CALC.	CUYAHOGA COUNTY	OHIO
DATE	CUY-176-10.14	F.H.W.A. REGION 5
CHKD.		
DATE		

1 / 395

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-176-10.14

CITY OF CLEVELAND
CITY OF PARMA
VILLAGE OF BROOKLYN HEIGHTS
CUYAHOGA COUNTY

GRADE SEPARATION WITH CONSOLIDATED RAIL CORPORATION

MICROFILMED NOV 14 1996

DESIGN DESIGNATION

DESIGN YEAR 1996 A. D. T.	15,000	50,000
DESIGN YEAR 2016 A. D. T.	16,500	55,000
D.H.V.	10%	10%
D (DIRECTIONAL DISTRIBUTION)	67%	67%
T (PERCENT B & C TRUCKS)	10%	10%
V (DESIGN SPEED)	50 M.P.H.	60 M.P.H.
LEGAL SPEED	45 M.P.H.	55 M.P.H.
FUNCTIONAL CLASSIFICATION	URBAN ARTERIAL	URBAN FREEWAY
STATION LIMITS	STA.91+16.99 – STA.115+00	STA.115+00 – STA.130+00

CONVENTIONAL SIGNS

COUNTY LINE
TOWNSHIP LINE
SECTION LINE
CORPORATION LINE
FENCE LINE (EXIST.)
FENCE LINE (PROP.)
CENTERLINE
TREES, STUMPS, TO BE REMOVED
GUARDRAIL (EXISTING) (PROPOSED)
UTILITY POLES, TELEPHONE, POWER, LIGHT
LIMITED ACCESS (ONLY) — LA
RIGHT OF WAY (ONLY) — RW
LIMITED ACCESS & RIGHT OF WAY — LA & RW
EXISTING RIGHT OF WAY — RW
PROPERTY LINE — PL
PROPERTY LINE IN EXIST. FENCE
RAILROAD

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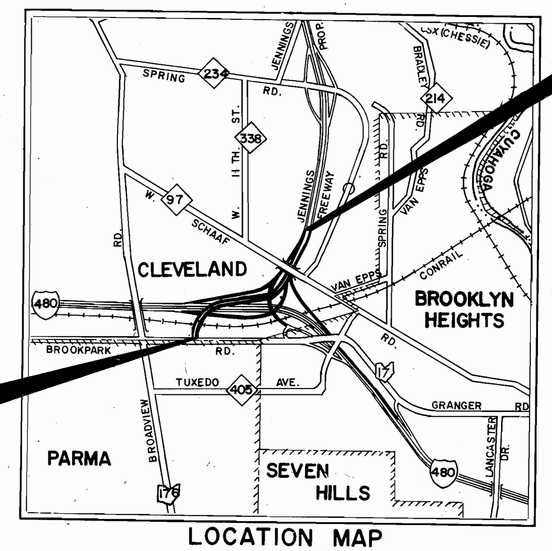

LOCATION MAP
SCALE IN FEET
1000' 0 5000'
1 MILE

2 WORKING DAYS
BEFORE YOU DIG
CALL TOLL FREE 800-362-2764
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS MUST BE CALLED DIRECTLY

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CONSULTING ENGINEERS CLEVELAND OHIO 44131

PORTION TO BE IMPROVED
COUNTY ROAD
INTERSTATE ROUTES
U.S. ROUTES
STATE ROUTES
CITY STREETS

PLAN SCALES

PLAN 50' 0 50'
PROFILE: HORIZONTAL 50' 0 50'
VERTICAL 10' 0 10'
CROSS SECTIONS: HORIZONTAL 10' 0 10'
VERTICAL 10' 0 10'

NON-FEDERAL FUNDS

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

THE STANDARD 1993 SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL GOVERN THIS IMPROVEMENT.

DISTRICT CERTIFIED ROADWAY PLANS

APPROVED Bryan J. Hodin
DATE 5-4-94 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED B.D. Hawkshaw Jr. P.E.
DATE 6/9/94 ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED Christopher L. Kunyan
DATE 7-11-94 DEPUTY DIRECTOR, DESIGN

APPROVED Jerry Wray
DATE 7-11-94 DIRECTOR, DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATIONS			
NUMBER	DATE	NUMBER	DATE
802	4-13-90		
820	3-18-92		
841	5-16-84		
843	7-29-88		
862	12-16-88		
931	3-18-92		
942	3-18-92		
944	5-2-92		
962	1-23-90		
852	7-30-93		
910	5-20-91		
945	5-17-83		
940	6-10-87		

PROJECT DESCRIPTION

THE PRIMARY PURPOSE OF THIS IMPROVEMENT IS TO PROVIDE FOR GREATER CAPACITY ON AN IMPROVED ALIGNMENT OF SR-176 (JENNINGS FREEWAY) INCLUDING THE CONSTRUCTION OF AN INTERCHANGE SYSTEM WITH I-480. SIGNING, STRIPING, AND LIGHTING OF RELOCATED SR-176 AS WELL AS SIGNING AND STRIPING ON I-480 AND BROOKPARK ROAD WILL ALSO BE PART OF THIS PROJECT.

