

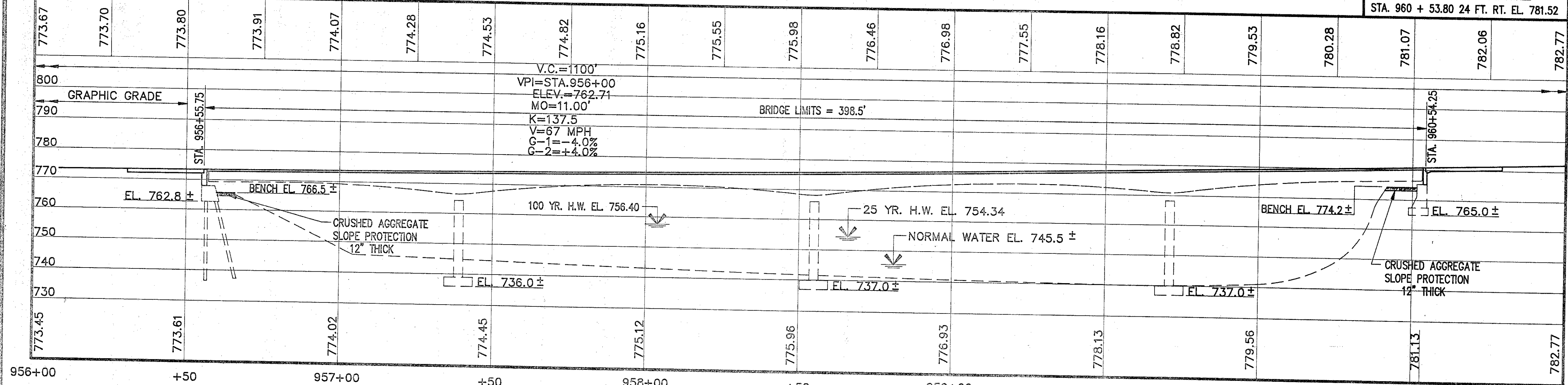
**PLAN**

**HYDRAULIC DATA**

DRAINAGE AREA 559 SQ. MILES  
 Q25 = 24,660 CFS; H.W.25 = 754.34; V25 = 6.5 FPS  
 Q100 = 32,350 CFS; H.W.100 = 756.40; V100 = 7.1 FPS

BENCH MARK  
 □ CUT N.E. CORNER OF S.E. WINGWALL  
 STA. 956 + 55.80 24 FT. RT. EL. 774.22

BENCH MARK  
 I.P. S.E. CORNER OF N.E. WINGWALL  
 STA. 960 + 53.80 24 FT. RT. EL. 781.52



**PROFILE ON C SR 534 & C ROADWAY**

\* TO BE REMOVED

**EXISTING STRUCTURE**  
 TYPE: CONTINUOUS HAUNCHED STEEL GIRDERS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.  
 SPANS: 80'-11" ±, 115'-11" ±, 116'-1" ±, 80'-10" ± C/C BRGS.  
 ROADWAY: 30'-0" ± F/F 3'-2" ± SAFETY CURB  
 LOAD FREQUENCY: CF=130(57)  
 SKEW: NONE  
 WEARING SURFACE: 3" ± ASPHALT CONCRETE  
 ALIGNMENT: TANGENT  
 APPROACH SLABS: AS-1-54 (25' LONG)  
 STRUCTURE FILE NUMBER: 0407089

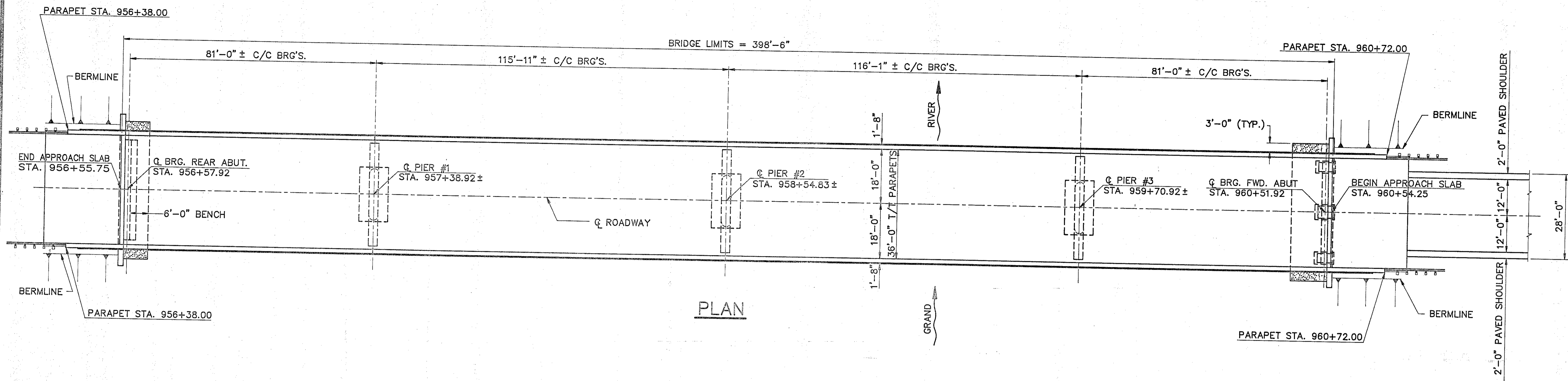
**PROPOSED STRUCTURE**  
 TYPE: CONTINUOUS HAUNCHED STEEL GIRDERS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.  
 SPANS: 81'-0" ±, 115'-11" ±, 116'-1" ±, 81'-0" ± C/C BRGS.  
 ROADWAY: 36'-0" TOE/TOE PARAPET  
 SKEW: NONE  
 DESIGN LOADING: HS20-44 AND ALTERNATE MILITARY LOADING (DECK ONLY)  
 APPROACH SLABS: AS-1-81 (25')  
 CROWN: 3/16" / FT.  
 WEARING SURFACE: MONOLITHIC CONCRETE  
 AVERAGE DAILY TRAFFIC: 3,200 (2010)  
 AVERAGE DAILY TRUCK TRAFFIC: 128 (2010)

MOSURE AND SYRAKIS CO.  
 YOUNGSTOWN, OHIO

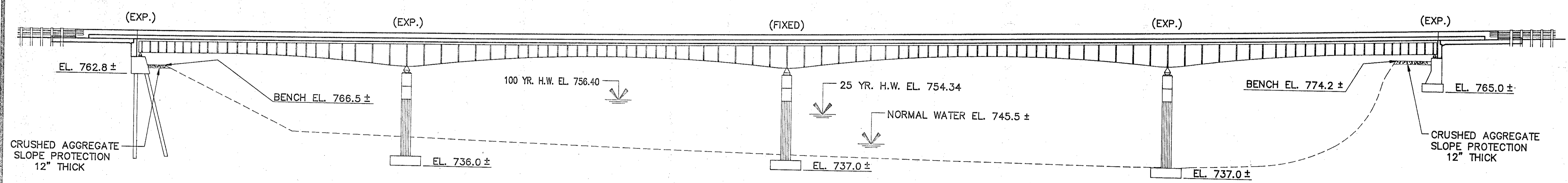
**SITE PLAN**  
 BRIDGE NO. ATB-534-1834  
 OVER  
 GRAND RIVER  
 ASHTABULA COUNTY, OHIO STA. 956+55.75  
 STA. 960+54.25

DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.		D.S.	T.F.M.
7-89	7-89		8-89	8-89

REVIEWED BY BURGESS & NIPLE, LTD.  
 J.C.S. 2-8-91



PLAN



ELEVATION

MOSURE AND SYRAKIS CO.  
YOUNGSTOWN, OHIO

GENERAL PLAN  
BRIDGE NO. ATB-534-1834  
OVER  
GRAND RIVER

ASHTABULA COUNTY, OHIO

STA. 956+55.75  
STA. 960+54.25

DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.	R.R.	D.S.	T.M.
6-90	6-90	6-90	6-90	7-90

2 / 12



**STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS**

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81	DATED	11/27/81
EXJ-4-87	DATED	1/05/89
RB-1-55	DATED	2/2/59
SD-1-69	DATED	6/12/69

AND SUPPLEMENTAL SPECIFICATIONS:

836	DATED	11/12/85
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**DESIGN SPECIFICATIONS**

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1989, INCLUDING THE 1990 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

**DESIGN LOADING**

DESIGN LOADING - HS-20-44 AND THE ALTERNATE MILITARY LOADING FOR THE DECK ONLY.

**DESIGN STRESSES**

CONCRETE CLASS S - COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)  
 CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)  
 REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60  
 MINIMUM - YIELD STRENGTH 60,000 P.S.I.  
 STRUCTURAL STEEL ASTM A-36 - YIELD STRENGTH 36,000 P.S.I.

**DECK PROTECTION METHOD**

EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MAT, AND SEALING OF CONCRETE SURFACES.

**MONOLITHIC WEARING SURFACE**

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

**PROPOSED WORK**

1. REMOVING PORTIONS OF EXISTING STRUCTURE AS PER PLAN.
2. EXCAVATING.
3. VERIFYING EXISTING STRUCTURE DETAILS AND DIMENSIONS.
4. REMOVING, REFURBISHING AND RESETTING EXISTING ROCKER BEARINGS AT ABUTMENTS.
5. ERECTING NEW STEEL END CROSSFRAMES AND JOINT ARMOR AT ABUTMENTS.
6. TRIMMING ENDS OF EXISTING STEEL GIRDERS.
7. CONSTRUCTING SUBSURFACE DRAINAGE AT ABUTMENTS.
8. PLACING CRUSHED AGGREGATE SLOPE PROTECTION.
9. CONSTRUCTING CONCRETE SLAB WITH DEFLECTOR PARAPETS ON EXISTING STEEL GIRDERS.
10. RECONSTRUCTING CONCRETE BACKWALL AND WINGWALLS AT ABUTMENTS.
11. BACKFILLING.
12. FIELD CLEANING AND PAINTING OF EXISTING AND NEW STRUCTURAL STEEL.
13. SEALING OF CONCRETE SURFACES.
14. DISPOSING OF WASTE MATERIALS.

**EXISTING STRUCTURE VERIFICATION**

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.02.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

**PORTIONS OF EXISTING STRUCTURE REMOVED**

ITEMS AND LIMITS OF REMOVAL OF EXISTING STRUCTURE ARE AS INDICATED ON SHEET [5/12] AND SHALL INCLUDE REMOVAL OF EXISTING END CROSSFRAMES AND JOINT ARMOR AT ABUTMENTS.

**REMOVALS OVER WATER**

REASONABLE CARE SHALL BE USED BY THE CONTRACTOR TO PREVENT REMOVED MATERIALS FROM FALLING INTO THE WATER. ANY DROPPED MATERIALS SHALL BE IMMEDIATELY RECOVERED AND DISPOSED OF AWAY FROM THE SITE EXCEPT FOR APPROVED MASONRY MATERIAL WHICH MAY BE USED AS BANK PROTECTION AS DIRECTED BY THE ENGINEER.

**CONCRETE REMOVAL**

CONCRETE REMOVAL SHALL BE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18-INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18-INCH LIMIT, A HAMMER HEAVIER THAN 35 POUNDS, BUT NOT TO EXCEED 85 POUNDS, MAY BE USED AT THE APPROVAL OF THE ENGINEER. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

**CONSTRUCTION JOINT PREPARATION**

SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. ALL REMOVAL SURFACES ARE TO BE ROUGH. AT LEAST 2'-4" LENGTH OF PROTRUDING REINFORCING STEEL SHALL BE LEFT IN PLACE. INSTALL DOWEL BARS AS SPECIFIED. PRIOR TO CONCRETE PLACEMENT, ABRASIVELY CLEAN JOINT SURFACE AND EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THEN, THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST, OR OTHER FOREIGN MATERIALS BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE RESULTS SATISFACTORY TO THE ENGINEER. THE CONCRETE BONDING SURFACE SHALL BE WET WITHOUT FREE WATER AS CONCRETE IS PLACED.

**REPLACEMENT OF EXISTING REINFORCING STEEL**

ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSABLE BY THE CONTRACTOR'S CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT HIS COST. ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW STEEL. AN ALLOWANCE OF 100 POUNDS IS INCLUDED IN ITEM 509 FOR THIS PURPOSE.

**INSPECTION OF STRUCTURAL STEEL**

THE ENGINEER SHALL BE GIVEN THE OPPORTUNITY TO VISUALLY INSPECT ALL EXISTING BUTT-WELDED TOP FLANGE SPLICES TO ENSURE THAT THEY ARE FREE OF DEFECTS. THE DECK SLAB HAUNCH FORMS IMMEDIATELY ADJACENT TO SUCH WELDS SHALL NOT BE ERECTED UNTIL AFTER THE ENGINEER HAS COMPLETED THIS INSPECTION. THIS INSPECTION SHALL NOT TAKE PLACE UNTIL AFTER THE TOP FLANGES ARE CLEANED AS SPECIFIED IN 511.08, BUT IT SHALL BE DONE BEFORE THE DECK SLAB REINFORCEMENT IS INSTALLED. THE COST ASSOCIATED WITH THIS INSPECTION SHALL BE INCLUDED WITH ITEM 511, SUPERSTRUCTURE CONCRETE FOR PAYMENT.

**TEMPORARY SUPPORTS**

WHEN RAISING OR LOWERING THE SUPERSTRUCTURE AT A SUPPORT (PIER OR ABUTMENT), ALL BEAMS AT THE SUPPORT SHALL BE MOVED UNIFORMLY AND SIMULTANEOUSLY. DIFFERENTIAL MOVEMENT OF THE SUPERSTRUCTURE AT ONE SUPPORT RELATIVE TO OTHER ADJACENT SUPPORTS SHALL BE LIMITED TO AN AMOUNT THAT WILL NOT OVERSTRESS THE BEAMS OR OTHERWISE DAMAGE THE STRUCTURE.

PLANS FOR TEMPORARY STRUCTURE SUPPORTS, A JACKING PROCEDURE AND A SUMMARY OF THE INDUCED STRESSES SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL AT LEAST 2 WEEKS PRIOR TO ANY JACKING OPERATIONS.

CALC. BY		ATB-534-18.34	OHIO	12 21
DATE		ASHTABULA COUNTY	FHWA REGION 5	
CHKD. BY				
DATE				
FEDERAL PROJECT		STATE PROJECT		

**ITEM 513. STRUCTURAL STEEL (MISC. AND CASTINGS), AS PER PLAN**

STRUCTURAL STEEL UNDER THIS ITEM WILL NOT REQUIRE SHOP DRAWINGS PRIOR TO FABRICATION. THE CONTRACTOR SHALL MAKE NECESSARY MEASUREMENTS AND PREPARE SKETCHES, DRAWINGS TABLES, ETC. THE ENGINEER SHALL HAVE AUTHORITY AND RESPONSIBILITY FOR ENSURING THAT THE FABRICATED STEEL IS ACCEPTABLE. TECHNICAL ASSISTANCE WILL BE PROVIDED ON REQUEST BY THE BUREAU OF BRIDGES. MILL TEST REPORTS AND SHIPPING DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INCORPORATING STEEL ITEMS INTO THE WORK, AS REQUESTED BY 501.07. AFTER FABRICATION THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL TO ENSURE THAT THE DRAWINGS DEPICT THE STEEL ACTUALLY INCORPORATED INTO THE WORK. THE ENGINEER SHALL SEND ONE APPROVED SET TO THE BUREAU OF BRIDGES FOR INFORMATION. PAY WEIGHTS SHALL BE COMPUTED IN COMPLIANCE WITH 513 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS AND SUBMITTED TO THE ENGINEER FOR HIS REVIEW AND APPROVAL. THE FABRICATOR SHALL FURNISH A 35 MILLIMETER MICROFILM COPY OF EACH SHOP DRAWING, WHICH SHALL BE MOUNTED ON AN APERTURE CARD AS SPECIFIED IN 501.05.

**WELDED ATTACHMENT**

WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA GIRDER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM THE EDGE OF FLANGE, BUT NOT MORE THAN 2" LONG, AND NOT BE SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

**STRUCTURAL STEEL**

NEW STEEL SHALL BE CLEANED AND IT SHALL BE PRIME PAINTED IN THE FIELD. AT THE CONTRACTOR'S OPTION, NEW STEEL MAY BE GIVEN A PRELIMINARY CLEANING IN THE SHOP. THE COST OF THE CLEANING AND PRIME PAINTING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE SPECIAL ITEM "FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM OZEU."

**FIELD PAINTING OF NEW STRUCTURAL STEEL**

NEW STEEL SHALL BE PROVIDED BARE FOR PREPARATION AND PAINTING IN THE FIELD. FOR PURPOSES OF FIELD PAINTING, NEWLY ERECTED STEEL SHALL BE CONSIDERED EXISTING STEEL AND SHALL BE PREPARED AND PAINTED WITH A PRIME, INTERMEDIATE AND FINISH COAT OF PAINT IN CONFORMANCE WITH THE PROPOSAL NOTE "FIELD PAINTING OF EXISTING STEEL, SYSTEM OZEU." COST OF CLEANING AND PAINTING OF NEW STEEL WITH THE OZEU PAINT SYSTEM SHALL BE INCLUDED IN A SINGLE SPECIAL ITEM "FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM OZEU." AT THE CONTRACTOR'S OPTION, NEW STEEL MAY BE GIVEN A PRELIMINARY CLEANING IN THE SHOP.

3/12				
MOSURE AND SYRAKIS CO. YOUNGSTOWN, OHIO				
GENERAL NOTES BRIDGE NO. ATB-534-1834 OVER GRAND RIVER				
STA. 956+55.75 STA. 960+54.25				
ASHTABULA COUNTY, OHIO				
DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.	R.R.	D.S.	T.M.
6-90	6-90	6-90	7-90	7-90



**POROUS BACKFILL**

POROUS BACKFILL 1'-6" THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND Laterally TO THE ENDS OF THE WINGWALLS. GEOTEXTILE FABRIC SHALL CONFORM WITH 712.09, TYPE A, AND BE INCLUDED WITH POROUS BACKFILL FOR PAYMENT.

**SEALING OF CONCRETE SURFACES**

THE EXPOSED PORTIONS OF ABUTMENTS SHALL RECEIVE A PROTECTIVE COATING OF EPOXY SEALER, AS INDICATED ON SHEETS [6/12] AND [7/12], ON THE FRONT FACE OF ABUTMENT BACKWALLS FROM TOP TO BRIDGE SEAT, BRIDGE SEAT AND BREASTWALL DOWN TO GROUNDLINE; AND THE ENTIRE FRONT FACE, TOP AND BACKFACE ABOVE THE GROUNDLINE OF WINGWALLS.

THE CONCRETE DECK SHALL HAVE 9 INCHES ON TOP, BRIDGE RAILING, FASCIA, AND 6 INCHES UNDER THE DECK COATED WITH SEALER, AS INDICATED ON SHEET [8/12].

**RESETTING EXISTING ROCKER BEARINGS**

THE EXISTING BEARINGS SHALL BE REFURBISHED AND RESET AFTER THE EXISTING DECK AND END DAM HAVE BEEN REMOVED AND PRIOR TO PLACEMENT OF THE NEW DECK INCLUDING FORMWORK AND REINFORCING STEEL.

REAR ABUTMENT BEARINGS SHALL BE RESET BY RELOCATING THE BASE PLATE SO THAT THE ROCKER IS VERTICAL AT 60° F.

FORWARD ABUTMENT BEARINGS SHALL BE RESET BY REPOSITIONING THE SOLE PLATE ATTACHED TO THE BOTTOM FLANGE OF THE GIRDER AND RELOCATING THE BASE PLATE AS INDICATED ON SHEET [9/12] SO THAT THE ROCKER IS VERTICAL AT 60° F.

