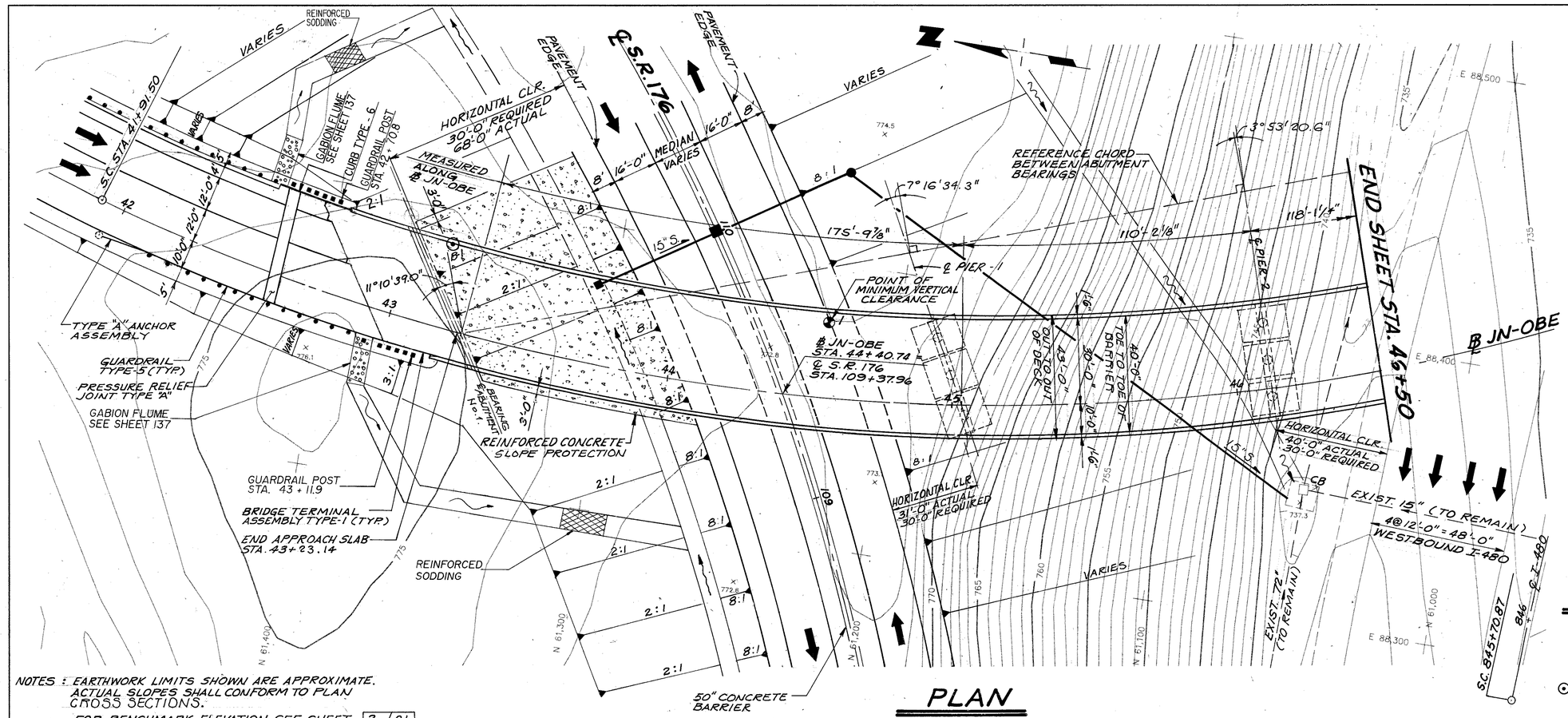
CALC. ____ DATE ____ CHKD. ____ DATE ____	CUYAHOGA COUNTY CUY-176-10.14 JENNINGS FREEWAY	OHIO F.H.W.A. REGION 5



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

FOR BENCHMARK ELEVATION SEE SHEET 2 / 21

PLAN

PROPOSED STRUCTURE

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

SPANS : 175'-9⅞", 110'-2⅛", 118'-1¼", 109'-10¾", 155'-0" C/C BEARINGS ALONG ℄ JN-OBE

WIDTH : 40'-0" TOE TO TOE BARRIER
43'-0" OUT TO OUT DECK

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

WEARING SURFACE : MONOLITHIC CONCRETE

SKEW : VARIES, AS SHOWN TO REFERENCE CHORD

APPROACH SLAB : AS-1-81, AS PER PLAN
30' LONG

ALIGNMENT : CURVE LEFT (D_c = 8° 01' 07")