STANDARD CONSTRUCTION DRAWINGS

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
BP-1.1	2-21-92	F-1	11-10-83			MH-1	12-18-84	TC-21.40	9-1-92	TC-41.10	8-29-84	TC-71.10	9-10-91	HL-30.11	5-1-87
BP-2.1	2-21-92	F-3	5-1-76	HW-4A	4-1-80	MH-3	12-18-84	TC-32.11	9-1-92	TC-41.20	3-26-79	TC-85.10	1-20-84	HL-30.21	5-1-87
BP-2.2	2-21-92	F-5	5-1-76	HW-4B	4-1-80	MH-5	6-12-75	TC-41.41	8-2-79	TC-41.40	6-18-79	TC-85.20	1-20-84	HL-30.22	5-1-87
BP-2.3	2-21-92							TC-51.11	1-20-84	TC-41.50	3-26-79			HL-30.31	5-1-87
BP-3.1	2-21-92			I-2A	12-18-84			TC-65.10	2-1-90	TC-42.10	8-19-77			HL-30.33	5-1-87
BP-5.1	2-21-92	GR-1.1	5-6-91	I-3A & B	4-1-80	MT-95.30	10-10-88	TC-65.11	2-1-90	TC-42.20	3-26-79			HL-50.11	5-1-87
BP-6.1	2-21-92	GR-1.2	10-30-92			MT-95.31	10-10-88	TC-7.65	3-1-79	TC-51.10	1-20-84	HL-10.11	5-1-87	HL-50.21	5-1-87
BP-7.1	10-30-92	GR-1.3	2-21-92	MC-5	6-12-75	MT-95.32	8-25-89	TC-12.30	1-20-84	TC-52.10	4-3-79	HL-10.12	5-1-87	HL-60.11	5-1-87
BP-8.1	2-21-92	GR-2.1	5-6-91	MC-9.4	10-30-92	MT-97.10	4-29-88	TC-16.20	1-20-84	TC-52.20	4-3-79	HL-10.13	5-1-87	HL-60.12	5-1-87
		GR-3.1	5-6-91	MC-1	6-13-69	MT-97.11	10-4-89	TC-21.10	9-1-92	TC-61.10	4-5-82	HL-10.31	5-1-87	HL-60.21	5-1-87
		GR-3.2	5-6-91	MC-4	7-26-76	MT-99.10	11-14-86	TC-21.20	9-1-92	TC-72.20	2-26-82	HL-20.11	5-1-87	AS-1-81 ✓	11-27-81
		GR-4.1	5-6-91	MC-7	10-15-76	MT-99.20	4-29-88	TC-22.10	9-1-92	TC-81.10	1-20-84	HL-20.13	5-1-87	EXJ-4-87 ✓	1-5-89
CB-4	11-10-83			MC-9.2	5-6-91	MT-101.60	7-1-92	TC-22.20	9-1-92	TC-81.20	1-20-84	HL-20.21	5-1-87	SD-1-69 ✓	6-12-69
CB-5	11-10-83			MC-9.3	10-30-92	MT-102.10	8-25-89	TC-31.21	9-1-92	TC-82.10	8-29-84	HL-20.22	5-1-87	VPF-1-90	2-1-92
CB-6	5-1-79			MC-10	5-1-76	MT-105.10	7-1-92	TC-32.10	9-1-92	TC-83.10	3-18-92	HL-20.23	5-1-87		
				MC-11	8-1-78	MT-105.11	7-1-92	TC-35.10	8-29-84	TC-83.20	1-20-84	HL-20.31	5-1-87		

Project:
Date of Letting 9-13 1994 Contract No. 683

(8448)