**ESTIMATED QUANTITIES**

CALC. \_R.R.\_ DATE 7-90 CHK. \_G.K.\_ DATE 11-90

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPERST.	ABUT.	PIER	GENERAL
202	11202	LUMP	SUM	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN				LUMP SUM
509	15800	136,055	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60	132,331	3,624		100
511	31500	578	CU YD	CLASS S CONCRETE, SUPERSTRUCTURE (ON BEAMS OR GIRDERS)	578			
511	45700	36	CU YD	CLASS C CONCRETE, ABUTMENT (REPAIR OR RECONSTRUCT)		36		
SPECIAL	51267500	782	SQ YD	SEALING OF CONCRETE SURFACE (SEE PROPOSAL NOTE)	782			
SPECIAL	51267502	93	SQ YD	SEALING OF CONCRETE SURFACE (EPOXY) (SEE PROPOSAL NOTE)		93		
513	15501	1,311	POUND	STRUCTURAL STEEL (MISC. AND CASTINGS), AS PER PLAN (SEE PROPOSAL NOTE)	1,311			
513	21000	4	EACH	TRIMMING OF BEAM END	4			
SPECIAL	51400100	LUMP	SUM	FIELD PAINTING OF EXISTING STEEL, SURFACE PREPARATION, SYSTEM OZEU (SEE PROPOSAL NOTE)	LUMP SUM			
SPECIAL	51400200	LUMP	SUM	FIELD PAINTING OF EXISTING STEEL, PRIME COAT, SYSTEM OZEU (SEE PROPOSAL NOTE)	LUMP SUM			
SPECIAL	51400300	LUMP	SUM	FIELD PAINTING OF EXISTING STEEL, INTERMEDIATE COAT, SYSTEM OZEU (SEE PROPOSAL NOTE)	LUMP SUM			
SPECIAL	51400400	LUMP	SUM	FIELD PAINTING OF EXISTING STEEL, FINISH COAT, SYSTEM OZEU (SEE PROPOSAL NOTE)	LUMP SUM			
SPECIAL	51400700	1311	POUND	FIELD PAINTING OF NEW STEEL, SYSTEM OZEU	1,311			
SPECIAL	51426000	LUMP	SUM	CONTAIN, COLLECT, STORE AND EVALUATE ABRASIVES AND PAINT CHIPS (SEE PROPOSAL NOTE)				LUMP SUM
SPECIAL	51426010	LUMP	SUM	SHIPMENT AND DISPOSAL OF NON HAZARDOUS WASTE (SEE PROPOSAL NOTE)				LUMP SUM
SPECIAL	51426020	LUMP	SUM	SHIPMENT AND DISPOSAL OF HAZARDOUS WASTE (SEE PROPOSAL NOTE)				LUMP SUM
516	11200	76	LIN FT	STRUCTURAL EXPANSION JOINT (INCLUDING STEEL RETAINER AND STRIP SEAL GLAND)	76			
516	45304	8	EACH	REFURBISH BEARING DEVICE	8			
516	47000	LUMP	SUM	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE	LUMP SUM			
518	21101	32	CU YD	POROUS BACKFILL, AS PER PLAN		32		
518	41100	103	LIN FT	6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01		103		
518	41200	43	LIN FT	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01		43		
601	20000	87	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				87

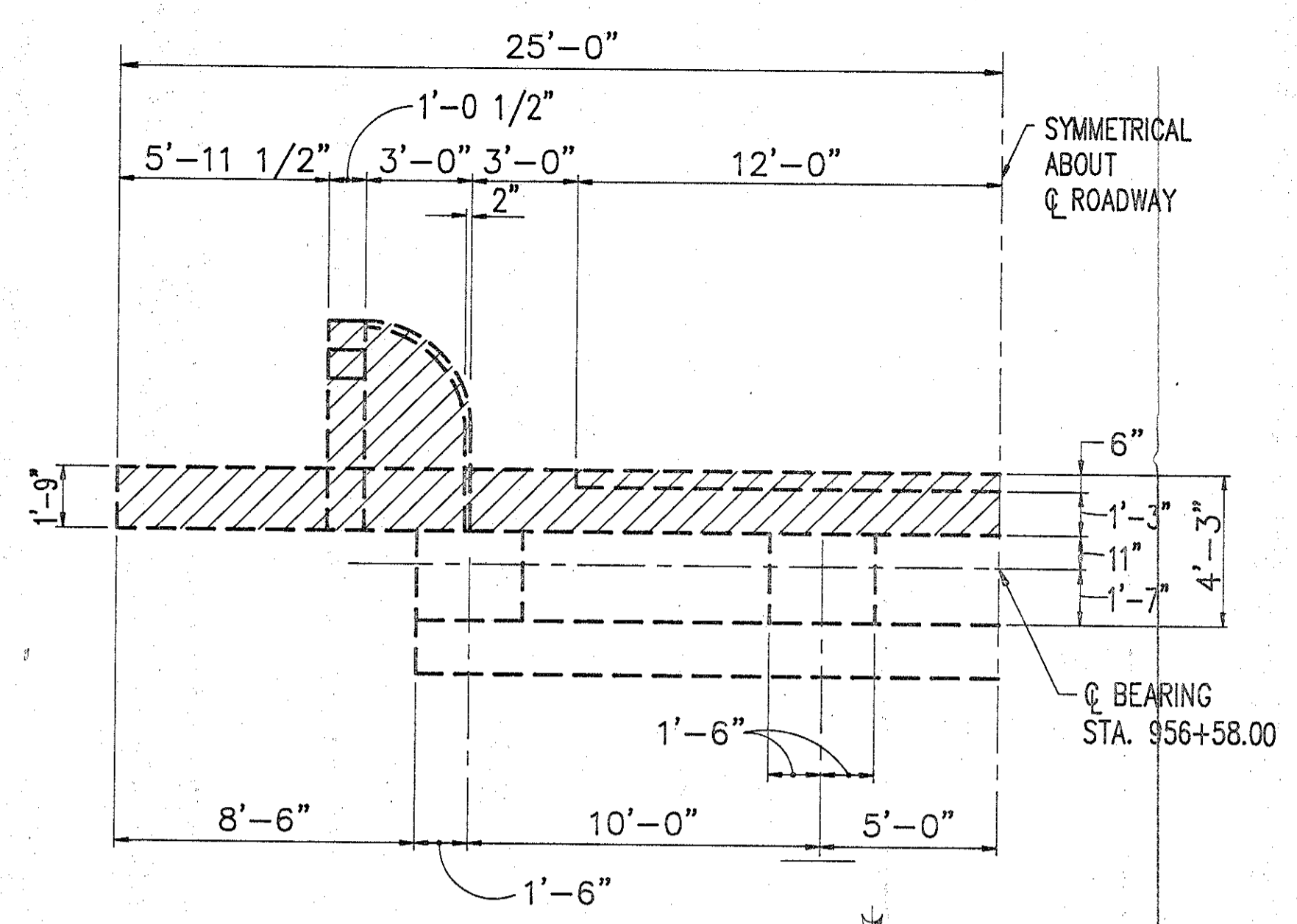
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**MOSURE AND SYRAKIS CO.**  
YOUNGSTOWN, OHIO

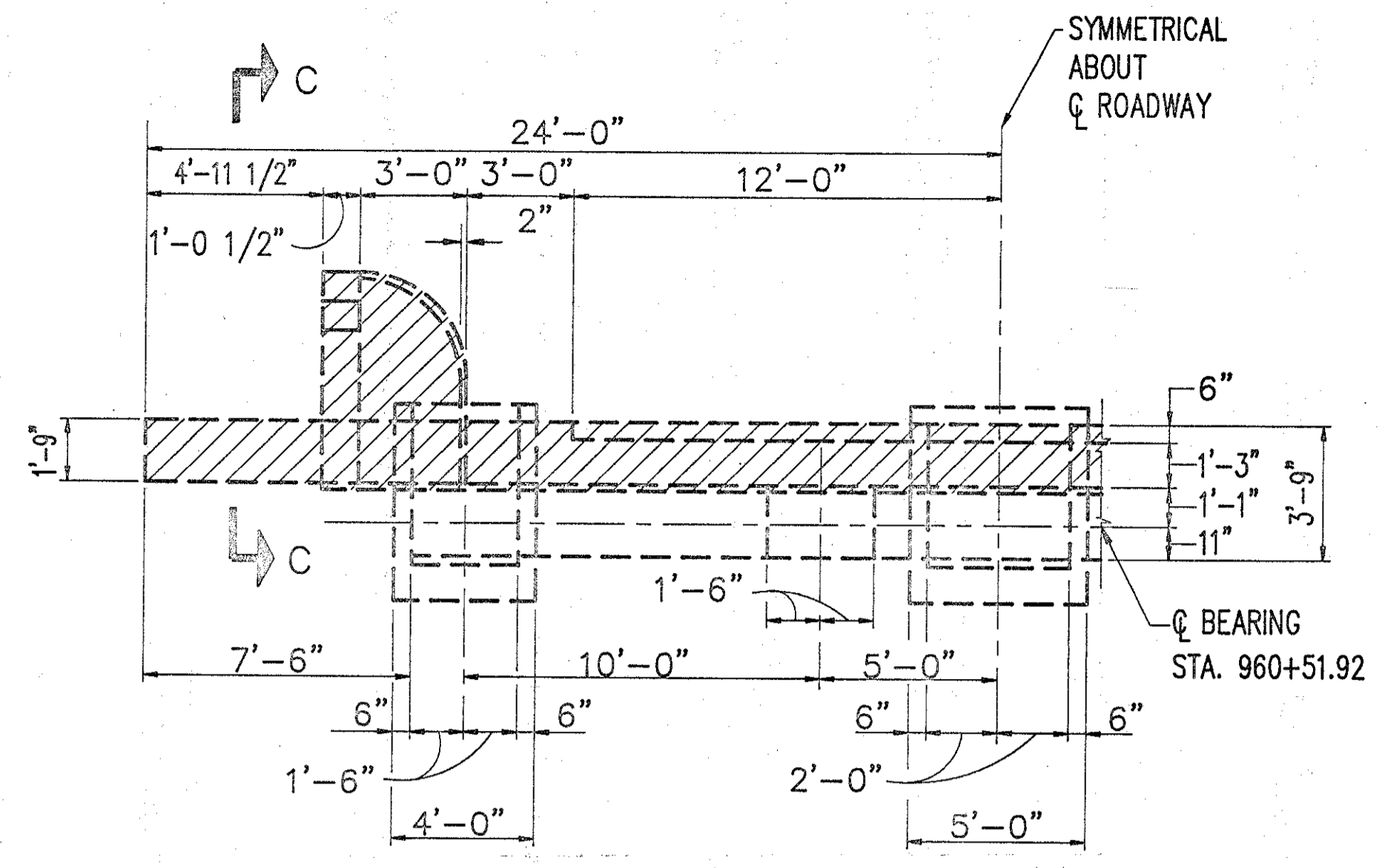
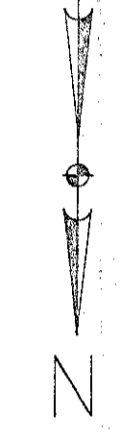
**GENERAL NOTES (CON'T) & EST. QUANTITIES**  
BRIDGE NO. ATB-534-1834  
OVER  
GRAND RIVER  
ASHTABULA COUNTY, OHIO

STA. 956+55.75  
STA. 960+54.25

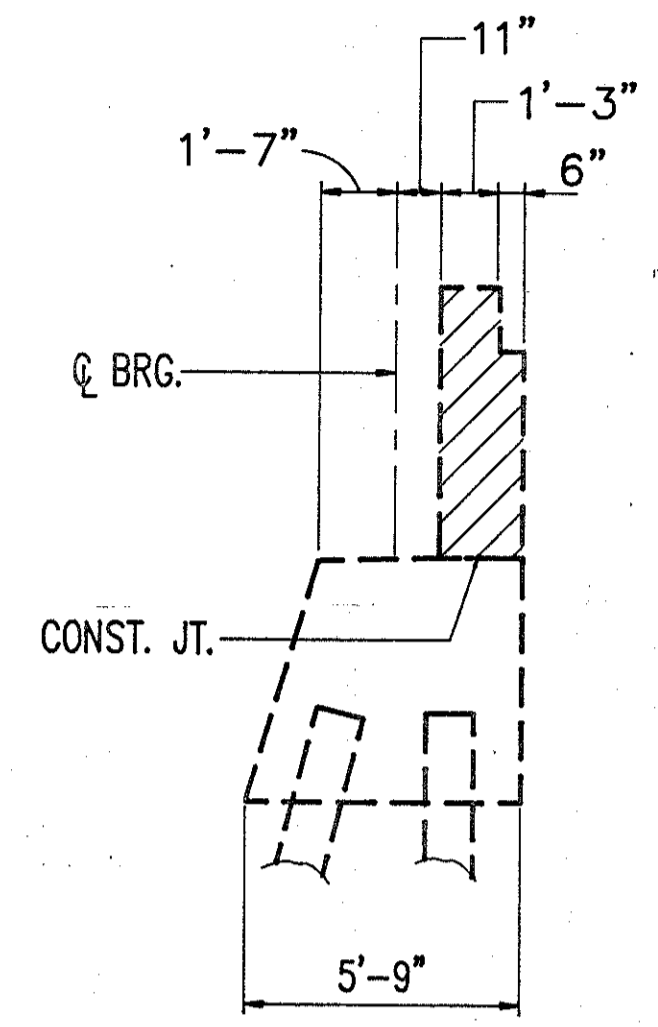
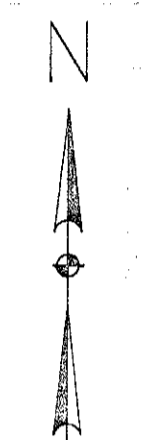
DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.	R.R.	D.S.	T.M.
6-90	6-90	6-90	6-90	7-90



