

15<sup>th</sup> St SW Bridge Replacement Project, GP 1299  
Engineering Department

# Addendum 2

**City of Canton, Ohio**  
Purchasing Department  
218 Cleveland Ave. SW, 4<sup>th</sup> floor  
Canton, Ohio 44702

15<sup>th</sup> St. SW Bridge Replacement Project, GP 1299

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**Item/Project**

Engineering Department

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**Responsible Department**

Wednesday, June 5, 2019 at 4:00 PM local time

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**Bids Due On or Before**

**Bid Proposal Submitted By:**

---

**Company Name**

---

**Street Address**

---

**City**

**State**

**Zip**

---

**Contact Person**

**Phone No.**

**Email Address**

**15<sup>th</sup> St SW Bridge Replacement Project, GP 1299**  
**Engineering Department**

**Request for Information 1:**

*Question:*

Are any construction plans of the existing bridge available for review?

*Answer:*

Yes, the existing bridge plans are attached for review.

**Request for Information 2:**

*Question:*

Are there any hydraulic studies of this part of the West Branch of the Nimishillen Creek available for review other than the FEMA FIS?

*Answer:*

The City of Canton does not have hydraulic studies of this part of the West Branch of the Nimishillen Creek available for review.

**DESIGN DESIGNATION**

1980 A.D.T. 6500  
 2000 A.D.T. 7345  
 D.H.V. 955  
 D 50/50  
 T 9.2%  
 V 35 MPH

**STATE OF OHIO  
 DEPARTMENT OF TRANSPORTATION**

452-8073

G.P. 840

M-2E79(1)

FHWA REGION	STATE	PROJECT
5	OHIO	(1-2E79(1))

STARK COUNTY  
 CITY OF CANTON  
 15 TH. STREET S.W.

**STARK COUNTY**

**CITY OF CANTON**

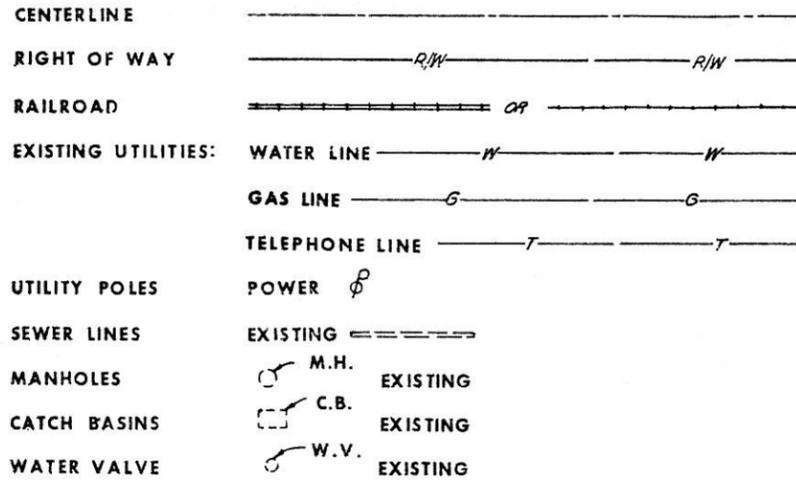
**15 TH. STREET S.W. BRIDGE**

**DECK REPLACEMENT**

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING  
 OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF 1  
 STREET AND THAT DETOURS WILL BE AS SHOWN ON DETOUR MAP

**CONVENTIONAL SIGNS**



**INDEX OF SHEETS**

TITLE SHEET	1
GENERAL NOTES	2
GENERAL SUMMARY	3
MISCELLANEOUS DETAILS	4
PLAN AND PROFILE	5
APPROACH SLAB DETAILS	6-7
STRUCTURES OVER 20 FT. SPAN	8-15

**LINE DATA**

BEGIN PROJECT	STA. 9+44.00
END PROJECT	STA. 10+58.00
LENGTH OF PROJECT	114 FEET OR 0.021 MILES
BEGIN WORK	STA. 0+90
END WORK	STA. 10+66.00
LENGTH OF WORK	176 FEET OR 0.033 MILES

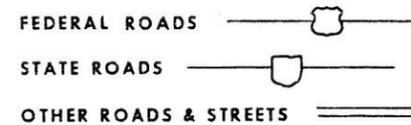
**LOCATION MAP**



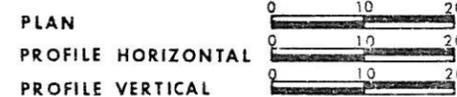
**STANDARD DRAWINGS**

AS-1.72	6-30-72
BP-5	4-16-79
BR-2.67	10-15-71
MC-3	6-1-73

**PORTION TO BE IMPROVED**



**SCALE**



**DETOUR MAP**



**SUPPLEMENTAL SPECIFICATIONS**

814	1-6-69
836	3-12-75
849	4-25-77
853	6-26-78
756	6-26-78
1001	1-3-77

5816  
 2  
 14  
 3

APPROVED J. Gallagher  
 DATE 12/18/80 CANTON TRAFFIC ENGINEER

APPROVED Philip L. ...  
 DATE 2-1-80 CANTON CITY ENGINEER

APPROVED William M. Goldman  
 DATE 2-9-81 DISTRICT DEPUTY DIRECTOR OF TRANSPORT

APPROVED Robert B. Pfeifer  
 DATE 4-3-81 ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED Howard E. ...  
 DATE 5-14-81 CHIEF ENGINEER, PLANNING AND DESIGN

APPROVED David L. Weir  
 DATE 5-14-81 DIRECTOR, DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

APPROVED: \_\_\_\_\_  
 DIVISION ADMINISTRATOR DATE

PREPARED AND RECOMMENDED BY:  
**W.E. QUICKSALL AND ASSOCIATES, INC.**  
 CONSULTING ENGINEERS  
 NEW PHILADELPHIA, OHIO

FILE NO.	STARK COUNTY	CITY OF CANTON
DATE OF LETTING	15TH ST. S.W. 19	
CONTRACT NO.		



# GENERAL SUMMARY

Calc. by C.F.D. 8-19-80  
 Chk'd by D.O.Q. 10-23-80

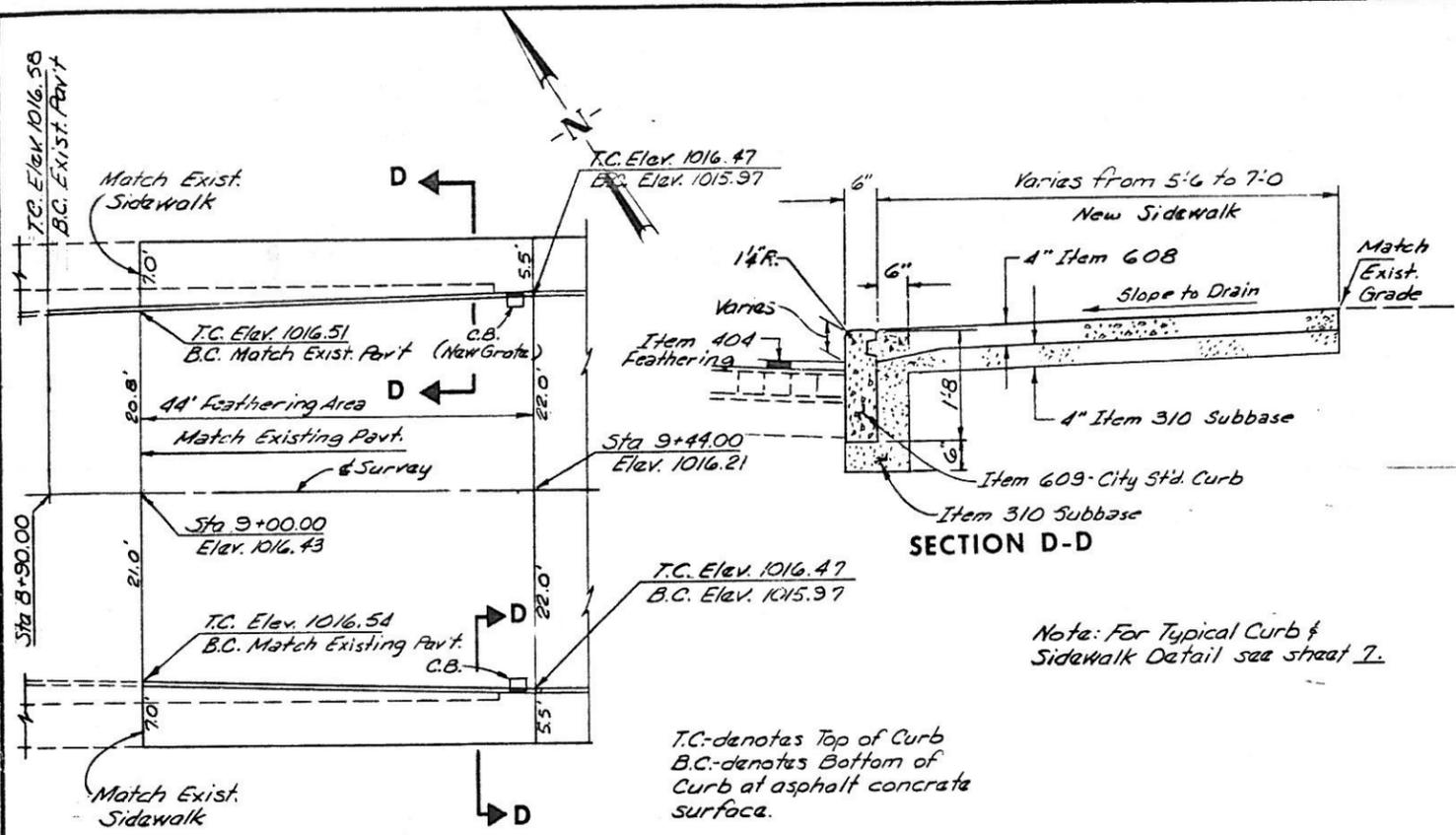
FHWA REGION	STATE	PROJECT
5	OHIO	

STARK COUNTY  
 CITY OF CANTON  
 15TH STREET S.W.

FROM SHEET NO.				GRAND TOTAL	UNIT	ITEM	DESCRIPTION	TYPE CODE UNLESS NOTED 0
2	4	5						
		227		227	SQ. YD.	202	PAVEMENT REMOVED	
		808		808	SQ. FT.	202	SIDEWALK REMOVED	
		150		150	LIN. FT.	202	CURB REMOVED	
		210		210	SQ. YD.	203	SUBGRADE COMPACTION	
		894		894	SQ. FT.	608	4" CONCRETE WALK, AS PER PLAN	
		54		54	CU. YD.	310	SUBBASE, TYPE I	
		7		7	CU. YD.	402	ASPHALT CONCRETE AC-20	
	9	7		16	CU. YD.	404	ASPHALT CONCRETE AC-20	
	20	21		41	GAL.	407	TACK COAT: RC-250, MS-2, RS-1, SS-1, OR SS-1H	
		.7		.7	TON	407	COVER AGGREGATE	
		12		12	SQ. YD.	452	8" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT	
		98		98	LIN. FT.	609	CURB, CITY OF CANTON STANDARD	
		210		210	SQ. YD.	611	REINFORCED CONCRETE APPROACH SLAB, T-14	
		2		2	EACH	604	MANHOLE, ADJUSTED TO GRADE	
		4		4	EACH	604	CATCH BASIN, ADJUSTED TO GRADE	
		1		1	EACH	604	CATCH BASIN CURB CASTING, CITY OF CANTON STANDARD INSTALLED ONLY	
		1		1	EACH	814	WATER VALVE BOX, ADJUSTED TO GRADE	
	22			22	SQ. YD.	659	SEEDING AND MULCHING	
	LUMP			LUMP	LUMP	624	MOBILIZATION	
	LUMP			LUMP	LUMP	614	MAINTAINING TRAFFIC	
	LUMP			LUMP	LUMP	619	FIELD OFFICE	
							FOR BRIDGE QUANTITIES, SEE SHEET NO. 9	

DRANN  
 C.F.D.  
 CORR.  
 C.F.D.  
 BK CK'D.  
 C.F.D.

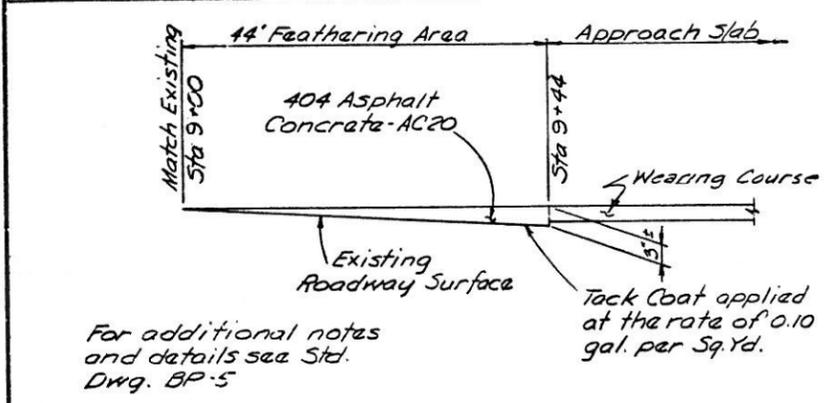
STARK COUNTY  
 CITY OF CANTON  
 15th STREET S.W.



**CURB AND SIDEWALK DETAILS**  
 STA 9+00 TO STA 9+44

Note: For Typical Curb & Sidewalk Detail see sheet 7.

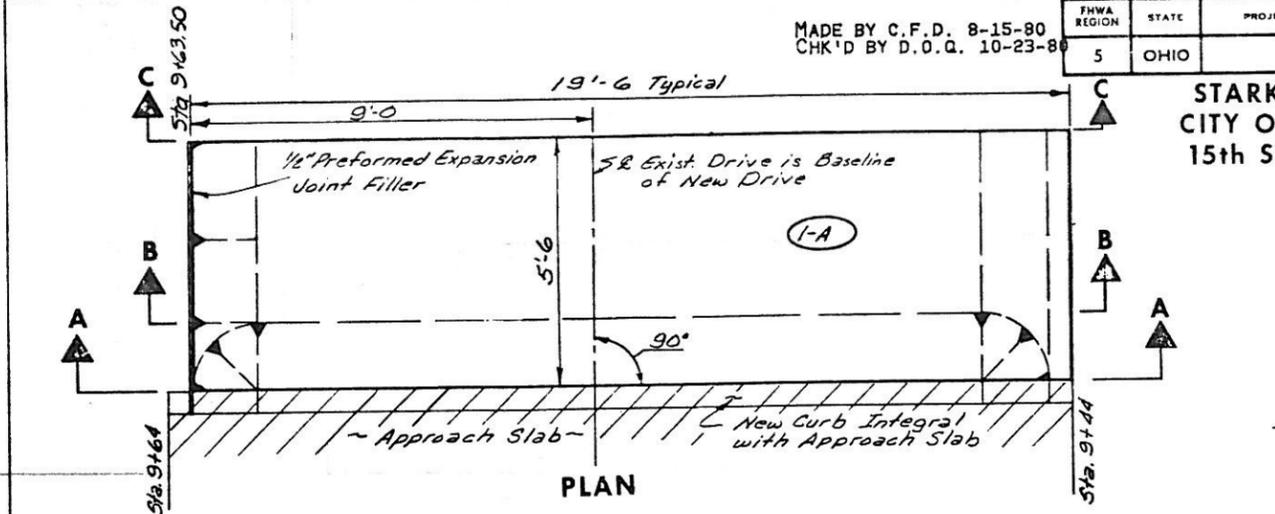
T.C.-denotes Top of Curb  
 B.C.-denotes Bottom of Curb at asphalt concrete surface.



