

EAU
PROJECT ID:
WITH: N/A

8060-01-73

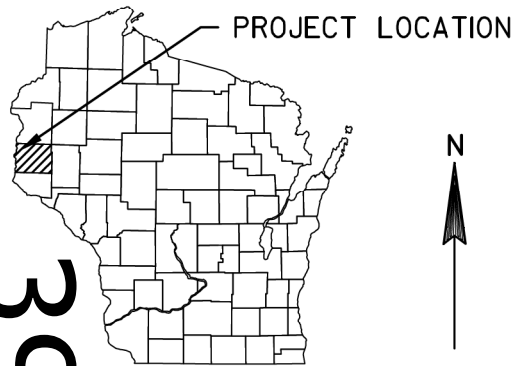
COUNTY:
ST. CROIX

JUNE 2017

ORDER OF SHEETS

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

TOTAL SHEETS = 220



DESIGN DESIGNATION

A.A.D.T. 2017	=	6700
A.A.D.T. 2037	=	9300
D.H.V.	=	940
D.D.	=	60/40
T.	=	9.4%
DESIGN SPEED	=	25-60 MPH
ESALS	=	1,547,600

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	

SLOPE INTERCEPT

REFERENCE LINE

EXISTING CULVERT

PROPOSED CULVERT
(Box or Pipe)

COMBUSTIBLE FLUIDS

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES

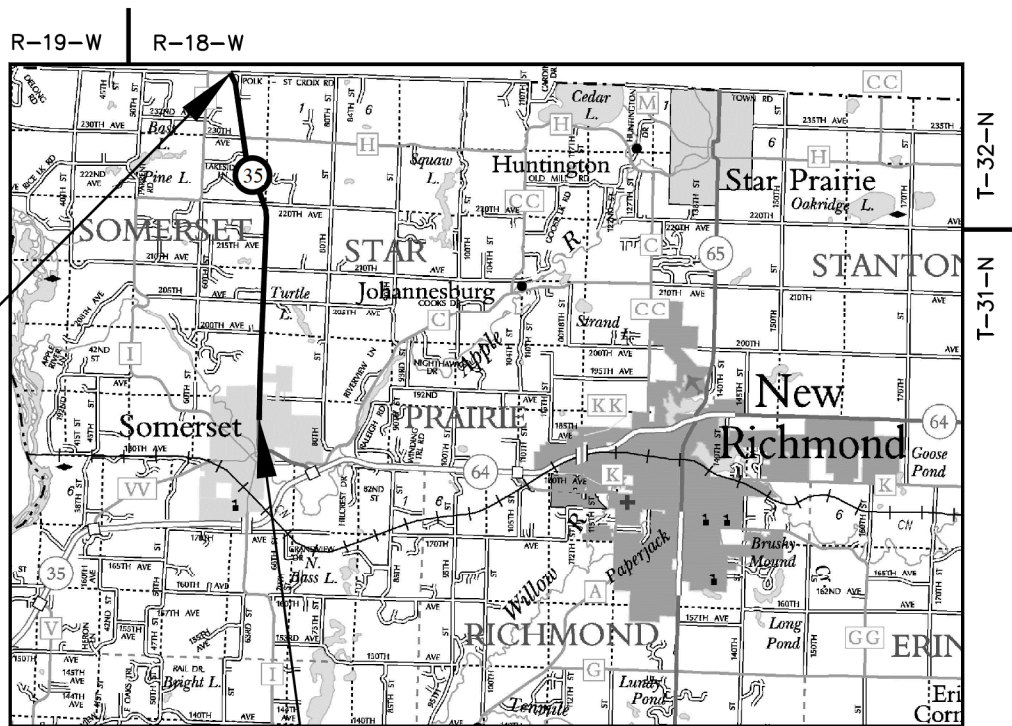
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

ROCK	
LABEL	
95.36	
E	
FO	
G	
SAN	
SS	
T	
W	
Ø	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
SOMERSET - ST. CROIX FALLS
LASER DRIVE TO NORTH COUNTY LINE
STH 35
ST. CROIX COUNTY

STATE PROJECT NUMBER

8060-01-73



END PROJECT
STA 467+50
Y=428,233.00
X=529,505.17

BEGIN PROJECT 8060-01-73
STA 172+35.14
Y=399,308.33
X=532,909.37

LAYOUT

SCALE 0 1.5 MI.

TOTAL NET LENGTH OF CENTERLINE = 5.590 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY
COORDINATE SYSTEM (WCCS), ST. CROIX COUNTY, NAD 1983 (2011).

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE
NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88 (2012).

STATE PROJECT

8060-01-73

FEDERAL PROJECT

PROJECT

CONTRACT

ORIGINAL PLAN PREPARED BY

BECHER HOPPE 330 Fourth Street • PO Box 8000
Wausau, WI • 54402-8000
715.845.8000 • Fax 715.845.8008
becherhoppe.com



10-28-2016

(Date)

(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	BECHER-HOPPE ASSOCIATES, INC
Designer	BECHER-HOPPE ASSOCIATES, INC
Project Manager	BETH CUNNINGHAM
Regional Examiner	TOU YANG
Regional Supervisor	ANDREW STENSLAND

APPROVED FOR THE DEPARTMENT

DATE: 10/31/16 Andy Stensland (Signature)

E

GENERAL NOTES

BEARINGS SHOWN ON THE PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

PURSUANT TO CHAPTER 59 OF THE WISCONSIN STATUTES. THE CONTRACTOR SHALL CAREFULLY MAKE A SEARCH FOR EVIDENCE OF A LANDMARK IN ALL AREAS WHERE SUCH A LANDMARK MAY EXIST.

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

THE CONTRACTOR SHALL NOT GO OUTSIDE THE LIMITS OF CONSTRUCTION WITHOUT APPROVAL FROM THE ENGINEER

WHEN THE QUANTITY OF THE ITEM OF BASE OR HMA PAVEMENT IS MEASURED FOR THE PAYMENT BY THE TON. THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

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

A SAWED JOINT WILL BE REQUIRED WHERE THE NEW PAVEMENT IS TO MEET EXISTING PAVED SURFACE.

REMOVAL ITEMS SHALL BE REMOVED TO AN EXISTING JOINT, SAWCUT WHERE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

ALIGNMENT FOR STH 35 HAS BEEN PROVIDED FROM MULTIPLE AS-BUILT PLANS, AND DOT PROVIDED AEROMETRIC FLOWN TOPOGRAPHIC INFORMATION.

RUNOFF COEFFICIENT TABLE

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

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

SECTION 2 ORDER

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
INTERSECTION DETAILS
PERMANENT SIGNING
EROSION CONTROL

UTILITIES

ELECTRIC

ELECTRIC/ELECTRIC TRANSMISSION
XCEL ENERGY
902 PINE ST
ST CROIX FALLS, WI 54024
JIM CHAPMAN
PHONE: (715) 577-9987
jim.o.chapman@xcelenergy.com

ELECTRIC
POLK-BURNETT ELECTRIC COOPERATIVE
1001 STATE ROAD 35
CENTURIA, WI 54824
ERICK VITALIS
PHONE: (715)-646-2191
evitalis@polkburnette.com

WATER & SEWER

VILLAGE OF SOMERSET UTILITIES
110 SPRING STREET
PO BOX 356co
SOMERSET, WI 54025
ROBERT GUNTHER
PHONE: (715) 247-5790
robertg@vil.somerset.wi.us

GAS

NATURAL GAS
MIDWEST NATURAL GAS CO.
3600 STH 157
PO BOX 429
DOUGLAS DICKENSON
PHONE: (608) 781-1011
24-HR CONTACT: (877) 817-3119
doug@midwestnaturalgas.com

COMMUNICATION

COMMUNICATION
CENTURYLINK
2426 75TH AVE
OSCEOLA, WI 54020
MICHAEL VANDENBOS
PHONE: (715) 294-2463
mike.vanderbos@centurylinkl.com

COMMUNICATION
NORTHWEST COMMUNITY
COMMUNICATION
SOMERSET TELEPHONE CO.
116 HARRIMAN AVENUE N.
AMERY, WI 54001
GREG CARDINAL
PHONE: (715) 268-7101

DNR CONTACT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
1300 W. CLAIREMONT AVENUE
EAU CLAIRE, WI 54701
CHRISTOPHER WILLGER
PHONE: (715) 839-1609
christopher.j.willger@wisconsin.gov

DIGGERSHOTLINE

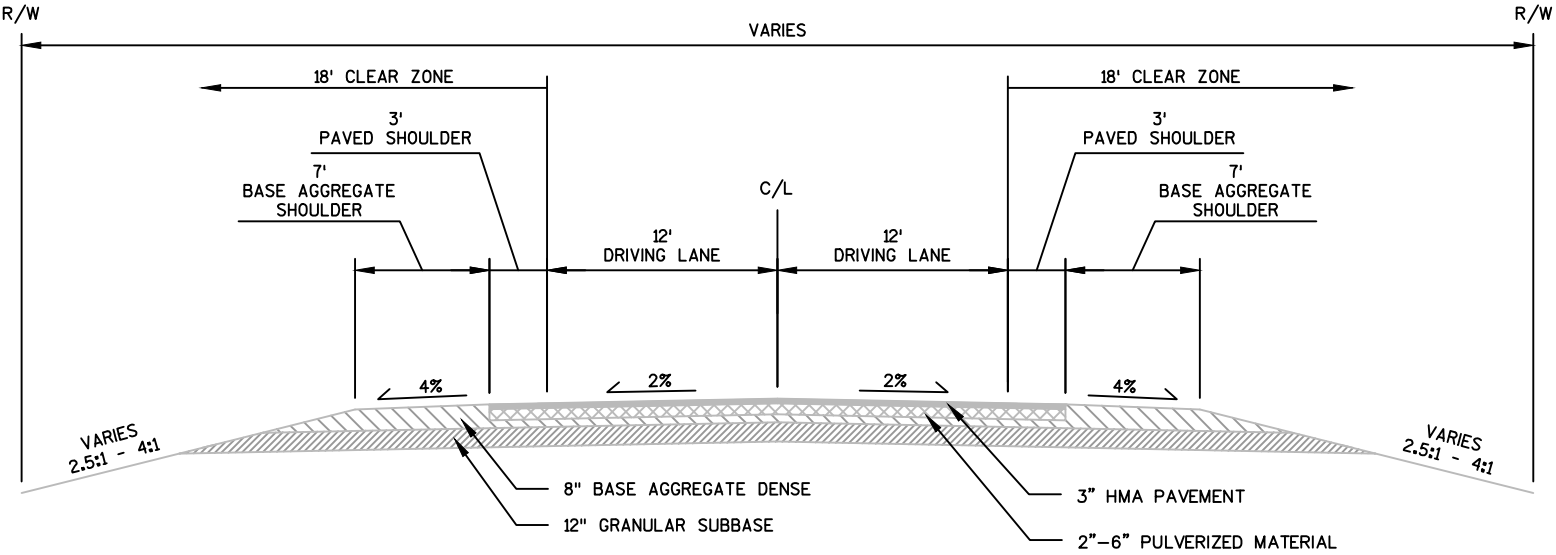
Dial 811 or (800)242-8511

www.DiggersHotline.com



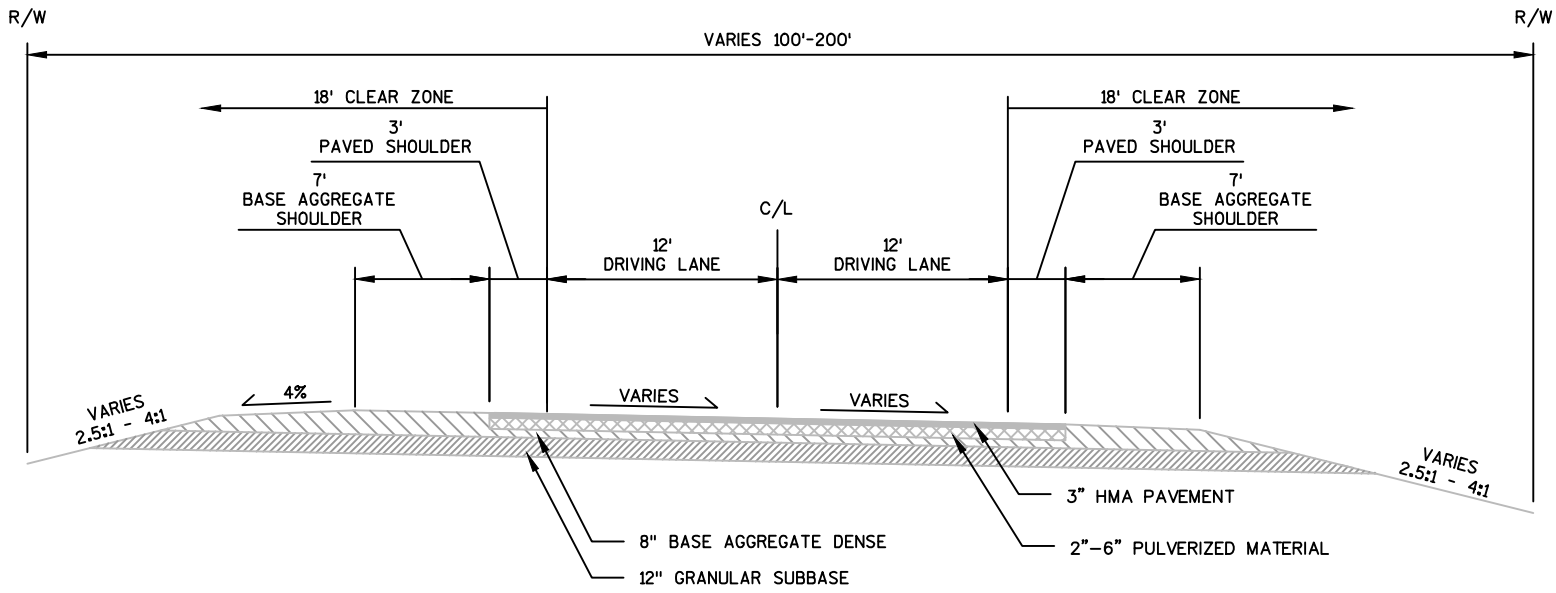
PAVEMENT CORE LOG

CORE NO.	STA.	MILES	OFFSET	THICKNESS	COMMENTS
1	167+13	0.25	7' RT	4-3/4"	END CURB & GUTTER SECTION
	176+63	0.43	--	--	
2	182+44	0.54	6' LT	2-1/2"	
3	196+70	0.81	5' RT	3"	
4	206+73	1	7' LT	3"	
5	219+93	1.25	5' RT	3"	
6	234+71	1.53	7' LT	2-1/2"	
7	246+33	1.75	7' RT	2-3/4"	2-1/2" PULVERIZED ASPHALT MAT'L
8	259+53	2	8' LT	2-1/2"	
9	275+37	2.3	8' RT	2-3/4"	
10	285+93	2.5	6' LT	2-3/4"	
11	299+13	2.75	7' RT	3-1-2"	
12	312+33	3	7' LT	3"	
13	325+53	3.25	7' RT	2-1/2"	2-3/4" PULVERIZED ASPHALT MAT'L
14	338+73	3.5	6' LT	3"	
15	351+93	3.75	6' RT	3-3/4"	3-1/4" PULVERIZED ASPHALT MAT'L
16	365+13	4	6' LT	3"	
17	378+33	4.25	7' RT	3-3/4"	4" PULVERIZED ASPHALT MAT'L
18	391+53	4.5	7' LT	3-3/4"	
19	404+73	4.75	7' RT	2-3/4"	3-1/2" PULVERIZED ASPHALT MAT'L
--	391+53	4.5	--	--	
20	417+93	5	8' LT	3-1/4"	3-1/2" PULVERIZED ASPHALT MAT'L
21	431+13	5.25	7' RT	3-1/4"	
22	444+33	5.5	6' LT	2-1/2"	2-1/2" PULVERIZED ASPHALT MAT'L
23	457+53	5.75	7' RT	3"	
--	464+92	5.89	--	--	2" PULVERIZED ASPHALT MAT'L
--	464+92	5.89	--	--	
					CTH I / LT
					ST CROIX / POLK COUNTY LINE



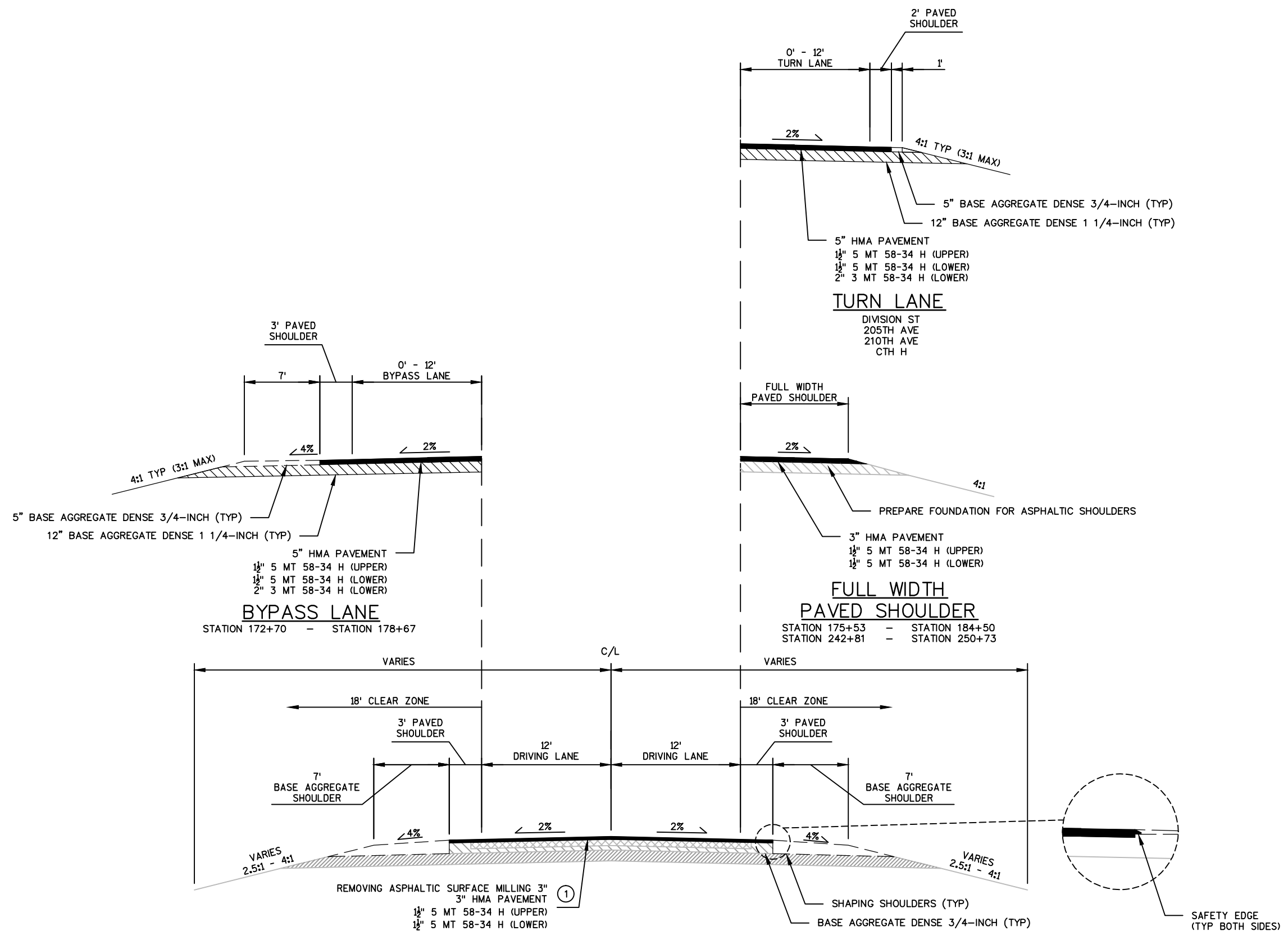
EXISTING TYPICAL SECTION

STATION 172+35 - STATION 343+93
STATION 355+50 - STATION 392+61
STATION 401+59 - STATION 463+71



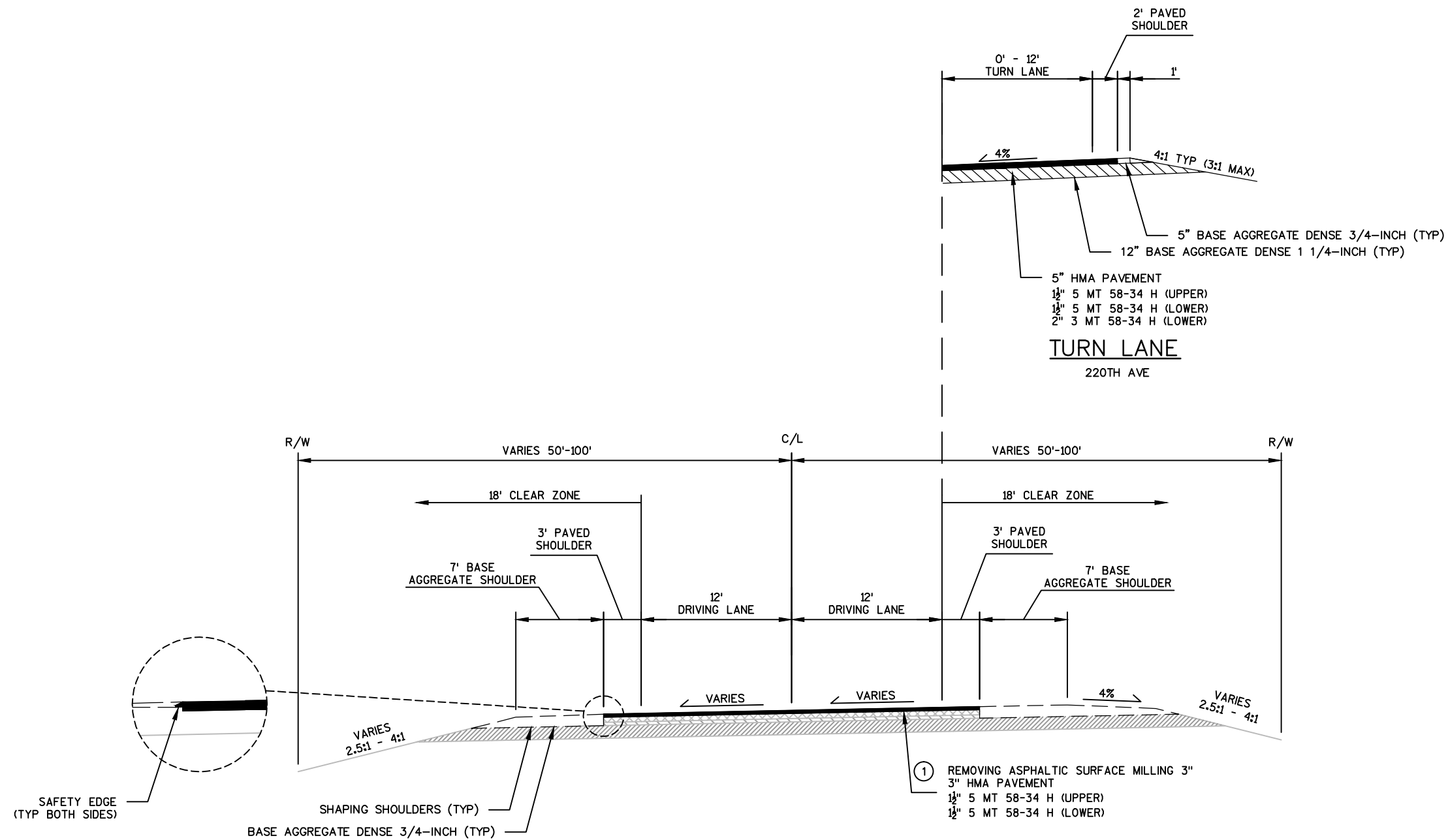
EXISTING TYPICAL SECTION

STATION 343+93 - STATION 355+50
STATION 392+61 - STATION 401+59
STATION 463+71 - STATION 467+50



NOTE:
DURING SHAPING SHOULDERS OPERATION ADD
NEW BASE AGGREGATE DENSE 3/4-INCH AS NEEDED.
QUANTITY OF MATERIAL INCLUDED IN THE CONTRACT.

① DEPTH OF MILL OR PARTIAL DEPTH WILL BE SET AT THE
CENTER LINE OF THE DRIVING LANE AND CONTINUE DOWN
FROM THE CROWN POINT AT THE ROADWAY SLOPE.



FINISHED TYPICAL SECTION

STATION 343+93 - STATION 355+50
STATION 392+61 - STATION 401+59
STATION 463+71 - STATION 467+50

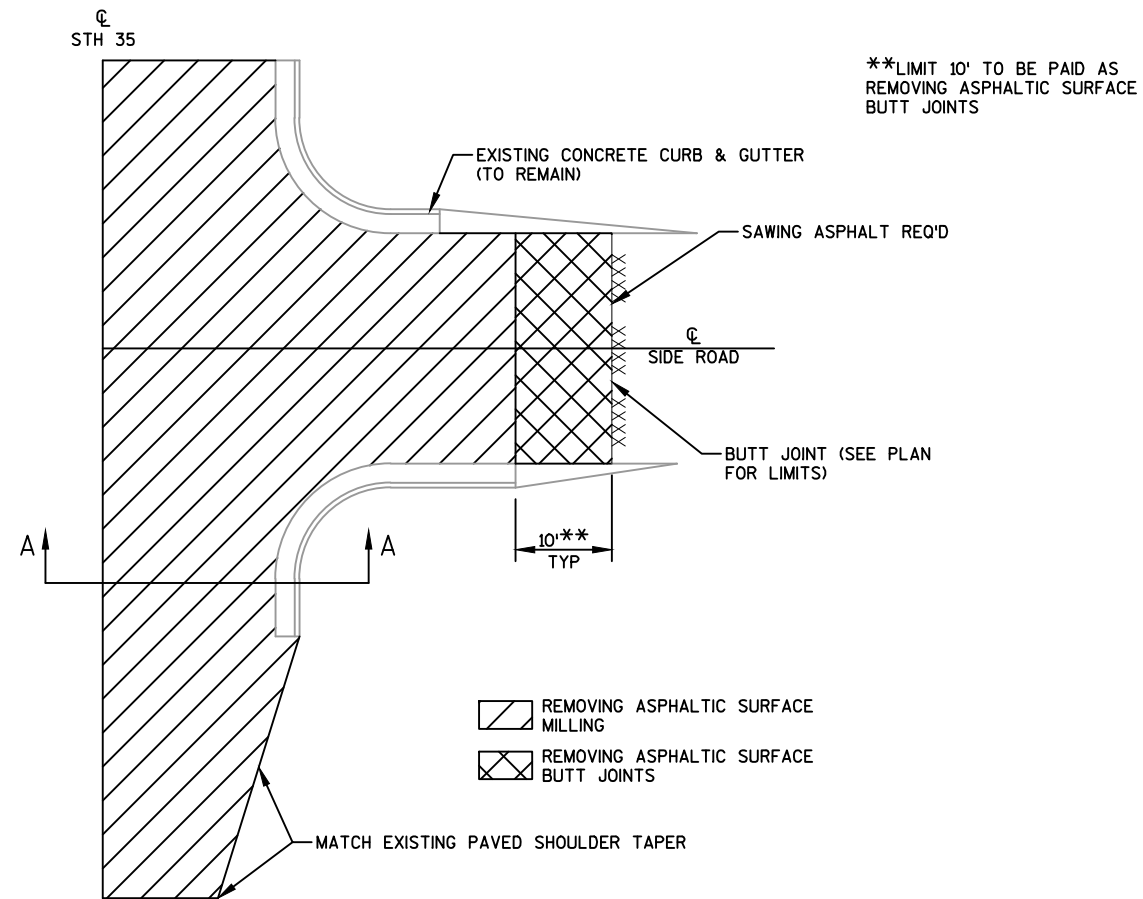
PROPOSED SUPERELEVATION TABLE

CURVE NO.	CURVE DIRECTION	APPROX. EXIST. SUPERELEVATION		PROPOSED SUPERELEVATION	
		LT	RT	LT	RT
4	LT	-4.0%	4.0%	MATCH EXISTING	
5	RT	3.2%	-3.2%	MATCH EXISTING	
6	LT	-4.0%	4.0%	MATCH EXISTING	

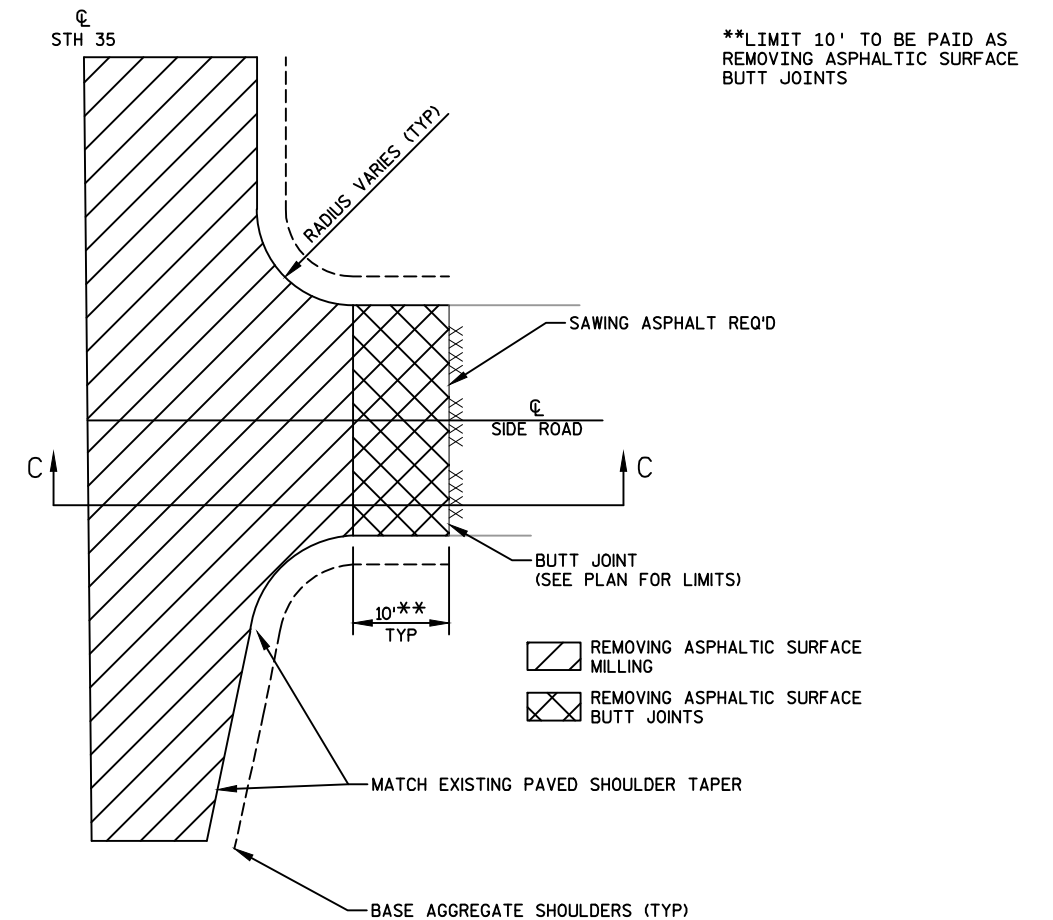
NOTE:
DURING SHAPING SHOULDERS OPERATION ADD
NEW BASE AGGREGATE DENSE 3/4-INCH AS NEEDED.
QUANTITY OF MATERIAL INCLUDED IN THE CONTRACT.

SEE CONSTRUCTION DETAIL FOR TYPICAL SECTION
AT CULVERT REPLACEMENT AREAS.

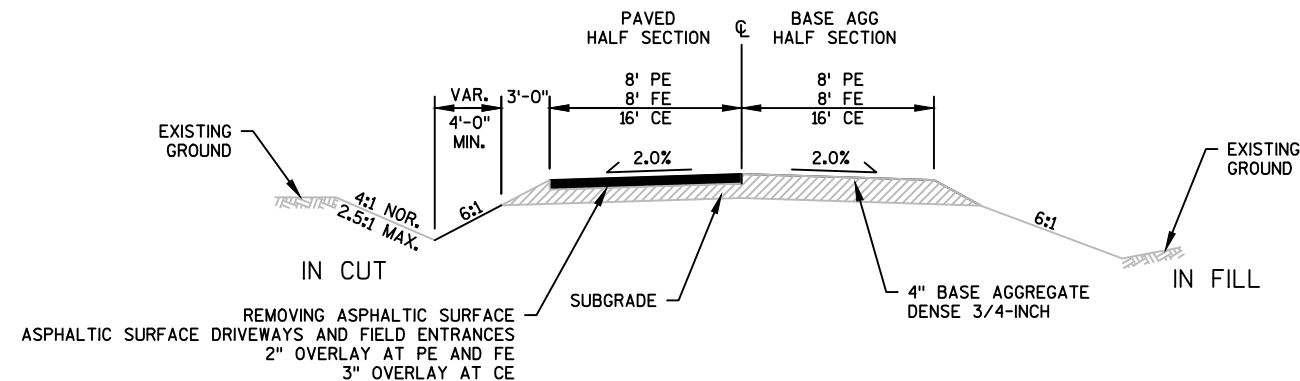
① DEPTH OF MILL OR PARTIAL DEPTH WILL BE SET AT THE
CENTER LINE OF THE DRIVING LANE AND CONTINUE DOWN
FROM THE CROWN POINT AT THE ROADWAY SLOPE.



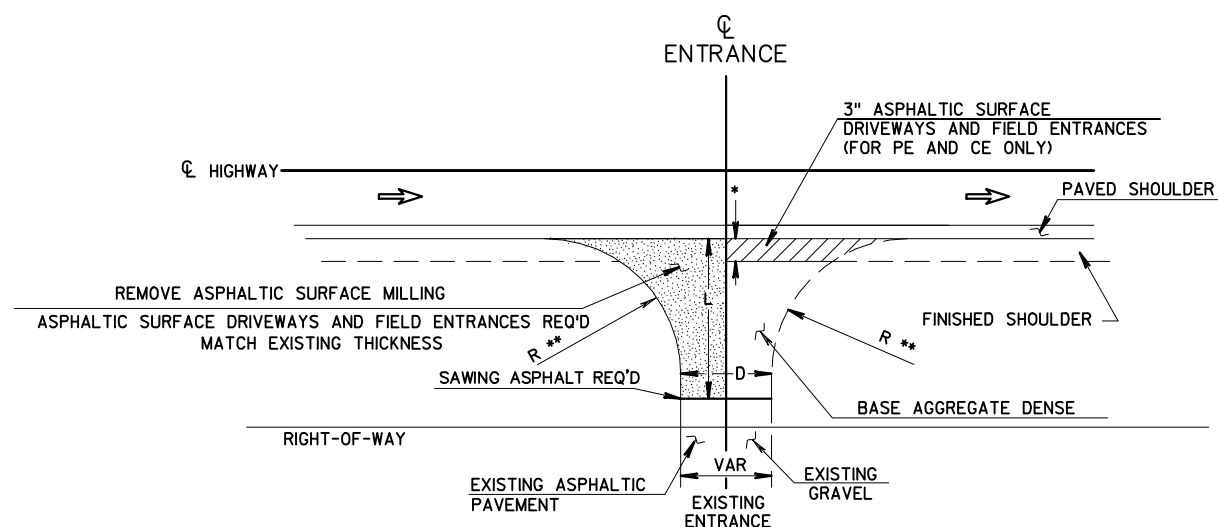
SIDE ROAD DETAIL-CURB & GUTTER (TO REMAIN)



BUTT JOINT DETAIL - SIDE ROAD



TYPICAL CROSS SECTION FOR PRIVATE,
FIELD, OR COMMERCIAL ENTRANCE



L = VARIABLE, EXACT LENGTH TO BE
DETERMINED IN THE FIELD BY THE ENGINEER

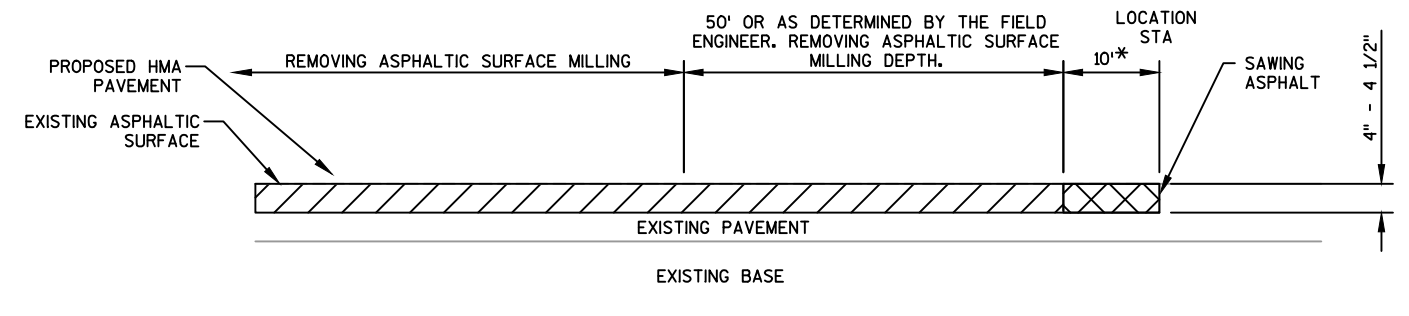
D=DRIVEWAY WIDTH
D=20'TYP(PE's & FE's) (16'MIN-24'MAX)
D=28'TYP(CE's & FARM ENT) (24'MIN-35'MAX)

** RADIUS IS TANGENT AT PAVED SHOULDER EDGE
R=30' FOR 0' TO 3' PAVED SHOULDER R=25'
FOR GREATER THAN 3' PAVED SHOULDER

* 3' MIN OR TO FINISHED SHOULDER
WHICH EVER IS GREATER

PLAN VIEW

RURAL DRIVEWAY INTERSECTION DETAIL (PE, FE & CE)
(FOR RESURFACING PROJECTS)

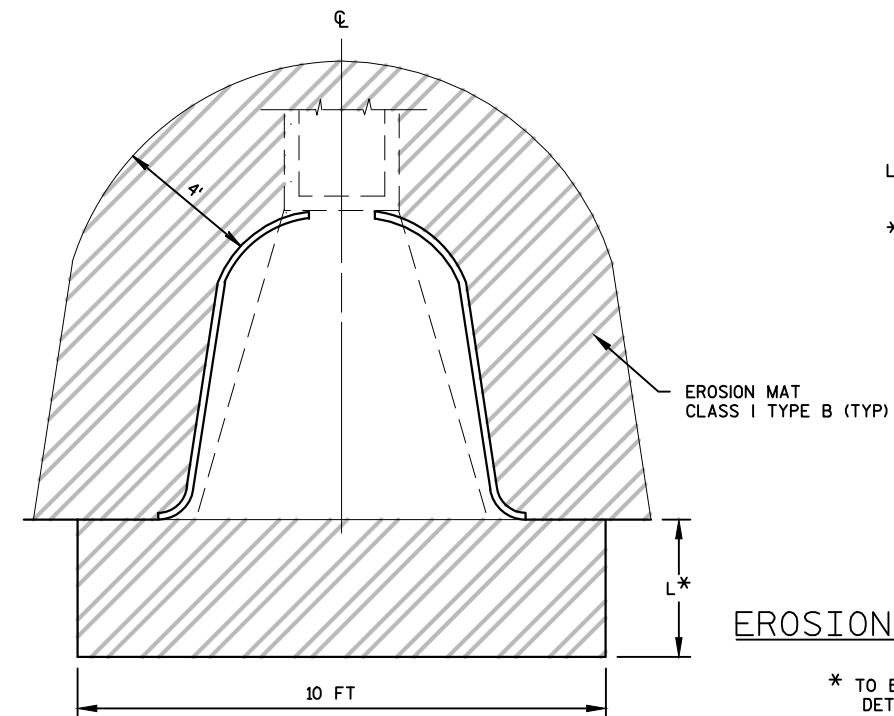


- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS

BUTT JOINT DETAIL, MAINLINE

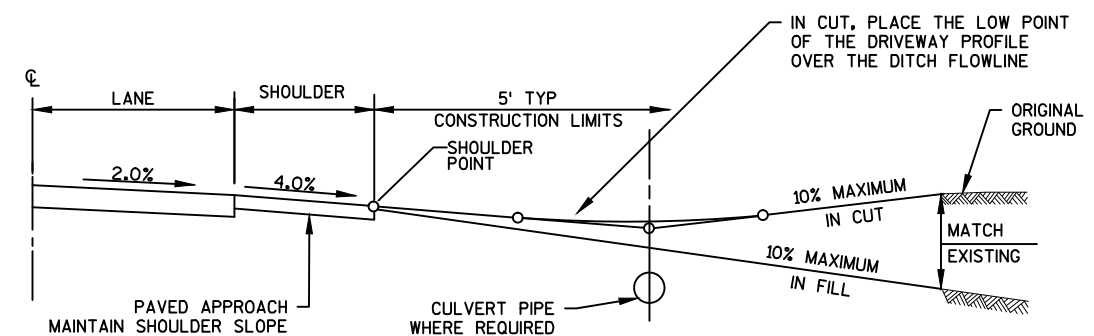
STA 154+82 & 467+50

*LIMIT 10' TO BE PAID AS
REMOVING ASPHALTIC SURFACE
BUTT JOINTS



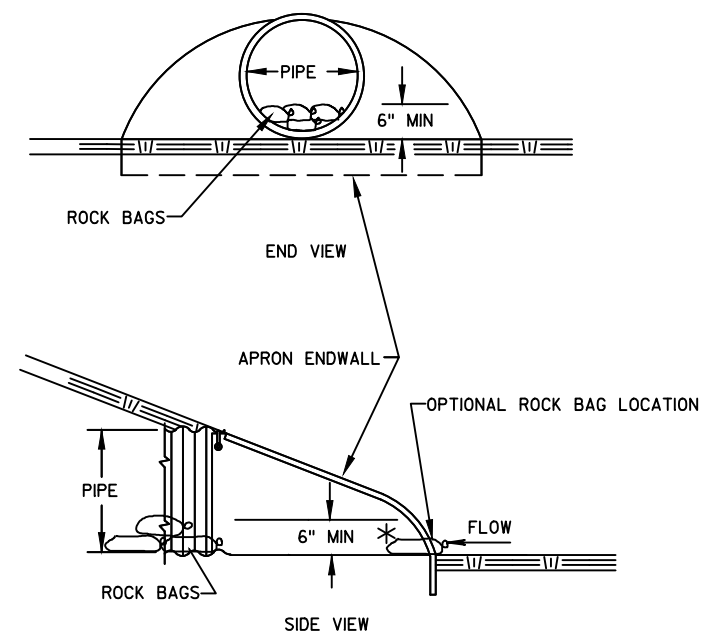
EROSION CONTROL AT PIPE ENDS

* TO BE USED IF DITCH GRADING IS
DETERMINED NECESSARY BY FIELD
ENGINEER

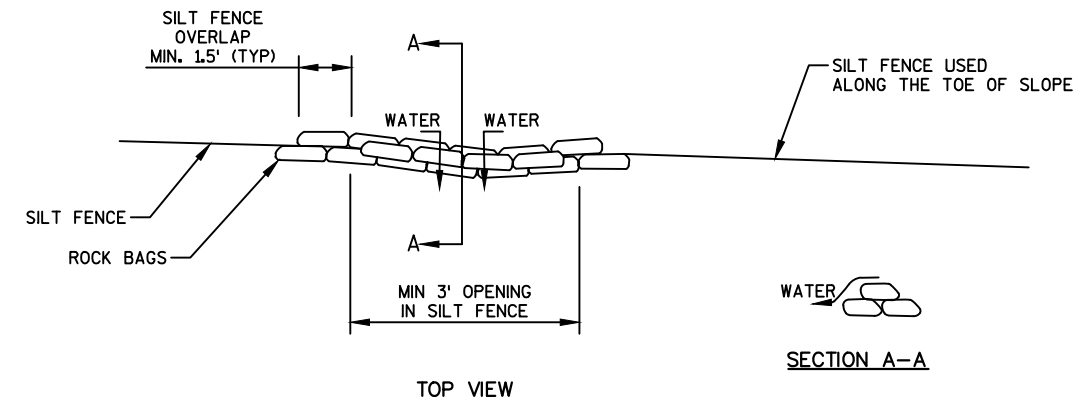


TYPICAL PROFILE FOR PRIVATE, FIELD OR COMMERCIAL ENTRANCE

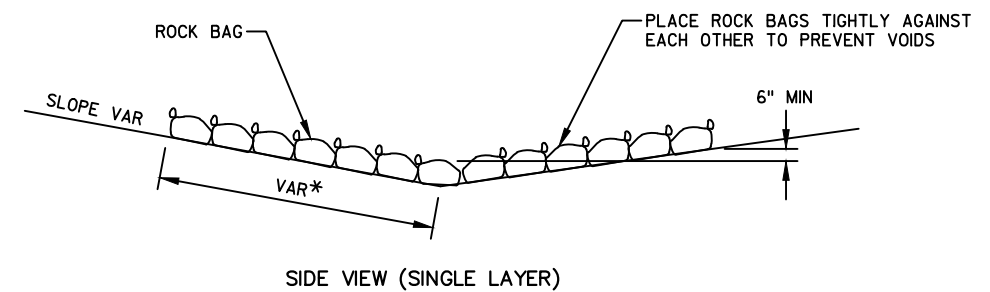
ESTIMATED BAG SIZE= 24" X 12" X 6"	
PIPE SIZE	ESTIMATED NO OF BAGS
18"	2
24"	3
30"	5
48"	10
54"	10
60"	13
72"	16



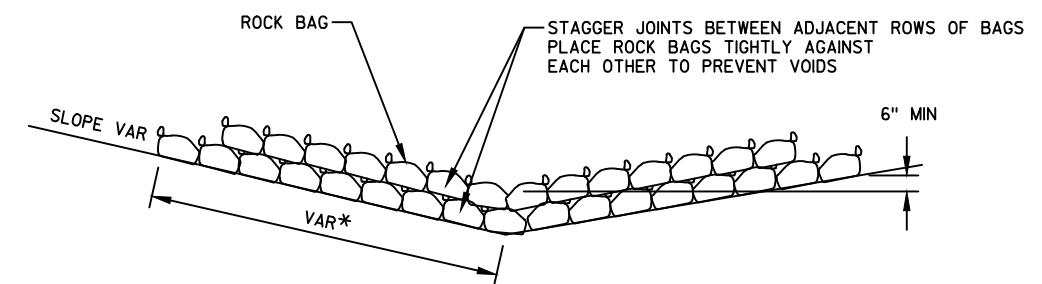
CULVERT PIPE CHECKS



ROCK BAGS USED FOR SILT FENCE RELIEF



SIDE VIEW (SINGLE LAYER)

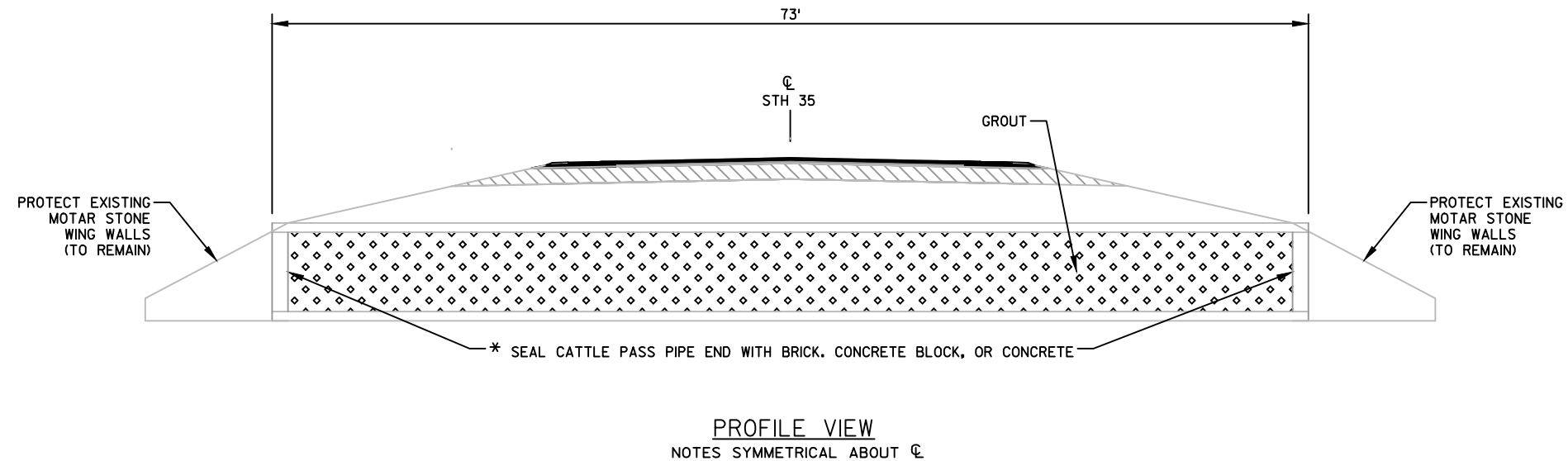


*LENGTH AND NUMBER OF BAGS MAY VARY
DEPENDING ON DESIRED DEPTH OF WATER POOL

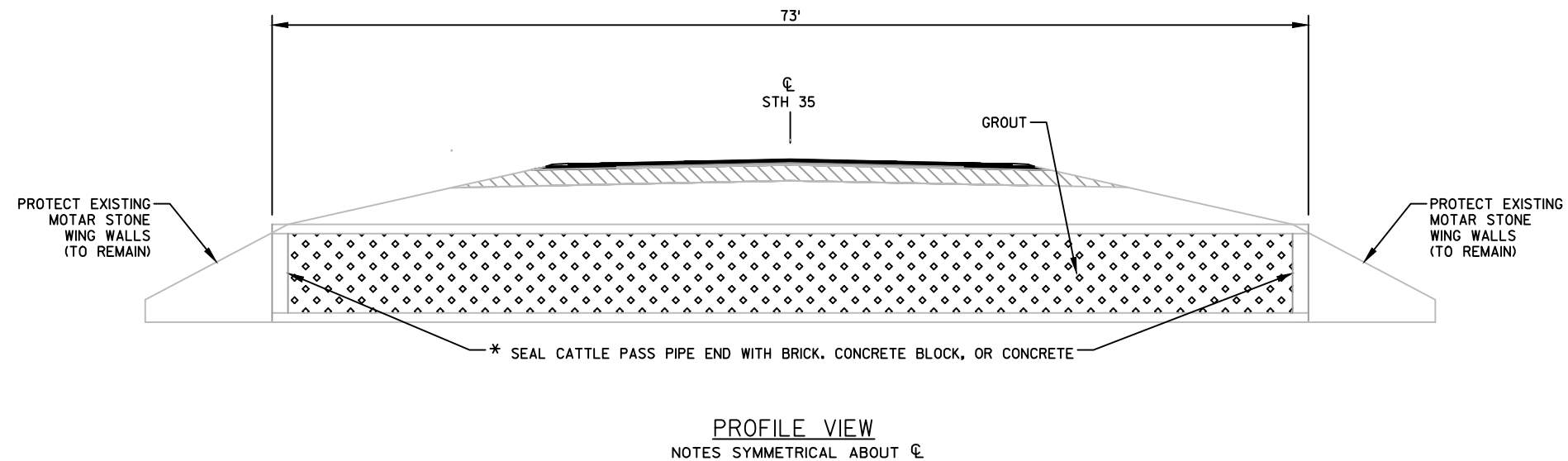
SIDE VIEW (MULTIPLE LAYER)

DITCH CHECKS

ROCK BAGS DETAIL



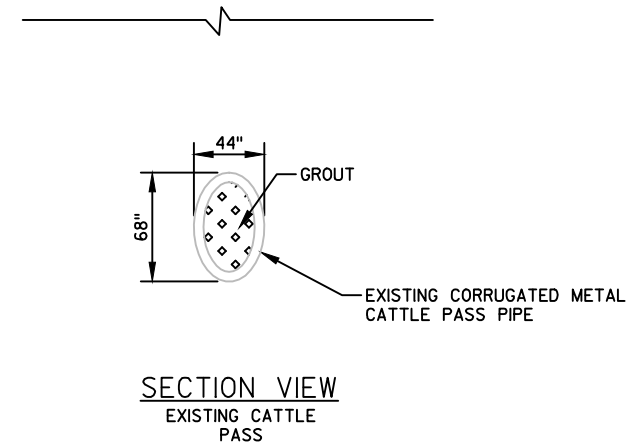
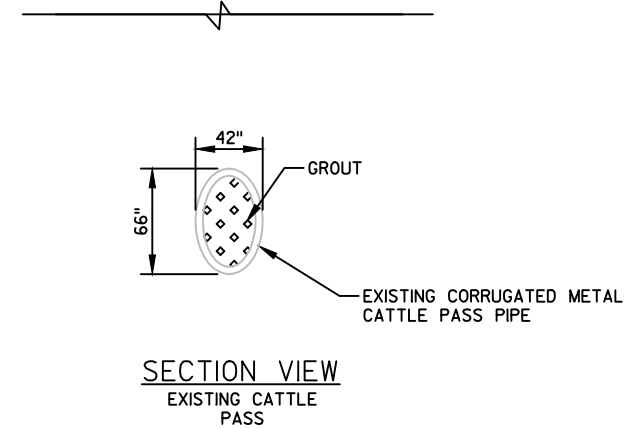
ABANDON AND FILL CATTLE PASSES
STA. 329+25

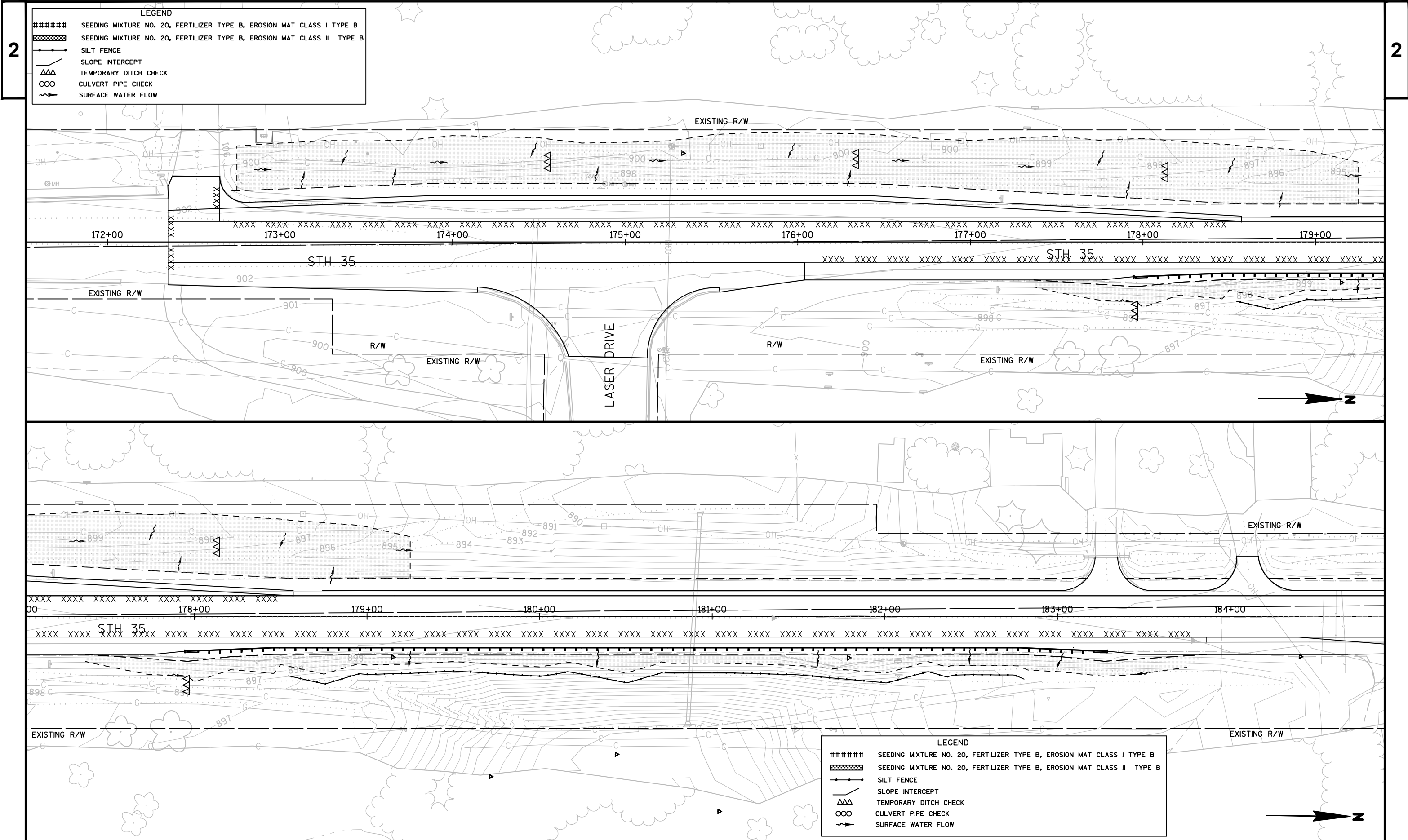


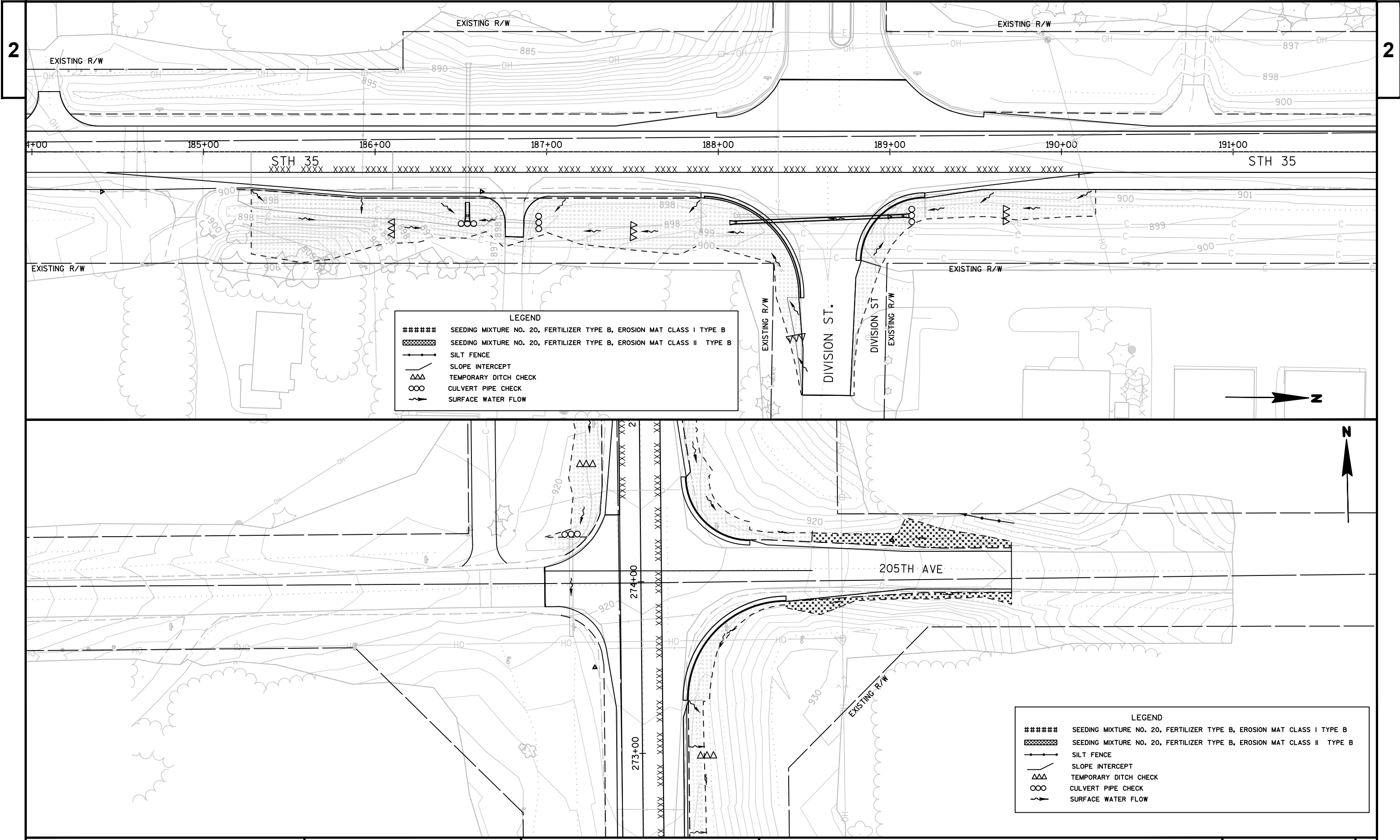
ABANDON AND FILL CATTLE PASSES
STA. 366+40

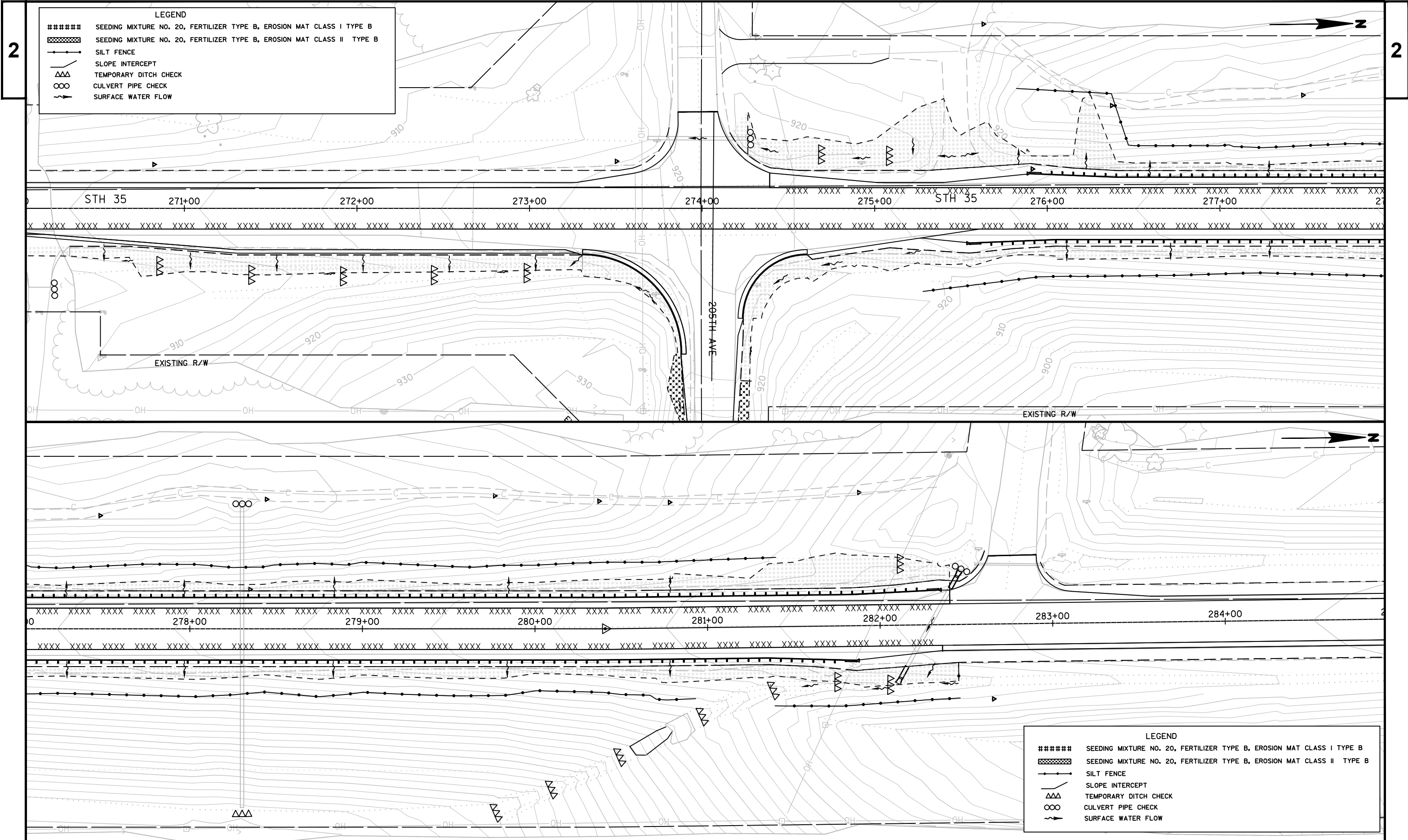
NOTE:

* INCIDENTAL TO ABANDON AND FILL CATTLE PASS STATION 329+25
AND ABANDON AND FILL CATTLE PASS STATION 366+40









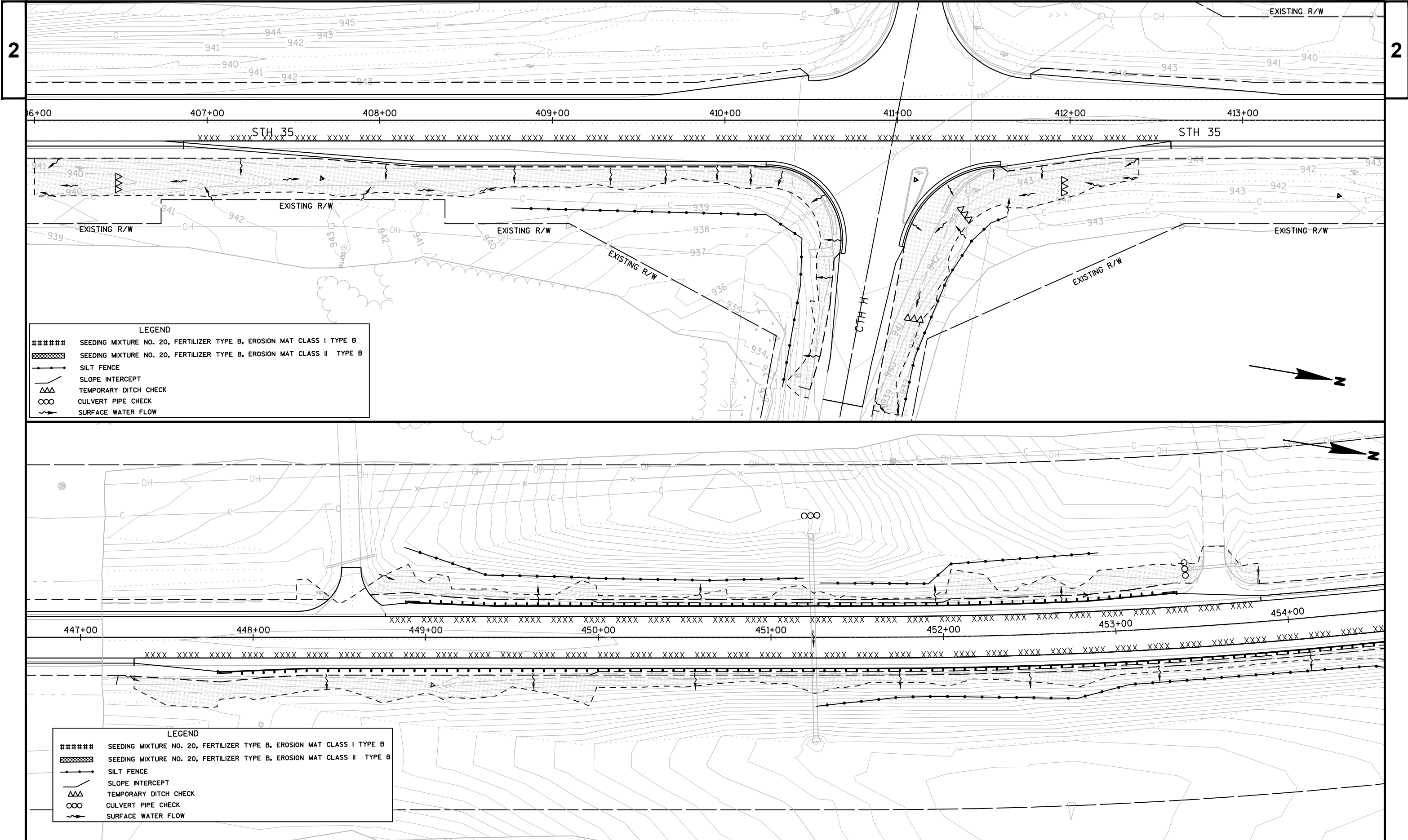
[illegible][illegible]

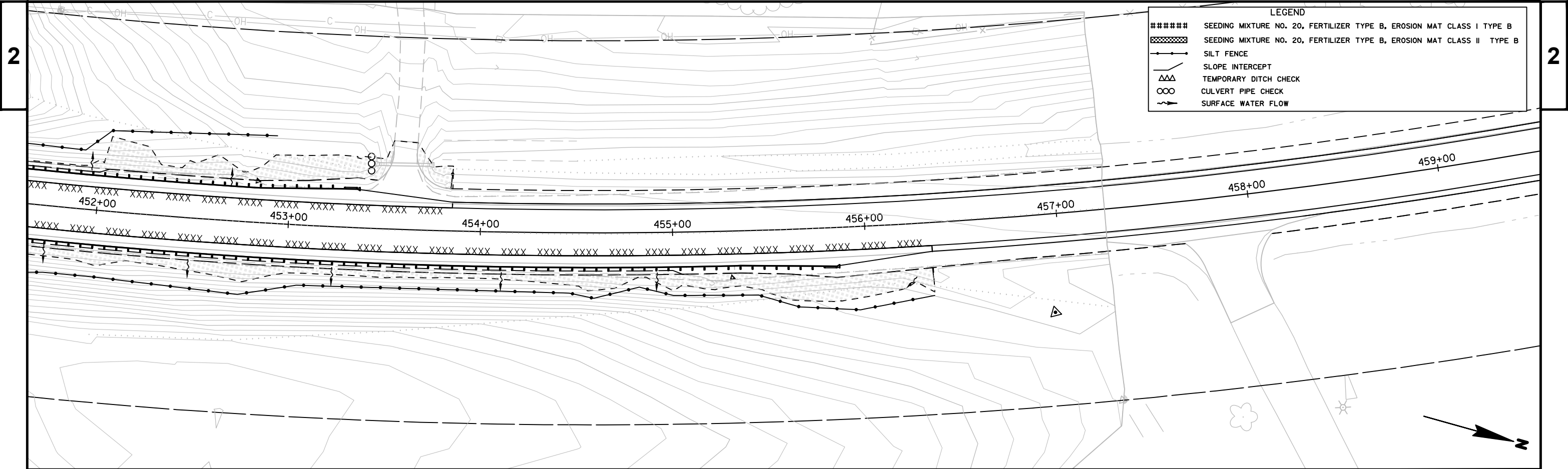
E

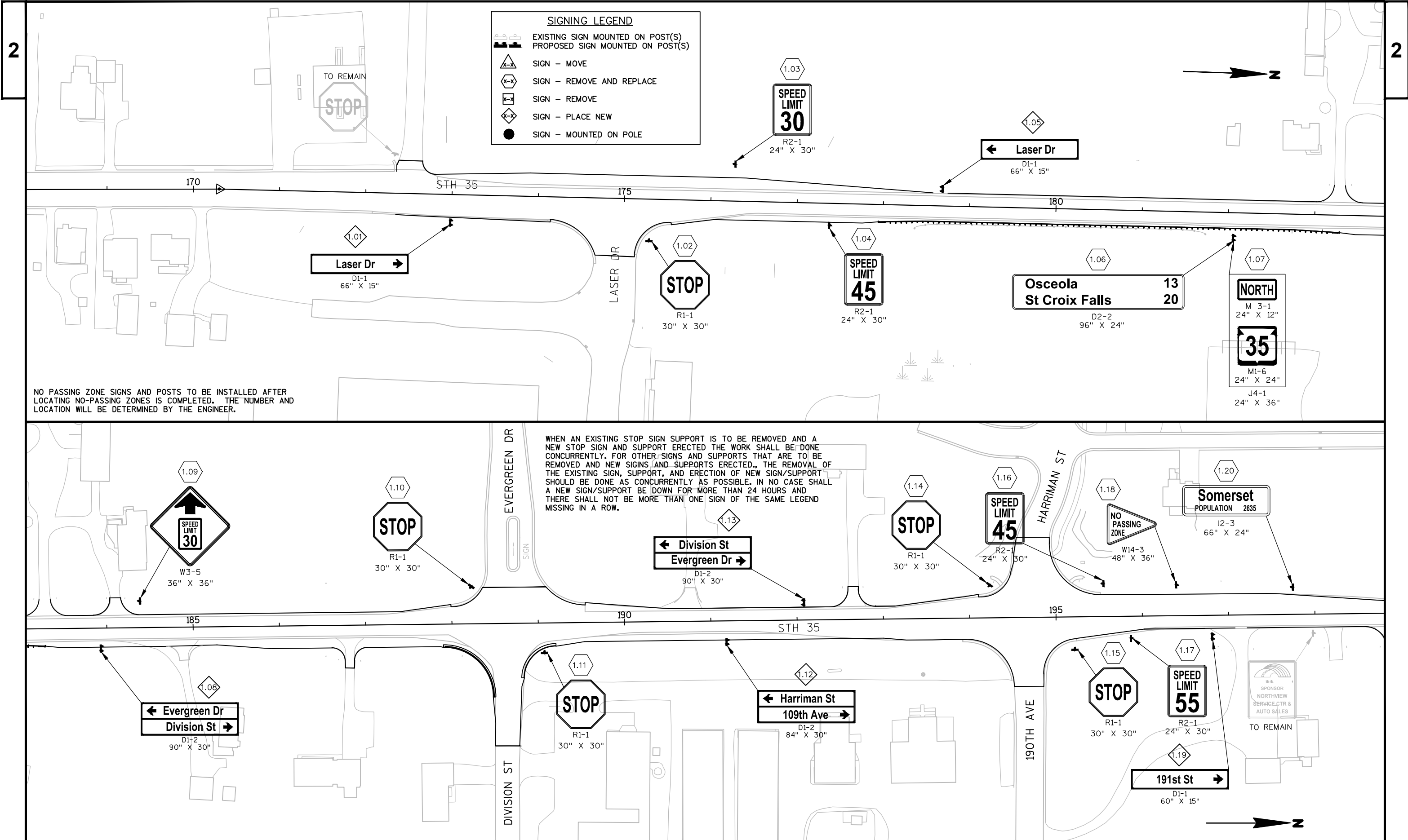
WISDOT/CADDS SHEET 42

2







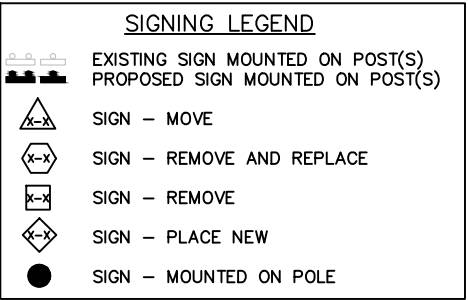


SIGNING LEGEND

EXISTING SIGN MOUNTED ON POST(S)
PROPOSED SIGN MOUNTED ON POST(S)

- SIGN - MOVE
- SIGN - REMOVE AND REPLACE
- SIGN - REMOVE
- SIGN - PLACE NEW
- SIGN - MOUNTED ON POLE

2

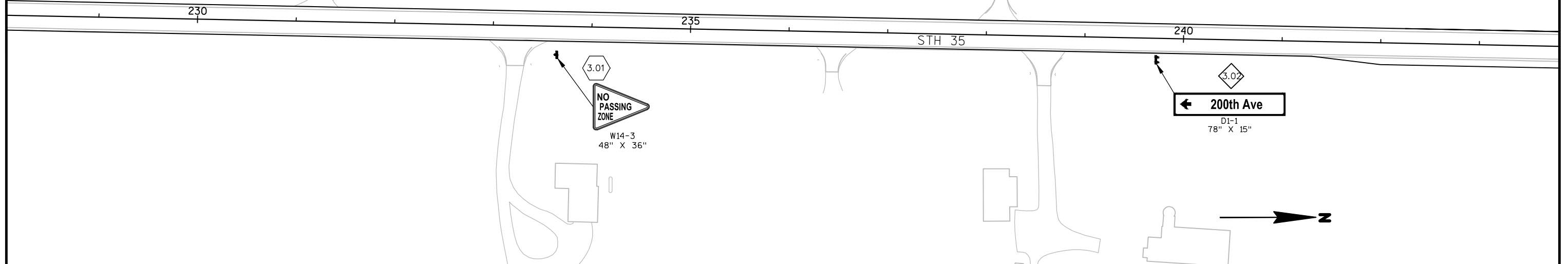


NO PASSING ZONE SIGNS AND POSTS TO BE INSTALLED AFTER LOCATING NO-PASSING ZONES IS COMPLETED. THE NUMBER AND LOCATION WILL BE DETERMINED BY THE ENGINEER.

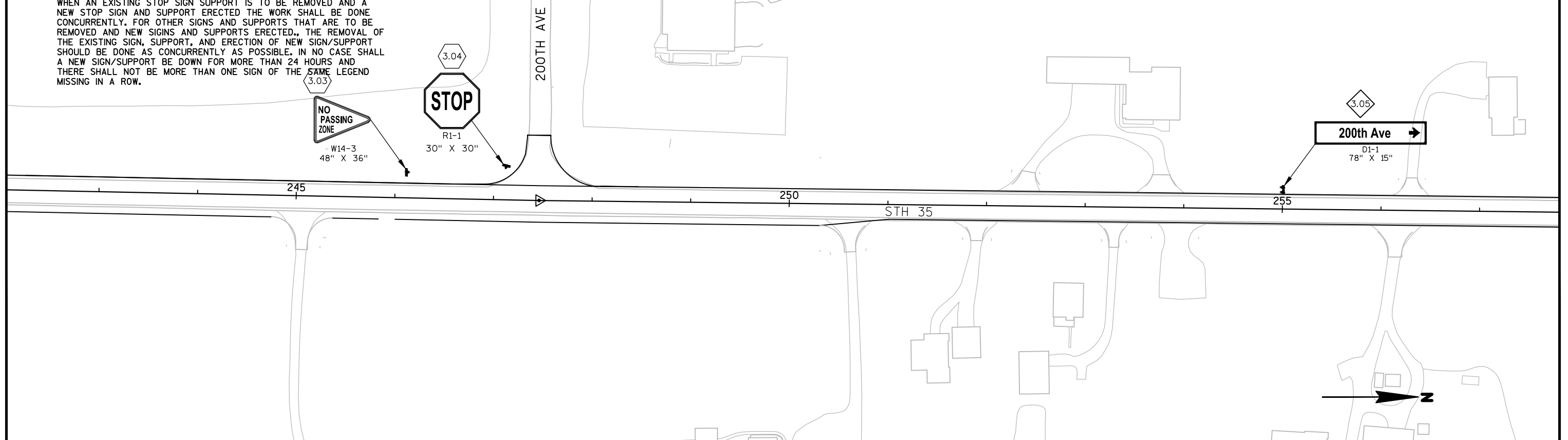
WHEN AN EXISTING STOP SIGN SUPPORT IS TO BE REMOVED AND A NEW STOP SIGN AND SUPPORT ERECTED THE WORK SHALL BE DONE CONCURRENTLY, FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED.. THE REMOVAL OF THE EXISTING SIGN, SUPPORT, AND ERECTION OF NEW SIGN/SUPPORT SHOULD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

NO PASSING ZONE SIGNS AND POSTS TO BE INSTALLED AFTER LOCATING NO-PASSING ZONES IS COMPLETED. THE NUMBER AND LOCATION WILL BE DETERMINED BY THE ENGINEER.

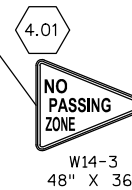
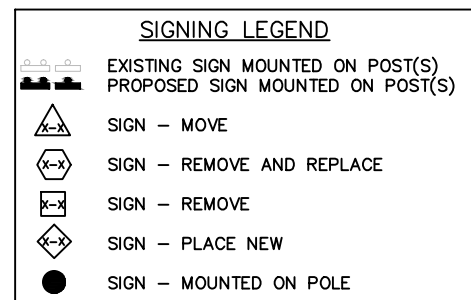
SIGNING LEGEND	
	EXISTING SIGN MOUNTED ON POST(S)
	PROPOSED SIGN MOUNTED ON POST(S)
	SIGN - MOVE
	SIGN - REMOVE AND REPLACE
	SIGN - REMOVE
	SIGN - PLACE NEW
	SIGN - MOUNTED ON POLE



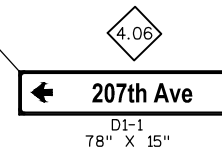
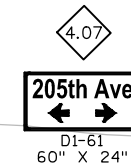
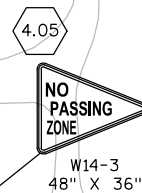
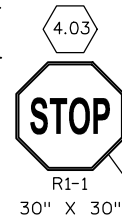
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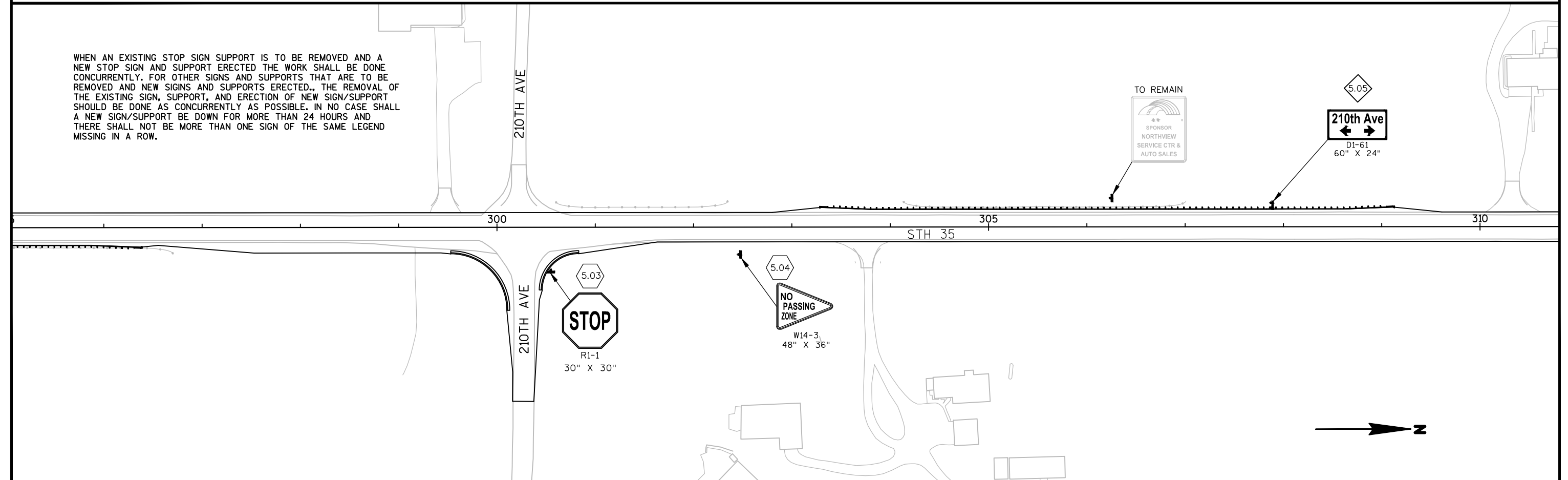
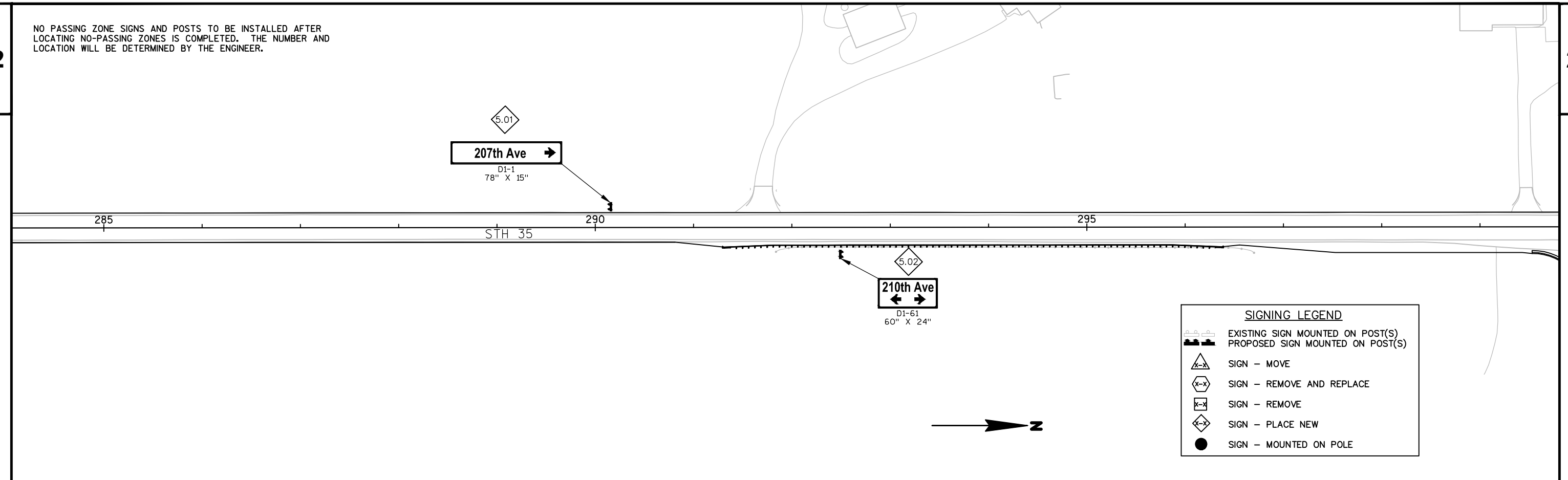
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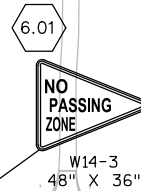
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315

STH 35

320

325

6.02

← 215th Ave

D1-1
72" X 15"**SIGNING LEGEND**

-  EXISTING SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON POST(S)
-  SIGN - MOVE
-  SIGN - REMOVE AND REPLACE
-  SIGN - REMOVE
-  SIGN - PLACE NEW
-  SIGN - MOUNTED ON POLE



215TH AVE

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

330

STH 35

335

340

6.05

215th Ave →

D1-1
72" X 15"

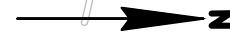
7.01

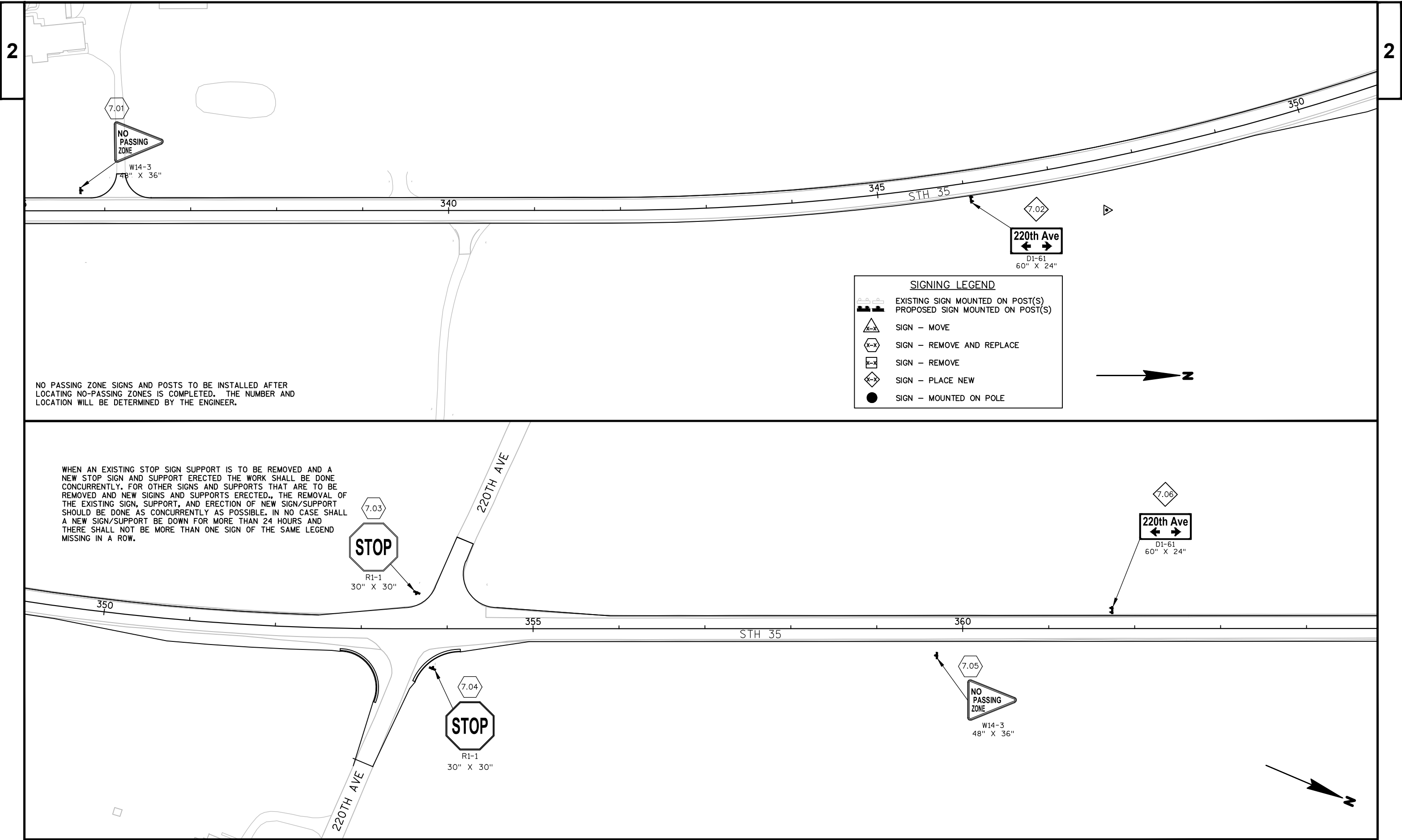
W14-3
48" X 36"

6.04

R1-1
30" X 30"

6.06

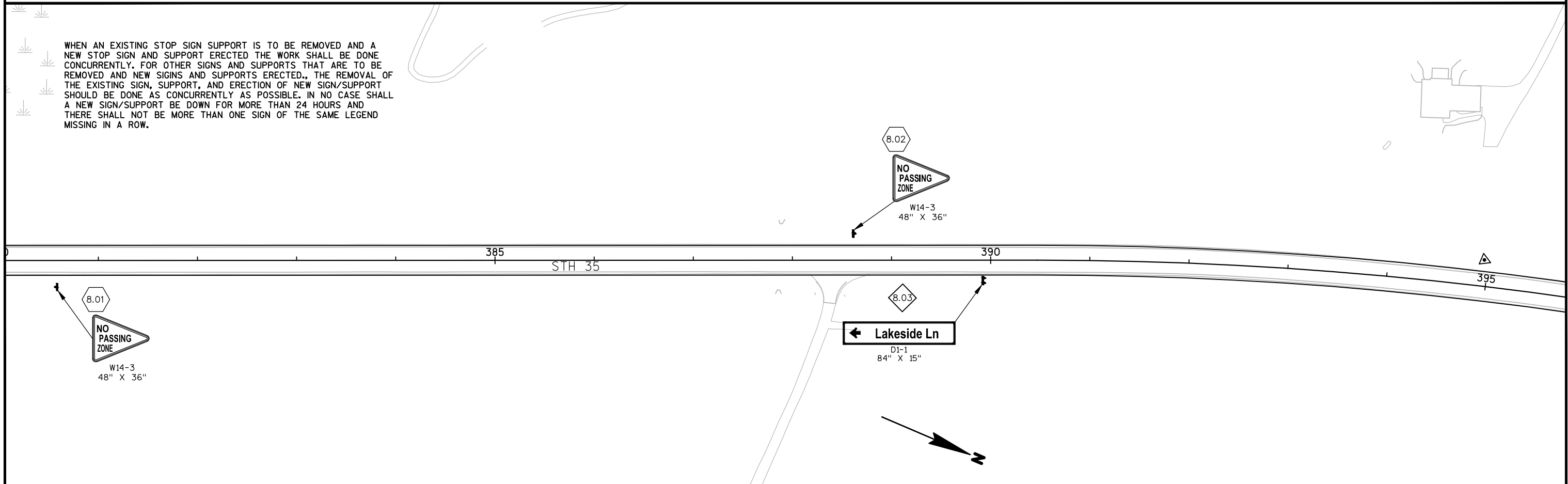
W14-3
48" X 36"

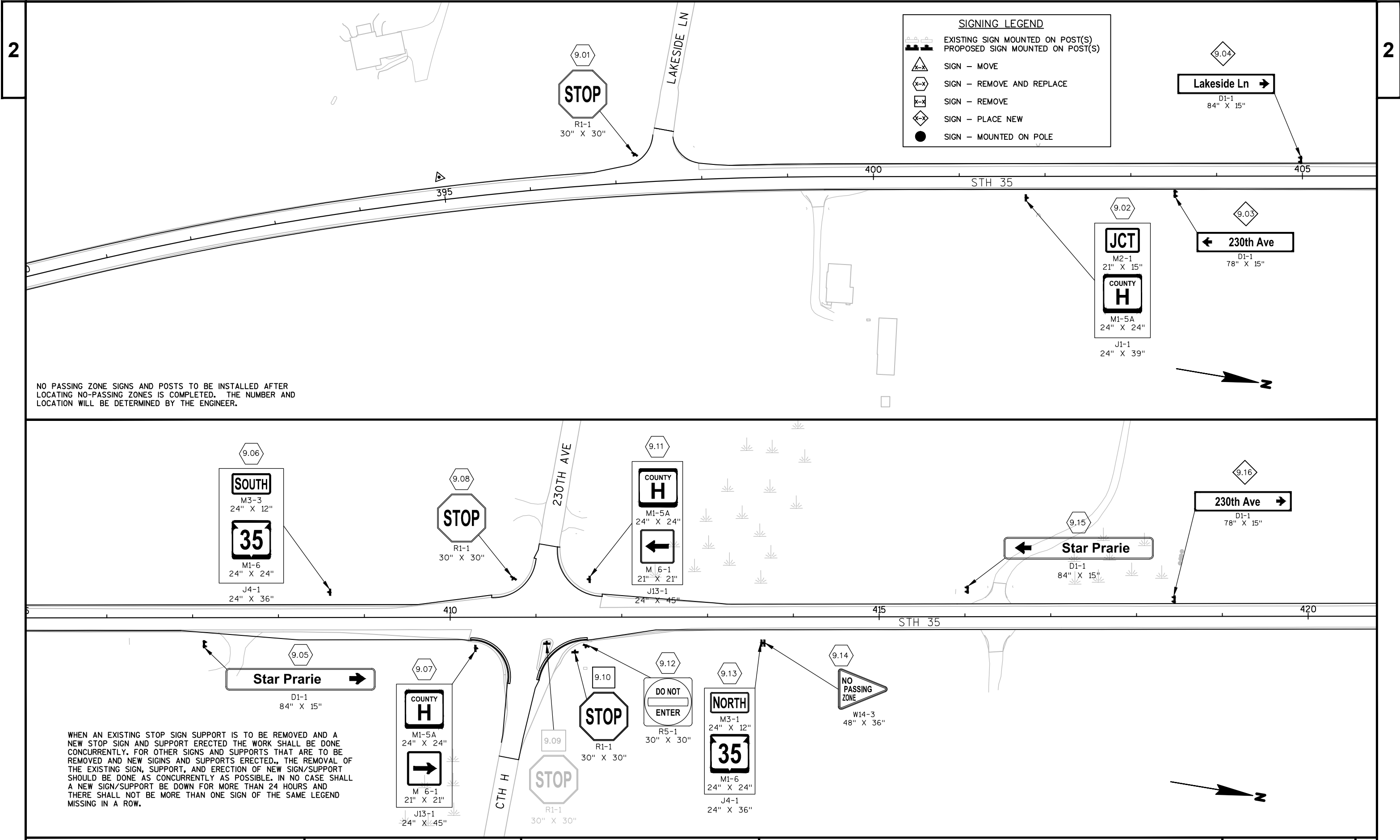


SIGNING LEGEND	
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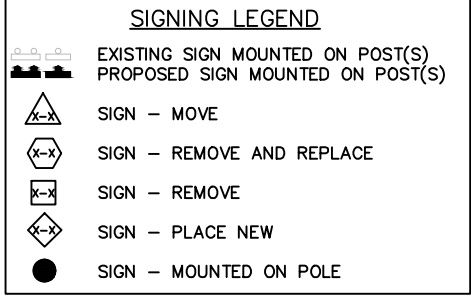
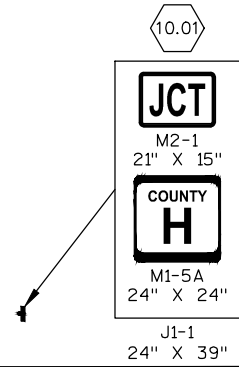


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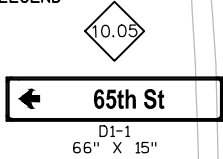
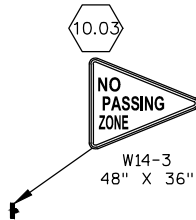
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11.01
JCT
M 2-1
21" X 15"
COUNTY
I
M1-5A
24" X 24"
J1-1
24" X 39"

11.02
STOP
R1-1
30" X 30"

11.03
County Line Ave →
D1-1
108" X 15"

11.05
St Croix Co
I-2-2
66" X 15"

11.08
35
M1-6
24" X 24"
→
M 6-1
21" X 21"
J 13-1
24" X 45"

11.09
STOP
R1-1
30" X 30"

11.11
COUNTY
I
M1-5A
24" X 24"
→
M 6-1
21" X 21"
J13-1
24" X 45"

END PROJECT
STA 467+50

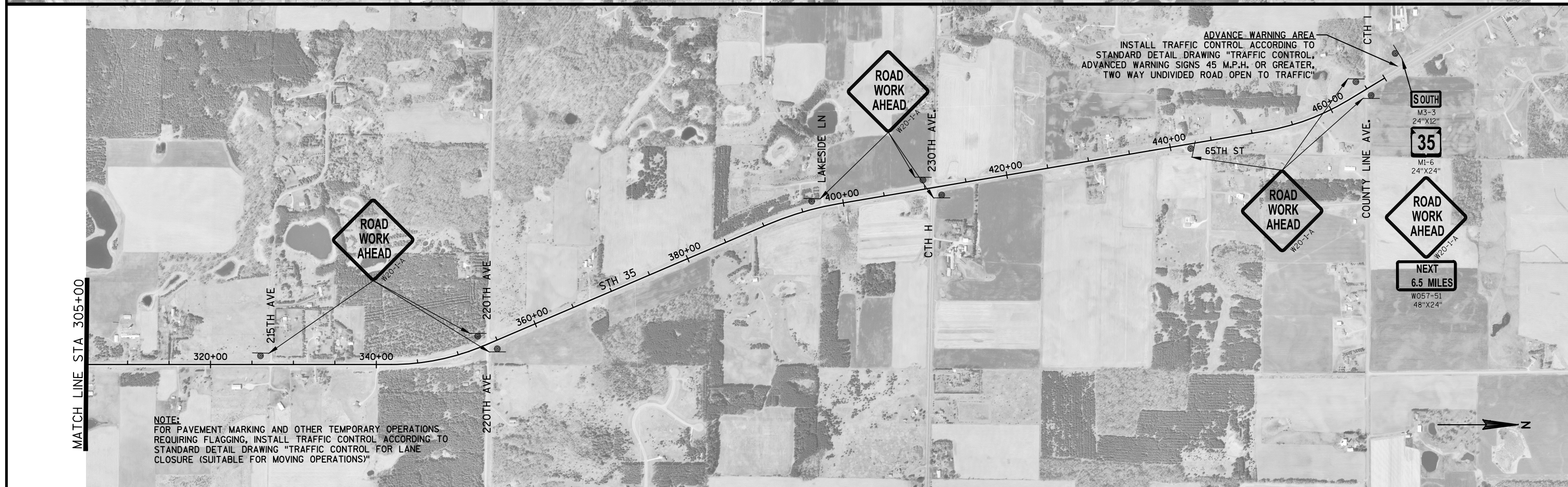
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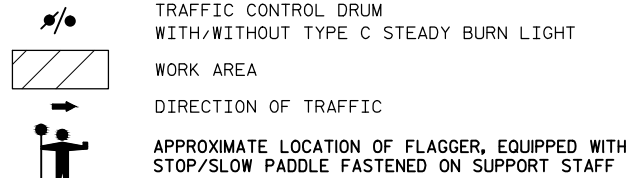
SOMERSET
LANDING
←
TO REMAIN

11.06
COUNTY
I
M1-5A
24" X 24"
←
M 6-1
21" X 21"
J13-1
24" X 45"

11.07
STOP
R1-1
30" X 30"

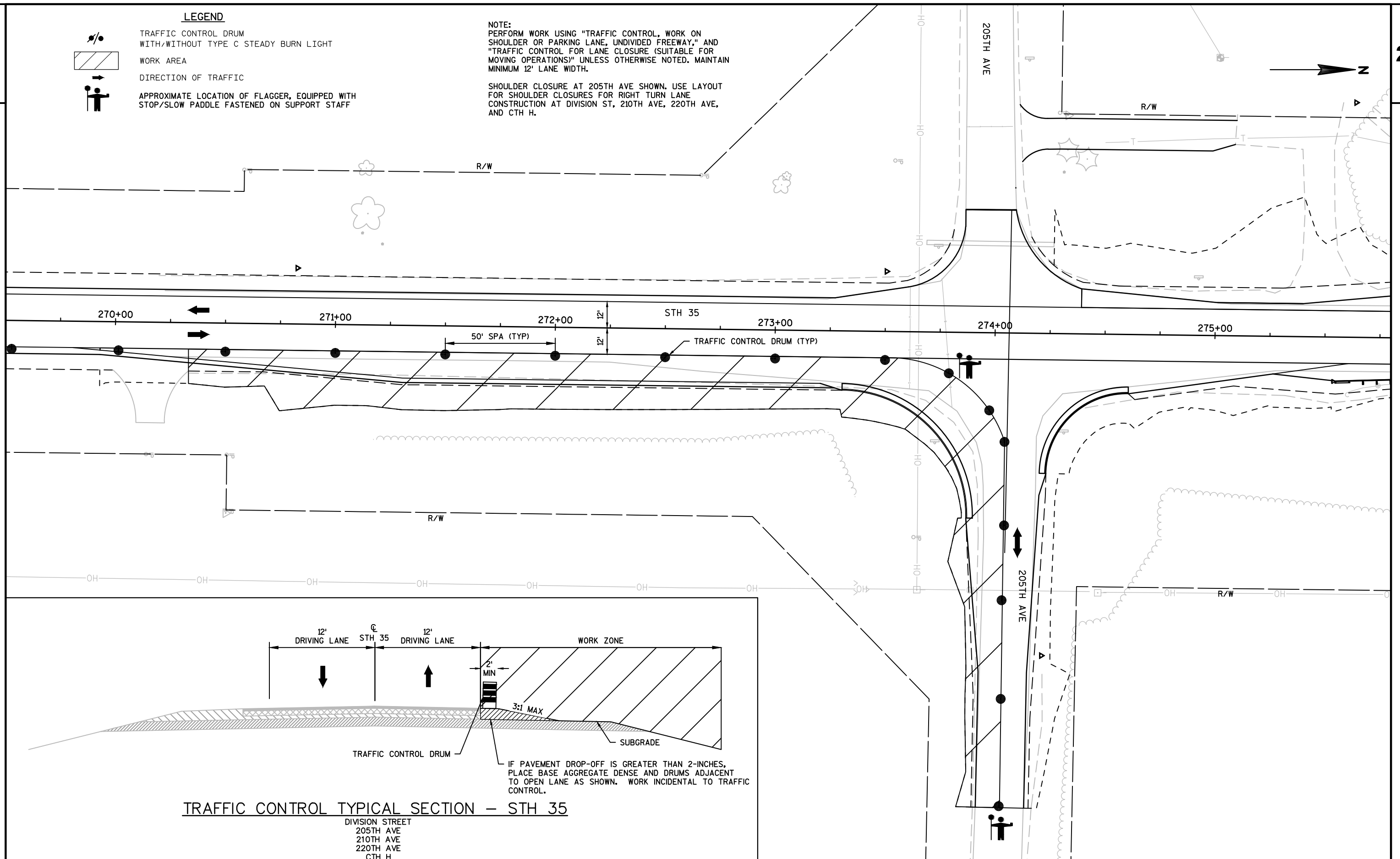
11.10
NORTH
M3-1
24" X 12"
35
M1-6
24" X 24"
←
J 4-1
24" X 36"
Polk Co
I-2-2
48" X 15"



LEGEND

NOTE:
PERFORM WORK USING "TRAFFIC CONTROL, WORK ON
SHOULDER OR PARKING LANE, UNDIVIDED FREEWAY," AND
"TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR
MOVING OPERATIONS)" UNLESS OTHERWISE NOTED. MAINTAIN
MINIMUM 12' LANE WIDTH.

SHOULDER CLOSURE AT 205TH AVE SHOWN. USE LAYOUT
FOR SHOULDER CLOSURES FOR RIGHT TURN LANE
CONSTRUCTION AT DIVISION ST, 210TH AVE, 220TH AVE,
AND CTH H.