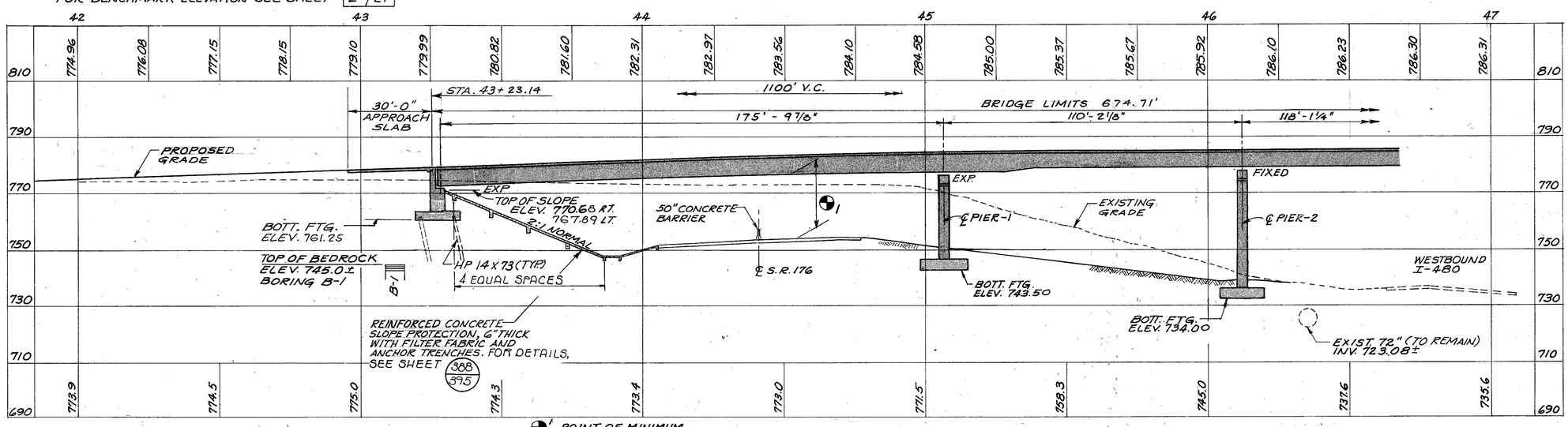
SUPERELEVATION : 0.059 FT/FT.

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

FOUNDATION DATA

ALL PIER FOOTINGS SHALL BE SPREAD FOOTINGS FOUNDED ON BEDROCK. ABUTMENTS SHALL BE SUPPORTD BY HP 14 X 73 STEEL PILES, AVERAGE ESTIMATED PAY LENGTH IS 20 LINEAL FEET. FOR EACH ABUTMENT.

⊙ - INDICATES SOIL BORING LOCATION. SEE STRUCTURAL FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION.



1 POINT OF MINIMUM VERTICAL CLEARANCE REQUIRED 16'-6" ACTUAL 21'-7⅝"

PROFILE

ALONG ℄ JN-OBE

℄ JN-OBE HORIZONTAL CURVE DATA

P.I. STA.	47+87.18
S.C. STA.	41+91.50
C.S. STA.	51+84.60
Δ	= 79° 38' 00" LT
D_c	= 8° 01' 07"
R	= 714.529'
T	= 595.675'
L	= 993.097'
C	= 915.073'
E	= 215.729'