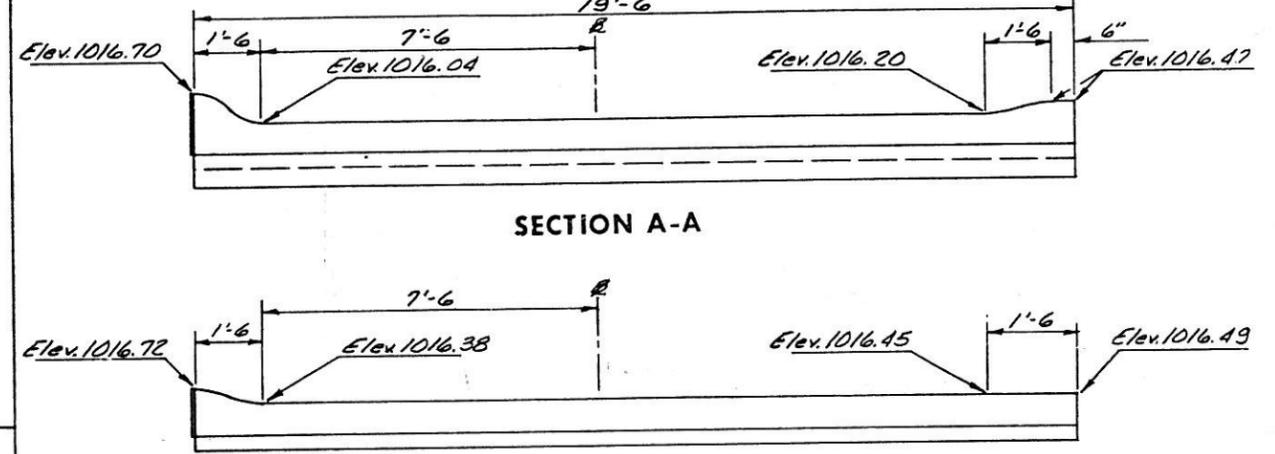
**TYPICAL FEATHERING AREA DETAIL**

For additional notes and details see Sit. Dwg. BP-5

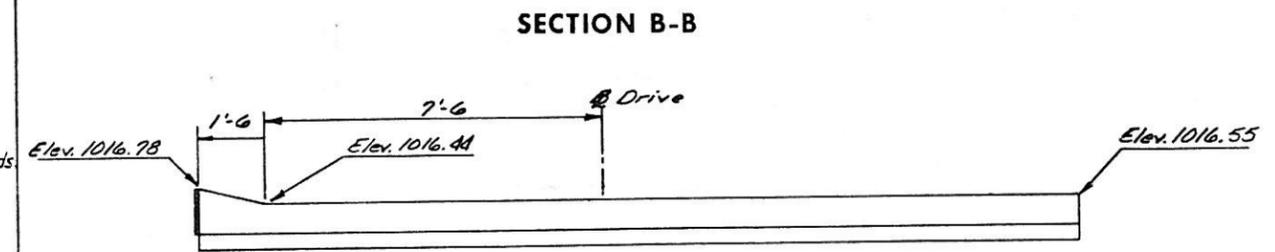
Item 404 - Asphalt Concrete - AC 20 8.7 Cu Yds  
 Item 407 - Tack Coat 20 Gal.  
 Quantities carried to General Summary Sheet 3.



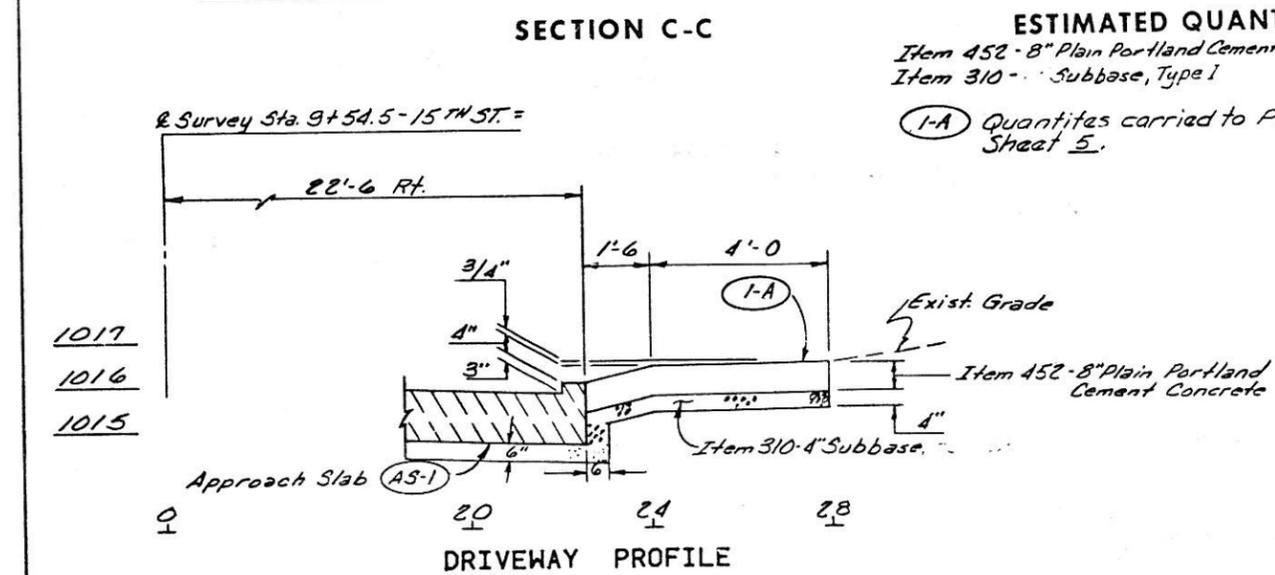
**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**DRIVEWAY PROFILE**

**ESTIMATED QUANTITIES**  
 Item 452 - 8" Plain Portland Cement Concrete - 11.5  
 Item 310 - Subbase, Type I - 1.1  
 (1-A) Quantities carried to Plan & Profile Sheet 5.

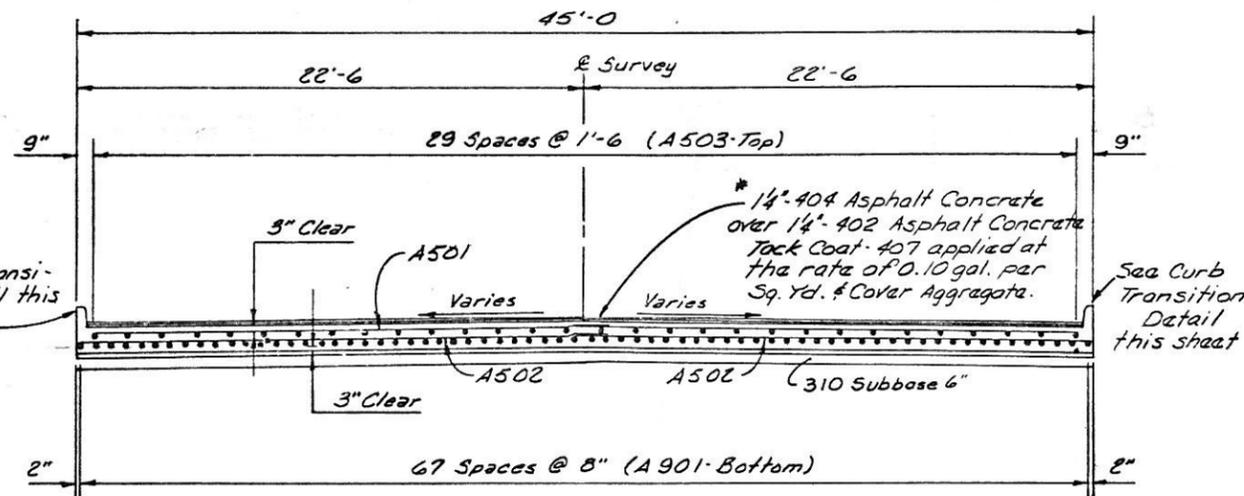
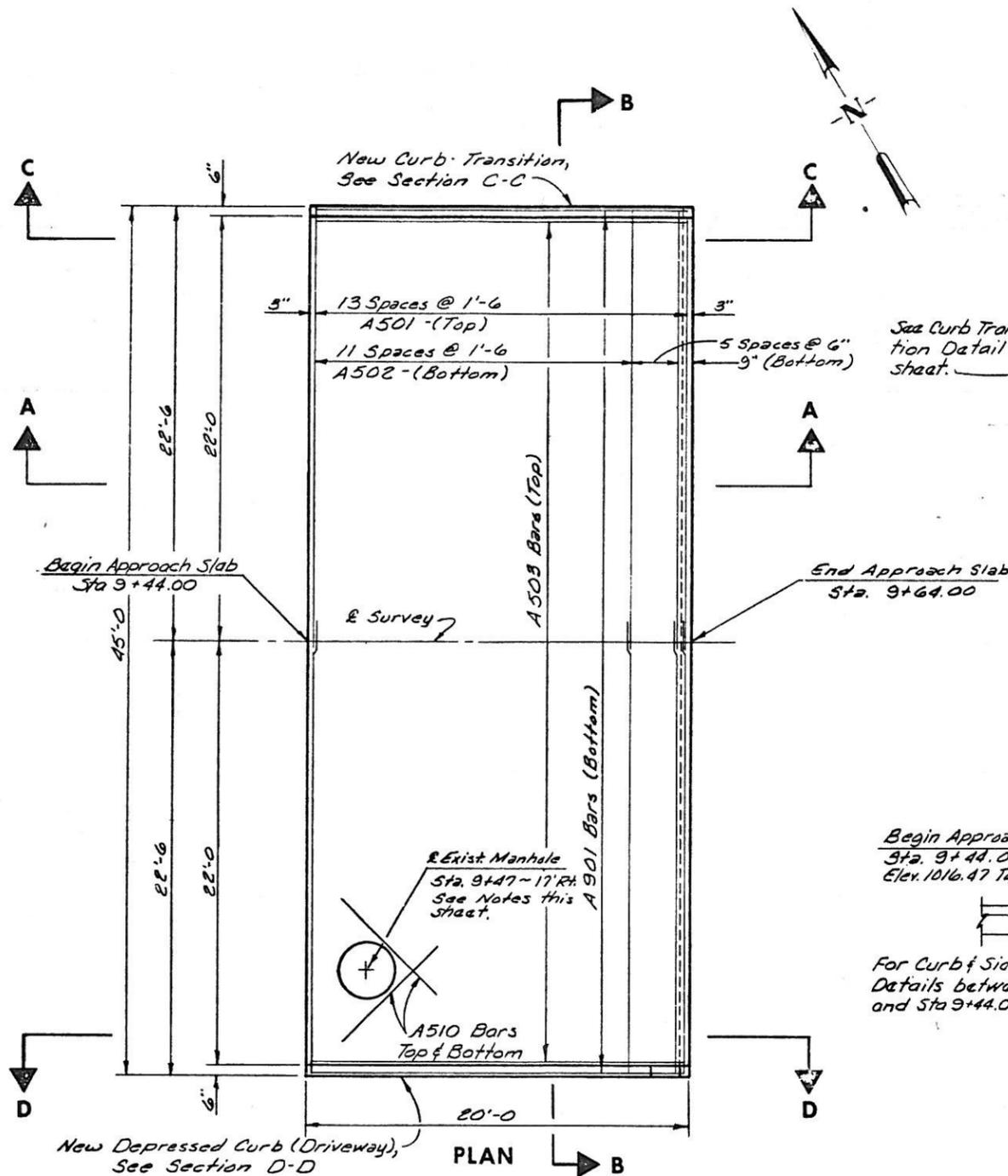
DRAWN C.F.D. 8-28-80  
 CORR. BKCK'D  
 10-23-80



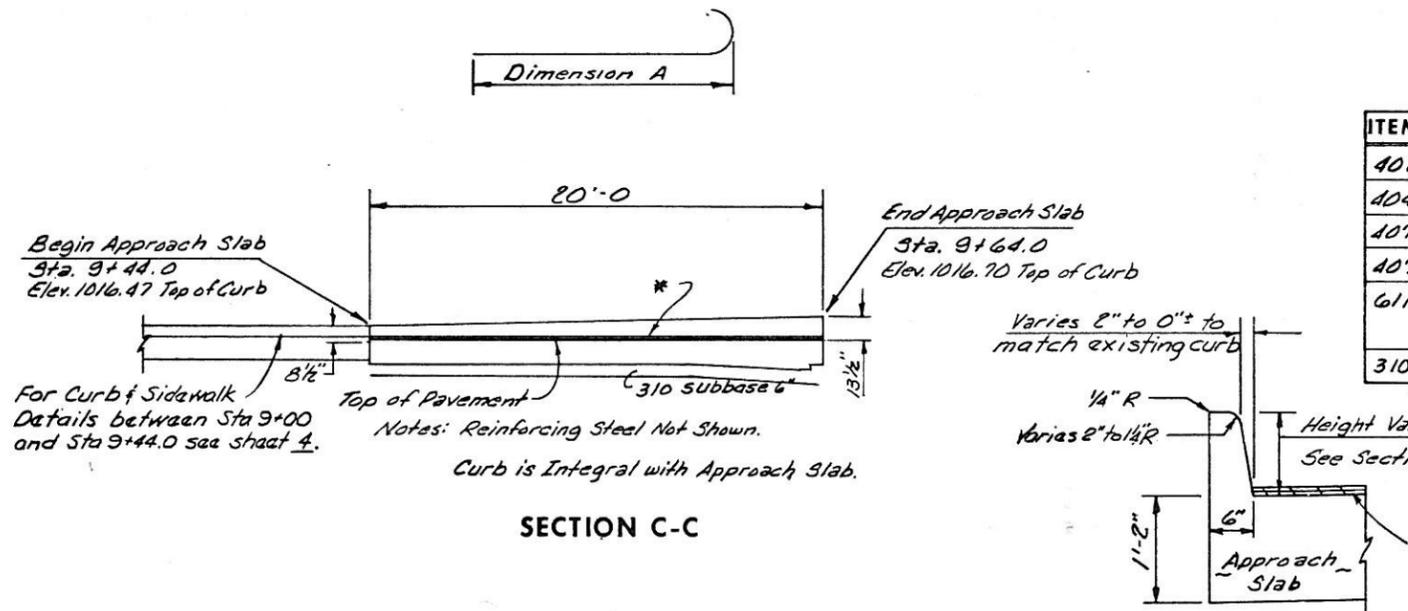
FHWA REGION	STATE	PROJECT
5	OHIO	

STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.

