

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD

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

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

EXISTING SHOULDER AGGREGATE SHALL BE INCORPORATED INTO THE NEW SHOULDERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN THE FIELD

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

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112LB/SY/IN.

PAVING LIMITS AT INTERSECTIONS ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

THE EXACT LOCATIONS AND LIMITS OF PRIVATE, COMMERCIAL, AND FIELD ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

APPLY TACK COAT TO MILLED SURFACE PRIOR TO PLACEMENT OF HMA PAVEMENT AT A RATE OF 0.07 GAL/SY..

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, ALL SIGNS RELATING TO THIS OPERATION SHALL BE COVERED OR REMOVED AND FACILITY RESTORED TO NORMAL OPERATIONS.

CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS 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 E-MATTED AS DIRECTED BY THE ENGINEER.

ABBREVIATIONS

A.A.D.T.	AVERAGE ANNUAL DAILY TRAFFIC
CTH	COUNTY TRUNK HIGHWAY
D	DEGREE OF CURVE
D.H.V.	DESIGN HOUR VOLUME
DR	DRIVE
E	EAST
E.A.T.	ENERGY ABSORBING TERMINAL
ESALS	EQUIVALENT SINGLE AXLE LOADS
HMA	HOT MIX ASPHALT
LN	LANE
MI	MILE
N	NORTH
N.C.	NORMAL CROWN
NO.	NUMBER
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
R	RADIUS
R.C.	REMOVE ADVERSE CROWN
RD	ROAD
R	RANGE
SE	SUPER ELEVATION
ST	STREET
STH	STATE TRUNK HIGHWAY
T	TANGENT
T.	TRUCKS (PERCENT OF)
T	TOWN

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RUNOFF COEFFICIENT TABLE

A	HYDROLOGIC SOIL GROUP											
	B C									D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP- TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE: TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT						.70 - .95						
CONCRETE						.80 - .95						
BRICK						.70 - .80						
DRIVES, WALKS						.75 - .85						
ROOFS						.75 - .95						
GRAVEL ROADS, SHOULDERS						.40 - .60						

TOTAL PROJECT AREA = 68.72 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 3.72 ACRES

SECTION 2 ORDER OF SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
GUARDRAIL DETAILS
CULVERT DETAILS
DETOUR PLAN

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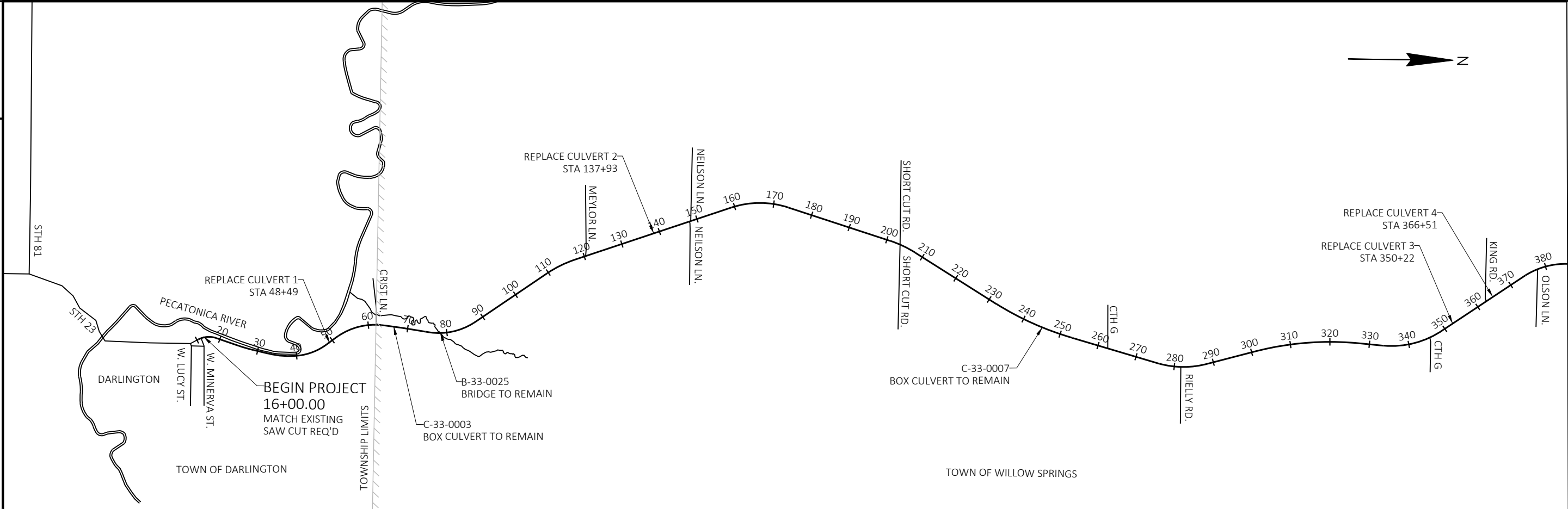
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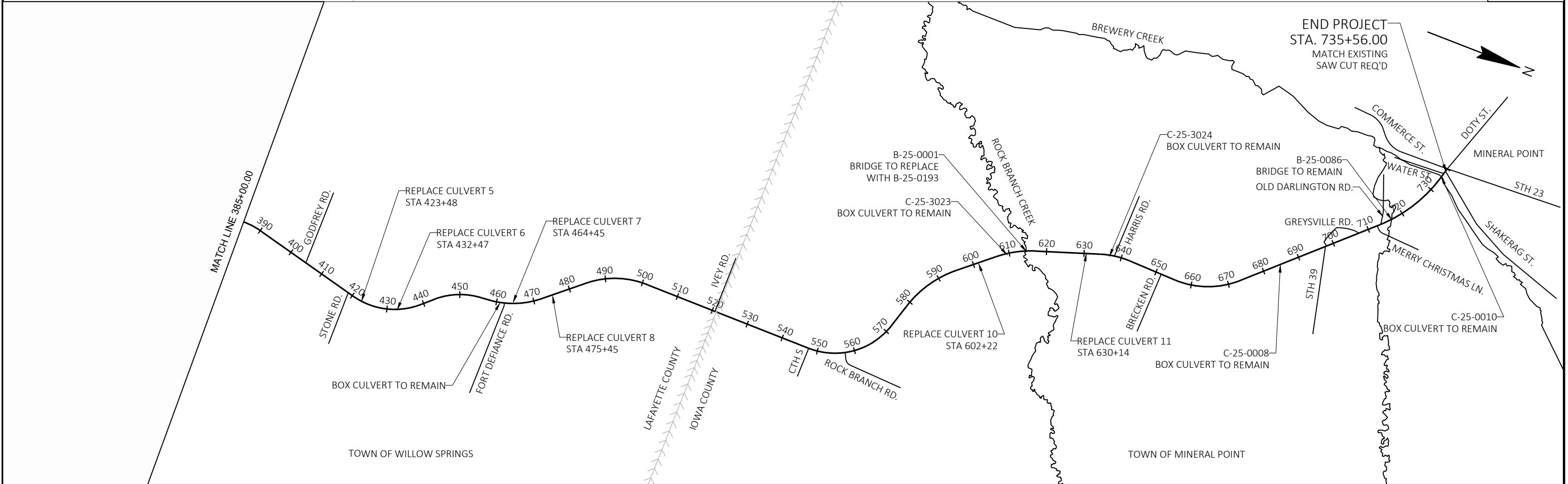


Dial 811 or (800)242-8511
www.DiggersHotline.com

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PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	PROJECT OVERVIEW	SHEET 3	E
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TYPICAL EXISTING SECTION
STA. 16+00 - STA. 521+14

TYPICAL EXISTING SECTION LEFT

STA. 17+00 - STA. 42+54 LT
STA. 46+00 - STA. 50+00 LT
STA. 51+84 - STA. 60+68 LT
STA. 77+26 - STA. 78+93 LT
STA. 268+45 - STA. 270+69 LT

TYPICAL EXISTING SECTION RIGHT

STA. 77+86 - STA. 79+34 RT

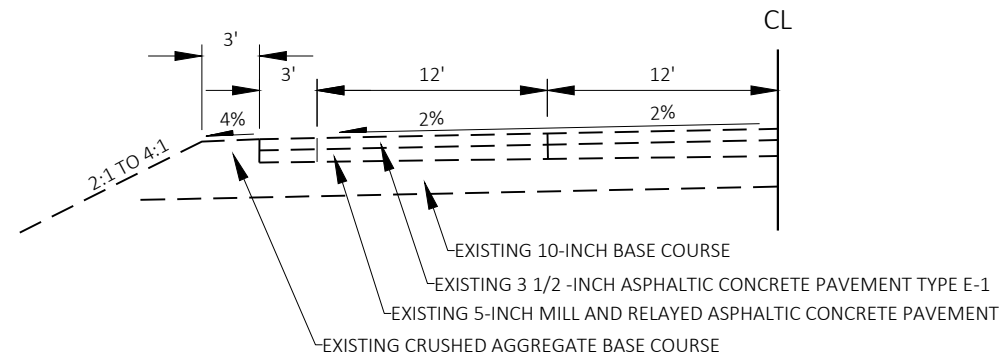
TYPICAL EXISTING SECTION
STA. 521+14 - STA. 544+22
STA. 544+22 RT - STA. 596+00 RT
STA. 596+00 - STA. 735+56

TYPICAL EXISTING SECTION LEFT

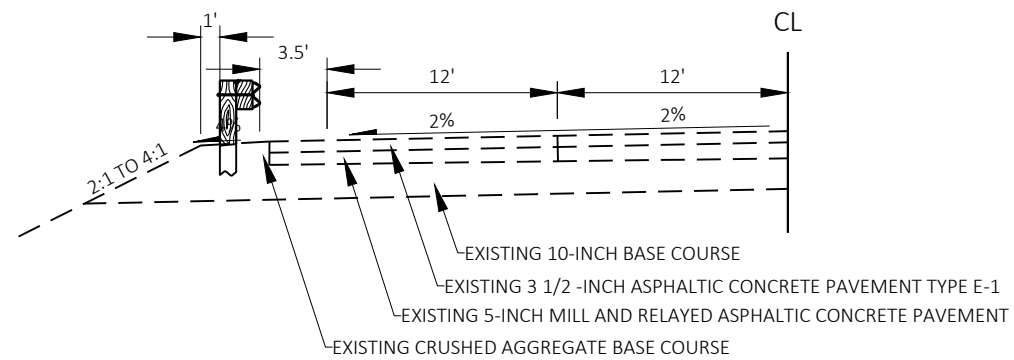
STA. 613+72 - STA. 617+00 LT
STA. 683+71 - STA. 686+54 LT
STA. 703+00 - STA. 706+46 LT
STA. 715+60 - STA. 720+00 LT
STA. 730+97 - STA. 734+72 LT

TYPICAL EXISTING SECTION RIGHT

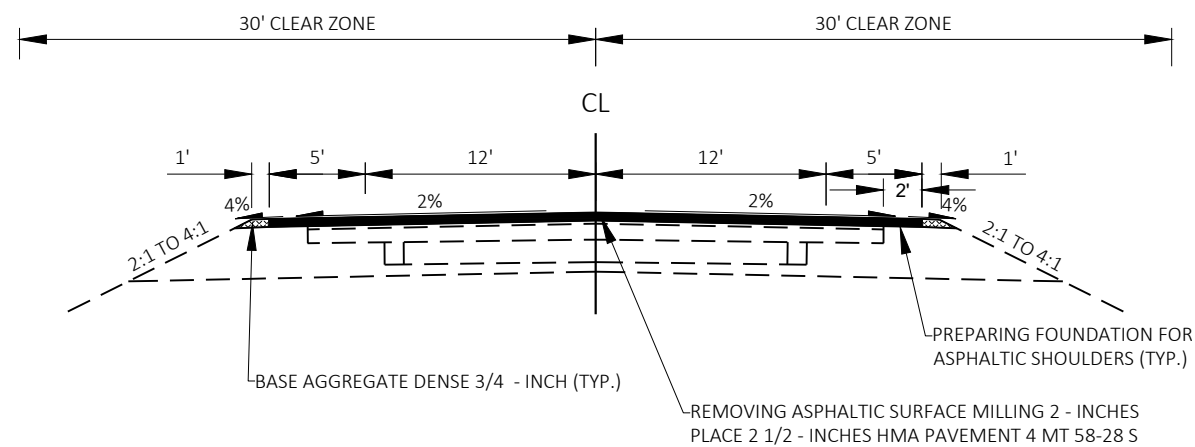
STA. 564+00 - STA. 568+50 RT
STA. 613+58 - STA. 615+76 RT
STA. 678+54 - STA. 680+27 RT
STA. 683+54 - STA. 685+39 RT
STA. 703+95 - STA. 707+19 RT
STA. 713+09 - STA. 720+29 RT
STA. 732+64 - STA. 735+23 RT



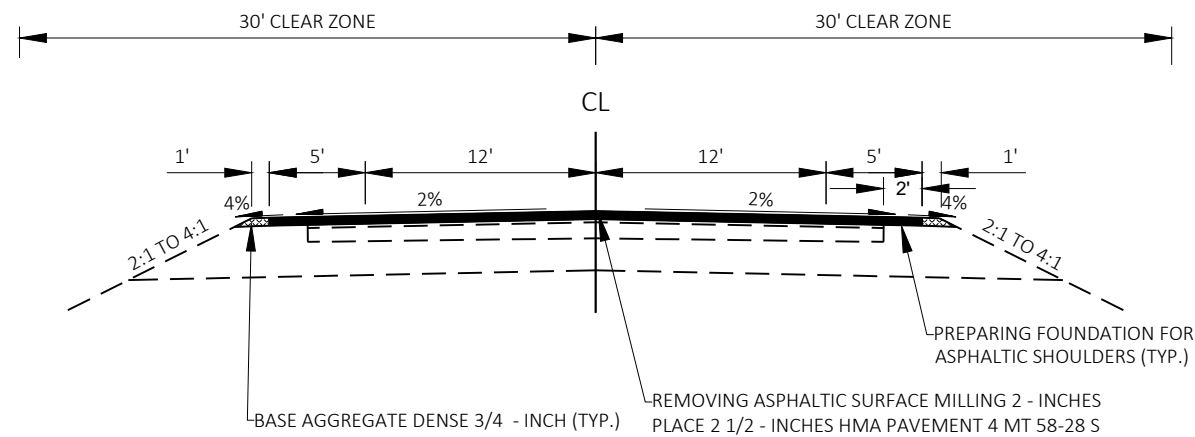
TYPICAL EXISTING SECTION
TAPER STA. 544+22 - STA. 546+22 LT
STA. 546+22 - STA. 575+13 LT
TAPER STA. 593+00 - 596+00 LT



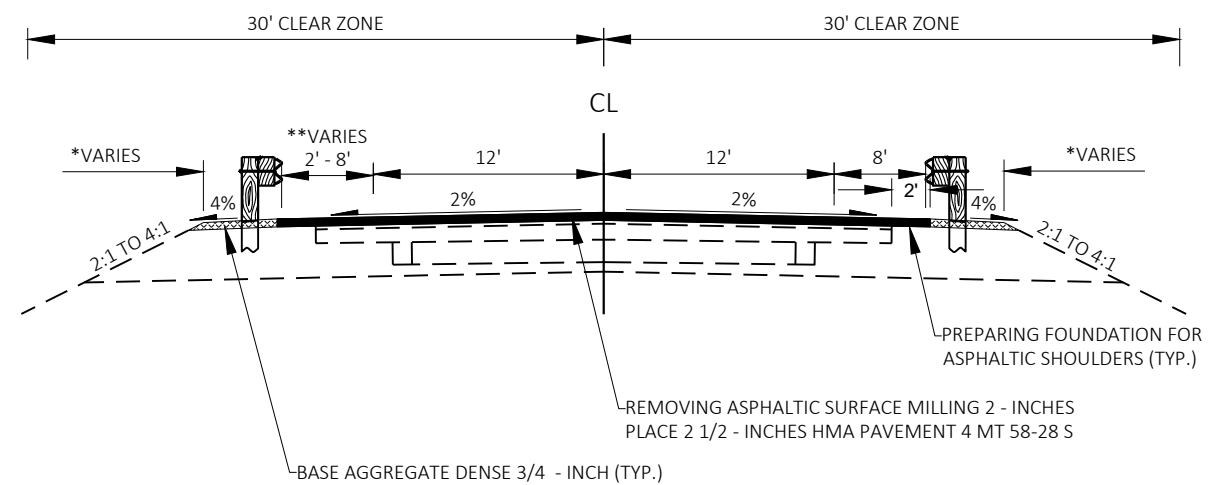
TYPICAL EXISTING SECTION
STA. 575+13 - STA. 593+00 LT



TYPICAL FINISHED SECTION
STA. 16+00 - STA. 521+14

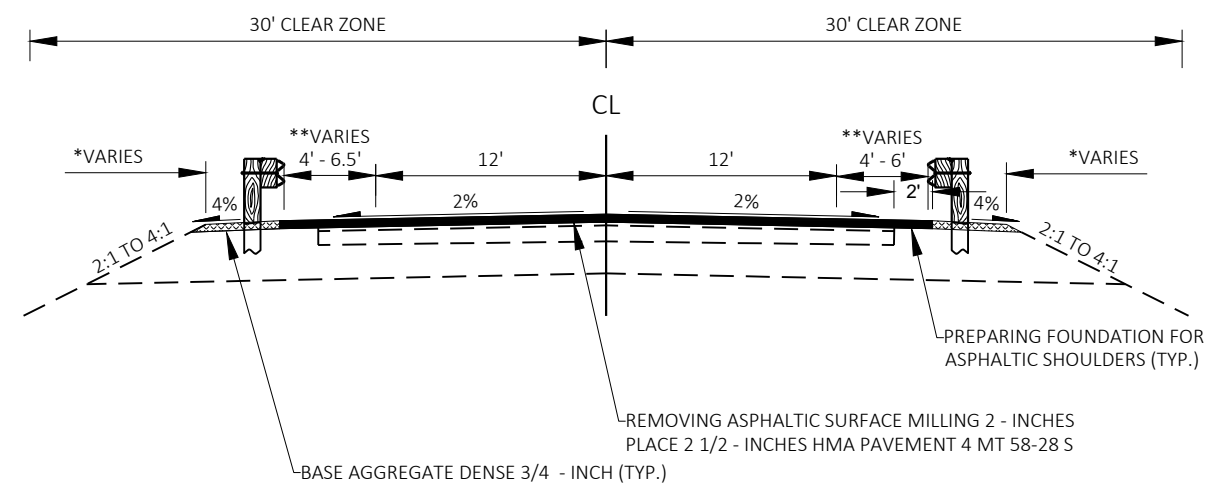


TYPICAL FINISHED SECTION
STA. 521+14 - STA. 544+22
STA. 544+22 RT - STA. 596+00 RT
STA. 596+00 - STA. 735+56



TYPICAL FINISHED SECTION LEFT
STA. 16+91 - STA. 42+50 LT
STA. 45+68 - STA. 50+52 LT
STA. 53+46 - STA. 60+69 LT
STA. 76+91 - STA. 79+69 LT
STA. 267+92 - STA. 271+36 LT

TYPICAL FINISHED SECTION RIGHT
STA. 76+83 - STA. 79+52 RT



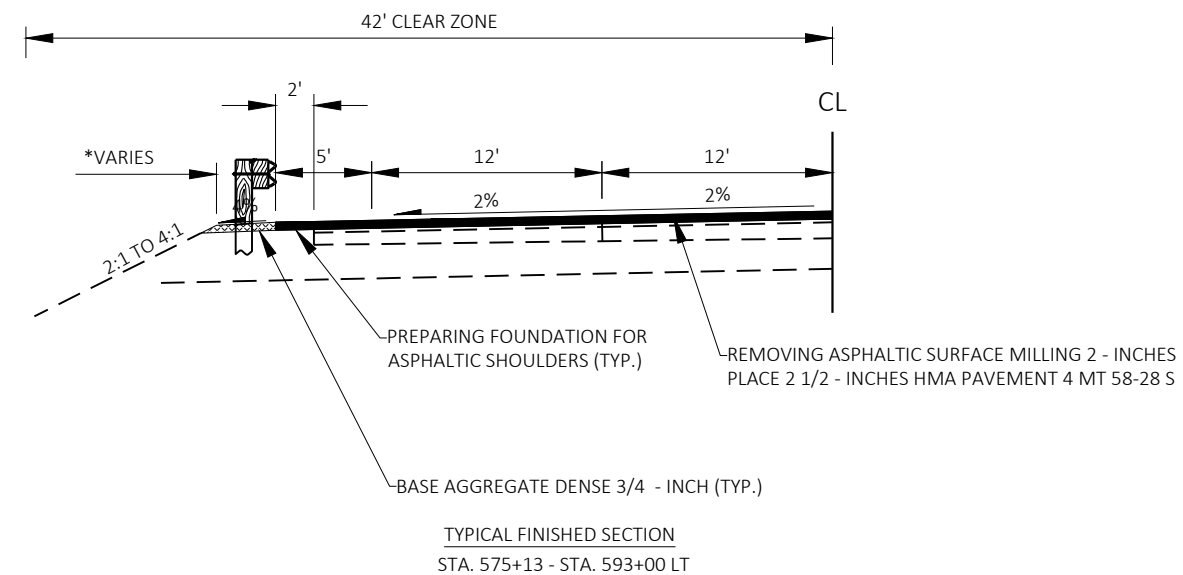
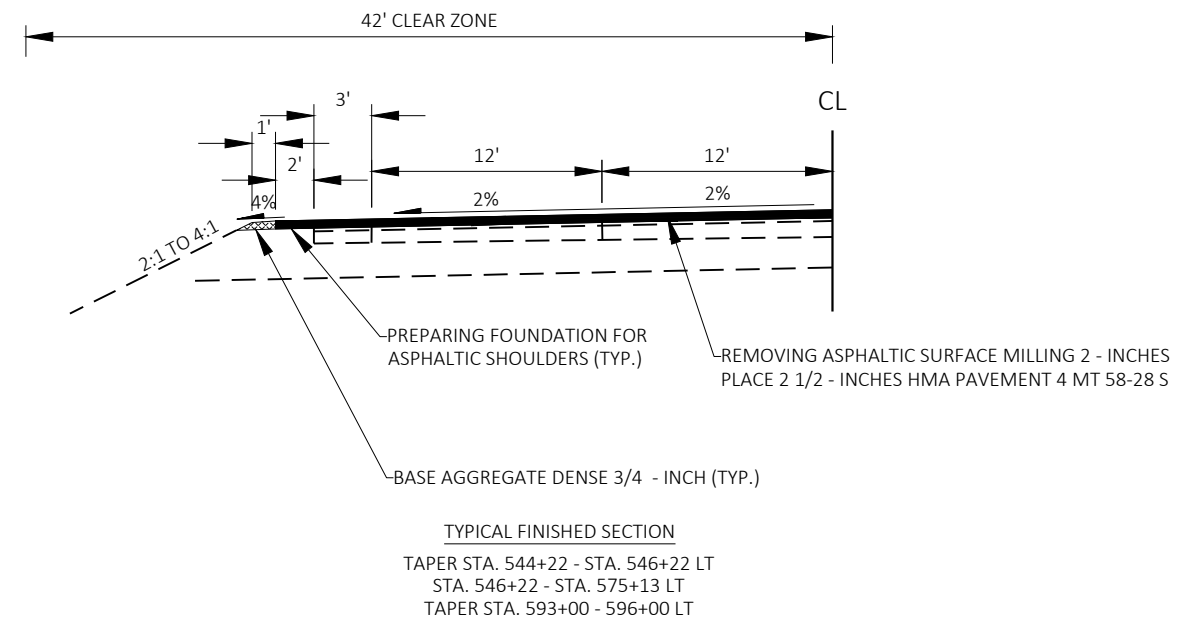
TYPICAL FINISHED SECTION LEFT
STA. 574+97 - STA. 593+02 LT
STA. 612+87 - STA. 614+17 LT
STA. 614+97 - STA. 616+77 LT
STA. 712+69 - STA. 720+58 LT
STA. 730+26 - STA. 734+96 LT

TYPICAL FINISHED SECTION RIGHT
STA. 564+11 - STA. 570+00 RT
STA. 613+05 - STA. 614+10 RT
STA. 614+91 - STA. 616+09 RT
STA. 678+44 - STA. 680+71 RT
STA. 703+39 - STA. 708+32 RT
STA. 714+31 - STA. 721+16 RT
STA. 732+15 - STA. 735+35 RT

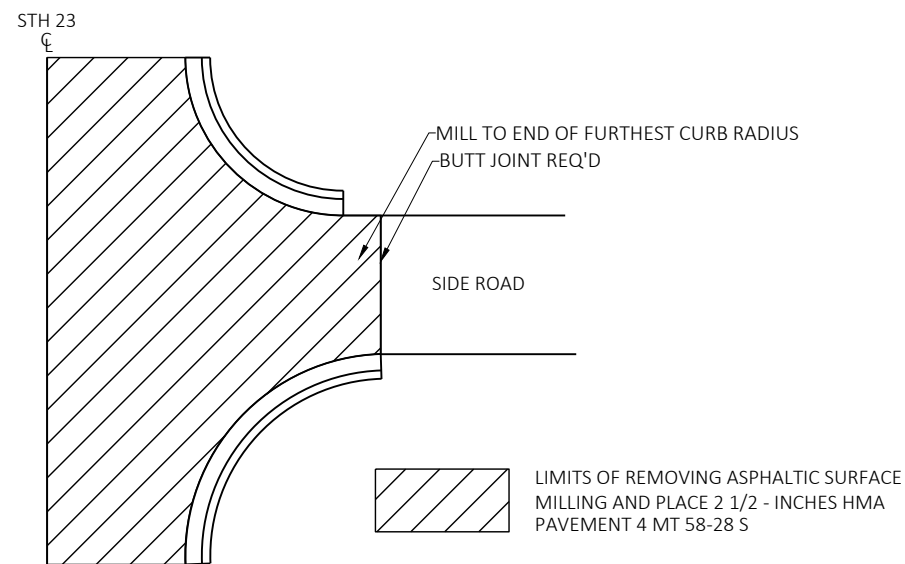
NOTES:
*SEE DETAIL SHEETS FOR GUARDRAIL DETAILS
**SEE DETAIL SHEETS FOR GUARDRAIL DETAILS

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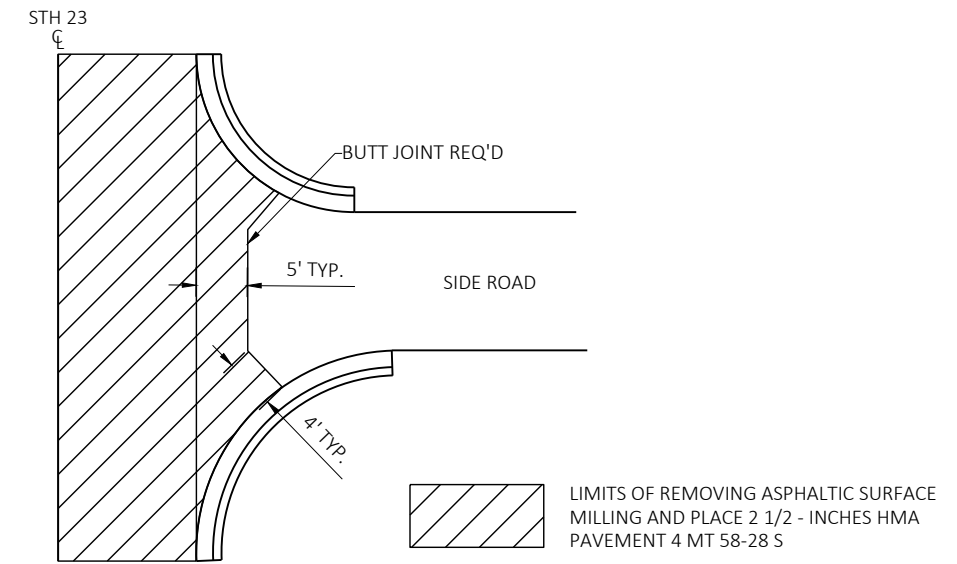


NOTES:
*SEE DETAIL SHEETS FOR GUARDRAIL DETAILS

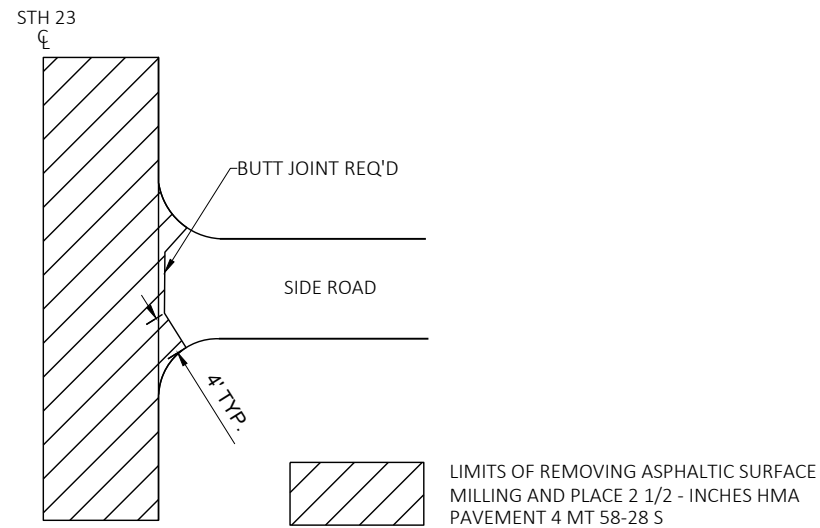


SIDEROAD DETAIL - CURB & GUTTER TO REMAIN
CTH G WEST

NOTES: SIDEROAD LIMITS TO BE DETERMINED BY ENGINEER

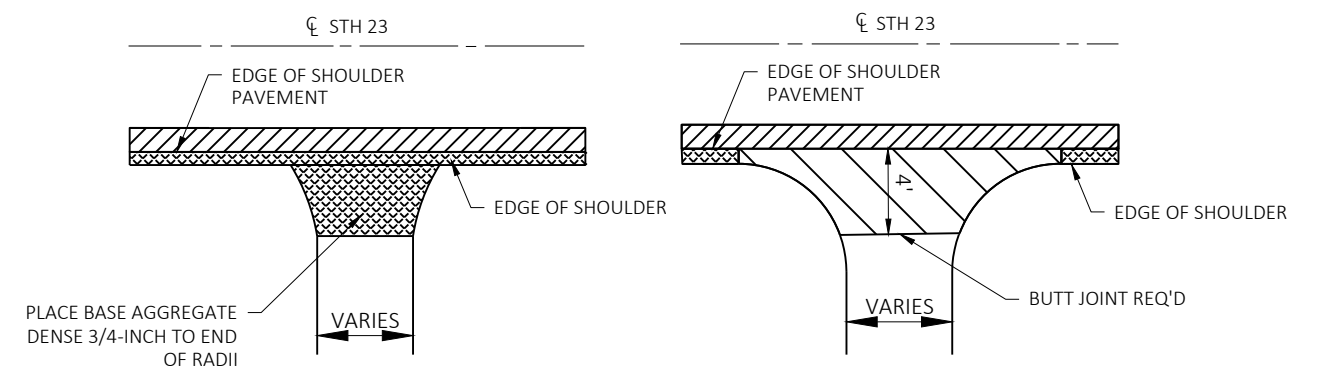


SIDEROAD DETAIL - CURB & GUTTER TO REMAIN
CTH G EAST
CTH S



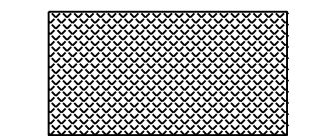
SIDE ROAD DETAIL - NO CURB & GUTTER

CRIST LN	OLSON LN	BRECKEN RD
MEYLOR LN	GODFREY RD	STH 39
NEILSON LN	STONE RD	JACKSON ST
SHORT CUT RD WEST	FORT DEFIANCE RD	GREYSVILLE RD
SHORT CUT RD EAST	IVEY RD	MERRY CHRISTMAS LN
RIELLY RD	ROCK BRANCH RD	OLD DARLINGTON RD
KING RD	HARRIS RD	

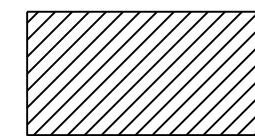


PLAN VIEW
EXISTING UNPAVED DRIVEWAY

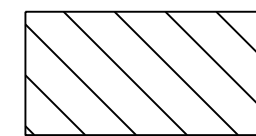
PLAN VIEW
EXISTING PAVED DRIVEWAY



BASE AGGREGATE DENSE 3/4-INCH



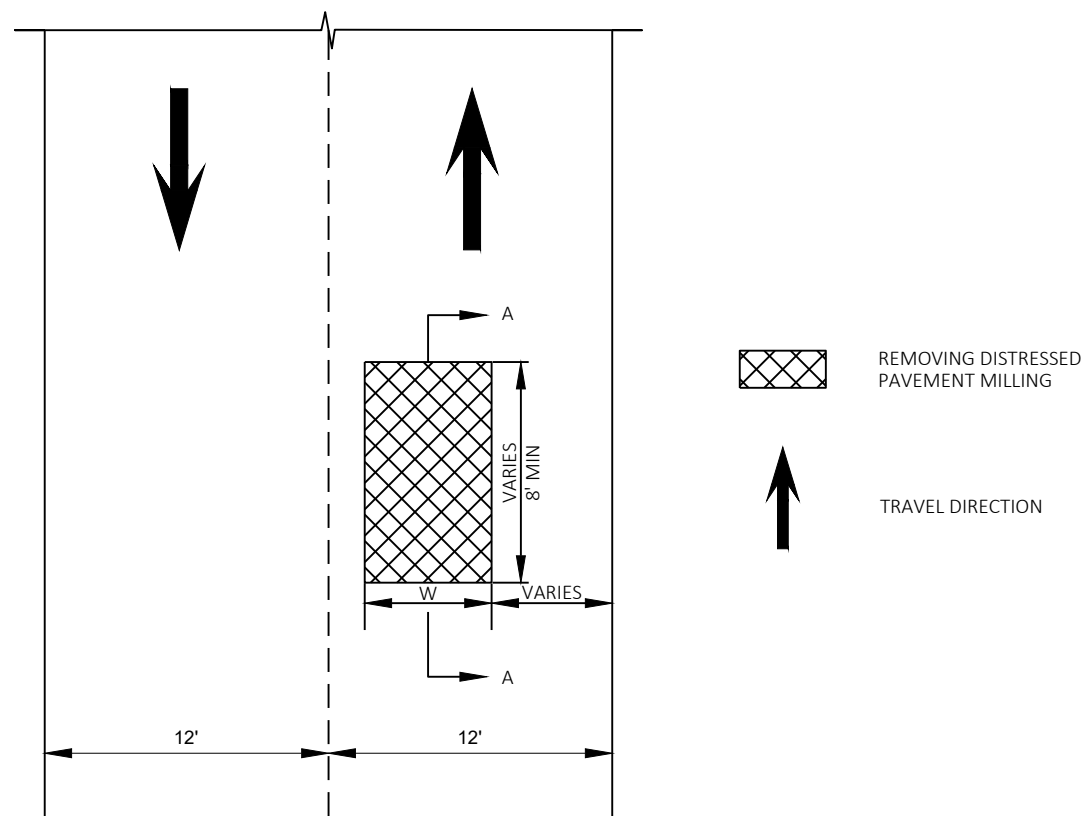
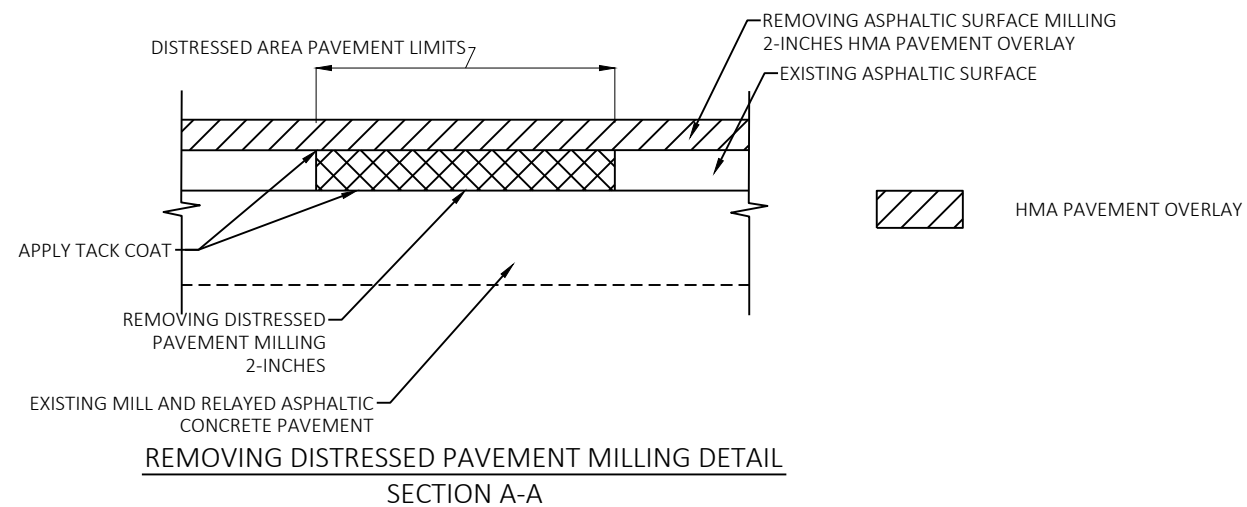
HMA PAVEMENT 4 MT 58-28 S



ASPHALTIC SURFACE DRIVEWAYS
AND FIELD ENTRANCES

RURAL DRIVEWAY INTERSECTION DETAIL

2



NOTE: LOCATIONS TO BE DETERMINED BY ENGINEER

PROJECT NO:	5245-02-76
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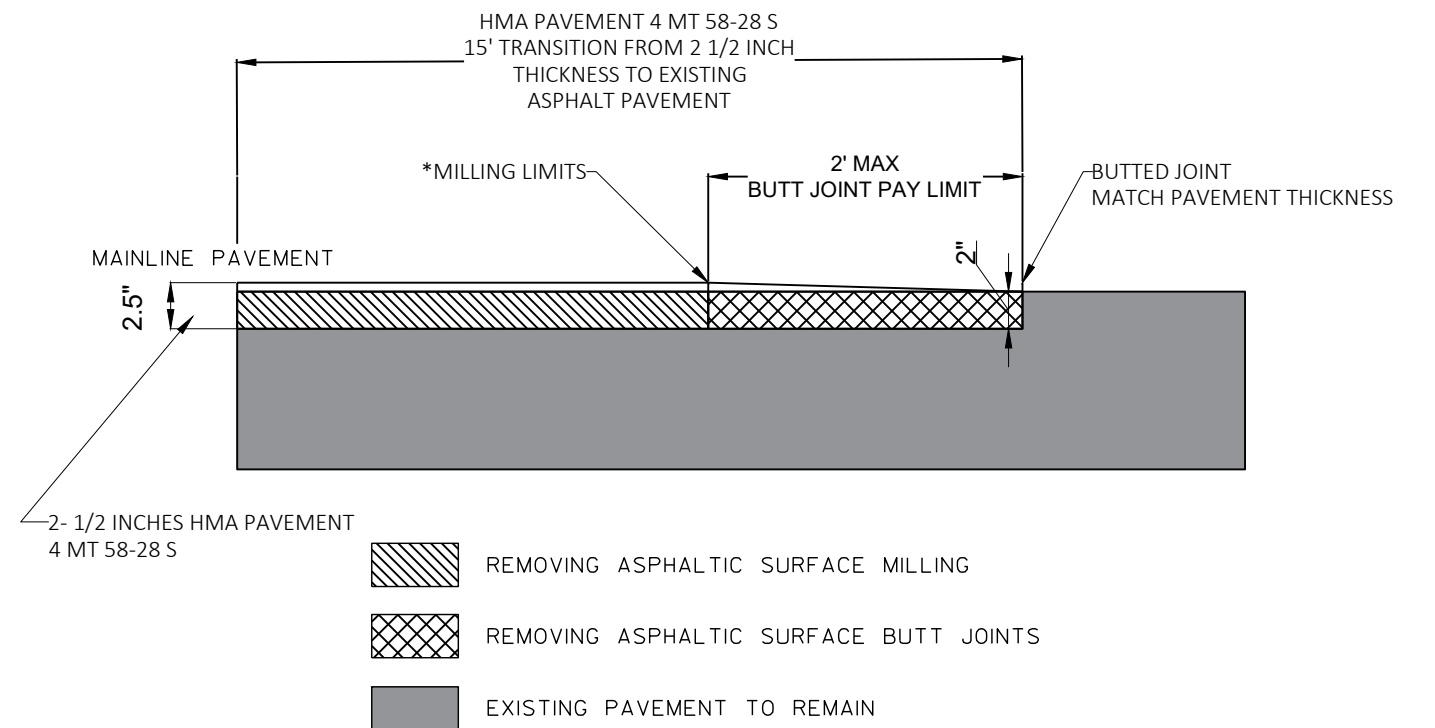
HWY: STH 23

COUNTY: LAFAYETTE

CONSTRUCTION DETAILS

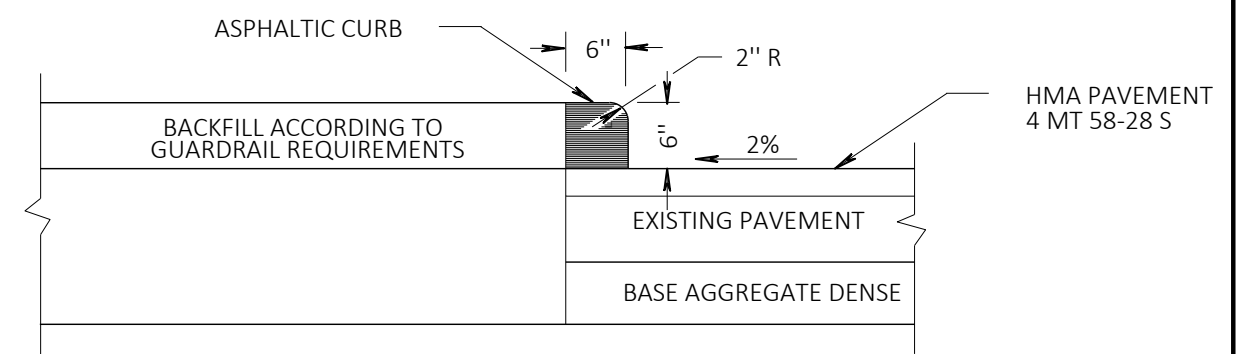
SHEET

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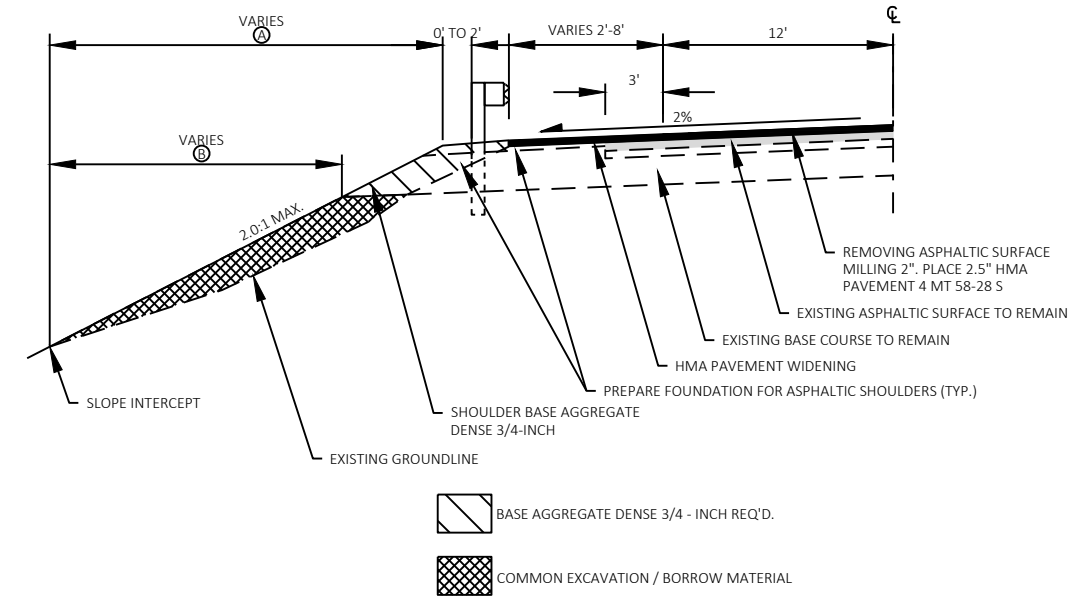
BUTT JOINT DETAIL

NOT TO SCALE
SIDEROADS, BEGINNING PROJECT, AND END PROJECT DETAIL



ASPHALTIC CURB DETAIL

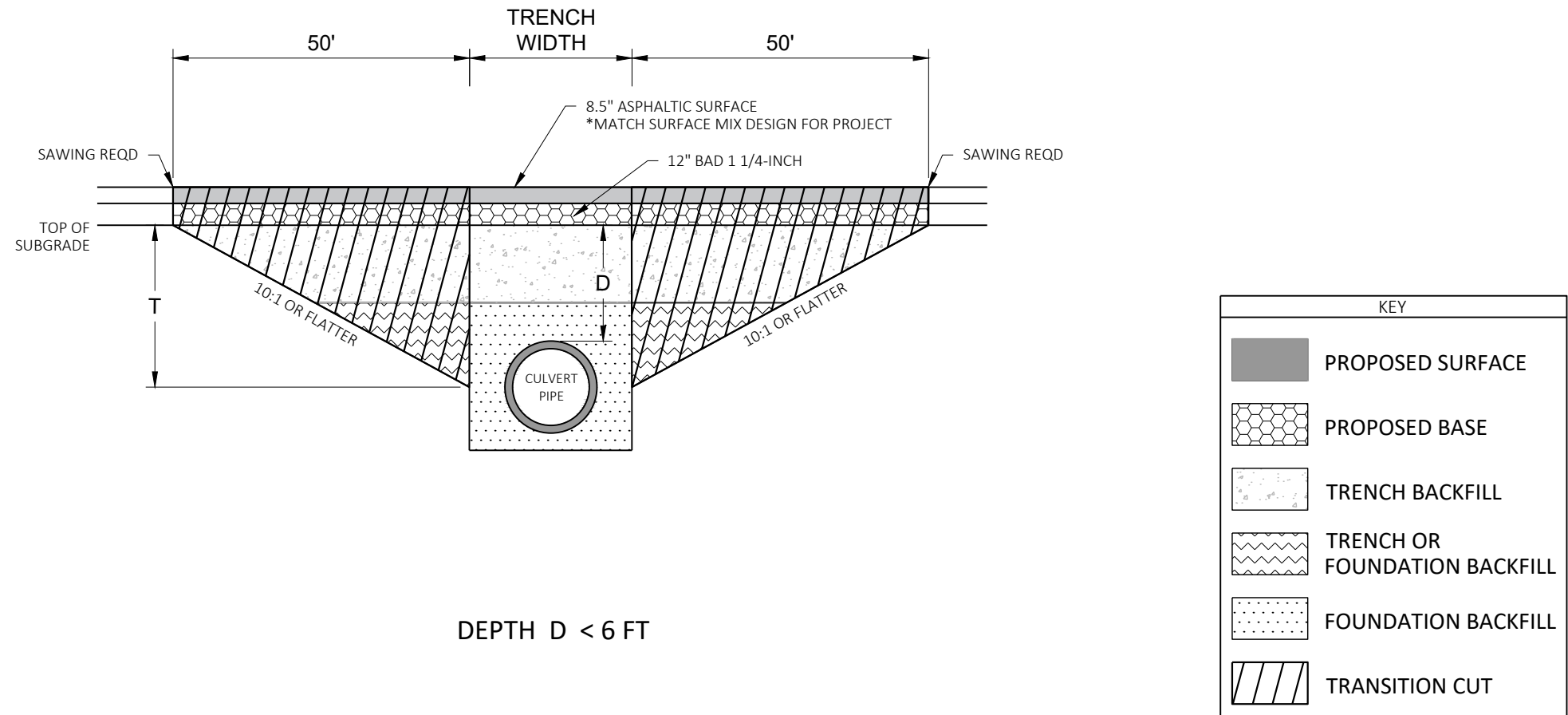
SEE GUARDRAIL DETAILS FOR LOCATIONS



Ⓐ FERTILIZER TYPE B AND SEEDING MIXTURE NO. 30 (AS DIRECTED BY THE ENGINEER)

Ⓑ LIMITS OF EROSION MAT CLASS I TYPE B AND SALVAGED TOPSOIL (AS DIRECTED BY THE ENGINEER)

STATION-STATION	LOCATION	①	②	③
16+75.73 - 17+42.58	MAINLINE, LT.	16+75.73	16+90.73	17+42.58
41+96.30 - 42+64.91	MAINLINE, LT.	42+64.91	42+49.91	41+96.30
45+53.33 - 46+21.43	MAINLINE, LT.	45+53.33	45+68.33	46+21.43
49+98.64 - 50+66.87	MAINLINE, LT.	50+66.87	50+51.87	49+98.64
53+00.57 - 53+98.09	MAINLINE, LT.	53+00.57	53+45.57	53+98.09
60+16.20 - 60+98.78	MAINLINE, LT.	60+98.78	60+68.78	60+16.20
76+45.81 - 77+41.42	MAINLINE, LT.	76+45.81	76+90.81	77+41.42
79+18.59 - 80+24.02	MAINLINE, LT.	80+24.02	79+69.02	79+18.59
267+46.92 - 268+45.01	MAINLINE, RT.	267+46.92	267+91.92	268+45.01
270+82.50 - 271+80.59	MAINLINE, LT.	271+80.59	271+35.59	270+82.50
563+73.96 - 564+63.67	MAINLINE, RT.	563+73.96	564+11.46	564+63.67
569+46.93 - 570+44.57	MAINLINE, RT.	570+44.57	569+99.57	569+46.93
574+82.46 - 575+50.59	MAINLINE, LT.	574+82.46	574+97.46	575+50.59
592+48.95 - 593+16.58	MAINLINE, LT.	593+16.58	593+01.58	592+48.95
612+89.83 - 613+58.29	MAINLINE, RT.	612+89.83	613+04.84	613+58.29
612+42.14 - 613+39.95	MAINLINE, LT.	612+42.14	612+87.14	613+39.95
615+56.67 - 616+54.10	MAINLINE, RT.	616+54.10	616+09.10	615+56.67
616+24.07 - 617+21.82	MAINLINE, LT.	617+21.82	616+76.82	616+24.07
677+98.65 - 678+96.78	MAINLINE, RT.	677+98.65	678+43.65	678+96.78
702+93.73 - 703+91.83	MAINLINE, RT.	702+93.73	703+38.73	703+91.83
707+79.31 - 708+77.01	MAINLINE, RT.	708+77.01	708+32.41	707+79.31
720+05.21 - 721+03.05	MAINLINE, RT.	721+03.05	720+58.05	720+05.21
720+62.49 - 721+30.62	MAINLINE, LT.	721+30.62	721+15.62	720+62.49
730+26.14 - 730+79.52	MAINLINE, LT.	--	730+26.14	730+79.52
731+99.97 - 732+67.89	MAINLINE, RT.	731+99.97	732+14.97	732+67.89



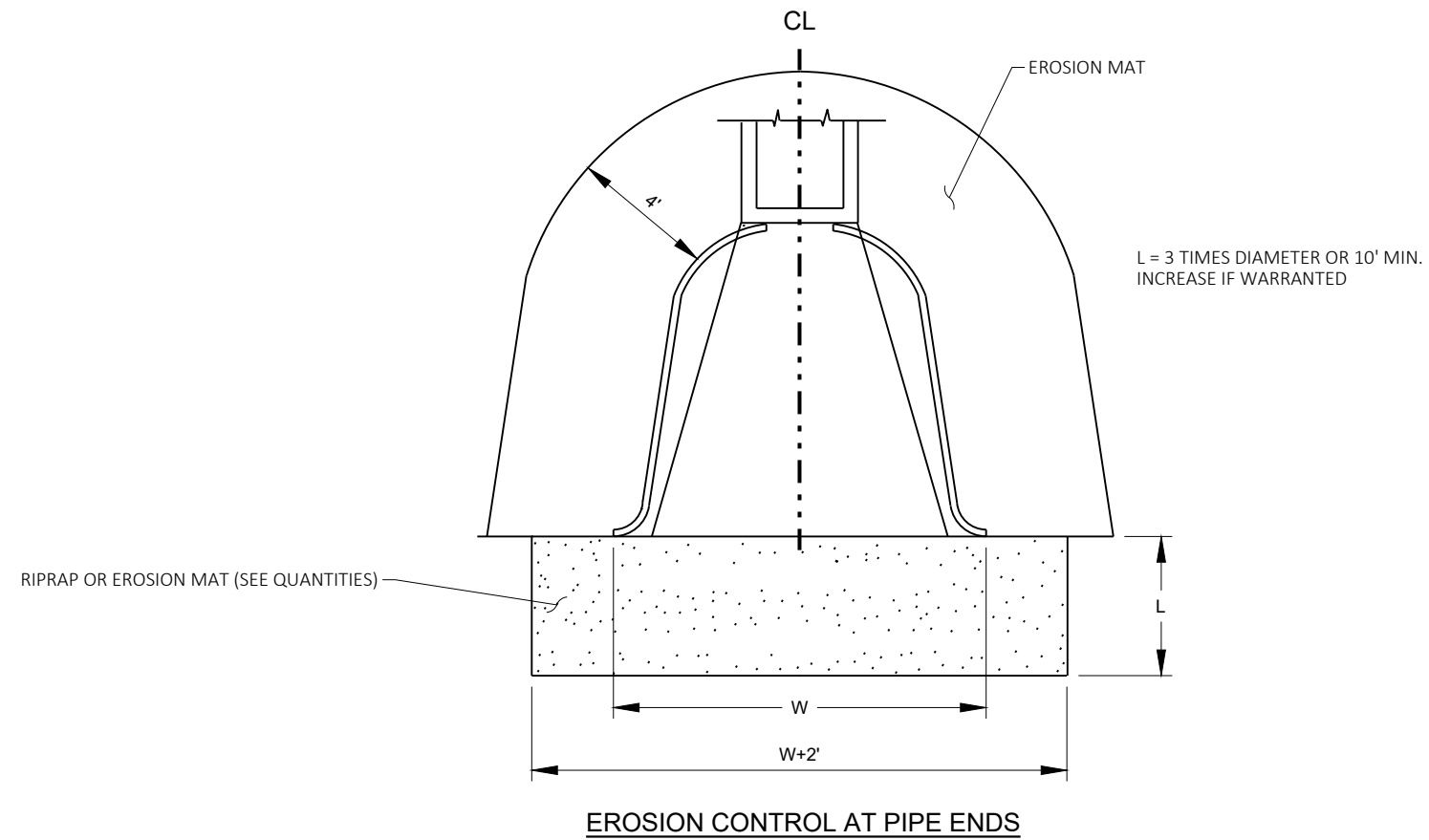
CULVERT PIPE TRANSITION

ROUTE	STA (CL)	*DEPTH D (FT)	PIPE DIA (IN)	REMARKS
STH 23	48+49	0.88	24	SKEWED
STH 23	137+93	1.25	24	SKEWED
STH 23	350+22	1.13	24	
STH 23	366+51	1.41	24	
STH 23	423+48	2.98	24	
STH 23	432+47	2.02	24	
STH 23	464+45	1.84	24	
STH 23	475+45	5.45	24	
STH 23	602+22	1.00	24	SKEWED
STH 23	630+14	1.31	24	SKEWED

NOTES

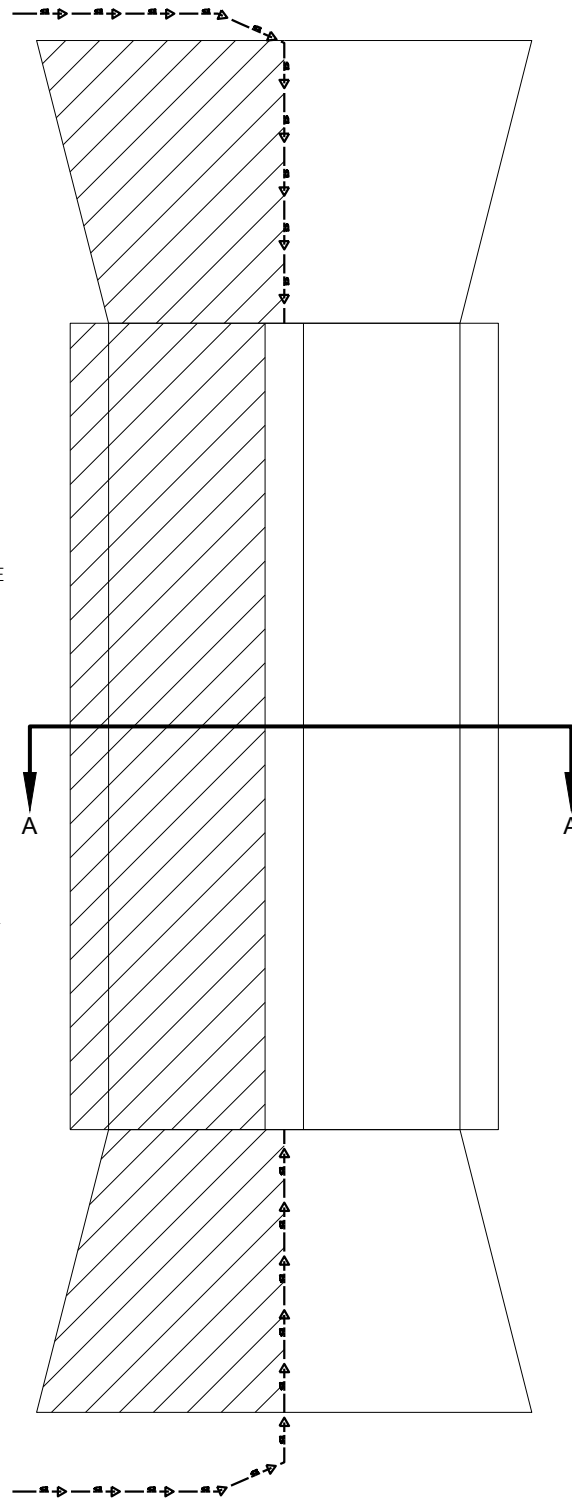
TRANSITION CUT IS PAID AS EXCAVATION COMMON.
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.
BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.
PERFORM CULVERT PIPE INSTALLATION BEFORE MILLING AND PAVING.
PLACE FULL DEPTH ASPHALTIC SURFACE AFTER CULVERT PIPE INSTALLATION AND BEFORE MILLING AND PAVING.

*DEPTH MEASURED AT CENTERLINE



PLACE TURBIDITY BARRIER OR SILT FENCE IN RIVER TO THE CENTER WALL OF THE BOX CULVERT, AS SHOWN IN DETAIL, TO KEEP DEBRIS CONTAINED WITHIN THE AREA OF THE SOUTH CELL. SOUTH CELL OF EXISTING BOX CULVERT TO BE DEMOLISHED AND REMOVED WITHIN STAGE 1, LEAVING THE CENTER WALL IN PLACE.

SOUTH ABUTMENT OF B-25-193 TO BE CONSTRUCTED AND SOUTH RIPRAP UP TO BOTTOM OF SOUTH ABUTMENT ELEVATION TO BE PLACED UNDER B-25-001 STRUCTURE REMOVAL STAGE 1 CONDITIONS.



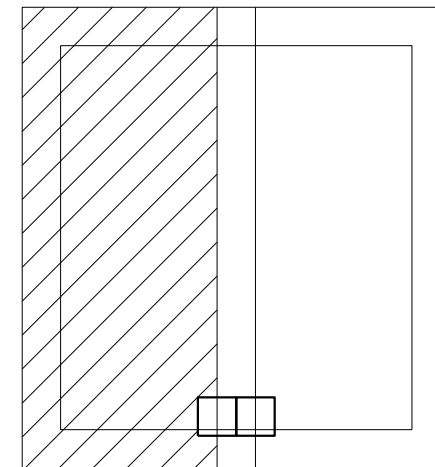
PLAN

B-25-001 STRUCTURE REMOVAL

STAGE 1
SOUTH CELL REMOVAL

PLACE TURBIDITY BARRIER OR SILT FENCE IN RIVER TO THE CENTER WALL OF THE BOX CULVERT, AS SHOWN IN DETAIL, TO KEEP DEBRIS CONTAINED WITHIN THE AREA OF THE SOUTH CELL. SOUTH CELL OF EXISTING BOX CULVERT TO BE DEMOLISHED AND REMOVED WITHIN STAGE 1, LEAVING THE CENTER WALL IN PLACE.

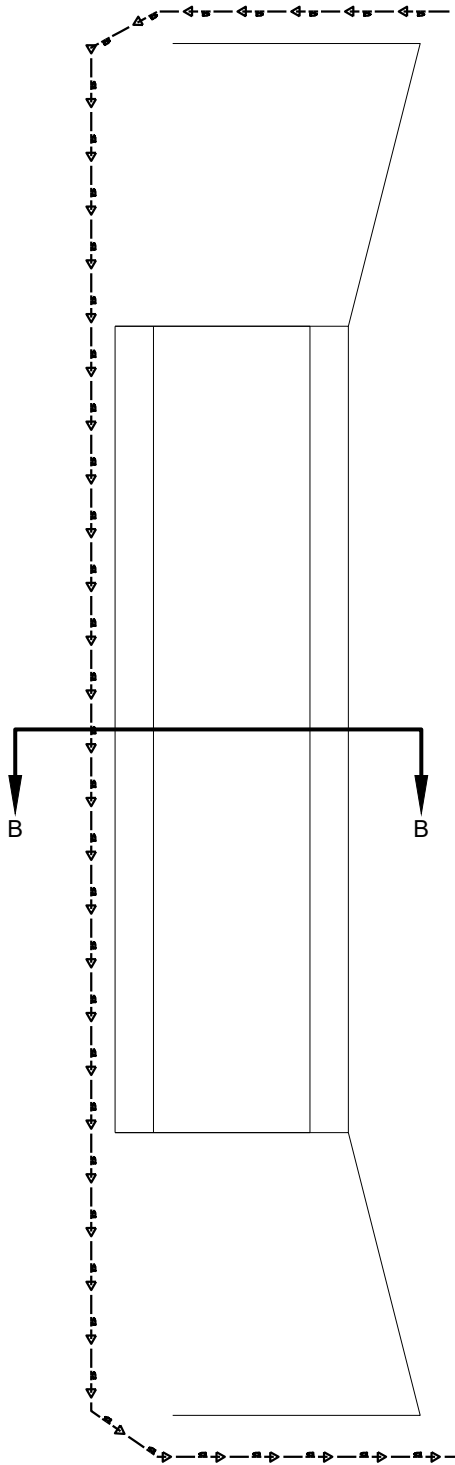
FLOOR OF SOUTH CELL TO BE REMOVED DURING STAGE 1.



SECTION A-A

PLACE TURBIDITY BARRIER OR SILT FENCE IN RIVER ENCOMPASSING THE CENTER WALL OF THE BOX CULVERT, AS SHOWN IN DETAIL, TO KEEP DEBRIS CONTAINED WITHIN THE AREA OF THE NORTH CELL. NORTH CELL OF EXISTING BOX CULVERT TO BE DEMOLISHED AND REMOVED WITHIN STAGE 2, ALONG WITH THE CENTER WALL OF THE CULVERT.

NORTH ABUTMENT OF B-25-193 TO BE CONSTRUCTED AND NORTH RIPRAP TO BE PLACED UNDER B-25-001 STRUCTURE REMOVAL STAGE 2 CONDITIONS.

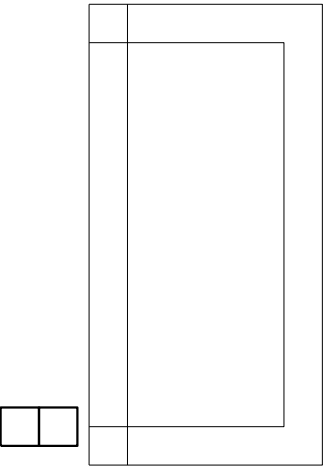


PLAN

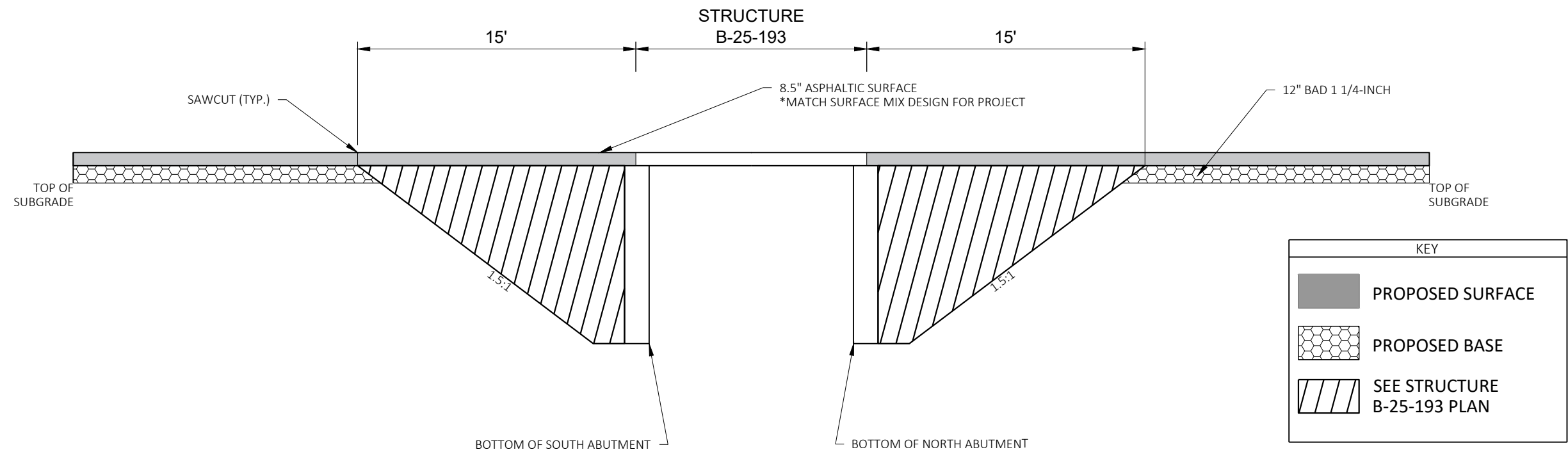
B-25-001 STRUCTURE REMOVAL
STAGE 2
NORTH CELL REMOVAL

PLACE TURBIDITY BARRIER OR SILT FENCE IN RIVER ENCOMPASSING THE CENTER WALL OF THE BOX CULVERT, AS SHOWN IN DETAIL, TO KEEP DEBRIS CONTAINED WITHIN THE AREA OF THE NORTH CELL. NORTH CELL OF EXISTING BOX CULVERT TO BE DEMOLISHED AND REMOVED WITHIN STAGE 2, ALONG WITH THE CENTER WALL OF THE CULVERT.

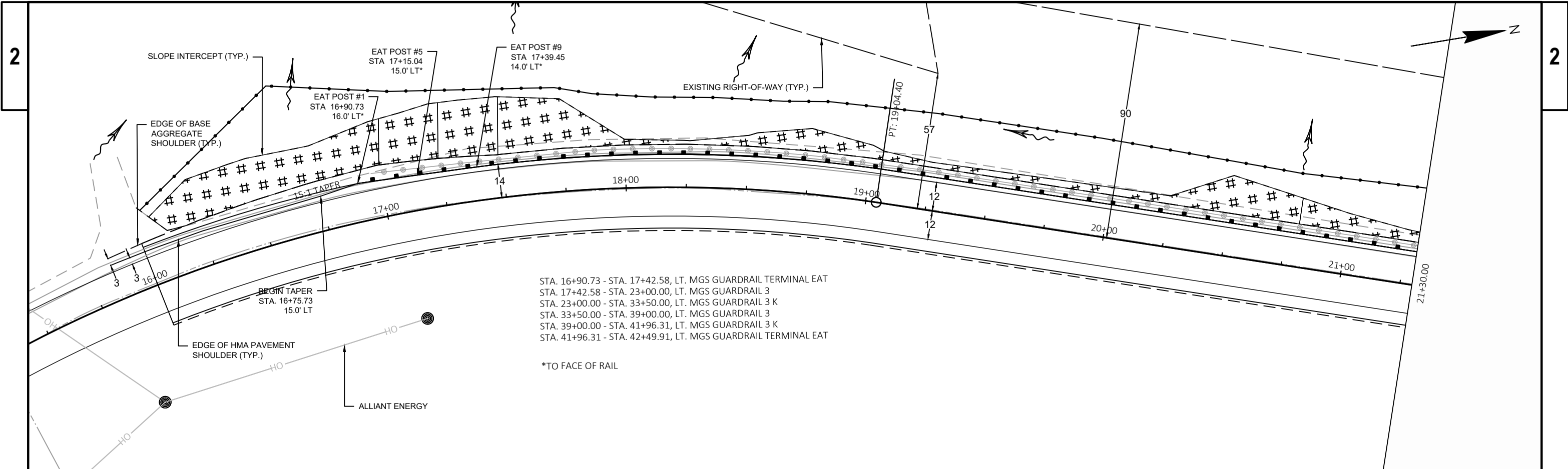
FLOOR OF NORTH CELL TO BE REMOVED DURING STAGE 2.



SECTION B-B

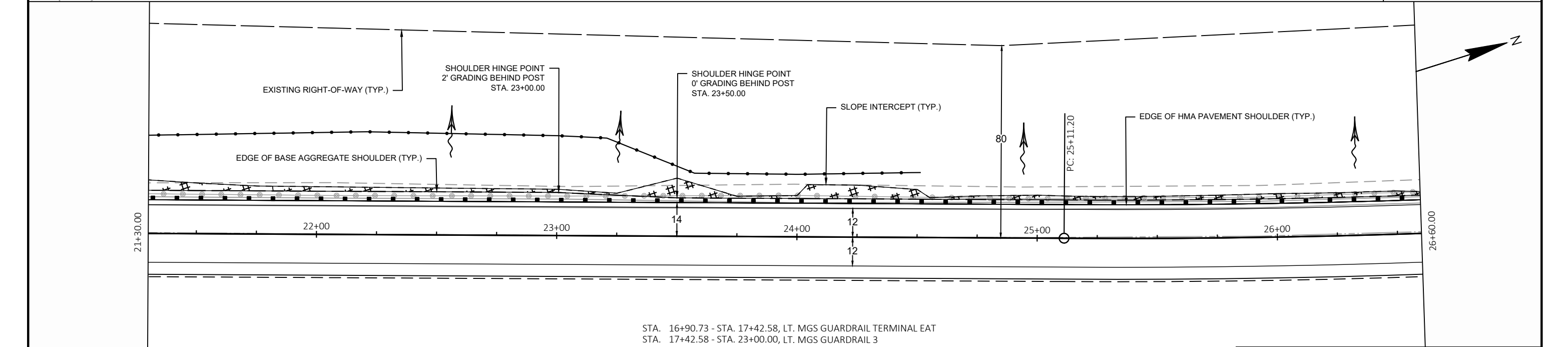


B-25-193 STRUCTURE APPROACH PAVEMENT DETAILS



STA. 16+90.73 - STA. 17+42.58, LT. MGS GUARDRAIL TERMINAL EAT
STA. 17+42.58 - STA. 23+00.00, LT. MGS GUARDRAIL 3
STA. 23+00.00 - STA. 33+50.00, LT. MGS GUARDRAIL 3 K
STA. 33+50.00 - STA. 39+00.00, LT. MGS GUARDRAIL 3
STA. 39+00.00 - STA. 41+96.31, LT. MGS GUARDRAIL 3 K
STA. 41+96.31 - STA. 42+49.91, LT. MGS GUARDRAIL TERMINAL EAT

*TO FACE OF RAIL



STA. 16+90.73 - STA. 17+42.58, LT. MGS GUARDRAIL TERMINAL EAT
STA. 17+42.58 - STA. 23+00.00, LT. MGS GUARDRAIL 3
STA. 23+00.00 - STA. 33+50.00, LT. MGS GUARDRAIL 3 K
STA. 33+50.00 - STA. 39+00.00, LT. MGS GUARDRAIL 3
STA. 39+00.00 - STA. 41+96.30, LT. MGS GUARDRAIL 3 K
STA. 41+96.30 - STA. 42+49.91, LT. MGS GUARDRAIL TERMINAL EAT

LEGEND

#####

EROSION MAT CLASS I TYPE B

—[Symbol]—

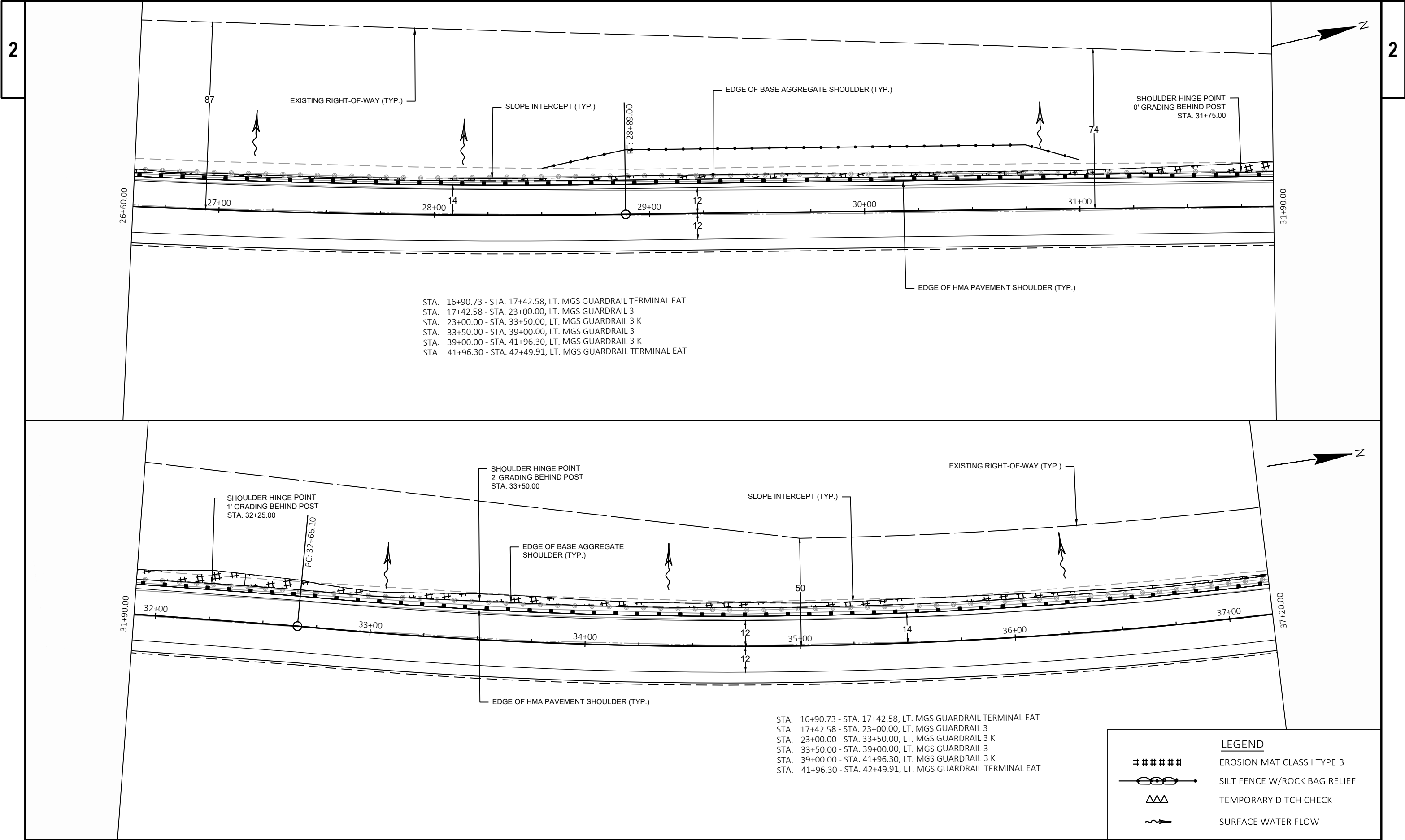
SILT FENCE W/ROCK BAG RELIEF

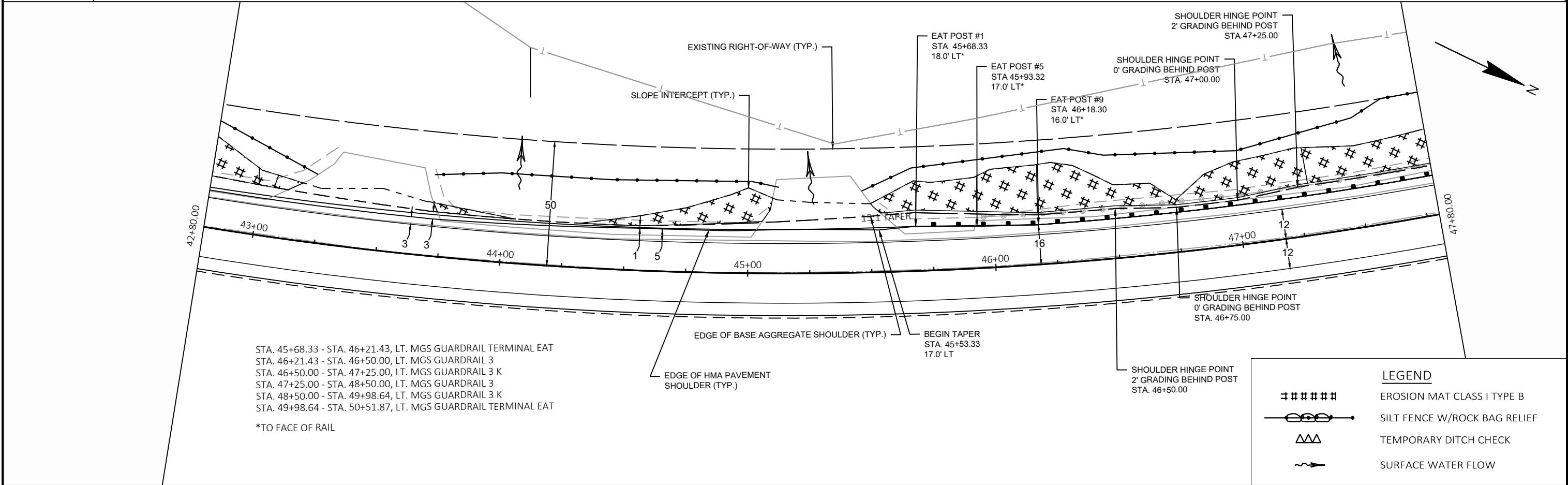
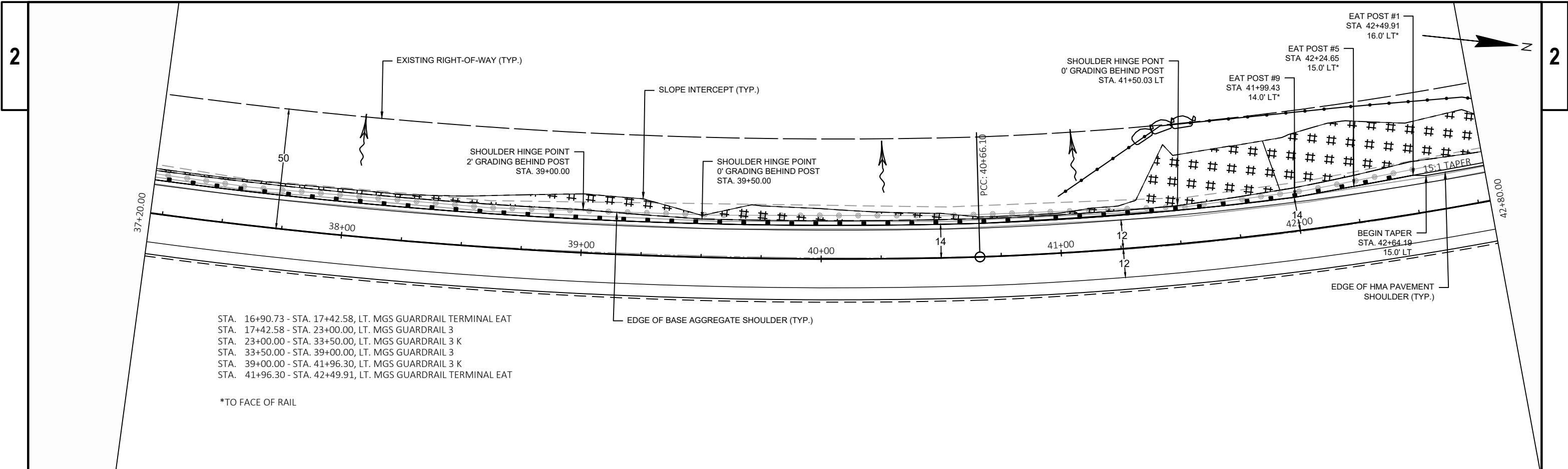
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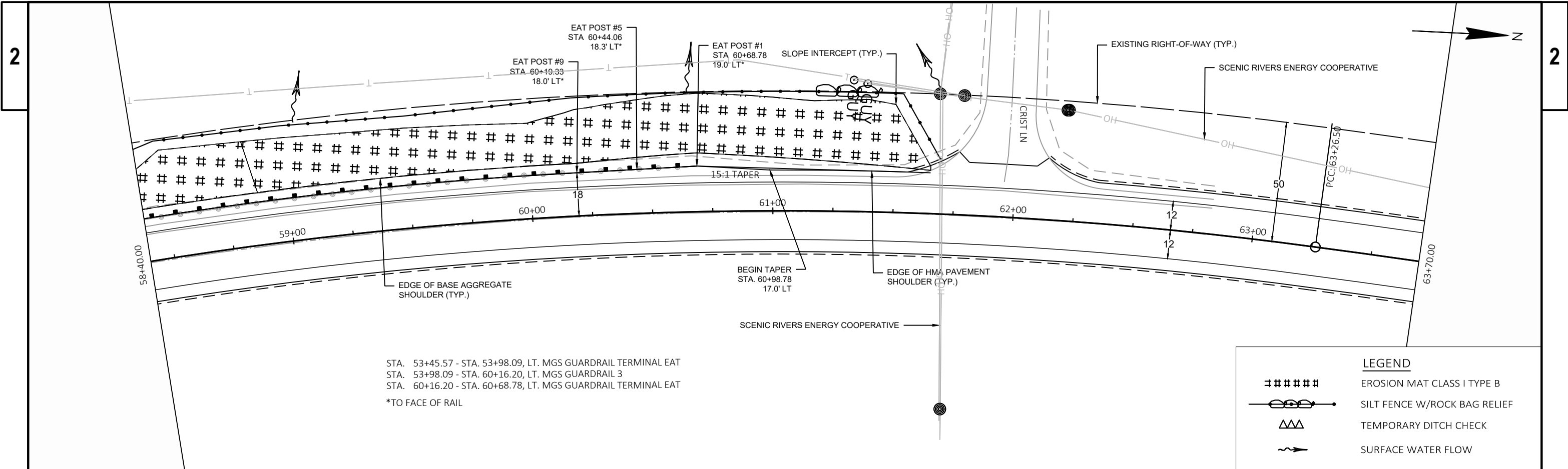
TEMPORARY DITCH CHECK

~>

SURFACE WATER FLOW



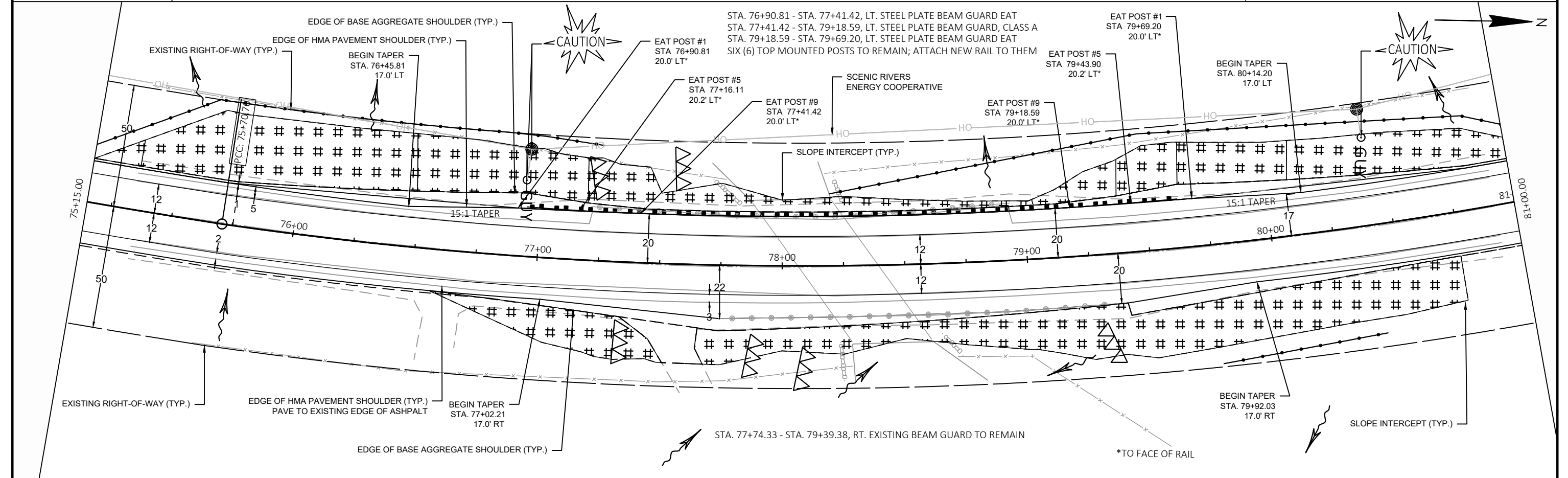


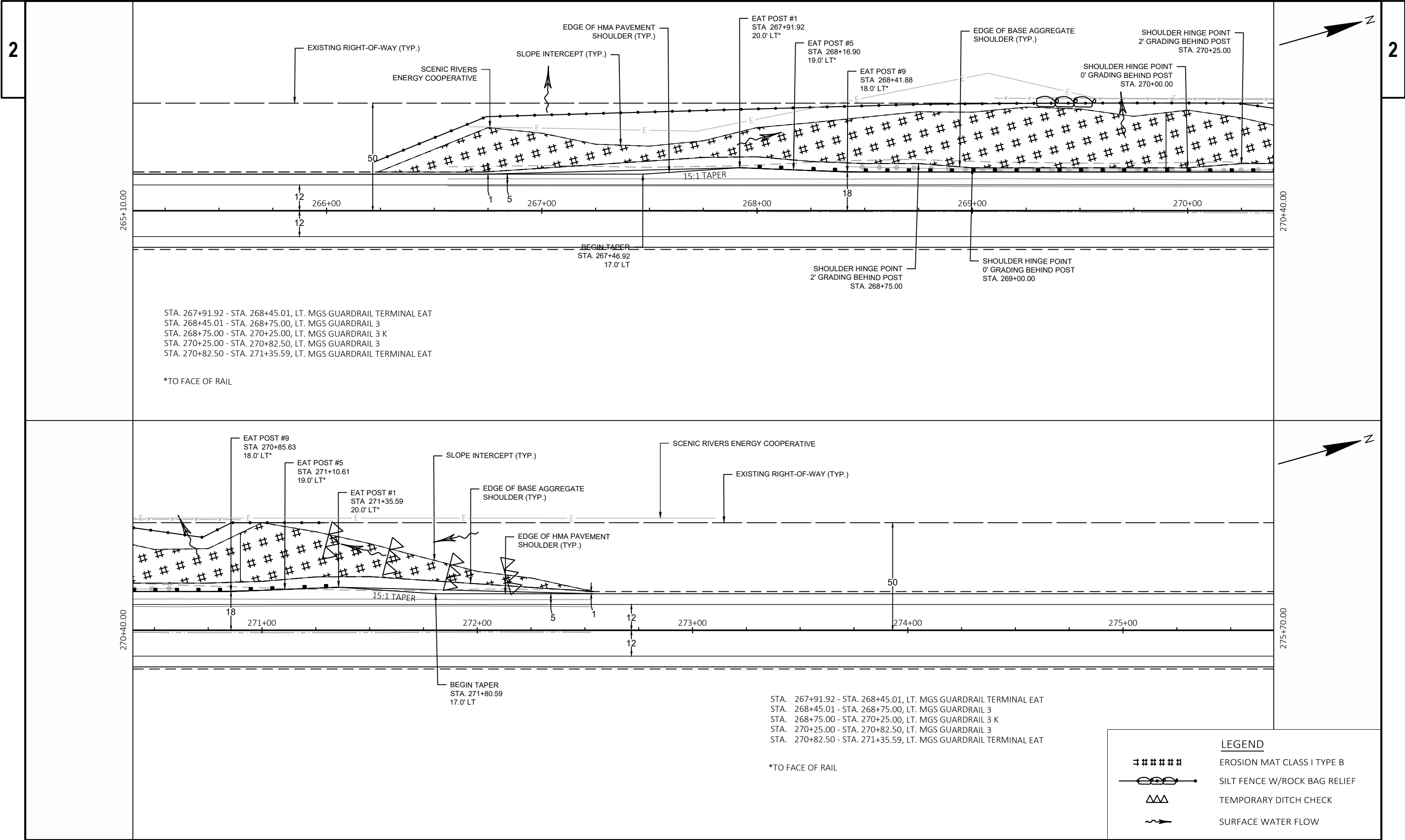


STA. 53+45.57 - STA. 53+98.09, LT. MGS GUARDRAIL TERMINAL EAT
STA. 53+98.09 - STA. 60+16.20, LT. MGS GUARDRAIL 3
STA. 60+16.20 - STA. 60+68.78, LT. MGS GUARDRAIL TERMINAL EAT
*TO FACE OF RAIL

LEGEND

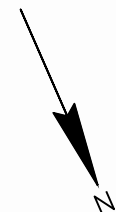
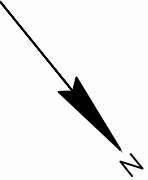
- ##### EROSION MAT CLASS I TYPE B
- SILT FENCE W/ROCK BAG RELIEF
- ▲▲▲ TEMPORARY DITCH CHECK
- ~ SURFACE WATER FLOW





2

2



PROJECT NO:	5245-02-76
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HWY: STH 23

COUNTY: LAFAYETTE

GUARDRAIL DETAILS AND EROSION CONTROL

SHEET	22	E
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FILE NAME : O:\DESIGN\SW\5245-02-06,76 STH 23, LAFAYETTE COUNTY\C3D\52450267\SHEETS\PLAN\022001-EC.DWG
LAYOUT NAME - 07

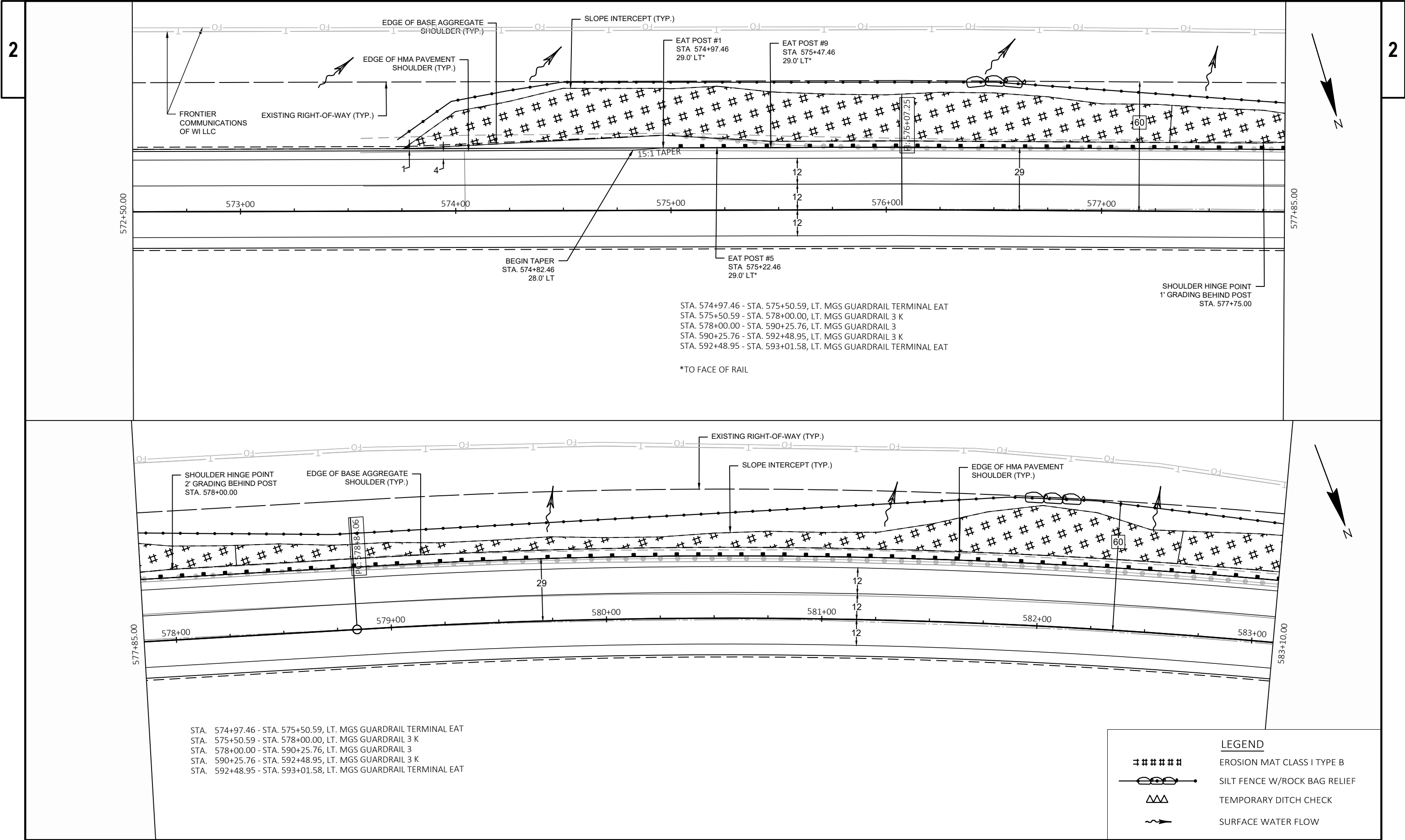
PLOT DATE : 10/26/2021 12:58 PM

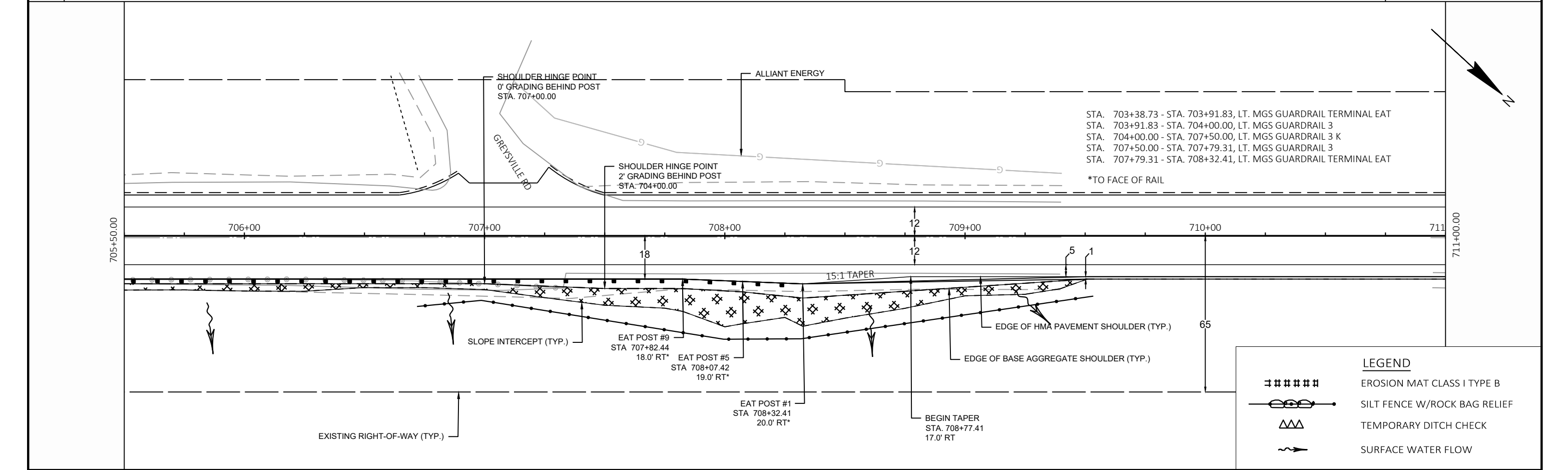
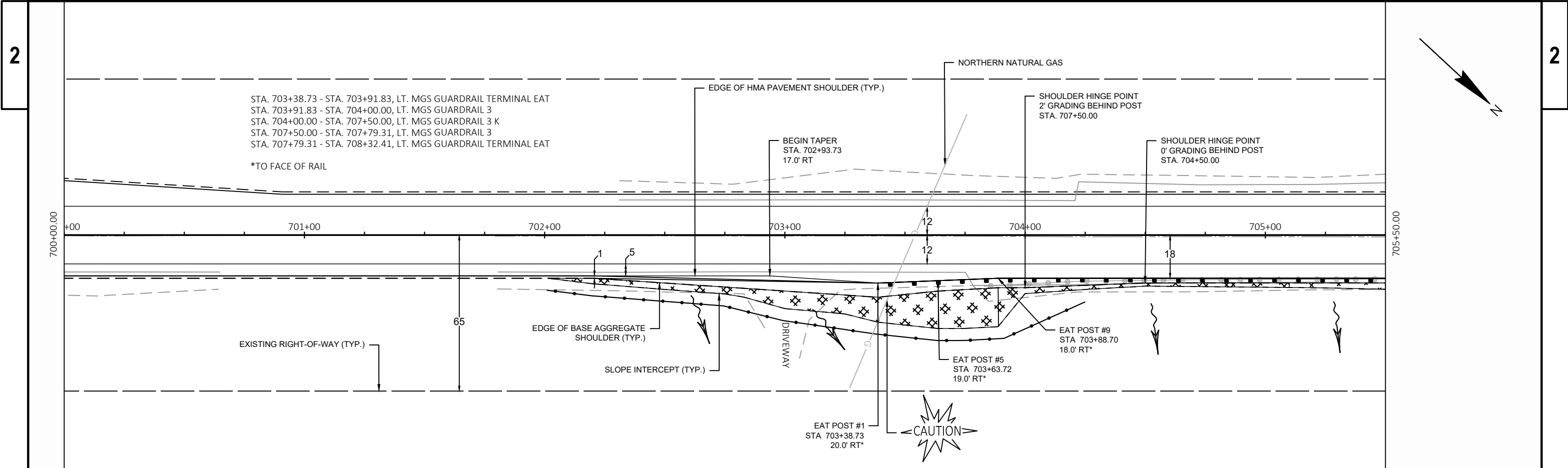
PLOT BY : JAMES GOLDEN

PLOT NAME :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42



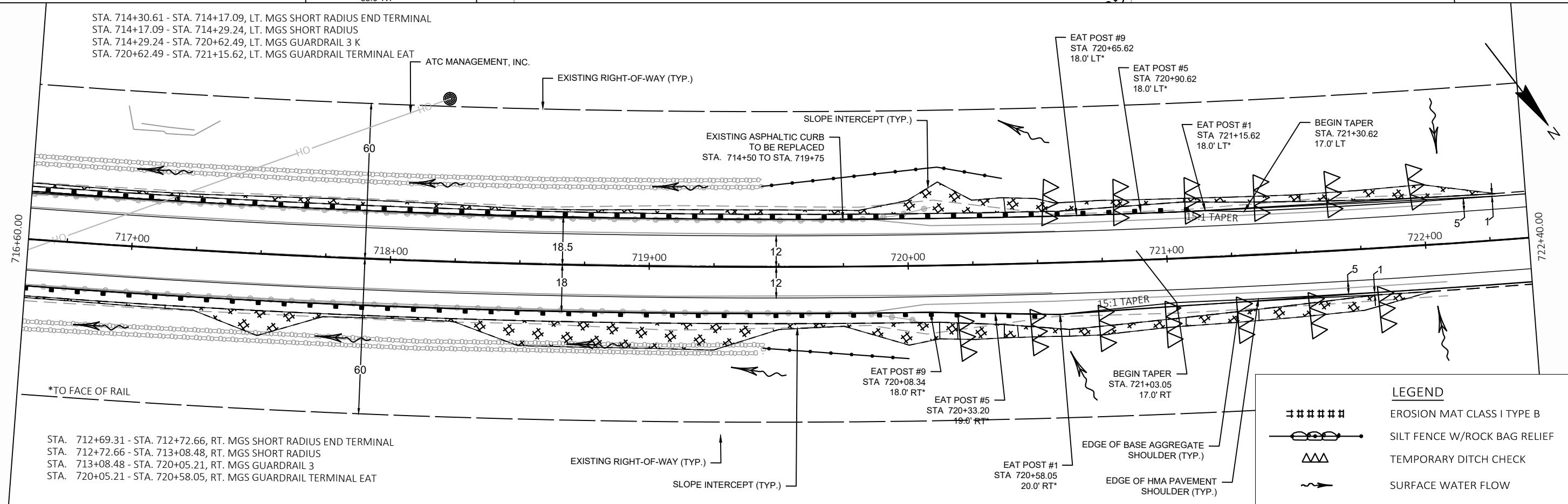
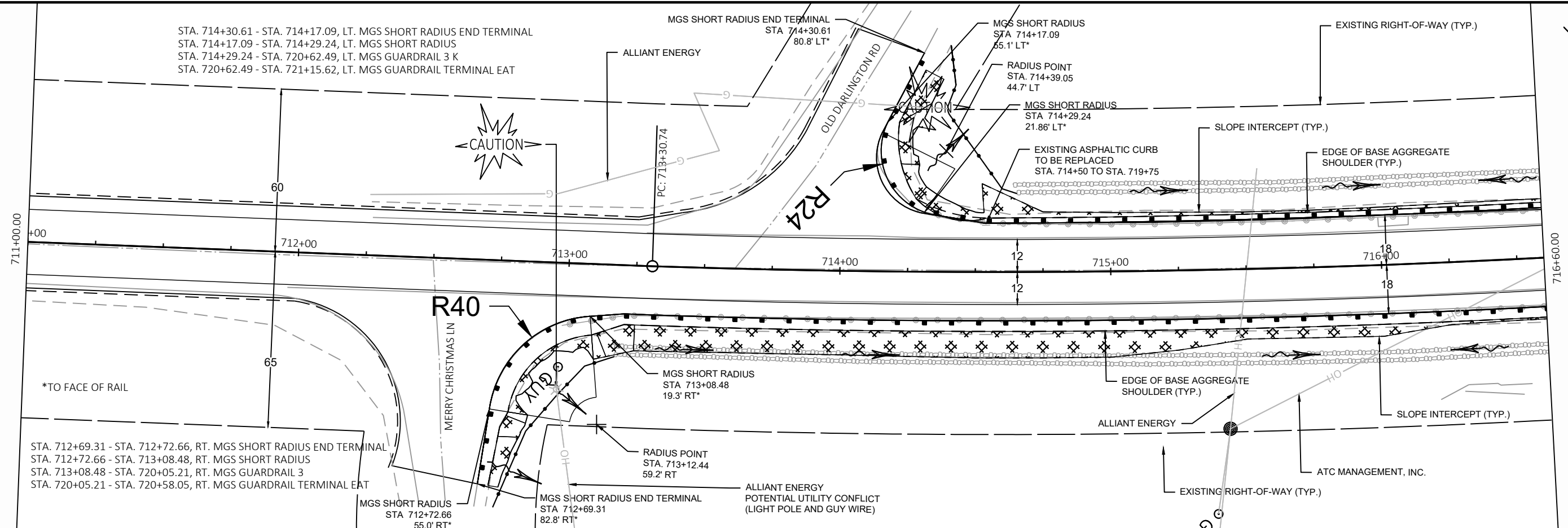


LEGEND

- ##### EROSION MAT CLASS I TYPE B
- SILT FENCE W/ROCK BAG RELIEF
- △△△ TEMPORARY DITCH CHECK
- ~> SURFACE WATER FLOW

2

2



PROJECT NO:	5245-02-76
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HWY: STH 23

COUNTY: LAFAYETTE

GUARDRAIL DETAILS AND EROSION CONTROL

SHEET	28	E
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E

FILE NAME : O:\DESIGN\SW\5245-02-06,76 STH 23, LAFAYETTE COUNTY\C3D\52450267\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 13

PLOT DATE : 10/26/2021 12:58 PM PLOT BY : JAMES GOLDEN

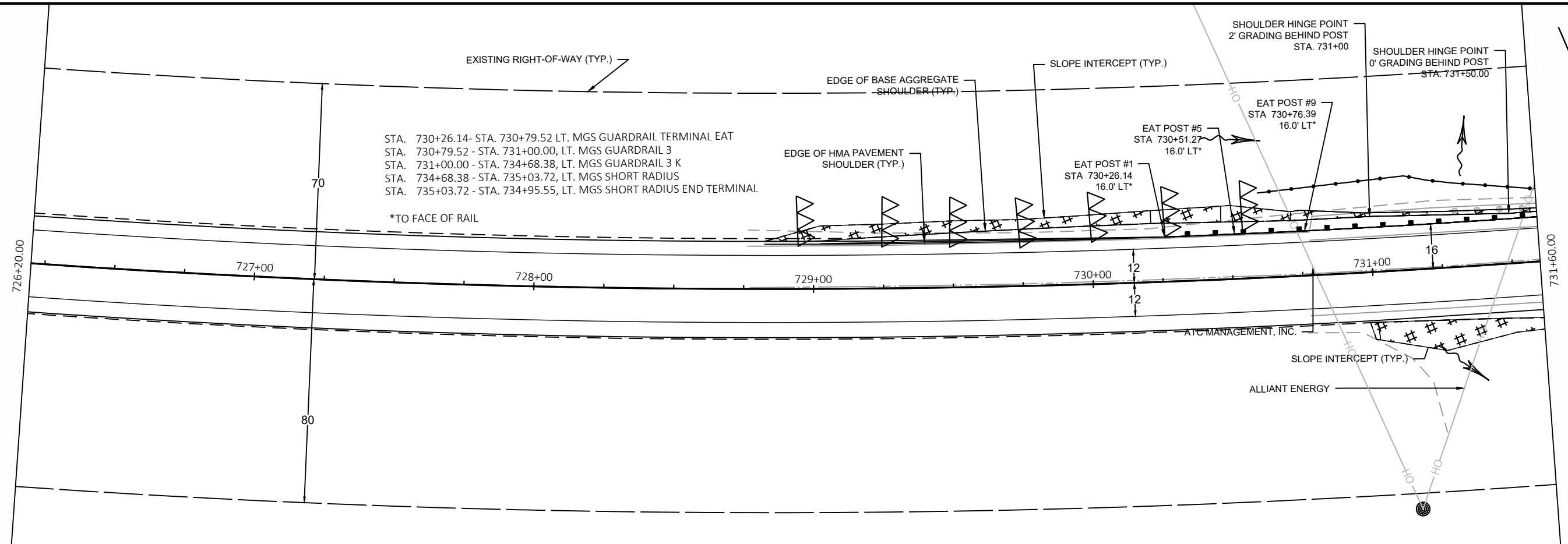
PLOT BY :	JAMES GOLDEN	PLOT NAME :
-----------	--------------	-------------

PLOT NAME :
PLOT SCALE : #####

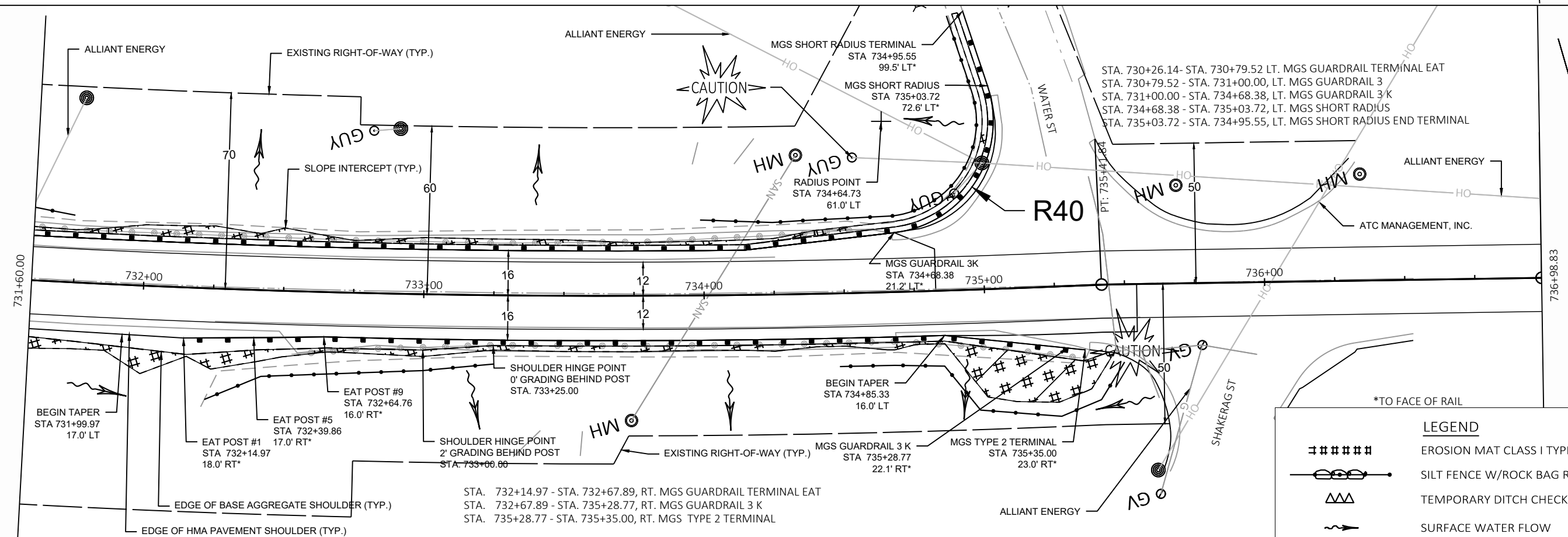
PLOT SCALE : #####

WISDOT/CADDS SHEET 42

2



2 |



LEGEND

#####

EROSION MAT CLASS I TYPE B

SILT FENCE W/ROCK BAG RELIEF



TEMPORARY DITCH CHECK

SURFACE WATER FLOW

PROJECT NO:	5245-02-76
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HWY: STH 23

COUNTY: LAFAYETTE

GUARDRAIL DETAILS AND EROSION CONTROL

SHEET

29

11

FILE NAME : O:\DESIGN\SW\5245-02-06,76 STH 23, LAFAYETTE COUNTY\C3D\52450267\SHEETS\PLAN\022001-EC.DWG
LAYOUT NAME - 14

PLOT DATE : 10/26/2021 12:59 PM

PLOT BY : JAMES GOLDEN

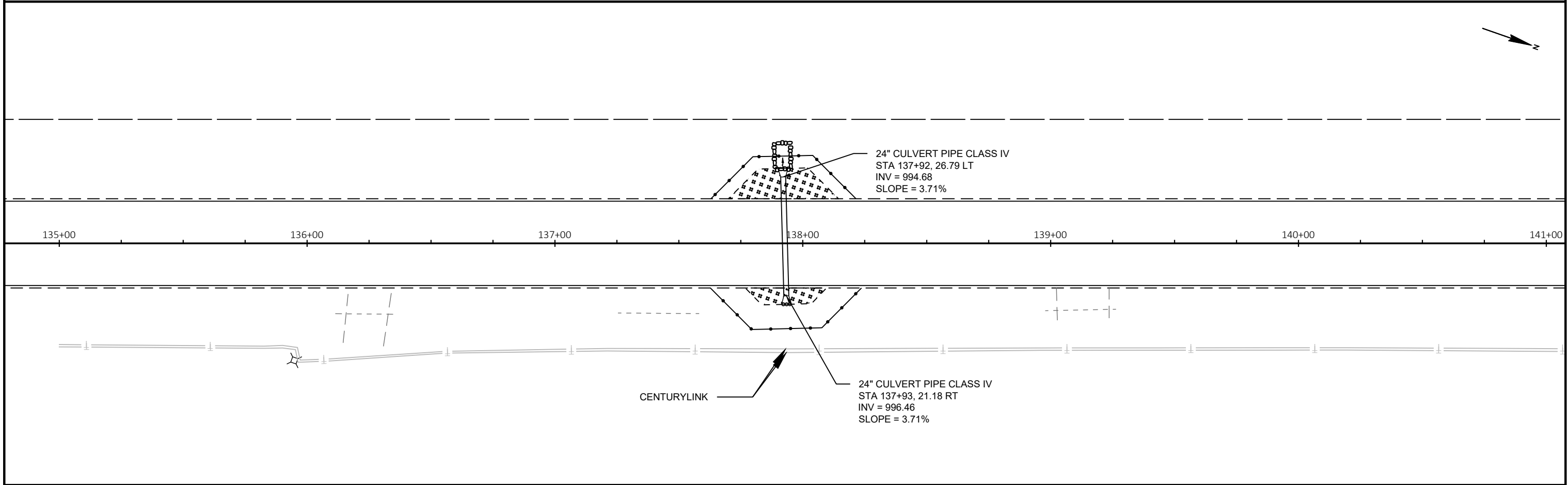
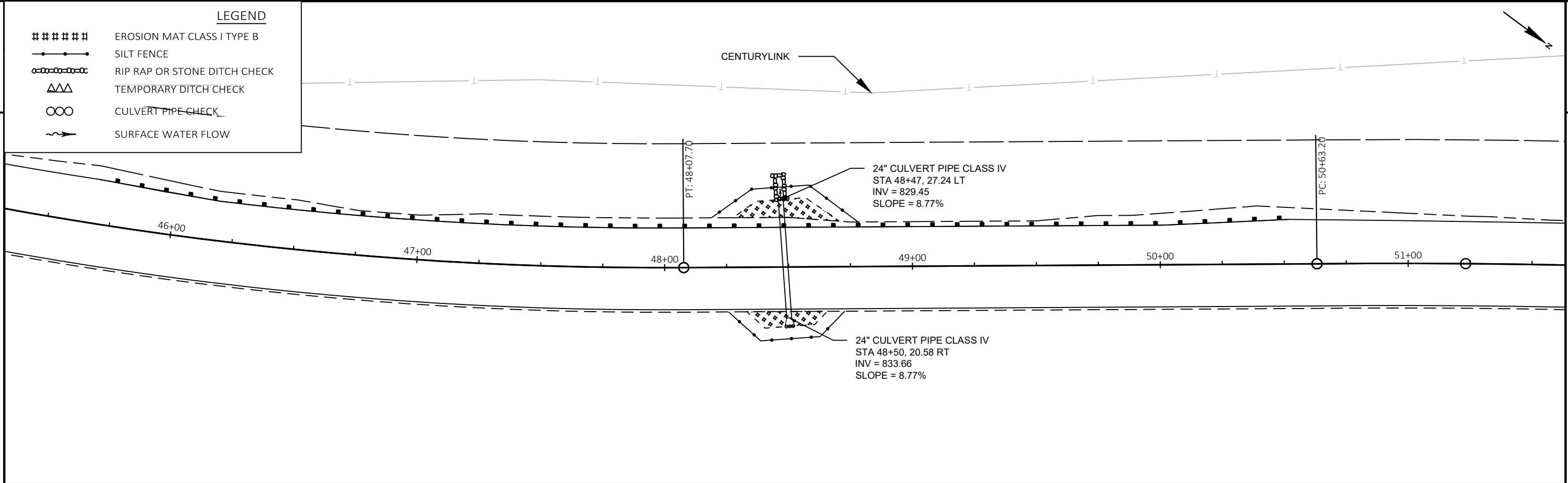
PLOT NAME :

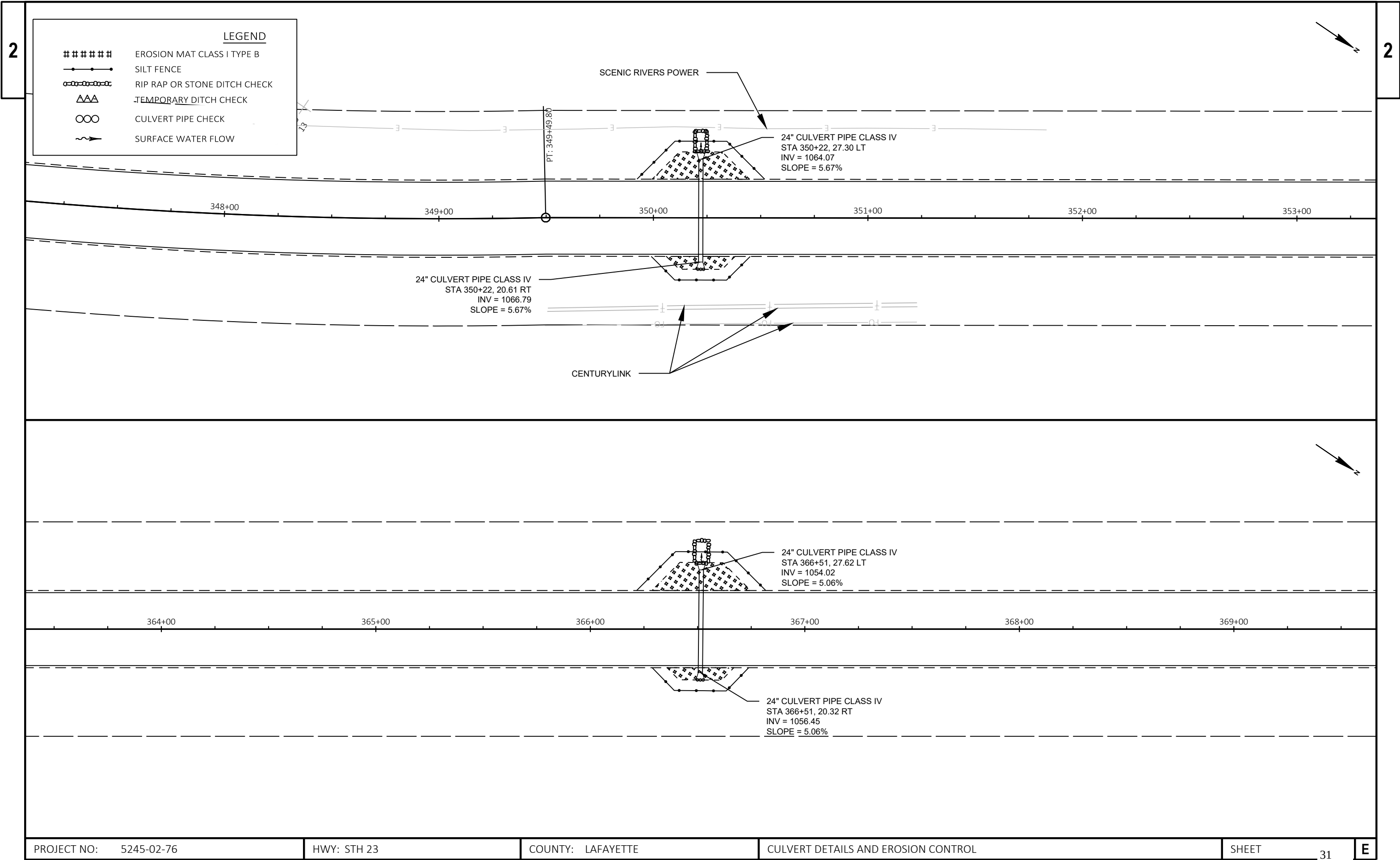
PLOT SCALE : #####

WISDOT/CADDS SHEET 42

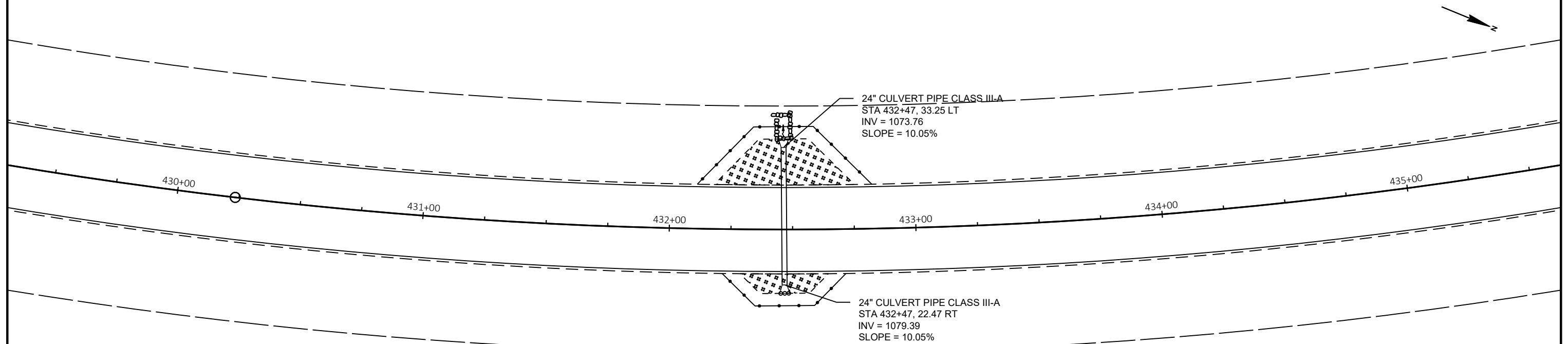
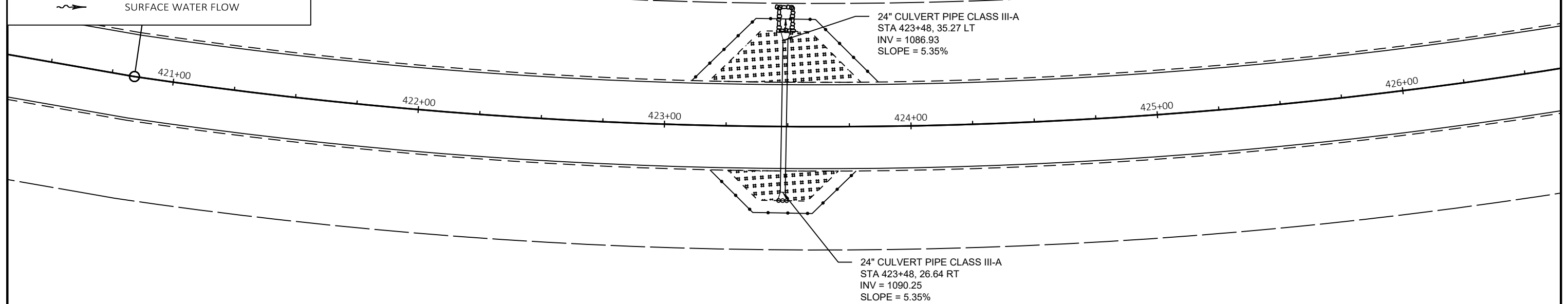
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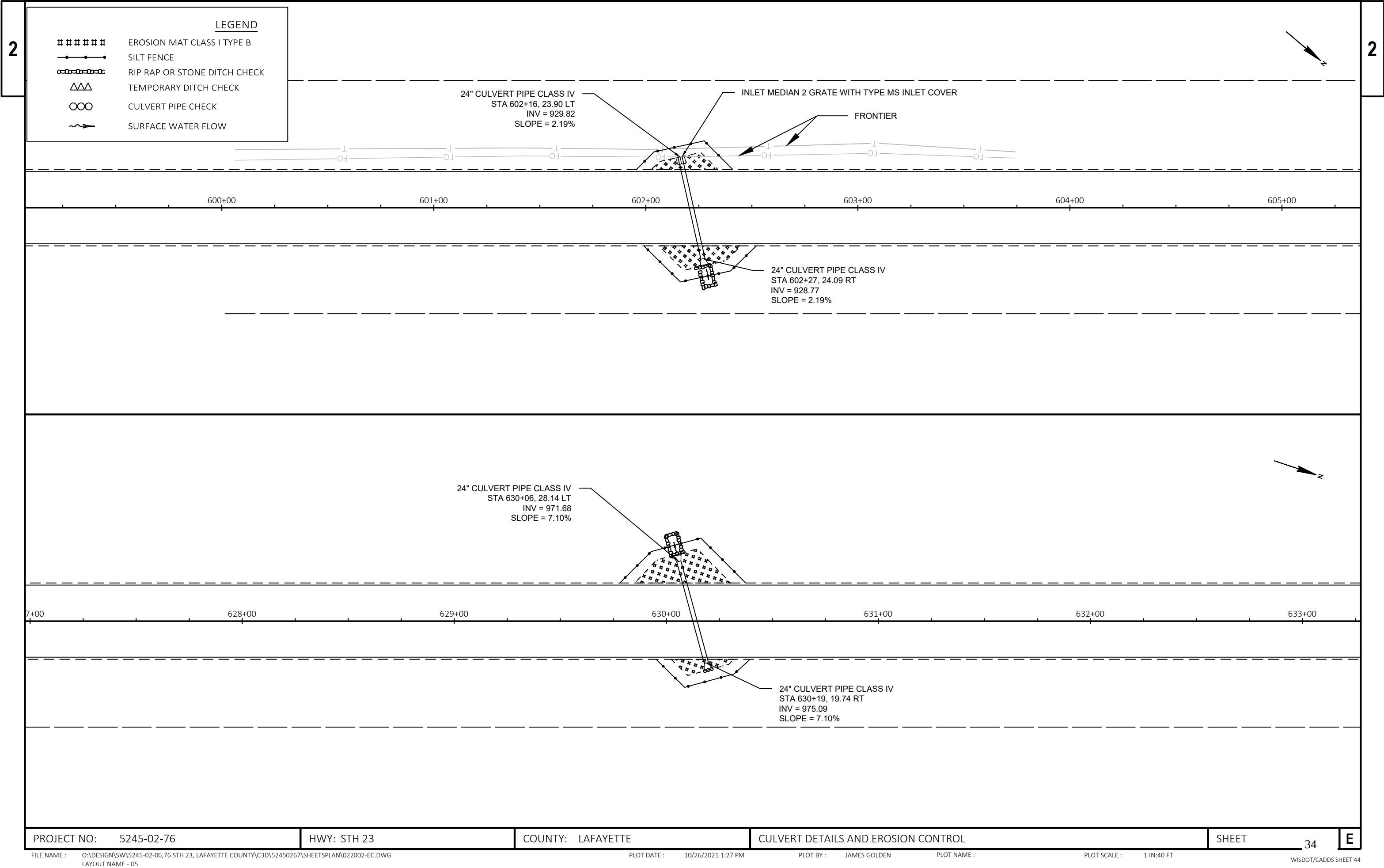
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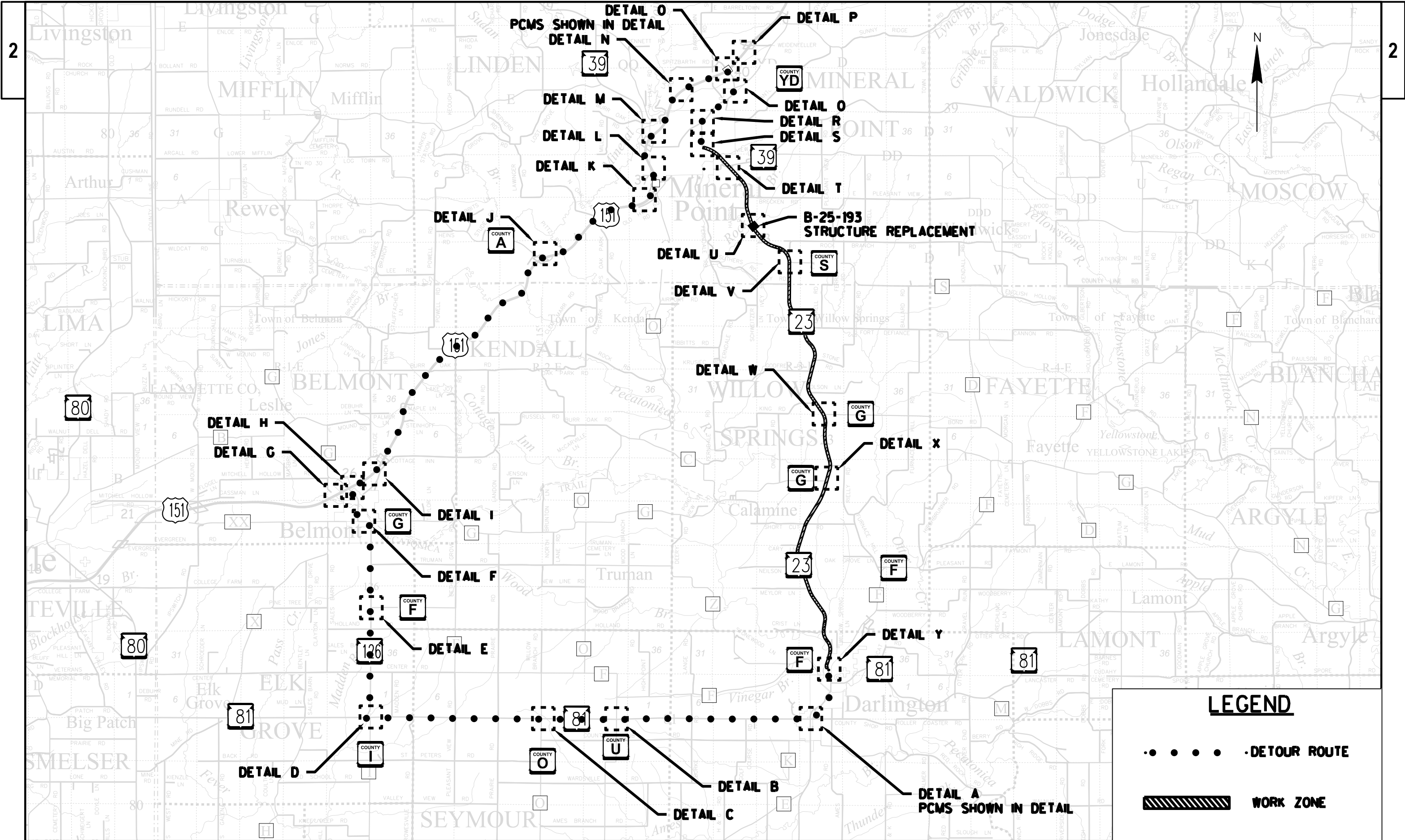


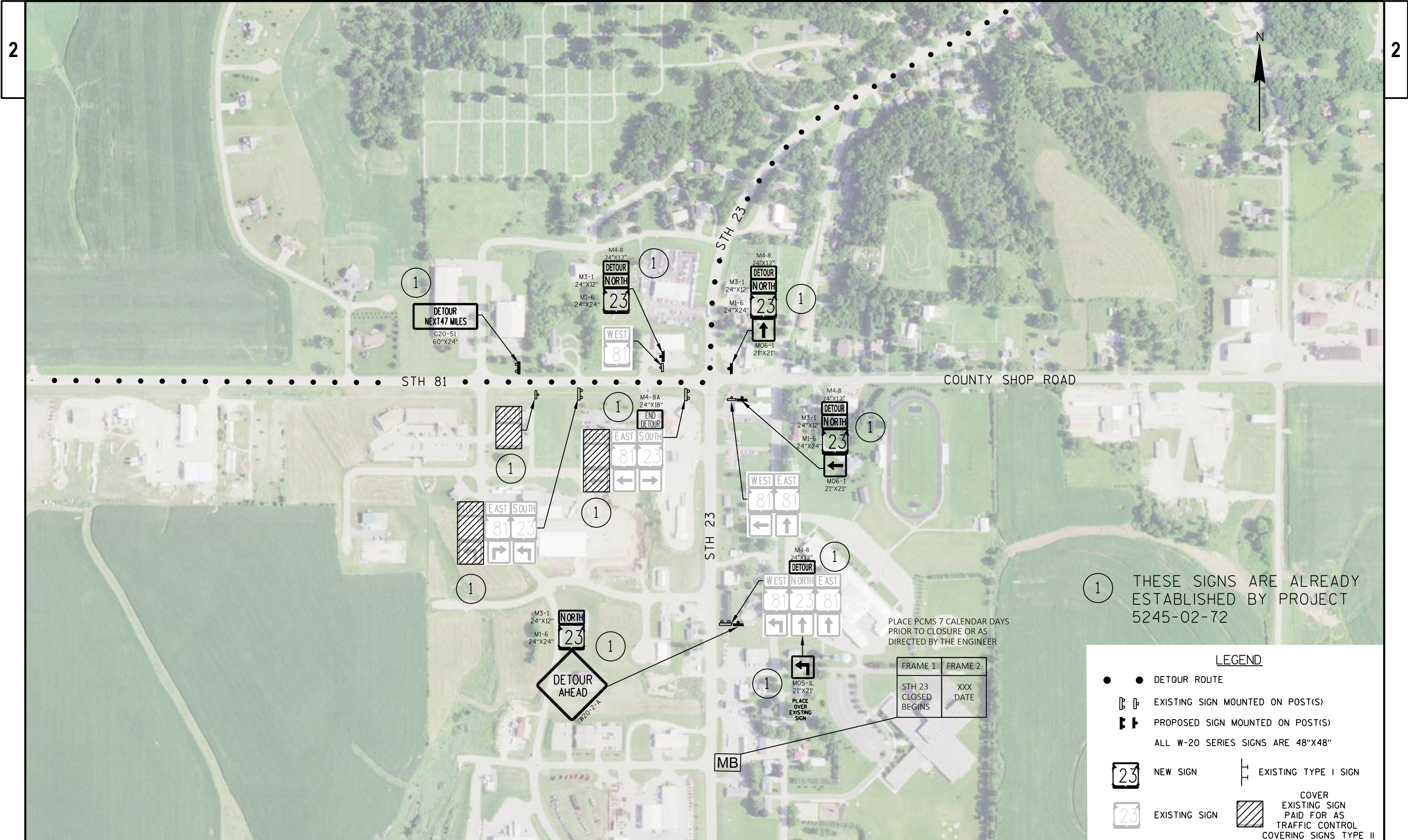


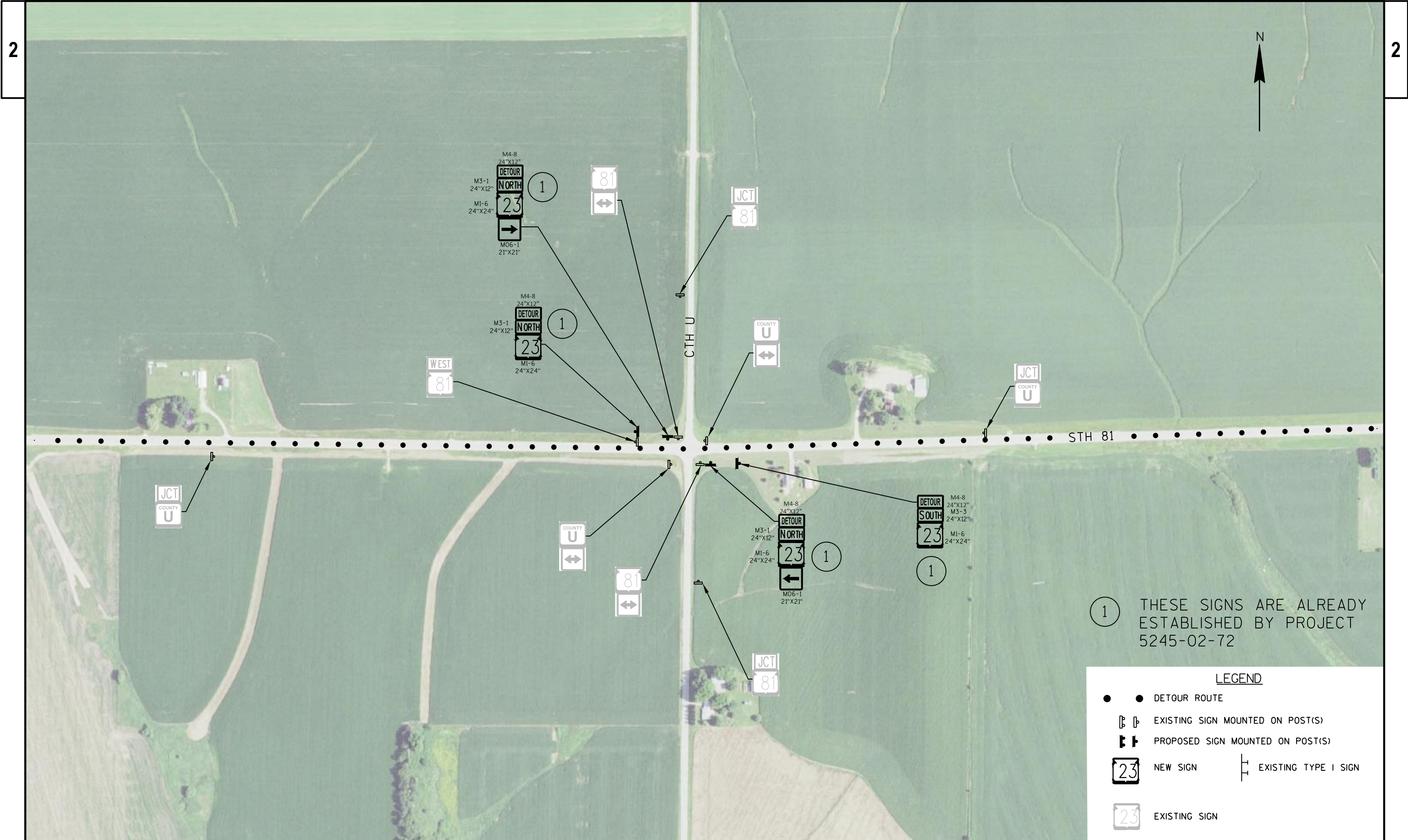
	EROSION MAT CLASS I TYPE B
	SILT FENCE
	RIP RAP OR STONE DITCH CHECK
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	SURFACE WATER FLOW

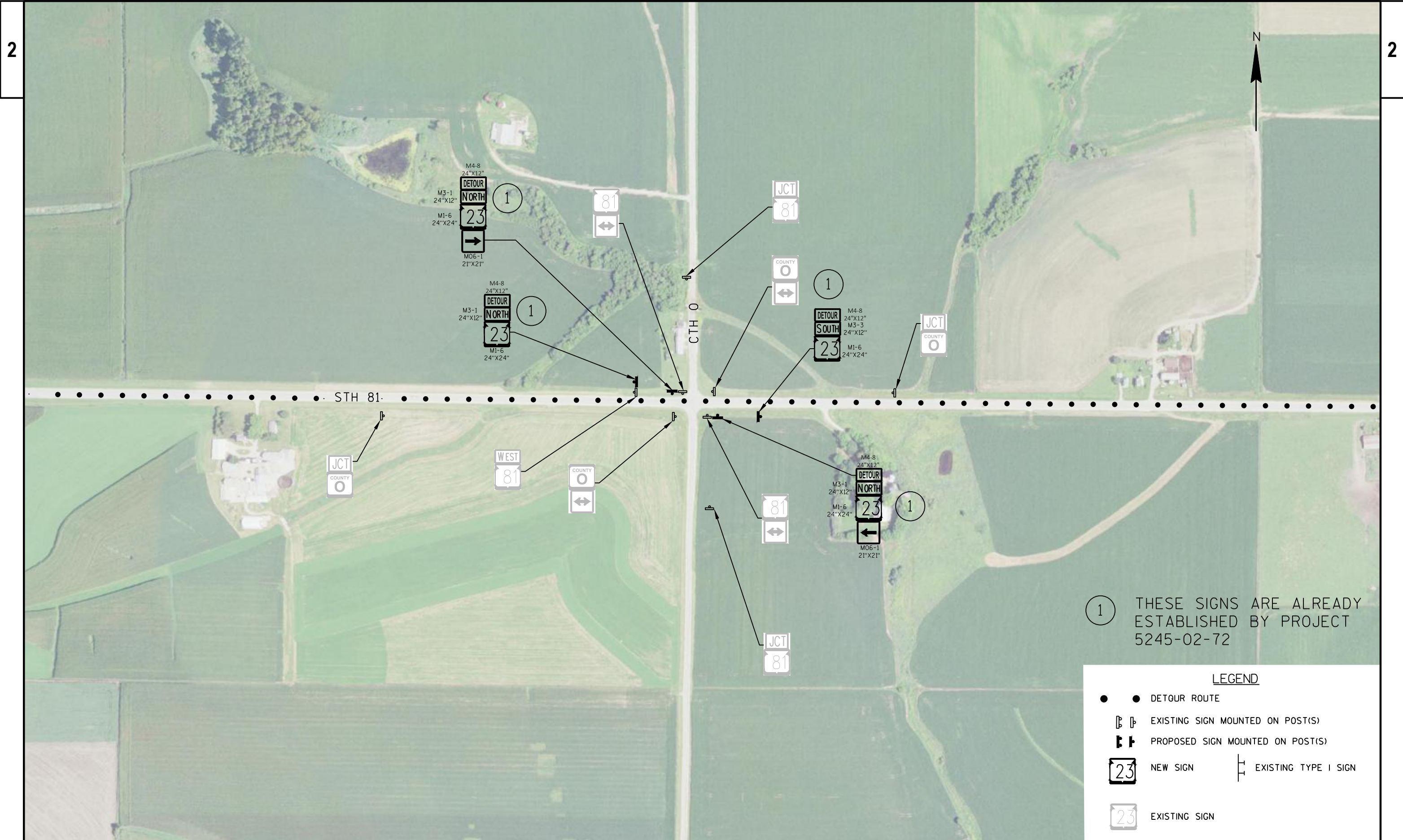


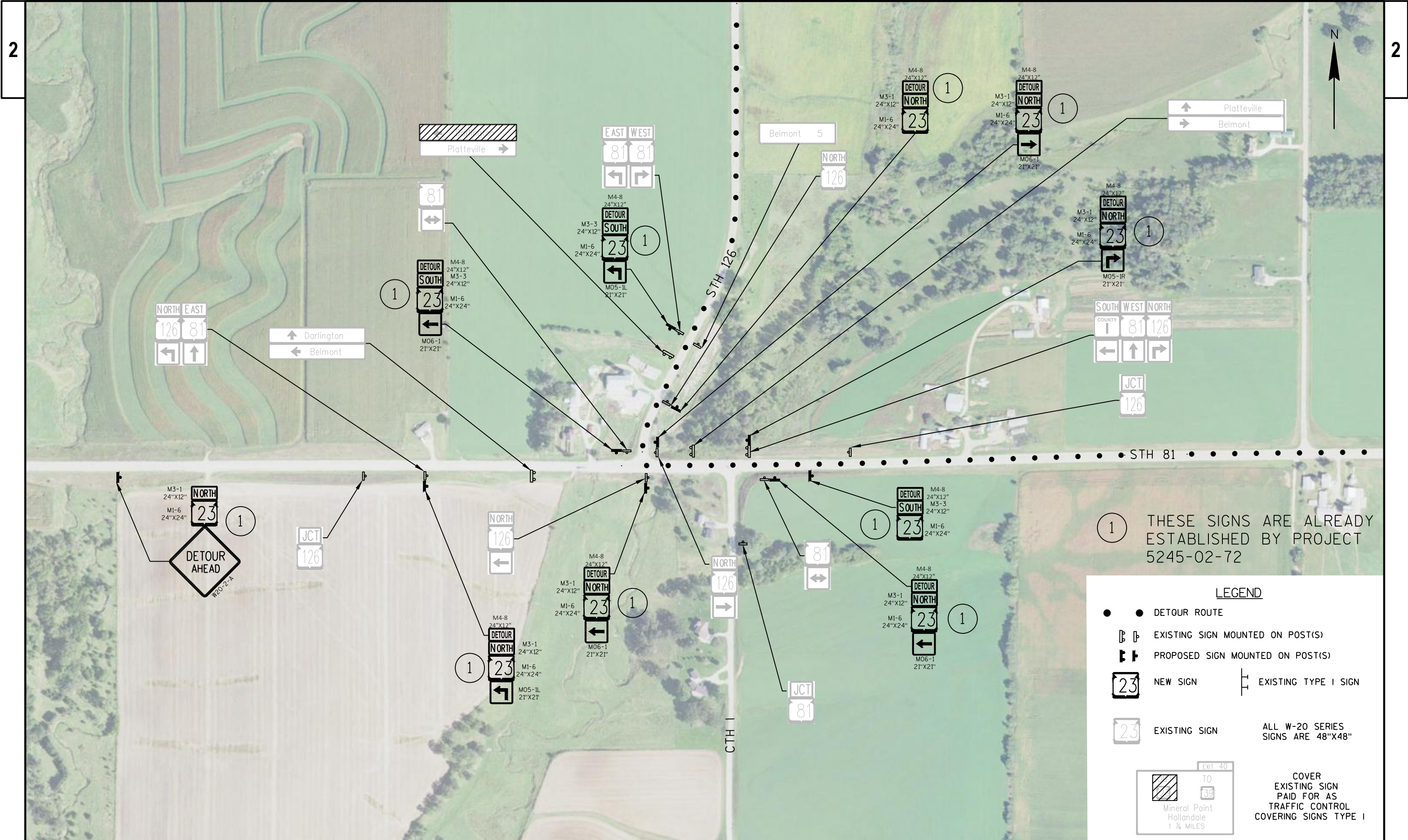












1 THESE SIGNS ARE ALREADY ESTABLISHED BY PROJECT 5245-02-72

LEGEND

- ● DETOUR ROUTE
- ⌵ ⌵ EXISTING SIGN MOUNTED ON POST(S)
- ⌵ ⌵ PROPOSED SIGN MOUNTED ON POST(S)
- 23 NEW SIGN
- 23 EXISTING SIGN
- ⌵ EXISTING TYPE I SIGN
- ALL W-20 SERIES SIGNS ARE 48"X48"

