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APPROACH SLAB-

2'-0" POROUS BACKFILL -WITH FILTER FABRIC

HP 10x42 STEEL PILE (TYP.)-

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ABUTMENT AND EXPANSION JOINT DETAILS
BRIDGE NO. FRA-70-1322L
I-70 WB OVER THE SCIOTO RIVER

FRA-70-13.10

No. 89464

MODULAR EXPANSION JOINT DETAILS ABUTMENT R.A. 3 CELLS F.A. 3 CELLS

1'-01/4" @ 1'-9" MIN. MID. TEMP. BLOCK OUT 1'-9" MIN. BLOCK OUT MODULAR JOINT -€ JOINT OPENING € BRGS. 0

(HORIZONTAL DIMENSIONS ARE MEASURED NORMAL TO € BEARINGS)

TYPICAL EXPANSION JOINT AT ABUTMENT

BRGS., F.A.

2'-6"

1'-10"

2'-4"

1'-9"

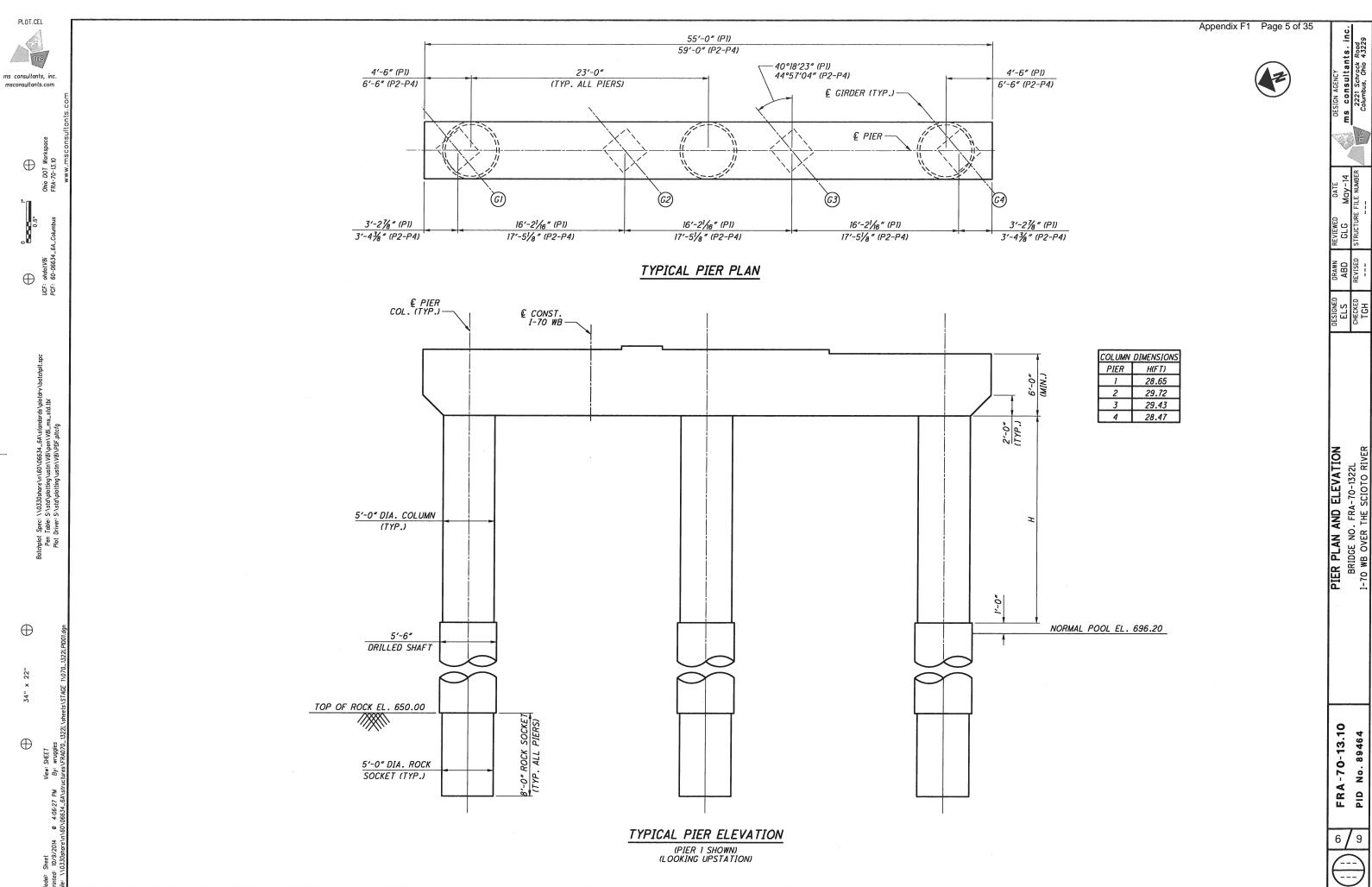
1'-6"

6'-2"

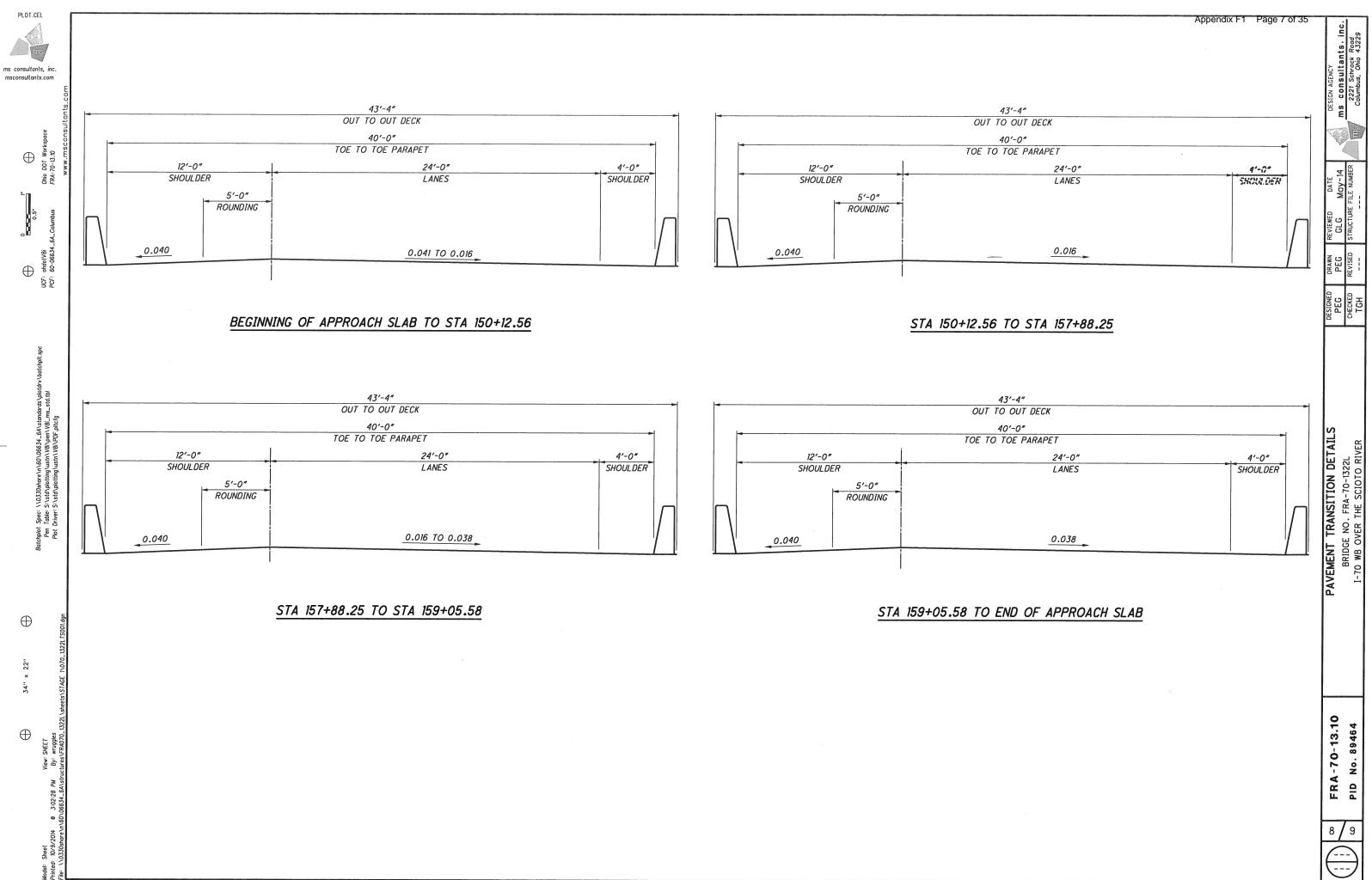
9'-2"

TYPICAL ABUTMENT SECTION

1'-6"



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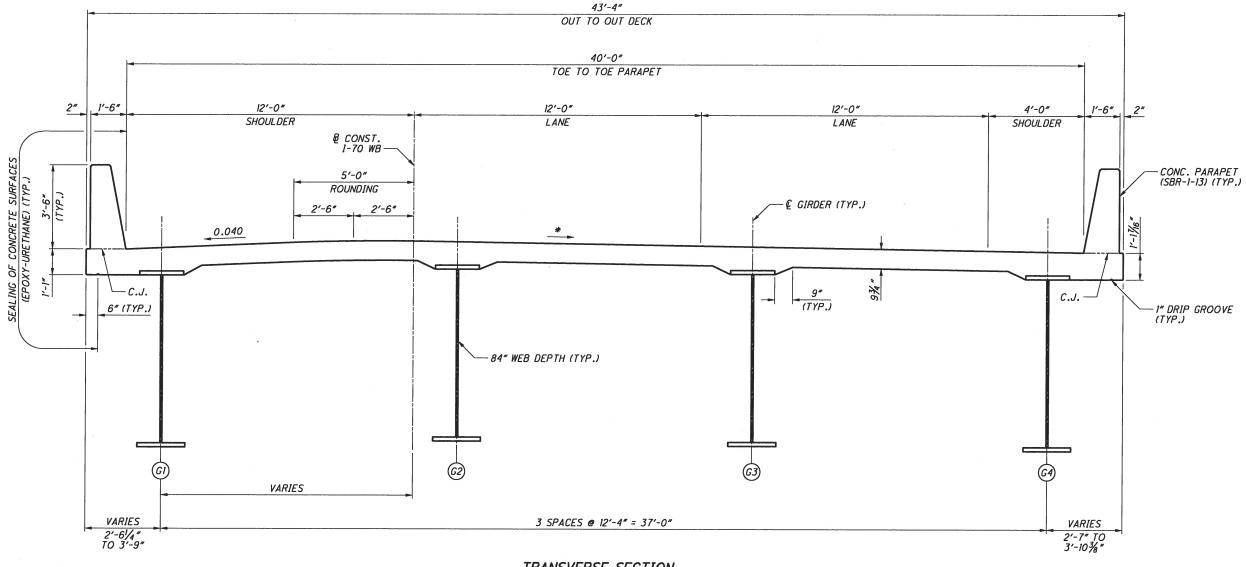
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TRANSVERSE SECTION