REINFORCING STEEL			
MARK	NO. REQ'D	LENGTH	DIAMETER
A 501	28	22'-7"	-
A 502	34	23'-2"	-
A 503	30	19'-6"	-
A-510	4	7'-7"	-
A-901	68	20'-9"	19



SECTION B-B

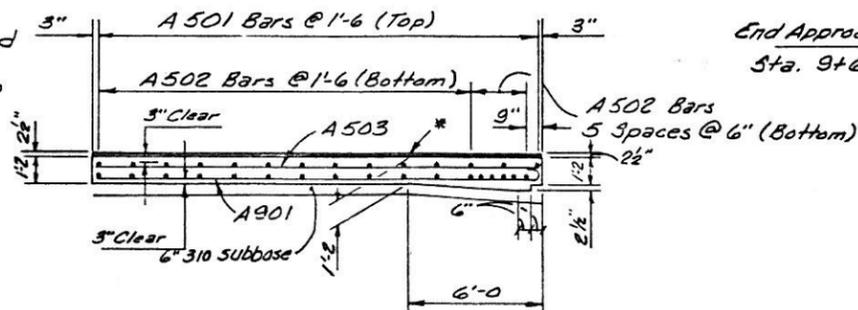


SECTION C-C

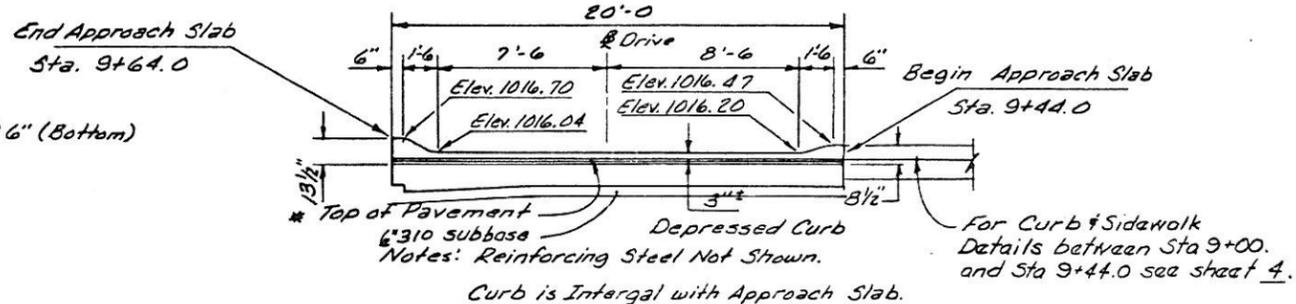
CURB TRANSITION DETAIL

ITEM	TOTAL	UNIT	DESCRIPTION
402	3.26	Cu.Yd.	Asphalt Concrete
404	3.26	Cu.Yd.	Asphalt Concrete
407	9.78	Bal.	Tack Coat
407	0.34	Tons	Cover Aggregate
611	100	Sq.Yd.	Reinf. Concr. Approach Slab T
310	16.7	Cu.Yd.	Subbase Type I

Notes:  
Existing Manhole to be adjusted to grade under Item 604. Use adjusted manhole casting to form approach slab concrete



SECTION A-A



SECTION D-D

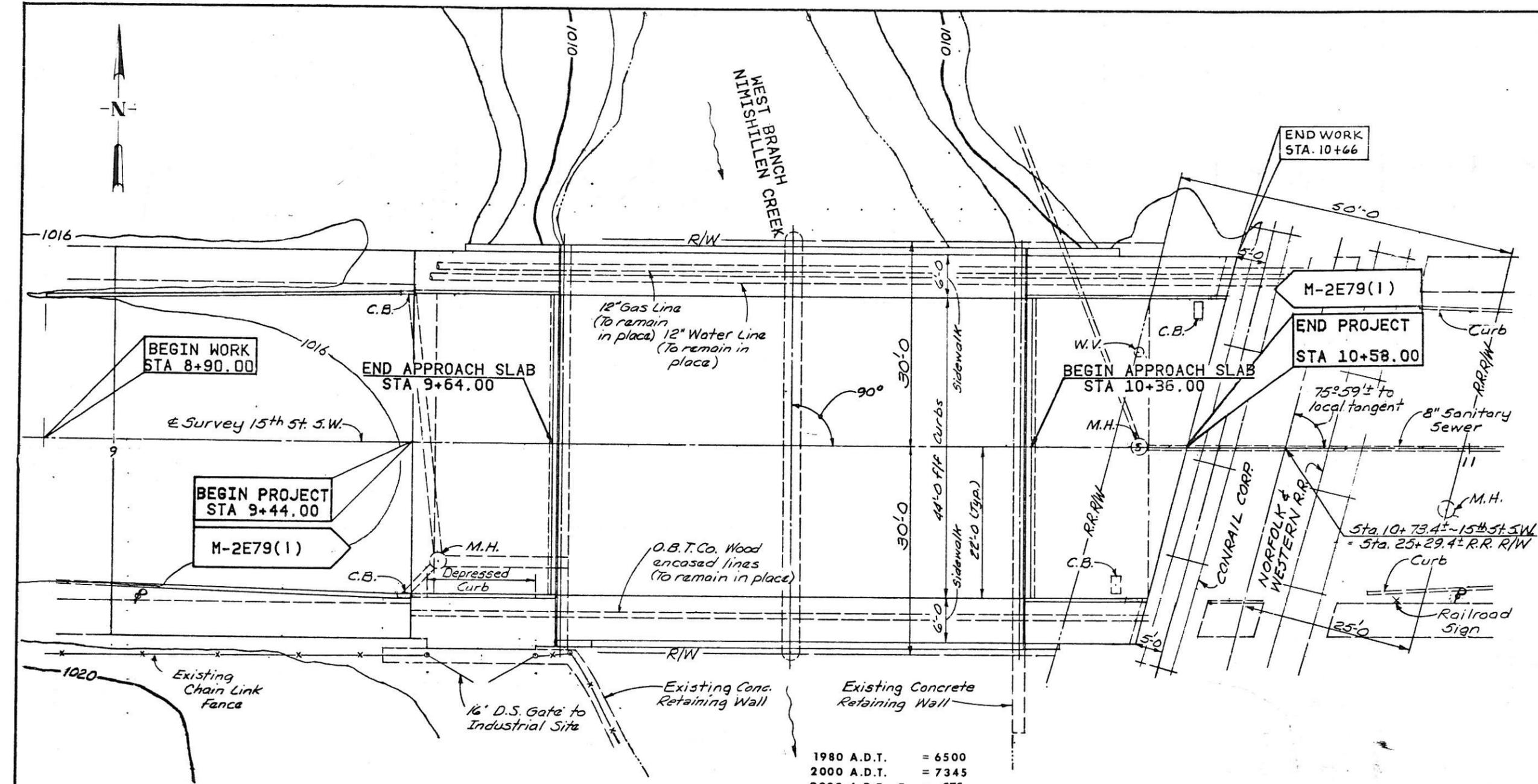
For additional Approach Slab & notes see std. dwg. AS-1-72.

W. E. QUICKSALL AND ASSOCIATES, INC.				
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO				
AS-1 APPROACH SLAB D				
15TH ST. S.W. BRIDGE OVER WEST BRANCH NIMISHILLEN C				
STARK COUNTY				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
SPD	SPD		DOQ	MIG
				19



FHWA REGION	STATE	PROJECT
5	OHIO	

STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.



1980 A.D.T. = 6500  
2000 A.D.T. = 7345  
2000 A.D.T. T = 676

**EXISTING STRUCTURE**

TYPE: Continuous steel beam concrete filled steel gr. and reinforced concr substructure units.  
SPANS: 34.0'-34.0'  
SKEW: 0°00'  
ROADWAY: 44'-0" f/f curbs + sidewalks.  
APPROACH SLABS: 18'-0" long  
ALIGNMENT: Tangent

**PROPOSED STRUCTURE**

TYPE: Continuous steel beam with reinforced concrete deck and modified substructure units.  
SPANS: 34.0'-34.0' % Bear  
SKEW: 0°-00'  
ROADWAY: 44'-0" f/f curbs + sidewalks.  
LIVE LOAD: HS20-44, Case 1 the Alternate Military Loading.  
WEARING SURFACE: Mon. Concrete  
APPROACH SLABS: A5-1-72  
ALIGNMENT: Tangent

**BENCH MARK:** B.M. #1 On cor. & large door at Wilkof Distr. Inc. Facing 15th St. S.W., Elev.

**STREAM DATA**

HIGH WATER DATA: \*  
20 Year: Elev. 1013.5  
100 Year: Elev. 1015.7  
\* From Flood Plain Profiles as by U.S. Army Corps of Engineers.  
Stations along the & Survey shall be verified in the field prior to construction. See General Notes, sheet 2. Sheet

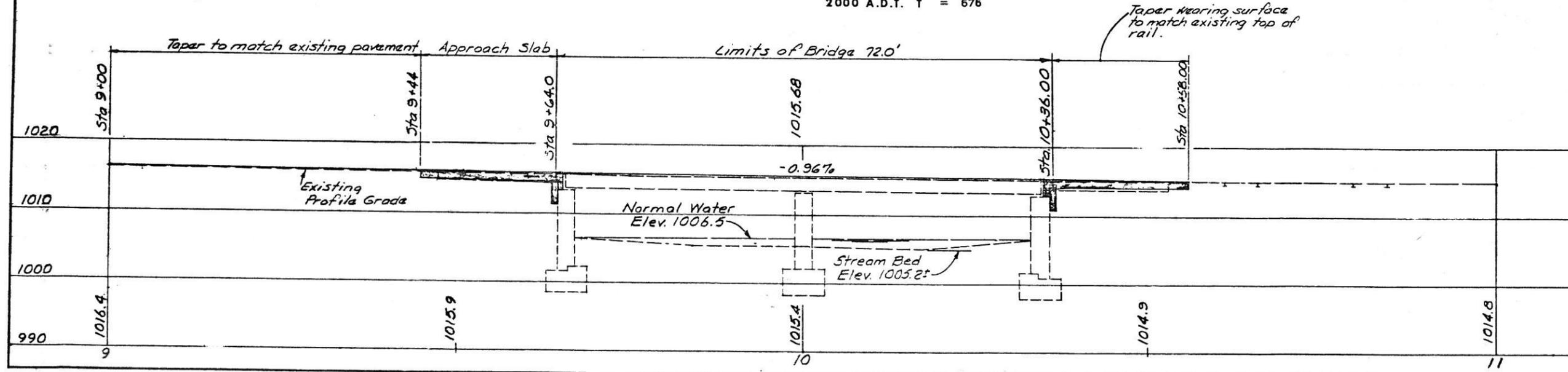
W. E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

**SITE PLAN**

15TH ST. S.W. BRIDGE OVER WEST BRANCH NIMISHILLEN CREEK

STA. 9+6  
STARK COUNTY STA. 10+6

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
PMZ	PMZ		JMG	wda	10/6



**STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.**

**NOTES**

DESIGN SPECIFICATIONS:  
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, 1977, INCLUDING THE 1978, 1979, 1980 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:  
DESIGN LOADING - HS20-44 CASE II AND TH" \*LTERNATE MILITARY LOADING.  
CONCRETE CLASS S - UNIT STRESS 1200 P.S.I. (SUPERSTRUCTURE)  
CONCRETE CLASS C - UNIT STRESS 1333 P.S.I. (SUPERSTRUCTURE)  
STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20,000 P.S.I.  
REINFORCING STEEL - ASTM A615, A616, or A617 - UNIT STRESS 20,000 P.S.I.

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, TOP MAT ONLY.  
MONOLITHIC WEARING SURFACE THICKNESS IS ASSUMED FOR DESIGN PURPOSES TO BE 1".

REFERENCE SHALL BE MADE TO:  
STANDARD DRAWING: BR-2-67, REVISED 10-15-71; AS-1-72, DATED 6-30-72  
SUPPLEMENTAL SPECIFICATION: 836, DATED 3-12-75; 849, DATED 4-25-77; 853, DATED 6-26-78; 956, DATED 6-26-78

REINFORCING STEEL SPLICES:  
UNLESS NOTED OTHERWISE, ALL REINFORCING STEEL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN 30 DIAMETERS.

PLANS OF THE EXISTING BRIDGE ARE ON FILE WITH AND CAN BE SEEN AT THE CANTON CITY ENGINEER'S OFFICE.

PORTIONS OF STRUCTURE TO BE REMOVED:  
THE FOLLOWING PORTIONS OF THE EXISTING STRUCTURE SHALL BE REMOVED TO THE LIMITS SHOWN ON THE PLANS:

1. CONCRETE FILLED STEEL GRID DECK
2. CONCRETE FILE' STEEL GRID SIDEWALKS
3. REINFORCED CONCRETE PARAPETS
4. EXISTING STRUCTURAL STEEL END DAM ANGLES
5. APPROACH SLABS
6. ABUTMENT BACKWALLS (DOWN TO ELEVATION OF EXISTING BEAM SEATS)

SPECIAL CARE AND APPROPRIATE MEASURES SHALL BE TAKEN TO PREVENT REMOVAL DEBRIS FROM FALLING INTO THE CREEK.

NEW BRIDGE WORK SHALL CONSIST OF THE FOLLOWING:

1. REINFORCED CONCRETE ABUTMENT BACKWALLS
2. REINFORCED CONCRETE DECK AND SIDEWALKS
3. RAILING WITH CONCRETE PARAPETS
4. APPROACH SLABS

SPECIAL CARE SHALL BE TAKEN DURING BRIDGE REMOVAL AND CONSTRUCTION TO INSURE THAT NO DAMAGE OCCURS TO THE EXISTING GAS LINE, WATER LINE AND THE TELEPHONE DUCT THAT WILL REMAIN IN PLACE.

