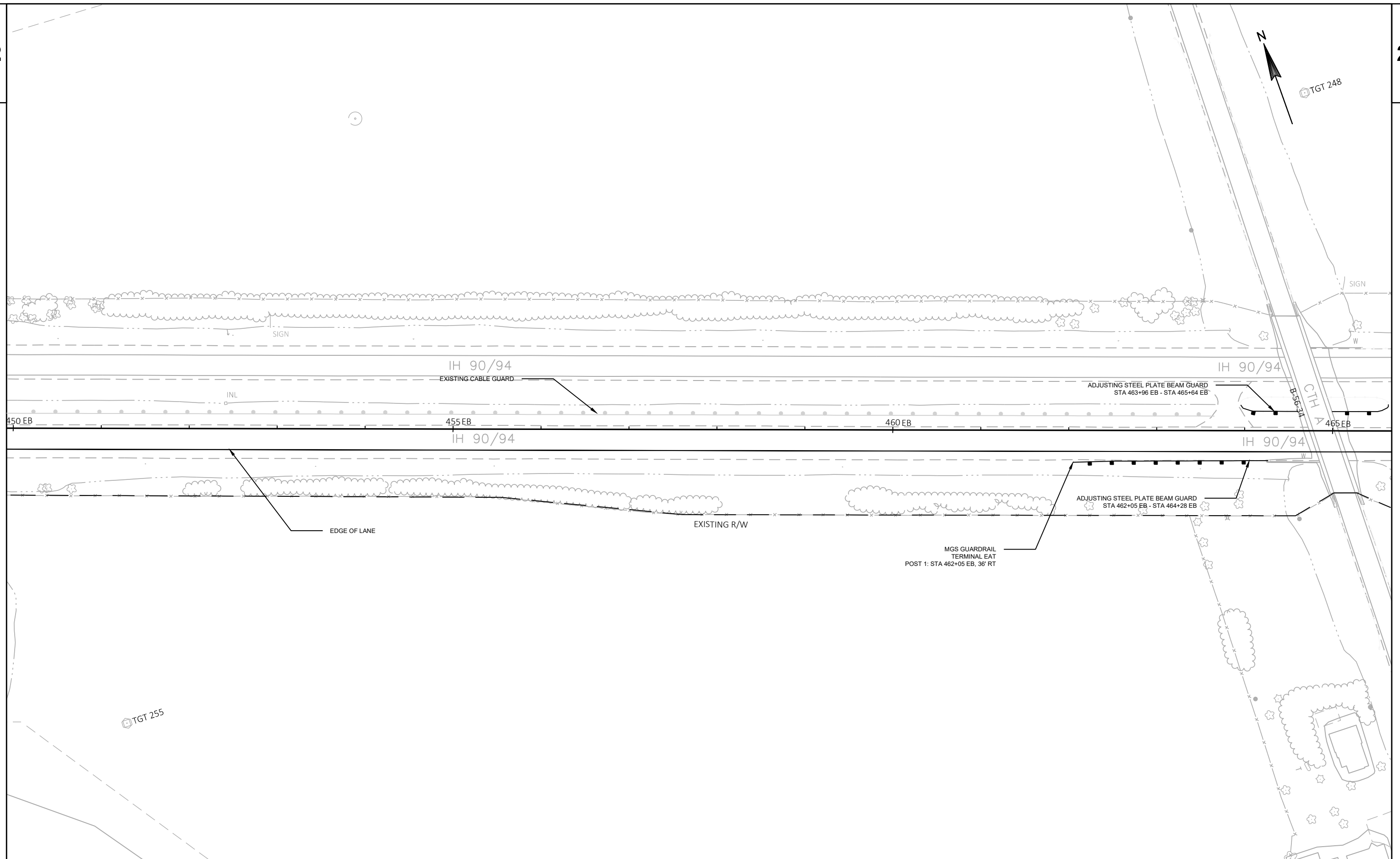
PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	-----	<b>E</b>
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PI STA = 434+83.73EB  
DELTA = 9.68°  
D = 0.50°  
T = 967.75'  
L = 1930.89'  
R = 11431.50'  
PC STA = 425+18.28EB  
PT STA = 444+49.17EB



PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	E
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PROJECT NO:1014-00-77

HWY: IH 90/94

COUNTY: SAUK

PLAN DETAILS

SHEET

E

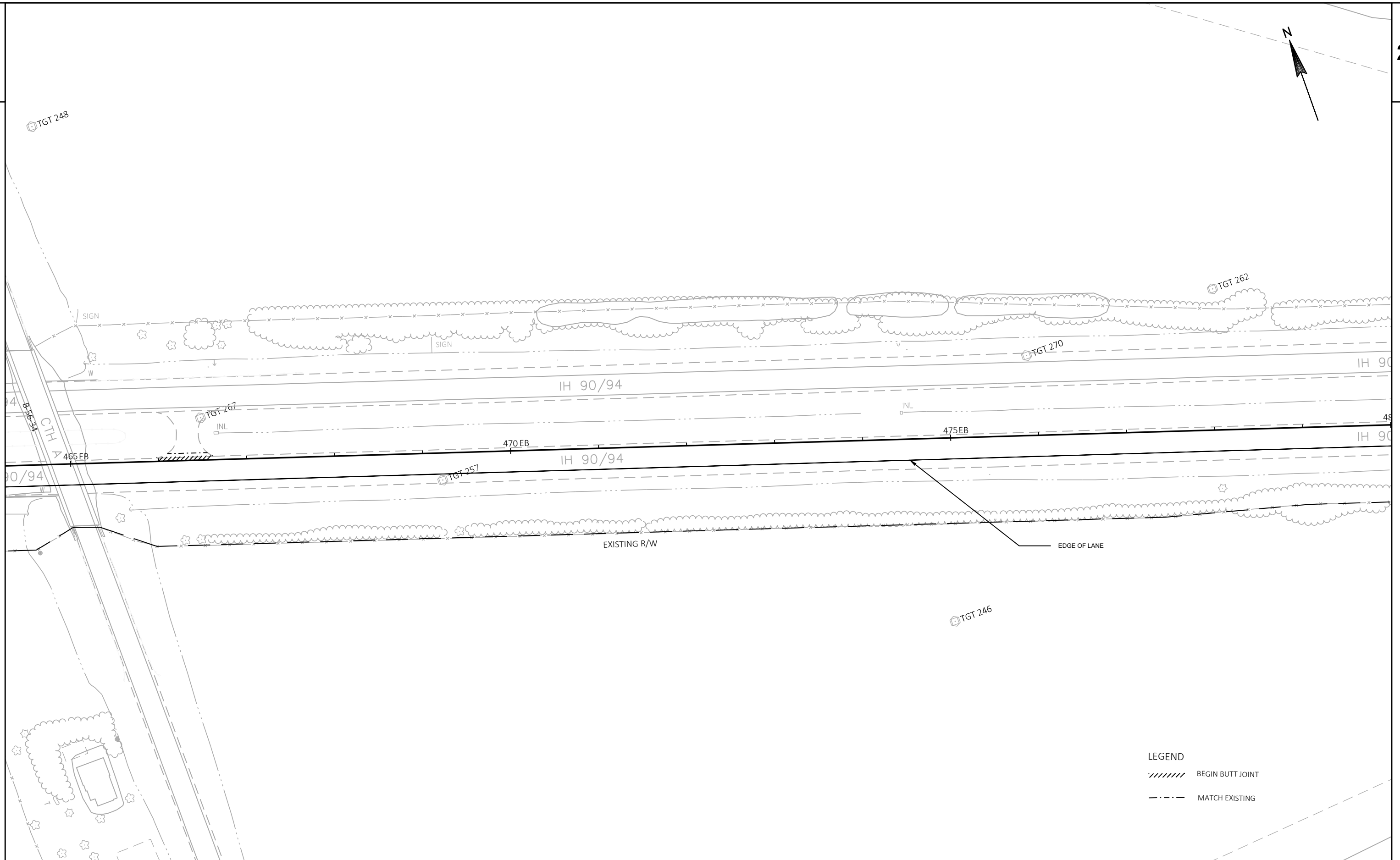
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LAYOUT NAME - 83

PLOT DATE : 7/20/2020 3:07 PM

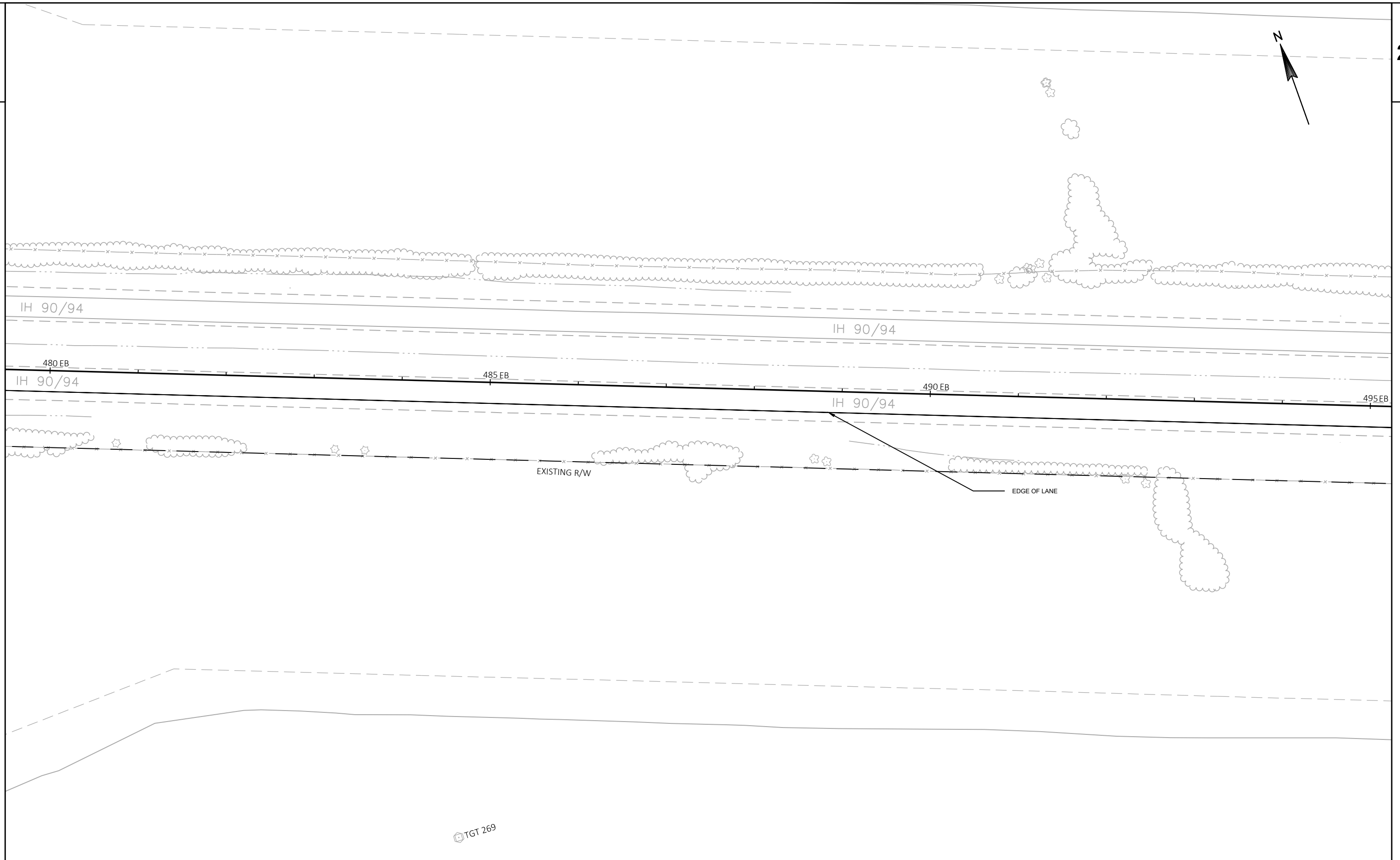
PLOT BY : KUBE, SAMUEL J

PLOT NAME : -----

WISDOT/CADDs SHEET 42

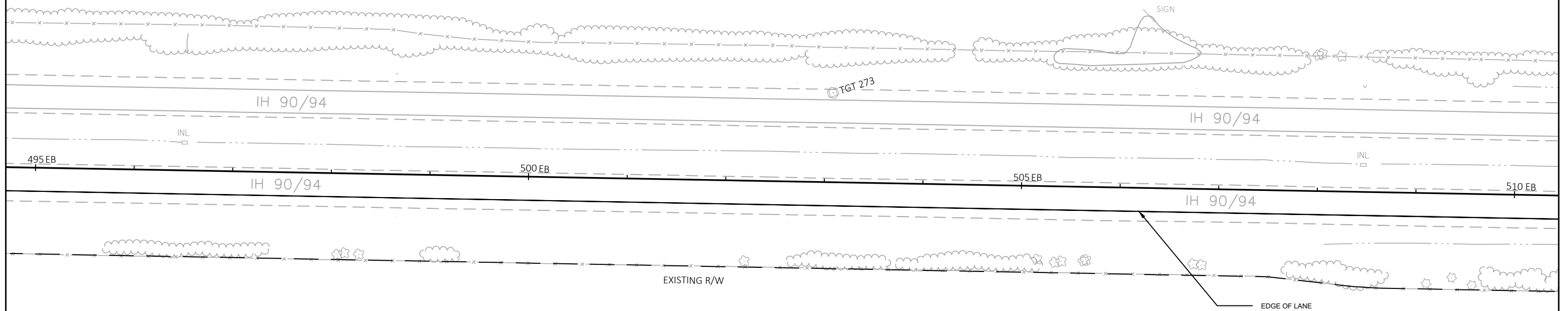


PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	E
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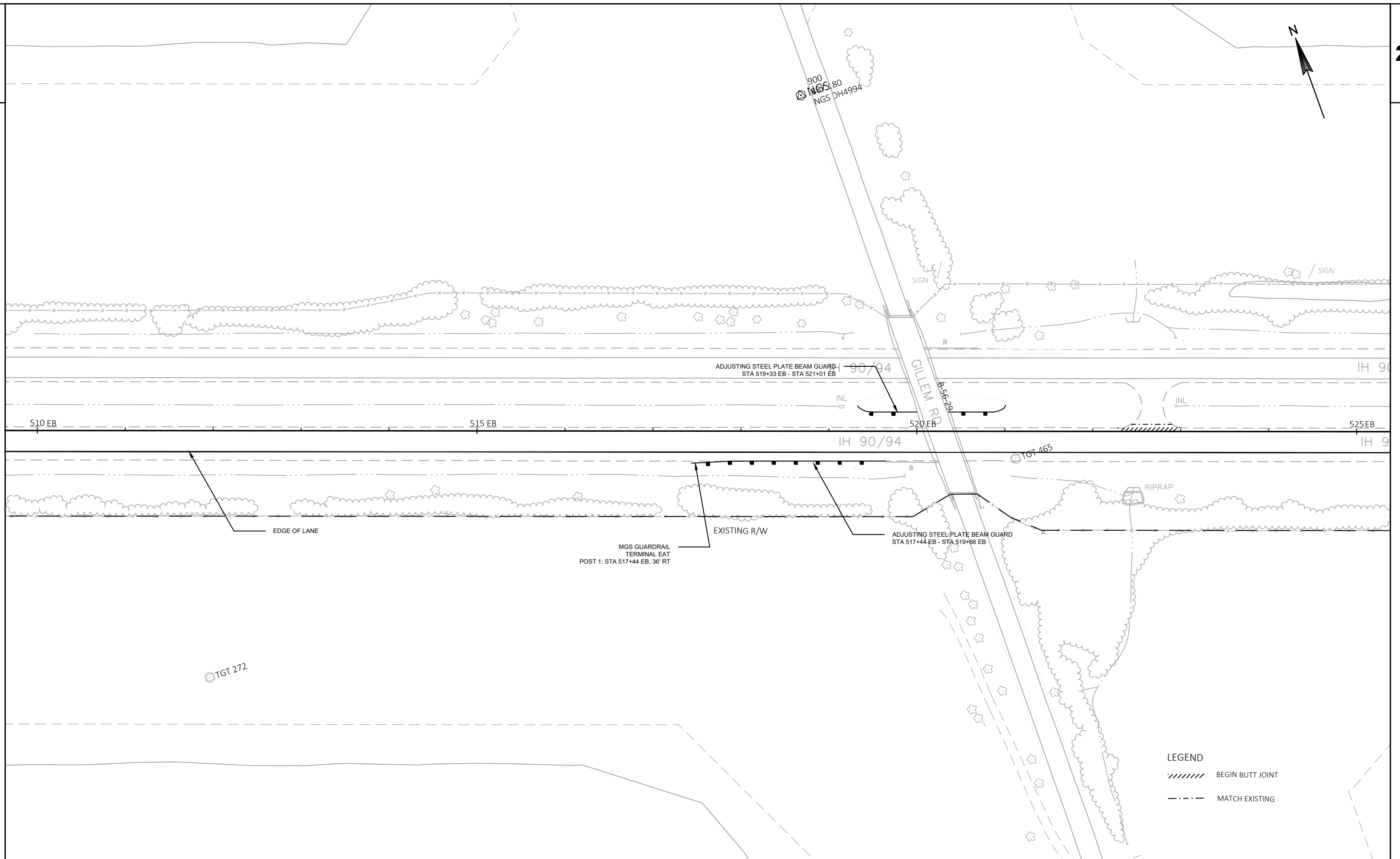
PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	E
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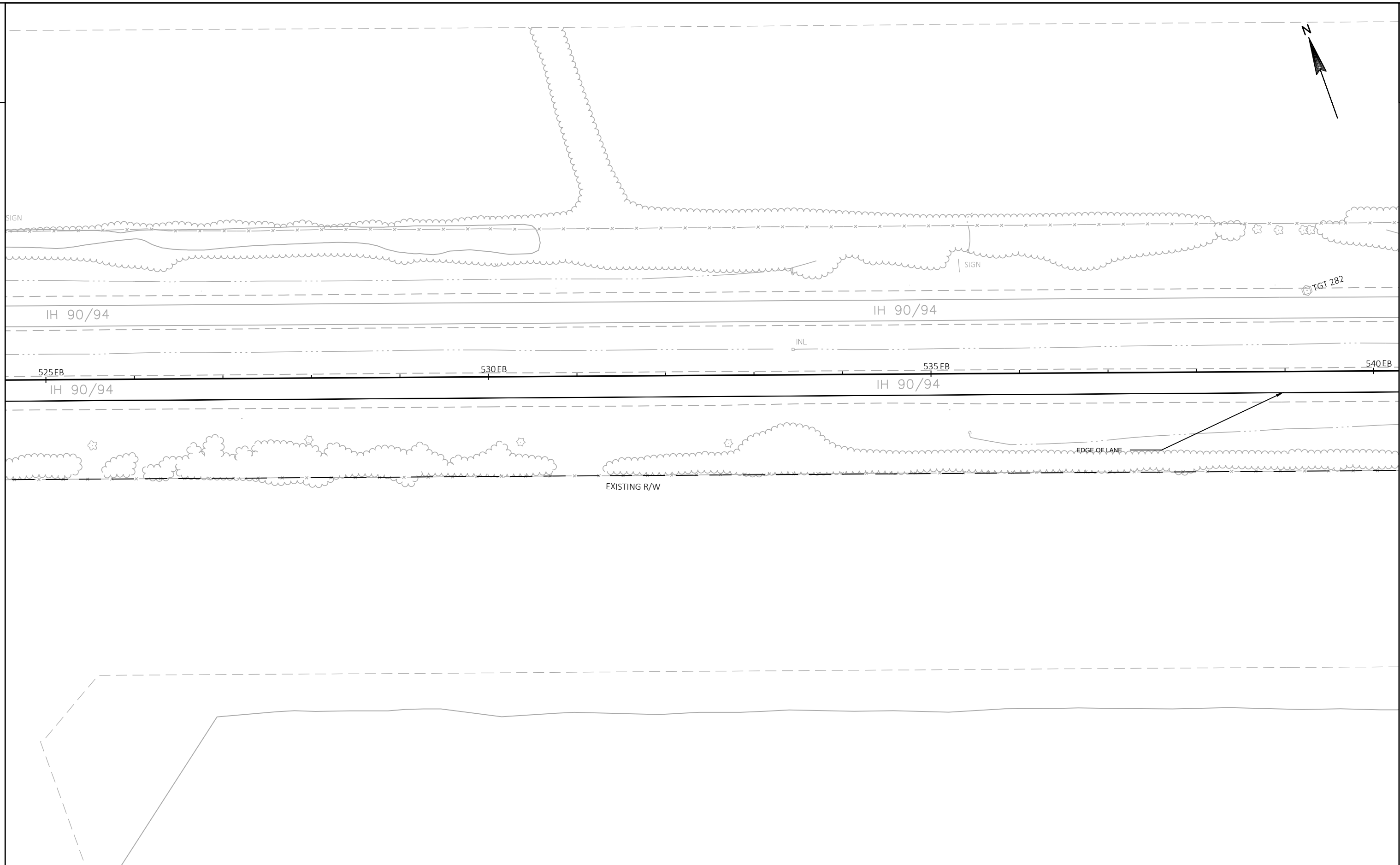




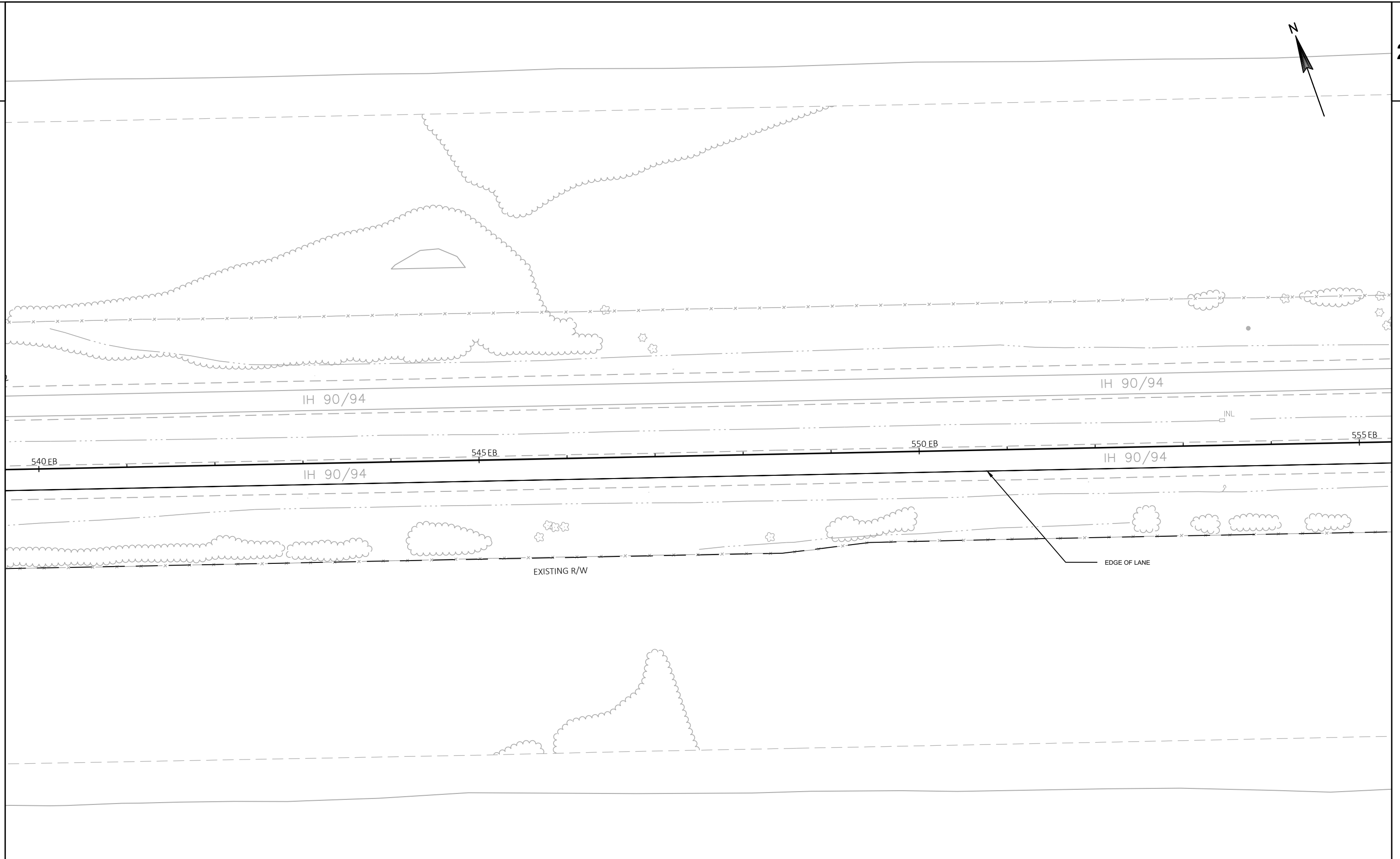
PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	-----	<b>E</b>
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## 2

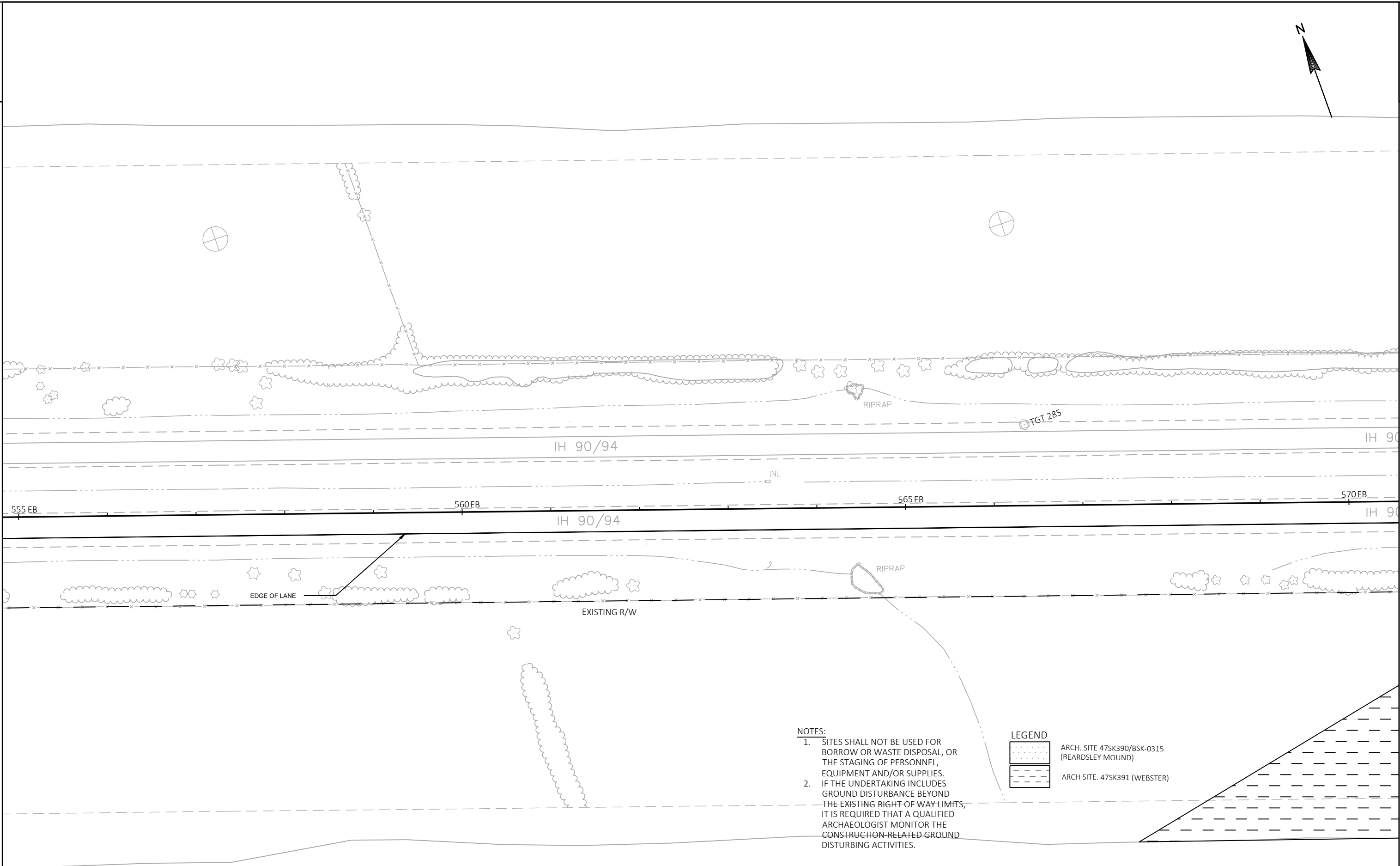


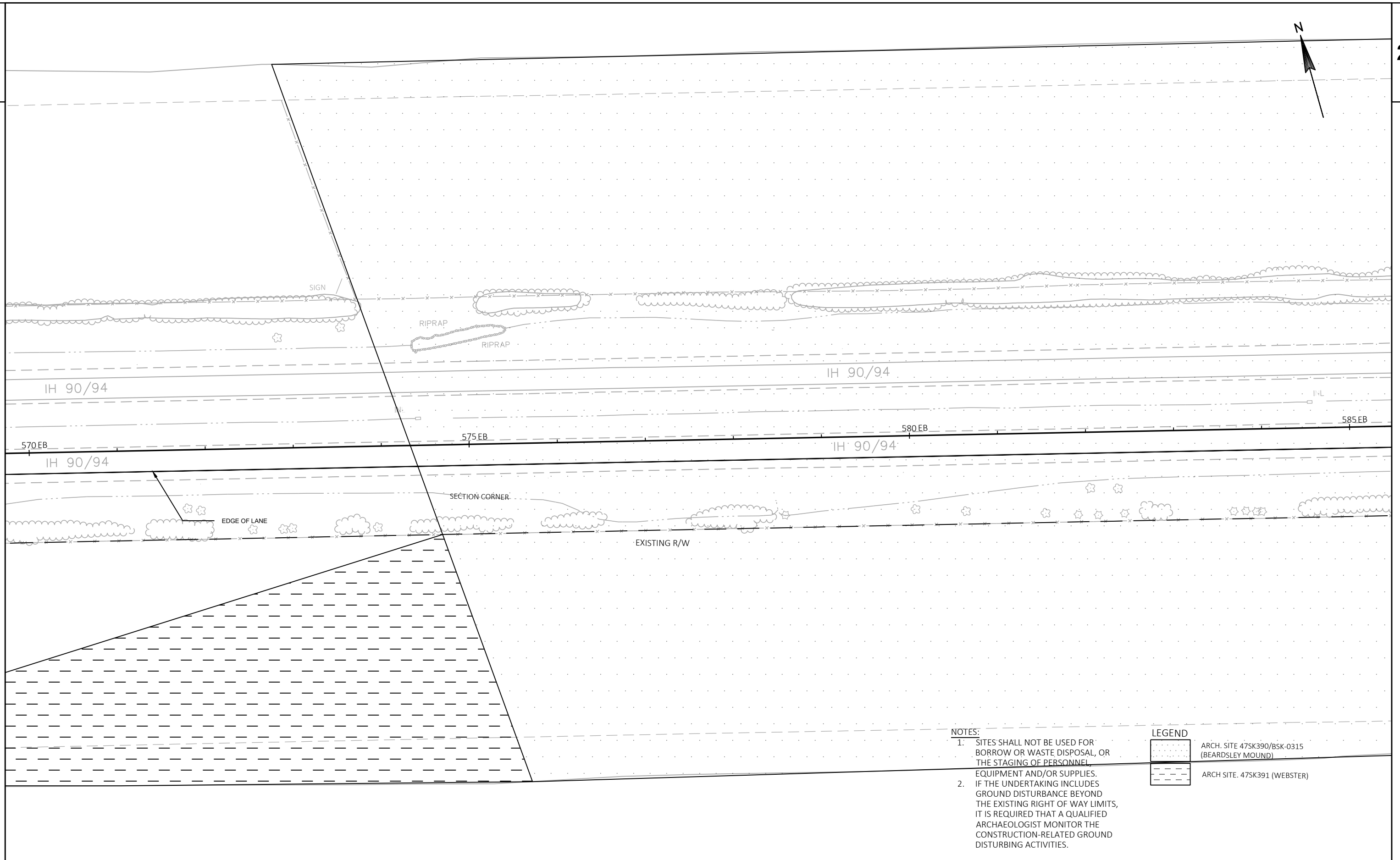


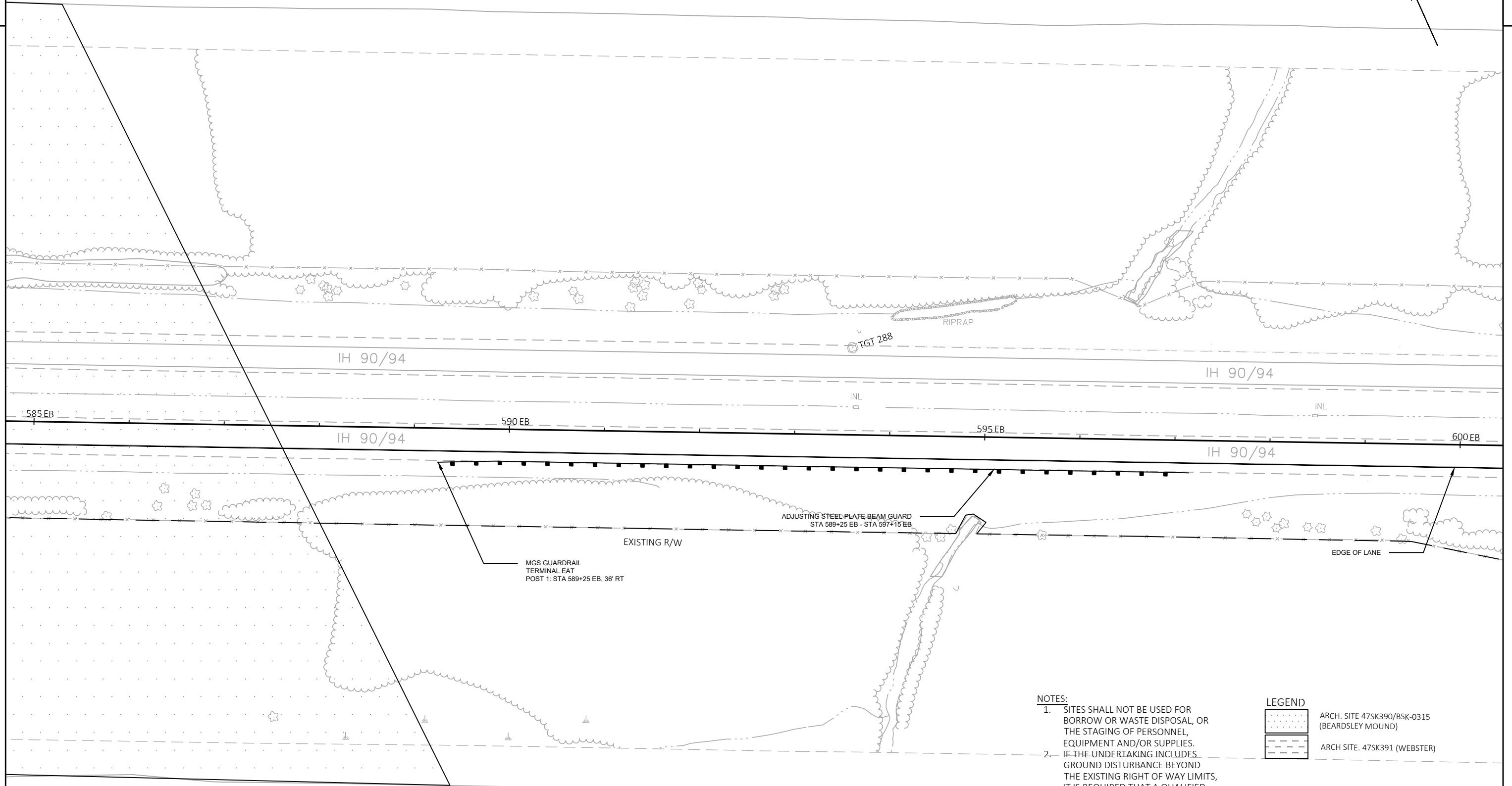
PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	-----	<b>E</b>
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PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	_____E
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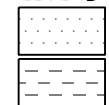




## NOTES:

1. SITES SHALL NOT BE USED FOR BORROW OR WASTE DISPOSAL, OR THE STAGING OF PERSONNEL, EQUIPMENT AND/OR SUPPLIES.
2. IF THE UNDERTAKING INCLUDES GROUND DISTURBANCE BEYOND THE EXISTING RIGHT OF WAY LIMITS, IT IS REQUIRED THAT A QUALIFIED ARCHAEOLOGIST MONITOR THE CONSTRUCTION-RELATED GROUND DISTURBING ACTIVITIES.

## LEGEND

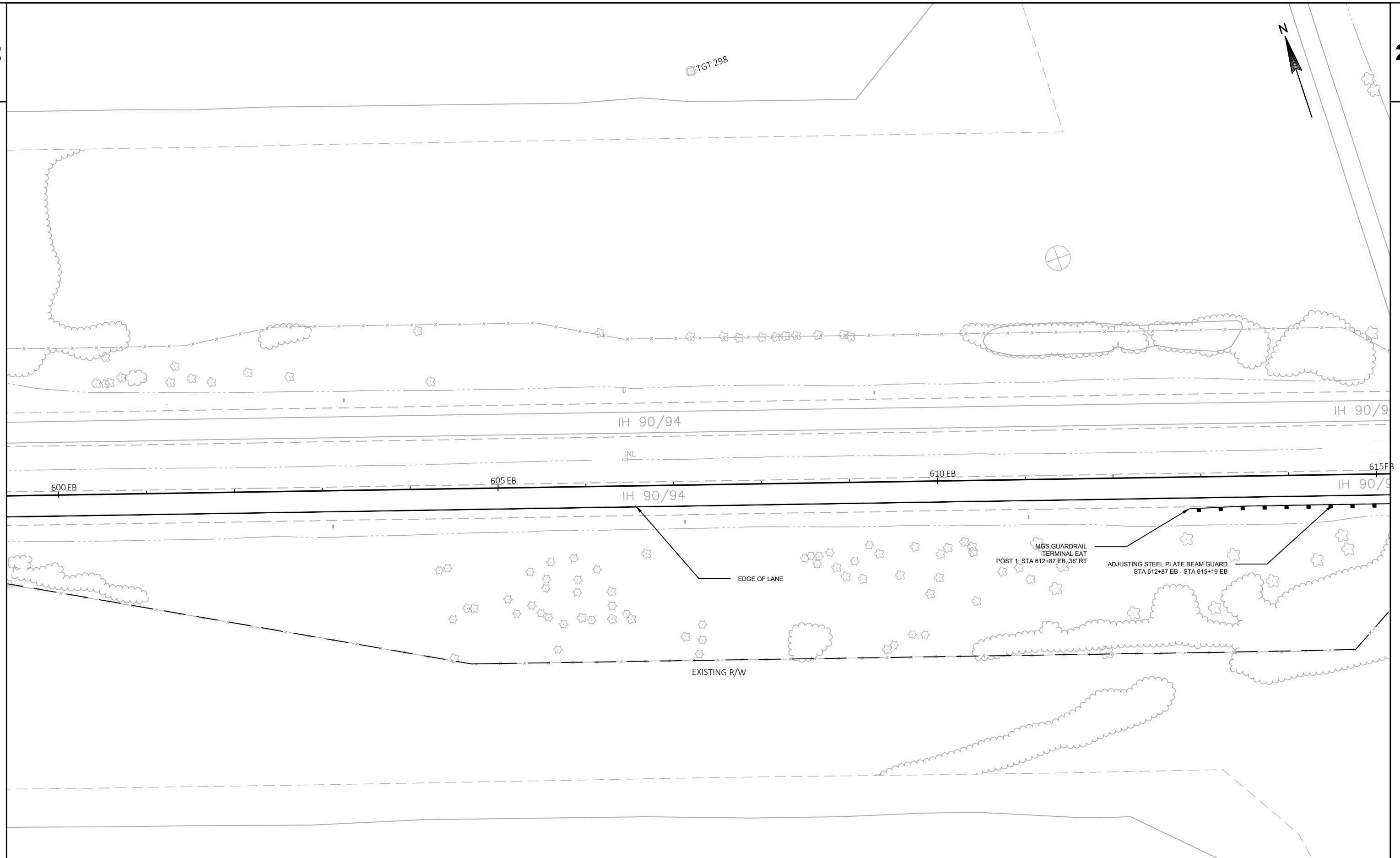


ARCH. SITE 47SK390/BSK-0315  
(BEARDSLEY MOUND)

ARCH SITE: 47SK391 (WEBSTER)

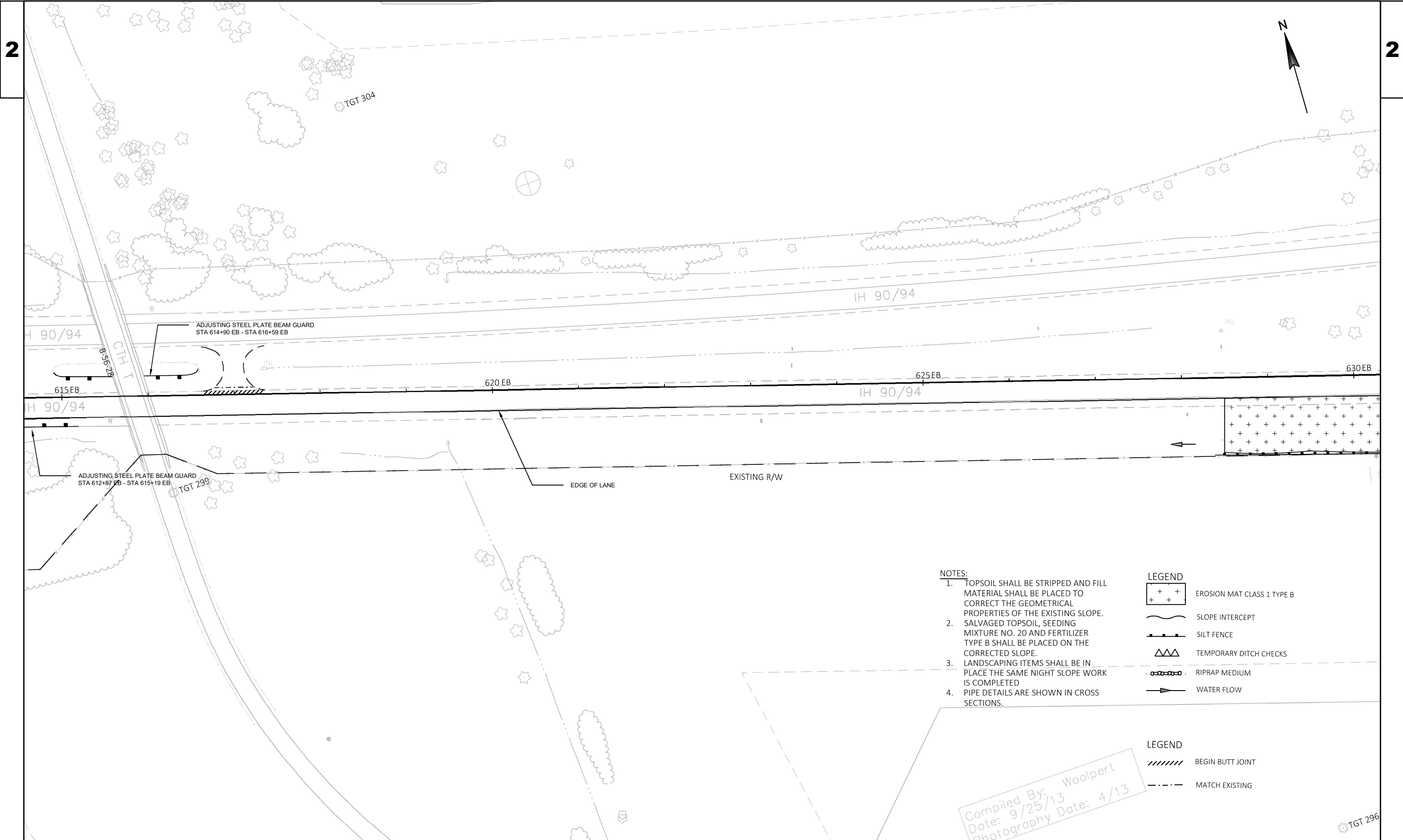
2

2



PROJECT NO:1014-00-77	HWY:IH 90/94	COUNTY:SAUK	PLAN DETAILS	SHEET	-----	<b>E</b>
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- NOTES:
1. TOPSOIL SHALL BE STRIPPED AND FILL MATERIAL SHALL BE PLACED TO CORRECT THE GEOMETRICAL PROPERTIES OF THE EXISTING SLOPE.
  2. SALVAGED TOPSOIL, SEEDING MIXTURE NO. 20 AND FERTILIZER TYPE B SHALL BE PLACED ON THE CORRECTED SLOPE.
  3. LANDSCAPING ITEMS SHALL BE IN PLACE THE SAME NIGHT SLOPE WORK IS COMPLETED
  4. PIPE DETAILS ARE SHOWN IN CROSS SECTIONS.

- LEGEND
- EROSION MAT CLASS 1 TYPE B
  - SLOPE INTERCEPT
  - SILT FENCE
  - TEMPORARY DITCH CHECKS
  - RIPRAP MEDIUM
  - WATER FLOW

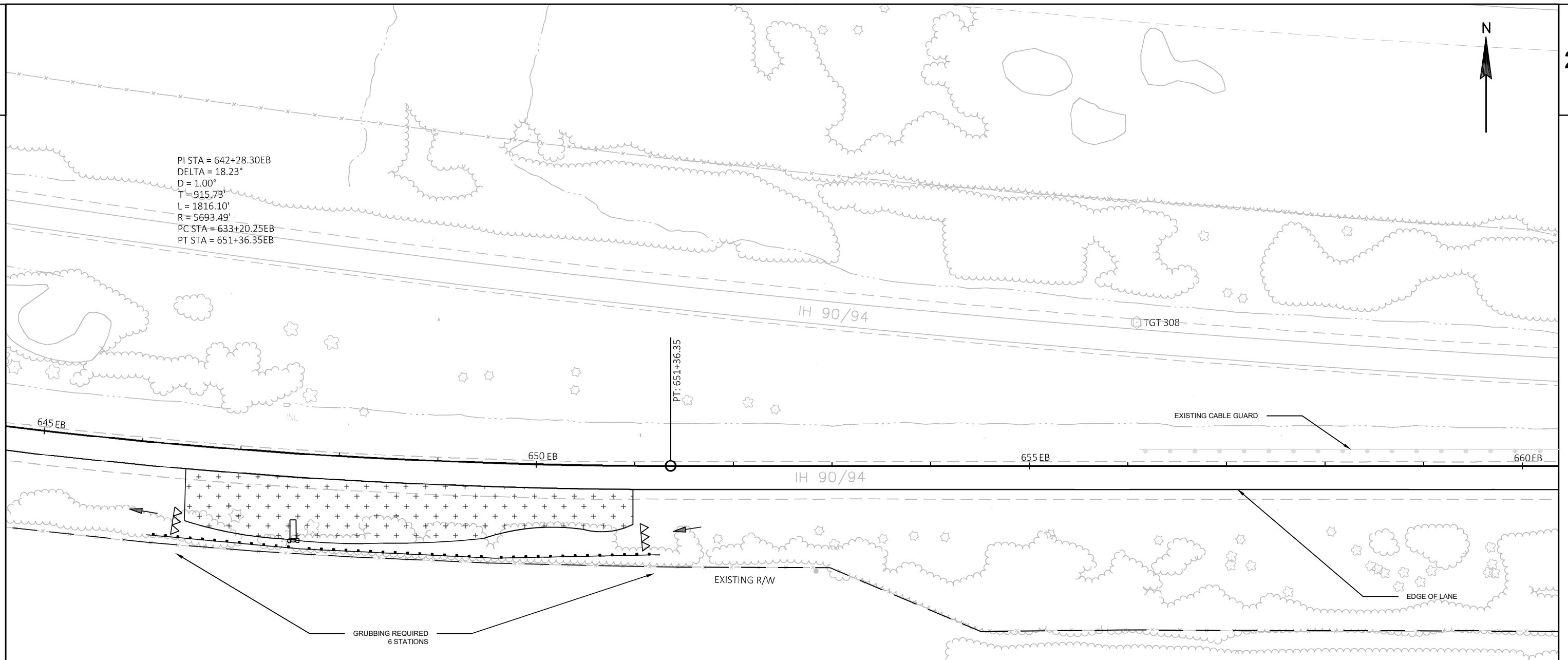
- LEGEND
- BEGIN BUTT JOINT
  - MATCH EXISTING

Compiled By: Woolpert  
Date: 9/25/13  
Photography Date: 4/13

# 2



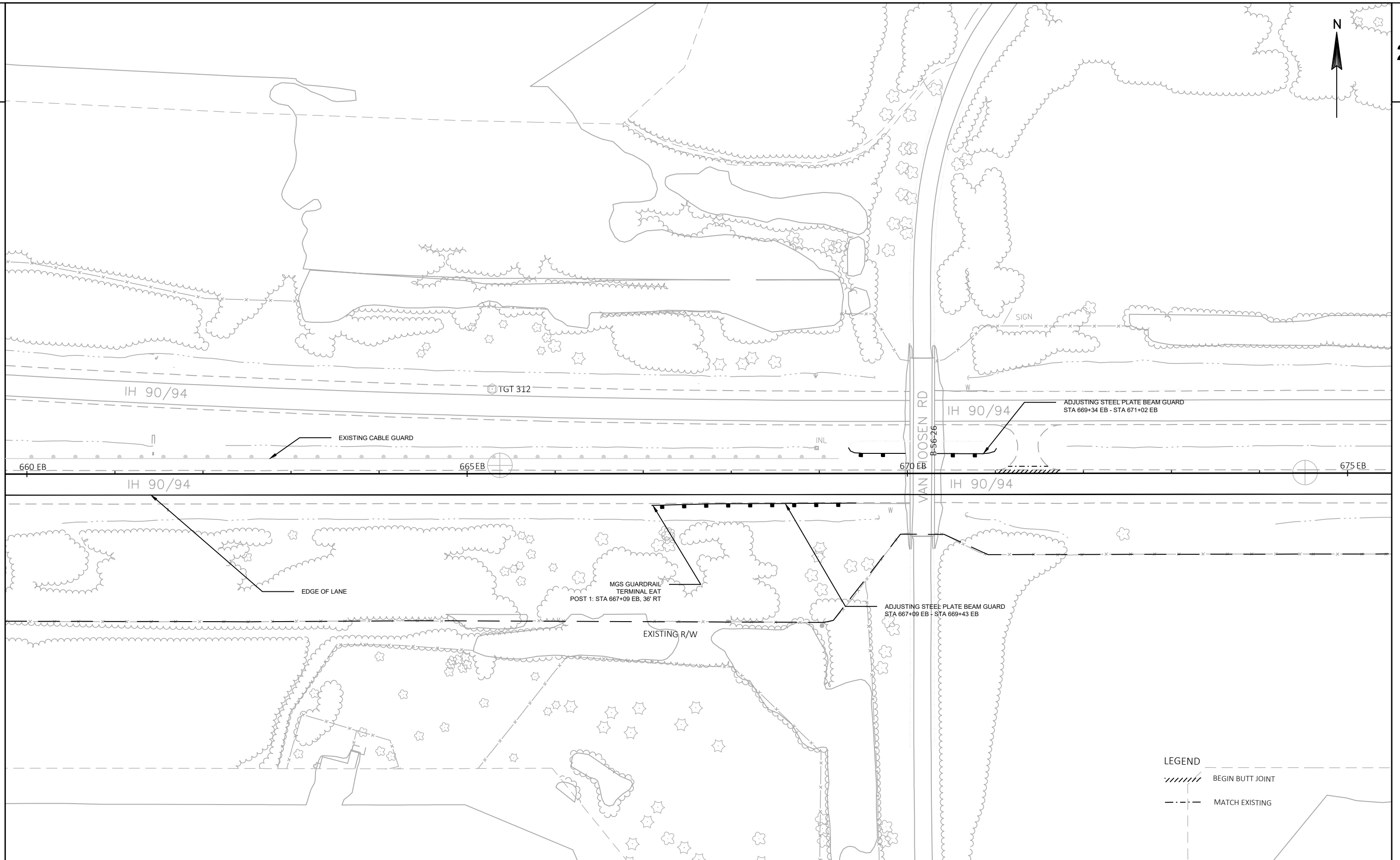
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DELTA = 18.23°  
D = 1.00°  
T = 915.73'  
L = 1816.10'  
R = 5693.49'  
PC STA = 633+20.25EB  
PT STA = 651+36.35EB

**NOTES:**

1. TOPSOIL SHALL BE STRIPPED AND FILL MATERIAL SHALL BE PLACED TO CORRECT THE GEOMETRICAL PROPERTIES OF THE EXISTING SLOPE.
2. SALVAGED TOPSOIL, SEEDING MIXTURE NO. 20 AND FERTILIZER TYPE B SHALL BE PLACED ON THE CORRECTED SLOPE.
3. LANDSCAPING ITEMS SHALL BE IN PLACE THE SAME NIGHT SLOPE WORK IS COMPLETED
4. PIPE DETAILS ARE SHOWN IN CROSS SECTIONS.

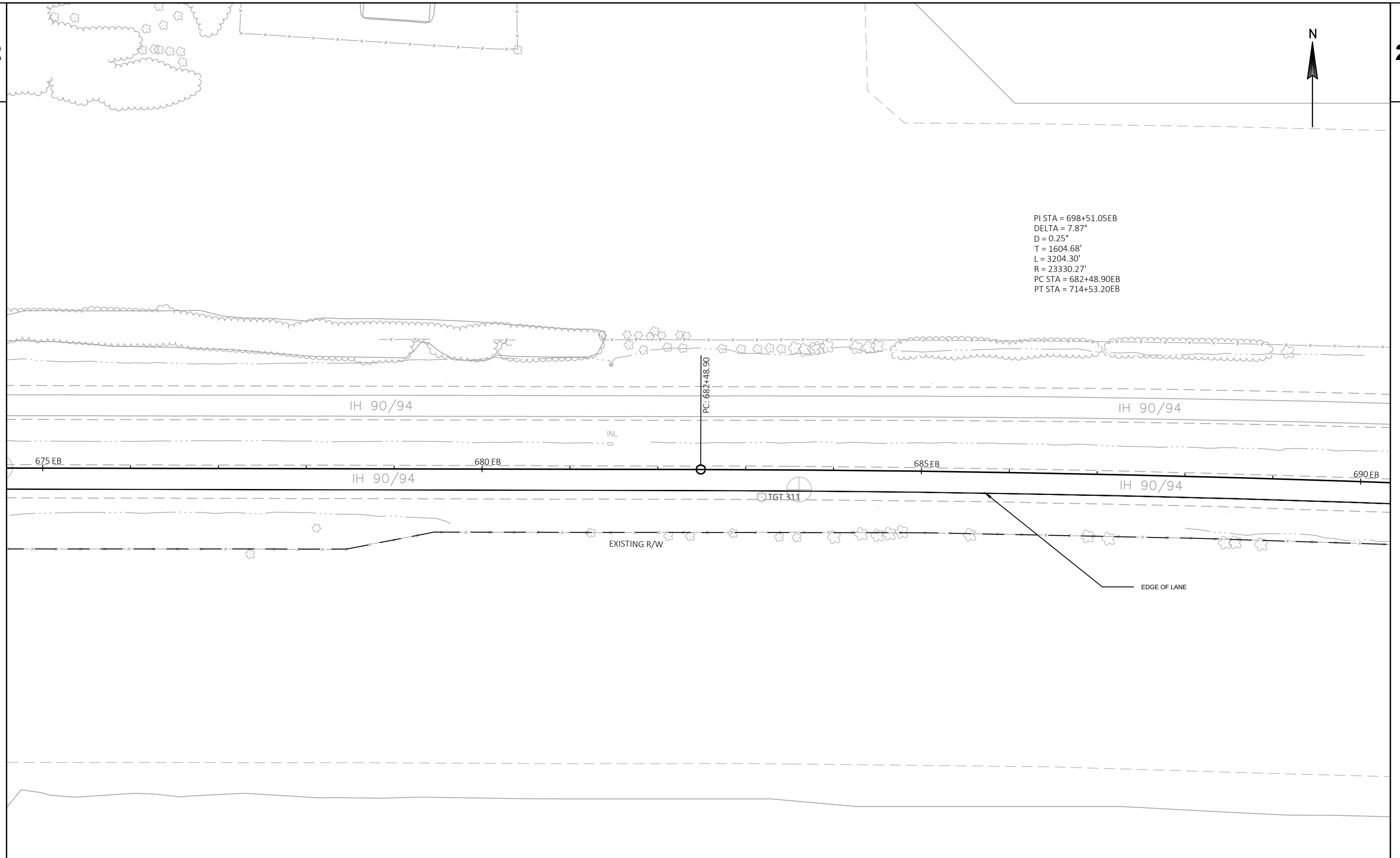
**LEGEND**

	EROSION MAT CLASS 1 TYPE B
	SLOPE INTERCEPT
	SILT FENCE
	TEMPORARY DITCH CHECKS
	RIPRAP MEDIUM
	WATER FLOW
	PIPE EXTENSION



2

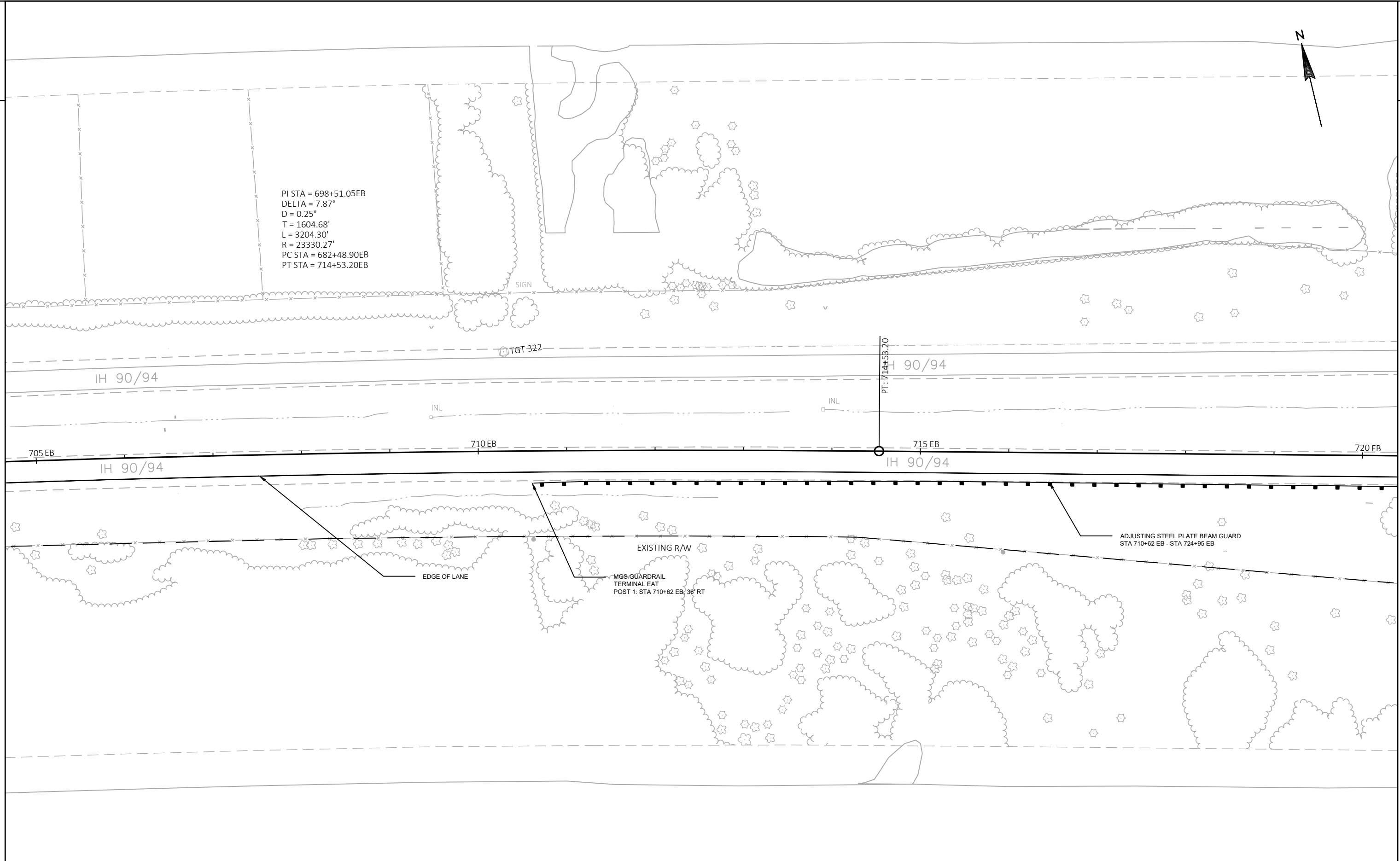
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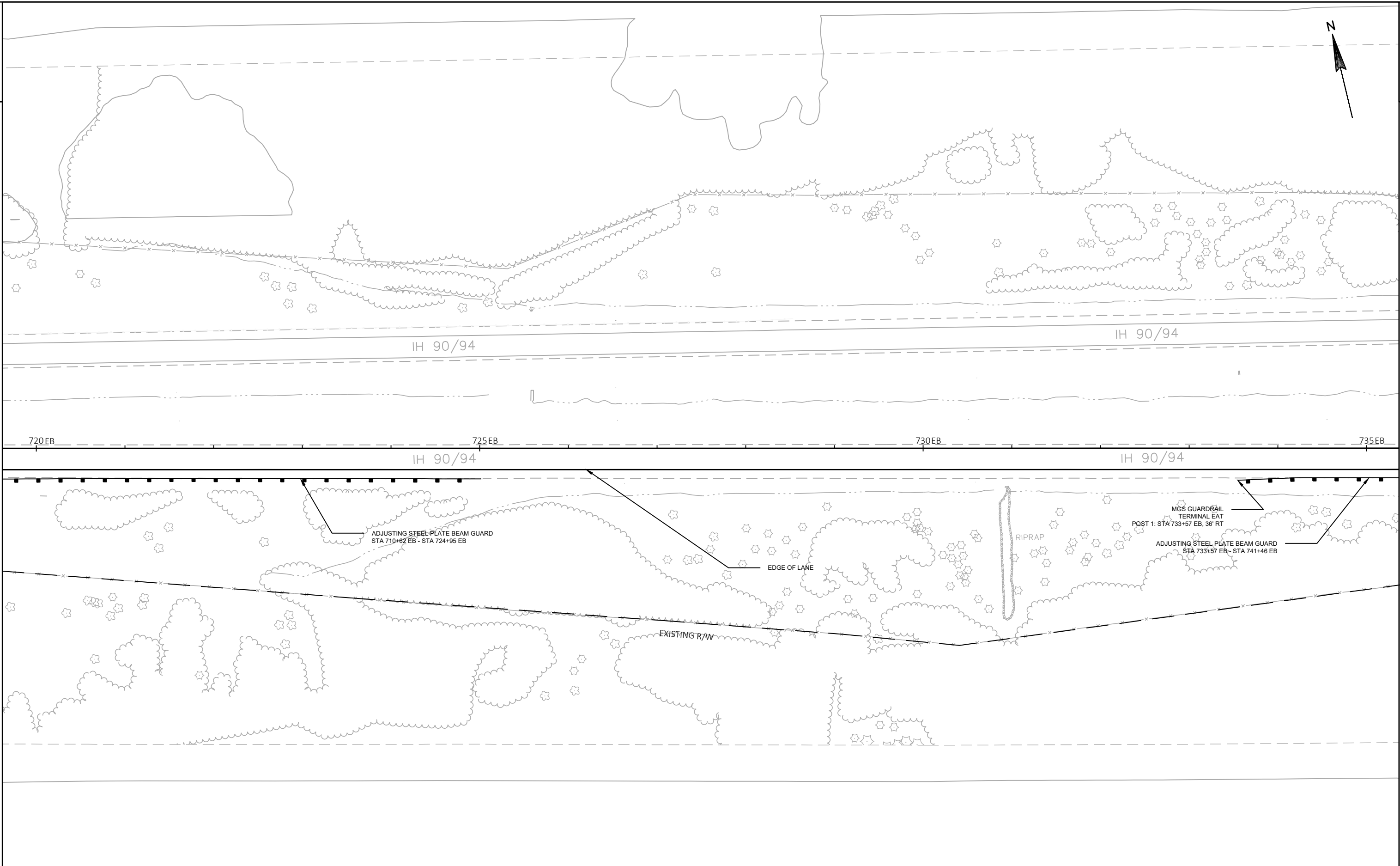


