

MAD

PROJECT ID: 1112-02-63

COUNTY: DANE

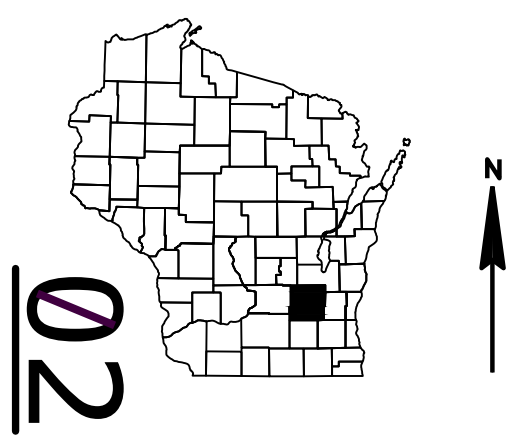
WITH:

MAY 2021

ORDER OF SHEETS

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

TOTAL SHEETS = 96



DESIGN DESIGNATION

A.A.D.T.	2018	=	20000
A.A.D.T.	2038	=	24700
D.H.V.	12.9%	=	3186
D.D.		=	60/40
T.		=	15.4
DESIGN SPEED		=	70 MPH
ESALS		=	8,300,000

CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

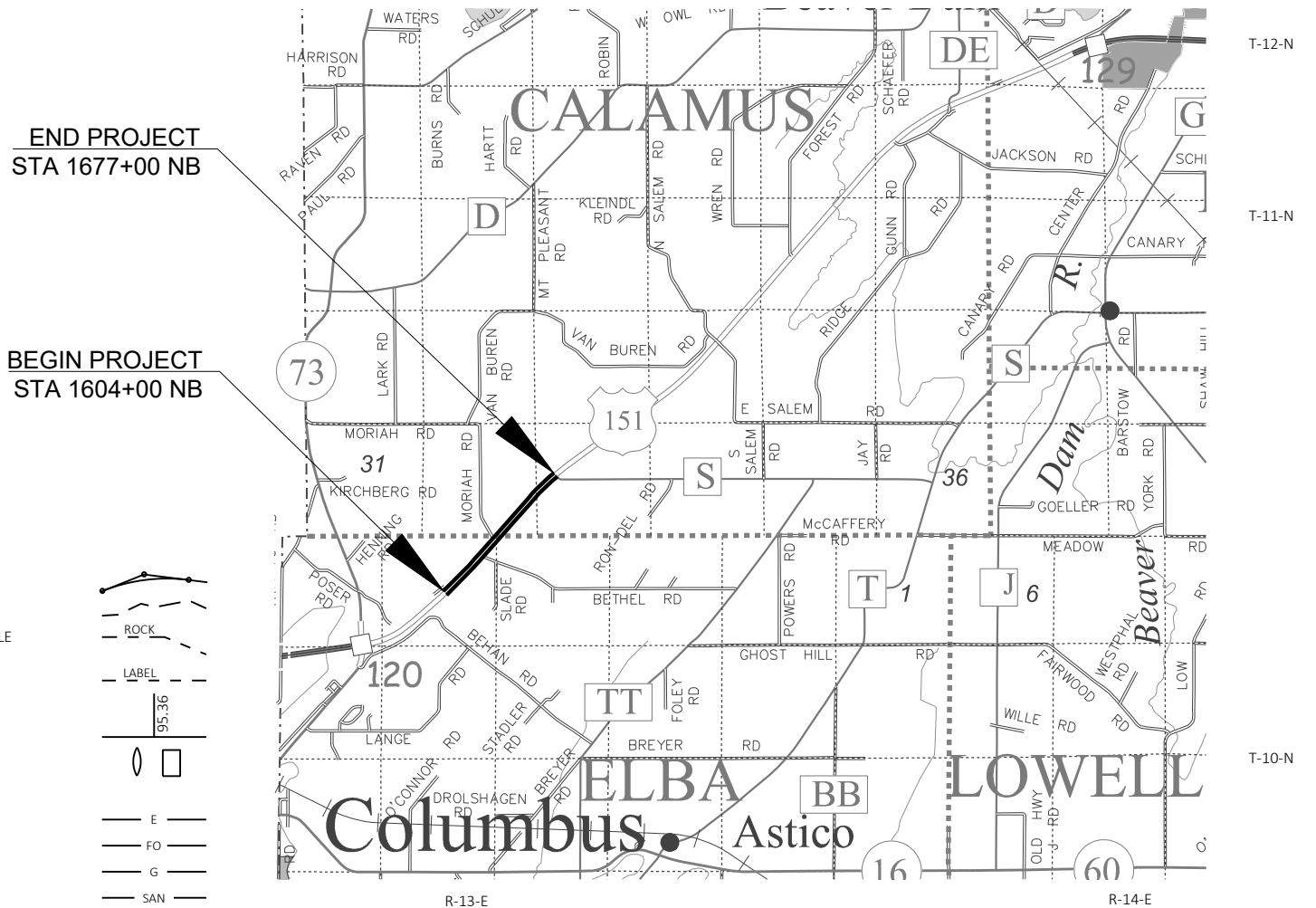
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT

SUN PRAIRIE - BEAVER DAM

COLUMBIA COUNTY LINE TO CTH S

USH 151
DODGE

STATE PROJECT NUMBER
1112-02-63



LAYOUT
SCALE 0 1 MI
TOTAL NET LENGTH OF CENTERLINE = 1.383 MI

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

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1112-02-63	WISC 2021298	1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor WISDOT

Designer PEDRO H. BAUTISTA

Project Manager AMY COUGHLIN

Regional Examiner SW REGION

Regional Supervisor BRENDA SCHOENFELD

APPROVED FOR THE DEPARTMENT

DATE: 1/25/2021

Amy Coughlin
(Signature)

E

GENERAL NOTES

1.
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
2.
- THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH THE EXISTING UTILITY FACILITIES.
3.
- PRIOR TO THE PLACEMENT OF CABLE BARRIER, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS SHOWN OTHERWISE.
4.
- CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.
5.
- THE QUANTITY OF THE ITEMS FOR EROSION PROTECTION INCLUDES AN UNDISTRIBUTED AMOUNT FOR PROTECTION, CONTROL AND ABATEMENT OF WATER POLLUTION RESULTING FROM SOIL EROSION. THE DISTRIBUTION AND LOCATION OF THESE MATERIALS ARE TO BE DETERMINED BY THE ENGINEER.
6.
- DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE TOPSOILED (SALVAGED), FERTILIZED, SEEDED, AND COVERED IN EROSION MAT AS DIRECTED BY THE ENGINEER.
7.
- (SALVAGED) TOPSOIL AND EROSION MAT HAS BEEN COMPUTED BY DIRECT MEASUREMENTS ON THE CROSS SECTIONS PLUS 5 FT BEYOND THE TOE OF SLOPE. SEEDING AND FERTILIZER HAS BEEN COMPUTED BY DIRECT MEASUREMENTS ON THE CROSS SECTIONS PLUS 5 FT.

STANDARD ABBREVIATIONS

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

DESIGN CONTACTS

WISDOT SW REGION
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UTILITIES

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EMAIL: CA2624@ATT.COM

ADAMS-COLUMBIA ELECTRIC COOPERATIVE - ELECTRICITY
BILL KEARNS
W6290 HWY 33 P.O. BOX 216
PARDEVILLE, WI 53954
PHONE: (6008) 429-4105
EMAIL: BKEARNS@ACECWI.COM

DNR CONTACT

WI DNR
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3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
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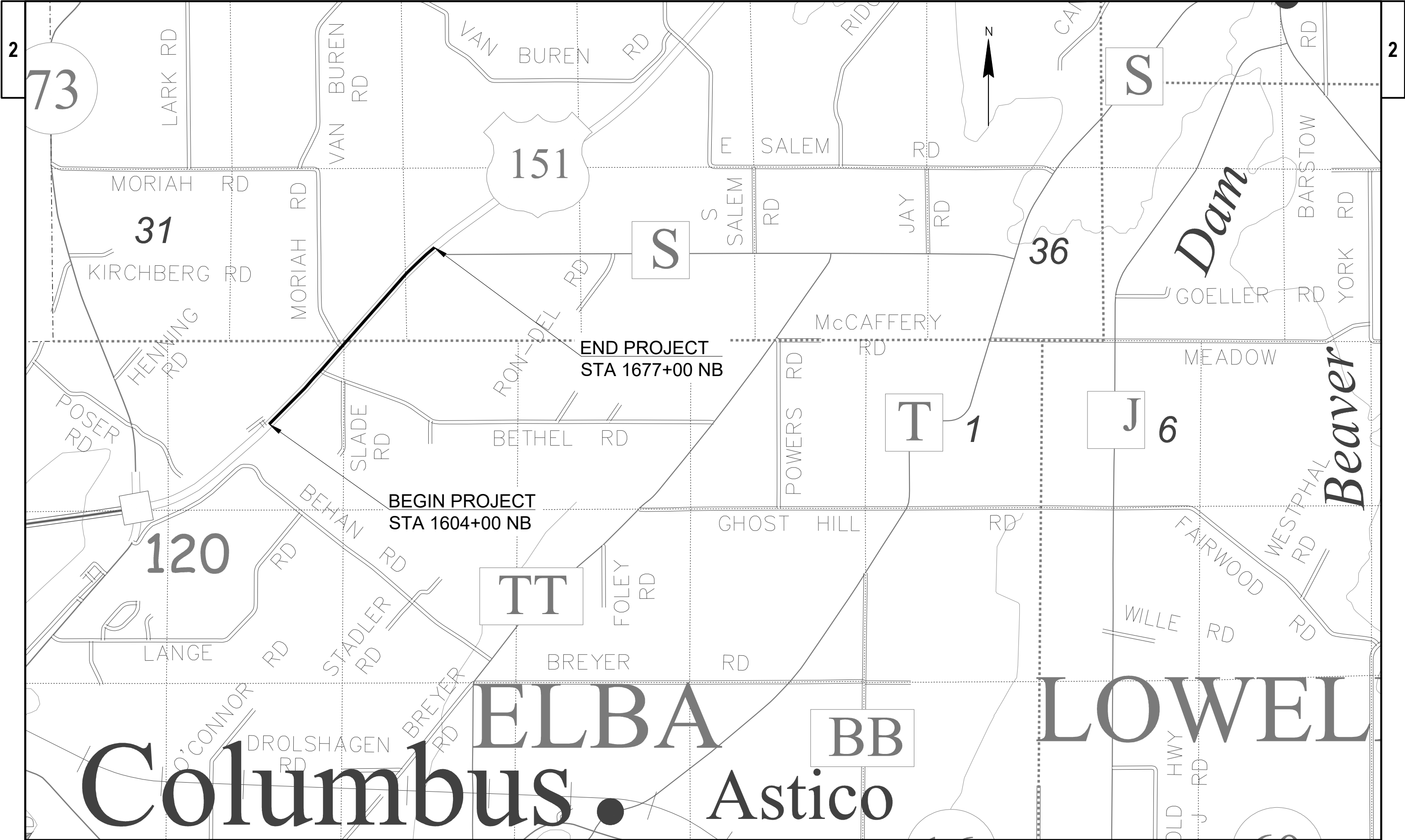
ORDER OF SECTION 2 SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
EROSION CONTROL
TRAFFIC CONTROL
ALIGNMENT DETAILS

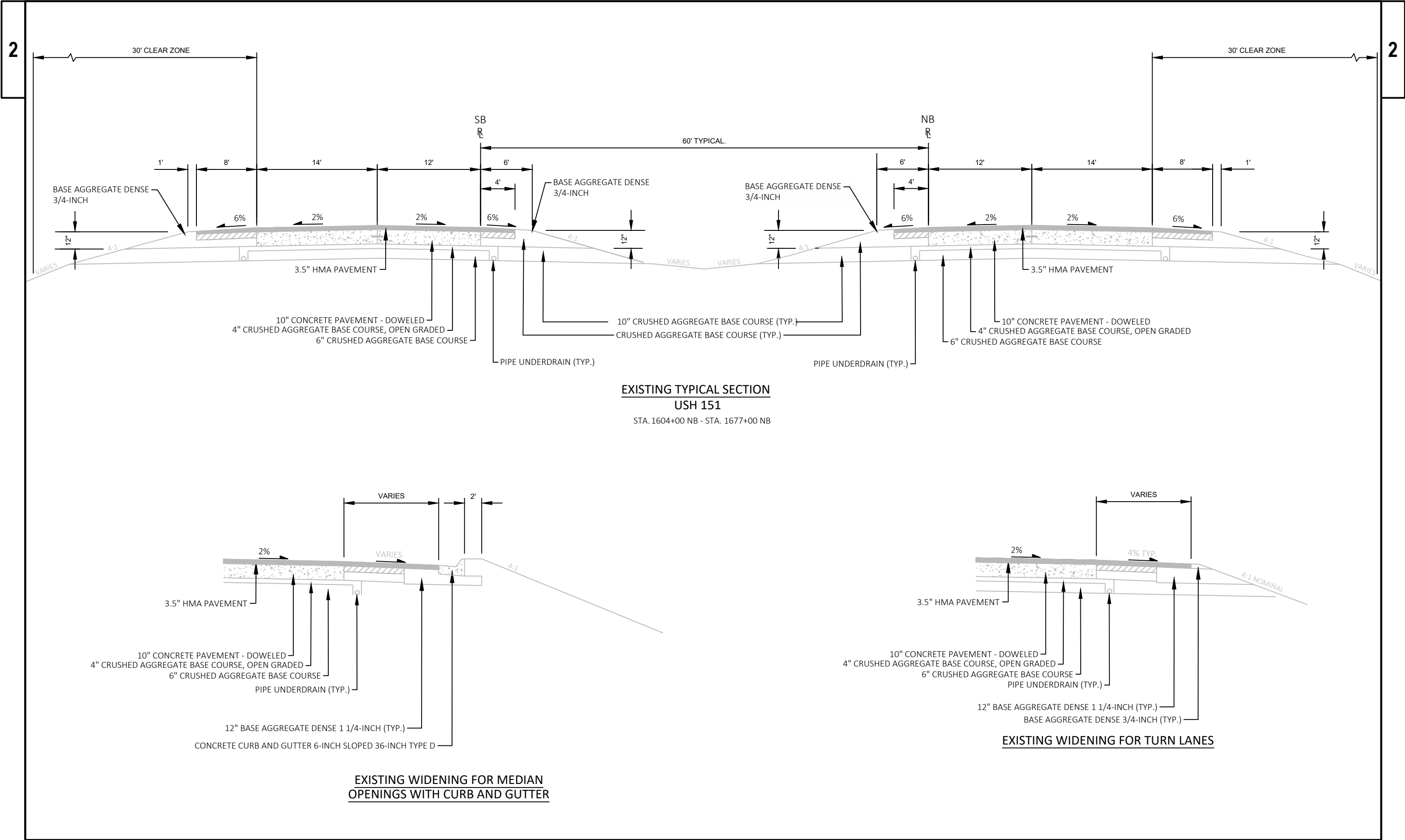
DIGGERSHOTLINE

Dial 811 or (800)242-8511

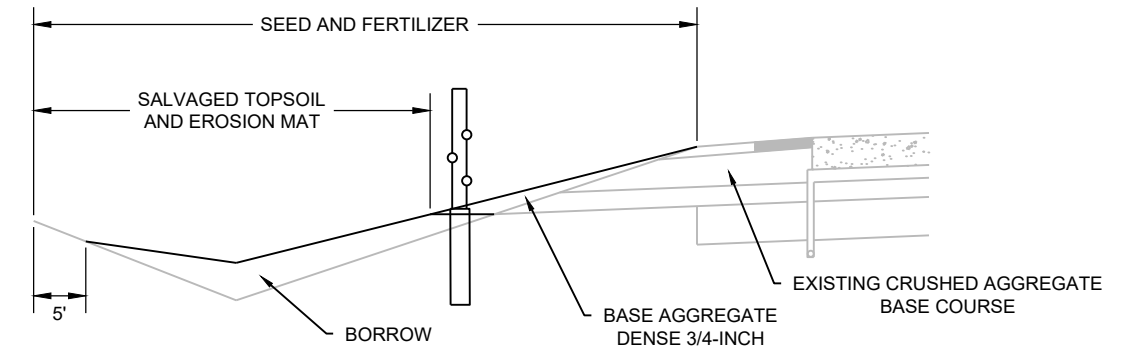
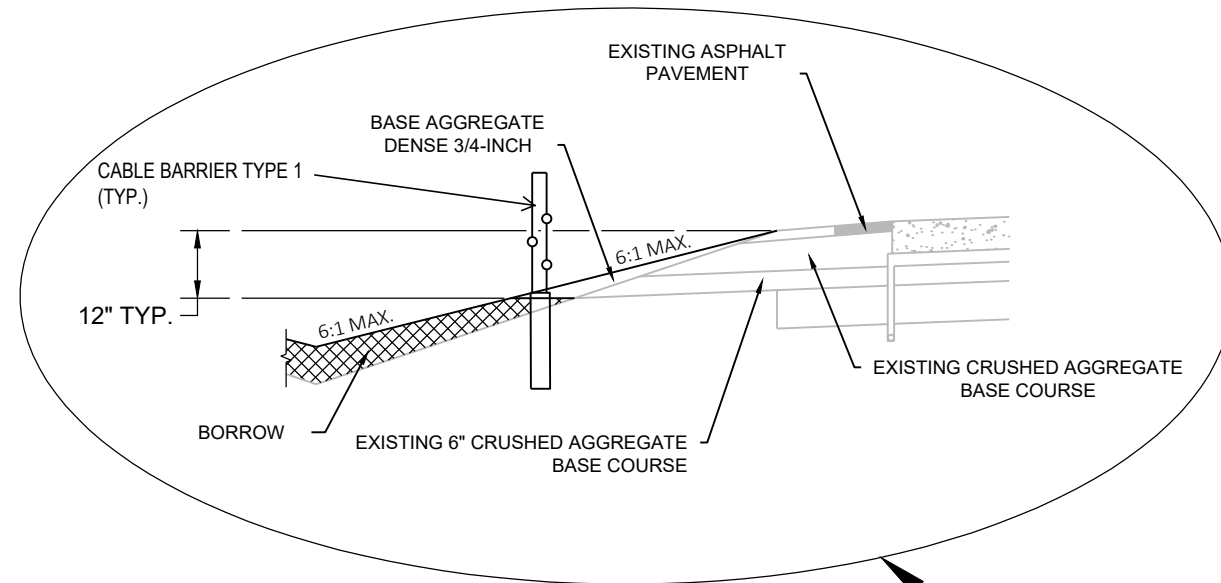
www.DiggersHotline.com



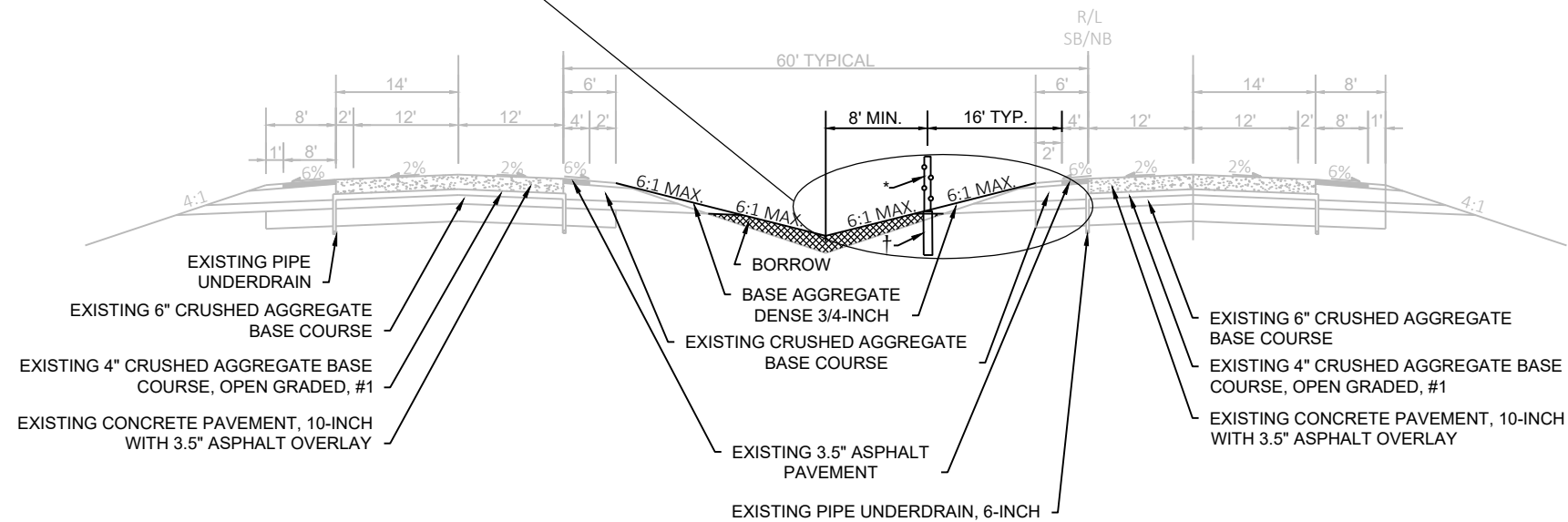
PROJECT NO: 1112-02-63	HWY: USH 151	COUNTY: DODGE	PROJECT OVERVIEW	SHEET	E
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PROJECT NO: 1112-02-63	HWY: USH 151	COUNTY: DODGE	EXISTING TYPICAL SECTIONS	SHEET	E
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EROSION CONTROL ITEMS SECTION DETAIL

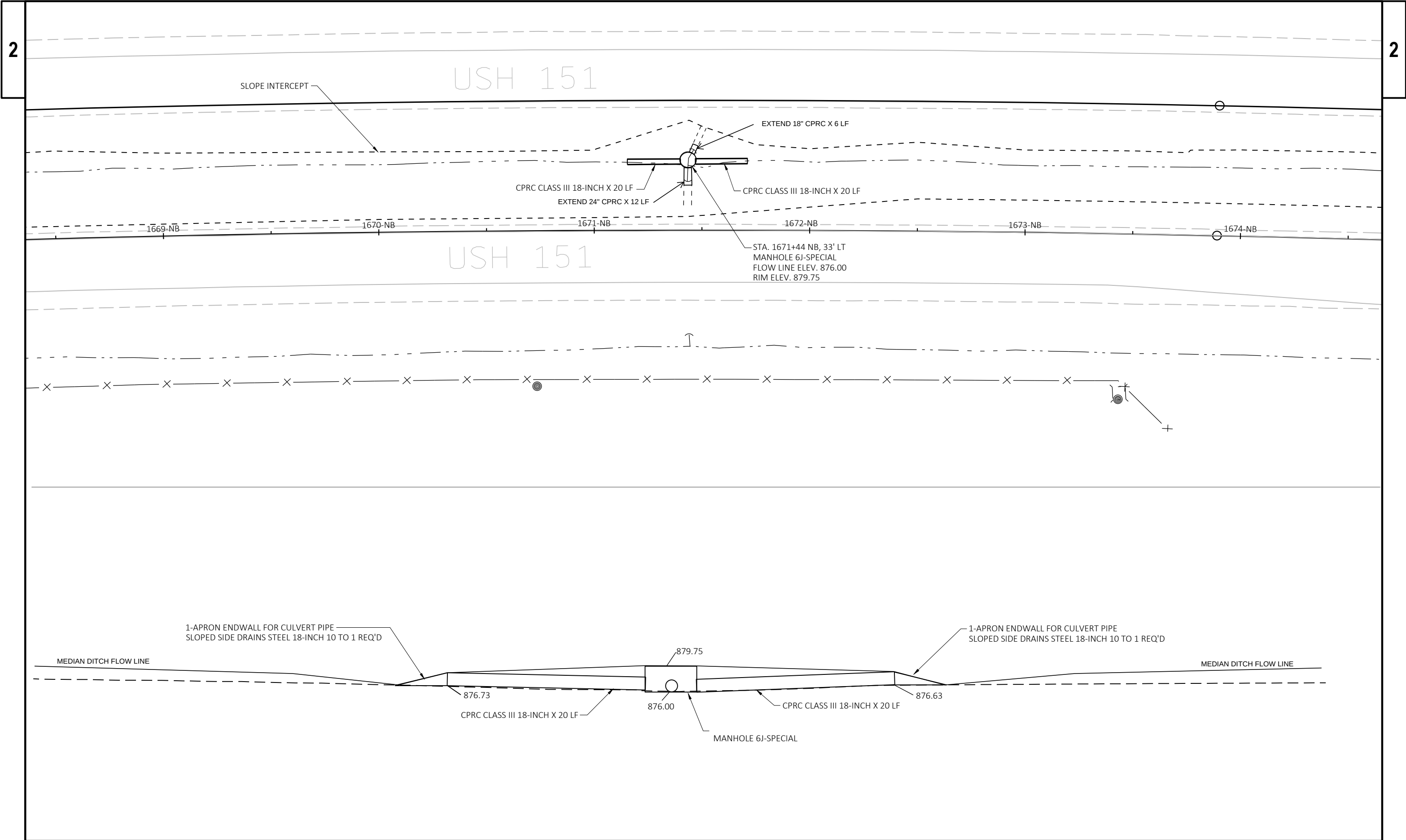


* PROPOSED CABLE BARRIER TYPE 1
(SIDE VARIES)
POST SPACING: MAX. 15', MIN. 7'

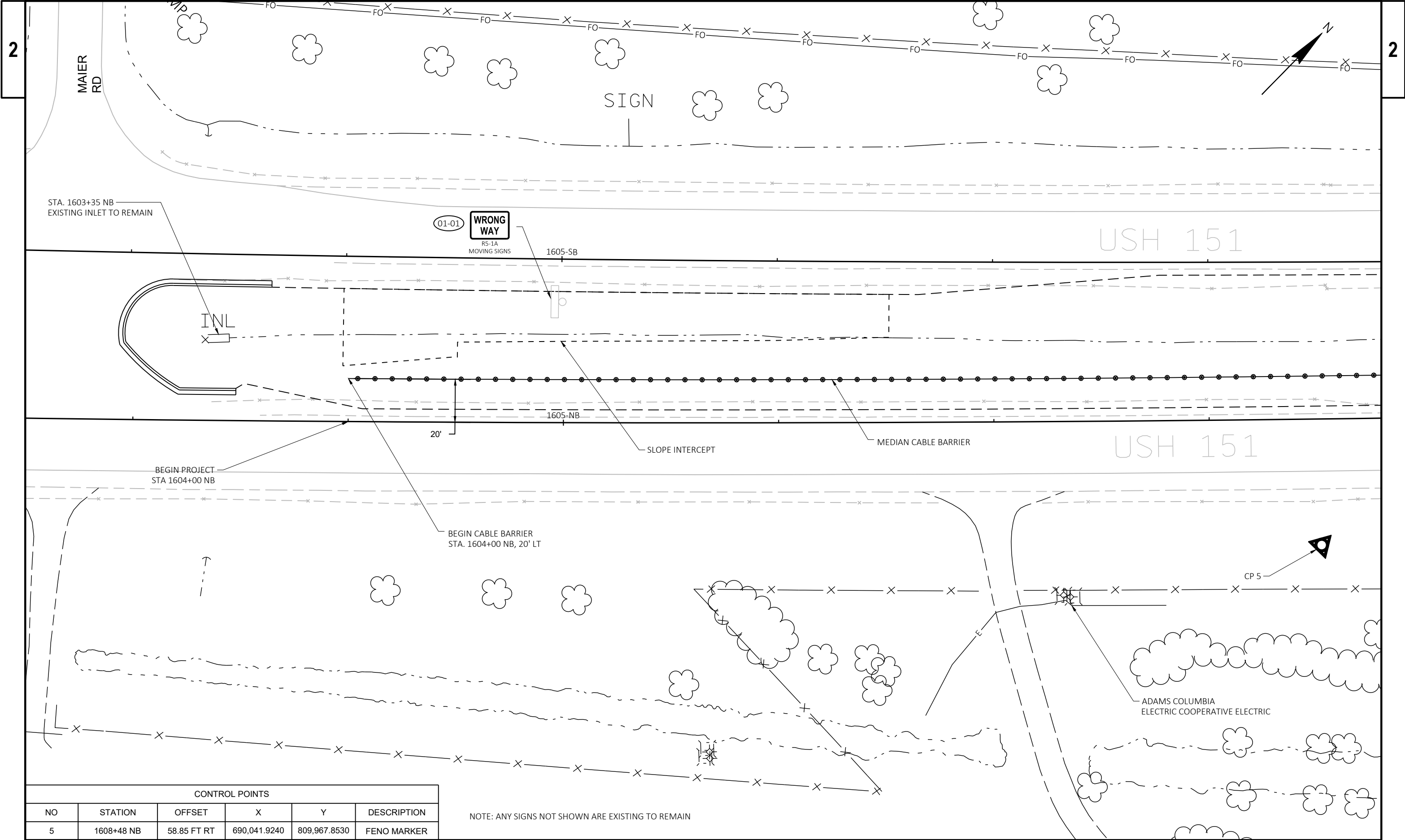
† SEE MANUFACTURER'S INFORMATION FOR
FOOTING DETAILS

PROPOSED TYPICAL SECTION

STA. 1604+00 NB -STA. 1677+00 NB



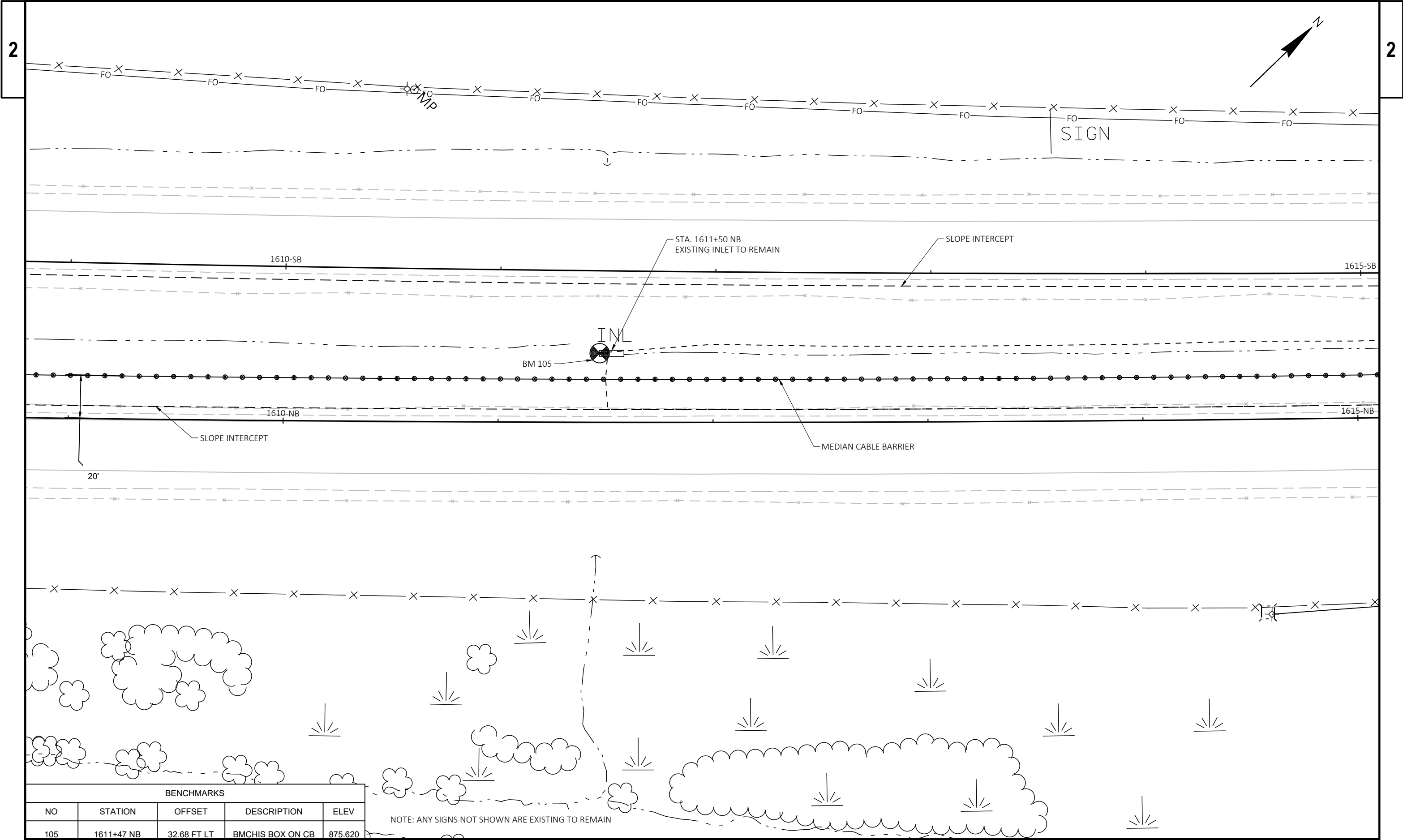
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CONTROL POINTS					
NO	STATION	OFFSET	X	Y	DESCRIPTION
5	1608+48 NB	58.85 FT RT	690,041.9240	809,967.8530	FENO MARKER

NOTE: ANY SIGNS NOT SHOWN ARE EXISTING TO REMAIN

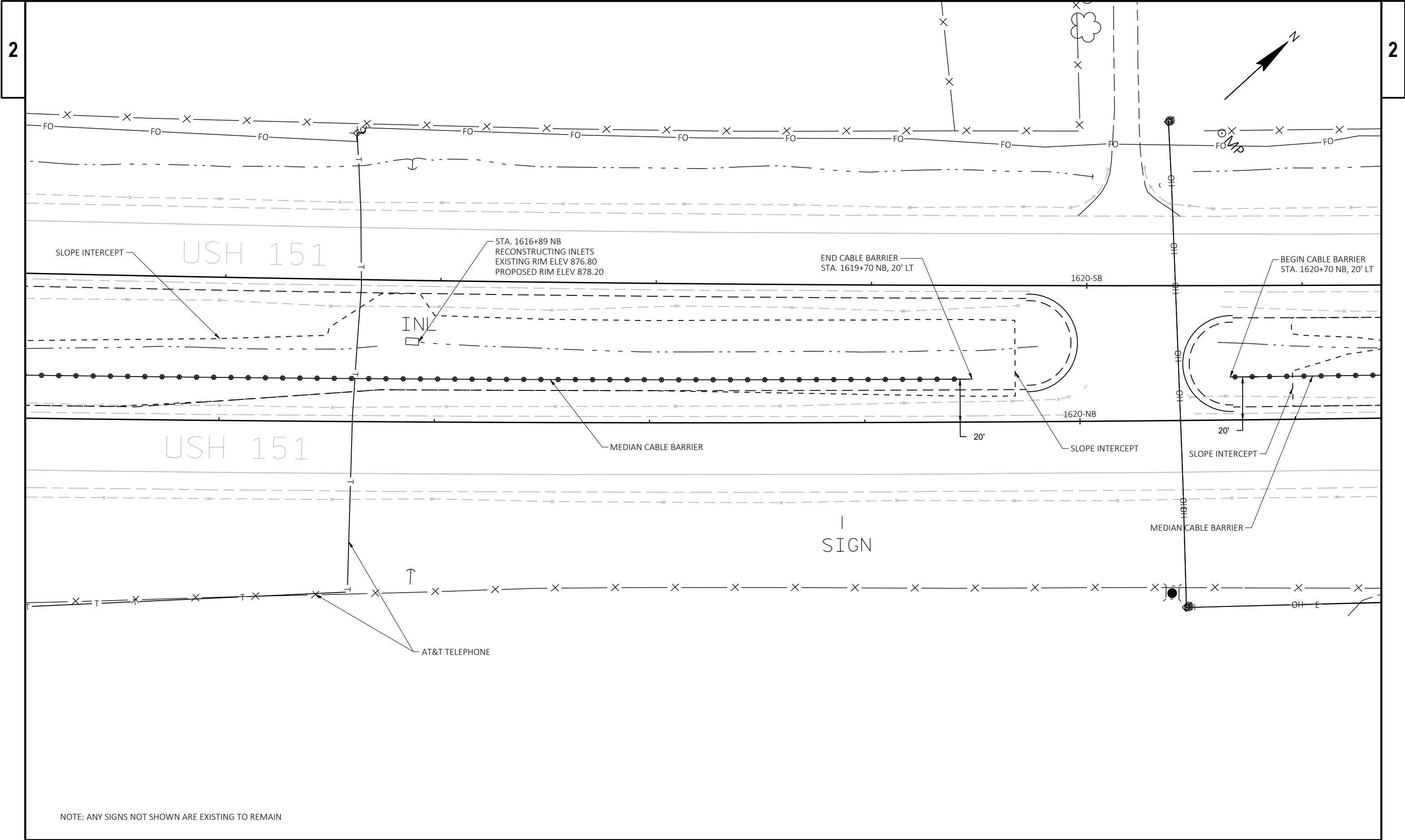
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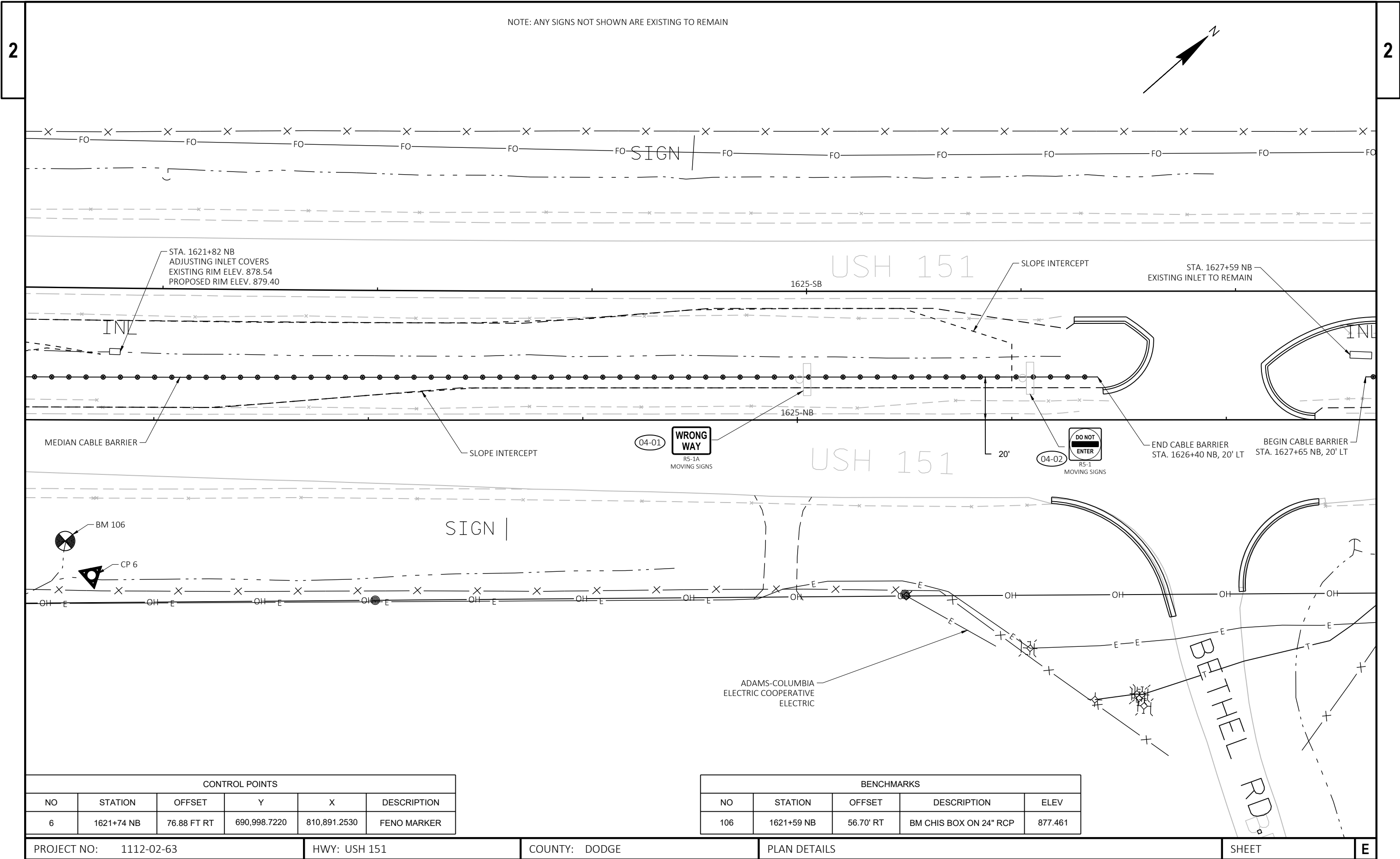
BENCHMARKS				
NO	STATION	OFFSET	DESCRIPTION	ELEV
105	1611+47 NB	32.68 FT LT	BMCHIS BOX ON CB	875.620

NOTE: ANY SIGNS NOT SHOWN ARE EXISTING TO REMAIN

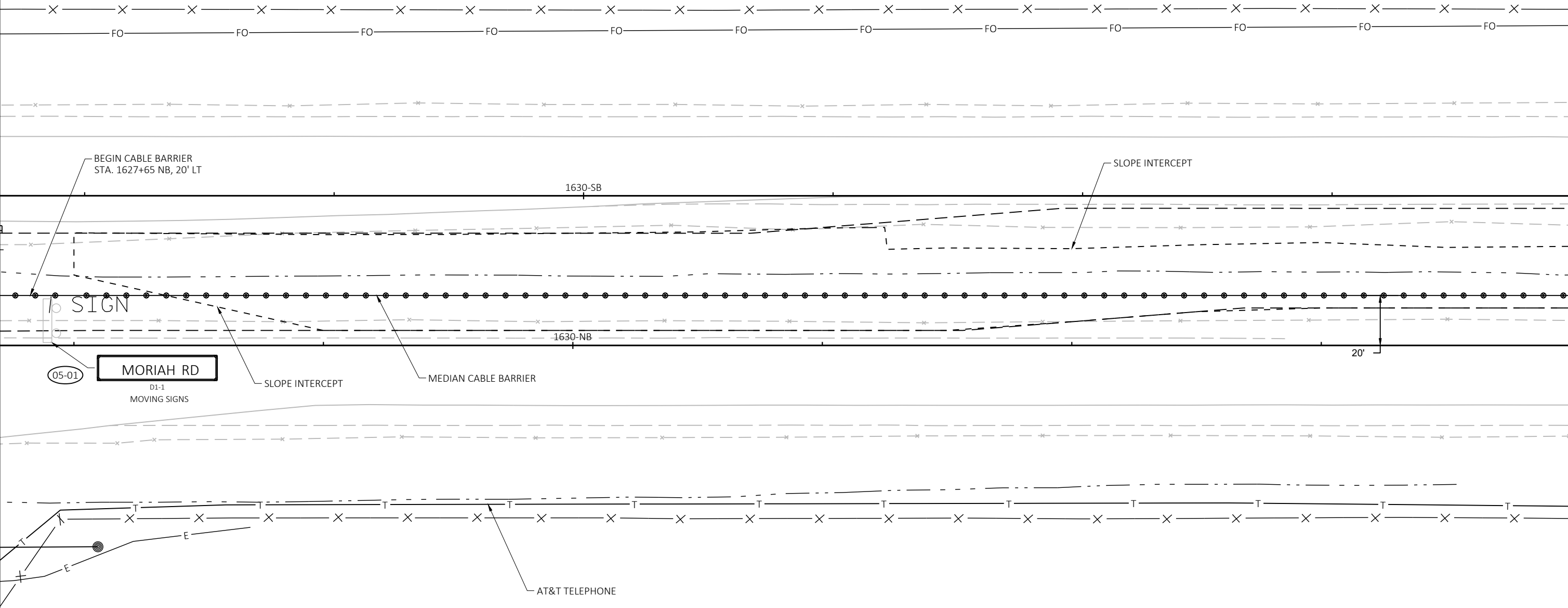
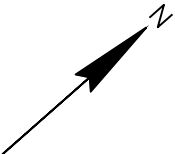
PROJECT NO:	1112-02-63	HWY:	USH 151	COUNTY:	DODGE	PLAN DETAILS	SHEET	E
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PROJECT NO: 1112-02-63	HWY: USH 151	COUNTY: DODGE	PLAN DETAILS	SHEET	E
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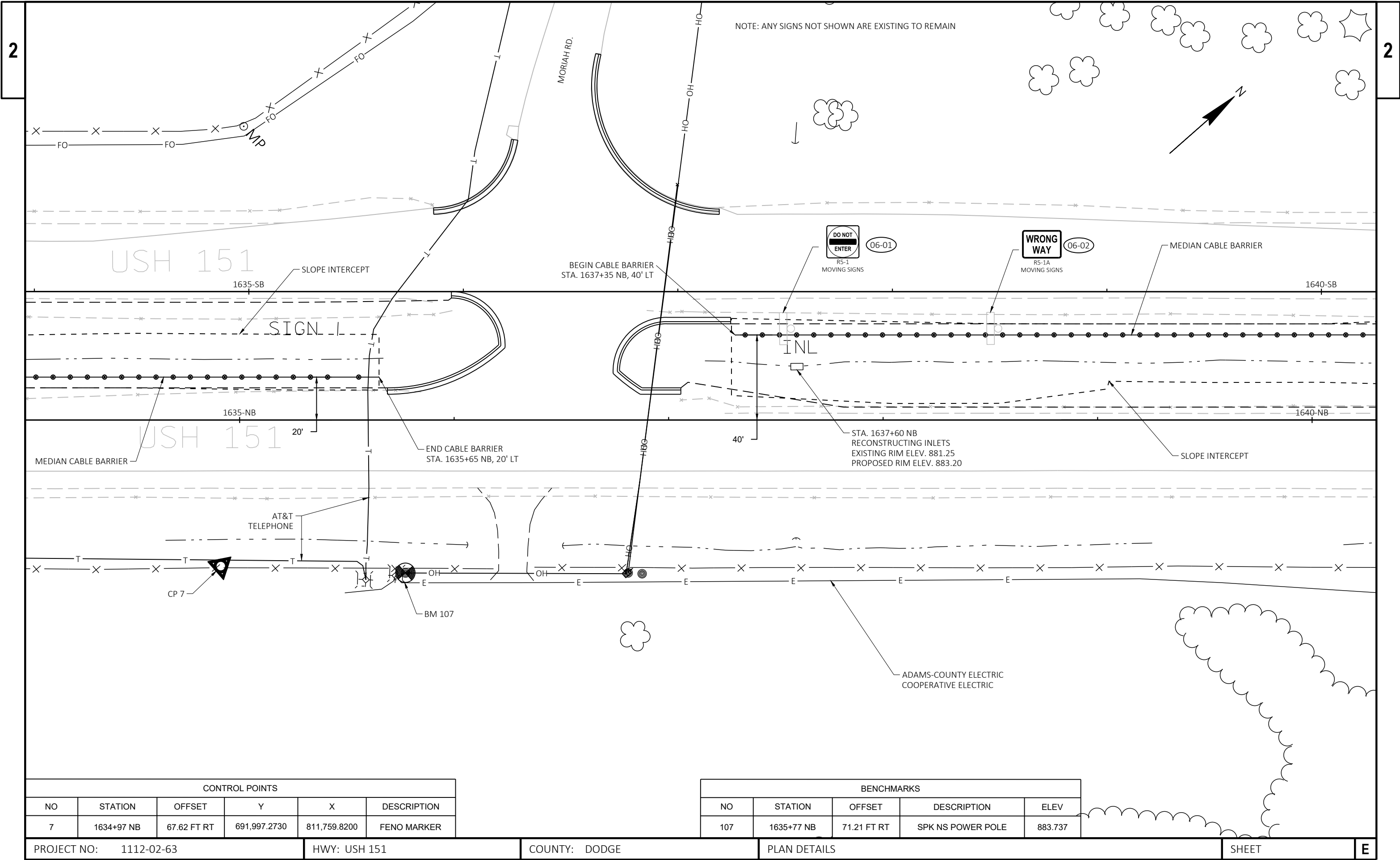