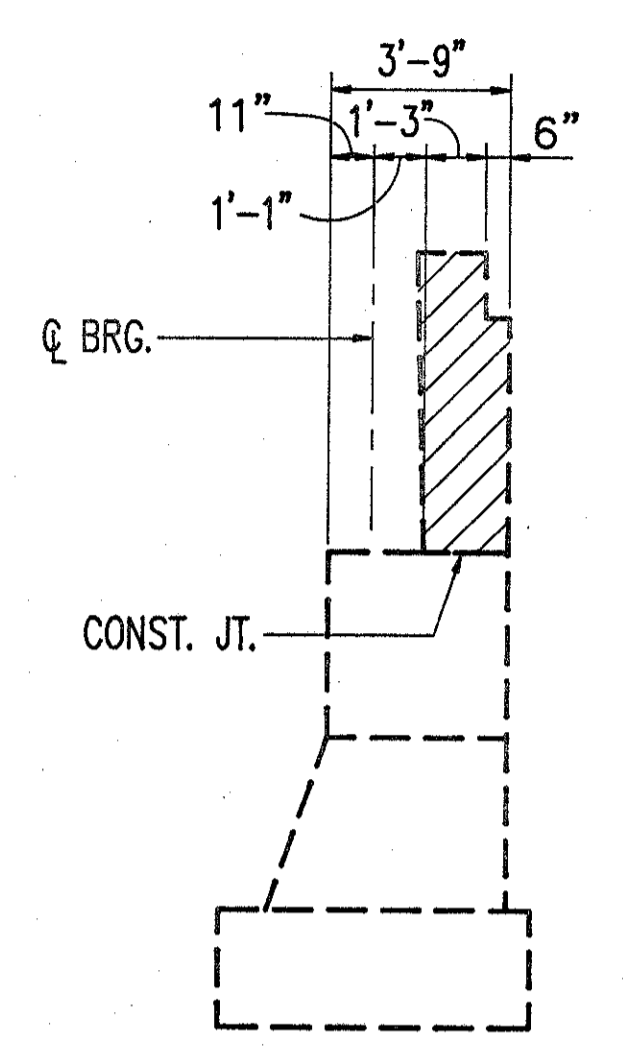
REAR ABUTMENT  
HALF PLAN\*



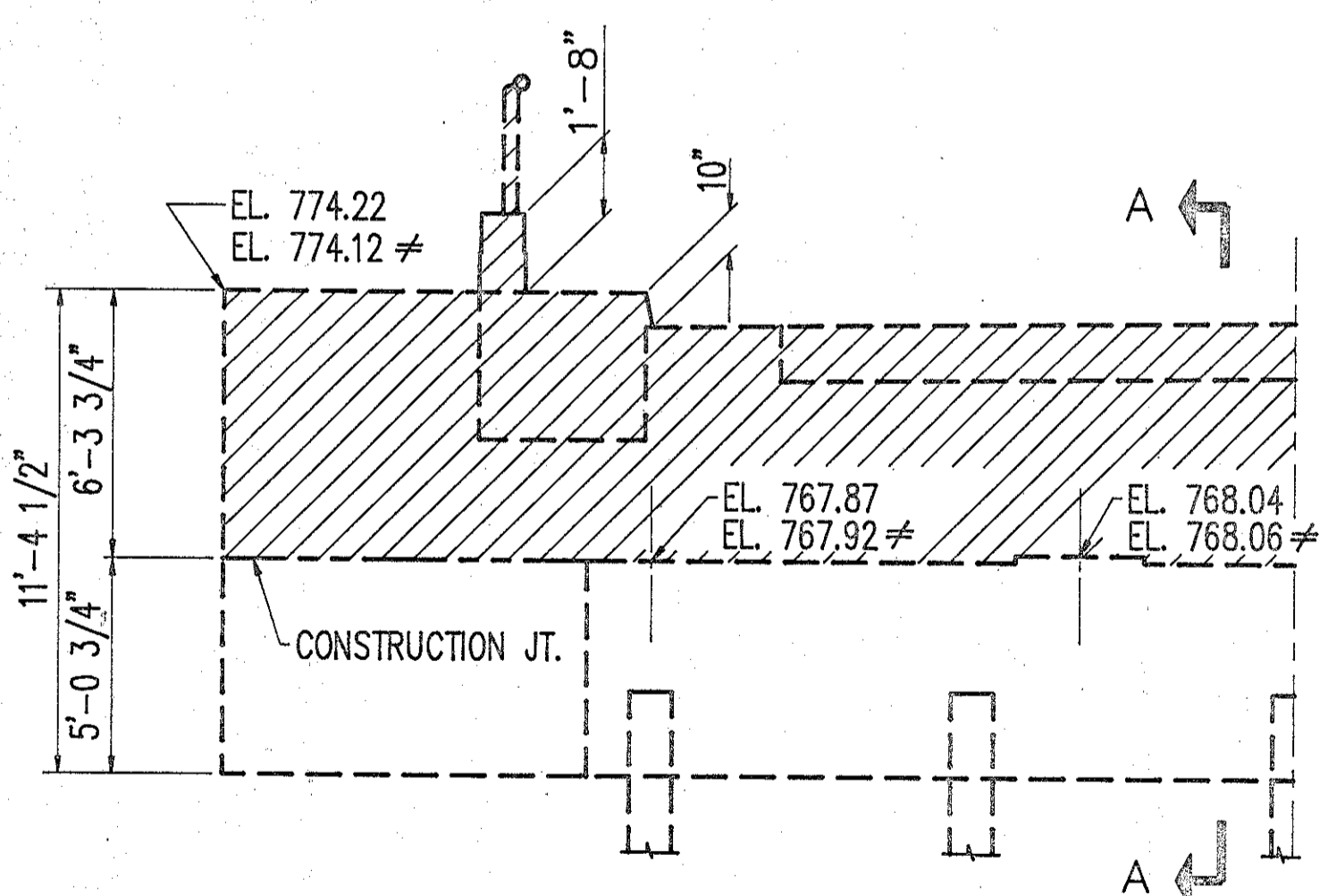
FORWARD ABUTMENT  
HALF PLAN\*



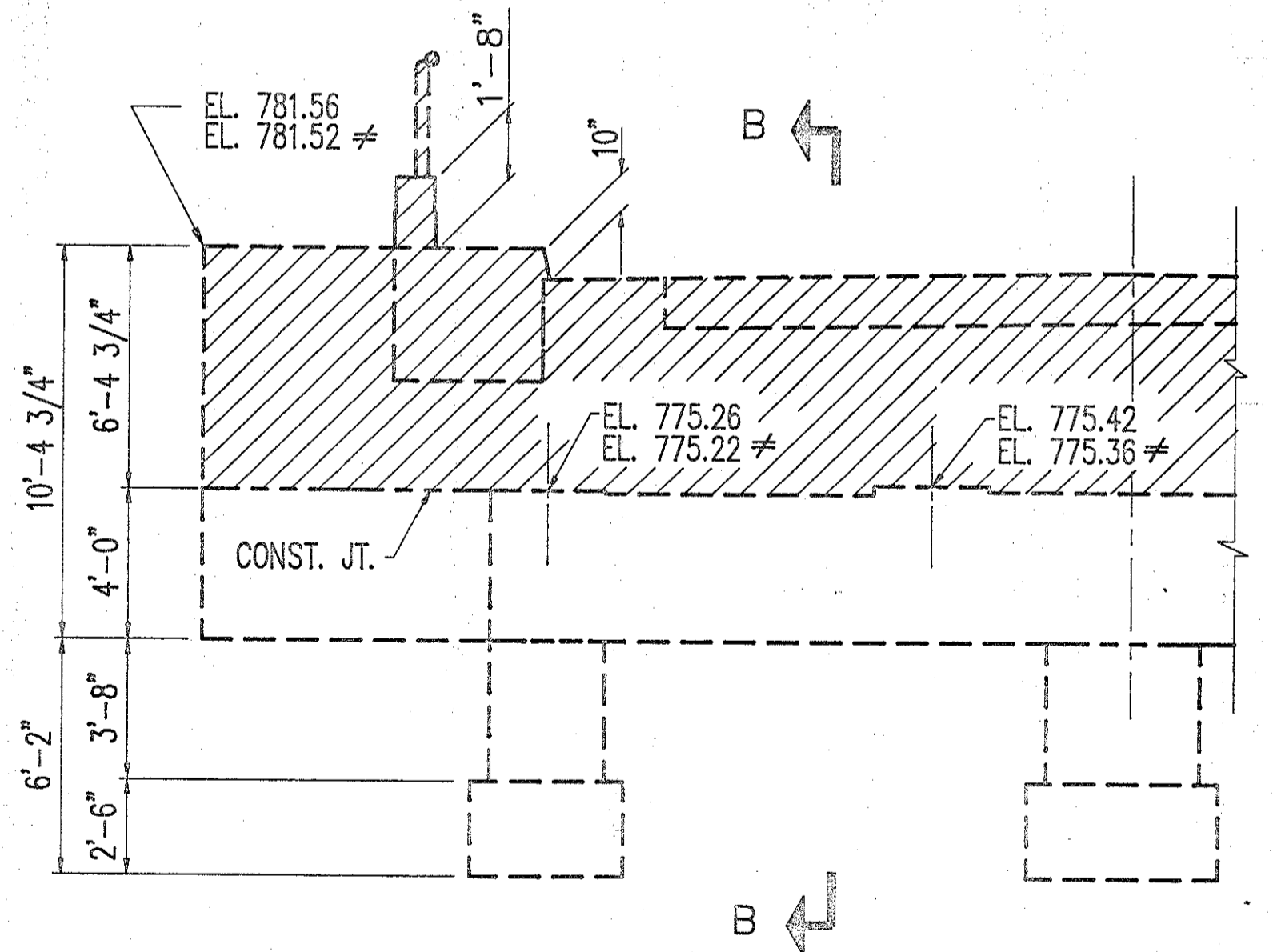
SECTION A-A\*



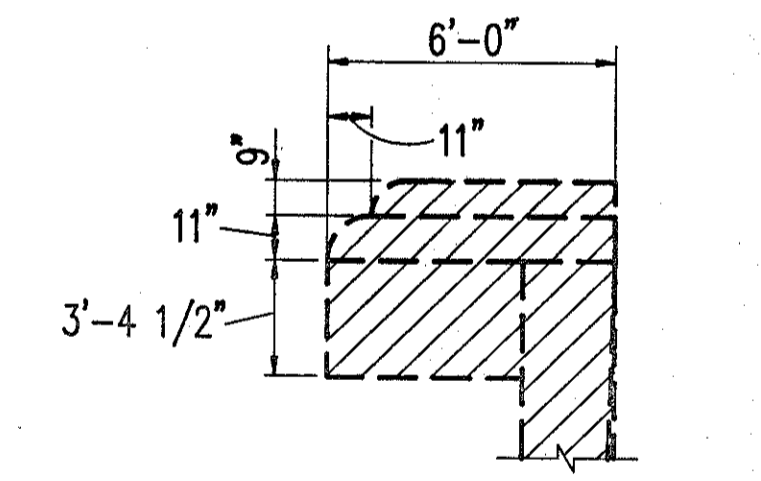
SECTION B-B\*



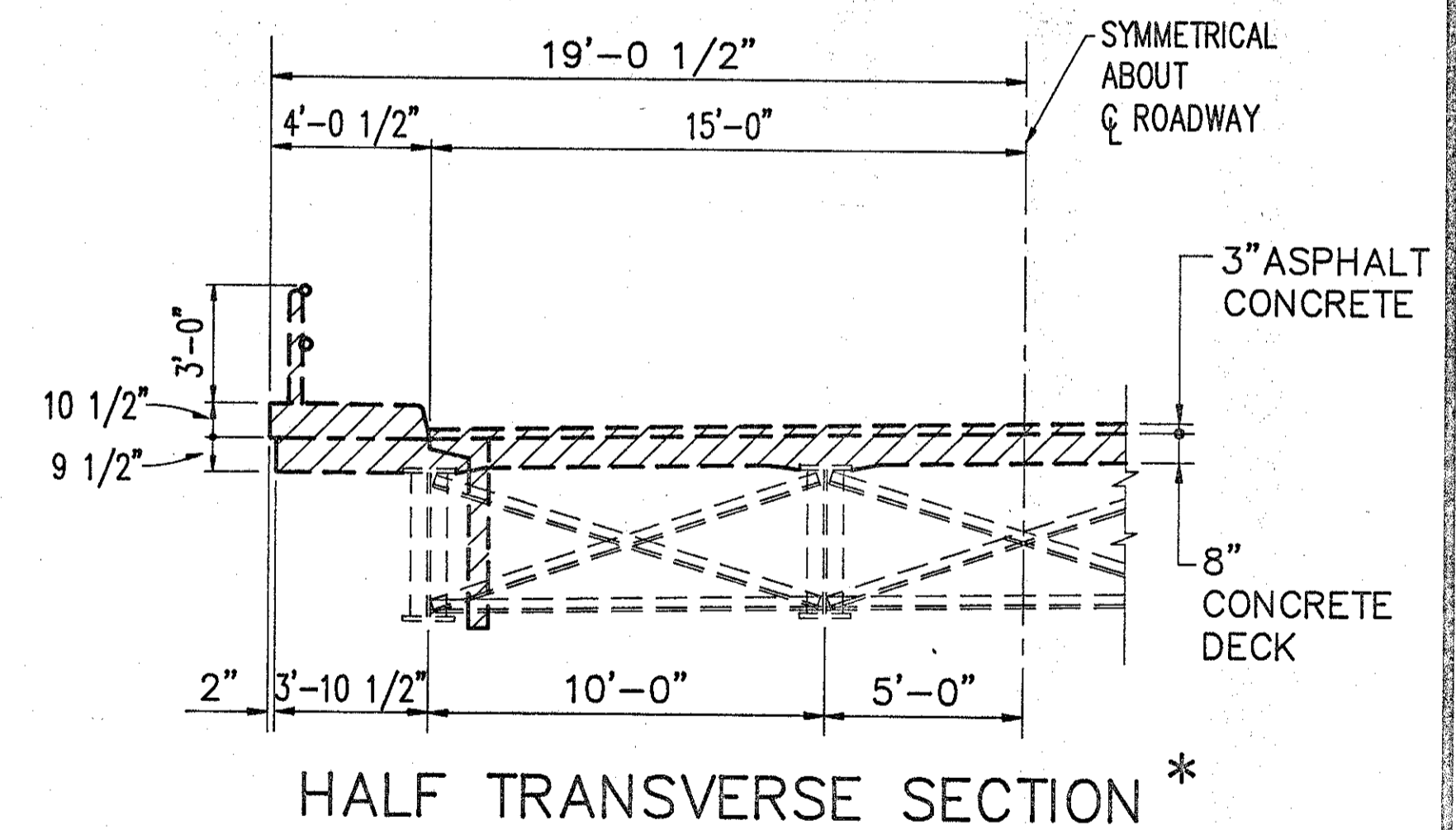
REAR ABUTMENT  
HALF ELEVATION\*  
(\* OPPOSITE HAND)



FORWARD ABUTMENT  
HALF ELEVATION\*  
(\* OPPOSITE HAND)



SECTION C-C\*



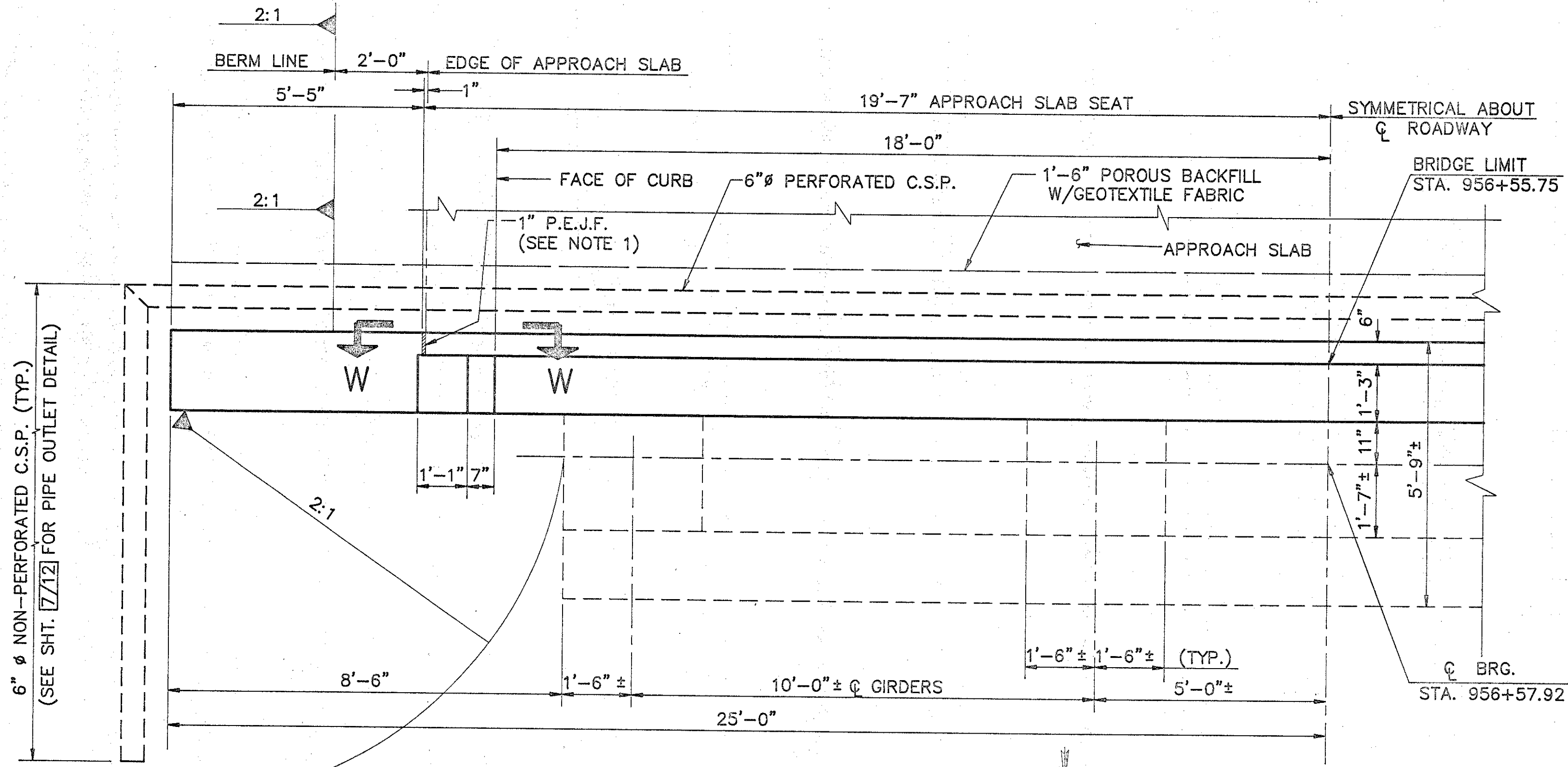
HALF TRANSVERSE SECTION\*

INDICATES LIMITS OF REMOVAL

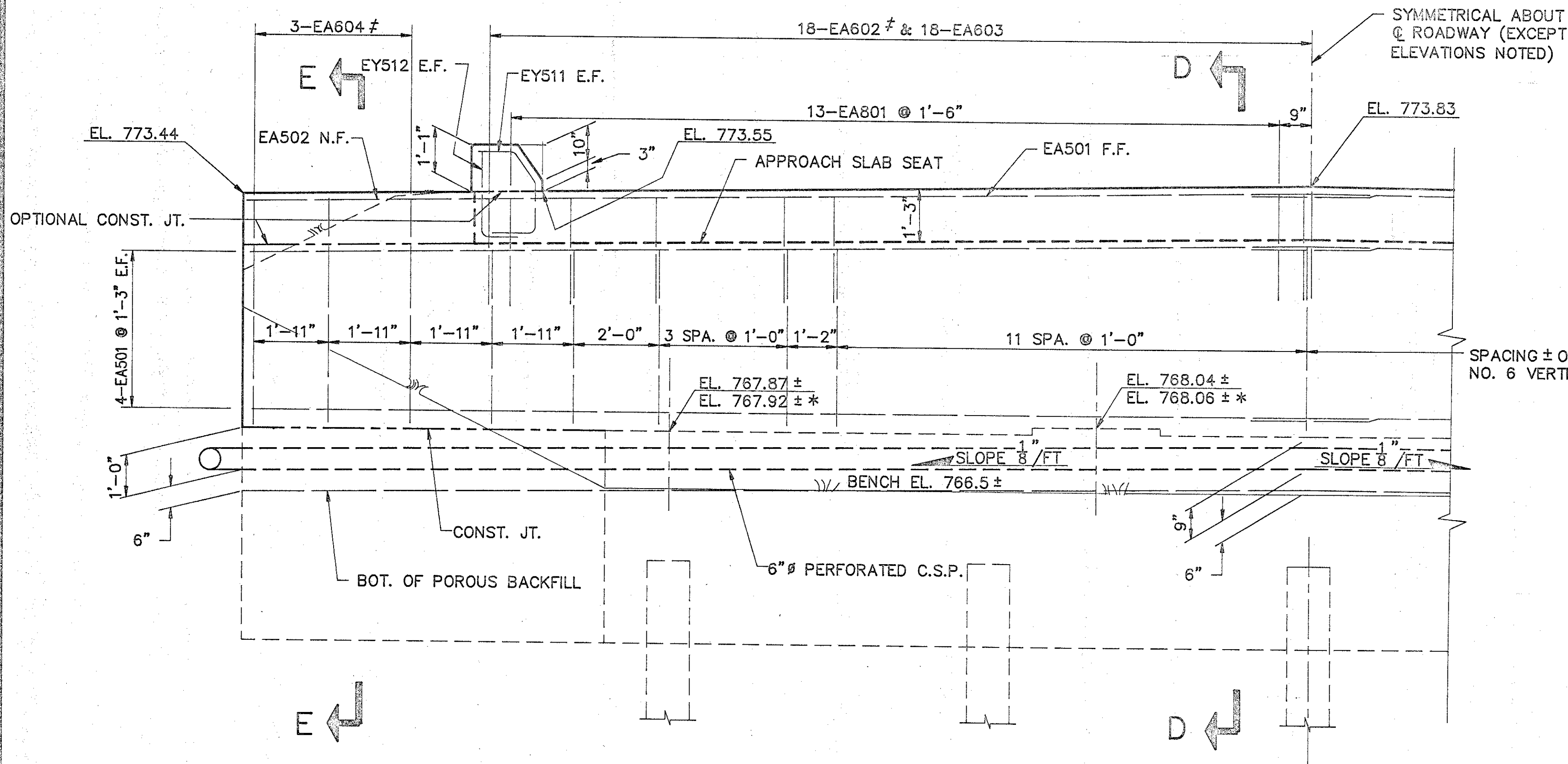
\* NOTE: ALL DIMENSIONS AND ELEVATIONS ARE ±

MOSURE AND SYRAKIS CO. YOUNGSTOWN, OHIO				
<b>LIMITS OF REMOVAL</b>				
BRIDGE NO. ATB-534-1834				
OVER				
GRAND RIVER				
			STA. 956+55.75	
			STA. 960+54.25	
DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.	R.R.	D.S.	T.M.
9-89	9-89	9-89	6-90	7-90





**HALF PLAN**  
FOR SECTION W-W SEE SHEET 10/12

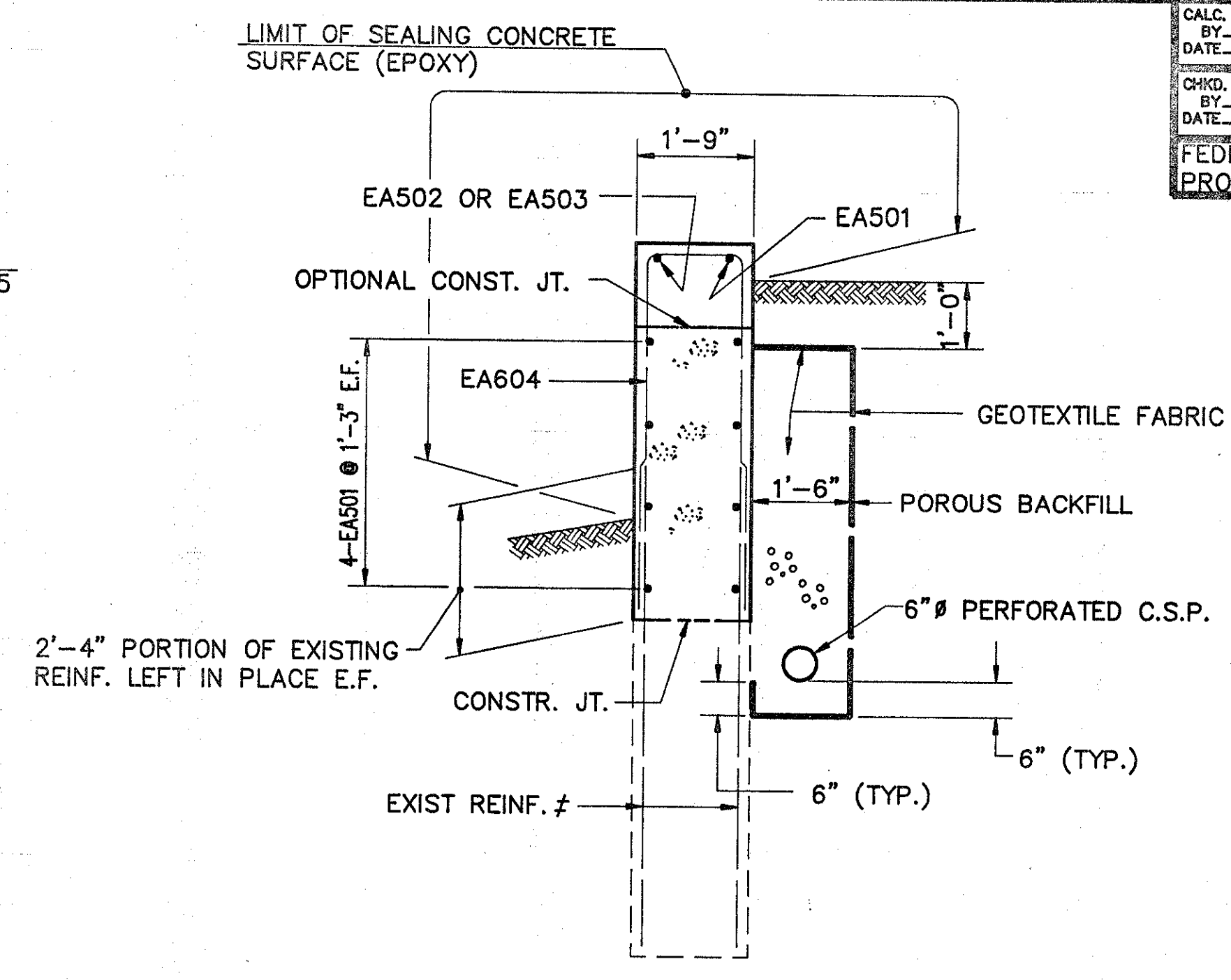


**HALF ELEVATION**  
(\* OPPOSITE HAND)

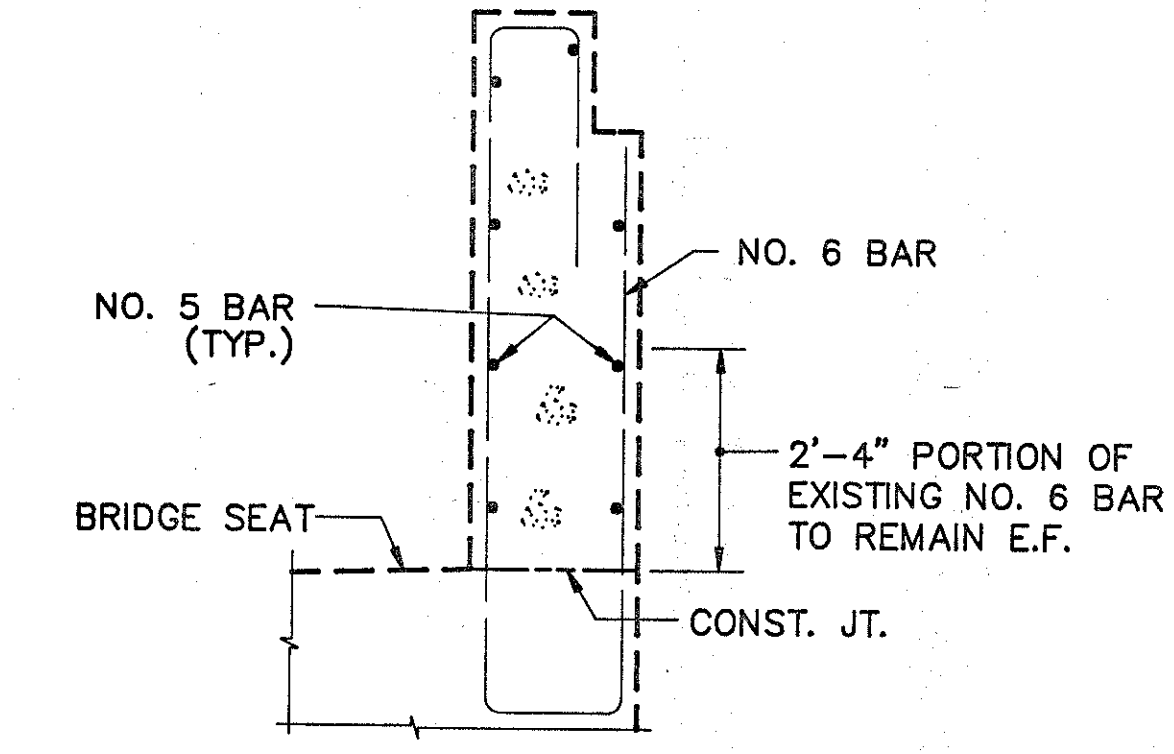
**LEGEND**  
N.F. = NEAR FACE  
F.F. = FAR FACE  
E.F. = EACH FACE

NOTE: EA501 BARS LAP SPLICE 2'-9" MIN.

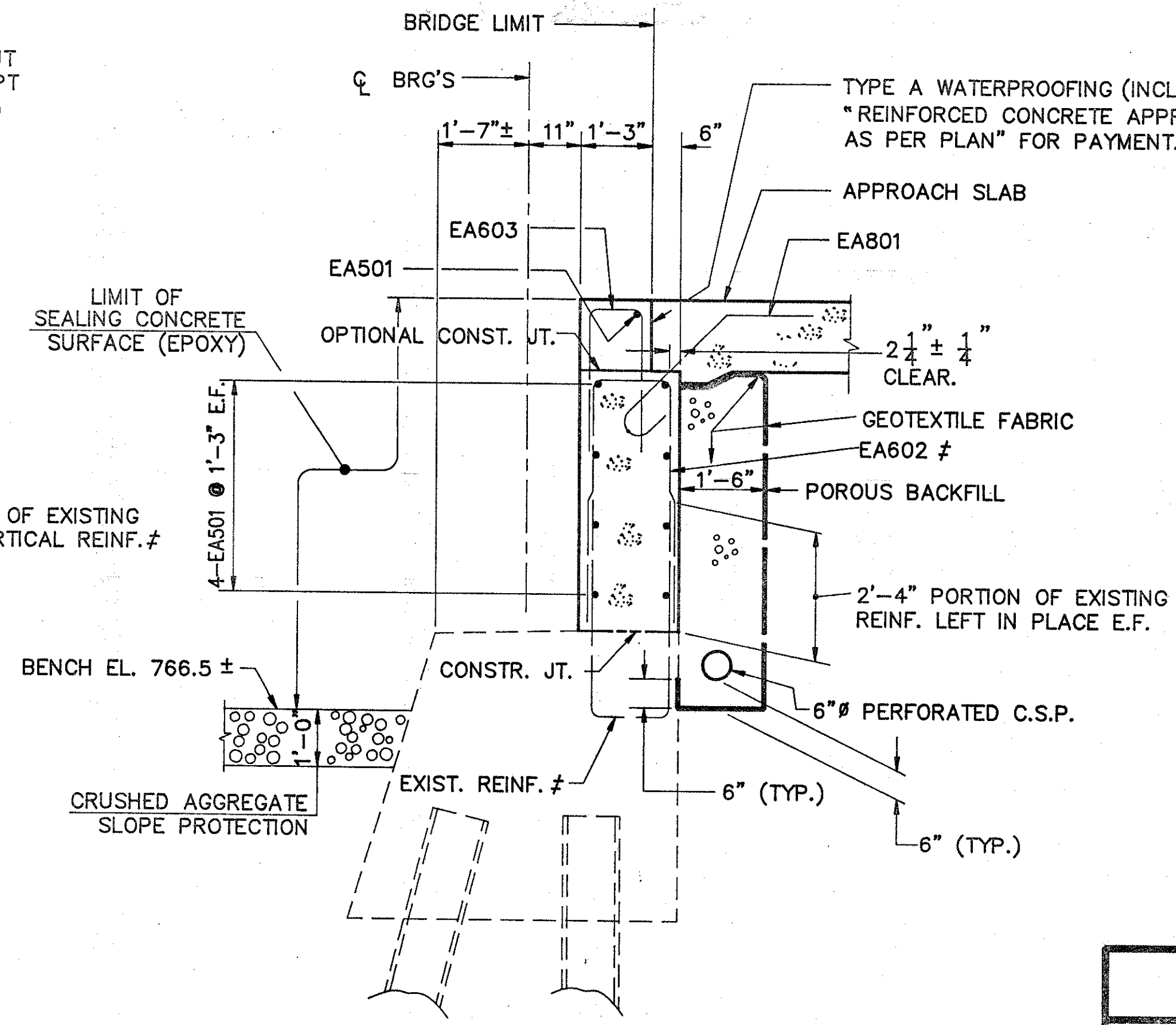
‡ LAP SPLICE EA602 AND EA604 BARS WITH 2'-4" PORTION OF EXISTING NO. 6 REINFORCING BARS LEFT IN PLACE E.F. SEE DETAIL SHT. 7/12 FOR REPLACEMENT OF UNUSABLE EXISTING REINF. BARS.