1275
Revised 8-8-94

RELOC. S.R.-176

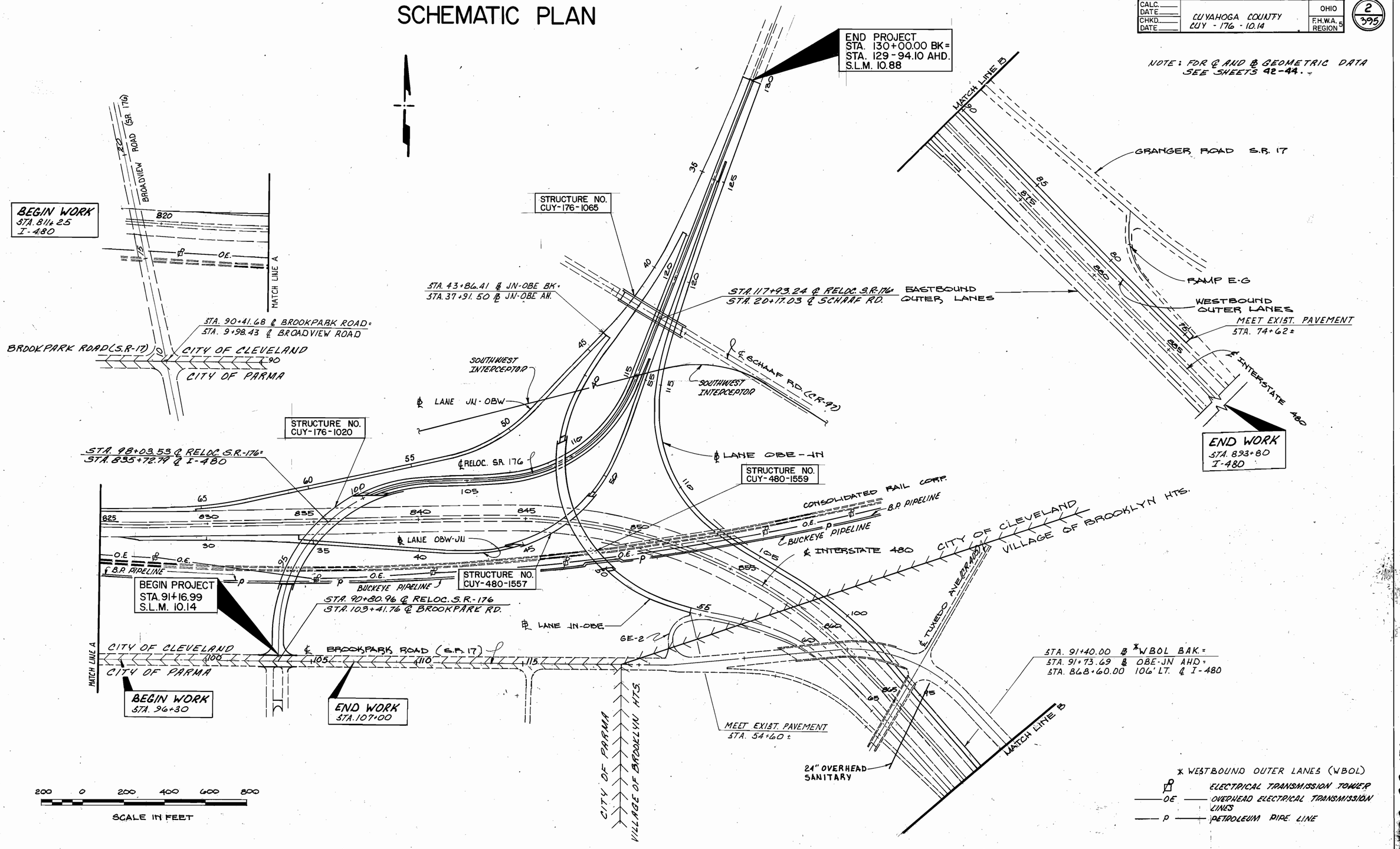
TITLE SHEET

CALC.	CUYAHOGA COUNTY	OHIO
DATE	CUY - 176 - 10.14	F.H.W.A. REGION 5
CHKD.		
DATE		

2 / 395

SCHEMATIC PLAN

NOTE: FOR ℄ AND ℄ GEOMETRIC DATA SEE SHEETS 42-44.