**TRAFFIC CONTROL TYPICAL SECTION – STH 35**

DIVISION STREET
205TH AVE
210TH AVE
220TH AVE
CTH H

PROJECT NO:8060-01-73

HWY:STH 35

COUNTY:ST. CROIX

TRAFFIC CONTROL - RIGHT TURN LANE CLOSURE

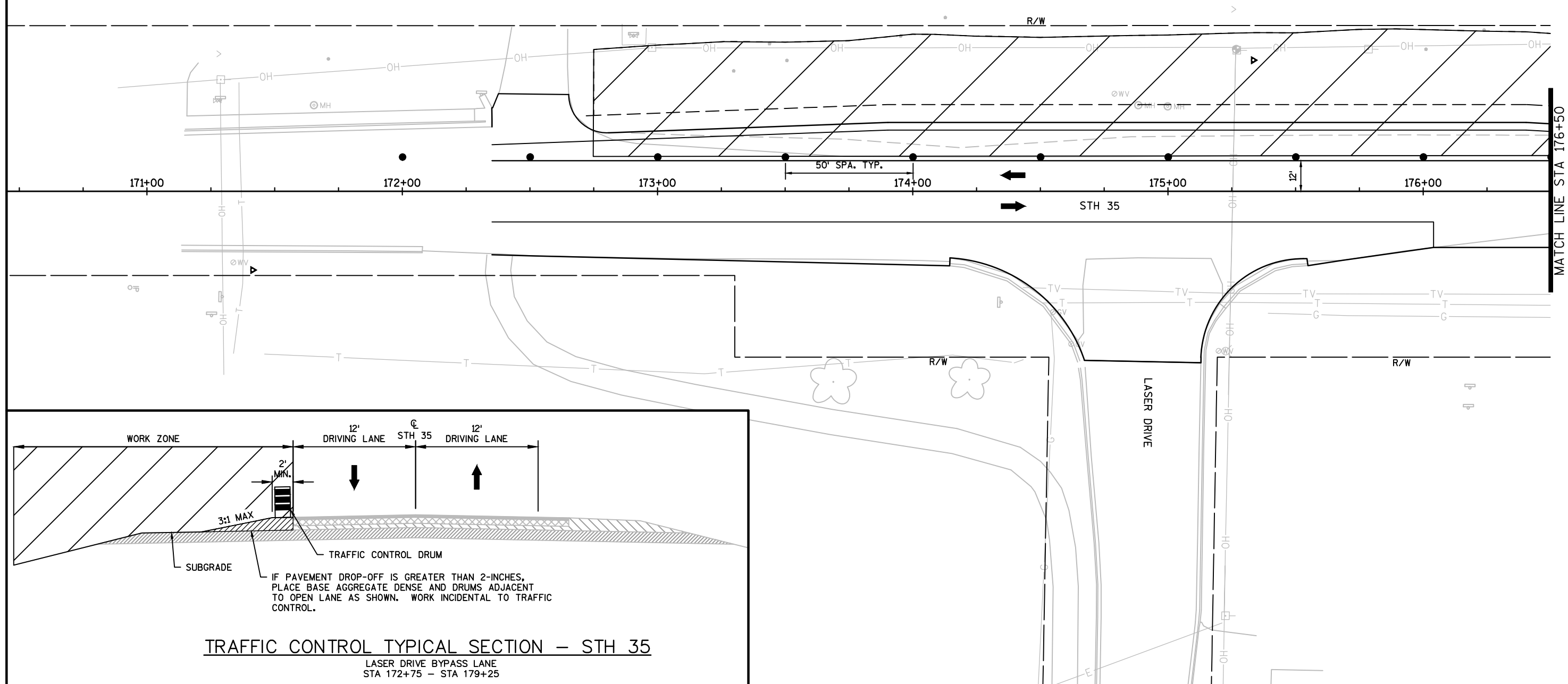
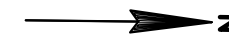
SHEET

30

E

LEGEND

-  TRAFFIC CONTROL DRUM
 WITH/WITHOUT TYPE C STEADY BURN LIGHT
 WORK AREA
 DIRECTION OF TRAFFIC



PROJECT NO:8060-01-73

HWY:STH 35

COUNTY:ST. CROIX

TRAFFIC CONTROL - LASER DRIVE BYPASS LANE

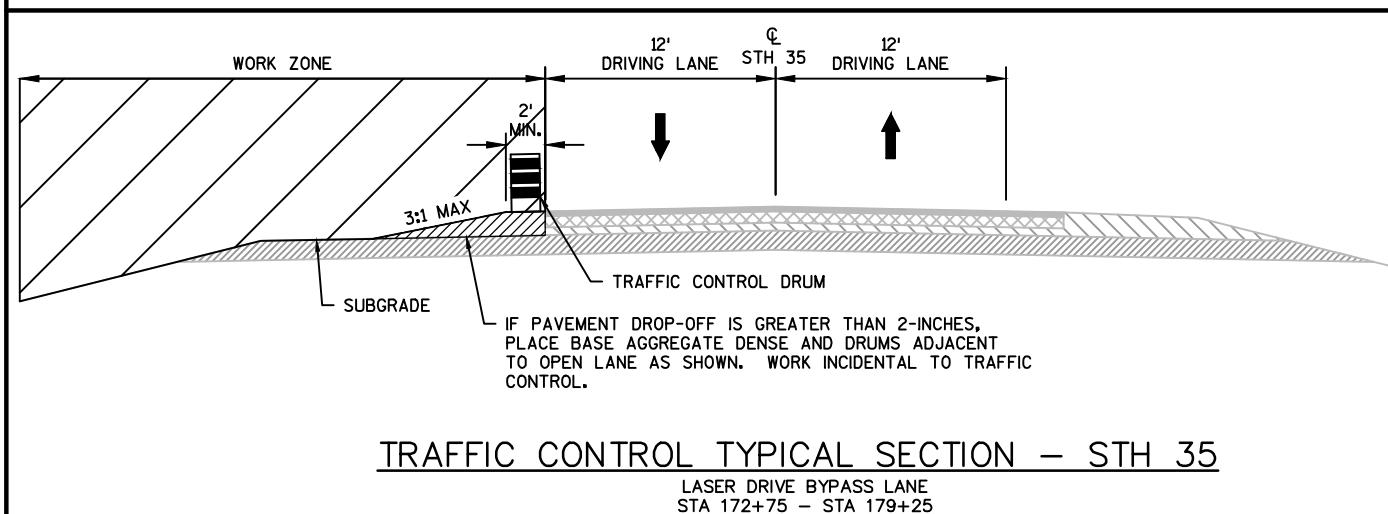
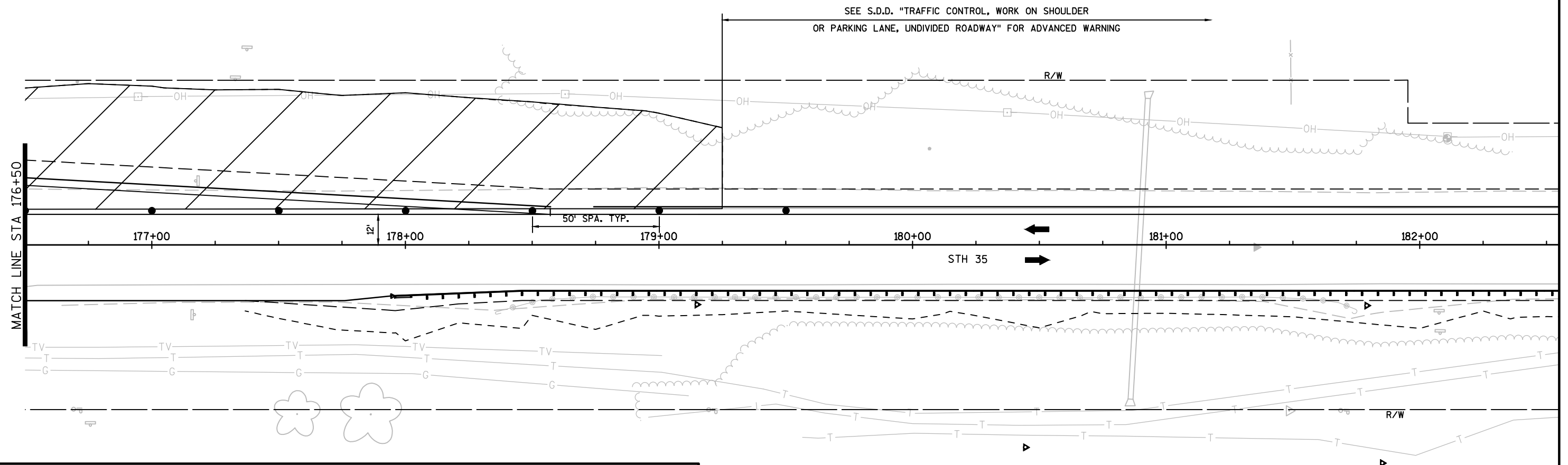
SHEET

31

E

LEGEND

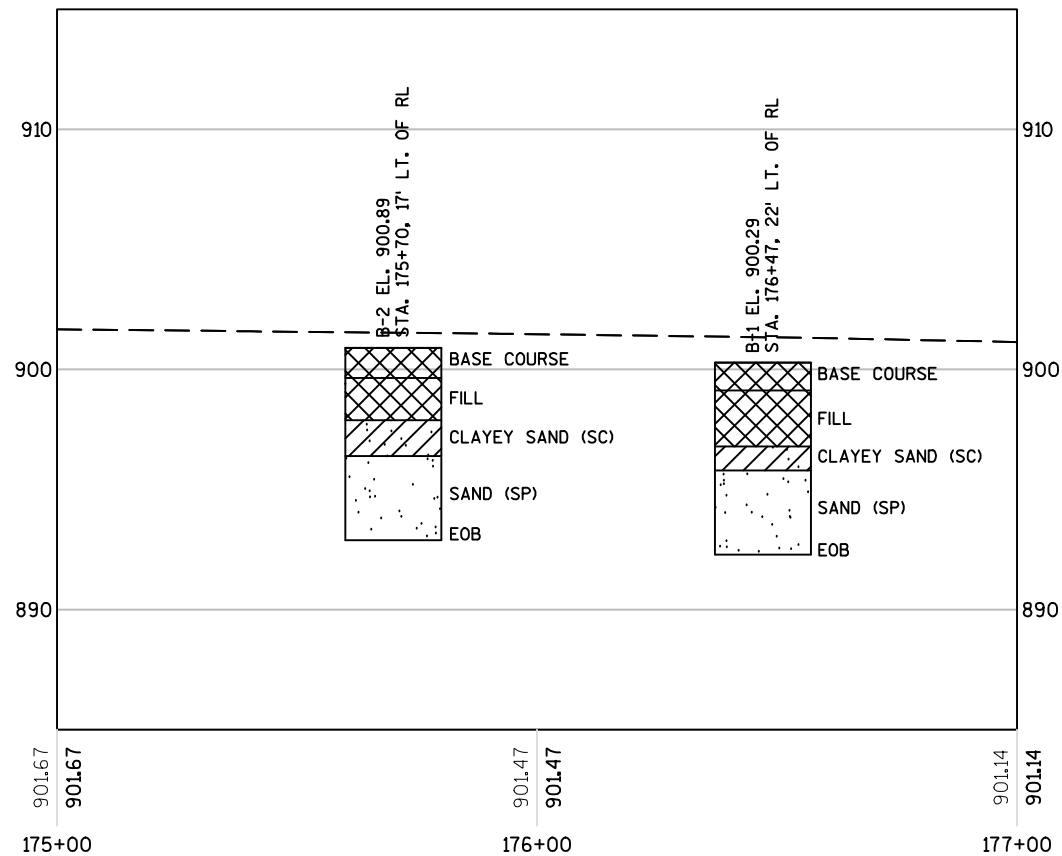
- /●
WITH/WITHOUT TYPE C STEADY BURN LIGHT
- ▨
WORK AREA
- DIRECTION OF TRAFFIC





175 176 177

STH 35



PROJECT NO: 8060-01-73

HWY: STH 35

COUNTY: ST. CROIX

SUBSURFACE EXPLORATION

SHEET

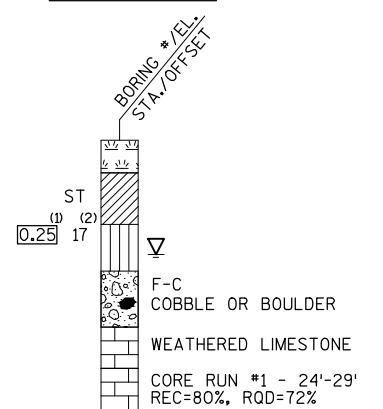
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STATE PROJECT NUMBER
8060-01-73

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(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

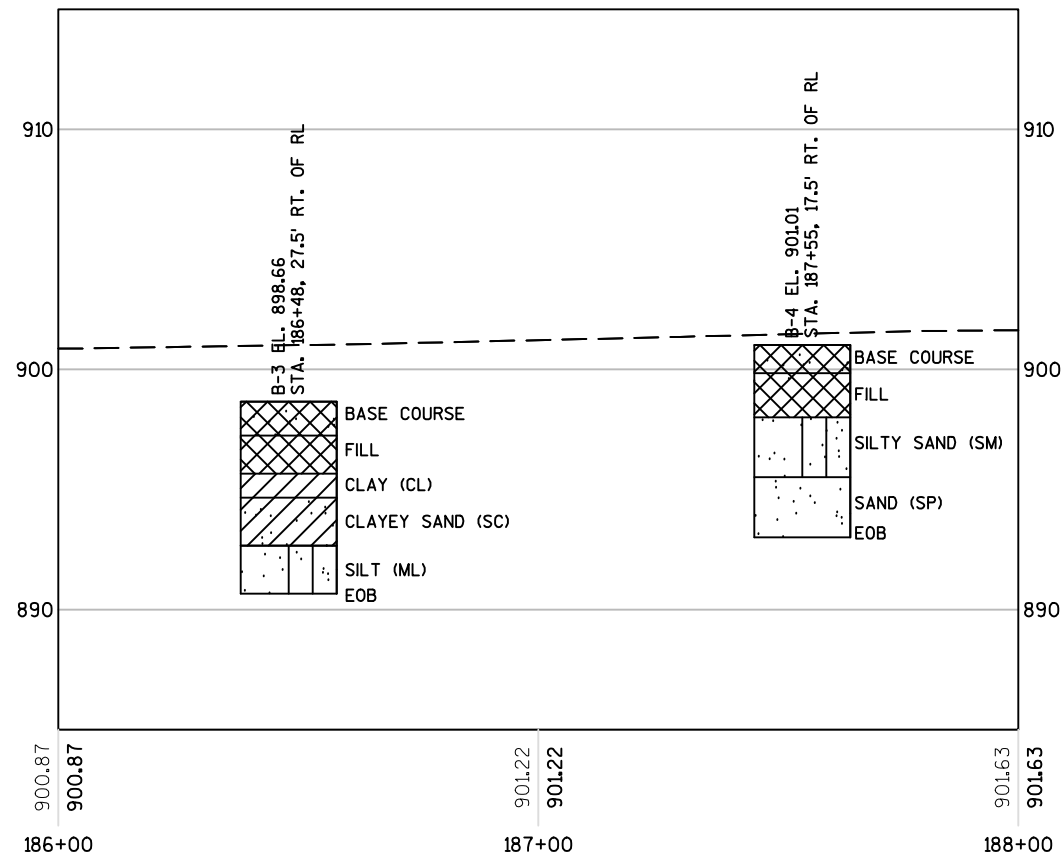
F-Fine M-Medium C-Coarse st-shelby tube

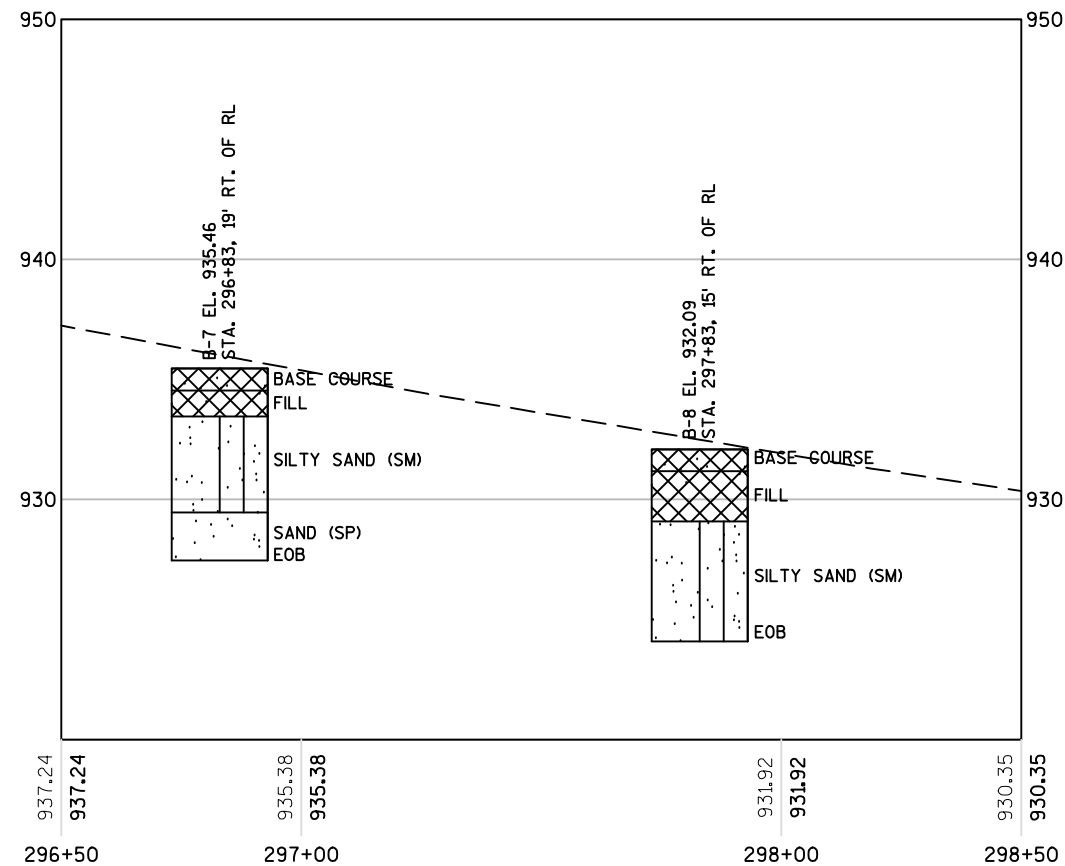
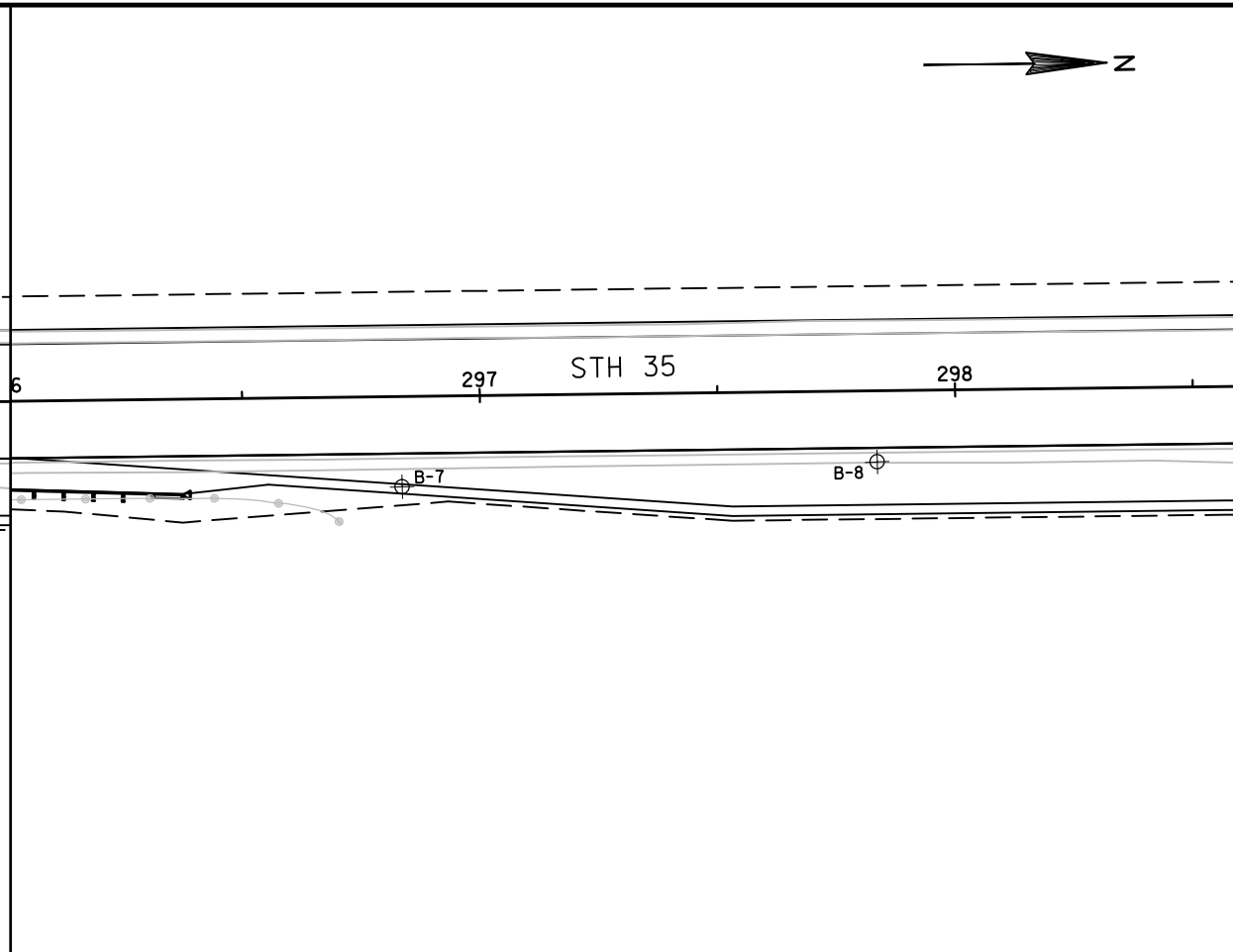
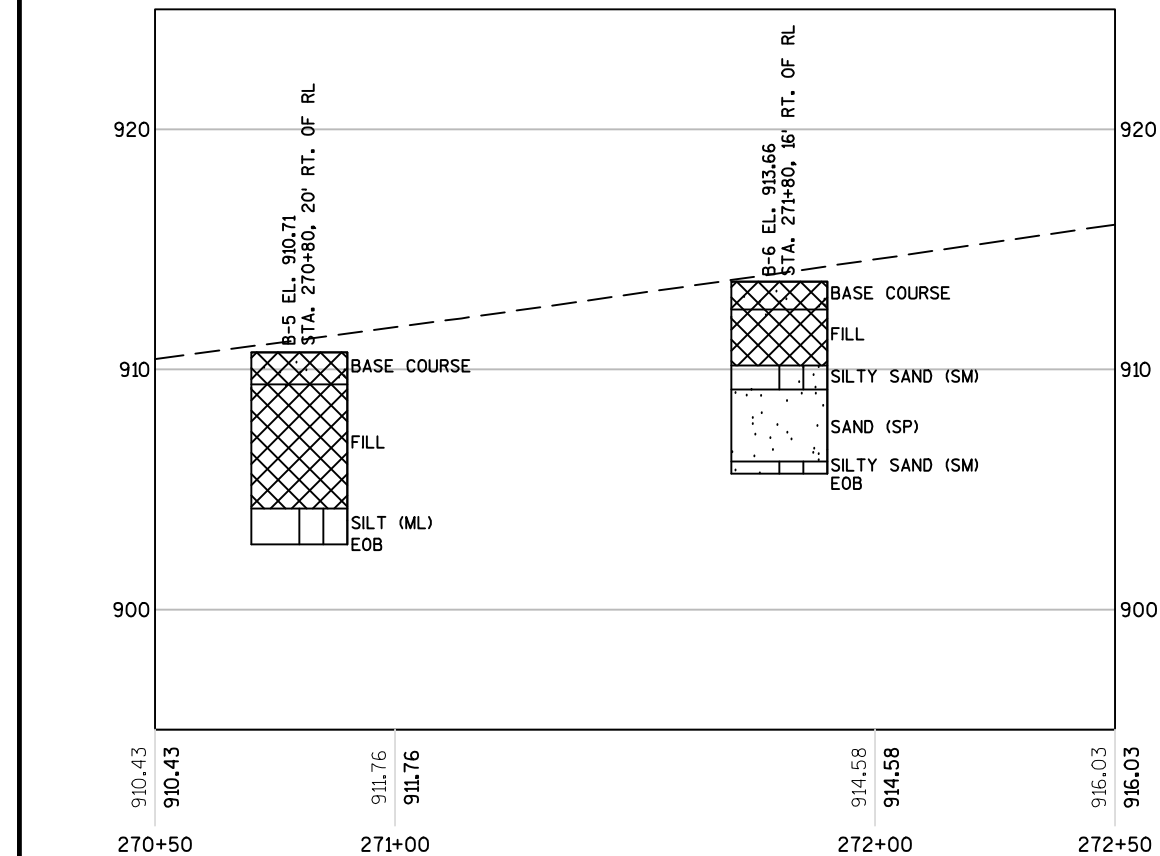
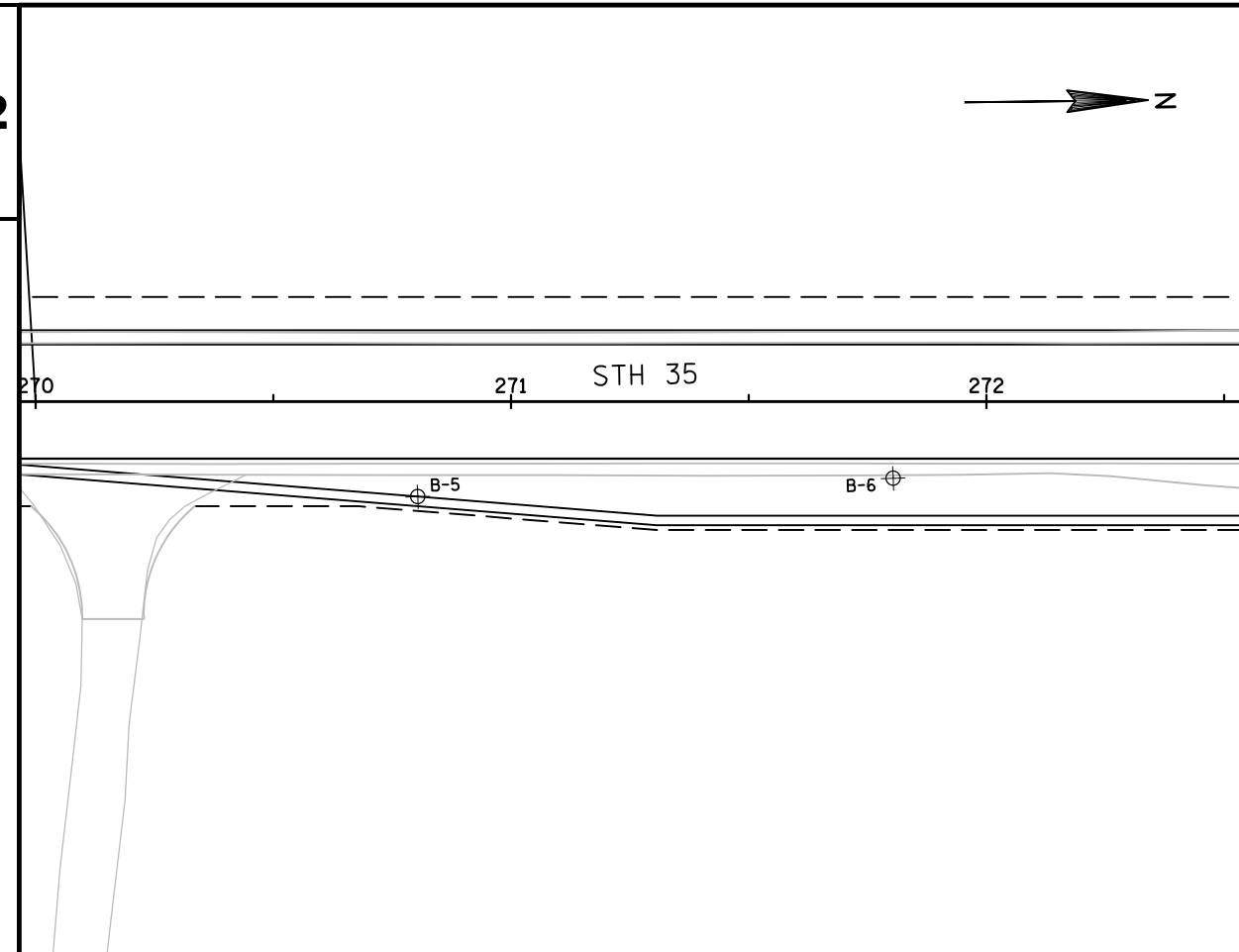
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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BORINGS TAKEN BY:
AMERICAN ENGINEERING TESTING, INC.
SCHOFIELD, WI
JUNE 7, 2013

FACTUAL REPORT OF GEOTECHNICAL EXPLORATION BY:
AMERICAN ENGINEERING TESTING, INC.
SCHOFIELD, WI
JULY 9, 2013

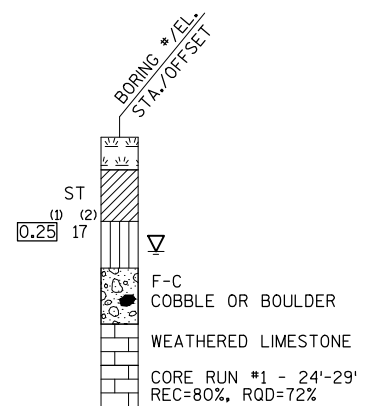


STATE PROJECT NUMBER
8060-01-73

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

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ground water elevation

- ▽ at time of drilling
▼ end of drilling
▼ after drilling

ABBREVIATIONS

F-Fine M-Medium C-Coarse st-shelby tube

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SCHOFIELD, WI
JULY 9, 2013

PROJECT NO: 8060-01-73

HWY: STH 35

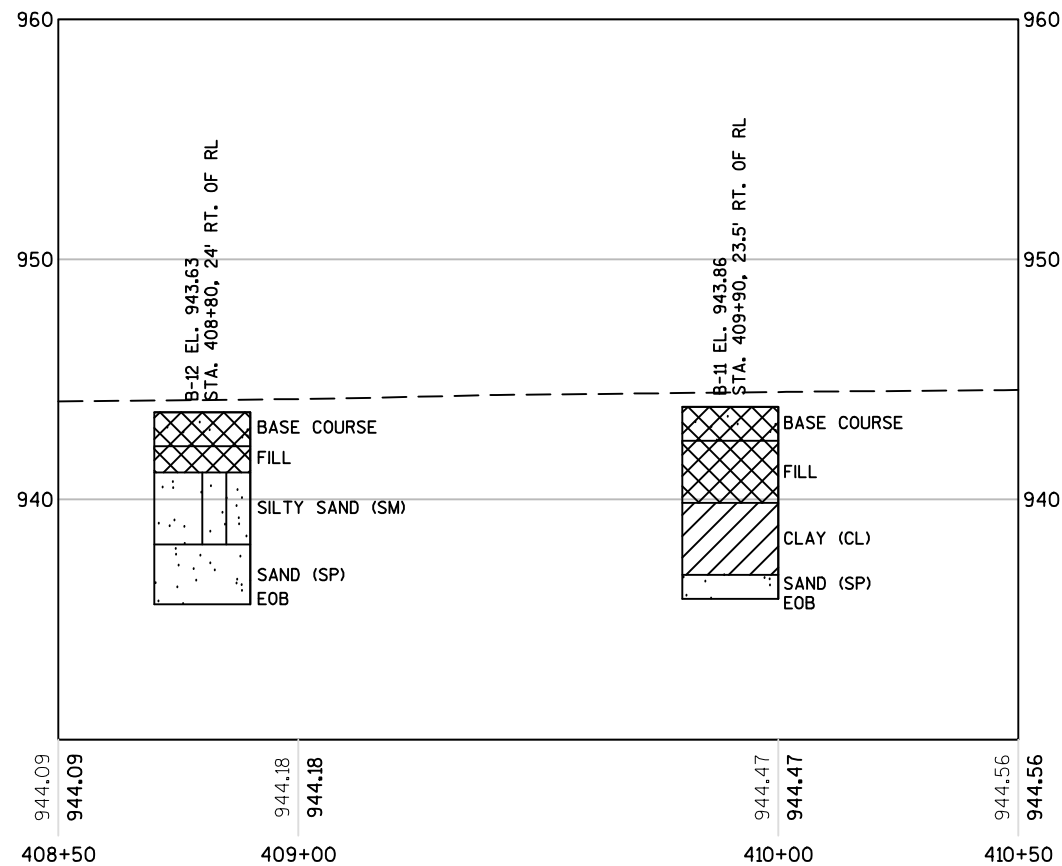
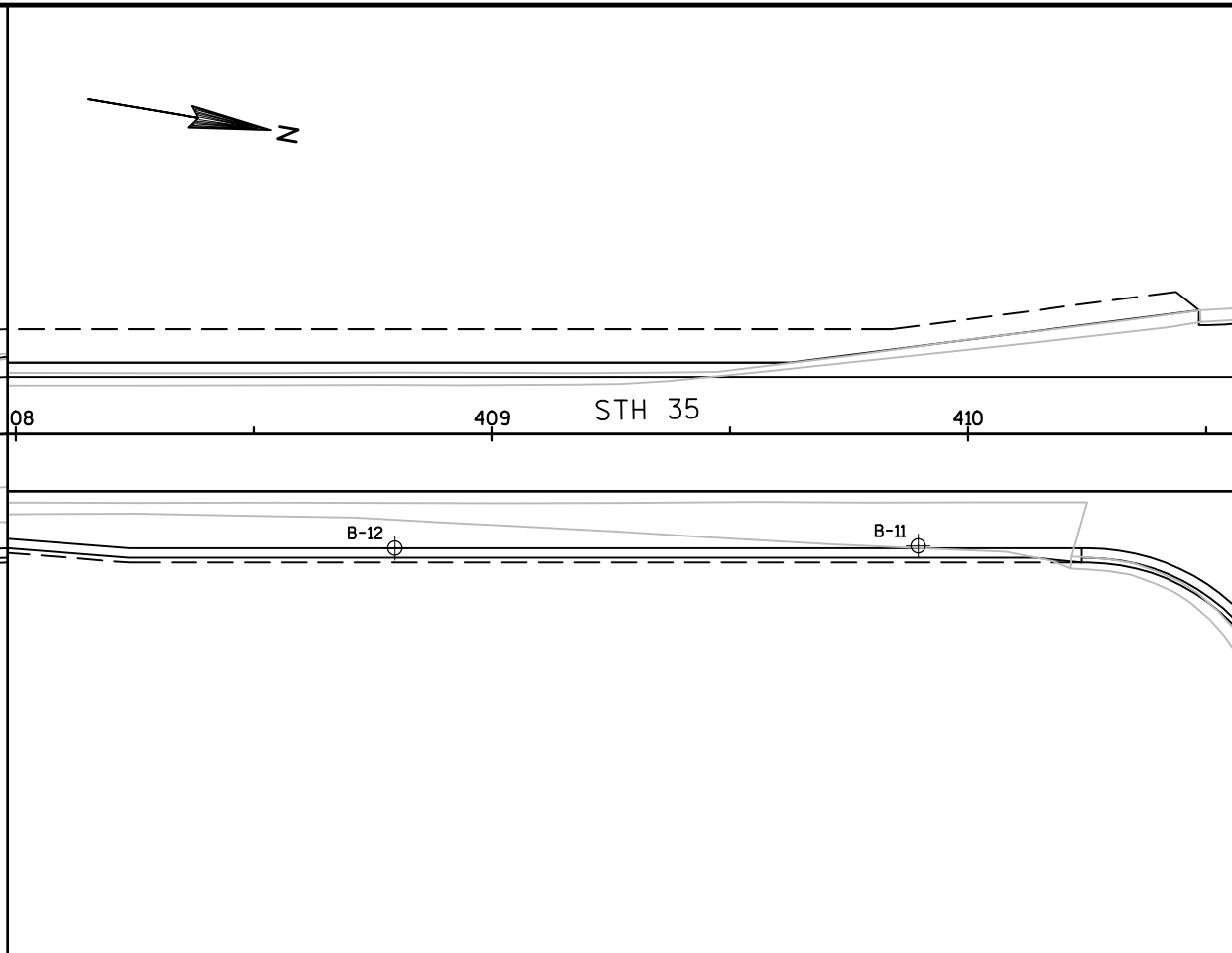
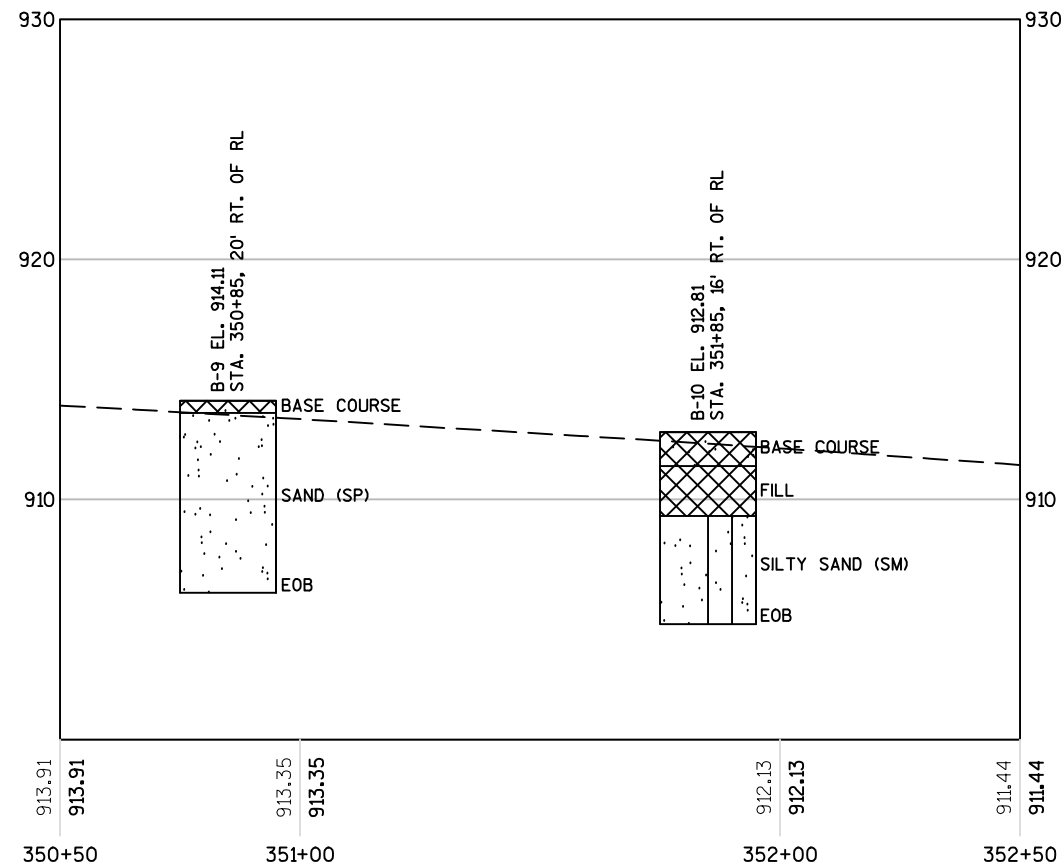
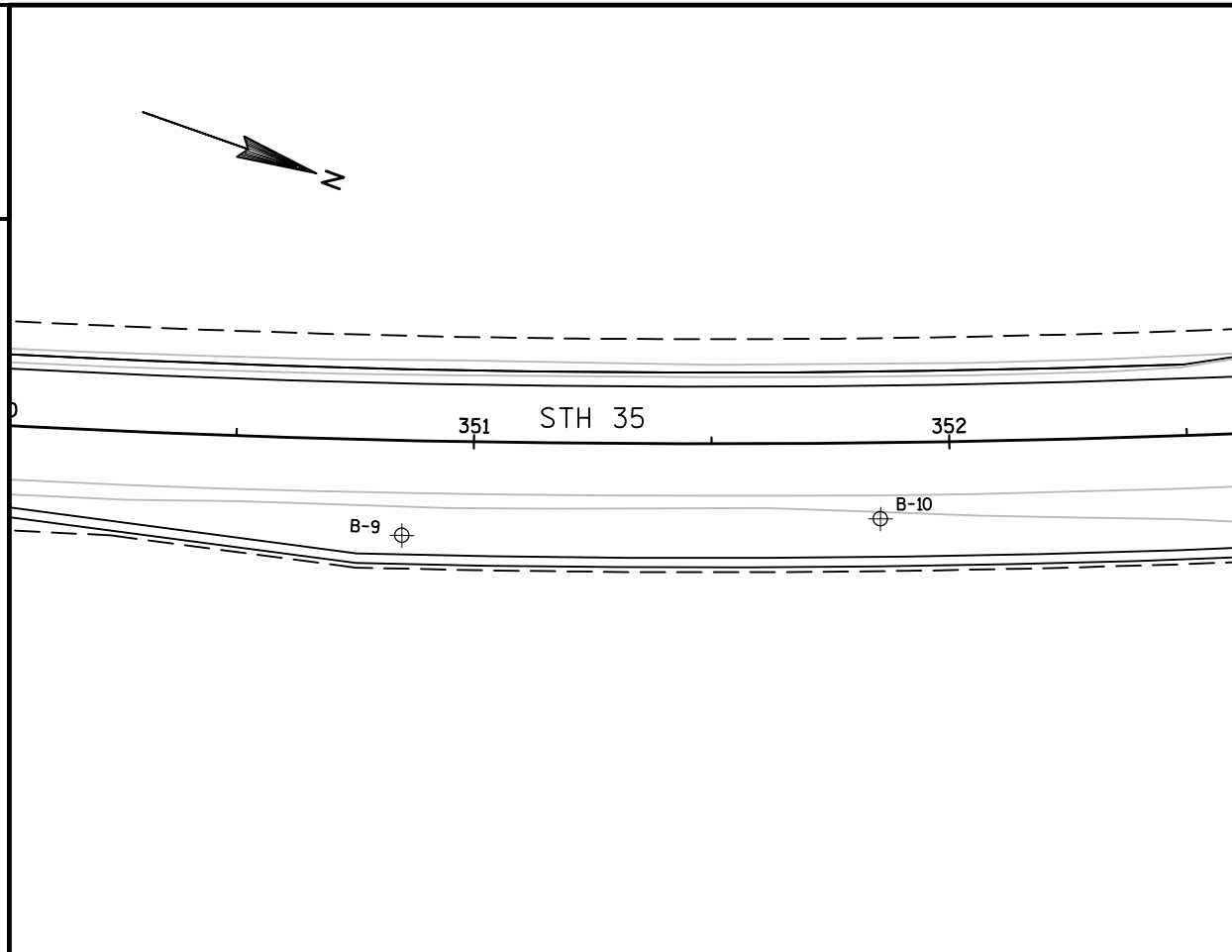
COUNTY: ST. CROIX

SUBSURFACE EXPLORATION

SHEET

34

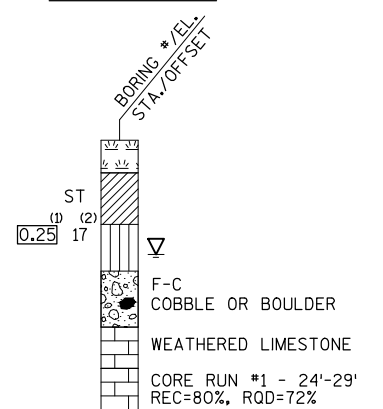
E

STATE PROJECT NUMBER
8060-01-73

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
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SCHOFIELD, WI
JUNE 7, 2013

FACTUAL REPORT OF GEOTECHNICAL EXPLORATION BY:
AMERICAN ENGINEERING TESTING, INC.
SCHOFIELD, WI
JULY 9, 2013

PROJECT NO: 8060-01-73

HWY: STH 35

COUNTY: ST. CROIX

SUBSURFACE EXPLORATION

SHEET

35

E

Estimate Of Quantities

8060-01-73					
Line	Item	Item Description	Unit	Total	Qty
0010	201.0105	Clearing	STA	8.000	8.000
0020	201.0205	Grubbing	STA	8.000	8.000
0030	203.0100	Removing Small Pipe Culverts	EACH	13.000	13.000
0040	204.0115	Removing Asphaltic Surface Butt Joints	SY	853.000	853.000
0050	204.0120	Removing Asphaltic Surface Milling	SY	104,454.000	104,454.000
0060	204.0150	Removing Curb & Gutter	LF	75.000	75.000
0070	204.0165	Removing Guardrail	LF	3,278.000	3,278.000
0080	205.0100	Excavation Common	CY	9,053.000	9,053.000
0090	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 8060-01-73	LS	1.000	1.000
0100	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	16.000	16.000
0110	213.0100	Finishing Roadway (project) 01. 8060-01-73	EACH	1.000	1.000
0120	305.0110	Base Aggregate Dense 3/4-Inch	TON	4,077.000	4,077.000
0130	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	11,420.000	11,420.000
0140	305.0500	Shaping Shoulders	STA	592.000	592.000
0150	305.0504.S	Hauling Excess Shoulder Material	CY	400.000	400.000
0160	440.4410	Incentive IRI Ride	DOL	22,360.000	22,360.000
0170	455.0605	Tack Coat	GAL	7,957.000	7,957.000
0180	460.2000	Incentive Density HMA Pavement	DOL	13,280.000	13,280.000
0190	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	59,040.000	59,040.000
0200	460.6443	HMA Pavement 3 MT 58-34 H	TON	1,986.000	1,986.000
0210	460.6445	HMA Pavement 5 MT 58-34 H	TON	18,763.000	18,763.000
0220	465.0110	Asphaltic Surface Patching	TON	35.000	35.000
0230	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	107.000	107.000
0240	465.0315	Asphaltic Flumes	SY	100.000	100.000
0250	465.0475	Asphalt Center Line Rumble Strips 2-Lane Rural	LF	22,918.000	22,918.000
0260	520.8000	Concrete Collars for Pipe	EACH	3.000	3.000
0270	520.8700	Cleaning Culvert Pipes	EACH	6.000	6.000
0280	520.9700.S	Culvert Pipe Liners (size) 01. 24-Inch	LF	115.000	115.000
0290	520.9750.S	Cleaning Culvert Pipes for Liner Verification	EACH	1.000	1.000
0300	522.0318	Culvert Pipe Reinforced Concrete Class IV 18-Inch	LF	176.000	176.000
0310	522.0330	Culvert Pipe Reinforced Concrete Class IV 30-Inch	LF	24.000	24.000
0320	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	4.000	4.000
0330	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	1.000	1.000
0340	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	4.000	4.000
0350	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	762.000	762.000
0360	614.2300	MGS Guardrail 3	LF	2,625.000	2,625.000
0370	614.2330	MGS Guardrail 3 K	LF	775.000	775.000

Estimate Of Quantities

8060-01-73					
Line	Item	Item Description	Unit	Total	Qty
0380	614.2610	MGS Guardrail Terminal EAT	EACH	14.000	14.000
0390	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8060-01-73	EACH	1.000	1.000
0400	619.1000	Mobilization	EACH	1.000	1.000
0410	625.0100	Topsoil	SY	13,705.000	13,705.000
0420	627.0200	Mulching	SY	1,000.000	1,000.000
0430	628.1504	Silt Fence	LF	6,090.000	6,090.000
0440	628.1520	Silt Fence Maintenance	LF	6,090.000	6,090.000
0450	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0460	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0470	628.2004	Erosion Mat Class I Type B	SY	13,905.000	13,905.000
0480	628.2023	Erosion Mat Class II Type B	SY	170.000	170.000
0490	628.7005	Inlet Protection Type A	EACH	2.000	2.000
0500	628.7015	Inlet Protection Type C	EACH	2.000	2.000
0510	628.7504	Temporary Ditch Checks	LF	1,040.000	1,040.000
0520	628.7555	Culvert Pipe Checks	EACH	30.000	30.000
0530	629.0210	Fertilizer Type B	CWT	9.000	9.000
0540	630.0120	Seeding Mixture No. 20	LB	392.000	392.000
0550	633.5200	Markers Culvert End	EACH	37.000	37.000
0560	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	114.000	114.000
0570	637.2210	Signs Type II Reflective H	SF	616.110	616.110
0580	637.2230	Signs Type II Reflective F	SF	18.000	18.000
0590	638.2602	Removing Signs Type II	EACH	75.000	75.000
0600	638.3000	Removing Small Sign Supports	EACH	63.000	63.000
0610	642.5001	Field Office Type B	EACH	1.000	1.000
0620	643.0100	Traffic Control (project) 01. 8060-01-73	EACH	1.000	1.000
0630	643.0300	Traffic Control Drums	DAY	7,350.000	7,350.000
0640	643.0900	Traffic Control Signs	DAY	6,300.000	6,300.000
0650	646.0107.S	Pavement Marking Grooved Epoxy 4-Inch	LF	31,053.000	31,053.000
0660	646.2304.S	Pavement Marking Grooved Wet Reflective Epoxy 4-Inch	LF	56,828.000	56,828.000
0670	646.2308.S	Pavement Marking Grooved Wet Reflective Epoxy 8-Inch	LF	1,308.000	1,308.000
0680	647.0566	Pavement Marking Stop Line Epoxy 18-Inch	LF	577.000	577.000
0690	648.0100	Locating No-Passing Zones	MI	5.590	5.590
0700	649.0402	Temporary Pavement Marking Paint 4-Inch	LF	62,106.000	62,106.000
0710	650.4500	Construction Staking Subgrade	LF	6,719.000	6,719.000
0720	650.5000	Construction Staking Base	LF	6,719.000	6,719.000
0730	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	762.000	762.000
0740	650.6000	Construction Staking Pipe Culverts	EACH	6.000	6.000

Estimate Of Quantities

8060-01-73					
Line	Item	Item Description	Unit	Total	Qty
0750	650.8000	Construction Staking Resurfacing Reference	LF	29,450.000	29,450.000
0760	650.9910	Construction Staking Supplemental Control (project) 01. 8060-01-73	LS	1.000	1.000
0770	650.9920	Construction Staking Slope Stakes	LF	6,719.000	6,719.000
0780	690.0150	Sawing Asphalt	LF	9,346.000	9,346.000
0790	SPV.0090	Special 01. Concrete Curb and Gutter Cure and Seal Treatment	LF	762.000	762.000
0800	SPV.0105	Special 01. Material Transfer Vehicle	LS	1.000	1.000
0810	SPV.0105	Special 02. Milling and Removing Temporary Joint	LS	1.000	1.000
0820	SPV.0105	Special 03. Abandon and Fill Cattle Pass, Station 329+25	LS	1.000	1.000
0830	SPV.0105	Special 04. Abandon and Fill Cattle Pass, Station 366+40	LS	1.000	1.000

CLEARING & GRUBBING

201.0105		201.0205				
CLEARING		GRUBBING				
STATION	TO	STATION	LOCATION	STA	STA	COMMENT
274+00	-	277+00	LT	3	3	DRIVEWAY & MGS
281+00	-	282+00	LT	1	1	MGS
304+00	-	308+00	LT	4	4	MGS
TOTAL		8		8		

203.0100 REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	EACH	COMMENT
186+81	RT	1	18-INCH
198+21	RT	1	18-INCH
202+79	RT	1	18-INCH
207+65	RT	1	18-INCH
267+22	LT	1	18-INCH
275+51	LT	1	18-INCH
299+22	RT	1	18-INCH
339+48	LT	1	18-INCH
438+14	LT	1	18-INCH
438+15	RT	1	18-INCH
457+79	RT	1	18-INCH
328+79	LT	1	18-INCH
406+20	RT	1	18-INCH
TOTAL		13	

204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS

STATION	LOCATION	SY	COMMENT
172+32	C/L	56	TERMINI
172+44	LT	31	PE
172+38	RT	11	PE/TRAIL
174+91	RT	51	LASER DR
183+21	LT	15	CE
184+06	LT	14	CE
186+81	RT	12	PE
188+73	42' LT	81	EVERGREEN DR
192+64	LT	13	PE
194+68	73' RT	38	190TH AVE
194+71	49' LT	66	HARRIMAN ST
198+89	RT	12	PE
200+67	LT	14	PE
201+73	37' RT	27	191ST AVE
204+03	LT	37	CE
218+51	RT	37	PE
247+46	66' LT	24	200TH AVE
274+00	42' LT	32	205TH AVE
282+77	42' LT	28	207TH AVE
327+31	66' LT	26	215TH AVE
336+19	LT	11	PE
354+10	75' LT	26	220TH AVE
397+59	60' LT	26	LAKESIDE LN
411+16	84' LT	24	230TH AVE
429+11	LT	13	PE
441+58	48' RT	26	65TH ST
448+59	LT	12	PE
464+37	88' RT	27	POLK-ST. CROIX RD
465+57	104' LT	30	CTH I
467+50	C/L	33	TERMINI
TOTAL		853	

204.0120 REMOVING ASPHALTIC SURFACE MILLING

STATION	TO	STATION	LOCATION	SY	COMMENT
172+32		467+50	MAINLINE	103,640	3-INCH
172+44			LT, PE	75	2 1/2- INCH
183+21			LT, CE	49	2 1/2- INCH
184+06			LT, CE	49	2 1/2- INCH
186+81			RT, PE	28	2 1/2- INCH
192+64			LT, PE	49	2 1/2- INCH
198+89			RT, PE	62	2 1/2- INCH
200+67			LT, PE	75	2 1/2- INCH
204+03			LT, CE	149	2 1/2- INCH
218+51			RT, PE	56	2 1/2- INCH
336+19			LT, PE	70	2 1/2- INCH
429+11			LT, PE	79	2 1/2- INCH
448+59			LT, PE	73	2 1/2- INCH
TOTAL				104,454	

204.0150 REMOVING CURB & GUTTER

STA	LOCATION	LF	COMMENT
411+11	26' RT	75	CTH H - CONCRETE ISLAND
TOTAL		75	

204.0615 REMOVING GUARDRAIL

STATION	TO	STATION	LOCATION	LF	COMMENT
177+76	-	182+60	RT	347	MAINLINE
275+60	-	281+74	RT	621	MAINLINE
275+87	-	282+19	LT	635	MAINLINE
291+82	-	296+70	RT	498	MAINLINE
300+58	-	302+35	LT	184	MAINLINE
449+09	-	455+22	RT	622	MAINLINE
449+12	-	452+77	LT	371	MAINLINE
TOTAL				3,278	

PREPARE FOUNDATION

211.0100				211.0400		
FOR ASPHALTIC				FOR ASPHALTIC		
PAVING				SHOULDERS		
STATION	TO	STATION	LOCATION	LS	STA	COMMENT
172+35	-	467+50	LT/RT	1	--	PROJECT
176+00	-	178+00	RT	--	2	FULL WIDTH PAVED SHLDR
183+00	-	185+00	RT	--	2	FULL WIDTH PAVED SHLDR
190+00	-	193+00	RT	--	3	FULL WIDTH PAVED SHLDR
242+00	-	251+00	RT	--	9	FULL WIDTH PAVED SHLDR
TOTAL				1	16	

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

EARTHWORK SUMMARY

			205.0100		SALVAGED/ UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL	UNEXPANDED	EXPANDED	MASS ORDINATE	WASTE	COMMENTS:
			EXCAVATION COMMON (1)								
STATION	TO	STATION	CUT (2) CY	EBS (3) CY	(4) CY	(5) CY	FILL CY	FILL (6) CY	± (7) CY	CY	
173+00	-	179+25	1,143	0	35	1,108	461	576	532		LASER DR BYPASS LANE
SUBTOTALS			1,143	0	35	1,108	461	576	532		
177+37	-	183+86	493	0	36	457	15	19	438		GUARDRAIL SECTION 1
SUBTOTALS			493	0	36	457	15	19	438		
185+28	-	190+20	476	0	29	447	141	176	271		RIGHT TURN LANE
530+00	-	530+39	252	0	46	206	0	0	206		STH 35 / DIVISION ST INTERSECTION
530+39	-	531+42	189	0	30	159	41	51	108		DIVISION ST
SUBTOTALS			917	0	105	812	182	227	585		
270+50	-	282+41	1,391	0	139	1,252	51	64	1,188		GUARDRAIL SECTIONS 2&3 / RIGHT TURN LANE
590+00	-	590+85	238	0	33	205	0	0	205		STH 35 / 205TH AVE INTERSECTION
590+85	-	592+16	88	0	27	61	86	108	-47		205TH AVE
SUBTOTALS			1,717	0	199	1,518	137	172	1,346		
290+81	-	309+11	1,268	0	89	1,179	136	170	1,009		RIGHT TURN LANE / GUARDRAIL SECTIONS 4&5
620+00	-	620+84	244	0	55	189	0	0	189		STH 35 / 210TH INTERSECTION
620+84	-	621+77	128	0	17	111	41	51	60		210TH AVE
SUBTOTALS			1,640	0	161	1,479	177	221	1,258		
349+44	-	354+95	323	0	21	302	308	385	-83		RIGHT TURN LANE
650+00	-	650+59	184	0	31	153	0	0	153		STH 35 / 220TH AVE INTERSECTION
650+59	-	651+69	202	0	23	179	99	124	55		220TH AVE
SUBTOTALS			709	0	75	634	407	509	125		
406+86	-	412+40	539	0	50	489	8	10	479		RIGHT TURN LANE
680+00	-	680+81	331	0	114	217	0	0	217		STH 35 / CTH H INTERSECTION
680+81	-	681+68	229	0	23	206	4	5	201		CTH H
SUBTOTALS			1,099	0	187	912	12	15	897		
447+31	-	456+34	1,030	0	67	963	50	63	900		GUARDRAIL SECTIONS 6&7
SUBTOTALS			1,030	0	67	963	50	63	900		
		198+21	30	0	0	30	0	0	30		REMOVE PE
		202+79	30	0	0	30	0	0	30		REMOVE PE
		207+65	30	0	0	30	0	0	30		REMOVE PE
		267+22	30	0	0	30	0	0	30		REMOVE FE
274+00	-	275+00	35	0	0	35	0	0	35		NEW PE
		299+22	30	0	0	30	0	0	30		REMOVE FE
		339+48	30	0	0	30	0	0	30		REMOVE FE
		438+14	30	0	0	30	0	0	30		REMOVE FE
		438+15	30	0	0	30	0	0	30		REMOVE FE
		45779	30	0	0	30	0	0	30		REMOVE PE
SUBTOTALS			305	0	0	305	0	0	305		
TOTALS			9,053	0	865	8,188	1,441	1,802	6,386	7,251	

1) Excavation Common is the sum of the Cut and EBS Excavation columns. Item No. 205.0100.
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Expanded Fill. Factor = 1.25
7) 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.

ALL ITEMS AND QUANTITIES ON
THIS SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

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BASE AGGREAGTE							
		305.0110	305.0120	305.0504.S			
		DENSE	DENSE	HAULING EXCESS			
		3/4-INCH	1 1/4-INCH	SHOULDER MATERIAL			
STATION	TO	STATION	LOCATION	TON	TON	CY	COMMENT
173+00	-	178+55	LT	150	1010	-	LASER DR BY PASS LANE
184+41	-	189+80	RT	49	1150	-	DIVISION ST
270+18	-	275+41	RT	54	1160	-	205TH AVE
296+39	-	301+52	RT	58	1184	-	210TH AVE
349+05	-	354+95	RT	67	1286	-	220TH AVE
407+11	-	412+38	RT	59	1204	-	CTH H
172+32	-	467+50	RT/LT	2760	-	-	MAINLINE SHOULDER REPAIR
172+32	-	467+50	RT/LT	195	-	-	DRIVEWAT RESTORATION
275+51	-		LT	36	-	-	REMOVE & RELOCATE DRIVEWAY
178+49	-	182+74	RT	65	452	-	MGS GUARDRAIL 3
276+08	-	281+33	RT	82	559	-	MGS GUARDRAIL 3
276+43	-	281+81	LT	84	571	-	MGS GUARDRAIL 3
291+84	-	295+84	RT	63	426	-	MGS GUARDRAIL 3
303+83	-	308+58	LT	74	504	-	MGS GUARDRAIL 3
448+34	-	455+31	RT	109	743	-	MGS GUARDRAIL 3
449+43	-	452+82	LT	53	359	-	MGS GUARDRAIL 3
177+96	-	178+49	RT	8.5	58	-	MGS GUARDRAIL EAT
182+74	-	183+27	RT	8.5	58	-	MGS GUARDRAIL EAT
275+55	-	276+08	RT	8.5	58	-	MGS GUARDRAIL EAT
281+33	-	281+86	RT	8.5	58	-	MGS GUARDRAIL EAT
275+90	-	276+43	LT	8.5	58	-	MGS GUARDRAIL EAT
281+81	-	282+34	LT	8.5	58	-	MGS GUARDRAIL EAT
291+31	-	291+84	RT	8.5	58	-	MGS GUARDRAIL EAT
295+84	-	296+37	RT	8.5	58	-	MGS GUARDRAIL EAT
303+30	-	303+83	LT	8.5	58	-	MGS GUARDRAIL EAT
308+58	-	309+11	LT	8.5	58	-	MGS GUARDRAIL EAT
447+81	-	448+34	RT	8.5	58	-	MGS GUARDRAIL EAT
455+31	-	455+84	RT	8.5	58	-	MGS GUARDRAIL EAT
448+91	-	449+43	LT	8.5	58	-	MGS GUARDRAIL EAT
452+82	-	453+35	LT	8.5	58	-	MGS GUARDRAIL EAT
UNDISTRIBUTED	-	-	-	-	-	400	SHOULDERS AND REPAIRS
TOTAL				4,077	11,420	400	

305.0500 SHAPING SHOULDERS				
STATION	TO	STATION	LOCATION	STA
172+35	-	467+50	LT	296
172+35	-	467+50	RT	296
TOTAL				592

465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

STATION	LOCATION	TON	COMMENT
172+44	LT	9	PE
183+21	LT	8	CE
184+06	LT	8	CE
186+81	RT	3	PE
192+64	LT	6	PE
198+89	RT	7	PE
200+67	LT	9	PE
204+03	LT	26	CE
218+51	RT	6	PE
336+19	LT	8	PE
429+11	LT	9	PE
448+59	LT	8	PE
TOTAL		107	

465.0315 ASPHALTIC FLUMES

STATION	LOCATION	SY	COMMENT
188+00	RT	10	DIVISION ST SOUTH CURB
189+00	RT	10	DIVISION ST NORTH CURB
273+50	RT	10	205TH AVE SOUTH CURB
274+50	RT	10	205TH AVE NORTH CURB
300+00	RT	10	210TH AVE SOUTH CURB
300+50	RT	10	210TH AVE NORTH CURB
353+00	RT	10	220TH AVE SOUTH CURB
354+00	RT	10	220TH AVE NORTH CURB
410+50	RT	10	CTH H SOUTH CURB
411+50	RT	10	CTH H NORTH CURB
TOTAL		100	

465.0475 ASPHALT CENTERLINE RUMBLE STRIP 2-LANE RURAL

STATION	TO	STATION	LOCATION	LF
190+25	-	192+68	C/L	243
196+77	-	199+73	C/L	296
203+73	-	245+47	C/L	4174
249+47	-	272+06	C/L	2259
276+06	-	280+77	C/L	471
284+77	-	298+28	C/L	1351
302+28	-	325+31	C/L	2303
329+31	-	351+70	C/L	2239
355+69	-	395+46	C/L	3977
399+45	-	409+00	C/L	955
413+00	-	439+43	C/L	2,643
443+43	-	462+92	C/L	1,949
466+92	-	467+50	C/L	58
TOTAL				22,918

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

PROJECT NO:8060-01-73

HWY: STH 35

COUNTY: ST. CROIX

MISCELLANEOUS QUANTITIES

SHEET: 41

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HMA PAVEMENT									
		455.0605	460.4110.S	460.6443	460.6445	465.0110			
		TACK COAT	REHEATING HMA	HMA PAVEMENT	HMA PAVEMENT	ASPHALTIC			
			PAVEMENT	3 MT 58-34 H	5 MT 58-34 H	SURFACE PATCHING			
LONGITUDINAL JOINTS									
STATION	TO	STATION	LOCATION	GAL					COMMENT
172+32		467+50	C/L	7266	59040	-	17910	-	MAINLINE
172+76		178+55	LT	56	-	160	69	-	LASER DRIVE BY PASS LANE
176+04		184+41	RT	26	-	74	32	-	SHOULDER & MGS GUARDRAIL
184+41		189+80	RT	87	-	251	108	-	DIVISION ST
189+80		192+68	RT	14	-	39	17	-	SHOULDER
241+33		250+90	RT	47	-	135	58	-	SHOULDER
270+18		275+41	RT	96	-	277	119	-	205TH AVE
275+41		282+31	RT	16	-	47	20	-	MGS GUARDRAIL
275+40		282+51	LT	16	-	47	20	-	MGS GUARDRAIL
290+18		296+39	RT	15	-	43	18	-	MGS GUARDRAIL
296+39		301+61	RT	90	-	258	111	-	210TH AVE
302+80		309+61	LT	17	-	49	21	-	SHOULDER
349+04		354+94	RT	93	-	268	115	-	220TH AVE
407+11		412+38	RT	89	-	255	109	-	CTH H
447+46		459+26	RT	13	-	37	16	-	MGS GUARDRAIL
448+75		453+86	RT	16	-	46	20	-	MGS GUARDRAIL
PROJECT: 8060-01-73 (UNDISTRIBUTED)				-	-	-	-	35	FOR SPOT REPAIRS
		7,957	59,040	1,986	18,763	35			

MGS GUARDRAIL AND TERMINALS						
		614.2300	614.2330	614.2610		
		MGS	MGS	MGS		
		GUARDRAIL 3	GUARDRAIL 3 K	GUARDRAIL		
					TERMINAL EAT	
STATION	TO	STATION	LOCATION	LF	EACH	
177+96	-	178+49	RT	-	-	1
178+49	-	182+74	RT	425	-	-
182+74	-	183+27	RT	-	-	1
275+55	-	276+08	RT	-	-	1
276+08	-	281+33	RT	525	-	-
281+33	-	281+86	RT	-	-	1
275+90	-	276+43	LT	-	-	1
276+43	-	281+81	LT	537.5	-	-
281+81	-	282+34	LT	-	-	1
291+31	-	291+84	RT	-	-	1
291+84	-	295+84	RT	400	-	-
295+84	-	296+37	RT	-	-	1
303+30	-	303+83	LT	-	-	1
303+83	-	308+58	LT	475	-	-
308+58	-	309+11	LT	-	-	1
447+81	-	448+34	RT	-	-	1
448+34	-	449+84	RT	150	-	-
449+84	-	455+31	RT	-	550	-
455+31	-	455+84	RT	-	-	1
448+91	-	449+43	LT	-	-	1
449+43	-	449+93	LT	50.0	-	-
449+93	-	452+19	LT	-	225	-
452+19	-	452+82	LT	62.5	-	-
452+82	-	453+35	LT	-	-	1
		TOTAL	2,625	775	14	

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

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CULVERT PIPE AND MAINTENANCE

		520.8000	520.8700	522.0318	522.0330	522.1018	522.1024	522.1030	633.5200		
		CONCRETE COLLARS FOR PIPE	CLEANING CULVERT PIPES	CULVERT PIPE REINFORCED CONCRETE CLASS IV 18-INCH	CULVERT PIPE REINFORCED CONCRETE CLASS IV 30-INCH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH	MARKERS CULVERT END		
STATION	LOCATION	EACH	EACH	LF		EACH			EACH	COMMENT	
186+56	RT	1	-	-	8	-	-	1	1	MAINLINE	
188+59	38' RT	-	-	96	-	2	-	-	1	DIVISION ST	
196+40	LT, RT	-	1	-	-	-	-	-	2	MAINLINE	
236+30	LT, RT	-	1	-	-	-	-	-	2	MAINLINE	
245+30	LT, RT	-	1	-	-	-	-	-	2	MAINLINE	
250+30	LT, RT	-	1	-	-	-	-	-	2	MAINLINE	
282+25	RT, LT	2	1	-	16	-	-	2	2	MAINLINE	
353+37	52' RT	-	-	80	-	2	-	-	1	220TH AVE	
355+80	RT	-	-	-	-	-	1	-	1	MAINLINE	
379+25	LT, RT	-	1	-	-	-	-	-	2	MAINLINE	
434+25	RT	-	-	-	-	-	-	1	1	MAINLINE	
UNDISTRIBUTED		-	-	-	-	-	-	-	20		
TOTAL		3	6	176	24	4	1	4	37		

NOTE: INSTALL MARKERS CULVERT END AT ENDS OF EXISTING UNMARKED CULVERTS

CONCRETE CURB & GUTTER

						601.0557	SPV.0090.01		
						6-INCH SLOPED	CURE & SEAL		
						36-INCH TYPE D	TREATMENT		
STATION	LOCATION	TO	STATION	LOCATION	LF	LF	COMMENT		
187+90	26' RT	-	188+48	85' RT	92	92	DIVISION STREET		
188+82	64' RT	-	189+21	26' RT	59	59	DIVISION STREET		
273+31	26' RT	-	273+89	85' RT	92	92	205TH AVE		
274+23	64' RT	-	274+61	26' RT	59	59	205TH AVE		
299+51	26' RT	-	300+10	85' RT	92	92	210TH AVE		
300+44	64' RT	-	300+82	26' RT	60	60	210TH AVE		
352+76	26' RT	-	353+15	85' RT	84	84	220TH AVE		
353+62	61' RT	-	354+15	26' RT	68	68	220TH AVE		
410+24	26' RT	-	410+66	77' RT	75	75	CTH H		
411+01	74' RT	-	411+59	26' RT	81	81	CTH H		
TOTAL					762	762			

CULVERT LINERS

		520.9700.S	520.9750.S
		CULVERT PIPE LINERS, 24-INCH	CLEANING CULVERT PIPES FOR LINER VERIFICATION
STATION	LOCATION	LF	EACH
451+25	LT, RT	115	1
TOTAL		115	1

690.0150 SAWING ASPHALT

STATION	LOCATION	TO	STATION	LOCATION	COMMENT	LF
173+32	25' RT	-	172+32	25' LT	TERMINI	50
172+38	39' LT	-	172+65	38' LT	PE	28
172+77	24' LT	-	178+55	14' LT	BY PASS LANE	591
174+67	67' RT	-	175+13	68' RT	LASER DR	46
183+22	35' LT	-	183+35	34' LT	CE	13
184+04	35' LT	-	184+16	35' LT	CE	13
185+15	15' RT	-	189+80	16' RT	DIVISION DR	472
186+76	50' RT	-	186+86	49' RT	PE	11
188+37	42' LT	-	189+09	42' LT	EVERGREEN DR	73
188+49	142' RT	-	188+77	142' RT	DIVISION DR	28
192+59	38' LT	-	192+71	38' LT	PE	12
194+48	49' LT	-	195+06	48' LT	HARRIMAN ST	59
194+51	80' RT	-	194+85	81' RT	190TH AVE	34
198+83	42' RT	-	198+94	42' RT	PE	11
200+64	43' LT	-	200+77	42' LT	PE	13
201+61	42' RT	-	201+85	43' RT	191ST AVE	24
203+86	47' LT	-	204+20	48' LT	CE	33
218+44	38' RT	-	218+56	38' RT	PE	12
247+35	66' LT	-	247+58	66' LT	200TH AVE	22
270+18	16' RT	-	275+41	16' RT	205TH AVE	531
273+85	41' LT	-	274+14	42' LT	205TH AVE	29
273+95	160' RT	-	274+17	161' RT	205TH AVE	23
282+65	42' LT	-	282+90	42' LT	207TH AVE	25
296+39	16' RT	-	301+62	16' RT	210TH AVE	530
300+16	161' RT	-	300+37	161' RT	210TH AVE	22
327+20	66' LT	-	327+43	66' LT	215TH AVE	23
336+14	43' LT	-	336+24	43' LT	PE	10
349+50	14' RT	-	354+95	15' RT	220TH AVE	597
352+93	160' RT	-	353+12	168' RT	220TH AVE	22
354+00	80' LT	-	354+21	70' LT	220TH AVE	23
397+48	62' LT	-	397+70	57' LT	LAKESIDE LN	23
407+11	17' RT	-	412+38	19' RT	CTH H	539
410+57	162' RT	-	410+80	166' RT	CTH H	23
411+04	86' LT	-	411+25	82' LT	230TH AVE	22
429+05	39' LT	-	429+17	39' LT	PE	12
441+48	53' RT	-	441+68	43' RT	65TH ST	23
448+51	41' LT	-	448+63	40' LT	PE	11
464+26	81' RT	-	464+47	94' RT	POLK-ST. CROIX RD	24
465+45	111' LT	-	465+68	98' LT	CTH I	27
467+50	15' LT	-	467+50	16' RT	TERMINI	30
176+04	23' RT	-	185+15	15' RT	GUARDRAIL	924
189+20	24' RT	-	190+20	11' RT	SHOULDER	101
274+39	21' LT	-	282+41	20' LT	GUARDRAIL	818
275+40	17' RT	-	282+36	16' RT	GUARDRAIL	703
290+81	15' RT	-	296+39	16' RT	GUARDRAIL	565
302+80	15' LT	-	309+70	15' LT	GUARDRAIL	696
447+31	17' RT	-	456+34	15' RT	GUARDRAIL	913
448+77	14' LT	-	453+85	15' LT	GUARDRAIL	512
TOTAL						9346

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

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EROSION CONTROL & RESTORATION ITEMS																		
		625.0100	627.0200	628.1504	628.1520	628.1905	628.1910	628.2004	628.2023	628.7005	628.7015	628.7504	628.7555	629.0210	630.0120			
		TOPSOIL	MULCHING	SILT FENCE	SILT FENCE MAINTENANCE	MOBILIZATIONS	MOBILIZATIONS EMERGENCY	EROSION MAT CLASS I TYPE B	EROSION MAT CLASS II TYPE B	INLET PROTECTION TYPE A	INLET PROTECTION TYPE C	TEMPORARY DITCH CHECKS	CULVERT PIPE CHECKS	FERTILIZER TYPE B	SEEDING MIXTURE NO. 20			
STATION	TO	STATION	LOCATION	SY	SY	LF	LF	EACH	EACH	SY	SY	EACH	EACH	LF	EACH	CWT	LB	COMMENT
172+75	-	179+25	LT	2,070	-	-	-	-	-	2,070	-	-	-	30	-	1.3	56	LASER DR
177+37	-	183+86	RT	525	-	430	430	-	-	525	-	-	-	15	-	0.3	14	MGS GUARDRAIL
185+27	-	190+20	RT	1,250	-	-	-	-	-	1,250	-	-	-	75	7	0.8	34	DIVISION ST
	198+21		RT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE PE
	202+79		RT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE PE
	207+65		RT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE PE
	267+22		LT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE FE
270+34	-	275+30	RT	530	-	35	35	-	-	530	170	-	-	75	2	0.3	14	205TH AVE
275+30	-	282+45	RT	615	-	685	685	-	-	615	-	-	-	120	-	0.4	17	MGS GUARDRAIL
274+17	-	282+60	LT	970	-	575	575	-	-	970	-	-	-	45	9	0.6	26	MGS GUARDRAIL
290+71	-	296+95	RT	565	-	495	495	-	-	565	-	-	-	75	-	0.4	15	MGS GUARDRAIL
	299+22		RT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE FE
296+95	-	301+62	RT	1,240	-	70	70	-	-	1,240	-	-	-	165	-	0.8	33	210TH AVE
302+80	-	309+70	LT	465	-	400	400	-	-	465	-	-	-	90	-	0.3	13	MGS GUARDRAIL
	339+48		LT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE FE
349+43	-	354+95	RT	1,510	-	235	235	-	-	1,510	-	-	-	90	2	1	41	220TH AVE
406+00	-	412+40	RT	1,480	-	400	400	-	-	1,480	-	-	-	60	-	0.9	40	CTH H
	438+14		LT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE FE
	438+15		RT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE FE
447+20	-	456+34	RT	785	-	880	880	-	-	785	-	-	-	-	-	0.5	21	MGS GUARDRAIL
448+68	-	453+85	LT	345	-	425	425	-	-	345	-	-	-	-	7	0.2	9	MGS GUARDRAIL
	457+79		RT	95	-	-	-	-	-	95	-	-	-	-	-	0.1	3	REMOVE PE
UNDISTRIBUTED (CULVERTS)				-	-	250	250	-	-	200	-	-	-	-	-	-	-	-
UNDISTRIBUTED (PROJECT)				500	1,000	1,210	1,210	1	2	500	-	2	2	200	3	0.7	32	
TOTALS				13,705	1,000	6,090	6,090	1	2	13,905	170	2	2	1,040	30	9	392	

TRAFFIC CONTROL					
643.0100.01		643.0300		643.0900	
TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL	
(PROJECT)		DRUMS		SIGNS	
LOCATION	EACH	EACH	DAYS	EACH	DAYS
8060-01-73	1	70	7,350	60	6,300
TOTALS	1		7,350		6,300

ASSUMED 105 CALENDAR DAYS (55 WORKING DAYS).

ALL ITEMS AND QUANTITIES ON
THIS SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

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PROJECT NO:8060-01-73	HWY: STH 35	COUNTY: ST. CROIX	MISCELLANEOUS QUANTITIES	SHEET: 45	E
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SIGNING SCHEDULE (SB)													
							634.0616	637.2210	637.2230	638.2602	638.3000		
							POSTS WOOD	SIGNS	SIGNS	REMOVING	REMOVING		
							4X6-INCH	TYPE II	TYPE II	SIGNS	SMALL SIGN		
							SIZE	16-FT	REFLECTIVE H	REFLECTIVE F	TYPE II	SUPPORTS	
STATION	OFFSET	SIGN NO.	CODE NO.	DESCRIPTION	IN	X	IN				EACH	EACH	REMARKS
466+00	LT	11.11	J13-1	Route Turn Assembly	24	X	45	1	7.50	-	2	1	CTH I
465+00	LT	11.09	R1-1	Stop	30	X	30	1	5.18	-	1	1	CTH I
465+00	LT	11.08	J13-1	Route Turn Assembly	24	X	45	1	7.50	-	2	1	35
463+80	LT	11.05	I2-2	County Line Name - St Croix Co	66	X	15	1	6.88	-	1	1	-
449+00	LT	10.05	D1-1	Destination/Arrow - 65th St	66	X	15	2	6.88	-	-	-	-
421+50	LT	10.01	J1-1	Junction or End Assembly	24	X	39	1	6.50	-	2	1	CTH H
418+50	LT	9.16	D1-1	Destination/Arrow - 230th Ave	78	X	15	2	8.13	-	-	-	-
416+00	LT	9.15	D1-1	One Destination (Arrow) - Star Prarie	84	X	15	2	8.75	-	1	2	-
413+60	RT	9.14	W14-3	No Passing Zone	48	X	36	-	6.00	-	1	-	Install on Post 9.13
411+65	LT	9.11	J13-1	Route Turn Assembly	24	X	45	1	7.50	-	2	1	CTH H
410+75	LT	9.08	R1-1	Stop	30	X	30	1	5.18	-	1	1	230th Ave
408+50	LT	9.06	J4-1	Reassurance Assembly (1 Headed Route Panel)	24	X	36	1	6.00	-	2	1	South 35
405+00	LT	9.04	D1-1	Destination/Arrow - Lakeside Ln	84	X	15	2	8.75	-	-	-	-
397+25	LT	9.01	R1-1	Stop	30	X	30	1	5.18	-	1	1	Lakeside Ln
380+60	RT	8.01	W14-3	No Passing Zone	48	X	36	1	6.00	-	1	1	-
361+75	LT	7.06	D1-61	Advance Crossroad/Arrows - 220th Ave	60	X	24	2	10.00	-	-	-	-
359+70	RT	7.05	W14-3	No Passing Zone	48	X	36	1	6.00	-	1	1	-
353+60	LT	7.03	R1-1	Stop	30	X	30	1	5.18	-	1	1	220th Ave
334+80	RT	6.06	W14-3	No Passing Zone	48	X	36	1	6.00	-	1	1	-
334+00	LT	6.05	D1-1	Destination/Arrow - 215th Ave	72	X	15	2	7.50	-	-	-	-
327+00	LT	6.03	R1-1	Stop	30	X	30	1	5.18	-	1	1	215th Ave
308+00	LT	5.05	D1-61	Advance Crossroad/Arrows - 210th Ave	60	X	24	2	10.00	-	-	-	-
302+50	RT	5.04	W14-3	No Passing Zone	48	X	36	1	6.00	-	1	1	-
290+00	LT	5.01	D1-1	Destination/Arrow - 207th Ave	78	X	15	2	8.13	-	-	-	-
282+50	LT	4.08	R1-1	Stop	30	X	30	1	5.18	-	1	1	207th Ave
281+00	LT	4.07	D1-61	Advance Crossroad/Arrows - 205th Ave	60	X	24	2	10.00	-	-	-	-
273+75	LT	4.03	R1-1	Stop	30	X	30	1	5.18	-	1	1	205th Ave
264+50	RT	4.01	W14-3	No Passing Zone	48	X	36	1	6.00	-	1	1	-
255+00	LT	3.05	D1-1	Destination/Arrow - 200th Ave	78	X	15	2	8.13	-	-	-	-
247+10	LT	3.04	R1-1	Stop	30	X	30	1	5.18	-	1	1	200th Ave
233+65	RT	3.01	W14-3	No Passing Zone	48	X	36	1	6.00	-	1	1	-
209+30	LT	2.04	D1-1	Destination/Arrow - 191st St	60	X	15	2	6.25	-	-	-	-
200+25	LT	2.02	D1-2	Two Destination/Arrow - 109th Ave, Harriman St	84	X	30	2	17.50	-	-	-	-
199+00	LT	2.01	W3-5	Speed Limit 45 Ahead [Arrow]	36	X	36	1	-	9.00	2	1	-
197+75	LT	1.20	I2-3	Community Population Name Sign (With Number)	66	X	24	2	11.00	-	1	2	Somerset 1554
195+50	LT	1.16	R2-1	Speed Limit 45 MPH	24	X	30	1	5.00	-	1	1	-
194+20	LT	1.14	R1-1	Stop	30	X	30	1	5.18	-	1	1	Harriman St
192+00	LT	1.13	D1-2	Two Destination/Arrow - Division St, Evergreen Dr	90	X	30	2	18.75	-	-	-	-
188+20	LT	1.10	R1-1	Stop	30	X	30	1	5.18	-	1	1	Evergreen Dr
184+40	LT	1.09	W3-5	Speed Limit 30 Ahead [Arrow]	36	X	36	1	-	9.00	1	1	-
178+75	LT	1.05	D1-1	Destination/Arrow - Laser Dr	66	X	15	2	6.88	-	-	-	-
176+25	LT	1.03	R2-1	Speed Limit 30 MPH	24	X	30	1	5.00	-	1	1	-
SB SUBTOTAL								56	292.28	18	35	30	
PROJECT TOTAL								114	616.11	18	75	63	

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

PAVEMENT MARKING

		646.0107.S		646.2304.S		646.2308.S		647.0566	649.0402	
		GROOVED EPOXY 4-INCH		GROOVED WET REFLECTIVE EPOXY 4-INCH		GROOVED WET REFLECTIVE EPOXY 8-INCH		STOP LINE EPOXY 18-INCH	TEMPORARY PAVEMENT MARKING PAINT 4-INCH	
		(YELLOW CENTER LINE)		(WHITE EDGE LINE)		(CHANNELIZING LINE)				
STATION	TO	STATION	LOCATION	LF	LF	LF	LF		LF*	COMMENT
172+32	-	173+80	SB	148	-	-	-		296	SOLID SB
172+32	-	195+84	NB	588	-	-	-		1,176	DASHED NB
172+32	-	174+14	RT	-	182	-	-		-	WHITE EDGE LINE
172+33	-	187+99	LT	-	1,570	-	-		-	WHITE EDGE LINE
173+90	-	176+40	LT	-	63	-	-		-	BYPASS LANE
175+55	-	187+90	RT	-	1,237	-	-		-	WHITE EDGE LINE
185+90	-	187+90	RT	-	-	200	-		-	TURN LANE
188+64	-	-	RT	-	-	-	28		-	DIVISION ST
189+20	-	193+92	RT	-	473	-	-		-	WHITE EDGE LINE
189+55	-	190+51	LT	-	24	-	-		-	WHITE DASHED EDGE LINE
190+51	-	194+10	LT	-	360	-	-		-	WHITE EDGE LINE
193+00	-	193+92	RT	-	-	92	-		-	TURN LANE
194+68	-	-	RT	-	-	-	31		-	190TH AVE
194+71	-	-	LT	-	-	-	37		-	HARRIMAN ST
195+23	-	200+69	RT	-	546	-	-		-	WHITE EDGE LINE
195+51	-	197+55	LT	-	-	204	-		-	TURN LANE
195+52	-	246+94	LT	-	5,143	-	-		-	WHITE EDGE LINE
195+84	-	223+00	NB	2,716	-	-	-		5,432	SOLID NB
195+84	-	206+34	SB	263	-	-	-		525	DASHED SB
200+69	-	201+41	RT	-	18	-	-		-	WHITE DASHED EDGE LINE
201+73	-	-	RT	-	-	-	17		-	191ST AVE
202+01	-	273+31	RT	-	7,131	-	-		-	WHITE EDGE LINE
206+34	-	233+50	SB	2,716	-	-	-		5,432	SOLID SB
223+00	-	246+75	NB	594	-	-	-		1,188	DASHED NB
246+75	-	253+25	SB	163	-	-	-		325	DASHED SB
246+75	-	253+25	NB	650	-	-	-		1,300	SOLID NB
247+46	-	-	LT	-	-	-	29		-	200TH AVE
248+02	-	273+60	LT	-	2,559	-	-		-	WHITE EDGE LINE
253+25	-	275+15	NB	548	-	-	-		1,095	DASHED NB
256+10	-	263+10	SB	700	-	-	-		1,400	SOLID SB
271+30	-	273+31	RT	-	-	200	-		-	TURN LANE
273+97	-	-	LT	-	-	-	22		-	205TH AVE
274+06	-	-	RT	-	-	-	28		-	205TH AVE
274+39	-	275+01	LT	-	16	-	-		-	WHITE DASHED EDGE LINE
274+61	-	299+53	RT	-	2,494	-	-		-	WHITE EDGE LINE
275+01	-	282+49	LT	-	749	-	-		-	WHITE EDGE LINE
275+15	-	291+15	NB	1,600	-	-	-		3,200	SOLID NB
275+15	-	278+75	SB	90	-	-	-		180	DASHED SB
278+75	-	302+35	SB	2,360	-	-	-		4,720	SOLID SB
282+77	-	-	LT	-	-	-	23		-	207TH AVE
283+11	-	283+57	LT	-	46	-	-		-	WHITE DASHED EDGE LINE
283+57	-	326+99	LT	-	4,343	-	-		-	WHITE EDGE LINE
291+15	-	315+10	NB	599	-	-	-		1,198	DASHED NB
297+53	-	299+53	RT	-	-	200	-		-	TURN LANE
300+27	-	-	RT	-	-	-	29		-	210TH AVE
300+83	-	352+76	RT	-	5,200	-	-		-	WHITE EDGE LINE
315+10	-	323+10	NB	800	-	-	-		1,600	SOLID NB
315+10	-	323+10	SB	200	-	-	-		400	DASHED SB
323+10	-	335+00	NB	298	-	-	-		595	DASHED NB
326+55	-	335+00	SB	845	-	-	-		1,690	SOLID SB
SUBTOTAL				15,876	32,153	896	244		31,751	

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

PAVEMENT MARKING CONT.										
				646.0107.S	646.2304.S	646.2308.S	647.0566	649.0402		
				GROOVED EPOXY 4-INCH	GROOVED WET REFLECTIVE EPOXY 4-INCH	GROOVED WET REFLECTIVE EPOXY 8-INCH	STOP LINE EPOXY 18-INCH	TEMPORARY PAVEMENT MARKING PAINT 4-INCH		
				(YELLOW CENTER LINE)	(WHITE EDGE LINE)	(CHANNELIZING LINE)				
STATION	TO	STATION	LOCATION	LF	LF	LF	LF	LF*	COMMENT	
327+31	-	-	LT	-	-	-	23	-	215TH AVE	
327+77	-	328+35	LT	-	58	-	-	-	WHITE DASHED EDGE LINE	
328+35	-	353+50	LT	-	2,511	-	-	-	WHITE EDGE LINE	
335+00	-	346+50	SB	288	-	-	-	575	DASHED SB	
336+00	-	369+50	NB	3,350	-	-	-	6,700	SOLID NB	
346+50	-	362+00	SB	1,550	-	-	-	3,100	SOLID SB	
350+77	-	352+76	RT	-	200	200	-	-	TURN LANE	
353+02	-	-	RT	-	-	-	23	-	220TH AVE	
354+10	-	-	LT	-	-	-	36	-	220TH AVE	
354+15	-	410+24	RT	-	5,607	-	-	-	WHITE EDGE LINE	
354+58	-	355+90	LT	-	132	-	-	-	WHITE DASHED EDGE LINE	
355+90	-	397+18	LT	-	4,131	-	-	-	WHITE EDGE LINE	
362+00	-	369+50	SB	188	-	-	-	375	DASHED SB	
369+50	-	389+50	NB	500	-	-	-	1,000	DASHED NB	
373+00	-	379+00	SB	600	-	-	-	1,200	SOLID SB	
389+50	-	402+45	NB	1,295	-	-	-	2,590	SOLID NB	
389+50	-	400+45	SB	274	-	-	-	548	DASHED SB	
397+59	-	-	LT	-	-	-	26	-	LAKESIDE LANE	
397+97	-	398+32	LT	-	35	-	-	-	WHITE DASHED EDGE LINE	
398+32	-	410+48	LT	-	1,217	-	-	-	WHITE EDGE LINE	
400+45	-	413+60	SB	1,315	-	-	-	2,630	SOLID SB	
402+45	-	436+85	NB	860	-	-	-	1,720	DASHED NB	
408+24	-	410+24	RT	-	-	200	-	-	TURN LANE	
410+68	-	-	RT	-	-	-	31	-	CTH H	
410+68	-	-	RT	276	-	-	-	552	CTH H C/L SOLID EB/WB	
411+16	-	-	LT	-	-	-	35	-	230TH AVE	
411+60	-	440+96	RT	-	2,937	-	-	-	WHITE EDGE LINE	
411+79	-	413+22	LT	-	144	-	-	-	WHITE DASHED EDGE LINE	
413+22	-	464+55	LT	-	5,129	-	-	-	WHITE EDGE LINE	
436+85	-	457+65	NB	2,080	-	-	-	4,160	SOLID NB	
436+85	-	448+30	SB	286	-	-	-	573	DASHED SB	
440+96	-	441+09	RT	-	-	12	-	-	TURN LANE	
441+58	-	-	RT	-	-	-	17	-	65TH STREET	
441+81	-	463+76	RT	-	2,199	-	-	-	WHITE EDGE LINE	
448+30	-	467+50	SB	1,920	-	-	-	3,840	SOLID SB	
457+65	-	467+50	NB	246	-	-	-	493	DASHED NB	
464+37	-	-	RT	-	-	-	35	-	POLK-ST. CROIX RD	
465+22	-	467+50	RT	-	228	-	-	-	WHITE EDGE LINE	
465+57	-	-	LT	-	-	-	20	-	CTH I	
465+57	-	-	LT	150	-	-	-	300	CTH I C/L SOLID EB/WB	
466+03	-	467+35	LT	-	132	-	-	-	WHITE DASHED EDGE LINE	
467+35	-	467+50	LT	-	15	-	-	-	WHITE EDGE LINE	
175+00	-	-	RT	-	-	-	41	-	LASER DR	
188+64	-	-	LT	-	-	-	46	-	EVERGREEN DR	
SUBTOTAL				15,177	24,675	412	333	30,355		
TOTAL				31,053	56,828	1,308	577	62,106		

*NOTES: TEMPORARY PAVEMENT MARKING PAINT ACCOUNTS FOR PAINTING THE LOWER LIFT OF PAVEMENT AS SHOWN IN THE FINISHED TYPICAL SECTION AND THE UPPER LIFT OF PAVEMENT PRIOR TO INSTALLATION OF CENTERLINE RUMBLE STRIPS. AFTER COMPLETION OF CENTERLINE RUMBLE STRIPS, PLACE PAVEMENT MARKING GROOVED EPOXY 4-INCH.

648.0100 LOCATING NO-PASSING ZONES

LOCATION	MI
PROJECT	5.59

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

PROJECT NO:8060-01-73

HWY: STH 35

COUNTY: ST. CROIX

MISCELLANEOUS QUANTITIES

SHEET: 48

E

CONSTRUCTION STAKING											
		650.4500	650.5000	650.5500	650.6000	650.8000	650.9910	650.9920			
		SUBGRADE	BASE	CURB GUTTER AND CURB & GUTTER	PIPE CULVERTS	RESURFACING REFERENCE	SUPPLEMENTAL CONTROL 8060-01-73	SLOPE STAKES			
STATION	TO	STATION	LOCATION	LF	LF	LF	EACH	LF	LS	LF	COMMENT
173+00	-	467+50	LT/RT	-	-	-	-	29,450	1	-	PROJECT
173+00	-	179+25	LT	625	625	-	-	-	-	625	LASER DR
177+37		183+86	RT	649	649	-	-	-	-	649	GUARDRAIL SECTION 1
185+28	-	190+20	RT	492	492	-	-	-	-	492	DIVISION ST
	186+56		-	-	-	-	1	-	-	-	-
187+90	-	188+48	RT	-	-	92	-	-	-	-	DIVISION ST SOUTH CURB
	188+59		-	-	-	-	1	-	-	-	-
188+82	-	189+21	RT	-	-	59	-	-	-	-	DIVISION ST NORTH CURB
269+93	-	275+27	RT	534	534	-	-	-	-	534	205TH AVE
273+31	-	273+89	RT	-	-	92	-	-	-	-	205TH AVE SOUTH CURB
274+23	-	274+61	RT	-	-	59	-	-	-	-	205TH AVE NORTH CURB
275+55	-	282+41	LT/RT	686	686	-	-	-	-	686	GUARDRAIL SECTIONS 2&3
	282+25		-	-	-	-	1	-	-	-	-
290+81	-	296+55	RT	574	574	-	-	-	-	574	GUARDRAIL SECTION 4
296+55	-	301+63	RT	508	508	-	-	-	-	508	210TH AVE
299+51	-	300+10	RT	-	-	92	-	-	-	-	210TH AVE SOUTH CURB
300+44	-	300+82	RT	-	-	60	-	-	-	-	210TH AVE NORTH CURB
303+30	-	309+61	LT	631	631	-	-	-	-	631	GUARDRAIL SECTION 5
349+44	-	354+95	RT	551	551	-	-	-	-	551	220TH AVE
352+76	-	353+15	RT	-	-	84	-	-	-	-	220TH AVE SOUTH CURB
	353+37		-	-	-	-	1	-	-	-	-
353+62	-	354+15	RT	-	-	68	-	-	-	-	220TH AVE NORTH CURB
	355+80		-	-	-	-	1	-	-	-	-
406+74	-	412+40	RT	566	566	-	-	-	-	566	CTH H
410+24	-	410+66	RT	-	-	75	-	-	-	-	CTH H SOUTH CURB
411+01	-	411+59	RT	-	-	81	-	-	-	-	CTH H NORTH CURB
	434+25		-	-	-	-	1	-	-	-	-
447+31	-	456+34	LT/RT	903	903	-	-	-	-	903	GUARDRAIL SECTIONS 6&7
		TOTAL		6,719	6,719	762	6	29,450	1	6,719	

PAVING SPV ITEMS

				SPV.0105.01	SPV.0105.02
				MATERIAL TRANSFER VEHICLE	MILLING AND REMOVING TEMPORARY JOINT
STATION	TO	STATION	LOCATION	LS	LS
PROJECT: 8060-01-73				1	1
TOTAL				1	1

SPV.0105.03 ABANDON AND FILL CATTLE PASSES

STATION	LOCATION	LS	COMMENT
329+25	LT, RT	1	MAINLINE
TOTAL		1	

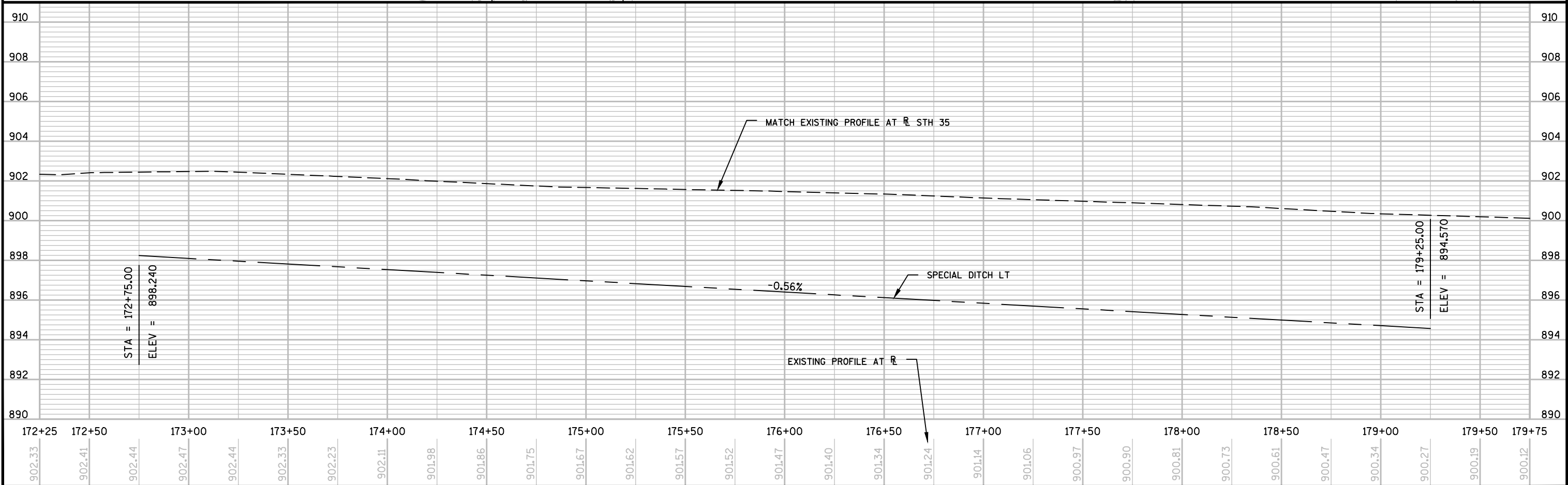
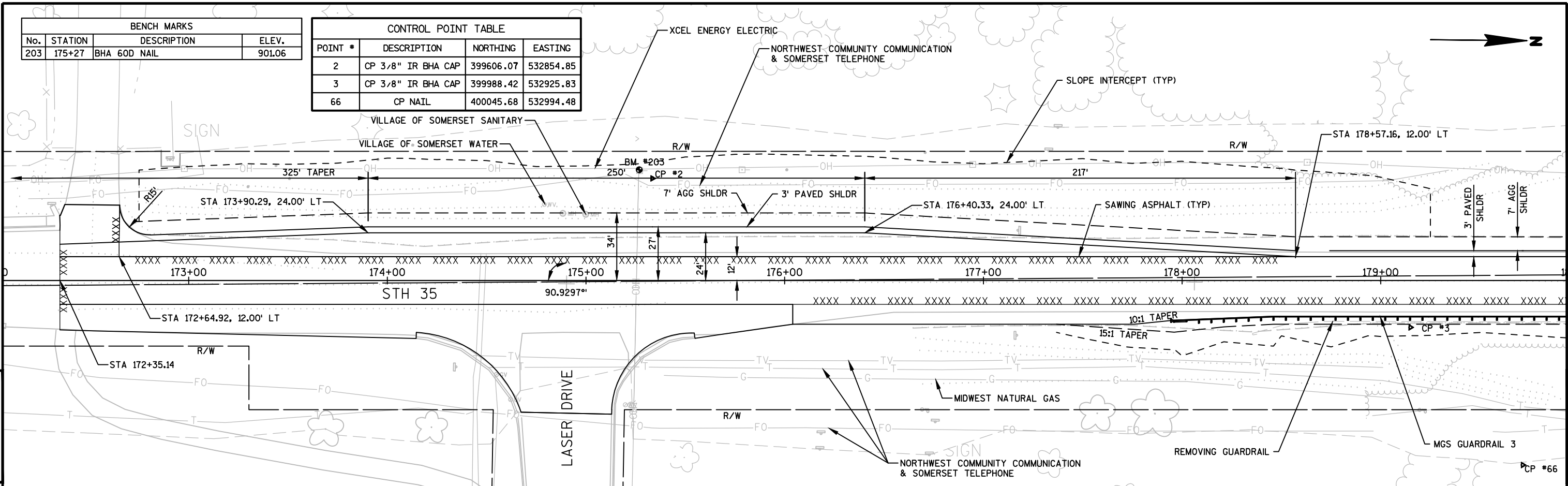
SPV.0105.04 ABANDON AND FILL CATTLE PASSES

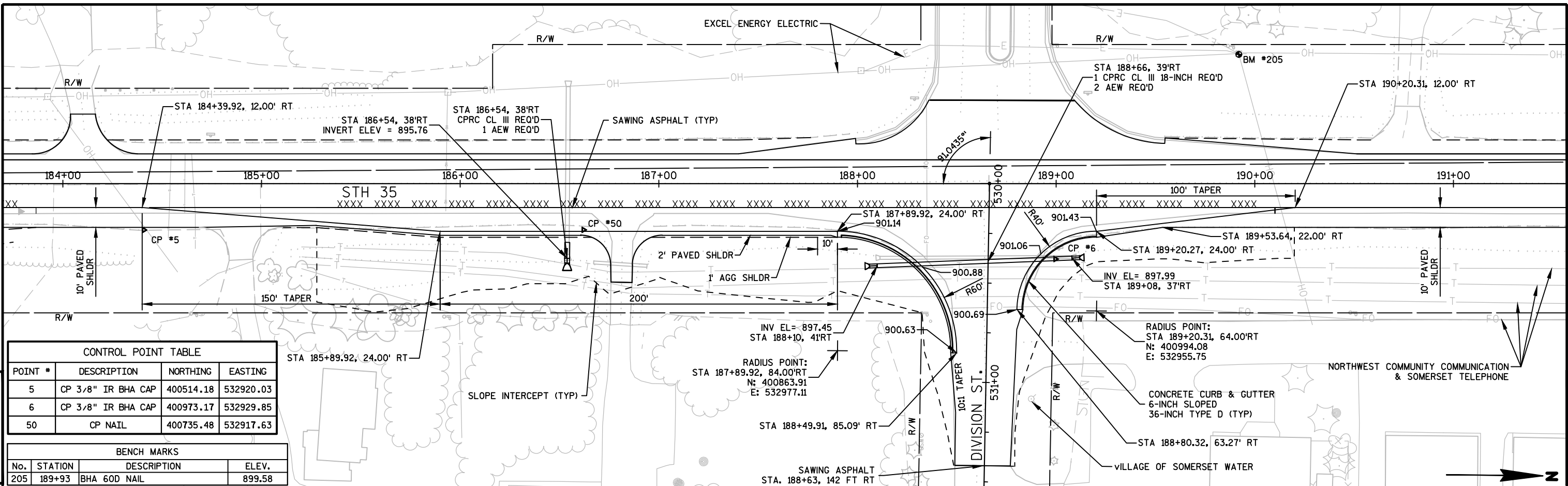
STATION	LOCATION	LS	COMMENT
366+40	LT, RT	1	MAINLINE
TOTAL		1	

ALL ITEMS AND QUANTITIES ON
THIS SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
203	175+27	BHA 60D NAIL	901.06

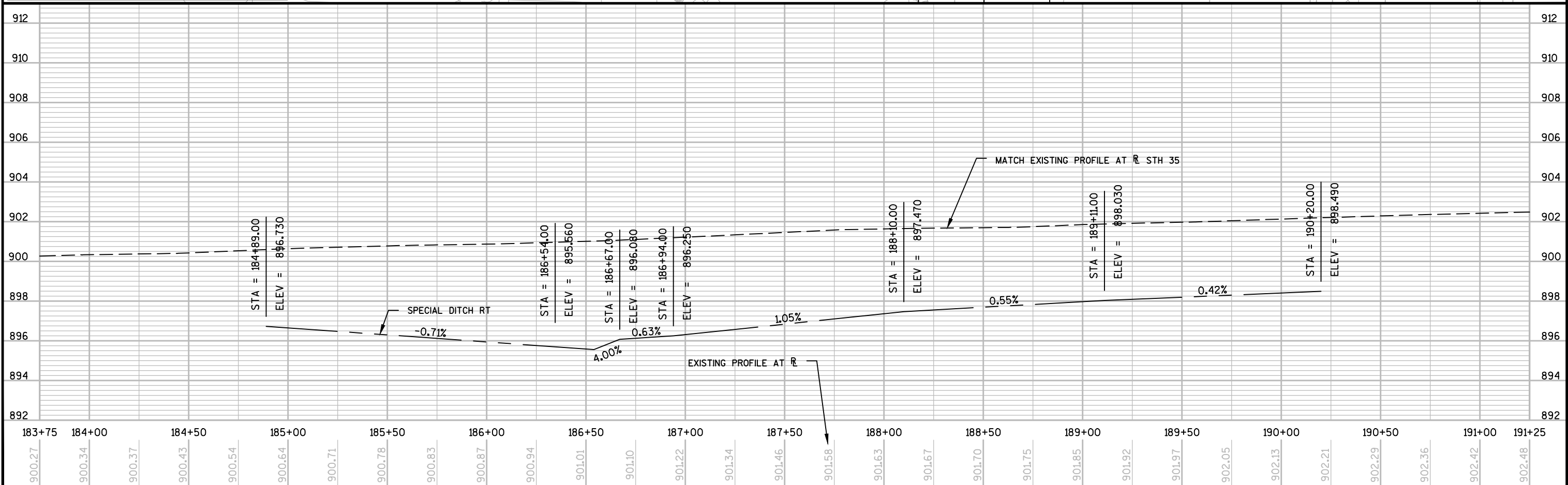
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
2	CP 3/8" IR BHA CAP	399606.07	532854.85
3	CP 3/8" IR BHA CAP	399988.42	532925.83
66	CP NAIL	400045.68	532994.48

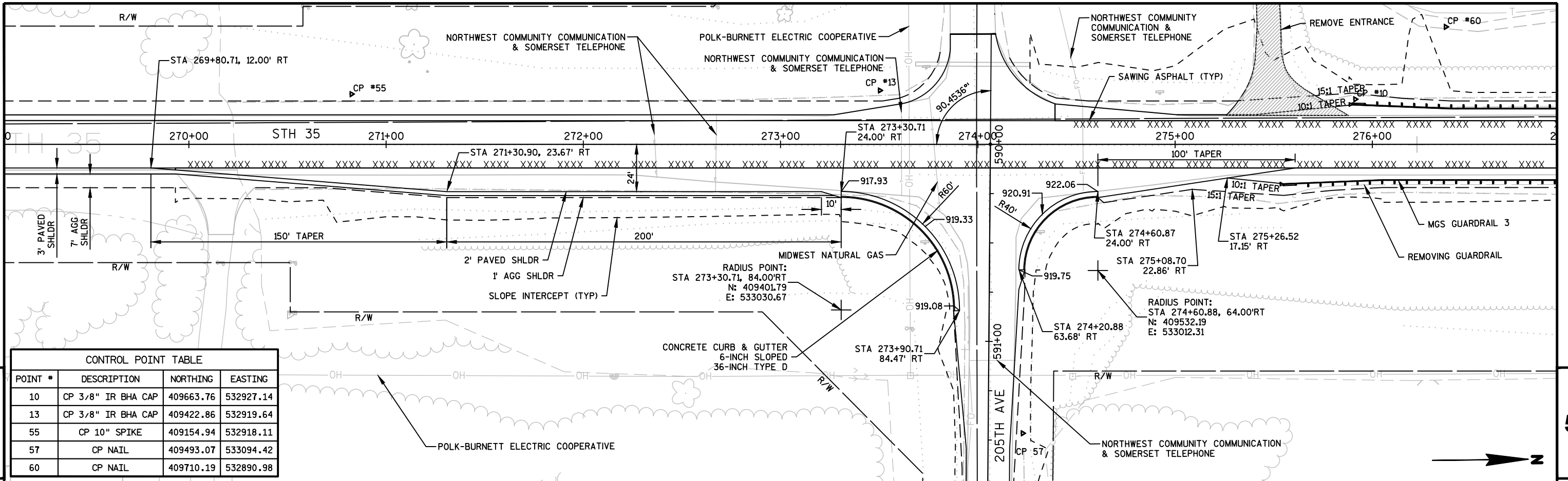




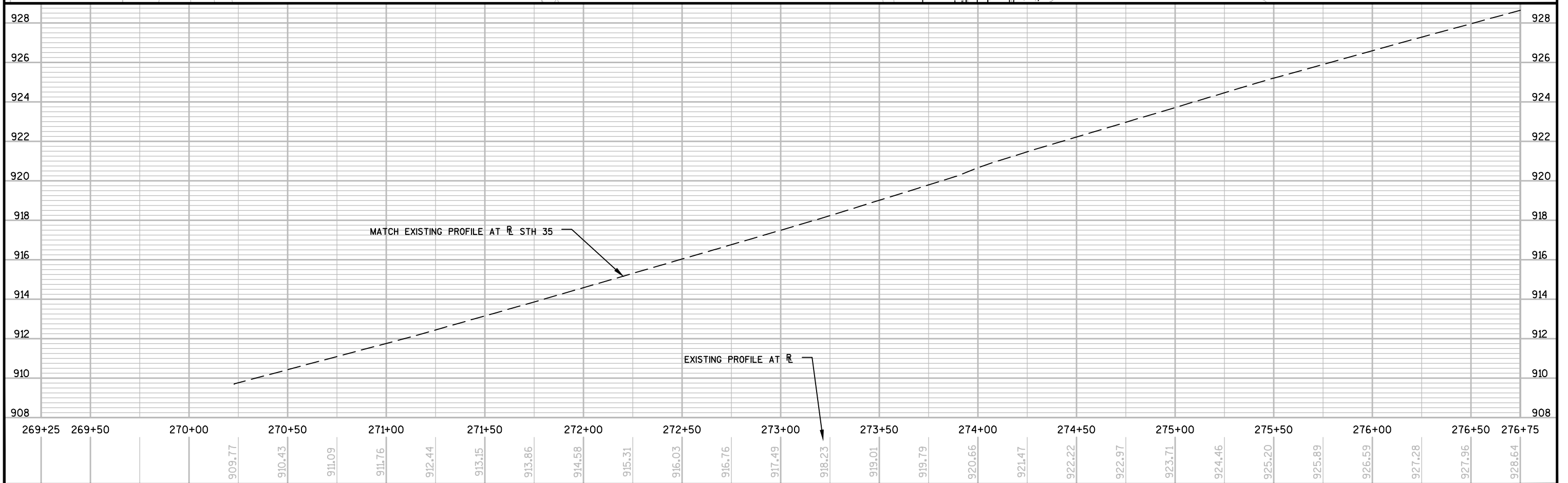
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
5	CP 3/8" IR BHA CAP	400514.18	532920.03
6	CP 3/8" IR BHA CAP	400973.17	532929.85
50	CP NAIL	400735.48	532917.63

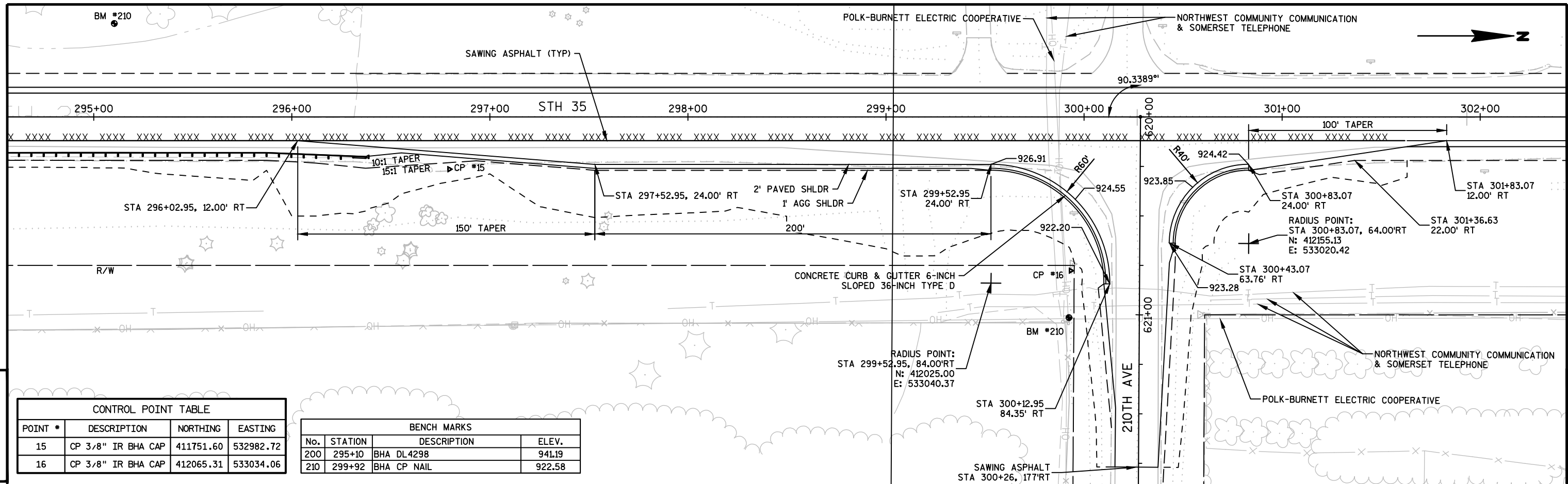
BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
205	189+93	BHA 60D NAIL	899.58





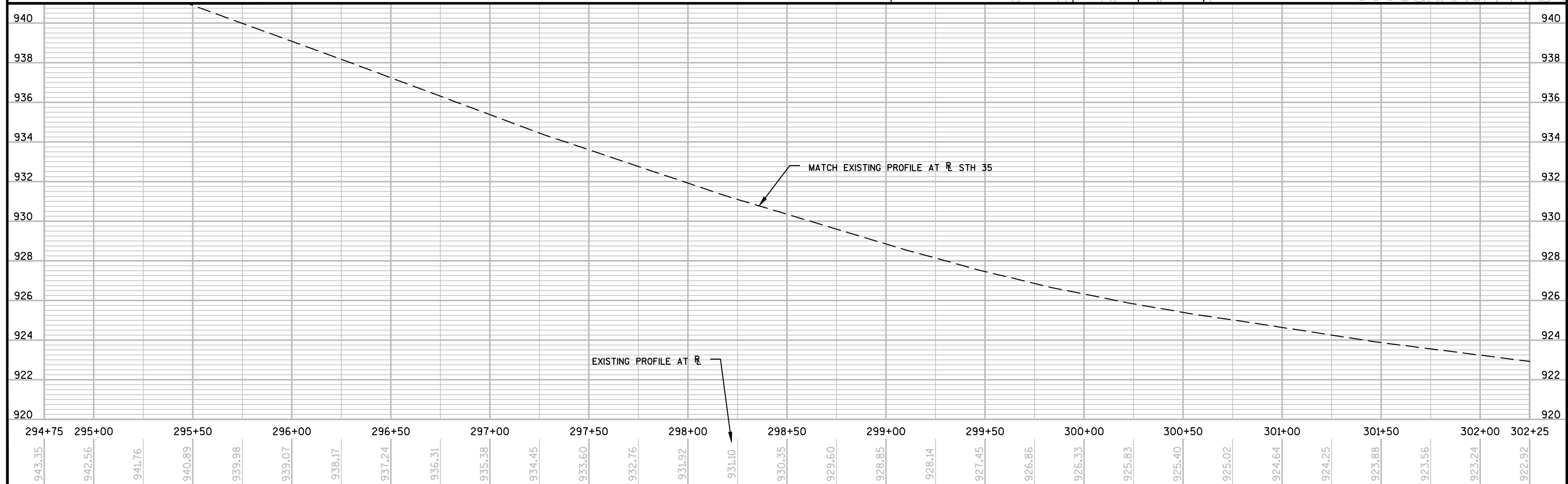
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
10	CP 3/8" IR BHA CAP	409663.76	532927.14
13	CP 3/8" IR BHA CAP	409422.86	532919.64
55	CP 10" SPIKE	409154.94	532918.11
57	CP NAIL	409493.07	533094.42
60	CP NAIL	409710.19	532890.98





CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
15	CP 3/8" IR BHA CAP	411751.60	532982.72
16	CP 3/8" IR BHA CAP	412065.31	533034.06

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
200	295+10	BHA DL4298	941.19
210	299+92	BHA CP NAIL	922.58



PROJECT NO: 8060-01-73

HWY: STH 35

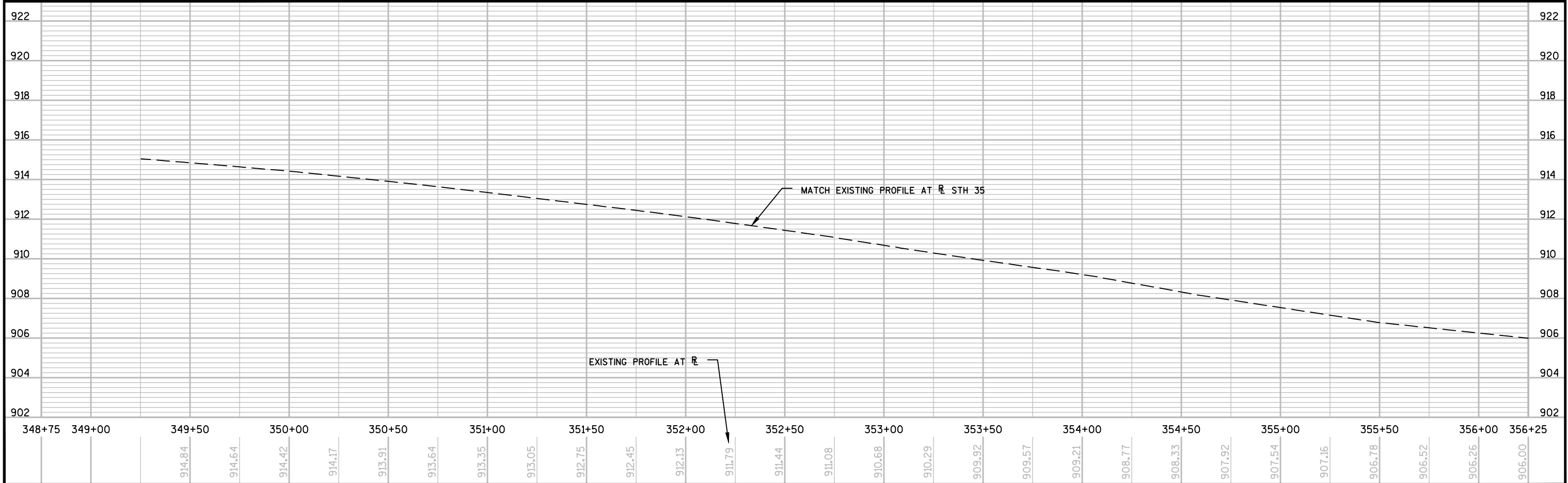
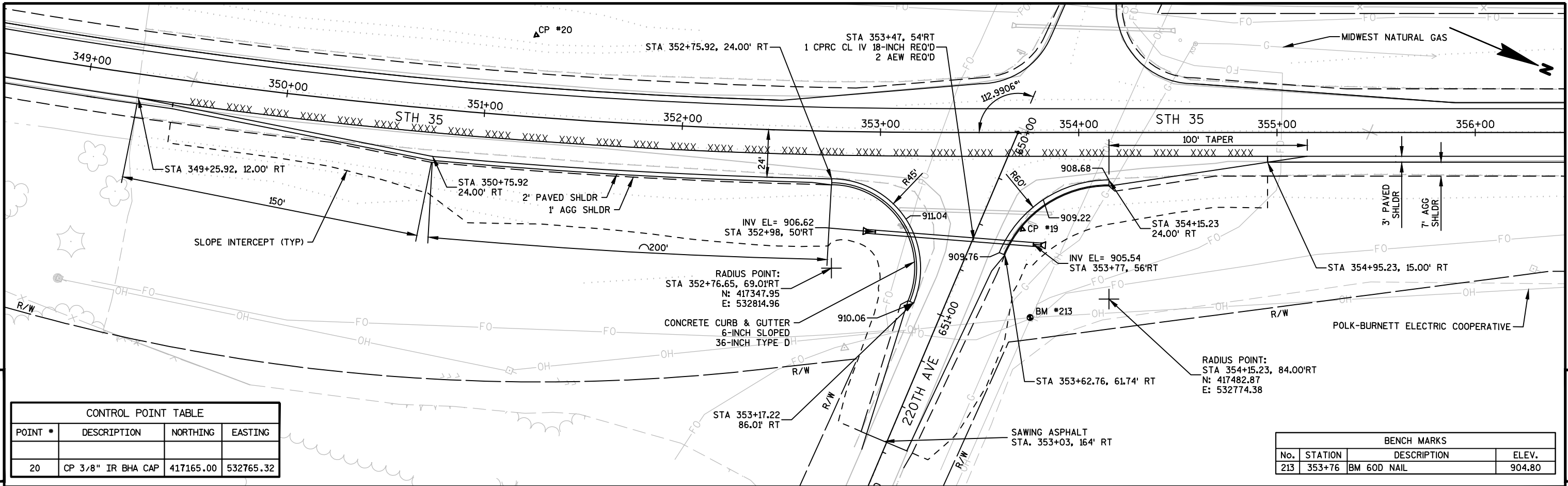
COUNTY: ST. CROIX

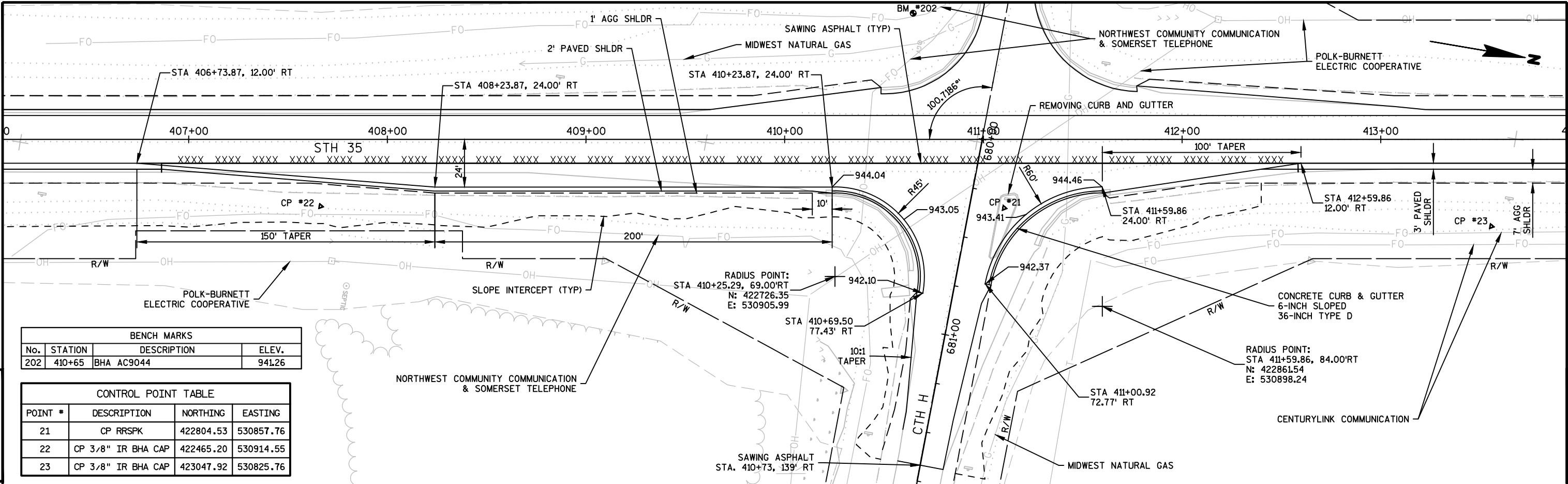
PLAN & PROFILE: STH 35 AT 210TH AVE

SHEET

53

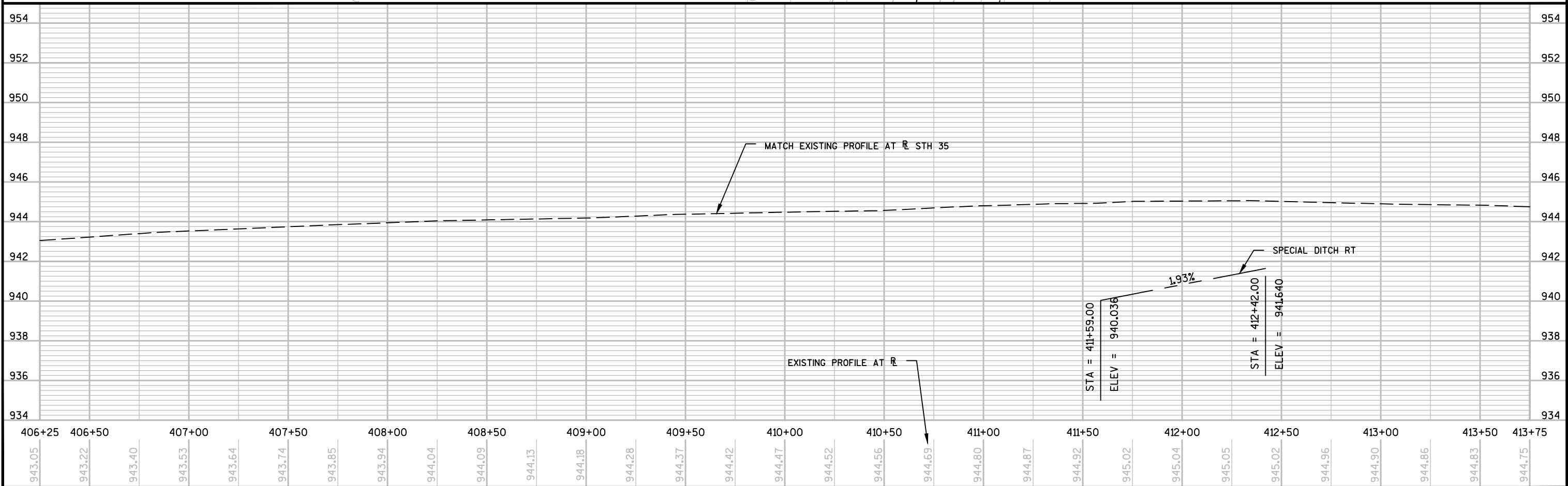
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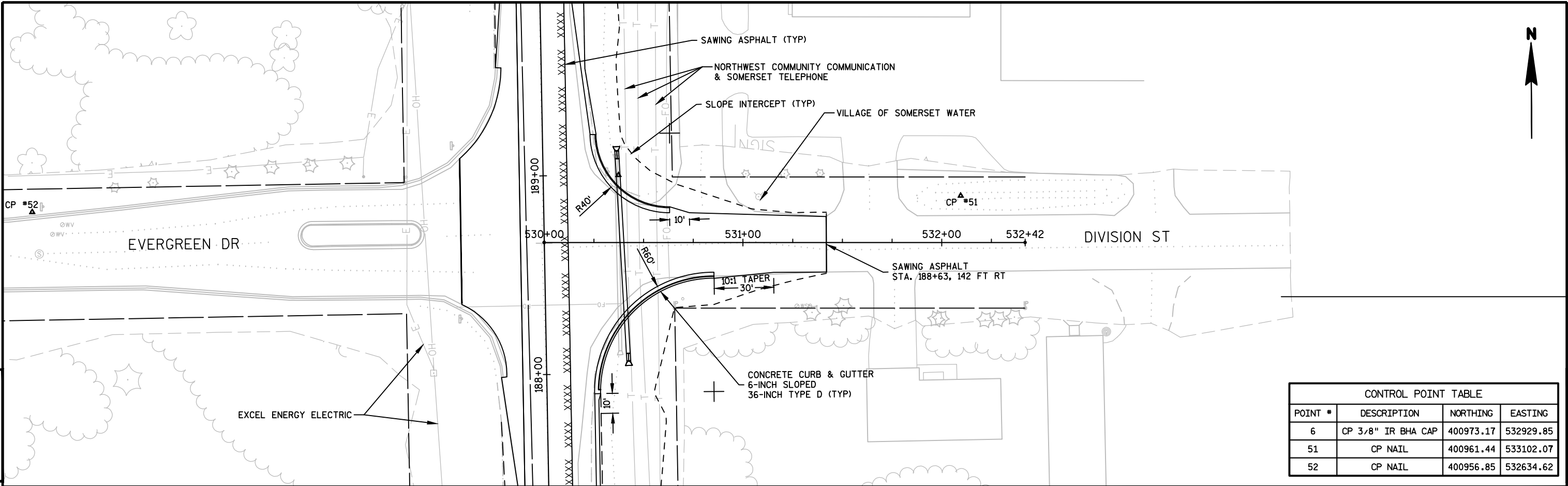




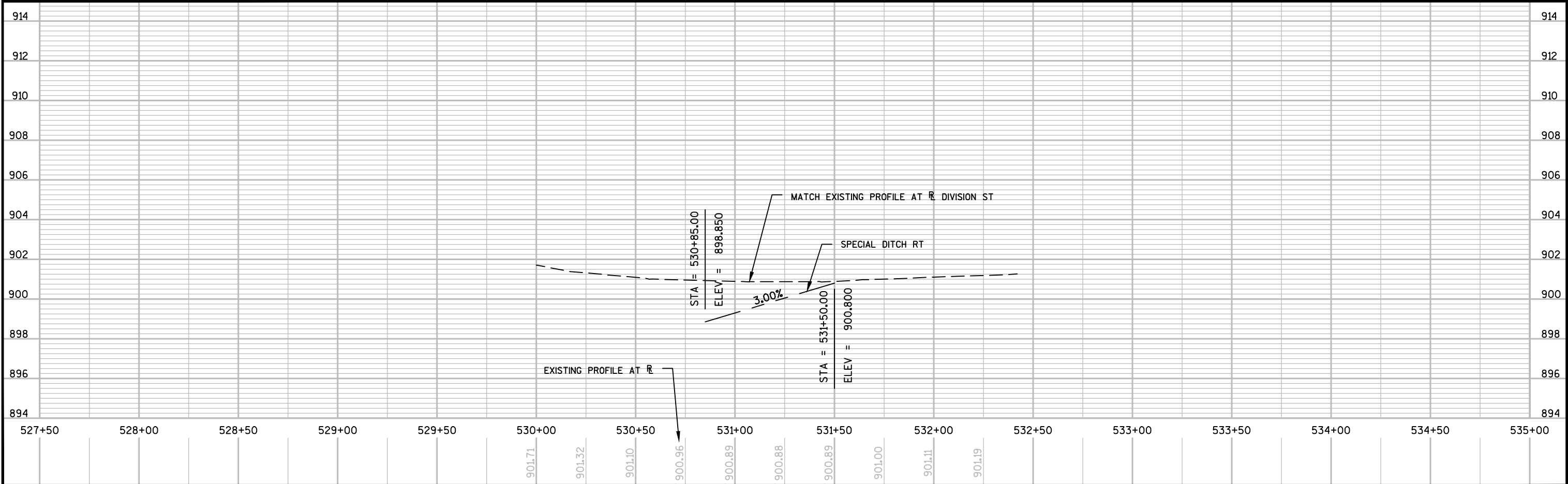
BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
202	410+65	BHA AC9044	941.26