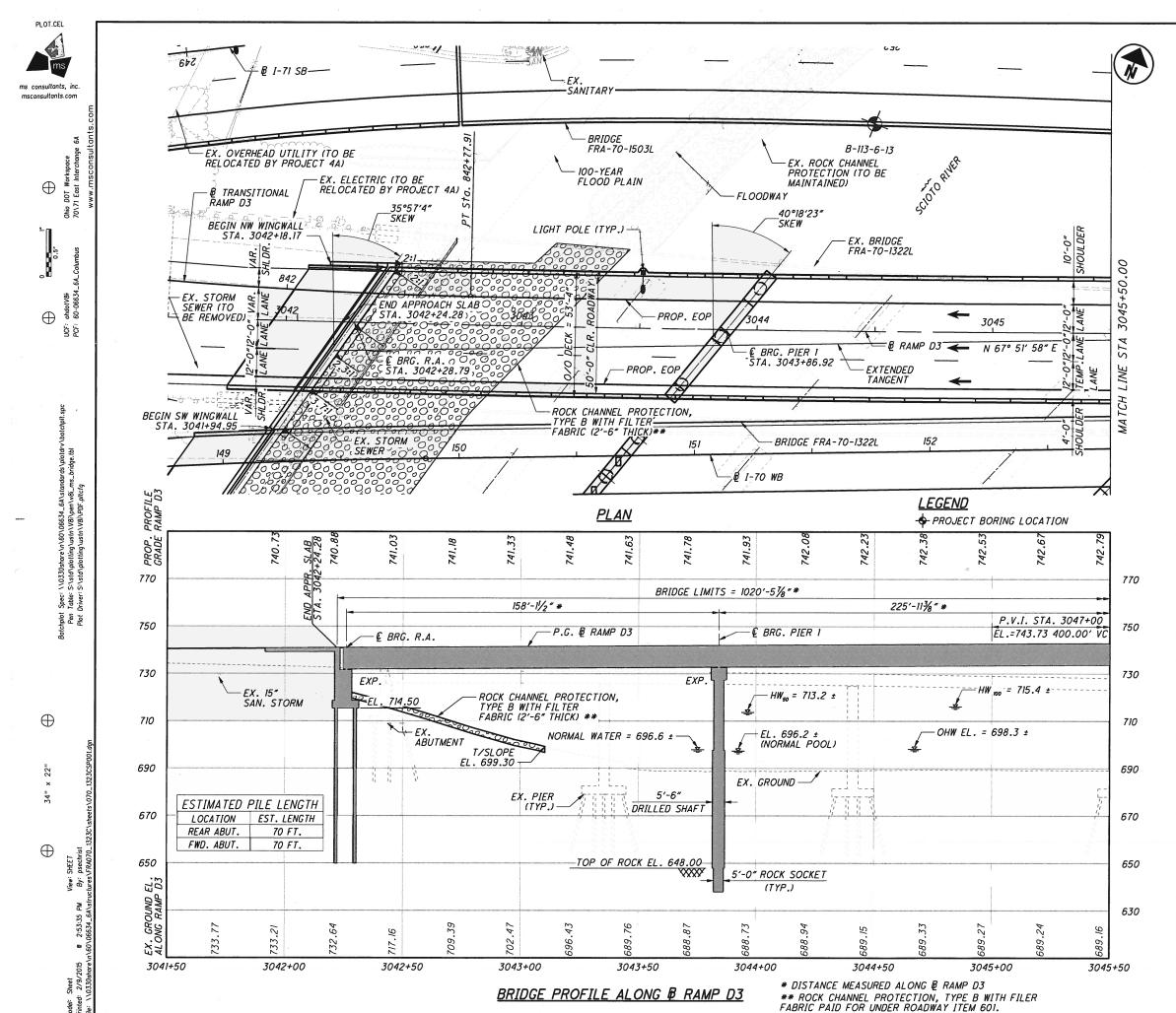
LEGEND

* CROSS SLOPE VARIES, SEE SUPERELEVATION TRANSITION DIAGRAM FOR DETAILS



FRA-70-13.10

TRANSVERSE SECTION
BRIDGE NO. FRA-70-1322L
1-70 WB OVER THE SCIOTO RIVER



Appendix F1 Page 9 of 35

BENCHMARK DATA

BM #1 STA. 6002+17.25 , ELEV. 737.79 , OFFSET 42.35 RT, RAMP D6 BM #2 STA. 332+44.01 , ELEV. 719.82 , OFFSET 2.30 RT , 315 NB BM #3 STA. 6004+80.97, ELEV. 707.50, OFFSET 48.23 RT, RAMP A6

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET (

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:

2015 ADT = 10,470 2015 ADTT = 840 2035 ADT = 17,300 2035 ADTT = 1,400 DIRECTIONAL DISTRIBUTION = 1.0

HORIZONTAL CURVE DATA

RAMP D3 - CURVE 22 L = 1,089.22' P.I. STA. = 3043+09.31 E = 9.06' $\Delta = 3^{\circ} 48' 44'' (LT)$ emax = NC Dc = 0° 21' 00" v = 60 MPH $R = 16,370.22^{\circ}$ C = 1,089.02'T = 544.81'C.B. = N 69° 46' 20" E

HYDRAULIC DATA

DRAINAGE AREA = 1,629 SQ. MILES Q (100) = 75,000 CFS V (100) = 5.1 FT/S Q (50) = 62,100 CFS V (50) = 4.8 FT/S STRUCTURE CLEARS THE 50 YEAR DESIGN HW BY 19 FEET

EXISTING STRUCTURE

NINE SPAN CONTINUOUS STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUPERSTRUCURE

SPANS: 88.96', 101.67', 108.56', 105.38', 113.35', 105.38', 98.30', 90.32', 79.70'

ROADWAY: VARIES, SLAB WIDTH III'-9" TO 74'-6" LOADING: HS20-44 & INTERSTATE ALTERNATE WEARING SURFACE: 5"± ASPHALT OVERLAY

SKEW: VARIES

APPROACH SLABS: 25'-0" LONG ALIGNMENT: TANGENT, VARIES

CROWN: 3/6" / FT.

STRUCTURAL FILE NUMBER: 2504413

DATE BUILT: 1975

DISPOSITION: TO BE REMOVED

PROPOSED STRUCTURE

TYPE: FIVE SPAN CONTINUOUS COMPOSITE CURVED STEEL GIRDER
(ASTM A709 GRADE 50W AND GRADE 70W) WITH REINFORCED
CONCRETE DECK ON CAPPED PILE ABUTMENTS AND MULTI-COLUMN PIERS ON DRILLED SHAFTS.

SPANS: 158.13', 225.94', 231.93', 218.41', 176.44'

ROADWAY: 50'-0" TOE/TOE PARAPET

LOADING: HL-93 AND FUTURE WEARING SURFACE 0.06 KSF

WEARING SURFACE: 1" MONOLITHIC CONCRETE

SKEW: R.A. 35°57'4" LF, PIER 1 40°18'23" LF, PIER 2 THRU F.A. 44°57'4" LF

APPROACH SLABS: 30'-0" LONG (AS-1-81)

ALIGNMENT: VARIES

SUPERELEVATION: VARIES, MAX. 0.04

COORDINATES: LATITUDE 39° 57′ 8" LONGITUDE 83° 0' 45"

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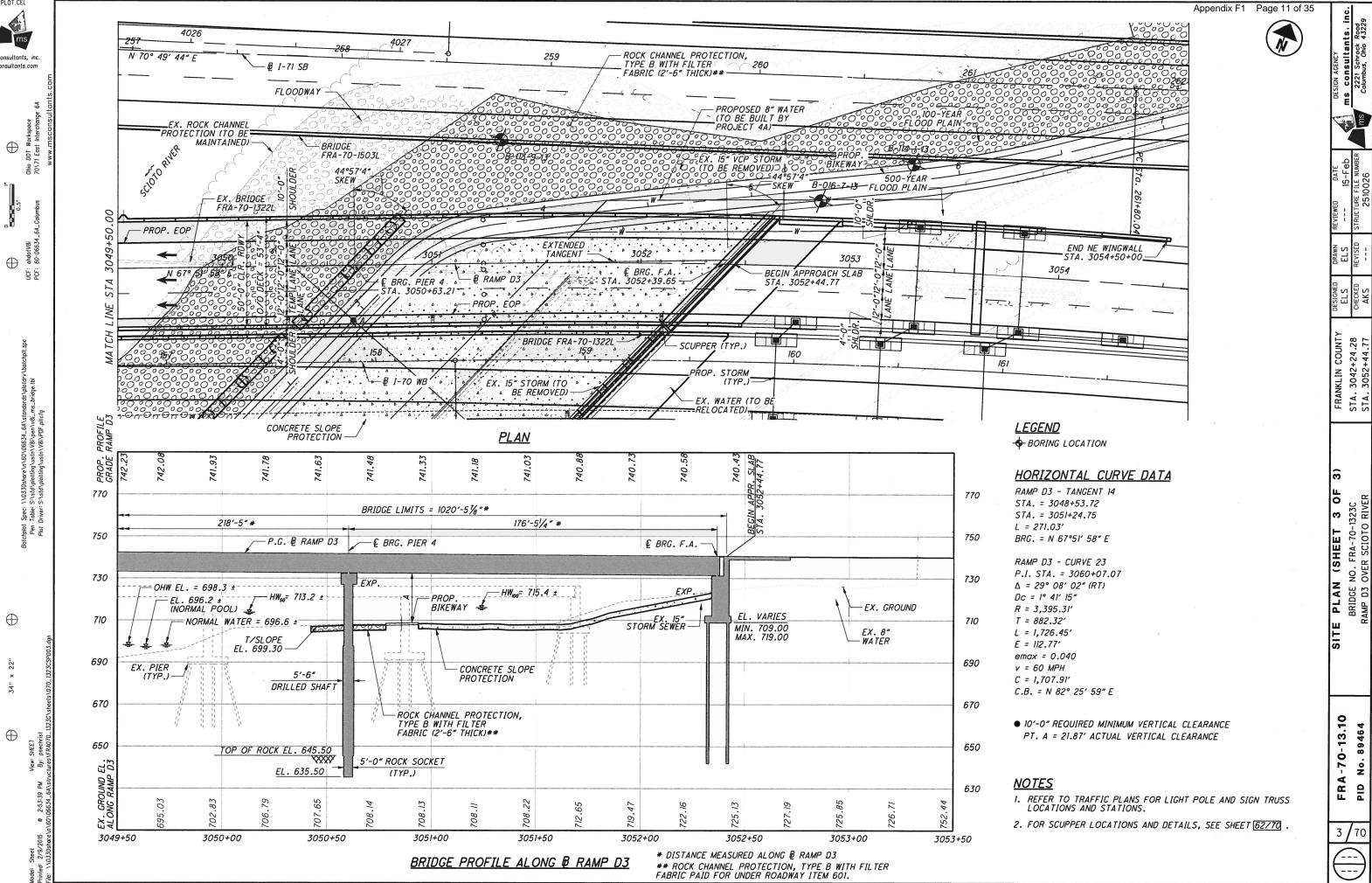
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PLAN

* DISTANCE MEASURED ALONG & RAMP D3

BRIDGE PROFILE ALONG & RAMP D3

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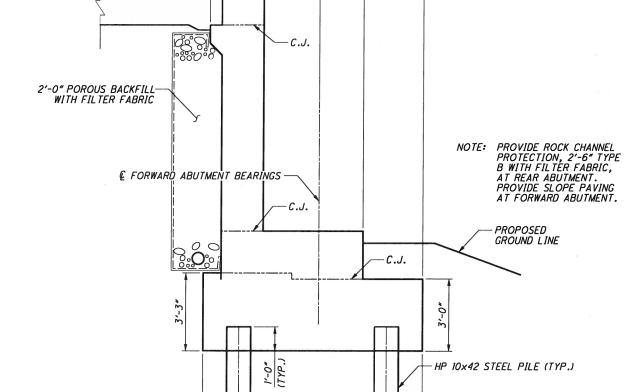
Ohio DOT Workspace 70\71 East Interchang \oplus

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1'-9"

APPROACH SLAB (30'-0")-

2'-4"

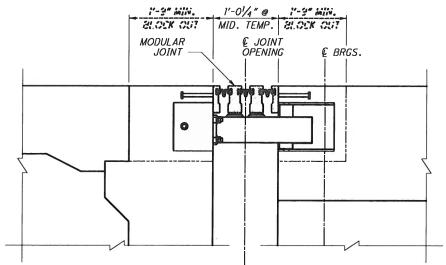
1'-10"

ABUTMENT SECTION

6'-2"

1'-6"

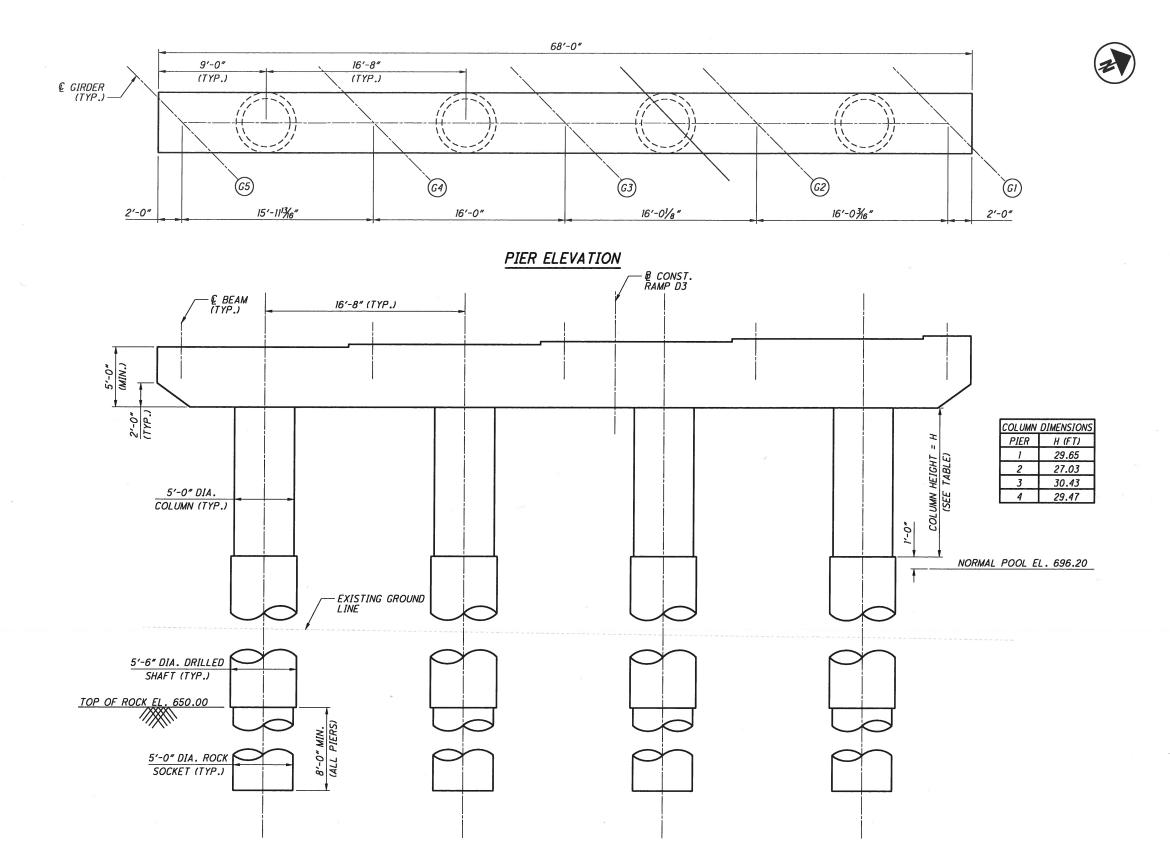
1'-6"