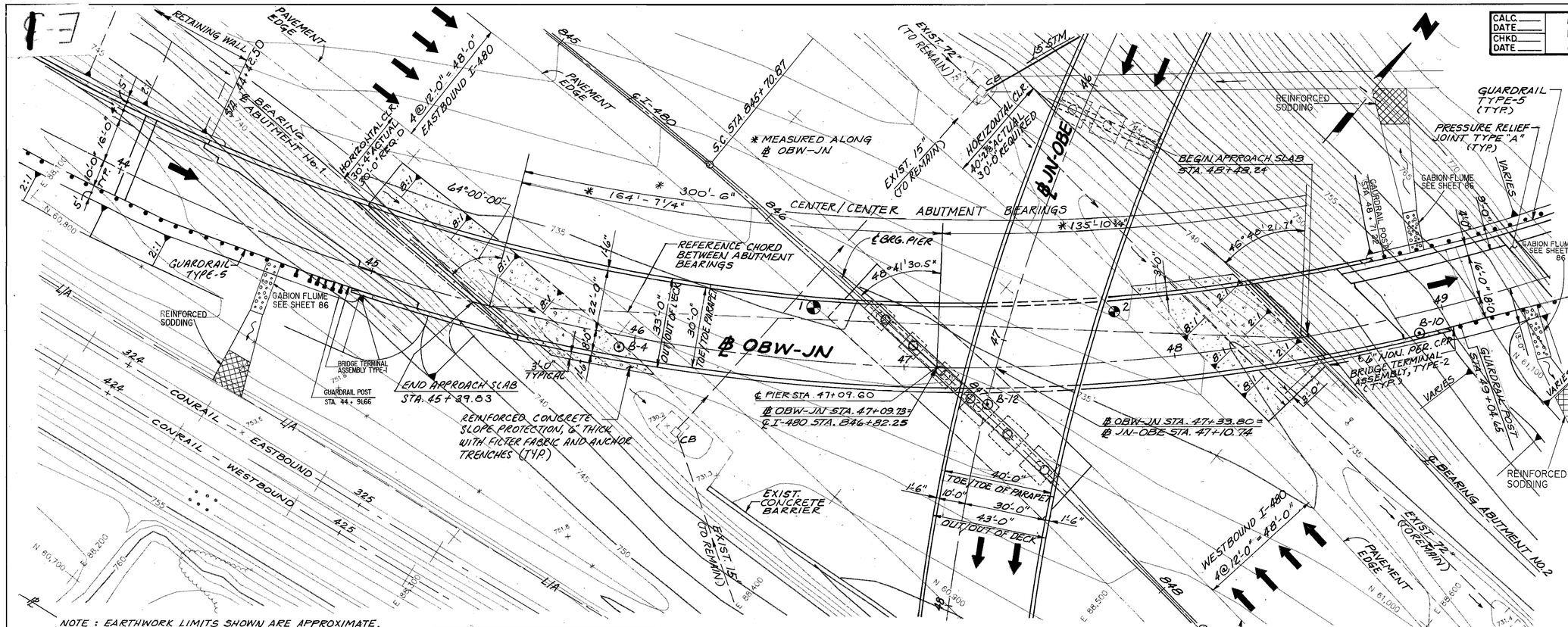


SCHEMATIC PLAN

SR-176

CALC.	CUYAHOGA COUNTY	OHIO
DATE	CUY-176-10.14	F.H.W.A.
CHKD.	JENNINGS FREEWAY	REGION 5
DATE		

314
395



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

BENCHMARK: TBM '71 CHISELED SQ. N.W. CORNER INLET I-480 STA. 846+20, 80'± RT. ELEV. 730.30

PLAN

PROPOSED STRUCTURE

TYPE: CONTINUOUS COMPOSITE A-572 PAINTED CURVED WELDED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 164'-7¼", 135'-10¾" C/C BEARINGS ALONG ℄ OBW-JN

WIDTH: 30'-0" TOE/TOE OF BARRIER 33'-0" OUT/OUT OF DECK

LOADING: HS 20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING.

WEARING SURFACE: MONOLITHIC CONCRETE

SKEW: VARIES, RF

APPROACH SLAB: AS-1-81, AS PER PLAN 50' LONG @ ABUTMENT #1, 30' LONG @ ABUTMENT #2

ALIGNMENT: CURVE LEFT (D_c = 7° 51' 27")

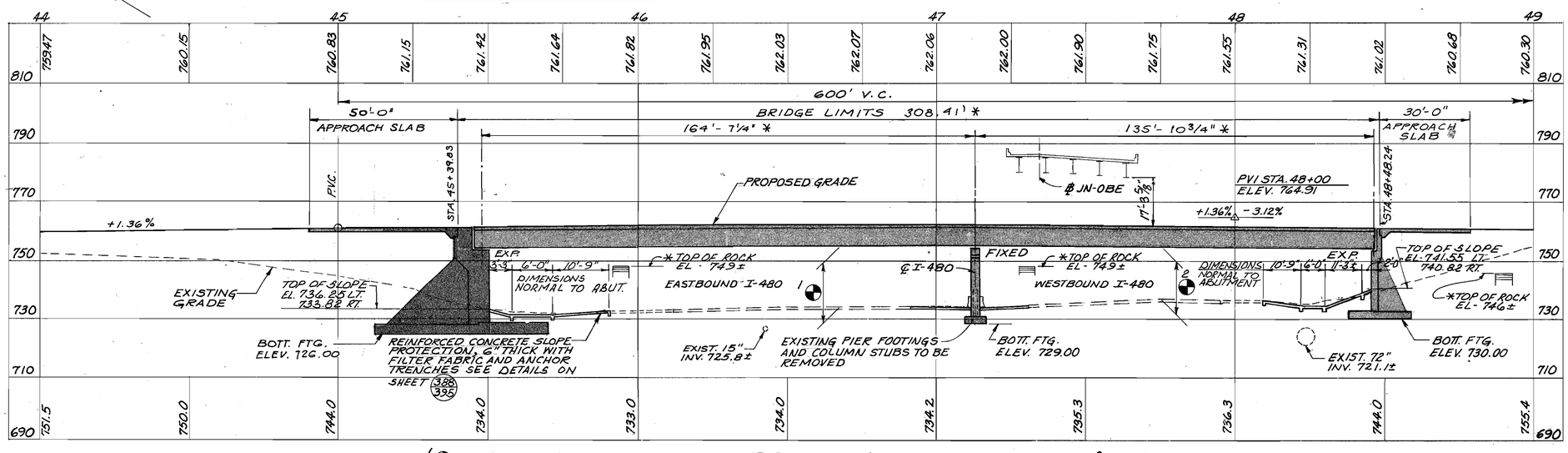
SUPERELEVATION: 0.059 FT/FT.