NOTE: ANY SIGNS NOT SHOWN ARE EXISTING TO REMAIN



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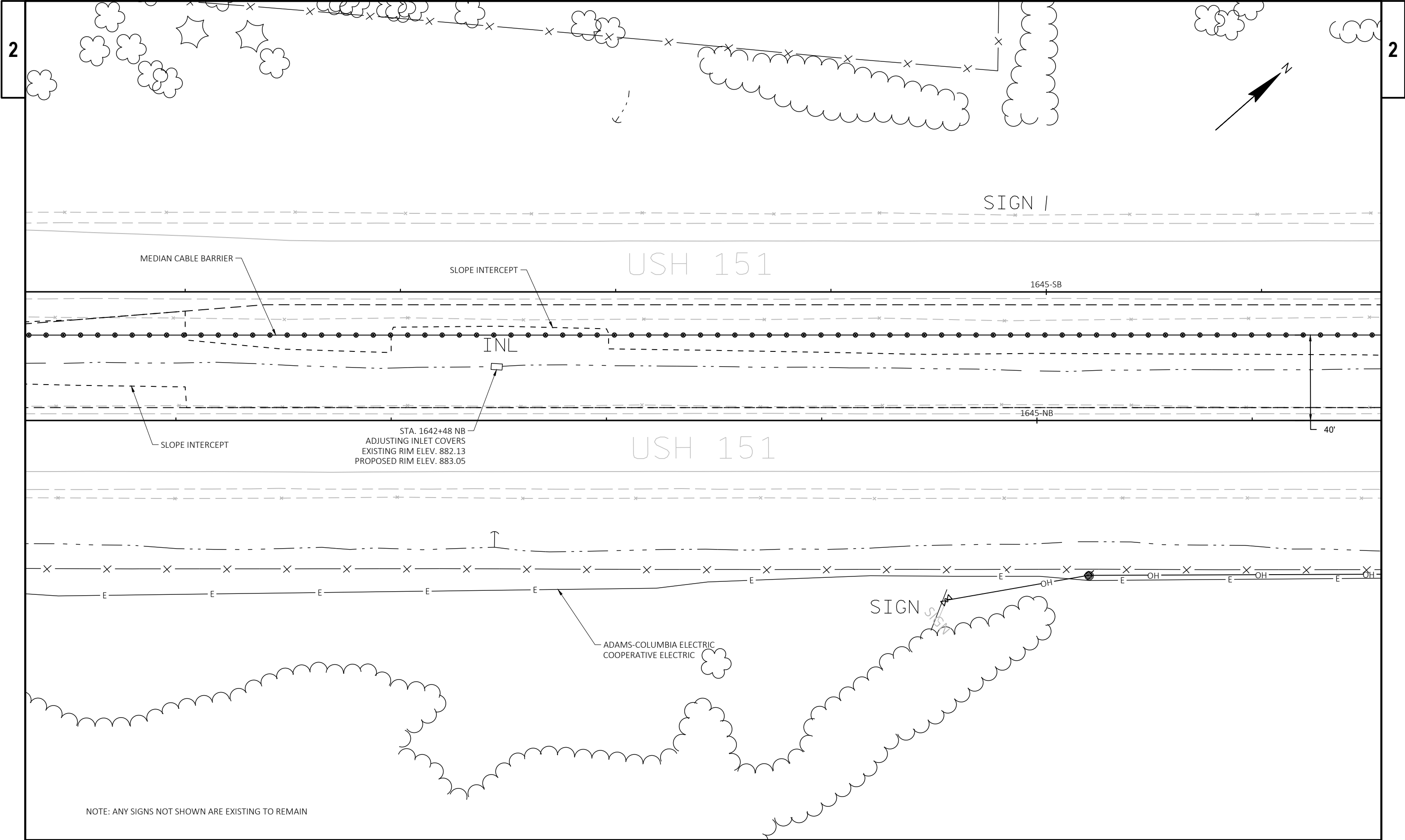
PROJECT NO: 1112-02-63	HWY: USH 151	COUNTY: DODGE	PLAN DETAILS	SHEET	E
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CONTROL POINTS					
NO	STATION	OFFSET	Y	X	DESCRIPTION
7	1634+97 NB	67.62 FT RT	691,997.2730	811,759.8200	FENO MARKER

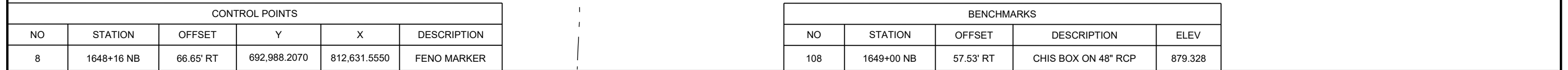
BENCHMARKS				
NO	STATION	OFFSET	DESCRIPTION	ELEV
107	1635+77 NB	71.21 FT RT	SPK NS POWER POLE	883.737

PROJECT NO: 1112-02-63			HWY: USH 151		COUNTY: DODGE		PLAN DETAILS			SHEET		E
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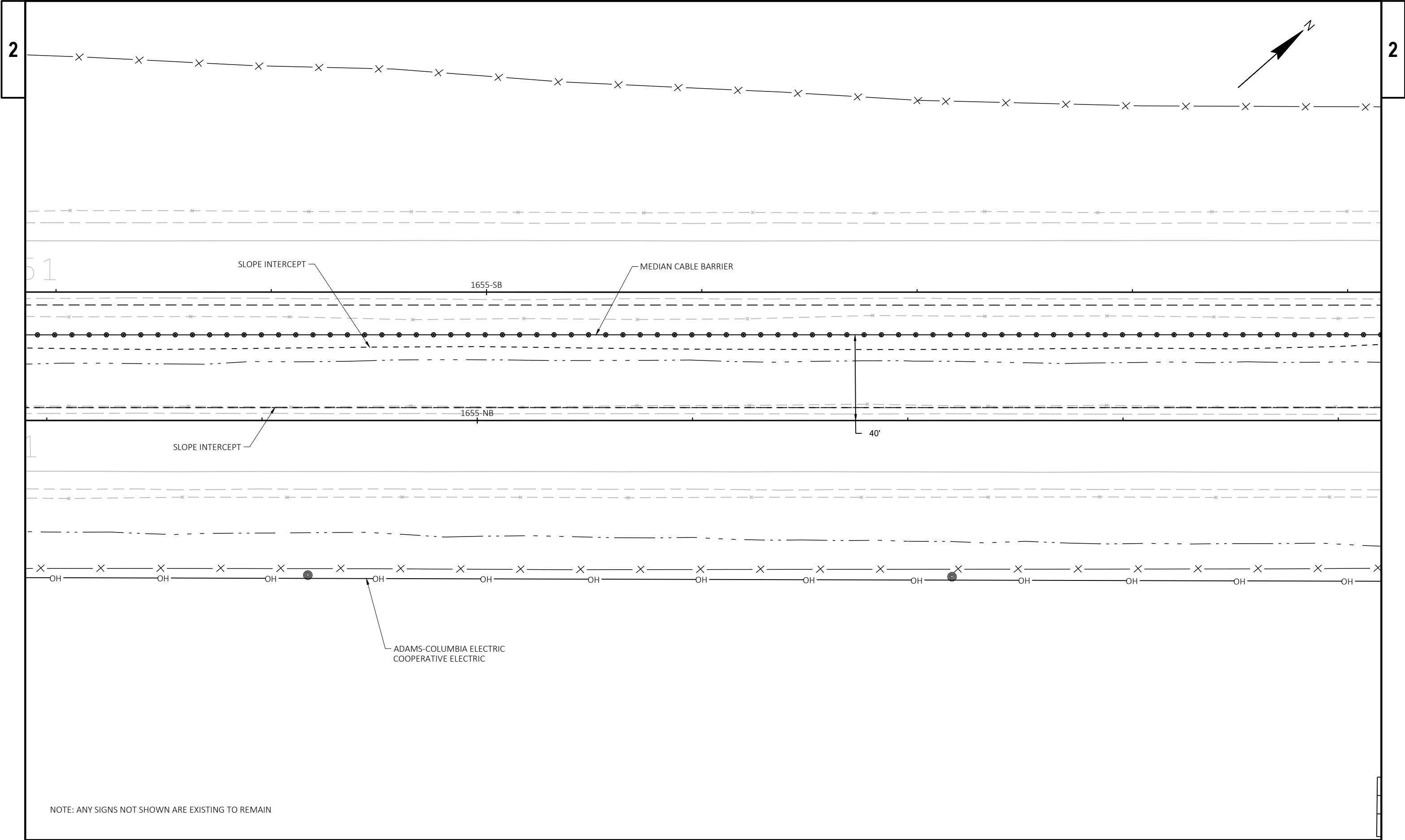


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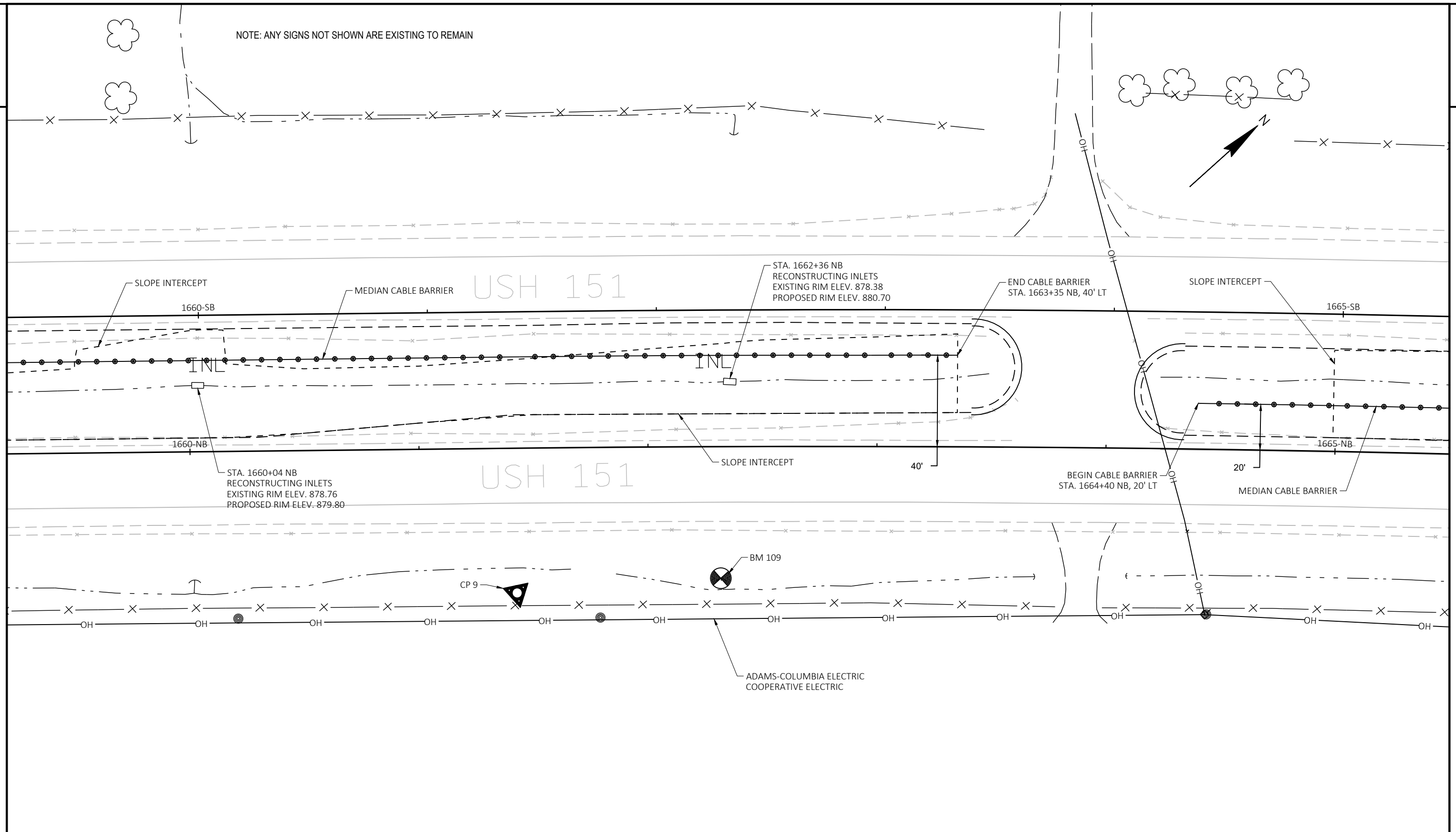
NOTE: ANY SIGNS NOT SHOWN ARE EXISTING TO REMAIN



BENCHMARKS				
NO	STATION	OFFSET	DESCRIPTION	ELEV
108	1649+00 NB	57.53' RT	CHIS BOX ON 48" RCP	879.328

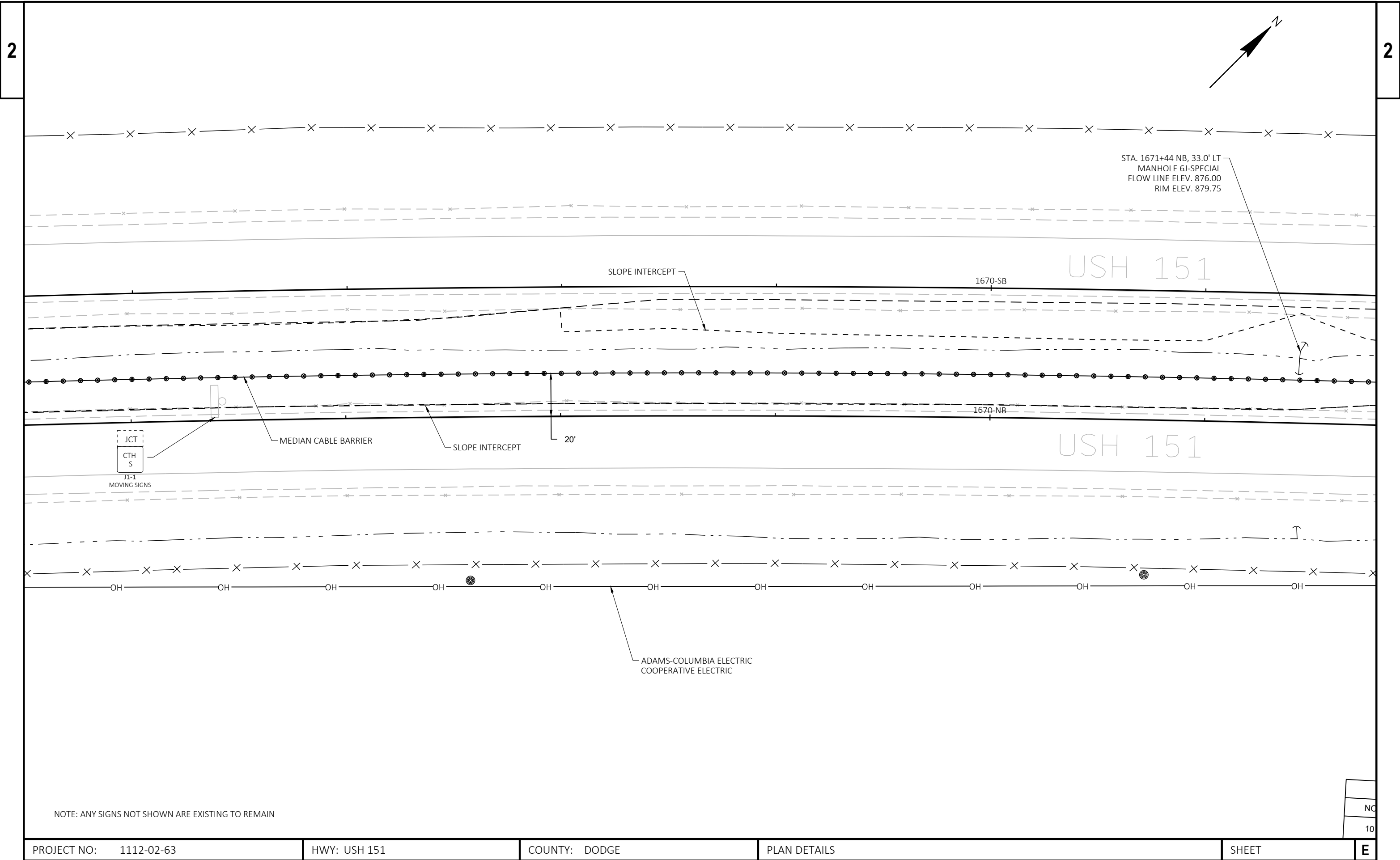


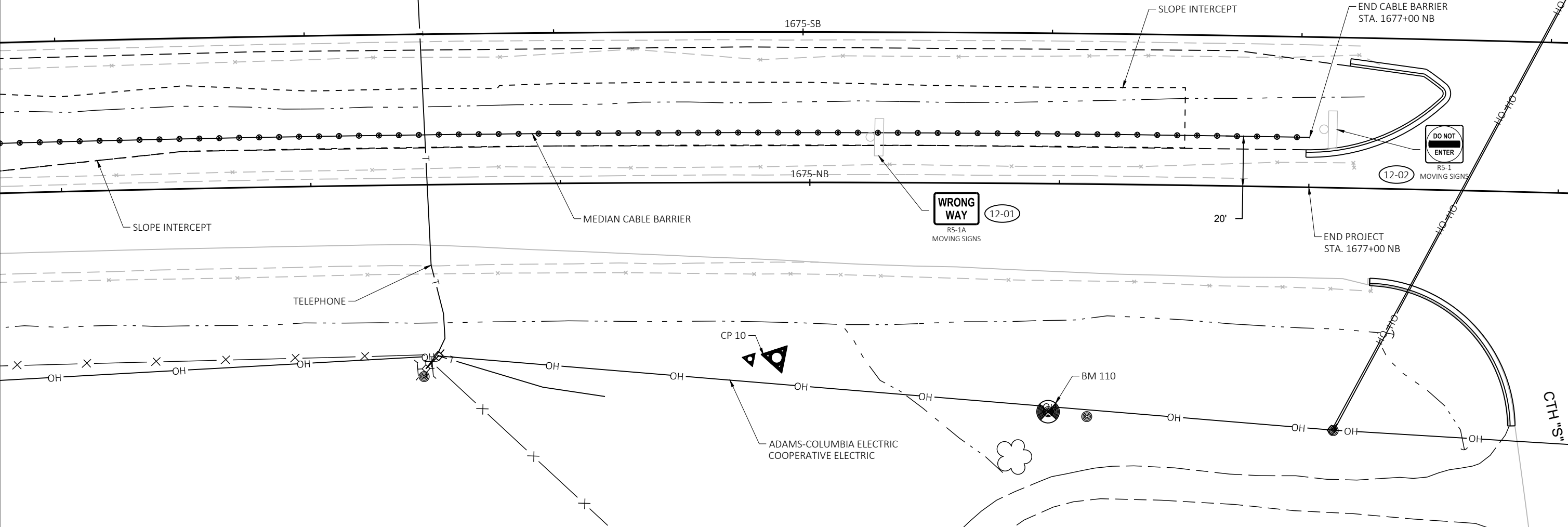
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CONTROL POINTS					
NO	STATION	OFFSET	Y	X	DESCRIPTION
9	1661+48 nb	67.06' RT	693,986.8770	813,511.9350	FENO MARKER

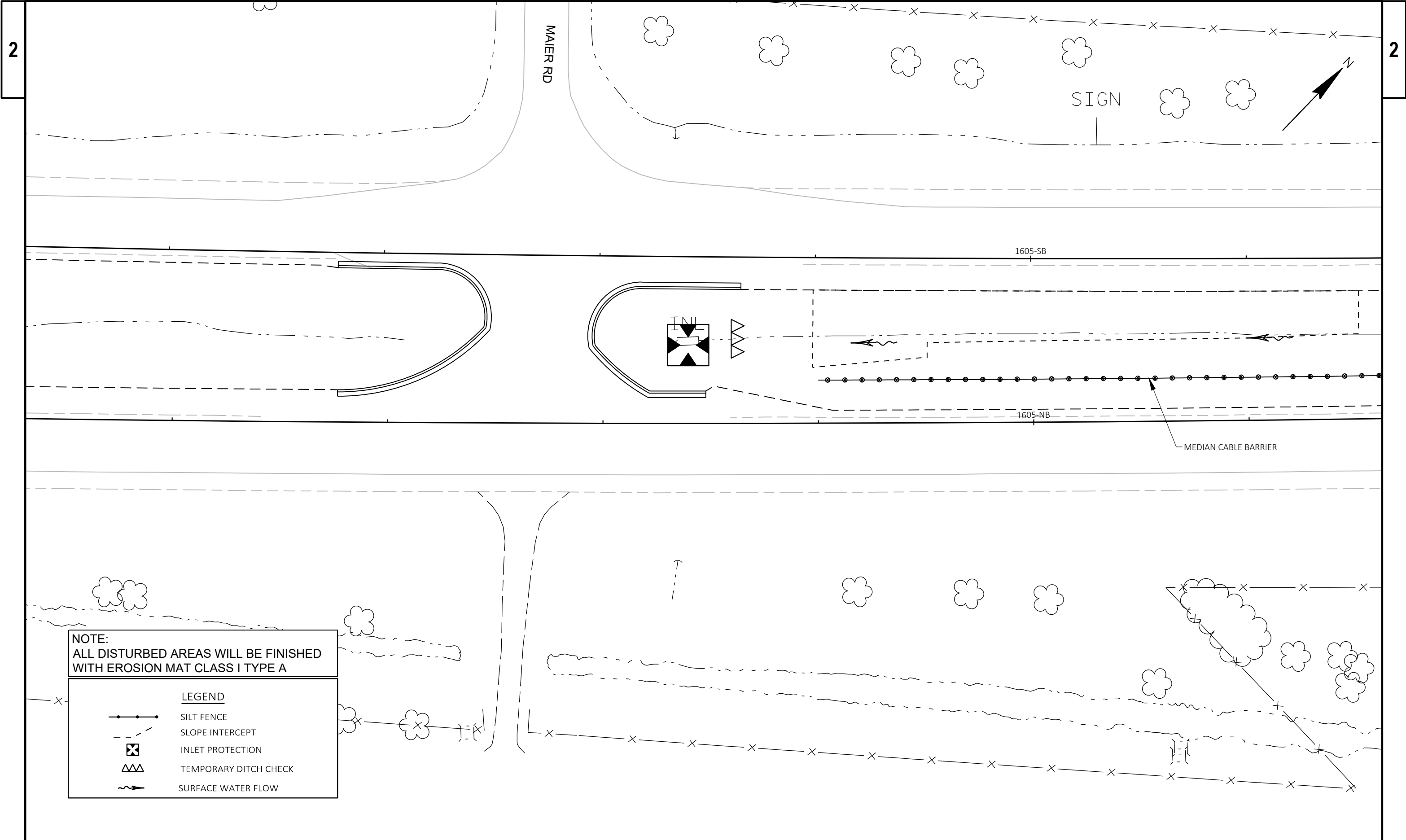
BENCHMARKS				
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109	1662+32 NB	57.36' RT	CHIS BOX ON 24" RCP	878.711

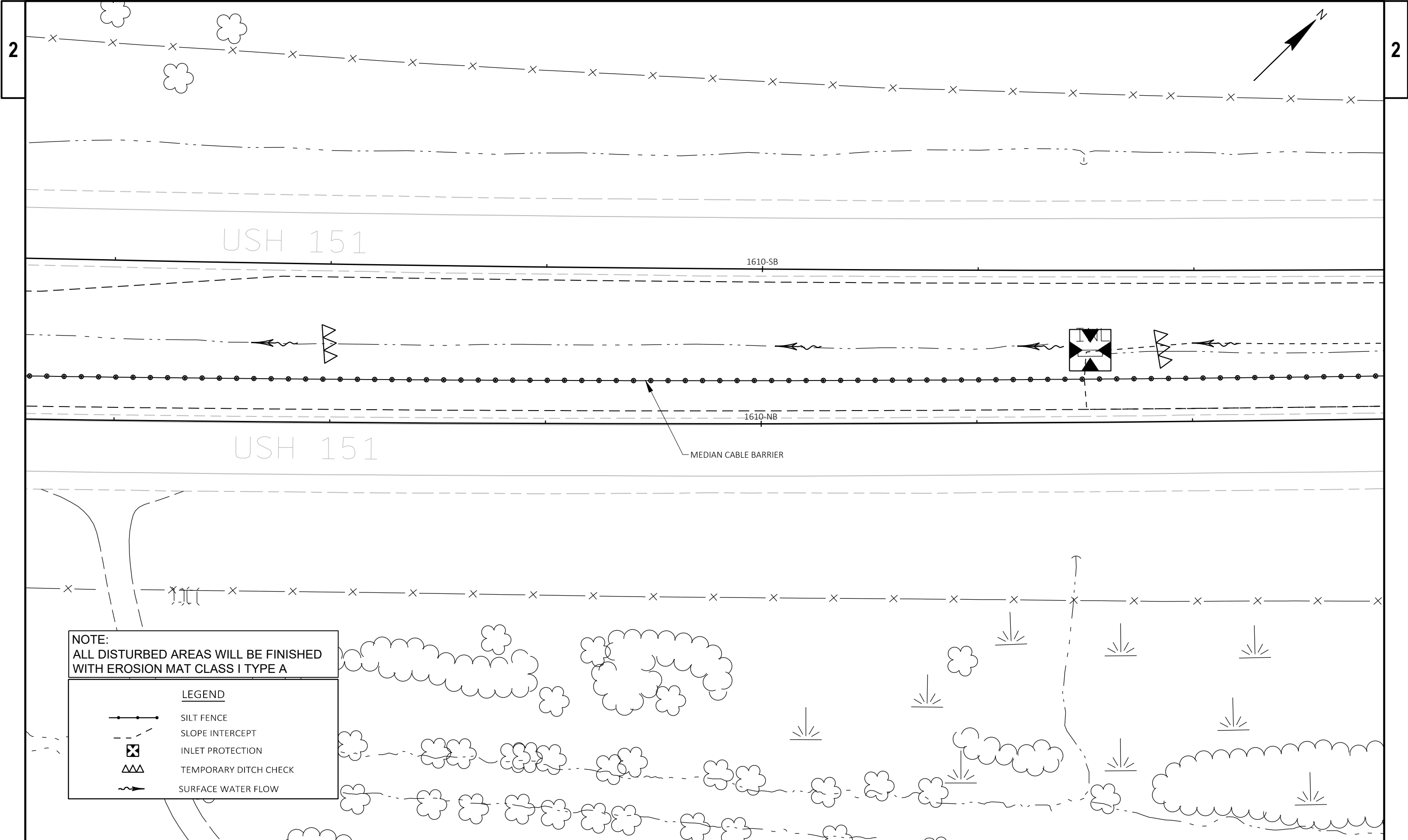




NO	STATION	OFFSET	Y	X	DESCRIPTION
10	1675+97 NB	91.49' RT	694,986.4460	814,546.2880	FENO MARKER

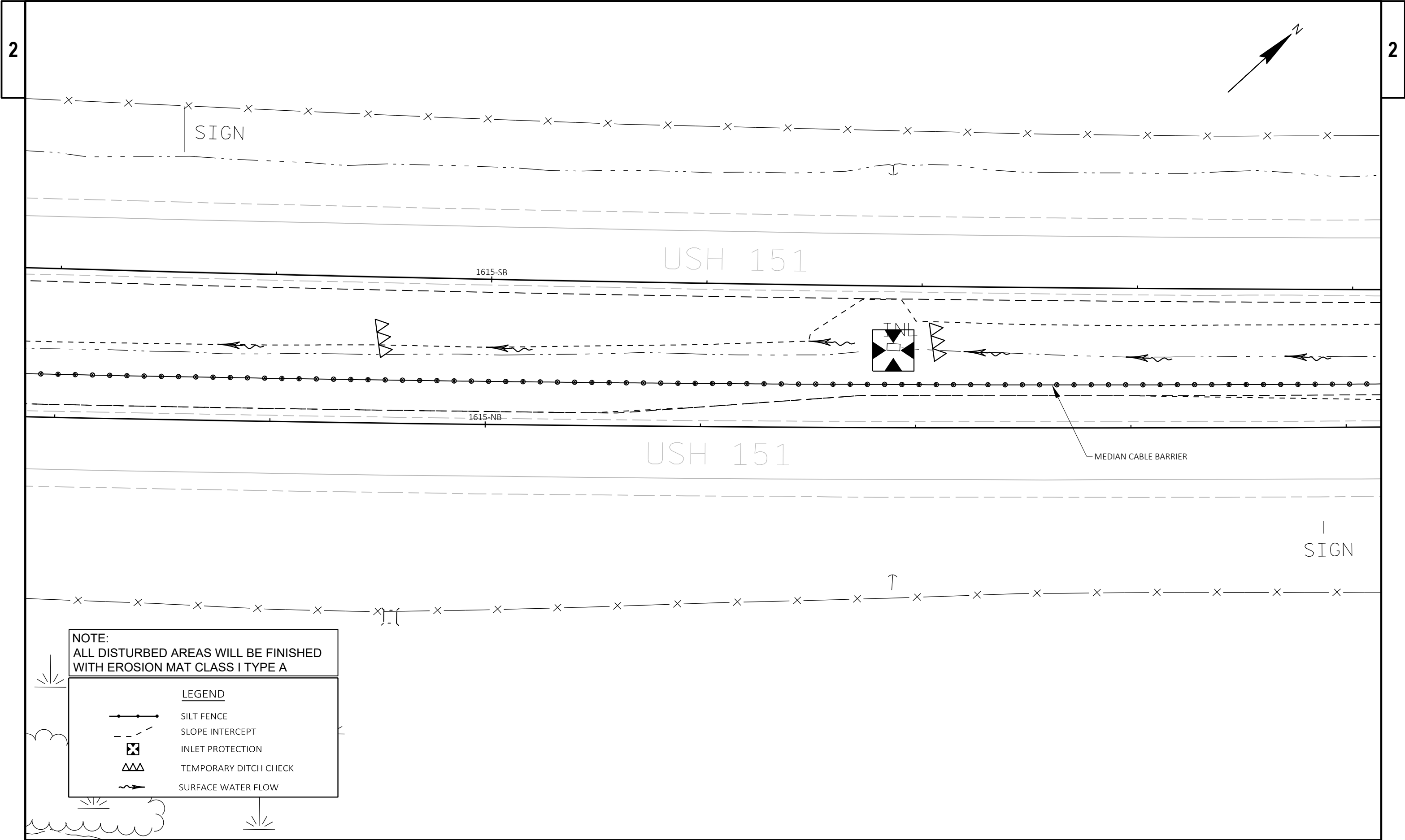
NO	STATION	OFFSET	DESCRIPTION	ELEV
110	1675+97 NB	91.49' RT	SPK NW SIDE SOUTHERLY POWER POLE	882.429

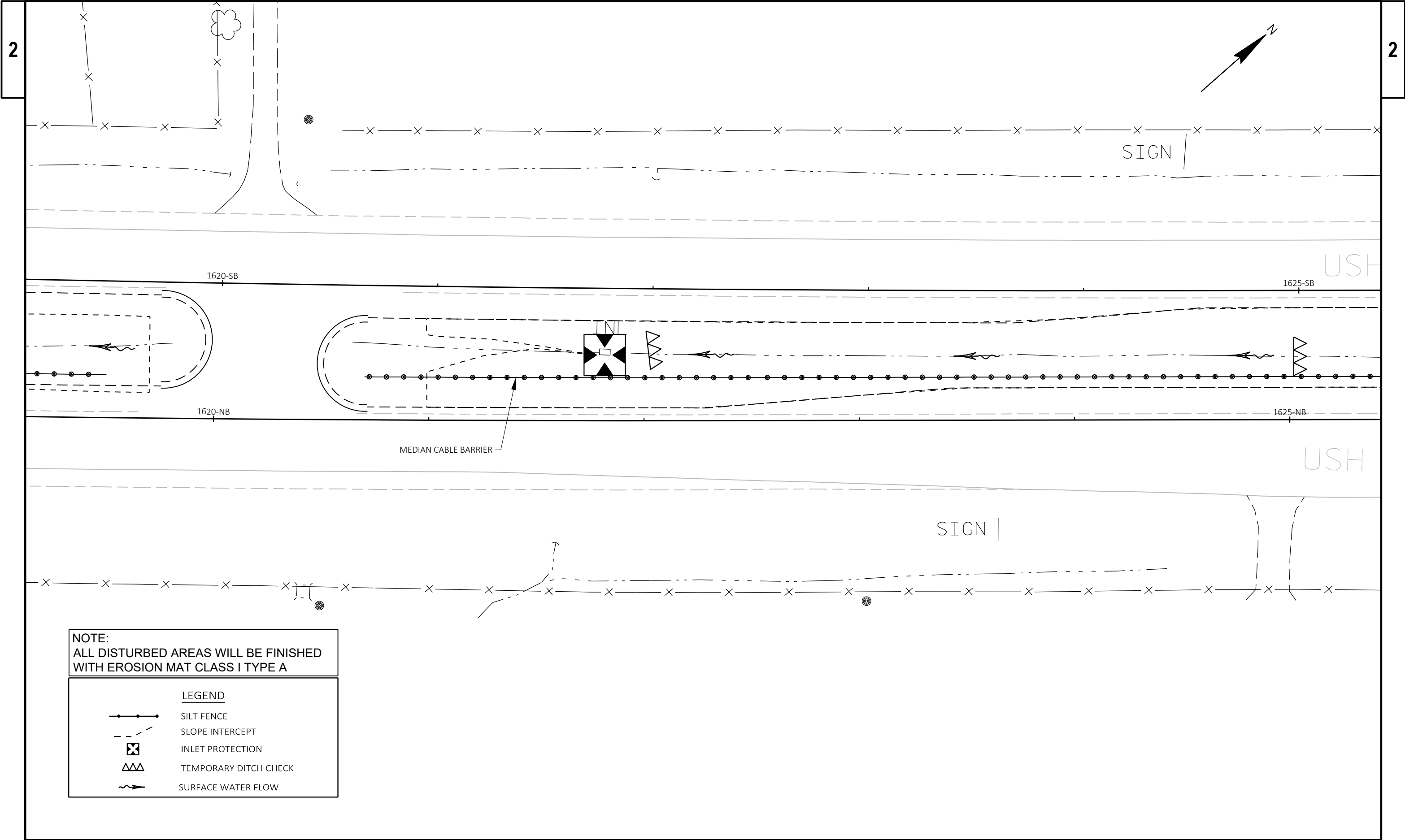


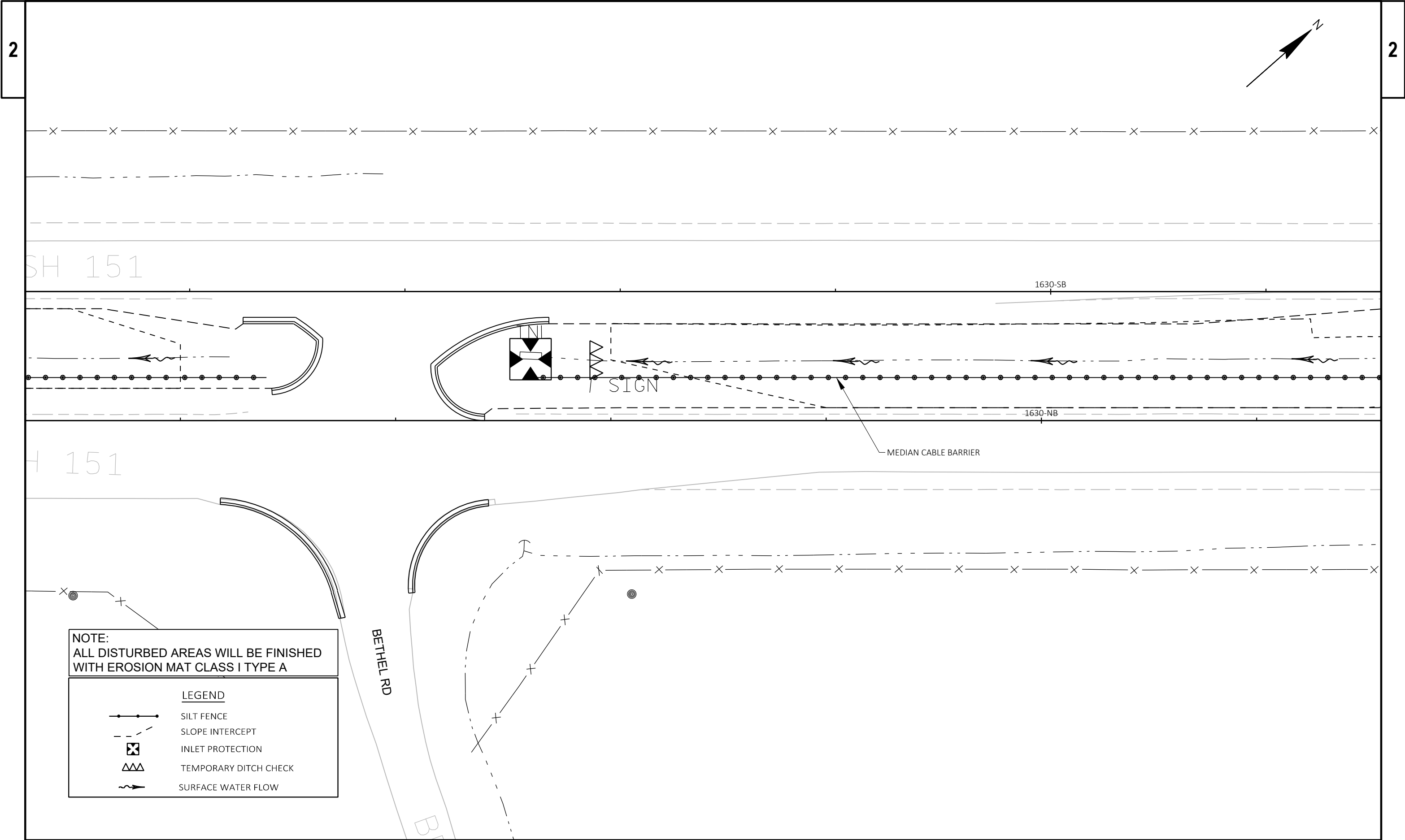


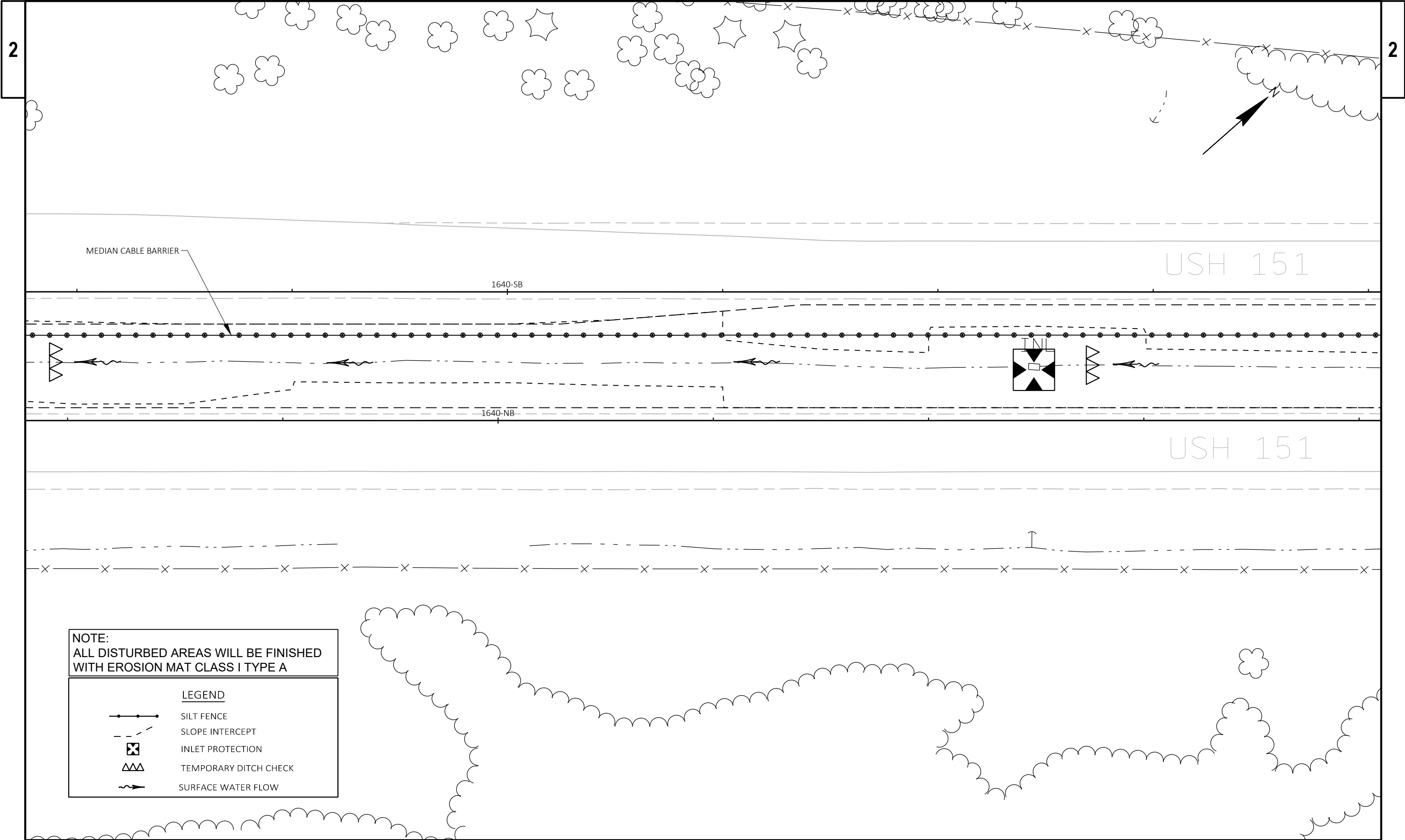
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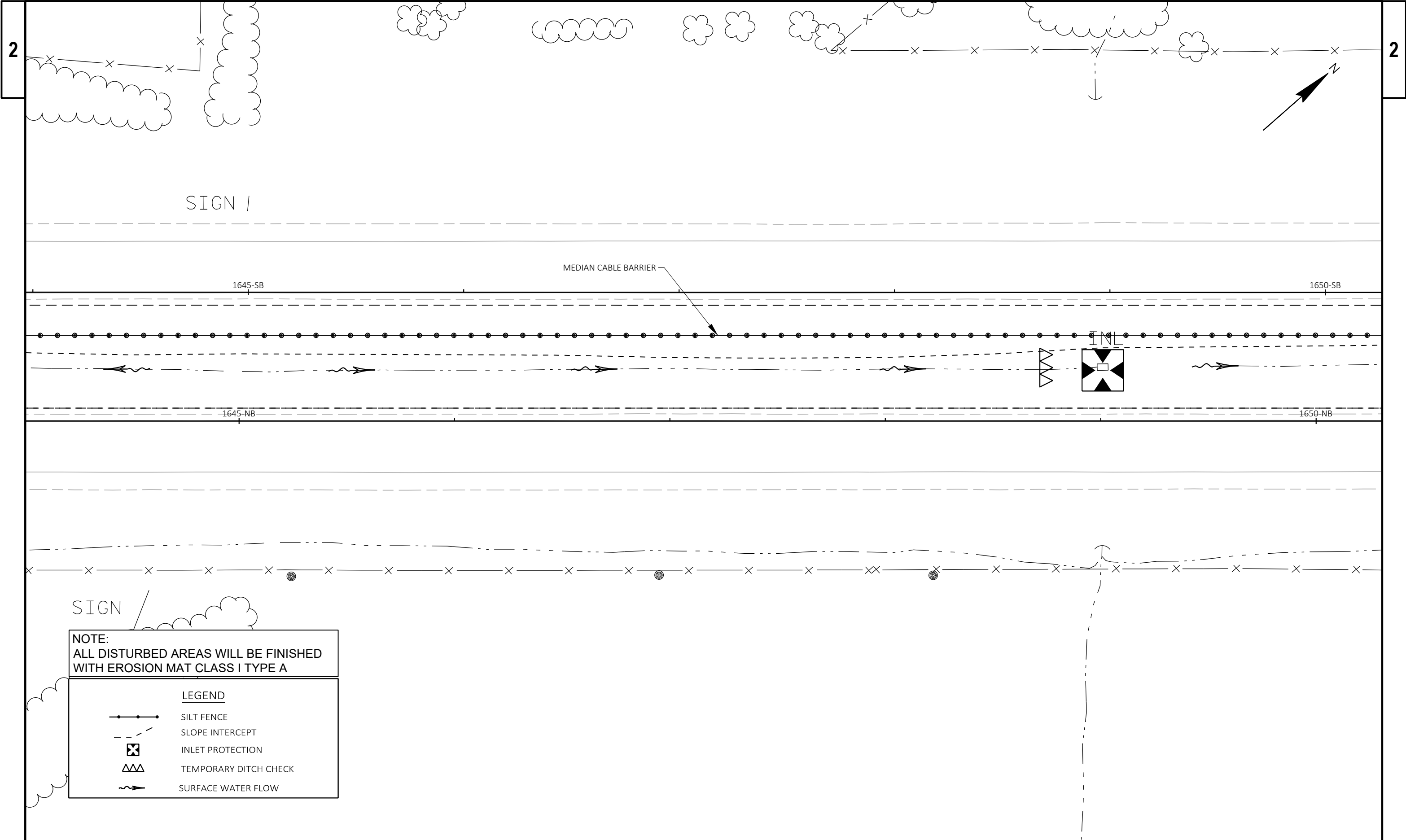
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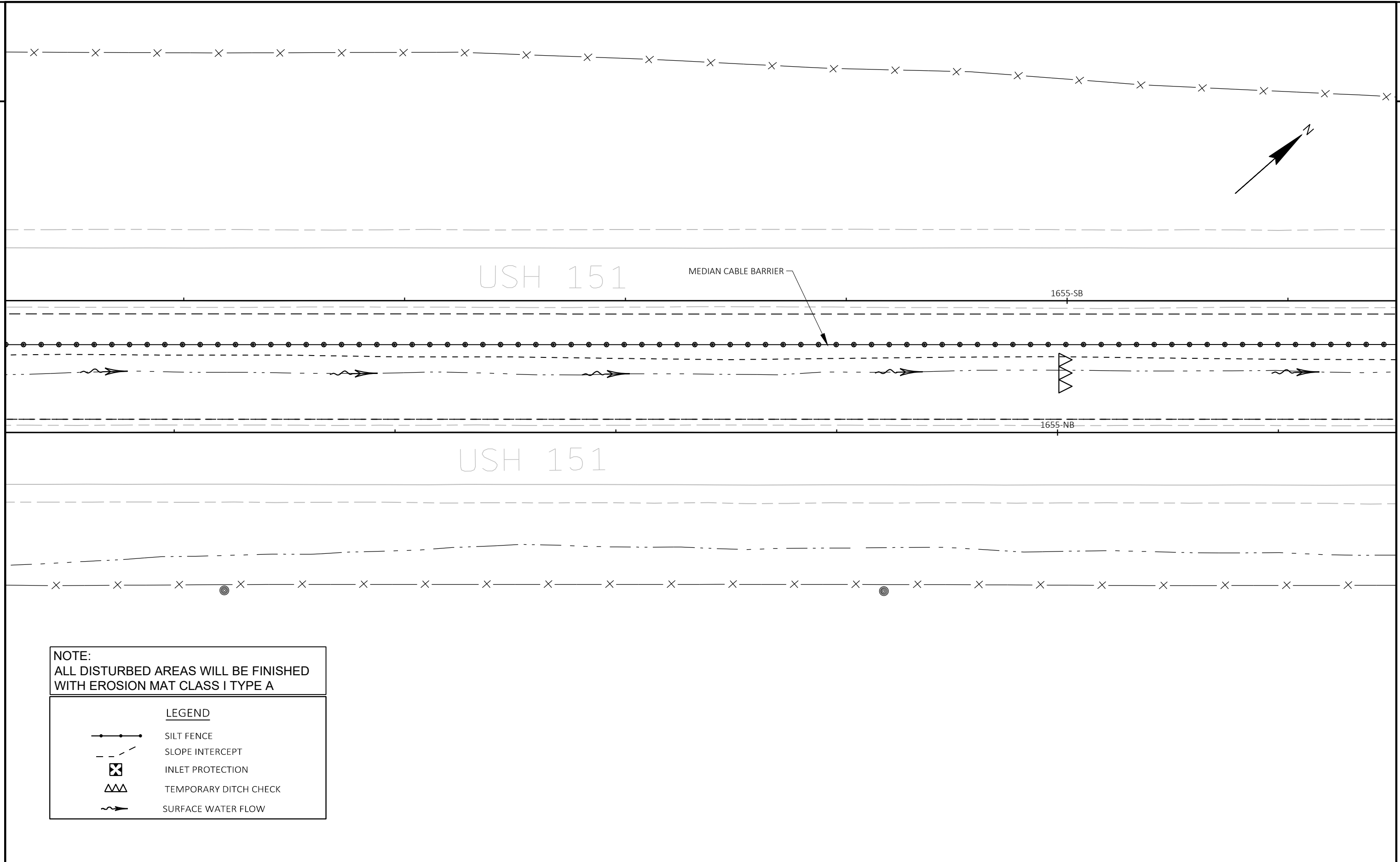