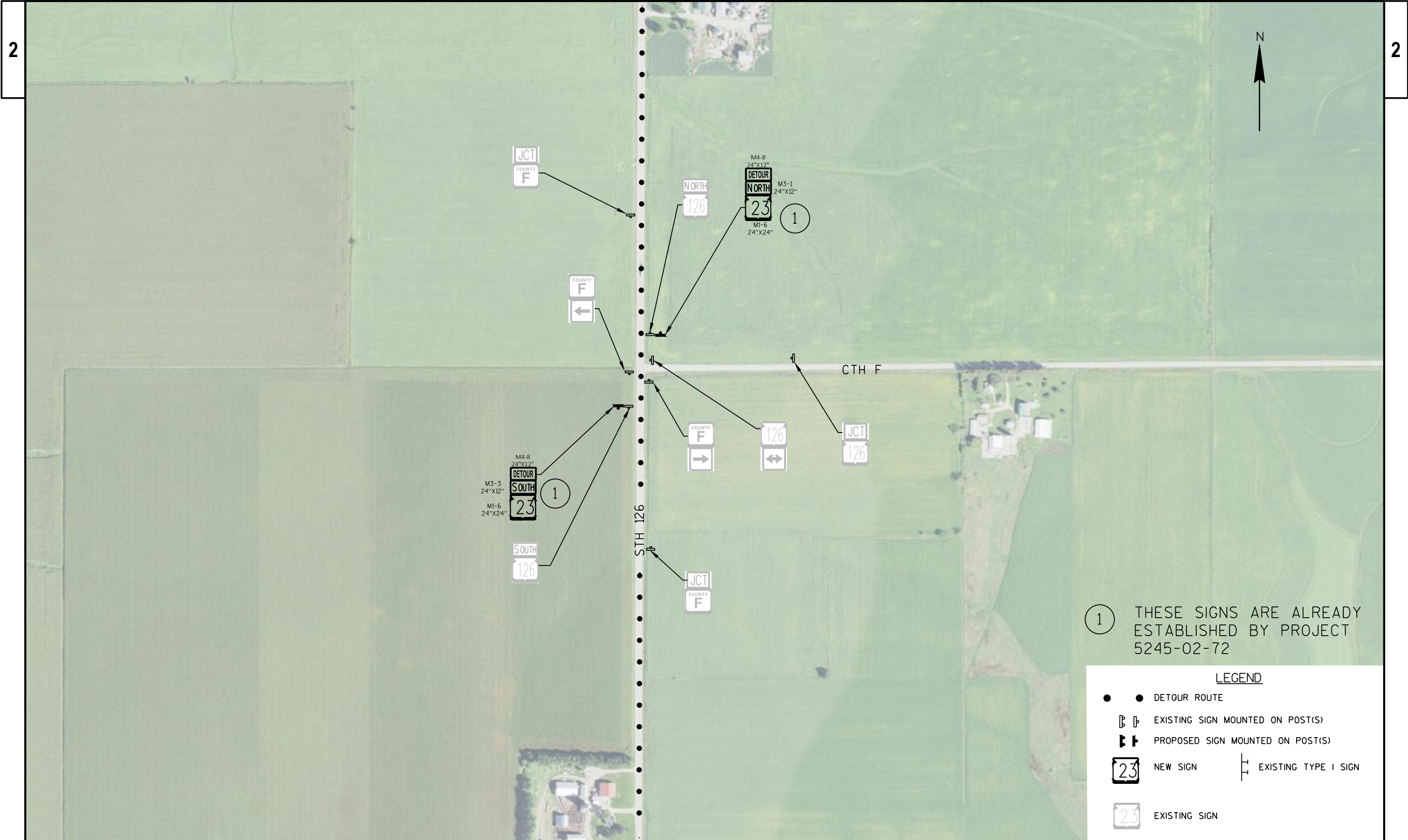
EXIT 40

TO

39

Mineral Point
Hollandale
1 1/4 MILES

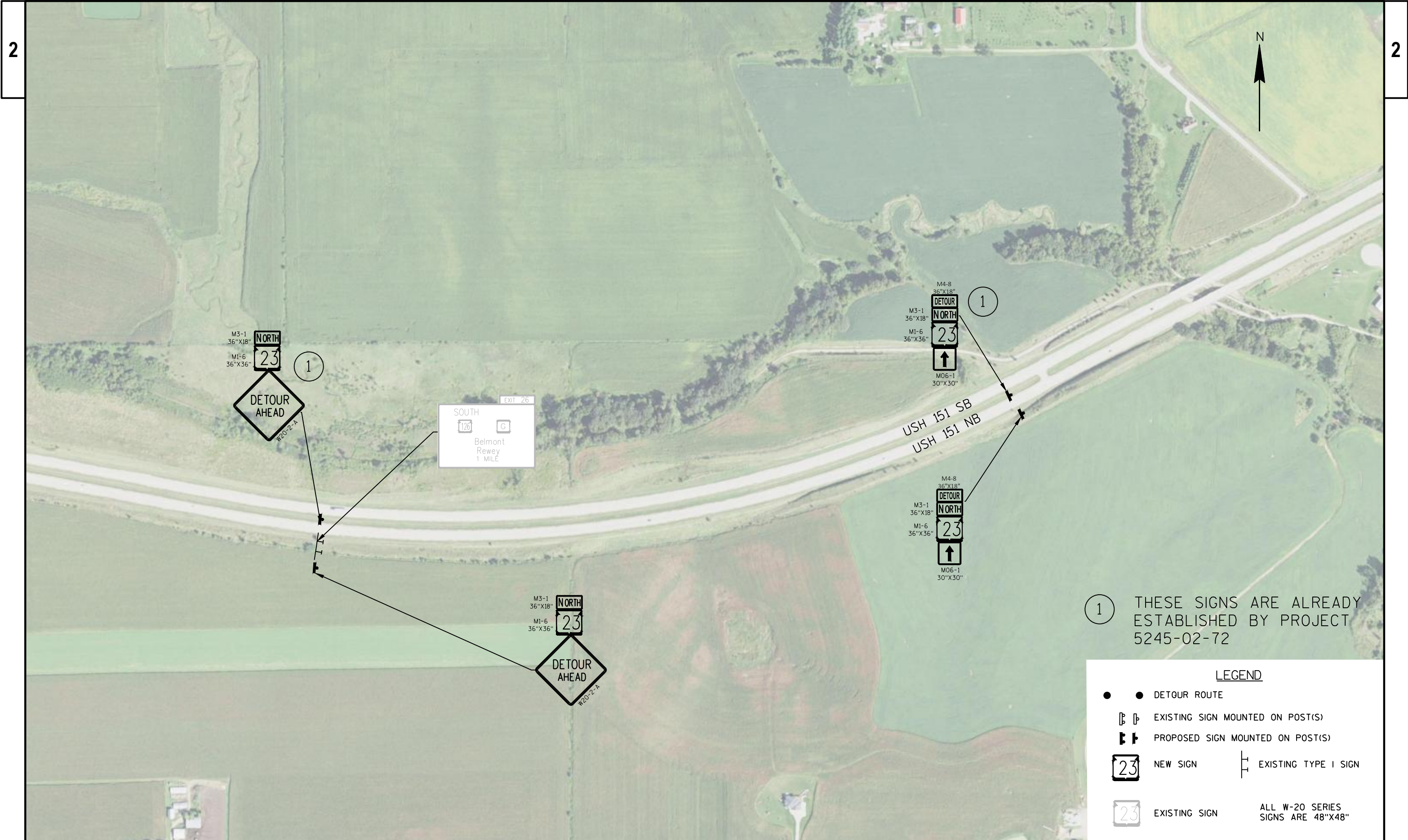
COVER
EXISTING SIGN
PAID FOR AS
TRAFFIC CONTROL
COVERING SIGNS TYPE I





- DETOUR ROUTE
- ⌋ ⌋ EXISTING SIGN MOUNTED ON POST(S)
- ⌋ ⌋ PROPOSED SIGN MOUNTED ON POST(S)
- NEW SIGN EXISTING TYPE 1 SIGN
- EXISTING SIGN

COVER
EXISTING SIGN
PAID FOR AS
TRAFFIC CONTROL
COVERING SIGNS TYPE I



1 THESE SIGNS ARE ALREADY ESTABLISHED BY PROJECT 5245-02-72

LEGEND

DETOUR ROUTE

EXISTING SIGN MOUNTED ON POST(S)

PROPOSED SIGN MOUNTED ON POST(S)

23

NEW SIGN

EXISTING TYPE I SIGN

23

EXISTING SIGN

ALL W-20 SERIES SIGNS ARE 48\"/>

PROJECT NO: 5245-02-76

HWY: STH 23

COUNTY: LAFAYETTE

DETOUR PLAN - DETAIL G

SHEET 42

E

FILE NAME : O:\DESIGN\SW\5245-02-06\76 STH 23, LAFAYETTE COUNTY\C3D\52450267\SHEETSPLAN\DETOUR\027002-DT.DWG

LAYOUT NAME - 027002-dtg

PLOT DATE : 7/23/2021 11:40 AM

PLOT BY : NICK FULTON

PLOT NAME :

PLOT SCALE : 1 IN=400 FT

WISDOT/CADDs SHEET 42



● ● DETOUR ROUTE

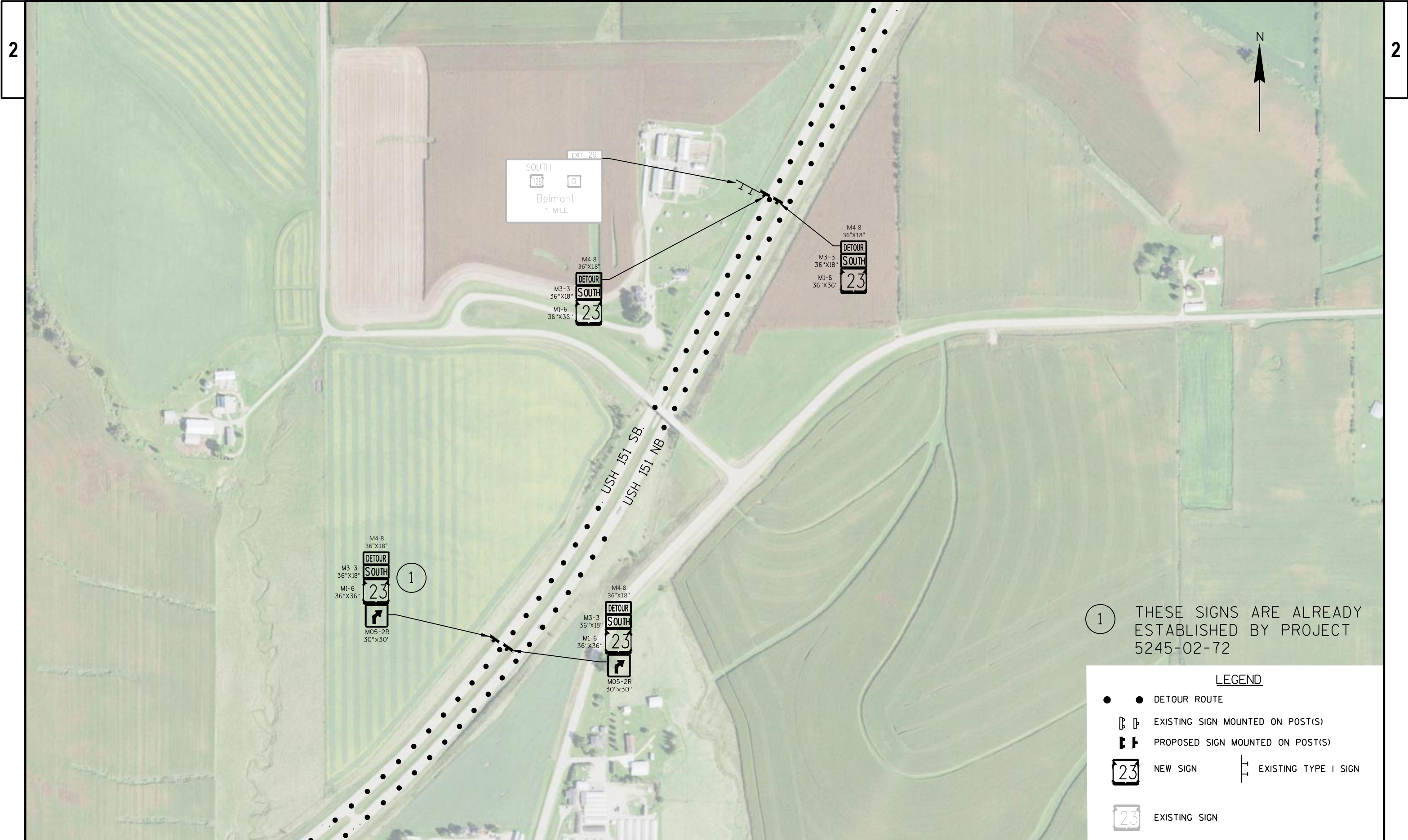
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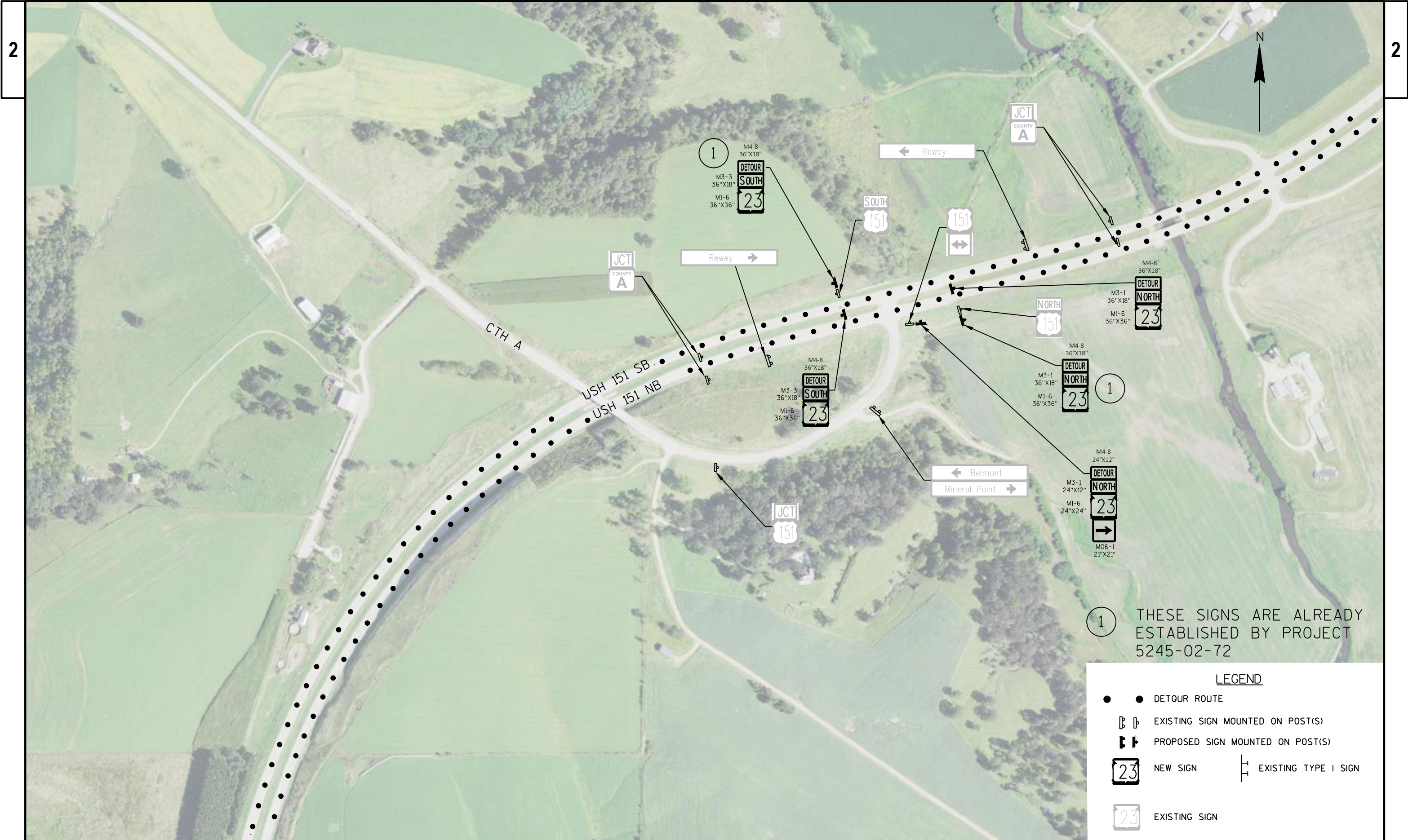
 PROPOSED SIGN MOUNTED ON POST(S)

 NEW SIGN

 EXISTING TYPE 1 SIGN

 EXISTING SIGN





1 THESE SIGNS ARE ALREADY ESTABLISHED BY PROJECT 5245-02-72

LEGEND

●

●

DETOUR ROUTE

⌵

⌵

EXISTING SIGN MOUNTED ON POST(S)

⌵

⌵

PROPOSED SIGN MOUNTED ON POST(S)

23

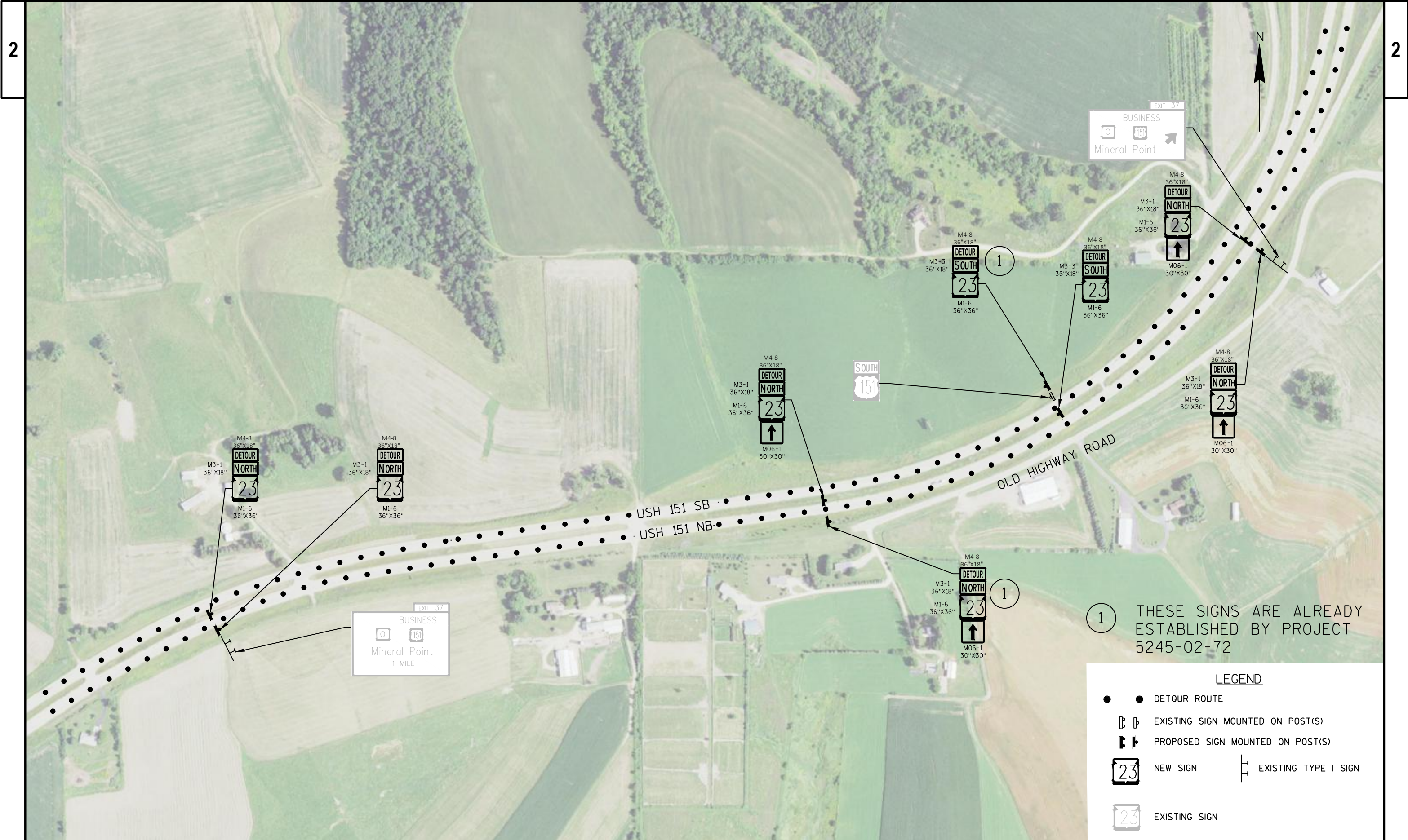
NEW SIGN

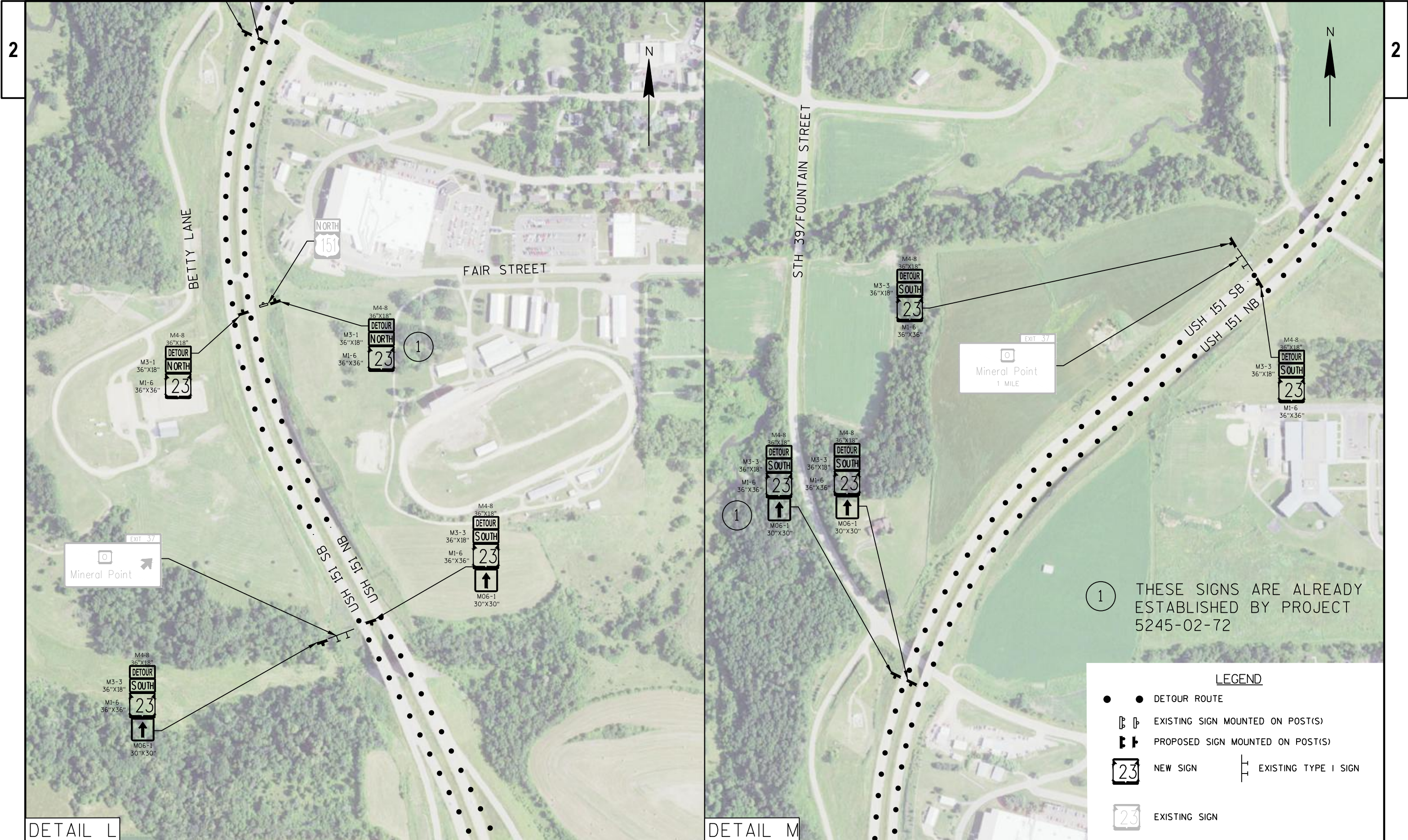
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EXISTING TYPE I SIGN

23

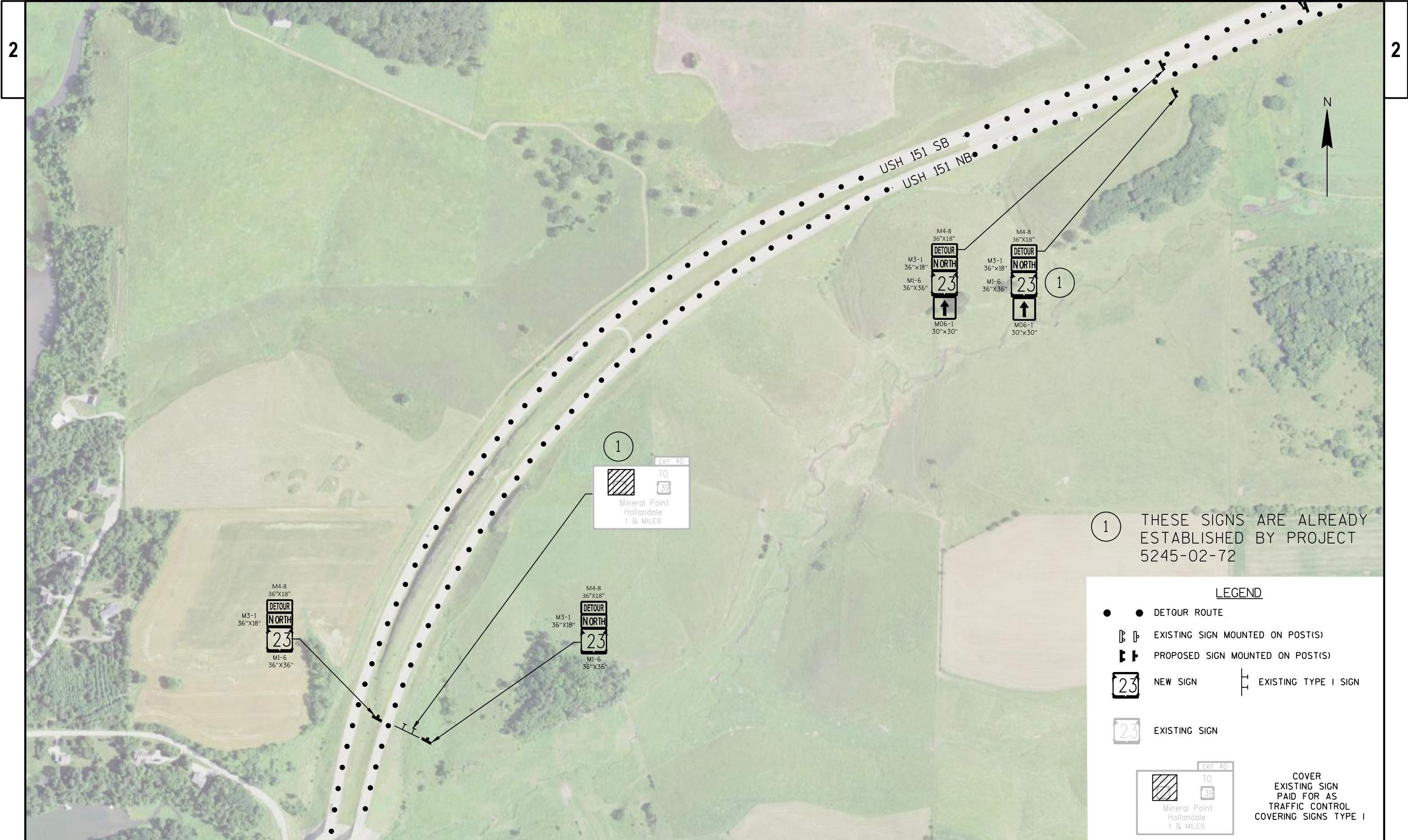
EXISTING SIGN





DETAIL L

DETAIL M

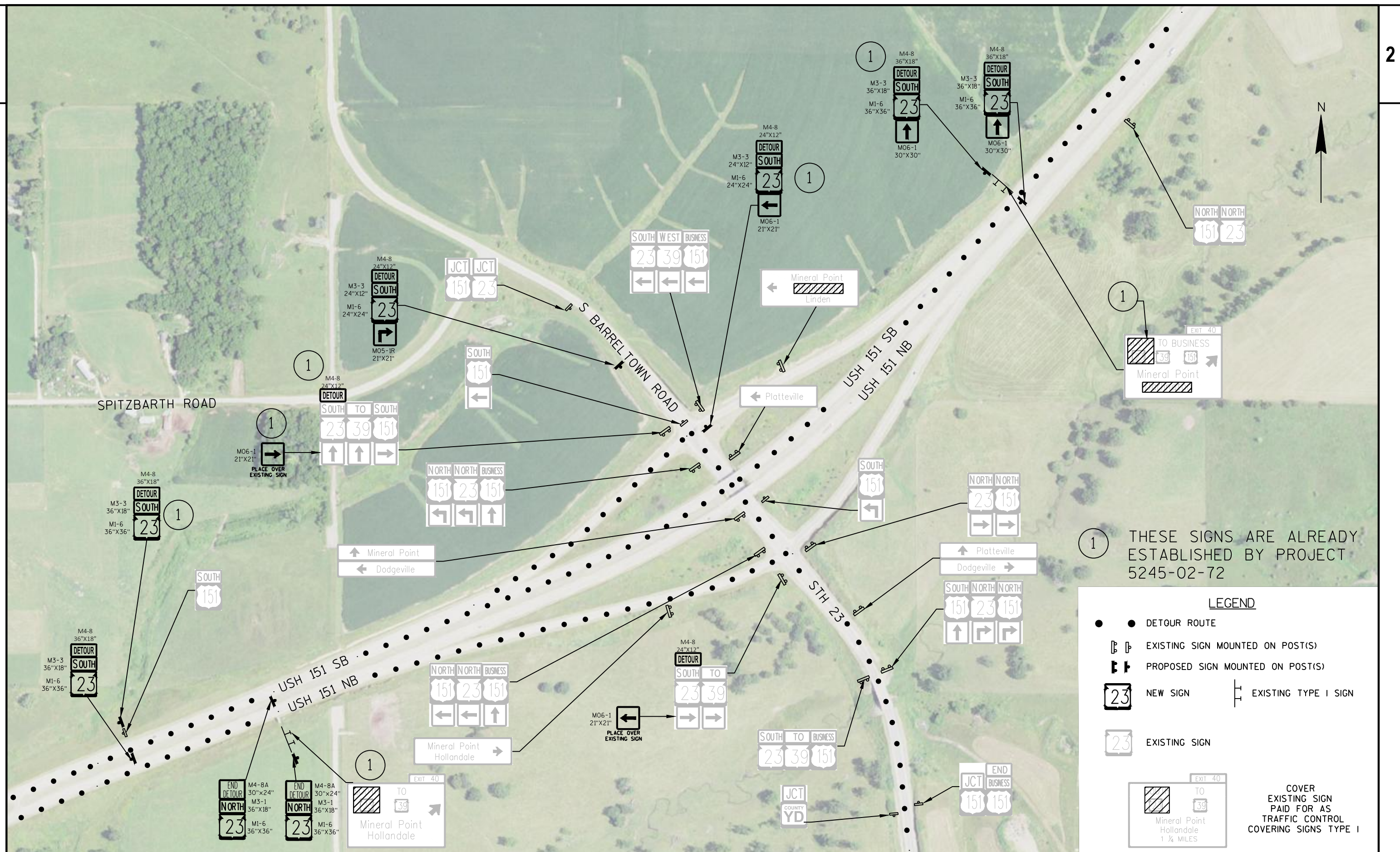


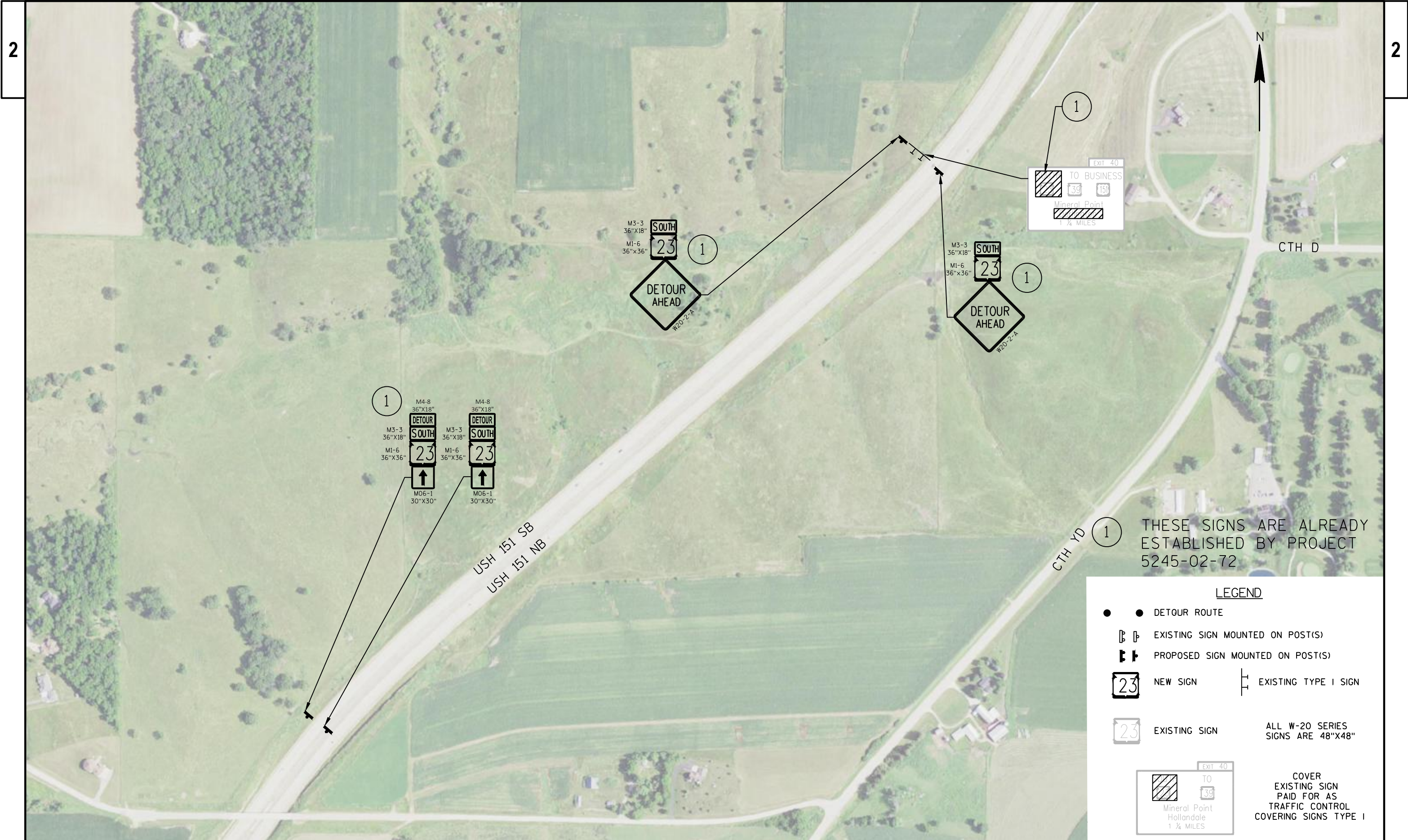
1 THESE SIGNS ARE ALREADY ESTABLISHED BY PROJECT 5245-02-72

LEGEND

- ● DETOUR ROUTE
- ⌵ ⌵ EXISTING SIGN MOUNTED ON POST(S)
- ⌵ ⌵ PROPOSED SIGN MOUNTED ON POST(S)
- 23 NEW SIGN
- 23 EXISTING SIGN
- ⌵ EXISTING TYPE I SIGN
- EXIT 40
TO
39
Mineral Point
Hollandale
1 1/4 MILES

COVER
EXISTING SIGN
PAID FOR AS
TRAFFIC CONTROL
COVERING SIGNS TYPE I





LEGEND

- ● DETOUR ROUTE
- ⌵ ⌵ EXISTING SIGN MOUNTED ON POST(S)
- ⌵ ⌵ PROPOSED SIGN MOUNTED ON POST(S)
- 23 NEW SIGN
- 23 EXISTING SIGN
- ⌵ EXISTING TYPE I SIGN
- ALL W-20 SERIES SIGNS ARE 48"X48"
- COVER EXISTING SIGN PAID FOR AS TRAFFIC CONTROL COVERING SIGNS TYPE I



ARE ALREADY
BY PROJECT

LEGEND

●

●

DETOUR ROUTE

⌵

⌵

EXISTING SIGN MOUNTED ON POST(S)

⌵

⌵

PROPOSED SIGN MOUNTED ON POST(S)

23

NEW SIGN

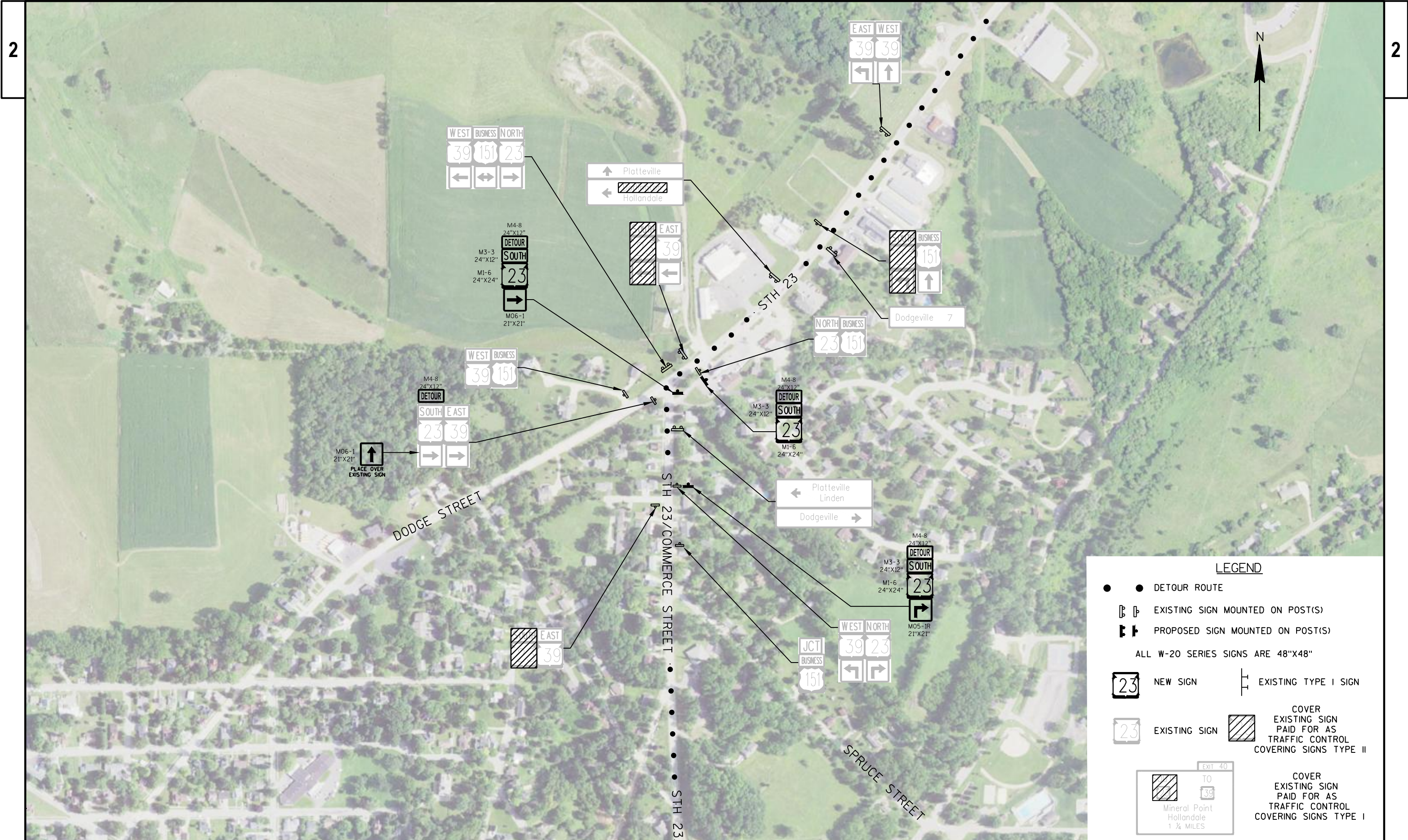
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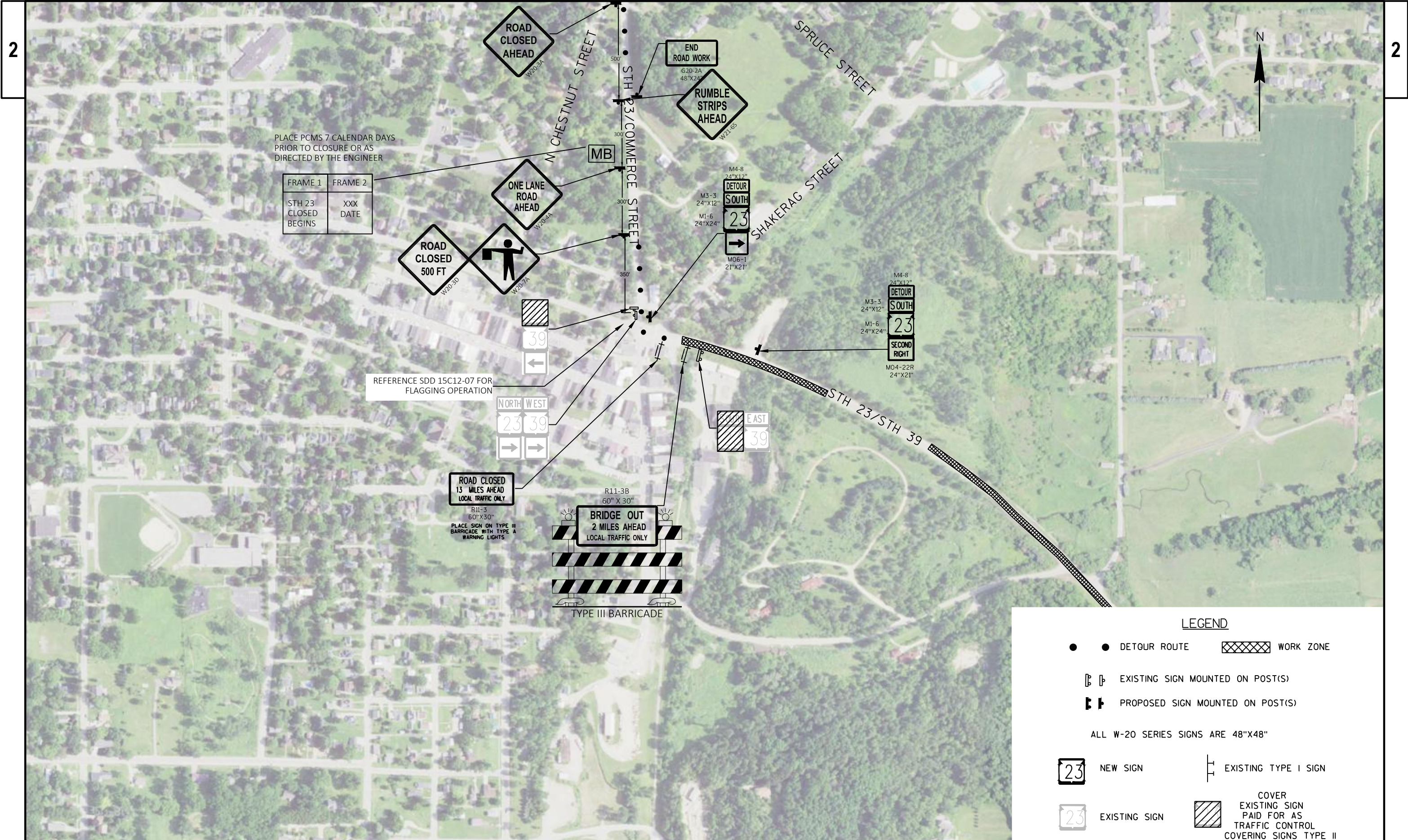
EXISTING SIGN

⌵

EXISTING TYPE I SIGN

COVER
EXISTING SIGN
PAID FOR AS
TRAFFIC CONTROL
COVERING SIGNS TYPE II





PLACE PCMS 7 CALENDAR DAYS
PRIOR TO CLOSURE OR AS
DIRECTED BY THE ENGINEER

FRAME 1	FRAME 2
STH 23 CLOSED BEGINS	XXX DATE

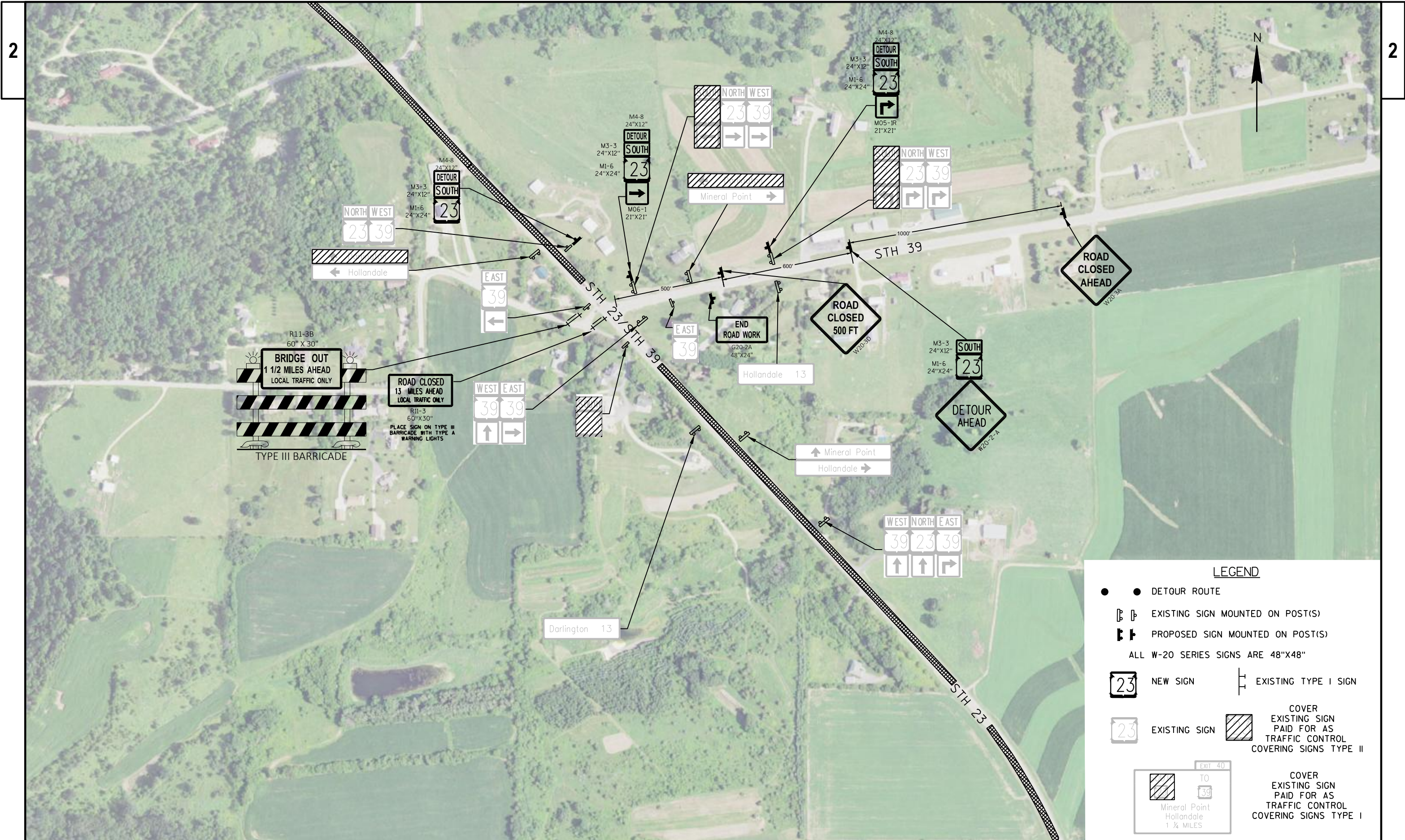
REFERENCE SDD 15C12-07 FOR
FLAGGING OPERATION

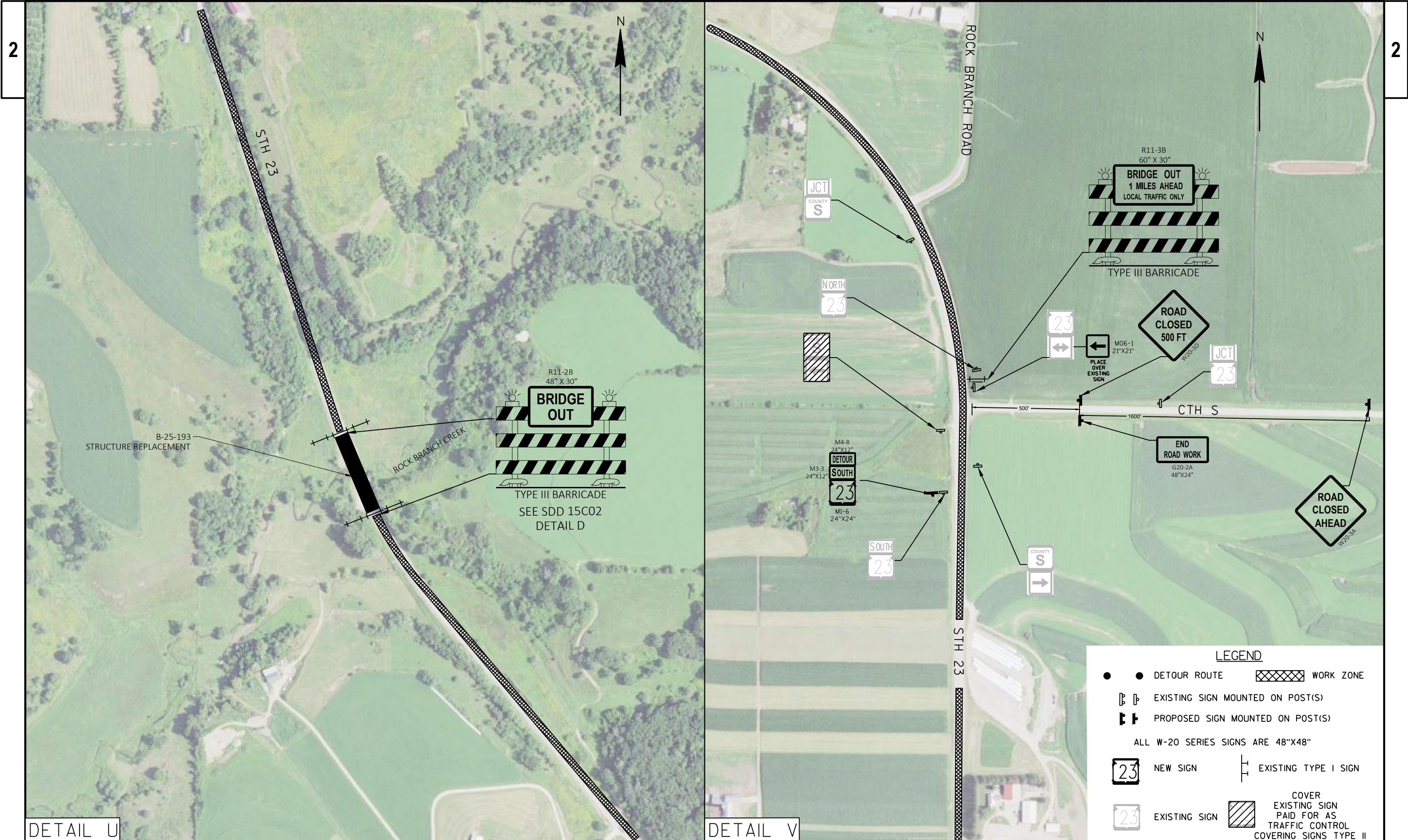
ROAD CLOSED
13 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"
PLACE SIGN ON TYPE III
BARRICADE WITH TYPE A
WARNING LIGHTS

BRIDGE OUT
2 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3B
60" X 30"
TYPE III BARRICADE

LEGEND

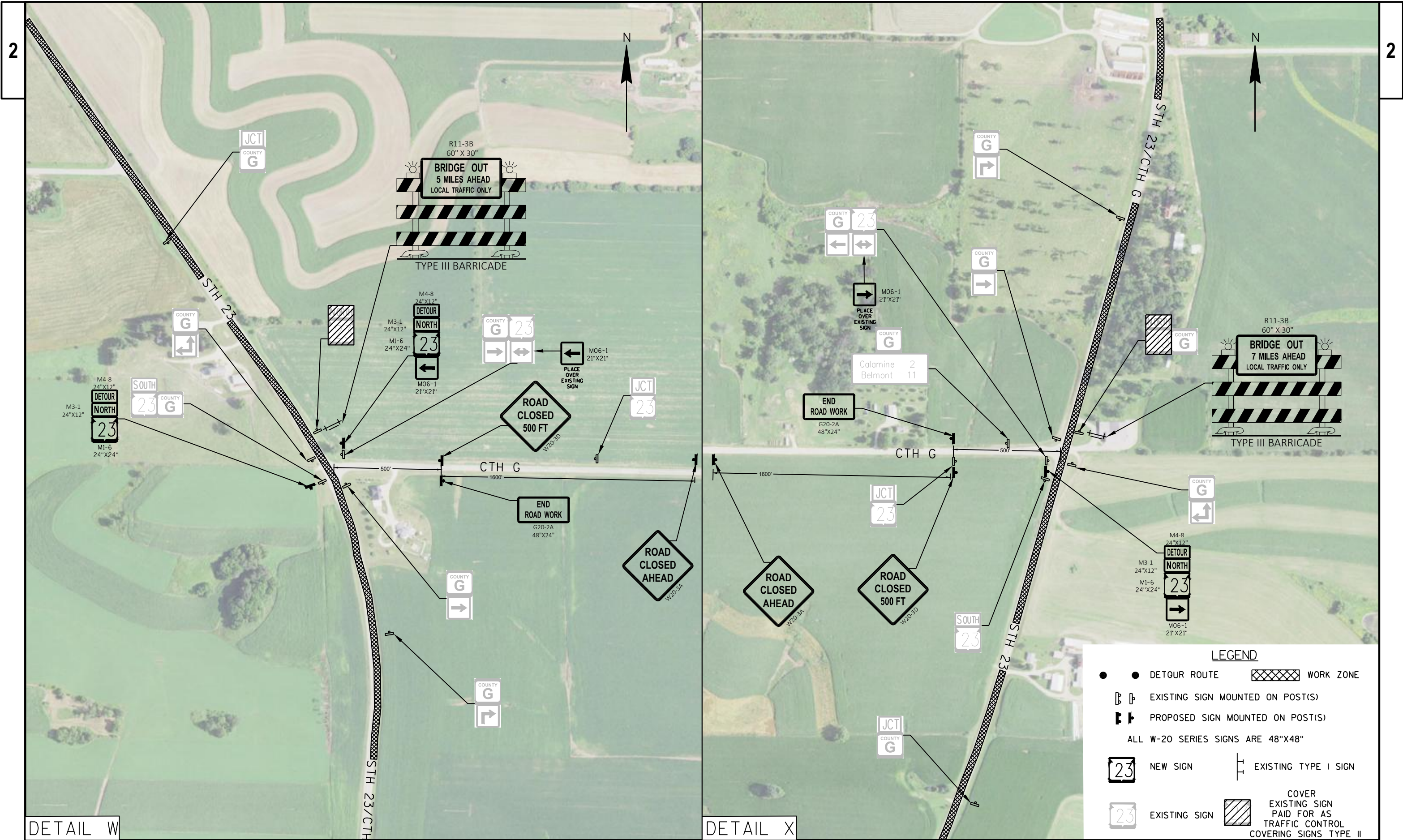
- ● DETOUR ROUTE
- ▤ ▤ EXISTING SIGN MOUNTED ON POST(S)
- ▦ ▦ PROPOSED SIGN MOUNTED ON POST(S)
- ALL W-20 SERIES SIGNS ARE 48"X48"
- 23 NEW SIGN
- 23 EXISTING SIGN
- ▤ EXISTING TYPE I SIGN
- ▦ COVER EXISTING SIGN PAID FOR AS TRAFFIC CONTROL COVERING SIGNS TYPE II
- ▤ WORK ZONE

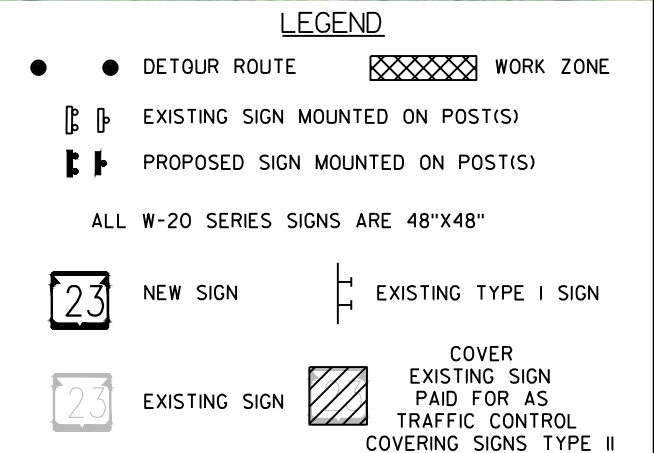




DETAIL U

DETAIL V





Estimate Of Quantities

5245-02-76

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	10.000	10.000
0004	203.0250	Removing Structure Over Waterway Remove Debris (structure) 01. B-25-0001	EACH	1.000	1.000
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	418.000	418.000
0008	204.0120	Removing Asphaltic Surface Milling	SY	248,770.000	248,770.000
0010	204.0165	Removing Guardrail	LF	9,203.000	9,203.000
0012	205.0100	Excavation Common	CY	150.000	150.000
0014	206.1000	Excavation for Structures Bridges (structure) 01. B-25-193	LS	1.000	1.000
0016	208.0100	Borrow	CY	9,028.000	9,028.000
0018	210.1500	Backfill Structure Type A	TON	502.000	502.000
0020	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	1,440.000	1,440.000
0022	213.0100	Finishing Roadway (project) 01. 5245-02-76	EACH	1.000	1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	4,920.000	4,920.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	4,200.000	4,200.000
0028	455.0605	Tack Coat	GAL	19,910.000	19,910.000
0030	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0032	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0034	460.2005	Incentive Density PWL HMA Pavement	DOL	39,690.000	39,690.000
0036	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	35,920.000	35,920.000
0038	460.2010	Incentive Air Voids HMA Pavement	DOL	39,690.000	39,690.000
0040	460.6224	HMA Pavement 4 MT 58-28 S	TON	39,690.000	39,690.000
0042	465.0105	Asphaltic Surface	TON	2,380.000	2,380.000
0044	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	40.000	40.000
0046	465.0310	Asphaltic Curb	LF	565.000	565.000
0048	465.0315	Asphaltic Flumes	SY	10.000	10.000
0050	465.0425	Asphaltic Shoulder Rumble Strips 2-Lane Rural	LF	129,508.000	129,508.000
0052	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	58,710.000	58,710.000
0054	502.0100	Concrete Masonry Bridges	CY	264.000	264.000
0056	502.3200	Protective Surface Treatment	SY	192.000	192.000
0058	502.3210	Pigmented Surface Sealer	SY	79.000	79.000
0060	505.0400	Bar Steel Reinforcement HS Structures	LB	5,370.000	5,370.000
0062	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	33,250.000	33,250.000
0064	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0066	520.1024	Apron Endwalls for Culvert Pipe 24-Inch	EACH	6.000	6.000
0068	520.3424	Culvert Pipe Class III-A Non-metal 24-Inch	LF	190.000	190.000
0070	522.0424	Culvert Pipe Reinforced Concrete Class IV 24-Inch	LF	344.000	344.000
0072	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	12.000	12.000
0074	550.0020	Pre-Boring Rock or Consolidated Materials	LF	80.000	80.000
0076	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	400.000	400.000
0078	606.0200	Riprap Medium	CY	33.000	33.000
0080	606.0300	Riprap Heavy	CY	382.000	382.000
0082	611.0642	Inlet Covers Type MS	EACH	2.000	2.000
0084	611.3902	Inlets Median 2 Grate	EACH	1.000	1.000
0086	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0088	614.0010	Barrier System Grading Shaping Finishing	EACH	4.000	4.000
0090	614.0115	Anchorage for Steel Plate Beam Guard Type 2	EACH	1.000	1.000
0092	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0094	614.0305	Steel Plate Beam Guard Class A	LF	175.000	175.000
0096	614.0370	Steel Plate Beam Guard Energy Absorbing Terminal	EACH	2.000	2.000
0098	614.2300	MGS Guardrail 3	LF	4,241.000	4,241.000

Estimate Of Quantities

5245-02-76

Line	Item	Item Description	Unit	Total	Qty
0100	614.2330	MGS Guardrail 3 K	LF	4,325.000	4,325.000
0102	614.2350	MGS Guardrail Short Radius	LF	176.000	176.000
0104	614.2500	MGS Thrie Beam Transition	LF	156.000	156.000
0106	614.2610	MGS Guardrail Terminal EAT	EACH	24.000	24.000
0108	614.2630	MGS Guardrail Short Radius Terminal	EACH	4.000	4.000
0110	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5245-02-76	EACH	1.000	1.000
0112	619.1000	Mobilization	EACH	1.000	1.000
0114	624.0100	Water	MGAL	91.200	91.200
0116	625.0500	Salvaged Topsoil	SY	18,190.000	18,190.000
0118	628.1504	Silt Fence	LF	12,640.000	12,640.000
0120	628.1520	Silt Fence Maintenance	LF	12,540.000	12,540.000
0122	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0124	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0126	628.2004	Erosion Mat Class I Type B	SY	18,190.000	18,190.000
0128	628.6005	Turbidity Barriers	SY	96.000	96.000
0130	628.7504	Temporary Ditch Checks	LF	300.000	300.000
0132	628.7555	Culvert Pipe Checks	EACH	20.000	20.000
0134	628.7570	Rock Bags	EACH	78.000	78.000
0136	629.0210	Fertilizer Type B	CWT	13.200	13.200
0138	630.0130	Seeding Mixture No. 30	LB	355.000	355.000
0140	630.0500	Seed Water	MGAL	438.000	438.000
0142	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	22.000	22.000
0144	638.2102	Moving Signs Type II	EACH	22.000	22.000
0146	642.5001	Field Office Type B	EACH	1.000	1.000
0148	643.0420	Traffic Control Barricades Type III	DAY	1,350.000	1,350.000
0150	643.0705	Traffic Control Warning Lights Type A	DAY	1,980.000	1,980.000
0152	643.0900	Traffic Control Signs	DAY	20,430.000	20,430.000
0154	643.0910	Traffic Control Covering Signs Type I	EACH	8.000	8.000
0156	643.0920	Traffic Control Covering Signs Type II	EACH	49.000	49.000
0158	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0160	643.5000	Traffic Control	EACH	1.000	1.000
0162	645.0111	Geotextile Type DF Schedule A	SY	76.000	76.000
0164	645.0120	Geotextile Type HR	SY	770.000	770.000
0166	646.1020	Marking Line Epoxy 4-Inch	LF	123,180.000	123,180.000
0168	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	143,720.000	143,720.000
0170	646.3020	Marking Line Epoxy 8-Inch	LF	160.000	160.000
0172	646.6120	Marking Stop Line Epoxy 18-Inch	LF	57.000	57.000
0174	648.0100	Locating No-Passing Zones	MI	13.620	13.620
0176	649.0105	Temporary Marking Line Paint 4-Inch	LF	6,195.000	6,195.000
0178	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	123,180.000	123,180.000
0180	649.0205	Temporary Marking Line Paint 8-Inch	LF	160.000	160.000
0182	650.6000	Construction Staking Pipe Culverts	EACH	10.000	10.000
0184	650.8000	Construction Staking Resurfacing Reference	LF	71,956.000	71,956.000
0186	650.9910	Construction Staking Supplemental Control (project) 01. 5245-02-76	LS	1.000	1.000
0188	650.9920	Construction Staking Slope Stakes	LF	10,640.000	10,640.000
0190	690.0150	Sawing Asphalt	LF	748.000	748.000
0192	690.0250	Sawing Concrete	LF	70.000	70.000
0194	715.0502	Incentive Strength Concrete Structures	DOL	1,584.000	1,584.000
0196	740.0440	Incentive IRI Ride	DOL	56,000.000	56,000.000

Estimate Of Quantities

5245-02-76

Line	Item	Item Description	Unit	Total	Qty
0198	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,400.000	2,400.000
0200	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	2,160.000	2,160.000
0202	SPV.0180	Special 01. Removing Distressed Pavement Milling	SY	5,040.000	5,040.000

ASPHALTIC SURFACE BUTT JOINTS

204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS			
CATEGORY	STATION	LOCATION	SY
0010	16+00	BEGIN MATCH	9
0010	262+31	CTH G WEST	9
0010	698+00	JACKSON ST/GREYSVILLE RD	12
0010	62+00	CRIST LN	12
0010	203+42	SHORT CUT RD WEST	13
0010	281+73	REILLY RD	9
0010	377+73	OLSON LN	7
0010	404+75	GODFREY RD	13
0010	418+77	STONE RD	19
0010	557+46	ROCK BRANCH RD	16
0010	707+09	GREYSVILLE RD	9
0010	120+57	MEYLOR LN	10
0010	148+49	NEILSON LN	10
0010	462+19	FORT DEFIANCE RD	15
0010	638+19	HARRIS RD	15
0010	651+55	BRECKEN RD	15
0010	712+56	MERRY CHRISTMAS LN	12
0010	713+92	OLD DARLING TON RD	13
0010	203+77	SHORT CUT RD EAST	13
0010	362+62	KING RD	10
0010	521+28	IVEY RD	8
0010	547+59	CTH S	10
0010	697+23	STH 39	8
0010	345+49	CTH G EAST	7
0010	PROJECT	DRIVEWAYS	117
0010	735+56	END MATCH	27
TOTAL 0010			418

MILLING

204.0120 REMOVING ASPHALTIC SURFACE MILLING						
SPV.0180.01 SPECIAL (01. REMOVING DISTRESSED PAVEMENT MILLING)						
CATEGORY	STATION	TO	STATION	SY	SY	REMARKS
0010	16+00	-	62+00	15,358	310	BEGIN - CRIST LN
0010	62+00	-	120+50	19,560	400	CRIST LN - MEYLOR LN
0010	120+50	-	203+50	27,853	560	MEYLOR LN - SHORT CUT RD
0010	203+50	-	281+50	26,631	540	SHORT CUT RD - REILLY RD
0010	281+50	-	362+50	27,330	550	REILLY RD - KING RD
0010	362+50	-	462+00	33,358	670	KING RD - FORT DEFIANCE RD
0010	462+00	-	547+50	28,970	590	FORT DEFIANCE RD - CTH S
0010	547+50	-	638+00	35,050	740	CTH S - HARRIS RD
0010	638+00	-	735+56	34,420	680	HARRIS RD - END
0010	16+00	-	735+56	233		DRIVEWAYS
TOTAL 0010				248,770	5,040	

REMOVING GUARDRAIL

					204.0165
					REMOVING
					GUARDRAIL
CATEGORY	STATION	TO	STATION	LOCATION	LF
0010	17+00	-	42+54	LT	2,559
0010	46+00	-	50+00	LT	418
0010	51+84	-	60+68	LT	713
0010	77+26	-	78+93	LT	171
0010	268+45	-	270+69	LT	220
0010	564+00	-	568+50	RT	446
0010	575+13	-	593+00	LT	1,813
0010	613+58	-	615+76	RT	221
0010	613+72	-	617+00	LT	204
0010	678+54	-	680+27	RT	178
0010	703+95	-	707+19	RT	354
0010	713+09	-	720+29	RT	714
0010	715+60	-	720+00	LT	577
0010	730+97	-	734+72	LT	333
0010	732+64	-	735+23	RT	282
TOTAL 0010					9,203

PREPARE FOUNDATION

211.0400
PREPARE
FOUNDATION
FOR ASPHALTIC
SHOULDERS

CATEGORY	STATION	TO	STATION	LOCATION	STA	REMARKS
0010	16+00	-	62+00	LT/RT	92	BEGIN - CRIST LN
0010	62+00	-	120+50	LT/RT	117	CRIST LN - MEYLOR LN
0010	120+50	-	203+50	LT/RT	166	MEYLOR LN - SHORT CUT RD
0010	203+50	-	281+50	LT/RT	156	SHORT CUT RD - RIELLY RD
0010	281+50	-	362+50	LT/RT	162	RIELLY RD - KING RD
0010	362+50	-	462+00	LT/RT	199	KING RD - FORT DEFIANCE RD
0010	462+00	-	547+50	LT/RT	171	FORT DEFIANCE RD - CTH S
0010	547+50	-	638+00	LT/RT	181	CTH S - HARRIS RD
0010	638+00	-	735+56	LT/RT	196	HARRIS RD - END
				TOTAL 0010	1,440	

BASE AGGREGATE

305.0110 305.0120 624.0100
BASE
AGGREGATE
DENSE 3/4-INCH BASE
AGGREGATE
DENSE 1 1/4-INCH WATER

CATEGORY	STATION	TO	STATION	LOCATION	TON	TON	MGAL	REMARKS
0010	16+00	-	735+56	LT/RT	4,750	-	48	ENTIRE PROJECT
0010	16+00		735+56	LT/RT	170	-	2	DRIVEWAYS
0010	48+48			LT/RT	-	350	3.5	CULVERT PIPE
0010	137+93			LT/RT	-	350	3.5	CULVERT PIPE
0010	350+22			LT/RT	-	350	3.5	CULVERT PIPE
0010	366+51			LT/RT	-	350	3.5	CULVERT PIPE
0010	423+48			LT/RT	-	350	3.5	CULVERT PIPE
0010	432+47			LT/RT	-	350	3.5	CULVERT PIPE
0010	464+45			LT/RT	-	350	3.5	CULVERT PIPE
0010	475+45			LT/RT	-	350	3.5	CULVERT PIPE
0010	602+21			LT/RT	-	350	3.5	CULVERT PIPE
0010	614+30			LT/RT	-	350	3.5	B-25-193 REPLACEMENT
0010	614+78			LT/RT	-	350	3.5	B-25-193 REPLACEMENT
0010	630+14			LT/RT	-	350	3.5	CULVERT PIPE
				TOTAL 0010	4,920	4,200	91.2	

ASPHALT														
					455.0605	460.6224	465.0105	465.0120	465.0310	465.0315	465.0425	465.0475		
							ASPHALTIC SURFACE	DRIVEWAYS AND FIELD ENTRANCES	ASPHALTIC CURB	ASPHALTIC FLUMES	ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL	ASPHALT CENTERLINE RUMBLE STRIPS 2-LANE RURAL		
CATEGORY	STATION	TO	STATION	LOCATION	TACK COAT GAL	HMA PAVEMENT 4 MT 58-28 S TON	ASPHALTIC SURFACE TON	TON	LF	SY	LF	LF	REMARKS	SF
0010	16+00	-	62+00	LANES	1,080	2,160	-	-	-	-	-	3,880	BEGIN - CRIST LN	138225.96
0010	16+00	-	62+00	L ^T SHOULDER WIDENING	90	170	-	-	-	-	4,073	-		4405.76
0010	16+00	-	62+00	R ^T SHOULDER WIDENING	80	150	-	-	-	-	4,550	-		9193.45
0010	62+00	-	120+50	LANES	1,370	2,740	-	-	-	-	-	5,105	CRIST LN - MEYLOR LN	176042.11
0010	62+00	-	120+50	L ^T SHOULDER WIDENING	100	200	-	-	-	-	5,409	-		12477.94
0010	62+00	-	120+50	R ^T SHOULDER WIDENING	100	200	-	-	-	-	5,216	-		11994.57
0010	120+50	-	203+50	LANES	1,950	3,900	-	-	-	-	-	6,995	MEYLOR LN - SHORT CUT RD	250674.86
0010	120+50	-	203+50	L ^T SHOULDER WIDENING	130	260	-	-	-	-	7,307	-		16319.93
0010	120+50	-	203+50	R ^T SHOULDER WIDENING	130	260	-	-	-	-	7,171	-		16576.48
0010	203+50	-	281+50	LANES	1,870	3,730	-	-	-	-	-	6,355	SHORT CUT RD - RIELLY RD	239678.02
0010	203+50	-	281+50	L ^T SHOULDER WIDENING	130	260	-	-	-	-	6,825	-		16222.08
0010	203+50	-	281+50	R ^T SHOULDER WIDENING	130	250	-	-	-	-	6,768	-		15501.95
0010	281+50	-	362+50	LANES	1,920	3,830	-	-	-	-	-	6,335	RIELLY RD - KING RD	245968.85
0010	281+50	-	362+50	L ^T SHOULDER WIDENING	130	260	-	-	-	-	6,767	-		16133.79
0010	281+50	-	362+50	R ^T SHOULDER WIDENING	130	250	-	-	-	-	7,606	-		15957.71
0010	362+50	-	462+00	LANES	2,340	4,680	-	-	-	-	-	7,715	KING RD - FORT DEFIANCE RD	300221.23
0010	362+50	-	462+00	L ^T SHOULDER WIDENING	160	310	-	-	-	-	9,033	-		19691.50
0010	362+50	-	462+00	R ^T SHOULDER WIDENING	160	310	-	-	-	-	8,772	-		19667.00
0010	462+00	-	547+50	LANES	2,030	4,060	-	-	-	-	-	7,345	FORT DEFIANCE RD - CTH S	260731.35
0010	462+00	-	547+50	L ^T SHOULDER WIDENING	140	270	-	-	-	-	7,854	-		16930.83
0010	462+00	-	547+50	R ^T SHOULDER WIDENING	140	270	-	-	-	-	8,036	-		16945.63
0010	547+50	-	638+00	LANES	2,550	5,100	-	-	-	-	-	8,060	CTH S - HARRIS RD	315450.33
0010	547+50	-	638+00	L ^T SHOULDER WIDENING	200	390	-	-	-	-	8,713	-		24490.46
0010	547+50	-	638+00	R ^T SHOULDER WIDENING	160	310	-	-	-	-	8,669	-		19737.84
0010	614+91	-	615+31	NW STRUCTURE QUADRANT	-	-	-	-	40	10	-	-	ASPHALTIC CURB AND FLUME FOR DRAINAGE	
0010	638+00	-	735+56	LANES	2,360	4,720	-	-	-	-	-	6,920	HARRIS RD - END	309782.74
0010	638+00	-	735+56	L ^T SHOULDER WIDENING	160	320	-	-	525	-	8,601	-		19386.21
0010	638+00	-	735+56	R ^T SHOULDER WIDENING	170	330	-	-	-	-	8,138	-		21297.83
0010	16+00	-	735+56	DRIVEWAYS	-	-	-	40	-	-	-	-		2100.00
0010	16+00	-	735+56	CULVERT PIPES	-	-	1,750	-	-	-	-	-		33000.00
	16+01	-	735+57	STRUCTURE B-25-193	-	-	60	-	-	-	-	-		1020.00
0010	16+00	-	735+56	DISRESSED MILLING	-	-	570	-	-	-	-	-		
TOTAL 0010					19,910	39,690	2,380	40	565	10	129,508	58,710		

PWL TEST STRIP									
					460.0105.S	460.0110.S			
					HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS	HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY			
CATEGORY	STATION	TO	STATION	LOCATION	EACH	EACH			
0010	16+00	-	735+56	PROJECT	1	1			
TOTAL 0010					1	1			

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HMA PAVEMENT PWL QMP MIXTURE ACCEPTANCE TABLE

LOCATION	STATIONING	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
12 FOOT DRIVING LANE	16+00 TO 735+55 RT/LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	26900	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
5 FOOT SHOULDER	16+00 TO 16+90 RT/LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	20	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	16+90 TO 564+11 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	4300	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
2 FOOT SHOULDER	16+90 TO 42+50 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	100	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	42+50 TO 45+68 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	30	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
4 FOOT SHOULDER	45+68 TO 50+52 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	40	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	50+52 TO 53+46 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	30	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	53+46 TO 60+69 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	70	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	60+69 TO 76+91 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	130	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
8 FOOT SHOULDER	76+91 TO 79+69 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	40	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	79+69 TO 267+92 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	1500	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	267+92 TO 271+36 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	100	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	271+36 TO 544+22 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	2200	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
12 FOOT DRIVING LANE	544+22 TO 595+00 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	1000	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
5 FOOT SHOULDER	544+22 TO 595+00 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	400	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	564+11 TO 570+00 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	60	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE

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LOCATION	STATIONING	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
5 FOOT SHOULDER	570+00 TO 613+05 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	340	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	595+00 TO 612+87 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	140	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	612+87 TO 616+77 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	40	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	613+05 TO 616+09 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	30	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	616+77 TO 714+29 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	760	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	616+09 TO 678+44 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	490	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	678+44 TO 680+43 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	20	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	680+43 TO 703+39 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	180	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	703+39 TO 708+32 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	50	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	708+32 TO 713+08 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	40	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	713+08 TO 720+58 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	70	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
6 FOOT SHOULDER	714+29 TO 721+16 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	70	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	720+58 TO 732+15 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	90	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
5 FOOT SHOULDER	721+16 TO 730+26 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	80	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
4 FOOT SHOULDER	730+26 TO 735+56 LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	40	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
4 FOOT SHOULDER	732+15 TO 735+56 RT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	30	2.50-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE

CULVERT PIPES

		203.0100	520.1024	520.3424	522.0424	522.1024 APRON ENDWALLS FOR CULVERT PIPE	611.0642	611.3902
		REMOVING SMALL PIPE CULVERTS	APRON ENDWALLS FOR CULVERT PIPE 24- INCH	*CULVERT PIPE CLASS III-A NON- METAL 24-INCH	*CULVERT PIPE REINFORCED CONCRETE CLASS IV 24-INCH	REINFORCED CONCRETE 24- INCH	INLET COVERS TYPE MS	INLETS MEDIAN 2 GRATE
CATEGORY	STATION	EACH	EACH	LF	LF	EACH	EACH	EACH
0010	48+49	1	-	-	48	1	-	-
0010	137+93	1	-	-	48	2	-	-
0010	350+22	1	-	-	48	2	-	-
0010	366+51	1	-	-	48	2	-	-
0010	423+48	1	2	62	-	-	-	-
0010	432+47	1	2	56	-	-	-	-
0010	464+45	1	-	-	56	2	-	-
0010	475+45	1	2	72	-	-	-	-
0010	602+22	1	-	-	48	1	2	1
0010	630+14	1	-	-	48	2	-	-
		10	6	190	344	12	2	1

*TIE ALL CONCRETE PIPE JOINTS
**LENGTH BASED ON CONCRETE ENDWALLS, ADJUST ACCORDINGLY IF PIPE MATERIAL OTHER THAN CONCRETE IS USED.

GUARDRAIL

					614.0010	614.0115	614.0305	614.0370 STEEL PLATE BEAM GUARD	614.2300	614.2330	614.2350	614.2500	614.2610	614.2630
					BARRIER SYSTEM GRADING SHAPING FINISHING	ANCHORAGES FOR STEEL PLATE BEAM GUARD TYPE 2	STEEL PLATE BEAM GUARD CLASS A	ENERGY ABSORBING TERMINAL	MGS GUARDRAIL 3	MGS GUARDRAIL 3 K	MGS GUARDRAIL SHORT RADIUS	MGS THRIE BEAM TRANSITION	MGS GUARDRAIL TERMINAL EAT	MGS GUARDRAIL SHORT RADIUS TERMINAL
CATEGORY	STATION	TO	STATION	LOCATION	EACH	EACH	LF	EACH	LF	LF	LF	LF	EACH	EACH
0010	16+91	-	42+50	LT	-	-	-	-	1100	1350	-	-	2	-
0010	45+68	-	50+52	LT	-	-	-	-	163	213	-	-	2	-
0010	53+46	-	60+69	LT	-	-	-	-	625	-	-	-	2	-
0010	76+91	-	79+69	LT	-	-	175	2	-	-	-	-	-	-
0010	267+92	-	271+36	LT	-	-	-	-	88	150	-	-	2	-
0010	564+11	-	570+00	RT	-	-	-	-	88	400	-	-	2	-
0010	574+97	-	593+02	LT	-	-	-	-	1225	475	-	-	2	-
0010	612+87	-	614+17	LT	-	-	-	-	38	-	-	39	1	-
0010	613+05	-	614+10	RT	-	-	-	-	13	-	-	39	1	-
0010	614+91	-	616+09	RT	-	-	-	-	25	-	-	39	1	-
0010	614+97	-	616+77	LT	-	-	-	-	88	-	-	39	1	-
0010	678+44	-	680+71	RT	-	-	-	-	25	125	5	-	1	1
0010	703+39	-	708+32	RT	-	-	-	-	38	350	-	-	2	-
0010	714+31	-	721+16	RT	-	-	-	-	-	638	45	-	1	1
0010	712+69	-	720+58	LT	-	-	-	-	700	-	55	-	1	1
0010	730+26	-	734+96	LT	2	-	-	-	25	363	71	-	1	1
0010	732+15	-	735+35	RT	2	1	-	-	-	263	-	-	2	-
TOTAL 0010					4	1	175	2	4,241	4,325	176	156	24	4

NOTE: IF ROCK IS ENCOUNTERED DURING THE EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO THE LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS. (SEE SDD 14B42-a)

3

EROSION CONTROL - CULVERT PIPES											
		*	*	*	*	*		*	*	*	
		606.0200	625.0500	628.1504	628.1520	628.2004	628.7555	629.0210	630.0130	630.0500	645.0120
		RIPRAP MEDIUM	SALVAGED TOPSOIL	SILT FENCE	SILT FENCE MAINTENANCE	EROSION MAT CLASS I TYPE B	CULVERT PIPE CHECKS	FERTILIZER TYPE B	SEEDING MIXTURE NO. 30	SEED WATER	GEOTEXTILE TYPE HR
CATEGORY	STATION	CY	SY	LF	LF	SY	EACH	CWT	LB	MGAL	SY
0010	48+48	3	40	130	130	40	2	0.1	3	3	12
0010	137+93	3	60	150	150	60	2	0.1	3	4	12
0010	350+22	3	50	130	130	50	2	0.1	3	3	12
0010	366+51	3	60	130	130	60	2	0.1	3	3	12
0010	423+48	3	130	170	170	130	2	0.2	4	4	12
0010	432+47	3	100	160	160	100	2	0.2	3	4	12
0010	464+45	3	100	160	160	100	2	0.2	3	4	12
0010	475+45	3	200	200	200	200	2	0.2	4	5	12
0010	602+21	3	50	120	120	50	2	0.1	3	3	12
0010	630+14	3	60	130	130	60	2	0.1	3	3	12
		30	850	1,480	1,480	850	20	1.4	32	36	120

3

GUARDRAIL EROSION CONTROL														
					*	*	*	*	*			*	*	*
					606.0200	625.0500	628.1504	628.1520	628.2004	628.7504	628.7570	629.0210	630.0130	630.0500
					RIPRAP MEDIUM	SALVAGED TOPSOIL	SILT FENCE	SILT FENCE MAINTENANCE	EROSION MAT CLASS I TYPE B	TEMPORARY DITCH CHECKS	ROCK BAGS	FERTILIZER TYPE B	SEEDING MIXTURE NO. 30	SEED WATER
CATEGORY	STATION	TO	STATION	LOCATION	CY	SY	LF	LF	SY	LF	EACH	CWT	LB	MGAL
0010	16+06	-	45+10	LT	-	1,500	1,510	1,510	1,500	-	-	1.0	27	34
0010	45+68	-	51+57	LT	-	940	620	620	940	-	-	0.6	17	22
0010	51+84	-	61+65	LT	-	2,190	1,040	1,040	2,190	-	-	1.4	40	50
0010	76+58	-	80+75	RT	-	660	70	70	660	-	-	0.5	12	15
0010	75+15	-	81+20	LT	-	950	520	520	950	-	-	0.6	18	22
0010	266+24	-	272+53	LT	-	1,170	520	520	1,170	-	-	0.8	22	27
0010	562+65	-	571+36	RT	-	1,070	900	900	1,070	-	-	0.7	20	25
0010	573+76	-	594+10	LT	-	3,150	2,040	2,040	3,150	-	-	2.0	57	71
0010	611+40		614+45	LT	-	250	330	330	250	-	-	0.2	5	6
0010	613+05	-	614+10	RT	-	300	110	110	300	-	-	0.2	6	7
0010	614+67		617+68	RT	3	730	320	320	730	-	-	0.5	14	17
0010	614+65	-	617+94	LT	-	670	350	350	670	-	-	0.5	13	16
0010	677+24	-	680+71	RT	-	490	370	370	490	-	-	0.4	9	12
0010	702+01	-	709+51	RT	-	430	520	520	430	-	-	0.3	8	10
0010	714+20	-	722+28	LT	-	250	180	180	250	-	-	0.2	5	6
0010	712+69	-	722+00	RT	-	580	140	140	580	-	-	0.4	11	14
0010	728+83	-	734+96	LT	-	200	280	280	200	-	-	0.2	4	5
0010	730+98	-	735+46	RT	-	230	230	230	230	-	-	0.2	5	6
0010	16+00	-	735+56	LT/RT	-	1,580	1,010	1,010	1,580	300	78	1.1	30	37
TOTAL 0010					3	17,340	11,060	11,060	17,340	300	78	11.8	323	402

MOVING SIGNS

					634.0614	638.2102		
					POSTS WOOD			
					4X6-INCH X 14-	MOVING SIGNS		
					FT	TYPE II		
CATEGORY	STATION	TO	STATION	LOCATION	EACH	EACH	REMARKS	
0010	16+00	-	735+56	PROJECT	22	22	NO PASSING SIGNS	
TOTAL 0010					22	22		

TRAFFIC CONTROL

		643.0420		643.0705		643.0900		643.0910		643.0920		643.1050	643.5000
		TRAFFIC		TRAFFIC		TRAFFIC		TRAFFIC		TRAFFIC		TRAFFIC	TRAFFIC
		CONTROL		CONTROL		CONTROL		COVERING		COVERING		CONTROL	CONTROL
		BARRICADES		WARNING		TRAFFIC		SIGN TYPE I		SIGN TYPE II		PCMS	CONTROL
		TYPE III		LIGHTS TYPE A		CONTROL SIGNS		CYCLES		CYCLES		DAY	EACH
CATEGORY	LOCATION		DAY		DAY		DAY		EACH		EACH		
0010	DETAIL A	-	-	-	-	0	0	-	-	1	8	-	-
0010	DETAIL B	-	-	-	-	0	0	-	-	-	-	-	-
0010	DETAIL C	-	-	-	-	0	0	-	-	-	-	-	-
0010	DETAIL D	-	-	-	-	0	0	1	1	-	-	-	-
0010	DETAIL E	-	-	-	-	0	0	-	-	-	-	-	-
0010	DETAIL F	-	-	-	-	0	0	1	1	-	-	-	-
0010	DETAIL G	-	-	-	-	7	630	-	-	-	-	-	-
0010	DETAIL H	-	-	-	-	7	630	-	-	-	-	-	-
0010	DETAIL I	-	-	-	-	10	900	-	-	-	-	-	-
0010	DETAIL J	-	-	-	-	10	900	-	-	-	-	-	-
0010	DETAIL K	-	-	-	-	21	1890	-	-	-	-	-	-
0010	DETAIL L	-	-	-	-	11	990	-	-	-	-	-	-
0010	DETAIL M	-	-	-	-	10	900	-	-	-	-	-	-
0010	DETAIL N	-	-	-	-	10	900	-	-	-	-	-	-
0010	DETAIL O	-	-	-	-	19	1710	1	2	-	-	-	-
0010	DETAIL P	-	-	-	-	4	360	1	1	-	-	-	-
0010	DETAIL Q	-	-	-	-	4	360	-	-	1	2	-	-
0010	DETAIL R	-	-	-	-	13	1170	1	1	1	8	-	-
0010	DETAIL S	2	180	4	360	15	1350	-	-	1	3	-	-
0010	DETAIL T	2	180	4	360	19	1710	1	2	1	8	-	-
0010	DETAIL U	6	540	4	360	2	180	-	-	-	-	-	-
0010	DETAIL V	1	90	2	180	8	720	-	-	1	2	-	-
0010	DETAIL W	1	90	2	180	12	1080	-	-	1	2	-	-
0010	DETAIL X	1	90	2	180	9	810	-	-	1	2	-	-
0010	DETAIL Y	2	180	4	360	36	3240	-	-	1	14	-	-
0010	PROJECT	-	-	-	-	-	-	-	-	-	-	14	1
TOTAL 0010			1,350		1,980		20,430		8		49	14	1

3

3

PAVEMENT MARKING

CATEGORY	STATION	TO	STATION	LOCATION	646.1020	646.1040	646.3020	646.6120	648.0100	649.0105	649.0120	649.0205	REMARKS	
					MARKING LINE EPOXY 4-INCH YELLOW	MARKING LINE GROOVED WET REF EPOXY 4-INCH WHITE	MARKING LINE EPOXY 8-INCH	MARKING STOP LINE EPOXY 18-INCH	LOCATING NO-PASSING ZONES	*TEMPORARY MARKING LINE PAINT 4-INCH		TEMPORARY MARKING LINE EPOXY 4-INCH YELLOW		TEMPORARY MARKING LINE PAINT 8-INCH
										YELLOW	WHITE			
0010	16+00	-	62+00	LT/RT	9,200	9,200	-	-	0.87	370	-	9,200	-	BEGIN - CRIST LN
0010	62+00	-	120+50	LT/RT	8,920	11,700	-	-	1.11	470	-	8,920	-	CRIST LN - MEYLOR LN
0010	120+50	-	203+50	LT/RT	12,040	16,570	-	-	1.57	670	-	12,040	-	MEYLOR LN - SHORT CUT RD
0010	203+50	-	281+50	LT/RT	12,010	15,410	-	13	1.48	630	-	12,010	-	SHORT CUT RD - RIELLY RD
0010	281+50	-	362+50	LT/RT	15,560	16,020	-	16	1.53	650	-	15,560	-	RIELLY RD - KING RD
0010	362+50	-	462+00	LT/RT	17,350	19,700	-	-	1.88	800	-	17,350	-	KING RD - FORT DEFIANCE RD
0010	462+00	-	547+50	LT/RT	17,100	16,930	-	-	1.62	690	-	17,100	-	FORT DEFIANCE RD - CTH S
0010	547+50	-	638+00	LT/RT	14,590	19,160	-	13	1.71	730	374	14,590	-	CTH S - HARRIS RD
0010	638+00	-	735+56	LT/RT	16,410	19,030	160	15	1.85	790	22	16,410	160	HARRIS RD - END
TOTAL 0010					123,180	143,720	160	57	13.62	5,800	395	123,180	160	
										6,195				

* NOT TO BE USED ON FINAL SURFACE

CONSTRUCTION STAKING

					650.6000	650.8000	650.9910.01	650.9920
							CONSTRUCTION	
							STAKING	
					CONSTRUCTION	CONSTRUCTION	SUPPLEMENTAL	
					STAKING PIPE	STAKING	CONTROL	CONSTRUCTION
					CULVERTS	RESURFACING	(PROJECT) (01.	STAKING SLOPE
					EACH	REFERENCE	5245-02-76)	STAKES
CATEGORY	STATION	TO	STATION	LOCATION		LF	LS	LF
0010	16+91	-	42+50	LT	-	-	-	2,560
0010	45+68	-	50+52	LT	-	-	-	490
0010	53+46	-	60+69	LT	-	-	-	730
0010	76+83	-	79+52	RT	-	-	-	270
0010	76+91	-	79+69	LT	-	-	-	280
0010	267+92	-	271+36	LT	-	-	-	350
0010	564+11	-	570+00	RT	-	-	-	590
0010	574+97	-	593+02	LT	-	-	-	1,810
0010	612+87		614+17	LT	-	-	-	140
0010	613+05	-	614+10	RT	-	-	-	110
0010	614+91		616+09	RT	-	-	-	120
0010	614+97	-	616+77	LT	-	-	-	180
0010	678+44	-	680+71	RT	-	-	-	230
0010	703+39	-	708+32	RT	-	-	-	500
0010	712+69	-	720+58	LT	-	-	-	790
0010	714+31	-	721+16	RT	-	-	-	690
0010	730+26	-	734+96	LT	-	-	-	470
0010	732+15	-	735+35	RT	-	-	-	330
0010	16+00	-	735+56	PROJECT	10	71,956	1	-
TOTAL 0010					10	71,956	1	10,640

PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	MISCELLANEOUS QUANTITIES	SHEET 68	E
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SAWCUTS

				690.0150	690.0250	
				SAWING	SAWING	
				ASPHALT	CONCRETE	
CATEGORY	STATION	TO	LOCATION	LF	LF	REMARKS
0010	614+15	-	B-25-193	34	-	
0010	614+90	-	B-25-193	34	-	
0010	735+00		WATER STREET	-	70	SAWING CURB HEAD
0010	16+00 - 735+56		CULVERT PIPES	680	-	ENTIRE PROJECT
			TOTAL 0010	748	70	

STRUCTURE B-25-193

		*			
		628.1504	628.6005		
		SILT FENCE	TURBIDITY		
		LF	BARRIERS		
CATEGORY	LOCATION	LF	SY		REMARKS
0010	B-25-193	50	34		STAGE 1-STRUCTURE REMOVAL
0010	B-25-193	50	62		STAGE 2-STRUCTURE REMOVAL
	TOTAL 0010	100	96		

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	208.0100 BORROW	COMMENT
			CUT (2)			FACTOR 1.20			
DIVISION 1	16+00/722+00								
QUANTITYREPORTTEMPXMLVERSION2			150	150	7,648	9,178	-9,028	9,028	
DIVISION 1 SUBTOTAL			150	150	7,648	9,178	-9,028	9,028	
GRAND TOTAL			150	150	7,648	9,178	-9,028	9,028	
TOTAL COMMON EXC			150						

NOTES:

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
- (13) EXPANDED FILL FACTOR = 1.20
- DEPENDING ON SELECTIONS:

EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH - REDUCED EBS) * FILL FACTOR

OR

EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED EBS) * FILL FACTOR

OR

EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH) * FILL FACTOR

OR

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





PI STA = 282+53.33
Y = 192727.110
X = 482984.963
DELTA = 31°01'37"
D = 2°29'29"
T = 638.33'
L = 1245.30'
R = 2299.64'
PC STA = 276+15.00
Y = 192109.763
X = 482822.651
PT STA = 288+60.30
Y = 193339.792
X = 482805.846
SE = 4.30%

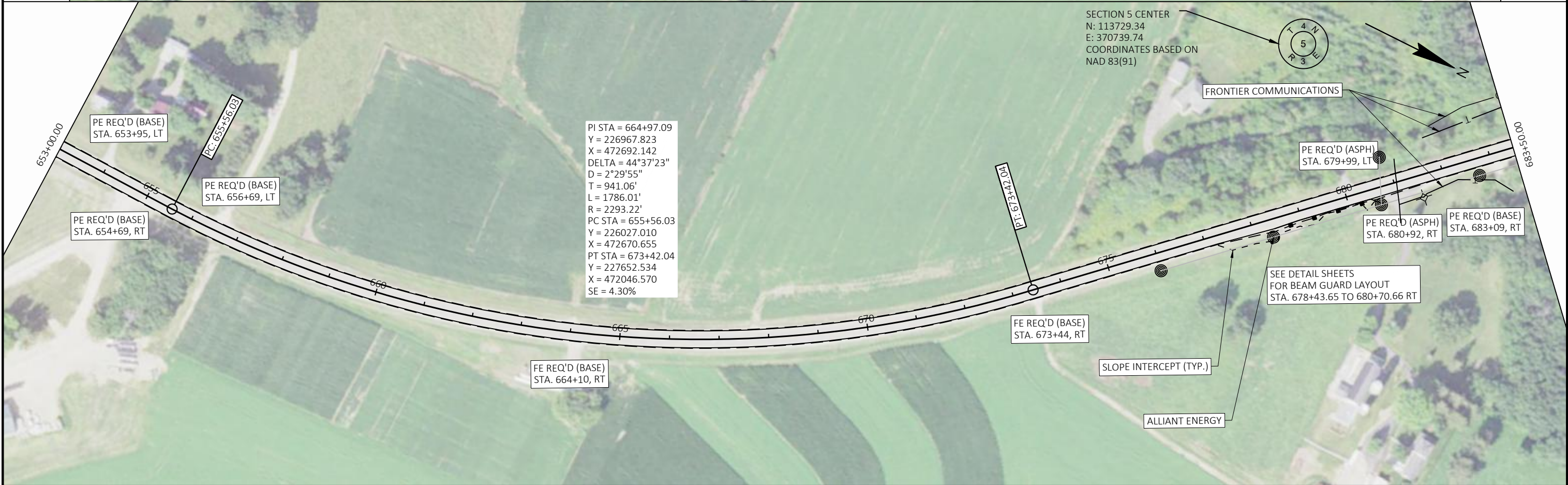
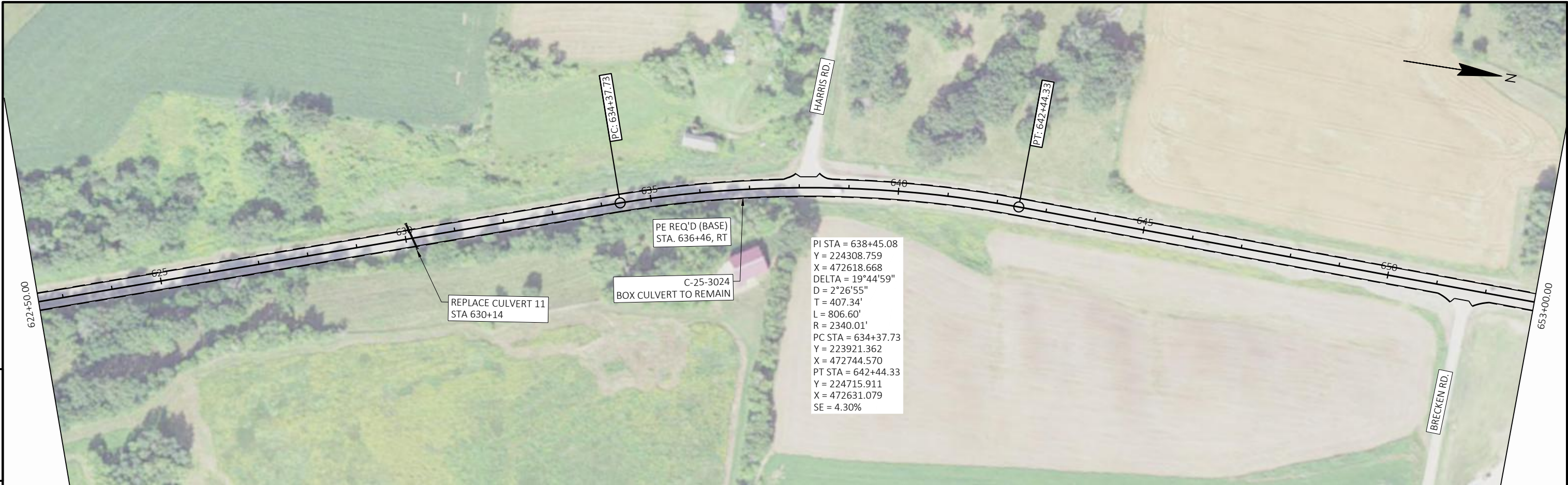
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
2633	269+15.49	1003.078	IP REBND 3/4
902	276+07.92	1027.045	NGS DH8262

PI STA = 315+11.65
Y = 195899.889
X = 482116.301
DELTA = 20°40'31"
D = 0°45'01"
T = 1392.95'
L = 2755.61'
R = 7636.42'
PC STA = 301+18.70
Y = 194553.943
X = 482475.108
PT STA = 328+74.30
Y = 197285.836
X = 482255.815
SE = R.C.







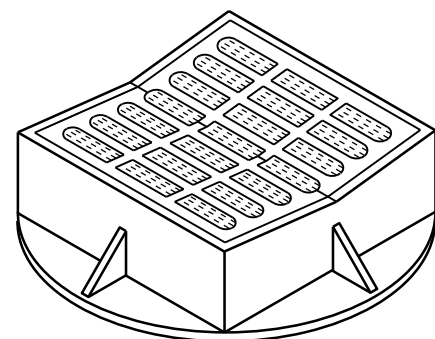
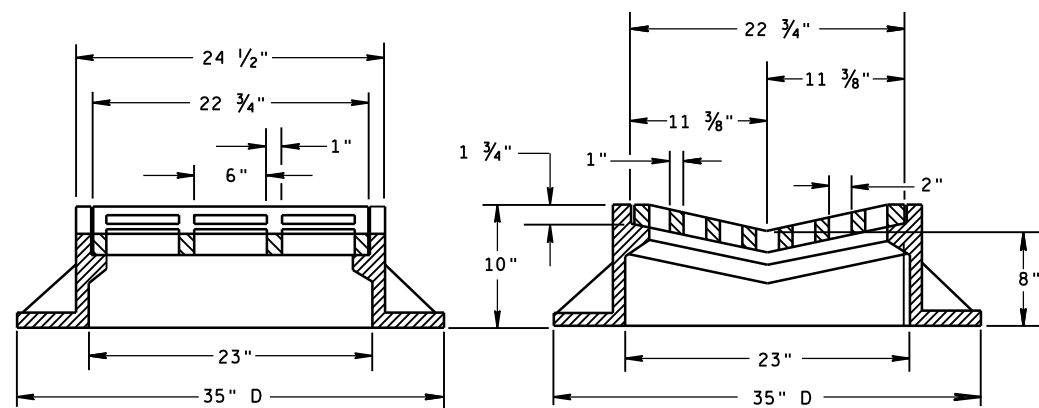


Standard Detail Drawing List

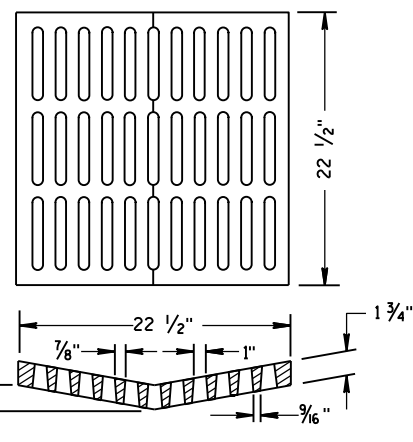
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08C08-02	INLETS MEDIAN 1 AND 2 GRATE
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F03-03	DETAILS FOR PIPE CATTLE PASS, CONCRETE ENDWALLS AND STEPS
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-13B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
12A03-10	NAME PLATE (STRUCTURES)
12A04-03	STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES & OVERHEAD SIGN SUPPORTS & TRAFFIC SIGNALS
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13A10-02A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02B	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C19-03	HMA LONGITUDINAL JOINTS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B16-04A	ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
14B16-04B	ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B18-06B	STEEL PLATE BEAM GUARD, CLASS "A" AT MEDIAN APPROACH TO BRIDGES
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B53-01A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES

Standard Detail Drawing List

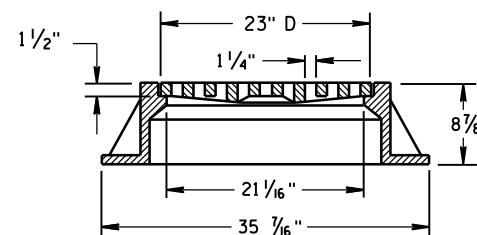
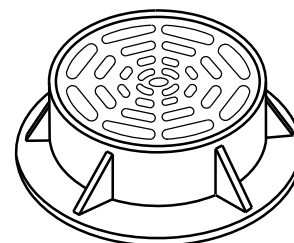
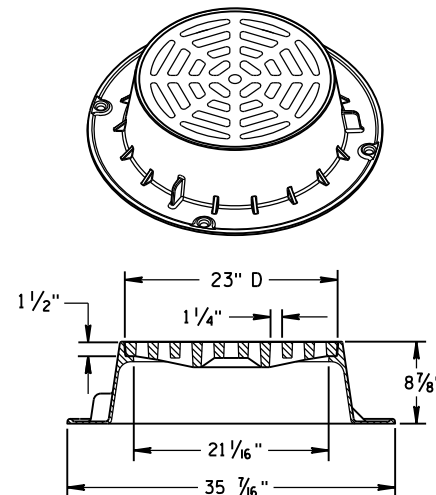
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C08-20B	PAVEMENT MARKING (TURN LANES)
15C08-20C	PAVEMENT MARKING (TURN LANES)
15C11-09A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-04A	PAVEMENT MARKING (INTERSECTIONS)
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES



TYPE "B"

ALTERNATIVE GRATE FOR
TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
 NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

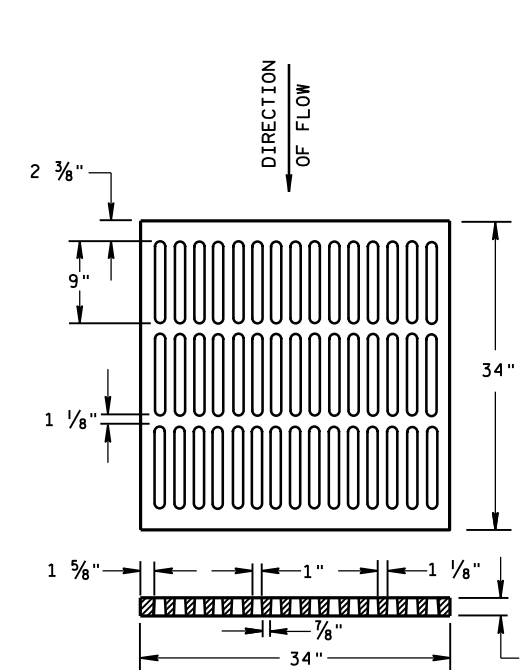
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

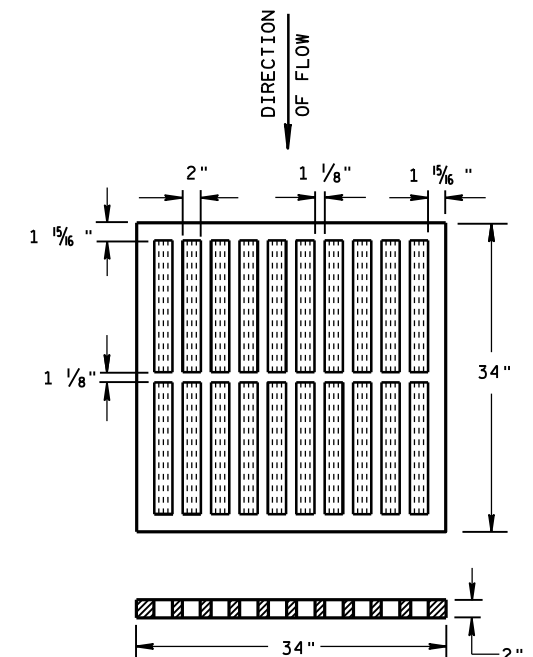
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



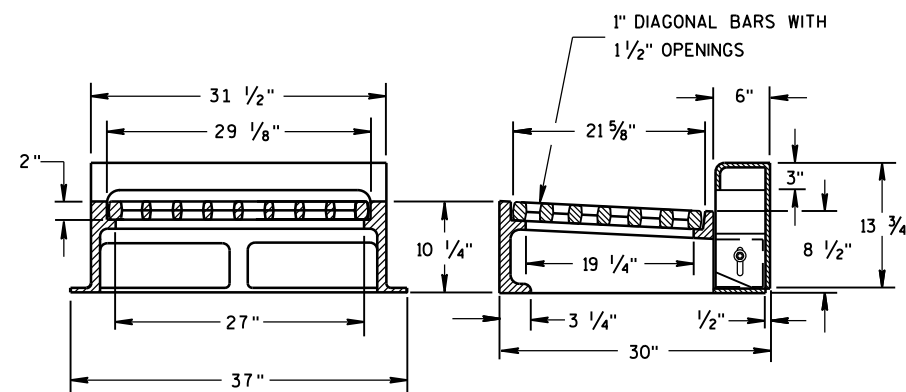
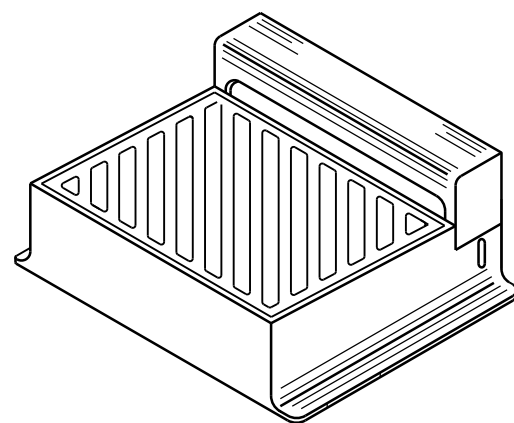
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
 NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
 NOTED AS TYPE MS ON DRAINAGE TABLE



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

DIAGONAL SLOTS, SHALL BE ORIENTED
 TO THE DIRECTION OF FLOW AS ILLUSTRATED.
 GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION
OF FLOW

INLET COVERS
 TYPE B, B-A, C,
 MS, MS-A, & WM

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

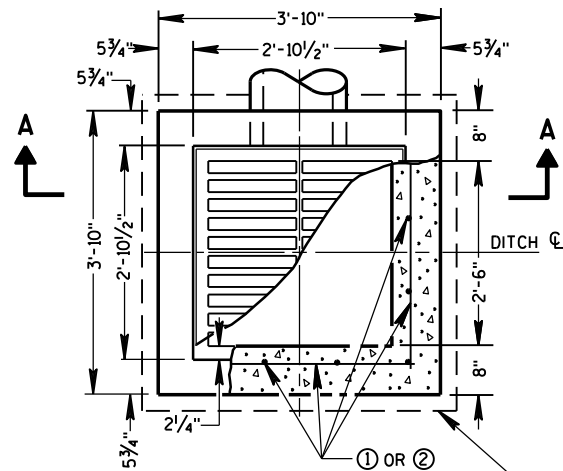
APPROVED

11/27/2013
 DATE

FHWA

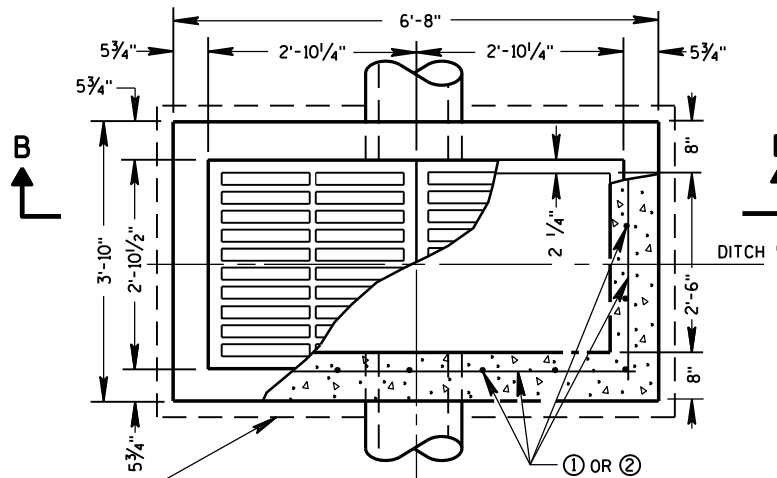
/S/ Jerry H. Zogg
 ROADWAY STANDARDS ENGINEER

85
 :NT

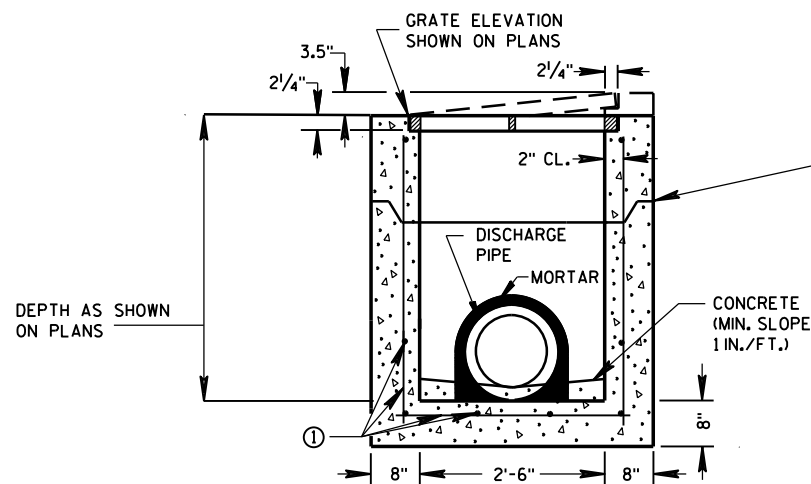


PLAN VIEW

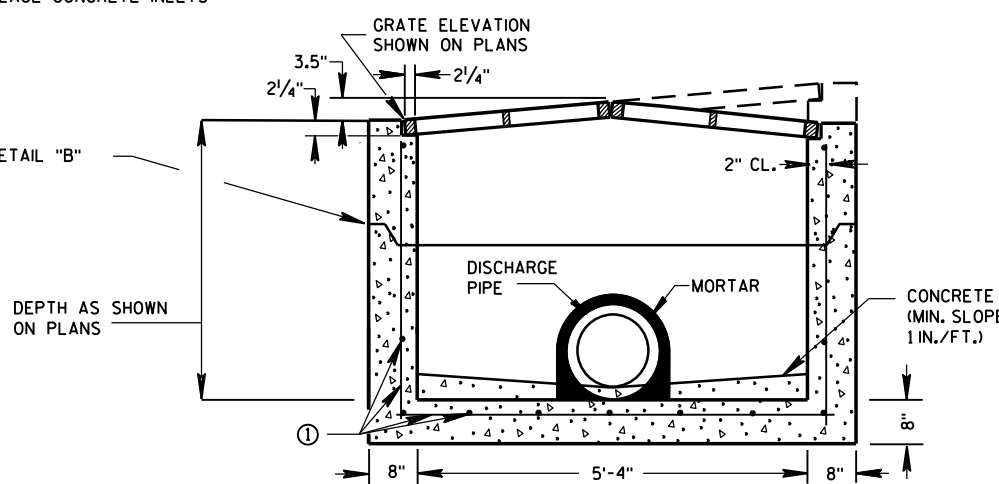
4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



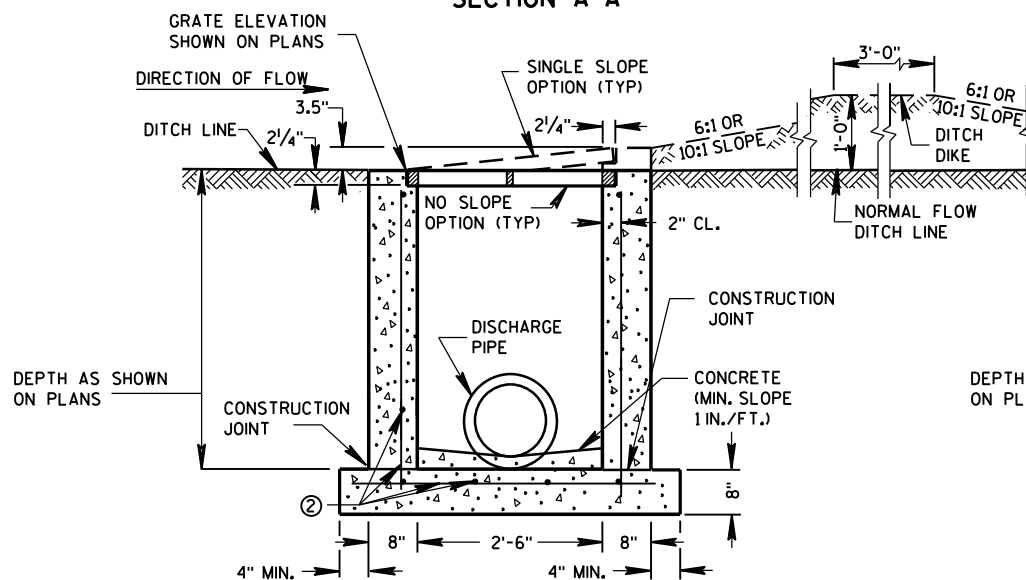
PLAN VIEW



PRECAST REINFORCED CONCRETE SECTION A-A

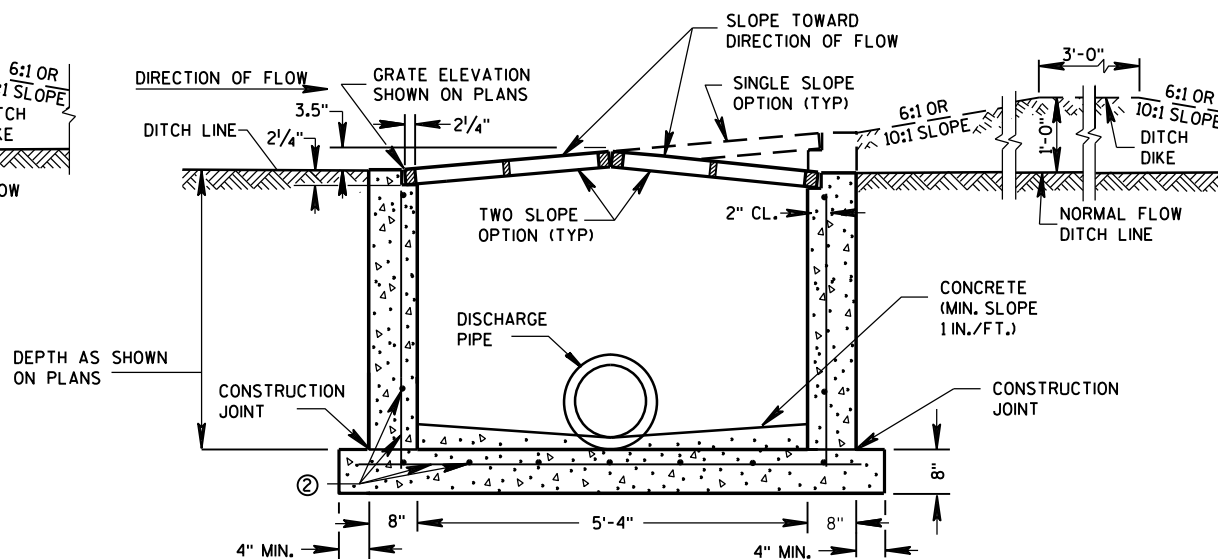


PRECAST REINFORCED CONCRETE SECTION B-B



REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A

INLETS MEDIAN 1 GRATE



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

INLETS MEDIAN 2 GRATE

GENERAL NOTES

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

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

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, IG-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT. BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

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

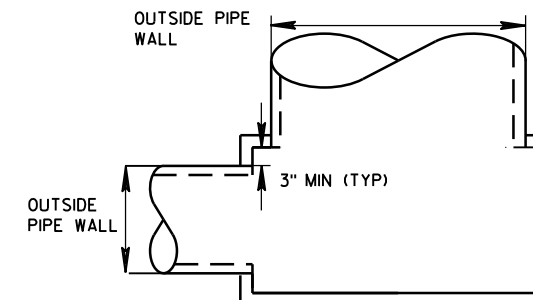
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

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

- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

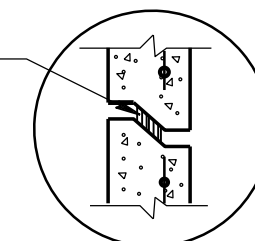
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42



DETAIL "A"

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



DETAIL "B"

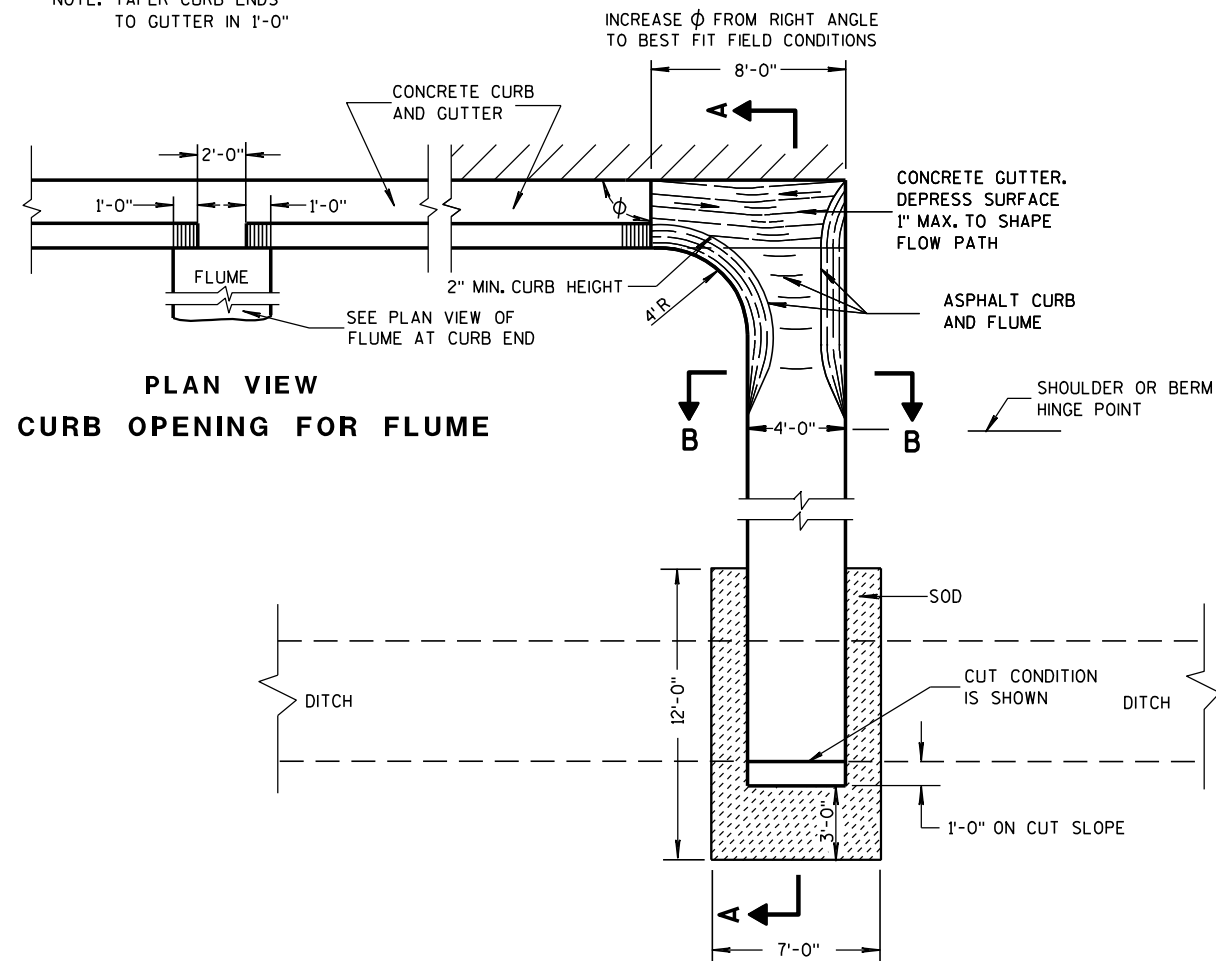
INLETS MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 86 ENT

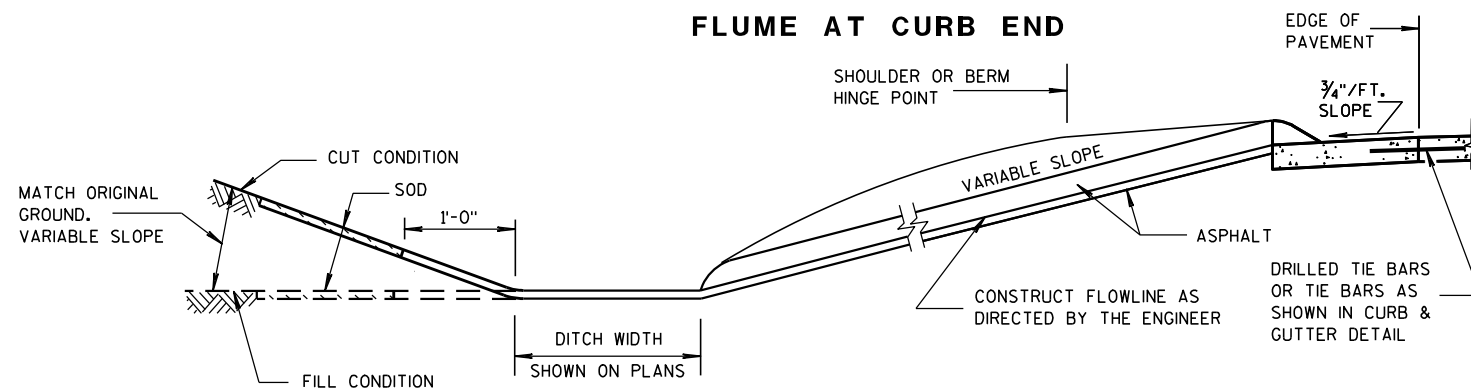
ASPHALTIC FLUME

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

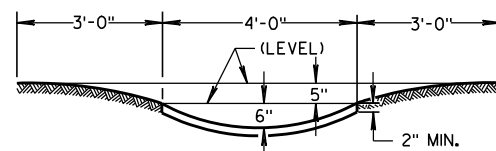


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

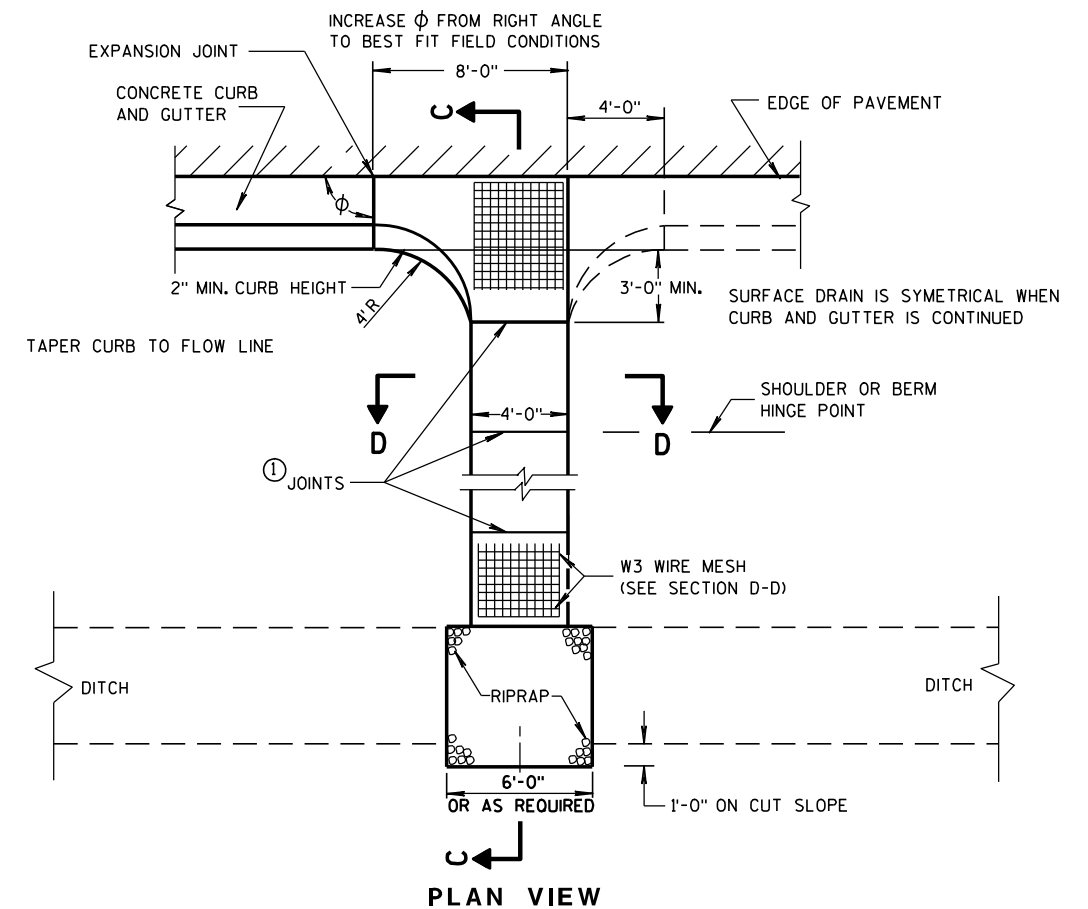
GENERAL NOTES

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

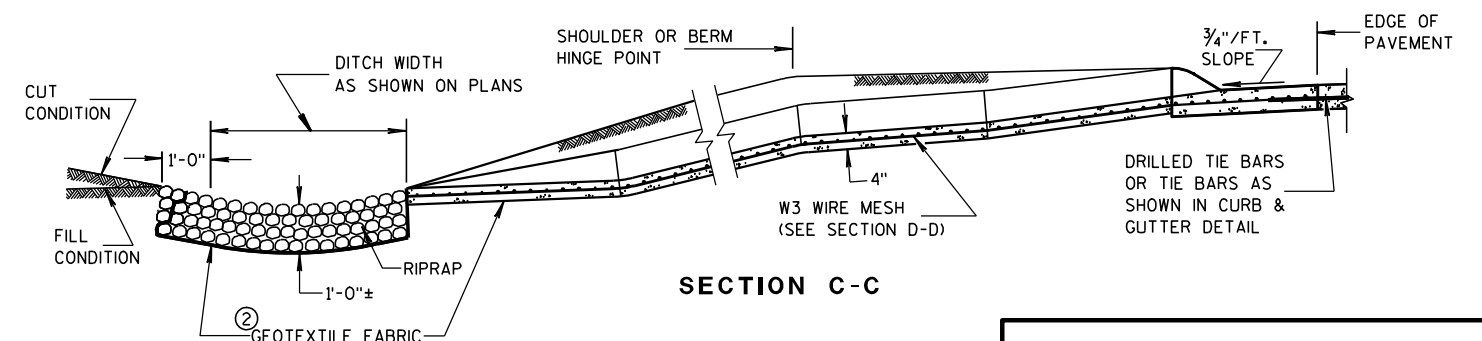
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ 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

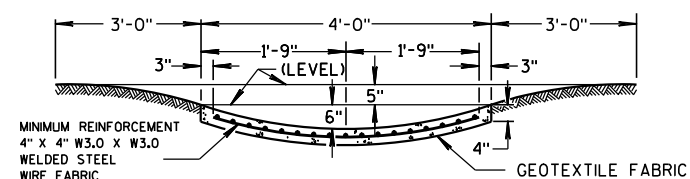
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9-4-08

DATE

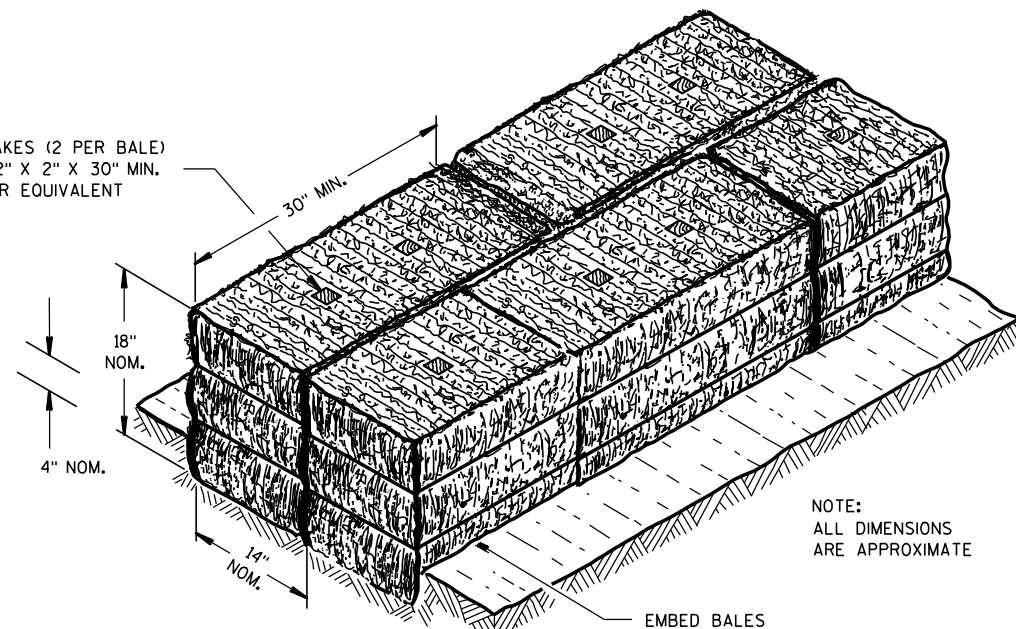
/S/ Jerry H. 7000

ROADWAY STANDARDS 87

ENGINEER

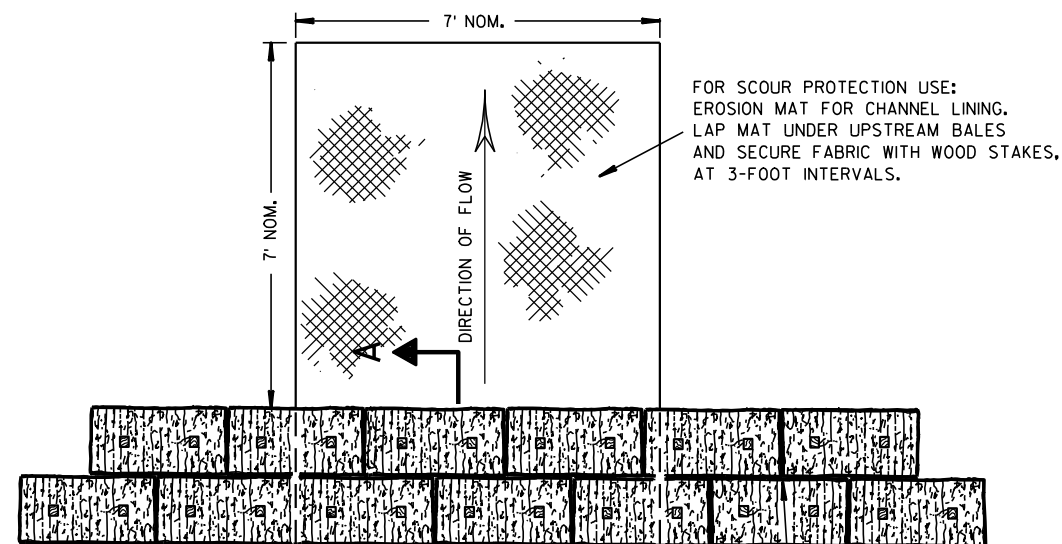
FHWA

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



SECTION A-A

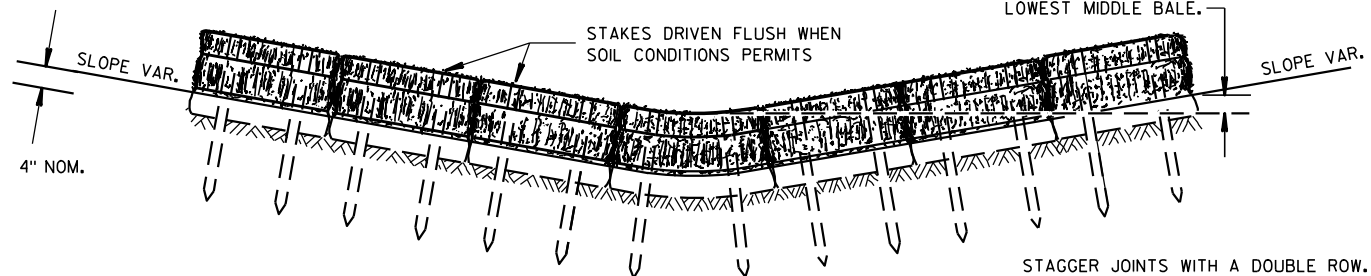
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

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



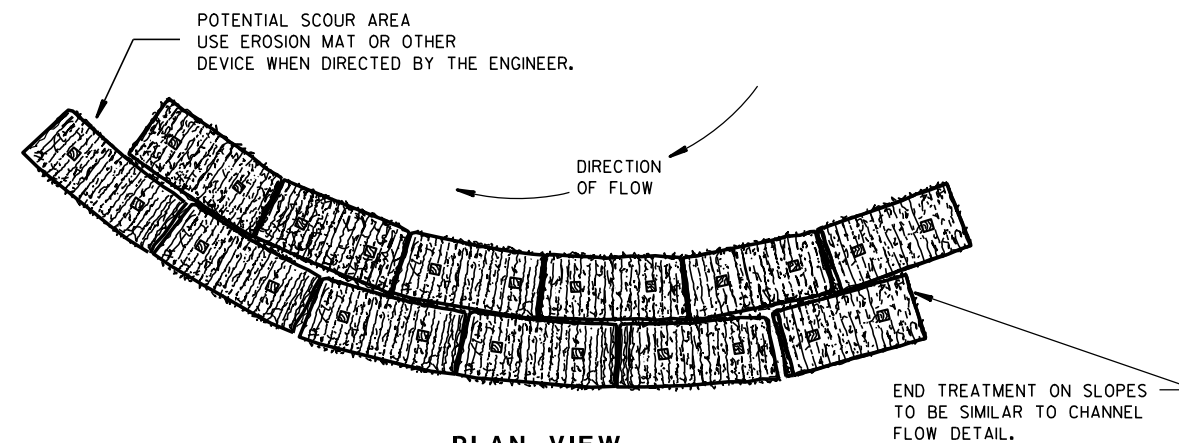
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

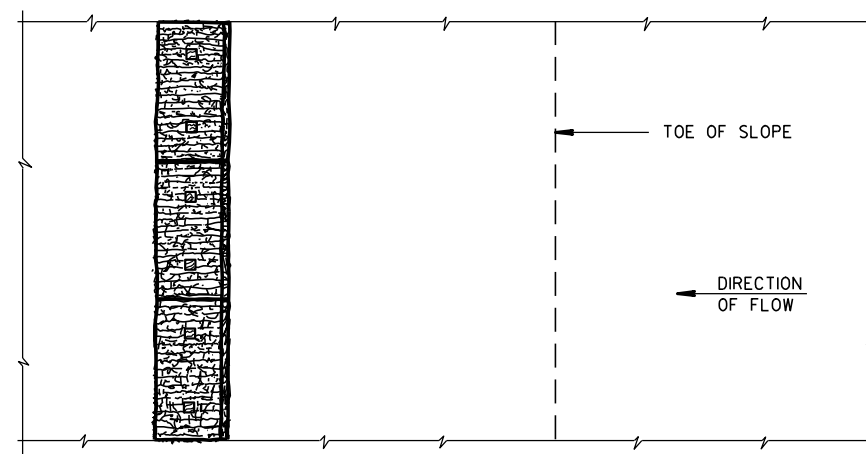
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

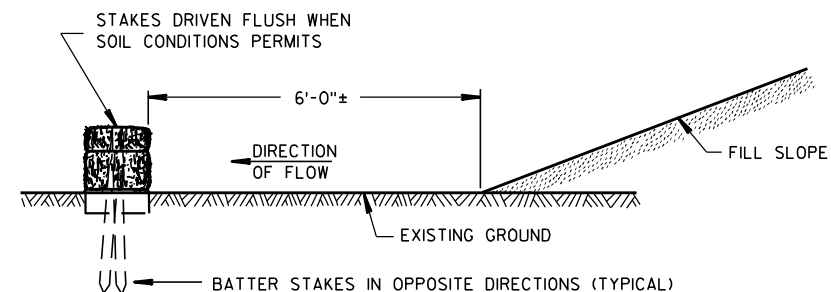


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

/S/ Beth Conn
CHIEF ROADWAY DEVELOPER

ENGINEER

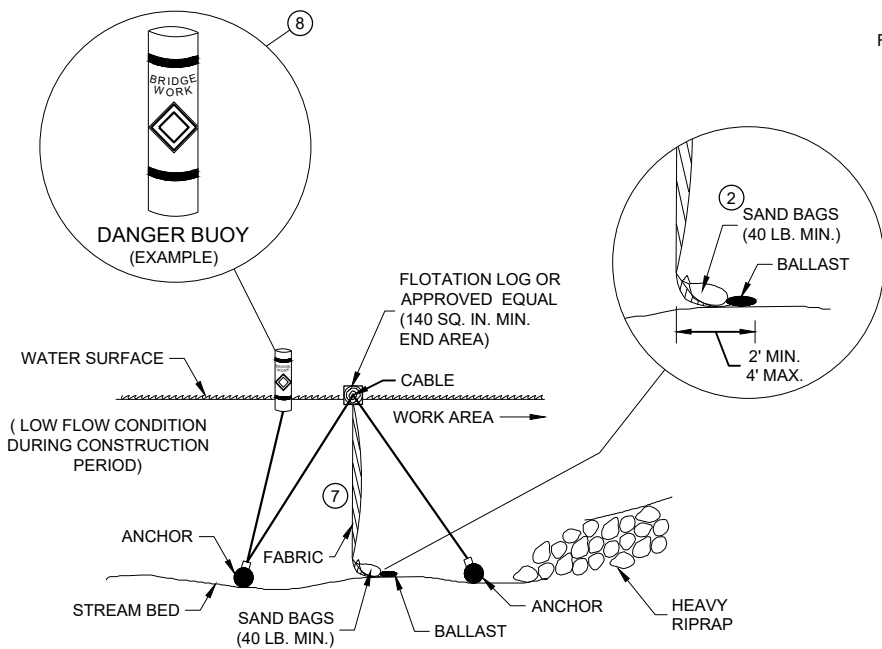
FHWA



- 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.

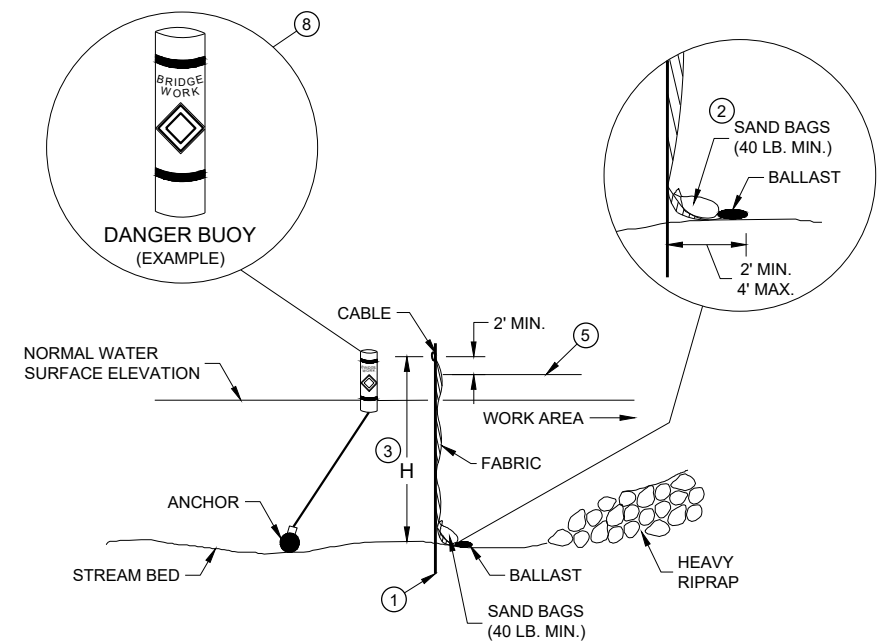


SILT FENCE
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED <u>4-29-05</u> <u>DATE</u> <u>/S/ Beth Cannata</u> CHIEF ROADWAY DEVELOP <u>89</u> ENGINEER FHWA



SECTION B - B

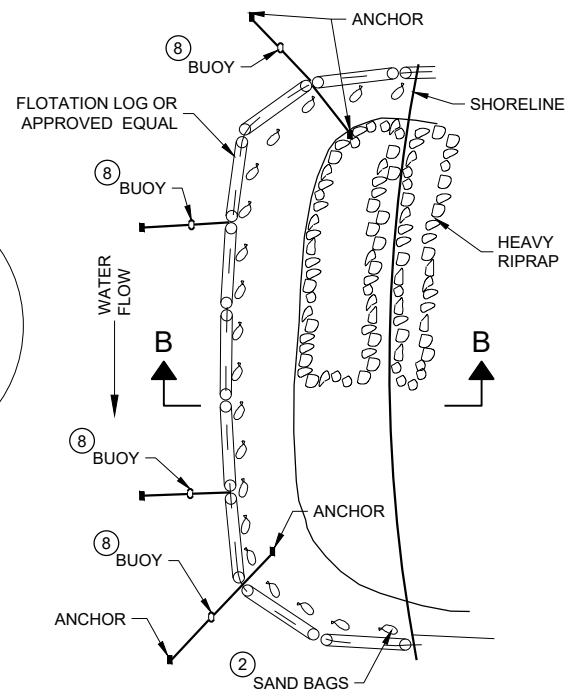
**TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6**



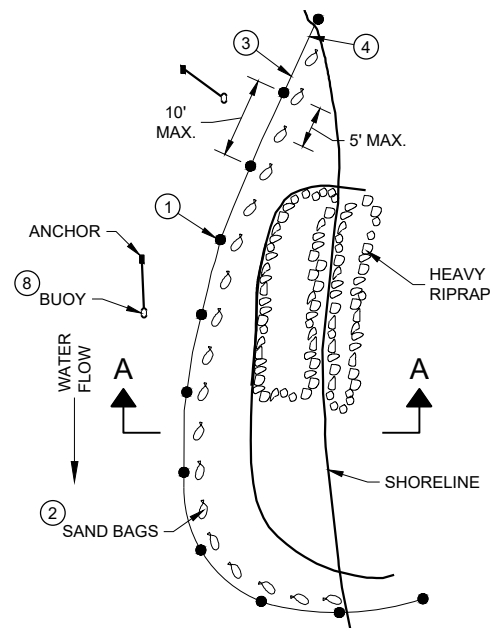
SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS



PLAN VIEW



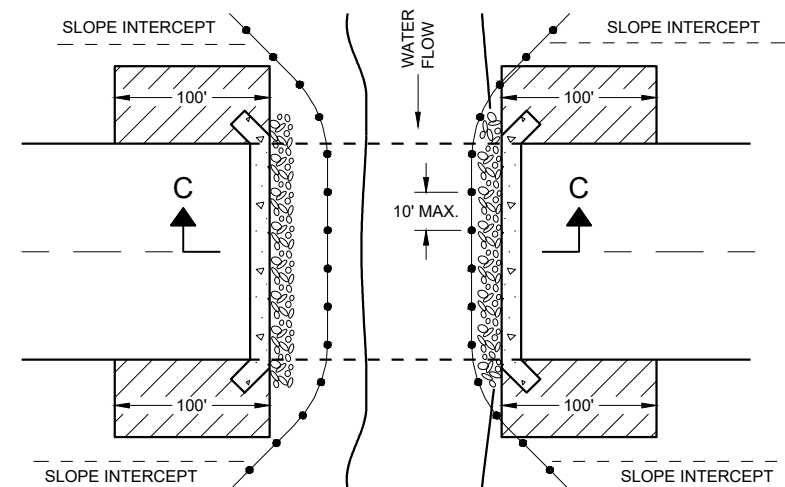
PLAN VIEW

GENERAL NOTES

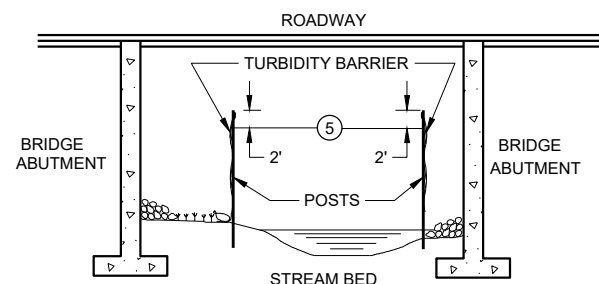
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- 1 DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- 2 SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- 3 WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- 4 IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- 5 ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- 6 FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- 7 ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- 8 USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



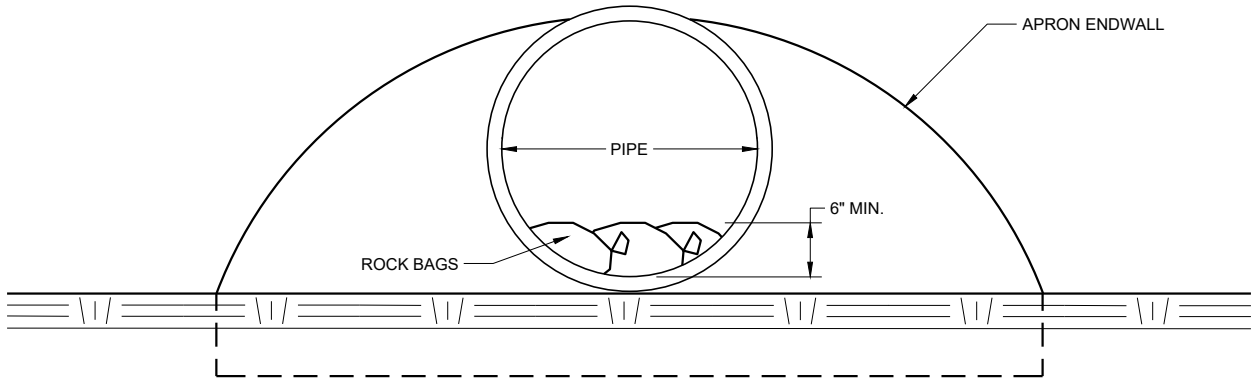
SECTION C - C

**TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES**

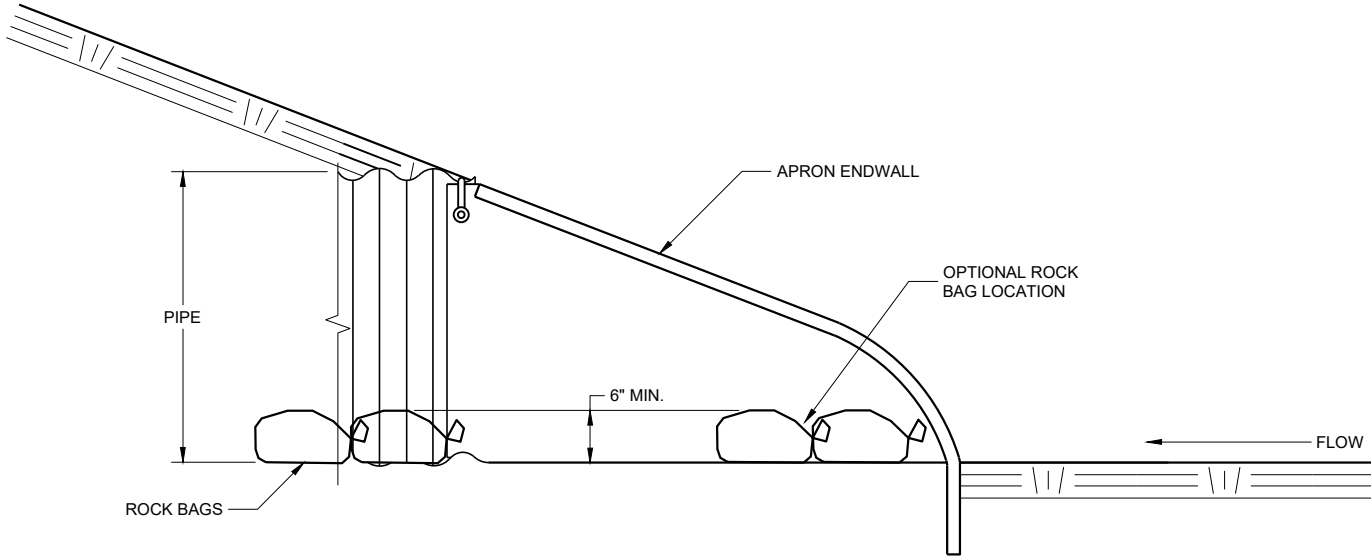
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02 DATE /S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER 90
FHWA



END VIEW



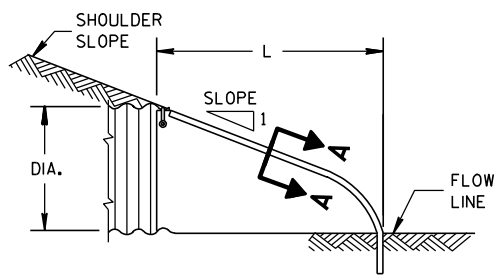
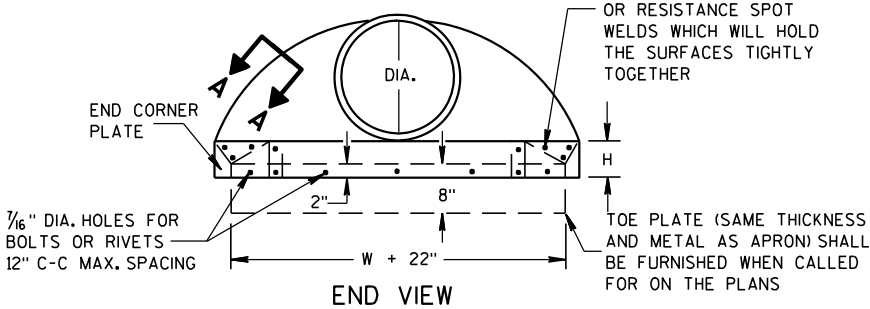
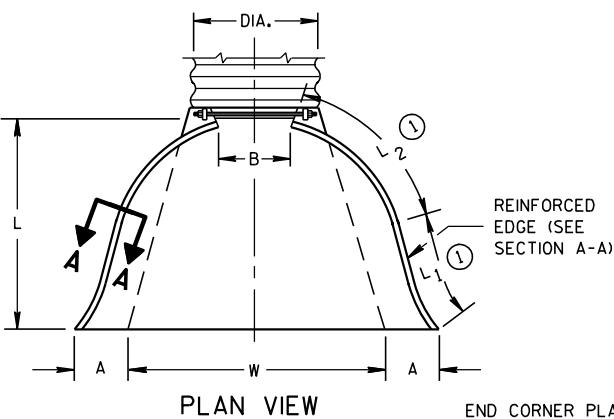
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGR	91

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.