VERTICAL CURVE DATA

G_1	= +5.32%
G_2	= −5.00%
L	= 1100'
P.V.I. ELEV.	800.49
P.V.I. STA.	46+75
P.V.C. STA.	41+25
P.V.T. STA.	52+25

TRAFFIC DATA

AVERAGE DAILY TRAFFIC (2013) = 10,380
AVERAGE DAILY TRUCK TRAFFIC (2013) = 1038

1 / 21

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

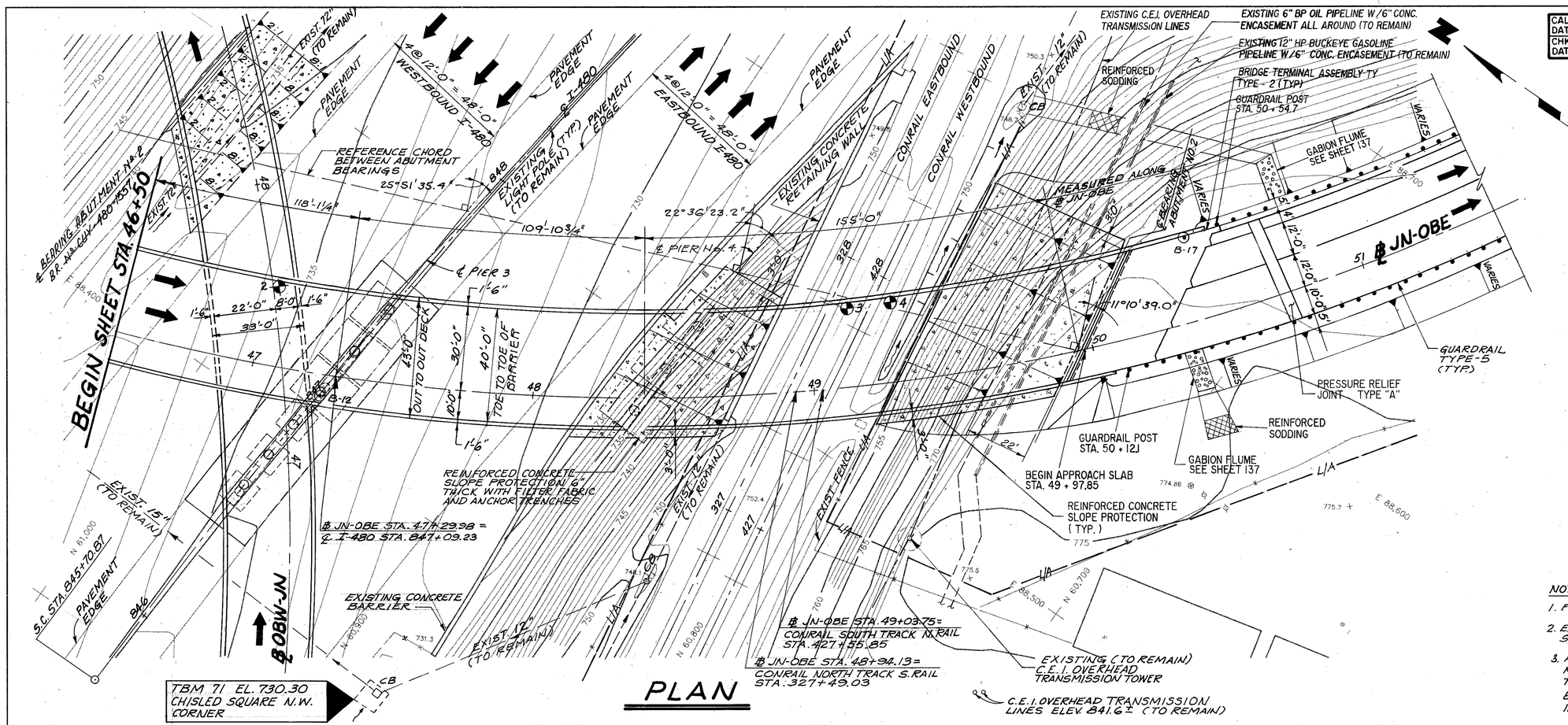
SITE PLAN
JENNINGS FREEWAY
I-480, CONRAIL, STATE ROUTE 176 & LANE OBW-JN UNDER LANE JN-OBE
BRIDGE NO. CUY-480-1559
STA. 43+23.14 TO STA. 49+97.85
CUYAHOGA COUNTY OHIO