2

2

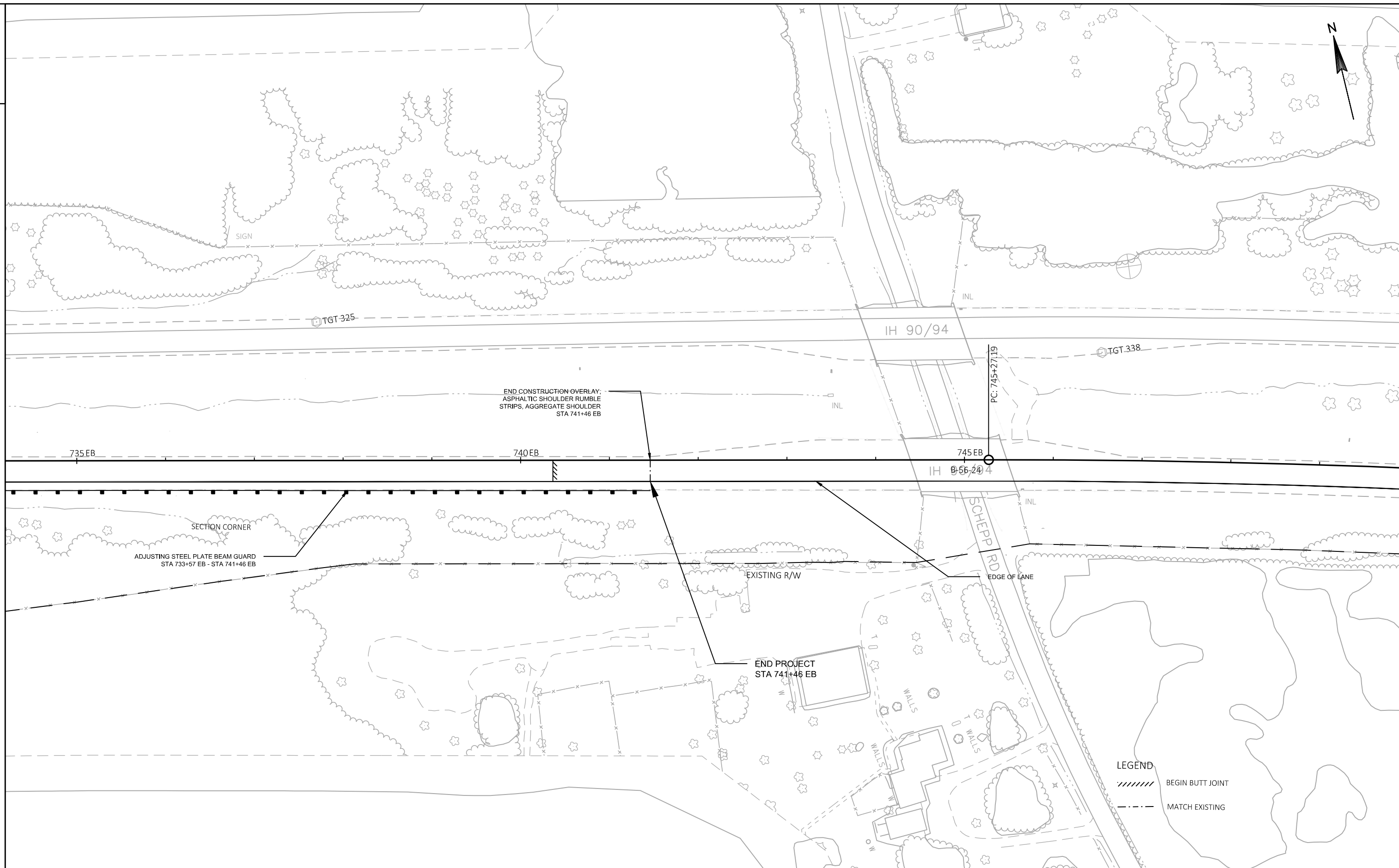


PROJECT NO:1014-00-77	HWY:IH 90/94	COUNTY:SAUK	PLAN DETAILS	SHEET	-----	<b>E</b>
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PROJECT NO:1014-00-77	HWY: IH 90/94	COUNTY: SAUK	PLAN DETAILS	SHEET	E
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Estimate Of Quantities

1014-00-77

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	5.000	5.000
0004	201.0205	Grubbing	STA	28.000	28.000
0006	204.0105	Removing Pavement Butt Joints	SY	1,395.000	1,395.000
0008	204.0115	Removing Asphaltic Surface Butt Joints	SY	1,261.000	1,261.000
0010	204.0150	Removing Curb & Gutter	LF	866.000	866.000
0012	208.0100	Borrow	CY	8,200.000	8,200.000
0014	213.0100	Finishing Roadway (project) 01. 1014-00-77	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	3,400.000	3,400.000
0018	390.0403	Base Patching Concrete Shes	SY	4,500.000	4,500.000
0020	416.0610	Drilled Tie Bars	EACH	600.000	600.000
0022	416.0620	Drilled Dowel Bars	EACH	5,600.000	5,600.000
0024	455.0605	Tack Coat	GAL	22,000.000	22,000.000
0026	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0028	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0030	460.2005	Incentive Density PWL HMA Pavement	DOL	13,100.000	13,100.000
0032	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	90,888.000	90,888.000
0034	460.2010	Incentive Air Voids HMA Pavement	DOL	18,910.000	18,910.000
0036	460.5224	HMA Pavement 4 LT 58-28 S	TON	7,700.000	7,700.000
0038	460.7224	HMA Pavement 4 HT 58-28 S	TON	15,100.000	15,100.000
0040	460.8624	HMA Pavement 4 SMA 58-28 V	TON	15,100.000	15,100.000
0042	465.0315	Asphaltic Flumes	SY	12.000	12.000
0044	465.0400	Asphaltic Shoulder Rumble Strips	LF	87,220.000	87,220.000
0046	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	2.000	2.000
0048	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	1.000	1.000
0050	606.0200	Riprap Medium	CY	6.000	6.000
0052	608.0324	Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	LF	17.000	17.000
0054	608.0330	Storm Sewer Pipe Reinforced Concrete Class III 30-Inch	LF	4.000	4.000
0056	614.0400	Adjusting Steel Plate Beam Guard	LF	7,117.000	7,117.000
0058	614.2500	MGS Thrie Beam Transition	LF	438.000	438.000
0060	614.2610	MGS Guardrail Terminal EAT	EACH	11.000	11.000
0062	619.1000	Mobilization	EACH	1.000	1.000
0064	624.0100	Water	MGAL	100.000	100.000
0066	625.0500	Salvaged Topsoil	SY	15,900.000	15,900.000
0068	628.1504	Silt Fence	LF	2,700.000	2,700.000
0070	628.1520	Silt Fence Maintenance	LF	2,700.000	2,700.000
0072	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0074	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000

Estimate Of Quantities

1014-00-77

Line	Item	Item Description	Unit	Total	Qty
0076	628.2004	Erosion Mat Class I Type B	SY	15,900.000	15,900.000
0078	628.7504	Temporary Ditch Checks	LF	80.000	80.000
0080	629.0210	Fertilizer Type B	CWT	10.000	10.000
0082	630.0120	Seeding Mixture No. 20	LB	453.000	453.000
0084	630.0200	Seeding Temporary	LB	100.000	100.000
0086	630.0500	Seed Water	MGAL	103.000	103.000
0088	633.5200	Markers Culvert End	EACH	3.000	3.000
0090	642.5201	Field Office Type C	EACH	1.000	1.000
0092	643.0300	Traffic Control Drums	DAY	3,154.000	3,154.000
0094	643.0420	Traffic Control Barricades Type III	DAY	176.000	176.000
0096	643.0705	Traffic Control Warning Lights Type A	DAY	352.000	352.000
0098	643.0715	Traffic Control Warning Lights Type C	DAY	616.000	616.000
0100	643.0800	Traffic Control Arrow Boards	DAY	88.000	88.000
0102	643.0900	Traffic Control Signs	DAY	980.000	980.000
0104	643.1051	Traffic Control Signs PCMS with Cellular Communications	DAY	94.000	94.000
0106	643.1205.S	Basic Traffic Queue Warning System	DAY	44.000	44.000
0108	643.4100.S	Traffic Control Interim Lane Closure	EACH	44.000	44.000
0110	643.5000	Traffic Control	EACH	1.000	1.000
0112	645.0120	Geotextile Type HR	SY	12.000	12.000
0114	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	100,742.000	100,742.000
0116	646.3555	Marking Line Grooved Contrast Permanent Tape 8-Inch	LF	1,688.000	1,688.000
0118	646.9400	Marking Removal Plowable Raised Pavement Markers	EACH	410.000	410.000
0120	649.0105	Temporary Marking Line Paint 4-Inch	LF	209,049.000	209,049.000
0122	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,036.000	1,036.000
0124	650.6000	Construction Staking Pipe Culverts	EACH	4.000	4.000
0126	650.8000	Construction Staking Resurfacing Reference	LF	43,610.000	43,610.000
0128	650.9910	Construction Staking Supplemental Control (project) 01. 1014-00-77	LS	1.000	1.000
0130	650.9920	Construction Staking Slope Stakes	LF	2,350.000	2,350.000
0132	690.0250	Sawing Concrete	LF	13,066.000	13,066.000
0134	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,100.000	2,100.000
0136	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	2,400.000	2,400.000
0138	SPV.0060	Special 01. Verify Landmark Reference Monuments	EACH	4.000	4.000
0140	SPV.0090	Special 01. Concrete Curb and Gutter 30-Inch Type A, 9-Inch	LF	866.000	866.000
0142	SPV.0090	Special 02. Concrete Joint and Crack Cleaning	LF	4,000.000	4,000.000
0144	SPV.0105	Special 01. Material Transfer Vehicle	LS	1.000	1.000

CLEARING AND GRUBBING

STATION	TO	STATION	LOCATION	201.0105	201.0205
				CLEARING STA	GRUBBING STA
426+50 EB	-	433+00	OUTSIDE	-	8
628+50 EB	-	641+00 EB	OUTSIDE	-	14
646+50 EB	-	651+00 EB	OUTSIDE	-	6
	-		UNDISTRIBUTED	5	-
TOTAL 0010				5	28

BUTT JOINT SUMMARY

STATION	TO	STATION	LOCATION	204.0105	204.0115
				REMOVING PAVEMENT BUTT JOINTS SY	REMOVING ASPHALTIC SURFACE BUTT JOINTS SY
303+15 EB	-	304+00 EB	MAINLINE	253	-
303+15 EB	-	304+00 EB	SHOULDERS	-	117
354+47 EB	-	355+32 EB	MAINLINE	369	-
354+47 EB	-	355+32 EB	SHOULDERS	-	117
357+53 EB	-	358+38 EB	MAINLINE	360	-
357+53 EB	-	358+38 EB	SHOULDERS	-	117
740+61 EB	-	741+46 EB	MAINLINE	253	-
740+61 EB	-	741+46 EB	SHOULDERS	-	117
343+85 A	-	344+70 A	RAMP	160	-
343+85 A	-	344+70 A	SHOULDERS	-	97
349+80 B	-	350+68 B	RAMP	-	194
349+80 B	-	350+68 B	SHOULDERS	-	49
356+37 C	-	357+22 C	RAMP	-	165
356+37 C	-	357+22 C	SHOULDERS	-	49
337+67 EB	-	338+25 EB	CROSSOVER	-	37
385+66 EB	-	386+16 EB	CROSSOVER	-	32
466+00 EB	-	466+63 EB	CROSSOVER	-	41
522+36 EB	-	523+00 EB	CROSSOVER	-	42
616+65 EB	-	617+35 EB	CROSSOVER	-	46
671+05 EB	-	671+70 EB	CROSSOVER	-	42
TOTAL 0010				1,395	1,261

CONCRETE CURB AND GUTTER						
				204.0150	SPV.0090.01	690.0250*
				REMOVING CURB & GUTTER	CONCRETE CURB & GUTTER 30-INCH TYPE A, 9-INCH	SAWING CONCRETE
STATION	TO	STATION	LOCATION	LF	LF	LF
350+68 B	-	353+37 B	RIGHT	269	269	269
356+37 C	-	362+34 C	RIGHT	597	597	597
TOTAL 0010				866	866	866

\* ADDITIONAL QUANTITY LISTED ELSEWHERE FOR THIS ITEM

				208.0100
				BORROW
STATION	TO	STATION	LOCATION	CY
426+50 EB	-	433+00 EB	OUTSIDE	1,200
628+50 EB	-	641+00 EB	OUTSIDE	5,800
646+50 EB	-	651+00 EB	OUTSIDE	1,200
TOTAL 0010				8,200

BASE PATCH SUMMARY									BASE PATCH SUMMARY (CONTINUED)										
EASTBOUND LOCATION				390.0403	416.0610	416.0620	690.0250	REMARKS	EASTBOUND LOCATION				390.0403	416.0610	416.0620	690.0250	REMARKS		
EB MILE MARKER	PLUS	SIDE	LENGTH	BASE PATCHING CONCRETE SHES SY	DRILLED TIE BARS EACH	DRILLED DOWEL BARS EACH	SAWING CONCRETE LF		EB MILE MARKER	PLUS	SIDE	LENGTH	BASE PATCHING CONCRETE SHES SY	DRILLED TIE BARS EACH	DRILLED DOWEL BARS EACH	SAWING CONCRETE LF			
91	3383	LEFT	6.00	8.00	-	16	30		92	881	RIGHT	6.00	9.33	-	16	34	AUX LANE		
91	3407	RIGHT	6.00	9.33	-	16	34		92	898	RIGHT	6.00	9.33	-	16	34	AUX LANE		
91	3476	RIGHT	6.00	9.33	-	16	34		92	935	LEFT	6.00	8.00	-	16	30	RAMP JOINTS		
91	3486	RIGHT	6.00	9.33	-	16	34		92	1120	RIGHT	6.00	9.33	-	16	34			
91	3518	RIGHT	6.00	9.33	-	16	34		92	1212	RIGHT	6.00	9.33	-	16	34			
91	3605	LEFT	6.00	8.00	-	16	30		92	1240	RIGHT	6.00	9.33	-	16	34	RAMP		
91	3616	RIGHT	6.00	9.33	-	16	34		92	1284	RIGHT	6.00	9.33	-	16	34	RAMP		
91	3634	LEFT	6.00	8.00	-	16	30		92	1382	RIGHT	6.00	9.33	-	16	34	AUX LANE		
91	3682	LEFT	6.00	8.00	-	16	30		92	1500	RIGHT	6.00	9.33	-	16	34			
91	3761	RIGHT	6.00	9.33	-	16	34		92	1842	RIGHT	18.00	28.00	8	16	46			
91	3784	LEFT	6.00	8.00	-	16	30		92	1886	RIGHT	6.00	9.33	-	16	34			
91	3808	RIGHT	6.00	9.33	-	16	34		92	1900	RIGHT	6.00	9.33	-	16	34			
91	3828	BOTH	6.00	17.33	-	32	58		92	1952	RIGHT	6.00	9.33	-	16	34			
91	3849	LEFT	6.00	8.00	-	16	30		92	2033	RIGHT	6.00	9.33	-	16	34			
91	3903	RIGHT	6.00	9.33	-	16	34		92	2380	BOTH	6.00	17.33	-	32	58			
91	3913	RIGHT	6.00	9.33	-	16	34		92	2461	RIGHT	6.00	9.33	-	16	34	BETWEEN PATCHES		
91	3931	BOTH	6.00	17.33	-	32	58		92	2498	RIGHT	6.00	9.33	-	16	34			
91	4110	RIGHT	6.00	9.33	-	16	34		92	2570	RIGHT	8.00	12.44	4	16	36			
91	4149	RIGHT	6.00	9.33	-	16	34		92	2620	LEFT	6.00	8.00	-	16	30			
91	4203	RIGHT	6.00	9.33	-	16	34		92	2634	LEFT	6.00	8.00	-	16	30			
91	4230	LEFT	6.00	8.00	-	16	30		92	2784	RIGHT	6.00	9.33	-	16	34			
91	4301	RIGHT	6.00	9.33	-	16	34		92	2793	RIGHT	6.00	9.33	-	16	34			
91	4380	LEFT	6.00	8.00	-	16	30		92	2904	RIGHT	6.00	9.33	-	16	34			
91	4394	RIGHT	10.00	15.56	4	16	38		92	3020	RIGHT	6.00	9.33	-	16	34			
91	4409	RIGHT	10.00	15.56	4	16	38		92	3076	RIGHT	6.00	9.33	-	16	34			
91	4426	RIGHT	8.00	12.44	4	16	36		92	3099	RIGHT	6.00	9.33	-	16	34	BETWEEN PATCHES		
91	4461	RIGHT	6.00	9.33	-	16	34		92	3152	LEFT	8.00	10.67	4	16	32			
91	4585	BOTH	6.00	17.33	-	32	58		92	3177	RIGHT	6.00	9.33	-	16	34			
91	4598	RIGHT	18.00	28.00	8	16	46		92	3296	RIGHT	6.00	9.33	-	16	34			
91	4642	RIGHT	6.00	9.33	-	16	34		92	3398	LEFT	6.00	8.00	-	16	30			
91	4656	RIGHT	6.00	9.33	-	16	34		92	3452	RIGHT	6.00	9.33	-	16	34	BETWEEN PATCHES		
91	4662	RIGHT	6.00	9.33	-	16	34		92	3518	RIGHT	10.00	15.56	4	16	38			
91	4789	LEFT	6.00	8.00	-	16	30		92	3556	RIGHT	10.00	15.56	4	16	38			
91	4854	RIGHT	6.00	9.33	-	16	34		92	3588	RIGHT	6.00	9.33	-	16	34			
91	5093	RIGHT	24.00	37.33	10	16	52		92	3616	RIGHT	6.00	9.33	-	16	34			
91	5146	RIGHT	6.00	9.33	-	16	34		92	3725	LEFT	6.00	8.00	-	16	30	BETWEEN PATCHES		
91	5268	LEFT	6.00	8.00	-	16	30		92	3890	RIGHT	6.00	9.33	-	16	34			
92	235	RIGHT	6.00	9.33	-	16	34		92	3945	RIGHT	6.00	9.33	-	16	34			
92	525	RIGHT	6.00	9.33	-	16	34	BRIDGE JOINT/APPROACH	92	4485	LEFT	8.00	10.67	4	16	32			
92	860	RIGHT	30.00	46.67	12	16	58	RIGHT AND AUX LANE	92	4499	LEFT	8.00	10.67	4	16	32			
SUBTOTAL 1 =				484	42	688	1,456		SUBTOTAL 2 =				413	32	656	1,380			
PROJECT NO: 1014-00-77				HWY: IH 90/94			COUNTY: SAUK			MISCELLANEOUS QUANTITIES							SHEET:		E

BASE PATCH SUMMARY (CONTINUED)									BASE PATCH SUMMARY (CONTINUED)										
				390.0403	416.0610	416.0620	690.0250						390.0403	416.0610	416.0620	690.0250			
EASTBOUND LOCATION				BASE PATCHING CONCRETE SHES	DRILLED TIE BARS	DRILLED DOWEL BARS	SAWING CONCRETE		EASTBOUND LOCATION				BASE PATCHING CONCRETE SHES	DRILLED TIE BARS	DRILLED DOWEL BARS	SAWING CONCRETE			
EB MILE MARKER	PLUS	SIDE	LENGTH	SY	EACH	EACH	LF	REMARKS	EB MILE MARKER	PLUS	SIDE	LENGTH	SY	EACH	EACH	LF	REMARKS		
92	5001	RIGHT	6.00	9.33	-	16	34		95	2301	LEFT	6.00	8.00	-	16	30			
92	5045	RIGHT	10.00	15.56	4	16	38		95	2491	RIGHT	6.00	9.33	-	16	34			
92	5260	LEFT	6.00	8.00	-	16	30		95	3058	RIGHT	6.00	9.33	-	16	34			
93	200	RIGHT	6.00	9.33	-	16	34		95	3100	RIGHT	6.00	9.33	-	16	34			
93	1801	LEFT	6.00	8.00	-	16	30		95	3234	RIGHT	6.00	9.33	-	16	34			
93	2328	LEFT	6.00	8.00	-	16	30		95	3422	LEFT	6.00	8.00	-	16	30			
93	2488	LEFT	6.00	8.00	-	16	30		95	3807	LEFT	8.00	10.67	4	16	32			
93	2540	LEFT	6.00	8.00	-	16	30		95	3888	RIGHT	6.00	9.33	-	16	34			
93	2881	LEFT	6.00	8.00	-	16	30		95	4132	RIGHT	6.00	9.33	-	16	34			
93	3091	BOTH	6.00	17.33	-	32	58		95	4235	RIGHT	6.00	9.33	-	16	34			
93	3253	RIGHT	6.00	9.33	-	16	34		95	4304	RIGHT	6.00	9.33	-	16	34			
93	3333	BOTH	8.00	23.11	4	32	60		95	4532	RIGHT	6.00	9.33	-	16	34			
93	3376	LEFT	8.00	10.67	4	16	32		95	4684	RIGHT	6.00	9.33	-	16	34			
93	3511	LEFT	6.00	8.00	-	16	30		95	4793	RIGHT	6.00	9.33	-	16	34			
93	3684	LEFT	6.00	8.00	-	16	30		95	5022	RIGHT	6.00	9.33	-	16	34			
93	3954	LEFT	6.00	8.00	-	16	30	REPATCH	96	125	RIGHT	18.00	28.00	8	16	46			
93	4136	LEFT	6.00	8.00	-	16	30		96	420	RIGHT	6.00	9.33	-	16	34			
93	4354	RIGHT	6.00	9.33	-	16	34		96	682	RIGHT	40.00	62.22	16	16	68			
93	4961	RIGHT	6.00	9.33	-	16	34		96	763	RIGHT	6.00	9.33	-	16	34			
94	290	LEFT	6.00	8.00	-	16	30		96	877	RIGHT	40.00	62.22	16	16	68			
94	556	RIGHT	18.00	28.00	8	16	46		96	912	LEFT	6.00	8.00	-	16	30			
94	844	LEFT	6.00	8.00	-	16	30		96	1060	RIGHT	6.00	9.33	-	16	34			
94	1293	RIGHT	6.00	9.33	-	16	34		96	1250	RIGHT	6.00	9.33	-	16	34			
94	2126	RIGHT	6.00	9.33	-	16	34		96	1468	RIGHT	6.00	9.33	-	16	34			
94	2682	RIGHT	6.00	9.33	-	16	34		96	1555	RIGHT	6.00	9.33	-	16	34			
94	2850	RIGHT	6.00	9.33	-	16	34		96	1756	RIGHT	6.00	9.33	-	16	34			
94	3432	RIGHT	18.00	28.00	8	16	46		96	2292	RIGHT	30.00	46.67	12	16	58			
94	3958	LEFT	6.00	8.00	-	16	30		96	2834	RIGHT	6.00	9.33	-	16	34			
94	4042	RIGHT	10.00	15.56	4	16	38	BETWEEN PATCHES	96	3015	RIGHT	30.00	46.67	12	16	58			
94	4344	RIGHT	8.00	12.44	4	16	36		96	3104	RIGHT	6.00	9.33	-	16	34			
94	4720	LEFT	6.00	8.00	-	16	30		96	3200	RIGHT	6.00	9.33	-	16	34			
94	5025	LEFT	6.00	8.00	-	16	30		96	3250	RIGHT	6.00	9.33	-	16	34			
94	5133	RIGHT	6.00	9.33	-	16	34		96	3430	RIGHT	25.00	38.89	10	16	53			
95	1820	RIGHT	6.00	9.33	-	16	34		96	3450	RIGHT	6.00	9.33	-	16	34			
95	1844	RIGHT	6.00	9.33	-	16	34		96	3599	RIGHT	6.00	9.33	-	16	34			
95	1880	RIGHT	6.00	9.33	-	16	34		96	3610	RIGHT	6.00	9.33	-	16	34			
95	1929	RIGHT	6.00	9.33	-	16	34		96	3625	RIGHT	6.00	9.33	-	16	34			
95	2118	RIGHT	6.00	9.33	-	16	34		96	3698	LEFT	6.00	8.00	-	16	30			
95	2124	RIGHT	6.00	9.33	-	16	34		96	3779	LEFT	8.00	10.67	4	16	32			
95	2286	RIGHT	18.00	28.00	8	16	46		96	3823	RIGHT	18.00	28.00	8	16	46			
SUBTOTAL 3 =				448	44	672	1,394		SUBTOTAL 4 =				618	90	640	1,499			
PROJECT NO: 1014-00-77				HWY: IH 90/94			COUNTY: SAUK			MISCELLANEOUS QUANTITIES							SHEET:		E

BASE PATCH SUMMARY (CONTINUED)									BASE PATCH SUMMARY (CONTINUED)								
EASTBOUND LOCATION				390.0403	416.0610	416.0620	690.0250	REMARKS	EASTBOUND LOCATION				390.0403	416.0610	416.0620	690.0250	REMARKS
EB MILE MARKER	PLUS	SIDE	LENGTH	BASE PATCHING CONCRETE SHES	DRILLED TIE BARS	DRILLED DOWEL BARS	SAWING CONCRETE		EB MILE MARKER	PLUS	SIDE	LENGTH	BASE PATCHING CONCRETE SHES	DRILLED TIE BARS	DRILLED DOWEL BARS	SAWING CONCRETE	
96	3832	LEFT	6.00	8.00	-	16	30		97	4076	LEFT	8.00	10.67	4	16	32	
96	3846	LEFT	6.00	8.00	-	16	30		97	4185	RIGHT	6.00	9.33	-	16	34	
96	4092	RIGHT	18.00	28.00	8	16	46		97	4220	LEFT	6.00	8.00	-	16	30	
96	4125	BOTH	6.00	17.33	-	32	58		97	4278	LEFT	6.00	8.00	-	16	30	
96	4288	LEFT	6.00	8.00	-	16	30		97	4493	RIGHT	6.00	9.33	-	16	34	
96	4478	RIGHT	45.00	70.00	18	16	73		97	4660	LEFT	6.00	8.00	-	16	30	
96	4523	LEFT	6.00	8.00	-	16	30		97	4722	LEFT	6.00	8.00	-	16	30	
96	4546	LEFT	6.00	8.00	-	16	30		97	4754	LEFT	6.00	8.00	-	16	30	
96	4715	LEFT	6.00	8.00	-	16	30		97	4827	RIGHT	6.00	9.33	-	16	34	
96	4850	RIGHT	18.00	28.00	8	16	46		97	5000	RIGHT	90.00	140.00	36	16	118	
96	4915	RIGHT	50.00	77.78	20	16	78		97	5065	LEFT	8.00	10.67	4	16	32	
96	4969	RIGHT	30.00	46.67	12	16	58		97	5094	LEFT	6.00	8.00	-	16	30	
97	884	LEFT	6.00	8.00	-	16	30		97	5125	LEFT	12.00	16.00	5	16	36	
97	1125	LEFT	6.00	8.00	-	16	30		98	75	RIGHT	6.00	9.33	-	16	34	
97	1286	RIGHT	6.00	9.33	-	16	34		98	170	RIGHT	45.00	70.00	18	16	73	
97	1304	RIGHT	6.00	9.33	-	16	34		98	374	RIGHT	6.00	9.33	-	16	34	
97	1363	LEFT	6.00	8.00	-	16	30		98	488	RIGHT	6.00	9.33	-	16	34	
97	1397	LEFT	6.00	8.00	-	16	30		98	563	RIGHT	6.00	9.33	-	16	34	
97	1431	LEFT	6.00	8.00	-	16	30		98	905	RIGHT	6.00	9.33	-	16	34	
97	2208	RIGHT	6.00	9.33	-	16	34		98	960	RIGHT	6.00	9.33	-	16	34	
97	2215	LEFT	6.00	8.00	-	16	30		98	995	LEFT	6.00	8.00	-	16	30	
97	2256	LEFT	6.00	8.00	-	16	30		98	1144	RIGHT	6.00	9.33	-	16	34	
97	2370	LEFT	6.00	8.00	-	16	30		98	1382	RIGHT	6.00	9.33	-	16	34	
97	2740	RIGHT	6.00	9.33	-	16	34		98	1955	LEFT	6.00	8.00	-	16	30	
97	2768	RIGHT	6.00	9.33	-	16	34		98	2008	LEFT	6.00	8.00	-	16	30	
97	2299	LEFT	6.00	8.00	-	16	30		98	2080	RIGHT	30.00	46.67	12	16	58	
97	2739	LEFT	6.00	8.00	-	16	30		98	2430	RIGHT	6.00	9.33	-	16	34	
97	2755	LEFT	6.00	8.00	-	16	30		98	2641	RIGHT	6.00	9.33	-	16	34	
97	2781	LEFT	8.00	10.67	4	16	32		98	2952	LEFT	6.00	8.00	-	16	30	
97	2965	RIGHT	6.00	9.33	-	16	34		98	3013	RIGHT	6.00	9.33	-	16	34	
97	3100	LEFT	6.00	8.00	-	16	30		98	3110	LEFT	6.00	8.00	-	16	30	
97	3268	LEFT	6.00	8.00	-	16	30		98	3118	LEFT	6.00	8.00	-	16	30	
97	3375	LEFT	6.00	8.00	-	16	30		98	3328	RIGHT	6.00	9.33	-	16	34	
97	3422	LEFT	6.00	8.00	-	16	30		98	4225	RIGHT	6.00	9.33	-	16	34	
97	3437	LEFT	6.00	8.00	-	16	30		98	4270	RIGHT	30.00	46.67	12	16	58	
97	3504	RIGHT	6.00	9.33	-	16	34		98	4485	LEFT	6.00	8.00	-	16	30	
97	3542	LEFT	6.00	8.00	-	16	30		98	4783	LEFT	6.00	8.00	-	16	30	
97	3551	LEFT	6.00	8.00	-	16	30		98	4946	LEFT	6.00	8.00	-	16	30	
97	3870	LEFT	6.00	8.00	-	16	30		98	5050	RIGHT	6.00	9.33	-	16	34	
97	3989	RIGHT	6.00	9.33	-	16	34		99	50	LEFT	6.00	8.00	-	16	30	
SUBTOTAL 5 =				553	70	656	1,413		SUBTOTAL 6 =				627	91	640	1,465	



BASE PATCH SUMMARY (CONTINUED)

EB MILE MARKER	PLUS	EASTBOUND LOCATION		390.0403	416.0610	416.0620	690.0250	REMARKS
				BASE PATCHING CONCRETE SHES SY	DRILLED TIE BARS EACH	DRILLED DOWEL BARS EACH	SAWING CONCRETE LF	
99	600	RIGHT	6.00	9.33	-	16	34	
99	902	LEFT	6.00	8.00	-	16	30	
99	997	LEFT	6.00	8.00	-	16	30	
99	1312	LEFT	6.00	8.00	-	16	30	
99	1467	LEFT	6.00	8.00	-	16	30	
99	1488	LEFT	6.00	8.00	-	16	30	
99	1621	LEFT	6.00	8.00	-	16	30	
99	1684	LEFT	6.00	8.00	-	16	30	
99	3499	LEFT	6.00	8.00	-	16	30	
99	3640	RIGHT	15.00	23.33	6	16	43	
99	3888	BOTH	6.00	17.33	-	32	58	
99	3994	LEFT	6.00	8.00	-	16	30	
99	4503	LEFT	40.00	53.33	16	16	64	
SUBTOTAL 7 =				175	22	224	469	

BASE PATCH SUMMARY (TOTALS)

	390.0403	416.0610	416.0620	690.0250	REMARKS
	BASE PATCHING CONCRETE SHES SY	DRILLED TIE BARS EACH	DRILLED DOWEL BARS EACH	SAWING CONCRETE LF	
SUBTOTAL 1	484	42	688	1,456	
SUBTOTAL 2	413	32	656	1,380	
SUBTOTAL 3	448	44	672	1,394	
SUBTOTAL 4	618	90	640	1,499	
SUBTOTAL 5	553	70	656	1,413	
SUBTOTAL 6	627	91	640	1,465	
SUBTOTAL 7	175	22	224	469	
UNDISTRIBUTED	1,100	130	1,400	3,100	
TOTAL 0010	4,500	600	5,600	12,200	

ASPHALT PAVEMENT SUMMARY													
				305.0110	455.0605	460.5224	460.7224	460.8624	465.0315	465.0400	624.0100	SPV.0090.02	
				BASE AGGREGATE DENSE 3/4-INCH	TACK COAT	HMA PAVEMENT 4 LT 58-28 S	HMA PAVEMENT 4 HT 58-28 S	HMA PAVEMENT 4 SMA 58-28 V	ASPHALTIC FLUMES	ASPHALTIC SHOULDER RUMBLE STRIPS	WATER	CONCRETE JOINT AND CRACK CLEANING	
STATION	TO	STATION	LOCATION	TON	GAL	TON	TON	TON	SY	LF	MGAL	LF	
303+15 EB	-	355+32 EB	RIGHT LANE	-	974	-	796	796	-	-	-	-	
303+15 EB	-	355+32 EB	LEFT LANE	-	835	-	682	682	-	-	-	-	
303+15 EB	-	355+32 EB	INSIDE SHOULDER	194	232	-	228	228	-	5217	-	-	
303+15 EB	-	334+54 EB	OUTSIDE SHOULDER	117	280	547	-	-	-	3139	-	-	
334+54 EB	-	340+05 EB	A RAMP TAPER	-	7	-	45	45	-	-	-	-	
334+54 EB	-	340+05 EB	OUTSIDE SHOULDER	21	31	60	-	-	-	551	-	-	
340+05 EB	-	353+88 EB	OUTSIDE SHOULDER	52	123	241	-	-	-	1383	-	-	
353+88 EB	-	355+32 EB	B RAMP TAPER/AUX LANE	-	3	-	22	22	-	-	-	-	
353+88 EB	-	355+32 EB	OUTSIDE SHOULDER	6	13	26	-	-	-	144	-	-	
357+53 EB	-	741+46 EB	RIGHT LANE	-	7167	-	5853	5853	-	-	-	-	
357+53 EB	-	741+46 EB	LEFT LANE	-	6143	-	5017	5017	-	-	-	-	
357+53 EB	-	741+46 EB	INSIDE SHOULDER	1422	1707	-	1673	1673	-	38393	-	-	
357+53 EB	-	363+53 EB	OUTSIDE SHOULDER	23	54	105	-	-	-	600	-	-	
357+53 EB	-	375+87 EB	AUX LANE	-	294	-	240	240	-	-	-	-	
363+53 EB	-	375+87 EB	OUTSIDE SHOULDER	46	110	215	-	-	-	1234	-	-	
363+53 EB	-	375+87 EB	C RAMP TAPER	-	14	-	99	99	-	-	-	-	
375+87 EB	-	381+14 EB	OUTSIDE SHOULDER	20	47	92	-	-	-	527	-	-	
375+87 EB	-	381+14 EB	AUX LANE TAPER	-	5	-	35	35	-	-	-	-	
381+14 EB	-	741+46 EB	OUTSIDE SHOULDER	1335	3203	6278	-	-	-	36032	-	-	
												-	
340+05 A	-	344+70 A	INSIDE SHOULDER	18	26	-	26	26	-	-	-	-	
340+05 A	-	344+70 A	RAMP	-	103	-	84	84	-	-	-	-	
340+05 A	-	344+70 A	OUTSIDE SHOULDER	18	26	51	-	-	-	-	-	-	
												-	
349+80 B	-	353+88 B	INSIDE SHOULDER	16	23	-	23	23	-	-	-	-	
349+80 B	-	353+88 B	RAMP	-	109	-	89	89	-	-	-	-	
351+38 B	-	351+38 B	OUTSIDE SHOULDER	-	-	-	-	-	4	-	-	-	
												-	
356+37 C	-	363+53 C	INSIDE SHOULDER	27	40	-	39	39	-	-	-	-	
356+37 C	-	363+53 C	RAMP	-	163	-	133	133	-	-	-	-	
357+27 C	-	357+27 C	OUTSIDE SHOULDER	-	-	-	-	-	8	-	-	-	
												-	
337+67 EB	-	338+25 EB	CROSSOVER	-	2	-	2	2	-	-	-	-	
385+66 EB	-	386+16 EB	CROSSOVER	-	2	-	2	2	-	-	-	-	
448+73 EB	-	449+31 EB	CROSSOVER	4	-	-	-	-	-	-	-	-	
466+00 EB	-	466+63 EB	CROSSOVER	-	3	-	3	3	-	-	-	-	
522+36 EB	-	523+00 EB	CROSSOVER	-	3	-	3	3	-	-	-	-	
616+65 EB	-	617+35 EB	CROSSOVER	-	3	-	3	3	-	-	-	-	
671+05 EB	-	671+70 EB	CROSSOVER	-	3	-	3	3	-	-	-	-	
UNDISTRIBUTED				-	-	-	-	-	-	-	100	4000	
TOTAL 0010				3,400	22,000	7,700	15,100	15,100	12	87,220	100	4,000	

HMA PAVEMENT PWL TEST STRIP

			460.0105.S	460.0105.S
			HMA PAVEMENT PWL TEST STRIP VOLUMETRICS	HMA PAVEMENT PWL TEST STRIP DENSITY
STATION	TO	STATION	LF	LF
303+15 EB	-	741+17 EB	1	1
TOTAL 0010			1	1

PWL MIXTURE USE TABLE

THE FOLLOWING ACCEPTANCE CRITERIA ARE APPLICABLE FOR THIS PROJECT:

LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
RIGHT LANE	303+15 EB - 355+32 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	796.00	1.75	460.2010	460.2005
LEFT LANE	303+15 EB - 355+32 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	682.00	1.75	460.2010	460.2005
INSIDE SHOULDER	303+15 EB - 355+32 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 HT 58-28 S	228.00	1.75	460.2010	ACCEPTANCE TESTING
OUTSIDE SHOULDER	303+15 EB - 334+54 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	274.00	1.75	460.2010	ACCEPTANCE TESTING
A RAMP TAPER	334+54 EB - 340+05 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	45.00	1.75	460.2010	460.2005
OUTSIDE SHOULDER	334+54 EB - 340+05 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	30.00	1.75	460.2010	ACCEPTANCE TESTING
OUTSIDE SHOULDER	340+05 EB - 353+88 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	121.00	1.75	460.2010	ACCEPTANCE TESTING
B RAMP TAPER/AUX LANE	353+88 EB - 355+32 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	22.00	1.75	460.2010	460.2005
OUTSIDE SHOULDER	353+88 EB - 355+32 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	13.00	1.75	460.2010	ACCEPTANCE TESTING
RIGHT LANE	357+53 EB - 741+46 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	5853.00	1.75	460.2010	460.2005
LEFT LANE	357+53 EB - 741+46 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	5017.00	1.75	460.2010	460.2005
INSIDE SHOULDER	357+53 EB - 741+46 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 HT 58-28 S	1673.00	1.75	460.2010	ACCEPTANCE TESTING
OUTSIDE SHOULDER	357+53 EB - 363+53 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	53.00	1.75	460.2010	ACCEPTANCE TESTING
AUX LANE	357+53 EB - 375+87 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	240.00	1.75	460.2010	460.2005
OUTSIDE SHOULDER	357+53 EB - 375+87 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	108.00	1.75	460.2010	ACCEPTANCE TESTING
C RAMP TAPER	357+53 EB - 375+87 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	99.00	1.75	460.2010	460.2005
OUTSIDE SHOULDER	375+87 EB - 381+14 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	46.00	1.75	460.2010	ACCEPTANCE TESTING
AUX LANE TAPER	375+87 EB - 381+14 EB	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	35.00	1.75	460.2010	460.2005
OUTSIDE SHOULDER	381+14 EB - 741+46 EB	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	3139.00	1.75	460.2010	ACCEPTANCE TESTING
INSIDE SHOULDER	340+05 A - 344+70 A	LOWER LIFT	EXISTING HMA PAVEMENT	4 HT 58-28 S	26.00	1.75	460.2010	ACCEPTANCE TESTING
RAMP	340+05 A - 344+70 A	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	84.00	1.75	460.2010	460.2005
OUTSIDE SHOULDER	340+05 A - 344+70 A	LOWER LIFT	EXISTING HMA PAVEMENT	4 LT 58-28 S	26.00	1.75	460.2010	ACCEPTANCE TESTING
INSIDE SHOULDER	349+80 B - 353+88 B	LOWER LIFT	EXISTING HMA PAVEMENT	4 HT 58-28 S	23.00	1.75	460.2010	ACCEPTANCE TESTING
RAMP	349+80 B - 353+88 B	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	89.00	1.75	460.2010	460.2005
INSIDE SHOULDER	356+37 C - 363+53 C	LOWER LIFT	EXISTING HMA PAVEMENT	4 HT 58-28 S	39.00	1.75	460.2010	ACCEPTANCE TESTING
RAMP	356+37 C - 363+53 C	LOWER LIFT	EXISTING CONCRETE PAVEMENT	4 HT 58-28 S	133.00	1.75	460.2010	460.2005
CROSSOVER	337+67 EB - 338+25 EB	LOWER LIFT	EXISTING HMA PAVEMENT	5 LT 58-28 S	2.00	1.75	460.2010	ACCEPTANCE TESTING
CROSSOVER	385+66 EB - 386+16 EB	LOWER LIFT	EXISTING HMA PAVEMENT	6 LT 58-28 S	2.00	1.75	460.2010	ACCEPTANCE TESTING
CROSSOVER	466+00 EB - 466+63 EB	LOWER LIFT	EXISTING HMA PAVEMENT	8 LT 58-28 S	3.00	1.75	460.2010	ACCEPTANCE TESTING
CROSSOVER	522+36 EB - 523+00 EB	LOWER LIFT	EXISTING HMA PAVEMENT	9 LT 58-28 S	3.00	1.75	460.2010	ACCEPTANCE TESTING
CROSSOVER	616+65 EB - 617+35 EB	LOWER LIFT	EXISTING HMA PAVEMENT	10 LT 58-28 S	3.00	1.75	460.2010	ACCEPTANCE TESTING
CROSSOVER	671+05 EB - 671+70 EB	LOWER LIFT	EXISTING HMA PAVEMENT	11 LT 58-28 S	3.00	1.75	460.2010	ACCEPTANCE TESTING

CULVERT PIPE SUMMARY								
STATION	LOCATION	522.1024	522.1030	606.0200	608.0324	608.0330	633.52	645.0120
		APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH	RIPRAP MEDIUM	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 30-INCH	MARKERS CULVERT END	GEOTEXTILE FABRIC TYPE HR
		EACH	EACH	CY	LF	LF	EACH	SY
431+20 EB	RIGHT	-	1	2	-	4	1	4
637+75 EB	RIGHT	1	-	2	12	-	1	4
647+50 EB	RIGHT	1	-	2	5	-	1	4
TOTAL 0010		2	1	6	17	4	3	12

BEAM GUARD SUMMARY							
STATION	TO	STATION	LOCATION	614.0400	614.2500	614.2610	REMARKS
				ADJUSTING STEEL PLATE BEAM GUARD	MGS THRIE BEAM TRANSITION	MGS GUARDRAIL TERMINAL EAT	
				LF	LF	EACH	
303+15 EB	-	306+10 EB	RIGHT	286	-	-	B RAMP TO BRIDGE OVER USH 12
317+25 EB	-	324+53 EB	RIGHT	630	39	1	
350+93 B	-	355+32 EB	RIGHT	375	39	1	
352+64 EB	-	355+32 EB	LEFT	179	39	1	
389+31 EB	-	407+22 EB	RIGHT	1,693	48	1	CTH A OVERPASS
462+05 EB	-	464+28 EB	RIGHT	134	39	1	
463+96 EB	-	465+64 EB	LEFT	168	-	-	CTH A OVERPASS
517+44 EB	-	519+66 EB	RIGHT	133	39	1	GILLEM RD OVERPASS
519+33 EB	-	521+01 EB	LEFT	168	-	-	GILLEM RD OVERPASS
589+25 EB	-	597+15 EB	RIGHT	692	39	1	CTH T OVERPASS
612+87 EB	-	615+19 EB	RIGHT	143	39	1	
614+90 EB	-	616+59 EB	LEFT	169	-	-	CTH T OVERPASS
667+09 EB	-	669+43 EB	RIGHT	144	39	1	VAN HOOSEN RD OVERPASS
669+34 EB	-	671+02 EB	LEFT	168	-	-	VAN HOOSEN RD OVERPASS
710+62 EB	-	724+95 EB	RIGHT	1,335	39	1	TOTAL 0010
733+57 EB	-	741+46 EB	RIGHT	700	39	1	
TOTAL 0010				7,117	438	11	

EROSION CONTROL SUMMMARY

				625.0500	628.1504	628.1520	628.1905	628.1910	628.2004	628.7504	629.0210	630.0120	630.0200	630.0500		
				SALVAGED TOPSOIL	SILT FENCE	SILT FENCE	MOBILIZATIONS EROSION CONTROL	MOBILIZATIONS EMERGENCY EROSION CONTROL	EROSION MAT CLASS I TYPE B	TEMPORARY DITCH CHECKS	FERTILIZER TYPE B	SEEDING MIXTURE NO. 20	SEEDING TEMPORARY	SEED WATER		
STATION	TO	STATION	LOCATION	SY	LF	LF	EACH	EACH	SY	LF	CWT	LB	LB	MGAL	REMARKS	
426+50 EB	-	433+00 EB	OUTSIDE	3,100	700	700	-	-	3,100	20	2	80	-	20		
628+50 EB	-	641+00 EB	OUTSIDE	8,700	1,400	1,400	-	-	8,700	40	5	230	-	40		
646+50 EB	-	651+00 EB	OUTSIDE	2,800	600	600	-	-	2,800	20	2	80	-	20		
350+68 B	-	353+37 B	OUTSIDE	100	-	-	-	-	100	-	0	3	-	1	RESTORATION BEHIND NEW CURB AND GUTTER RESTORATION BEHIND NEW CURB AND GUTTER	
357+27 C	-	362+34 C	OUTSIDE	200	-	-	-	-	200	-	0	10	-	2		
UNDISTRIBUTED				1,000	-	-	-	-	1,000	-	1	50	100	20		
ENTIRE PROJECT				-	-	-	3	3	-	-	-	-	-	-		
TOTAL 0010				15,900	2,700	2,700	3	3	15,900	80	10	453	100	103		

TRAFFIC CONTROL SUMMARY

				643.0300		643.0420		643.0705		643.0715		643.0800		643.0900		643.1051		643.1205.S		643.4100.S		643.5000			
				TRAFFIC CONTROL DRUMS		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL WARNING LIGHTS TYPE C		TRAFFIC CONTROL ARROW BOARDS		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL SIGNS PCMS WITH CELLULAR COMMUNICATIONS		BASIC TRAFFIC QUEUE WARNING SYSTEM		TRAFFIC CONTROL INTERIM LANE CLOSURE		TRAFFIC CONTROL			
STATION	TO	STATION	LOCATION	SERVICE DAYS	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	EACH	EACH	REMARKS	
303+15 EB	-	741+17 EB	LEFT LANE CLOSURE	9.00	59.00	531	4.00	36	8.00	72	14.00	126	2.00	18	12.00	108	2.00	18	1.00	9	1.00	9	-	STAGE 1A	
303+15 EB	-	741+17 EB	RIGHT LANE CLOSURE	9.00	59.00	531	4.00	36	8.00	72	14.00	126	2.00	18	12.00	108	2.00	18	1.00	9	1.00	9	-	STAGE 1B	
303+15 EB	-	741+17 EB	LEFT LANE CLOSURE	5.00	98.00	490	4.00	20	8.00	40	14.00	70	2.00	10	12.00	60	2.00	10	1.00	5	1.00	5	-	STAGE 2A	
303+15 EB	-	741+17 EB	RIGHT LANE CLOSURE	7.00	73.00	511	4.00	28	8.00	56	14.00	98	2.00	14	12.00	84	2.00	14	1.00	7	1.00	7	-	STAGE 2B	
RAMP DETOURS				2.00		-		-		-		-		-	132.00	264		-		-		-	-	STAGE 2A	
303+15 EB	-	741+17 EB	LEFT LANE CLOSURE	5.00	98.00	490	4.00	20	8.00	40	14.00	70	2.00	10	12.00	60	2.00	10	1.00	5	1.00	5	-	STAGE 2C	
303+15 EB	-	741+17 EB	RIGHT LANE CLOSURE	9.00	59.00	531	4.00	36	8.00	72	14.00	126	2.00	18	12.00	108	2.00	18	1.00	9	1.00	9	-	STAGE 2D	
RAMP DETOURS				2.00		-		-		-		-		-	94.00	188	3.00	6		-		-	-	STAGE 2D	
303+15 EB	-	741+17 EB				-		-		-		-		-		-		-		-		-	1		
350+68 B	-	353+88 B	B RAMP	5.00	9.00	45		-		-		-		-		-		-		-		-	-	CURB	
356+37 C	-	363+53 C	C RAMP	5.00	5.00	25		-		-		-		-		-		-		-		-	-	CURB	
TOTAL 0010						3,154		176		352		616		88		980		94		44		44		1	

PAVEMENT MARKING SUMMARY								
STATION	TO	STATION	LOCATION	646.1040	646.3555	646.9400	649.0105	REMARKS
				MARKING LINE GROOVED WET REF EPOXY 4-INCH LF	MARKING LINE GROOVED CONTRAST PERMANENT TAPE 8- INCH LF	MARKING REMOVAL PLOWABLE RAISED PAVEMENT MARKERS EACH	TEMPORARY MARKING LINE PAINT 4-INCH LF	
303+15 EB	-	340+05 EB	RIGHT EDGELINE	3690	-	-	7380	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
303+15 EB	-	355+32 EB	LEFT EDGELINE	5217	-	-	10434	YELLOW: UPPER AND LOWER TEMPORARY, FINAL GROOVED
303+15 EB	-	355+32 EB	CENTERLINE	1326	-	25	2652	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
334+54 EB	-	340+05 EB	MINI SKIPS	105	-	-	210	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
340+05 EB	-	342+04 EB	RIGHT EDGELINE	-	199	-	398	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
342+04 EB	-	352+18 EB	RIGHT EDGELINE	1014	-	-	2028	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
352+18 EB	-	353+88 EB	RIGHT EDGELINE	-	170	-	340	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
353+88 EB	-	355+32 EB	RIGHT EDGELINE	144	-	-	288	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
353+88 EB	-	355+32 EB	MINI SKIPS	-	36	-	72	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
357+53 EB	-	361+76 EB	RIGHT EDGELINE	423	-	-	846	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
357+53 EB	-	741+46 EB	LEFT EDGELINE	38393	-	-	76786	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
357+53 EB	-	741+46 EB	CENTERLINE	9600	-	385	19200	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
357+53 EB	-	375+81 EB	MINI SKIPS	-	457	-	914	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
361+76 EB	-	363+53 EB	RIGHT EDGELINE	-	177	-	354	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
363+53 EB	-	741+46 EB	RIGHT EDGELINE	37793	-	-	75586	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
363+53 EB	-	366+65 EB	GORE	312	-	-	624	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
366+65 EB	-	370+15 EB	SKIPS	88	-	-	176	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
340+05 A	-	344+70 A	RIGHT EDGELINE	465	-	-	930	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
340+05 A	-	342+12 A	LEFT EDGELINE	-	207	-	828	GORE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
340+05 A	-	342+12 A	GORE	-	100	-	200	GORE CHEVRONS: UPPER AND LOWER TEMPORARY, FINAL GROOVED
342+12 A	-	344+70 A	LEFT EDGELINE	258	-	-	516	YELLOW: UPPER AND LOWER TEMPORARY, FINAL GROOVED
349+80 B	-	353+88 B	RIGHT EDGELINE	408	-	-	816	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
349+80 B	-	352+26 B	LEFT EDGELINE	246	-	-	492	YELLOW: UPPER AND LOWER TEMPORARY, FINAL GROOVED
352+18 B	-	353+88 B	LEFT EDGELINE	-	170	-	340	GORE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
356+37 C	-	363+53 C	RIGHT EDGELINE	716	-	-	1,432	WHITE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
356+37 C	-	361+81 C	LEFT EDGELINE	544	-	-	1,088	YELLOW: UPPER AND LOWER TEMPORARY, FINAL GROOVED
361+81 C	-	363+53 C	LEFT EDGELINE	-	172	-	344	GORE: UPPER AND LOWER TEMPORARY, FINAL GROOVED
		UNDISTRIBUTED		-	-	-	928	YELLOW: BASE PATCHING
		UNDISTRIBUTED		-	-	-	2,847	WHITE: BASE PATCHING
		TOTAL 0010		100,742	1,688	410	209,049	

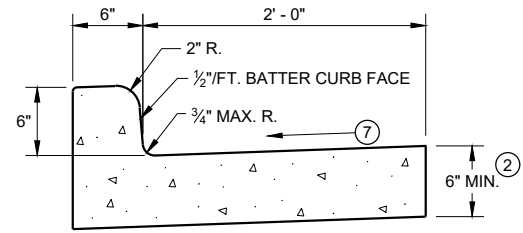
CONSTRUCTION STAKING SUMMARY									
				650.5500	650.6000	650.8000	650.9910.01	650.9920	
				CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	CONSTRUCTION STAKING PIPE CULVERTS	CONSTRUCTION STAKING RESURFACING REFERENCE	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (1014-00-77)	CONSTRUCTION STAKING SLOPE STAKES	
STATION	TO	STATION	LOCATION	LF	EACH	LF	LS	LF	REMARKS
303+15 EB	-	355+32 EB		-	-	-	1	-	
357+53 EB	-	741+46 EB		-	-	5,217	-	-	
426+50 EB	-	433+00 EB		-	2	38,393	-	-	
628+50 EB	-	641+00 EB		-	1	-	-	650	
646+50 EB	-	651+00 EB		-	1	-	-	1,250	
340+05 A	-	344+70 A		-	-	-	-	450	
350+68 B	-	353+88 B		320	-	-	-	-	
356+37 C	-	363+53 C		716	-	-	-	-	
TOTAL 0010				1,036	4	43,610	1	2,350	

SPV.0060.01		
VERIFY LANDMARK REFERENCE MONUMENTS		
STATION	LOCATION	EACH
383+27 EB	OUTSIDE	1
575+06 EB	OUTSIDE	1
575+24 EB	OUTSIDE	1
736+68 EB	OUTSIDE	1
TOTAL 0010		4

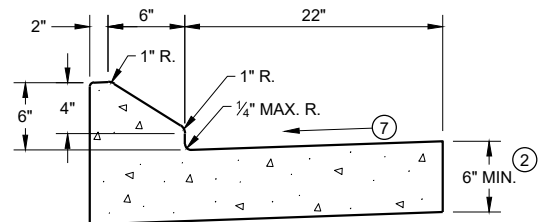
Standard Detail Drawing List

08D01-21A	CONCRETE CURB & GUTTER
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DI TCH CHECKS
08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13C08-02	CONCRETE PAVEMENT PARTIAL DEPTH REPAI R
13C14-07A	BASE PATCHING CONCRETE
13C14-07B	BASE PATCHING CONCRETE
13C14-07C	BASE PATCHING CONCRETE
13C19-03	HMA LONGITUDI NAL JOINTS
14B42-06A	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B42-06B	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B42-06C	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B42-06D	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B43-04A	MIDWEST GUARDRAI L SYSTEM LONG SPAN MGS (L)
14B43-04B	MIDWEST GUARDRAI L SYSTEM LONG SPAN MGS (L)
14B43-04C	MIDWEST GUARDRAI L SYSTEM LONG SPAN MGS (L)
14B44-04A	MIDWEST GUARDRAI L SYSTEM ENERGY ABSORBING TERMIN AL (MGS)
14B44-04B	MIDWEST GUARDRAI L SYSTEM ENERGY ABSORBING TERMIN AL (MGS)
14B44-04C	MIDWEST GUARDRAI L SYSTEM ENERGY ABSORBING TERMIN AL (MGS)
14B45-05A	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05B	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05C	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05D	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05E	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05F	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05G	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05H	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05I	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05J	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05K	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-05L	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-08D	ON RAMP LANE CLOSURE
15C02-08E	OFF RAMP LANE CLOSURE
15C02-08F	ADVANCED WIDTH RESTRI CTION SIGNI NG
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C31-03A	PAVEMENT MARKING (RAMPS AND GORES)
15D12-09B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D12-09D	TRAFFIC CONTROL, LANE CLOSURE, BASI C TRAFFIC QUEUE WARNING SYSTEM
15D15-05B	TRAFFIC CONTROL, ENTRANCE RAMP WITHI N LANE CLOSURE
15D15-05E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHI N LANE CLOSURE
15D16-04	TRAFFIC CONTROL, EXI T RAMP CLOSURE
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDI VI DED ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTI NG
15D38-02B	ATTACHMENT OF SI GNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNI NG

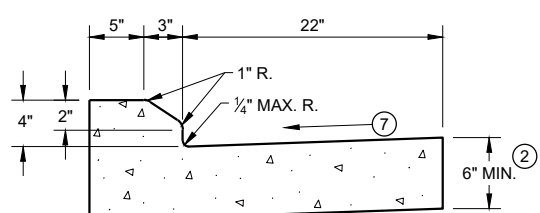




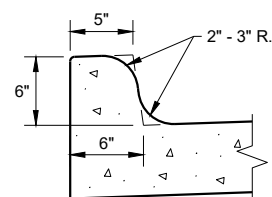
TYPES A<sup>①</sup> & D



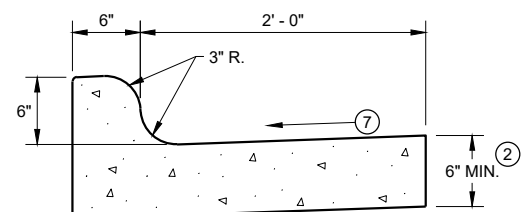
6" SLOPED CURB TYPES G<sup>①</sup> & J



4" SLOPED CURB TYPES G<sup>①</sup> & J

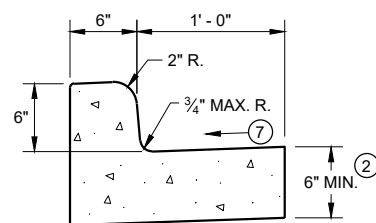


TYPES K<sup>①</sup> & L  
(OPTIONAL CURB SHAPE)



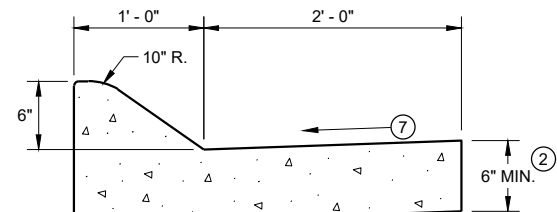
TYPES K<sup>①</sup> & L

CONCRETE CURB AND GUTTER 30"

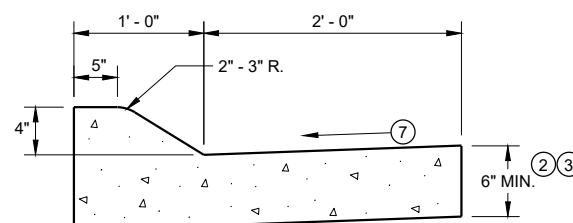


TYPES A<sup>①</sup> & D

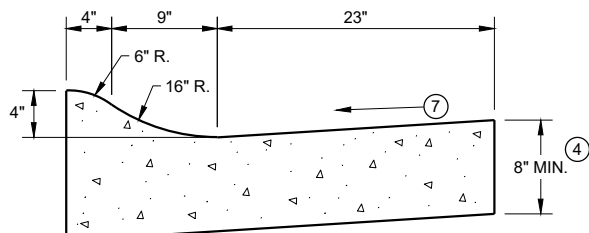
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A<sup>①</sup> & D



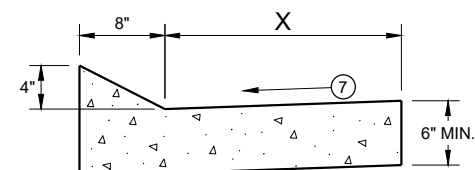
4" SLOPED CURB TYPES A<sup>①</sup> & D



4" SLOPED CURB TYPES R<sup>①</sup> & T<sup>⑤</sup>

CONCRETE CURB AND GUTTER 36"

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

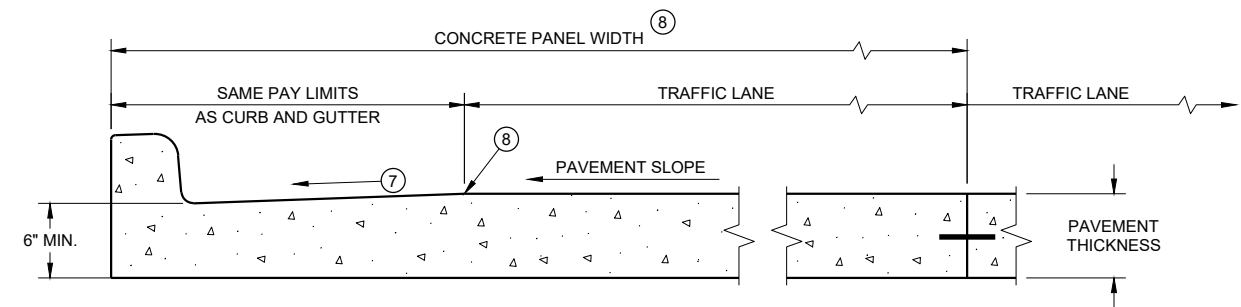


TYPES TBT & TBTT<sup>①</sup>

CONCRETE CURB AND GUTTER

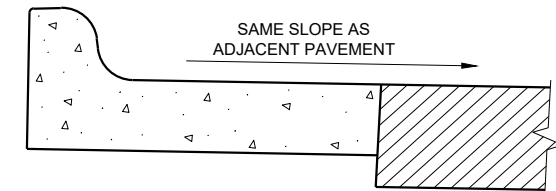
PAVEMENT THICKNESS  
AND MAXIMUM CONCRETE  
PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT \*  
WITH INTEGRAL CURB AND GUTTER

\* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER<sup>⑥</sup>  
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

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

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

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

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

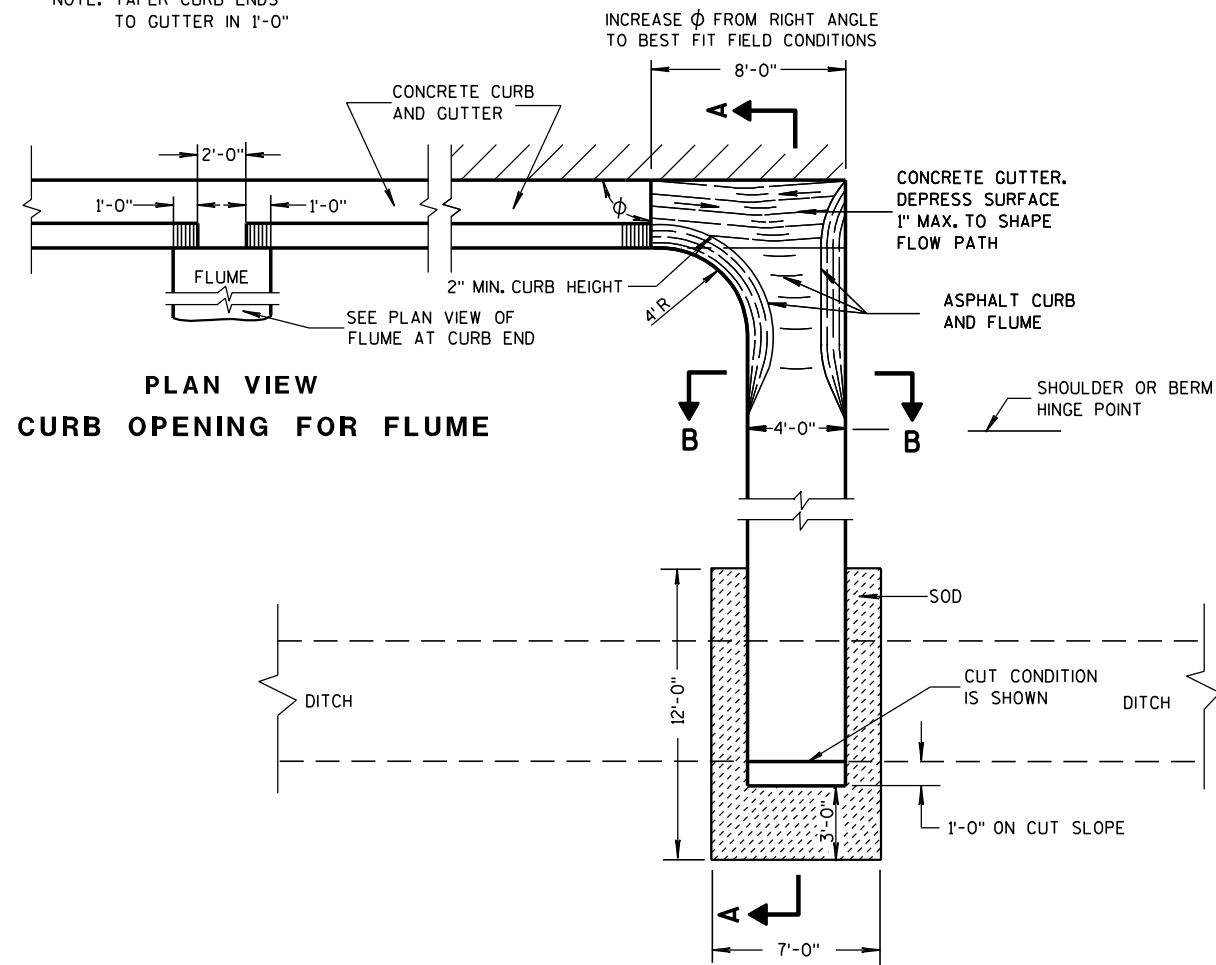
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