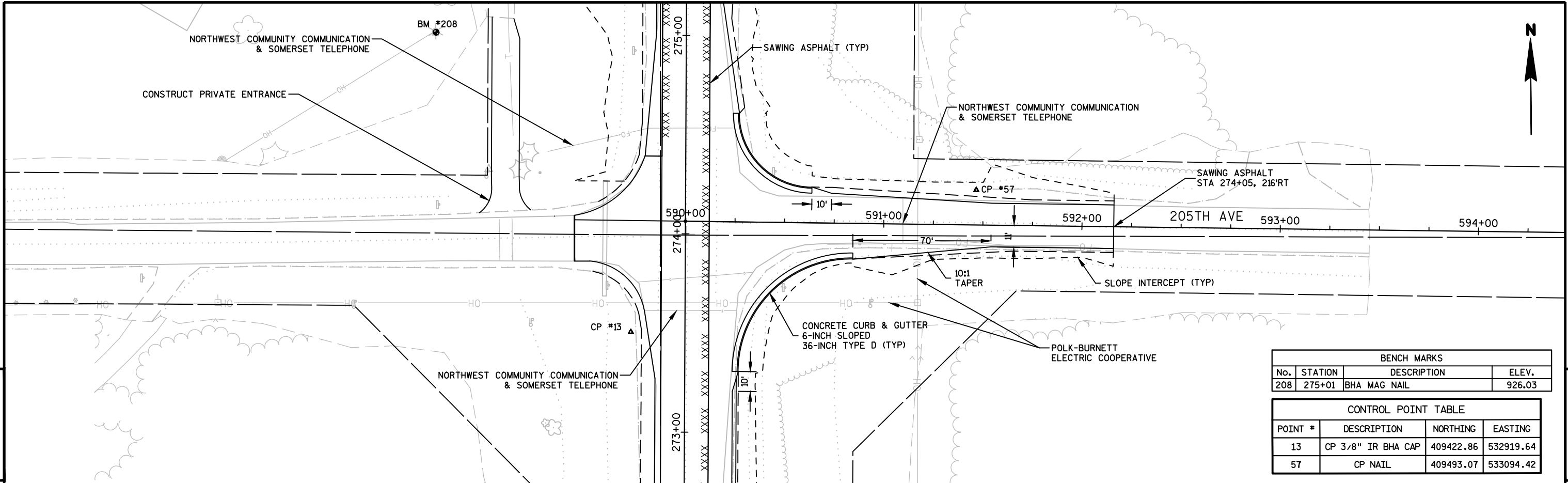
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
21	CP RRSFK	422804.53	530857.76
22	CP 3/8" IR BHA CAP	422465.20	530914.55
23	CP 3/8" IR BHA CAP	423047.92	530825.76





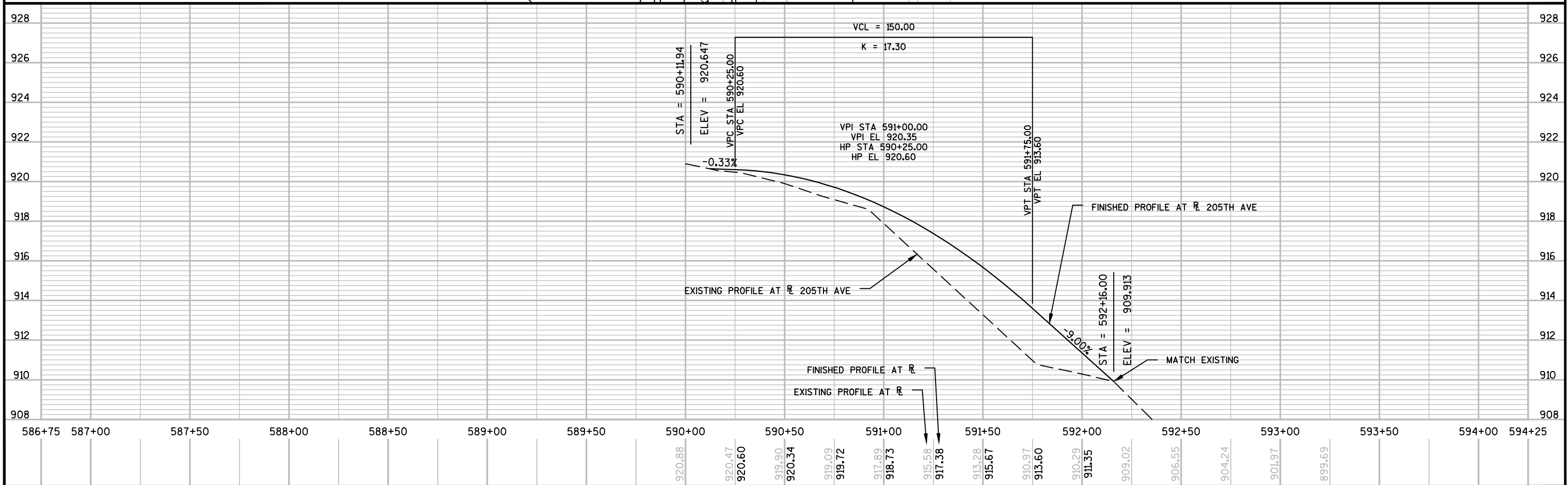
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
6	CP 3/8" IR BHA CAP	400973.17	532929.85
51	CP NAIL	400961.44	533102.07
52	CP NAIL	400956.85	532634.62

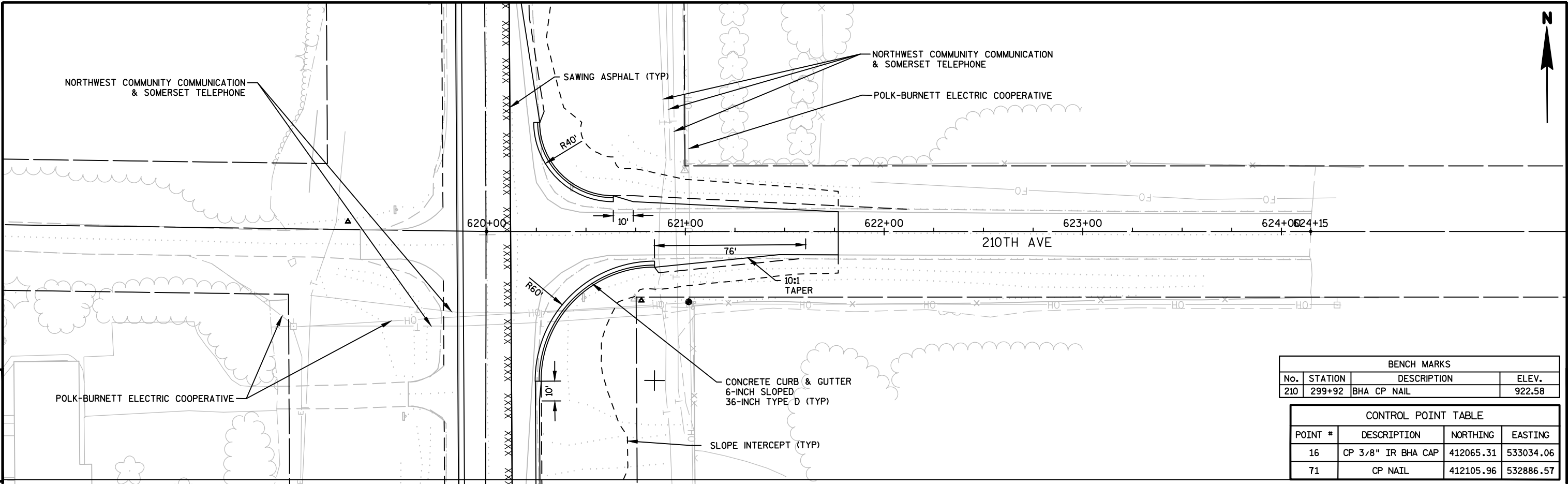




BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
208	275+01	BHA MAG NAIL	926.03

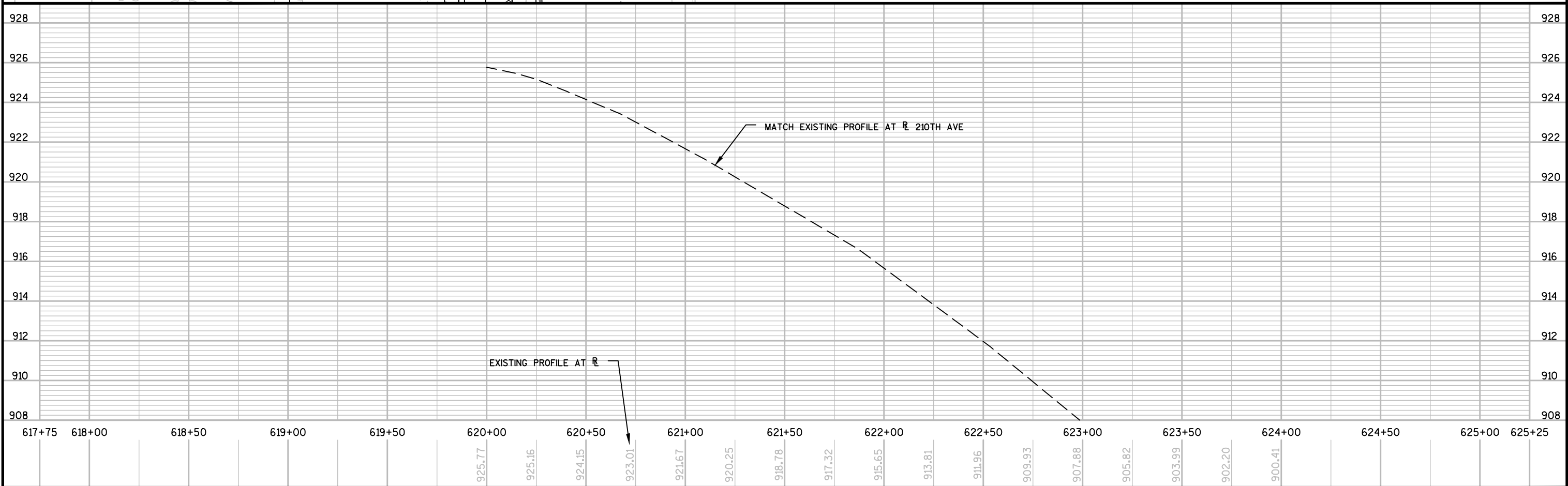
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
13	CP 3/8" IR BHA CAP	409422.86	532919.64
57	CP NAIL	409493.07	533094.42

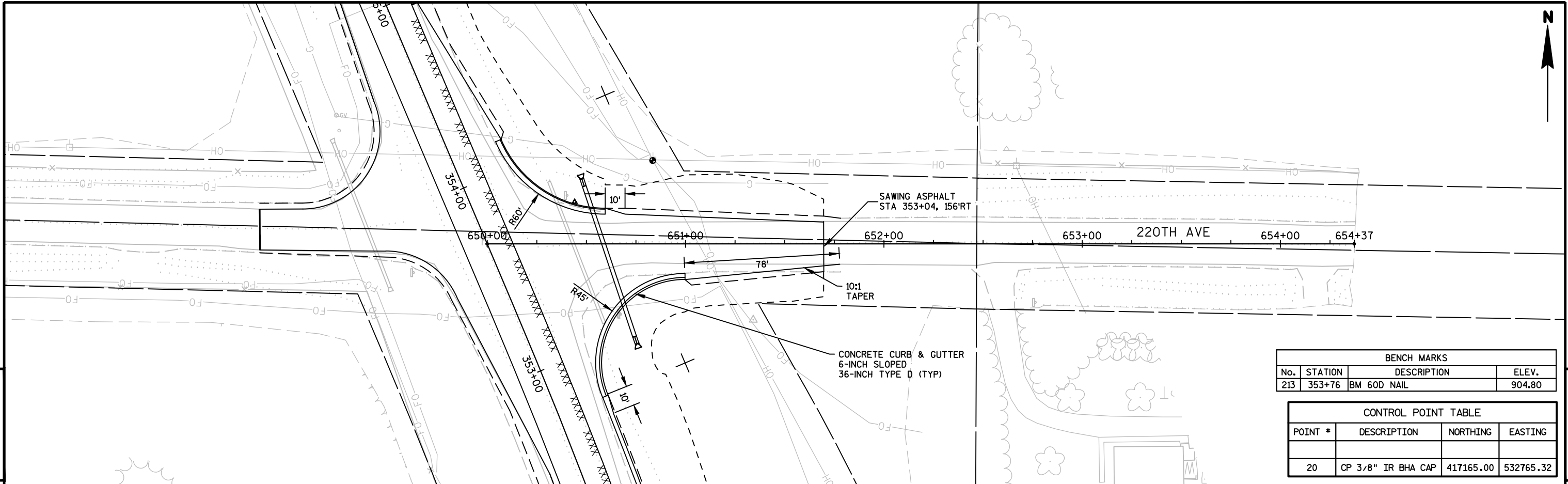




BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
210	299+92	BHA CP NAIL	922.58

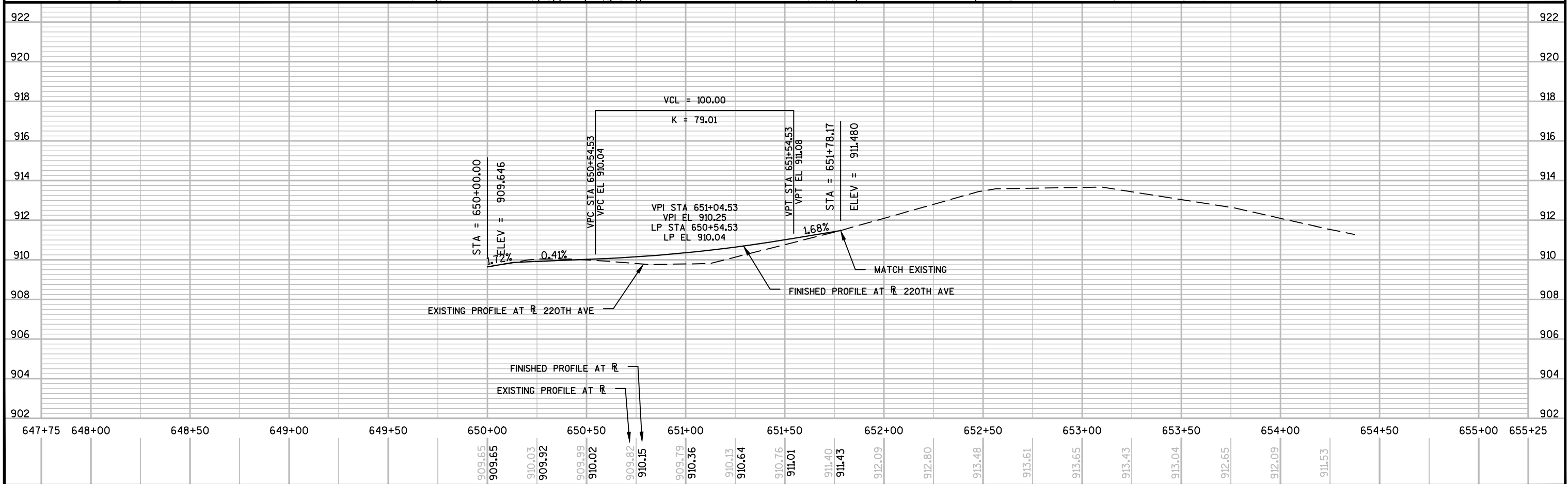
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
16	CP 3/8" IR BHA CAP	412065.31	533034.06
71	CP NAIL	412105.96	532886.57

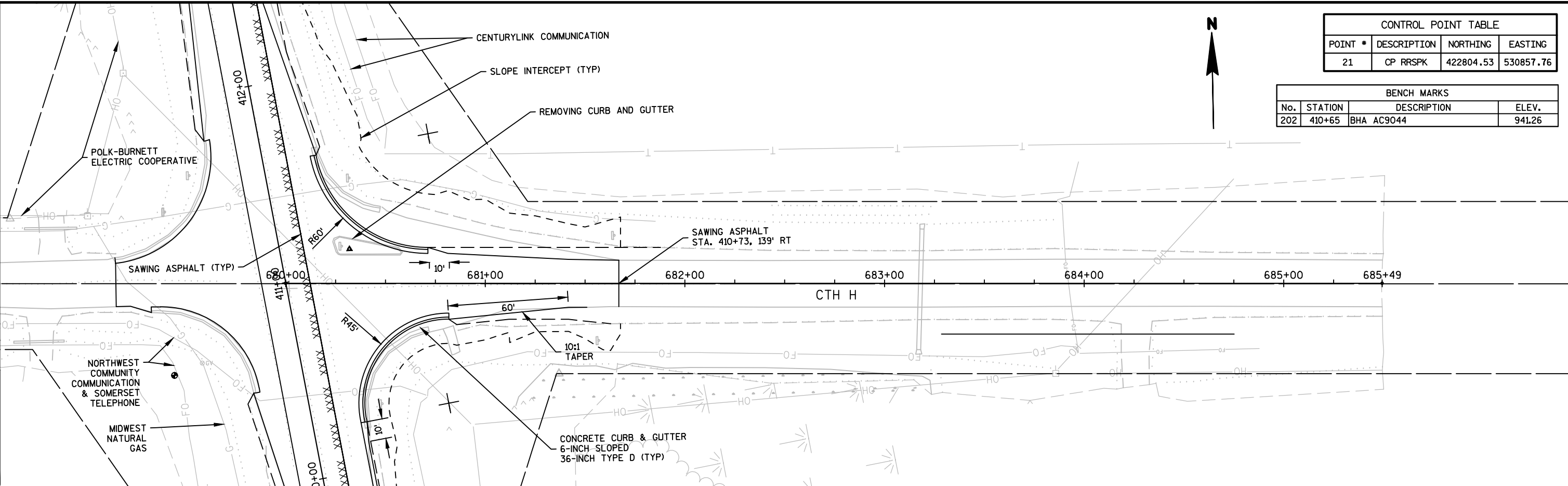




BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
213	353+76	BM 60D NAIL	904.80

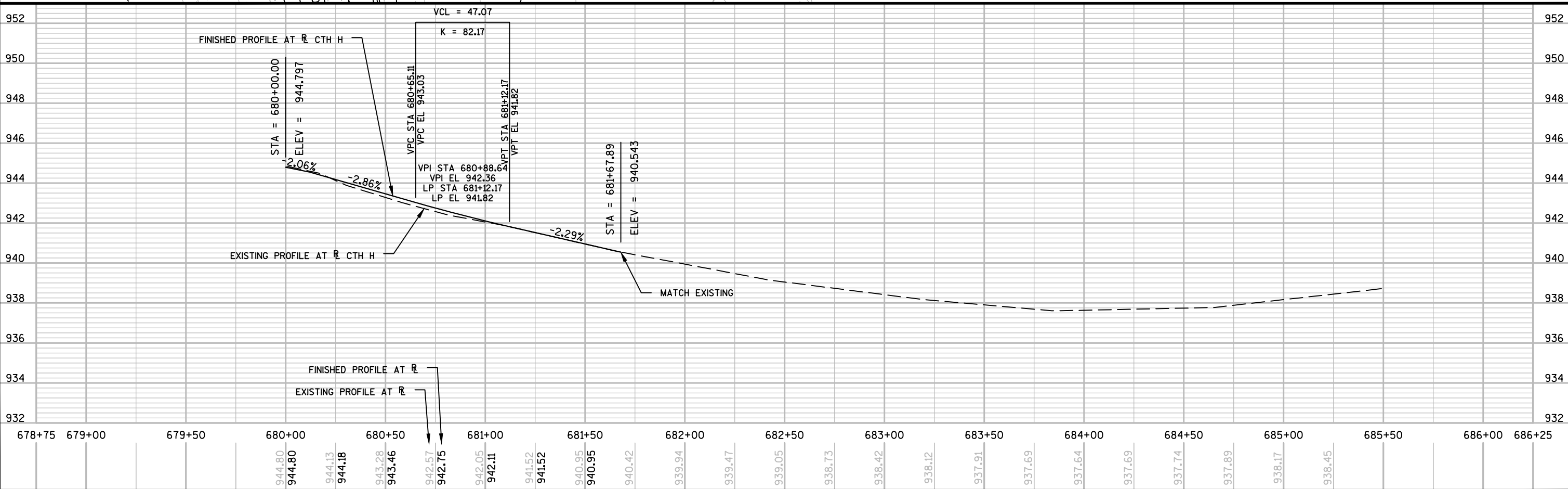
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
20	CP 3/8" IR BHA CAP	417165.00	532765.32

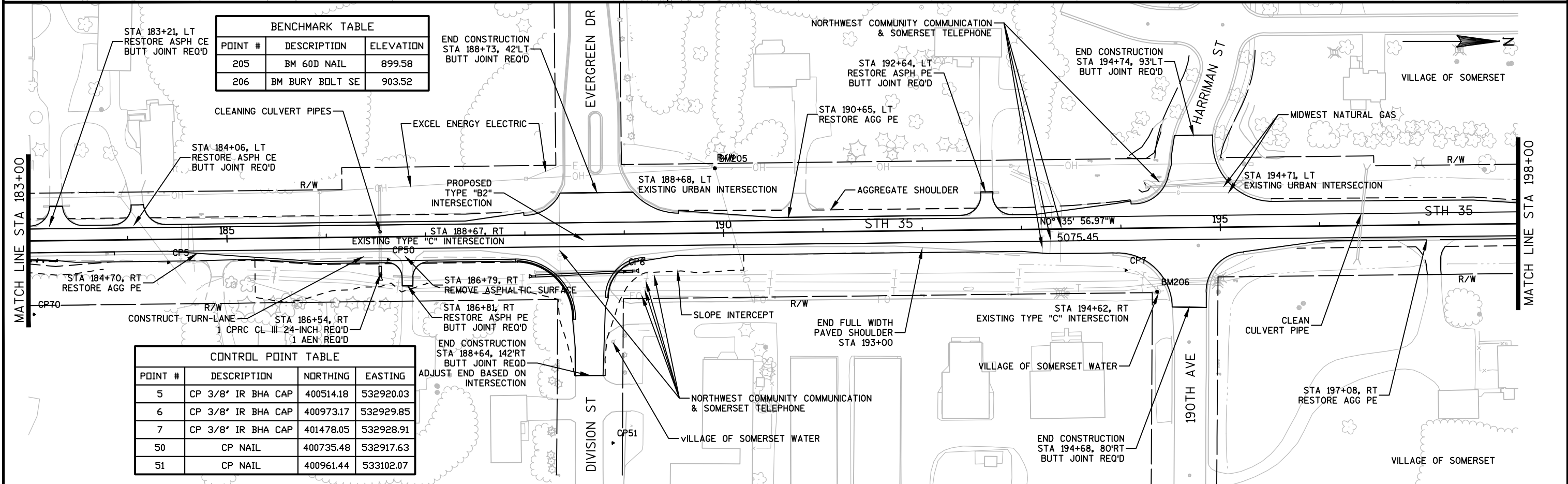
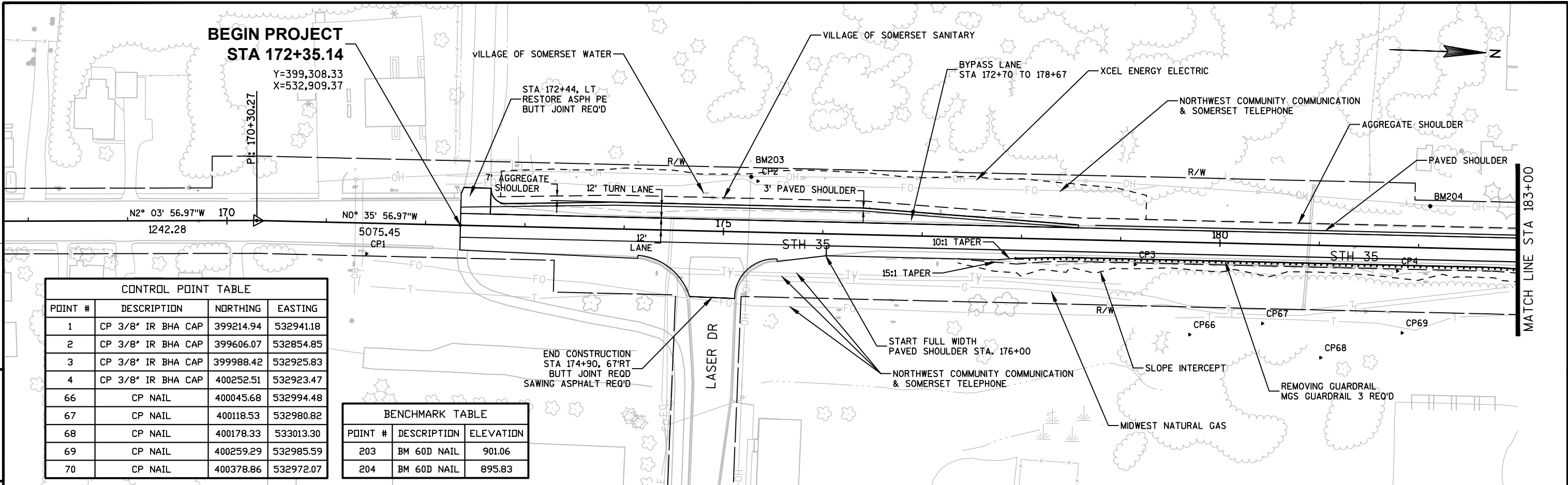


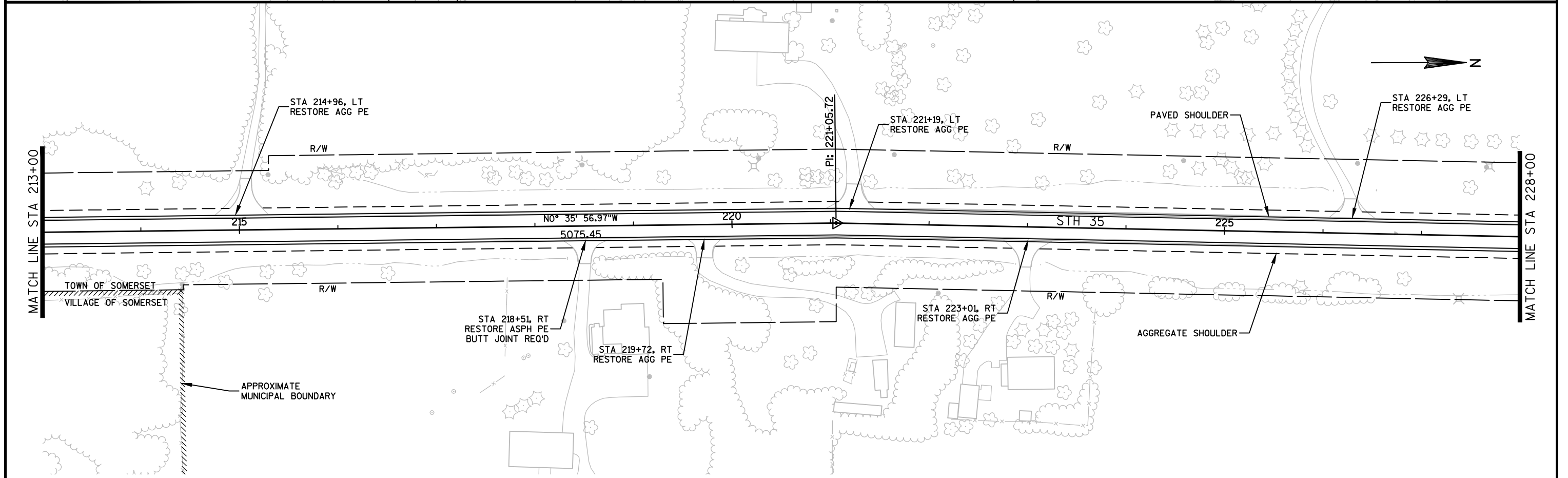
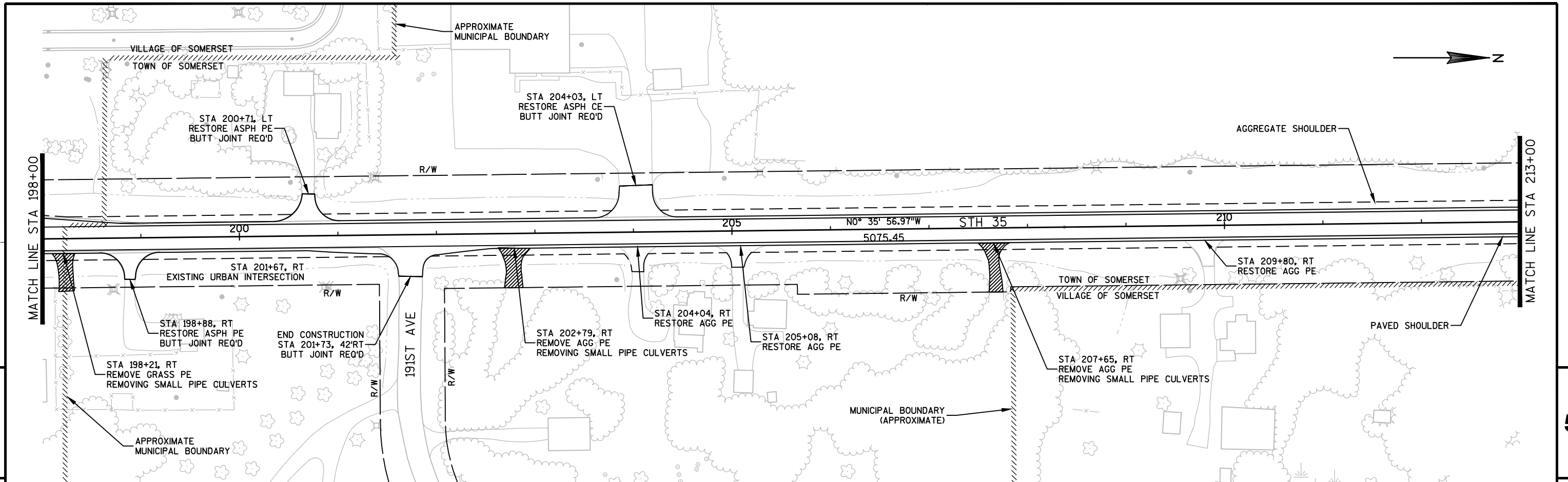


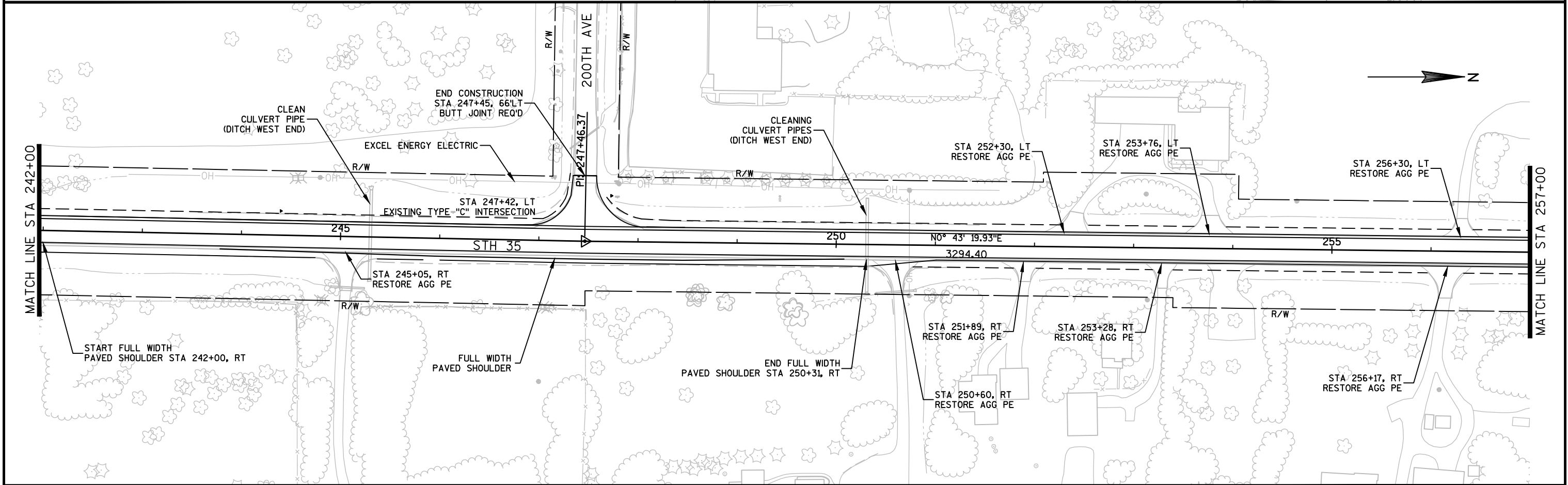
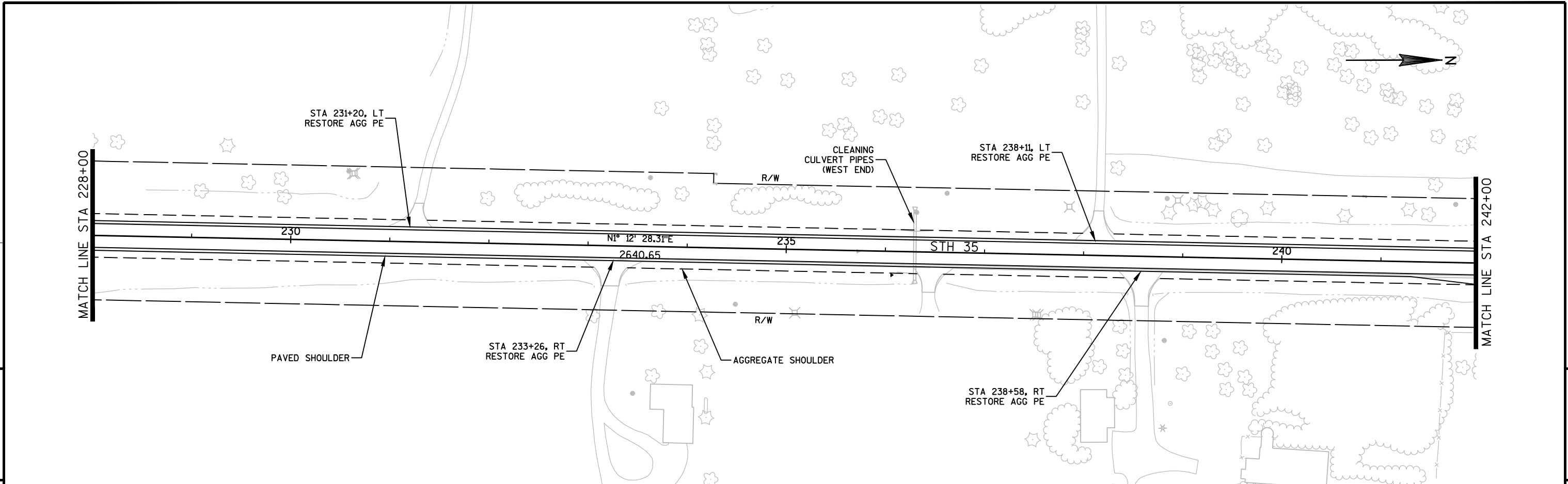
CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
21	CP RRSPK	422804.53	530857.76

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
202	410+65	BHA AC9044	941.26

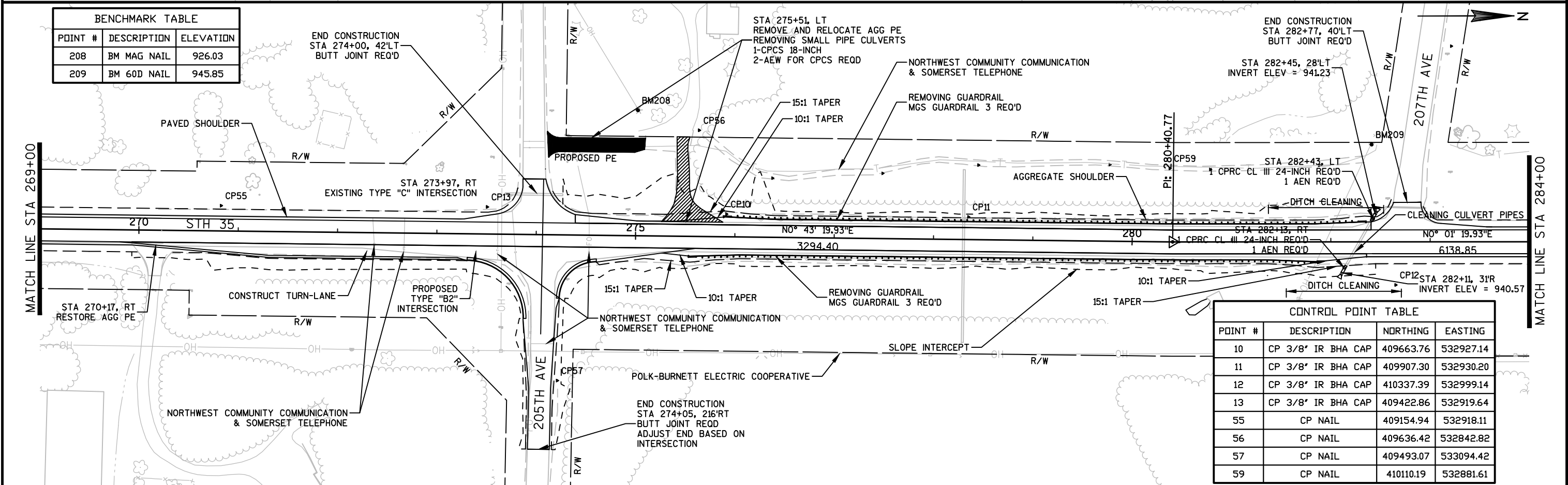
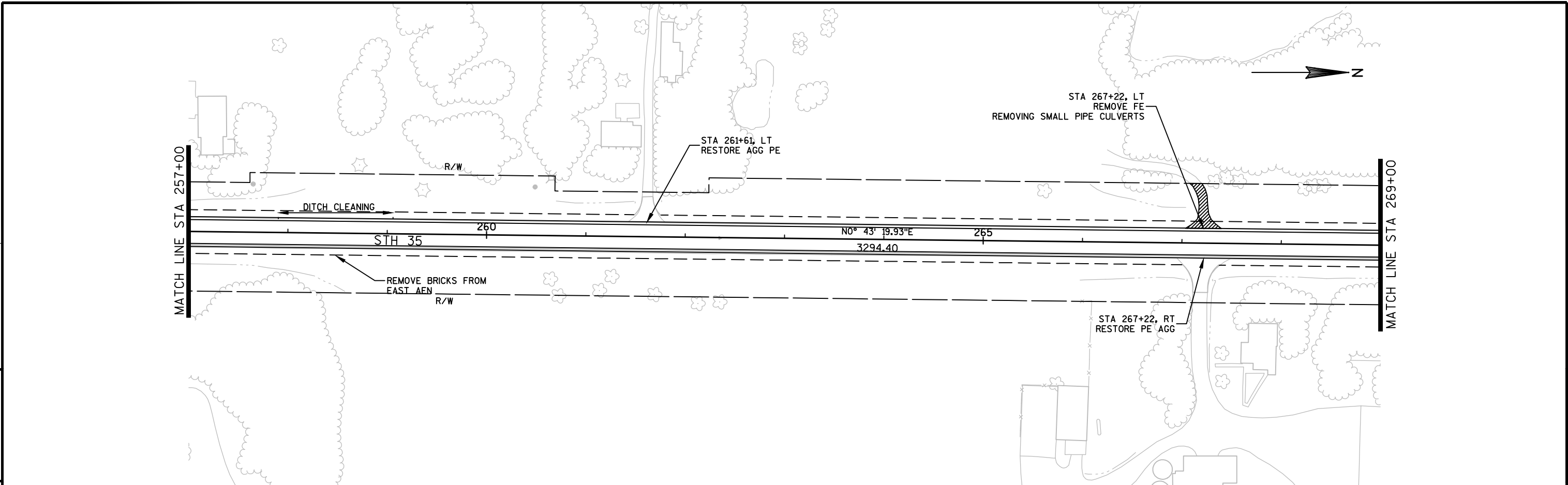




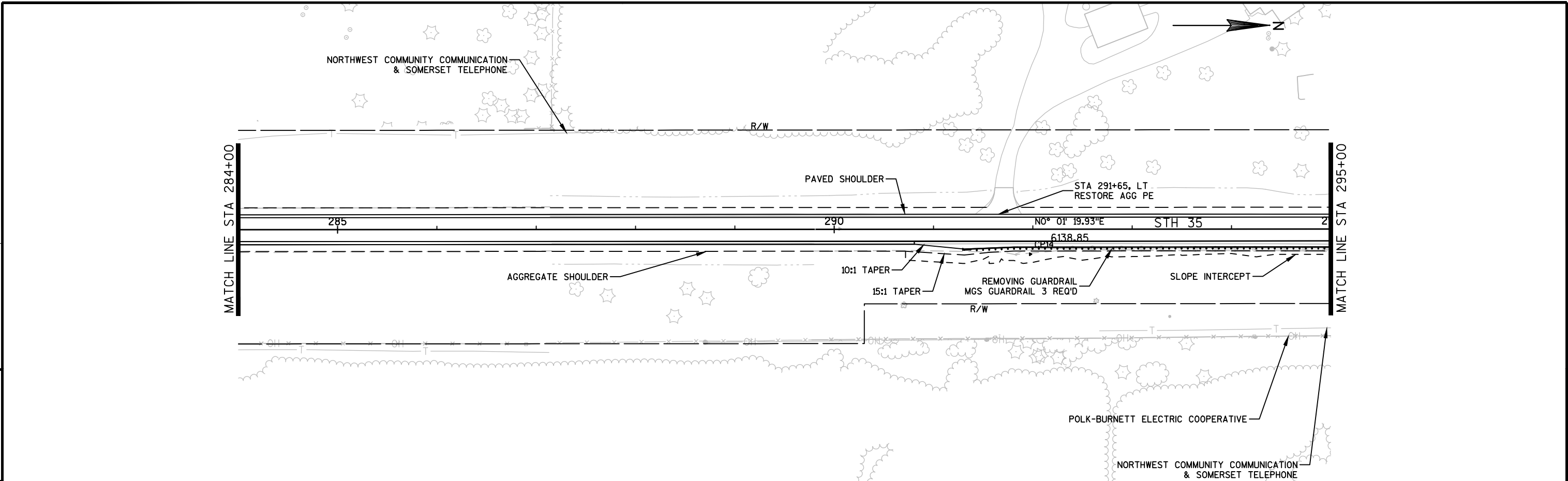




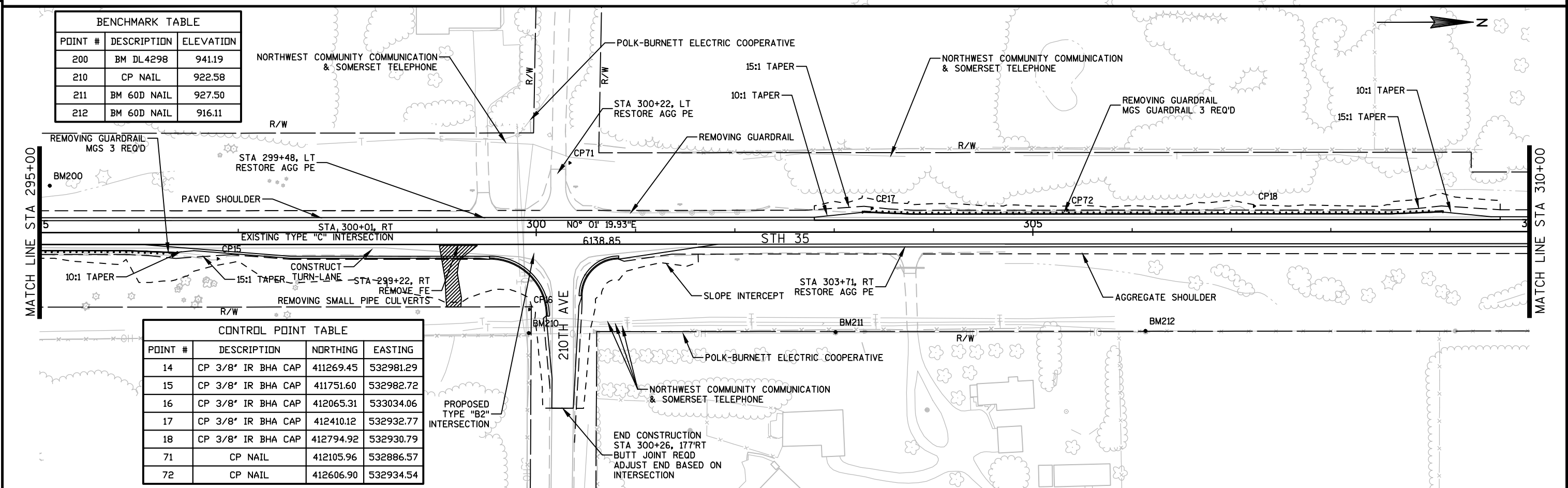
PROJECT NO: 8060-01-73	HWY: STH 35	COUNTY: ST. CROIX	LINE DIAGRAM	SHEET 63	E
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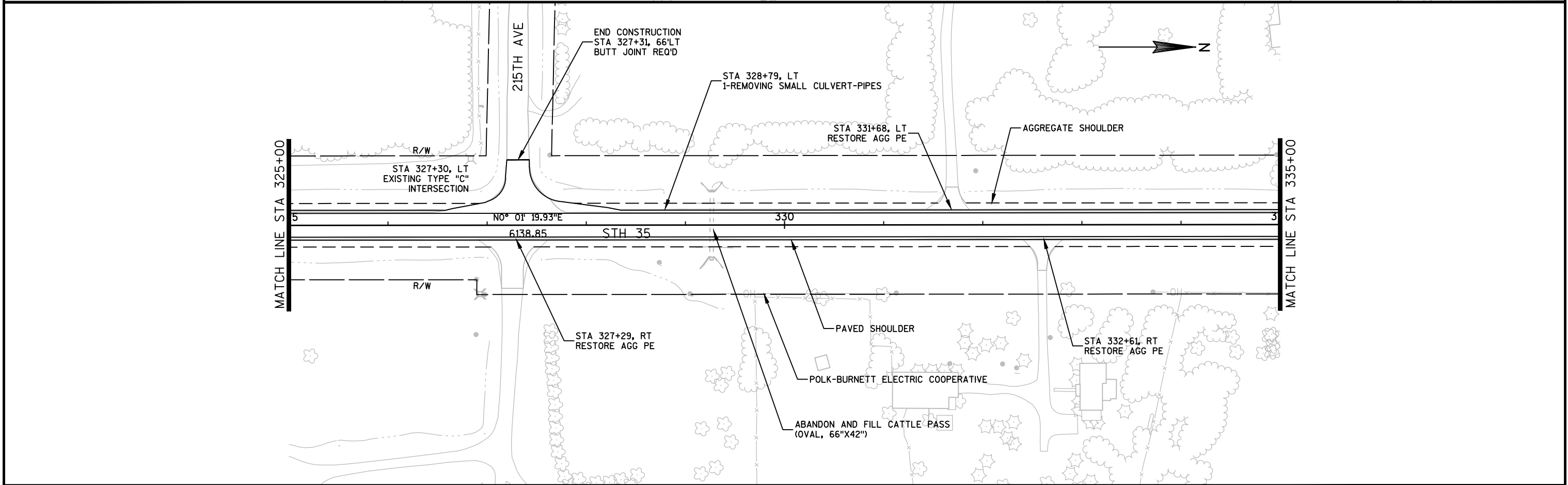
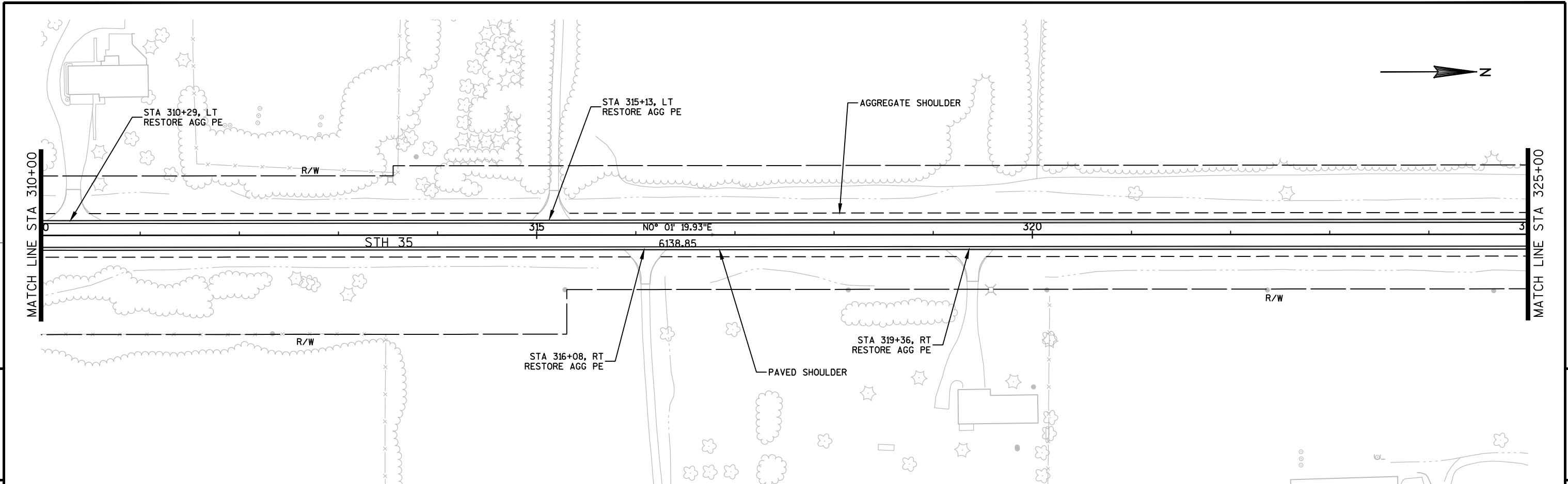


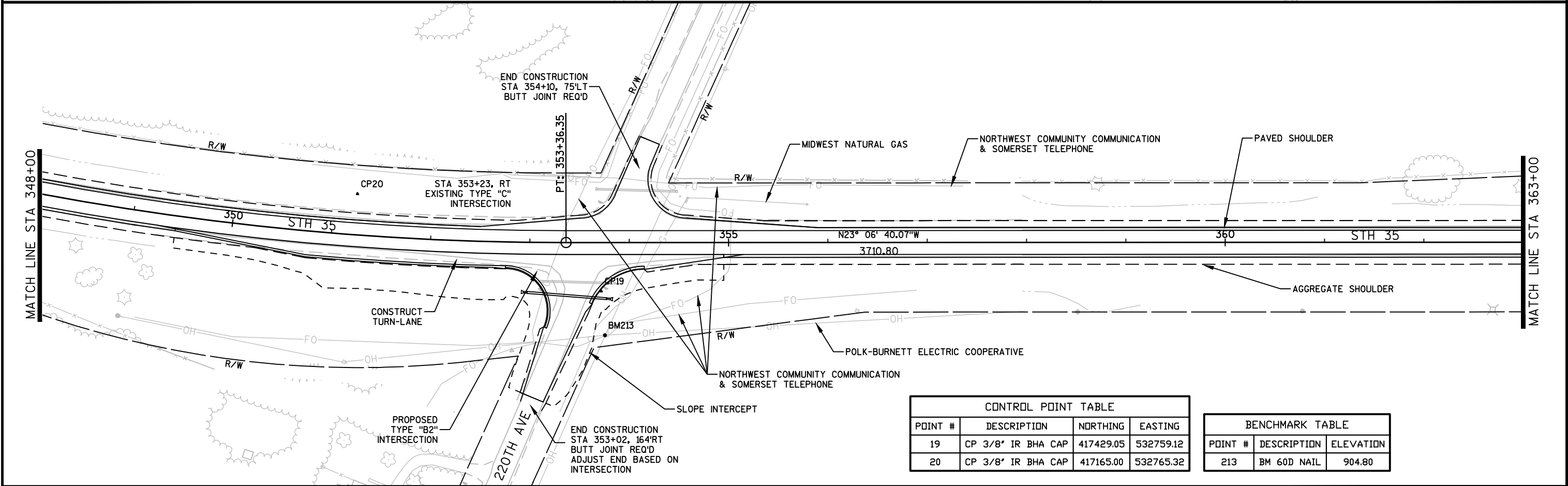
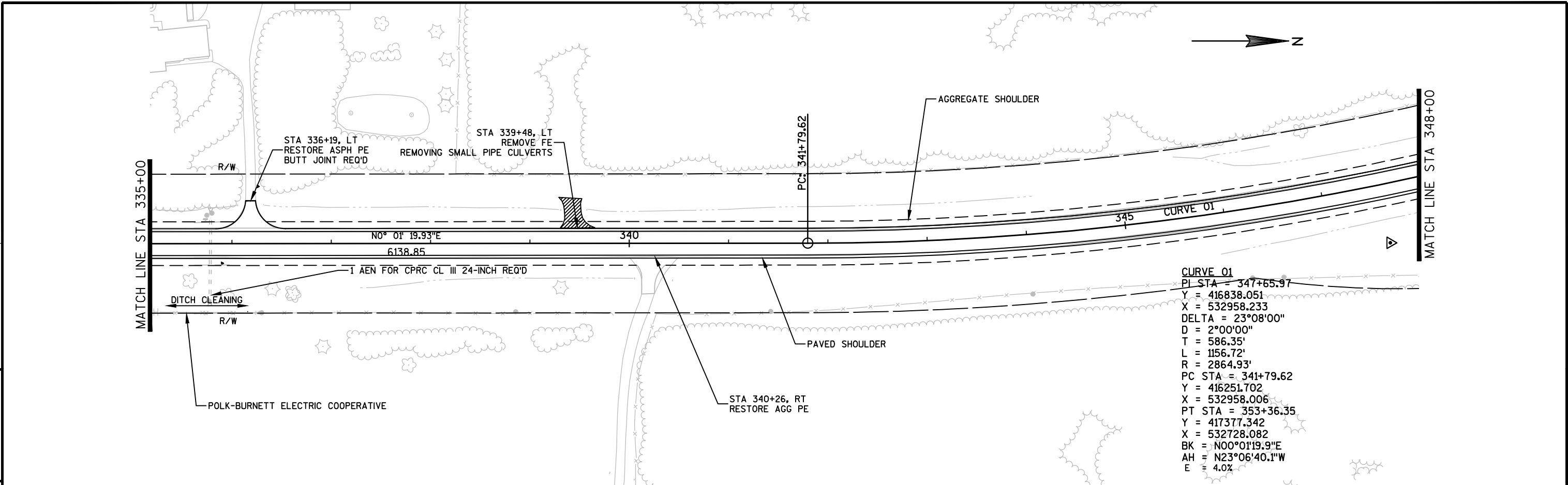
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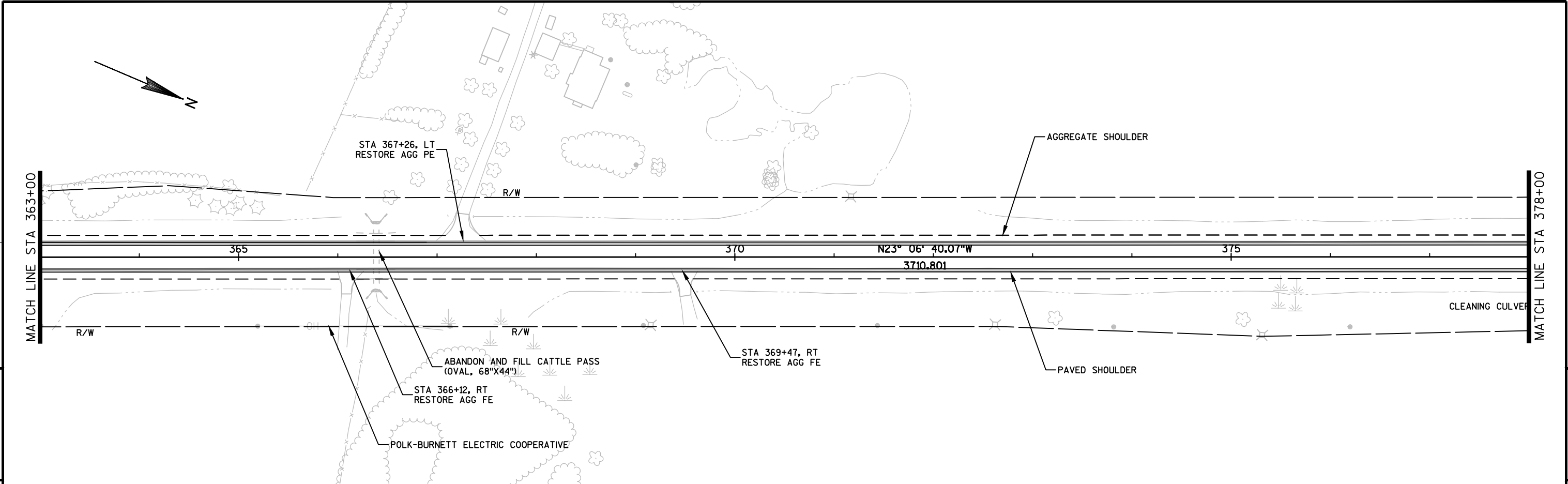
BENCHMARK TABLE		
POINT #	DESCRIPTION	ELEVATION
200	BM DL4298	941.19
210	CP NAIL	922.58
211	BM 60D NAIL	927.50
212	BM 60D NAIL	916.11

CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
14	CP 3/8" IR BHA CAP	411269.45	532981.29
15	CP 3/8" IR BHA CAP	411751.60	532982.72
16	CP 3/8" IR BHA CAP	412065.31	533034.06
17	CP 3/8" IR BHA CAP	412410.12	532932.77
18	CP 3/8" IR BHA CAP	412794.92	532930.79
71	CP NAIL	412105.96	532886.57
72	CP NAIL	412606.90	532934.54

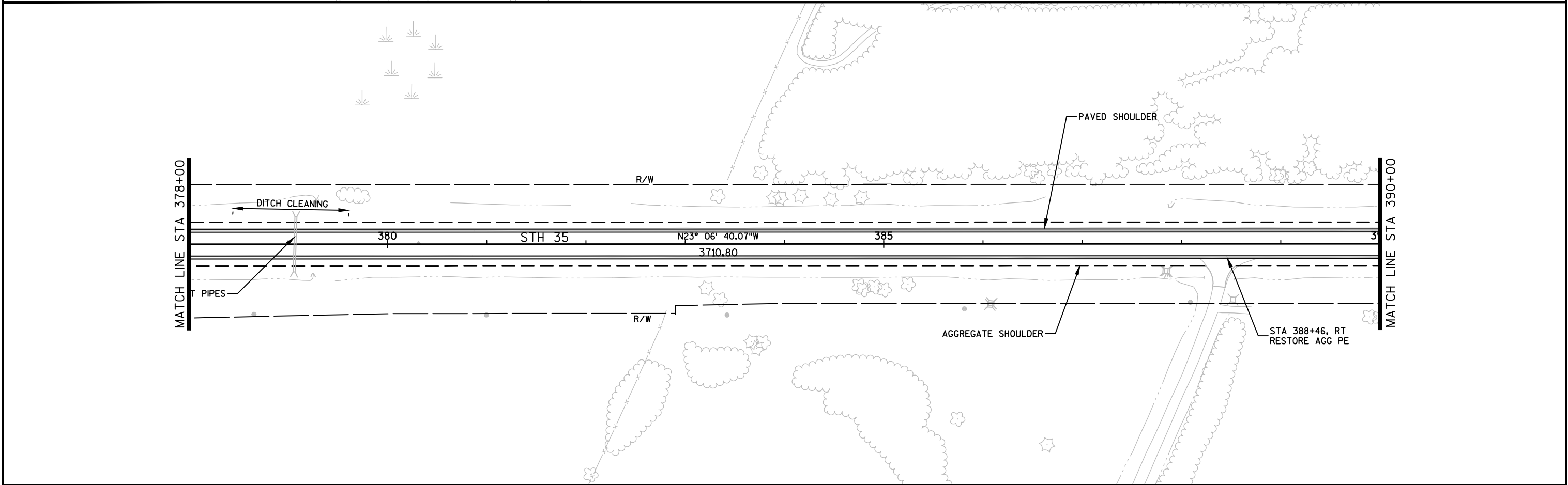




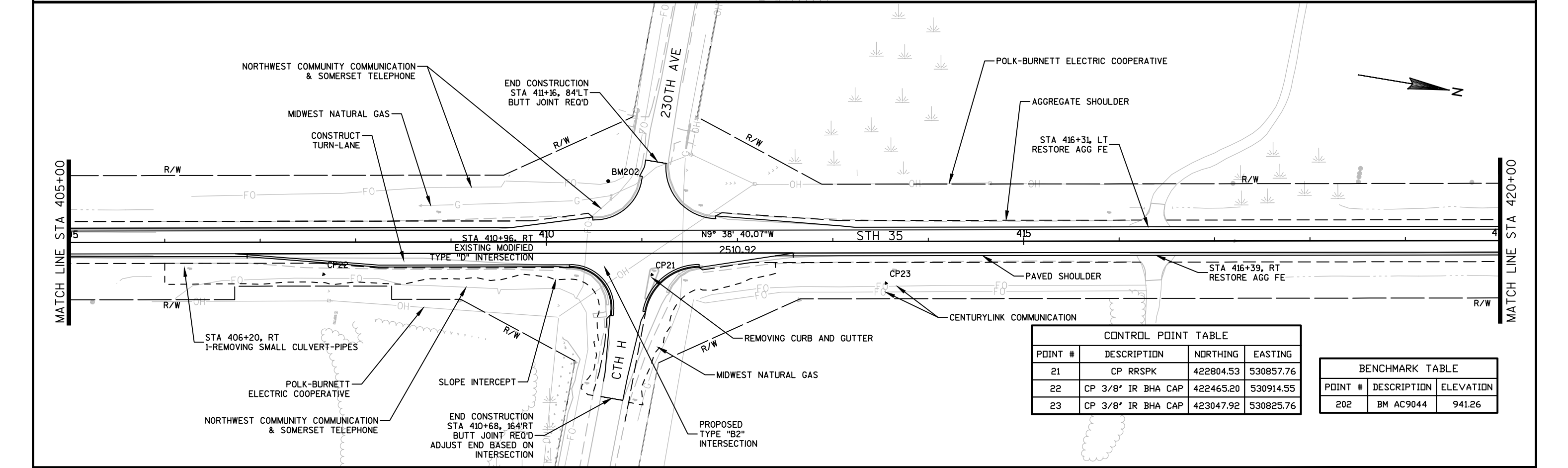
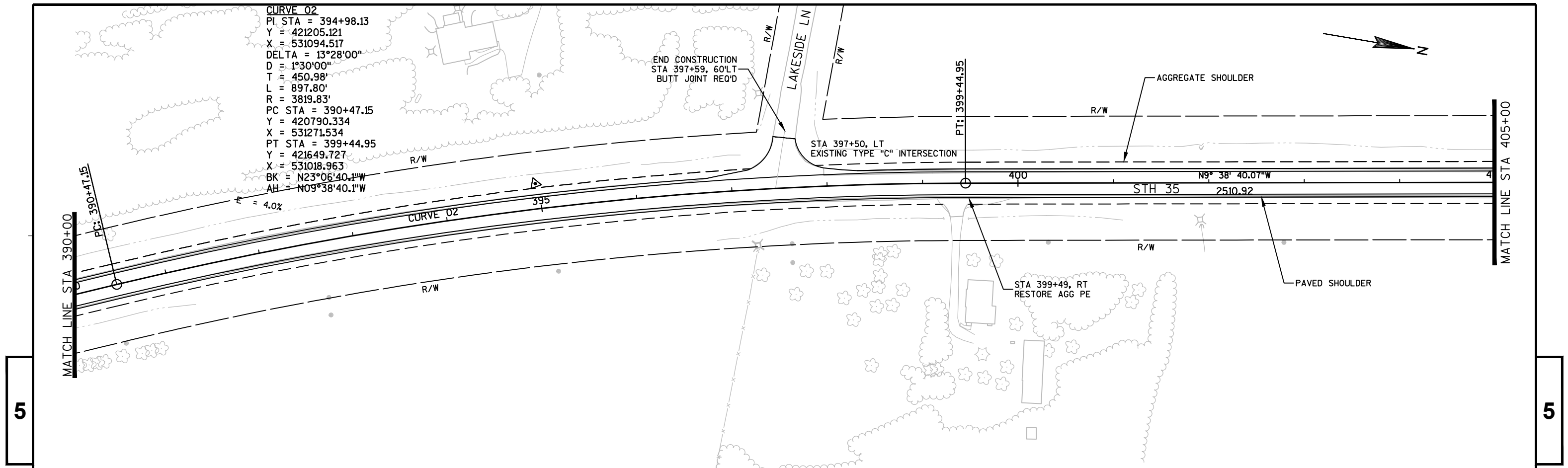
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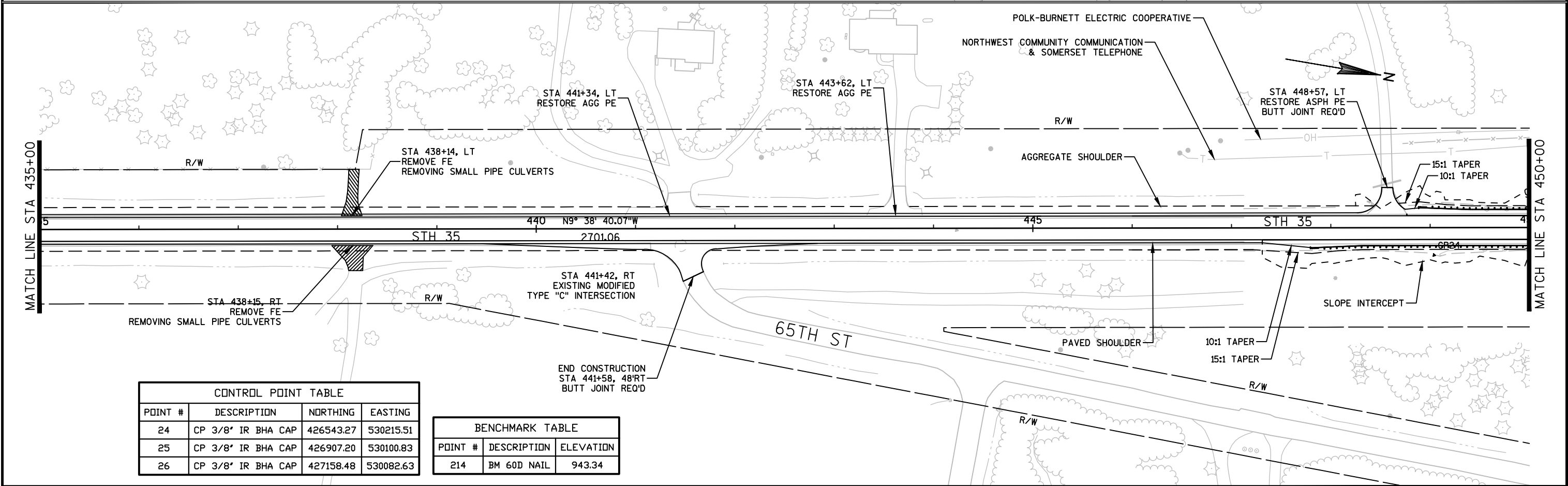
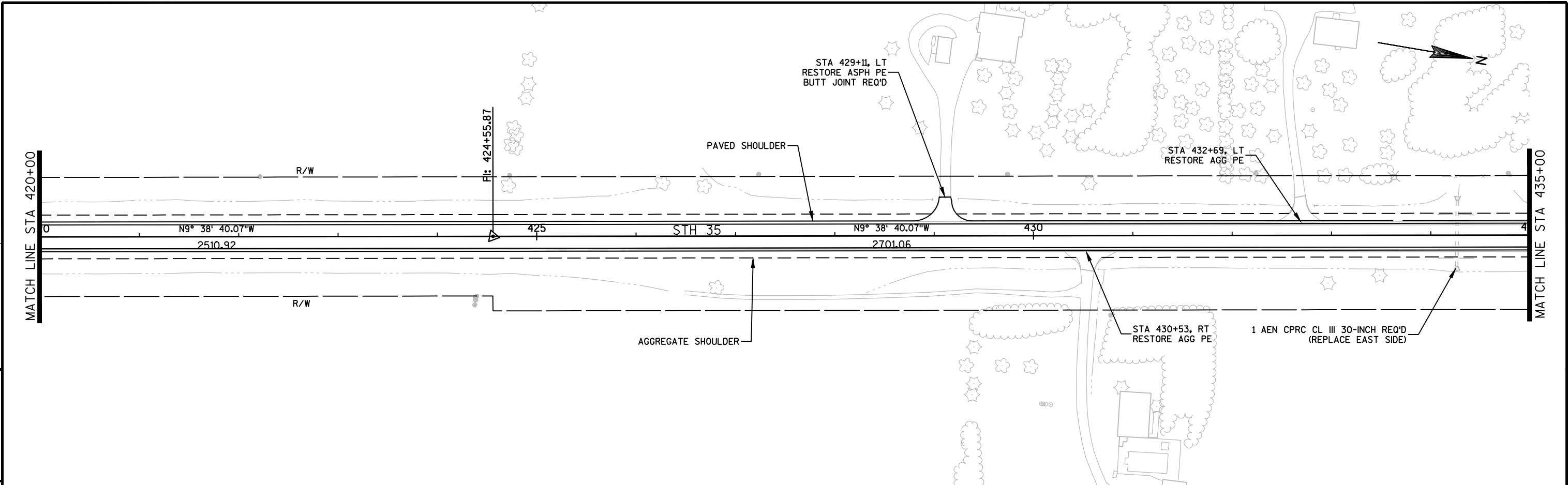


PROJECT NO:8060-01-73	HWY:STH 35	COUNTY:ST. CROIX	LINE DIAGRAM	SHEET 68	E
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CONTROL POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
21	CP RRSPK	422804.53	530857.76
22	CP 3/8" IR BHA CAP	422465.20	530914.55
23	CP 3/8" IR BHA CAP	423047.92	530825.76

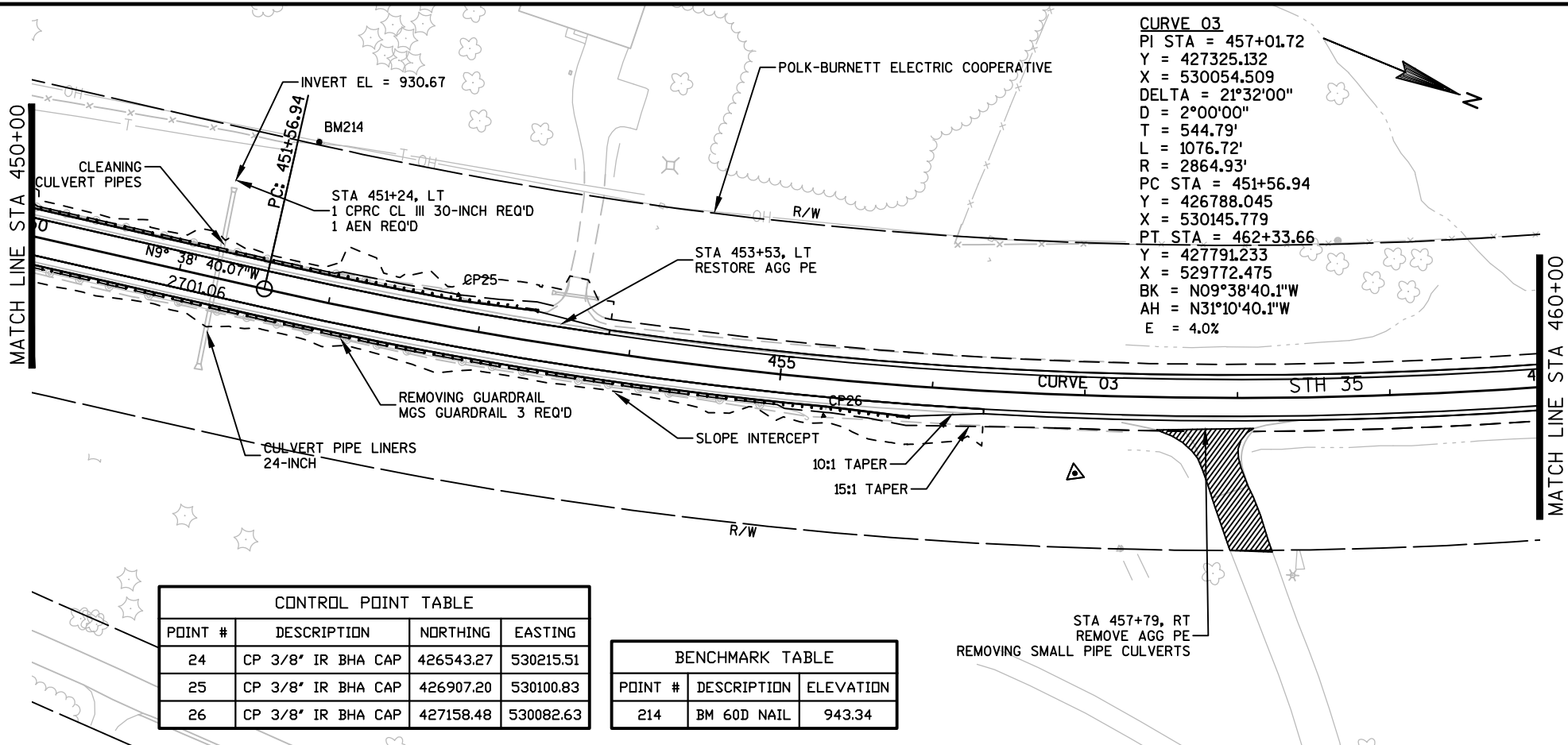
BENCHMARK TABLE		
POINT #	DESCRIPTION	ELEVATION
202	BM AC9044	941.26



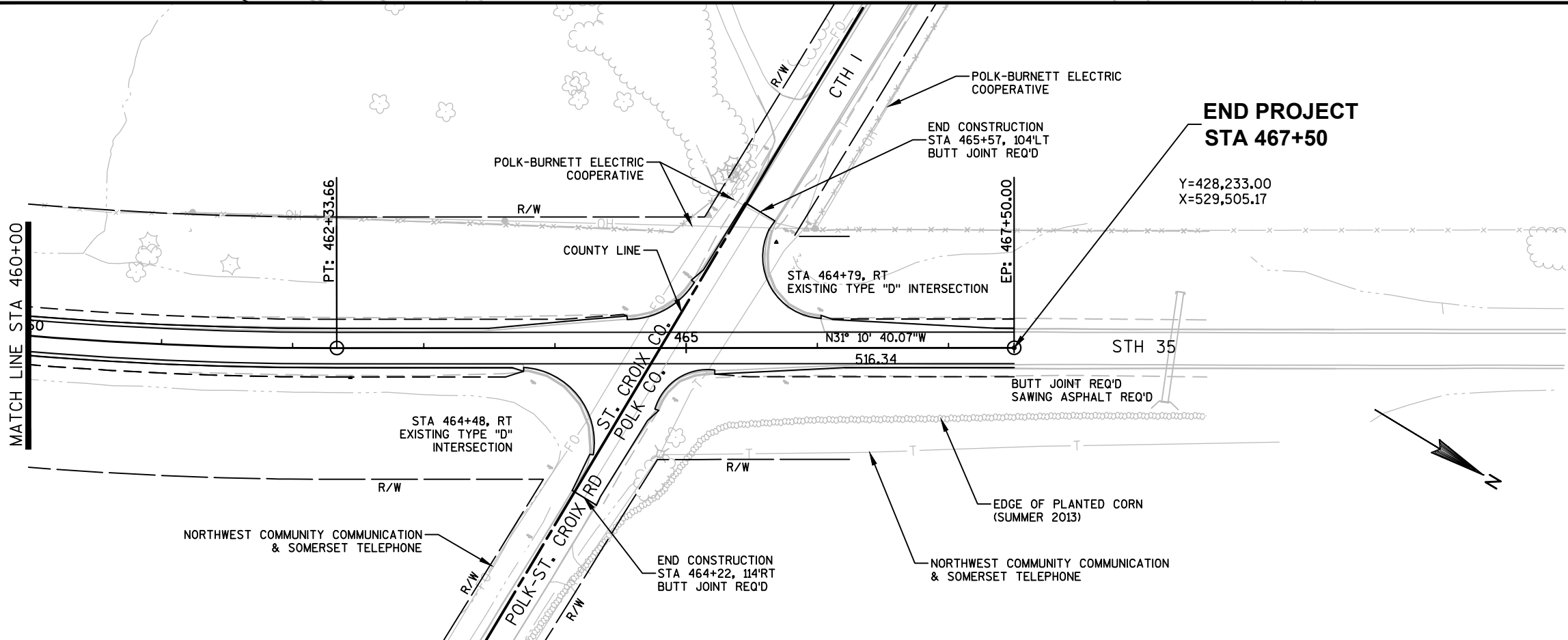
CONTROL POINT TABLE				
POINT #	DESCRIPTION	NORTHING	EASTING	
24	CP 3/8" IR BHA CAP	426543.27	530215.51	
25	CP 3/8" IR BHA CAP	426907.20	530100.83	
26	CP 3/8" IR BHA CAP	427158.48	530082.63	

BENCHMARK TABLE		
POINT #	DESCRIPTION	ELEVATION
214	BM 60D NAIL	943.34

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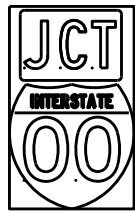
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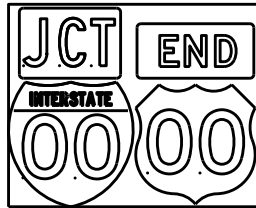
Standard Detail Drawing List

08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
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"
13A11-02A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-02B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B29-01	SAFETY EDGE
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-03	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15C12-05	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-04A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-02	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-01A	PAVEMENT MARKING (INTERSECTIONS)
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

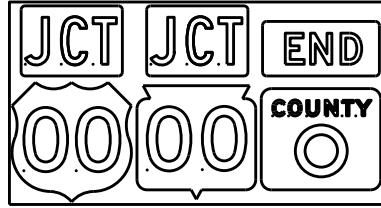
TYPICAL ASSEMBLIES



J1-1



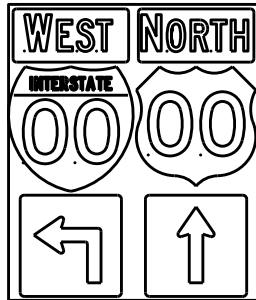
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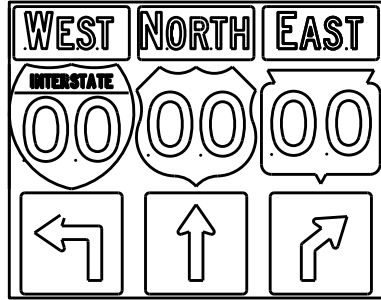
J1-3



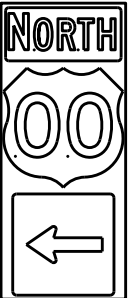
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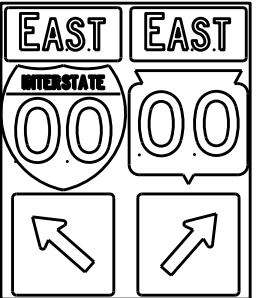
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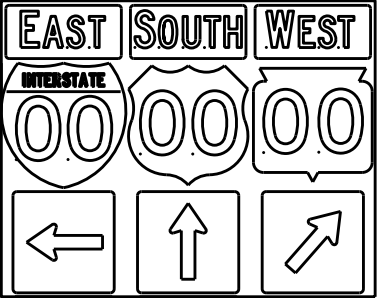
J2-3



J3-1



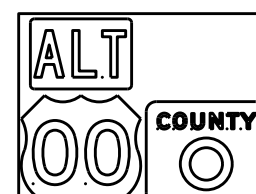
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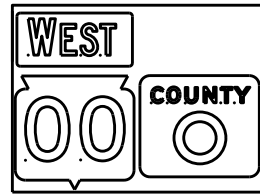
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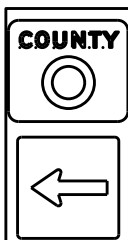
J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1



J23-1

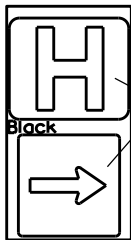


J22-1



JV

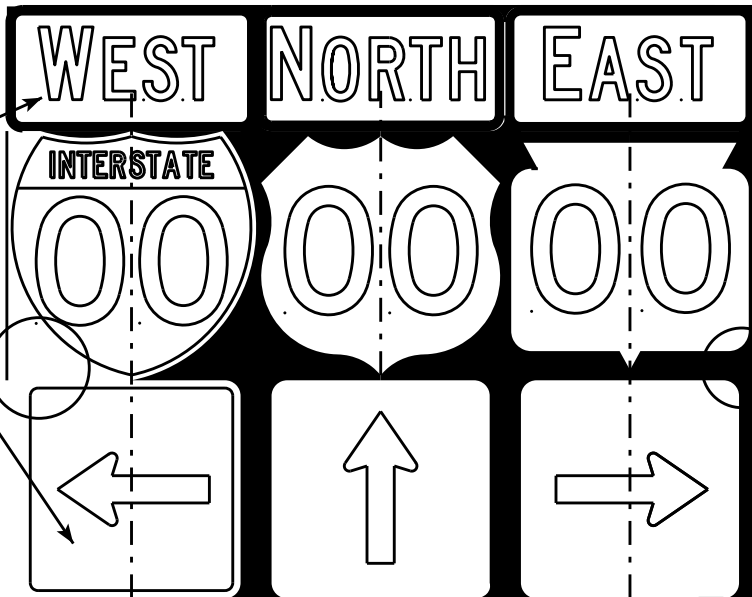
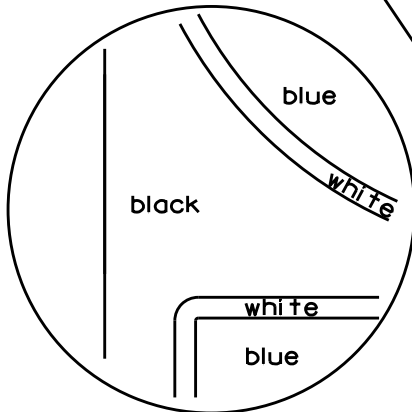
(Typical Vertical J-Assembly
See Note 10 and 11)



JH-1

Blue Background

[blue background
with interstate]



[black background]

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

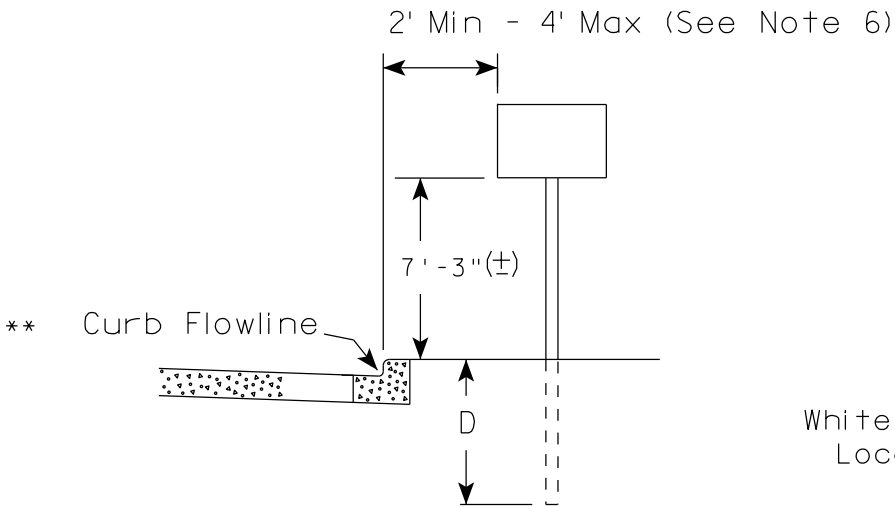
DATE 2/06/14 PL 73 A2-1S.8

SHEET NO: E

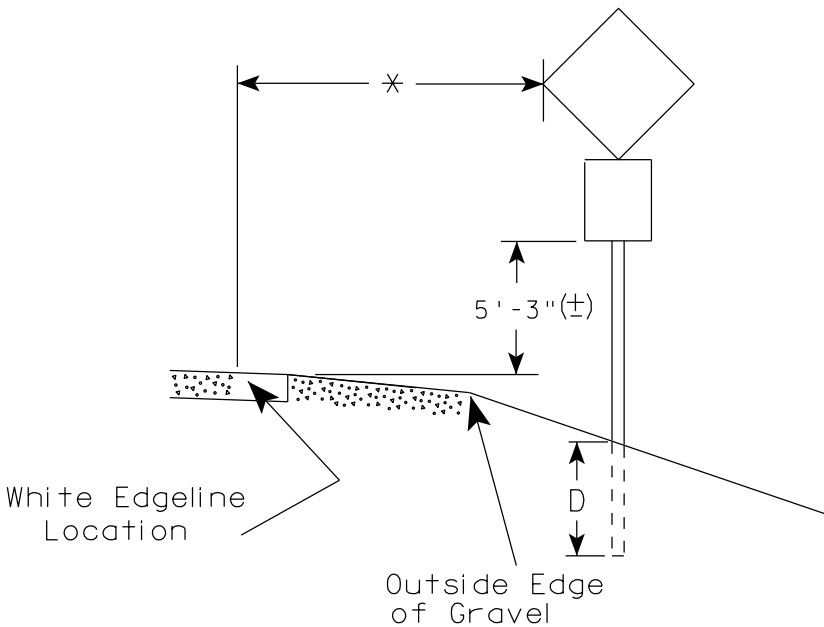
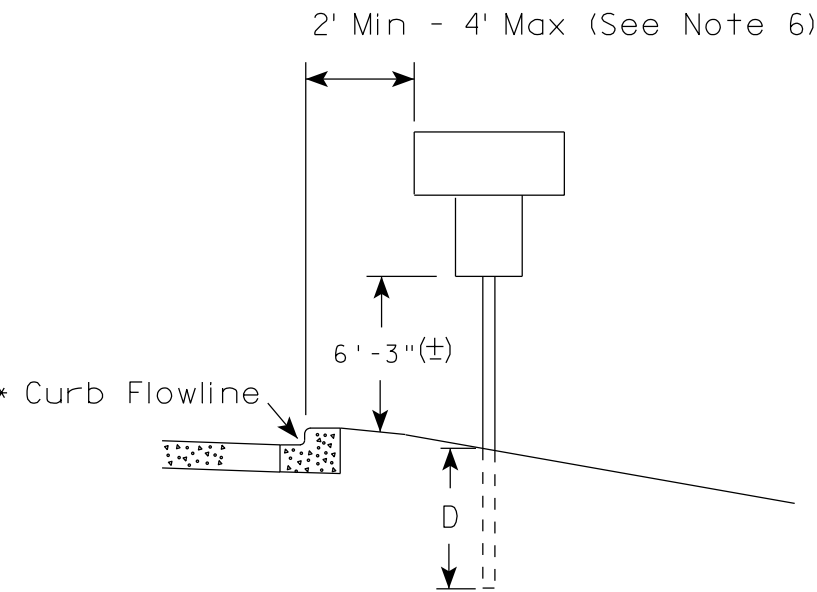
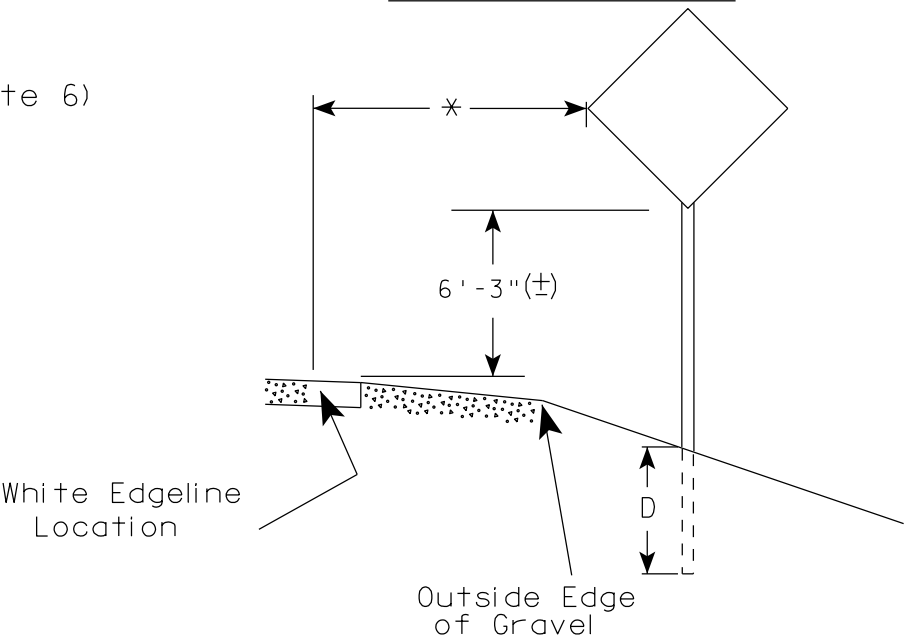
NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Black Non-reflective
Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

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

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

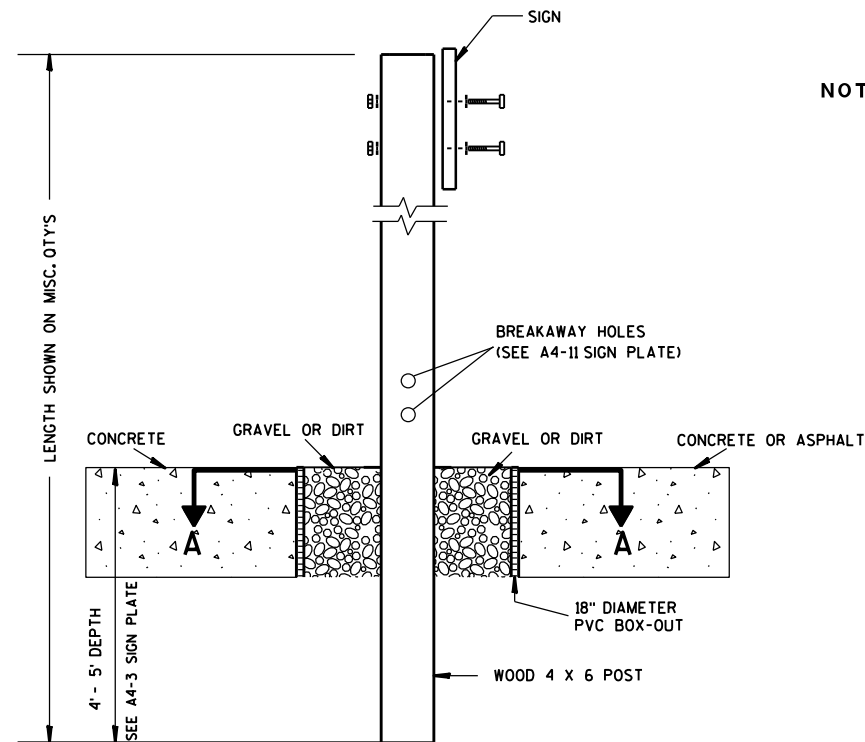
TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

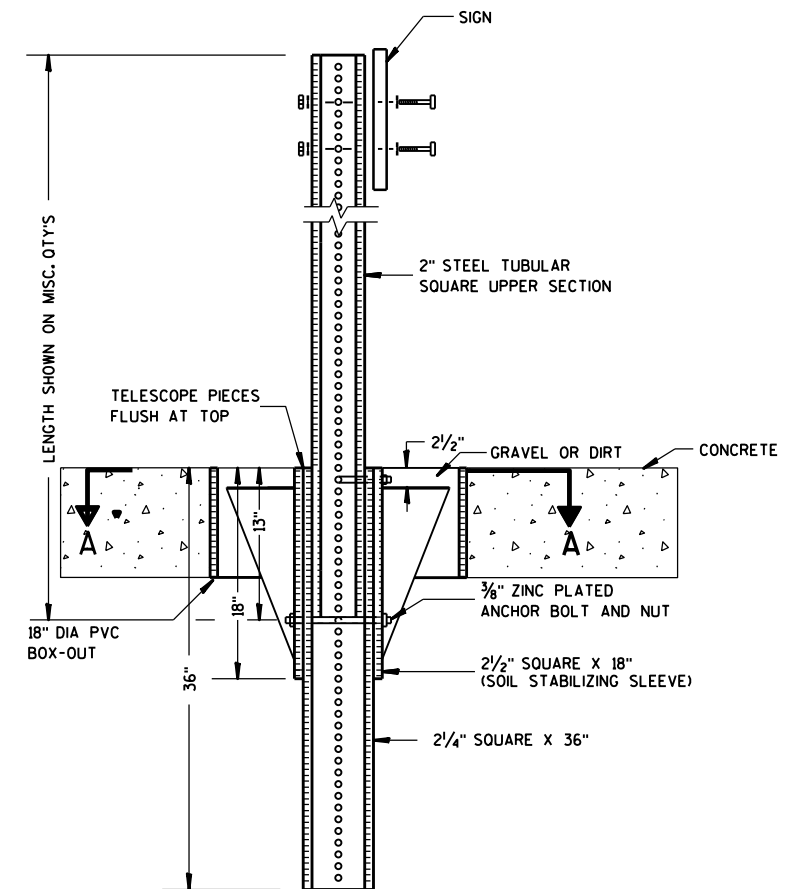
74



ELEVATION VIEW

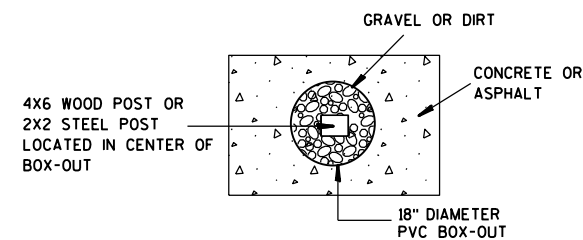
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 75 A4-3B.1

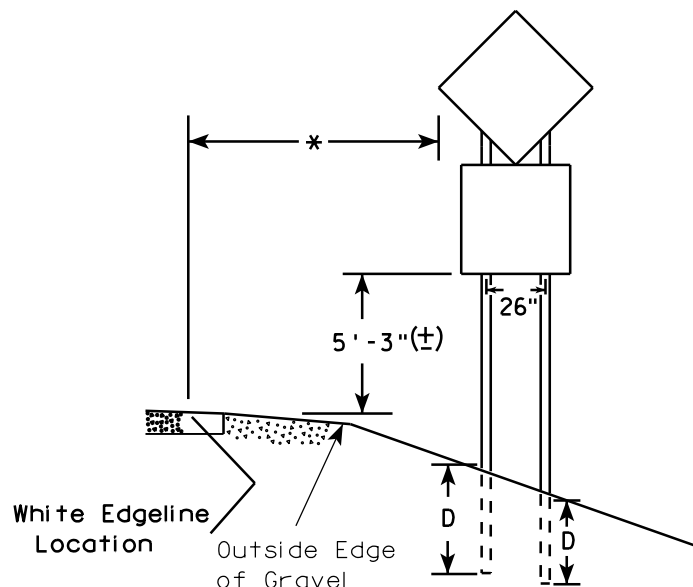
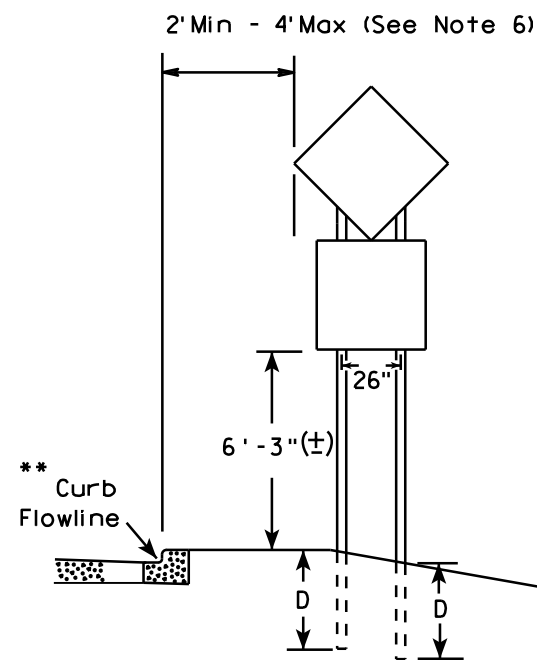
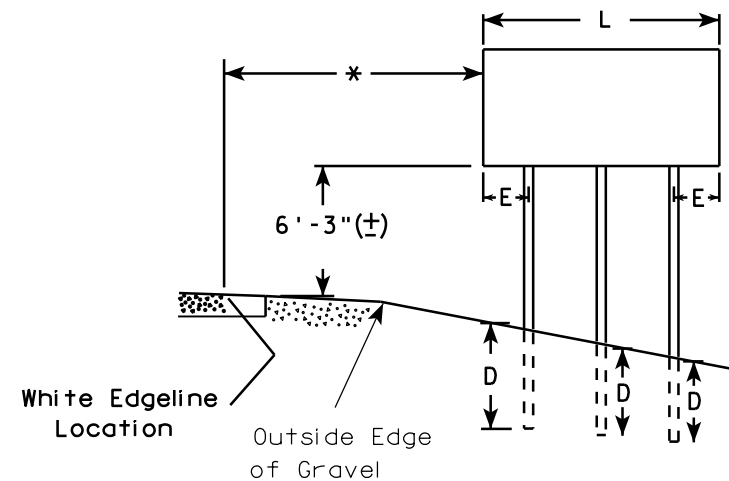
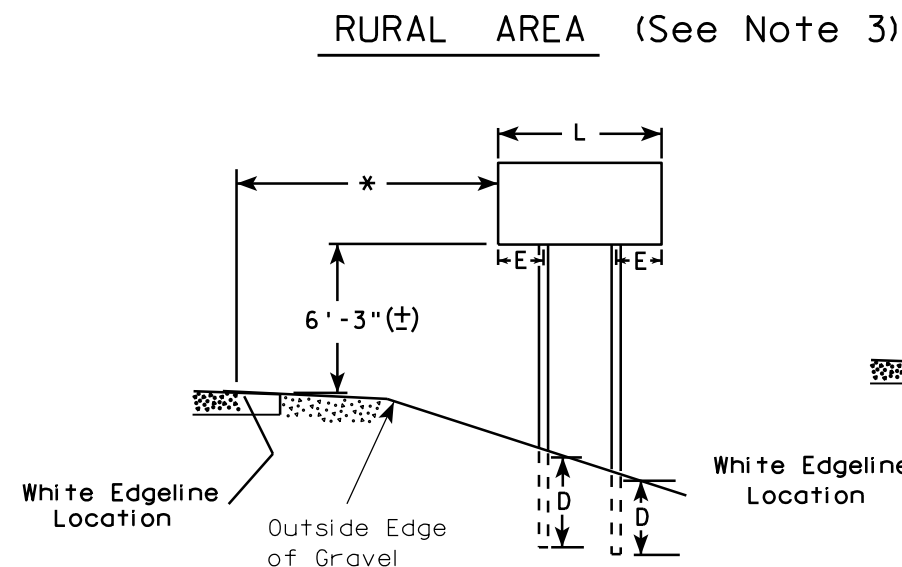
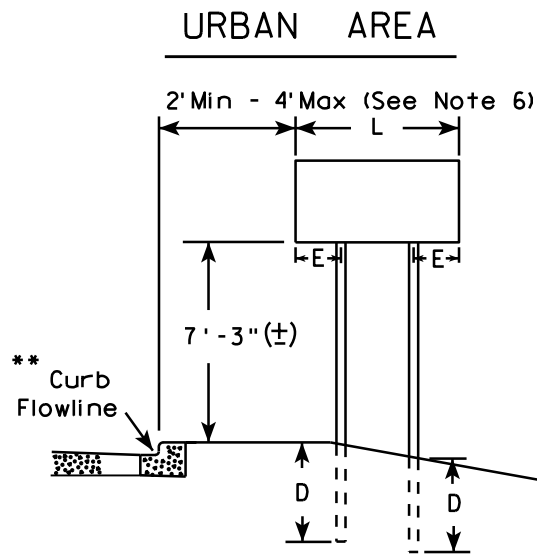
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



48" DIAMOND WARNING SIGN

- GENERAL NOTES**
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

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

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

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

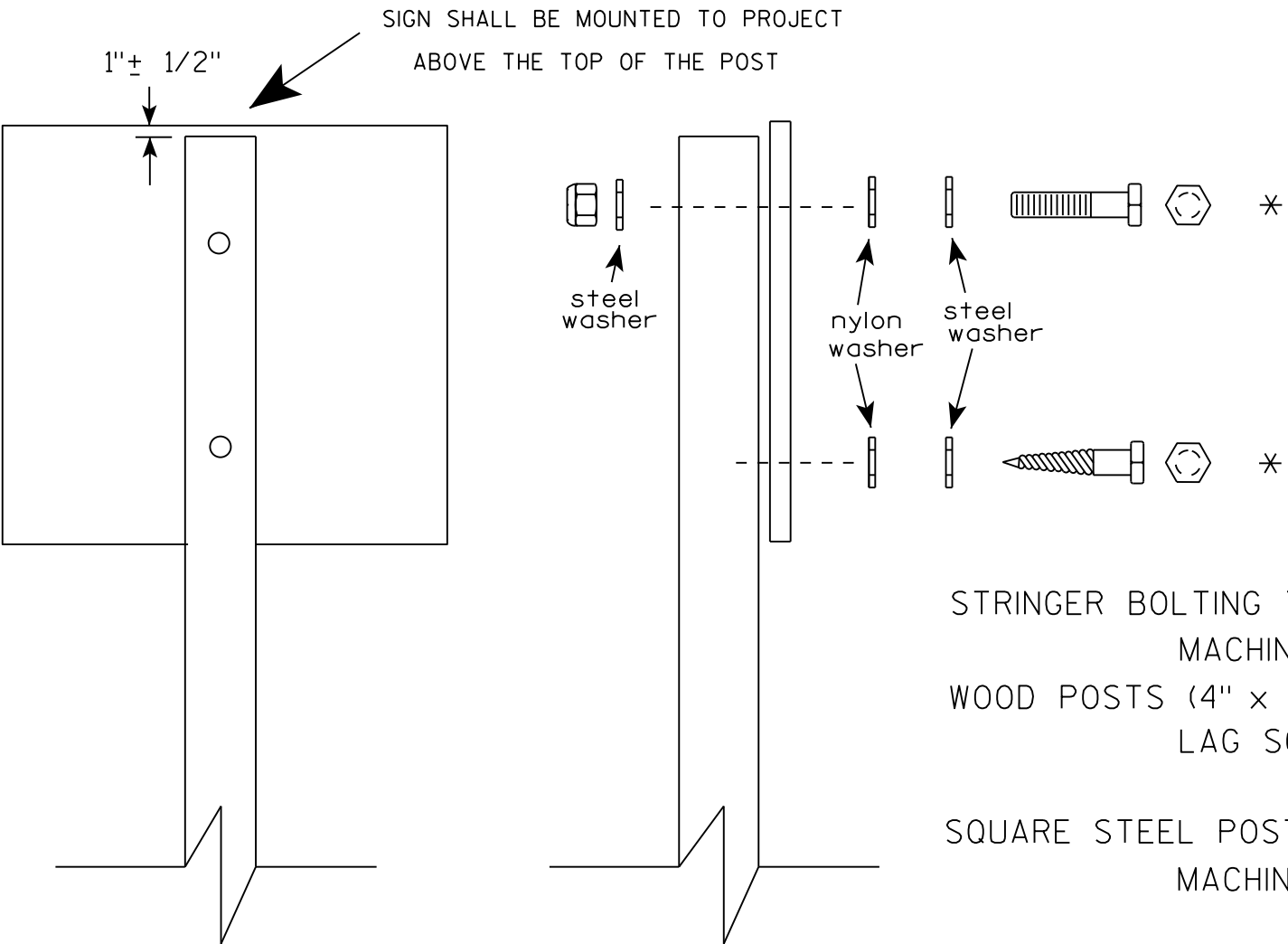
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. 14-76



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

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

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

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

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

ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8
77

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**

2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

LENGTH SHOWN ON MISC. QTY'S

SIGN

SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES

$\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT

TELESCOPE PIECES FLUSH AT TOP

2 1/2" GRAVEL OR DIRT

18" DIA SCHEDULE 40 PVC BOX-OUT

36"

18"

13"

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

2 1/4" SQUARE X 36"

3/8" ZINC PLATED ANCHOR BOLT AND NUT

LENGTH SHOWN ON MISC. QTY'S

SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES

$\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT

TELESCOPE PIECES FLUSH AT TOP

1"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

$2\frac{1}{2}$ " SQUARE X 18" (SOIL STABILIZING SLEEVE)

$2\frac{1}{4}$ " SQUARE X 36"

18"

12"

36"

A

A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

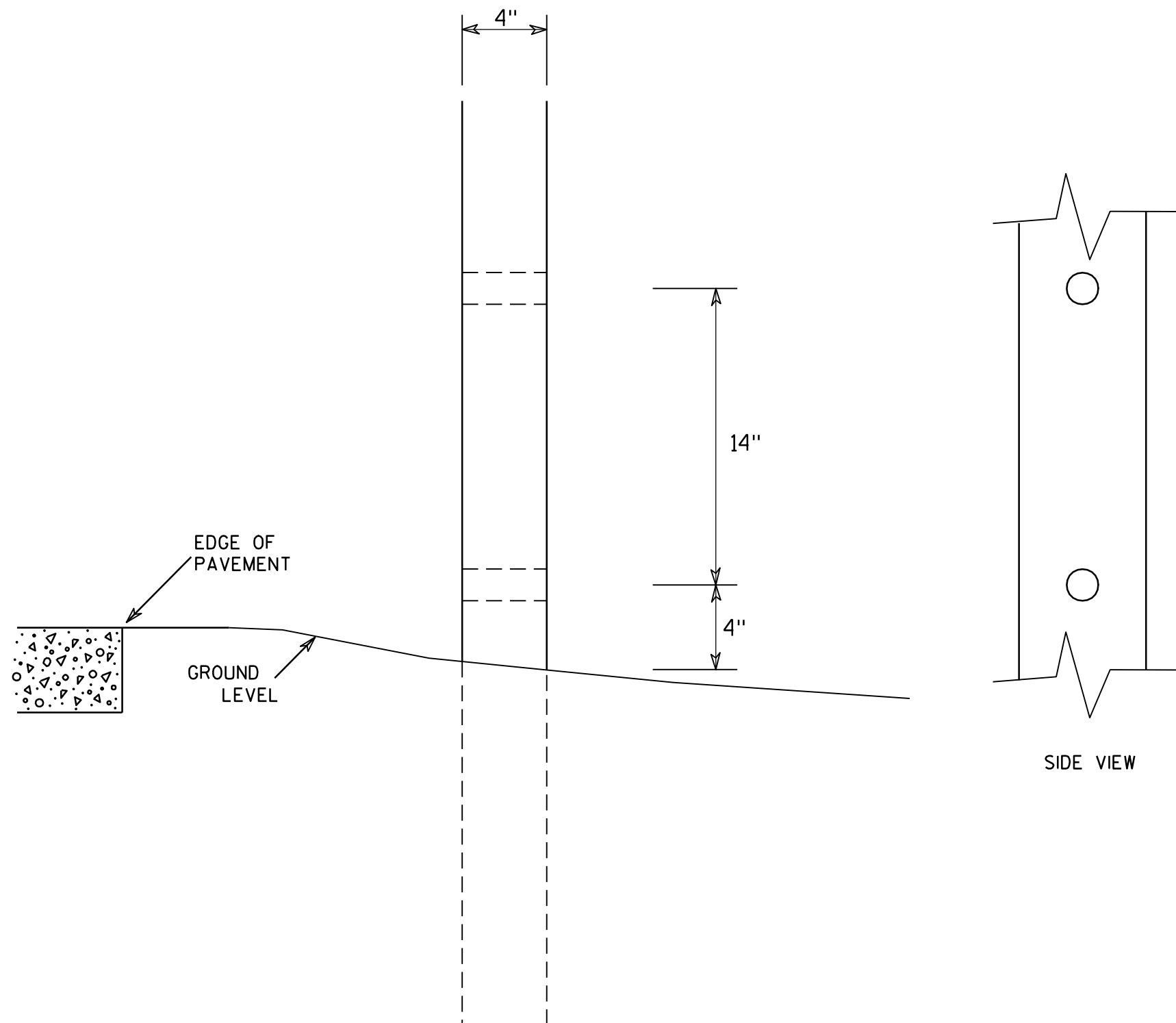
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
For State Traffic Engineer

DATE 2/05/15 PLAT 78 14-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

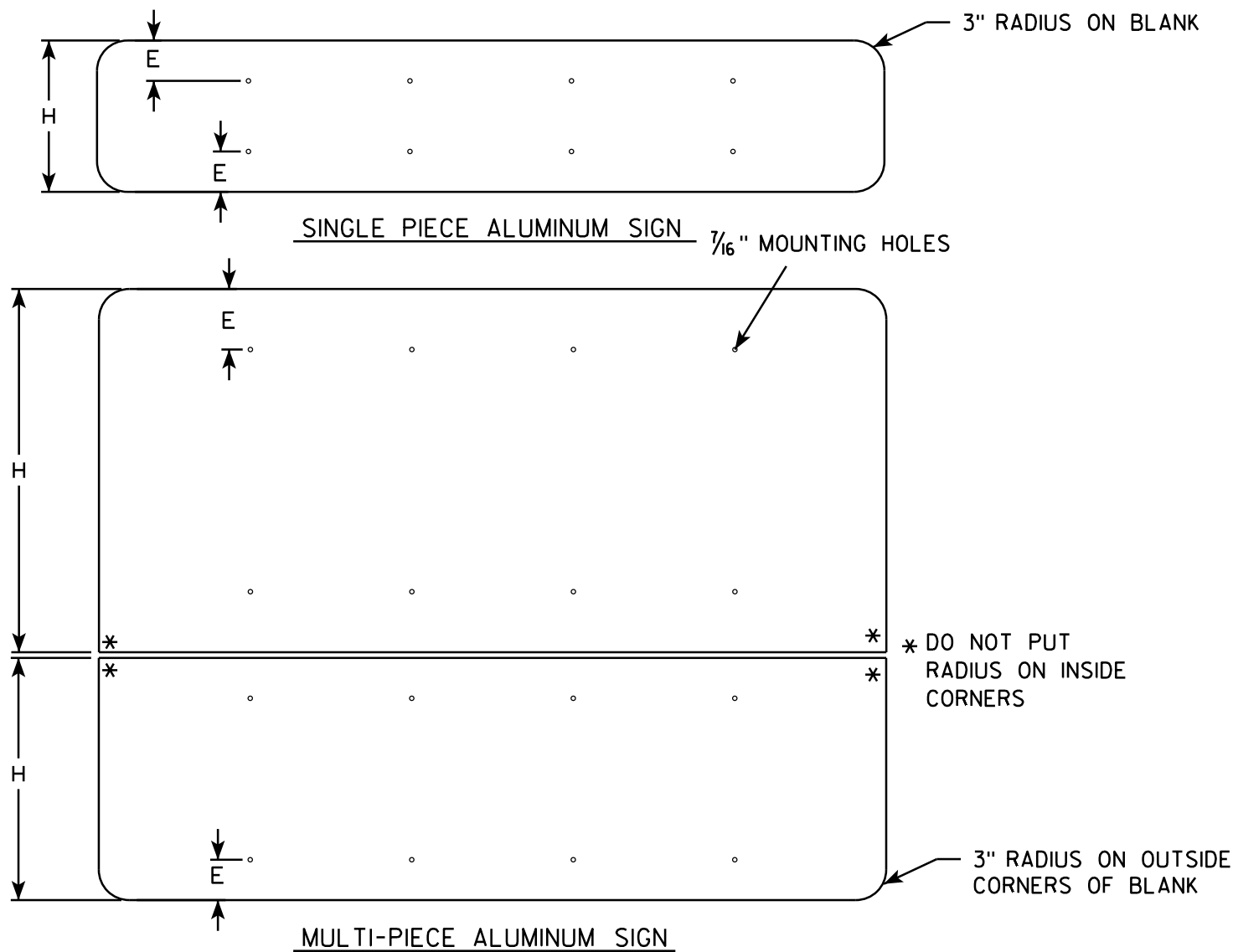
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 79

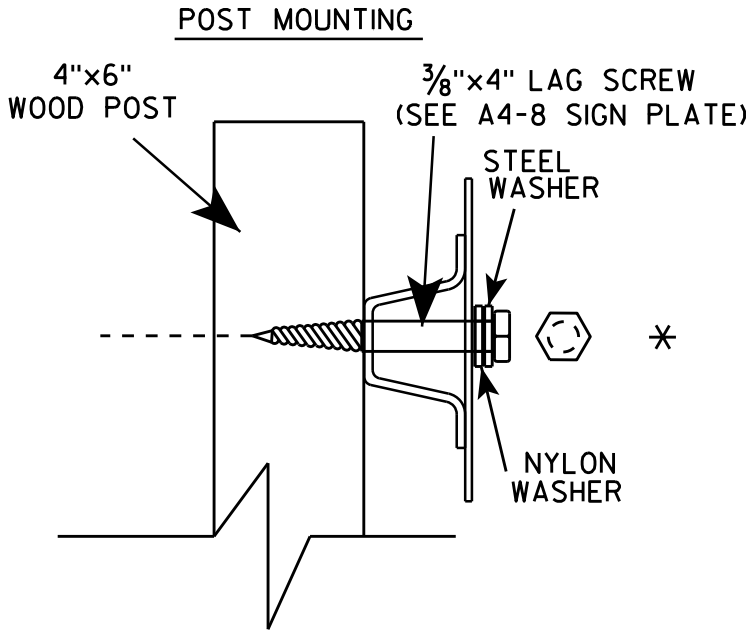
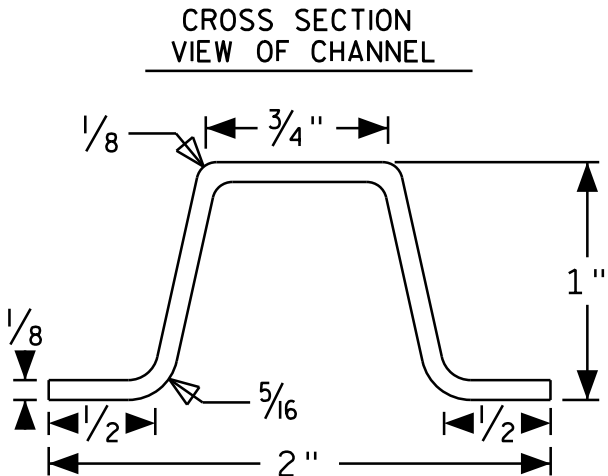
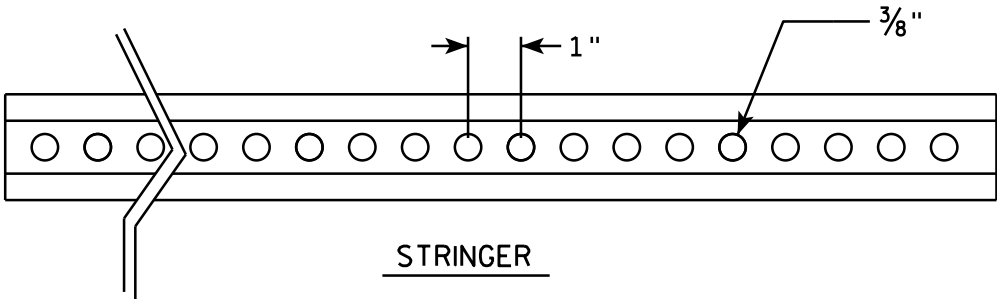
E



GENERAL NOTES

- ALL SIGNS OVER 60" IN WIDTH SHALL HAVE A 3" RADIUS ON THE OUTSIDE CORNERS OF THE ALUMINUM BLANK.
- MOUNTING HOLES SHALL BE 7/16" DIAMETER.
- SEE CHART FOR HOLE SPACING REQUIREMENTS
- FOR SIGN PANELS WITH DIMENSION (H) 36" AND OVER, DIMENSION E SHALL BE 6"
- FOR SIGN PANELS WITH DIMENSION (H) UNDER 36", DIMENSION E SHALL BE 4"
- SIGN STRINGER MATERIAL SHALL CONSIST OF STEEL CHANNEL POST SECTIONS, WEIGHING 1.12 LBS/FT IN ACCORDANCE WITH SECTION 633.2.1 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
- SEE SIGN PLATE A4-8 FOR SIGN STRINGER BOLTING REQUIREMENTS.