**SECTION E-E**



**DETAIL OF EXISTING BACKWALL REINFORCEMENT**



**SECTION D-D**

**NOTES**

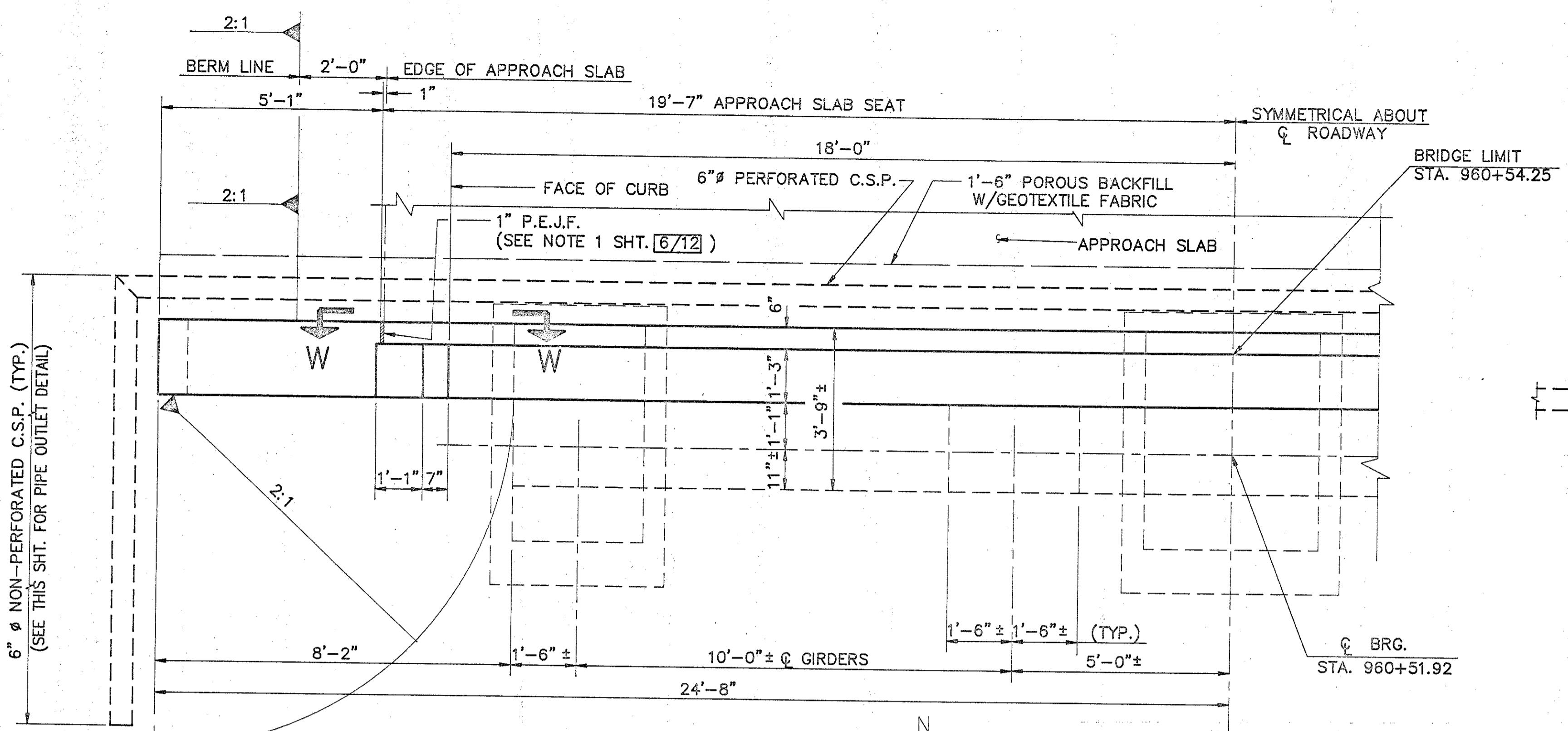
- 1) P.E.J.F. - PREFORMED EXPANSION JOINT FILLER INCLUDED WITH ITEM 611 "REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN" FOR PAYMENT.
- 2) ELEVATIONS SHOWN ARE LOCATED AT THE NEAR FACE OF THE BACKWALL AND ON THE CENTERLINE OF BEARING RESPECTIVELY.
- 3) BACKWALL CONCRETE: IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT, SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.

MOSURE AND SYRAKIS CO.  
YOUNGSTOWN, OHIO

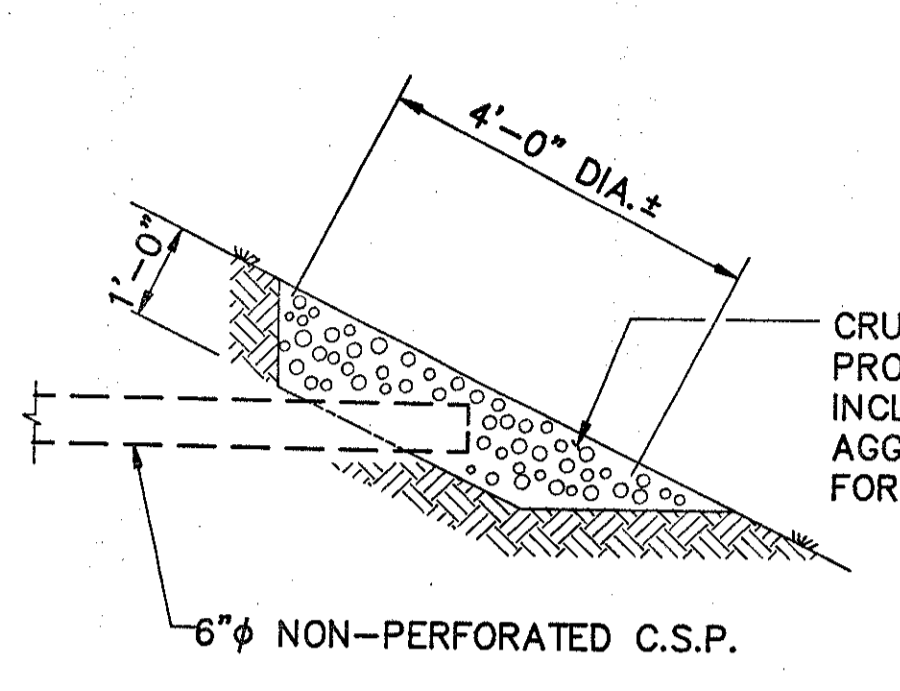
**REAR ABUTMENT DETAILS**  
BRIDGE NO. ATB-534-1834  
OVER  
GRAND RIVER

STA. 956+55.75  
STA. 960+54.25

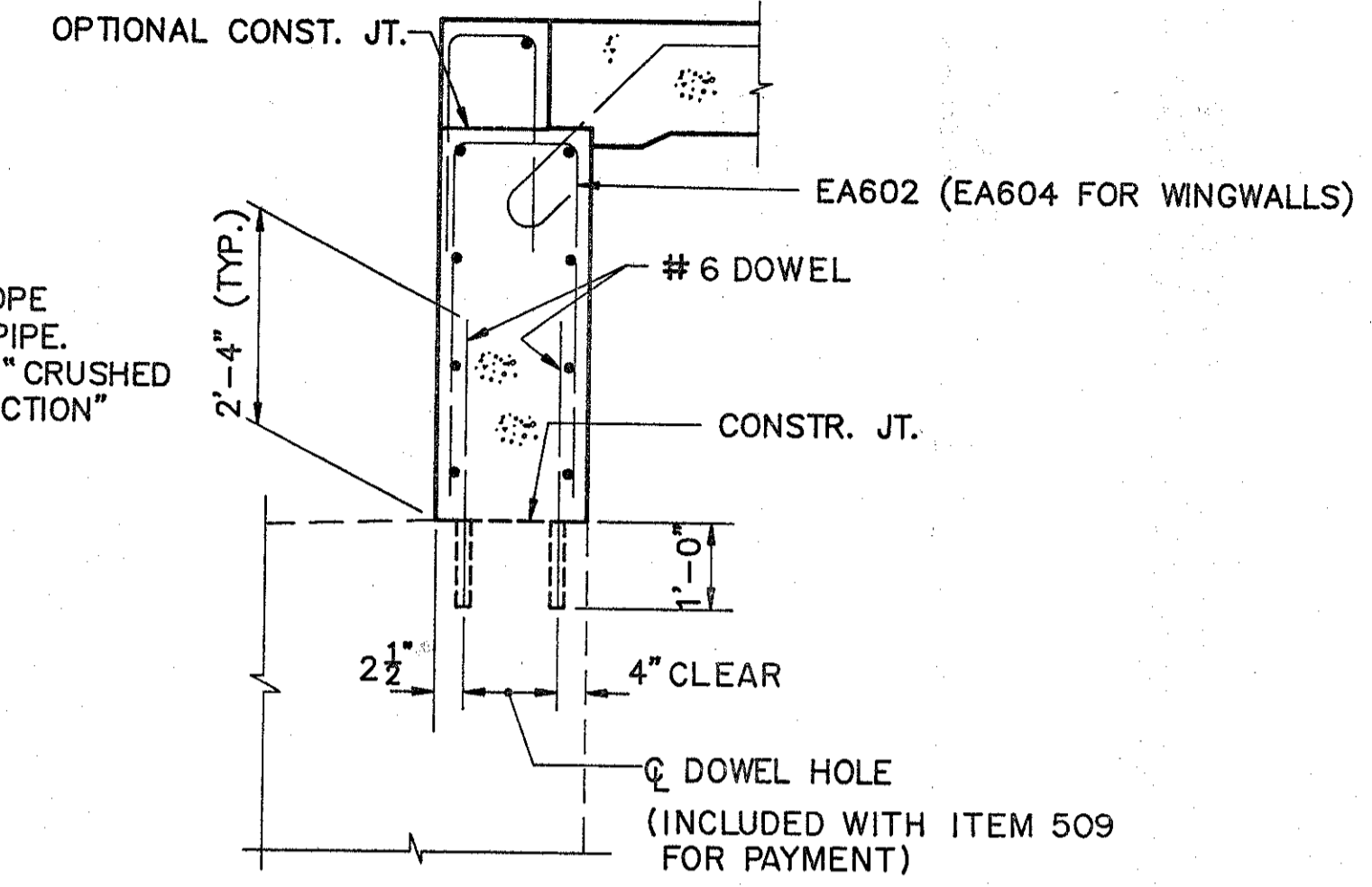
DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R. 5-90	E.K. 5-90	R.R. 5-90	D.S. 6-90	T.M. 7-90



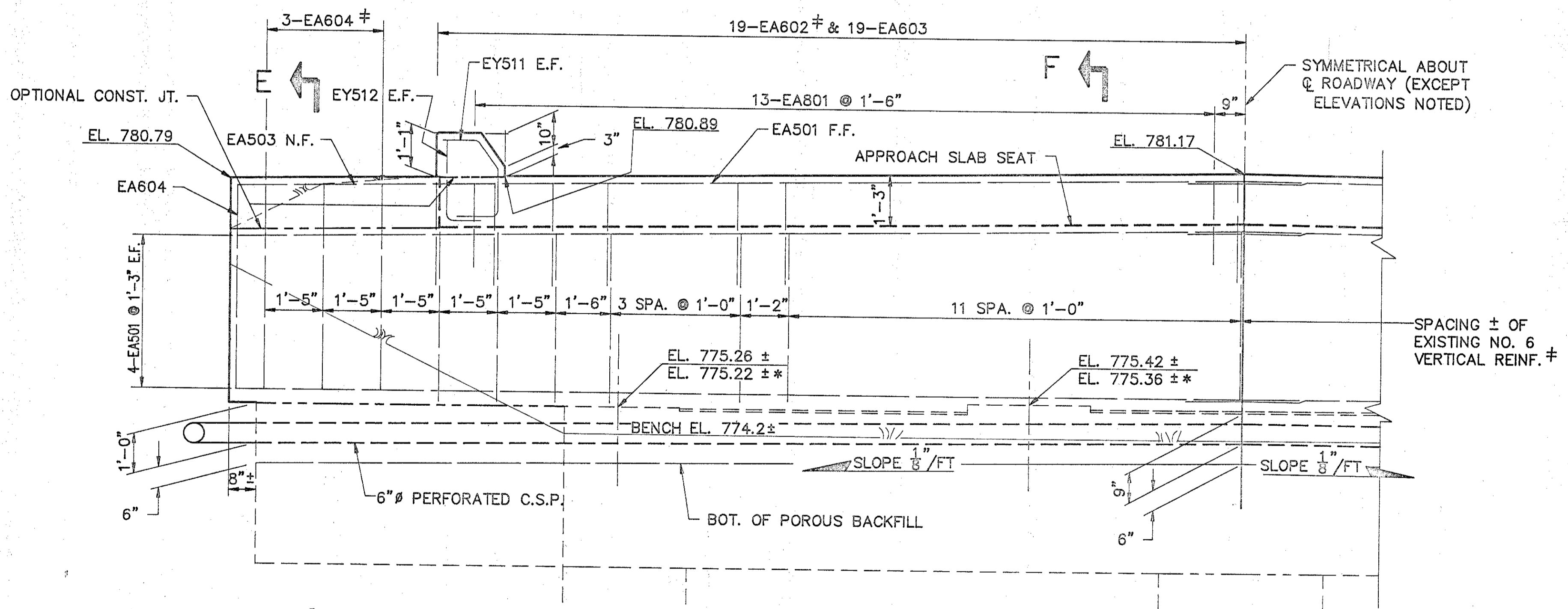
**HALF PLAN**  
FOR SECTION W-W SEE SHT. [10/12]



**PIPE OUTLET DETAIL**



**REPLACEMENT OF UNUSABLE EXISTING REINFORCING BARS**

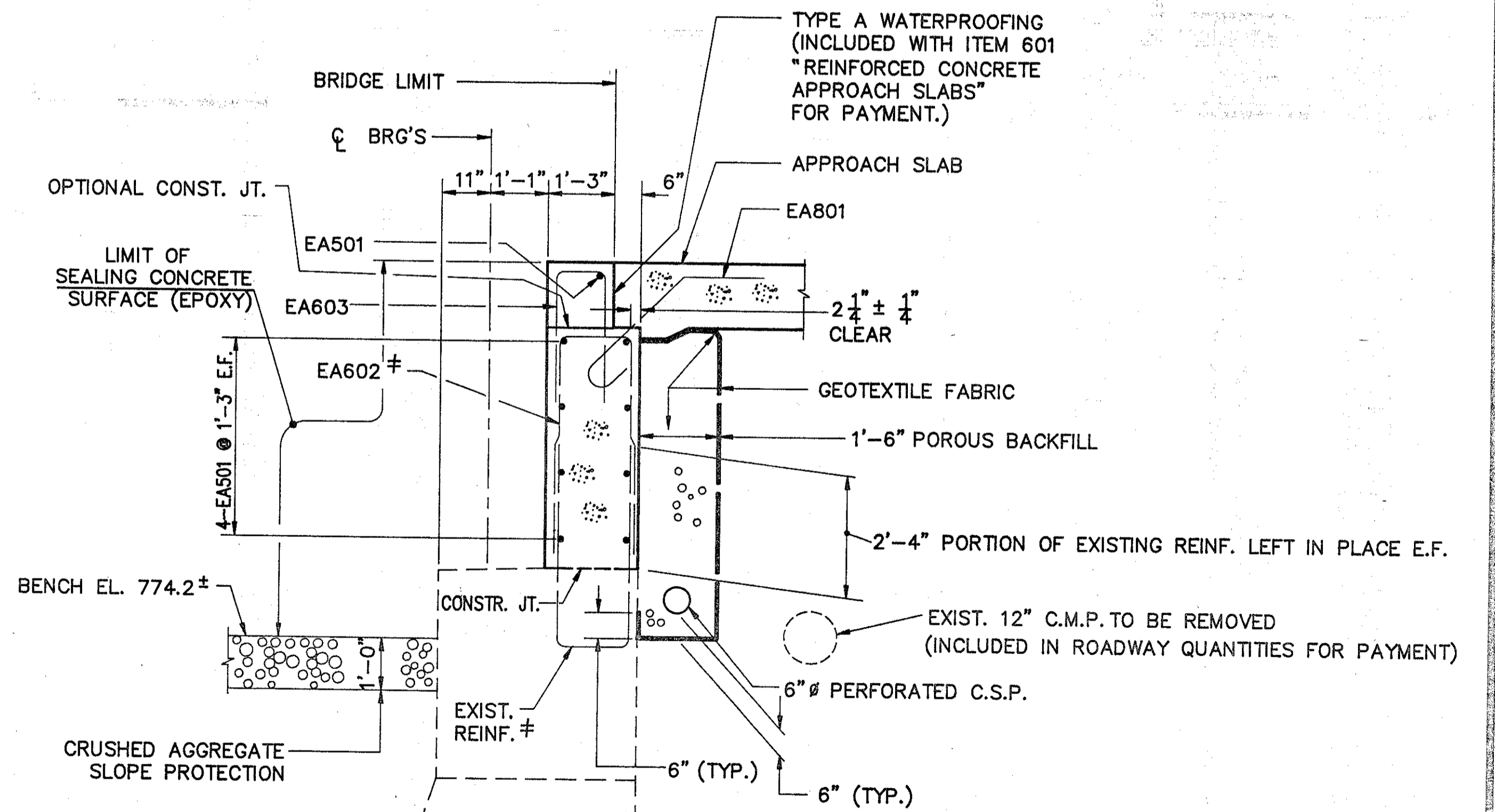


**HALF ELEVATION**  
(\* OPPOSITE HAND)

NOTE: EA501 BARS LAP SPLICE 2'-9" MIN.

**LEGEND**  
N.F. = NEAR FACE  
F.F. = FAR FACE  
E.F. = EACH FACE

$\#$  LAP SPLICE EA602 AND EA604 BARS WITH 2'-4" PORTION OF EXISTING NO. 6 REINFORCING BARS LEFT IN PLACE E.F. SEE DETAIL THIS SHEET FOR REPLACEMENT OF UNUSABLE EXISTING REINF. BARS.



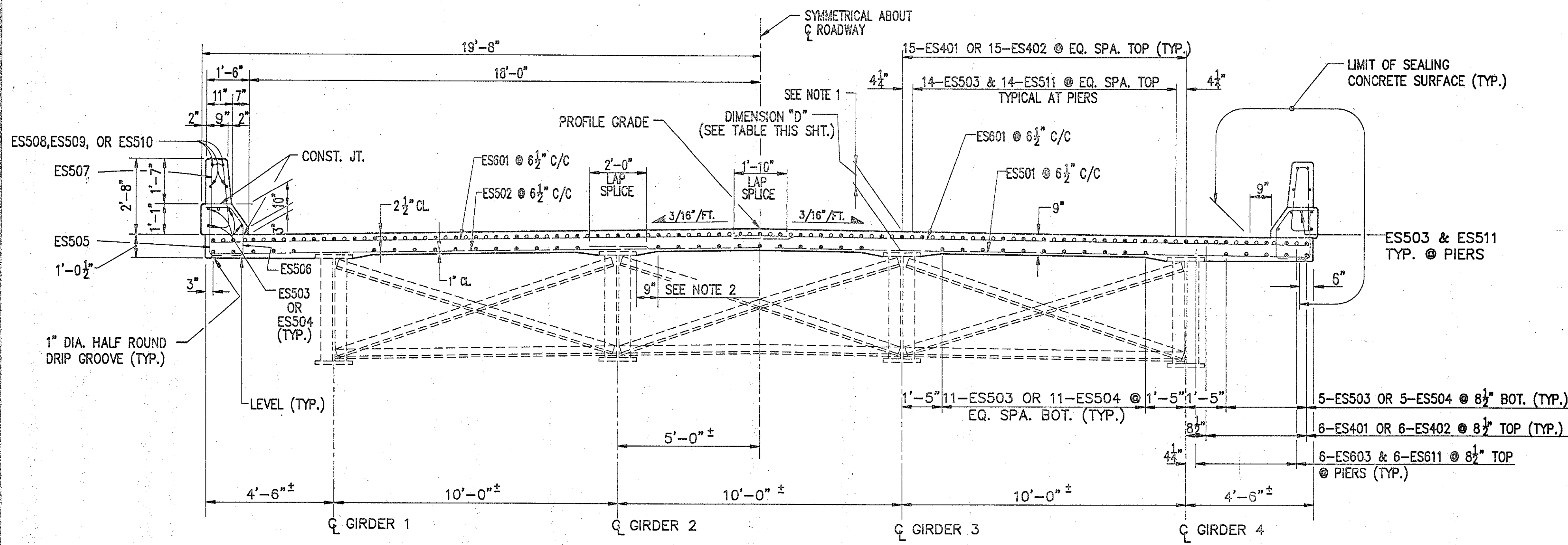
**SECTION F-F**

FOR NOTES SEE SHT. [6/12]

MOSURE AND SYRAKIS CO.  
YOUNGSTOWN, OHIO  
**FORWARD ABUTMENT DETAILS**  
BRIDGE NO. ATB-534-1834  
OVER GRAND RIVER  
STA. 956+55.75  
STA. 960+54.25

DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.	R.R.	D.S.	T.M.
5-90	5-90	5-90	6-90	7-90





TRANSVERSE SECTION

**NOTES**

1) **DECK SLAB DEPTH:**  
 THE ANTICIPATED DECK SLAB DEPTHS, D, (MEASURED TO THE TOP OF FLANGE), OVER THE BEAMS ARE GIVEN IN THE TABLE OF DECK SLAB DEPTHS. THE ACTUAL SLAB DEPTHS MAY BE MORE. THEY SHOULD NOT BE LESS THAN THE DECK SLAB THICKNESS, 9 INCHES.