		MODULAR L JOINT L	EXPANSION DETAILS
1		ABUTMENT	
		R.A.	3 CELLS
		F.A.	3 CELLS
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TYPICAL EXPANSION JOINT AT ABUTMENT

(HORIZONTAL DIMENSIONS ARE MEASURED NORMAL TO & BEARINGS)



(PIER 3 SHOWN)

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Ohio DOT Workspace 70\71 East Interchang \oplus

53'-4" BRIDGE WIDTH 10'-0" 12'-0" 12'-0" 12'-0" 4'-0" SHOULDER LANE WIDTH TEMPORARY LANE LANE WIDTH SHLDR. 5'-0"
ROUNDING & RAMP D3 0.016 TO 0.000 0.016 TO 0.000 0.016 0.04

'-0"	12'-0"	12'-0"	12'-0"	4'-0"
JLDER LAN	E WIDTH	LANE WIDTH	TEMPORARY LANE	SHLDR.
5'-0" ROUNDING	 @ RAMP	¹ D3		
.04	0.04	0.04	_0.04	
	JLDER LAN 5'-0" ROUNDING	S'-O" ROUNDING LANE WIDTH B RAMP	DLDER LANE WIDTH LANE WIDTH 5'-0" ROUNDING RAMP D3	JUDER LANE WIDTH LANE WIDTH TEMPORARY LANE 5'-0" ROUNDING 0.04 0.04

STA. 3048+97.20 TO STA. 3049+82.53

1	10'-0"	12'-0"	12'-0"	12'-0"	4'-0"
	SHOULDER	LANE WIDTH	LANE WIDTH	TEMPORARY LANE	SHLDR.
\neg			 @ RAMP D3 	5'-0" ROUNDING	
\	0.04	0.016	0.016	0.016	

STA. 3051+95.86 TO STA. 3052+68.65

l -		534	'-4" BRIDGE WIDTH		
	10'-0"	12'-0"	12'-0"	12'-0"	4'-0"
	SHOULDER	LANE WIDTH	LANE WIDTH	TEMPORARY LANE	SHLDR.
	S'-O" ROUNDING		 ₩ RAMP D3		
	0.04	0.016 TO 0.04	0.016 TO 0.04	0.016 TO 0.04	
					<u> </u>

STA. 3042+40.18 TO STA. 3048+97.20

	53'-	4" BRIDGE WIDTH		
10'-0"	12'-0"	12'-0"	12'-0"	4'-0"
SHOULDER	LANE WIDTH	LANE WIDTH	TEMPORARY LANE	SHLDR.
	Ø	RAMP D3	51.04	
		2 216		
0.04	0.027 TO 0.016	0.016	0.016	
	SHOULDER	10'-0" 12'-0" SHOULDER LANE WIDTH	SHOULDER LANE WIDTH B RAMP D3	SHOULDER LANE WIDTH LANE WIDTH RAMP D3 5'-0" ROUNDING 0.016

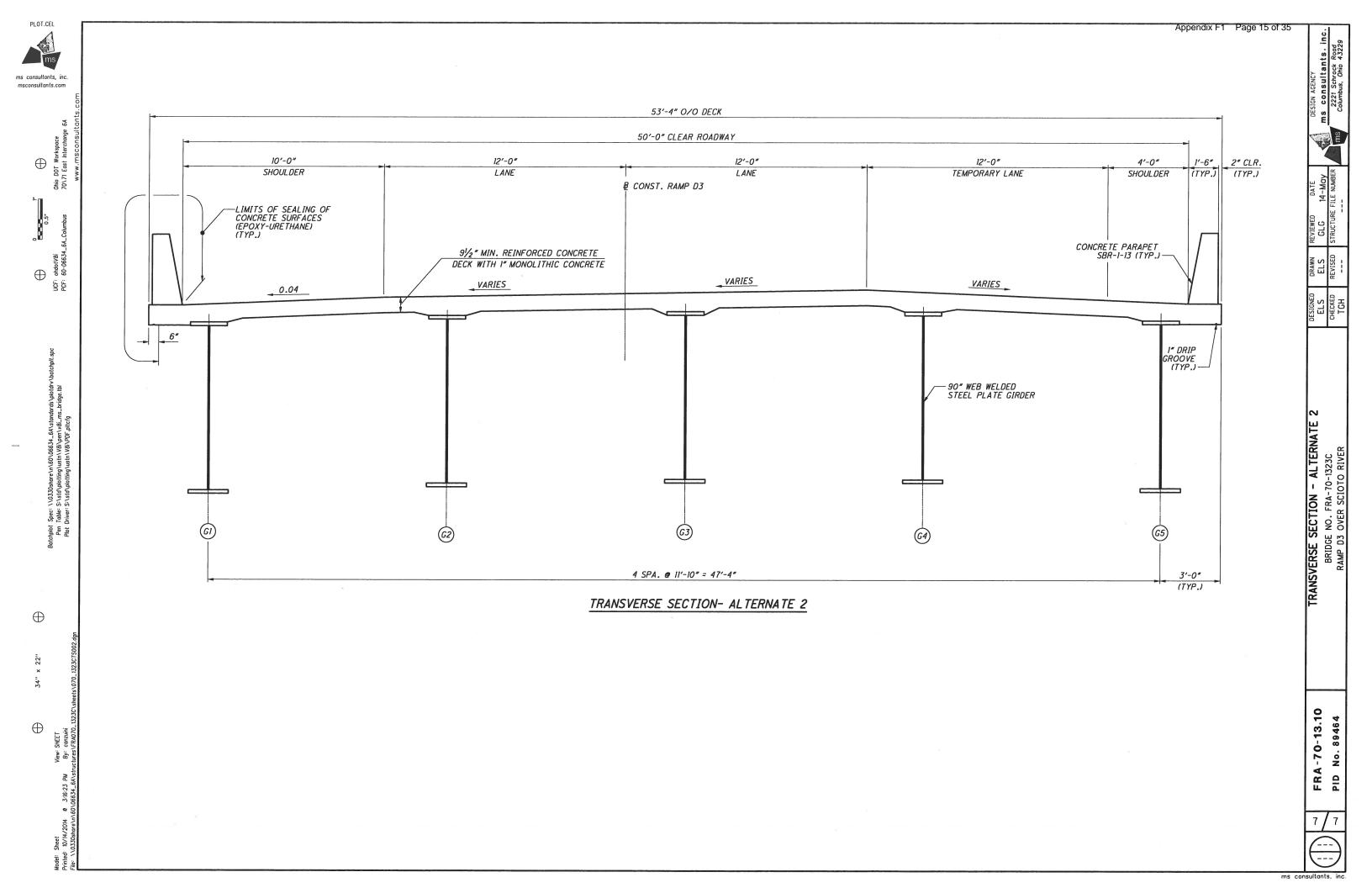
STA. 3050+67.86 TO STA. 3051+95.86

•		53′	-4" BRIDGE WIDTH		
	10'-0"	12'-0"	12'-0"	12'-0"	4'-0"
	SHOULDER	LANE WIDTH	LANE WIDTH	TEMPORARY LANE	SHLDR.
7	5'-0" ROUNDING	4	B RAMP D3		
\	0.04	0.000 TO 0.016	0.000 TO 0.016	0.016	/

STA. 3042+05.72 TO STA. 3042+40.18

STA. 3049+82.53 TO STA. 3050+67.86

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EX. ELECTRIC PROP. STORM-(TO BE REMOVED) SEWER EX. 15" STORM (TO BE REMOVED) EX. FENCE STORM SEWER -PROP. EOP _____510= PI Sta. 509+58.45 -EX. STORM -SEWER→ (TO BE REMOVED) END APP € BRG. R.A. STA. 230+85.84 STA. 230+88.59 PROP. EOP PRÓP STORM EX. DITCH SEWER ROP. DITCH B-104 M-042-0-56 EX. ELECTRIC <u>PLAN</u>

HORIZONTAL CURVE DATA I-71 S.B.

CURVE C8	CURVE C9
P.I. STA. 230+96.70	P.I. Sta. 242+59.60
Ls = 340.00'	Δ = 84° 59′ 20″ (RT)
θs = 8° 30′ 00″	Dc = 5° 00′ 00″
LT = 226.93'	R = 1,145.92'
ST = 113.57'	T = 1,049.83
x = 339.25'	L = 1,699.78
y = 16.79'	E = 408.20
k = 169.88'	PC STA. 232+09.77
p = 4.20'	PT STA. 249+09.55
TS STA. 228+69.77	
SC STA. 232+09.77	

ESTIMATED PILE LENGTHS							
LOCATION	EST. LENGTH						
REAR ABUT.	85.50 FT.						
PIER 1	49.50 FT.						
PIER 2	44.50 FT.						
PIER 3	44.50 FT.						
PIER 5	56.50 FT.						
PIER 6	61.50 FT.						
PIER 7	65.50 FT.						
PIER 8	61.50 FT.						
PIER 9	68.50 FT.						
PIER 15	73.50 FT.						
PIER 16	77.71 FT.						
PIER 17	74.56 FT.						
PIER 18	63.58 FT.						
FWD. ABUT.	98.62 FT.						

GRADE 1-71 S.B	748.41	749.66	750.91	752.16	753.41	754.66	755.91	757.16	758.41	759.66	760.91	91.292
GRADE										1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
10					,			BRIDGE LIN	IITS = 4,680.	25′	***************************************	810
							·		-51/8", SPAN			
90						-						79
70	MICH 10 MICH 11 MICH 10 MICH 1			END APP. S	SLAB 5.84 —	E E	BRG,		P.G. I-71 S.B.—			77
50												75
30	MITTING WHITE WAS A STATE OF THE STATE OF TH			HP 10 PILES (X 42 TYP.J	EXP.	0T./ FTG. . 735.50		EX. GRO	DUND		73
710	ade 300 00 00 00 00 00 00 and 30 and					BOT.	/ FTG. 703.00		n. L van van een een een een een een een een een e	EX.	STM. SEWER	710
90												69
. GRADE	14.71	5.08	15.54	6.05	16.51	90.7	19.71	718.54	18.26	7.68	91.91	67
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		230+00	7/;	230+50	1/2	231+00	12	231+50		232+00		232+50
		200 00			CE PRO	FILE ALC	NG B I-7					202 00

Appendix F1 Page 16 of 35

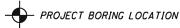
BENCHMARK DATA BM #1 STA. ELEV. XXX.XX, OFFSET , ELEV. XXX.XX, OFFSET BM #2 STA. , ELEV. XXX.XX, OFFSET BM #3 STA. BM #4 STA. , ELEV. XXX.XX, OFFSET

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET (

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS. ALL EXISTING UTILITIES TO REMAIN (U.N.O.) DESIGN TRAFFIC: RAMP TO I-71 S.B./315 OVER SCIOTO 2015 ADT = 29,650 2015 ADTT = 4,450 DIRECTIONAL DISTRIBUTION = 1.0 I-71 S.B. (WEST OF 315 SPLIT) 2015 ADT = 16,950 2015 ADTT = 3,220 DIRECTIONAL DISTRIBUTION = 1.0

LEGEND



DISPOSITION: TO BE REMOVED

CHANNEL EXCAVATION HYDRAULIC DATA

DRAINAGE AREA = 1,629 SO. MILES Q (100) = 75,000 CFS V (100) = 5.4 FT/S O(50) = 62,100 CFS V(50) = 5.0 FT/SSTRUCTURE CLEARS THE 50 YEAR DESIGN HW BY 62.87 FEET.

EXISTING STRUCTURE

TYPE: CONTINUOUS CURVED STEEL W/ REINFORCED CONCRETE DECK AND SUBSTRUCTURE SPANS: 58.5', 95.25', 90.25', 93.5', 108.0' & 124.0' ROADWAY: 30'-0" FACE TO FACE OF PARAPET LOADING: HS20-44 & INTERSTATE ALTERNATE SKEW: VARIES APPROACH SLABS: AS-1-67, 25'-0" LONG ALIGNMENT: VARIES SUPERELEVATION: 0.0833'/FT WEARING SURFACE: I" MONOLITHIC CONCRETE

PROPOSED STRUCTURE

TYPE: 3 UNIT (9 SPAN, 7 SPAN AND 7 SPAN) COMPOSITE HYBRID STEEL GIRDER (A709 GRADE 50W & GRADE 70W) WITH REINFORCED CONC. DECK, REAR AND FORWARD ABUTMENTS ON PILES IN FRONT OF MSE WALLS, PIERS ON PILES AND DRILLED SHAFTS.