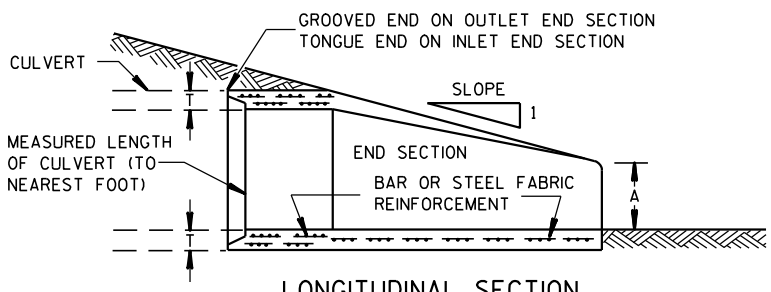
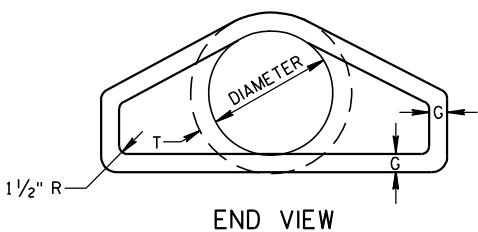
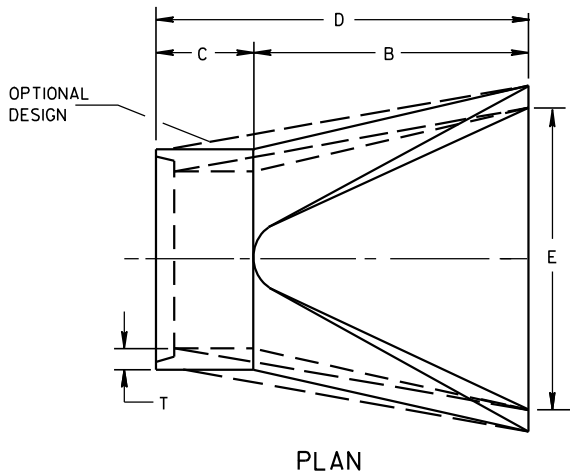
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

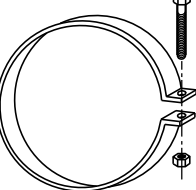
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9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

* MINIMUM
** MAXIMUM

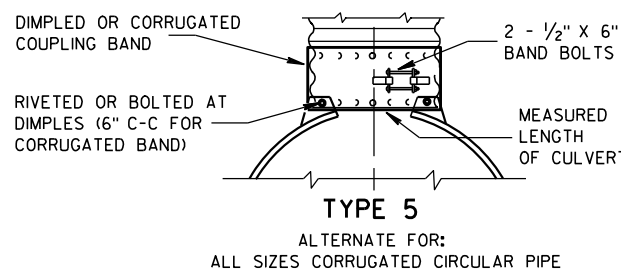
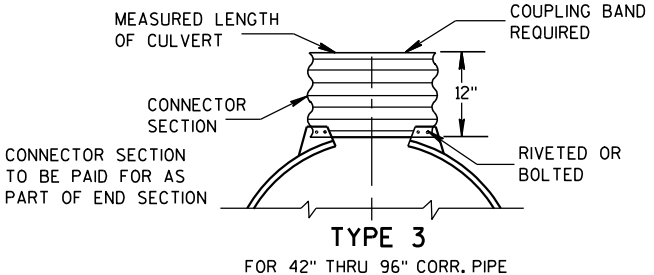
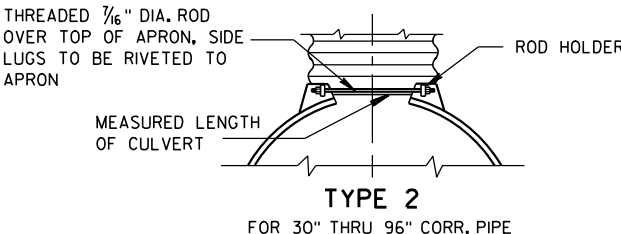
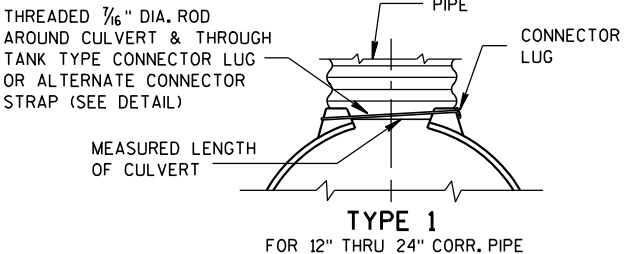


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



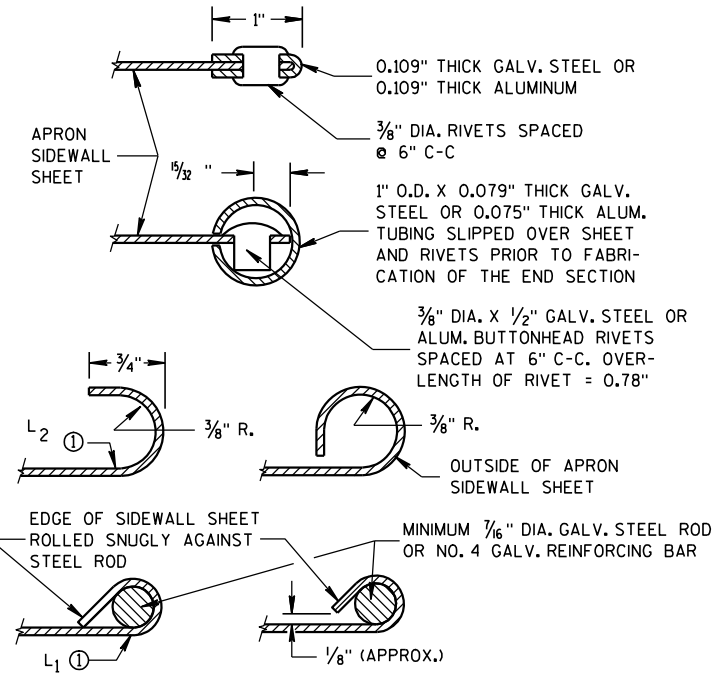
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

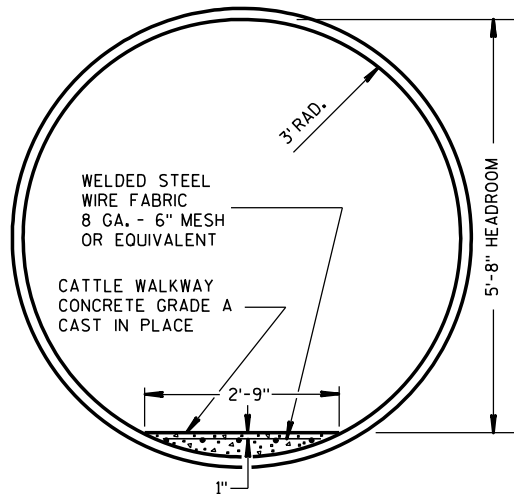
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

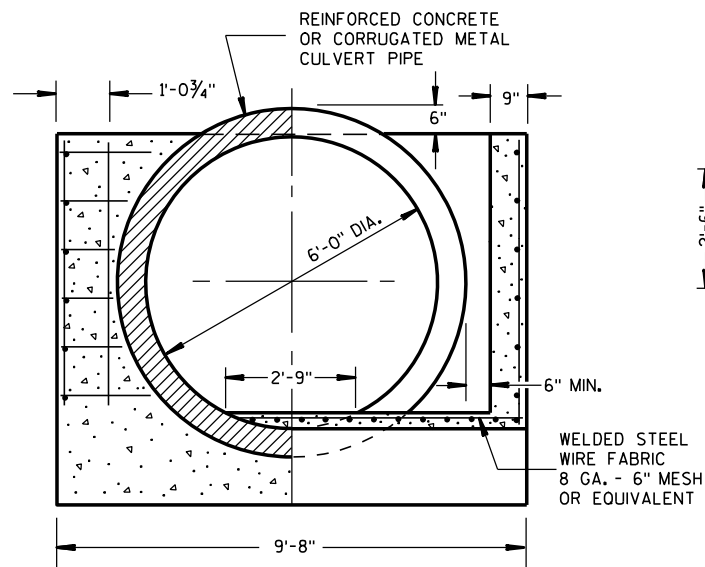
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

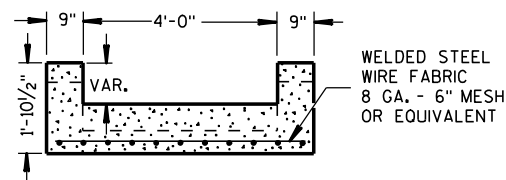
APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOP	92	NEER
FHWA			



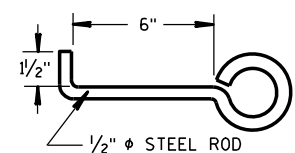
CROSS SECTION
CORRUGATED METAL PIPE
CATTLE PASS



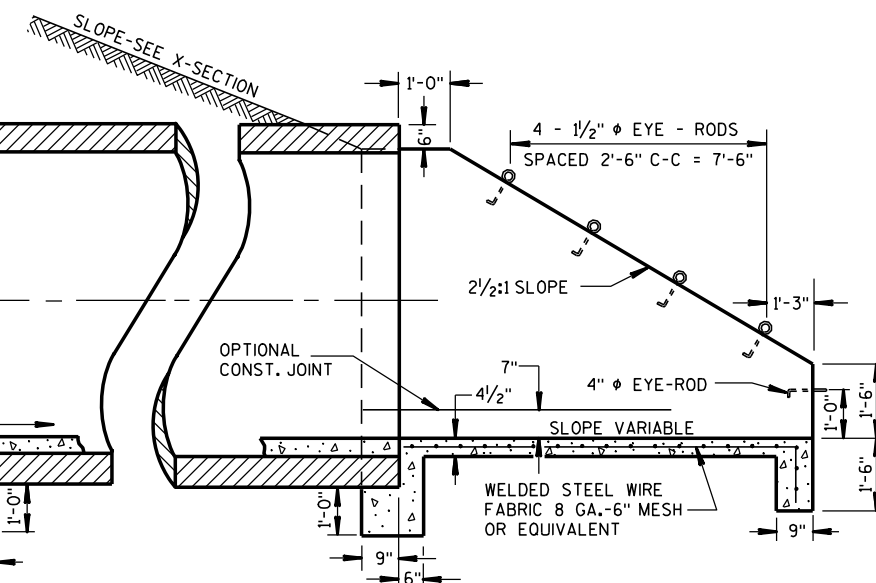
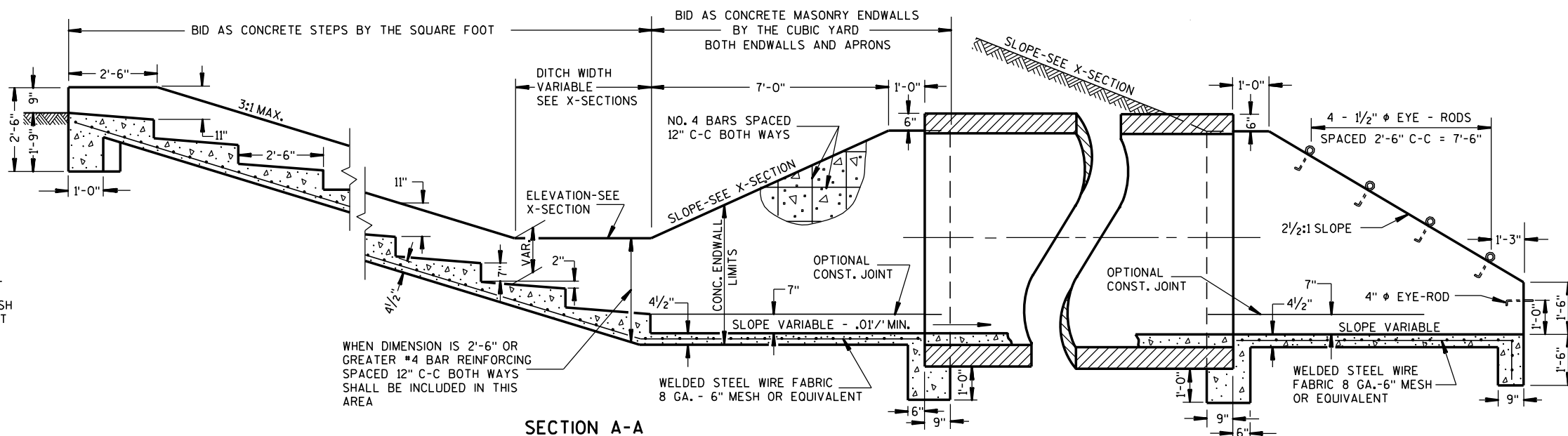
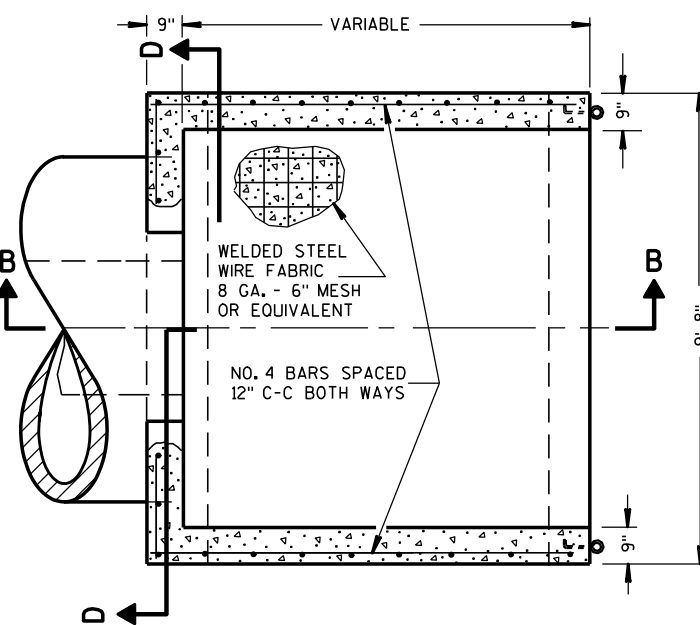
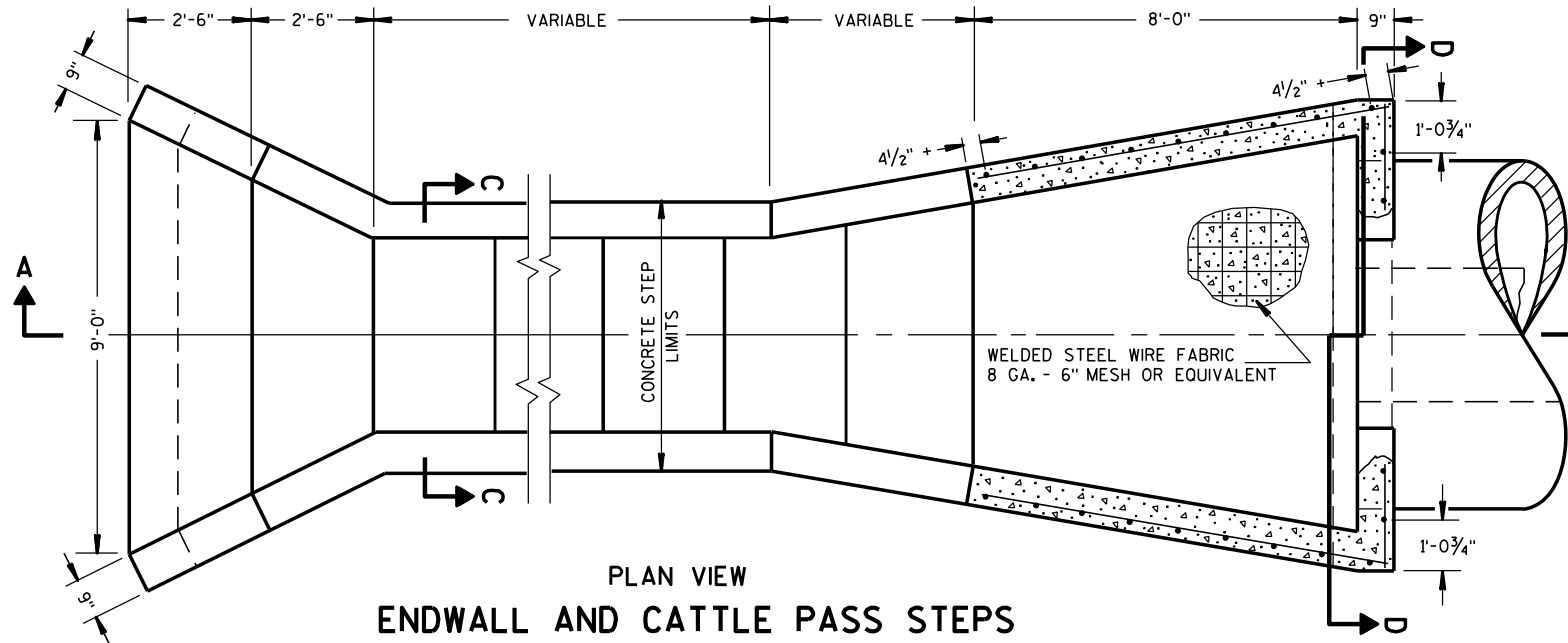
SECTION D-D



SECTION C-C



EYE-ROD ANCHOR



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.

ALL STEEL REINFORCEMENT IN ENDWALLS AND CATTLE PASS STEPS SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE NOTED.

ALL STEEL REINFORCEMENT OR FABRIC USED AS SHOWN ABOVE SHALL BE INCIDENTAL TO THE BID ITEM OF WHICH IT IS AN INTEGRAL PART.

EYE-RODS FOR FENCE CONNECTIONS SHALL BE PROVIDED BY THE CONTRACTOR AS AN INCIDENTAL TO THE BID ITEM OF CONCRETE MASONRY, ENDWALLS AND SHALL BE GALVANIZED.

CONCRETE USED FOR THE CATTLE WALKWAY WITHIN THE PIPE SHALL BE INCIDENTAL TO THE BID ITEM OF PIPE CATTLE PASS.

DETAILS FOR PIPE CATTLE PASS, CONCRETE ENDWALL AND STEPS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/6/75

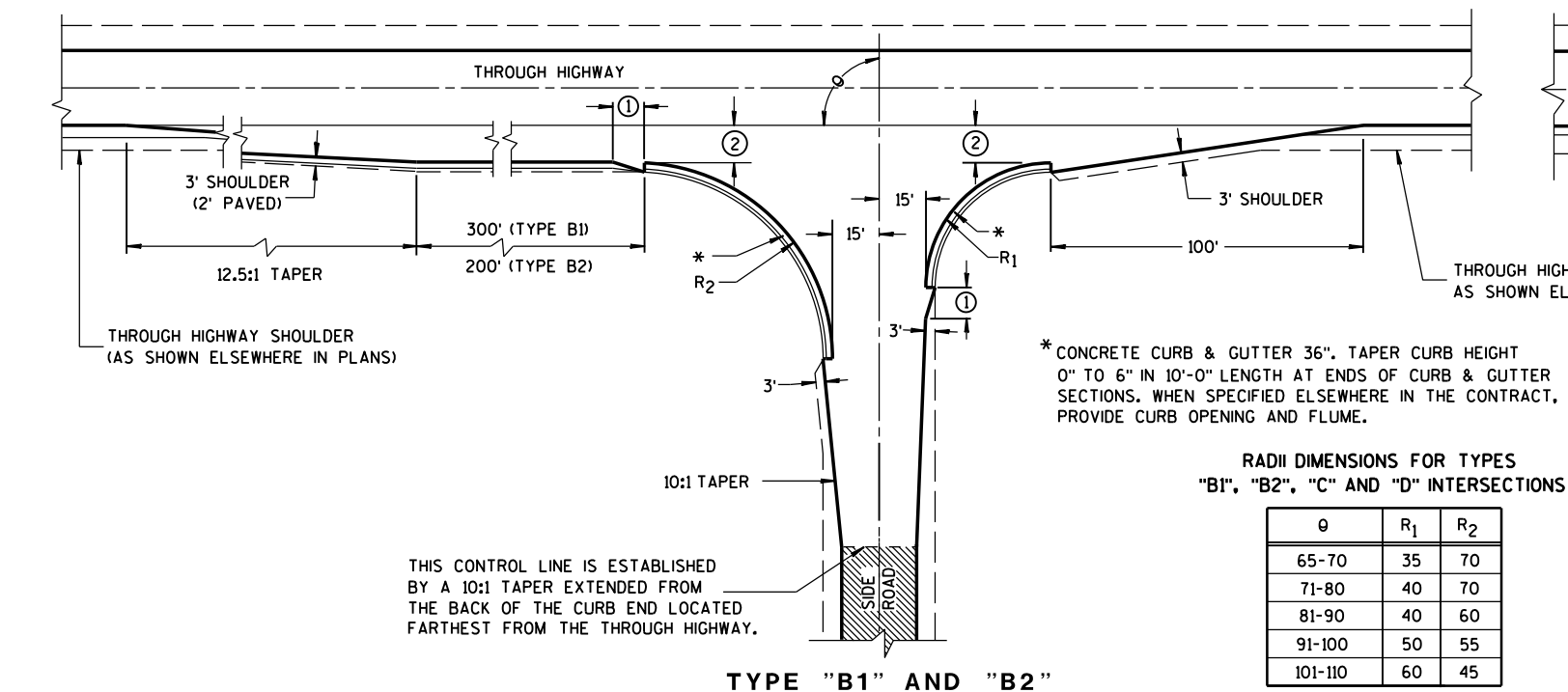
DATE

/S/ Harold F. ...

STATE DESIGN ENGINE 93

FHWA

4WYS



RADI DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R ₁	R ₂
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

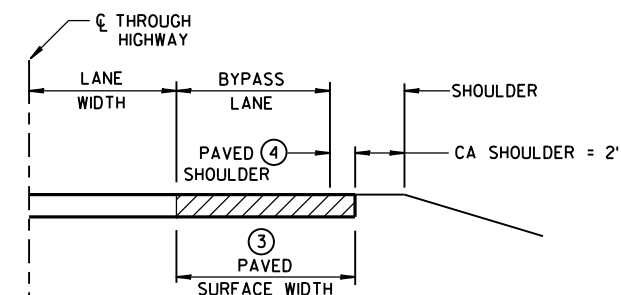
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

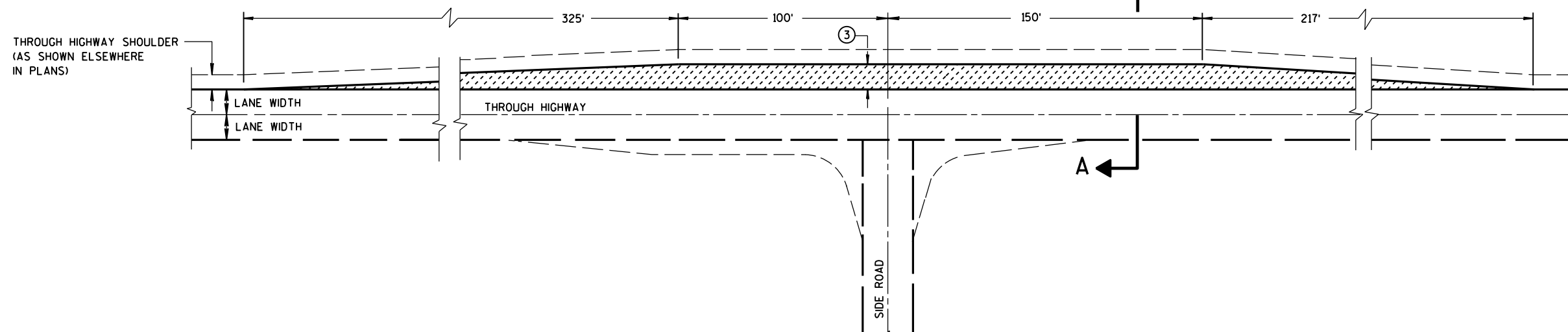
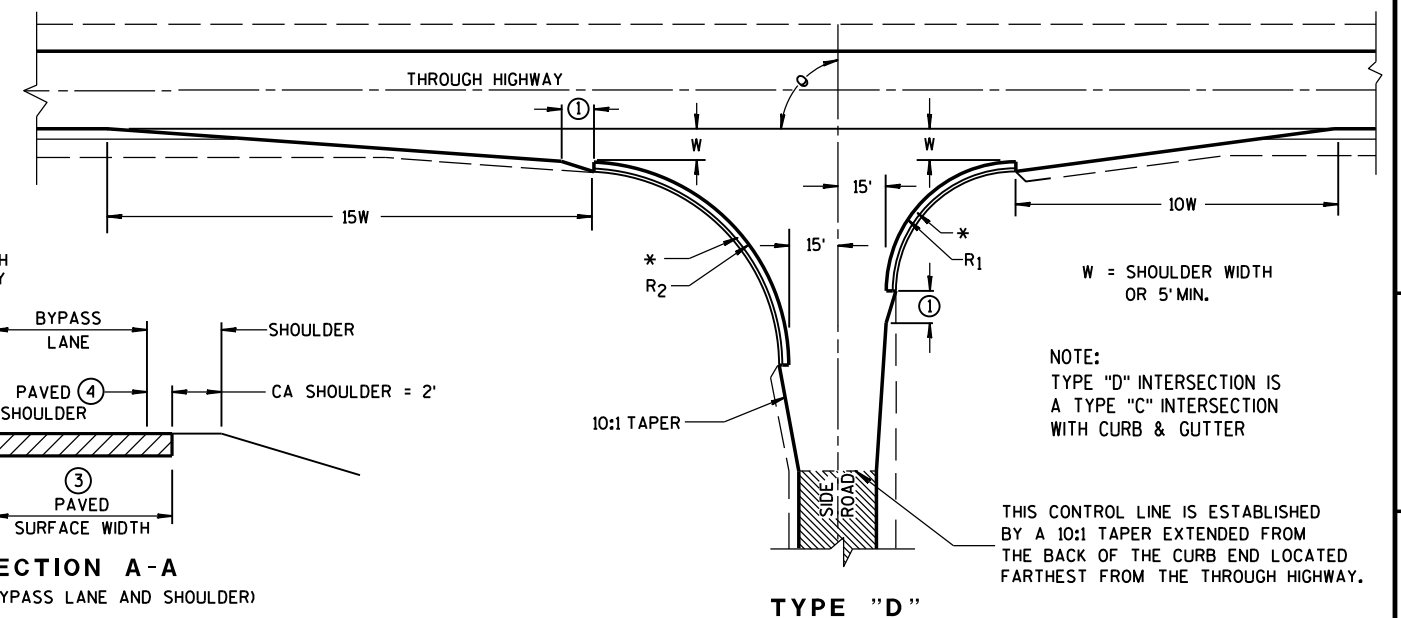
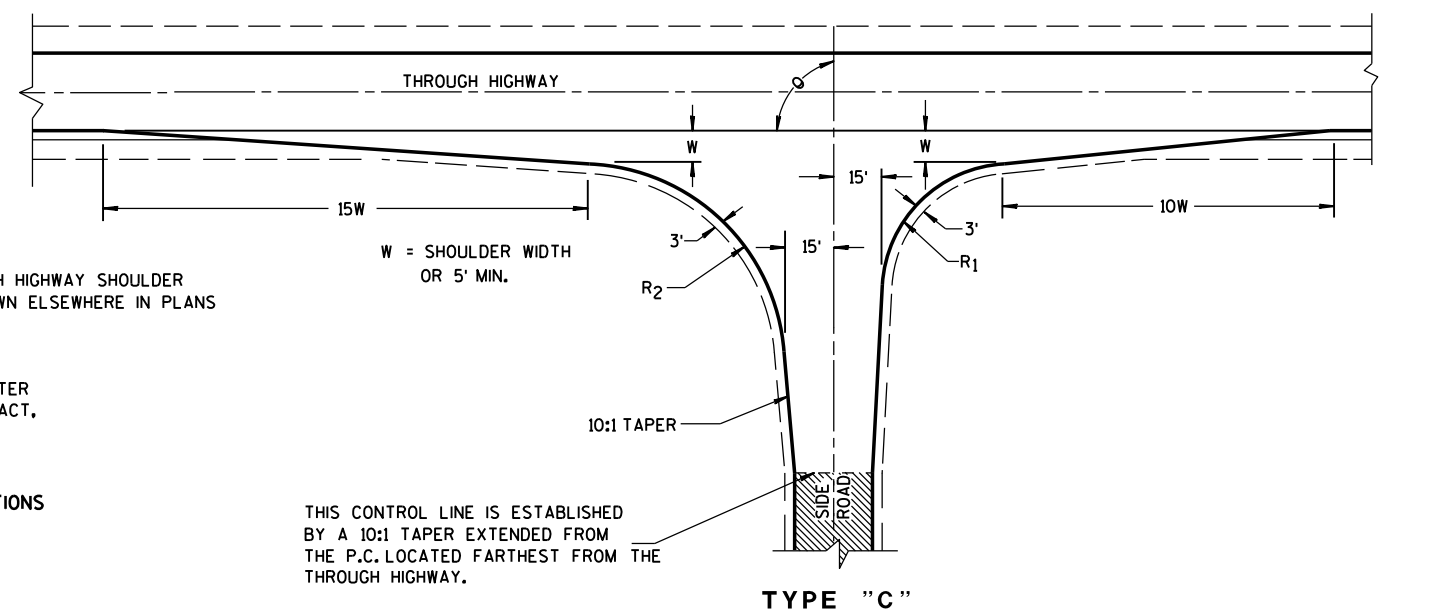
EXISTING PAVED SURFACE

BYPASS LANE

- ① 10-FT TYPICAL.
- ② 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.
- **10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.
- ③ BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.
- ④ BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



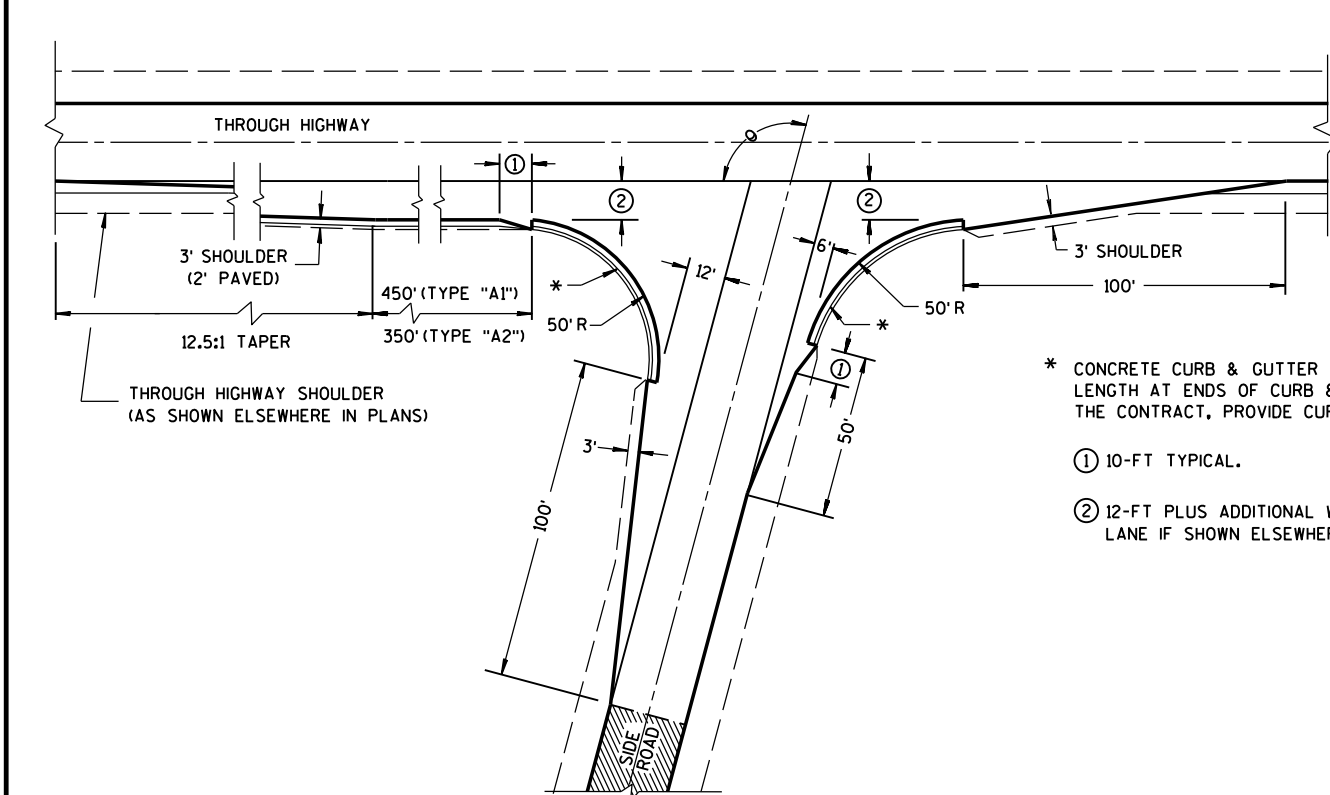
SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD
INTERSECTION, TYPES "B1", "B2",
"C" AND "D" AND TEE
INTERSECTION BYPASS LANE

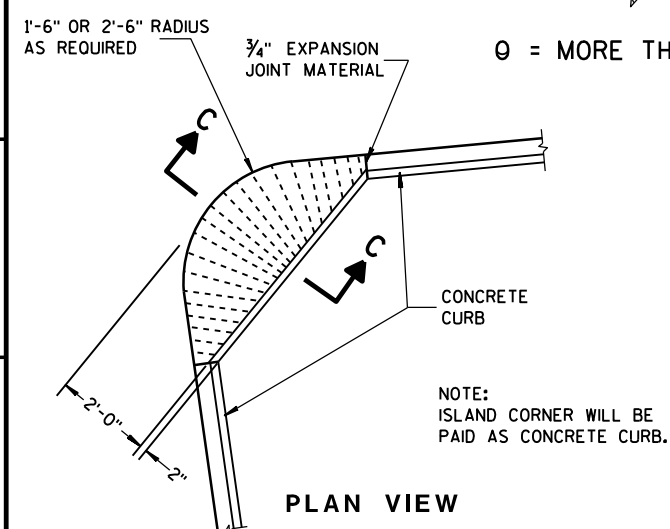
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



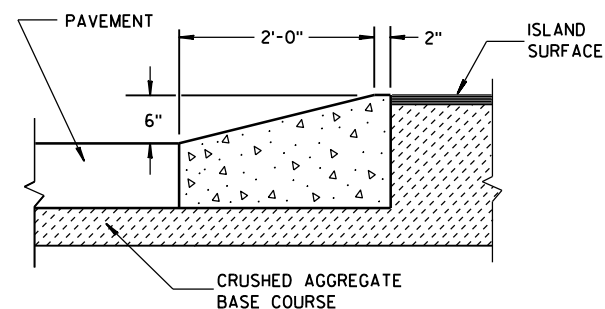
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10-FT TYPICAL.

② 12-FT PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLANS.



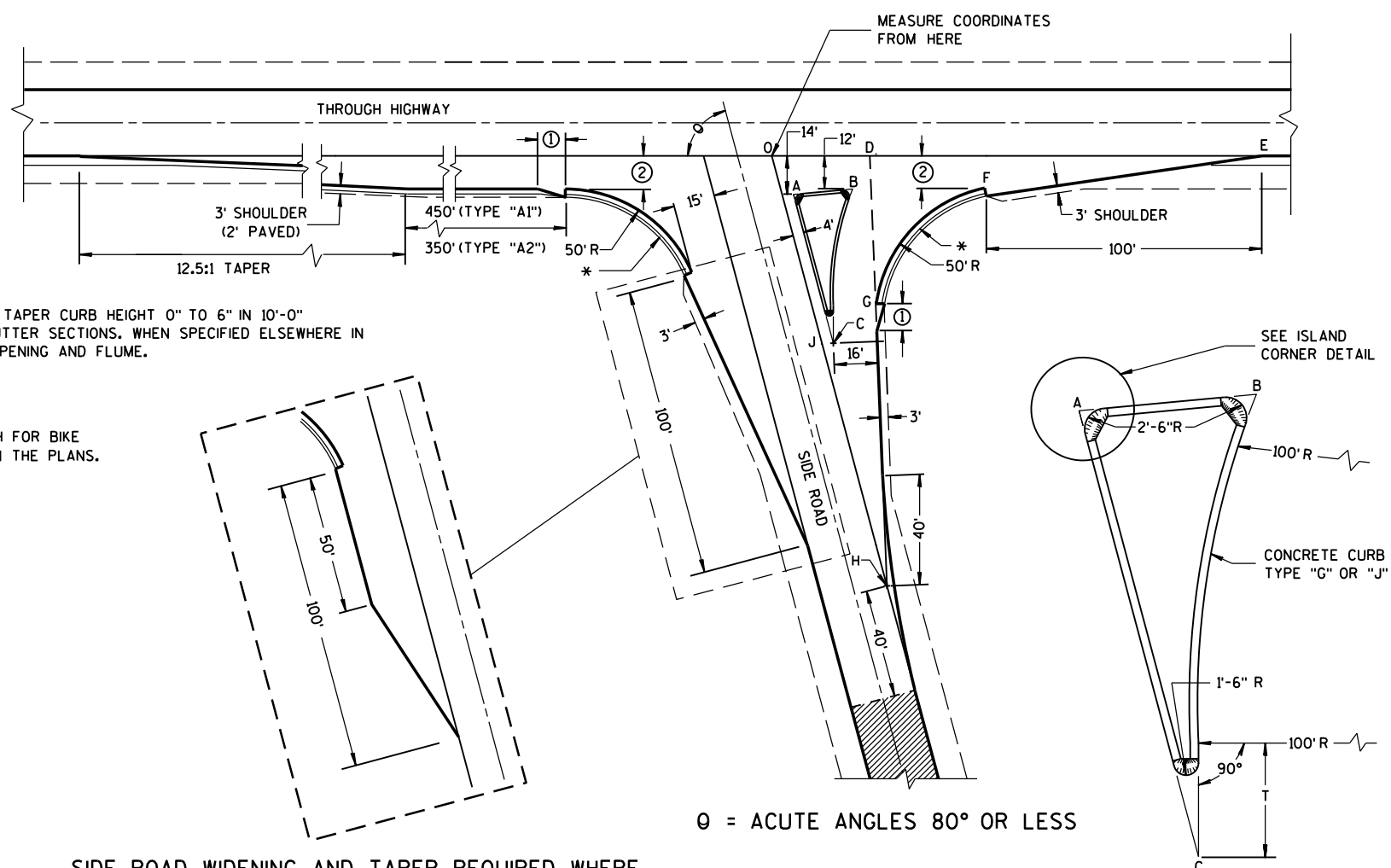
PLAN VIEW



SECTION C-C

ISLAND CORNER DETAIL

(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)



SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
 θ = ACUTE ANGLES 70° OR LESS

TABLE OF DIMENSIONS FOR
 VARIABLE SIDE ROAD INTERSECTION ANGLES

(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O")								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7	44.9	46.4	41.9	205.0	104.6	64.0	85.0	32.3	67.4	4.9	85.9	169.9
	-14.0	-12.0	-72.4	0.0	0.0	-12.0	-75.5	-147.1					
65	10.9	39.0	37.8	39.4	196.1	95.7	54.1	70.5	28.2	63.6	8.5	80.9	166.9
	-14.0	-12.0	-71.6	0.0	0.0	-12.0	-71.5	-151.3					
70	9.4	33.9	29.8	37.4	188.3	87.8	45.6	56.1	24.6	59.7	11.5	76.1	164.1
	-14.0	-12.0	-70.1	0.0	0.0	-12.0	-67.5	-154.2					
75	7.9	29.3	22.3	35.7	181.2	80.7	38.2	41.8	21.5	55.8	13.8	71.4	161.4
	-14.0	-12.0	-67.9	0.0	0.0	-12.0	-63.4	-155.9					
80	6.5	25.4	15.6	34.4	174.8	74.4	31.8	27.6	18.9	52.0	15.6	66.9	158.9
	-14.0	-12.0	-65.2	0.0	0.0	-12.0	-59.3	-156.5					

TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS

AT-GRADE SIDE ROAD
 INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED

12/18/12

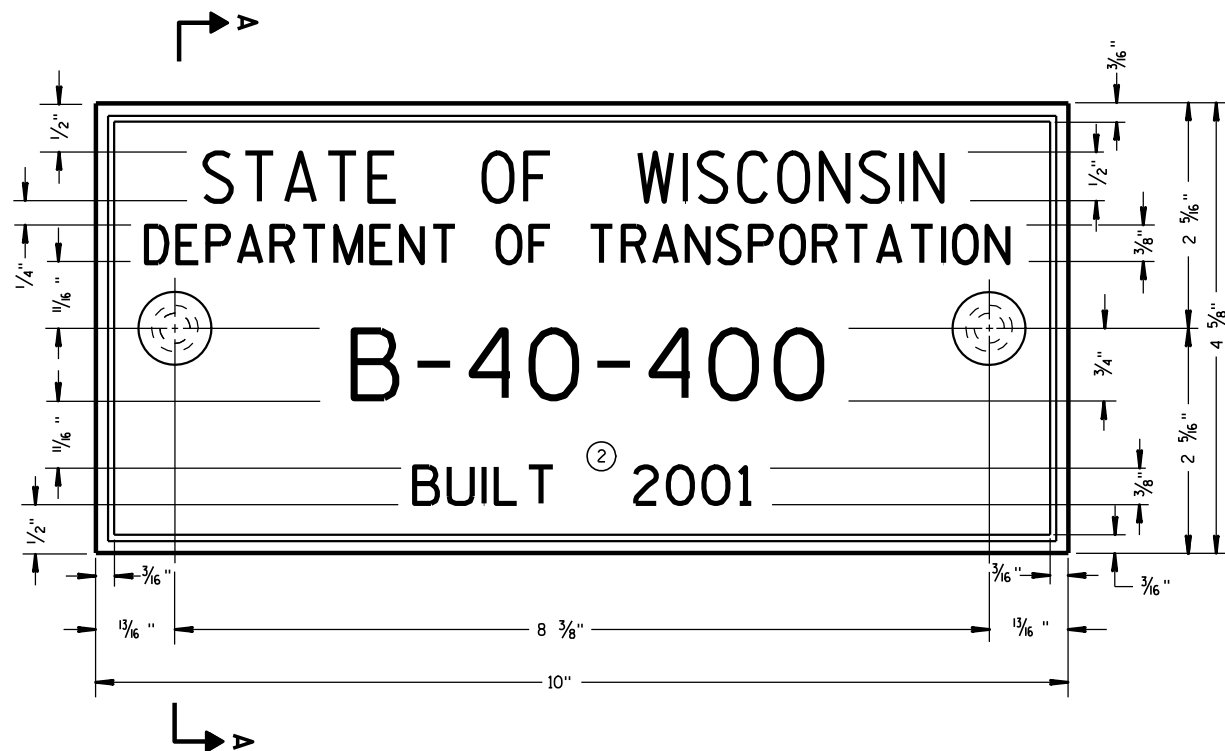
DATE

FHWA

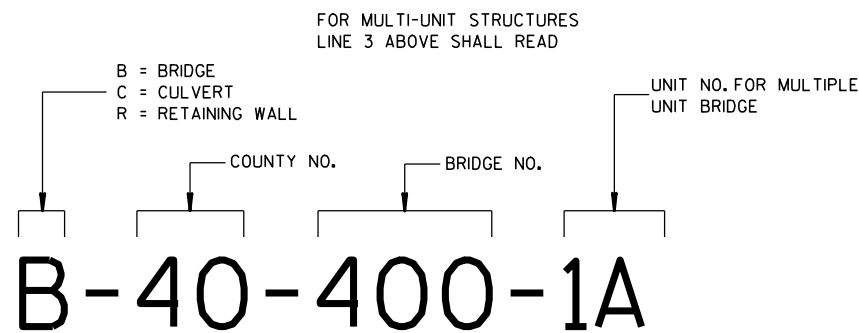
/S/ Jerry H. Zogg

ROADWAY STANDARDS D 95

ENGINEER



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



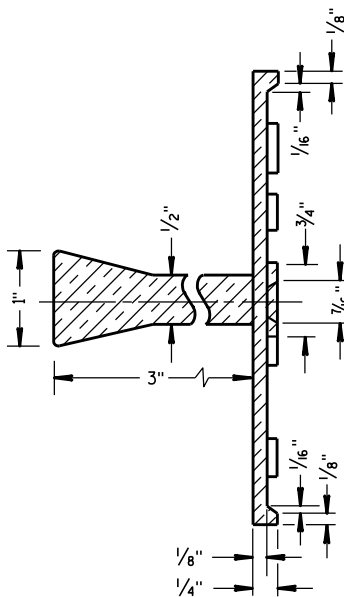
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

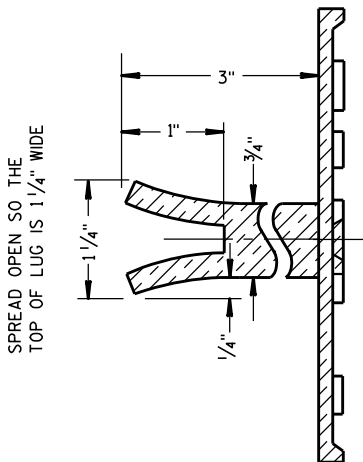
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

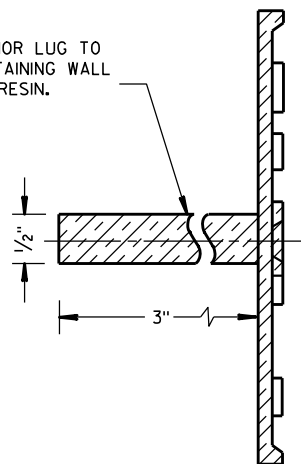


SECTION A-A



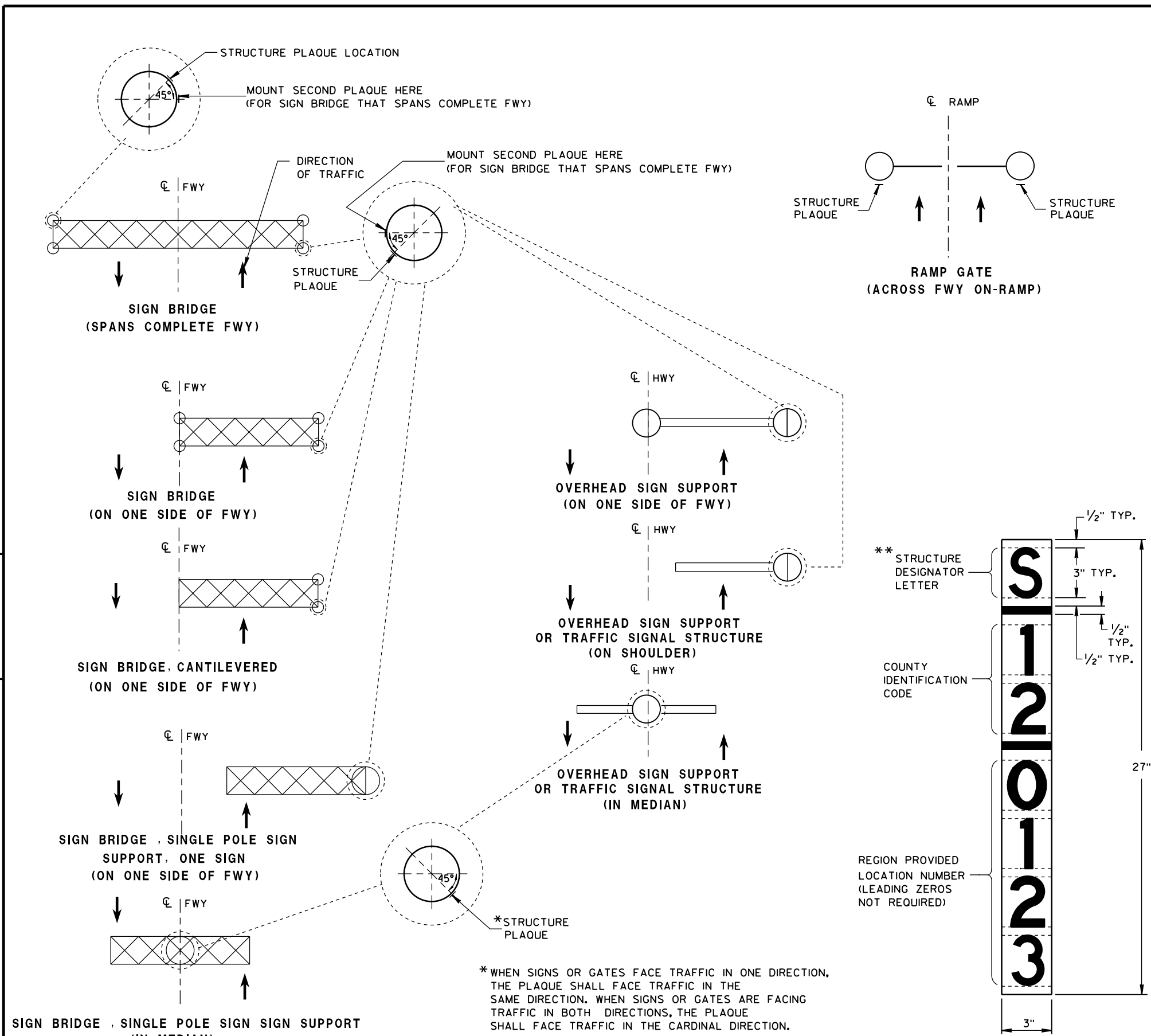
ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED DATE 3/26/10	CHIEF STRUCTURAL DEVELOPER /S/ Scot Beck 96	JEER



LOCATION OF RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT & TRAFFIC SIGNAL STRUCTURE PLAQUES

RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT AND TRAFFIC SIGNAL STRUCTURE PLAQUE FOR SIGN BRIDGES AND OVERHEAD SIGN SUPPORT WHICH ARE NOT STRUCTURE MOUNTED

GENERAL NOTES

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

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

IF THE PROPOSED SIGN BRIDGE OR OVERHEAD SIGN SUPPORT IS REPLACING AN EXISTING SIGN BRIDGE OR OVERHEAD SIGN SUPPORT, A NEW IDENTIFICATION PLAQUE WILL BE REQUIRED.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

- GALVANIZED STEEL SHAFT - 3 STAINLESS STEEL POP RIVETS
- A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS; FASTEN WITH STAINLESS SELF-TAPPING SCREWS
- ALUMINUM SHAFTS - 3 ALUMINUM POP RIVETS

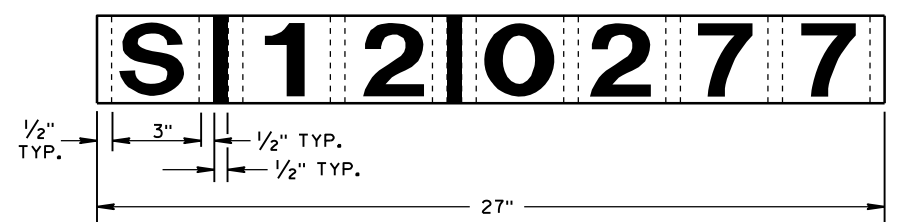
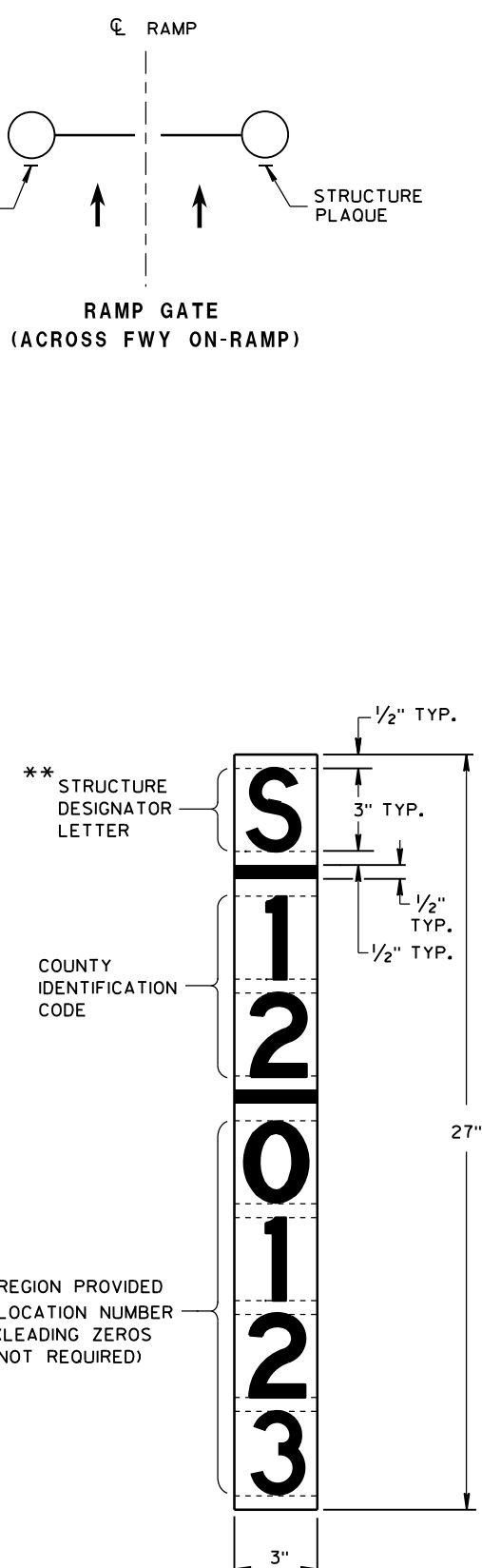
MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

PLAQUE MATERIALS:

- BASE - SHEET ALUMINUM, 0.060" THICK.
- FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE
- LINES - BLACK, 1/2" WIDE, SELF-ADHESIVE
- CHARACTERS:- BLACK, SELF ADHESIVE, SERIES "D", SIZE AS SHOWN.

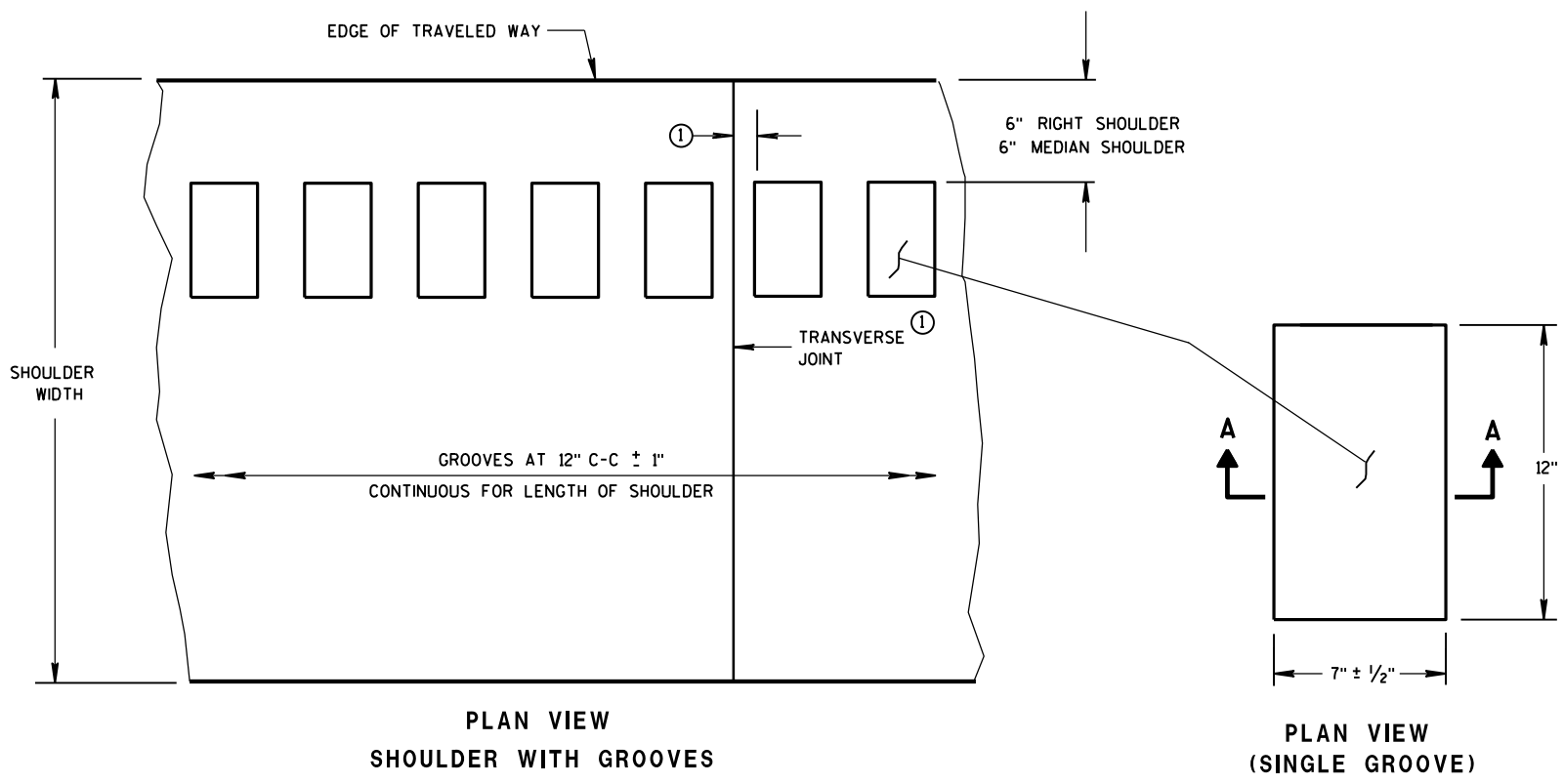
FOR SIGN BRIDGES, STRUCTURE MOUNTED, THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY AS SHOWN ON THE DRAWING. THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY TO THE BACK OF THE SIGN, BETWEEN THE ALUMINUM EXTRUSIONS, NEAR THE TOP LEFT HAND CORNER OF THE SIGN. THE BASE MATERIAL SHALL BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE ALUMINUM SURFACE. PRIOR TO ADHERING THE MATERIAL, THE ALUMINUM SURFACE SHALL BE SMOOTH, CLEAN AND DRY.

WHERE SIGN BRIDGE ILLUMINATION IS PROVIDED, THE STRUCTURE MUST ALSO HAVE A SIGN BRIDGE CIRCUIT PLAQUE AS SHOWN IN THE ELECTRICAL DETAILS.



IDENTIFICATION PLAQUE FOR SIGN BRIDGE, STRUCTURE MOUNTED

STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, & TRAFFIC SIGNALS		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED 12/4/2012 DATE	/S/ Travis Fettes STATE TRAFFIC ENGINE 97	SIGN
FHWA		



PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

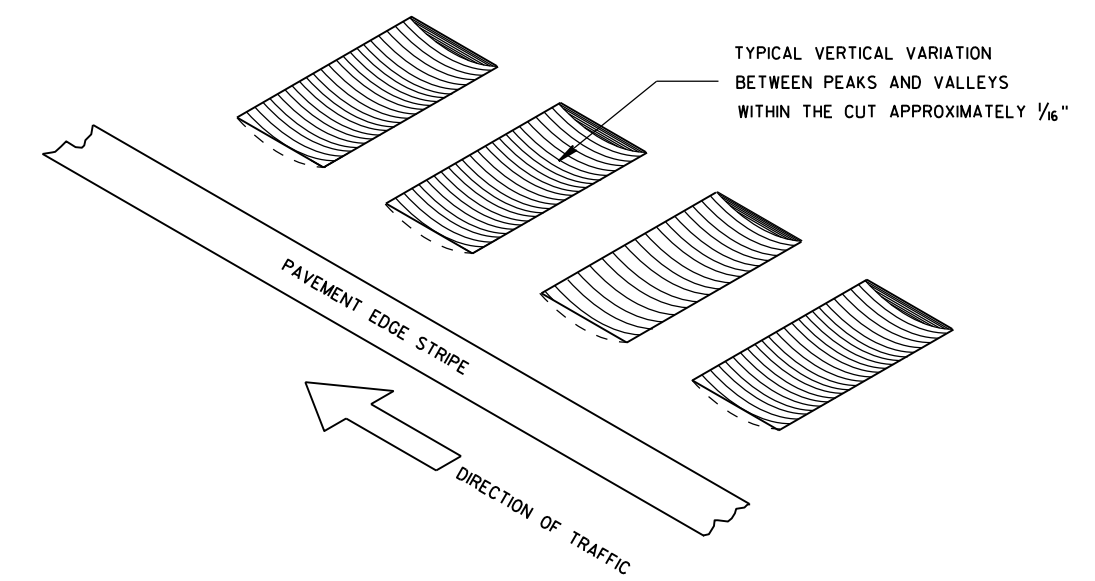
GENERAL NOTES

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

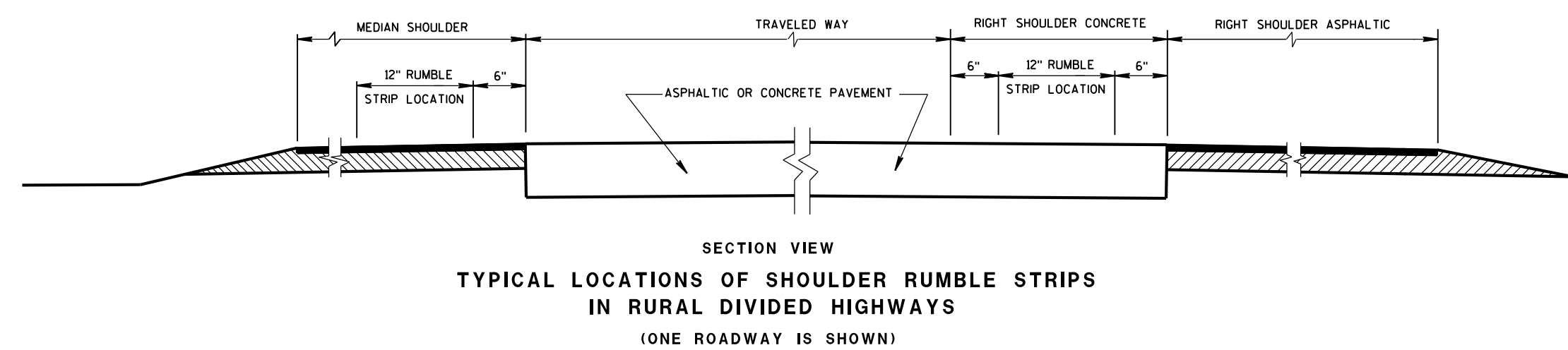
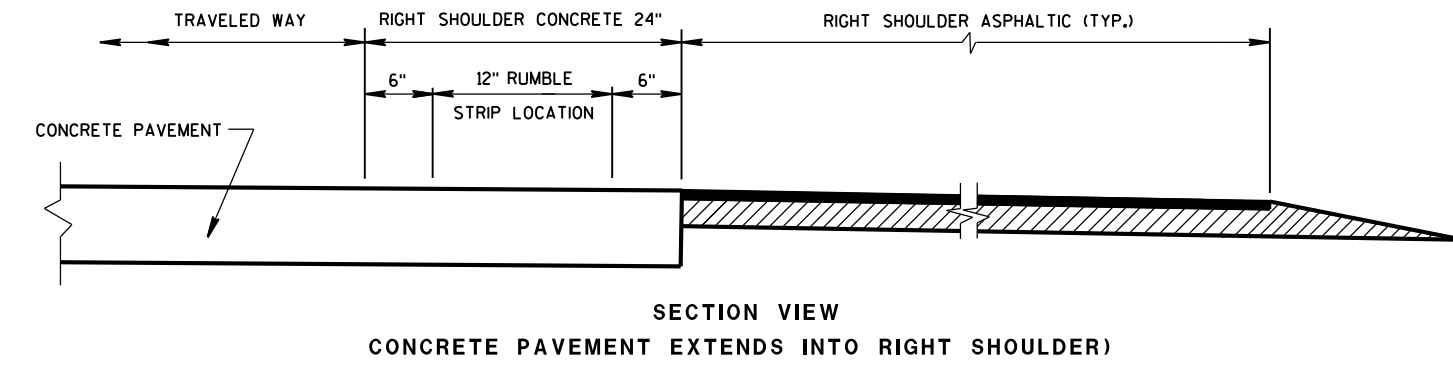
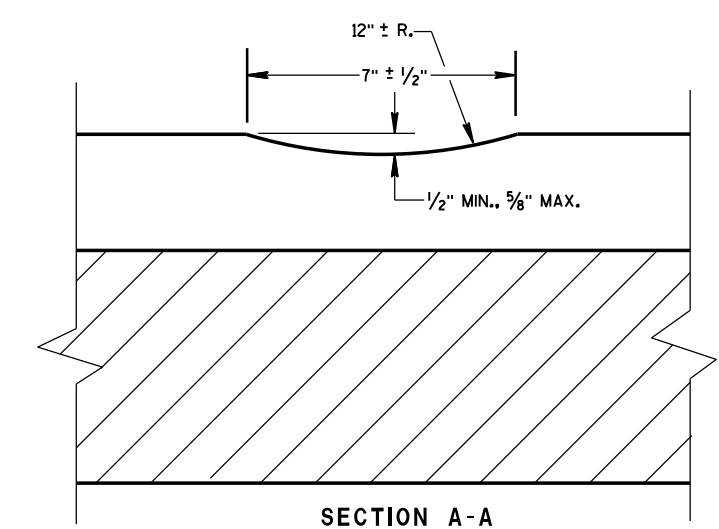
RUMBLE STRIPS ON EXPRESSWAYS

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.

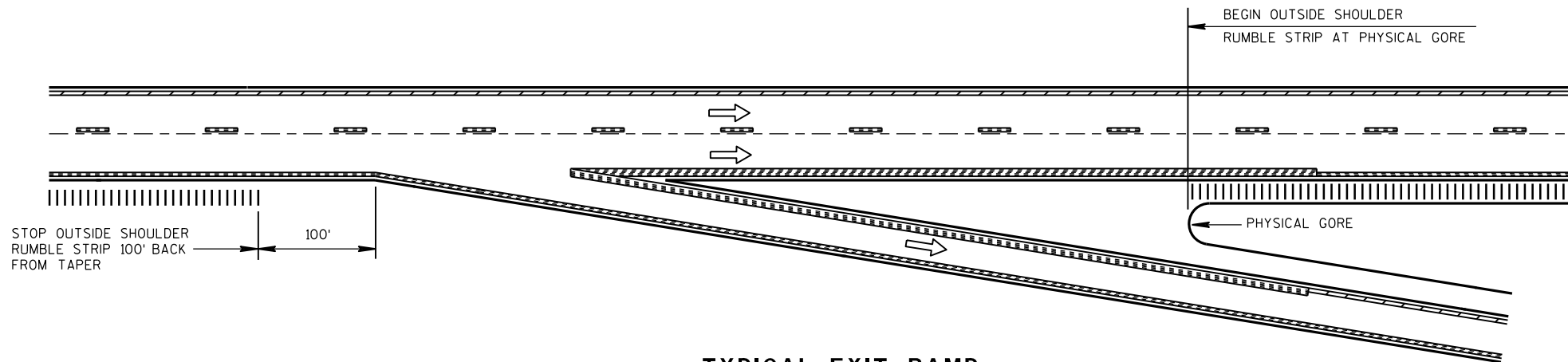


ISOMETRIC



**SHOULDER RUMBLE STRIP,
MILLING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



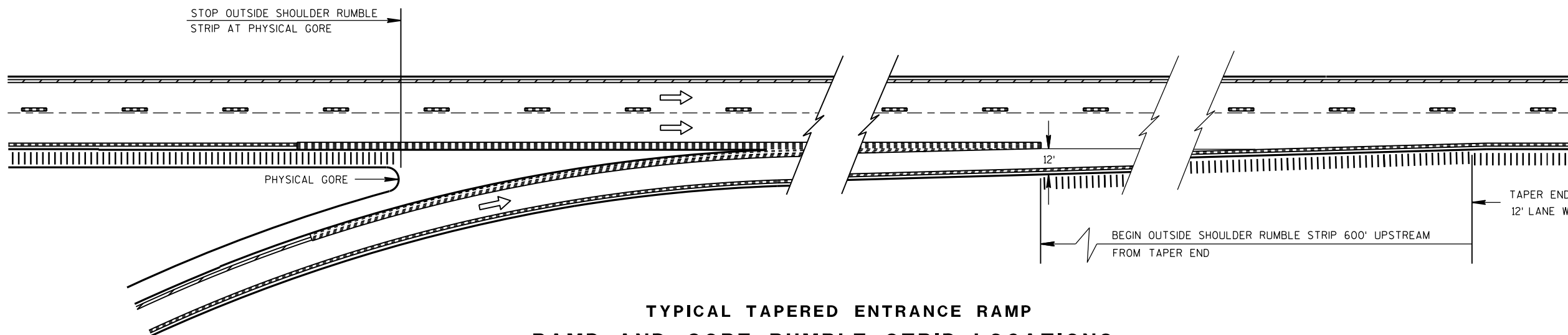
TYPICAL EXIT RAMP

NOTES:

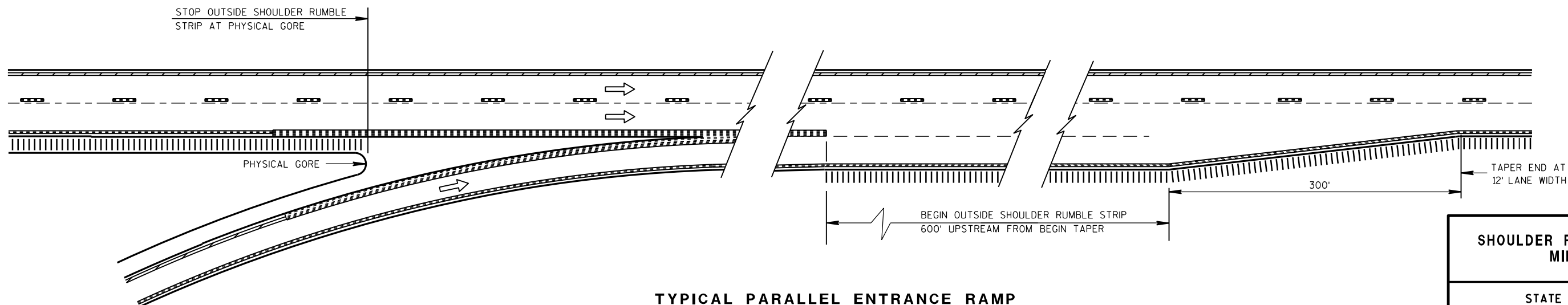
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

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**

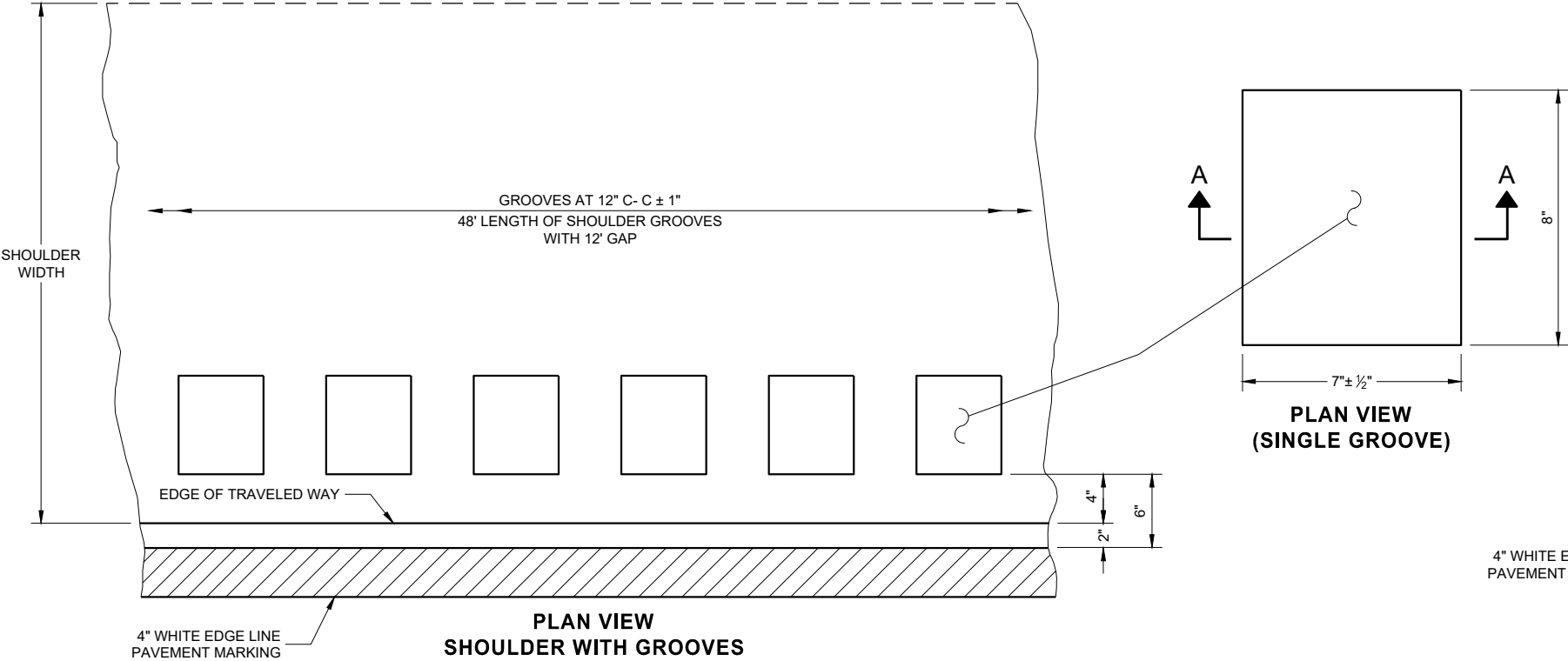


**TYPICAL PARALLEL ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**

**SHOULDER RUMBLE STRIP,
MILLING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 12/17/2012
/S/ Jerry H. Zoagg
ROADWAY STANDARDS 199 ENT
ENGINEER



6

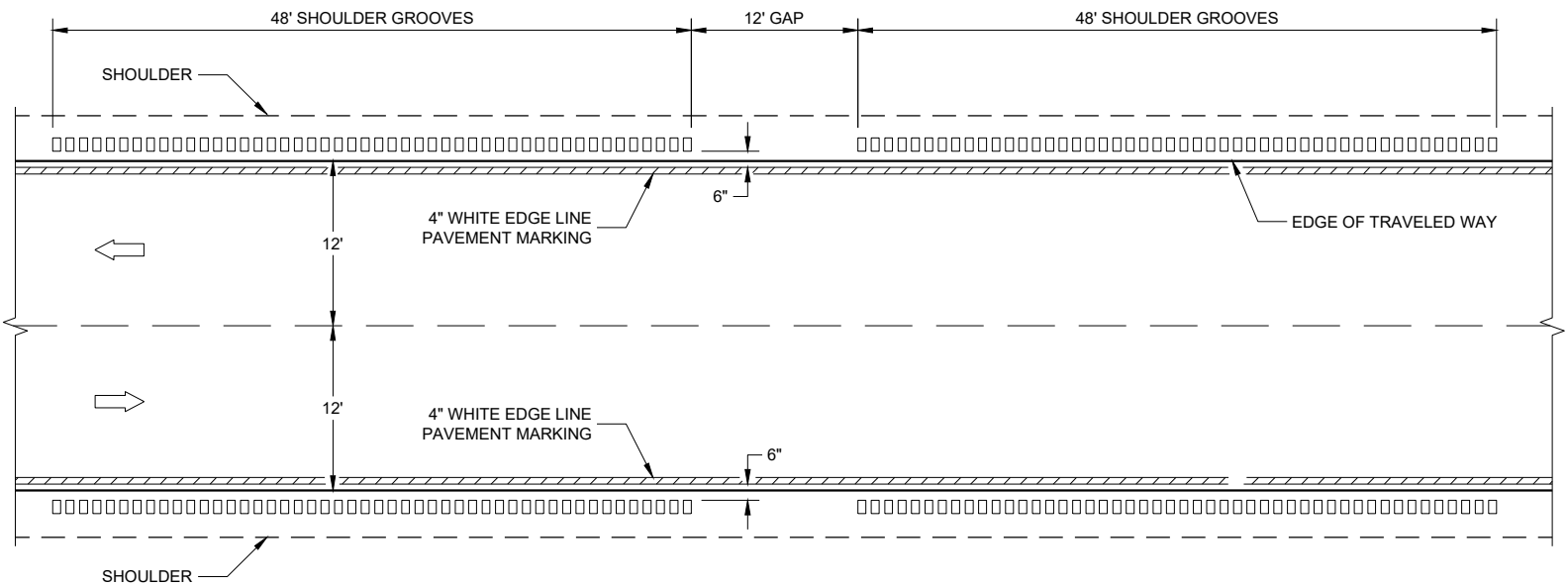
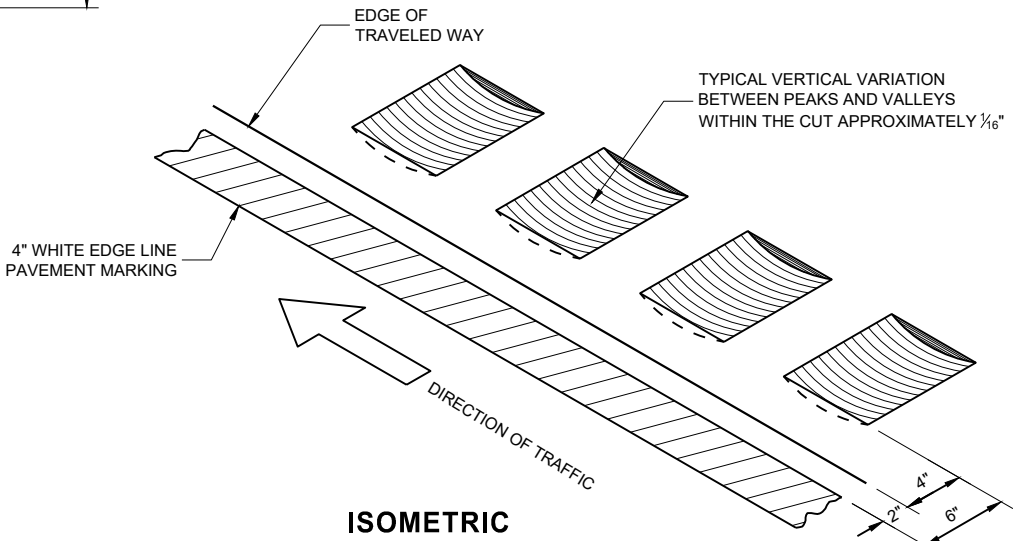
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP

GENERAL NOTES

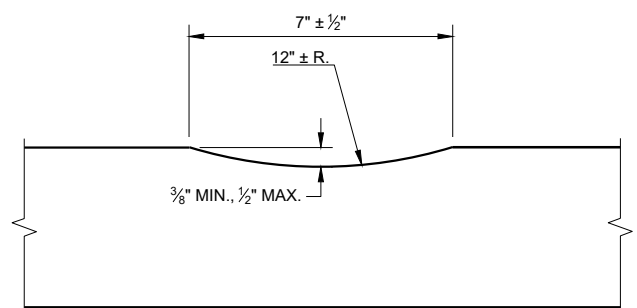
DETAILS OF CONSTRUCTION NO SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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



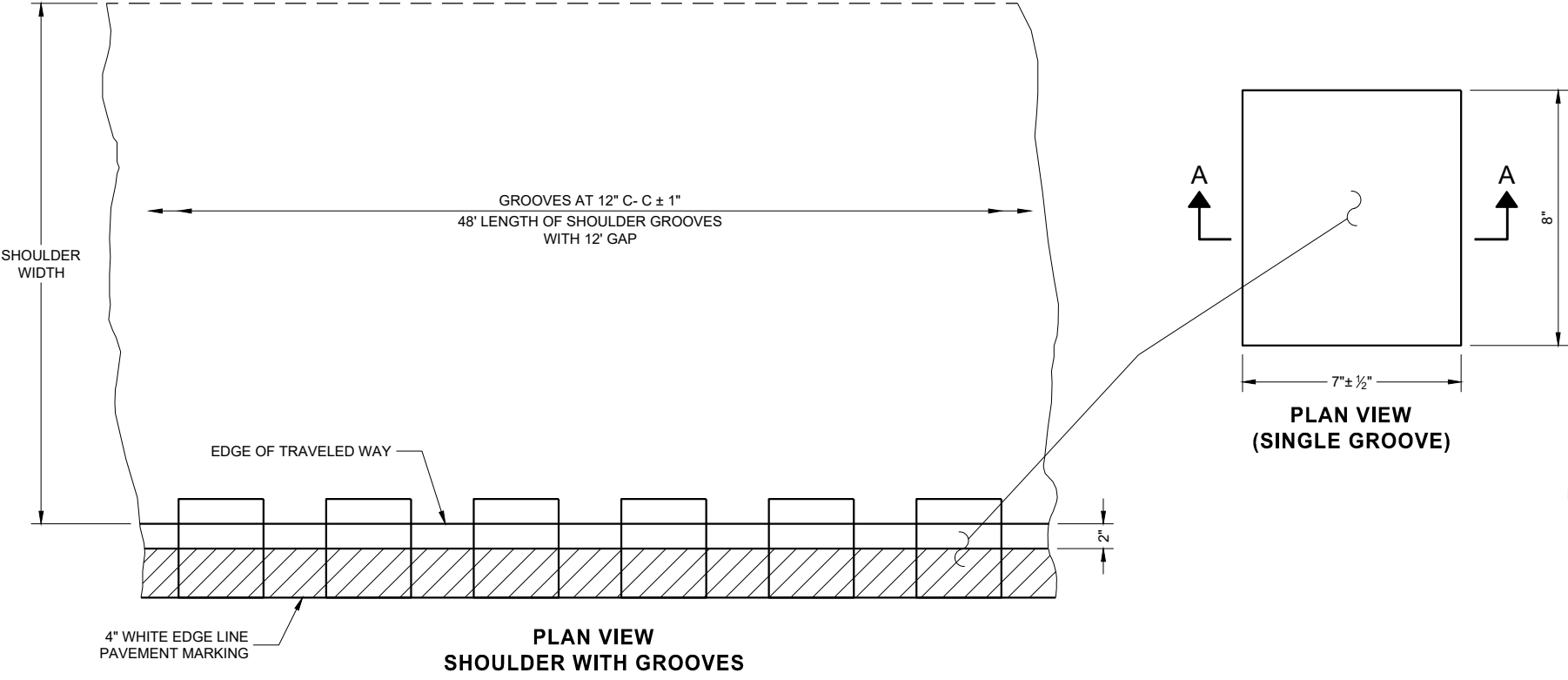
TYPE 1
2 - LANE SHOULDER RUMBLE STRIP



SECTION A - A

2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



6

6

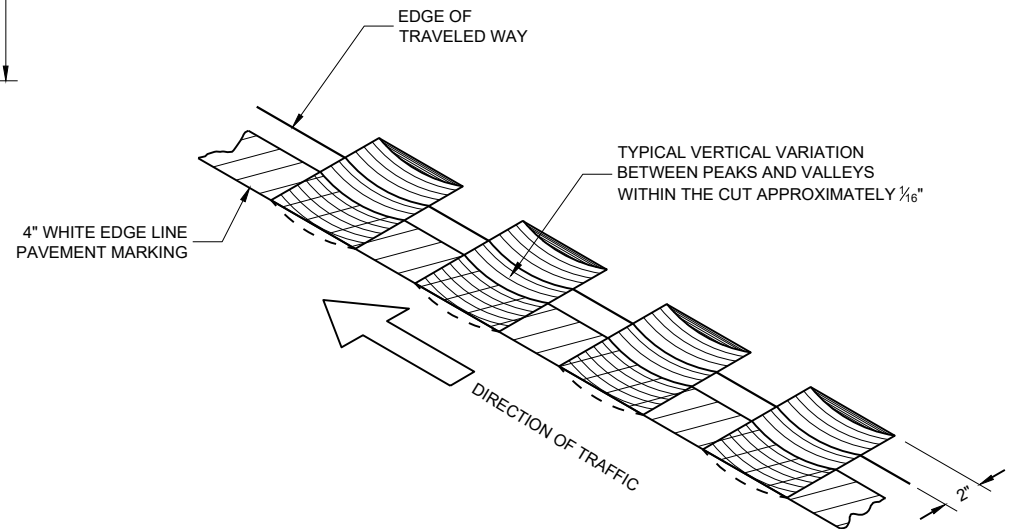
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP

GENERAL NOTES

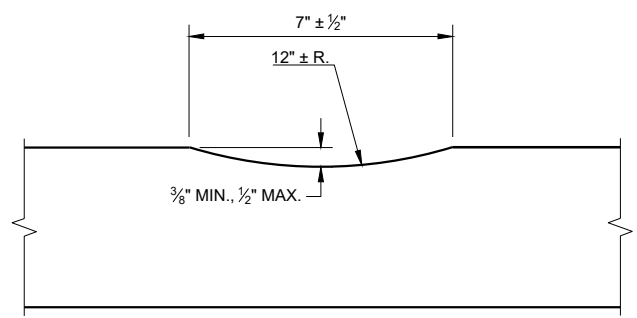
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

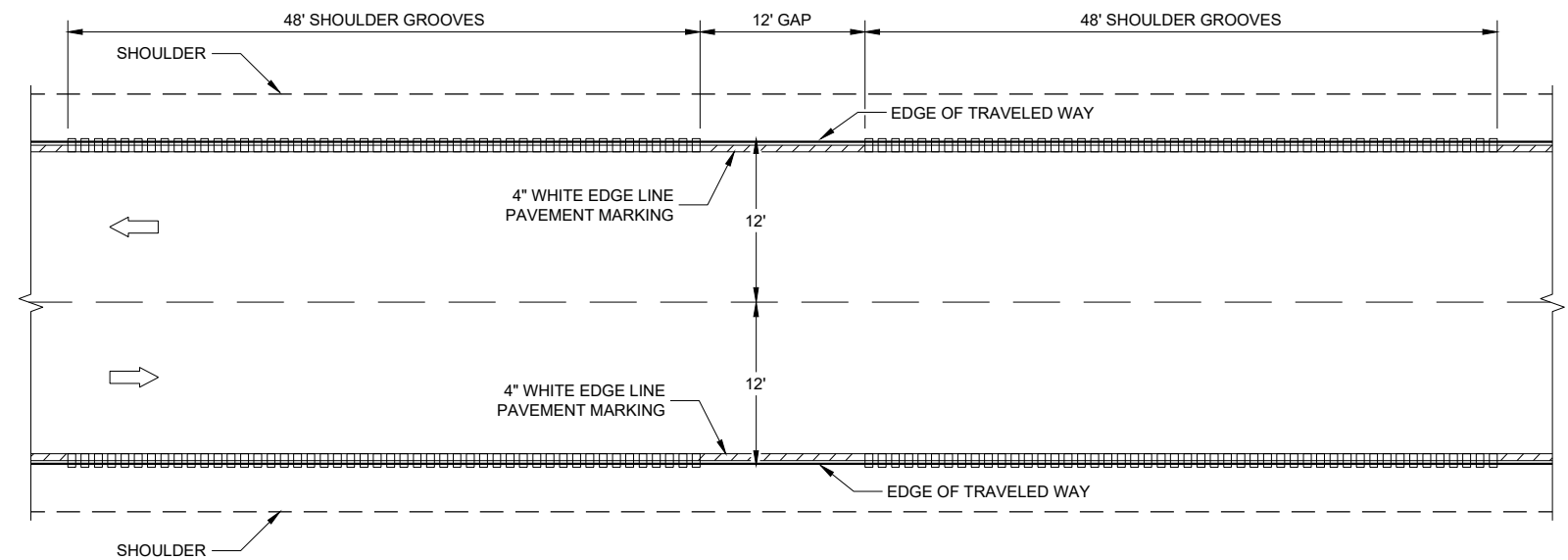
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



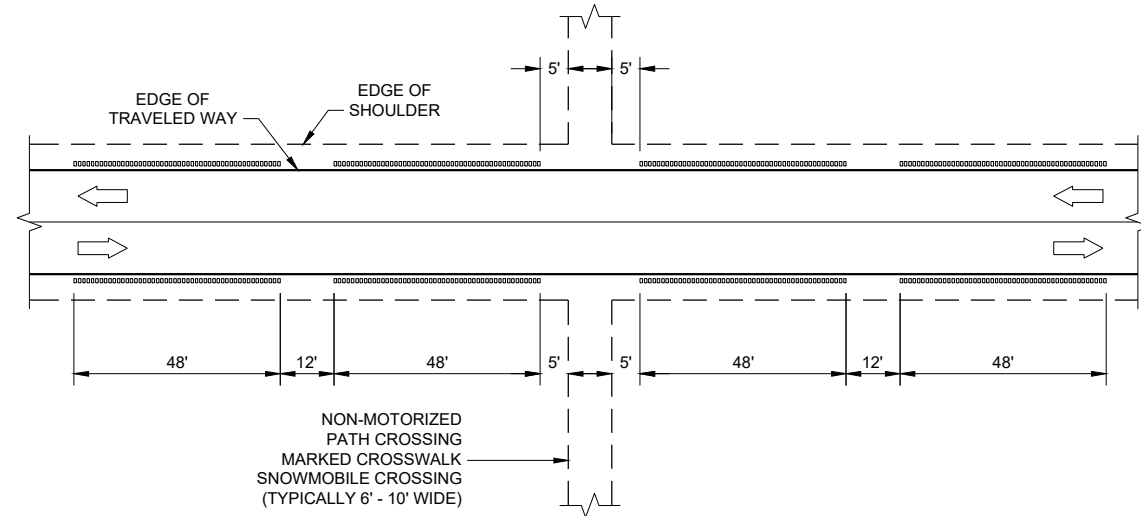
SECTION A - A



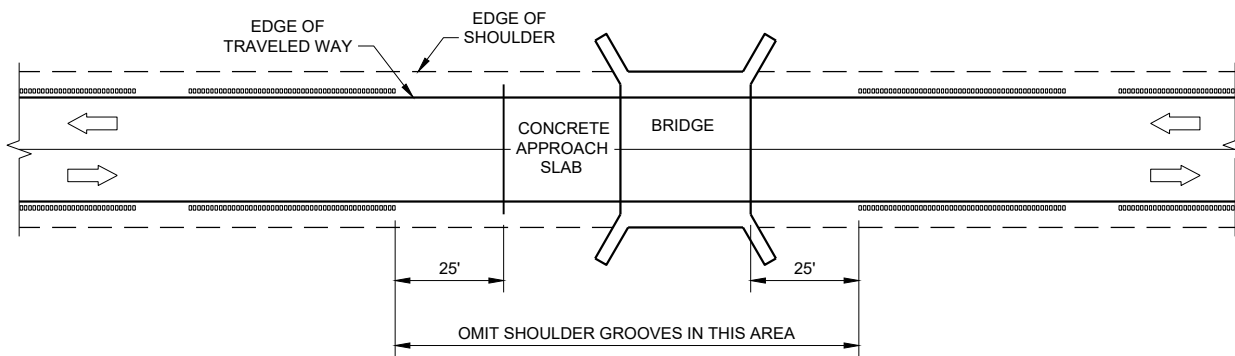
**TYPE 2
2 - LANE SHOULDER RUMBLE STRIP**

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

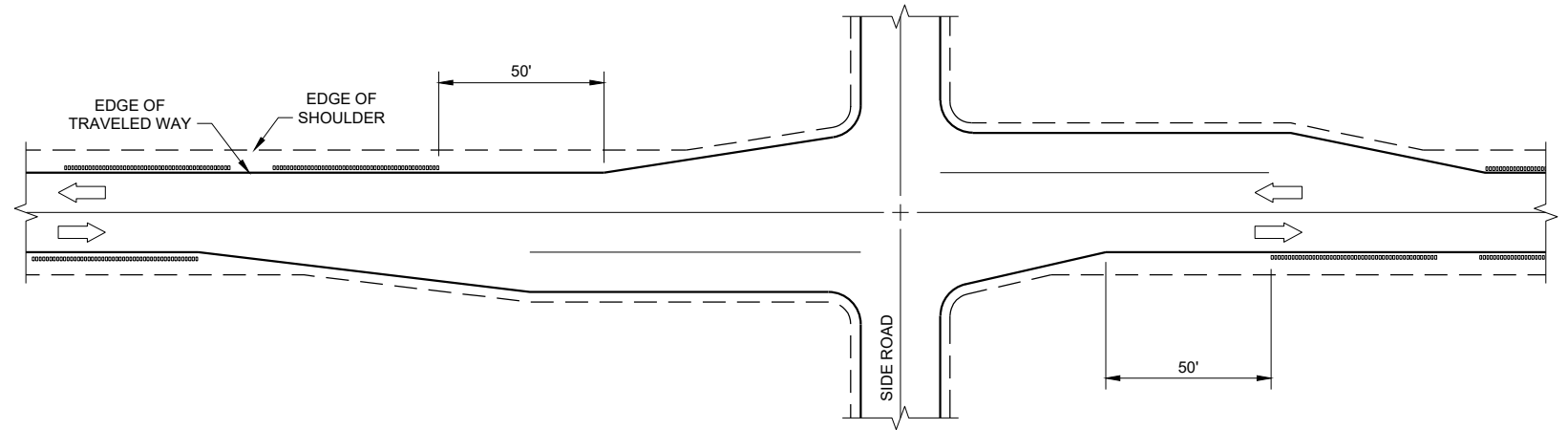
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 101



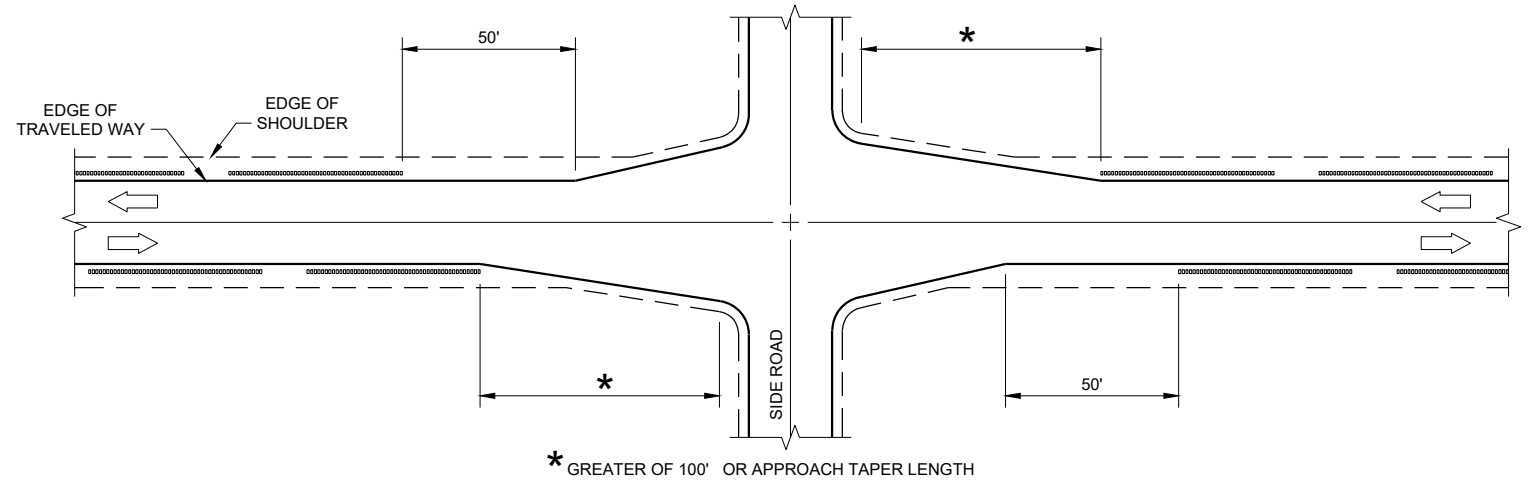
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



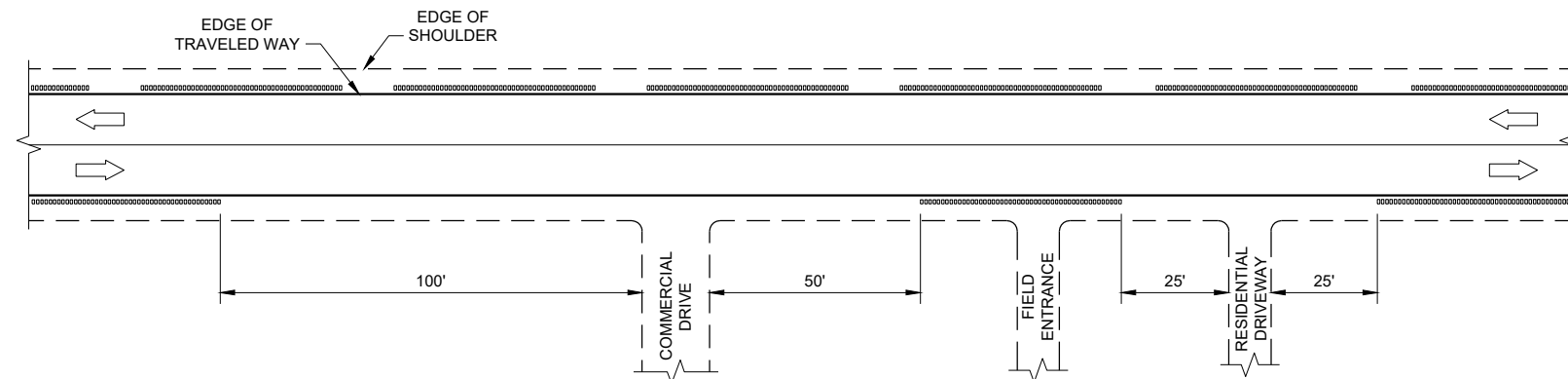
SHOULDER GROOVES AT BRIDGES



SHOULDER GROOVES AT RIGHT TURN LANE



SHOULDER GROOVES AT INTERSECTIONS WITH APPROACH TAPER



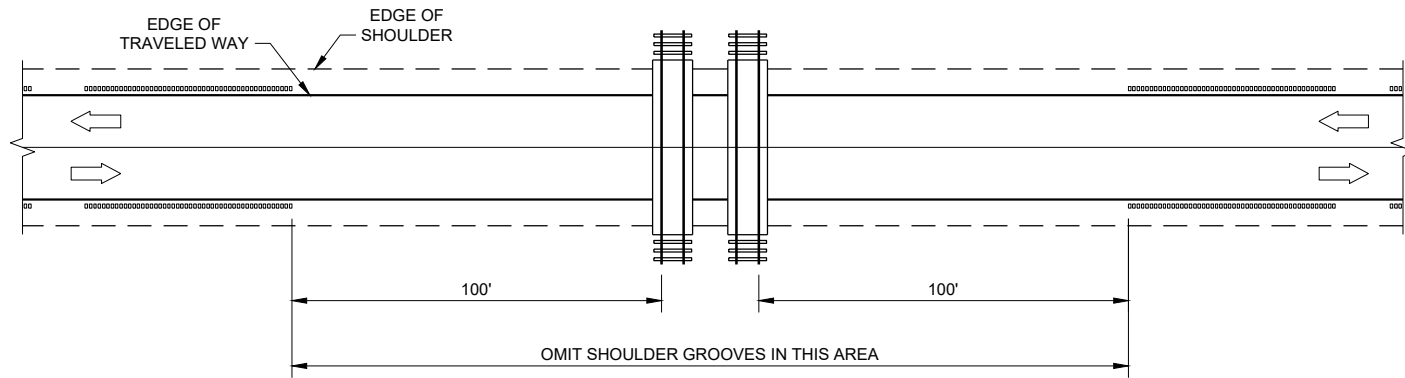
SHOULDER GROOVES AT DRIVEWAYS^①

GENERAL NOTES

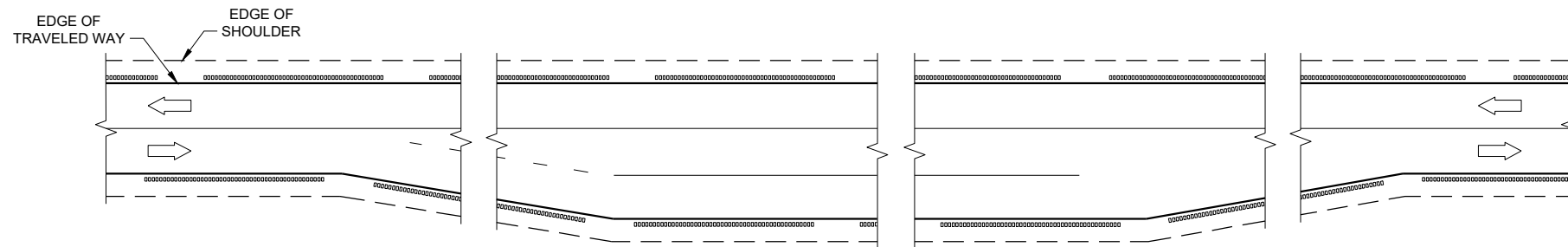
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

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

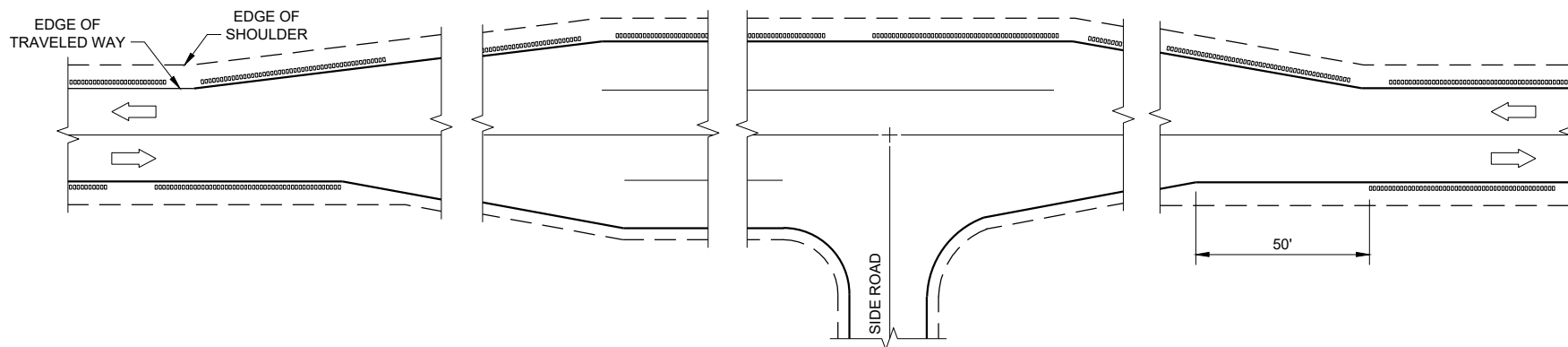
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



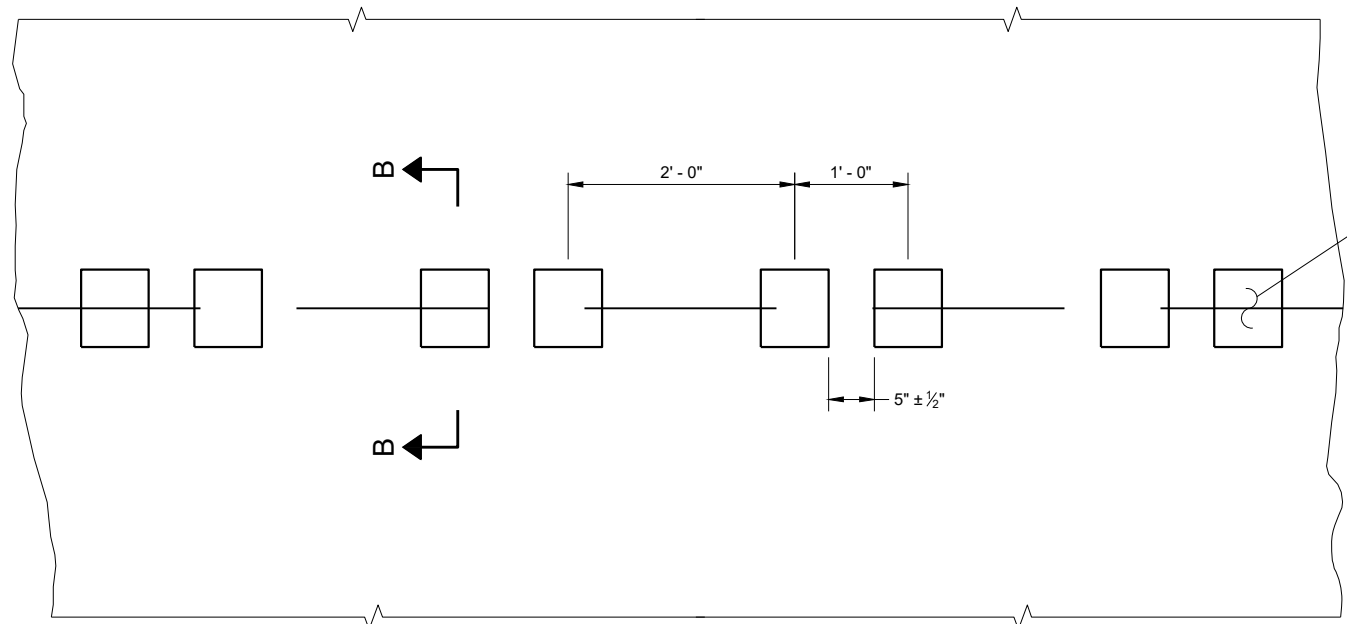
SHOULDER GROOVES AT BYPASS LANES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

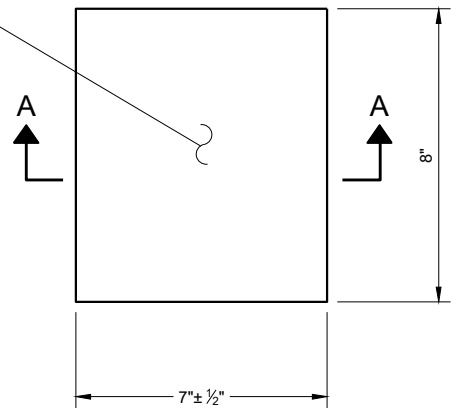
APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER 103

FHWA



PLAN VIEW
SHOULDER WITH GROOVES

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

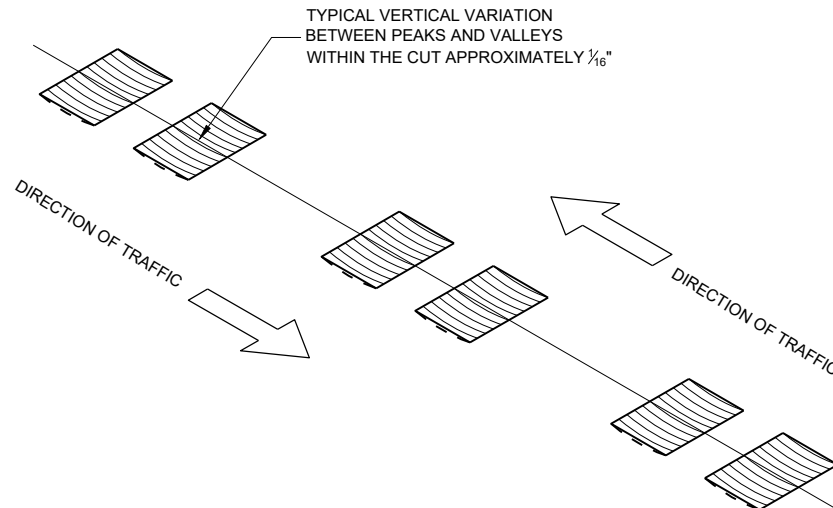
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

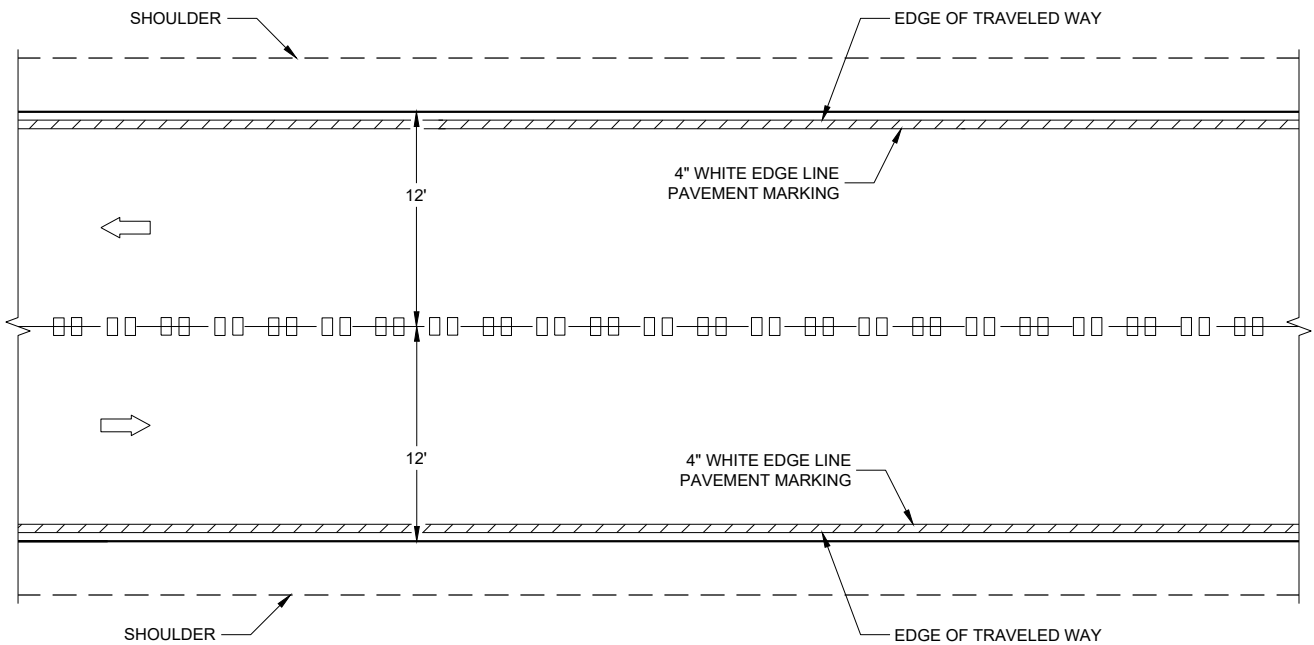
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

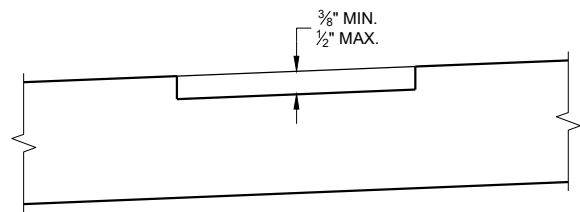
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



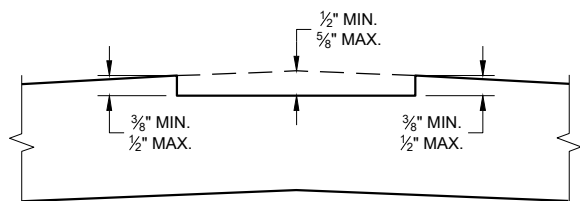
ISOMETRIC



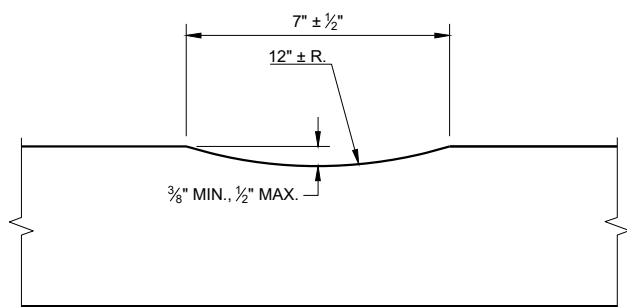
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



SECTION B - B
SUPERELEVATED ROADWAY



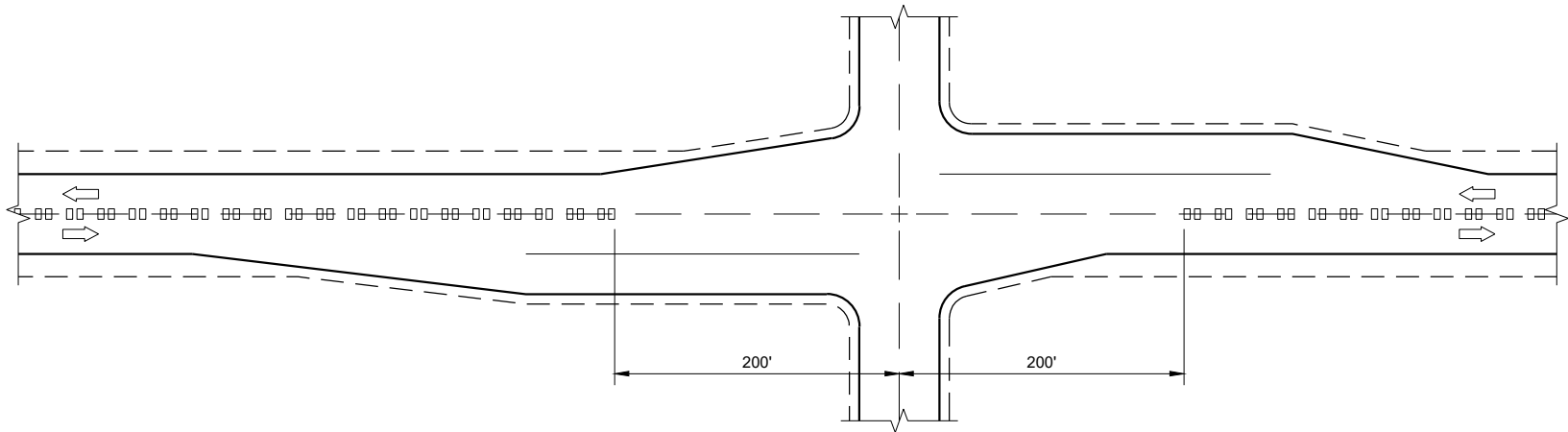
SECTION B - B
CROWNED ROADWAY



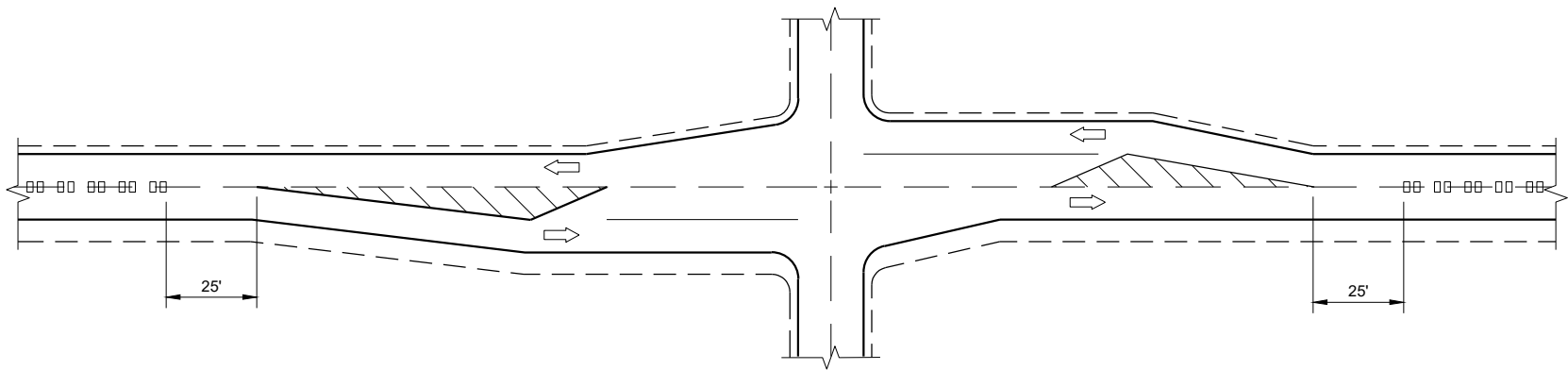
SECTION A - A

2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING

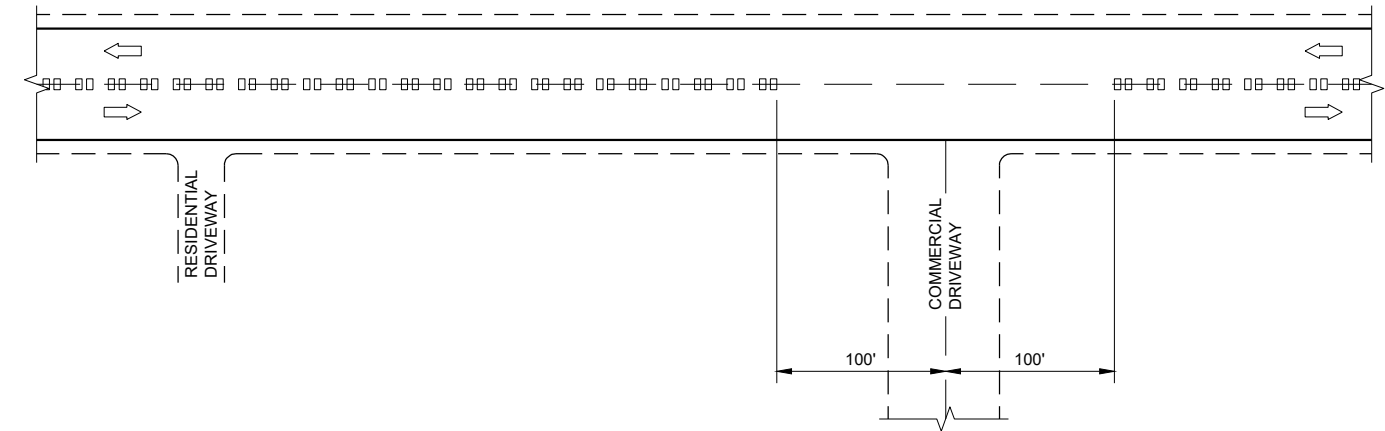
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 104



CENTERLINE GROOVES AT INTERSECTIONS



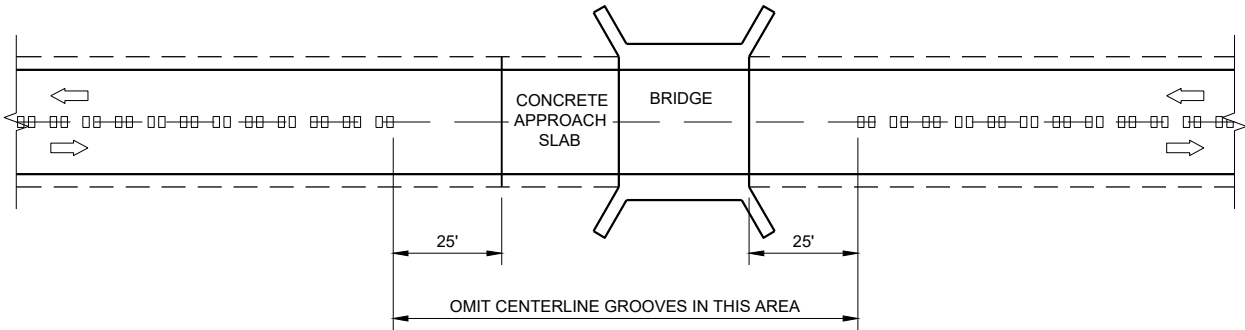
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



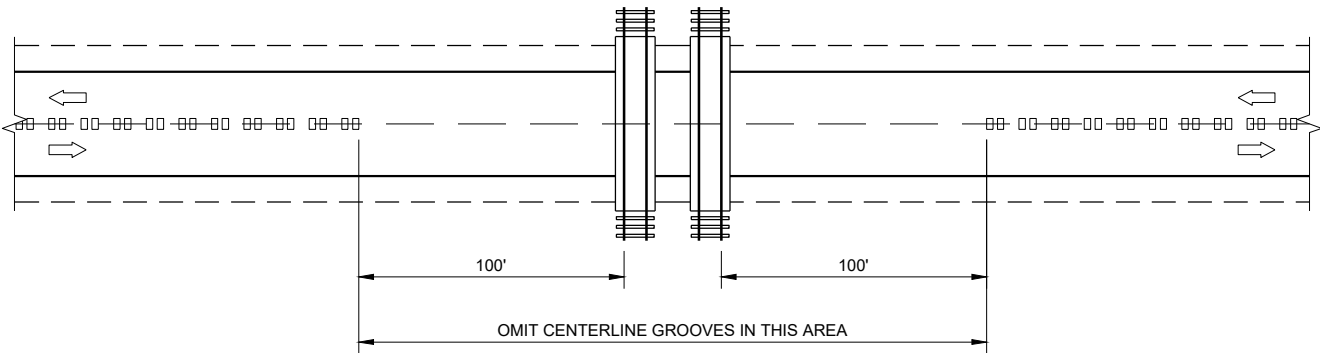
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

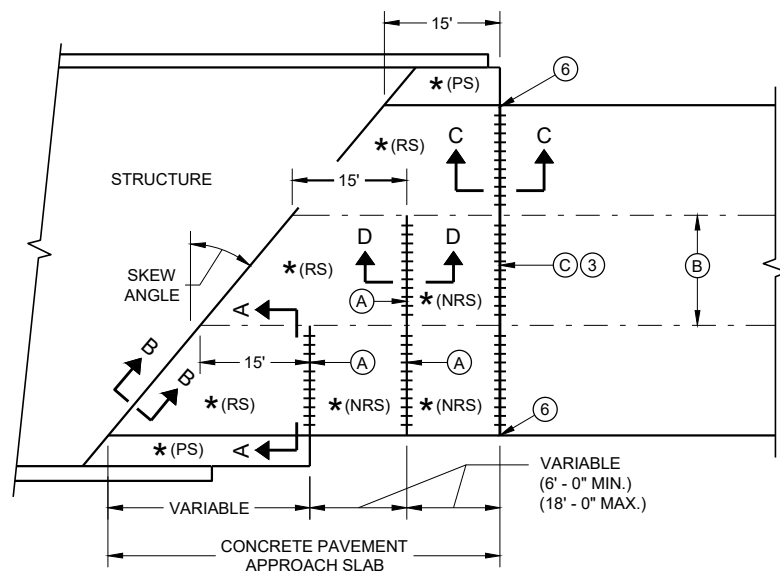
2-LANE RURAL
CENTERLINE RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

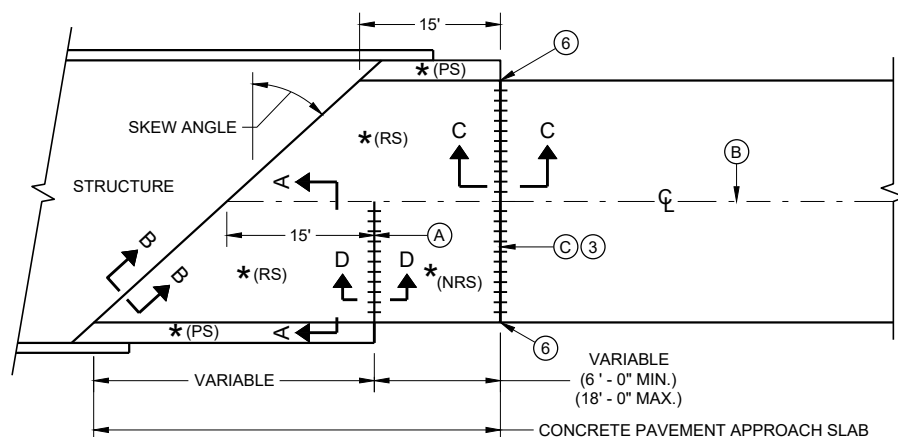
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

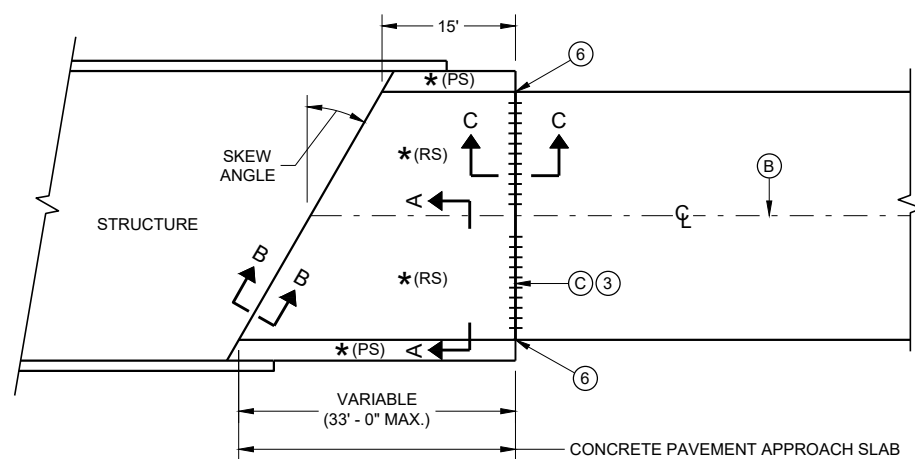
105



**SKewed APPROACH
(PAVEMENT MORE THAN TWO LANES)**



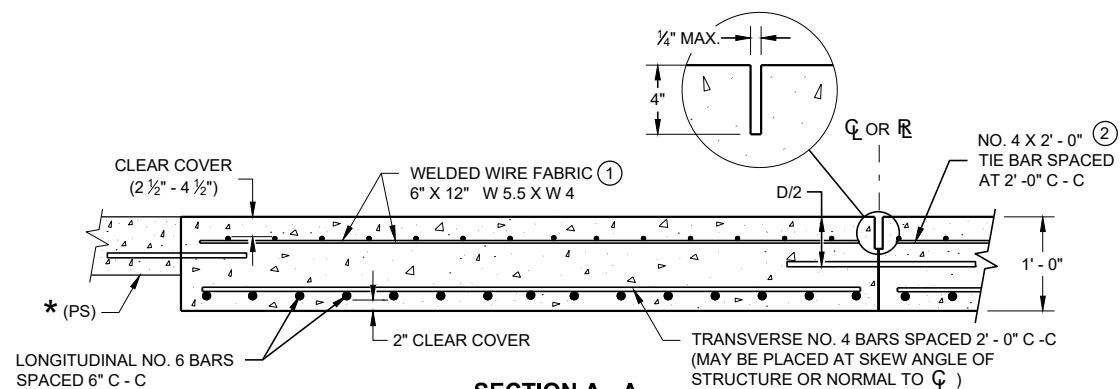
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



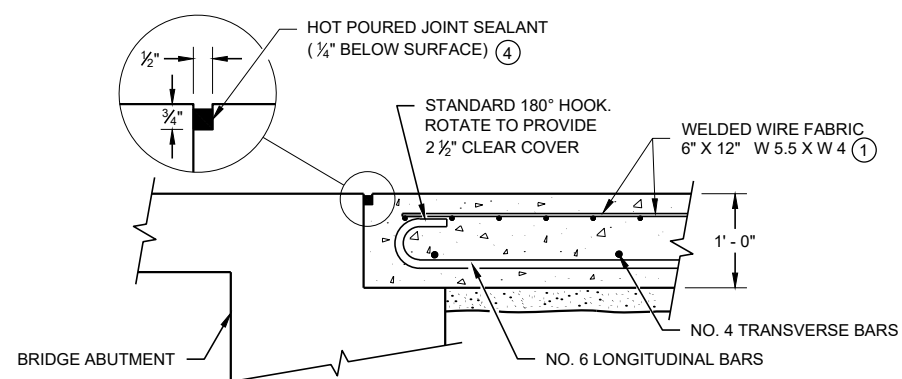
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

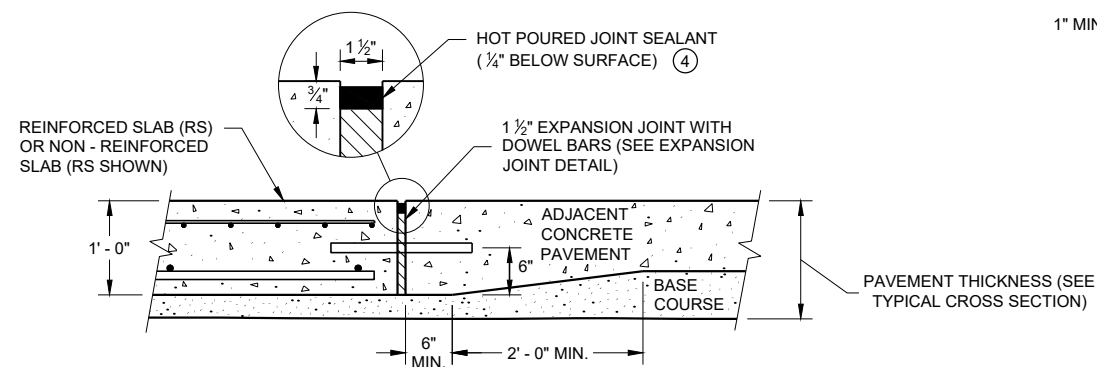
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) - NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



**SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT**



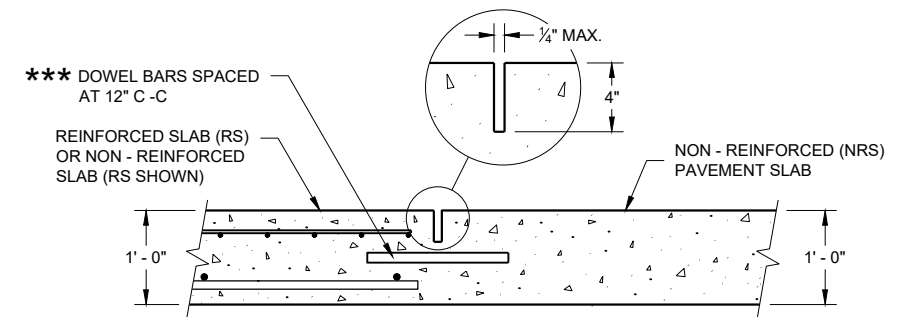
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

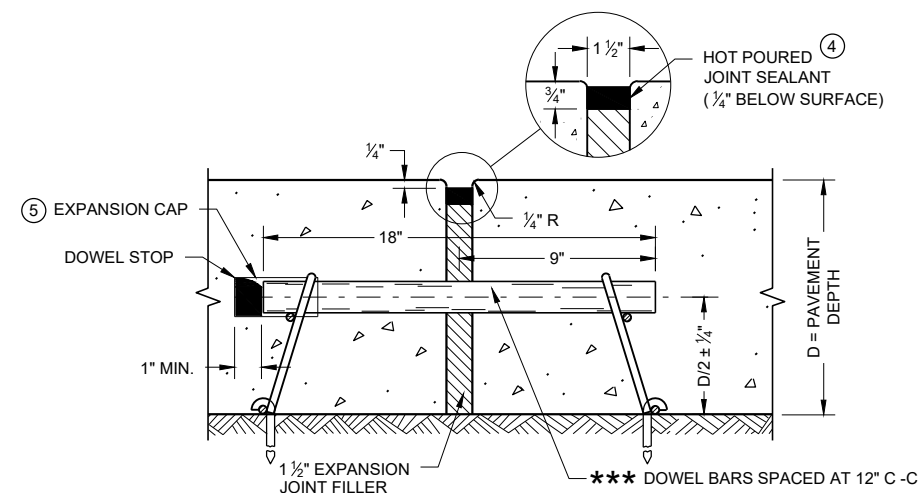
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- (A) STANDARD CONTRACTION JOINT NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.



**SECTION D - D
CONTRACTION JOINT**



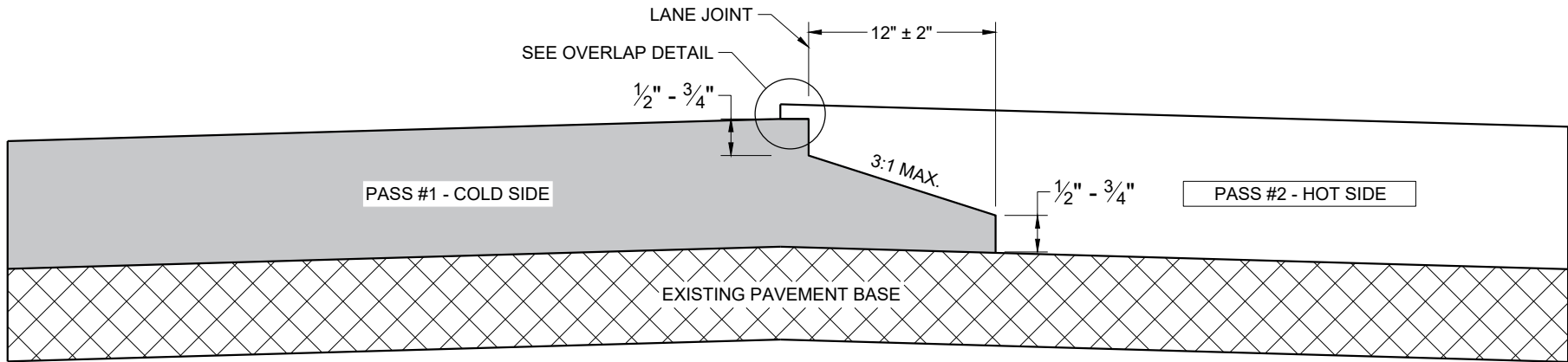
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

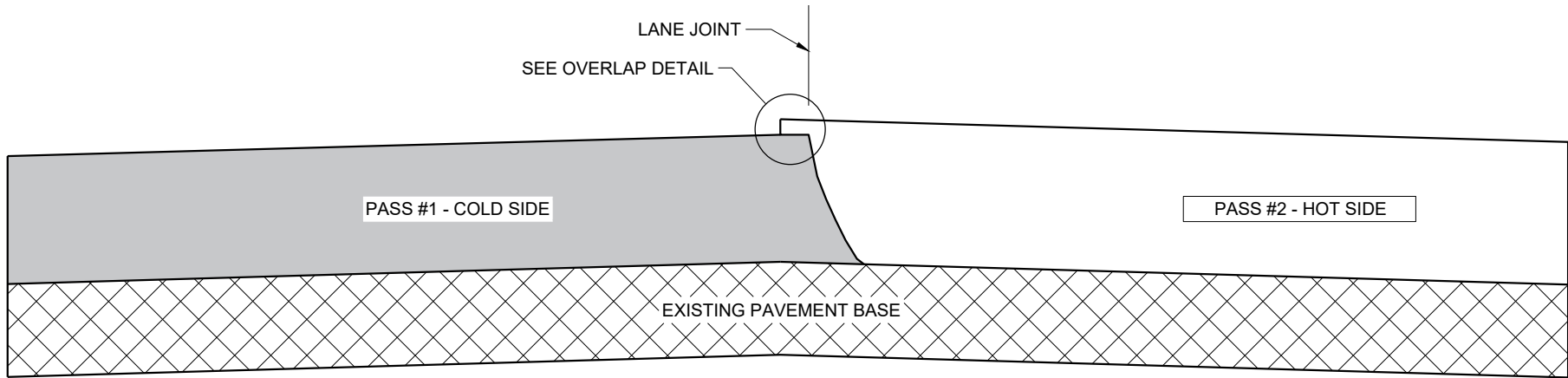
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 106

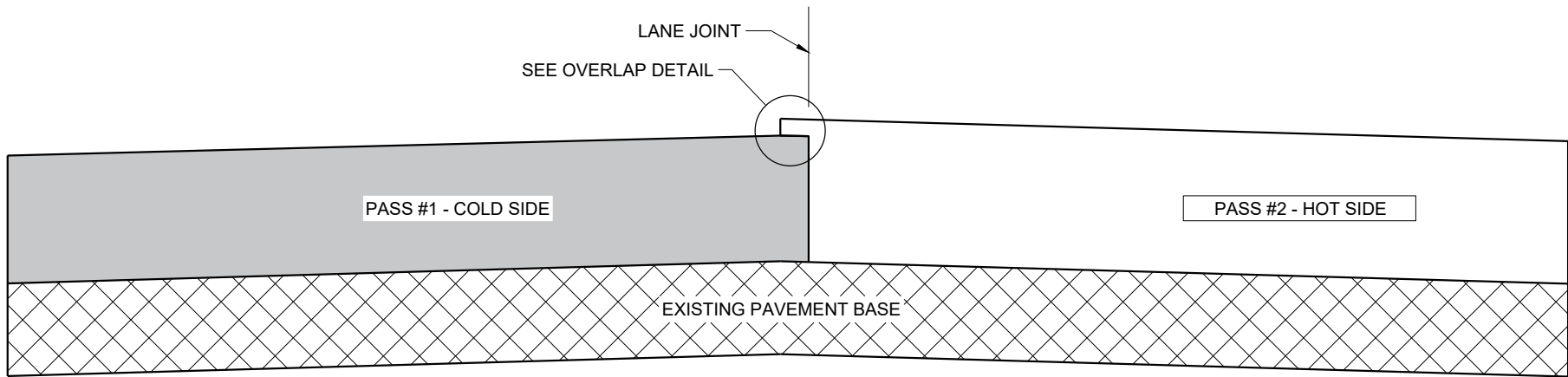
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

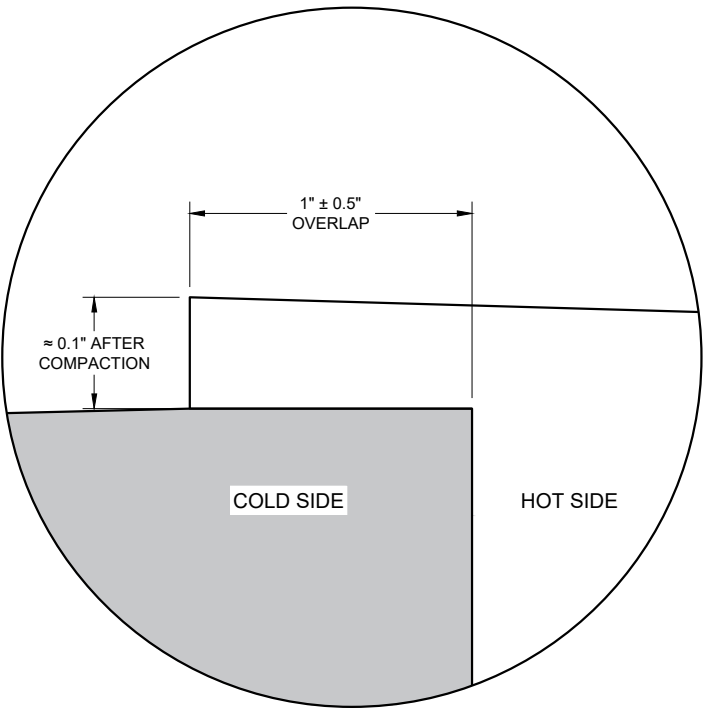
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

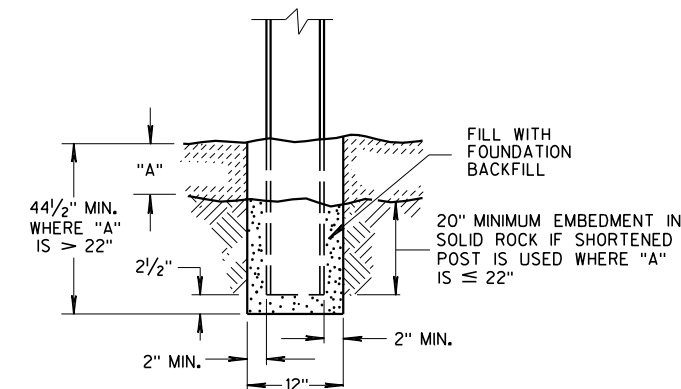
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 107

FHWA

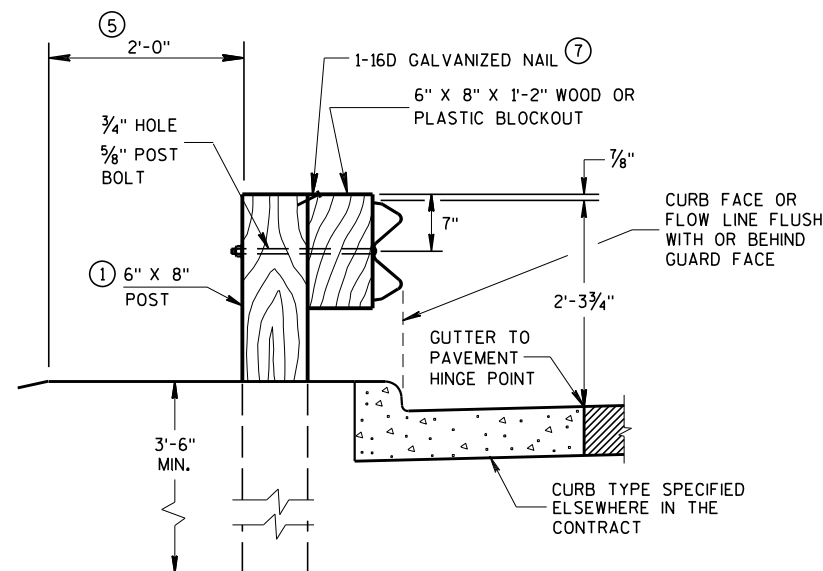
GENERAL NOTES

- W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
- INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.
- 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.