SIGN WIDTH	STRINGER WIDTH	POSTS	HOLE SPACING	MOUNTING HOLES			
78"	72"	2	16"	15"	31"	47"	63"
84"	72"	2	17"	16 1/2"	33 1/2"	50 1/2"	67 1/2"
90"	72"	2	18"	18"	36"	54"	72"
96"	90"	2	19"	19 1/2"	38 1/2"	57 1/2"	76 1/2"
102"	90"	2	20"	21"	41"	61"	81"
108"	90"	2	21"	22 1/2"	43 1/2"	64 1/2"	85 1/2"
114"	108"	3	15"	12"	27"	42"	57" 72" 87" 102"
120"	108"	3	16"	12"	28"	44"	60" 76" 92" 108"
126"	108"	3	17"	12"	29"	46"	63" 80" 97" 114"
132"	126"	3	18"	12"	30"	48"	66" 84" 102" 120"
138"	126"	3	19"	12"	31"	50"	69" 88" 107" 126"
144"	126"	3	20"	12"	32"	52"	72" 92" 112" 132"



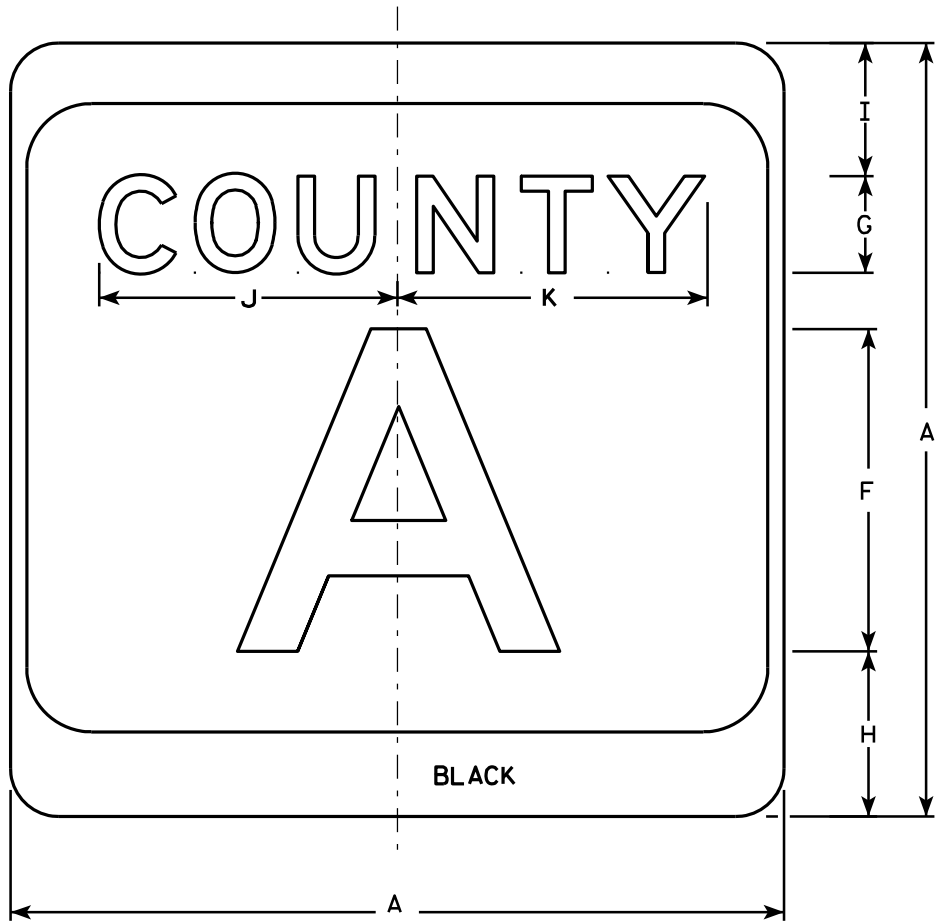
SIGN STRINGER MOUNTING REQUIREMENTS

WISCONSIN DEPT OF TRANSPORTATION

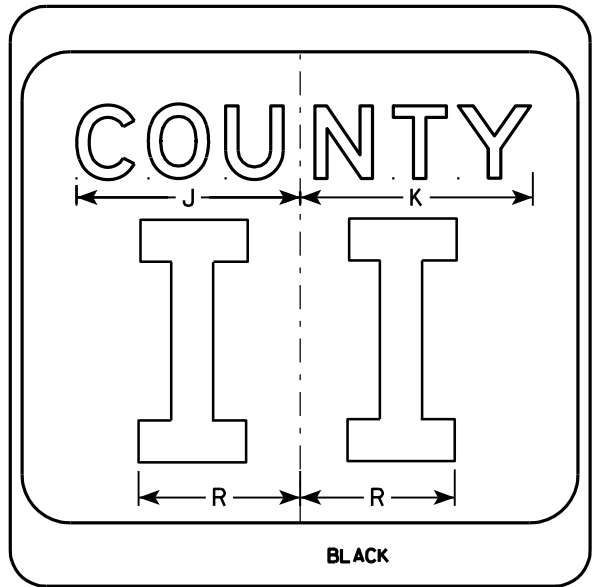
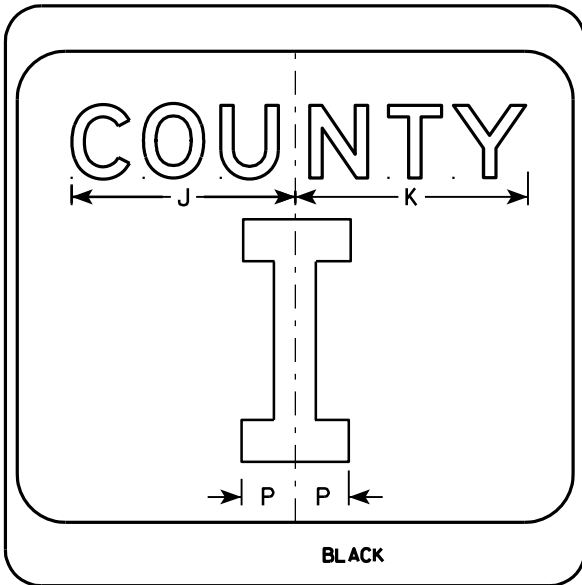
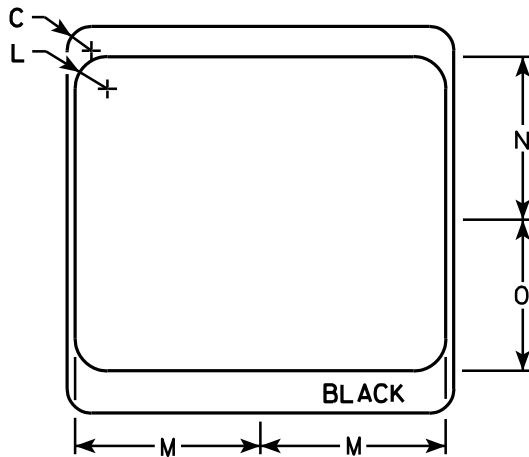
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/26/16 PLATE No A4-18.1
80

7



M1-5A



NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 81

E

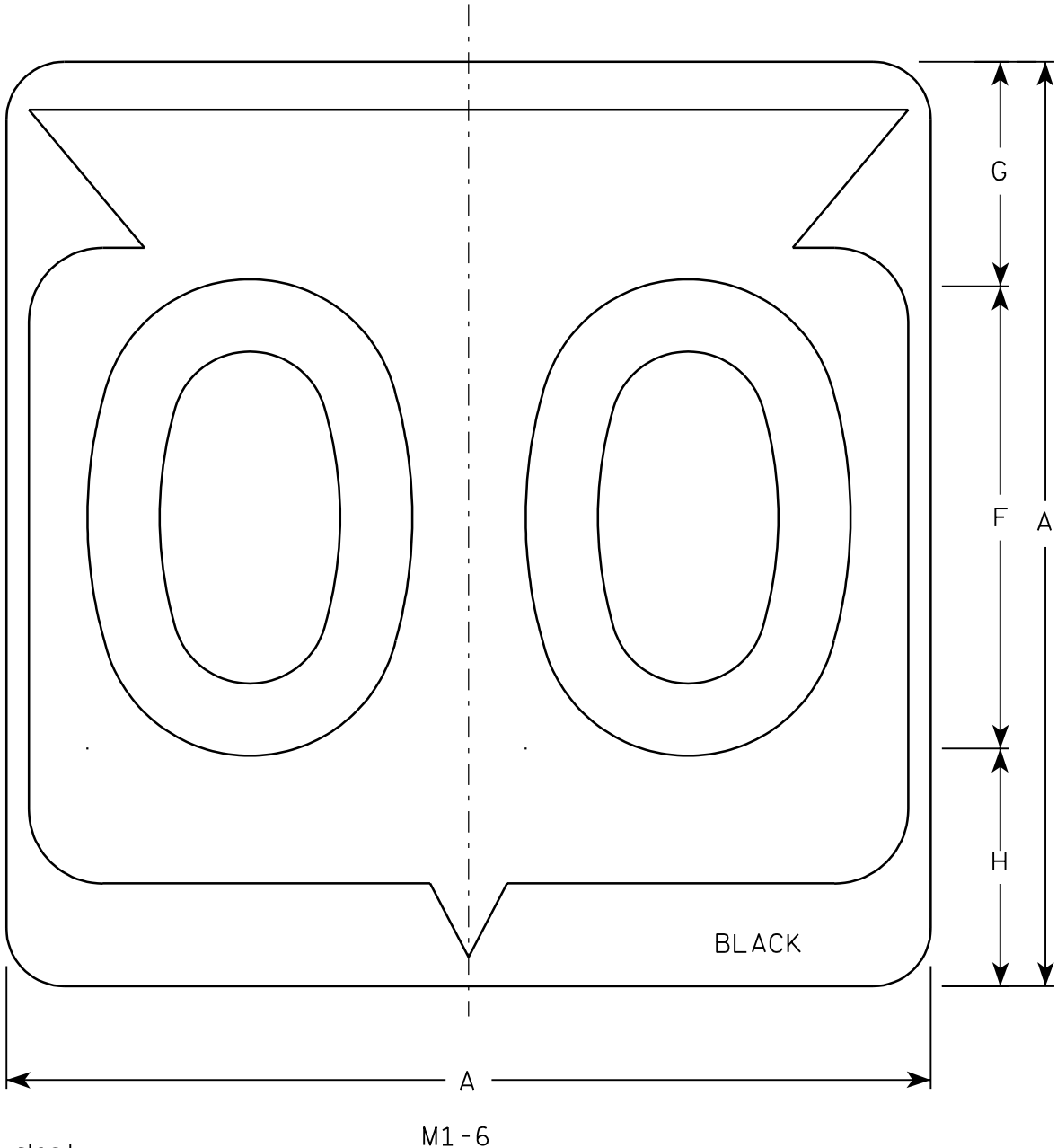
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
For State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8

7



Metric equivalent
for this sign is:

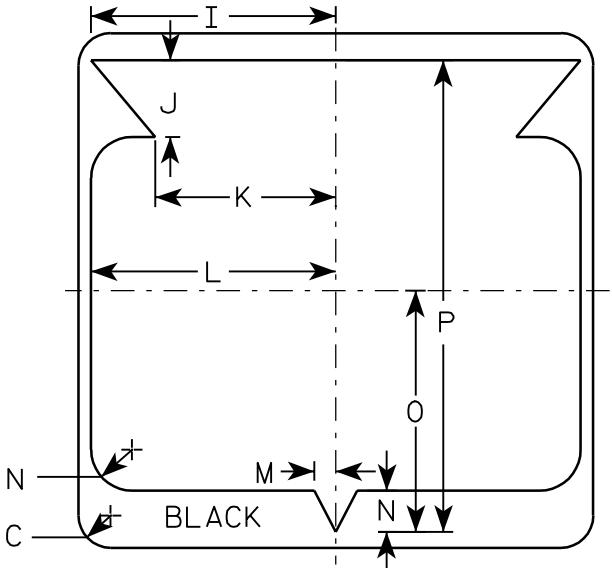
SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m ²
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

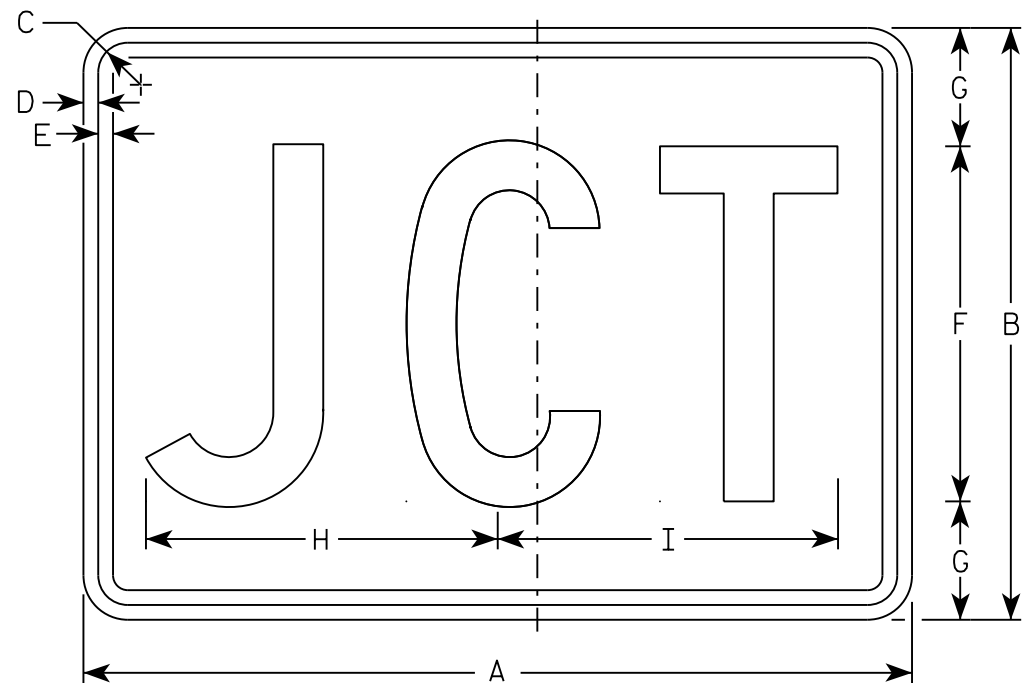
PROJECT NO:				HWY:				COUNTY:																SHEET NO: 82				E
-------------	--	--	--	------	--	--	--	---------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--	--	---

NOTES

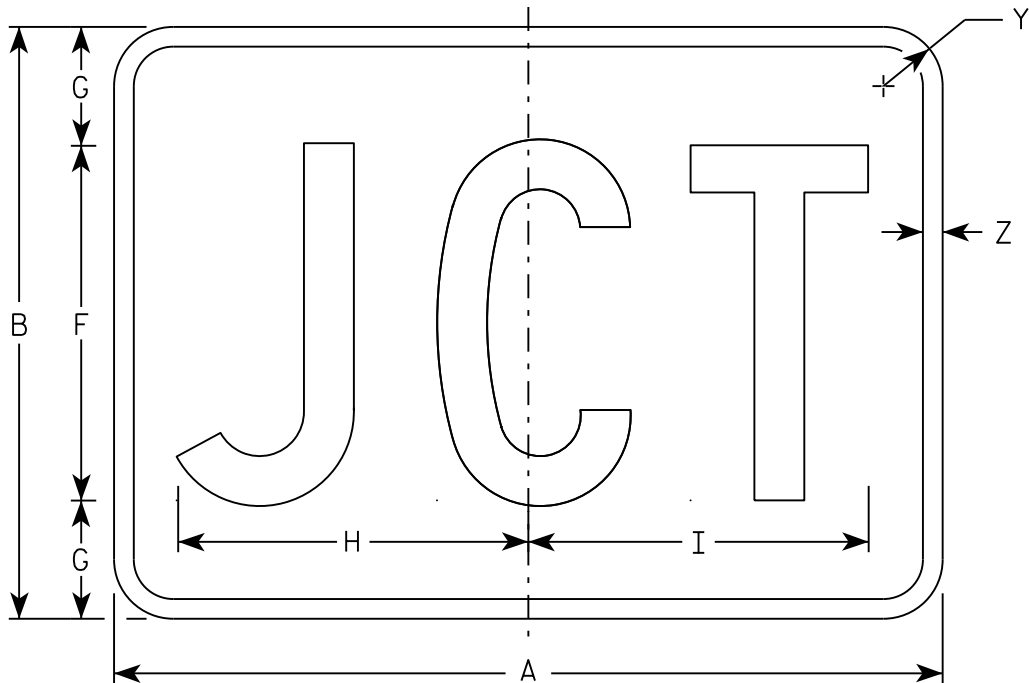
1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 6
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective



7



M2-1
MM2-1
MP2-1



MB2-1
MK2-1
MN2-1
MR2-1

NOTES

- 1. Sign is Type II - Type H
- 2. Color:
 - Background - See note 5
 - Message - See note 5
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. M2-1 Background - White
 Message - Black
 MB2-1 Background - Blue
 Message - White
 MK2-1 Background - Green
 Message - White
 MM2-1 Background - White
 Message - Green
 MN2-1 Background - Brown
 Message - White
 MP2-1 Background - White
 Message - Blue
 MR2-1 Background - Brown
 Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40

STANDARD SIGN

M2 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

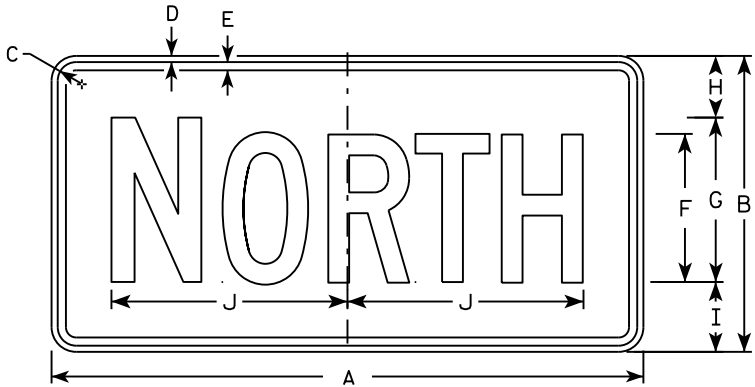
Matthew R. Rauch

For State Traffic Engineer

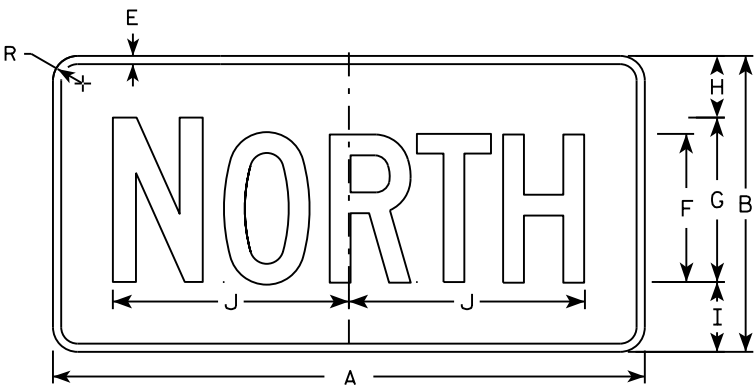
DATE 10/15/15

PLATE 83

'2-1.12



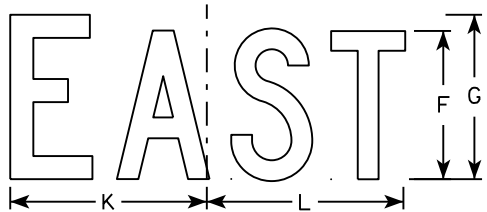
M3-1
MM3-1
MP3-1



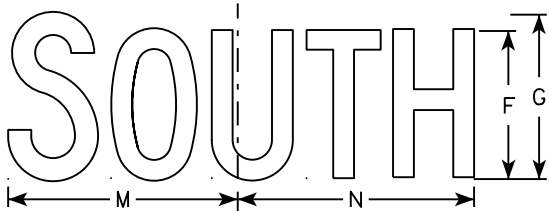
MB3-1
MK3-1
MN3-1



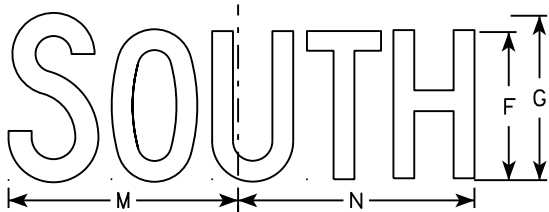
M3-2
MM3-2
MP3-2



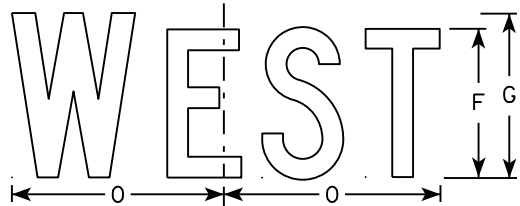
MB3-2
MK3-2
MN3-2



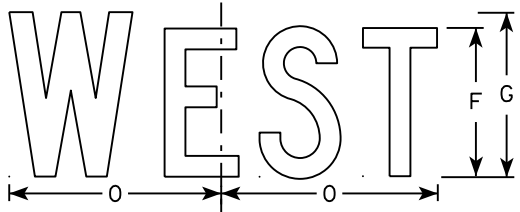
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

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

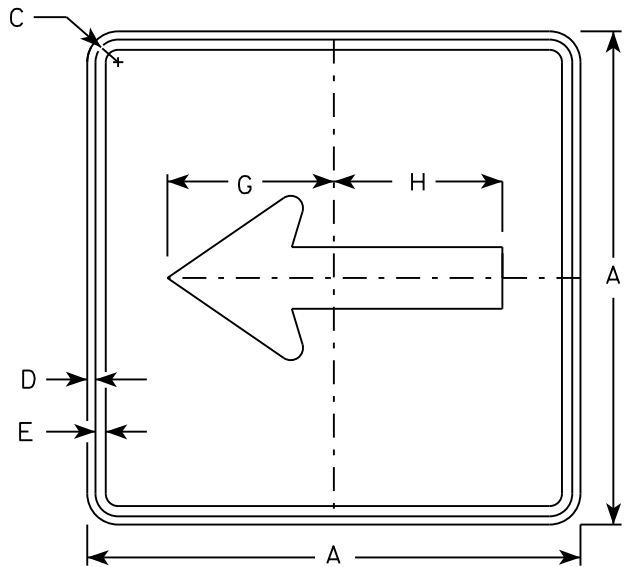
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8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

STANDARD SIGNS
M3-1 thru M3-4
SERIES

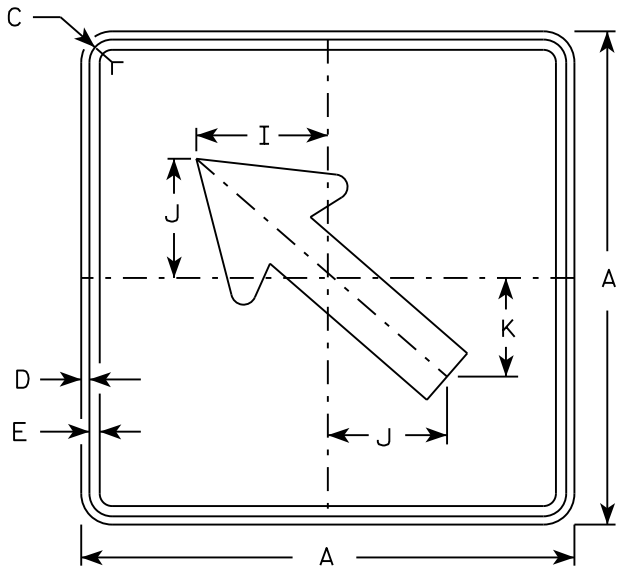
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

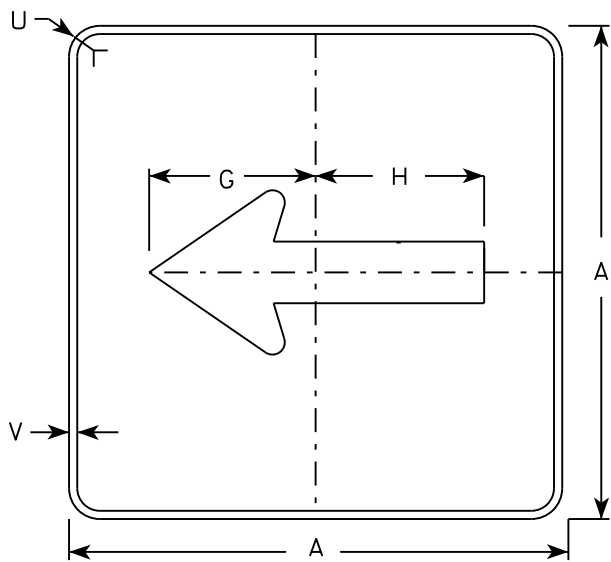
DATE 10/15/15 PLATE NO. 84 M3-1.14



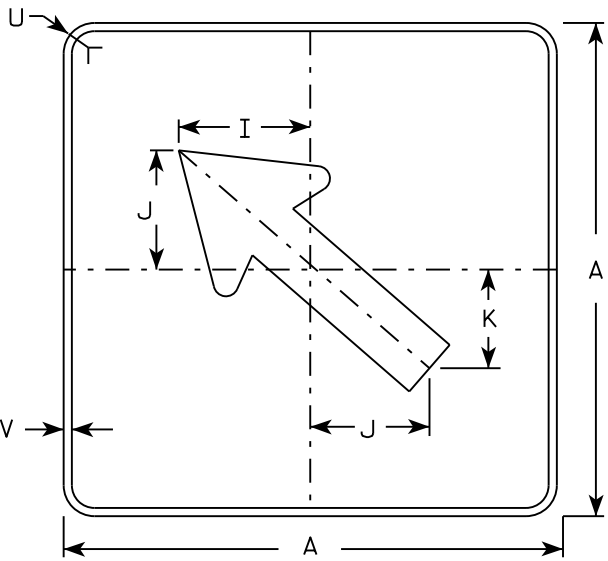
M6 - 1
MM6 - 1
M06 - 1
MP6 - 1



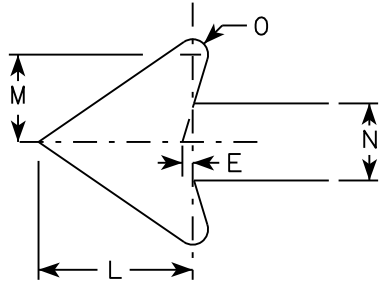
M6 - 2
MM6 - 2
M06 - 2
MP6 - 2



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



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



NOTES

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

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

PROJECT NO:

HWY:

COUNTY:

DATE 10/15/15

PLAT 85

SHEET NO:

E

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

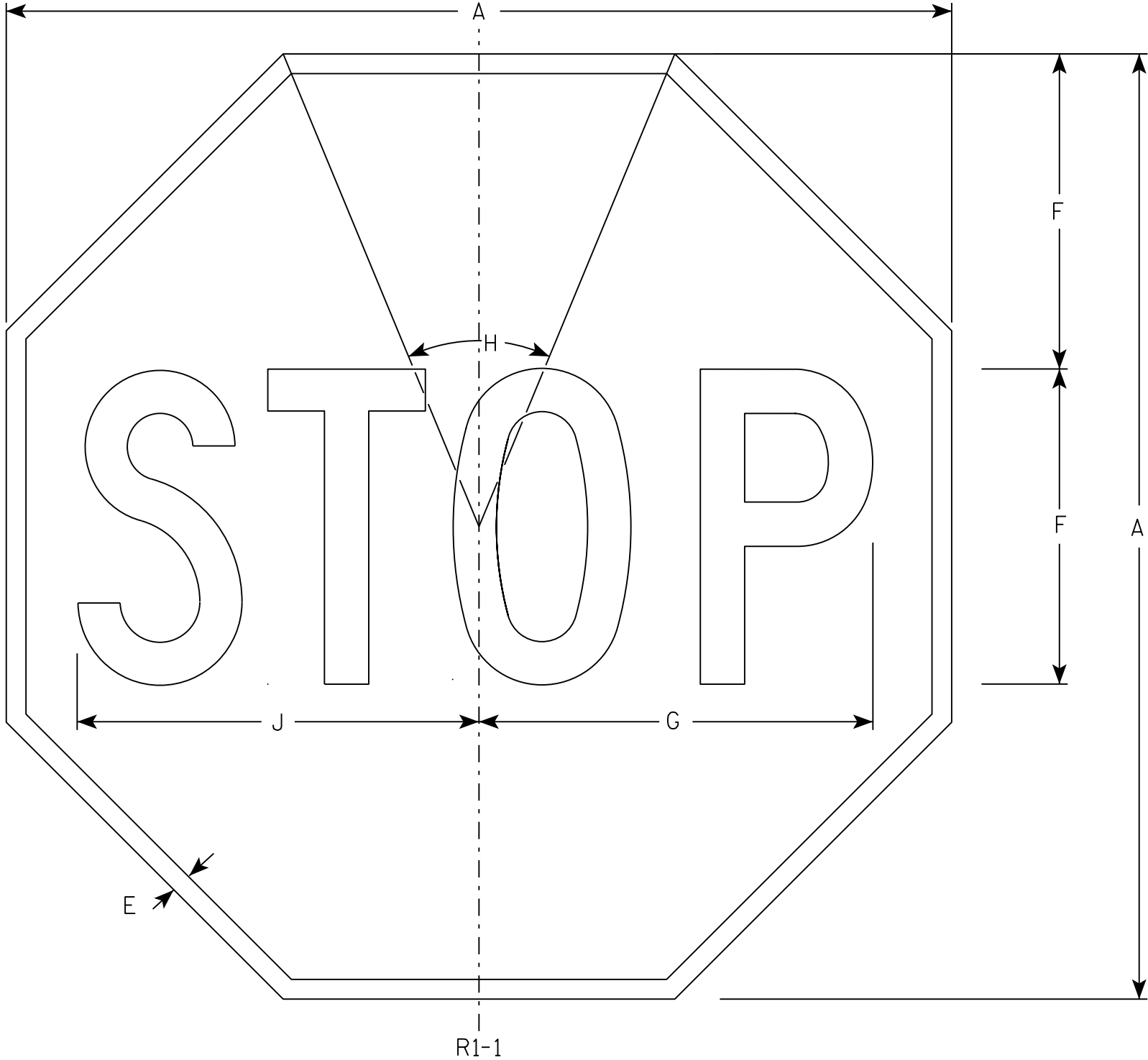
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15

PLAT 85

M6-1.15



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
 - Background - Red
 - Message - White
- 3. Message Series - C

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

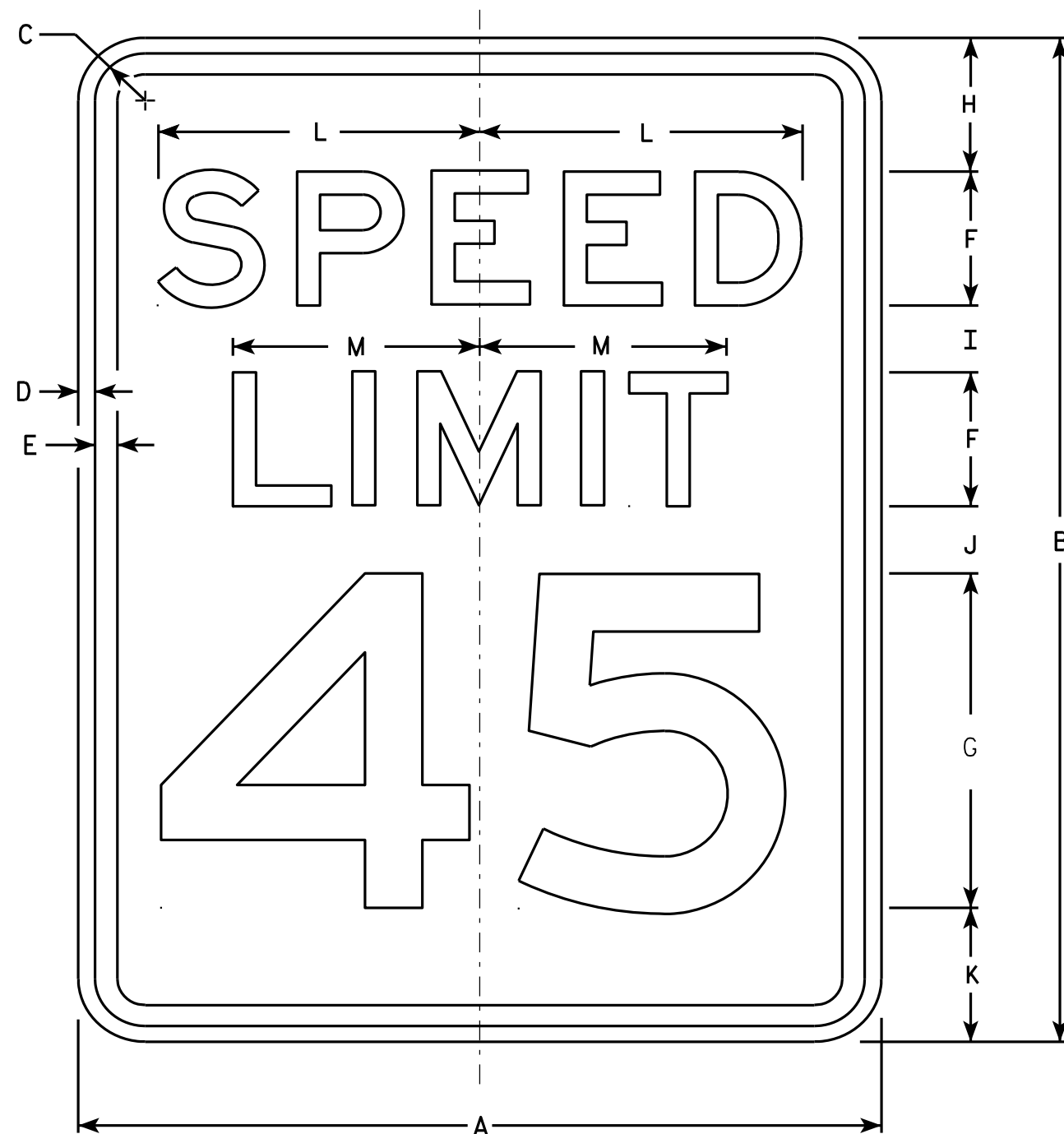
STANDARD SIGN

R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/15 PLATE 86 R1-1.13



R2-1

NOTES

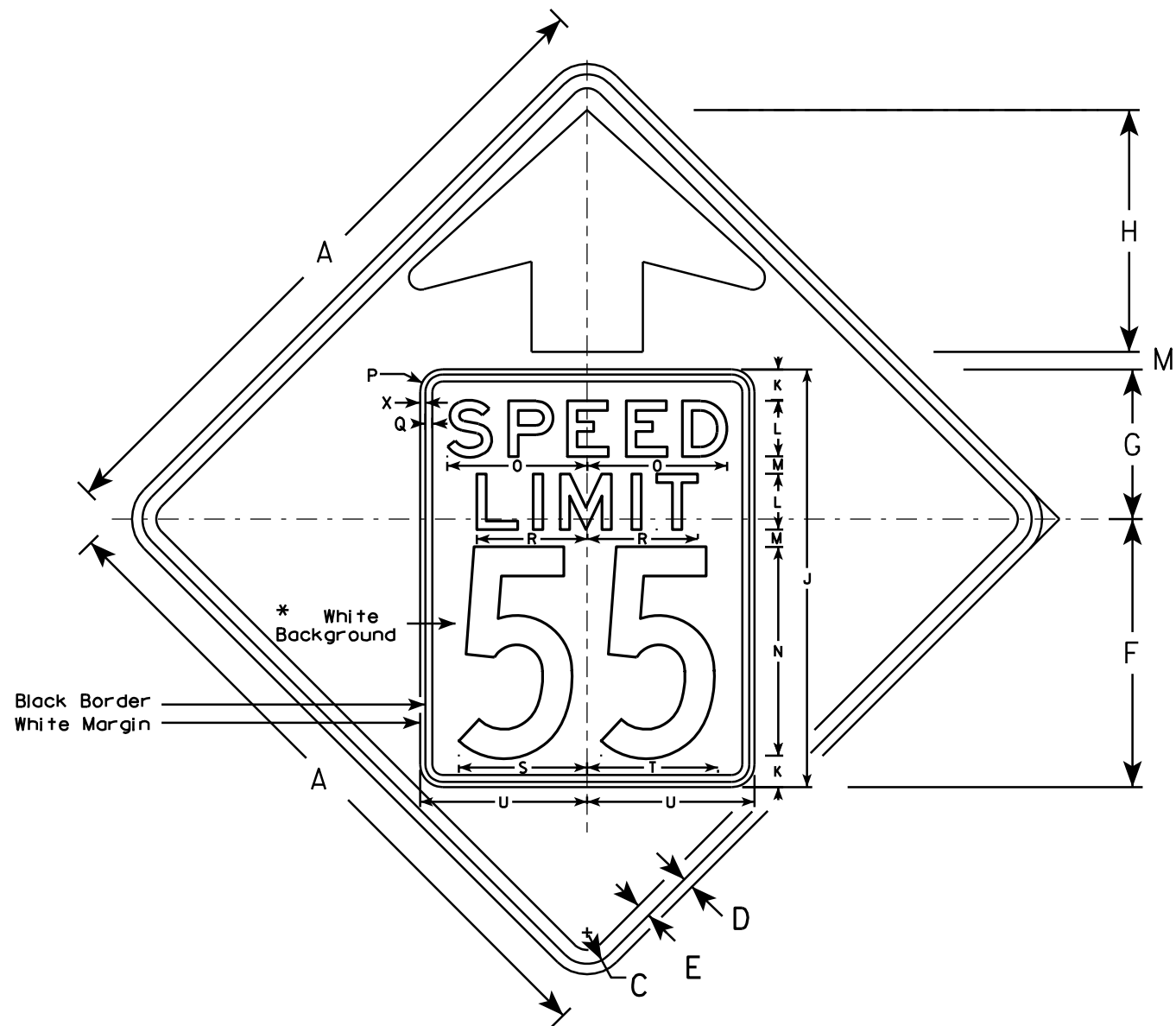
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as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

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

STANDARD SIGN R2-1

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

PROJECT NO: HWY: COUNTY: SHEET NO: 87 E

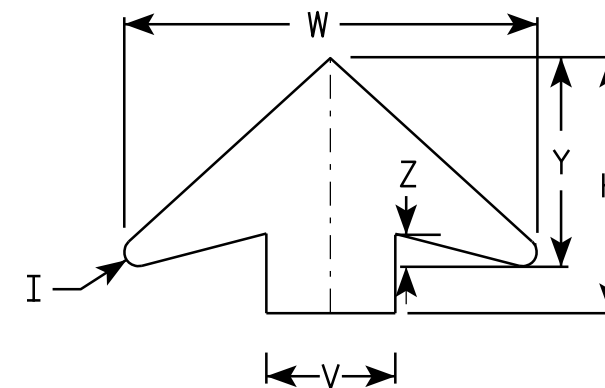


W3-5

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color: *
Background - YELLOW*
Message - BLACK
3. Message Series - C for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
2M	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
3	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
4	48		2 1⁄4	3⁄4	1	19 1⁄4	10 3⁄4	17 3⁄8	7⁄8	30	2 1⁄4	4	1 1⁄4	15	10	1 5⁄8	1⁄2	8	9 1⁄4	9 3⁄8	12	8	25 5⁄8	3⁄8	13	2	16.0
5	48		2 1⁄4	3⁄4	1	19 1⁄4	10 3⁄4	17 3⁄8	7⁄8	30	2 1⁄4	4	1 1⁄4	15	10	1 5⁄8	1⁄2	8	9 1⁄4	9 3⁄8	12	8	25 5⁄8	3⁄8	13	2	16.0

STANDARD SIGN

W3-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W3-5.5

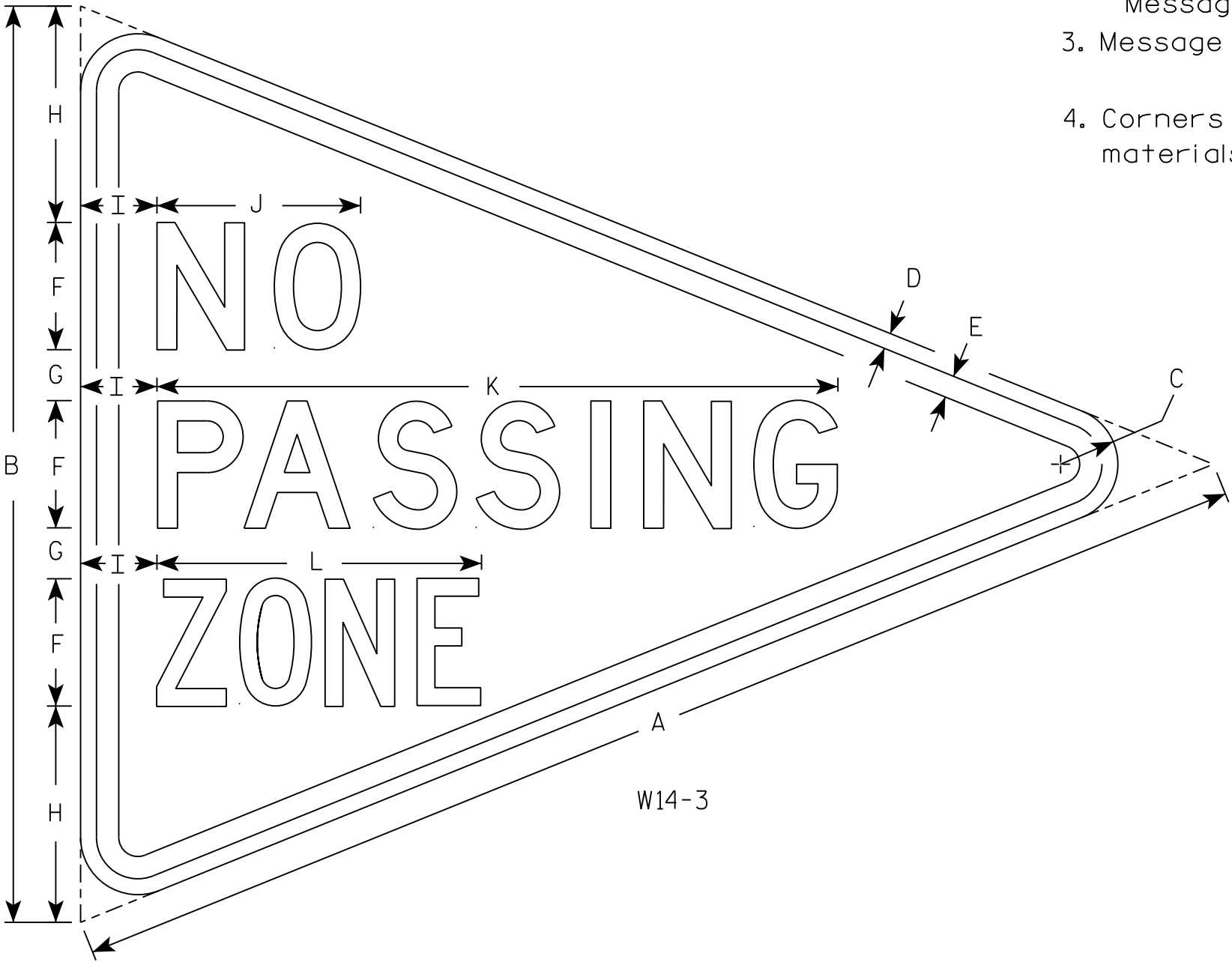
PROJECT NO:

SHEET NO: 88

E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. Message Series - Lines 1 and 2 are Series D.
Line 3 is series C.
- 4. Corners and borders shall be rounded on all base materials for this sign.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															5.56
2M																											
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 89

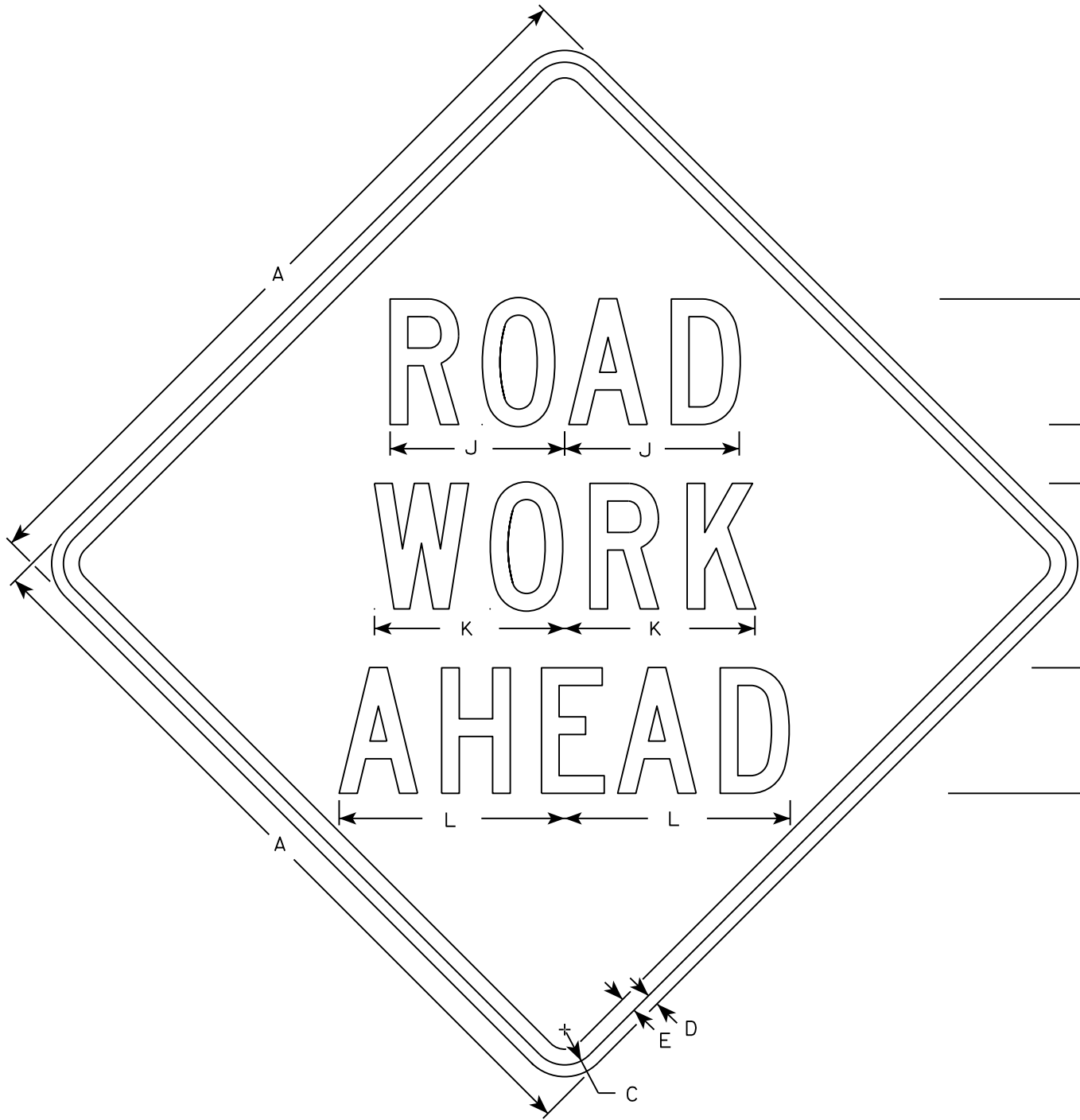
E

STANDARD SIGN
W14-3

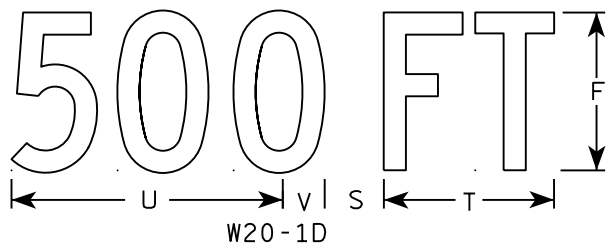
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

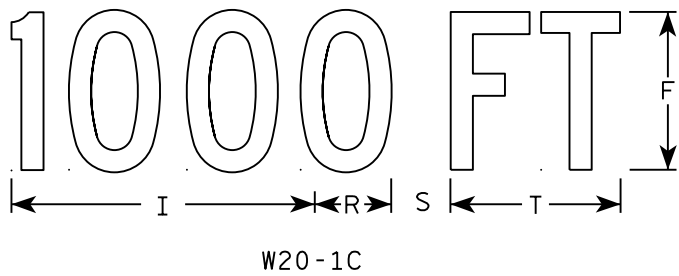
DATE 3/21/17 PLATE NO. W14-3.10



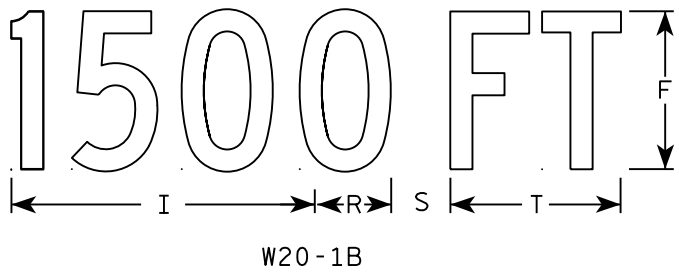
W20-1A



W20-1D



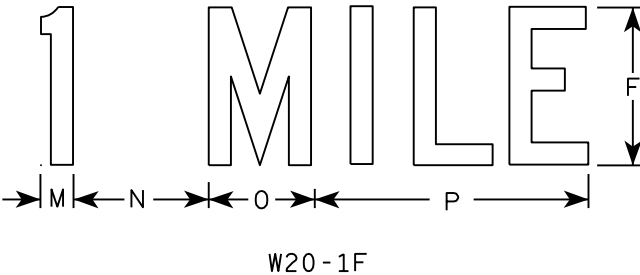
W20-1C



W20-1B

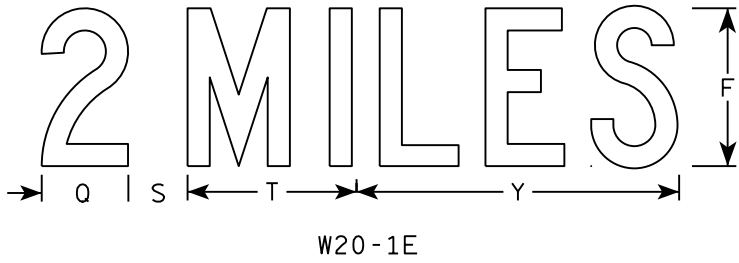


W20-1G



W20-1F

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



W20-1E

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

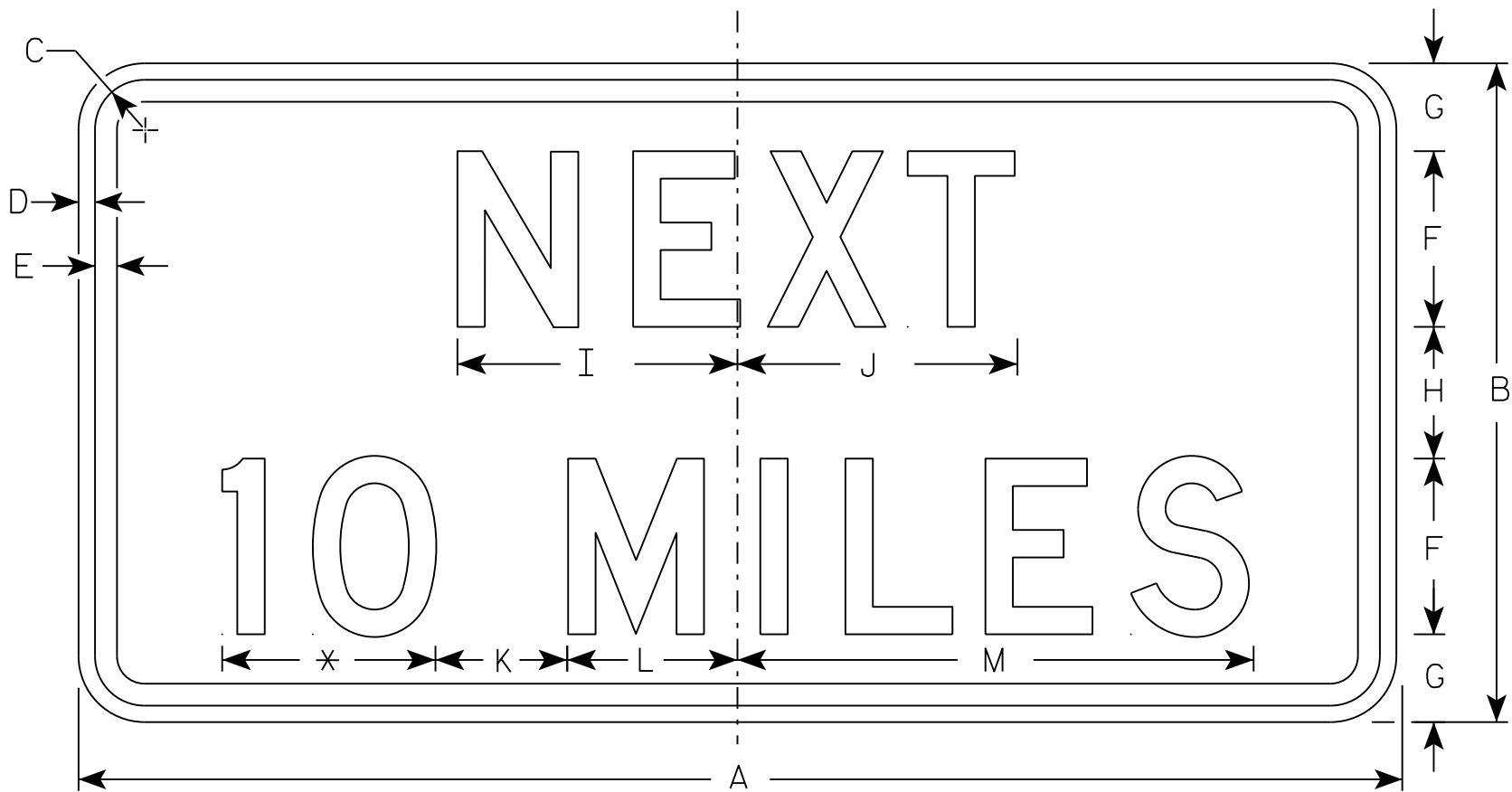
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/07/15 PLATE NO. W20-1.10

90

NOTES

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



W057-51

* See note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	1/2	5	2 5/8	2 3/4	7 7/8	8	5	4 1/8	15 3/8														4.5
2S	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
2M	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
3	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
4	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
5	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0

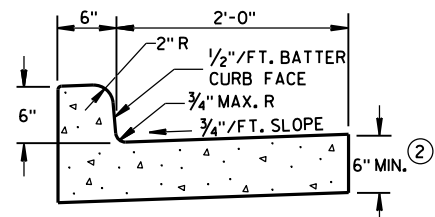
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 91	E
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STANDARD SIGN
W057-51

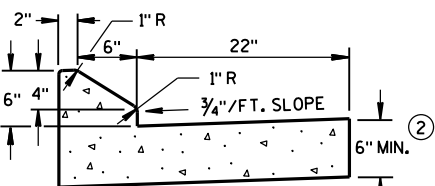
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

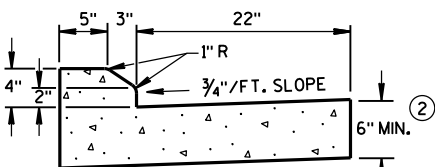
DATE 3/14/17 PLATE NO. W057-51.2



TYPES A & D ①

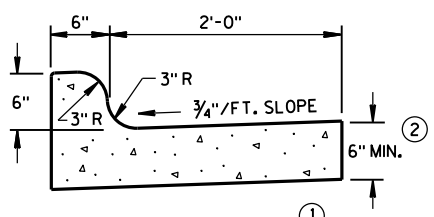


6" SLOPED CURB TYPES G & J ①



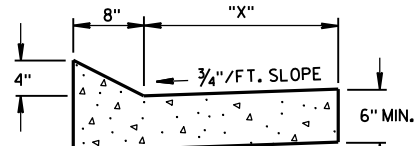
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"



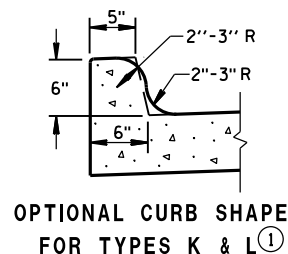
TYPES K & L ①

CONCRETE CURB & GUTTER 30"

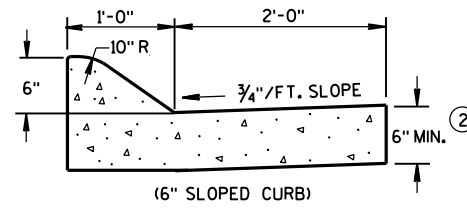


TYPES TBT & TBTt ①
CONCRETE CURB & GUTTER

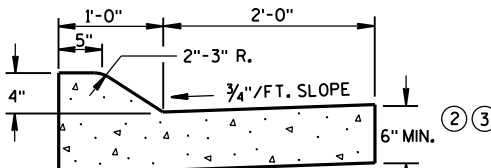
TBT & TBTt	"X"
30"	22"
36"	28"



OPTIONAL CURB SHAPE
FOR TYPES K & L ①

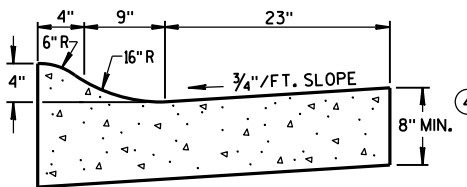


(6" SLOPED CURB)



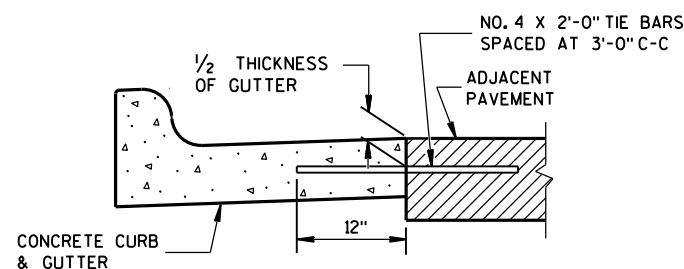
(4" SLOPED CURB)

TYPES A & D ①

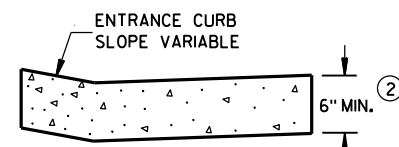


4" SLOPED CURB TYPES R & T ① ⑤

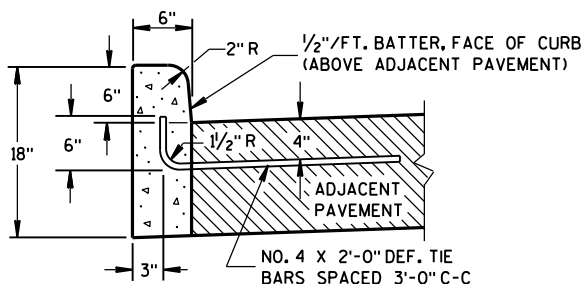
CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION ①

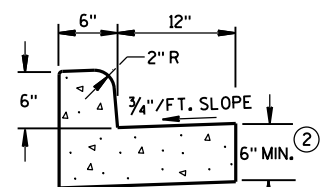


DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

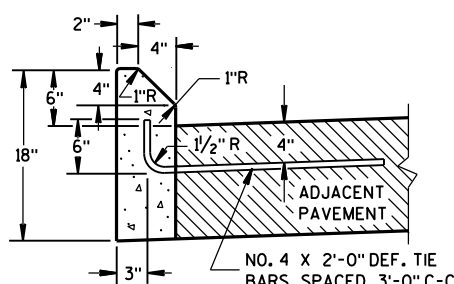


TYPES A & D ①

CONCRETE CURB



TYPES A & D
CONCRETE CURB & GUTTER 18"



TYPES G & J ①

GENERAL NOTES

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

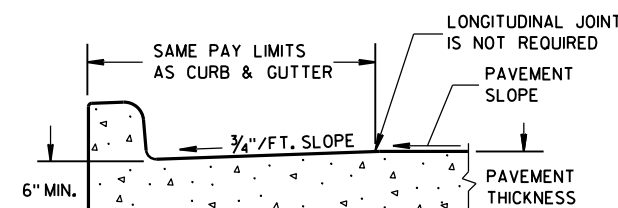
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

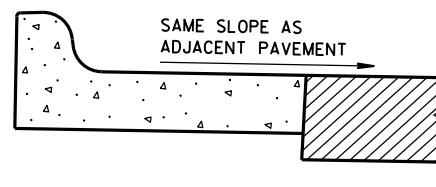
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

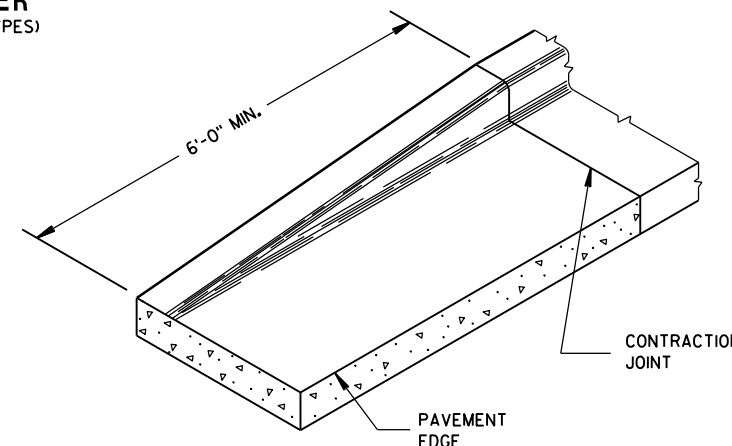
- TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTt.
- THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



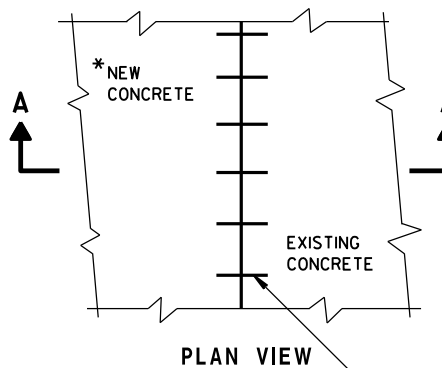
PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



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



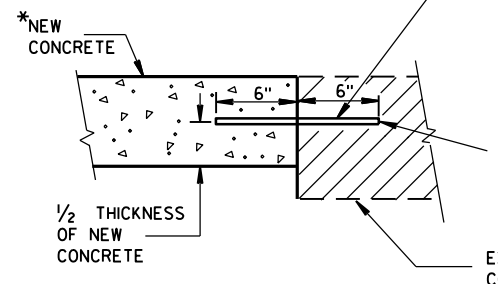
END SECTION CURB & GUTTER



PLAN VIEW

*NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.

NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.



SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

EXISTING CONCRETE

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2016

DATE

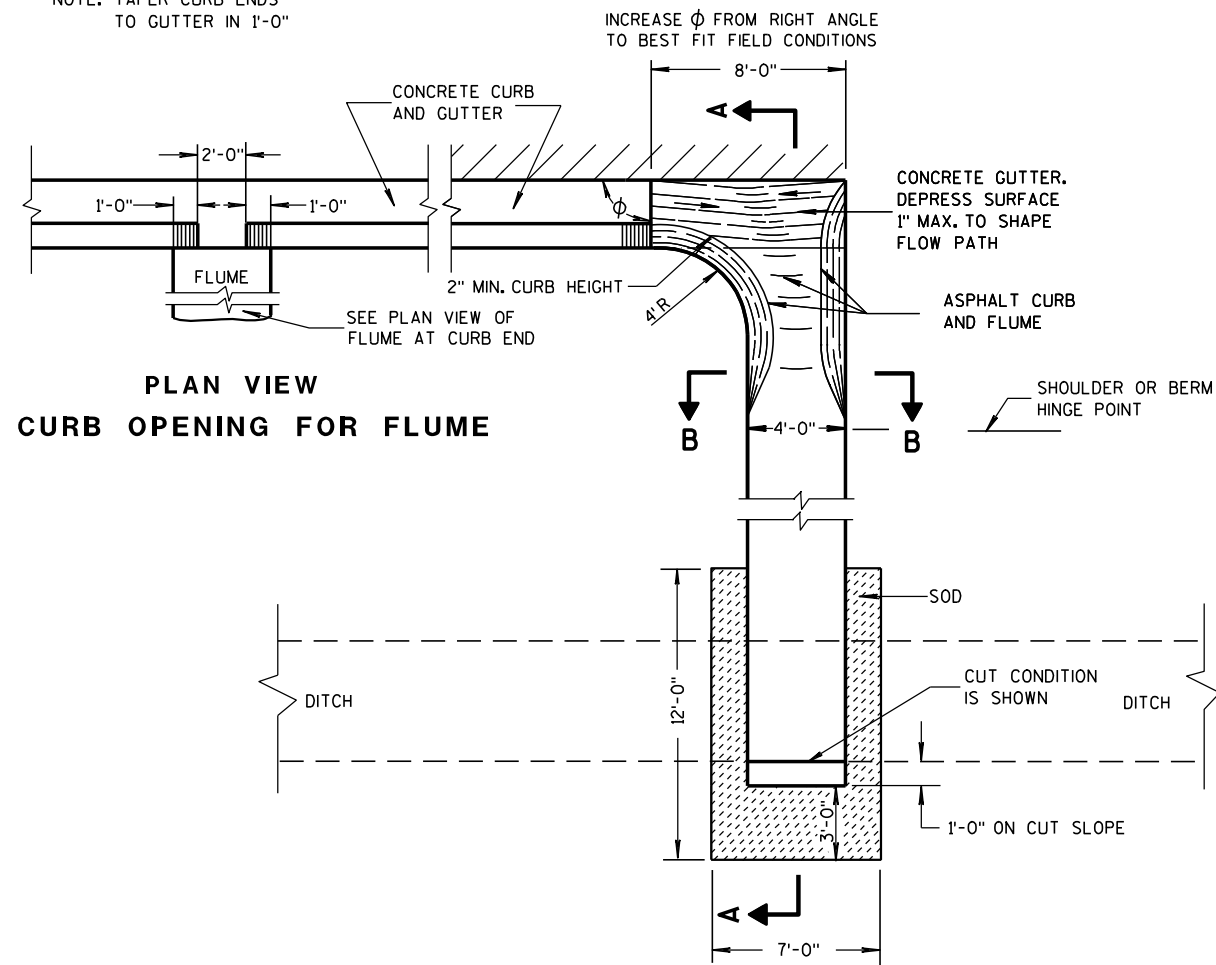
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

INT

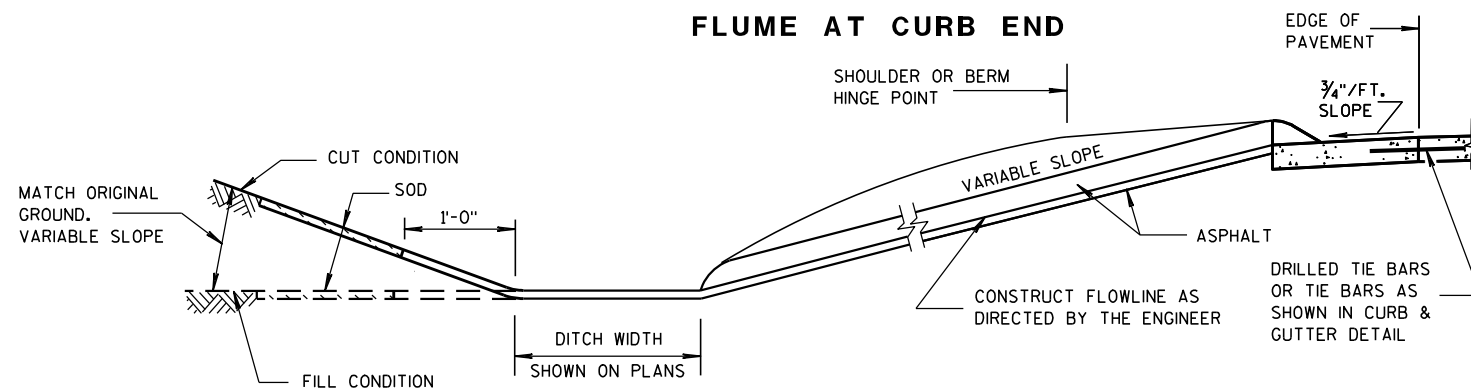
ASPHALTIC FLUME

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

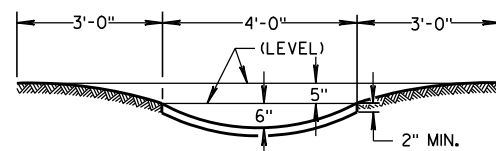


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

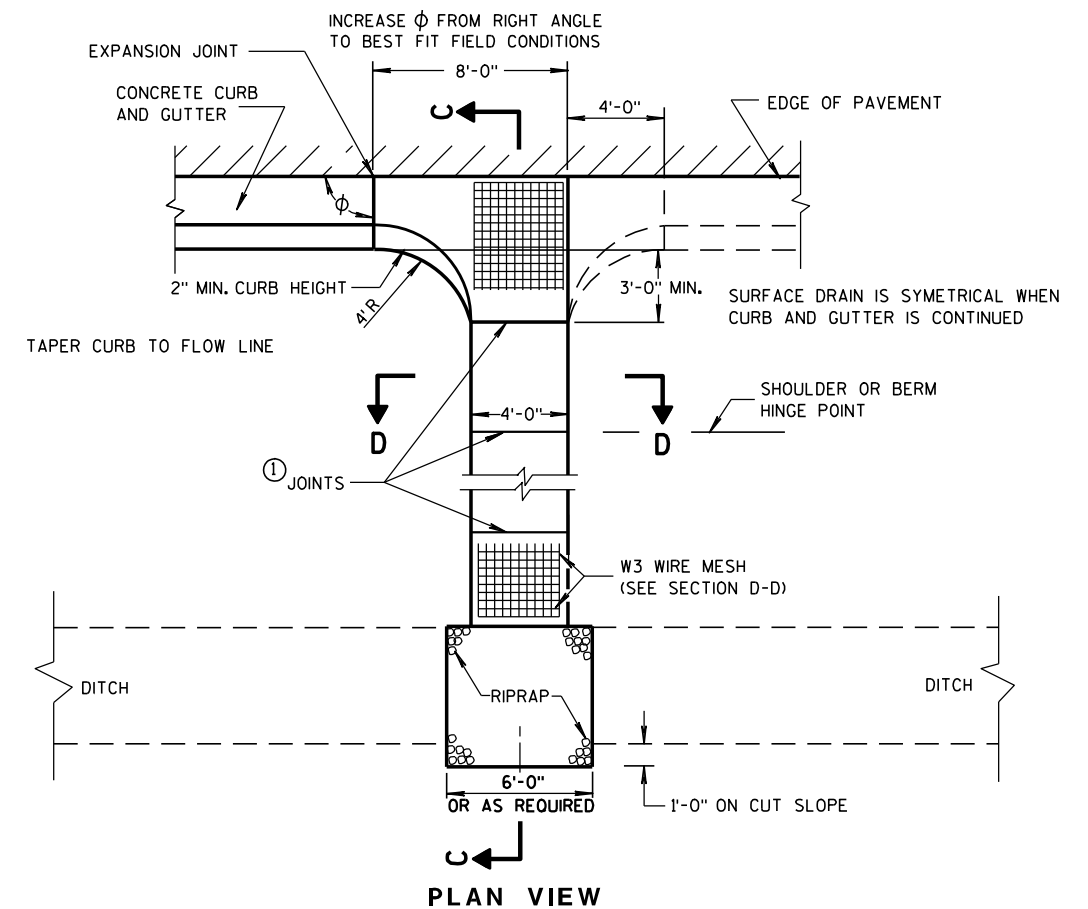
GENERAL NOTES

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

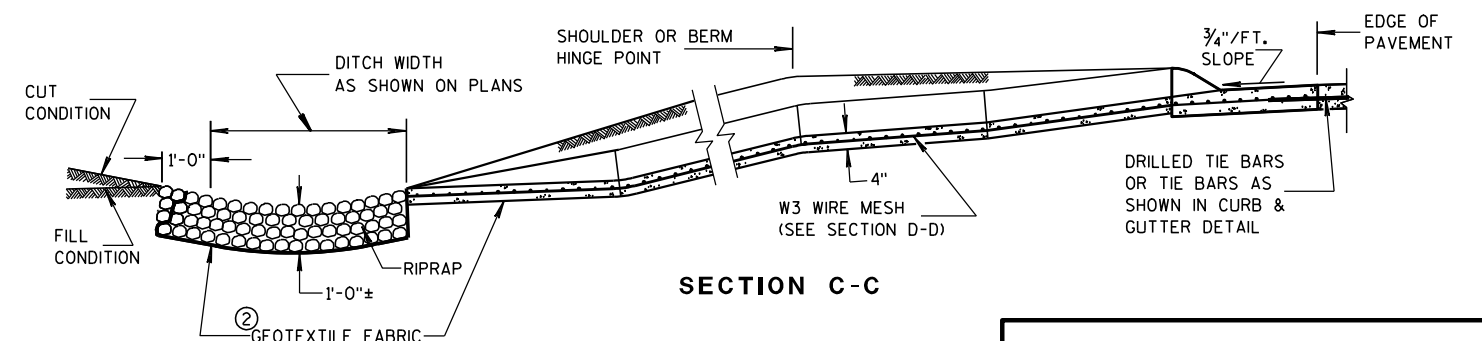
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

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

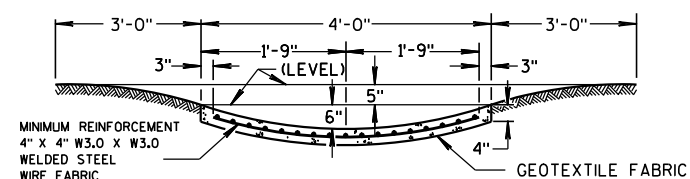
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9-4-08

DATE

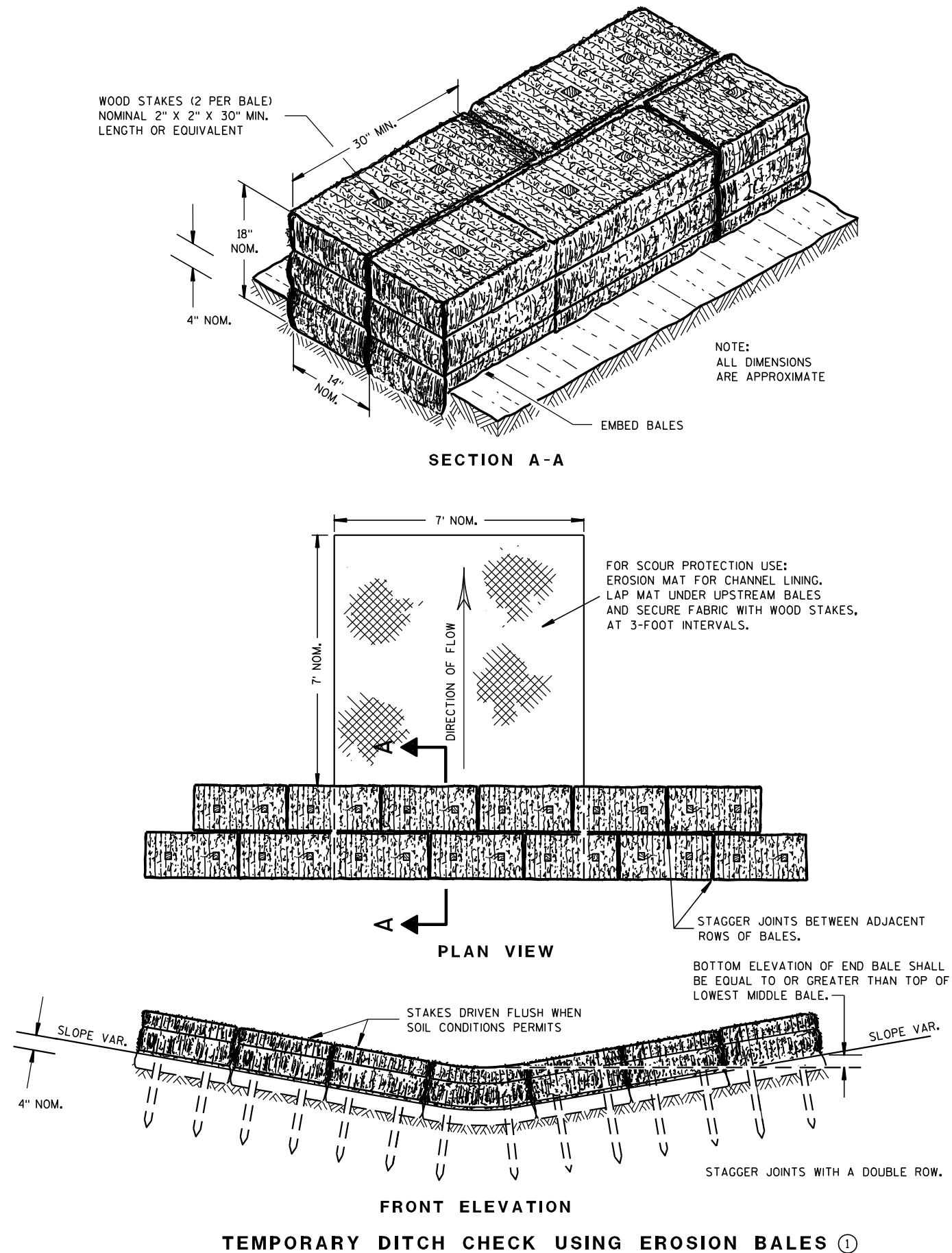
FHWA

/S/ Jerry H. Zapp

ROADWAY STANDARDS 93

ENGINEER

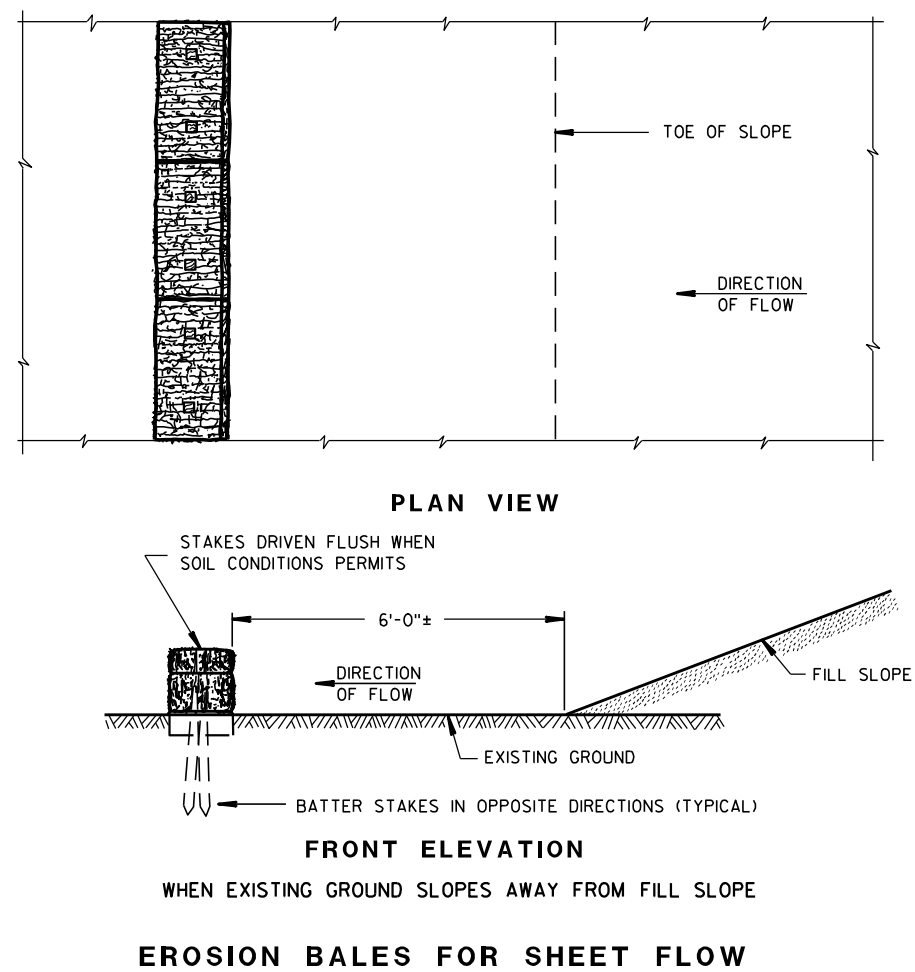
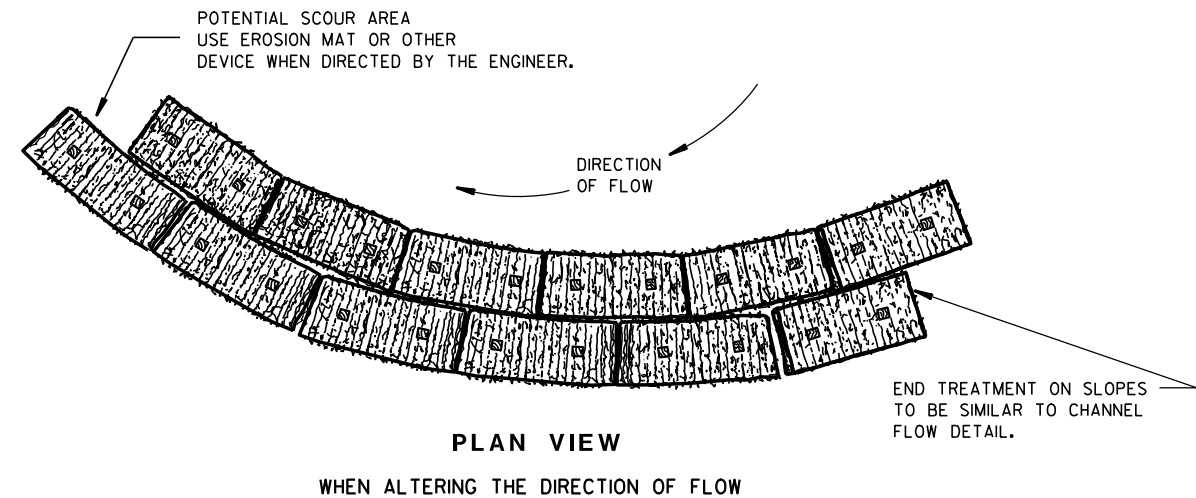
MENT



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

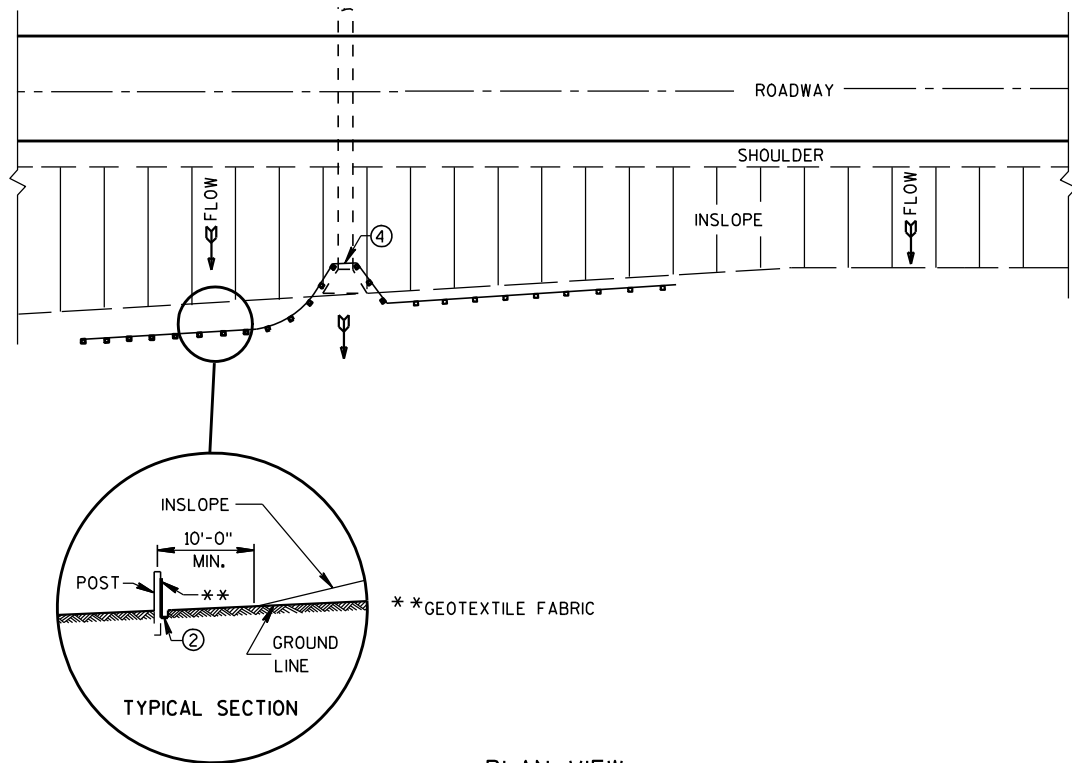
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

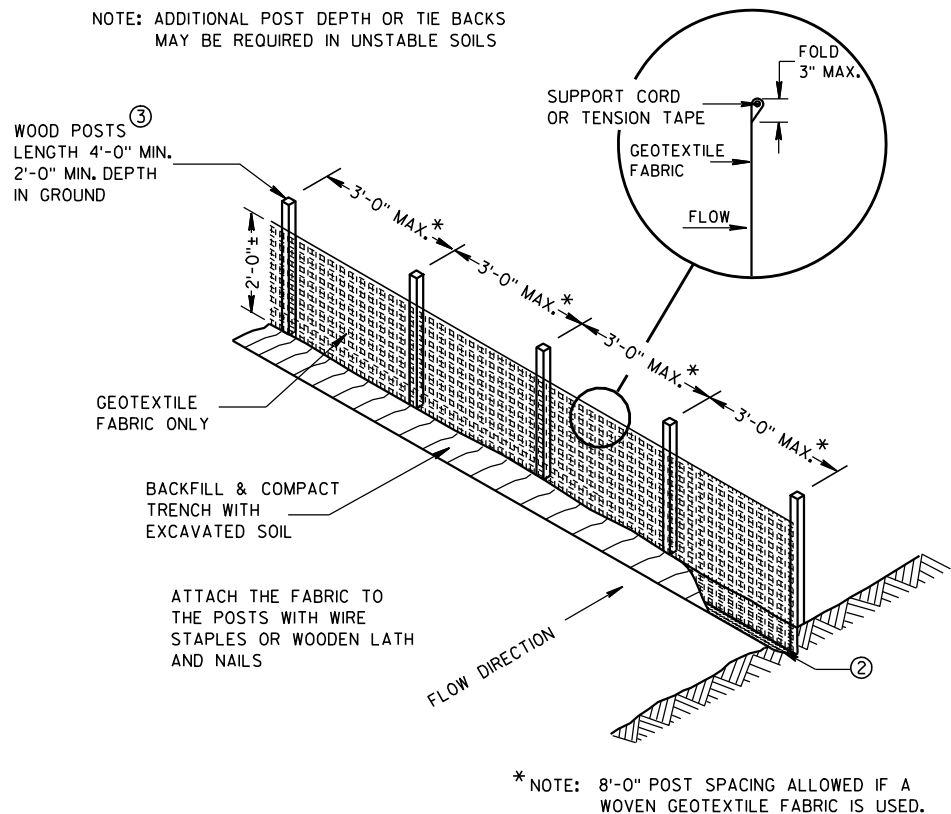
6/04/02
DATE

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOPER 94 ENGINEER

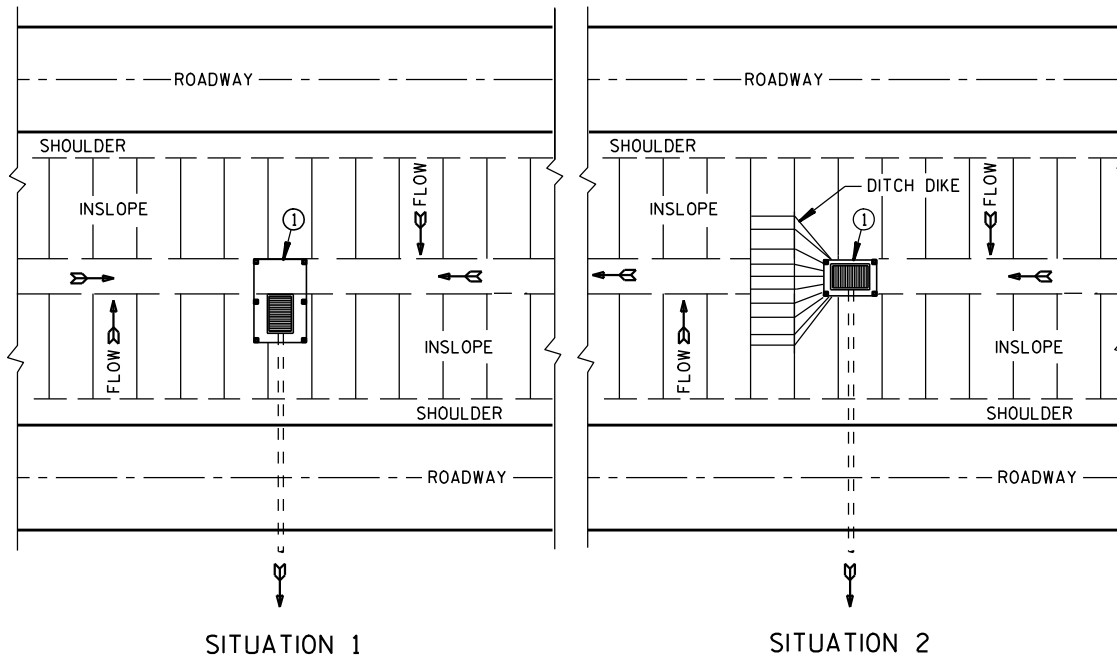
FHWA



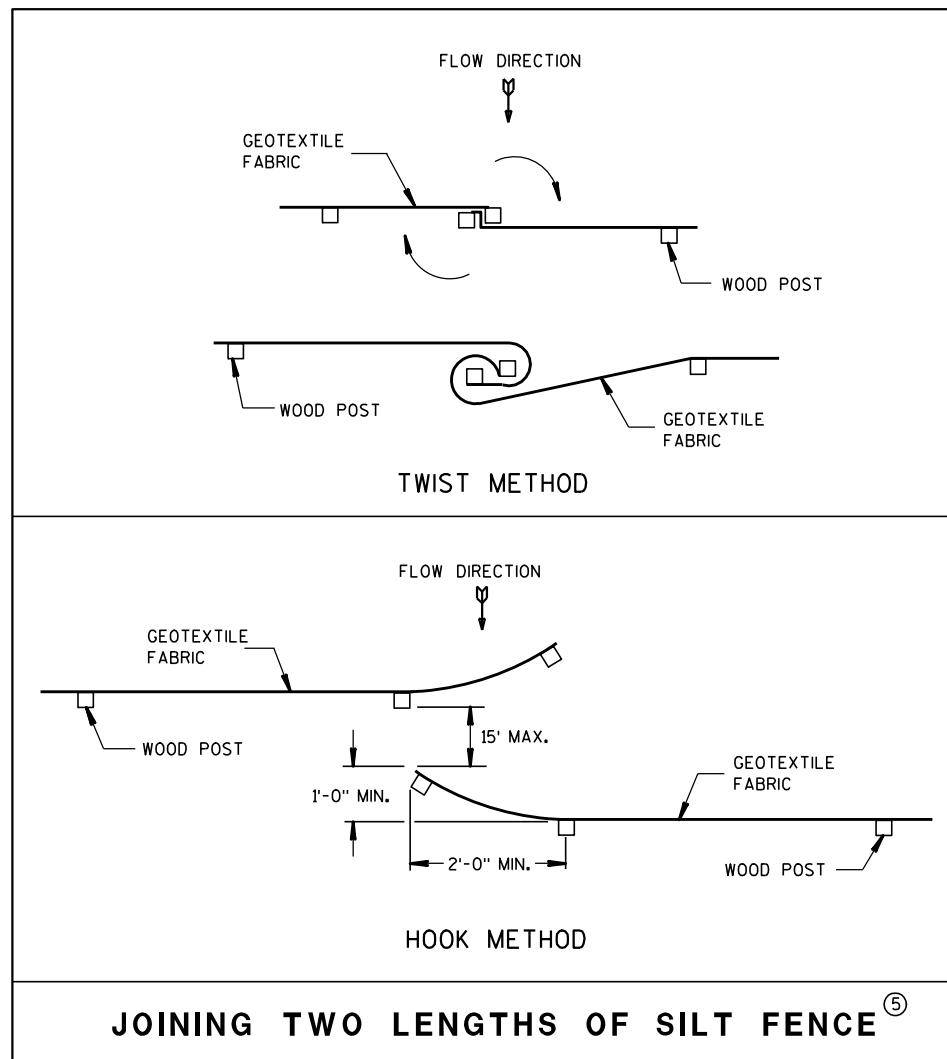
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

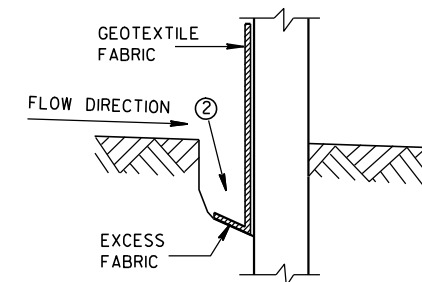


JOINING TWO LENGTHS OF SILT FENCE (5)

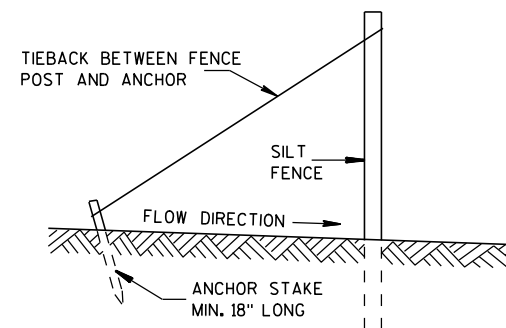
GENERAL NOTES

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

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



TRENCH DETAIL

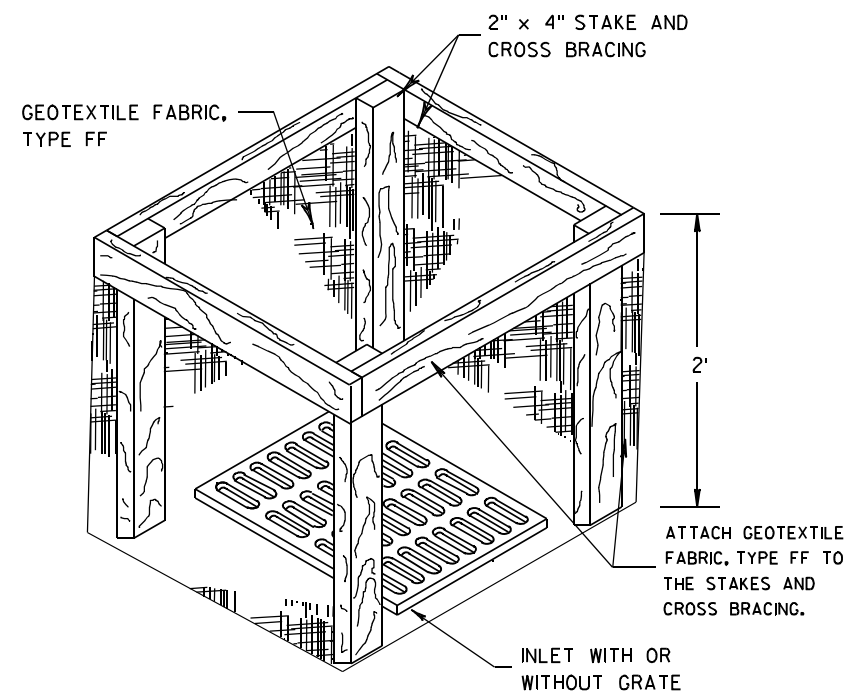
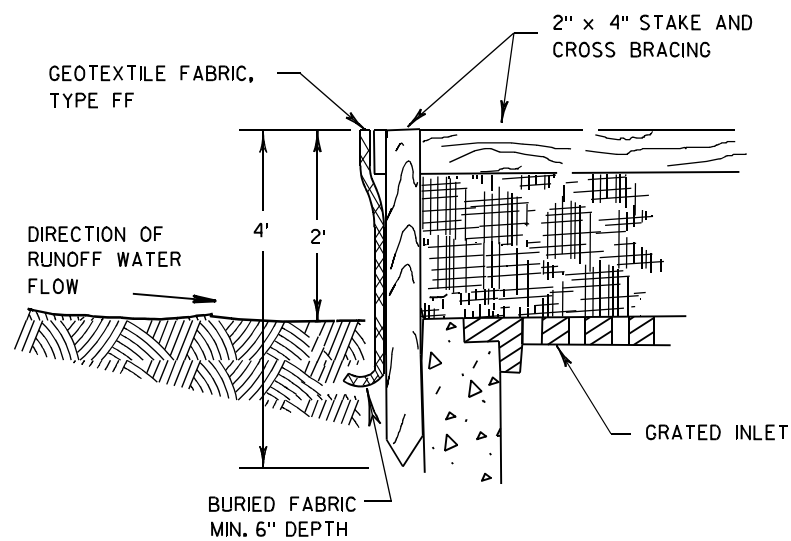


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Conn...
DATE CHIEF ROADWAY DEVELOPER 95 INEER
FHWA



INLET PROTECTION, TYPE A

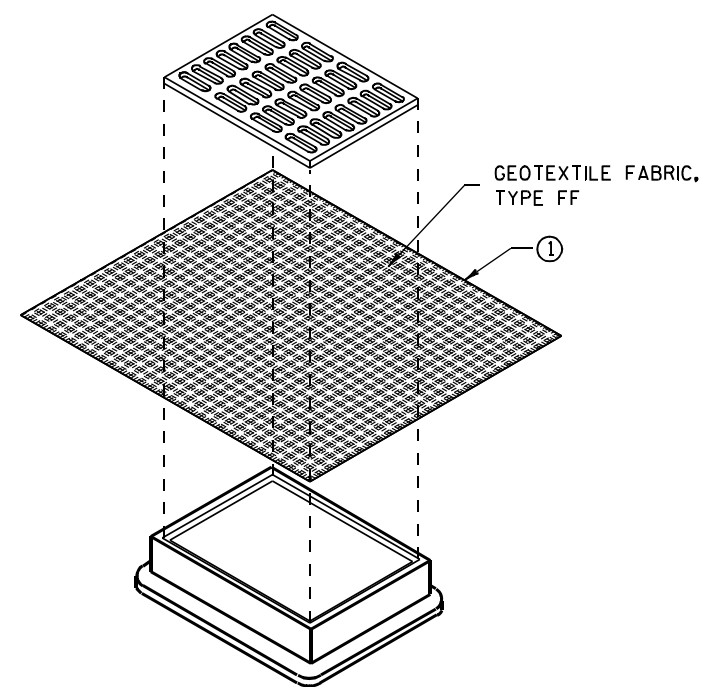
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

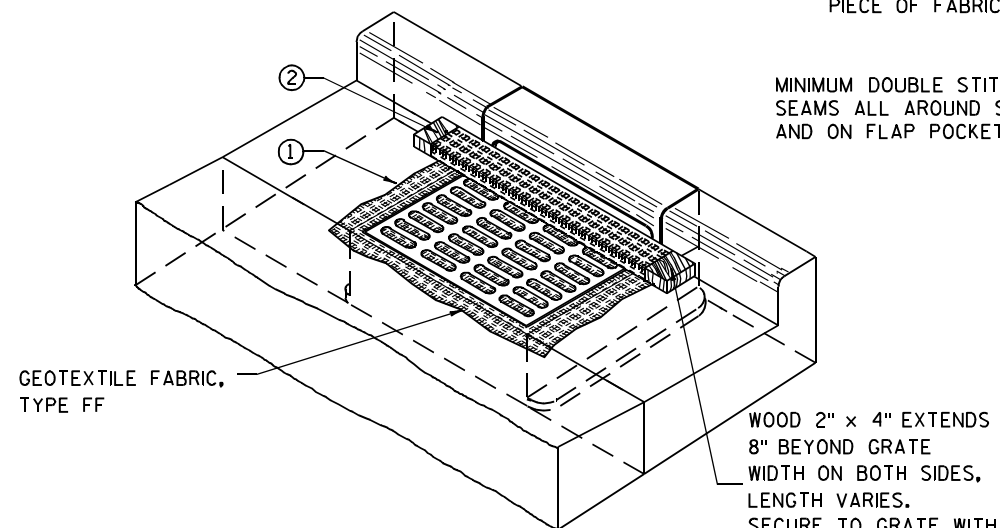
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

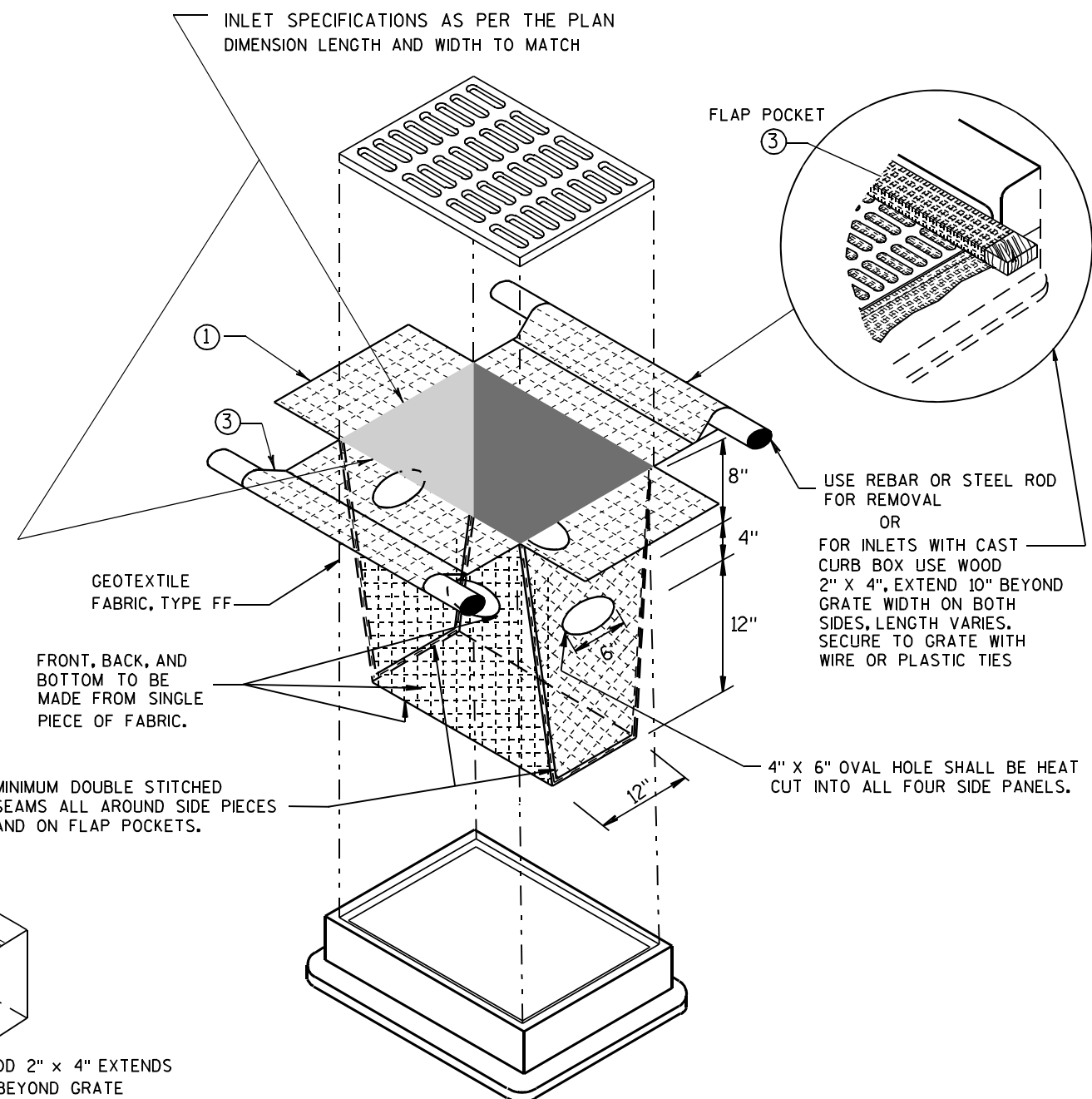
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

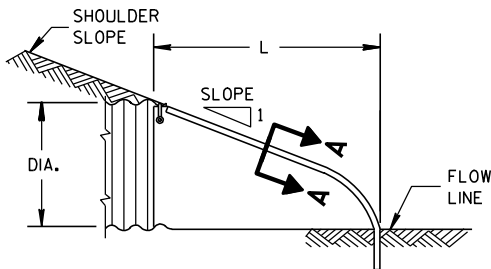
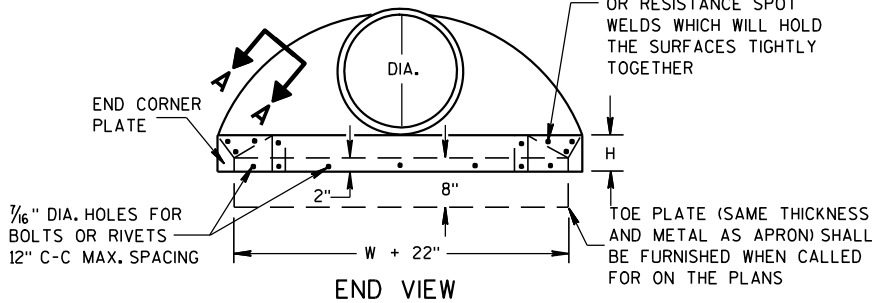
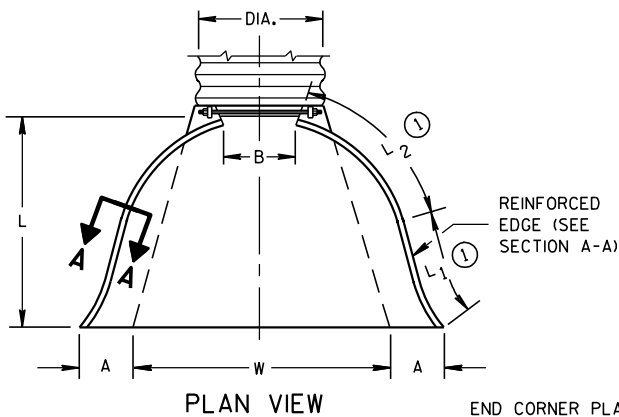
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 96
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

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.

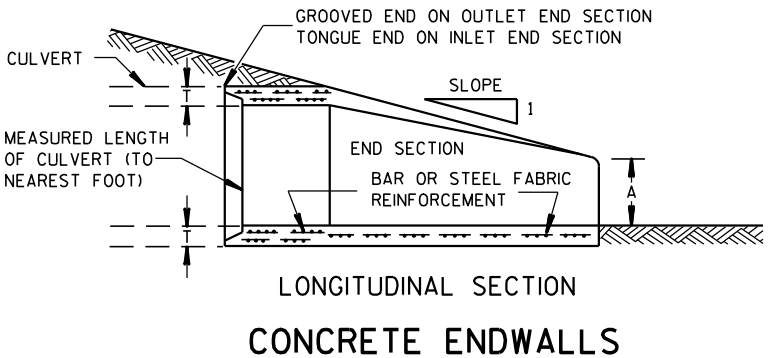
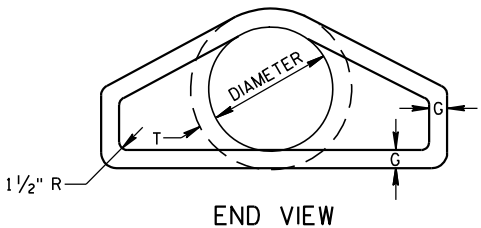
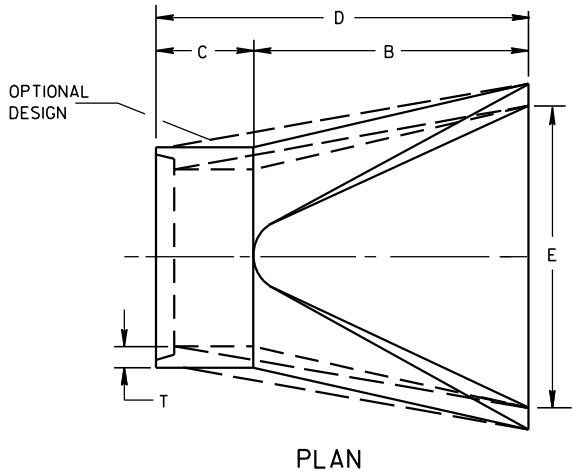
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

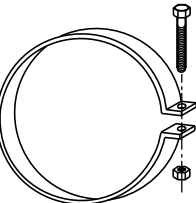
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9 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

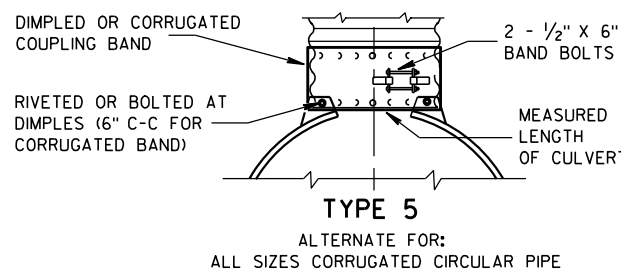
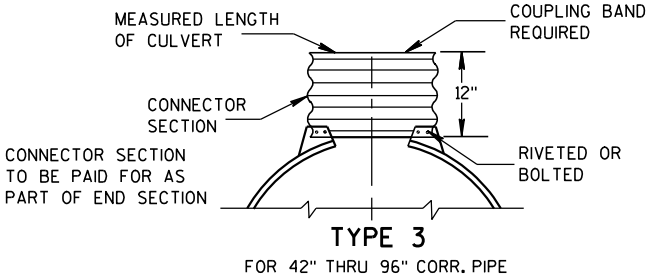
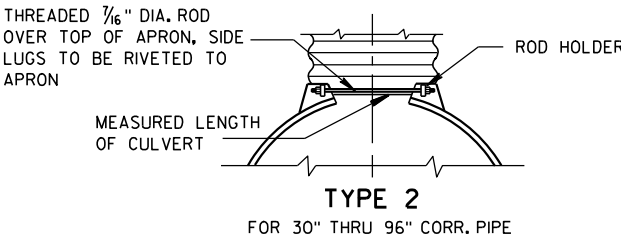
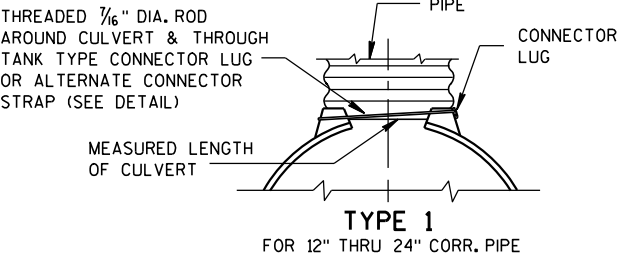


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



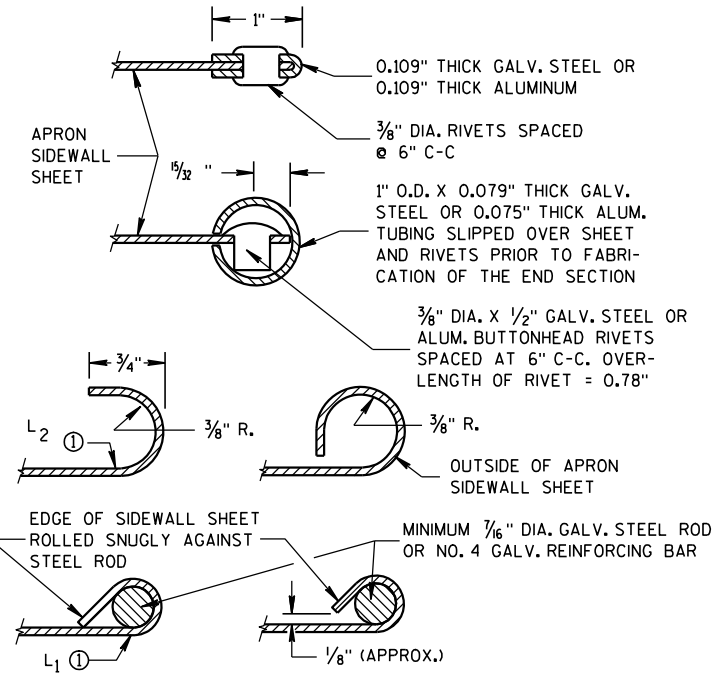
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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



GENERAL NOTES

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

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

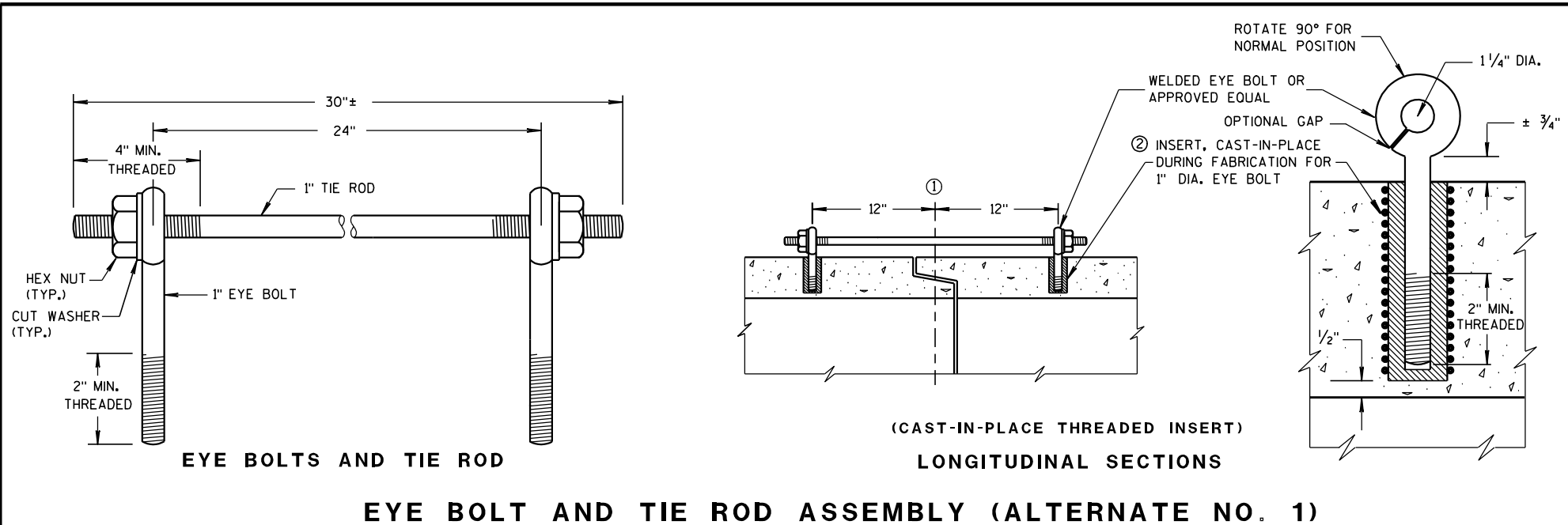
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

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

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

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



GENERAL NOTES

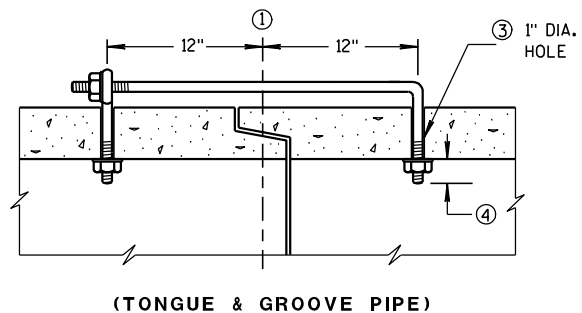
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

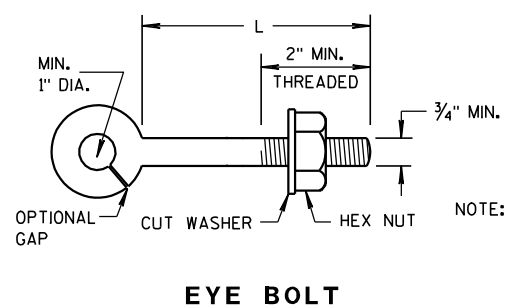
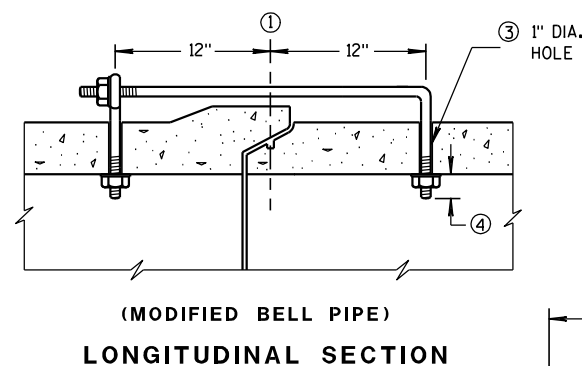
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- ① ϕ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ϕ OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



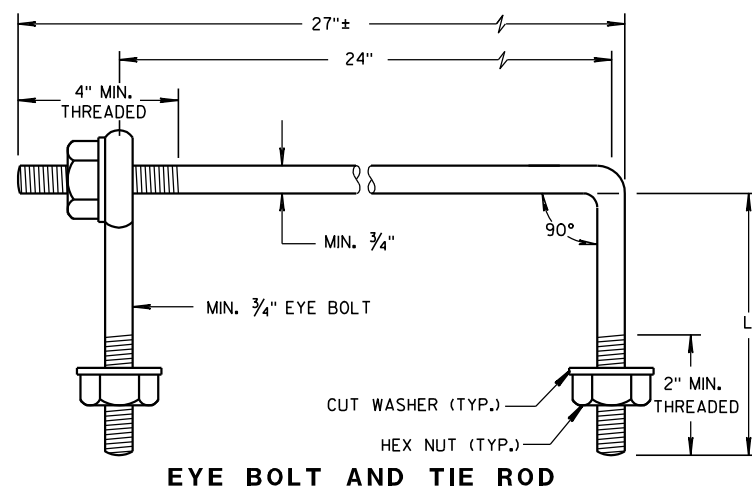
EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.