SPANS: 178.51', 239.59', 224.20', 253.82', 253.82', 253.82', 240.85', 176.35', 105.53', 216.72', 242.05', 219.22', 214.52', 200.0', 197.27', 164.98', 190.01', 226.06', 225.06', 211.97', 207.31', 106.63' & 126.46'

ROADWAY: VARIES - MIN. 41'-71/2", MAX. 95'-51/8" TOW/TOE

LOADING: HL93 AND FUTURE WEARING SURFACE 0.06 KSF SKEW: NONE

WEARING SURFACE: I" MONOLITHIC CONCRETE APPROACH SLABS: AS-1-81, 30' LONG (MODIFIED)

ALIGNMENT: VARIES SUPERELEVATION: VARIES

COORDINATES: LATITUDE 39° 56' 55" LONGITUDE 83° 00' 59" -70-13.10

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• 15'-6" MIN. REQUIRED VERTICAL CLEARANCE PT. A = 57.56' ACTUAL VERTICAL CLEARANCE PT. A' = 49.22' ACTUAL VERTICAL CLEARANCE

= 29'-0" REQUIRED MINIMUM HORIZONTAL CLEARANCE (BASED ON CLEAR ZONE)

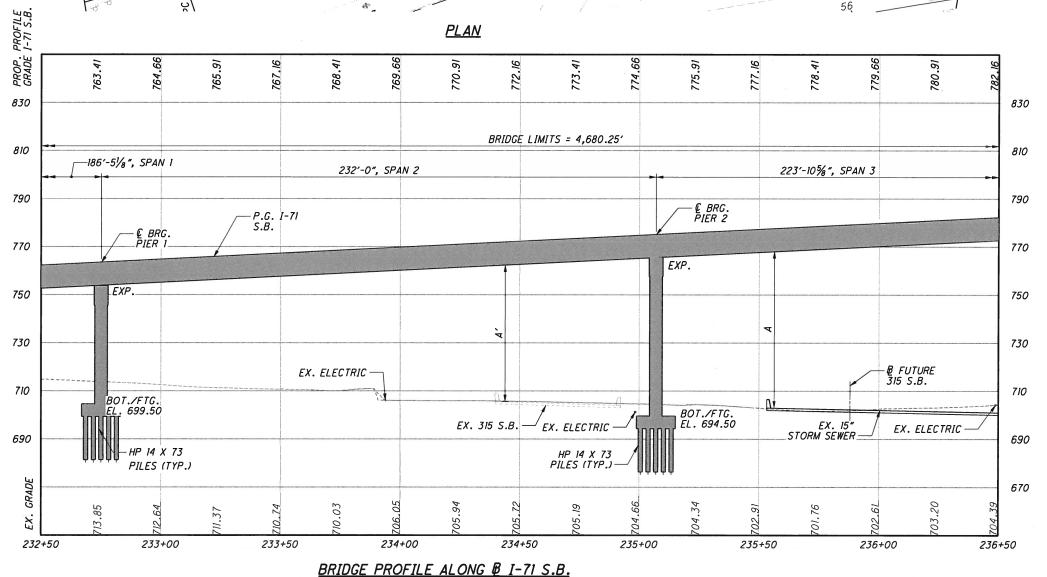
11'-9%" = ACTUAL HORIZONTAL CLEARANCE (PROTECTED BY BARRIER)

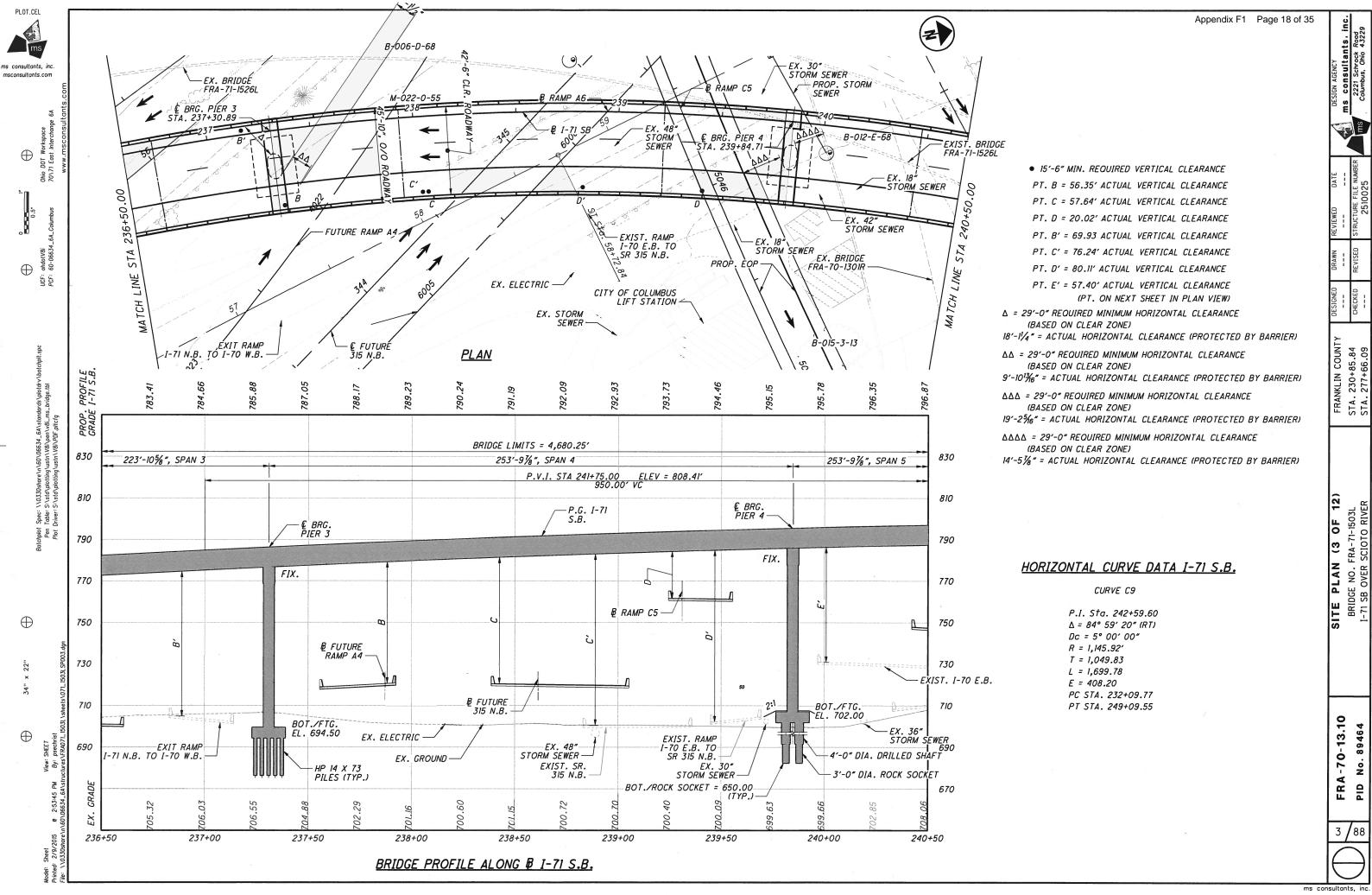
= 29'-0" REQUIRED MINIMUM HORIZONTAL CLEARANCE (BASED ON CLEAR ZONE)

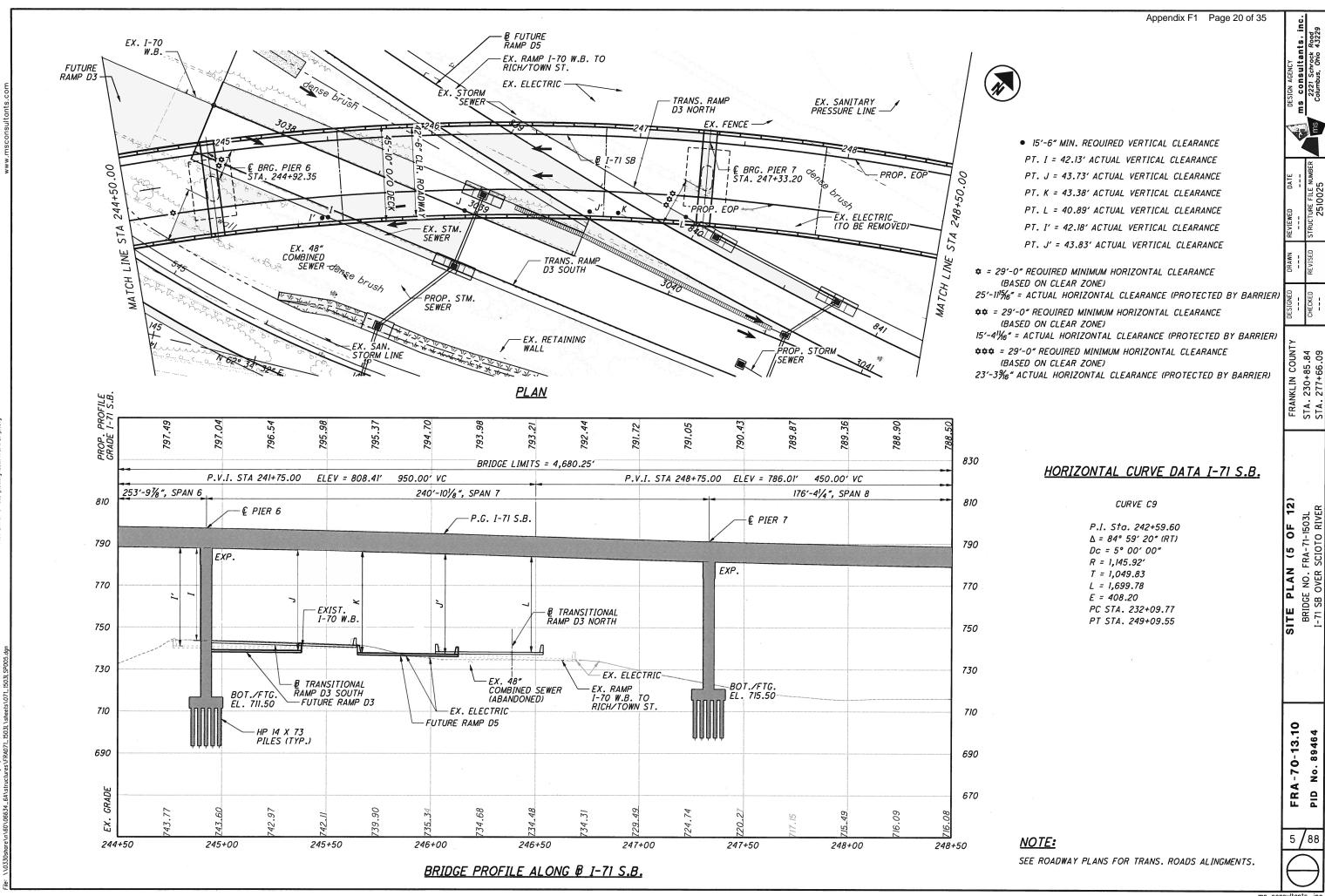
14'-11/8" = ACTUAL HORIZONTAL CLEARANCE (PROTECTED BY BARRIER)

HORIZONTAL CURVE DATA I-71 S.B.

CURVE C8 P.I. STA. 230+96.70 Ls = 340.00' θ s = 8° 30′ 00" LT = 226.93' ST = 113.57' x = 339.25'y = 16.79' $k = 169.88^{\circ}$ p = 4.20'TS STA. 228+69.77