BONDING ELASTOMERIC COMPRESSION SEALS IN STRUCTURAL STEEL JOINTS  
DESCRIPTION: THIS ITEM SHALL CONFORM TO SUPPLEMENTAL SPECIFICATION 849 EXCEPT AS FOLLOWS:  
MATERIALS: ADHESIVES SHALL BE SIKATIX 360, FEL-POXY FP-101 OR AN APPROVED ALTERNATE. METAL SURFACE PRIMERS ARE NOT REQUIRED.

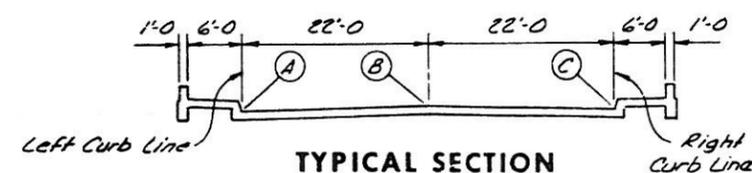
PREPARATION FOR INSTALLATION: TO AVOID THE SUBSEQUENT CONTAMINATION OF PREPARED SURFACES, ALL EXTERIOR ELASTOMERIC SURFACES SHALL BE CLEANED WITH MEK, T OR OTHER APPROVED SOLVENT USING CLEAN DISPOSABLE CLOTHS. THEN, NOT MORE THAN SEVEN DAYS PRIOR TO SEAL INSTALLATION, A THIN COATING OF CYCLIZING PASTE\* SHALL BE APPLIED TO THE ELASTOMERIC BONDING SURFACES ONLY. AFTER FROM 25 TO 40 MINUTES, THE PASTE SHALL BE WASHED FROM THE SURFACES WITH CLEAN WATER.

THE PREPARATION OF THE STEEL SURFACES SHALL BE ACCOMPLISHED NOT MORE THAN 24 HOURS PRIOR TO ADHESIVE BONDING.

INSTALLATION: IMMEDIATELY PRIOR TO ADHESIVE APPLICATION, BONDING SURFACES SHALL BE CLEAN, DRY AND WARMER THAN 45°F, AND THEY SHALL BE MAINTAINED AT OR ABOVE THIS TEMPERATURE UNTIL THE ADHESIVE HAS CURED. ADHFSIVE SHALL BE APPLIED LIBERALLY TO BOTH THE STEEL AND ELASTOMERIC BONDING SURFACES USING A SERRATED SPATULA IF NECESSARY TO ACHIEVE A COMPLETE AND RELATIVELY UNIFORM COATING. THEN THE ELASTOMERIC SEAL SHALL BE COMPRESSED SUFFICIENTLY SO THAT IT CAN BE INSERTED AND ALLOWED TO EXPAND WITHIN THE JOINT. AFTER INSTALLATION, EXCESS ADHESIVE (EXCEPT FOR THE 1/4 INCH BEAD) SHALL BE REMOVED FROM THE EXPOSED SEAL SURFACES.

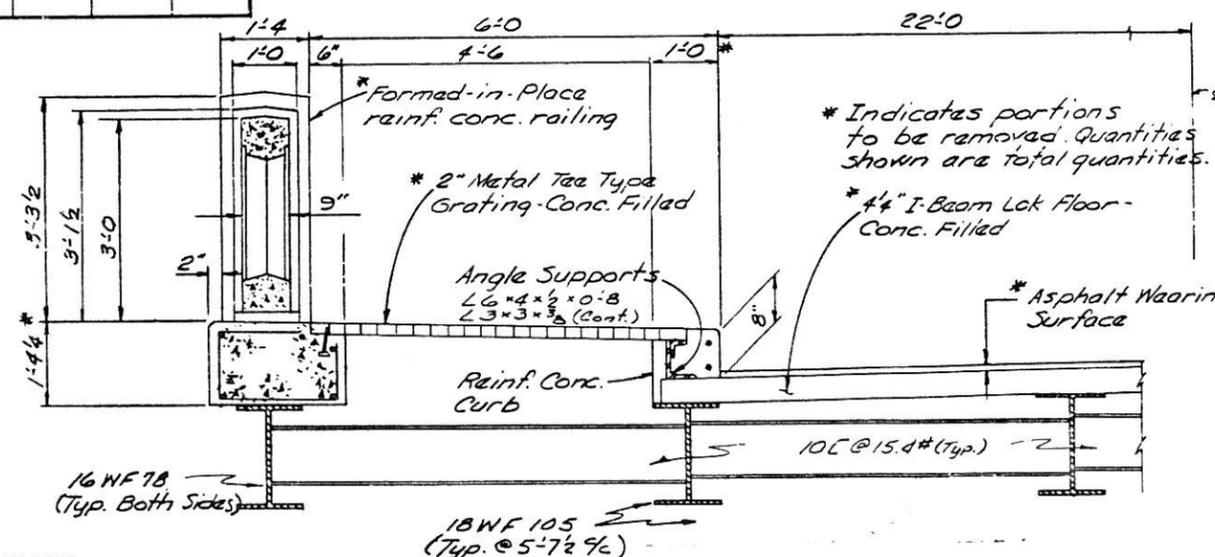
\*CYCLIZING PASTE IS A MIXTURE OF ONE POUND OF PITTSBURGH PLATE GLASS INDUSTRIES' HISL 233 OR AN APPROVED ALTERNATE AND SIX POUNDS OF CONCENTRATED SULFURIC ACID (18 MOLAR). TO MIX THE PASTE, ADD HISL TO ACID SLOWLY WHILE STIRRING MIXTURE TO ACHIEVE A SMOOTH VISCOUS PASTE. NOTE: SINCE CONCENTRATED SULFURIC ACID IS VERY CORROSIVE AND HISL IS AN EXTREMELY FINE NON-TOXIC POWDER, RUBBER GLOVES AND GLASSES SHOULD BE USED BY THOSE USING THE PASTE WHILE GLOVES, GLASSES AND A RESPIRATOR SHOULD BE USED BY THOSE MIXING THE PASTE.

ESTIMATED QUANTITIES						
ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER GEN'L.
202	LUMP	SUM	PORTIONS OF STRUCTURES REMOVED			LUMP
503	14	CU. YD.	UNCLASSIFIED EXCAVATION	14		
509	15,416	LB.	REINFORCING STEEL	4,331		11,085
510	280	EACH	DOWEL HOLES	280		
511	113	CU. YD.	CLASS "S" CONCRETE, SUPERSTRUCTURE			113
511	26	CU. YD.	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	26		
512	2	SQ. YD.	TYPE B WATERPROOFING	2		
513	5,693	LB.	STRUCTURAL STEEL	1,223		4,470
514	LUMP	SUM	FIELD PAINTING OF EXISTING STEEL, SURFACE PREP.			LUMP
514	LUMP	SUM	FIELD PAINTING OF EXISTING STEEL, SPOT PRIME			LUMP
514	LUMP	SUM	FIELD PAINTING OF EXISTING STEEL, COMP. COAT PRIME			LUMP
514	LUMP	SUM	FIELD PAINTING OF EXISTING STEEL, COMP. COAT FINISH			LUMP
517	171.5	LIN. FT.	RAILING (CONCRETE PARAPET WITH DOUBLE PIPE RAIL)	33		138.5
518	25	CU. YD.	POROUS BACKFILL	25		
849	119.74	LIN. FT.	ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STEEL, 3" WIDTH			119.74
SPECIAL	17,522	LB.	EPOXY COATED REINFORCING STEEL (SEE PROPOSAL NOTE)			17,522

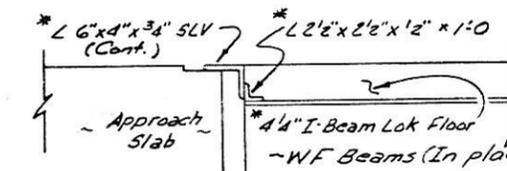


TOP OF SLAB ELEVATIONS					
STATION	POINT A	STATION	POINT B	STATION	POINT C
9+66	1015.75	9+66	1016.00	9+66	1015.75
9+83	1015.60	9+83	1015.85	9+83	1015.60
10+00	1015.43	10+00	1015.68	10+00	1015.43
10+17	1015.27	10+17	1015.52	10+17	1015.27
10+34	1015.11	10+34	1015.36	10+34	1015.11

NOTE: ELEVATIONS ARE THOSE REQUIRED BEFORE DECK CONCRETE IS PLACED TO ALLOW FOR DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.



**PARTIAL EXISTING TRANSVERSE SECTION**



**EXISTING END DAM**

Sheet 2

W. E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OH.

**NOTES, ESTIMATED QUANTITIES & TOP OF SLAB ELEVATIONS**

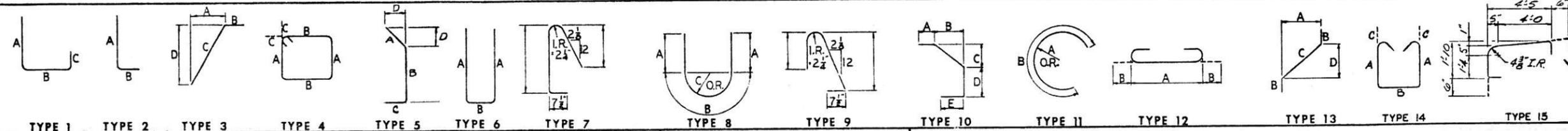
15th ST. S.W. BRIDGE OVER WEST BRANCH NIMISHILL CREEK STA. 9+64.0

STARK COUNTY STA. 10+36

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
JMS	JMS		DOQ	wda	10/80

FHWA REGION	STATE	PROJECT
5	OHIO	

STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.



ABUTMENTS											
MARK	TYPE	A	B	C	D	E	NUMBER		TOTAL	LENGTH	WEIGHT
							REAR	FORWARD			
A801	5	1'-6 1/2"	2'-4"	1'-1"	1'-1"		30	30	60	4'-10"	774
A601	2	2'-4"	1'-10"				57	57	114	4'-0"	684
A602	Str.						57	57	114	3'-2"	542
A603	1	2'-5"	1'-5"	8"			44	45	89	4'-2"	557
A604	1	3'-0"	11"	1'-7"			44	45	89	5'-2"	691
A605	1	3'-9"	1'-5"	1'-7"			13	12	25	6'-5"	241
A501	Str.						6	-	6	29'-8"	186
A502	Str.						5	5	10	27'-0"	282
A503	Str.						1	1	2	23'-0"	48
A504	Str.						2	-	2	7'-6"	16
A505	Str.						2	2	4	6'-8"	28
A506	Str.						2	2	4	5'-7"	24
A507	Str.						4	4	8	2'-4"	20
A508	Str.						-	6	6	29'-2"	183
A509	Str.						-	2	2	7'-0"	15
A510	Str.						-	4	4	4'-8"	19
A511	6	2'-2"	8"				-	1	1	4'-9"	5
A512	6	1'-10"	8"				-	1	1	4'-1"	4
A513	6	1'-2"	8"				-	1	1	2'-9"	3
A514	3	11"	2'-9 1/2"	2'-1 1/2"	1'-11"		-	2	2	4'-11"	10

RAILING BARS											
MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT	
R501	Str.							16	14'-8"	*	
R502	Str.							16	11'-9"	*	
R503	Str.							36	4'-8"	*	
R504	Str.							12	13'-8"	*	
R505	6	4'-2"	8"					8	8'-9"	*	
R506	8	1'-3"	9"	3 1/4"				16	3'-3"	*	
R507	6	3'-2"	8"					16	6'-9"	*	
R508	14	3'-6"	8"	5"				8	8'-3"	*	
R509	1	3'-6"	4'-8"	8"				4	8'-7"	*	
R510	1	4'-2"	4'-8"	8"				4	9'-3"	*	
R511	15	(See Detail)							8	6'-11"	*

SUPERSTRUCTURE											
MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT	
S601	Str.								130	6'-9"	1318
S501	Str.								256	23'-11"	6386
S502	Str.								80	30'-0"	2503
S503	Str.								40	11'-11"	497
S401	Str.								16	30'-0"	321
S402	Str.								8	11'-3"	60
E601	Str.								128	26'-10"	5159
E602	Str.								128	21'-3"	4085
E603	1	8 1/2"	6'-8"	5 1/2"					130	7'-6"	1464
E501	Str.								16	30'-0"	501
E502	Str.								8	11'-11"	99
E503	4	1'-7"	10"	5"					130	5'-3"	712
E504	4	1'-4"	9"	5"					130	4'-7"	621
E505	14	2'-3"	8"	5"					130	5'-9"	780
E401	Str.								142	30'-0"	2846
E402	Str.								71	11'-3"	534
E403	Str.								72	15'-0"	721

### NOTES

Refer to CMS Sections 106.03, 700, 709.01 through 709.05 and 709.08, sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structures by the addition of steel, spliced in accordance with 509.08.

All dimensions are out-to-out.

Str. in the 'TYPE' column indicates straight bars.

AN 'E' DESIGNATION PRECEDING THE BAR SIZE EPOXY COATED BARS.

# INDICATES REINFORCING TO BE INCLUDED RAILING FOR PAYMENT.

ALL RAILING BARS SHALL BE EPOXY COATED AS PER PROPOSAL NOTE.