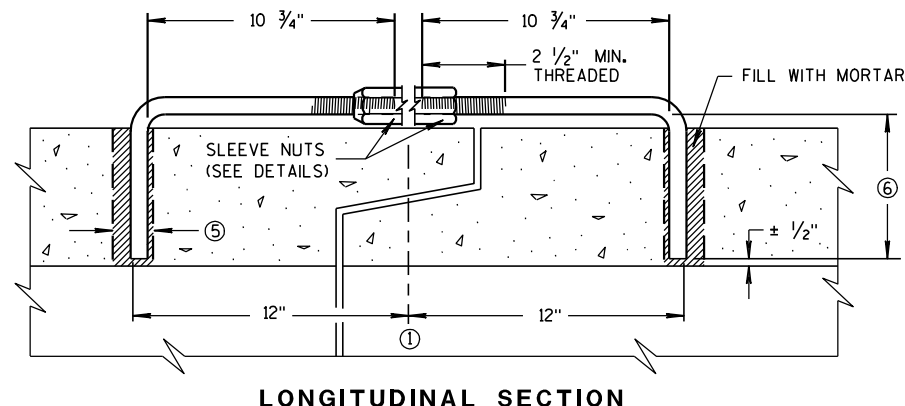
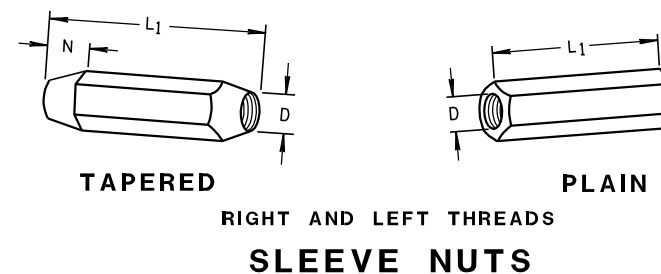
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)
EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



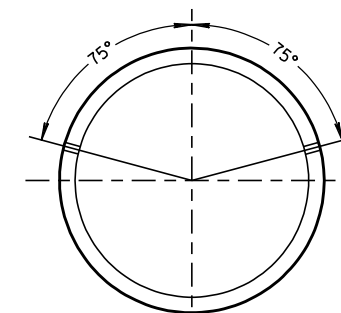
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

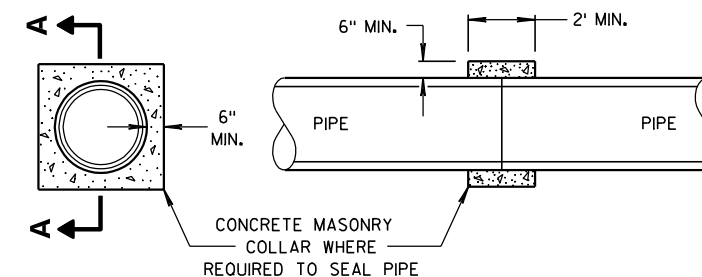
DIMENSIONS SHOWN ARE IN INCHES



(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

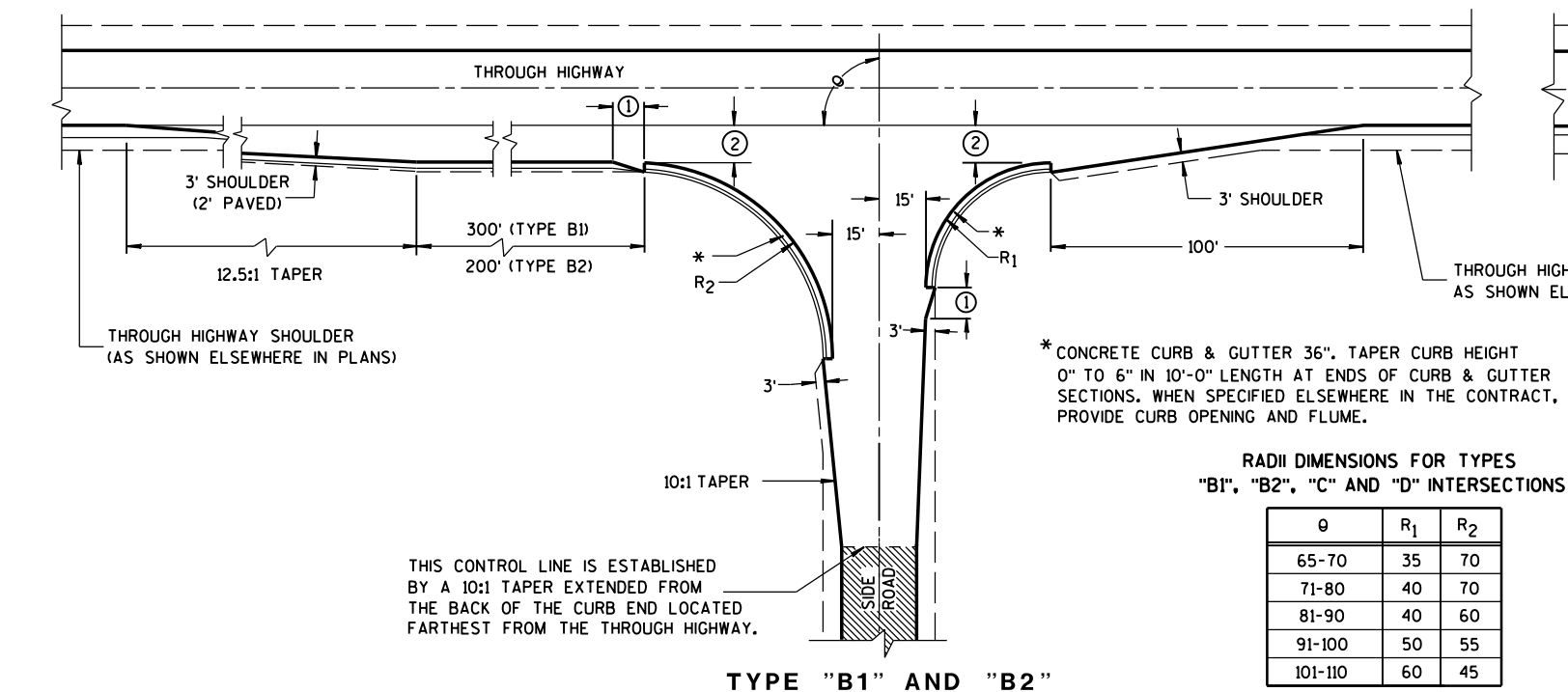


CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 98
FHWA ENGINEER



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.

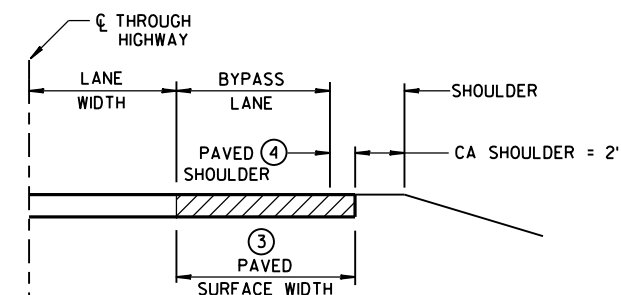
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

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

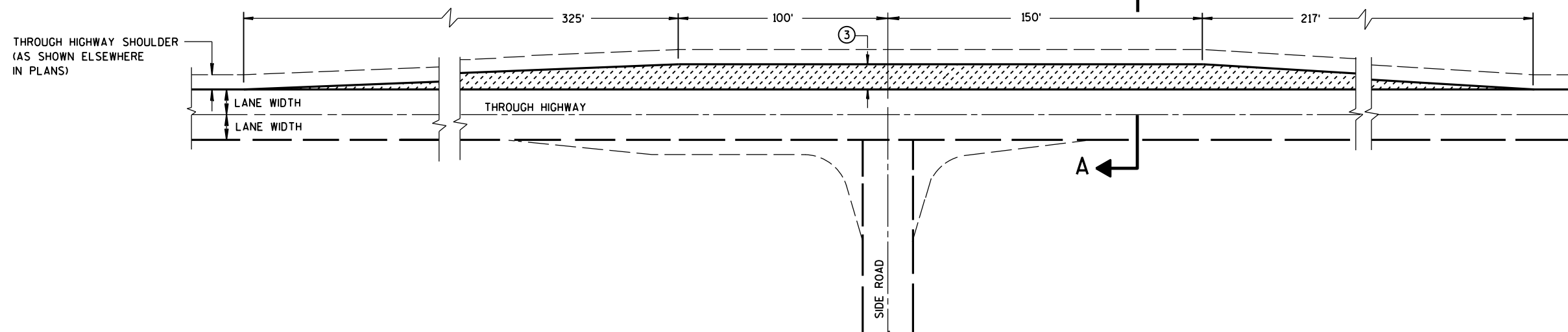
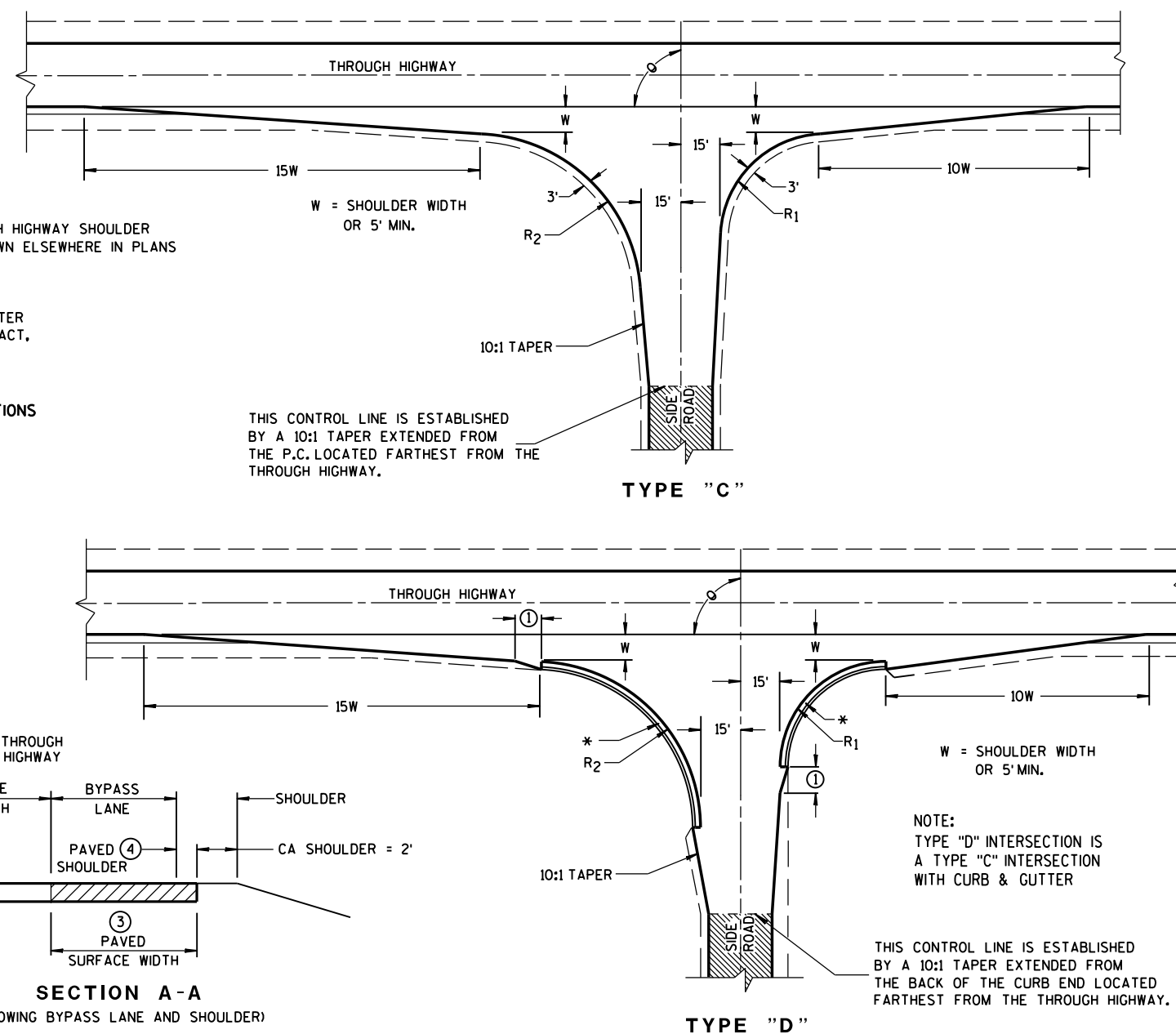
EXISTING PAVED SURFACE

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 CONCRETE = 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.



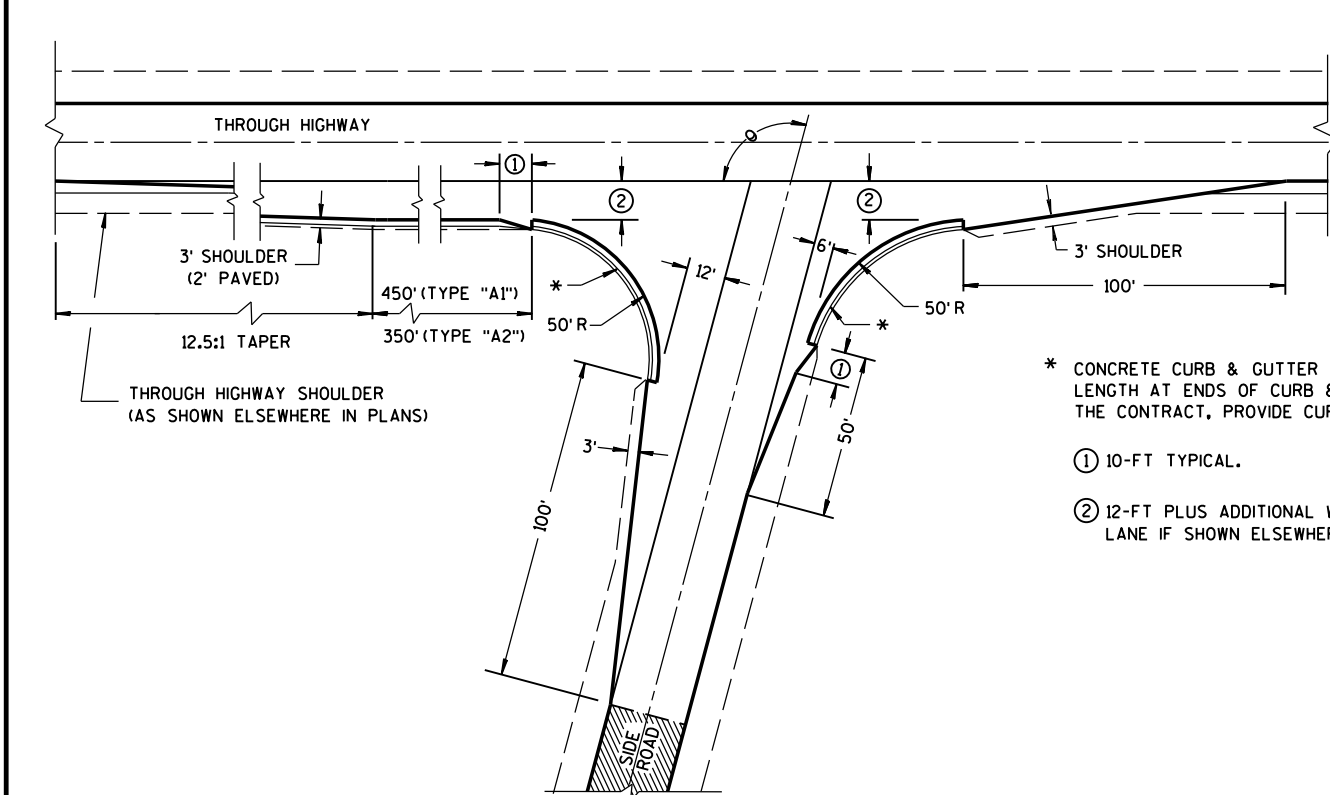
SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



TEE INTERSECTION BYPASS LANE DETAIL

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

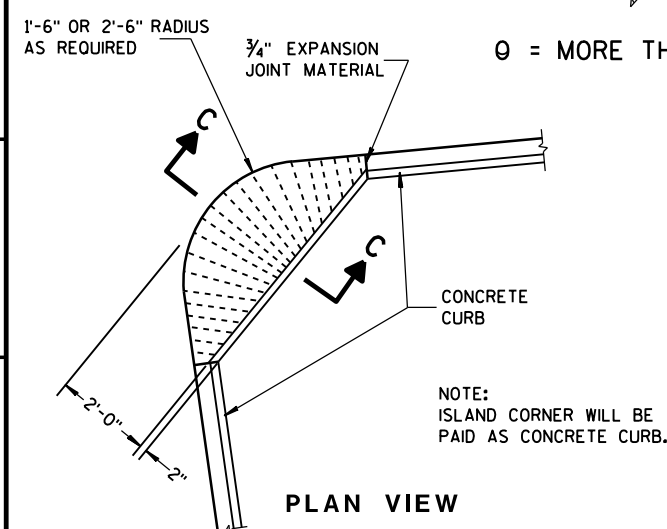
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



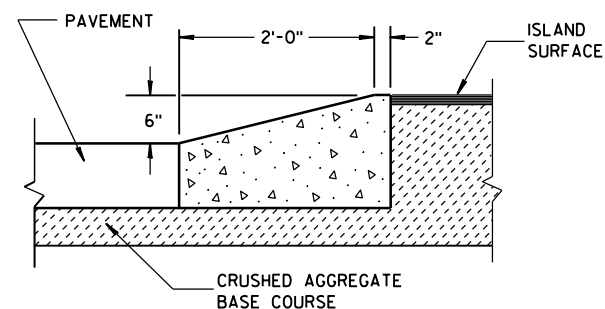
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10-FT TYPICAL.

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



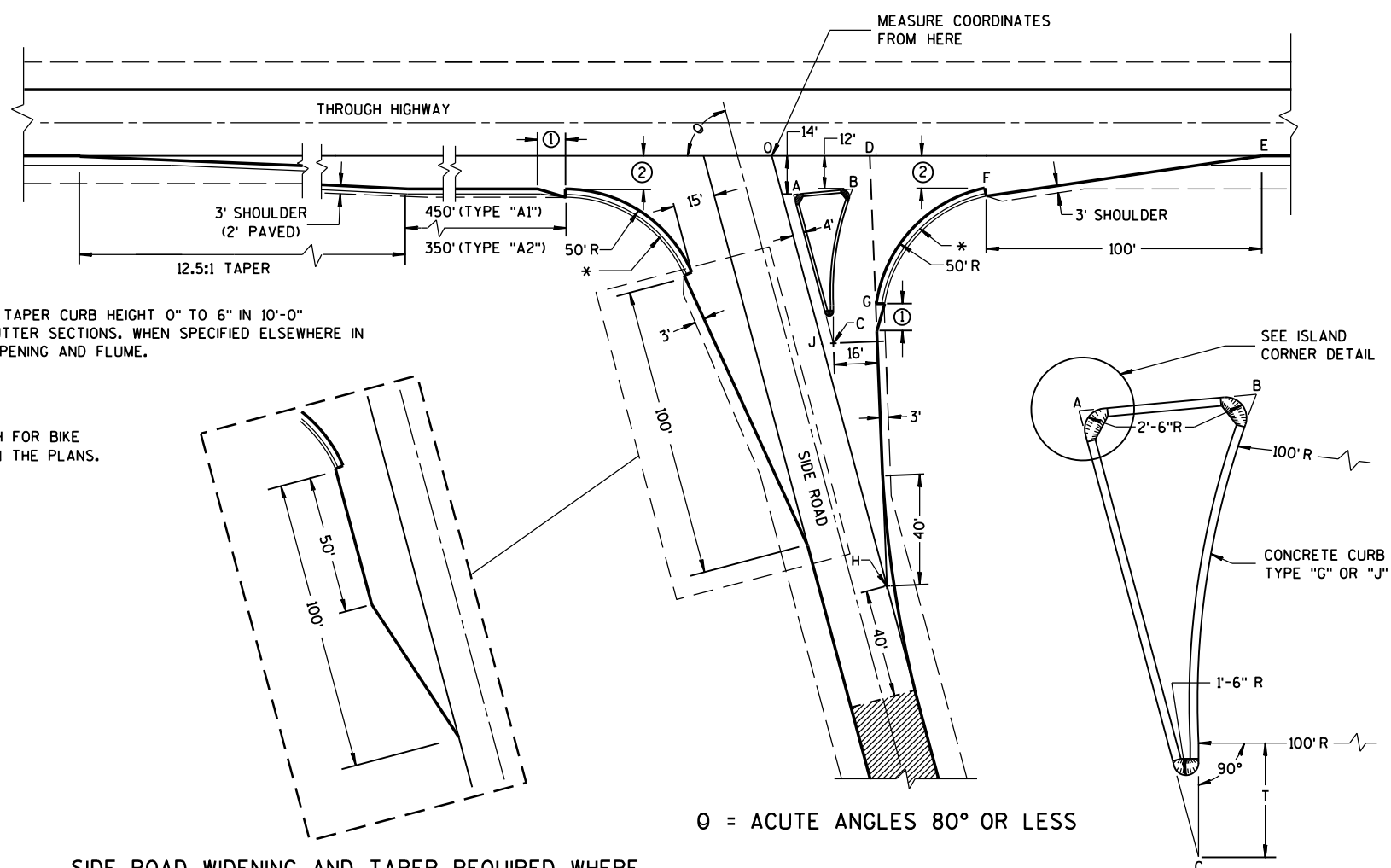
PLAN VIEW



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 100

ENGINEER

GENERAL NOTES

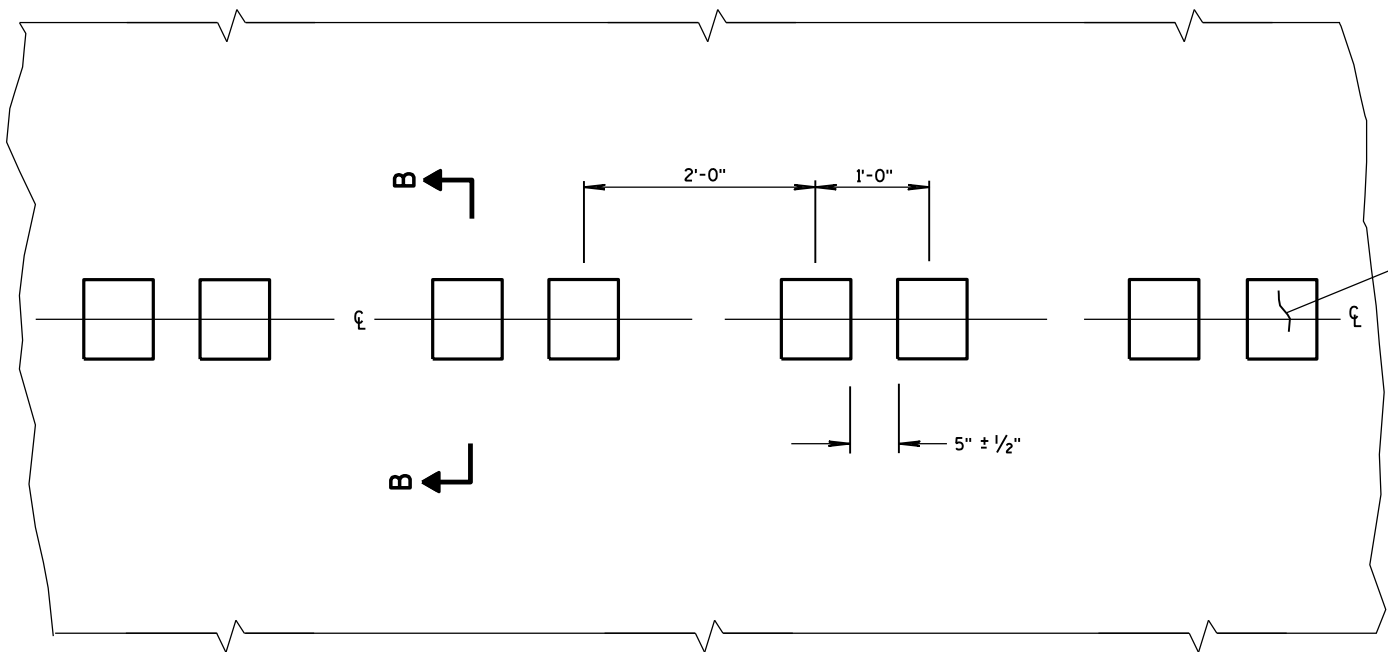
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

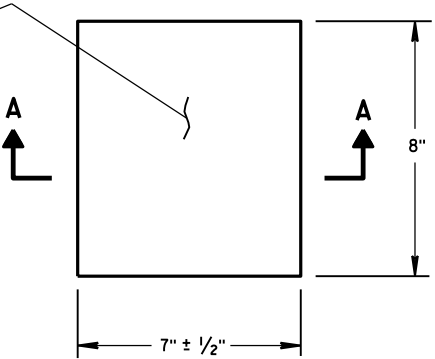
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

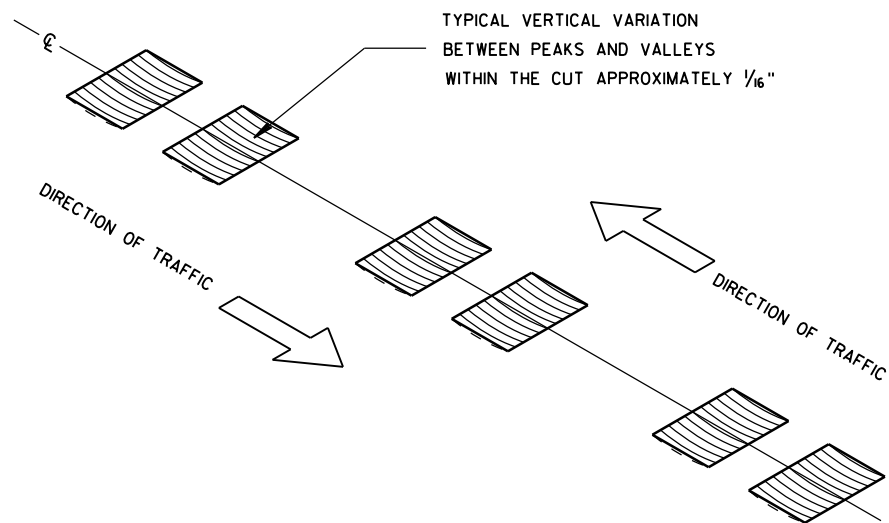
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



PLAN VIEW
CENTER LINE WITH GROOVES

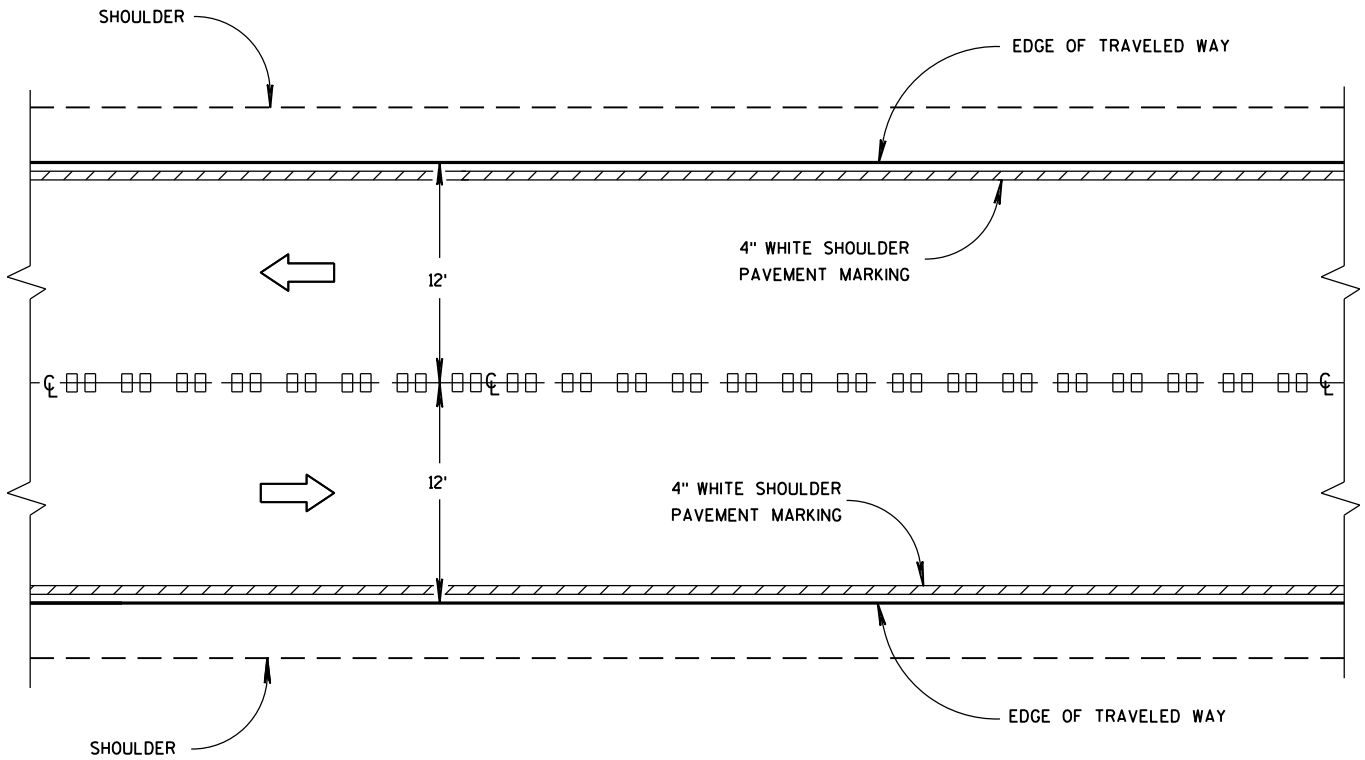


PLAN VIEW
(SINGLE GROOVE)

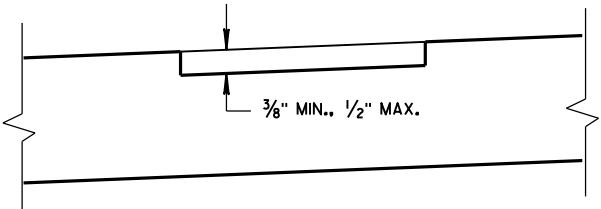


ISOMETRIC

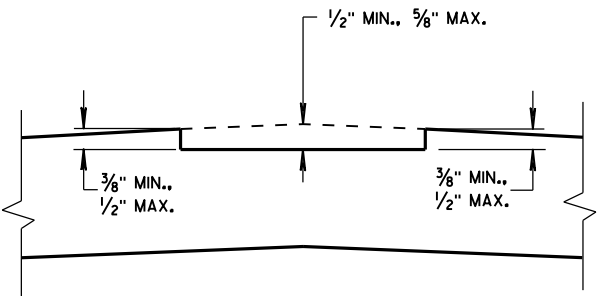
PLACEMENT DETAIL FOR MILLED RUMBLE STRIP



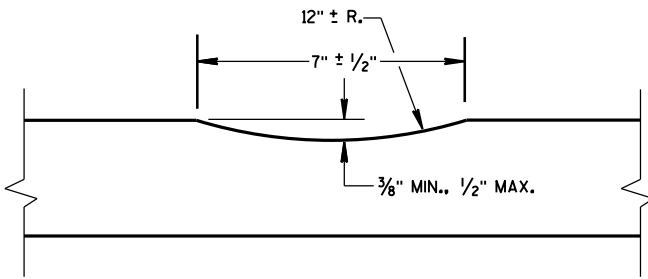
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



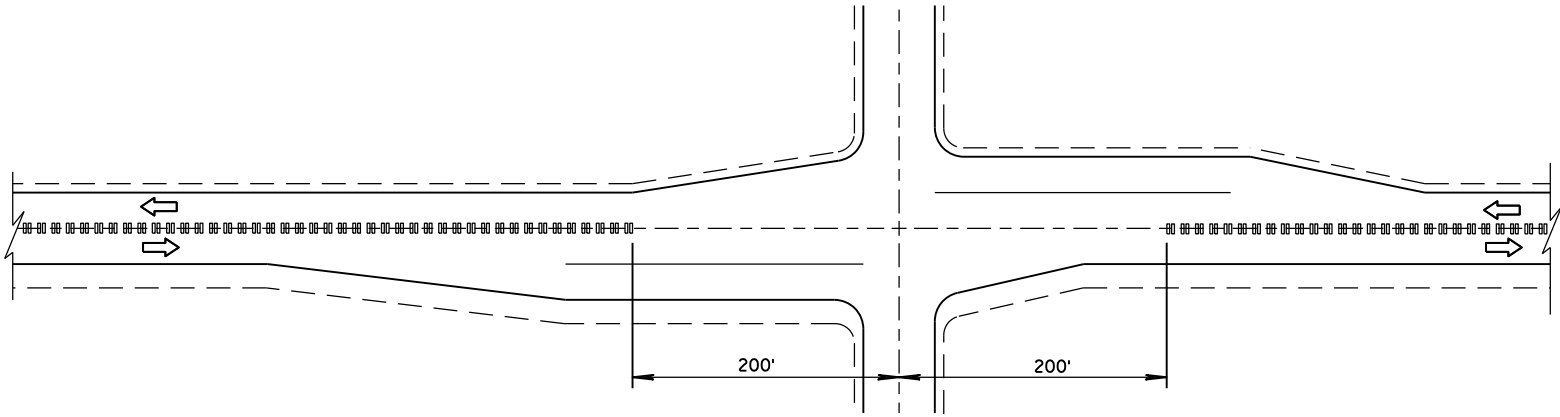
SECTION B-B
CROWNED ROADWAY



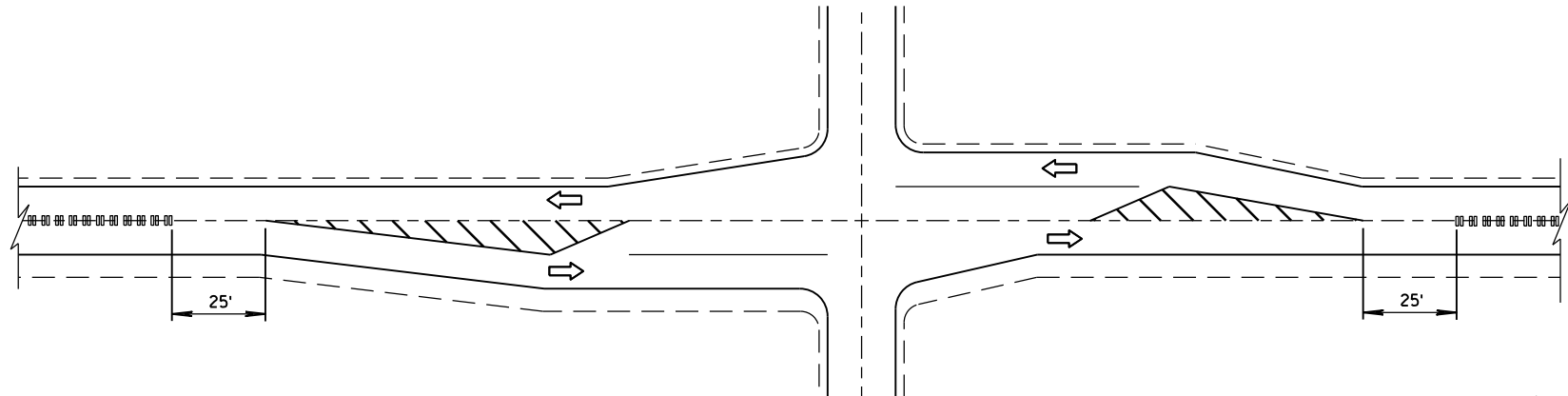
SECTION A-A

2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING

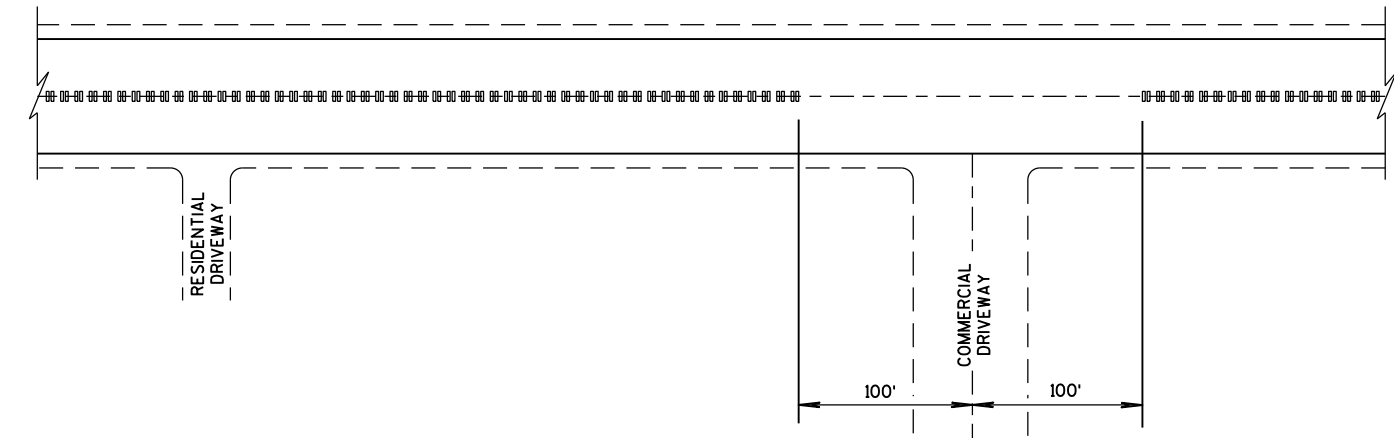
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 101



CENTER LINE GROOVES AT INTERSECTIONS

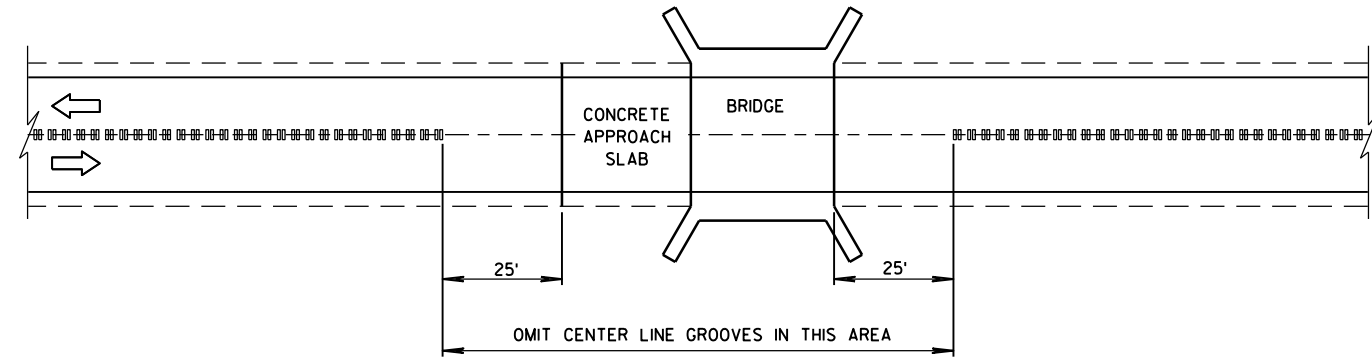


CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)

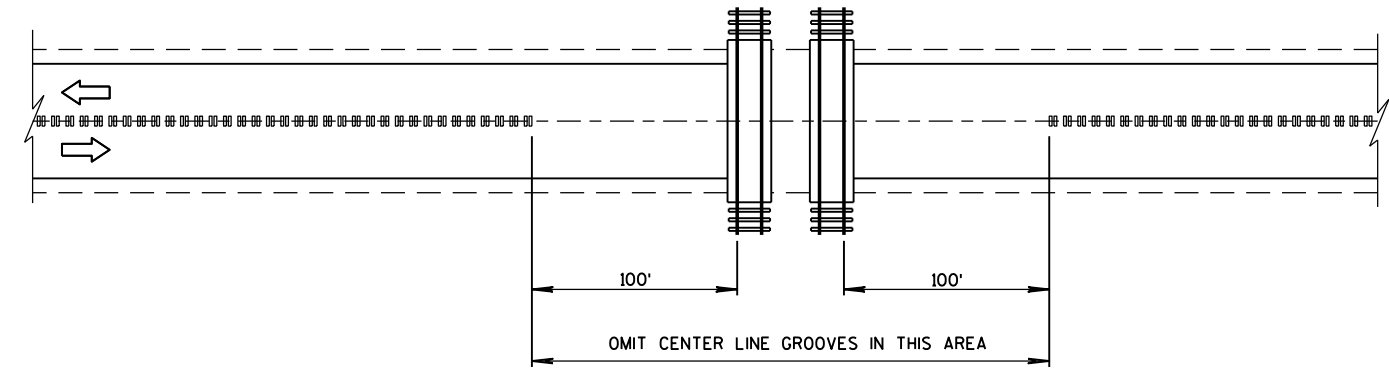


CENTER LINE GROOVES AT DRIVEWAYS^①

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

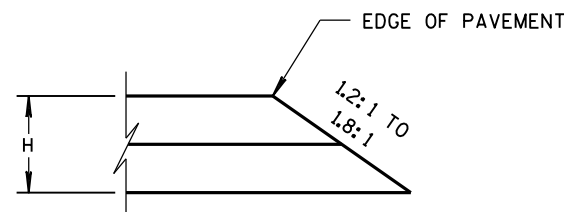


CENTER LINE GROOVES AT BRIDGES

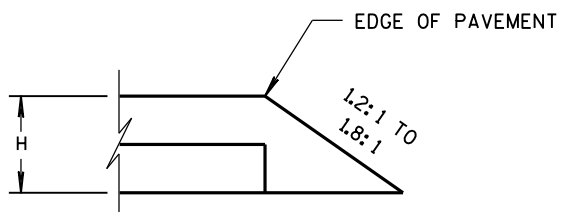


CENTER LINE GROOVES AT RAILROADS

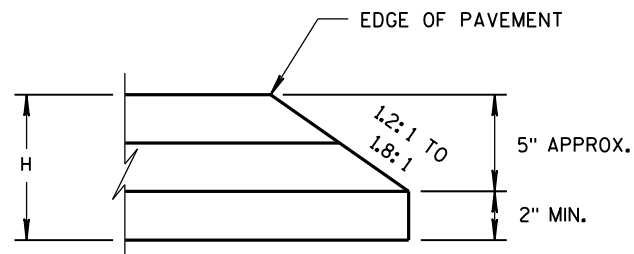
2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 5/15/2013	/S/ Jerry H. Zoog ROADWAY STANDARDS ENGINEER 102 NT
FHWA	



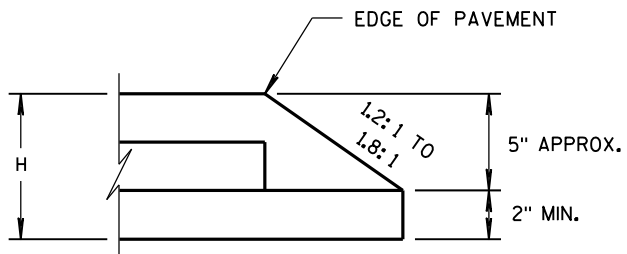
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

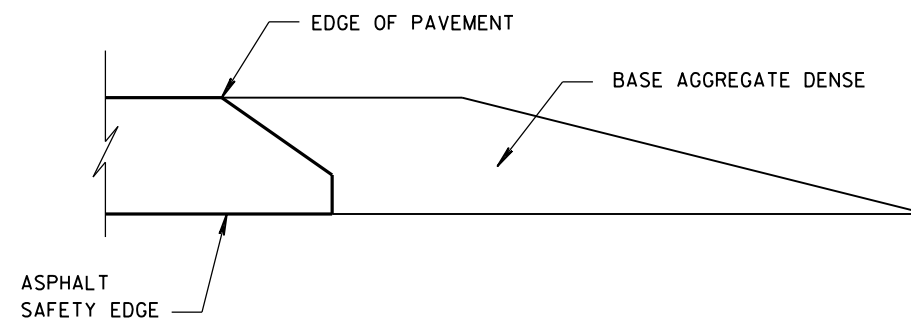


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE_{SM}

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

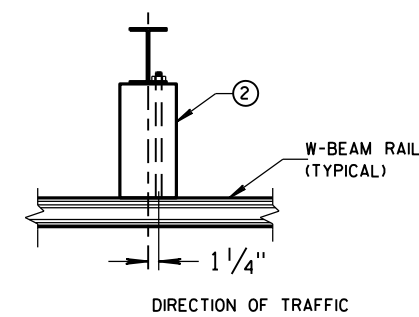
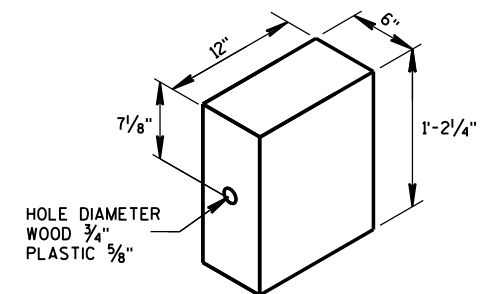
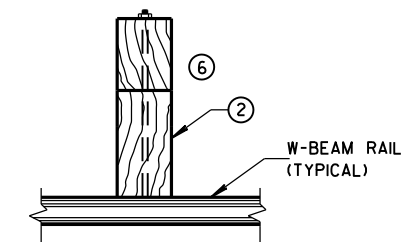
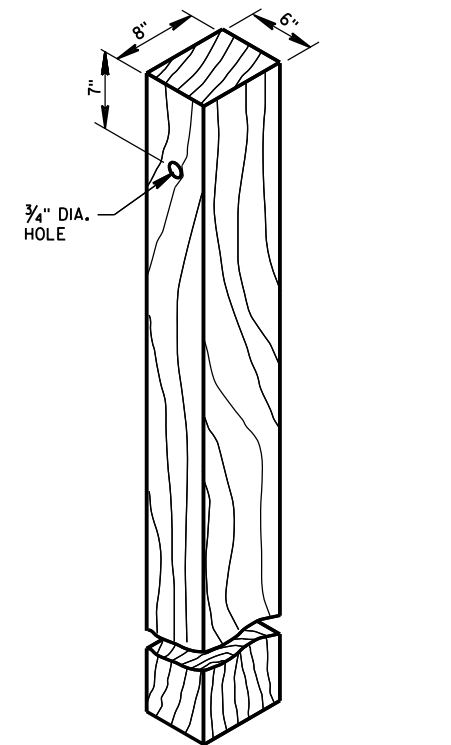
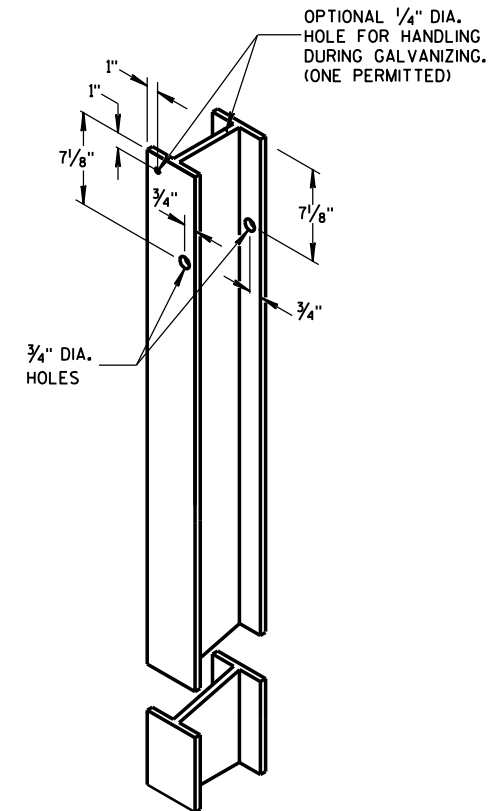
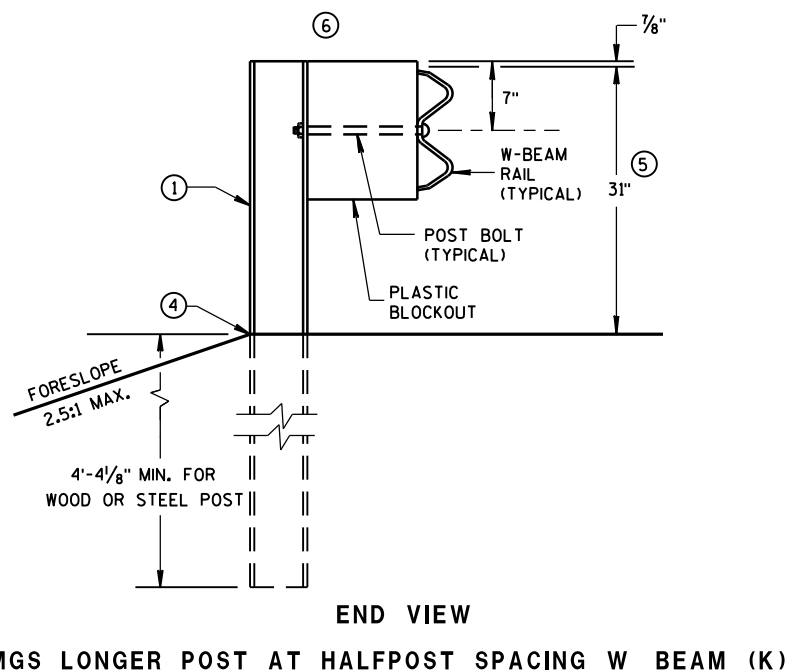
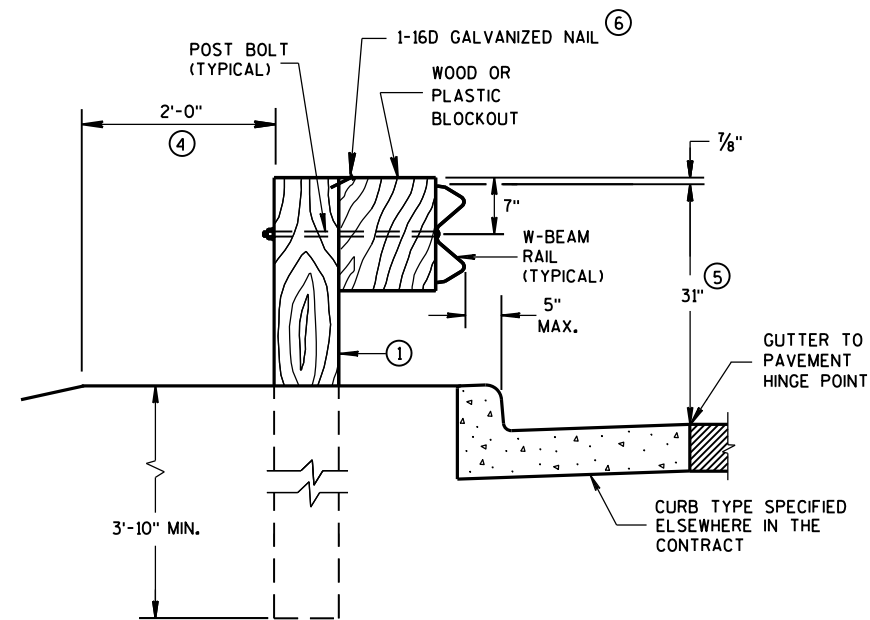
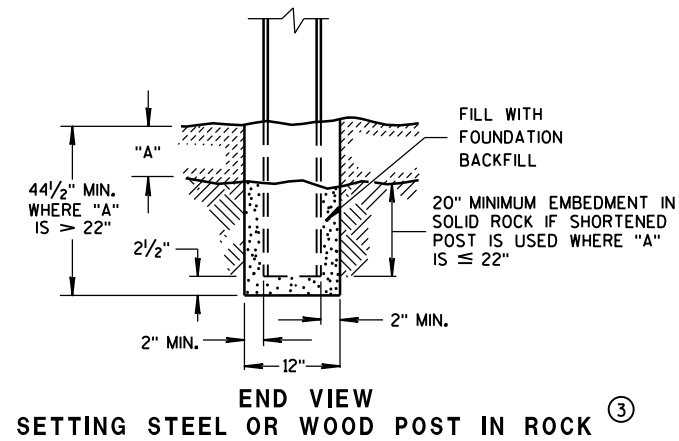
APPROVED
DATE 11/30/2012
FHWA

/s/ Jerry H. Zoga
ROADWAY STANDARDS
ENGINEER

103

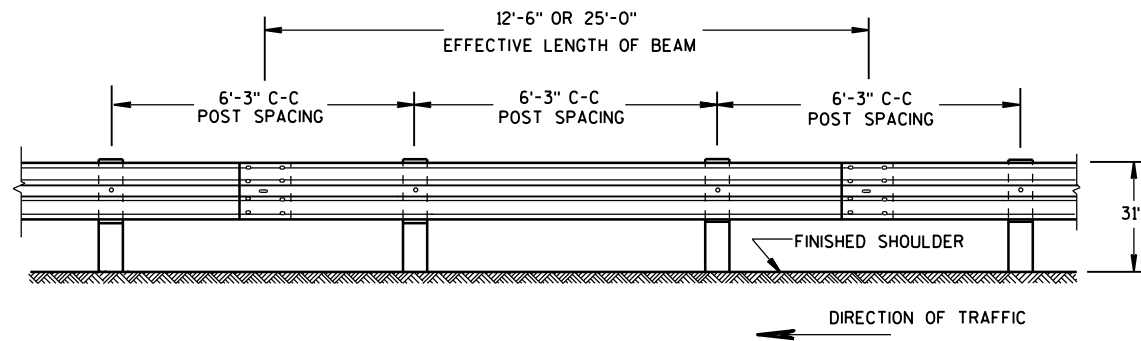
ENT

- 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 2½ 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 27¾" 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.



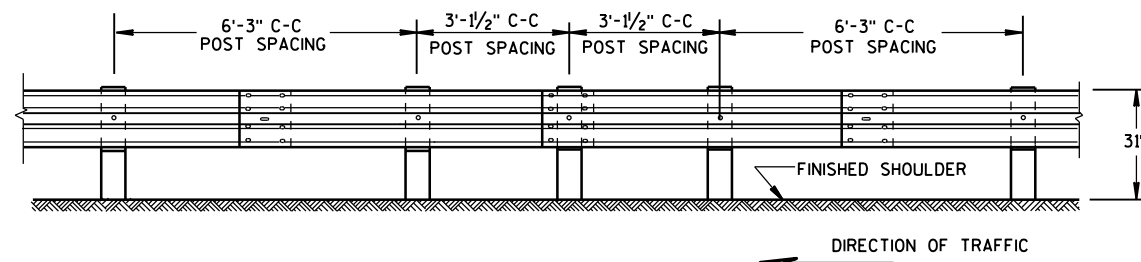
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 104



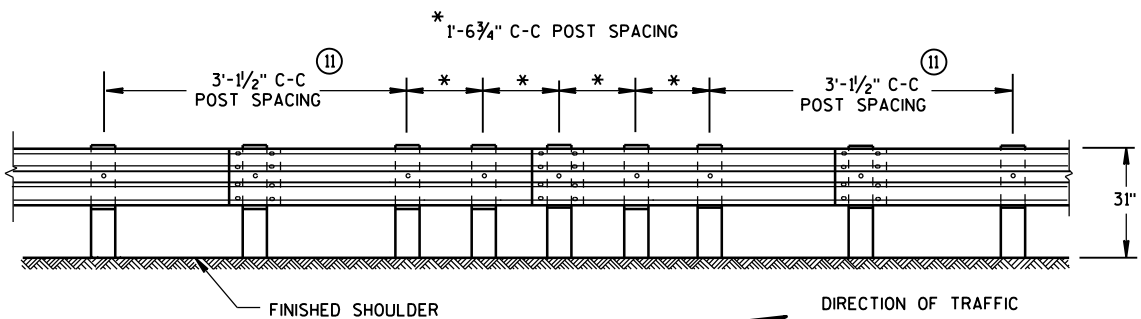
FRONT VIEW

POST SPACING STANDARD INSTALLATION



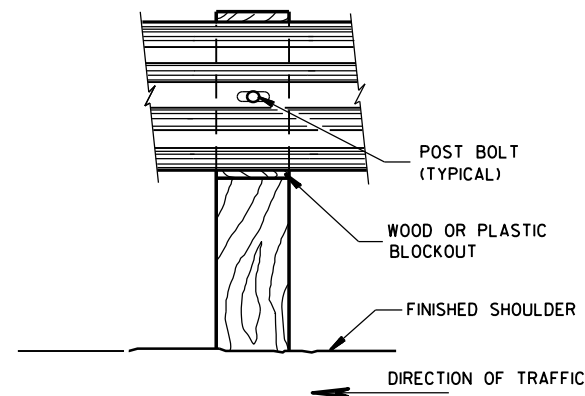
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

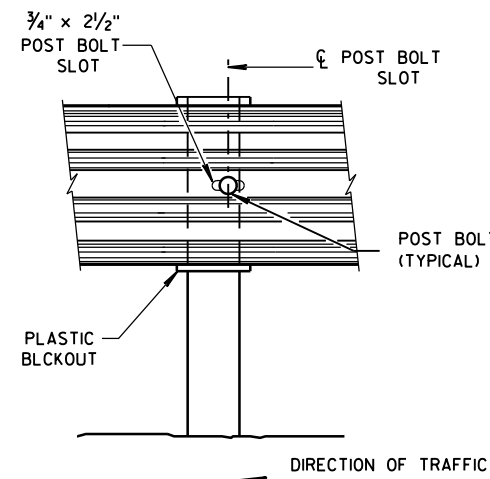


FRONT VIEW

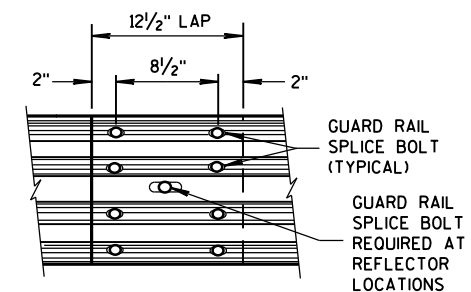
QUARTER POST SPACING (QS)



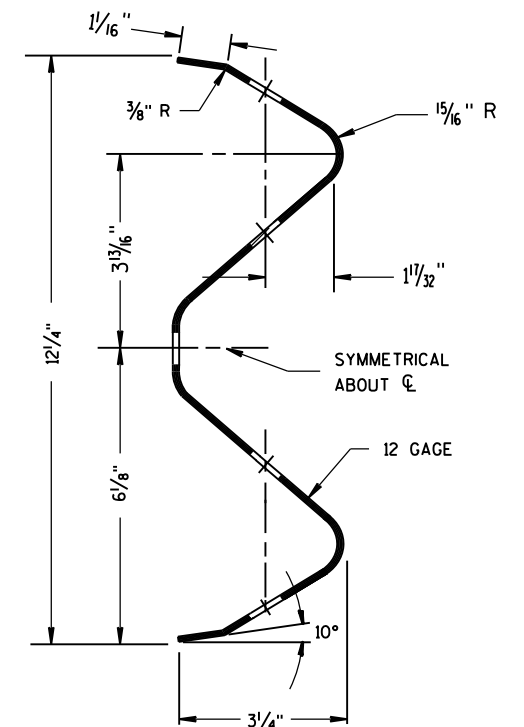
FRONT VIEW AT WOOD POST



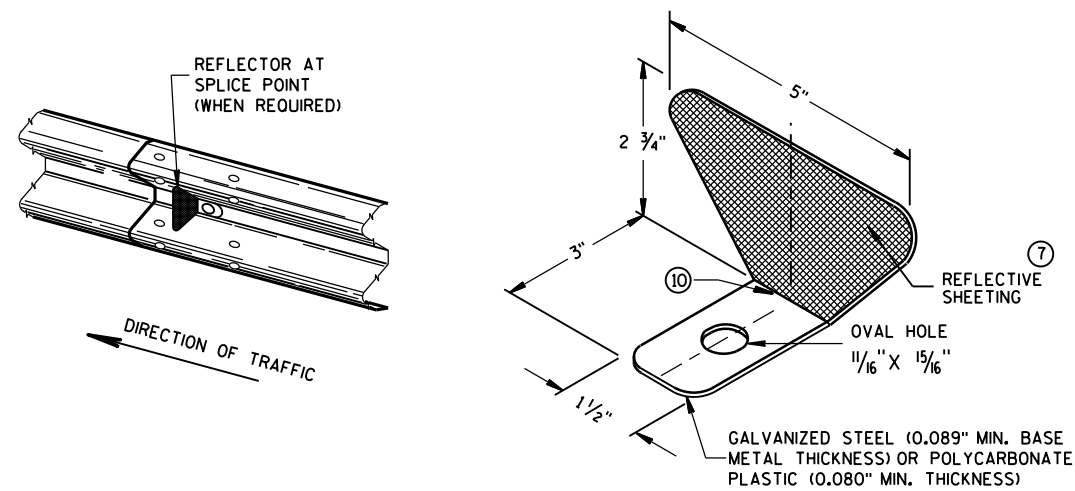
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
- ⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ⑩ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

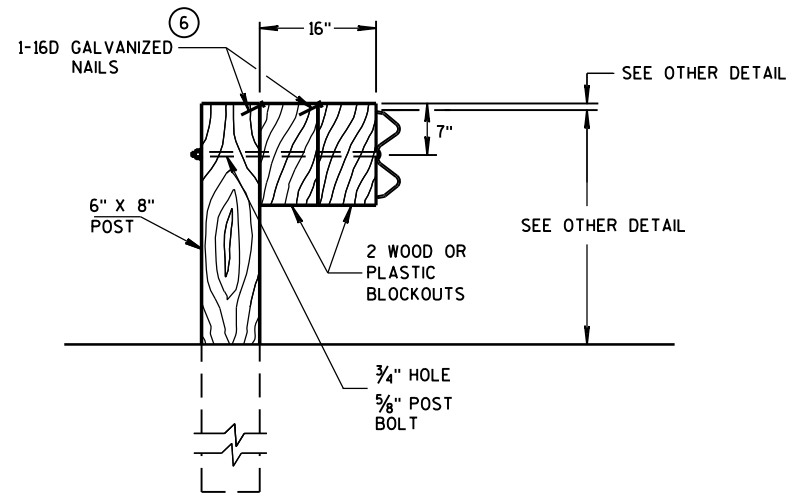
GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ⑨	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ⑩	3
	> 200'	100' C-C	2	

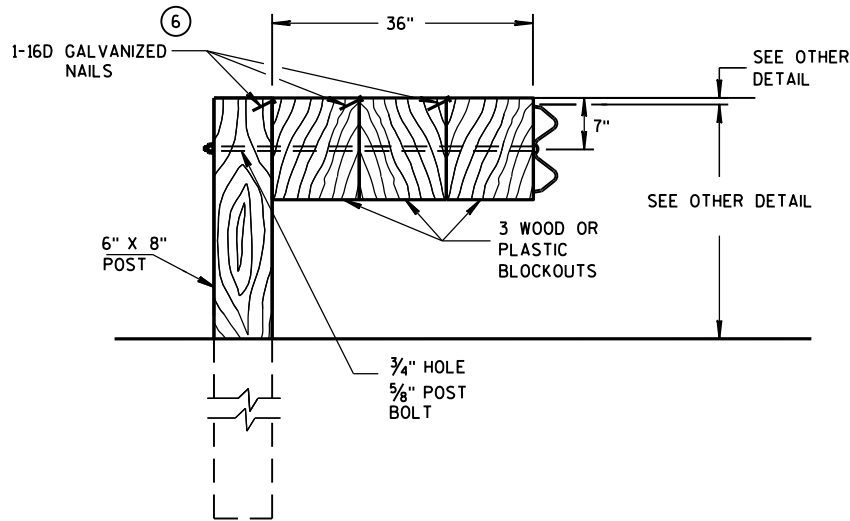
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

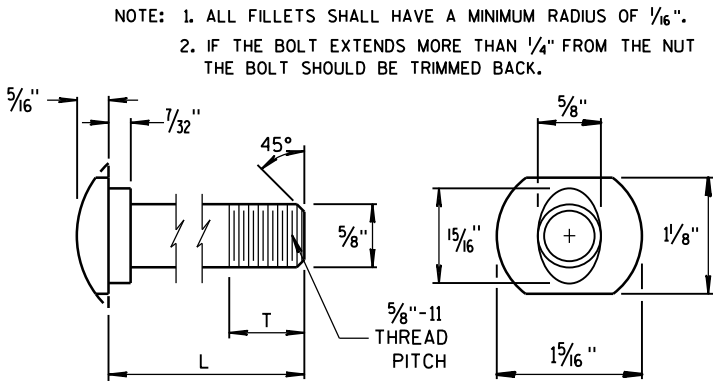
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

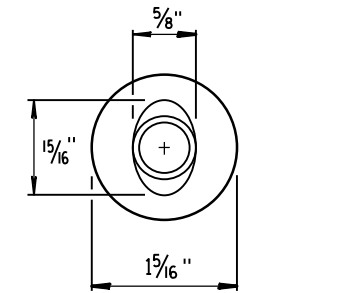
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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.

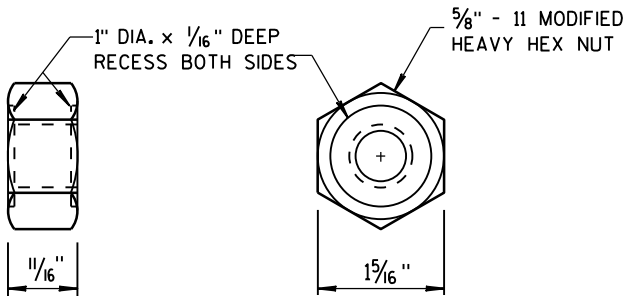


POST BOLT TABLE

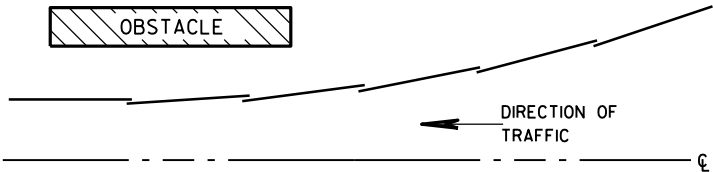
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



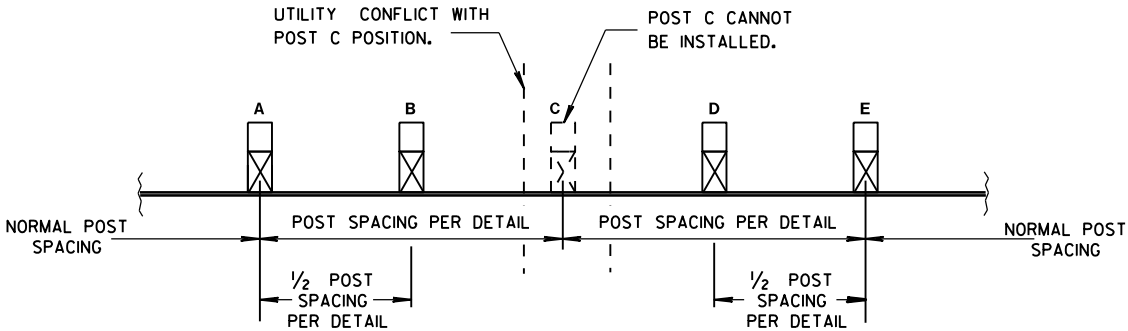
ALTERNATE BOLT HEAD



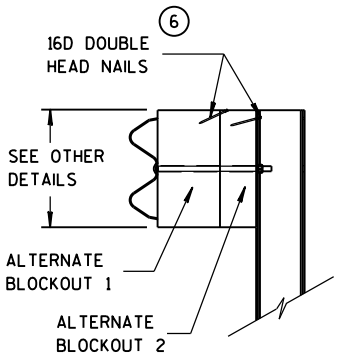
POST BOLT, SPLICE BOLT AND RECESS NUT



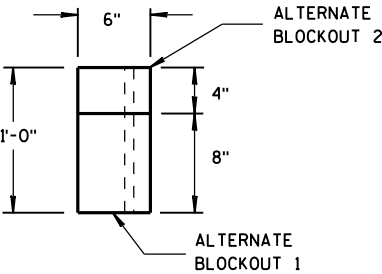
PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS (106) ENT
FHWA ENGINEER

GENERAL NOTES

- (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 MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (G) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

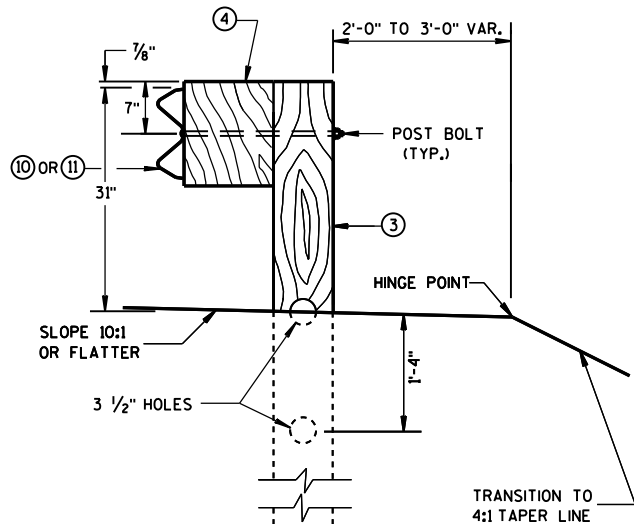
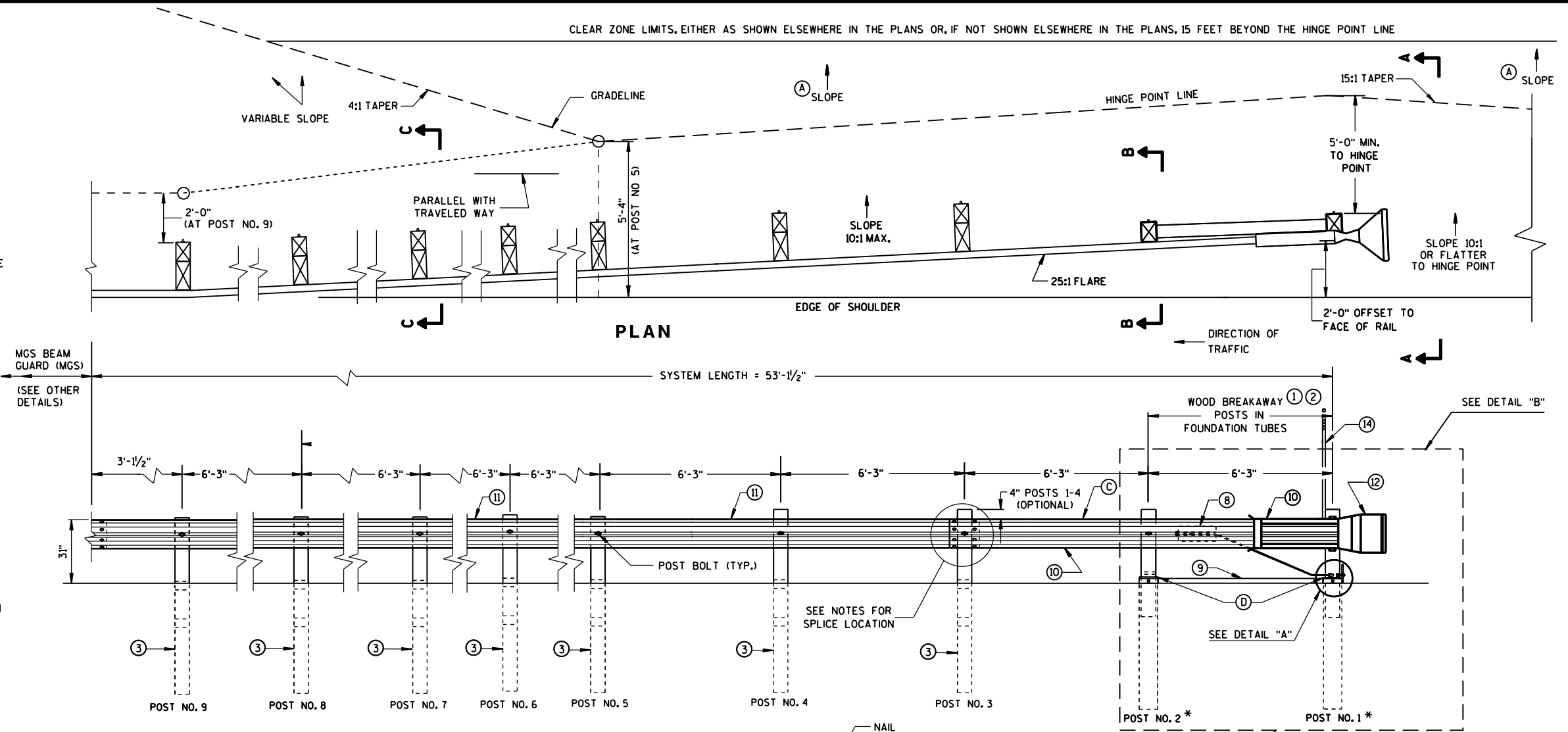
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

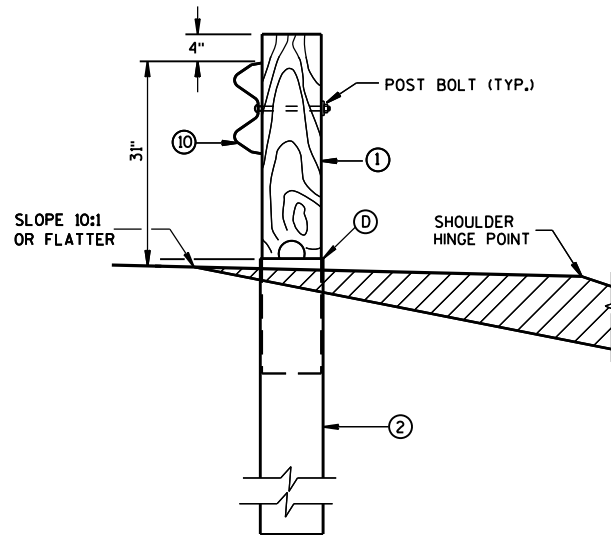
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

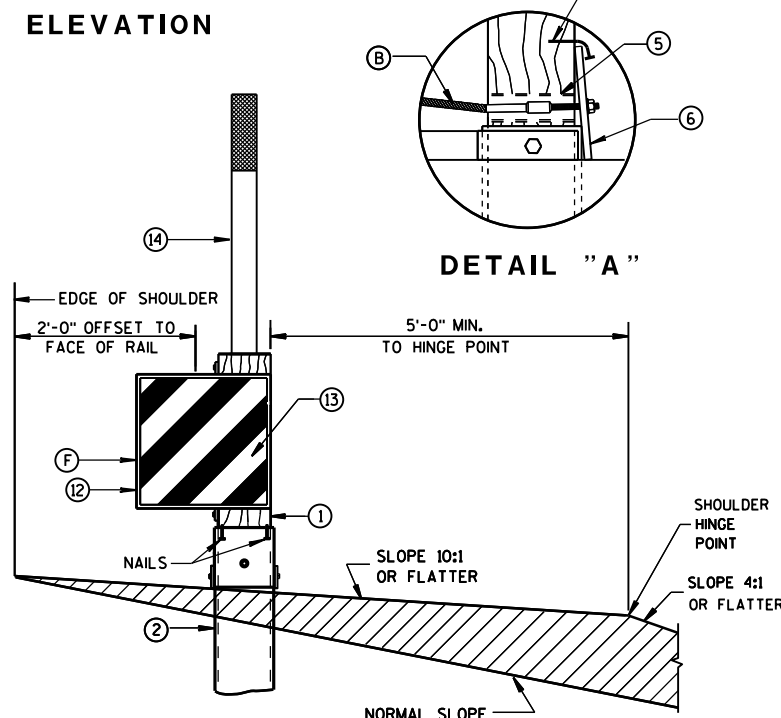
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



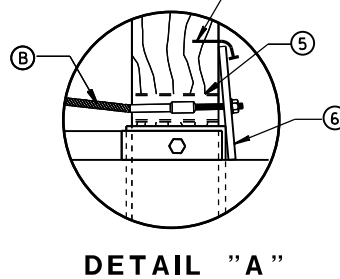
SECTION C-C
TYPICAL AT POST NOS. 3-9



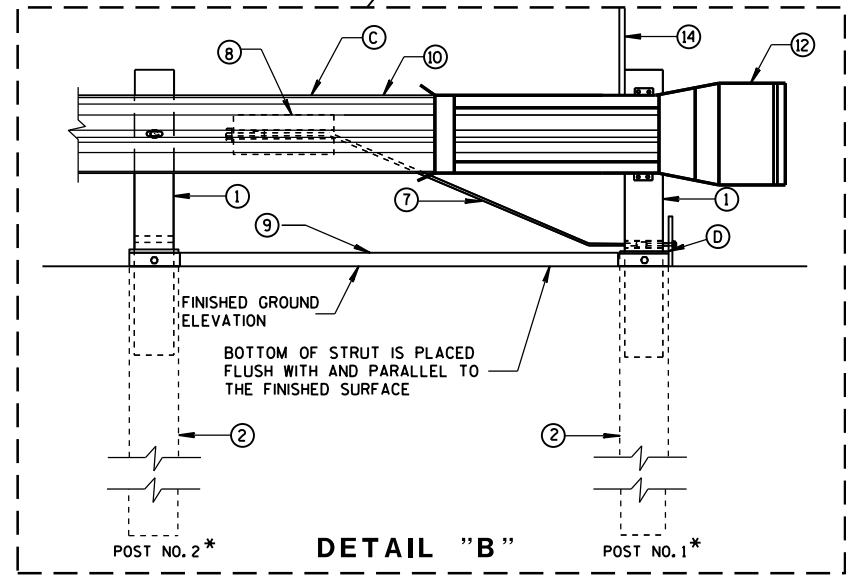
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"

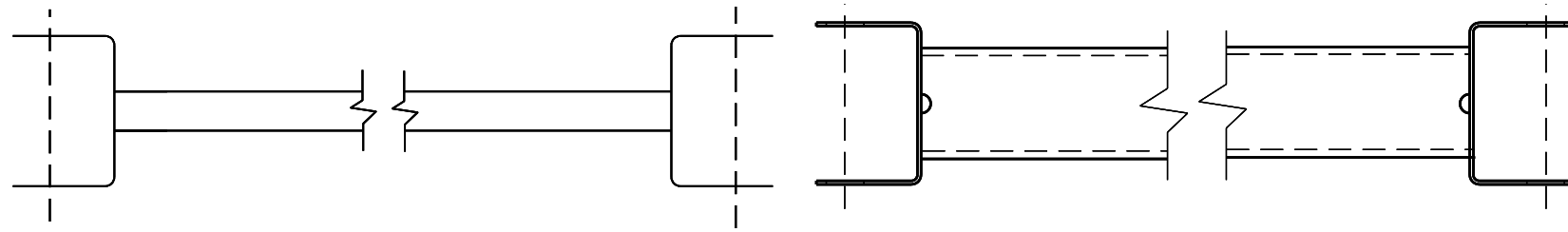


DETAIL "B"

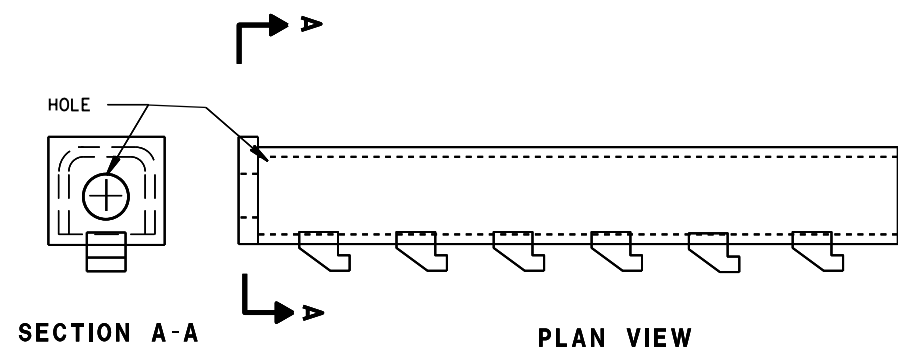
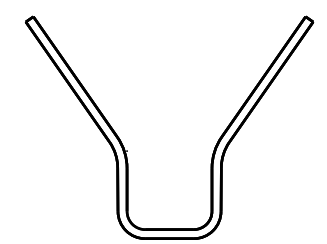
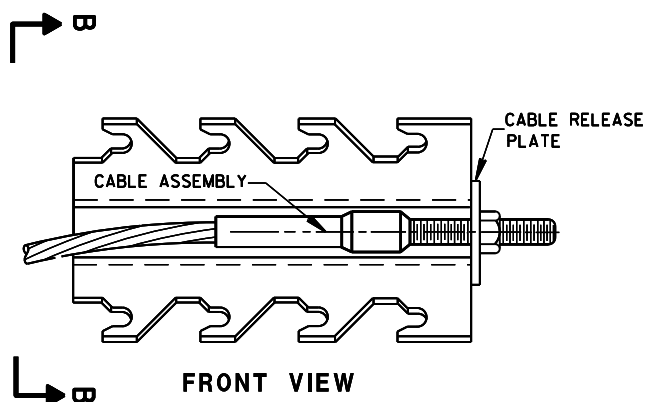
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

107



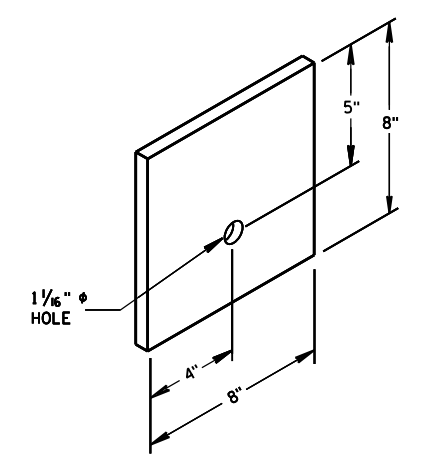
9 H
GENERIC GROUND STRUT



8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

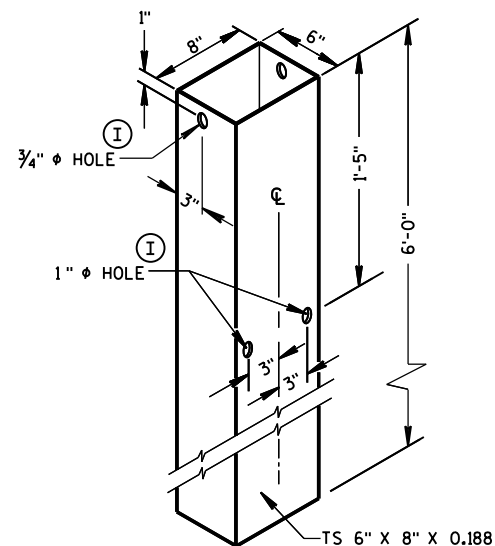
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



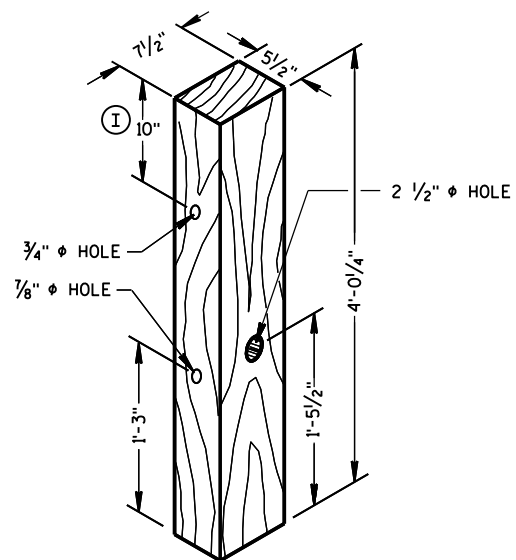
⑥
BEARING PLATE

6

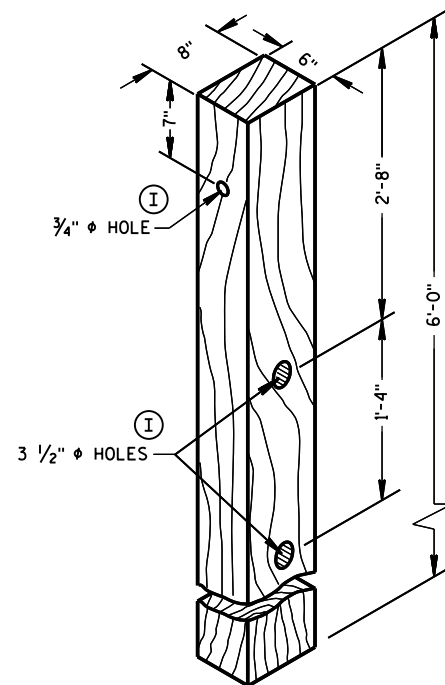
6



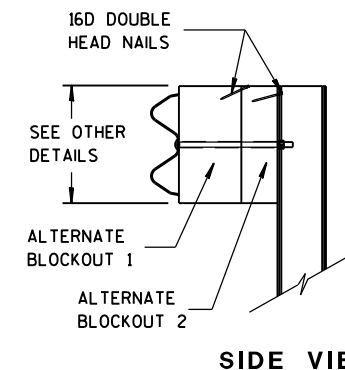
FOUNDATION TUBE ②



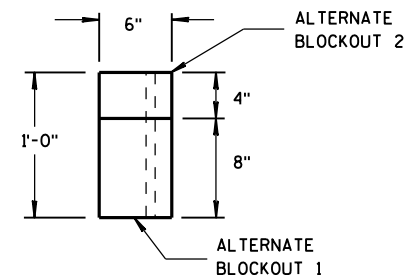
POSTS NUMBER 1 AND 2
WOOD BREAKAWAY POST ①



POSTS NUMBER 3-9
WOOD CRT POST ③

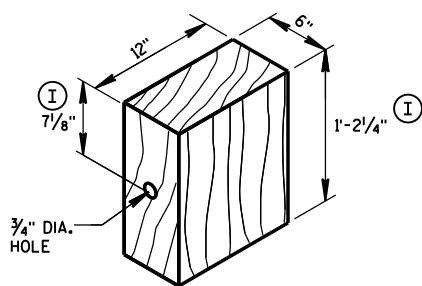


SIDE VIEW



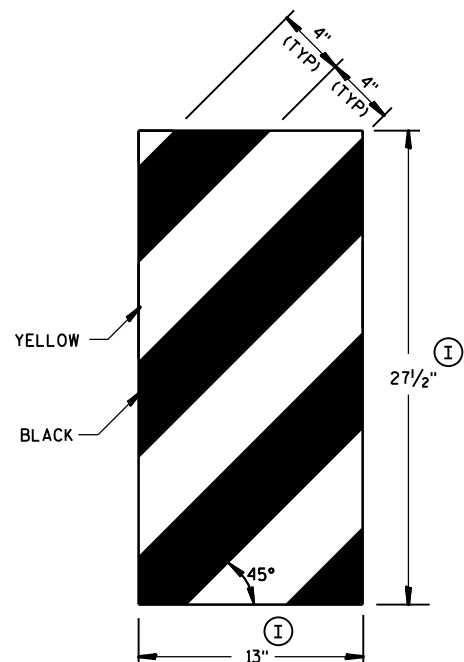
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

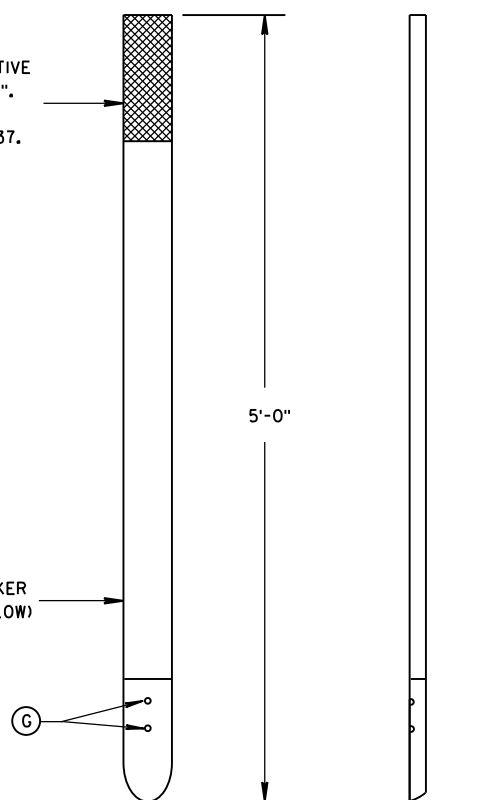
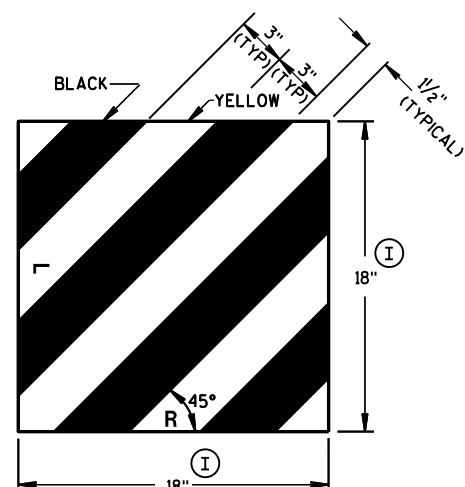


WOOD BLOCKOUT ④
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

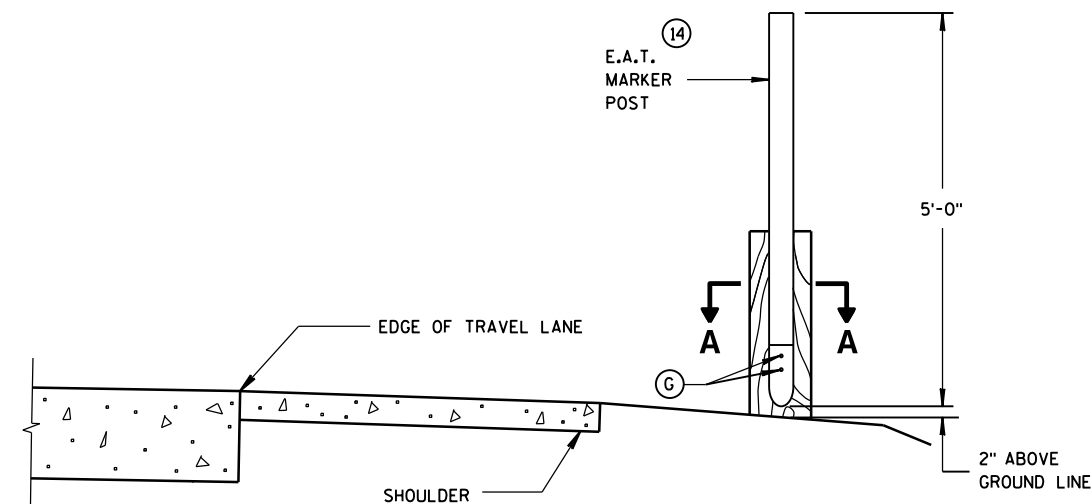
TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.



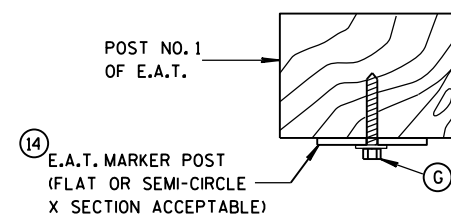
GENERIC REFLECTIVE SHEETING ⑬ ④



FRONT VIEW
SIDE VIEW
E.A.T. MARKER POST ⑭



TYPICAL INSTALLATION OF E.A.T.
MARKER POST BACKSIDE OF POST NO. 1
(E.A.T. AND RAIL REMOVED FOR CLARITY)

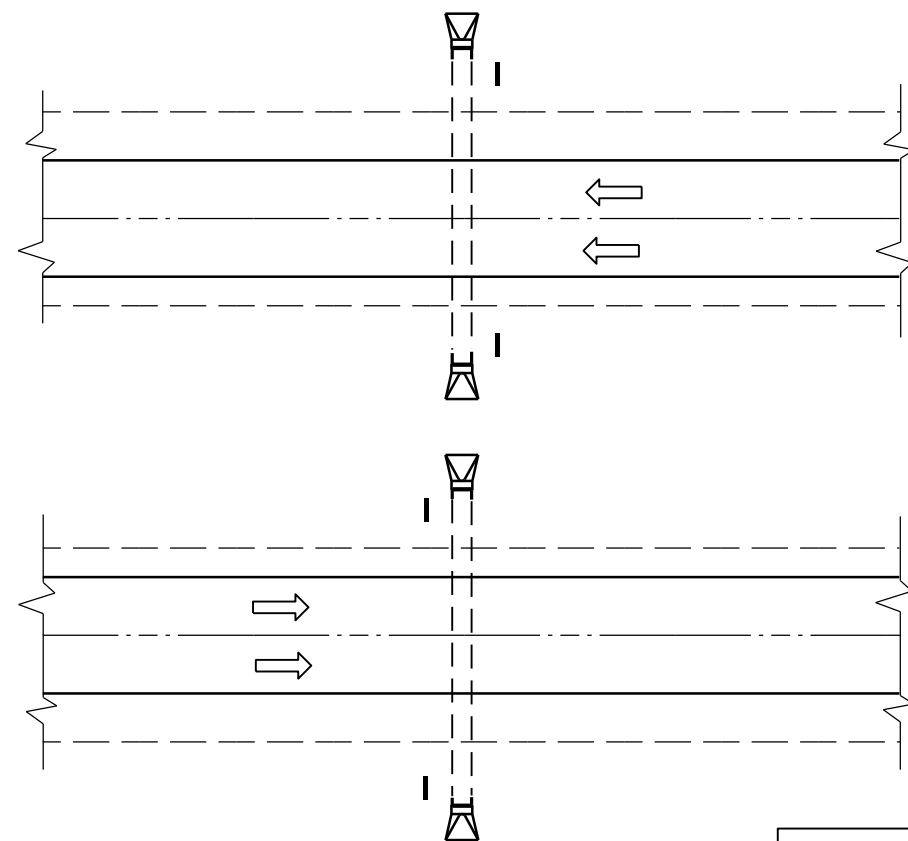


SECTION A-A

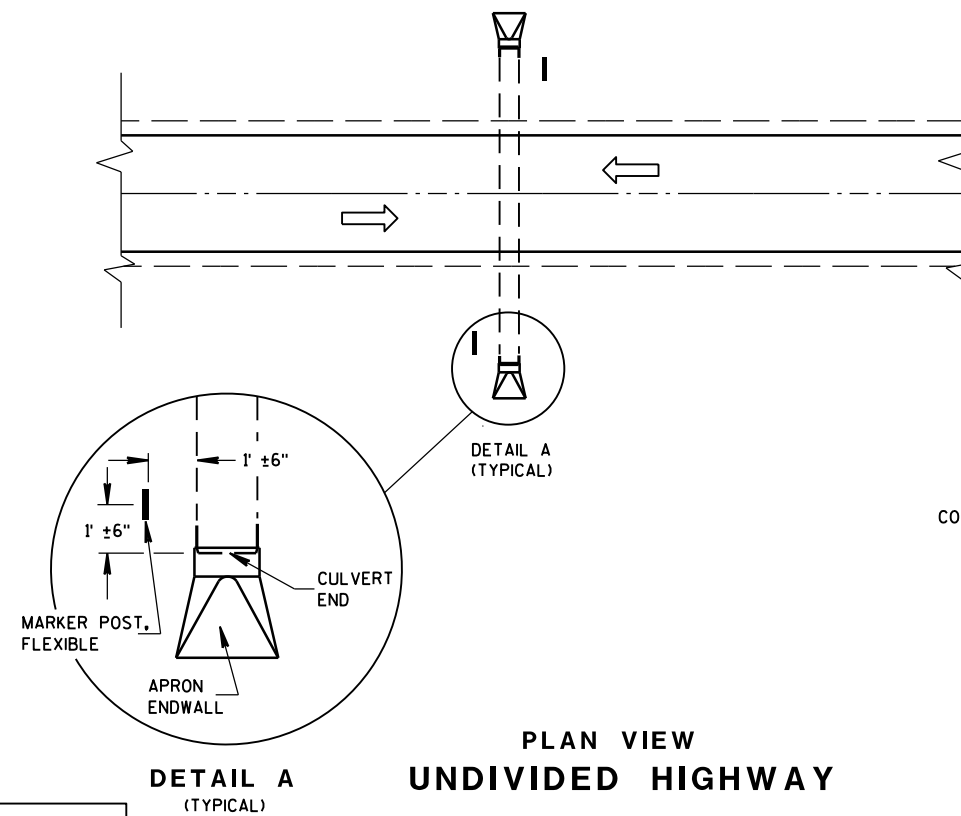
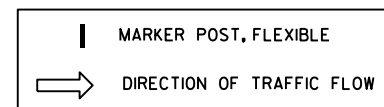
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 109 ENT
FHWA ENGINEER



PLAN VIEW
DIVIDED HIGHWAY

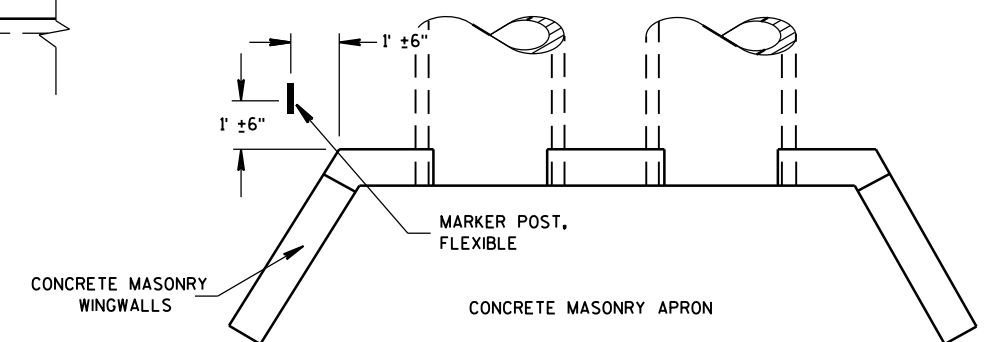


PLAN VIEW
UNDIVIDED HIGHWAY

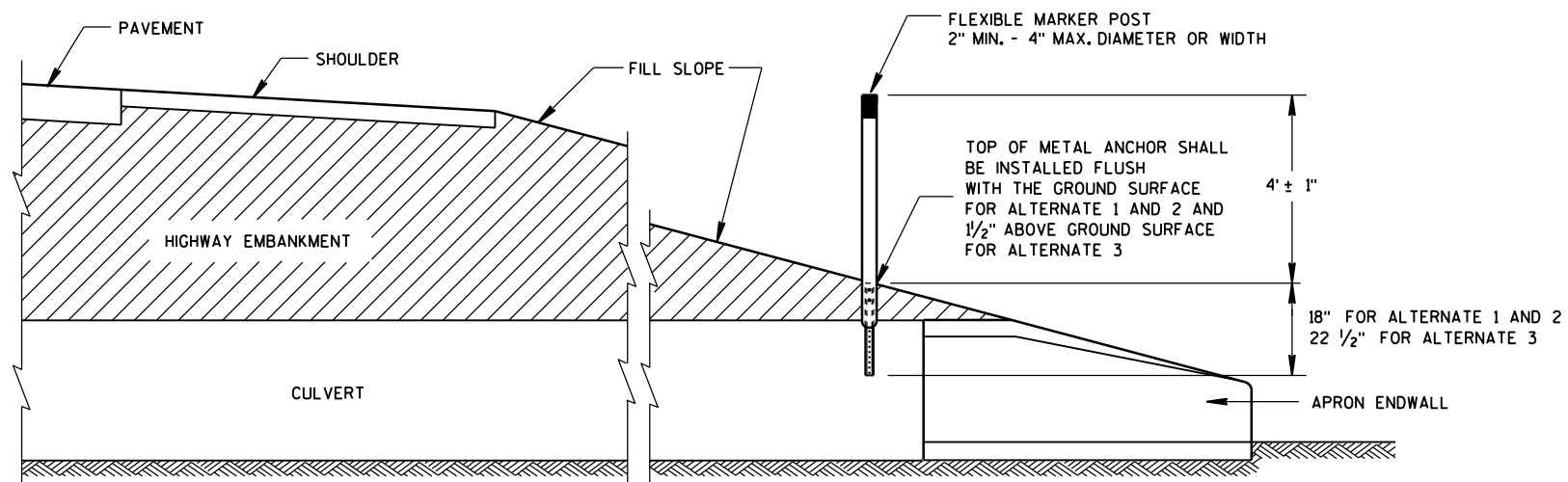
FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

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



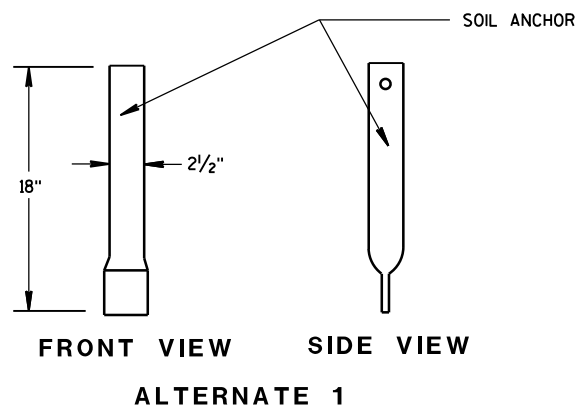
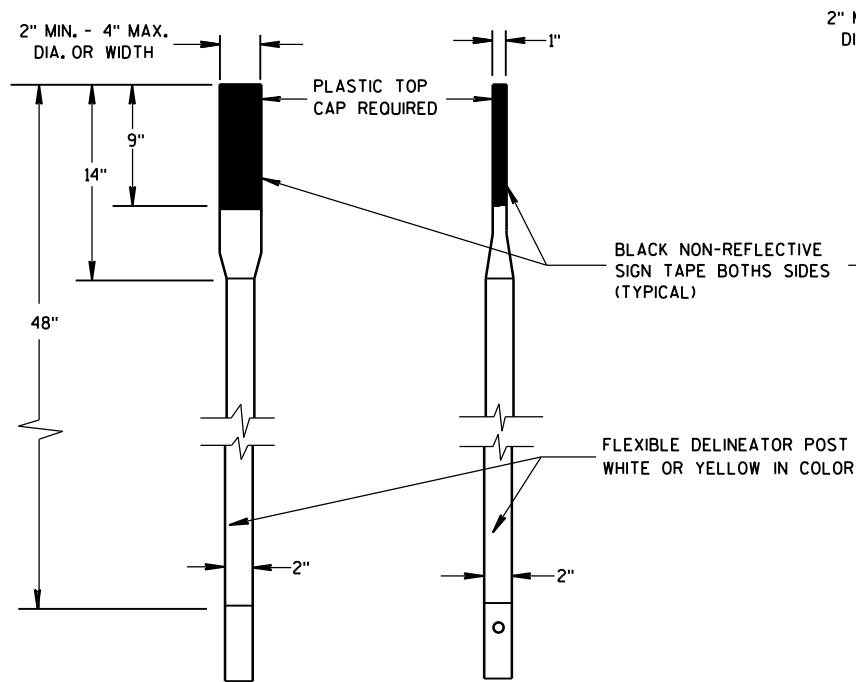
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



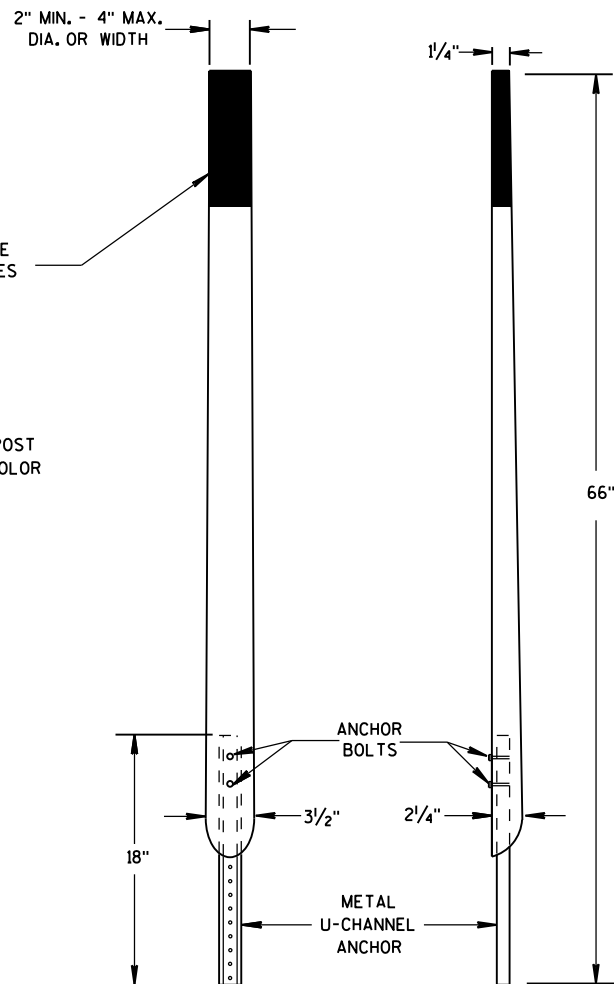
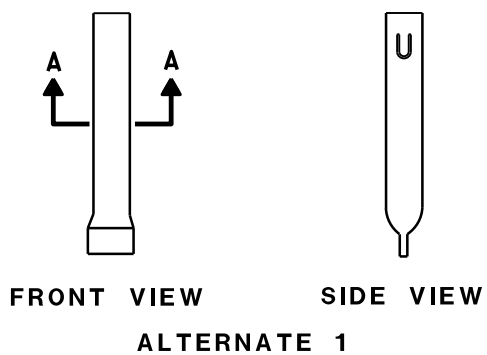
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 110

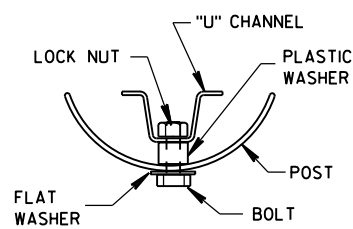


SECTION A-A

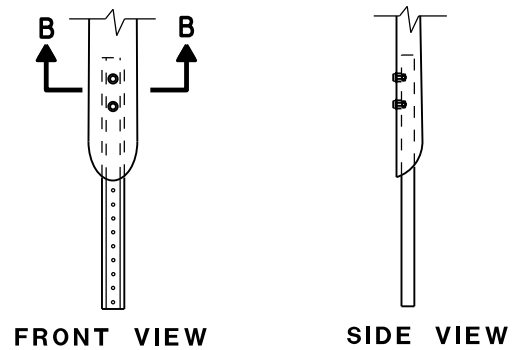


FRONT VIEW SIDE VIEW
ALTERNATE 2

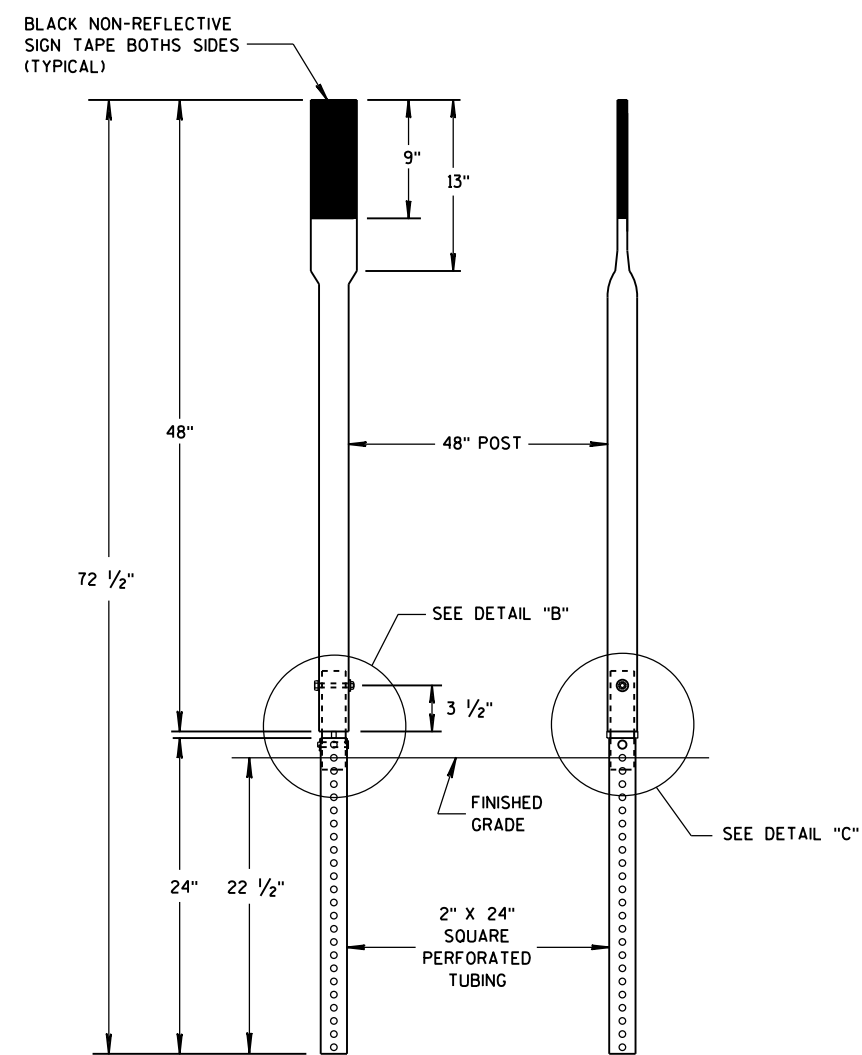
FLEXIBLE MARKER POSTS



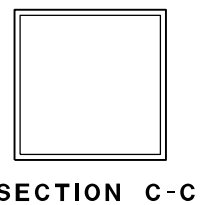
SECTION B-B



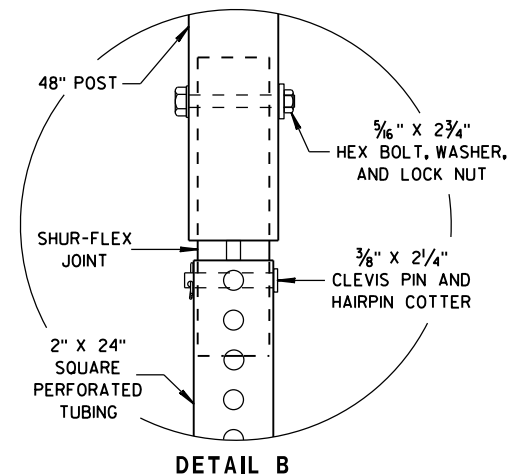
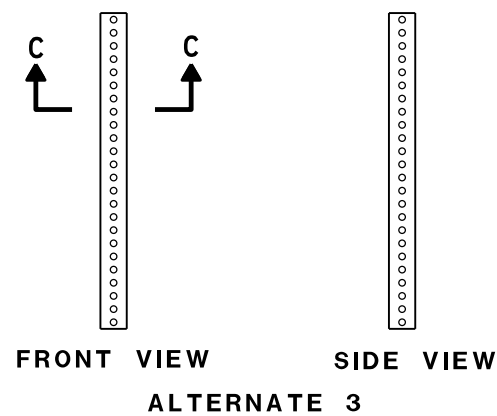
FRONT VIEW SIDE VIEW
ALTERNATE 2
FLEXIBLE MARKER POST ANCHORS



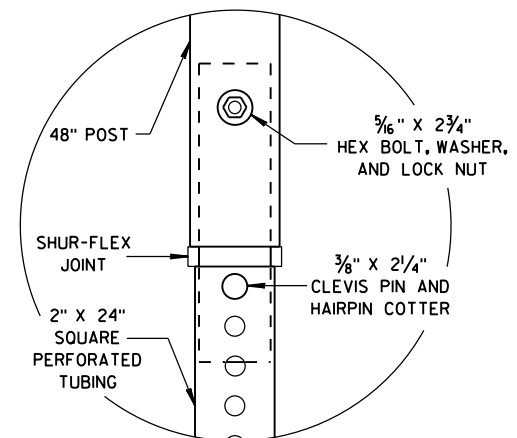
FRONT VIEW SIDE VIEW
ALTERNATE 3



SECTION C-C



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

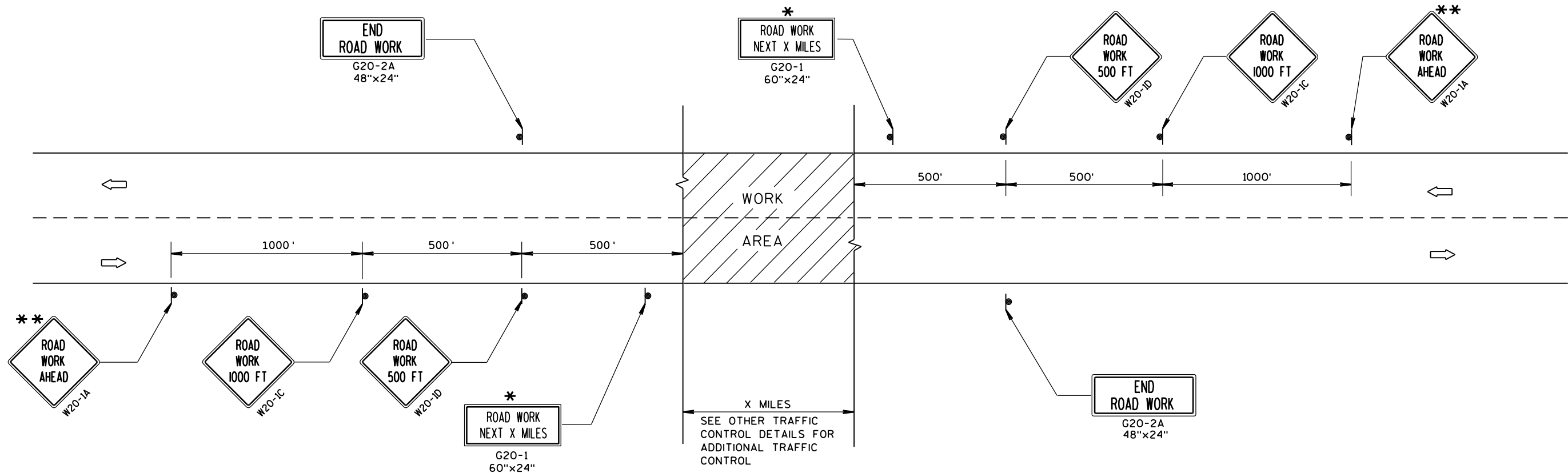
10/1/2012

DATE

FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER 111

IGN



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

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.

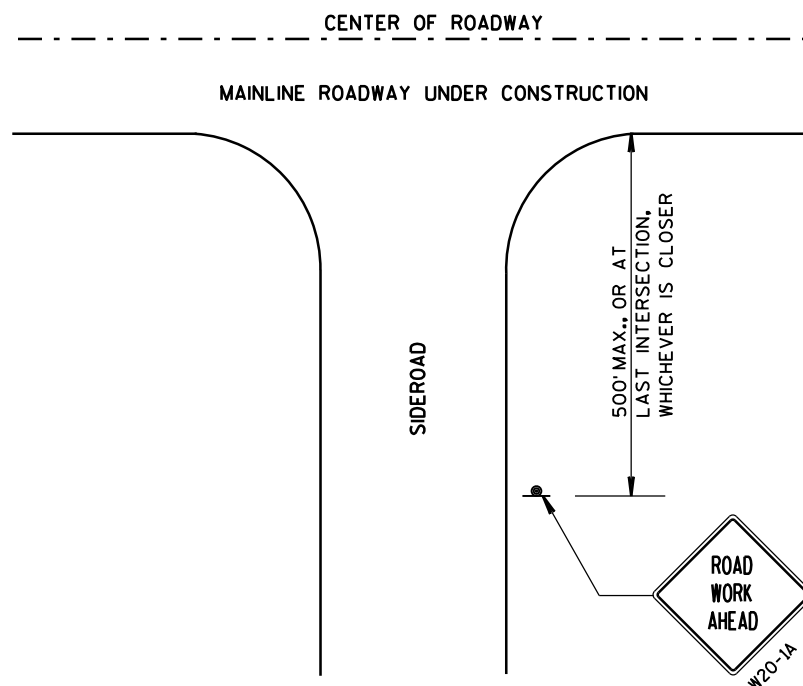
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 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 RE-ESTABLISHED.