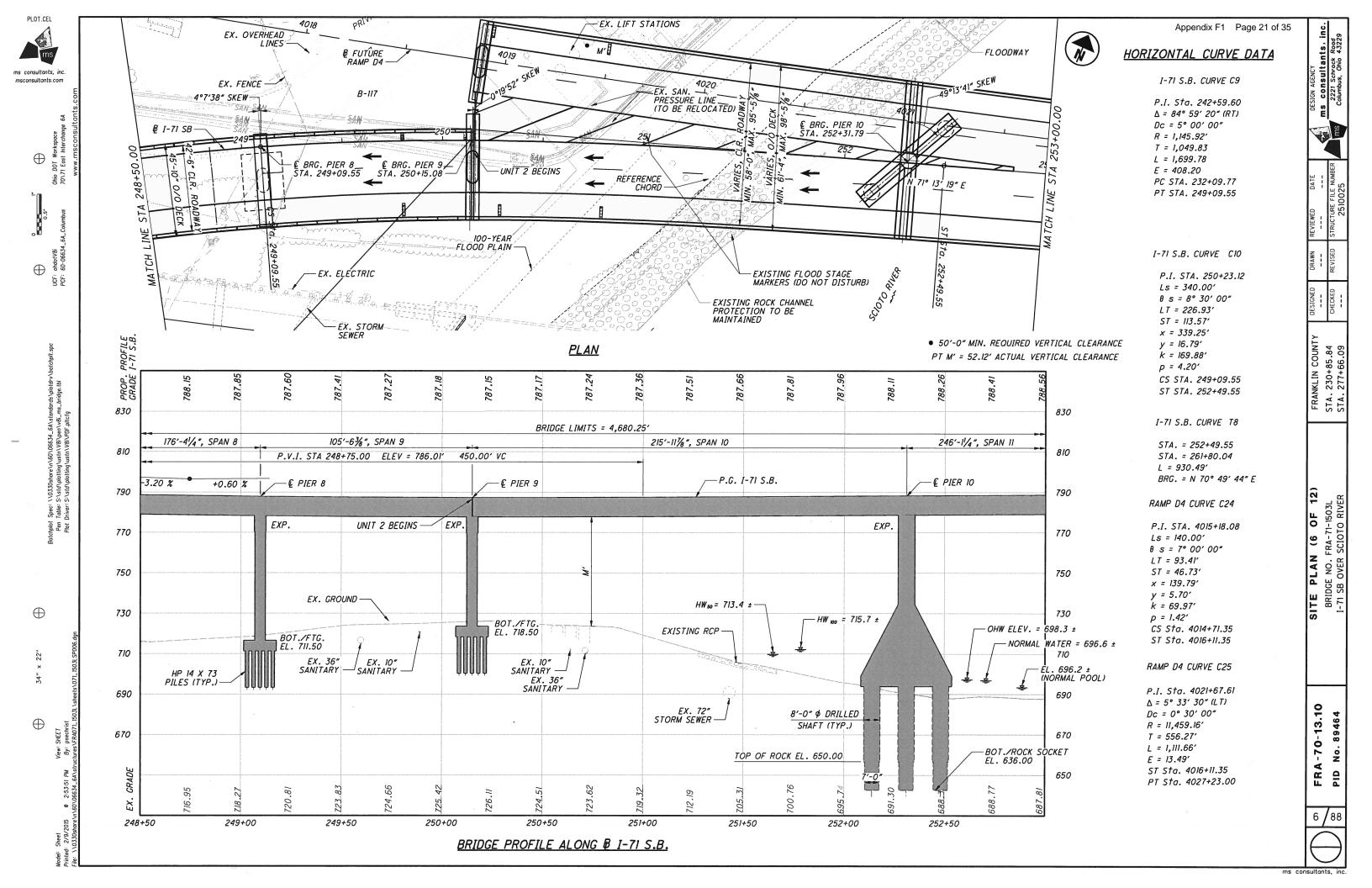


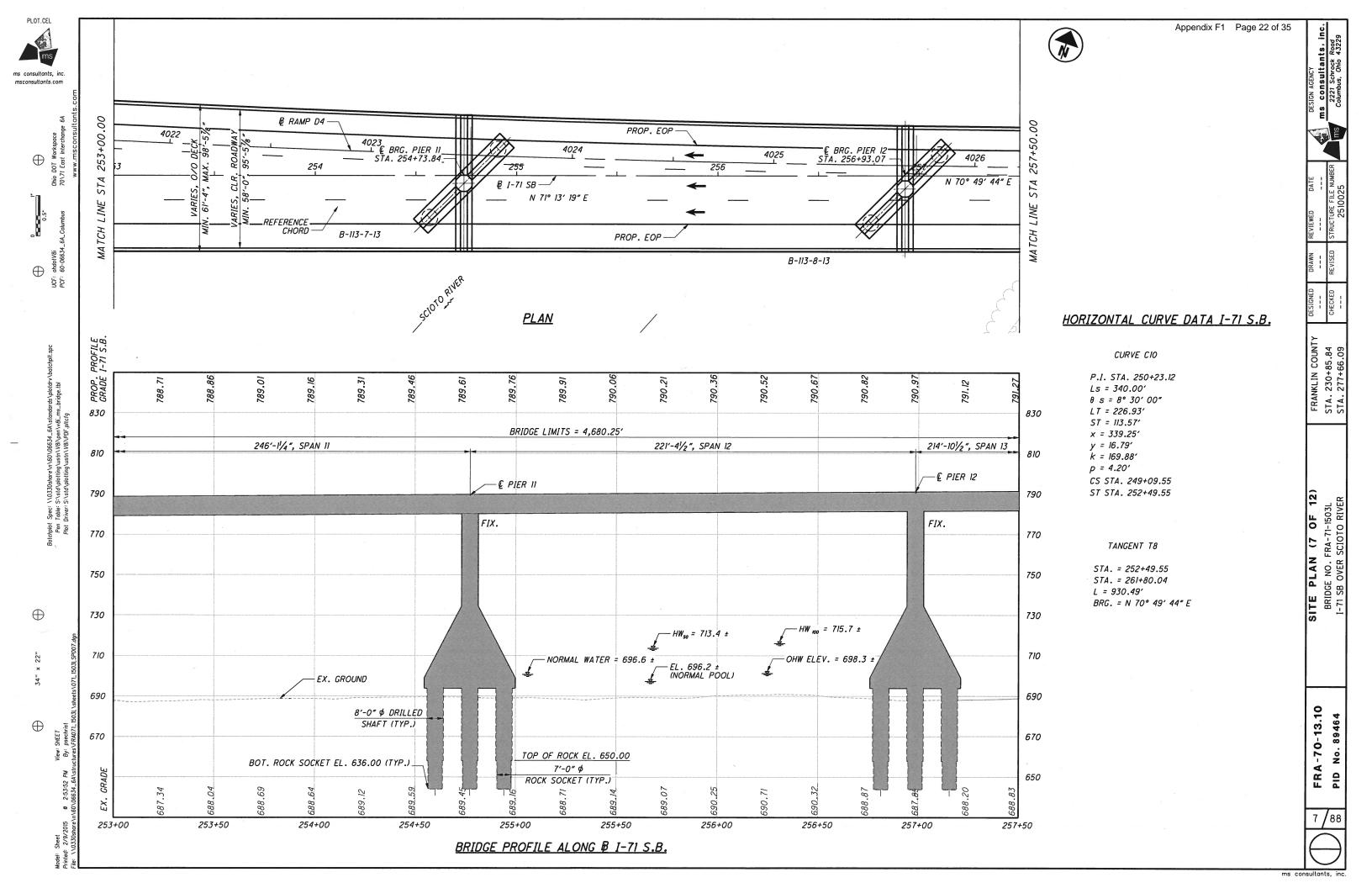
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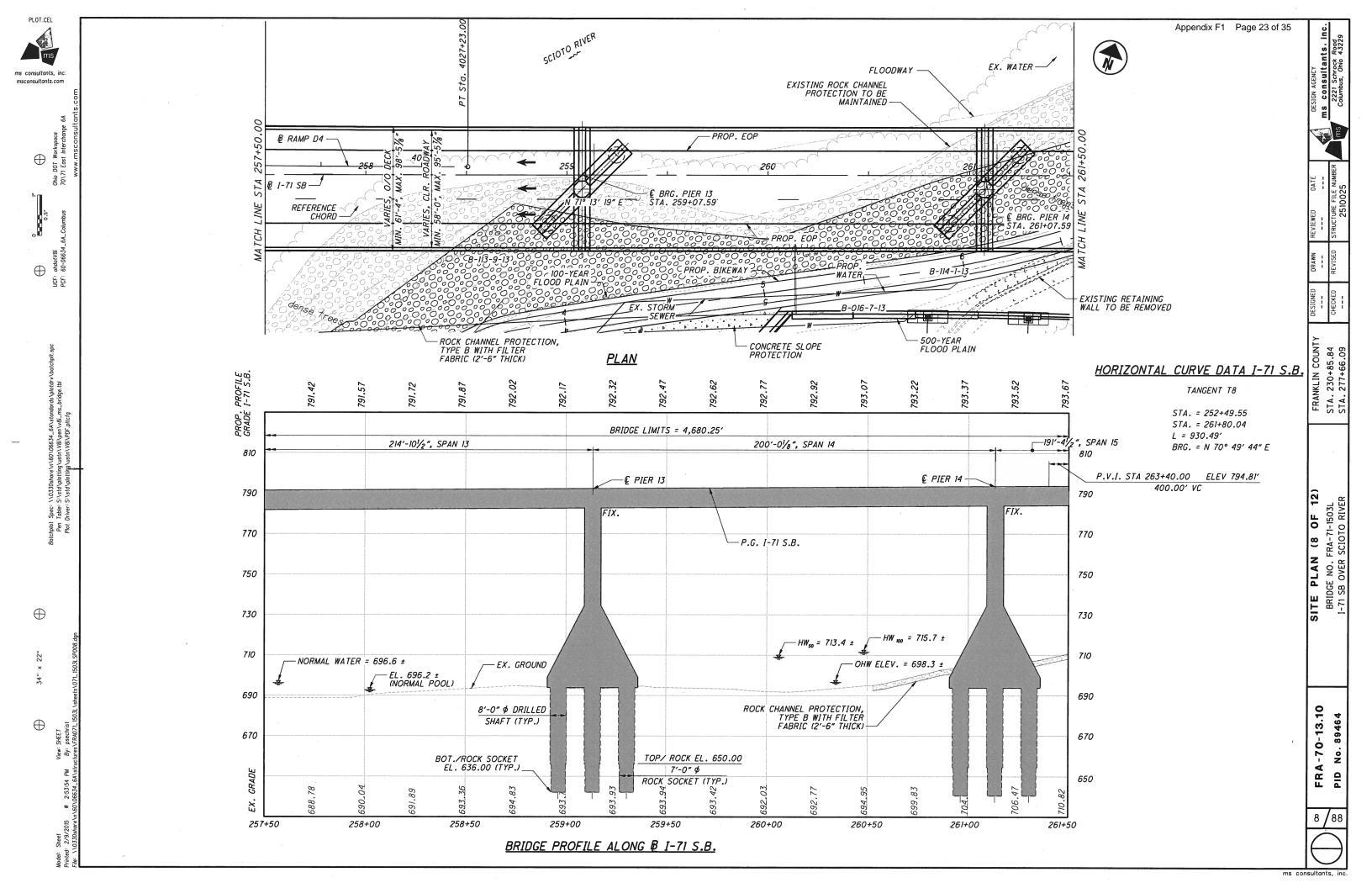
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