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

BRUNING 44.232.6195.01

A·C·L form no. B-1

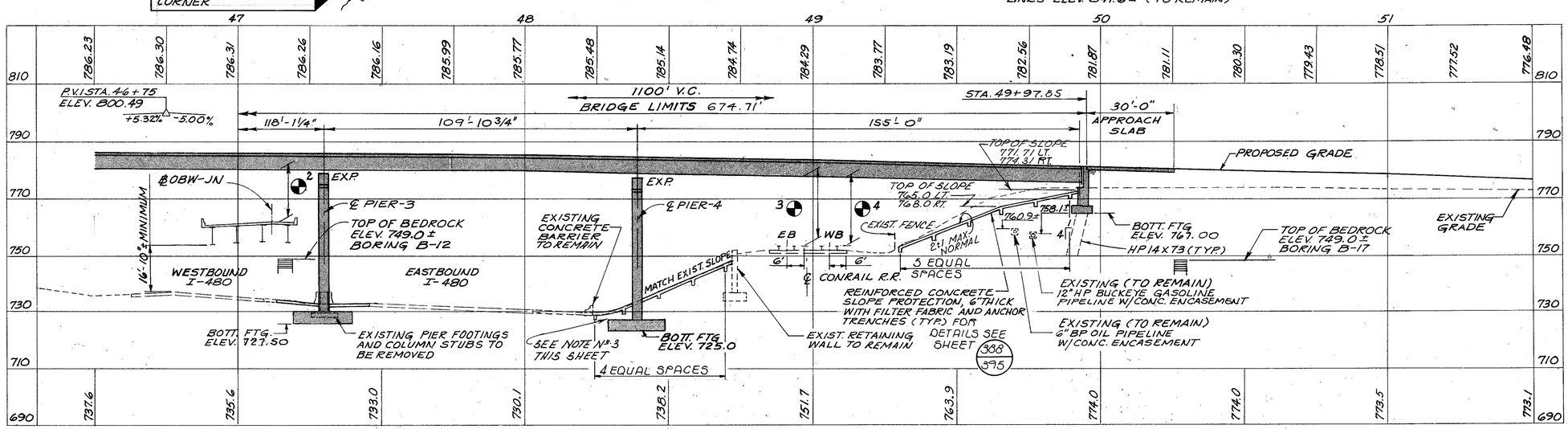
CALC. ____ DATE ____ CHKD. ____ DATE ____	CUYAHOGA COUNTY CUY - 176 - 10.14 JENNINGS FREEWAY	OHIO F.H.W.A. REGION 5



PLAN

NOTES

1. FOR PROPOSED STRUCTURE BLOCK SEE SHEET 1/21
2. EARTHWORK LIMITS SHOWN ARE APPROXIMATE, ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
3. AT PIER No. 4 SLOPE, REGRADE THE SURFACE TO MAINTAIN MINIMUM OF 1 FOOT COVER OVER THE PIER FOOTING, MATCH EXISTING SLOPE ELSEWHERE. ALL COST TO REGRADE SHALL BE INCLUDED WITH ITEM 503 FOR PAYMENT



2 POINT OF MINIMUM VERTICAL CLEARANCE REQUIRED 16'-6" ACTUAL 17'-3¾"

3 POINT OF MINIMUM VERTICAL CLEARANCE REQUIRED 23'-0" ACTUAL 23'-5¾"

4 POINT OF MINIMUM VERTICAL CLEARANCE REQUIRED 23'-0" ACTUAL 23'-2 1/2"

PROFILE

ALONG ℄ JN-OBE

2/21

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

SITE PLAN
JENNINGS FREEWAY
I-480, CONRAIL, STATE ROUTE 176 & LANE OBW-JN UNDER LANE JN-OBE
BRIDGE NO. CUY-480-1559
STA. 43+23.14 TO STA. 49+97.85
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

STRUCTURAL GENERAL NOTES

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81	DATED 11-27-81
SD-1-69	REVISED 6-12-69
EXJ-4-87	DATED 1-5-89

AND TO SUPPLEMENTAL SPECIFICATION(S)

910	DATED 6-1-91
944	DATED 5-13-91

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992 INCLUDING THE 1993 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA:

DESIGN LOADING:

DESIGN LOADING - HS20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING
FUTURE WEARING SURFACE = 30 LBS. PER SQUARE FT.

DESIGN STRESSES:

HIGH PERFORMANCE CONCRETE - COMPRESSIVE STRENGTH 4500 P.S.I.
REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI
SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL ASTM A572 - YIELD STRENGTH 50,000 PSI

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER AND
SEALING OF CONCRETE SURFACES

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES TO BE 1" THICK

UTILITY LINES:

ALL EXPENSE INVOLVED IN RELOCATING AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER. THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

FOOTINGS:

FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

PILE DRIVEN TO BEDROCK

PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS OBTAINED BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR REFUSAL SHALL BE CONSIDERED AS OBTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 76 TONS PER PILE.
SEE PILING PLAN ON SHEET 4/21

ITEM 203 EMBANKMENT, AS PER PLAN:

ALL FILL MATERIAL FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT BETWEEN STATIONS 42+00 TO 51+00 SHALL BE 203 GRANULAR MATERIAL PLACED IN LIFTS NOT TO EXCEED A THICKNESS OF MORE THAN SIX (6) INCHES. (SEE ROADWAY PLANS FOR QUANTITIES)

ITEM 507 HP 14 X 73 STEEL PILES, AS PER PLAN:

PILE HAMMER:
THE PILE HAMMER USED TO INSTALL THE HP 14X73 PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 18,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.5 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE WORK. REFER TO "ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

ITEM 507, STEEL POINTS, AS PER PLAN:

STEEL PILE POINTS SHALL BE USED TO PROTECT THE TIPS OF THE PROPOSED STEEL "H" PILING. THE STEEL POINTS SHALL BE FURNISHED BY ASSOCIATED PILE AND FITTING CORPORATION, 262 RUTHERFORD BLVD., CLIFTON, NEW JERSEY 07014; INTERNATIONAL CONSTRUCTION EQUIPMENT, INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28015; DOUGHERTY FOUNDATION PRODUCTS, INC., P.O. BOX 688, FRANKLIN LAKES, NEW JERSEY 07417; VERSA STEEL INC., 3601 N.W. YEON AVE. P.O. BOX 10559, PORTLAND, OREGON 97210 OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO THE DIRECTOR.

ITEM SPECIAL, SEALING OF CONCRETE SURFACE:

A NON-EPOXY CONCRETE SEALER SHALL BE APPLIED TO THE EDGE OF DECK SLAB AS SHOWN ON THE TRANSVERSE SECTION ON SHEET 15/21, TO THE ABUTMENTS AS SHOWN ON SHEET 6/21, AND ALL EXPOSED SURFACES OF THE PIER. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

FOUNDATION BEARING PRESSURE:

PIER FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 3.2 TONS PER SQUARE FEET. THE ALLOWABLE BEARING PRESSURE IS 5 TONS PER SQUARE FOOT.

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN:

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP.

ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN:

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP. THIS ITEM SHALL INCLUDE ALL ELBOWS, TEES AND END CAPS REQUIRED TO COMPLETE THE ABUTMENT DRAINAGE SYSTEM.

MECHANICAL CONNECTORS:

AN APPROVED TYPE MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED WHERE REQUIRED. INSTALLATION OF THE CONNECTORS SHALL CONFORM WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES. CONNECTORS SHALL BE EPOXY COATED AND THE COATING SHALL CONFORM TO THE SAME SPECIFICATIONS AS THE REINFORCING STEEL. COATINGS WHICH HAVE BEEN DAMAGED SHALL BE REPAIRED ACCORDING TO 709.00 OF THE CMS. CONNECTORS SHALL CONFORM WITH AND BE INCLUDED FOR PAYMENT WITH ITEM 509.

ITEM SPECIAL, PAINTING OF NEW STEEL, SYSTEM IZEU:

THE URETHANE FINISH COAT SHALL BE GRAY, FEDERAL STANDARD NO. FS-595A-16440

ESTIMATED QUANTITIES

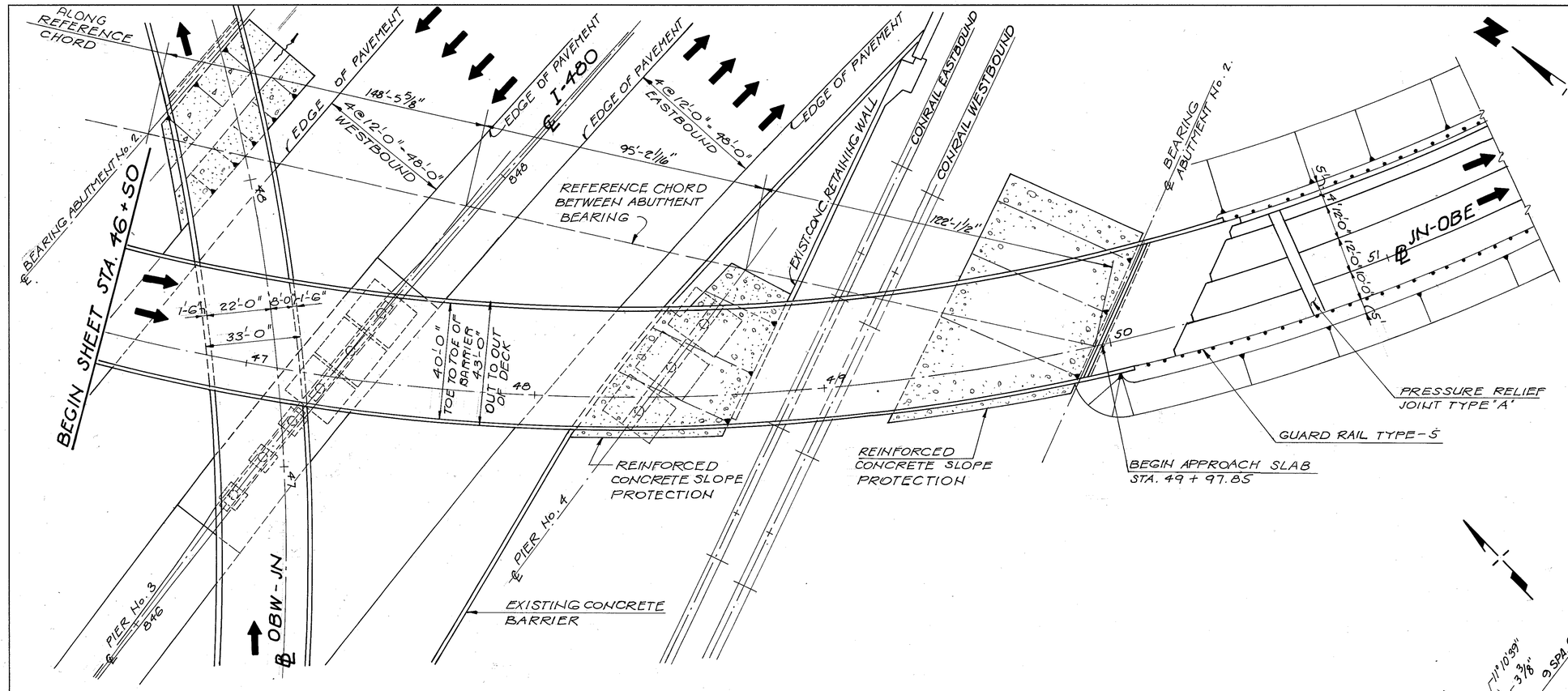
CALC. DATE T.J.W. 1/94
CHKD. DATE C.T. 3/94