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

** PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



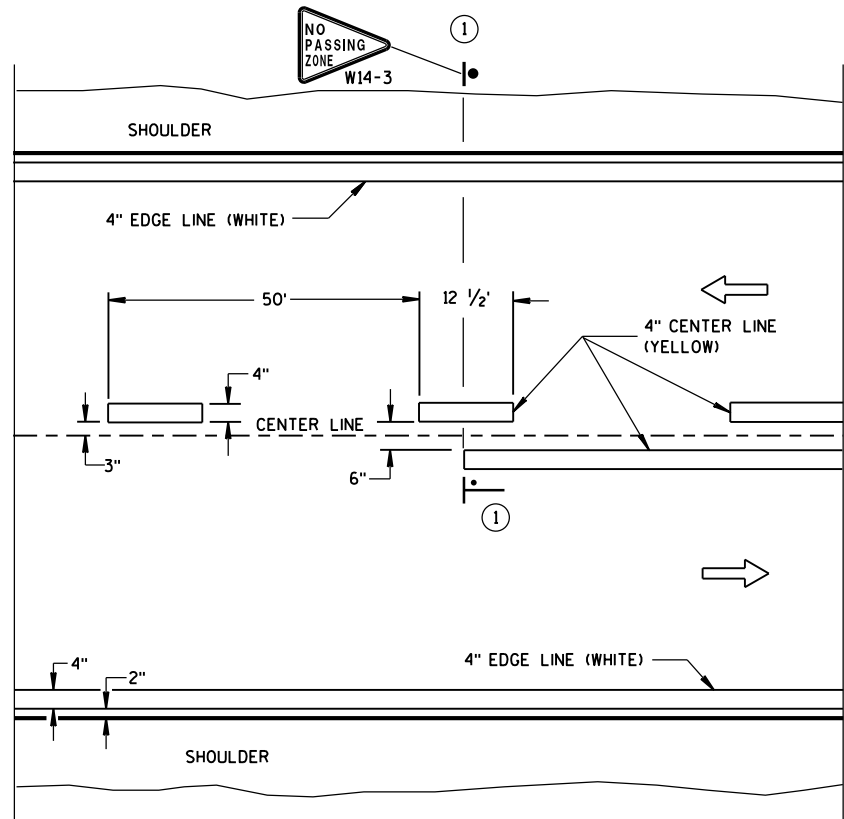
LEGEND

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

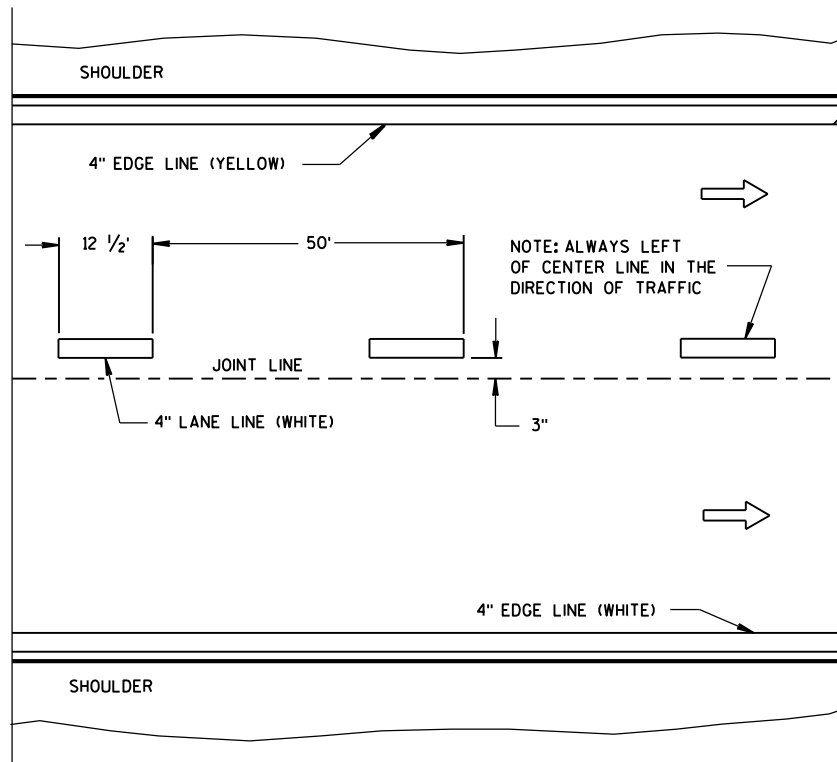
TRAFFIC CONTROL, ADVANCE
WARNING SIGNS 45 M.P.H.
OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE Sept. 2015 /S/ Peter Amokobe Atepe
STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA

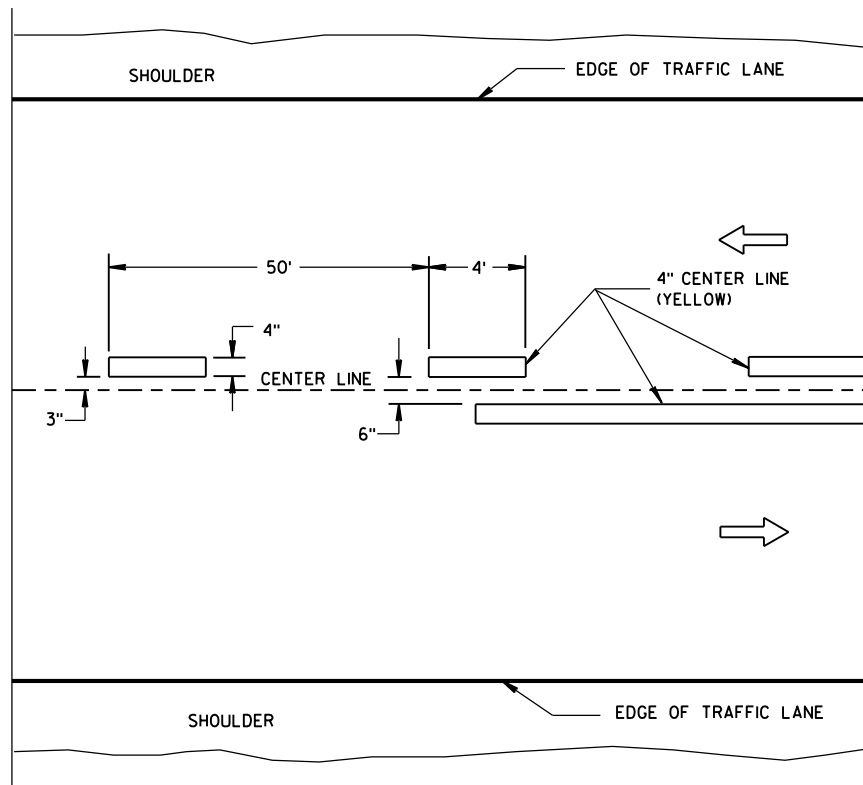


TWO WAY TRAFFIC

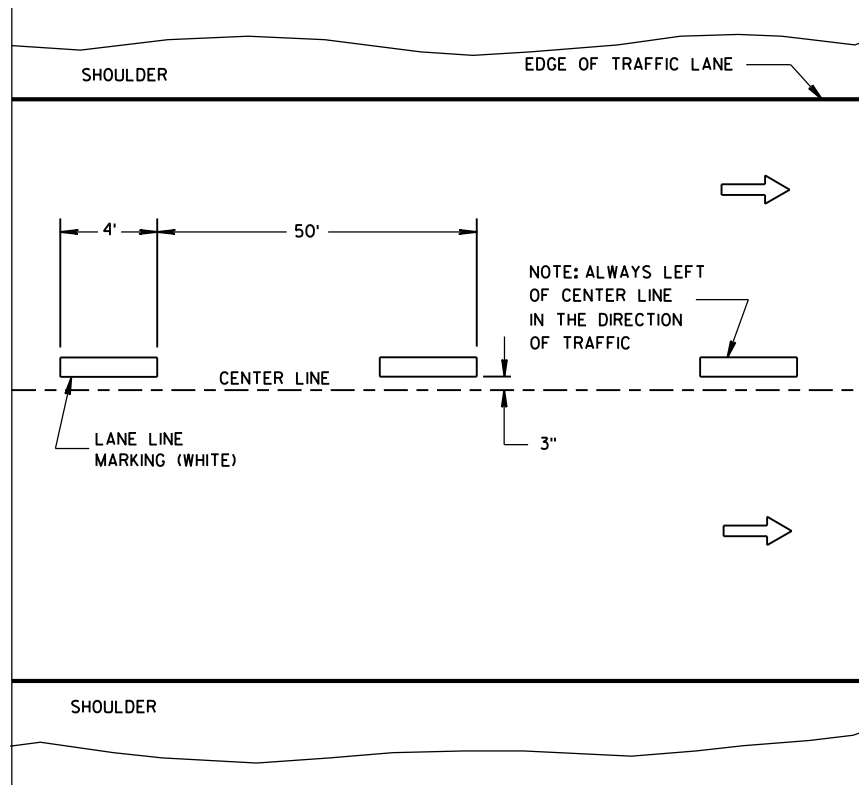


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

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

① NO PASSING ZONE W14-3 SIGN SHALL BE LOCATED WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

LEGEND

—●— "T" MARKING

● POST MOUNTED SIGN

LONGITUDINAL MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE Sept., 2016 /S/ Matthew R. Rauch
STATE SIGNING AND MAP 113 ENGINEER
FHWA

LEGEND

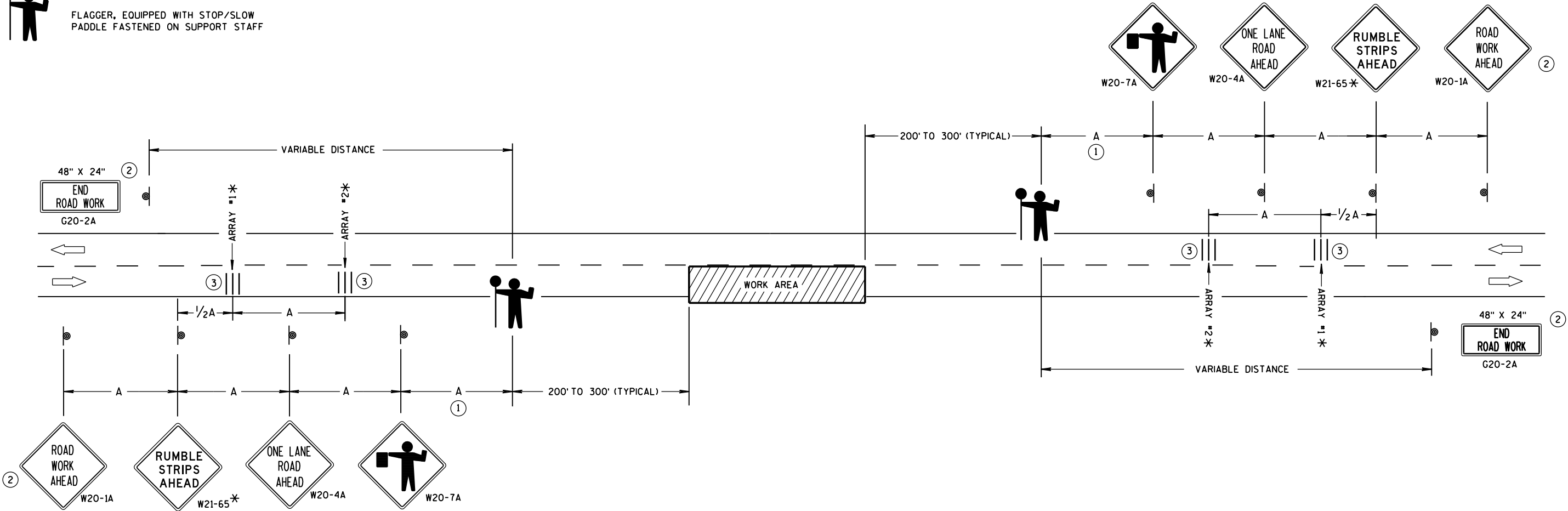
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



USE OF THE "BE PREPARED TO STOP" 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

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.

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

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

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 RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

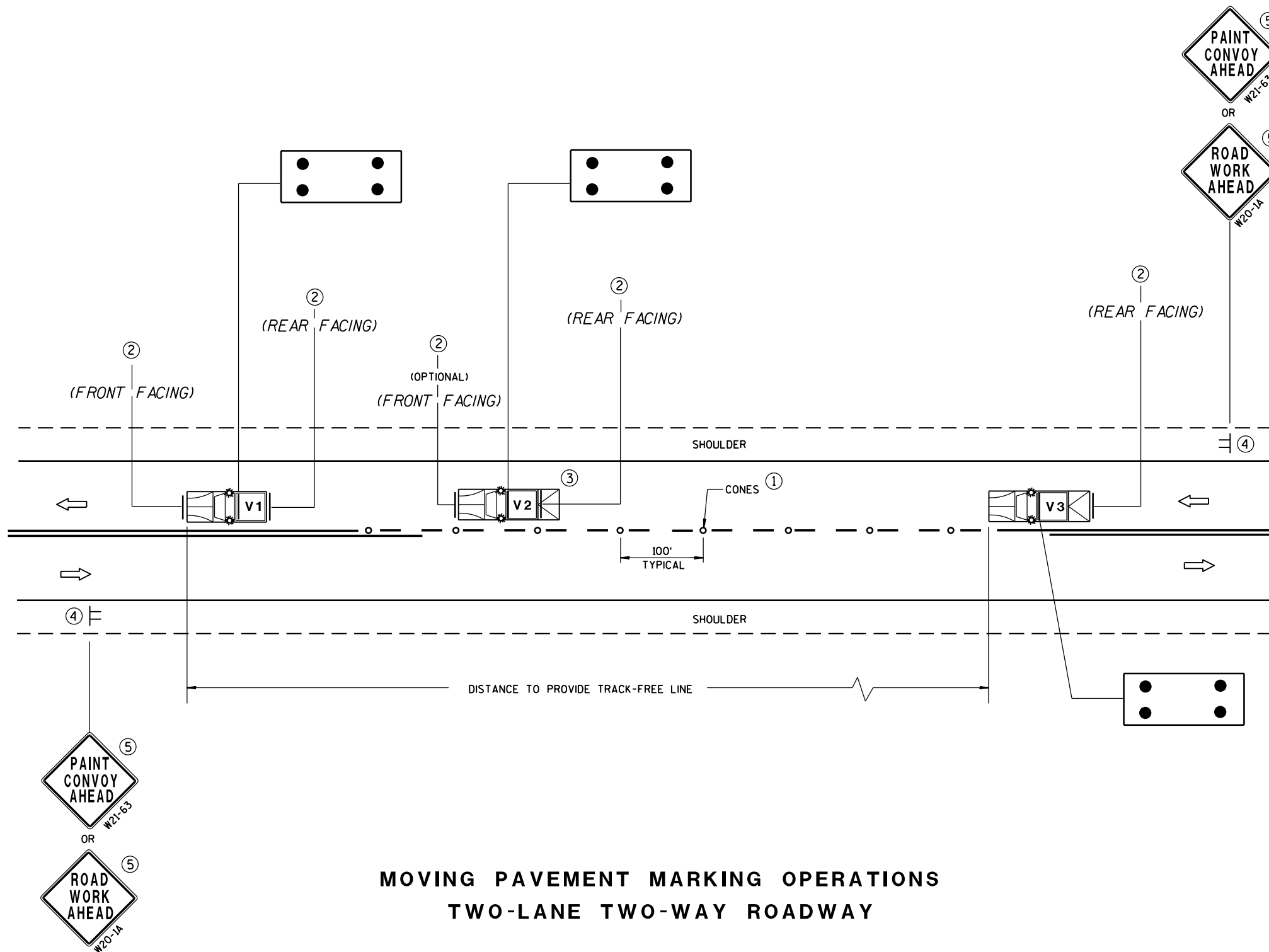
* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

- FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT 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.
- EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 /S/ Andrew Heldtke
DATE WORK ZONE ENG 114
FHWA



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

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

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

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

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

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

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.



OR



③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.

④ SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

V1 LEAD VEHICLE

V2 SHADOW VEHICLE

V3 TRAIL VEHICLE WITH TMA

TMA TRUCK-MOUNTED ATTENUATOR

SIGN ON TEMPORARY SUPPORT

DIRECTION OF TRAFFIC

CONES

FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING
OPERATION
TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2016

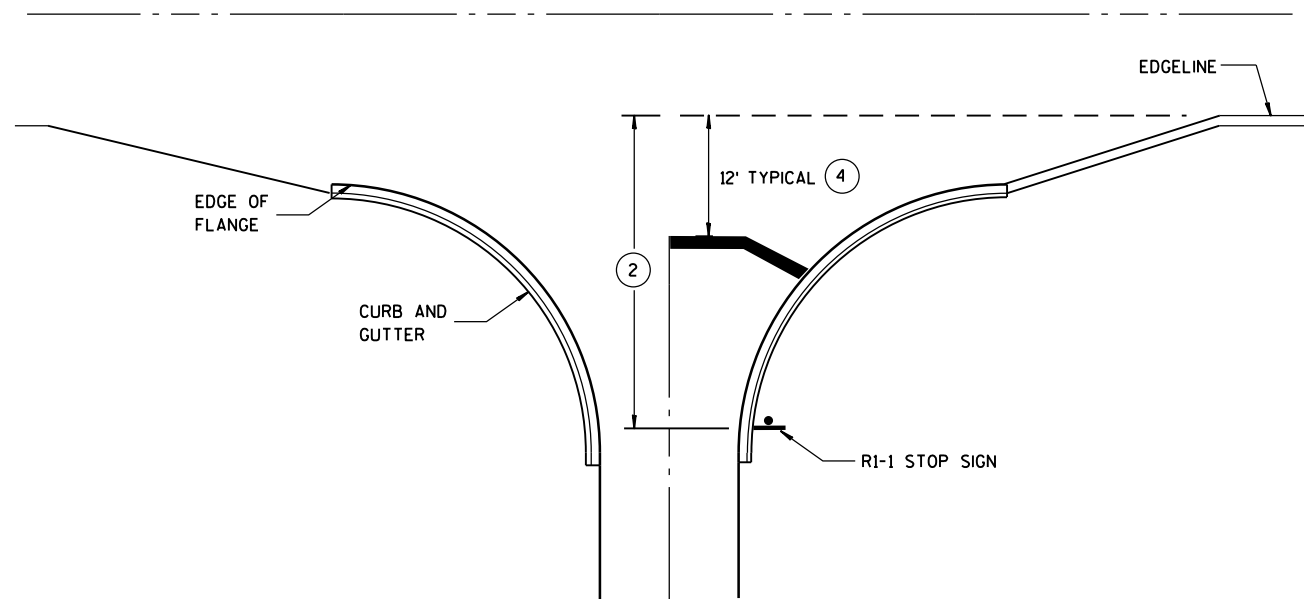
DATE

FHWA

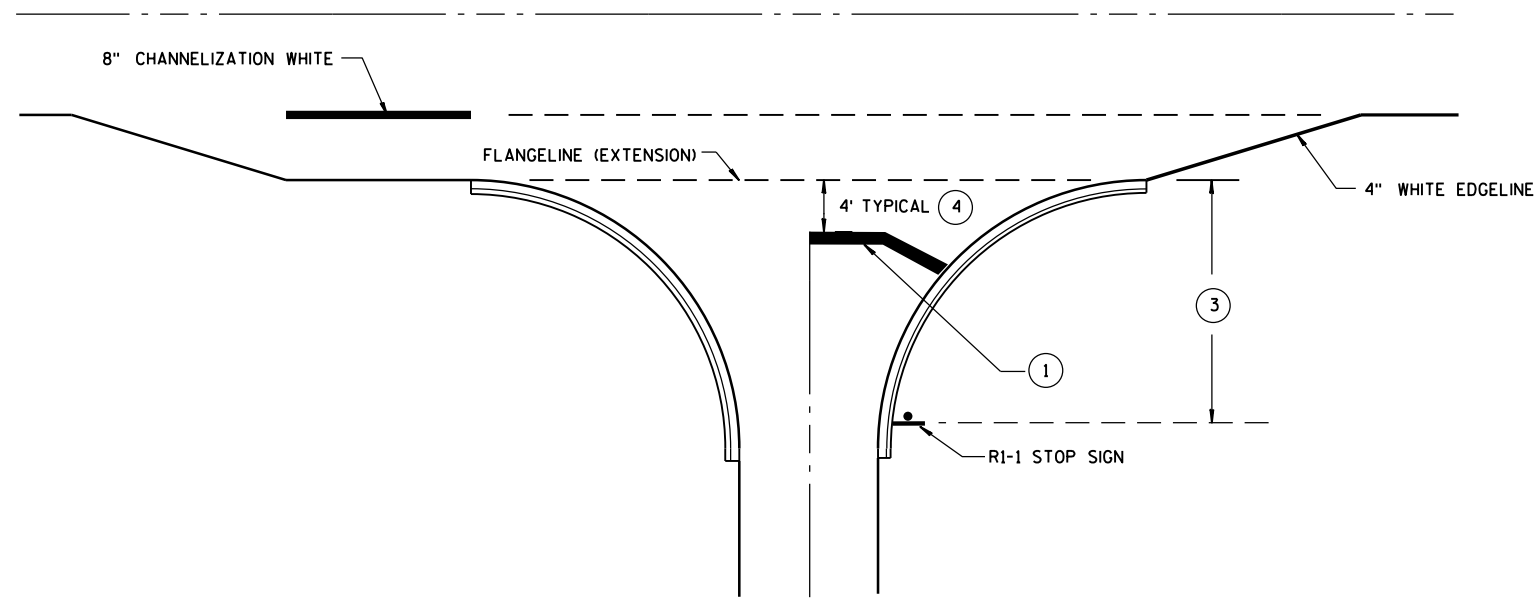
/S/ Peter Amakobe Atepe

STATEWIDE WORK ZONE SAFETY ENGINE

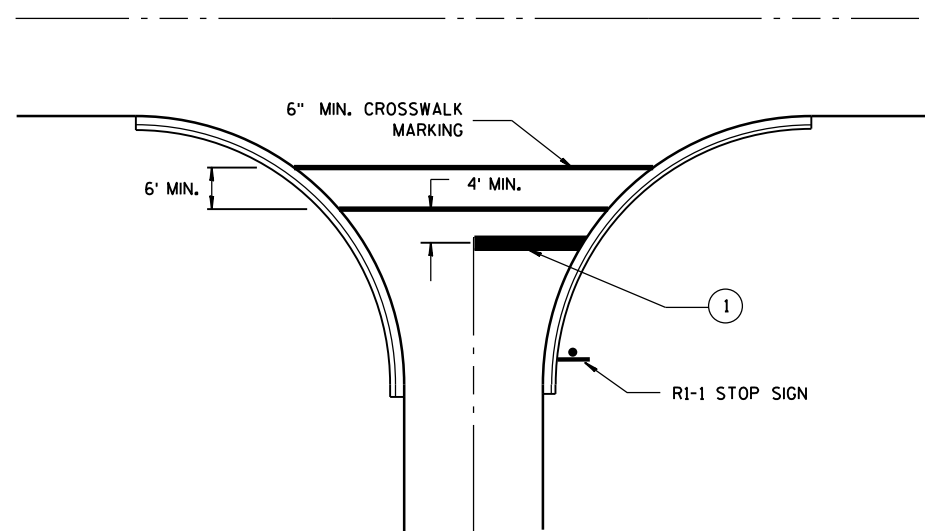
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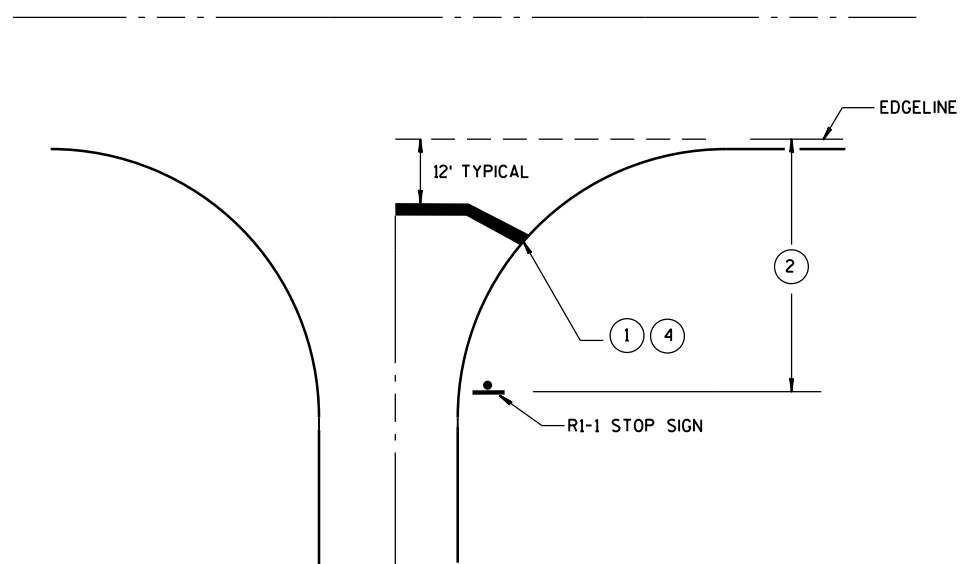
**TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER**



**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

- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGE LINE THAN NO STOP LINE IS REQUIRED.
- ③ IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
- ④ MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES. (NO CLOSER THAN 4 FEET).

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

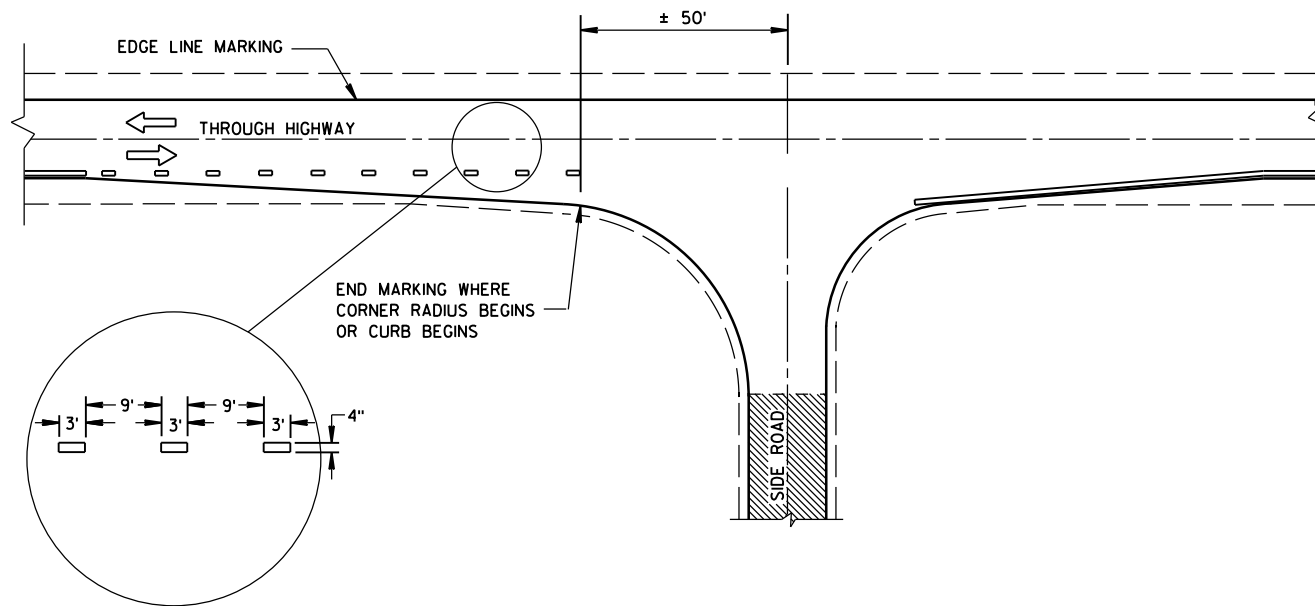
APPROVED

4-18-2016
DATE

FHWA

/S/ Matthew R. Rauch
STATE SIGNING AND MAR 116

JEER



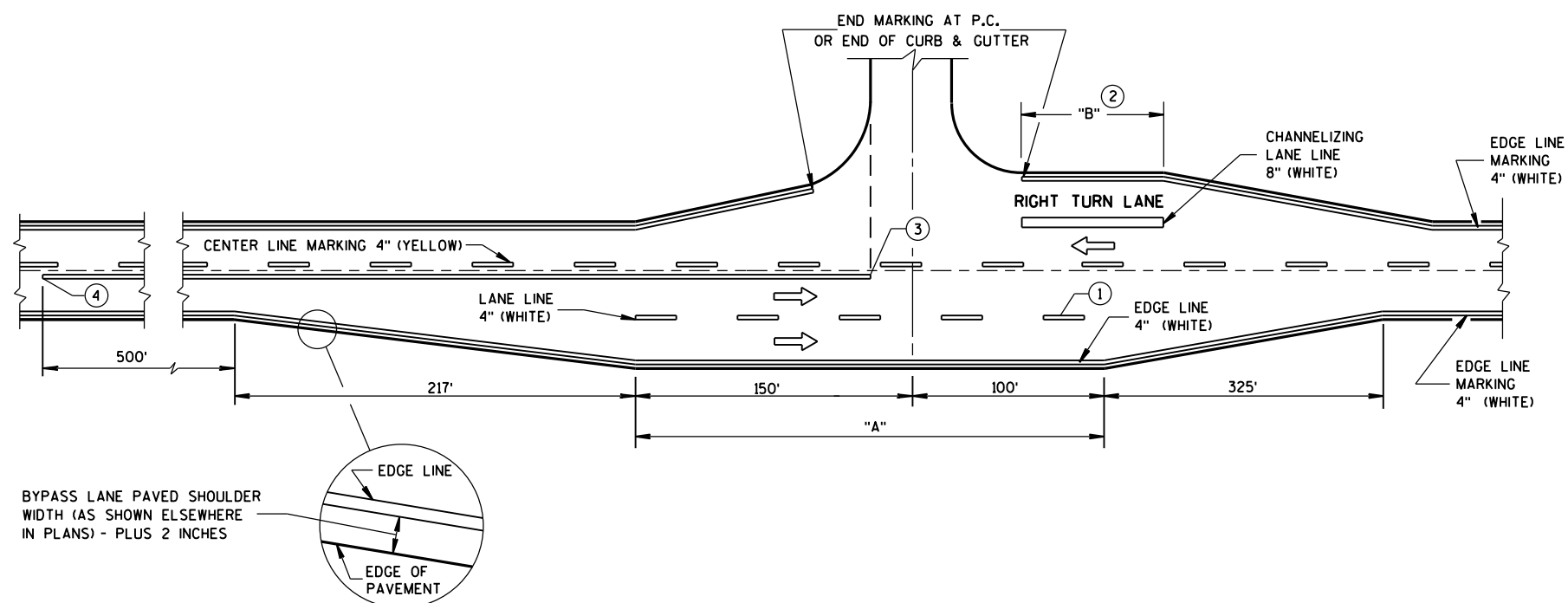
MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED 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.

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL



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

**PAVEMENT MARKING
(INTERSECTIONS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

117

GENERAL NOTES

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

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

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

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

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

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

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

TABLE A

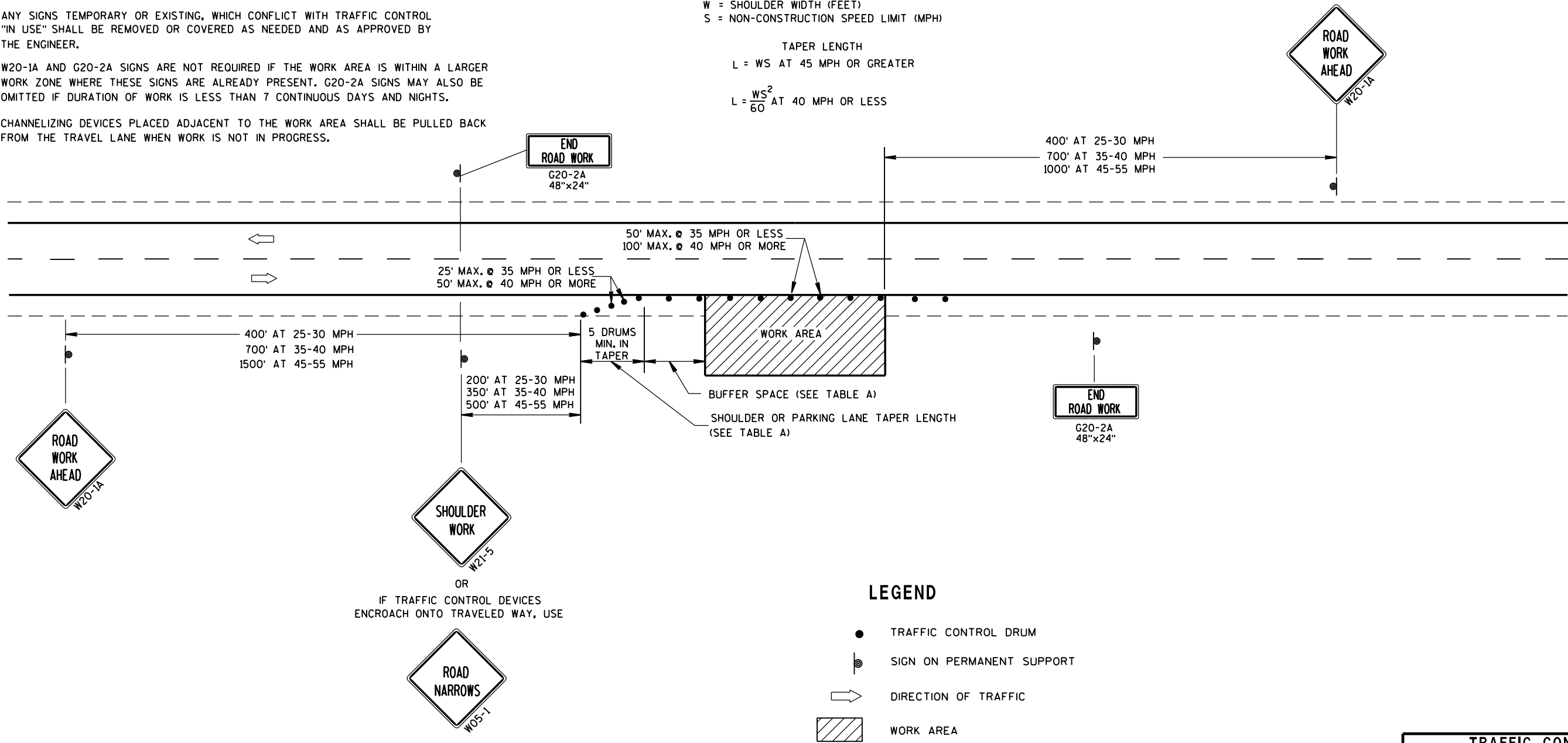
SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S \ W	4	6	8	10	
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH
L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

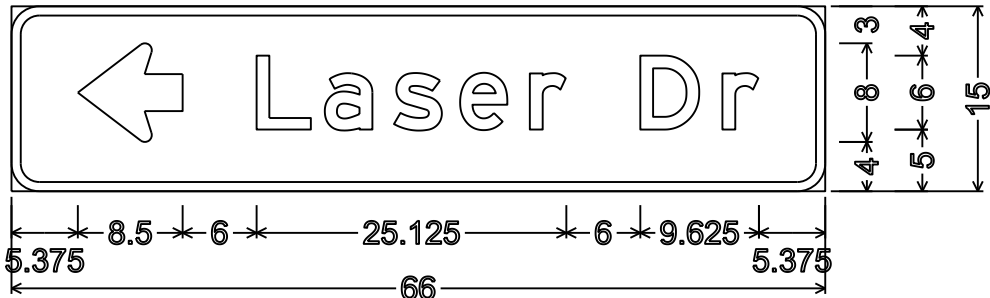
SHOULDER TAPER LENGTH = $\frac{1}{3}L$



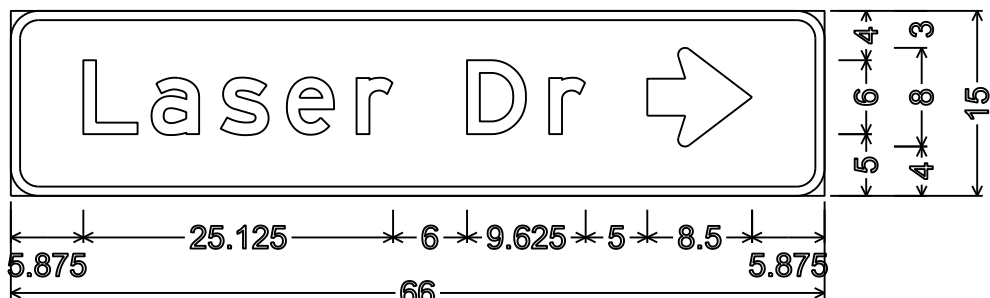
LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED July 14, 2015 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE SAFETY ENGINEER	118 FIC
FHWA		



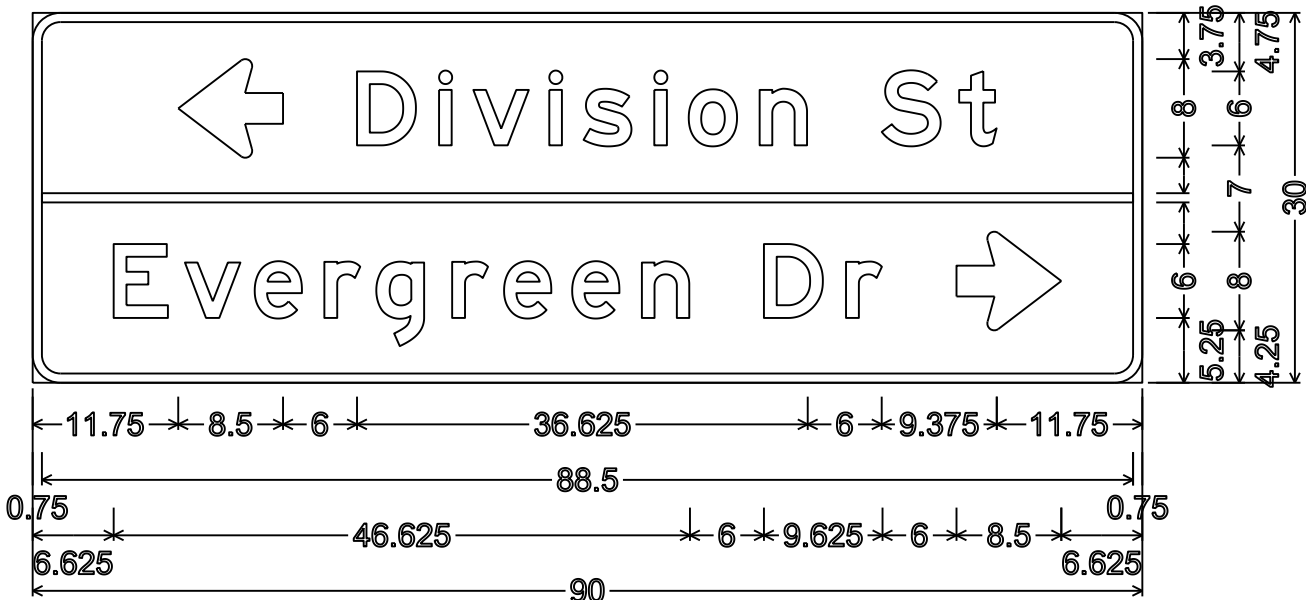
D1-1; 2.250" Radius, 0.750" Border



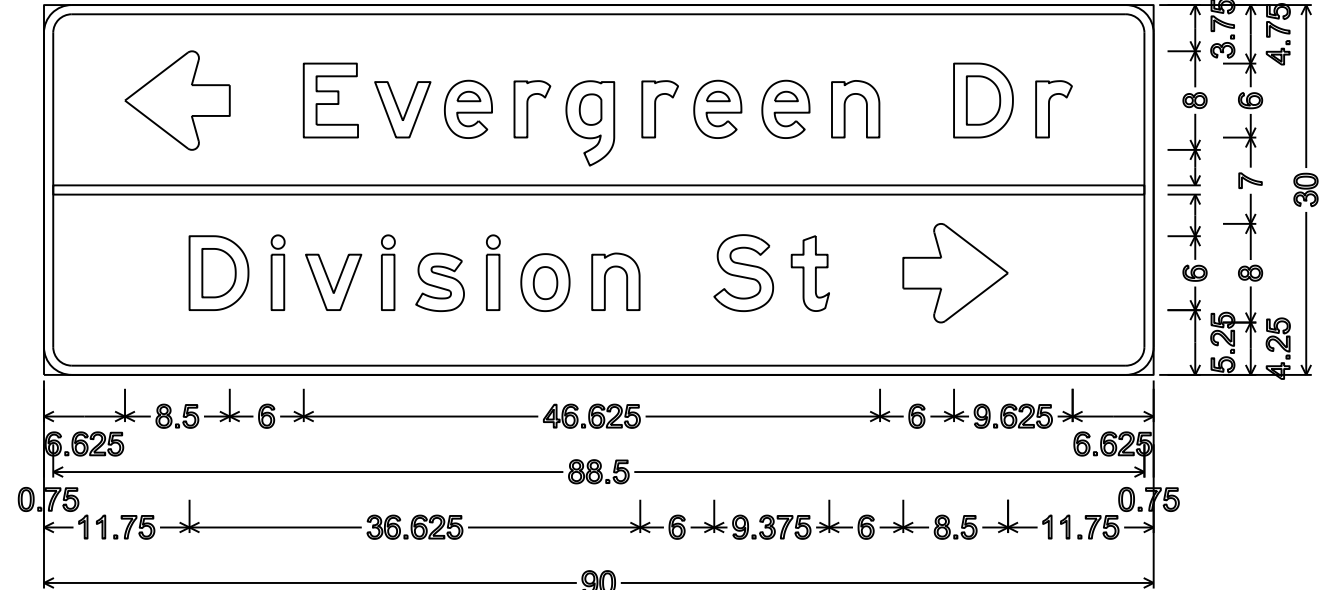
D1-1; 2.250" Radius, 0.750" Border

NOTES

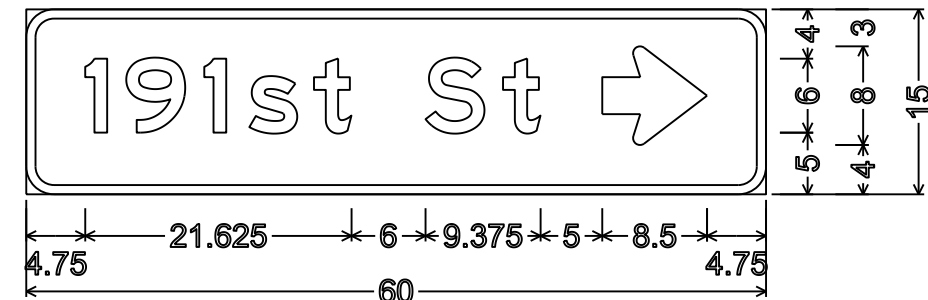
1. All Signs Type II - Type H Reflective
2. Color:
Background - GREEN
Message - WHITE
3. Message Series - E



D1-2; 2.250" Radius, 0.750" Border



D1-2; 2.250" Radius, 0.750" Border



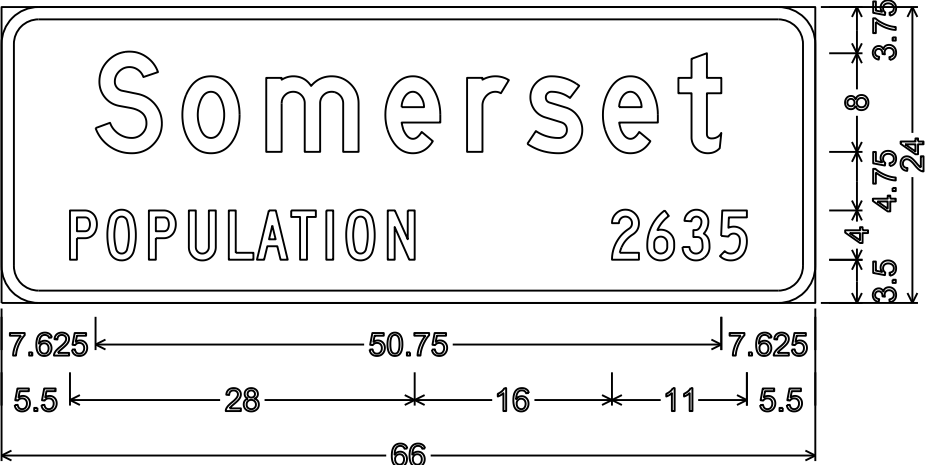
D1-1;
2.250" Radius, 0.750" Border



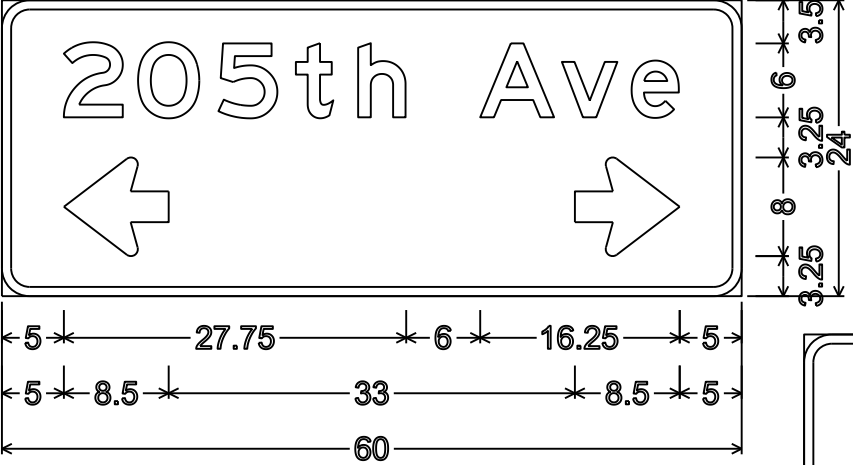
D1-1;
2.250" Radius, 0.750" Border



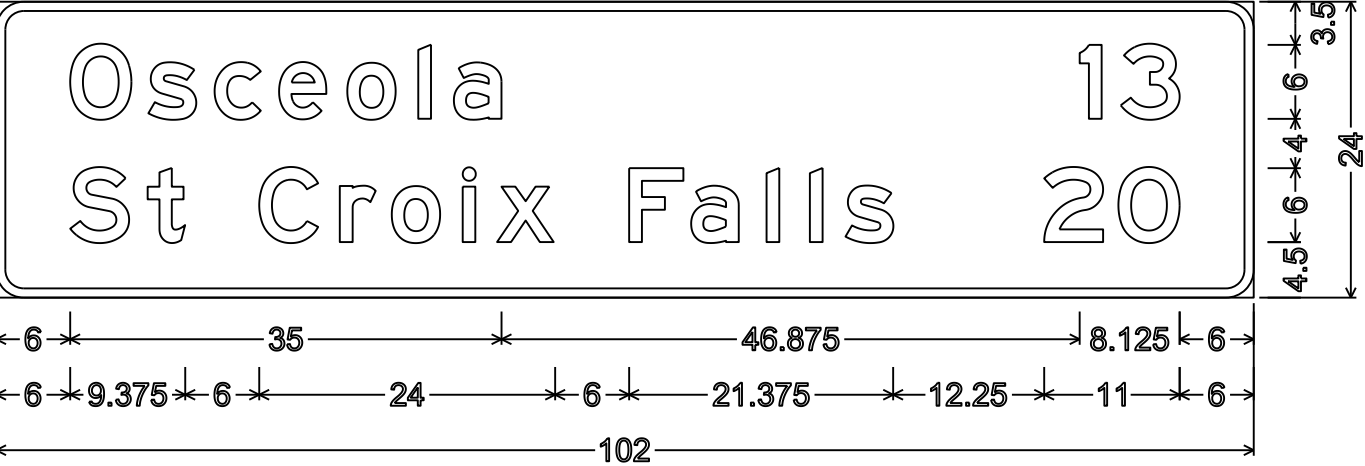
D1-2; 2.250" Radius, 0.750" Border,



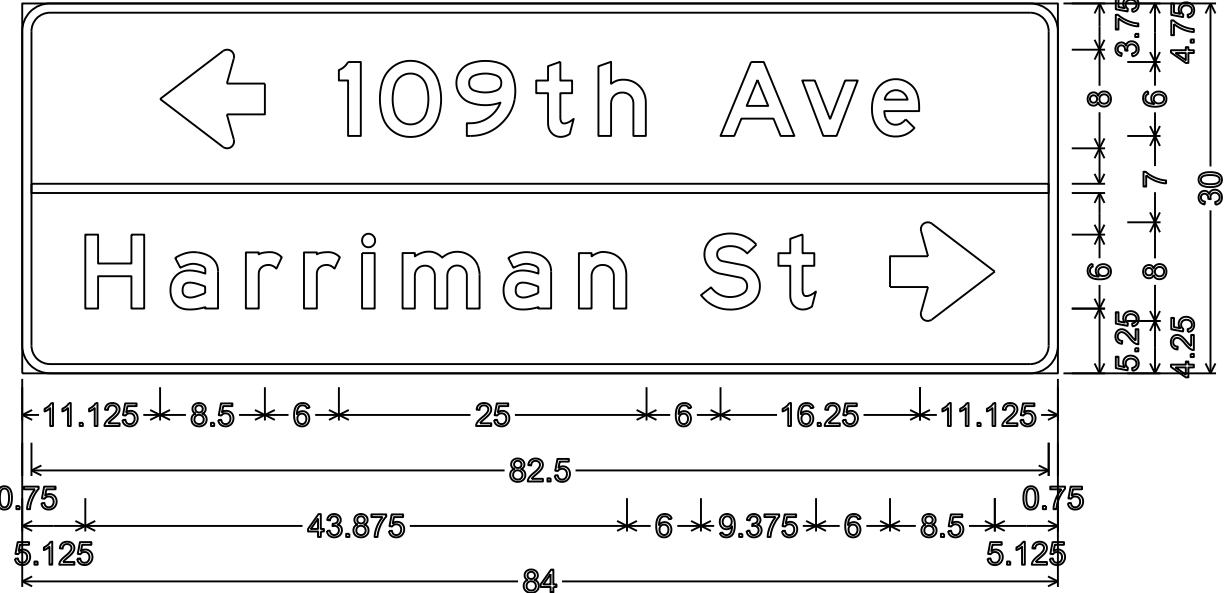
I2-3; 3.000" Radius, 1.000" Border,
"Somerset" D; "POPULATION" C ; "2635" C;



D1-61;
2.250" Radius, 0.750" Border

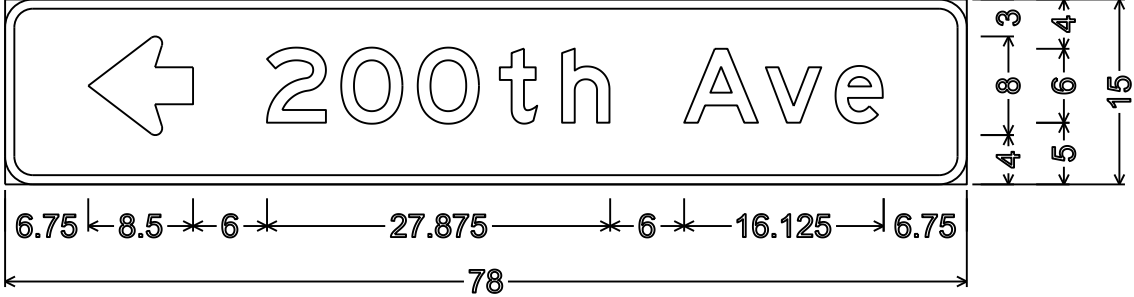


D2-2; 2.250" Radius, 0.750" Border



D1-2; 2.250" Radius, 0.750" Border

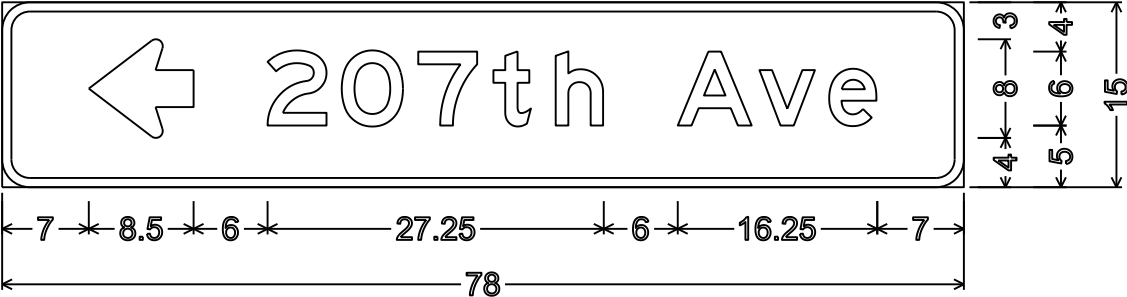
- NOTES
1. All Signs Type II - Type H Reflective
 2. Color:
Background - GREEN
Message - WHITE
 3. Message Series - E except as Shown



D1-1; 2.250" Radius, 0.750" Border



D1-1; 2.250" Radius, 0.750" Border

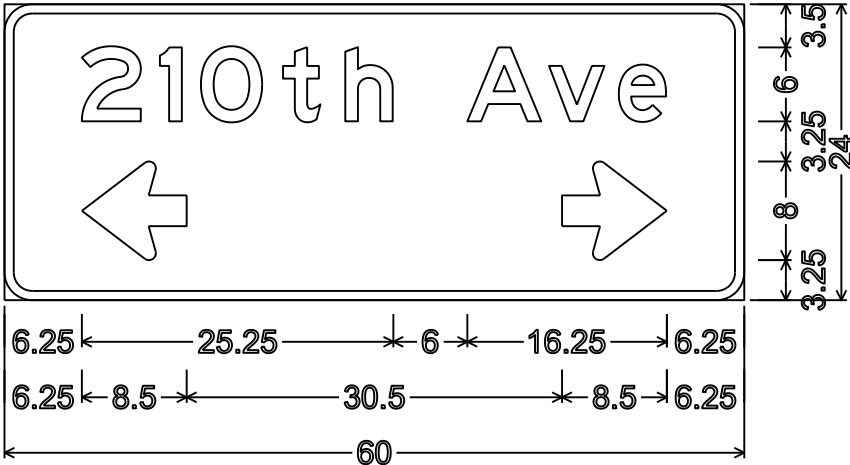


D1-1; 2.250" Radius, 0.750" Border

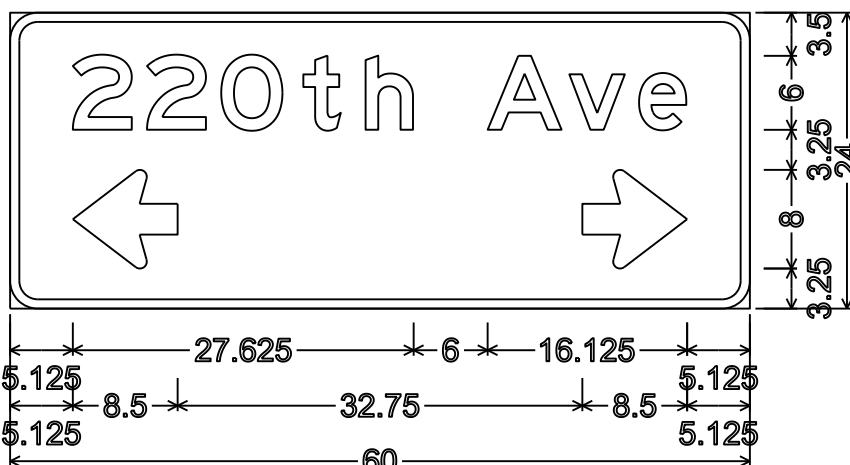


D1-1; 2.250" Radius, 0.750" Border

7



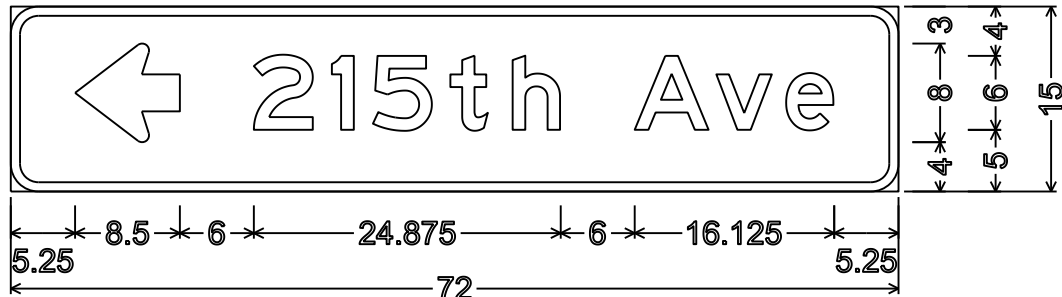
D1-61;
2.250" Radius, 0.750" Border



D1-61;
2.250" Radius, 0.750" Border

NOTES

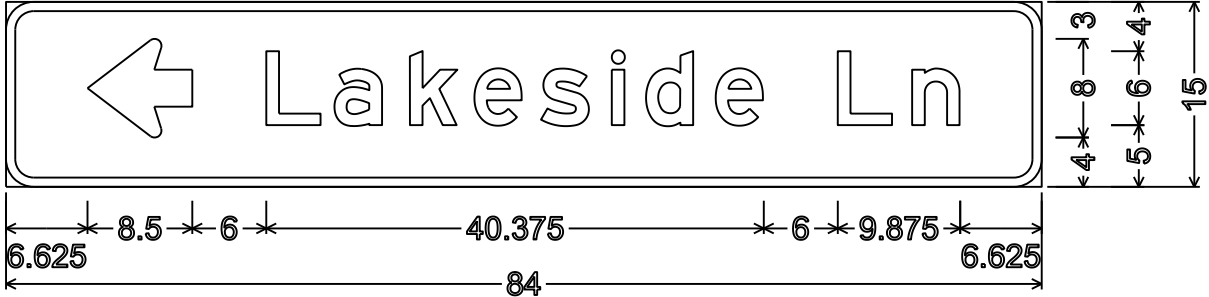
- 1. All Signs Type II - Type H Reflective
- 2. Color:
Background - GREEN
Message - WHITE
- 3. Message Series - E except as Shown



D1-1; 2.250" Radius, 0.750" Border



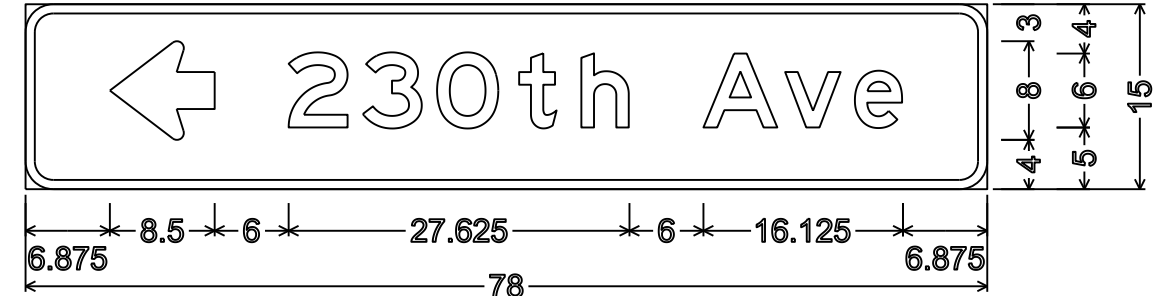
D1-1; 2.250" Radius, 0.750" Border



D1-1; 2.250" Radius, 0.750" Border



D1-1; 2.250" Radius, 0.750" Border



D1-1; 2.250" Radius, 0.750" Border



D1-1; 2.250" Radius, 0.750" Border

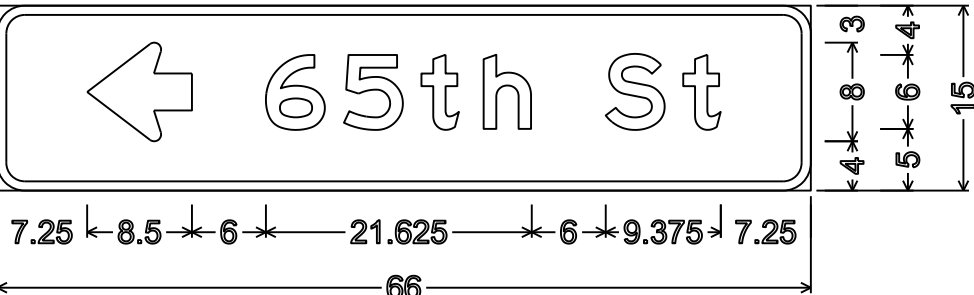
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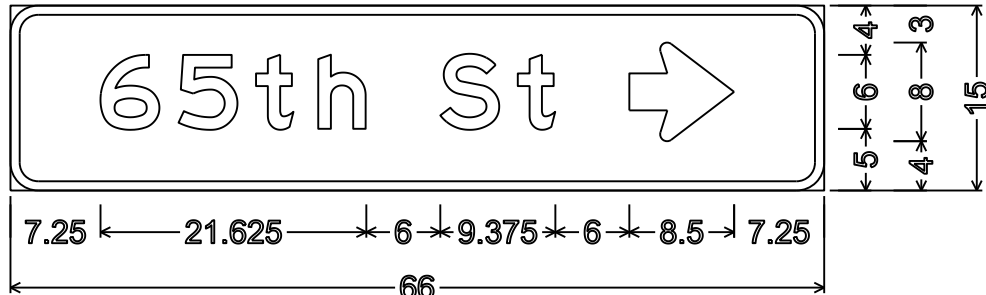
D1-1; 2.250" Radius, 0.750" Border



D1-1; 2.250" Radius, 0.750" Border



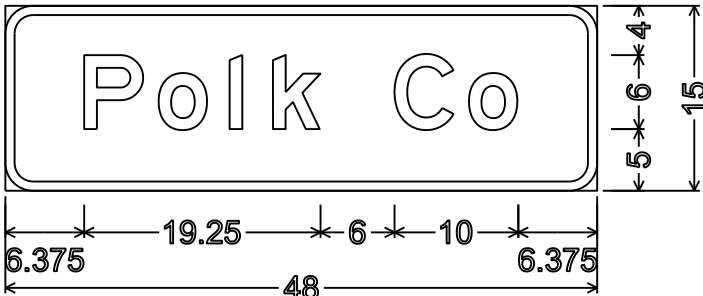
D1-1; 2.250" Radius, 0.750" Border



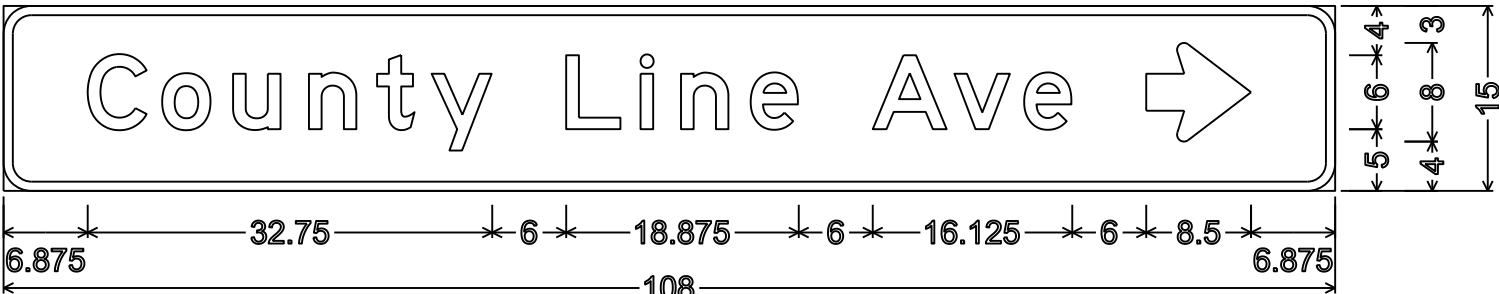
D1-1; 2.250" Radius, 0.750" Border



I2-2; 2.250" Radius, 0.750" Border



I2-2;
2.250" Radius, 0.750" Border



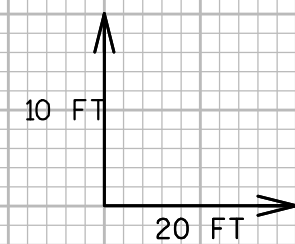
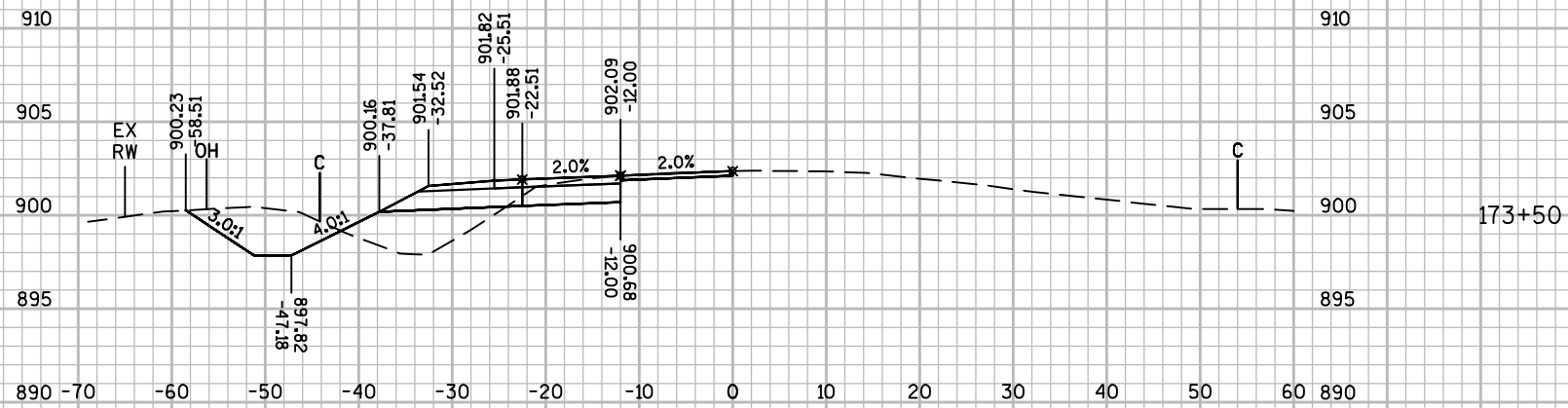
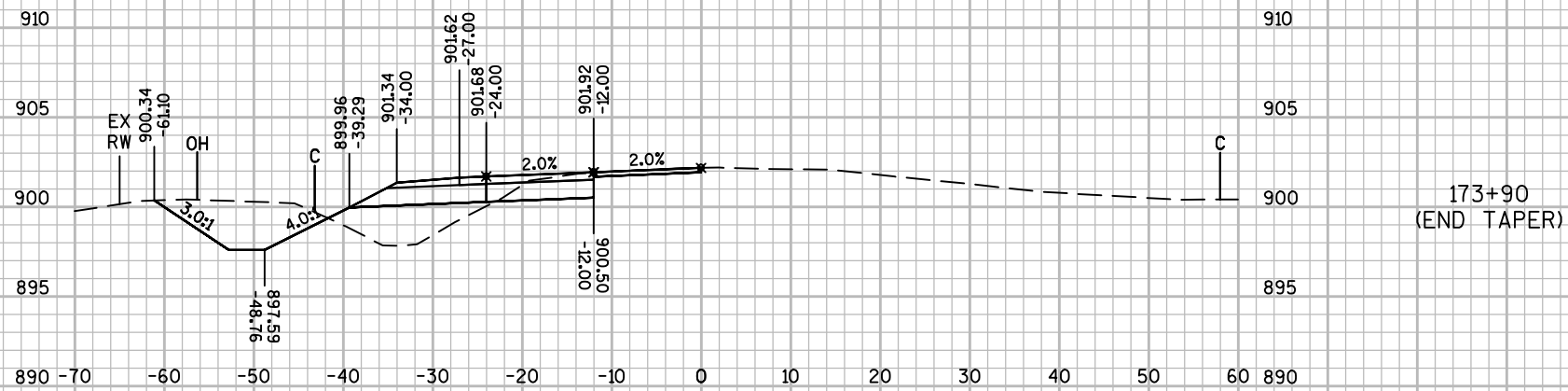
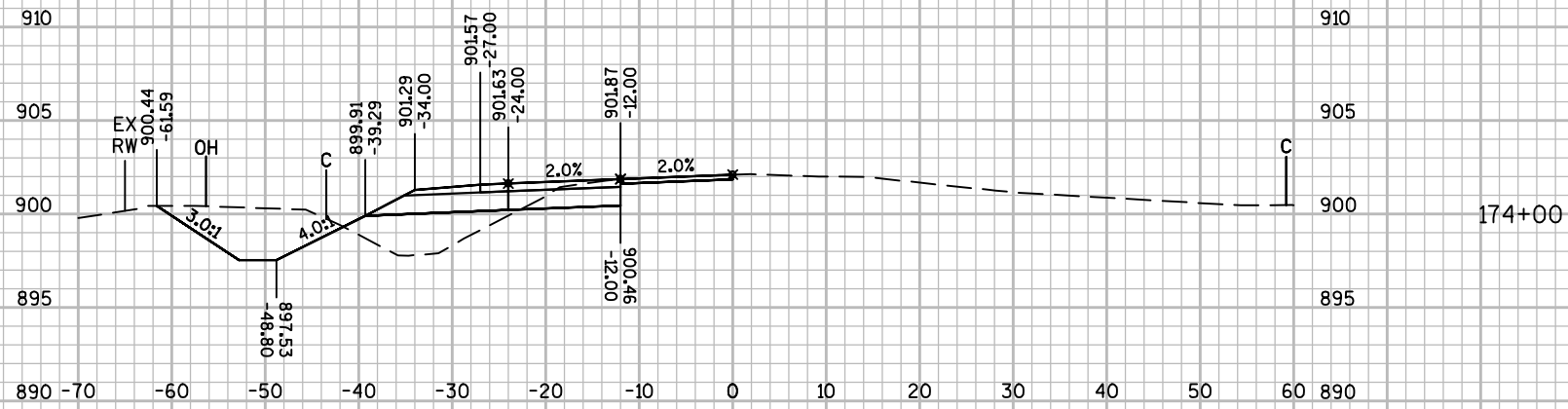
D1-1; 2.250" Radius, 0.750" Border

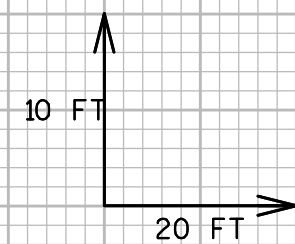
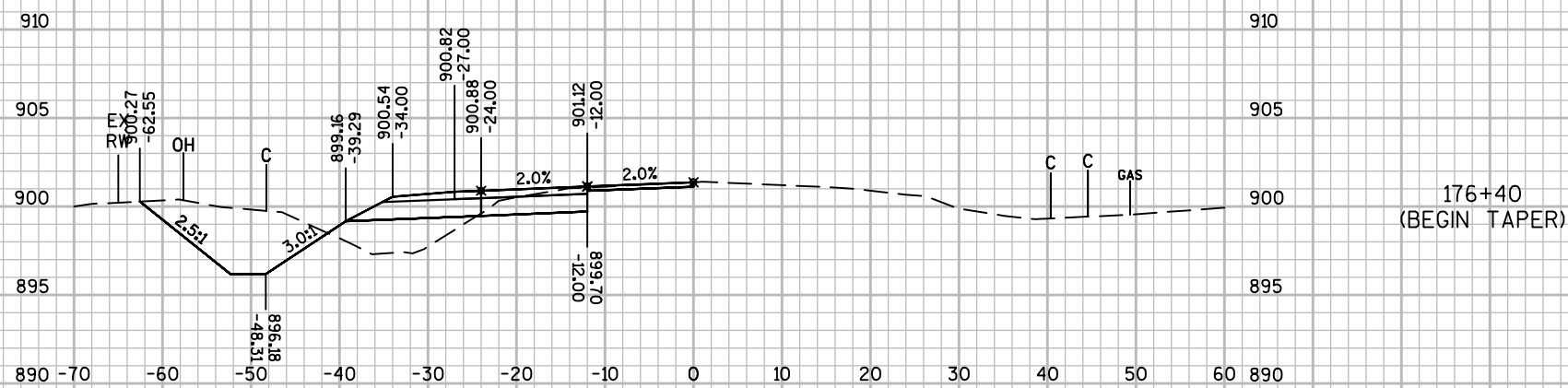
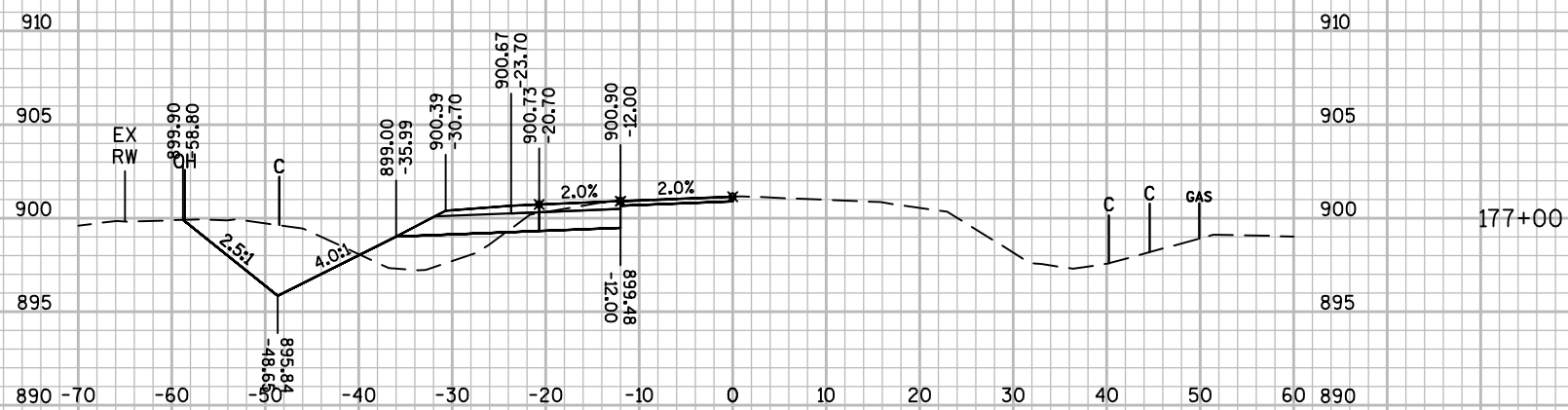
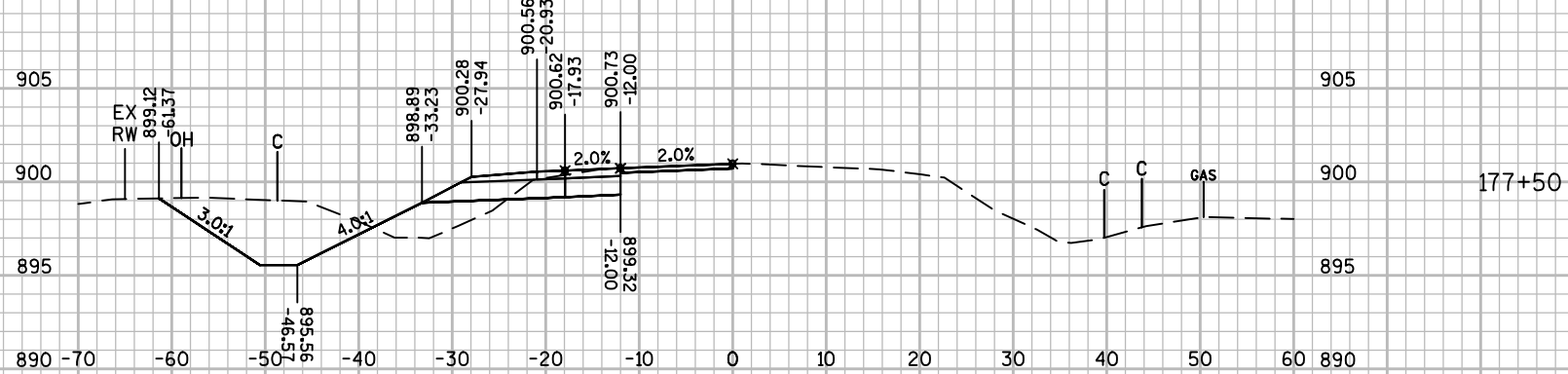
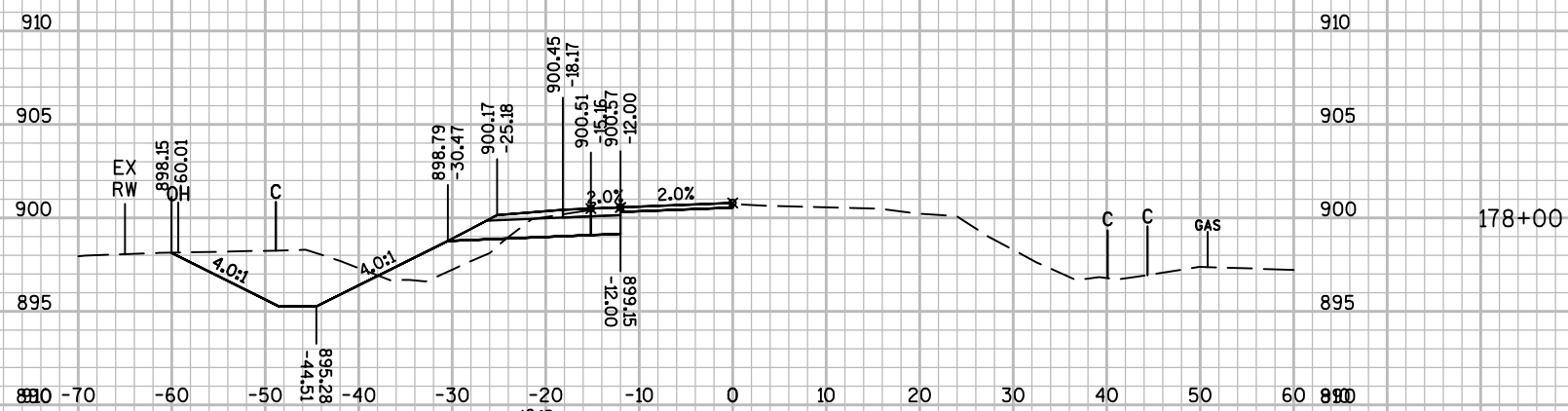
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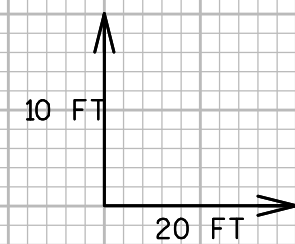
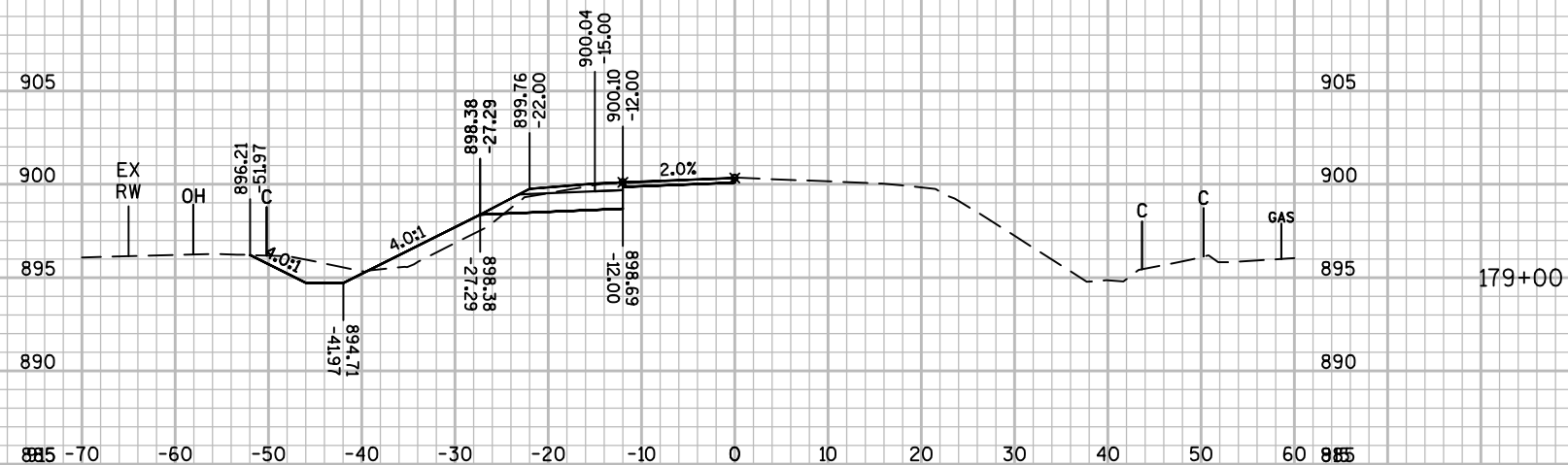
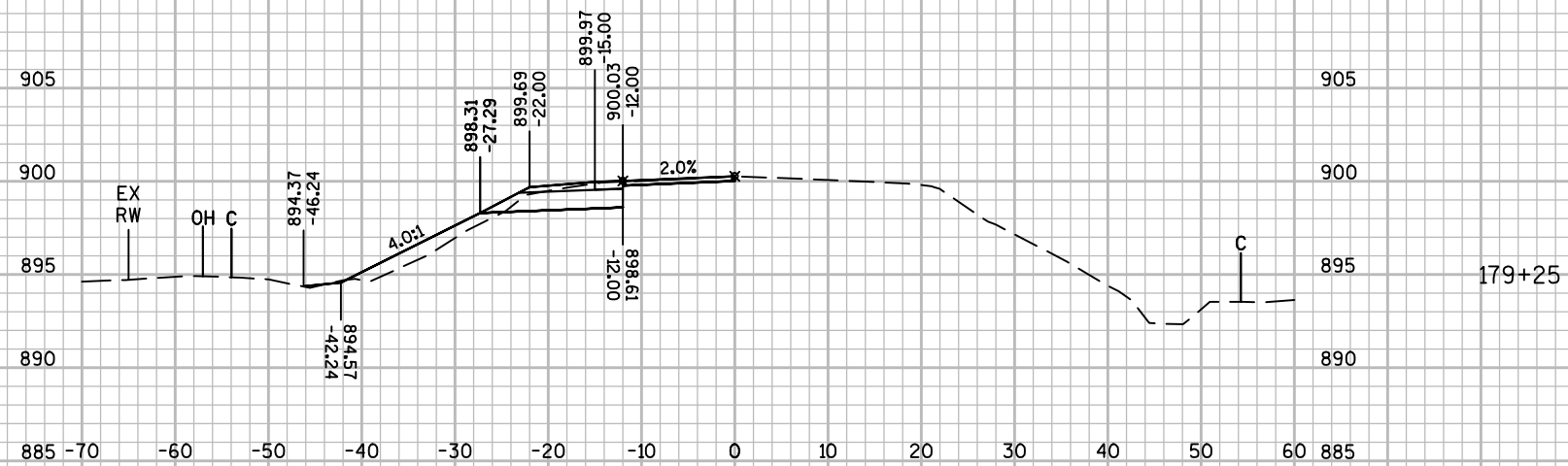
1. All Signs Type II - Type H Reflective
2. Color:
Background - GREEN
Message - WHITE
3. Message Series - E except as Shown

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
173+00	---	37	2	19	0	---	---	---	---	---	---	---
173+50	50	42	2	26	0	73	3	42	0	73	52	18
173+90	40	47	2	25	0	67	2	38	0	139	100	35
174+00	10	49	2	26	0	17	1	9	0	157	111	40
174+50	50	49	2	28	0	90	3	50	0	247	174	65
175+00	50	41	2	28	0	83	3	52	0	330	239	81
175+50	50	58	2	23	0	92	3	47	0	422	298	110
176+00	50	61	2	25	0	110	3	45	0	533	354	162
176+40	40	63	2	22	0	93	2	35	0	625	398	208
177+00	60	54	2	19	0	130	3	41	0	755	450	283
177+50	50	63	2	16	0	109	3	32	0	864	490	349
178+00	50	55	2	14	0	109	3	28	0	973	525	420
178+57	57	39	2	8	0	99	3	17	0	1072	547	495
179+00	43	25	2	10	0	51	2	14	0	1123	564	526
179+25	25	16	2	10	0	19	1	9	0	1143	576	532
				COLUMN TOTALS		1143	35	461	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)

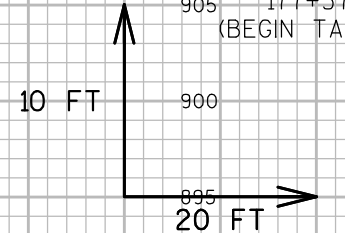
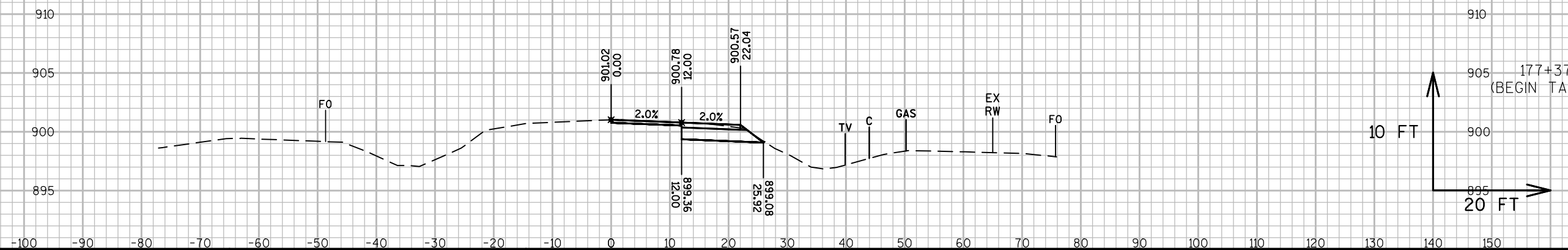
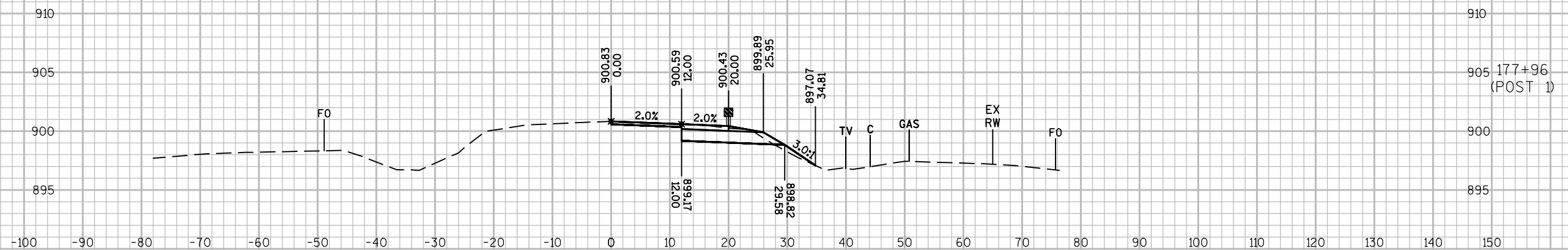
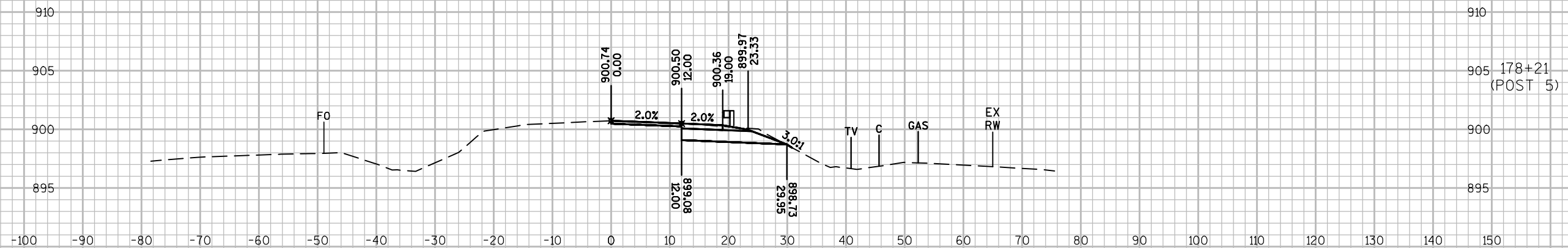






STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
177+37	---	20	2	0	0	---	---	---	---	---	---	---
177+96	59	20	2	2	0	43	3	2	0	43	2	38
178+21	25	23	2	2	0	20	1	2	0	63	5	54
178+46	25	24	2	0	0	22	1	1	0	85	6	73
179+00	54	20	2	0	0	44	3	0	0	129	6	114
179+50	50	19	2	0	0	36	3	0	0	165	6	147
180+00	50	19	2	0	0	35	3	0	0	200	6	179
180+50	50	19	2	0	0	35	3	0	0	235	6	211
180+89	39	19	2	0	0	28	2	0	0	263	7	237
181+00	11	19	2	0	0	7	1	0	0	271	7	244
181+50	50	23	2	0	0	39	3	0	0	309	7	279
182+00	50	25	2	0	0	44	3	0	0	353	7	320
182+50	50	18	2	0	0	39	3	0	0	392	7	357
182+77	27	18	2	1	0	18	2	0	0	410	8	373
183+02	25	20	2	2	0	17	1	1	0	428	9	388
183+27	25	22	2	5	0	19	1	3	0	447	13	402
183+86	59	20	2	0	0	45	3	5	0	493	19	438
				COLUMN TOTALS		493	36	15	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)



PROJECT NO: 8060-01-73

HWY: STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: GUARDRAIL SECTION 1

SHEET 129

E

FILE NAME : P:\2013\2013.019 - WISDOT NW - STH 35 - ST CROIX COUNTY\CAD\PLANS\13019_XS_2.DWG
LAYOUT NAME - 090206

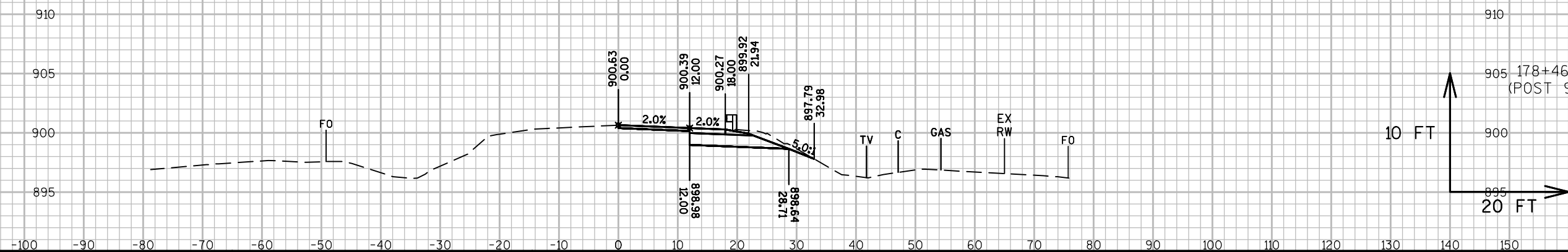
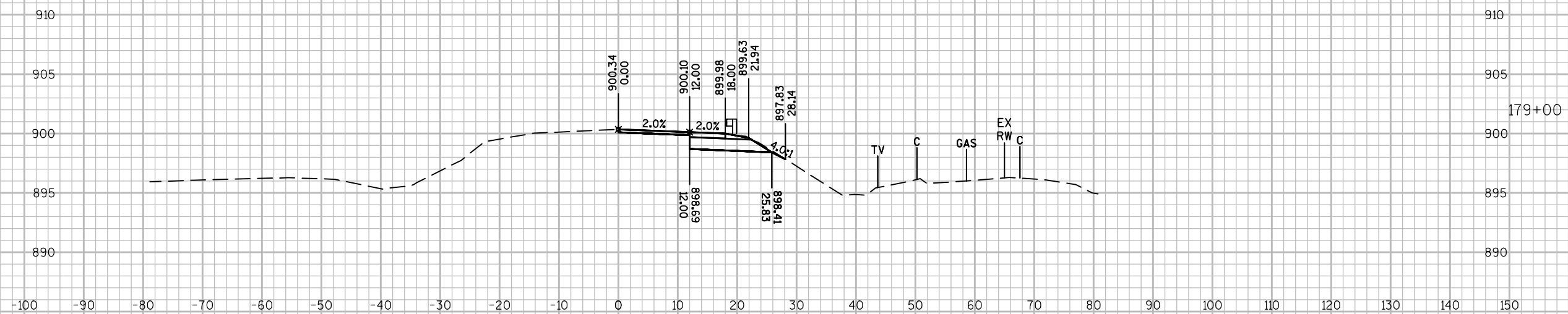
PLOT DATE : 10/26/2016 11:11 AM

PLOT BY : JED MATTMILLER

PLOT NAME :

PLOT SCALE : 1 IN:20 FT

WISDOT/CADDs SHEET 49



PROJECT NO: 8060-01-73

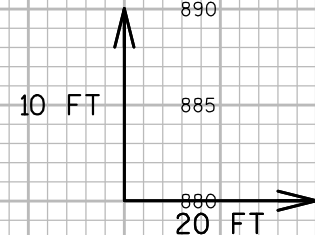
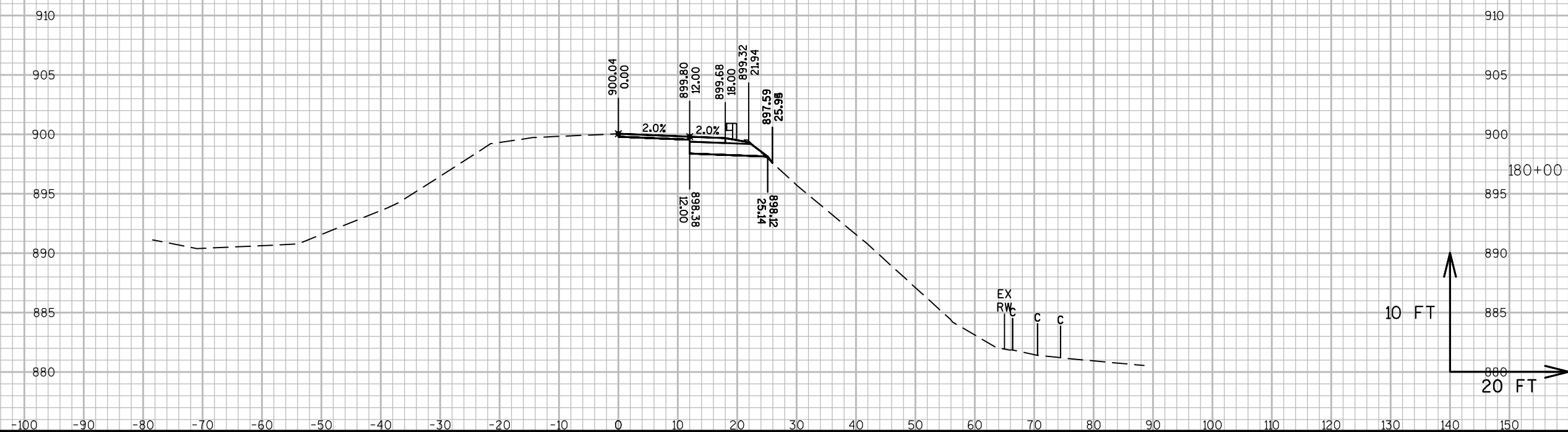
HWY: STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: GUARDRAIL SECTION 1

SHEET 130

E



PROJECT NO: 8060-01-73

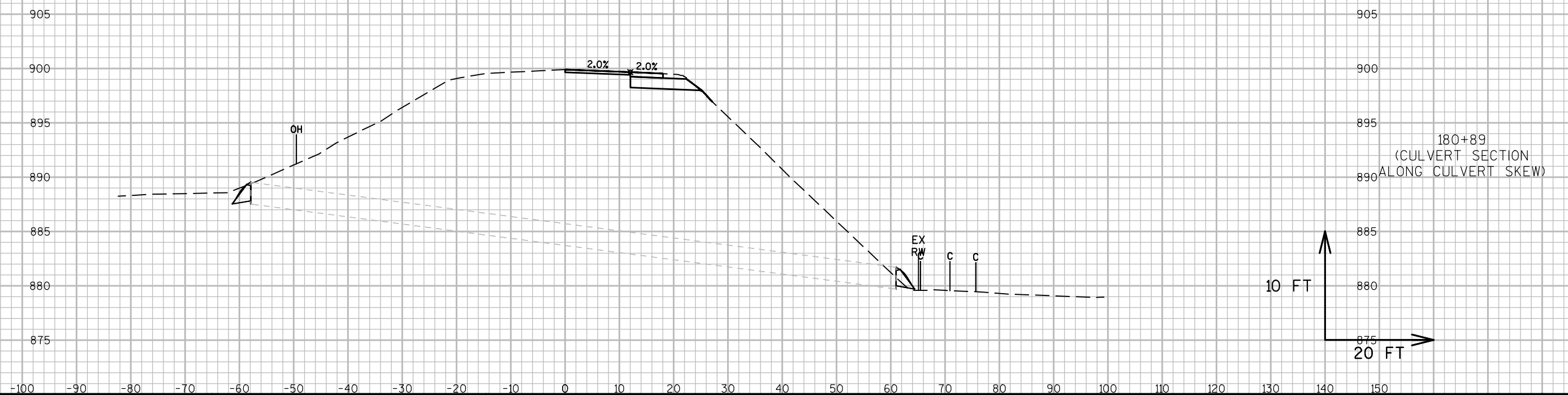
HWY: STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: GUARDRAIL SECTION 1

SHEET 131

E



PROJECT NO: 8060-01-73

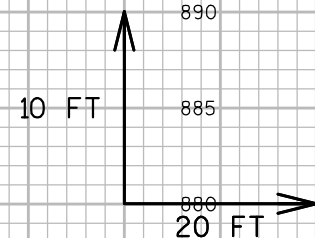
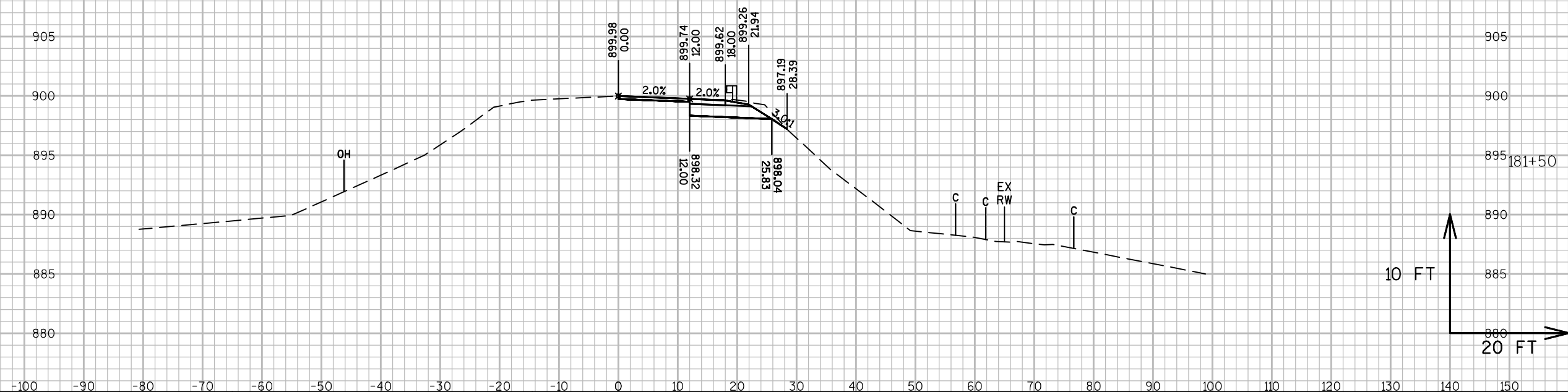
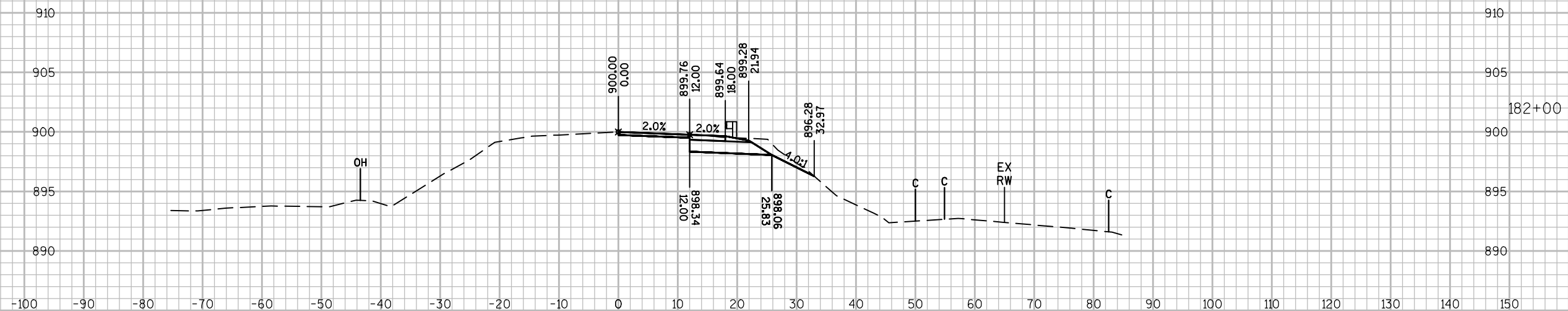
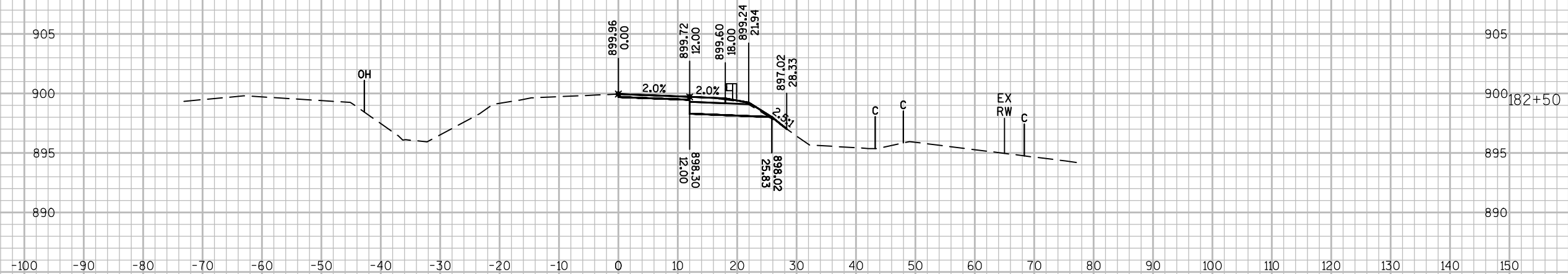
HWY: STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: GUARDRAIL SECTION 1

SHEET 132

E



PROJECT NO: 8060-01-73

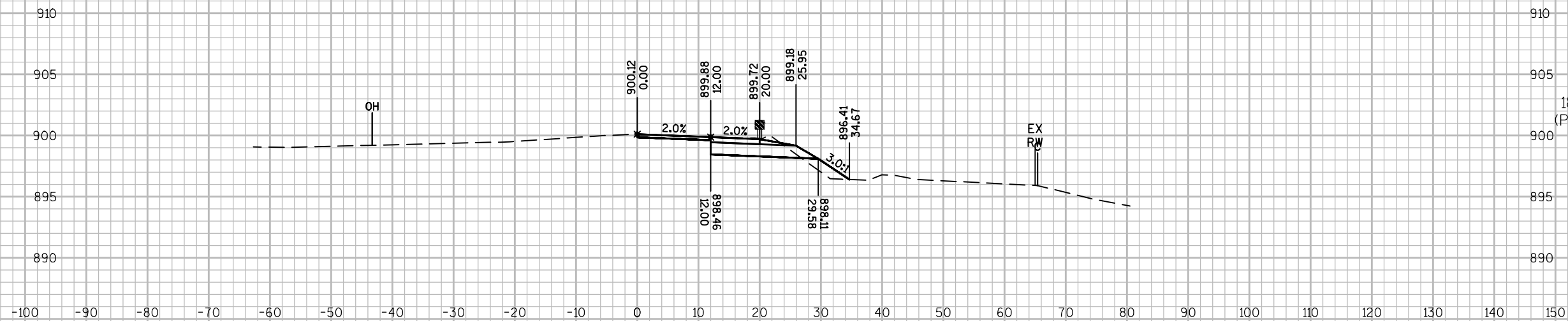
HWY: STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: GUARDRAIL SECTION 1

SHEET 133

E



PROJECT NO: 8060-01-73

HWY: STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: GUARDRAIL SECTION 1

SHEET

134

E

9

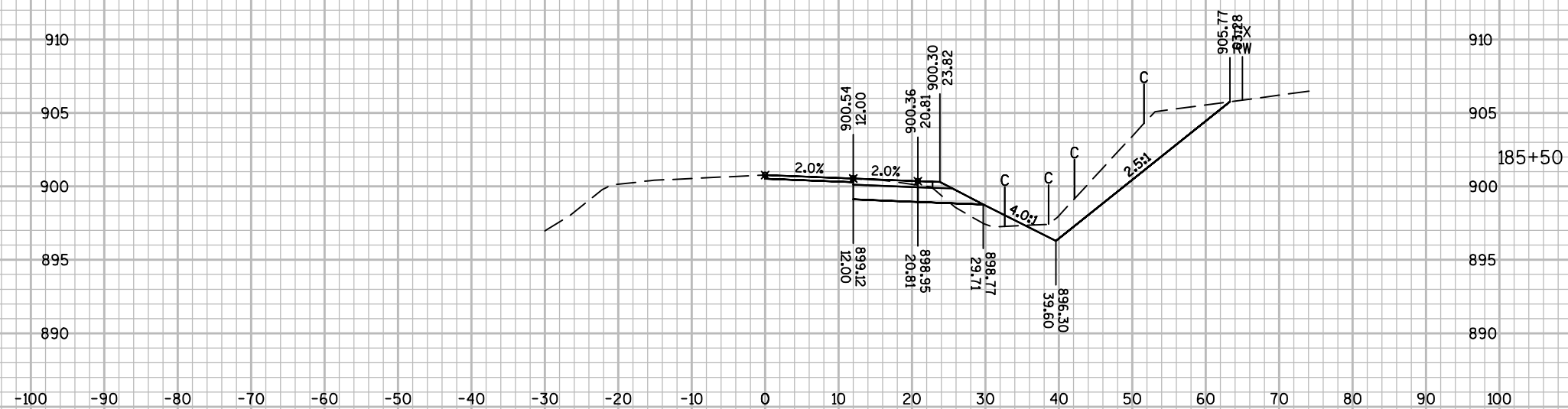
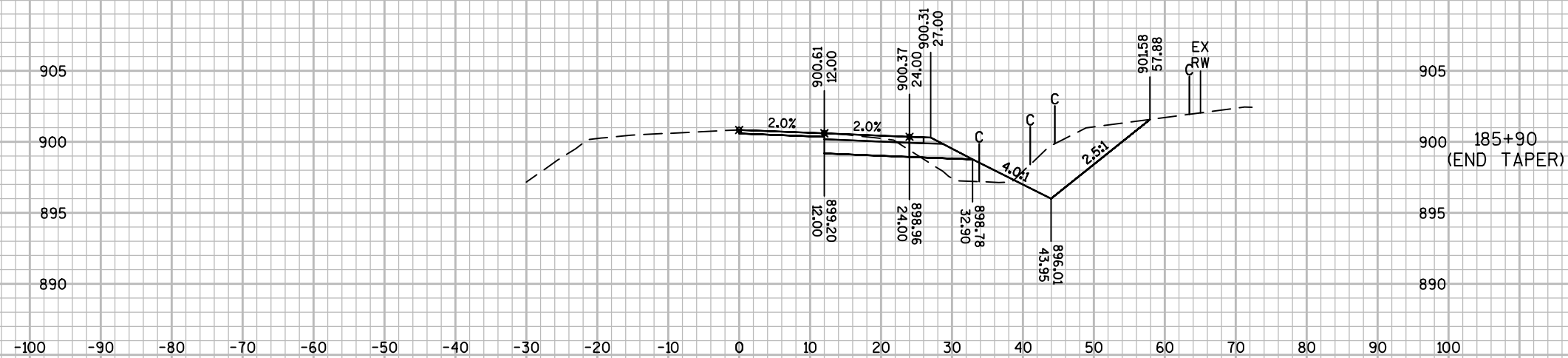


9

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
185+28	---	50	2	1	0	---	---	---	---	---	---	---
185+50	22	71	2	7	0	49	1	4	0	49	5	44
185+90	40	58	2	12	0	95	2	18	0	145	27	114
186+50	60	22	2	18	0	89	3	39	0	234	77	151
186+54	4	22	2	16	0	3	0	3	0	237	80	151
186+83	29	64	2	0	0	47	2	0	0	284	80	196
187+00	17	21	2	13	0	27	1	4	0	311	85	217
187+50	50	30	2	18	0	48	3	33	0	358	126	220
187+90	40	32	4	15	0	47	4	22	0	405	154	235
189+18	---	19	9	15	0	---	---	---	---	---	---	---
189+75	57	19	2	4	0	40	11	8	0	445	164	254
190+20	45	18	2	6	0	31	2	9	0	476	176	271
				COLUMN TOTALS		476	29	141	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)

IF RIGHT-OF-WAY DOES NOT APPEAR IT
EXCEEDS THE LIMITS OF THE CROSS SECTION.
REFER TO LINE DIAGRAMS FOR
RIGHT-OF-WAY LIMITS.



9

9 |

PROJECT NO:8060-01-73

HWY:STH 35

COUNTY:ST. CROIX

CROSS SECTIONS: STH 35 AT DIVISION ST.

SHEET 137

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FILE NAME : P:\2013\2013.019 - WISDOT NW - STH 35 - ST CROIX COUNTY\CAD\PLANS\13019_XS.3.DWG
LAYOUT NAME - 090201

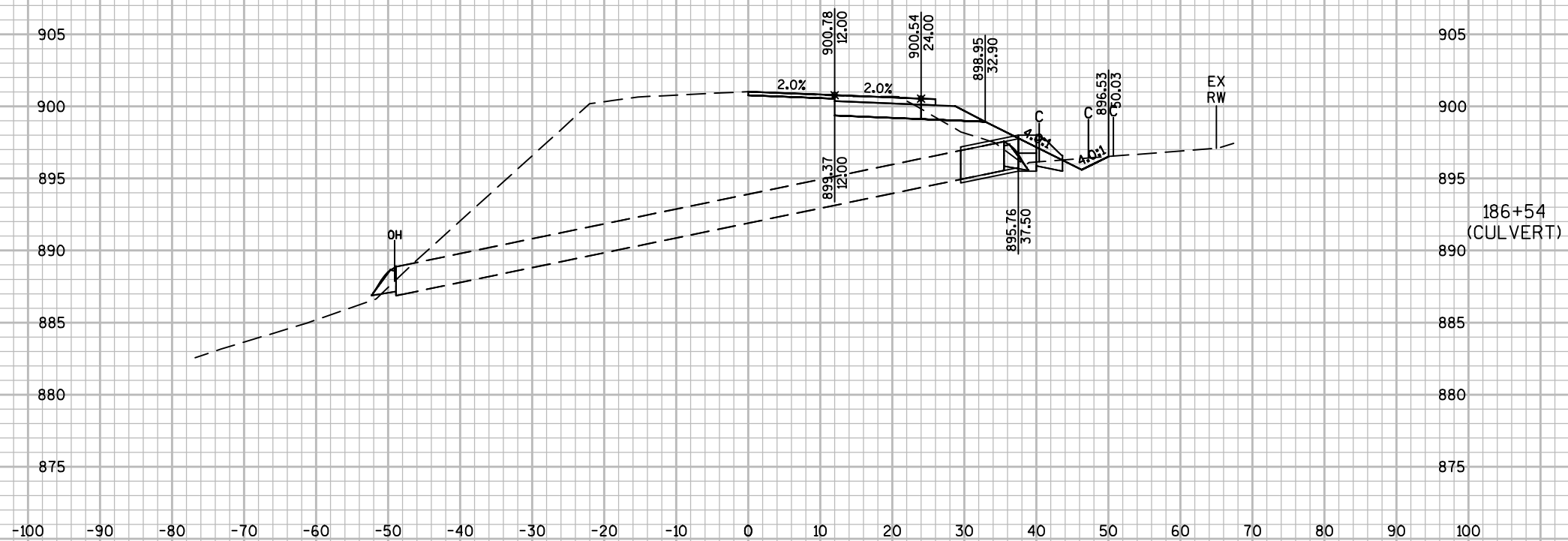
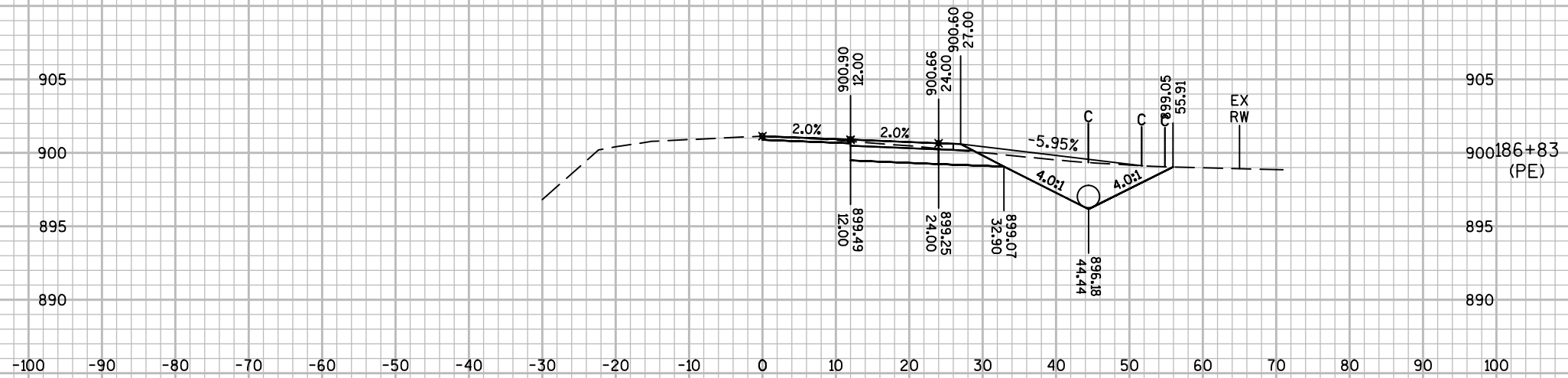
PLOT DATE : 10/26/2016 11:04 AM

PLOT BY : JED MATTMILLER

PLOT NAME : _____ PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

IF RIGHT-OF-WAY DOES NOT APPEAR IT
EXCEEDS THE LIMITS OF THE CROSS SECTION.
REFER TO LINE DIAGRAMS FOR
RIGHT-OF-WAY LIMITS.



9 |

PROJECT NO:8060-01-73

HWY:STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: STH 35 AT DIVISION ST.

SHEET 138

FILE NAME : P:\2013\2013.019 - WISDOT NW - STH 35 - ST CROIX COUNTY\CAD\PLANS\13019_XS_3.DWG
LAYOUT NAME - 090202

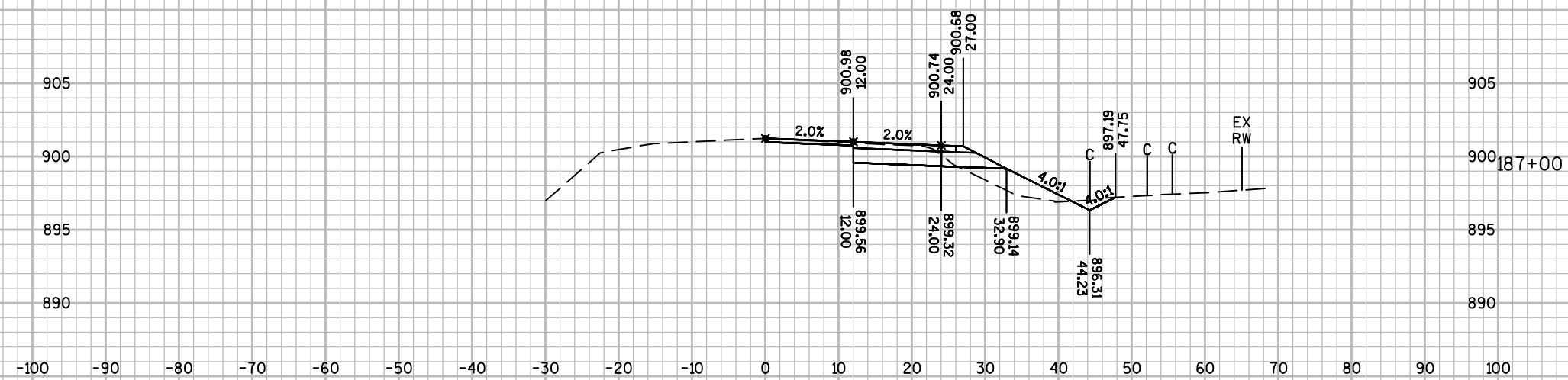
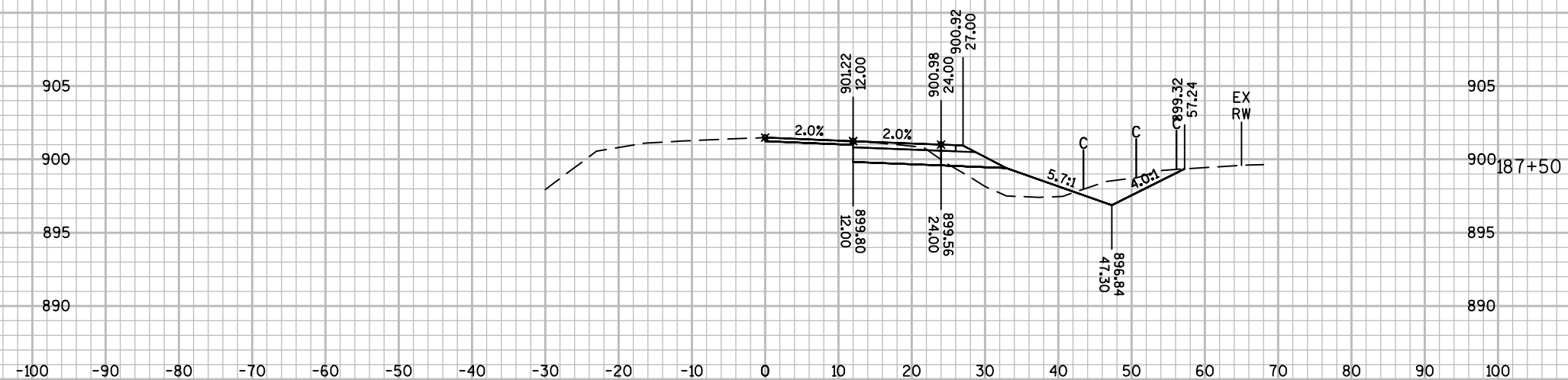
PLOT DATE : 10/26/2016 11:04 AM

PLOT BY : JED MATTMILLER

PLOT NAME : ----- PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

IF RIGHT-OF-WAY DOES NOT APPEAR IT
EXCEEDS THE LIMITS OF THE CROSS SECTION.
REFER TO LINE DIAGRAMS FOR
RIGHT-OF-WAY LIMITS.



9

9 |

PROJECT NO:8060-01-73

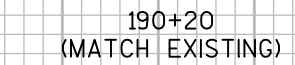
HWY:STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: STH 35 AT DIVISION ST.