Sheet

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**REINFORCING BAR SCHEDULE**

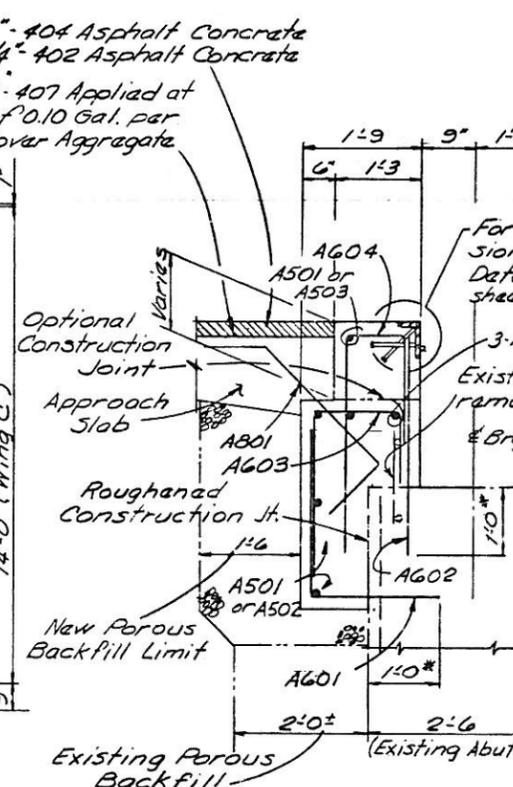
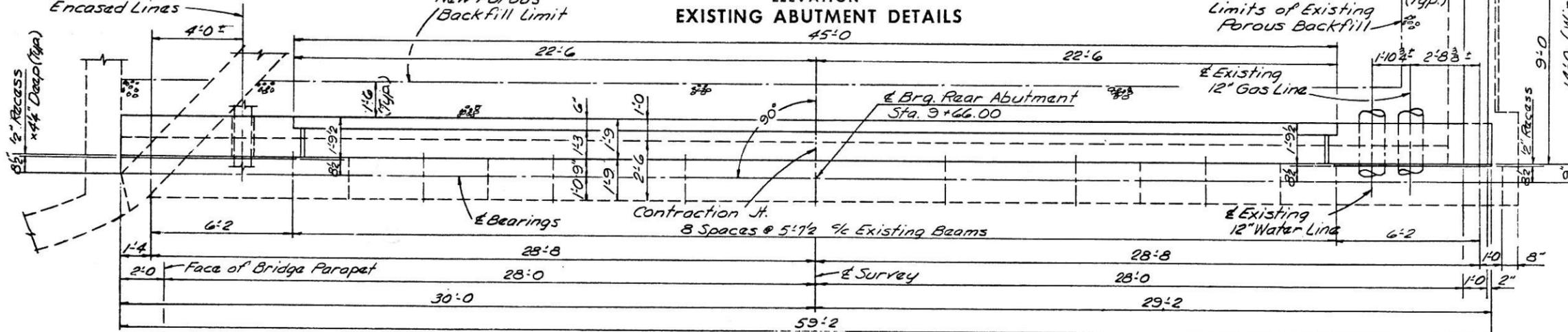
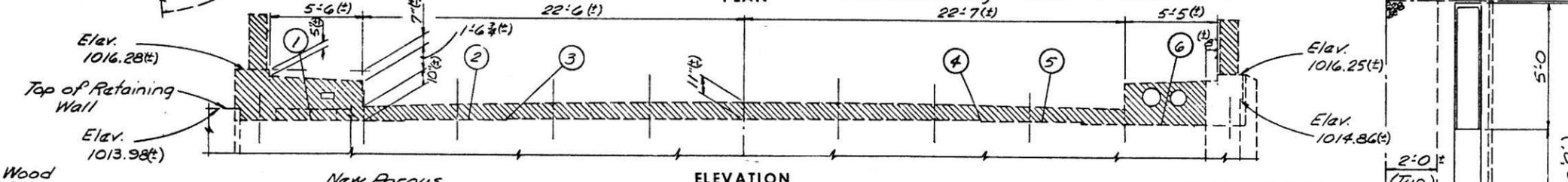
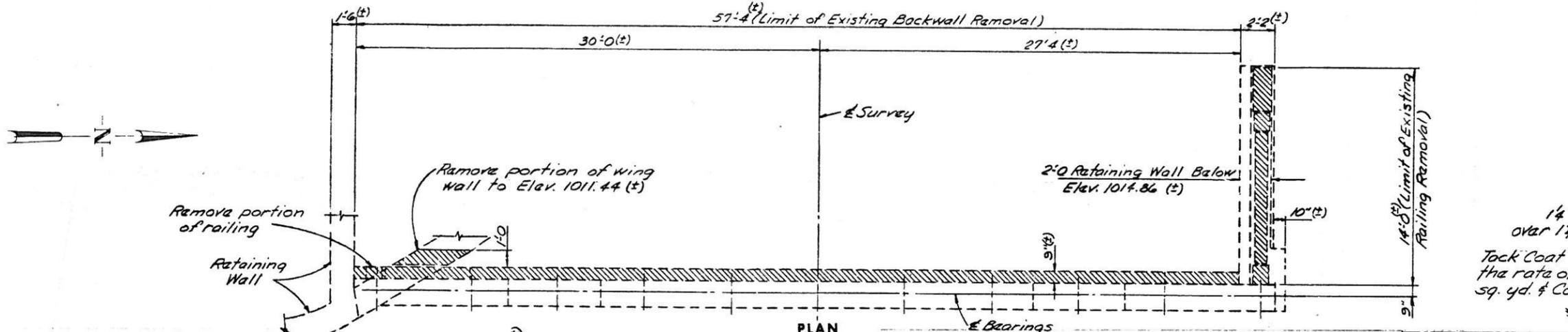
15TH ST. S.W. BRIDGE OVER  
WEST BRANCH NIMISHILLEN CREEK

STA. 9  
STA. 11

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
MMS	MMS		WJG	D.O.O.

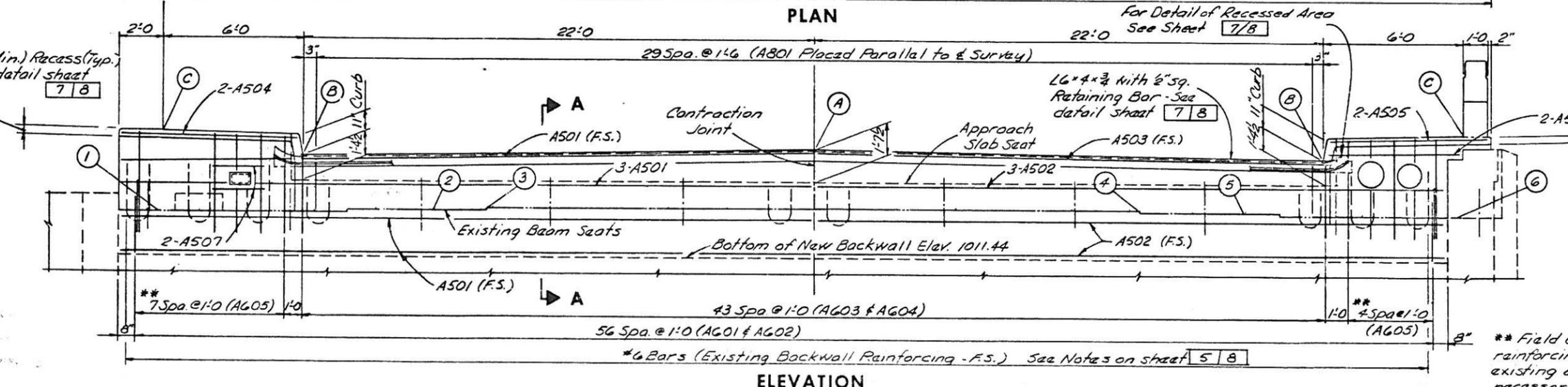
FED. RD. DIVISION	STATE	PROJECT
5	OHIO	

STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.



**SECTION A-A**  
 \* Dowel holes for A601 and A602 shall be in with Item 510 and Supplemental Specification 853, and paid for under Item 510.  
 Porous Backfill; 1 1/2" thick shall be up to the plane of the subgrade a laterally to the existing wing walls.

For Wing 'C' Detail see sheet 6/B  
 N.S. denotes Near Side  
 F.S. denotes Far Side  
 For Contraction Joint Detail see sheet 6/B  
 For existing Abutment and Retaining Wall see sheet 5/B



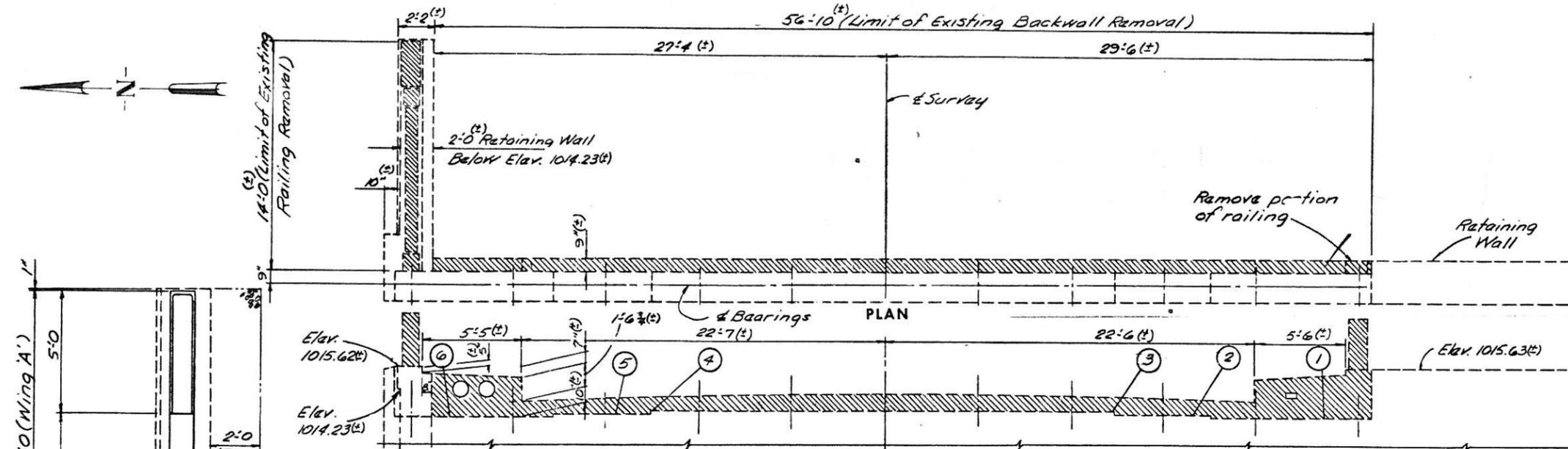
4 1/2" (Min) Recass (Typ.) See detail sheet 7/B  
 4 1/2" (Min) Recass  
 \*\* Field cut or adjust reinforcing to clear existing utility lines as necessary.

ELEVATIONS			EXISTING BEAM SEAT ELEVATIONS					
A	B	C	1	2	3	4	5	6
1016.01	1015.76	1016.76	1013.28	1013.38	1013.46	1013.45	1013.36	1013.25

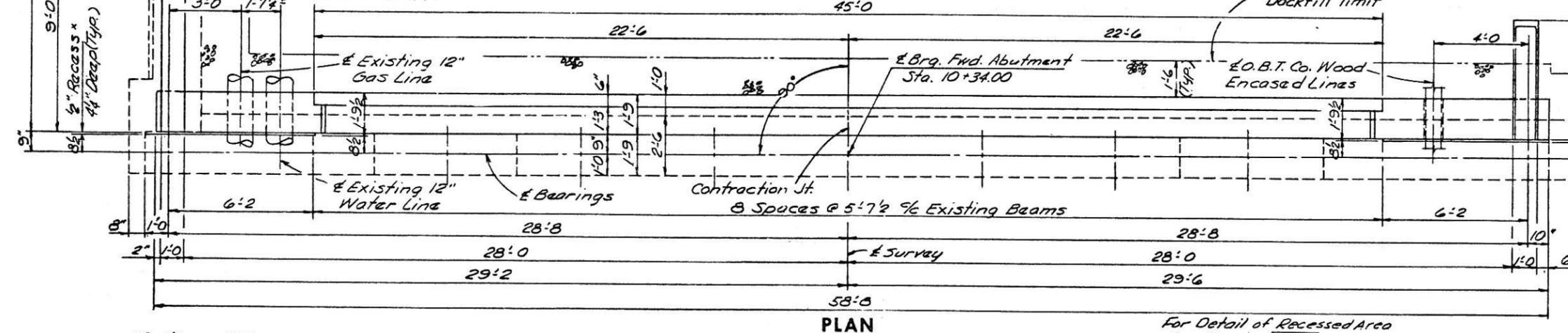
Sheet  
**W. E. QUICKSALL AND ASSOCIATE**  
 CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO  
**REAR ABUTMENT DETAIL**  
 15th ST. S.W. BRIDGE OVER WEST BRANCH NIMISHILLEN RIVER  
 STARK COUNTY  
 STA. 15+00  
 STA. 15+00  
 DESIGNED: JMB  
 DRAWN: JMB  
 CHECKED: wds  
 REVIEWED: D.O.G.

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	

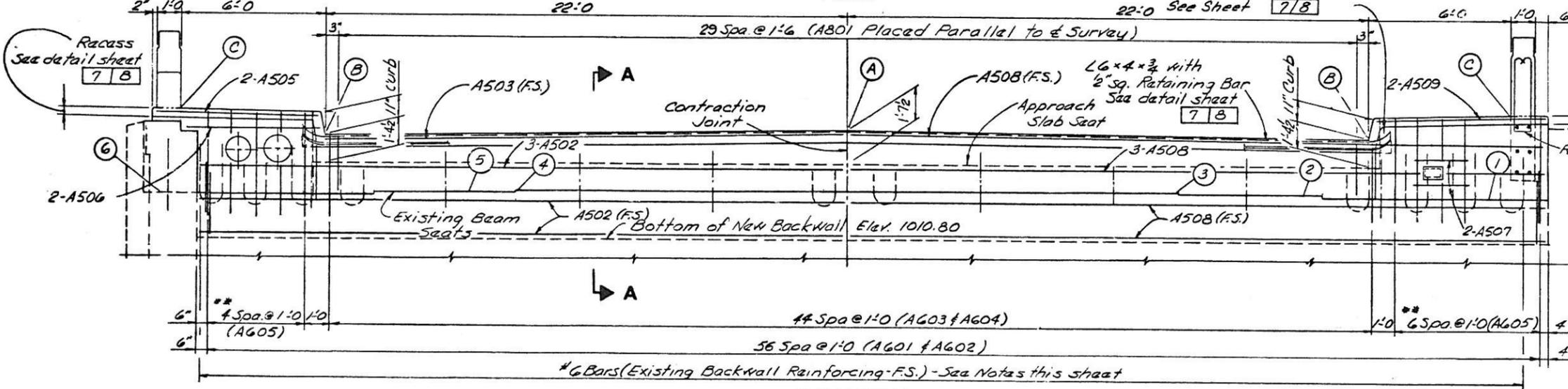
STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.



EXISTING FORWARD ABUTMENT



PLAN



ELEVATION

Notes:  
Cross-hatched areas on existing abutment detail denotes portions of abutments and retaining walls to be removed (to limits shown).

All existing vertical or horizontal reinforcing steel which will extend into the new abutment backwalls and railings shall remain in place after removal of concrete. These bars be cleaned of all foreign material and (if required) to limits shown.

All existing reinforcing steel which would otherwise be exposed after final construction shall be burned off to a depth of 1 to 2 inches below surface and void filled with epoxy mortar.

For Section A-A see sheet 4/B

For Wing A & Wing B see detail sheet [ ]

Any existing reinforcement which is to be replaced and becomes damaged due to removal operations, must be replaced with new dowel bars at the Contractor's expense.

Dowel holes and grout anchoring shall conform with Item 510 and Supplement Specification 853, and paid for under Item

N.S. denotes Near Side  
F.S. denotes Far Side  
For Contraction Joint Detail see sheet 6/E

Note: Existing beam seat elevations are by field survey of exterior seats only. All other elevations were determined from existing plans and must be verified in the field prior to starting new construction.