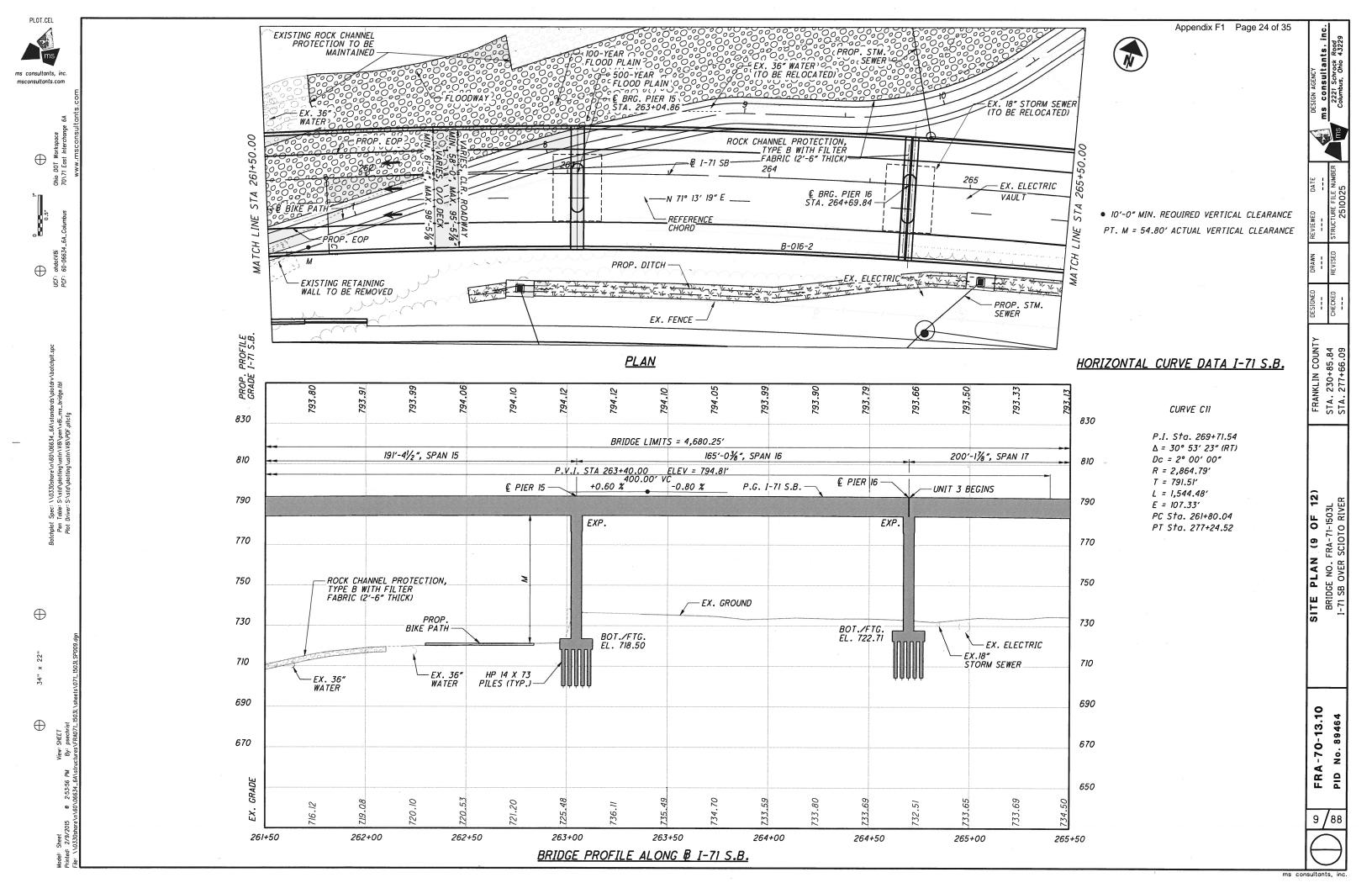
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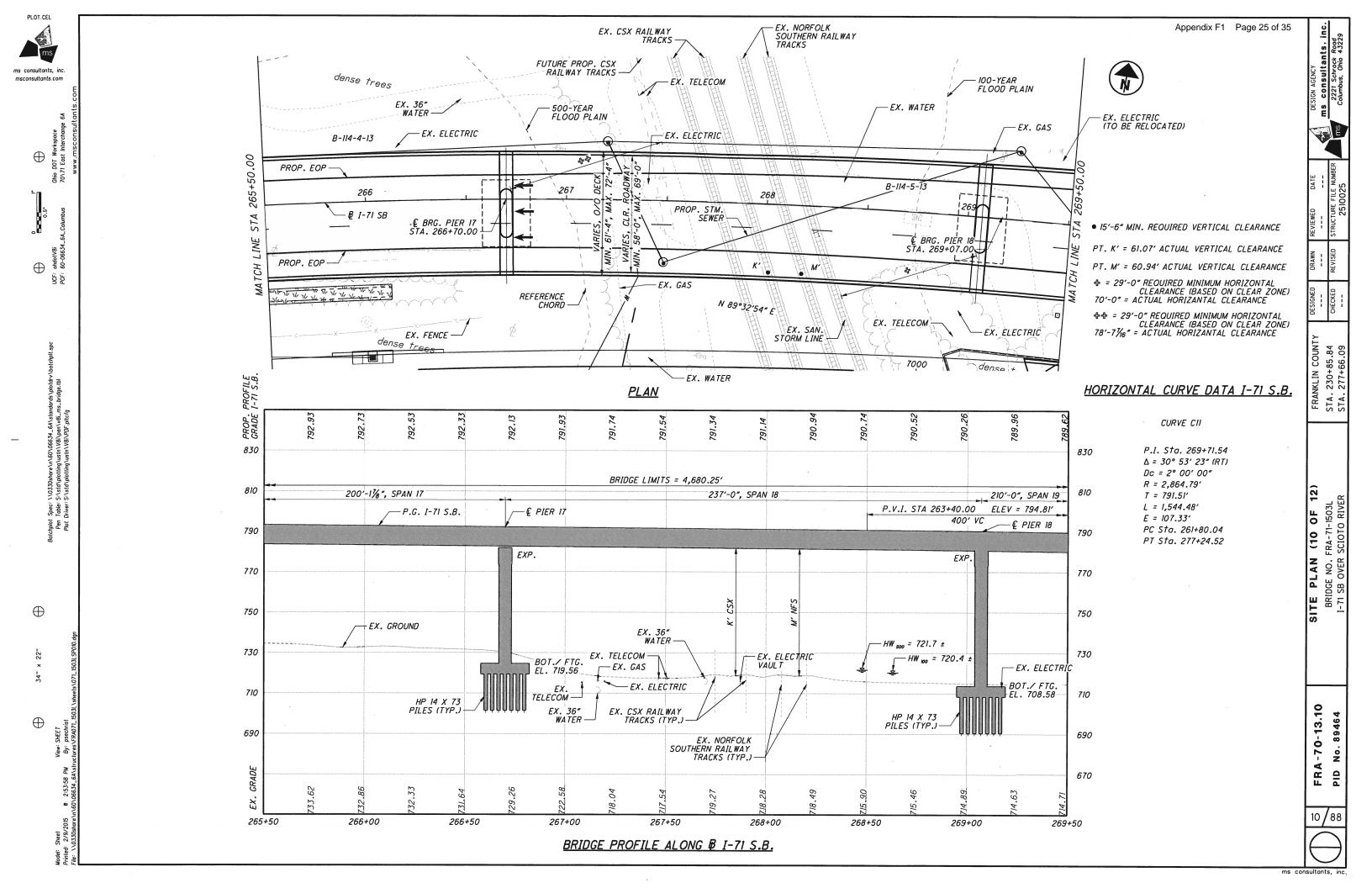
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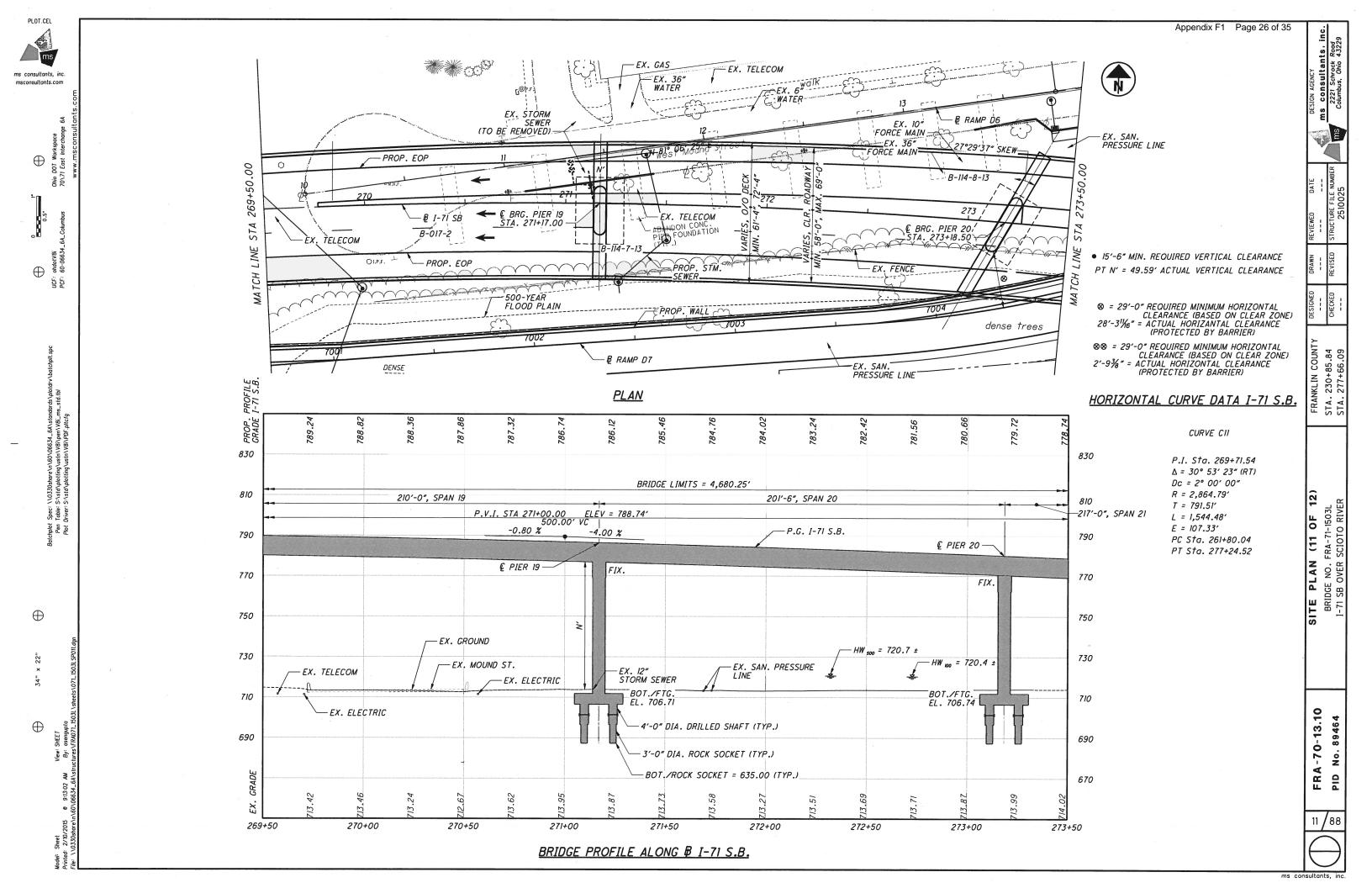