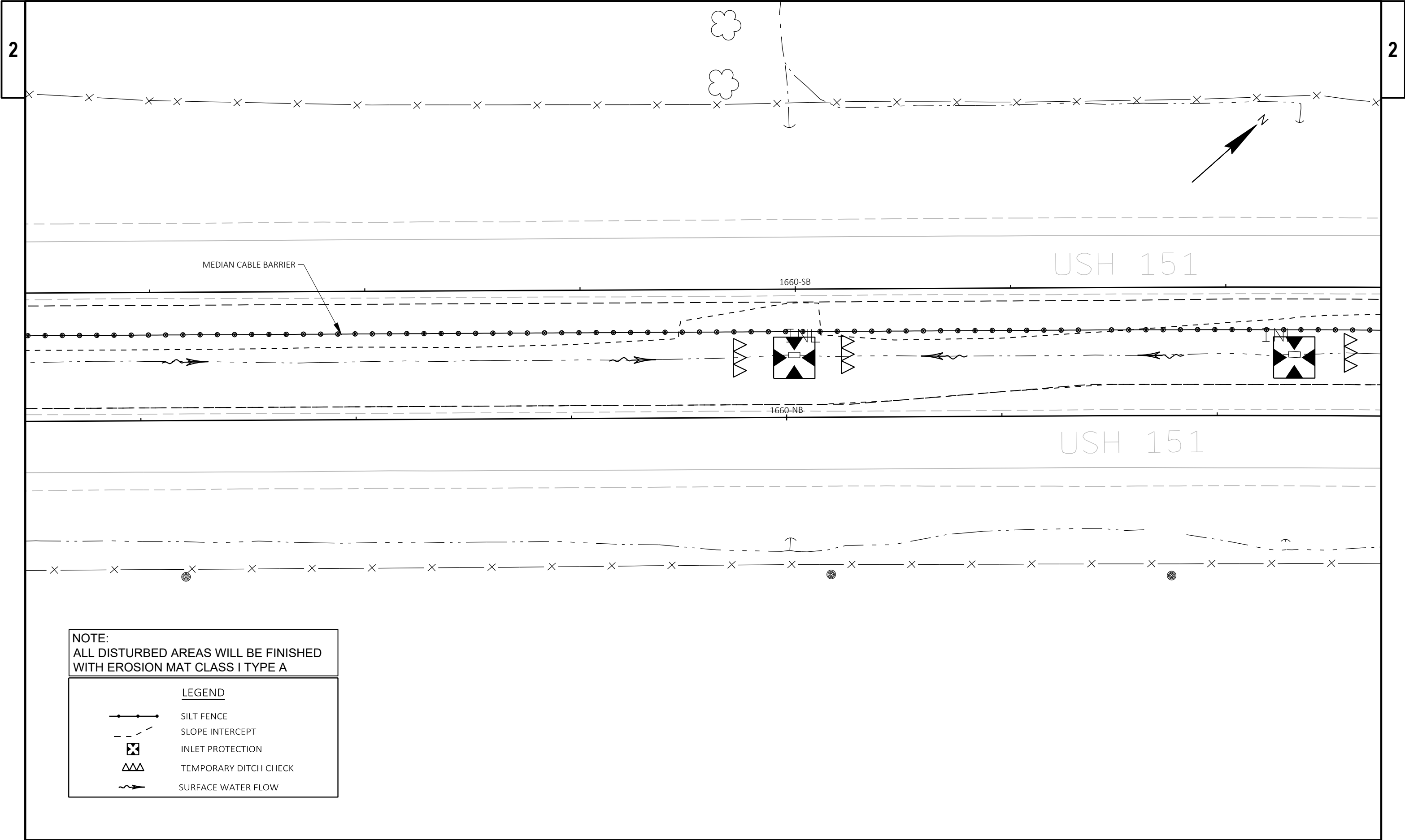


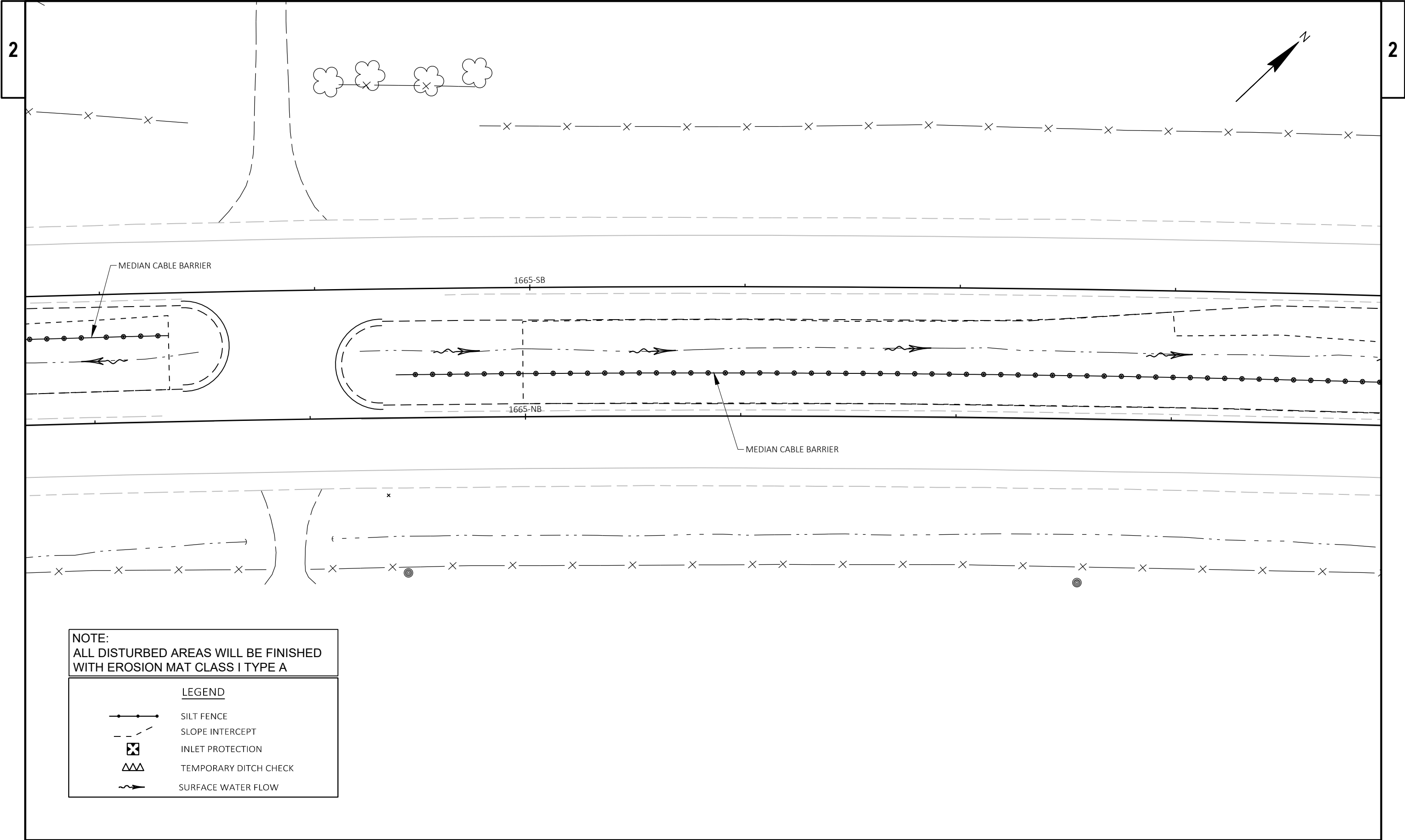


NOTE:
ALL DISTURBED AREAS WILL BE FINISHED
WITH EROSION MAT CLASS I TYPE A

LEGEND

	SILT FENCE
	SLOPE INTERCEPT
	INLET PROTECTION
	TEMPORARY DITCH CHECK
	SURFACE WATER FLOW



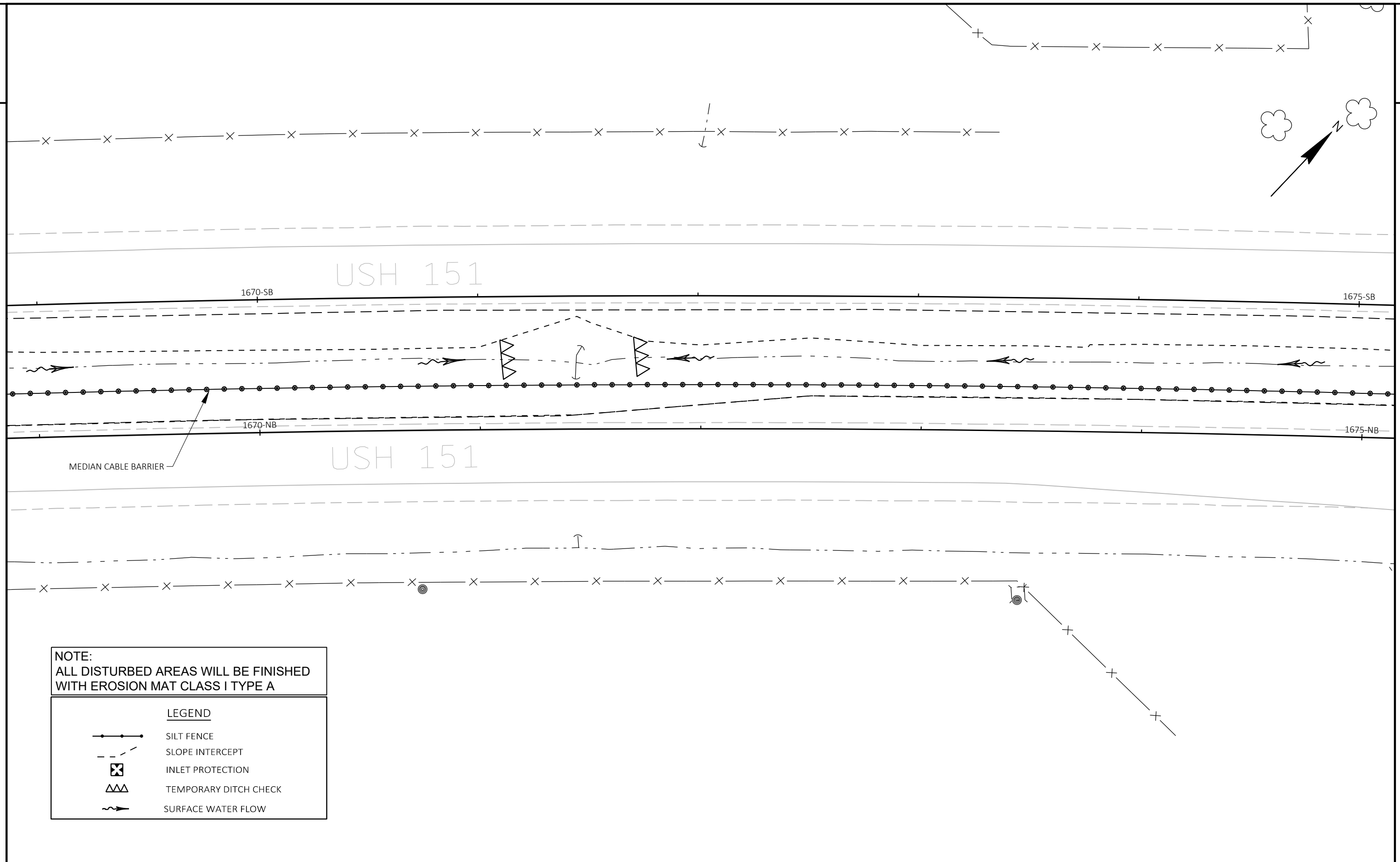


NOTE:
ALL DISTURBED AREAS WILL BE FINISHED
WITH EROSION MAT CLASS I TYPE A

LEGEND	
	SILT FENCE
	SLOPE INTERCEPT
	INLET PROTECTION
	TEMPORARY DITCH CHECK
	SURFACE WATER FLOW

2

2

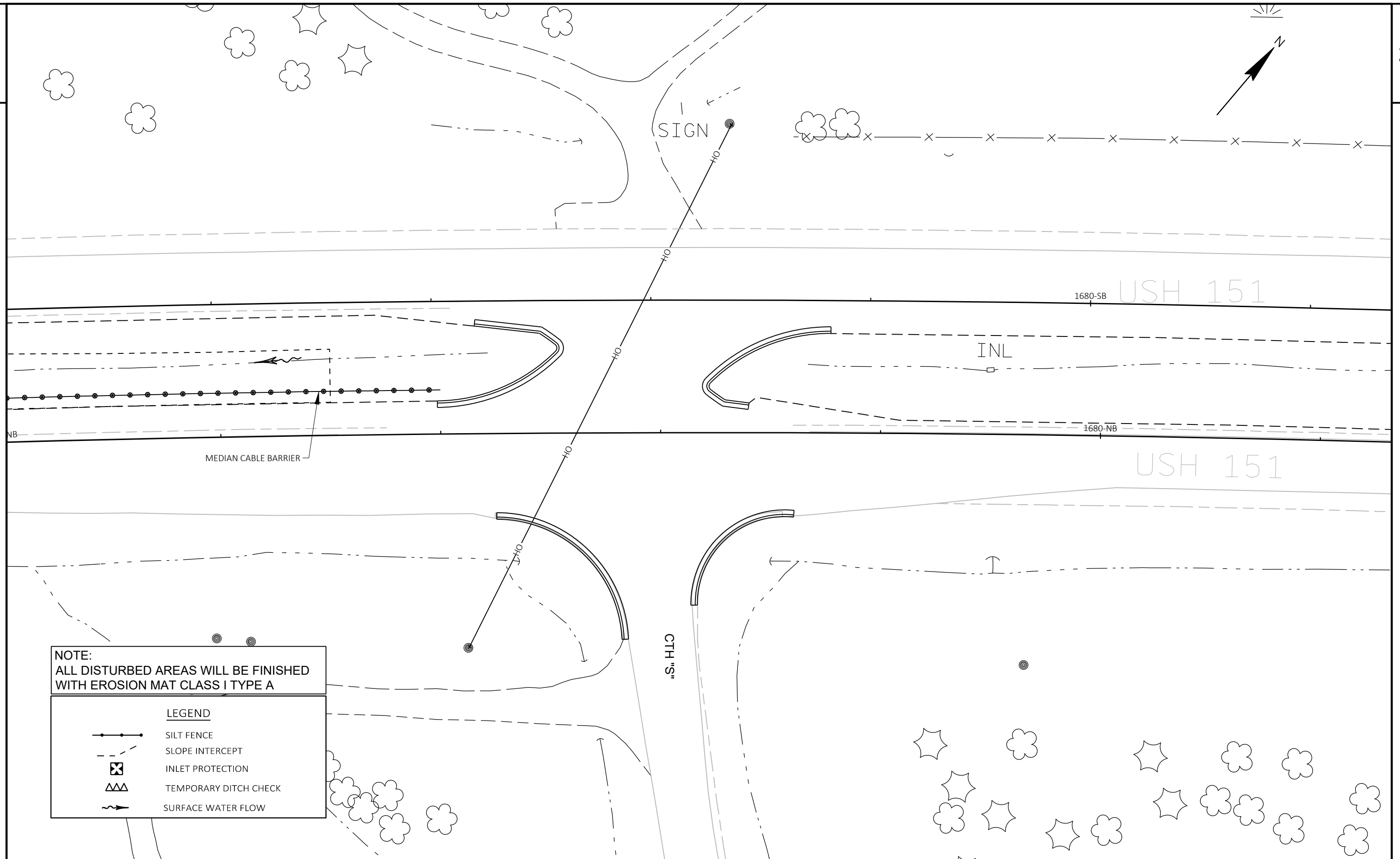


NOTE:
ALL DISTURBED AREAS WILL BE FINISHED
WITH EROSION MAT CLASS I TYPE A

LEGEND	
	SILT FENCE
	SLOPE INTERCEPT
	INLET PROTECTION
	TEMPORARY DITCH CHECK
	SURFACE WATER FLOW

2

2



NOTE:
ALL DISTURBED AREAS WILL BE FINISHED
WITH EROSION MAT CLASS I TYPE A

LEGEND

- SILT FENCE
- SLOPE INTERCEPT
- INLET PROTECTION
- TEMPORARY DITCH CHECK
- SURFACE WATER FLOW

PROJECT NO:	1112-02-63
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HWY: USH 151

COUNTY: DODGE

EROSION CONTROL

SHEET

■

FILE NAME : C:\WISDOT\DESIGN\C3D\11120233\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - Sheet - (13)

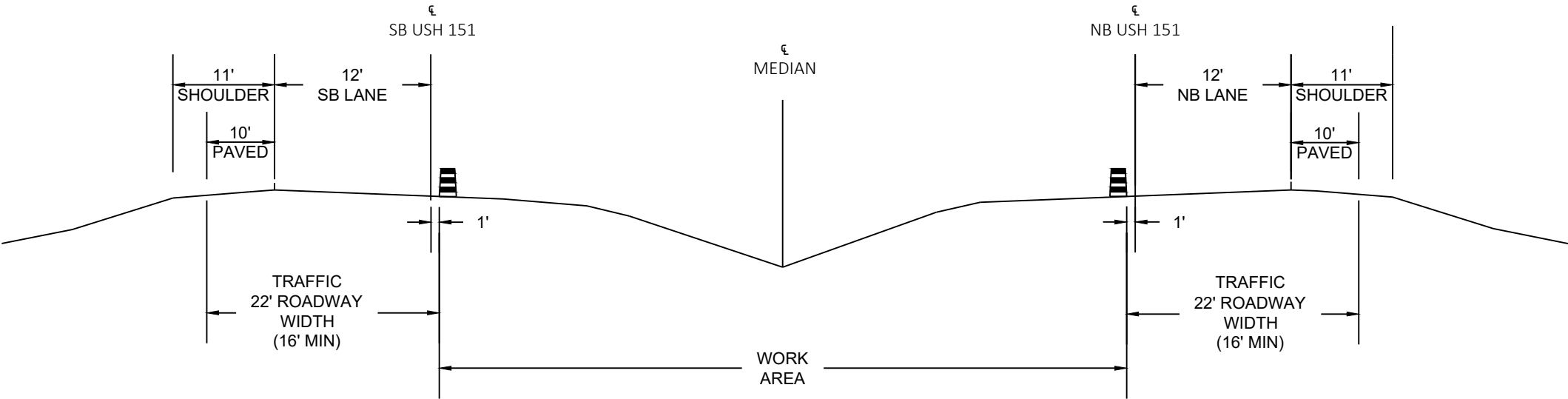
PLOT DATE : 1/27/2021 7:55 AM

PLOT BY : HERRERA BAUTISTA, PE

PLOT NAME :

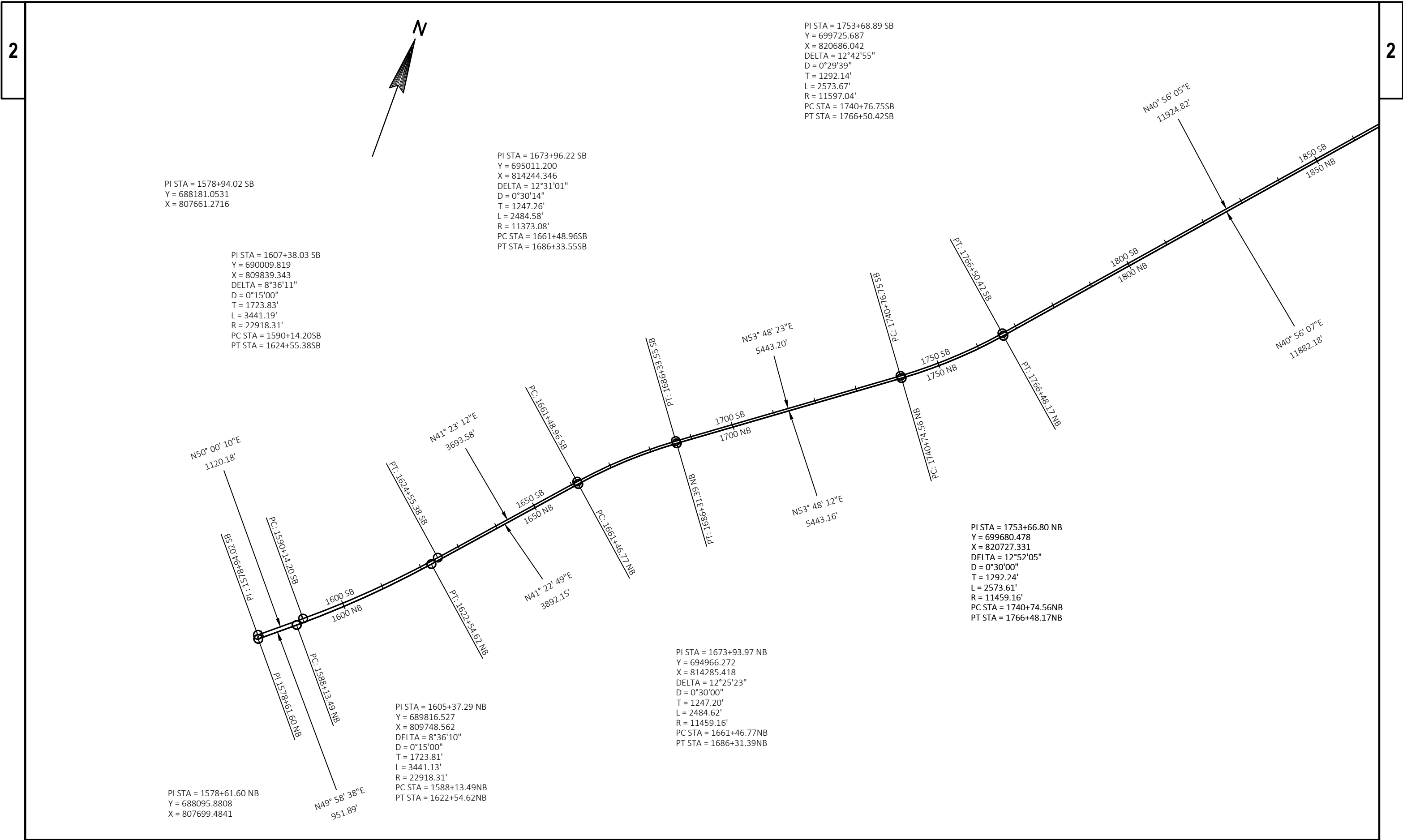
PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42



DAYTIME LANE CLOSURES USH 151

- SEE THE FOLLOWING STANDARD DETAIL DRAWINGS
- SDD 15C11 CHANNELIZING DEVICES, DRUMS, CONES, BARRICADES, AND VERTICAL PANELS
 - SDD 15C12 TRAFFIC CONTROL, LANE CLOSURE
 - SDD 15D21 TRAFFIC CONTROL, INTERSECTION WITHIN LANE CLOSURE
 - SDD 15D27 TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
 - SDD 15D38 TEMPORARY TRAFFIC CONTROL SIGN MOUNTING



Estimate Of Quantities

1112-02-63

Line	Item	Item Description	Unit	Total	Qty
0002	204.9060.S	Removing (item description) 01. Apron Endwall	EACH	2.000	2.000
0004	208.0100	Borrow	CY	5,144.000	5,144.000
0006	213.0100	Finishing Roadway (project) 01. 1112-02-63	EACH	1.000	1.000
0008	305.0110	Base Aggregate Dense 3/4-Inch	TON	580.000	580.000
0010	520.8000	Concrete Collars for Pipe	EACH	26.000	26.000
0012	521.1618	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 18-Inch 10 to 1	EACH	2.000	2.000
0014	522.0118	Culvert Pipe Reinforced Concrete Class III 18-Inch	LF	46.000	46.000
0016	522.0124	Culvert Pipe Reinforced Concrete Class III 24-Inch	LF	12.000	12.000
0018	611.0430	Reconstructing Inlets	EACH	4.000	4.000
0020	611.0535	Manhole Covers Type J-Special	EACH	1.000	1.000
0022	611.2006	Manholes 6-FT Diameter	EACH	1.000	1.000
0024	611.8115	Adjusting Inlet Covers	EACH	3.000	3.000
0026	612.0206	Pipe Underdrain Unperforated 6-Inch	LF	137.000	137.000
0028	613.1100.S	Cable Barrier Type 1	LF	6,490.000	6,490.000
0030	613.1200.S	Cable Barrier End Terminal Type 1	EACH	10.000	10.000
0032	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1112-02-63	EACH	1.000	1.000
0034	619.1000	Mobilization	EACH	1.000	1.000
0036	624.0100	Water	MGAL	30.000	30.000
0038	625.0500	Salvaged Topsoil	SY	20,600.000	20,600.000
0040	628.1504	Silt Fence	LF	125.000	125.000
0042	628.1520	Silt Fence Maintenance	LF	125.000	125.000
0044	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0046	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0048	628.2002	Erosion Mat Class I Type A	SY	20,600.000	20,600.000
0050	628.7005	Inlet Protection Type A	EACH	11.000	11.000
0052	628.7504	Temporary Ditch Checks	LF	190.000	190.000
0054	629.0210	Fertilizer Type B	CWT	16.000	16.000
0056	630.0120	Seeding Mixture No. 20	LB	660.000	660.000
0058	630.0200	Seeding Temporary	LB	132.000	132.000
0060	630.0500	Seed Water	MGAL	500.000	500.000
0062	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	10.000	10.000
0064	638.2102	Moving Signs Type II	EACH	9.000	9.000
0066	642.5001	Field Office Type B	EACH	1.000	1.000
0068	643.0300	Traffic Control Drums	DAY	15,960.000	15,960.000
0070	643.0420	Traffic Control Barricades Type III	DAY	840.000	840.000
0072	643.0705	Traffic Control Warning Lights Type A	DAY	1,680.000	1,680.000
0074	643.0715	Traffic Control Warning Lights Type C	DAY	560.000	560.000
0076	643.0800	Traffic Control Arrow Boards	DAY	70.000	70.000

Estimate Of Quantities

1112-02-63

Line	Item	Item Description	Unit	Total	Qty
0078	643.0900	Traffic Control Signs	DAY	2,415.000	2,415.000
0080	643.5000	Traffic Control	EACH	1.000	1.000
0082	650.4000	Construction Staking Storm Sewer	EACH	3.000	3.000
0084	650.9910	Construction Staking Supplemental Control (project) 01. 1112-02-63	LS	1.000	1.000
0086	650.9920	Construction Staking Slope Stakes	LF	7,300.000	7,300.000
0088	SPV.0060	Special 01. Salvage and Reinstall Apron Endwall for Underdrain	EACH	24.000	24.000

EARTHWORK

					UNEXPANDED FILL CY	EXPANDED FILL (FACTOR = 1.25) CY	* 208.0100 BORROW CY
CATEGORY	STATION	TO	STATION	LOCATION			
0010	1604+00 NB	-	1677+00 NB	MEDIAN	4115	5144	5,144
TOTAL 0010							5,144

* BORROW = UNEXPANDED FILL X 1.25

BASE AGGREGATE

					305.0110 BASE AGGREGATE DENSE 3/4-INCH TON
CATEGORY	STATION	TO	STATION	LOCATION	
0010	1604+00 NB	-	1677+00 NB	LT	580
TOTAL 0010					580

DRAINAGE ITEMS

		204.9060.S.01	* 520.8000	521.1618	522.0118	522.0124	611.0430	611.0535	611.2006	611.8115	650.4000
		REMOVING (ITEM DESCRIPTION) (01. APRON ENDWALL)	CONCRETE COLLARS FOR PIPE	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 18- INCH 10 TO 1	CULVERT PIPE REINFORCED CONCRETE CLASS III 18-INCH	CULVERT PIPE REINFORCED CONCRETE CLASS III 24-INCH	RECONSTRUCTING INLETS	MANHOLE COVERS TYPE J-SPECIAL	MANHOLES 6-FT DIAMETER	ADJUSTING INLET COVERS	CONSTRUCTION STAKING STORM SEWER
CATEGO RY	STATION	LOCATION	EACH	EACH	EACH	LF	LF	EACH	EACH	EACH	EACH
0010	1616+89 NB	LT	-	-	-	-	-	1	-	-	-
0010	1621+82 NB	LT	-	-	-	-	-	-	-	1	-
0010	1637+60 NB	LT	-	-	-	-	-	1	-	-	-
0010	1642+48 NB	LT	-	-	-	-	-	-	-	1	-
0010	1649+01 NB	LT	-	-	-	-	-	-	-	1	-
0010	1660+04 NB	LT	-	-	-	-	-	1	-	-	-
0010	1662+36 NB	LT	-	-	-	-	-	1	-	-	-
0010	1671+44 NB	33.0' LT	2	2	-	6	12	-	1	-	1
0010	1671+24 NB	LT	-	-	1	20	-	-	-	-	1
0010	1671+64 NB	LT	-	-	1	20	-	-	-	-	1
0010	TOTAL 0010		2	2	2	46	12	4	1	1	3

* ADDITIONAL QUANTITY IN UNDERDRAIN

CABLE BARRIER

					613.1100.S	613.1200.S
					CABLE BARRIER TYPE 1	CABLE BARRIER END TERMINAL
CATEGORY	STATION	TO	STATION	LOCATION	LF	TYPE 1 EACH
0010	1604+00 NB	-	1619+70 NB	20' LT	1,508	2
0010	1620+70 NB	-	1626+40 NB	20' LT	508	2
0010	1627+65 NB	-	1635+65 NB	20' LT	738	2
0010	1637+35 NB	-	1663+35 NB	40' LT	2,538	2
0010	1664+40 NB	-	1677+00 NB	20' LT	1,198	2
TOTAL 0010					6,490	10

WATER

					624.0100 WATER MGAL	630.0500 SEED WATER MGAL
CATEGORY	STATION	TO	STATION	LOCATION		
0010	1604+00 NB	-	1677+00 NB	LT	30	500
TOTAL 0010					30	500

CONSTRUCTION STAKING

					650.9910.01	650.9920
					CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 1112-02-63)	CONSTRUCTION STAKING SLOPE
CATEGORY	STATION	TO	STATION	LOCATION	LS	STAKES LF
0010	1604+00 NB	-	1677+00 NB	LT	1	7,300
TOTAL 0010					1	7,300

EROSION CONTROL											
				628.1504	628.1520	628.1905	628.1910	628.2002	628.7005	628.7504	
				SILT FENCE	SILT FENCE MAINTENANCE	MOBILIZATIONS EROSION CONTROL	MOBILIZATIONS EMERGENCY EROSION CONTROL	EROSION MAT CLASS I TYPE A	INLET PROTECTION TYPE A	TEMPORARY DITCH CHECKS	
CATEGOR Y	STATION	TO	STATION	LOCATION	LF	LF	EACH	EACH	SY	EACH	LF
0010	1604+00 NB	-	1677+00 NB	PROJECT	-	-	4	3	18,600	11	150
0010				UNDISTRIBUTED	125	125	-	-	2,000	-	40
				TOTAL 0010	125	125	4	3	20,600	11	190

FINISHING									
					625.0500	629.0210	630.0120	630.0200	
					SALVAGED TOPSOIL	FERTILIZER TYPE B	SEEDING MIXTURE NO. 20	SEEDING TEMPORARY	
CATEGOR Y	STATION	TO	STATION	LOCATION	SY	CWT	LB	LB	
0010	1604+00 NB	-	1677+00 NB	PROJECT	18,600	14	600	120	
0010				UNDISTRIBUTED	2,000	2	60	12	
				TOTAL 0010	20,600	16	660	132	

TRAFFIC CONTROL									
			643.0300	643.0420	643.0705	643.0715	643.0800	643.0900	
			TRAFFIC CONTROL DRUMS	TRAFFIC CONTROL BARRICADES TYPE III	TRAFFIC CONTROL WARNING LIGHTS TYPE A	TRAFFIC CONTROL WARNING LIGHTS TYPE C	TRAFFIC CONTROL ARROW BOARDS	TRAFFIC CONTROL SIGNS	
CATEG ORY	STAGE DURATION	LOCATION	DAY	DAY	DAY	DAY	DAY	DAY	
0010	35 DAYS	PROJECT	15,960	840	1,680	560	70	2,415	
		TOTAL 0010	15,960	840	1,680	560	70	2,415	

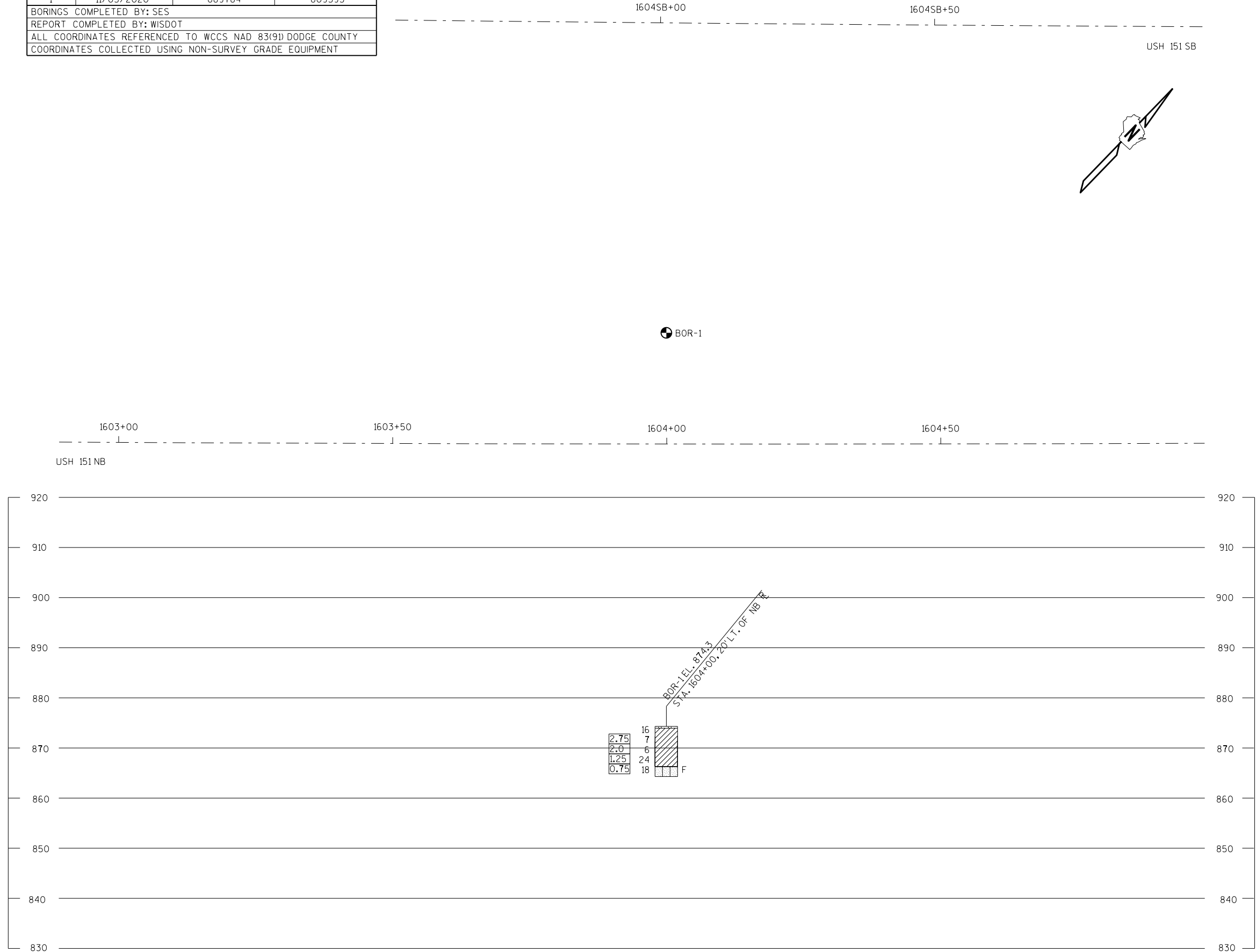
*
520.8000 612.0206 SPV.0060.01

* ADDITIONAL QUANTITY IN 611 - DRAINAGE ITEMS

634.0616	638.2102
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PROJECT NO: 1112-02-63	HWY: USH 151	COUNTY: DODGE	MISCELLANEOUS QUANTITIES	SHEET:	E
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BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	11/03/2020	689784	809593
BORINGS COMPLETED BY: SES			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DODGE COUNTY			
COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT			



STATE PROJECT NUMBER

1112-02-63

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)

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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

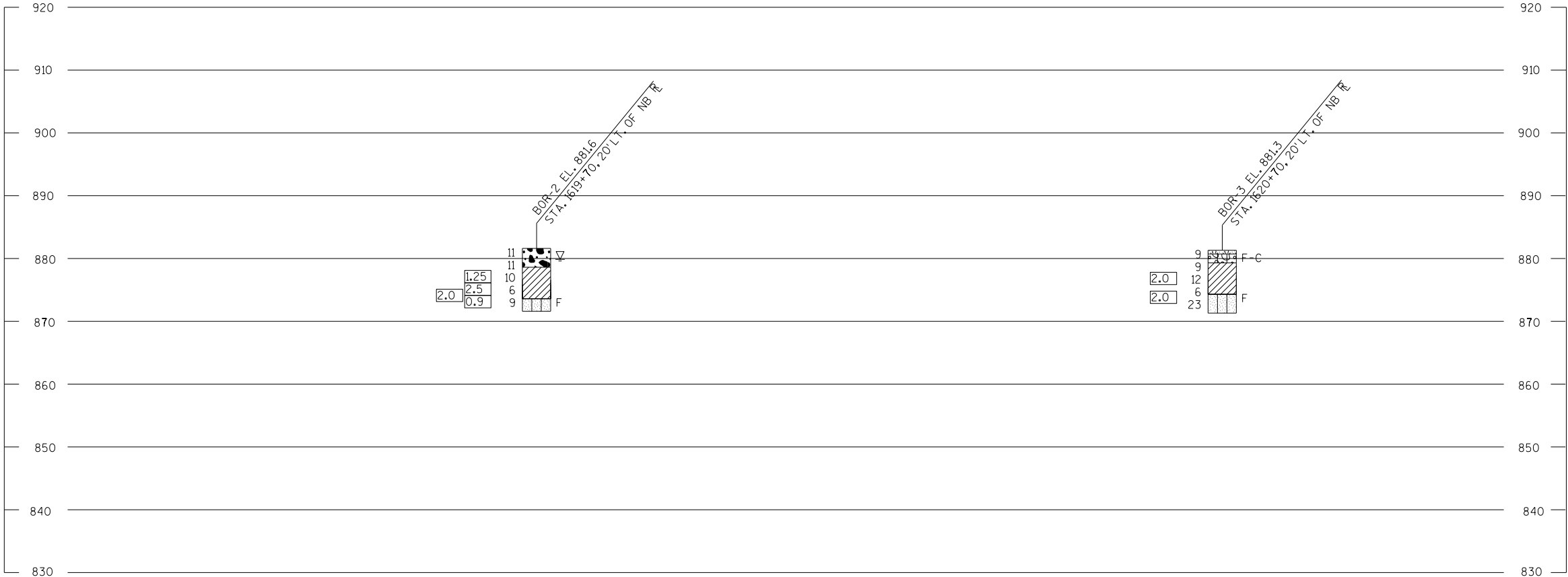
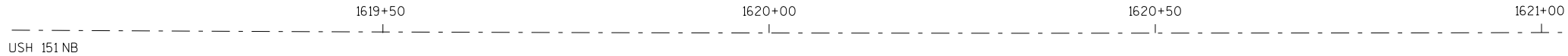
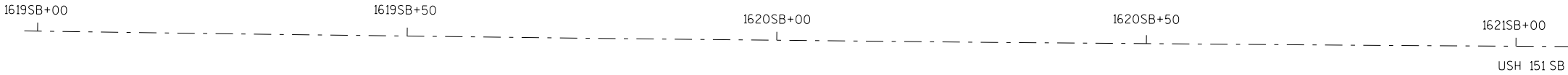
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.		DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION				
STRUCTURE CABLE BARRIER				
DRAWN BY TLP			PLANS CKD.	
SUBSURFACE EXPLORATION				SHEET

SCALE =

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
2	11/03/2020	690911	810684
3	11/03/2020	690985	810751
BORINGS COMPLETED BY: SES			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DODGE COUNTY			
COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT			



STATE PROJECT NUMBER

1112-02-63

MATERIAL SYMBOLS

ASPHALT

CONCRETE

SAND

BOULDERS OR COBBLES

SHALE

TOPSOIL

FILL

CLAY

LIMESTONE

SANDSTONE

PEAT

GRAVEL

SILT

BEDROCK (UNKNOWN)

IGNEOUS/META

LEGEND OF BORING

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ABBREVIATIONS

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STRUCTURE CABLE BARRIER			
DRAWN BY TLP		PLANS CKD.	
SUBSURFACE EXPLORATION		SHEET	

8

SCALE =

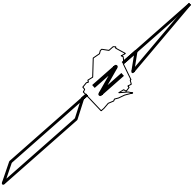
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4	11/03/2020	691412	811128
5	11/03/2020	69106	811210

BORINGS COMPLETED BY: SES

REPORT COMPLETED BY: WISDOT

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

COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT



STATE PROJECT NUMBER

1112-02-63

MATERIAL SYMBOLS

ASPHALT

CONCRETE

SAND

BOULDERS OR COBBLES

SHALE

TOPSOIL

FILL

CLAY

LIMESTONE

SANDSTONE

PEAT

GRAVEL

SILT

BEDROCK (UNKNOWN)

IGNEOUS/META

LEGEND OF BORING

BORING #/EL./STA./OFFSET

ST

(1) 0.25

(2) 17

F-C

COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'

REC=80%, ROD=72%

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STRUCTURE CABLE BARRIER			
DRAWN BY TLP		PLANS CKD.	
SUBSURFACE EXPLORATION		SHEET	

8

8

SCALE =

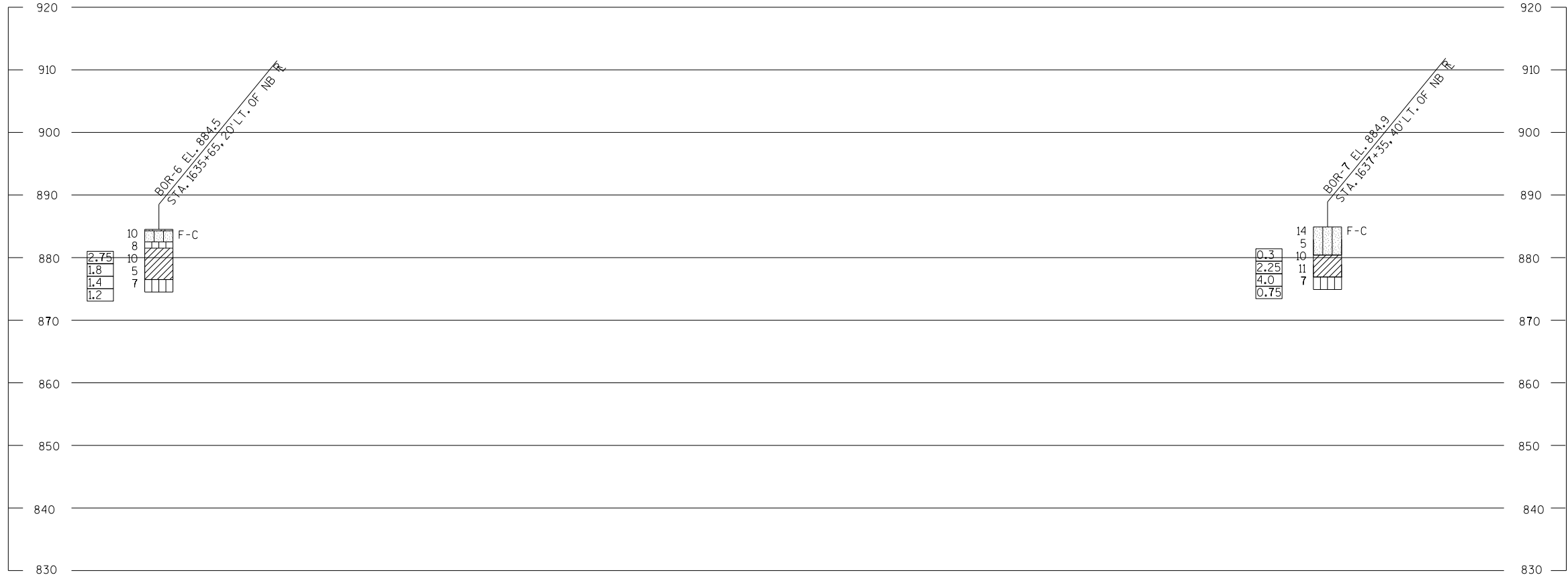
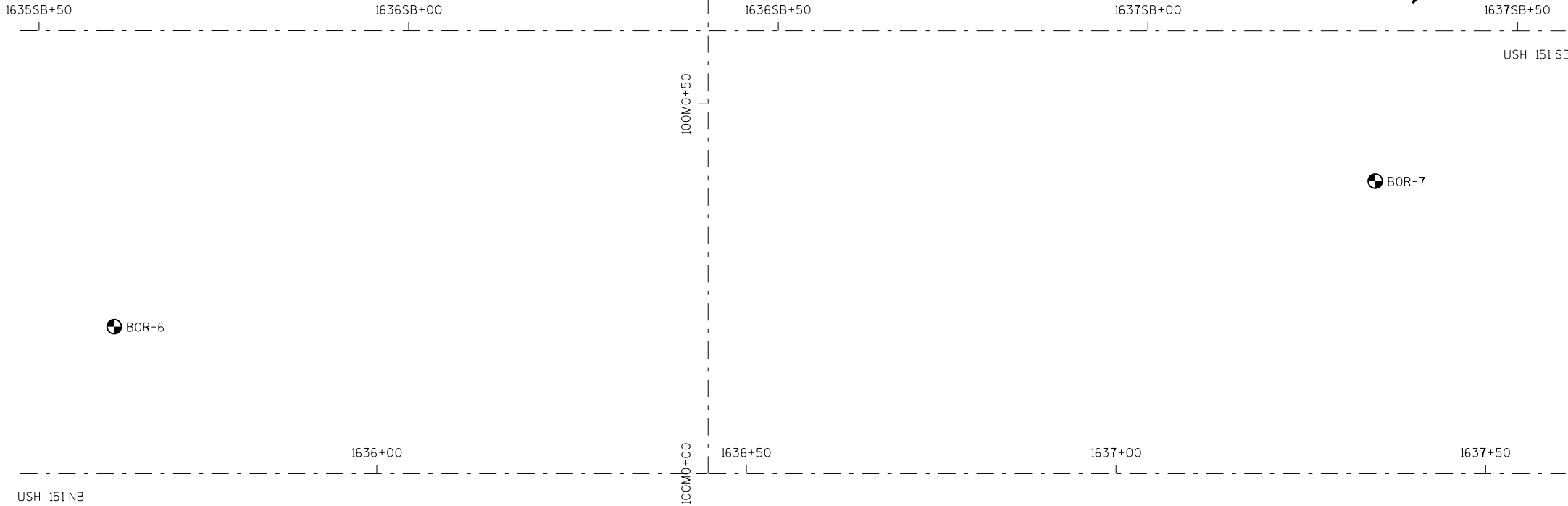
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
6	11/04/2020	692106	811739
7	11/04/2020	692247	811837

BORINGS COMPLETED BY: SES

REPORT COMPLETED BY: WISDOT

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

COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT



STATE PROJECT NUMBER

1112-02-63

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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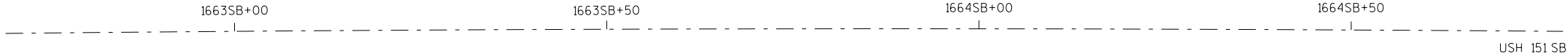
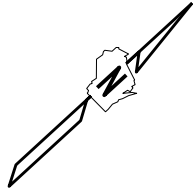
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE CABLE BARRIER			
DRAWN BY TLP		PLANS CKD.	
SUBSURFACE EXPLORATION		SHEET	

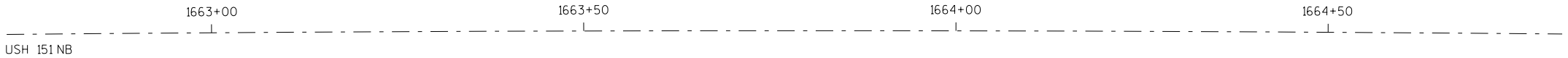
SCALE =

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
8	11/04/2020	694198	813557
9	11/04/2020	694262	813643
BORINGS COMPLETED BY: SES			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DODGE COUNTY			
COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT			



BOR-8

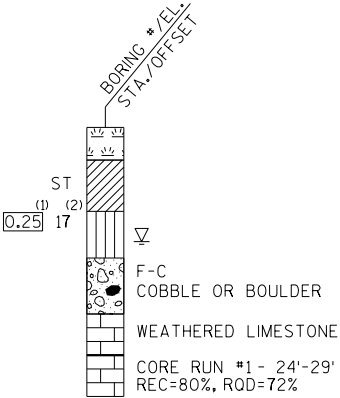
BOR-9



MATERIAL SYMBOLS

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

LEGEND OF BORING



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ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

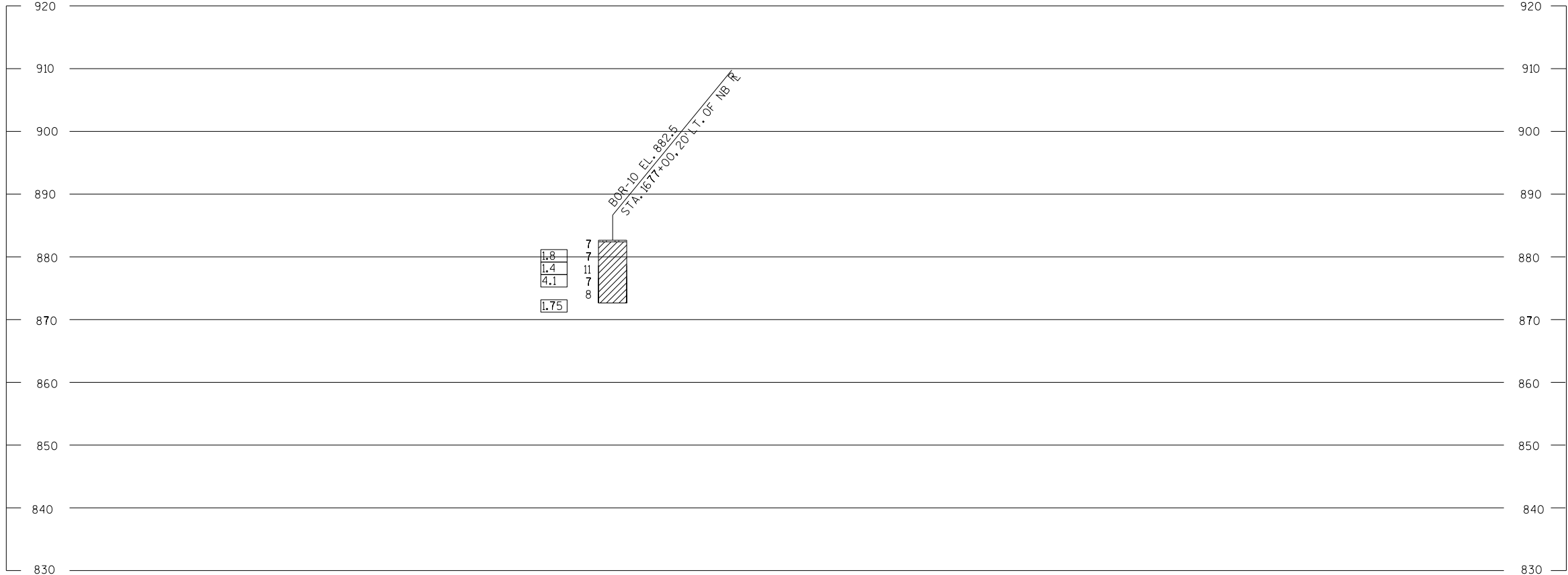
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE CABLE BARRIER			
DRAWN BY TLP		PLANS CKD.	
SUBSURFACE EXPLORATION		SHEET	

