E·2

DESIGN DESIGNATION	
CURRENT YEAR 1996 A. D. T.	47,700
DESIGN YEAR 2006 A. D. T.	53,000
D.H.V.	10%
D (DIRECTIONAL DISTRIBUTION)	67%-33%
T (PERCENT B & C TRUCKS)	10%
V (DESIGN SPEED)	60 M.P.H.
LEGAL SPEED	55 M.P.H.
FUNCTIONAL CLASSIFICATION	URBAN FREEWAY
DESIGN EXCEPTIONS	NONE

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CALC.	CUYAHOGA COUNTY	OHIO	1
DATE	CUY - 176 - 10.88	F.H.W.A. REGION 5	557
CHKD.			
DATE			

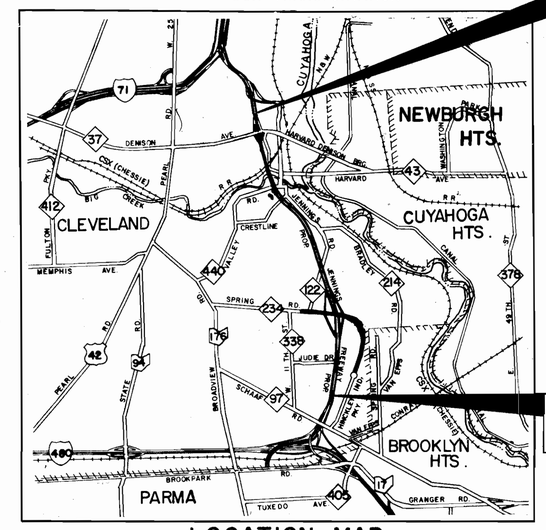
MICROFILM AUG 23 1997

CUY-176-10.88

CITY OF CLEVELAND
CUYAHOGA COUNTY

GRADE SEPARATION WITH NORFOLK AND WESTERN RAILWAY COMPANY / CSX TRANSPORTATION

END PROJECT STA. 233+04.81



BEGIN PROJECT STA. 130+00.00 BK= STA. 129+94.10 AHD.

LOCATION MAP
SCALE IN FEET

LATITUDE 41° 26' 00"

LONGITUDE 81° 41' 00"

1000' 0 5000'
1 MILE

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

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 EXCEPT AS NOTED ON SHEET 17, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

THE STANDARD 1995 SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL GOVERN THIS IMPROVEMENT.

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'

SUPPLEMENTAL SPECIFICATIONS			
NUMBER	DATE	NUMBER	DATE
931	7/17/95		
944	3/23/95		
910	7/17/95		
802	3/23/95		
820	6/14/95		
942	6/14/95		

DISTRICT CERTIFIED EXCEPT BRIDGES AND LIGHTING

APPROVED Bryan J. Hoskins
DATE 3/24/94 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED B.D. Hankammer/JTL
DATE 4/1/94 ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED Christopher L. Runyan
DATE 4-26-94 DEPUTY DIRECTOR, DESIGN

APPROVED Jerry Wray
DATE 4-26-94 DIRECTOR, DEPARTMENT OF TRANSPORTATION

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
PROPERTY LINE IN EXIST. FENCE
RAILROAD

INDEX OF SHEETS

TITLE SHEET ... 1
SCHEMATIC PLAN ... 2-3, 3A
TYPICAL SECTIONS ... 4-11
GENERAL NOTES 12-14, 14A, 14B, 14C, 14D & 14E
MAINTENANCE OF TRAFFIC ... 15-31
GENERAL SUMMARY ... 32-35 & 35A
PLAN & PROFILE SUB-SUMMARY ... 36-37
CALCULATIONS ... 39-42
SUMMARY OF RIGHT-OF-WAY FENCE ... 42-A
STORM WATER POLUTION PERVENTION PLAN ... 43-47
SCHEMATIC GEOMETRIC PLAN & TABLE ... 48-50
CENTERLINE REFERENCES ... 51-52
SHEET NUMBERS NOT USED 53-55
PLAN, PROFILE, ESTIMATED QUANTITIES & CROSS SECTION SHEETS
RELOCATED SR-176 ... 56-117, 71A, & 73A
SPRING ROAD ... 118-147 & 147A
RAMPS "A" THROUGH "D" ... 148-172
SHEET NUMBERS NOT USED 173-176
JENNINGS ROAD ... 177-190, 189A, 189B, & 190A
BERN AVENUE ... 191-194
GINO LANE ... 195-197
WEST 12TH PLACE AND LONG COURT ... 198-199
RAMPS "E" AND "F" ... 200-203
WEST 15TH STREET CROSS SECTIONS ... 204-205
PAVEMENT ELEVATIONS ... 206-212 & 212A
PAVEMENT DETAILS ... 213-224
DRIVE QUANTITIES AND DETAILS ... 224 A
CULVERT DETAIL ... 225-228 & 227A
PIPE PROFILES ... 229-235
MISCELLANEOUS DETAILS ... 236-240, 239A, 239B & 239C, 238A
APPROACH SLAB DETAILS ... 240 A, 240 B & 240 C
DRAINAGE DETAILS ... 241-245
SPECIAL EXCAVATION AND DRAINAGE DETAILS ... 246
WATER WORK ... 246A, 246B, 257A, 247-274 & 274A
TRAFFIC CONTROL ... 275-328, 278A, 290A, 290B, 328A-K
LIGHTING ... 329-369 & 357A
ELECTRICAL WORK ... 370-407
SHEET NUMBERS NOT USED 408-409
STRUCTURES
CUY-176-1137, SPRING ROAD ... 410-422
CUY-176-1168, JENNINGS ROAD ... 423-452
CUY-176-1218, CRESTLINE ROAD ... 453-464
CUY-176-1229, VALLEY ROAD ... 465-523
RETAINING WALL No. 1 ... 524-529
RETAINING WALL No. 2 ... 530-533
MISCELLANEOUS BRIDGE DETAILS ... 534
RIGHT OF WAY PLANS ... 536-557
SHEET NOT USED 535