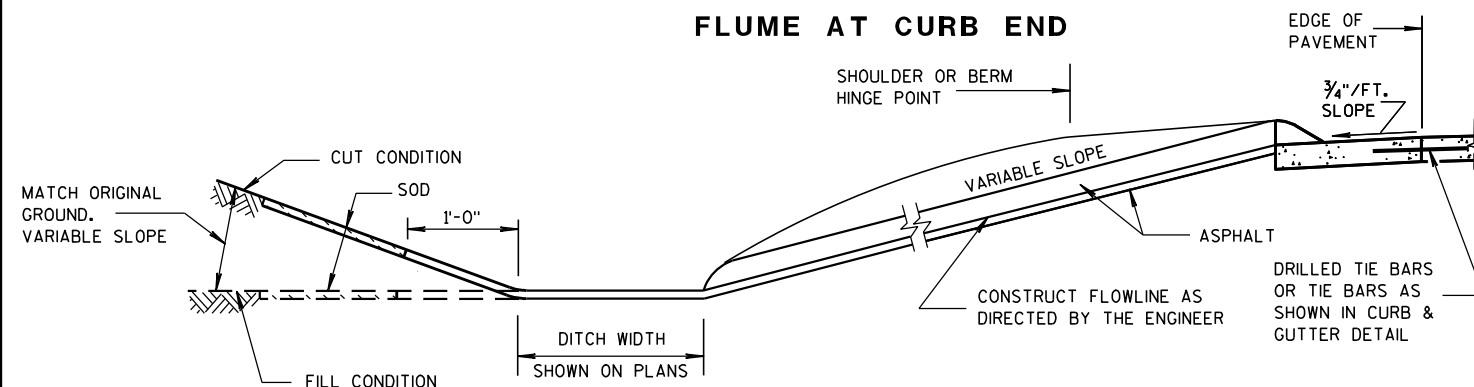
## ASPHALTIC FLUME

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

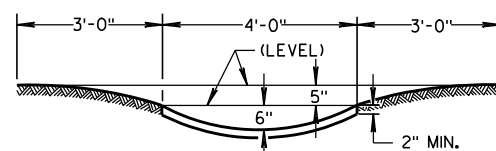


PLAN VIEW  
CURB OPENING FOR FLUME

PLAN VIEW  
FLUME AT CURB END



SECTION A-A



SECTION B-B

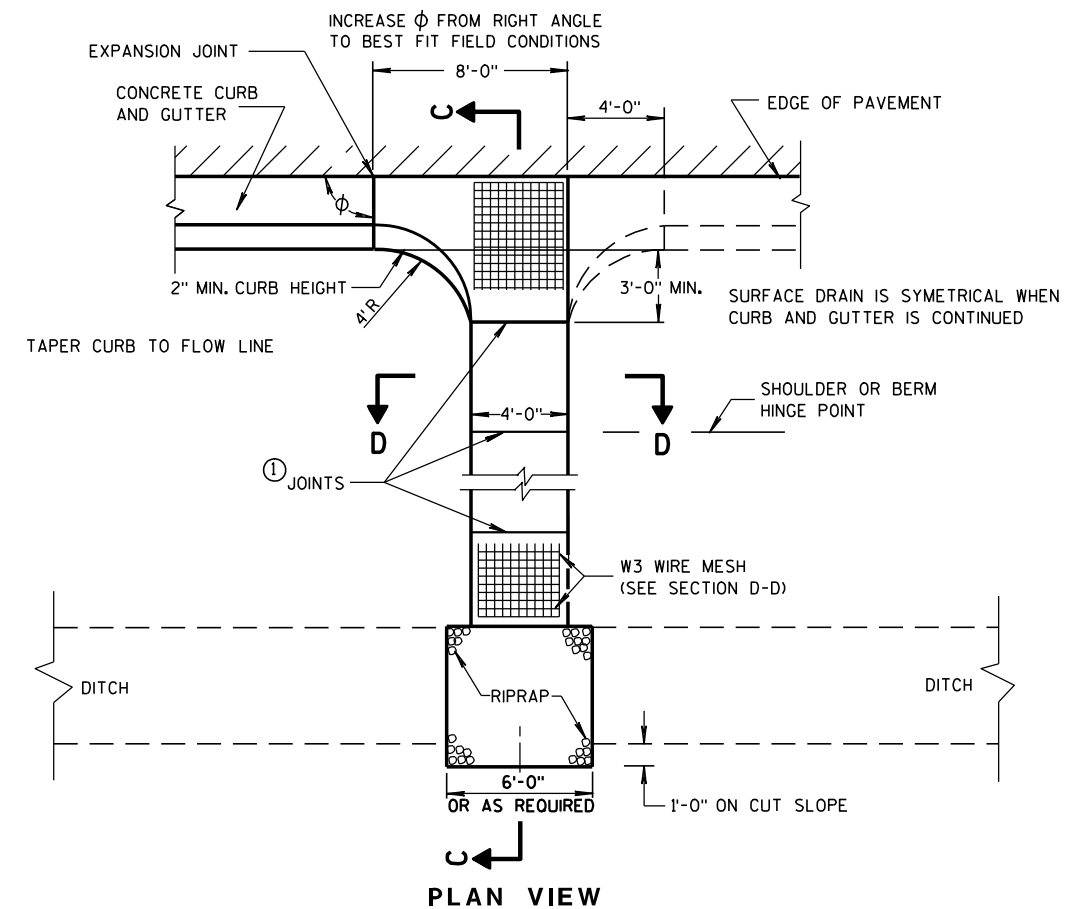
## GENERAL NOTES

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

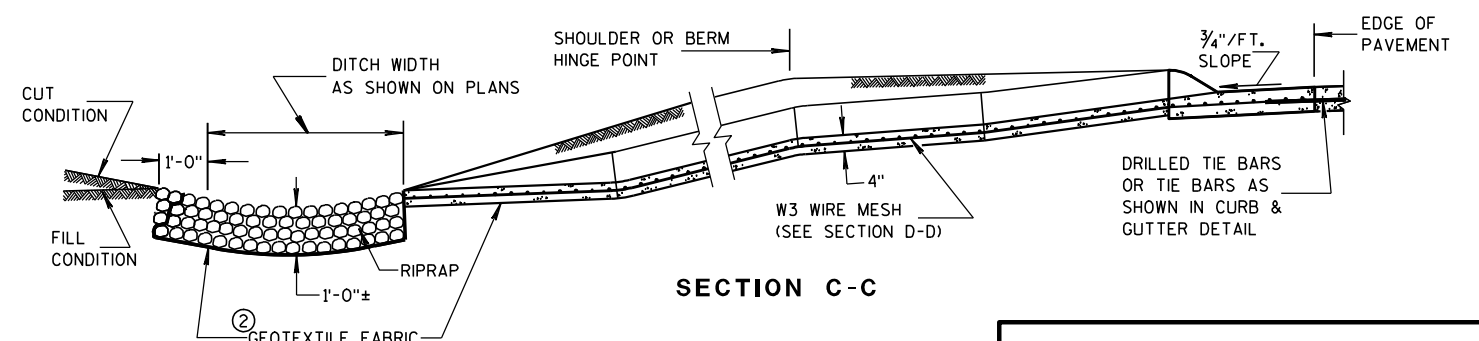
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

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

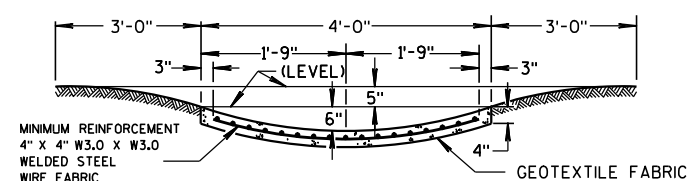
## ③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

## CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

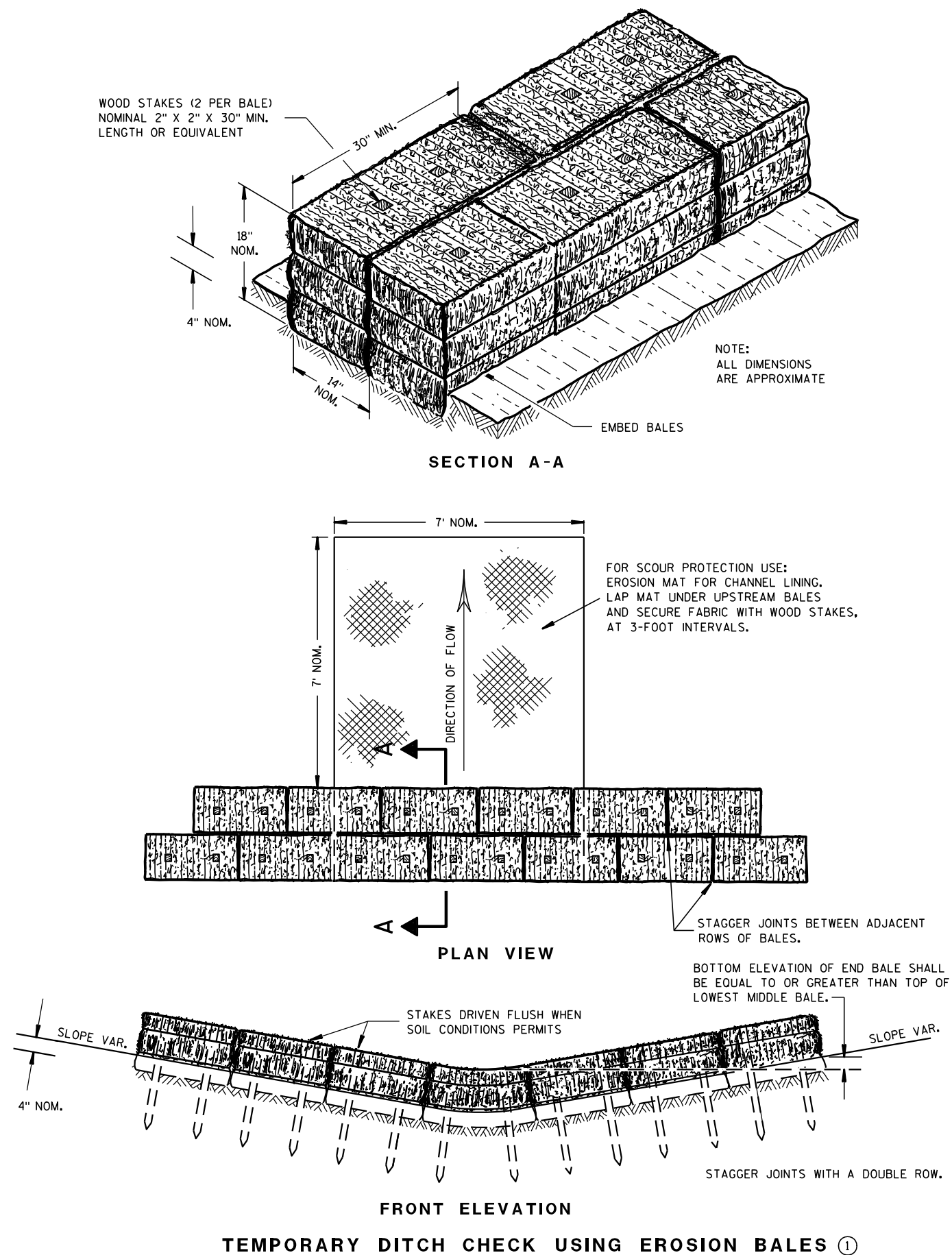
APPROVED

9-4-08

DATE

FHWA

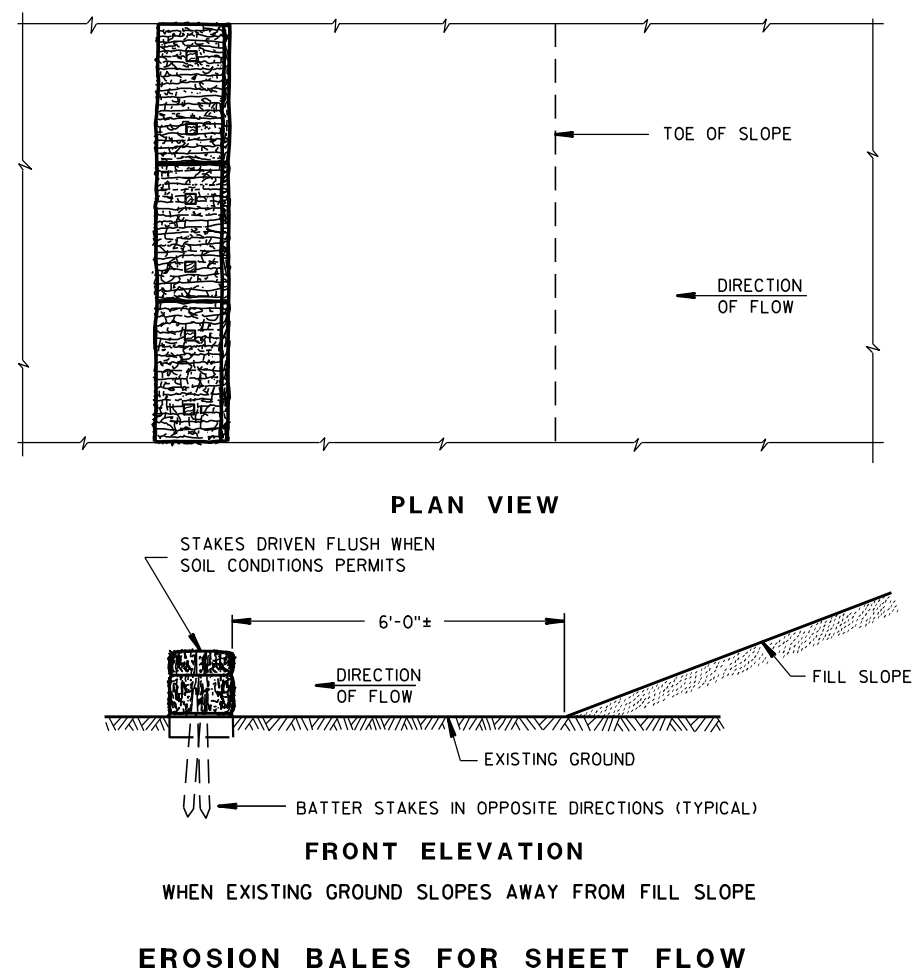
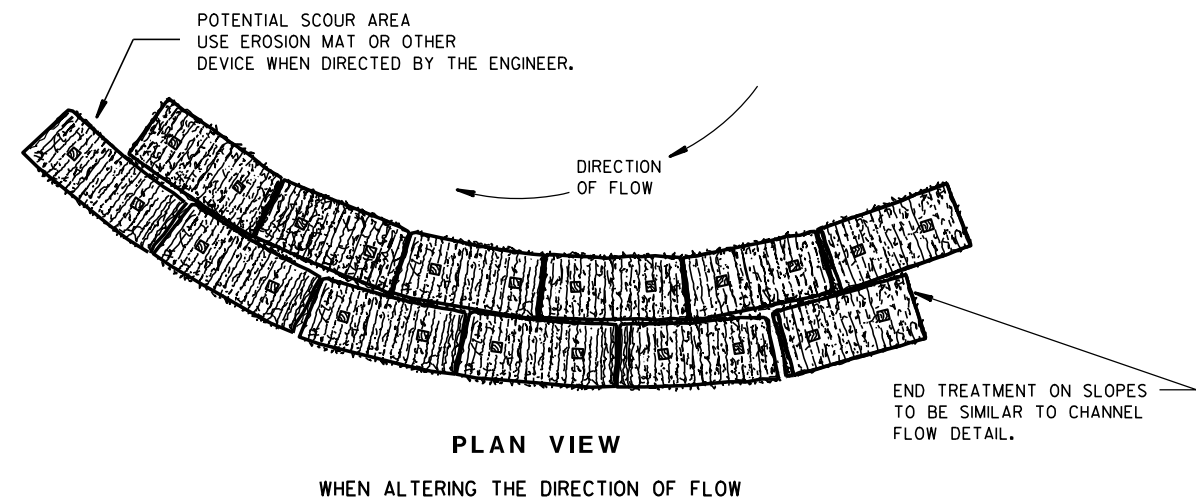
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



## GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

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

FHWA



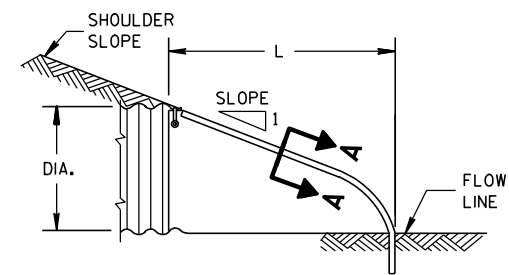
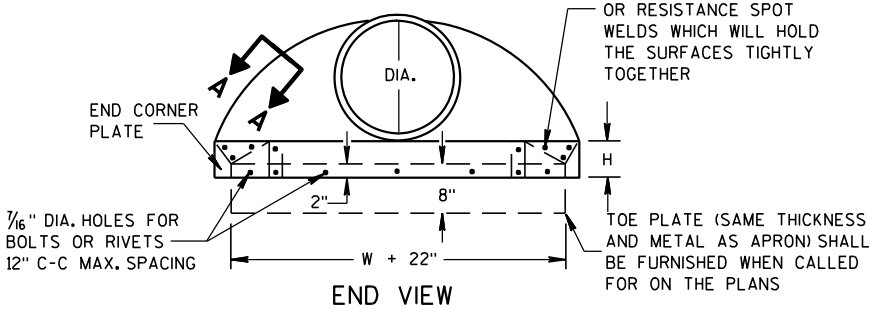
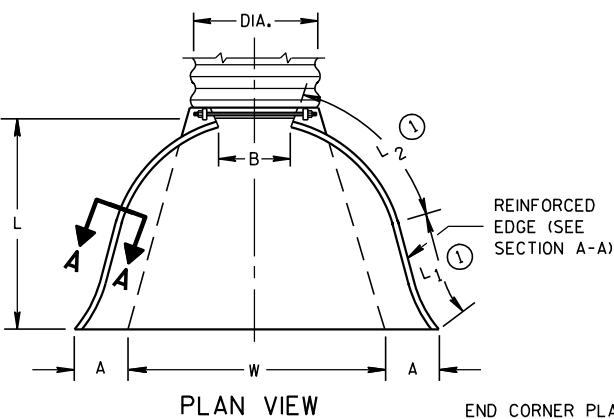
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS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



<p>SILT FENCE</p>	
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>	
<p>APPROVED 4-29-05 DATE</p>	<p>/s/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER</p>

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

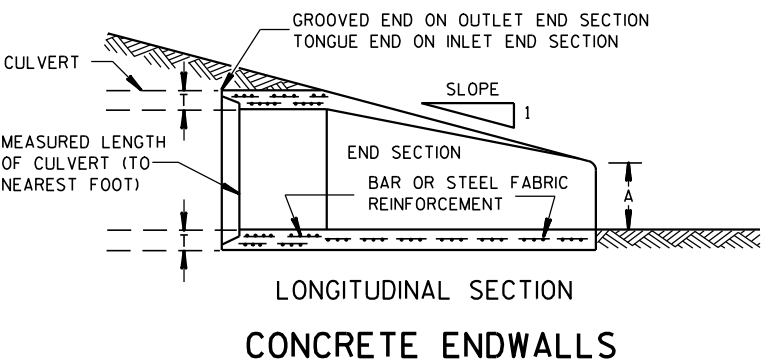
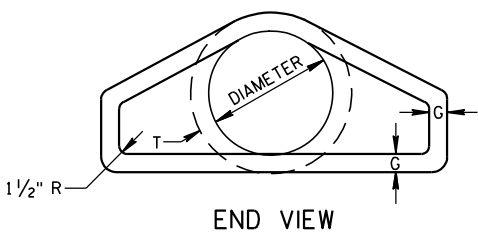
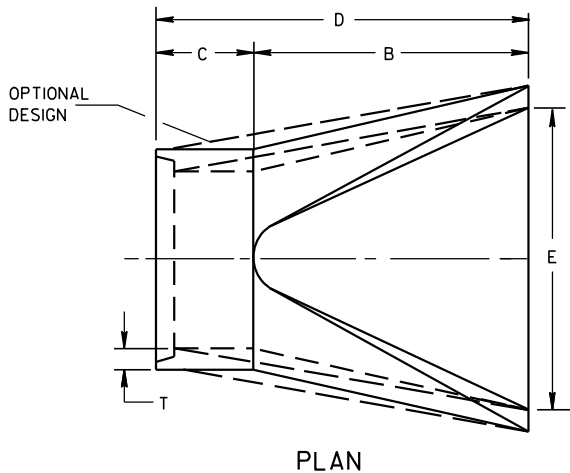
\* EXCEPT CENTER PANEL  
SEE GENERAL NOTES



SIDE ELEVATION  
METAL ENDWALLS

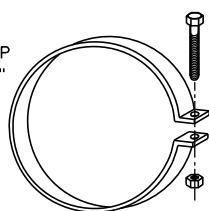
REINFORCED CONCRETE APRON ENDWALLS											
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	BODY	APPROX. SLOPE	BODY
	T	A	B	C	D	E	G				
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1	1 Pc.	3 to 1	1 Pc.
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	1 Pc.	3 to 1	1 Pc.
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	1 Pc.	3 to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

\* MINIMUM  
\*\* MAXIMUM

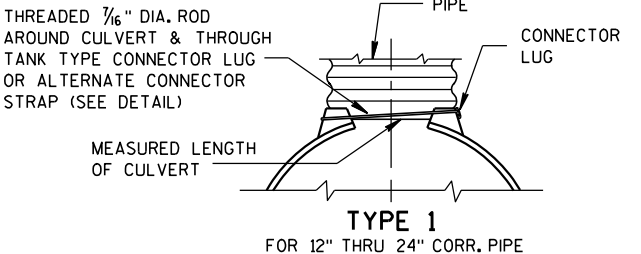


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

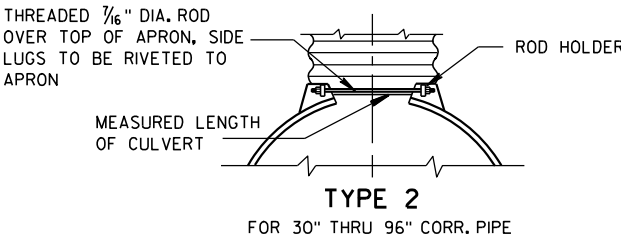
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



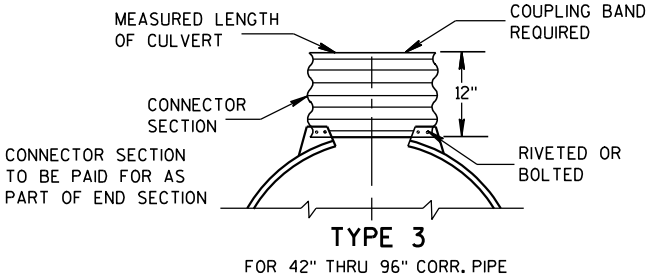
ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



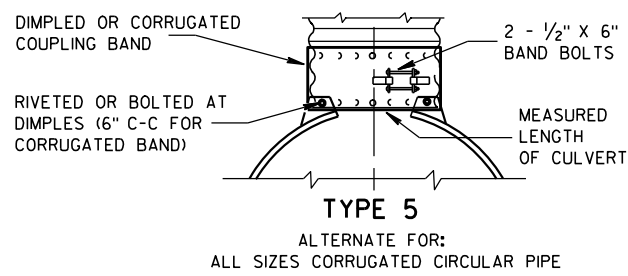
TYPE 1  
FOR 12" THRU 24" CORR. PIPE



TYPE 2  
FOR 30" THRU 96" CORR. PIPE



TYPE 3  
FOR 42" THRU 96" CORR. PIPE



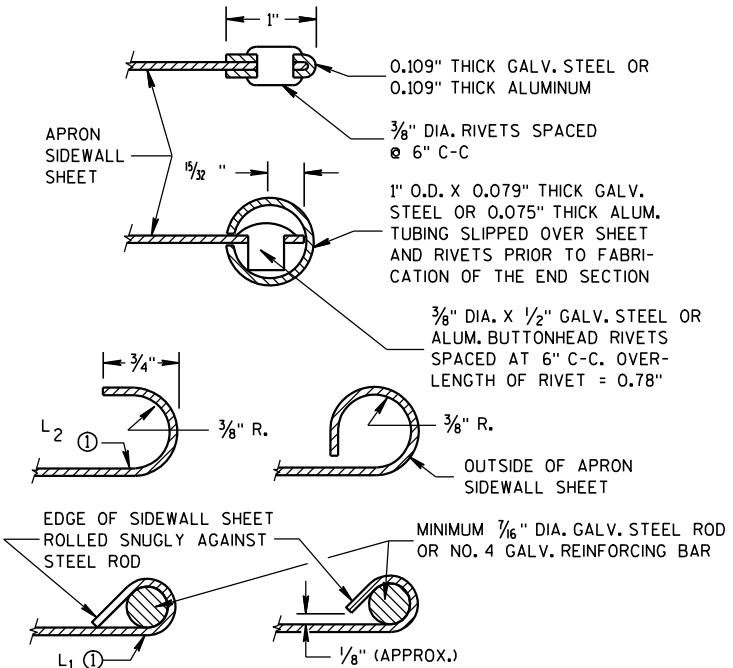
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

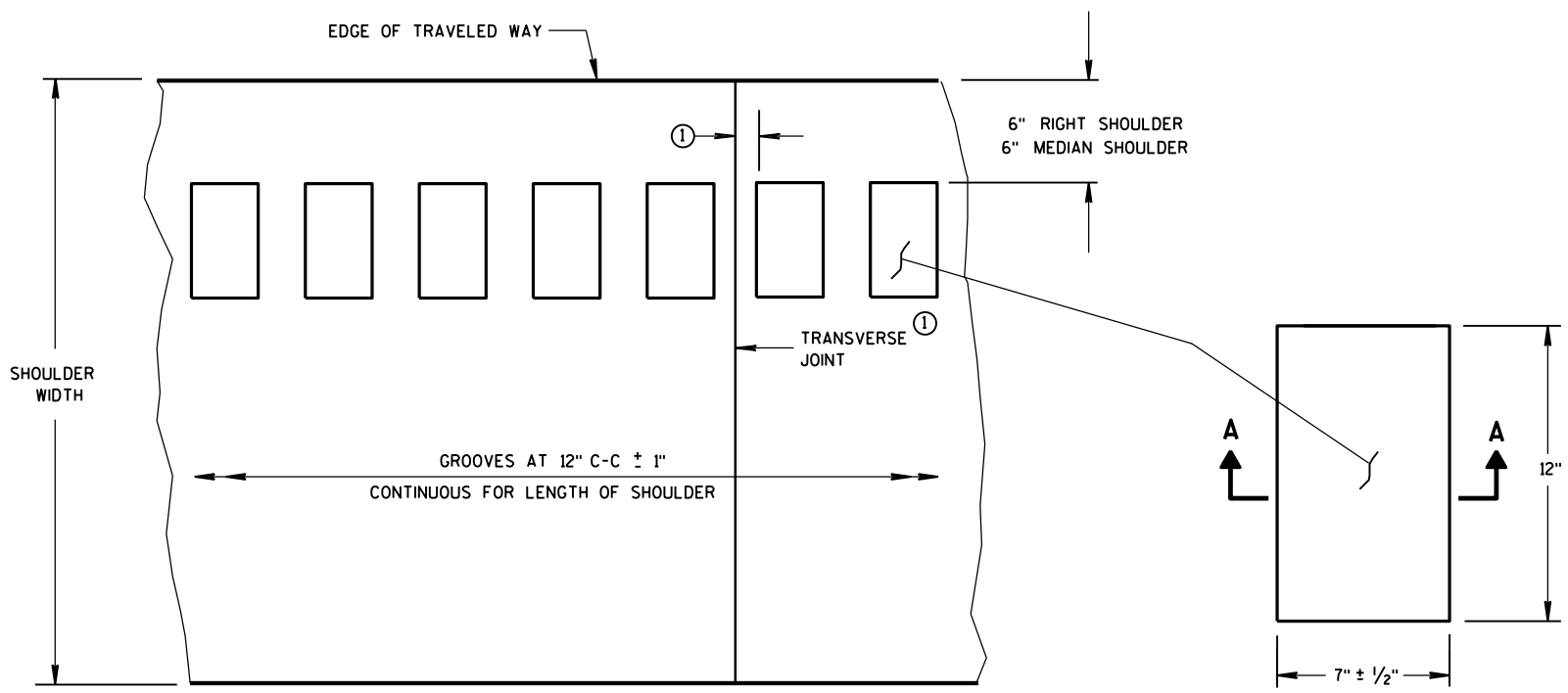
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

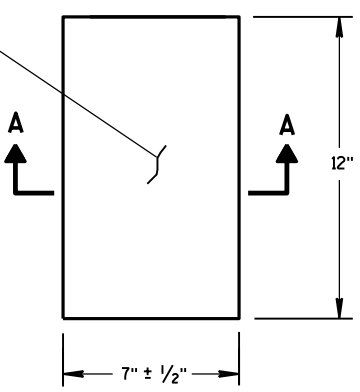
APRON ENDWALLS FOR  
CULVERT PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW  
SHOULDER WITH GROOVES



PLAN VIEW  
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

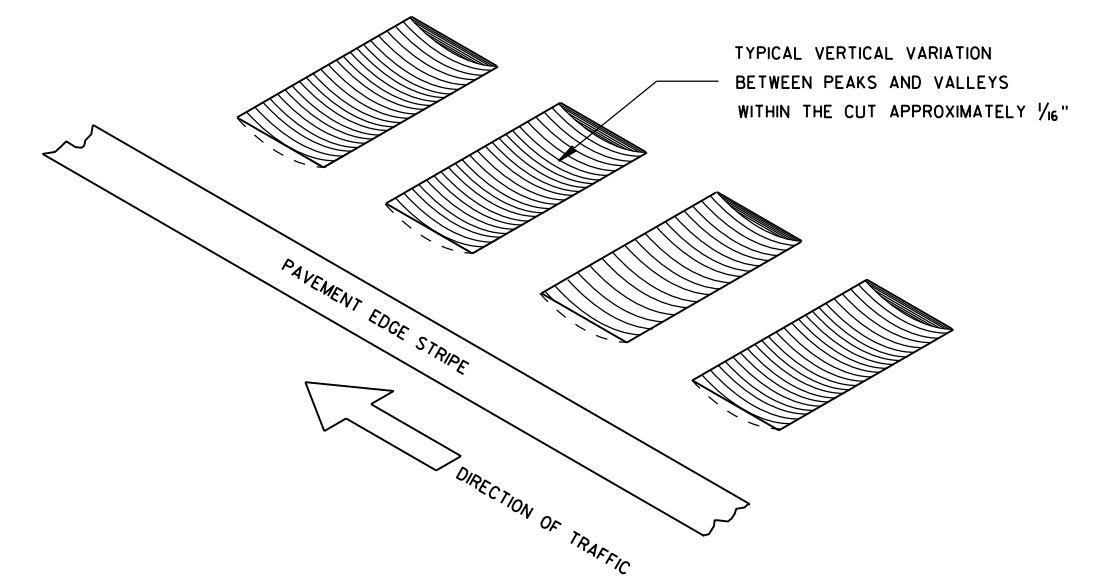
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

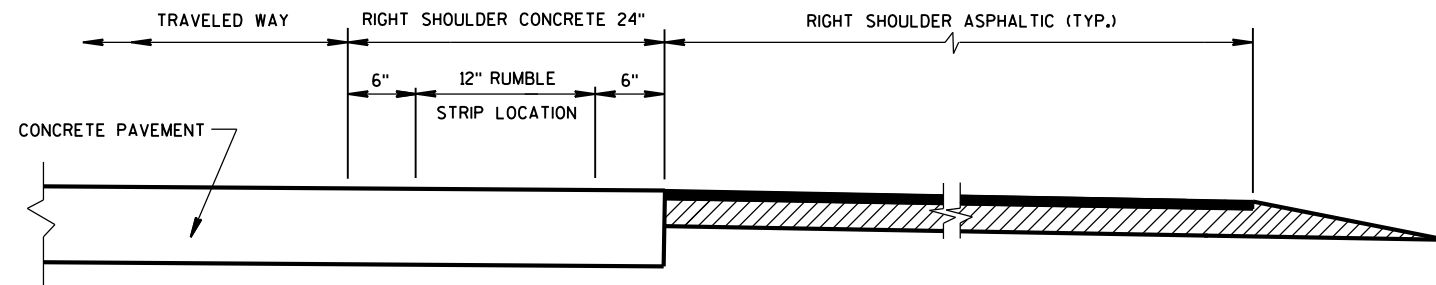
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

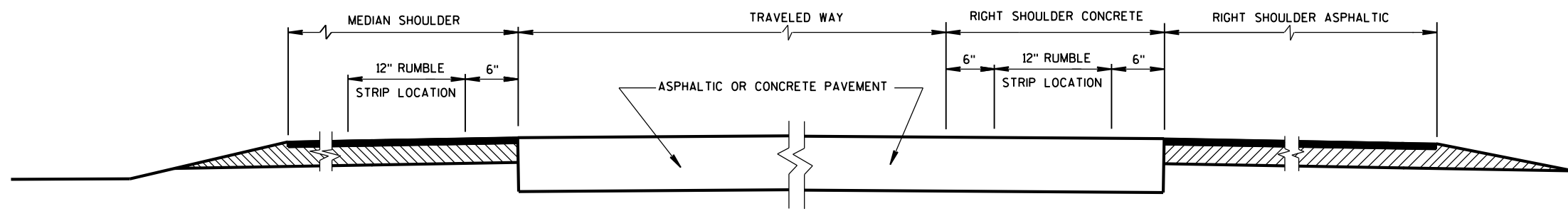
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



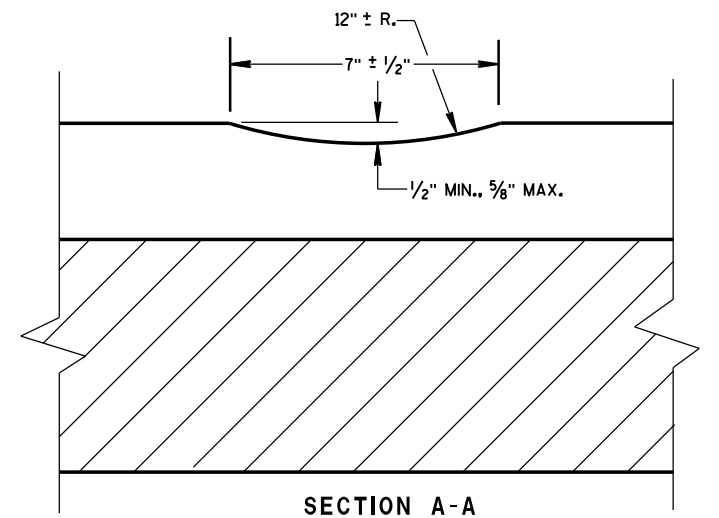
ISOMETRIC



SECTION VIEW  
(CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



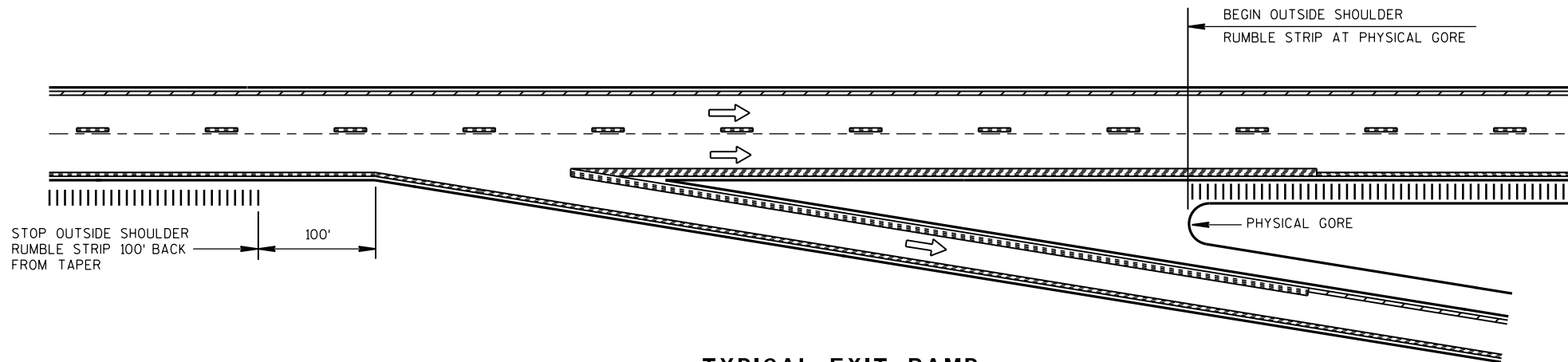
SECTION VIEW  
TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS  
IN RURAL DIVIDED HIGHWAYS  
(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP,  
MILLING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



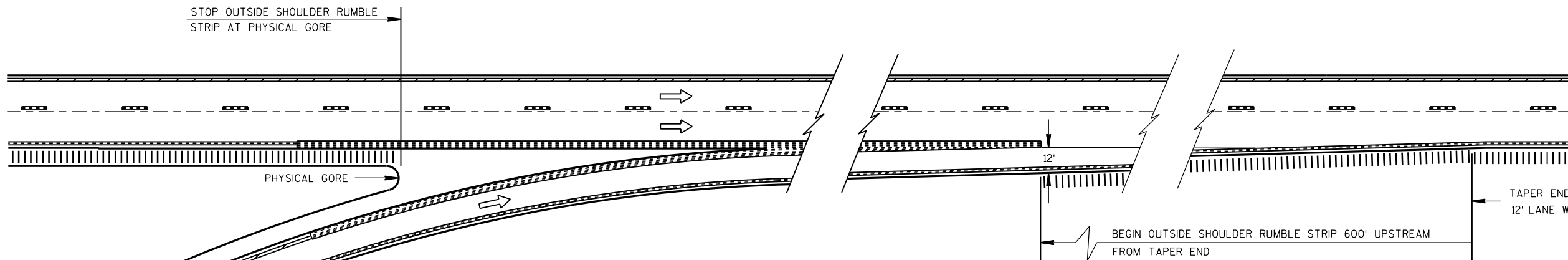
**TYPICAL EXIT RAMP**

**NOTES:**

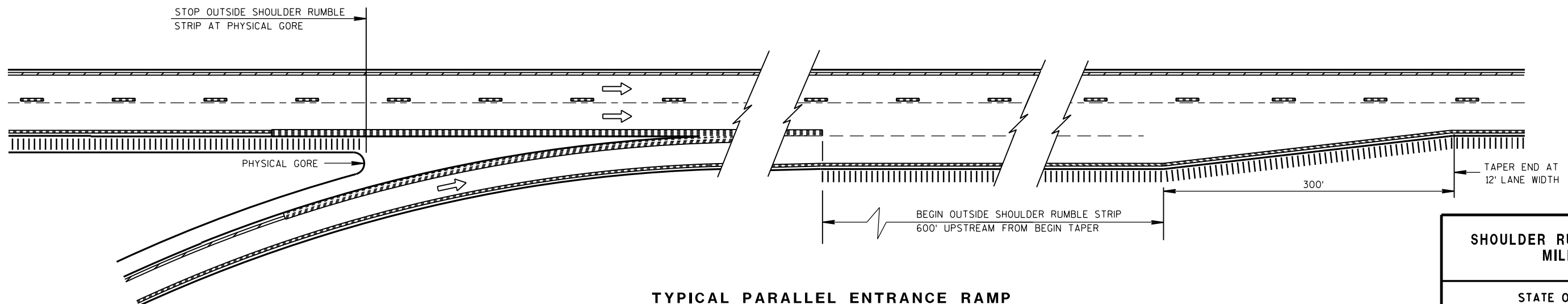
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

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

NOTE:  
ARROW SYMBOL (→)  
SHOWS DIRECTION OF TRAVEL



**TYPICAL TAPERED ENTRANCE RAMP  
RAMP AND GORE RUMBLE STRIP LOCATIONS**



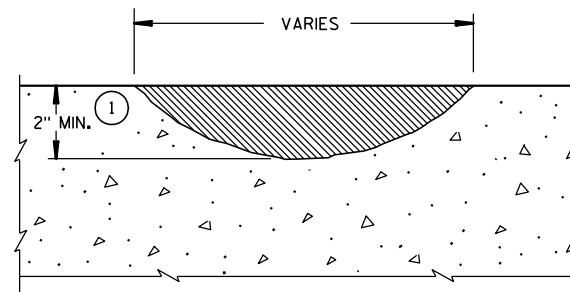
**TYPICAL PARALLEL ENTRANCE RAMP  
RAMP AND GORE RUMBLE STRIP LOCATIONS**

**SHOULDER RUMBLE STRIP,  
MILLING**

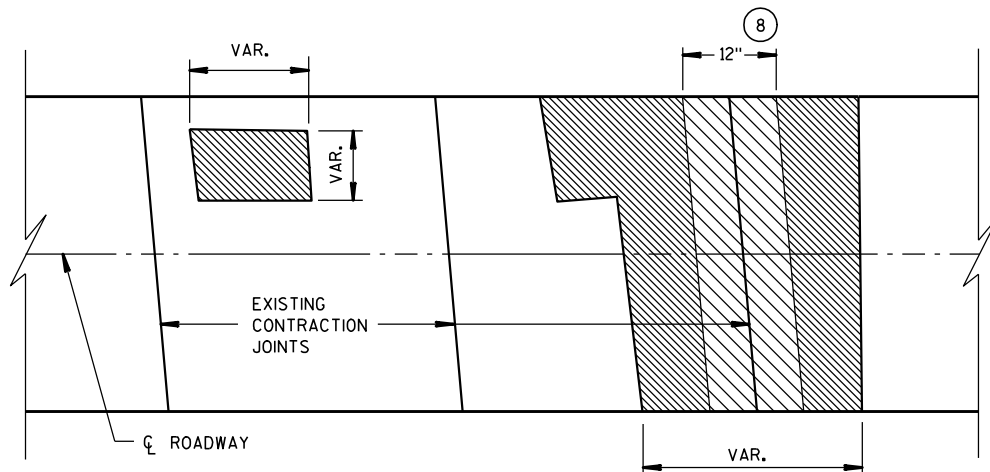
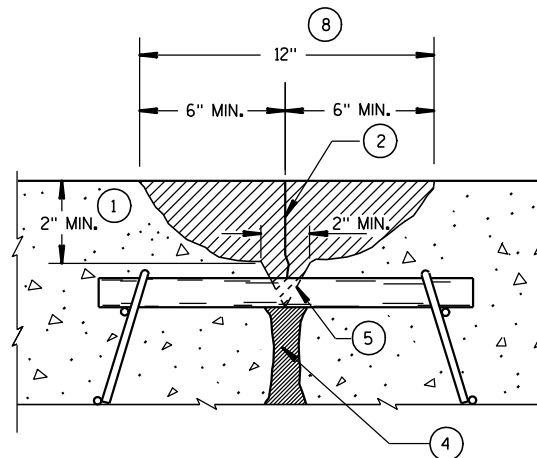
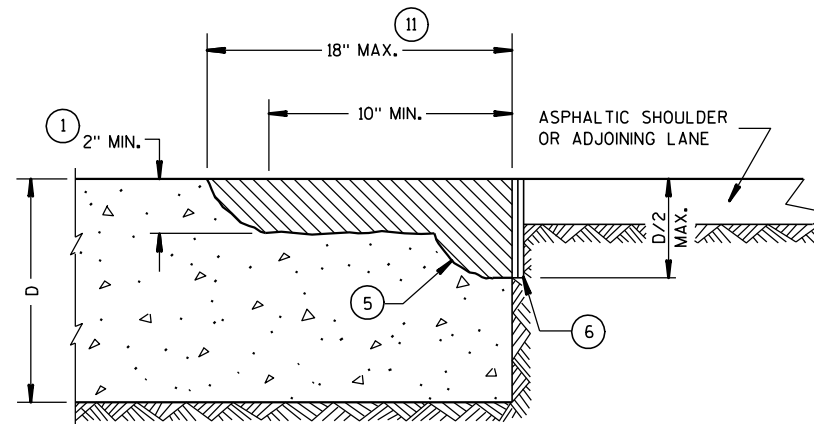
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
12/17/2012  
DATE  
FHWA

/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

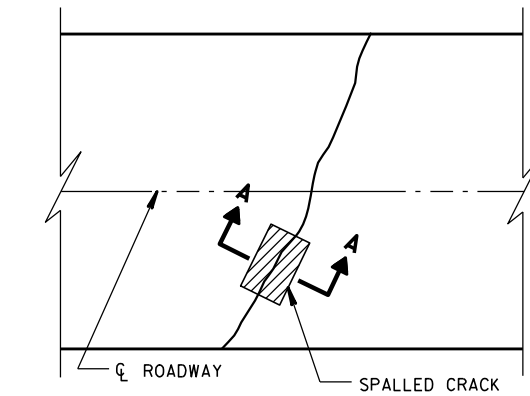
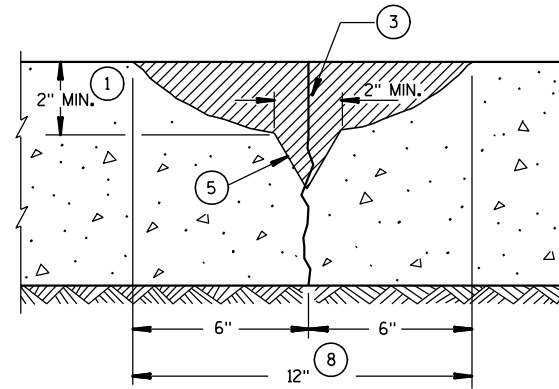


PROFILE VIEW

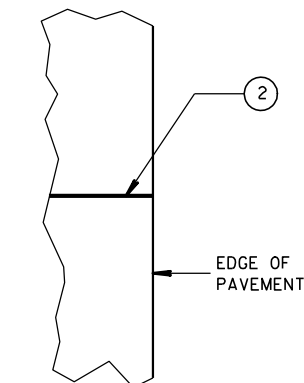
PLAN VIEW  
SURFACE REPAIRPROFILE VIEW  
JOINT REPAIR

PROFILE VIEW

EDGE REPAIR

PLAN VIEW  
CRACK REPAIR

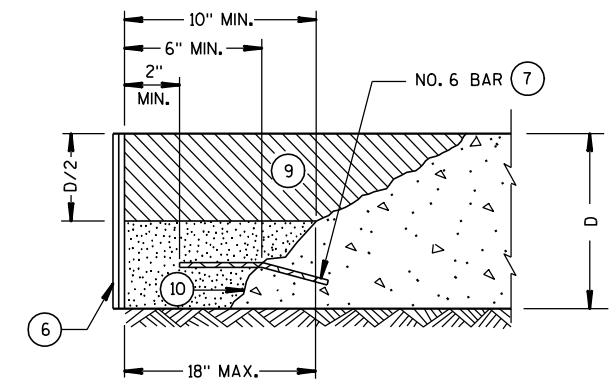
SECTION A-A



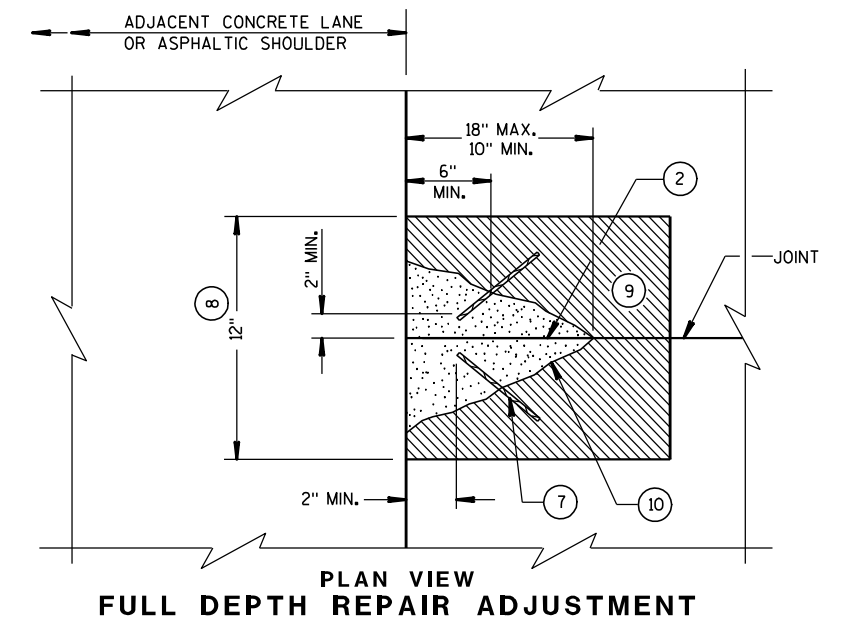
PLAN VIEW

## GENERAL NOTES

- 1 REMOVE ALL CONCRETE, TO LIMITS SHOWN, TO A MAXIMUM OF  $\frac{1}{2}$  THE PAVEMENT DEPTH OR TOP OF DOWELS.
- 2 IF REPAIR IS DEEPER THAN ANTICIPATED SAWCUT, COMPRESSION RELIEF MATERIAL MUST BE USED. THE THICKNESS OF COMPRESSION RELIEF MATERIAL MUST BE EQUAL TO OR GREATER THAN THE WIDTH OF THE JOINT OR CRACK ( $\frac{1}{4}$ "), THIS MATERIAL SHOULD EXTEND FULL DEPTH OF THE REPAIR.
- 3 COMPRESSION RELIEF MATERIAL MUST BE USED. THE THICKNESS OF COMPRESSION RELIEF MATERIAL MUST BE EQUAL TO OR GREATER THAN THE WIDTH OF THE JOINT OR CRACK ( $\frac{1}{4}$ "), THIS MATERIAL SHOULD EXTEND FULL DEPTH OF THE REPAIR.
- 4 CLEAN, DRY SAND WHEN NECESSARY.
- 5 REMOVE UNSOUND MATERIAL BY CHIPPING AT 1:1 SLOPE.
- 6  $\frac{1}{4}$ " MINIMUM PREFORMED JOINT FILLER IF ADJACENT TO CONCRETE. EDGING REQUIRED, FULLY FORMED EDGE IF ADJACENT TO SHOULDER.
- 7 PAVEMENT TIES AS SHOWN. ALL EMBEDMENTS 6" MINIMUM AND INSTALLED WITH GROUT.
- 8 OVER 12" (NOMINAL WIDTH) WILL BE PAID AS SURFACE REPAIR.
- 9 PAID AS JOINT OR CRACK REPAIR.
- 10 FULL-DEPTH ADJUSTMENT SHALL BE CHIPPED TO BOTTOM OF PCC PAVEMENT AT 1:1 SLOPE.
- 11 BEYOND 18" WILL BE PAID AS SURFACE REPAIR.



PROFILE VIEW

PLAN VIEW  
FULL DEPTH REPAIR ADJUSTMENTCONCRETE PAVEMENT  
PARTIAL DEPTH REPAIRSTATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

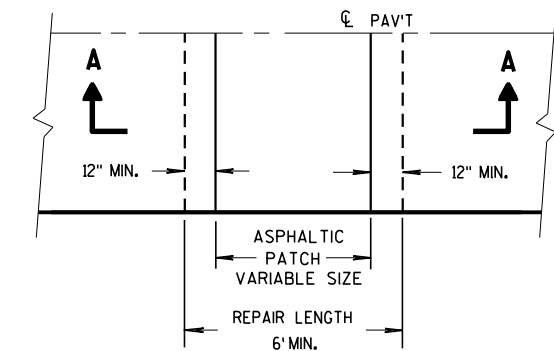
APPROVED

3/21/03  
DATE

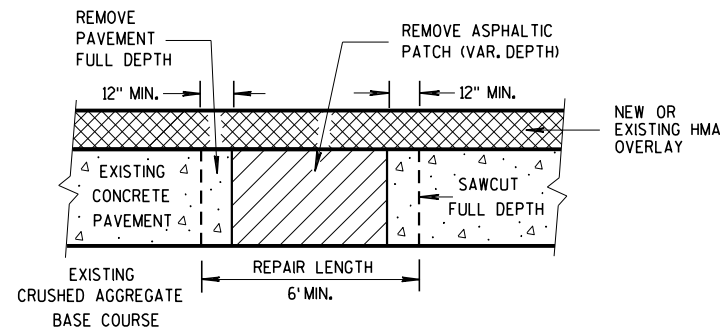
FHWA

/S/ Bill Duckert  
PAVEMENT ENGINEER



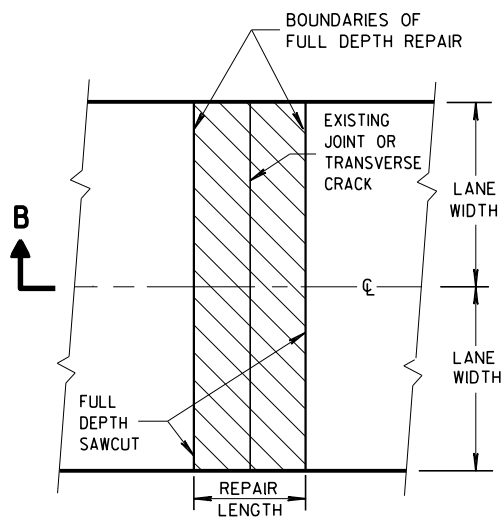


PLAN VIEW

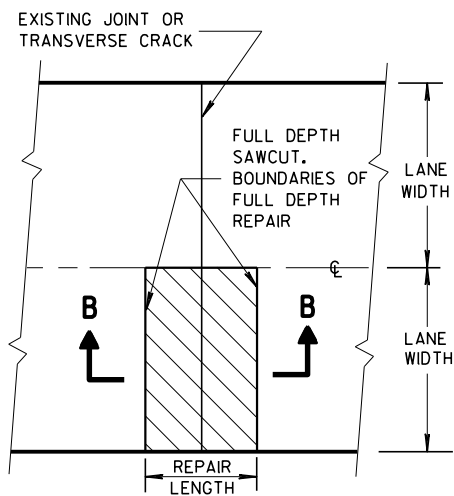


SECTION A-A

HMA PATCH REMOVAL



PLAN VIEW  
(DOUBLE LANE REPAIR)



PLAN VIEW  
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL

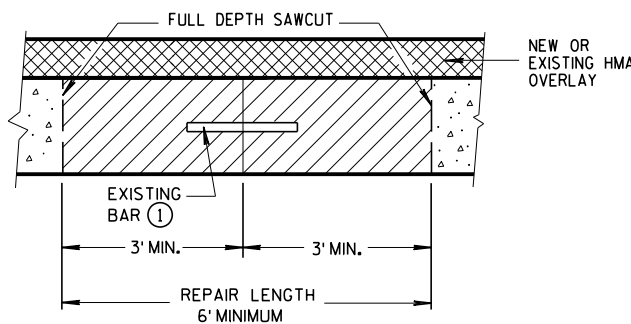
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

PROVIDE 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK.

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

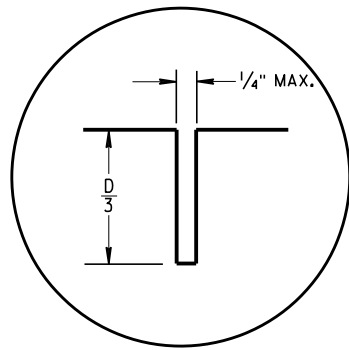
① DOWEL BARS MIGHT NOT EXIST.



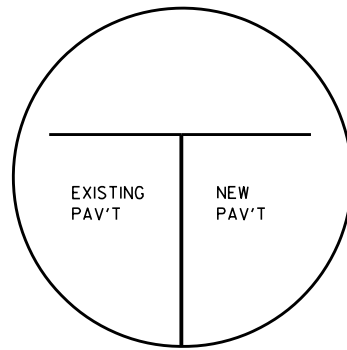
SECTION B-B  
CONCRETE REMOVAL

BASE PATCHING CONCRETE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

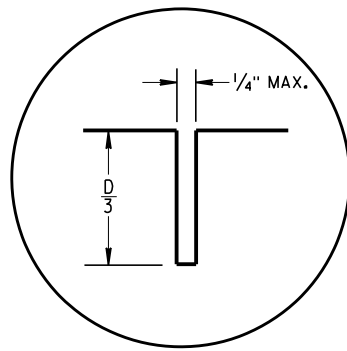


C1

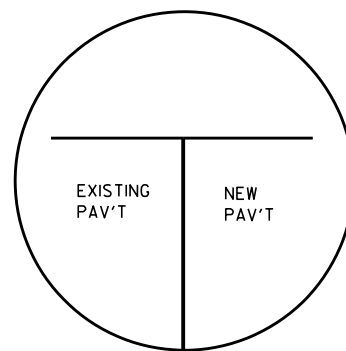


C2

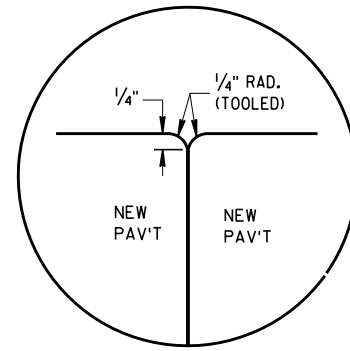
## TRANSVERSE JOINTS



L1

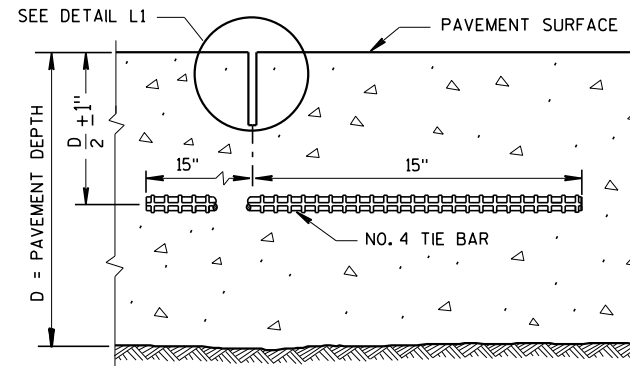


L2

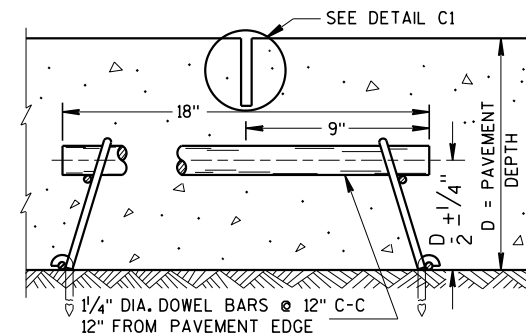


L3

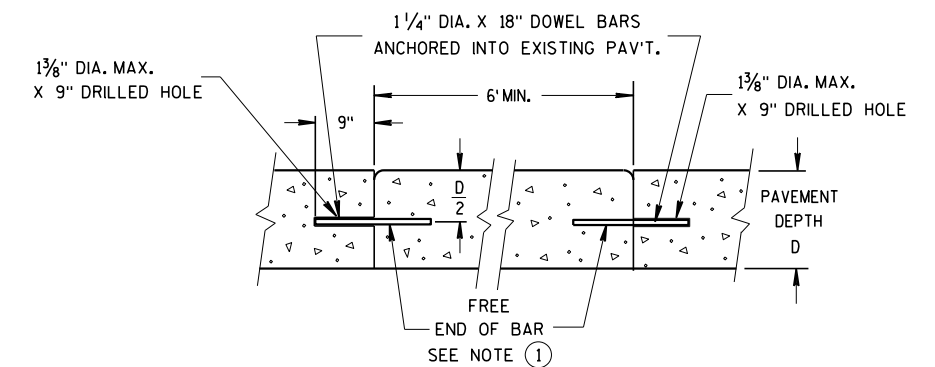
## LONGITUDINAL JOINTS



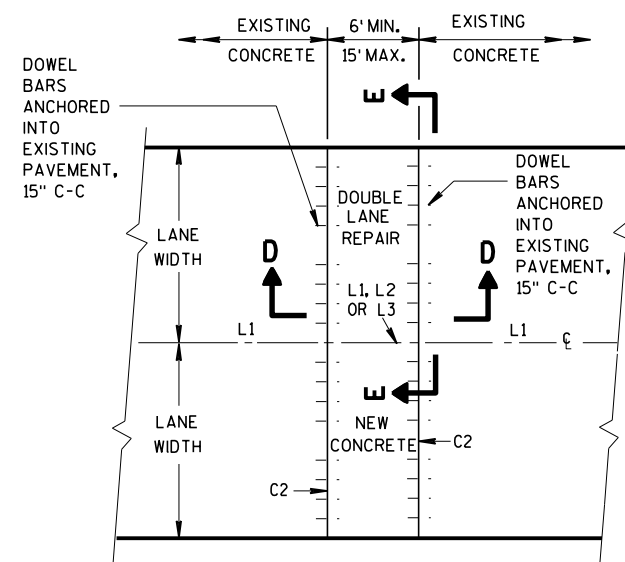
SECTION C-C  
SAWED LONGITUDINAL JOINT



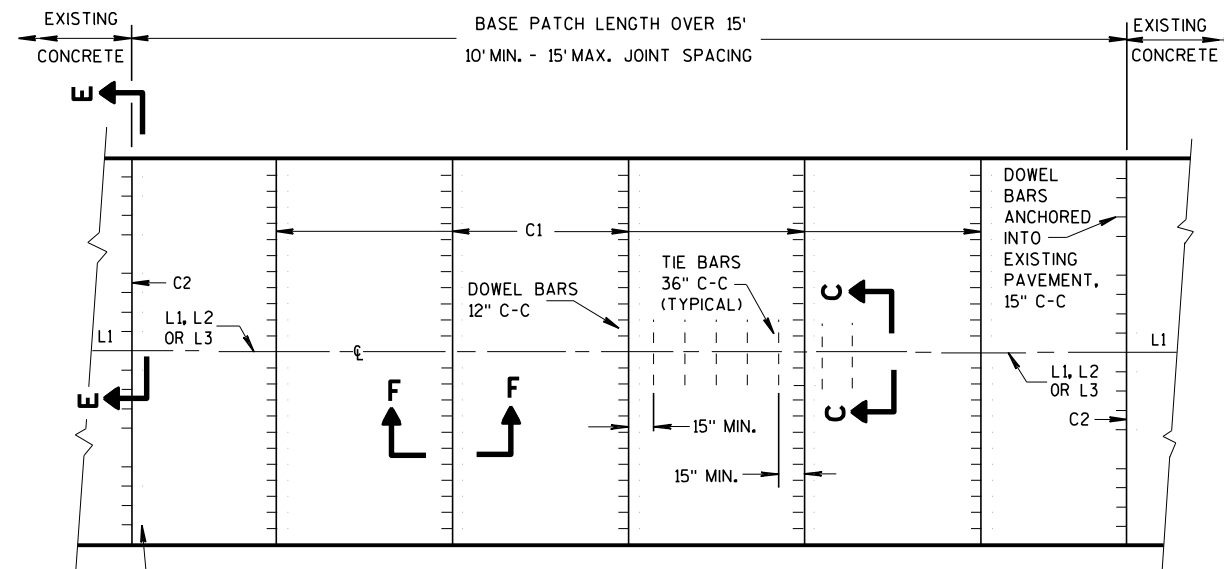
SECTION F-F  
CONTRACTION JOINT



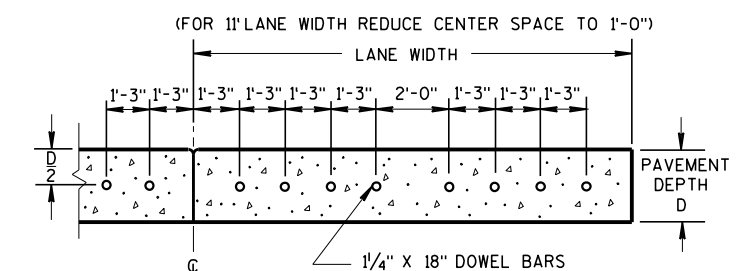
SECTION D-D



PLAN VIEW  
MULTI-LANE CONCRETE BASE PATCH  
15' MAXIMUM LENGTH



PLAN VIEW  
MULTI-LANE CONCRETE BASE PATCH  
GREATER THAN 15' IN LENGTH



SECTION E-E  
SPACING OF DOWEL BARS  
ANCHORED INTO EXISTING PAVEMENT

## GENERAL NOTES

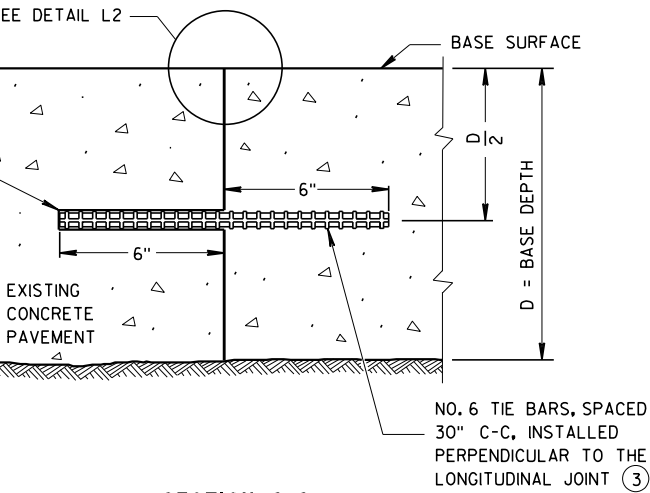
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE BASE PATCHES OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