SCALE =

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
10	11/04/2020	695138	814550
BORINGS COMPLETED BY: SES			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DODGE COUNTY			
COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT			



STATE PROJECT NUMBER

1112-02-63

MATERIAL SYMBOLS

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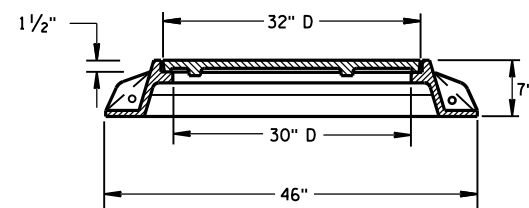
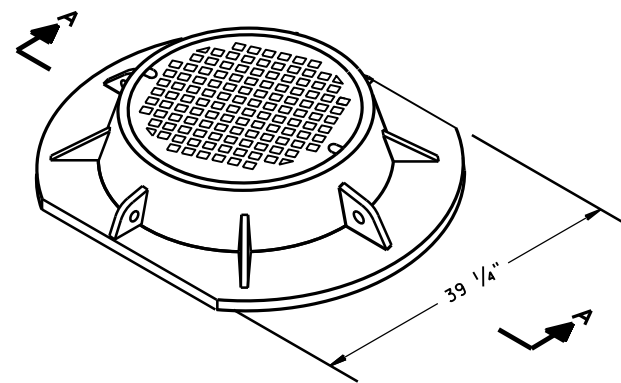
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

NO.		DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION				
STRUCTURE CABLE BARRIER				
DRAWN BY TLP			PLANS CKD.	
SUBSURFACE EXPLORATION				SHEET

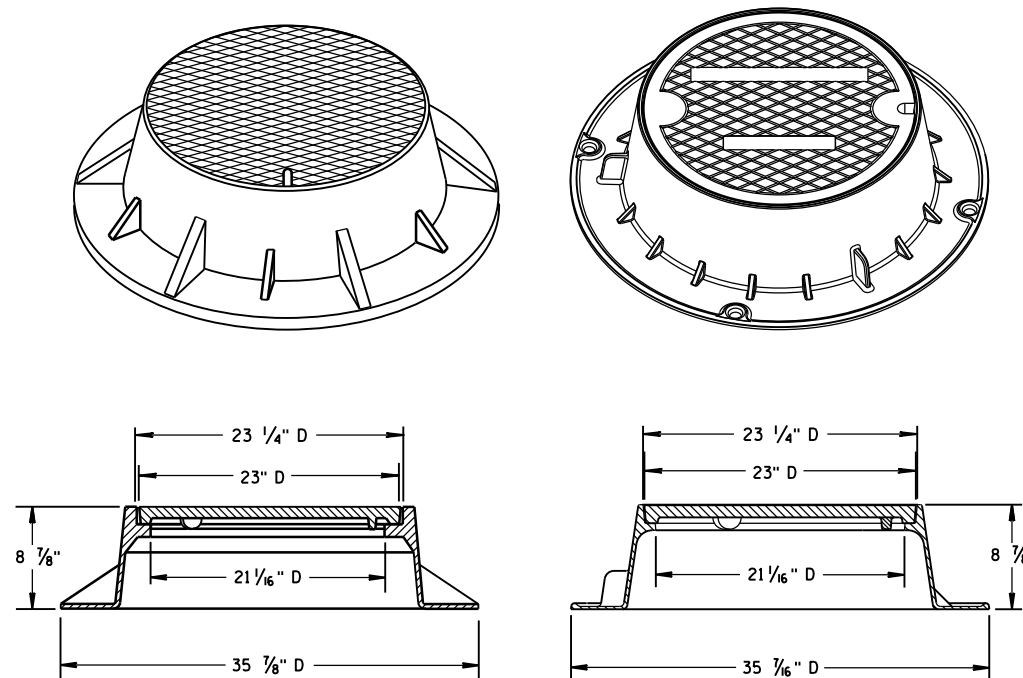
SCALE =

Standard Detail Drawing List

08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-02	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08D15-05A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08D15-05B	EDGEDRAIN AND BASE AGGREGATE OPEN GRADED
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS
14B52-01A	CABLE BARRIER TYPE 1 LAYOUT
14B52-01B	CABLE BARRIER TYPE 1 LAYOUT
15C11-08B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D12-09A	TRAFFIC CONTROL, LANE CLOSURE
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

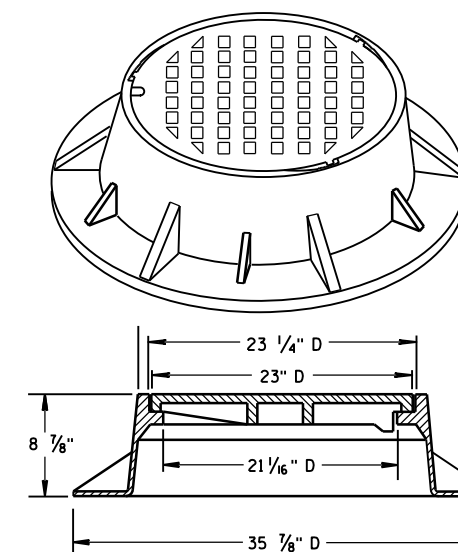
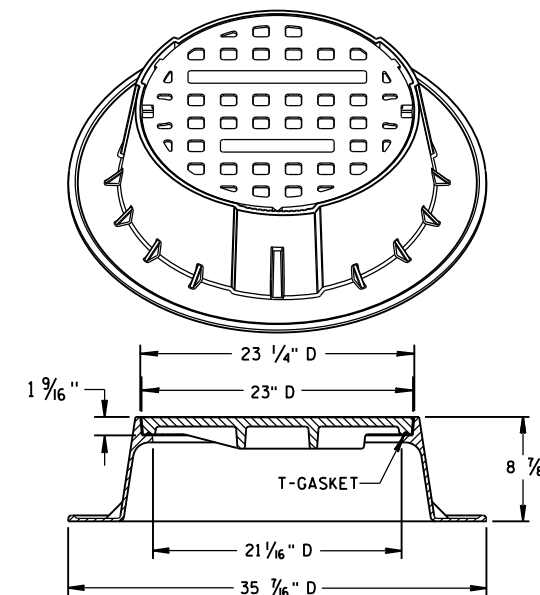


SECTION A-A
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

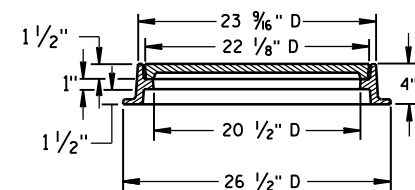
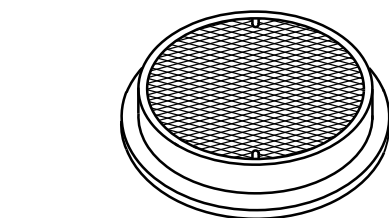


TYPE "J" SPECIAL

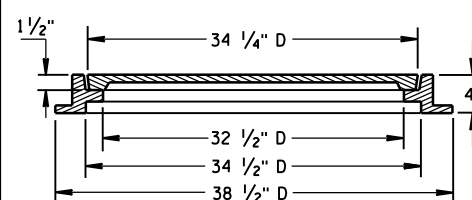
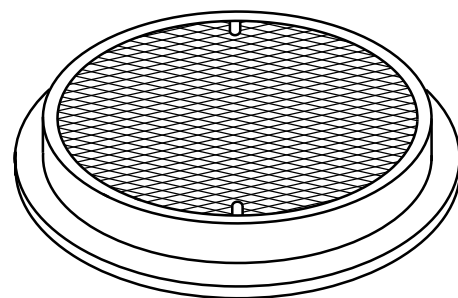
TYPE "B" NON-ROCKING SELF-SEAL LID

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

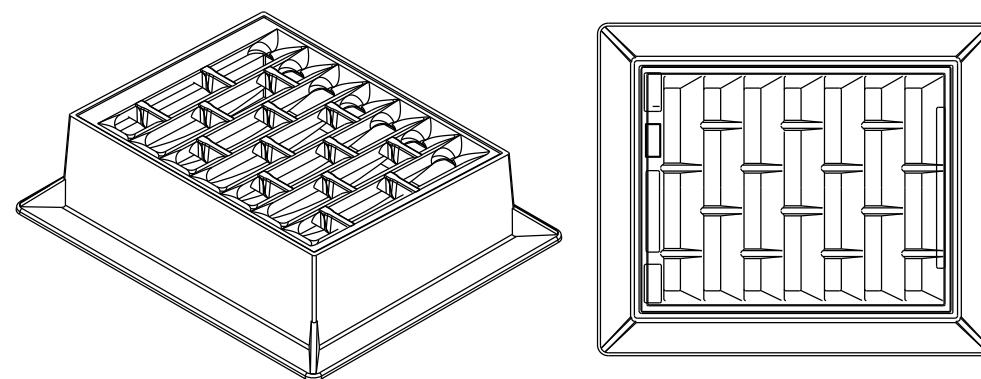
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

GENERAL NOTES

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

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

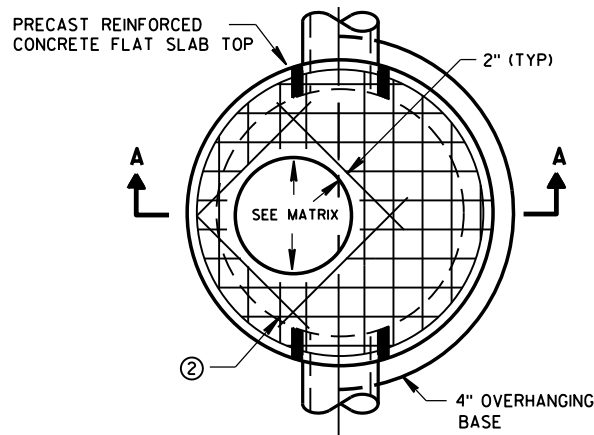
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

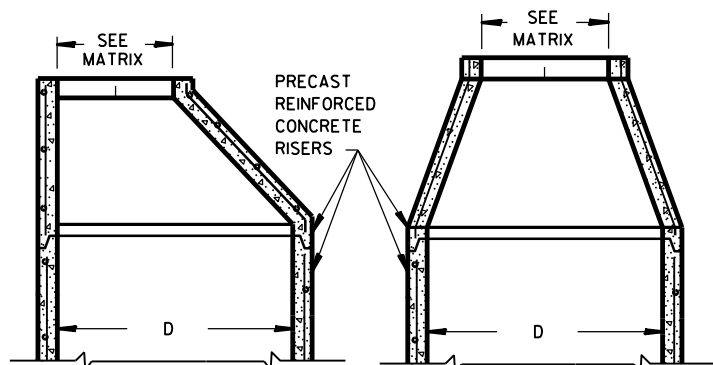
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

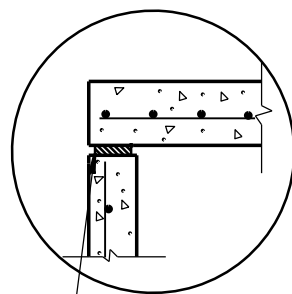


PLAN VIEW CIRCULAR OPENING

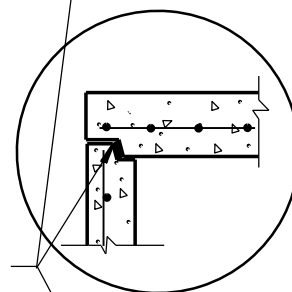


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

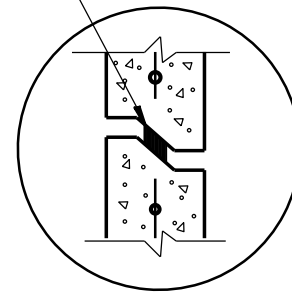
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



TOP WITH PLAIN END JOINT



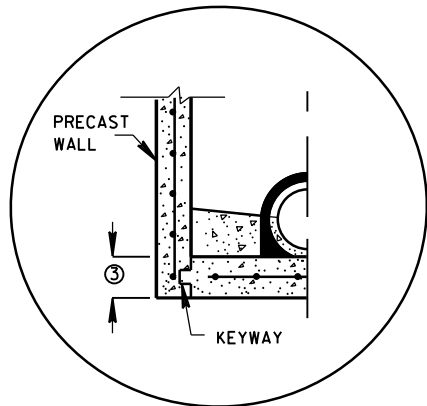
TOP WITH TONGUE AND GROOVE JOINT



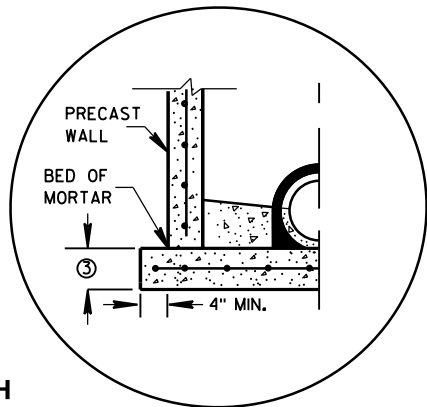
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

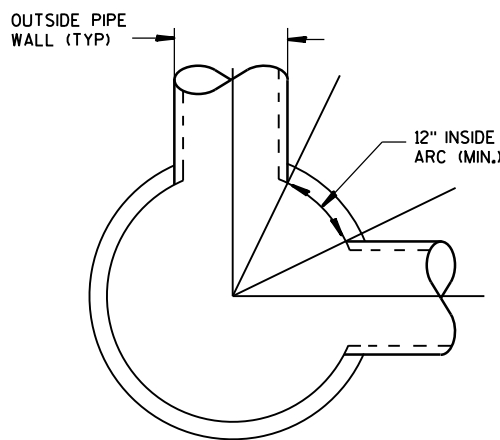


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

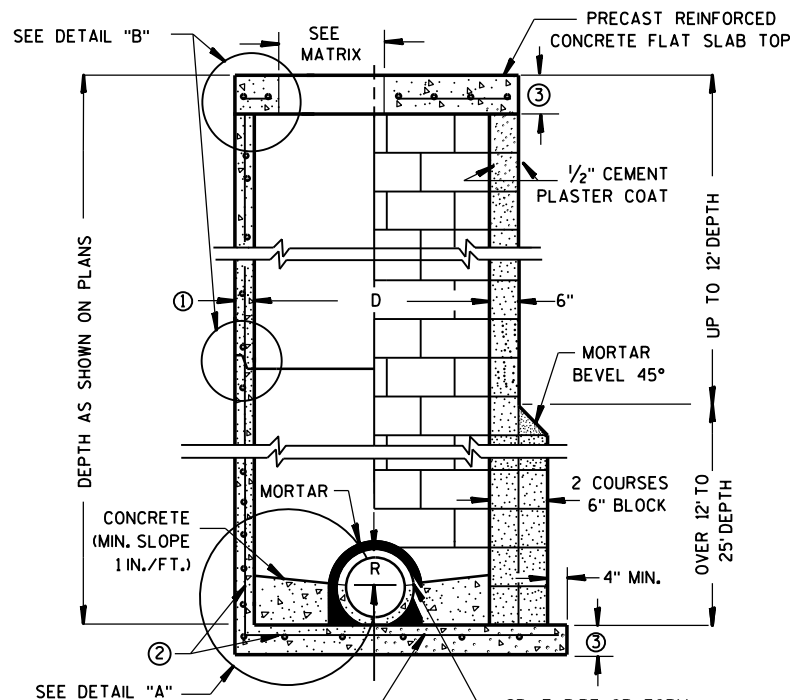


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"



CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

PRECAST REINFORCED CONCRETE BLOCK WITH CONCRETE WITH MONOLITHIC BASE CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

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

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.
- ② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: Sept., 2016
FOR: /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA

GENERAL NOTES

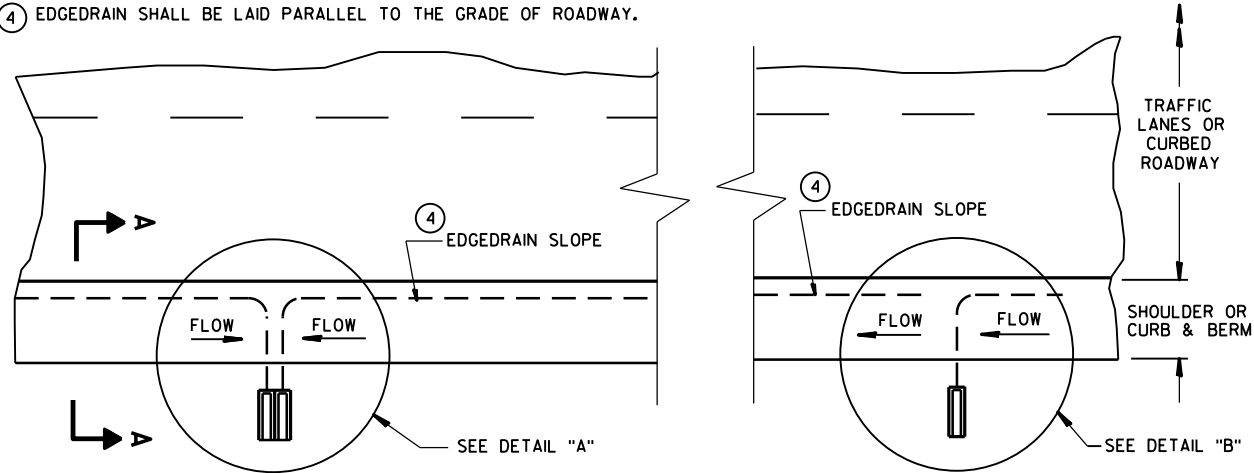
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① UNPERFORATED PIPE UNDERDRAIN AND FITTINGS FURNISHED FOR OUTFALL PIPE SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:

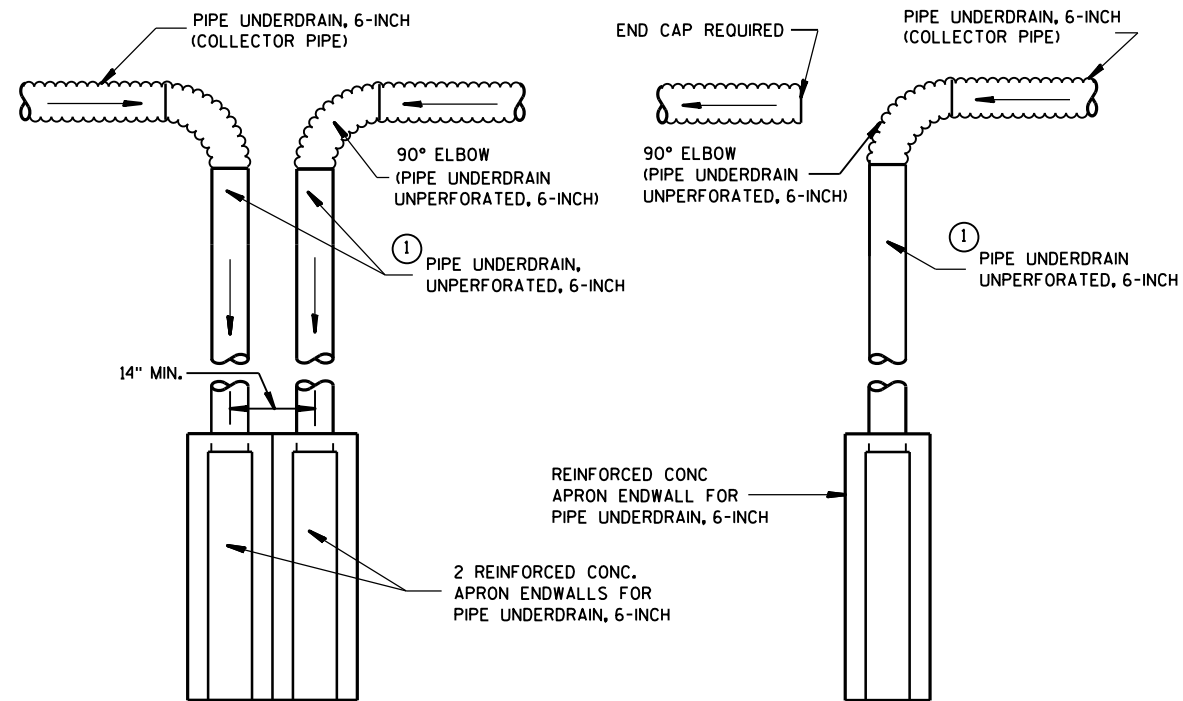
POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.

TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D 3034, SDR 23.5 PVC SEWER PIPE.

- ② MAXIMUM SPACING OF EDGEDRAIN OUTLETS SHALL BE 250 FEET UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.
- ③ EDGEDRAIN SHALL BE CONNECTED TO INLETS REGARDLESS OF FLOW DIRECTION FOR DRAINAGE AND MAINTENANCE ACCESS.
- ④ EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



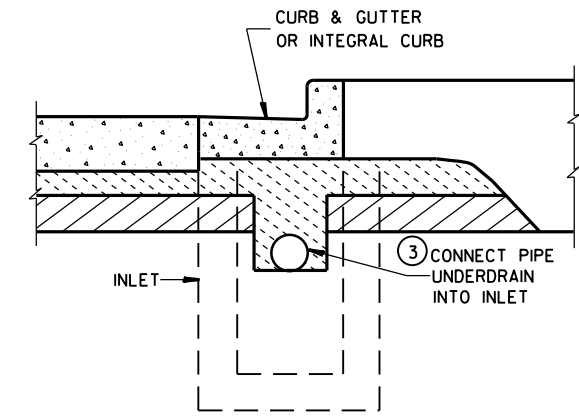
PLAN VIEW
ROADWAY WITH SHOULDERS OR CURBS
(EDGEDRAIN OUTLETS TO ROADSIDE) ②



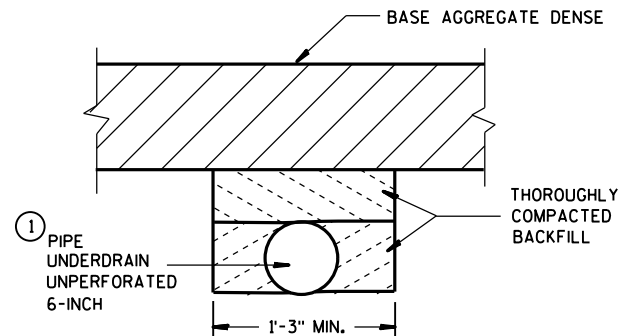
DETAIL "A"
TO BE USED AT LOW POINT LOCATIONS

DETAIL "B"
TO BE USED AT INTERMEDIATE LOCATIONS

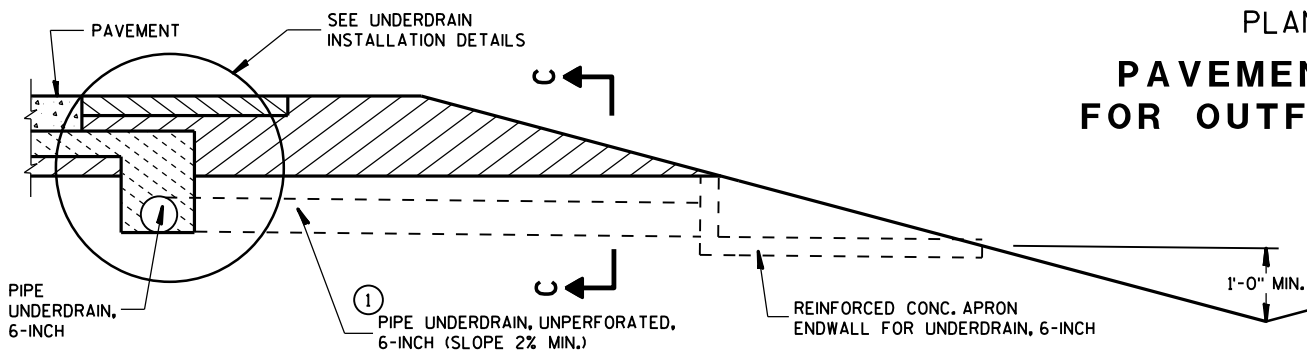
TYPICAL DRAIN OUT DETAILS



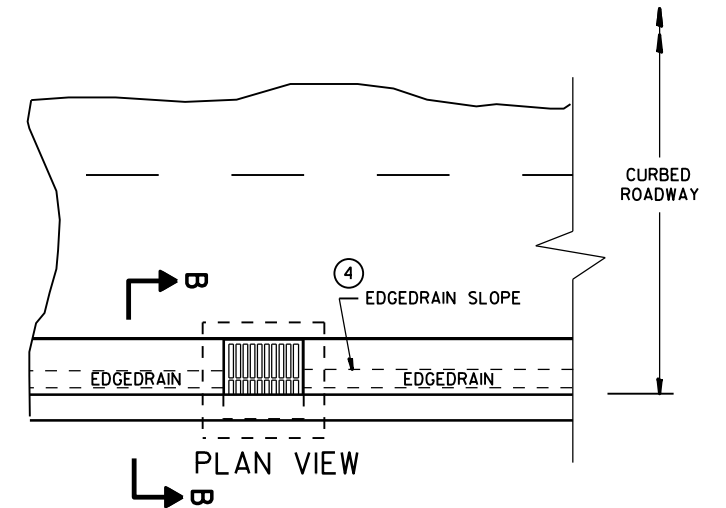
SECTION B-B
URBAN CROSS SECTION



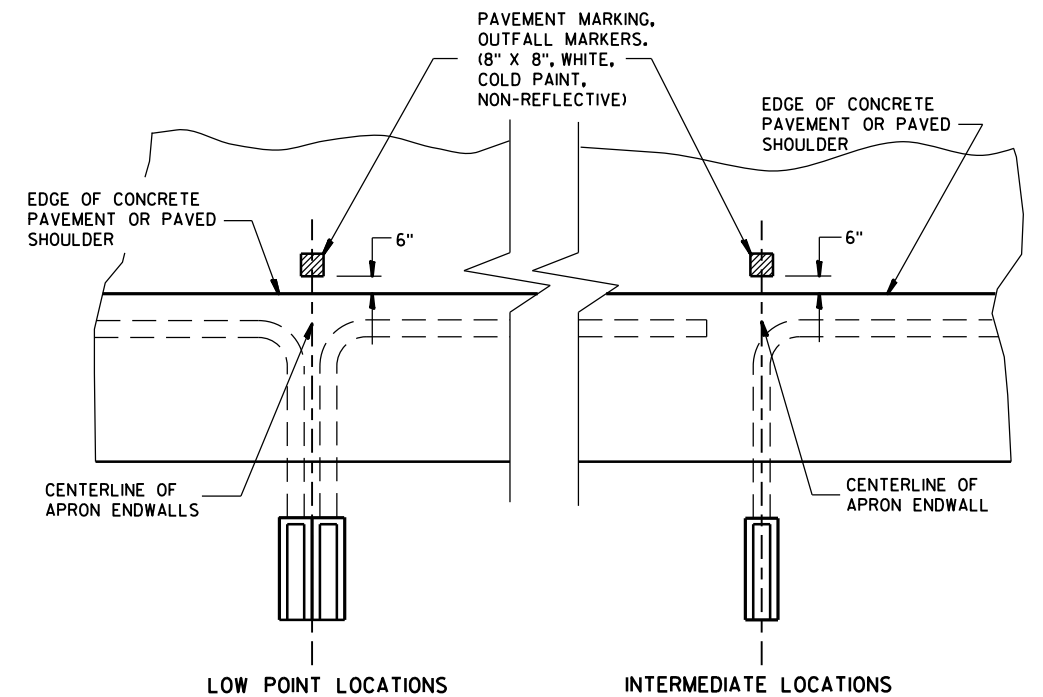
SECTION C-C
(TRENCH FOR OUTFALL PIPE)



SECTION A-A
RURAL CROSS SECTION



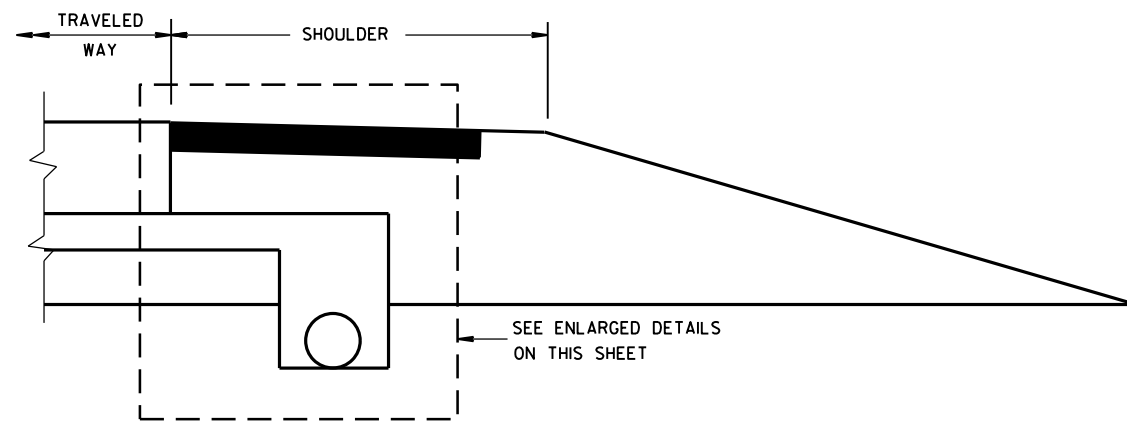
PLAN VIEW
ROADWAY WITH CURBS
(EDGEDRAIN CONNECTS INTO INLET STRUCTURE)



PLAN VIEW
**PAVEMENT MARKING
FOR OUTFALL MARKERS**

**EDGEDRAIN OUTLET
AND OUTFALL MARKERS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



RURAL CROSS SECTION

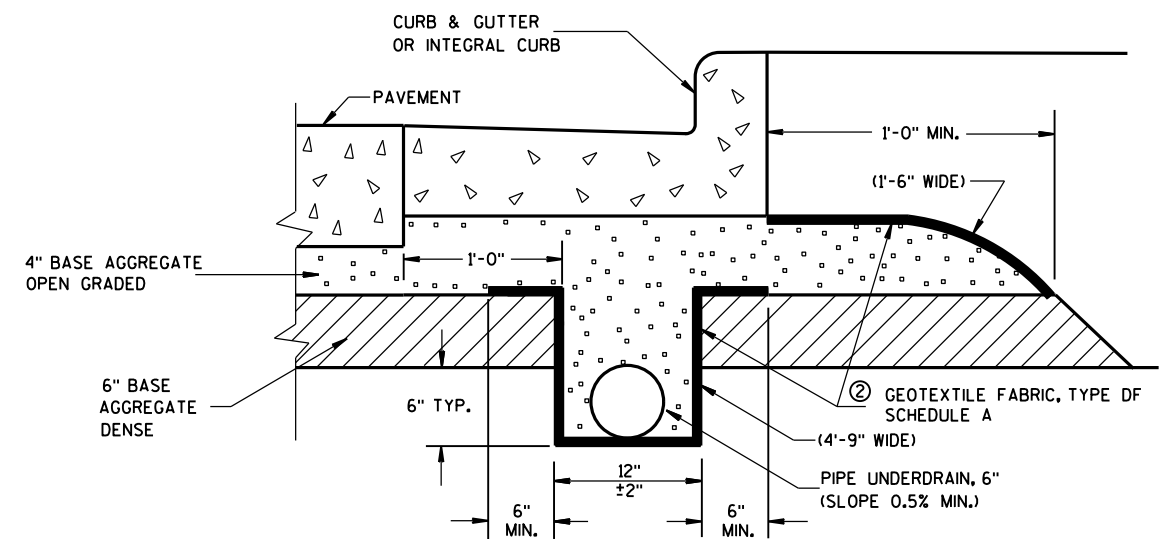
GENERAL NOTES

THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

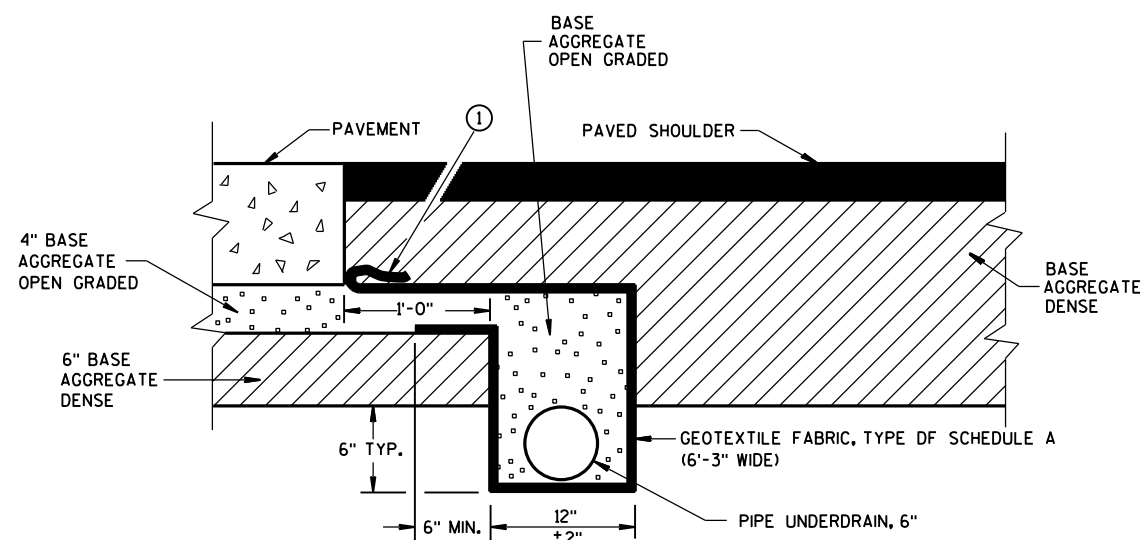
PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

① FOLD OVER EXCESS GEOTEXTILE FABRIC AT THIS LOCATION.

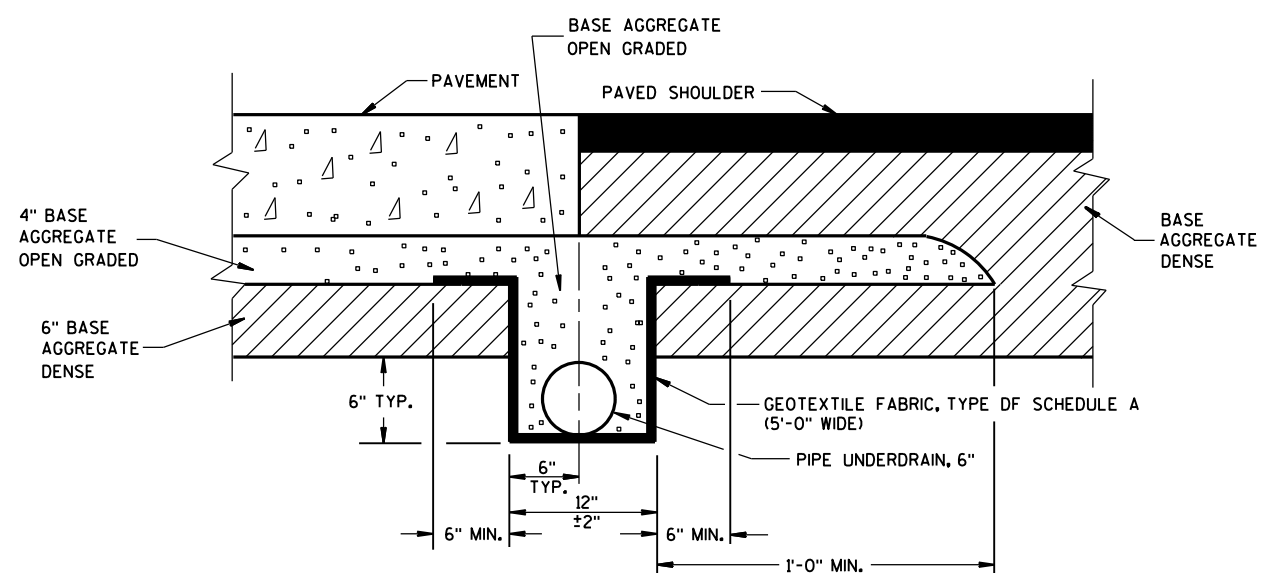
② TOTAL FABRIC WIDTH IS 6'-3" FOR PAYMENT.



EDGEDRAIN IN URBAN ROADWAY



POST PAVING INSTALLATION
(QUANTITIES ARE BASED ON THIS DETAIL)



PRE-PAVING INSTALLATION ALTERNATE

EDGEDRAIN IN RURAL ROADWAY

**EDGEDRAIN AND BASE
AGGREGATE OPEN GRADED**

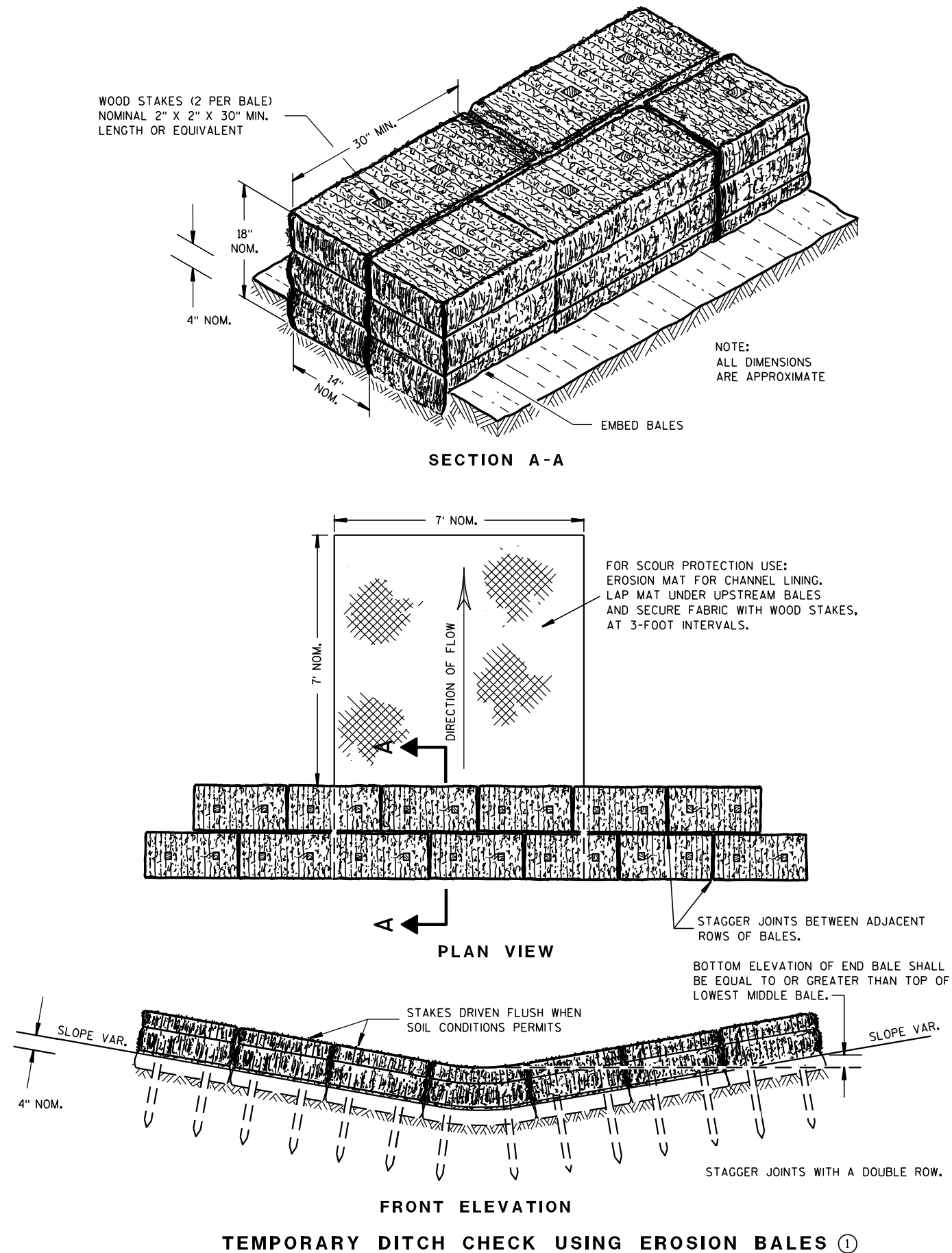
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015
DATE

/S/ Peter Kemp, P.E.
PAVEMENT SUPERVISOR

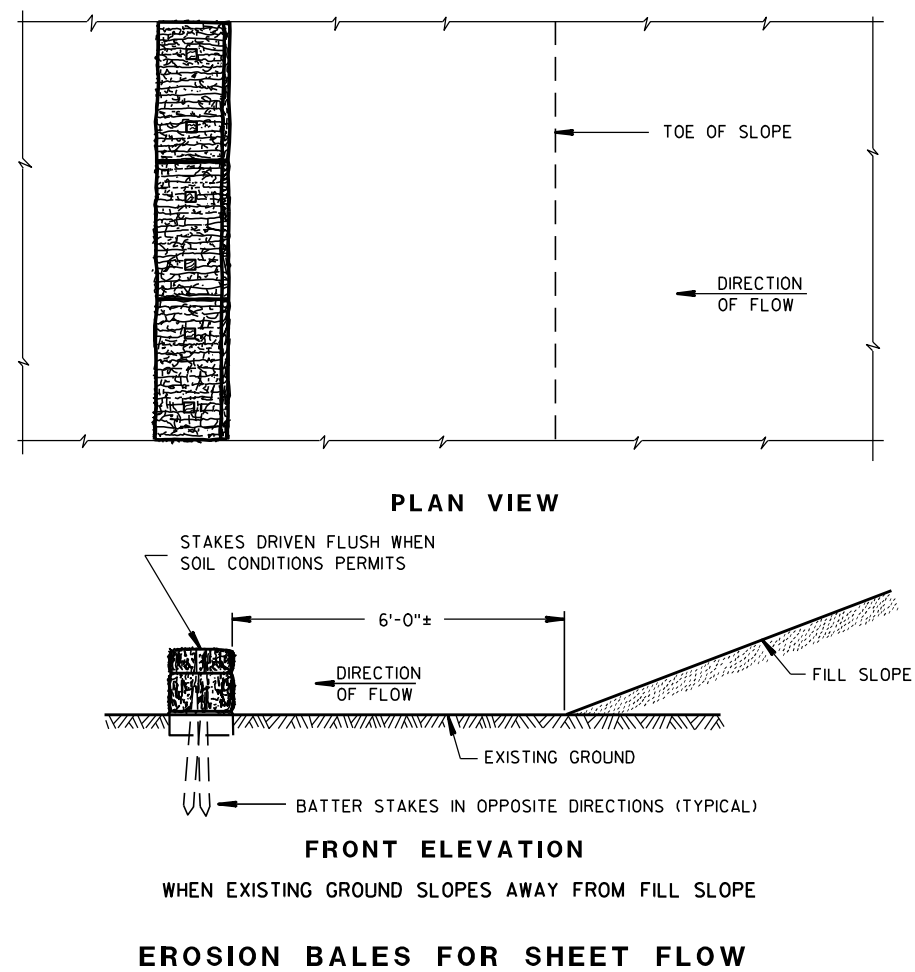
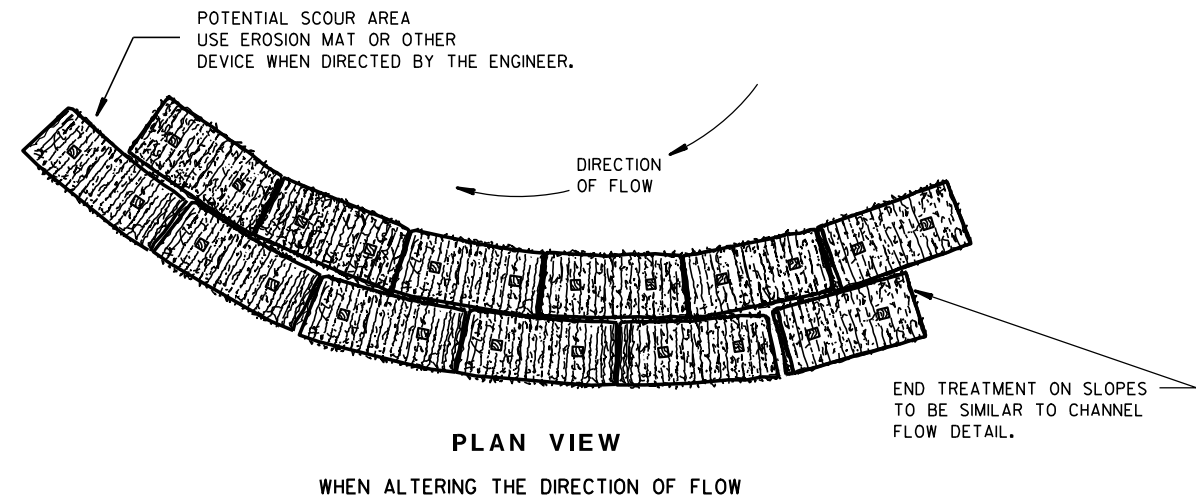
FHWA



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

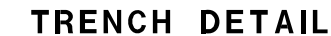
APPROVED

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

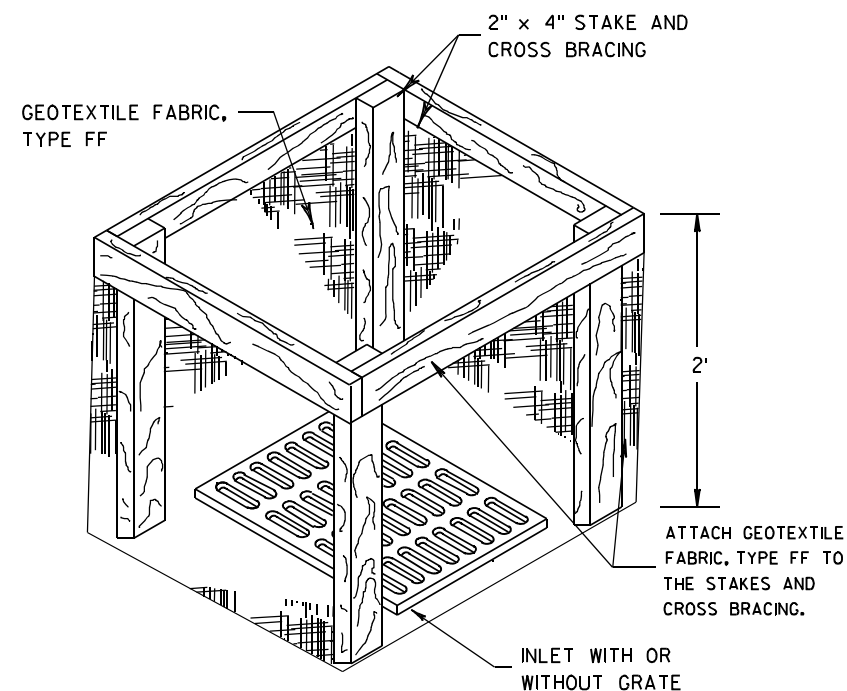
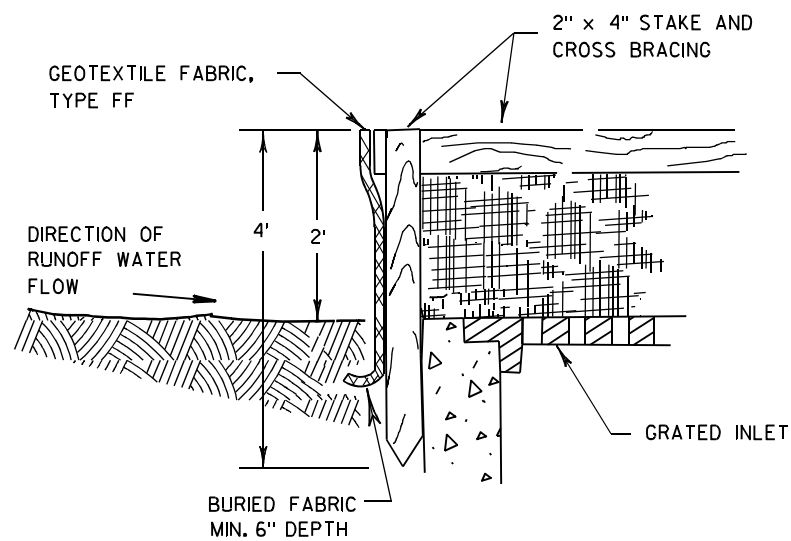
FHWA



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



SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 _____ DATE	/S/ Beth Canestra _____ CHIEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

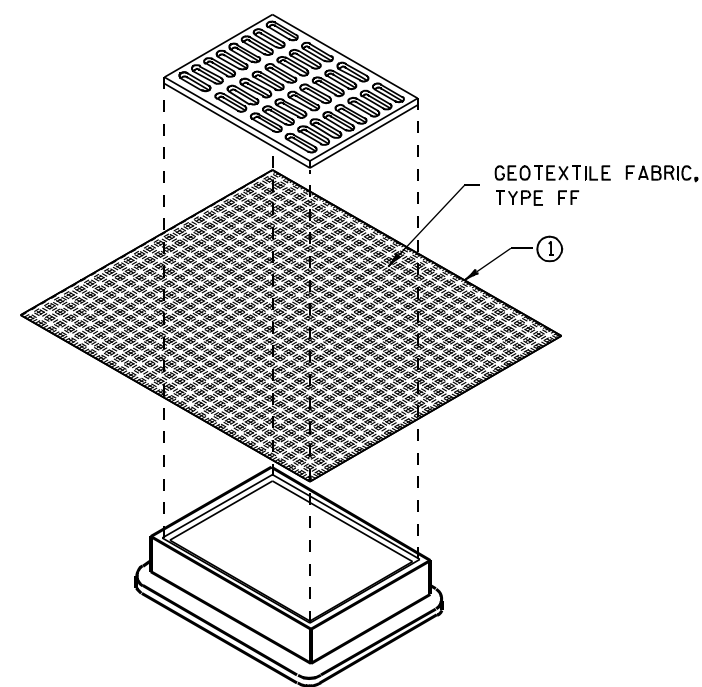
GENERAL NOTES

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.