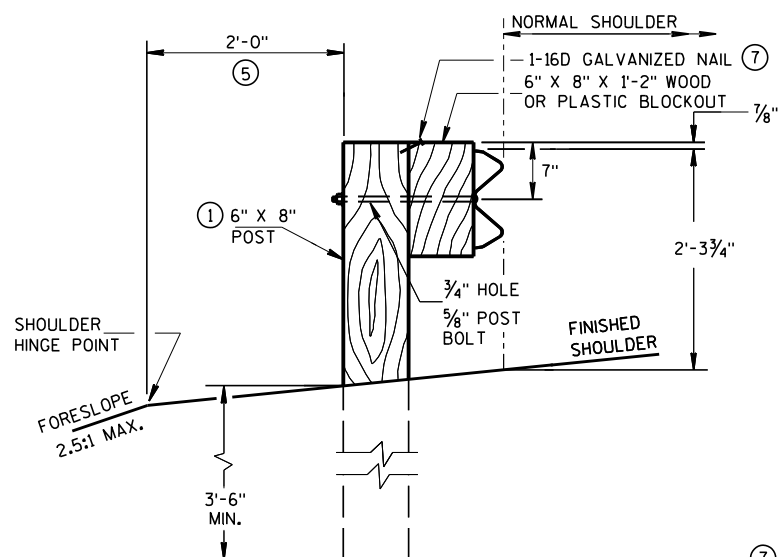
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



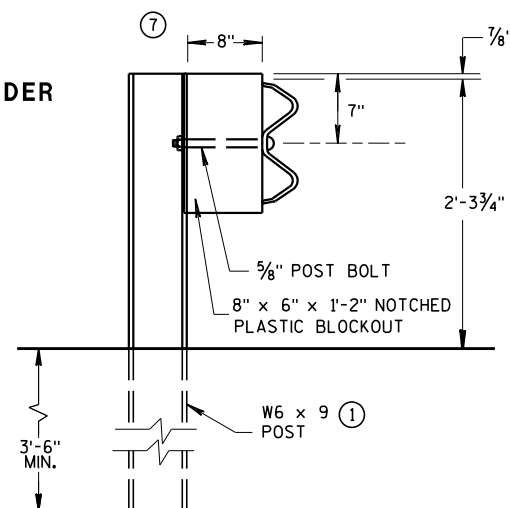
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ⑥



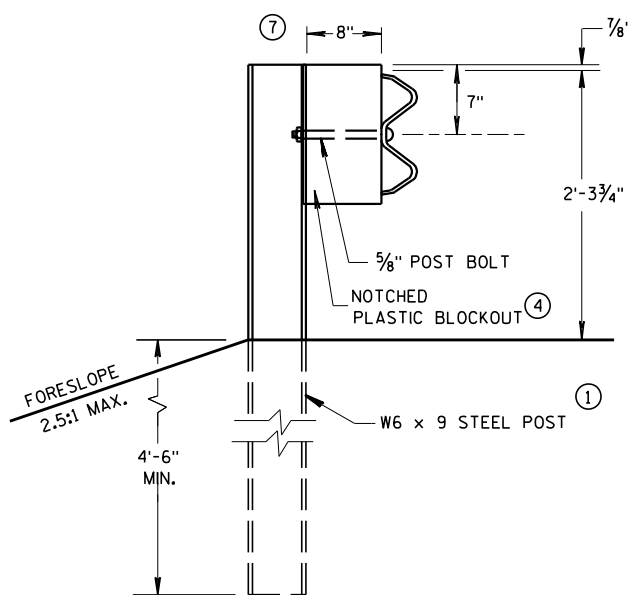
END VIEW
LOCATED ALONG A CURBED ROADWAY



END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION

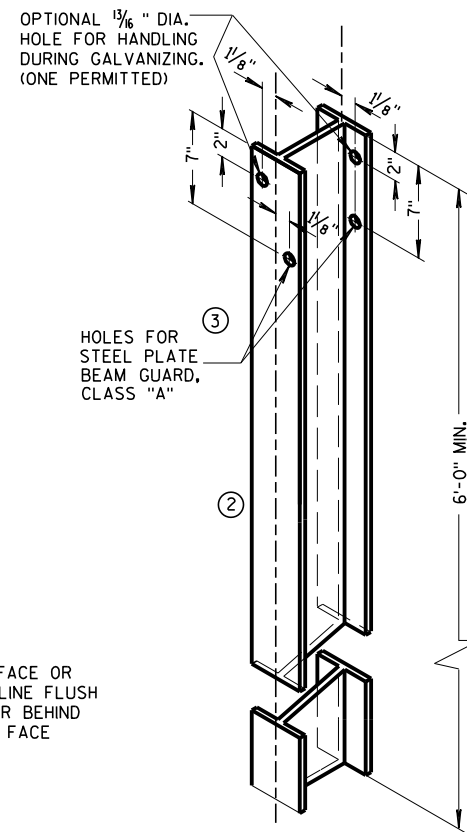


END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



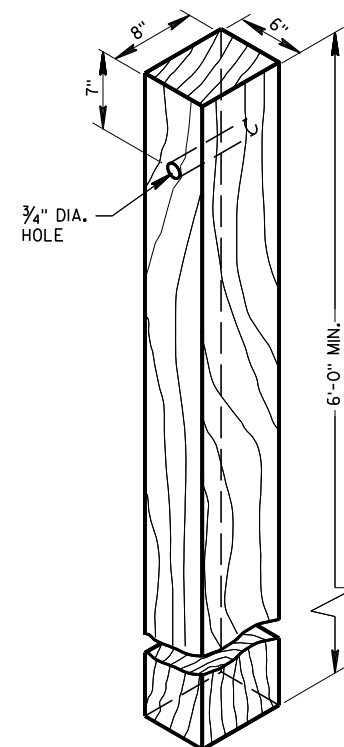
END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

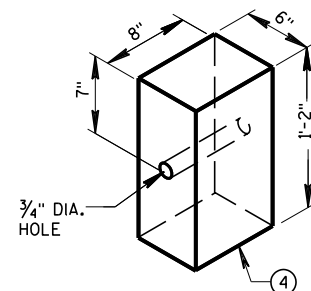


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) ①

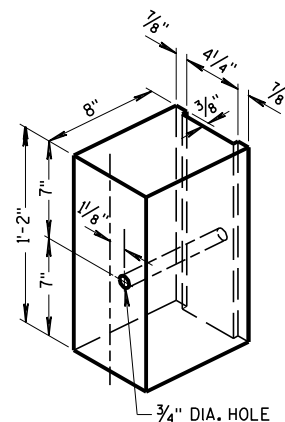
ALL HOLES 3/8" DIAMETER EXCEPT AS NOTED



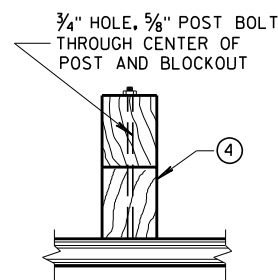
WOOD POST
(6" X 8") NOMINAL



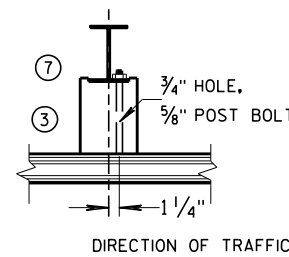
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS ①



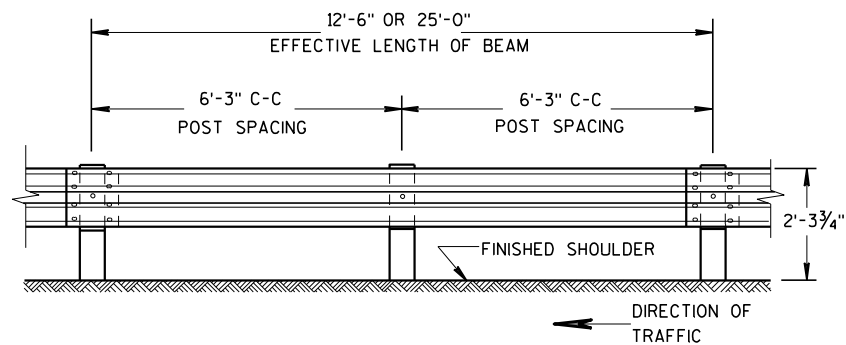
PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

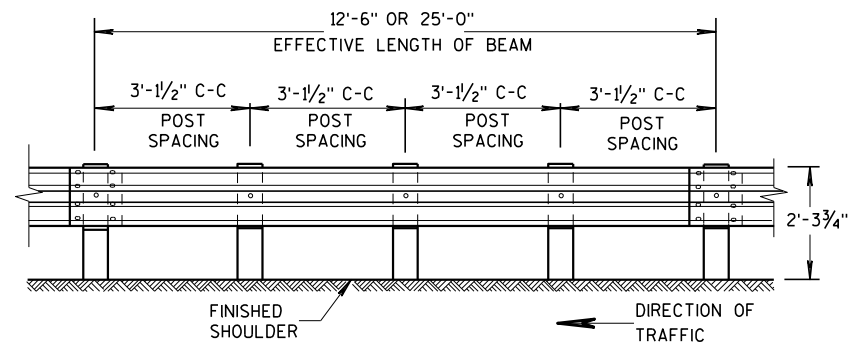
STEEL PLATE BEAM GUARD,
CLASS "A"
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



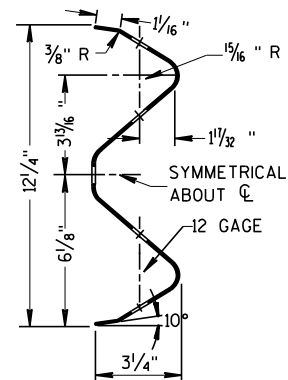
FRONT VIEW

POST SPACING STANDARD INSTALLATION

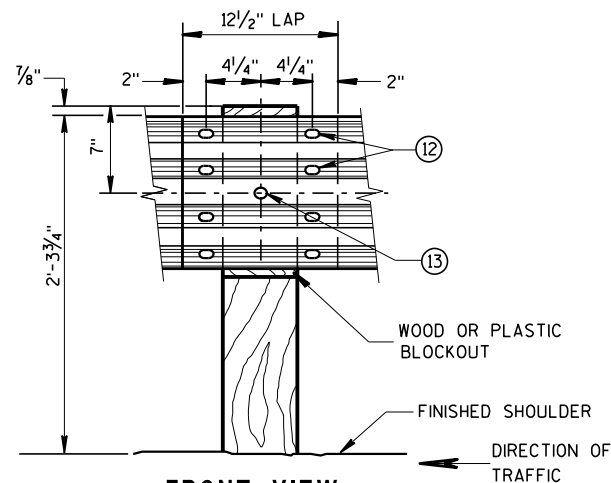


FRONT VIEW

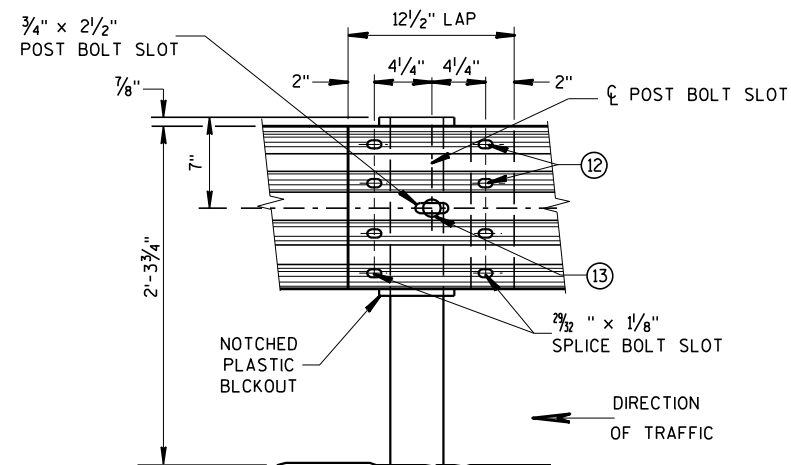
POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)



SECTION THRU W BEAM



FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL

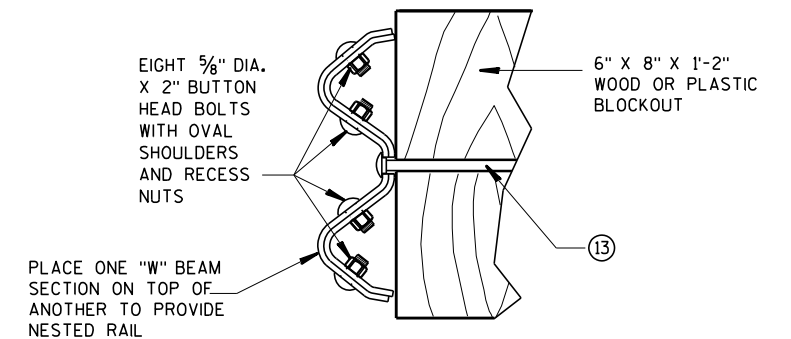


FRONT VIEW
BEAM SPLICE AT STEEL POST
TYPICAL SPlicing DETAILS
OF STEEL PLATE BEAM GUARD

GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

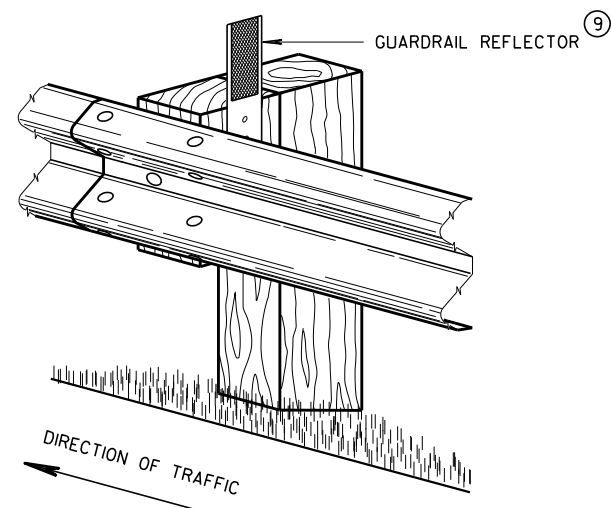
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.



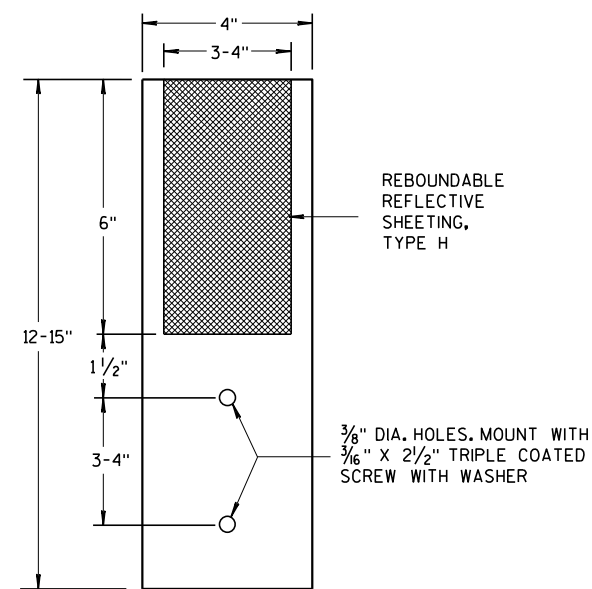
NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

* USE DOUBLE SIDED WHITE GUARDRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



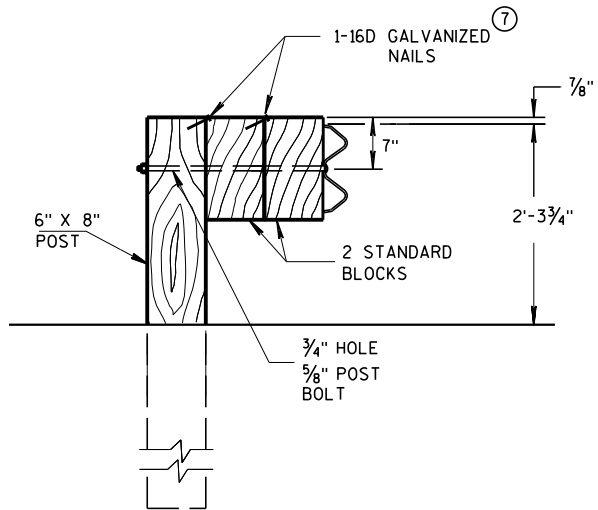
4" X 12" GUARDRAIL REFLECTOR DETAIL
AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

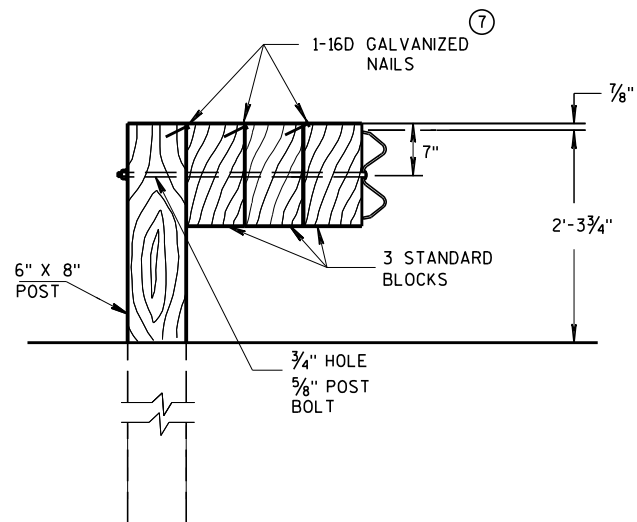
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCO 109
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

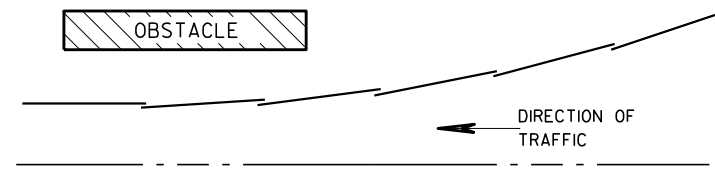


DETAIL FOR TRIPLE BLOCKS

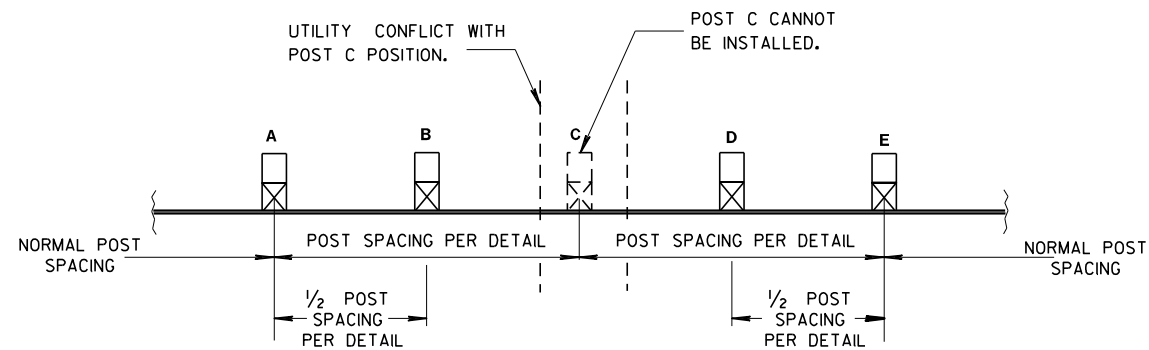
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA 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.



PLAN VIEW BEAM LAPPING DETAIL

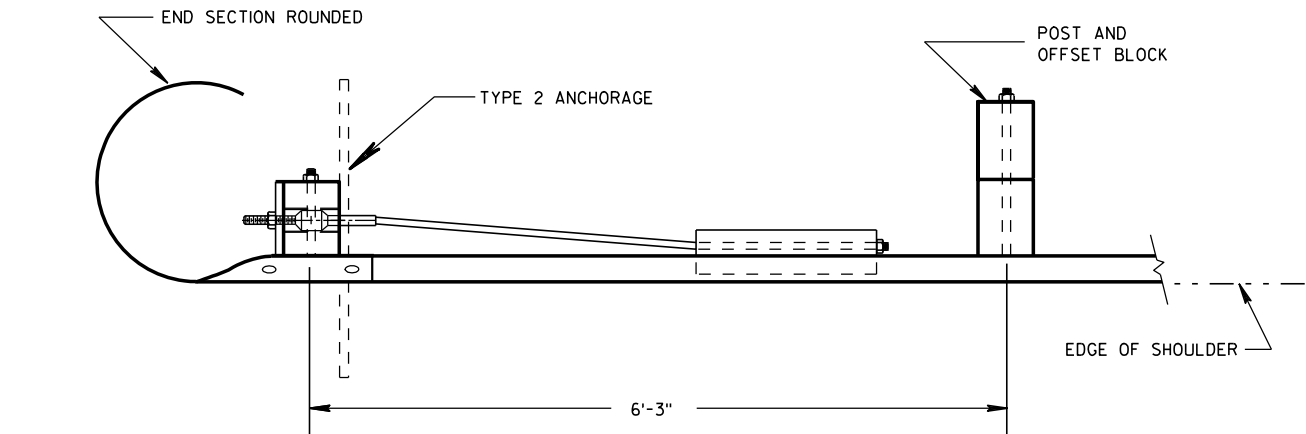


POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

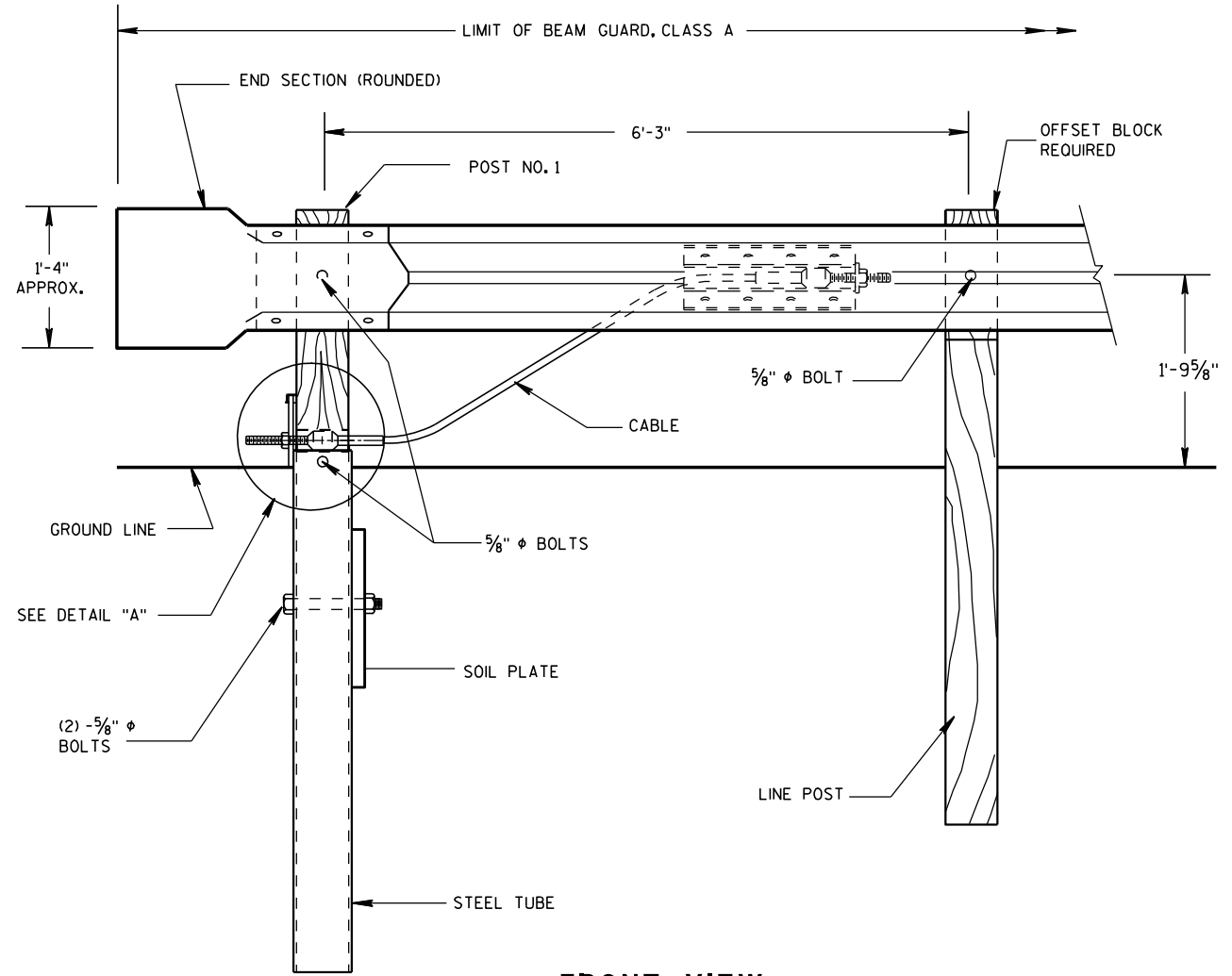
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS 110 UNIT SUPERVISOR
FHWA

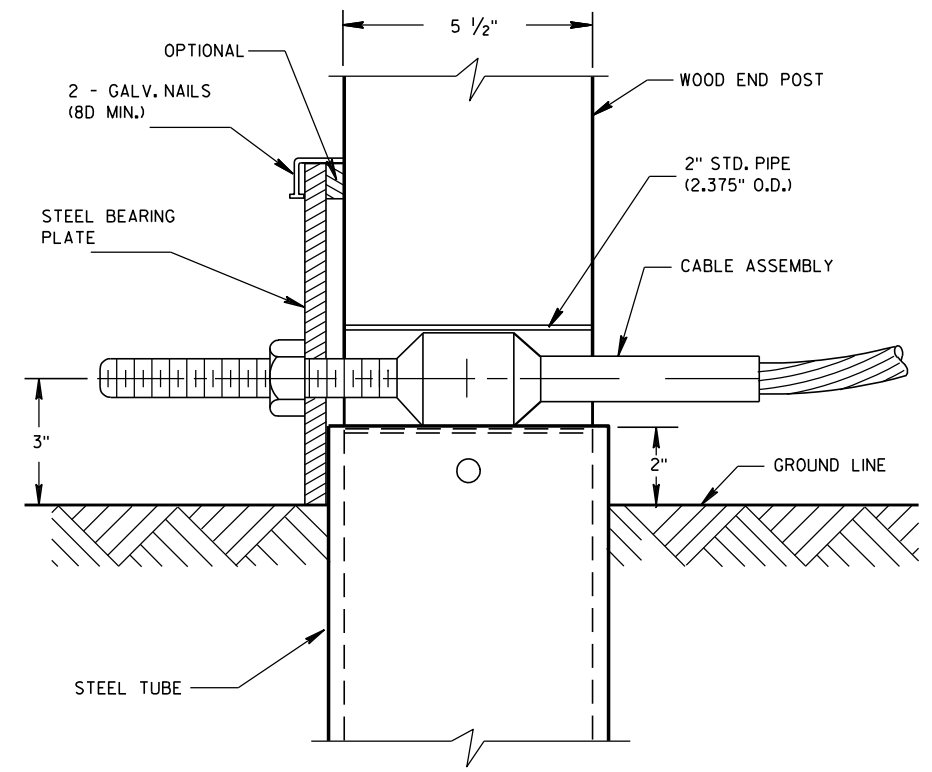


PLAN VIEW

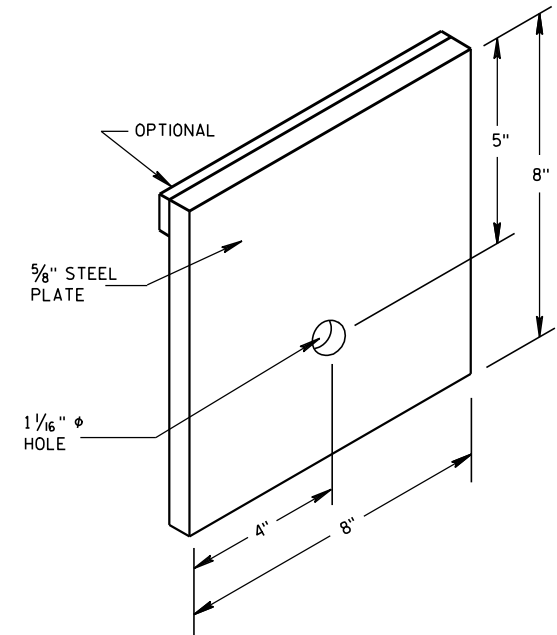


FRONT VIEW

END TREATMENT WITH TYPE 2 ANCHORAGE
(USE ON ONE-WAY ROADWAYS ONLY - DEPARTING END)

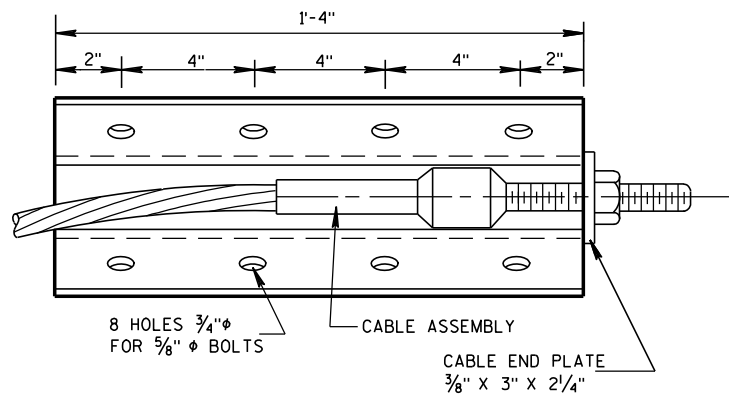


DETAIL "A"
POST NO. 1

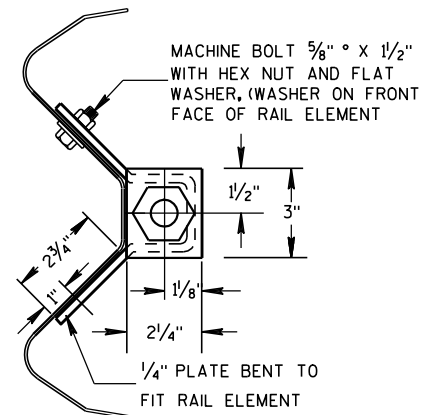


STEEL BEARING PLATE

ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION 111

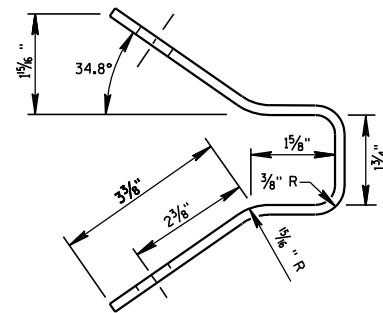


FRONT VIEW

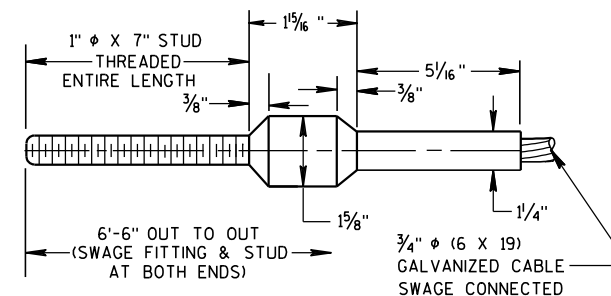


END VIEW

ANCHOR PLATE DETAIL



END VIEW OF BRACKET



CABLE ASSEMBLY

CABLE, SWAGE FITTING, STUD AND NUT SHALL DEVELOP A MINIMUM BREAKING STRENGTH OF 40,000 LB (TIGHTEN UNTIL TAUT)

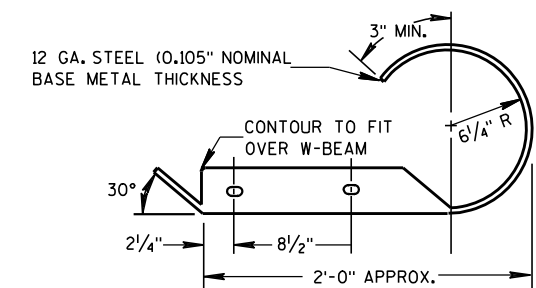
GENERAL NOTES

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

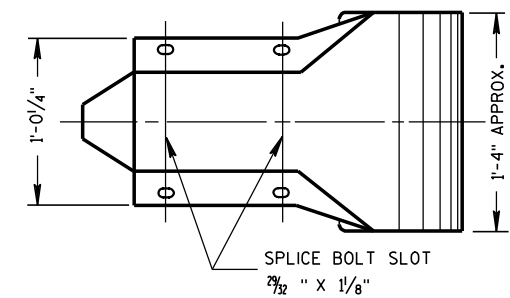
STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-500 GRADE B OR ASTM A-501.

POST NO. 1 SHALL BE WOOD BREAKAWAY POST INSERTED AND BOLTED INTO STEEL TUBE.

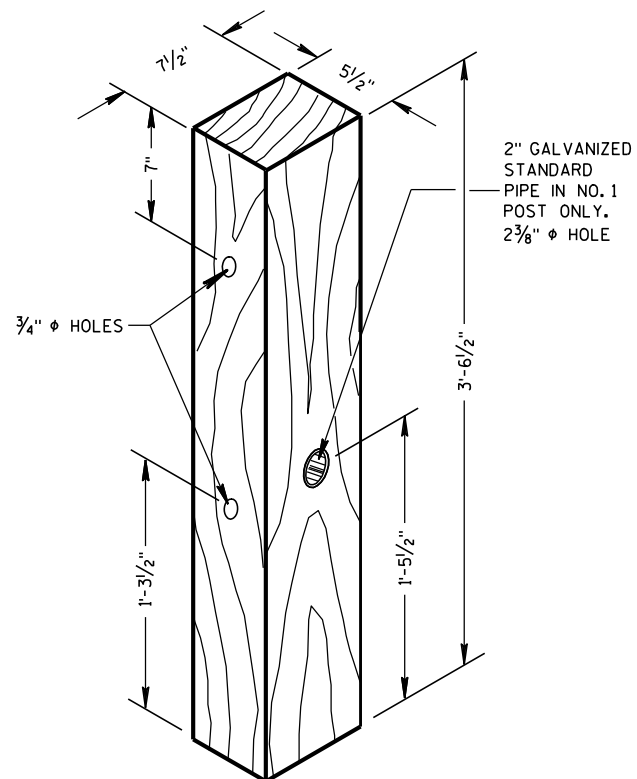
TYPE 2 ANCHORAGE SHALL CONSIST OF A STEEL TUBE, SOIL PLATE, WOOD BREAKAWAY POST, BEARING PLATE, ANCHOR PLATE, CABLE ASSEMBLY AND ALL ASSOCIATED HARDWARE, ALL STEEL PARTS SHALL BE GALVANIZED.



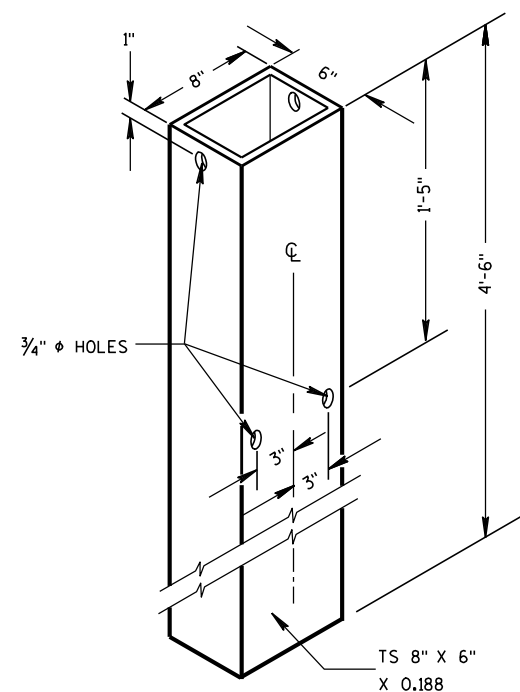
PLAN VIEW



FRONT VIEW
W BEAM END SECTION ROUNDED

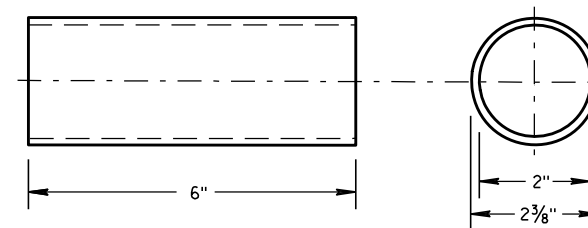


WOOD BREAKAWAY POST



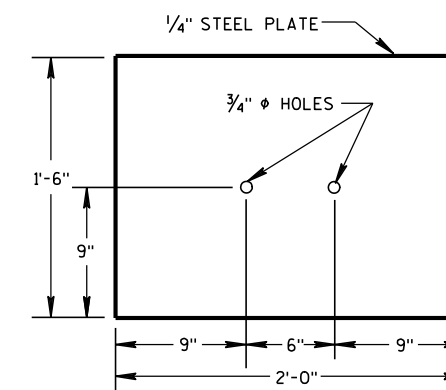
STEEL TUBE

STEEL TUBE SHALL CONFORM TO REQUIREMENTS OF ASTM A500



BREAKAWAY TERMINAL POST SLEEVE

GALVANIZED STANDARD STRENGTH STEEL PIPE, ASTM 53 GRADE "B"



SOIL PLATE

ANCHORAGE FOR STEEL
PLATE BEAM GUARD
TYPE 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/21/2007

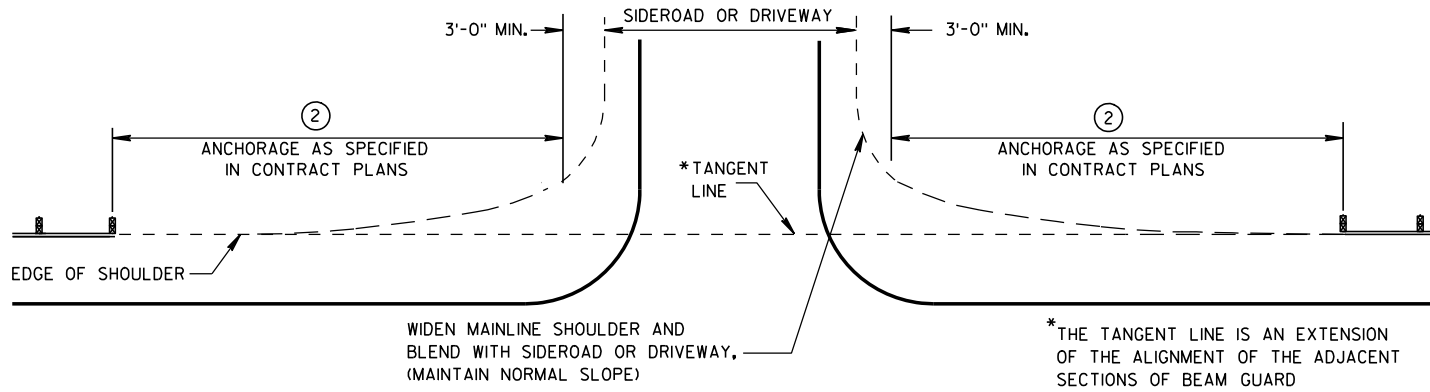
DATE

FHWA

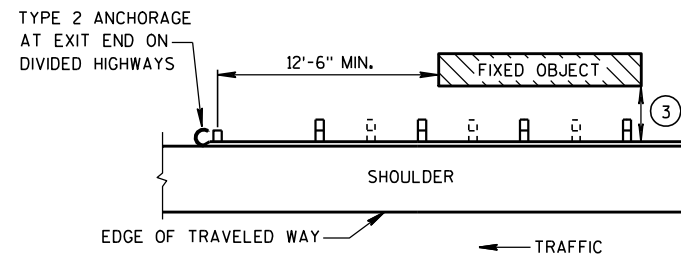
/S/ Jerry H. 7

ROADWAY STANDARDS 112 ENT

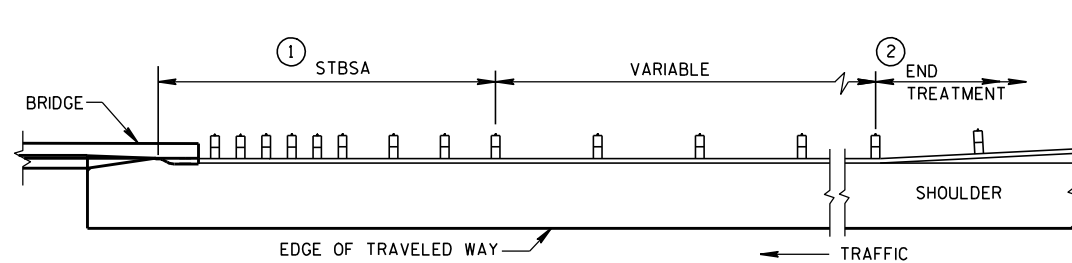
ENGINEER



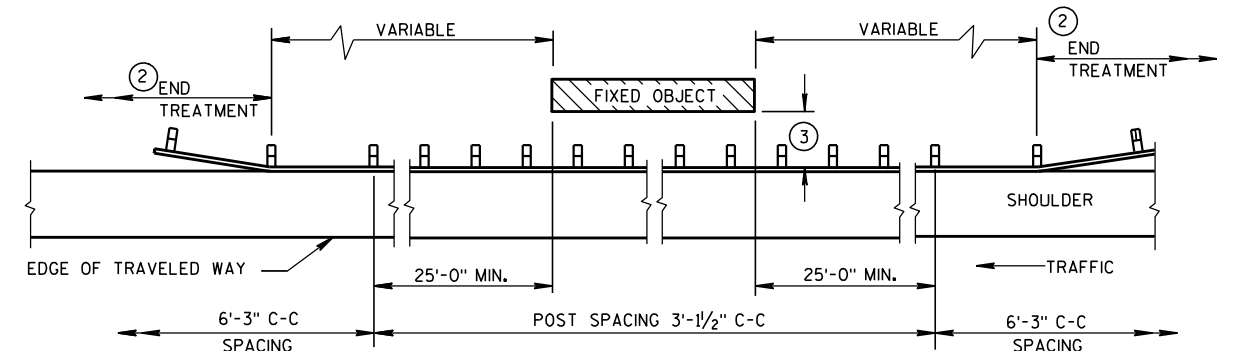
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES

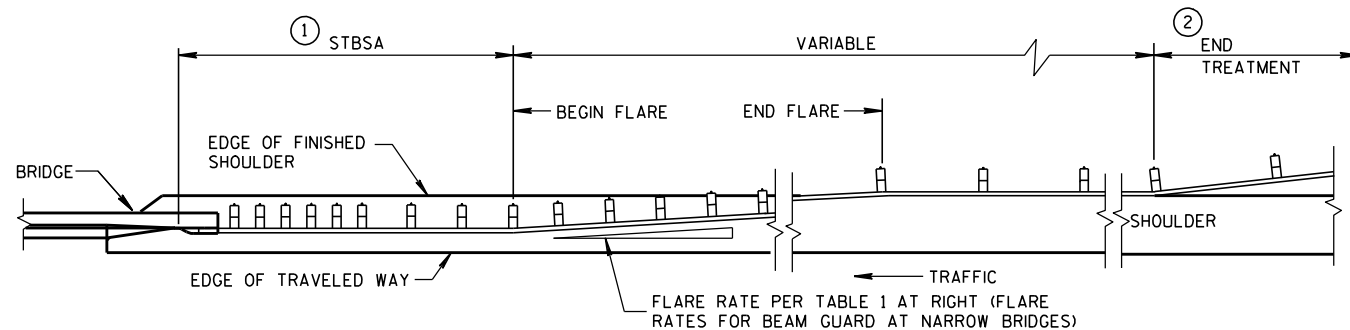


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"

STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07

DATE

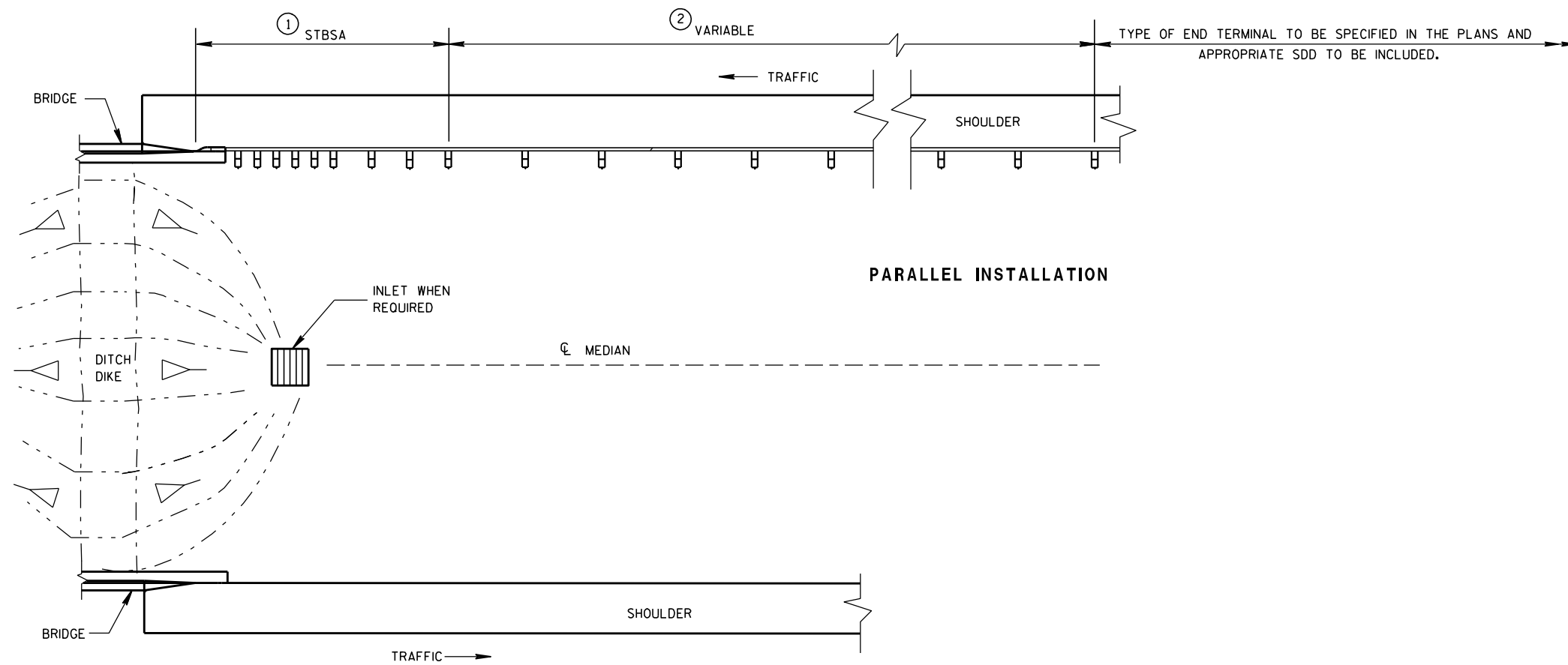
FHWA

/s/ Jerry H. Zoon

ROADWAY STANDARDS 113

ENGINEER

INT



BEAM GUARD AT MEDIAN APPROACH TO BRIDGES

GENERAL NOTES

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- ② LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

STEEL PLATE BEAM GUARD
CLASS "A" AT
MEDIAN APPROACH TO BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 114 ENT
ENGINEER
FHWA

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6½"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

GENERAL NOTES

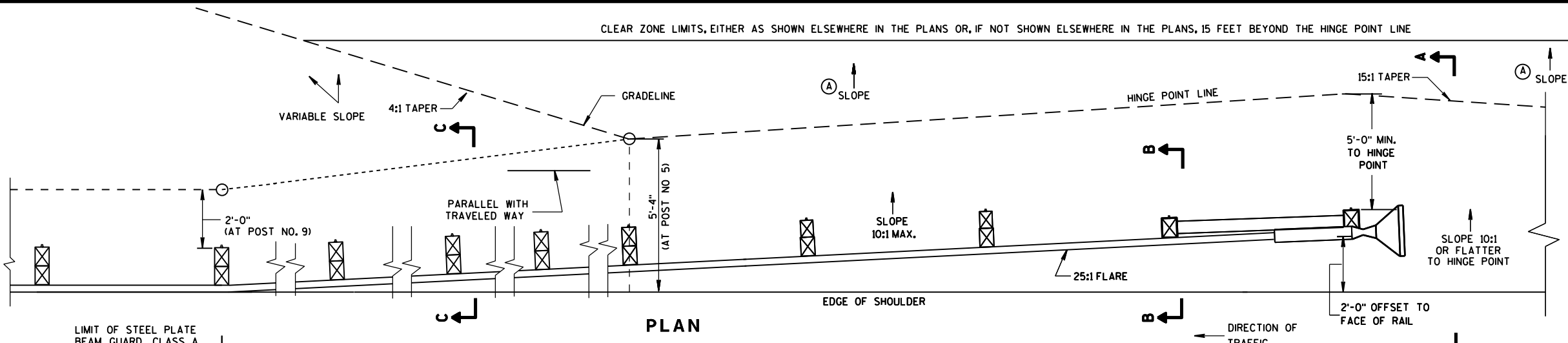
FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (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.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

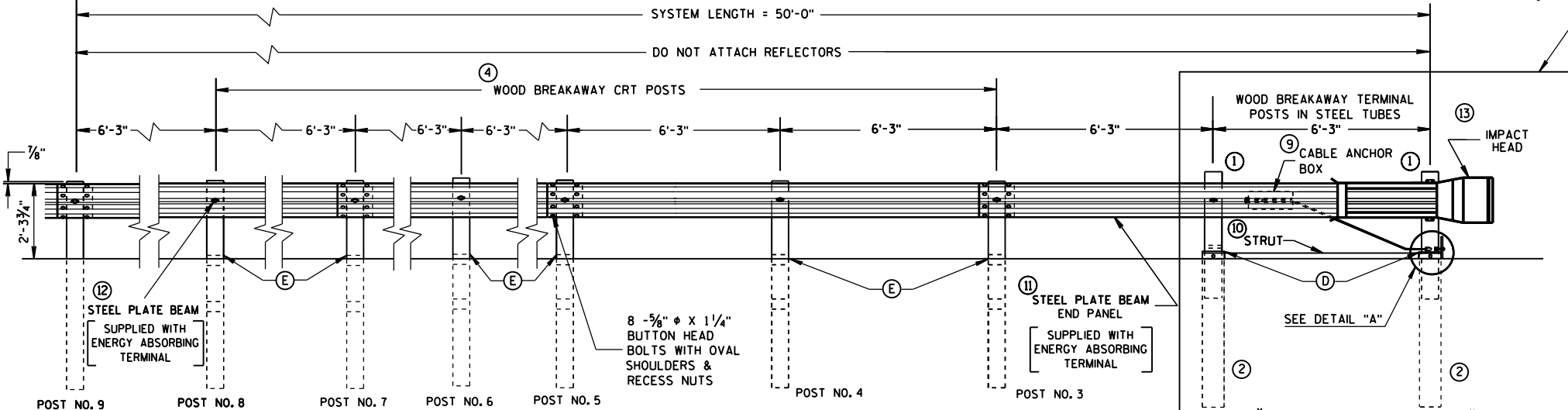
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

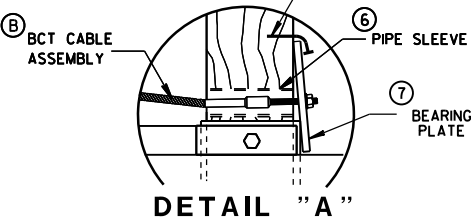
*DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



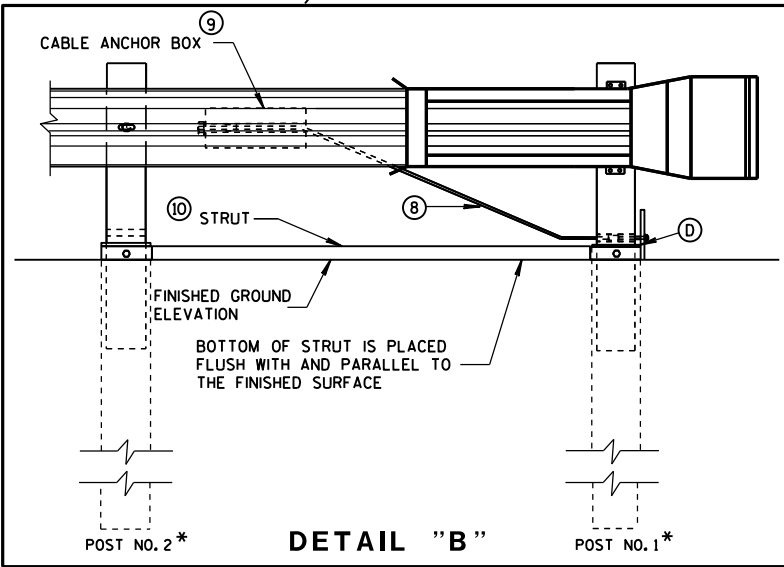
PLAN



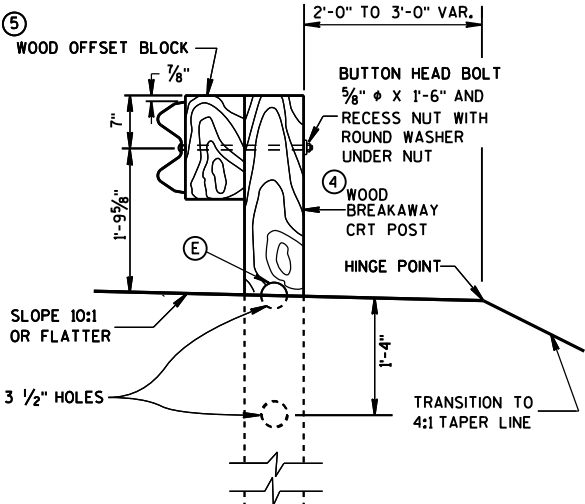
ELEVATION



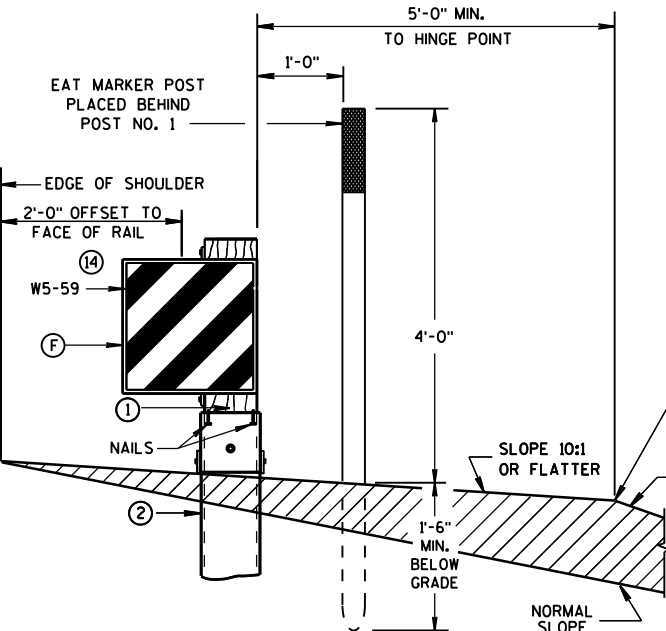
DETAIL "A"



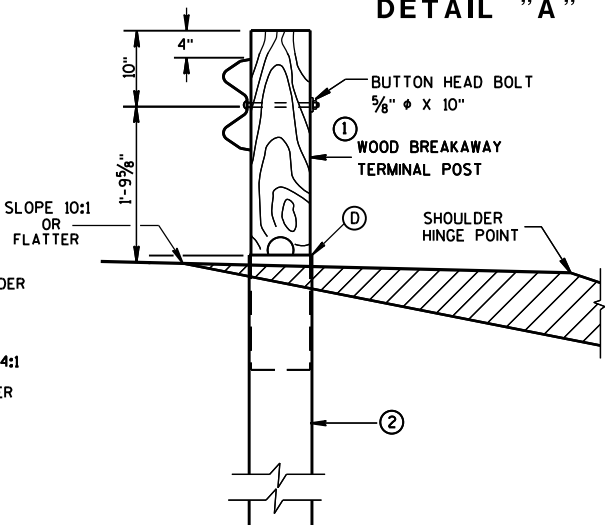
DETAIL "B"



SECTION C-C
TYPICAL AT POST NOS. 6, 8



SECTION A-A
TYPICAL AT POST NO. 1*

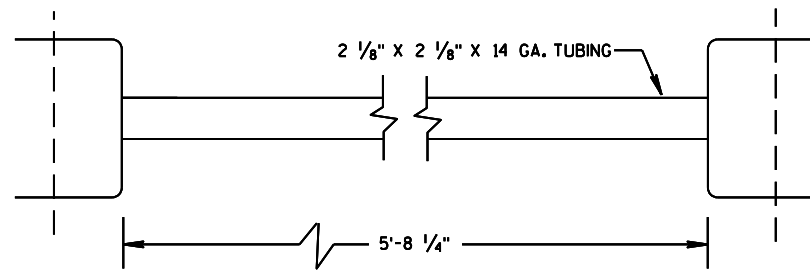


SECTION B-B
TYPICAL AT POST NO. 2*

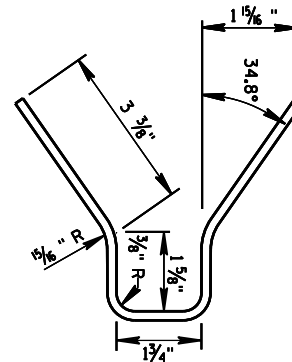
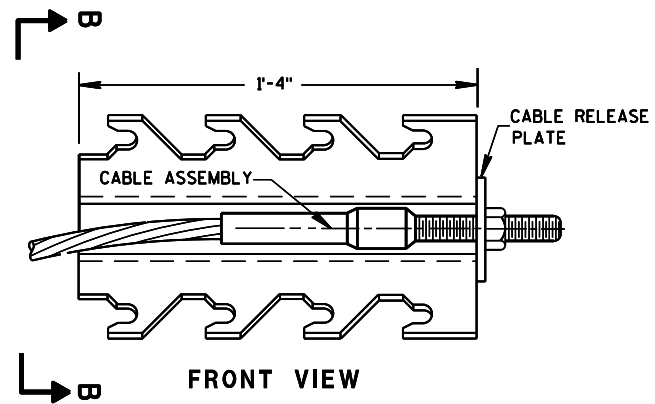
STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

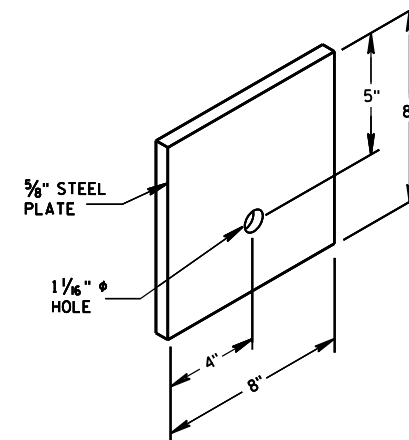
115



⑩ STRUT DETAIL



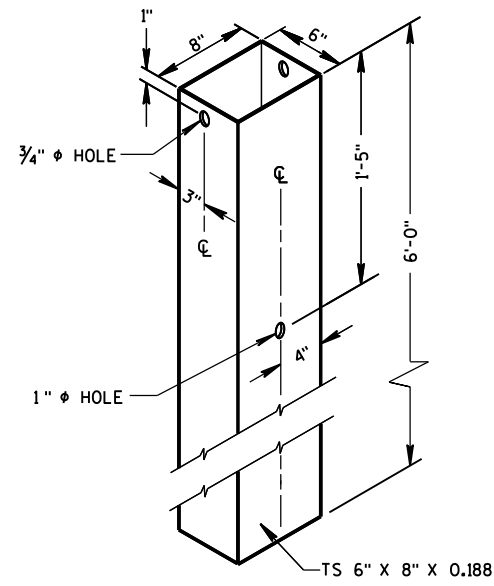
⑨ CABLE ANCHOR BOX



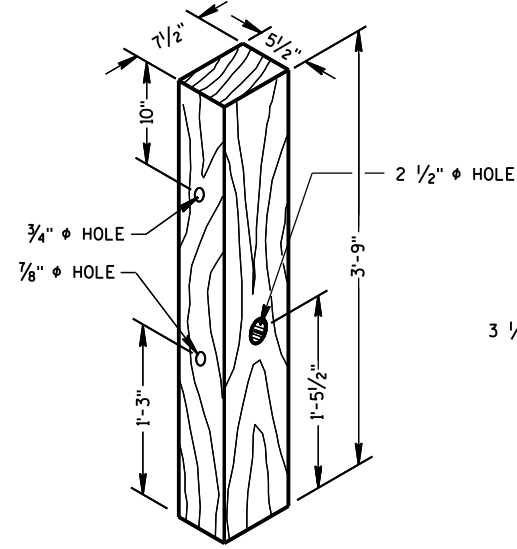
⑦ STEEL BEARING PLATE

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

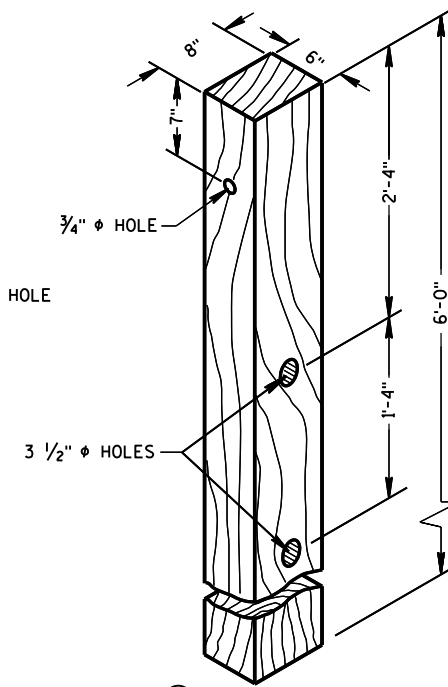
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 116



② **72" STEEL TUBE**
(POSTS NO. 1-2)



① **TERMINAL POST**

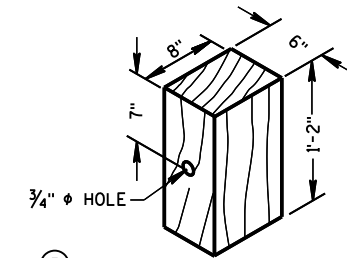


④ **CRT POST**
(POSTS NO'S 5-8)

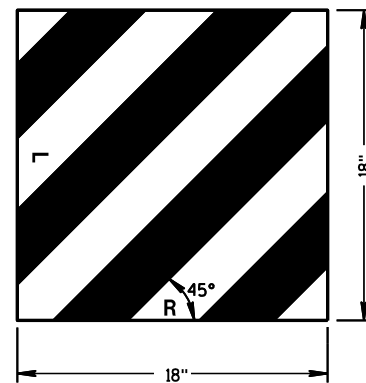
WOOD BREAKAWAY POSTS

GENERAL NOTES

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

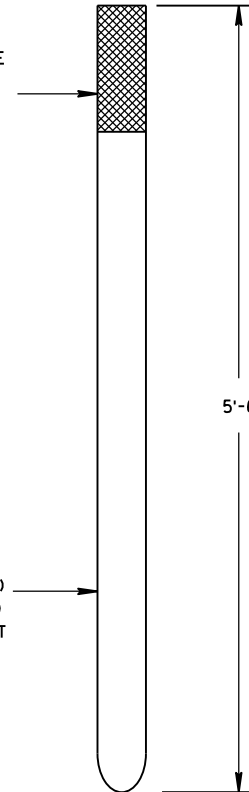


⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ **REFLECTIVE SHEETING DETAILS**

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



FRONT VIEW



SIDE VIEW

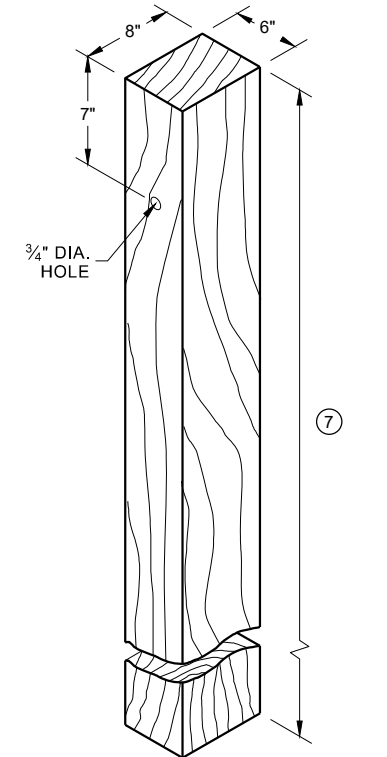
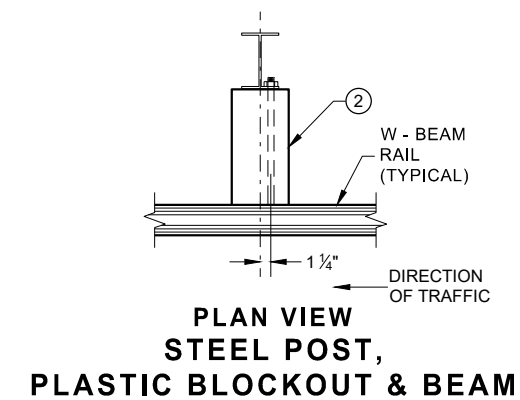
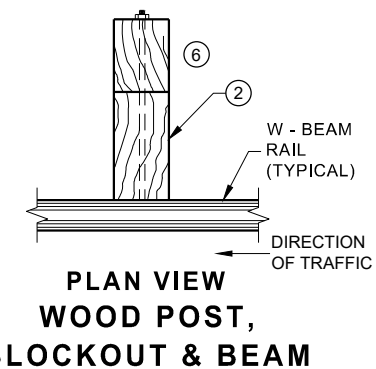
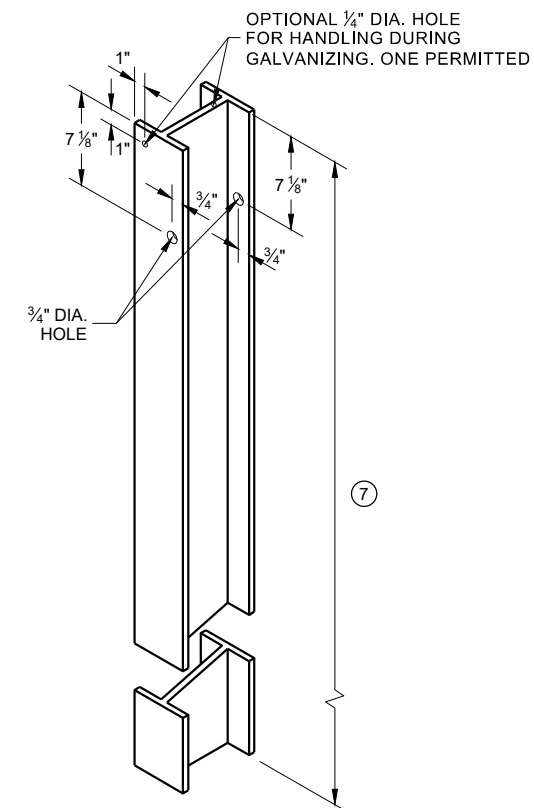
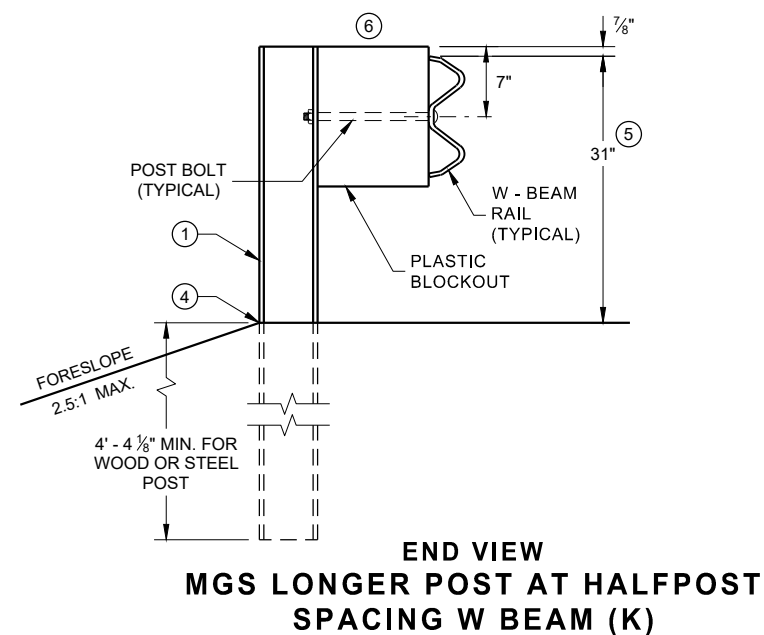
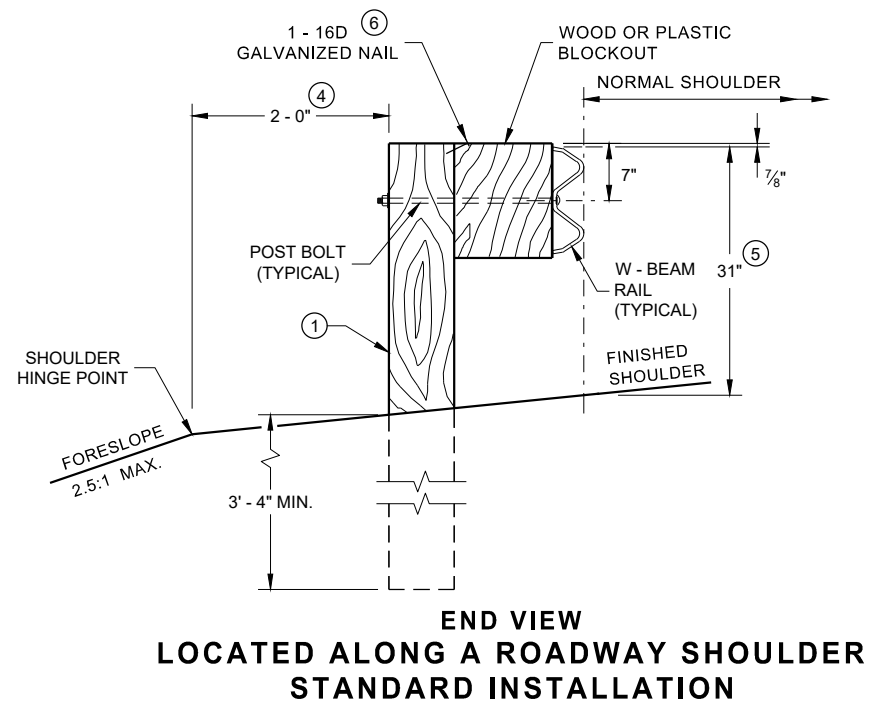
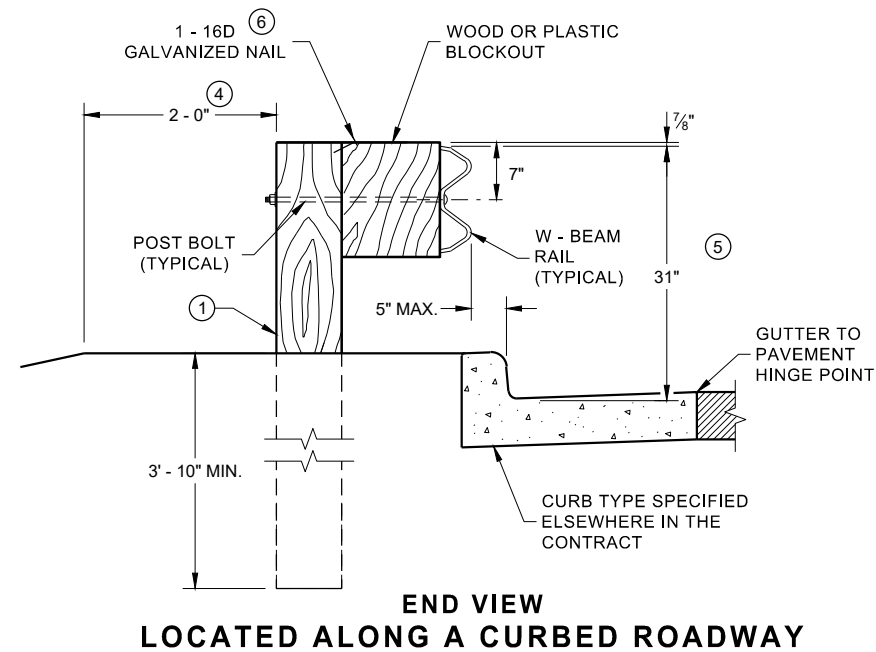
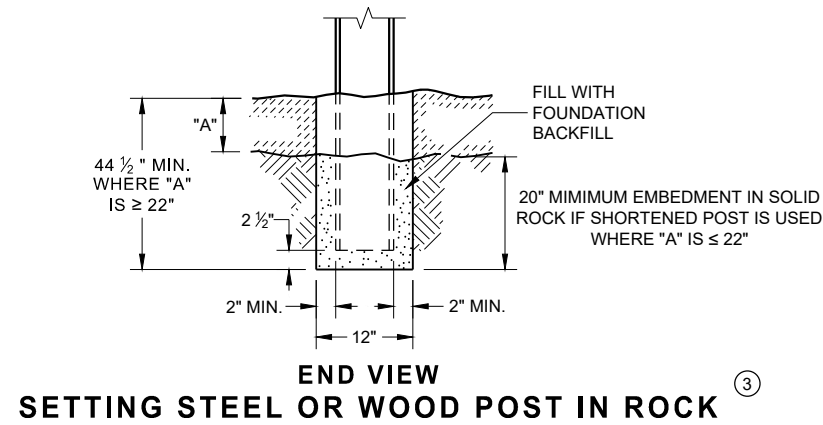
E.A.T. MARKER POST

**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

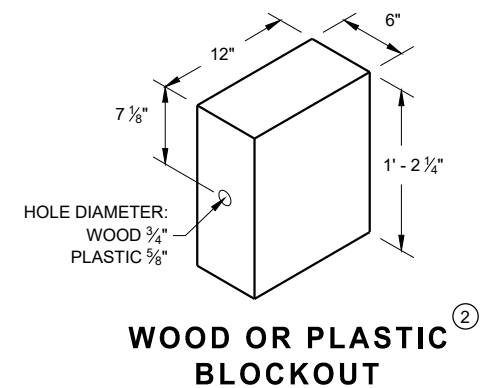
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS 117 ENT
FHWA UNIT SUPERVISOR

- 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 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".



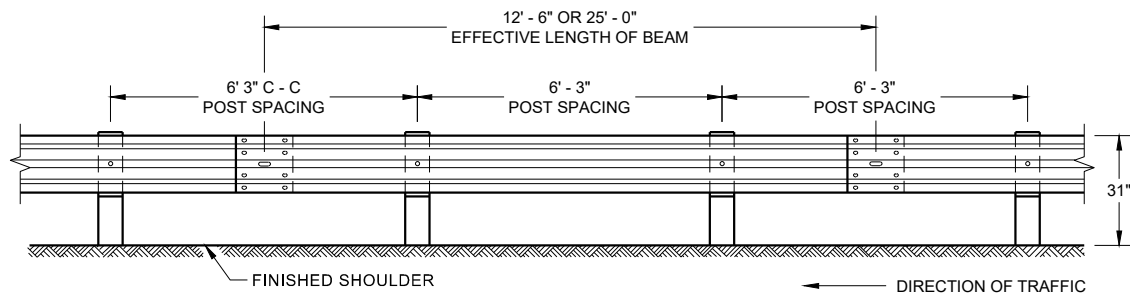
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



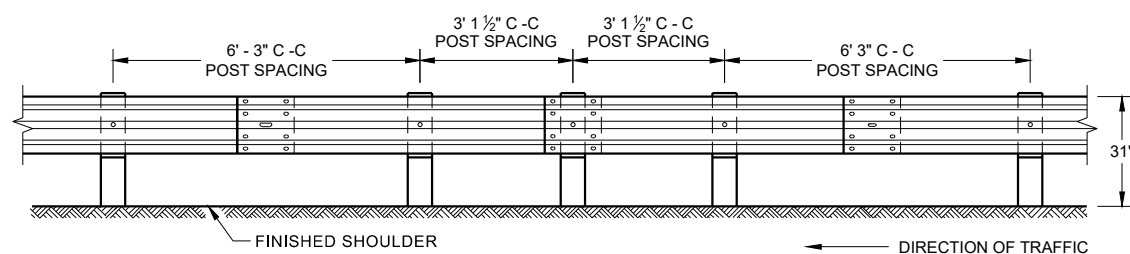
**WOOD OR PLASTIC
BLOCKOUT**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

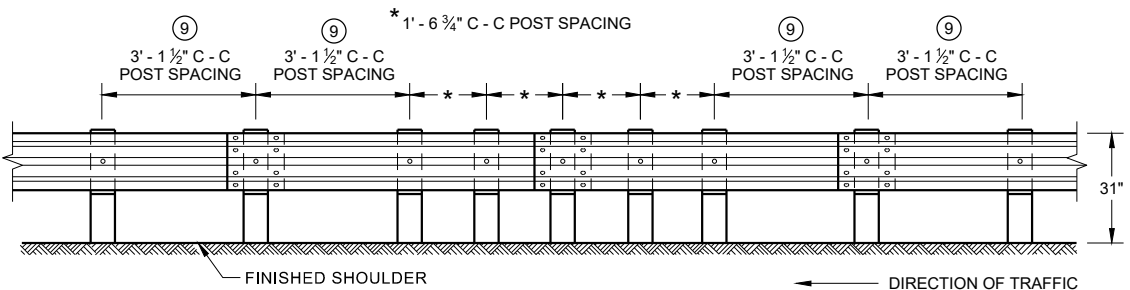
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 118



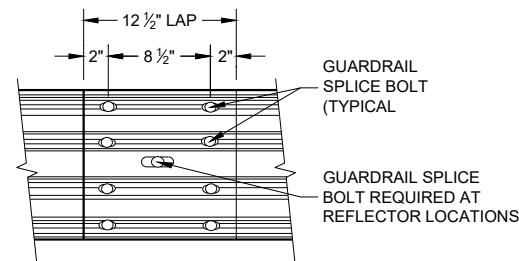
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



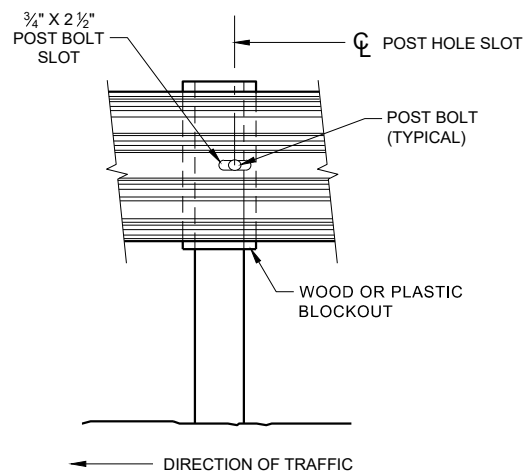
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



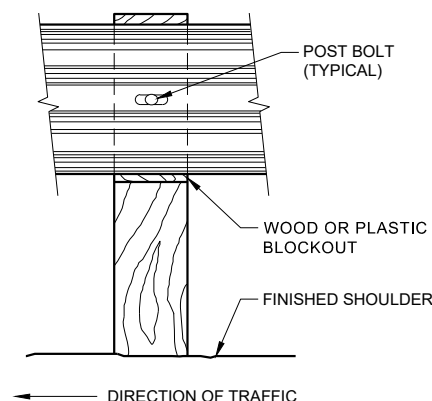
**FRONT VIEW
QUARTER POST SPACING (QS)**



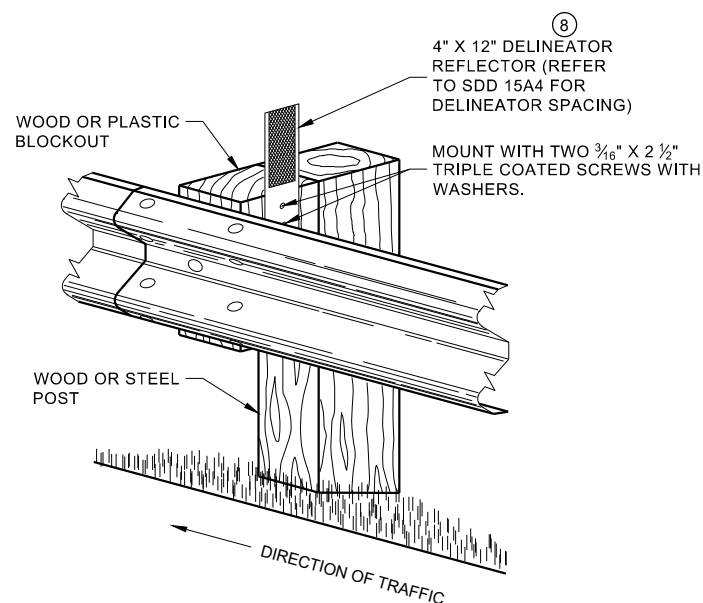
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



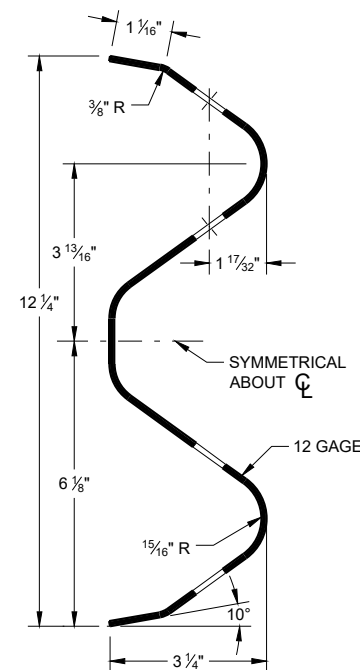
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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.

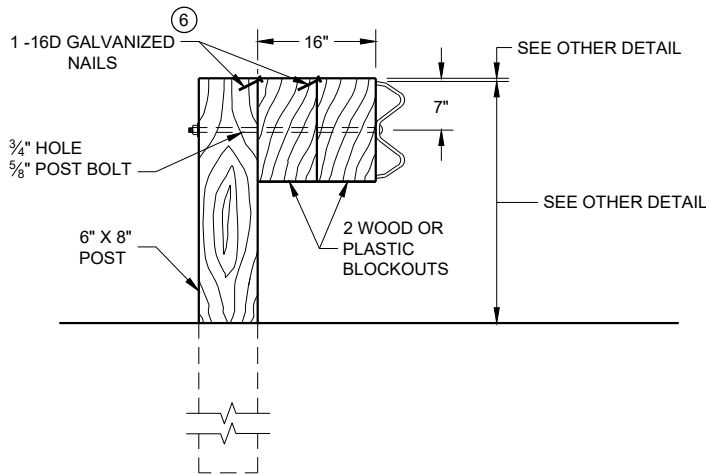
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

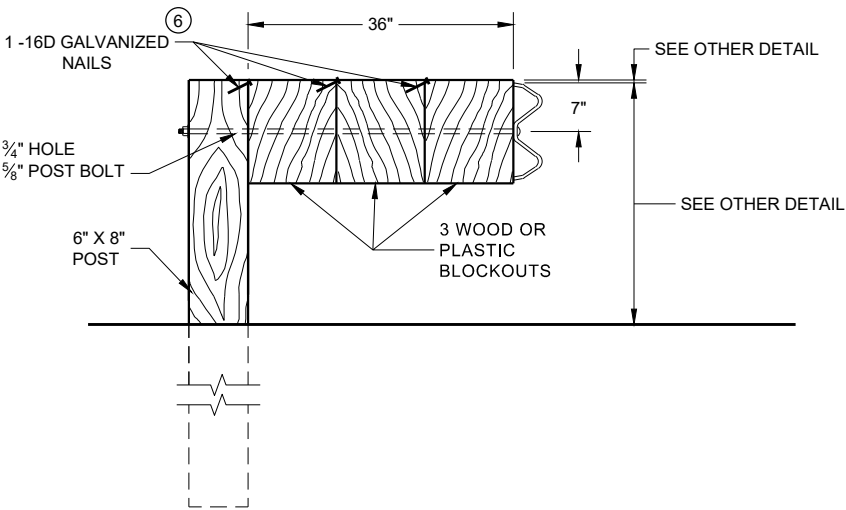
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

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DETAIL FOR 16" BLOCKOUT DEPTH

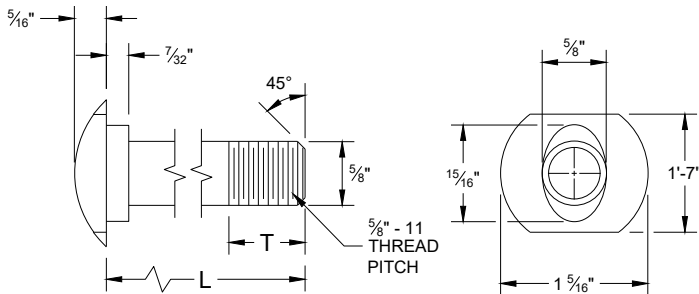
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

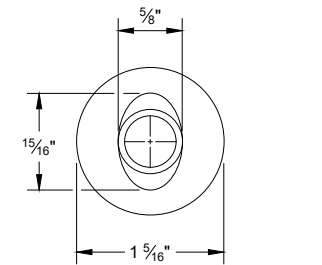
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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

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

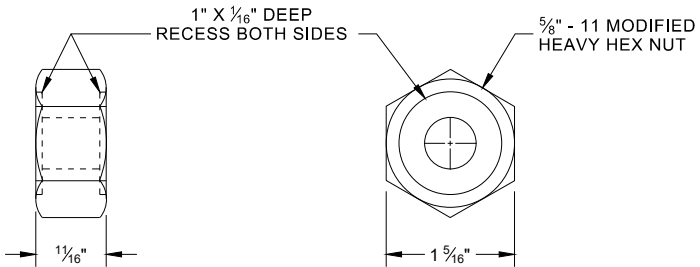


POST BOLT TABLE

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

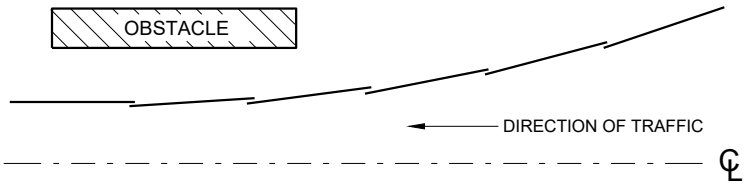


ALTERNATE BOLT HEAD

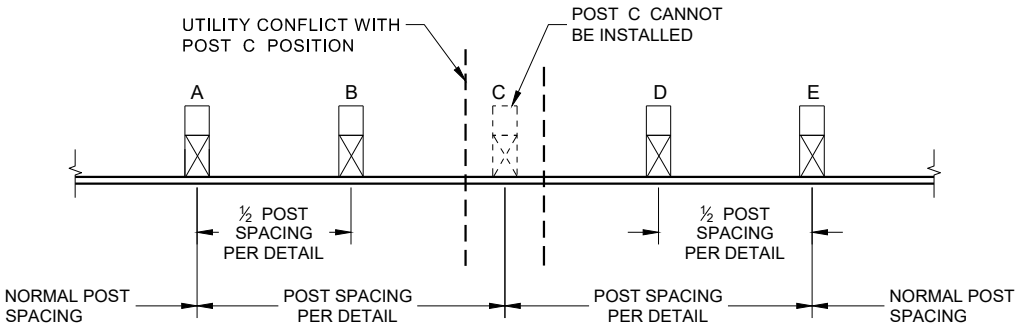


POST BOLT, SPLICE BOLT AND RECESS NUT

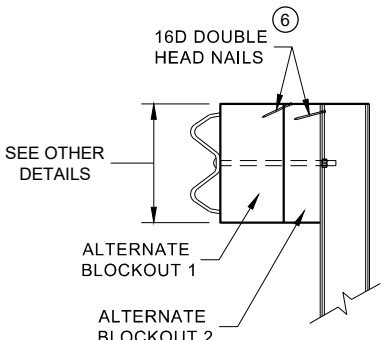
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



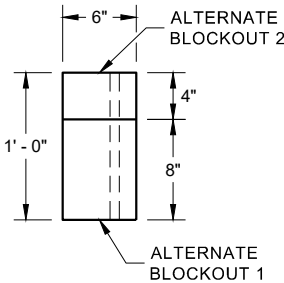
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

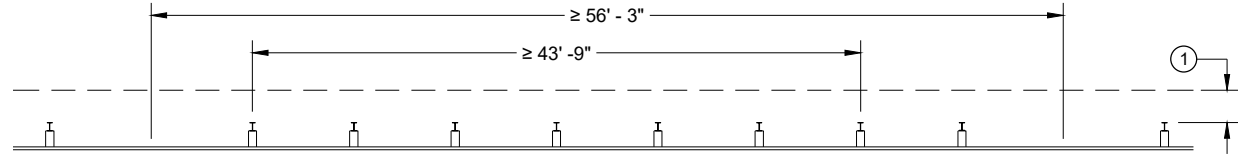


PLAN VIEW

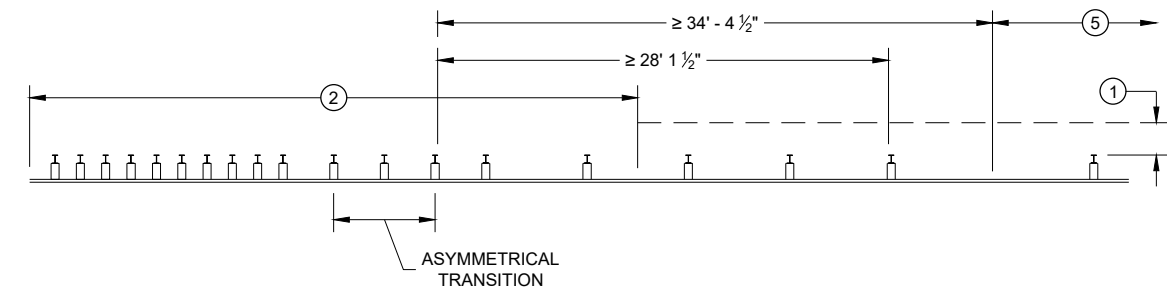
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

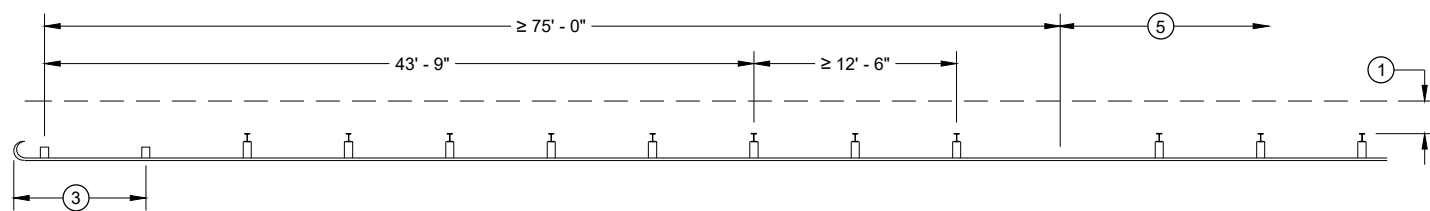
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



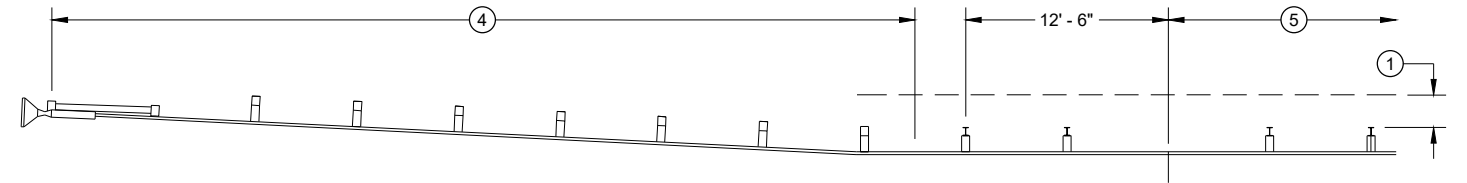
MISSING POST IN NORMAL BEAM GUARD RUN



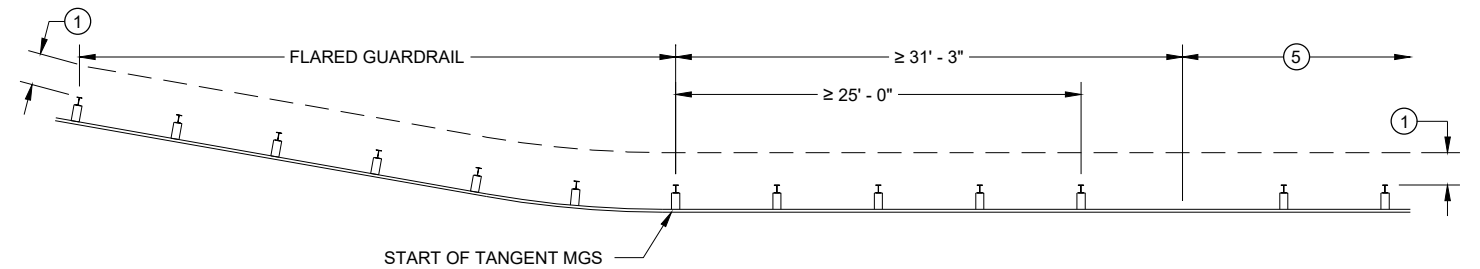
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



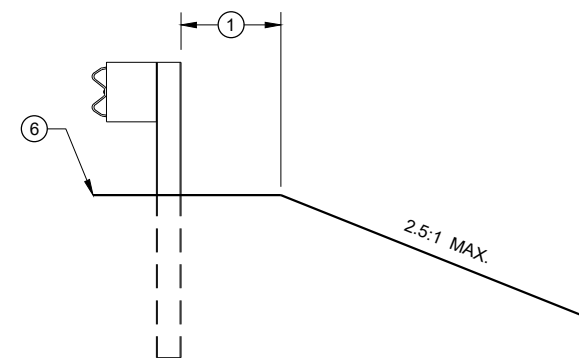
MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

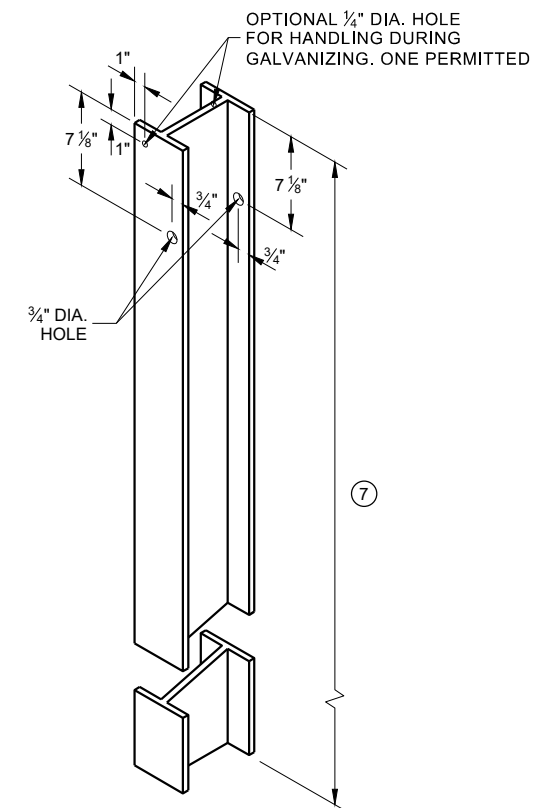
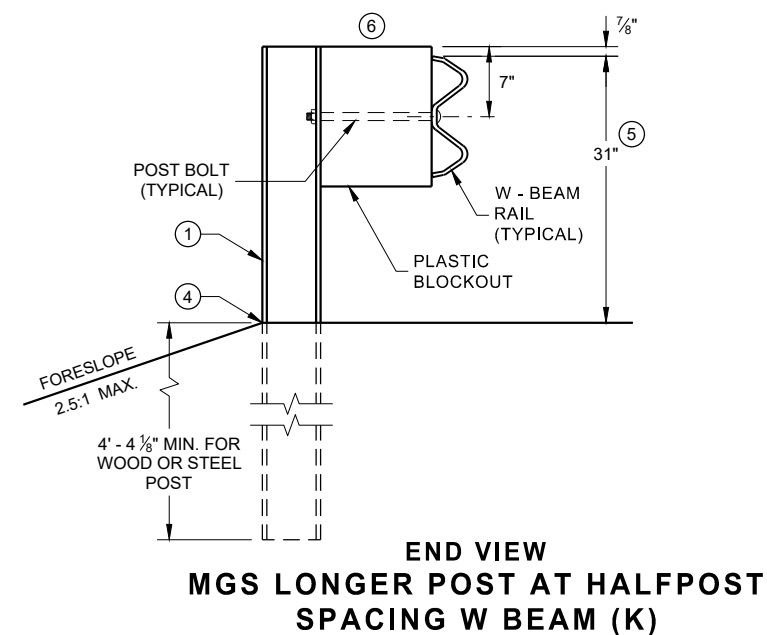
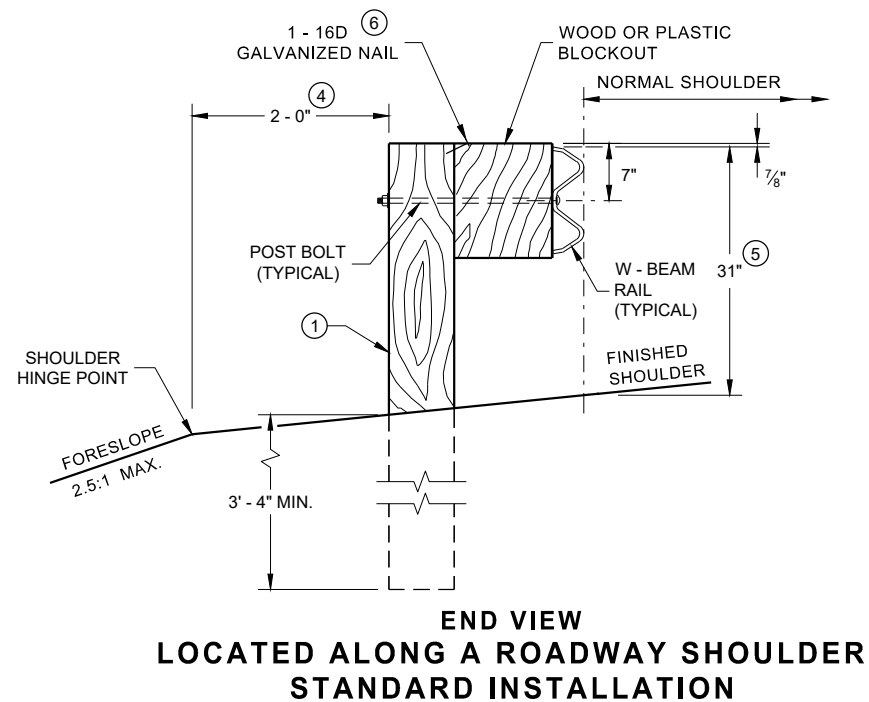
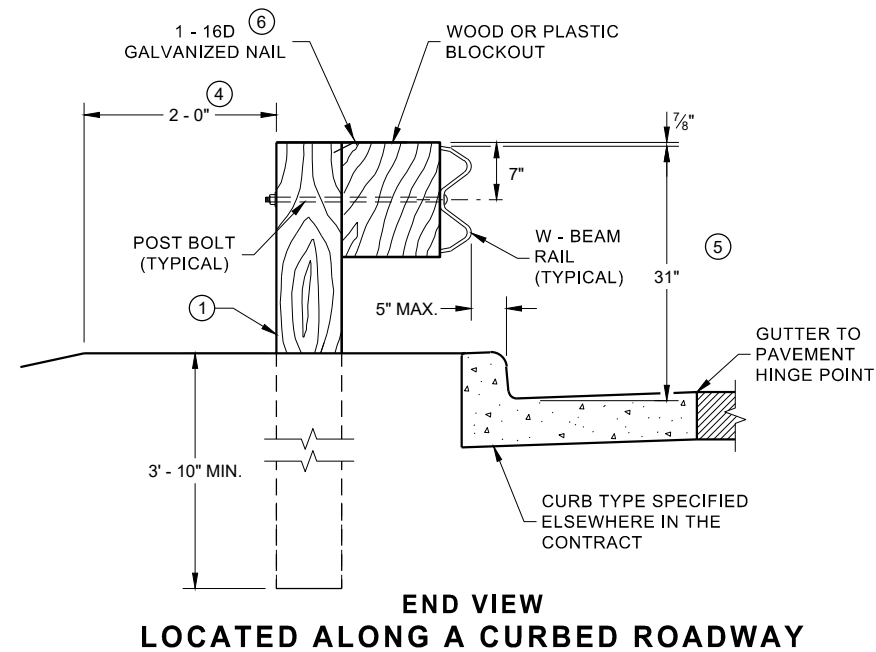
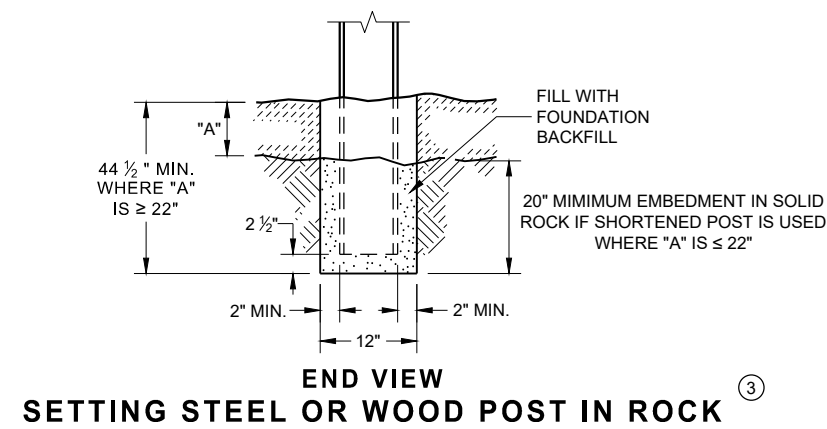
- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER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

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

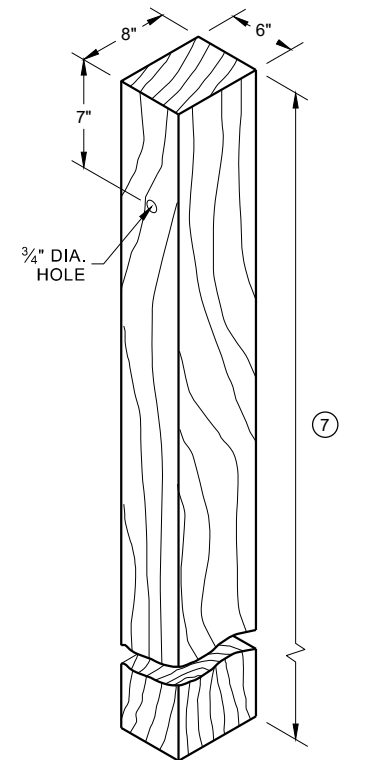
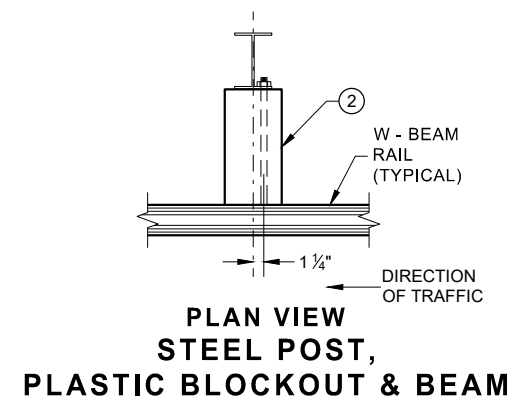
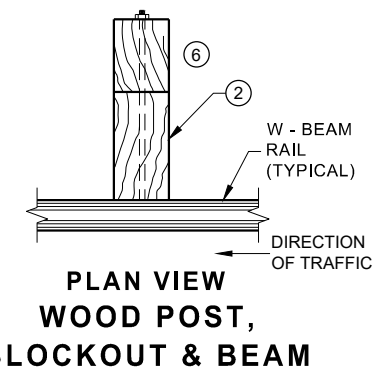
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR 121
FHWA

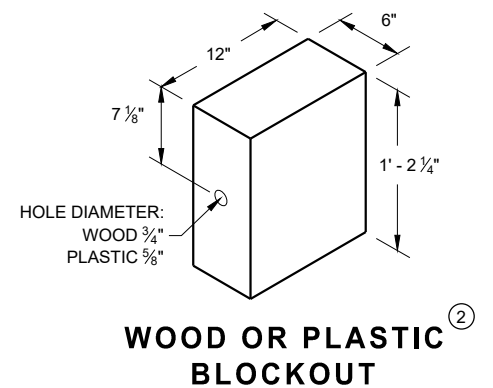
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
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- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



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

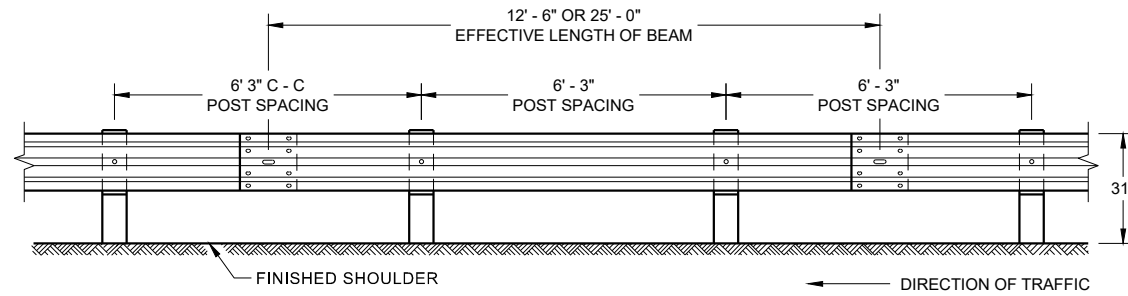


WOOD POST (6" X 8") NOMINAL ⁽¹⁾

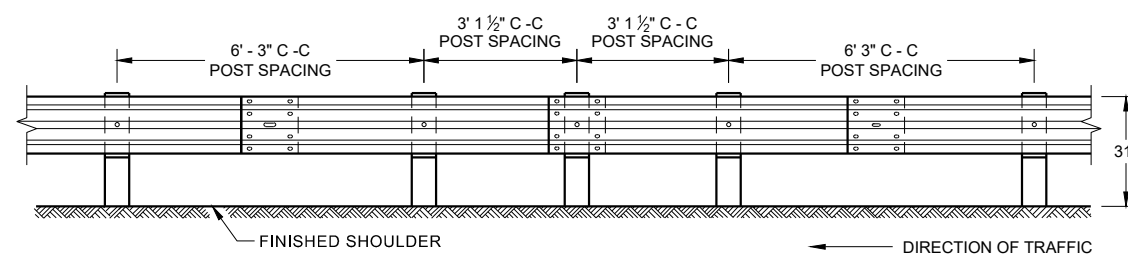


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

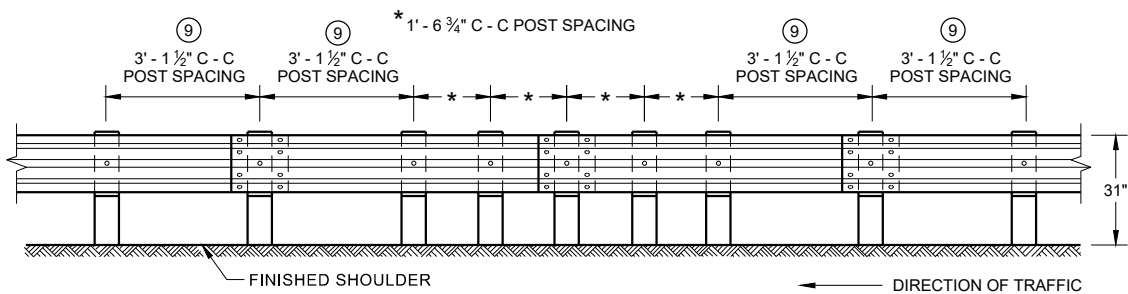
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 122



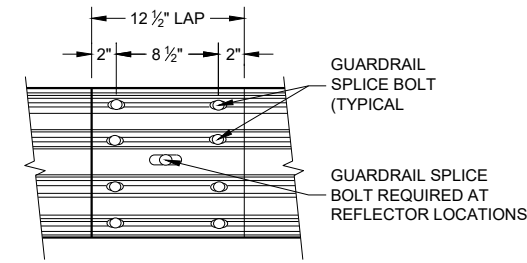
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



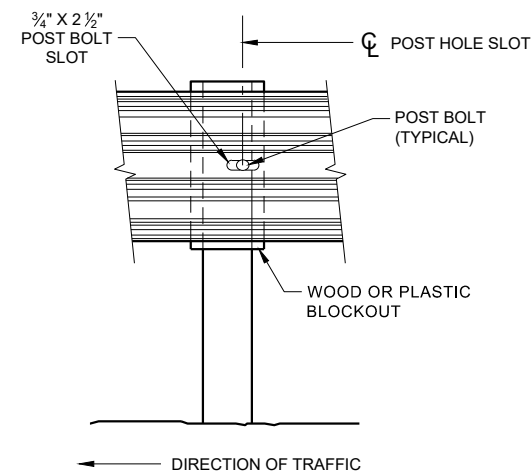
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



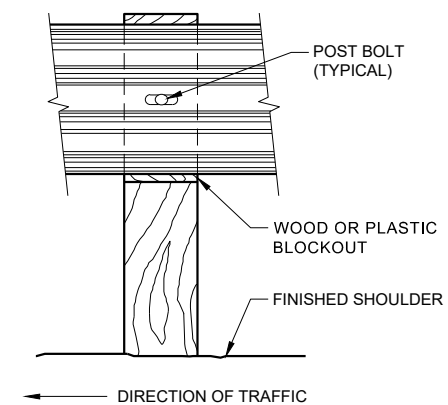
**FRONT VIEW
QUARTER POST SPACING (QS)**



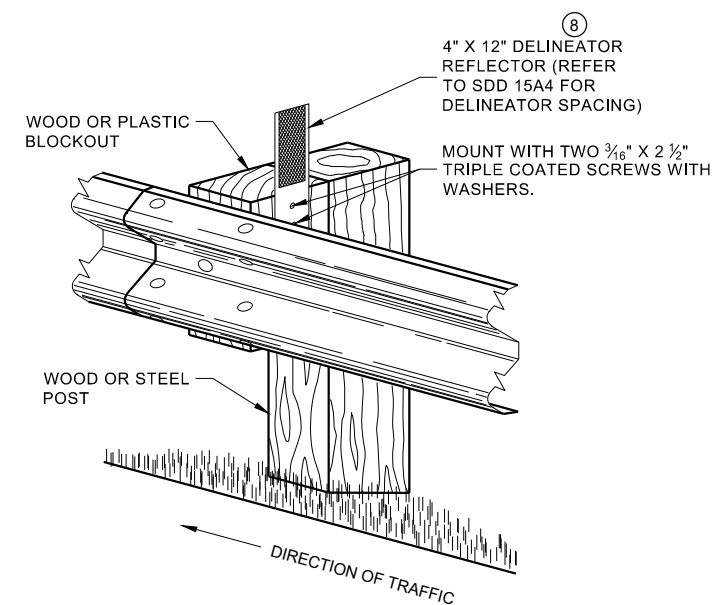
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



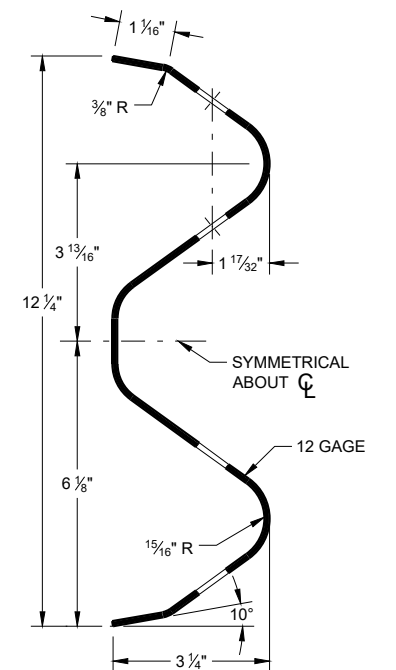
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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 3/4" 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.

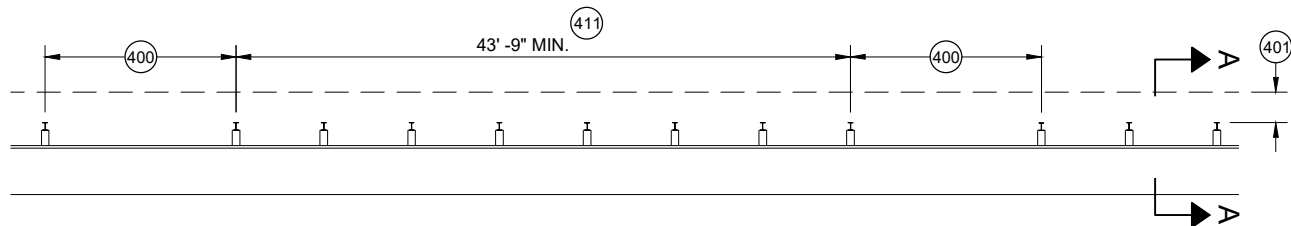
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



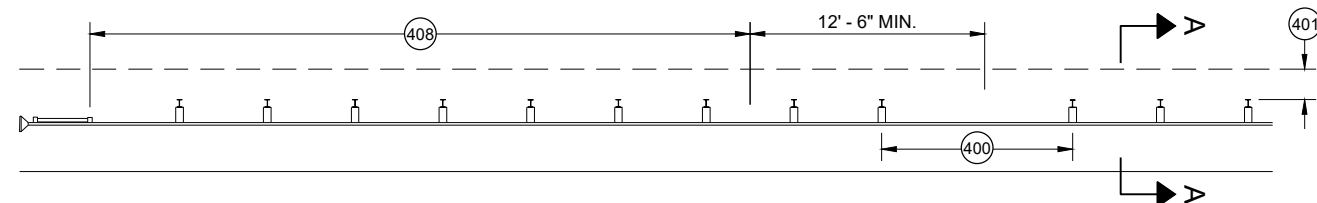
SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

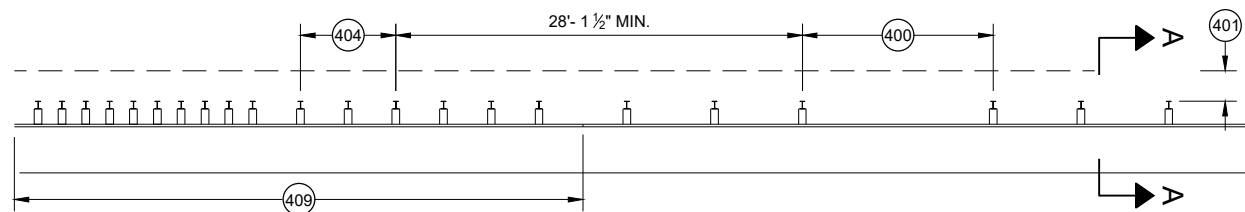
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 123



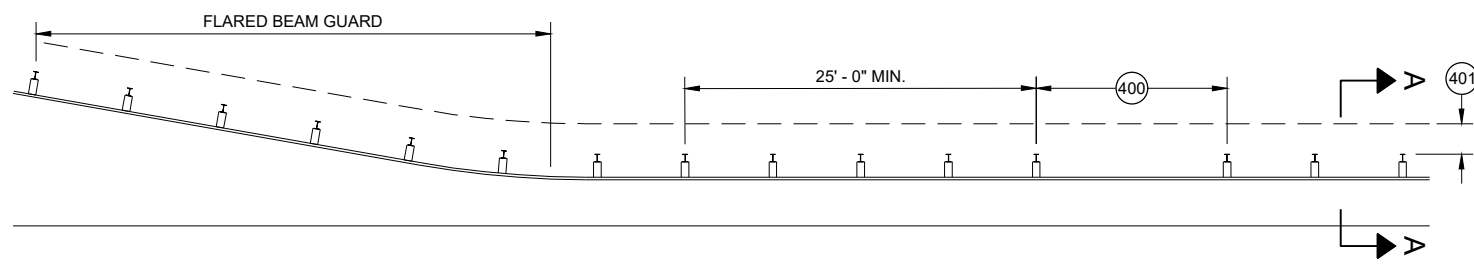
MISSING POST IN MGS GUARDRAIL



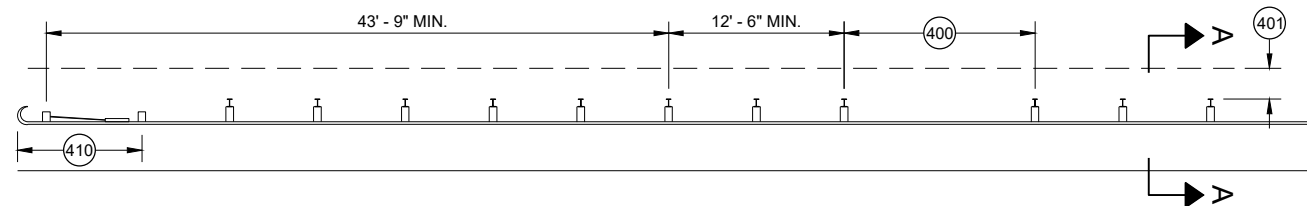
MISSING POST IN MGS GUARDRAIL NEAR EAT



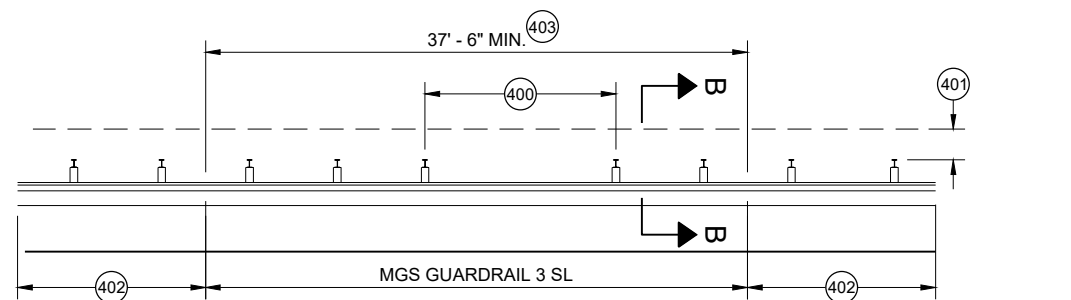
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

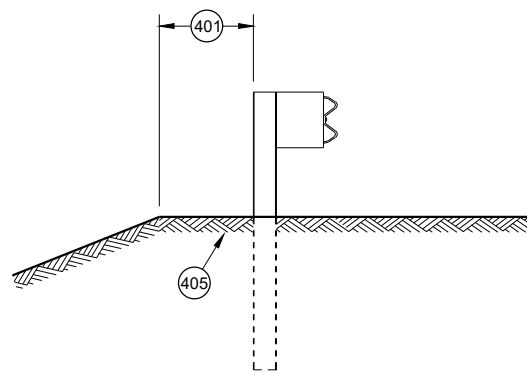


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

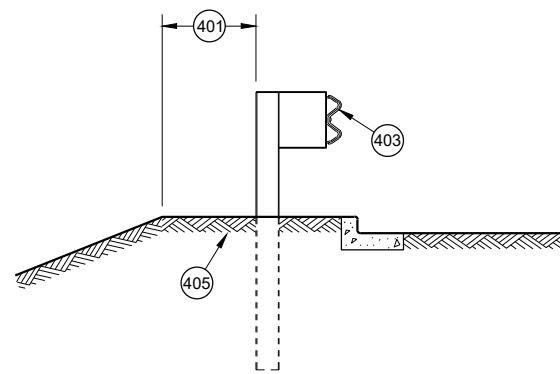


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

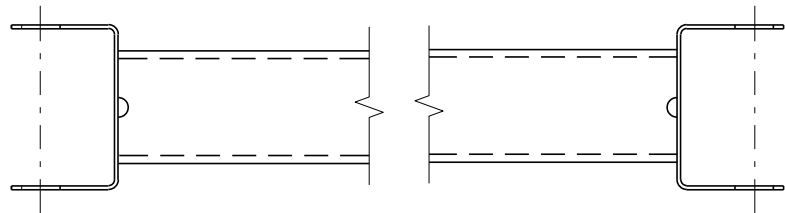
FHWA

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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

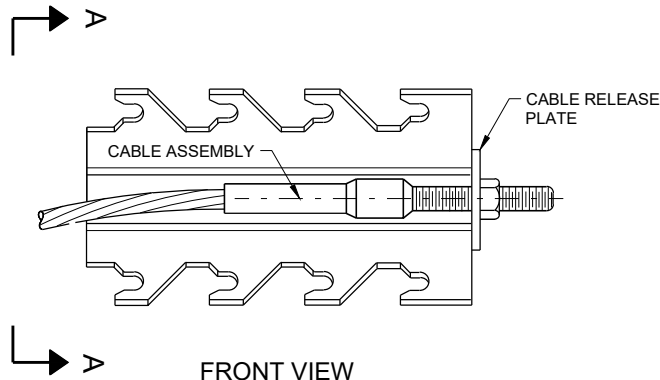
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

STATE OF WISCONSIN
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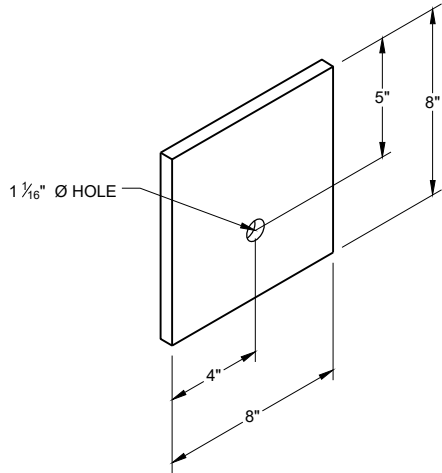
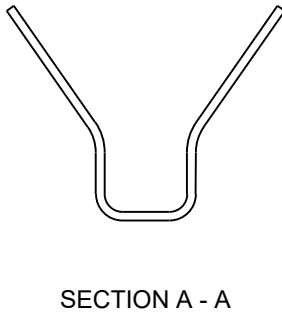


GENERIC GROUND STRUT^⑨ [Ⓔ]

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



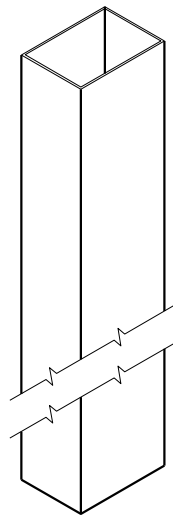
GENERIC ANCHOR CABLE BOX^⑨ [Ⓔ]



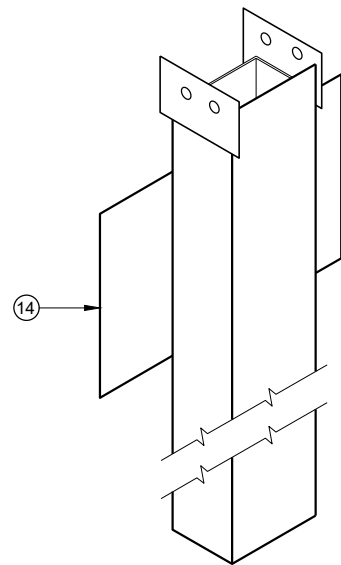
BEARING PLATE^⑥ [Ⓔ]

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

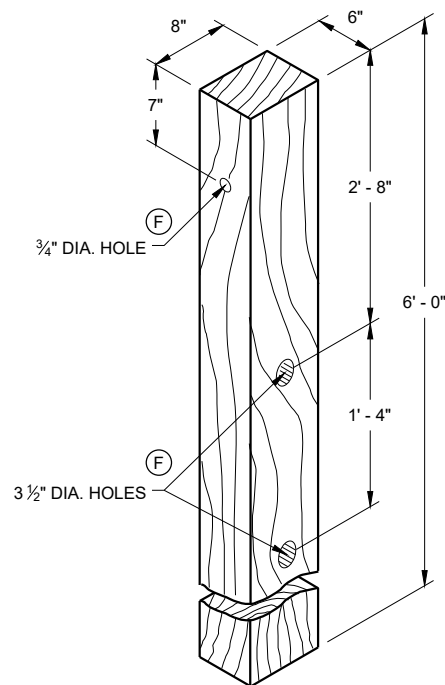
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 127



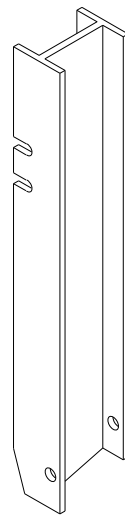
UPPER POST NO. 1 ⁽¹⁾ (E)



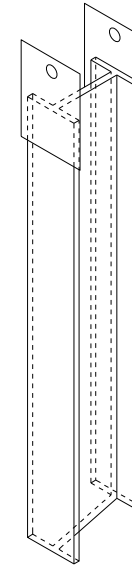
LOWER POST NO. 1 ⁽²⁾ (E)



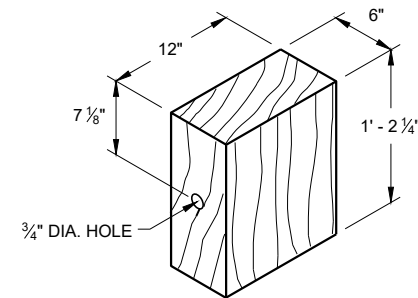
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



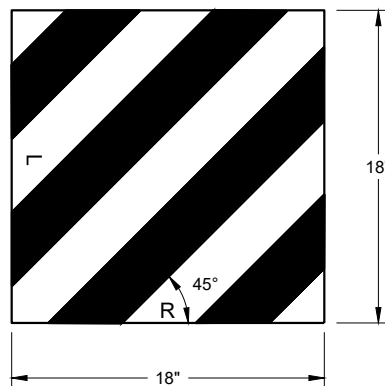
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



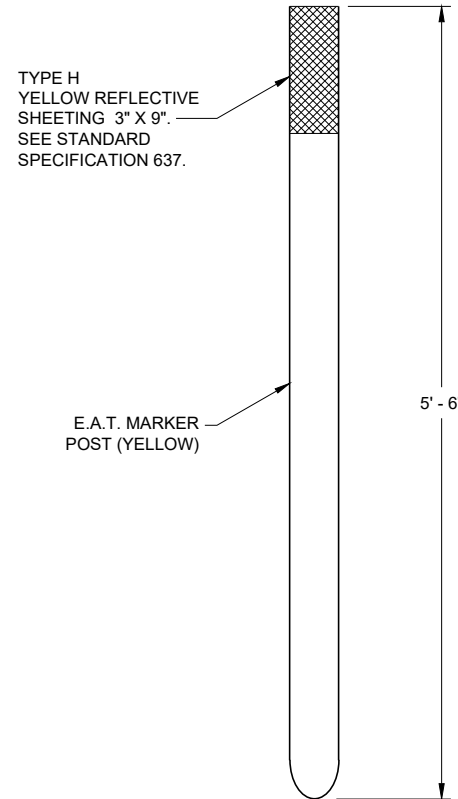
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



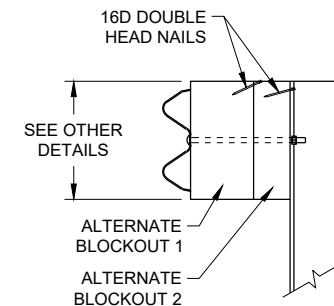
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



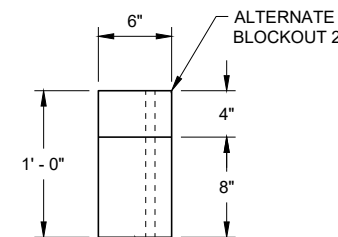
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



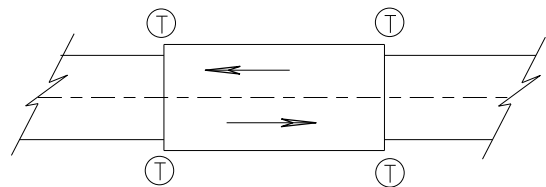
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

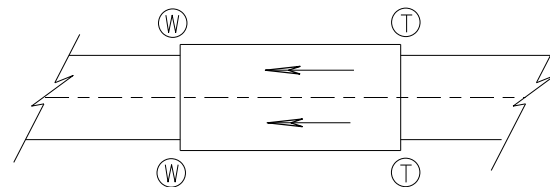
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR 128
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

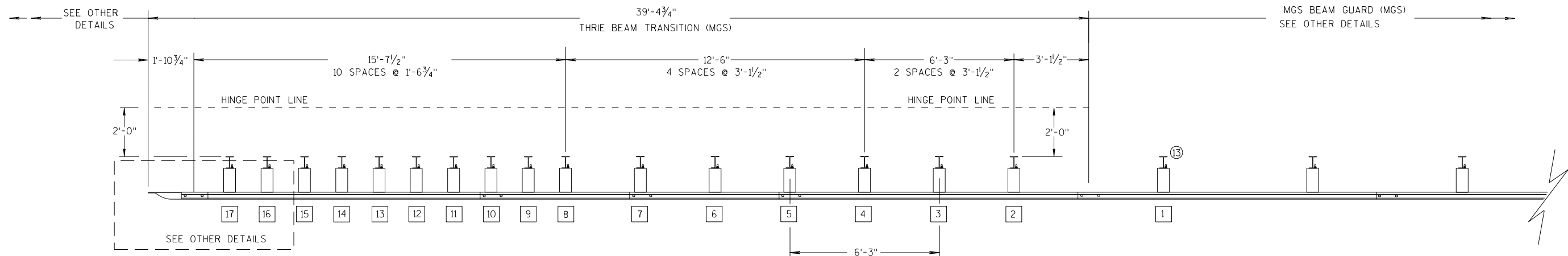
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

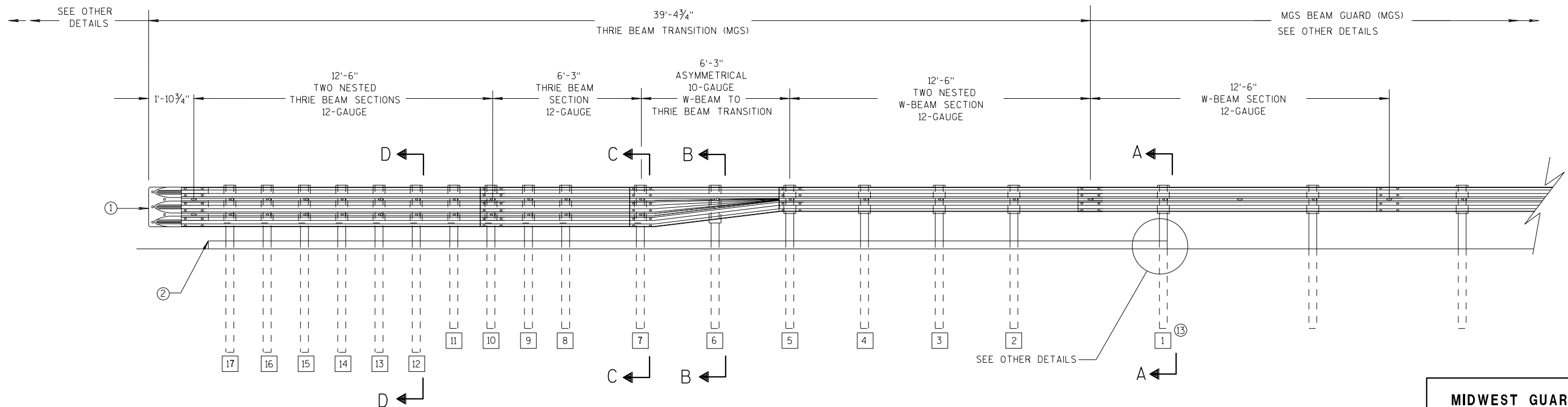
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

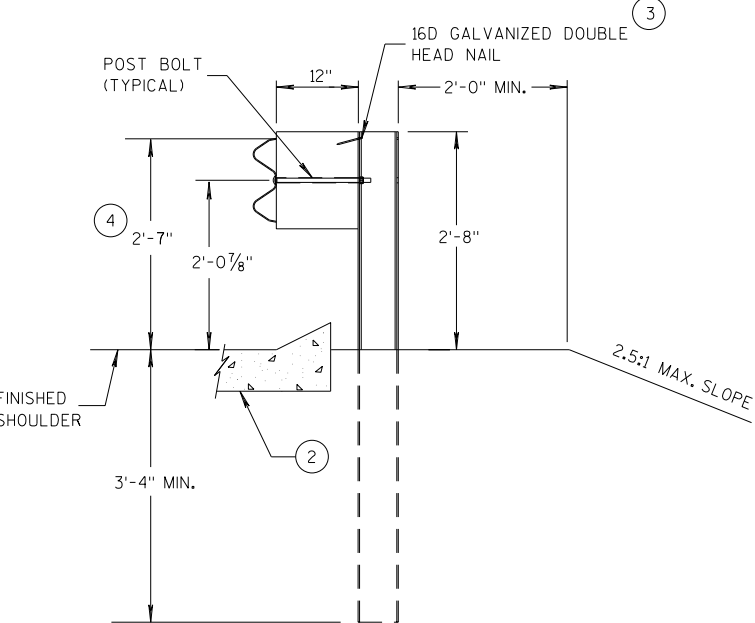
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

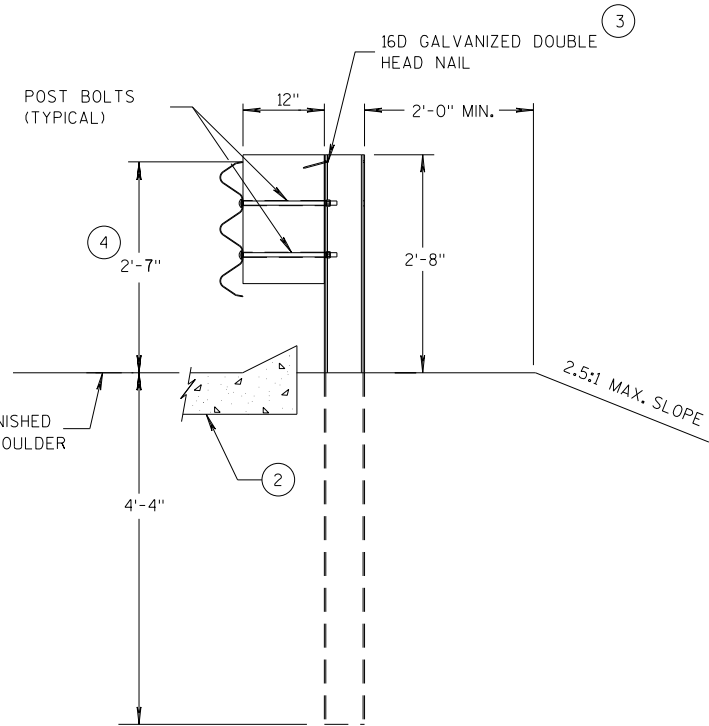
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 129

GENERAL NOTES

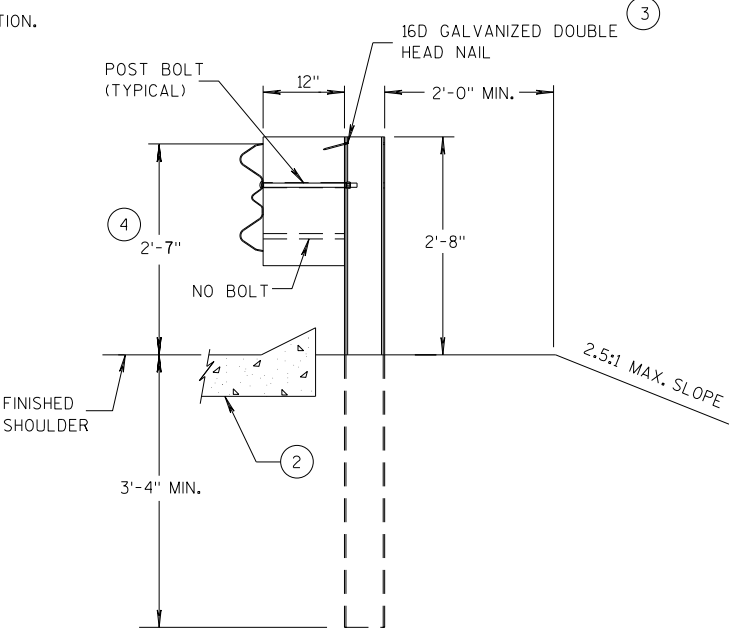
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



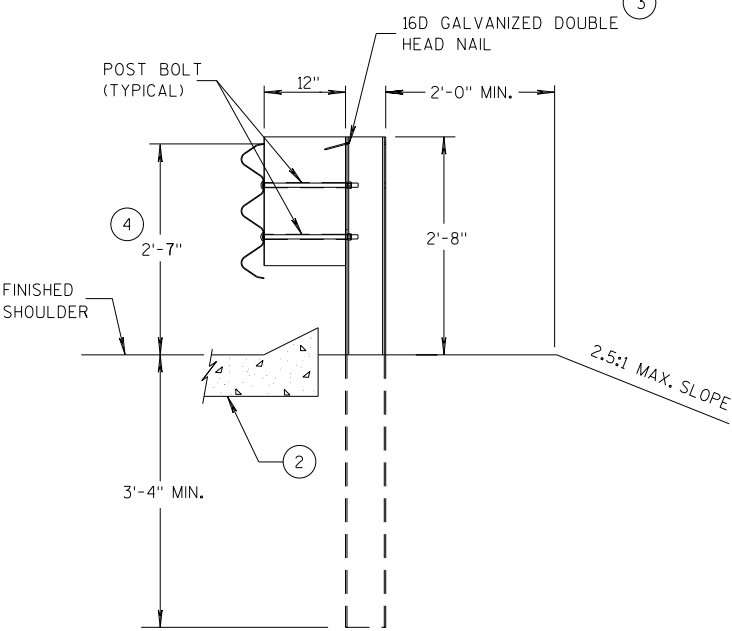
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

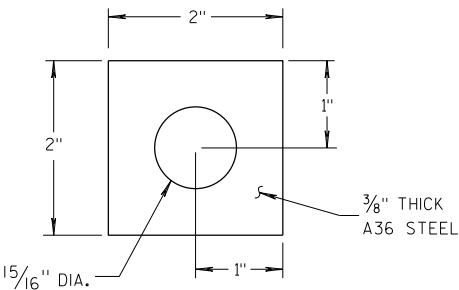
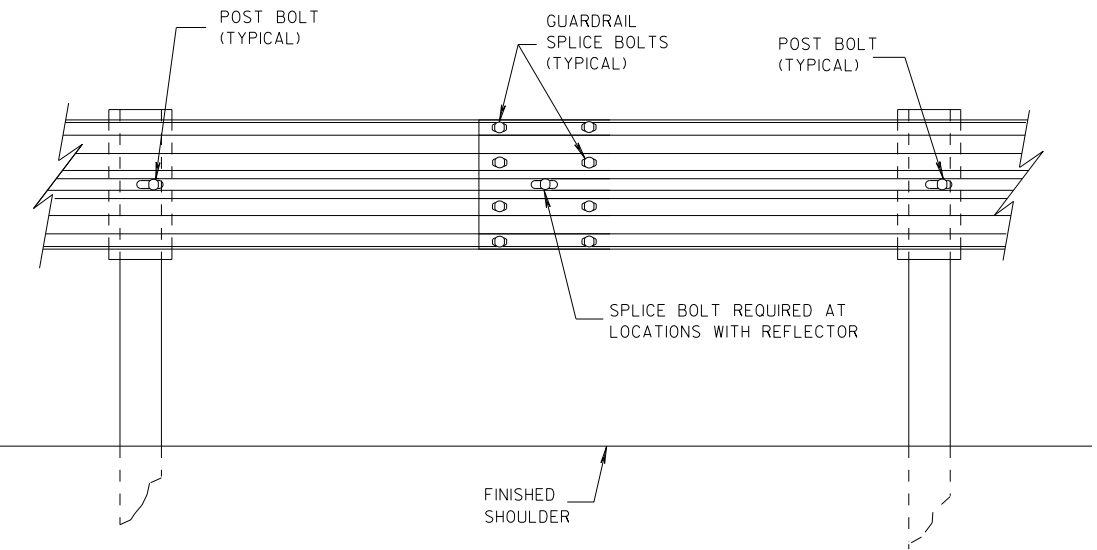
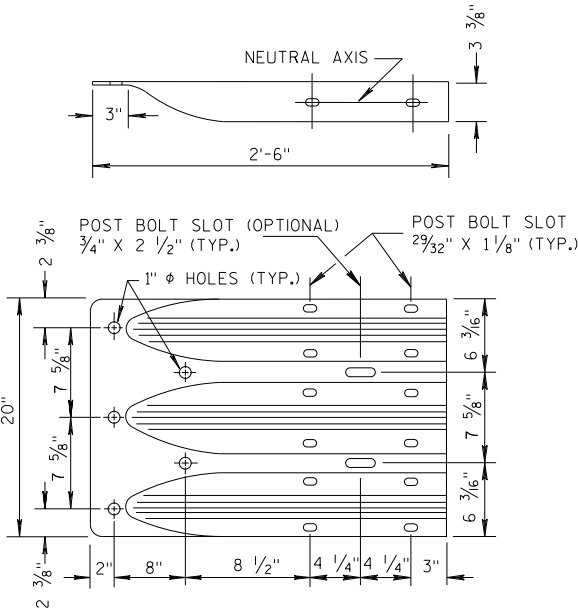


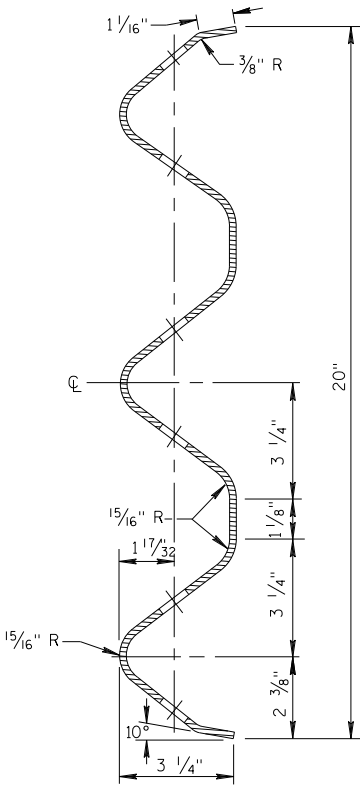
PLATE WASHER DETAIL



SPlice DETAIL



THRIE BEAM
TERMINAL CONNECTOR

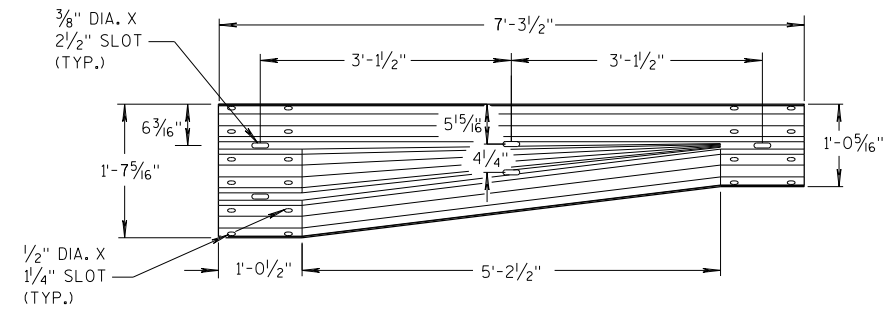


SECTION THRU THRIE
BEAM RAIL ELEMENT

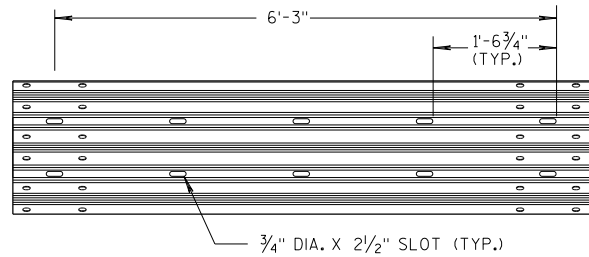
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

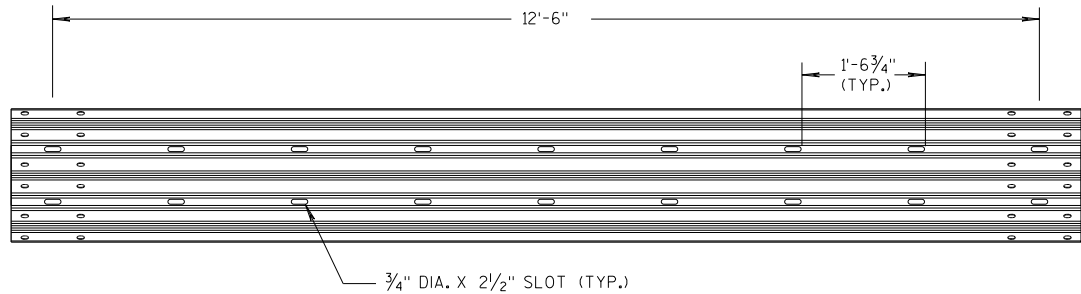
130



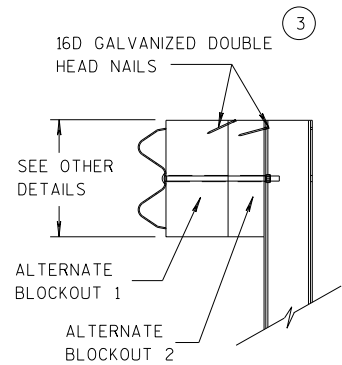
W-BEAM TO THRIE BEAM TRANSITION SECTION



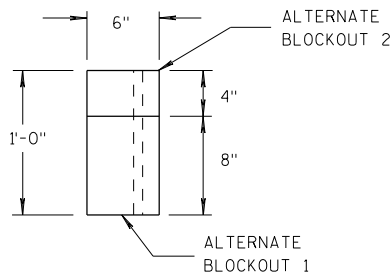
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

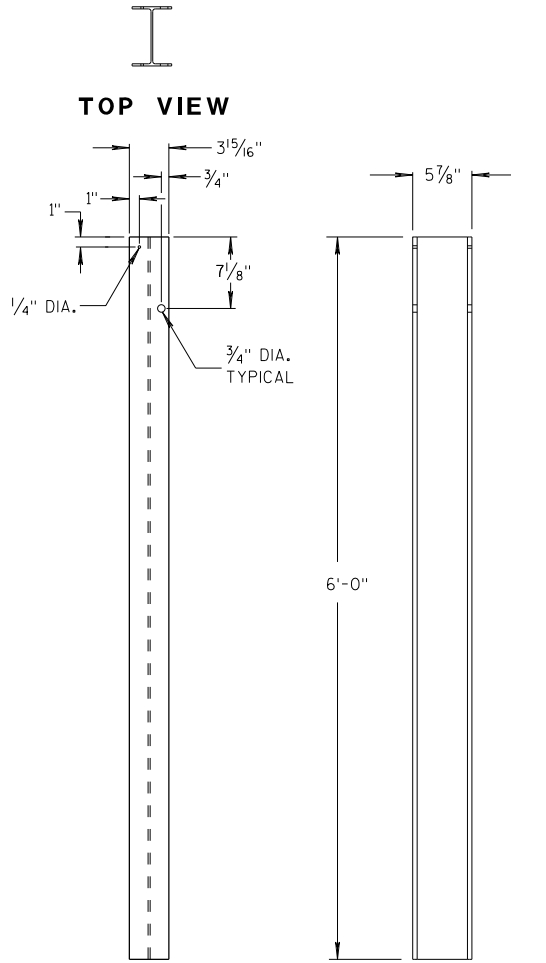


SIDE VIEW



TOP VIEW

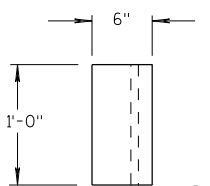
ALTERNATE WOOD BLOCKOUT DETAIL



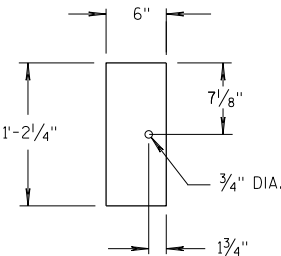
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

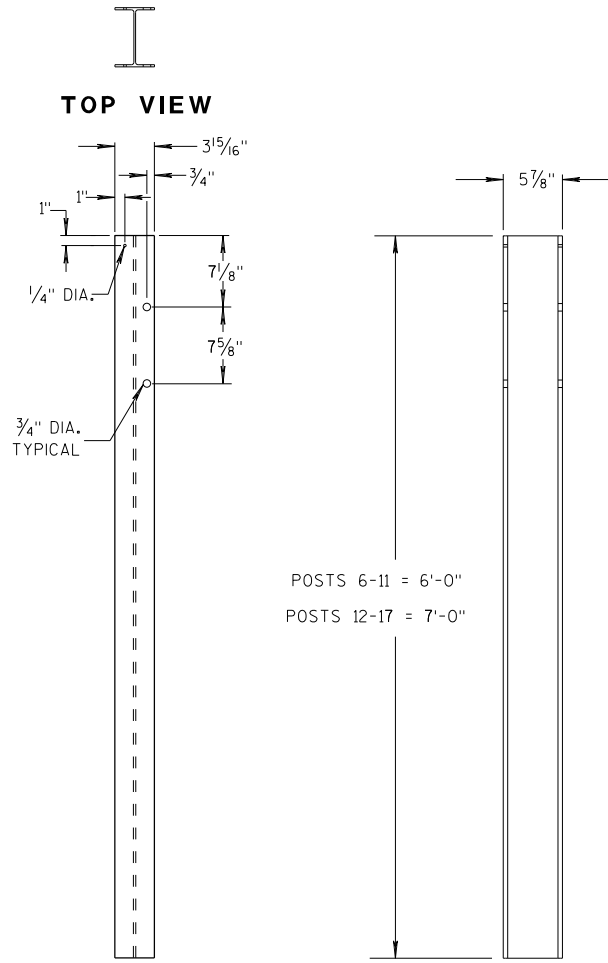


TOP VIEW



FRONT VIEW

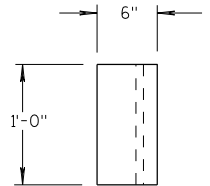
BLOCKOUT POSTS 1-5



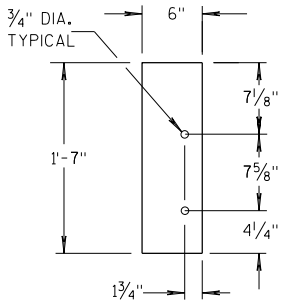
FRONT VIEW

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.