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

PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

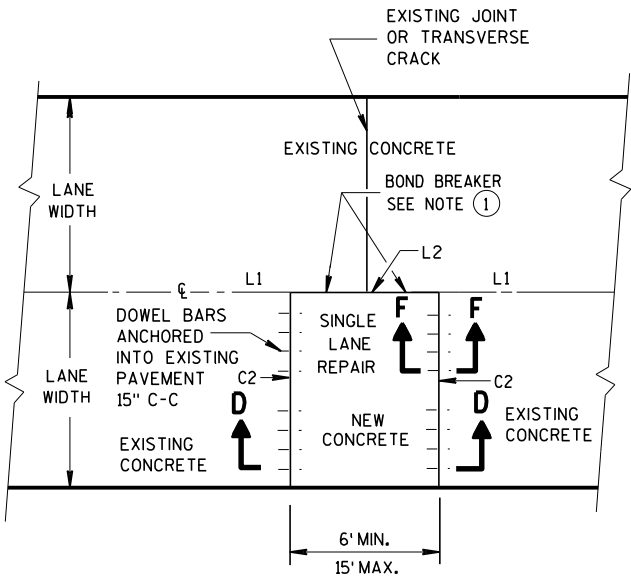
- APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



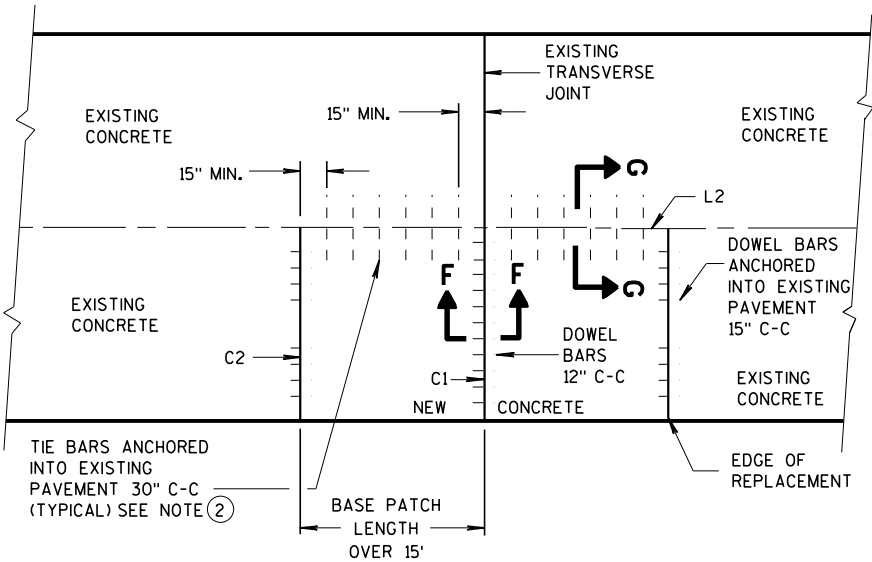
SECTION G-G  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT

GENERAL NOTES

- ① USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE BASE PATCHES UP TO 15 FEET IN LENGTH.
- ② WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, DRILLED TIE BARS MAY BE INSTALLED ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



PLAN VIEW  
SINGLE LANE CONCRETE BASE PATCH  
15' MAXIMUM LENGTH

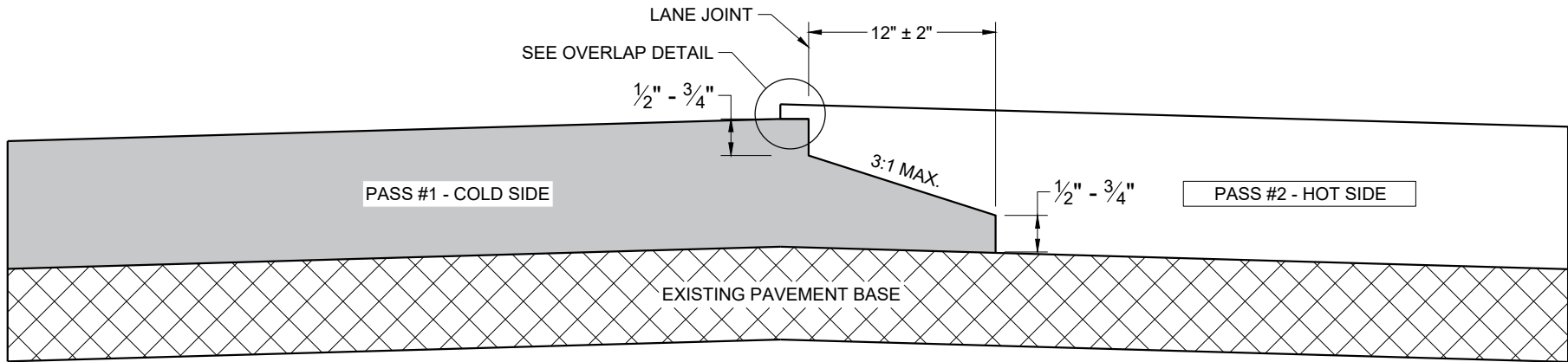


PLAN VIEW  
SINGLE LANE CONCRETE BASE PATCH  
GREATER THAN 15' IN LENGTH

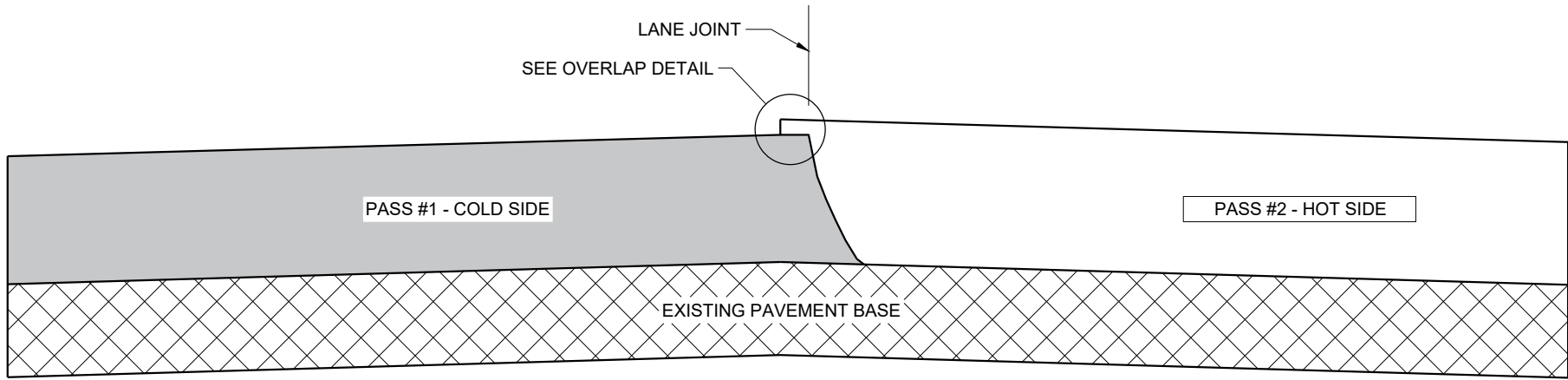
BASE PATCHING CONCRETE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

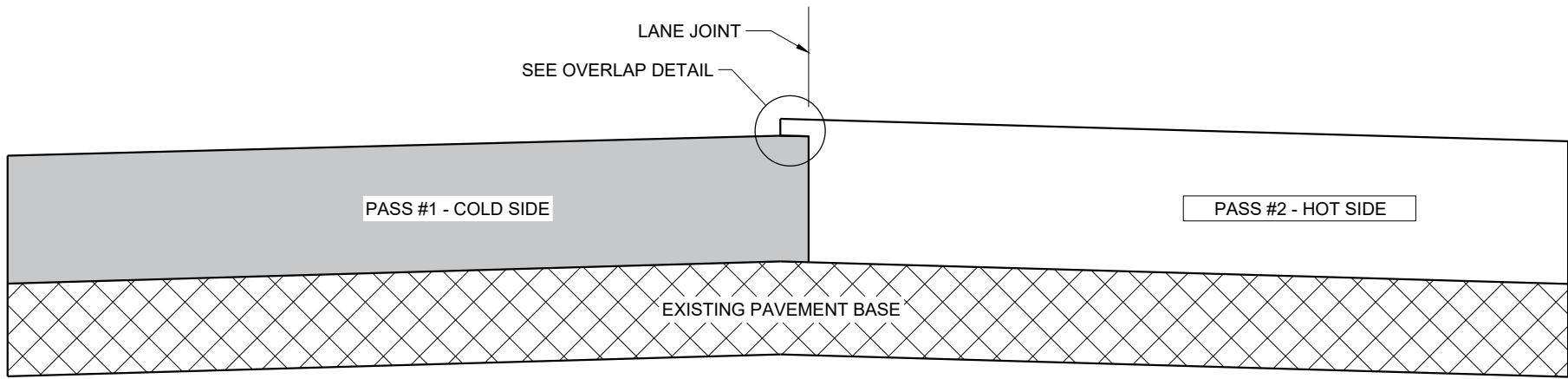
APPROVED  
March 2018 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA



TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT (MILLED)

GENERAL NOTES

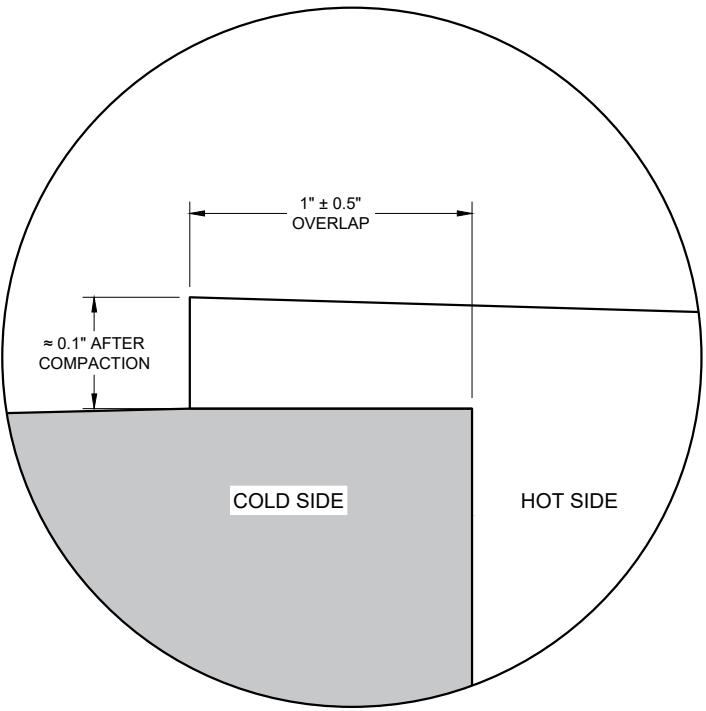
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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.



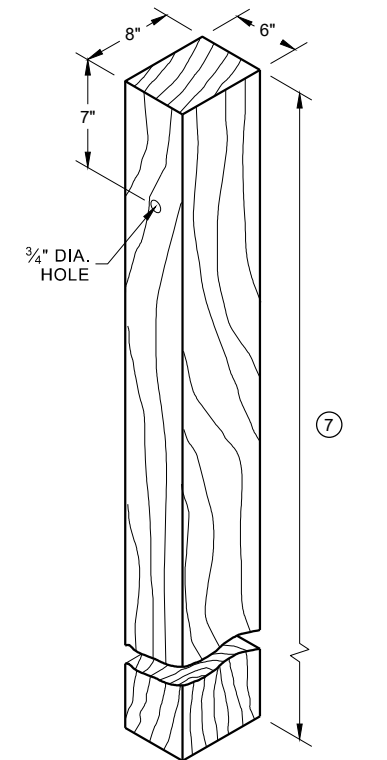
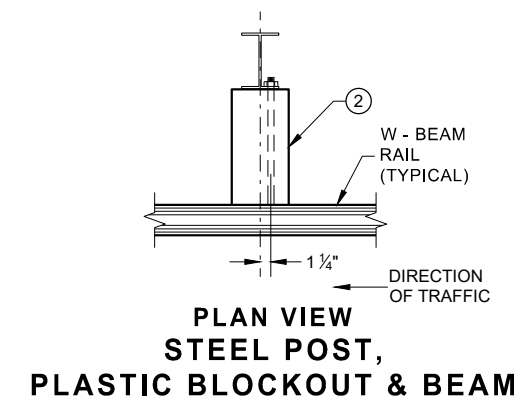
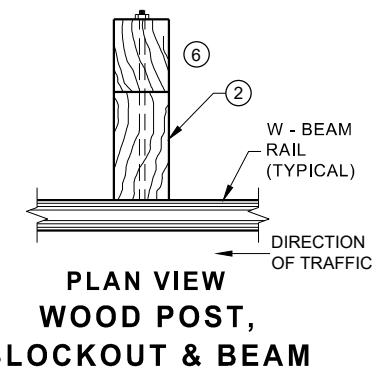
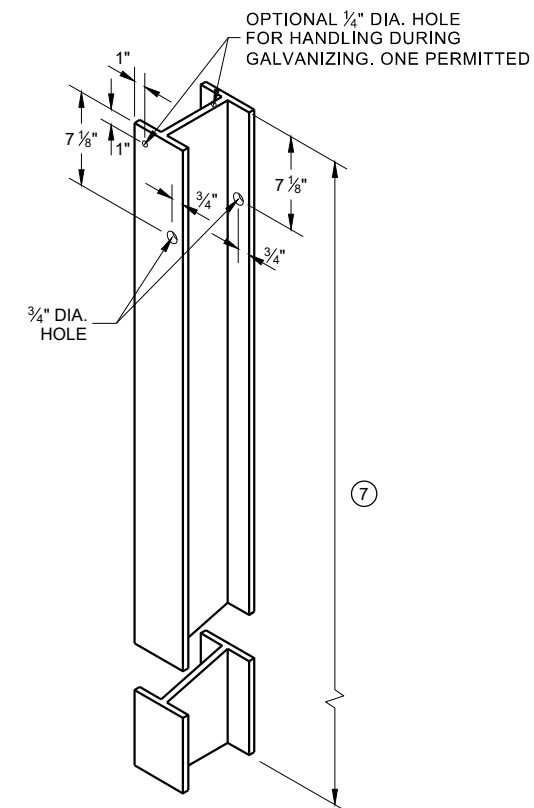
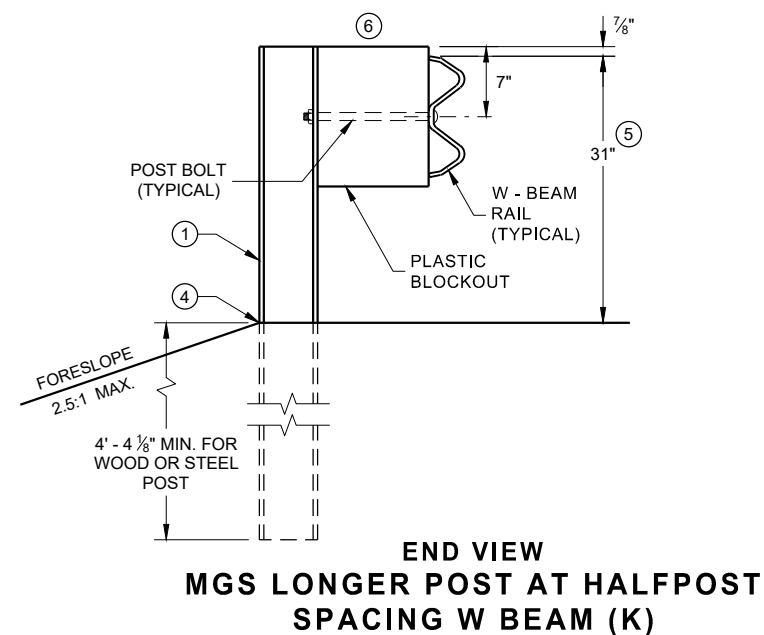
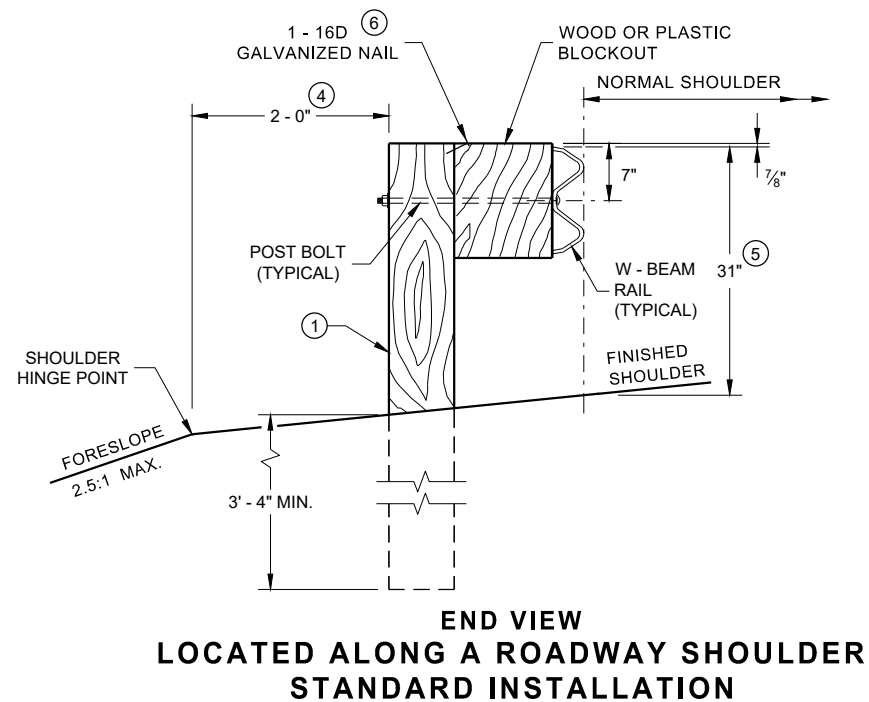
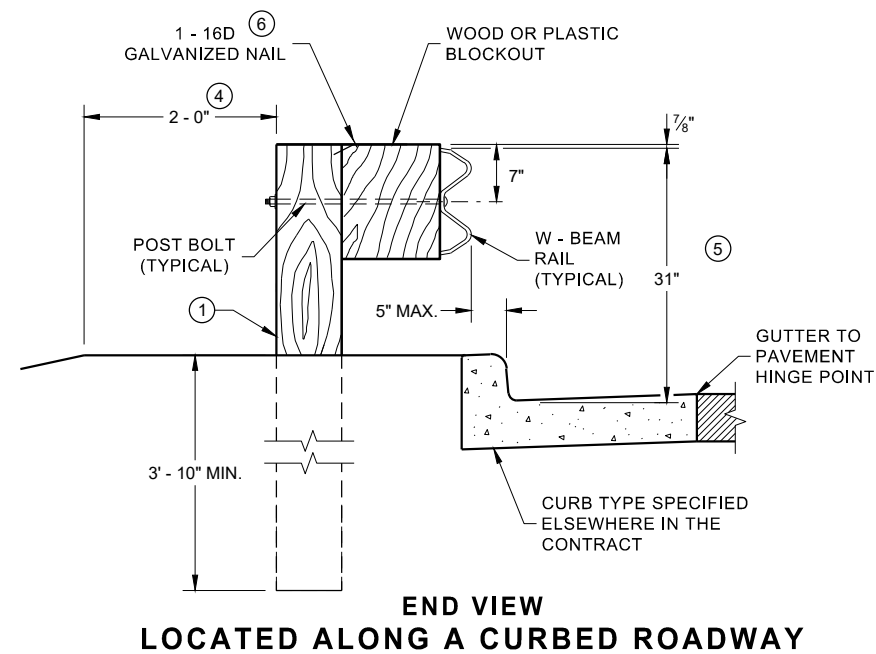
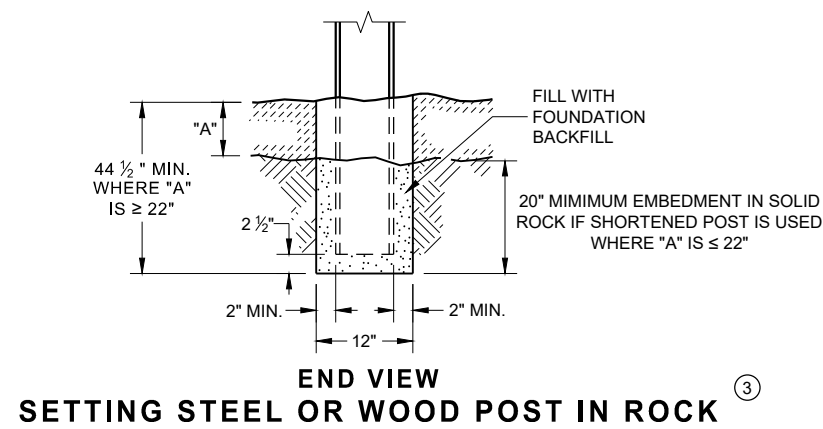
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

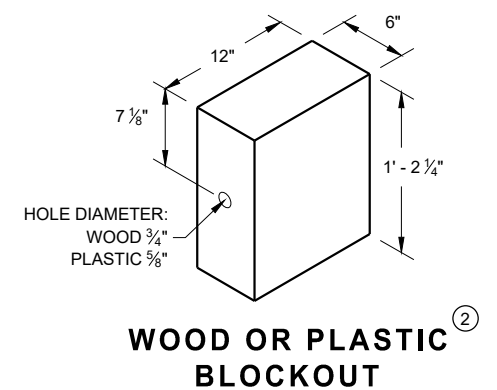
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2020 /S/ Steven Hefel  
DATE HMA PAVEMENT ENGINEER  
FHWA

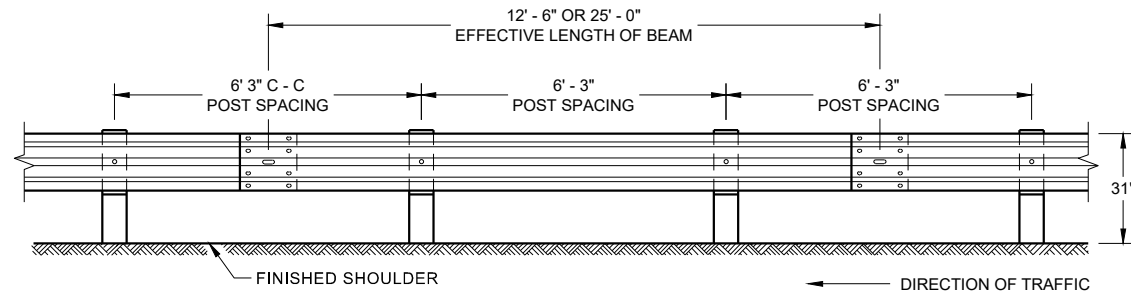
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 +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".



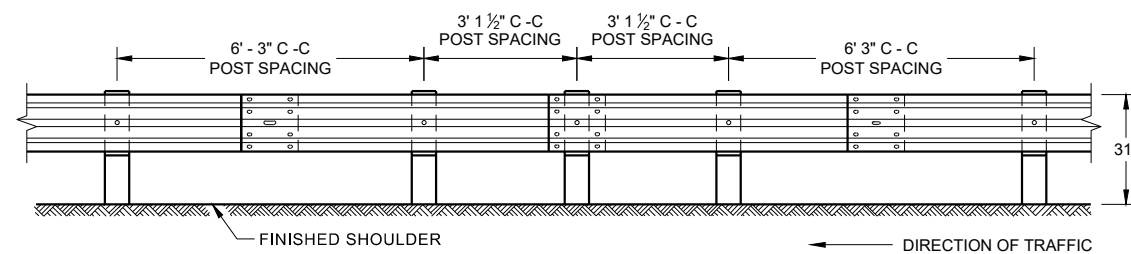
**WOOD POST (6" X 8") NOMINAL** <sup>(1)</sup>



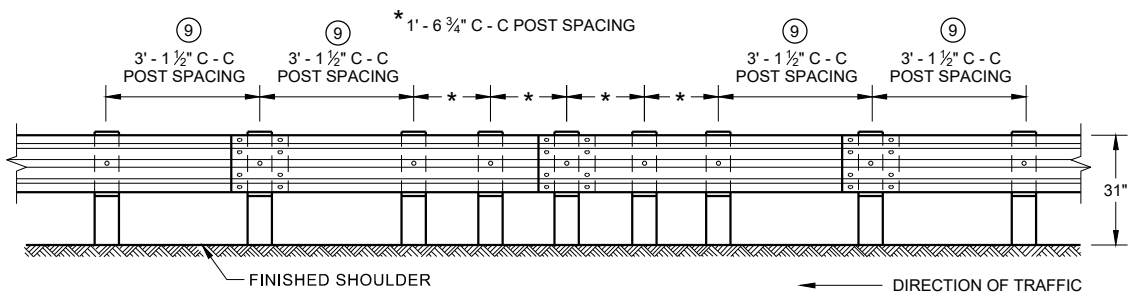
**WOOD OR PLASTIC  
BLOCKOUT**



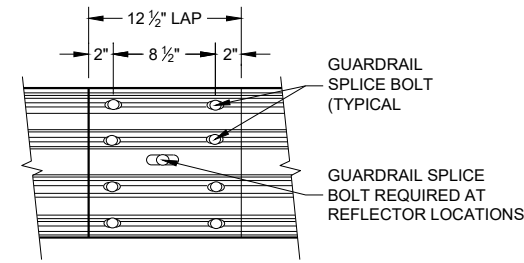
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



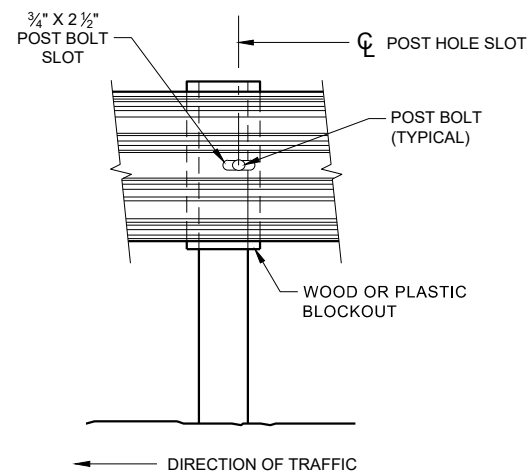
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



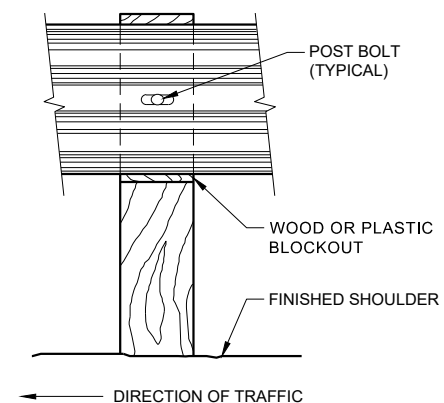
**FRONT VIEW  
QUARTER POST SPACING (QS)**



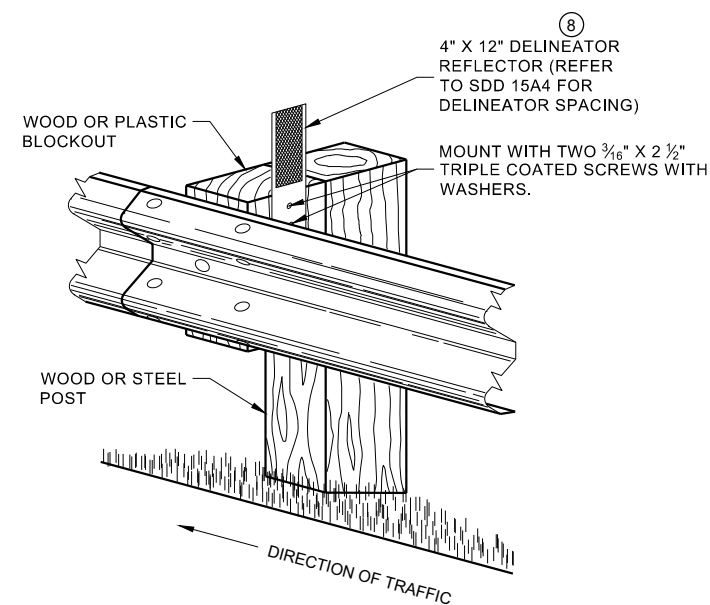
**FRONT VIEW  
MID-SPAN BEAM SPLICE**



**FRONT VIEW AT STEEL POST**



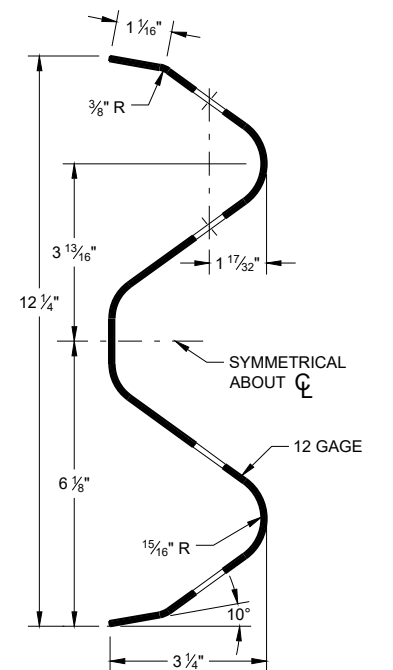
**FRONT VIEW AT WOOD POST**



**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 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



**SECTION THRU W-BEAM RAIL**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



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.

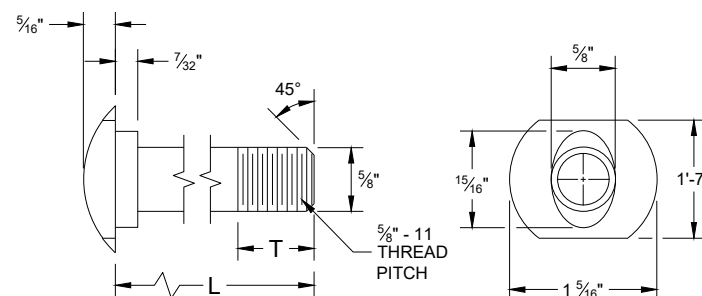


NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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.

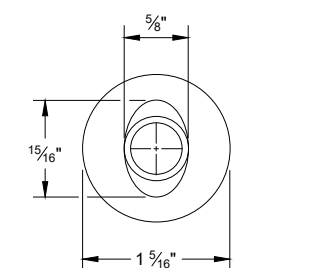
NOTE:

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.

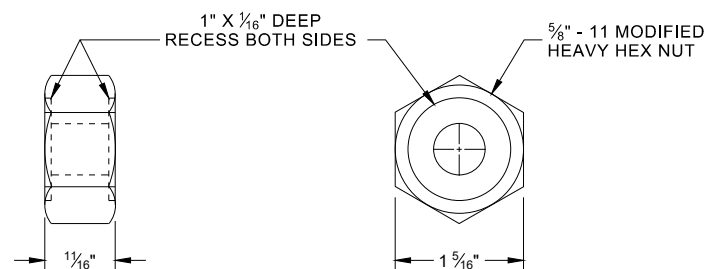


### POST BOLT TABLE

L	T (MIN.)
1 ¼"	1 ⅝"
2"	1 ¾"
10"	4"
14"	4 ⅙"
18"	4"
21"	4 ⅙"
25"	4"

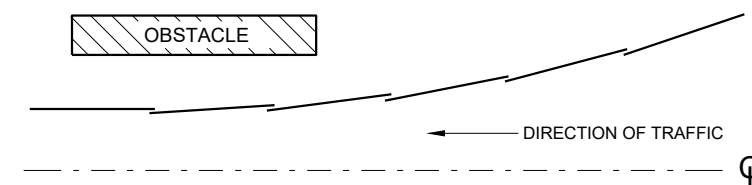


### ALTERNATE BOLT HEAD

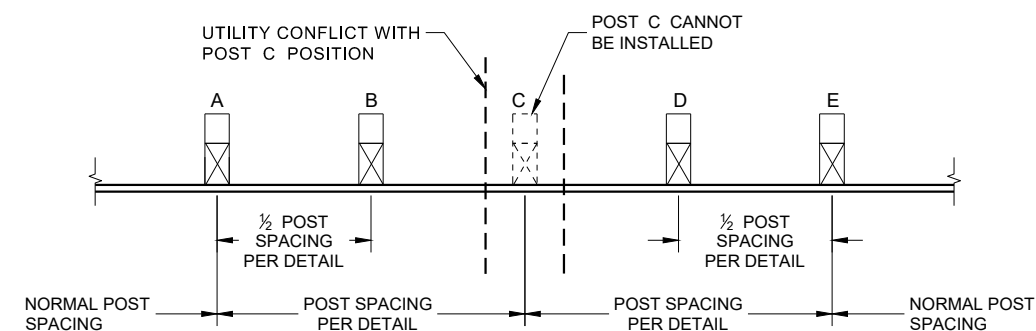


## POST BOLT, SPLICE BOLT AND RECESS NUT

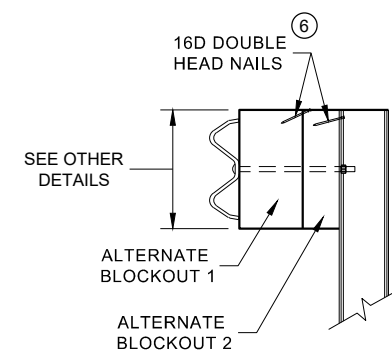
⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



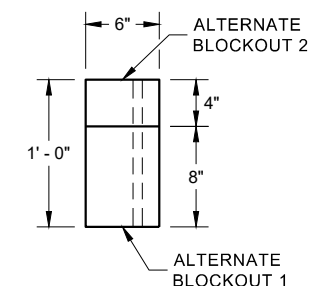
**PLAN VIEW  
BEAM LAPPING DETAIL**



## POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



### SIDE VIEW

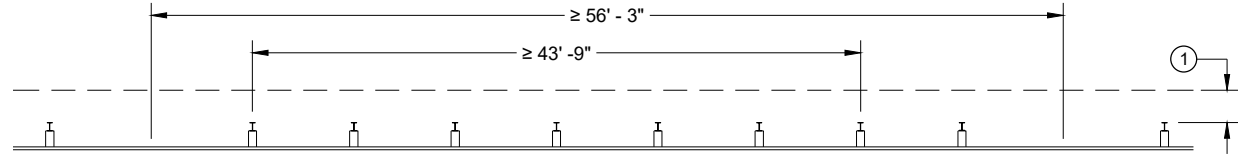


### PLAN VIEW

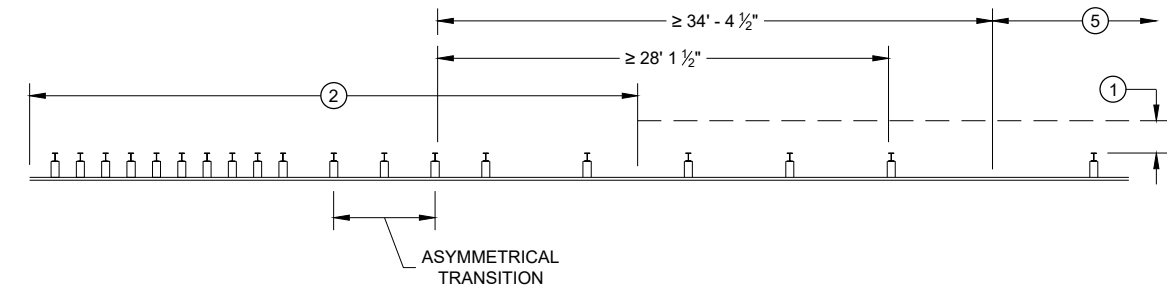
## ALTERNATE WOOD BLOCKOUT DETAIL

## MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

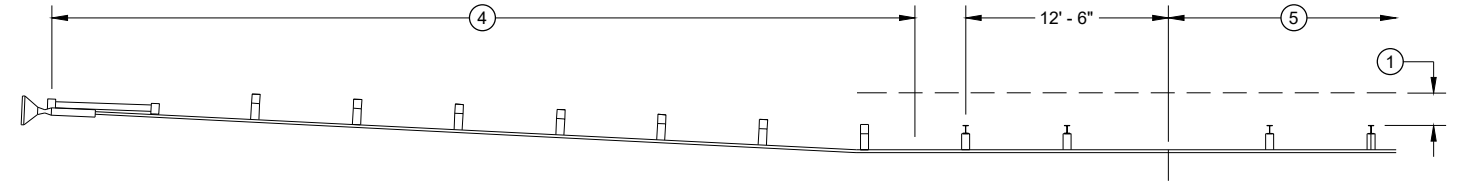
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



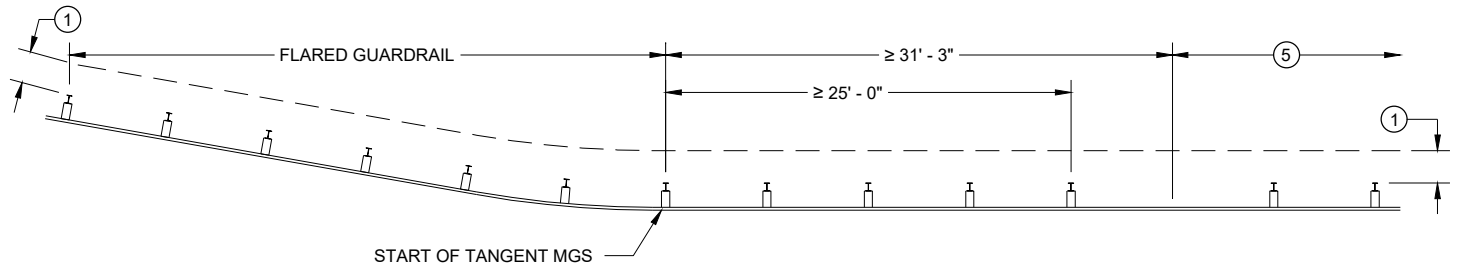
MISSING POST IN NORMAL BEAM GUARD RUN



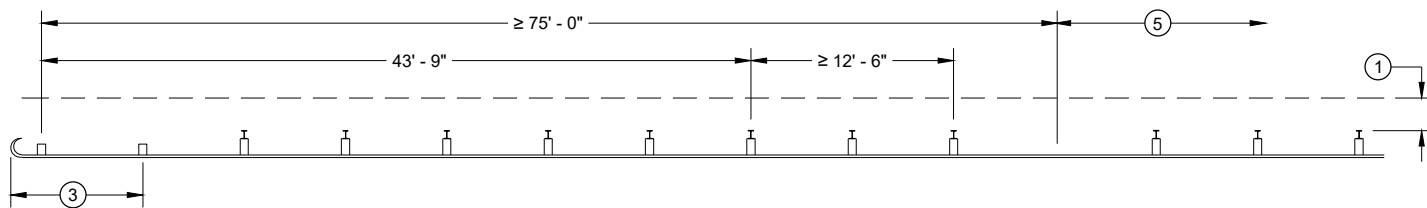
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



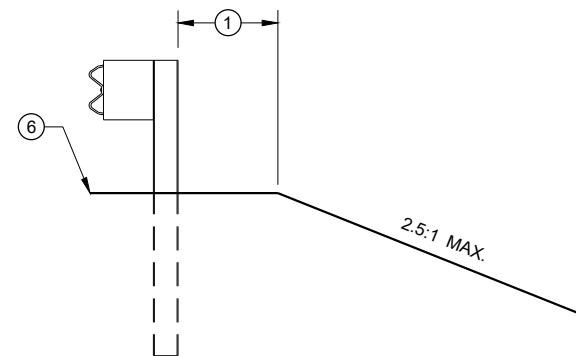
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

- (1) MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- (2) SEE SDD 14B45 FOR MORE DETAILS.
- (3) SEE SDD 14B47 FOR MORE DETAILS.
- (4) SEE SDD 14B44 FOR MORE DETAILS.
- (5) SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- (6) SEE PLAN FOR SHOULDER DESIGN.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



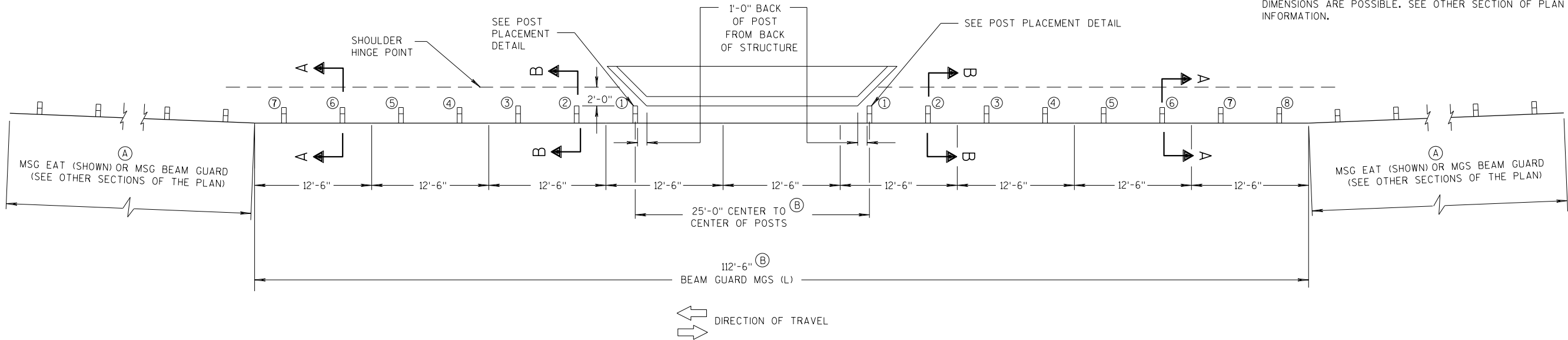
GENERAL NOTES

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

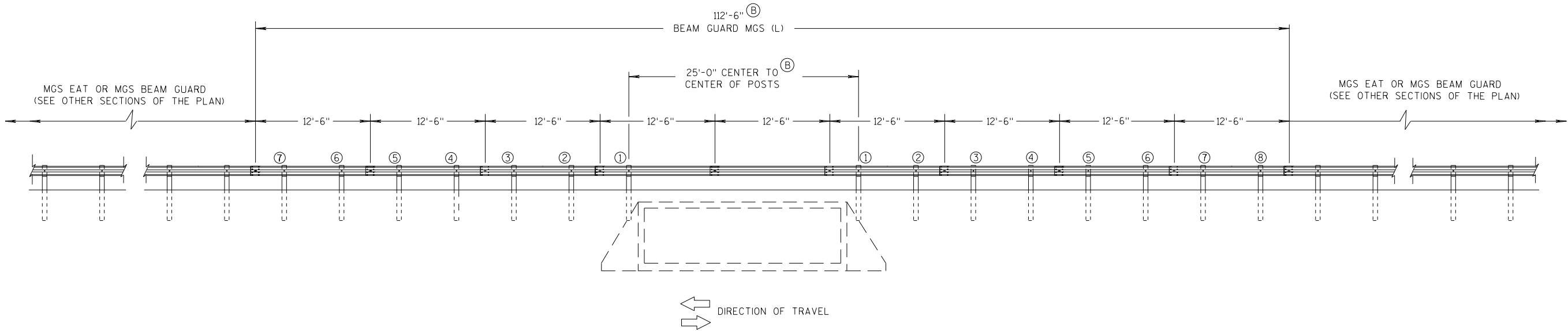
SEE SDD 14 B 42 FOR MORE DETAILS.

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

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



PLAN VIEW



ELEVATION VIEW

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

MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)

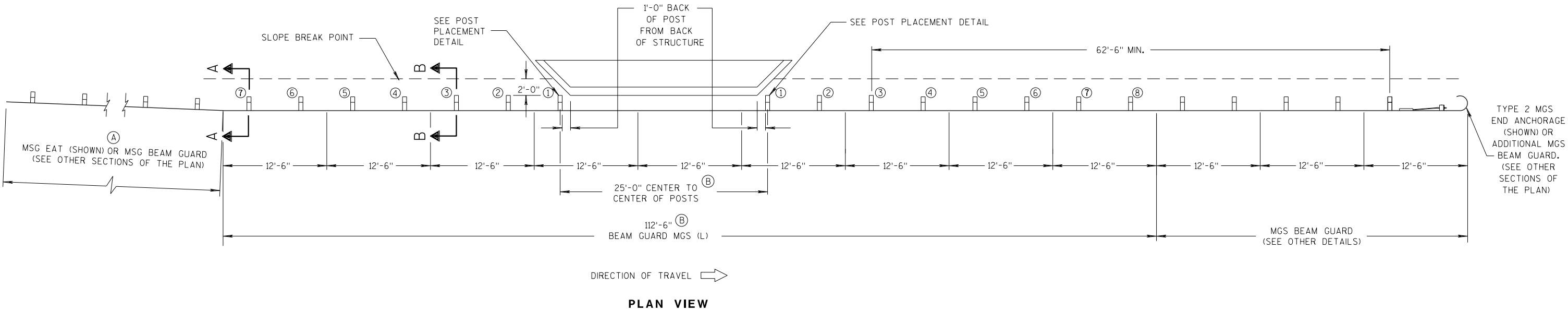
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

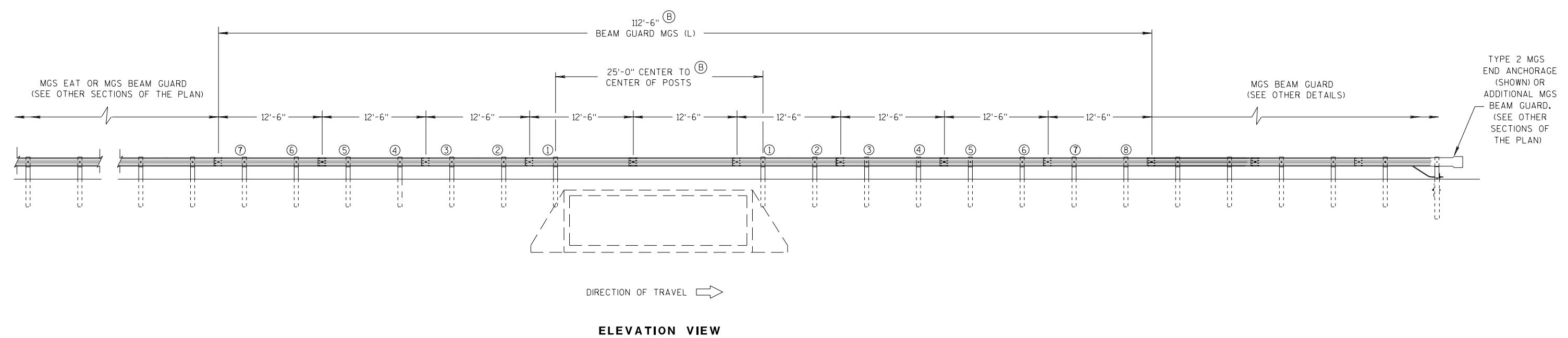
POSTS 1 THROUGH 3 ARE CRT POSTS.  
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

SEE SDD 14 B 42 FOR MORE DETAILS.

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



PLAN VIEW

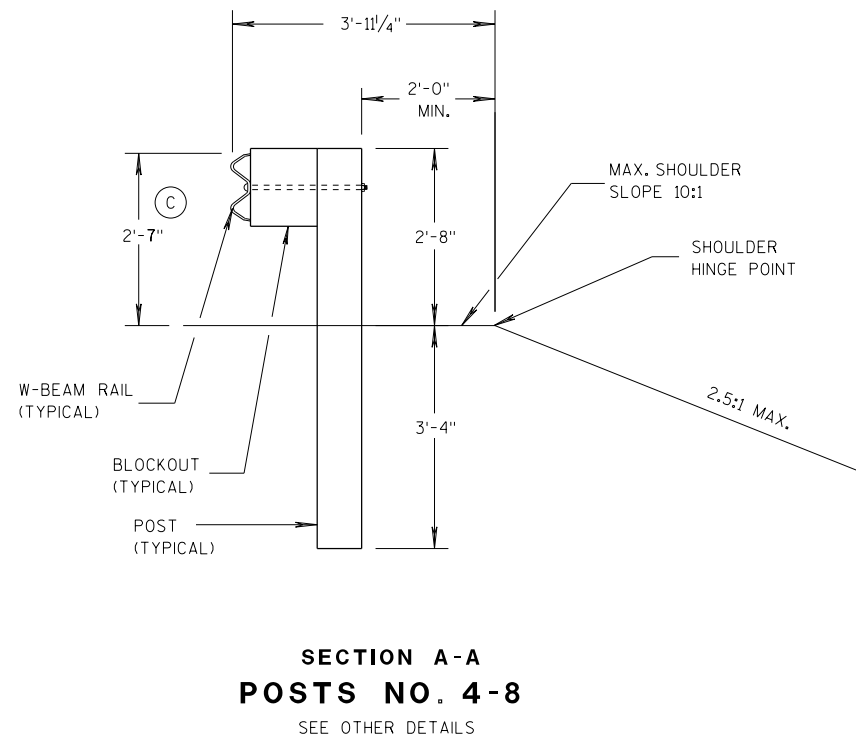
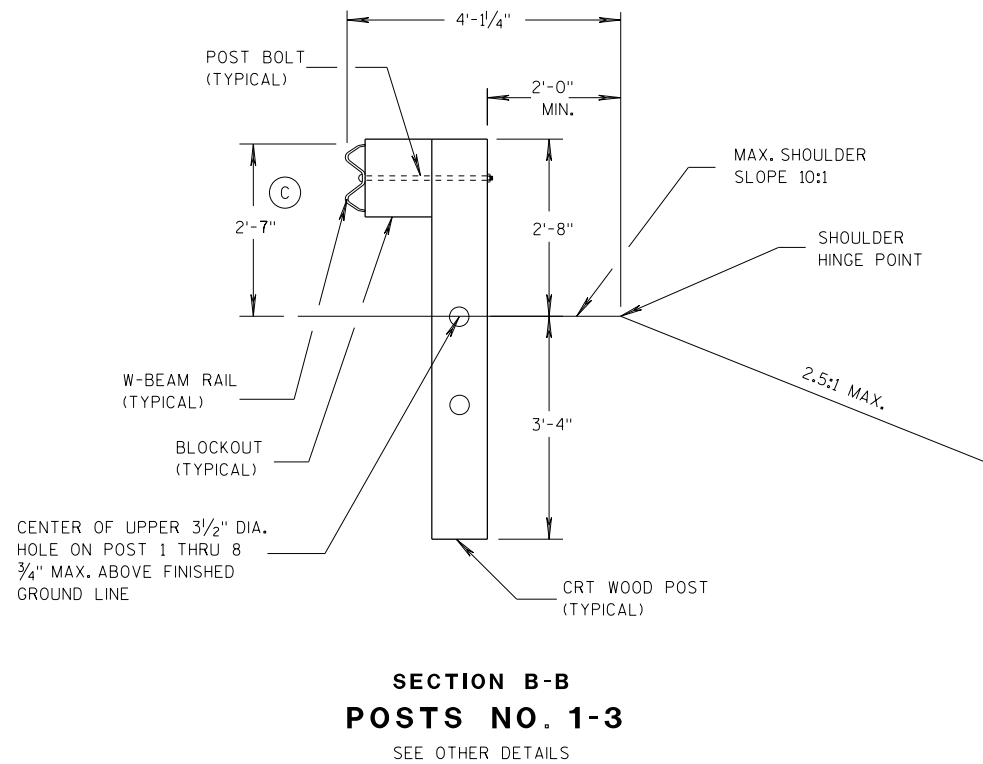
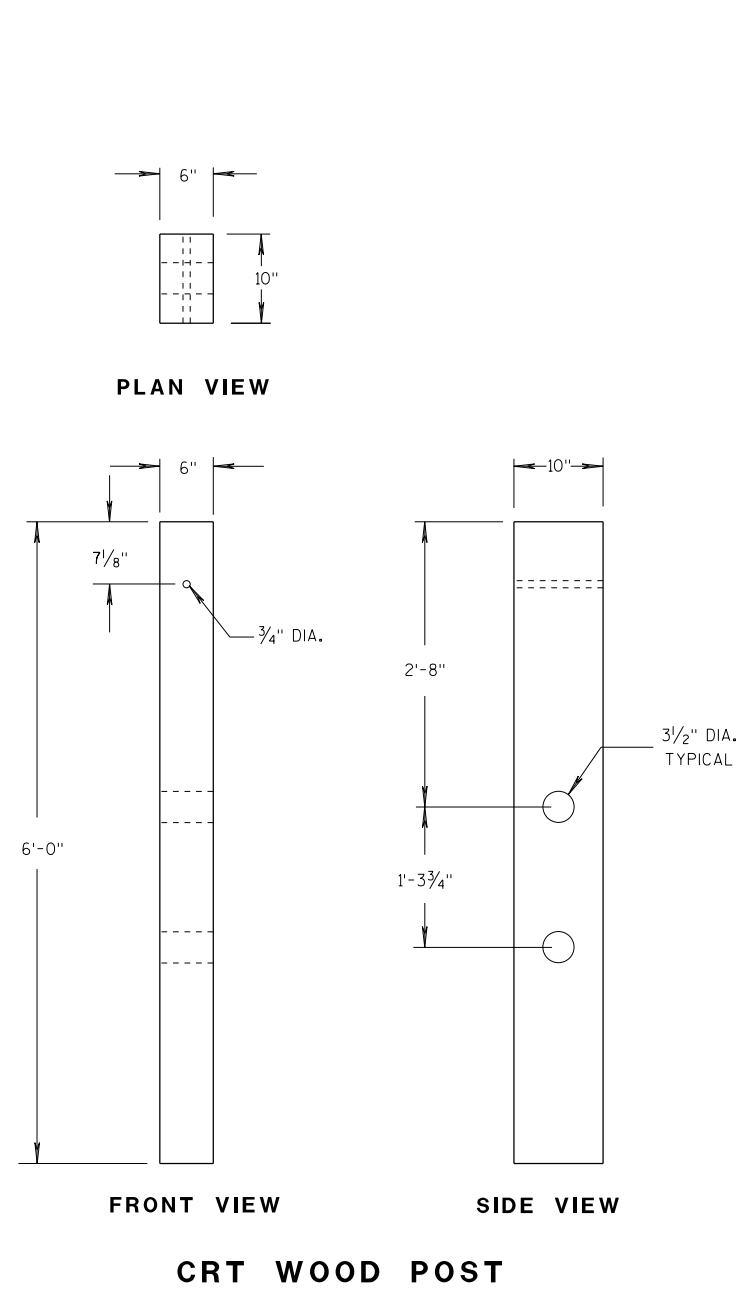


ELEVATION VIEW

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

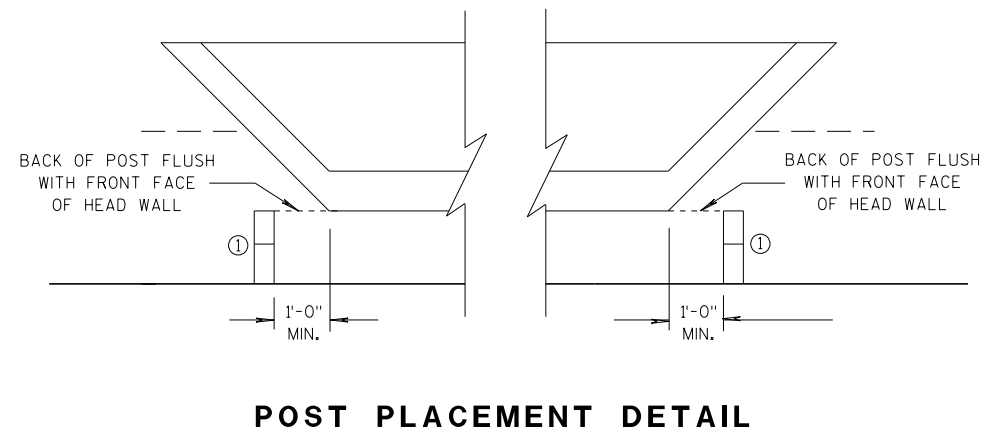
MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**GENERAL NOTES**

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



MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

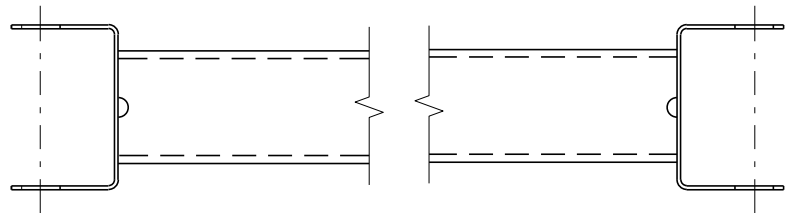
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. 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.