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL	AS BUILT
202	11000	LUMP	LUMP	STRUCTURE REMOVED (EXISTING PIER FOOTINGS)		LUMP			
503	21102	1,527	CU.YD.	UNCLASSIFIED EXCAVATION, INCLUDING SHALE	653	874			
505	11100	LUMP	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP				
507	15501	1,200	LIN.FT.	STEEL PILES, HP 14 X 73, AS PER PLAN	1,200				
507	93301	60	EACH	STEEL POINT, AS PER PLAN	60				
509	15840	468,699	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60	37,320	170,973	260,406		
SPEC.	51148000	903	CU.YD.	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (DECK) *			903		
SPEC.	51148020	180	CU.YD.	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (PARAPET) *			180		
SPEC.	51148040	1,186	CU.YD.	HIGH PERFORMANCE CONCRETE (SUBSTRUCTURE) *	387	799			
SPEC.	51149000	LUMP	LUMP	HIGH PERFORMANCE CONCRETE (TRIAL MIX)	LUMP	LUMP	LUMP		
SPEC.	51267504	3,122	SQ.YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY) *	253	934	1,935		
513	12400	1,603,000	POUND	STRUCTURAL STEEL, A572-50 AISC CATEGORY III			1,603,000		
513	20000	3,399	EACH	WELDED STUD SHEAR CONNECTOR			3,399		
514	00610	1,603,000	POUND	PAINTING OF NEW STEEL, SYSTEM IZEU *			1,603,000		
516	11210	106	LIN.FT.	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL *			106		
516	45000	30	EACH	STEEL POT BEARING	10	20			
518	21200	91	CU.YD.	POROUS BACKFILL WITH FILTER FABRIC	91				
518	40001	145	LIN.FT.	6" PERFORATED CORRUGATED PLASTIC PIPE, 707.17, AS PER PLAN	145				
518	40011	72	LIN.FT.	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS 707.17, AS PER PLAN	72				
601	21001	1,474	SQ.YD.	CONCRETE SLOPE PROTECTION, AS PER PLAN	1,141	333			