ELEVATIONS			EXISTING BEAM SEAT ELEVATIONS					
A	B	C	1	2	3	4	5	6
1015.35	1015.10	1016.10	1012.63	1012.73	1012.81	1012.80	1012.72	1012.62

Sheet

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**FORWARD ABUTMENT D**

15th ST. S.W. BRIDGE OVER  
WEST BRANCH NIMISHILLEN C

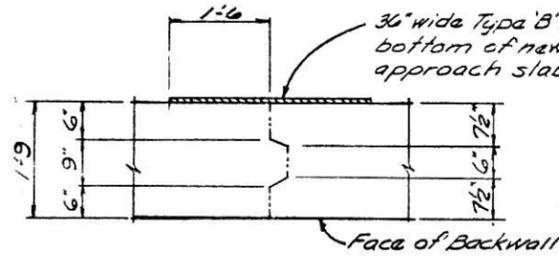
STA. 9+  
STA. 10

DESIGNED: JMS    DRAWN: JMS    TRACED:    CHECKED: Wda    REVIEWED: D.O.G.    DATE: 10

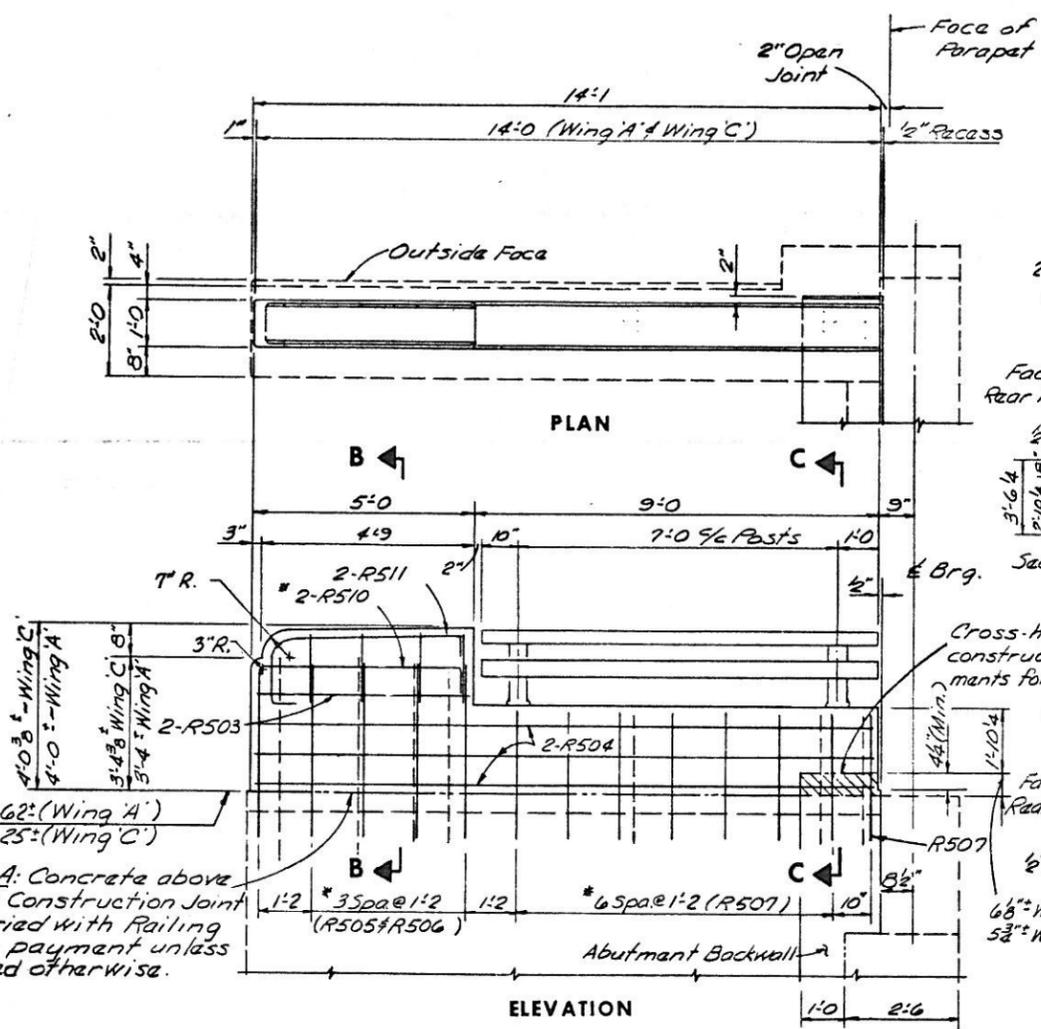
FED. RD DIVISION	STATE	PROJECT
5	OHIO	

STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.

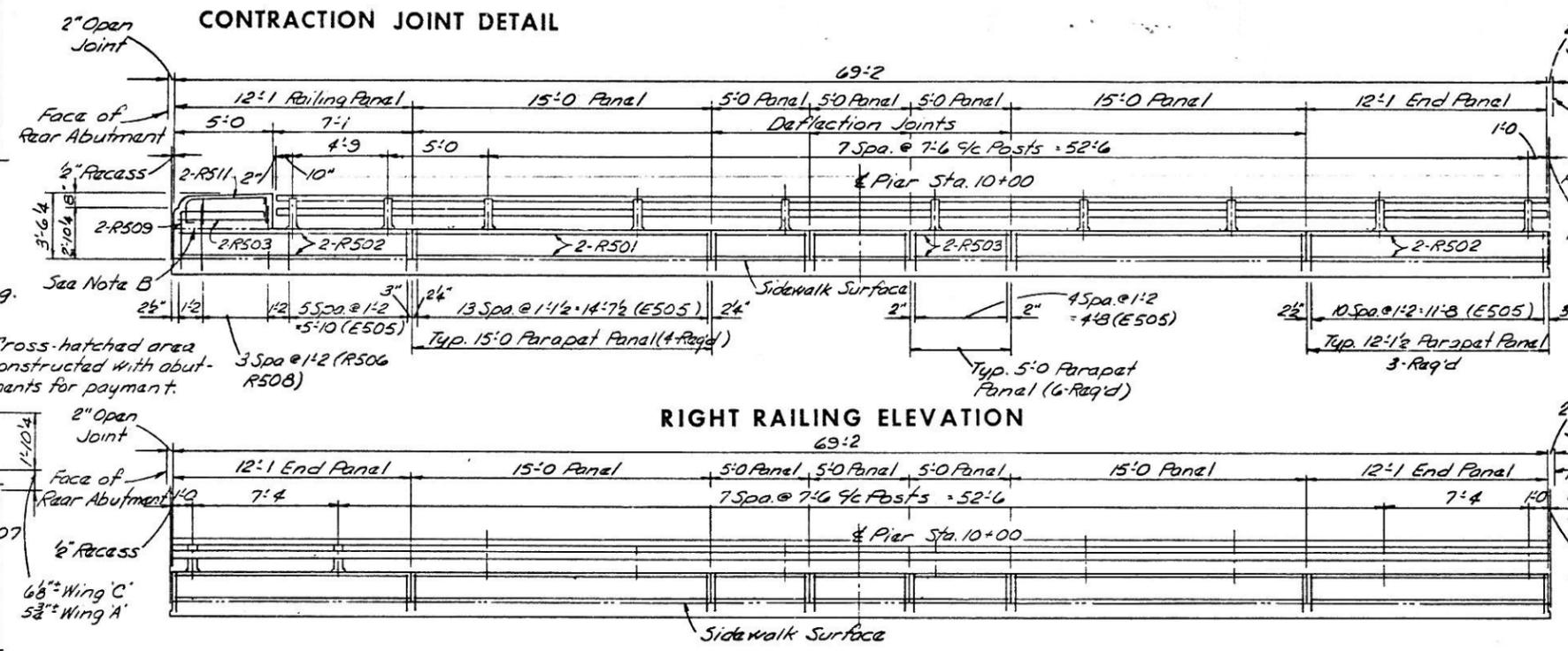
Note B: For additional detail and notes above this construction joint refer to Wing B' details.



CONTRACTION JOINT DETAIL



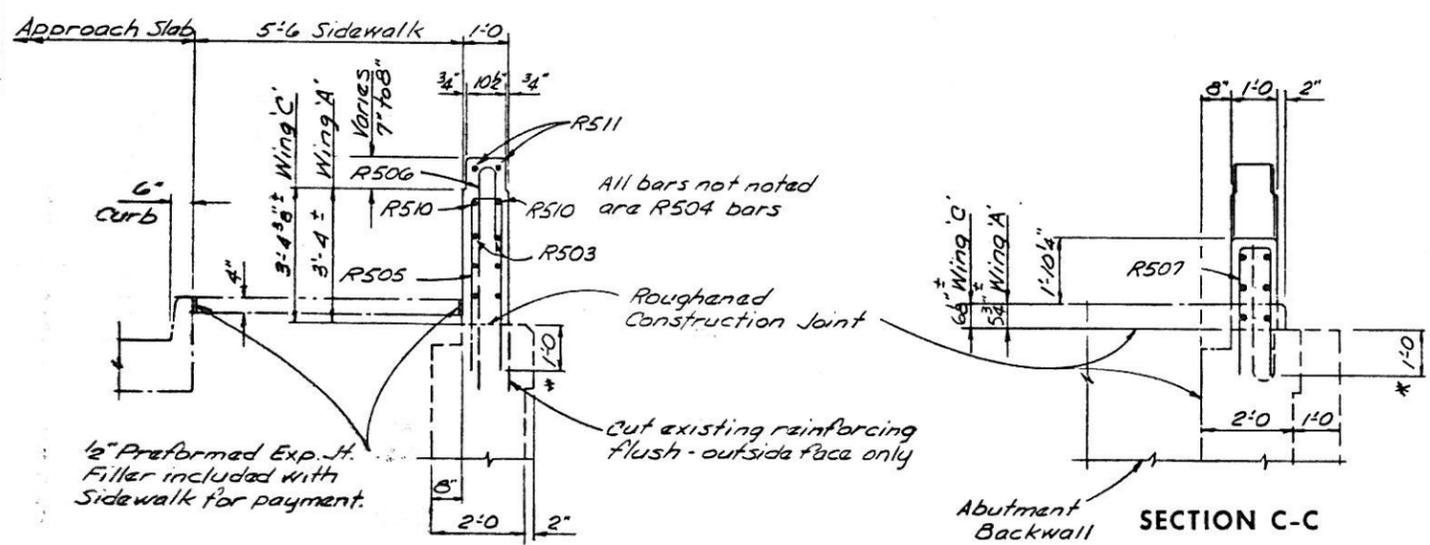
WING A (OPPOSITE HAND & AS NOTED)  
WING C (AS SHOWN & AS NOTED)



RIGHT RAILING ELEVATION

LEFT RAILING ELEVATION

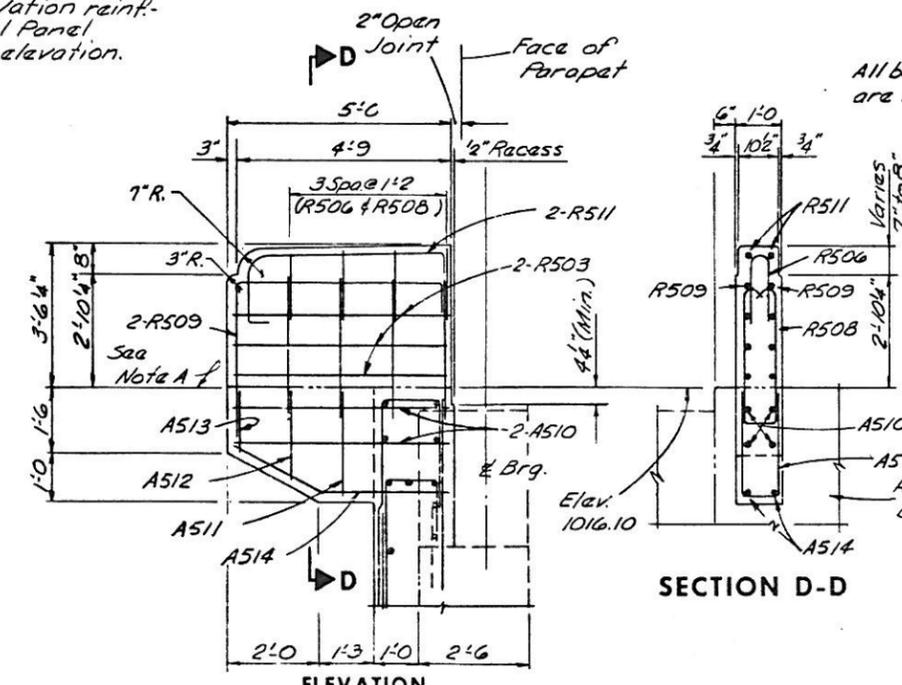
Note: For mark numbers, quantities and spacing of left railing elevation reinf. refer to Typical Panel details on right elevation.



SECTION B-B

SECTION C-C

\* Note: Dowel Holes for R505, R507 and R510 bars shall be in accordance with Item 510, and Supplemental Specification 853, and paid for under Item 510.



SECTION D-D

WING B

All bars not noted are R503 bars

For additional railing details refer Standard Drawing BR-2-67.

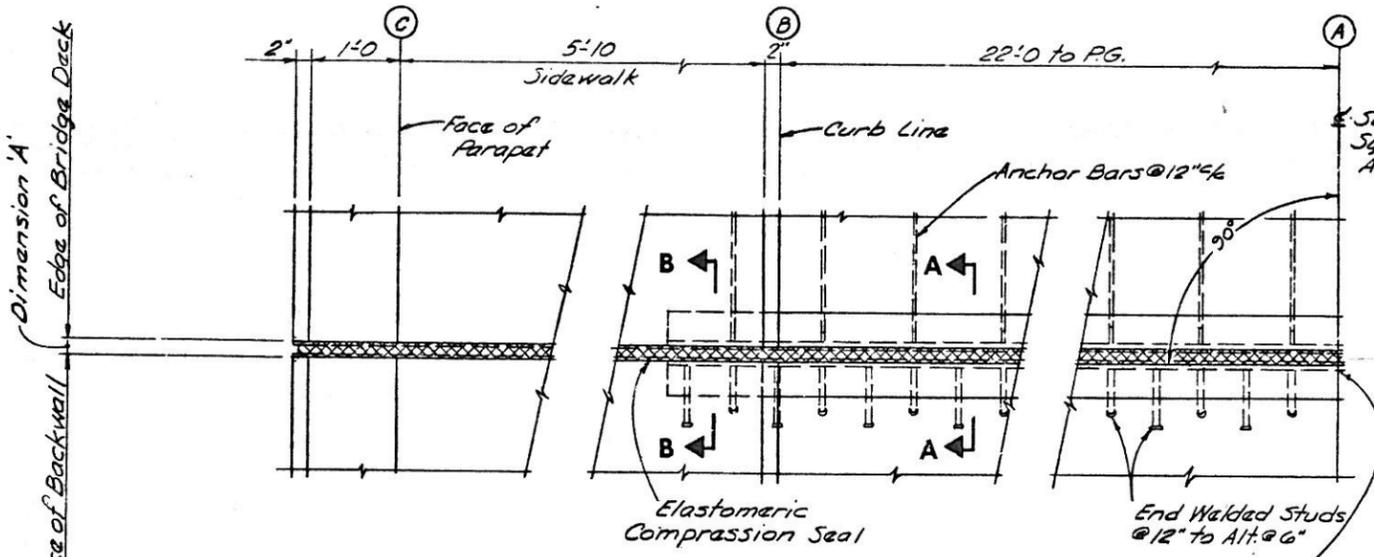
Guardrail anchorage as shown on BR-2-67 shall not be provided.