AFTER COMPLETE REMOVAL OF THE EXISTING DECK SLAB, THE CONTRACTOR SHALL DETERMINE, AT VARIOUS LOCATIONS ALONG THE SPANS, ACTUAL TOP OF BEAM ELEVATIONS. THESE SHOULD BE DEDUCTED FROM THE SCREED ELEVATIONS FOR THE SAME LOCATIONS (OR PROPOSED SCREED ELEVATIONS DETERMINED FROM ADJACENT SCREED ELEVATIONS) TO OBTAIN ACTUAL SLAB DEPTHS. FOR DEPTHS LESS THAN 9 INCHES, THE DIRECTOR SHALL BE NOTIFIED TO ESTABLISH THE SUITABILITY OF THE PROPOSED WORK PRIOR TO DECK FORMING AND CONCRETE PLACEMENT.

THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THE AVERAGE DECK SLAB DEPTHS 11 1/2 INCHES OVER THE BEAMS.

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

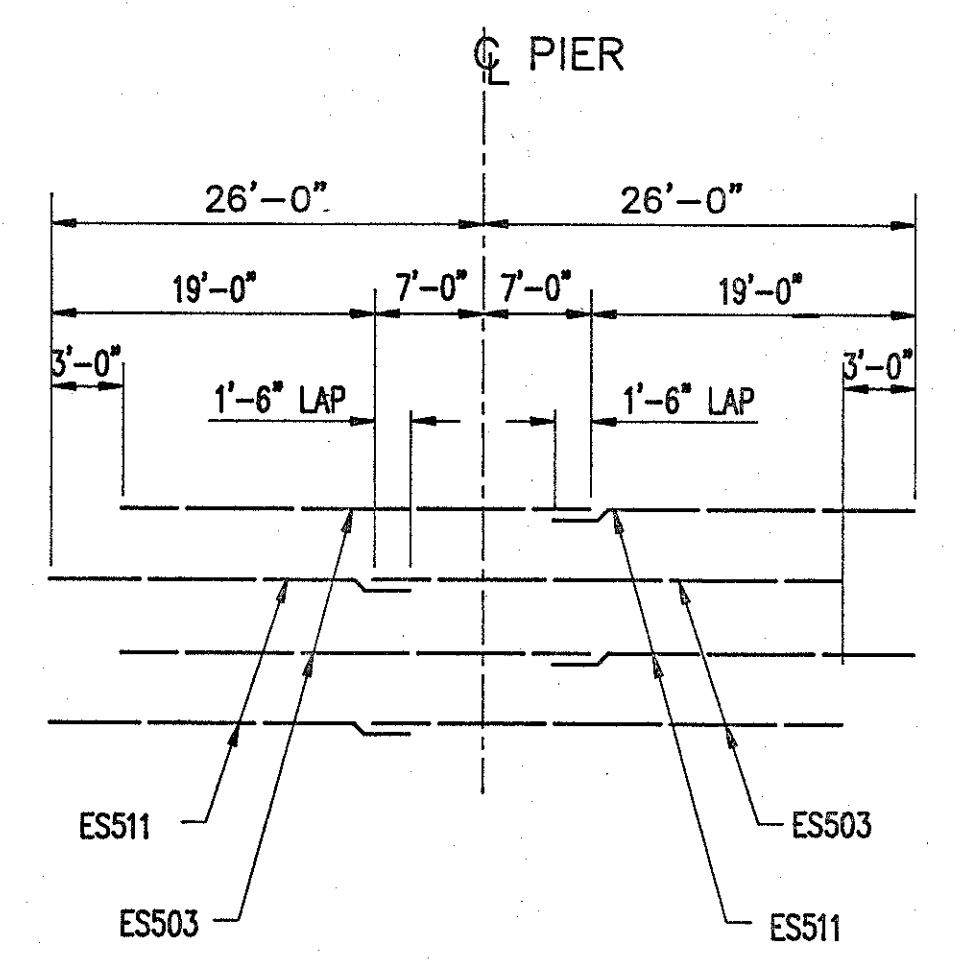
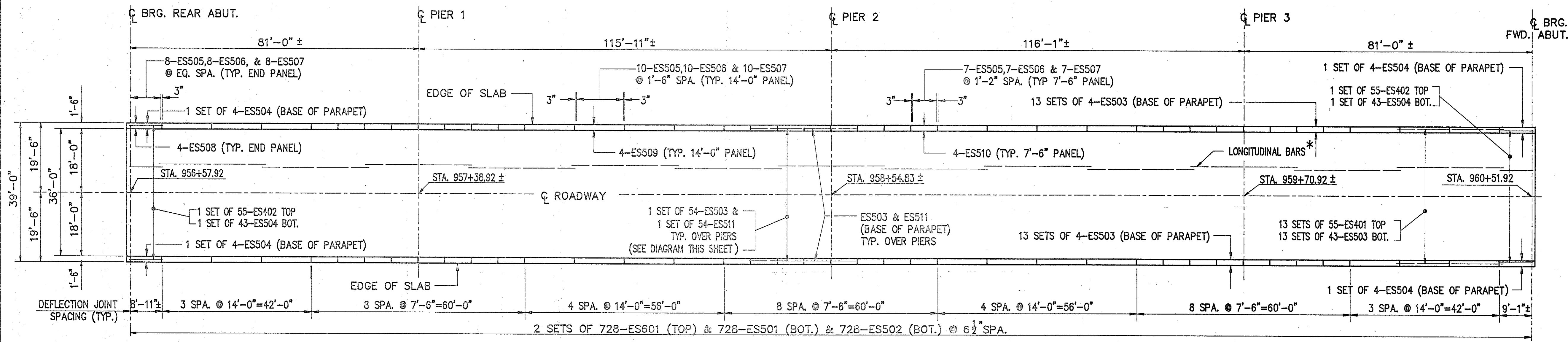


DIAGRAM SHOWING STAGGER OF BARS OVER PIERS

LOCATION	R. ABUT Q BRG.	0.5 SPAN 1	PIER 1 Q BRG.	0.5 SPAN 2	PIER 2 Q BRG.	0.5 SPAN 3	PIER 3 Q BRG.	0.5 SPAN 4	F. ABUT Q BRG.
GIRDER 1	10 5/16	11 5/8	11 5/8	12 1/4	11 5/8	12 1/4	11 5/8	11 5/8	10 7/16
GIRDER 2	11 1/16	11 5/8	11 5/8	12 1/8	11 1/2	12 1/8	11 5/8	11 3/8	10 5/16
GIRDER 3	11 1/4	11 3/4	11 5/8	12 1/8	11 1/2	12 1/8	11 5/8	11 3/4	11
GIRDER 4	11 1/2	11 7/8	11 5/8	12 1/4	11 5/8	12 1/4	11 5/8	11 5/8	10 15/16

SLAB PLAN

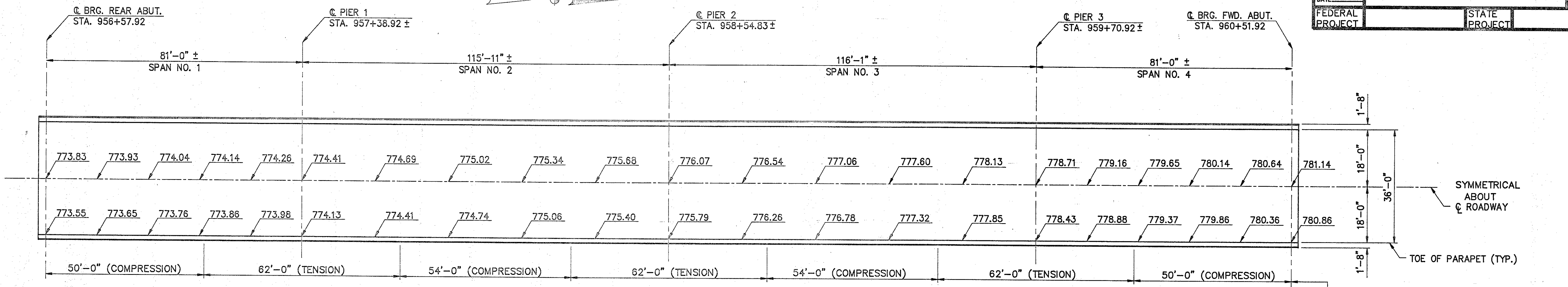
\* LONGITUDINAL BARS  
 TOP ES401 & ES402 1'-7" MIN. LAP SPLICE  
 BOT. ES503 & ES504 2'-0" MIN. LAP SPLICE

MOSURE AND SYRAKIS CO.  
 YOUNGSTOWN, OHIO

TRANSVERSE SECTION & SLAB PLAN  
 BRIDGE NO. ATB-534-1834  
 OVER  
 GRAND RIVER STA. 956+55.75  
 ASHTABULA COUNTY, OHIO STA. 960+54.25

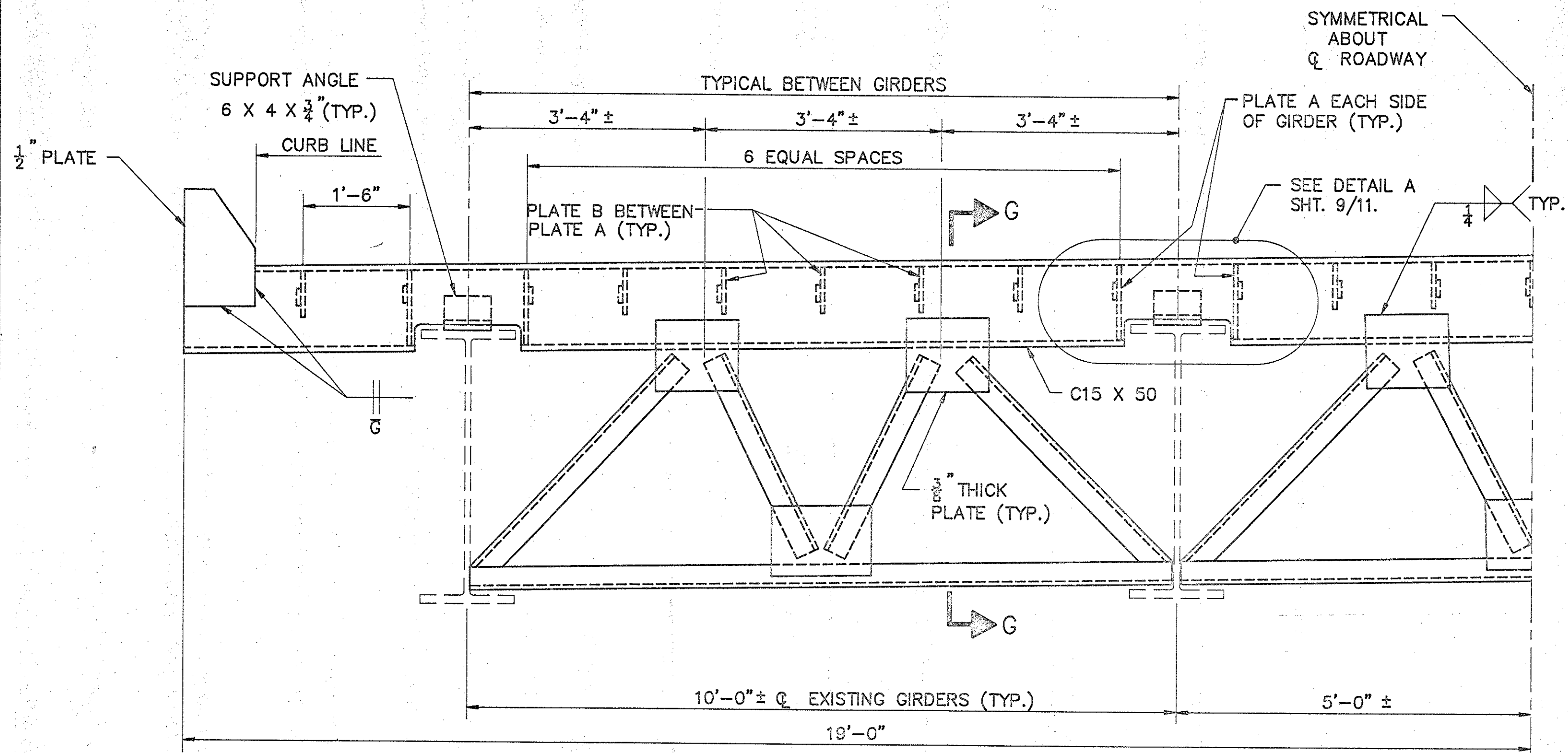
DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.	R.R.	D.S.	T.M.
5-90	5-90	5-90	6-90	7-90





**SLAB PLAN - SCREED ELEVATIONS**

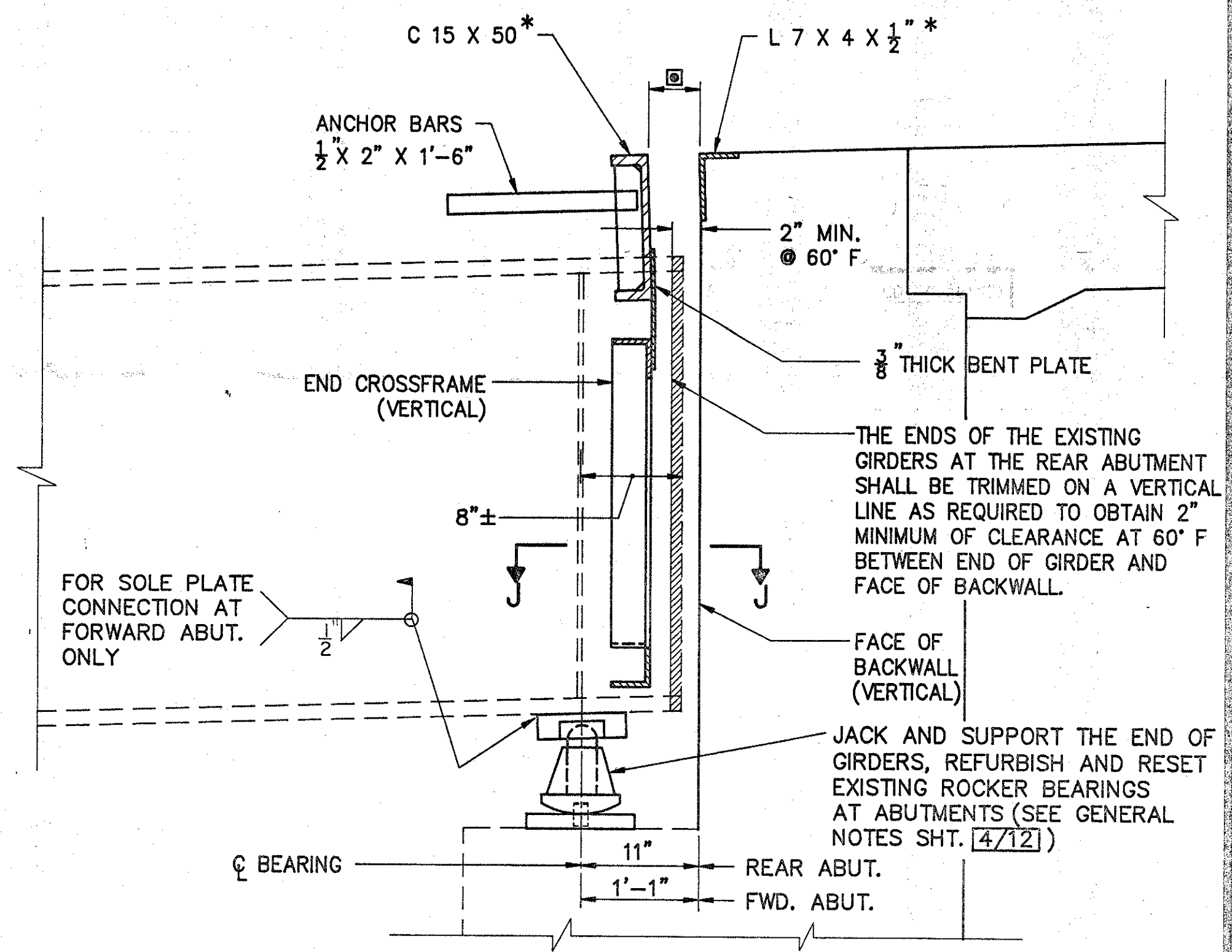
NOTE: SCREED ELEVATIONS SHOWN ARE LOCATED AT  $\odot$  BEARINGS AND FIFTH POINTS ALONG THE  $\odot$  ROADWAY AND TOE OF PARAPET RAILING. THESE ELEVATIONS ARE BEFORE THE CONCRETE IS PLACED AND INCLUDE ANY ALLOWANCES FOR DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.



**END CROSSFRAME DETAIL**

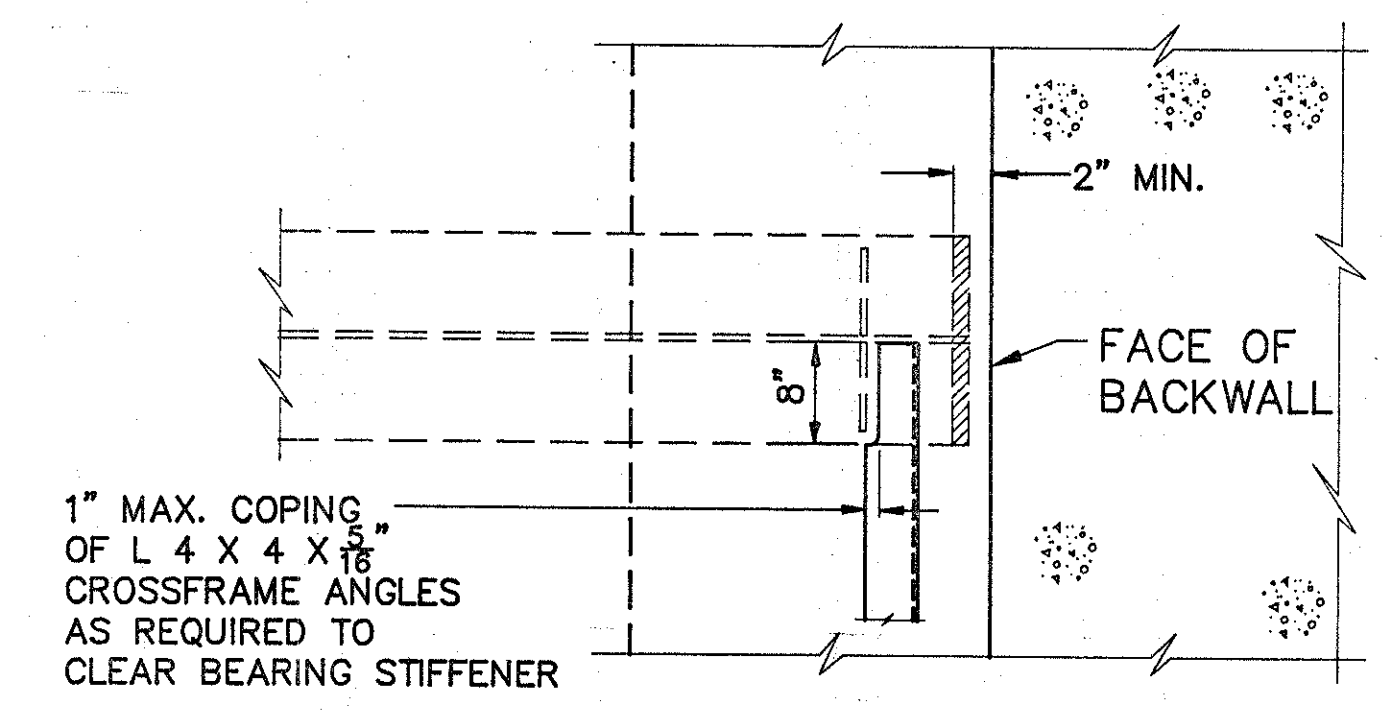
NOTES:  
 PLATE A  $1\frac{1}{2}$ " X  $2\frac{3}{4}$ " X  $13\frac{3}{4}$ "  
 PLATE B  $1\frac{1}{2}$ " X  $2\frac{3}{4}$ " X 7"

FOR ADDITIONAL END CROSSFRAME DETAILS SEE STD. DWG. SD-1-69, SHT. 1 OF 4.



**SECTION G-G**

\* C 15 X 50 AND L 7 X 4 X  $\frac{1}{2}$ " PARALLEL TO EACH OTHER AND PERPENDICULAR TO ROADWAY GRADIENT.  
 SEE JOINT ARMOR ADJUSTMENT DETAIL SHEET [10/12].