TOTAL NUMBER OF SHEETS 590
PLUS 48 SOIL INFORMATION SHEETS

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

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND OHIO 44131

PROJECT DESCRIPTION

THE PRIMARY PURPOSE OF THIS IMPROVEMENT IS TO PROVIDE FOR GREATER CAPACITY ON AN IMPROVED ALIGNMENT OF SR-176 BETWEEN I-480 AND I-71/I-90. THIS PROJECT INVOLVES THE CONSTRUCTION OF 1.95 MILES OF RELOCATED SR-176 (JENNINGS FREEWAY) INCLUDING THE CONSTRUCTION OF INTERCHANGES AT SPRING ROAD AND DENISON AVENUE, A NEW SECTION OF SPRING ROAD AND JENNINGS ROAD WITH HINCKLEY INDUSTRIAL PARKWAY, AND A SECTION OF JENNINGS ROAD NEAR RELOCATED SR-176 INCLUDING THE JENNINGS ROAD BRIDGE. SIGNING, STRIPING, AND LIGHTING OF THESE AREAS AS WELL AS SIGNING ON I-71, I-490, I-480 AND I-90 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 - 4	11-10-83	HW - 3	6-1-65	MH - 1	12-18-84	TC - 16.20	1-20-84	TC - 32.11	9-1-92	TC - 82.10	8-29-84	HL - 30.21	5-1-87
BP - 2.1	10-28-94	F - 5	5-1-76	HW - 4A	4-1-80	MH - 3	12-18-84	TC - 15.115	3-1-79	TC - 35.10	8-29-84	TC - 83.10	3-18-92	HL - 30.22	5-1-87
BP - 2.2	10-28-94	F - 7	11-1-77	HW - 4B	4-1-80	MH - 2	6-12-75	TC - 51.11	9-30-94	TC - 41.10	8-29-84	TC - 83.20	1-20-84	HL - 30.31	5-1-87
BP - 2.3	2-21-92	GR - 1.1	5-6-91	F - 6	5-1-76	MH - 5	6-12-75	TC - 65.10	2-1-90	TC - 41.20	6-21-94	TC - 84.20	1-20-84	HL - 30.33	5-1-87
BP - 3.1	2-21-92	GR - 1.2	10-30-92	I - 2A	12-18-84	CB - 6	5-1-79	TC - 65.11	2-1-90	TC - 41.40	6-18-79	TC - 85.10	1-20-84	HL - 50.11	5-1-87
BP - 5.1	10-28-94	GR - 1.3	2-21-92	I - 3A & B	4-1-80	MT - 95.31	10-10-88	TC - 71.10	9-10-91	TC - 41.41	8-2-79	TC - 85.20	1-20-84	HL - 50.21	5-1-87
BP - 6.1	2-21-92	GR - 2.1	5-6-91	MC - 1	6-13-69	MT - 96.10	9-9-88	TC - 7.65	3-1-79	TC - 41.50	6-21-94	LA - 1	6-1-79	HL - 60.11	5-1-87
BP - 7.1	10-30-92	GR - 3.1	5-6-91	MC - 4	7-26-76	MT - 96.20	9-9-88	TC - 12.30	1-20-84	TC - 42.10	6-19-77	TC - 51.12	1-3-94	HL - 60.12	5-1-87
BP - 8.1	10-28-94	GR - 3.2	5-6-91	MC - 5	6-12-73	MT - 96.25	9-9-88	TC - 18.26	5-31-79	TC - 42.20	3-26-79	HL - 10.11	5-1-87	AS - 1-81	9-15-94
CB - 2-2A & B	5-1-79	GR - 3.4	5-6-91	MC - 6	1-30-84	MT - 97.10	4-29-88	TC - 21.10	9-1-92			HL - 10.12	5-1-87	EXJ - 4-87	1-20-94
CB - 4	11-10-83	GR - 4.1	5-6-91	MC - 7	10-15-76	MT - 99.10	11-14-86	TC - 21.20	9-1-92	TC - 52.10	4-3-79	HL - 10.13	5-1-87	ICD - 1-82	8-1-84
CB - 5	11-10-83	GR - 5.3	10-30-92	MC - 9.2	5-6-91	MT - 99.20	4-29-88	TC - 21.40	9-1-92	TC - 52.20	4-3-79	HL - 20.11	5-1-87	SD - 1-69	6-12-69
CB - 458A	5-1-79	GR - 4.2	5-6-91	MC - 9.3	10-30-92	MT - 101.60	7-1-92	TC - 22.10	9-1-92	TC - 61.10	4-5-82	HL - 20.13	5-1-87	VPF - 1-90	2-1-92
F - 1	11-10-83	HW - 2	6-1-65	MC - 9.4	10-30-92	MT - 105.10	7-1-92	TC - 22.20	9-1-92	TC - 72.20	2-26-82	HL - 20.14	5-1-87	RD. 1-55	2-2-59
F - 2	5-1-76	GR - 6	2-5-82	MC - 10	5-1-76	MT - 105.11	7-1-92	TC - 31.21	9-1-92	TC - 81.10	1-20-84	HL - 20.31	5-1-87	BV. 1-63	12-20-63
F - 3	5-1-76	GR - 5.1	10-30-92	MC - 11	8-1-78			TC - 32.10	9-1-92	TC - 81.20	1-20-84	HL - 30.11	5-1-87	B 2.5	2-21-92