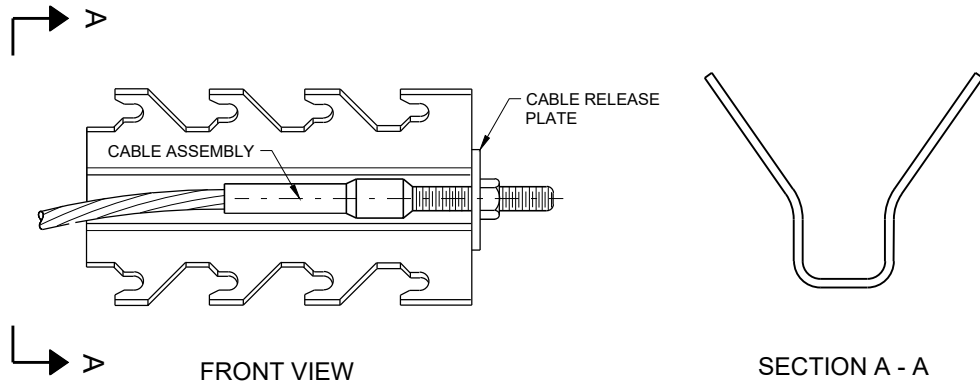


STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

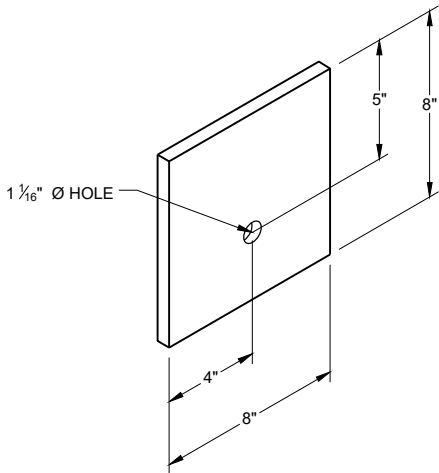


GENERIC GROUND STRUT<sup>9</sup> <sup>E</sup>

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



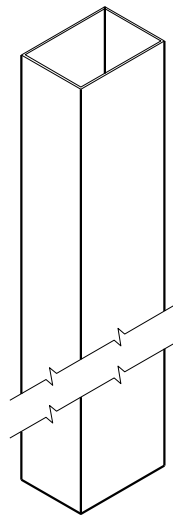
GENERIC ANCHOR CABLE BOX<sup>9</sup> <sup>E</sup>



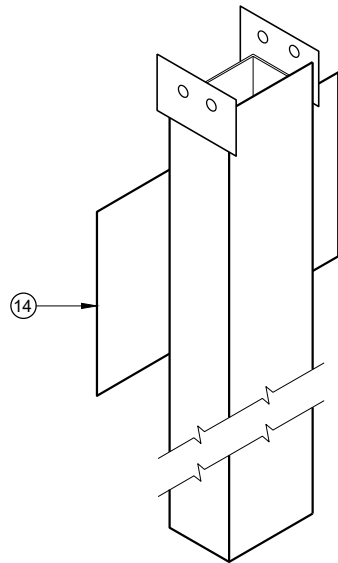
BEARING PLATE<sup>6</sup> <sup>E</sup>

MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)

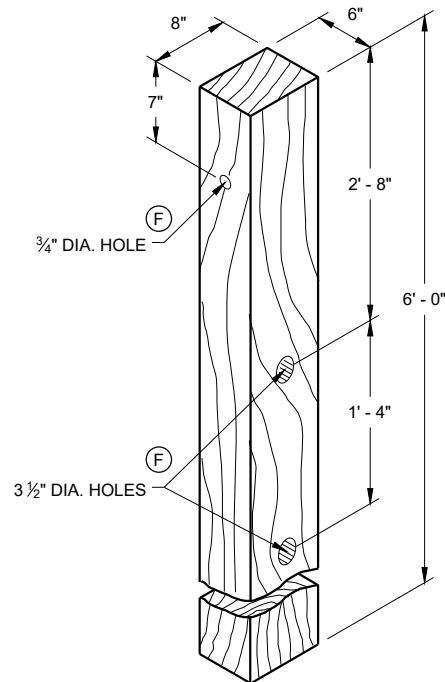
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



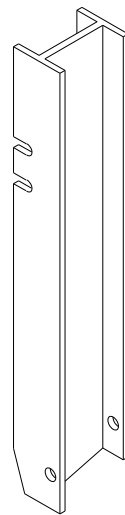
UPPER POST NO. 1<sup>(1) (E)</sup>



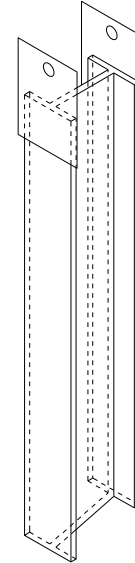
LOWER POST NO. 1<sup>(2) (E)</sup>



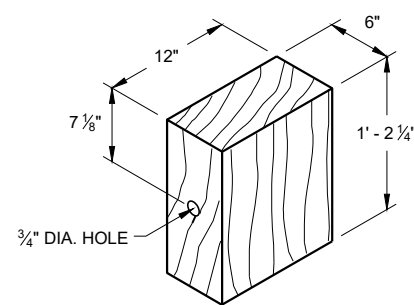
WOOD CRT POST<sup>(3) (E)</sup>  
POSTS NUMBER 3-9



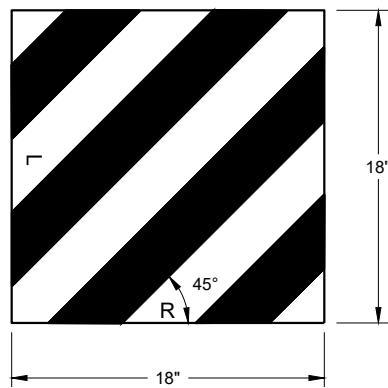
UPPER POST NO. 2<sup>(15) (E)</sup>



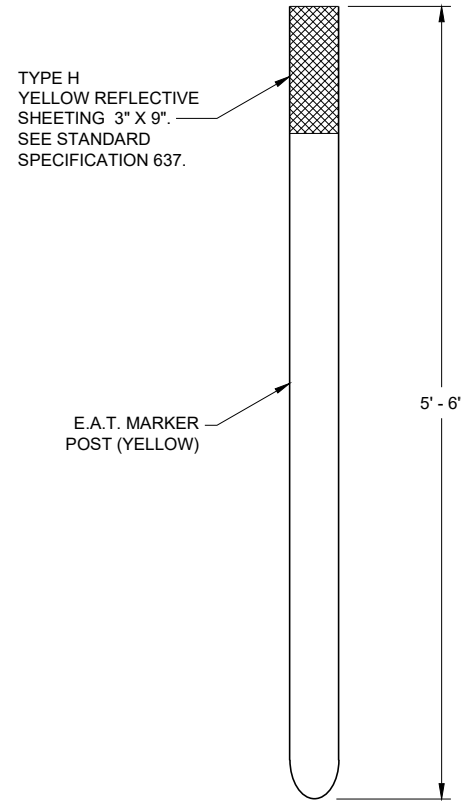
LOWER POST NO. 2<sup>(16) (E)</sup>



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



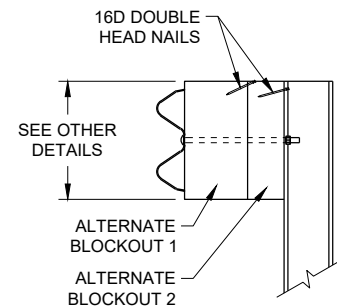
REFLECTIVE SHEETING DETAIL<sup>(E)</sup>



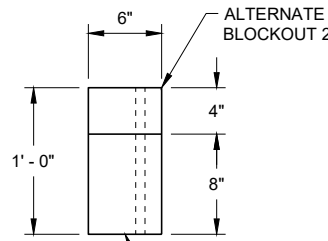
FRONT VIEW

SIDE VIEW

E.A.T. MARKER POST<sup>(13)</sup>



SIDE VIEW



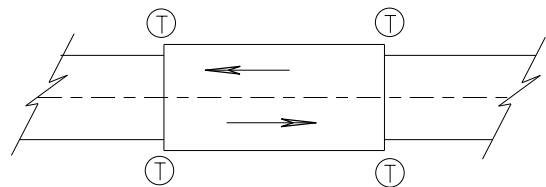
TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

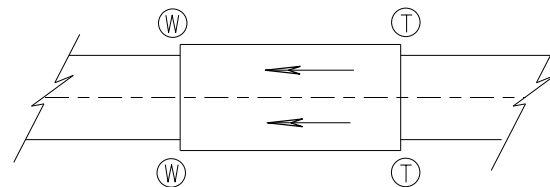
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

### GENERAL NOTES

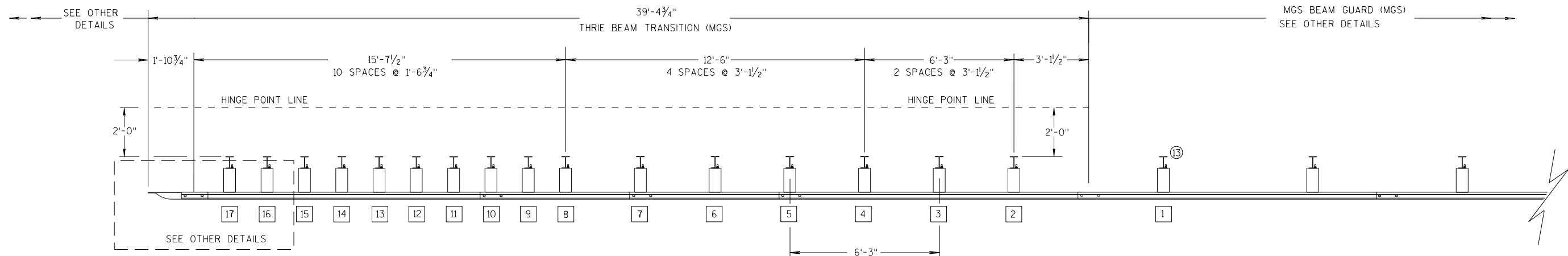
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

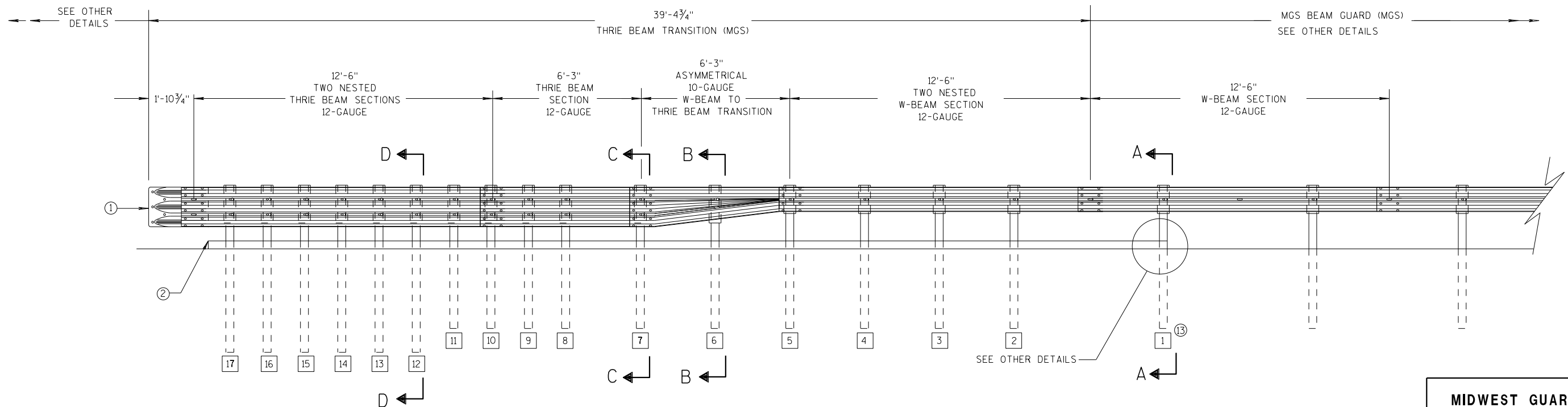
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

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



PLAN VIEW



ELEVATION VIEW

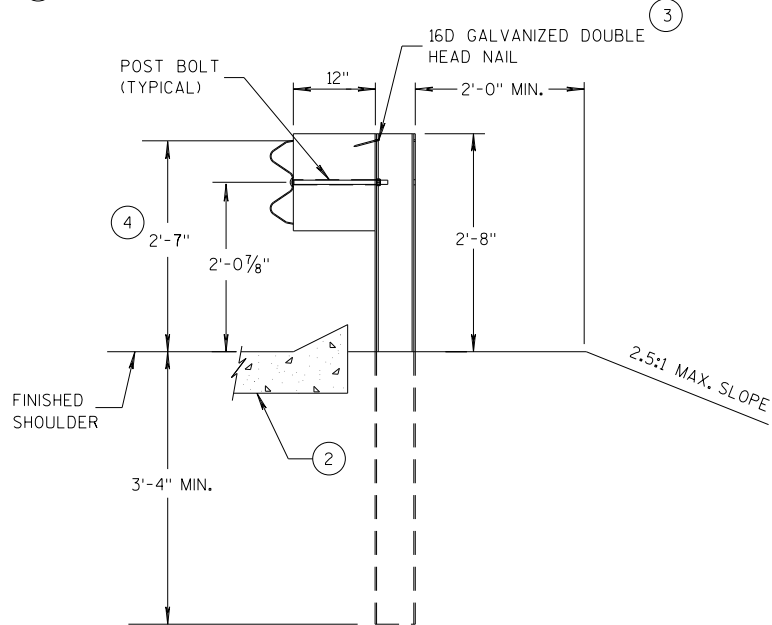
## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

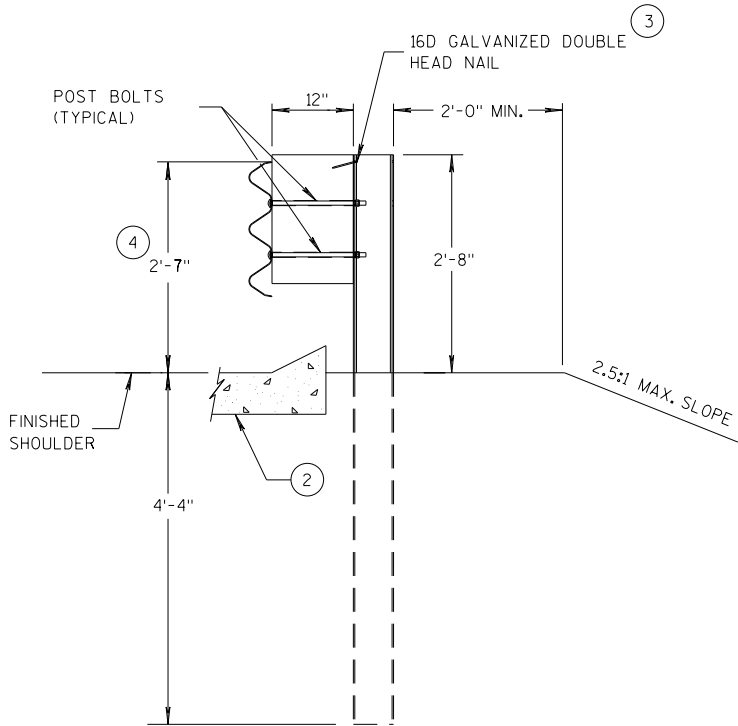
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

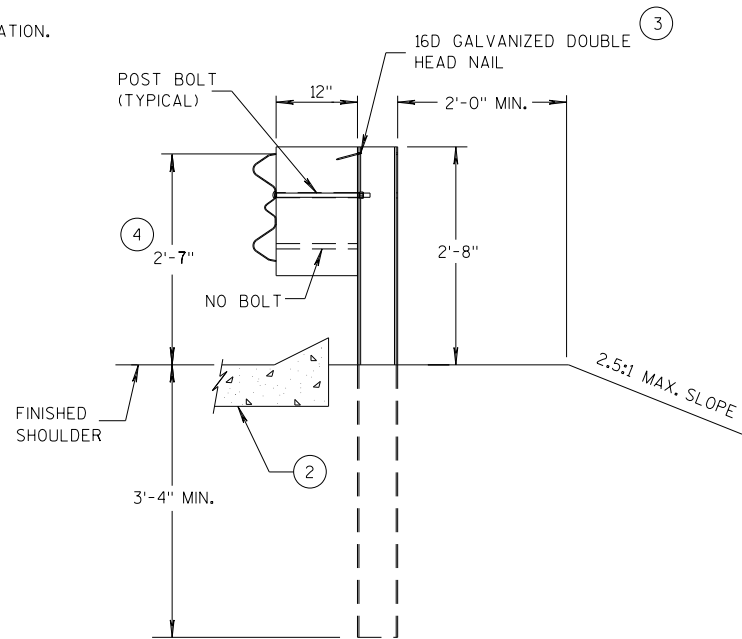
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm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



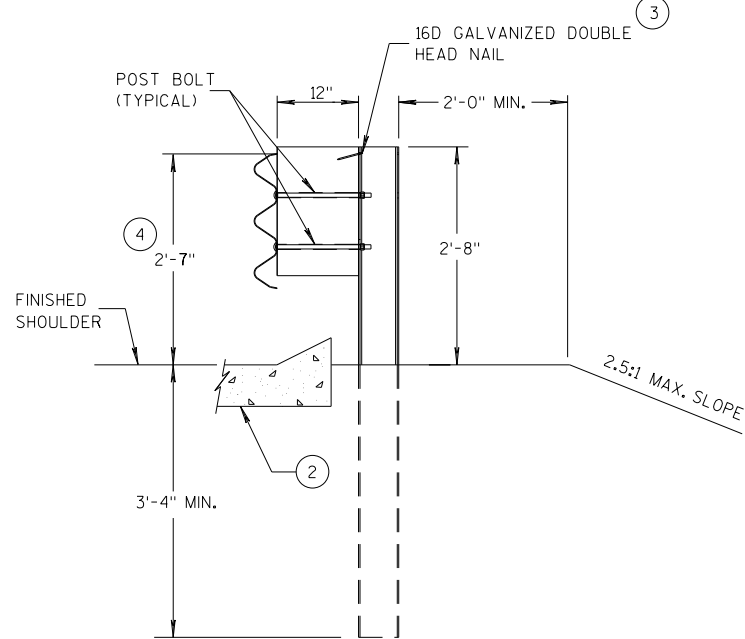
SECTION A-A  
POSTS 1-5



SECTION D-D  
POSTS 12-17



SECTION B-B  
POST 6



SECTION C-C  
POSTS 7-11

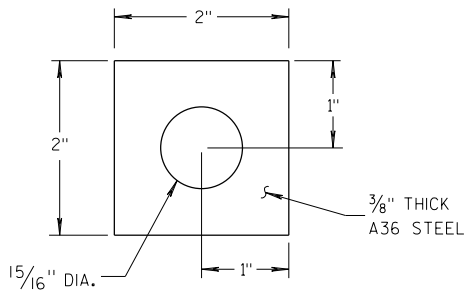
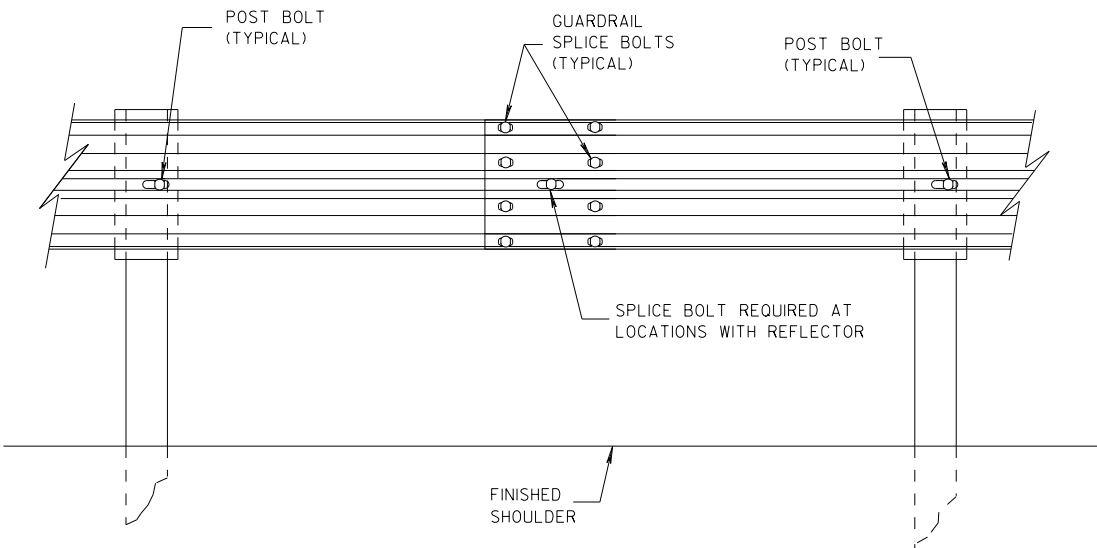
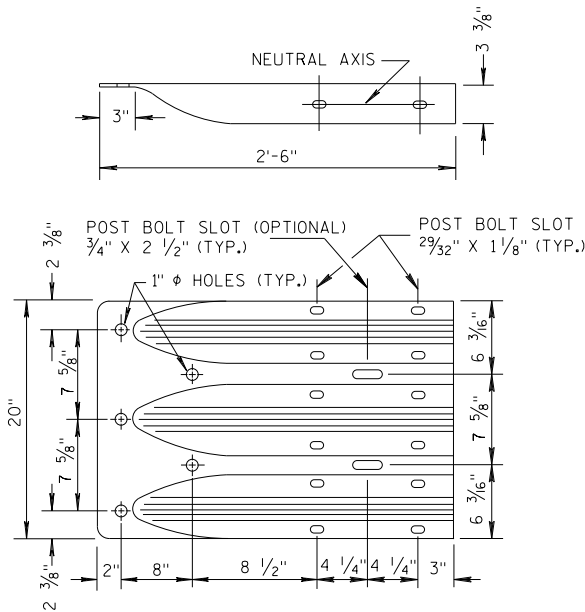


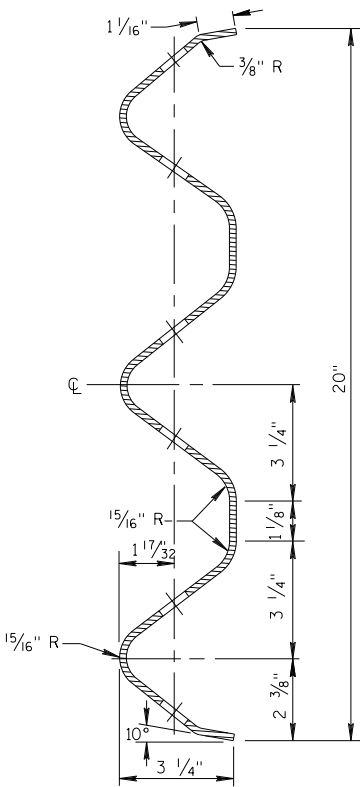
PLATE WASHER DETAIL



SPlice DETAIL



THRIE BEAM  
TERMINAL CONNECTOR

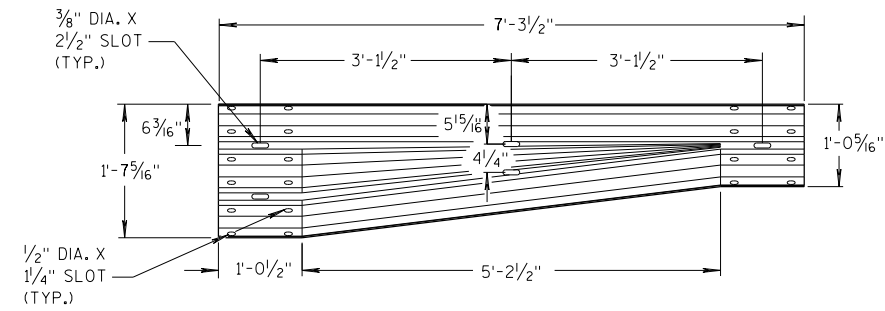


SECTION THRU THRIE  
BEAM RAIL ELEMENT

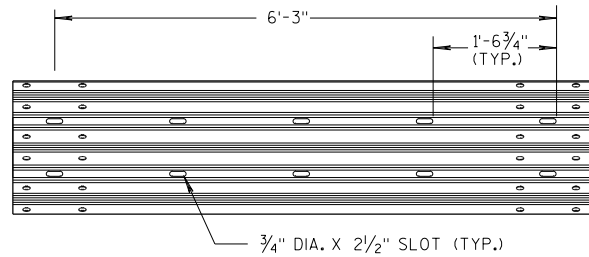
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

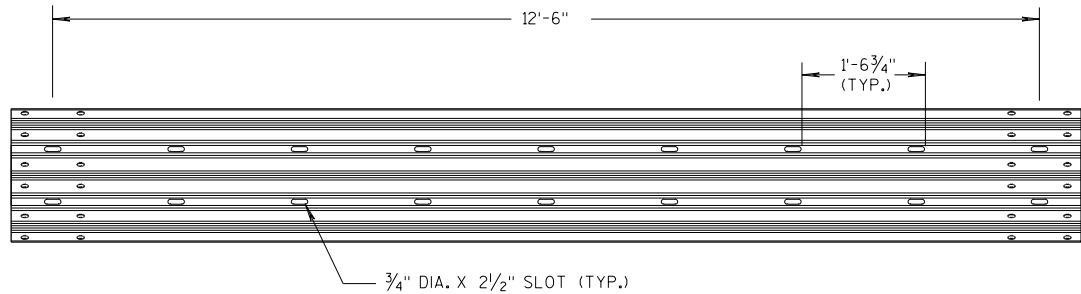




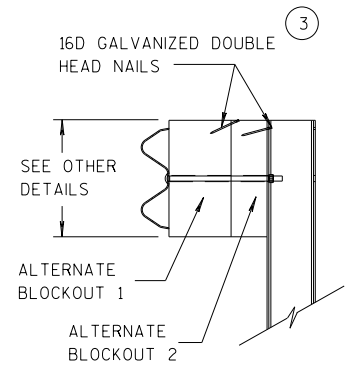
W-BEAM TO THRIE BEAM TRANSITION SECTION



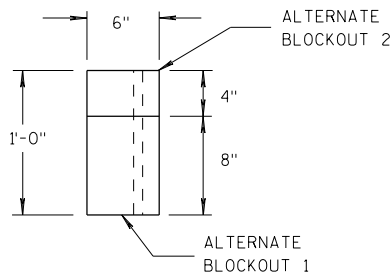
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

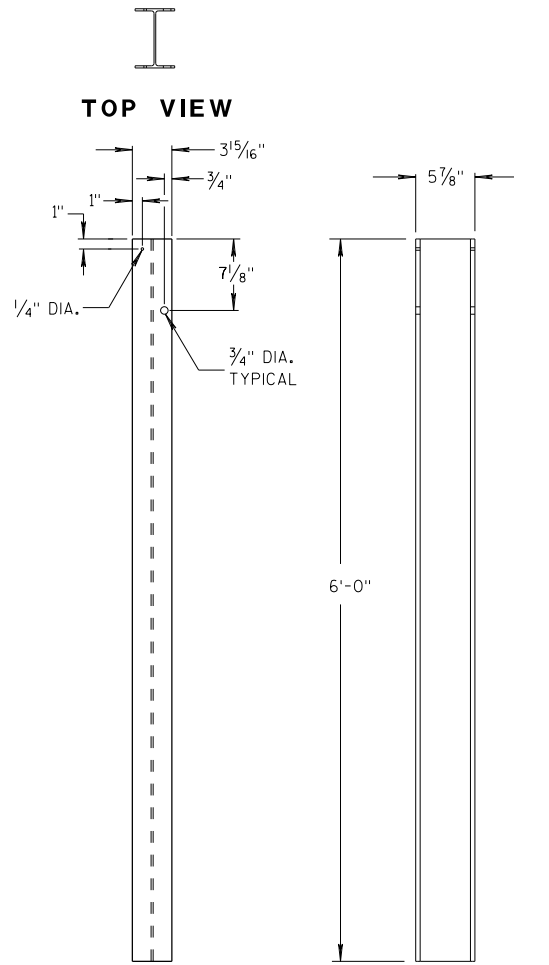


SIDE VIEW



TOP VIEW

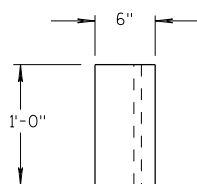
ALTERNATE WOOD BLOCKOUT DETAIL



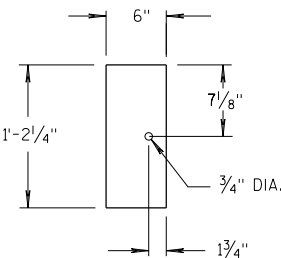
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

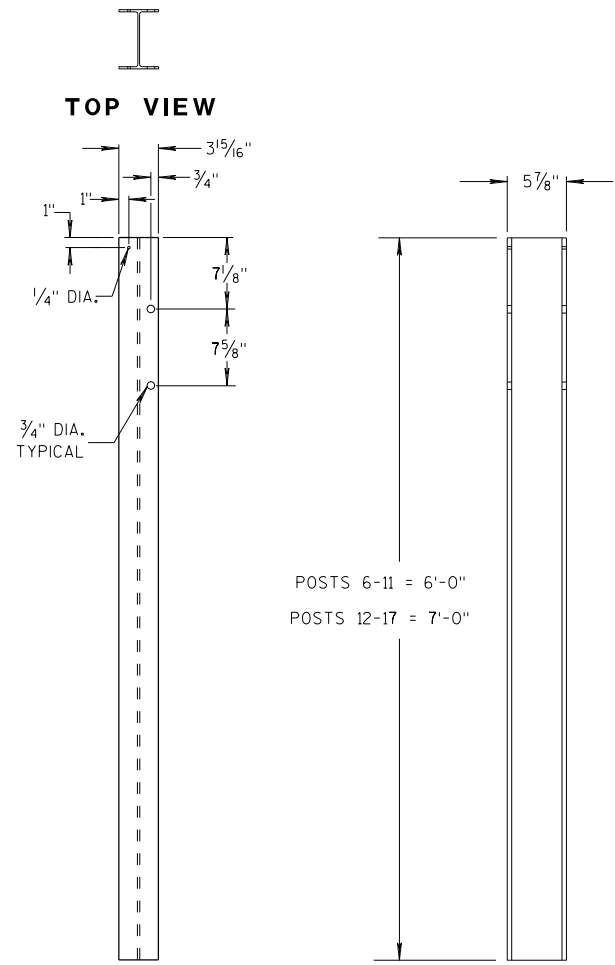


TOP VIEW



FRONT VIEW

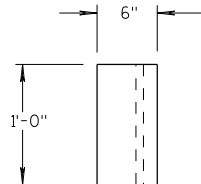
BLOCKOUT POSTS 1-5



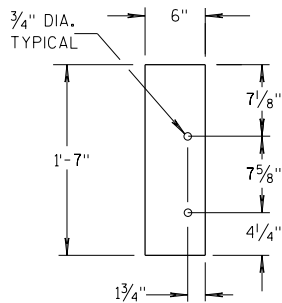
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

### GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

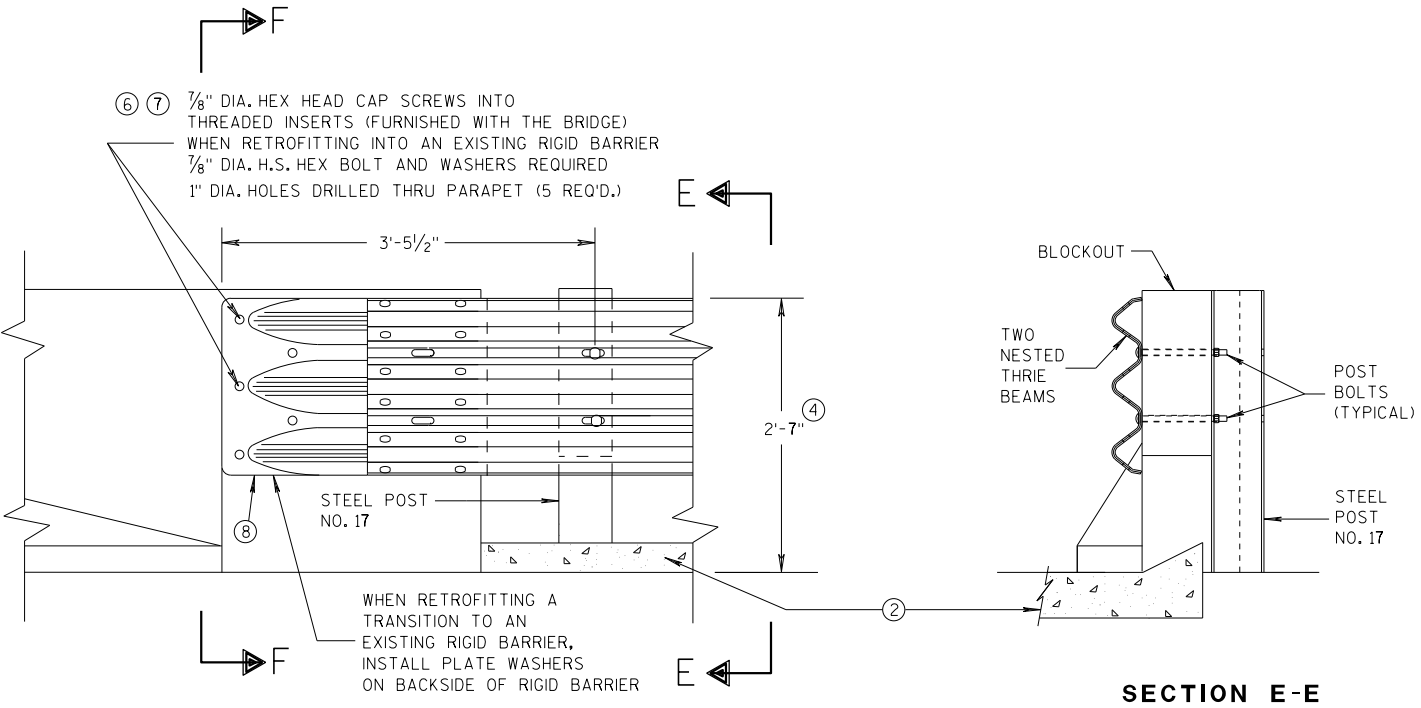
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

⑤ WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

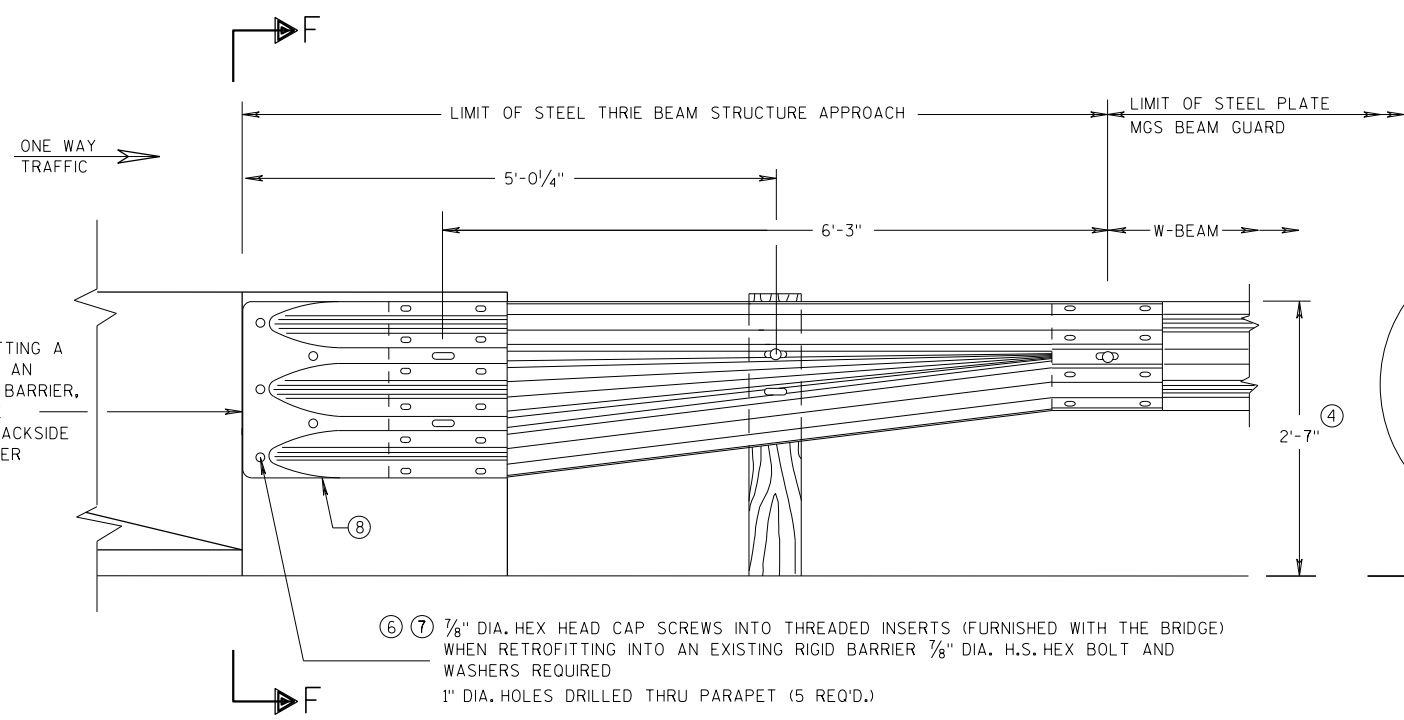
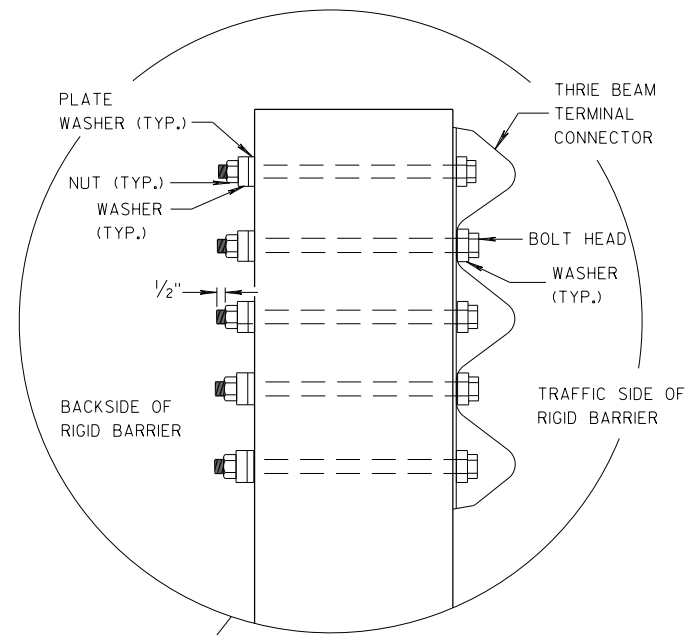
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

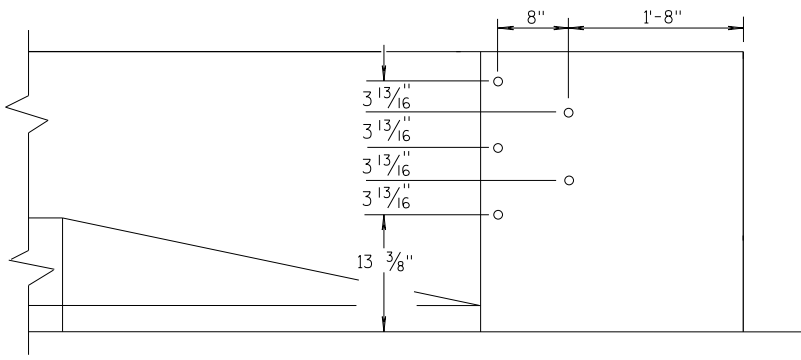


**GENERAL NOTES**

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



**SECTION F-F**

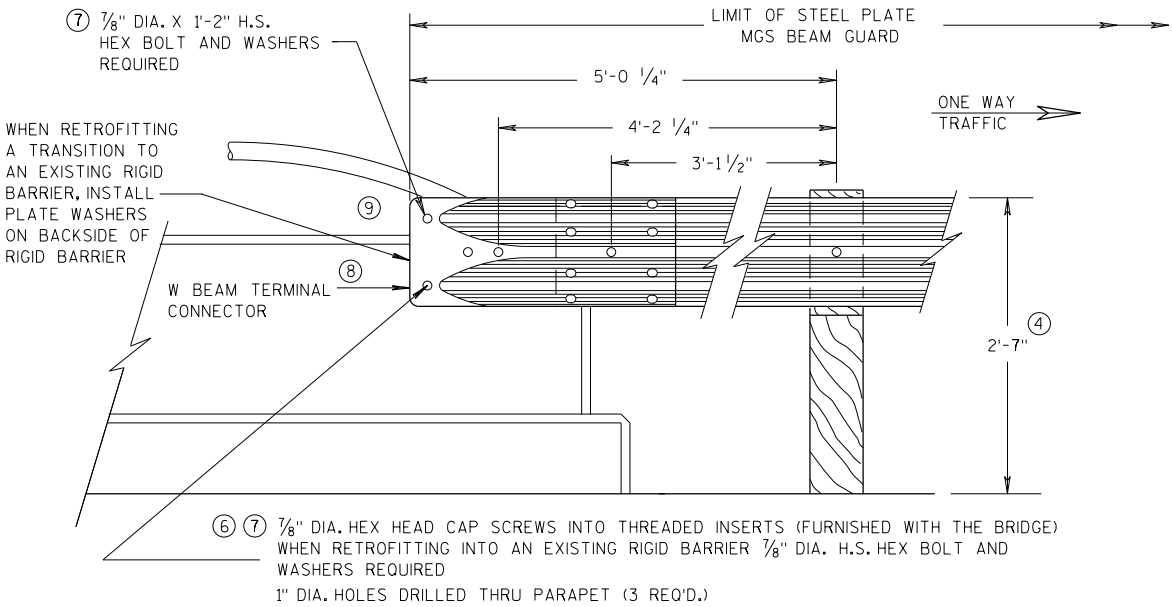


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE FHWA	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

GENERAL NOTES

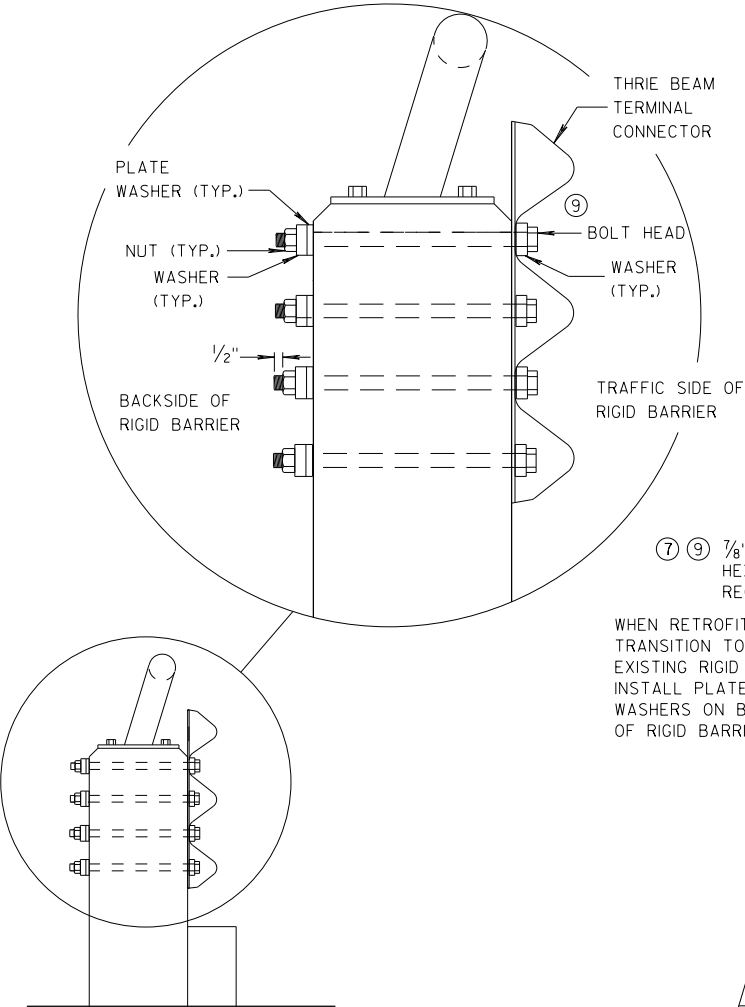
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

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

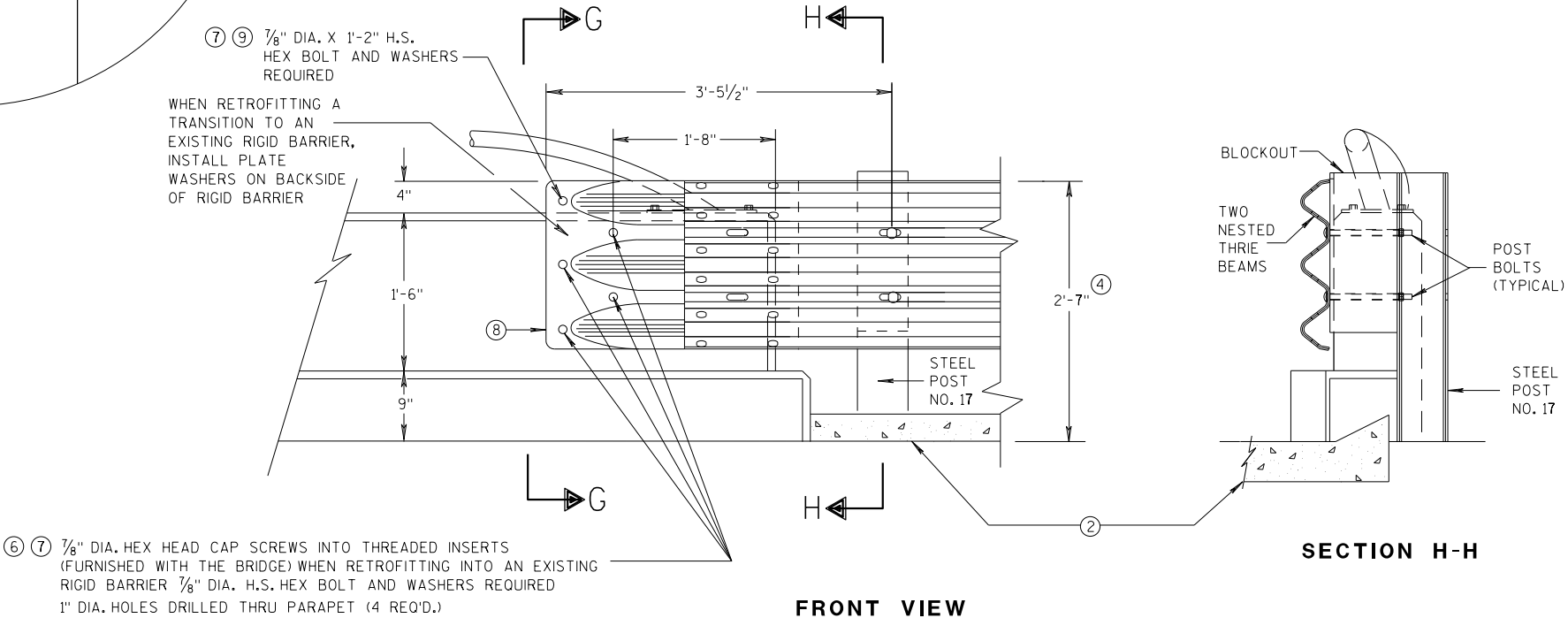


FRONT VIEW

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

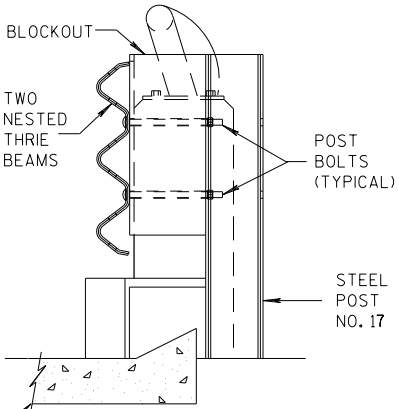


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

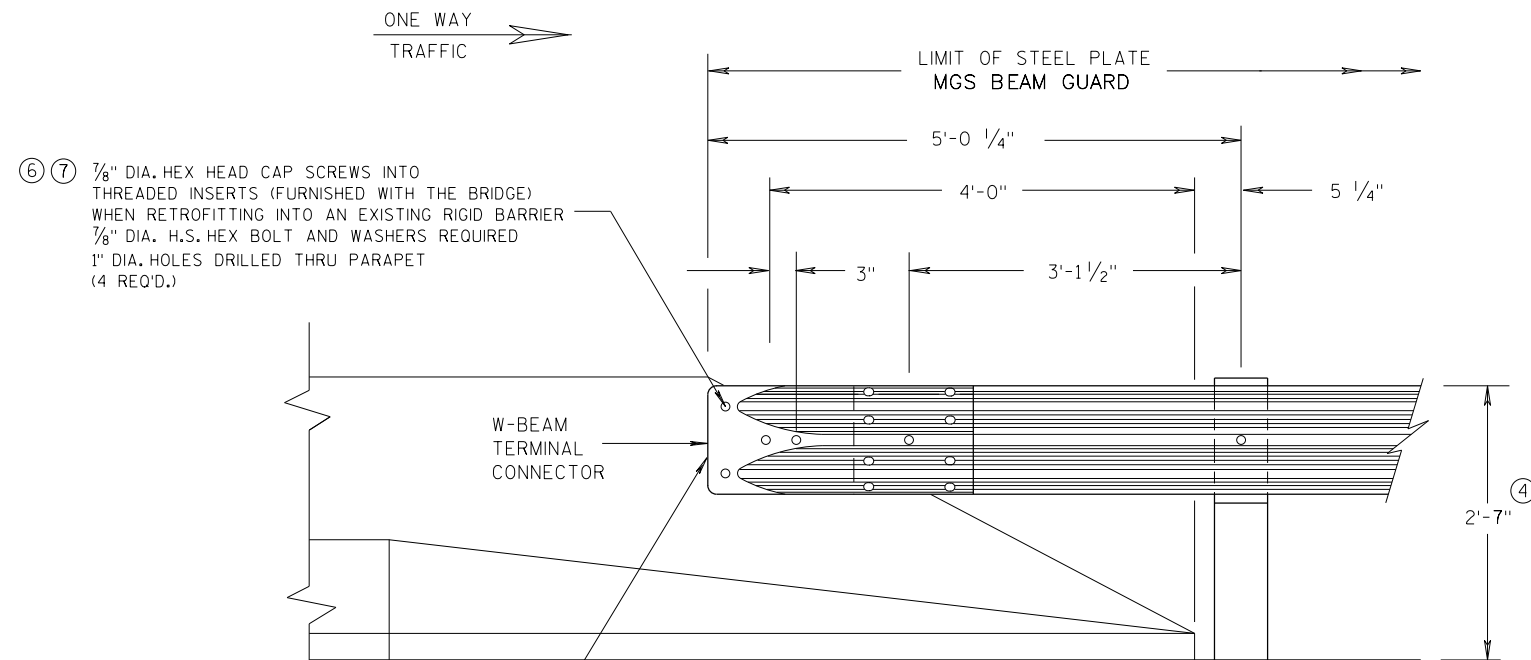


SECTION H-H

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



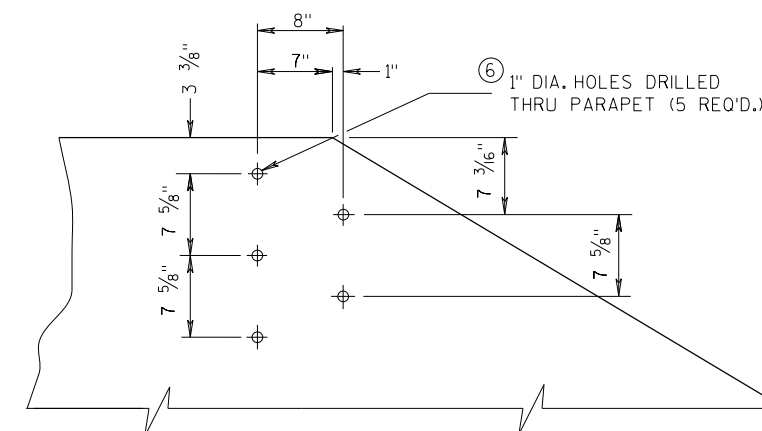
WHEN RETROFITTING A TRANSITION TO AN EXISTING RIGID BARRIER, INSTALL PLATE WASHERS ON BACKSIDE OF RIGID BARRIER.

FRONT VIEW

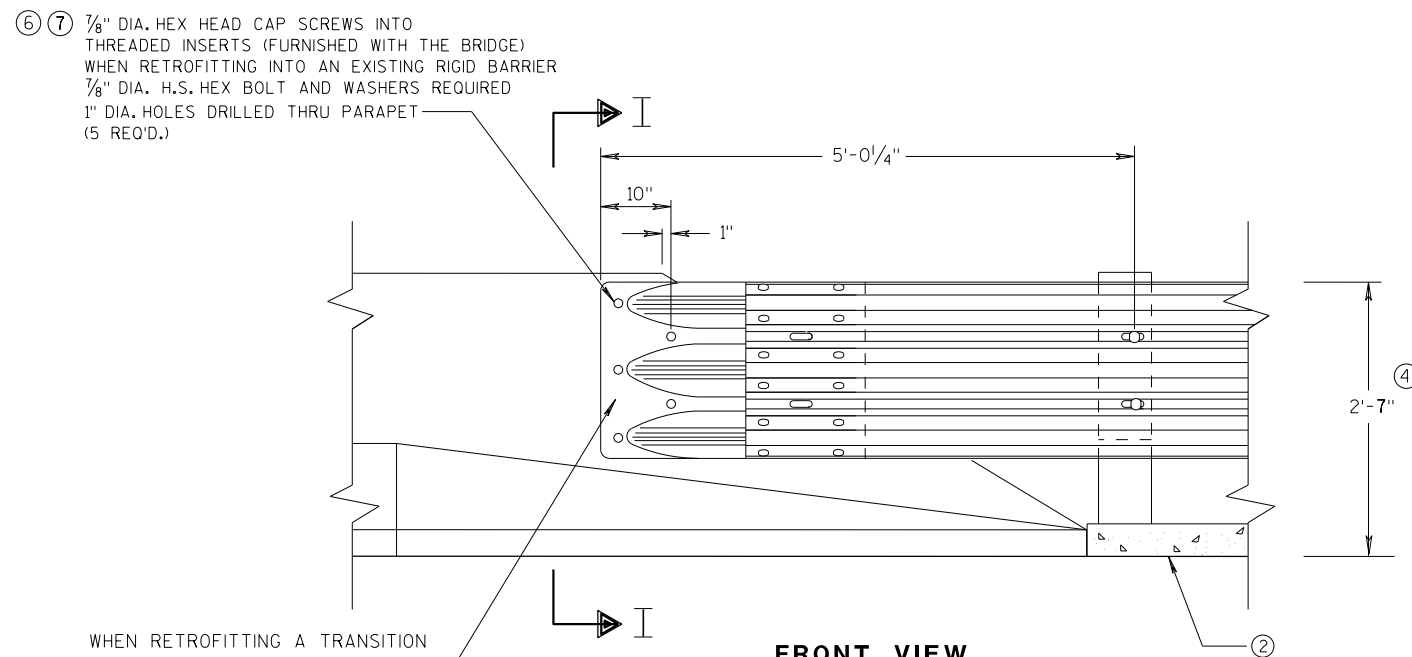
**W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS**  
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

## GENERAL NOTES

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



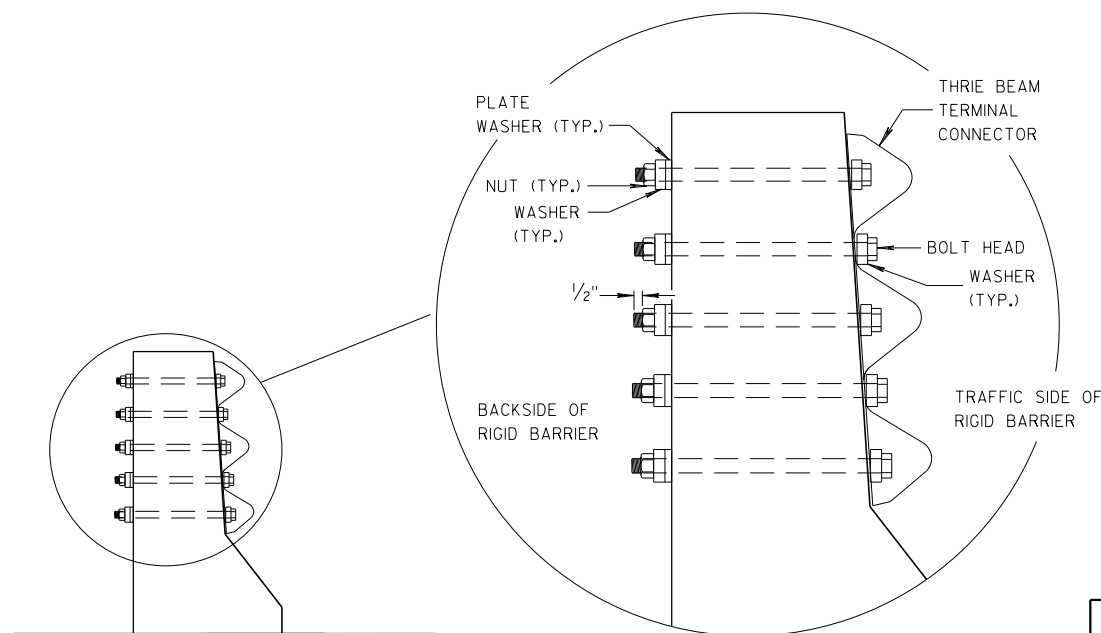
**DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION**



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

FRONT VIEW

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

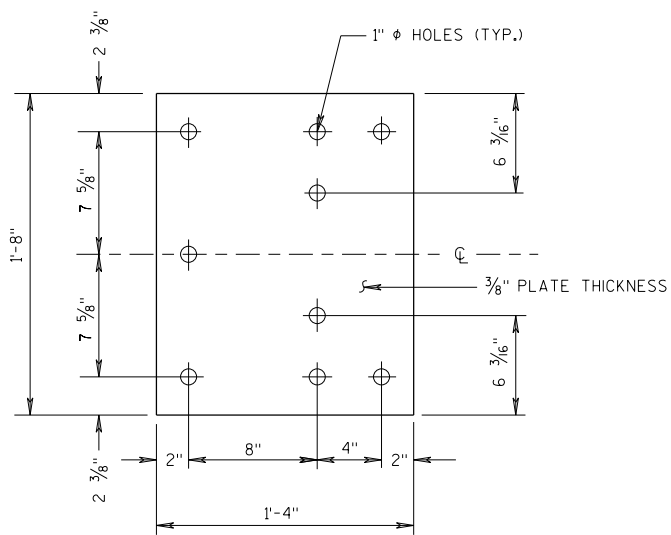


SECTION I-I

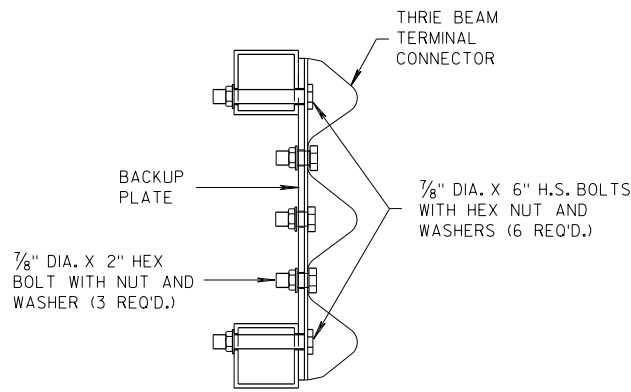
**MIDWEST GUARDRAIL SYSTEM**  
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

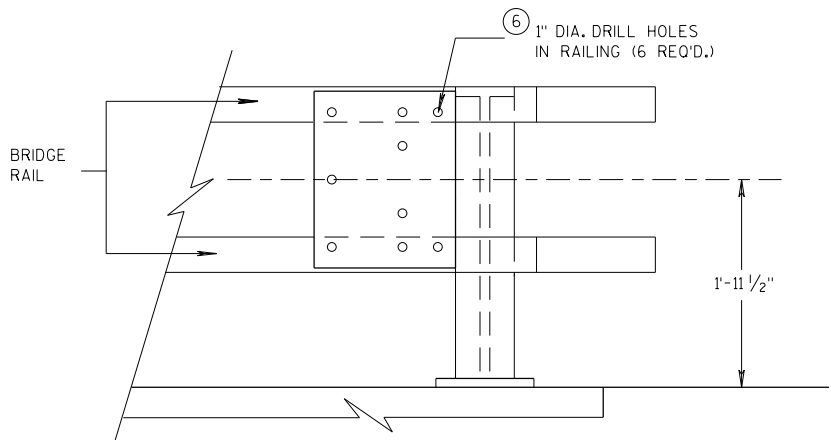
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ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



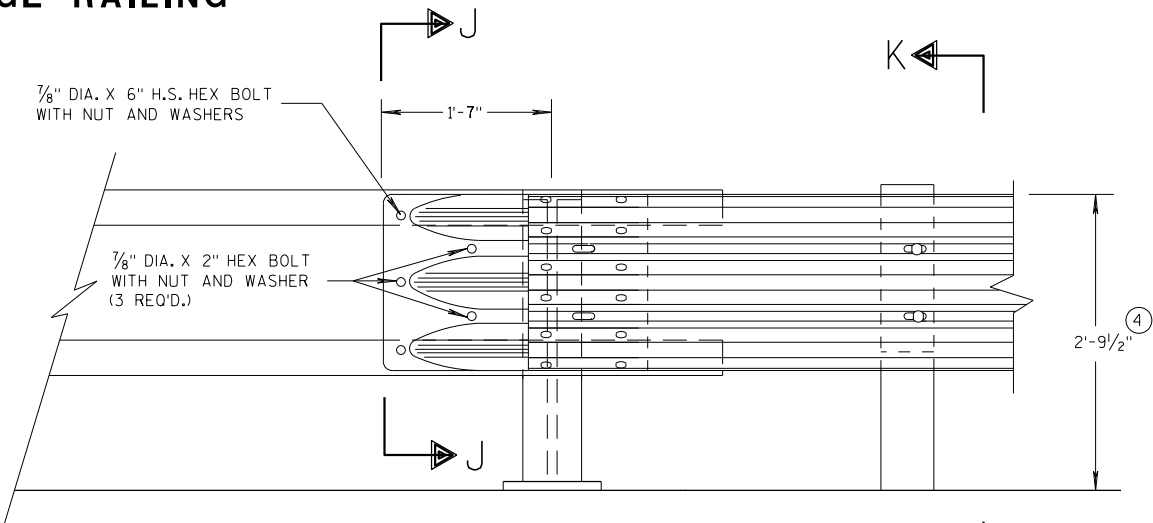
BACK-UP PLATE DETAIL



SECTION J-J

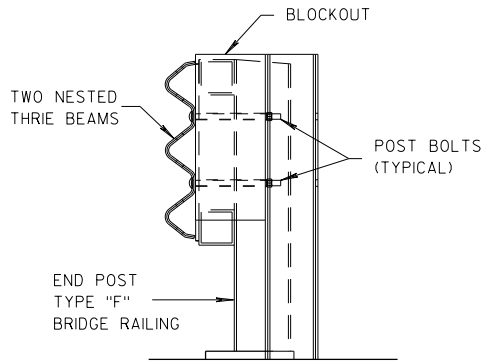


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

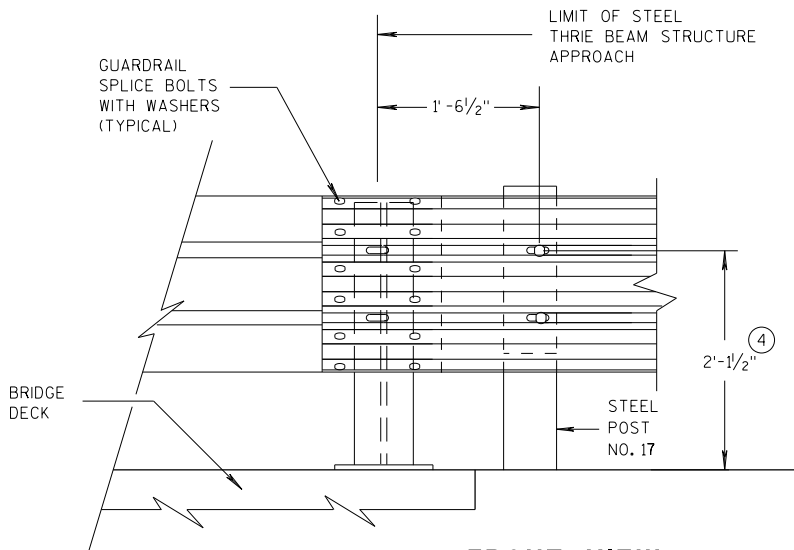
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

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



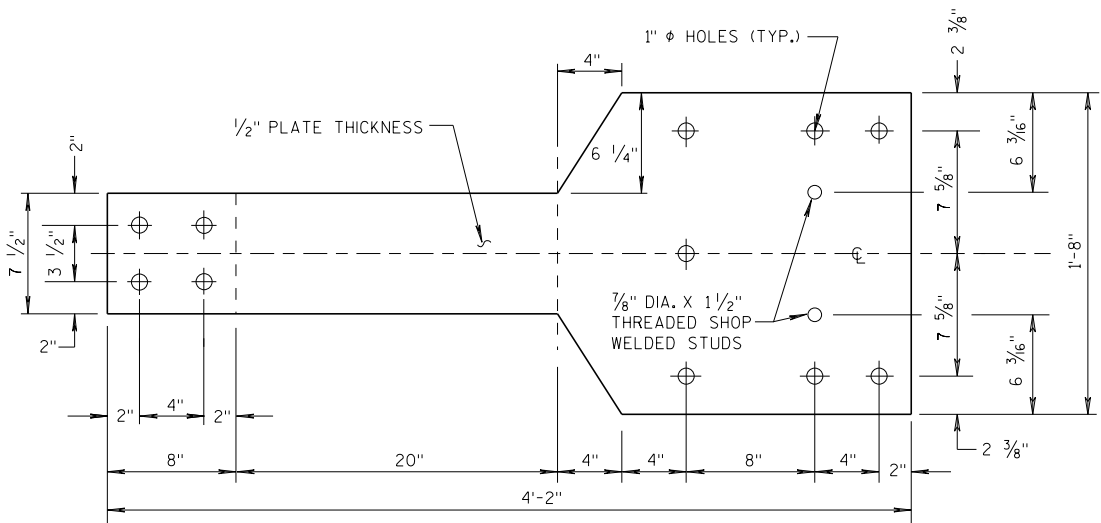
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

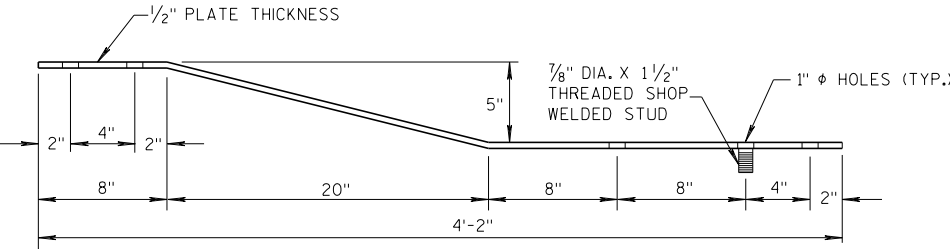
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

GENERAL NOTES

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

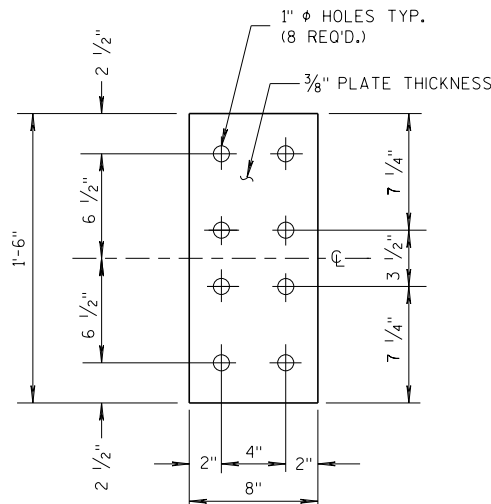


FRONT VIEW



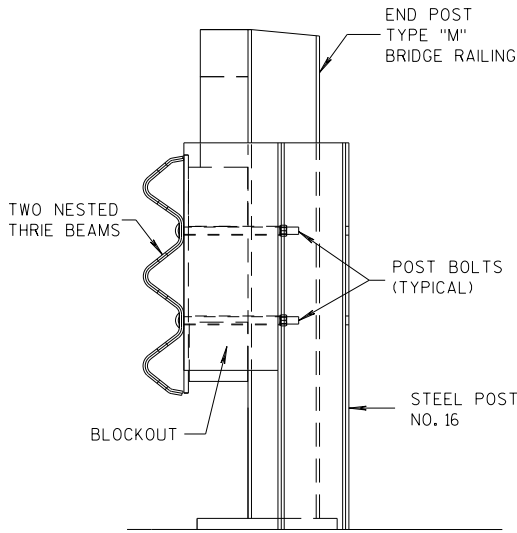
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

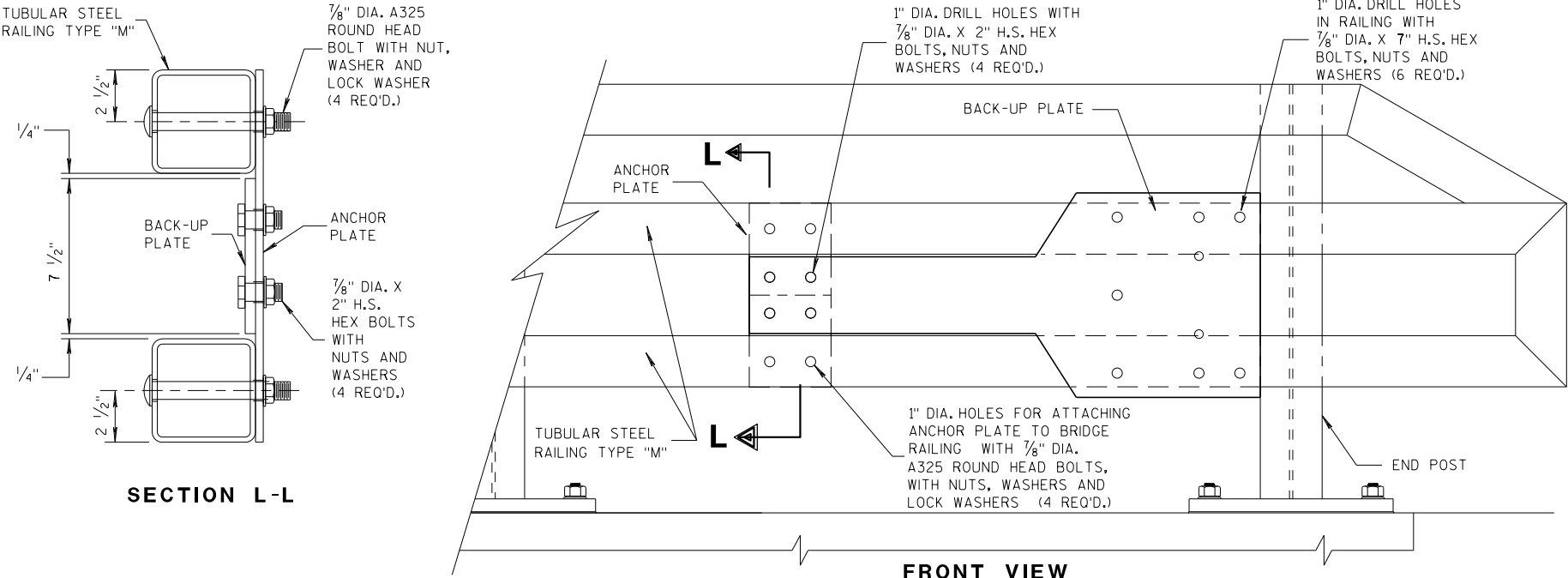


FRONT VIEW

ANCHOR PLATE DETAIL, TYPE "M"