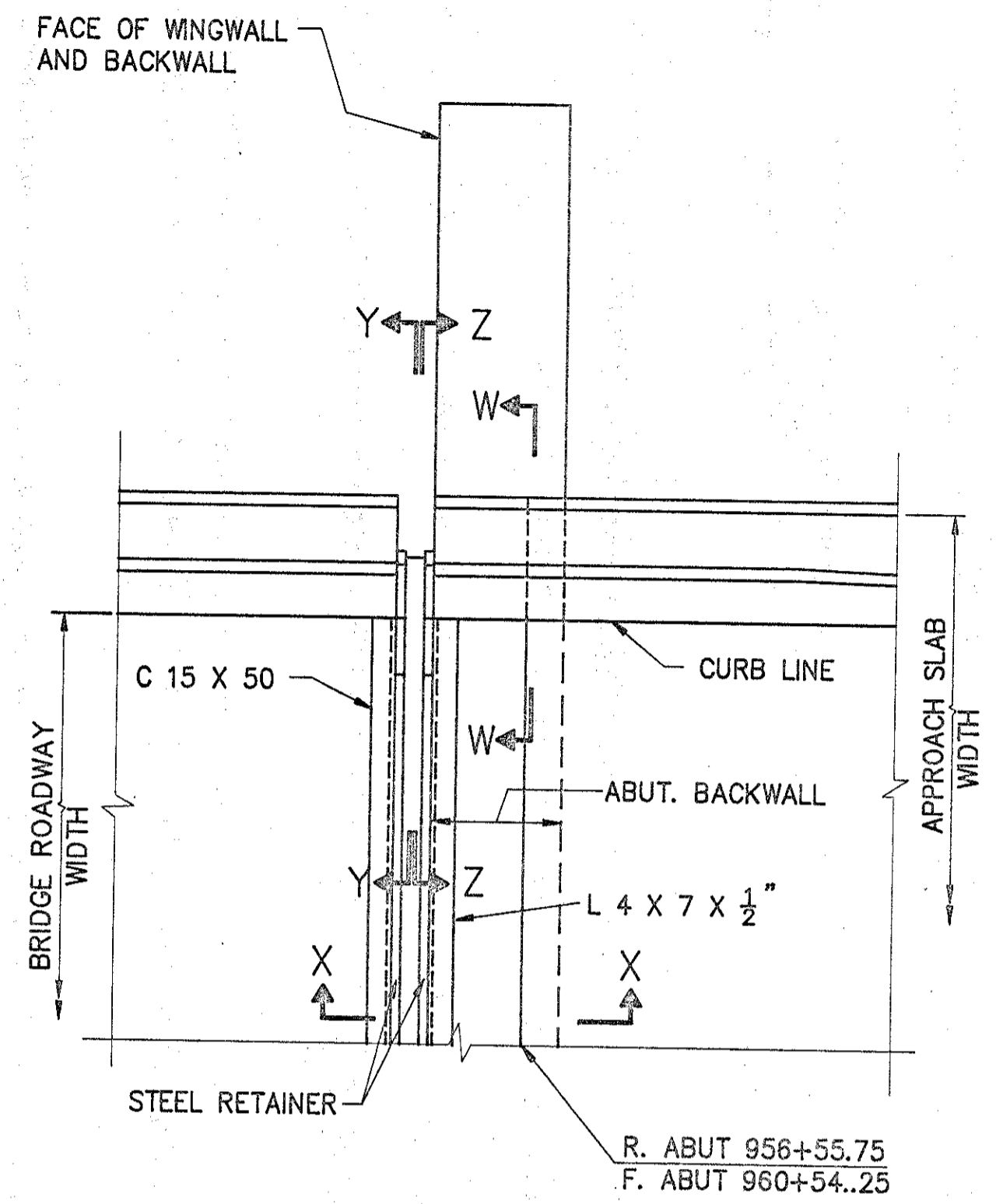
**SECTION J-J (FOR REAR ABUTMENT ONLY)**

MOSURE AND SYRAKIS CO.  
 YOUNGSTOWN, OHIO

**SUPERSTRUCTURE DETAILS**  
 BRIDGE NO. ATB-534-1834  
 OVER GRAND RIVER

STA. 956+55.75  
 STA. 960+54.25

DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.	R.R.	D.S.	T.M.
5-90	5-90	5-90	6-90	6-90

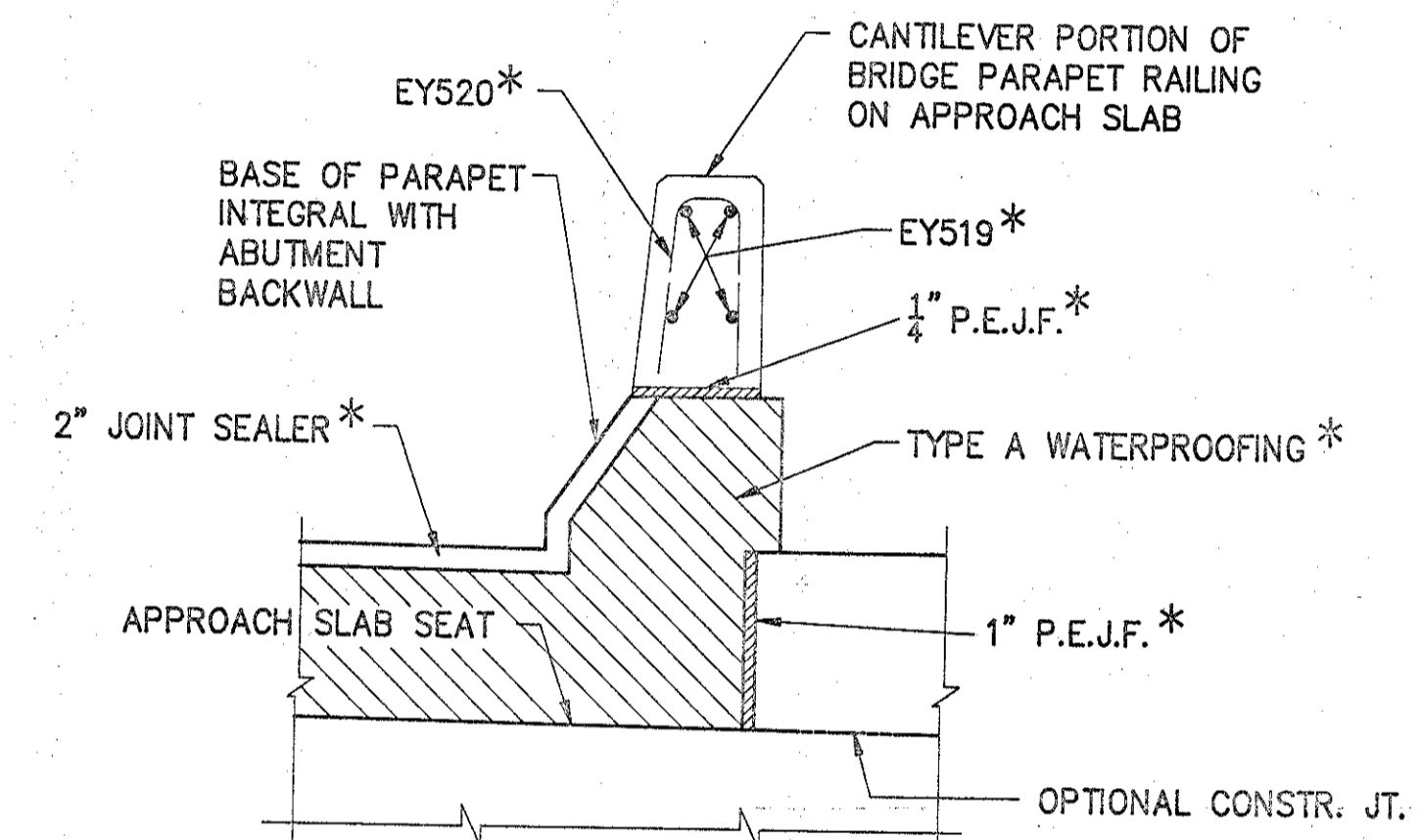


PART PLAN AT ABUTMENT

**TABLE B**

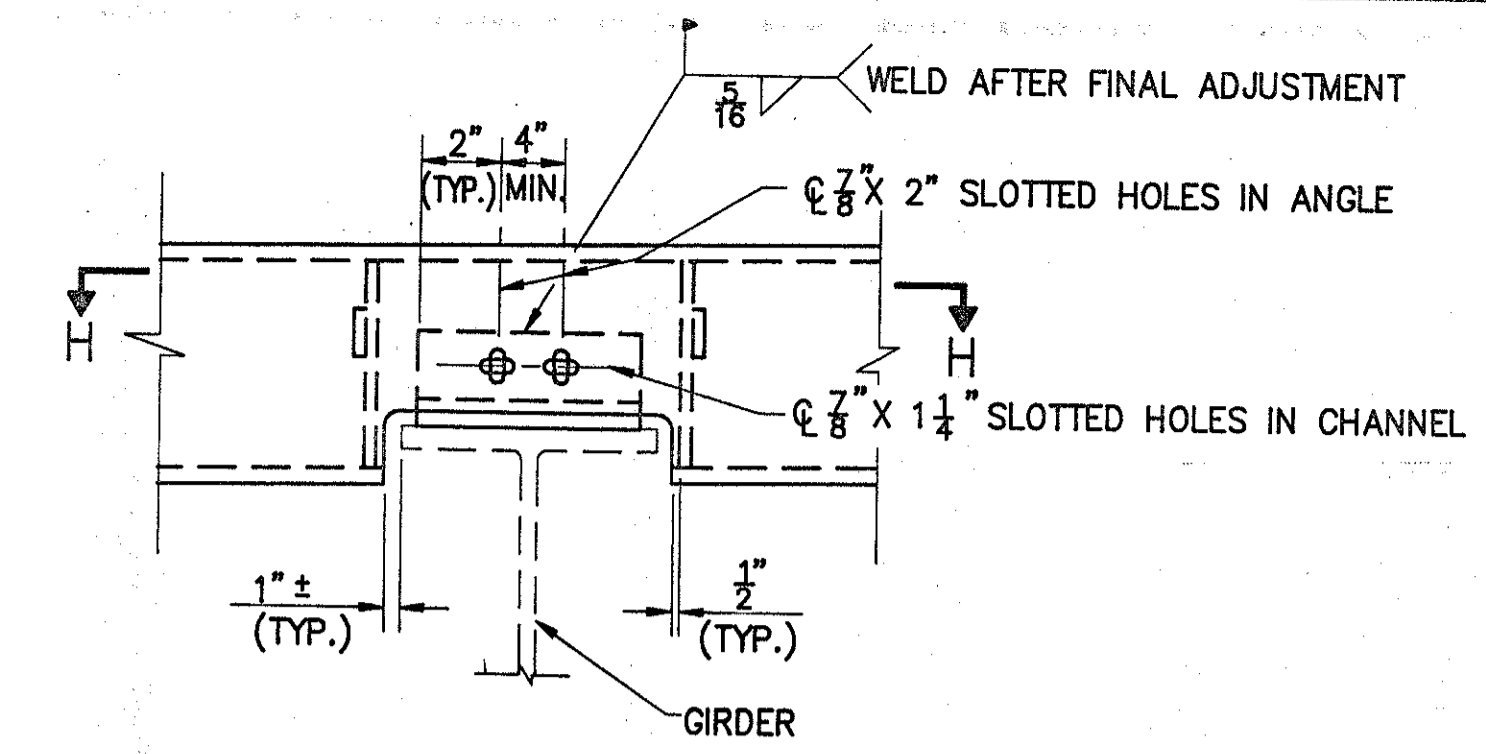
TEMPERATURE	DIMENSION "A" Ⓞ
90°	1"
80°	1 1/4"
70°	1 3/8"
60°	1 1/2"
50°	1 5/8"
40°	1 3/4"
30°	2"

Ⓞ MINIMUM JOINT OPENING ("A") AT TIME OF SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1 1/2". IF THE JOINT OPENING IS LESS, THE INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1 1/2" OPENING.