12345

Project:
Date of Letting 19 , Contract No.

RELOC. S.R.-176

REVISED 9-2-94

TITLE SHEET

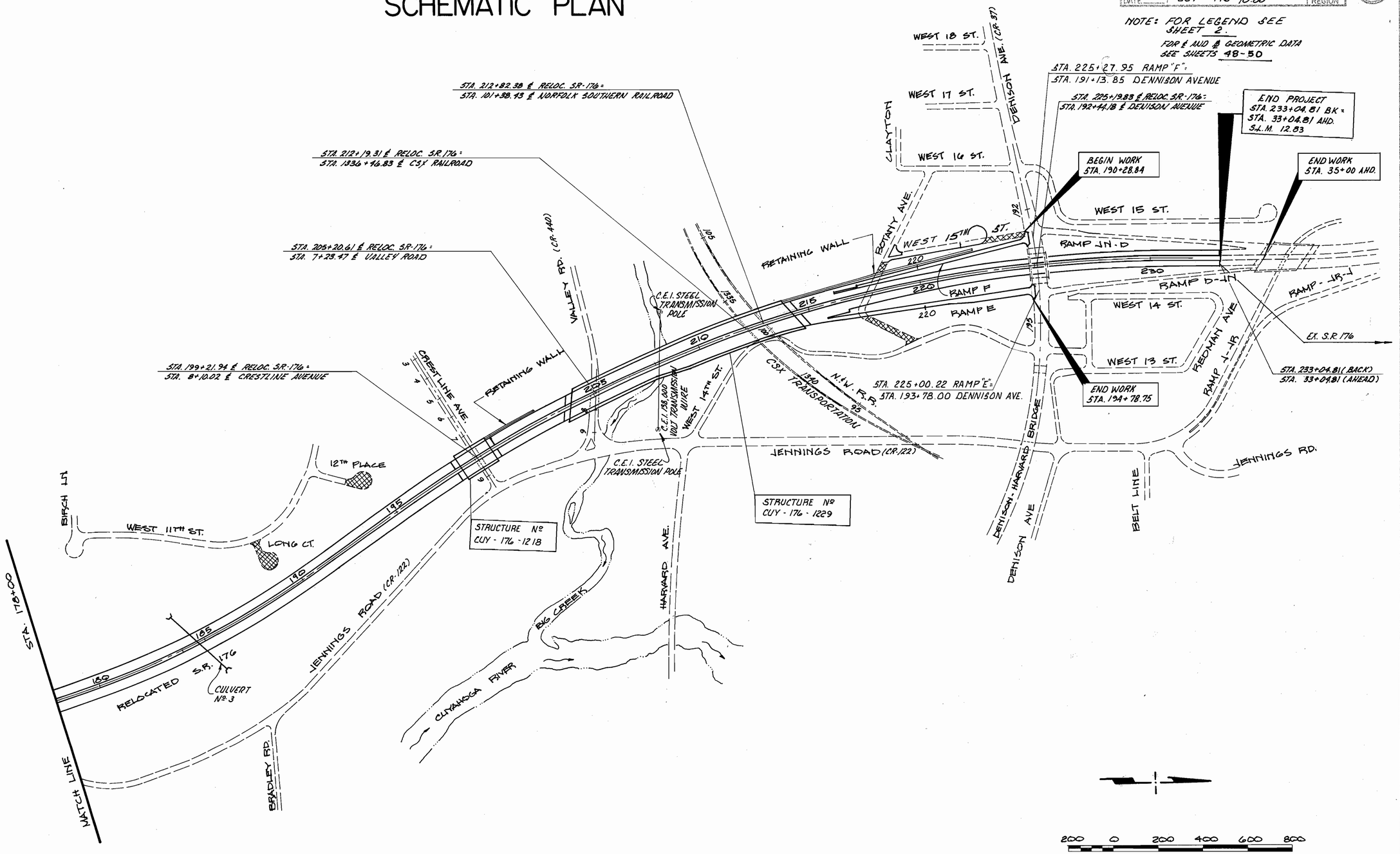
CALC. ____ DATE ____ CHKD. ____ DATE ____	CUYAHOGA COUNTY CUY - 176 - 10.88	OHIO F.H.W.A. REGION 5