SHEET 139

910



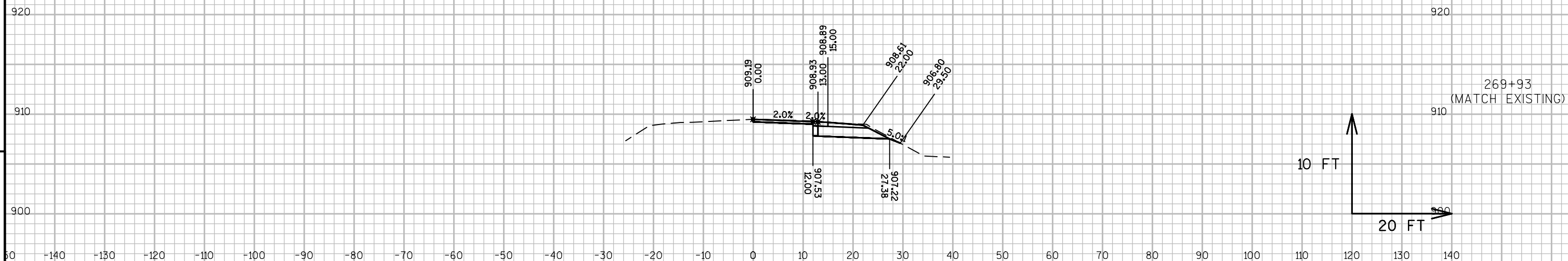
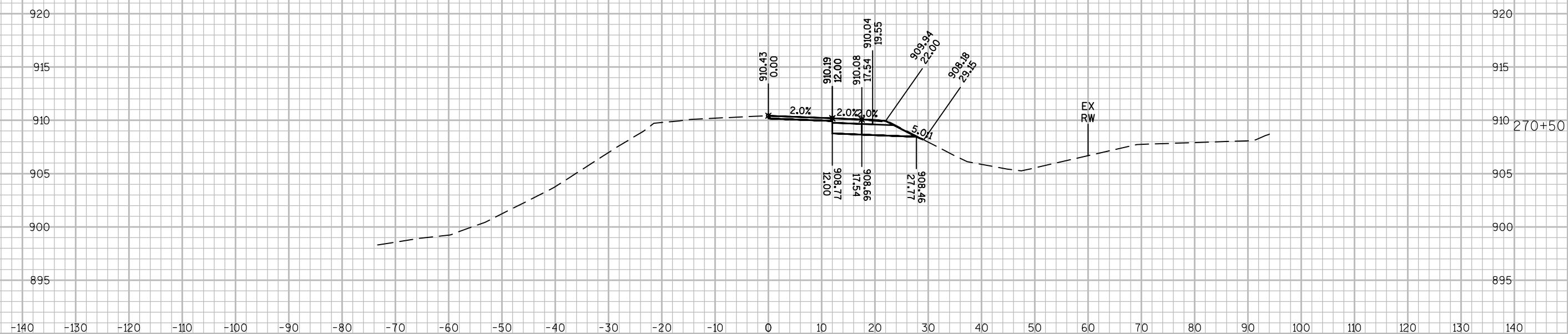
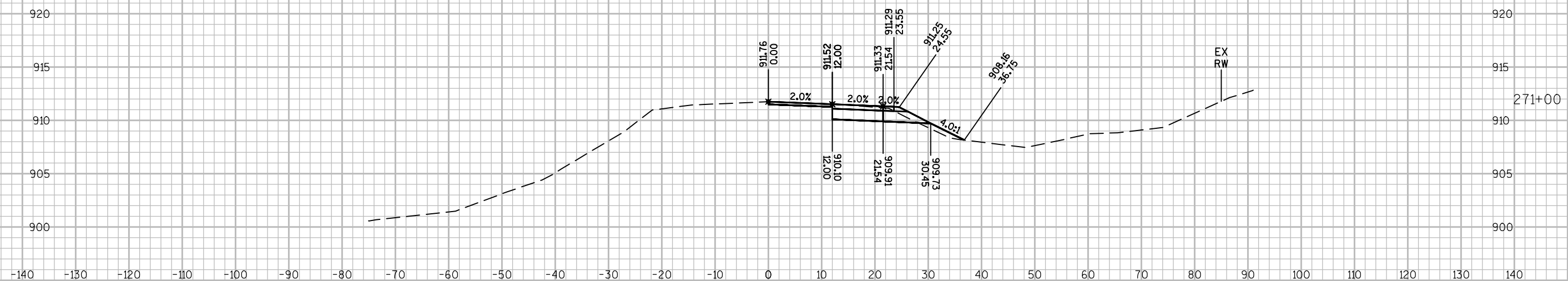
900

20 FT

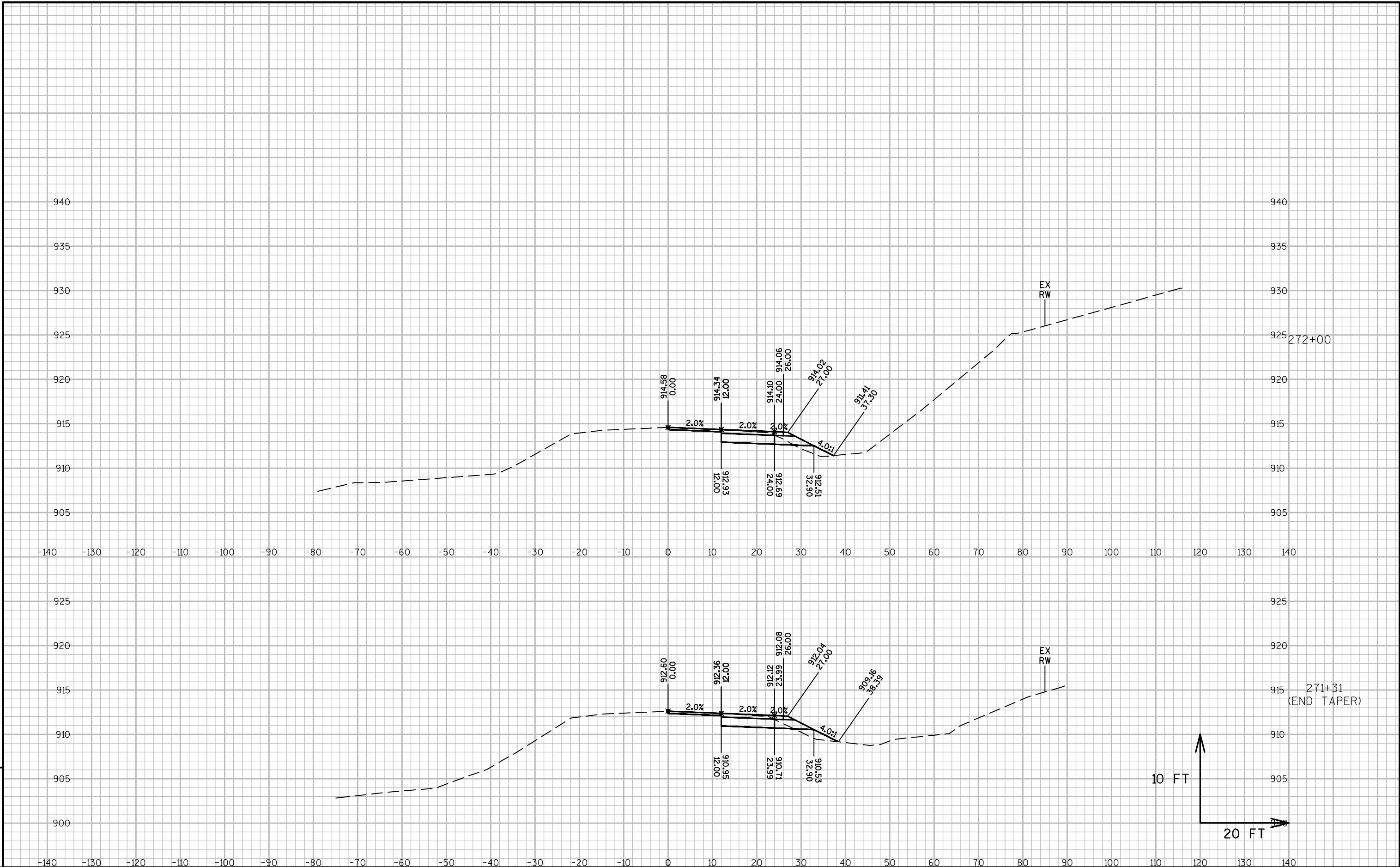
E	
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STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
270+50	---	21	2	0	0	---	---	---	---	---	---	---
271+00	50	21	2	3	0	39	3	3	0	39	4	32
271+31	31	21	2	5	0	24	2	5	0	62	9	48
272+00	69	21	2	5	0	54	4	13	0	116	25	82
272+50	50	23	4	4	0	41	5	8	0	157	35	107
273+00	50	26	5	3	0	45	8	7	0	202	43	136
273+31	31	27	7	7	0	30	7	6	0	232	51	152
274+61	---	50	11	3	0	---	---	---	---	---	---	---
275+00	39	44	5	0	0	68	11	2	0	300	54	205
275+27	27	59	4	0	0	51	5	0	0	351	54	252
275+55	28	80	4	0	0	74	4	0	0	425	54	321
275+80	25	46	4	0	0	59	3	0	0	483	54	377
275+90	10	41	4	0	0	16	1	0	0	500	54	391
276+05	15	40	4	0	0	22	2	0	0	522	54	412
276+15	10	39	4	0	0	15	1	0	0	537	54	425
276+40	25	36	4	0	0	35	3	0	0	571	54	457
276+75	35	35	4	0	0	47	5	0	0	618	54	499
277+00	25	35	4	0	0	32	3	0	0	650	54	528
277+50	50	32	4	0	0	62	6	0	0	712	54	583
278+00	50	35	4	0	0	62	6	0	0	775	55	639
278+30	30	32	4	0	0	38	4	0	0	812	55	672
278+50	20	32	4	0	0	24	3	0	0	836	55	693
279+00	50	33	4	1	0	60	6	1	0	896	56	746
279+50	50	35	4	0	0	62	6	1	0	958	57	801
280+00	50	35	4	0	0	65	6	0	0	1023	57	859
280+50	50	36	4	0	0	66	6	0	0	1089	57	919
281+00	50	39	4	1	0	69	6	1	0	1158	57	981
281+36	36	39	4	1	0	52	5	1	0	1210	58	1027
281+61	25	47	4	0	0	40	3	0	0	1250	59	1063
281+84	23	56	4	0	0	44	3	0	0	1294	59	1104
281+86	2	57	4	1	0	4	0	0	0	1298	59	1108
282+09	23	50	4	2	0	45	3	1	0	1344	61	1149
282+29	20	35	4	3	0	31	3	2	0	1375	63	1175
282+34	5	38	4	2	0	7	1	0	0	1382	64	1181
282+36	2	38	4	2	0	3	0	0	0	1385	64	1183
282+41	4	38	4	3	0	6	1	0	0	1391	64	1188
				COLUMN TOTALS		1391	139	51	0			

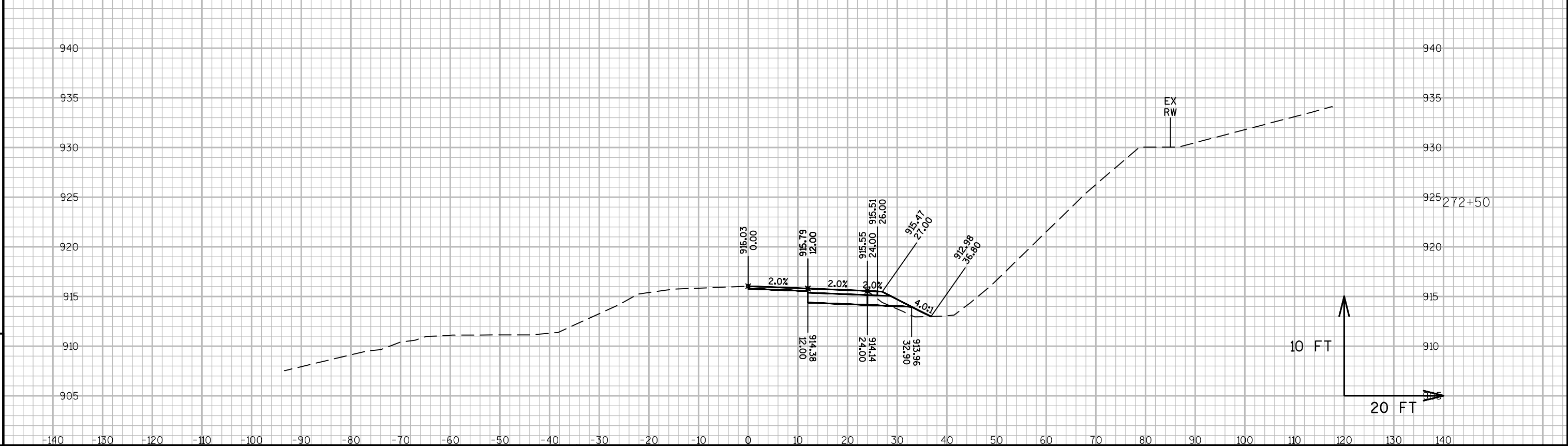
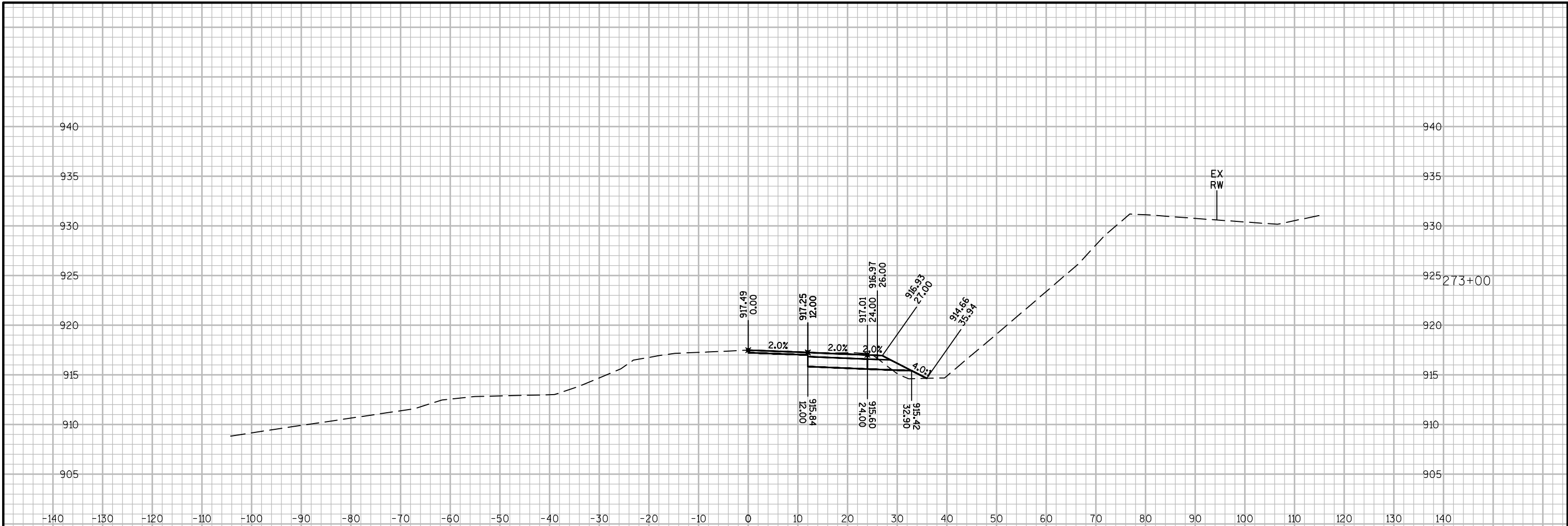
NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)



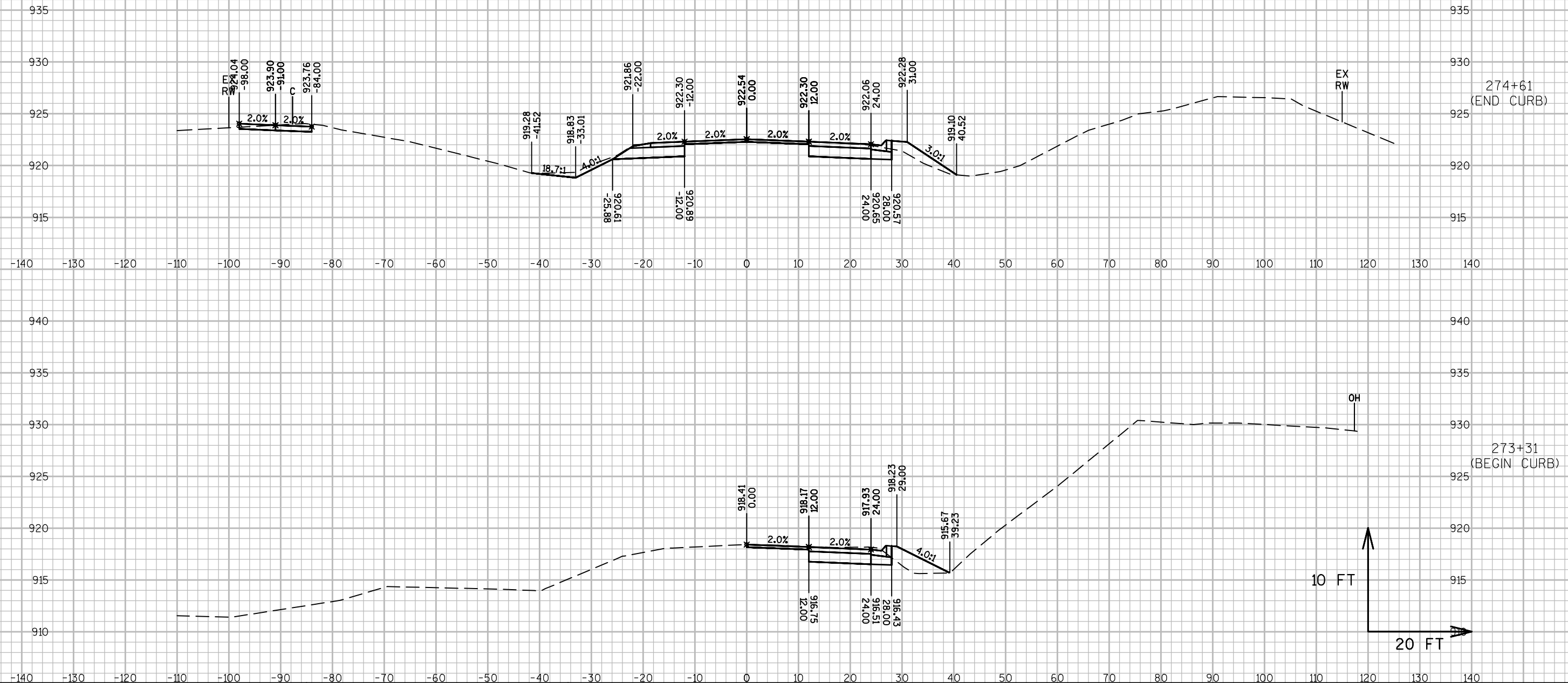
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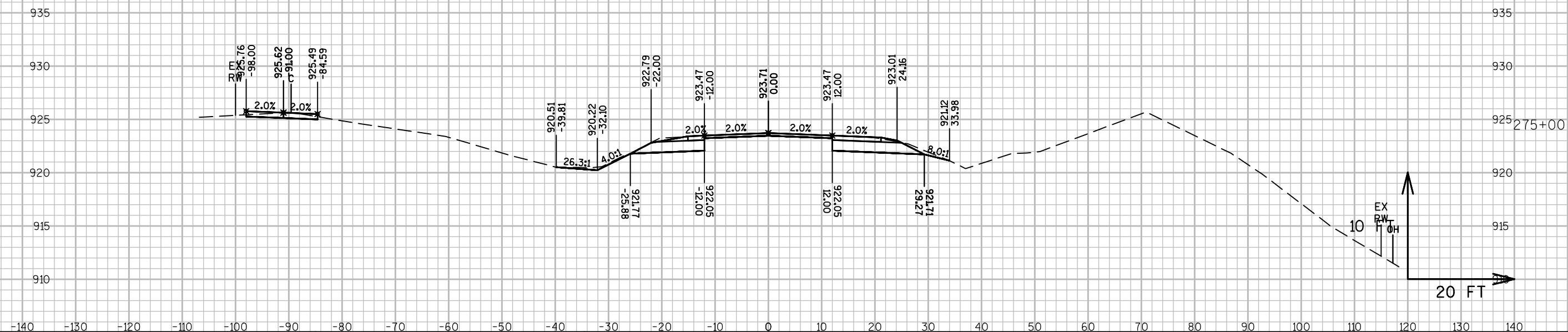
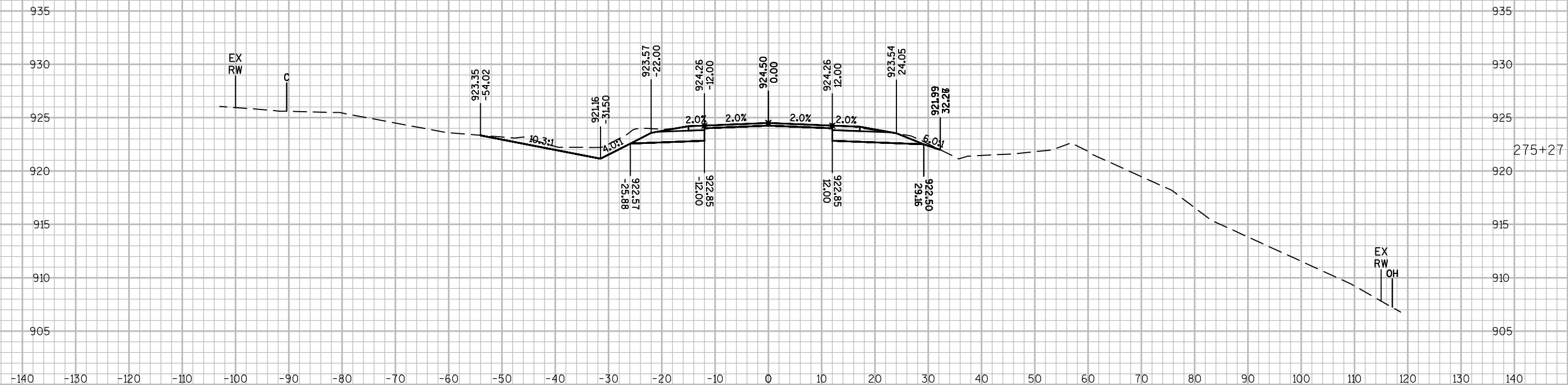


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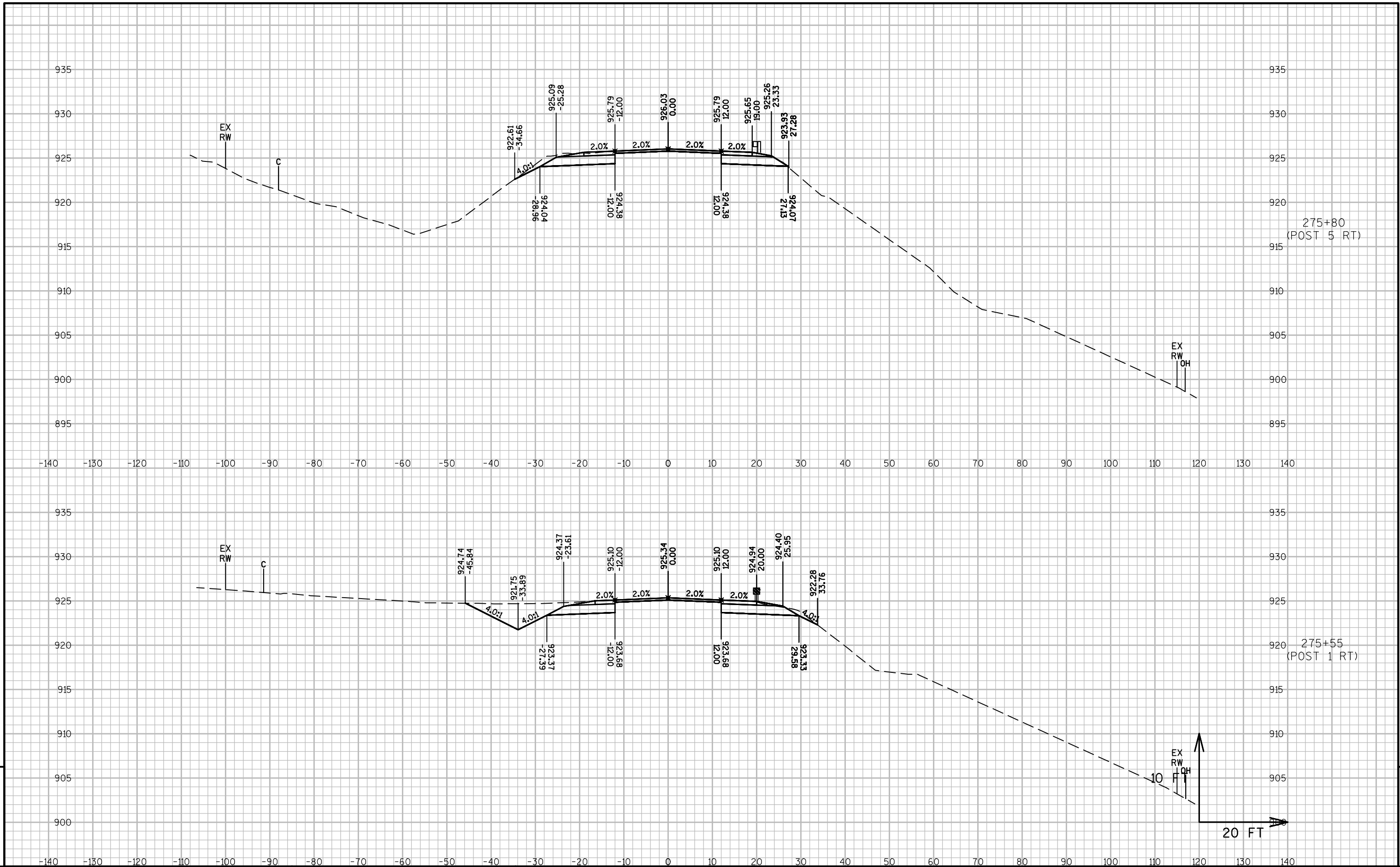


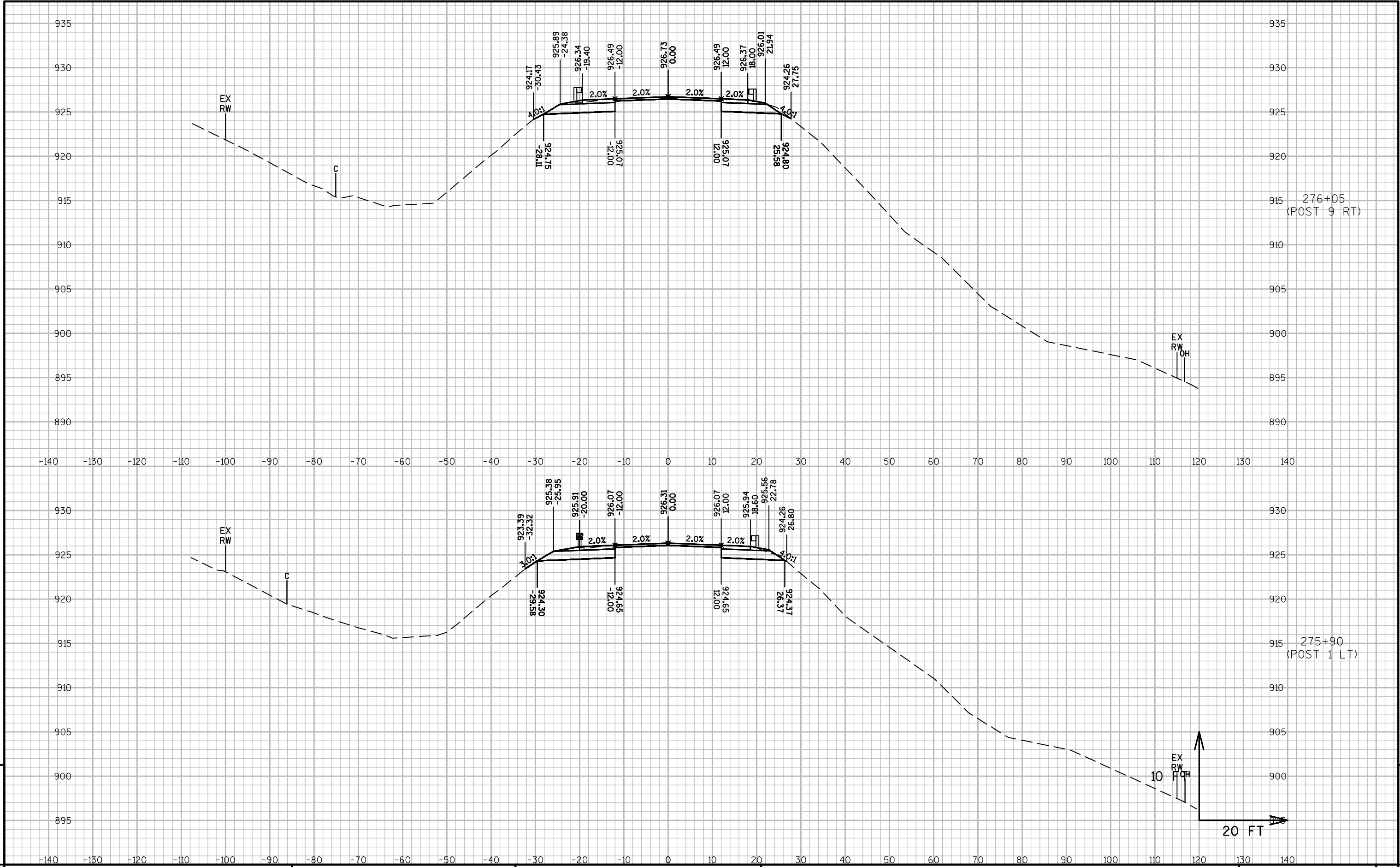
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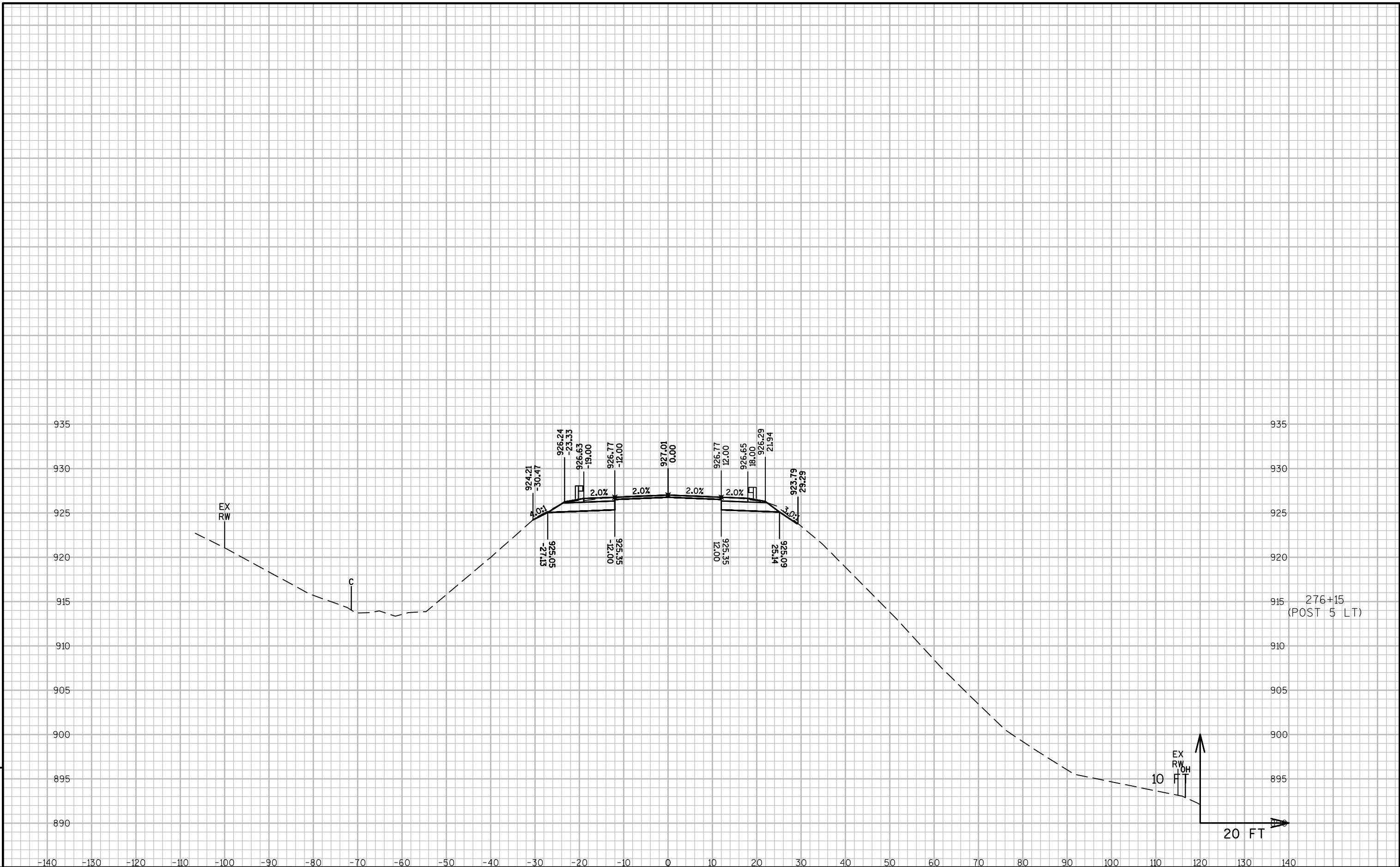




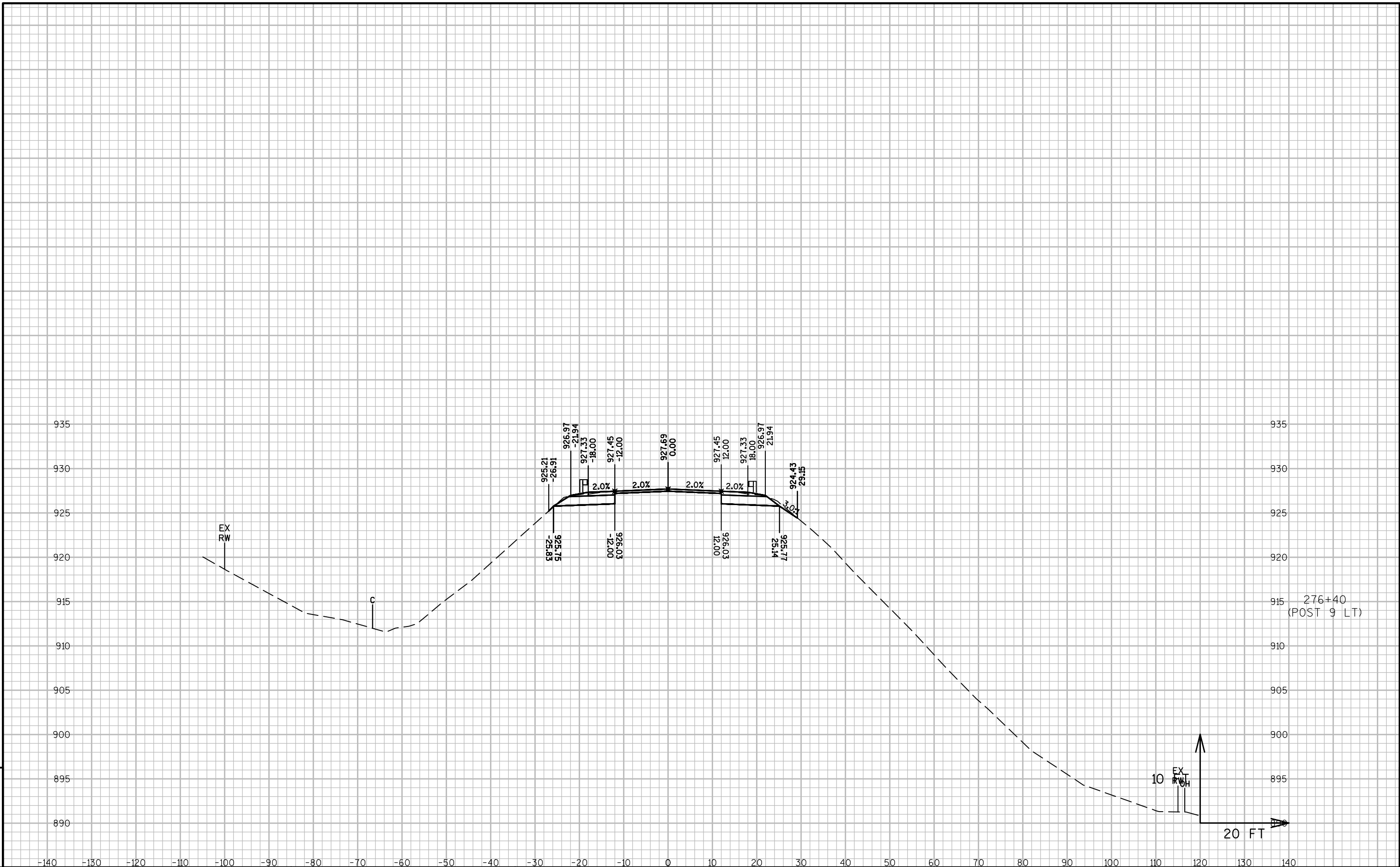
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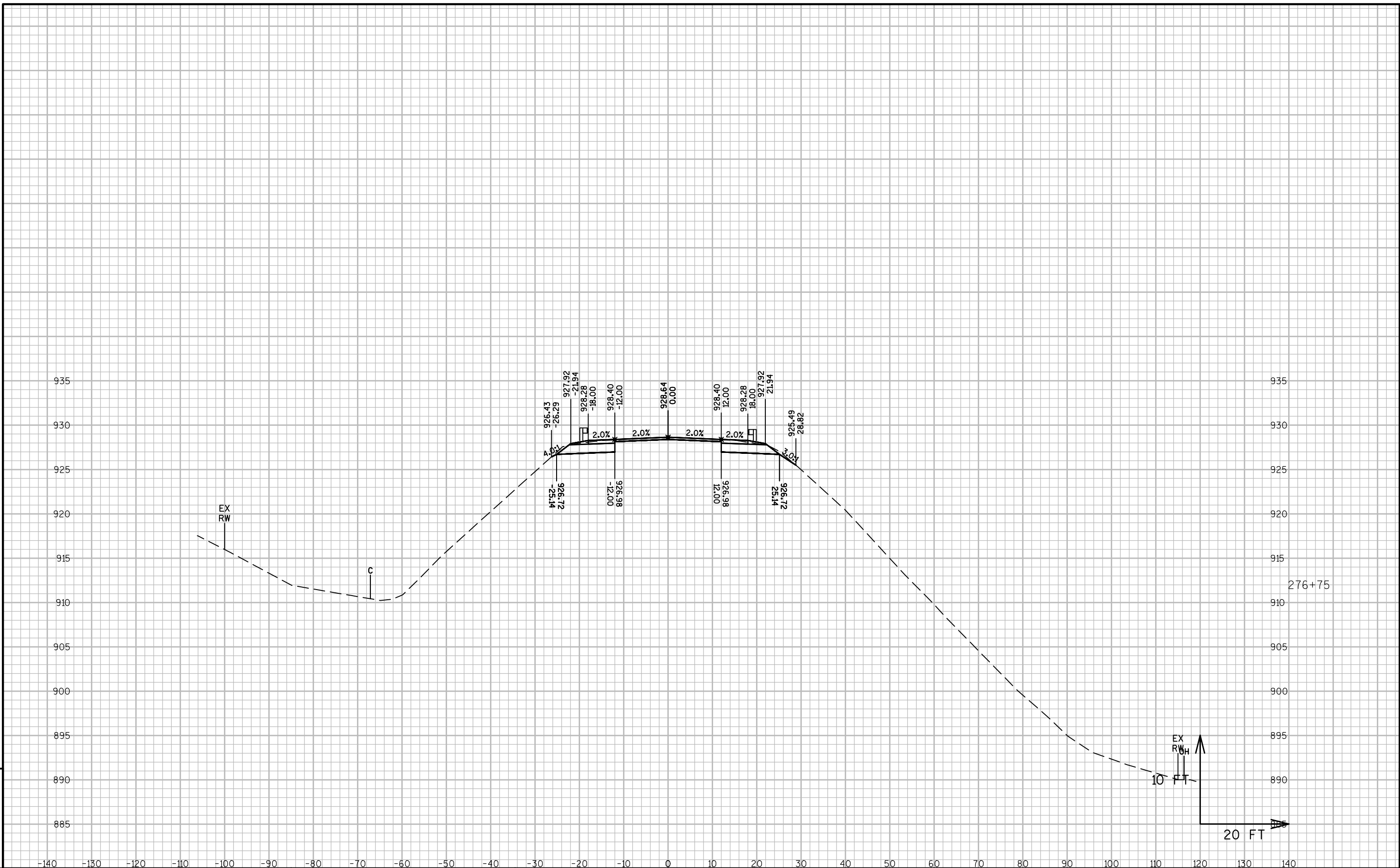
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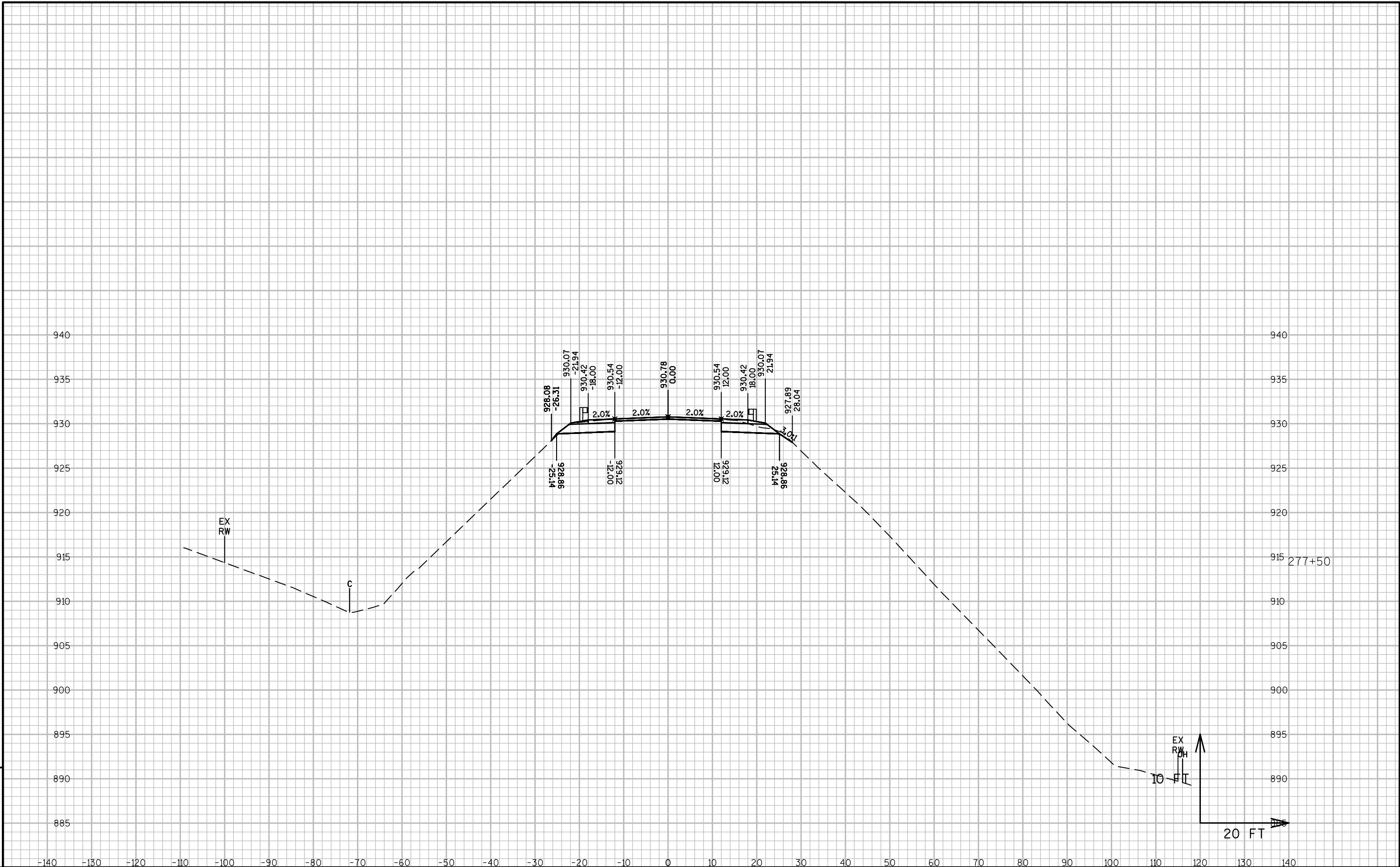


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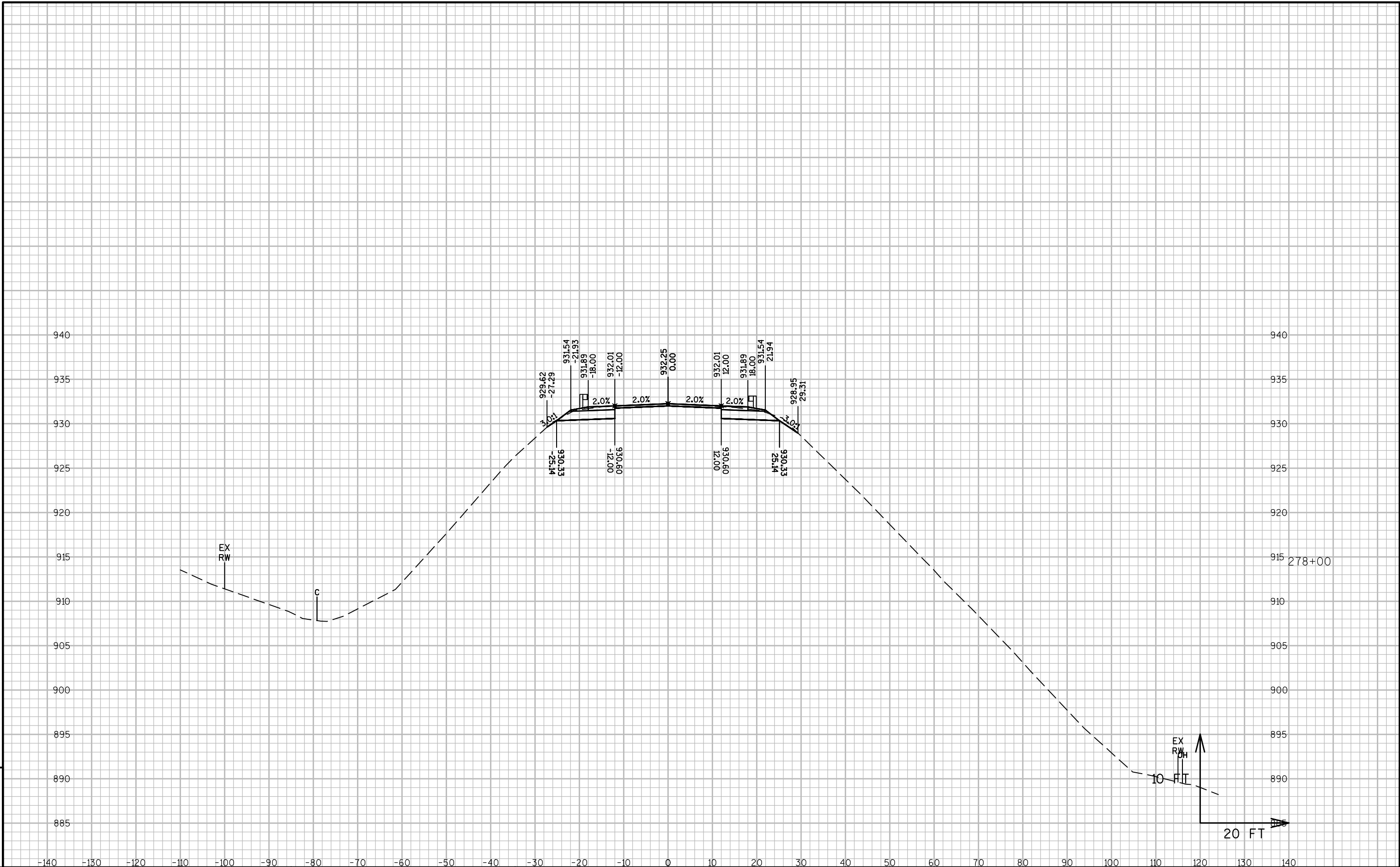
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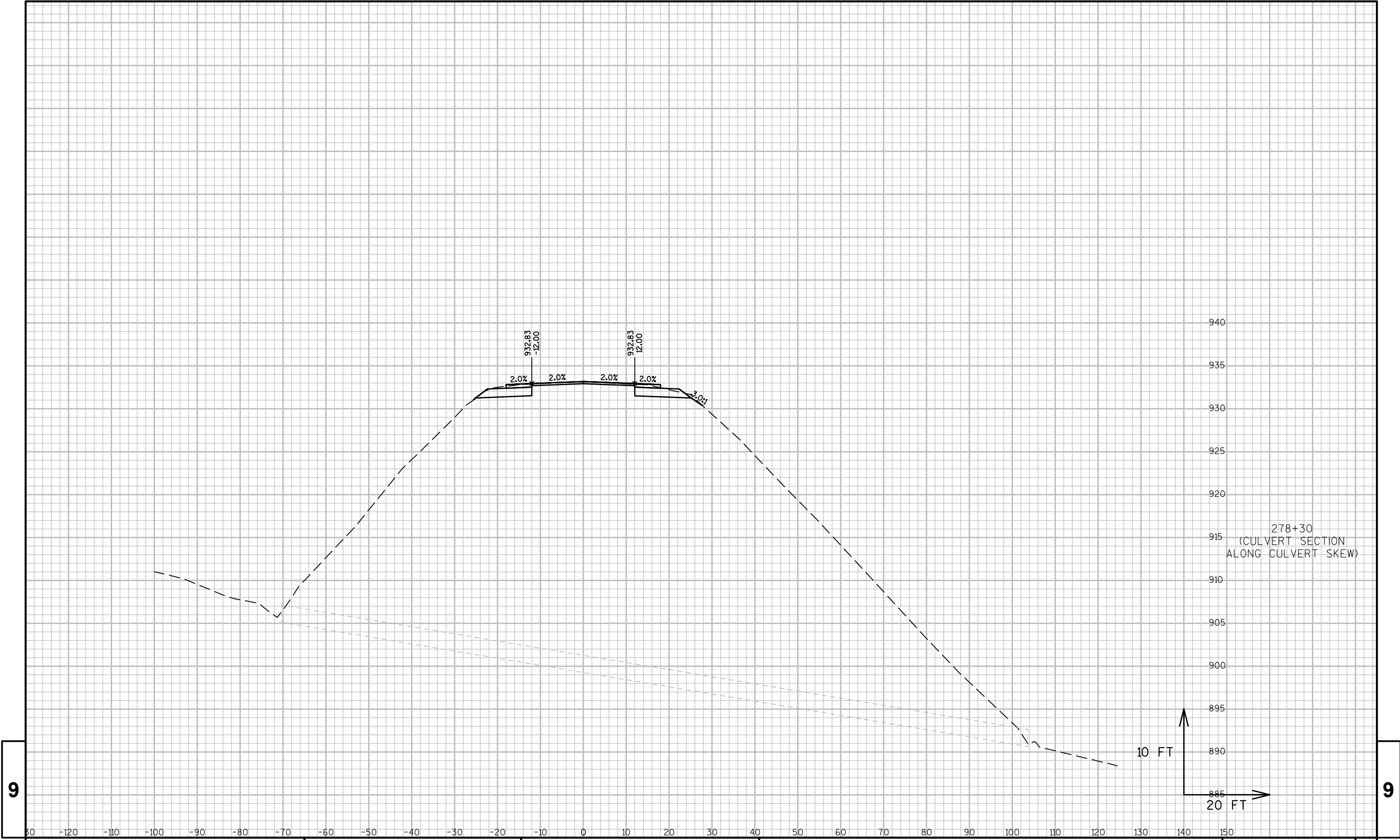


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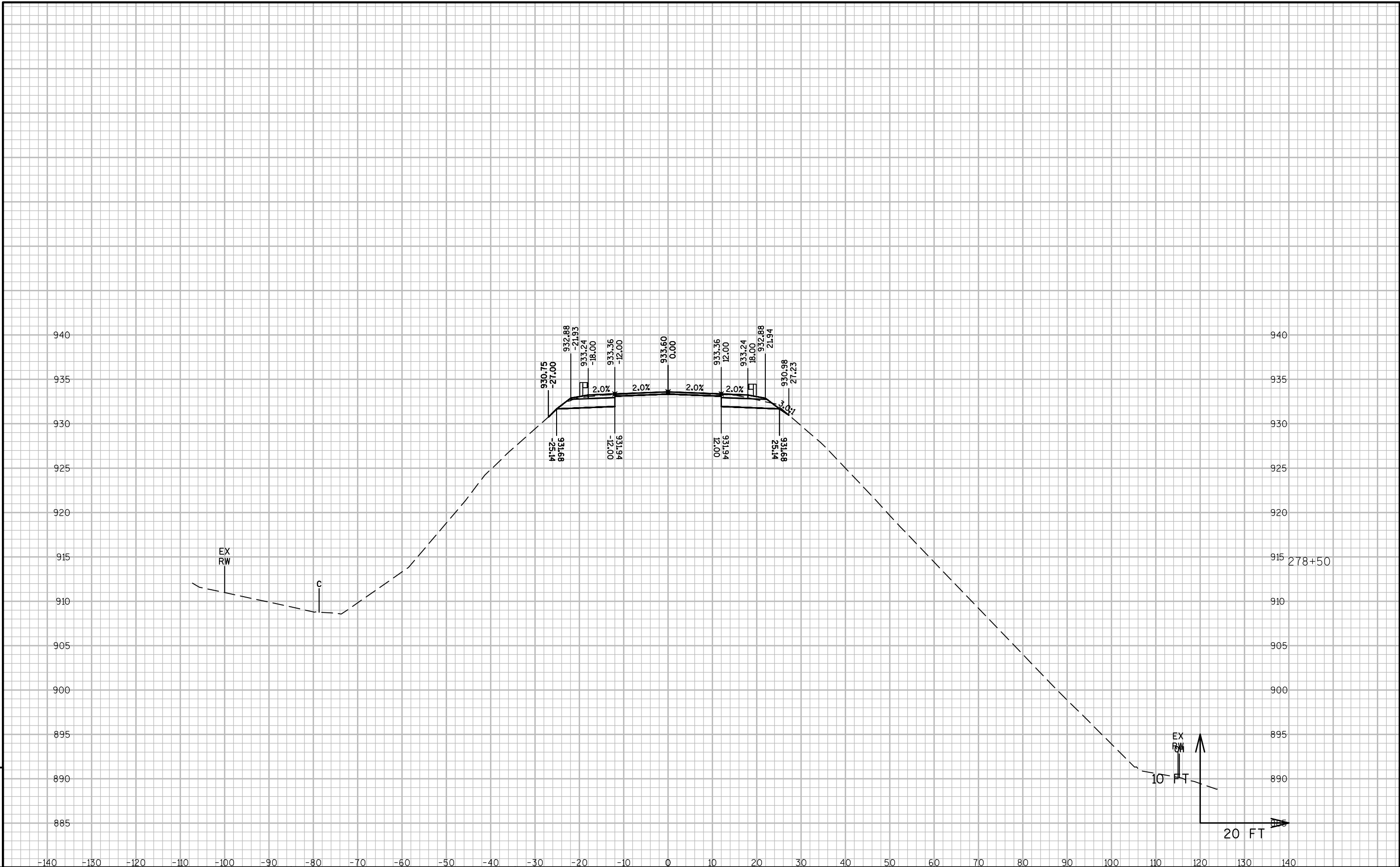
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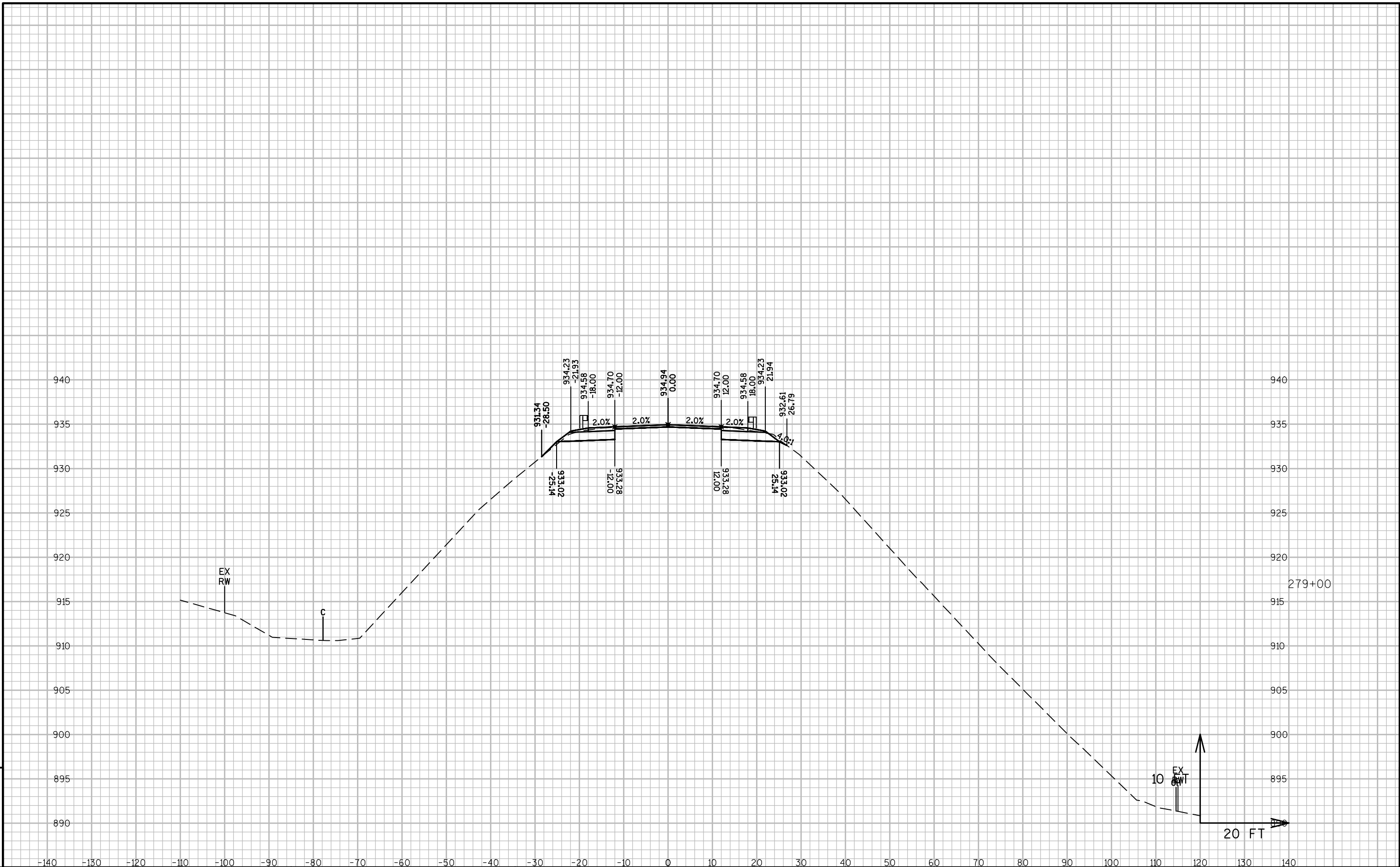
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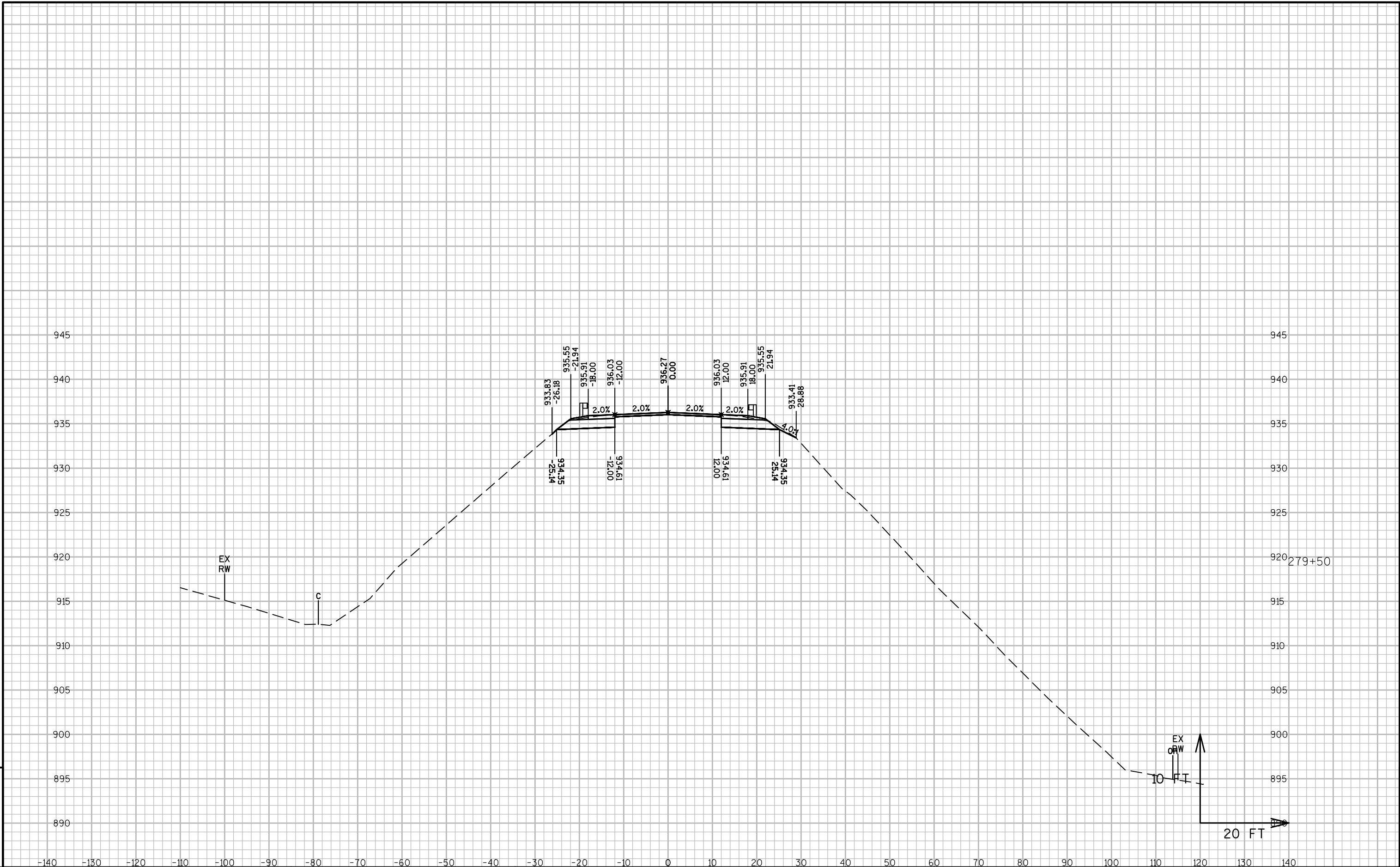
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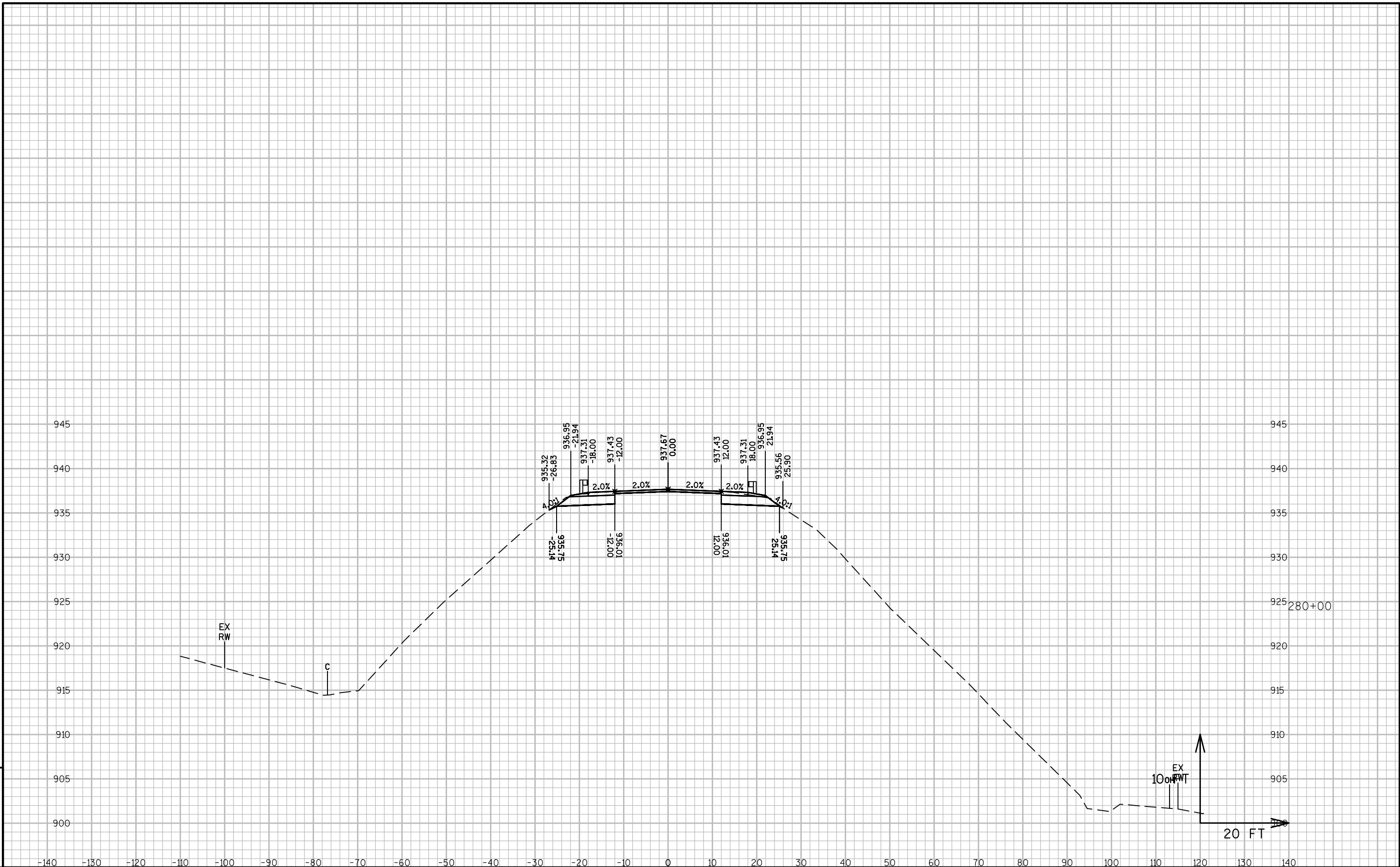
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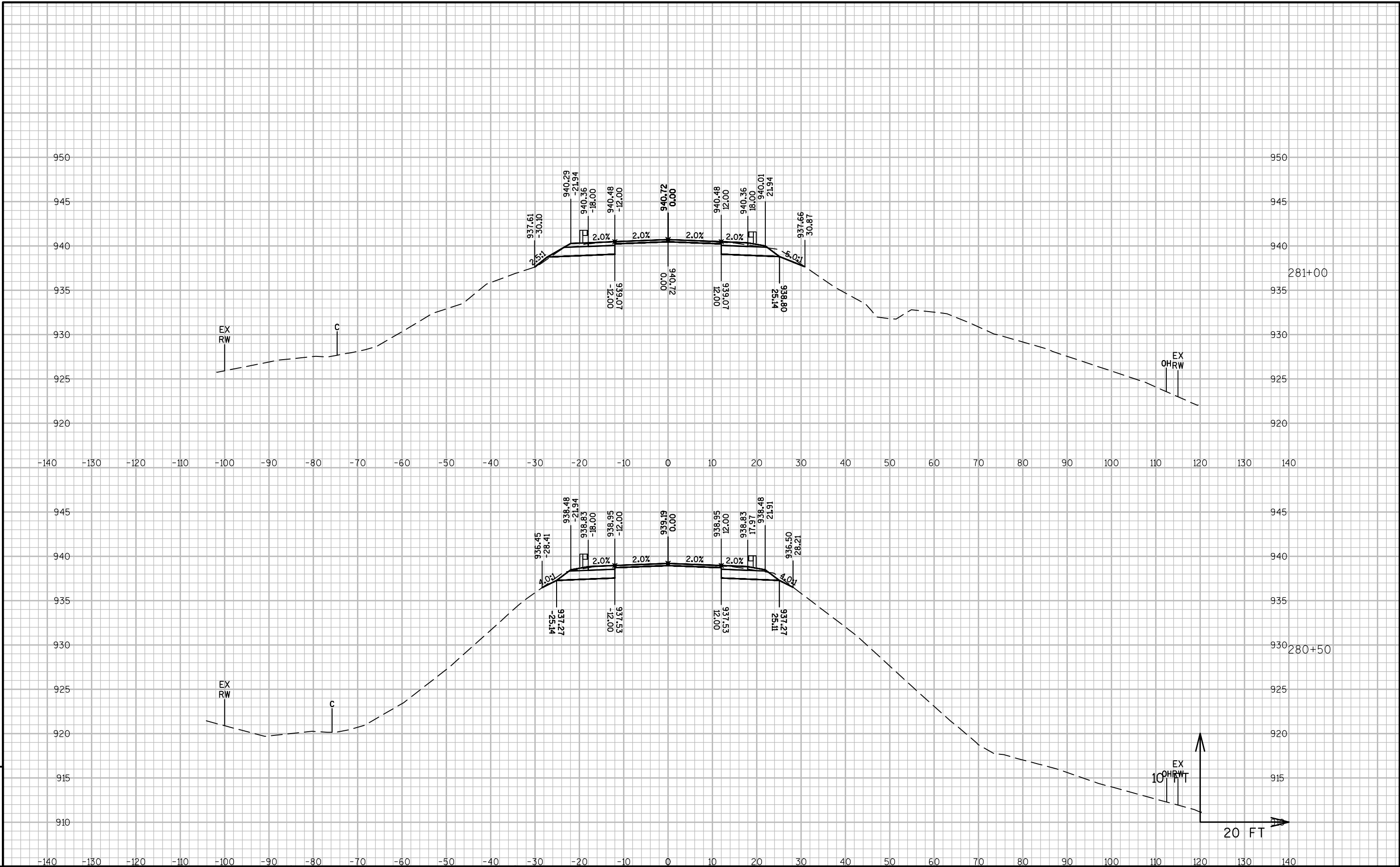


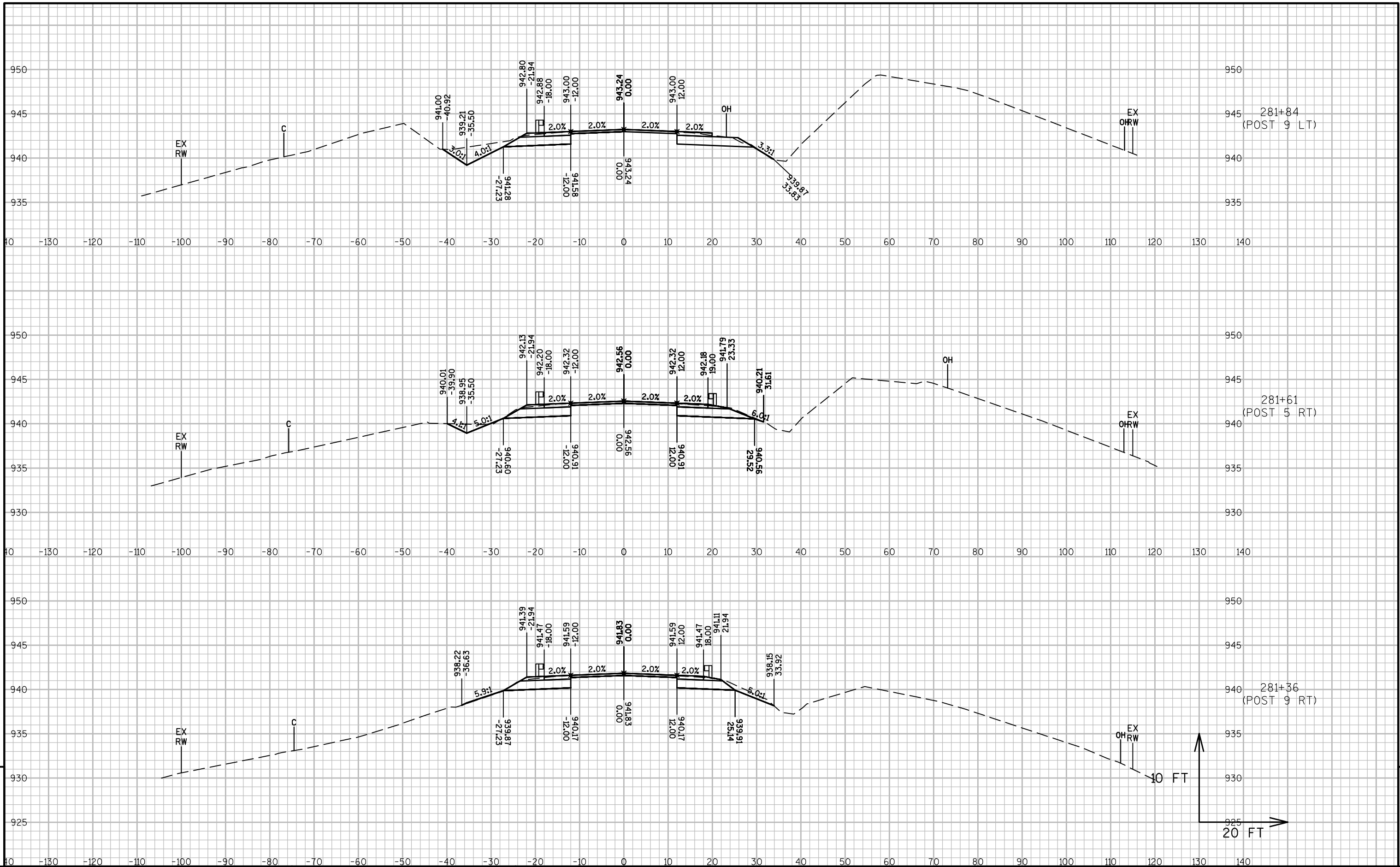
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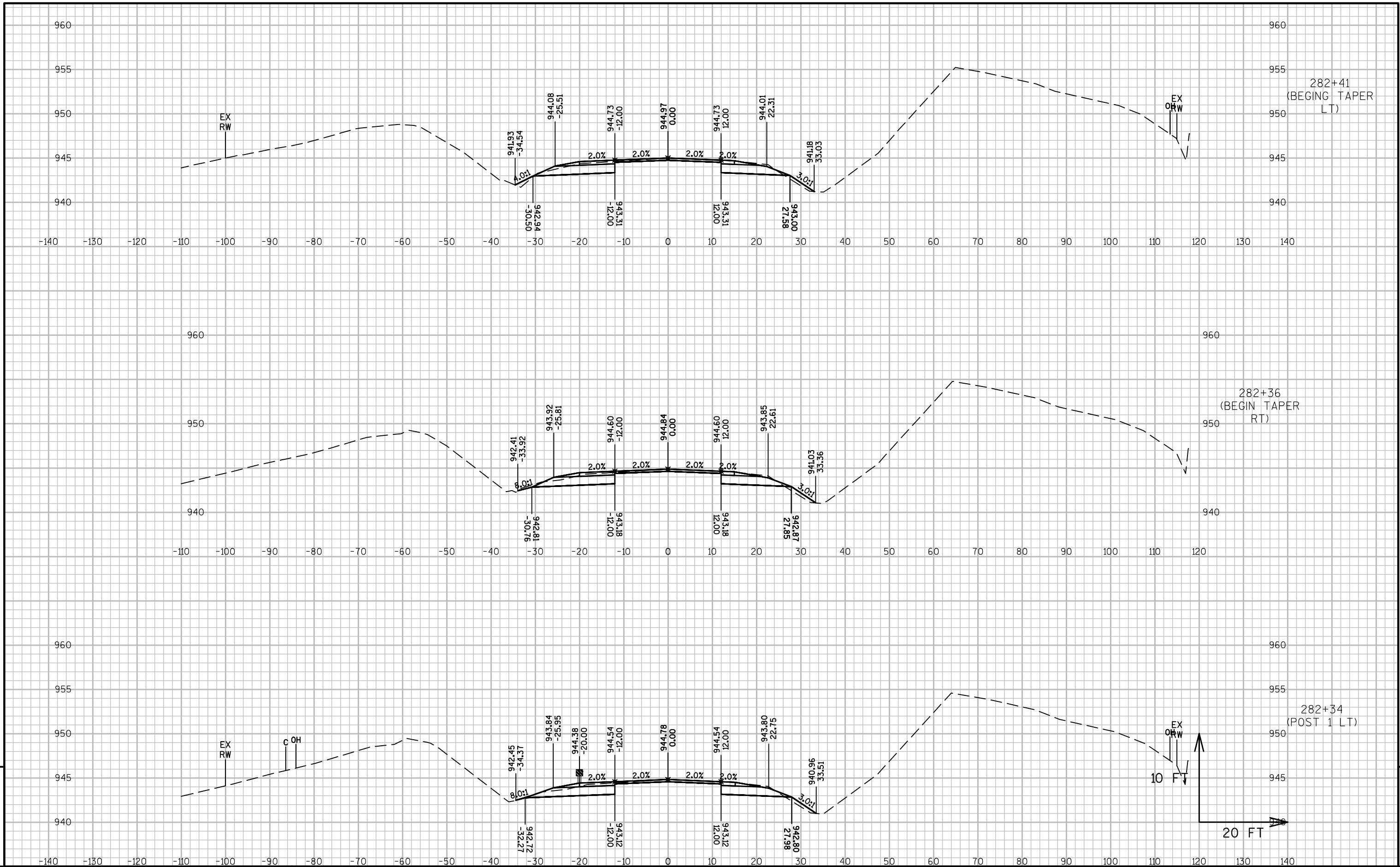
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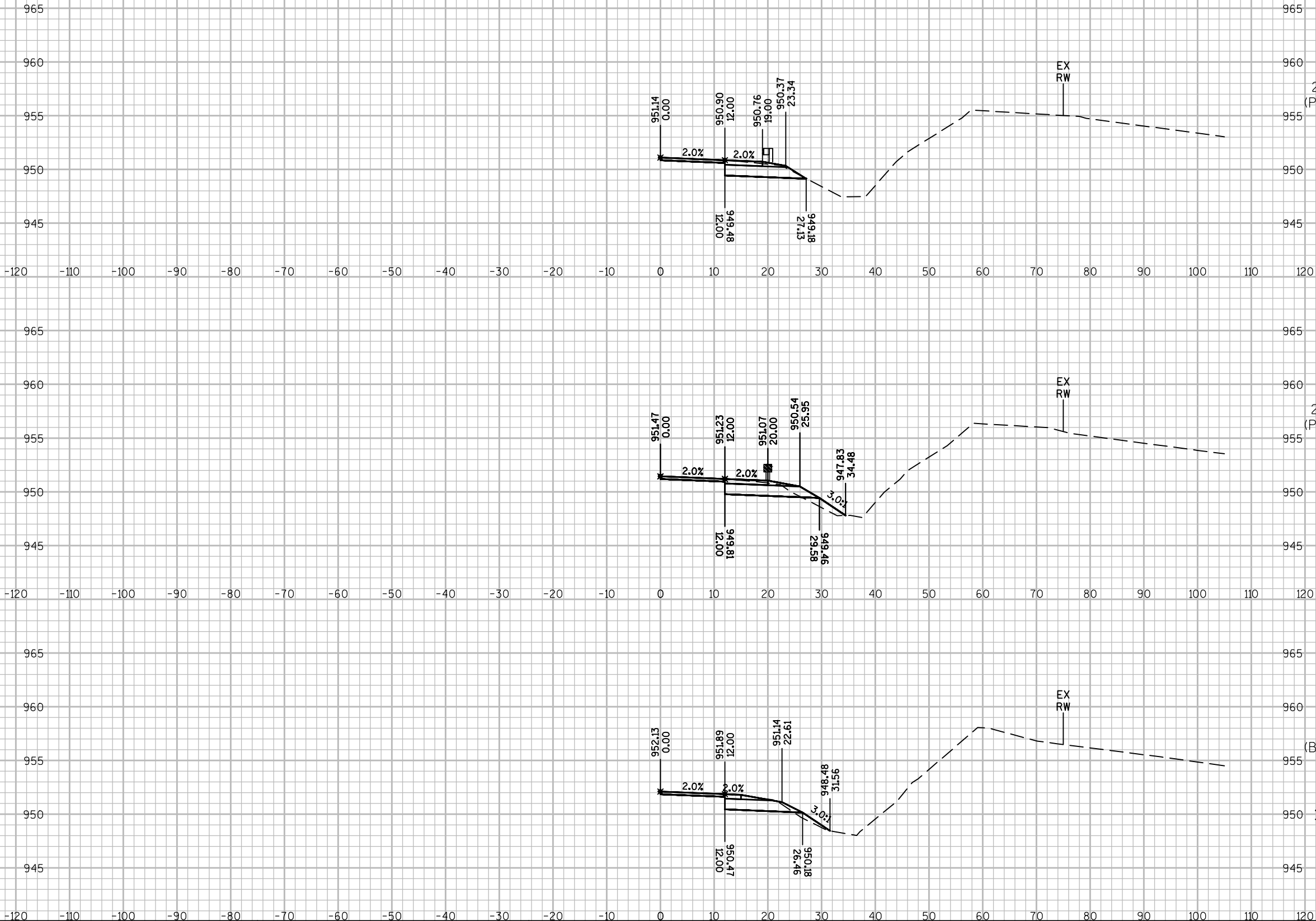




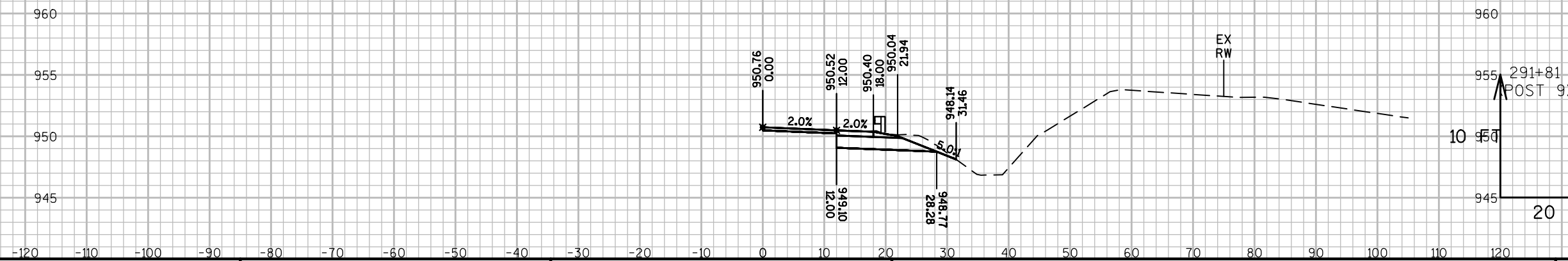
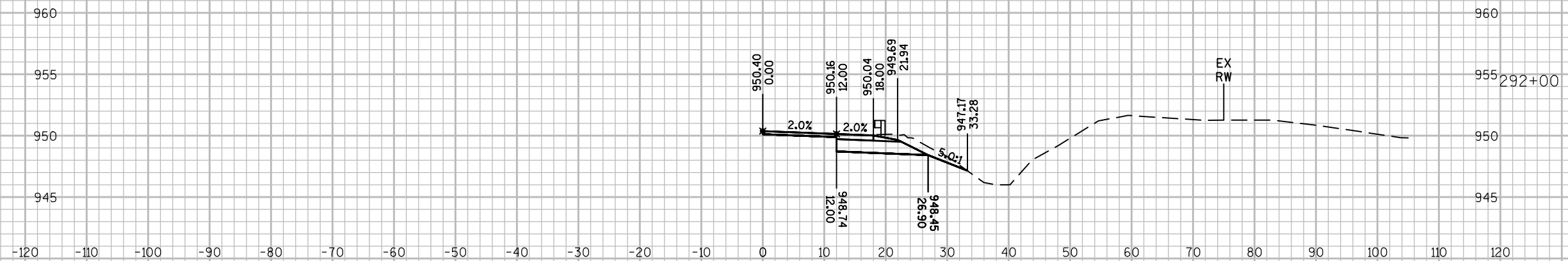
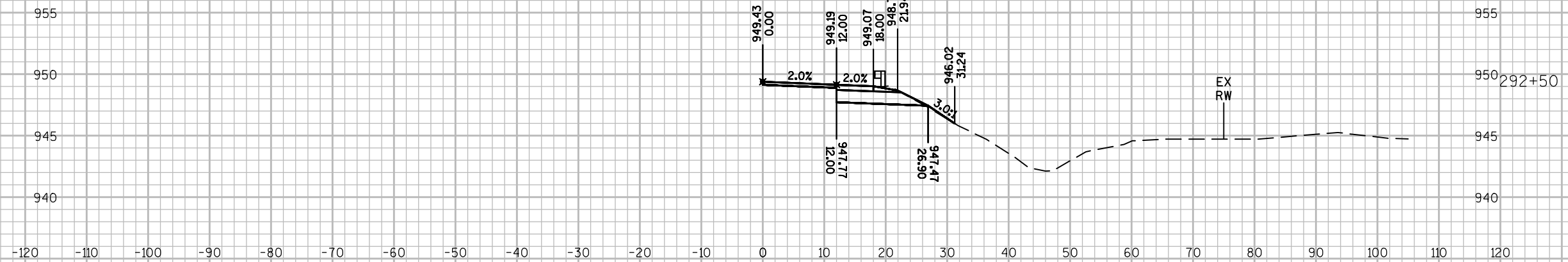


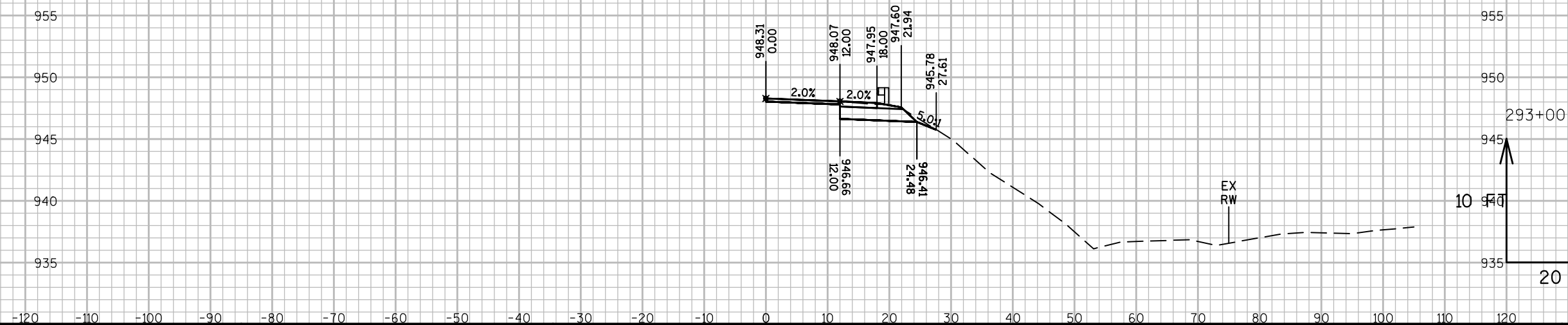
STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
290+81	---	16	1	2	0	---	---	---	---	---	---	---
291+31	50	18	1	4	0	32	3	6	0	32	7	22
291+56	25	19	1	0	0	17	1	2	0	49	9	36
291+81	25	24	1	0	0	20	1	0	0	69	9	54
292+00	19	26	1	0	0	18	1	0	0	86	9	71
292+50	50	19	1	0	0	42	3	0	0	128	10	110
293+00	50	18	1	0	0	35	3	0	0	163	10	142
293+50	50	16	1	0	0	32	3	0	0	195	10	171
294+00	50	17	1	0	0	30	3	0	0	225	10	199
294+50	50	17	1	0	0	31	3	0	0	256	10	227
295+00	50	18	1	0	0	32	3	0	0	288	11	257
295+50	50	20	1	0	0	35	3	0	0	324	11	289
295+87	37	22	1	0	0	29	2	0	0	353	11	316
296+12	25	20	1	7	0	19	1	3	0	372	14	331
296+37	25	21	1	8	0	19	1	7	0	391	23	340
296+93	56	23	1	0	0	45	3	9	0	436	34	371
297+00	7	22	1	0	0	6	0	0	0	441	34	376
297+25	25	20	1	9	0	19	1	4	0	461	39	389
297+53	28	19	1	20	0	20	1	15	0	481	57	389
298+00	47	19	1	17	0	33	2	32	0	513	97	380
298+50	50	23	1	4	0	39	3	19	0	552	121	392
299+00	50	82	3	0	0	97	4	4	0	649	125	481
299+15	15	138	4	0	0	62	2	0	0	712	125	542
299+53	38	26	5	32	0	115	6	22	0	827	154	623
300+82	---	23	5	9	0	---	---	---	---	---	---	---
301+25	43	20	3	0	0	34	6	7	0	861	162	642
301+63	38	19	1	0	0	28	3	0	0	889	162	667
303+30	---	20	1	4	0	---	---	---	---	---	---	---
303+55	25	19	1	0	0	18	1	2	0	907	165	681
303+80	25	18	1	0	0	17	1	0	0	924	165	697
304+00	20	19	1	0	0	14	1	0	0	938	165	710
304+50	50	18	1	0	0	35	3	0	0	973	165	742
305+00	50	16	1	0	0	32	3	0	0	1004	165	771
305+50	50	16	1	0	0	30	3	1	0	1034	166	797
306+00	50	16	1	0	0	30	3	0	0	1064	166	824
306+50	50	17	1	0	0	31	3	0	0	1095	166	853
307+00	50	25	1	0	0	40	3	0	0	1135	166	890
307+50	50	18	1	0	0	40	3	0	0	1175	166	927
308+00	50	17	1	0	0	32	3	0	0	1207	166	957
308+50	50	17	1	0	0	32	3	0	0	1238	166	986
308+61	11	16	1	0	0	7	1	0	0	1245	167	992
308+86	25	17	1	3	0	15	1	1	0	1261	168	1004
309+11	25	0	1	0	0	8	1	1	0	1268	170	1009
				COLUMN TOTALS		1268	89	136	0			

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PROJECT NO: 8060-01-73

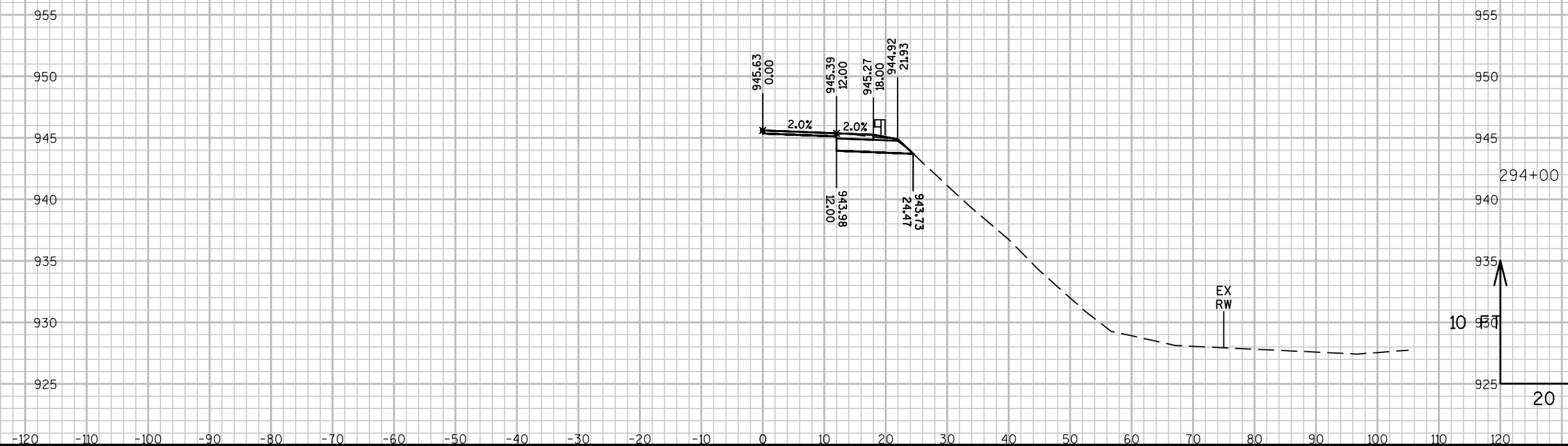
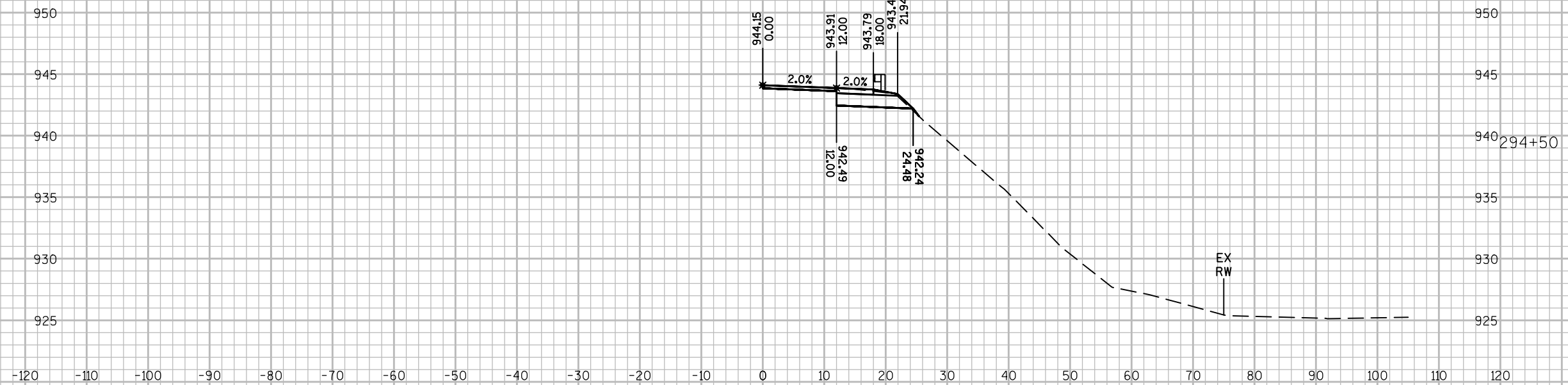
HWY: STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: STH 35 AT 210TH AVE & GR SECTION 4 & 5

SHEET 167

E



PROJECT NO: 8060-01-73

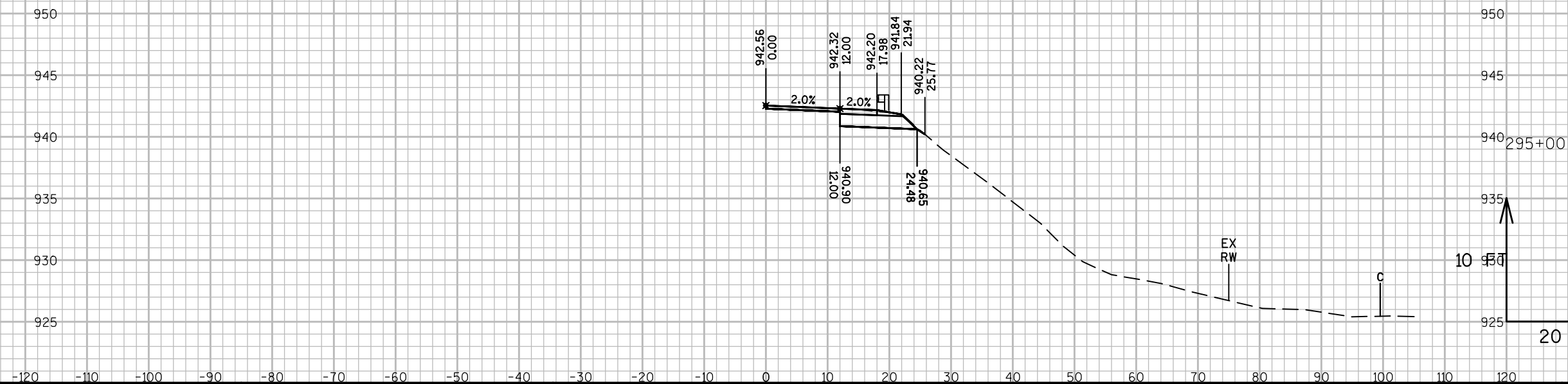
HWY: STH 35

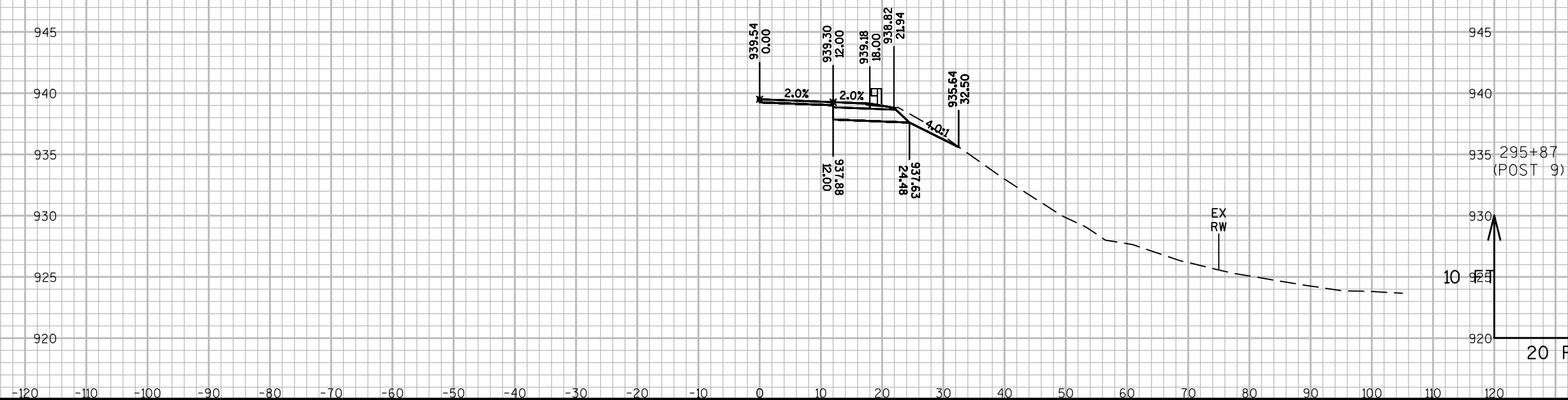
COUNTY: ST. CROIX

CROSS SECTIONS: STH 35 AT 210TH AVE & GR SECTION 4 & 5

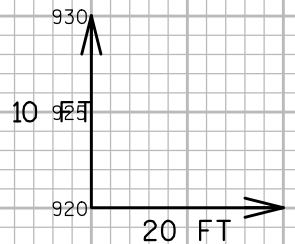
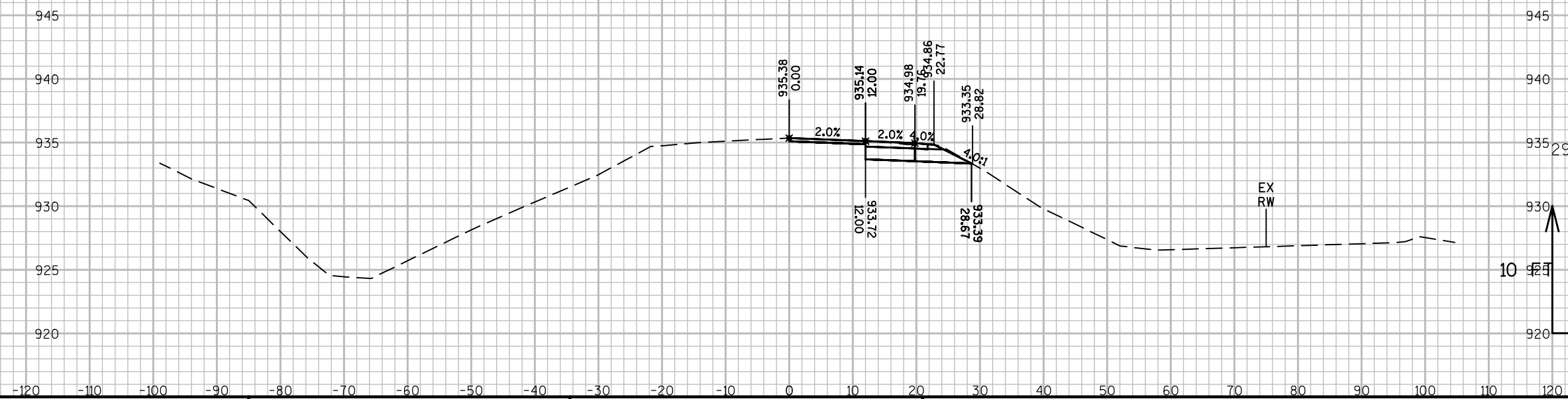
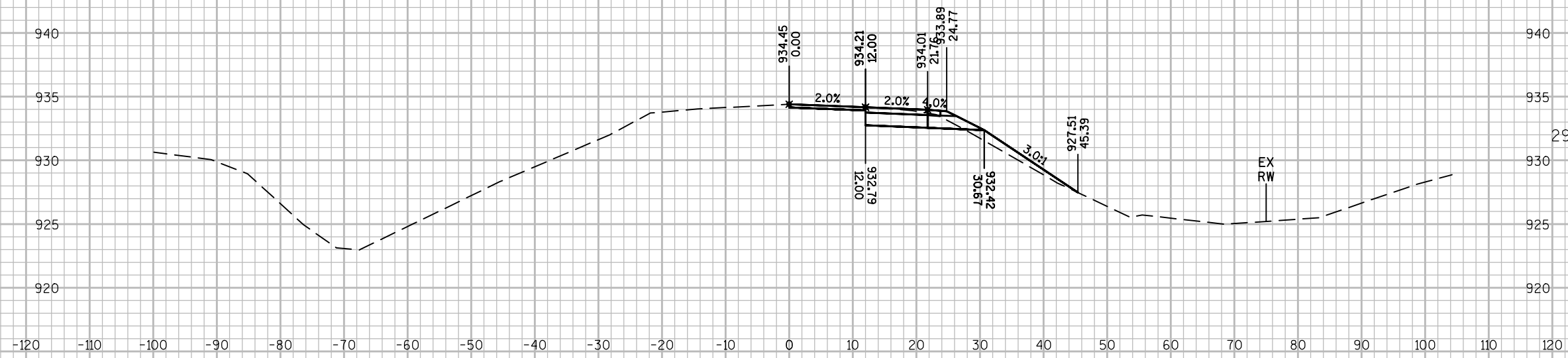
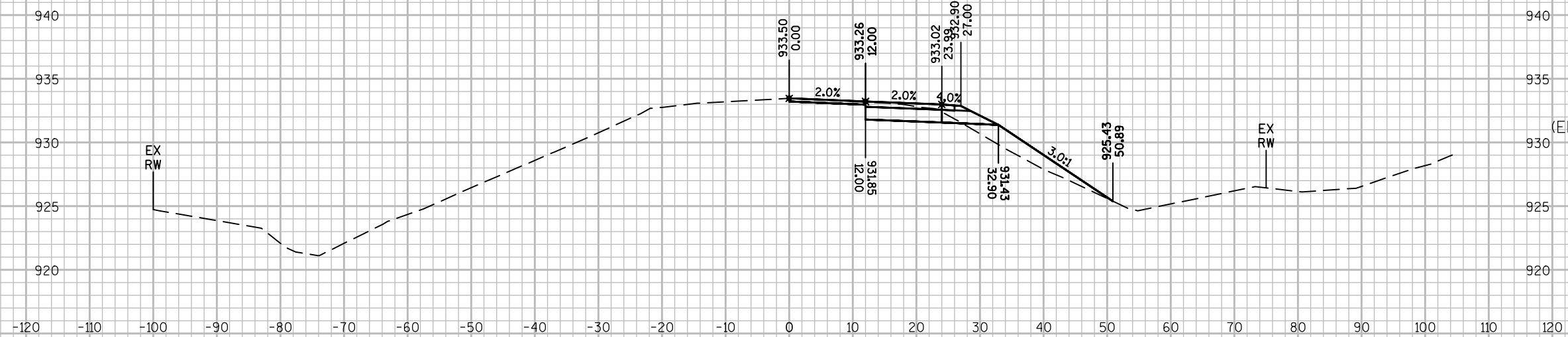
SHEET 168

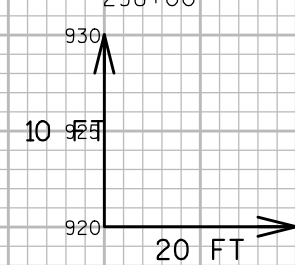
E

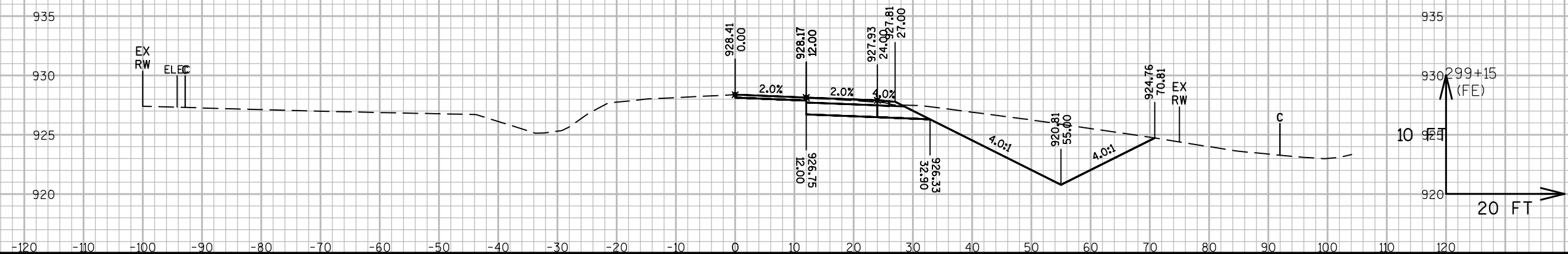
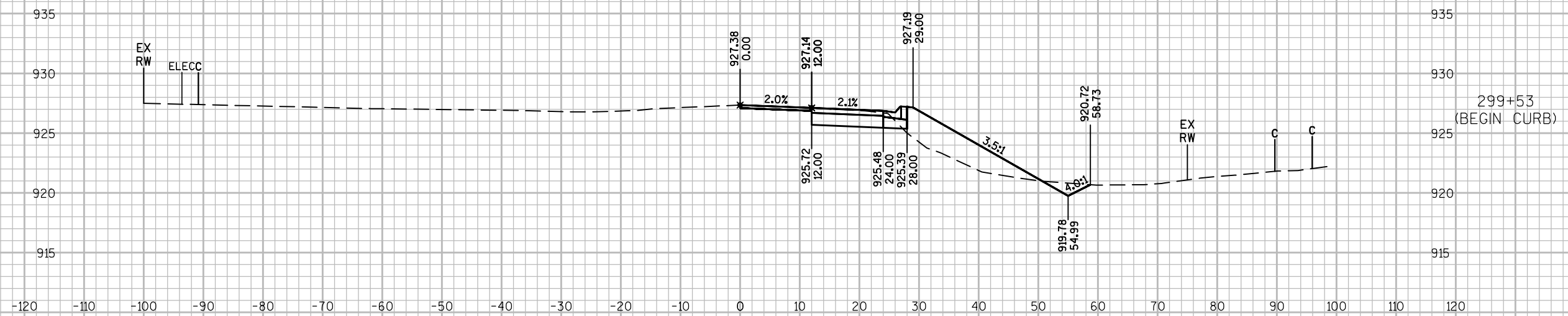


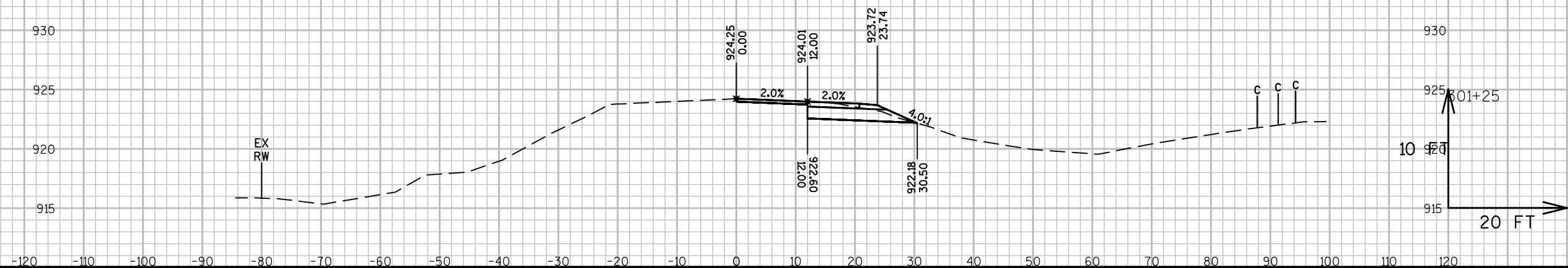
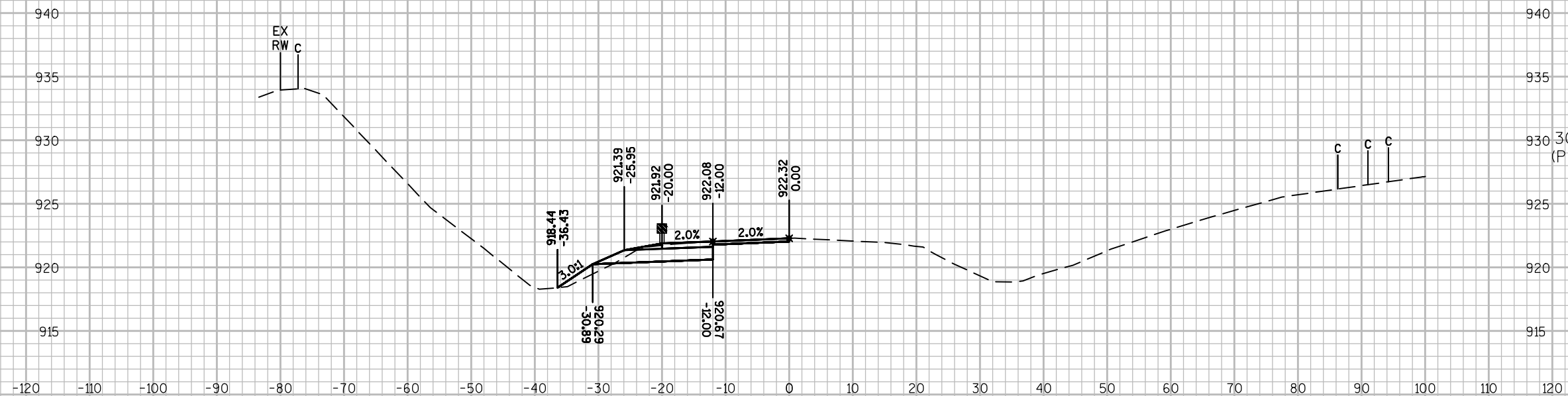












PROJECT NO: 8060-01-73

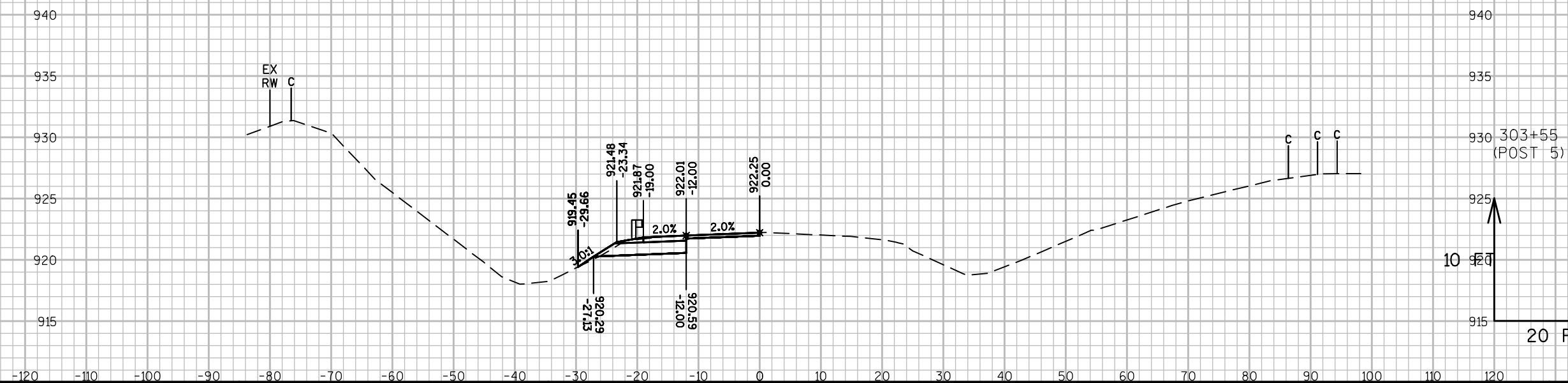
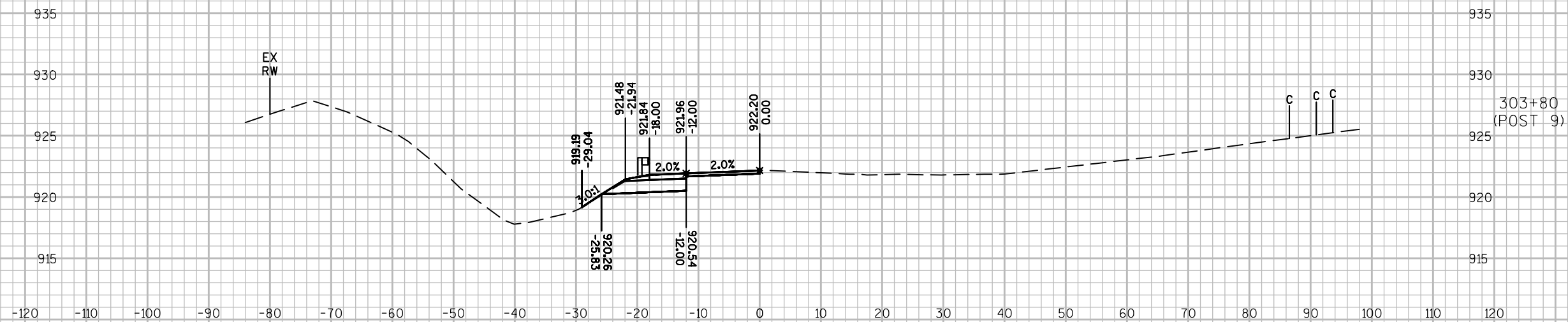
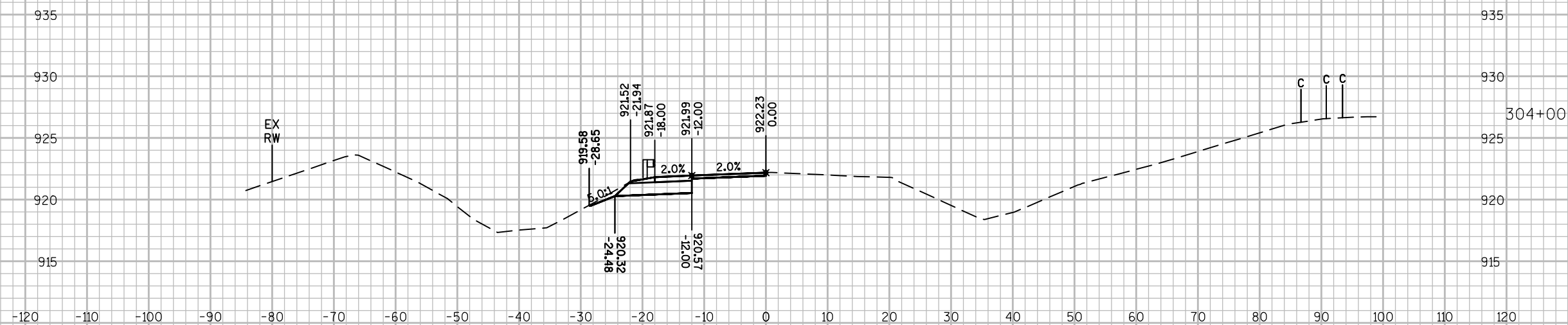
HWY: STH 35

COUNTY: ST. CROIX

CROSS SECTIONS: STH 35 AT 210TH AVE & GR SECTION 4 & 5

SHEET 175

E



PROJECT NO: 8060-01-73

HWY: STH 35

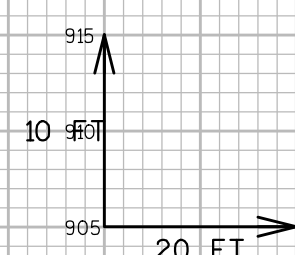
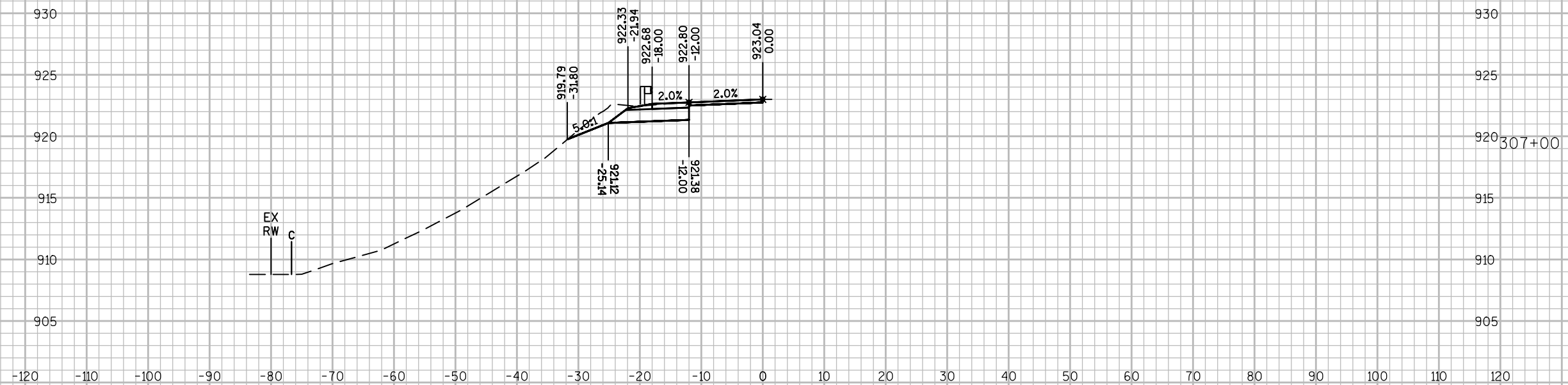
COUNTY: ST. CROIX

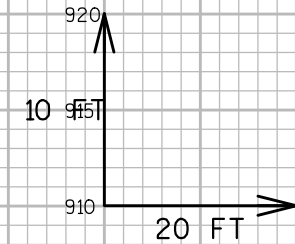
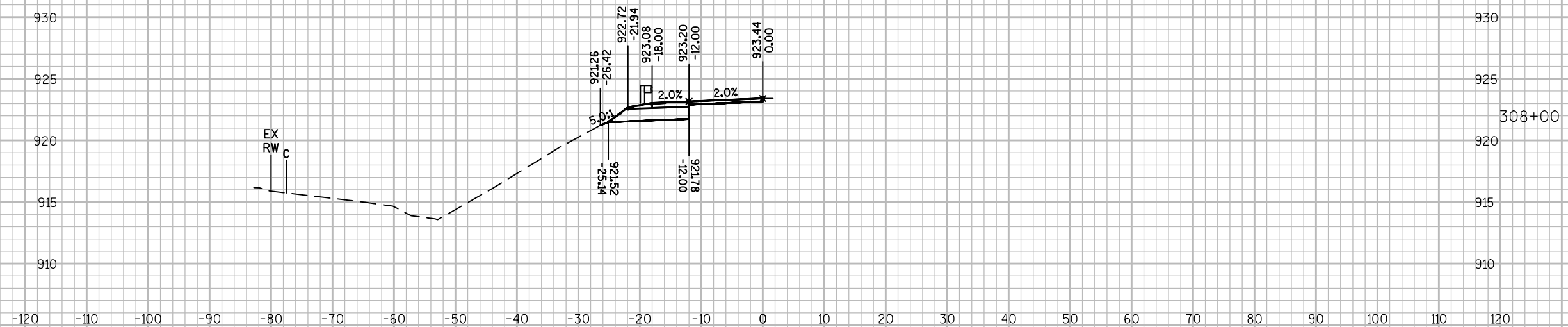
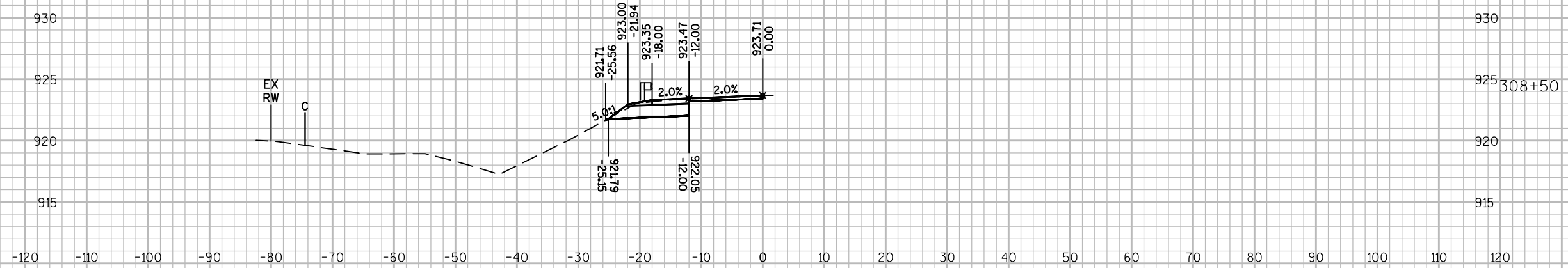
CROSS SECTIONS: STH 35 AT 210TH AVE & GR SECTION 4 & 5