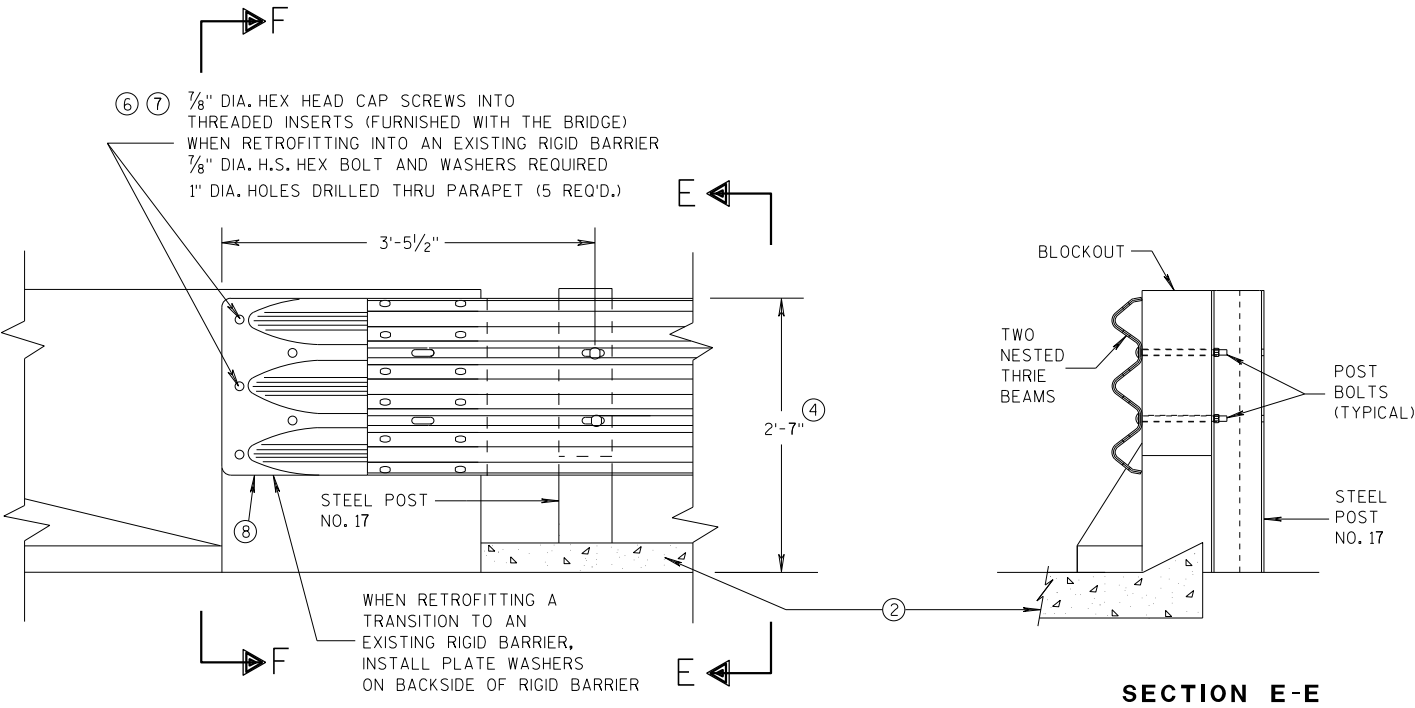
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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.

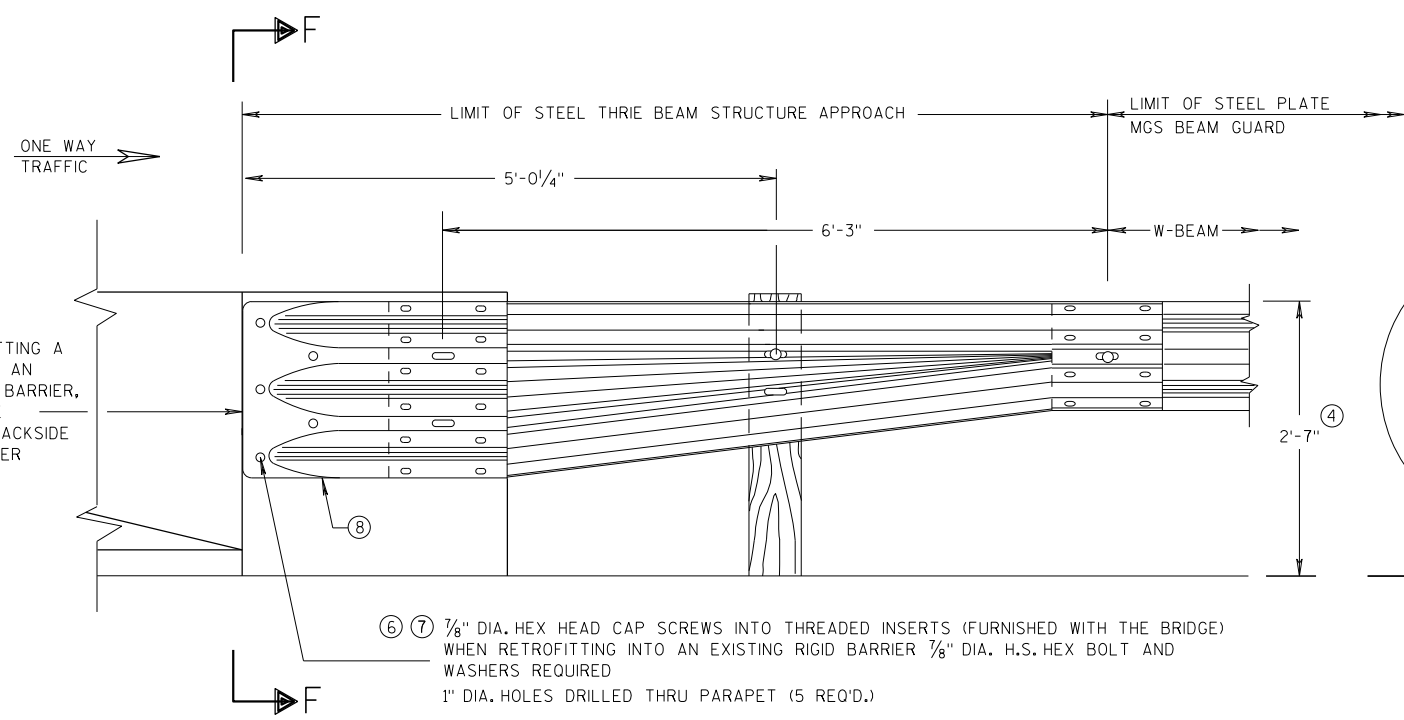
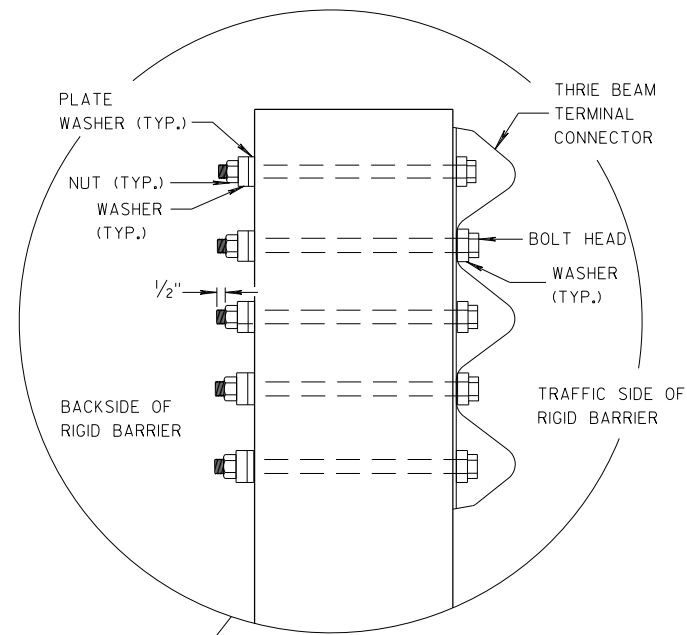
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

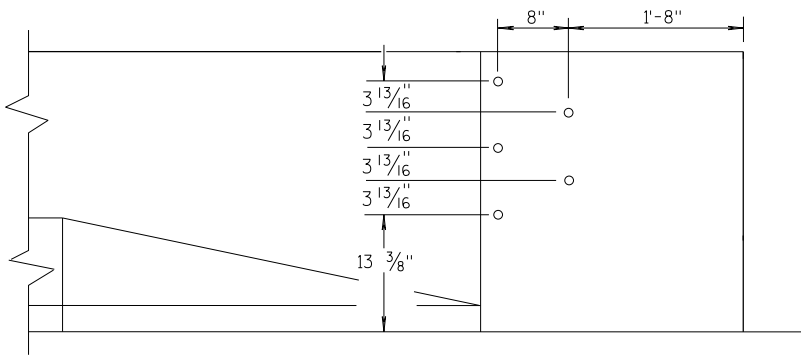


GENERAL NOTES

- 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



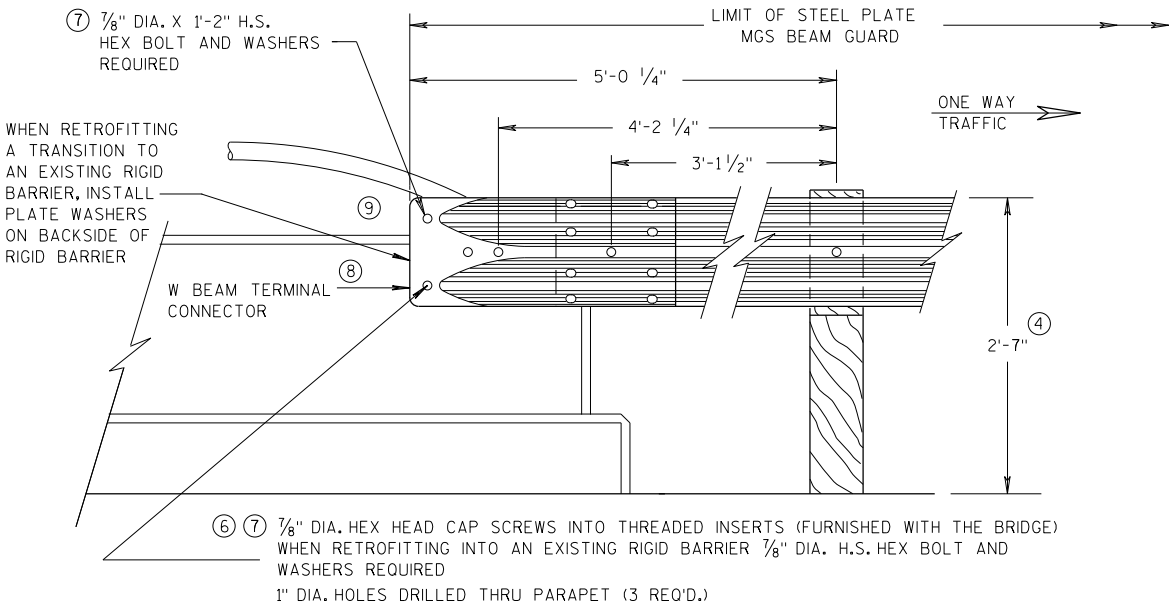
DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR		
FHWA	132	NT	

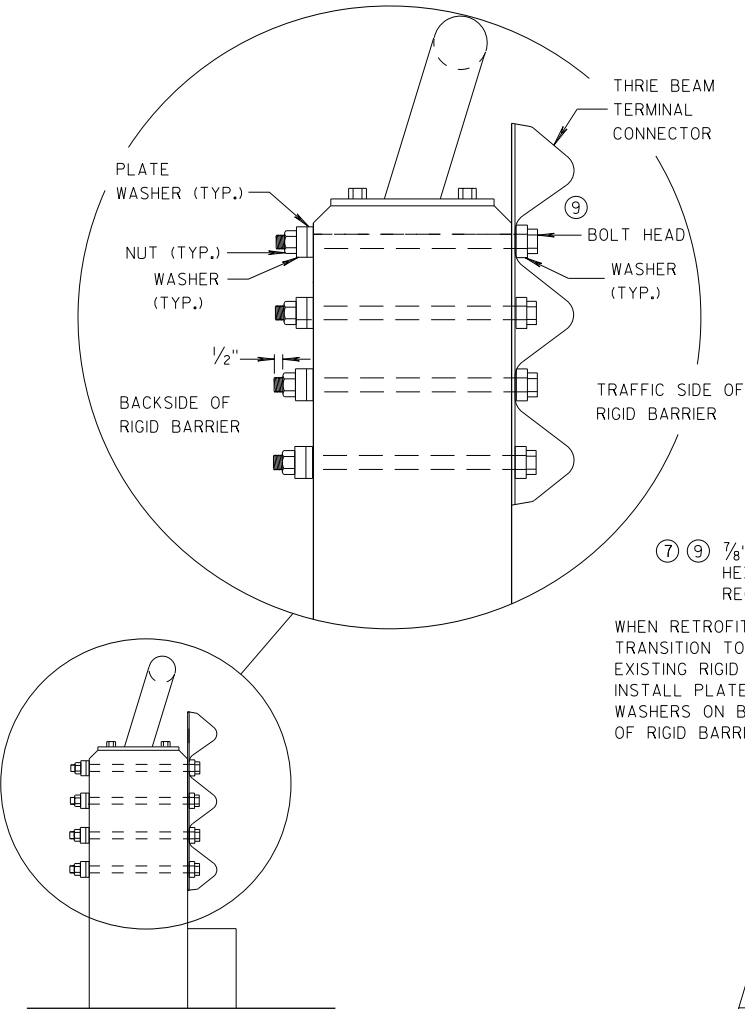
GENERAL NOTES

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

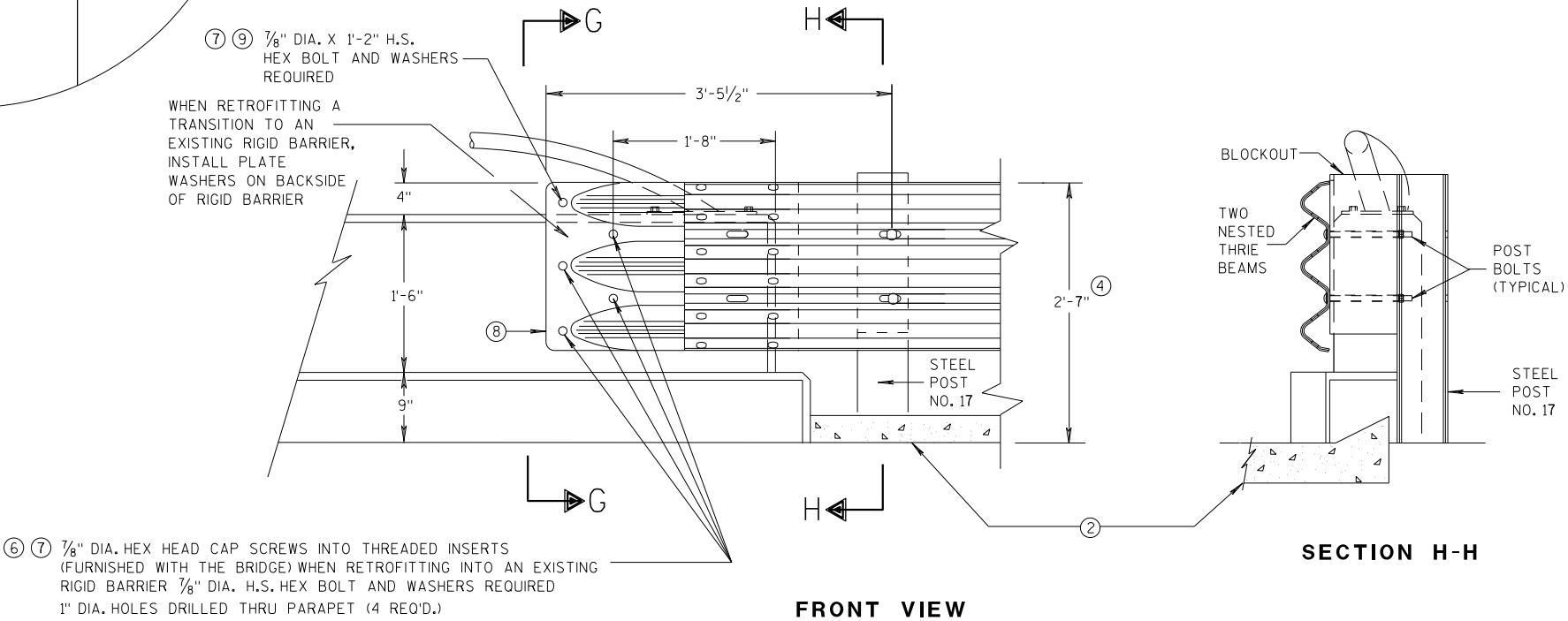
- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH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



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



SECTION G-G



FRONT VIEW

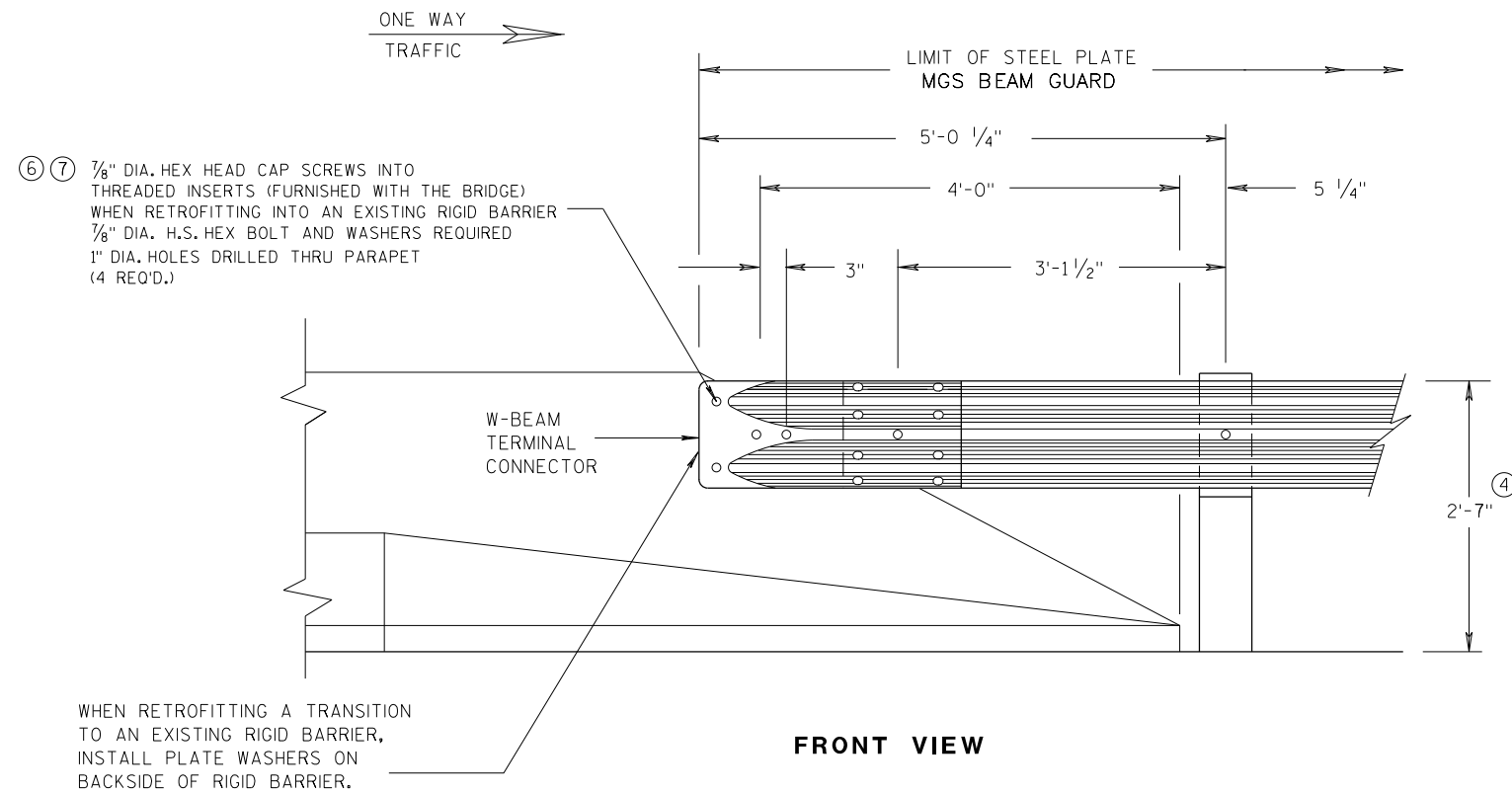
SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

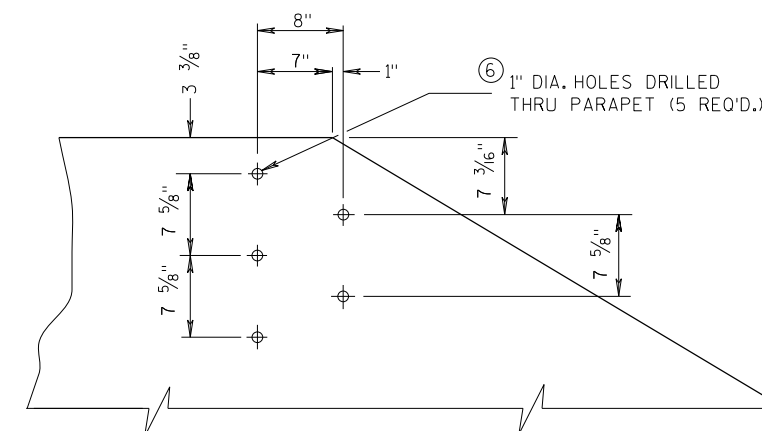
APPROVED
07/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 133



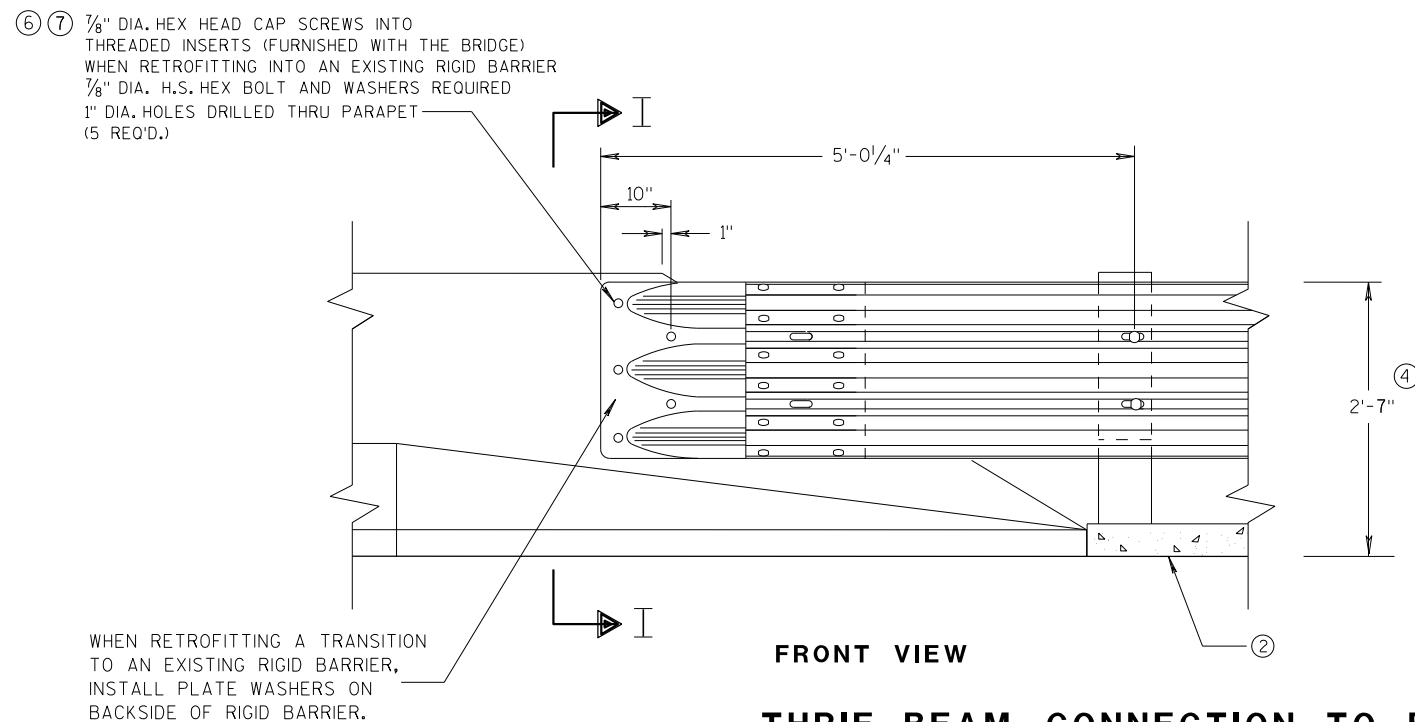
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

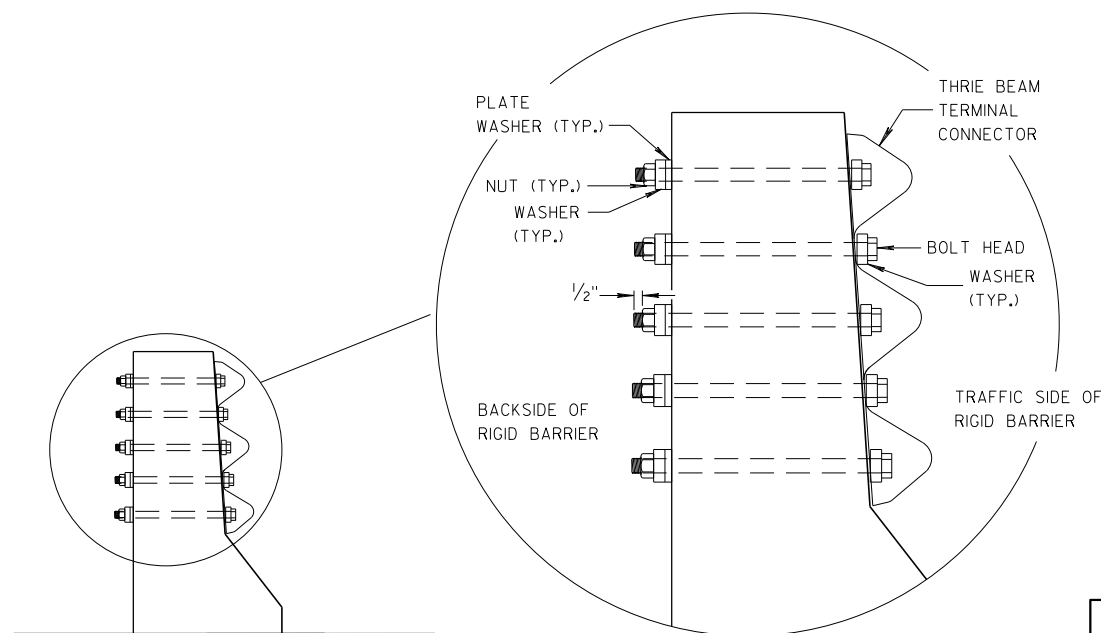
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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**



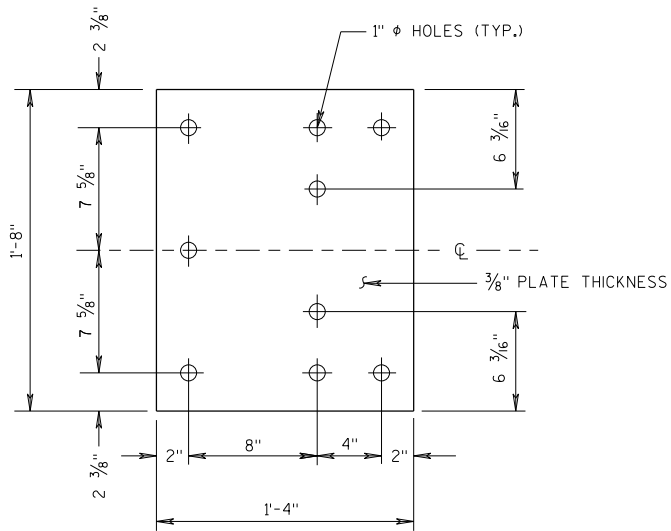
**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



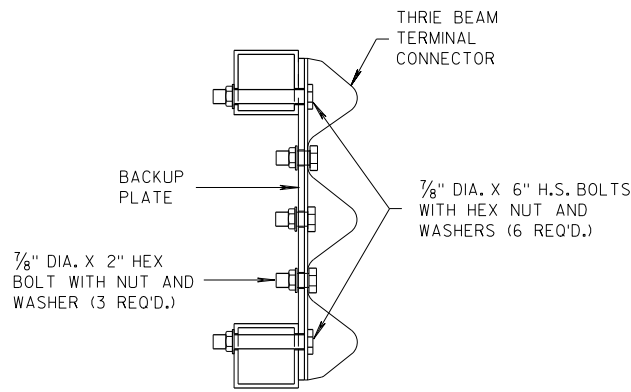
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
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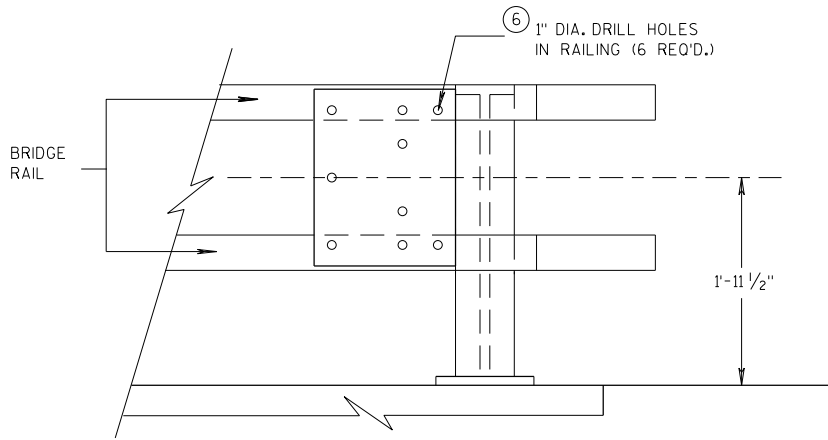
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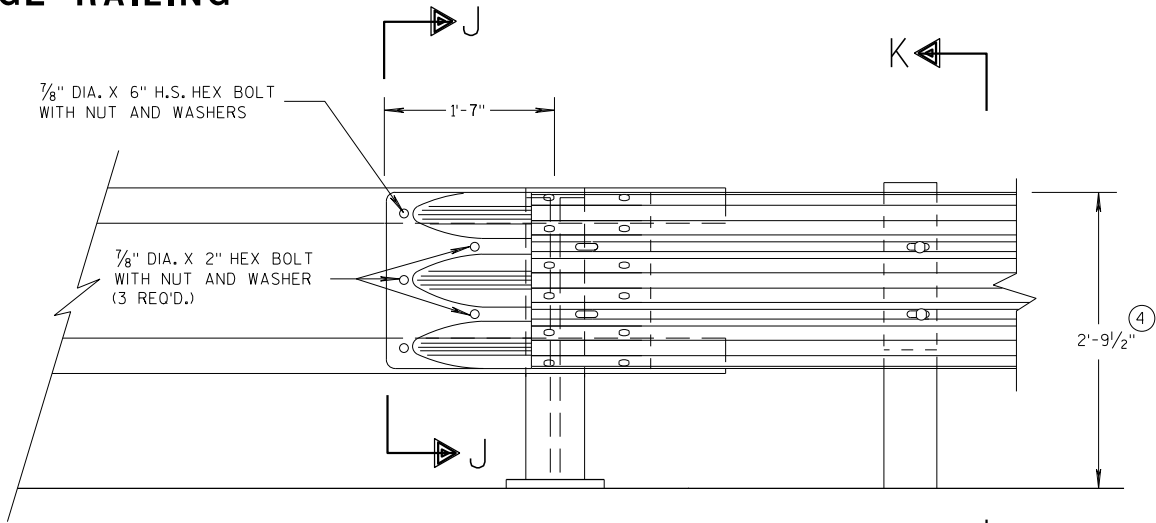
BACK-UP PLATE DETAIL



SECTION J-J

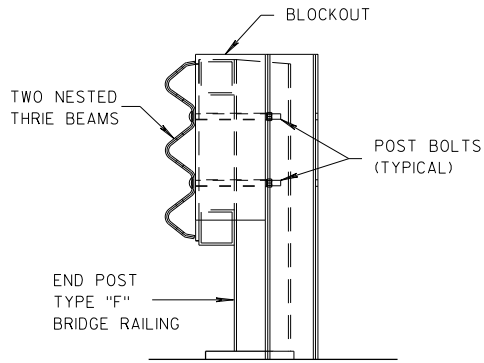


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

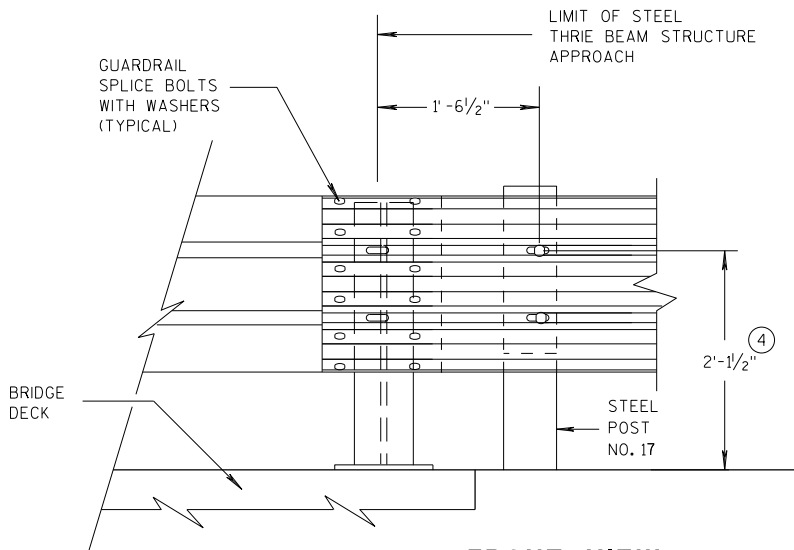
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



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.



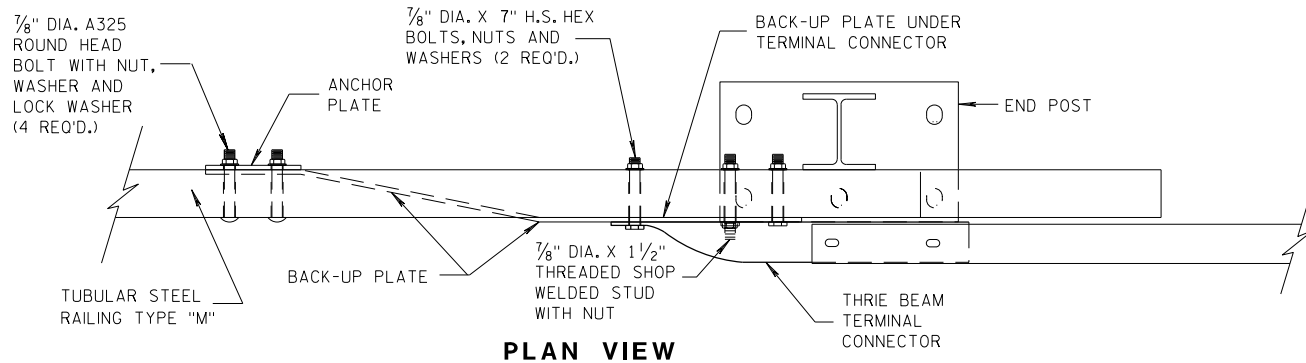
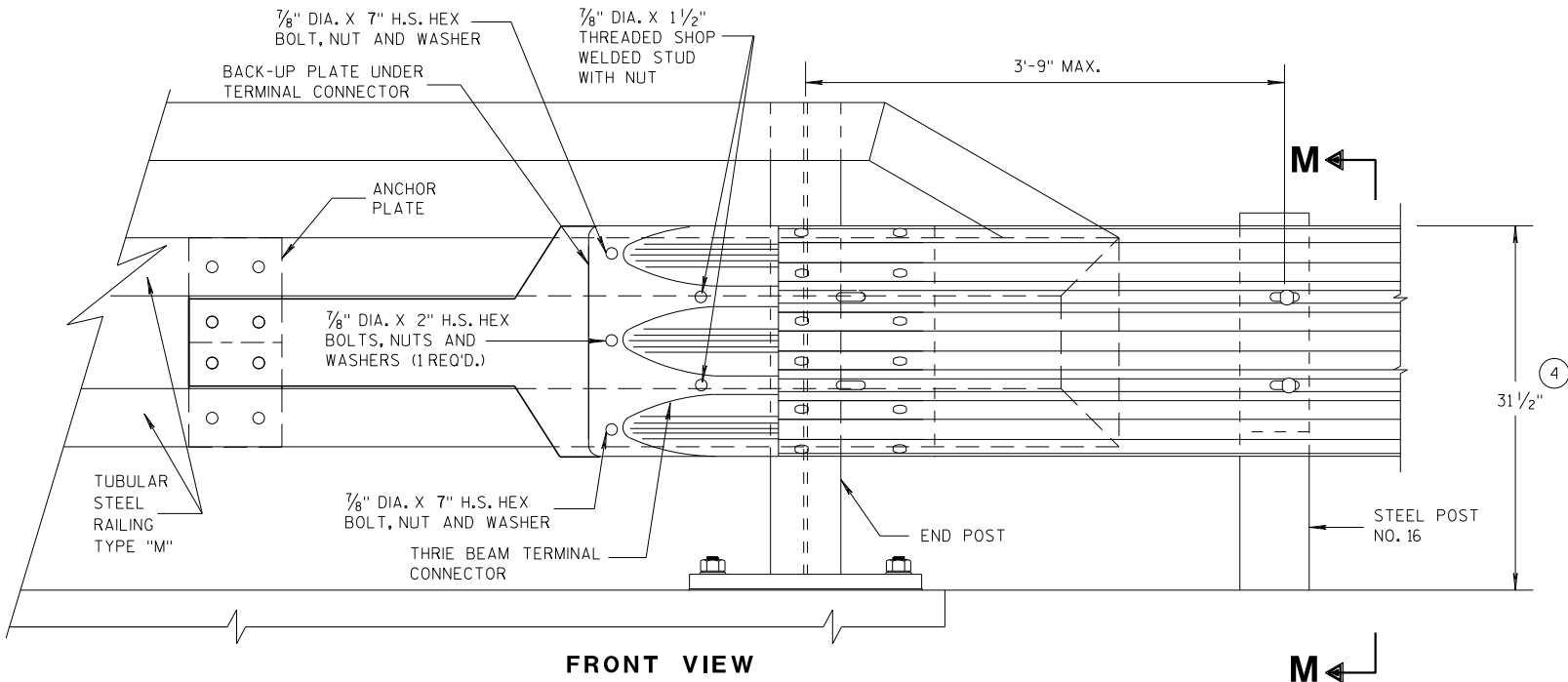
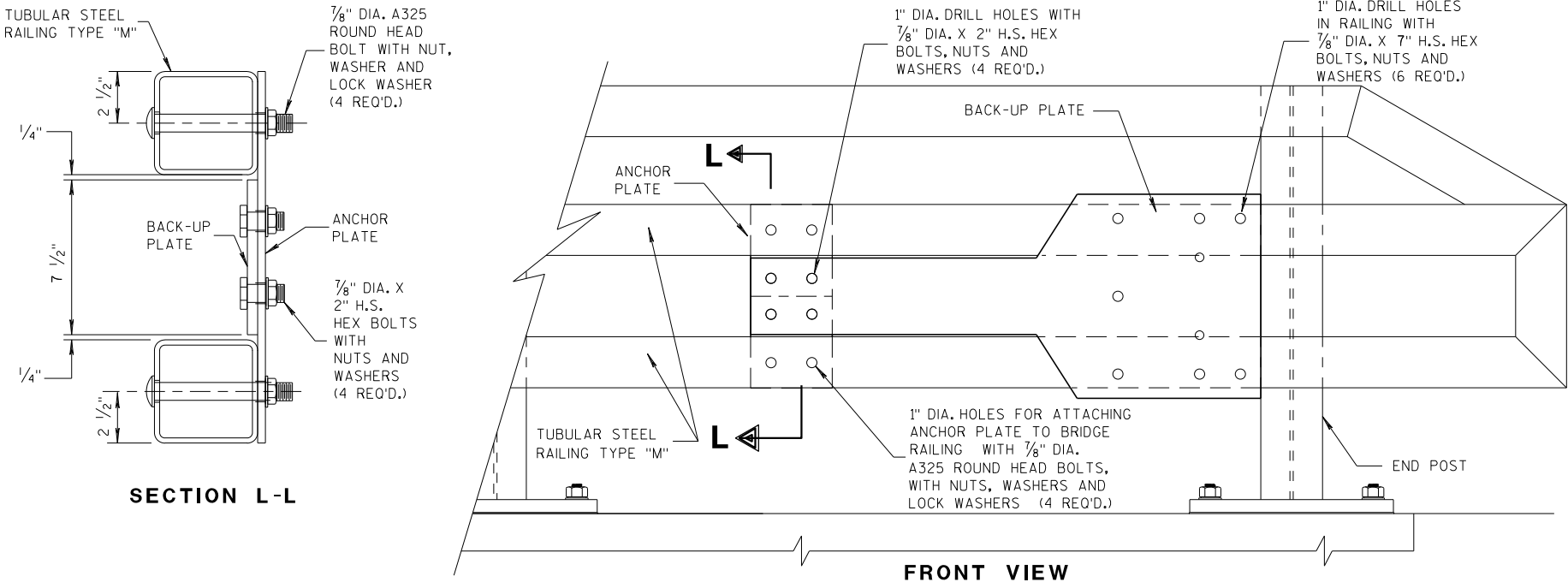
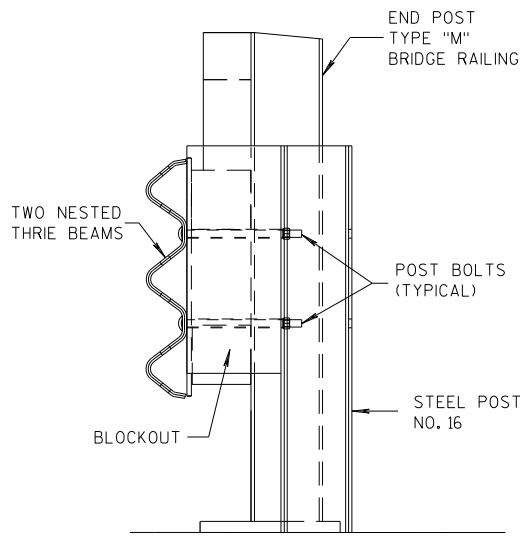
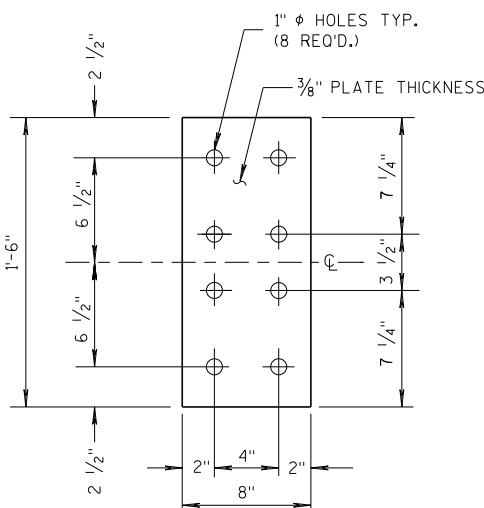
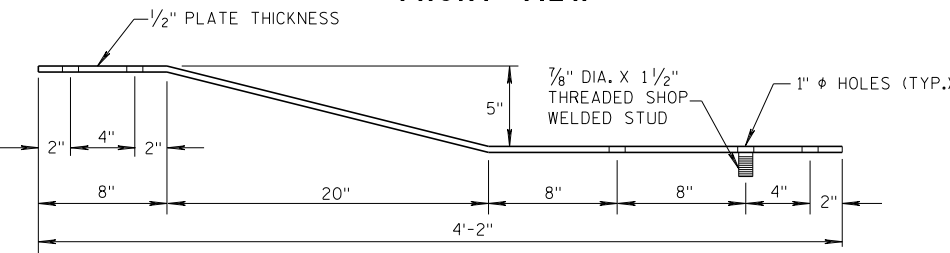
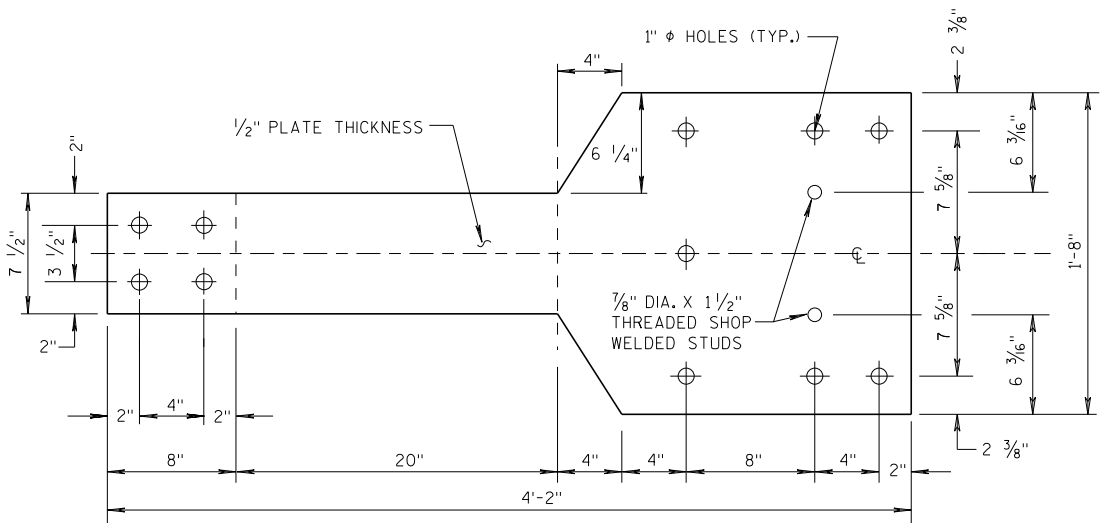
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
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GENERAL NOTES

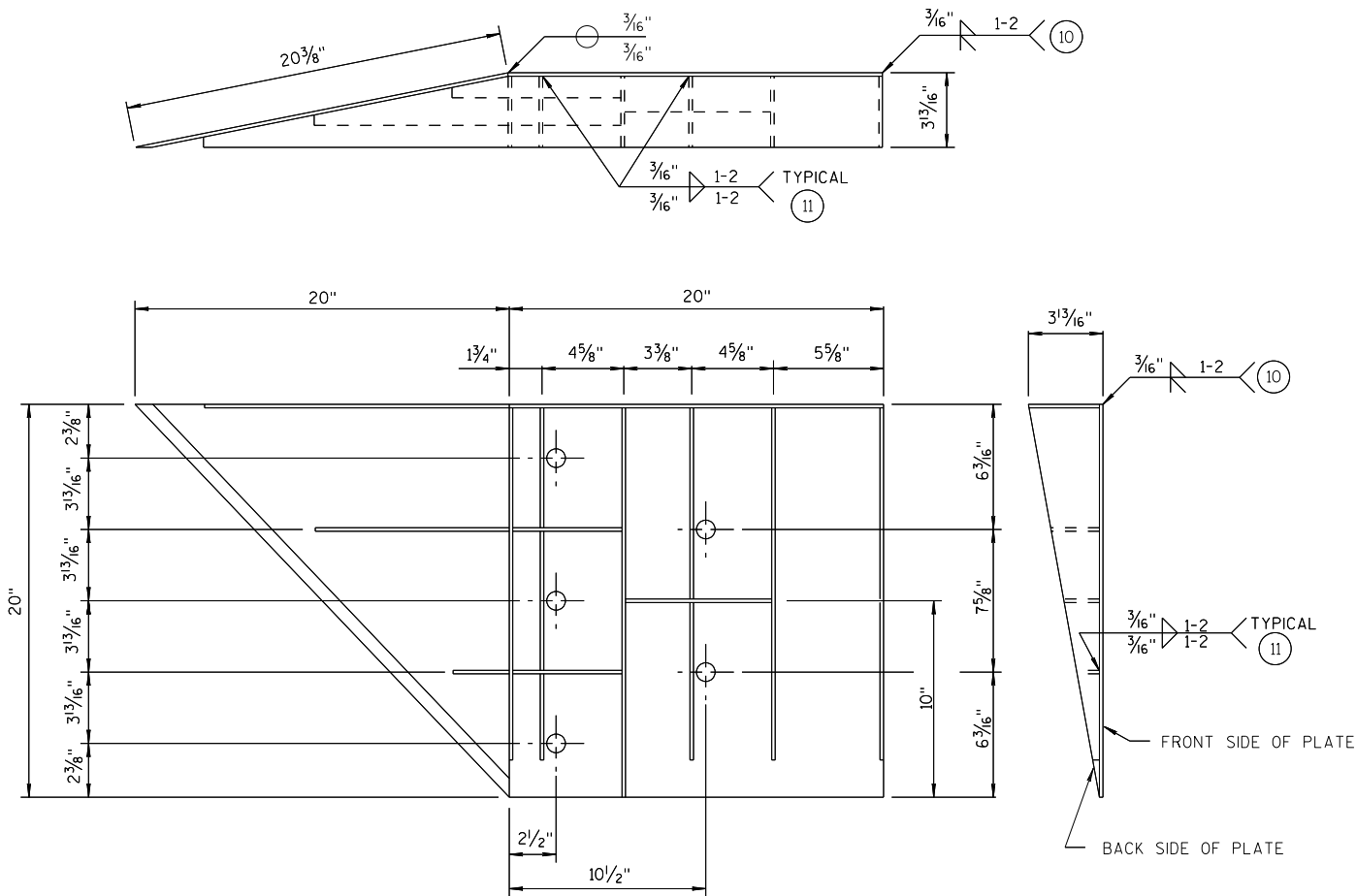
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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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 1/8" 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.

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

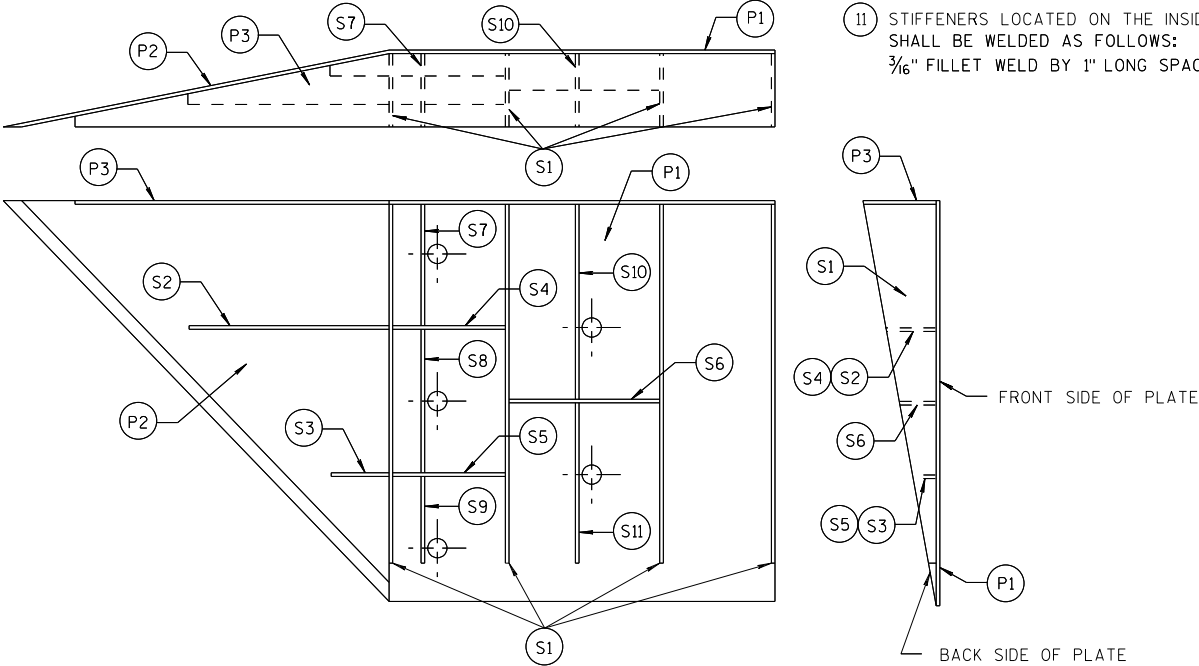
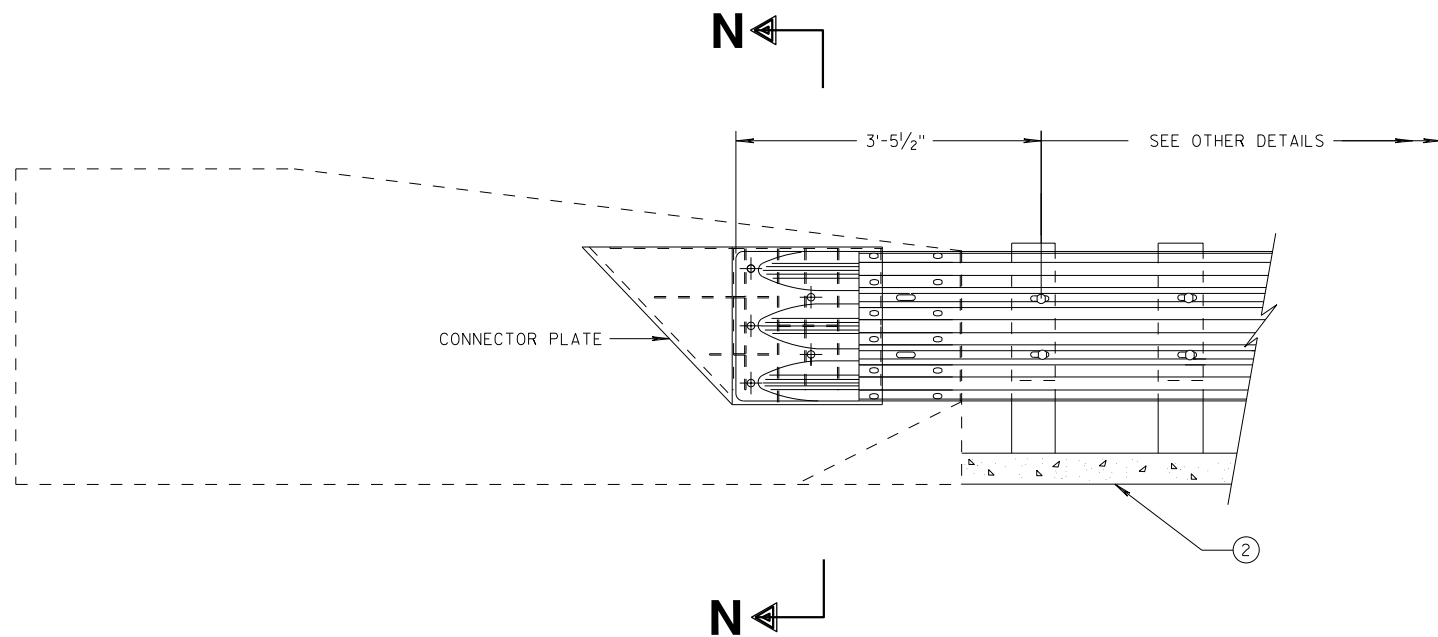


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

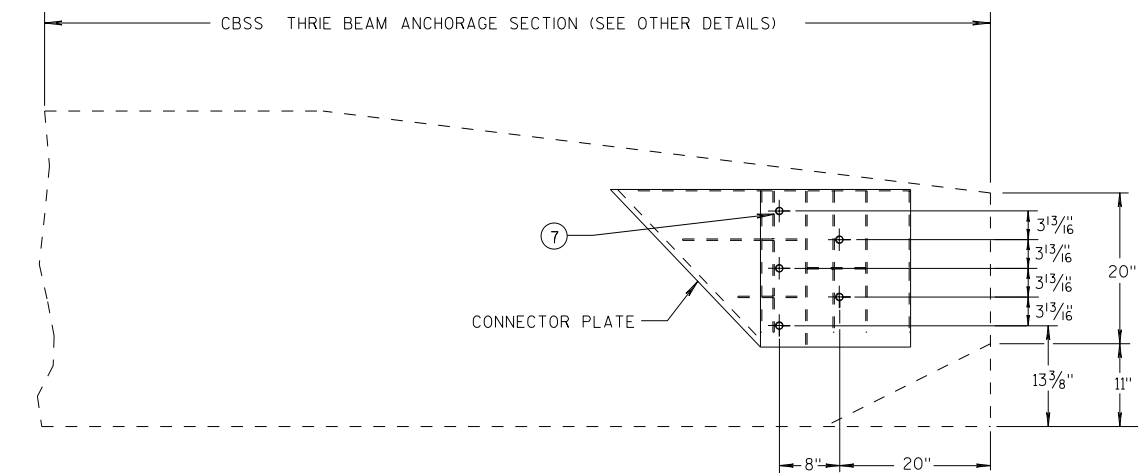
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



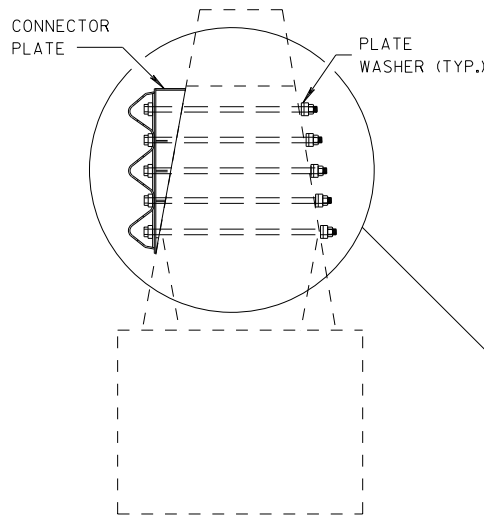
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

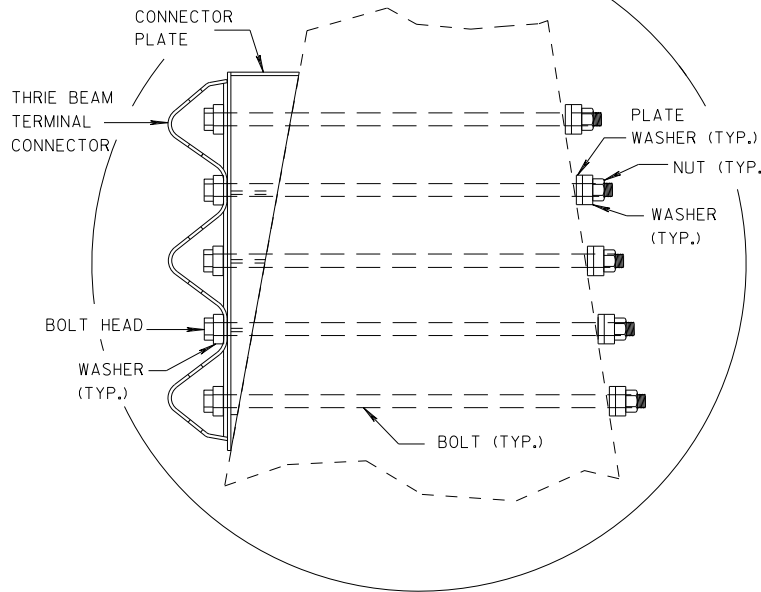
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

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



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

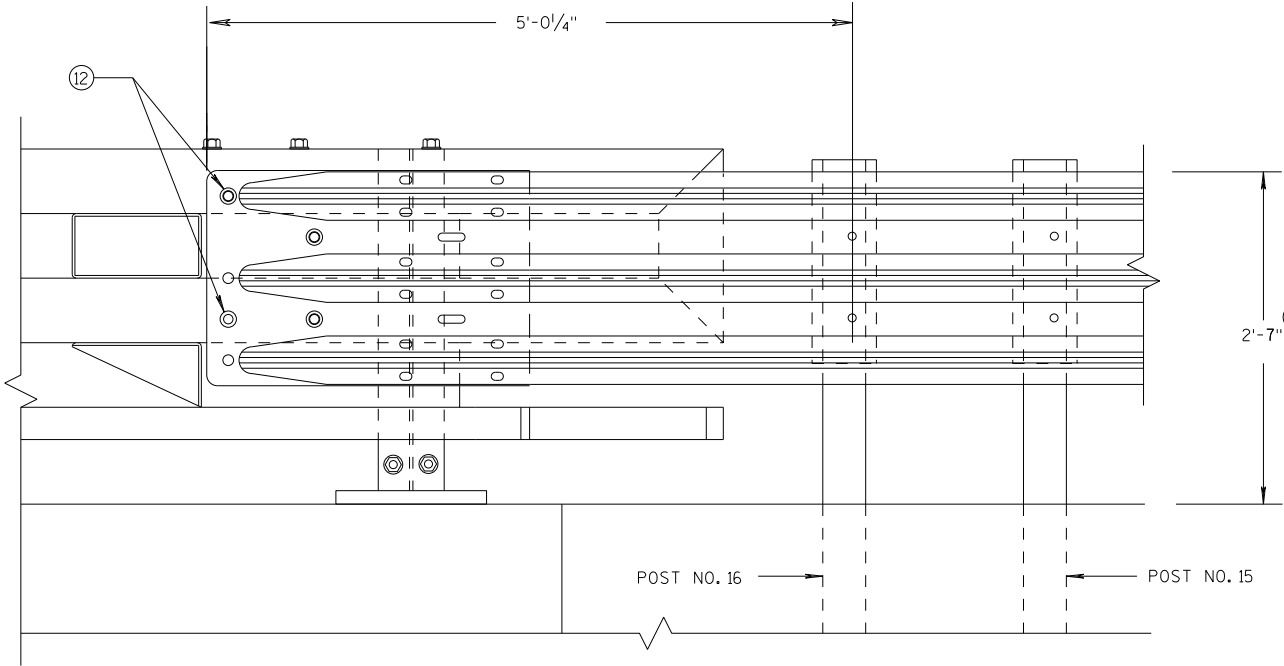
STATE OF WISCONSIN
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APPROVED
DATE 7/2018
FHWA

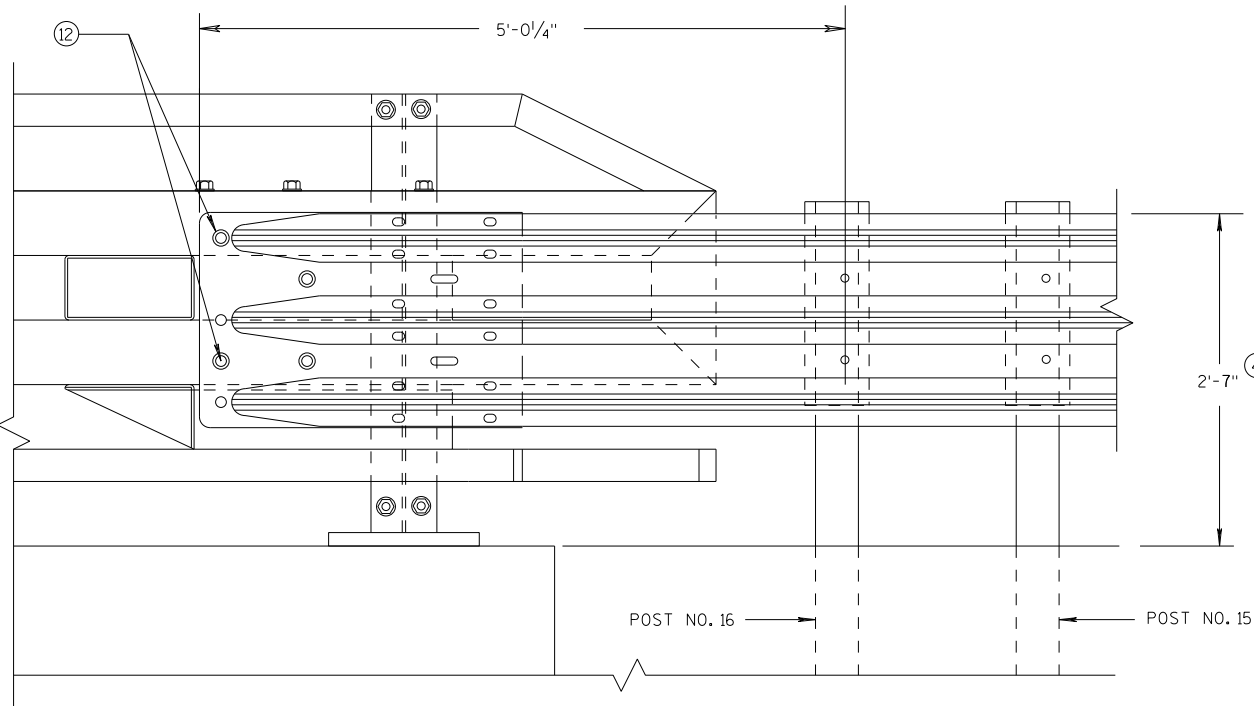
/S/ Rodney Taylor
ROADWAY STANDARDS DISTRICT UNIT SUPERVISOR 138

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.



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

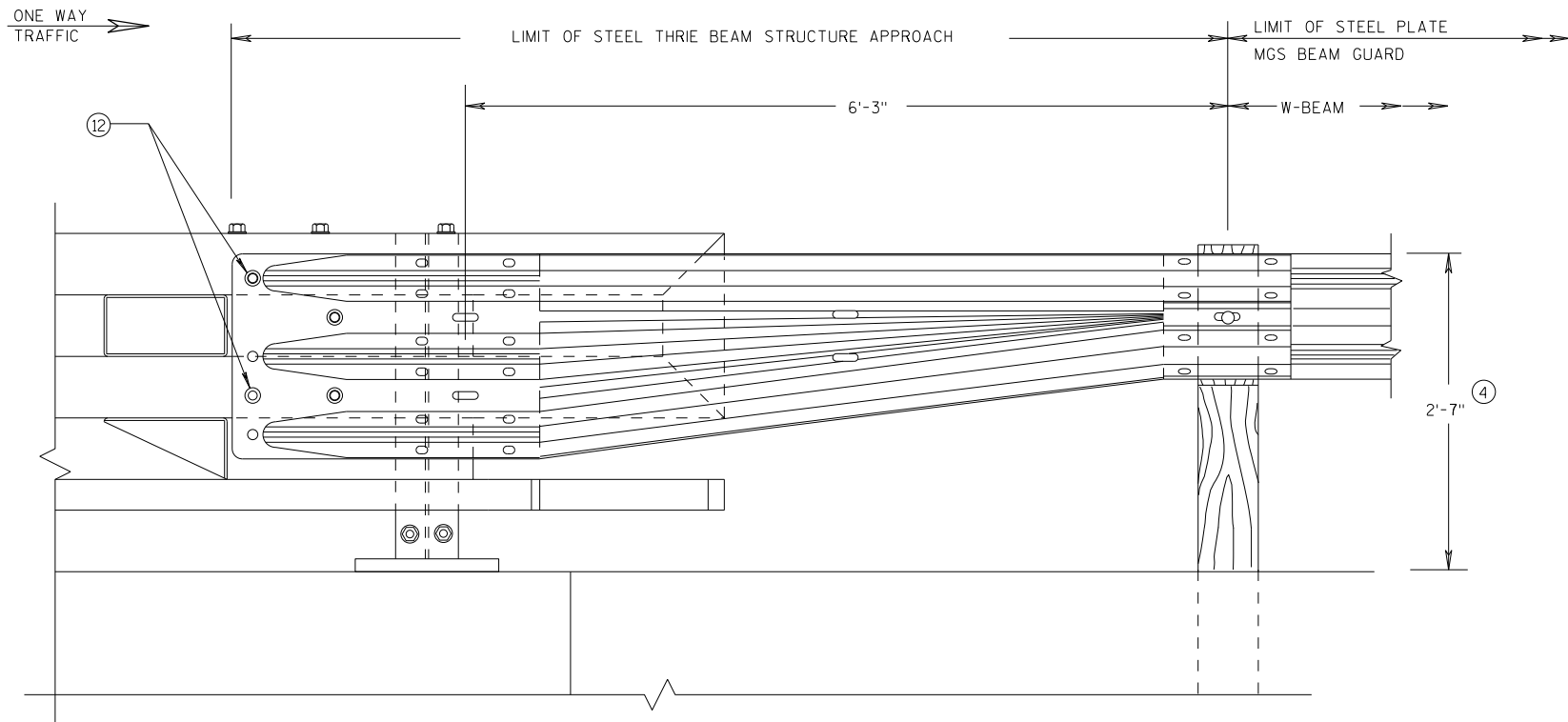


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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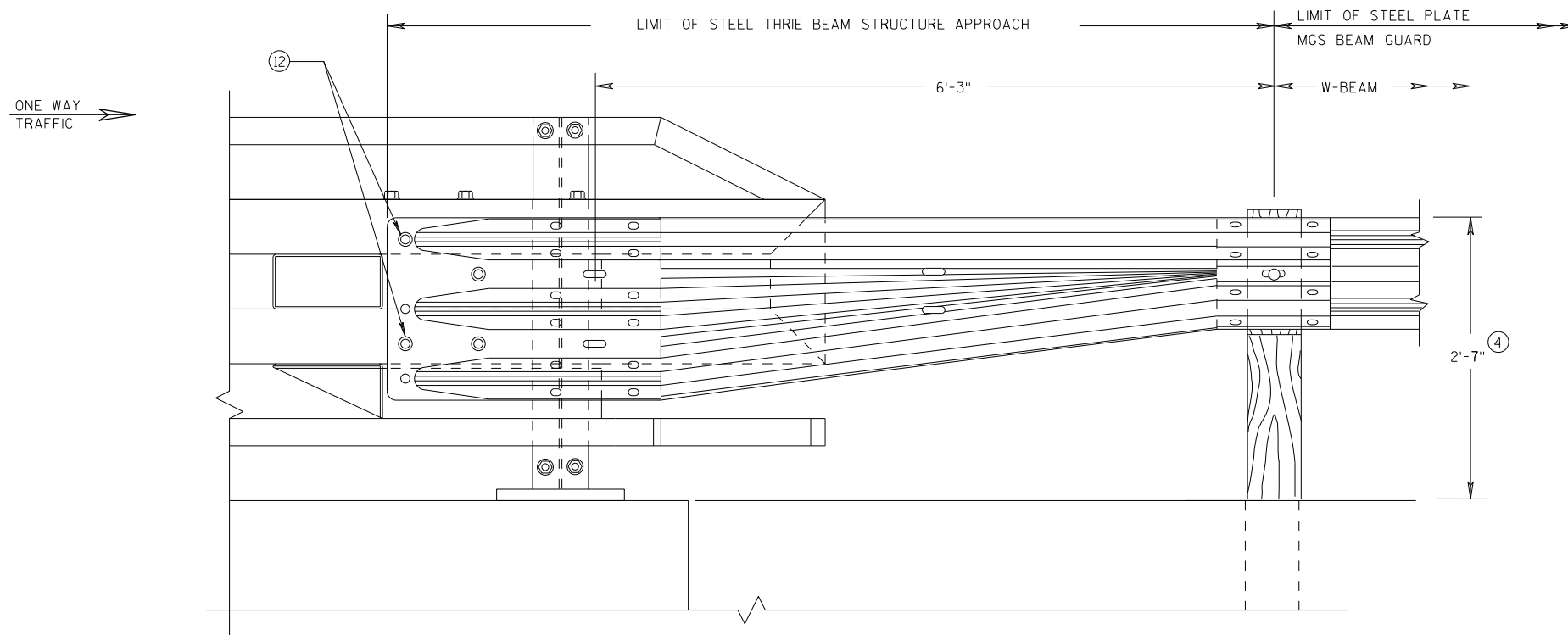


FRONT VIEW

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

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.



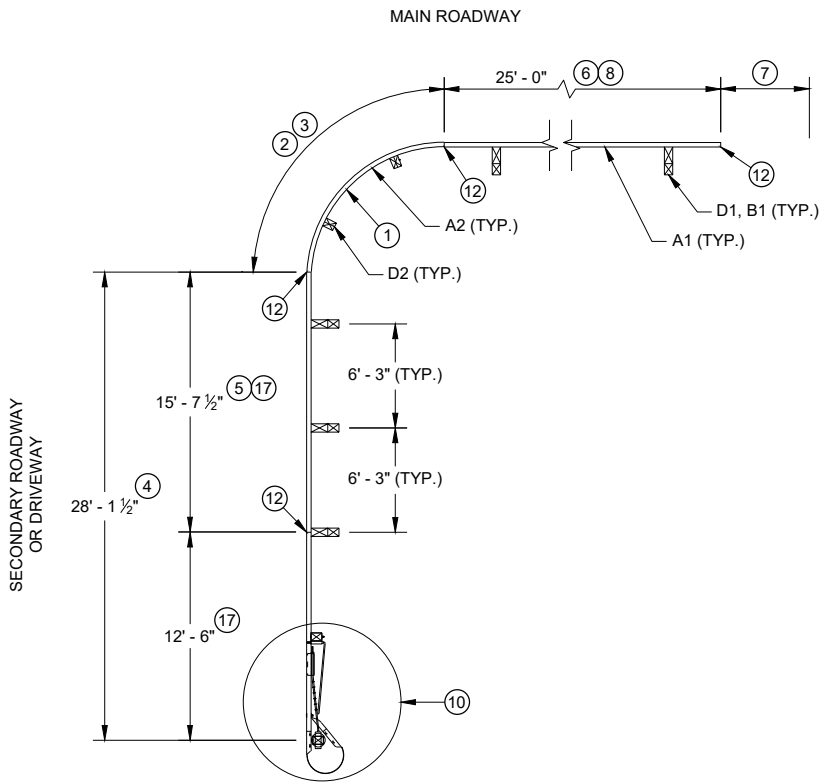
FRONT VIEW

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

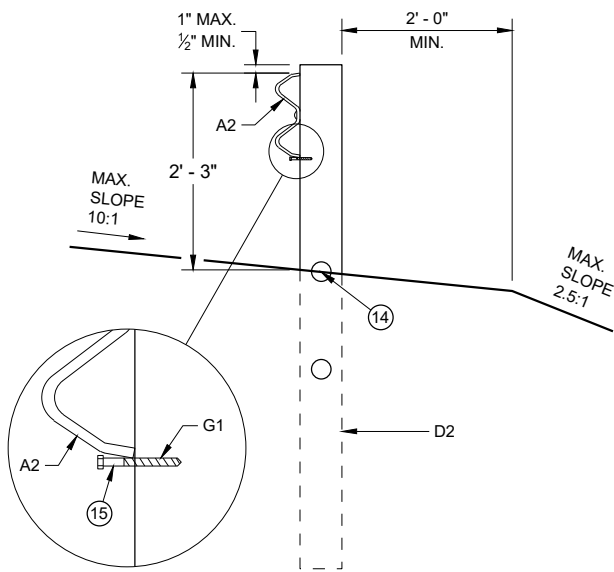
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

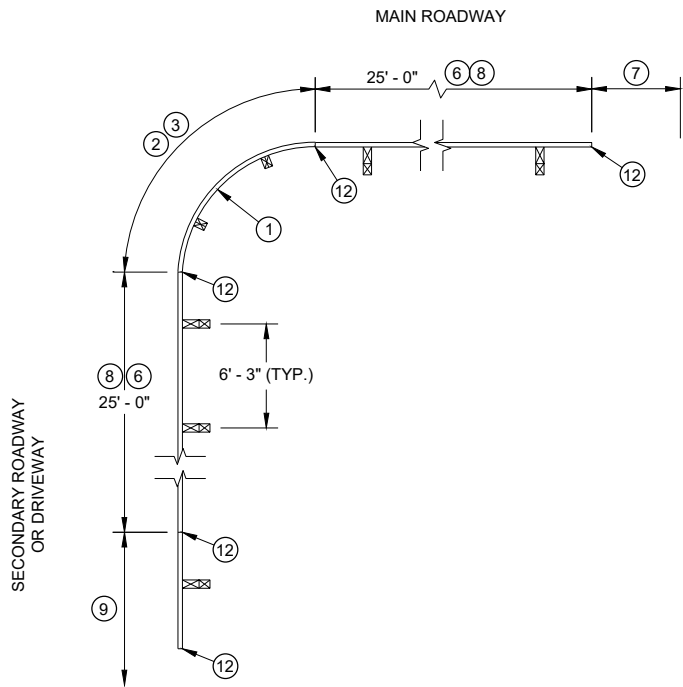
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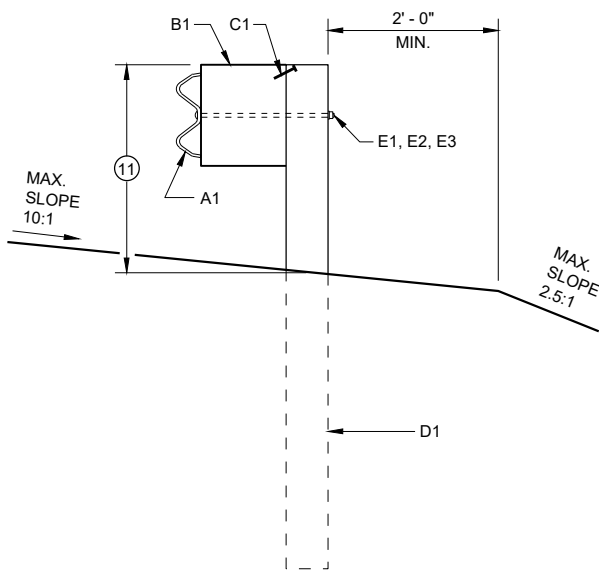
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY



CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



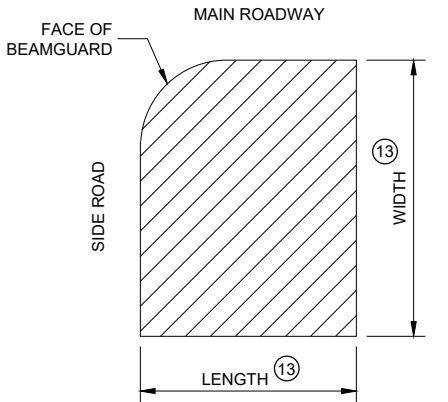
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY



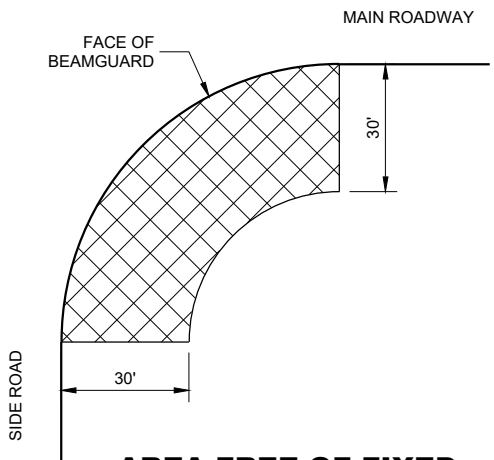
BEAM GUARD POSTS
IN HEIGHT TRANSITION

TABLE FOR RADIUS OF 32' AND LESS

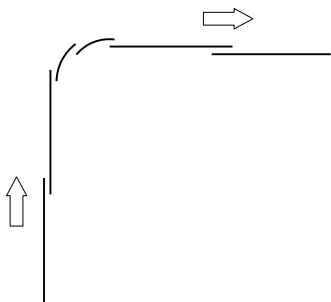
RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS



AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'



LAP SPLICE DETAIL

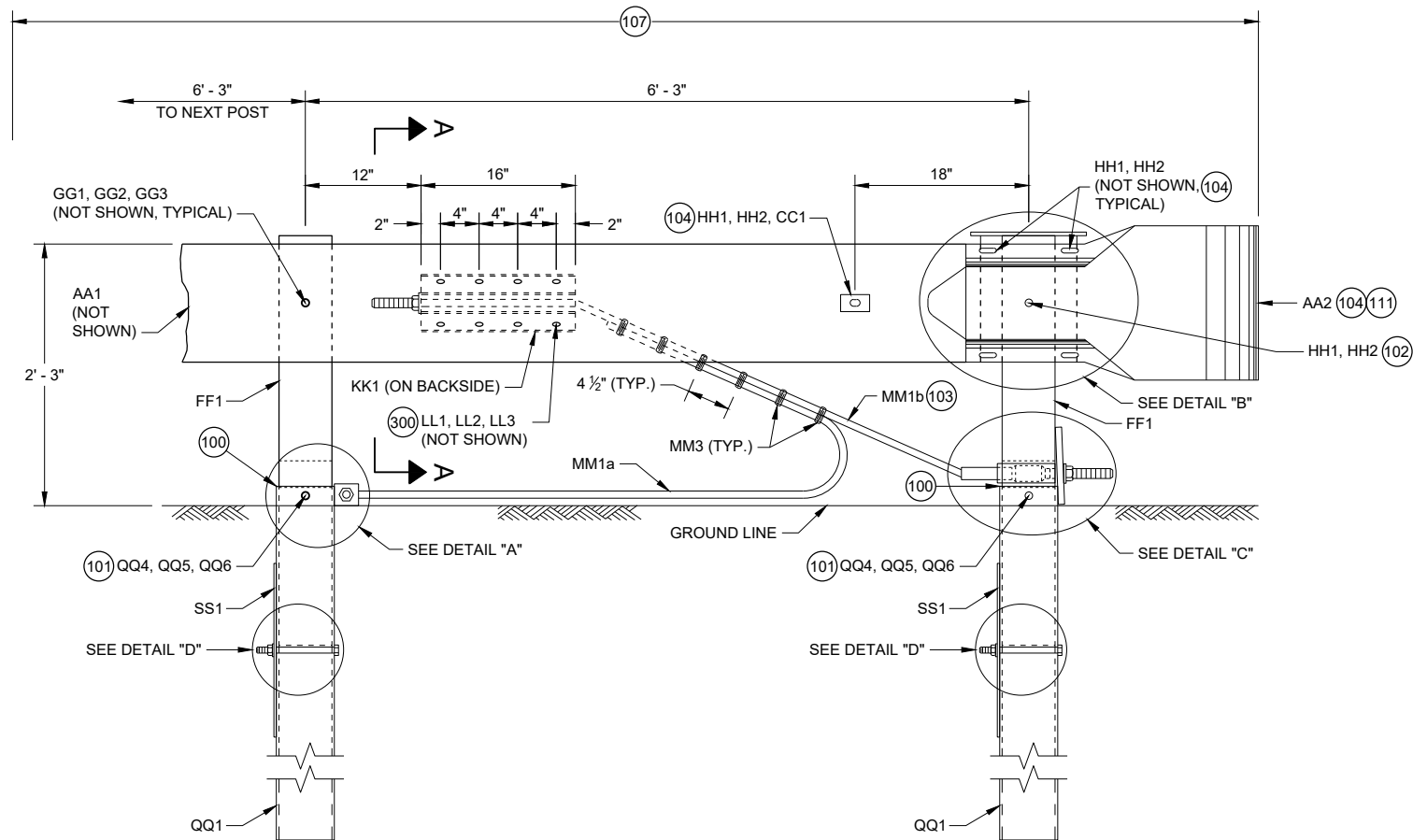
GENERAL NOTES

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

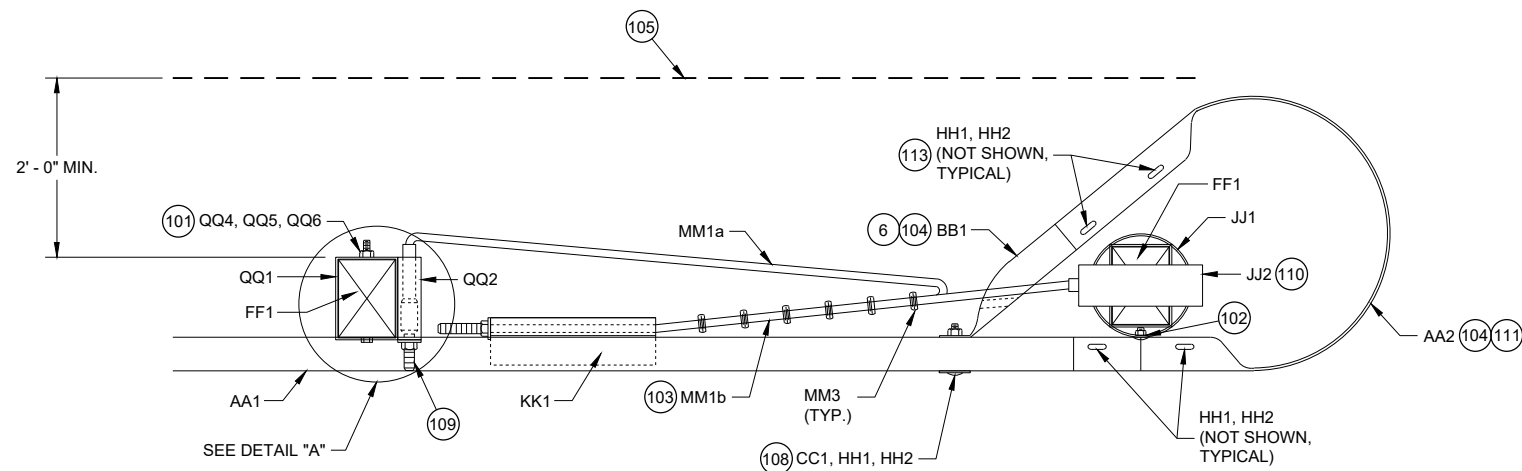
- ① RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- ② CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- ③ WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- ④ MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- ⑤ ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- ⑥ MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER. ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- ⑦ BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- ⑧ TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- ⑨ ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- ⑩ SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- ⑪ HEIGHT VARIES. SEE NOTE ⑧ AND ⑧.
- ⑫ BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- ⑬ SEE TABLE FOR VALUES.
- ⑭ MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- ⑮ DRILL POST 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- ⑯ SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- ⑰ TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



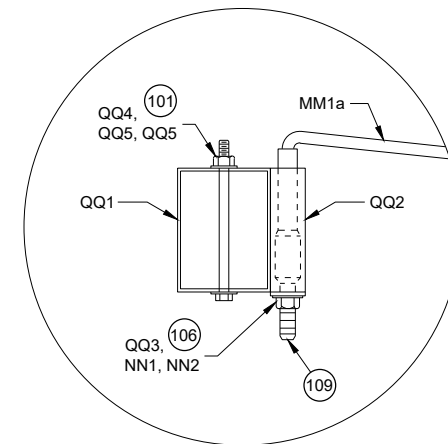
**PROFILE VIEW
SHORT RADIUS TERMINAL**



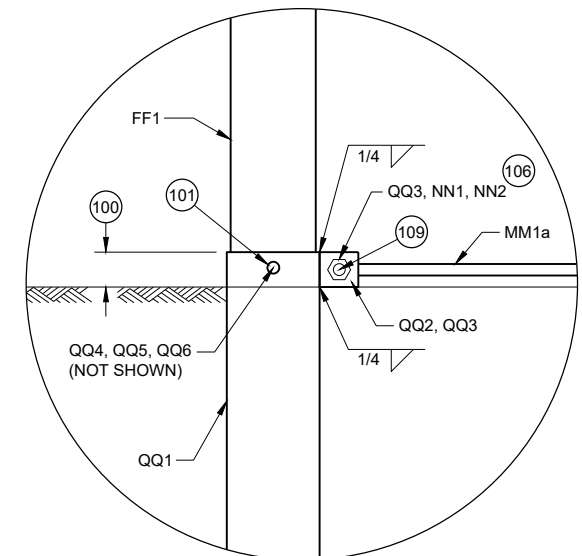
**TOP VIEW
SHORT RADIUS TERMINAL**

GENERAL NOTES

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



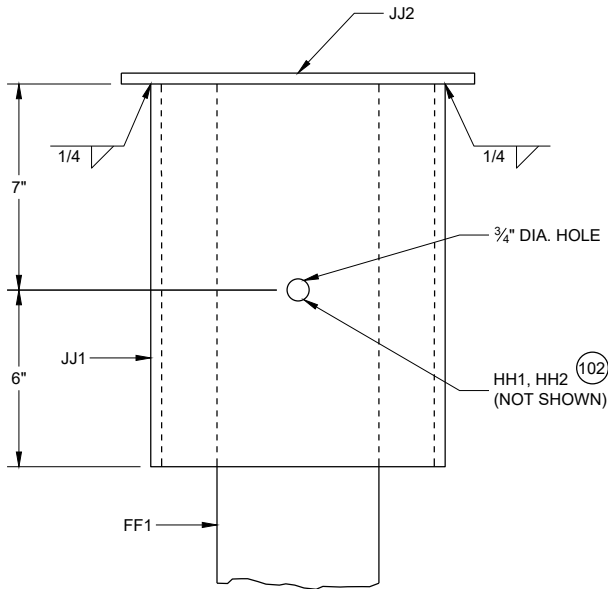
**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



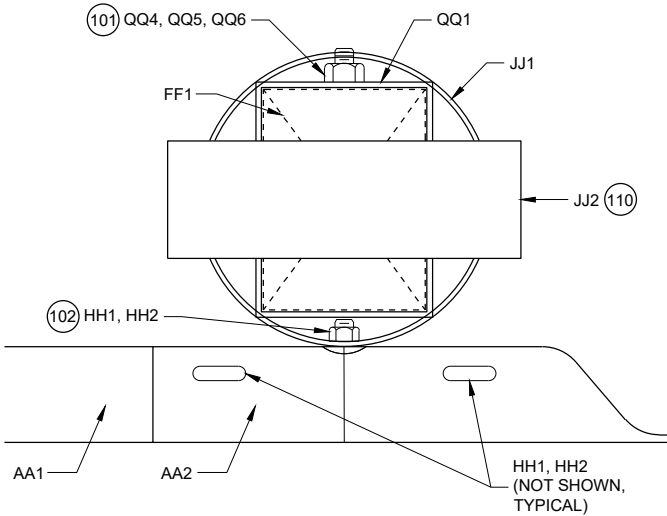
**PROFILE VIEW
DETAIL "A"**

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

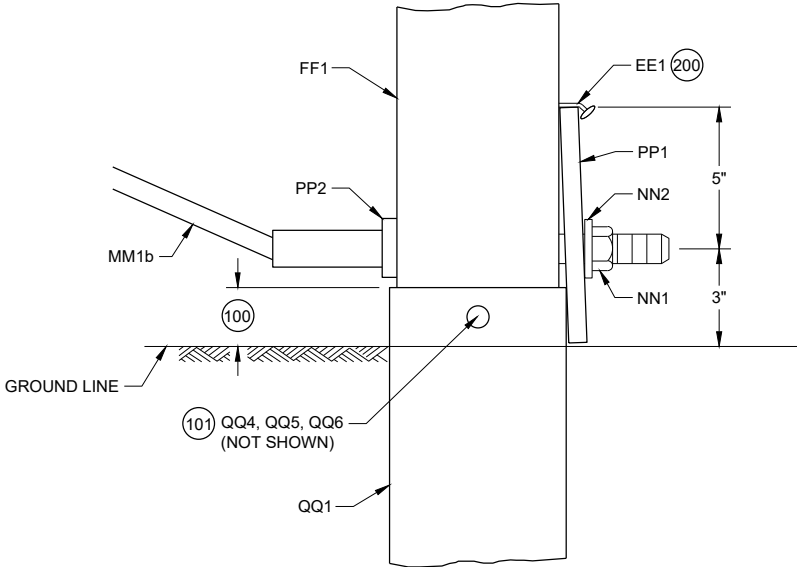
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 142



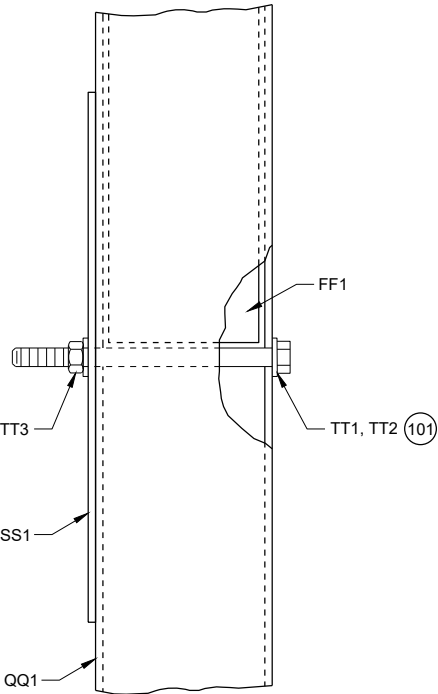
**PROFILE VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)**



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



**PROFILE VIEW
DETAIL "C"**



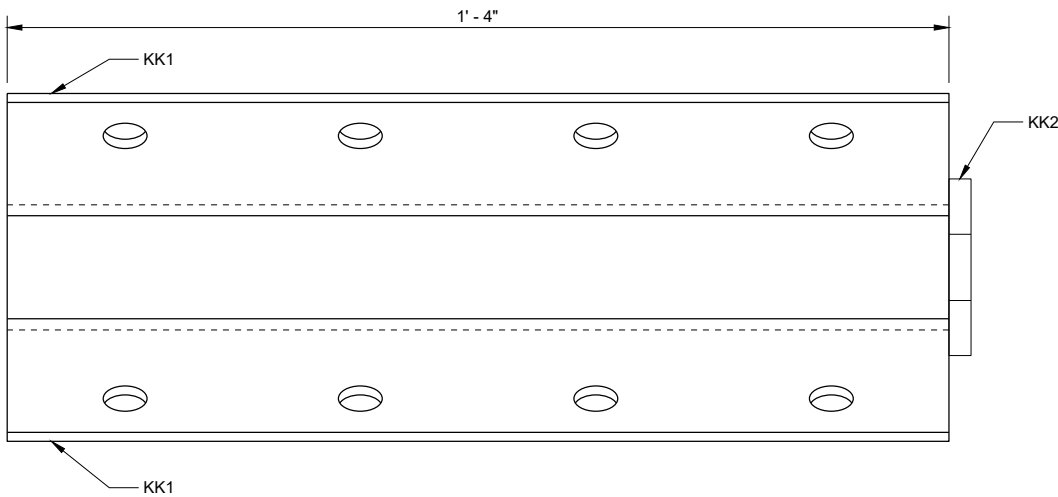
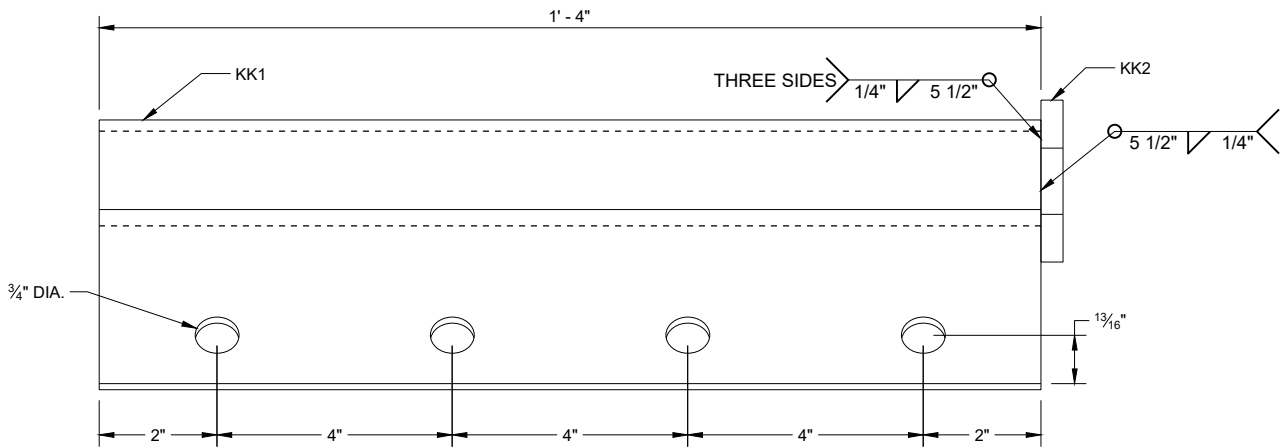
**PROFILE VIEW
DETAIL "D"**

GENERAL NOTES

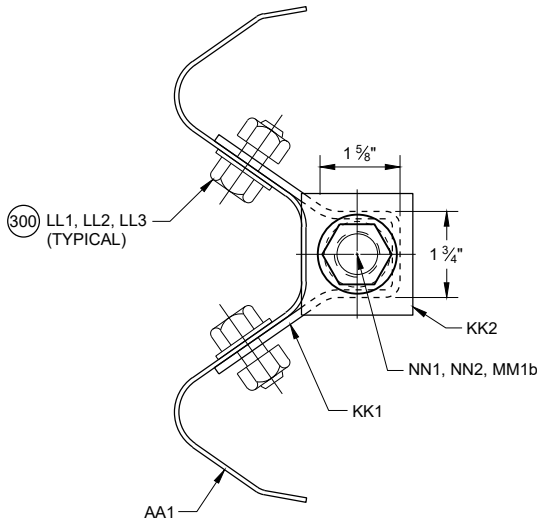
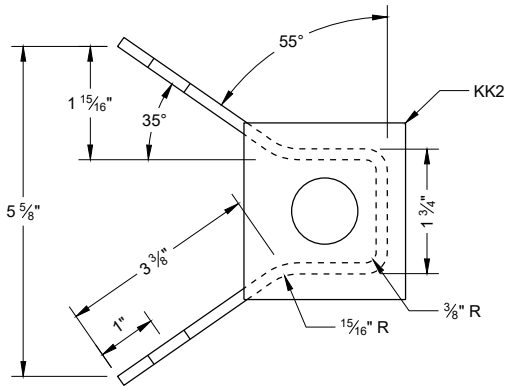
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 143



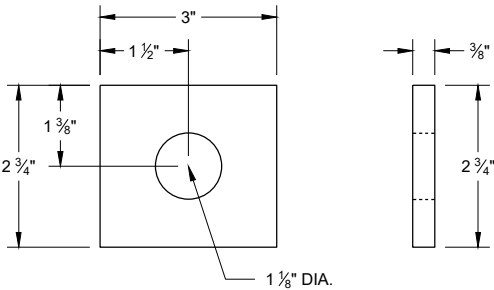
ANCHOR BRACKET (KK1, KK2)



SECTION A - A

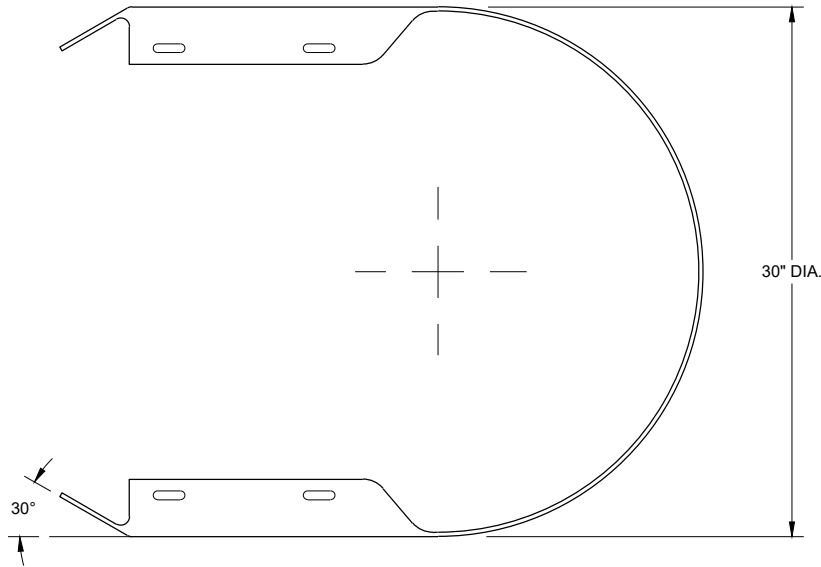
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.

ANCHOR BRACKET BEARING PLATE (KK2)

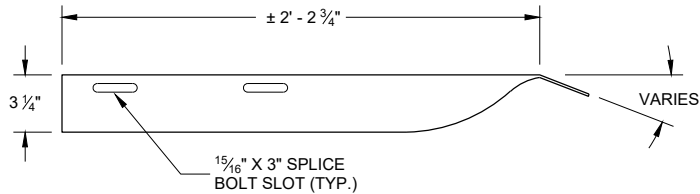


SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

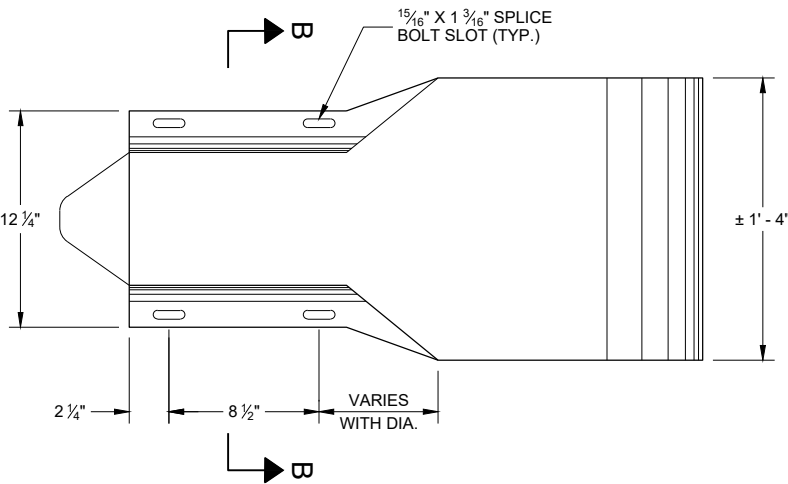
STATE OF WISCONSIN
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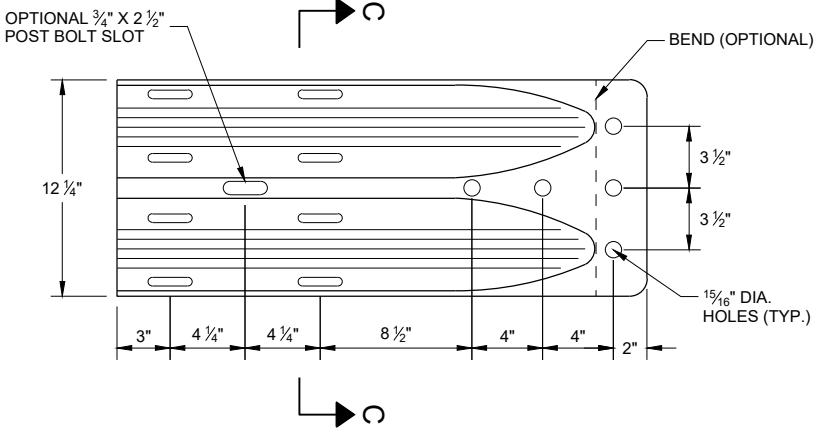
TOP VIEW



TOP VIEW



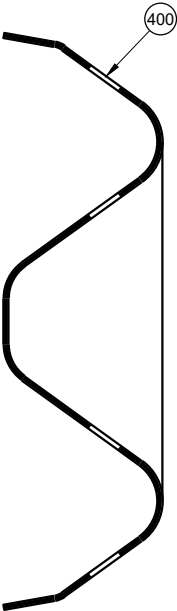
PROFILE VIEW
W BEAM
END SECTION BUFFER (AA2)



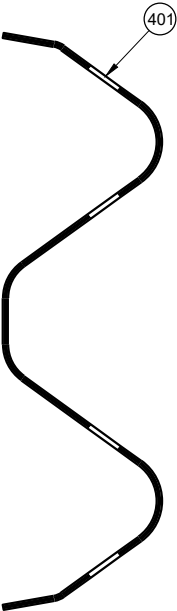
PROFILE VIEW
W BEAM
TERMINAL CONNECTOR (BB1)

GENERAL NOTES

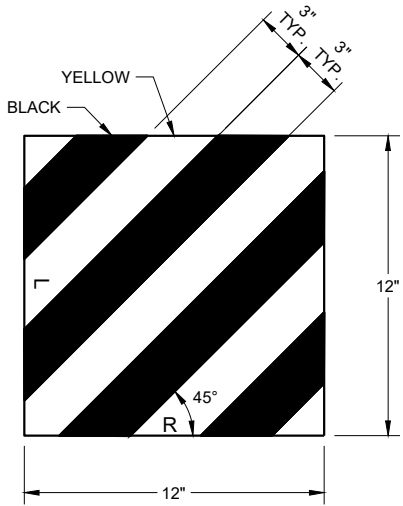
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



SECTION B -B



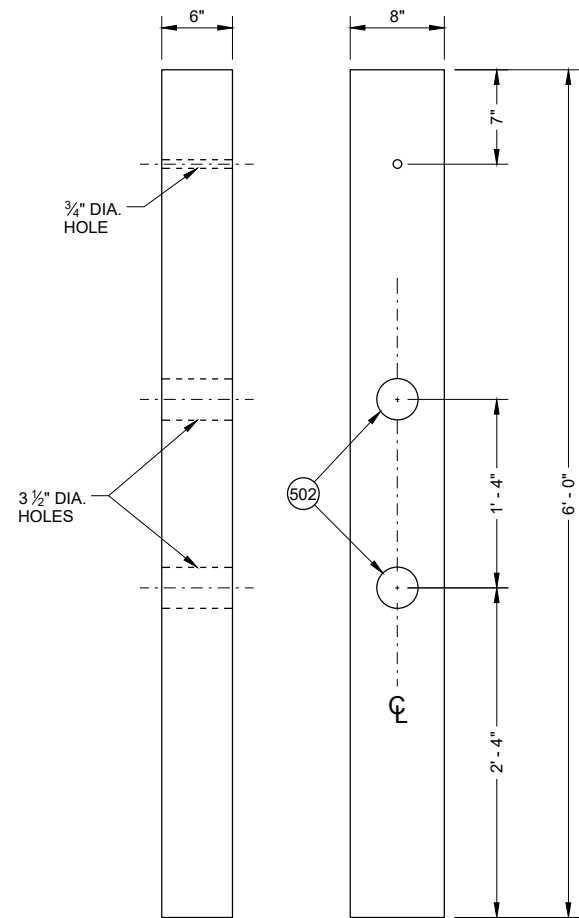
SECTION C -C



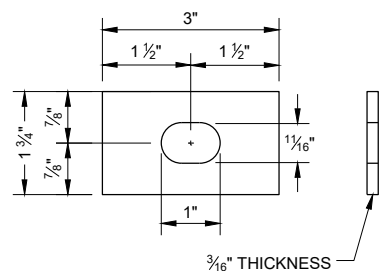
REFLECTIVE SHEETING (UU1, UU2)

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

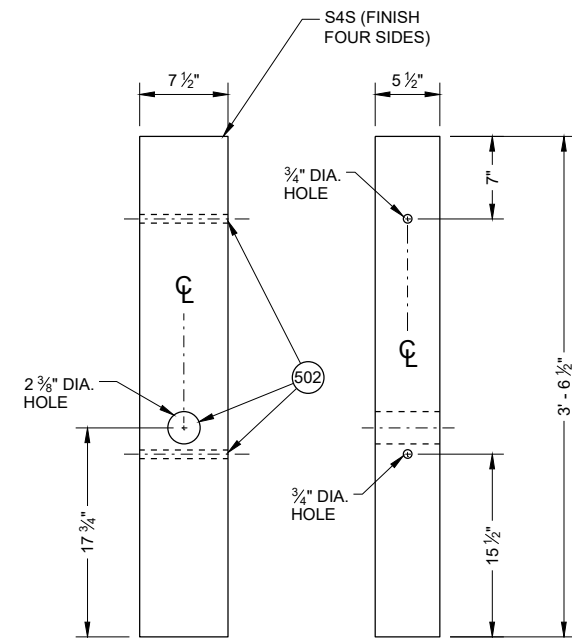
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



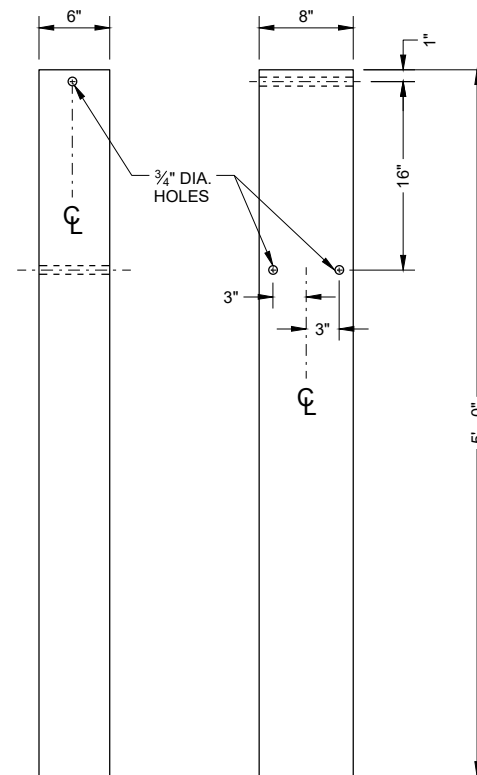
FRONT VIEW SIDE VIEW
CONTROLLED RELEASE POST (CRT) (DD2)



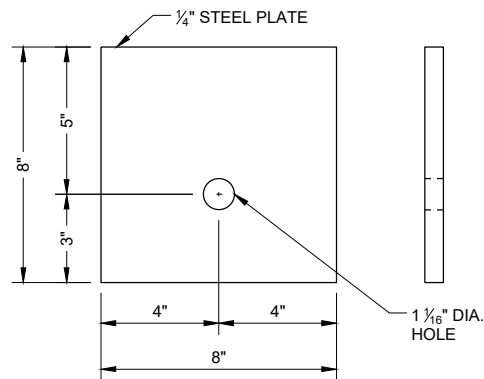
RECTANGULAR PLATE WASHER (CC1)



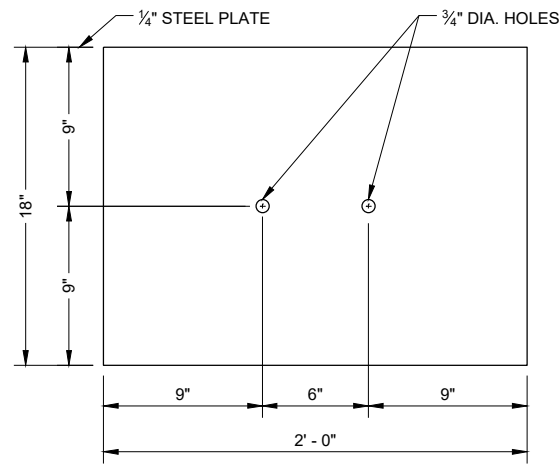
FRONT VIEW SIDE VIEW
WOOD BREAKAWAY POST (FF1)



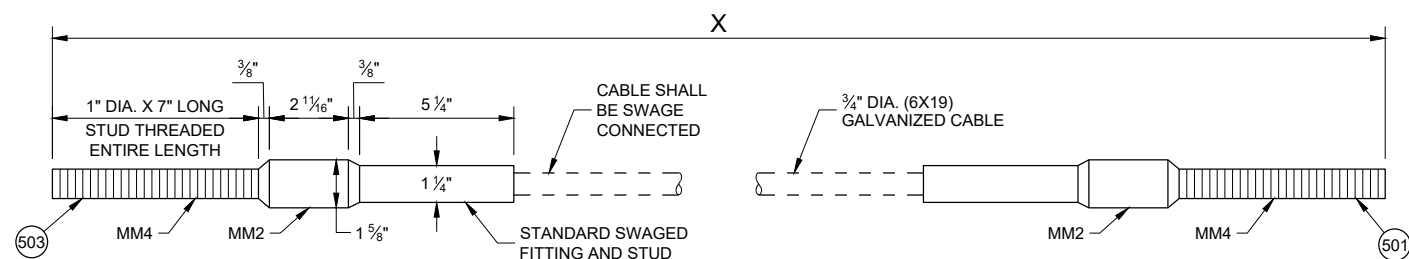
FRONT VIEW SIDE VIEW
FOUNDATION TUBE (QQ1) (500)



BEARING PLATE (PP1)



SOIL PLATE (SS1)



CABLE ASSEMBLY (MM1a, MM1b)

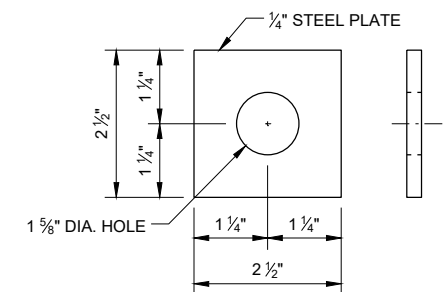
"X" LENGTH	
MM1b	9' - 0"
MM1b	6' - 8"

GENERAL NOTES

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



FOUNDATION TUBE - ANCHOR CABLE TUBE (QQ2)



ANCHOR CABLE TUBE END PLATE (QQ3)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 146

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

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

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPlice BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

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

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

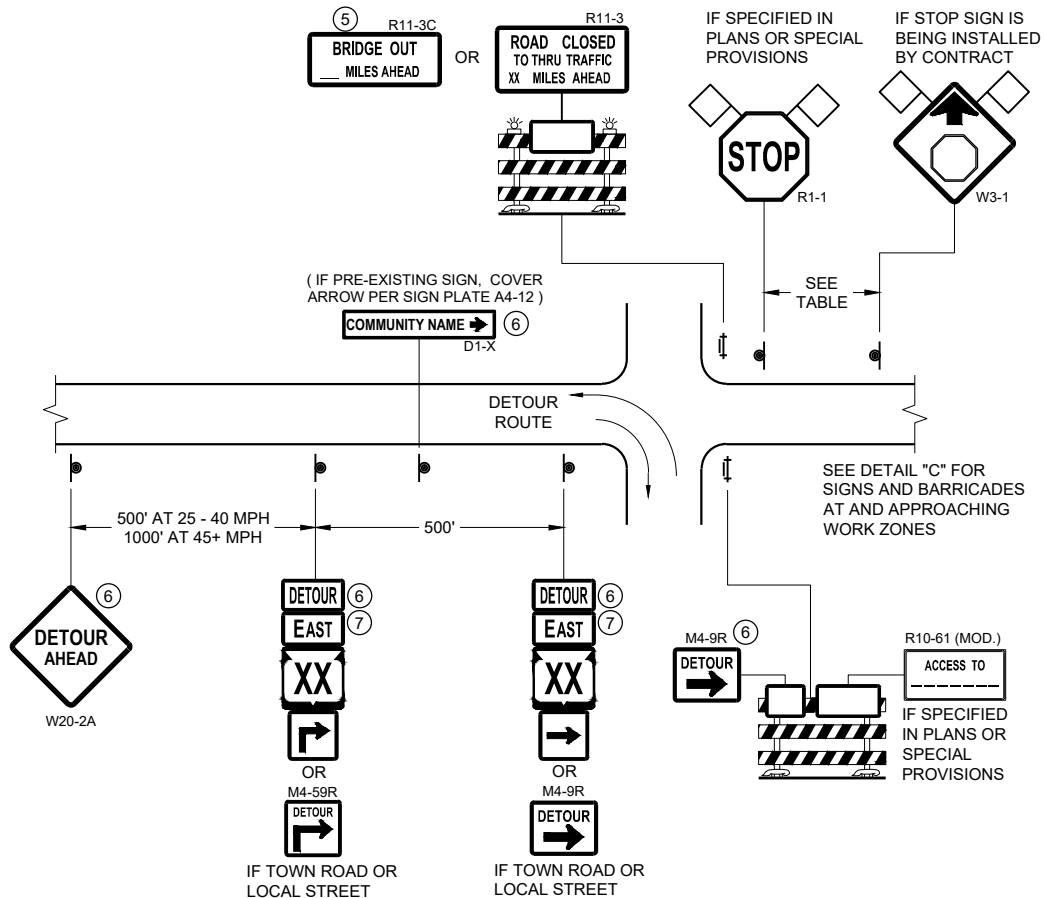
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X $\frac{3}{16}$ "
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 $\frac{1}{2}$ " X 2 $\frac{1}{4}$ " X $\frac{1}{4}$ " X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 $\frac{1}{2}$ " X 2 $\frac{1}{2}$ " X $\frac{1}{4}$ "
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{5}{8}$ DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	$\frac{5}{8}$ DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

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

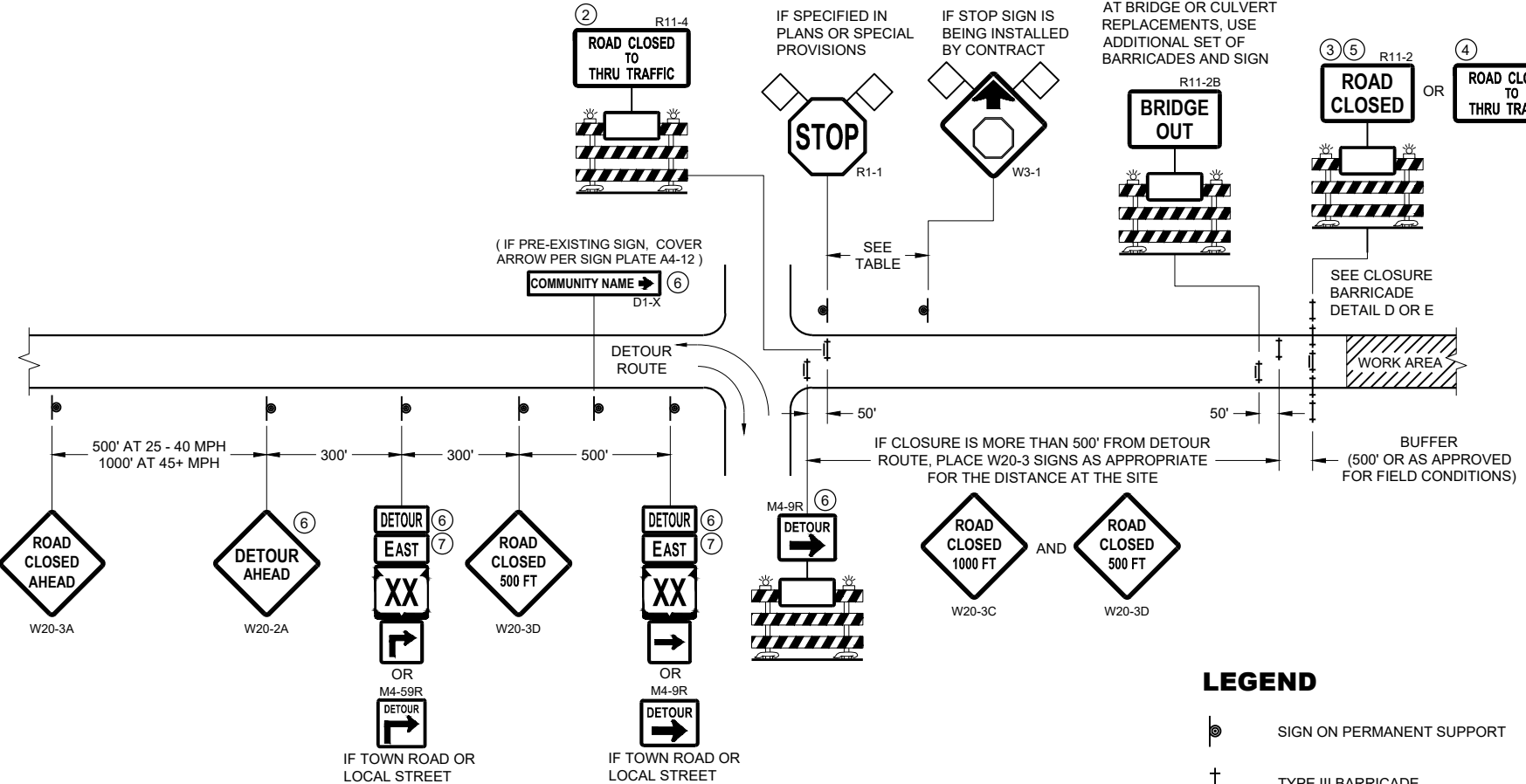
SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVE ENGINEER 149
FHWA



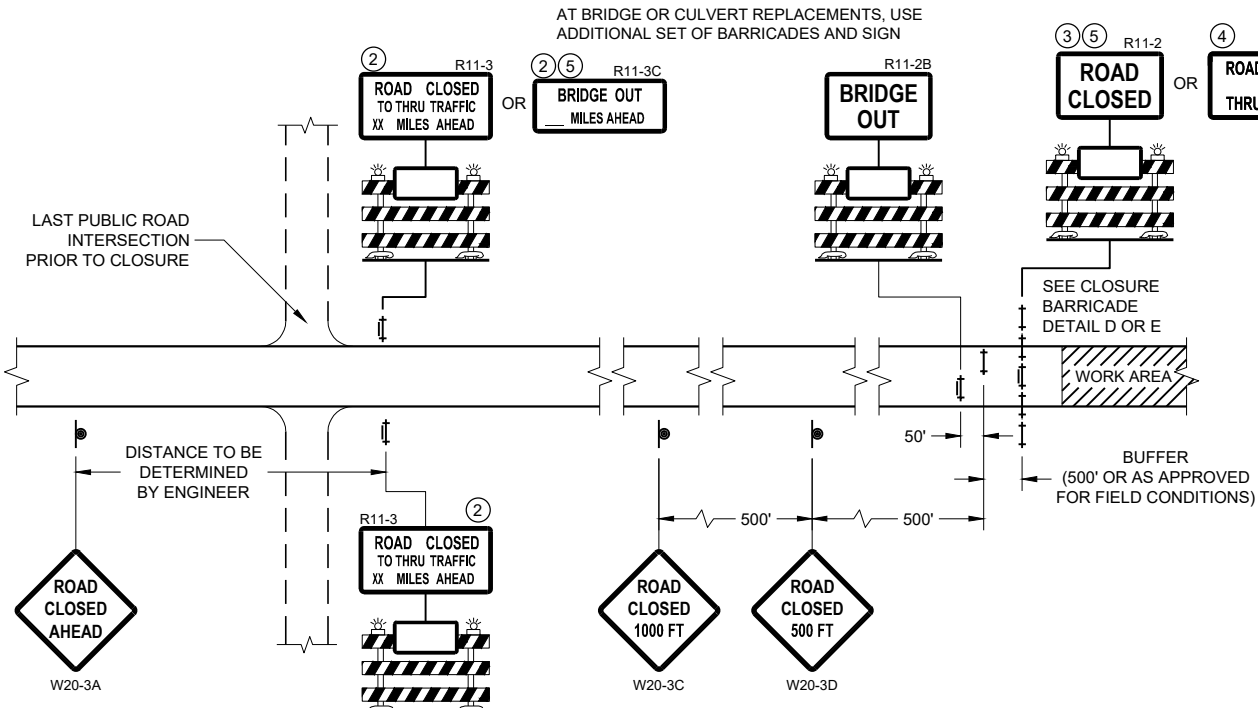
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

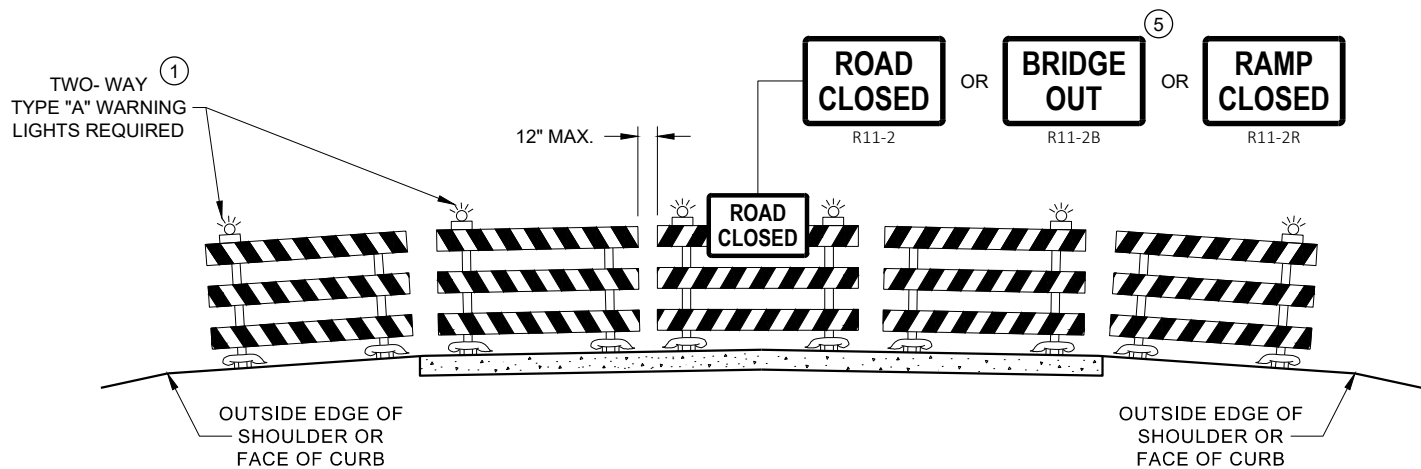
SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

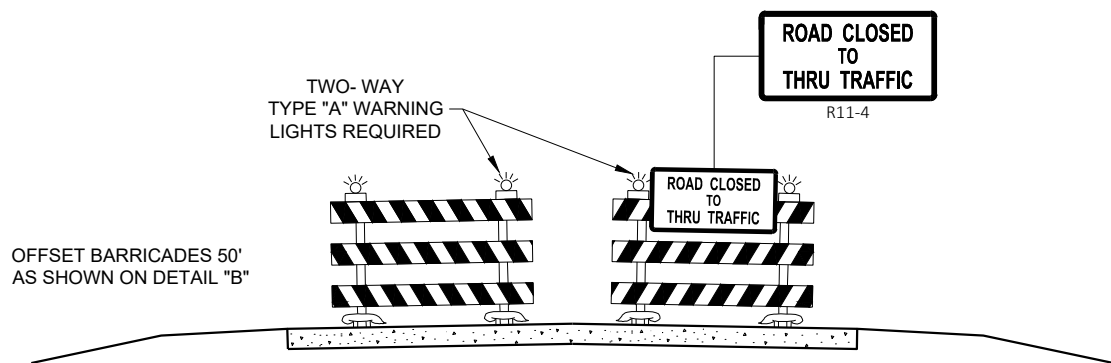
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 150

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

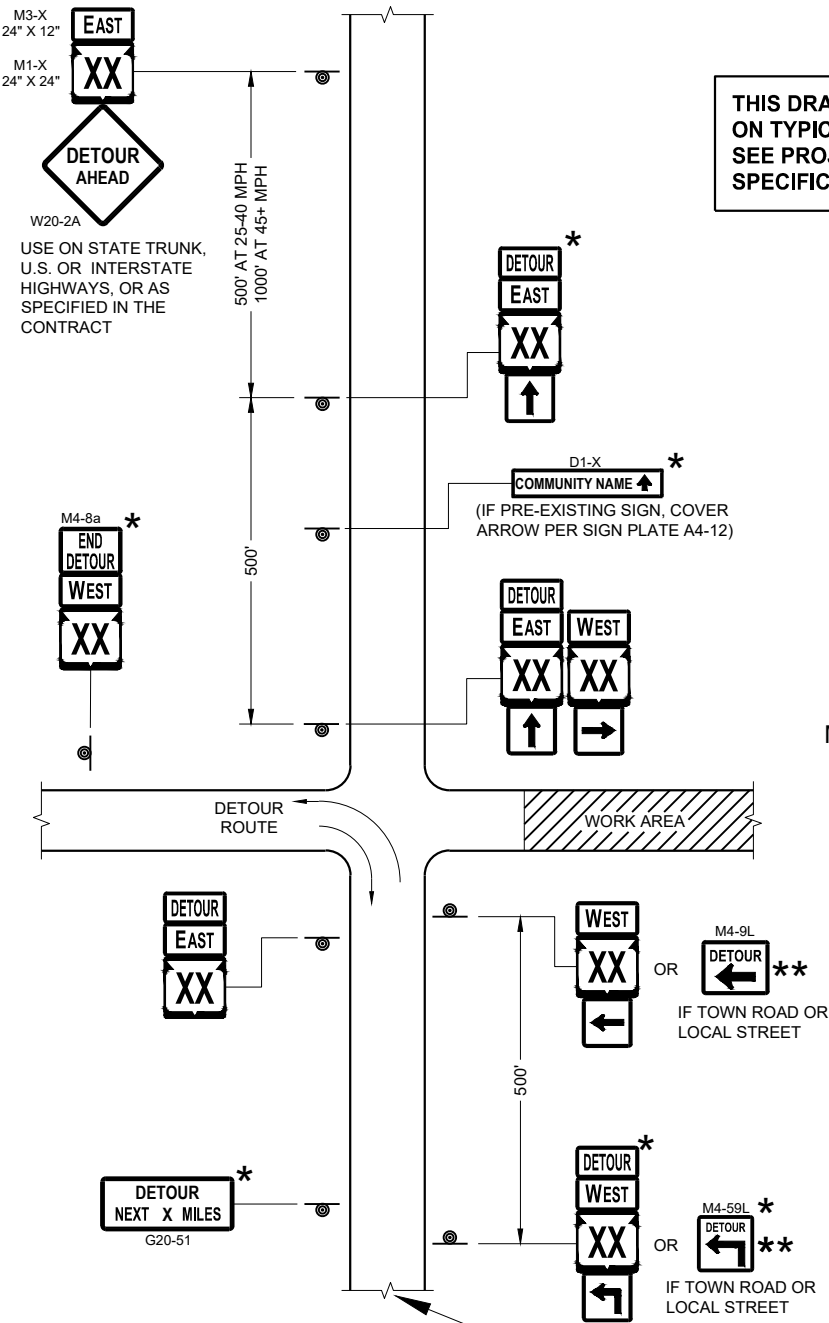
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 151

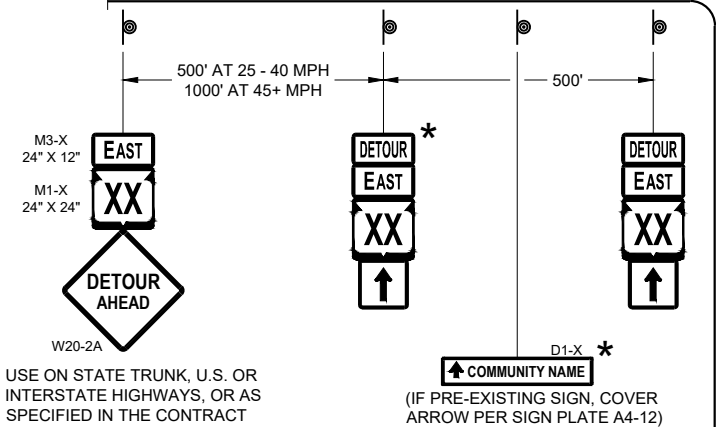
FHWA



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

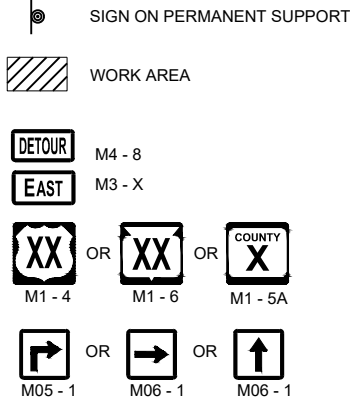
THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND



GENERAL NOTES

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

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

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

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

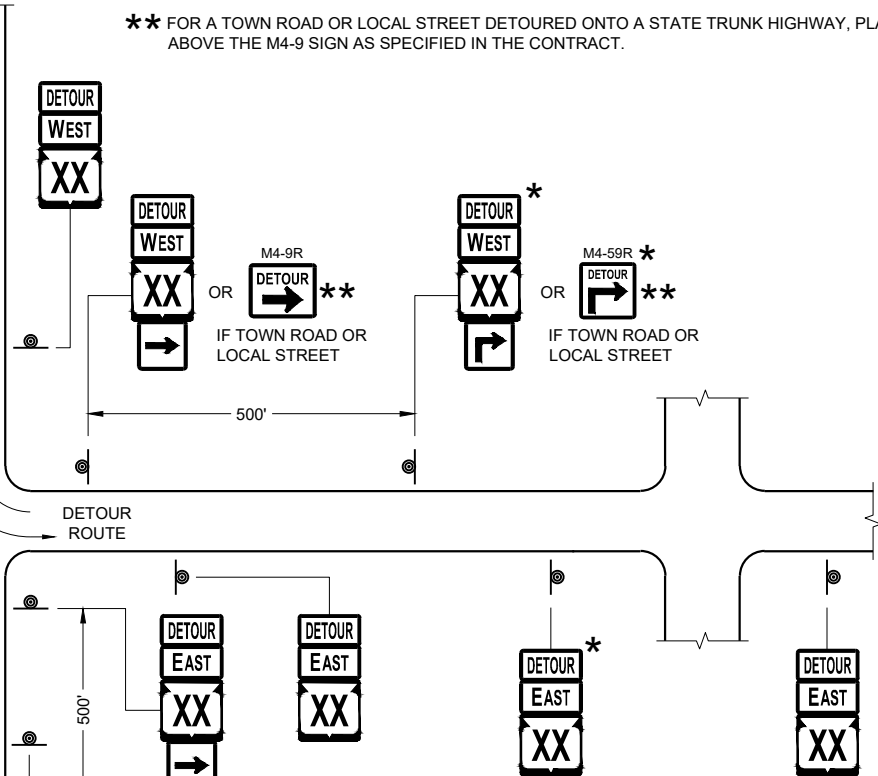
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

SIGN SIZES SHALL BE AS FOLLOWS:

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

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



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

DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 152
FHWA

GENERAL NOTES

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

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

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

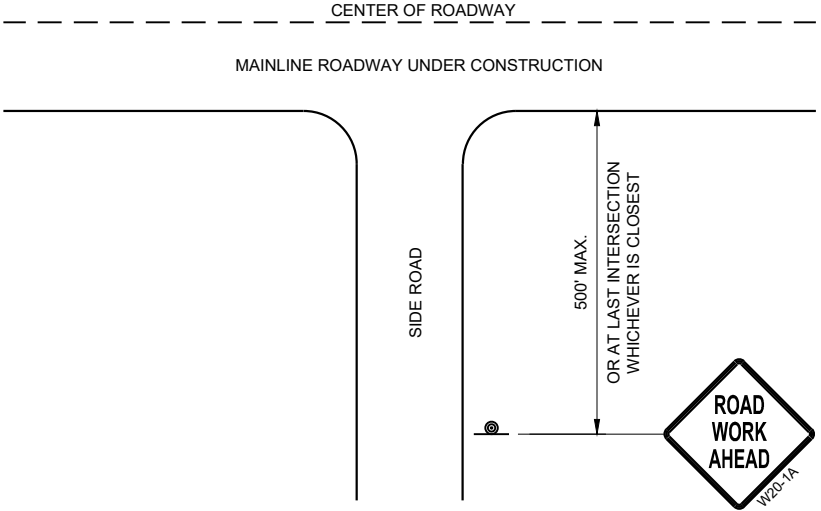
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

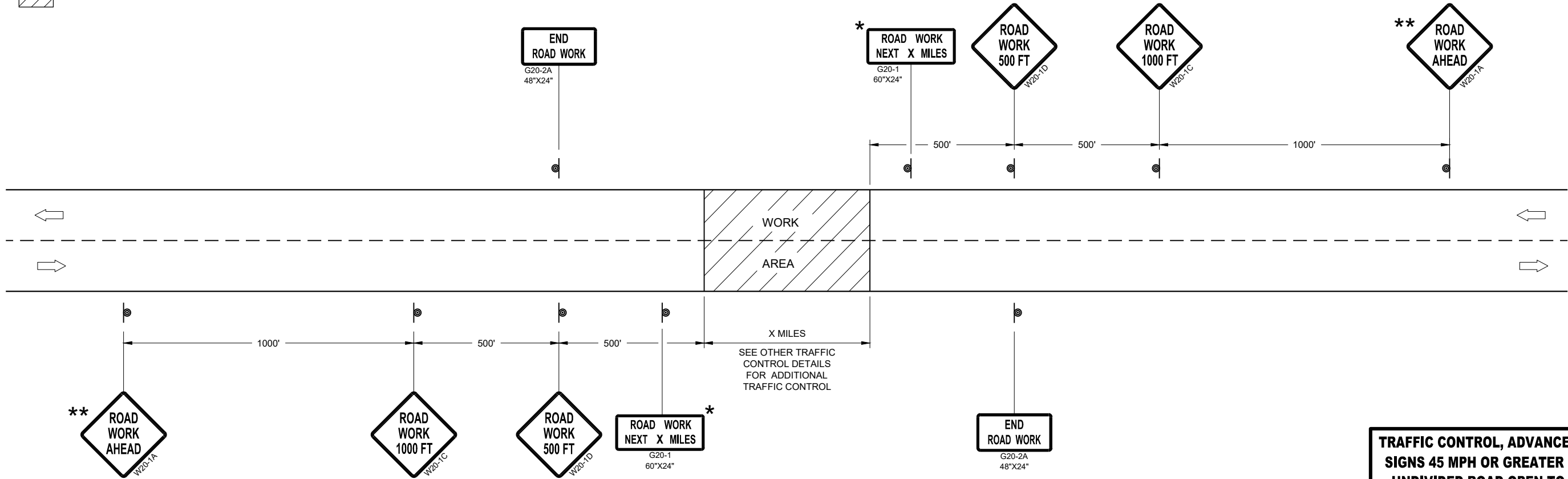
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

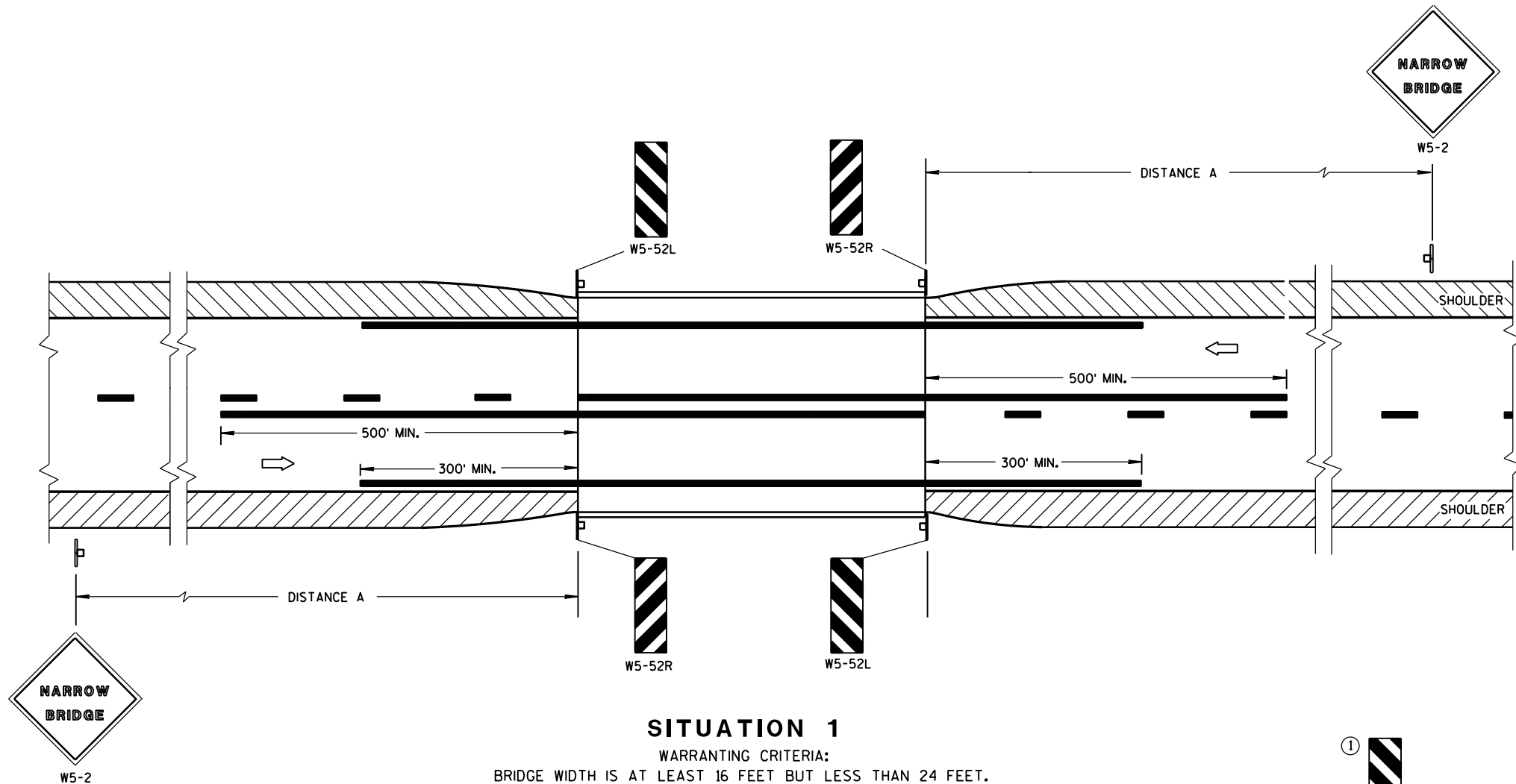


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 153
FHWA



SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A "
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

GENERAL NOTES

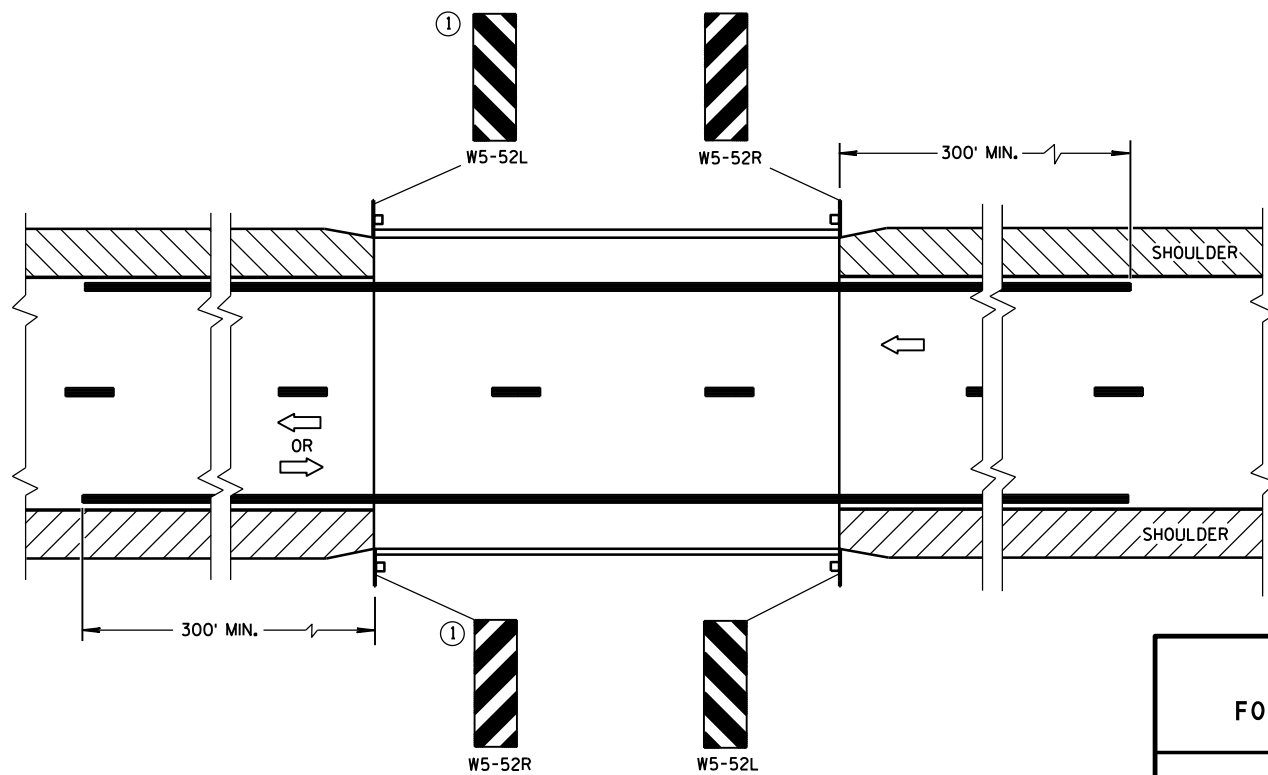
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



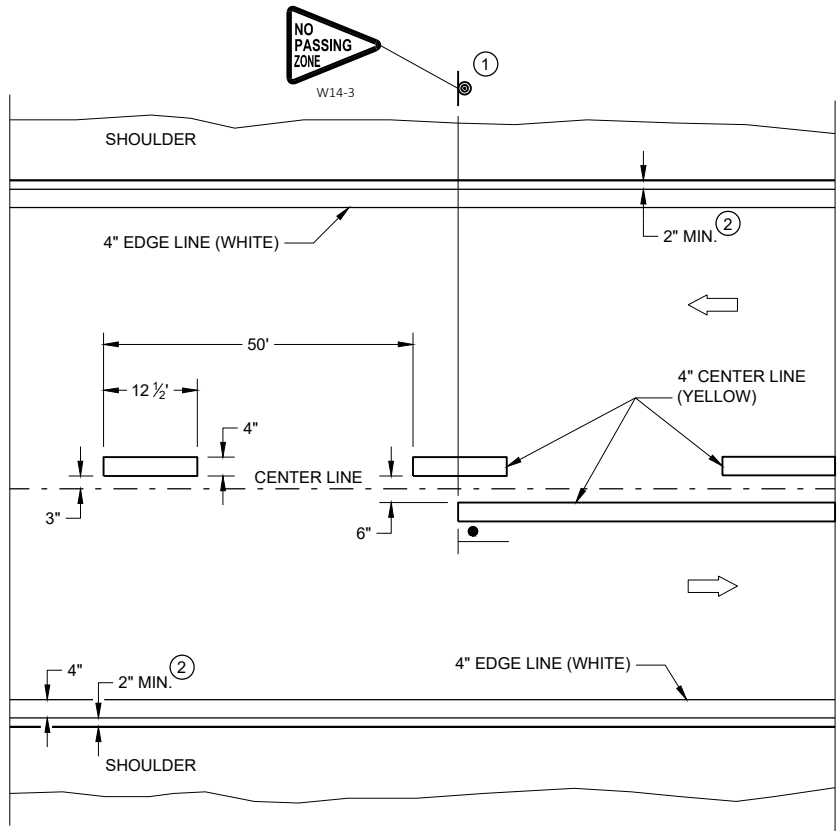
SITUATION 2

WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

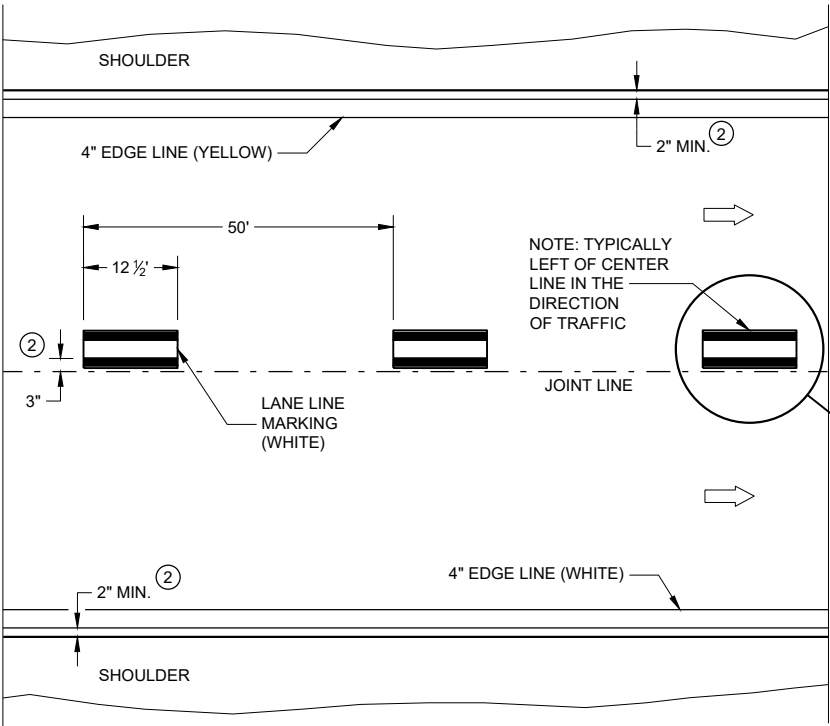
**SIGNING & MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MAR 154 JEER
FHWA