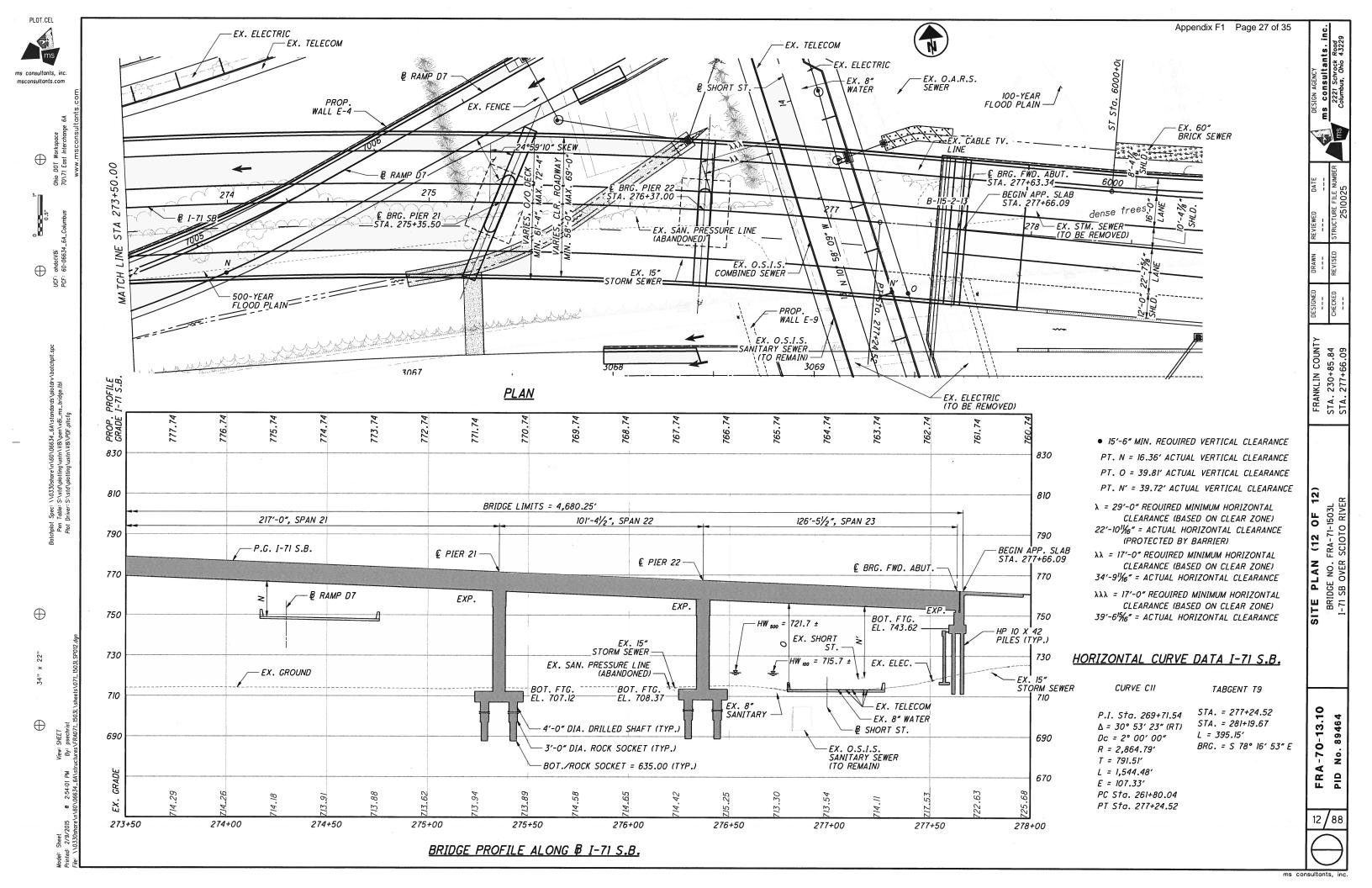


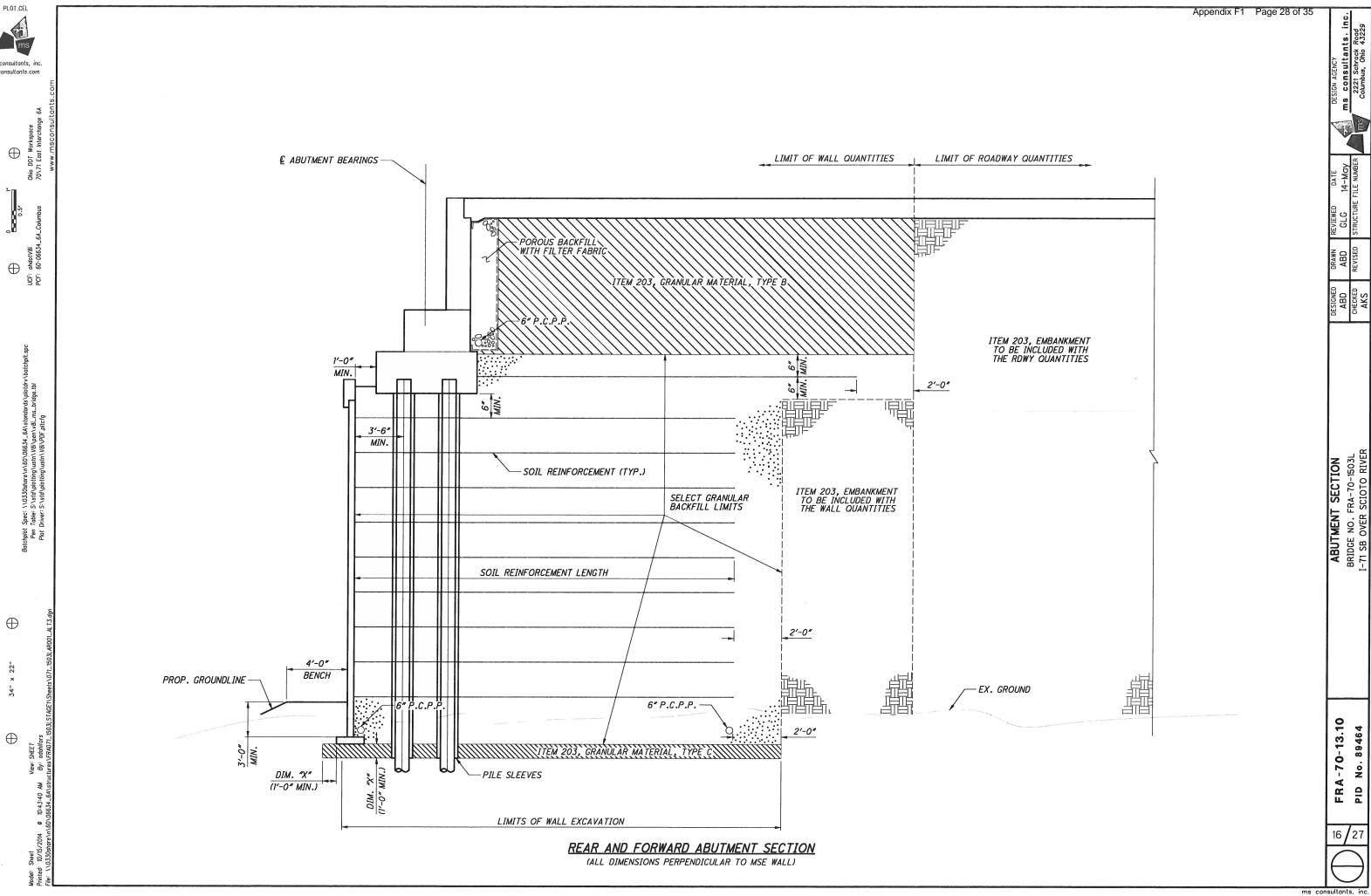


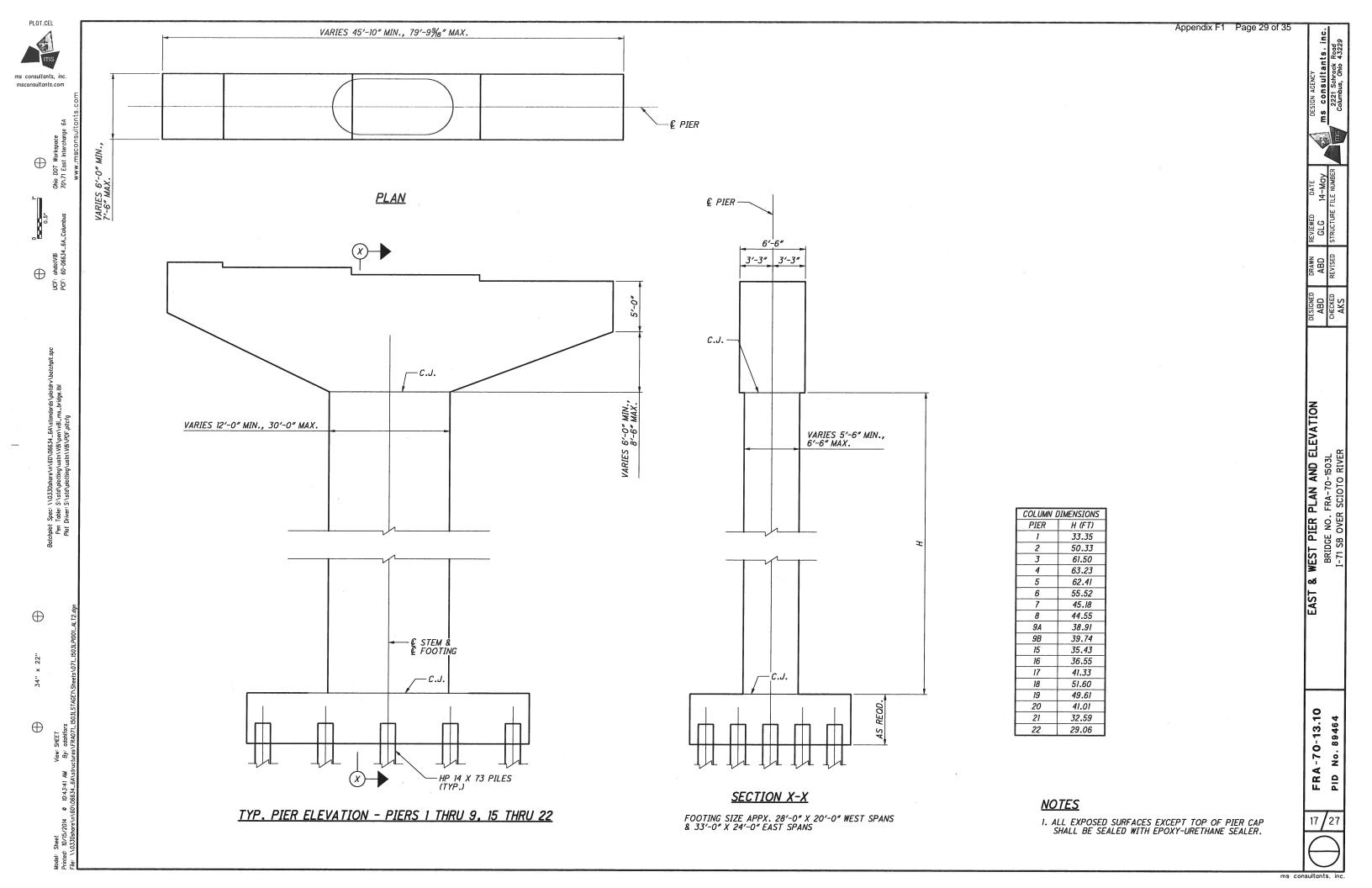


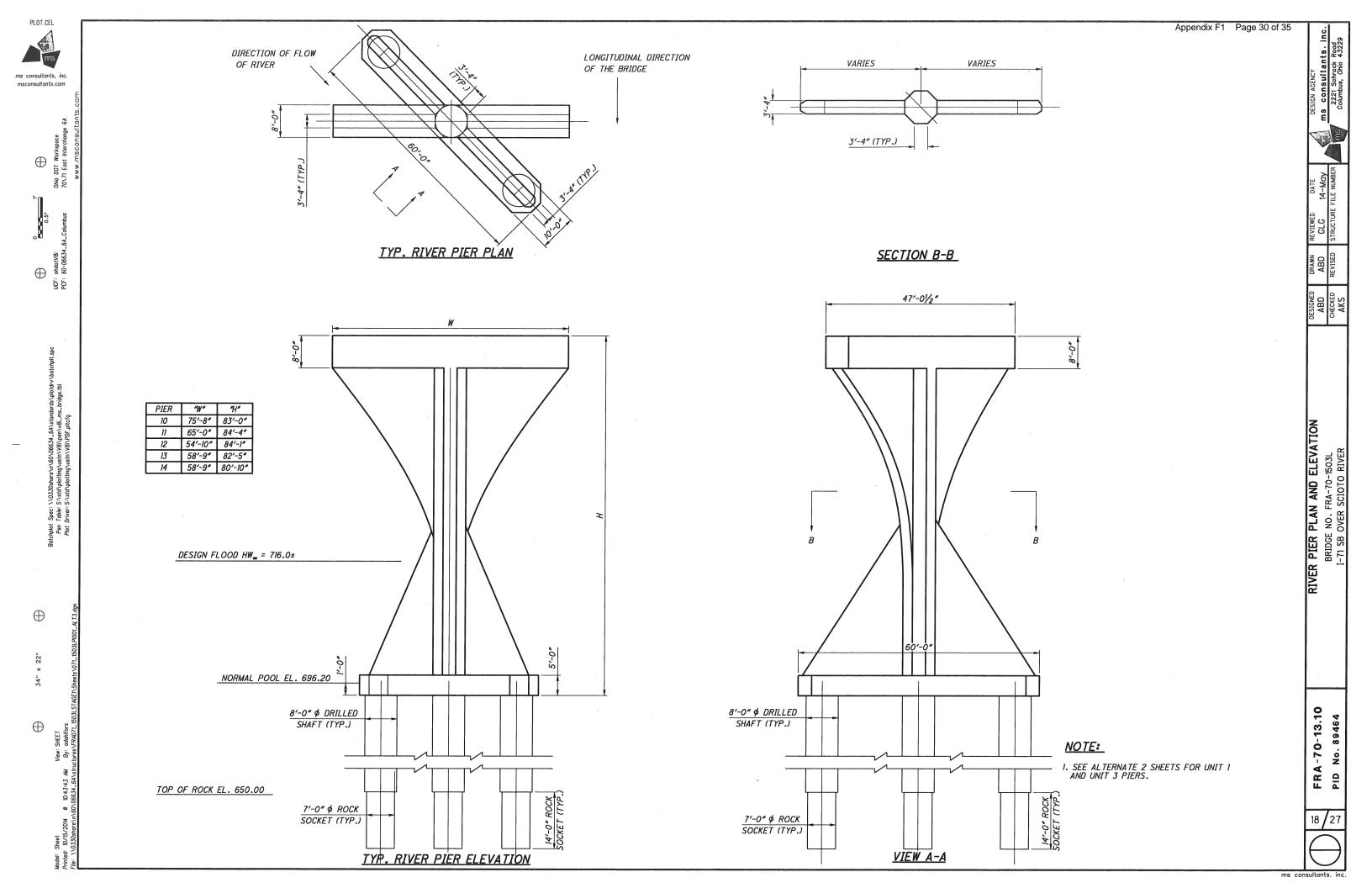












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45'-10" O/O DECK VARIES FROM 45'-10" (STA. 249+09.55) TO 45'-0\%" (STA. 250+14.78) 42'-6" CLEAR ROADWAY VARIES FROM 42'-6" (STA. 249+09.55) TO 41'-8%" (STA. 250+14.78) LIMITS OF SEALING OF CONCRETE SURFACES ₽ I-71 SB 2" CLR. (EPOXY-URETHANE) (TYP.) (TYP.) (TYP.) 93/4" MIN. REINF. CONC. DECK W/ 1" MONOLITHIC WEARING SURFACE - CONCRETE PARAPET SBR-1-13 (TYP.) **VARIES** 6" I" DRIP GROOVE (TYP.) 98" WEB WELDED STEEL PLATE GIRDER (TYP.) (A) 3 SPA. @ 12'-95/6" = 38'-4" 3'-9" ΔΔΔ ΔΔ

> TRANSVERSE SECTION STA. 230+88.59 TO STA. 250+15.08

LEGEND

GIRDER DESIGNATION

DIMENSION TAKEN PERPENDICULAR TO EDGE OF DECK

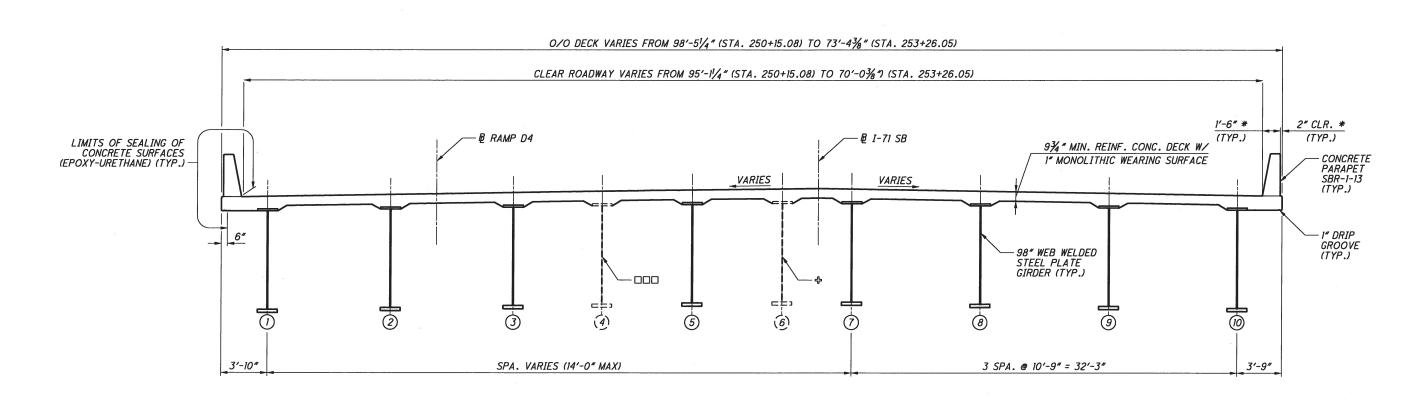
VARIES FROM 4'-61/8" (STA. 230+88.59) TO 3'-9" (STA. 232+09.77)

VARIES FROM 12'-956" (STA. 249+09.55) TO 12'-636" (STA. 250+14.78)

VARIES FROM 2'-11 15/6" (STA. 230+88.59) TO 3'-9" (STA. 232+09.77)