3 / 557

SCHEMATIC PLAN

NOTE: FOR LEGEND SEE SHEET 2.

FOR ℄ AND ⅊ GEOMETRIC DATA SEE SHEETS 48-50

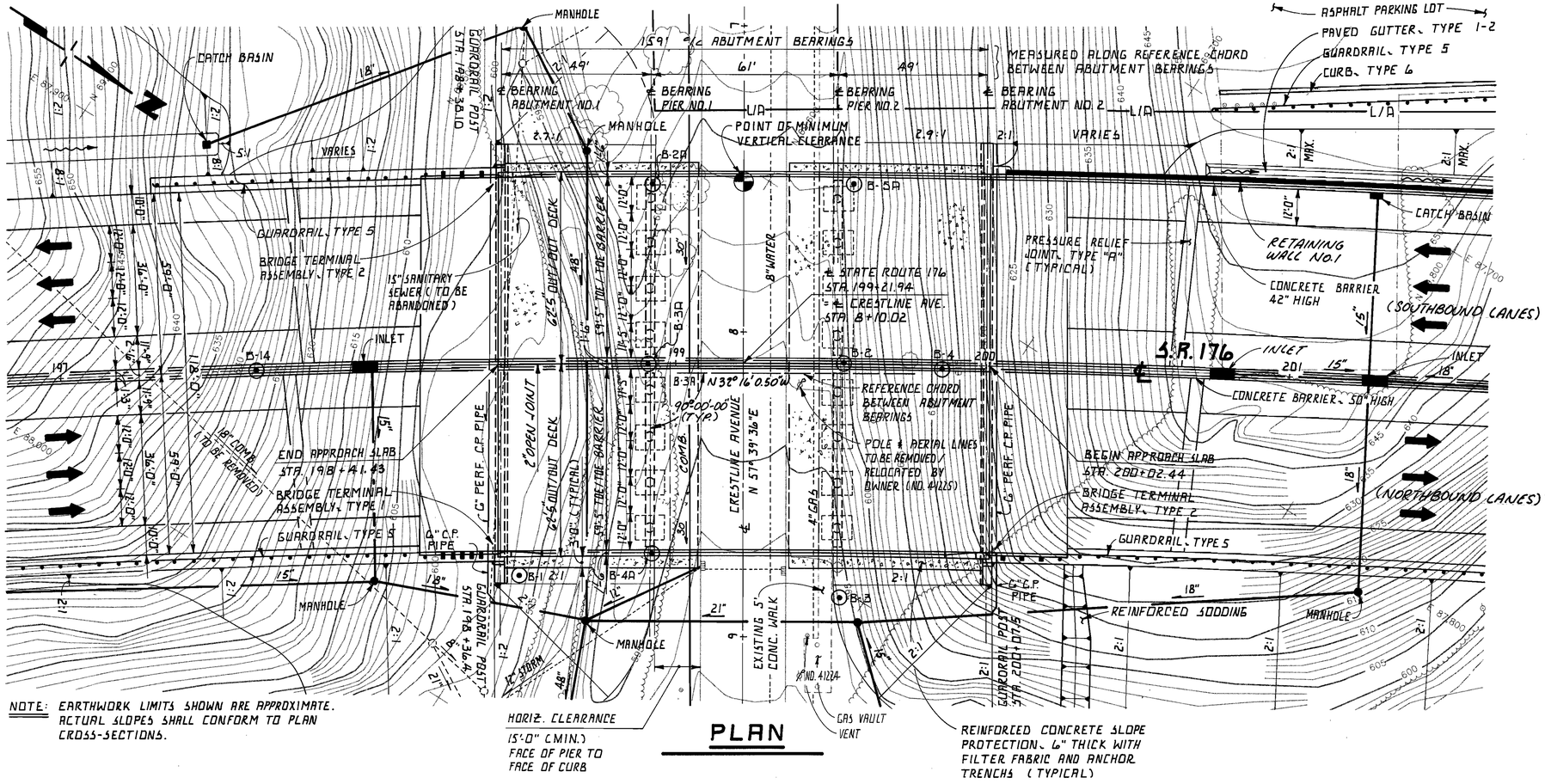


RELOC. S.R.-176

SCHEMATIC PLAN

CALC.	CUYAHOGA COUNTY	OHIO
DATE	CUY-176-10.88	F.H.W.A.
CHKD.	JENNINGS FREEWAY	REGION 5
DATE		

453
557



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

HORIZ. CLEARANCE
15'-0" (MIN.)
FACE OF PIER TO FACE OF CURB

PLAN

PROPOSED STRUCTURE

TYPE: CONTINUOUS NON-COMPOSITE, A-572 PAINTED STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE WITH INTEGRAL ABUTMENTS.