W. E. QUICKSALL AND ASSOCIATES, INC.				
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO				
SUPERSTRUCTURE DATA				
15th ST. S.W. BRIDGE OVER WEST BRANCH NIMISHILLEN CR.				
STARK COUNTY			STA. 9+0	
DESIGNED			STA. 10+0	
DRAWN			DATE	
CHECKED			BY	
TRACED			BY	
REVIEWED			BY	
DATE			BY	

Elevation	A	B	C
Rear Abutment	1016.01	1015.76	1016.76
Fwd. Abutment	1015.36	1015.11	1016.11

FHWA REGION	STATE	PROJECT
5	OHIO	

**STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.**



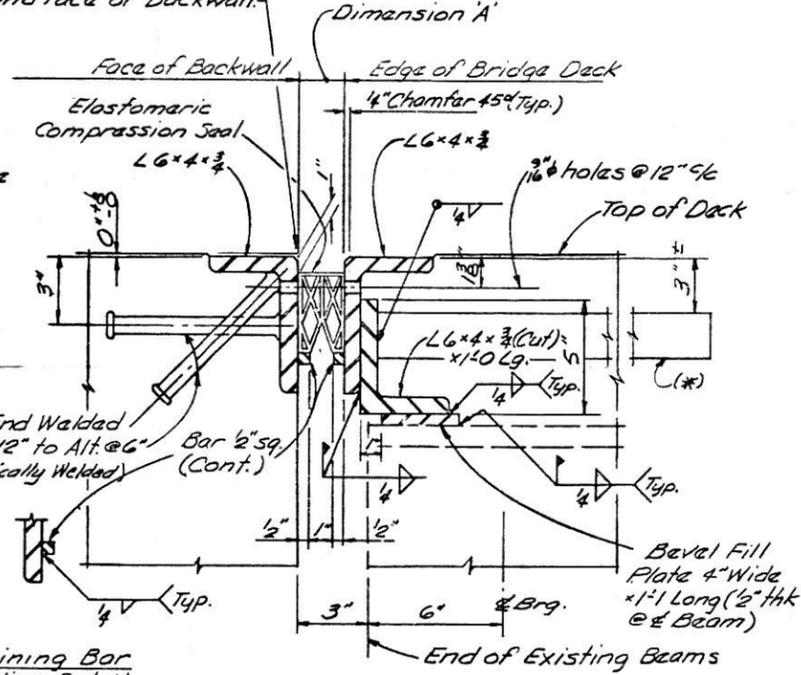
Dimension A - The installation width of compression seals - 2 inches at temperatures between 40° & 80°F.

**PARTIAL PLAN AT ABUTMENT DECK JOINTS**

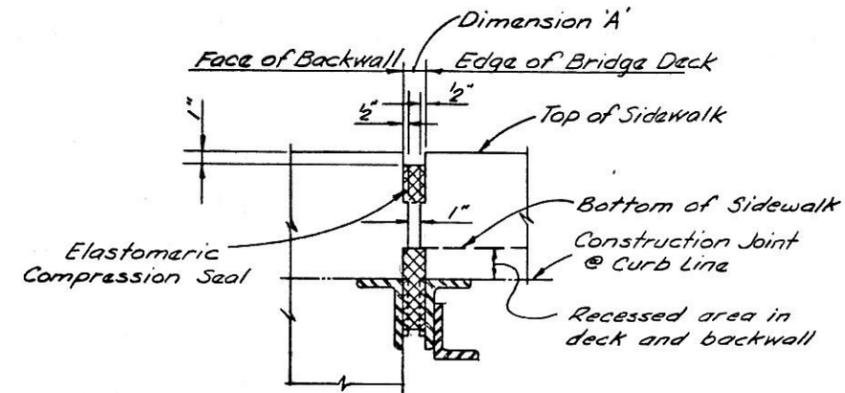
Note: Fabricator has the option of furnishing welded butt joint Retaining Bar at apex of roadway. Welding Detail per Standard Drawing SD-1-69.

Note: Elevations are given at the top edge and face of backwall.

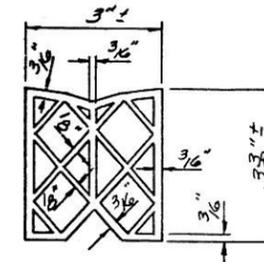
(\*) Anchor Bar  
2" x 2" x 1'-6"  
@ 12" c/c



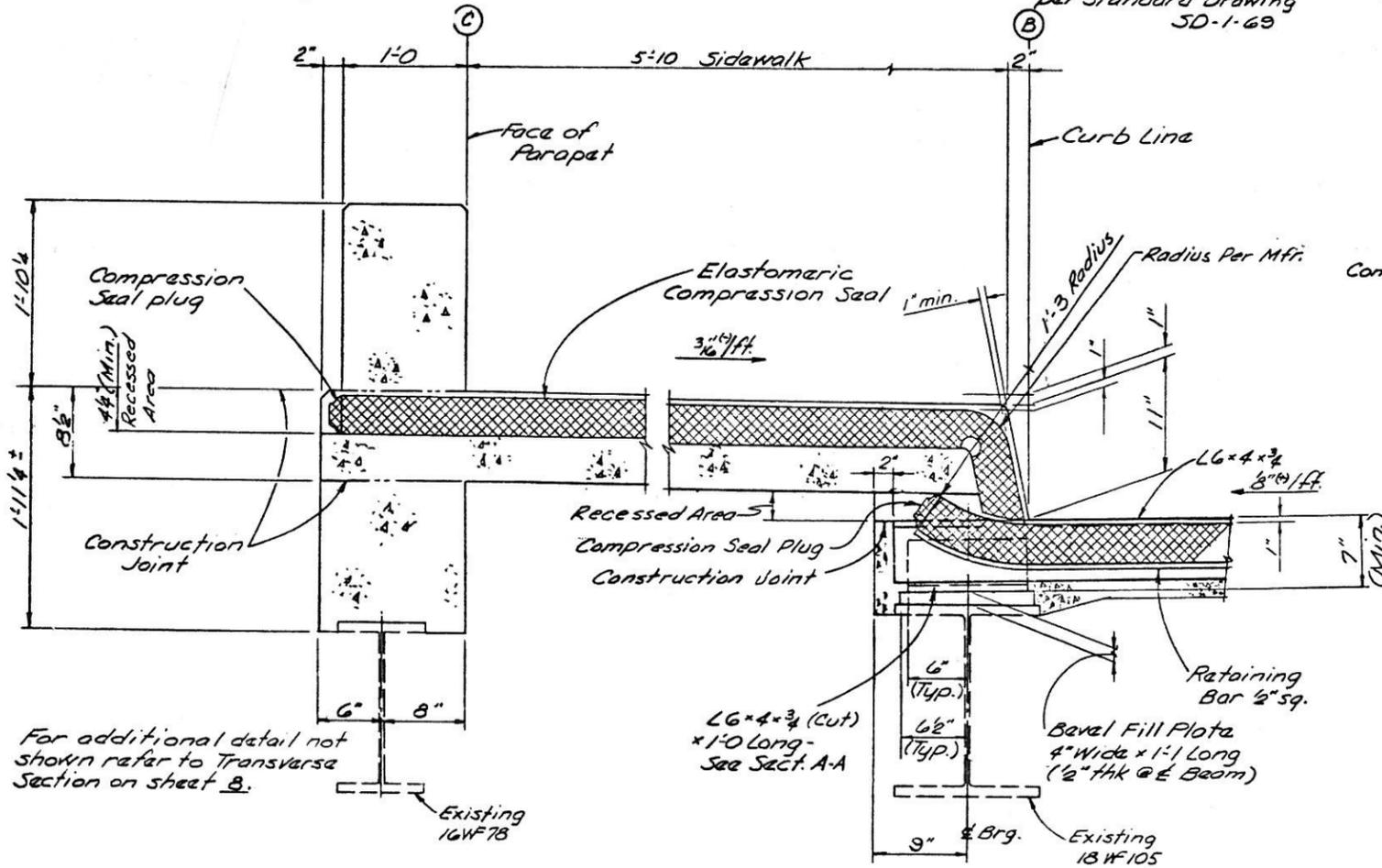
**SECTION A-A**



**SECTION B-B**



**ELASTOMERIC COMPRESSION SEAL DETAIL**



**TYPICAL SECTION THRU DECK EXPANSION JOINT**

For additional detail not shown refer to Transverse Section on sheet B.

**WORK DESCRIPTION:** THIS WORK WILL CONSIST OF SUPPLYING EQUIPMENT, MATERIALS, AND LABOR REQUIRED TO INSTALL AN ELASTOMERIC COMPRESSION SEAL AT EACH ABUTMENT DECK JOINT IN ACCORDANCE WITH THE DETAIL DRAWINGS. THE CONTRACTOR WILL PROVIDE THE PROPER LENGTH OF SEAL AND THE NECESSARY HARDWARE INCLUDING THE STRUCTURAL STEEL JOINT ARMOR, RETAINER BARS, PRIMER AND ADHESIVE FOR THE PROPER INSTALLATION OF THE COMPRESSION SEAL. THE COMPRESSION SEAL SHALL BE PREFABRICATED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS WHERE SPECIFIC INSTRUCTIONS ARE NOT CONTAINED HEREIN. USE OF SPECIALIZED MATERIALS AND COMPOUNDS SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

**PRODUCT DESCRIPTION:** THE JOINTS SHALL BE SEALED WITH A PERFORMED ELASTOMERIC COMPRESSION JOINT SEAL OF THE SIZE AND SHAPE SHOWN ON THE DETAIL DRAWINGS. THE SEAL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 849, ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STEEL JOINTS.

THE SEAL FURNISHED SHOULD BE ONE WHICH WILL COMPRESS ITSELF WITHOUT APPRECIABLE VERTICAL BUILDING OR MOVEMENT AT THE JOINT. THE PRESSURE EXERTED BY THE SEAL UPON THE SURFACES OF THE JOINT SHOULD BE NOT LESS THAN 4 PSI (BASED ON MANUFACTURER'S CALIBRATIONS) WITH THE SEAL 20% COMPRESSED.

THE CONTRACTOR SHALL INSURE THAT THE SHOP DRAWINGS OF STRUCTURAL STEEL FABRICATOR AND THE SEAL MANUFACTURER BE COORDINATED AND APPROVED PRIOR TO FABRICATION. ALL NECESSARY MATERIAL CERTIFICATIONS AND SAMPLES SHALL HAVE BEEN SUBMITTED AND APPROVED PRIOR TO THE INCORPORATION OF SUCH MATERIALS INTO THE PRODUCT.

**STRUCTURAL STEEL:** JOINT ARMOR AND RETAINER BARS SHALL BE PROVIDED IN ACCORDANCE WITH ASTM A-36.

**METHOD OF MEASUREMENT AND PAYMENT:** JOINT ARMOR, INCLUDING RETAINER BARS SHALL BE INCLUDED WITH ITEM 513 - STRUCTURAL STEEL FOR PAYMENT.