PARTIAL LENGTH GIRDER, STA. 250+19.65 TO STA. 251+15.81

□□ PARTIAL LENGTH GIRDER, STA. 250+14.79 TO STA. 252+16.88



TRANSVERSE SECTION STA. 250+15.08 TO STA. 253+26.05

NOTES

1. DIMENSION IS TAKEN PERPENDICULAR TO THE BASELINE UNLESS OTHERWISE NOTED.

2. FOR PAVEMENT SLOPES AND TRANSITIONS, SEE SHEETS 25/27 THRU 26/27

3. FOR FRAMING LAYOUT, SEE SHEETS 19/27 THRU 21/27.

FRA-70-13.10

FRANSVERSE SECTION (1 OF BRIDGE NO. FRA-71-1503L I-71 SB OVER SCIOTO RIVER

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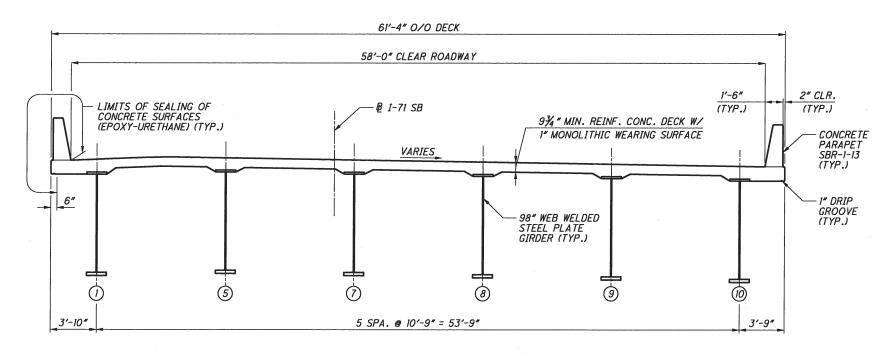
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O/O DECK VARIES FROM 73'-4%" (STA. 253+26.05) TO 61'-4" (STA. 258+50.70) CLEAR ROADWAY VARIES FROM 70'-0%" (STA. 253+26.05) TO 58'-0" (STA. 258+50.70) 1'-6" * 2" CLR. * - & RAMP D4 - 🛭 I-71 SB (TYP.) (TYP.) LIMITS OF SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) (TYP.) 9¾ " MIN. REINF. CONC. DECK W/ 1" MONOLITHIC WEARING SURFACE - CONCRETE PARAPET SBR-1-13 (TYP.) **VARIES VARIES** GROOVE (TYP.) 6" -98" WEB WELDED STEEL PLATE GIRDER (TYP.) 9 7 ***** 3'-10" SPA. VARIES (12'-0" MAX.) 4 SPA. @ 10'-9" = 43'-0" 3'-9"

TRANSVERSE SECTION STA. 253+26.05 TO STA. 258+50.70



TRANSVERSE SECTION STA. 258+50.70 TO STA. 266+76.63

LEGEND

- GIRDER DESIGNATION
- * DIMENSION TAKEN PERPENDICULAR TO EDGE OF DECK
- ◆ PARTIAL LENGTH GIRDER, END AT STA. 256+81.57
- ♦♦ PARTIAL LENGTH GIRDER, END AT STA. 253+43.70

- 1. DIMENSION IS TAKEN PERPENDICULAR TO THE BASELINE UNLESS OTHERWISE NOTED.
- 2. FOR PAVEMENT SLOPES AND TRANSITIONS, SEE SHEETS 25/27 THRU 26/27.
- 3. FOR FRAMING LAYOUT, SEE SHEETS 19/27 THRU 21/27

NOTES

FRA-70-13.10

TRANSVERSE SECTION (2 OF BRIDGE NO. FRA-71-1503L I-71 SB OVER SCIOTO RIVER

TRANSVERSE SECTION (3 OF BRIDGE NO. FRA-71-1503L I-71 SB OVER SCIOTO RIVER

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61'-4" O/O DECK (STA. 266+73.63 TO STA. 267+76.78) O/O DECK VARIES FROM 61'-4" (STA. 267+76.78) TO 72'-4" (STA. 277+63.34) 58'-0" CLEAR ROADWAY (STA. 266+73.63 TO STA. 267+76.78) CLEAR ROADWAY VARIES FROM 58'-0" (STA. 267+76.78) TO 69'-0" (STA. 277+63.34) LIMITS OF SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) (TYP.)-2" CLR. * −*₿ I-71 SB* (TYP.) (TYP.) 91/2" MIN. REINF. CONC. DECK W/ 1" MONOLITHIC WEARING SURFACE - CONCRETE PARAPET **VARIES** SBR-1-13 (TYP.) 6" -1" DRIP GROOVE (TYP.) - WELDED STEEL PLATE GIRDER (WEB DEPTH VARIES, 98" MAX., 70" MIN.) (TYP.) 100 SPA. VARIES (11'-0" MAX.) 4 SPA. @ 10'-9" = 43'-0" 3'-10" 3'-9"

<u>TRANSVERSE SECTION</u> STA. 266+76.63 TO STA. 277+63.34

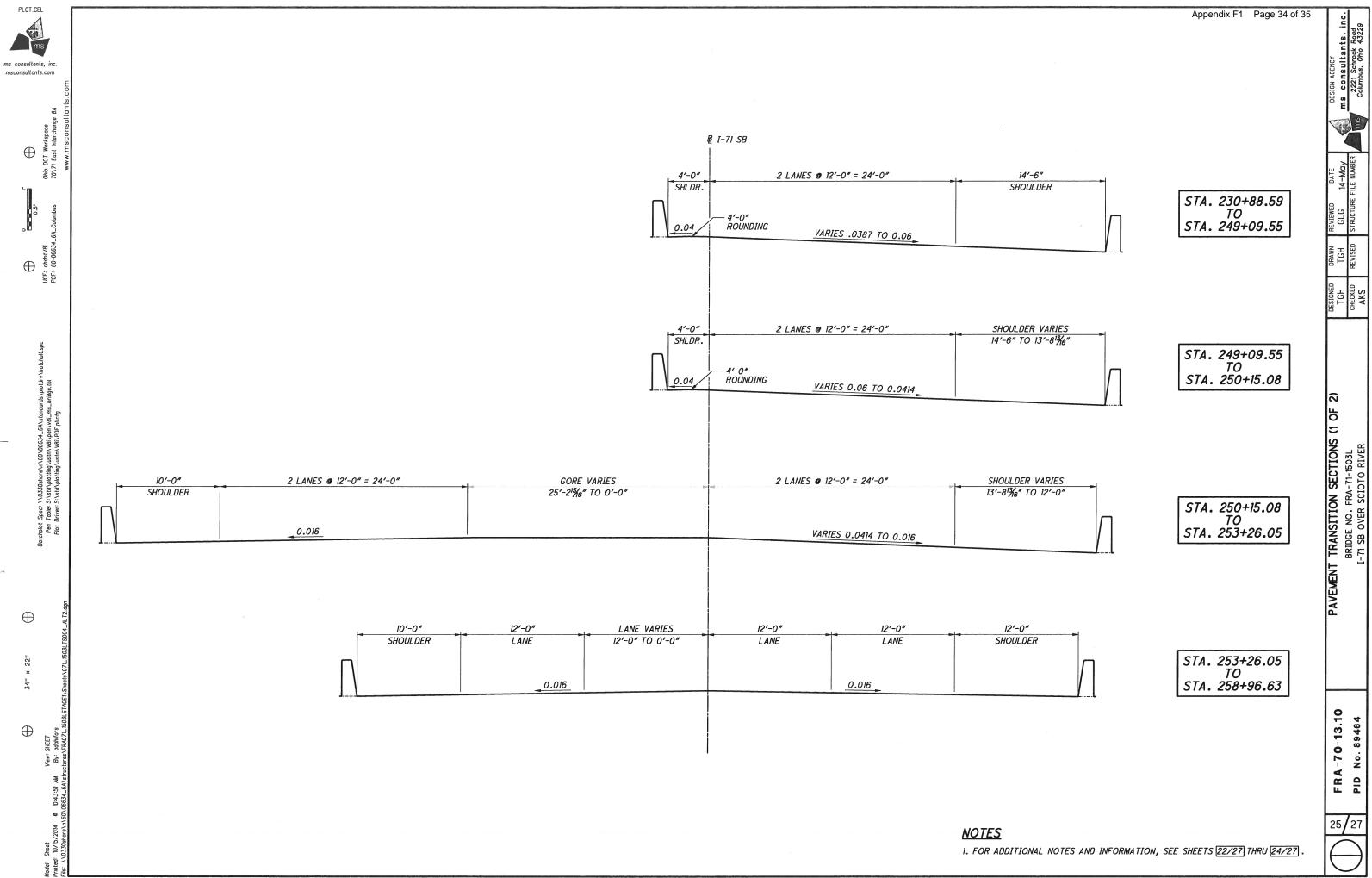
LEGEND

- GIRDER DESIGNATION
- * DIMENSION TAKEN PERPENDICULAR TO EDGE OF DECK
- ♦ PARTIAL LENGTH GIRDER, STA. 268+80.96 TO STA. 277+63.34

NOTES

- 1. DIMENSION IS TAKEN PERPENDICULAR TO THE BASELINE UNLESS OTHERWISE NOTED.
- 2. FOR PAVEMENT SLOPES AND TRANSITIONS, SEE SHEETS 25/27 THRU 26/27
- 3. FOR FRAMING LAYOUT, SEE SHEETS 19/27 THRU 21/27

FRA-70-13.10

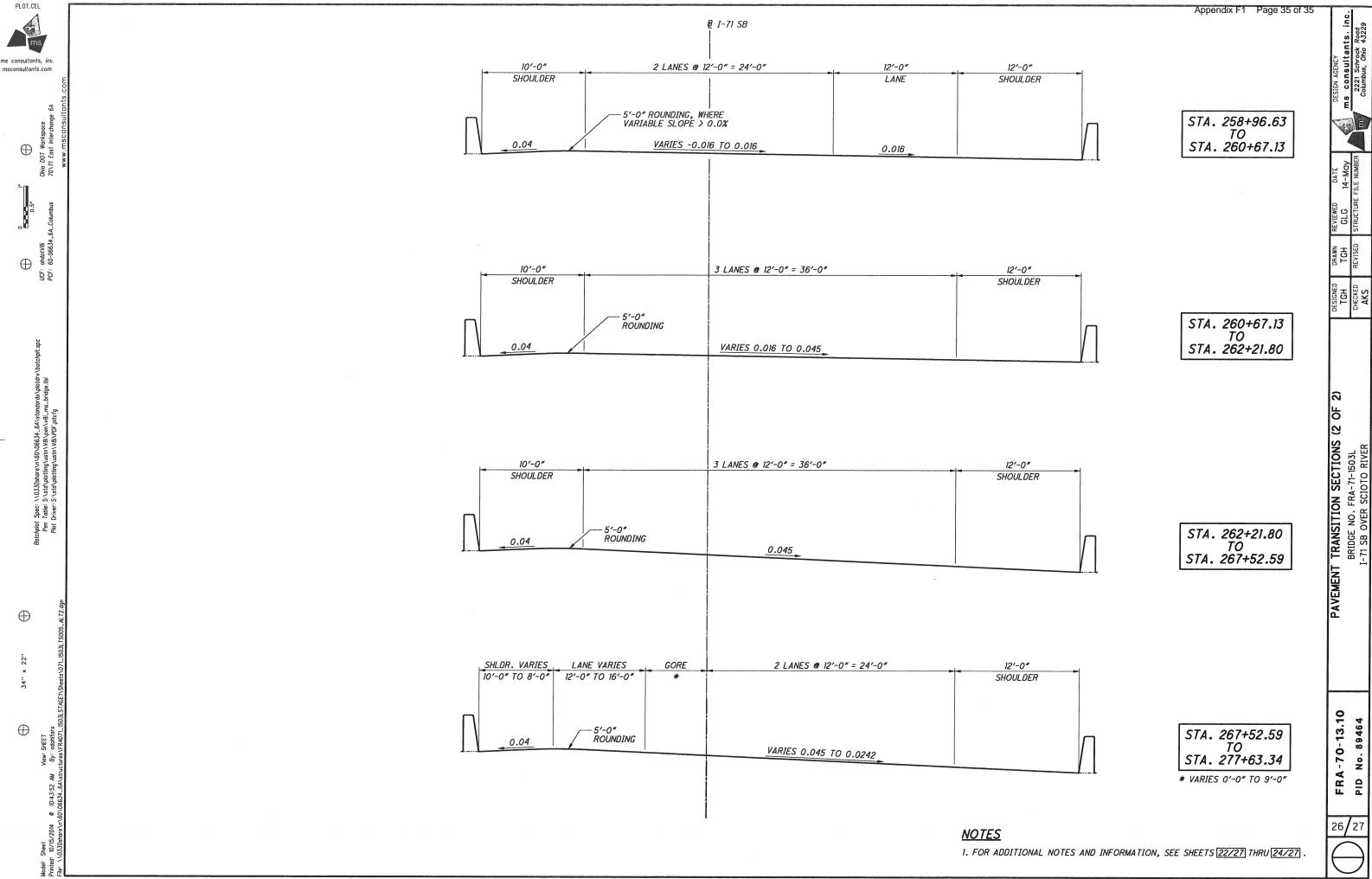


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