SLOPE PROTECTION: REINFORCED CONCRETE SLOPE PROTECTION, 6" THICK WITH FILTER FABRIC AND ANCHOR TRENCHES.

FOUNDATION DATA

ABUTMENTS AND PIER FOOTINGS SHALL BE SPREAD FOOTINGS FOUNDED ON BEDROCK.

⊙ INDICATES SOIL BORING LOCATION. REFER TO STRUCTURE FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION. * ESTIMATED TOP OF ROCK FOR THE YEAR 1972.



1 POINT OF MINIMUM VERTICAL CLEARANCE MINIMUM 16'-6" ACTUAL 18'-11"

PROFILE

ALONG ℄ OBW-JN

2 POINT OF MINIMUM VERTICAL CLEARANCE MINIMUM 16'-6" ACTUAL 16'-11⅜"

℄ OBW-JN HORIZONTAL CURVE DATA

P.I. STA. 47+07.26
S.C. STA. 43+39.67
C.S. STA. 50+20.81
Δ_c = 53° 32' 42.2 LT
D_c = 7° 51' 27"
R = 729.178'
T = 367.895'
L = 681.444
C = 656.915'
E = 87.552'

VERTICAL CURVE DATA

G_1 = +1.36%
G_2 = -3.12%
L = 600'
P.V.I. ELEV. 764.91
P.V.I. STA. 48+00.00
P.V.C. STA. 45+00.00
P.V.T. STA. 51+00.00

TRAFFIC DATA

AVERAGE DAILY TRAFFIC (2013) = 9000
AVERAGE DAILY TRUCK TRAFFIC (2013) = 900

1/23

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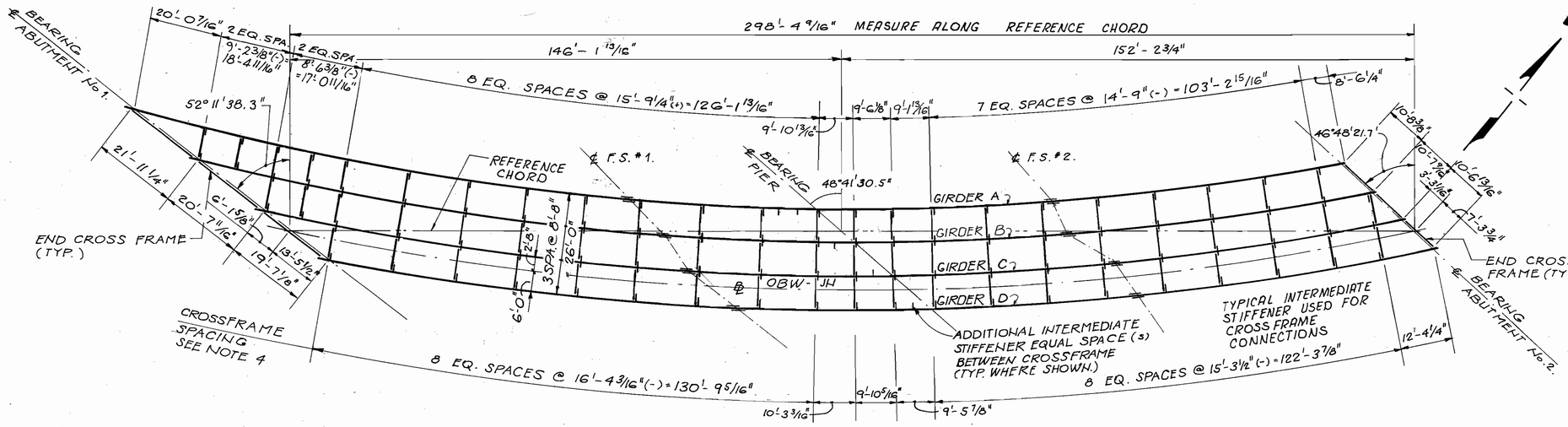
SITE PLAN
JENNINGS FREEWAY
LANE JN-OBE OVER, I-480 UNDER LANE OBW-JN
BRIDGE NO. CUY-480-1557
STA. 45+39.83 TO STA. 48+48.24
CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TAB	HBM	TJW	LEO	7-30-92	