* SEE PROPOSAL NOTE

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

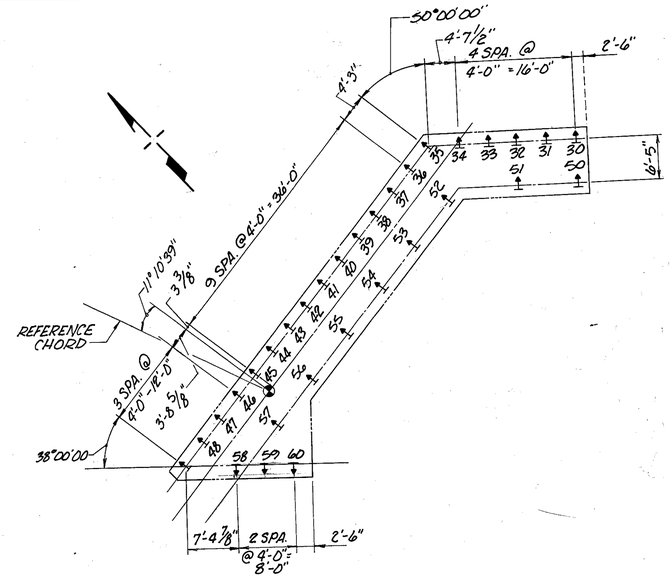
341 / 395



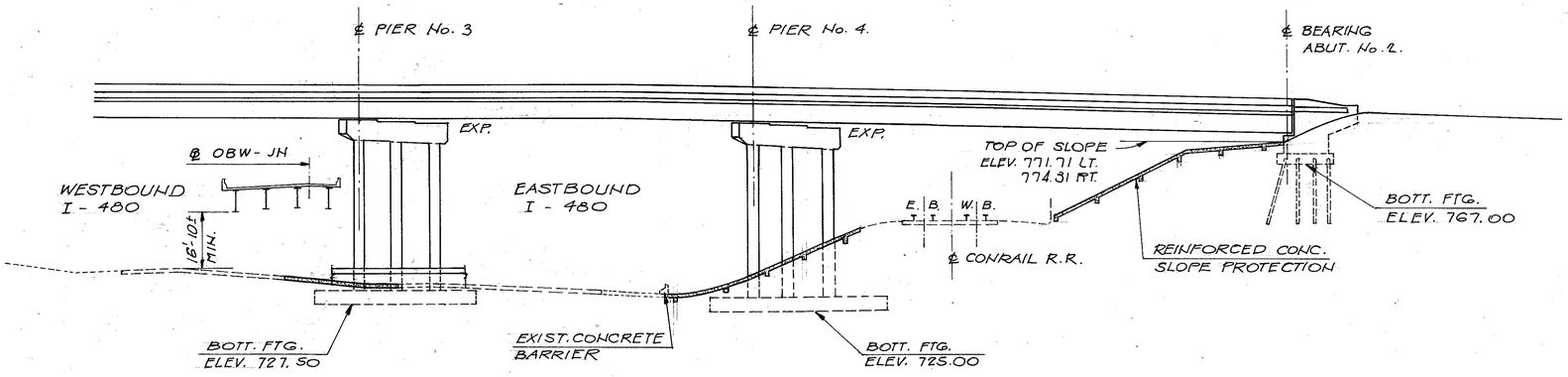
PLAN

NOTES

1. FOR SLOPE PROTECTION DETAILS SEE MISCELLANEOUS DETAILS SHT. 388/395
2. FOR STRUCTURAL GENERAL NOTES SEE SHT. 3/21
3. FOR PARAPET PANEL SPACING SEE SHT. 16/21



ABUTMENT NO. 2
PILE LOCATION PLAN
↦ - INDICATES 4:1 BATTER



ELEVATION

5/21

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

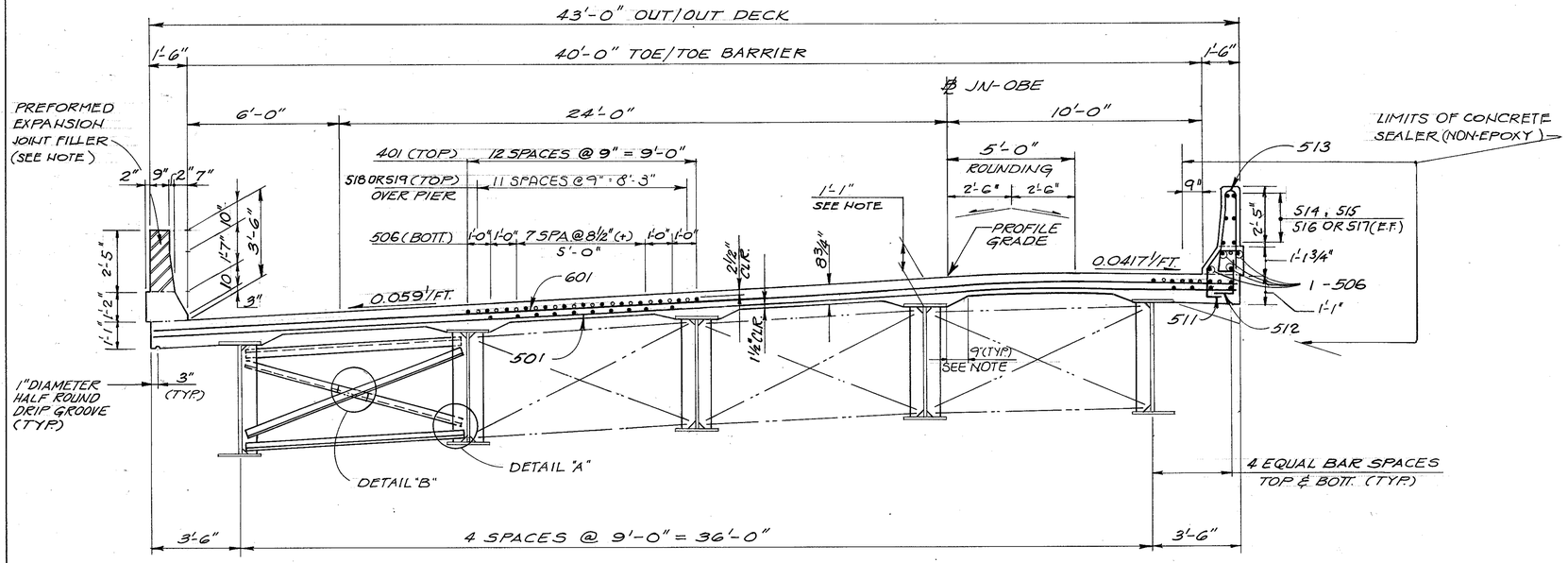
GENERAL PLAN & ELEVATION
JENNINGS FREEWAY
I-480, CONRAIL, STATE ROUTE 176 & LANE OBW-JN UNDER LANE JN-OBE
BRIDGE NO. CUY-480-1559