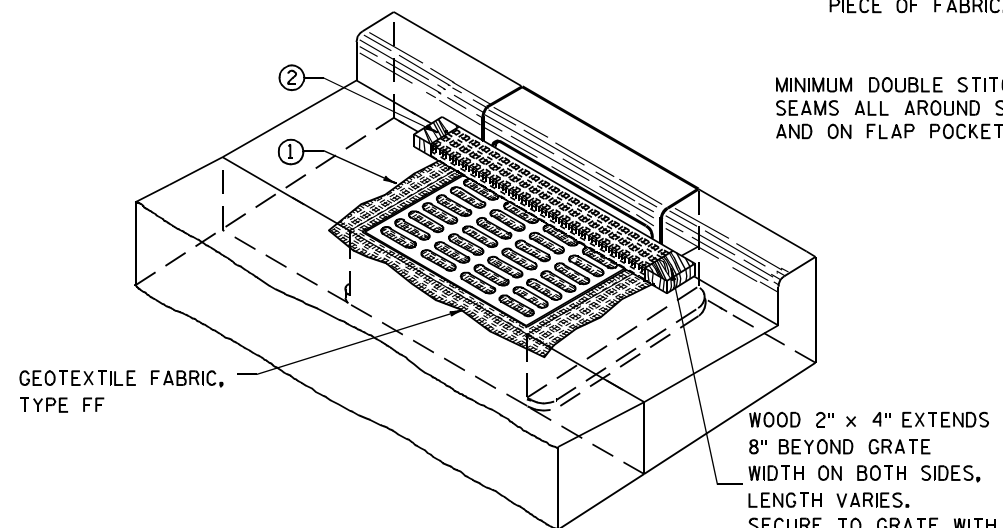
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.

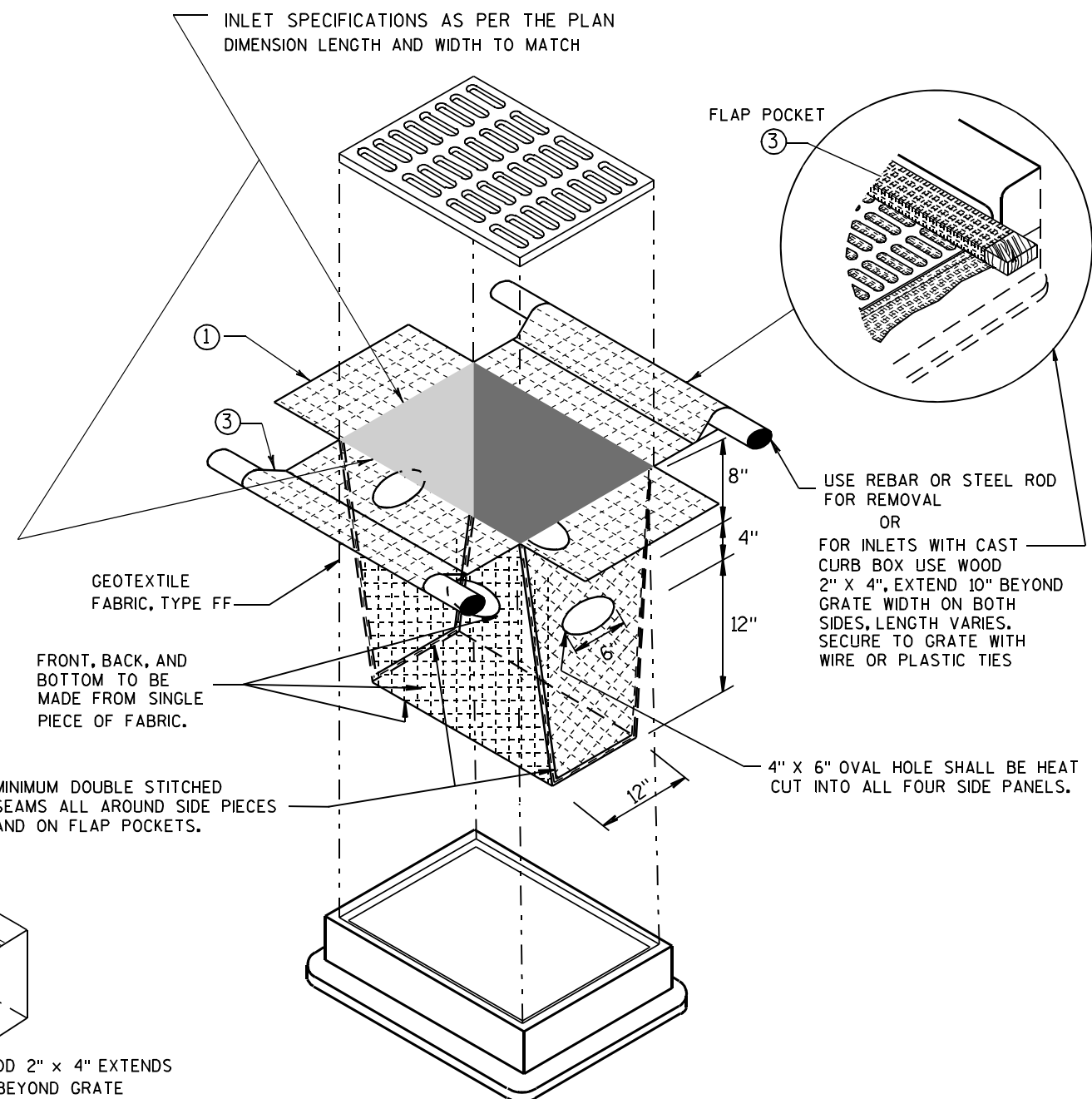
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

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.



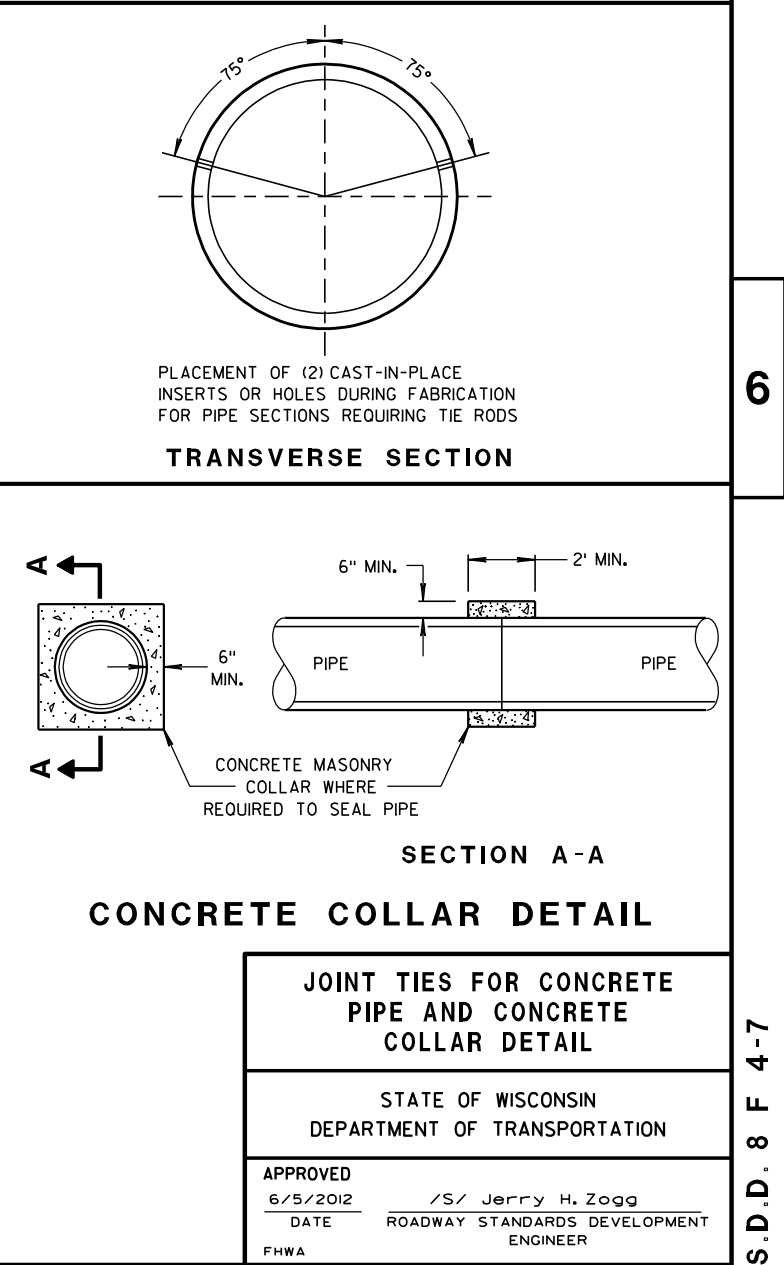
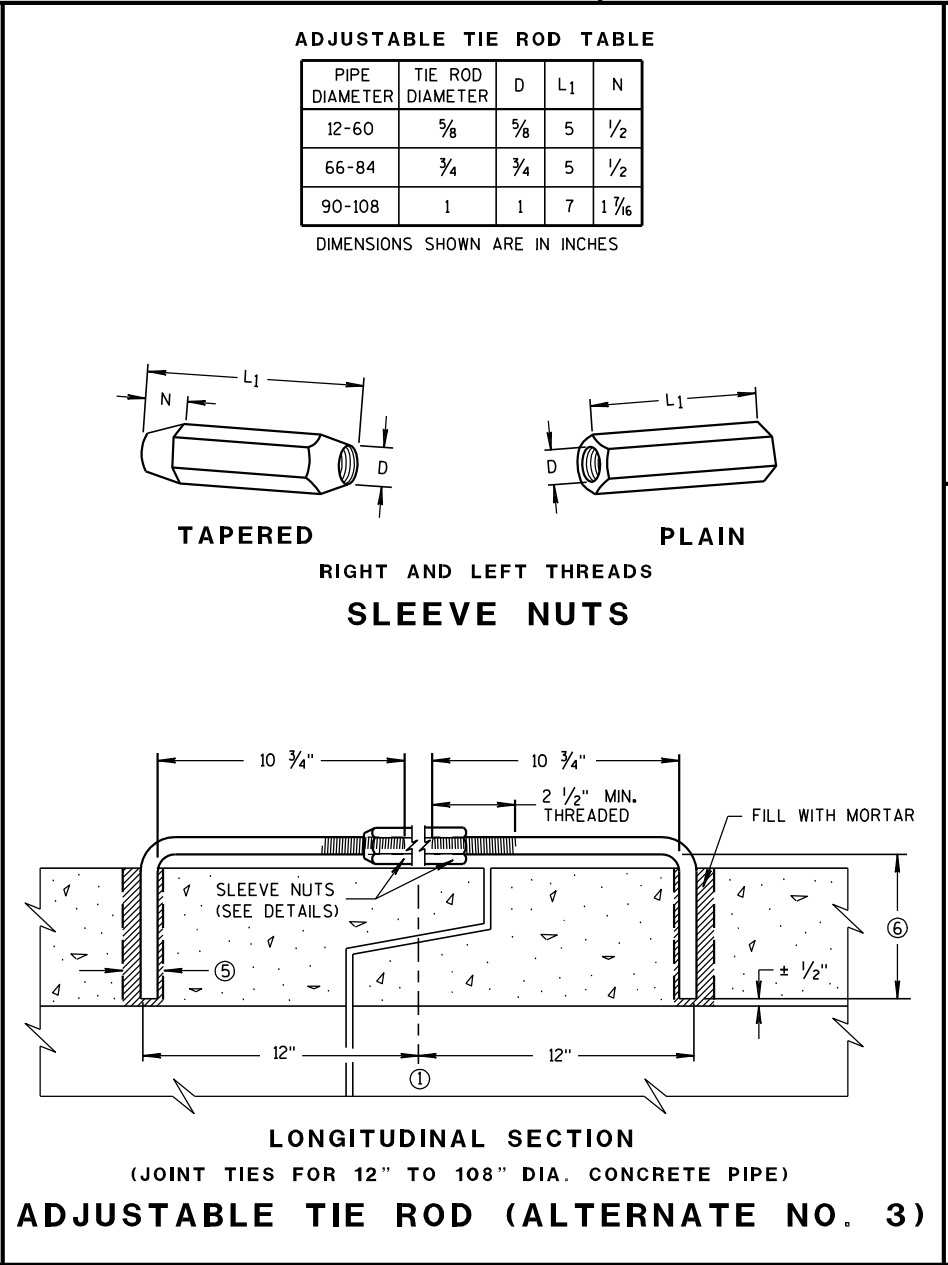
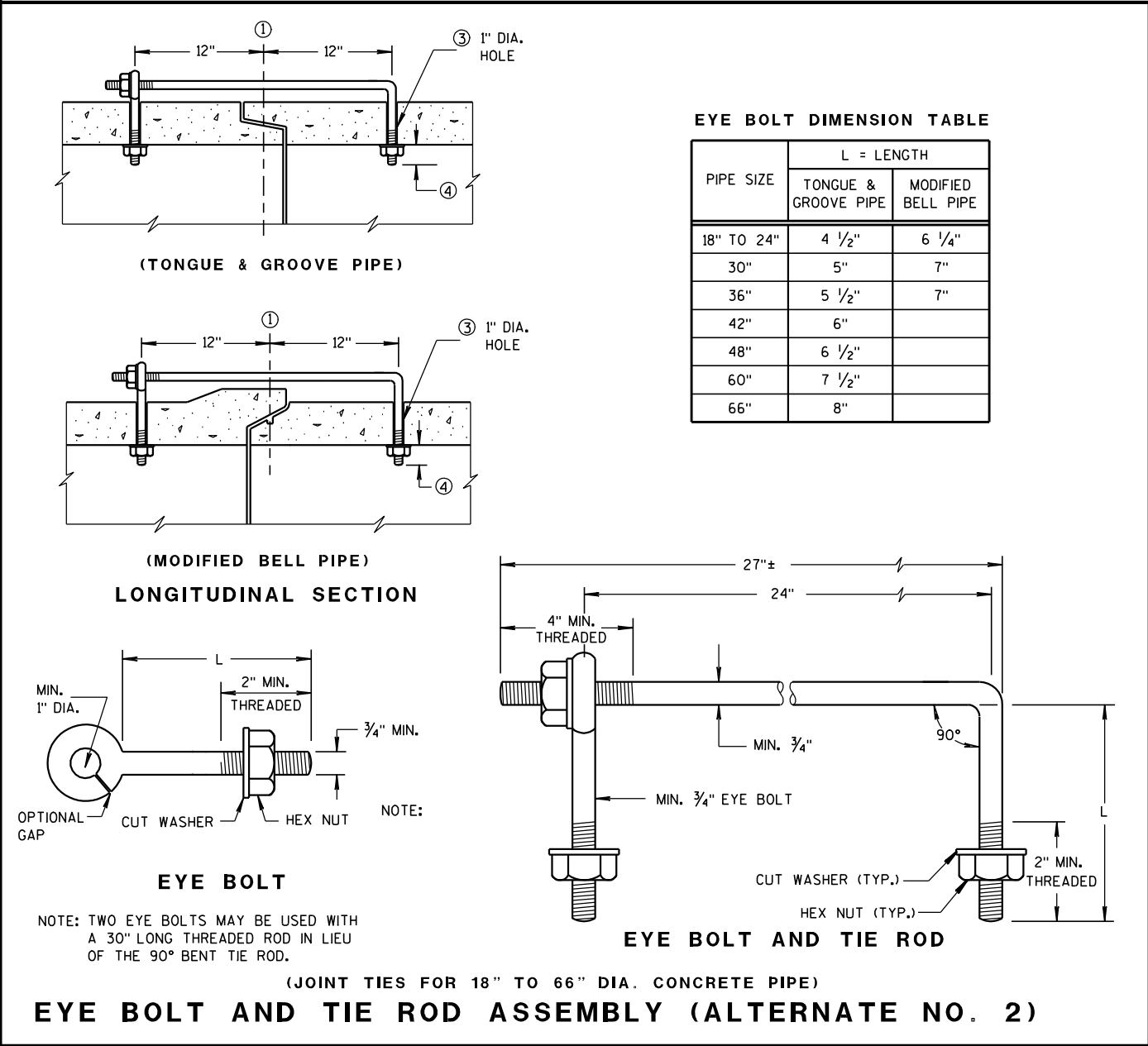
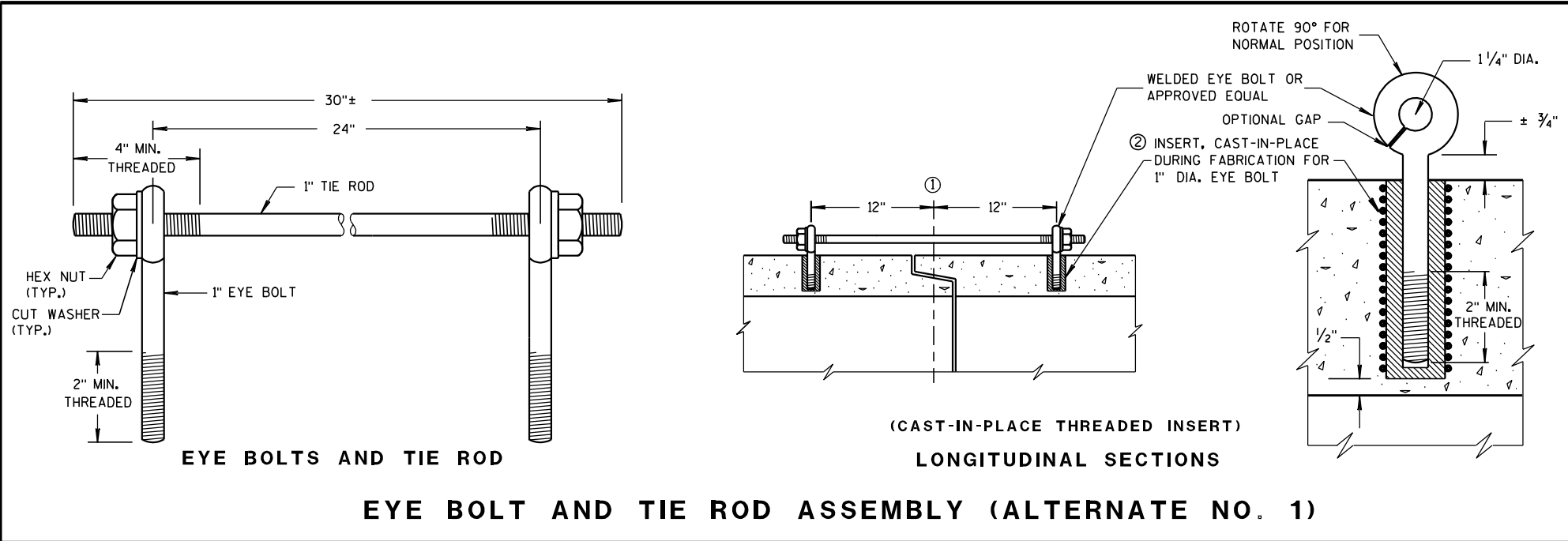
INLET PROTECTION, TYPE D

(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**

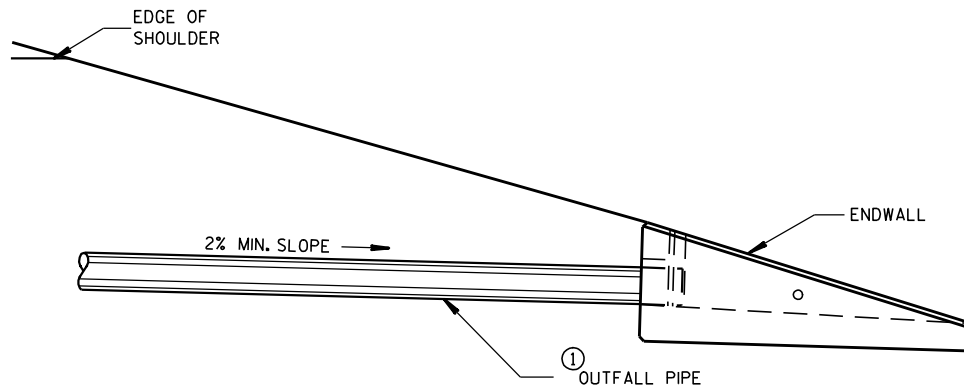
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

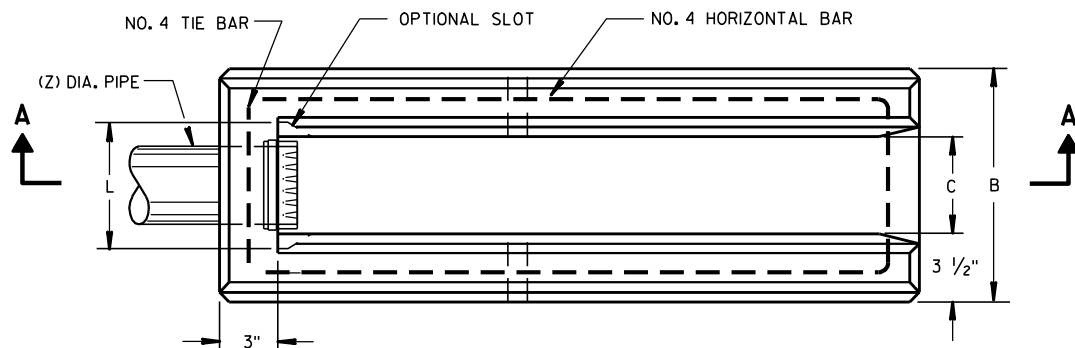


DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

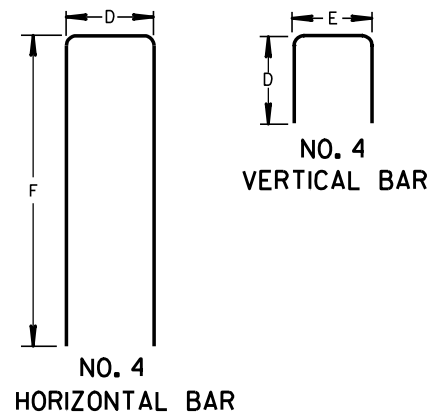
** APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



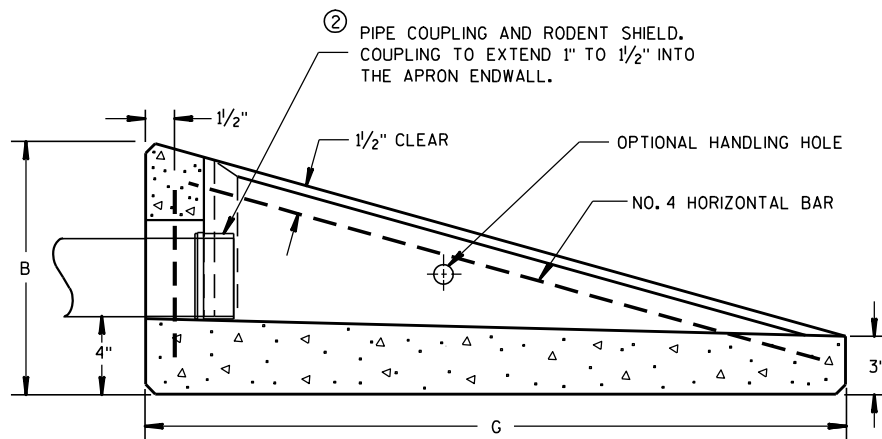
INSTALLATION DETAIL



PLAN VIEW

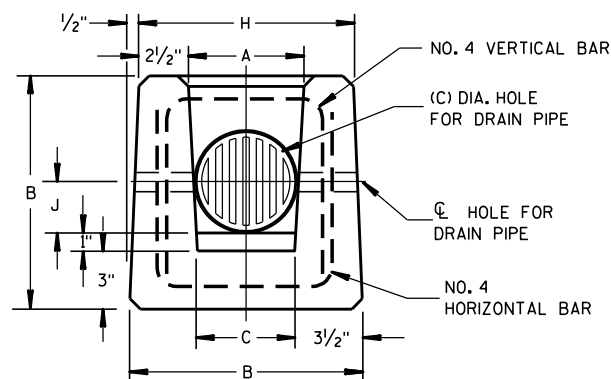


BAR STEEL REINFORCEMENT DETAILS



SECTION A-A

CONCRETE APRON ENDWALL FOR UNDERDRAIN



END VIEW

GENERAL NOTES

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

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

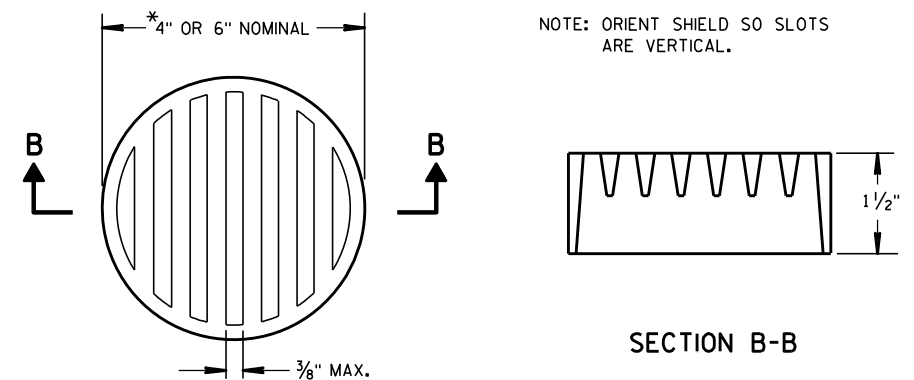
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

- ① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

- ② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



② RODENT SHIELD

*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN

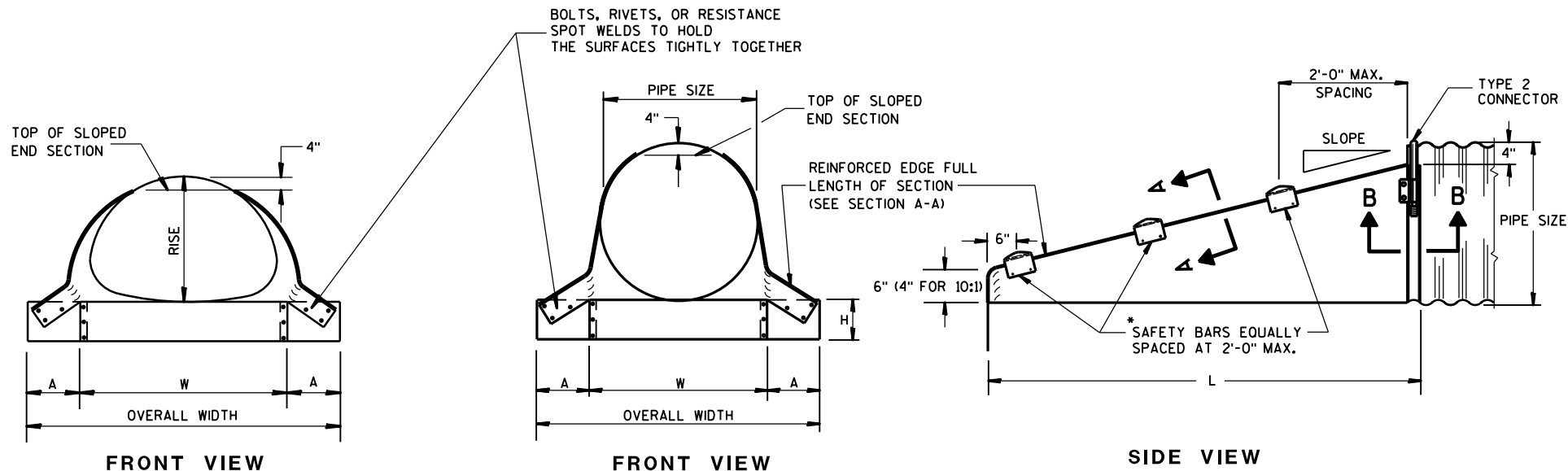
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/10/98
DATE

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



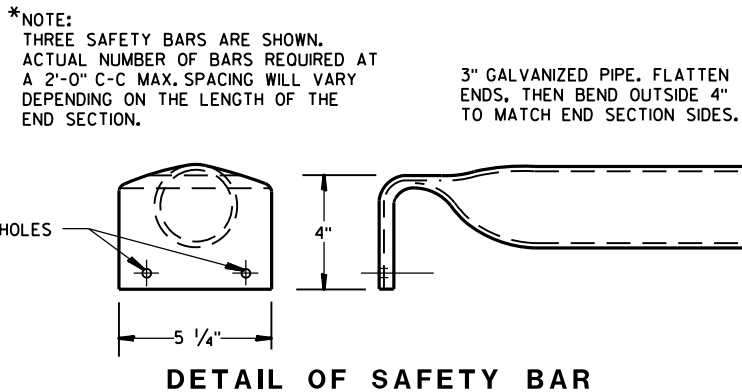
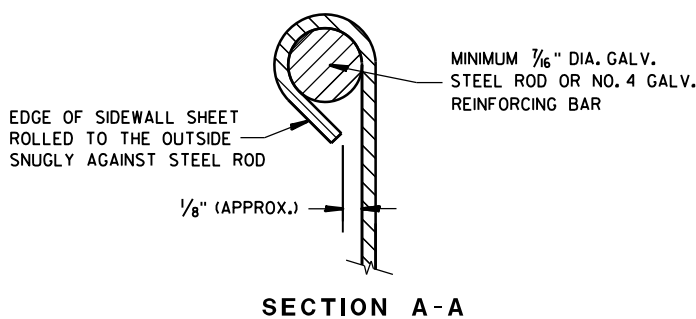
GENERAL NOTES

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

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

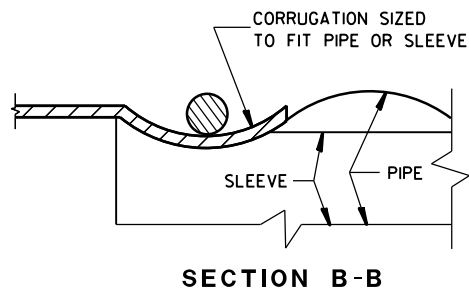
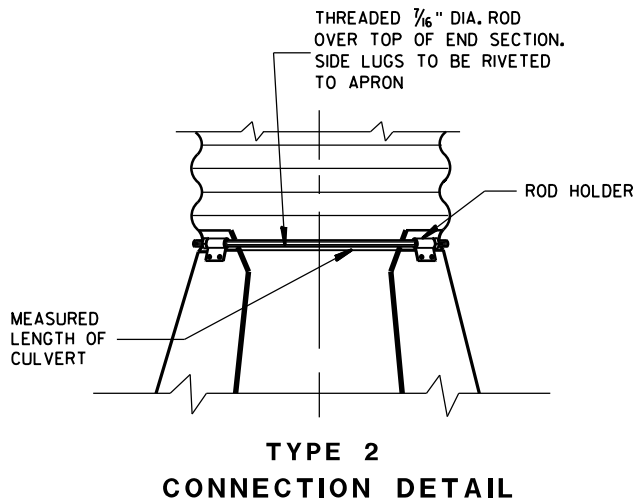
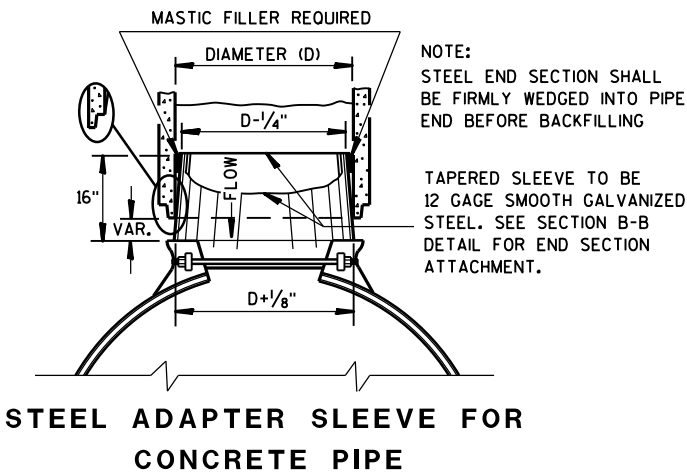
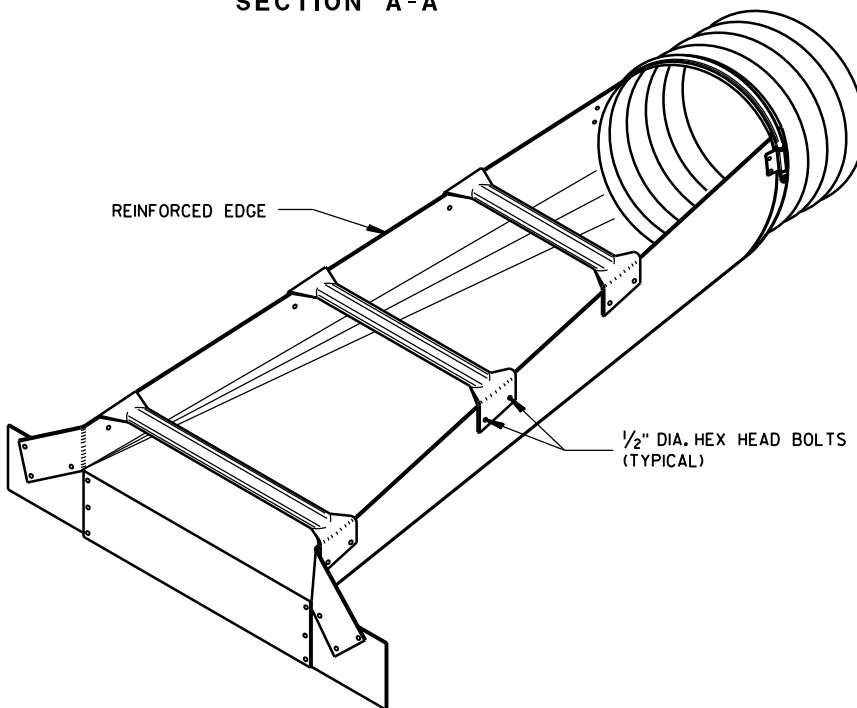
STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS											
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches) ①	DIMENSIONS (Inches)				L DIMENSIONS			
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30 10:1 ②
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30 10:1 ②
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48 10:1 ②
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60 10:1 ②
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84 10:1 ②
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114 10:1 ②
42	49	33	.109	16	12	55	87	4:1	92	6:1	138 —
48	57	38	.109	16	12	63	95	4:1	112	6:1	168 —
54	64	43	.109	16	12	70	102	4:1	132	6:1	198 —

① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".

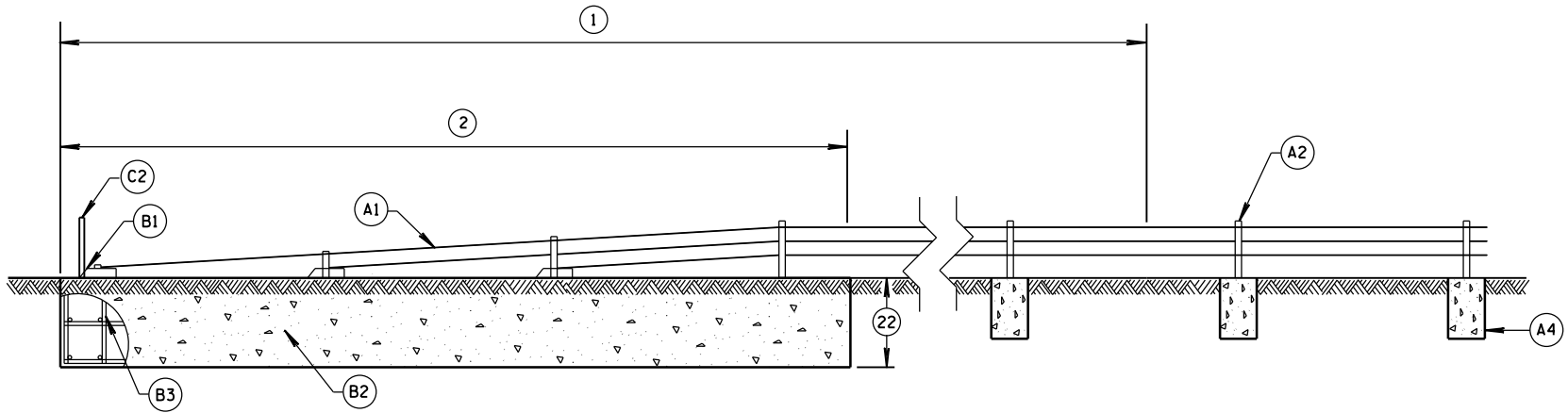
② ACTUAL SLOPE GREATER THAN 10:1.



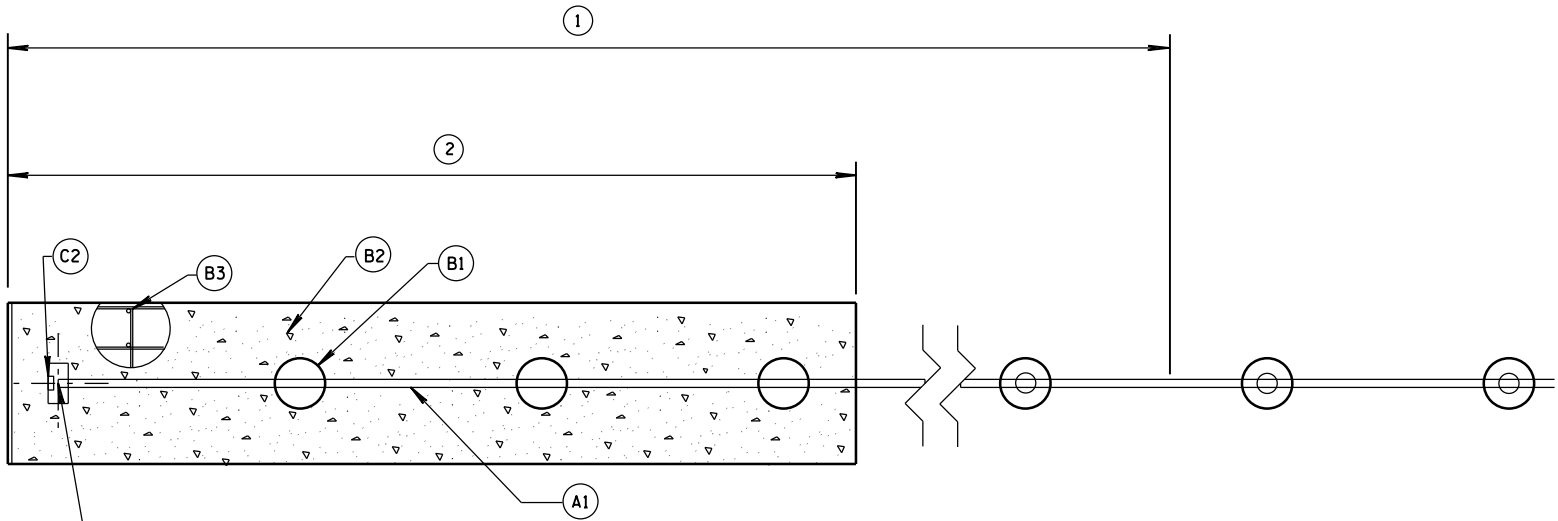
STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

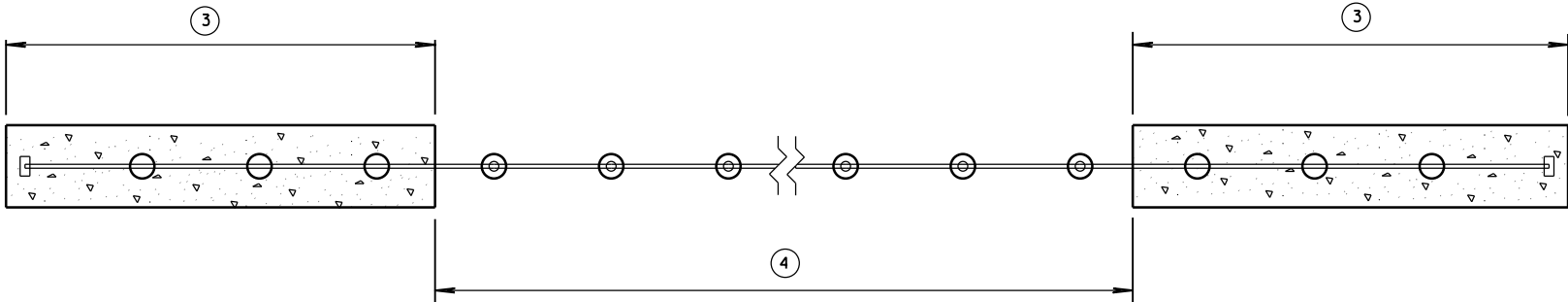


PROFILE VIEW



PLAN VIEW

TRANSITION FROM CABLE BARRIER
TERMINAL TO CABLE BARRIER LINE POSTS



TYPICAL PLAN VIEW

GENERAL NOTES

- DRAWINGS ARE GENERAL IN NATURE. SEE MANUFACTURER'S INFORMATION FOR MORE DETAIL.
- PROVIDE 2 INCH CLEAR COVER FROM OUTER EDGE OF CONCRETE FOOTINGS TO REINFORCEMENT.
- INSTALL LINE POST PLUMB. LINE POSTS ARE TO BE EASILY REMOVED BY HAND AND HOLD CABLES AT THE PROPER ELEVATION.
- PROVIDE CABLE BARRIER SYSTEM FROM APPROVED PRODUCT LIST.
- PROVIDE A SYSTEM TO HAVE THE WORKING WIDTH INDICTED IN PLAN.
- PROVIDE DOCUMENTATION HOW POST SPACING, RADIUS OF CURVE AND ANCHOR SPACING INFLUENCES WORKING WIDTH TO CONSTRUCTION STAFF.
- PROVIDE A WISCONSIN PROFESSIONAL ENGINEERS STAMPED ANALYSIS THAT THE LINE POST AND CABLE BARRIER END TERMINAL FOOTINGS ARE DESIGNED FOR THE SOIL CONDITIONS PRESENT. THE WISCONSIN P.E. STAMP ANALYSIS IS TO INCLUDE, BUT IS NOT LIMITED TO: DESIGN IMPACT LOADS, FOUNDATION DESIGN METHODOLOGY USED, FACTORS OF SAFETY, SOIL TYPE, SOIL CONDITIONS, AND TEMPERATURE RANGES.
- DESIGN LINE POST FOOTINGS SO THAT LINE POST FOOTING MOVE LESS THAN 1 INCH WHEN LINE POST IS IMPACTED BY A TL-3 SMALL CAR.

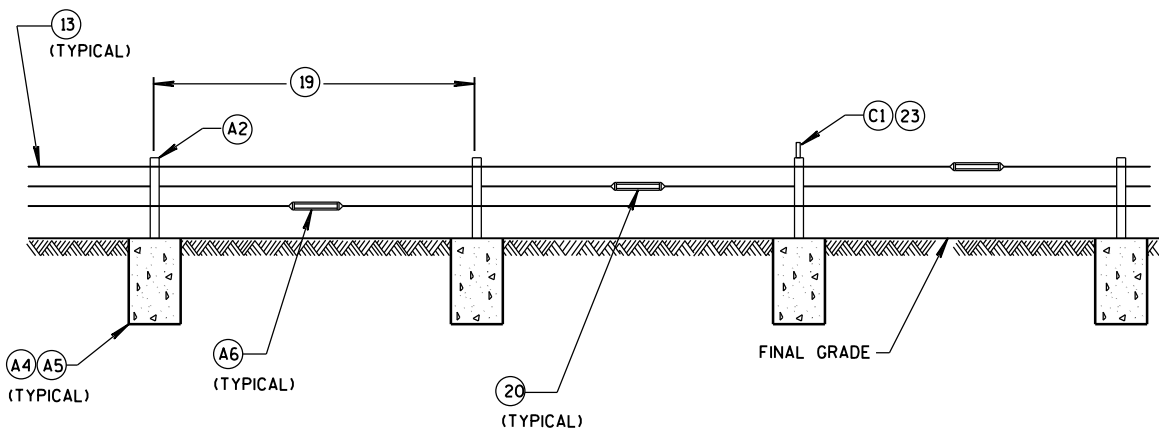
BILL OF MATERIALS

PART NUMBER	QTY.	DESCRIPTION	MATERIALS SPECIFICATIONS
A1	3 OR 4	3/4" 3x7 PRESTRESSED GALVANIZED STEEL WIRE ROPE	ASTM A741 MIN. BREAKING STRENGTH 39,000 LBS. AASHTO M30 TYPE 1 CLASS A (GALVANIZATION).
			MINIMUM WIRE ROPE MODULUS OF ELASTICITY OF 19,000 PSI ACCORDING TO ISO 12067-202 WIRE ROPE MODULUS OF ELASTICITY "INITIAL" (AS MANUFACTURED), WITH NO BEDDING OR PRESTRECHING OF THE ROPE PERMITTED DURING TESTING.
A2	1 PER LINE POST	GALVANIZED REMOVABLE STEEL LINE POST	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS. ASTM A123 (GALVANIZATION).
A3	1 PER LINE POST	GALVANIZED METAL SLEEVE	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS. ASTM A123 (GALVANIZATION).
A4	VARIES	CONCRETE FOR LINE POST FOOTING	A, A-FA.A-T, OR A-IP OF STANDARD SPECIFICATION 501.2 OR AS MANUFACTURER SPECIFIES. STANDARD SPECIFICATION 716 OMP FOR CLASS II ANCILLARY CONCRETE. SEE MANUFACTURER'S INFORMATION ON DIMENSIONS.
A5	VARIES	EPOXY COATED STEEL REINFORCEMENT	STANDARD SPECIFICATION 505.
A6	VARIES	TURNBUCKLES AND OTHER CABLE CONNECTING HARDWARE	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS. MINIMUM BREAKING STRENGTH OF TURNBUCKLES AND CONNECTION HARDWARE IS EQUAL TO CABLE. TURNBUCKLES AND OTHER CABLE CONNECTION HARDWARE IS FIELD SWAGED PER MANUFACTURER'S RECOMMENDATIONS AND DETAILS.
B1	VARIES	CABLE CONNECTION TO CABLE BARRIER END TERMINAL	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS.
B2	VARIES	CONCRETE FOR CABLE BARRIER END TERMINAL	A, A-FA.A-T, OR A-IP OF STANDARD SPECIFICATION 501.2. STANDARD SPECIFICATION 716 OMP FOR CLASS II ANCILLARY CONCRETE.
B3	VARIES	EPOXY COATED STEEL REINFORCEMENT	STANDARD SPECIFICATION 505.
C1	VARIES	LINE POST DELINEATOR	REFLECTIVE SHEETING TYPE SH. SEE APPROVE PRODUCT LIST YELLOW.
C2	VARIES	CABLE BARRIER END TERMINAL DELINEATOR	REFLECTIVE SHEETING TYPE SH. SEE APPROVE PRODUCT LIST OBJECT MARKER TYPE 3 PATTERN.