SPANS: 49', 61', 49' ℄/℄ BEARINGS

WIDTH: TWO (2) @ 59'-5" TOE/TOE BARRIER
TWO (2) @ 62'-5" OUT/OUT DECK

LOADING: HS20-44 (CASE I) AND THE ALTERNATE MILITARY LOADING

SKEW: NONE (TO REFERENCE CHORD)

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: AS-1-81, AS PER PLAN (25'-0" LONG)

ALIGNMENT: CURVE RIGHT (D_C = 1° 01' 00")

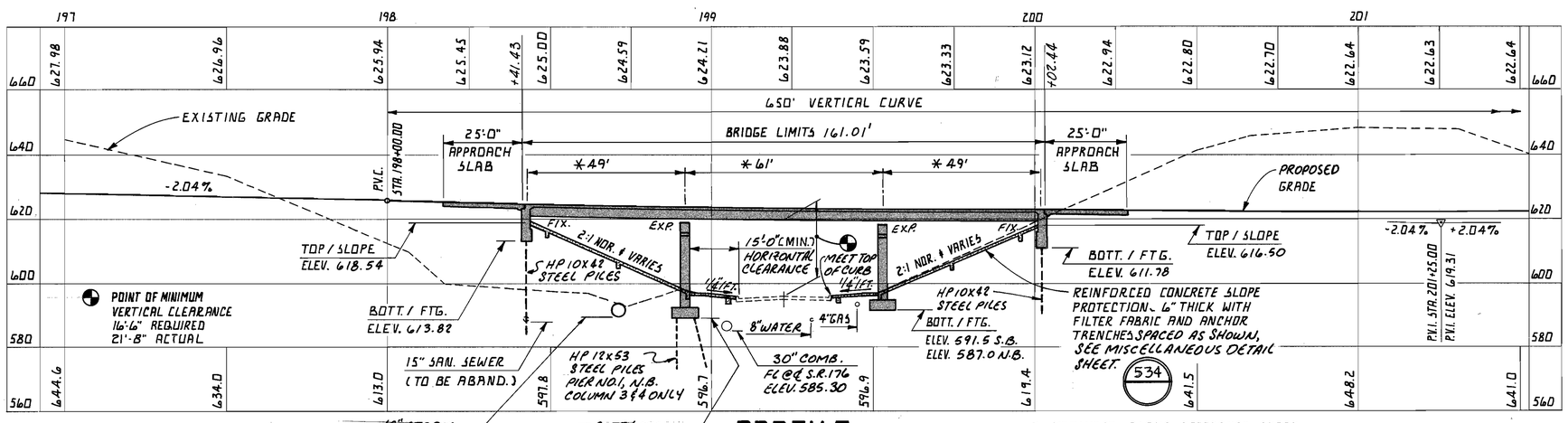
SUPERELEVATION: 0.027 FT./FT.

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

TRAFFIC:

AVERAGE DAILY TRAFFIC (2013) = 26,400 SOUTHBOUND
26,600 NORTHBOUND

AVERAGE DAILY TRUCK TRAFFIC (2013) = 2,640 SOUTHBOUND
2,660 NORTHBOUND



PROFILE

ALONG ℄ STATE ROUTE 176

* MEASURED ALONG REFERENCE CHORD BETWEEN ABUTMENT BEARINGS.

HORIZONTAL CURVE DATA:

℄ STATE ROUTE 176
P.I. STA. 213+68.89
P.C. STA. 196+20.32
P.T. STA. 230+11.30
Δ = 34° 28' 29.8"
D_C = 1° 01' 00"
R = 5635.65'
T = 1748.57'
L = 3390.98'
C = 3340.06'
E = 265.03'

ABBREVIATIONS

N.B. = NORTHBOUND LANES
S.B. = SOUTHBOUND LANES
C.P. = CORRUGATED PLASTIC

BENCH MARK:

TBM 75-TOP OF 3/4" I.P. 5' E. OF CH. LK. FENCE & 62' N. OF 24" ϕ COTTON TREE AT NO. 4029 JENNINGS RD. 15.31' E OF D.H. IN CONC. C.B. PAD. ELEV. = 592.971

⊙ INDICATES SOIL BORINGS LOCATION. SEE STRUCTURE FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION. NOTE: BORING NOS. B-1R THRU 5R WERE MADE IN JULY 1966 BORING NOS. B-1 THRU B-4 WERE MADE IN SEPTEMBER 1972.