BRUNING 44232 67195.01

A-C-L form no. B-1

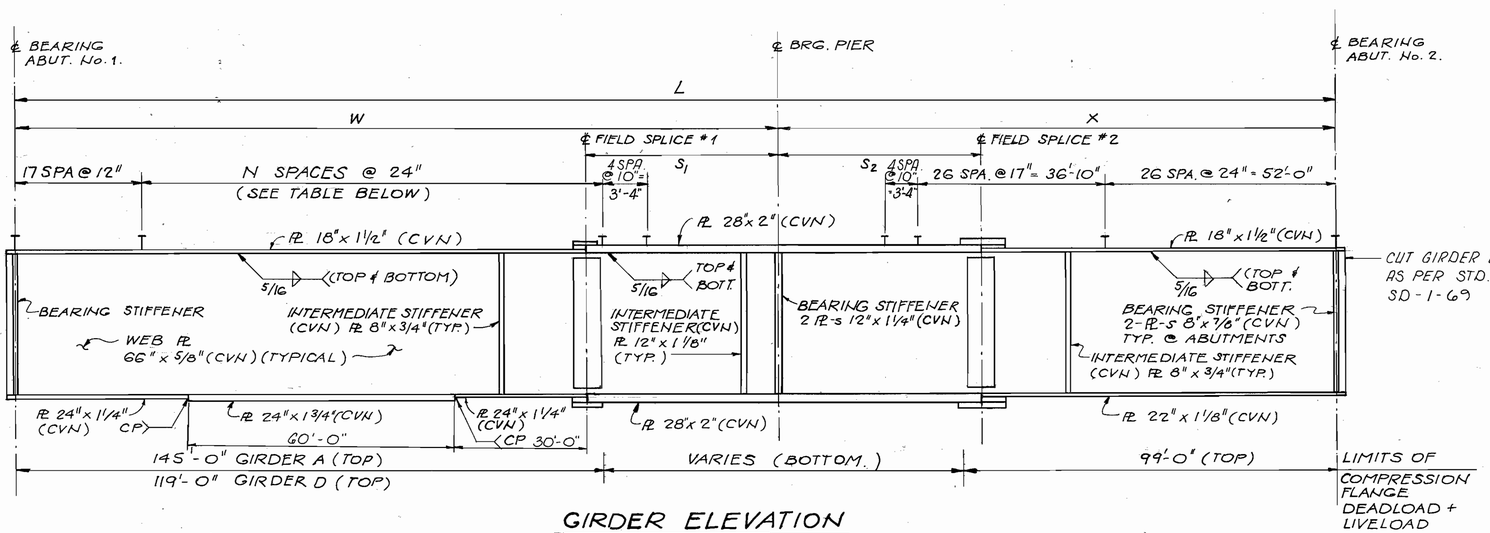
CALC.	CUYAHOGA COUNTY	OHIO	328/395
DATE	CUY-176-10.14	F.H.W.A.	
CHKD.	JENNINGS FREEWAY	REGION 5	
DATE			



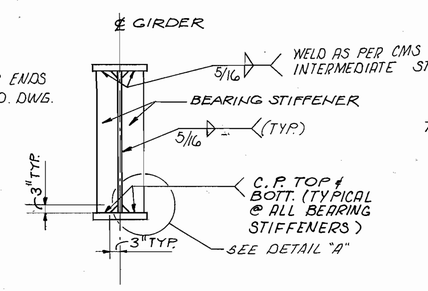
FRAMING PLAN

NOTES:

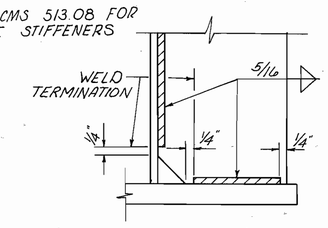
1. EACH STIFFENER PLATE USED AS CROSSFRAME CONNECTION PLATES SHALL HAVE THE SAME THICKNESS IN A PARTICULAR BAY. THE GREATEST PLATE THICKNESS REQUIRED AT EACH LOCATION SHALL CONTROL FOR BOTH PLATES IN THE SAME BAY.
2. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
3. WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.
4. ALL INTERMEDIATE CROSSFRAMES ARE ALONG RADIAL LINES. FOR DETAILS SEE TRANSVERSE SECTION ON SHEET 20/23
5. FOR GIRDER FIELD SPLICE DETAILS SEE SHEET. 16/23
6. FOR END CROSSFRAME DETAILS AT ABUTMENT 2 REFER TO STANDARD DRAWINGS EXJ-4-7 & SD-1-69. ANGLE MEMBERS FOR END CROSSFRAMES AT ABUTMENT NO.2 SHALL BE L5x5x1/2 (CVN) TYPICAL. FOR END CROSSFRAME DETAILS AT ABUTMENT NO. 1 SEE SHEET 16/23
7. FOR BEARING DETAILS SEE SHEET 17/23