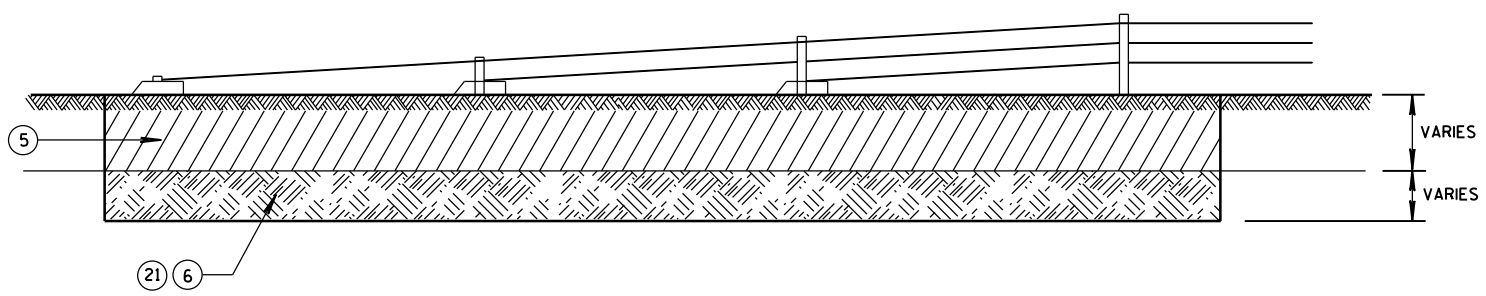
- 1 LOCATION OF LENGTH OF NEED POINT FOR CABLE BARRIER END TERMINAL VARIES. (SEE MANUFACTURER'S INFORMATION)
- 2 PAY LIMIT FOR CABLE BARRIER END TERMINAL. LENGTH OF CABLE BARRIER END TERMINAL VARIES. (SEE MANUFACTURER'S INFORMATION)
- 3 CABLE BARRIER END TERMINAL
- 4 CABLE BARRIER AND LINE POSTS

CABLE BARRIER TYPE 1
LAYOUT

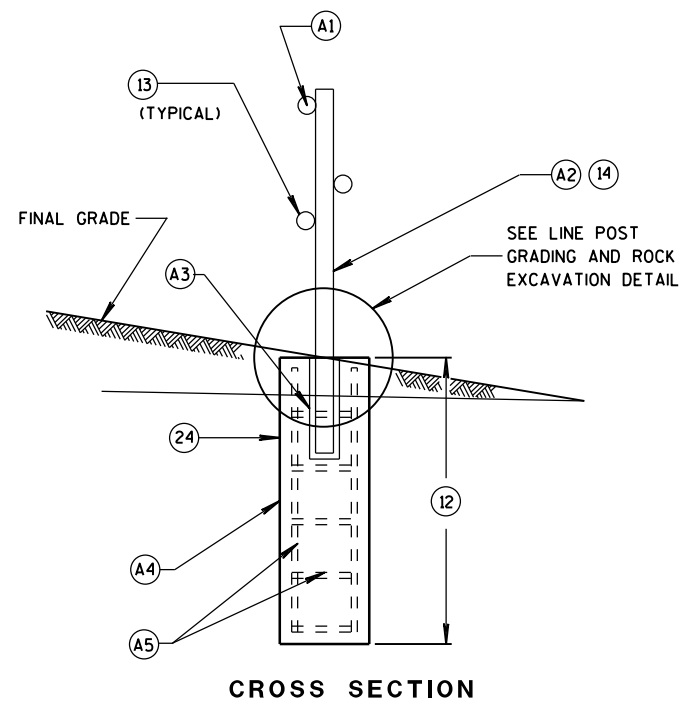
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



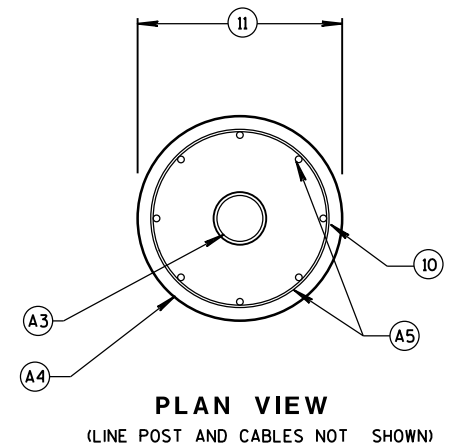
**PROFILE VIEW
LINE POST INSTALLATION**



**CABLE BARRIER END
TERMINAL ROCK EXCAVATION DETAIL**



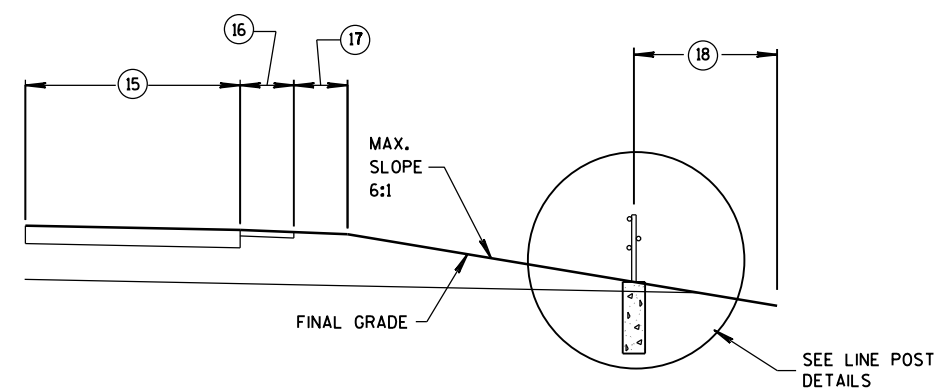
CROSS SECTION



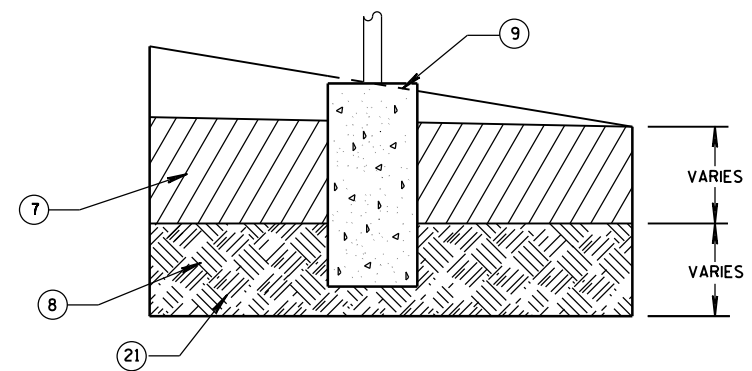
**PLAN VIEW
(LINE POST AND CABLES NOT SHOWN)**

LINE POST DETAILS

- (5) SOIL TO BE EXCAVATED FOR CABLE BARRIER END TERMINAL (VARIES).
- (6) ROCK TO BE EXCAVATED FOR CABLE BARRIER END TERMINAL (VARIES).
- (7) SOIL TO BE EXCAVATED FOR LINE POST (VARIES).
- (8) ROCK TO BE EXCAVATED FOR LINE POST (VARIES).
- (9) EXCAVATE AND GRADE LINE FOR LINE POST FOOTINGS. INSTALL LINE POST FOOTING TO MINIMIZE 4 INCH TALL OBJECT ON 5' FOOT CHORD.
- (10) 2 INCHES OF CLEAR COVER FROM EDGE OF CONCRETE TO REINFORCEMENT.
- (11) DIAMETER OF LINE POST FOOTING VARIES. SEE MANUFACTURER'S INFORMATION.
- (12) MINIMUM DEPTH OF LINE POST FOOTING IS 48 INCHES IN SOIL. DEEPER FOOTINGS PER MANUFACTURER'S RECOMMENDATION ARE ACCEPTABLE.
- (13) NUMBER AND LOCATION OF CABLES VARY. SEE MANUFACTURER'S INFORMATION.
- (14) LINE POST DIMENSIONS AND CONNECTION HARDWARE VARY. SEE MANUFACTURER'S INFORMATION.
- (15) LANE OF ROADWAY (VARIES). SEE PLAN FOR MORE INFORMATION.
- (16) PAVED SHOULDER (VARIES). SEE PLAN FOR MORE INFORMATION.
- (17) GRAVEL SHOULDER (VARIES). SEE PLAN FOR MORE INFORMATION.
- (18) CABLE BARRIER OFFSET FROM CENTERLINE OF MEDIAN DITCH (8 FOOT MINIMUM). SEE PLAN FOR MORE INFORMATION.
- (19) MAXIMUM POST SPACING IS 15 FEET.
- (20) STAGGER TURNBUCKLES (TYPICAL).
- (21) SEE MANUFACTURER'S DESIGN WHEN ROCK IS ENCOUNTERED.
- (22) IN SOIL MINIMUM DEPTH OF CABLE BARRIER END TERMINAL FOOTING IS 60 INCHES. DEEPER FOOTINGS PER MANUFACTURER'S RECOMMENDATION ARE ACCEPTABLE.
- (23) LINE POST DELINEATOR SPACING IS 100 FEET.
- (24) LINE POST FOOTINGS ARE REQUIRED TO HAVE LESS THAN 1 INCH OF MOVEMENT WHEN LINE POST IS IMPACTED BY A NCHRP 350 SMALL CAR UNDER TL-3 TEST CONDITIONS.

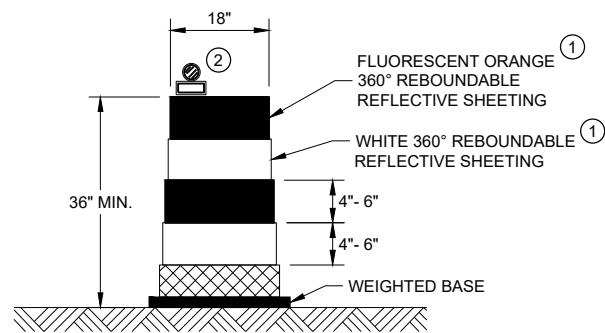


CABLE BARRIER OFFSET FROM DITCH LINE

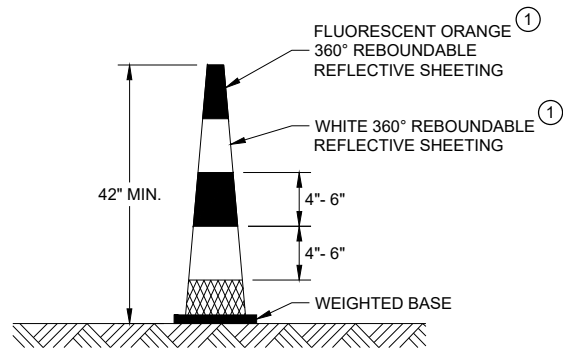


**LINE POST GRADING
AND ROCK EXCAVATION DETAIL**

CABLE BARRIER TYPE 1 LAYOUT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June, 2015 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

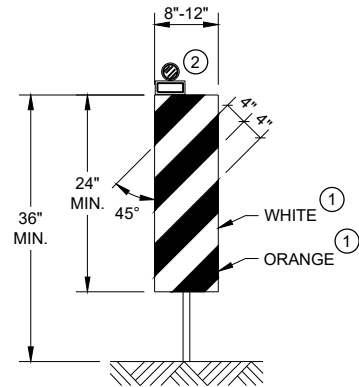


DRUM



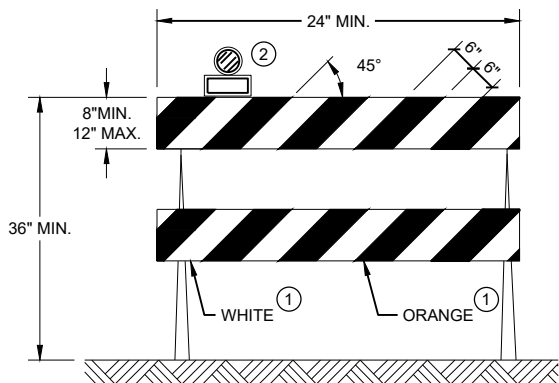
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



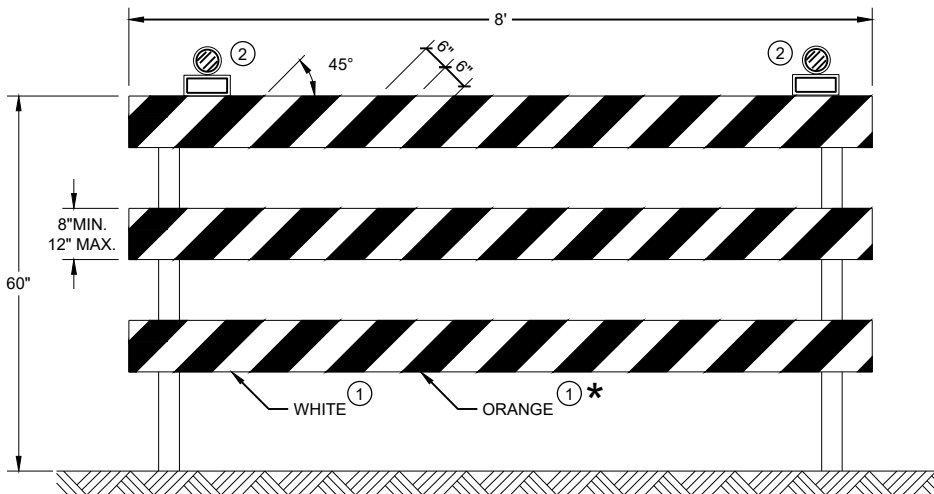
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

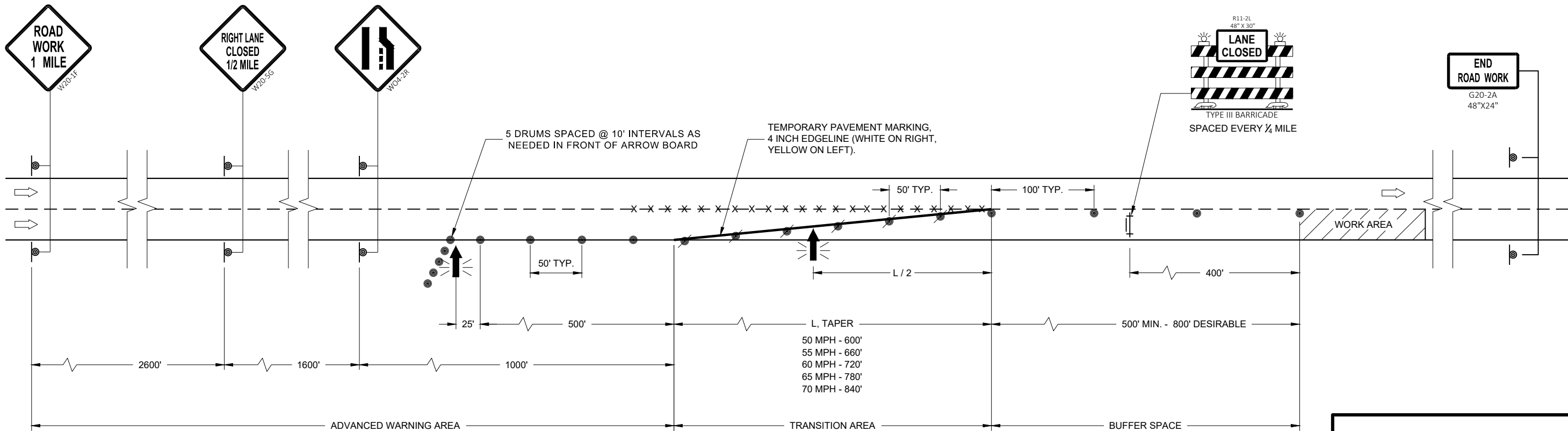
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

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

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

LEGEND

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

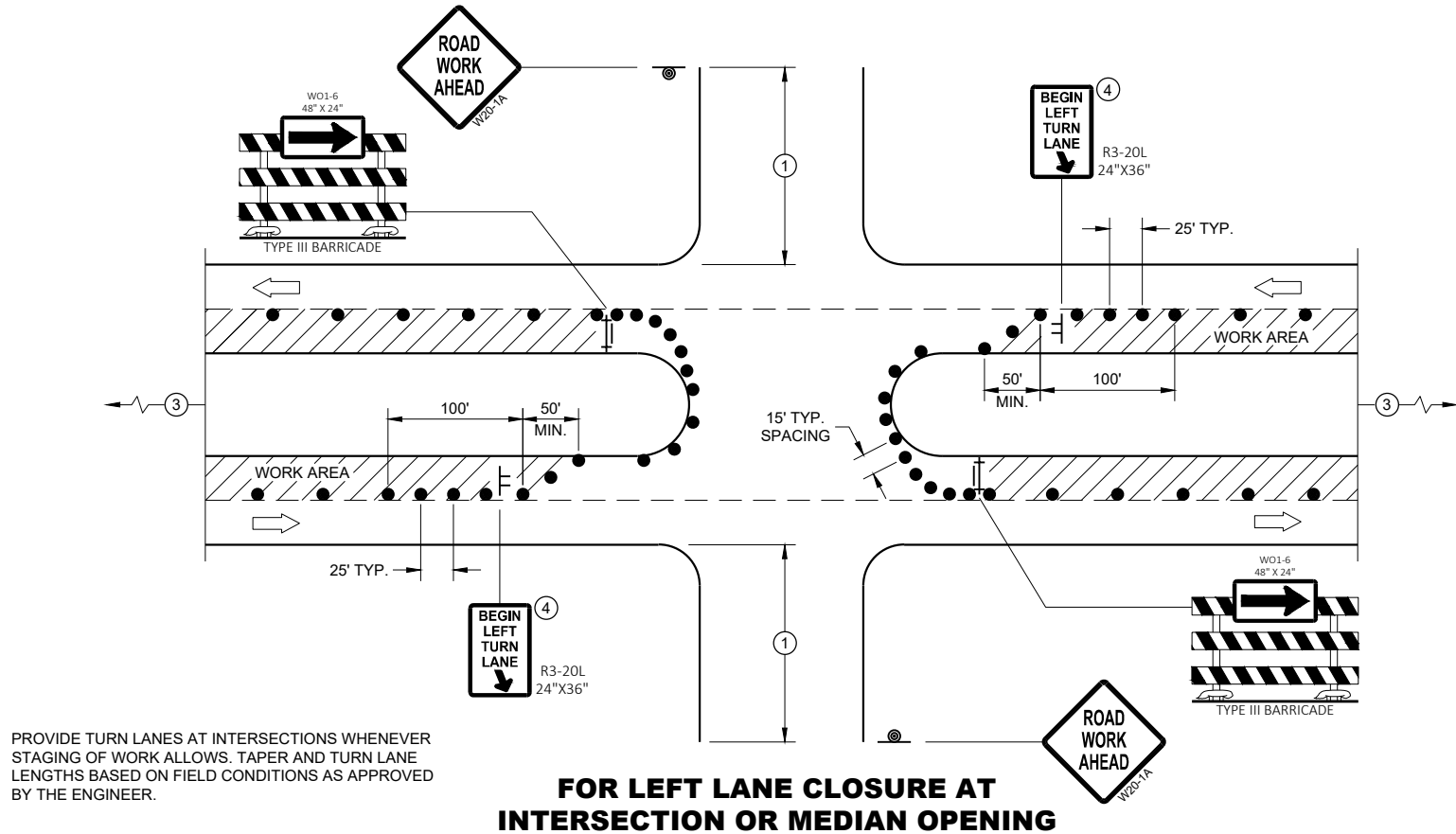


TRAFFIC CONTROL
LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



GENERAL NOTES

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

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

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

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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

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

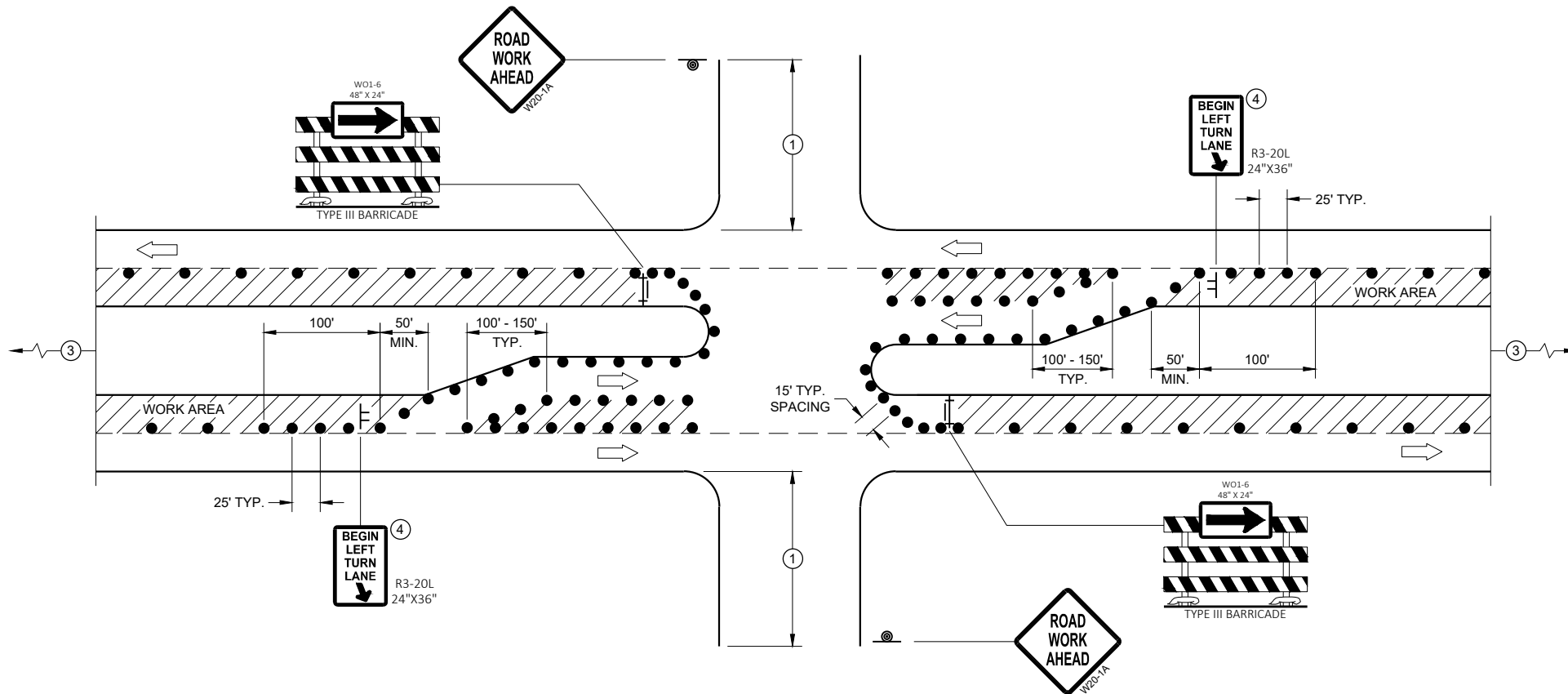
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- 1 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- 2 ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- 3 SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- 4 MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING (WITH LEFT TURN BAY OPEN)



TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

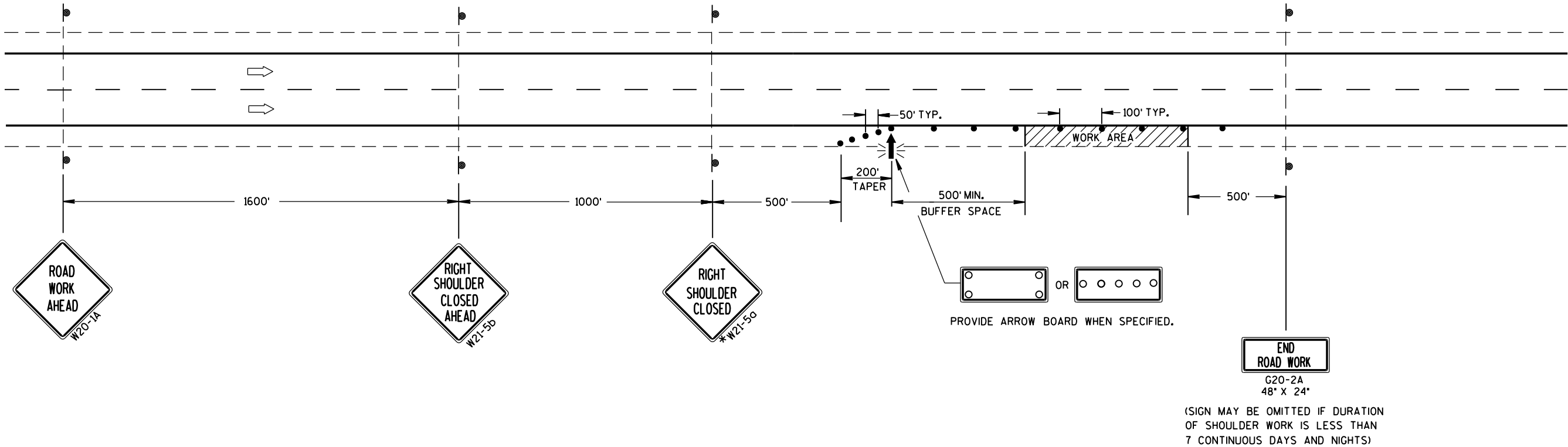
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

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

WHEN A 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.

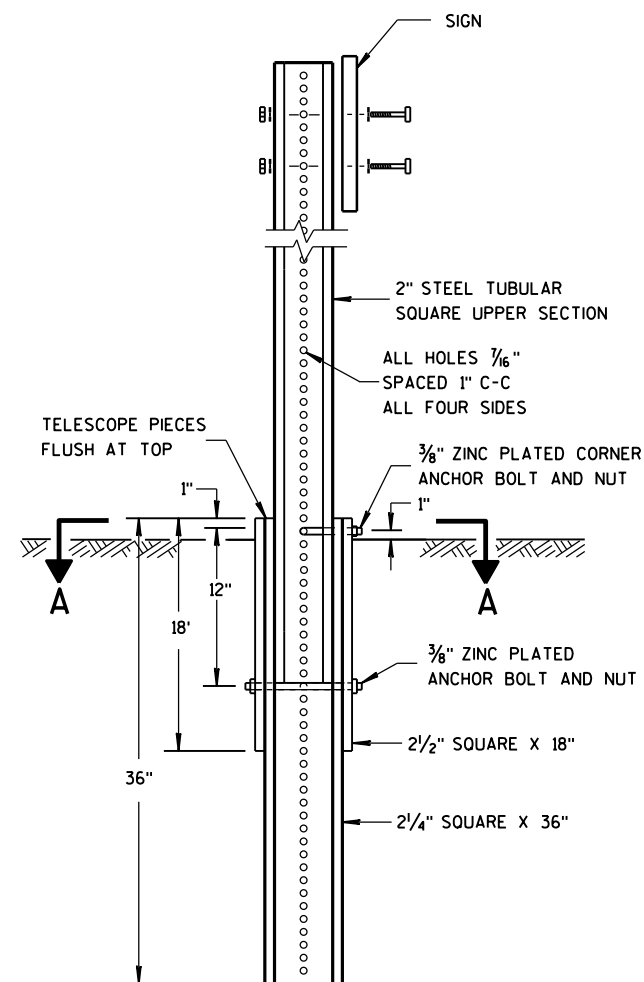
*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER

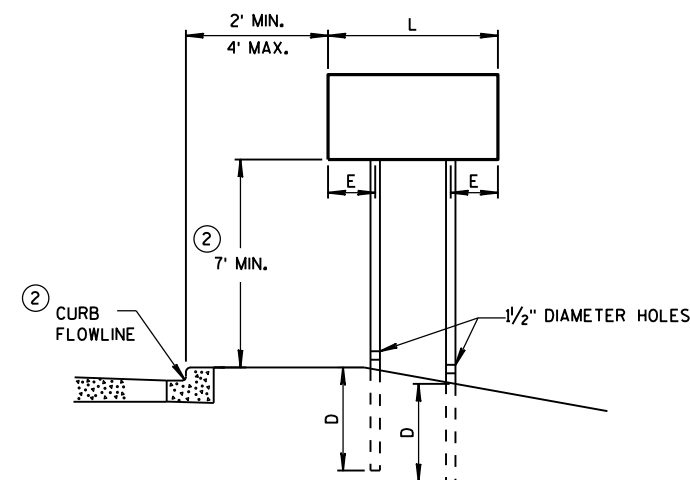
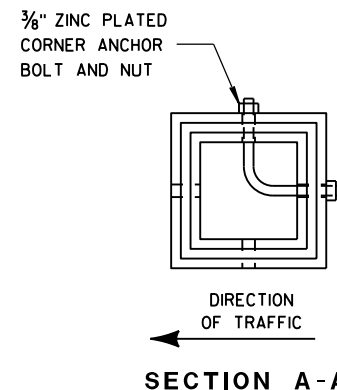


DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

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

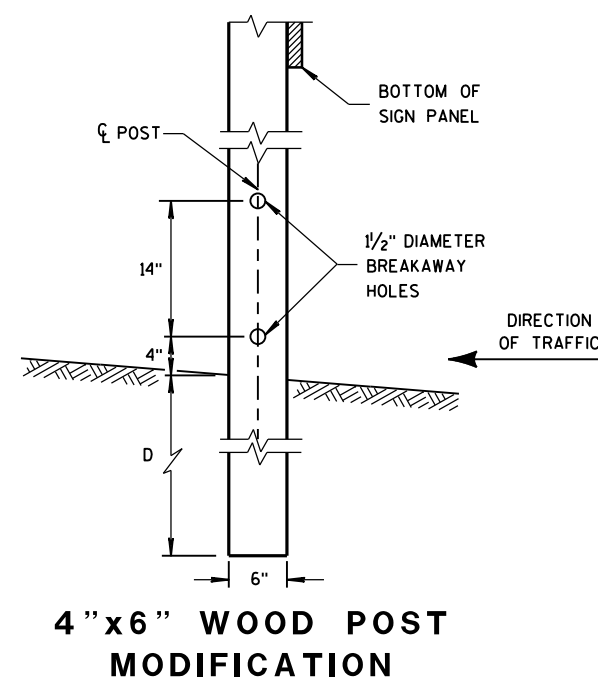
SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL
BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED
ON TUBULAR STEEL POSTS.



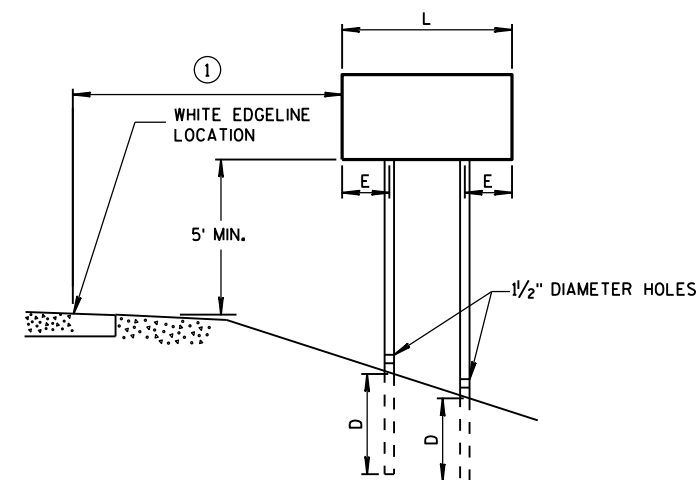
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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



4 "x6 " WOOD POST
MODIFICATION



RURAL AREA

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

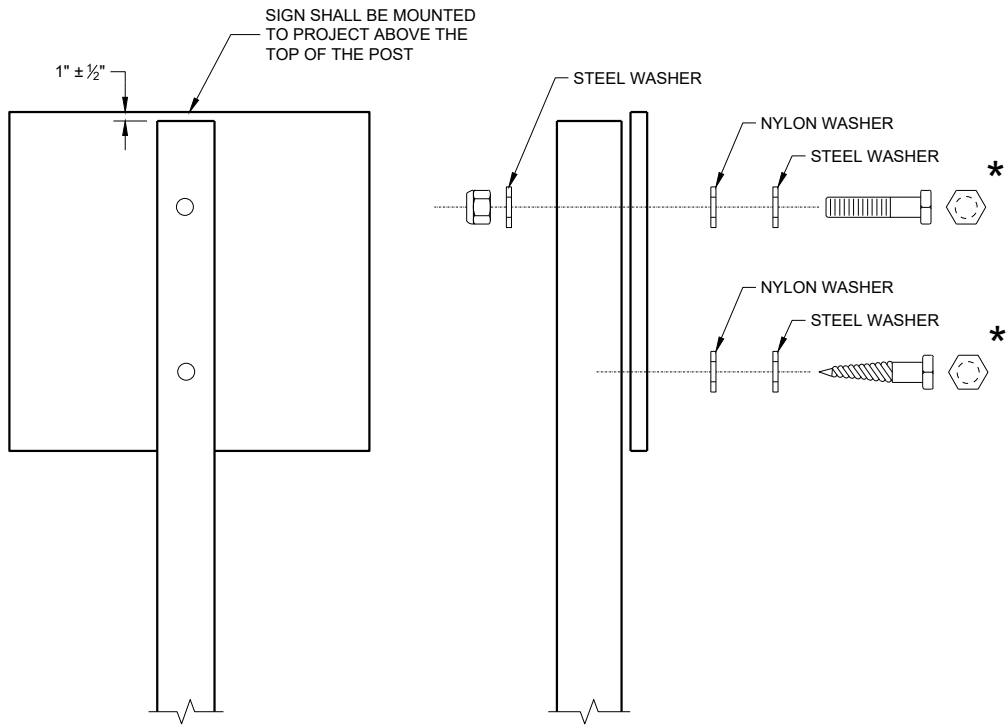
SEE NOTE ③

GENERAL NOTES

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

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

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

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

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

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

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

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

ATTACHMENT OF SIGNS
TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

Earthwork Summary

Sta. 1604+00 NB to Sta. 1677+00 NB

Sta. 1604+00 NB to Sta. 1677+00 NB

		AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		
STATION	DISTANCE	CUT	FILL	CUT	FILL	CUT	FILL	MASS ORDNATE
1604+00	0	0	21.8			0	0	0
1605+00	100	0	14.6	0	67	0	67	-67
1606+00	100	0	10.8	0	47	0	114	-114
1607+00	100	0	0.0	0	20	0	134	-134
1608+00	100	0	0.0	0	0	0	134	-134
1609+00	100	0	0.0	0	0	0	134	-134
1610+00	100	0	0.0	0	0	0	134	-134
1611+00	100	0	0.0	0	0	0	134	-134
1611+50	50	0	0.0	0	0	0	134	-134
1612+00	50	0	13.2	0	12	0	146	-146
1613+00	100	0	10.2	0	43	0	189	-189
1614+00	100	0	12.9	0	43	0	232	-232
1615+00	100	0	9.6	0	42	0	274	-274
1616+00	100	0	12.9	0	42	0	316	-316
1617+00	100	0	35.2	0	89	0	405	-405
1618+00	100	0	27.7	0	116	0	521	-521
1619+00	50	0	26.1	0	50	0	571	-571
1619+50	50	0	42.1	0	63	0	634	-634
1619+70	20	0	32.3	0	28	0	662	-662
1620+70		0	0.0					
1621+00	30	0	3.8	0	2	0	664	-664
1622+00	100	0	24.4	0	52	0	716	-716
1623+00	100	0	16.7	0	76	0	792	-792
1624+00	100	0	19.2	0	66	0	858	-858
1625+00	100	0	15.3	0	64	0	922	-922
1626+00	100	0	12.6	0	52	0	974	-974
1626+40	40	0	0.0	0	9	0	983	-983
1627+65		0	0.0					
1628+00	35	0	31.9	0	21	0	1,004	-1,004
1629+00	100	0	30.3	0	115	0	1,119	-1,119
1630+00	100	0	29.0	0	110	0	1,229	-1,229
1631+00	100	0	28.7	0	107	0	1,336	-1,336
1632+00	100	0	22.5	0	95	0	1,431	-1,431
1633+00	100	0	15.8	0	71	0	1,502	-1,502
1634+00	100	0	16.5	0	60	0	1,562	-1,562
1635+00	100	0	18.7	0	65	0	1,627	-1,627
1635+50	50	0	21.6	0	37	0	1,664	-1,664
1635+65	15	0	19.0	0	11	0	1,675	-1,675
1637+35		0	43.9	0	0	0	1,675	-1,675
1637+60	25	0	39.8	0	39	0	1,714	-1,714
1638+00	40	0	30.0	0	52	0	1,766	-1,766
1639+00	100	0	17.8	0	89	0	1,855	-1,855
1640+00	100	0	16.0	0	63	0	1,918	-1,918

Earthwork Summary

Sta. 1604+00 NB to Sta. 1677+00 NB

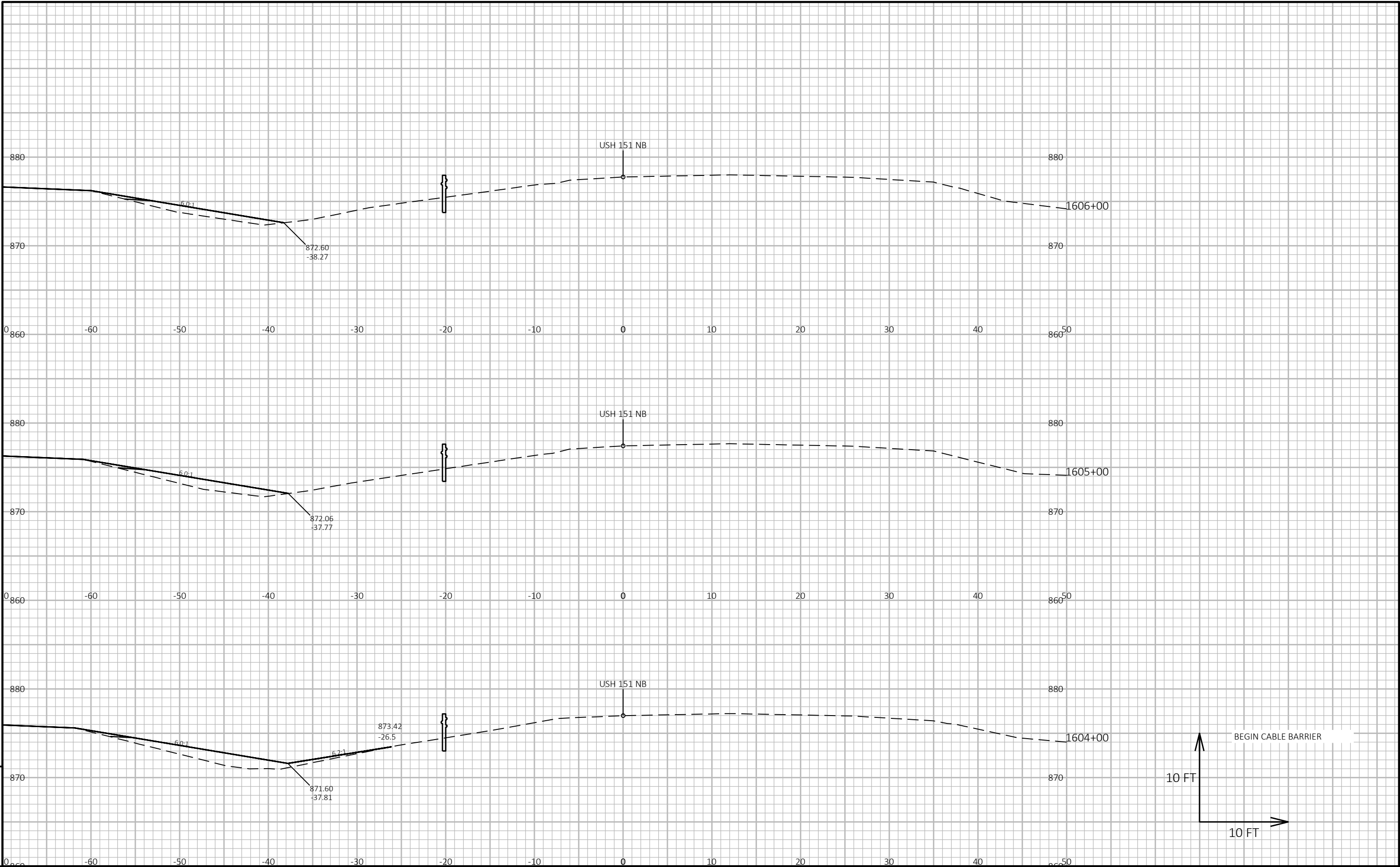
Sta. 1604+00 NB to Sta. 1677+00 NB

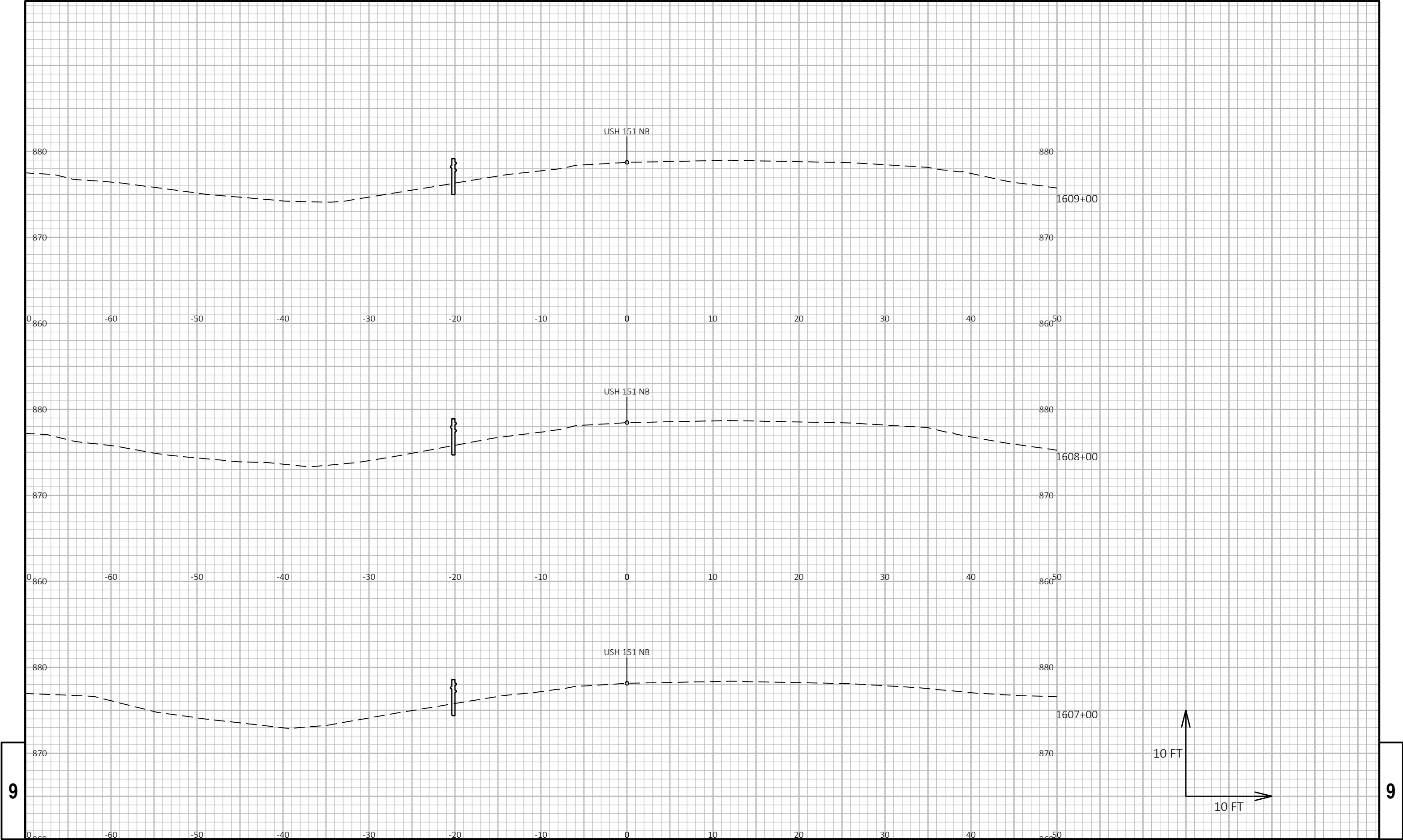
		AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		
STATION	DISTANCE	CUT	FILL	CUT	FILL	CUT	FILL	MASS ORDINATE
1641+00	100	0	21.2	0	69	0	1,987	-1,987
1642+00	100	0	14.4	0	66	0	2,053	-2,053
1642+50	50	0	24.4	0	36	0	2,089	-2,089
1643+00	50	0	20.8	0	42	0	2,131	-2,131
1644+00	100	0	9.5	0	56	0	2,187	-2,187
1645+00	100	0	7.1	0	31	0	2,218	-2,218
1646+00	100	0	8.5	0	29	0	2,247	-2,247
1647+00	100	0	11.4	0	37	0	2,284	-2,284
1648+00	100	0	12.1	0	44	0	2,328	-2,328
1649+00	100	0	17.6	0	55	0	2,383	-2,383
1650+00	100	0	20.8	0	71	0	2,454	-2,454
1651+00	100	0	14.5	0	65	0	2,519	-2,519
1652+00	100	0	14.0	0	53	0	2,572	-2,572
1653+00	100	0	15.4	0	54	0	2,626	-2,626
1654+00	100	0	13.2	0	53	0	2,679	-2,679
1655+00	100	0	14.4	0	51	0	2,730	-2,730
1656+00	100	0	11.5	0	48	0	2,778	-2,778
1657+00	100	0	10.6	0	41	0	2,819	-2,819
1658+00	100	0	13.6	0	45	0	2,864	-2,864
1659+00	100	0	15.9	0	55	0	2,919	-2,919
1660+00	100	0	31.7	0	88	0	3,007	-3,007
1661+00	100	0	14.3	0	85	0	3,092	-3,092
1662+00	100	0	20.7	0	65	0	3,157	-3,157
1663+00	100	0	31.0	0	96	0	3,253	-3,253
1663+35	35	0	0.0	0	20	0	3,273	-3,273
1664+40		0	0.0					
1665+00	60	0	21.8	0	24	0	3,297	-3,297
1666+00	100	0	17.6	0	73	0	3,370	-3,370
1667+00	100	0	16.0	0	62	0	3,432	-3,432
1668+00	100	0	16.7	0	61	0	3,493	-3,493
1669+00	100	0	22.7	0	73	0	3,566	-3,566
1670+00	100	0	19.3	0	78	0	3,644	-3,644
1671+00	100	0	27.0	0	86	0	3,730	-3,730
1672+00	100	0	23.1	0	93	0	3,823	-3,823
1673+00	100	0	15.8	0	72	0	3,895	-3,895
1674+00	100	0	18.2	0	63	0	3,958	-3,958
1675+00	100	0	18.7	0	68	0	4,026	-4,026
1676+00	100	0	14.6	0	62	0	4,088	-4,088
1677+00	100	0	0.0	0	27	0	4,115	-4,115

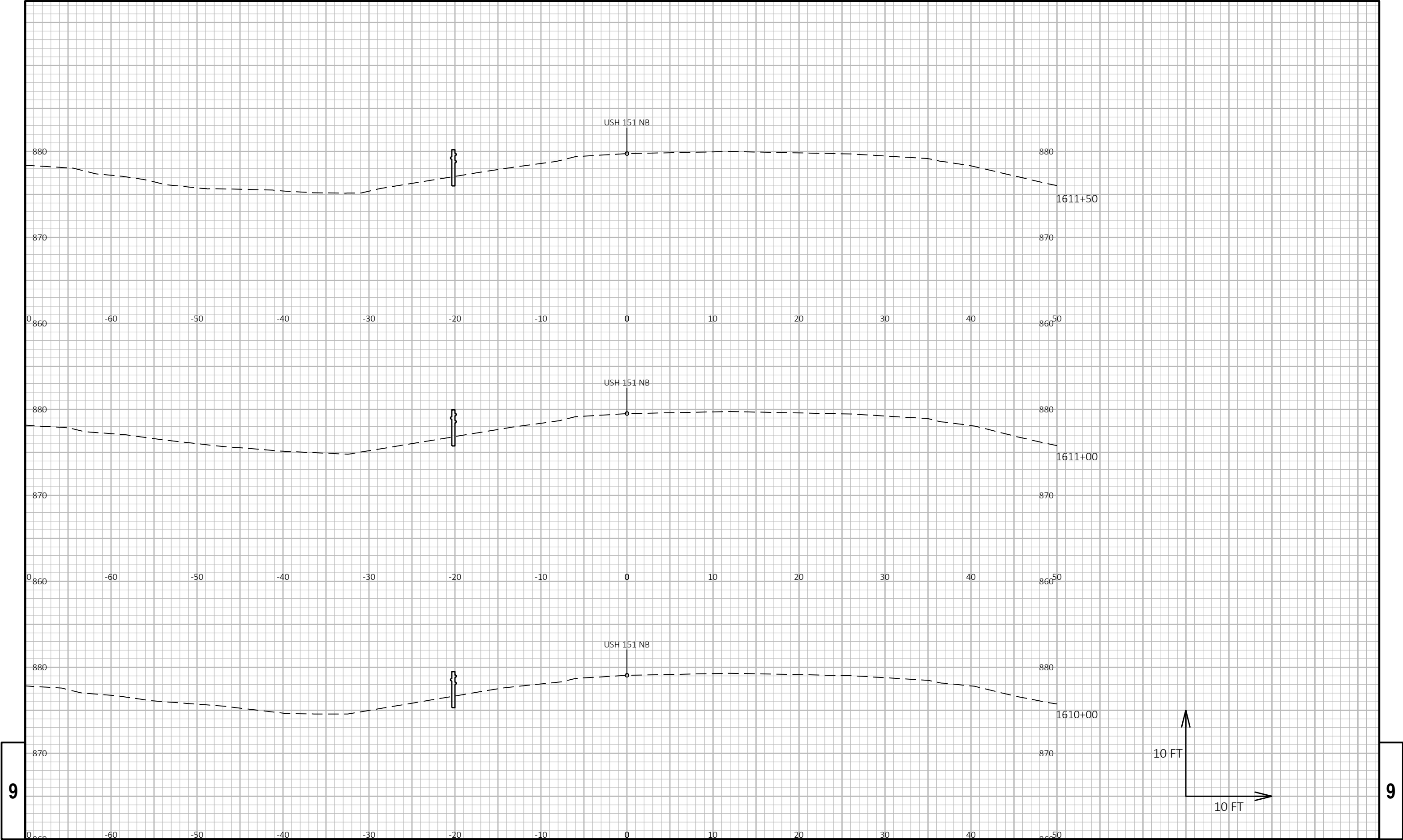
Earthwork values in table have not been expanded