1/12

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

SITE PLAN
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BRIDGE NO. CUY-176-1218
STA. 198+41.43 TO STA. 200+02.44
CUYAHOGA COUNTY OHIO

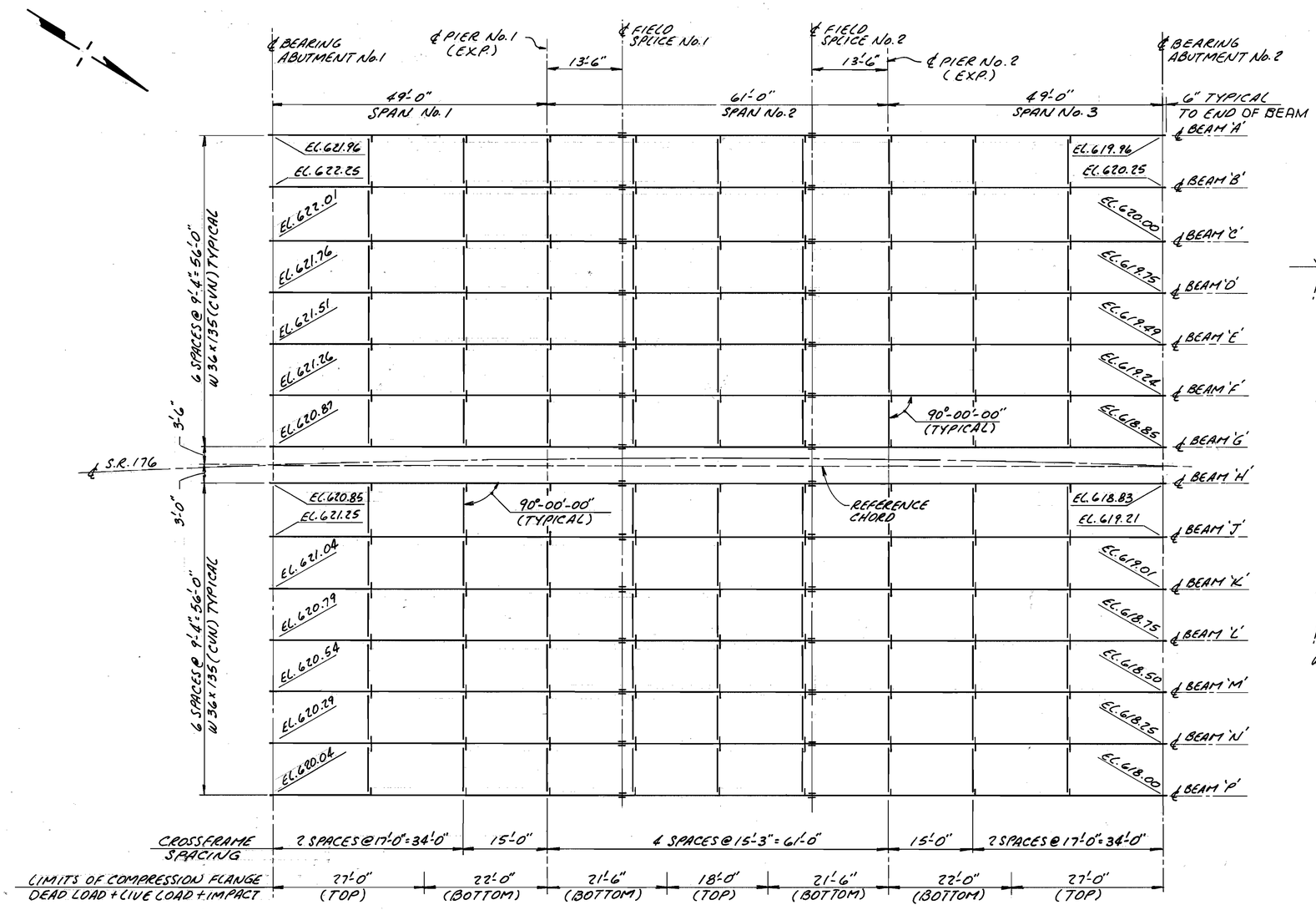
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	T.M.J.	T.A.B.	A.J.M.	MAR. 1992	