GIRDER ELEVATION



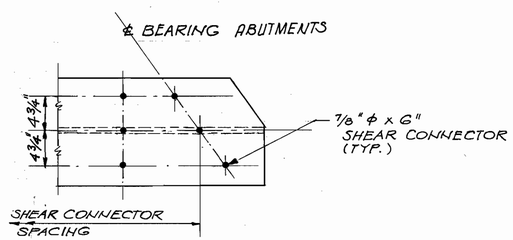
STIFFENER DETAIL



DETAIL A

GIRDER DIMENSIONS ALONG ℄ GIRDER

GIRDER	L	W	X	S1	S2	RADIUS	SHEAR STUD SPACING N
A	321'-11 9/16"	181'-7 5/8"	140'-3 15/16"	50'-4"	61'-1"	709.178'	61
B	311'-11 3/16"	173'-7 3/16"	138'-4"	49'-11"	56'-2"	717.845'	57
C	303'-0 1/2"	166'-7 1/16"	136'-5 7/16"	55'-3"	57'-8"	726.511'	53
D	295'-0 13/16"	160'-4 11/16"	134'-8 1/8"	54'-2"	53'-5"	735.178'	48



TYPICAL SHEAR CONNECTOR SPACING

LEGEND

C.P. COMPLETE PENETRATION WELD.

15/23

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FRAMING PLAN AND GIRDER DETAILS