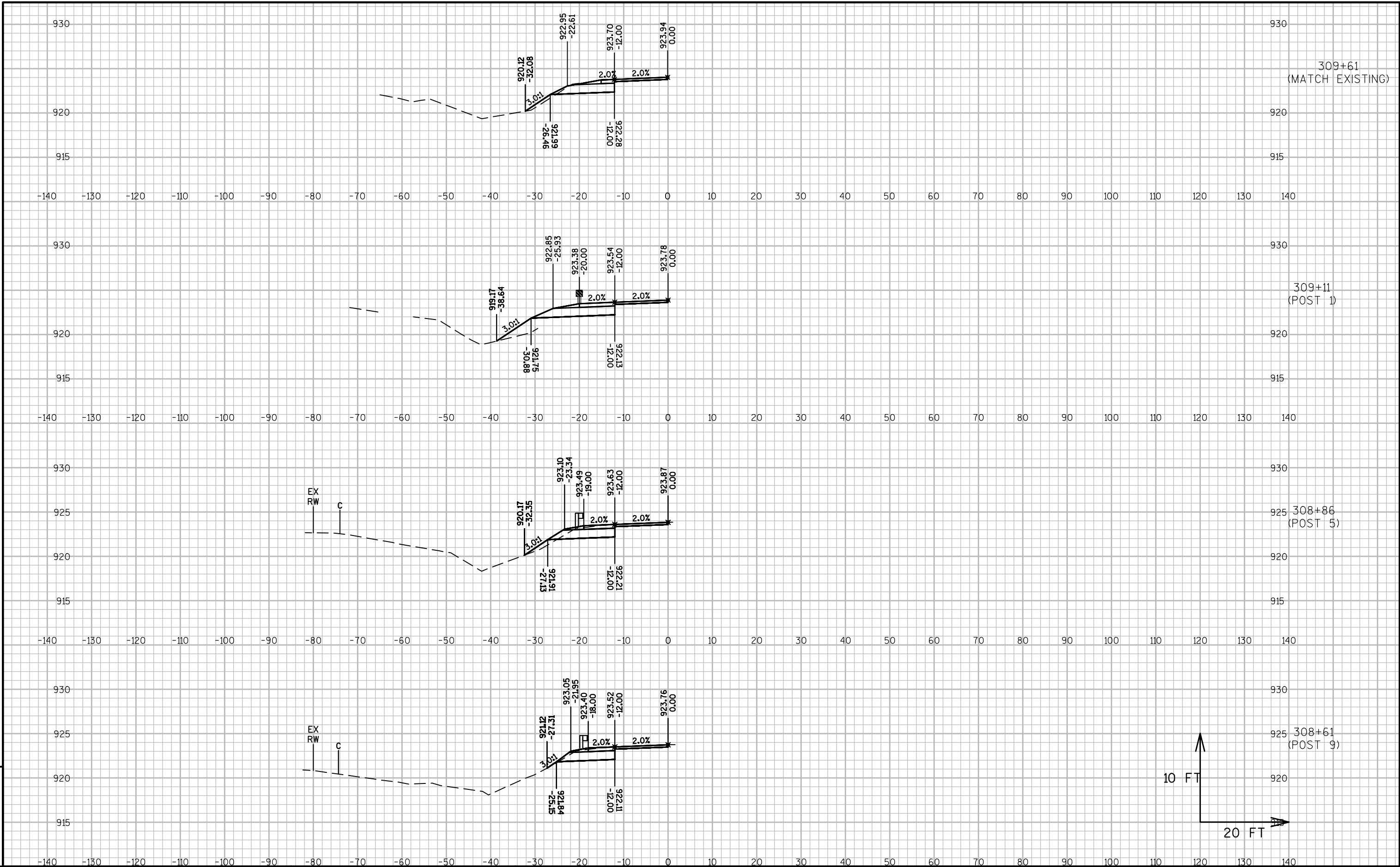
SHEET 176

E



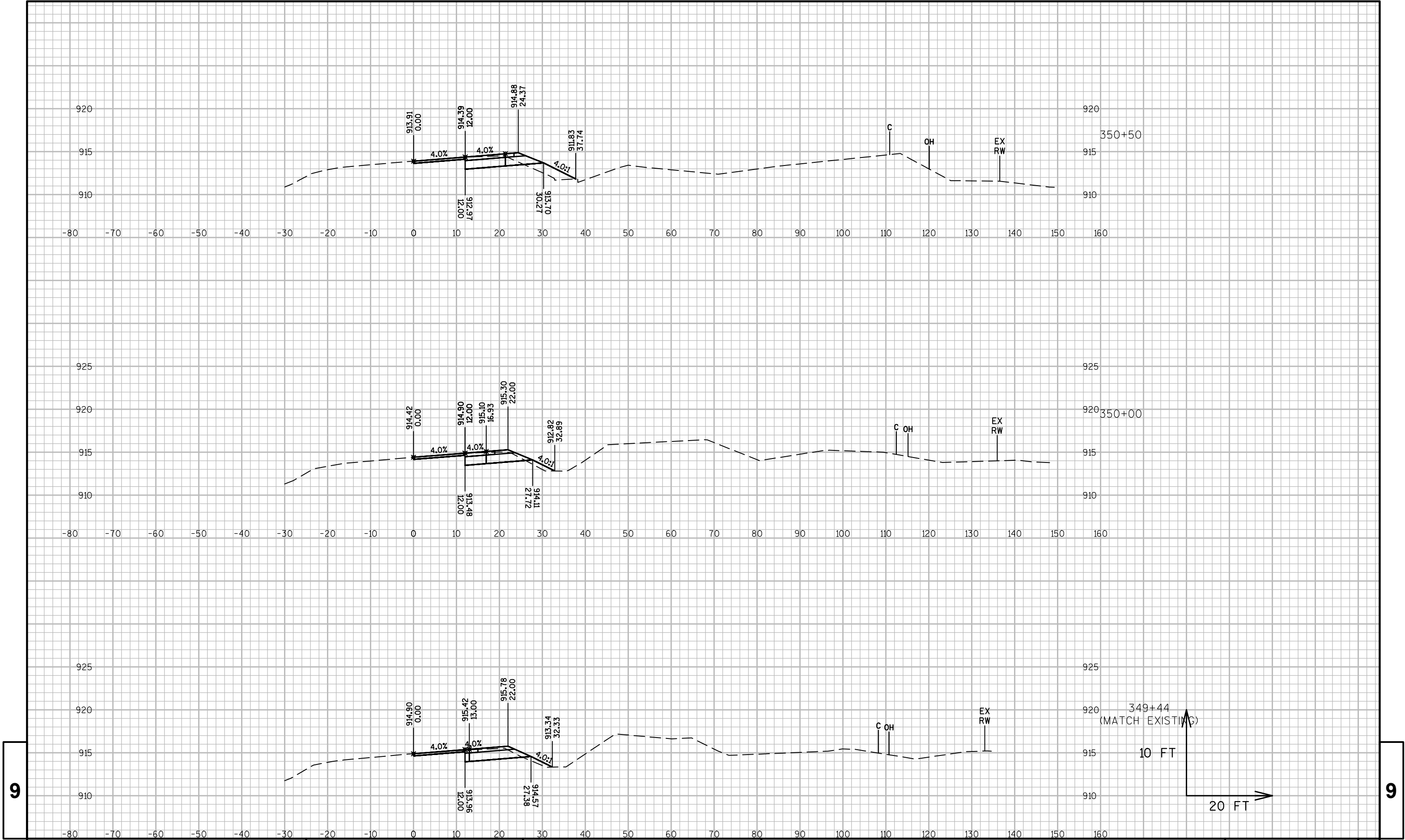






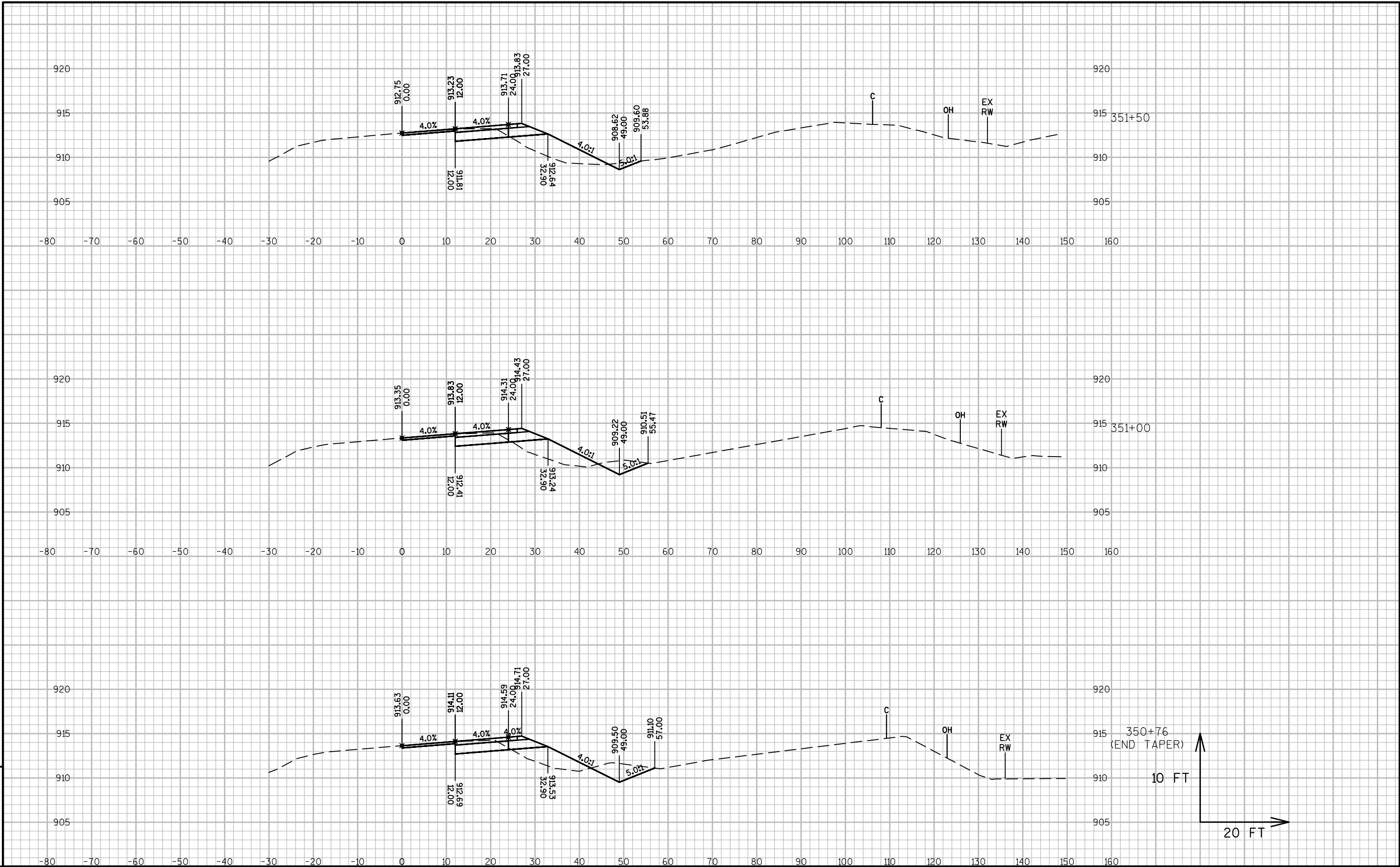
STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
349+44	---	17	1	2	0	---	---	---	---	---	---	---
350+00	56	18	1	3	0	36	2	5	0	36	6	28
350+50	50	17	1	9	0	33	2	11	0	69	20	45
350+75	25	33	1	23	0	23	1	15	0	92	38	49
351+00	25	26	1	27	0	27	1	23	0	119	67	46
351+50	50	18	1	33	0	41	2	55	0	160	136	16
352+00	50	21	1	31	0	36	2	59	0	196	210	-24
352+50	50	26	2	28	0	43	3	55	0	239	280	-53
352+77	27	18	3	30	0	22	2	30	0	261	316	-71
354+15	---	25	3	26	0	---	---	---	---	---	---	---
354+95	80	17	1	10	0	62	6	55	0	323	385	-83
				COLUMN TOTALS		323	21	308	0			

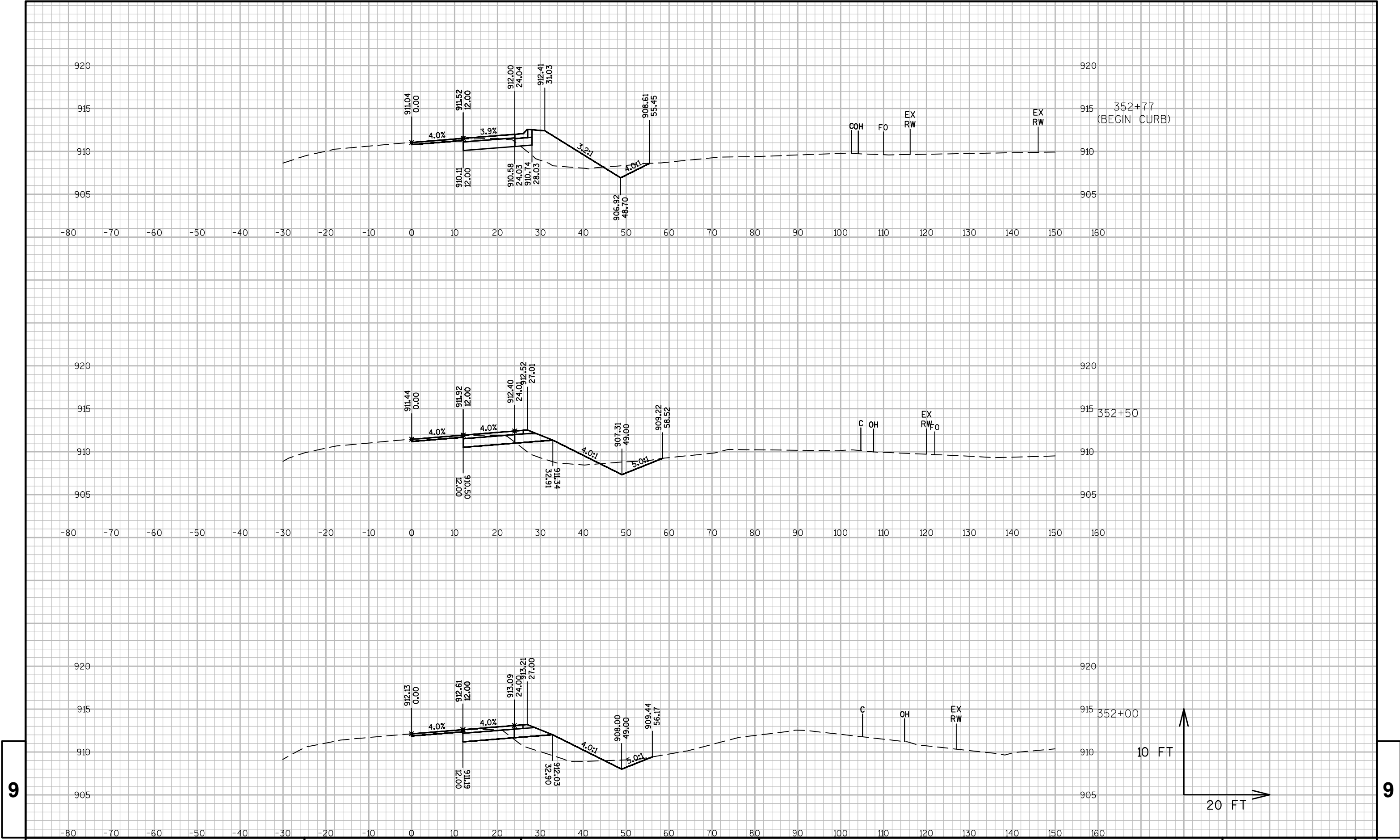
NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)



9

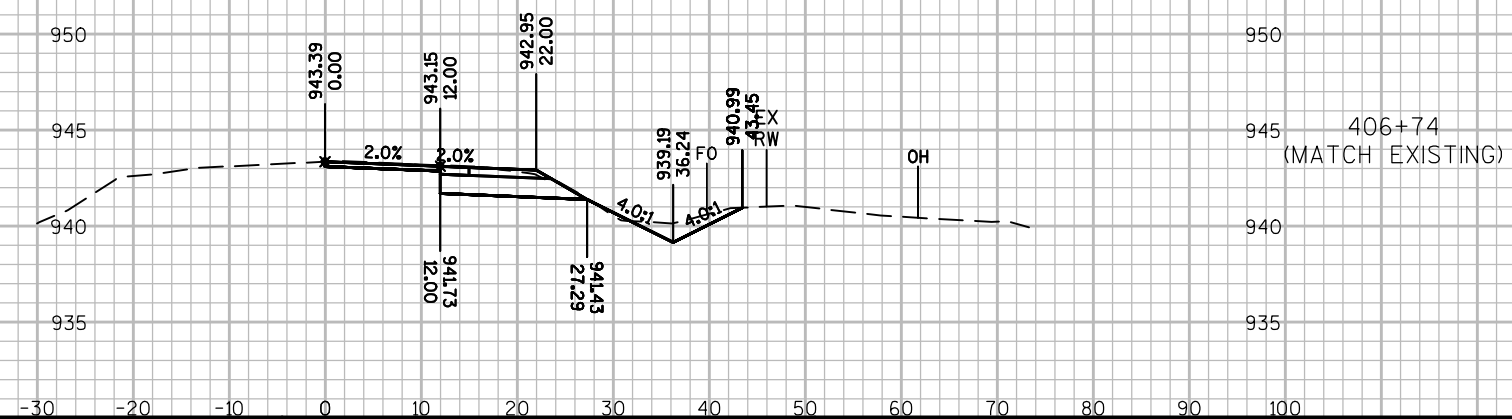
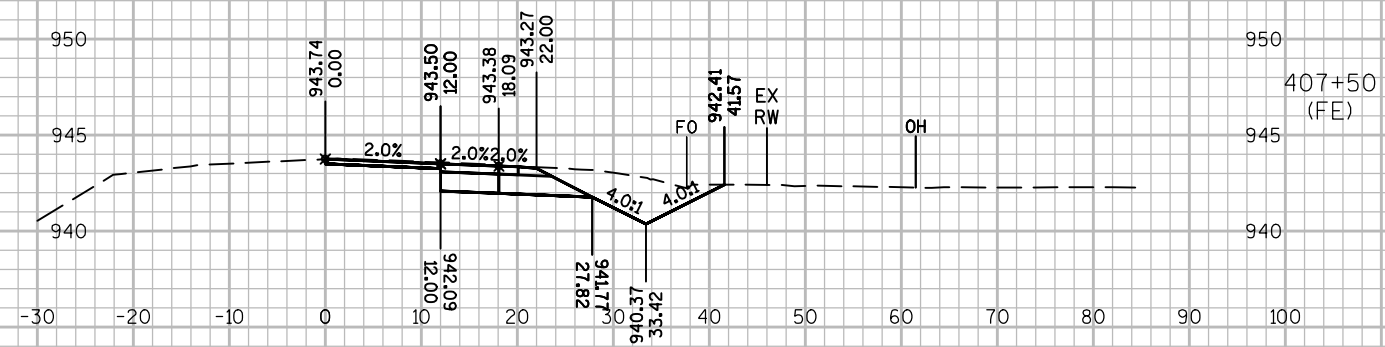
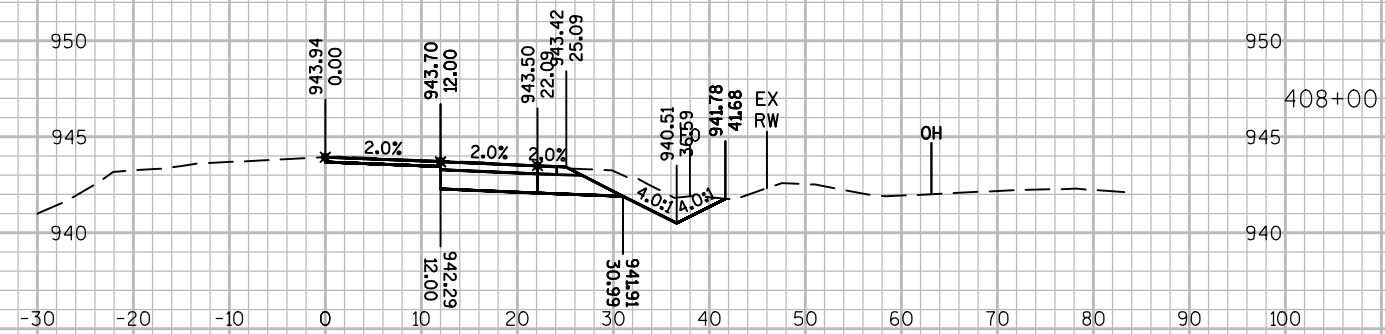
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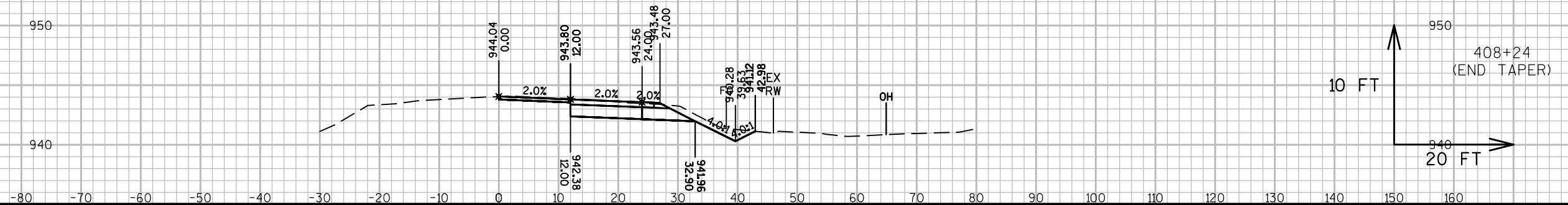
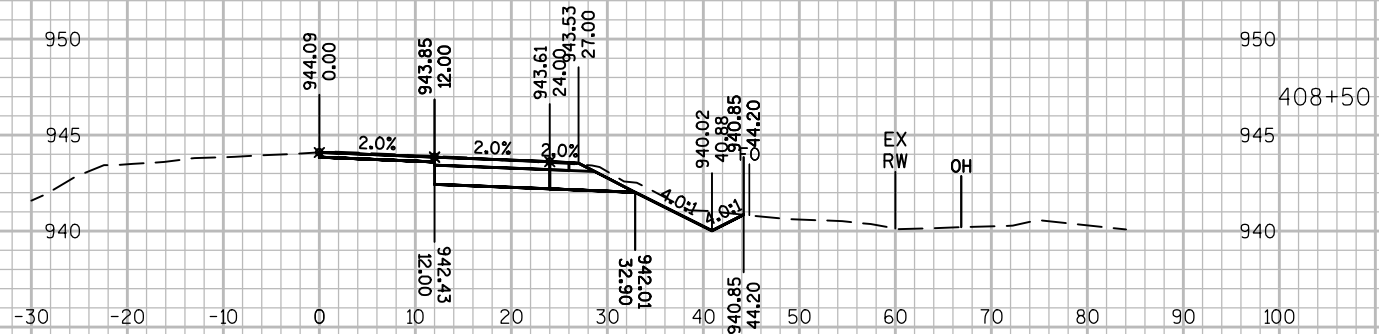
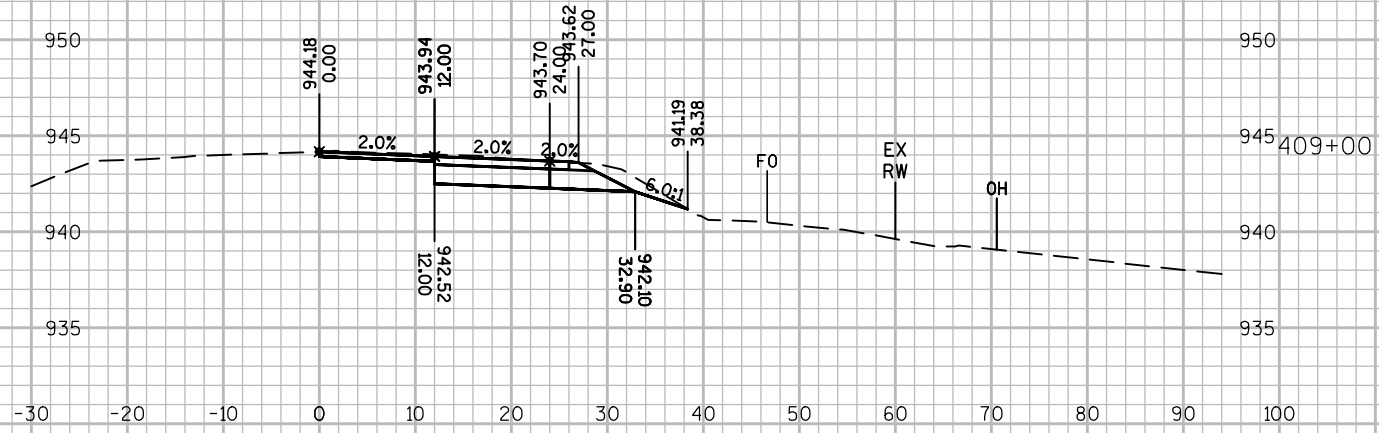


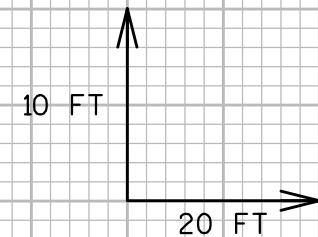
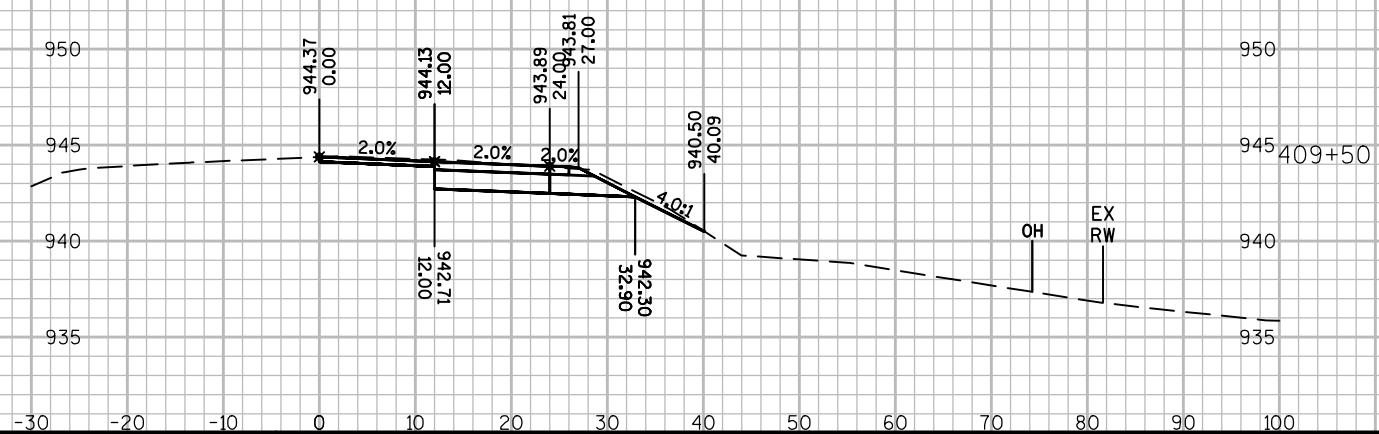
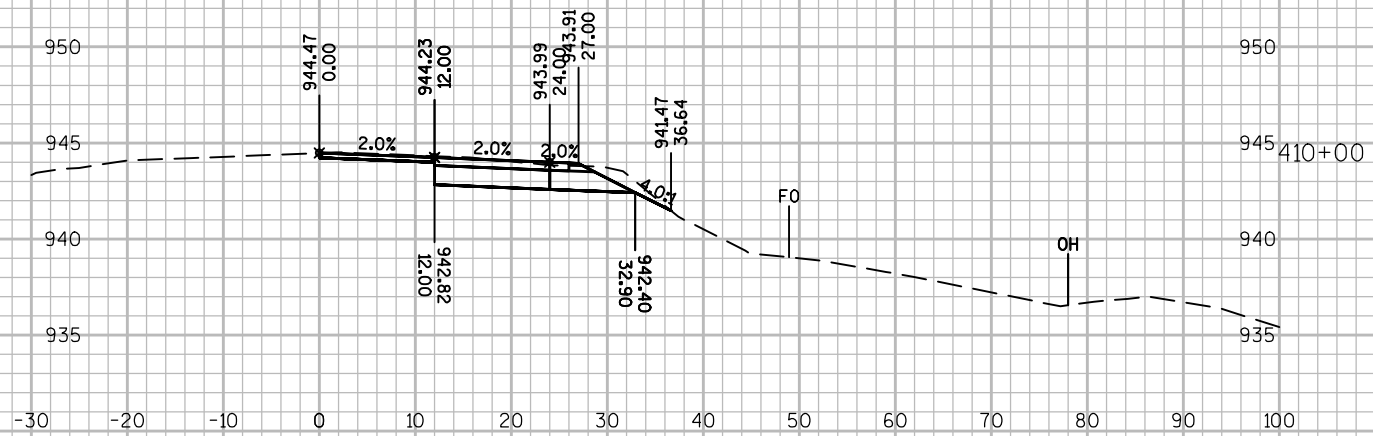
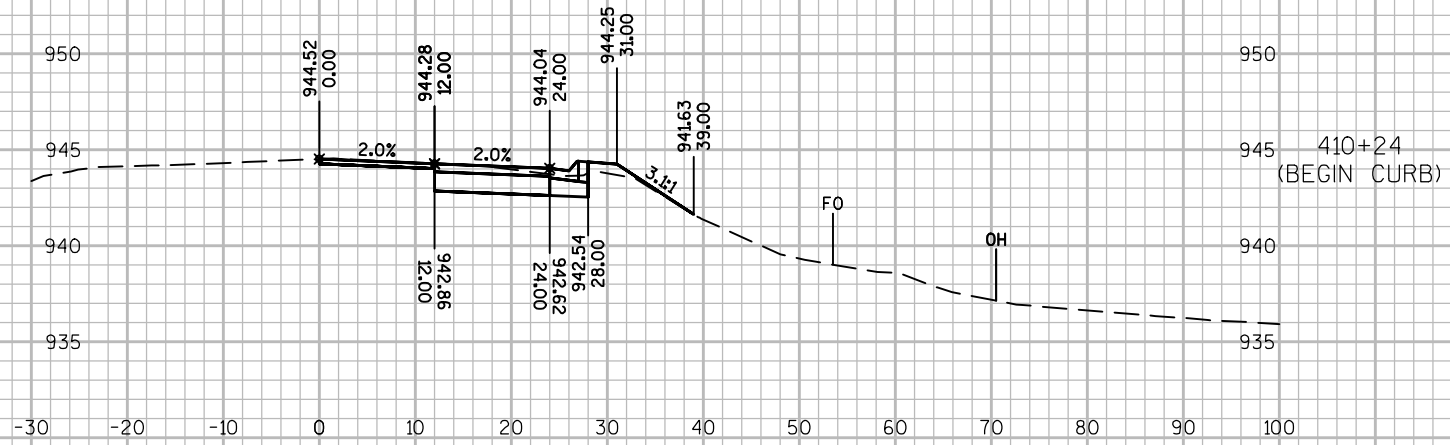


STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
406+86	---	27	2	0	0	---	---	---	---	---	---	---
407+50	64	46	2	0	0	87	4	0	0	87	1	83
408+00	50	41	2	0	0	80	3	0	0	167	1	160
408+24	24	37	2	0	0	34	1	0	0	202	1	193
408+50	26	37	2	0	0	36	2	0	0	237	1	227
409+00	50	35	3	0	0	66	4	0	0	304	1	289
409+50	50	32	5	0	0	62	8	0	0	366	1	344
410+00	50	33	7	0	0	60	11	0	0	426	1	393
410+24	24	24	7	3	0	25	6	1	0	451	2	411
411+57	---	23	7	8	0	---	---	---	---	---	---	---
412+00	43	36	3	0	0	47	8	6	0	499	10	443
412+40	40	19	2	0	0	41	4	0	0	539	10	480
				COLUMN TOTALS		539	50	8	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)







PROJECT NO: 8060-01-73

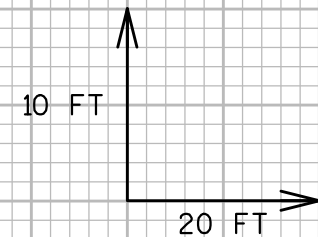
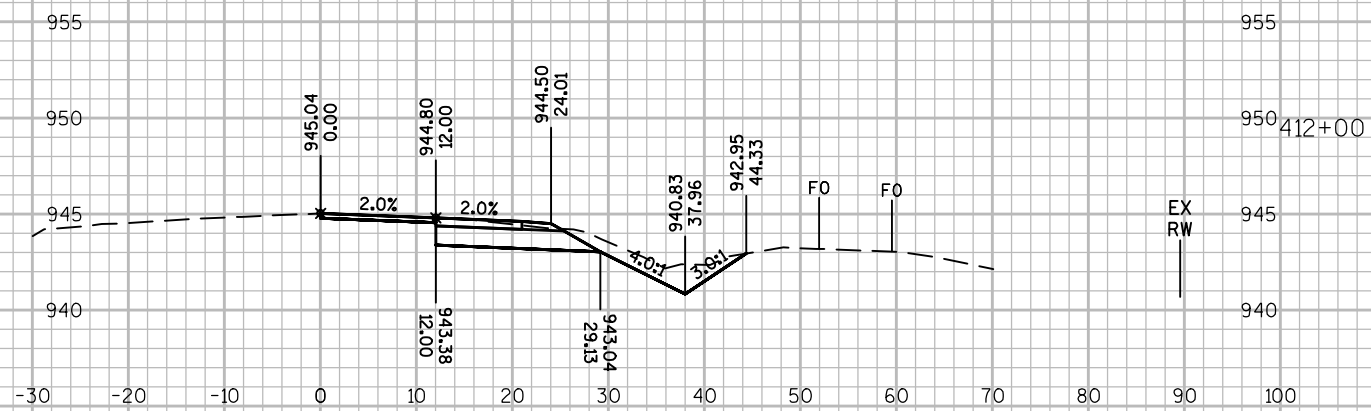
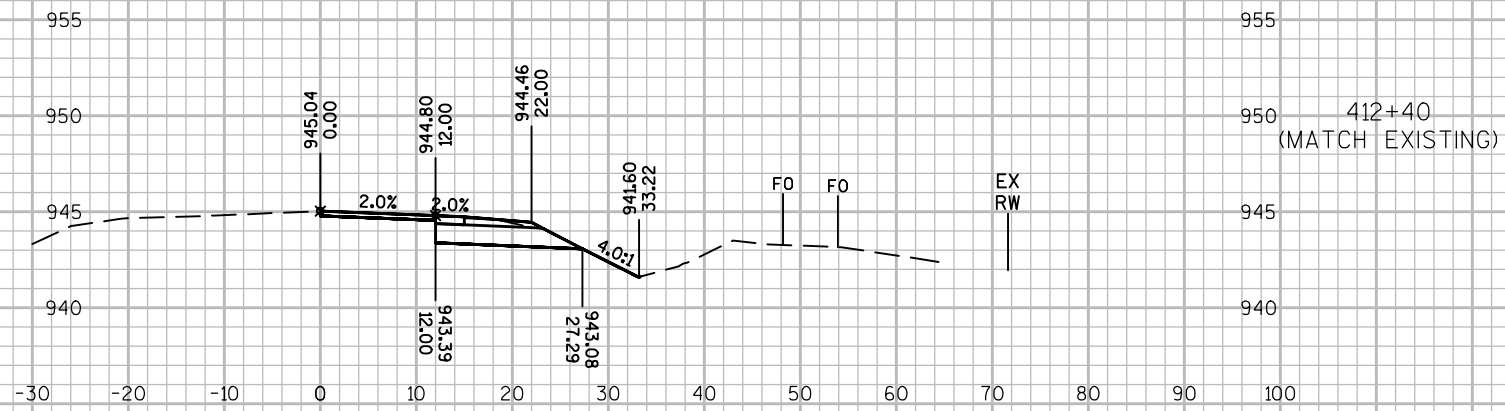
HWY: STH 35

COUNTY: ~~XXX~~ CROIX

CROSS SECTIONS: STH 35 AT CTH H

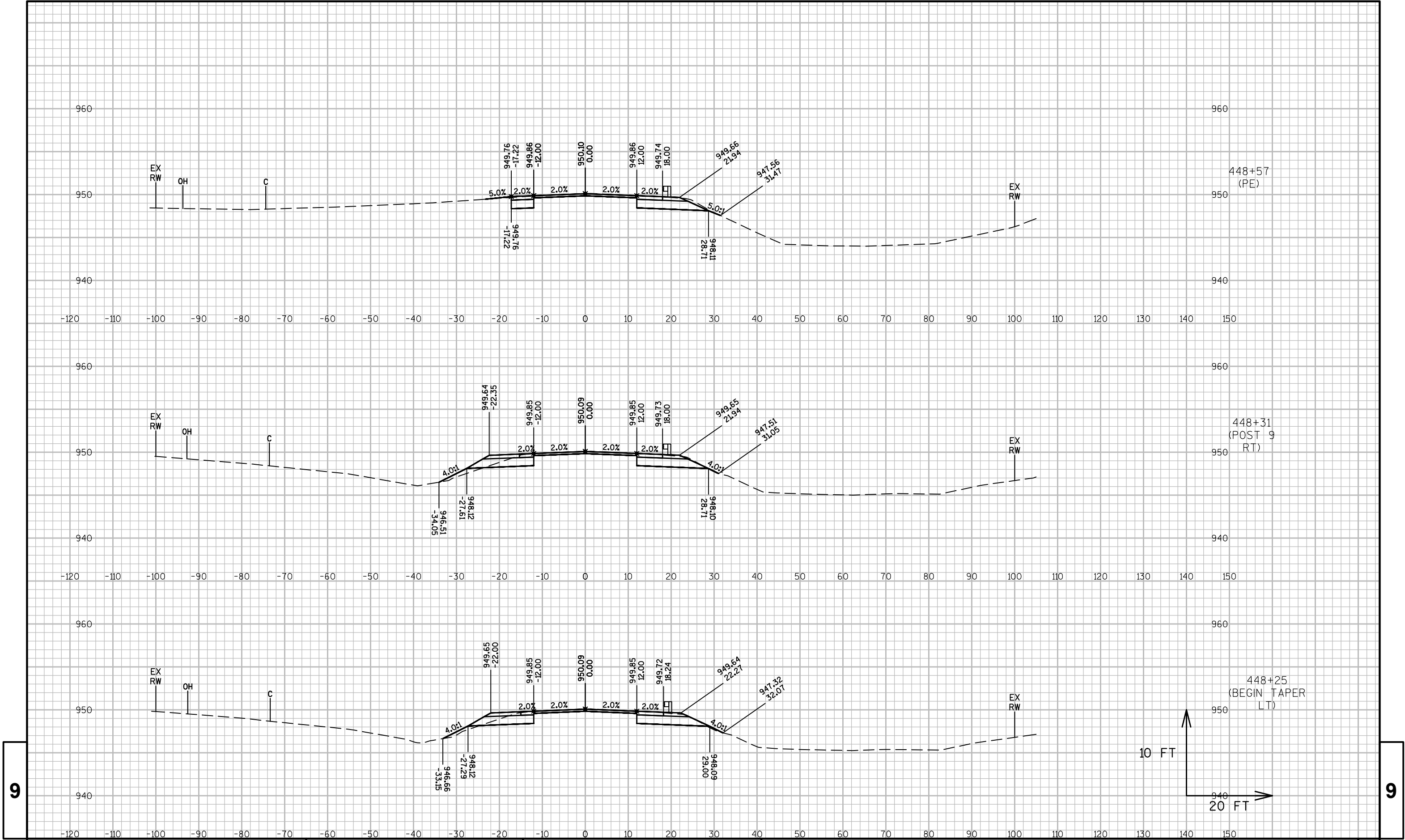
SHEET 190

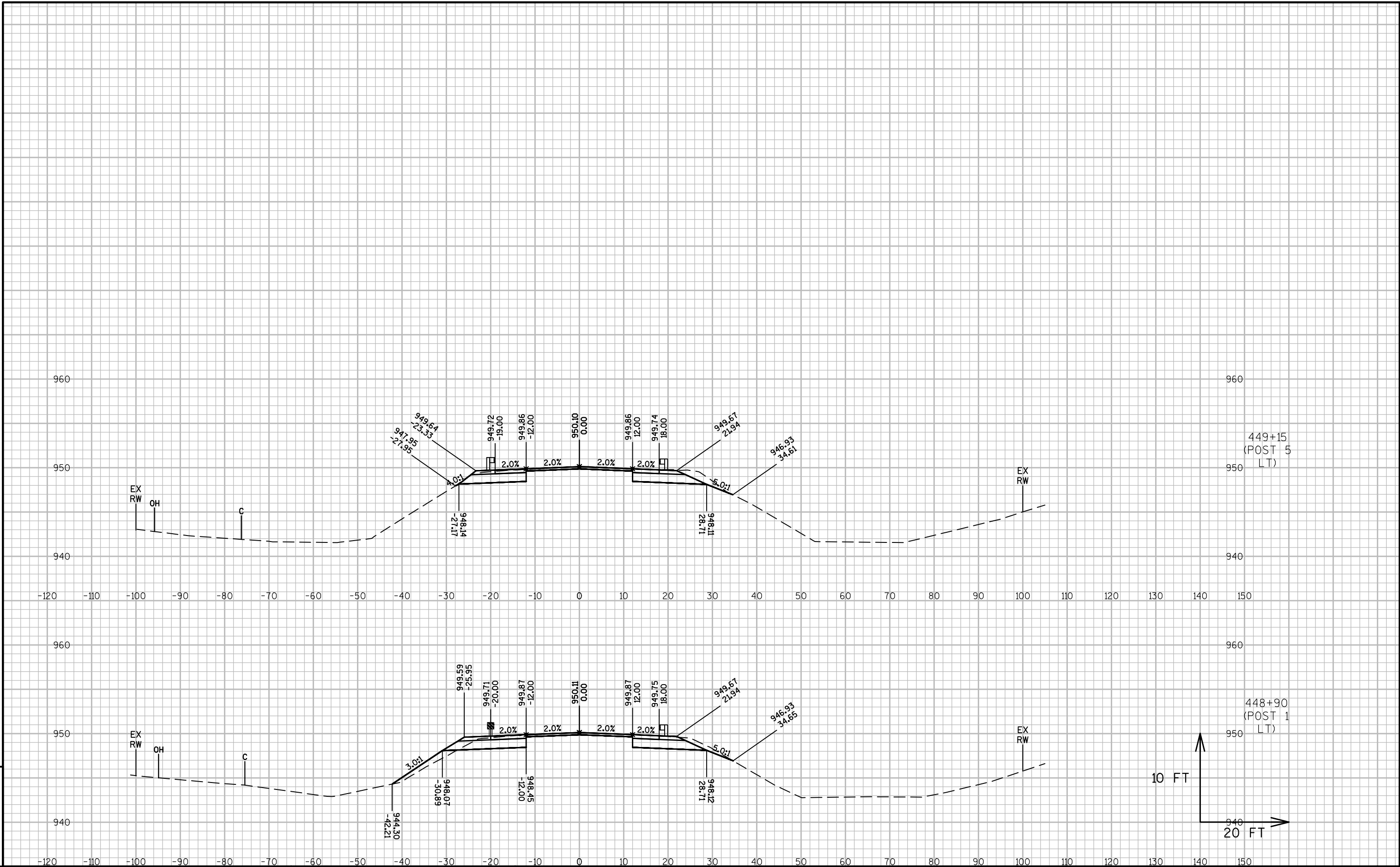
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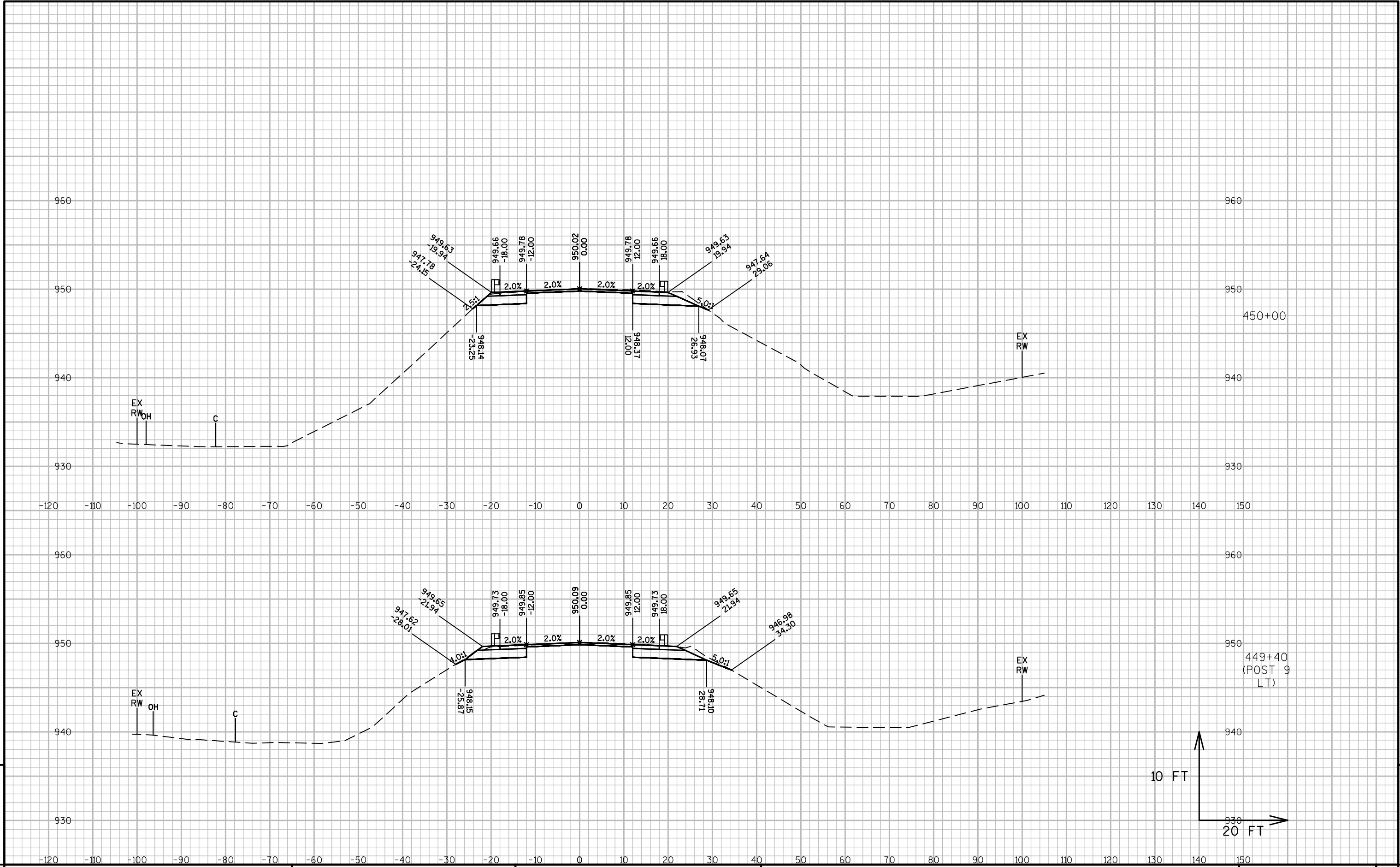


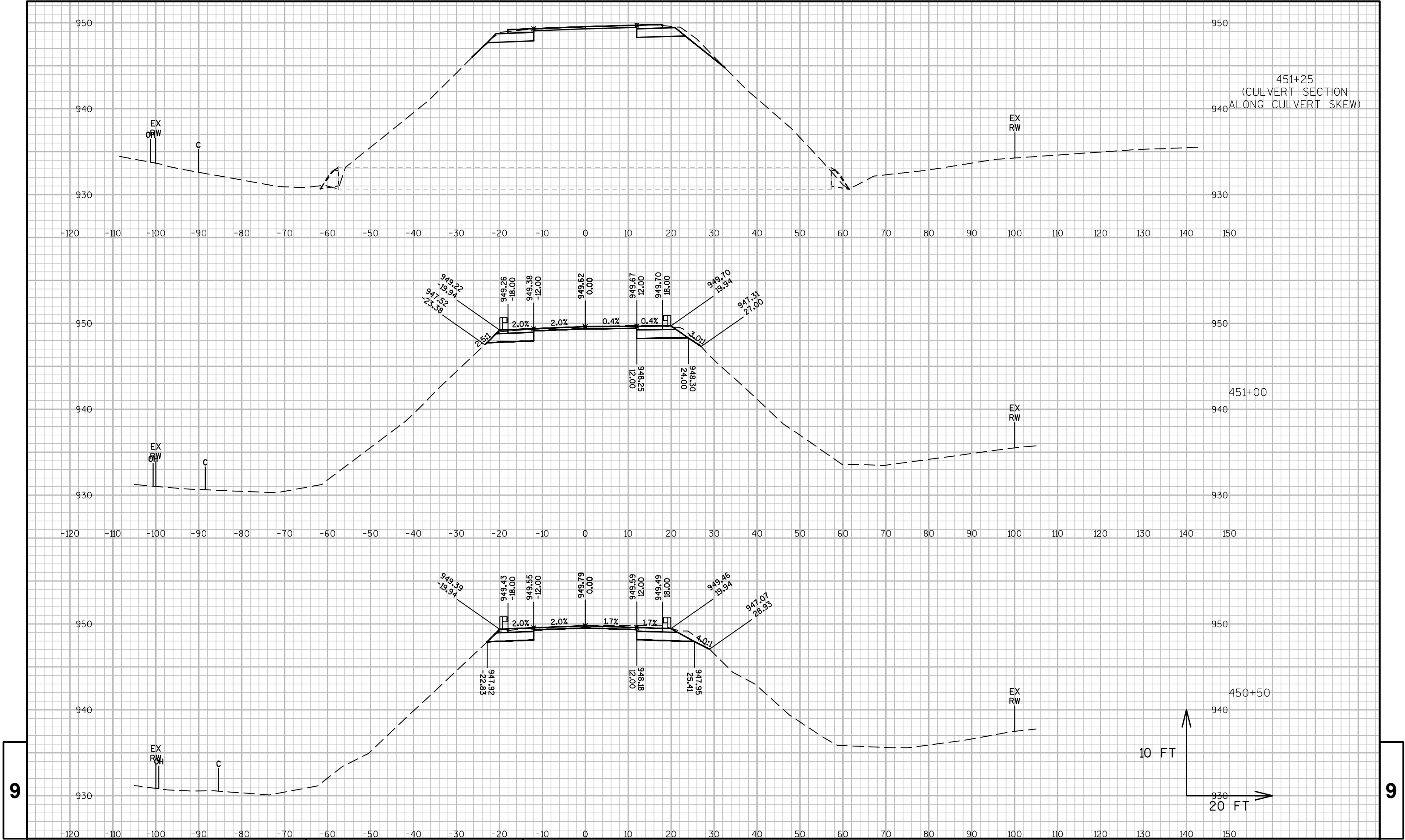
STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
447+31	---	22	1	0	0	---	---	---	---	---	---	---
447+81	50	21	1	2	0	40	2	1	0	40	2	36
448+06	25	21	1	2	0	20	1	2	0	60	4	53
448+25	19	36	1	3	0	20	1	2	0	80	6	70
448+31	6	35	1	4	0	8	0	1	0	88	7	76
448+57	26	35	1	0	0	34	1	2	0	122	9	107
448+90	33	46	3	8	0	49	2	5	0	170	15	147
449+15	25	49	3	0	0	44	2	4	0	214	20	184
449+40	25	45	3	0	0	44	2	0	0	258	20	225
450+00	60	40	3	0	0	95	6	0	0	353	20	315
450+50	50	40	3	0	0	75	5	0	0	428	20	385
451+00	50	36	3	0	0	70	5	0	0	498	20	451
451+25	25	36	3	0	0	33	2	0	0	531	20	481
451+50	25	30	3	0	0	31	2	0	0	562	20	510
452+00	50	34	3	0	0	60	5	0	0	622	20	565
452+50	50	35	3	0	0	64	5	0	0	686	20	625
452+85	35	33	3	0	0	44	3	0	0	729	20	665
453+10	25	31	3	6	0	30	2	3	0	759	23	689
453+35	25	32	3	10	0	30	2	7	0	789	33	707
453+60	25	27	3	0	0	28	2	5	0	817	38	727
453+85	25	32	3	3	0	28	2	1	0	844	40	750
454+50	65	17	1	0	0	59	5	3	0	903	44	801
455+00	50	20	1	0	0	35	2	0	0	938	44	833
455+35	35	19	1	0	0	25	2	0	0	963	44	857
455+60	25	18	1	0	0	17	1	0	0	980	44	872
455+85	25	17	1	10	0	16	1	5	0	996	50	881
456+00	15	17	1	7	0	10	1	5	0	1006	57	884
456+34	34	20	1	0	0	24	2	5	0	1030	63	900
				COLUMN TOTALS		1030	67	50	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)



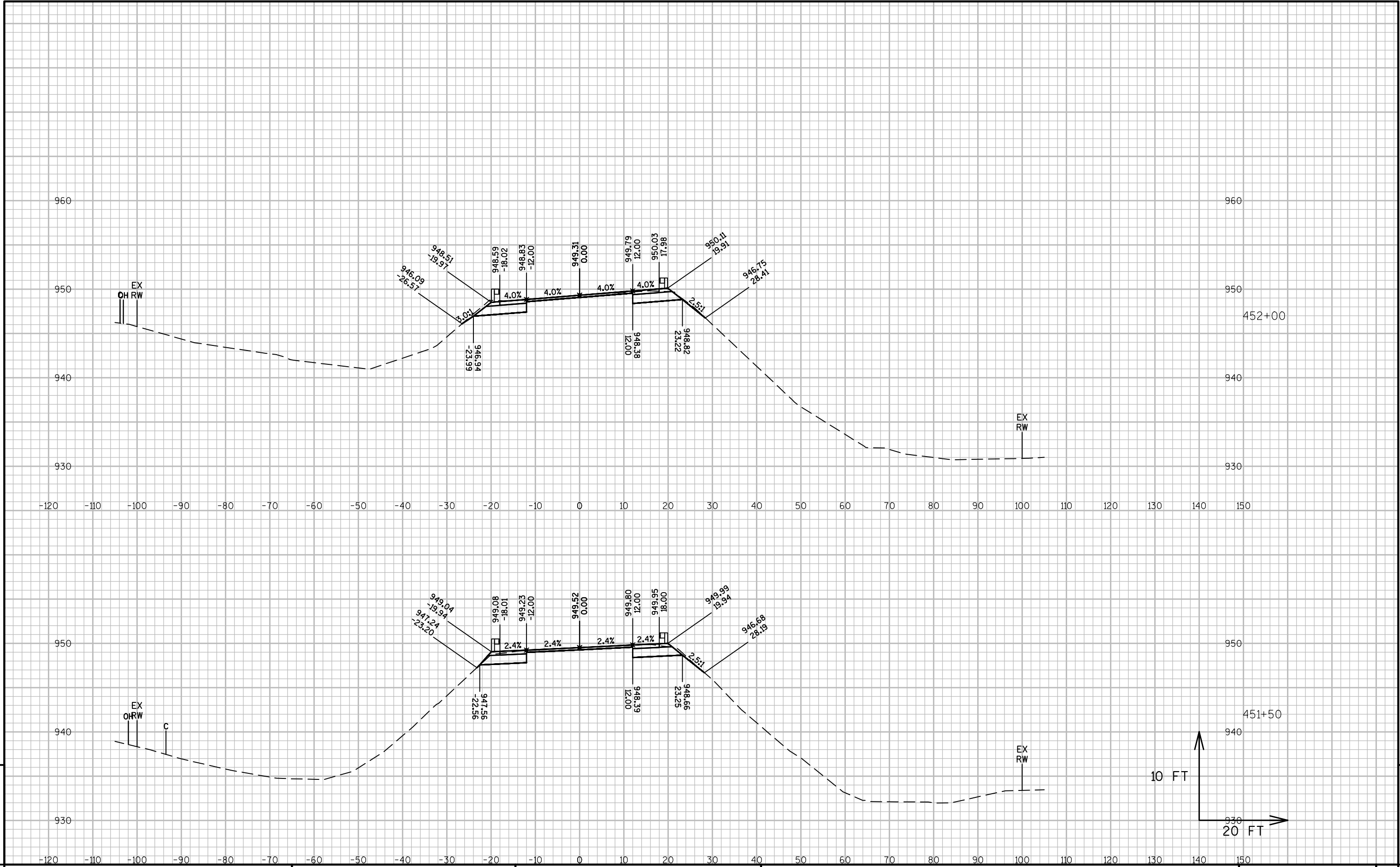


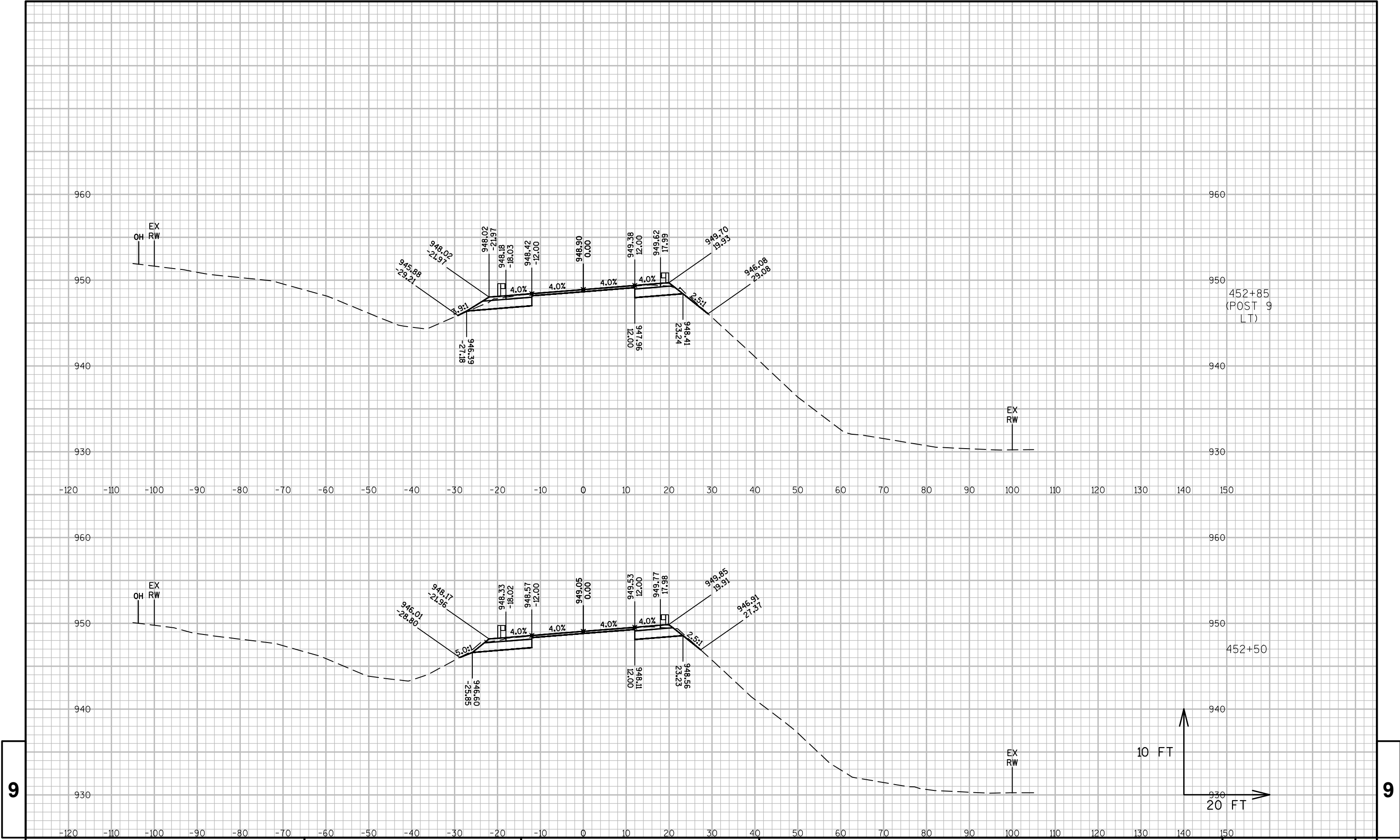


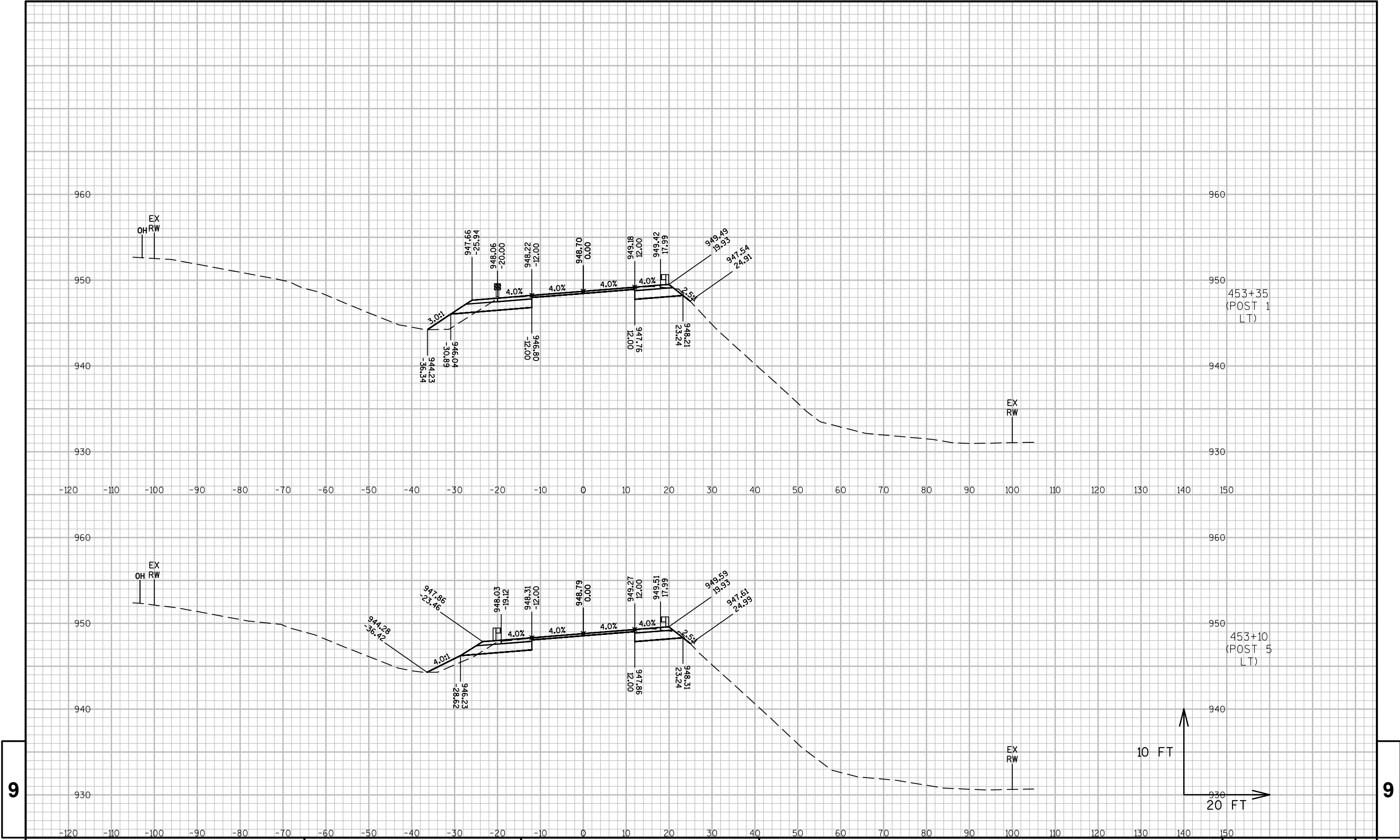


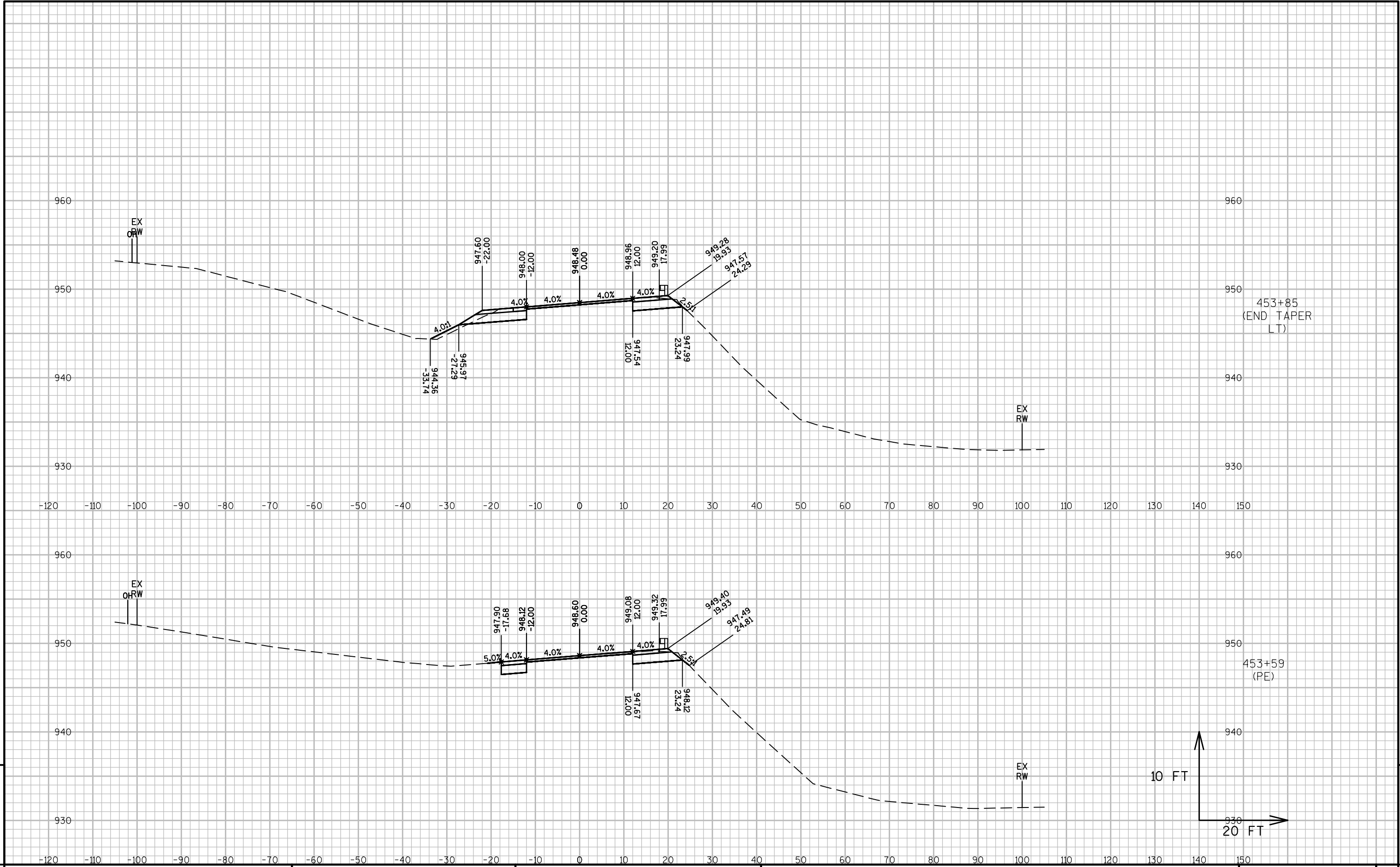
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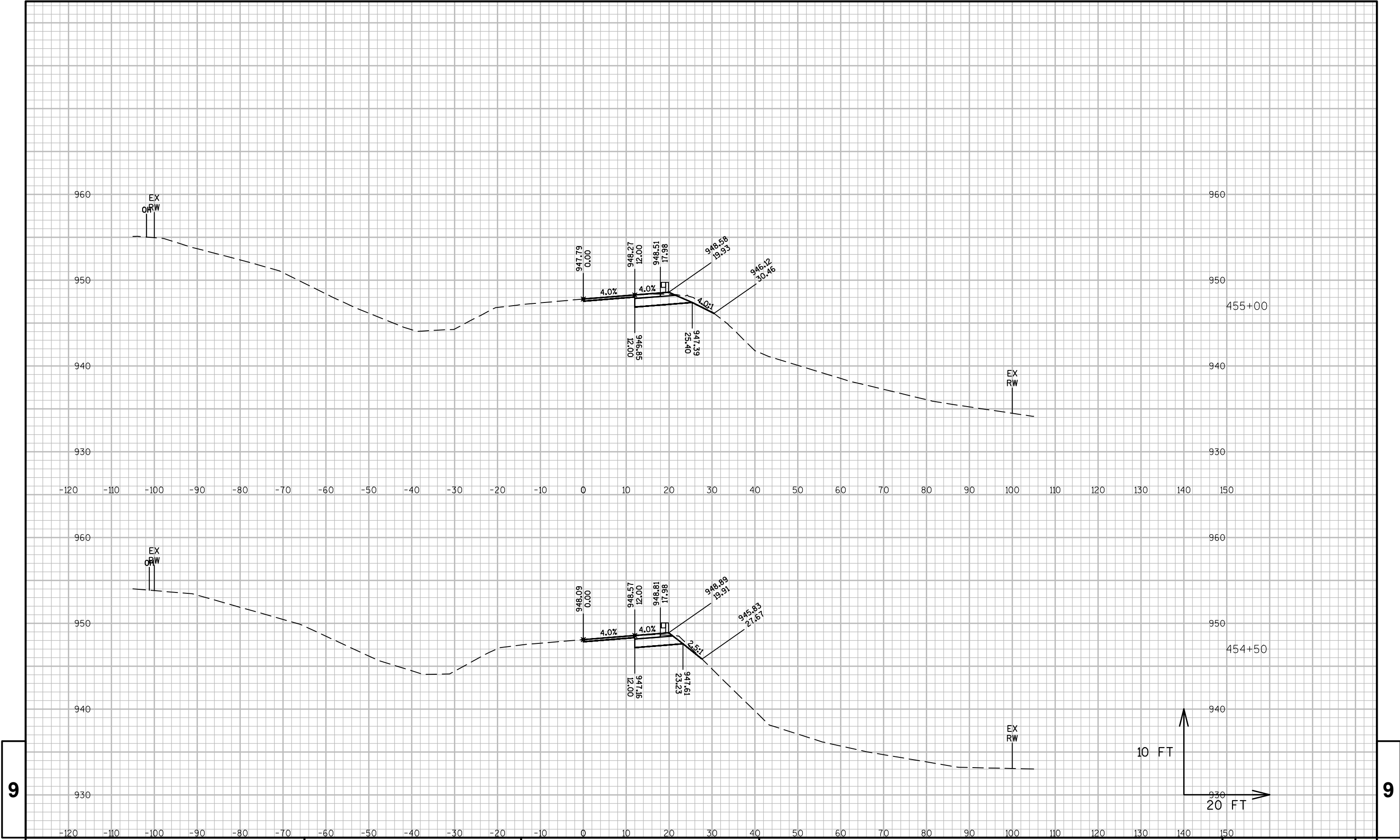
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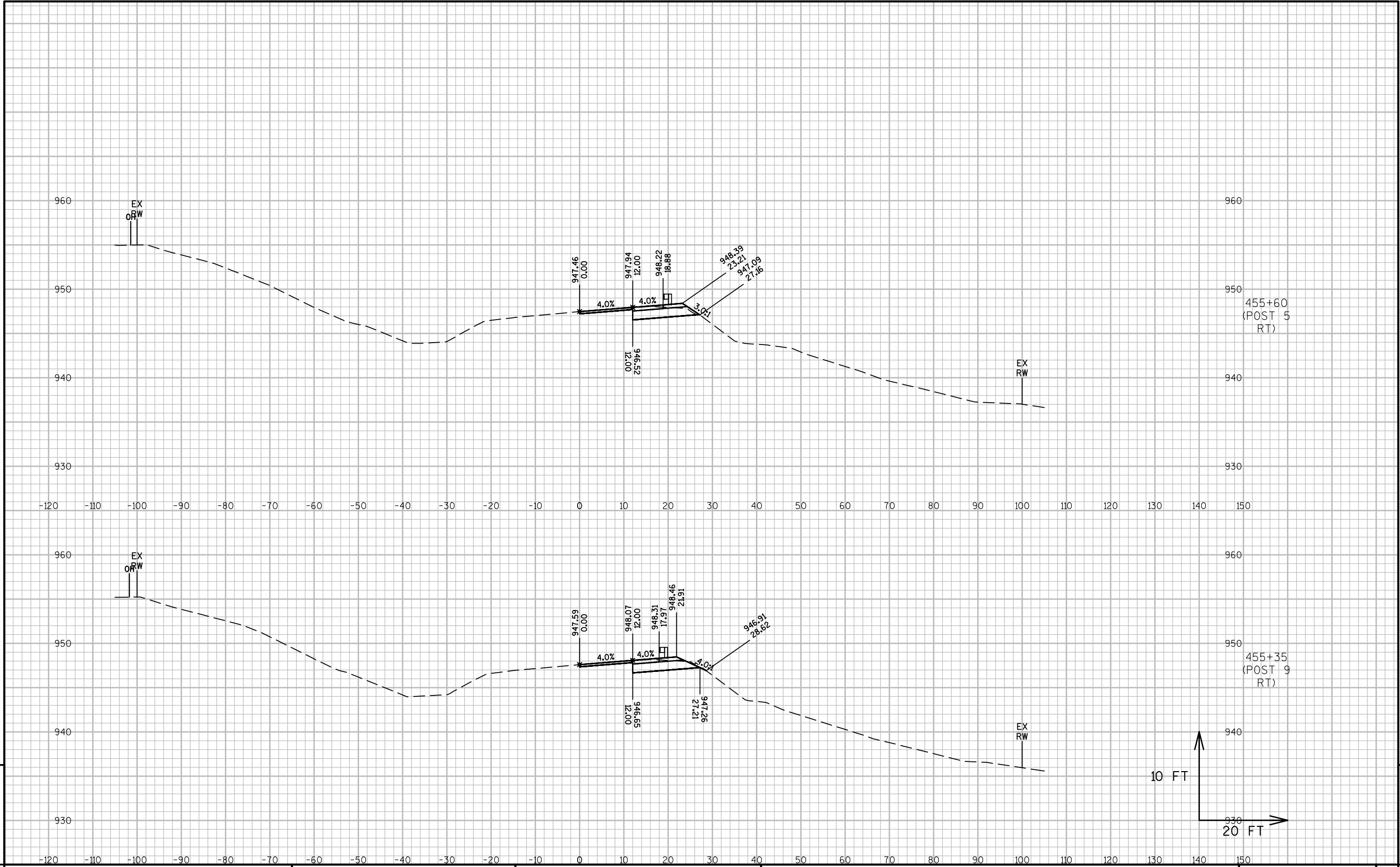






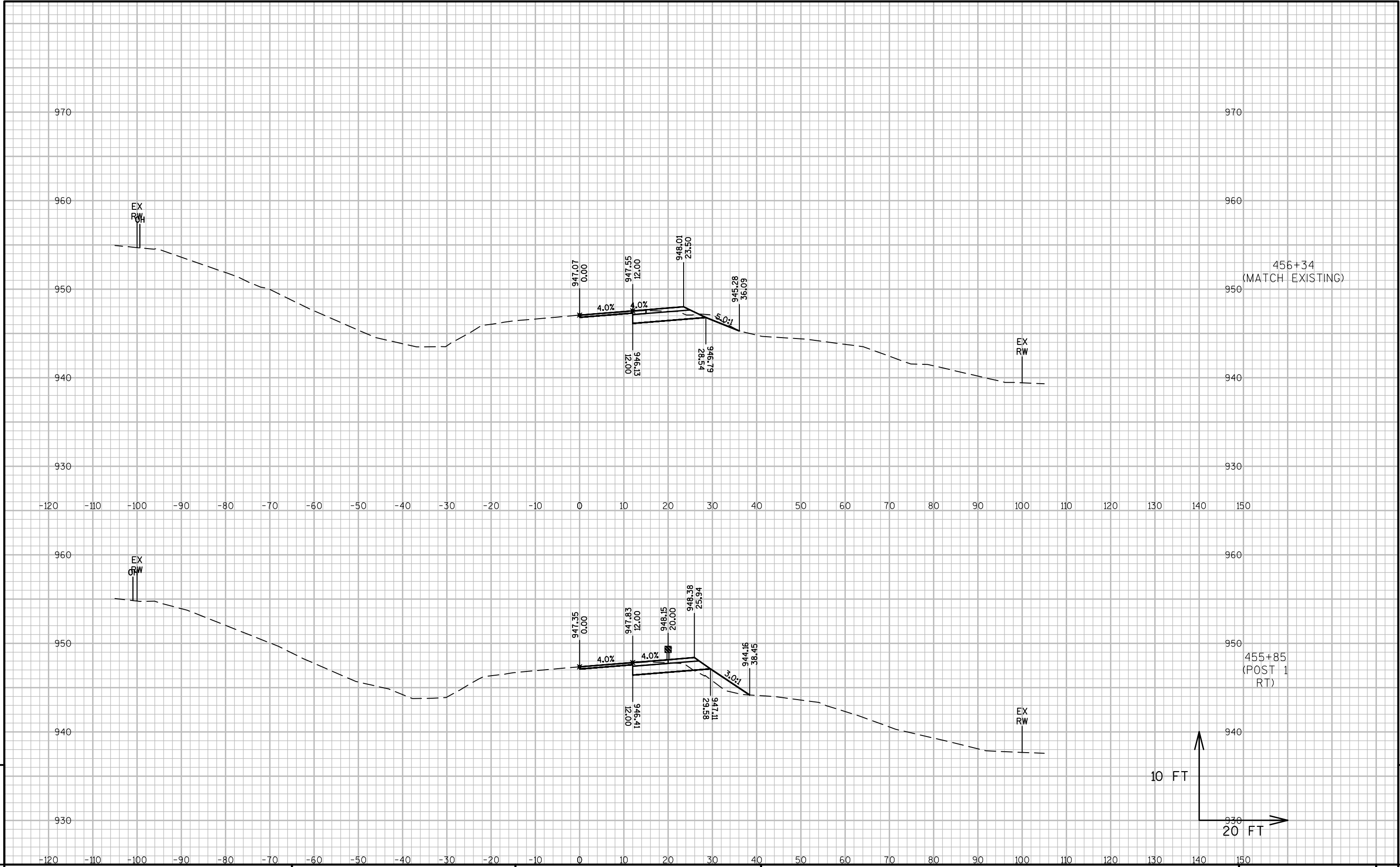
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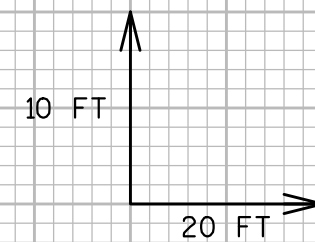
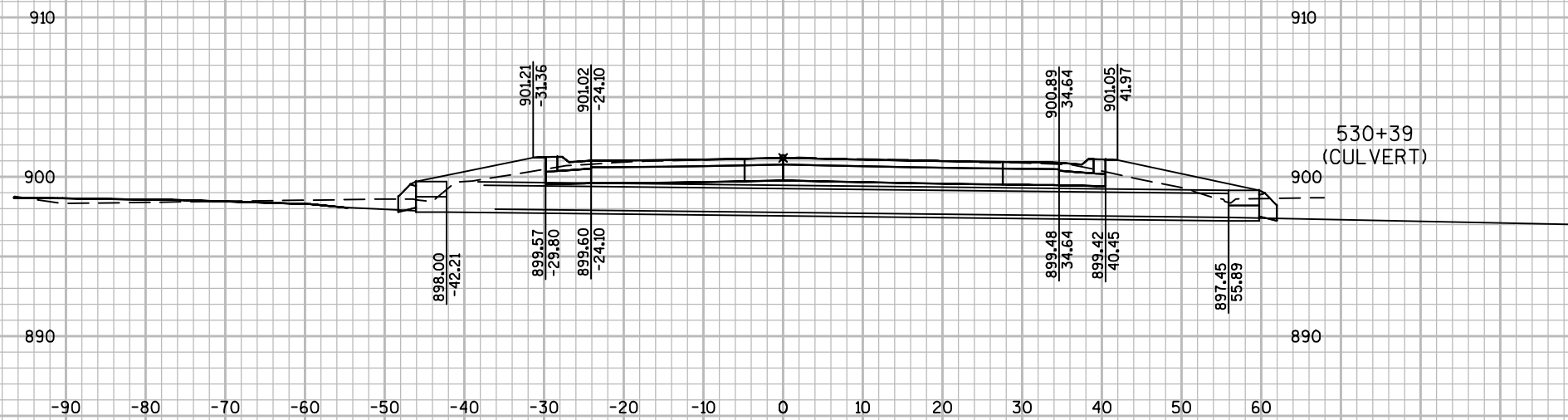
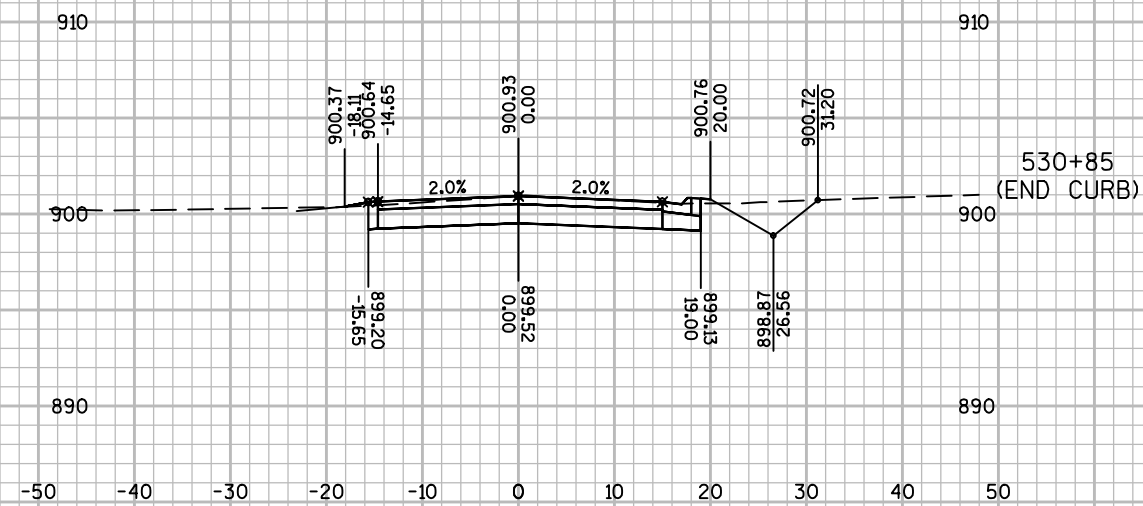
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9



STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
530+39	---	57	11	47	0	---	---	---	---	---	---	---
530+85	46	47	7	1	0	89	15	40	0	89	51	23
531+00	15	50	7	0	0	26	4	0	0	116	51	46
531+42	42	45	7	0	0	73	11	0	0	189	51	108
				COLUMN TOTALS		189	30	41	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)



PROJECT NO: 8060-01-73

ROAD: DIVISION ST

COUNTY: ST. CROIX

CROSS SECTIONS: DIVISION ST

SHEET

206

E

FILE NAME : P:\2013\2013.019 - WISDOT NW - STH 35 - ST CROIX COUNTY\CAD\PLANS\13019_XS_9.DWG
LAYOUT NAME - 090330

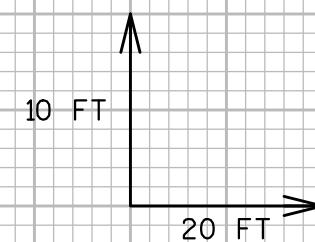
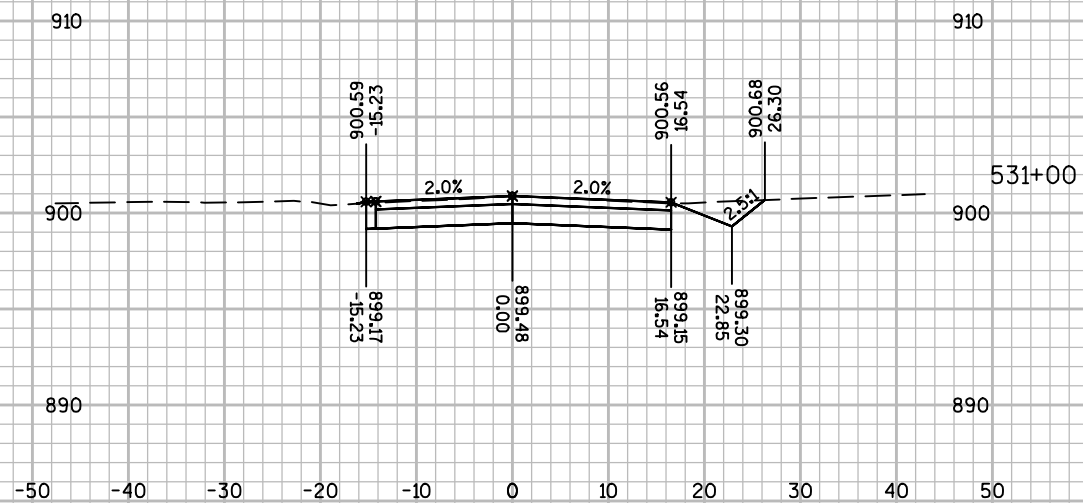
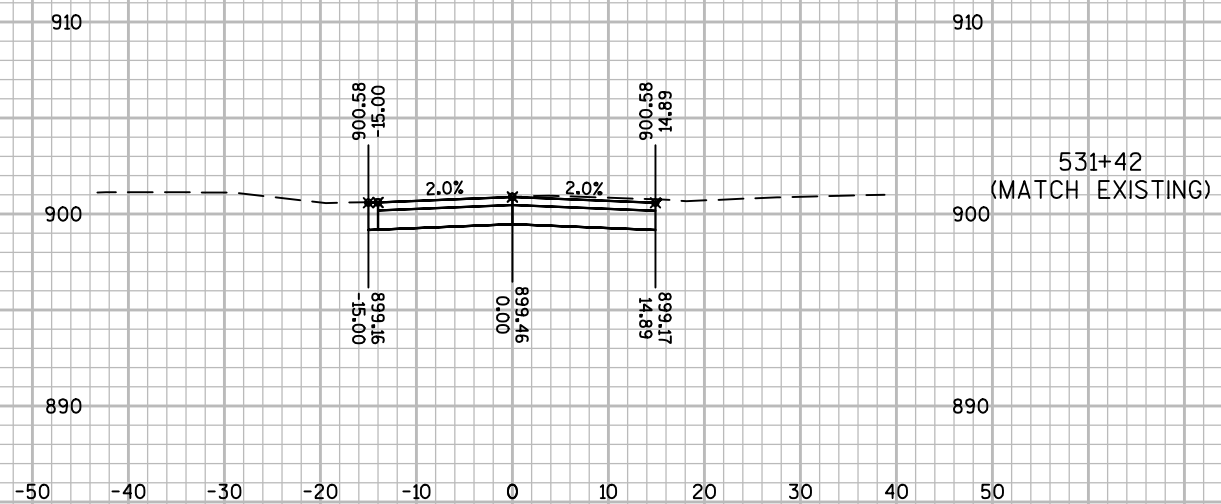
PLOT DATE : 10/26/2016 4:49 PM

PLOT BY : JED MATTMILLER

PLOT NAME :

PLOT SCALE : 1 IN:20 FT

WISDOT/CADDs SHEET 49



PROJECT NO: 8060-01-73

ROAD: DIVISION ST

COUNTY: ST. CROIX

CROSS SECTIONS: DIVISION ST

SHEET

207

E

FILE NAME : P:\2013\2013.019 - WISDOT NW - STH 35 - ST CROIX COUNTY\CAD\PLANS\13019_XS_9.DWG
LAYOUT NAME - 090330

PLOT DATE : 10/27/2016 8:37 AM

PLOT BY : JED MATTMILLER

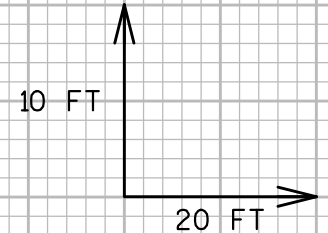
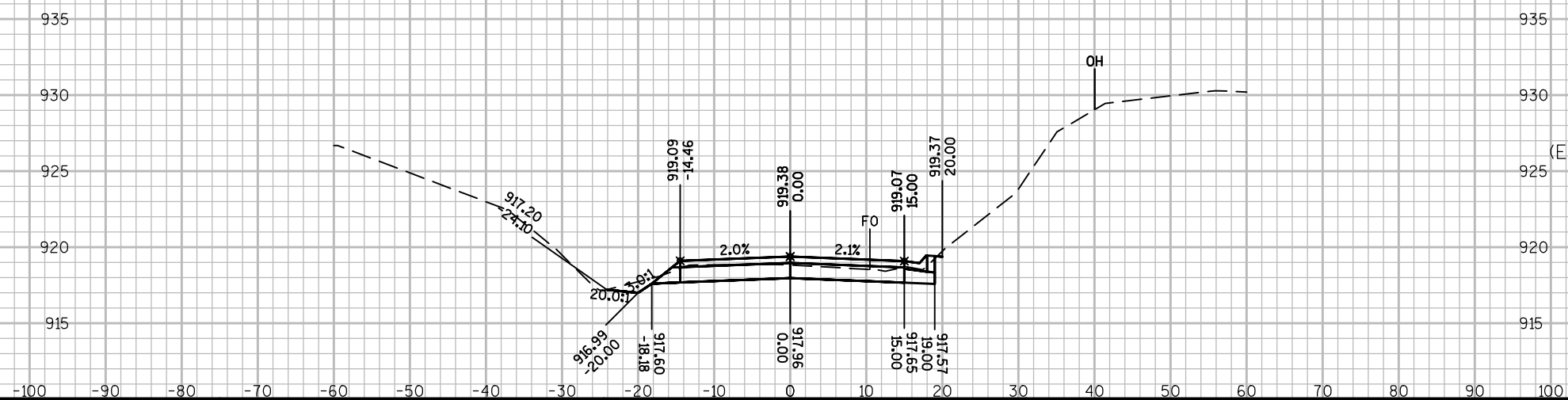
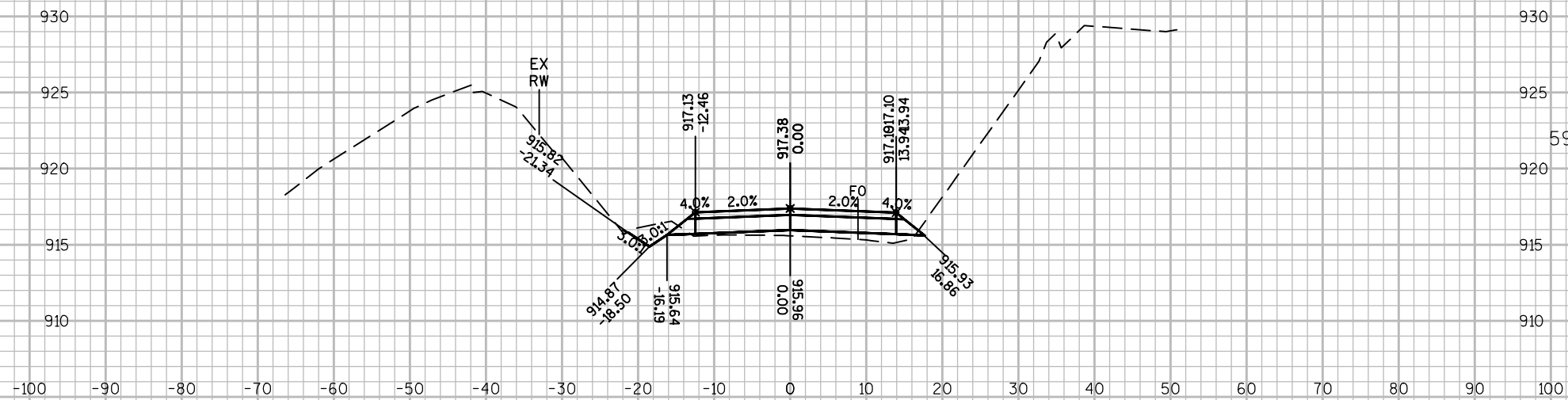
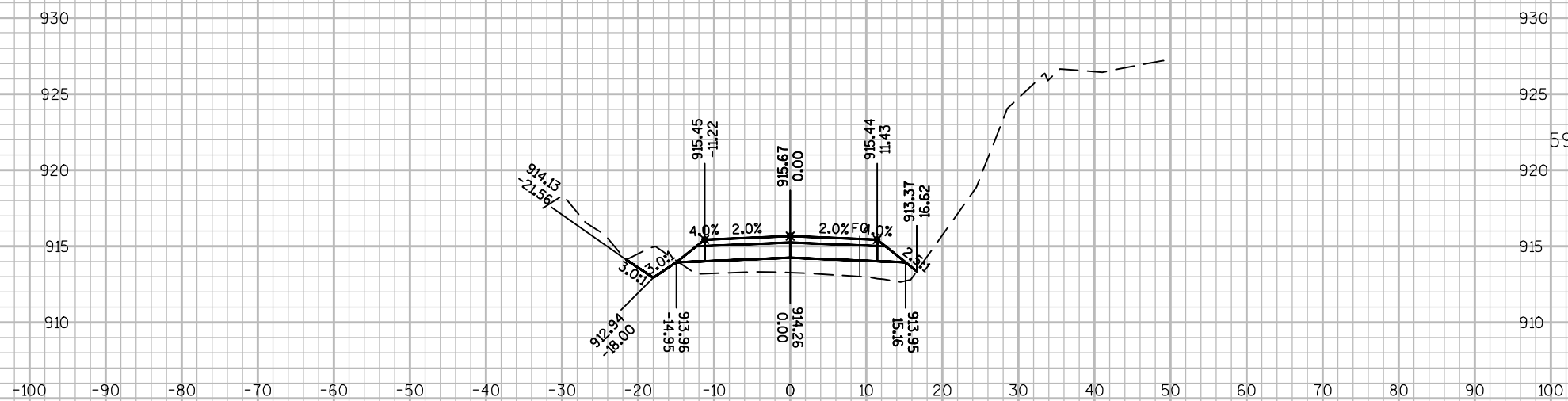
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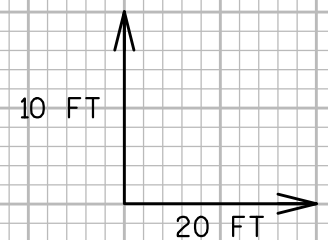
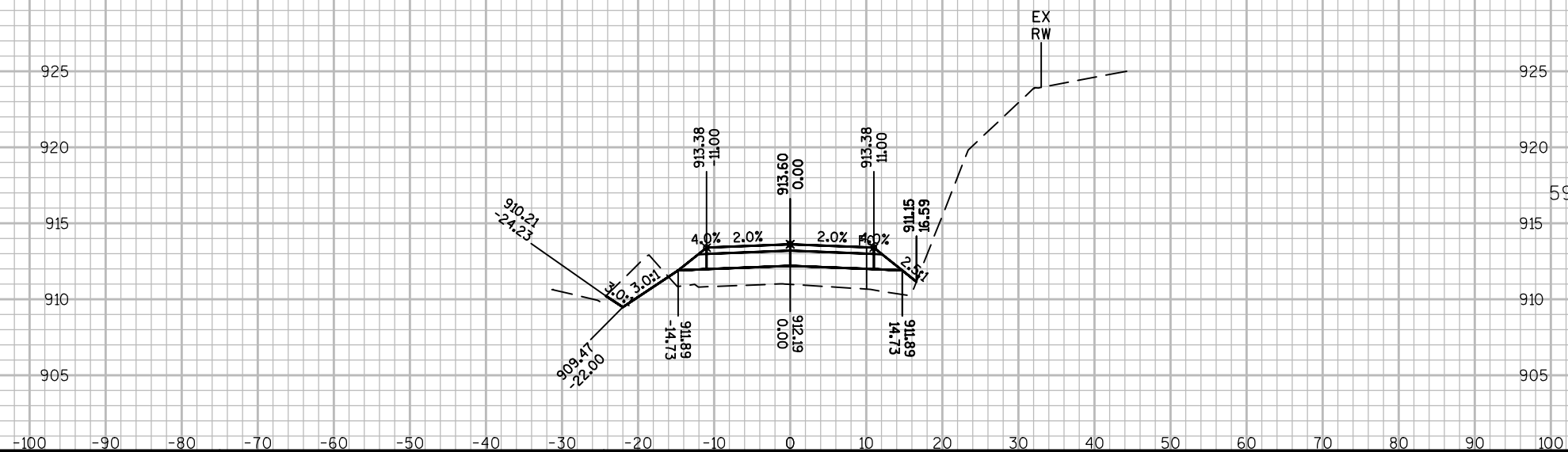
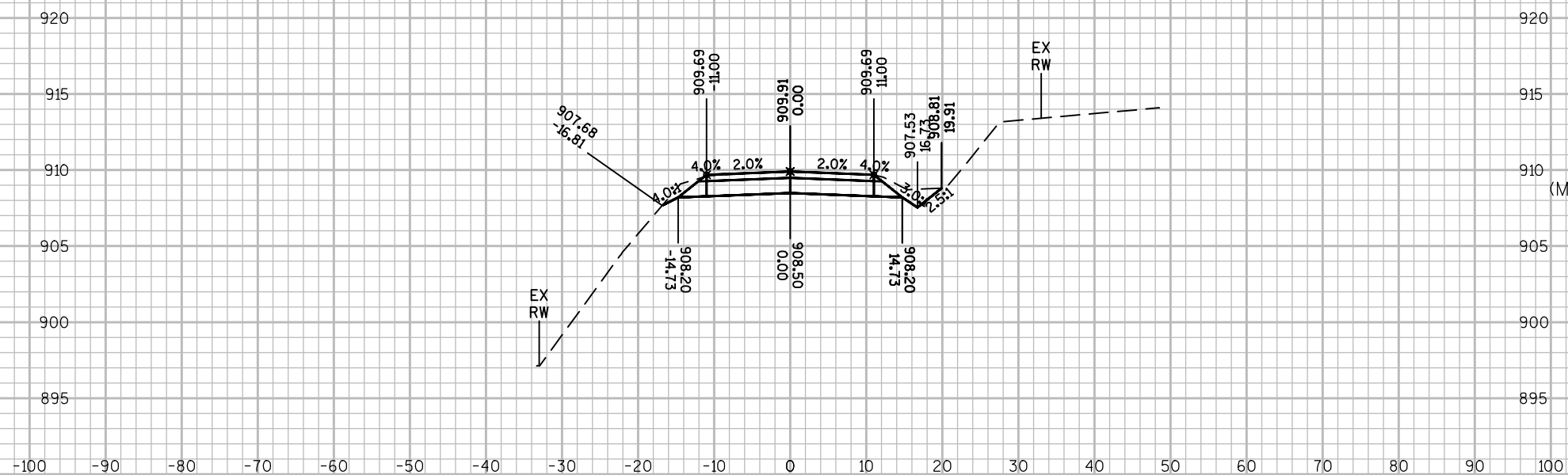
PLOT SCALE : 1 IN:20 FT

WISDOT/CADDs SHEET 49

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
590+85	---	36	6	0	0	---	---	---	---	---	---	---
591+25	40	7	6	10	0	32	8	7	0	32	9	14
591+50	25	7	6	29	0	6	5	18	0	38	32	-7
591+75	25	12	6	39	0	9	5	31	0	47	71	-42
592+16	41	41	6	0	0	40	8	30	0	88	108	-47
				COLUMN TOTALS		88	27	86	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)





PROJECT NO: 8060-01-73

ROAD: 205TH AVE

COUNTY: ST. CROIX

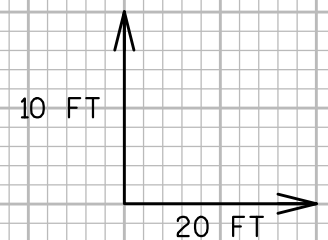
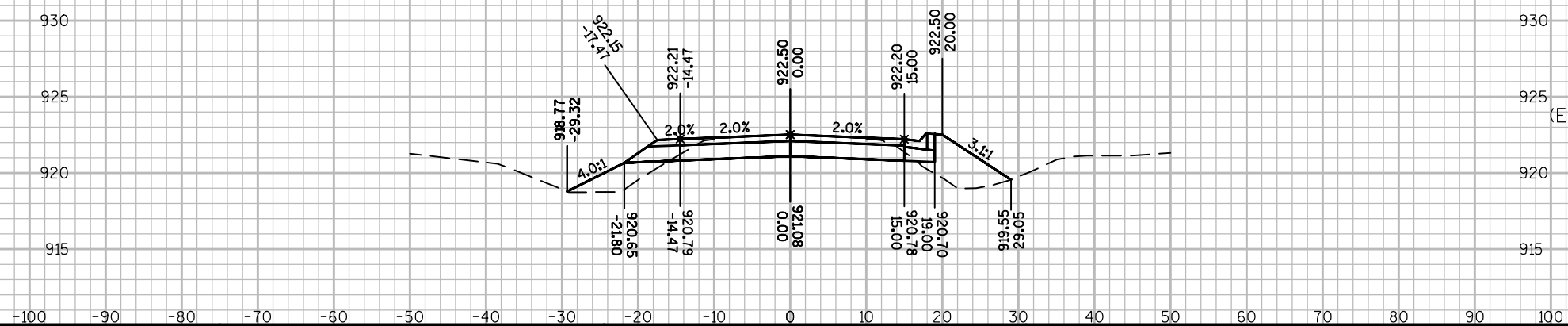
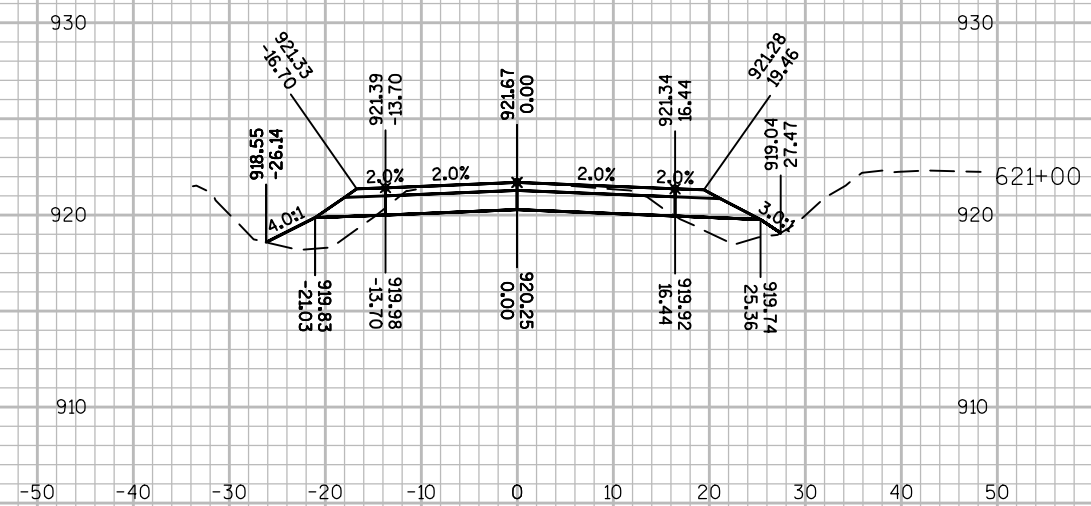
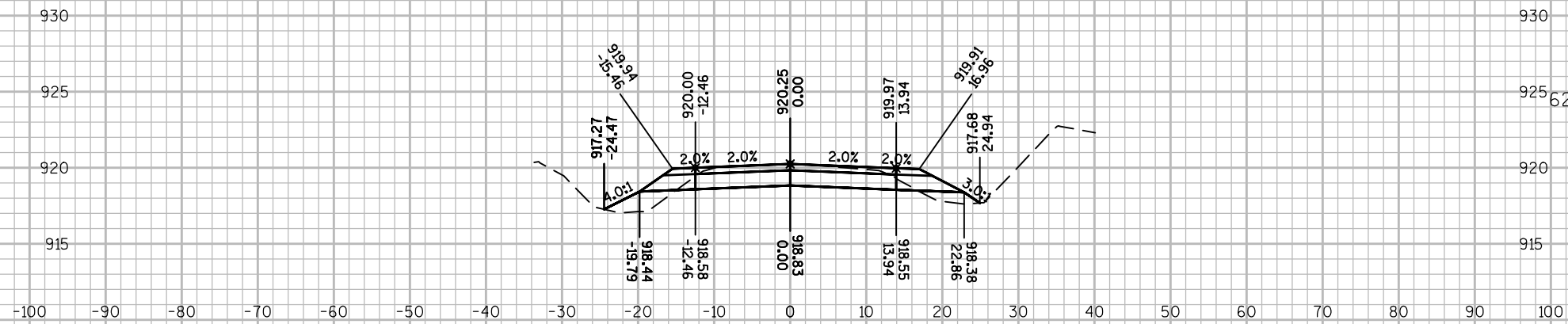
CROSS SECTIONS: 205TH AVE

SHEET 210

E

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
620+84	---	39	5	29	0	---	---	---	---	---	---	---
621+00	16	37	5	20	0	22	3	14	0	22	18	1
621+25	25	37	5	11	0	34	5	14	0	56	35	13
621+50	25	37	5	6	0	34	5	8	0	90	46	32
621+77	27	38	5	3	0	38	5	5	0	128	52	59
				COLUMN TOTALS		128	17	41	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)



PROJECT NO: 8060-01-73

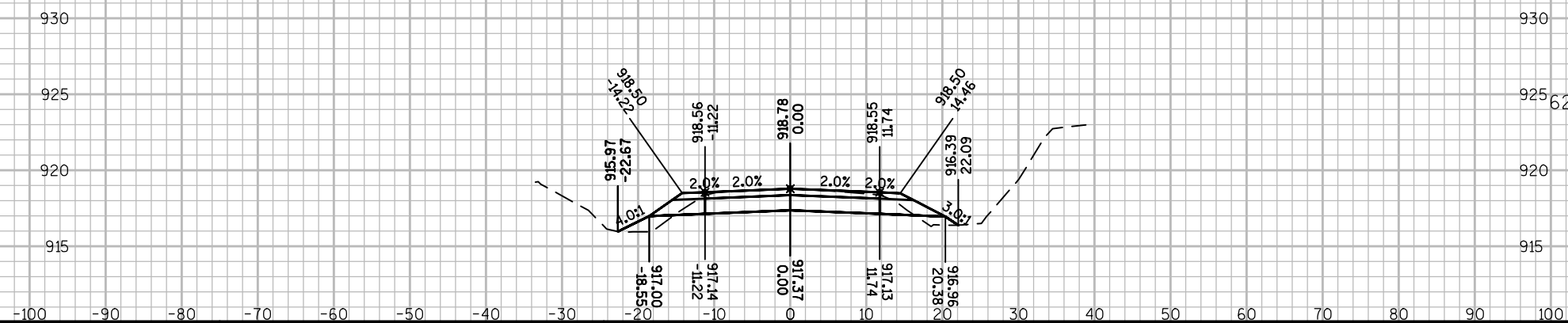
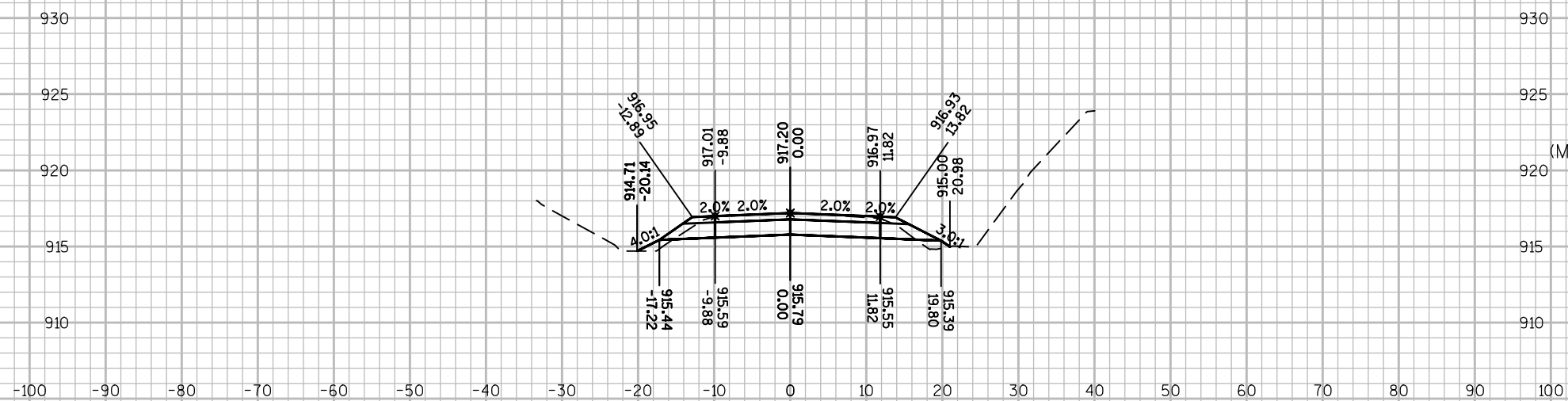
ROAD: 210TH AVE

COUNTY: ST. CROIX

CROSS SECTIONS: 210TH AVE

SHEET 212

E



621+77
(MATCH EXISTING)

 $25 \times 621 + 50$

10 FT

20 FT

PROJECT NO: 8060-01-73

ROAD: 210TH AVE

COUNTY: ST. CROIX

CROSS SECTIONS: 210TH AVE

SHEET	213
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9

FILE NAME : P:\2013\2013.019 - WISDOT NW - STH 35 - ST CROIX COUNTY\CAD\PLANS\13019_XS_11.DWG
LAYOUT NAME - 090337

PLOT DATE : 10/26/2016 4:25 PM

PLOT BY : JED MATTMILLER

PLOT NAME :

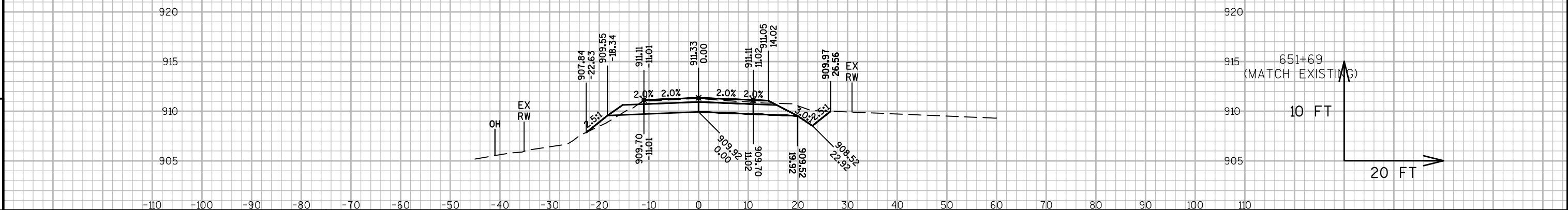
PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
650+59	---	88	6	60	0	---	---	---	---	---	---	---
650+99	40	33	6	27	0	89	9	64	0	89	80	0
651+50	51	49	6	15	0	77	10	29	0	166	116	31
651+69	19	49	6	2	0	35	4	6	0	202	124	54
				COLUMN TOTALS		202	23	99	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)

9



9

PROJECT NO: 8060-01-73

ROAD: 220TH AVE

COUNTY: ST. CROIX

CROSS SECTIONS: 220TH AVE

SHEET 216

E	
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FILE NAME : P:\2013\2013.019 - WISDOT NW - STH 35 - ST CROIX COUNTY\CAD\PLANS\13019_XS.12.DWG
LAYOUT NAME - 090340

PLOT DATE : 10/27/2016 7:33 AM

PLOT BY : JED MATTMILLER

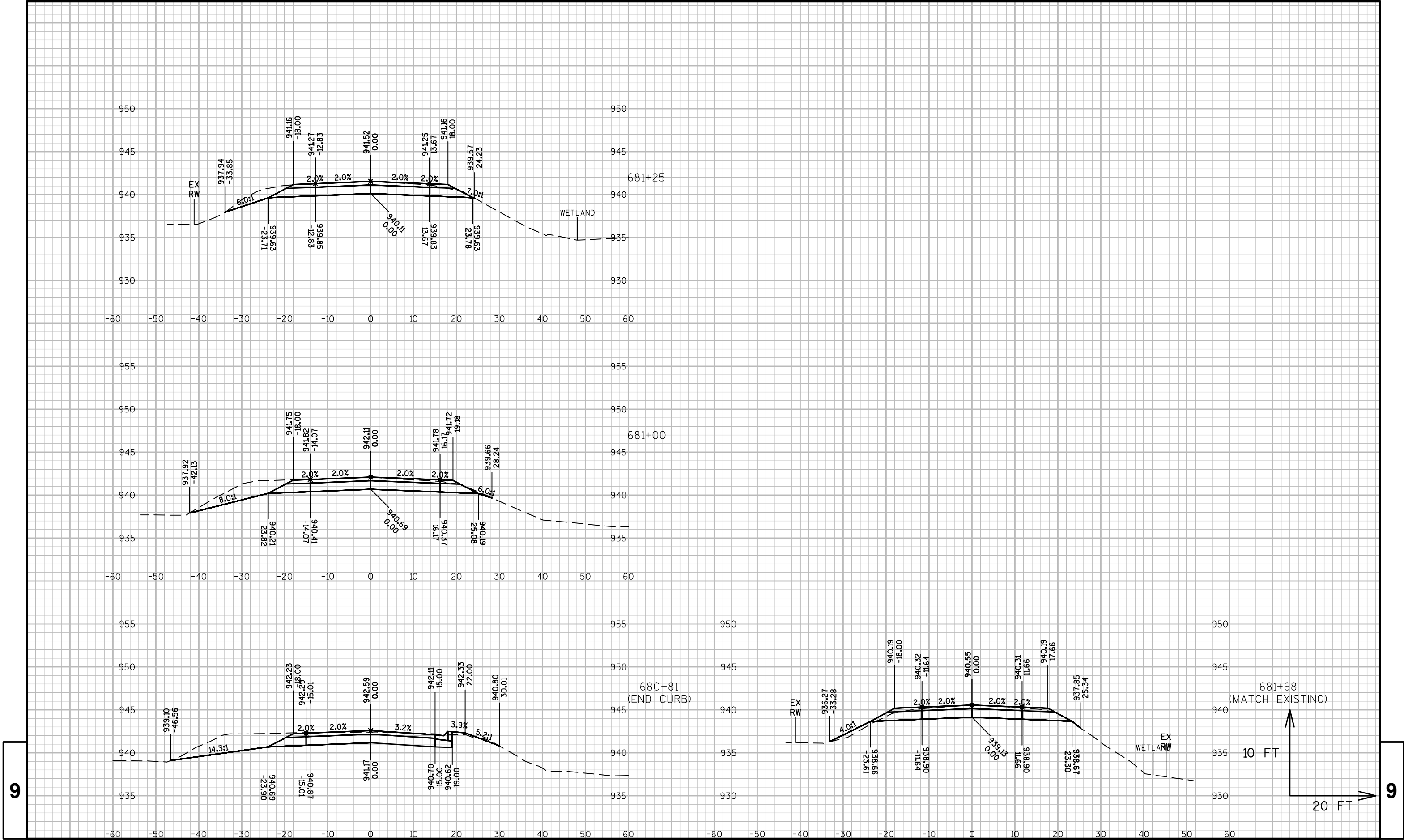
PLOT NAME :

PLOT SCALE : 1 IN:20 FT

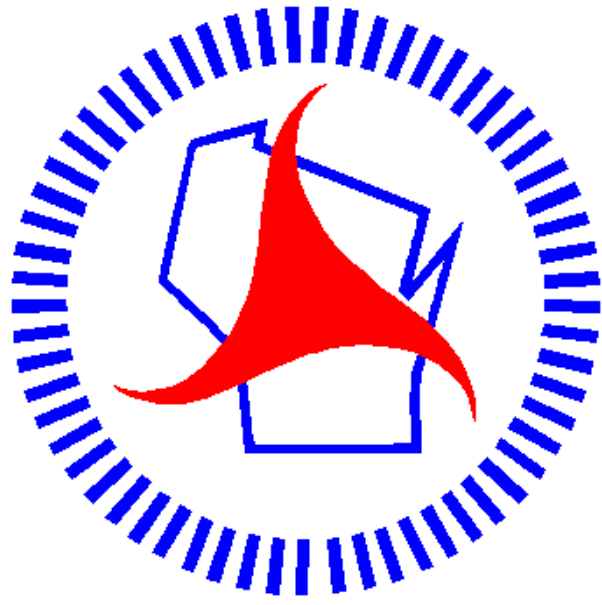
WISDOT/CADDS SHEET 49

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
680+81	---	94	10	1	0	---	---	---	---	---	---	---
681+00	19	86	9	0	0	63	6	0	0	63	1	56
681+25	25	69	6	0	0	72	7	0	0	134	1	121
681+68	43	52	6	4	0	95	10	3	0	229	4	202
				COLUMN TOTALS		229	23	4	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)



Notes



Wisconsin Department of Transportation

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