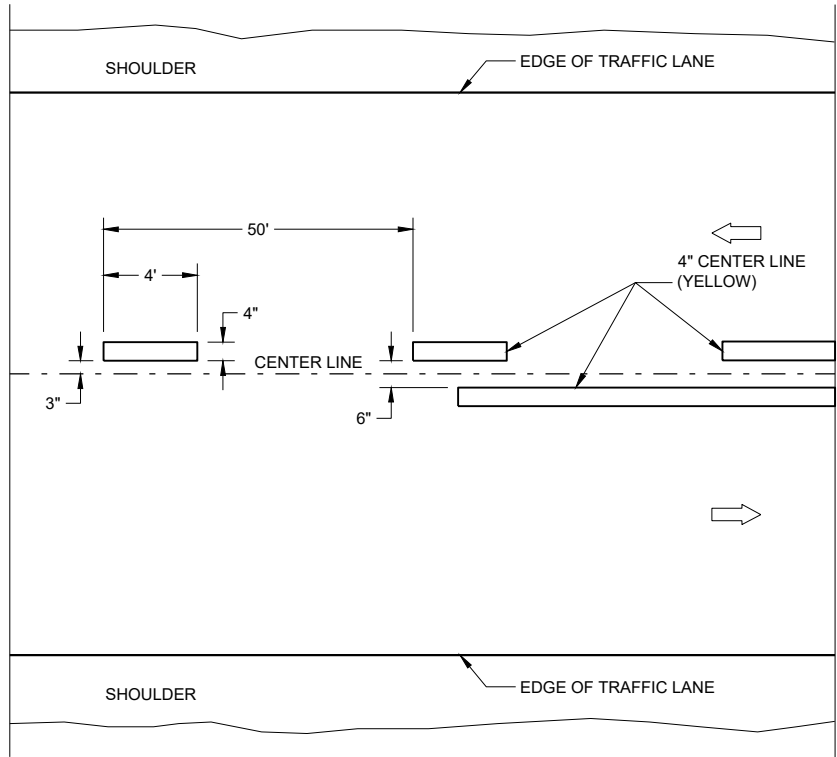


TWO WAY TRAFFIC

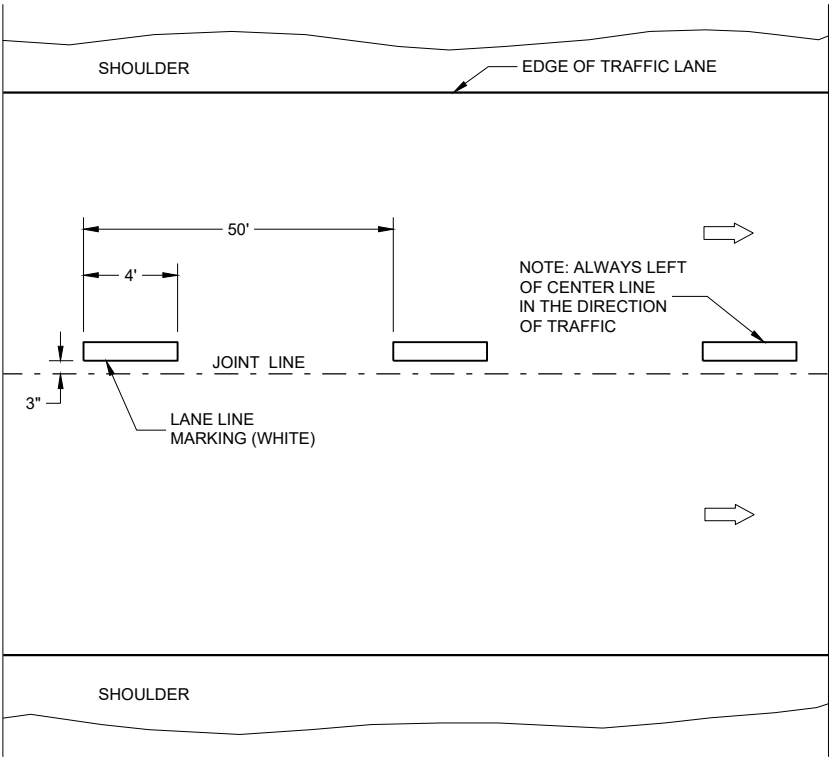


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

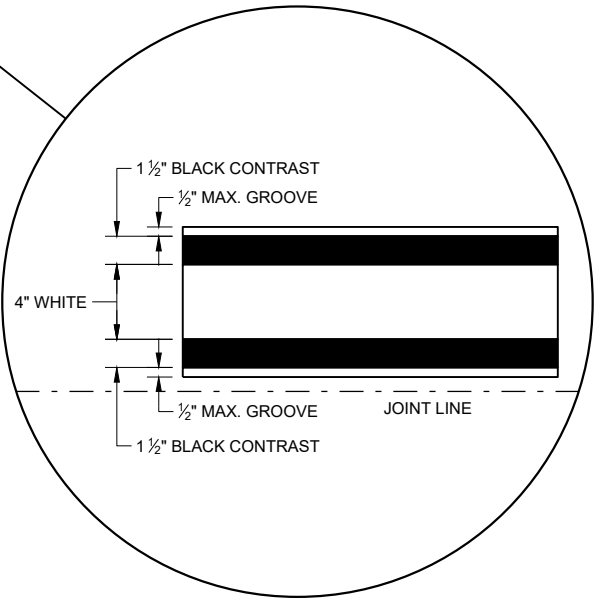
GENERAL NOTES

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

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

LEGEND

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

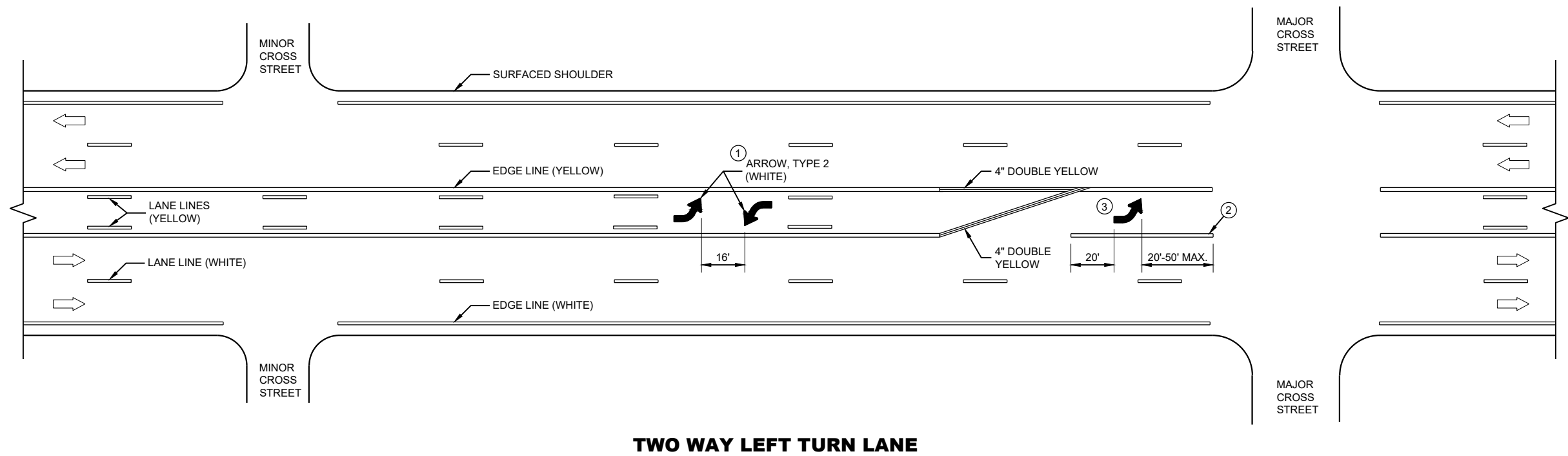


LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND N 155
ENGINEER

FHWA



GENERAL NOTES

- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 8" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

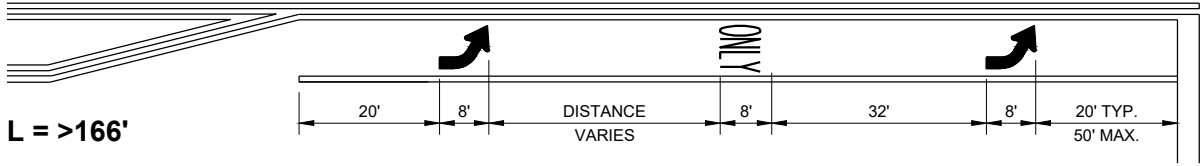
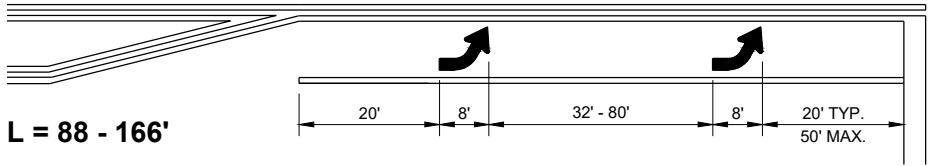
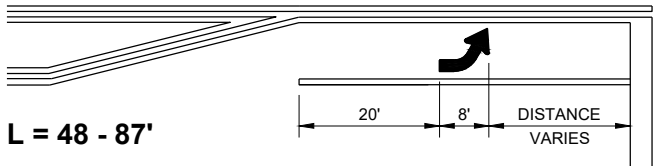
➡ DIRECTION OF TRAFFIC

**PAVEMENT MARKING
(TURN LANES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 156

TURN LANE OPTIONS

LENGTH OF TURN BAY (**L**) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



*(SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

GENERAL NOTES

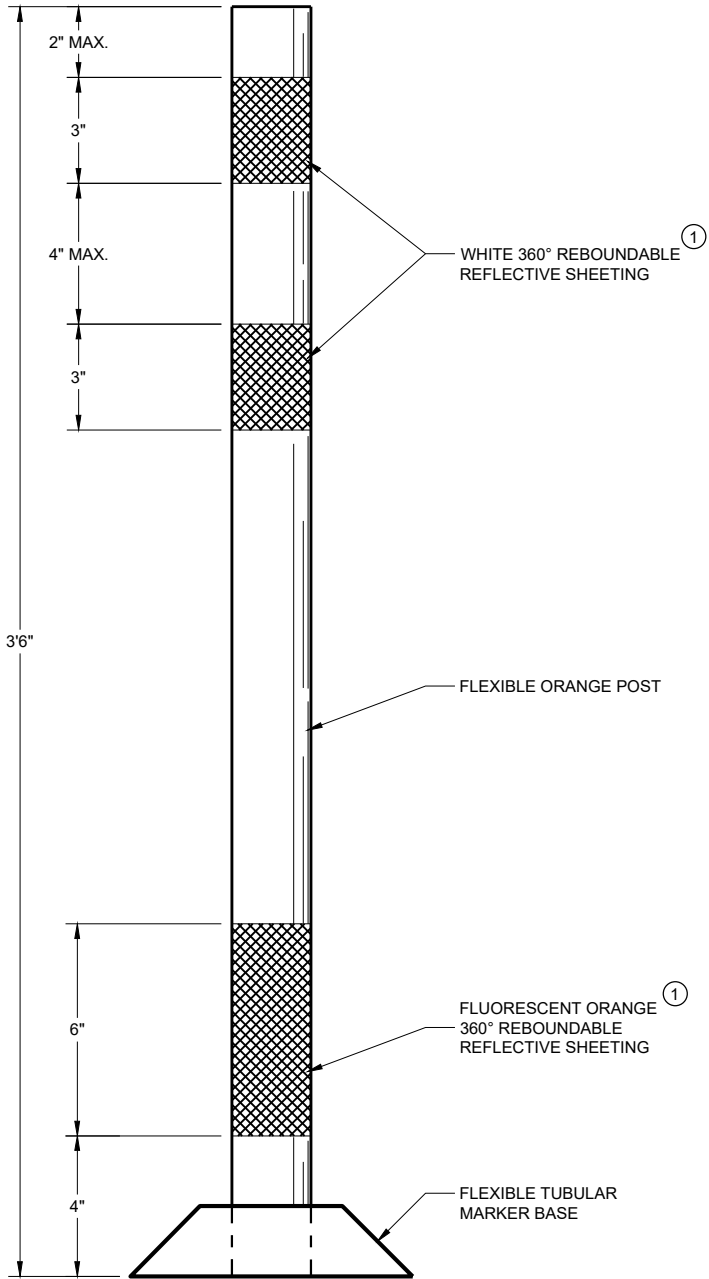
- ① 8" WHITE
- ② QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

➡ DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

PAVEMENT MARKING
(TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 157



FLEXIBLE TUBULAR
MARKER POST
WORK ZONE

GENERAL NOTES

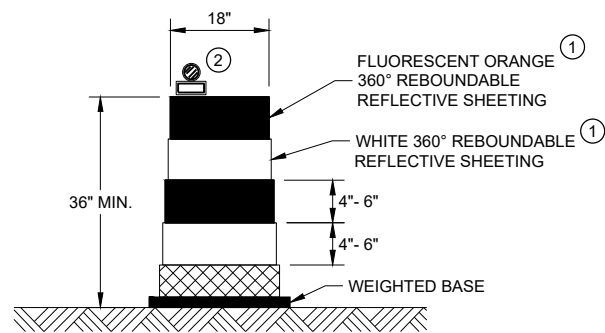
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

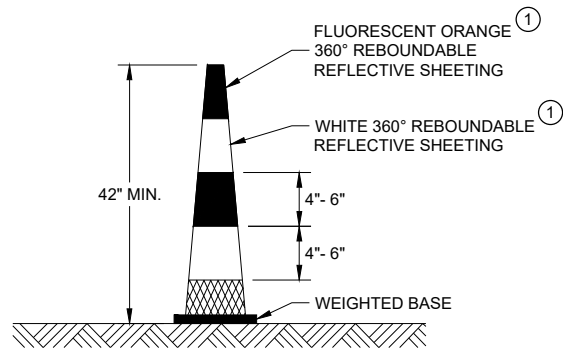
THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

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

CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2021 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER	158
FHWA		

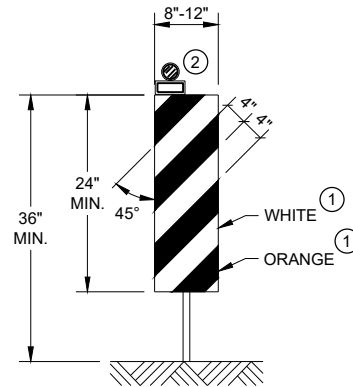


DRUM



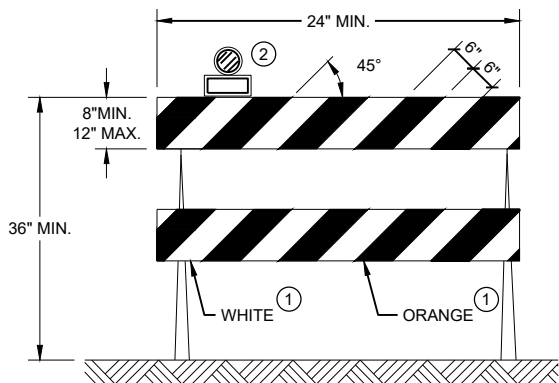
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



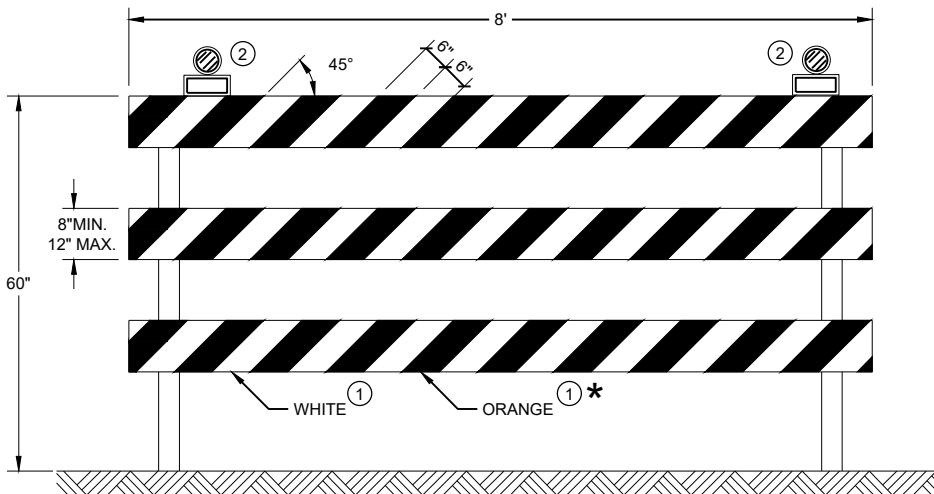
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 159
FHWA

LEGEND

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

GENERAL NOTES

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

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

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

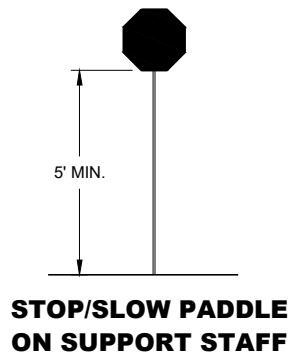
THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

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

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

FLAGGING

- FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.
- FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
 - SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.
- TEMPORARY PORTABLE RUMBLE STRIPS**
- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

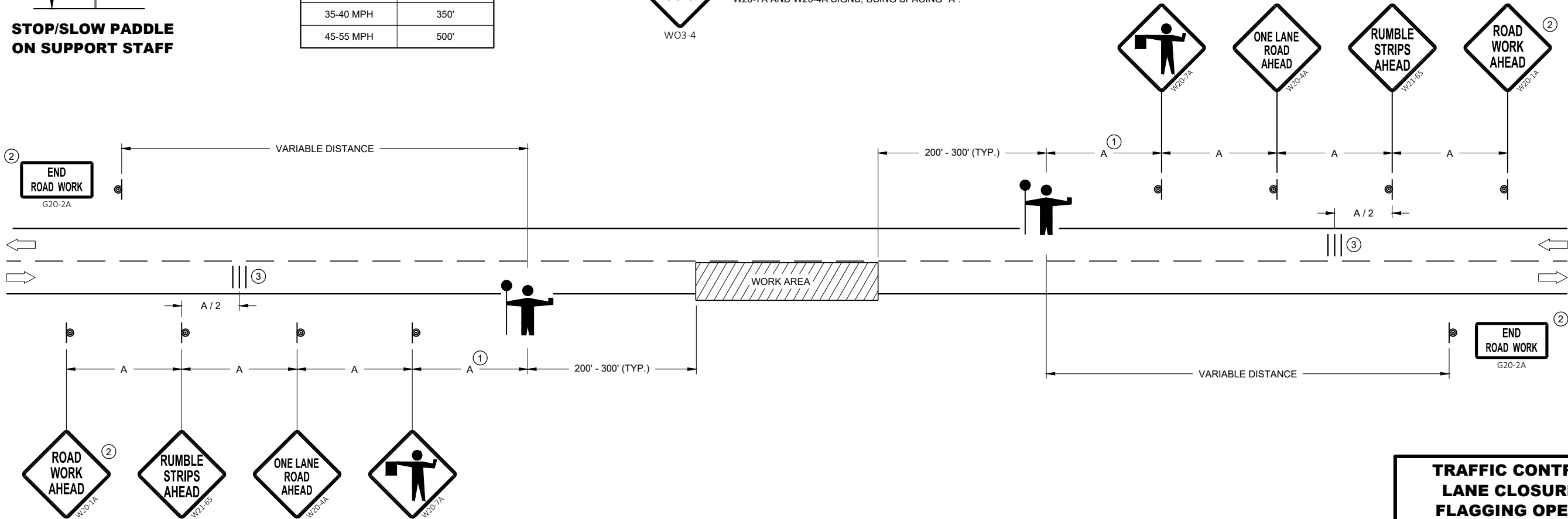


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



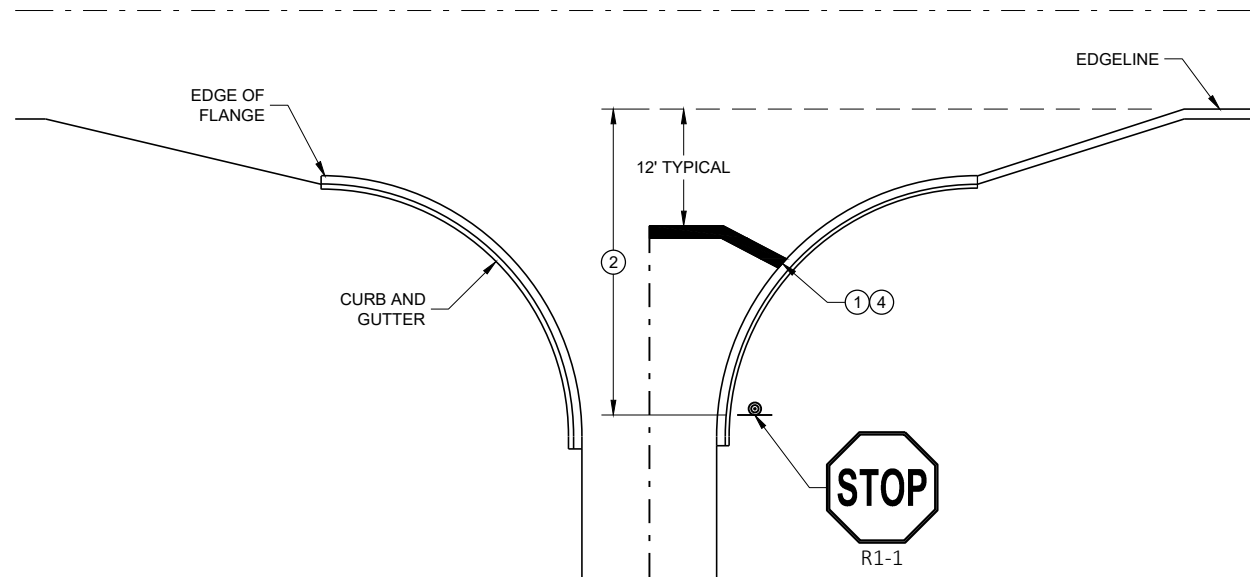
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

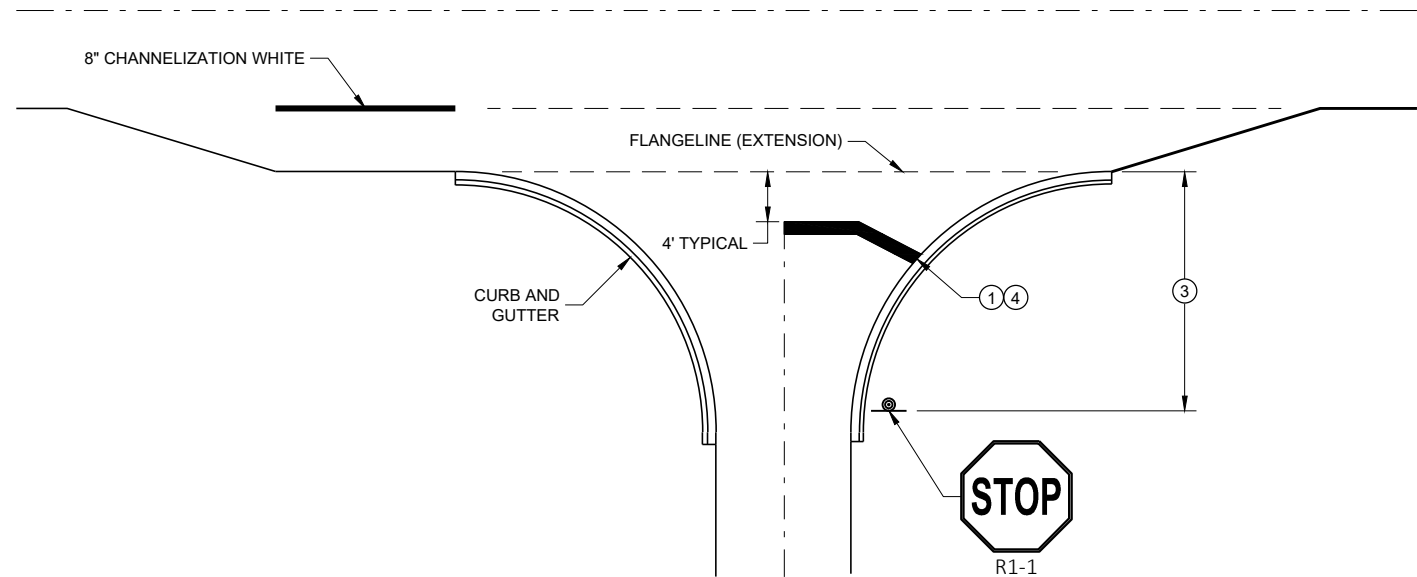
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 160

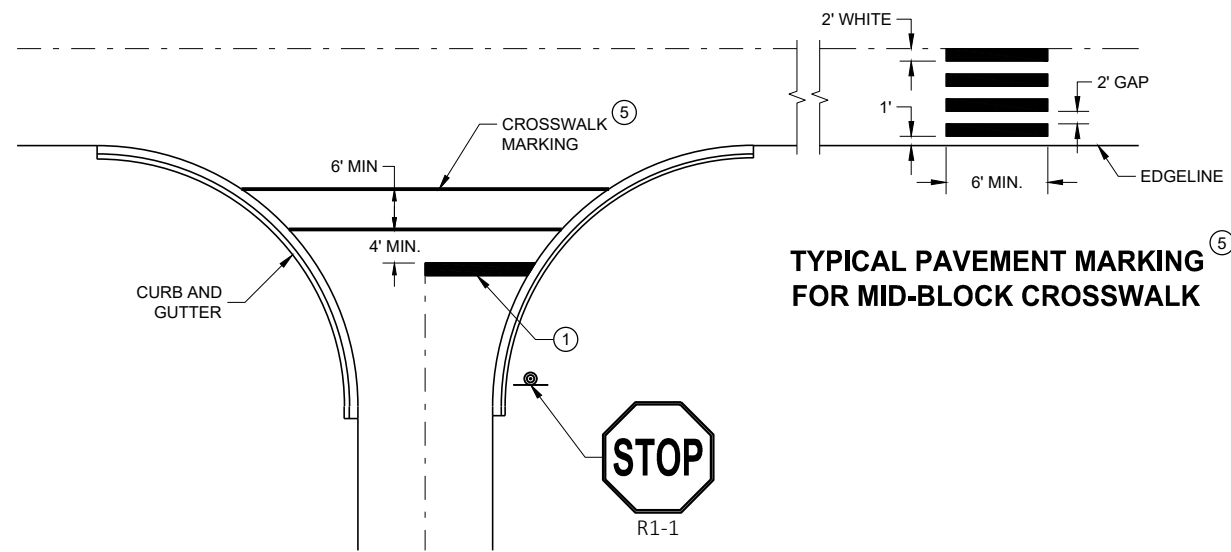
FHWA



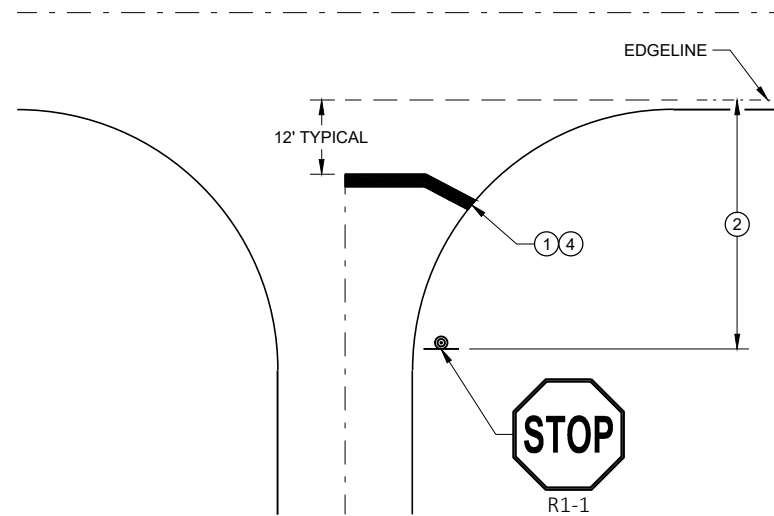
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR
SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

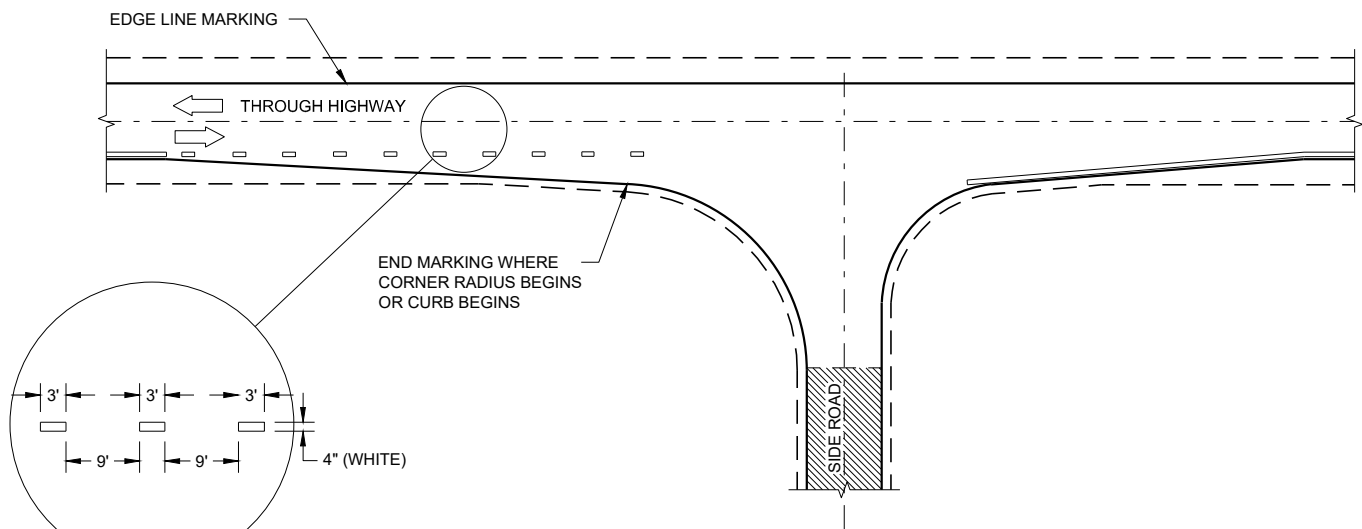
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGE LINE LOCATION.

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

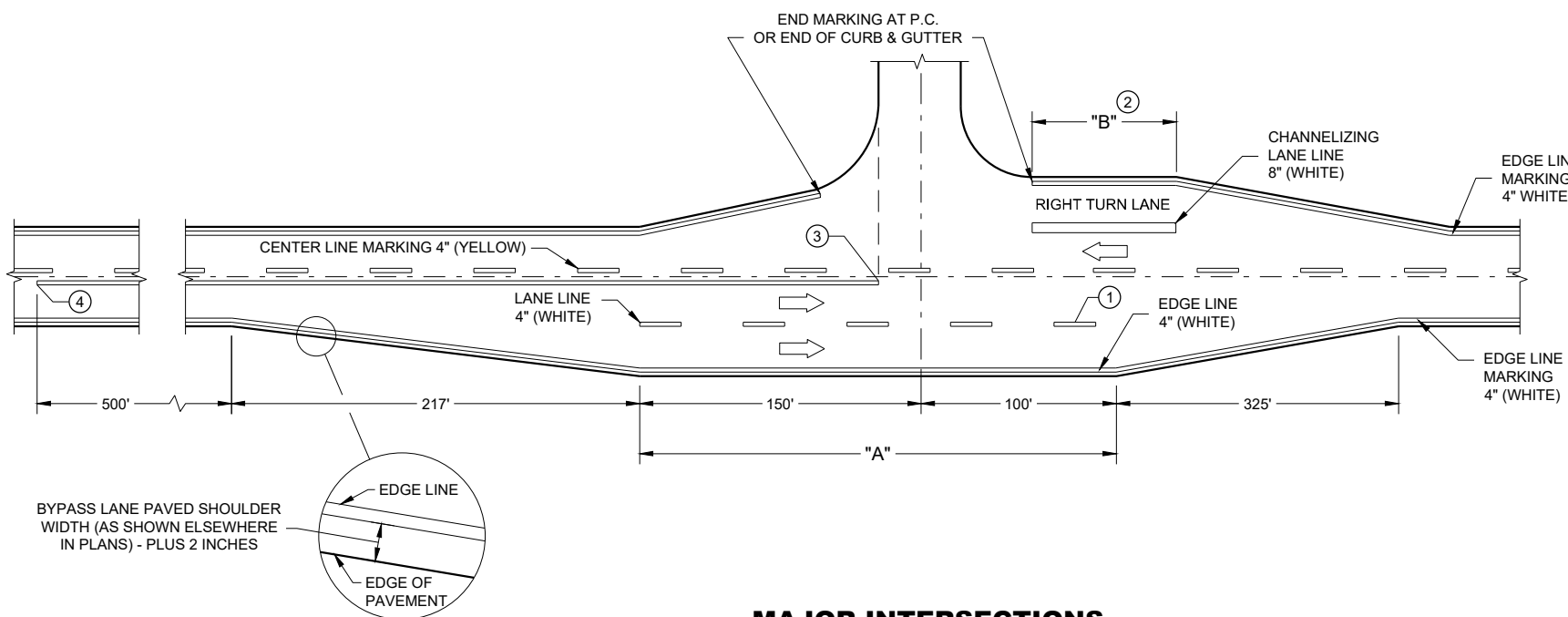
STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MAP ENGINEER 161
FHWA



MINOR INTERSECTION



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

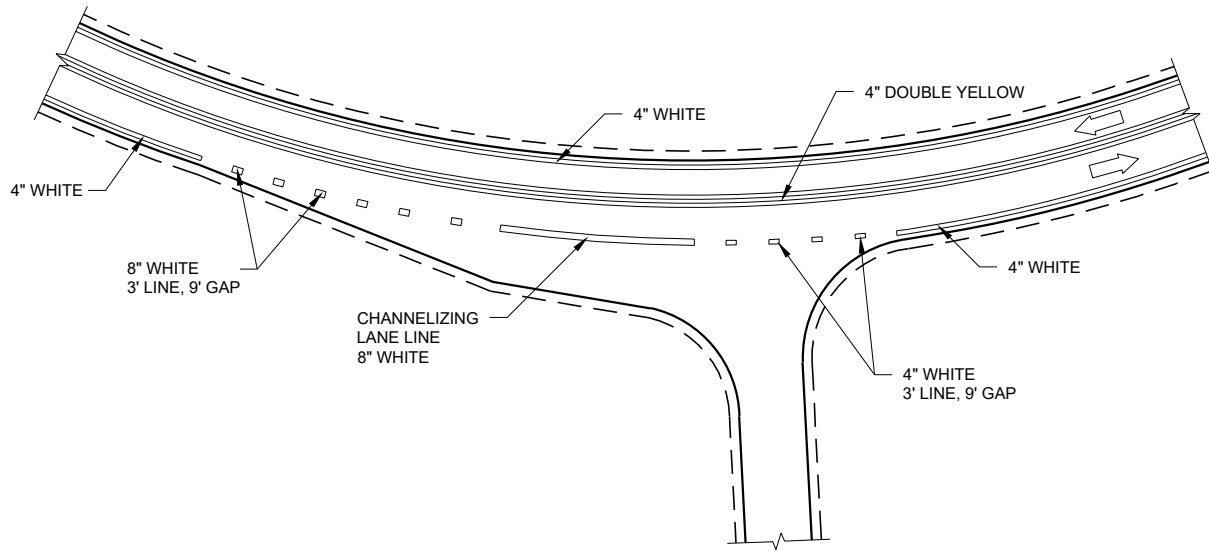
GENERAL NOTES

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

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

LEGEND

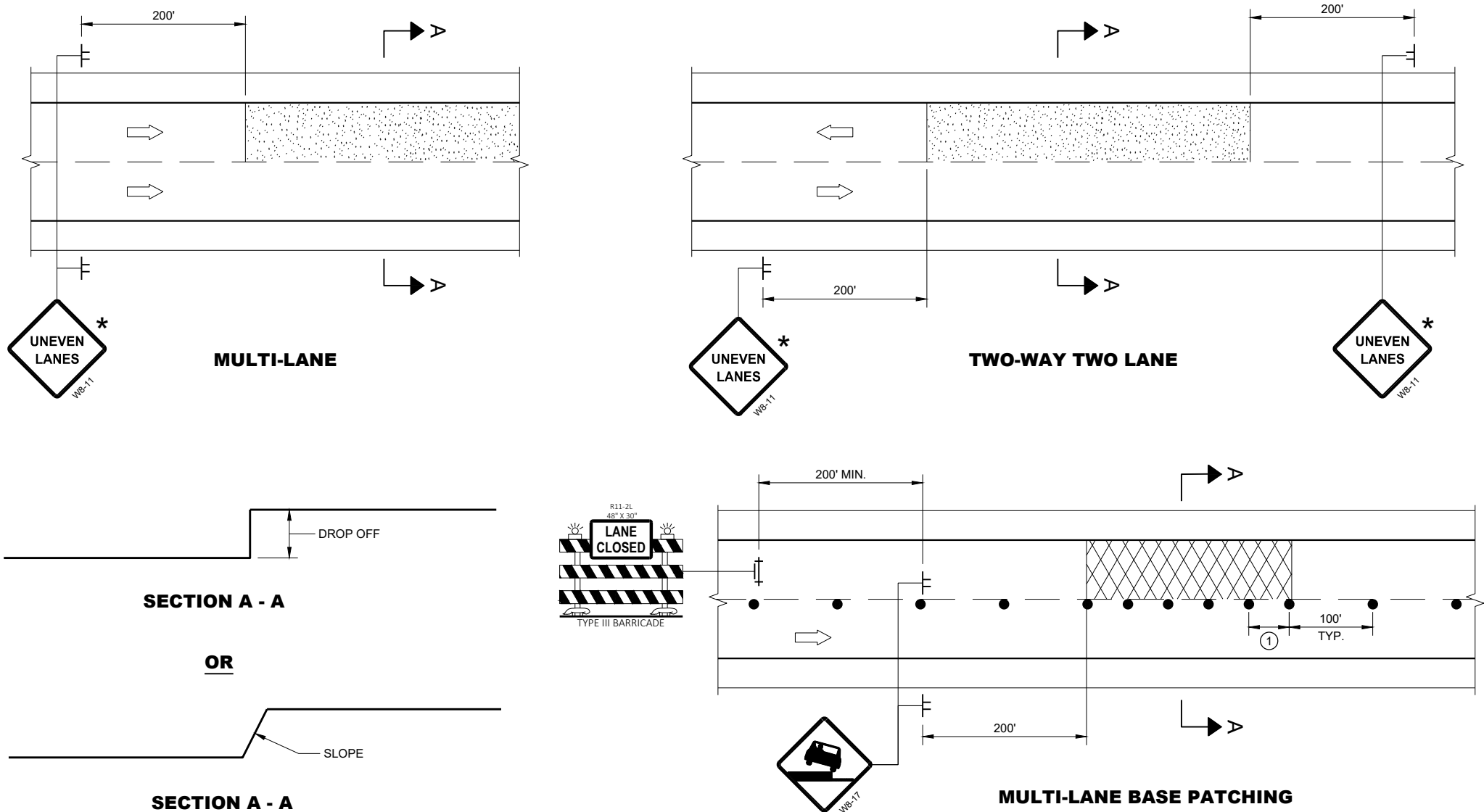
➡ DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 162



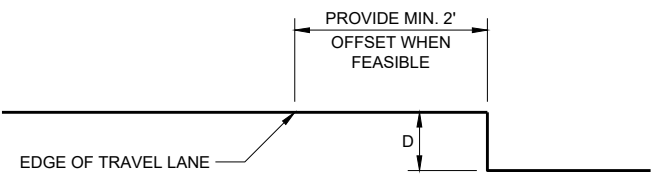
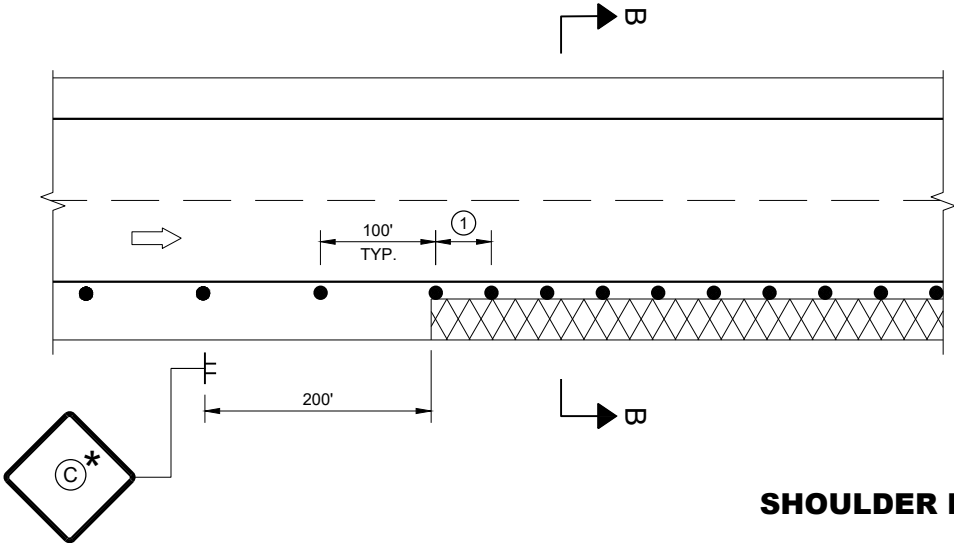
ADJACENT LANE DROP-OFFS

GENERAL NOTES

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

LEGEND

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



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

TRAFFIC CONTROL,
DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 163

FHWA

GENERAL NOTES

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

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

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

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

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

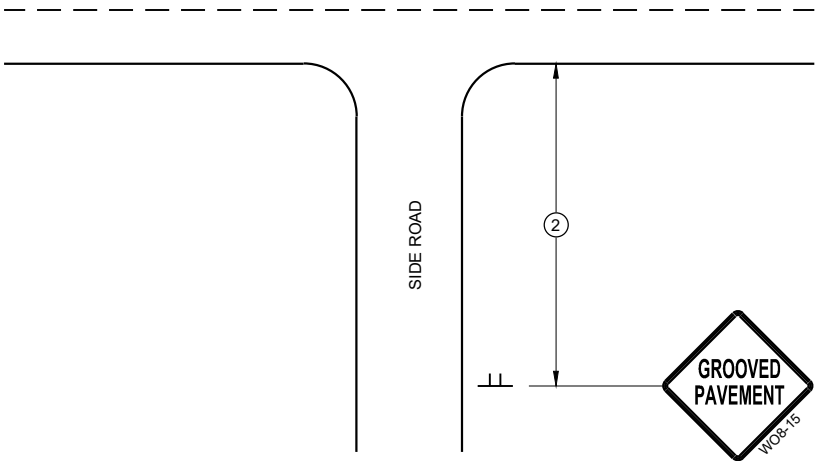
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

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

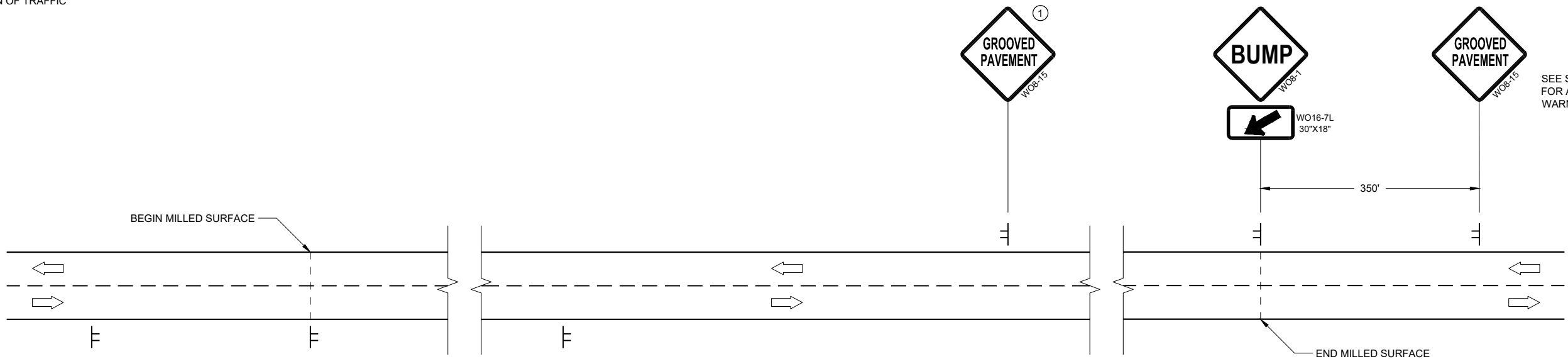
- 1 PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- 2 PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL



SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

DETAIL FOR SIGNING ON MILLED SURFACES

TRAFFIC CONTROL,
SIGNING ON ROADWAYS
WITH MILLED SURFACES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 164

FHWA

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF = 1.25
OPERATING RATING FACTOR: RF = 1.62
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 250(KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY: _____ f'c = 4,000 P.S.I.
SUPERSTRUCTURE _____ f'c = 3,500 P.S.I.
ALL OTHER _____ f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT: _____ fy = 60,000 P.S.I.
GRADE 60 _____

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10X42 PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 25'-0" LONG, PRE BORE TO MIN. TIP ELEVATION OF 893.50 AT SOUTH ABUT. PRE BORE TO MIN. TIP ELEVATION OF 891.50 AT NORTH ABUT. PRE-BORE PILES 5 FEET MINIMUM INTO BEDROCK OR CONSOLIDATED MATERIAL (TYP. BOTH ABUTMENTS).

** THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

100 YEAR FREQUENCY

Q₁₀₀ = 2275 C.F.S.
VEL₁₀₀ = 10.26 F.P.S.
HW₁₀₀ = EL. 917.53
WATERWAY AREA = 221.73 SQ. FT.
DRAINAGE AREA = 4.8 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5

2 YEAR FREQUENCY

Q₂ = 310 C.F.S.
VEL₂ = 4.06 F.P.S.
HW₂ = EL. 911.72

TRAFFIC VOLUME

STH 23
ADT = 3500 (2041)
R.D.S. = 55 M.P.H.

CURVE DATA

STH 23
P.I. = 612+33.08
Δ = 22°22'24"
D = 2°2'58"
T = 552.84'
L = 1091.60'
R = 2795.49'
S.E. = 4.0%
P.C. = 606+31.24
P.T. = 617+22.84

STRUCTURE DESIGN CONTACTS:

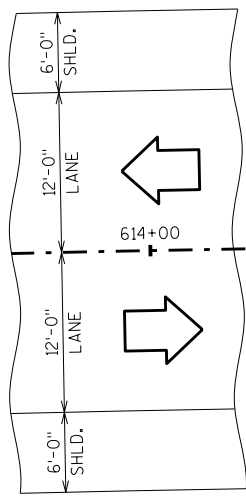
MICAH BROOKS (608) 266-5080
LAURA SHADEWALD (608) 267-9592

NO.	DATE	REVISION	BY
 BUREAU OF STRUCTURES			
ACCEPTED  11/5/21 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-25-193			
STH 23 OVER ROCK BRANCH CREEK			
COUNTY	IOWA	CITY	MINERAL POINT
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	PJR	DESIGNED CK'D.	MWB
DRAWN BY	MJH	PLANS CK'D.	MWB
GENERAL PLAN			SHEET 1 OF 10
			165

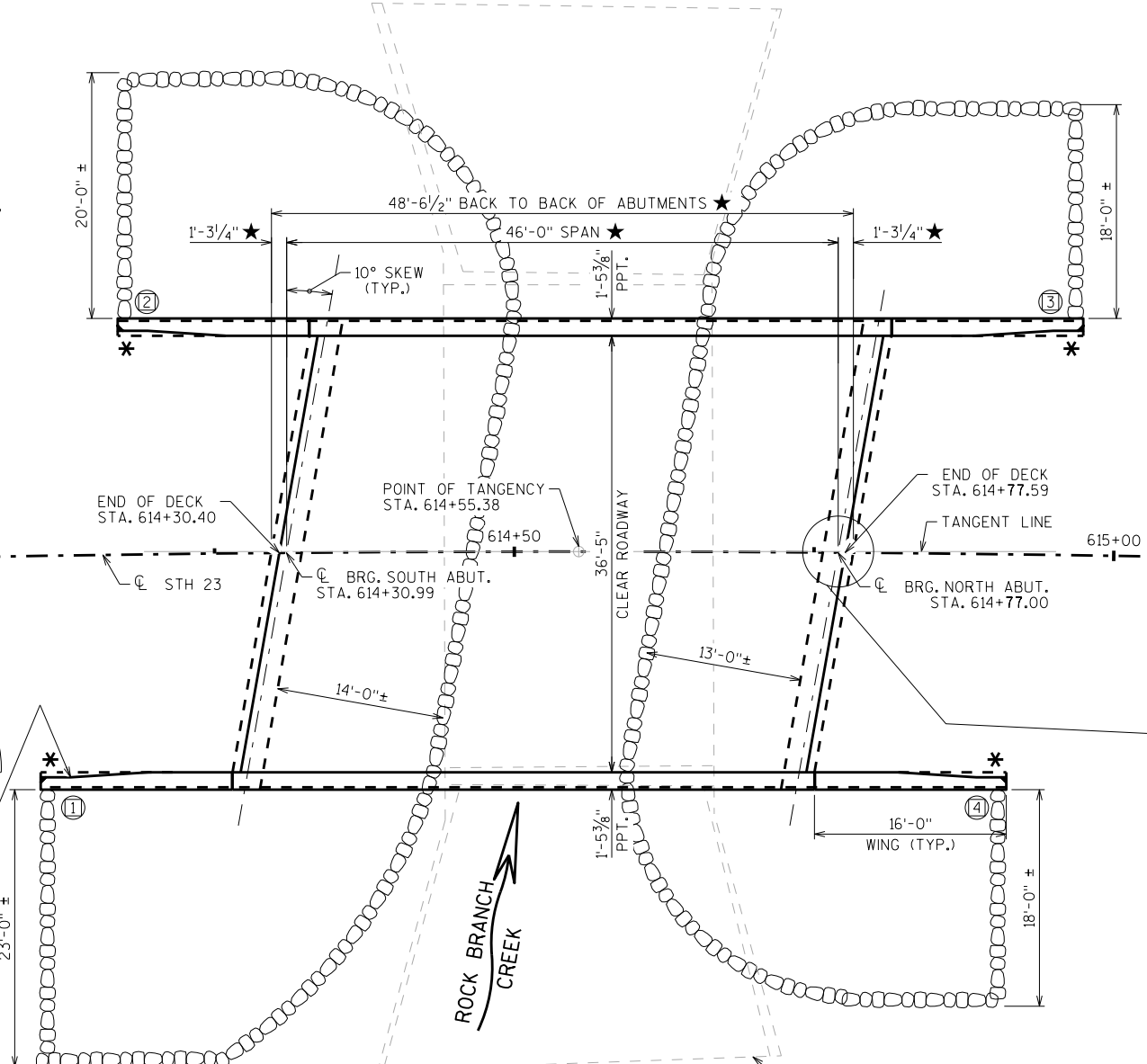
* PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT. AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK".

○ INDICATES WING NUMBER

★ MEASURED ALONG TANGENT LINE

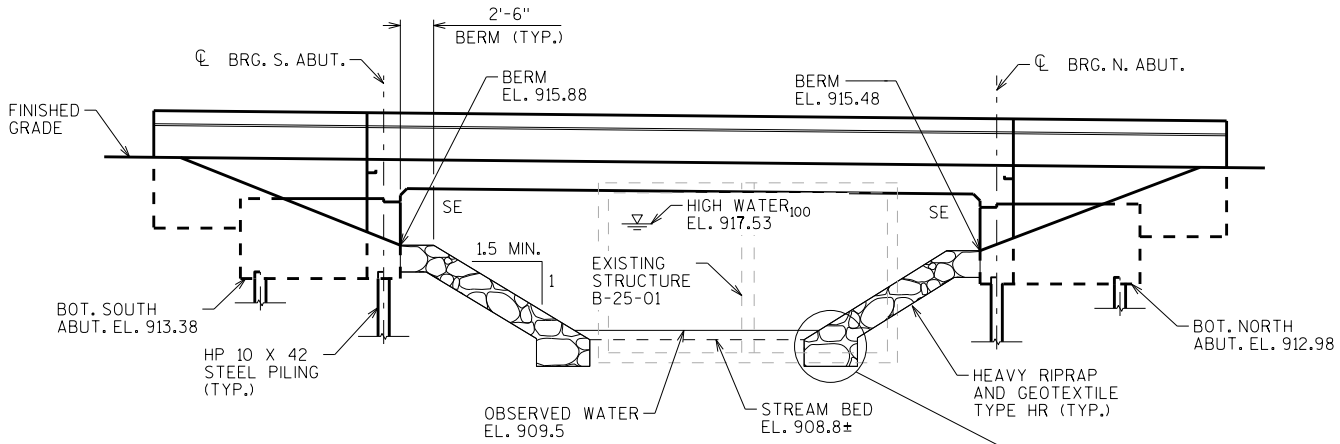
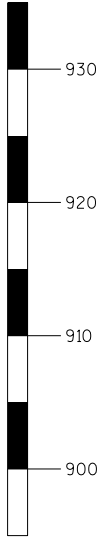


BENCH MARK AND NAME PLATE, FOR LOCATION SEE "SINGLE SLOPE PARAPET 42SS" SHEET.



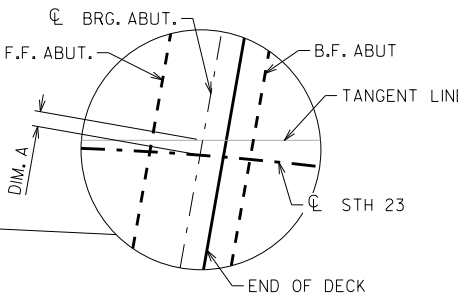
PLAN

SINGLE SPAN FLAT CONCRETE SLAB



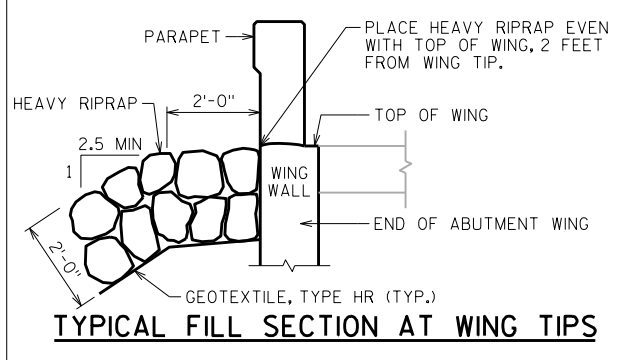
ELEVATION

NORMAL TO ROCK BRANCH CREEK



LOCATION	DIM. A
SOUTH ABUT.	0'-1 1/4"
NORTH ABUT.	0'-1"

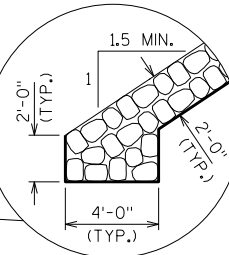
TANGENT OFFSET & DETAIL TABLE



TYPICAL FILL SECTION AT WING TIPS

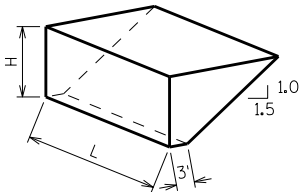
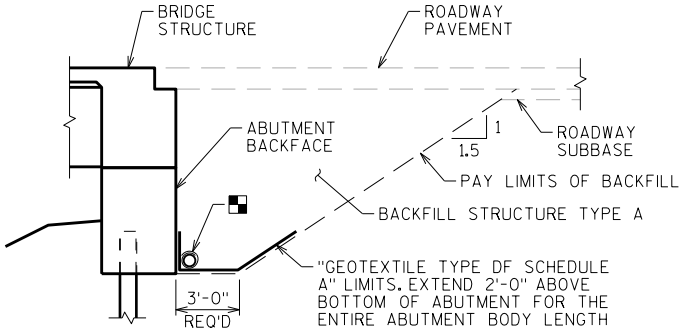
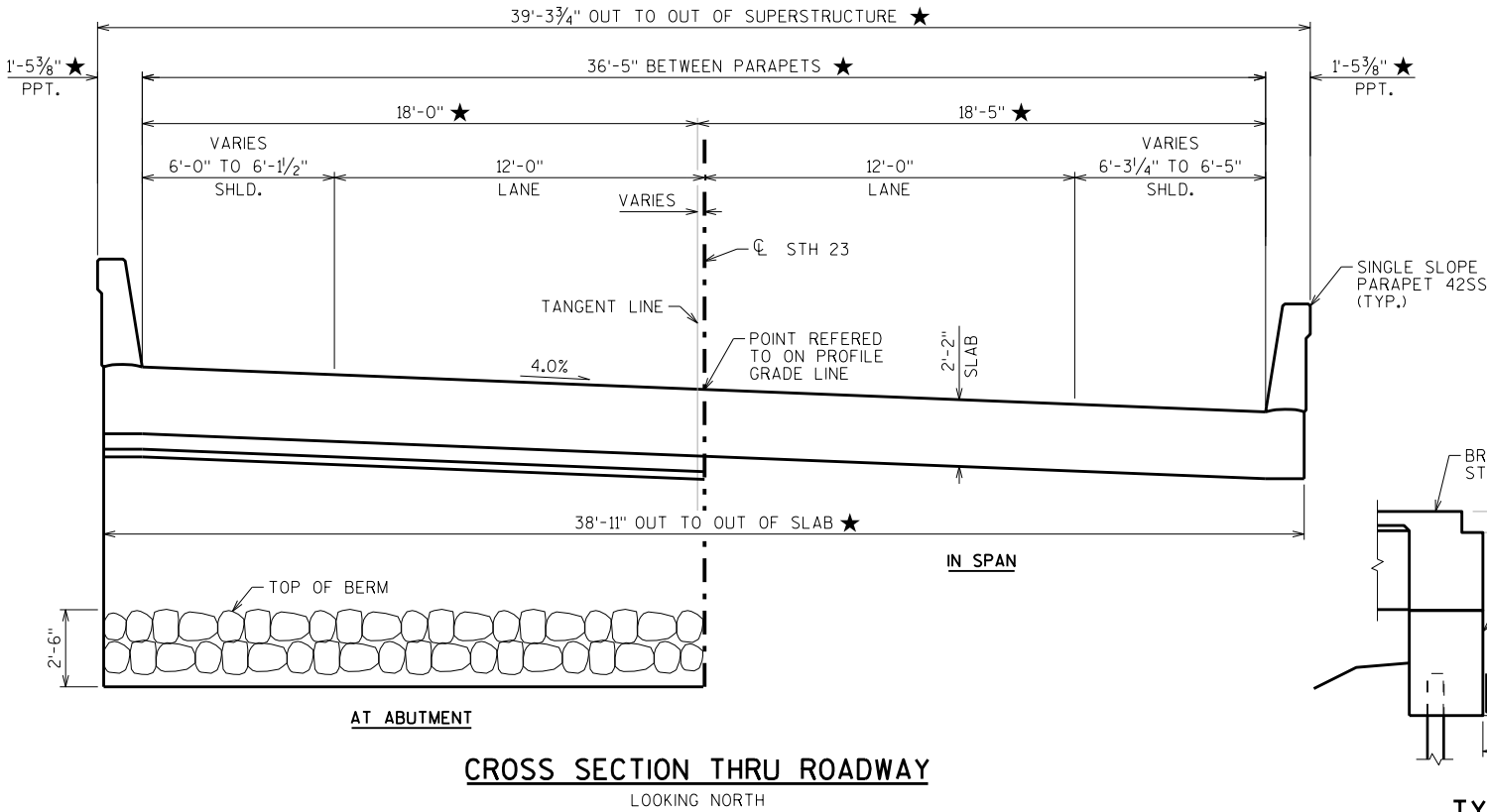
LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. SUPERSTRUCTURE PLAN
9. SUPERSTRUCTURE DETAILS
10. SINGLE SLOPE PARAPET 42SS



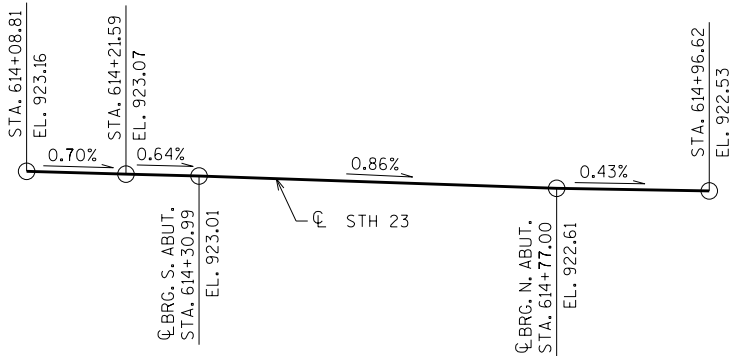
GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.
- THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES B-25-193" SHALL BE THE EXISTING GROUNDLINE.
- AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.
- EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.
- THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT ABUTMENT DIAPHRAGMS.
- PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS, INCLUDING PARAPETS ON WINGS.
- THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.
- SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.
- PRE-BORING IS REQUIRED FOR ALL PILES AT BOTH ABUTMENTS.
- CONTRACTOR WILL ENCOUNTER ARTESIAN CONDITIONS DURING PRE-BORING AT BOTH ABUTMENTS
- PRE-BORED HOLES MUST BE GROUTED UP TO THE BOTTOM OF ABUTMENT ELEVATION USING A TREMIE POUR.



ABUTMENT BACKFILL DIAGRAM FOR WINGS PARALLEL TO ROADWAY

L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)$
 $V_{CY} = V_{CF} (EF) / 27$
 $V_{TON} = V_{CY} (2.0)$



TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	SOUTH ABUT.	NORTH ABUT.	TOTALS
203.0250	REMOVING STRUCTURE OVER WATERWAY REMOVE DEBRIS B-25-01	EACH	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-25-193	LS	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	---	251	251	502
502.0100	CONCRETE MASONRY BRIDGES	CY	168	48	48	264
502.3200	PROTECTIVE SURFACE TREATMENT	SY	192	---	---	192
502.3210	PIGMENTED SURFACE SEALER	SY	47	16	16	79
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	---	2,870	2,870	5,740
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	27,360	3,070	3,020	33,450
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	---	10	10	20
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	---	40	40	80
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	---	200	200	400
606.0300	RIPRAP HEAVY	CY	---	205	177	382
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	---	70	70	140
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	---	---	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	---	38	38	76
645.0120	GEOTEXTILE TYPE HR	SY	---	347	303	650
	NON-BID ITEMS					
	FILLER	SIZE	---	---	---	1/2", 3/4", 1/2"
			---	---	---	

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-25-193			
	DRAWN BY	MJH	PLANS CK'D. MWB
CROSS SECTION & QUANTITIES			SHEET 2
			166

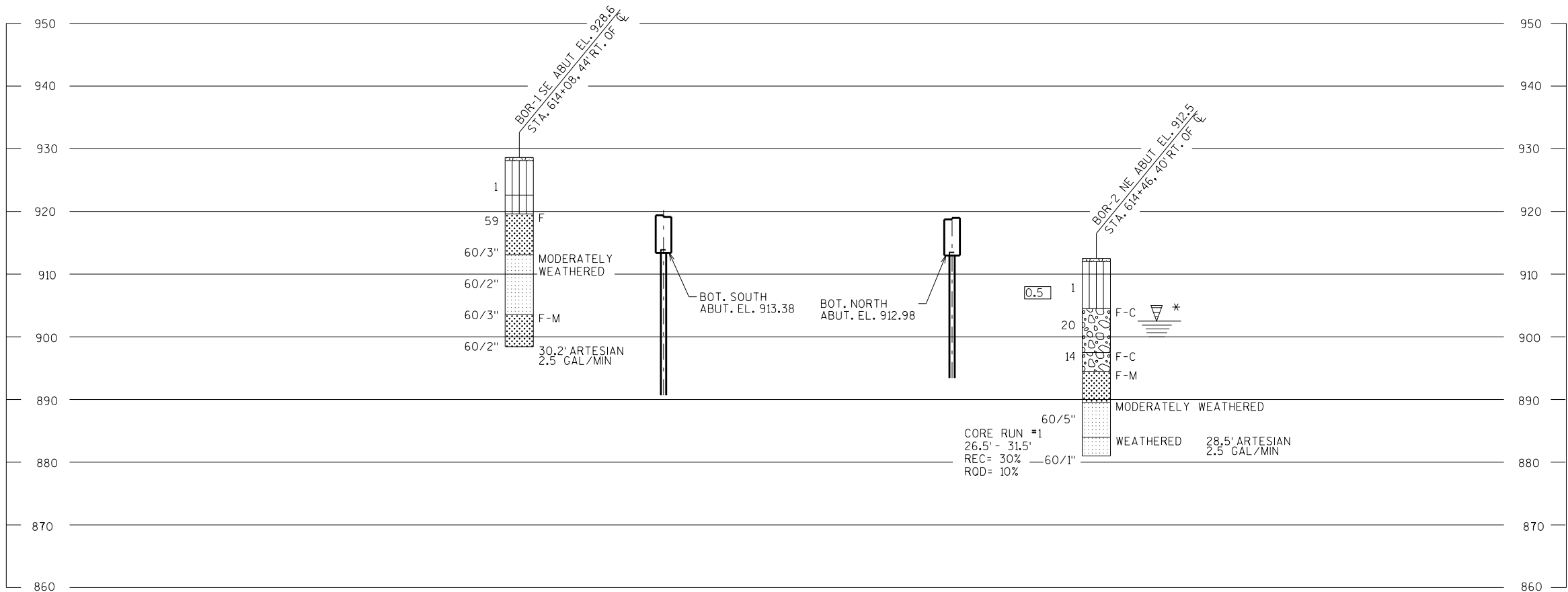
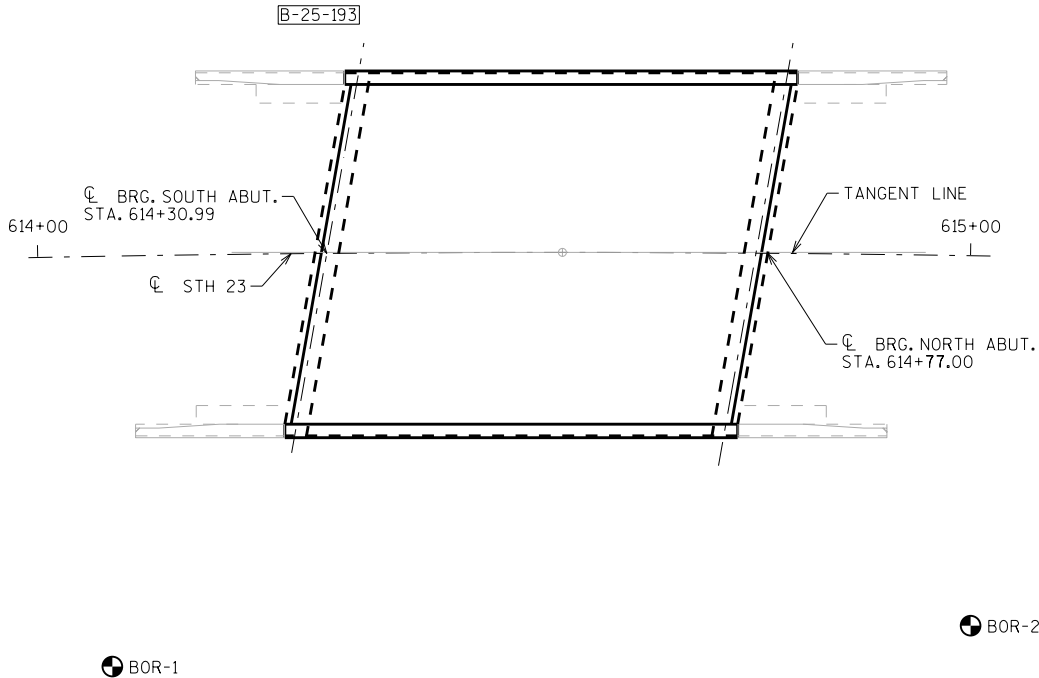
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	8/03/2020	222018	473440
2	8/03/2020	222101	473399

BORINGS COMPLETED BY: WISDOT

REPORT COMPLETED BY: WISDOT

ALL COORDINATES REFERENCED TO WCCS NAD 83(91) IOWA COUNTY

COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT



STATE PROJECT NUMBER		
5245-02-76		
MATERIAL SYMBOLS		
ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

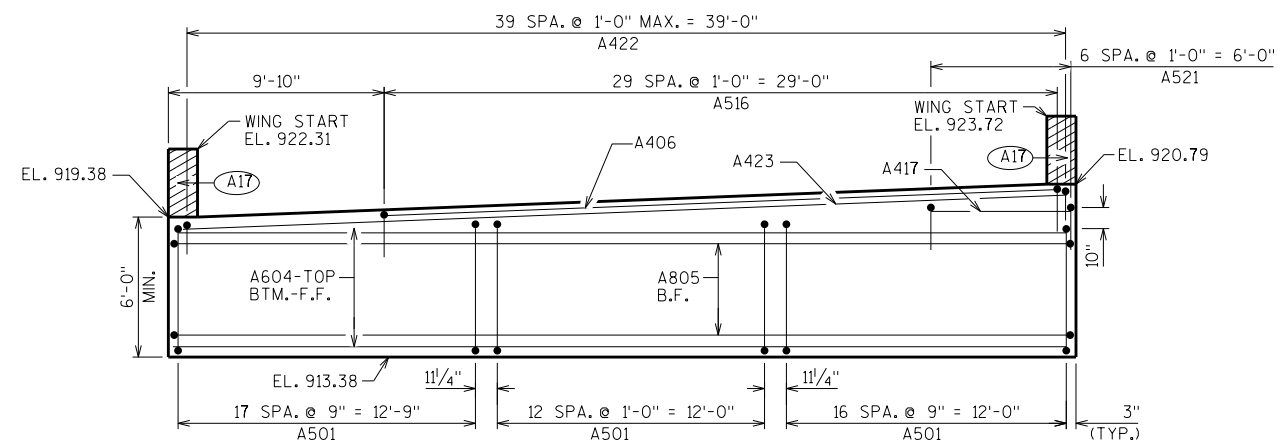
LEGEND OF BORING	
BORING #/EL. STA./OFF-SET	
ST (1) (2) 0.25 17	
F-C	COBBLE OR BOULDER
	WEATHERED LIMESTONE
	CORE RUN #1 - 24'-29' REC=80%, ROD=72%
(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)	
(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.	
GROUND WATER ELEVATION	
	AT TIME OF DRILLING
	END OF DRILLING
	AFTER DRILLING
ABBREVIATIONS	
F-FINE	M-MEDIUM
C-COARSE	ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

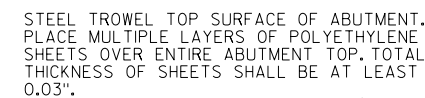
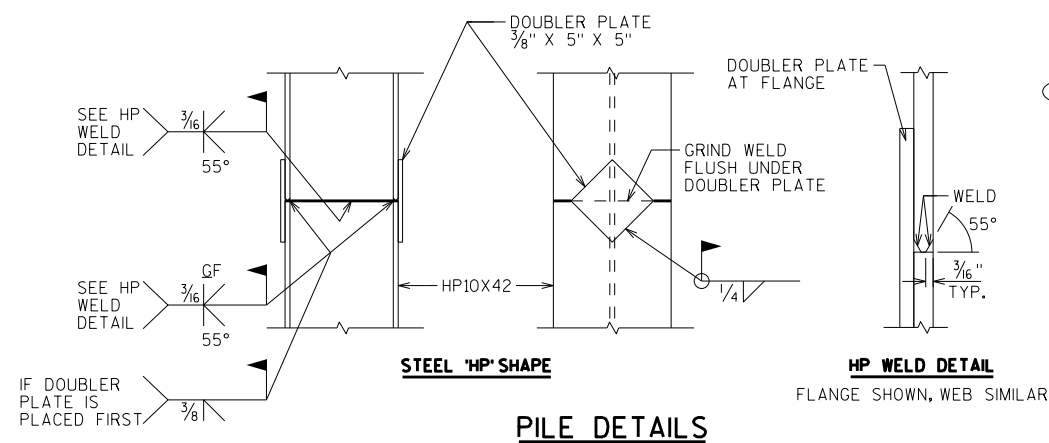
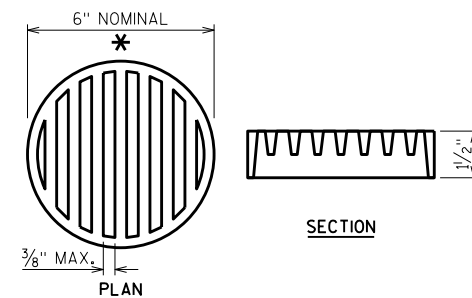
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-25-193			
DRAWN BY TLP/MJH		PLANS CKD. MWB	
SUBSURFACE EXPLORATION			SHEET 3
			167

SCALE = 10.00



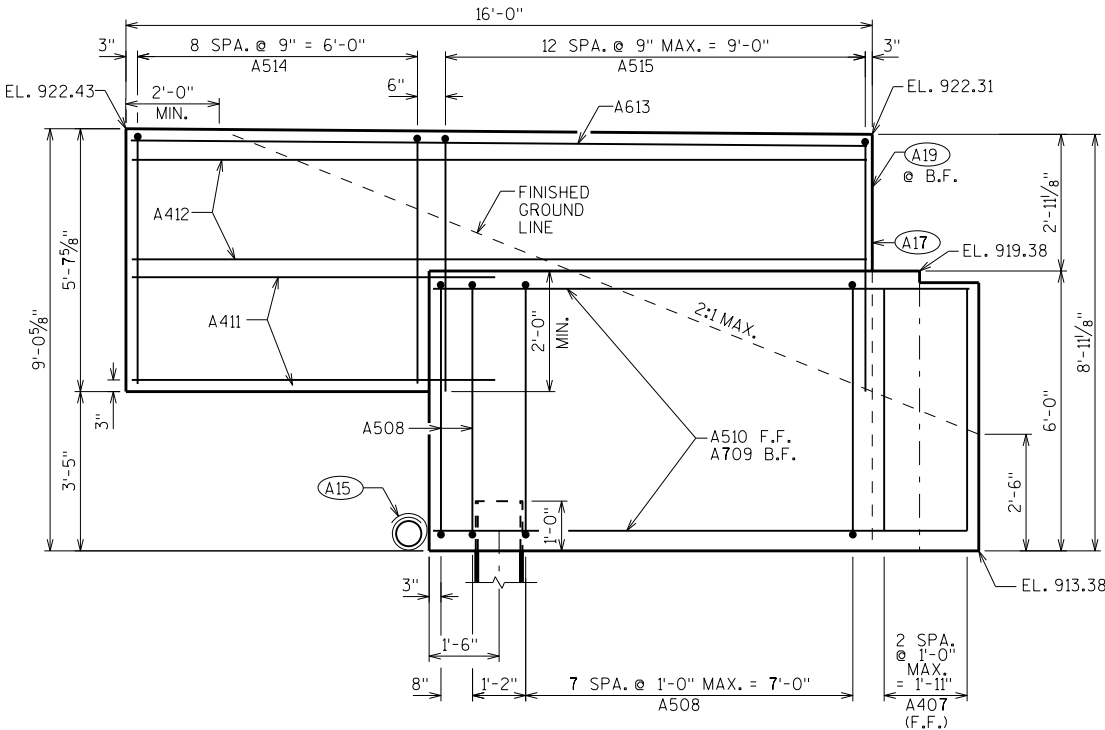
GENERAL NOTES



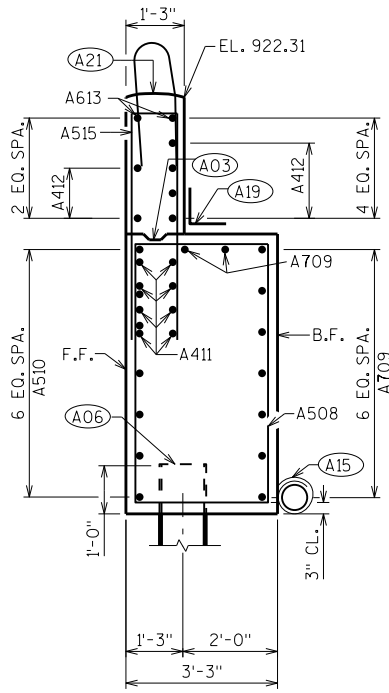
-  ¾" CORK FILLER ON VERTICAL SEAT FACES THAT RUN PARALLEL WITH ROADWAY.
-  MEASURED TO TANGENT LINE
- A06** SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17** 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

BILL OF BARS

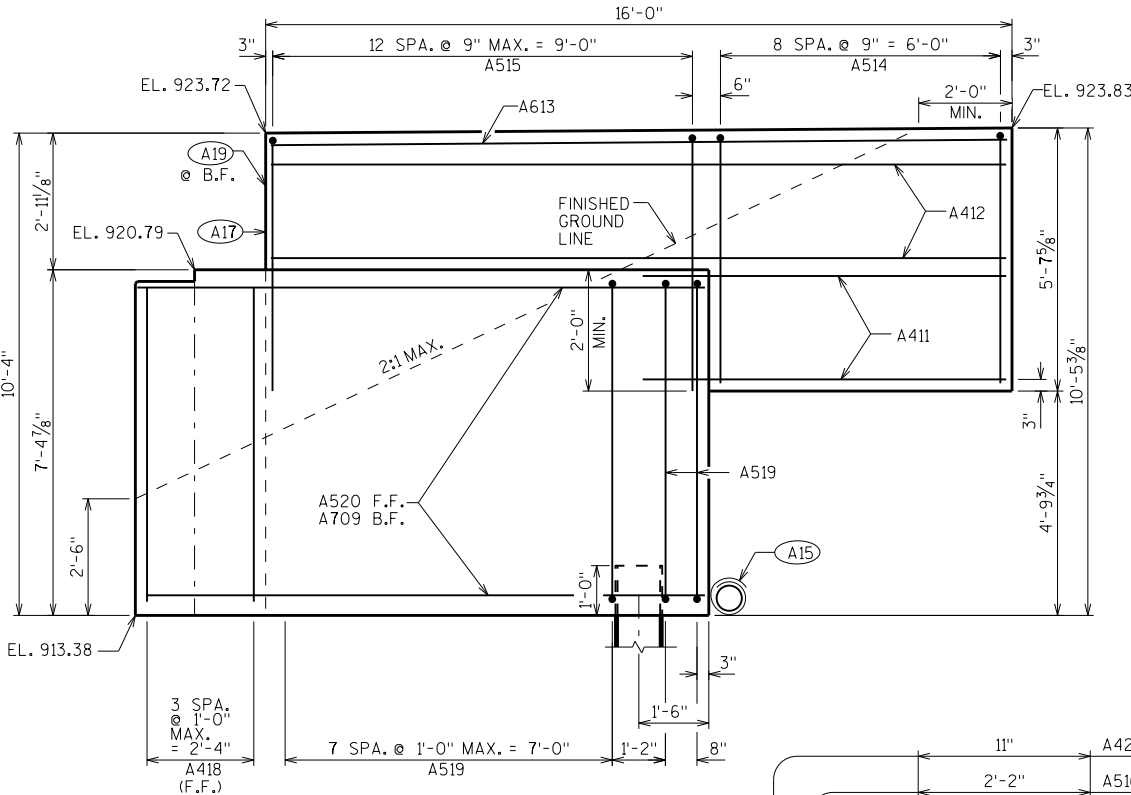
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		48	15'-10"	X		BODY-STIRRUPS
A402		12	2'-3"			BODY PILES - 2 PER PILE
A403		6	28'-0"	X		BODY PILES - 1 PER PILE
A604		11	39'-0"			BODY - HORIZ. - F.F., TOP. & BOT.
A805		7	41'-0"	X		BODY - HORIZ. - B.F.
A406		4	29'-0"			BODY - HORIZ. - TOP - SUPPLEMENTAL
A407		3	5'-5"			WING 1 BODY - VERT. - ENDS
A508	X	10	17'-8"	X		WING 1 - STIRRUPS
A709	X	18	12'-2"	X		WINGS 1 & 2 - HORIZ. - B.F. - LOWER WINGS
A510	X	7	11'-5"			WING 1 - HORIZ. - F.F. - LOWER WING
A411	X	16	7'-9"			WINGS 1 & 2 - HORIZ.
A412	X	12	15'-8"			WINGS 1 & 2 - HORIZ. - UPPER WINGS
A613	X	4	15'-8"			WINGS 1 & 2 - HORIZ. - UPPER WINGS - TOP
A514	X	18	12'-6"	X		WINGS 1 & 2 - VERT. - UPPER WINGS
A515	X	26	12'-10"	X		WINGS 1 & 2 - VERT. - UPPER WINGS
A516		37	4'-9"	X		BODY - VERT. - TOP - SUPPLEMENTAL
A417		4	6'-0"			BODY - HORIZ. - TOP - SUPPLEMENTAL
A418		4	6'-10"			WING 2 BODY - VERT. - END
A519	X	10	19'-10"	X		WING 2 - STIRRUPS
A520	X	8	11'-11"			WING 2 - HORIZ. - F.F. - LOWER WING
A521		7	4'-9"	X		BODY - VERT. - TOP - SUPPLEMENTAL
A422		40	3'-3"	X		BODY - VERT. U-BAR
A423		2	39'-0"			BODY - HORIZ.



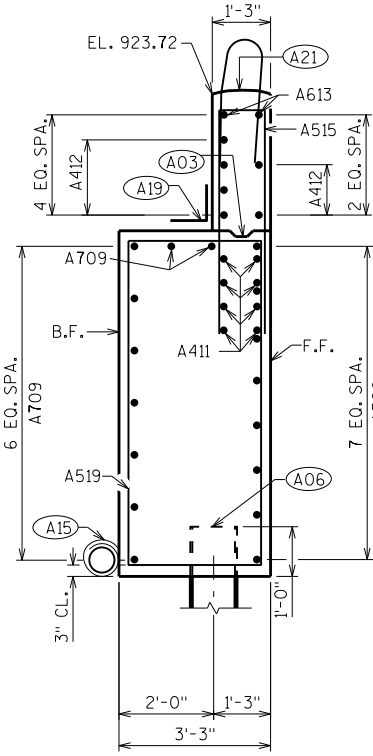
WING 1 ELEVATION



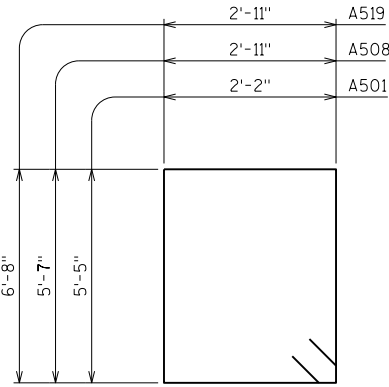
WING 1 SECTION



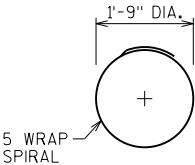
WING 2 ELEVATION



WING 2 SECTION

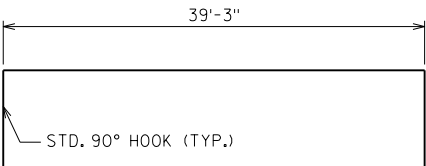


A501, A508, A519

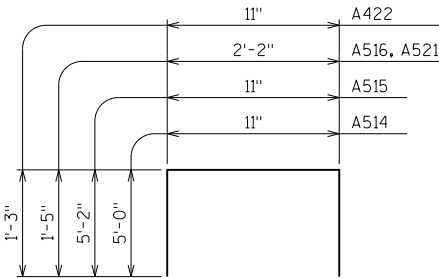


A403

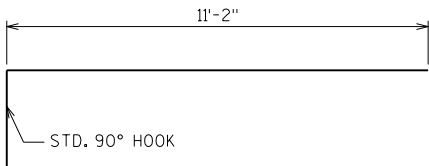
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A21) FOR PPT. BARS & DIMENSIONS SEE PARAPET SHEET.



A805

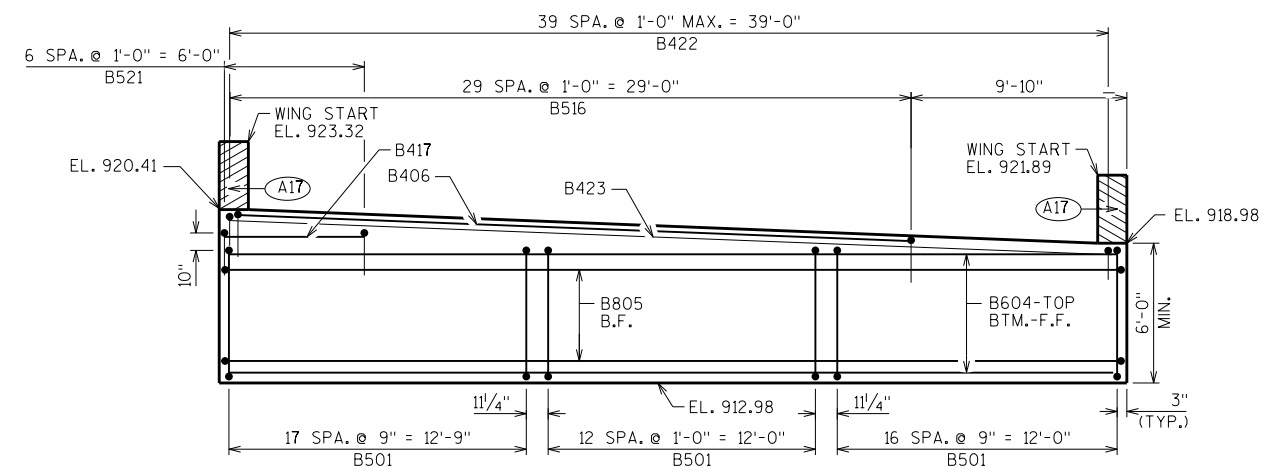


A514, A515, A516, A521, A422

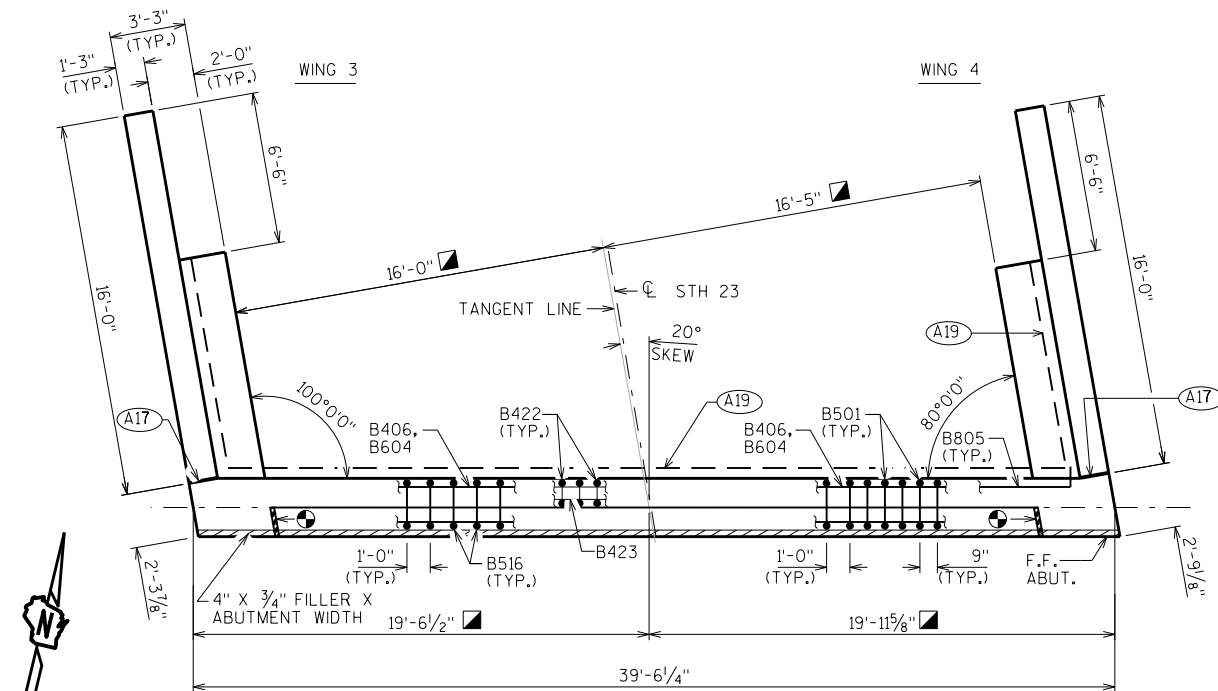


A709

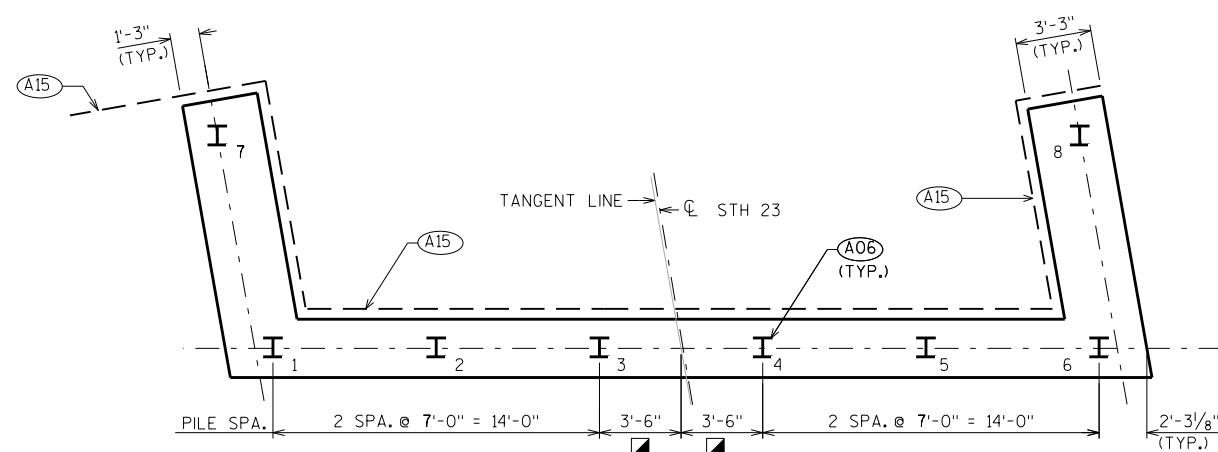
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-25-193			
DRAWN BY MJH		PLANS CK'D. MWB	
SOUTH ABUTMENT DETAILS			SHEET 5
			169



ELEVATION
LOOKING NORTH AT
F.F. OF ABUTMENT



PLAN

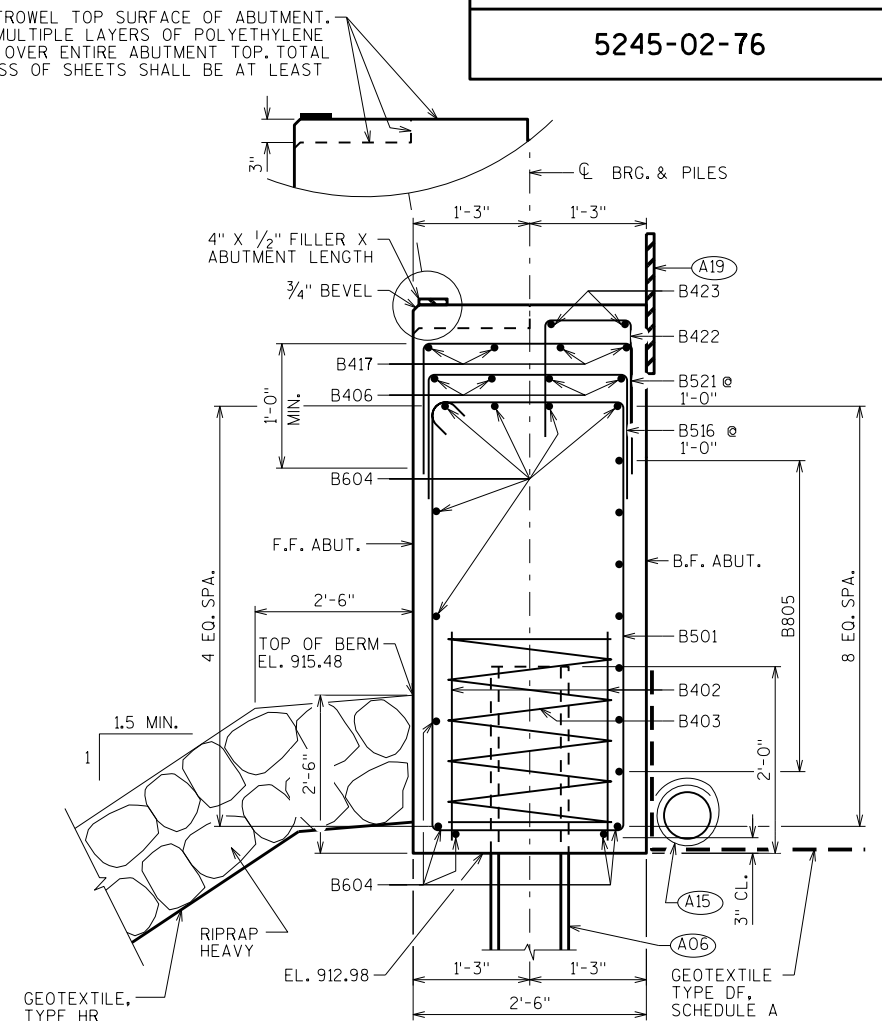


PILE PLAN

STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

STATE PROJECT NUMBER

5245-02-76



SECTION THRU BODY

-  3/4" CORK FILLER ON VERTICAL SEAT FACES THAT RUN PARALLEL WITH ROADWAY.
-  MEASURED TO TANGENT LINE
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER, (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE), EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

GENERAL NOTES

CONTRACTOR WILL ENCOUNTER ARTESIAN CONDITIONS DURING
PRE-BORING AT BOTH ABUTMENTS

PRE-BORED HOLES MUST BE GROUTED UP TO THE BOTTOM OF
ABUTMENT ELEVATION USING A TREMIE POUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-25-193			
		DRAWN BY	PLANS CK'D. MWB
NORTH ABUTMENT		SHEET 6	
		170	

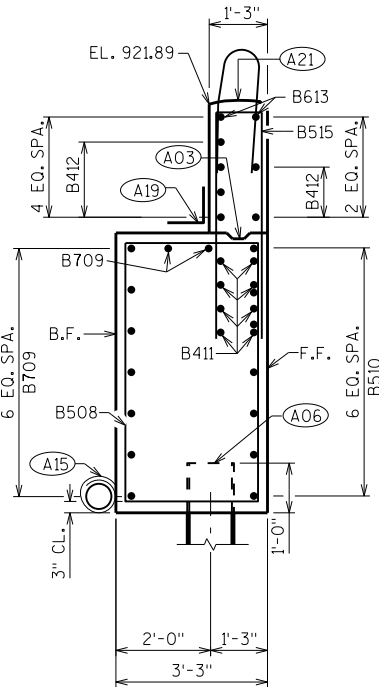
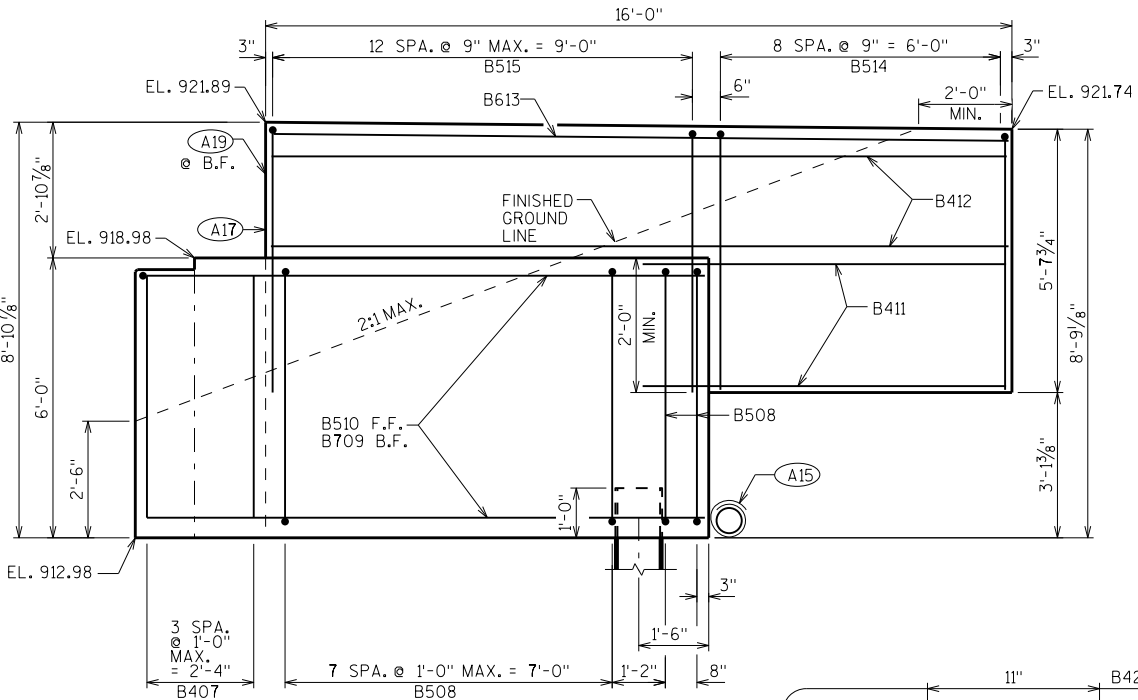
SCALE = 4.00

BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		48	15'-10"	X		BODY-STIRRUPS
B402		12	2'-3"			BODY PILES - 2 PER PILE
B403		6	28'-0"	X		BODY PILES - 1 PER PILE
B604		11	39'-0"			BODY - HORIZ. - F.F., TOP. & BOT.
B805		7	41'-6"	X		BODY - HORIZ. - B.F.
B406		4	29'-0"			BODY - HORIZ. - TOP - SUPPLEMENTAL
B407		4	5'-5"			WING 4 BODY - VERT. - ENDS
B508	X	10	17'-8"	X		WING 4 - STIRRUPS
B709	X	16	12'-1"	X		WINGS 3 & 4 - HORIZ. - B.F. - LOWER WINGS
B510	X	7	11'-11"			WING 4 - HORIZ. - F.F. - LOWER WING
B411	X	16	7'-9"			WINGS 3 & 4 - HORIZ.
B412	X	12	15'-8"			WINGS 3 & 4 - HORIZ. - UPPER WINGS
B613	X	4	15'-8"			WINGS 3 & 4 - HORIZ. - UPPER WINGS - TOP
B514	X	18	12'-6"	X		WINGS 3 & 4 - VERT. -UPPER WINGS
B515	X	26	12'-10"	X		WINGS 3 & 4 - VERT. -UPPER WINGS
B516		37	4'-9"	X		BODY - VERT. - TOP - SUPPLEMENTAL
B417		4	6'-0"			BODY - HORIZ. - TOP - SUPPLEMENTAL
B418		3	6'-10"			WING 3 BODY - VERT. - END
B519	X	10	19'-10"	X		WING 3 - STIRRUPS
B520	X	8	11'-6"			WING 3 - HORIZ. - F.F. - LOWER WING
B521		7	4'-9"	X		BODY - VERT. - TOP - SUPPLEMENTAL
B422		40	3'-3"	X		BODY - VERT. U-BAR
B423		2	39'-0"			BODY - HORIZ.

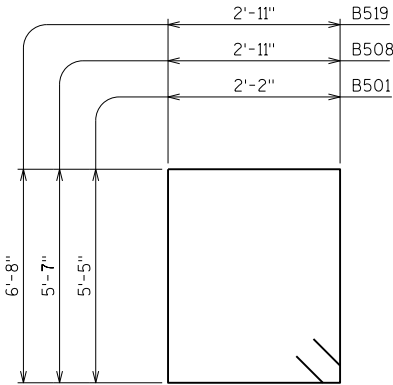
WING 3 ELEVATION

WING 3 SECTION

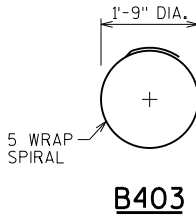


WING 4 ELEVATION

WING 4 SECTION

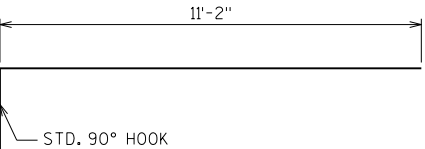


B501, B508, B519

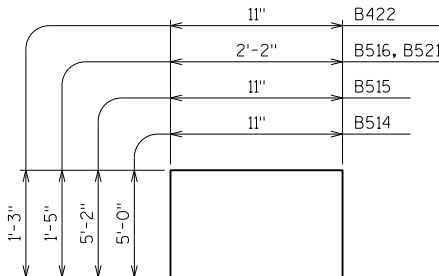


B403

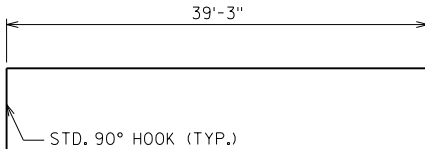
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A21) FOR PPT. BARS & DIMENSIONS SEE PARAPET SHEET.



B709

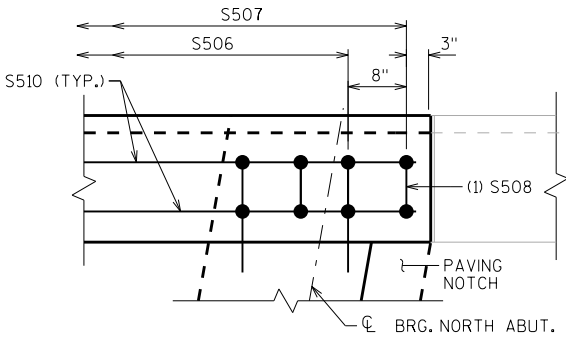


B514, B515, B516, B521, B422



B805

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-25-193			
DRAWN BY MJH		PLANS CK'D. MWB	
NORTH ABUTMENT DETAILS			SHEET 7
			171

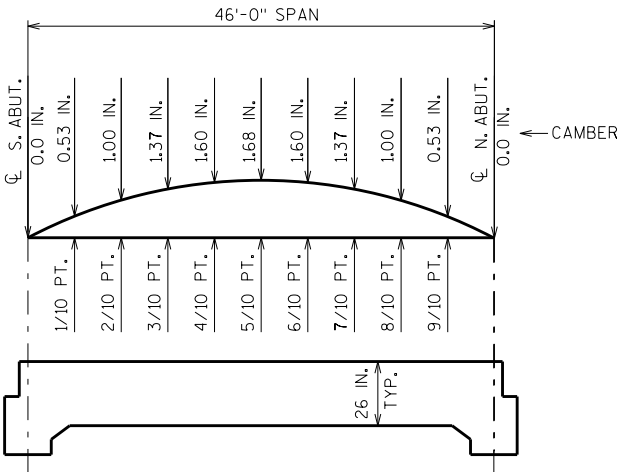


DETAIL D

SURVEY TOP OF SLAB ELEVATIONS

	CL BRG. S. ABUT.	5/10 PT.	CL BRG. N. ABUT.
WEST EDGE OF SLAB			
R. STH 23/ CROWN			
EAST EDGE OF SLAB			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE CL OF ABUTMENTS, THE CL OF PIERS AND AT 5/10 PTS. TO VERIFY CAMBER, TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR R. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

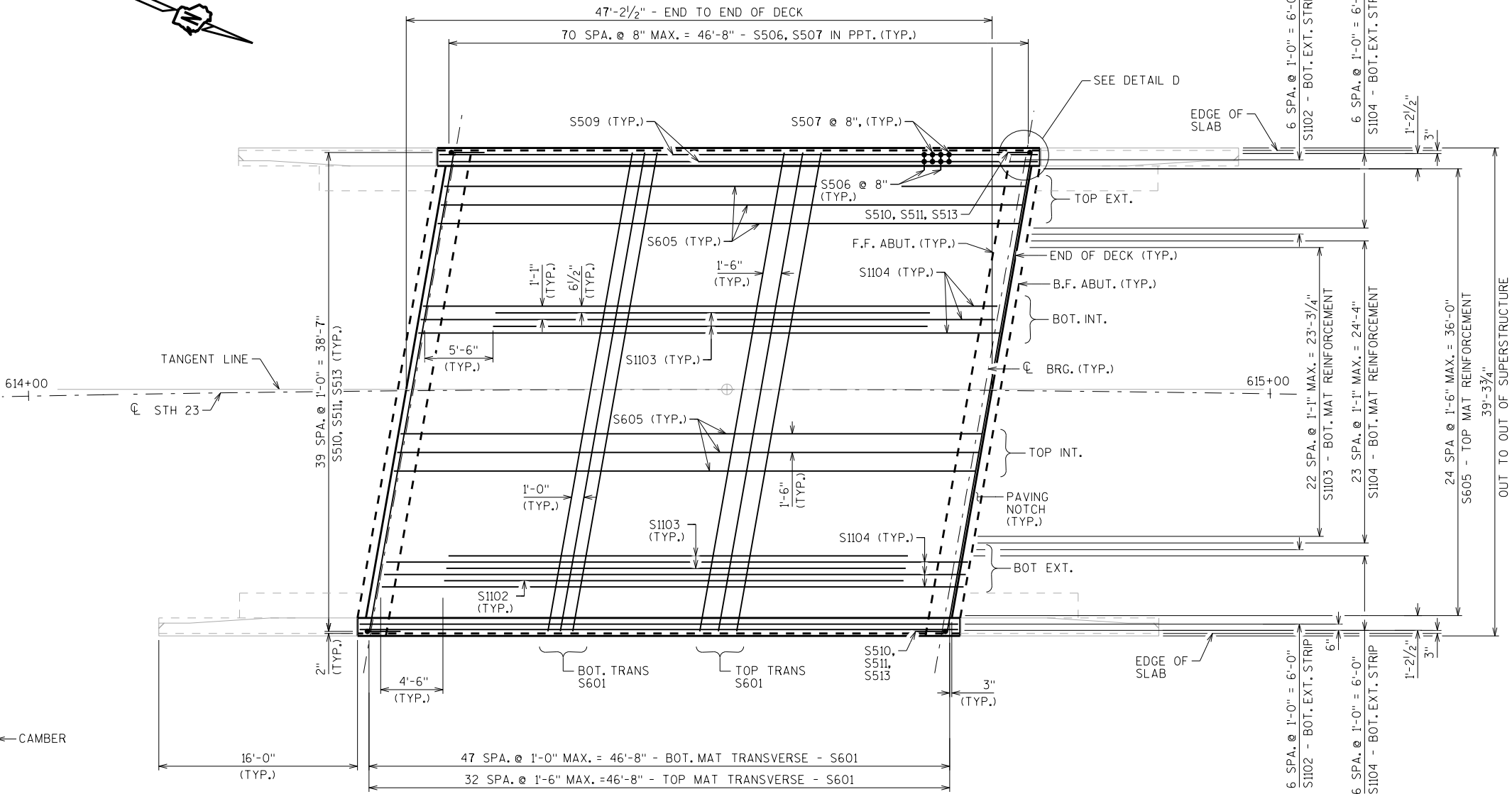


CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

LESS TOP OF SLAB ELEVATION AT FINAL GRADE
PLUS SLAB THICKNESS
PLUS CAMBER
PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS TOP OF SLAB FALSEWORK ELEVATION.



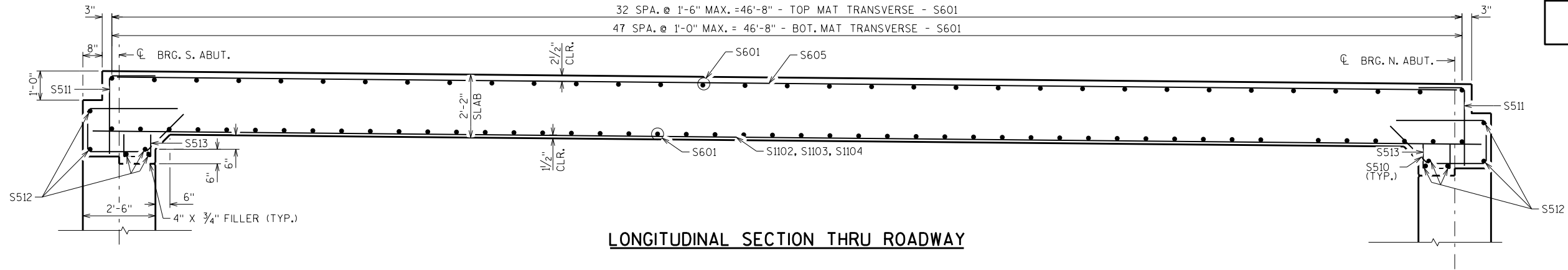
SUPERSTRUCTURE PLAN

TOP OF DECK ELEVATIONS

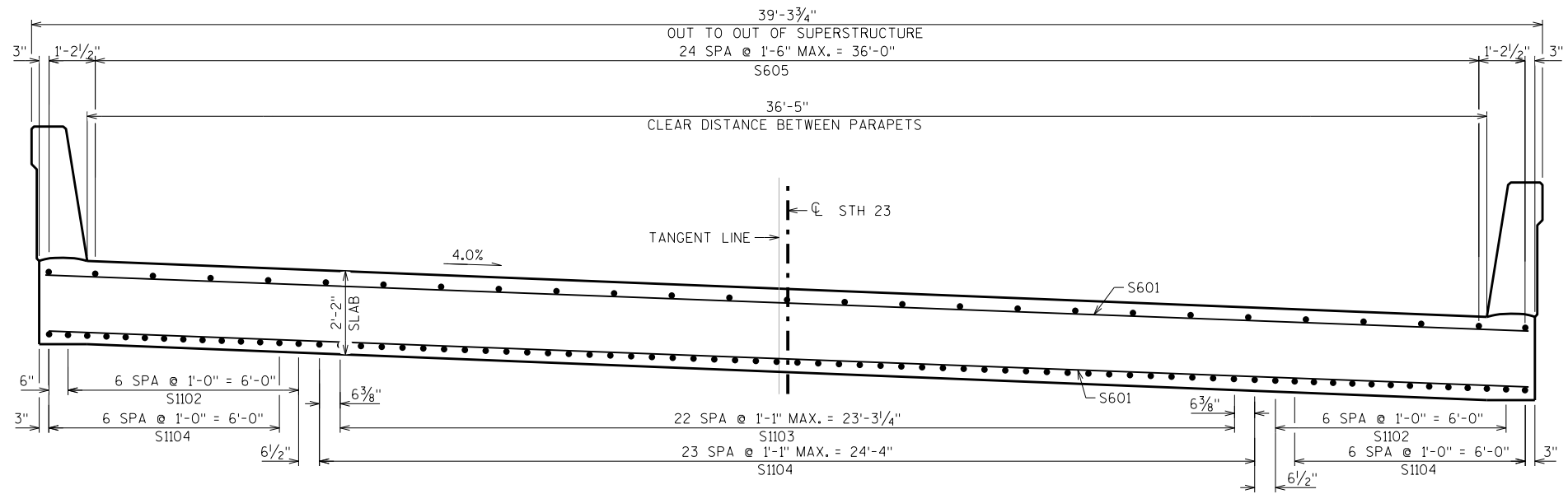
EOD = EDGE OF DECK

	CL BRG. S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL BRG. N. ABUT.
W. EOD	923.70	923.66	923.62	923.58	923.54	923.50	923.47	923.43	923.39	923.35	923.33
CL STH 23	923.01	922.97	922.93	922.89	922.85	922.81	922.77	922.73	922.69	922.65	922.61
E. EOD	922.30	922.27	922.23	922.18	922.14	922.10	922.06	922.02	921.98	921.94	921.91

NO.	DATE	REVISION	BY
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DRAWN BY MJH		PLANS CK'D. MWB	
SUPERSTRUCTURE PLAN			SHEET 8
			172



LONGITUDINAL SECTION THRU ROADWAY

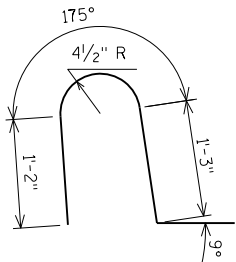


CROSS SECTION THRU ROADWAY

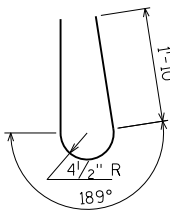
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

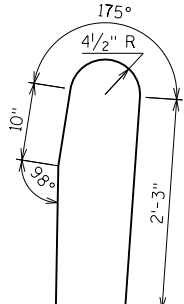
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S601	X	81	39'-2"			TOP & BOT. TRANSVERSE
S1102	X	14	37'-10"			BOT. EXT. STRIP LONGIT.
S1103	X	23	35'-10"			BOT. INT. STRIP LONGIT.
S1104	X	38	46'-10"			BOT. LONGIT.
S605	X	25	46'-10"			TOP LONGIT.
S506	X	142	4'-5"	X		PARAPET & DECK- VERT.
S507	X	146	6'-8"	X		PARAPET - VERT.
S508	X	4	5'-10"	X		PARAPET - VERT. AT PAVING NOTCH
S509	X	16	48'-2"			PARAPET - LONGITUDINAL
S510	X	80	9'-0"	X		END OF SLAB @ ABUTMENTS
S511	X	80	4'-0"	X		END OF SLAB @ ABUTMENTS
S512	X	10	39'-2"			END OF SLAB @ ABUTMENTS
S513	X	80	2'-4"	X		END OF SLAB @ ABUTMENTS



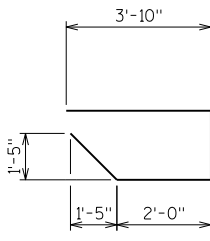
S506



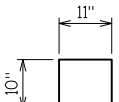
S507



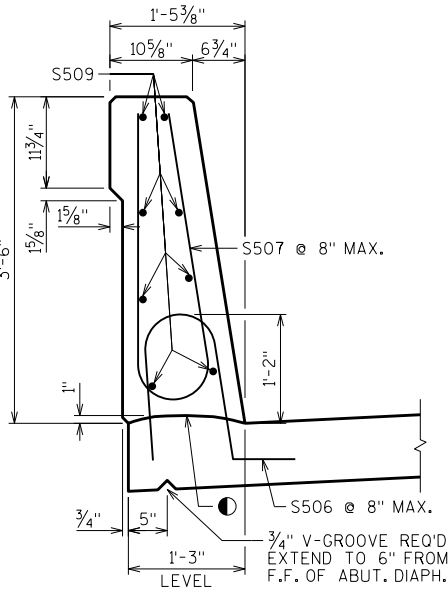
S508



S510



S513



SECTION THRU PARAPET ON BRIDGE

CONST. JOINT - STRIKE OFF AS SHOWN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-25-193			
		DRAWN BY MJH	PLANS CK'D. MWB
SUPERSTRUCTURE DETAILS		SHEET 9	
		173	

BILL OF BARS

FOR ABUTMENT PARAPETS

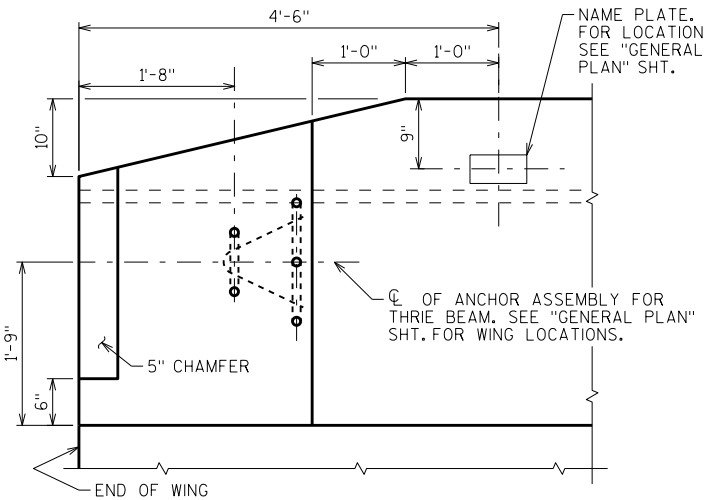
BAR MARK	COUNT	S. ABUT.	N. ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	24	24	5'-10"	X		PARAPET VERT.
R502	X	24	24	6'-8"	X		PARAPET VERT.
R503	X	22	22	3'-0"	X		PARAPET VERT.
R504	X	34	34	5'-7"	X		PARAPET VERT.
R505	X	10	10	6'-5"	X		PARAPET VERT.
R506	X	12	12	6'-6"	X		PARAPET VERT.
R507	X	2	2	15'-7"	X		PARAPET HORIZ.
R508	X	10	10	15'-7"			PARAPET HORIZ.
R509	X	12	12	5'-5"	X	▲	PARAPET VERT.
R510	X	4	4	15'-7"	X		PARAPET HORIZ.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

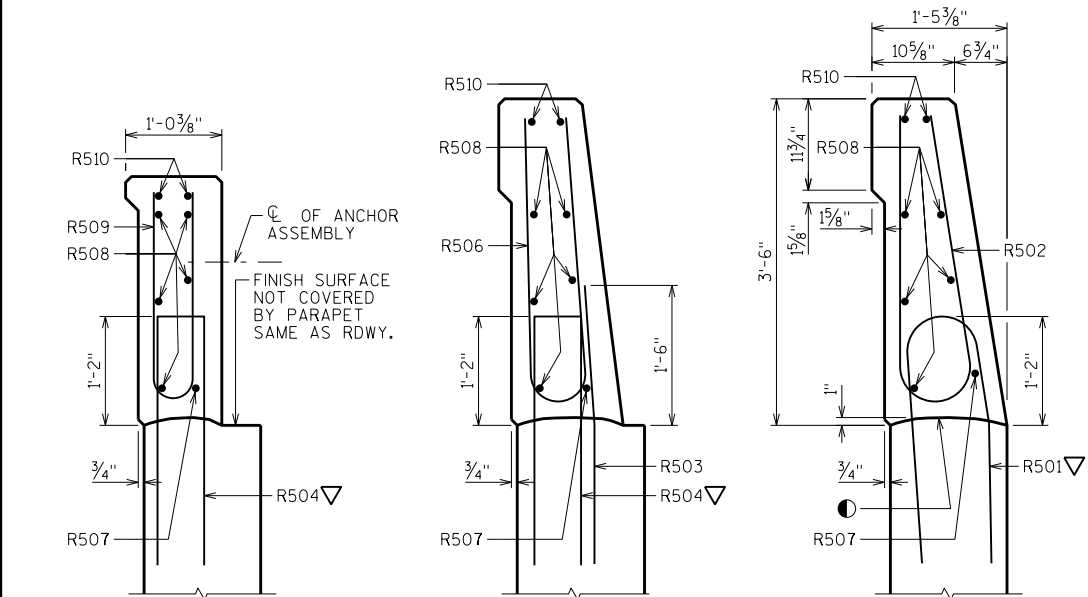
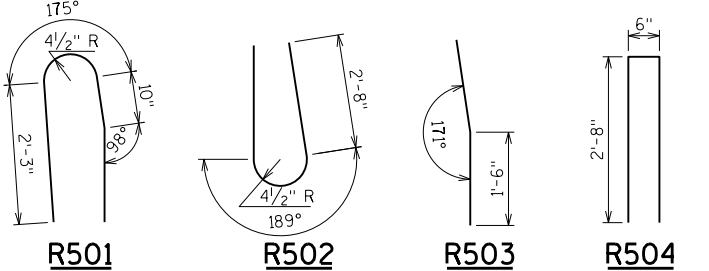
BUNDLE AND TAG EACH SERIES SEPARATELY.



PARAPET END TREATMENT DETAIL

LOOKING AT INSIDE FACE OF PARAPET

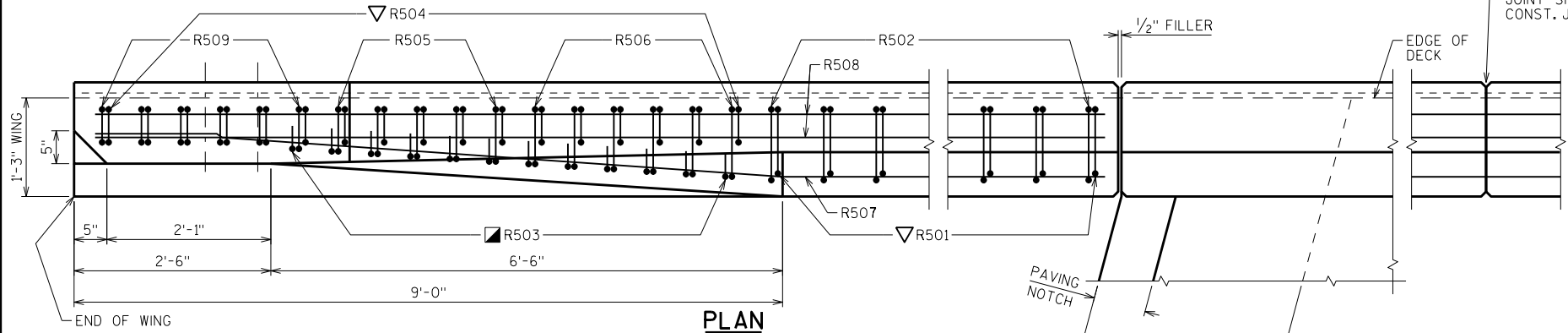
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT, LAP LONGIT. BARS A MIN. OF 1'-9", MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.



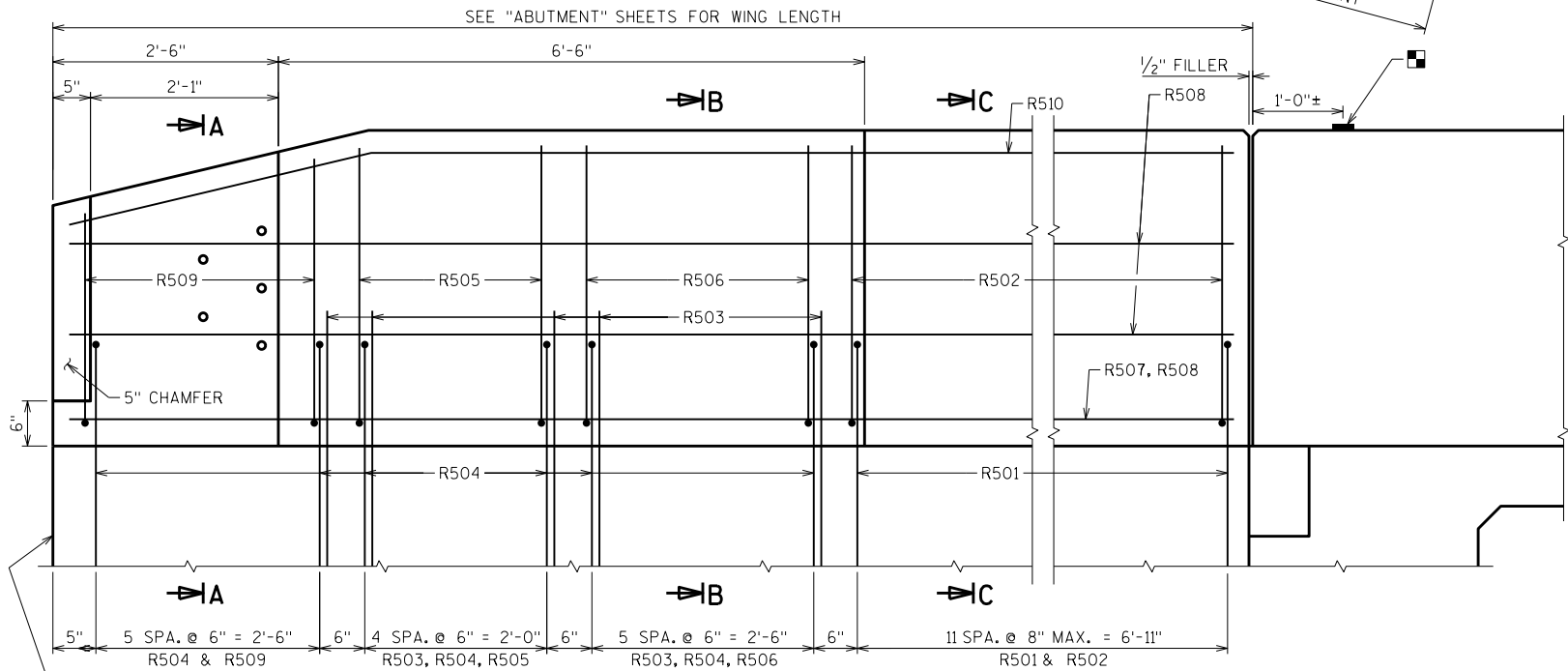
SECTION A-A

SECTION B-B

SECTION C-C

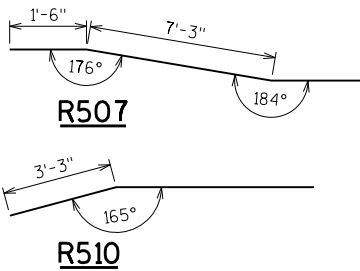


PLAN



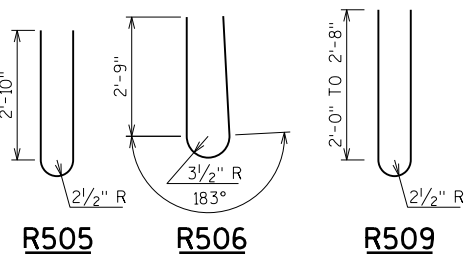
INSIDE ELEVATION

■ BENCH MARK CAP



R507

R510



R505

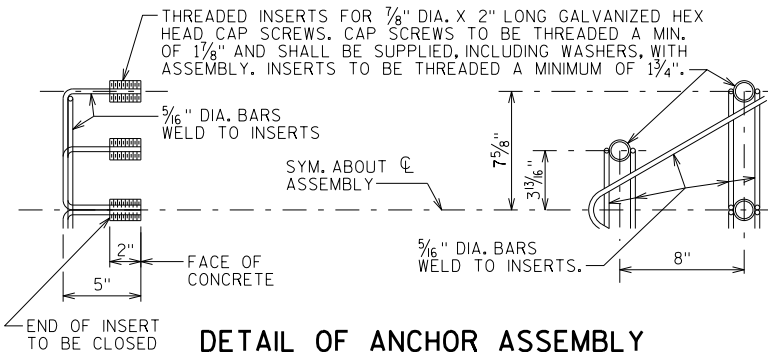
R506

R509

● CONST. JOINT - STRIKE OFF AS SHOWN

■ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-25-193			
DRAWN BY MJH		PLANS CKD. MWB	
SINGLE SLOPE PARAPET 42SS		SHEET 10	
		174	

STATION	REAL STATION	DISTANCE	AREA (SF)						INCREMENTAL VOL (CY) (UNADJUSTED)						CUMULATIVE VOL (CY)							
			CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	ROCK EXC	EBS	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARS H EXC	ROCK EXC	EBS	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	EXPANDED ROCK	EXPANDED EBS BACKFILL	REDUCED MARSH IN FILL	REDUCED EBS IN FILL	MASS ORDINATE
															1.00	1.20	1.00	1.00	1.00	1.00	1.00	
															NOTE 1		NOTE 4		NOTE 5	NOTE 6	NOTE 7	
16+00	1600.00	0.00	0.35	0.00	0.97	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16+50	1650.00	50.00	0.00	0.00	17.94	0.00	0.00	0.00	0	0	18	0	0	0	0	22	0	0	0	0	0	-22
17+00	1700.00	50.00	0.00	0.00	28.68	0.00	0.00	0.00	0	0	43	0	0	0	0	73	0	0	0	0	0	-73
17+50	1750.00	50.00	0.00	0.00	29.94	0.00	0.00	0.00	0	0	54	0	0	0	0	138	0	0	0	0	0	-138
18+00	1800.00	50.00	0.00	0.00	1.08	0.00	0.00	0.00	0	0	29	0	0	0	0	173	0	0	0	0	0	-173
18+50	1850.00	50.00	0.02	0.00	1.23	0.00	0.00	0.00	0	0	2	0	0	0	0	175	0	0	0	0	0	-175
19+00	1900.00	50.00	0.00	0.00	2.93	0.00	0.00	0.00	0	0	4	0	0	0	0	180	0	0	0	0	0	-180
19+50	1950.00	50.00	0.03	0.00	1.77	0.00	0.00	0.00	0	0	4	0	0	0	0	185	0	0	0	0	0	-185
20+00	2000.00	50.00	0.00	0.00	2.11	0.00	0.00	0.00	0	0	4	0	0	0	0	190	0	0	0	0	0	190
20+50	2050.00	50.00	0.12	0.00	4.48	0.00	0.00	0.00	0	0	6	0	0	0	0	197	0	0	0	0	0	-197
21+00	2100.00	50.00	0.00	0.00	3.28	0.00	0.00	0.00	0	0	7	0	0	0	0	205	0	0	0	0	0	-205
21+50	2150.00	50.00	0.00	0.00	1.70	0.00	0.00	0.00	0	0	5	0	0	0	0	211	0	0	0	0	0	-211
22+00	2200.00	50.00	0.00	0.00	1.41	0.00	0.00	0.00	0	0	3	0	0	0	0	215	0	0	0	0	0	-215
22+50	2250.00	50.00	0.00	0.00	1.32	0.00	0.00	0.00	0	0	3	0	0	0	0	218	0	0	0	0	0	-218
23+00	2300.00	50.00	0.00	0.00	1.14	0.00	0.00	0.00	0	0	2	0	0	0	0	221	0	0	0	0	0	-221
23+50	2350.00	50.00	2.17	0.00	0.70	0.00	0.00	0.00	2	0	2	0	0	0	2	223	0	0	0	0	0	-221
24+00	2400.00	50.00	0.00	0.00	0.98	0.00	0.00	0.00	2	0	2	0	0	0	4	226	0	0	0	0	0	-222
24+50	2450.00	50.00	0.00	0.00	0.99	0.00	0.00	0.00	0	0	2	0	0	0	4	228	0	0	0	0	0	-224
25+00	2500.00	50.00	0.00	0.00	0.73	0.00	0.00	0.00	0	0	2	0	0	0	4	230	0	0	0	0	0	-226
25+50	2550.00	50.00	0.12	0.00	0.46	0.00	0.00	0.00	0	0	1	0	0	0	4	232	0	0	0	0	0	228
26+00	2600.00	50.00	0.00	0.00	1.03	0.00	0.00	0.00	0	0	1	0	0	0	4	233	0	0	0	0	0	-229
26+50	2650.00	50.00	0.00	0.00	1.03	0.00	0.00	0.00	0	0	2	0	0	0	4	235	0	0	0	0	0	-231
27+00	2700.00	50.00	0.00	0.00	0.79	0.00	0.00	0.00	0	0	2	0	0	0	4	238	0	0	0	0	0	-234
27+50	2750.00	50.00	0.00	0.00	0.79	0.00	0.00	0.00	0	0	1	0	0	0	4	239	0	0	0	0	0	-235
28+00	2800.00	50.00	0.00	0.00	1.05	0.00	0.00	0.00	0	0	2	0	0	0	4	241	0	0	0	0	0	-237
28+50	2850.00	50.00	0.00	0.00	1.02	0.00	0.00	0.00	0	0	2	0	0	0	4	244	0	0	0	0	0	-240
29+00	2900.00	50.00	0.00	0.00	1.95	0.00	0.00	0.00	0	0	3	0	0	0	4	247	0	0	0	0	0	243
29+50	2950.00	50.00	0.05	0.00	3.63	0.00	0.00	0.00	0	0	5	0	0	0	4	253	0	0	0	0	0	-249
30+00	3000.00	50.00	0.16	0.00	3.83	0.00	0.00	0.00	0	0	7	0	0	0	4	262	0	0	0	0	0	-258
30+50	3050.00	50.00	0.13	0.00	0.87	0.00	0.00	0.00	0	0	4	0	0	0	4	266	0	0	0	0	0	-262
31+00	3100.00	50.00	0.01	0.00	1.07	0.00	0.00	0.00	0	0	2	0	0	0	4	269	0	0	0	0	0	265
31+50	3150.00	50.00	0.00	0.00	1.29	0.00	0.00	0.00	0	0	2	0	0	0	4	271	0	0	0	0	0	-267
32+00	3200.00	50.00	0.00	0.00	1.97	0.00	0.00	0.00	0	0	3	0	0	0	4	275	0	0	0	0	0	-271
32+50	3250.00	50.00	0.00	0.00	2.74	0.00	0.00	0.00	0	0	4	0	0	0	4	280	0	0	0	0	0	-276
33+00	3300.00	50.00	0.00	0.00	1.10	0.00	0.00	0.00	0	0	4	0	0	0	4	284	0	0	0	0	0	-280
33+50	3350.00	50.00	0.00	0.00	1.89	0.00	0.00	0.00	0	0	3	0	0	0	4	288	0	0	0	0	0	-284
34+00	3400.00	50.00	0.00	0.00	2.27	0.00	0.00	0.00	0	0	4	0	0	0	4	293	0	0	0	0	0	-289
34+50	3450.00	50.00	0.00	0.00	1.96	0.00	0.00	0.00	0	0	4	0	0	0	4	298	0	0	0	0	0	-294
35+00	3500.00	50.00	0.00	0.00	1.80	0.00	0.00	0.00	0	0	3	0	0	0	4	301	0	0	0	0	0	-297
35+50	3550.00	50.00	0.00	0.00	2.17	0.00	0.00	0.00	0	0	4	0	0	0	4	306	0	0	0	0	0	302
36+00	3600.00	50.00	0.00	0.00	2.07	0.00	0.00	0.00	0	0	4	0	0	0	4	311	0	0	0	0	0	-307
36+50	3650.00	50.00	0.00	0.00	1.47	0.00	0.00	0.00	0	0	3	0	0	0	4	314	0	0	0	0	0	-310
37+00	3700.00	50.00	0.00	0.00	1.05	0.00	0.00	0.00	0	0	2	0	0	0	4	317	0	0	0	0	0	-313
37+50	3750.00	50.00	0.02	0.00	1.11	0.00	0.00	0.00	0	0	2	0	0	0	4	319	0	0	0	0	0	-315
38+00	3800.00	50.00	0.07	0.00	0.62	0.00	0.00	0.00	0	0	2	0	0	0	4	322	0	0	0	0	0	-318
38+50	3850.00	50.00	0.00	0.00	1.62	0.00	0.00	0.00	0	0	2	0	0	0	4	324	0	0	0	0	0	-320
39+00	3900.00	50.00	0.00	0.00	3.58	0.00	0.00	0.00	0	0	5	0	0	0	4	330	0	0	0	0	0	-326
39+50	3950.00	50.00	0.00	0.00	1.17	0.00	0.00	0.00	0	0	4	0	0	0	4	335	0	0	0	0	0	-331
40+00	4000.00	50.00	0.00	0.00	1.72	0.00	0.00	0.00	0	0	3	0	0	0	4	338	0	0	0	0	0	334
40+50	4050.00	50.00	0.00	0.00	1.47	0.00	0.00	0.00	0	0	3	0	0	0	4	342	0	0	0	0	0	-338

STATION	REAL STATION	DISTANCE	AREA (SF)						INCREMENTAL VOL (CY) (UNADJUSTED)						CUMULATIVE VOL (CY)													
			CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	ROCK EXC	EBS	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARS H EXC	ROCK EXC	EBS	CUT	EXPANDED	EXPANDED	EXPANDED	EXPANDED	REDUCED	REDUCED	MASS ORDINATE						
															1.00	1.20	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
								NOTE 1	NOTE 2	NOTE 3				NOTE 1		NOTE 4		NOTE 5	NOTE 6	NOTE 7	NOTE 8							
41+00	4100.00	50.00	0.00	0.00	0.91	0.00	0.00	0.00	0	0	2	0	0	0	4	344	0	0	0	0	0	-340						
41+50	4150.00	50.00	0.00	0.00	5.50	0.00	0.00	0.00	0	0	6	0	0	0	4	352	0	0	0	0	0	-348						
42+00	4200.00	50.00	0.00	0.00	21.68	0.00	0.00	0.00	0	0	25	0	0	0	4	382	0	0	0	0	0	-378						
42+50	4250.00	50.00	0.00	0.00	27.74	0.00	0.00	0.00	0	0	46	0	0	0	4	437	0	0	0	0	0	-433						
43+00	4300.00	50.00	0.00	0.00	1.97	0.00	0.00	0.00	0	0	28	0	0	0	4	470	0	0	0	0	0	-466						
43+50	4350.00	50.00	0.00	0.00	3.24	0.00	0.00	0.00	0	0	5	0	0	0	4	476	0	0	0	0	0	472						
44+00	4400.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	3	0	0	0	4	480	0	0	0	0	0	-476						
44+50	4450.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	4	480	0	0	0	0	0	-476						
45+00	4500.00	50.00	0.00	0.00	6.04	0.00	0.00	0.00	0	0	6	0	0	0	4	487	0	0	0	0	0	-483						
45+50	4550.00	50.00	0.00	0.00	4.36	0.00	0.00	0.00	0	0	10	0	0	0	4	499	0	0	0	0	0	-495						
46+00	4600.00	50.00	0.00	0.00	18.93	0.00	0.00	0.00	0	0	22	0	0	0	4	526	0	0	0	0	0	522						
46+50	4650.00	50.00	0.00	0.00	8.35	0.00	0.00	0.00	0	0	25	0	0	0	4	556	0	0	0	0	0	-552						
47+00	4700.00	50.00	0.00	0.00	7.19	0.00	0.00	0.00	0	0	14	0	0	0	4	572	0	0	0	0	0	-568						
47+50	4750.00	50.00	0.00	0.00	10.80	0.00	0.00	0.00	0	0	17	0	0	0	4	593	0	0	0	0	0	-589						
48+00	4800.00	50.00	0.00	0.00	18.06	0.00	0.00	0.00	0	0	27	0	0	0	4	625	0	0	0	0	0	-621						
48+50	4850.00	50.00	0.00	0.00	36.03	0.00	0.00	0.00	0	0	50	0	0	0	4	685	0	0	0	0	0	681						
49+00	4900.00	50.00	0.00	0.00	2.20	0.00	0.00	0.00	0	0	35	0	0	0	4	727	0	0	0	0	0	-723						
49+50	4950.00	50.00	0.00	0.00	2.29	0.00	0.00	0.00	0	0	4	0	0	0	4	732	0	0	0	0	0	-728						
50+00	5000.00	50.00	0.03	0.00	29.96	0.00	0.00	0.00	0	0	30	0	0	0	4	768	0	0	0	0	0	-764						
50+50	5050.00	50.00	0.00	0.00	19.01	0.00	0.00	0.00	0	0	45	0	0	0	4	822	0	0	0	0	0	-818						
51+00	5100.00	50.00	0.00	0.00	11.38	0.00	0.00	0.00	0	0	28	0	0	0	4	856	0	0	0	0	0	852						
51+50	5150.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	11	0	0	0	4	869	0	0	0	0	0	-865						
52+00	5200.00	50.00	0.00	0.00	7.01	0.00	0.00	0.00	0	0	6	0	0	0	4	876	0	0	0	0	0	-872						
52+50	5250.00	50.00	0.00	0.00	36.97	0.00	0.00	0.00	0	0	41	0	0	0	4	925	0	0	0	0	0	-921						
53+00	5300.00	50.00	0.00	0.00	80.07	0.00	0.00	0.00	0	0	108	0	0	0	4	1,055	0	0	0	0	0	-1,051						
53+50	5350.00	50.00	0.00	0.00	105.07	0.00	0.00	0.00	0	0	171	0	0	0	4	1,260	0	0	0	0	0	1,256						
54+00	5400.00	50.00	0.00	0.00	53.90	0.00	0.00	0.00	0	0	147	0	0	0	4	1,436	0	0	0	0	0	-1,432						
54+50	5450.00	50.00	0.00	0.00	46.35	0.00	0.00	0.00	0	0	93	0	0	0	4	1,548	0	0	0	0	0	-1,544						
55+00	5500.00	50.00	0.00	0.00	35.83	0.00	0.00	0.00	0	0	76	0	0	0	4	1,639	0	0	0	0	0	1,635						
55+50	5550.00	50.00	0.00	0.00	29.77	0.00	0.00	0.00	0	0	61	0	0	0	4	1,712	0	0	0	0	0	-1,708						
56+00	5600.00	50.00	0.00	0.00	29.07	0.00	0.00	0.00	0	0	54	0	0	0	4	1,777	0	0	0	0	0	-1,773						
56+50	5650.00	50.00	0.00	0.00	23.92	0.00	0.00	0.00	0	0	49	0	0	0	4	1,836	0	0	0	0	0	-1,832						
57+00	5700.00	50.00	0.00	0.00	20.23	0.00	0.00	0.00	0	0	41	0	0	0	4	1,885	0	0	0	0	0	-1,881						
57+50	5750.00	50.00	0.00	0.00	9.91	0.00	0.00	0.00	0	0	28	0	0	0	4	1,919	0	0	0	0	0	1,915						
58+00	5800.00	50.00	0.00	0.00	9.66	0.00	0.00	0.00	0	0	18	0	0	0	4	1,940	0	0	0	0	0	-1,936						
58+50	5850.00	50.00	0.00	0.00	35.00	0.00	0.00	0.00	0	0	41	0	0	0	4	1,990	0	0	0	0	0	-1,986						
59+00	5900.00	50.00	0.00	0.00	52.93	0.00	0.00	0.00	0	0	81	0	0	0	4	2,087	0	0	0	0	0	-2,083						
59+50	5950.00	50.00	0.00	0.00	53.92	0.00	0.00	0.00	0	0	99	0	0	0	4	2,206	0	0	0	0	0	-2,202						
60+00	6000.00	50.00	0.01	0.00	43.26	0.00	0.00	0.00	0	0	90	0	0	0	4	2,314	0	0	0	0	0	2,310						
60+50	6050.00	50.00	0.00	0.00	85.39	0.00	0.00	0.00	0	0	119	0	0	0	4	2,456	0	0	0	0	0	-2,452						
61+00	6100.00	50.00	0.00	0.00	77.91	0.00	0.00	0.00	0	0	151	0	0	0	4	2,638	0	0	0	0	0	-2,634						
61+50	6150.00	50.00	0.00	0.00	55.33	0.00	0.00	0.00	0	0	123	0	0	0	4	2,785	0	0	0	0	0	-2,781						
61+65.052	6165.05	15.05	0.00	0.00	1.57	0.00	0.00	0.00	0	0	16	0	0	0	4	2,804	0	0	0	0	0	-2,800						
75+65.95	7565.95	0.00	0.18	0.00	22.84	0.00	0.00	0.00	0	0	0	0	0	0	4	2,804	0	0	0	0	0	2,800						
76+00	7600.00	34.05	13.43	0.00	23.95	0.00	0.00	0.00	9	0	30	0	0	0	13	2,840	0	0	0	0	0	-2,827						
76+50	7650.00	50.00	2.26	0.00	27.11	0.00	0.00	0.00	15	0	47	0	0	0	28	2,897	0	0	0	0	0	-2,869						
77+00	7700.00	50.00	0.48	0.00	37.96	0.00	0.00	0.00	3	0	60	0	0	0	31	2,969	0	0	0	0	0	-2,938						
77+50	7750.00	50.00	18.23	0.00	11.34	0.00	0.00	0.00	17	0	46	0	0	0	48	3,024	0	0	0	0	0	-2,976						
78+00	7800.00	50.00	0.00	0.00	27.74	0.00	0.00	0.00	17	0	36	0	0	0	65	3,067	0	0	0	0	0	3,002						
78+50	7850.00	50.00	0.00	0.00	17.47	0.00	0.00	0.00	0	0	42	0	0	0	65	3,118	0	0	0	0	0	-3,053						

STATION	REAL STATION	DISTANCE	AREA (SF)						INCREMENTAL VOL (CY) (UNADJUSTED)						CUMULATIVE VOL (CY)							
			CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	ROCK EXC	EBS	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARS H EXC	ROCK EXC	EBS	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	EXPANDED ROCK	EXPANDED EBS BACKFILL	REDUCED MARSH IN FILL	REDUCED EBS IN FILL	MASS ORDINATE
NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 4	NOTE 5	NOTE 6	NOTE 7	NOTE 8														
79+00	7900.00	50.00	0.00	0.00	19.51	0.00	0.00	0.00	0	0	34	0	0	0	65	3,158	0	0	0	0	0	-3,093
79+50	7950.00	50.00	0.00	0.00	80.86	0.00	0.00	0.00	0	0	93	0	0	0	65	3,270	0	0	0	0	0	-3,205
80+00	8000.00	50.00	0.00	0.00	63.07	0.00	0.00	0.00	0	0	133	0	0	0	65	3,430	0	0	0	0	0	-3,365
80+50	8050.00	50.00	0.00	0.00	37.45	0.00	0.00	0.00	0	0	93	0	0	0	65	3,541	0	0	0	0	0	-3,476
80+82.89	8082.89	32.89	0.00	0.00	11.17	0.00	0.00	0.00	0	0	30	0	0	0	65	3,577	0	0	0	0	0	-3,512
266+75	26675.00	0.00	0.00	0.00	25.50	0.00	0.00	0.00	0	0	0	0	0	0	65	3,577	0	0	0	0	0	3,512
267+00	26700.00	25.00	0.00	0.00	14.44	0.00	0.00	0.00	0	0	18	0	0	0	65	3,599	0	0	0	0	0	-3,534
267+50	26750.00	50.00	0.00	0.00	11.85	0.00	0.00	0.00	0	0	24	0	0	0	65	3,628	0	0	0	0	0	-3,563
268+00	26800.00	50.00	0.03	0.00	28.10	0.00	0.00	0.00	0	0	37	0	0	0	65	3,672	0	0	0	0	0	-3,607
268+50	26850.00	50.00	0.00	0.00	50.95	0.00	0.00	0.00	0	0	73	0	0	0	65	3,760	0	0	0	0	0	-3,695
269+00	26900.00	50.00	0.47	0.00	36.71	0.00	0.00	0.00	0	0	81	0	0	0	65	3,857	0	0	0	0	0	3,792
269+50	26950.00	50.00	0.33	0.00	25.82	0.00	0.00	0.00	1	0	58	0	0	0	66	3,926	0	0	0	0	0	-3,860
270+00	27000.00	50.00	0.18	0.00	25.61	0.00	0.00	0.00	0	0	48	0	0	0	66	3,984	0	0	0	0	0	-3,918
270+50	27050.00	50.00	0.77	0.00	15.21	0.00	0.00	0.00	1	0	38	0	0	0	67	4,030	0	0	0	0	0	-3,963
271+00	27100.00	50.00	0.62	0.00	32.72	0.00	0.00	0.00	1	0	44	0	0	0	68	4,082	0	0	0	0	0	-4,014
271+50	27150.00	50.00	0.60	0.00	20.87	0.00	0.00	0.00	1	0	50	0	0	0	69	4,142	0	0	0	0	0	4,073
272+00	27200.00	50.00	0.03	0.00	6.46	0.00	0.00	0.00	1	0	25	0	0	0	70	4,172	0	0	0	0	0	-4,102
272+50	27250.00	50.00	0.00	0.00	1.45	0.00	0.00	0.00	0	0	7	0	0	0	70	4,181	0	0	0	0	0	-4,111
562+93.625	56293.63	0.00	0.00	0.00	1.82	0.00	0.00	0.00	0	0	0	0	0	0	70	4,181	0	0	0	0	0	-4,111
563+00	56300.00	6.37	0.00	0.00	1.96	0.00	0.00	0.00	0	0	0	0	0	0	70	4,181	0	0	0	0	0	-4,111
563+50	56350.00	50.00	0.00	0.00	13.71	0.00	0.00	0.00	0	0	15	0	0	0	70	4,199	0	0	0	0	0	4,129
564+00	56400.00	50.00	0.00	0.00	36.53	0.00	0.00	0.00	0	0	47	0	0	0	70	4,255	0	0	0	0	0	-4,185
564+50	56450.00	50.00	0.00	0.00	21.49	0.00	0.00	0.00	0	0	54	0	0	0	70	4,320	0	0	0	0	0	-4,250
565+00	56500.00	50.00	0.00	0.00	10.18	0.00	0.00	0.00	0	0	29	0	0	0	70	4,355	0	0	0	0	0	-4,285
565+50	56550.00	50.00	0.01	0.00	8.49	0.00	0.00	0.00	0	0	17	0	0	0	70	4,375	0	0	0	0	0	-4,305
566+00	56600.00	50.00	0.54	0.00	1.01	0.00	0.00	0.00	1	0	9	0	0	0	71	4,386	0	0	0	0	0	4,315
566+50	56650.00	50.00	0.09	0.00	1.39	0.00	0.00	0.00	1	0	2	0	0	0	72	4,388	0	0	0	0	0	-4,316
567+00	56700.00	50.00	0.00	0.00	1.68	0.00	0.00	0.00	0	0	3	0	0	0	72	4,392	0	0	0	0	0	-4,320
567+50	56750.00	50.00	0.00	0.00	2.46	0.00	0.00	0.00	0	0	4	0	0	0	72	4,397	0	0	0	0	0	4,325
568+00	56800.00	50.00	0.00	0.00	2.57	0.00	0.00	0.00	0	0	5	0	0	0	72	4,403	0	0	0	0	0	-4,331
568+50	56850.00	50.00	0.00	0.00	17.04	0.00	0.00	0.00	0	0	18	0	0	0	72	4,424	0	0	0	0	0	-4,352
569+00	56900.00	50.00	0.00	0.00	14.71	0.00	0.00	0.00	0	0	29	0	0	0	72	4,459	0	0	0	0	0	-4,387
569+50	56950.00	50.00	0.00	0.00	36.79	0.00	0.00	0.00	0	0	48	0	0	0	72	4,517	0	0	0	0	0	-4,445
570+00	57000.00	50.00	0.00	0.00	59.26	0.00	0.00	0.00	0	0	89	0	0	0	72	4,624	0	0	0	0	0	4,552
570+50	57050.00	50.00	0.48	0.00	9.21	0.00	0.00	0.00	0	0	63	0	0	0	72	4,699	0	0	0	0	0	-4,627
571+00	57100.00	50.00	0.00	0.00	1.39	0.00	0.00	0.00	0	0	10	0	0	0	72	4,711	0	0	0	0	0	-4,639
571+15	57115.00	15.00	0.00	0.00	1.29	0.00	0.00	0.00	0	0	1	0	0	0	72	4,712	0	0	0	0	0	-4,640
573+78.014	57378.01	0.00	0.00	0.00	1.48	0.00	0.00	0.00	0	0	0	0	0	0	72	4,712	0	0	0	0	0	-4,640
574+00	57400.00	21.99	0.00	0.00	8.80	0.00	0.00	0.00	0	0	4	0	0	0	72	4,717	0	0	0	0	0	4,645
574+50	57450.00	50.00	0.00	0.00	33.91	0.00	0.00	0.00	0	0	40	0	0	0	72	4,765	0	0	0	0	0	-4,693
575+00	57500.00	50.00	0.00	0.00	51.83	0.00	0.00	0.00	0	0	79	0	0	0	72	4,860	0	0	0	0	0	-4,788
575+50	57550.00	50.00	0.00	0.00	27.72	0.00	0.00	0.00	0	0	74	0	0	0	72	4,949	0	0	0	0	0	-4,877
576+00	57600.00	50.00	0.00	0.00	20.60	0.00	0.00	0.00	0	0	45	0	0	0	72	5,003	0	0	0	0	0	-4,931
576+50	57650.00	50.00	0.00	0.00	22.59	0.00	0.00	0.00	0	0	40	0	0	0	72	5,051	0	0	0	0	0	4,979
577+00	57700.00	50.00	0.00	0.00	18.27	0.00	0.00	0.00	0	0	38	0	0	0	72	5,096	0	0	0	0	0	-5,024
577+50	57750.00	50.00	0.00	0.00	20.83	0.00	0.00	0.00	0	0	36	0	0	0	72	5,140	0	0	0	0	0	-5,068
578+00	57800.00	50.00	0.00	0.00	9.72	0.00	0.00	0.00	0	0	28	0	0	0	72	5,173	0	0	0	0	0	-5,101
578+50	57850.00	50.00	0.00	0.00	7.52	0.00	0.00	0.00	0	0	16	0	0	0	72	5,192	0	0	0	0	0	-5,120
579+00	57900.00	50.00	0.00	0.00	6.24	0.00	0.00	0.00	0	0	13	0	0	0	72	5,208	0	0	0	0	0	5,136
579+50	57950.00	50.00	0.00	0.00	6.15	0.00	0.00	0.00	0	0	11	0	0	0	72	5,221	0	0	0	0	0	-5,149