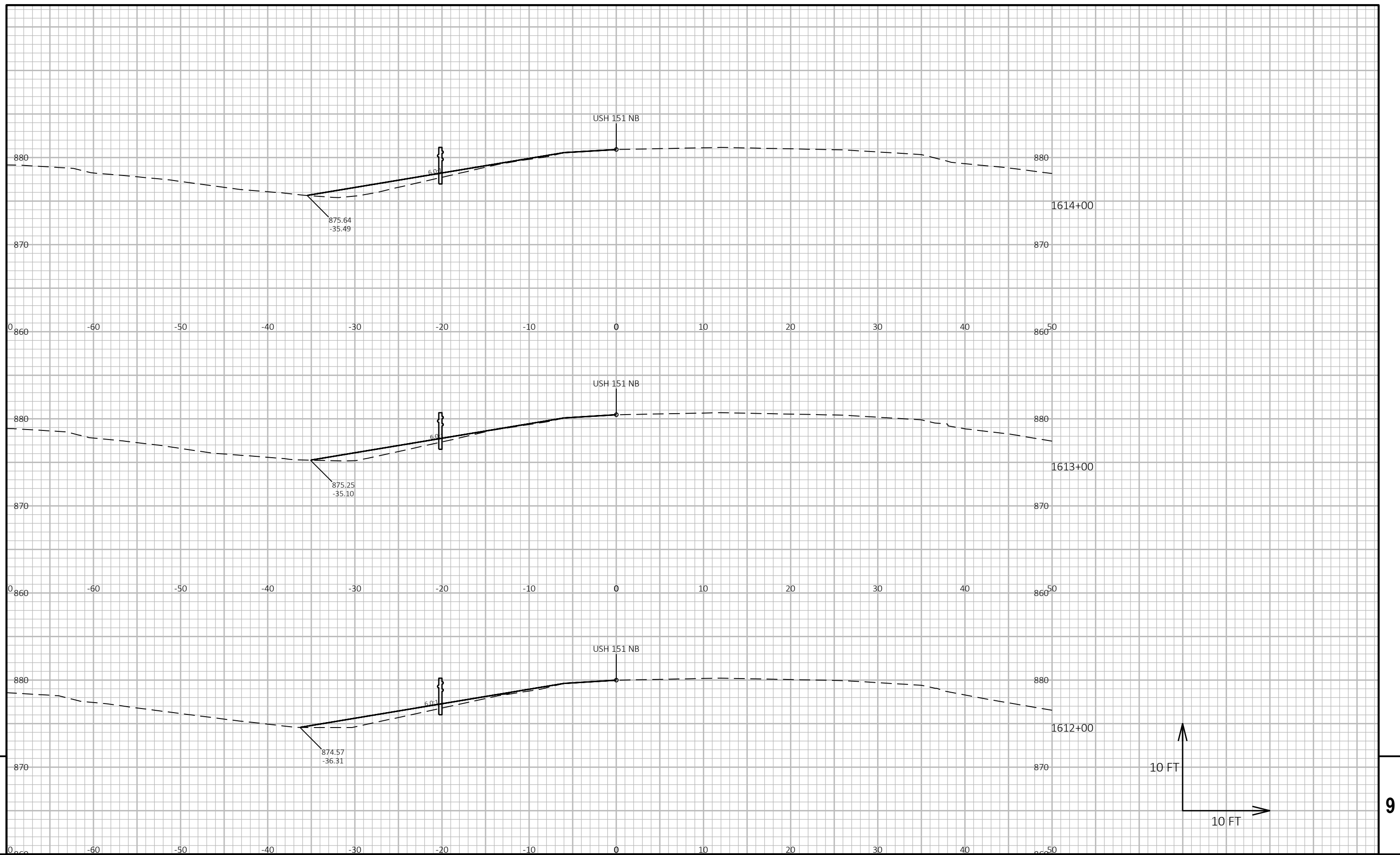
Fill Expansion Factor for Common Excavation = 1.25

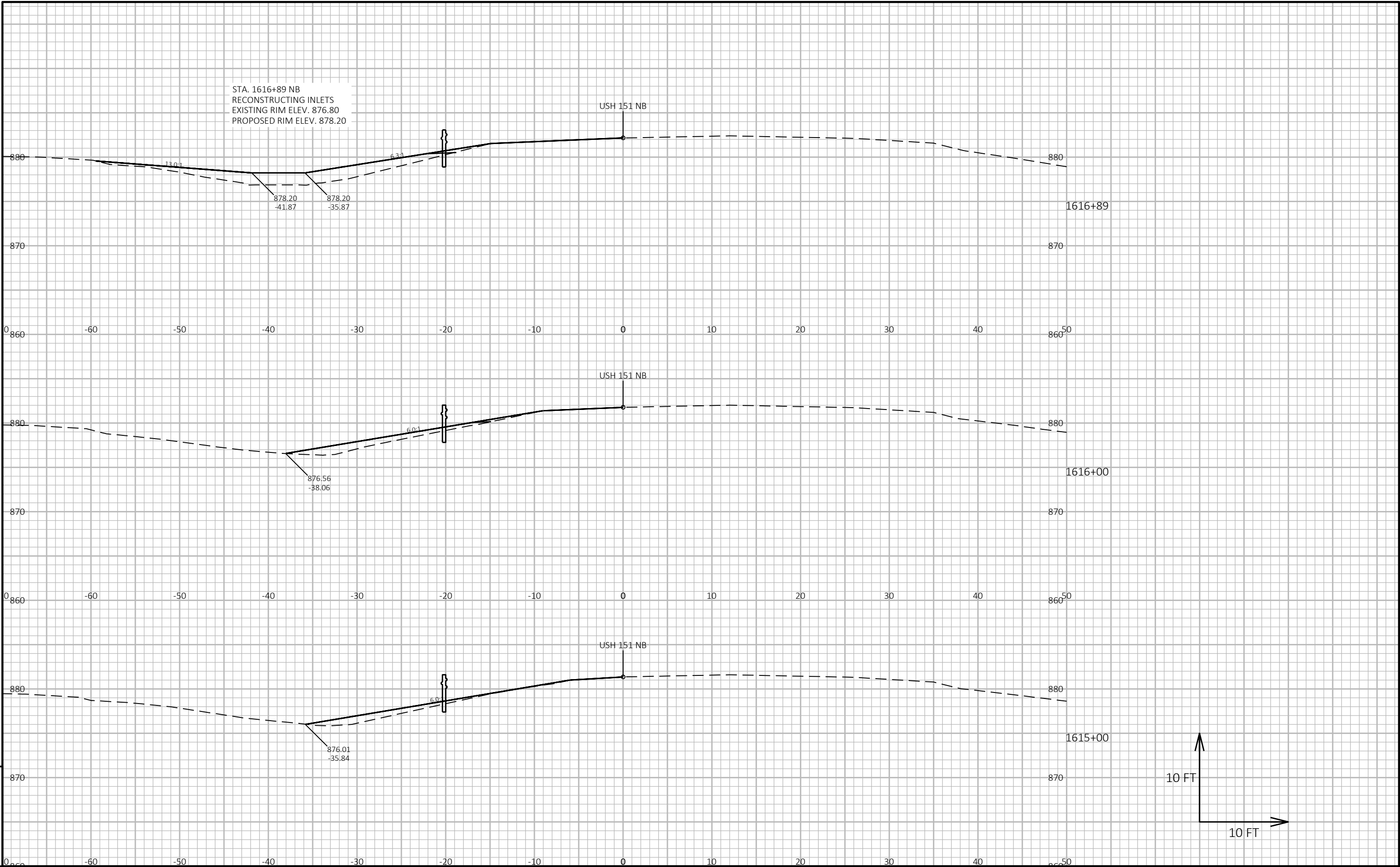
See Earthwork in Miscellaneous Quantities	
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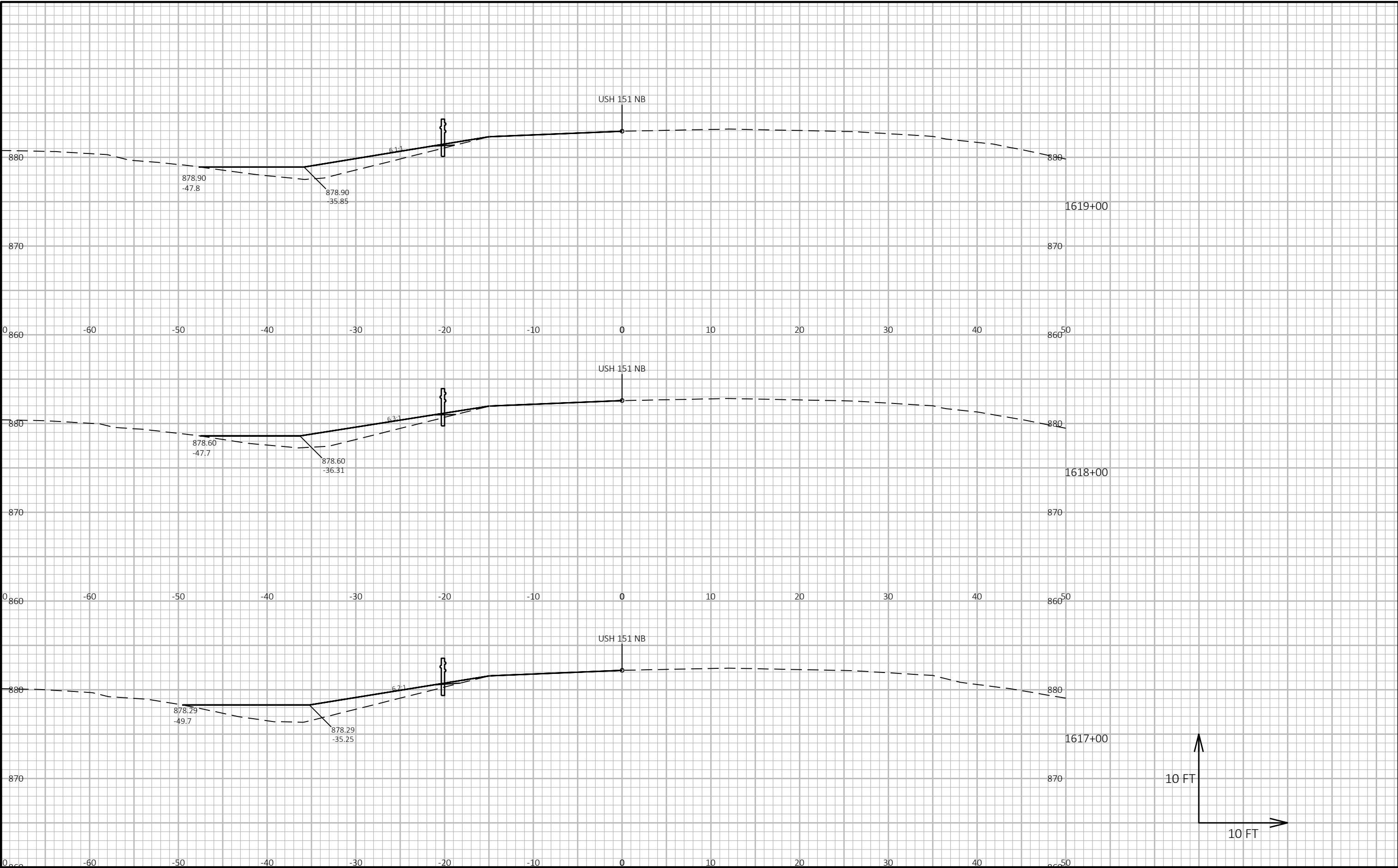


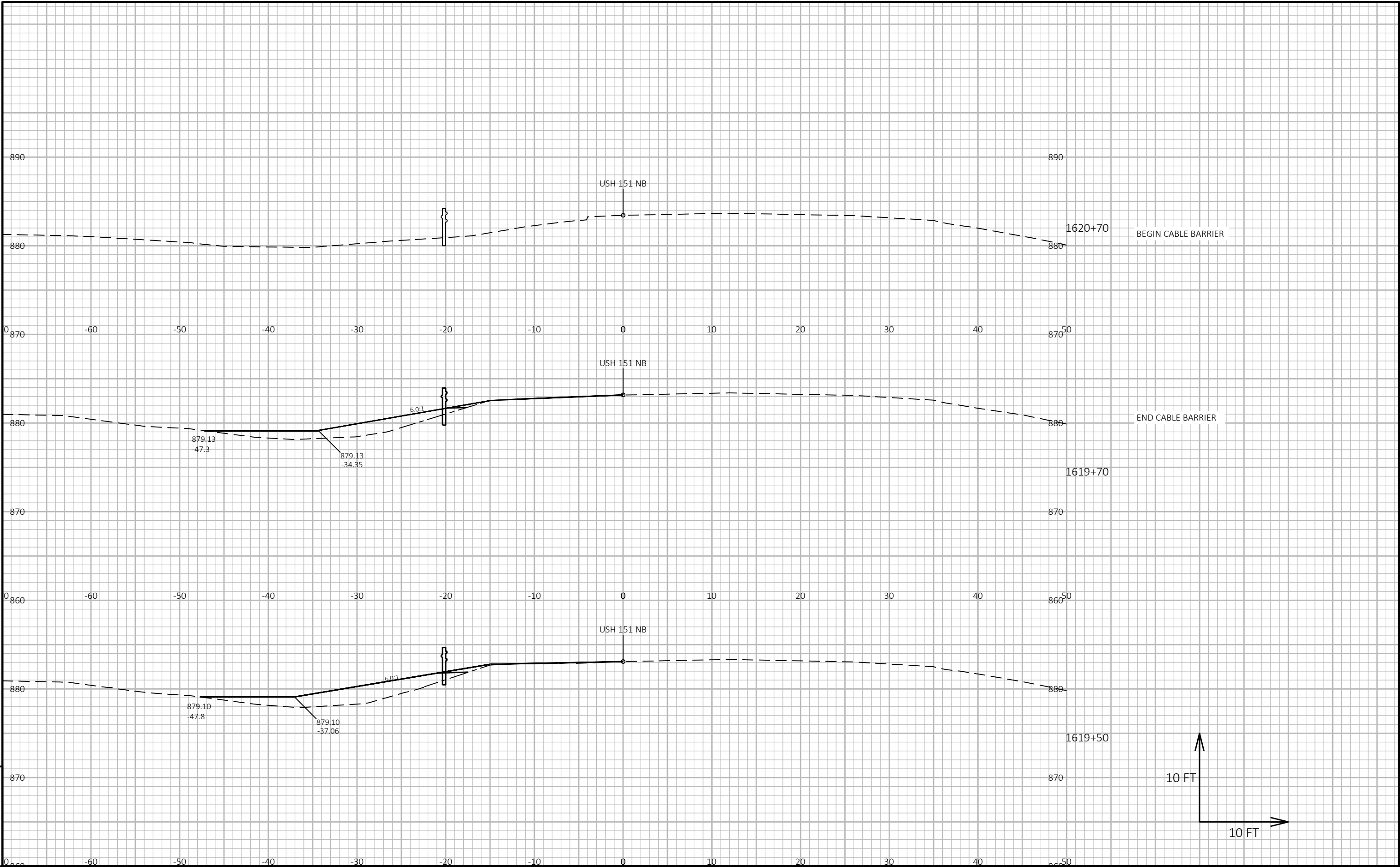


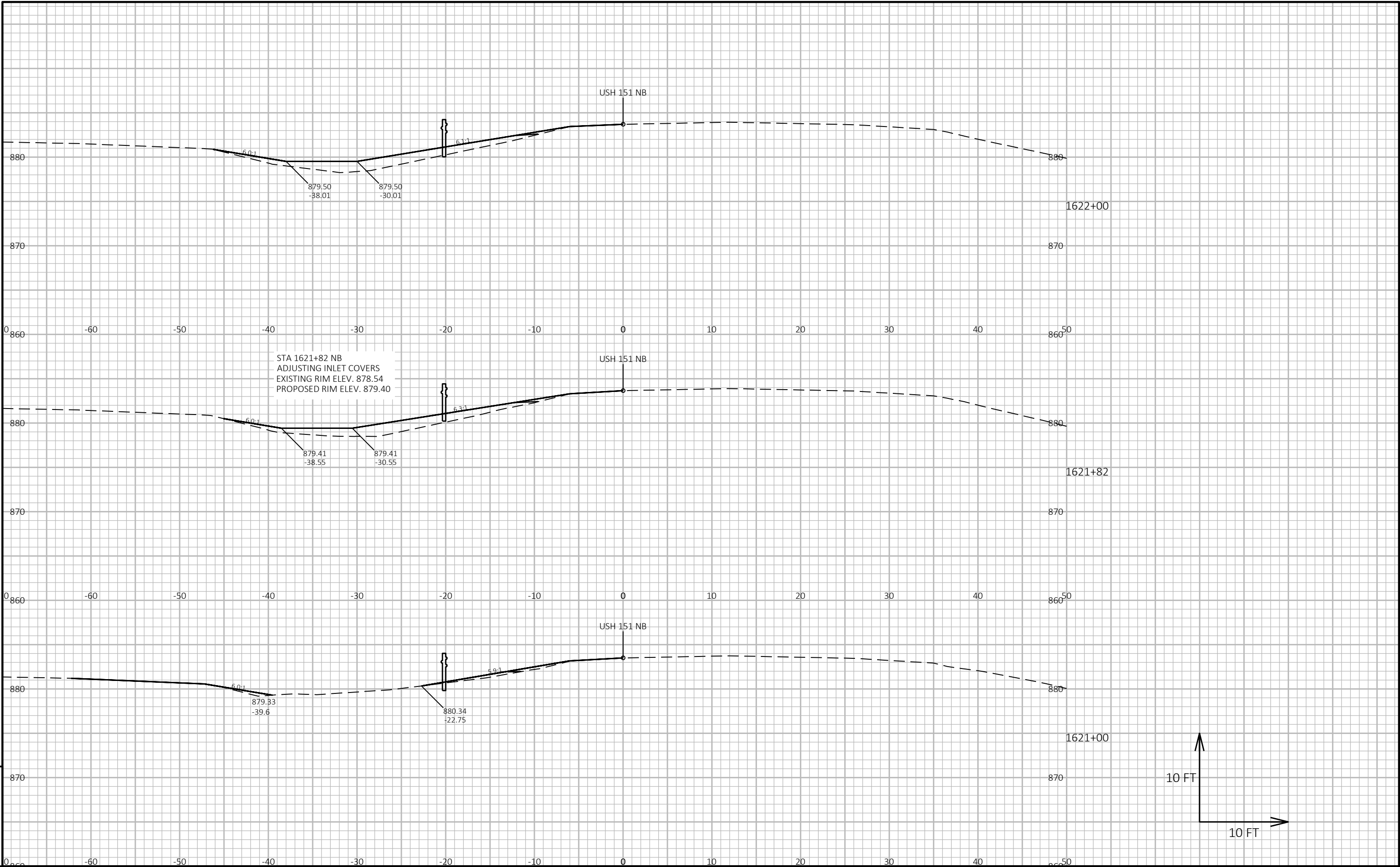


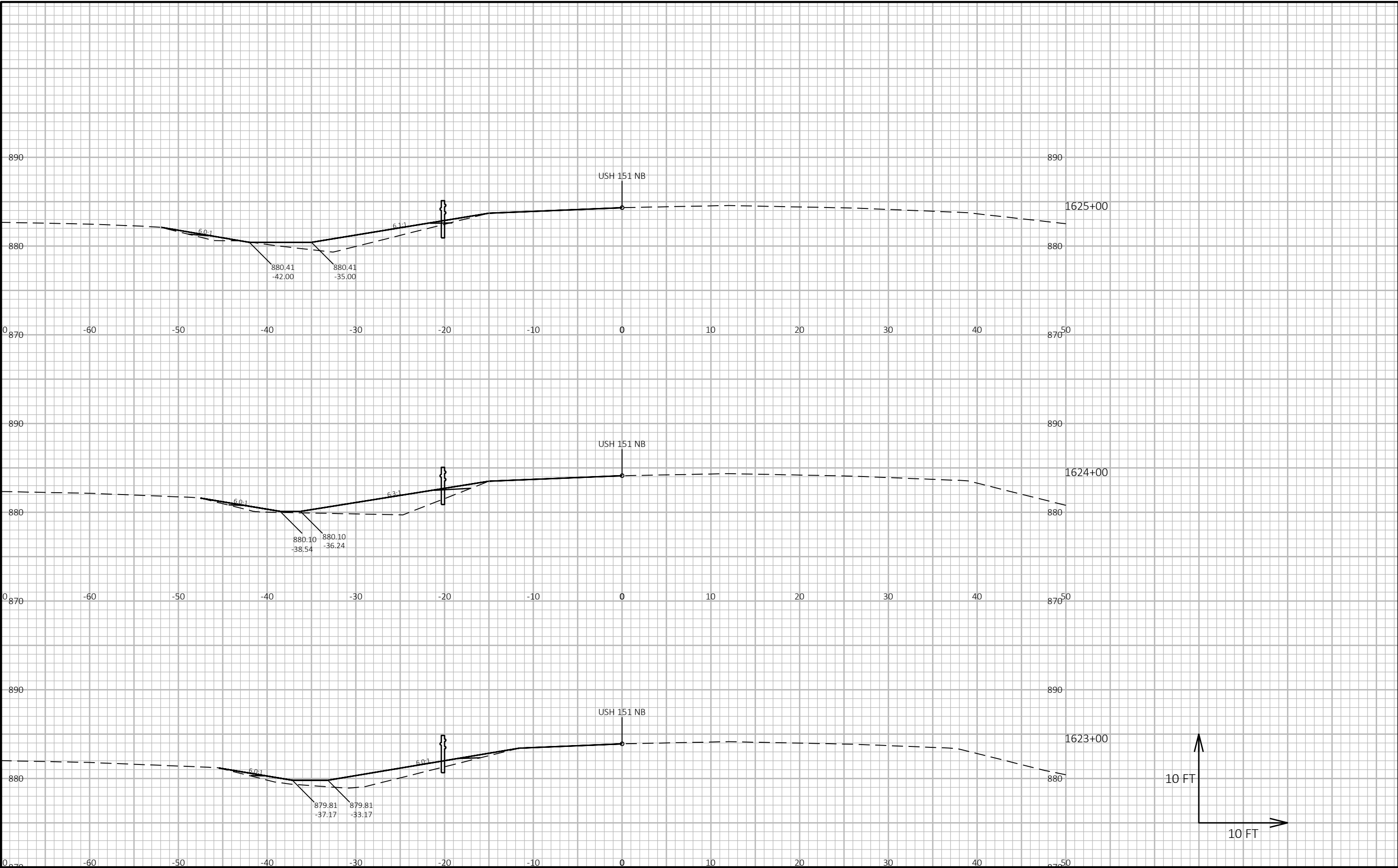


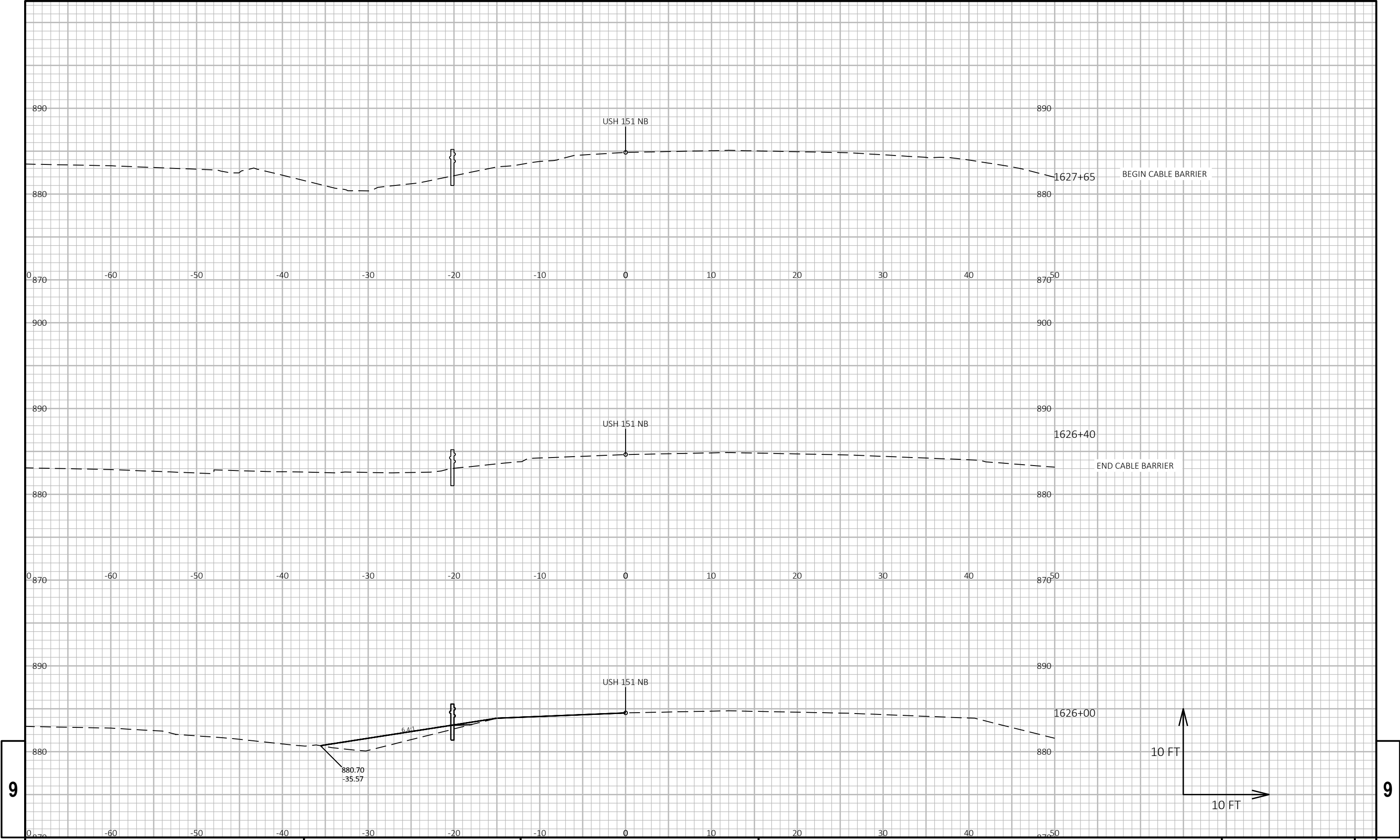


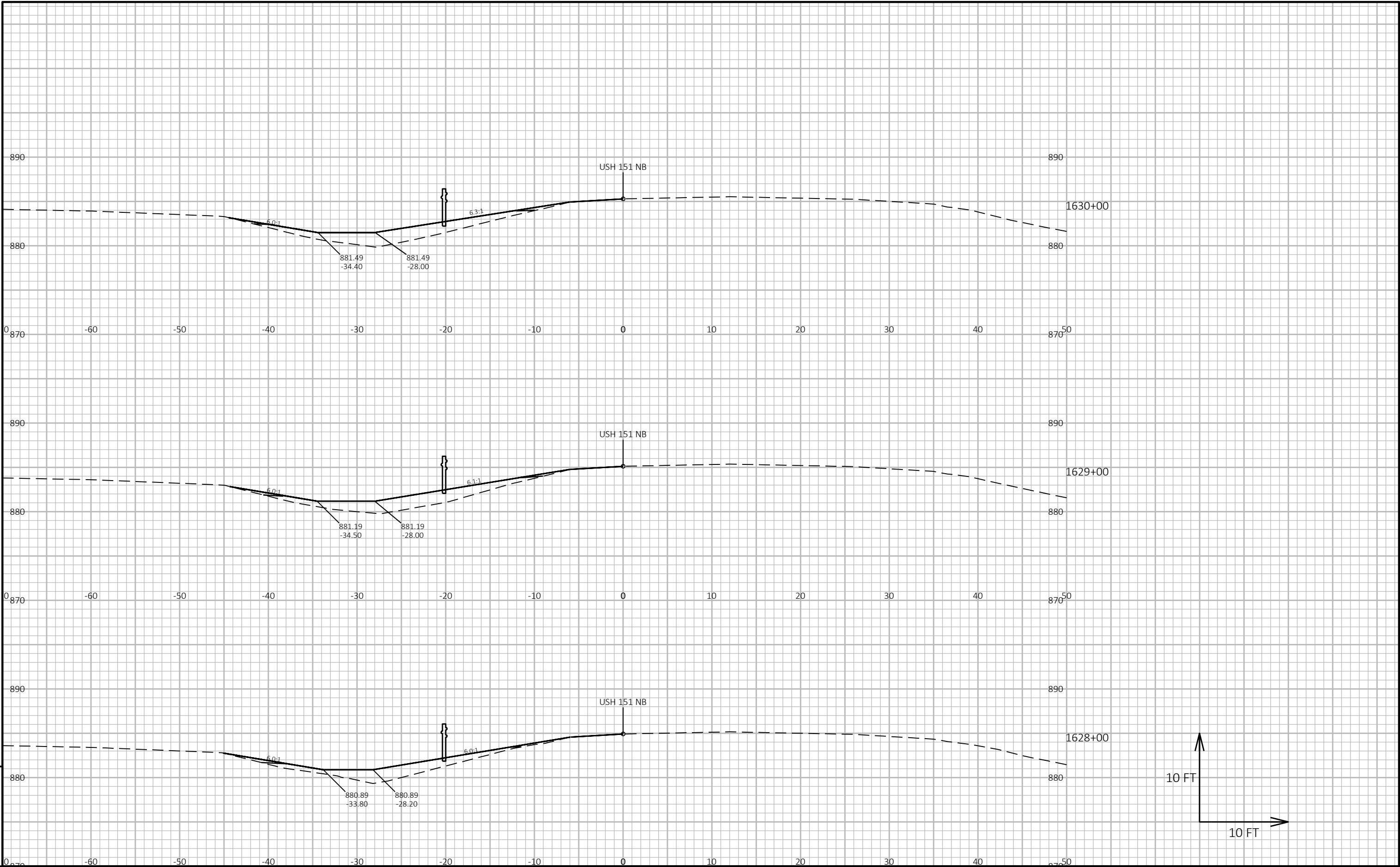


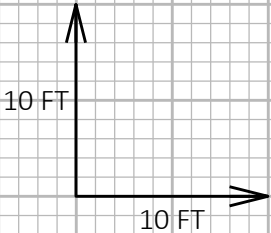
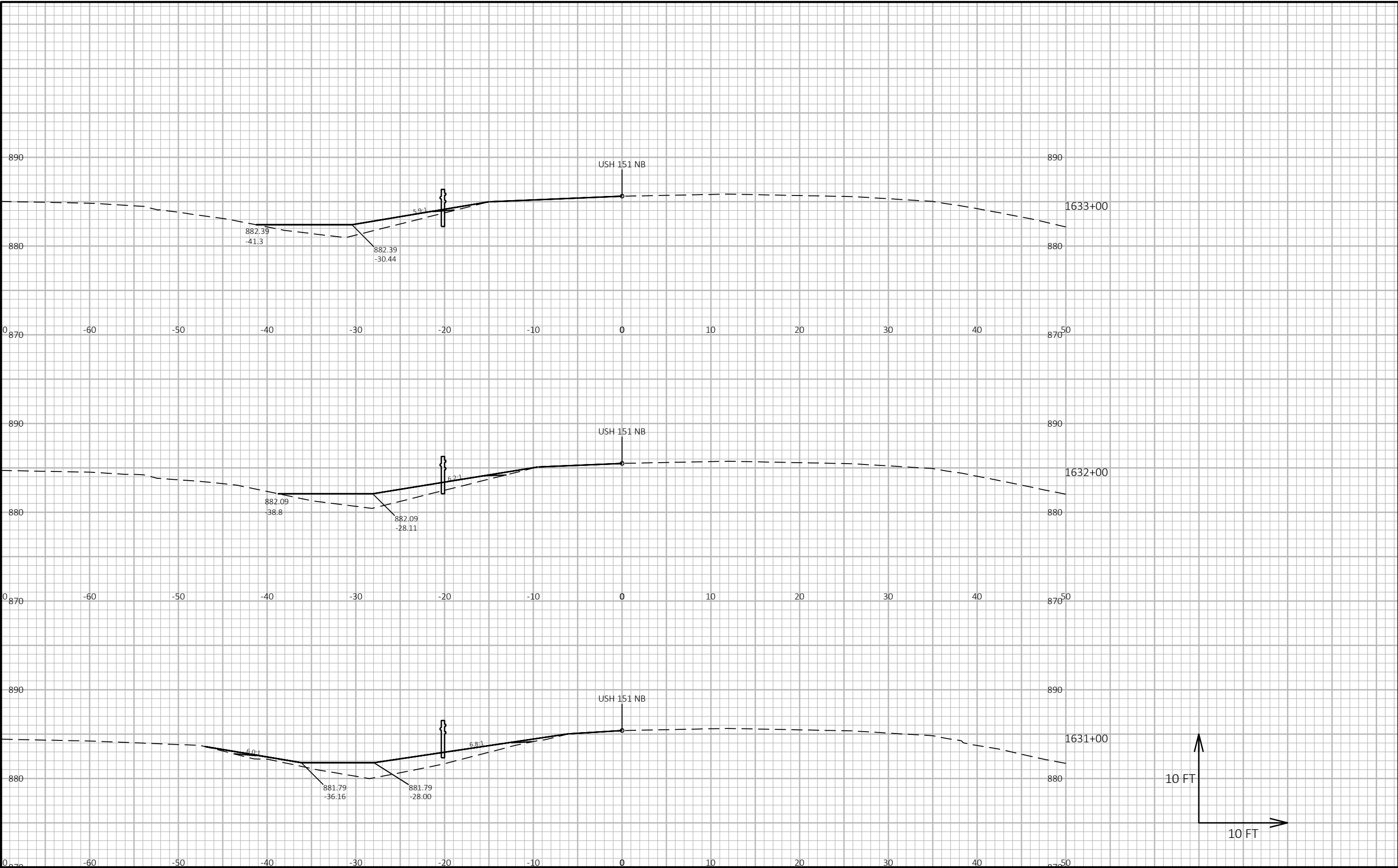


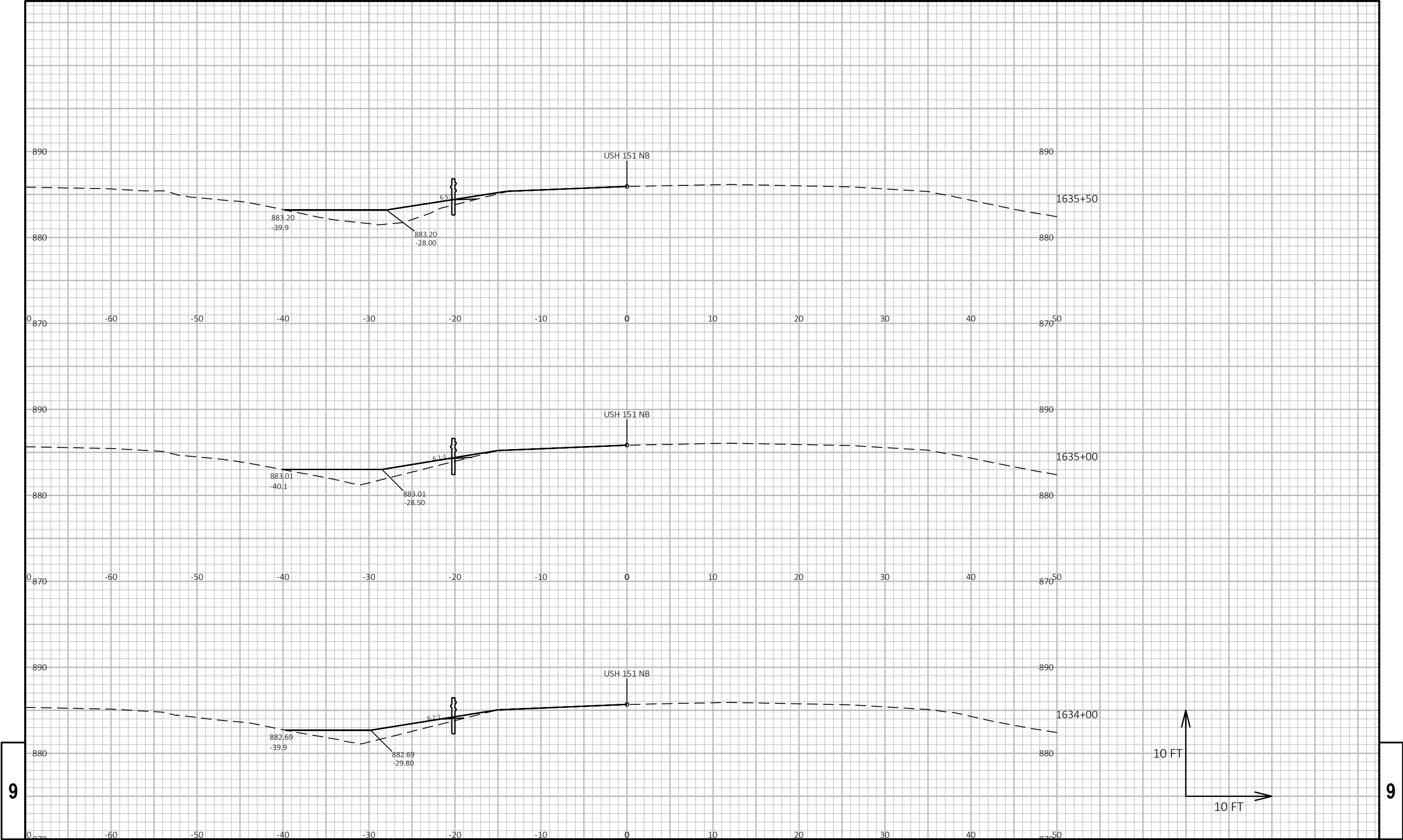


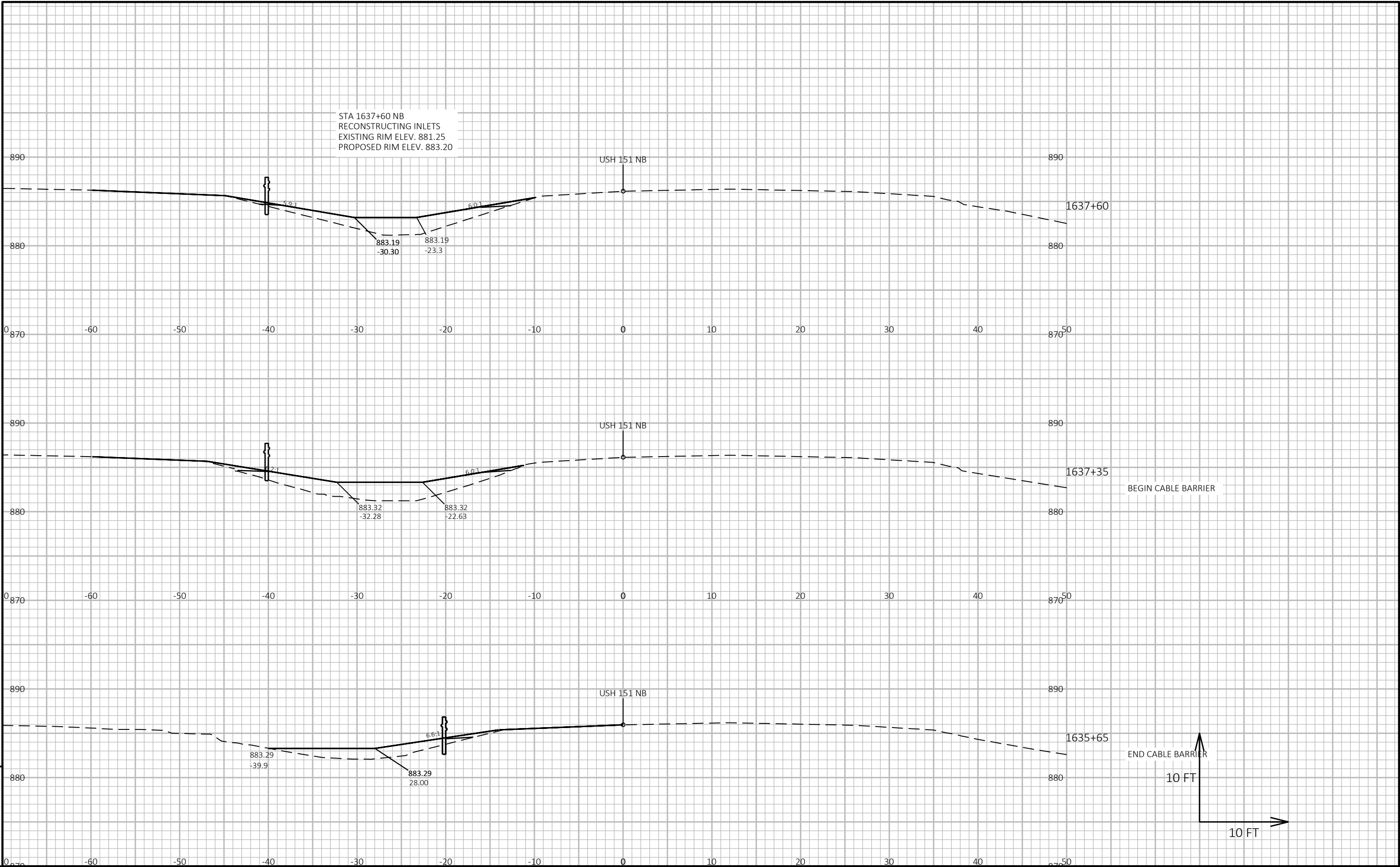


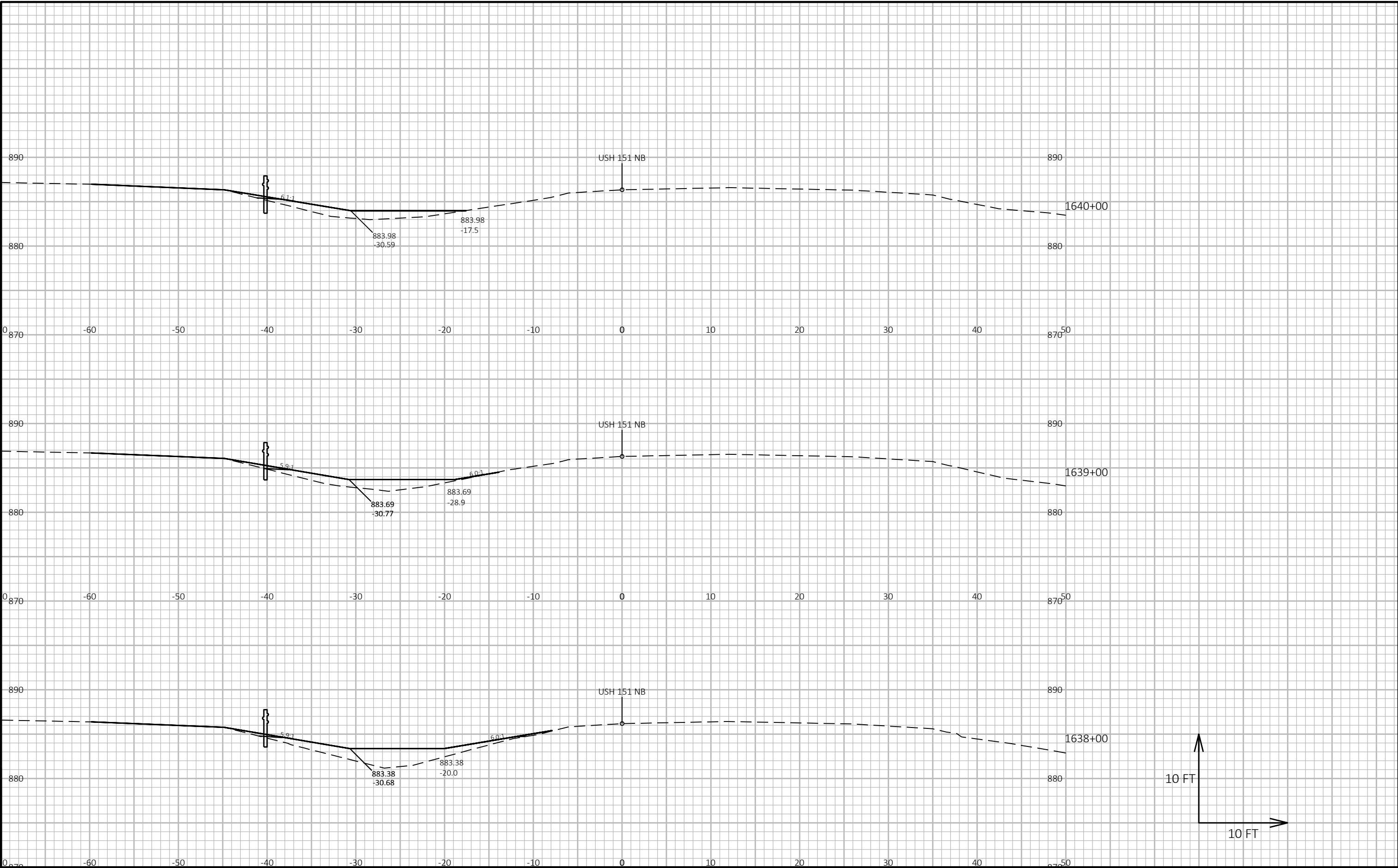


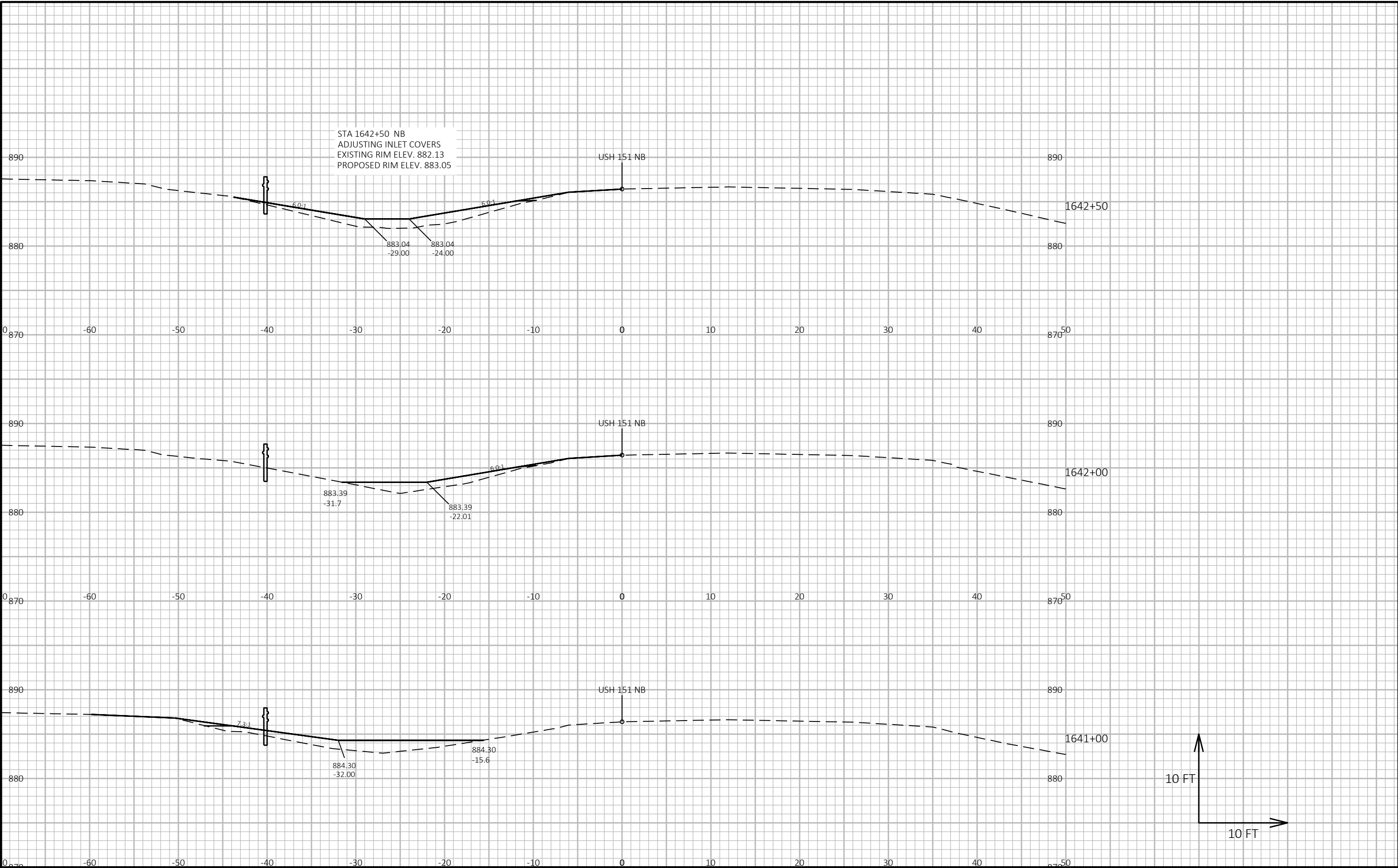


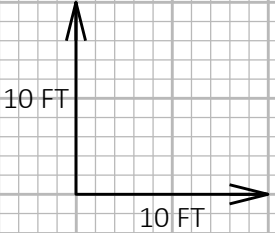
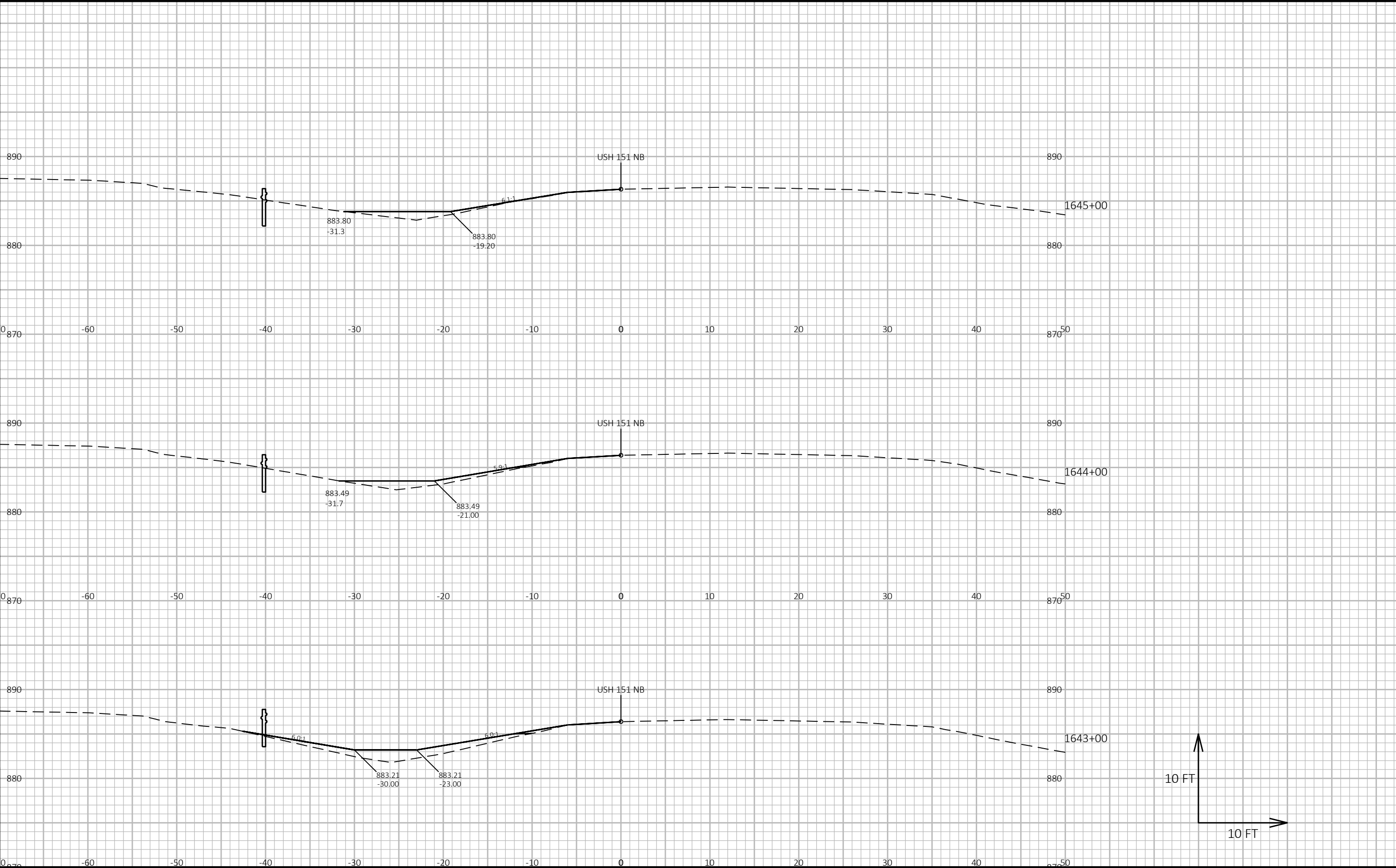