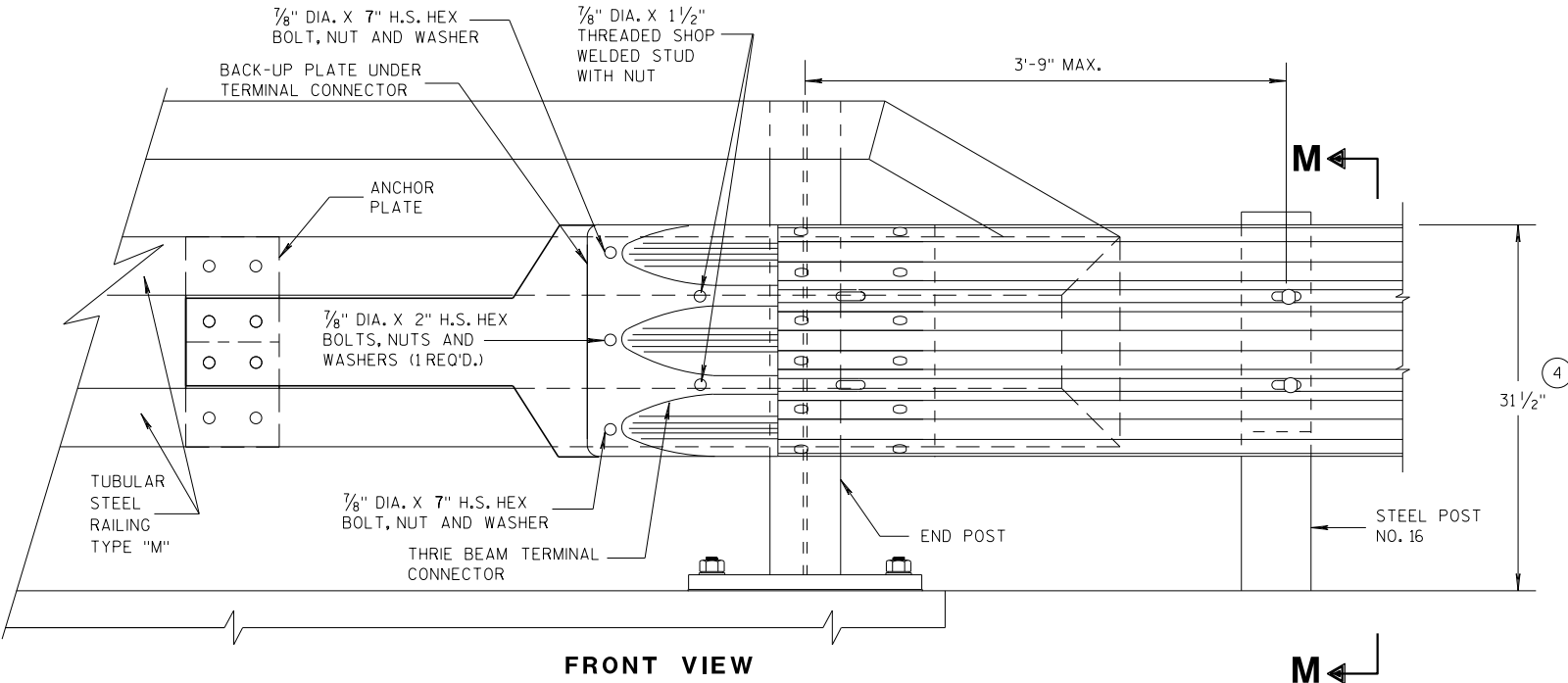
SECTION M-M



SECTION L-L

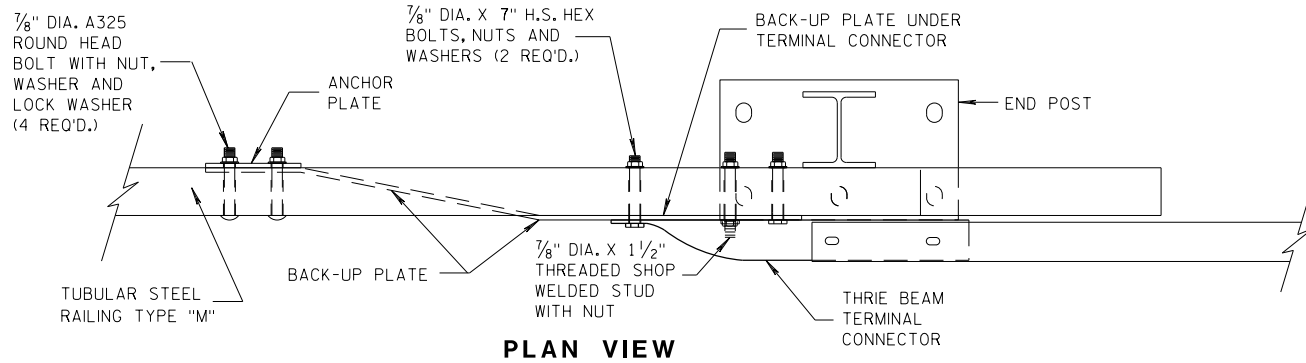
FRONT VIEW

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



FRONT VIEW

M



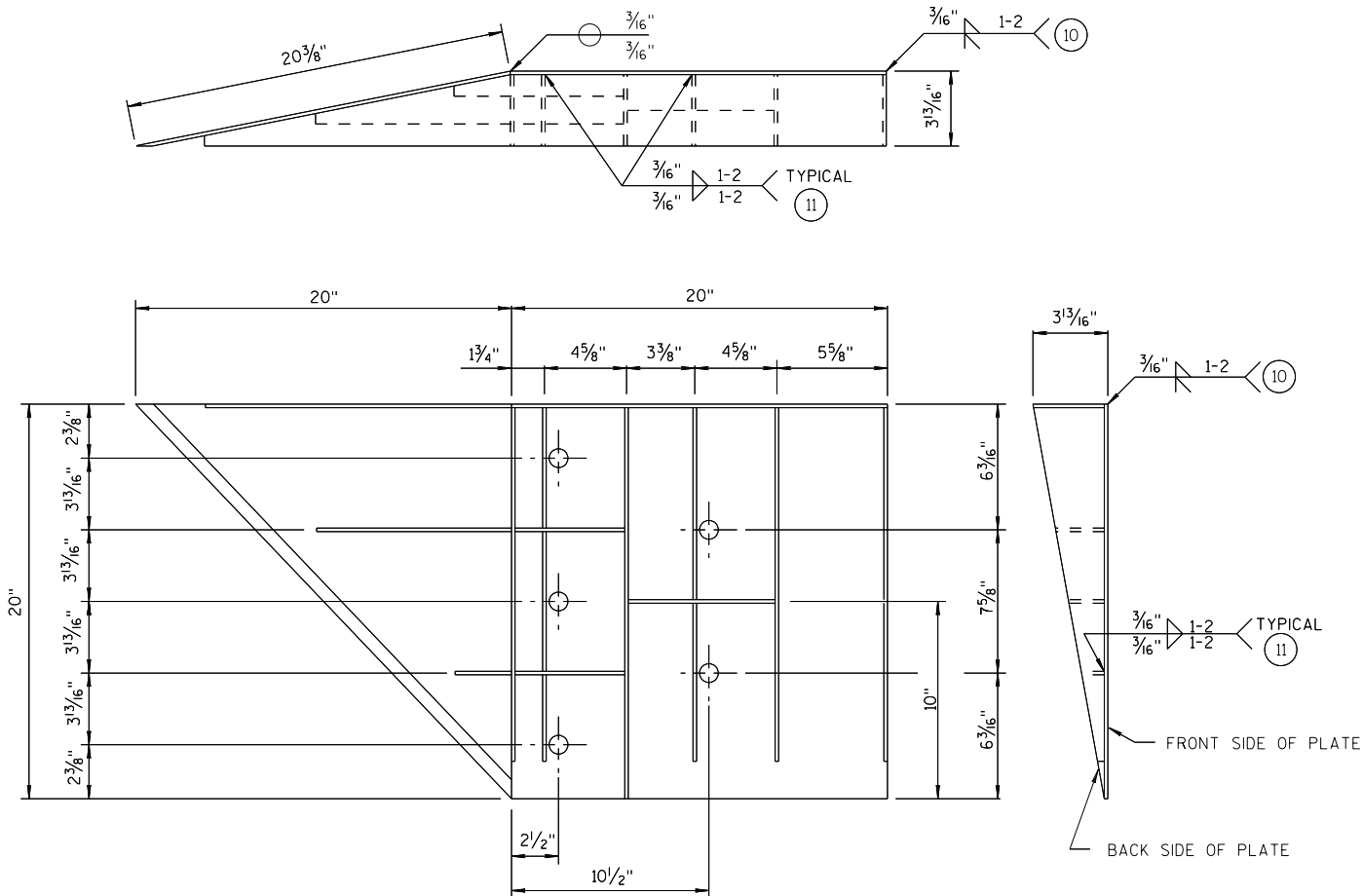
PLAN VIEW

THREE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM  
THREE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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07/2018  
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ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



WELDING INSTRUCTION  
(VIEWED FROM BACK SIDE OF PLATE)

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

SINGLE SLOPE CONNECTION PLATE

GENERAL NOTES

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

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

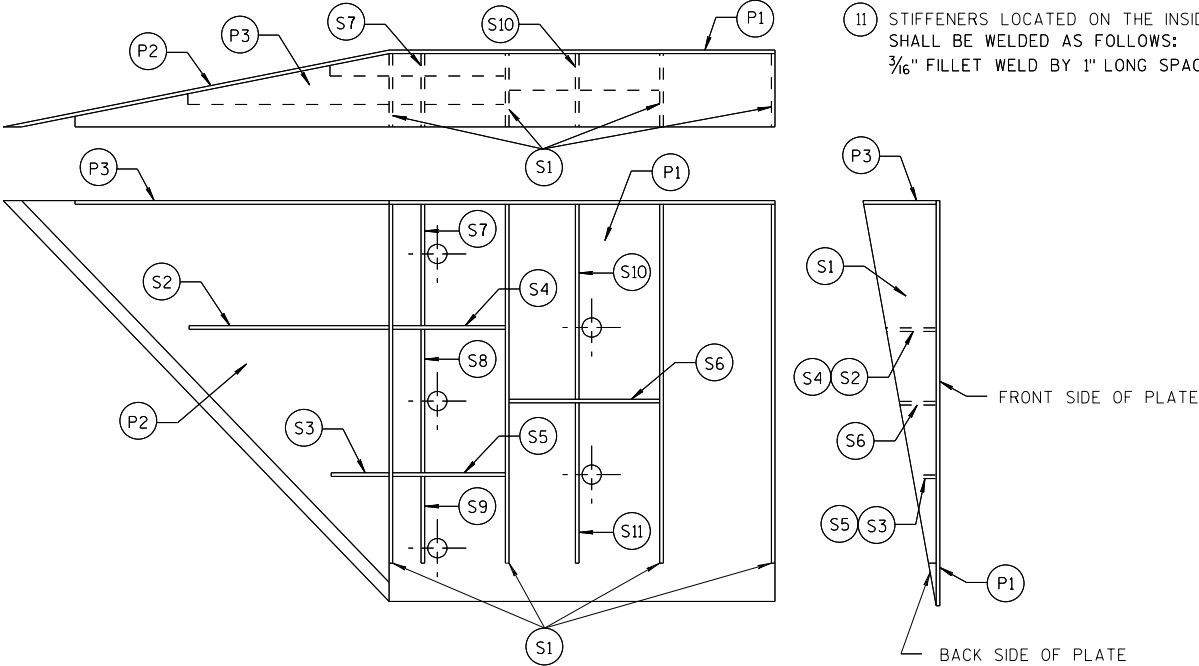


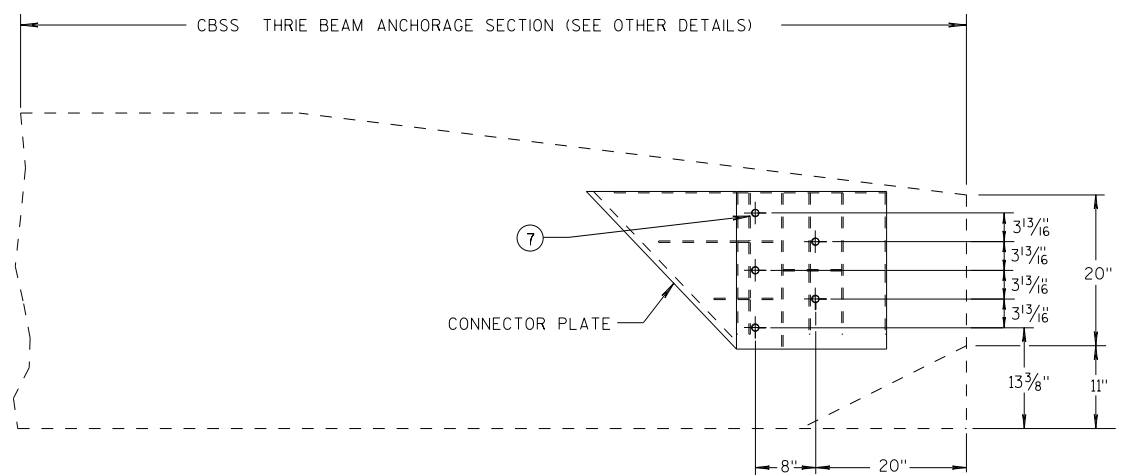
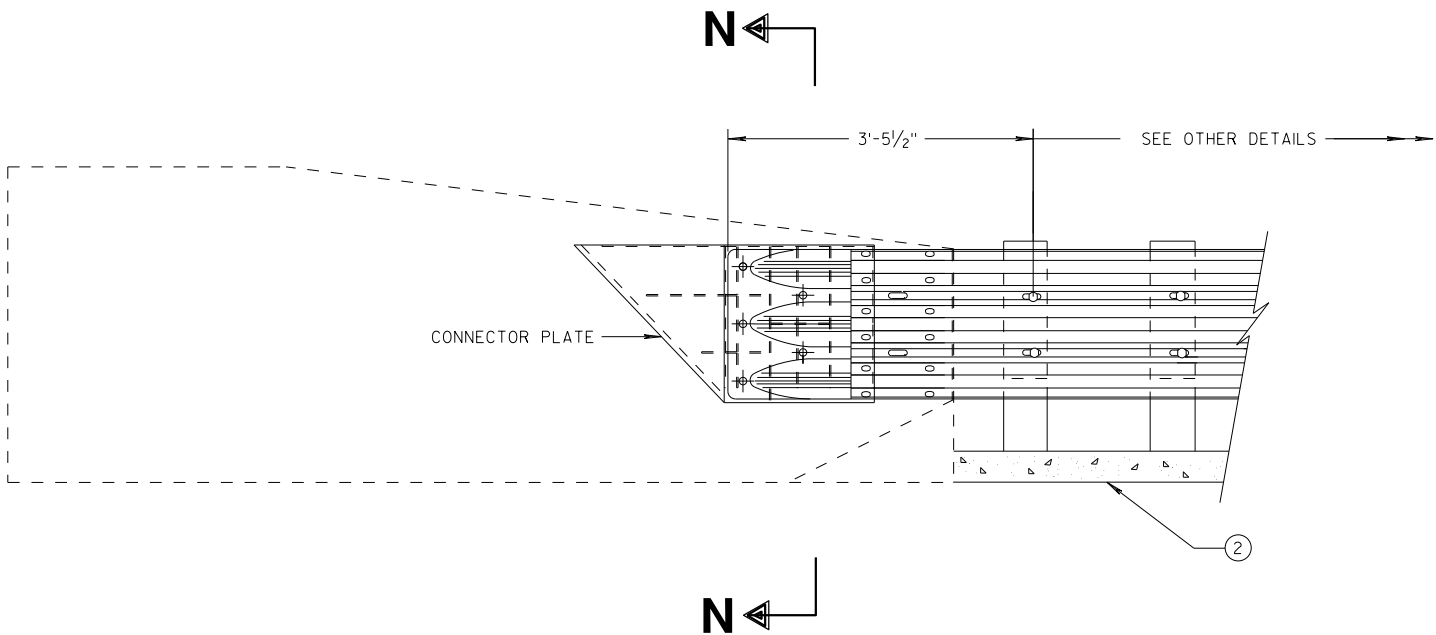
PLATE AND STIFFENER IDENTIFICATION  
(VIEWED FROM BACK SIDE OF PLATE)

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA

THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



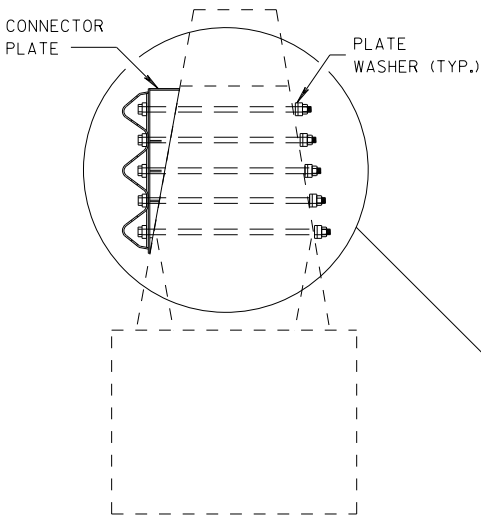
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

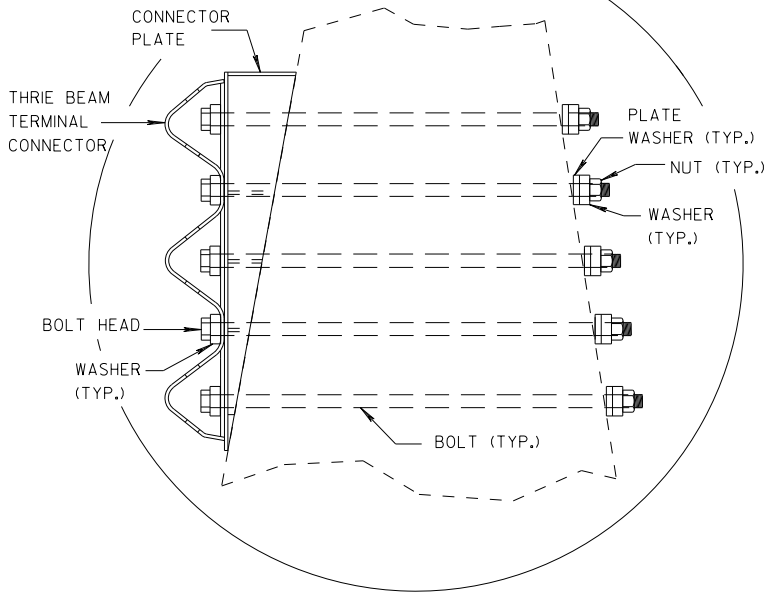
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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SECTION N-N

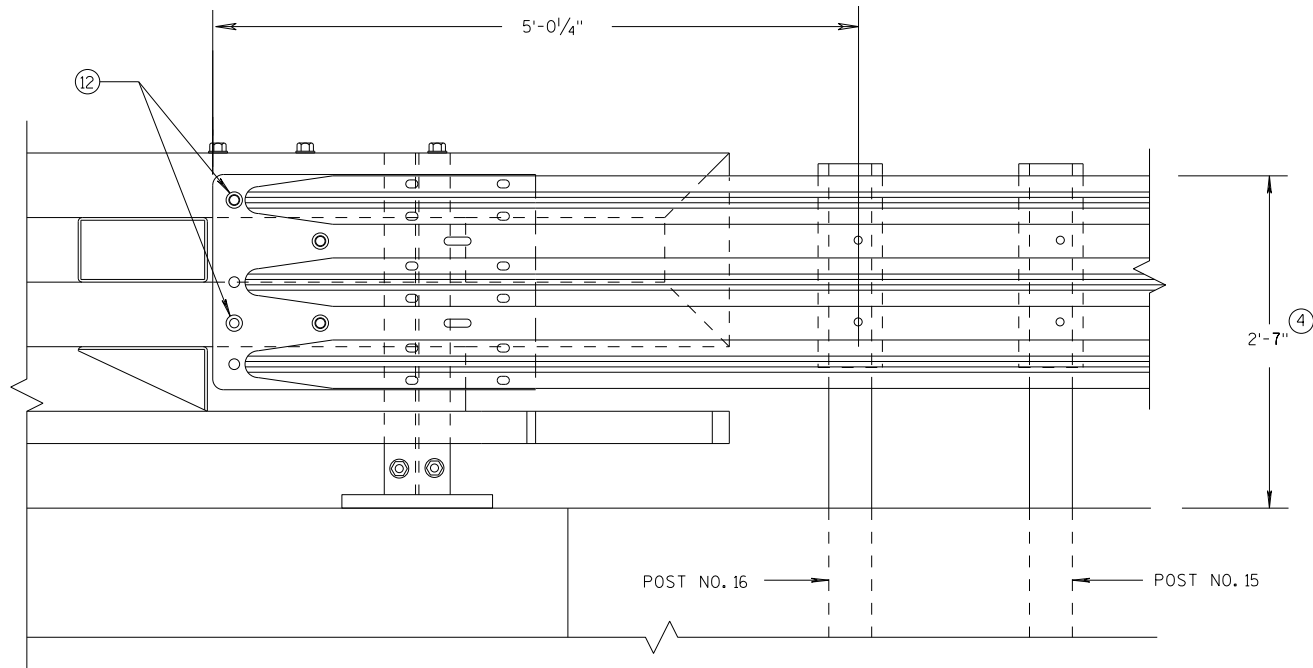


MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

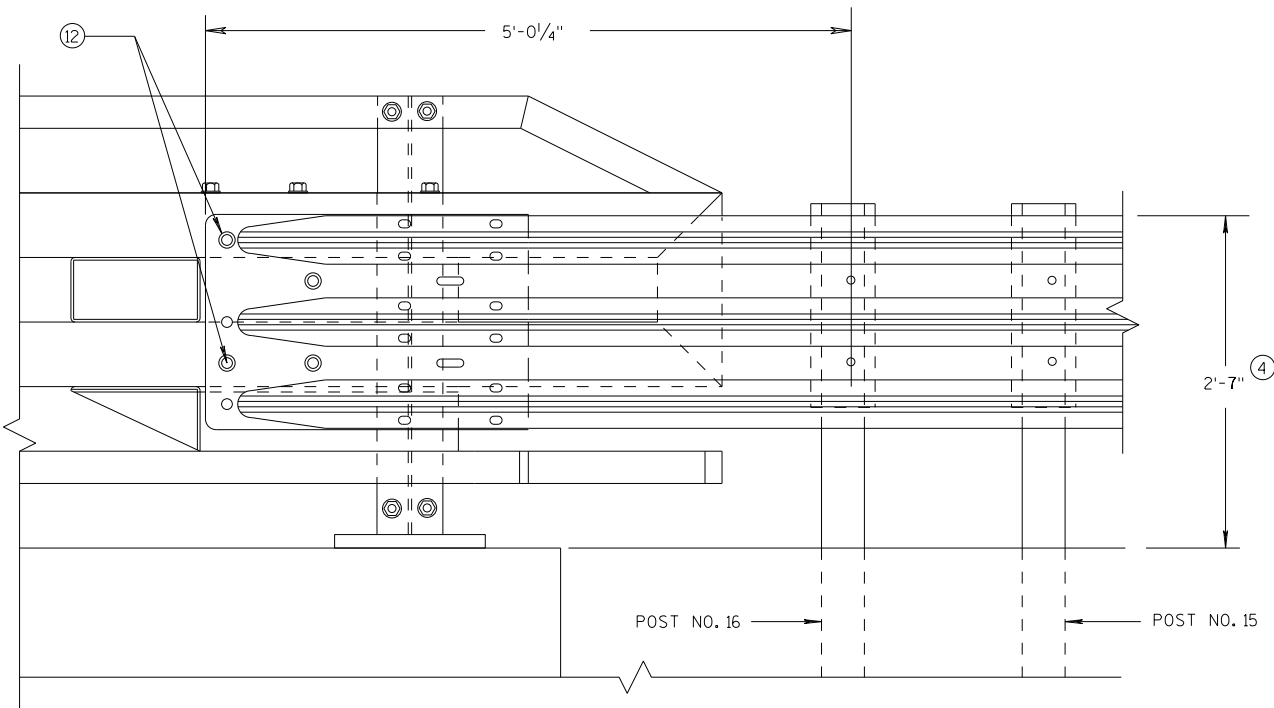
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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





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

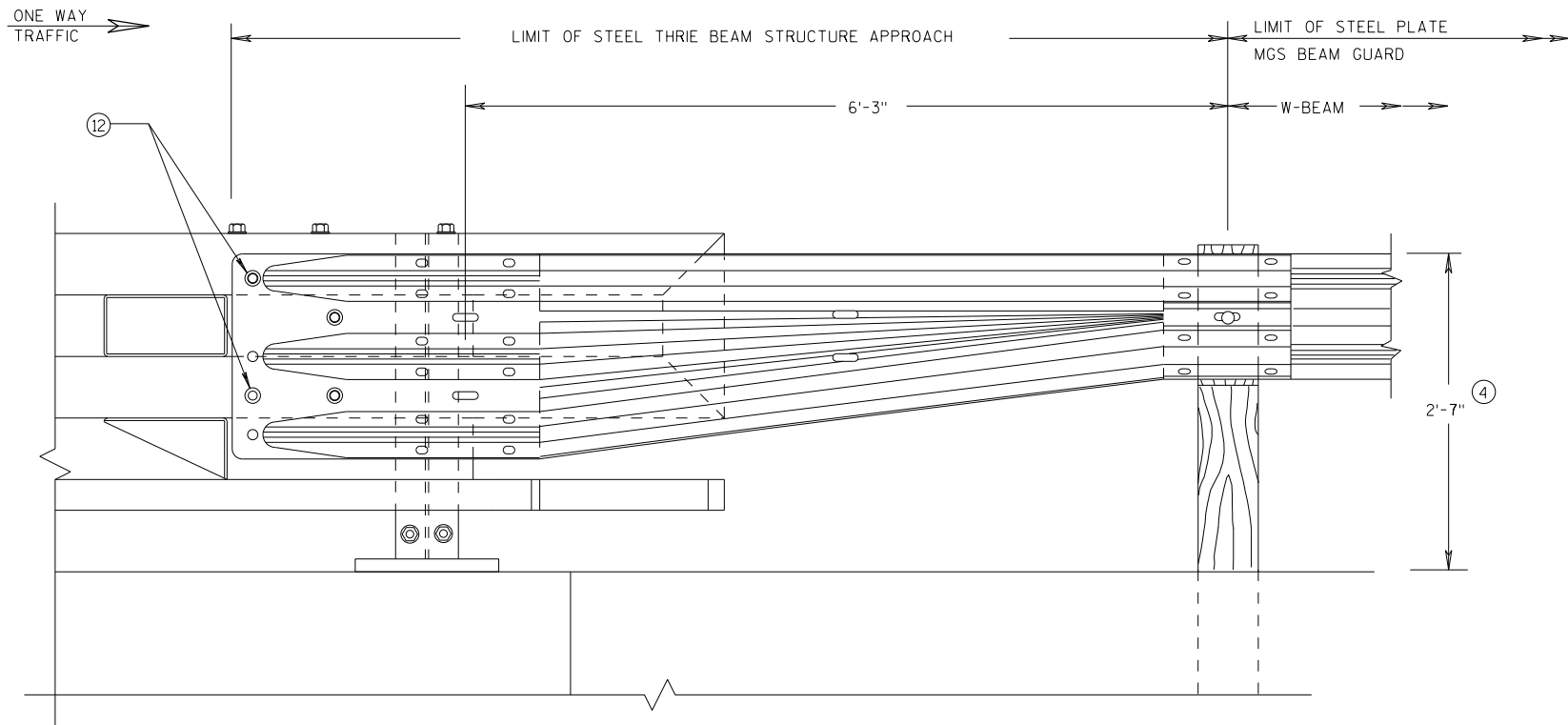


**ELEVATION OF DETAIL AT NY4 END POST**  
**THRIE BEAM RAIL ATTACHMENT**

**GENERAL NOTES**

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

<b>MIDWEST GUARDRAIL SYSTEM</b> <b>THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



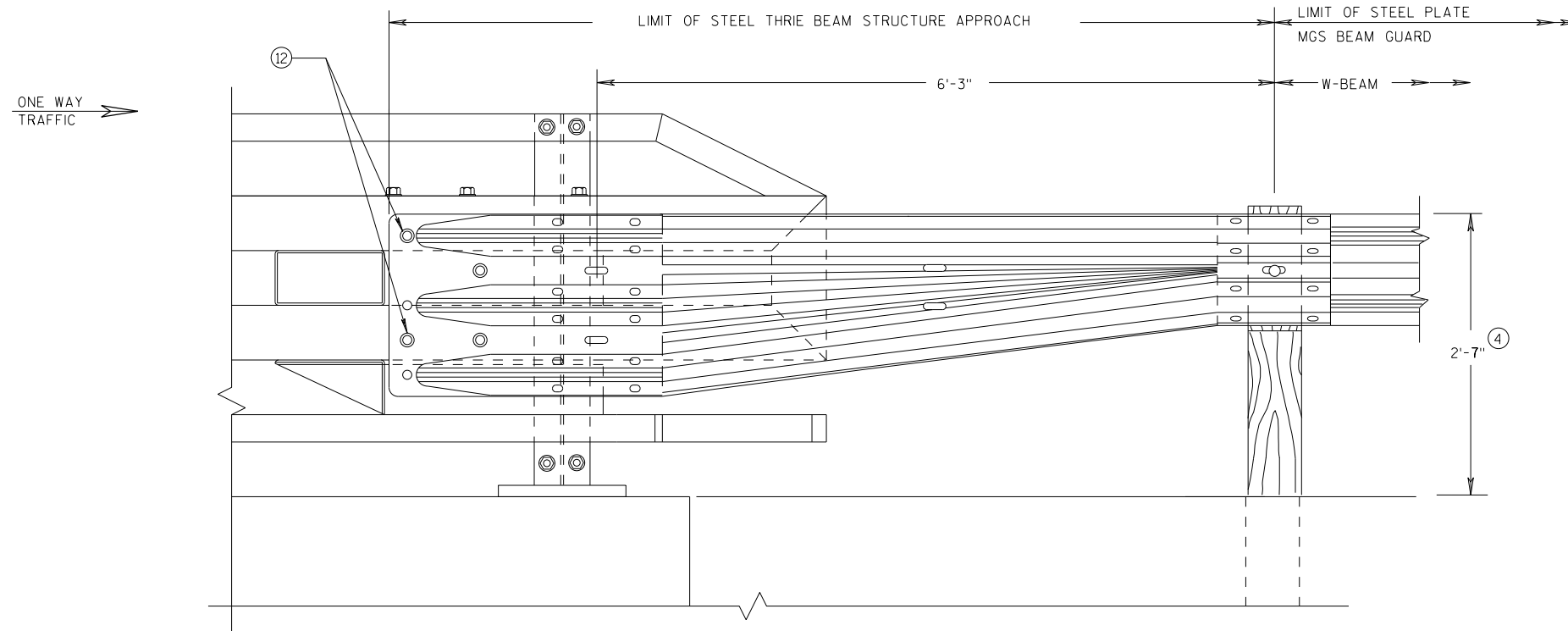
## GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .

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

FRONT VIEW

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



FRONT VIEW

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

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018

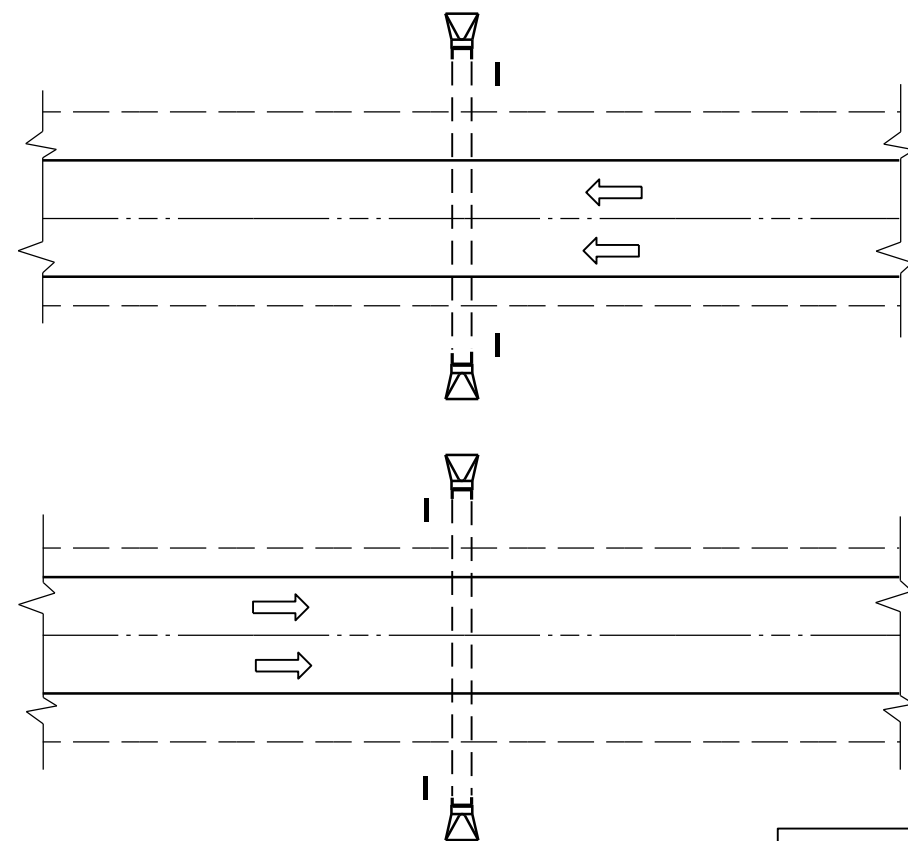
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FHWA

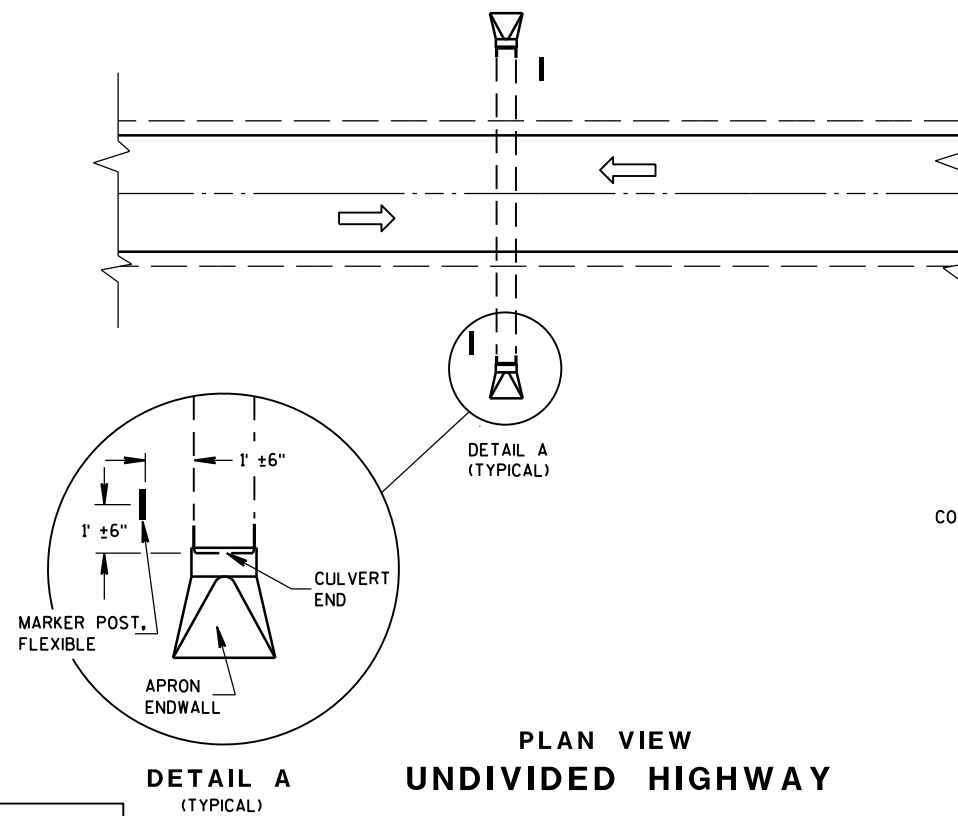
/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

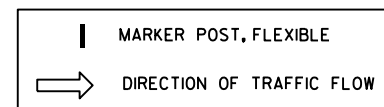
UNIT SUPERVISOR



PLAN VIEW  
DIVIDED HIGHWAY



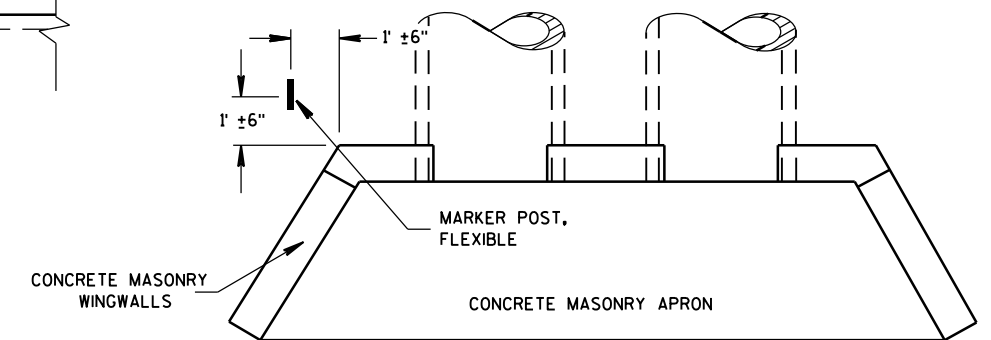
PLAN VIEW  
UNDIVIDED HIGHWAY



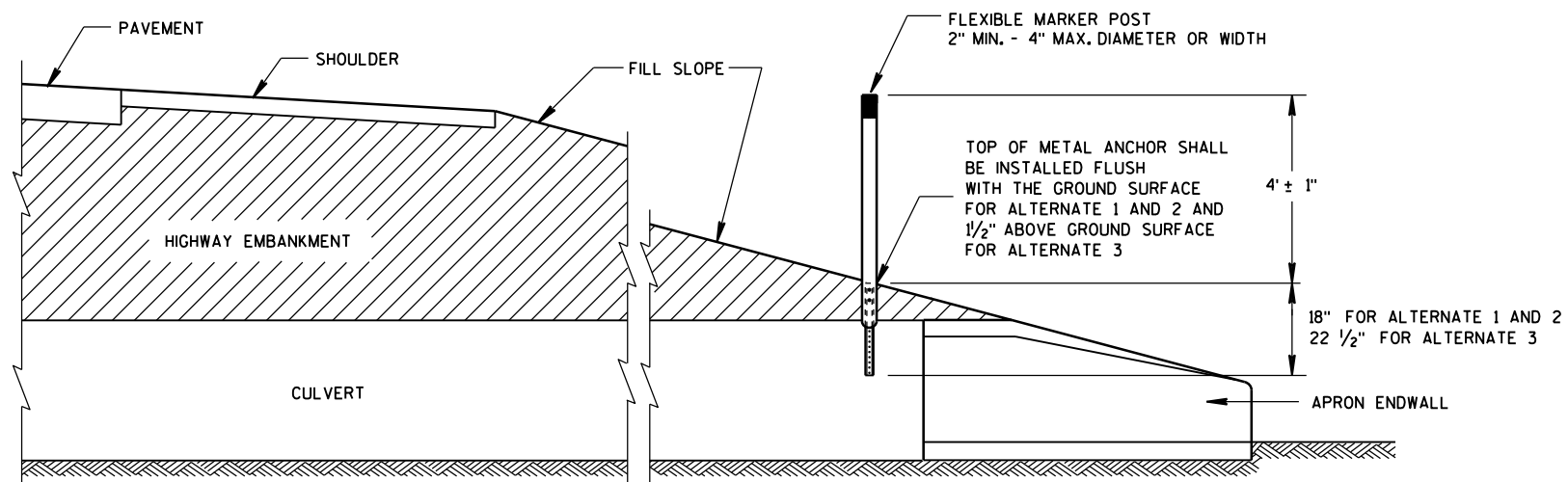
### FLEXIBLE MARKER POST LOCATION

### 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.



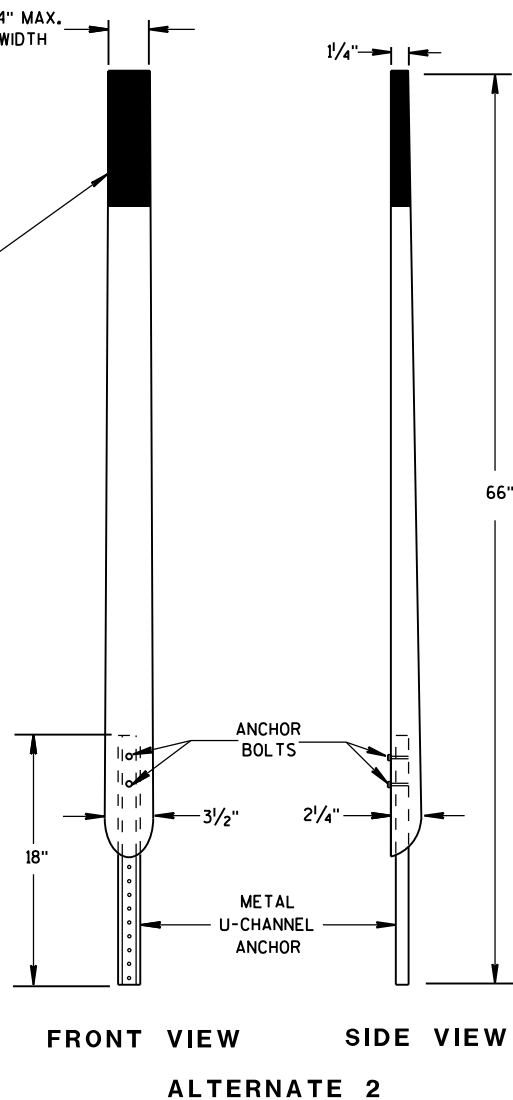
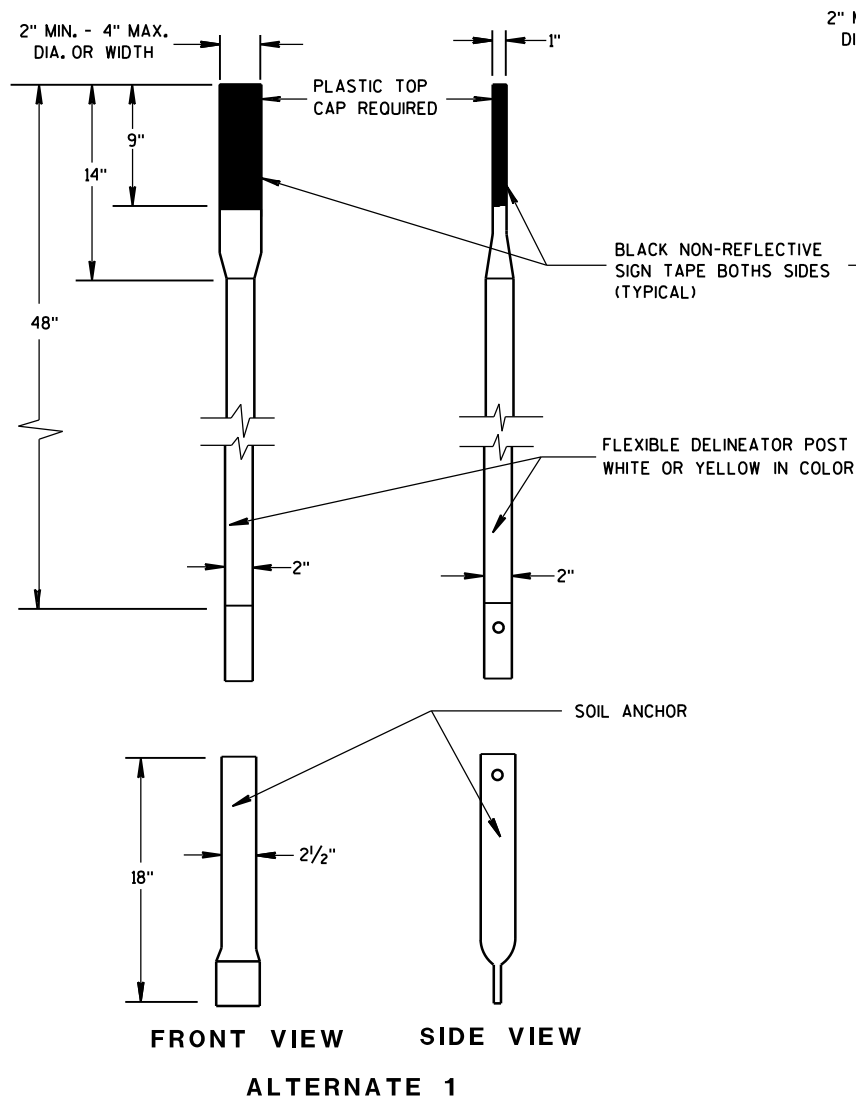
PLAN VIEW  
CONCRETE MASONRY ENDWALLS FOR  
CULVERT PIPE AND PIPE ARCH



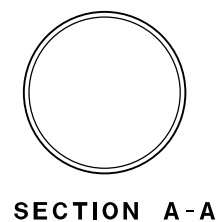
CROSS SECTION  
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST  
FOR CULVERT END

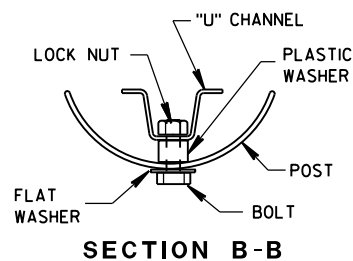
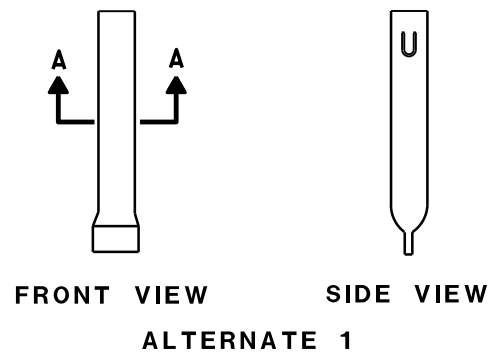
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



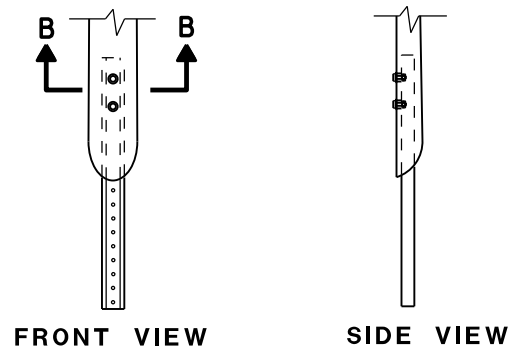
FLEXIBLE MARKER POSTS



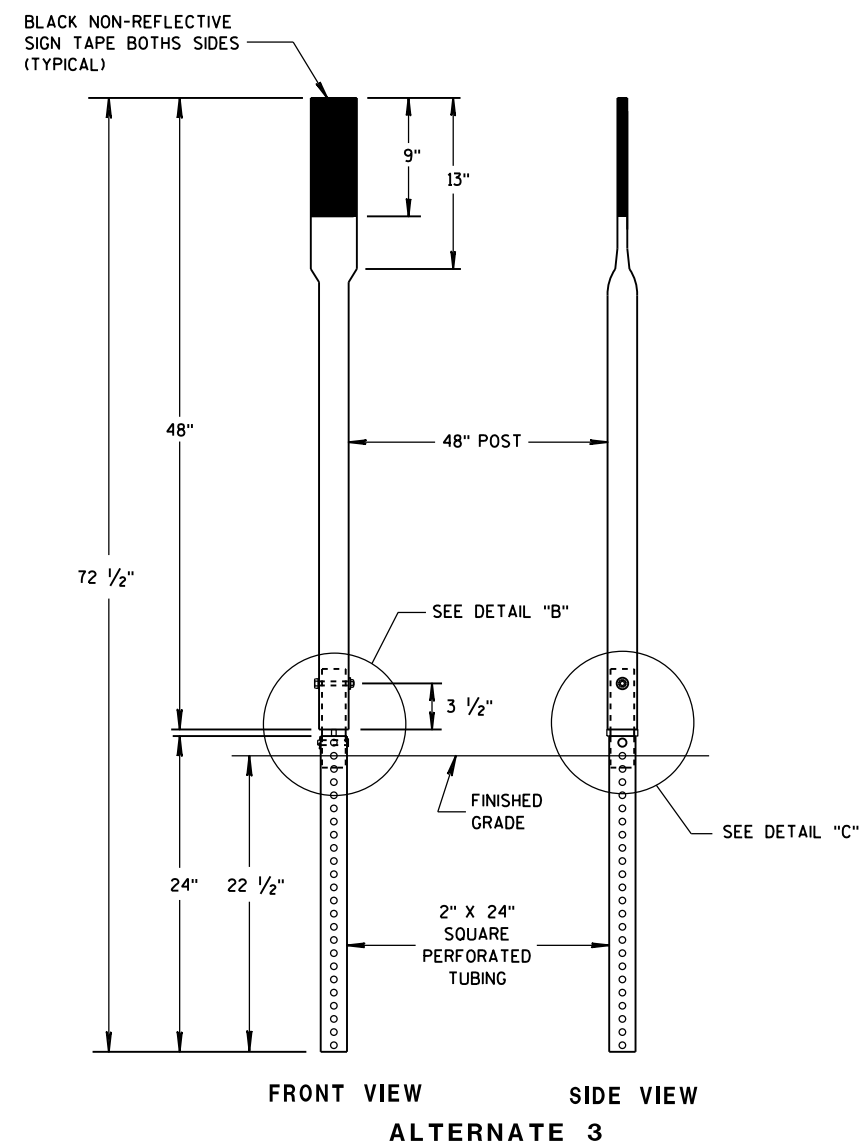
SECTION A-A



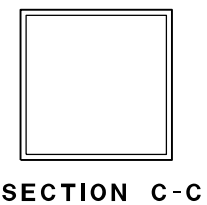
SECTION B-B



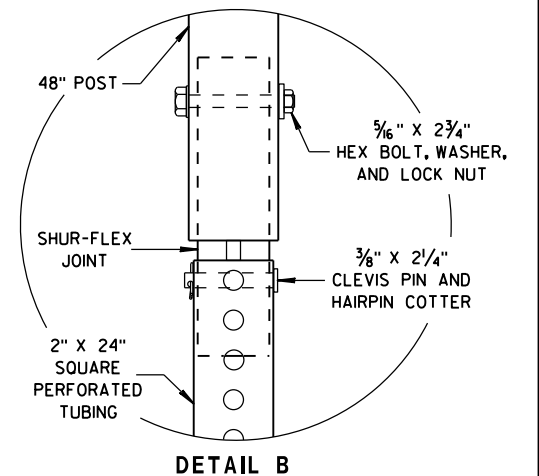
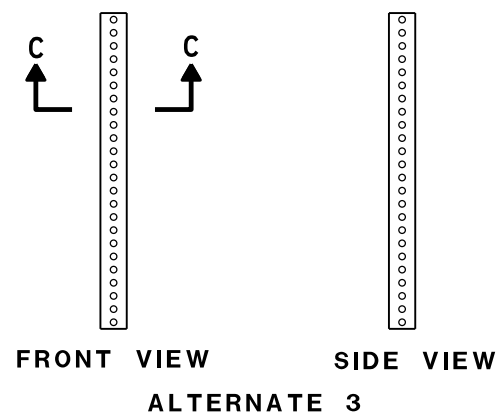
FLEXIBLE MARKER POST ANCHORS



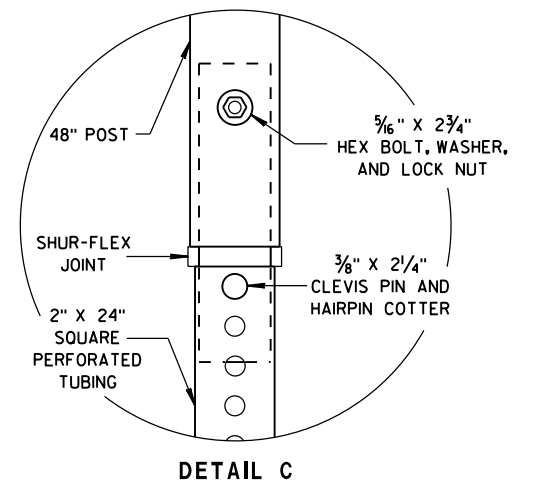
FLEXIBLE MARKER POSTS



SECTION C-C



DETAIL B

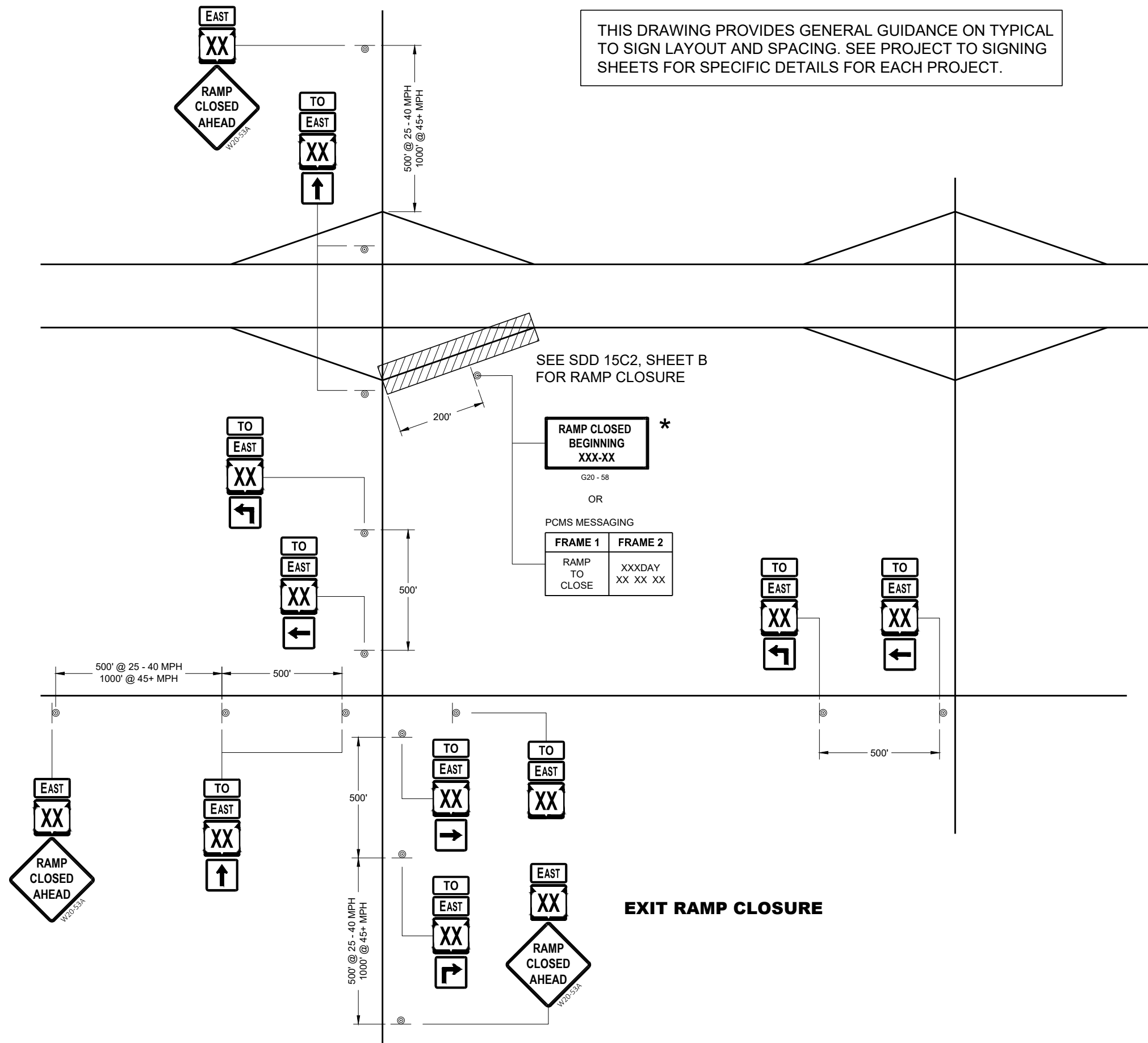


DETAIL C

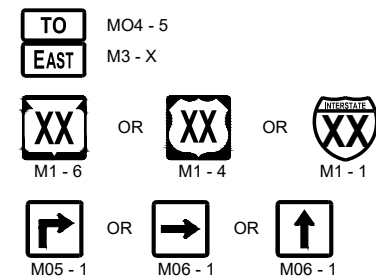
FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

**LEGEND**

⊙ SIGN ON PERMANENT SUPPORT

**GENERAL NOTES**

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

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

THE SPACING BETWEEN TRAFFIC CONTROL AND TO 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 SHALL 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 FOLLOW:  
M3 - X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS).  
M04 - 5 SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS).  
M1 - 1, M1 - 4, AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS).  
M05 - 1, M05 - 2, AND M06 - 1, SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS).  
W20 - 53A SHALL BE 48" X 48"

\* PLACE "RAMP CLOSED BEGINNING" SIGN 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR LAYOUT.

**ON RAMP  
LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL "TO" MO-4 SIGN LAYOUT AND SPACING. SEE PROJECT TO SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

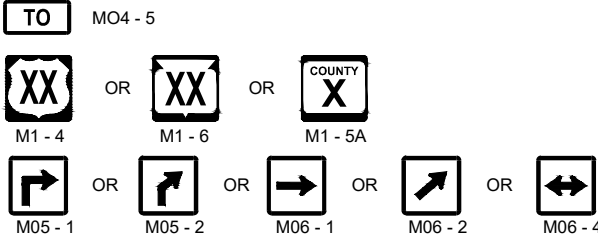
## LEGEND



## SIGN ON PERMANENT SUPPORT

PCMS

## PORTABLE CHANGEABLE MESSAGE SIGN



## GENERAL NOTES

SEE SDD 15D16 "TRAFFIC CONTROL, EXIT RAMP CLOSURE" DETAIL FOR TRAFFIC CONTROL AT EXIT RAMP CLOSURE.

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

IF THERE ARE ANY ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE "TO" MO-4 ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT TO SIGNING DETAIL SHEETS MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND "TO" MO-4 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 SHALL 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 FOLLOW:

MO4 - 5 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, MO5 - 2, AND MO6 - 1, SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS).

- ① ONLY ADD IF THERE ARE NO EXISTING ROUTE MARKERS FOR THE INTERSECTING ROADWAY.

# OFF RAMP LANE CLOSURE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020  
DATE

/S/ Andrew Heidtke  
WORK ZONE ENGINEER

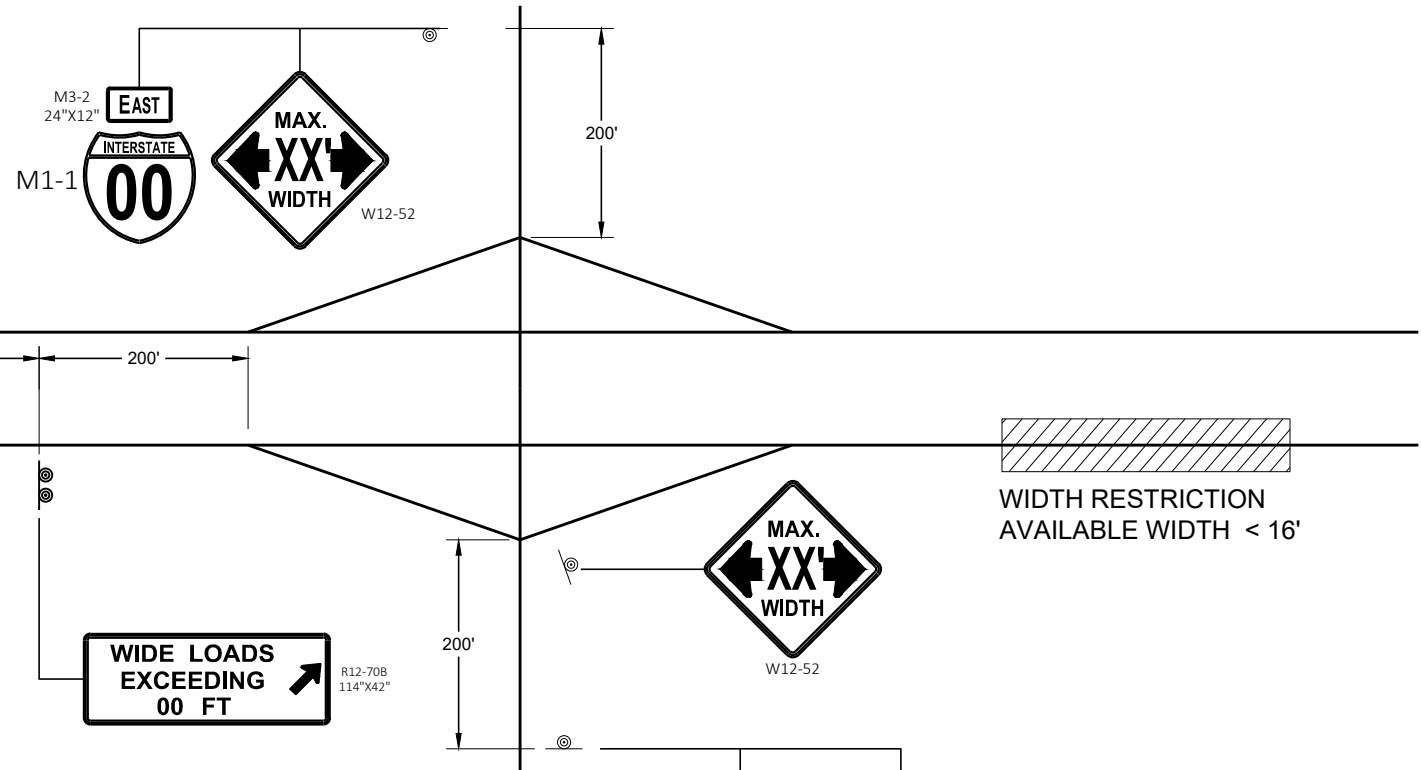
FHWA

6

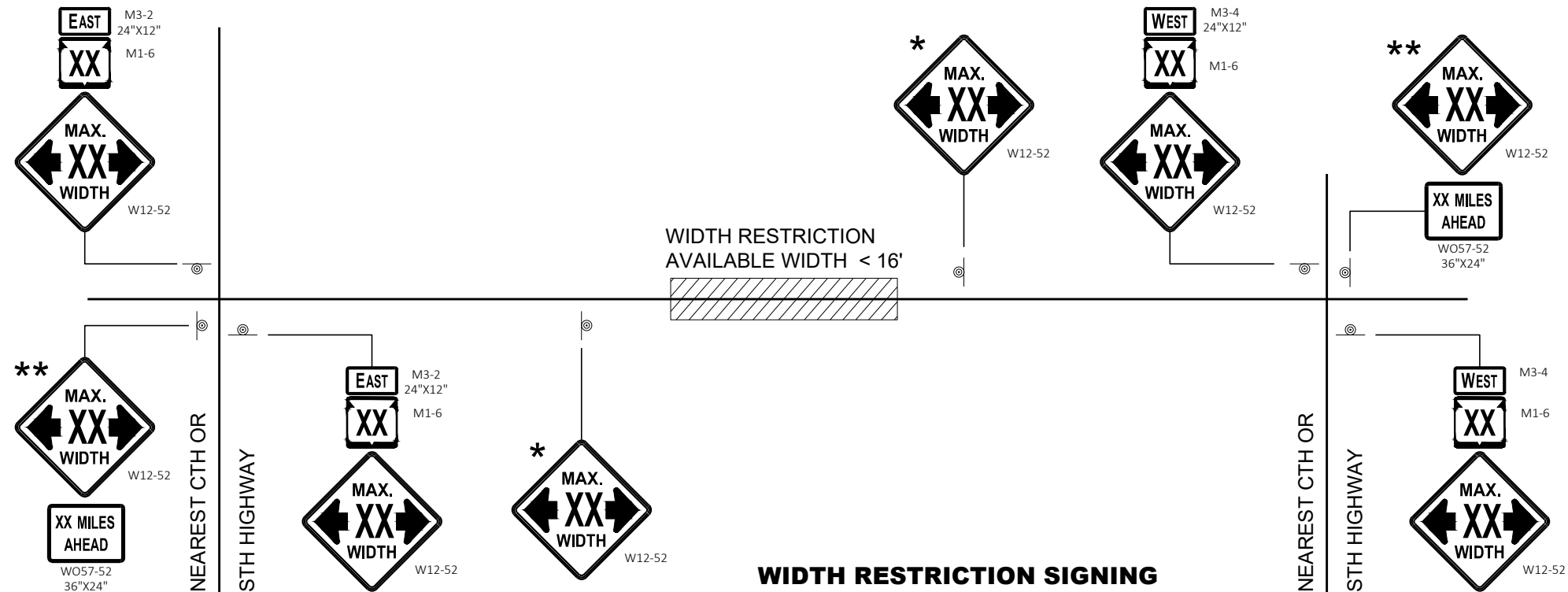
**SDD 15C02 - 08e**

6

**SDD15C02 - 08e**



**WIDTH RESTRICTION SIGNING**



**WIDTH RESTRICTION SIGNING  
2 LANE HIGHWAY**

**LEGEND**

⊙ SIGN ON PERMANENT SUPPORT

**GENERAL NOTES**

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

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

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

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

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

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

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

\*\* SIGN SHALL BE VISIBLE FROM ROADWAY.