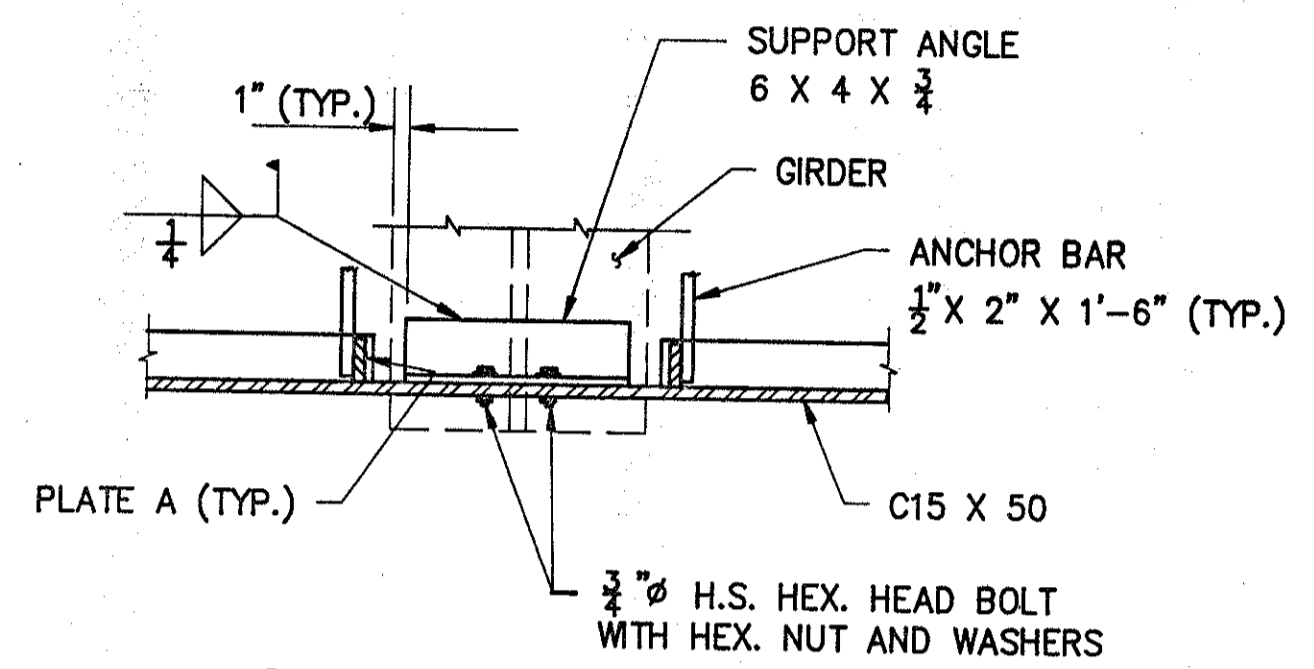


\* INCLUDED WITH ITEM 611 "REINFORCED CONCRETE APPROACH SLABS, "AS PER PLAN" FOR PAYMENT

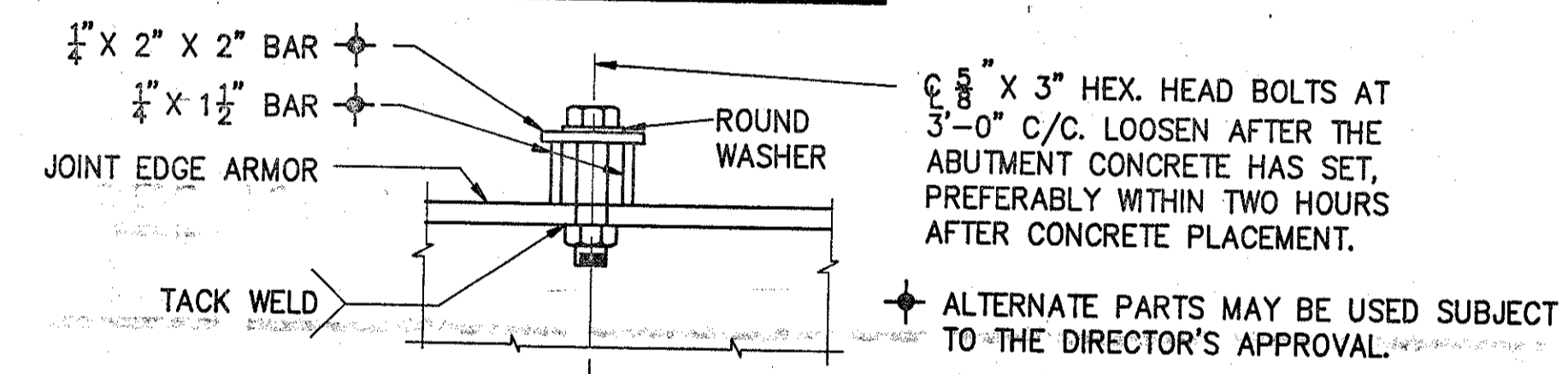
SECTION W-W



DETAIL A

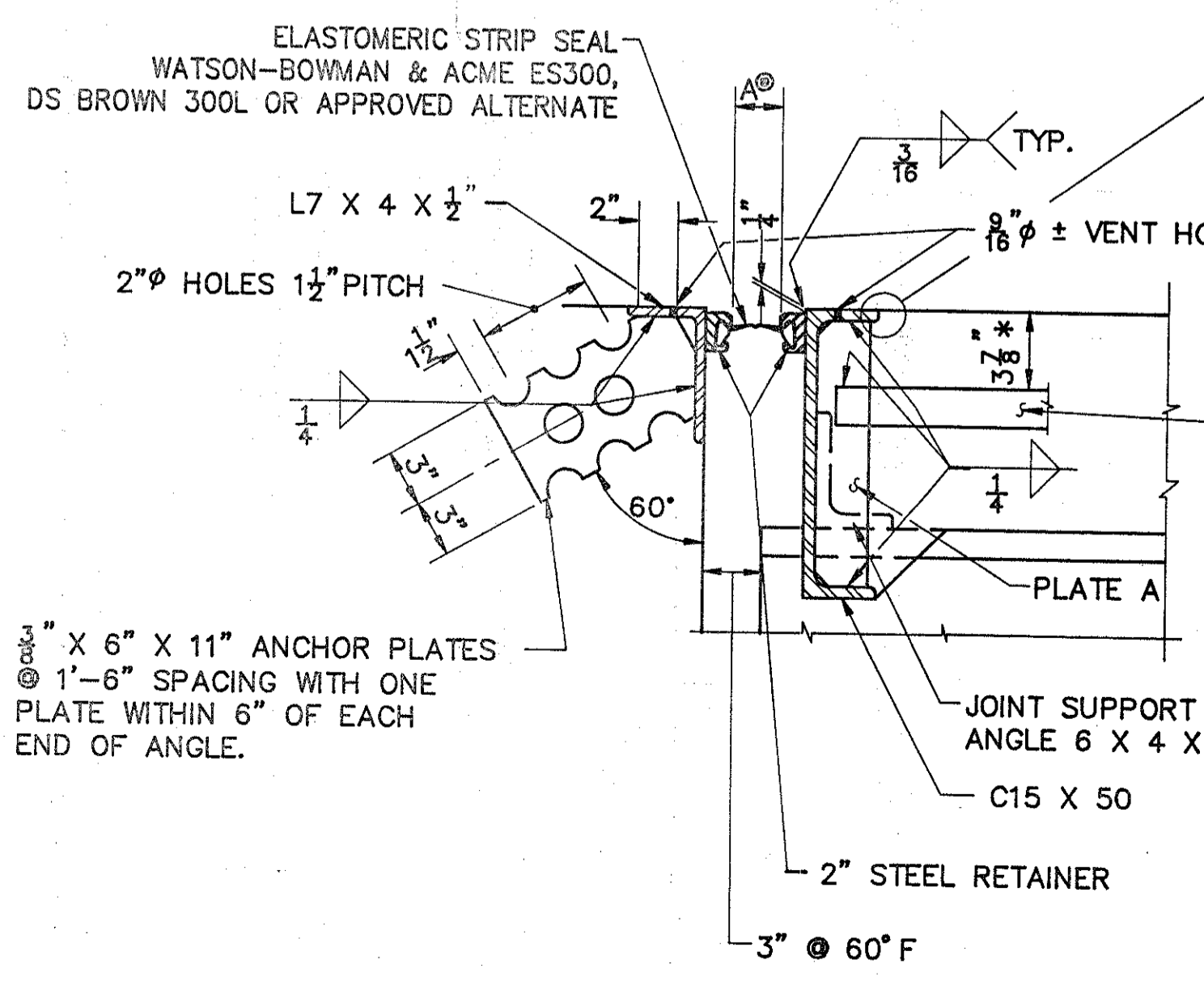


SECTION H-H

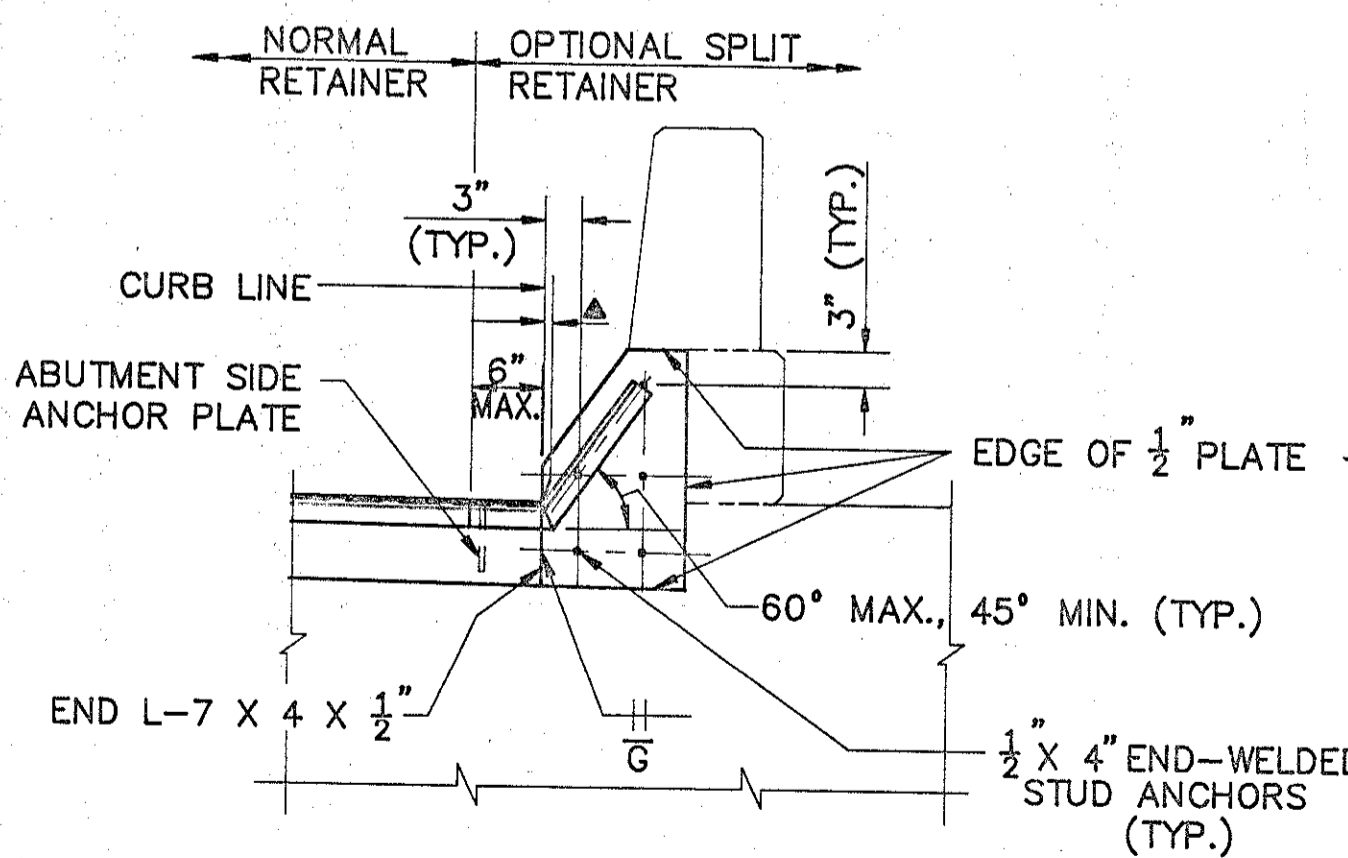


DETAIL B  
TEMPORARY SUPPORT BARS

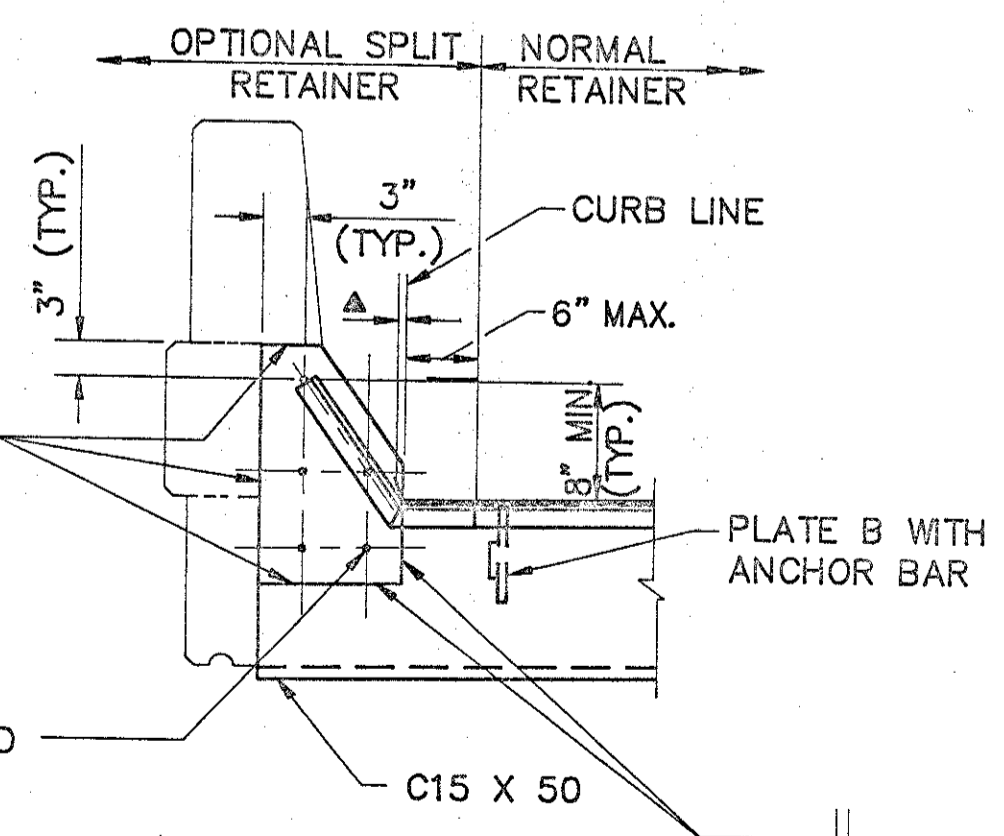
FINISH CONCRETE SURFACE EITHER FLUSH WITH OR SLIGHTLY ABOVE JOINT ARMOR.



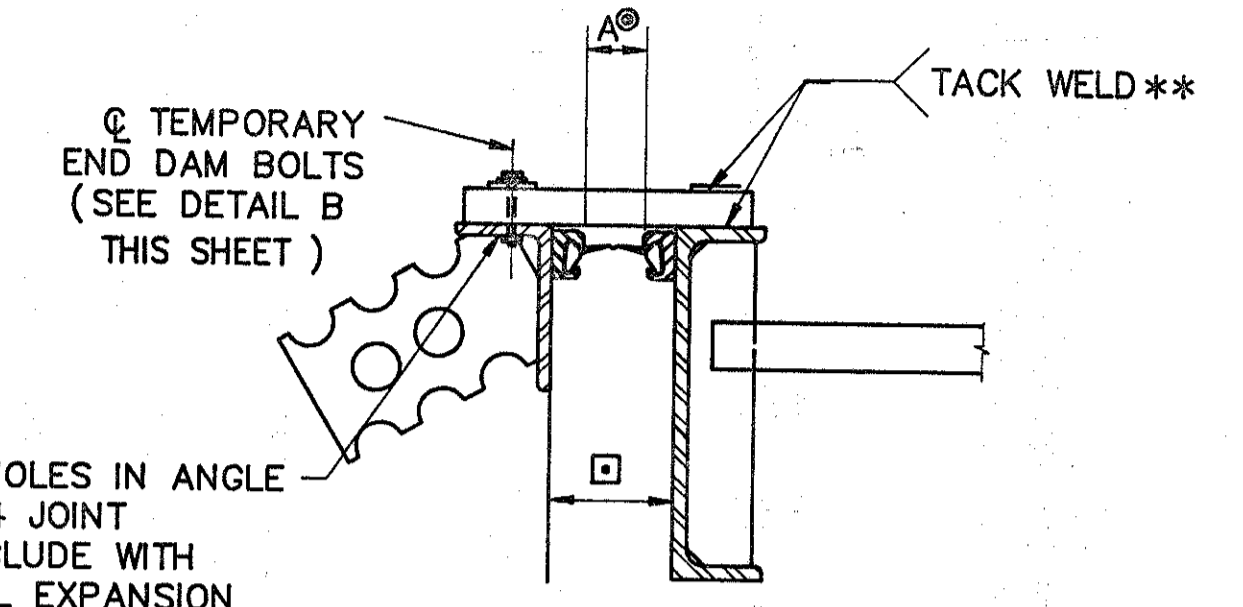
SECTION X-X



SECTION Z-Z



SECTION Y-Y

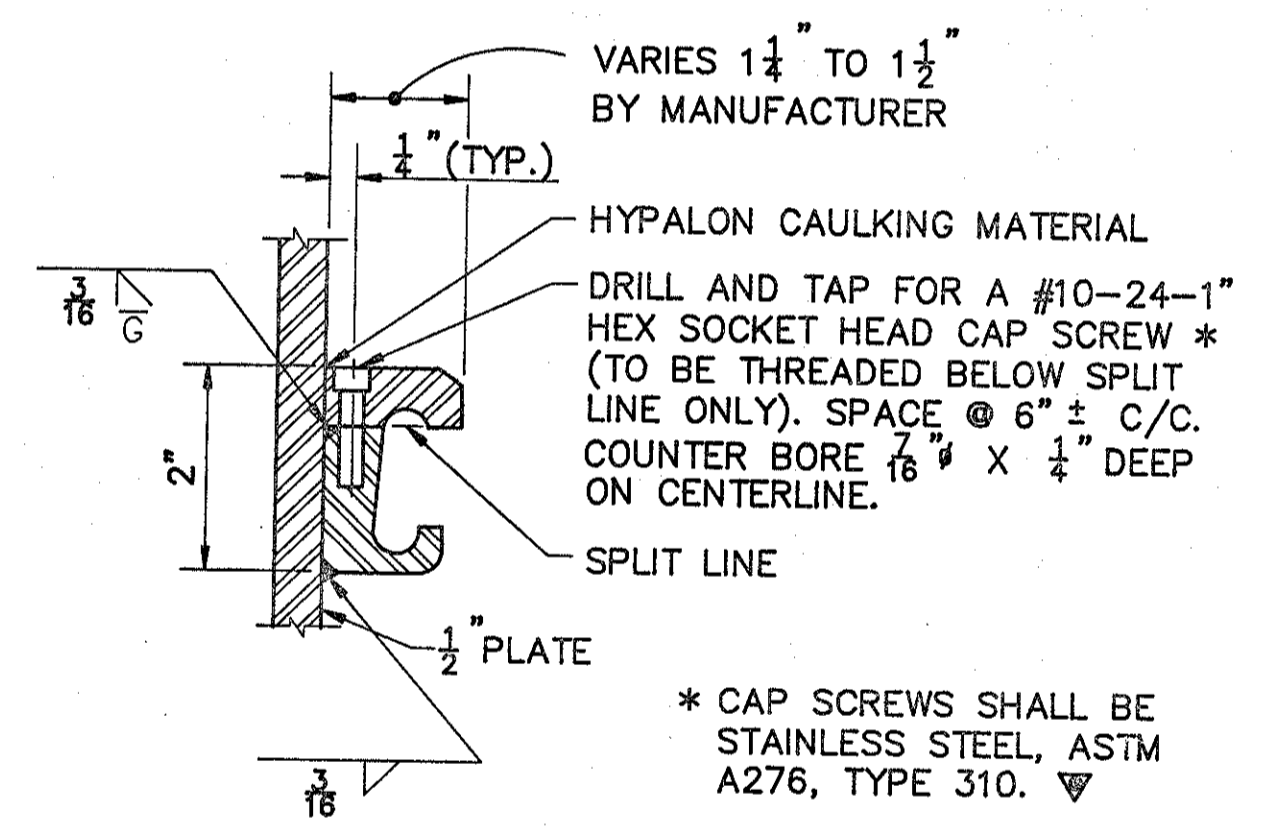


FILL BOLT HOLES IN ANGLE WITH 705.04 JOINT SEALER. INCLUDE WITH "STRUCTURAL EXPANSION JOINTS, INCLUDING STEEL RETAINER AND STRIP SEAL GLAND" FOR PAYMENT.

\*\* REMOVE AFTER ABUTMENT CONCRETE HAS CURED.

**JOINT ARMOR ADJUSTMENT DETAIL**

AN ALTERNATE DETAIL MAY BE USED SUBJECT TO THE DIRECTORS APPROVAL  
 □ THIS DIMENSION IS THE SUM OF (2 X STEEL RETAINER WIDTH + DIMENSION "A")



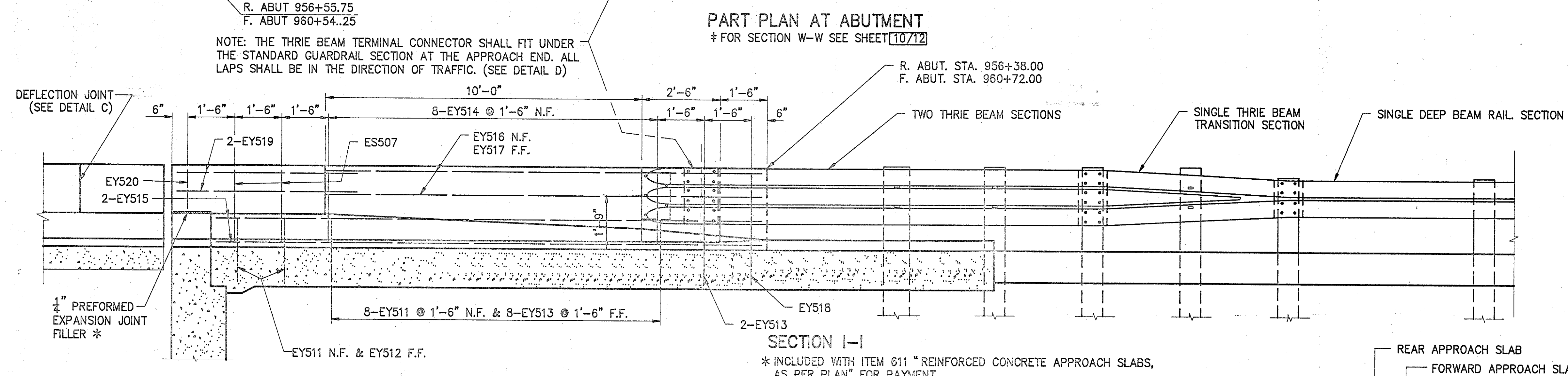
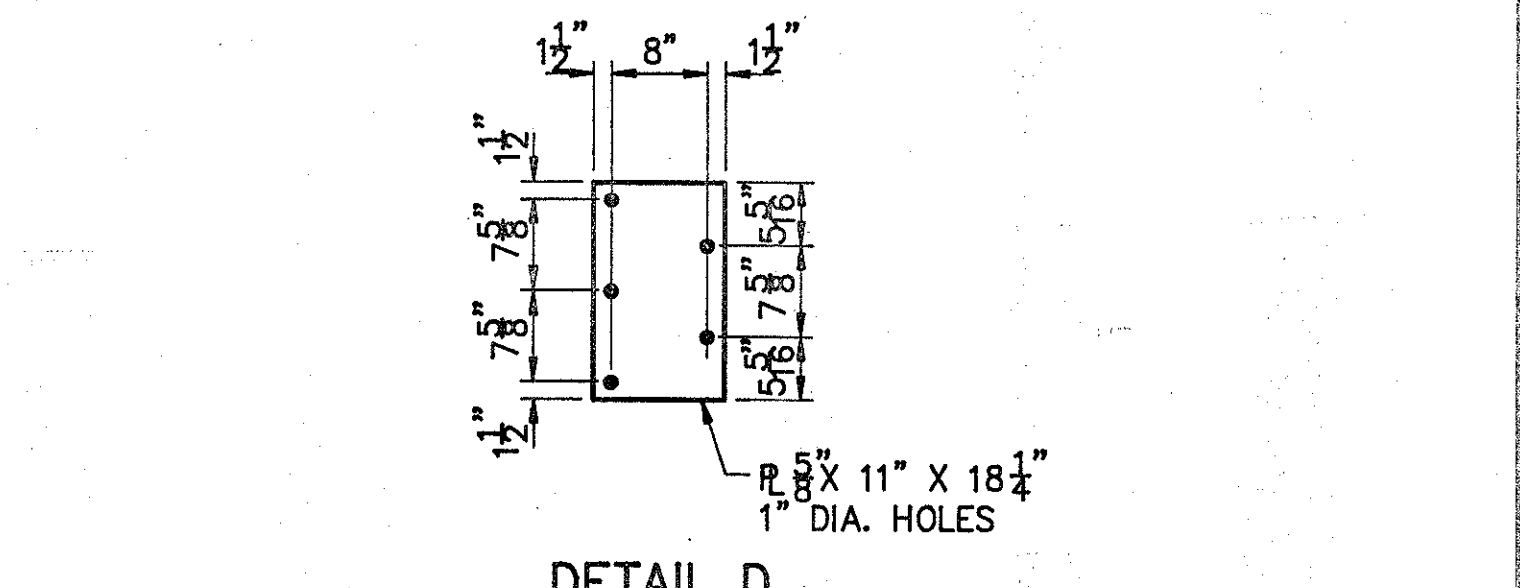
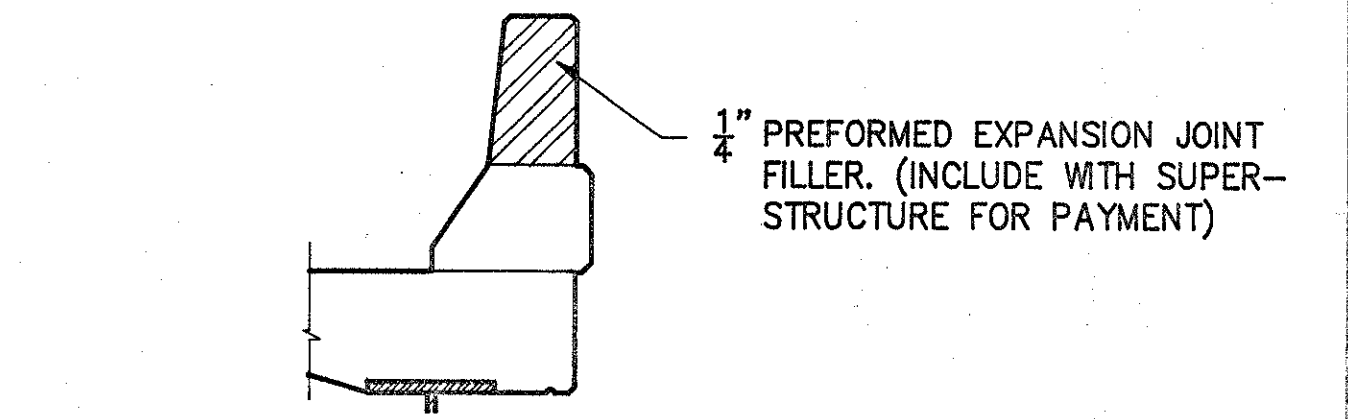
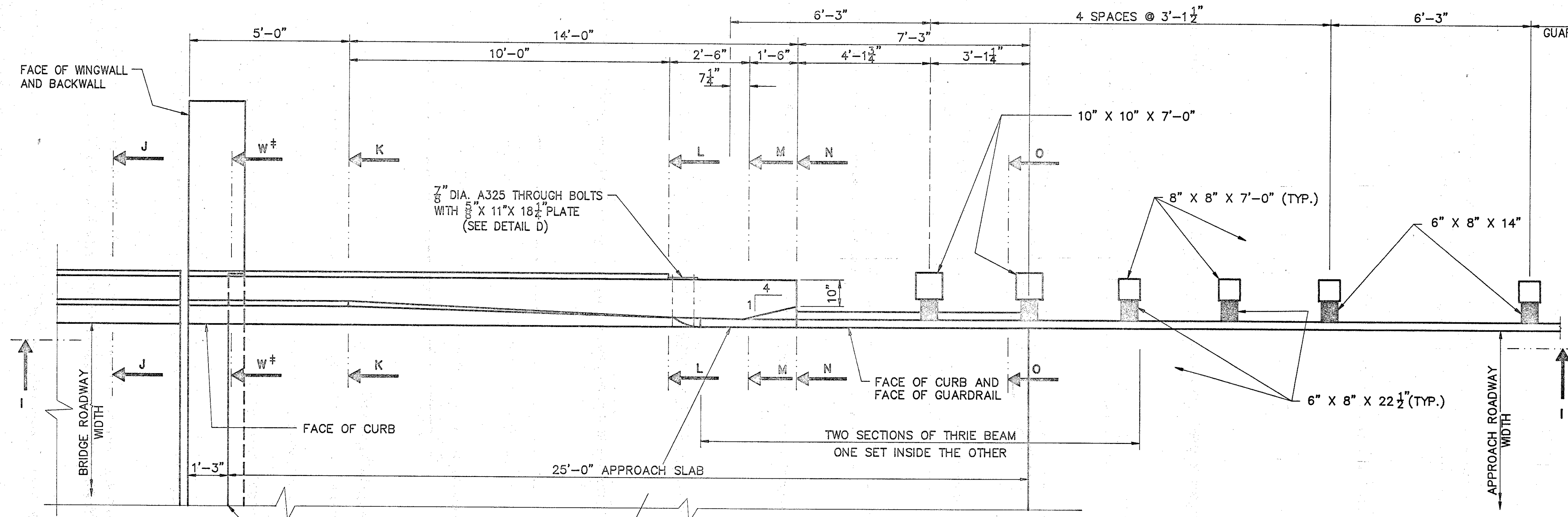
**SPLIT RETAINER DETAIL**  
NORMAL RETAINER SIMILAR

THE SPLIT RETAINER SHOWN ABOVE IS A NORMAL RETAINER WHICH HAS BEEN MODIFIED AS INDICATED. AT JOINT UPURNS, ESPECIALLY ON SKEWED BRIDGE DECKS, THE USE OF SPLIT RETAINERS MAY BE NECESSARY TO ENSURE GOOD SEAL GLAND INSTALLATION. ON SHOP DRAWINGS, WHERE THE SPLIT RETAINER IS NOT USED, THE SEAL GLAND MANUFACTURER OR HIS AGENT WARRANTS TO THE DIRECTOR THAT THE FURNISHED CONFIGURATION WILL PROVIDE FOR READY INSTALLATION AND REPLACEMENT OF THE GLAND.

▼ FOR SOURCE DETERMINATION OF STEEL, A LETTER OF COMPLIANCE IN LIEU OF COMPLETE TRACEABILITY WILL SUFFICE.