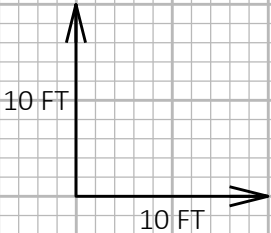
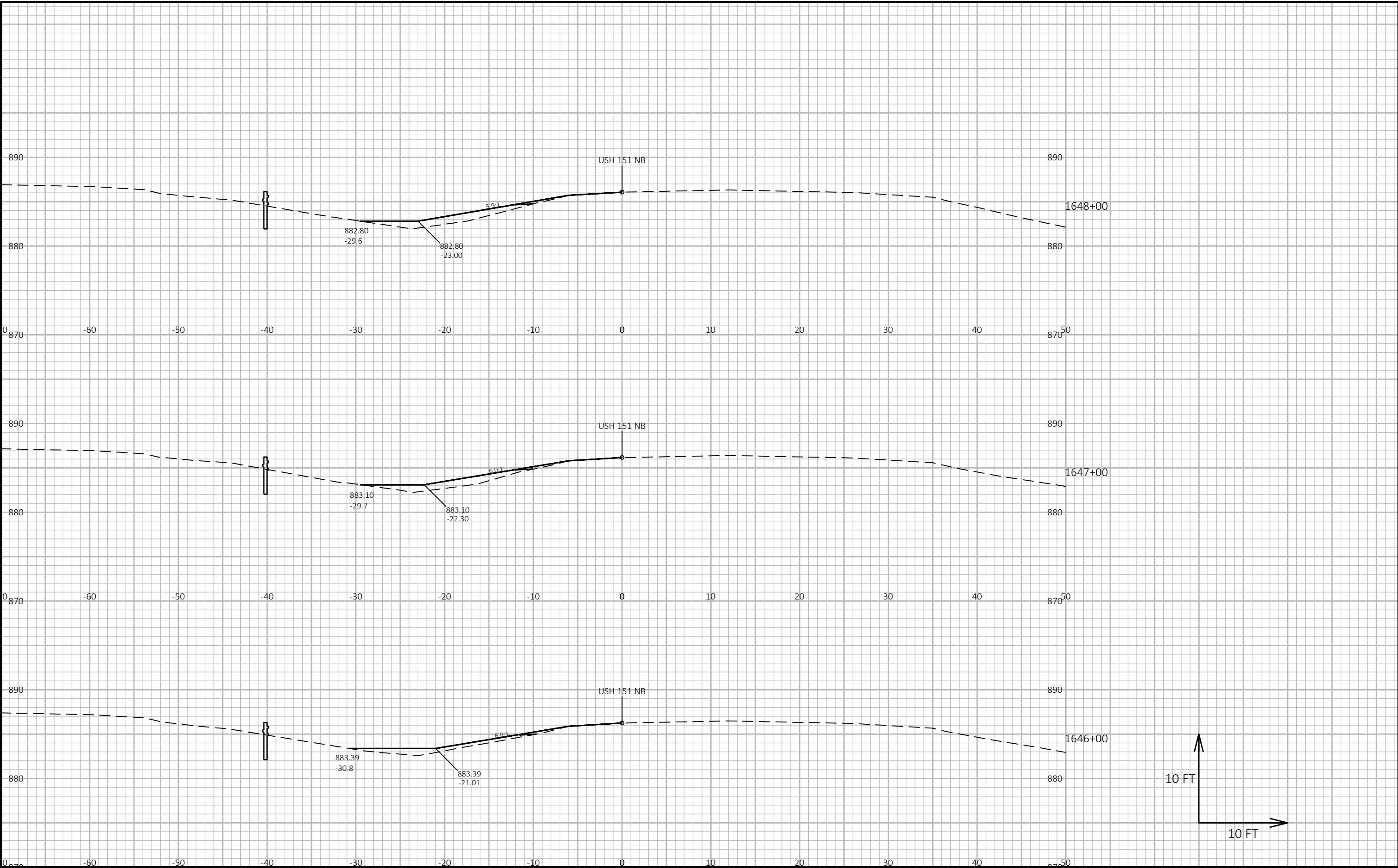


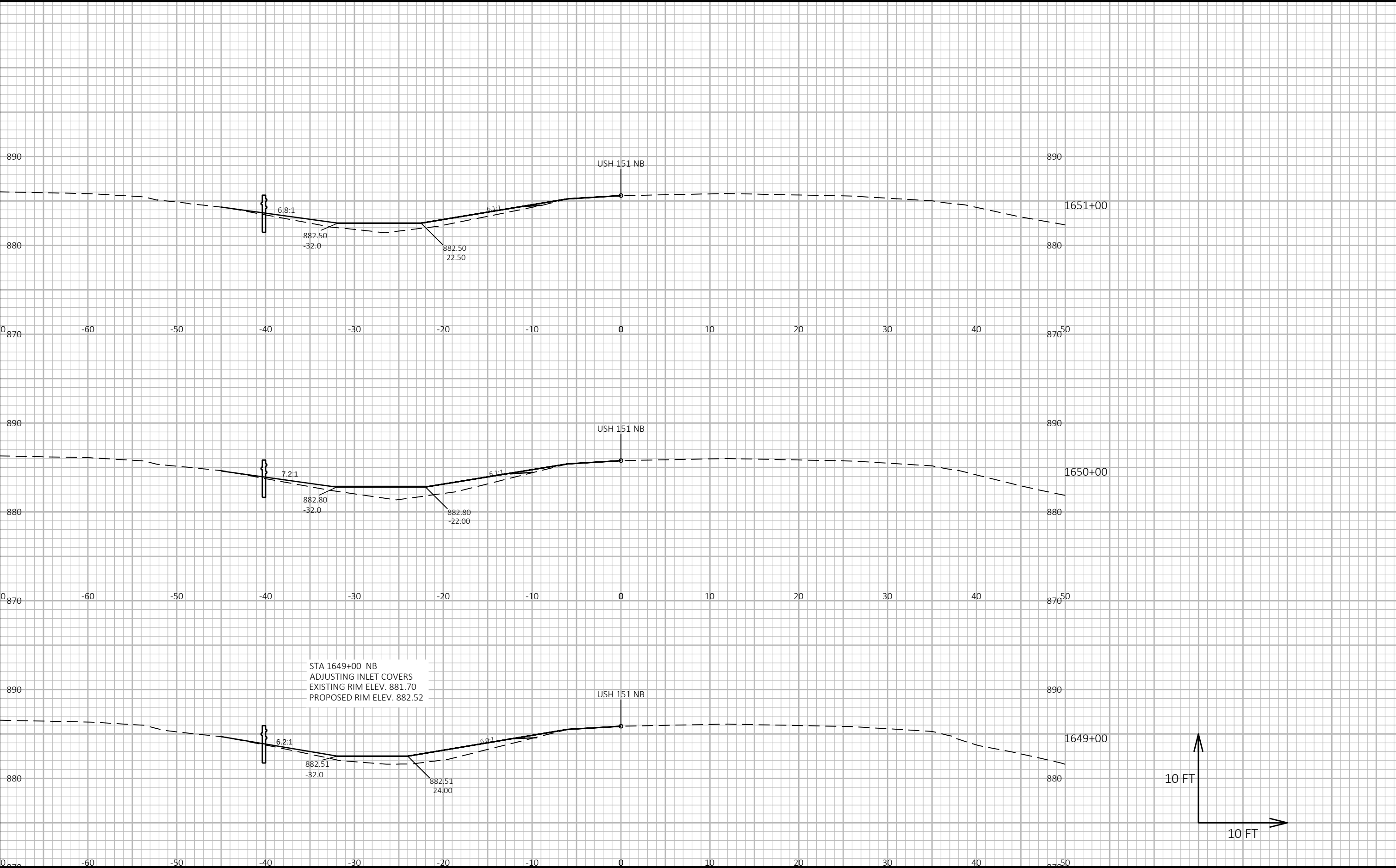


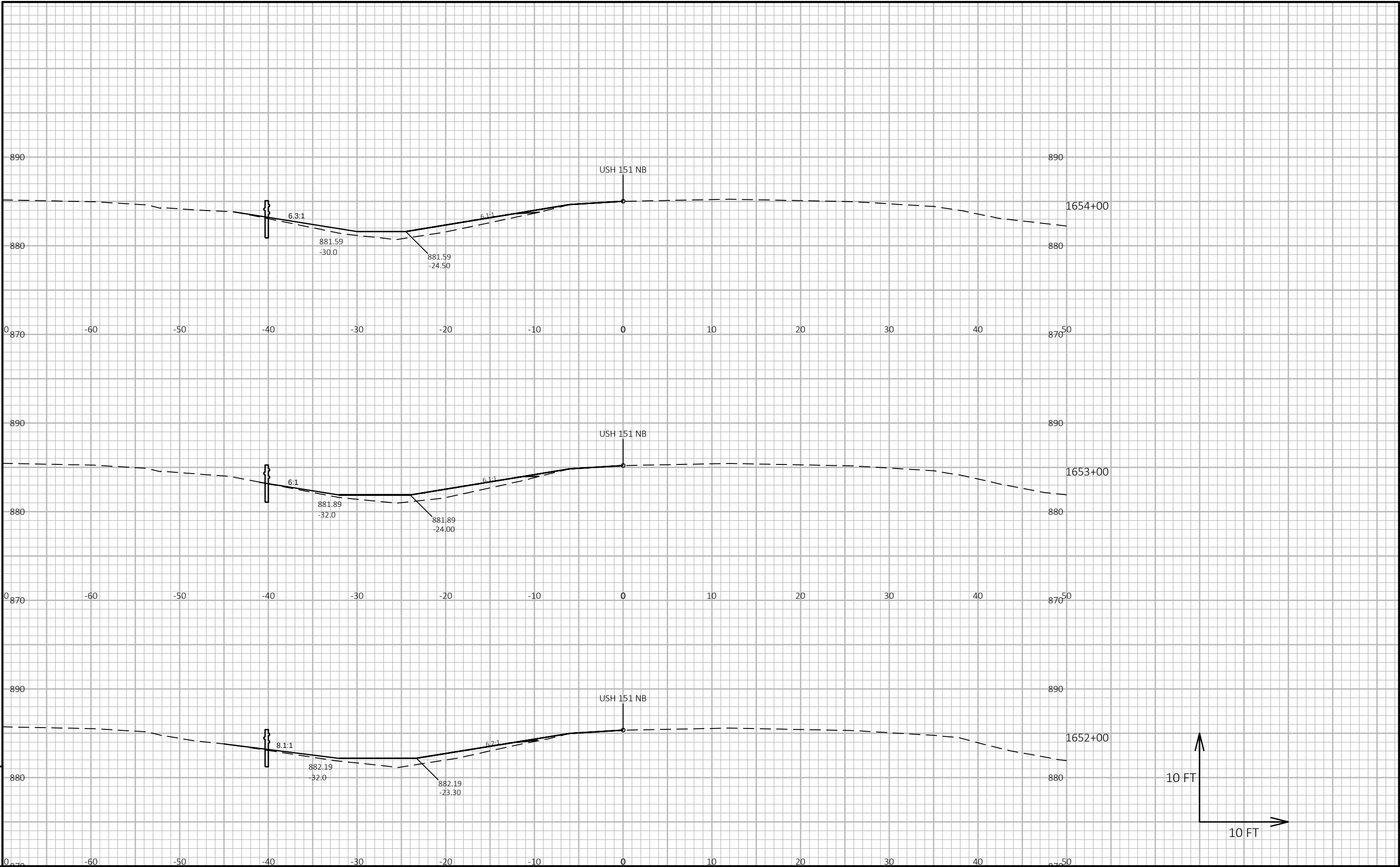


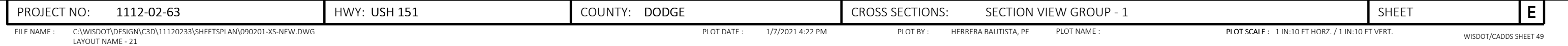
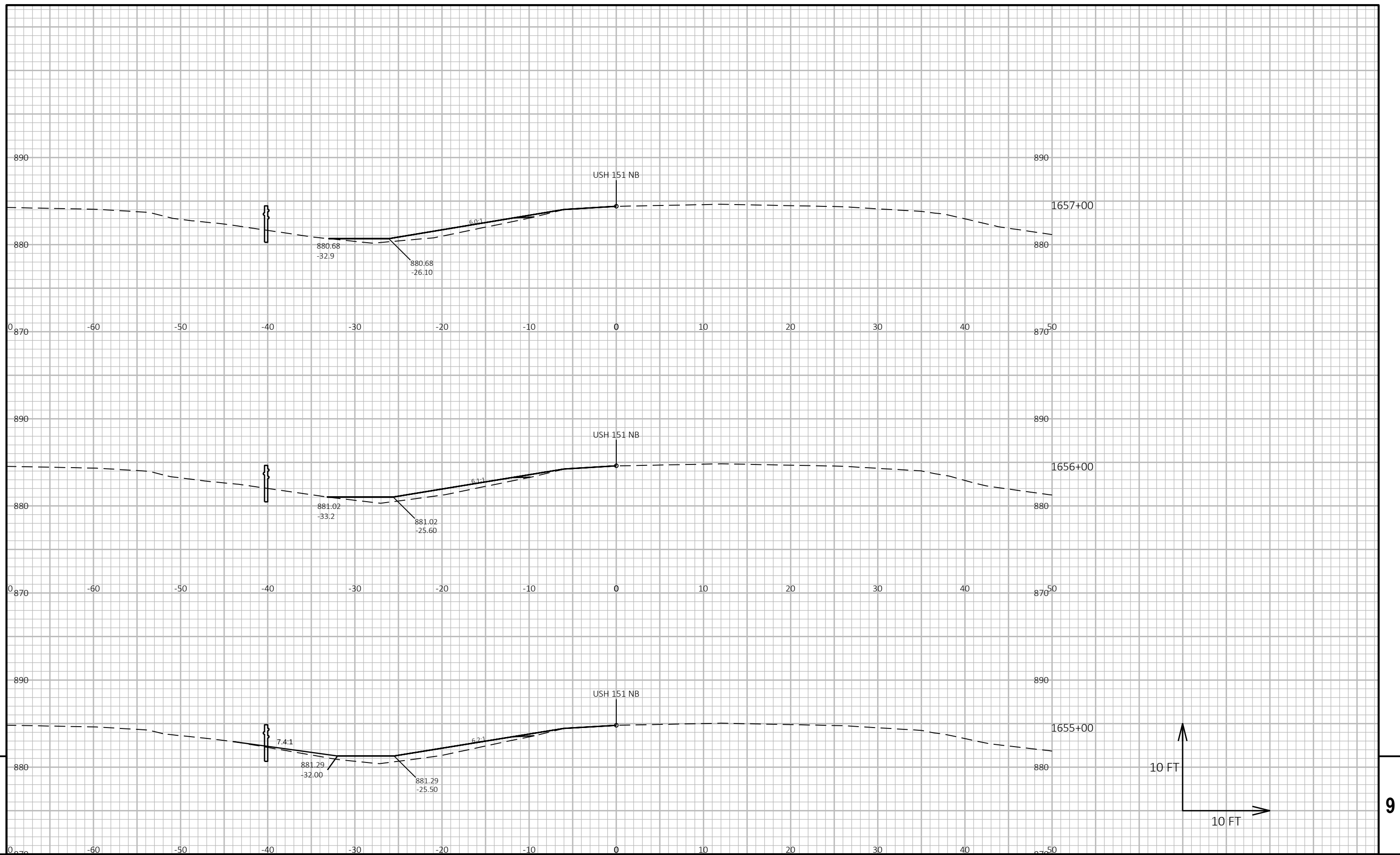


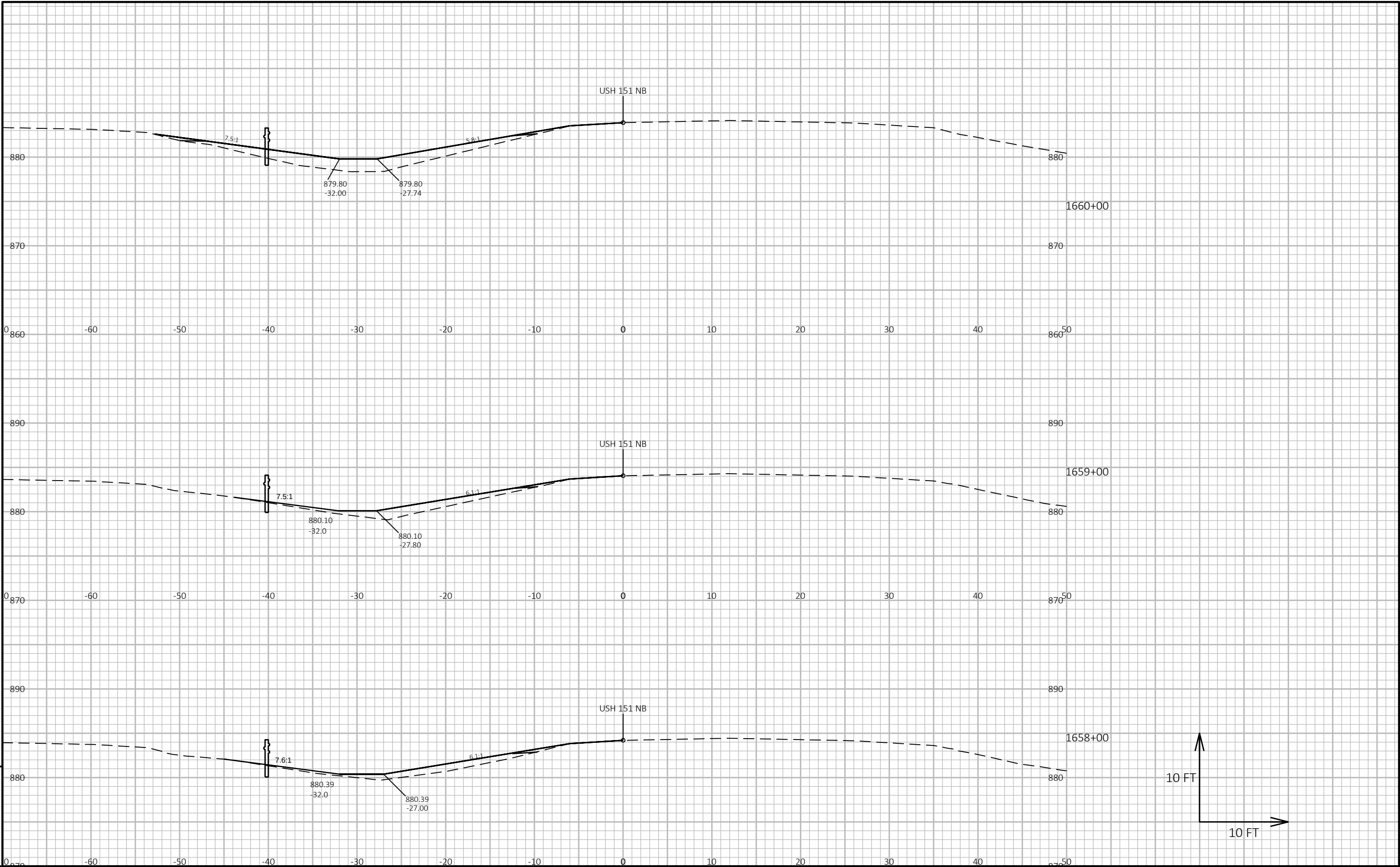


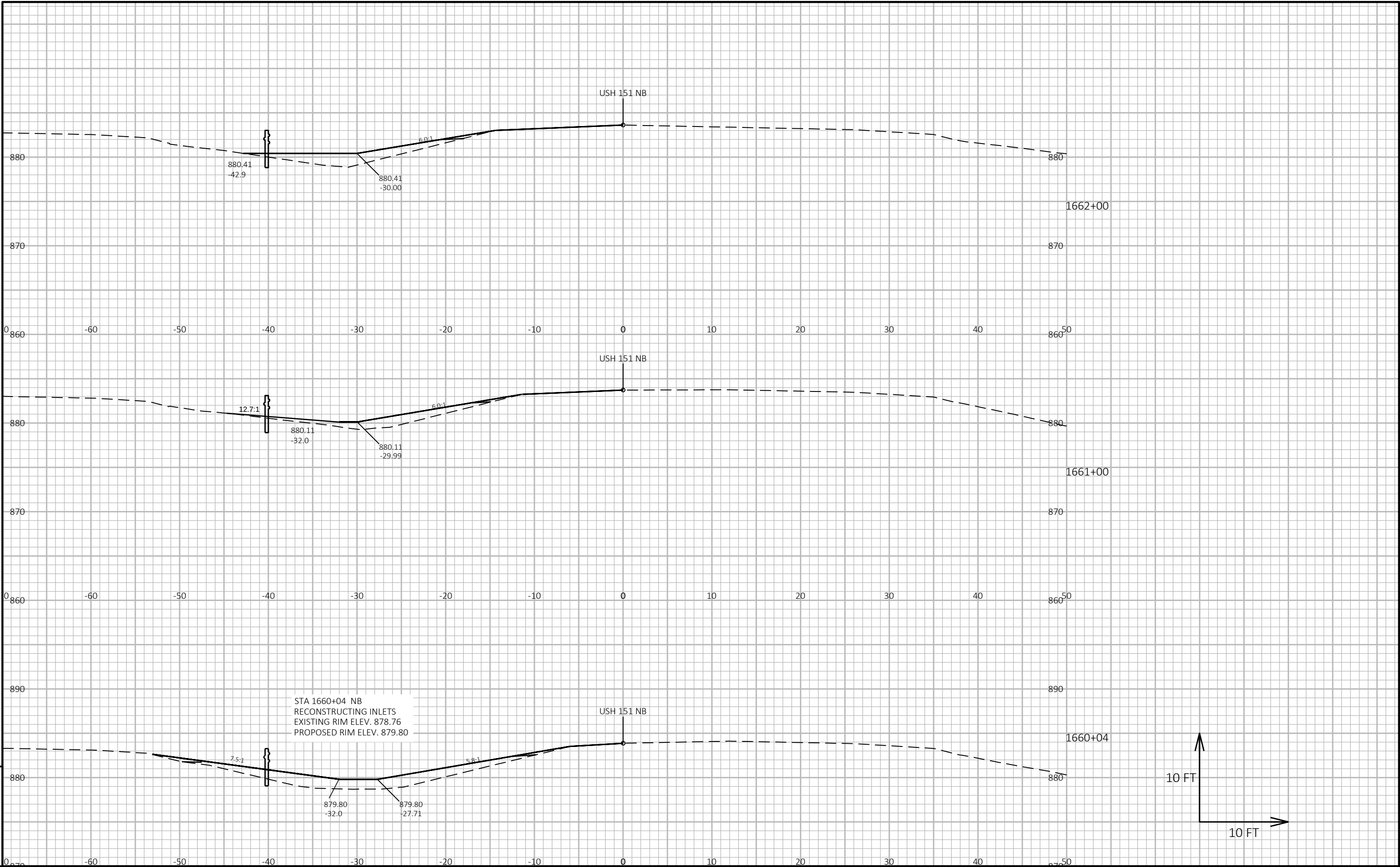








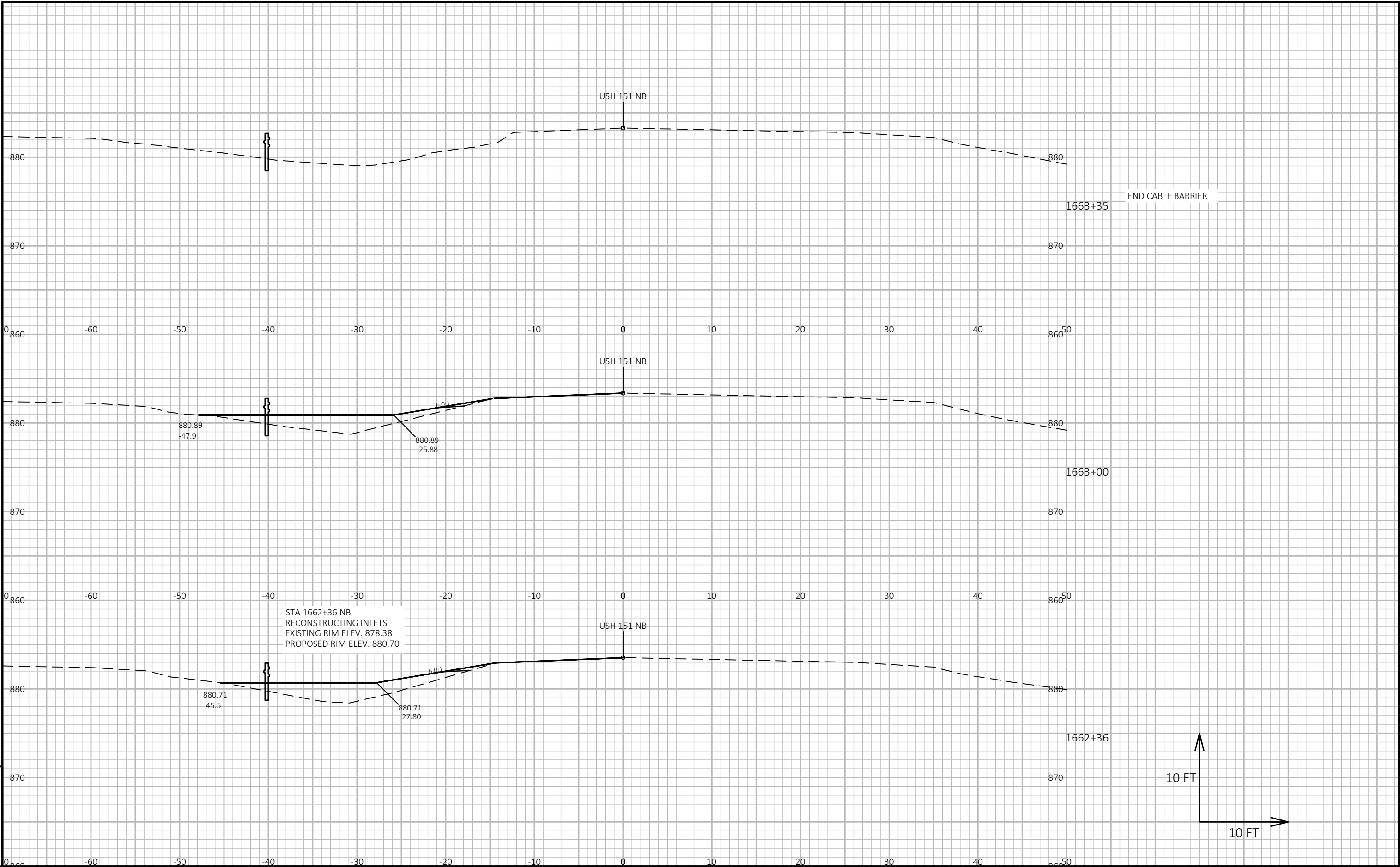




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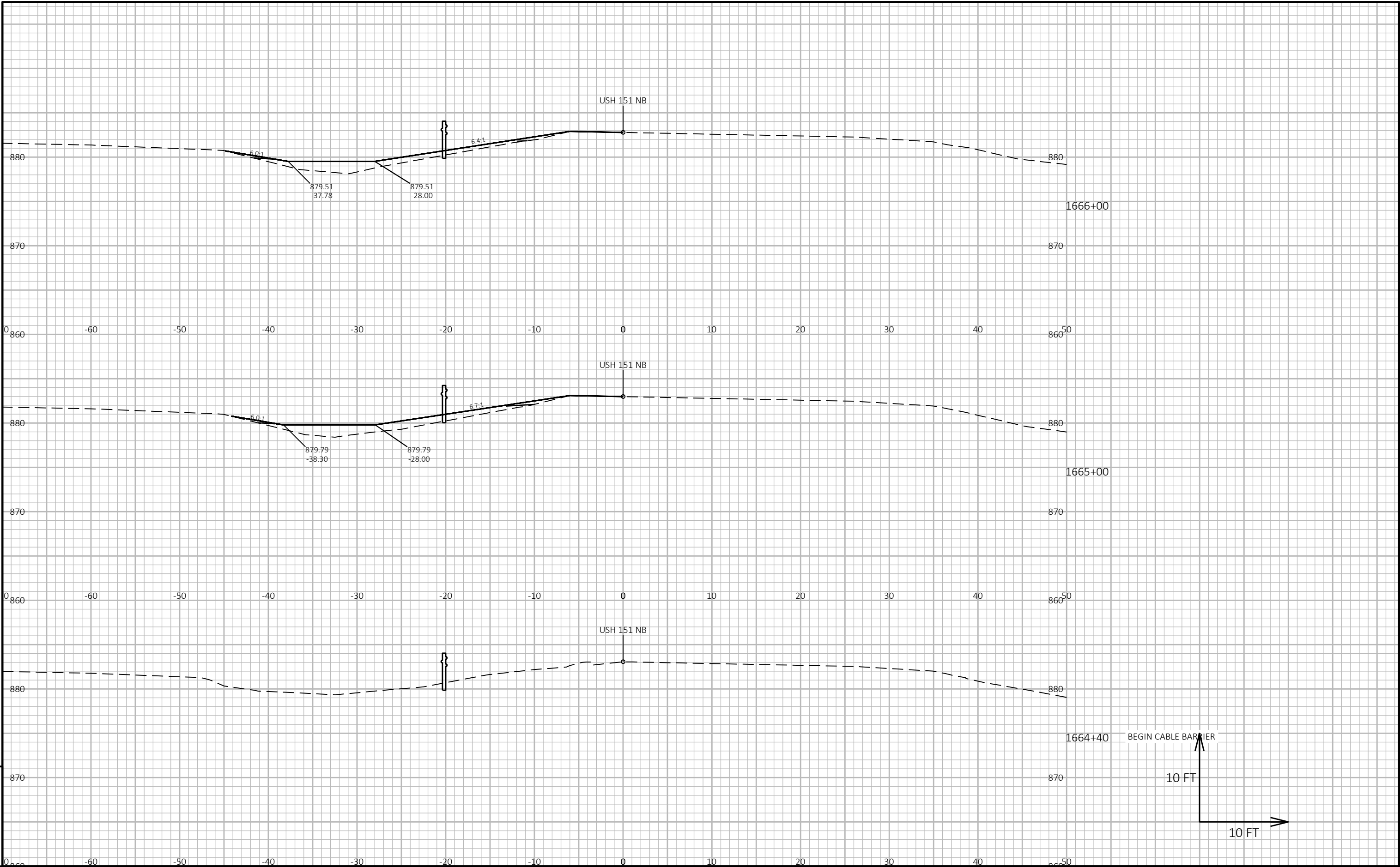
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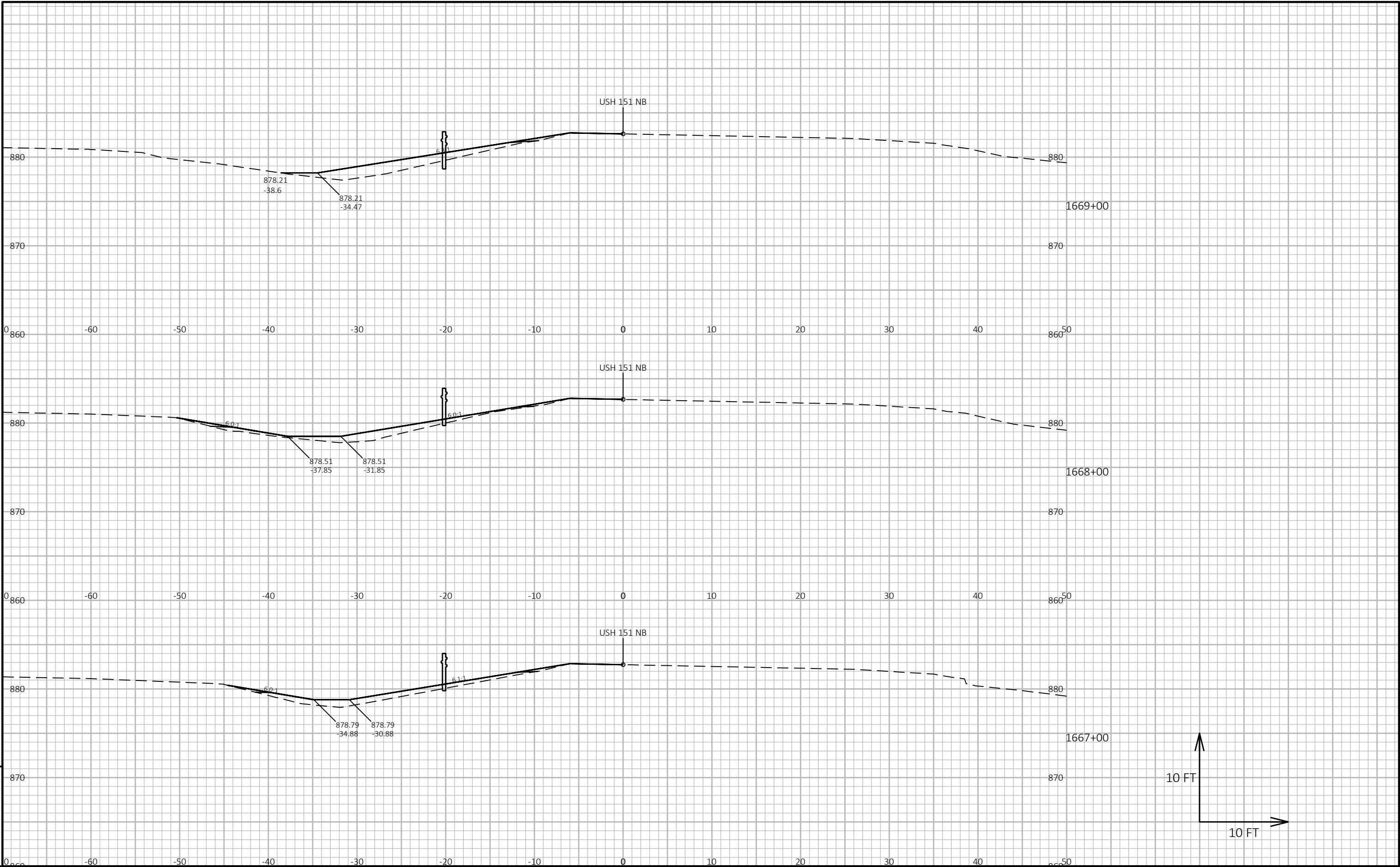


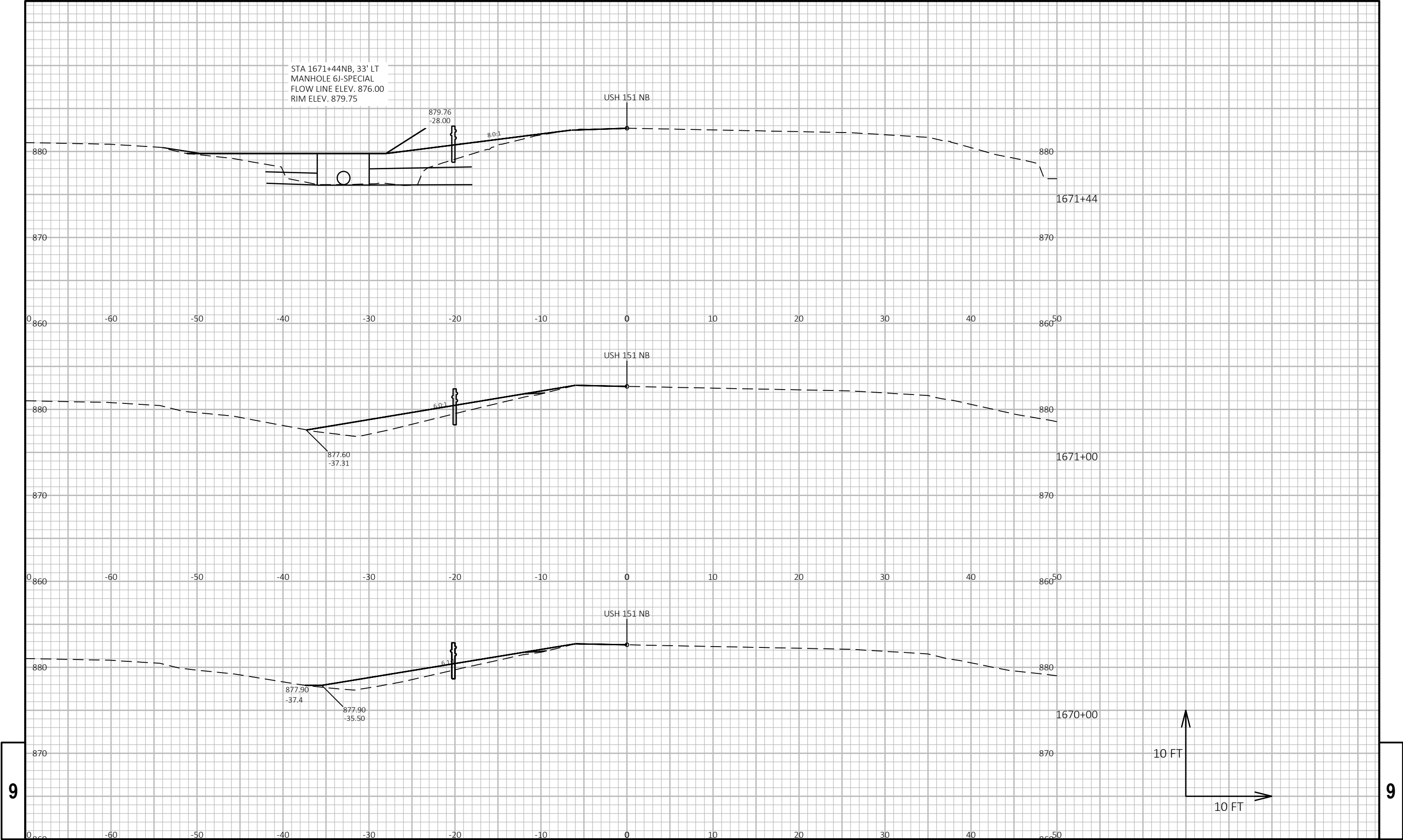
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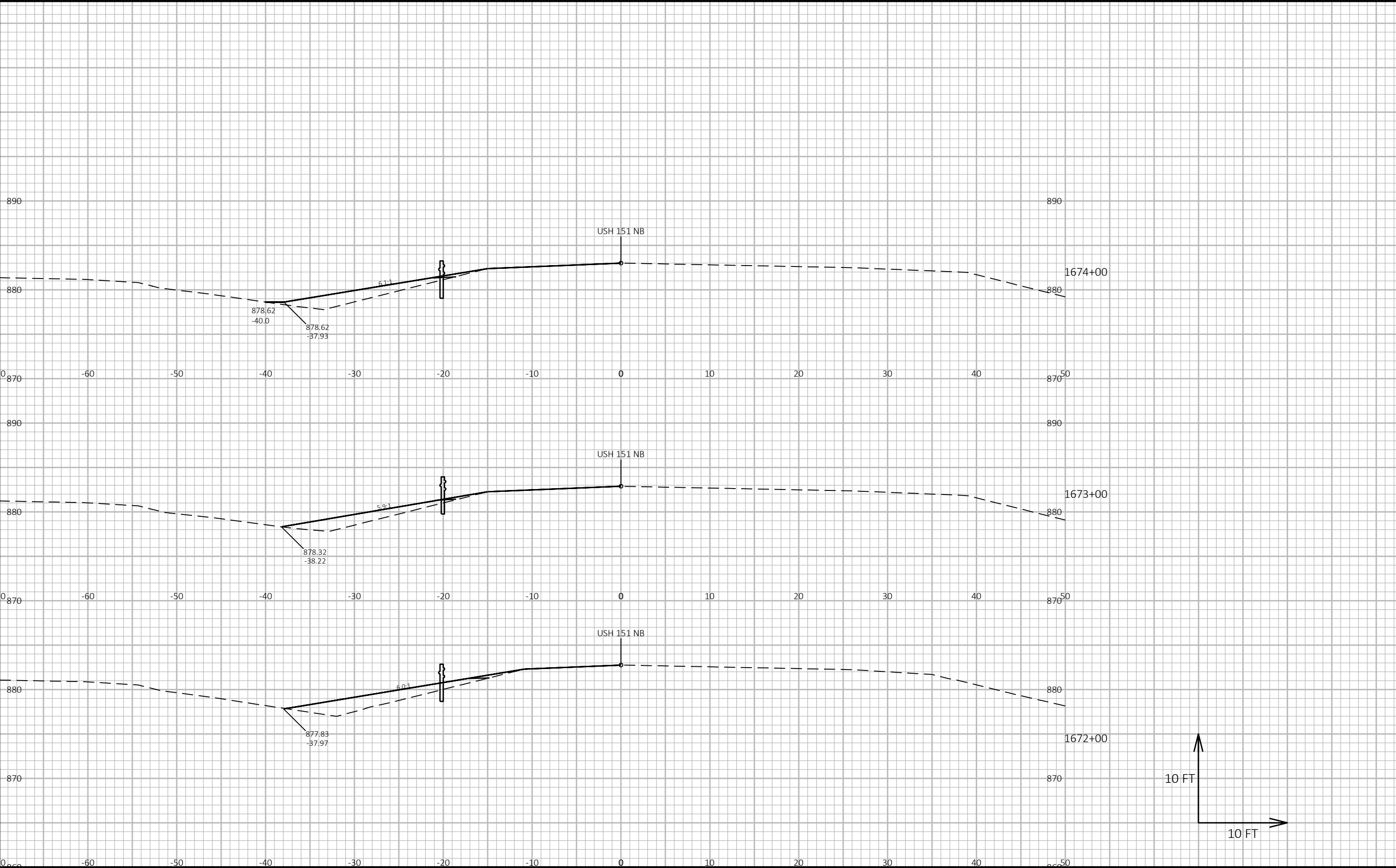
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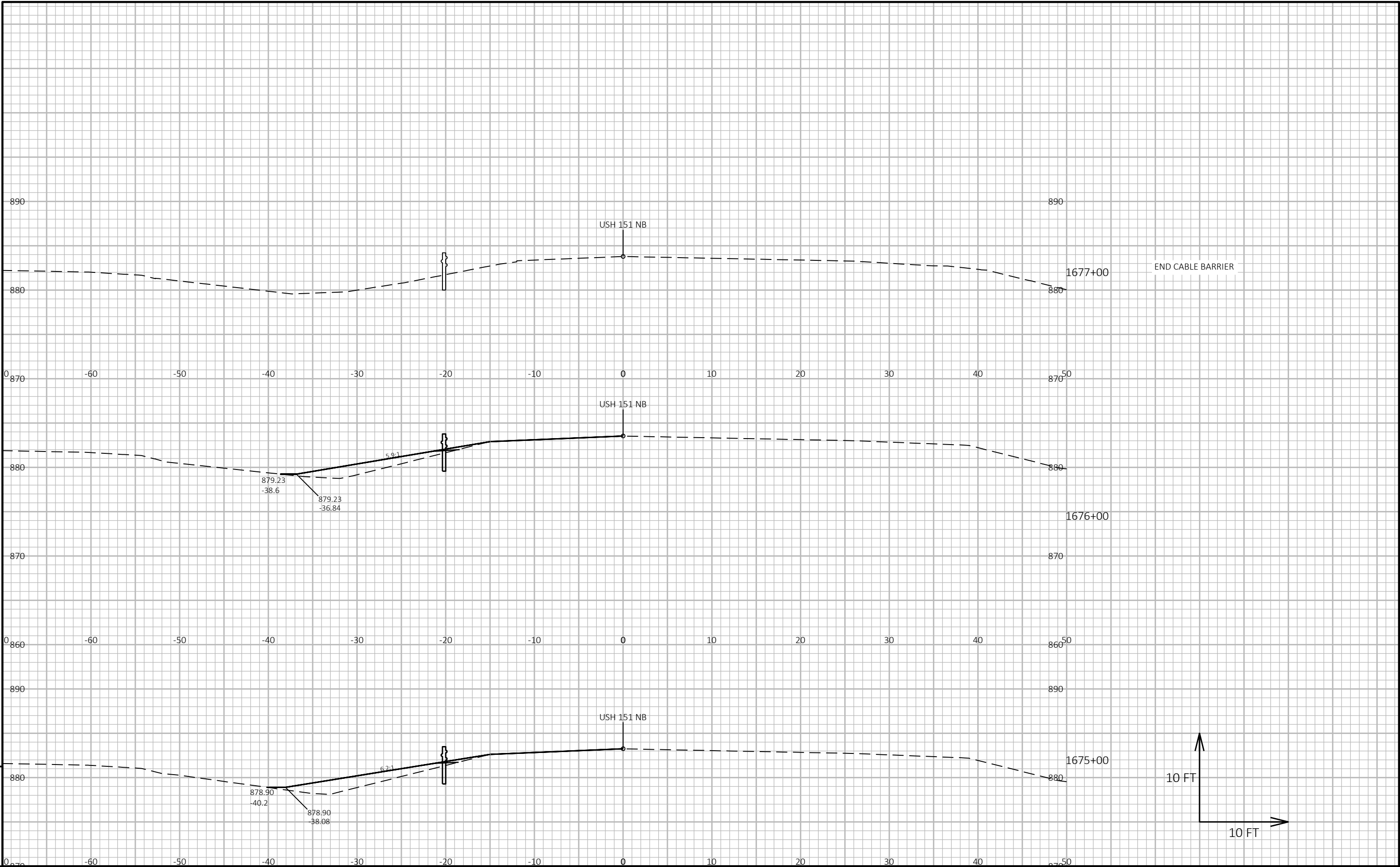
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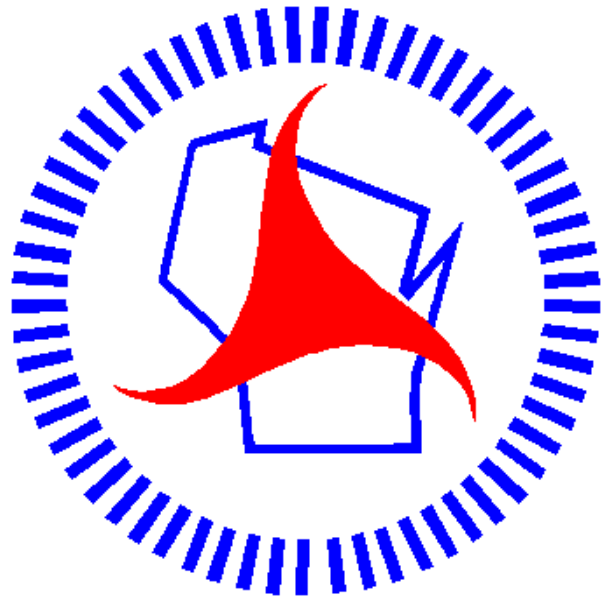








Notes



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