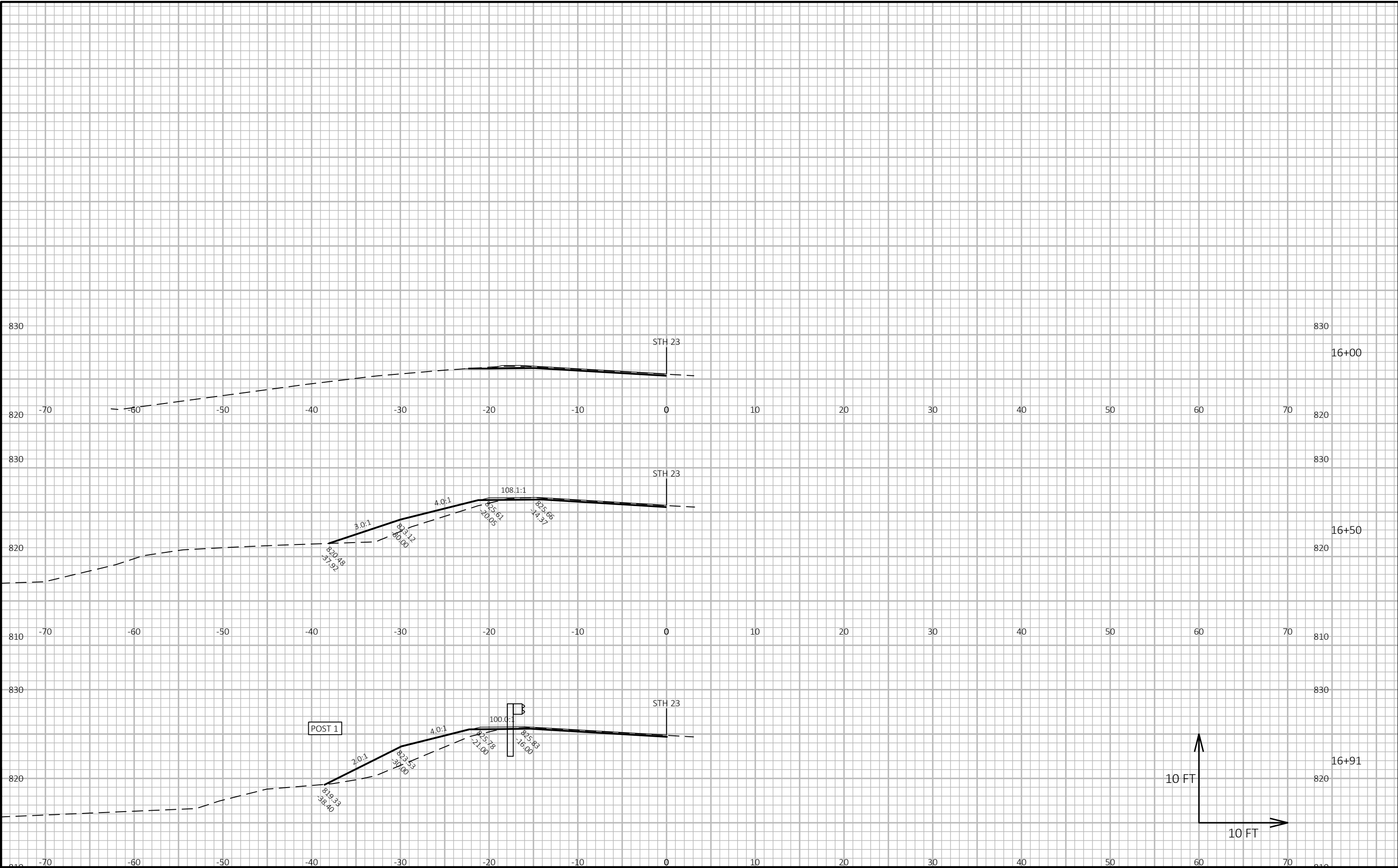
STATION	REAL STATION	DISTANCE	AREA (SF)						INCREMENTAL VOL (CY) (UNADJUSTED)						CUMULATIVE VOL (CY)							
			CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	ROCK EXC	EBS	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARS H EXC	ROCK EXC	EBS	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	EXPANDED ROCK	EXPANDED EBS BACKFILL	REDUCED MARSH IN FILL	REDUCED EBS IN FILL	MASS ORDINATE
NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 4	NOTE 5	NOTE 6	NOTE 7	NOTE 8														
580+00	58000.00	50.00	0.00	0.00	7.59	0.00	0.00	0.00	0	0	13	0	0	0	72	5,237	0	0	0	0	0	-5,165
580+50	58050.00	50.00	0.00	0.00	9.06	0.00	0.00	0.00	0	0	15	0	0	0	72	5,255	0	0	0	0	0	-5,183
581+00	58100.00	50.00	0.00	0.00	9.11	0.00	0.00	0.00	0	0	17	0	0	0	72	5,275	0	0	0	0	0	-5,203
581+50	58150.00	50.00	0.00	0.00	12.35	0.00	0.00	0.00	0	0	20	0	0	0	72	5,299	0	0	0	0	0	-5,227
582+00	58200.00	50.00	0.00	0.00	19.26	0.00	0.00	0.00	0	0	29	0	0	0	72	5,334	0	0	0	0	0	-5,262
582+50	58250.00	50.00	0.00	0.00	15.12	0.00	0.00	0.00	0	0	32	0	0	0	72	5,372	0	0	0	0	0	5,300
583+00	58300.00	50.00	0.00	0.00	16.65	0.00	0.00	0.00	0	0	29	0	0	0	72	5,407	0	0	0	0	0	-5,335
583+50	58350.00	50.00	0.00	0.00	14.74	0.00	0.00	0.00	0	0	29	0	0	0	72	5,442	0	0	0	0	0	-5,370
584+00	58400.00	50.00	0.00	0.00	15.71	0.00	0.00	0.00	0	0	28	0	0	0	72	5,476	0	0	0	0	0	-5,404
584+50	58450.00	50.00	0.00	0.00	19.16	0.00	0.00	0.00	0	0	32	0	0	0	72	5,514	0	0	0	0	0	-5,442
585+00	58500.00	50.00	0.00	0.00	15.33	0.00	0.00	0.00	0	0	32	0	0	0	72	5,552	0	0	0	0	0	5,480
585+50	58550.00	50.00	0.00	0.00	8.47	0.00	0.00	0.00	0	0	22	0	0	0	72	5,579	0	0	0	0	0	-5,507
586+00	58600.00	50.00	0.00	0.00	9.86	0.00	0.00	0.00	0	0	17	0	0	0	72	5,599	0	0	0	0	0	-5,527
586+50	58650.00	50.00	0.00	0.00	9.09	0.00	0.00	0.00	0	0	18	0	0	0	72	5,621	0	0	0	0	0	-5,549
587+00	58700.00	50.00	0.00	0.00	10.69	0.00	0.00	0.00	0	0	18	0	0	0	72	5,642	0	0	0	0	0	-5,570
587+50	58750.00	50.00	0.00	0.00	12.47	0.00	0.00	0.00	0	0	21	0	0	0	72	5,668	0	0	0	0	0	5,596
588+00	58800.00	50.00	0.00	0.00	11.50	0.00	0.00	0.00	0	0	22	0	0	0	72	5,694	0	0	0	0	0	-5,622
588+50	58850.00	50.00	0.00	0.00	10.31	0.00	0.00	0.00	0	0	20	0	0	0	72	5,718	0	0	0	0	0	-5,646
589+00	58900.00	50.00	0.00	0.00	12.51	0.00	0.00	0.00	0	0	21	0	0	0	72	5,743	0	0	0	0	0	-5,671
589+50	58950.00	50.00	0.00	0.00	11.81	0.00	0.00	0.00	0	0	23	0	0	0	72	5,771	0	0	0	0	0	-5,699
590+00	59000.00	50.00	0.00	0.00	16.78	0.00	0.00	0.00	0	0	26	0	0	0	72	5,802	0	0	0	0	0	5,730
590+50	59050.00	50.00	0.00	0.00	16.46	0.00	0.00	0.00	0	0	31	0	0	0	72	5,839	0	0	0	0	0	-5,767
591+00	59100.00	50.00	0.00	0.00	11.22	0.00	0.00	0.00	0	0	26	0	0	0	72	5,870	0	0	0	0	0	-5,798
591+50	59150.00	50.00	0.00	0.00	17.05	0.00	0.00	0.00	0	0	26	0	0	0	72	5,902	0	0	0	0	0	-5,830
592+00	59200.00	50.00	0.02	0.00	17.79	0.00	0.00	0.00	0	0	32	0	0	0	72	5,940	0	0	0	0	0	-5,868
592+50	59250.00	50.00	0.00	0.00	40.09	0.00	0.00	0.00	0	0	54	0	0	0	72	6,005	0	0	0	0	0	5,933
593+00	59300.00	50.00	0.00	0.00	56.65	0.00	0.00	0.00	0	0	90	0	0	0	72	6,113	0	0	0	0	0	-6,041
593+50	59350.00	50.00	0.00	0.00	29.86	0.00	0.00	0.00	0	0	80	0	0	0	72	6,209	0	0	0	0	0	-6,137
594+00	59400.00	50.00	0.00	0.00	8.61	0.00	0.00	0.00	0	0	36	0	0	0	72	6,252	0	0	0	0	0	6,180
594+18.82	59418.82	18.82	0.00	0.00	8.76	0.00	0.00	0.00	0	0	6	0	0	0	72	6,259	0	0	0	0	0	-6,187
611+73.28	61173.28	0.00	0.45	0.00	3.95	0.00	0.00	0.00	0	0	0	0	0	0	72	6,259	0	0	0	0	0	-6,187
612+00	61200.00	26.72	0.86	0.00	4.52	0.00	0.00	0.00	1	0	4	0	0	0	73	6,264	0	0	0	0	0	-6,191
612+50	61250.00	50.00	0.82	0.00	10.60	0.00	0.00	0.00	2	0	14	0	0	0	75	6,281	0	0	0	0	0	-6,206
613+00	61300.00	50.00	0.02	0.00	10.25	0.00	0.00	0.00	1	0	19	0	0	0	76	6,304	0	0	0	0	0	6,228
613+50	61350.00	50.00	0.00	0.00	33.08	0.00	0.00	0.00	0	0	40	0	0	0	76	6,352	0	0	0	0	0	-6,276
614+00	61400.00	50.00	0.00	0.00	76.94	0.00	0.00	0.00	0	0	102	0	0	0	76	6,474	0	0	0	0	0	-6,398
614+50	61450.00	50.00	0.12	0.00	534.07	0.00	0.00	0.00	0	0	566	0	0	0	76	7,153	0	0	0	0	0	-7,077
615+00	61500.00	50.00	0.00	0.00	110.72	0.00	0.00	0.00	0	0	597	0	0	0	76	7,870	0	0	0	0	0	-7,794
615+50	61550.00	50.00	0.00	0.00	80.59	0.00	0.00	0.00	0	0	177	0	0	0	76	8,082	0	0	0	0	0	8,006
616+00	61600.00	50.00	0.00	0.00	85.60	0.00	0.00	0.00	0	0	154	0	0	0	76	8,267	0	0	0	0	0	-8,191
616+50	61650.00	50.00	0.00	0.00	112.30	0.00	0.00	0.00	0	0	183	0	0	0	76	8,486	0	0	0	0	0	-8,410
617+00	61700.00	50.00	0.38	0.00	101.20	0.00	0.00	0.00	0	0	198	0	0	0	76	8,724	0	0	0	0	0	-8,648
617+50	61750.00	50.00	0.11	0.00	24.75	0.00	0.00	0.00	0	0	117	0	0	0	76	8,864	0	0	0	0	0	-8,788
617+57.25	61757.25	7.25	0.00	0.00	18.11	0.00	0.00	0.00	0	0	6	0	0	0	76	8,872	0	0	0	0	0	8,796
677+25.208	67725.21	0.00	0.28	0.00	0.40	0.00	0.00	0.00	0	0	0	0	0	0	76	8,872	0	0	0	0	0	-8,796
677+50	67750.00	24.79	0.10	0.00	7.19	0.00	0.00	0.00	0	0	3	0	0	0	76	8,875	0	0	0	0	0	-8,799
678+00	67800.00	50.00	0.21	0.00	14.20	0.00	0.00	0.00	0	0	20	0	0	0	76	8,899	0	0	0	0	0	-8,823
678+50	67850.00	50.00	0.99	0.00	3.58	0.00	0.00	0.00	1	0	16	0	0	0	77	8,918	0	0	0	0	0	-8,841
679+00	67900.00	50.00	8.42	0.00	0.02	0.00	0.00	0.00	9	0	3	0	0	0	86	8,922	0	0	0	0	0	8,836
679+50	67950.00	50.00	0.28	0.00	1.28	0.00	0.00	0.00	8	0	1	0	0	0	94	8,923	0	0	0	0	0	-8,829

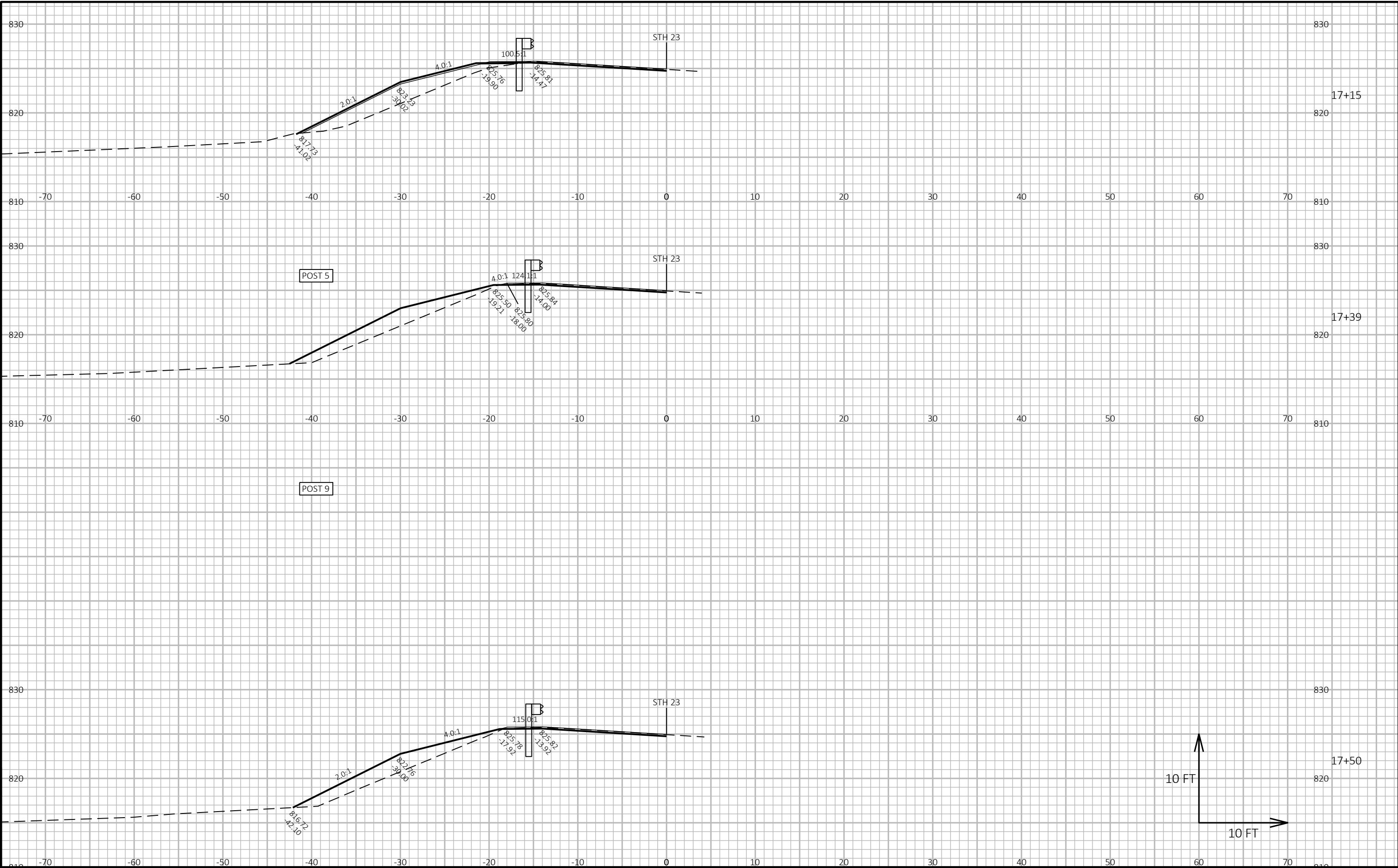
STATION	REAL STATION	DISTANCE	AREA (SF)						INCREMENTAL VOL (CY) (UNADJUSTED)						CUMULATIVE VOL (CY)							
			CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	ROCK EXC	EBS	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	MARS H EXC	ROCK EXC	EBS	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	EXPANDED ROCK	EXPANDED EBS BACKFILL	REDUCED MARSH IN FILL	REDUCED EBS IN FILL	MASS ORDINATE
NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 4	NOTE 5	NOTE 6	NOTE 7	NOTE 8														
680+00	68000.00	50.00	0.07	0.00	2.49	0.00	0.00	0.00	0	0	3	0	0	0	94	8,927	0	0	0	0	0	-8.833
680+50	68050.00	50.00	1.34	0.00	1.20	0.00	0.00	0.00	1	0	3	0	0	0	95	8,930	0	0	0	0	0	-8.835
681+00	68100.00	50.00	0.89	0.00	0.01	0.00	0.00	0.00	2	0	1	0	0	0	97	8,932	0	0	0	0	0	-8.835
681+50	68150.00	50.00	0.02	0.00	1.21	0.00	0.00	0.00	1	0	1	0	0	0	98	8,933	0	0	0	0	0	-8.835
681+74.91	68174.91	24.91	0.14	0.00	0.56	0.00	0.00	0.00	0	0	1	0	0	0	98	8,934	0	0	0	0	0	-8.836
702+20.297	70220.30	0.00	0.05	0.00	0.60	0.00	0.00	0.00	0	0	0	0	0	0	98	8,934	0	0	0	0	0	-8.836
702+50	70250.00	29.70	0.11	0.00	0.43	0.00	0.00	0.00	0	0	1	0	0	0	98	8,935	0	0	0	0	0	-8.837
703+00	70300.00	50.00	4.32	0.00	0.25	0.00	0.00	0.00	4	0	1	0	0	0	102	8,936	0	0	0	0	0	-8.834
703+50	70350.00	50.00	0.64	0.00	5.26	0.00	0.00	0.00	5	0	5	0	0	0	107	8,942	0	0	0	0	0	-8.835
704+00	70400.00	50.00	6.06	0.00	0.72	0.00	0.00	0.00	6	0	6	0	0	0	113	8,950	0	0	0	0	0	8.837
704+50	70450.00	50.00	6.96	0.00	0.05	0.00	0.00	0.00	12	0	1	0	0	0	125	8,951	0	0	0	0	0	-8.826
705+00	70500.00	50.00	2.21	0.00	1.22	0.00	0.00	0.00	8	0	1	0	0	0	133	8,952	0	0	0	0	0	-8.819
705+50	70550.00	50.00	0.62	0.00	0.86	0.00	0.00	0.00	3	0	2	0	0	0	136	8,954	0	0	0	0	0	-8.818
706+00	70600.00	50.00	0.87	0.00	0.35	0.00	0.00	0.00	1	0	1	0	0	0	137	8,956	0	0	0	0	0	-8.819
706+50	70650.00	50.00	1.57	0.00	0.70	0.00	0.00	0.00	2	0	1	0	0	0	139	8,957	0	0	0	0	0	8.818
707+00	70700.00	50.00	0.00	0.00	1.86	0.00	0.00	0.00	1	0	2	0	0	0	140	8,959	0	0	0	0	0	-8.819
707+50	70750.00	50.00	0.00	0.00	3.93	0.00	0.00	0.00	0	0	5	0	0	0	140	8,965	0	0	0	0	0	-8.825
708+00	70800.00	50.00	0.02	0.00	11.84	0.00	0.00	0.00	0	0	15	0	0	0	140	8,983	0	0	0	0	0	-8.843
708+50	70850.00	50.00	2.58	0.00	0.47	0.00	0.00	0.00	2	0	11	0	0	0	142	8,996	0	0	0	0	0	-8.854
709+00	70900.00	50.00	0.19	0.00	0.28	0.00	0.00	0.00	3	0	1	0	0	0	145	8,998	0	0	0	0	0	8.853
709+39.607	70939.61	39.61	0.83	0.00	0.05	0.00	0.00	0.00	1	0	0	0	0	0	146	8,998	0	0	0	0	0	-8.852
713+25	71325.00	0.00	0.00	0.00	4.46	0.00	0.00	0.00	0	0	0	0	0	0	146	8,998	0	0	0	0	0	-8.852
713+50	71350.00	25.00	0.00	0.00	4.54	0.00	0.00	0.00	0	0	4	0	0	0	146	9,002	0	0	0	0	0	-8.856
714+00	71400.00	50.00	0.00	0.00	5.03	0.00	0.00	0.00	0	0	9	0	0	0	146	9,013	0	0	0	0	0	-8.867
714+50	71450.00	50.00	0.00	0.00	6.08	0.00	0.00	0.00	0	0	10	0	0	0	146	9,025	0	0	0	0	0	8.879
715+00	71500.00	50.00	0.00	0.00	4.86	0.00	0.00	0.00	0	0	10	0	0	0	146	9,037	0	0	0	0	0	-8.891
715+50	71550.00	50.00	0.00	0.00	3.42	0.00	0.00	0.00	0	0	8	0	0	0	146	9,047	0	0	0	0	0	-8.901
716+00	71600.00	50.00	0.23	0.00	2.06	0.00	0.00	0.00	0	0	5	0	0	0	146	9,053	0	0	0	0	0	-8.907
716+50	71650.00	50.00	0.00	0.00	1.45	0.00	0.00	0.00	0	0	3	0	0	0	146	9,056	0	0	0	0	0	-8.910
717+00	71700.00	50.00	0.00	0.00	2.40	0.00	0.00	0.00	0	0	4	0	0	0	146	9,061	0	0	0	0	0	-8.915
717+50	71750.00	50.00	0.00	0.00	4.35	0.00	0.00	0.00	0	0	6	0	0	0	146	9,068	0	0	0	0	0	-8.922
718+00	71800.00	50.00	0.00	0.00	1.71	0.00	0.00	0.00	0	0	6	0	0	0	146	9,076	0	0	0	0	0	-8.930
718+50	71850.00	50.00	0.00	0.00	6.27	0.00	0.00	0.00	0	0	7	0	0	0	146	9,084	0	0	0	0	0	-8.938
719+00	71900.00	50.00	0.00	0.00	6.04	0.00	0.00	0.00	0	0	11	0	0	0	146	9,097	0	0	0	0	0	-8.951
719+50	71950.00	50.00	0.00	0.00	3.08	0.00	0.00	0.00	0	0	8	0	0	0	146	9,107	0	0	0	0	0	-8.961
720+00	72000.00	50.00	2.56	0.00	5.03	0.00	0.00	0.00	2	0	8	0	0	0	148	9,116	0	0	0	0	0	-8.968
720+50	72050.00	50.00	0.00	0.00	10.20	0.00	0.00	0.00	2	0	14	0	0	0	150	9,133	0	0	0	0	0	-8.983
721+00	72100.00	50.00	0.00	0.00	8.50	0.00	0.00	0.00	0	0	17	0	0	0	150	9,154	0	0	0	0	0	-9.004
721+50	72150.00	50.00	0.00	0.00	5.69	0.00	0.00	0.00	0	0	13	0	0	0	150	9,169	0	0	0	0	0	-9.019
722+00	72200.00	50.00	0.00	0.00	1.45	0.00	0.00	0.00	0	0	7	0	0	0	150	9,178	0	0	0	0	0	-9.028

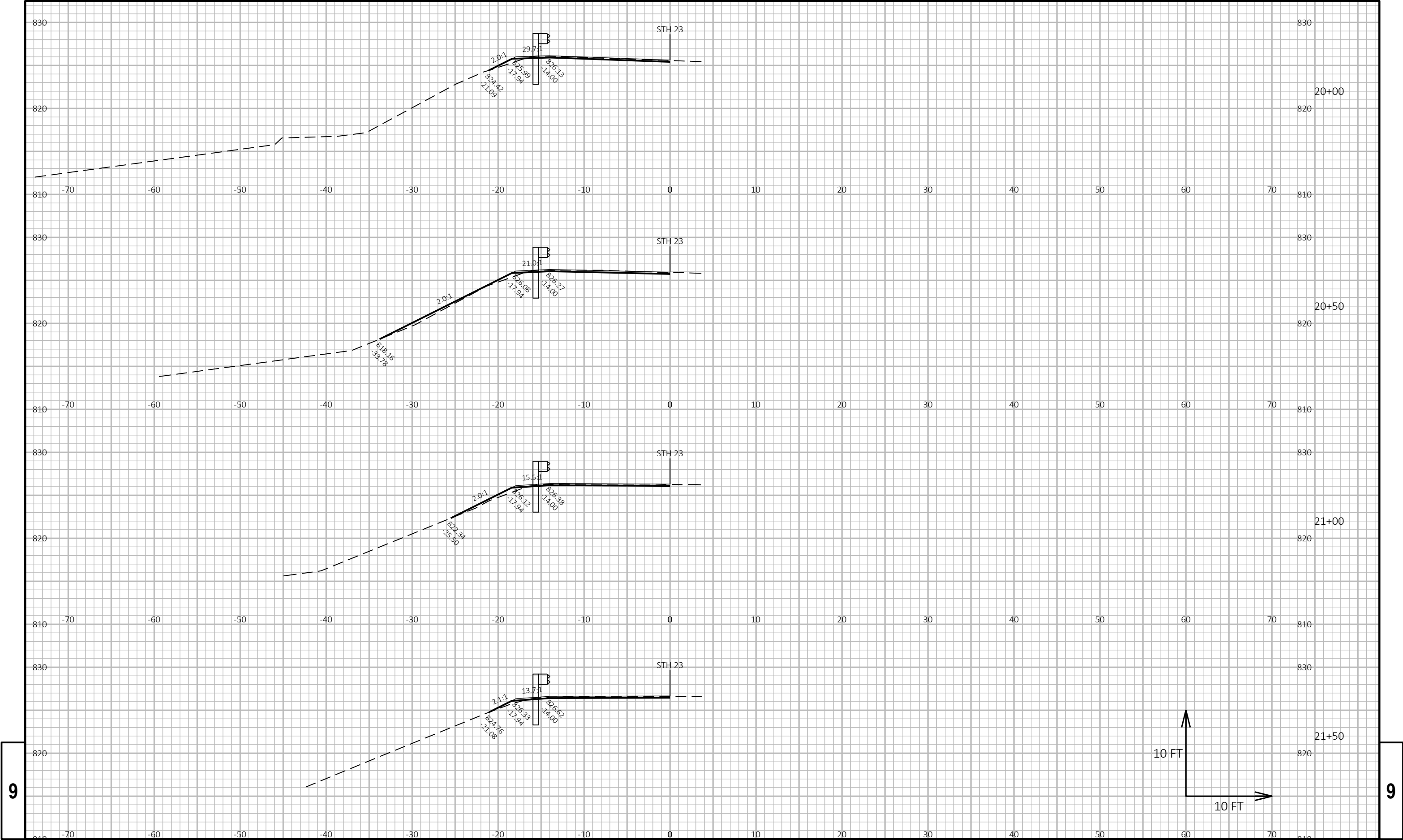
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL
4 - EXPANDED MARSH BACKFILL
5 - EXPANDED EBS
6 - REDUCED MARSH IN FILL
7 - REDUCED EBS IN FILL
8 - MASS ORDINATE
8 - MASS ORDINATE
8 - MASS ORDINATE
8 - MASS ORDINATE

THIS DOES NOT SHOW UP IN CROSS SECTIONS
DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
REDUCED MARSH EXCAVATION THAT CAN BE USED IN FILL
REDUCED EBS EXCAVATION THAT CAN BE USED IN FILL
IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: ((CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR))
IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: ((CUT - SALVAGED PAVT - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR))
IF MARSH AND EBS TO BE BACKFILLED WITH COMMON OR BORROW: ((CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - EXPANDED ROCK) * FILL FACTOR))
IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: ((CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR))

NOTE 4 - SELECT ONE BASED ON INPUT DIALOG SELECTION
NOTE 5 - SELECT ONE BASED ON INPUT DIALOG SELECTION
NOTE 6 - IF EXCAVATED MARSH CAN BE USED IN FILL
NOTE 7 - IF EXCAVATED EBS CAN BE USED IN FILL
NOTE 8 - SELECT ONE BASED ON MASS HAUL INPUT DIALOG SELECTION. EBS AND MARSH EXC USED OUTSIDE 1:1 IN FILL SLOPES
EBS AND MARSH EXC USED OUTSIDE 1:1 IN FILL SLOPES
MARSH AND EBS ARE NOT USABLE OUTSIDE THE 1:1 SLOPES
MARSH AND EBS ARE NOT USABLE OUTSIDE THE 1:1 SLOPES

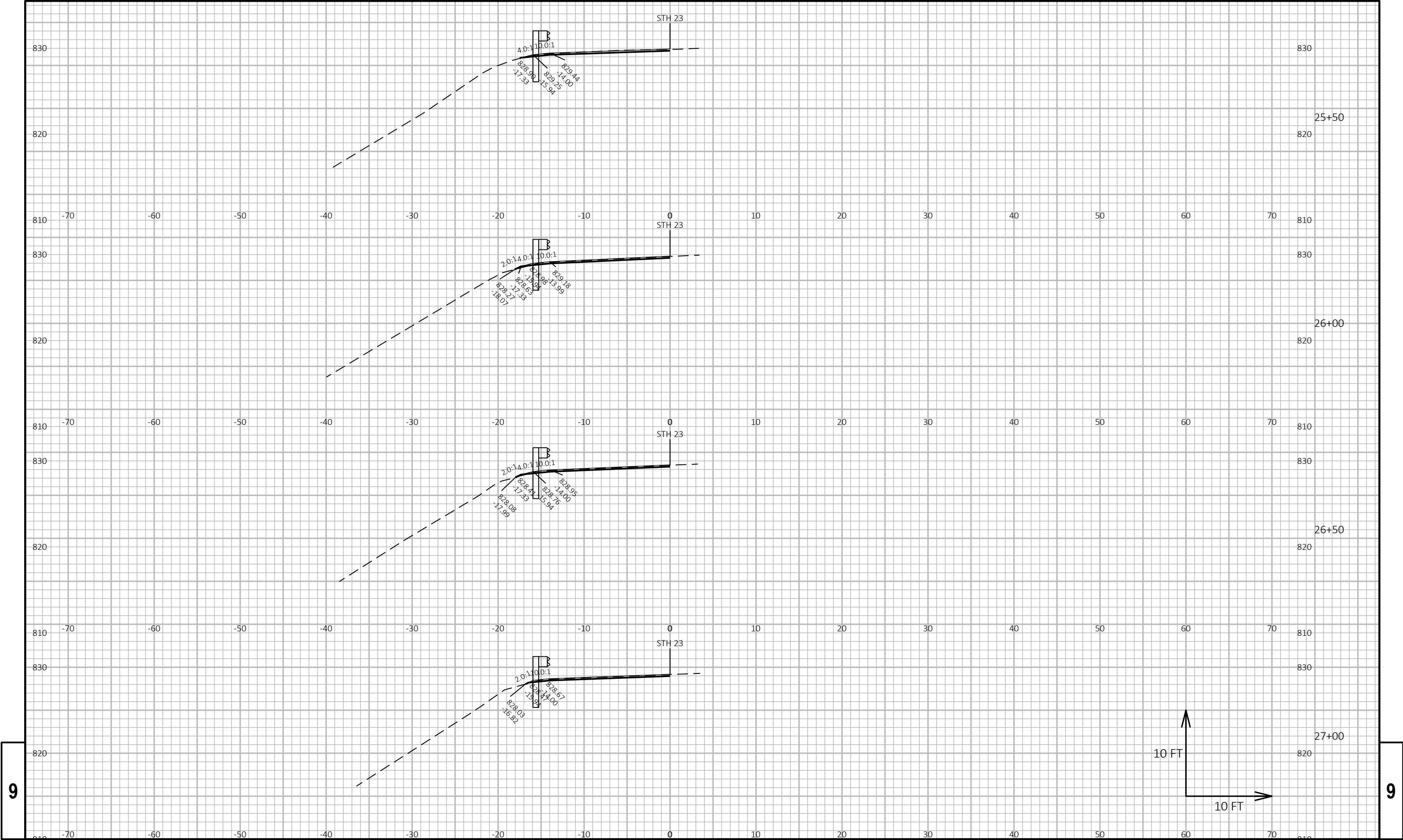






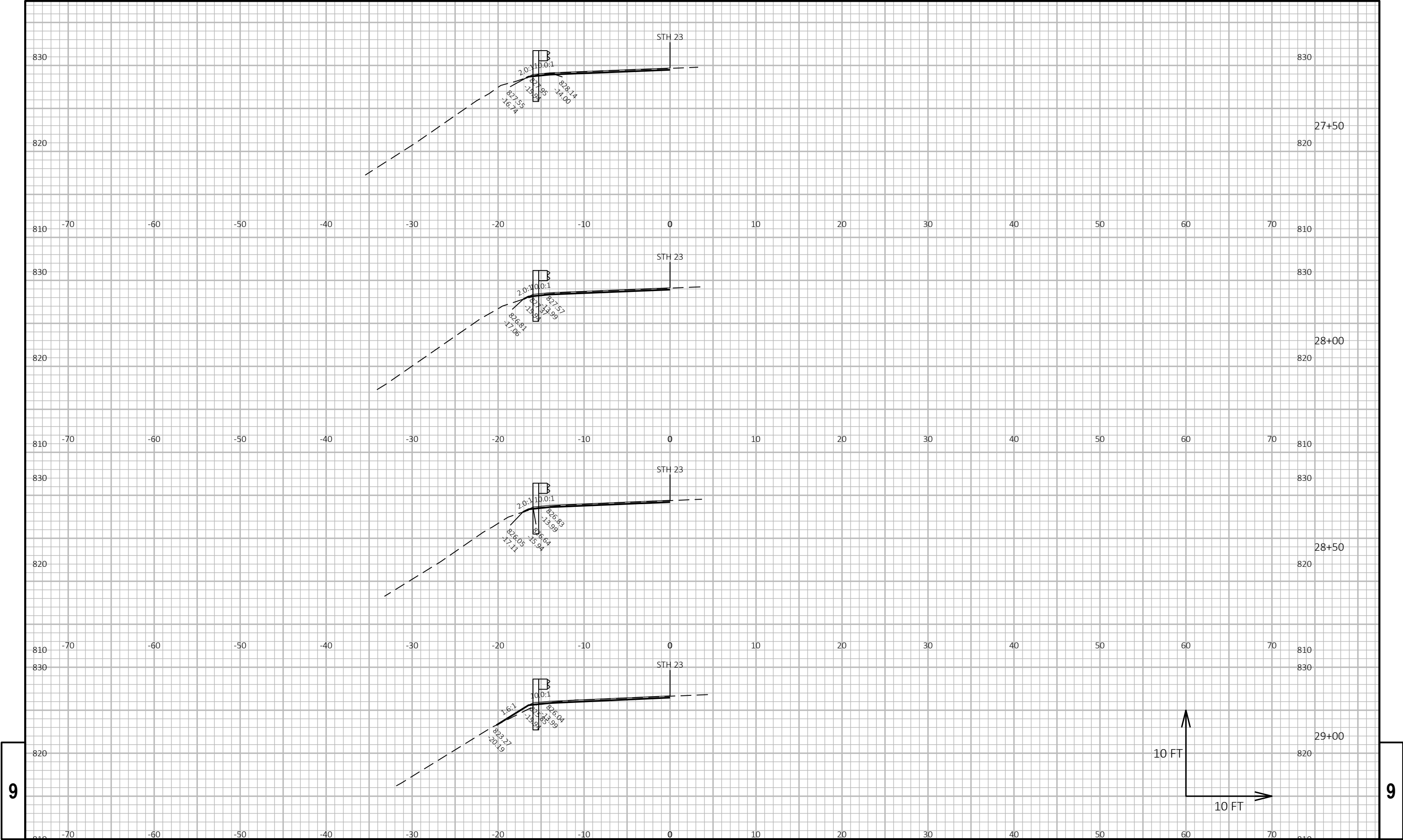
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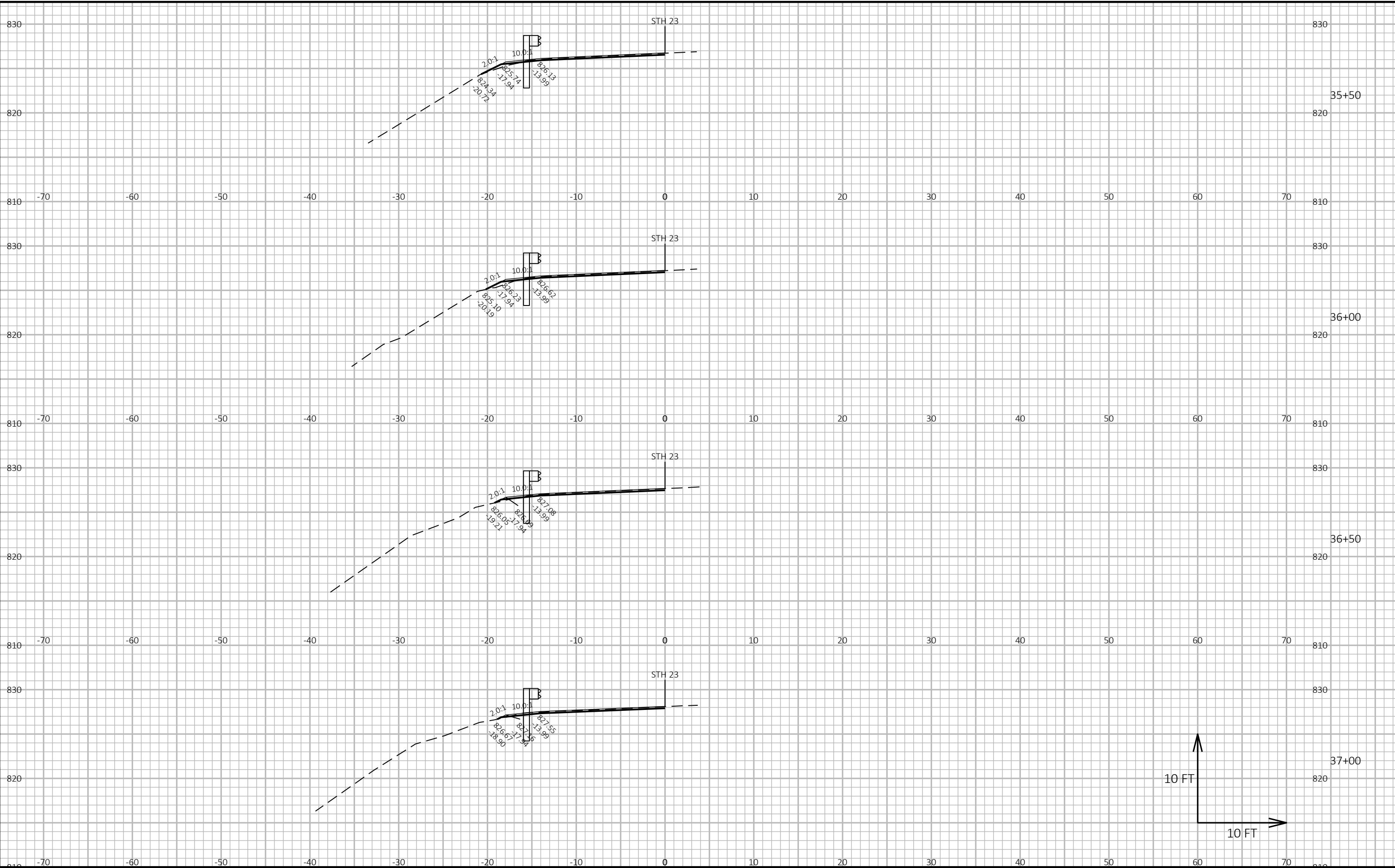
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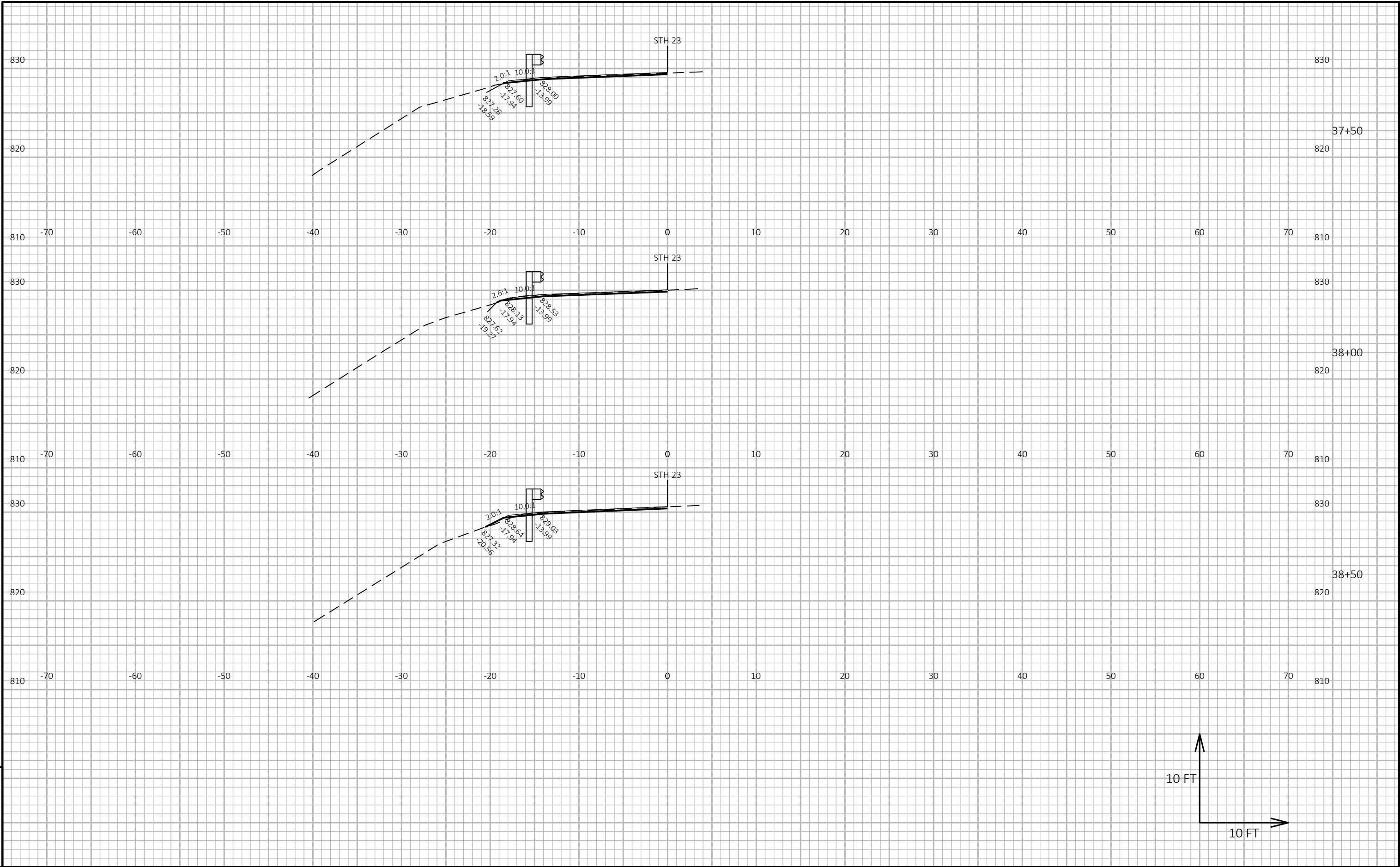
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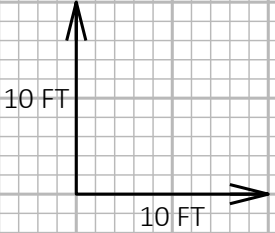
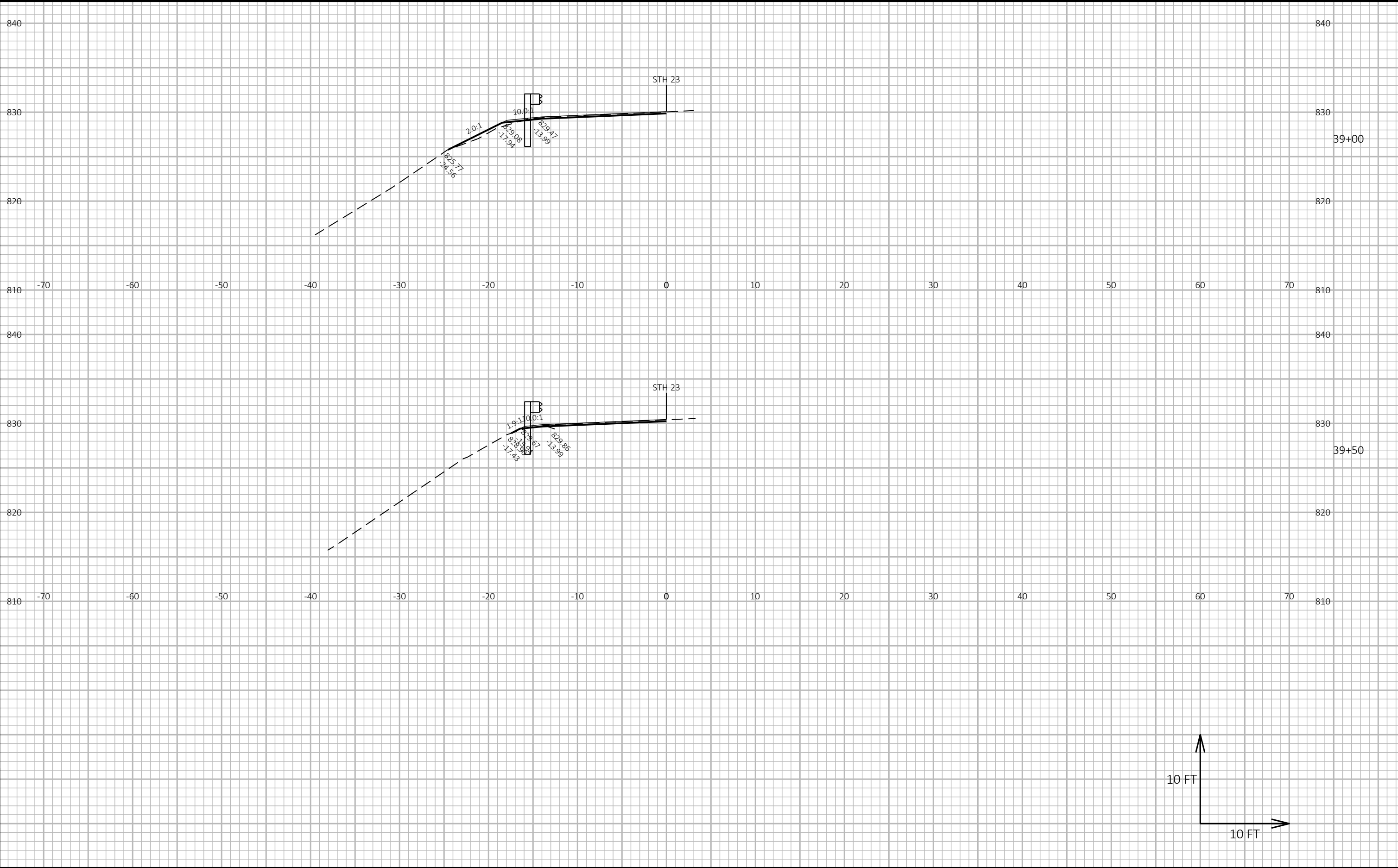
PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	CROSS SECTIONS: GUARDRAIL	SHEET 191	E
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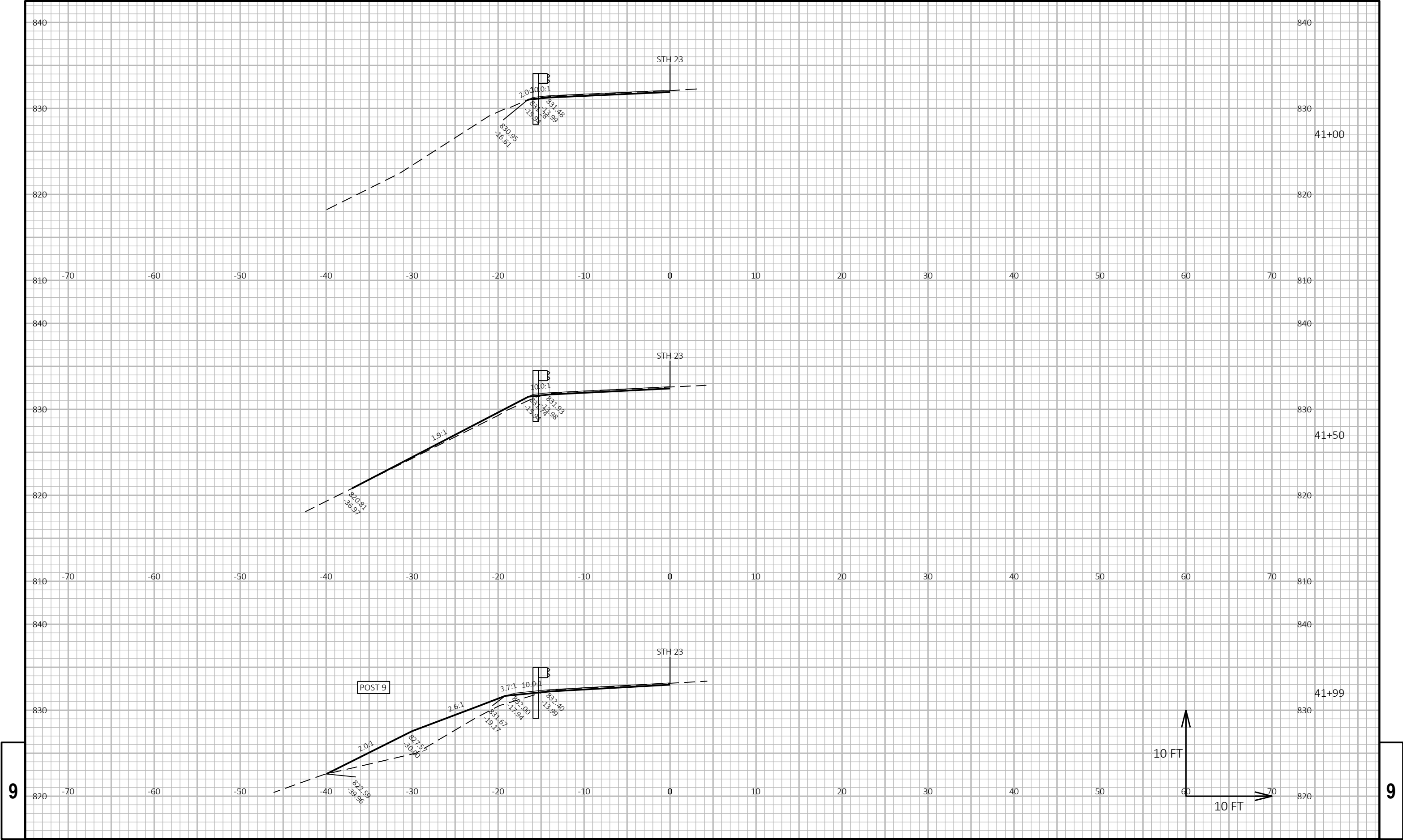
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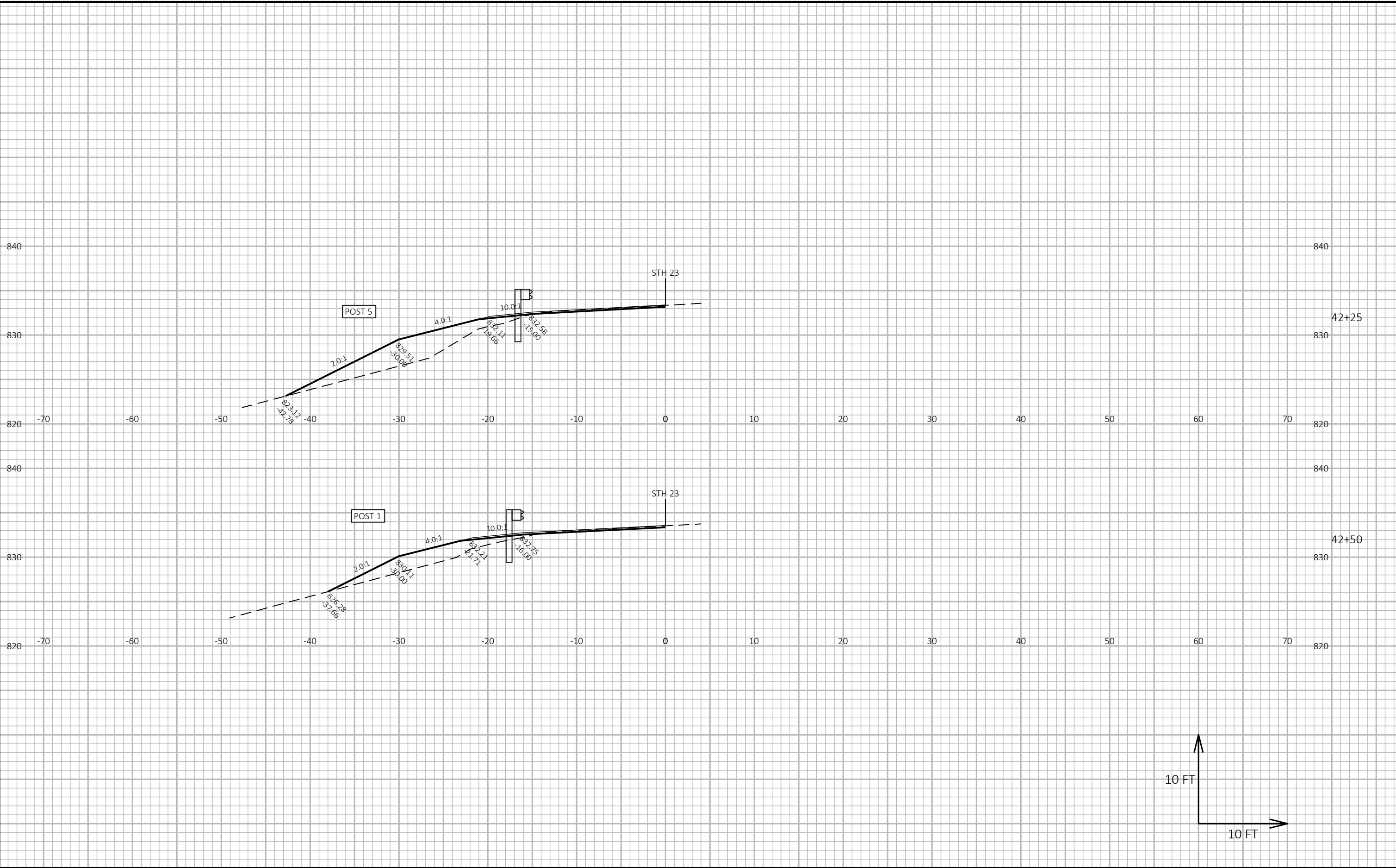
PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	CROSS SECTIONS: GUARDRAIL	SHEET 192	E
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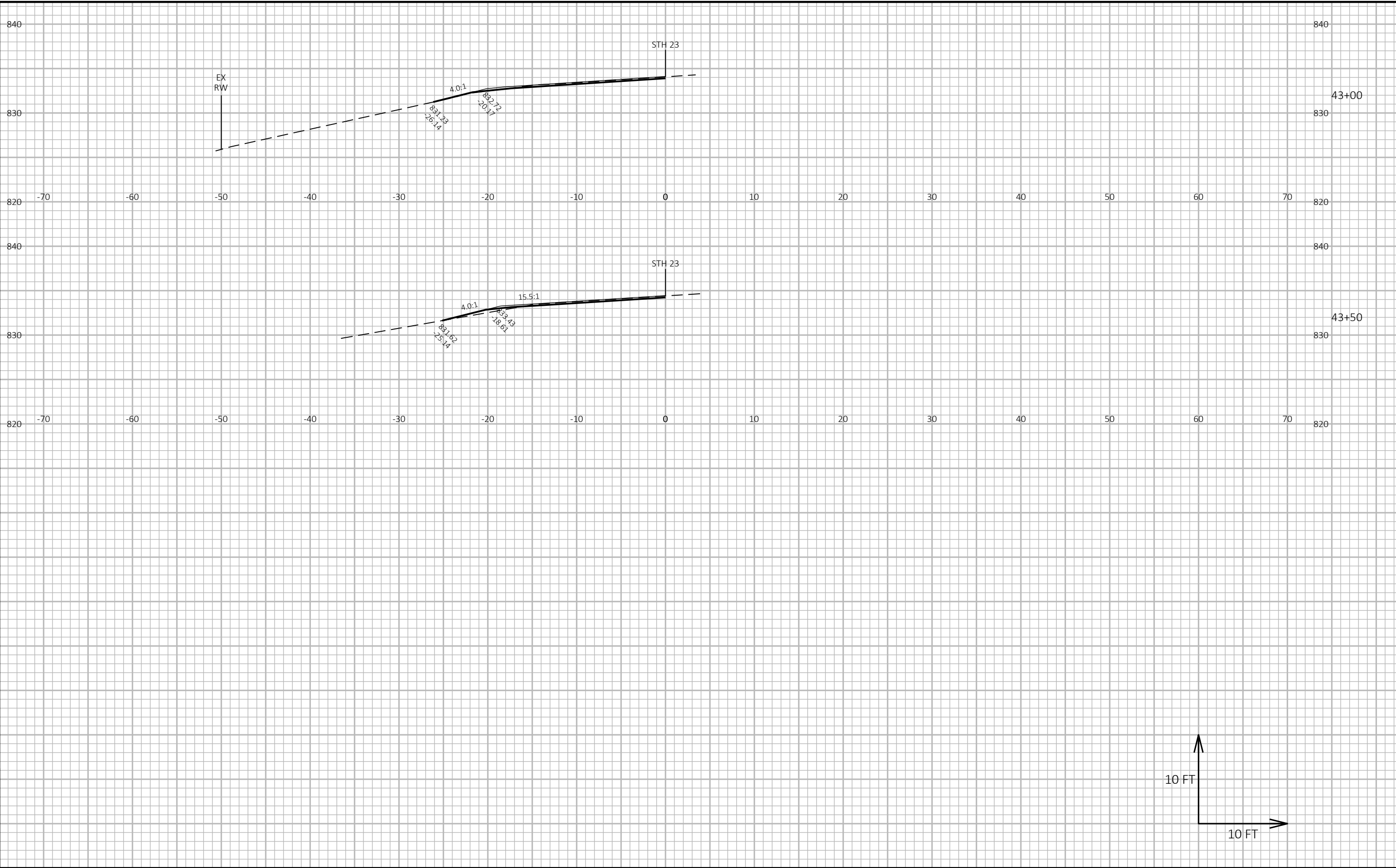


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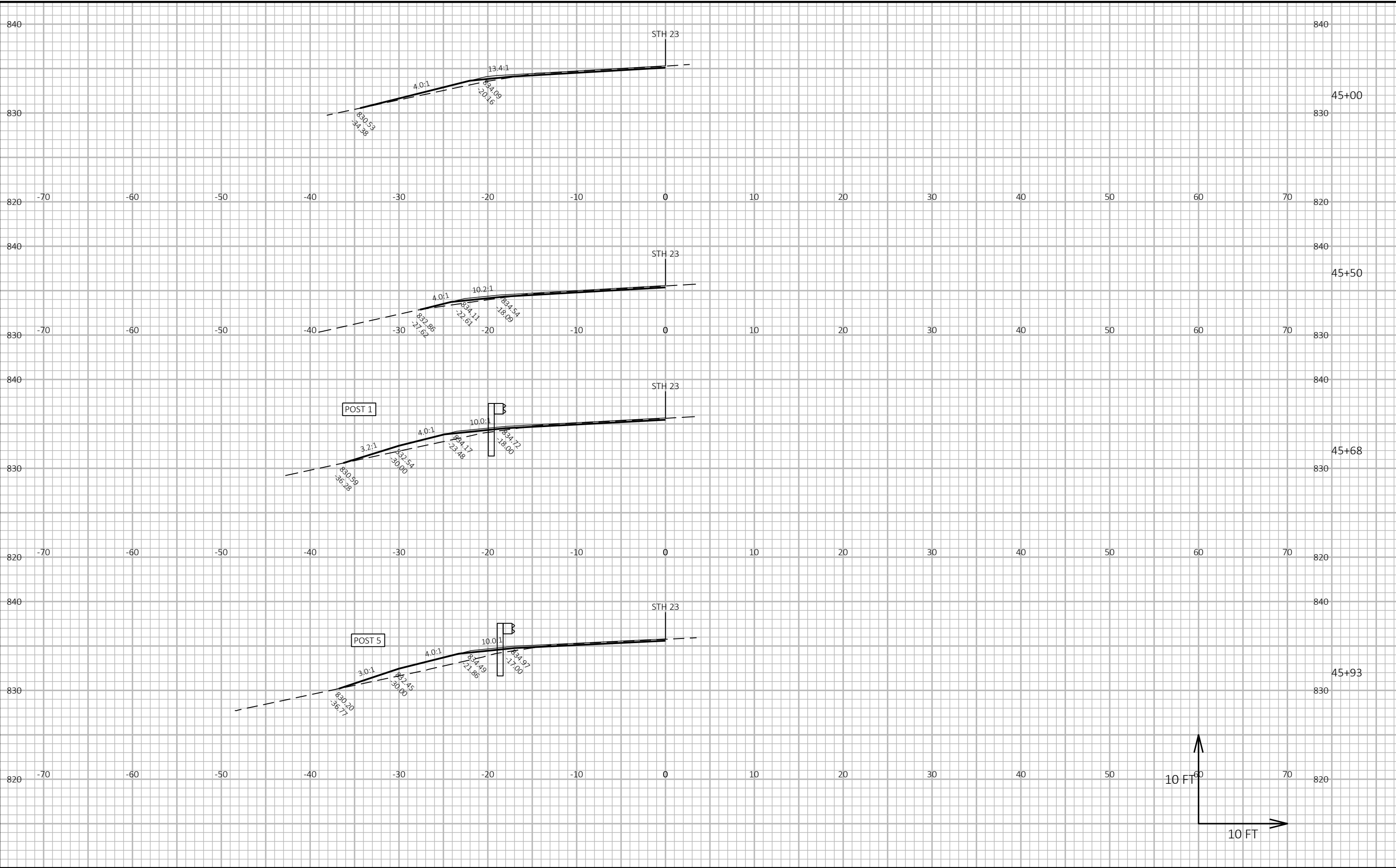






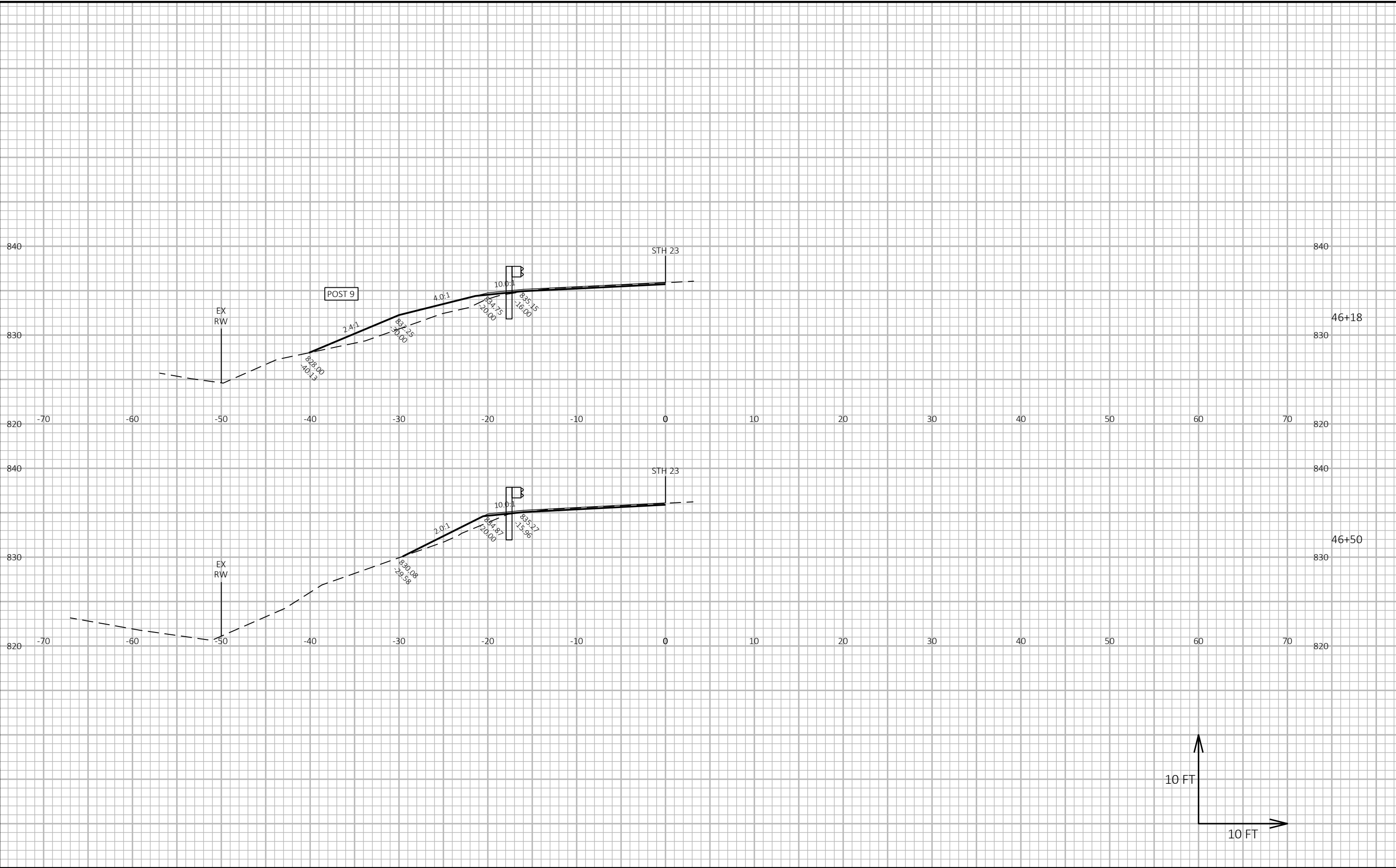
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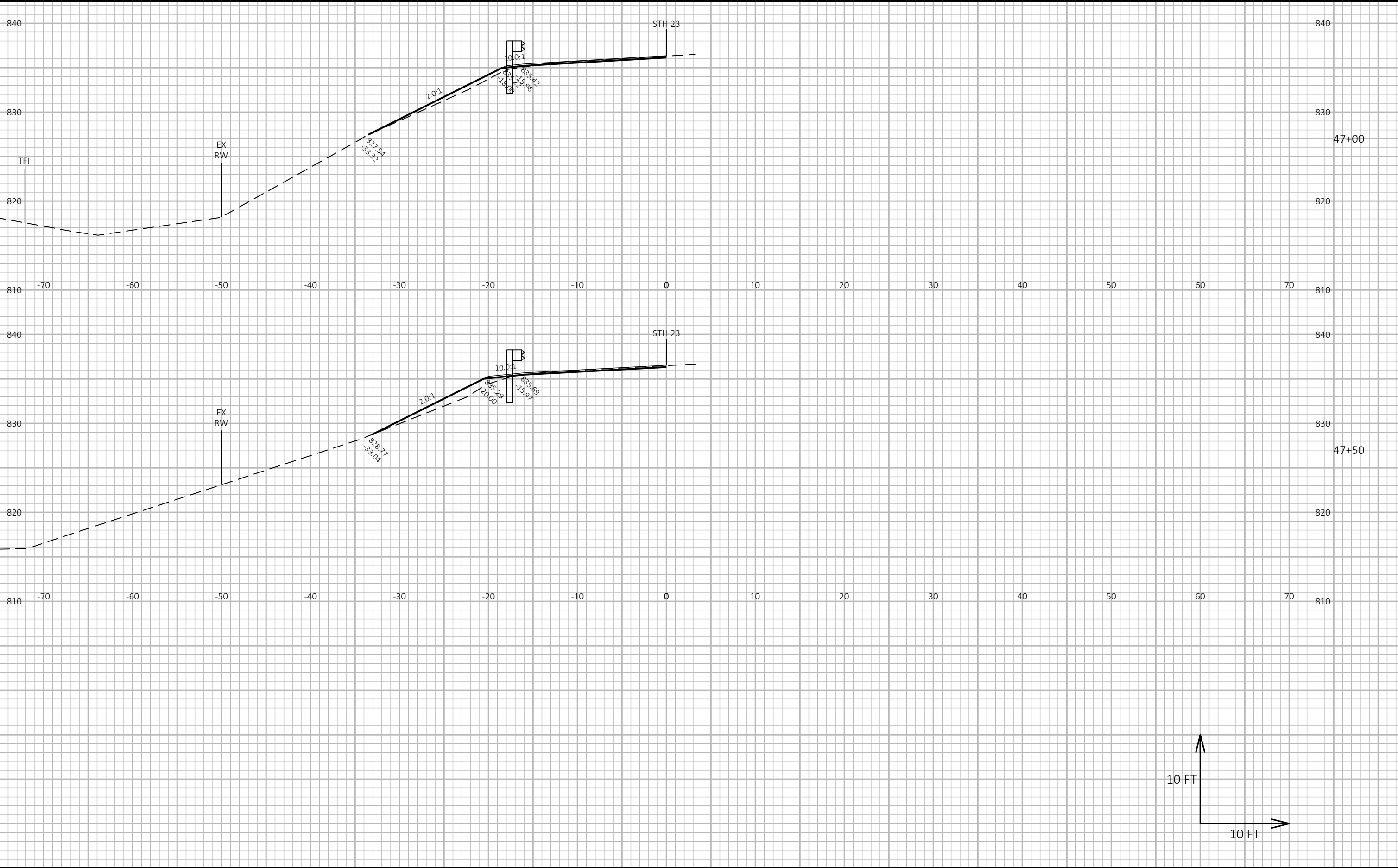
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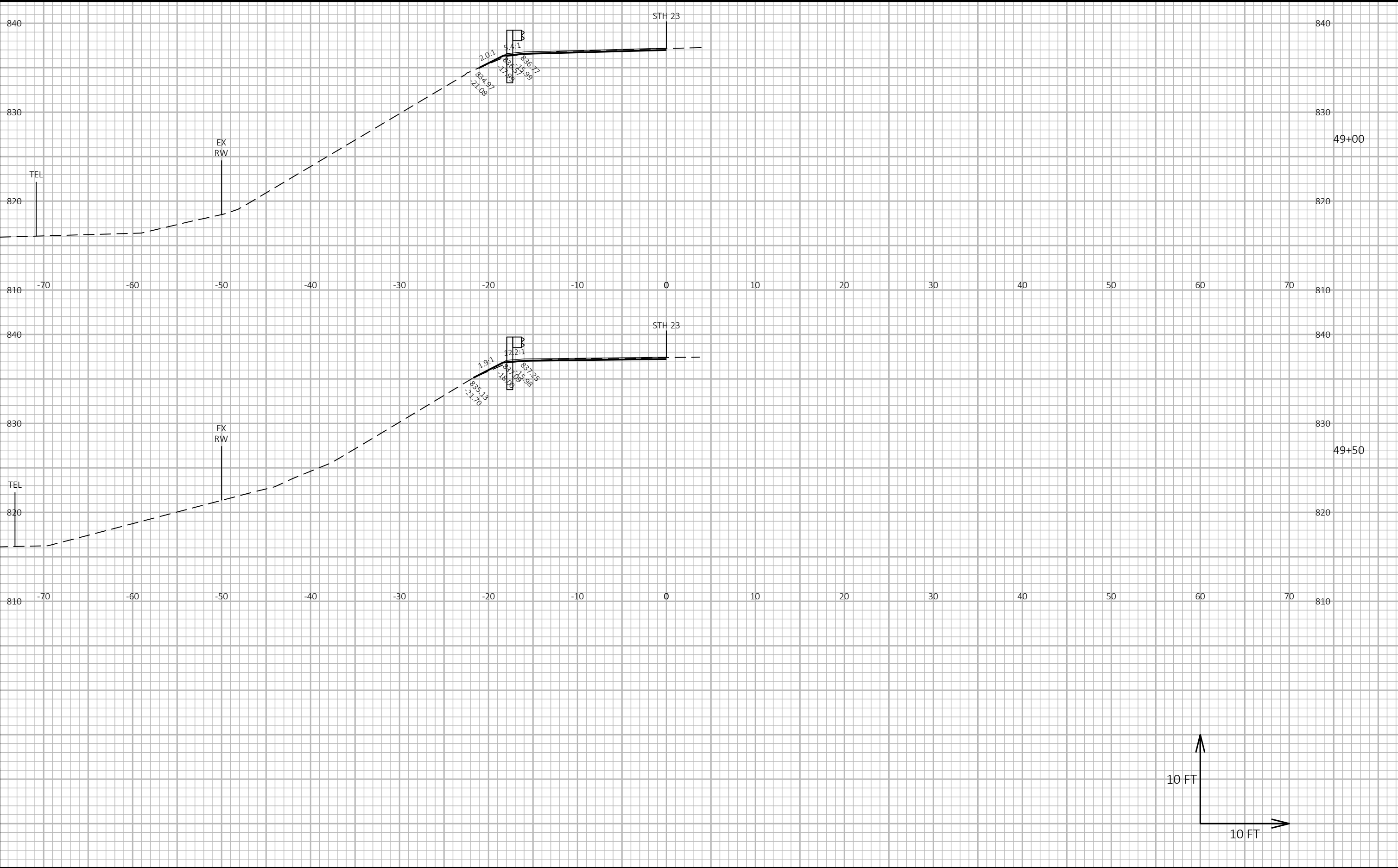
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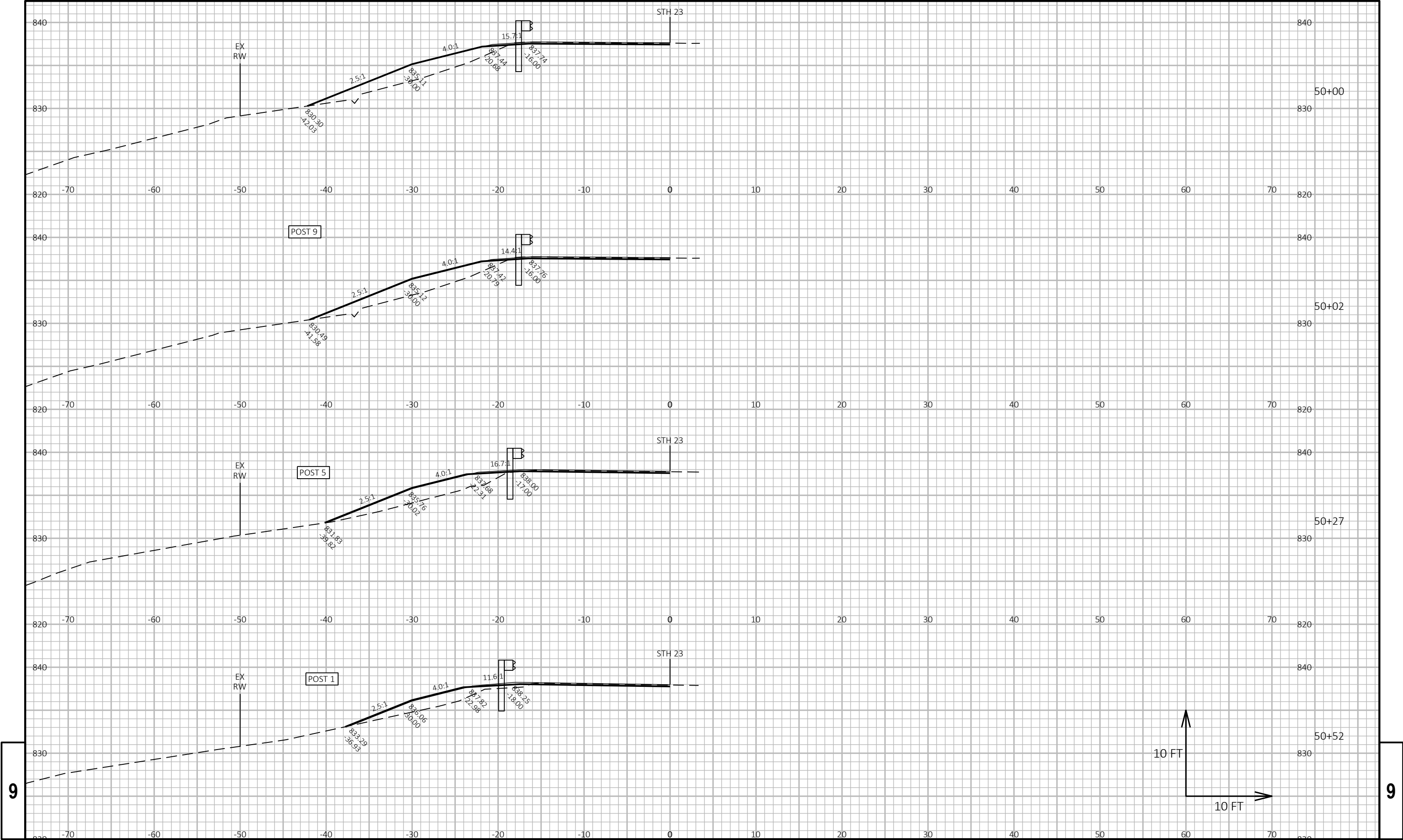
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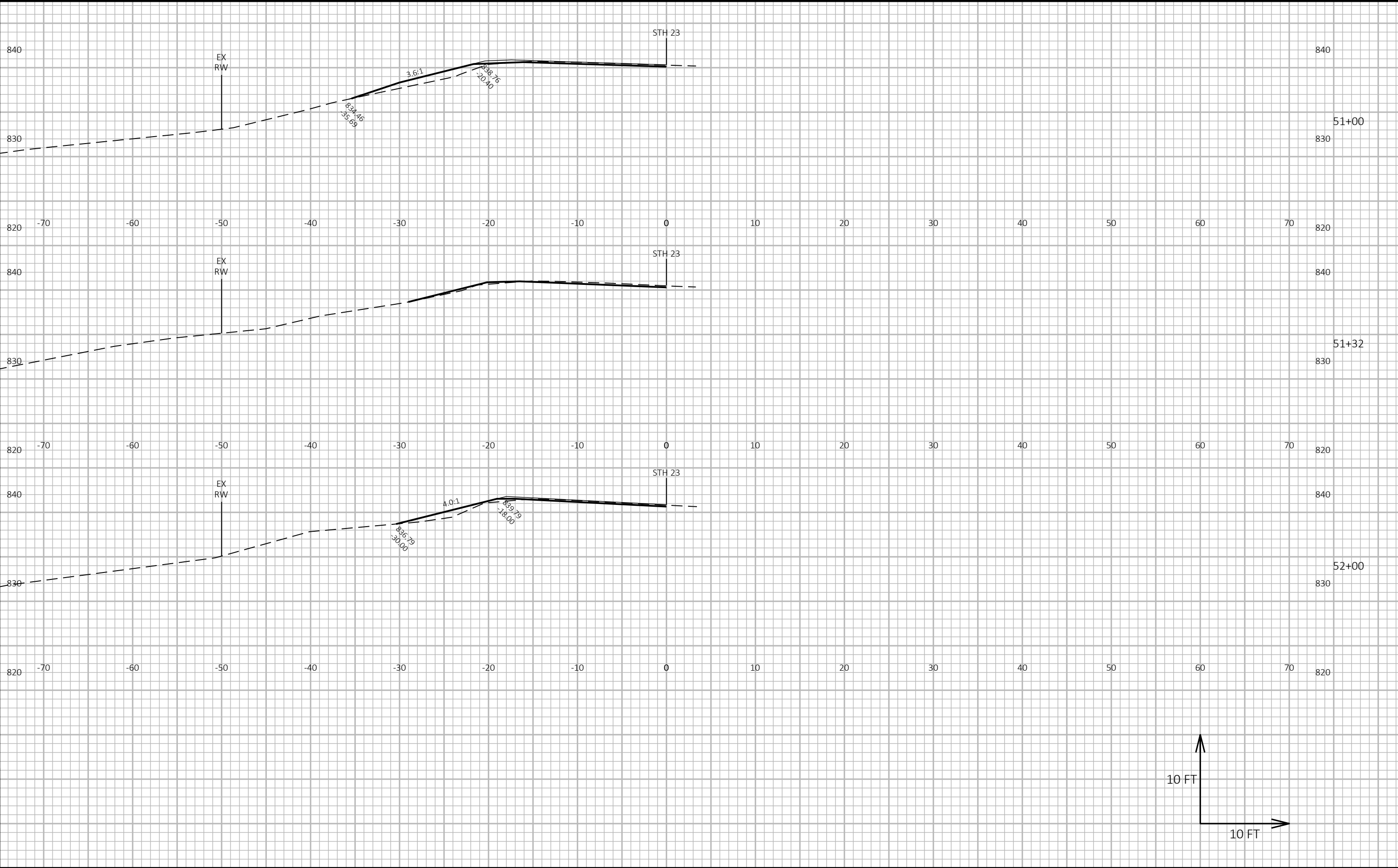
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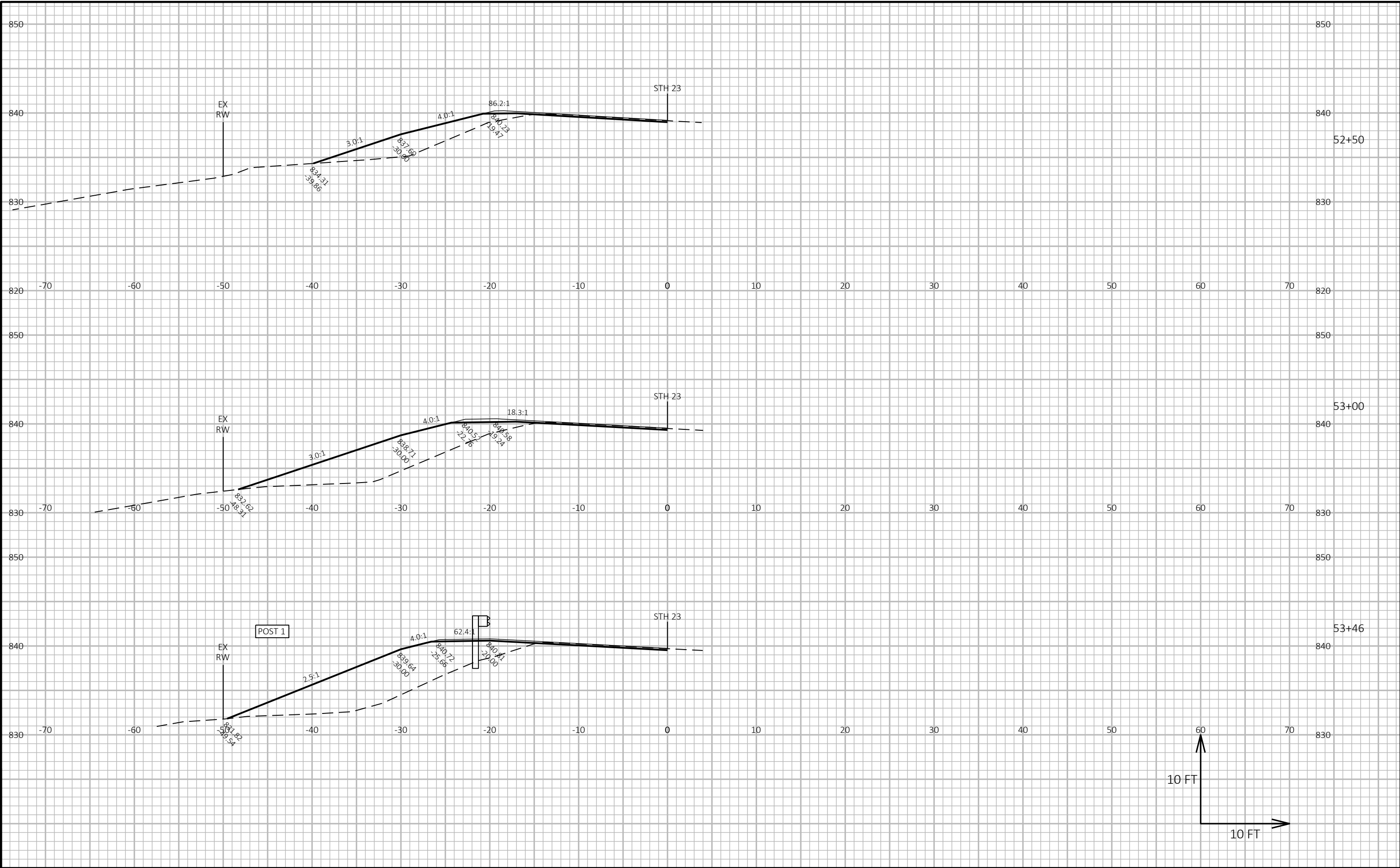
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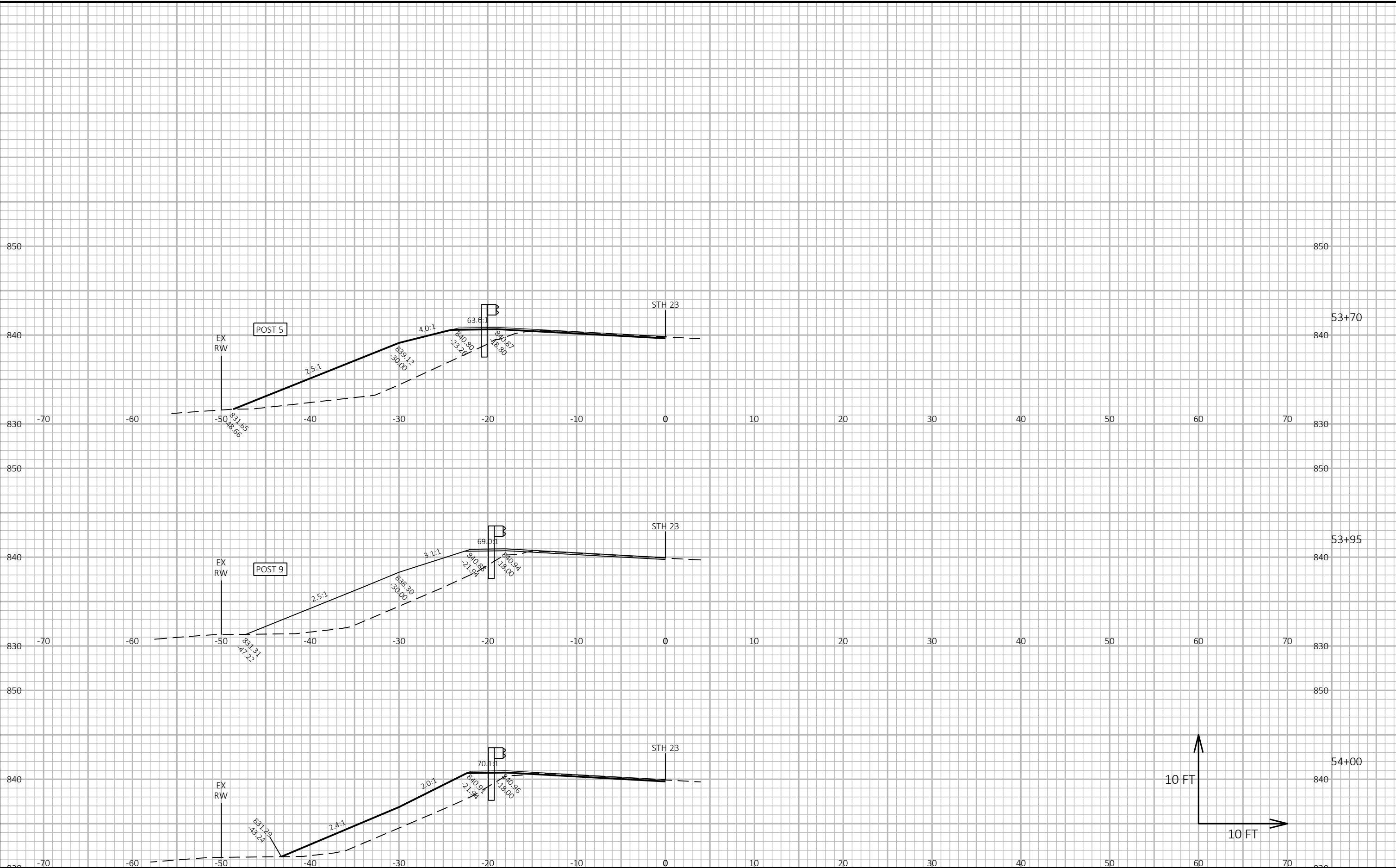


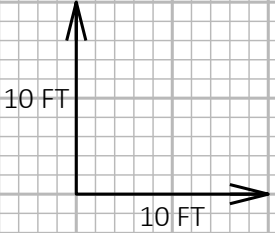
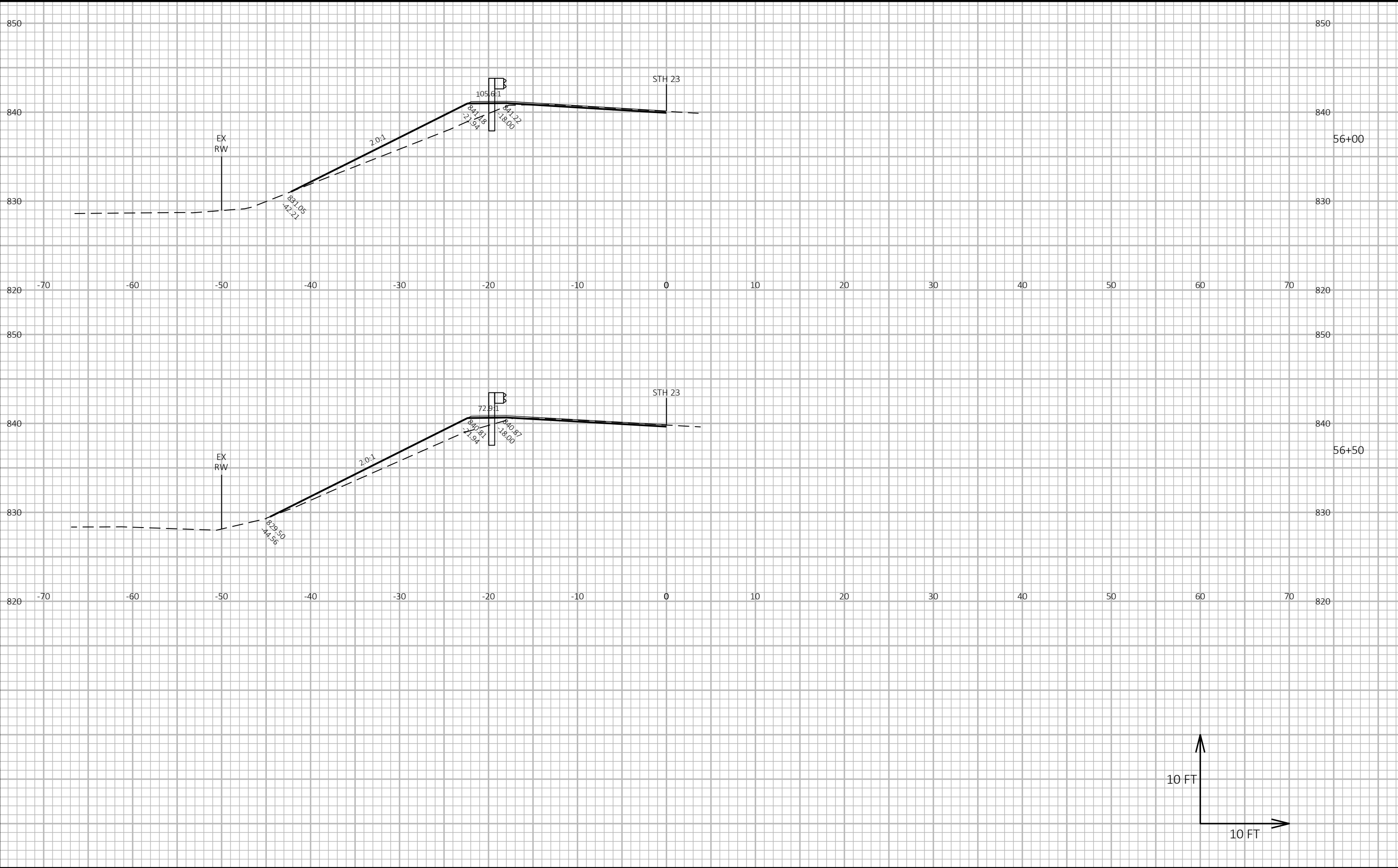
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PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	CROSS SECTIONS: GUARDRAIL	SHEET 204	E
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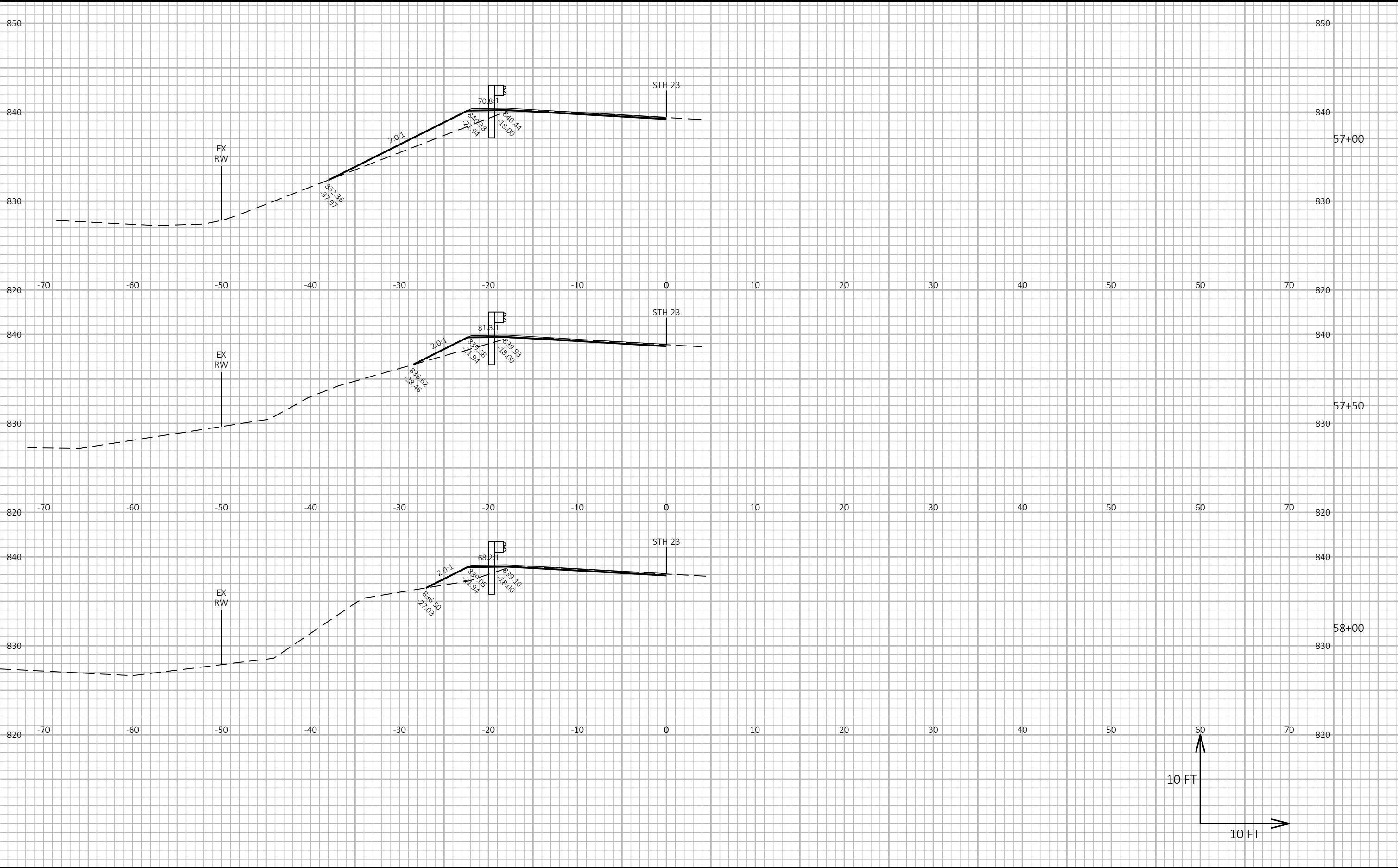


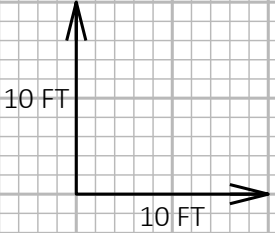
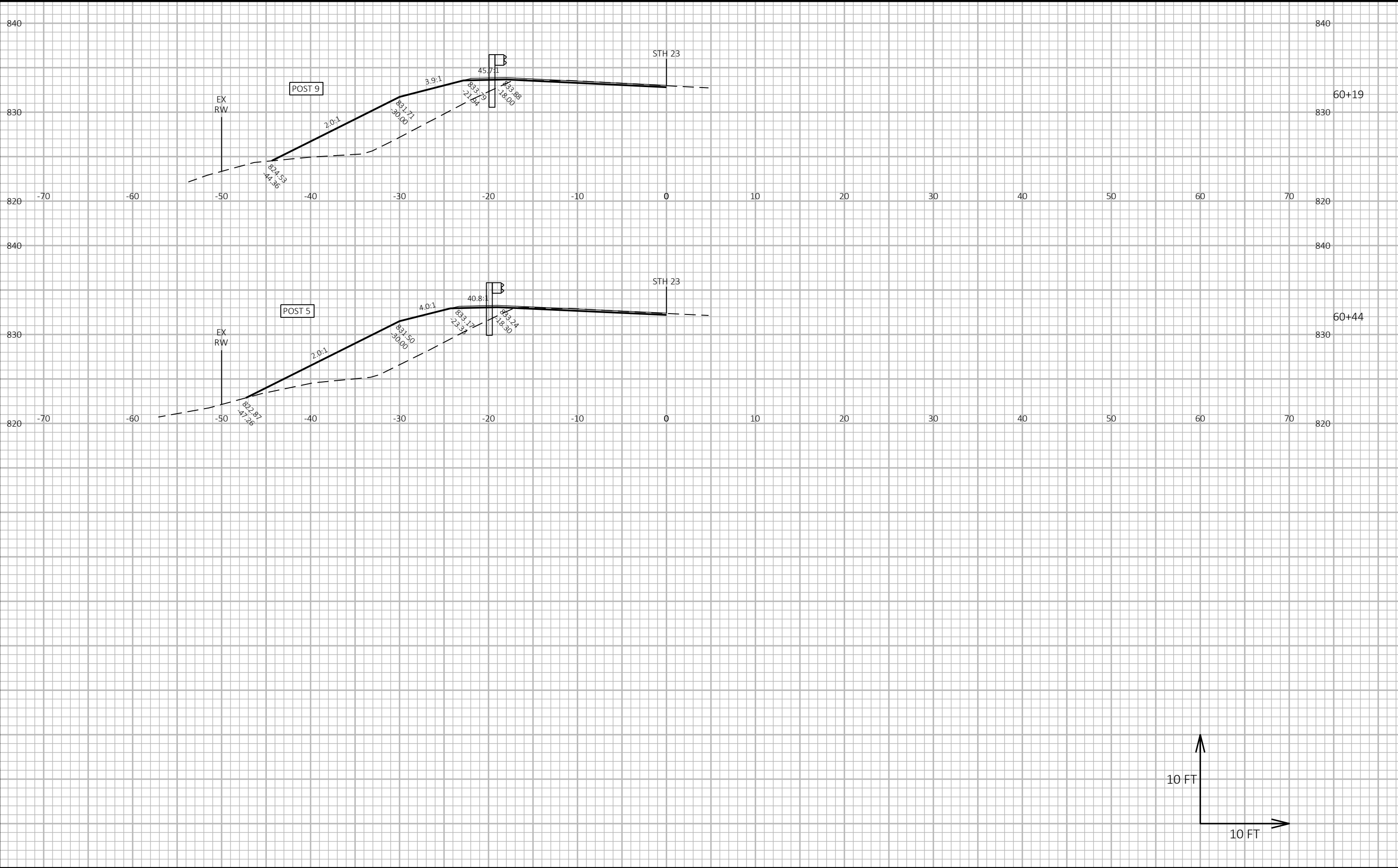


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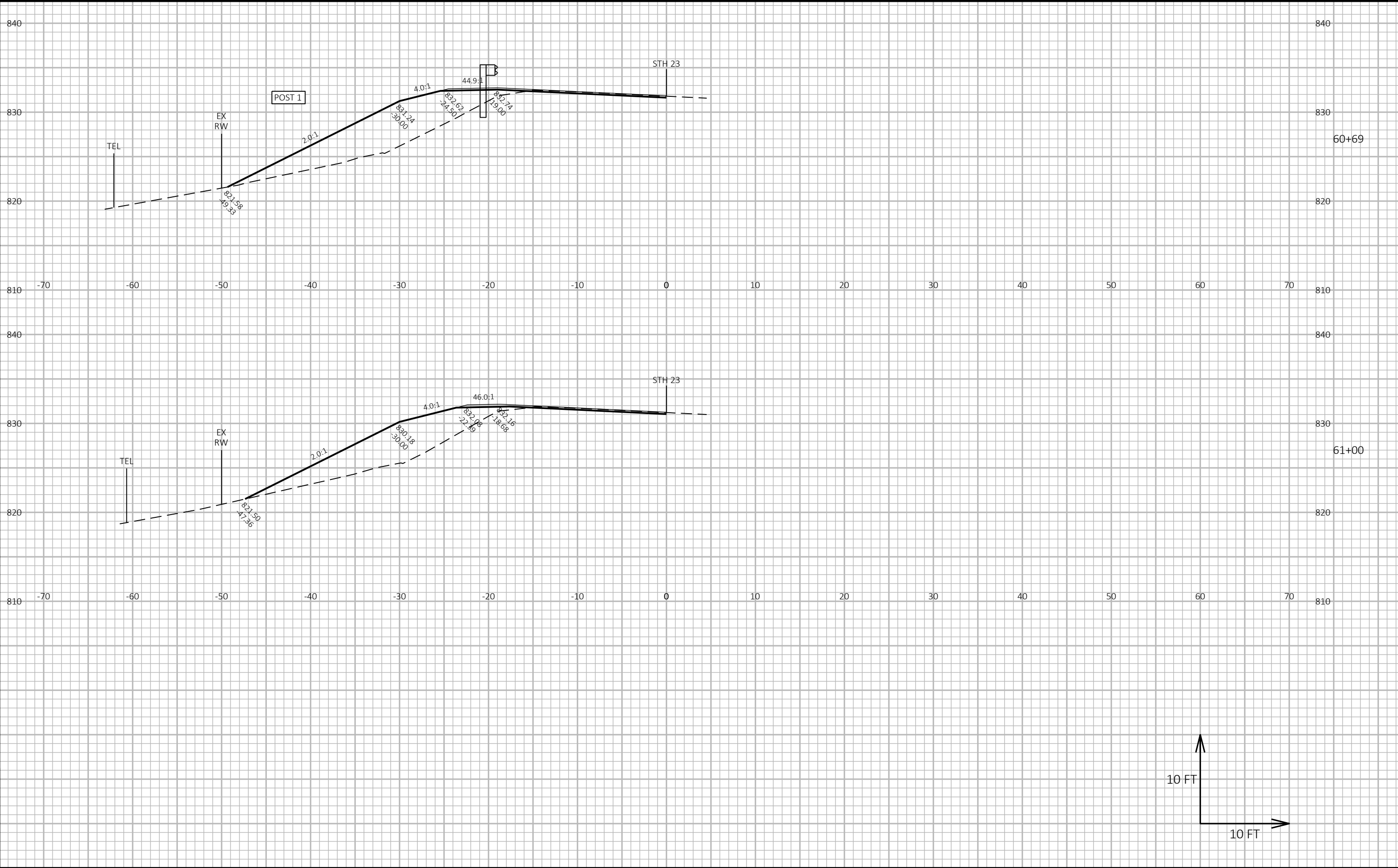
PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	CROSS SECTIONS: GUARDRAIL	SHEET 207	E
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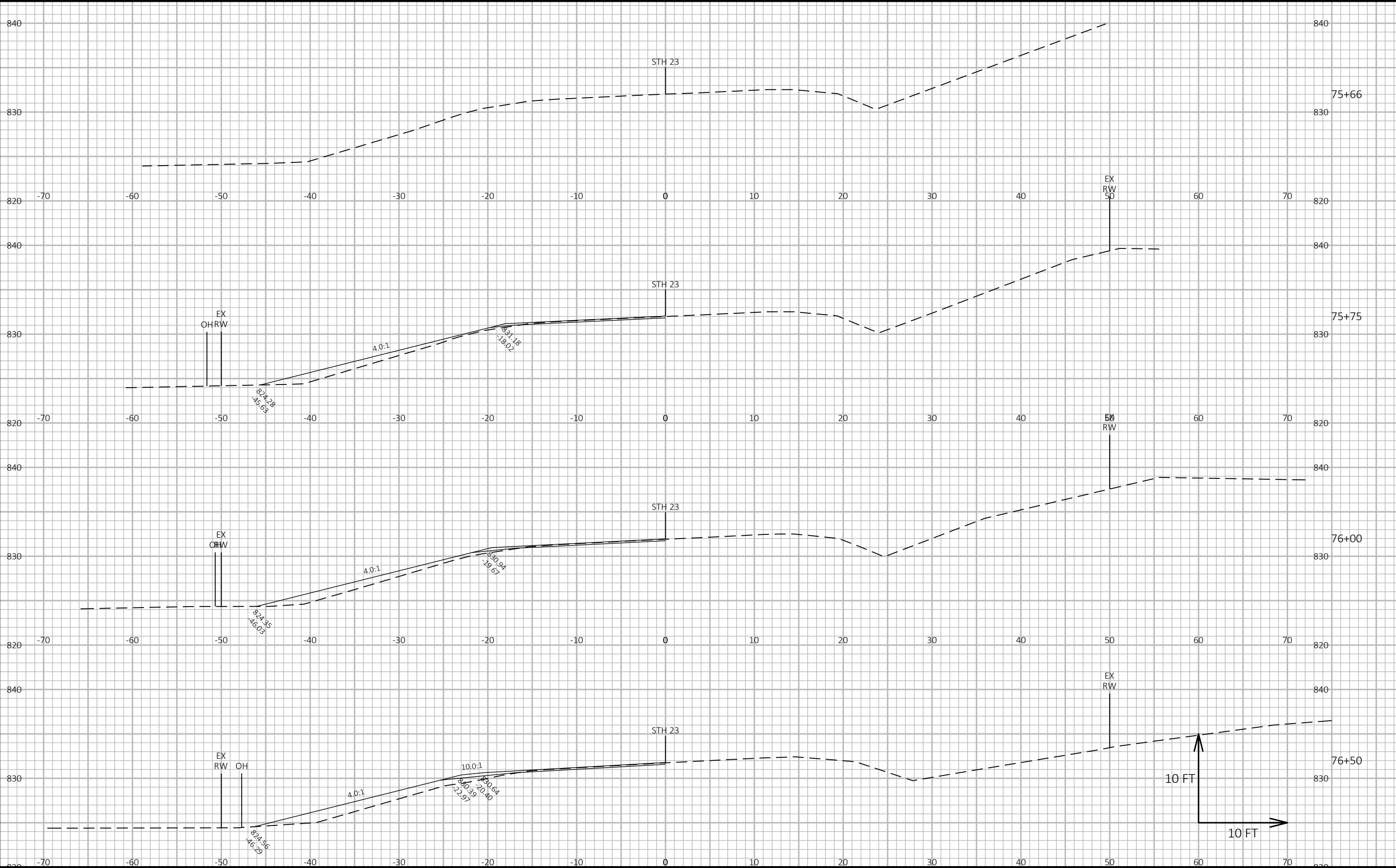


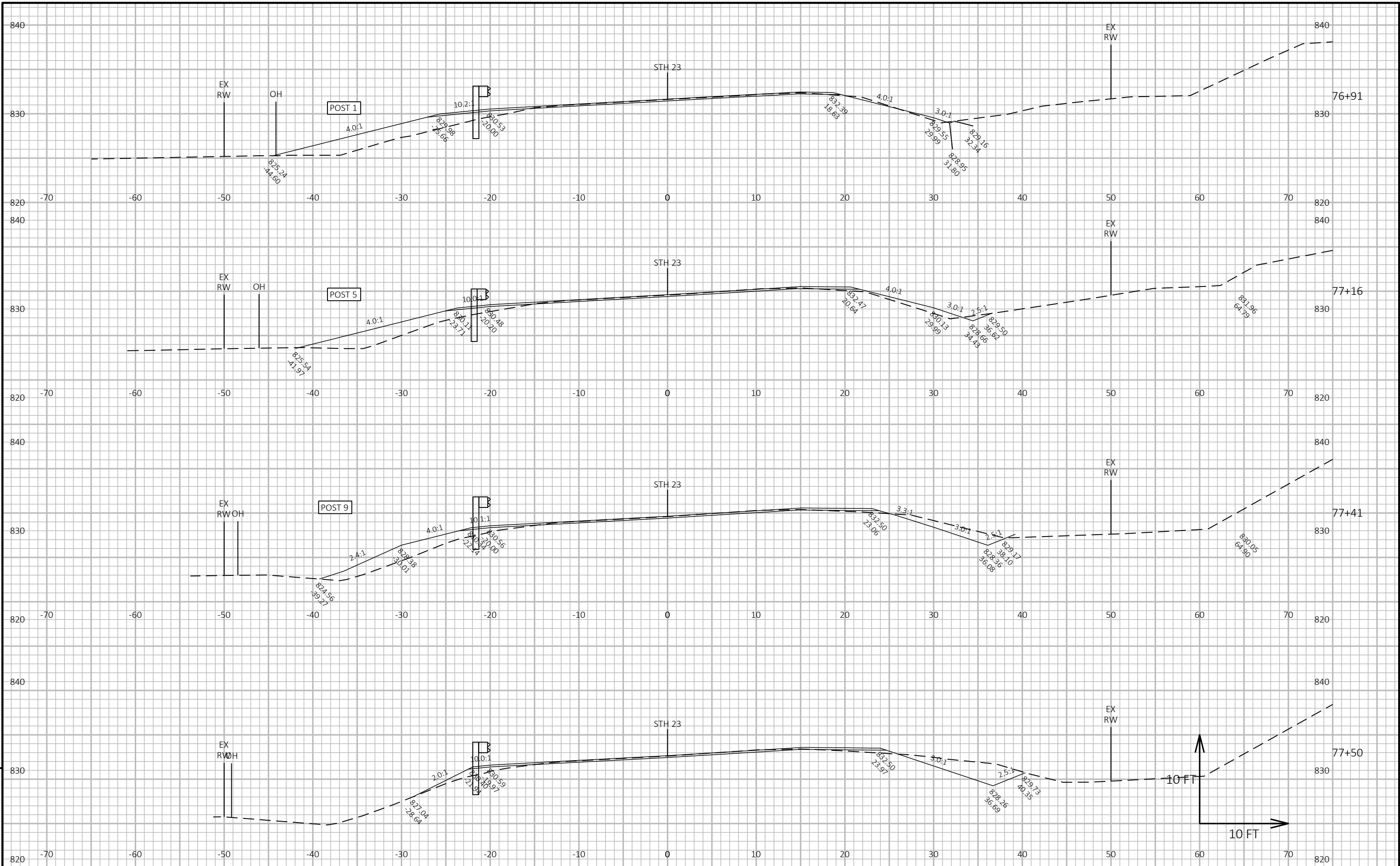


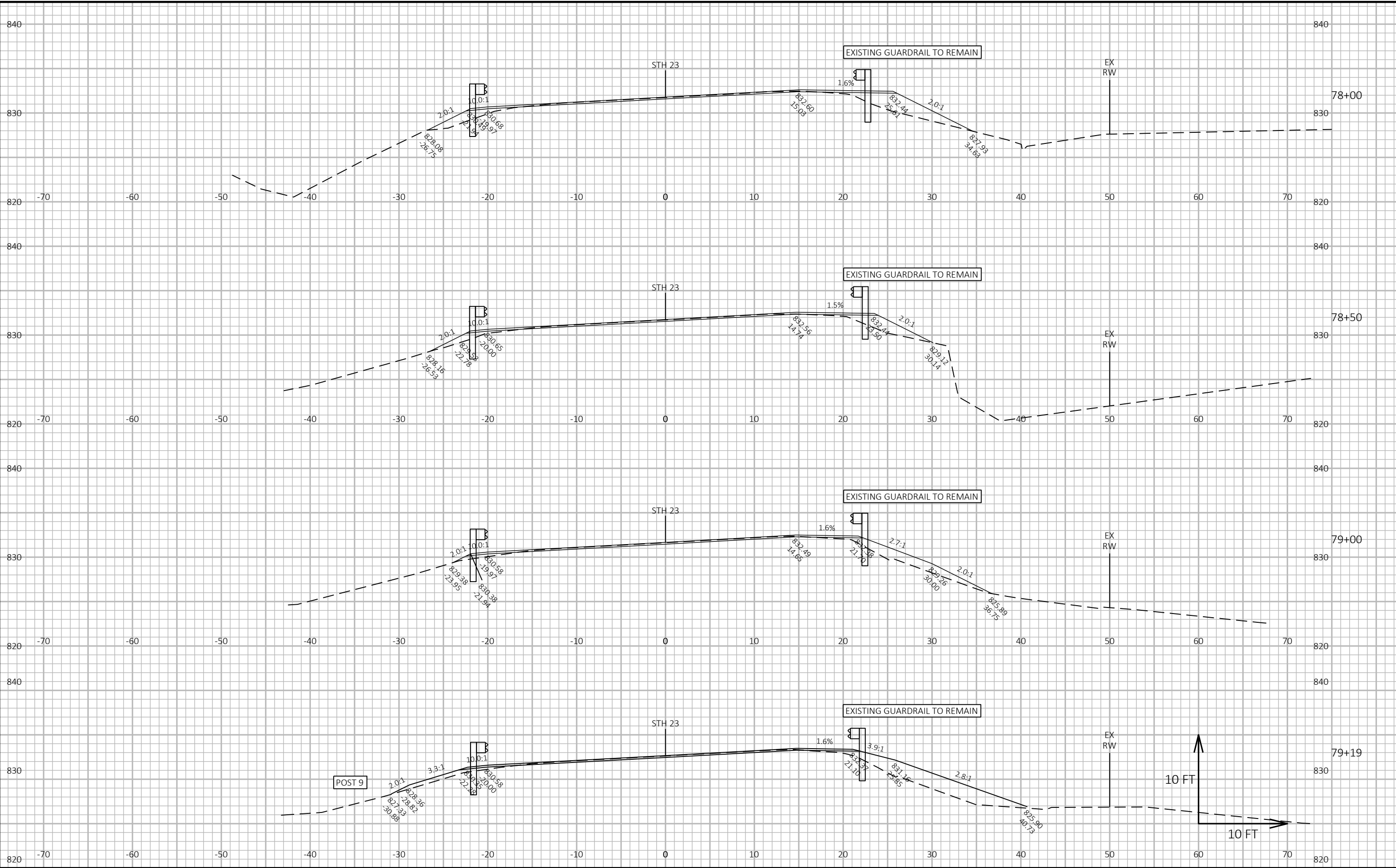
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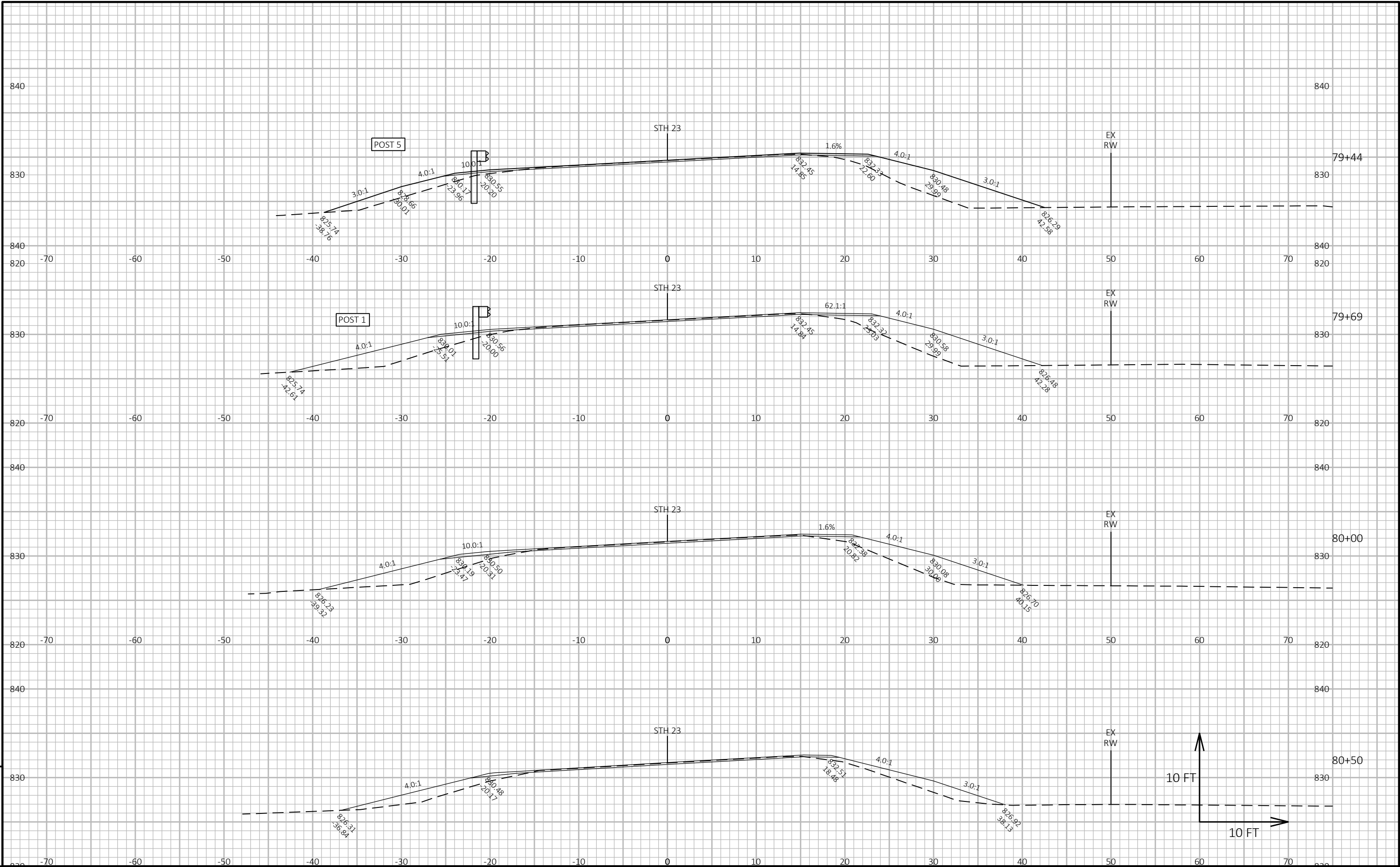
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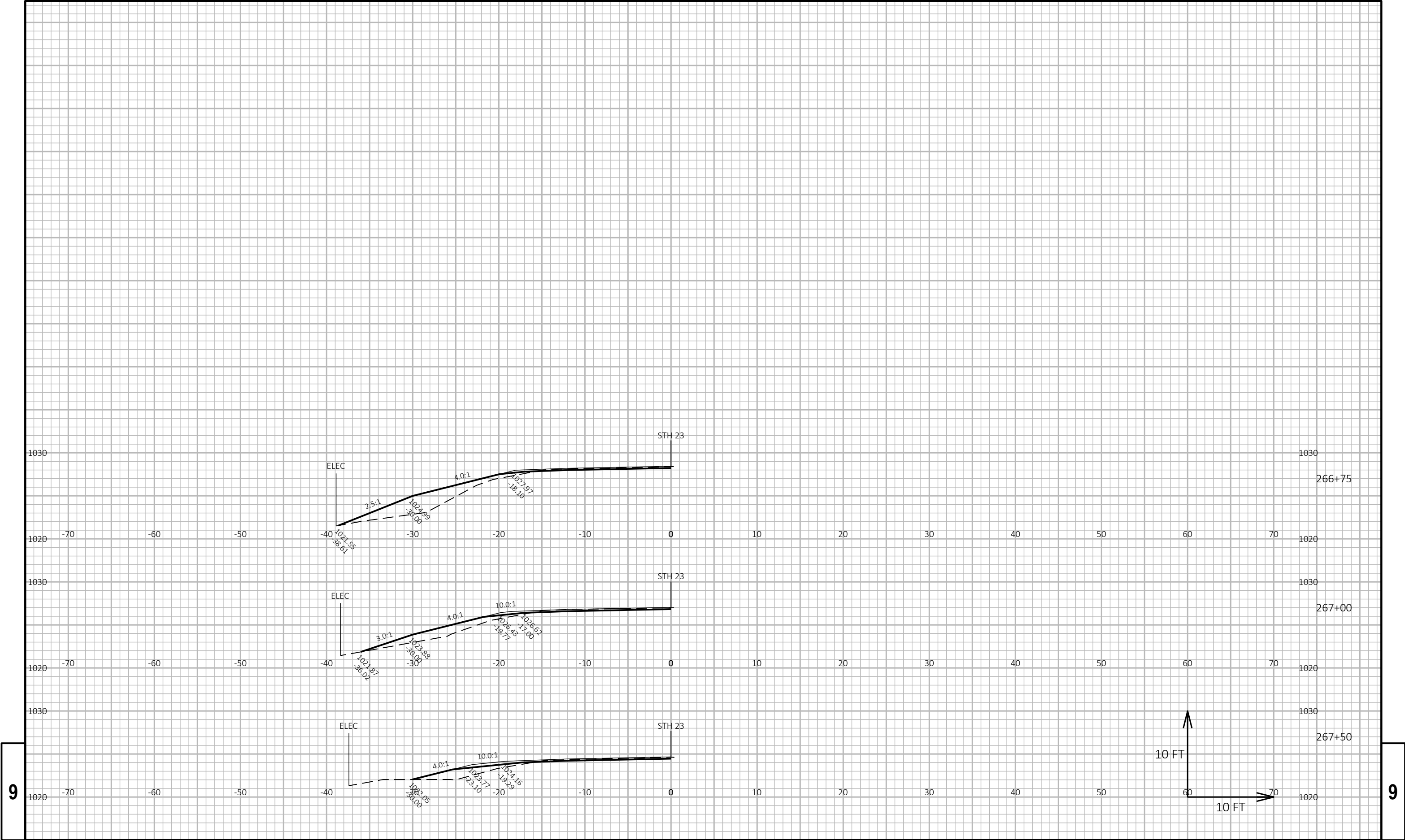






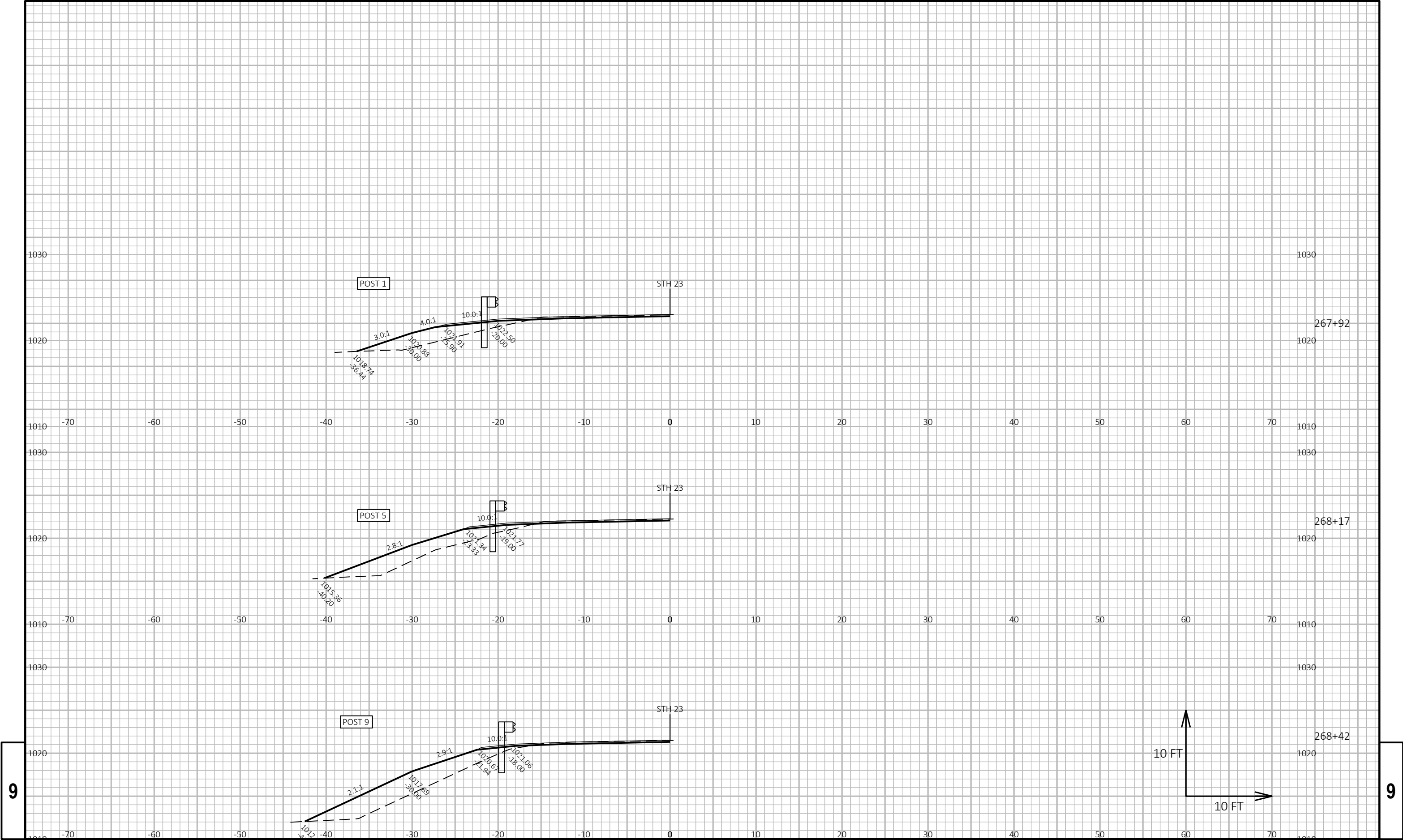


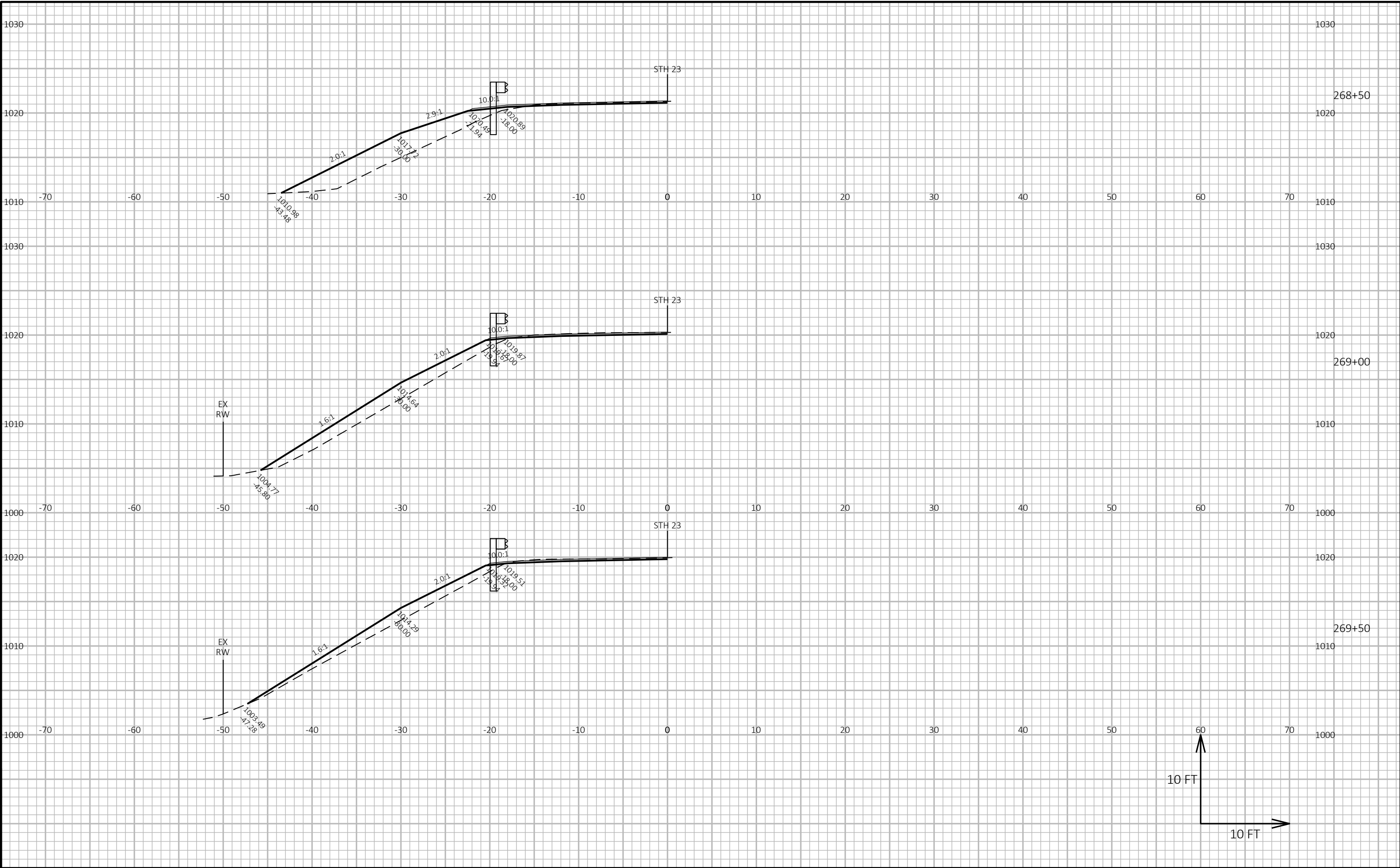


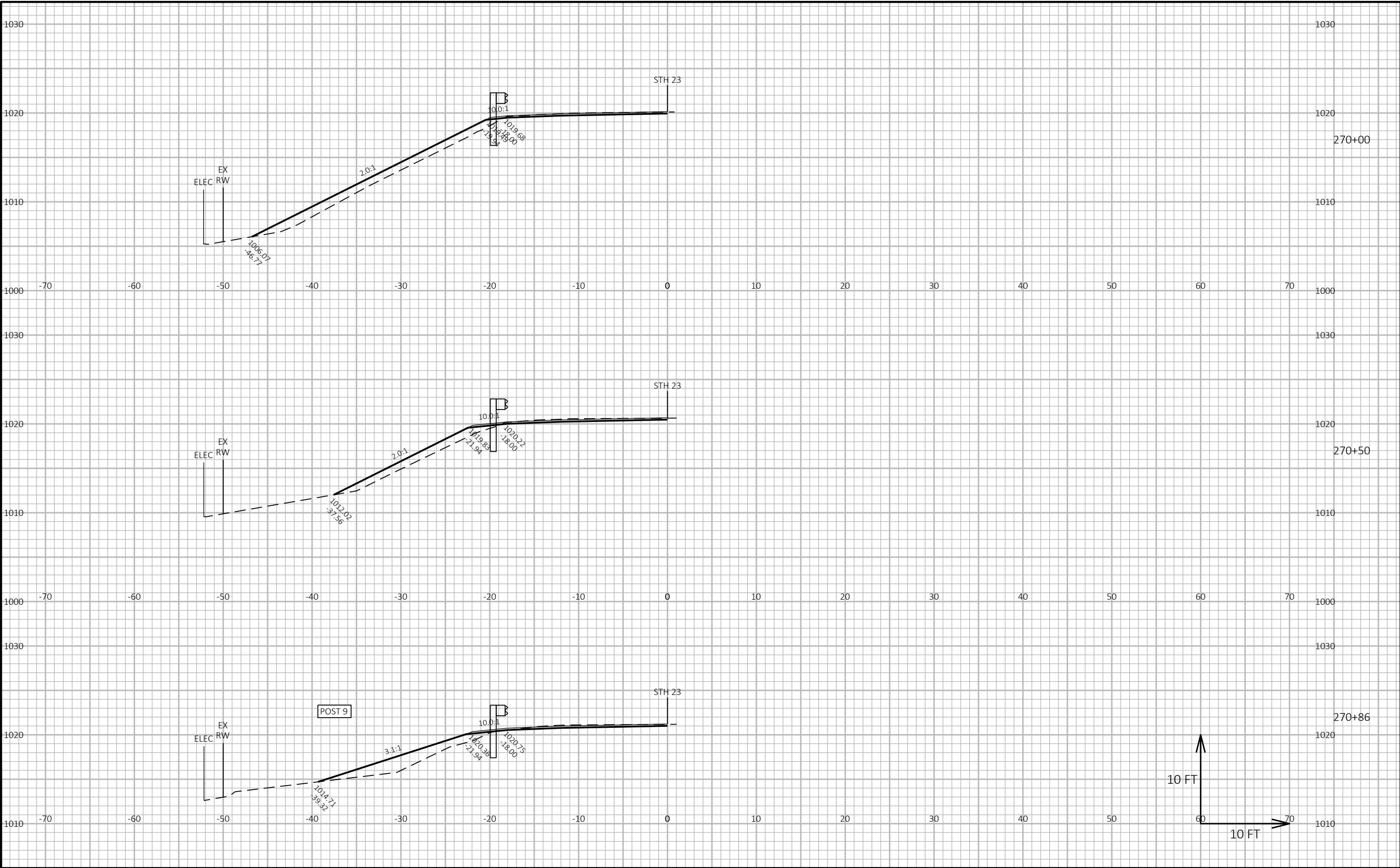


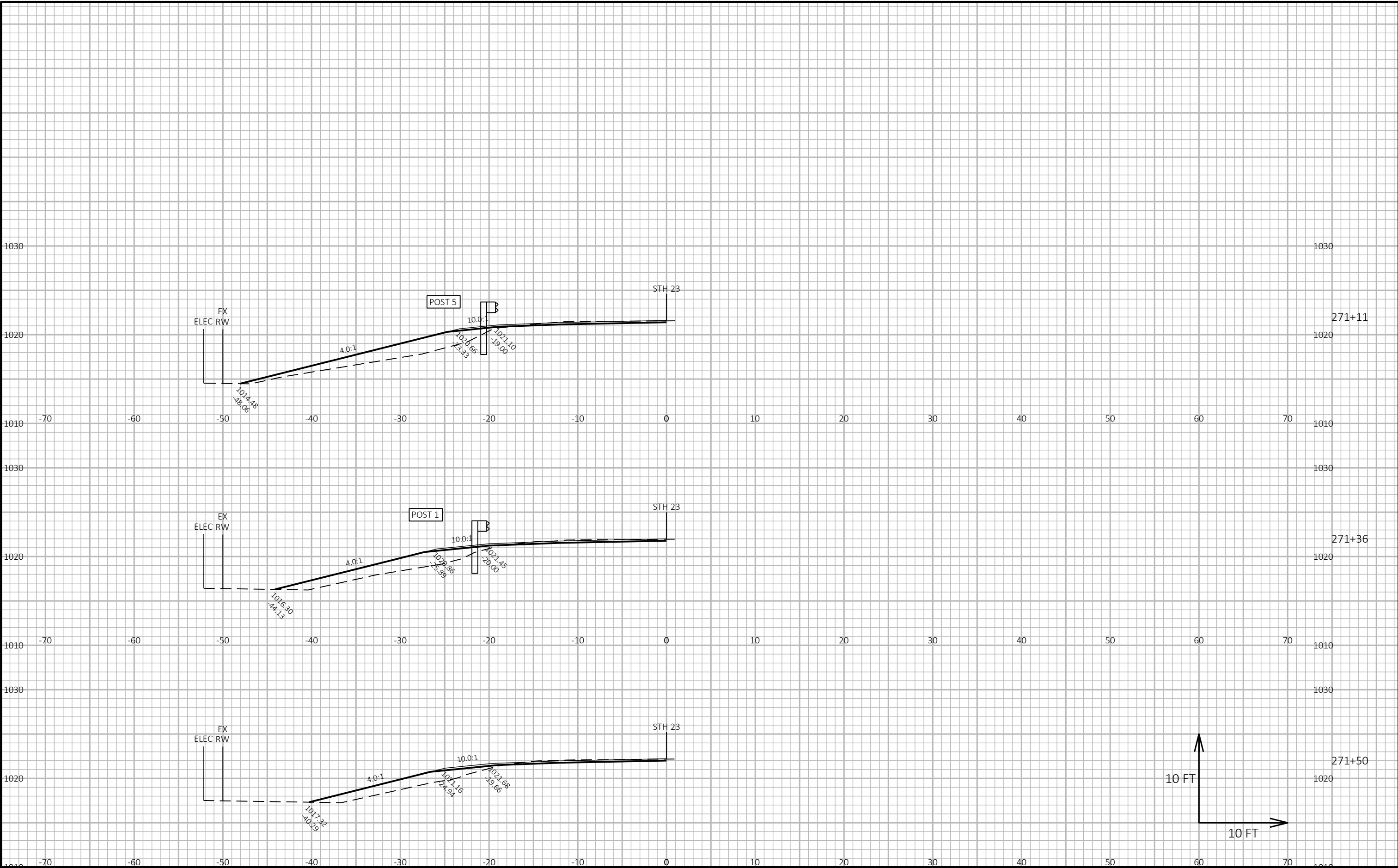
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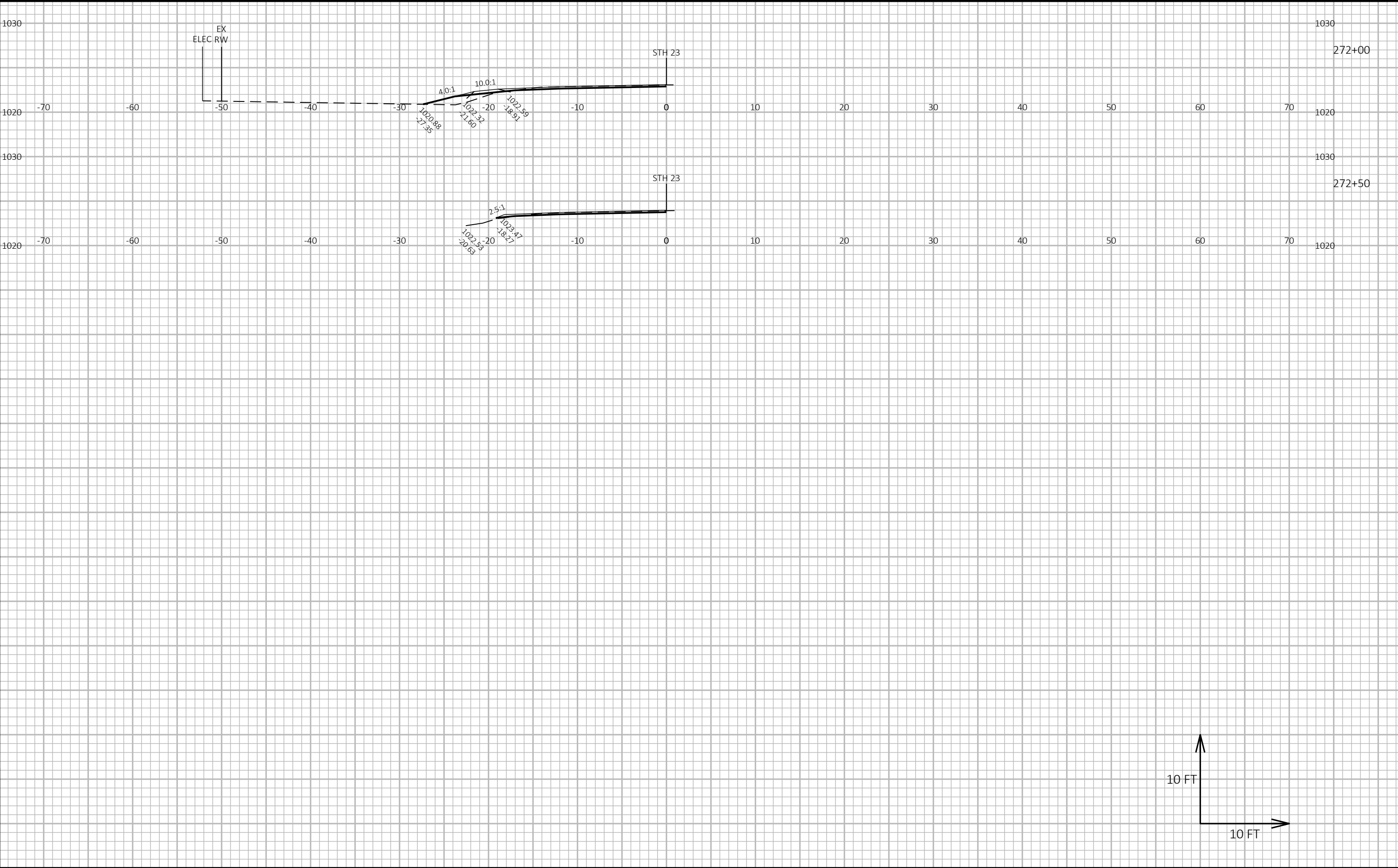
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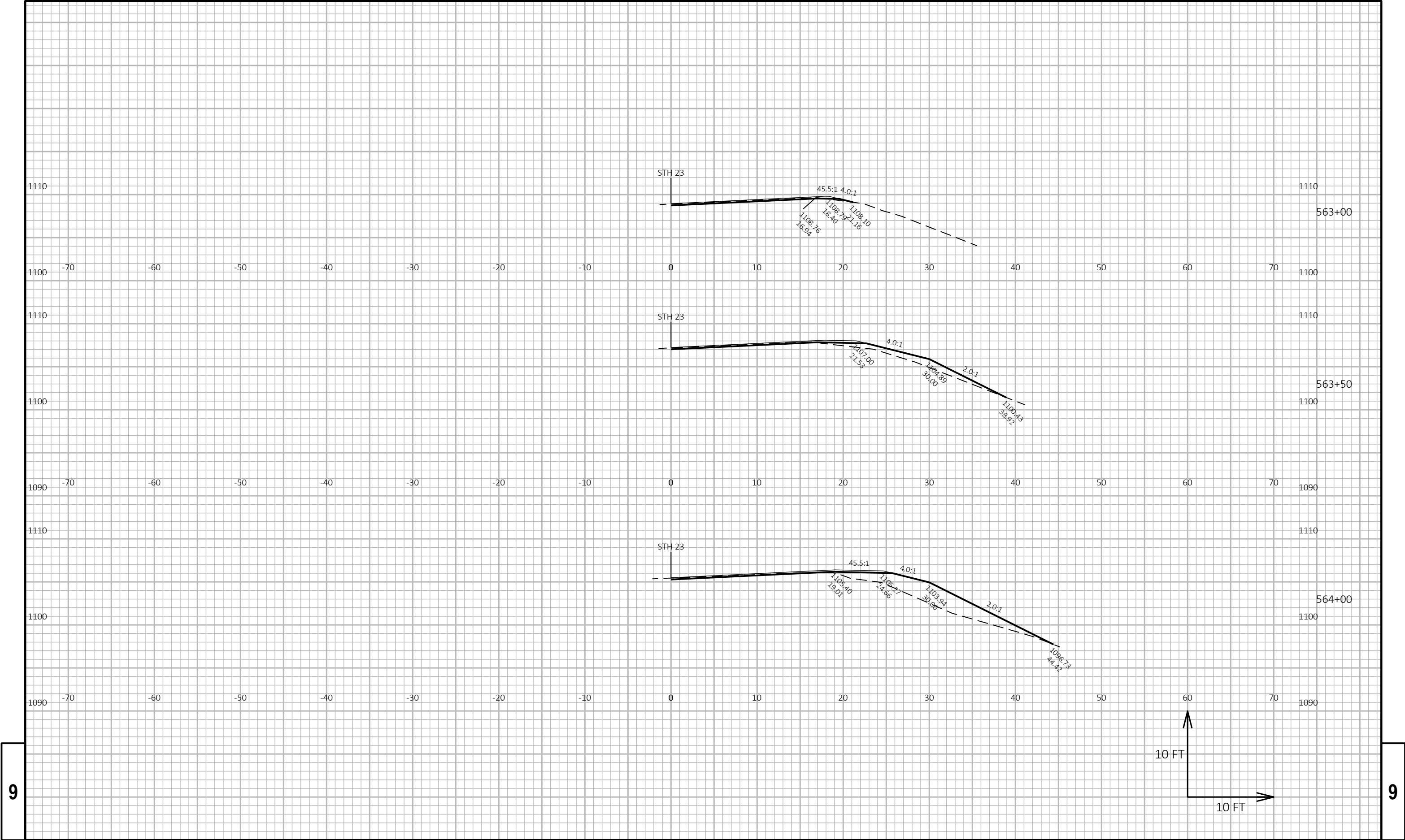