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

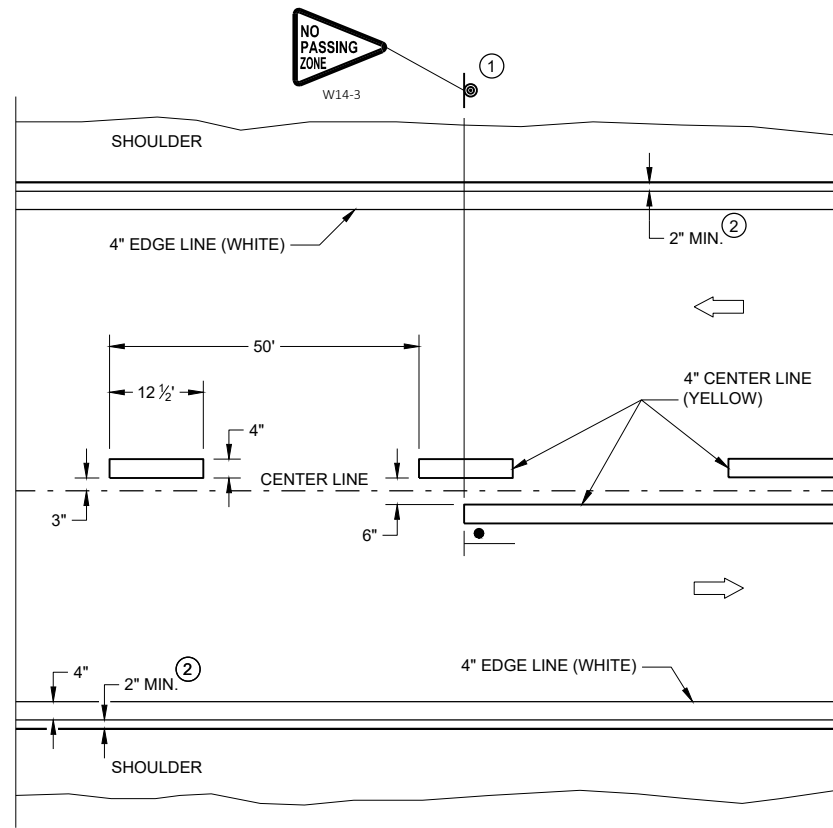


WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

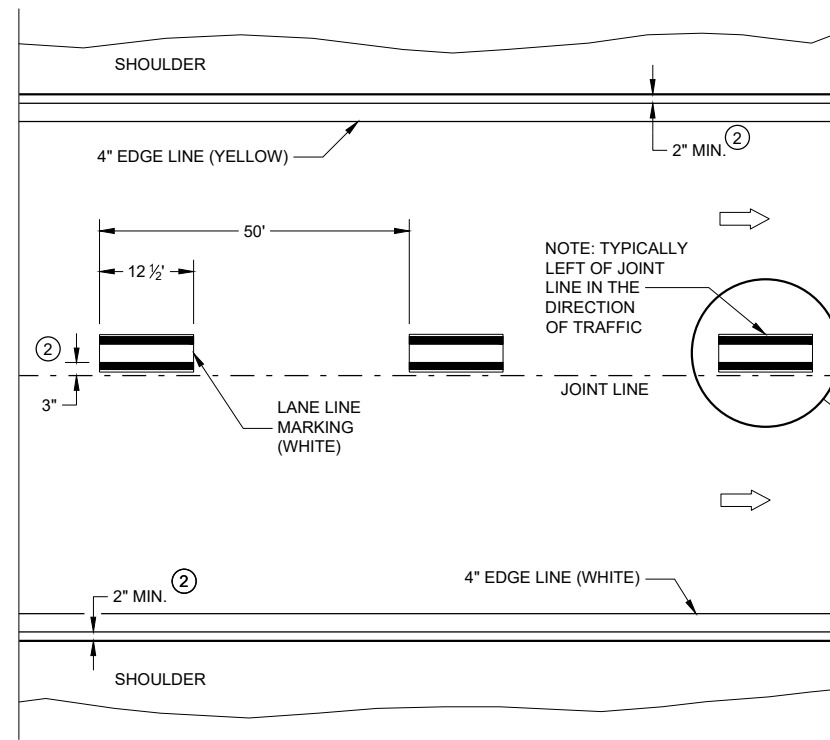
**ADVANCED WIDTH  
RESTRICTION SIGNING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

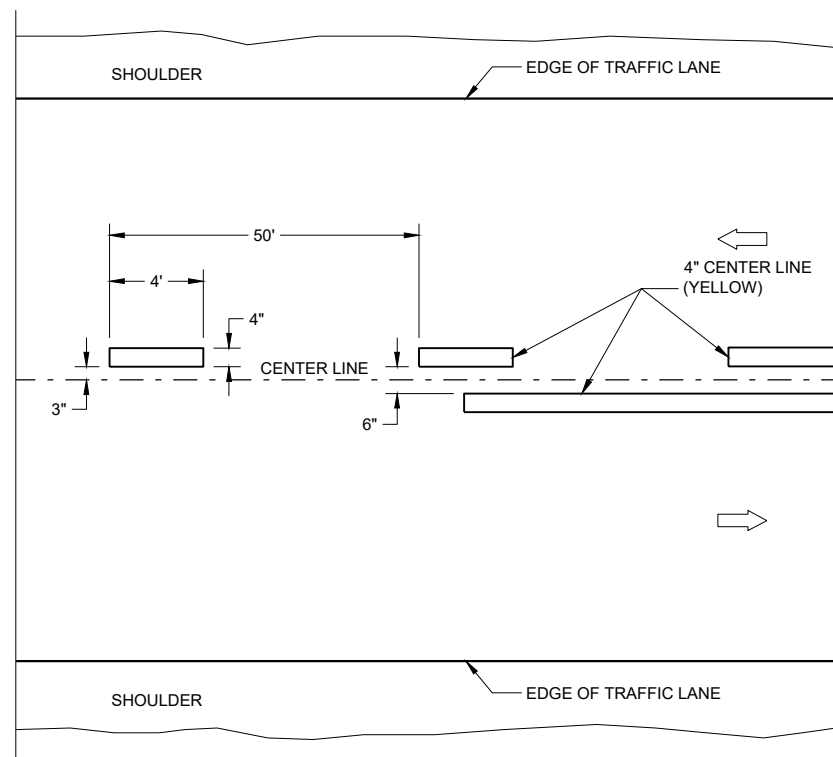


## TWO WAY TRAFFIC

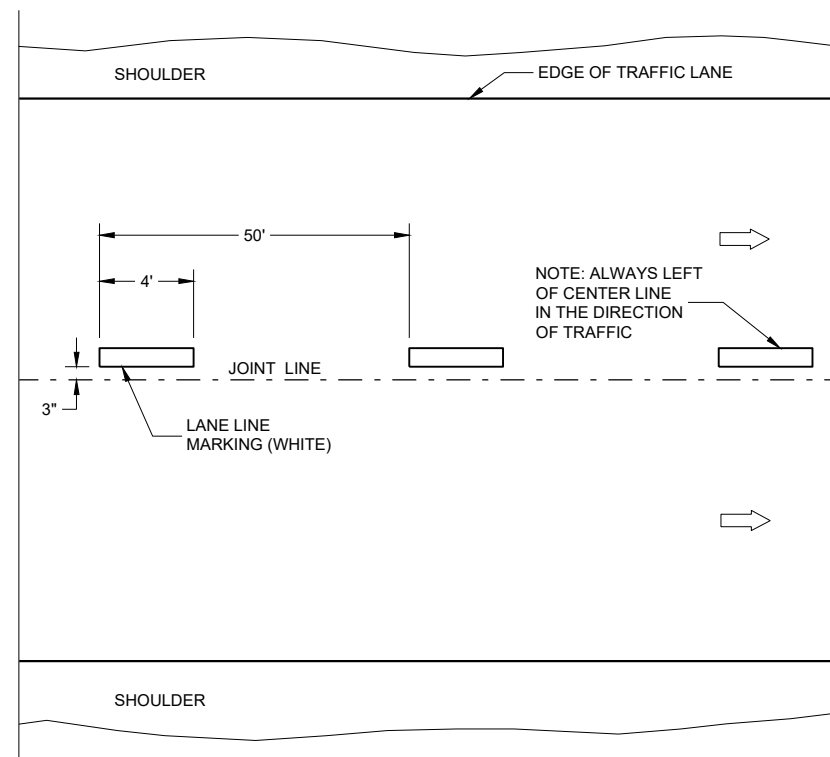


## ONE WAY TRAFFIC

## PERMANENT PAVEMENT MARKING



## TWO WAY TRAFFIC



## ONE WAY TRAFFIC




## TEMPORARY PAVEMENT MARKING

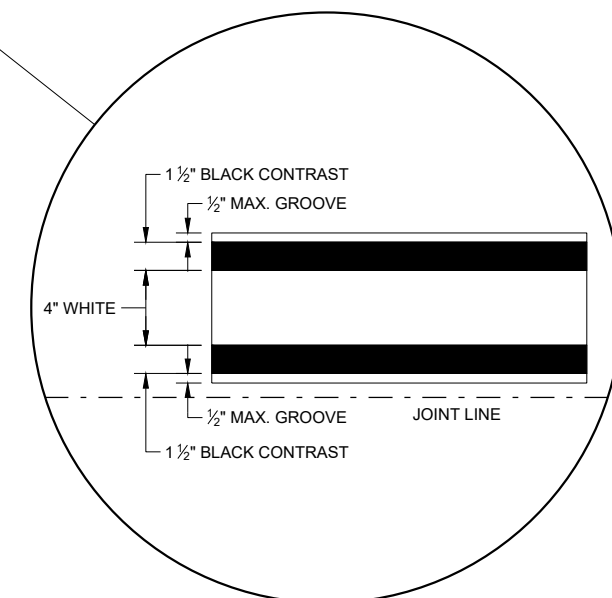
## GENERAL NOTES

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 WITH 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



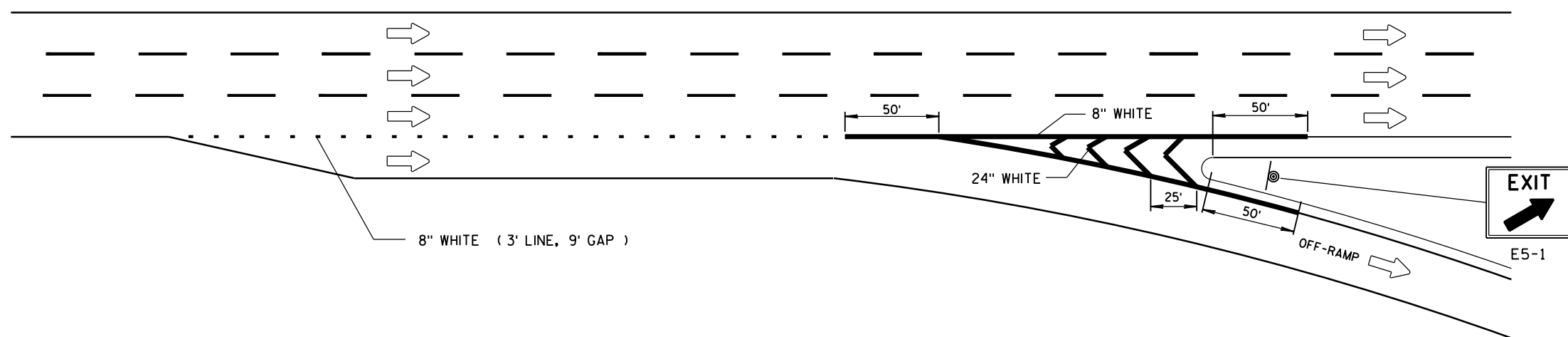
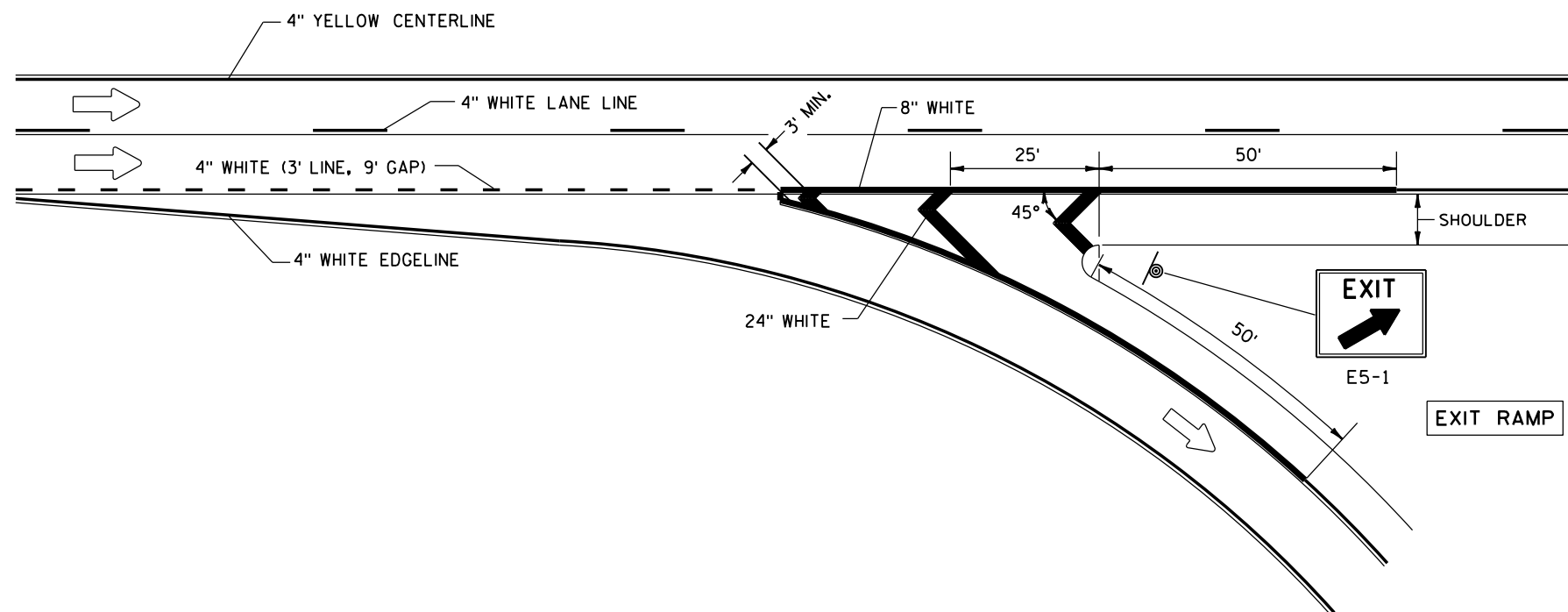
### LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020  
DATE

/S/ Matthew Rauch  
STATEWIDE SIGNING AND MARKING  
ENGINEER





GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

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

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

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

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

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

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

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

\* A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)

✕ ✕ ✕ REMOVING PAVEMENT MARKINGS

➡ DIRECTION OF TRAFFIC

WORK AREA

FLASHING ARROW BOARD

TRAFFIC CONTROL,  
LANE CLOSURE,  
SPEED REDUCTION

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

LEGEND

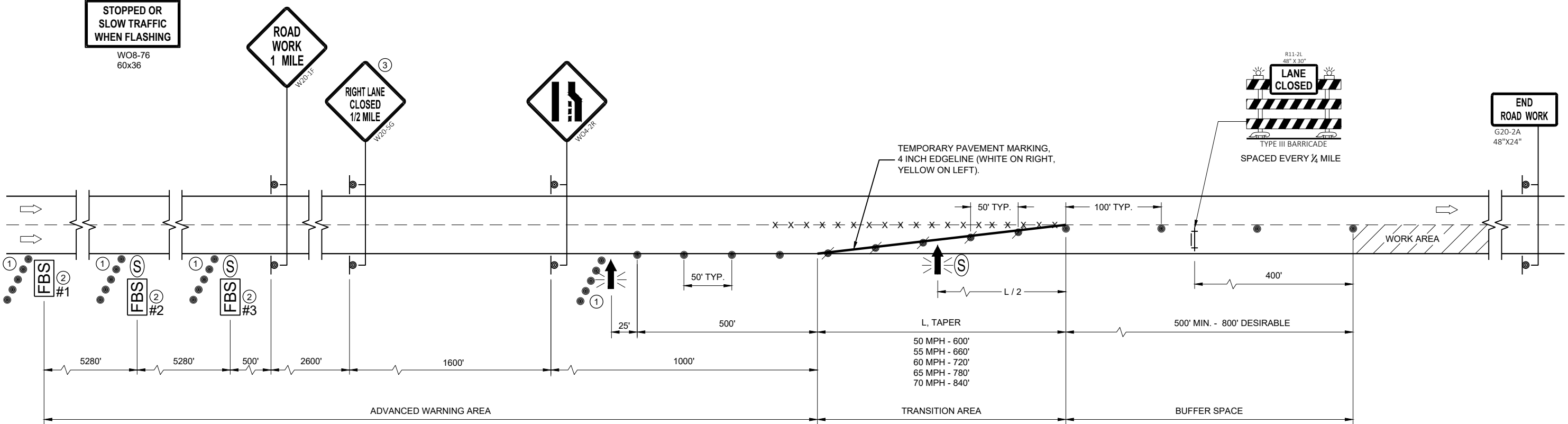
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC
- WORK AREA
- FLASHING ARROW BOARD
- PORTABLE TRAFFIC SENSOR (PTS)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

STOPPED OR  
SLOW TRAFFIC  
WHEN FLASHING  
WO8-76  
60x36

ROAD  
WORK  
1 MILE  
W20-1P

RIGHT LANE  
CLOSED  
1/2 MILE  
W20-5G

ROAD  
WORK  
AHEAD  
W04-2X



GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

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

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

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

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

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

PORTABLE TRAFFIC SENSOR (PTS) MAY BE MOUNTED ON THE FBS, ARROW BOARD OR OTHER TRAILER DEVICES.

- 1 5 DRUMS SPACED AT 10 FOOT INTERVALS AS NEEDED.
- 2 IF THERE ARE MORE THAN TWO LANES OR IF SPECIFIED IN THE PLANS, PLACE FBS ON BOTH SIDES OF THE ROADWAY.
- 3 IF THERE IS AN APPROVED TEMPORARY SPEED DECLARATION, ADD WO-3-5 SIGNS 400 FEET AFTER THE W20-5G SIGNS AND ADD R2-1 SIGNS (48"x60") 700 FEET AFTER THE WO3-5 SIGNS. A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A "RESUME SPEED LIMIT" SIGN 200 FEET MINIMUM (800 FEET DESIRABLE) BEYOND THE G30-3A "END ROAD WORK" SIGN.

TRAFFIC CONTROL, LANE  
CLOSURE, BASIC TRAFFIC  
QUEUE WARNING SYSTEM

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC

GENERAL NOTES

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

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

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

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

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

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

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

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS /OR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

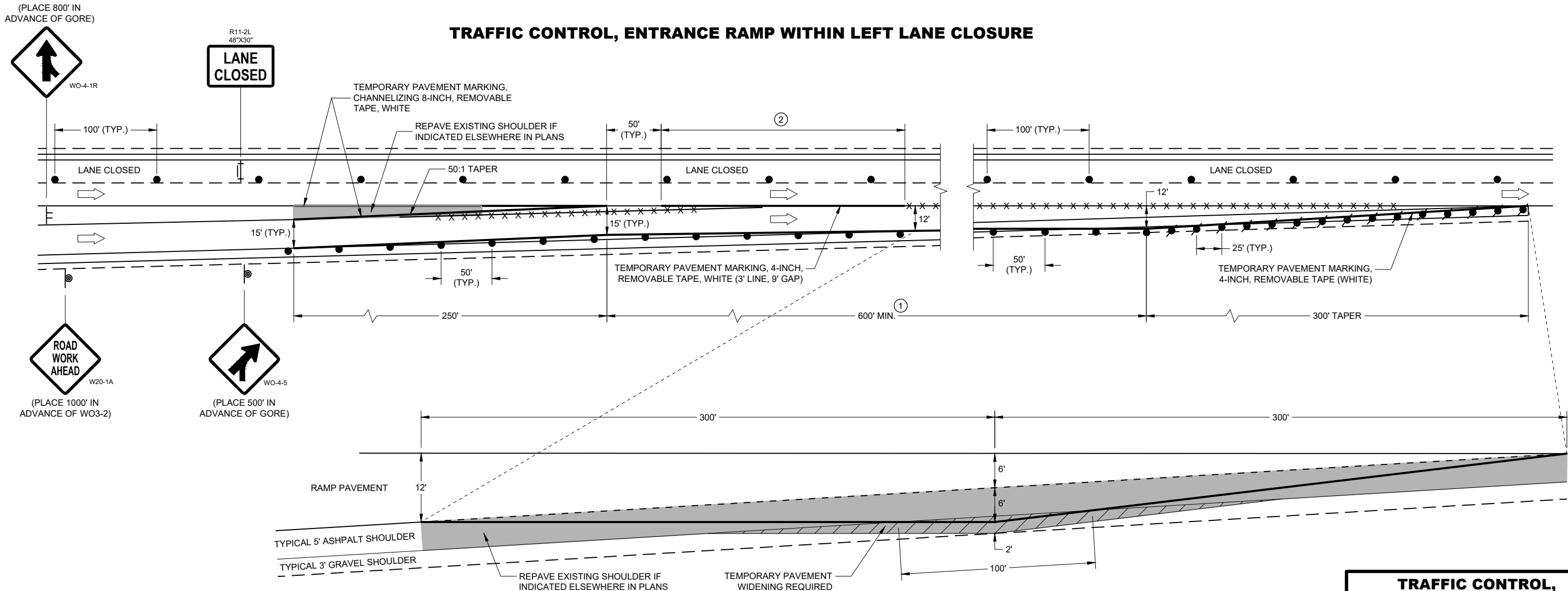
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

- ① EXTEND THE LENGTH OF THE MERGE AREA IF THE ENTERING (DESIGN) SPEED OF THE RAMP IS LESS THAN 50 MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY MARKING AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.

TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LEFT LANE CLOSURE



TEMPORARY PAVEMENT DETAIL

(EXISTING RAMP DIMENSIONS MAY VARY, ADJUST TEMPORARY PAVEMENT ACCORDINGLY)








TRAFFIC CONTROL,  
ENTRANCE RAMP  
WITHIN LANE CLOSURE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC

GENERAL NOTES

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

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

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

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

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

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

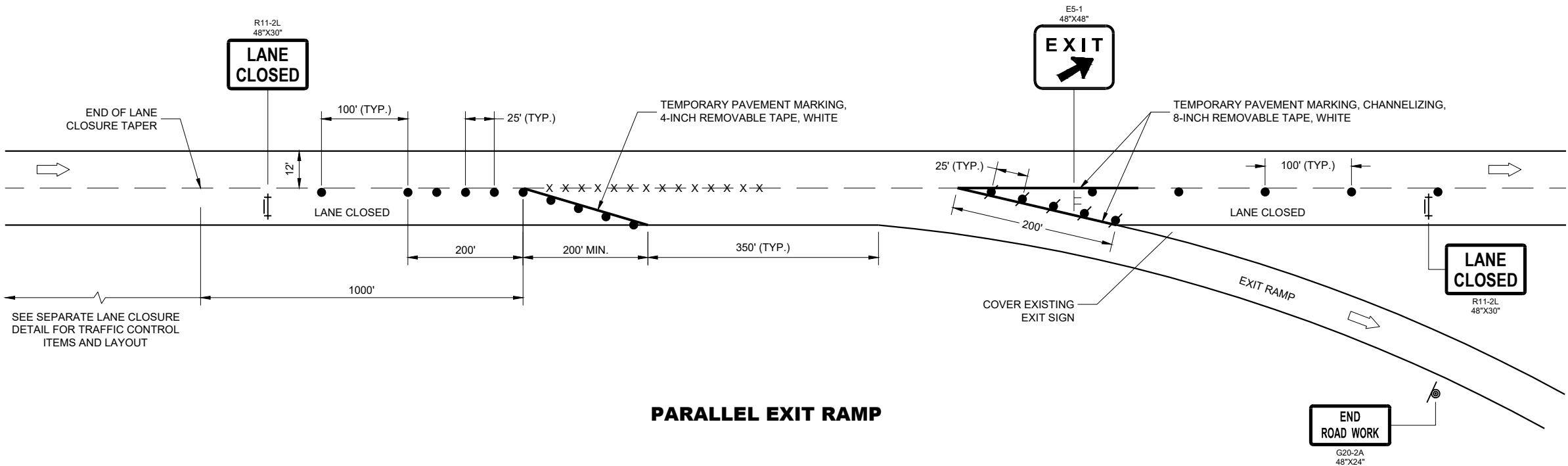
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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



PARALLEL EXIT RAMP

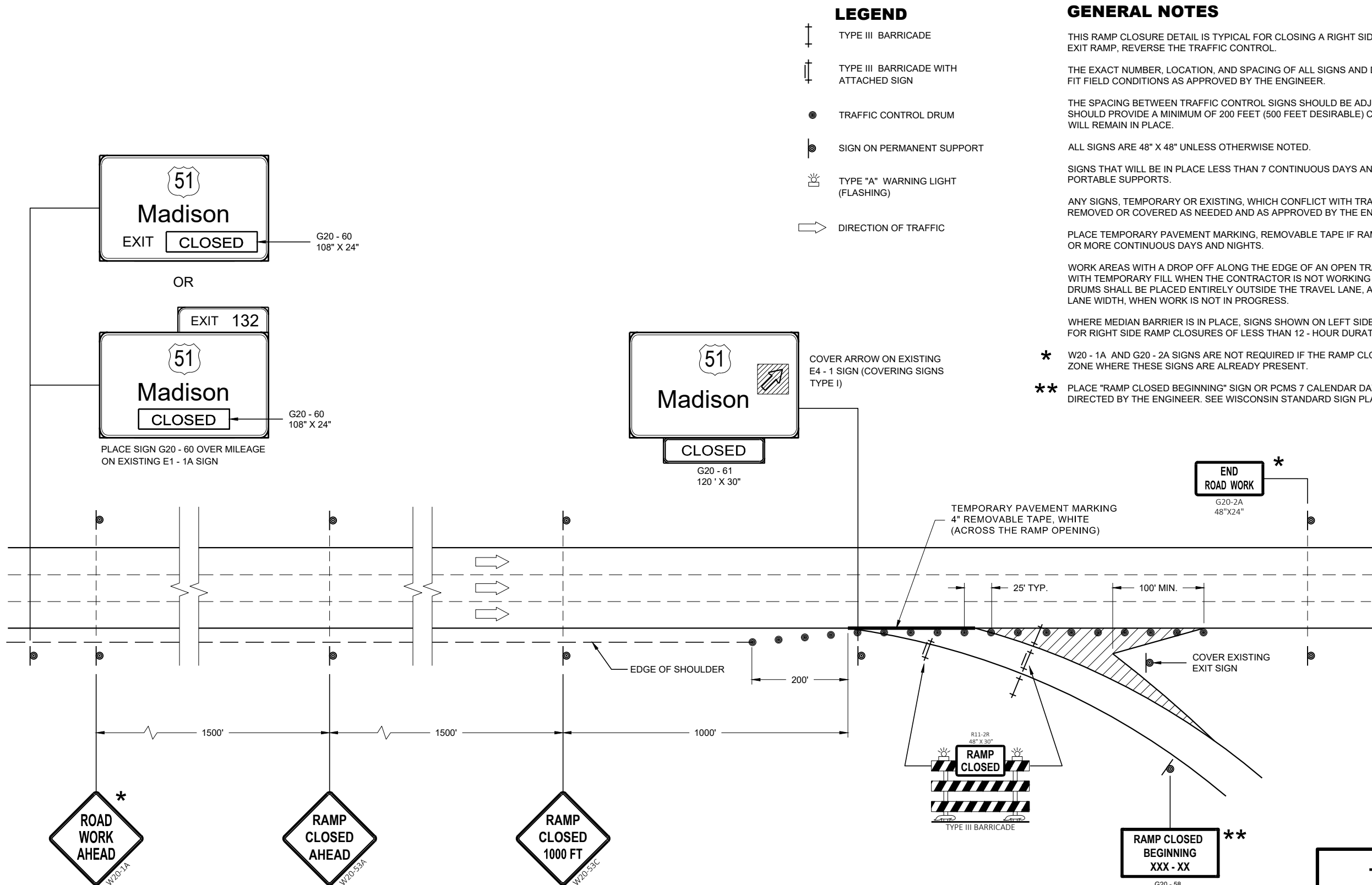
**TRAFFIC CONTROL,  
PARALLEL EXIT RAMP  
WITHIN LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2019  
DATE

/S/ Andrew Heidtke  
WORK ZONE ENGINEER

FHWA



### LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

### GENERAL NOTES





- THIS RAMP CLOSURE DETAIL IS TYPICAL FOR CLOSING A RIGHT SIDE EXIT RAMP. FOR A LEFT SIDE EXIT RAMP, REVERSE THE TRAFFIC CONTROL.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- ANY SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF RAMP CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.
- WORK AREAS WITH A DROP OFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN WORK IS NOT IN PROGRESS.
- WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12 - HOUR DURATION.
- \* W20 - 1A AND G20 - 2A SIGNS ARE NOT REQUIRED IF THE RAMP CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.
- \*\* PLACE "RAMP CLOSED BEGINNING" SIGN OR PCMS 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.

### TRAFFIC CONTROL, EXIT RAMP CLOSURE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018  
DATE  
/S/ Andrew Heidtke  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

LEGEND

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

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

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

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

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

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

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

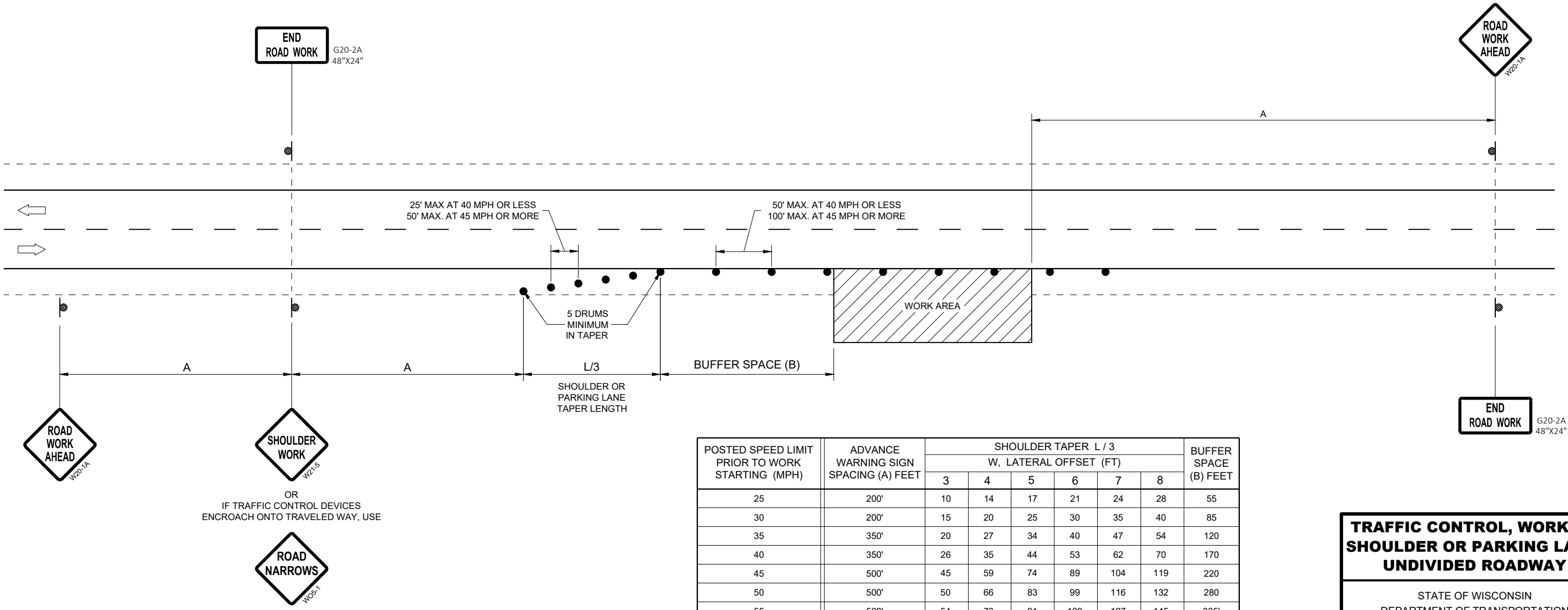
W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

6

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SDD 15D28 - 04

SDD 15D28 - 04

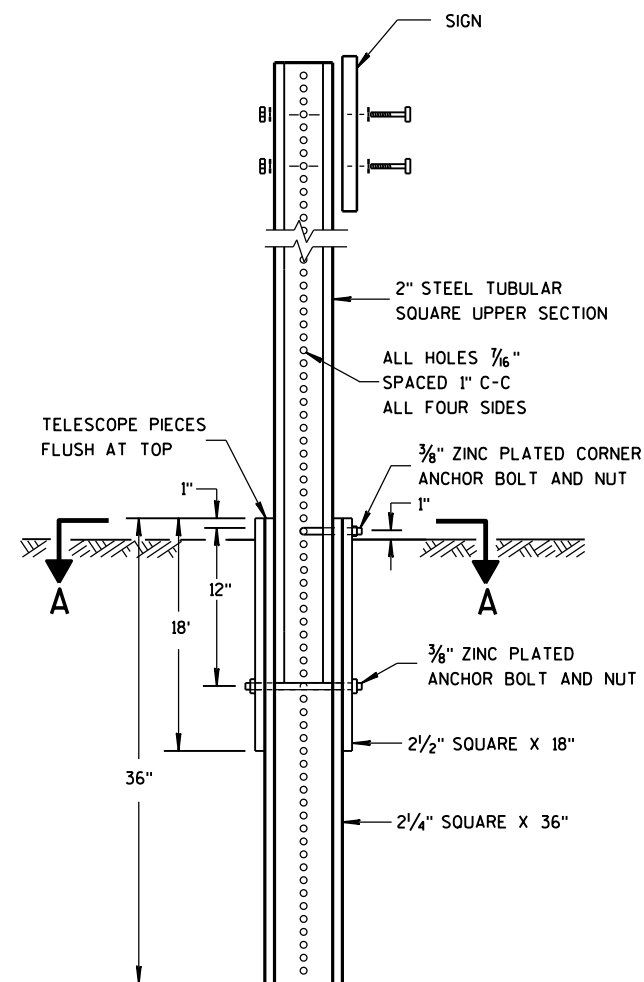


POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45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

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



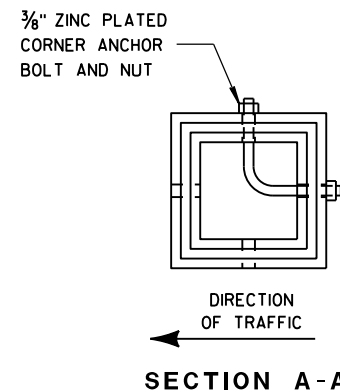
DETAIL OF TUBULAR  
STEEL SIGN POST

TUBULAR STEEL POSTS

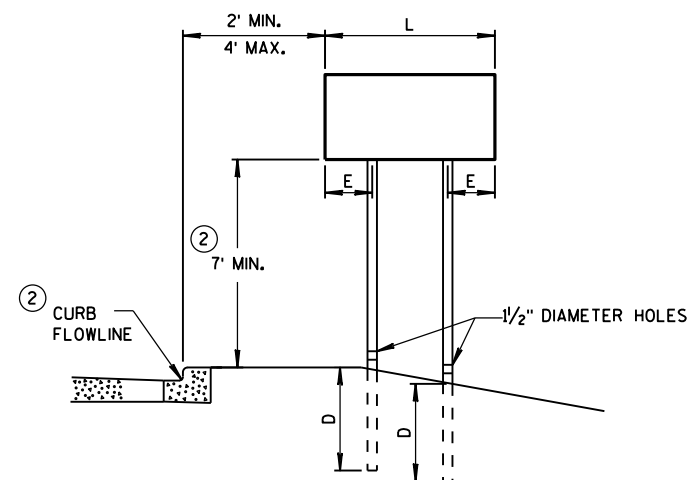
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

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

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



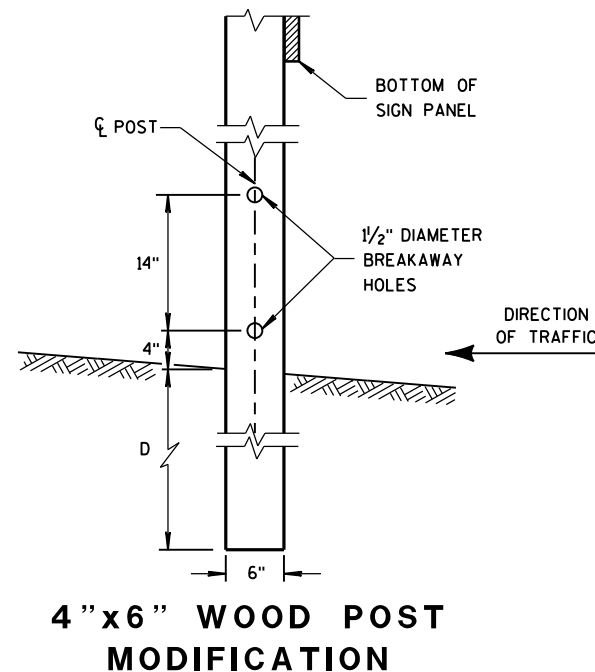
SECTION A-A



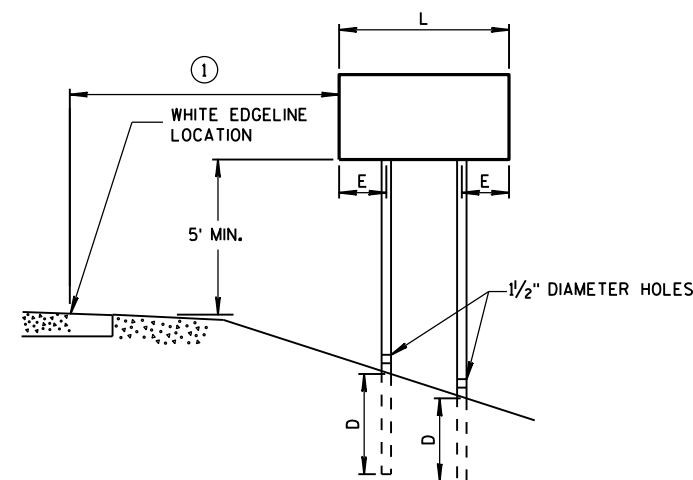
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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



4 "x6 " WOOD POST  
MODIFICATION



RURAL AREA

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

SEE NOTE ③

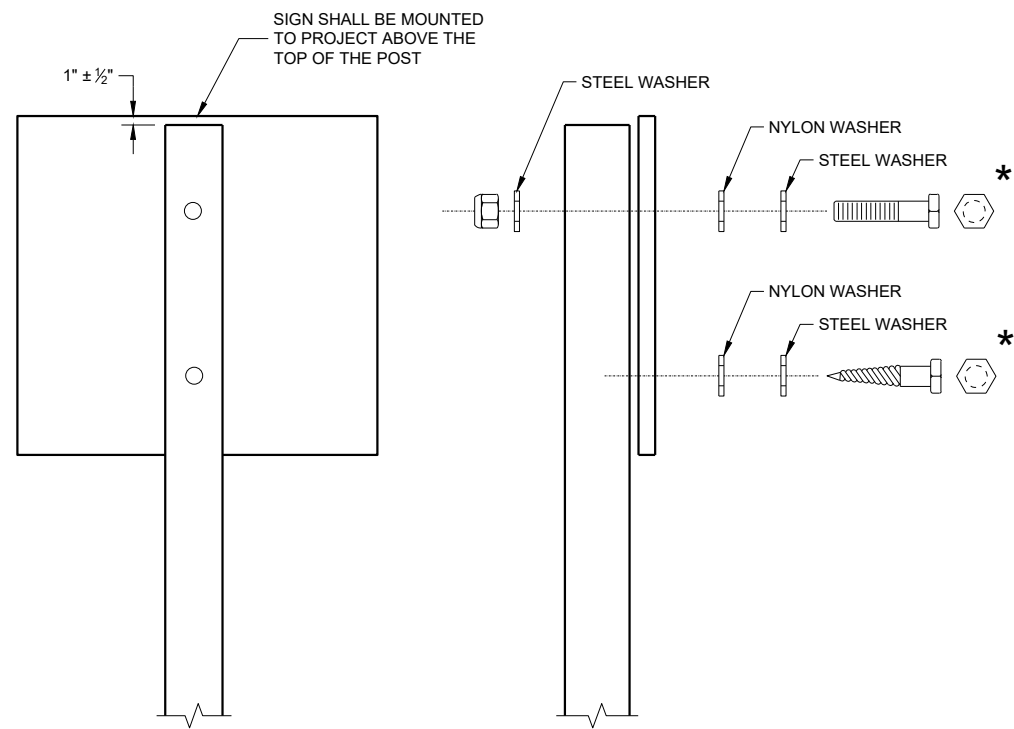
GENERAL NOTES

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

TEMPORARY TRAFFIC CONTROL  
SIGN MOUNTING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





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

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

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

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

SQUARE STEEL POST (2" x 2")  
MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS  
RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM  
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,  
GRIP RANGE 0.042 - 0.375 INCH

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

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

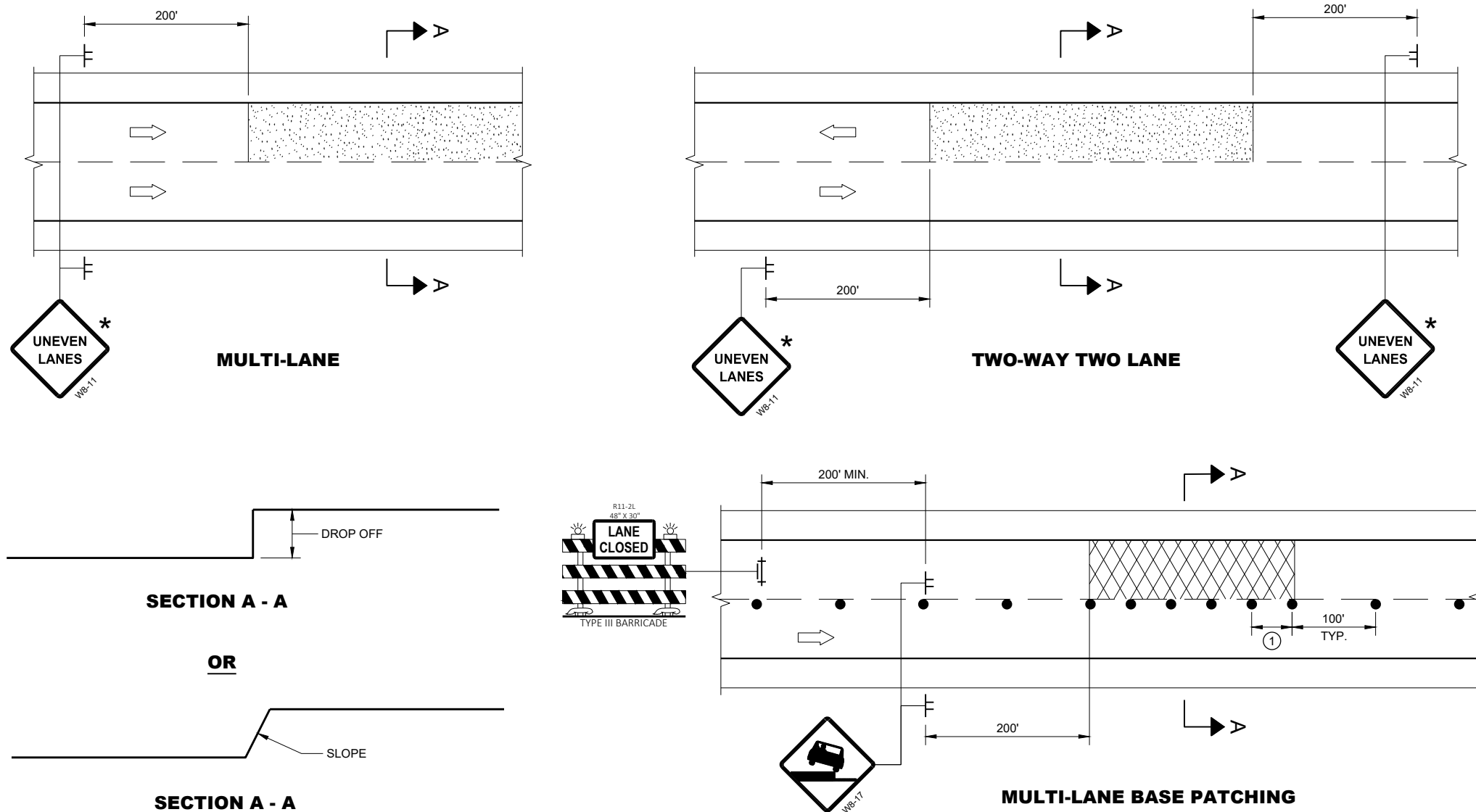
**ATTACHMENT OF SIGNS  
TO POSTS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

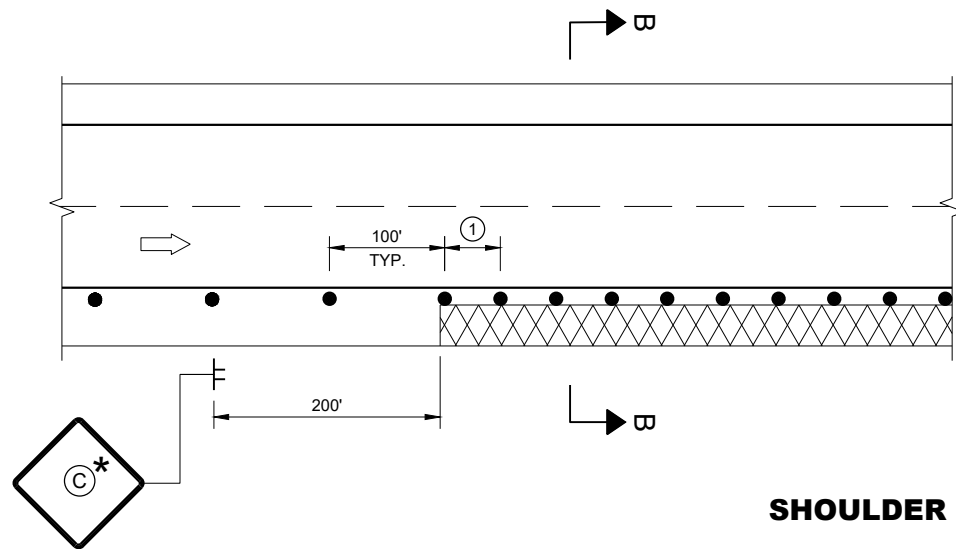
APPROVED  
June 2017  
DATE

/S/ Andrew Heidtke  
WORK ZONE ENGINEER

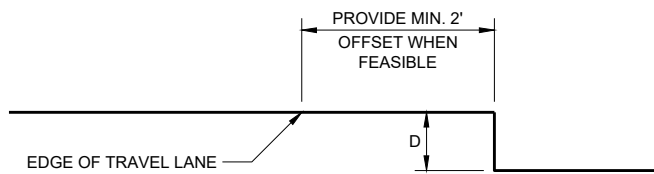
FHWA



ADJACENT LANE DROP-OFFS



SHOULDER DROP-OFFS



SECTION B - B

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

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

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

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

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

\* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

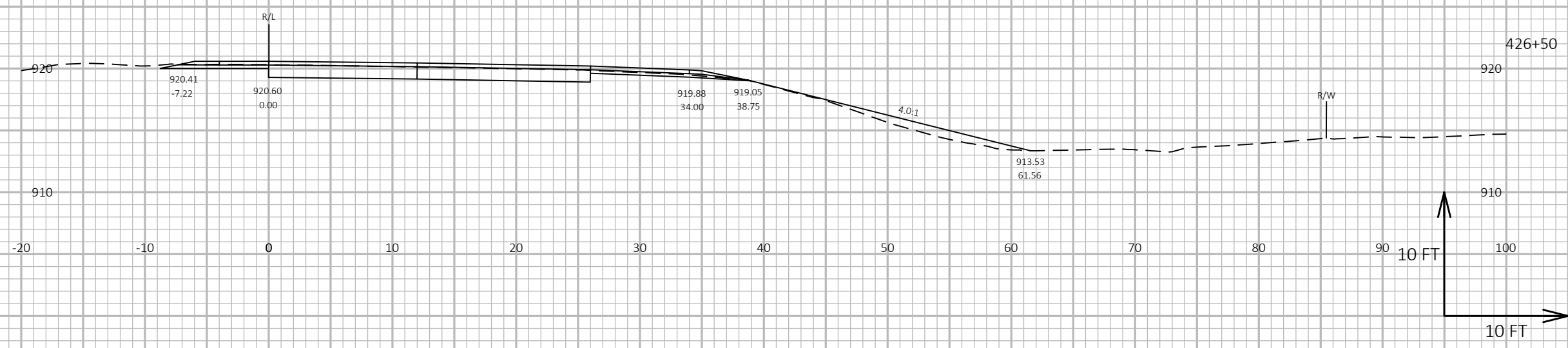
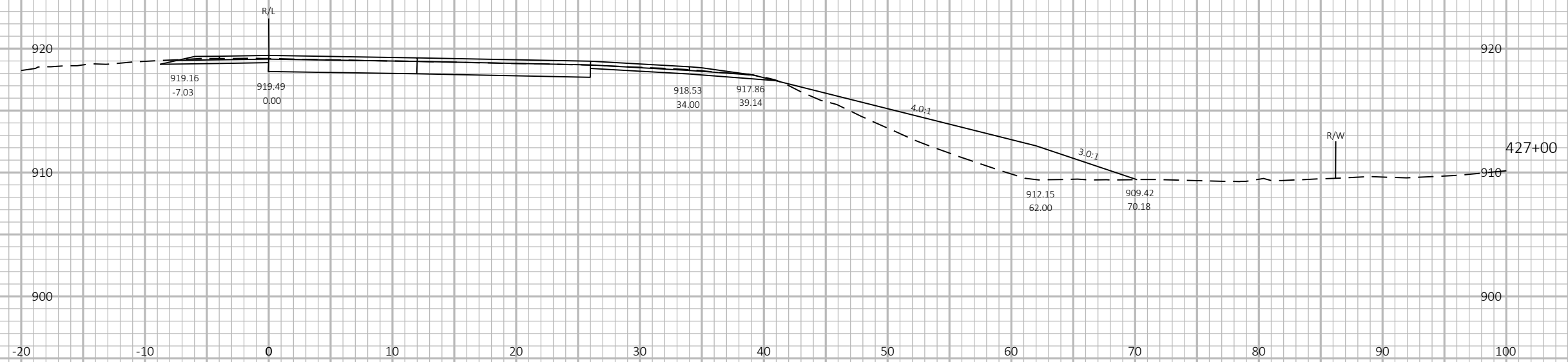
LEGEND

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

TRAFFIC CONTROL,  
DROP-OFF SIGNING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



PROJECT NO: 1014-00-77

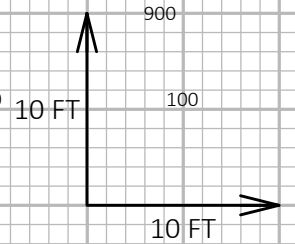
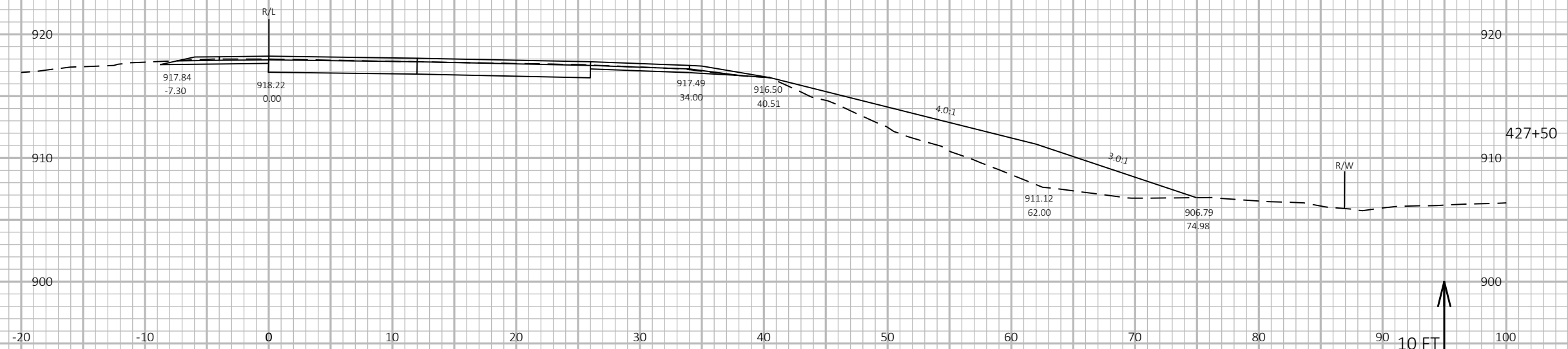
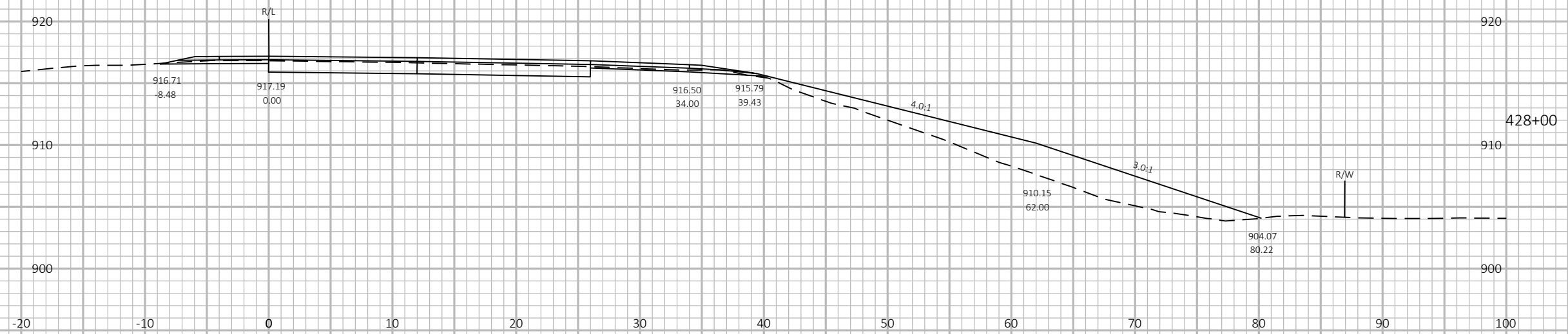
HWY: IH 90/94

COUNTY: SAUK

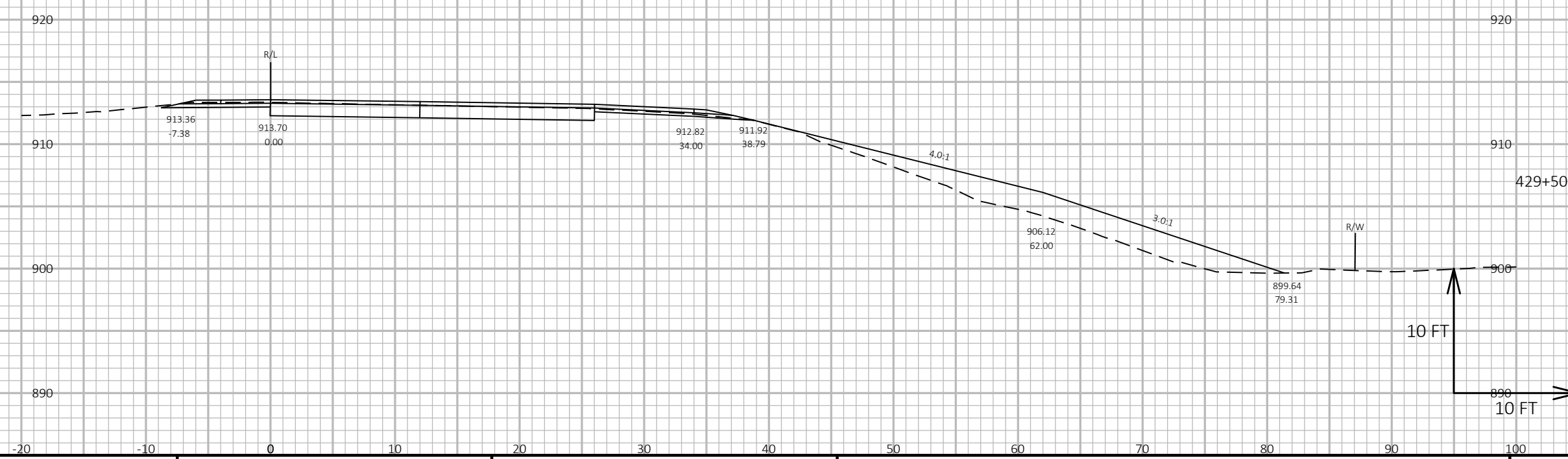
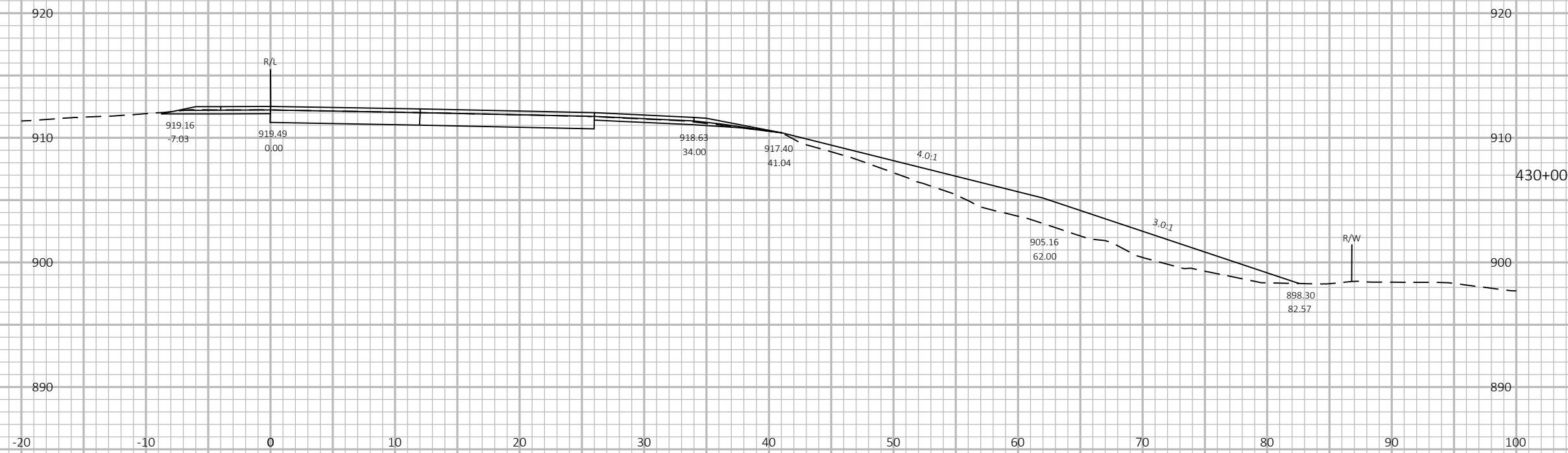
CROSS SECTIONS: SLOPE CORRECTION

SHEET

E



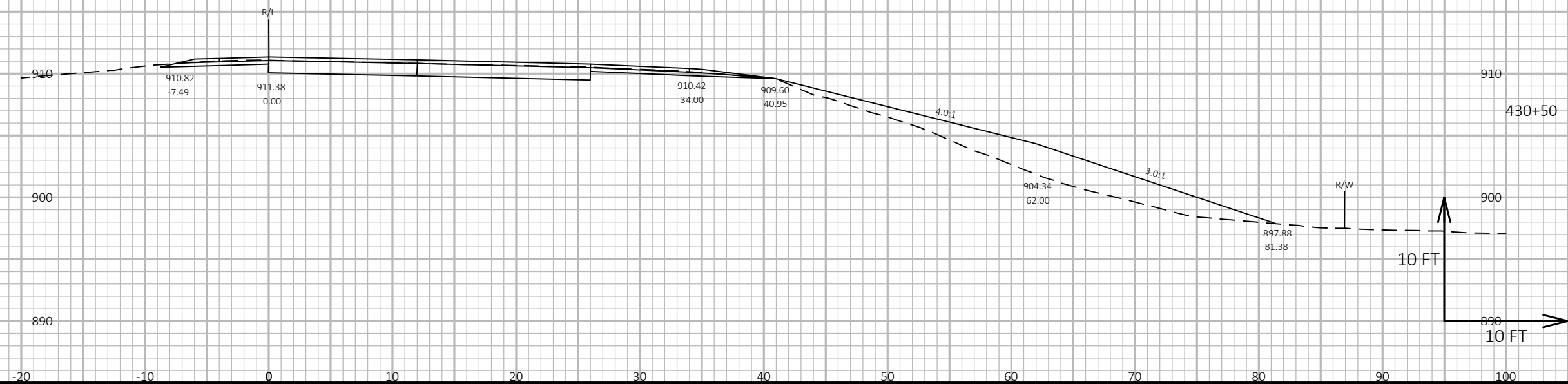
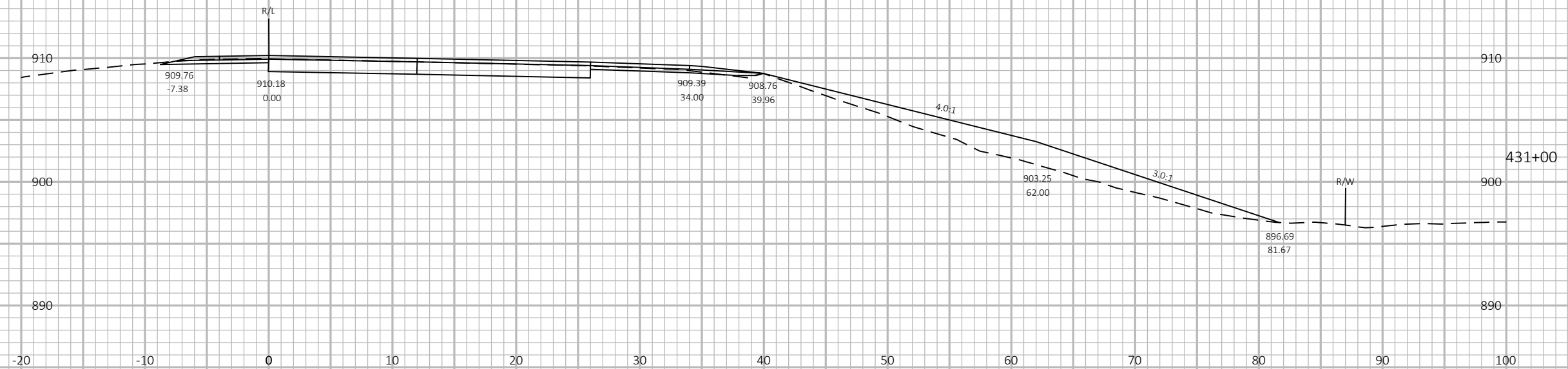




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PROJECT NO: 1014-00-77	HWY: IH 90/94	COUNTY: SAUK	CROSS SECTIONS: SLOPE CORRECTION	SHEET E
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PROJECT NO: 1014-00-77

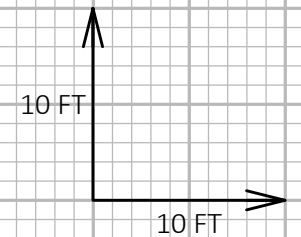
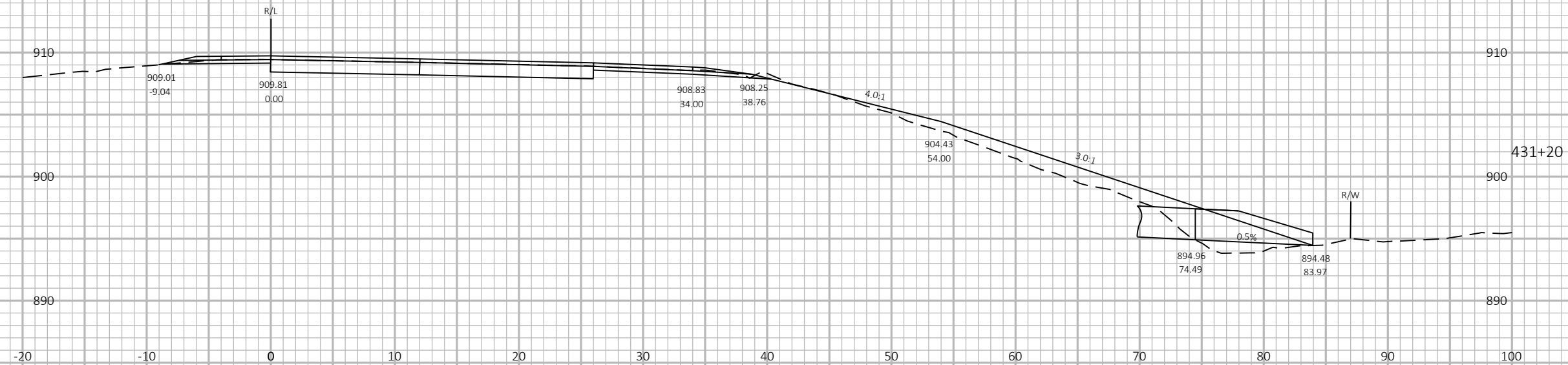
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COUNTY: SAUK