MOSURE AND SYRAKIS CO. YOUNGSTOWN, OHIO				
EXPANSION JOINT DETAILS BRIDGE NO. ATB-534-1834 OVER GRAND RIVER				
ASHTABULA COUNTY, OHIO				
DESIGNED			DRAWN	
R.R.			E.K.	
6-90			6-90	
CALC.		CHECKED		
R.R.		D.S.		
6-90		6-90		
REVIEWED				
T.M.				
7-90				
STA. 956+55.75 STA. 960+54.25				





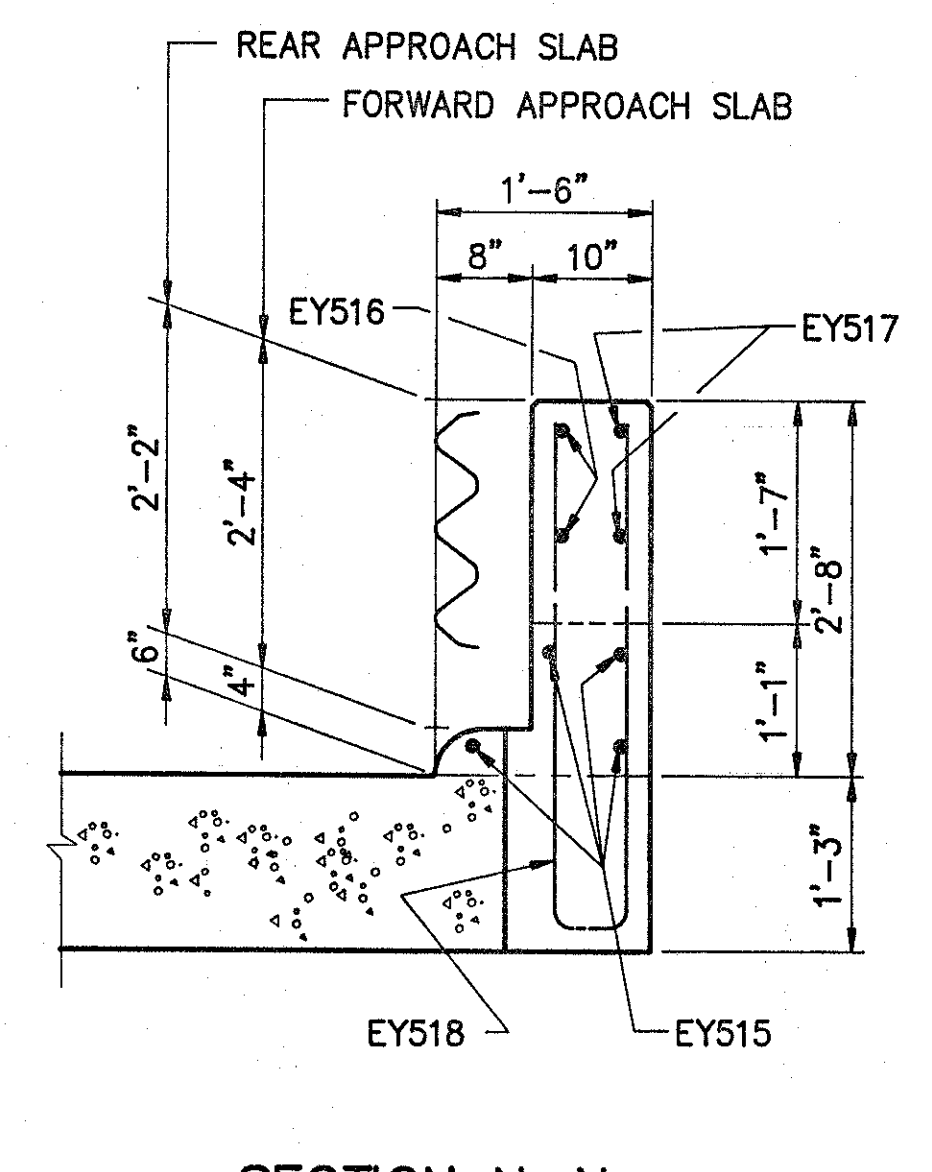
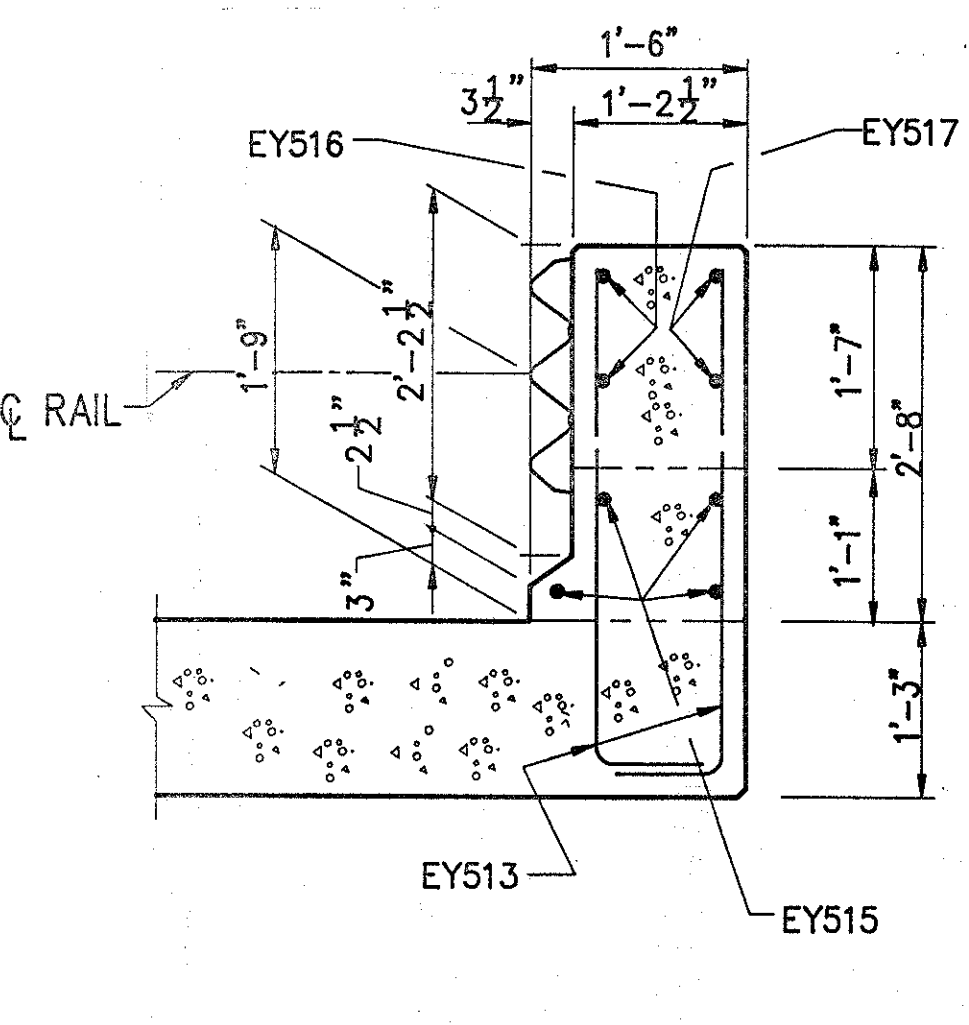
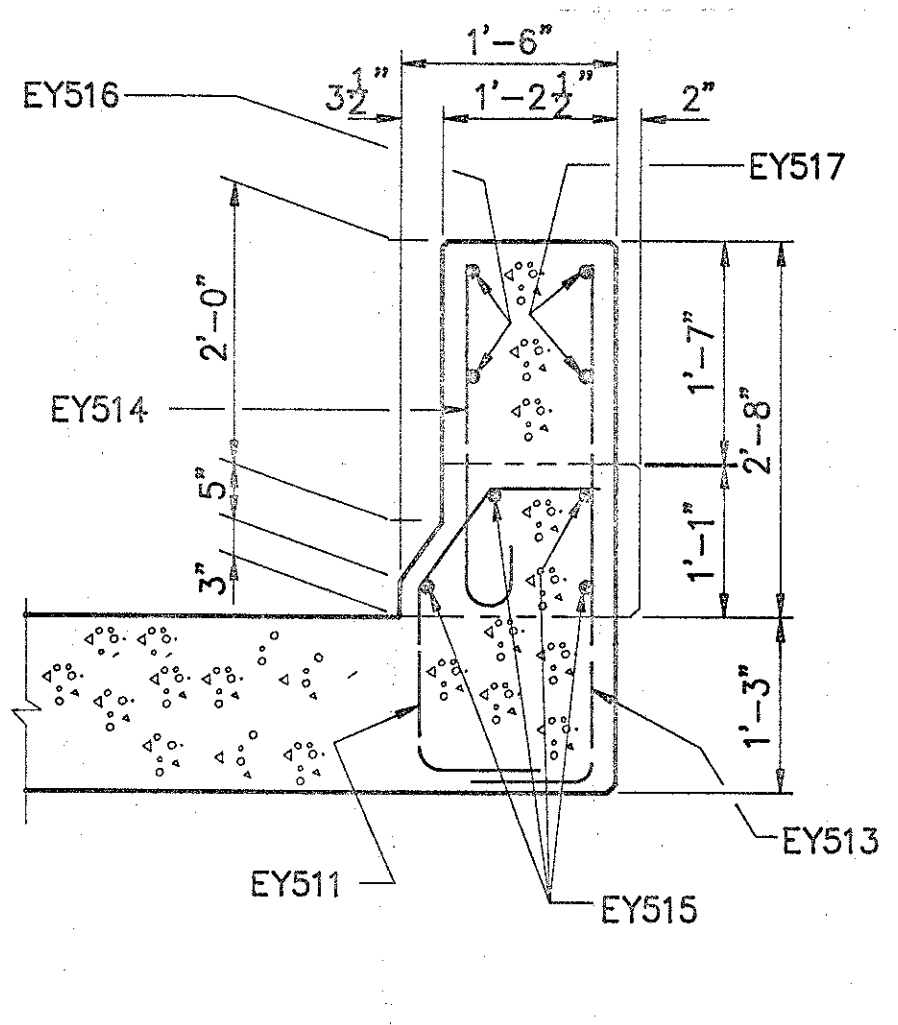
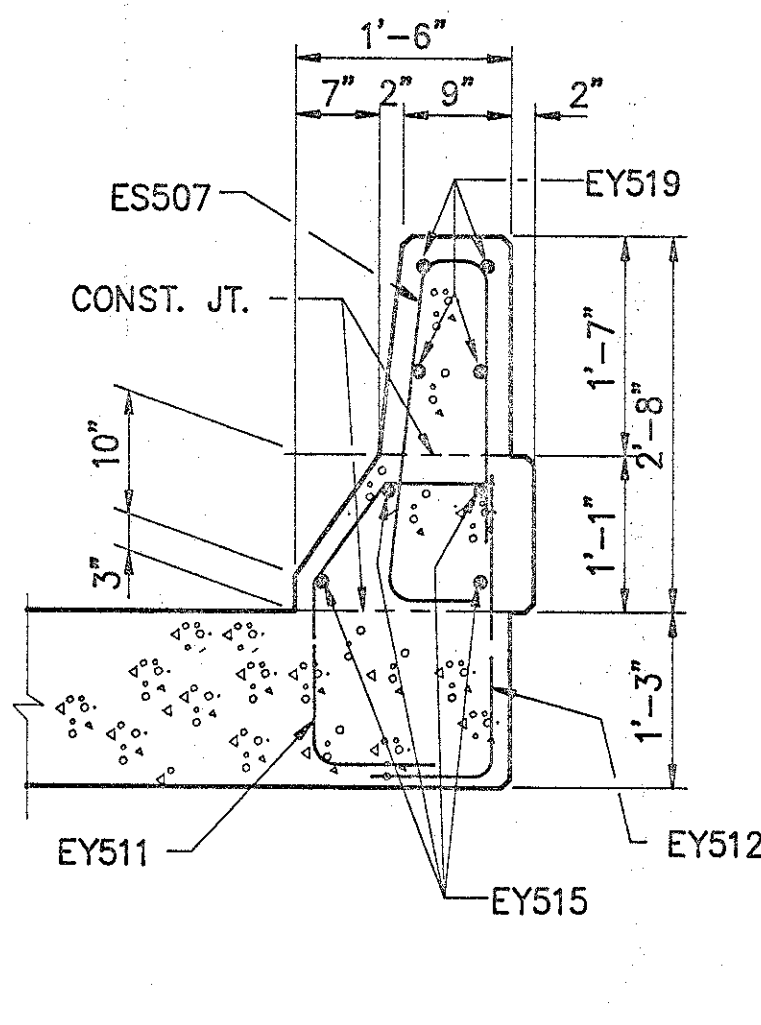
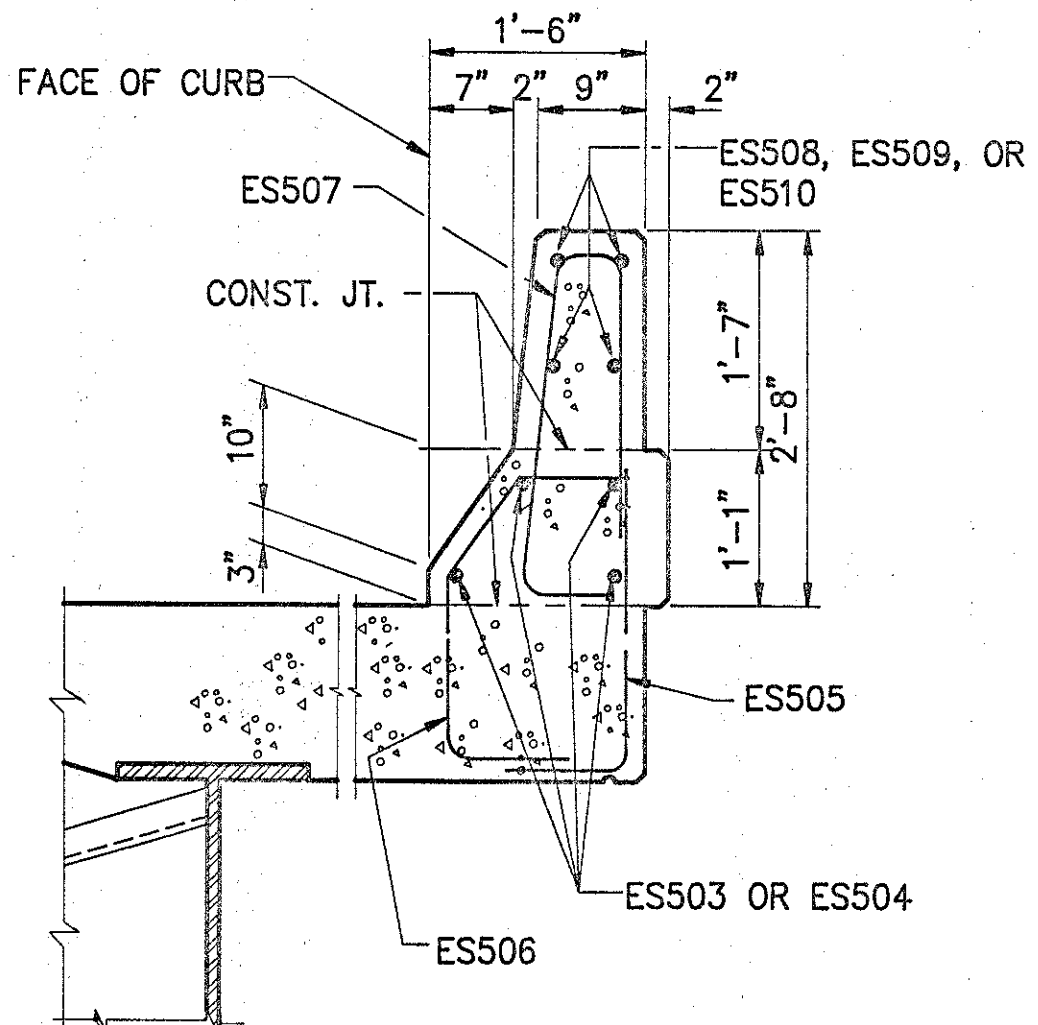
**NOTES**

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 NOT TO BE LESS THAN 20 LBS. PER CU. FT.

CONCRETE PARAPETS ABOVE UPPER CONSTRUCTION JOINT SHALL BE PLACED IN ALTERNATE SECTIONS BY THE USE OF BULKHEADS. CLOSING SECTIONS SHALL BE PLACED AFTER REMOVAL OF BULKHEADS AND AFTER PLACEMENT OF EXPANSION JOINT FILLER. EXPOSED EDGES OF THE FILLER SHALL BE FLUSH WITH THE SURFACE OF CONCRETE AND SHALL BE FREE OF MORTAR.

PAYMENT: ADDITIONAL GUARDRAIL COST IN EXCESS OF NORMAL GUARDRAIL COST, SUCH AS: TERMINAL CONNECTOR, STEEL PLATE, BOLTS, NUTS, PLATE WASHERS AND OTHER HARDWARE SHALL BE INCLUDED WITH BRIDGE TERMINAL ASSEMBLY FOR PAYMENT. QUANTITIES OF CONCRETE AND REINFORCING STEEL FOR PARAPET ABOVE APPROACH SLAB SHALL BE INCLUDED WITH ITEM 611 "REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN" FOR PAYMENT.

POSTS SHALL BE SQUARE-SAWED PRESSURE TREATED WOOD AS PER 710.14. POSTS SHALL BE FABRICATED WITH SQUARE ENDS. BOLT HOLES SHALL BE BORED AND TOPS OF POSTS TRIMMED, IF REQUIRED, AFTER POSTS ARE SET. POSTS MAY BE SET IN DRILLED HOLES OR DRIVEN TO GRADE. STEEL POSTS AND BLOCKOUTS MAY BE FURNISHED AS AN ALTERNATE, PROVIDED THAT THE STRENGTH EQUALS OR EXCEEDS THE STRENGTH OF WOOD POSTS AND BLOCKOUTS.



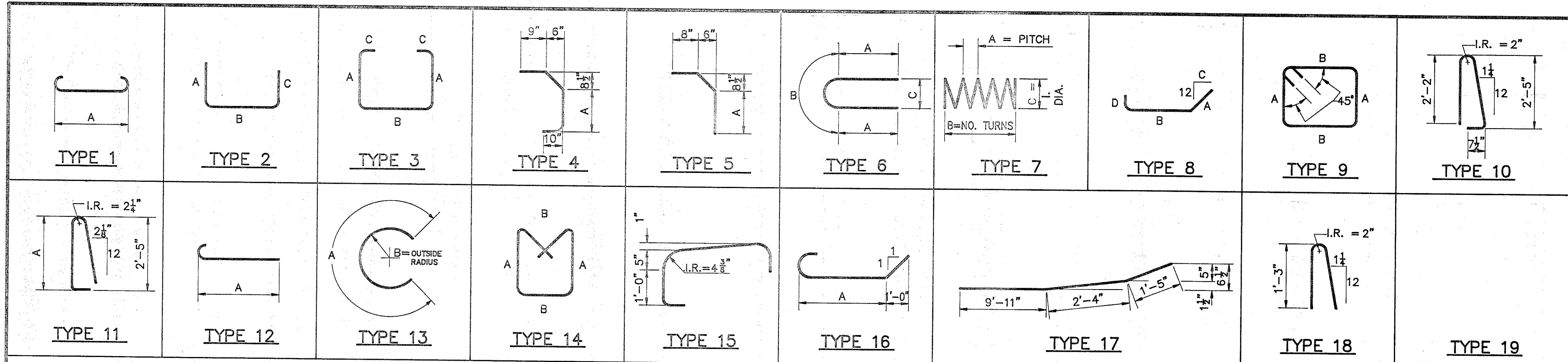
**MOSURE AND SYRAKIS CO.**  
 YOUNGSTOWN, OHIO

**BRIDGE RAILING**  
 BRIDGE NO. ATB-534-1834  
 OVER  
 GRAND RIVER

STA. 956+55.75  
 STA. 960+54.25

DESIGNED	DRAWN	CALC.	CHECKED	REVIEWED
R.R.	E.K.	R.R.	D.S.	T.M.
6-90	6-90	6-90	6-90	6-90





**NOTES:**

**BAR SIZE:** The bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is a No. 5 size bar and P1101 is a No. 11 size bar.

**SPIRAL REINFORCING BARS:** The "LENGTH" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars may have deformation and shall in other respects conform to item 509. 1 1/2 closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.80 lb. per lin. ft. of spacers, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.80 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

**EPOXY COATED BARS:** BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY COATED, INCLUDE A LETTER PREFIX 'E'.

ABUTMENTS										APPROACH RAILING										SUPERSTRUCTURE												
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	INC.	WEIGHT	MARK	NO.	LENGTH	TYPE	A	B	C	D	E	INC.	WEIGHT	MARK	NO.	LENGTH	TYPE	A	B	C	D	E	INC.	WEIGHT
EA501	36	26'-3"	S							986	EY511	40	3'-6"	4	1'-3"						146	ES401	715	30'-0"	S							14,329
EA502	2	5'-0"	S							10	EY512	8	2'-7 1/2"	2	0'-10"	1'-11"	0				22	ES402	110	13'-1"	S							961
EA503	2	4'-8"	S							10	EY513	40	4'-2 1/2"	2	0'-10"	3'-6"	0				176											
											EY514	32	3'-0"	12	2'-5"						100											
											EY515	16	17'-5"	S							291											
											EY516	8	13'-8"	17							114	ES501	728	25'-4"	S							19,236
											EY517	8	13'-8"	S							114	ES502	728	15'-4"	S							11,643
											EY518	4	7'-3"	2	3'-6"	0'-6"	3'-6"				30	ES503	831	30'-0"	S							26,002
EA602	72	9'-7"	2	4'-3"	1'-5"	4'-3"				1,036	EY519	16	6'-9"	S							113	ES504	102	16'-0"	S							1,702
EA603	72	5'-7"	2	2'-6"	0'-11"	2'-6"				604	EY520	4	2'-8"	18							11	ES505	648	2'-5 1/2"	2	1'-9"	0'-10"	0				1,662
EA604	14	11'-7"	2	5'-3"	1'-5"	5'-3"				244	ES507	8	5'-3"	10							44	ES506	648	3'-3"	4	1'-0"						2,197
EA801	52	4'-11"	16	2'-7"						683												ES507	648	5'-3"	10							3,548
EY511	8	3'-6"	4	1'-3"						29												ES508	16	8'-6"	S							142
EY512	8	2'-7 1/2"	2	0'-10"	1'-11"	0				22												ES509	112	13'-8"	S							1,597
																						ES510	192	7'-2"	S							1,435
																						ES511	168	20'-6"	S							3,592
																						ES601	1,456	20'-3"	S							44,285