BRUNING 44-232 6719S-01

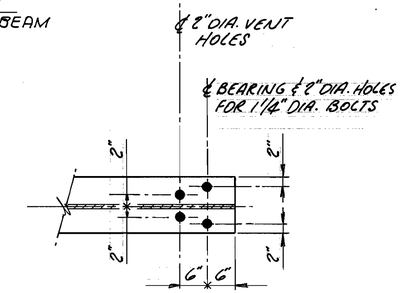
A·C·L form no. B-1

CALC.	CUYAHOGA COUNTY	OHIO
DATE	CUY-176-10.88	F.H.W.A.
CHKD.	JENNINGS FREEWAY	REGION 5
DATE		

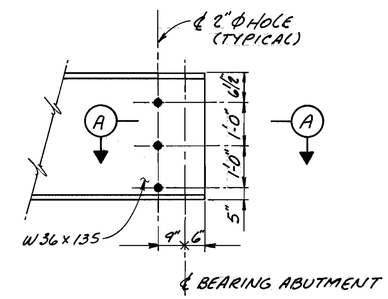
158 / 557



FRAMING PLAN



SECTION A-A



TYPICAL BEAM END ELEVATION

NOTES:

1.) +++/ INDICATES BOTTOM OF BEAM ELEVATION @ ℄ BEARING.

2.) REFER TO STD. DWG. ICD-1-82 FOR ADDITIONAL DETAILS.

3.) FOR CROSSFRAME DETAILS SEE SHEET 9/12

4.) WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.

6/12

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

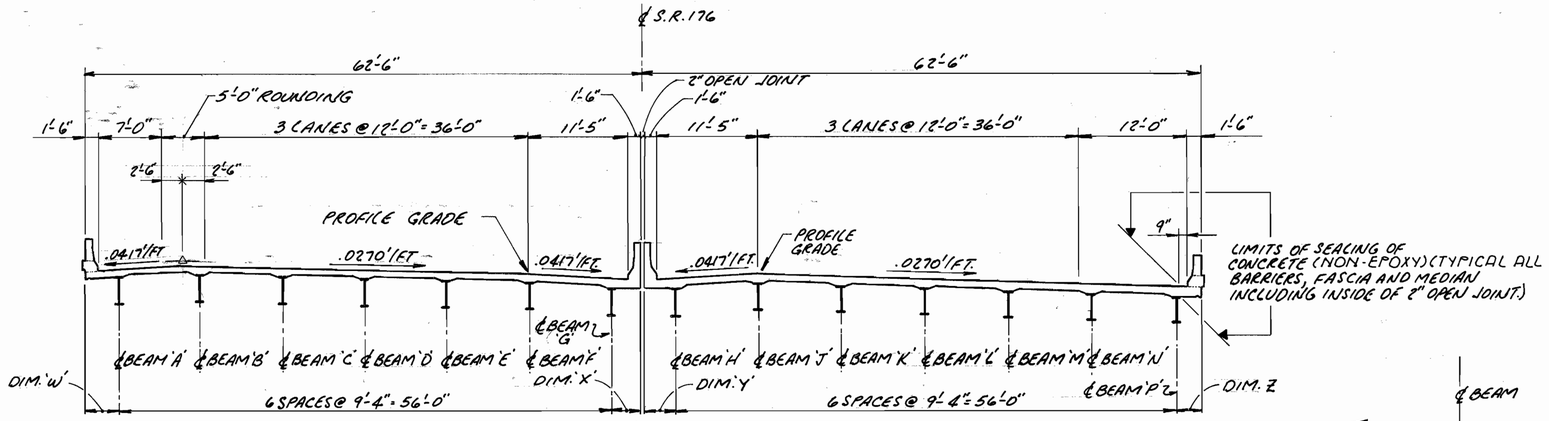
FRAMING PLAN
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BRIDGE NO. CUY-176-1218

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	D.S.C.	T.A.B.	C.T.	8/93	

BRUNING 44-232 67195

A·C·L form no. B-1

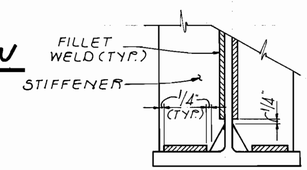
CALC. ____ DATE ____	CUYAHOGA COUNTY CUY-176-10.88 JENNINGS FREEWAY	OHIO F.H.W.A. REGION 5	461 / 557
CHKD. ____ DATE ____			