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	E.K.	T.J.W.	A.J.M.	1/94	

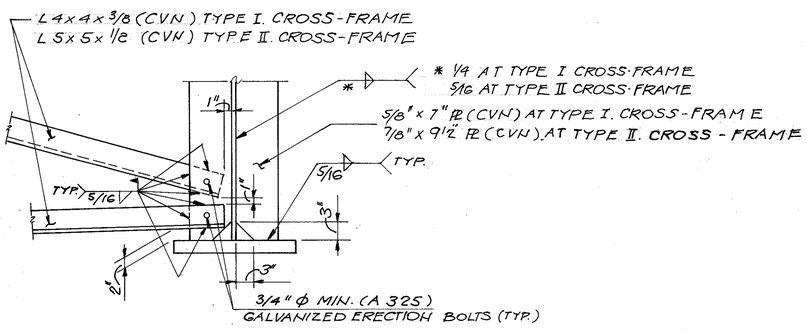
BRUNING 44.232 67195

A·C·L form no. B-1

CALC.	CUYAHOGA COUNTY	OHIO	351
DATE	CUY-176-10.14	F.H.W.A.	395
CHKD.	JENNINGS FREEWAY	REGION 5	
DATE			

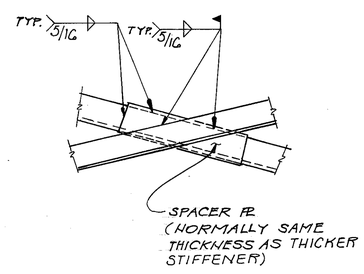


TRANSVERSE SECTION



DETAIL "A"

NOTE: THE DETAIL "A" SHOWN ABOVE APPLIES AT OTHER LOCATIONS ALSO.



DETAIL "B"

NOTES

1. FOR SLAB PLANS, SEE SHEETS 16/21 & 17/21
2. 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
3. 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.
4. DRIP GROOVES SHALL TERMINATE 2'-0" FROM FACE OF ABUTMENT.
5. PREFORMED EXPANSION JOINT FILLER IN THE PARAPET 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-I. 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.
6. ERECTION BOLTS: THE HOLE DIAMETER IN THE CROSS-FRAMES AND GIRDER STIFFENERS SHALL BE 3/16" LARGER THAN THE DIAMETER OF THE ERECTION BOLTS. ERECTION BOLTS SHALL REMAIN IN PLACE AND BE FURNISHED AS PART OF ITEM 513.
   IN LIEU OF ERECTION BOLTS AND AT THE OPTION OF THE CONTRACTOR, ALTERNATIVE MEANS OF TEMPORARY BRACING MAY BE USED SUBJECT TO THE APPROVAL OF THE DIRECTOR.

15/21

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

TRANSVERSE SECTION
JENNINGS FREEWAY
I-480, CONRAIL, STATE ROUTE 176 & LANE OBW-JN UNDER LANE JN-OBE

BRIDGE No. CUY-480-1559

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

BRUNING 44-232 67195

A-C-L form no. B-1

TRANSVERSE 1559