JENNINGS FREEWAY
LANE JH - OBE OVER
I - 480 UNDER
LANE OBW - JH

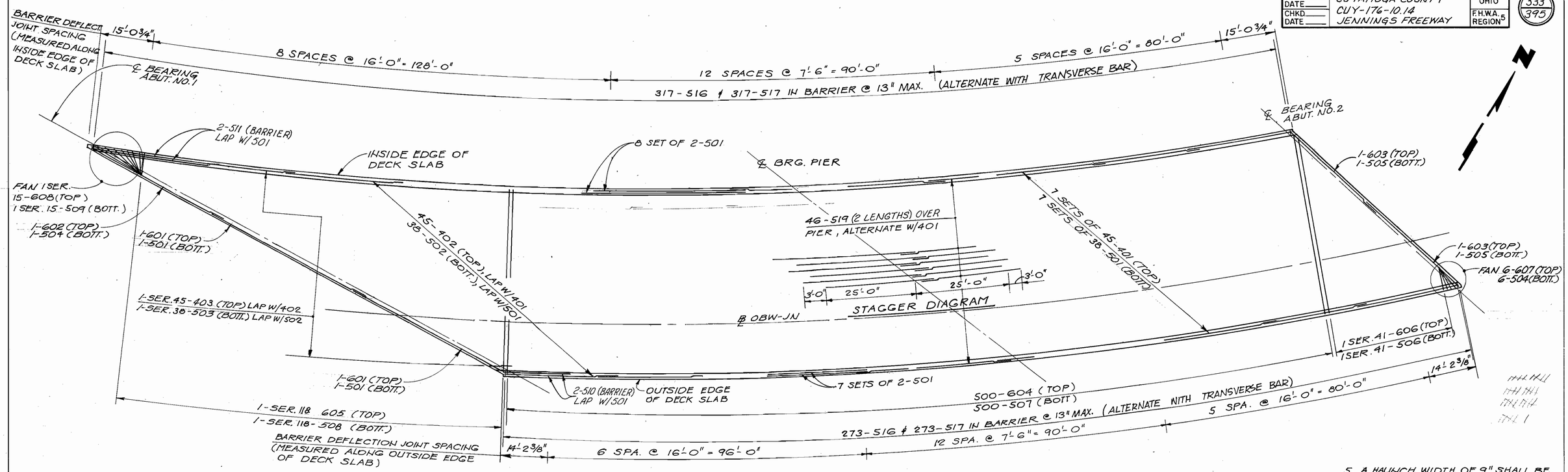
BRIDGE No. CUY-480-1557

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	E.K.	D.P.	RJM	1/94	

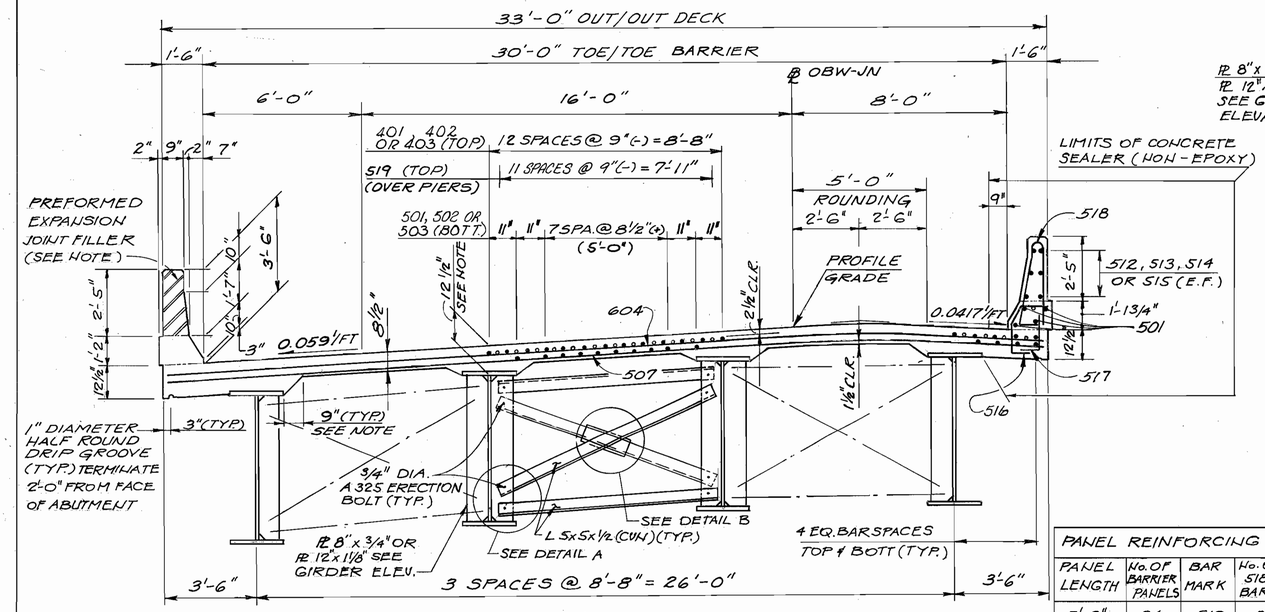
BRUNING 44-232 67195
A·C·L form no. B-1

CALC.	CUYAHOGA COUNTY	OHIO
DATE	CUY-176-10.14	F.H.W.A.
CHKD.	JENNINGS FREEWAY	REGION 5
DATE		

333/395

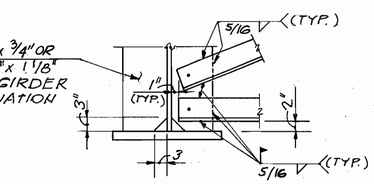


SLAB PLAN

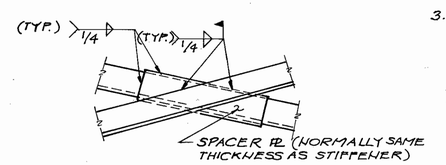


TRANSVERSE SECTION

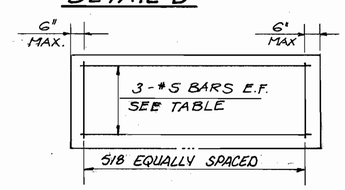
PANEL REINFORCING			
PANEL LENGTH	No. OF BARRIER PANELS	BAR MARK	No. OF 518 BARS
7'-6"	24	512	8
16'-0"	24	513	16
14'-2 3/8"	2	514	14
15'-0 3/4"	2	515	15



DETAIL A



DETAIL B



TYPICAL BARRIER PANEL

NOTES:

1. ALL TRANSVERSE BARS ARE SPACED @ 6 1/2", MEASURED ALONG OUTSIDE EDGE OF DECK SLAB AND PLACED RADIALLY TO ℄ OBW-JN.
2. FIELD BEND LONGITUDINAL BARS TO FIT CURVATURE OF ROADWAY AND TRANSVERSE BARS TO FIT CROWN; BENDING SHALL BE INCLUDED WITH ITEM 509 FOR PAYMENT. EPOXY COATED BARS DAMAGED BY FIELD BENDING SHALL BE REPAIRED AS PER APPROVED MANUFACTURER'S RECOMMENDATION.
3. DECK SLAB DEPTH: THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO THE BOTTOM OF THE TOP FLANGE OF GIRDER IS THE DESIGN DIMENSION. THE QUANTITY OF CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR THE VOLUME OF ENCASED STEEL PLATES AS PER S11.18
4. THE FOLLOWING MIN. BAR SPLICE LAP LENGTHS SHALL BE PROVIDED UNLESS SHOWN OTHERWISE:
   No. 4 BARS = 1'-7"
   No. 5 BARS = 2'-1"
   No. 6 BARS = 3'-1"
5. A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING THE QUANTITY OF CONCRETE. HOWEVER THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 4:1 FOR A HAUNCH LESS THAN 9" WIDE.
6. PREFORMED EXPANSION JOINT FILLER IN THE BARRIER DEFLECTION JOINTS MAY BE EITHER 1/4" GREY SPONGE RUBBER OR 1/4" GREY CELLULAR POLYVINYL CHLORIDE (PVC) SPONGE. SPONGE RUBBER FILLER SHALL CONFORM TO AASHTO M-153, TYPE-1. DENSITY OF PVC SPONGE SHALL NOT BE LESS THAN 20 LBS. PER CU. FT. PAYMENT FOR THIS ITEM SHALL BE INCLUDED WITH ITEM SPECIAL-HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE.
7. ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE SHALL BE PREFIXED "S".

20/23

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SLAB PLAN & TRANSVERSE SECTION

JENNINGS FREEWAY
LANE JN-OBE OVER I-480 UNDER LANE OBW-JN

BRIDGE NO. CUY-480-1557

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
MJL	HBM	TAB	A.J.M	1/94	

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A·C·L form no. B-1