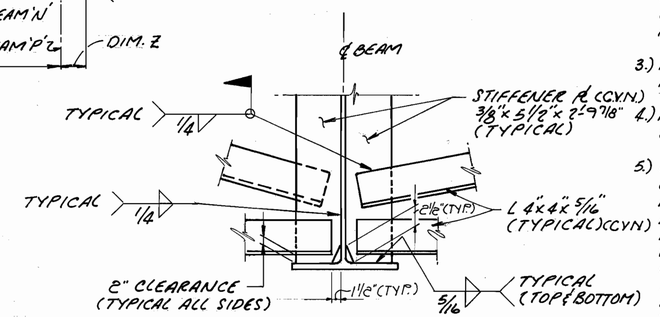
TRANSVERSE SECTION

SLAB OFFSETS *				
LOCATION	DIM. 'W'	DIM. 'X'	DIM. 'Y'	DIM. Z
℄ BRG. ABUT. No.1	3'-0 1/8"	3'-5"	2'-11"	3'-6 1/8"
STA. 198+50	3'-1 1/8"	3'-3 3/4"	3'-0 1/4"	3'-3 3/4"
STA. 198+75	3'-4 3/8"	3'-0 5/8"	3'-3 3/8"	3'-1 5/8"
℄ BRG. PIER No.1	3'-5 3/4"	2'-11 1/4"	3'-4 3/4"	3'-0 1/4"
STA. 199+00	3'-6 1/4"	2'-10 3/4"	3'-5 1/4"	2'-11 3/4"
STA. 199+25	3'-6 3/4"	2'-10 1/4"	3'-5 3/4"	2'-11 1/4"
℄ BRG. PIER No.2	3'-5 3/4"	2'-11 1/4"	3'-4 3/4"	3'-0 1/4"
STA. 199+75	3'-3 3/4"	3'-1 1/4"	3'-2 3/4"	3'-2 1/4"
℄ BRG. ABUT. No.2	3'-0 1/8"	3'-5"	2'-11"	3'-6 1/8"

* DIMENSIONS NORMAL TO ADJACENT BEAM



WELD TERMINATION DETAIL



CROSSFRAME CONNECTION DETAIL

NOTES:

1.) THE DIMENSION FROM THE TOP OF DECK SLAB TO THE TOP OF STEEL BEAM IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP OF FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFIGURATION REQUIRED TO PLACE IT PARALLEL TO FINISH GRADE.

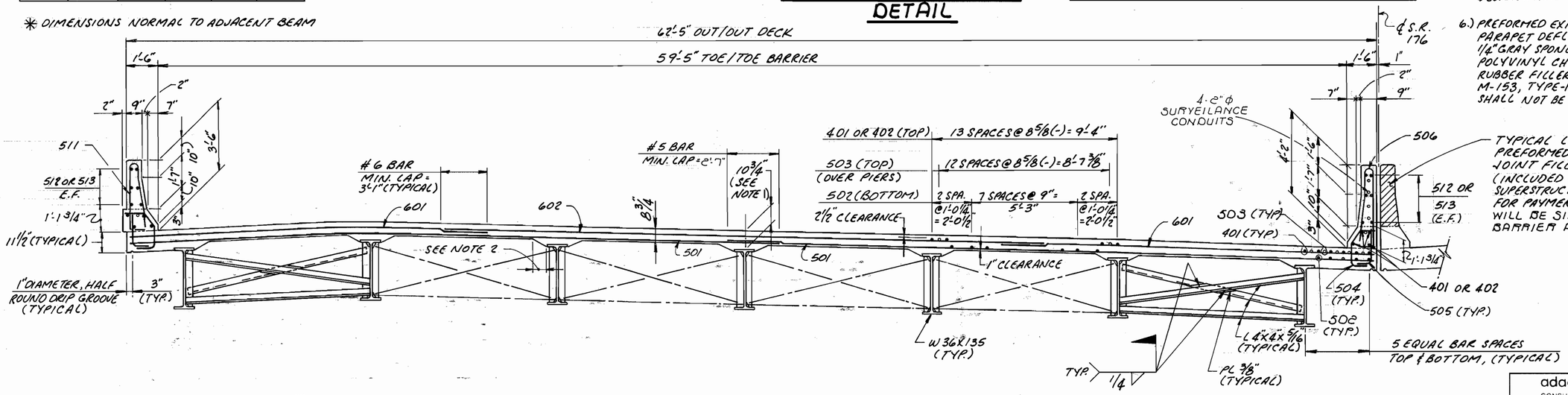
2.) A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING THE QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" & 12" (PROVIDED THAT THE SLOPE SHALL NOT BE MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDE.)

3.) DRIP GROOVES SHALL TERMINATE 2'-0" FROM FACE OF ABUTMENT.

4.) ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE SHALL BE PREFIXED "S".

5.) WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA BEAM FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM THE EDGE OF FLANGE, BE NOT MORE THAN 2" LONG AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY THE "AMERICAN WELDING SOCIETY." FOR FLANGE DESIGNATION SEE SHEET 6/12

6.) PREFORMED EXPANSION JOINT FILLER IN THE PARAPET DEFLECTION JOINTS MAY BE EITHER 1/4" GRAY SPONGE RUBBER OR 1/4" GRAY 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.



TYPICAL LIMITS OF 1/4" PREFORMED EXPANSION JOINT FILLER (SEE NOTE 6) (INCLUDED WITH ITEM 511, SUPERSTRUCTURE CONCRETE, FOR PAYMENT.) (THE P.E.J.F. DETAIL WILL BE SIMILAR FOR THE 42" HIGH BARRIER ALSO.)

TRANSVERSE SECTION

SOUTHBOUND LANE SHOWN
NORTHBOUND LANE SIMILAR

9/12

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

TRANSVERSE SECTION
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BRIDGE NO. CUY-176-1218

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	D.S.C.	T.A.B.	C.T.	8/93	

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