CROSS SECTIONS: SLOPE CORRECTION

SHEET

E



PROJECT NO: 1014-00-77

HWY: IH 90/94

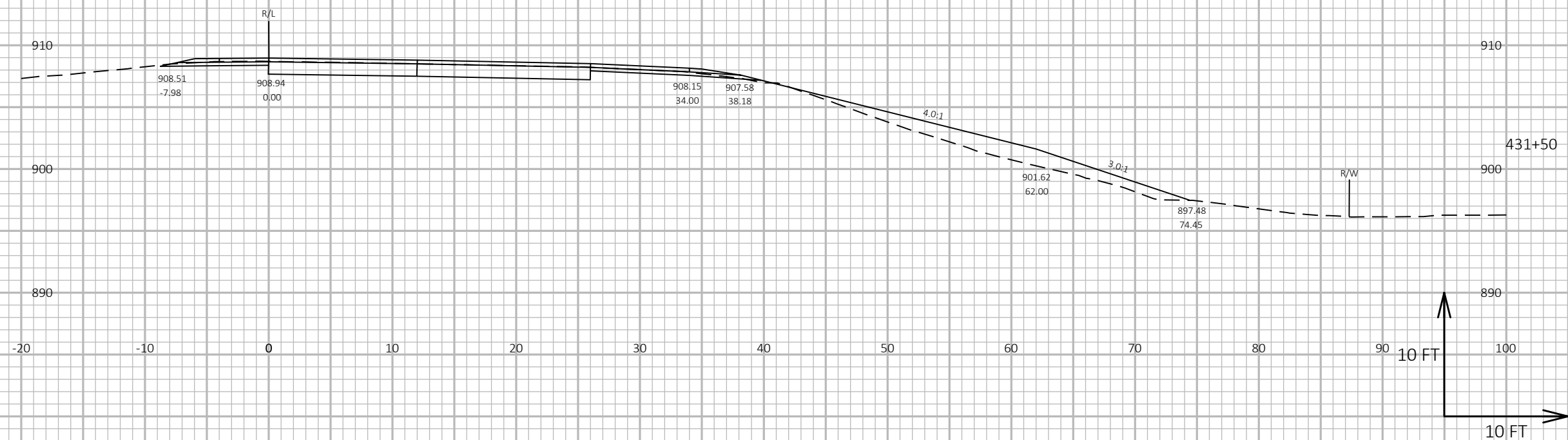
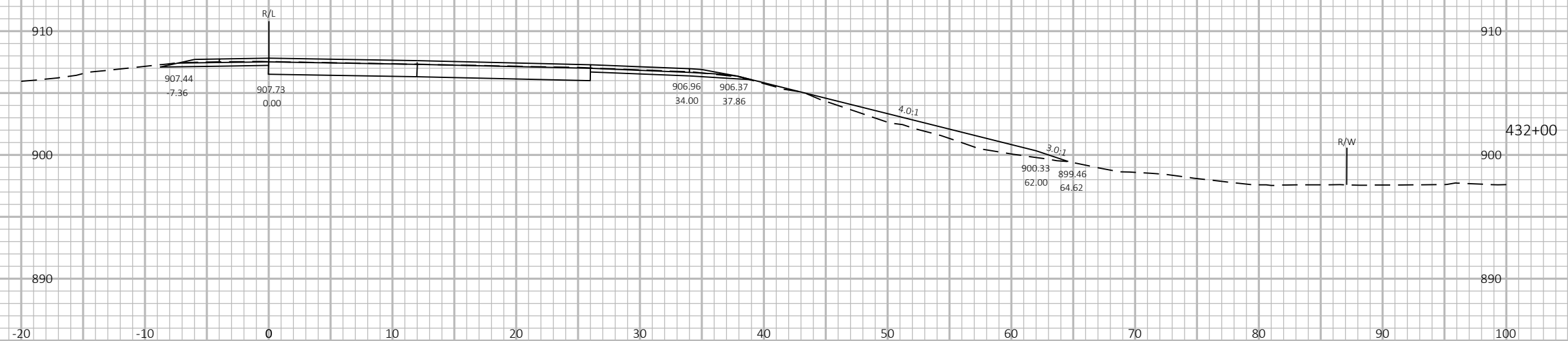
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CROSS SECTIONS: SLOPE CORRECTION

SHEET

E





PROJECT NO: 1014-00-77

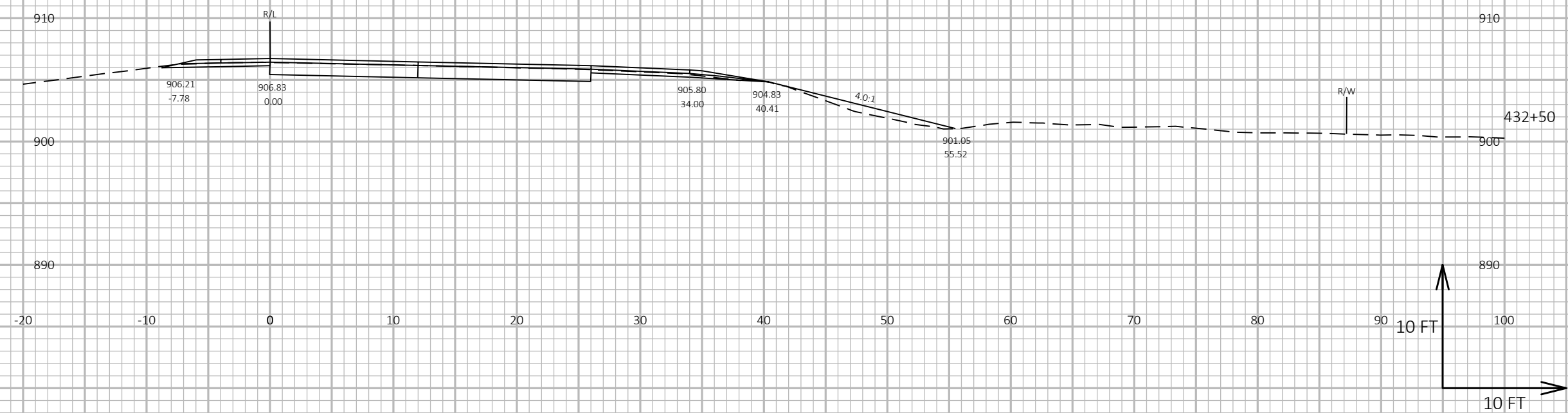
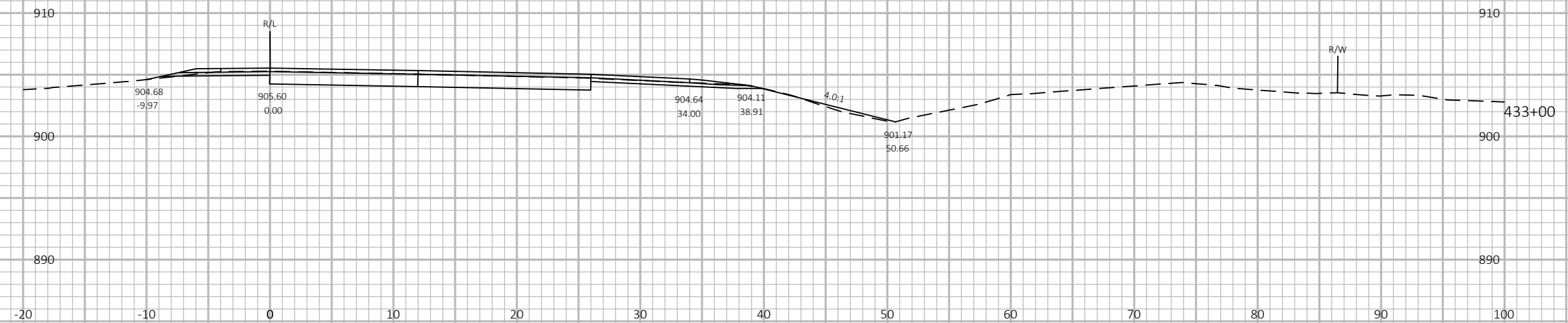
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COUNTY: SAUK

CROSS SECTIONS: SLOPE CORRECTION

SHEET

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PROJECT NO: 1014-00-77

HWY: IH 90/94

COUNTY: SAUK

CROSS SECTIONS:	SLOPE CORRECTION
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SHEET

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LAYOUT NAME - Section Sheet - (161)

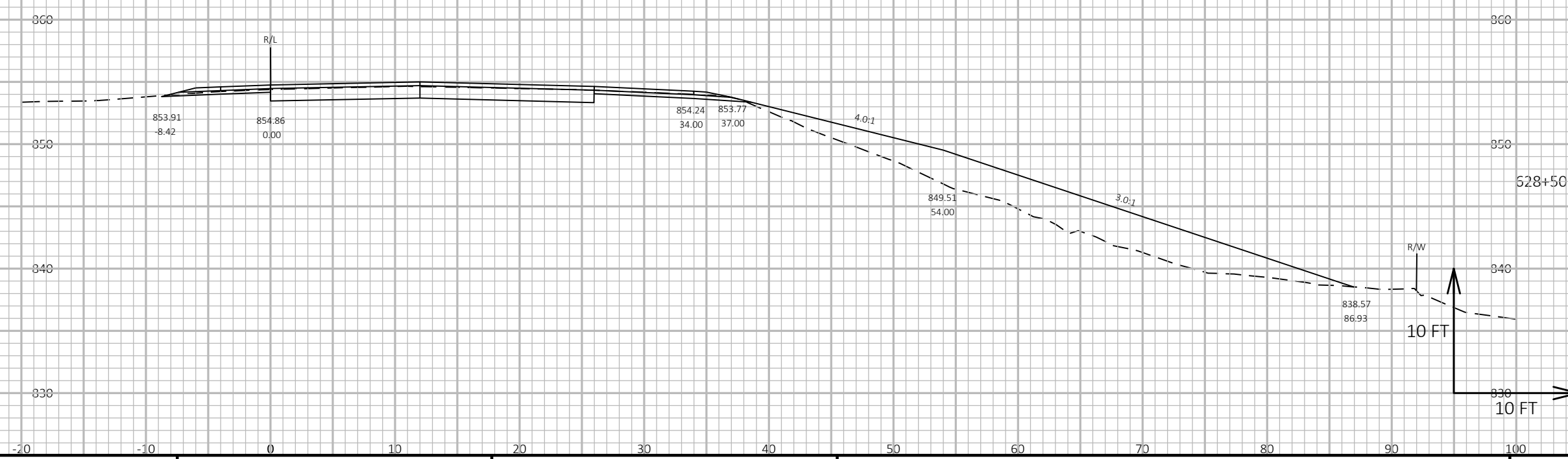
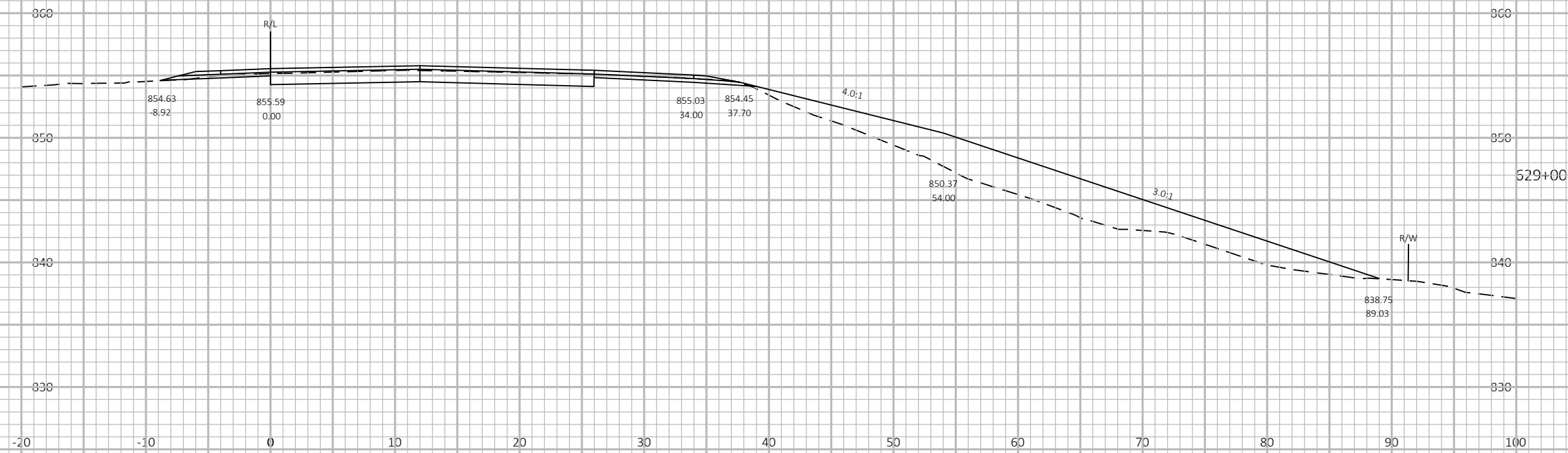
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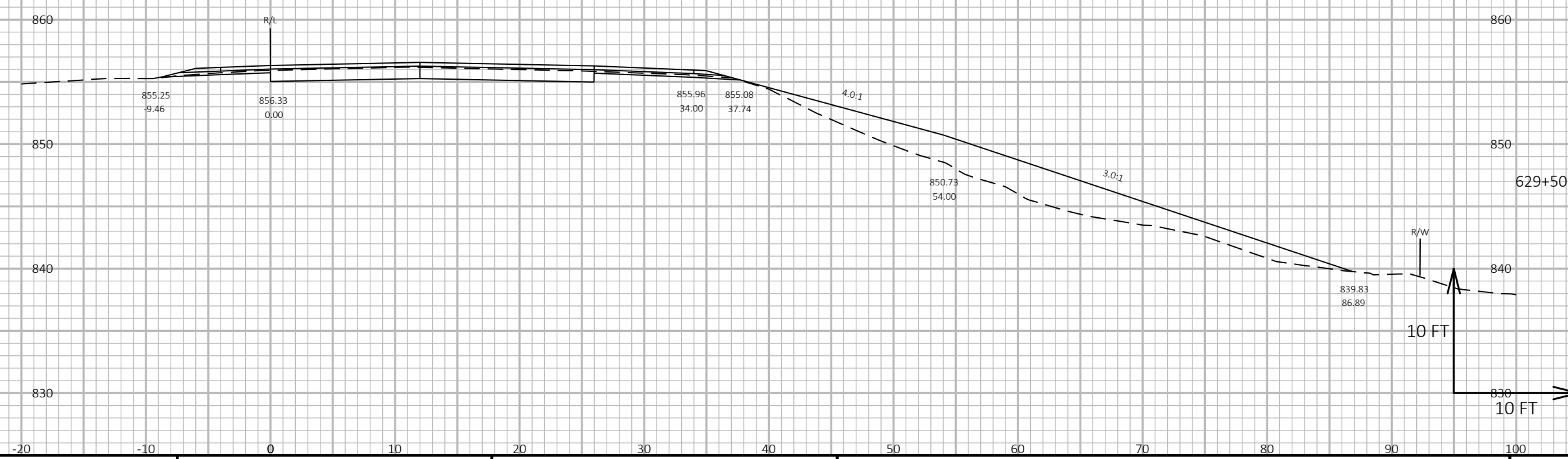
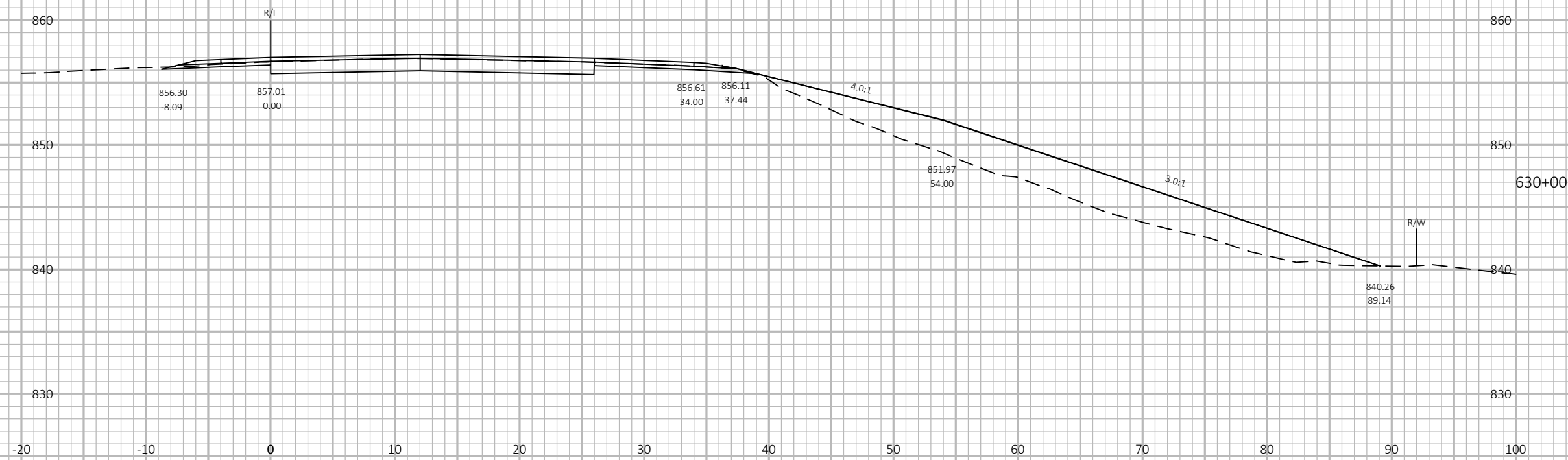
PLOT BY : KUBE, SAMUEL J

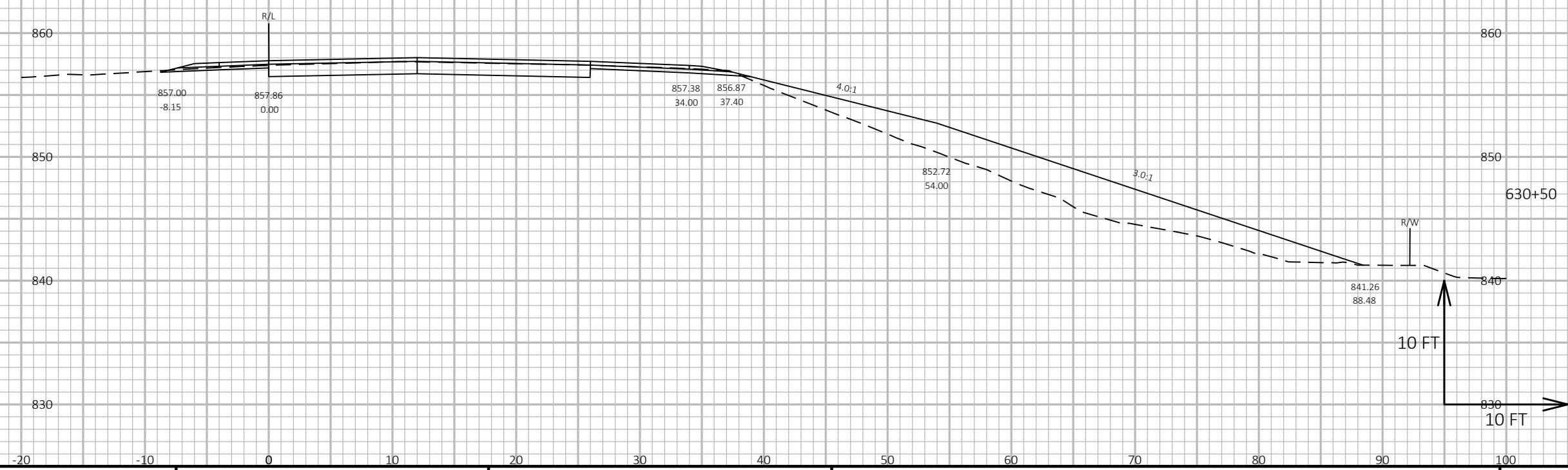
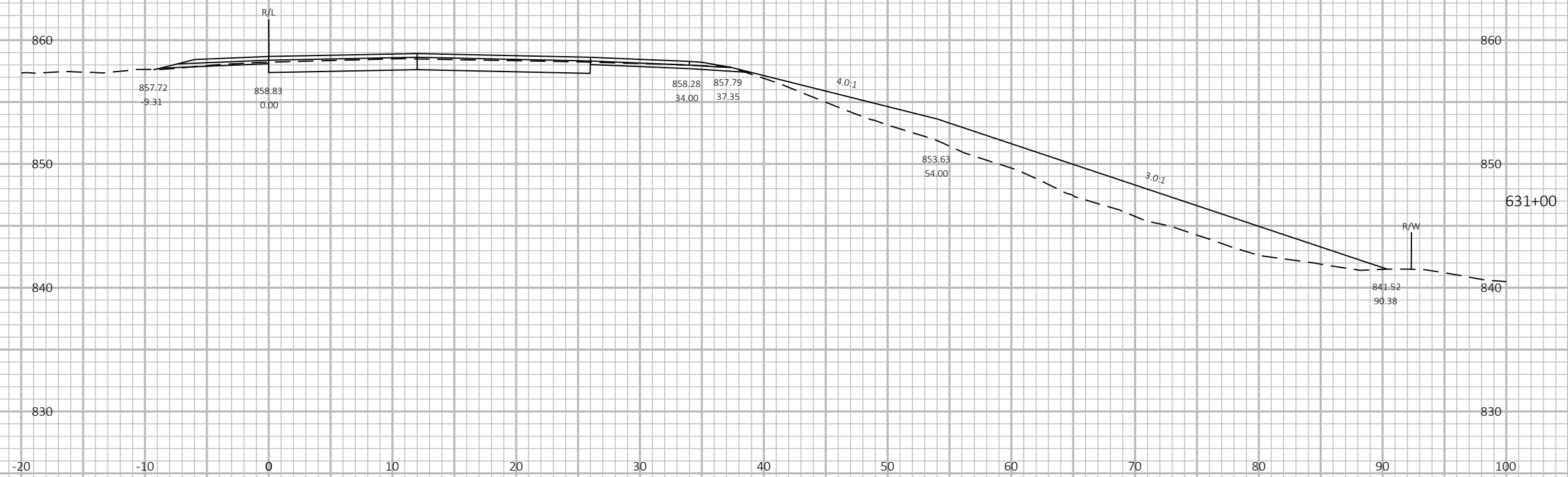
PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49







PROJECT NO: 1014-00-77

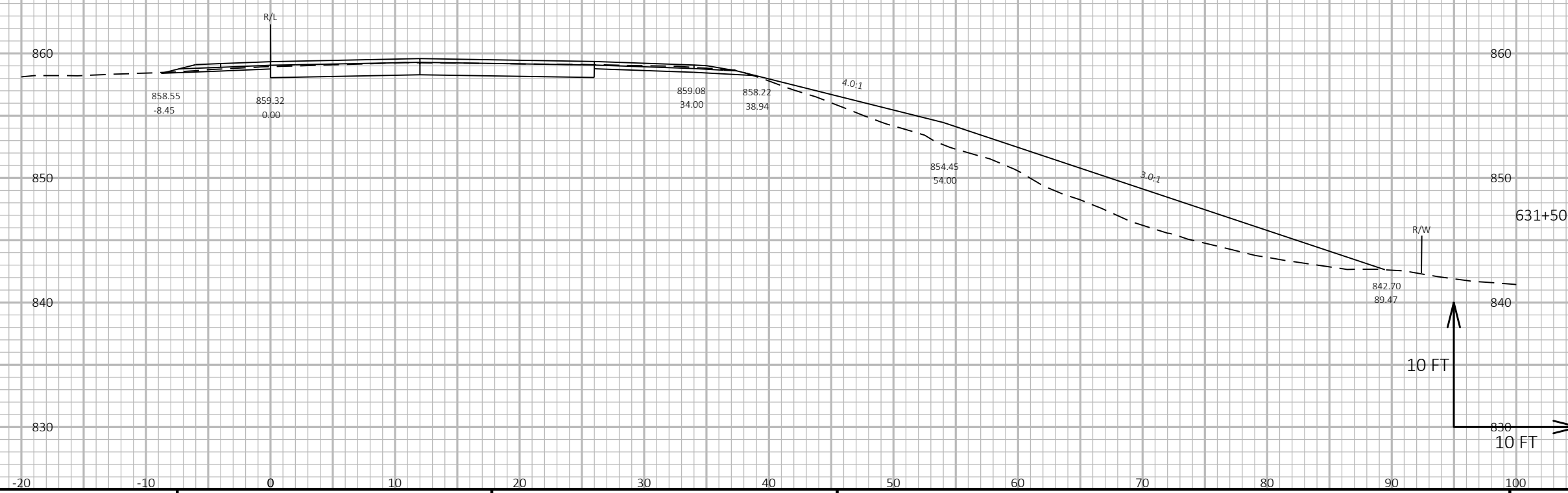
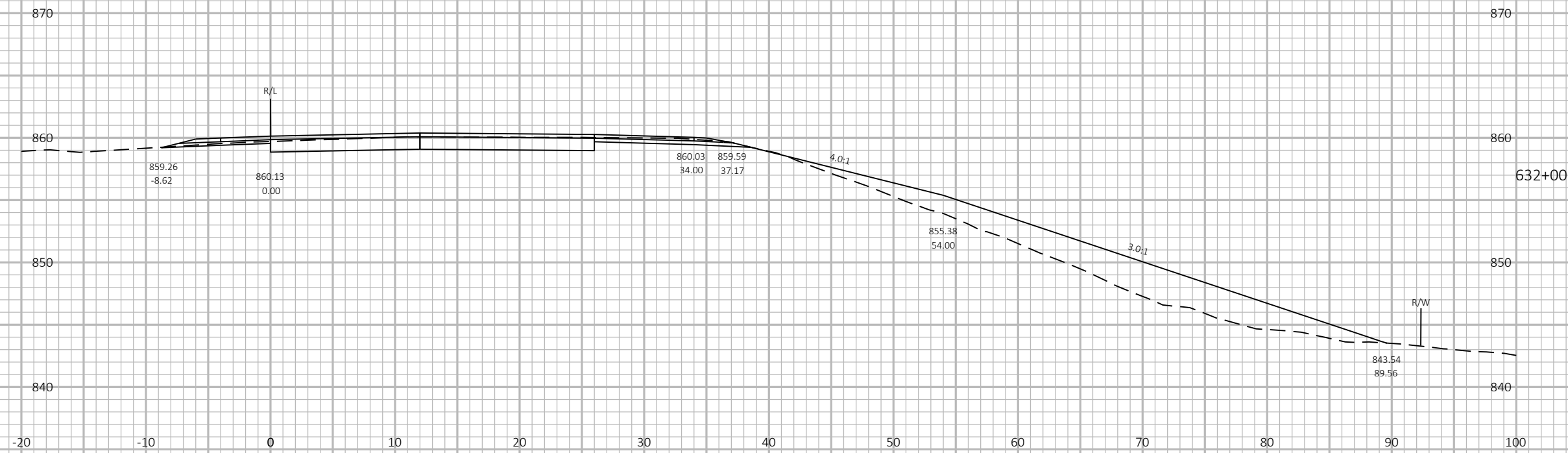
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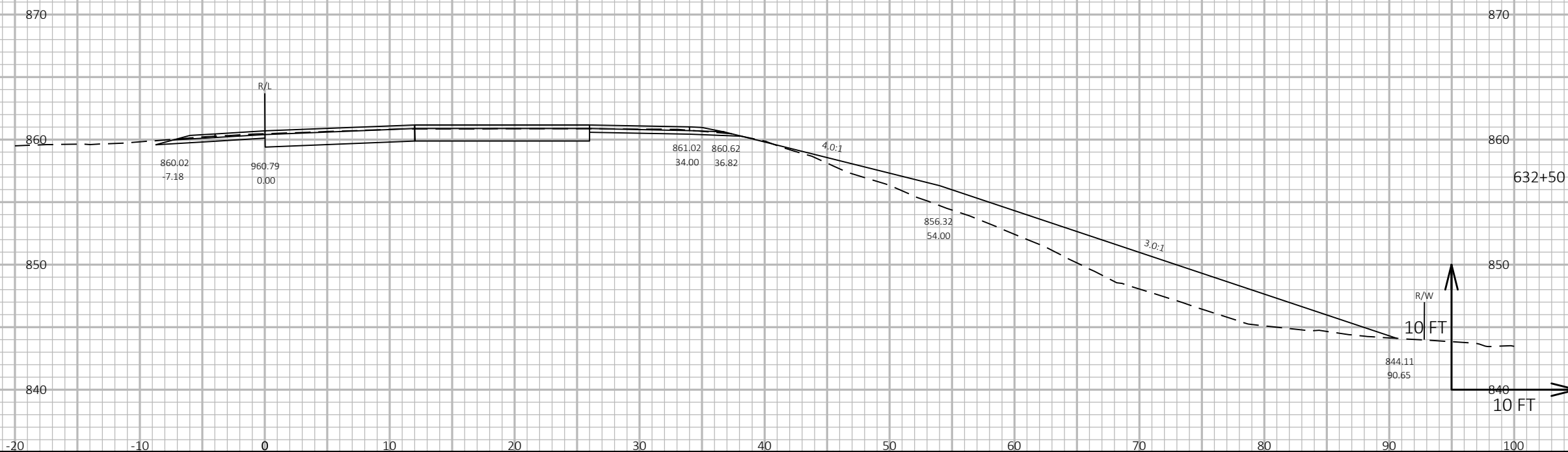
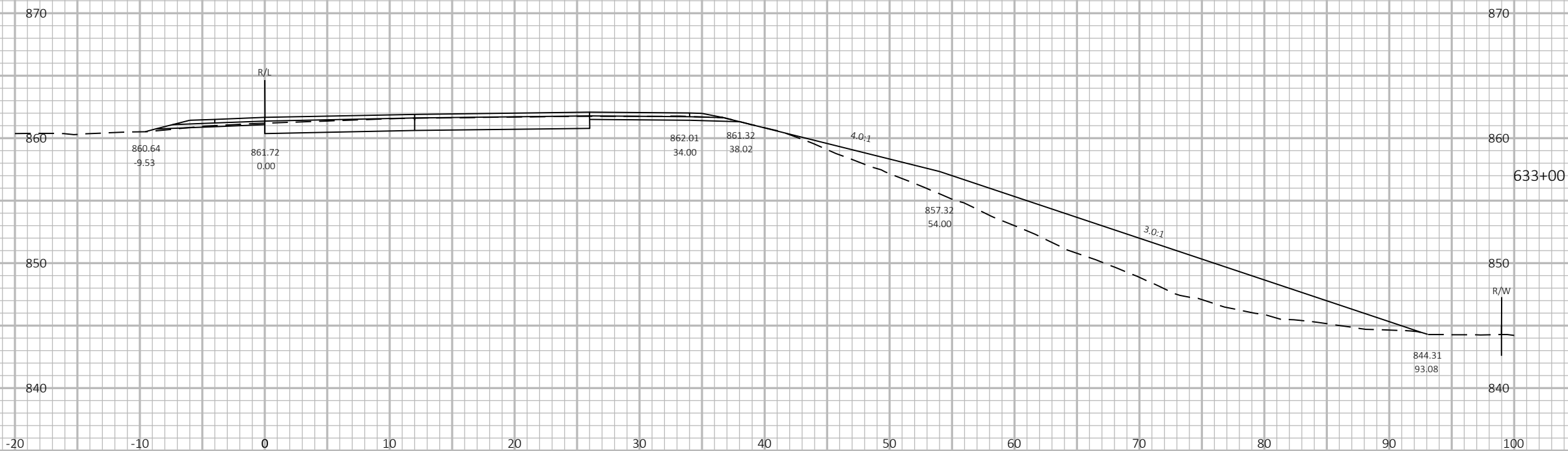
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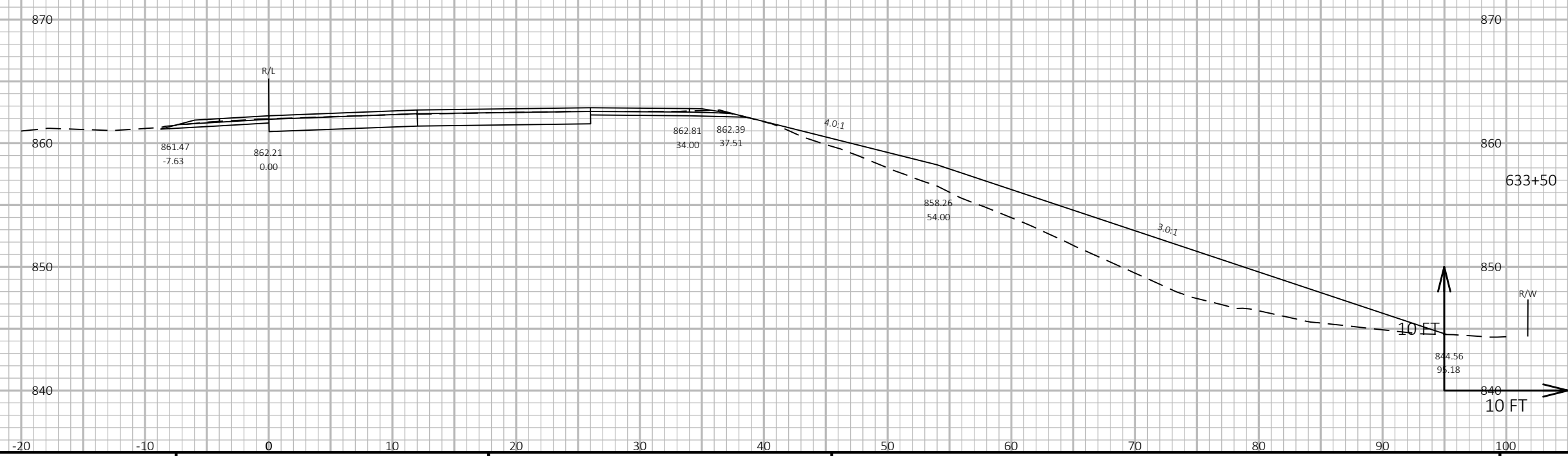
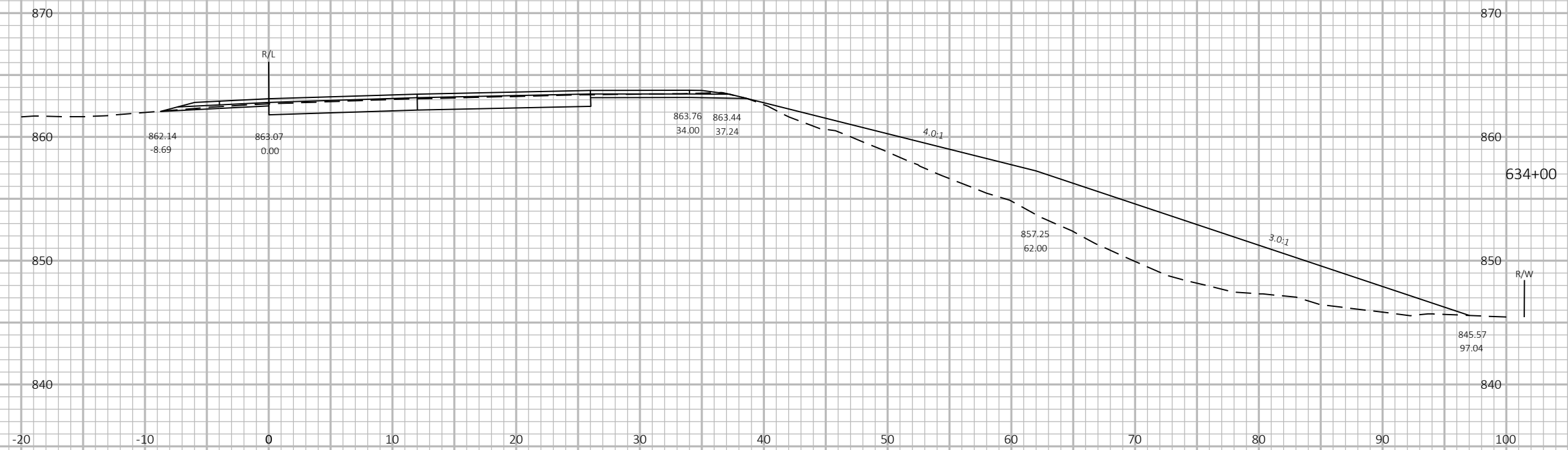
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SHEET

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PROJECT NO: 1014-00-77

HWY: IH 90/94

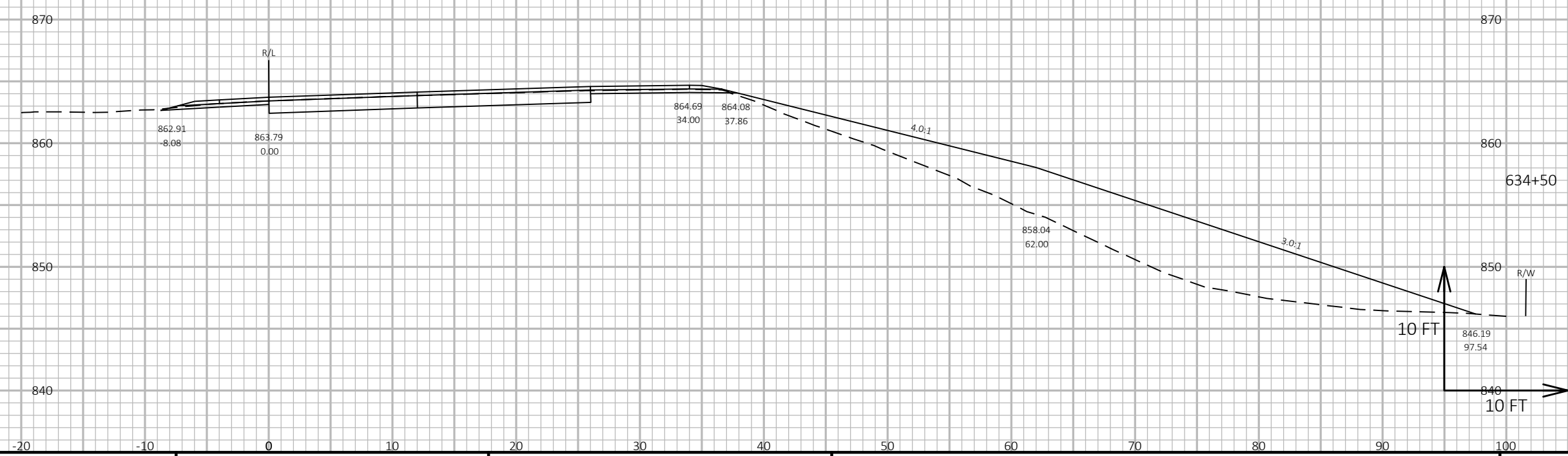
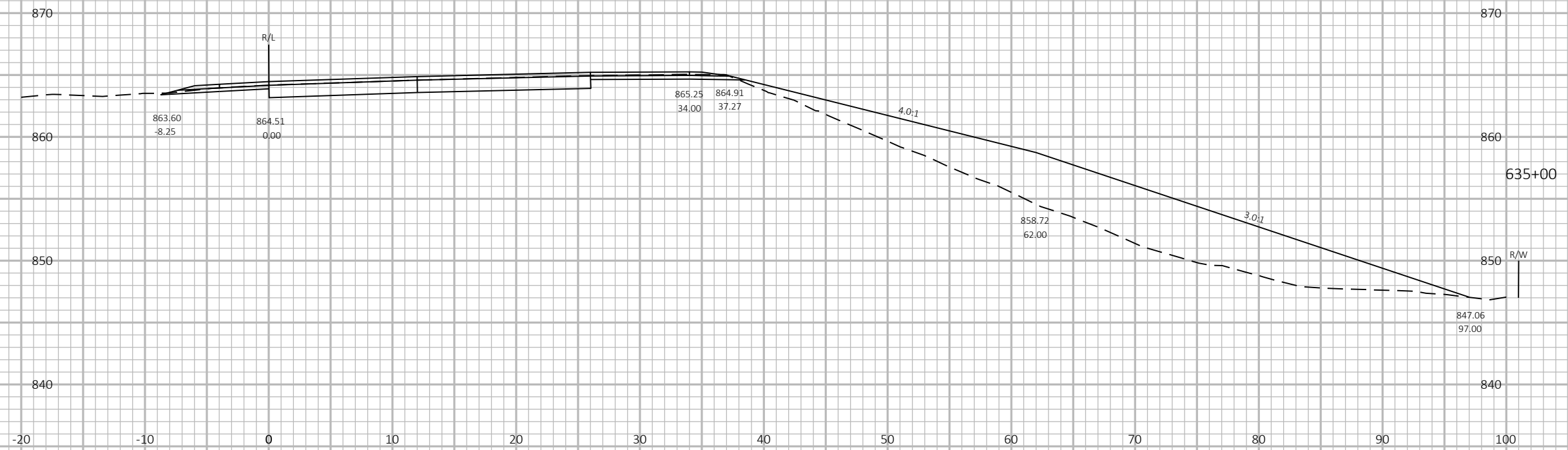
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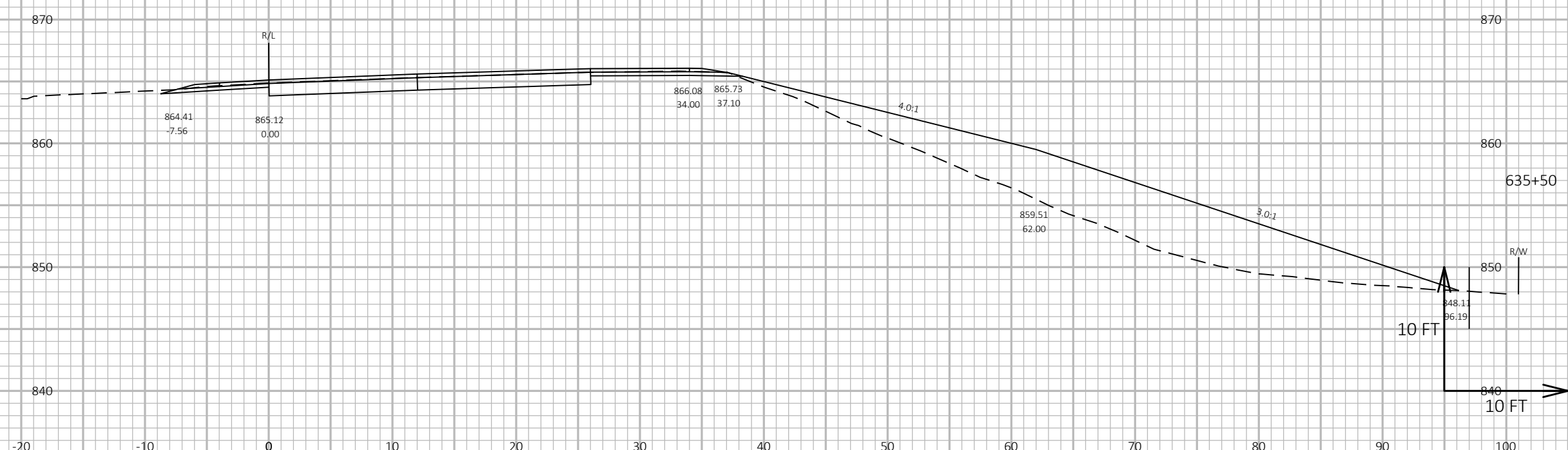
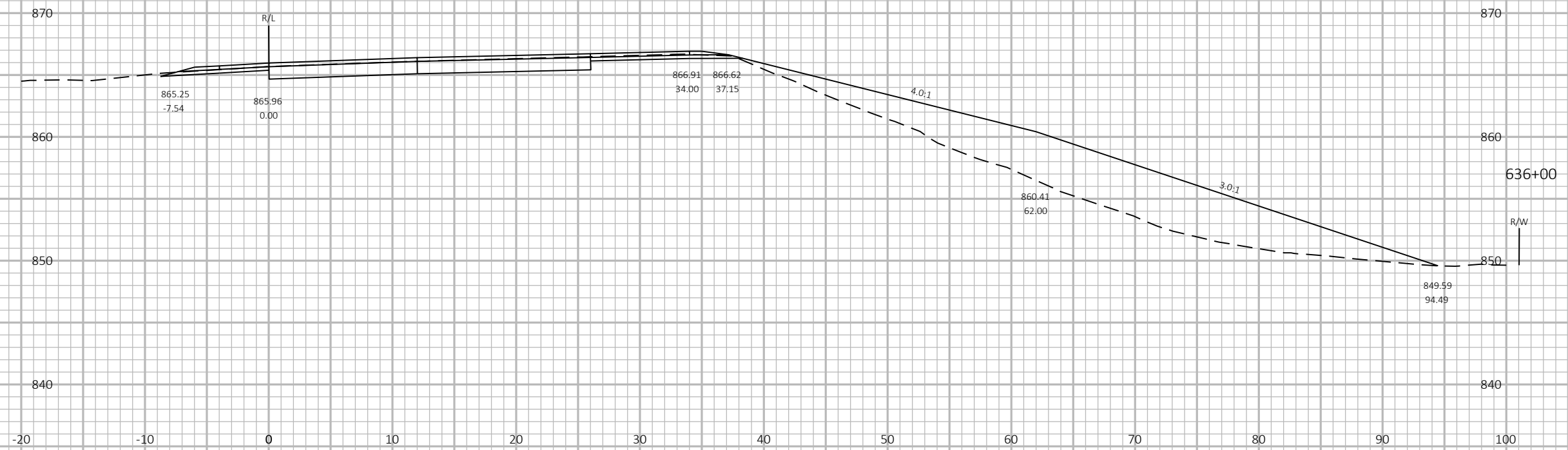
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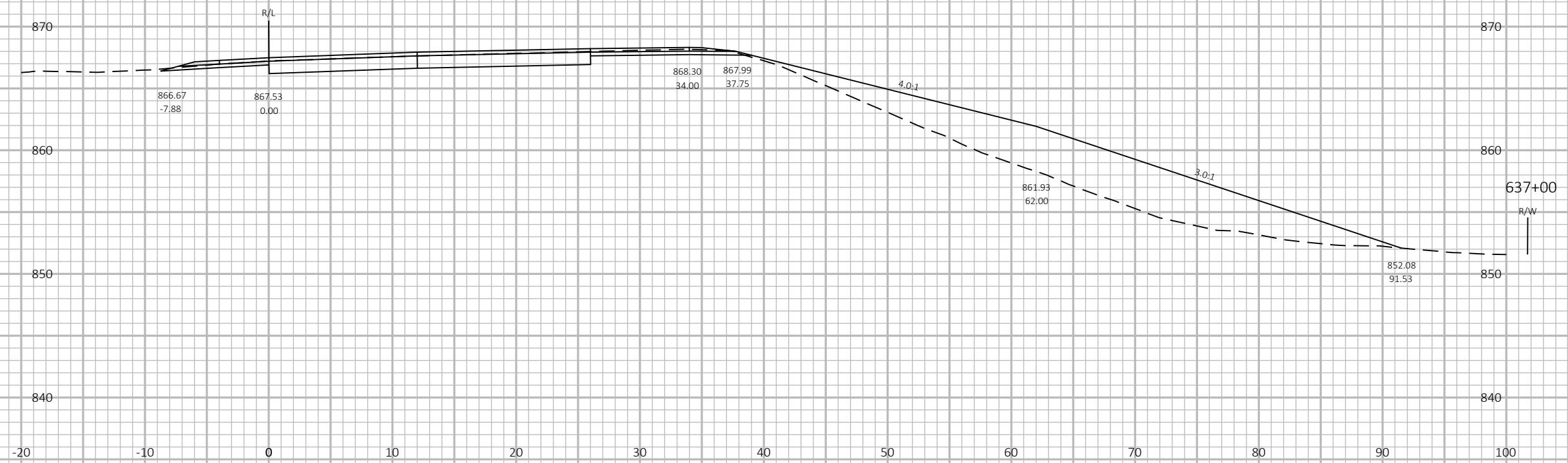
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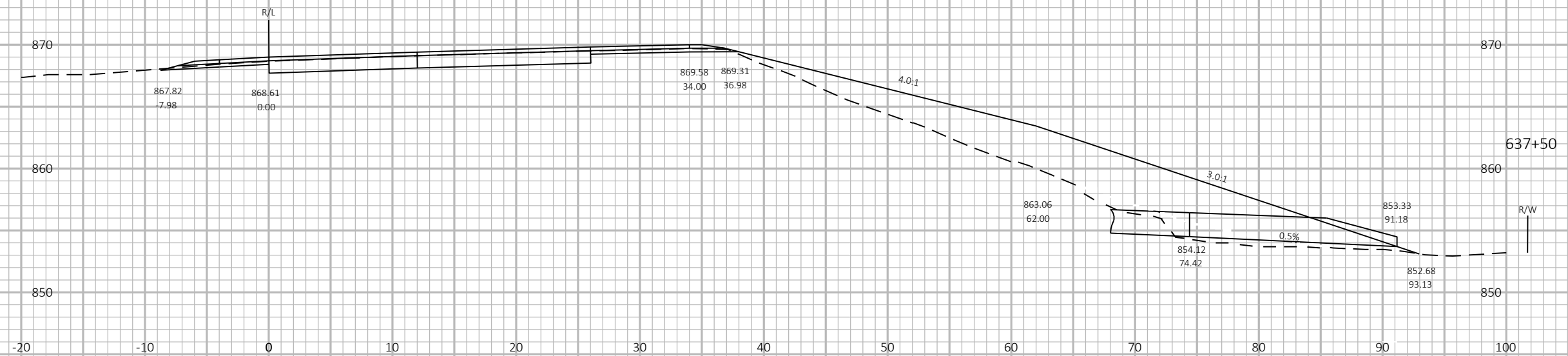
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PROJECT NO: 1014-00-77

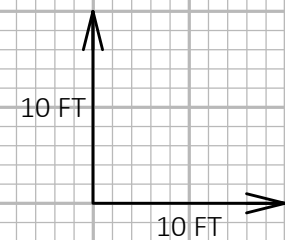
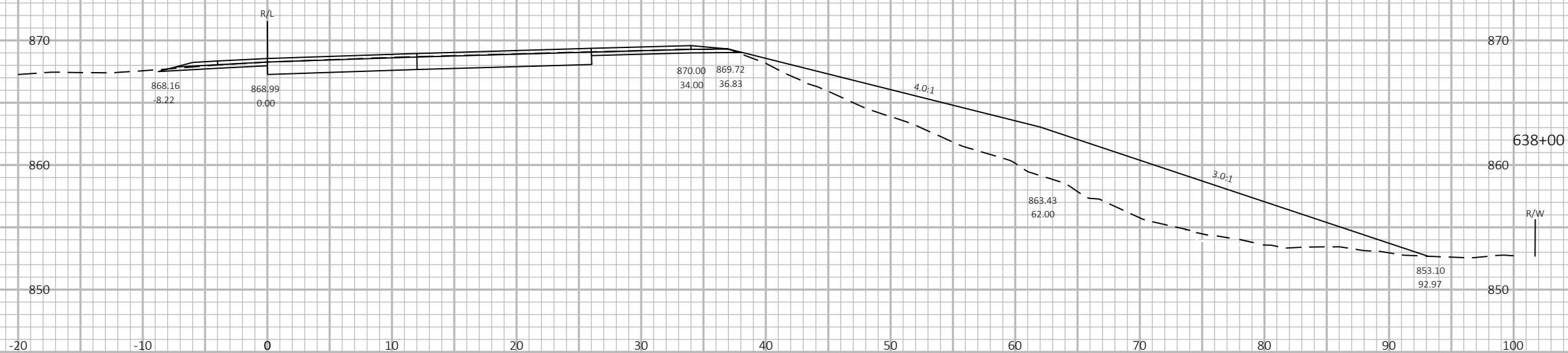
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COUNTY: SAUK

CROSS SECTIONS: SLOPE CORRECTION

SHEET

E

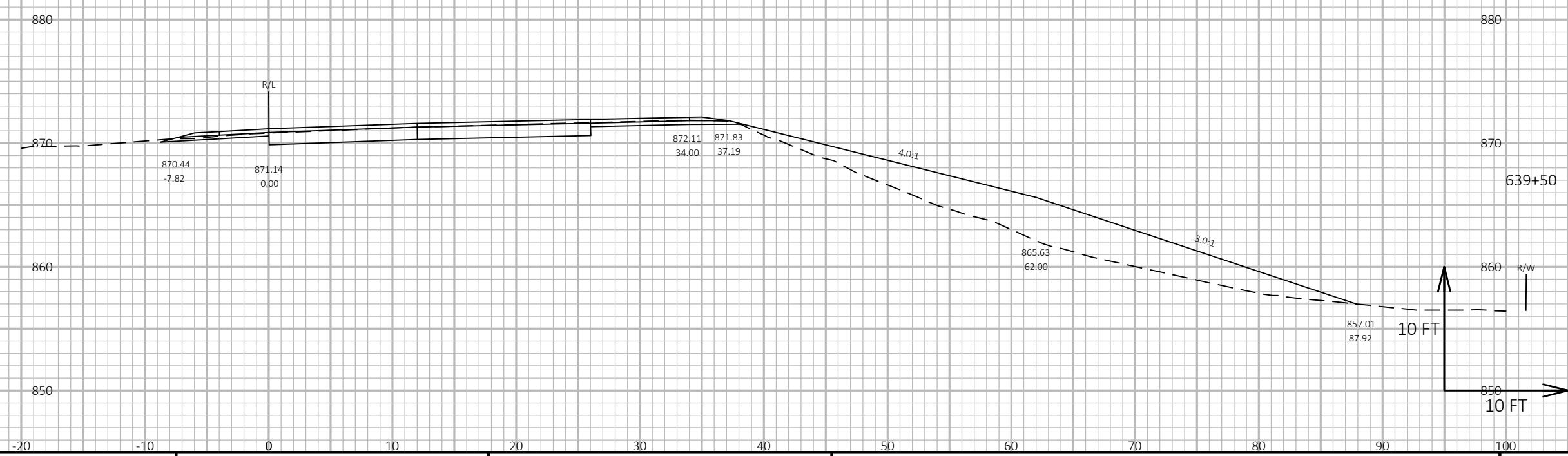


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PROJECT NO: 1014-00-77	HWY: IH 90/94	COUNTY: SAUK	CROSS SECTIONS: SLOPE CORRECTION	SHEET E
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PROJECT NO: 1014-00-77

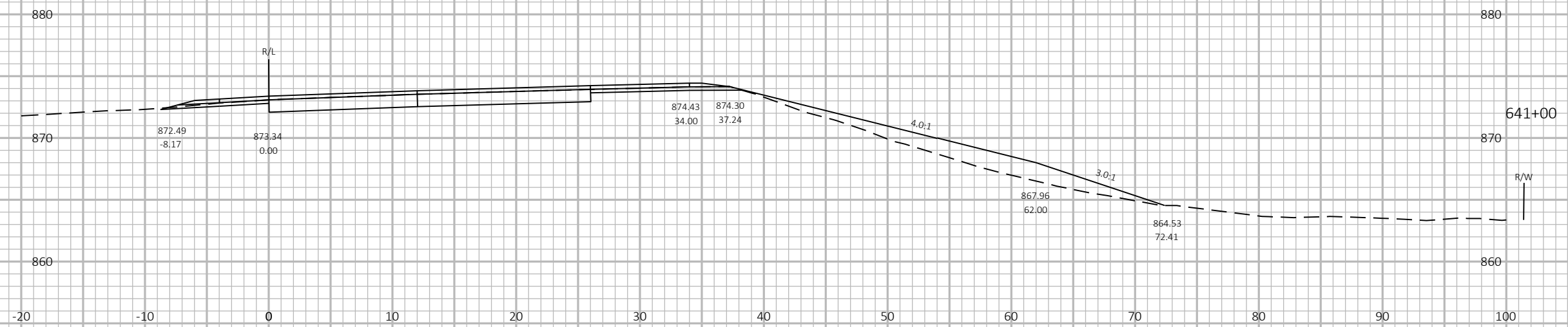
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COUNTY: SAUK

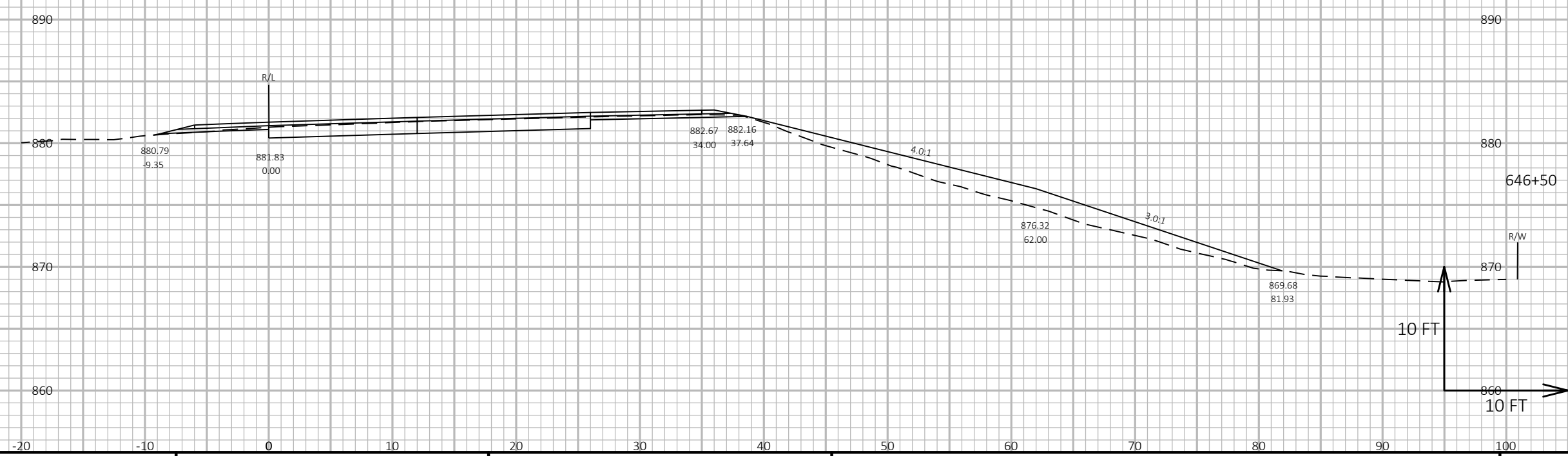
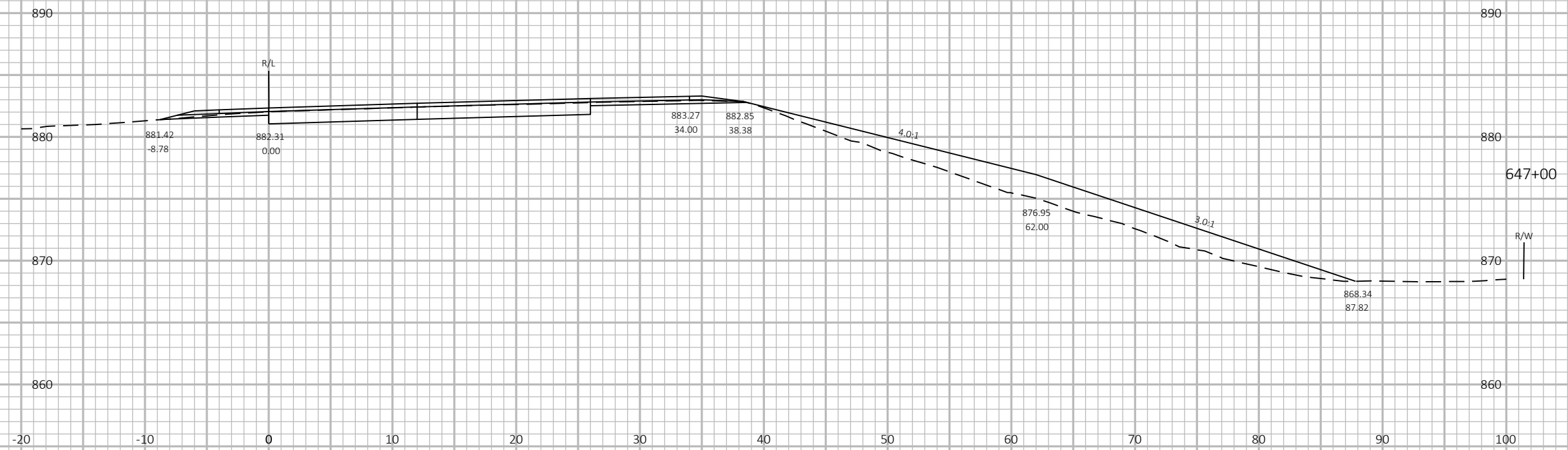
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SHEET

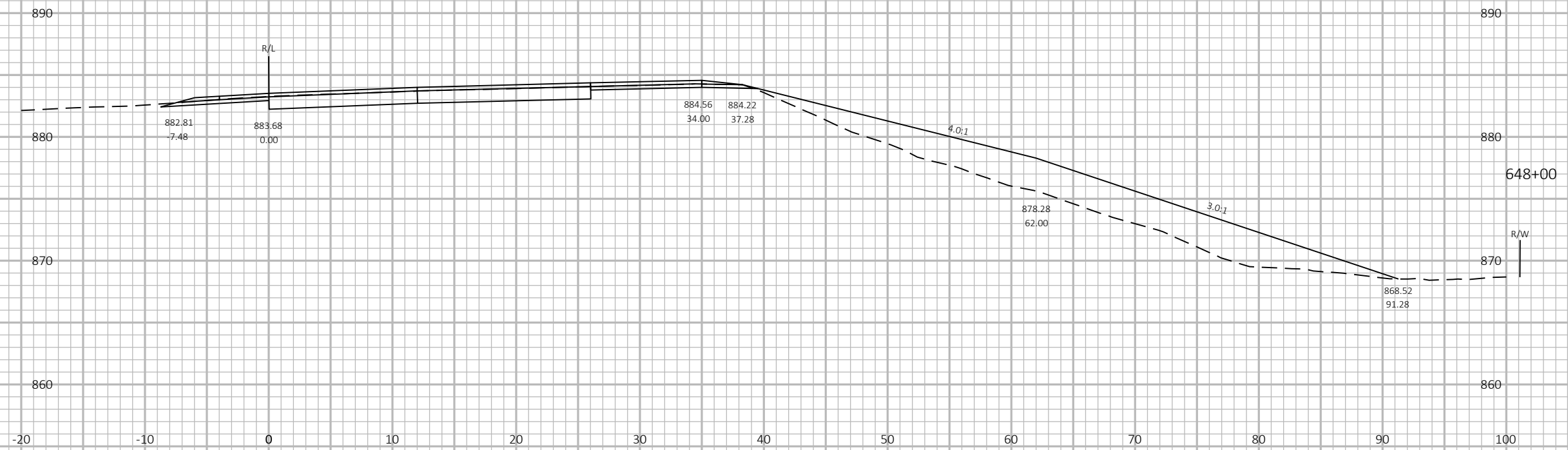
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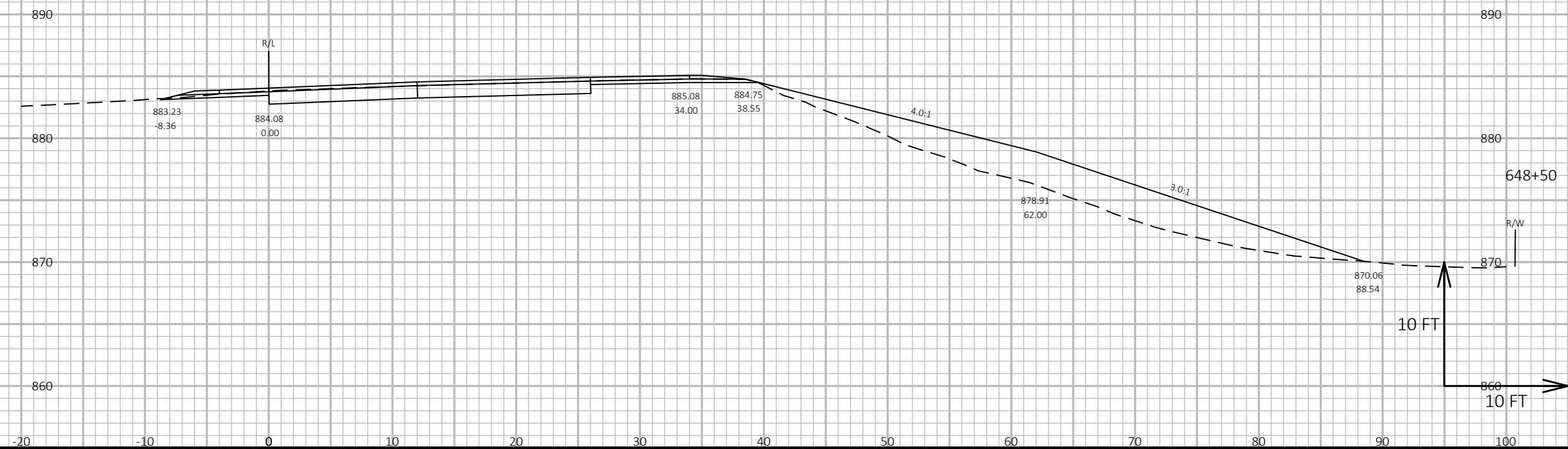
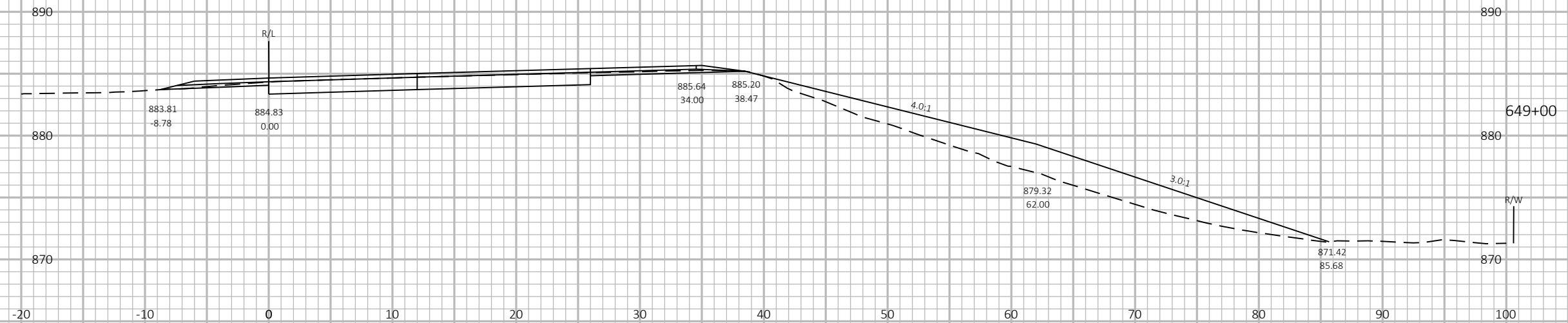






10 FT  
10 FT





PROJECT NO: 1014-00-77

HWY: IH 90/94

COUNTY: SAUK

CROSS SECTIONS: SLOPE CORRECTION

SHEET

E







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