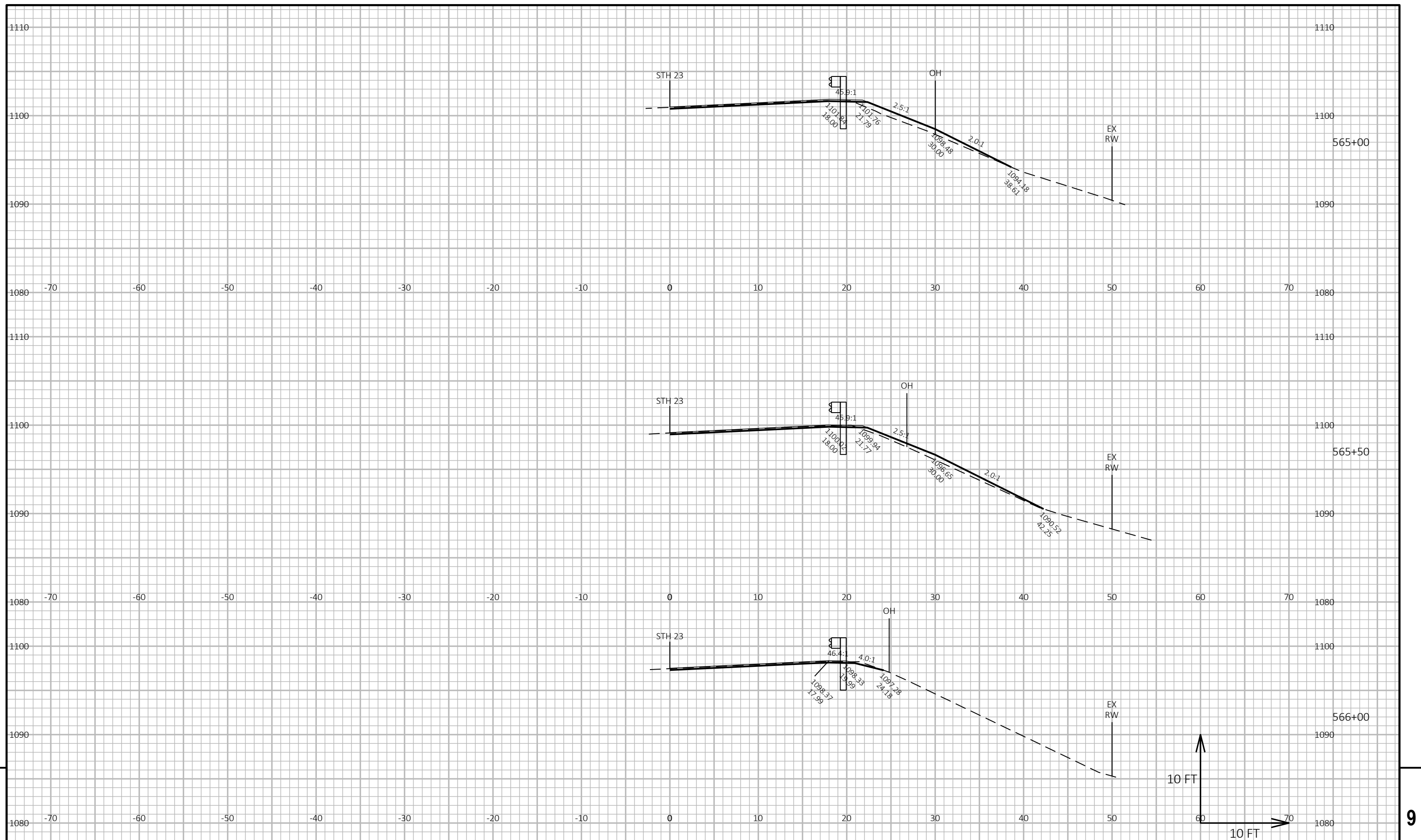
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PROJECT NO:	5245-02-76
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HWY: STH 23

COUNTY: LAFAYETTE

CROSS SECTIONS:	GUARDRAIL
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SHEET 226

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FILE NAME : O:\DESIGN\SW\5245-02-06,76 STH 23, LAFAYETTE COUNTY\C3D\52450267\SHEETSPLAN\090203-XS.DWG
LAYOUT NAME - 050

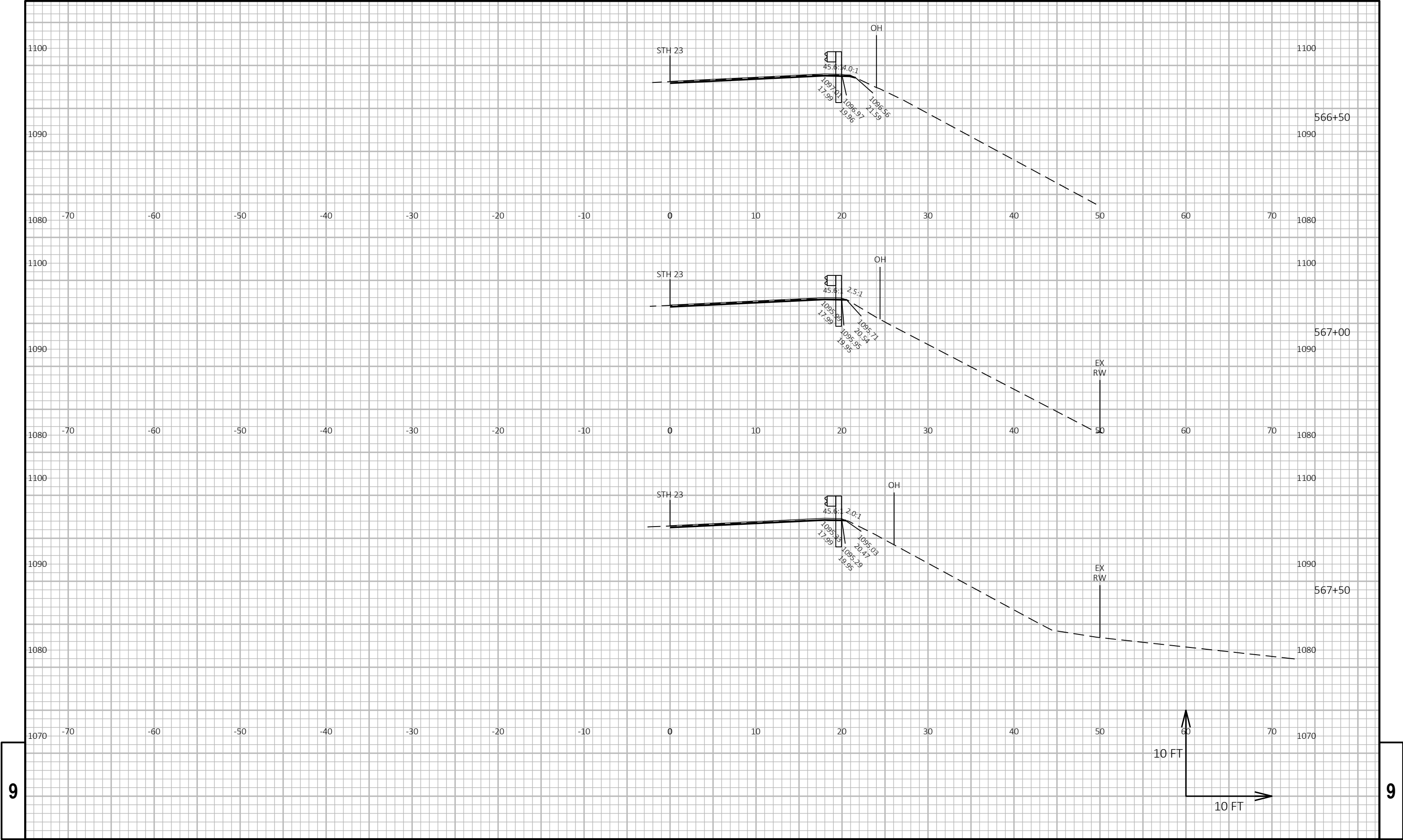
PLOT DATE : 6/7/2021 10:05 AM

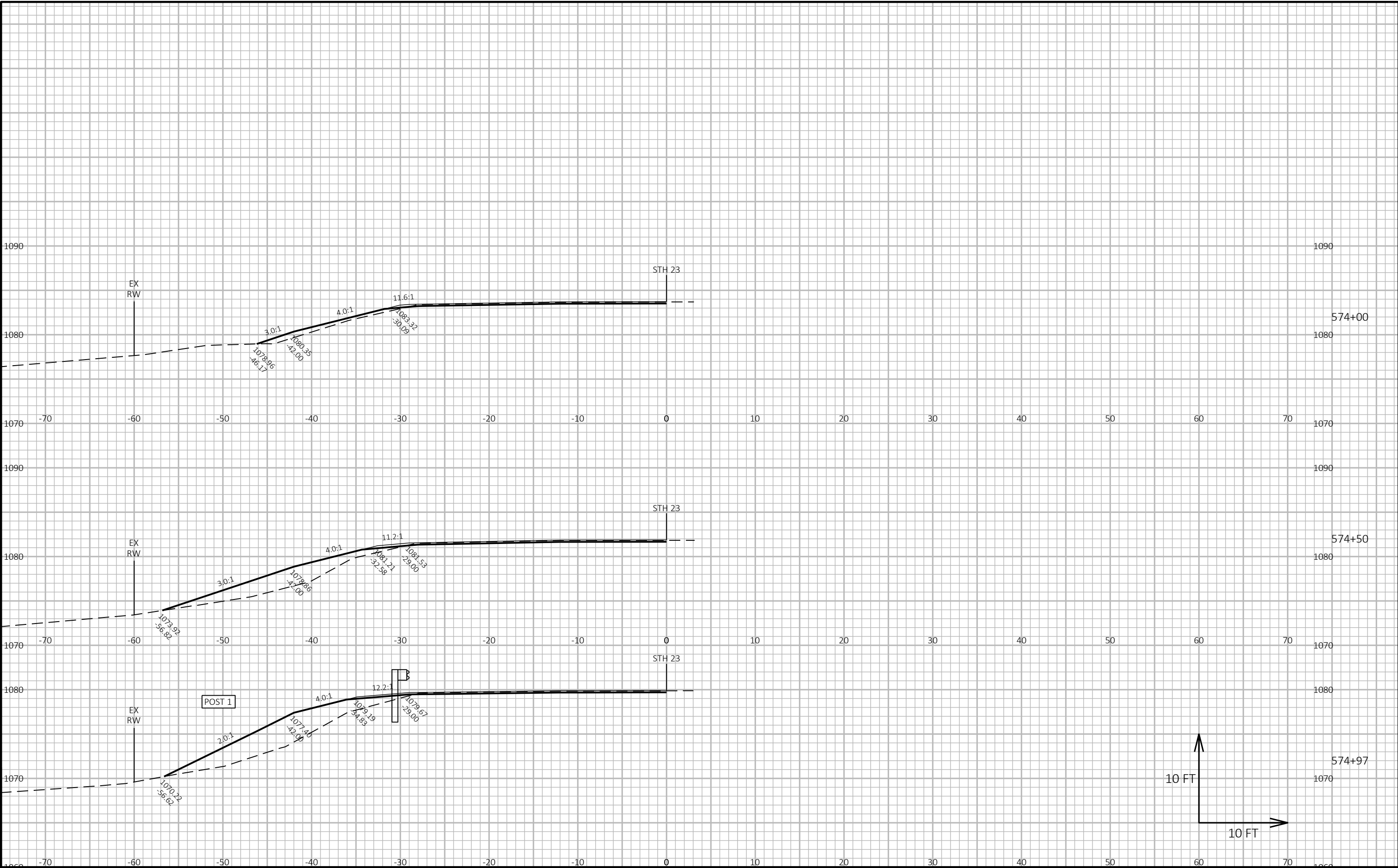
PLOT BY : ETHAN HEROUX

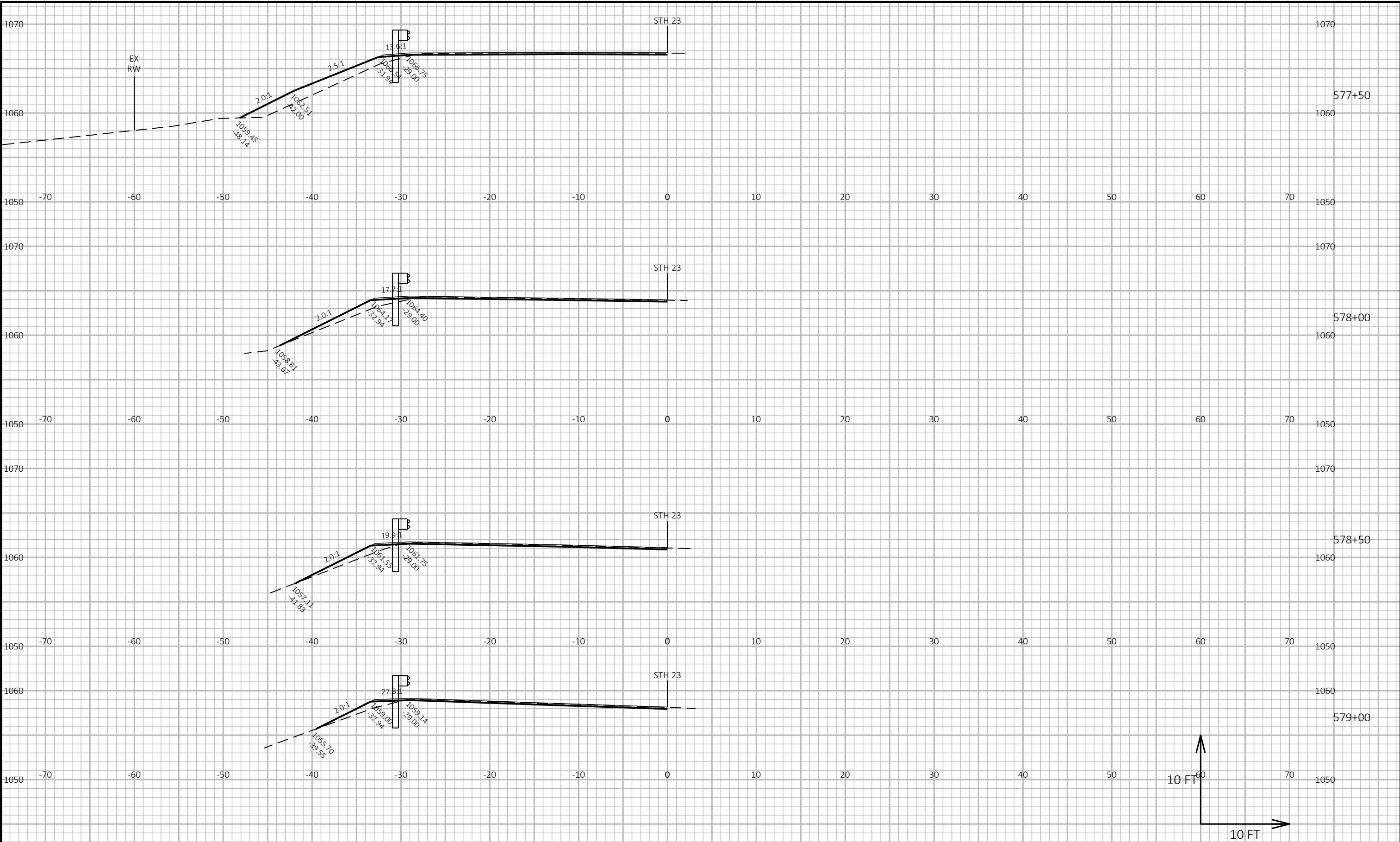
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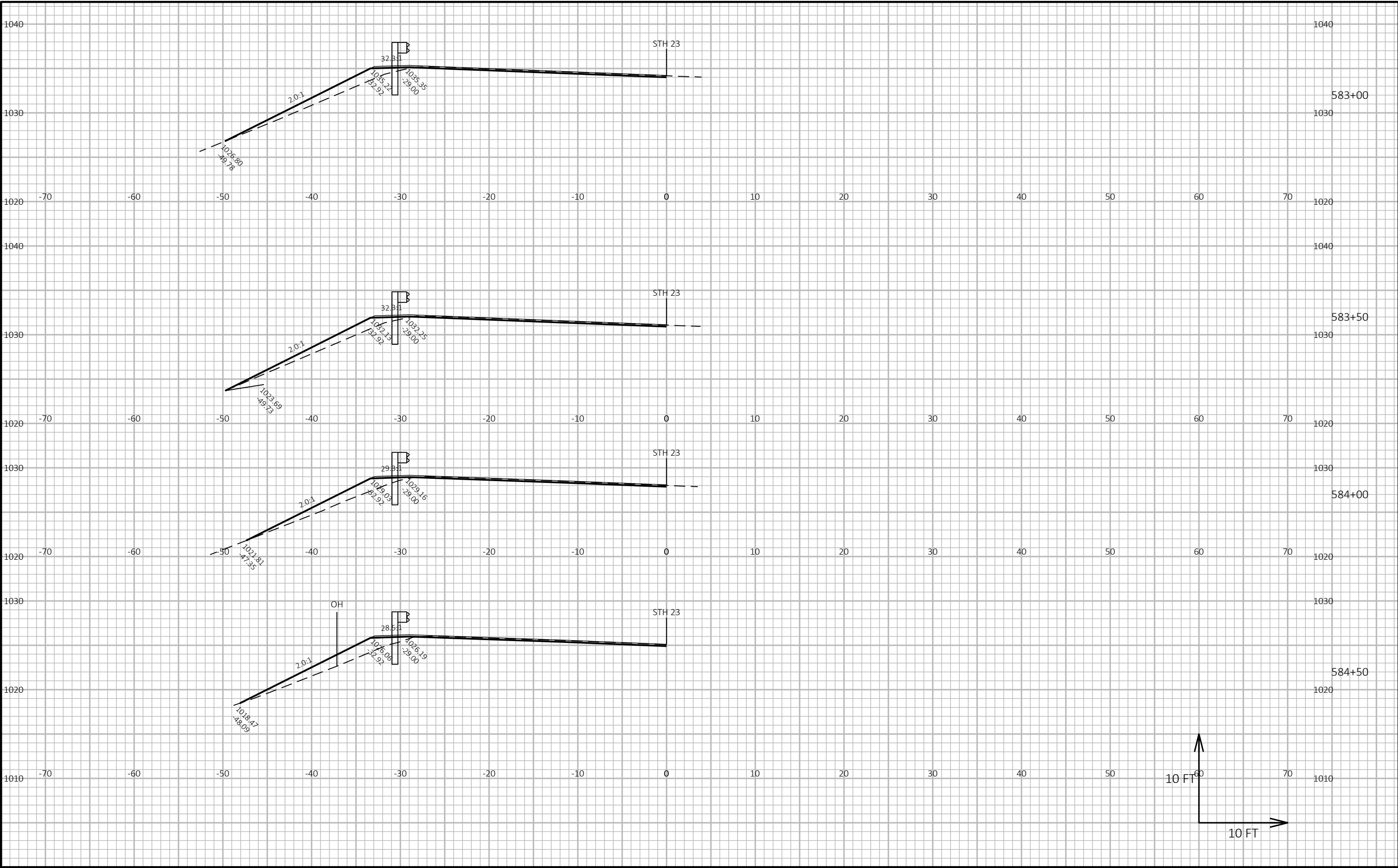
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

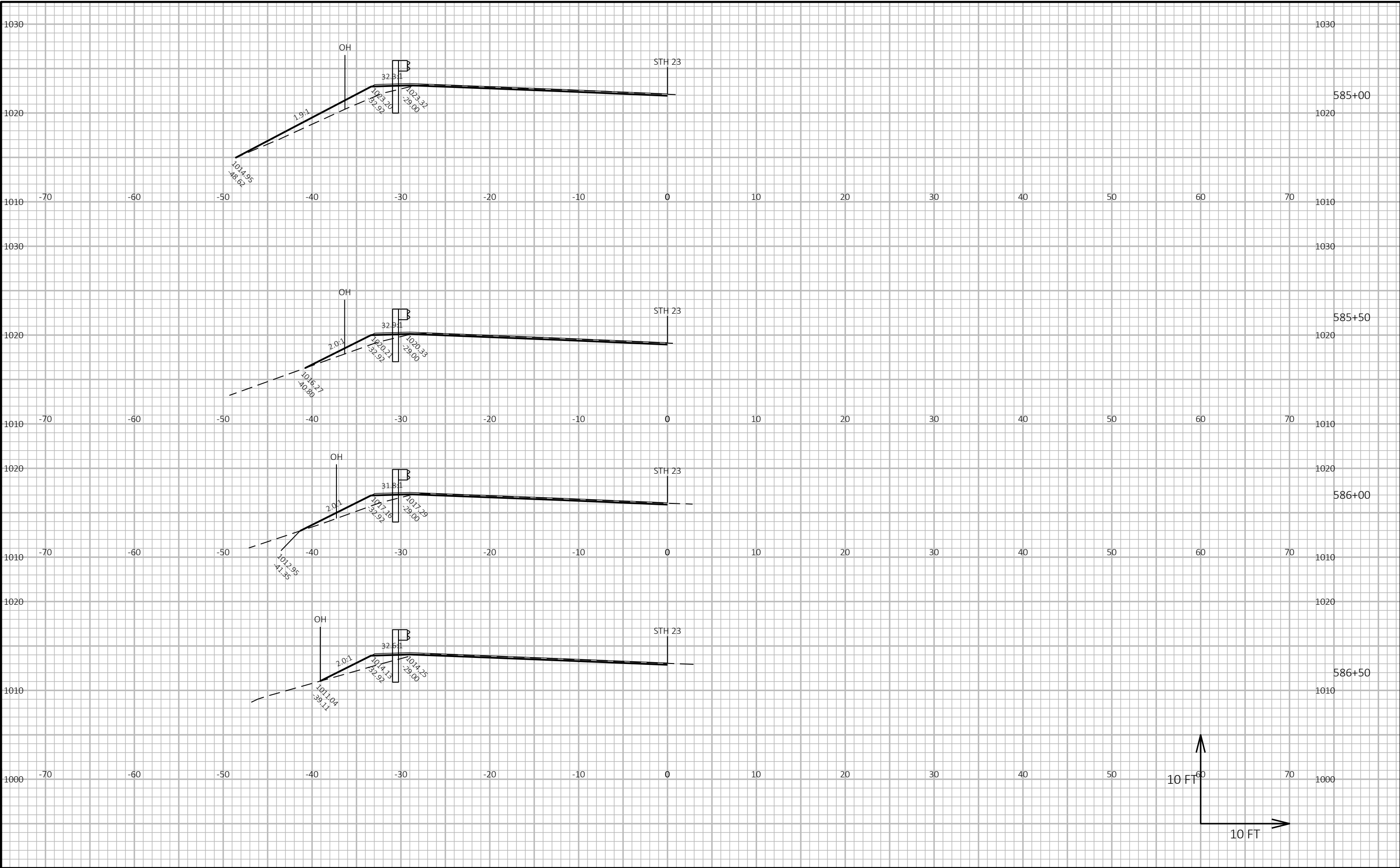
WISDOT/CADDs SHEET 49

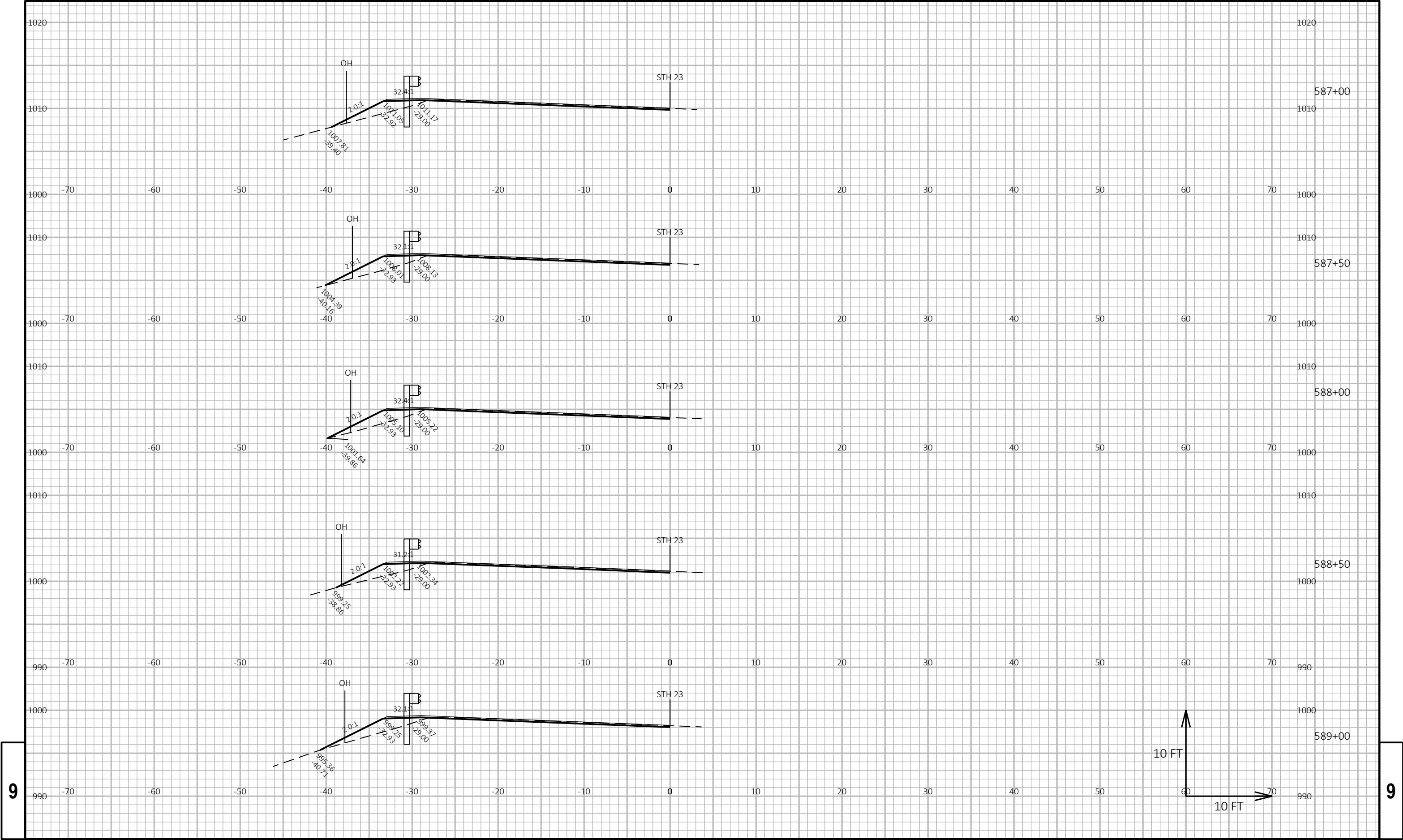






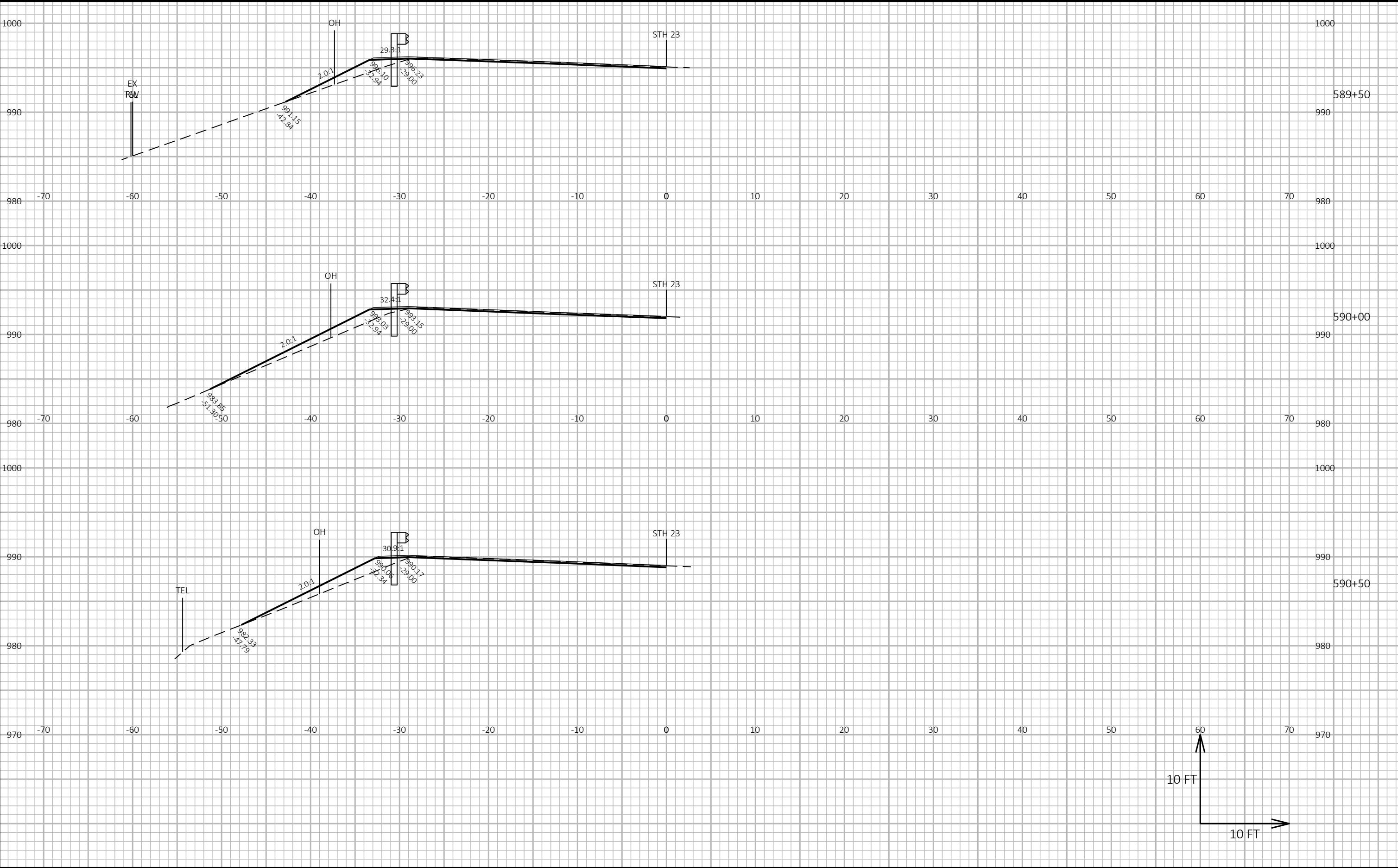






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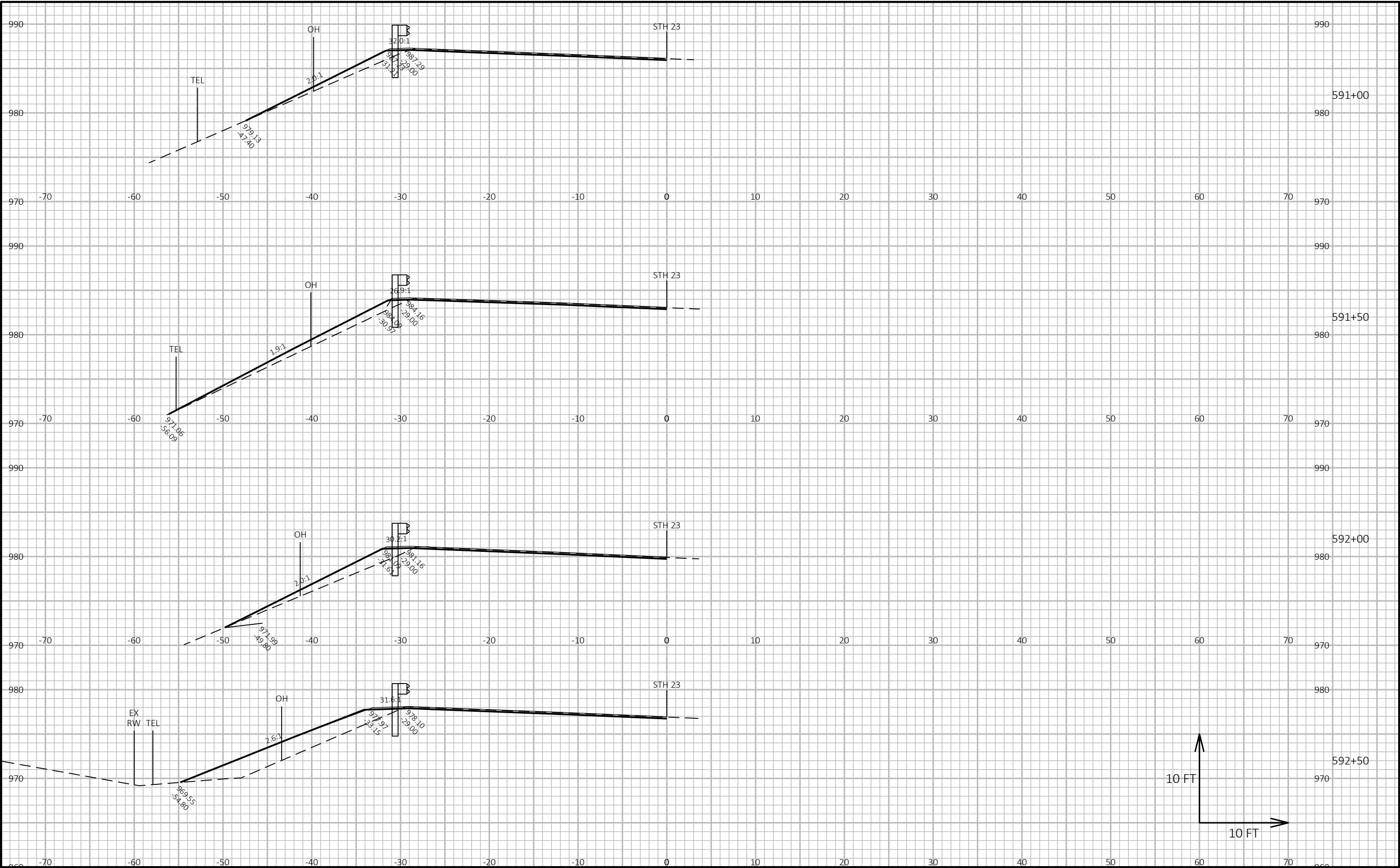
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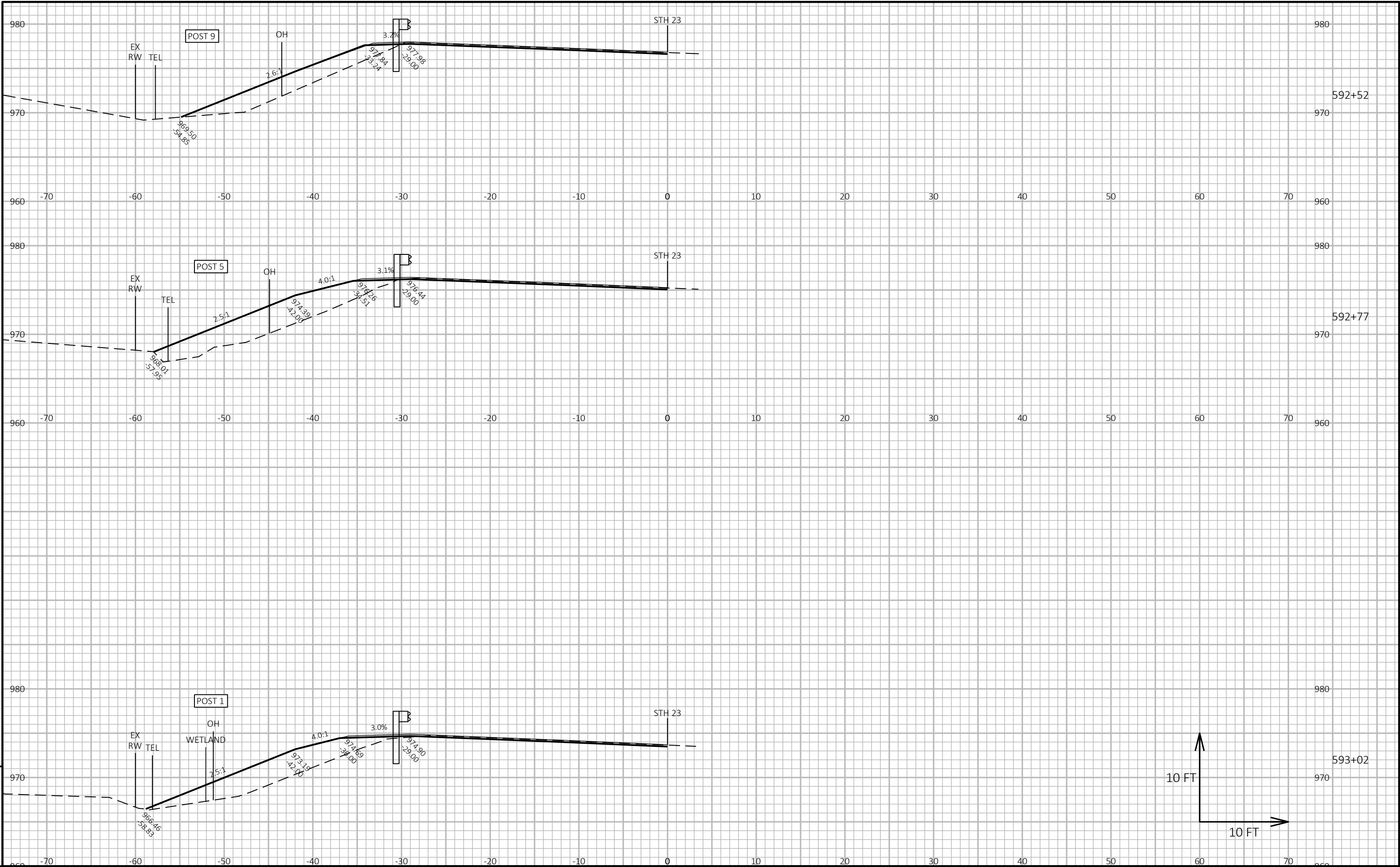


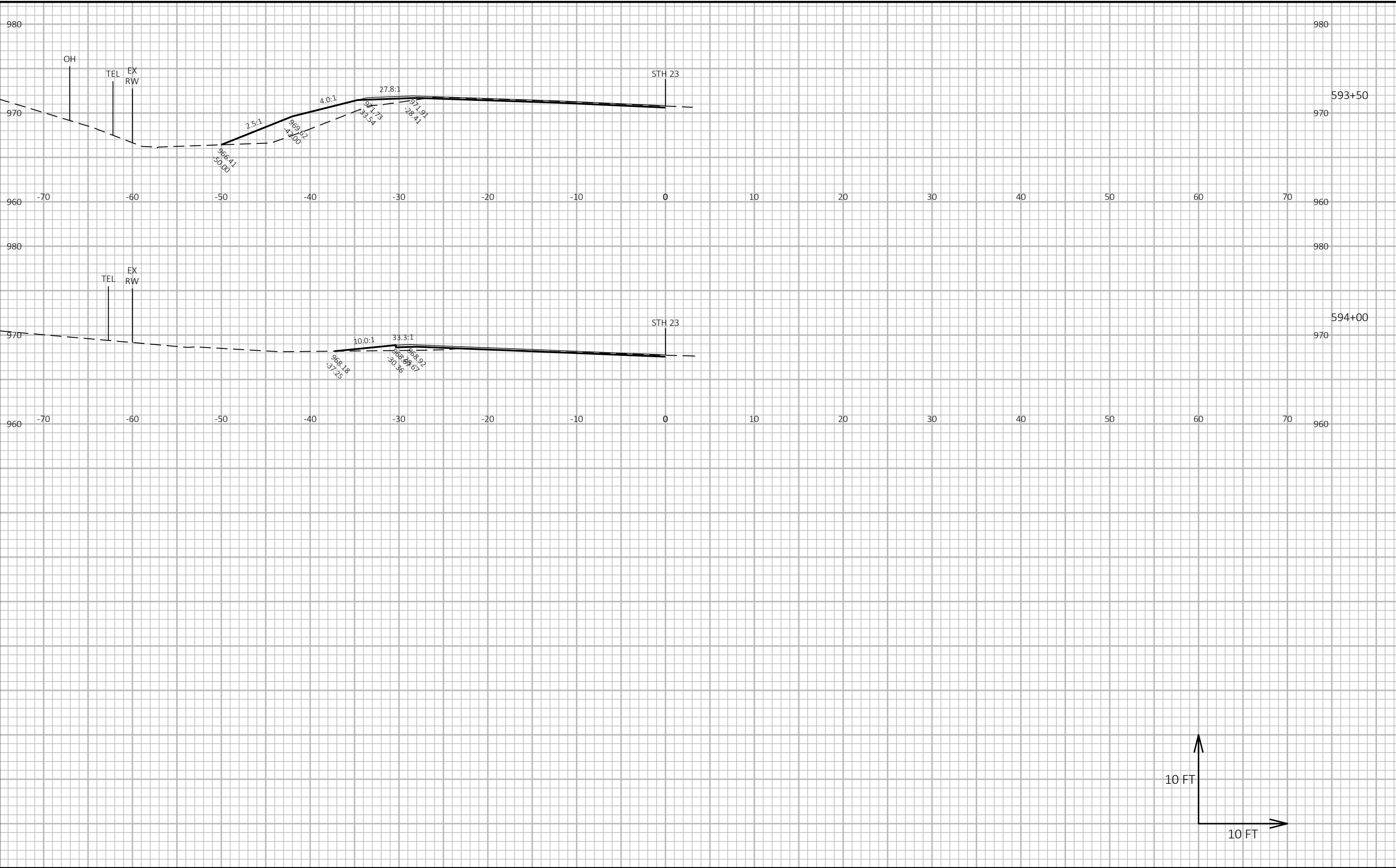
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PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	CROSS SECTIONS: GUARDRAIL	SHEET 240	E
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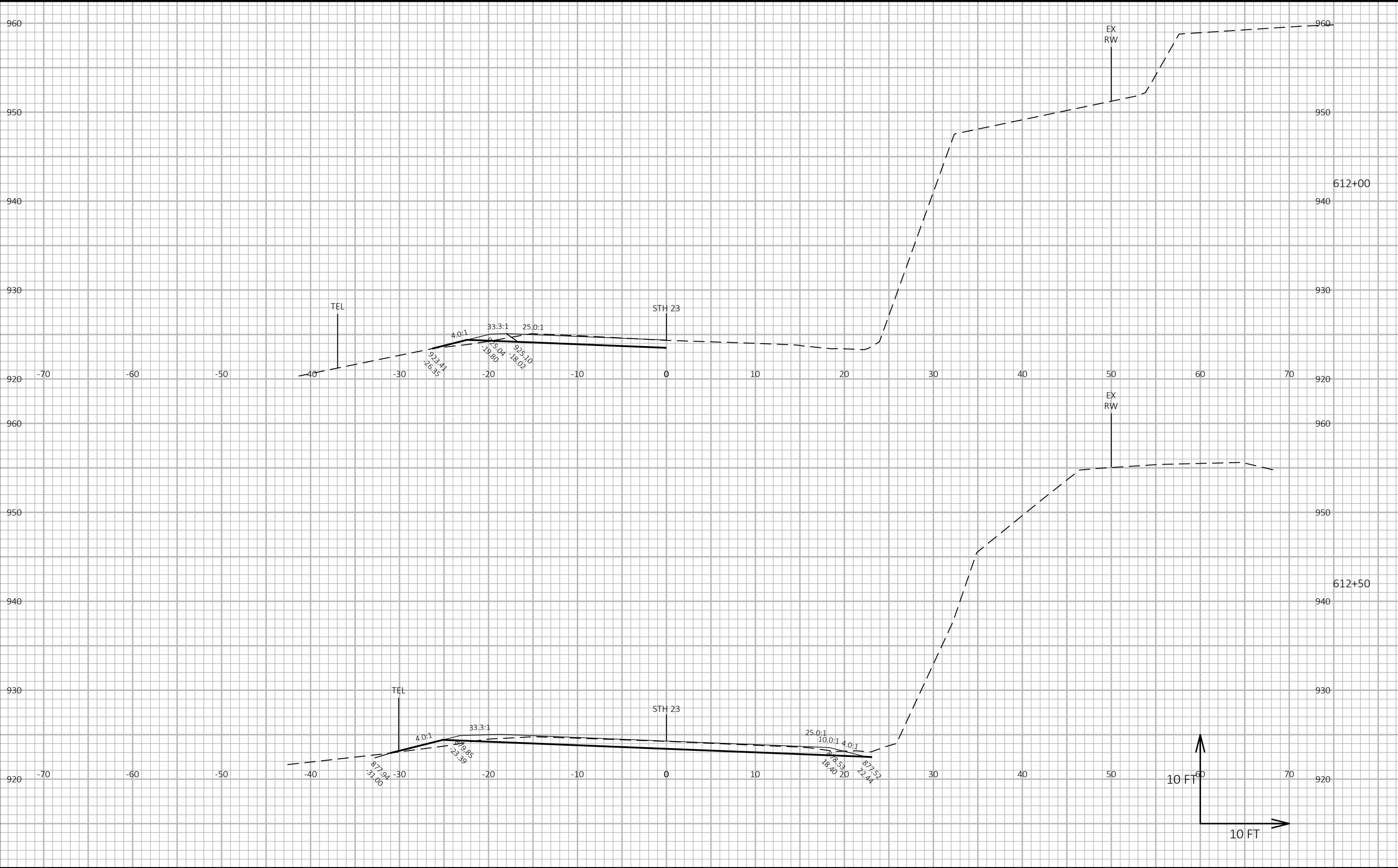




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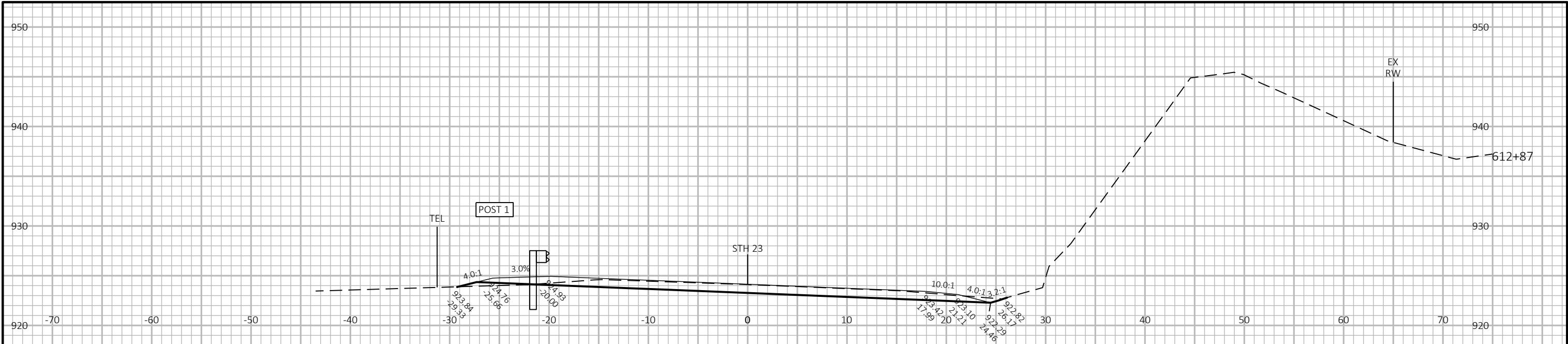
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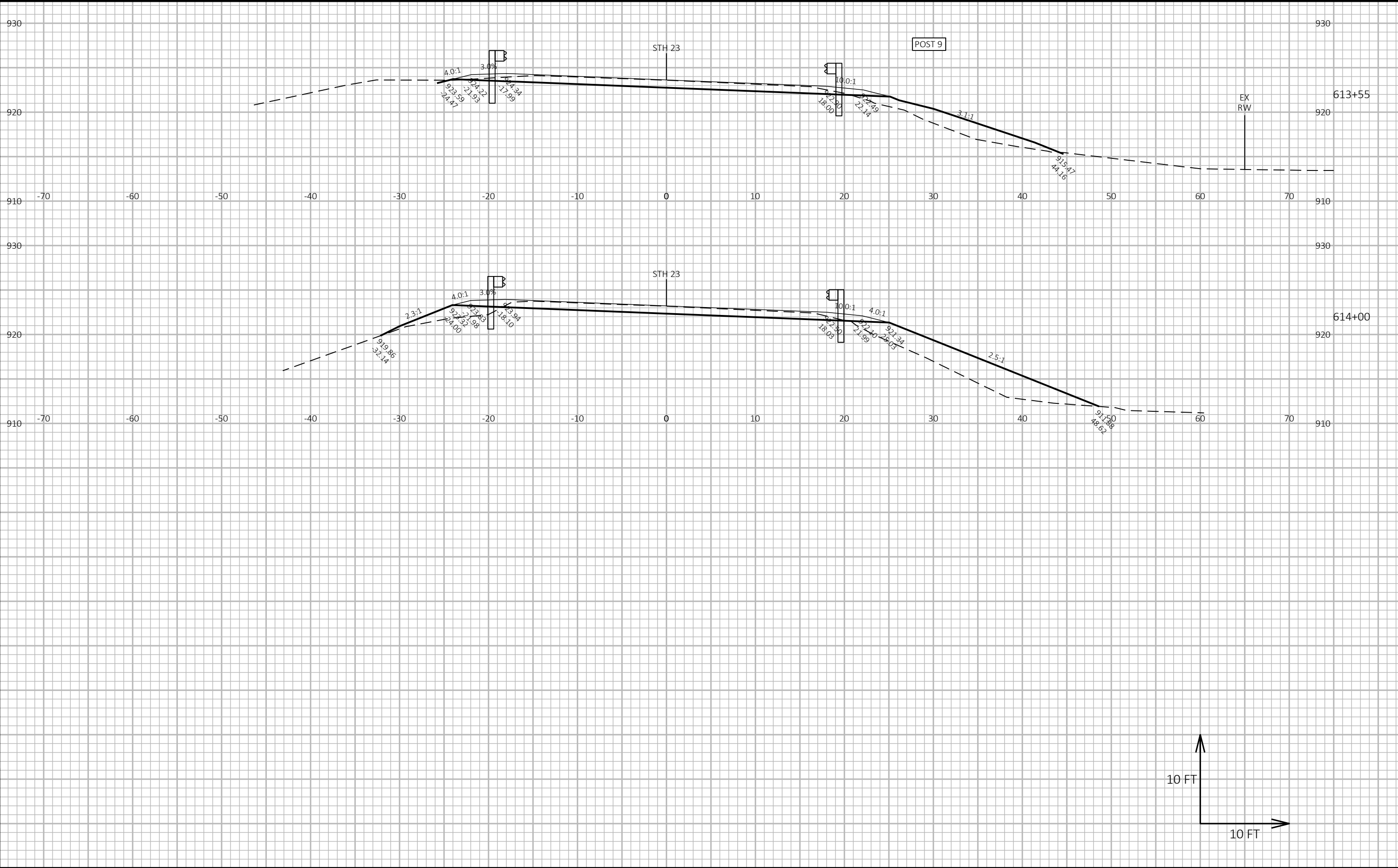
PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	CROSS SECTIONS: GUARDRAIL	SHEET 243	E
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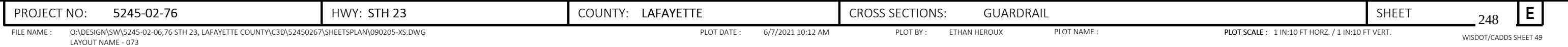
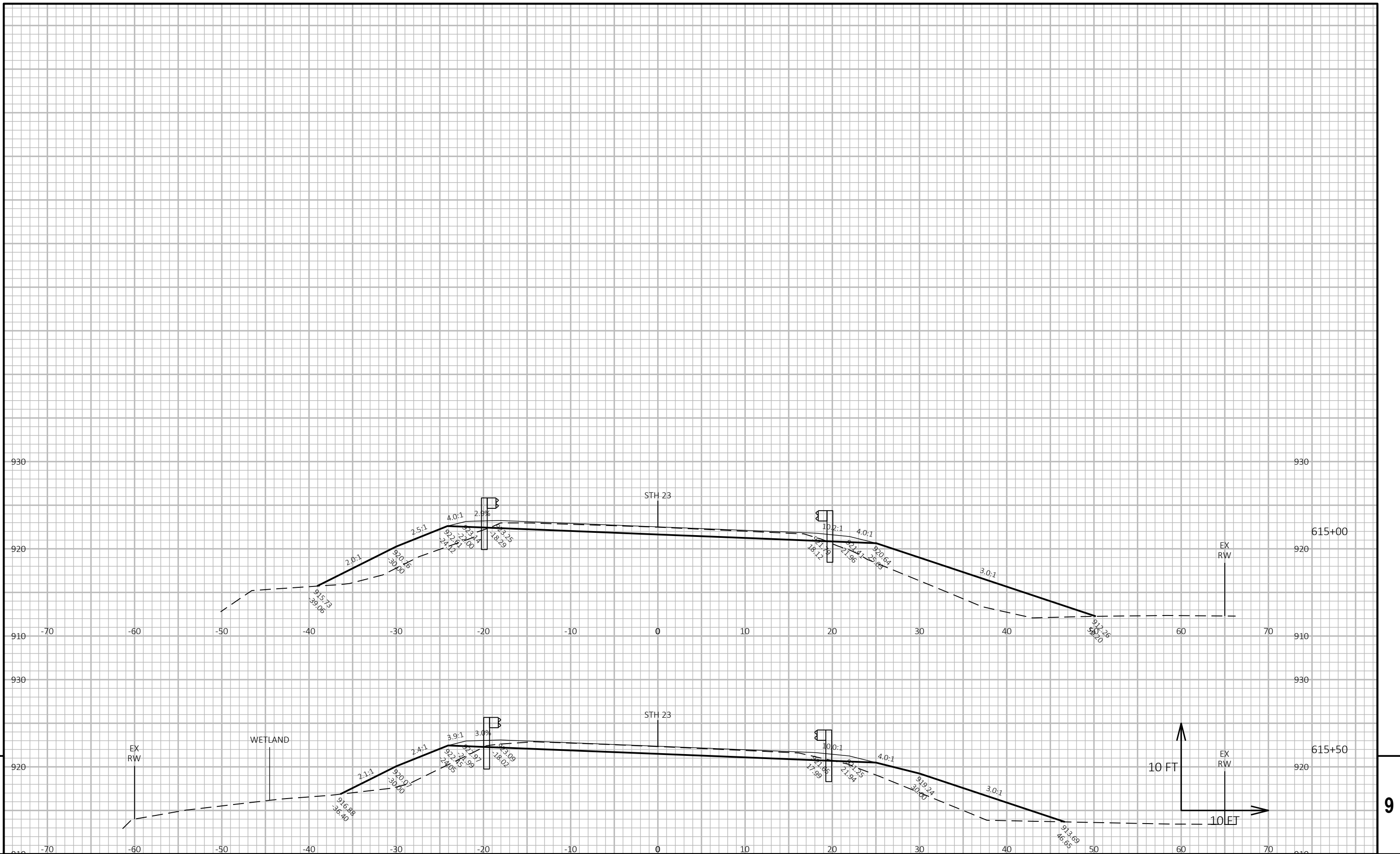
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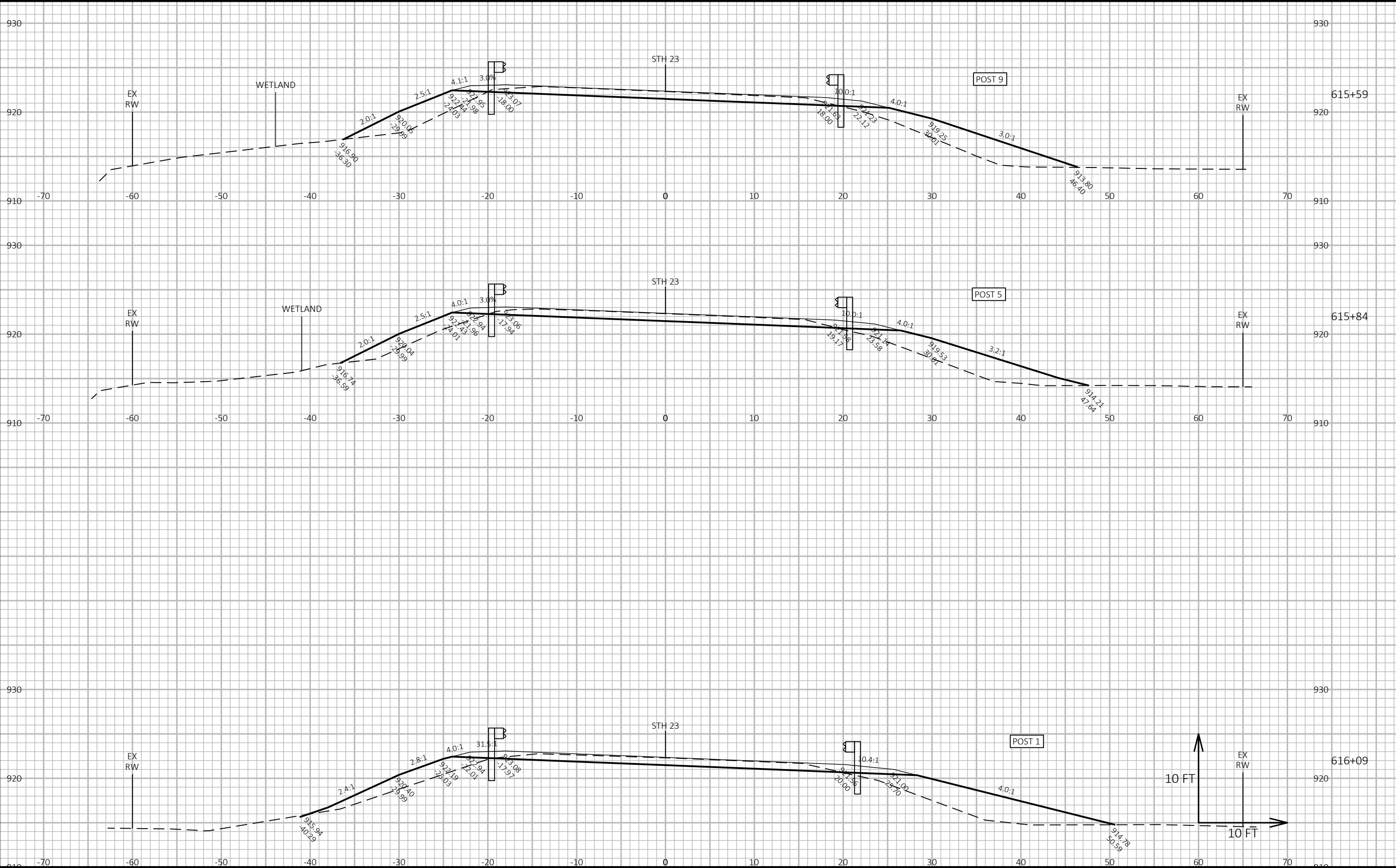


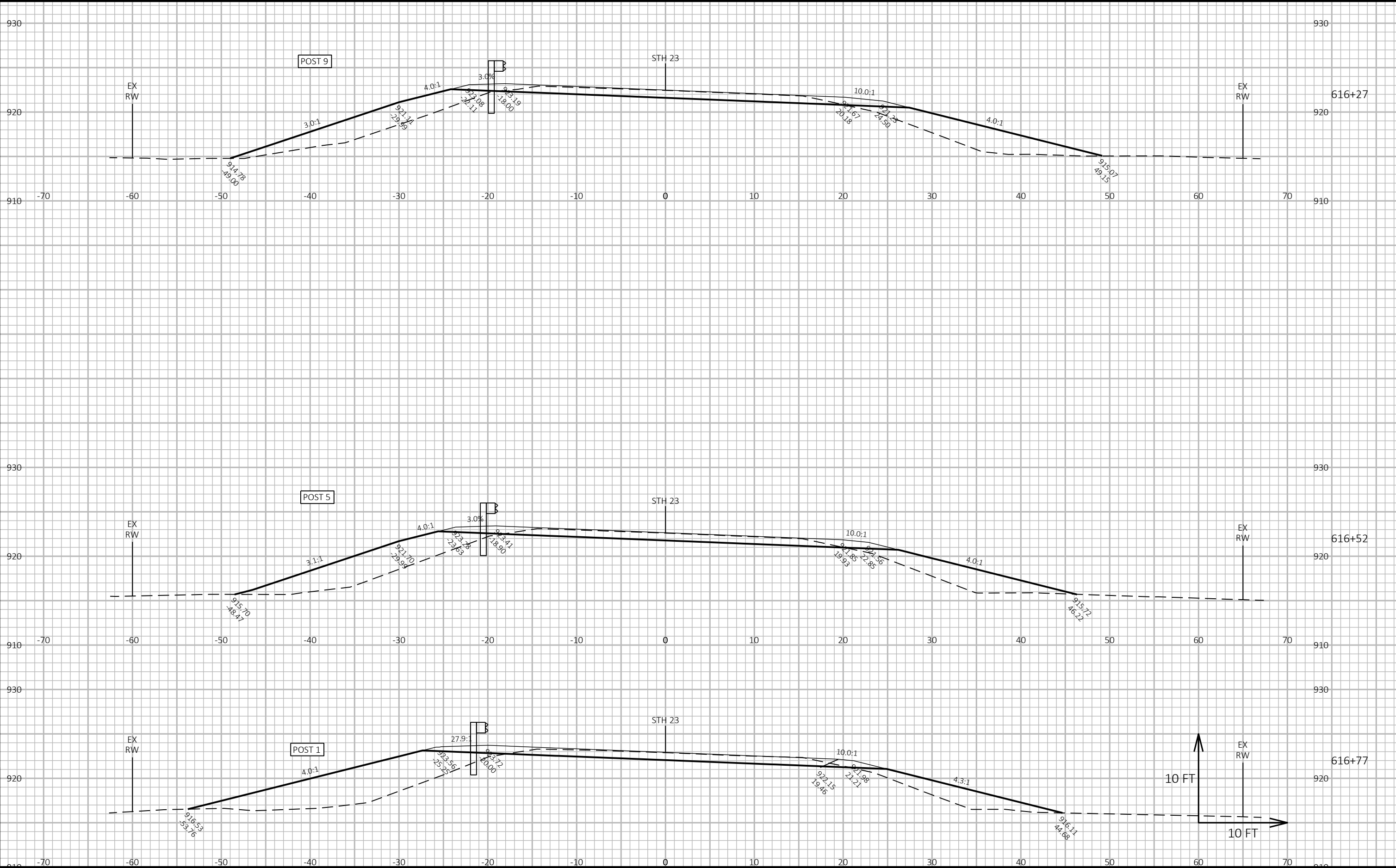


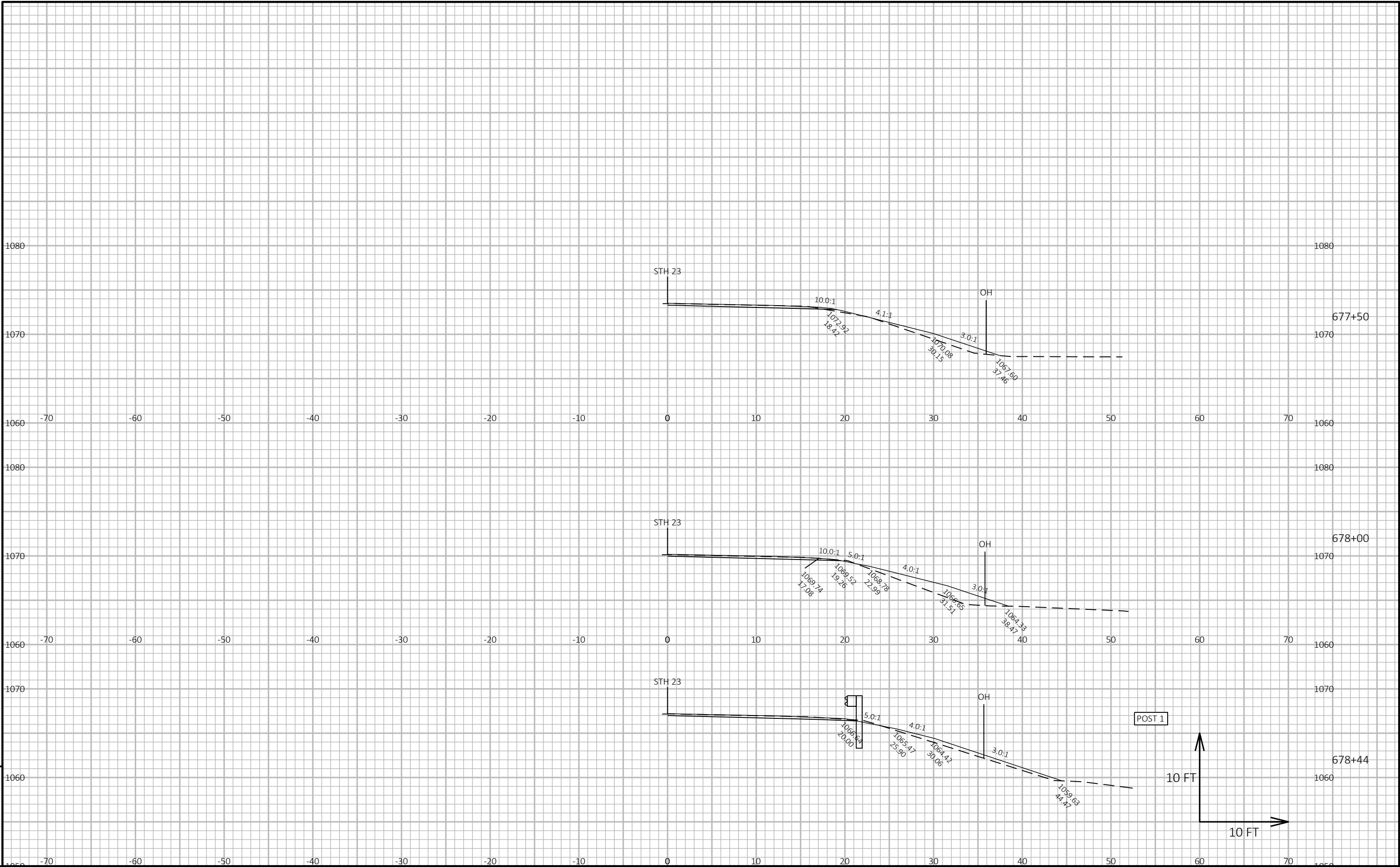
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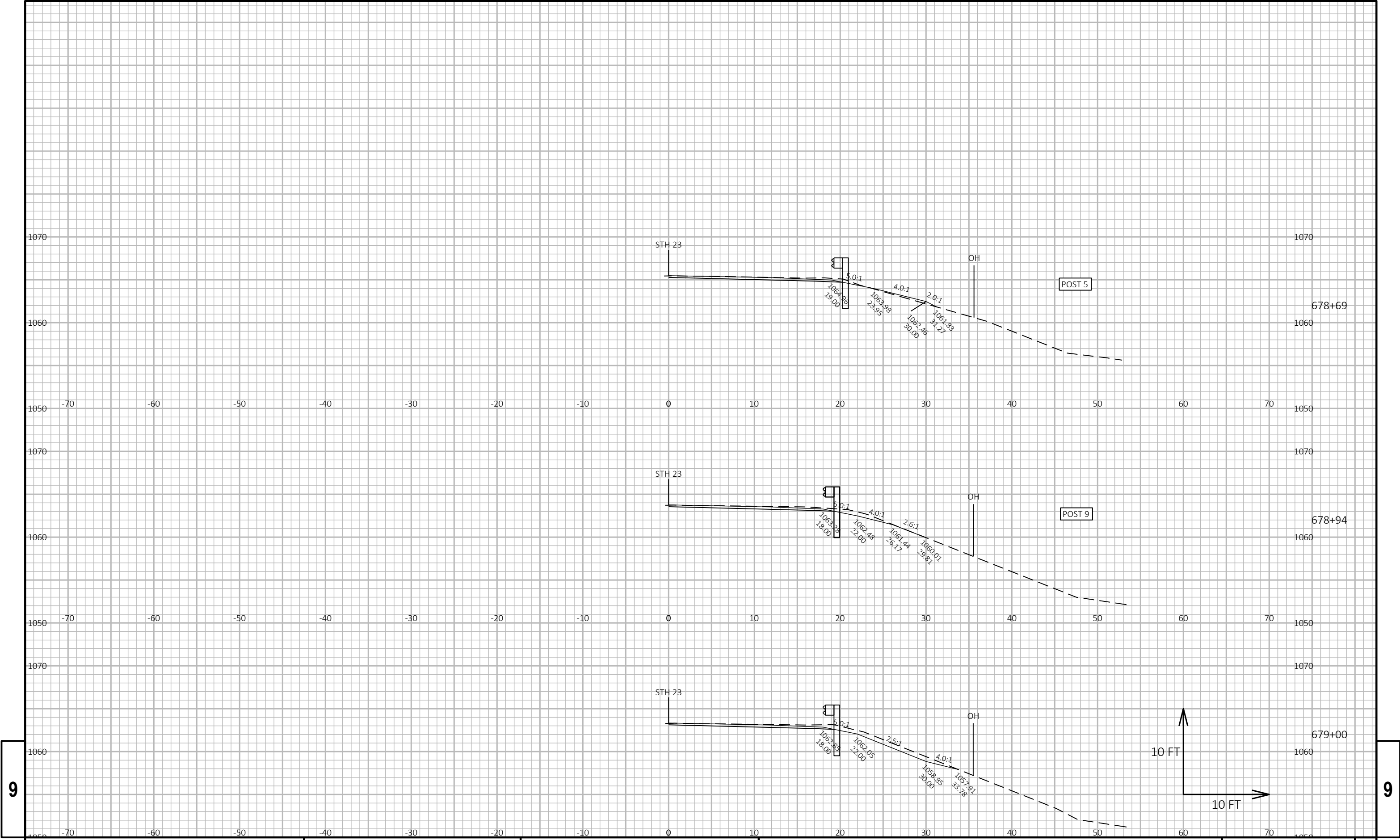
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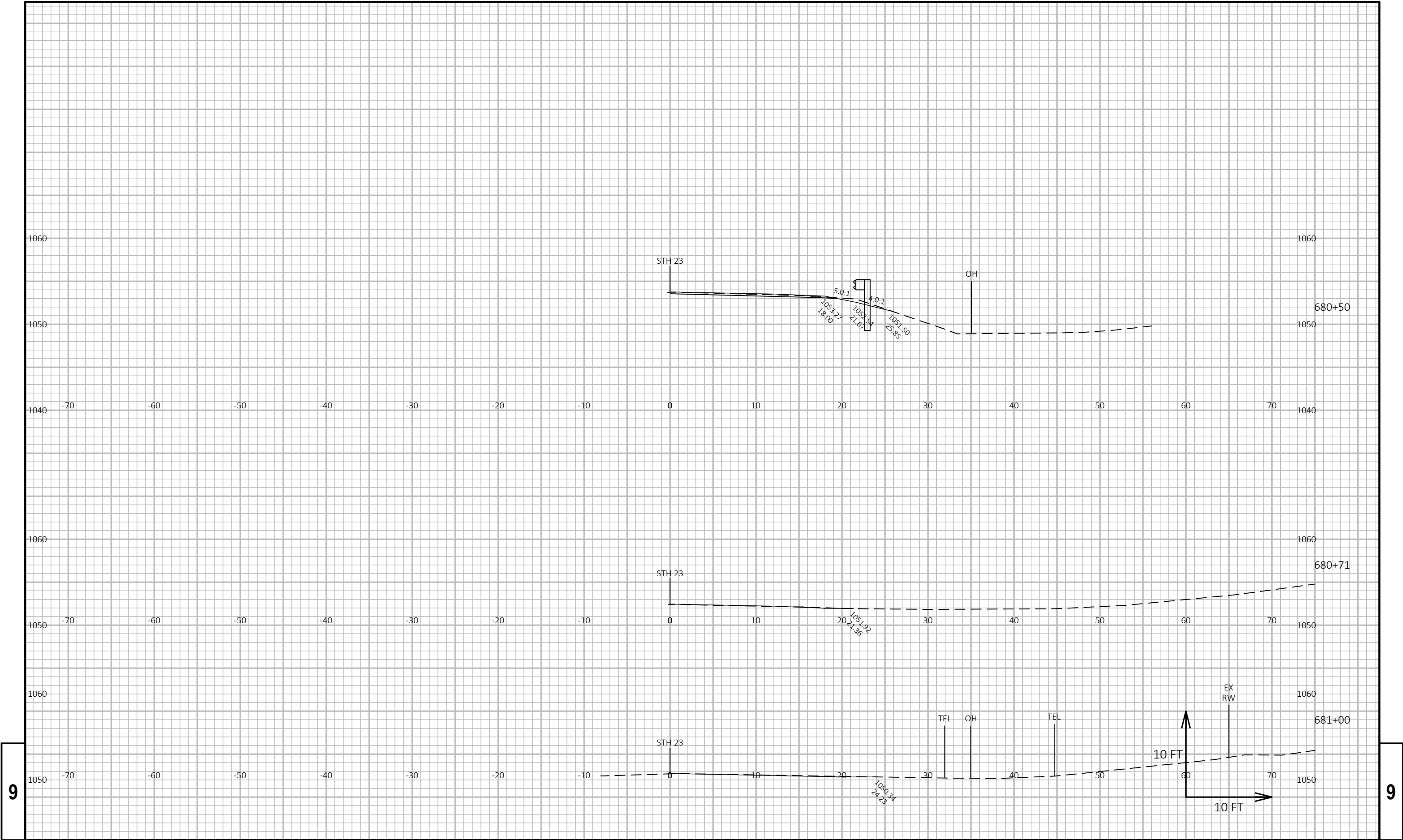






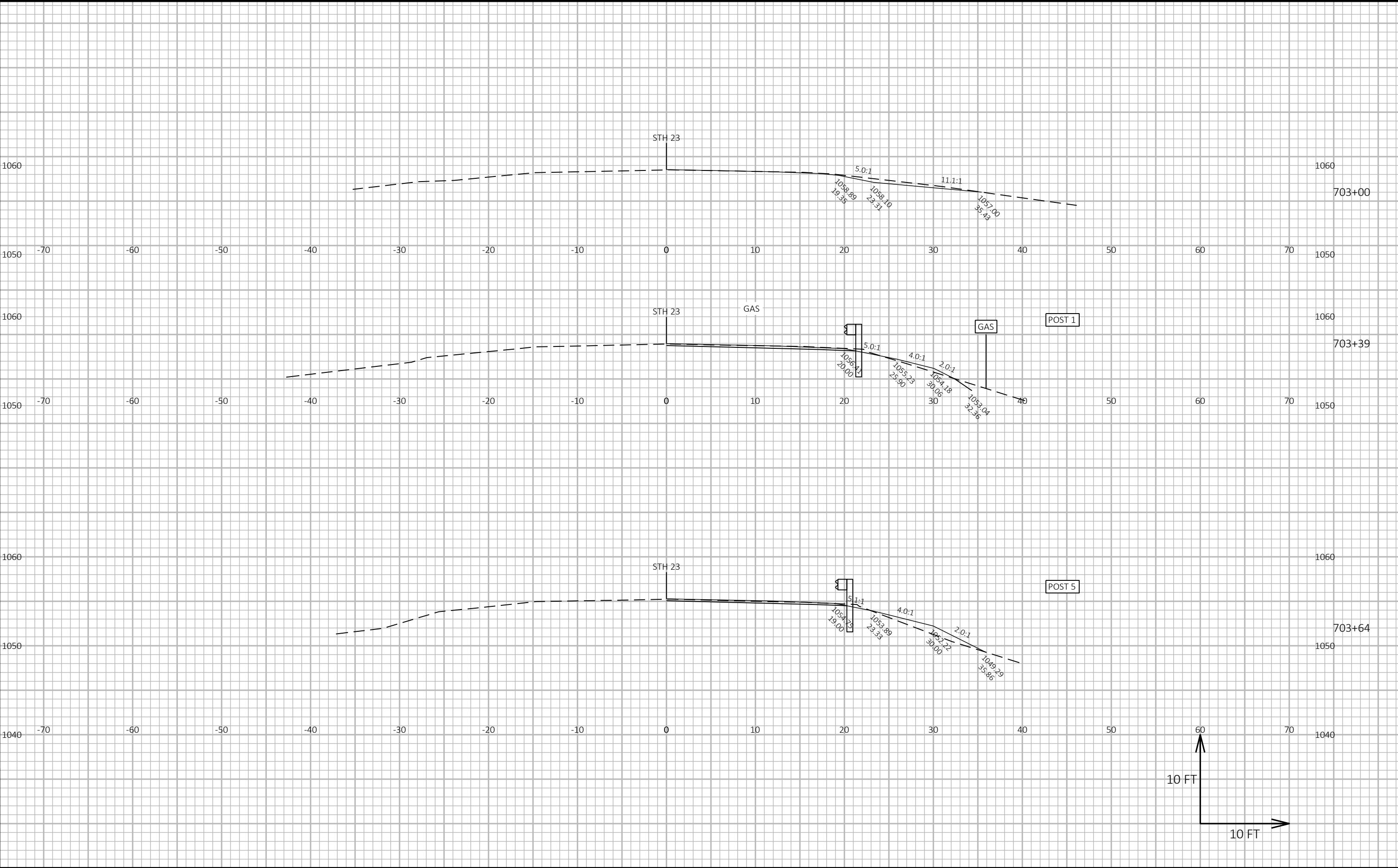






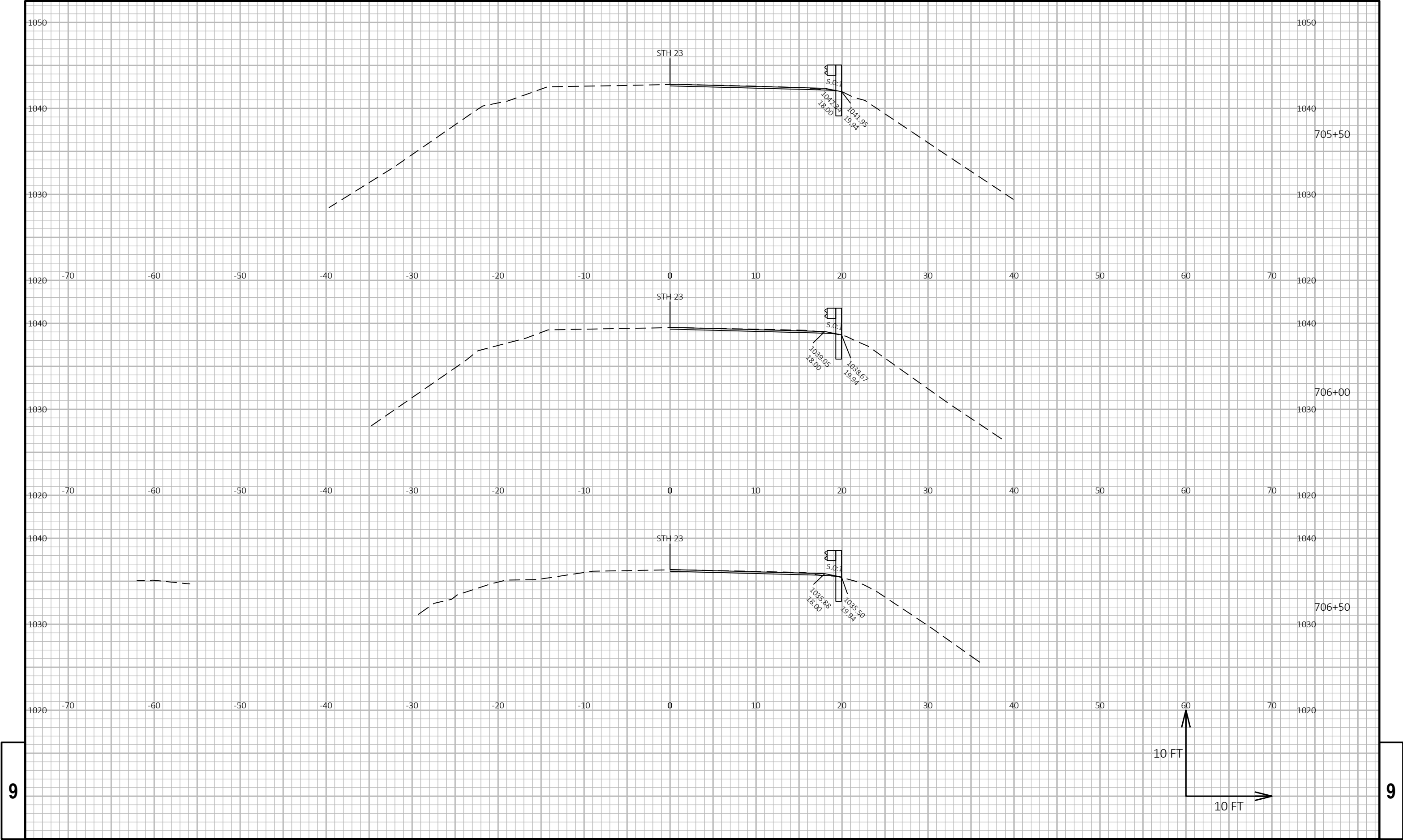
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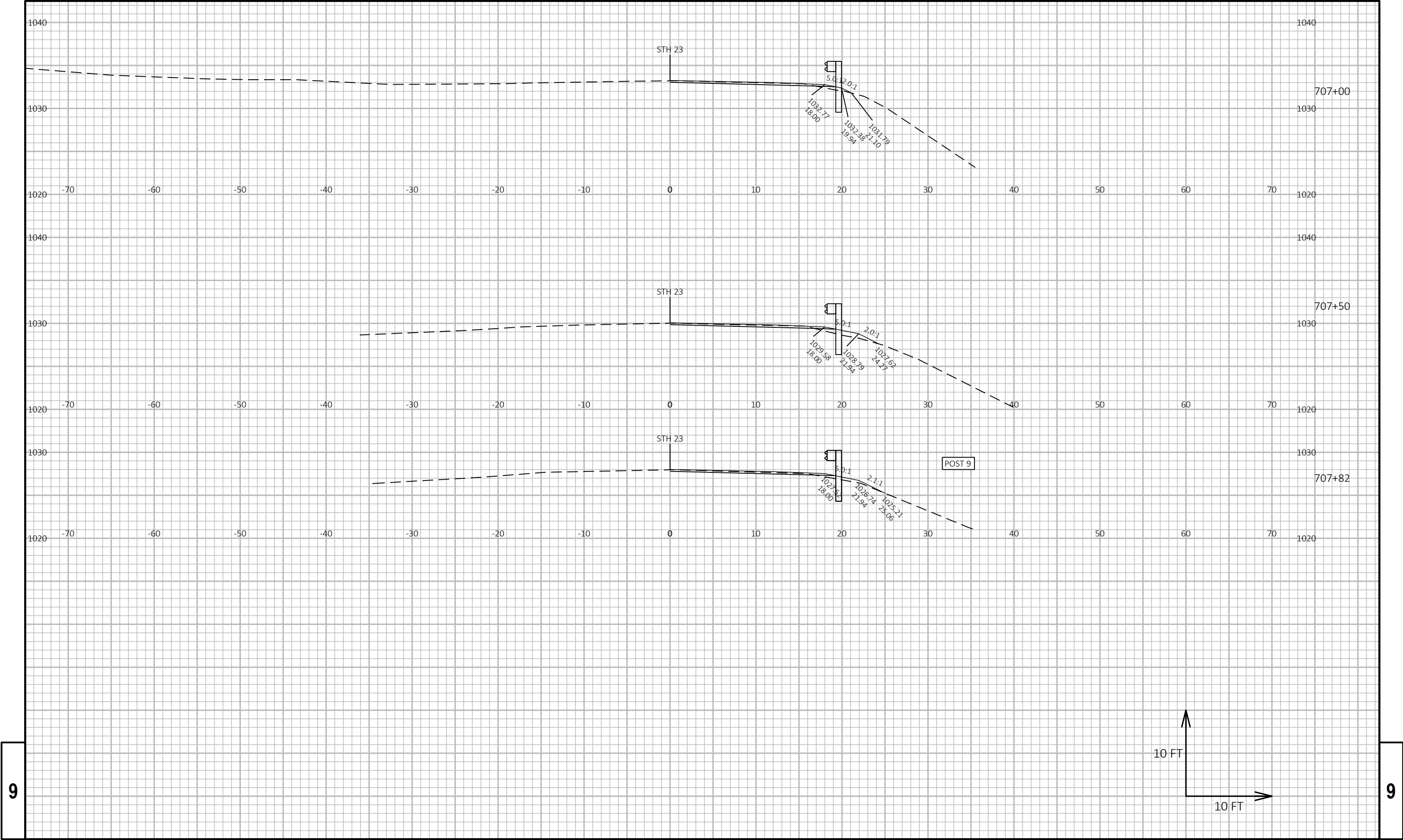
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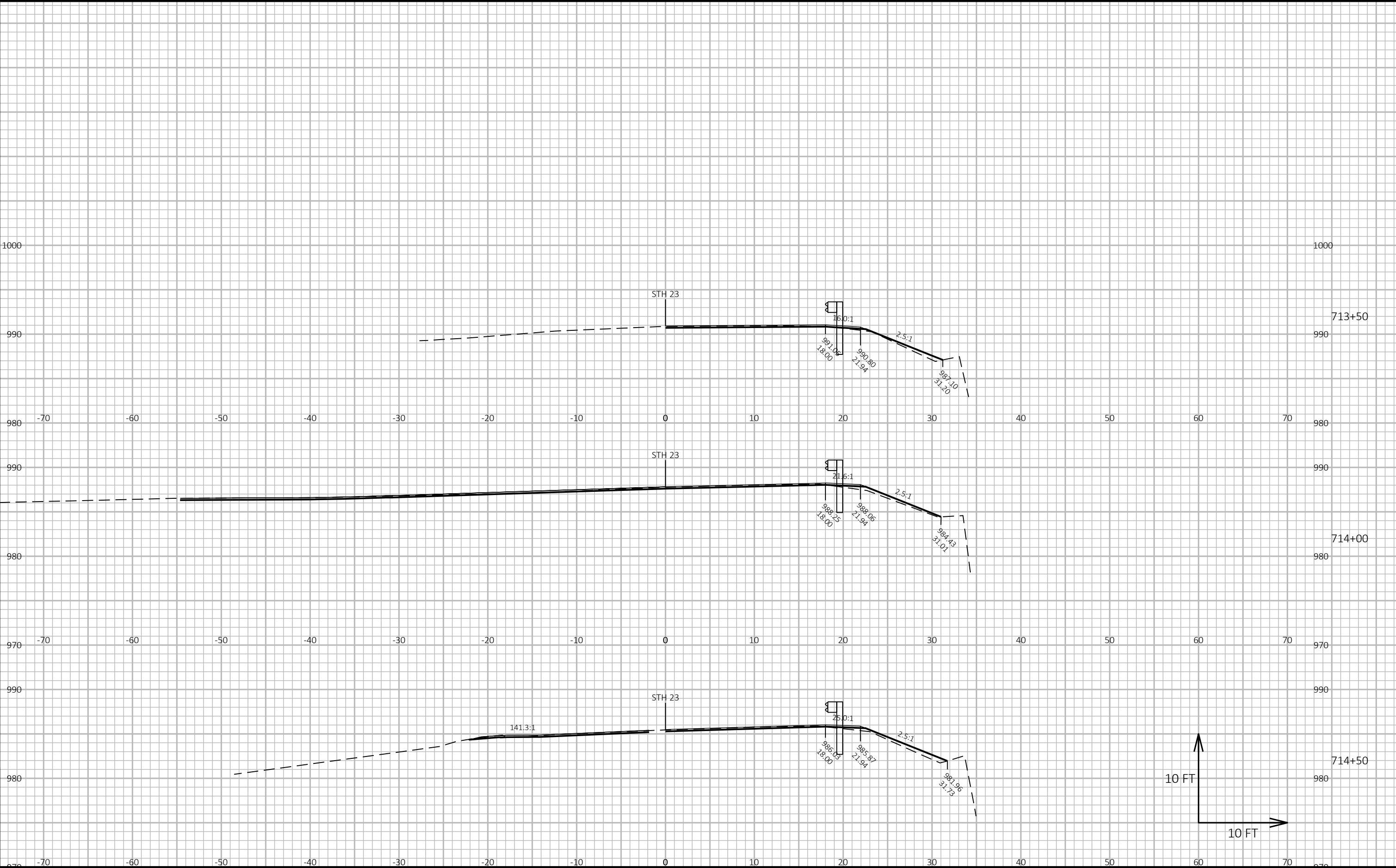
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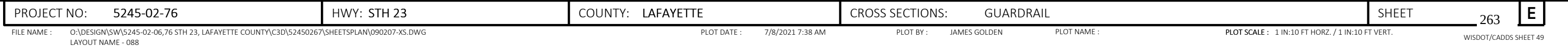
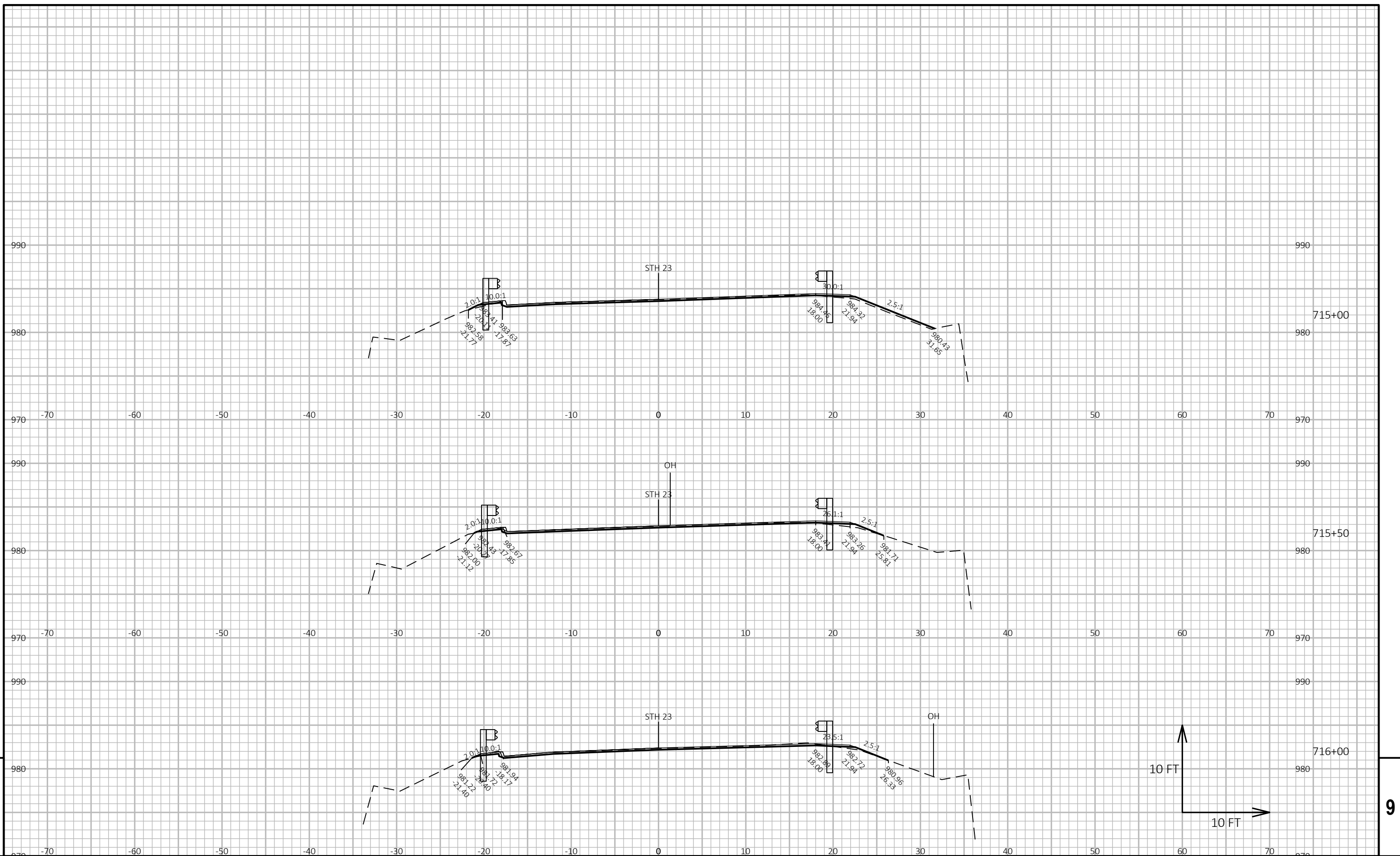
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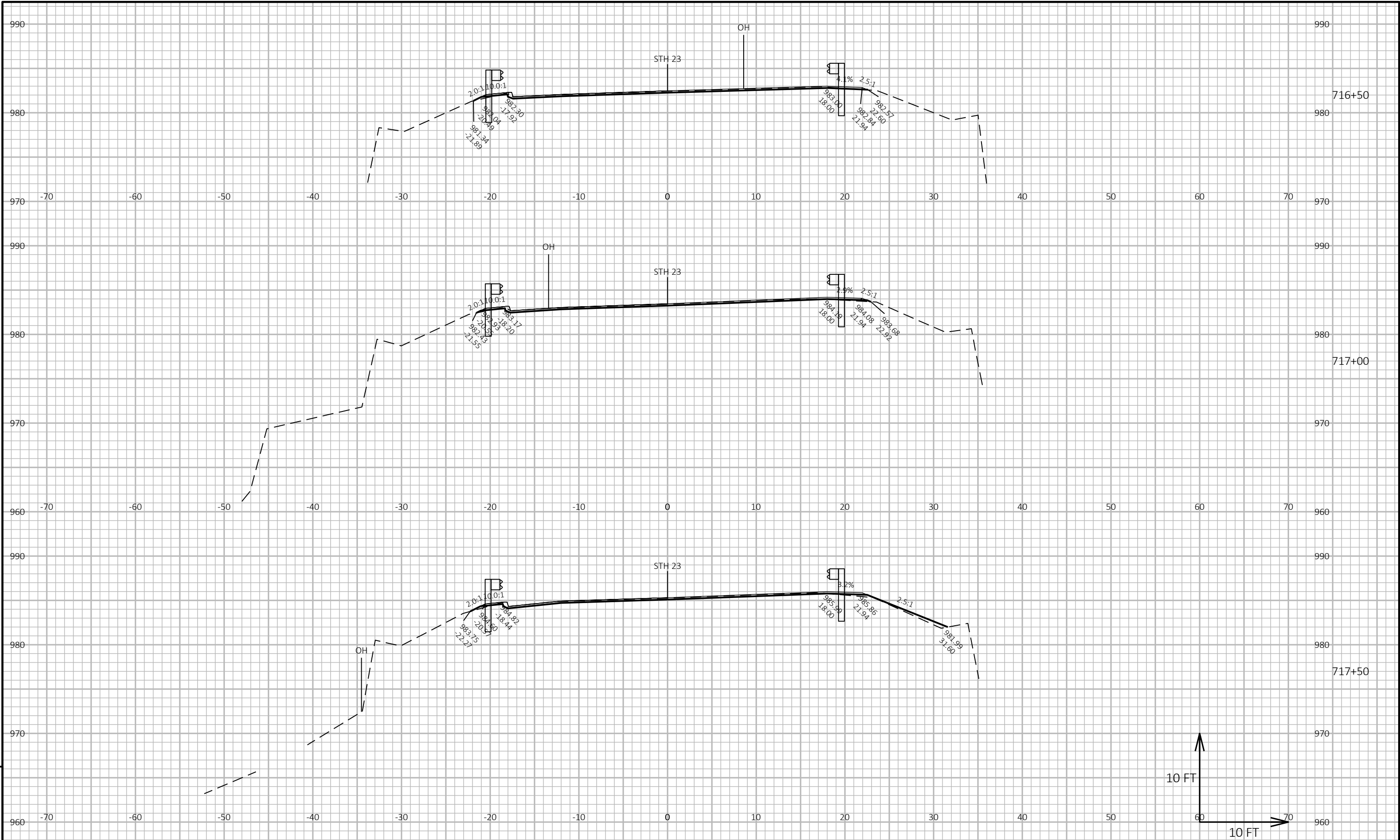


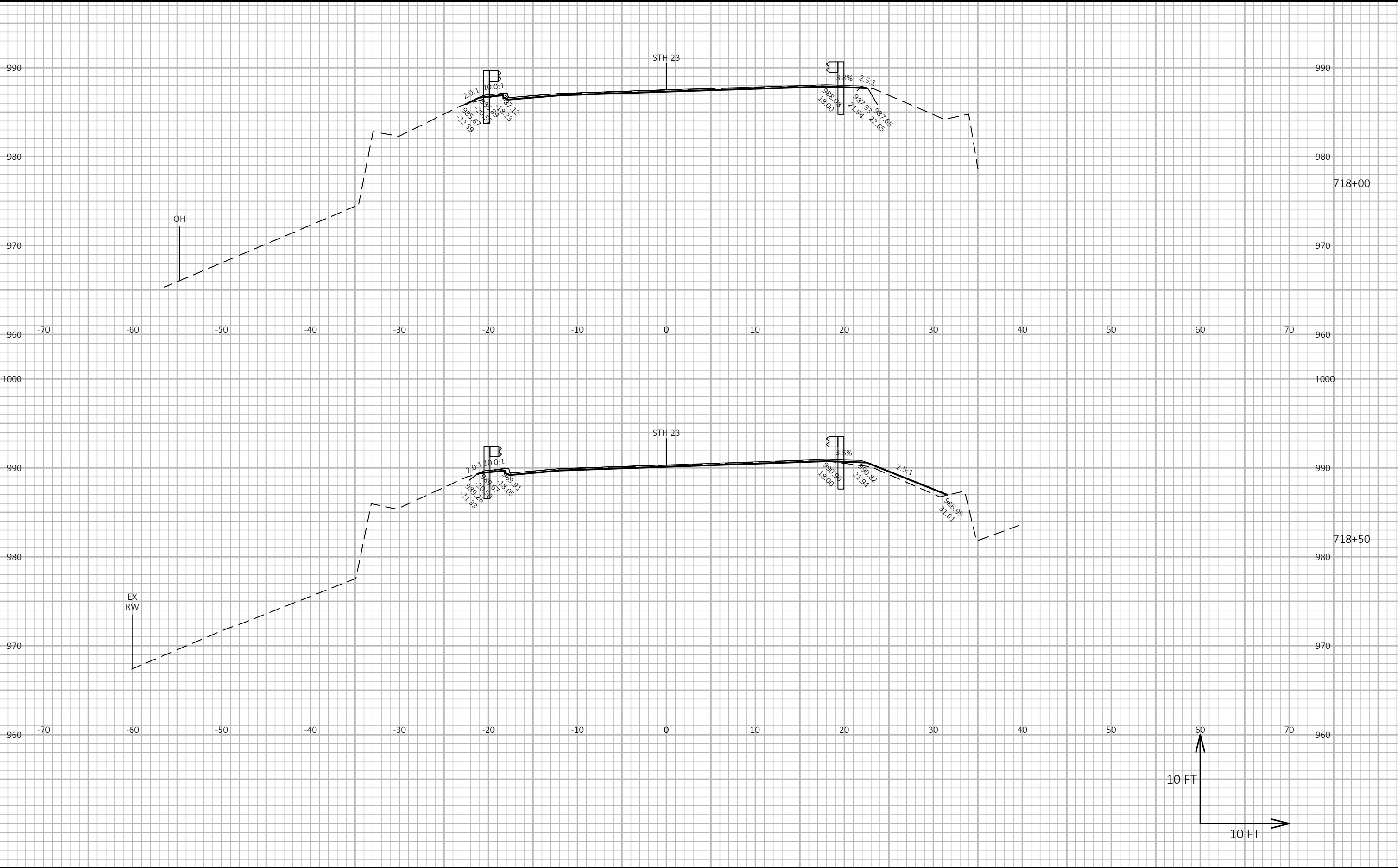
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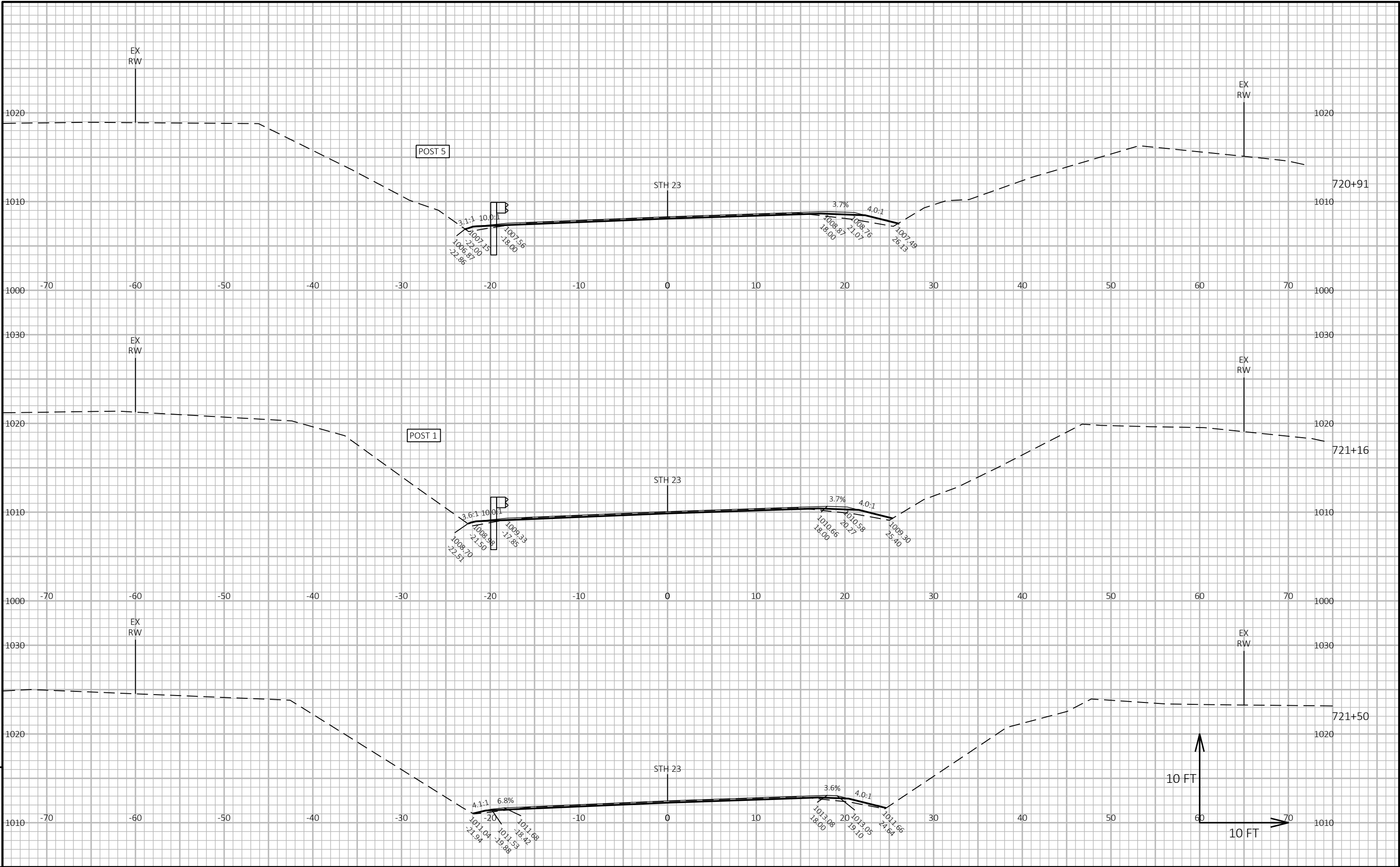
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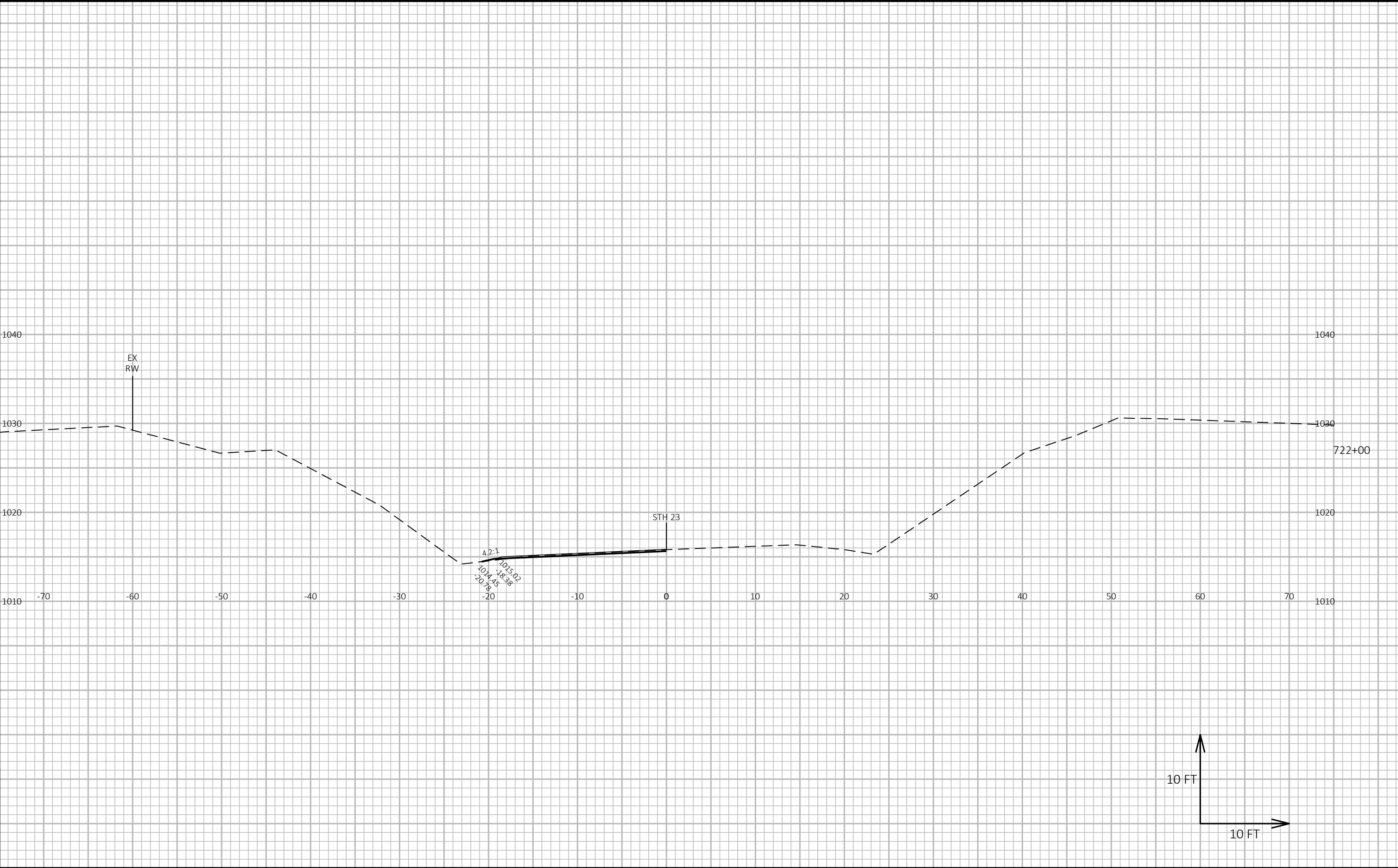






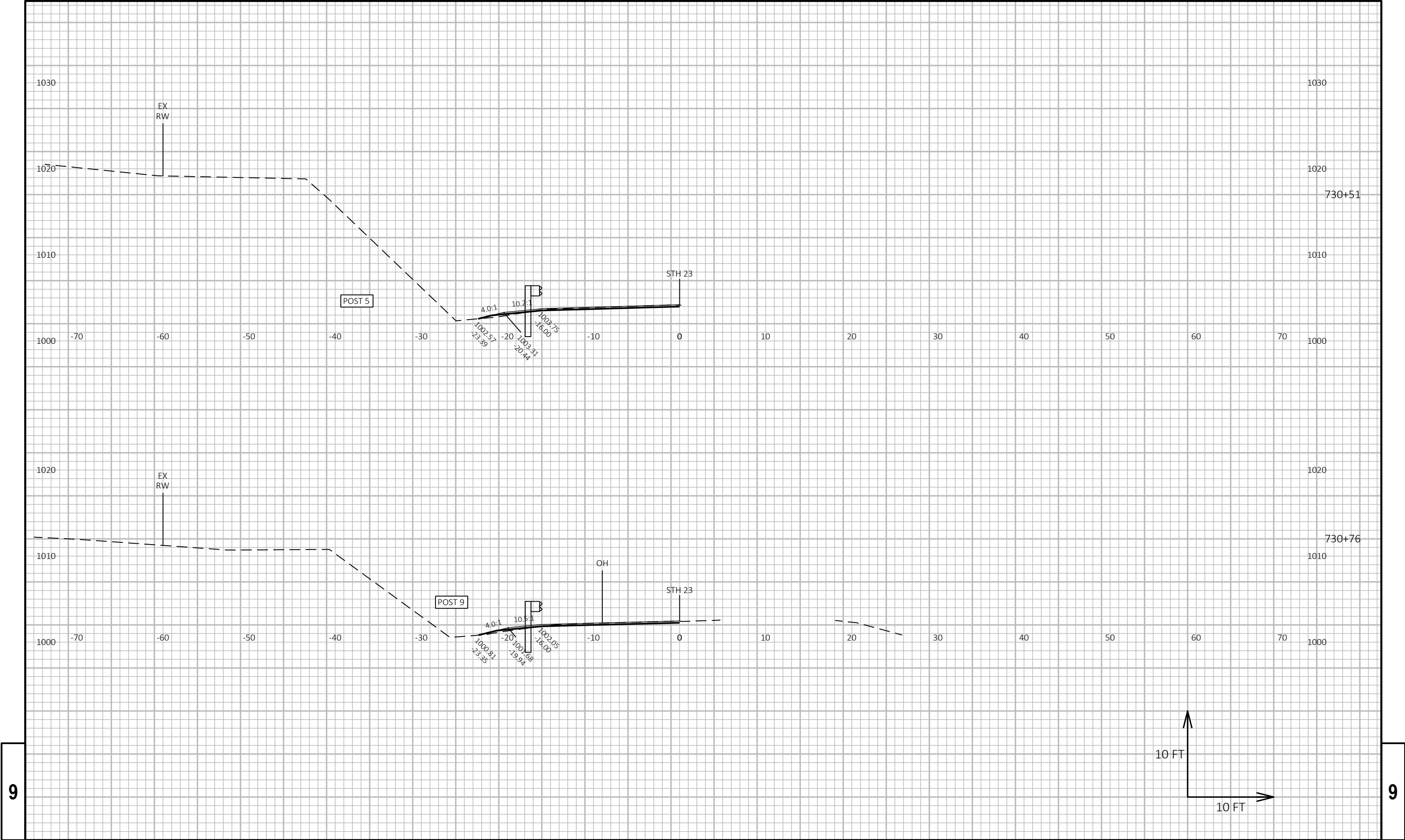






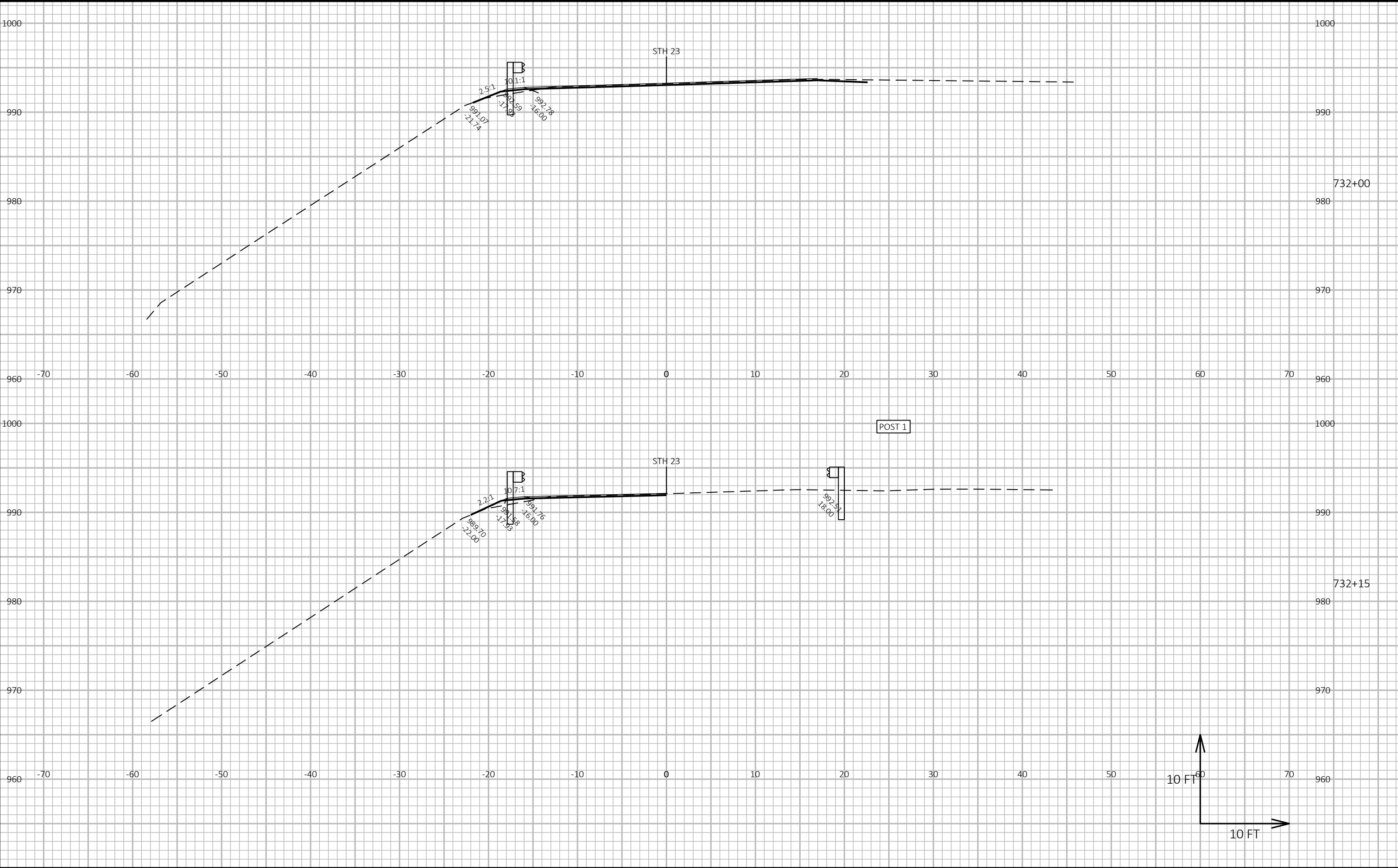
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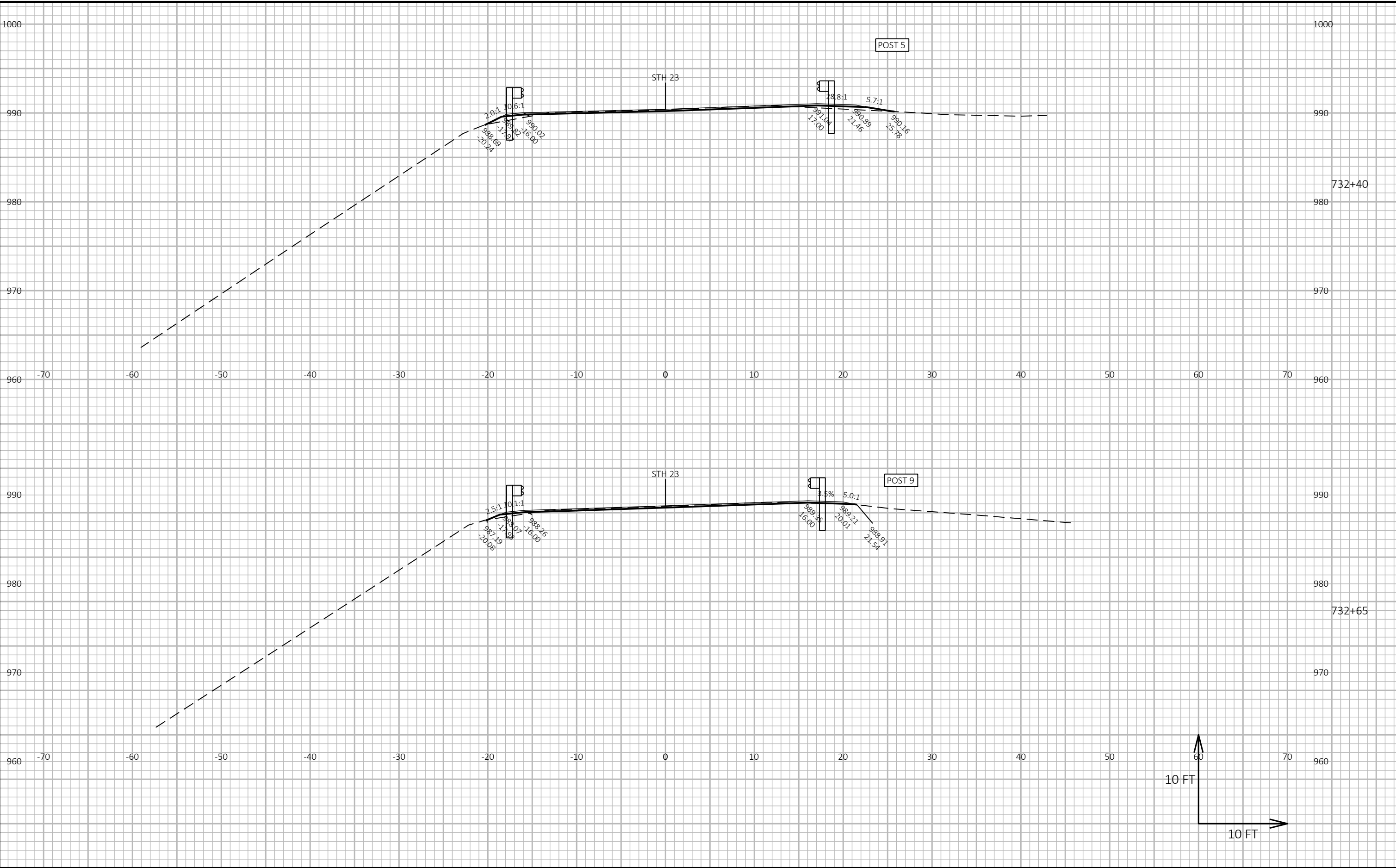
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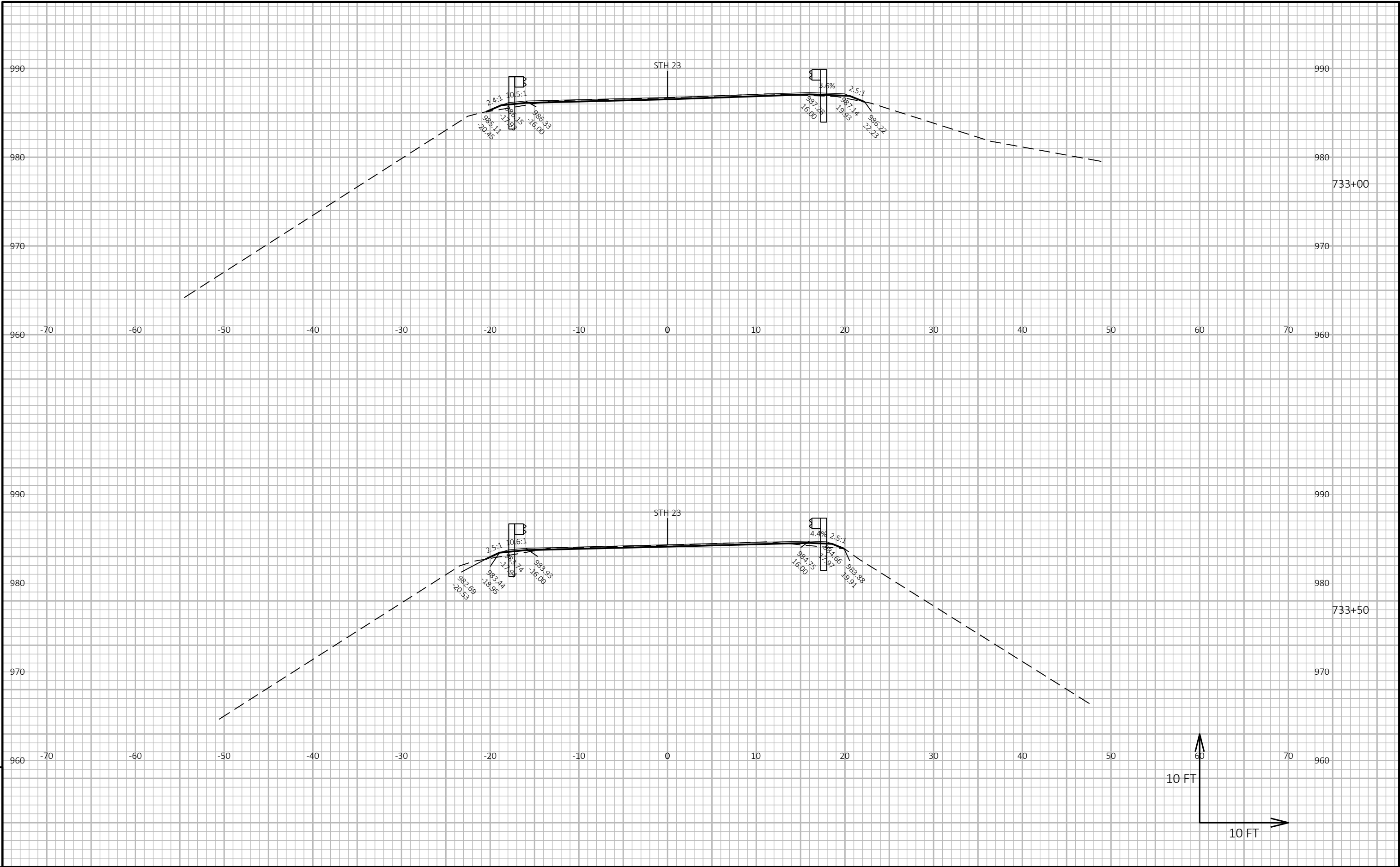
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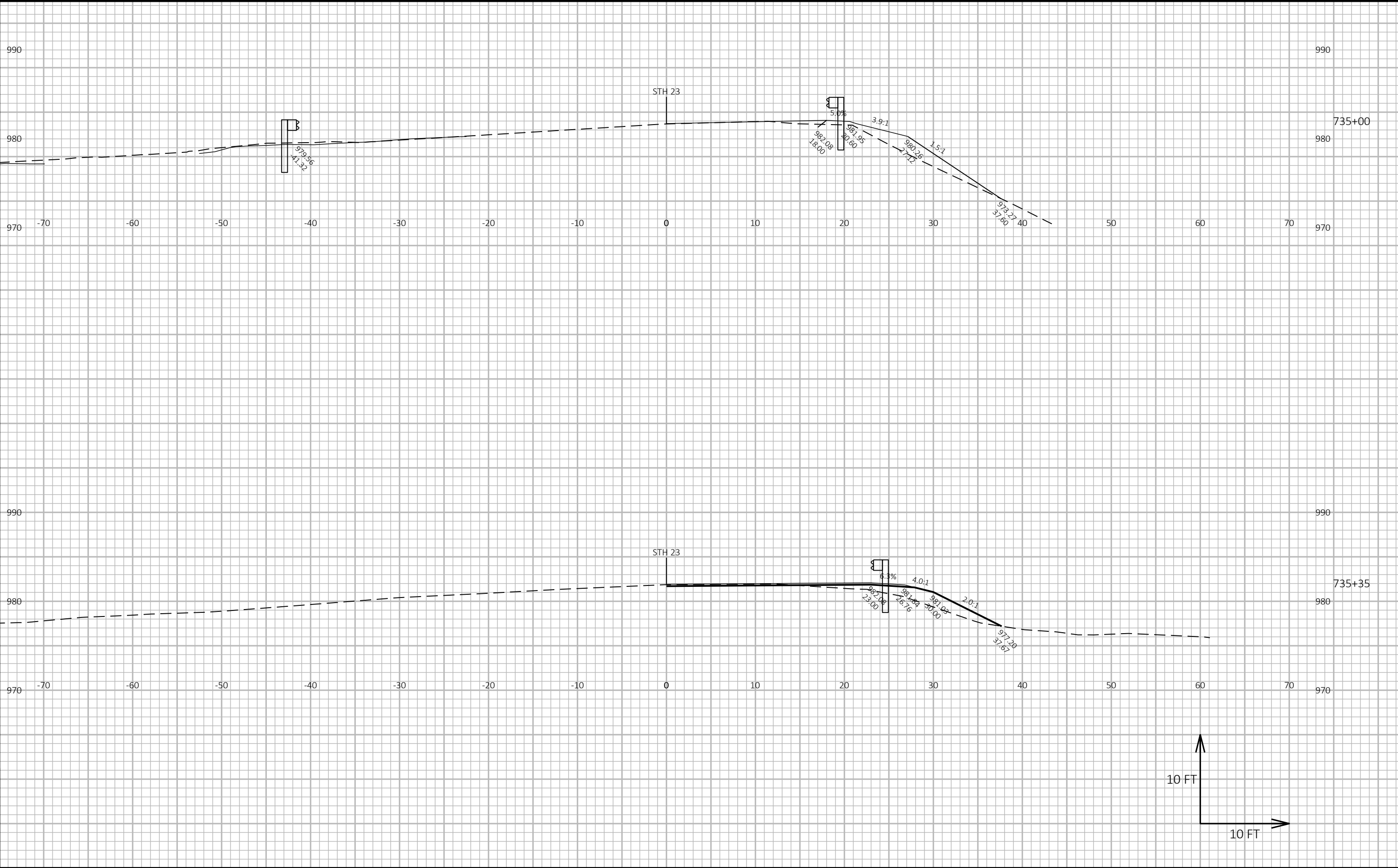


PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	CROSS SECTIONS: GUARDRAIL	SHEET 276	E
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9

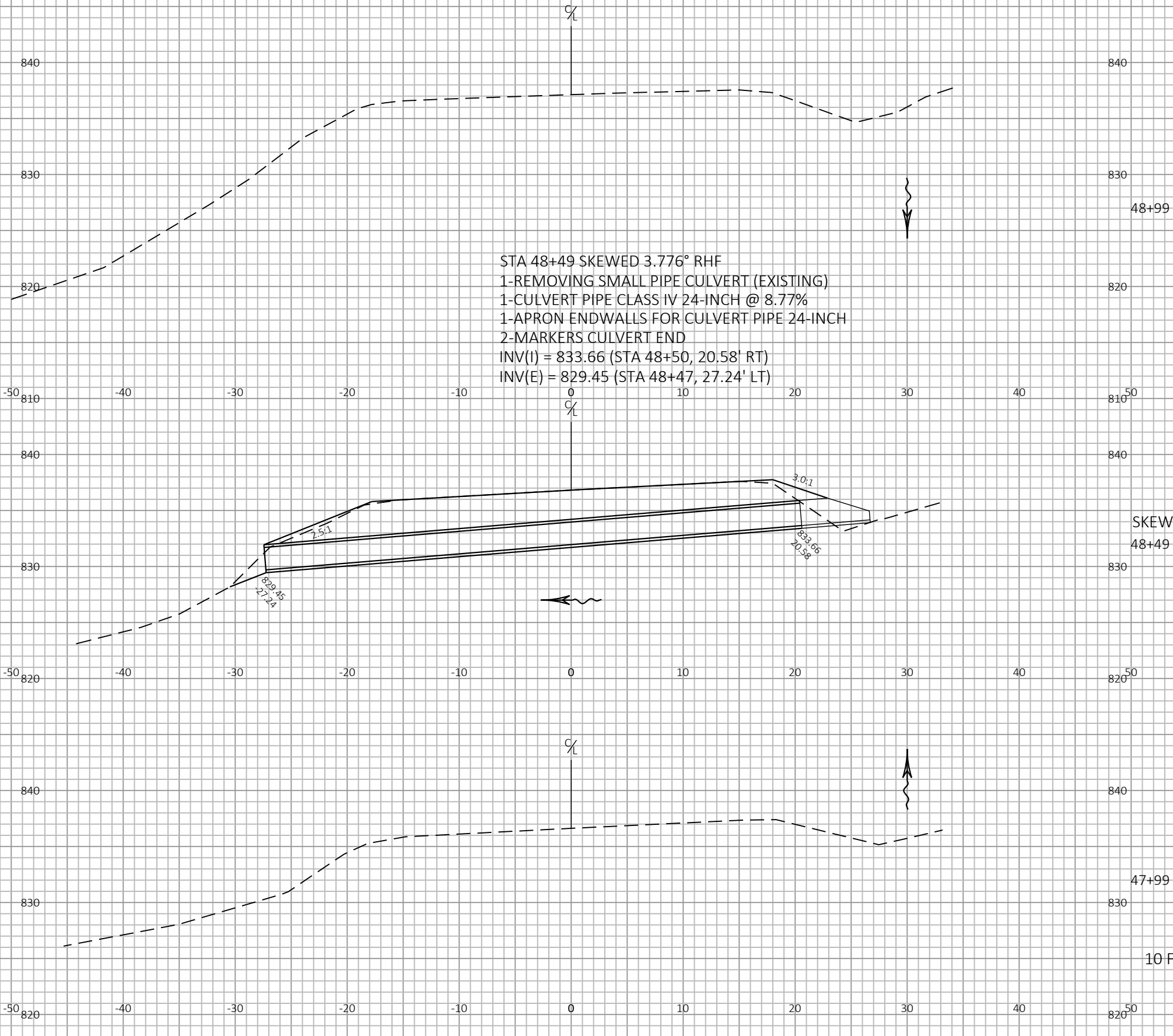
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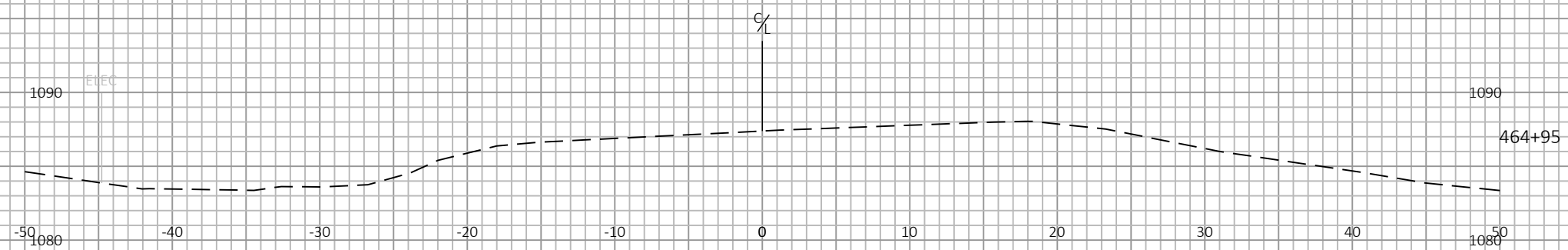


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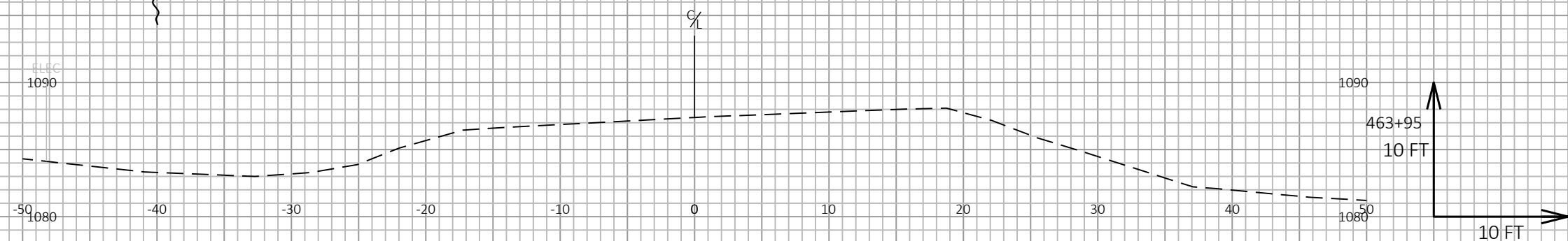
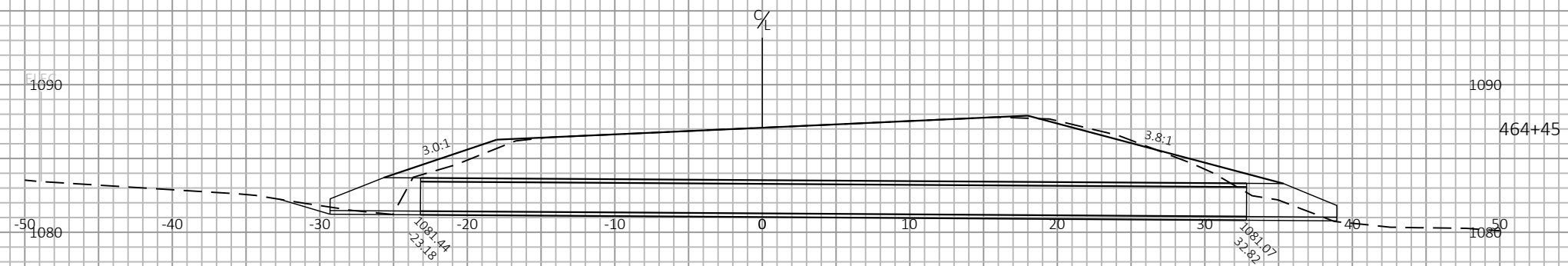
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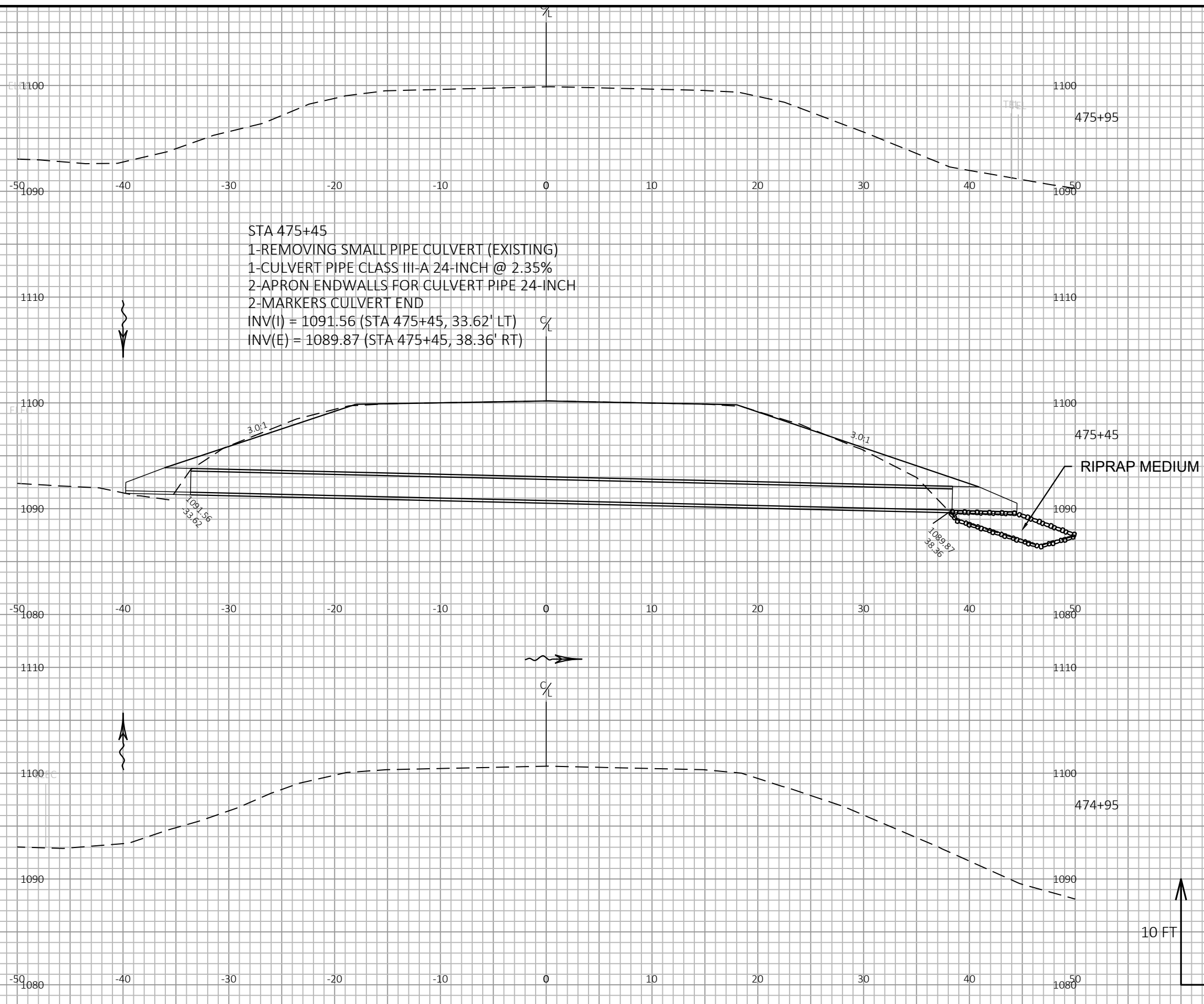
PROJECT NO: 5245-02-76	HWY: STH 23	COUNTY: LAFAYETTE	CROSS SECTIONS: GUARDRAIL	SHEET 279	E
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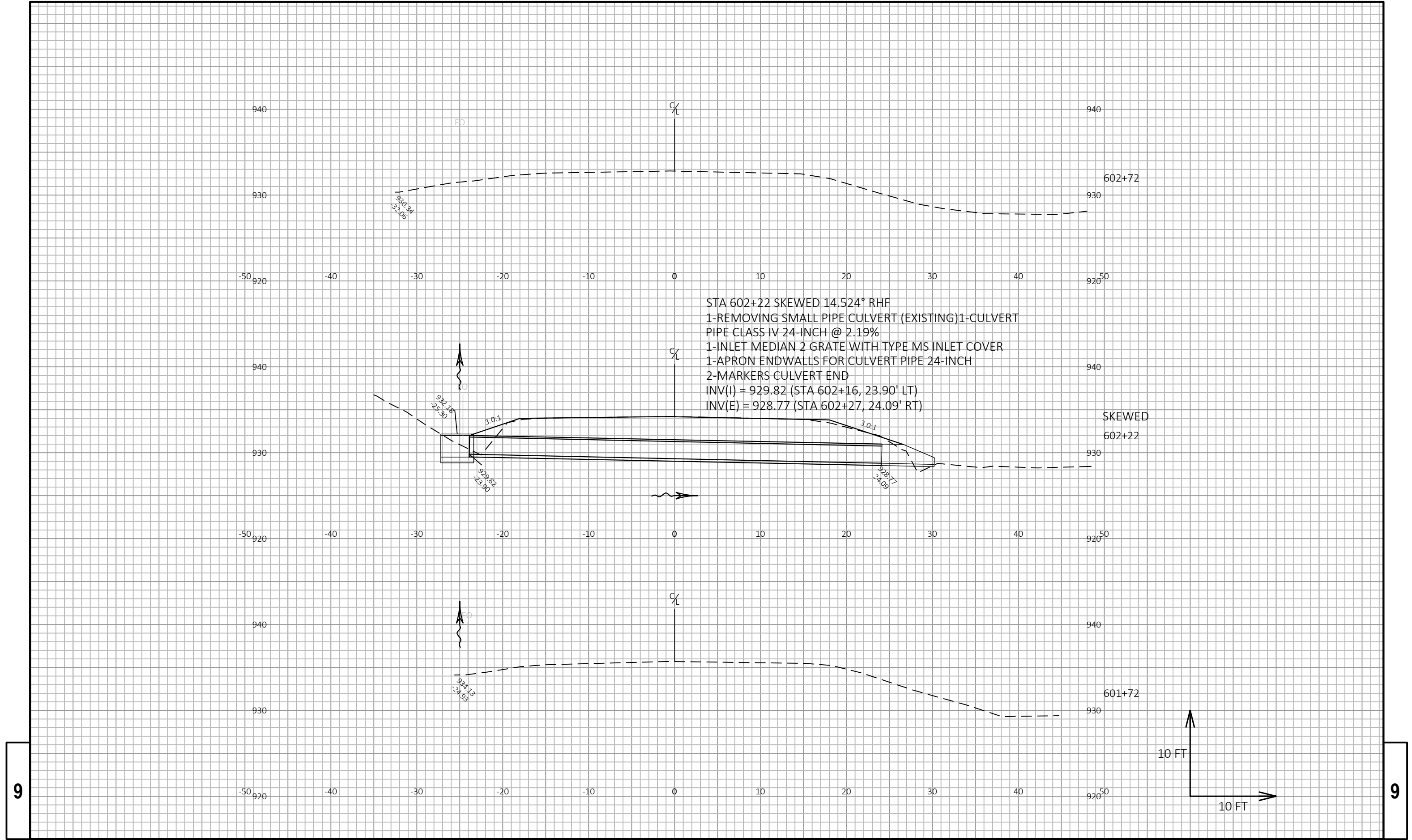
STA 464+45
1-REMOVING SMALL PIPE CULVERT (EXISTING)
1-CULVERT PIPE CLASS IV 24-INCH @ 0.66%
2-APRON ENDWALLS FOR CULVERT PIPE 24-INCH
2-MARKERS CULVERT END
INV(I) = 1081.44 (STA 464+45, 23.18' LT)
INV(E) = 1081.07 (STA 464+45, 32.82' RT)

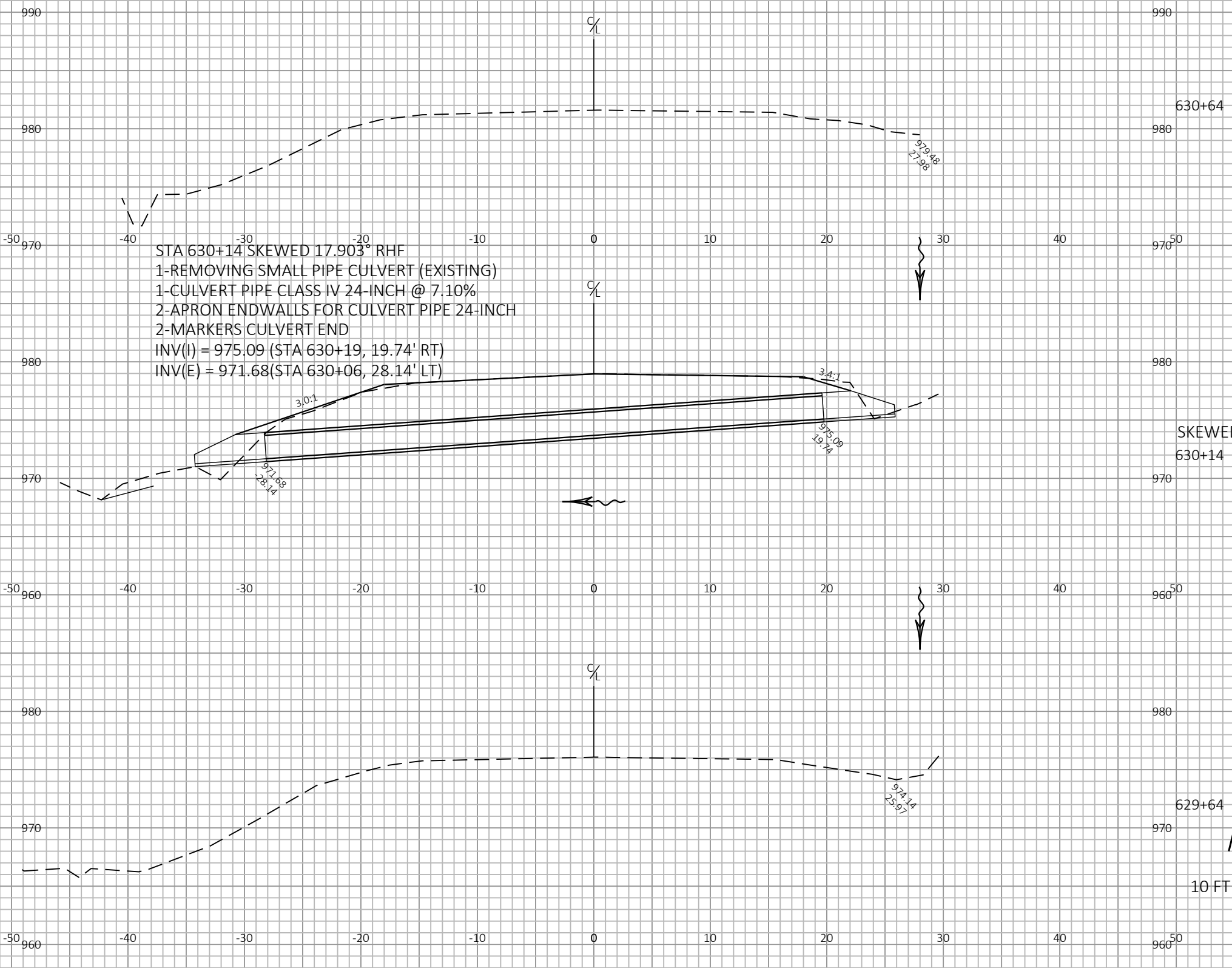


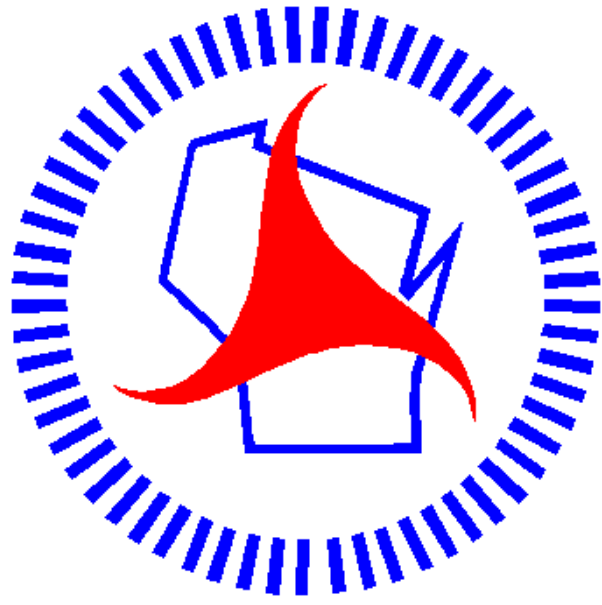


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