Sheet

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**EXPANSION JOINT DETAIL**

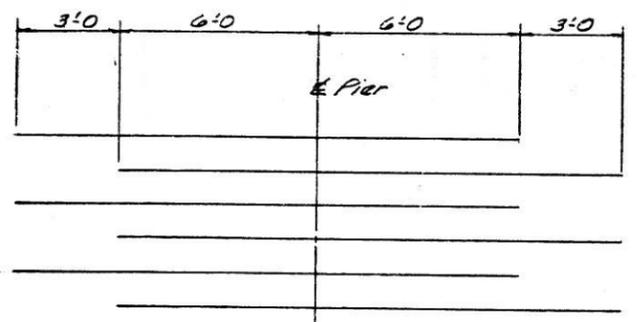
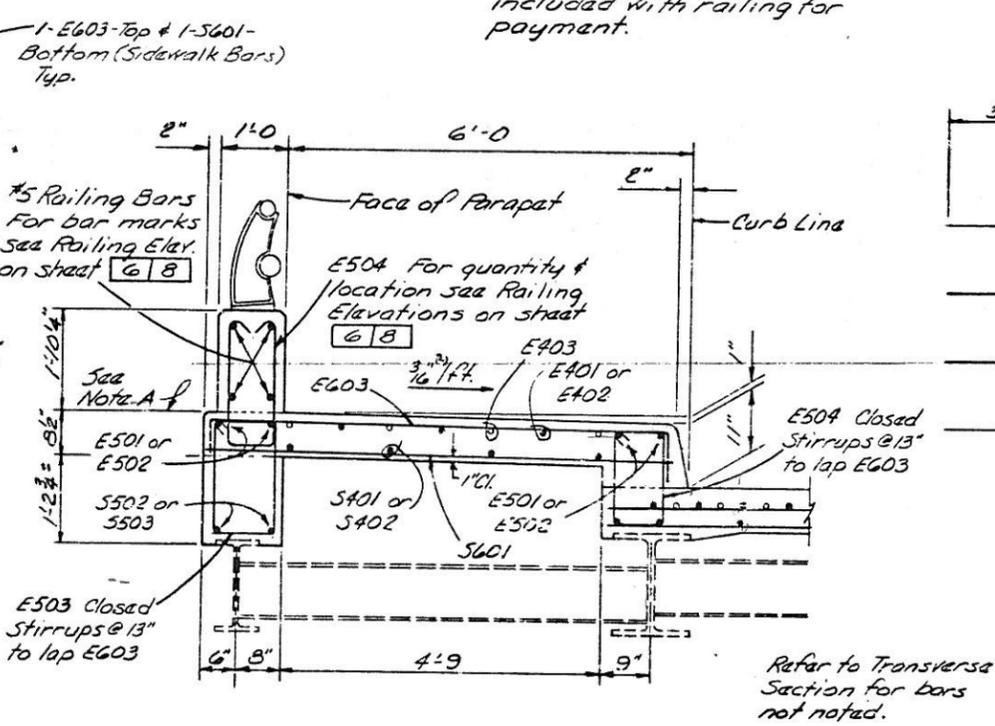
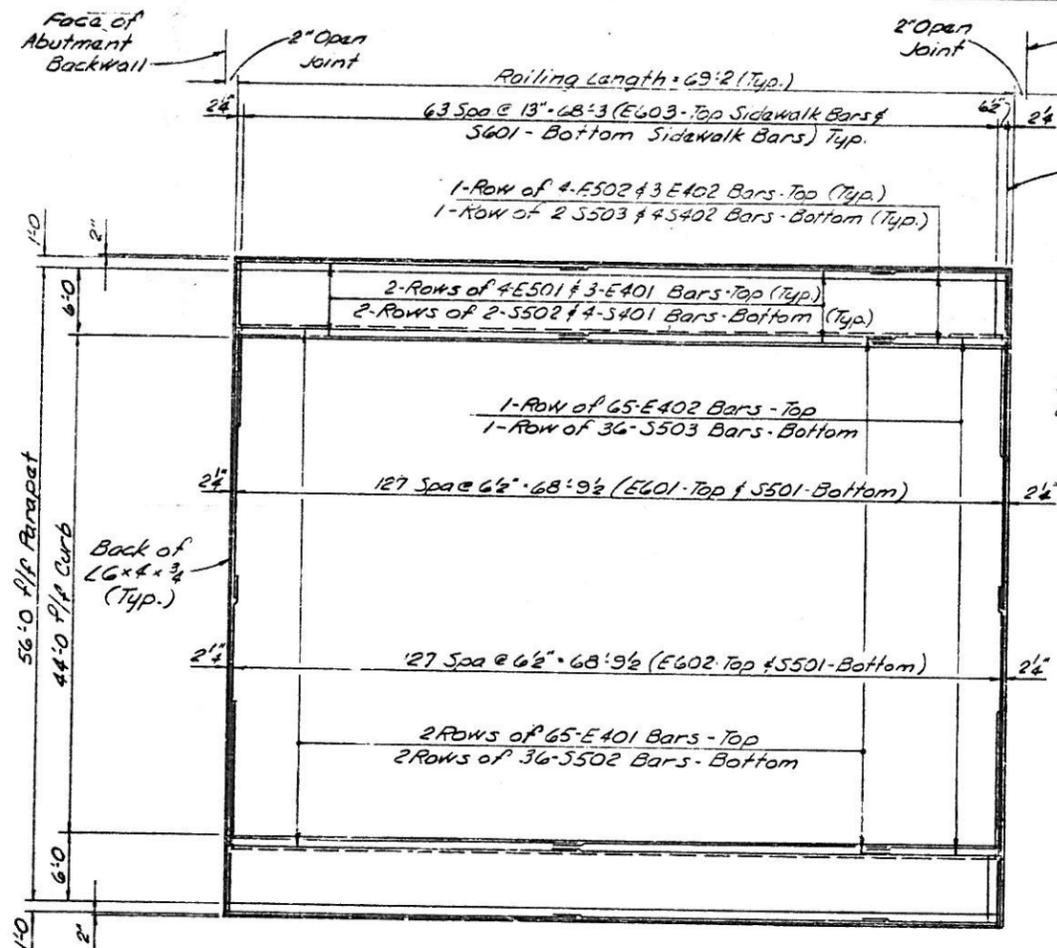
15th ST. S.W. BRIDGE OVER  
WEST BRANCH NIMISHILLEN CREEK

STA. 9+00  
STA. 10+00

DESIGNED	DRAWN	CHECKED	TRACED	REVIEWED
JMG	JMS	JR	WDA	10/10

FHWA REGION	STATE	PROJECT
5	OHIO	

STARK COUNTY  
CITY OF CANTON  
15th STREET S.W.



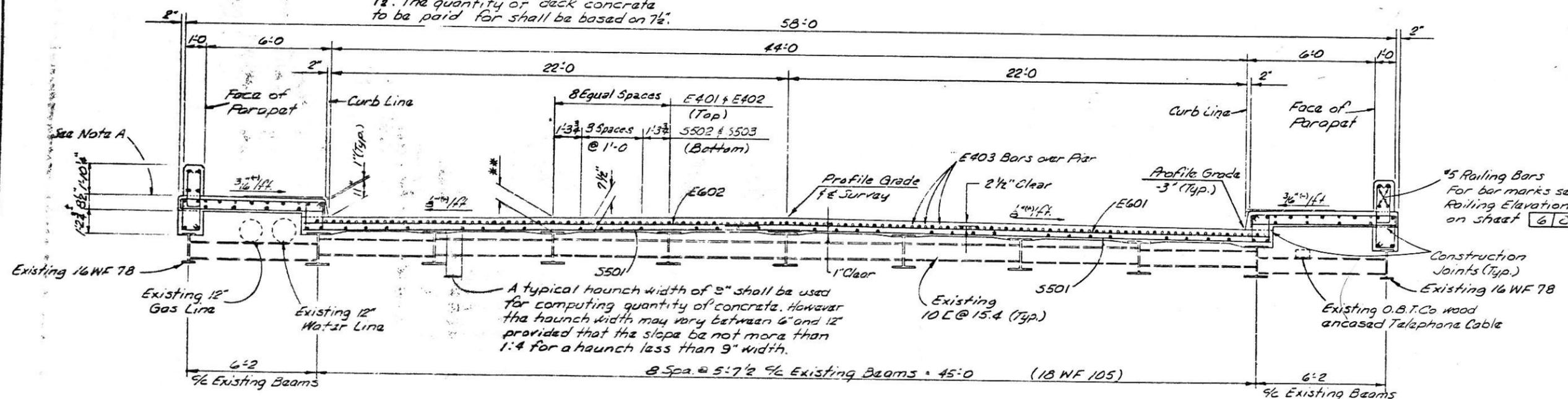
STAGGER SYSTEM OF  
E403 BARS OVER PIER

PLAN OF DECK REINFORCING STEEL

TYPICAL CURB & SIDEWALK DETAIL

Note - Minimum lap for reinforcing is:  
1-3 for #4 Bars  
1-7 for #5 Bars  
1-11 for #6 Bars

\*\* The distance from top of concrete to top of existing steel beams varies but in no case is the dimension less than 7 1/2". The quantity of deck concrete to be paid for shall be based on 7 1/2".



For partial transverse section of existing bridge see sheet 2/B

TRANSVERSE SECTION

Note: For bar marks not shown refer to Typical Curb & Sidewalk Detail.

Sheet

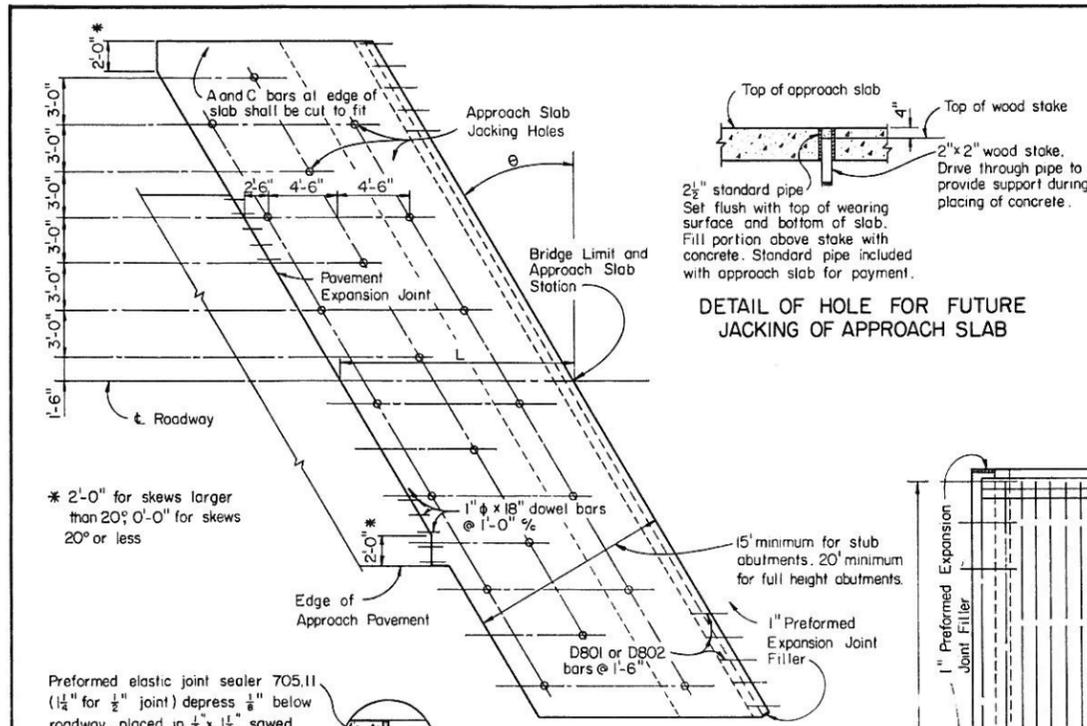
W. E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA

**SUPERSTRUCTURE DETAIL**

15TH ST. S.W. BRIDGE OVER  
WEST BRANCH NIMISHILLEN CREEK

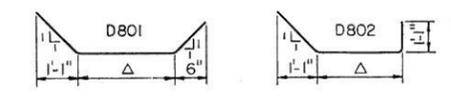
STA. 9+6.0  
STA. 10+0.0

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
JMS	JMS		u da	D.O.O.	10/6

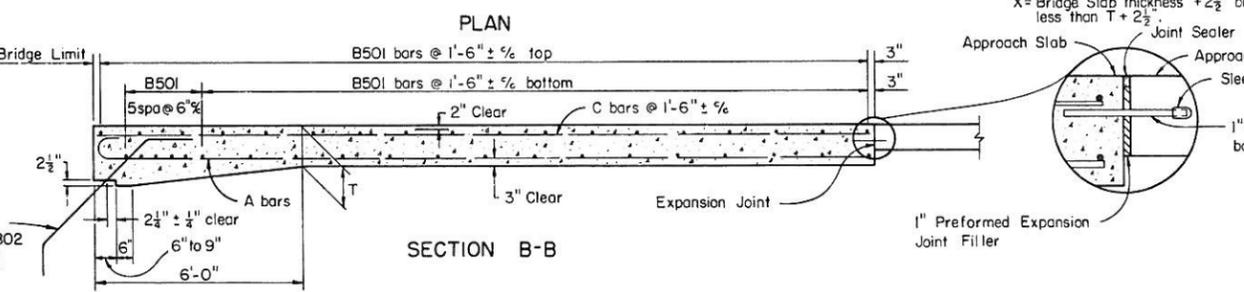
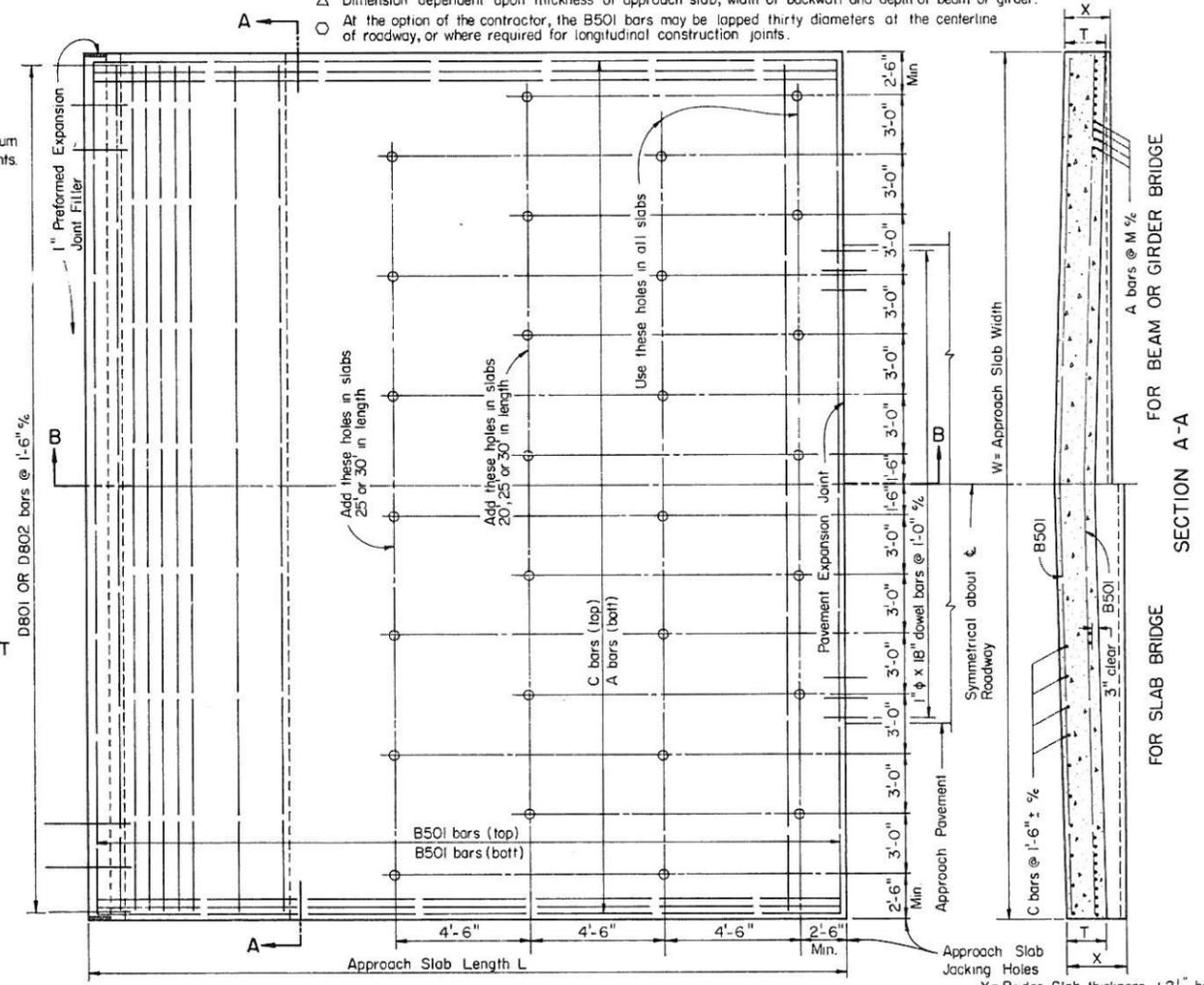
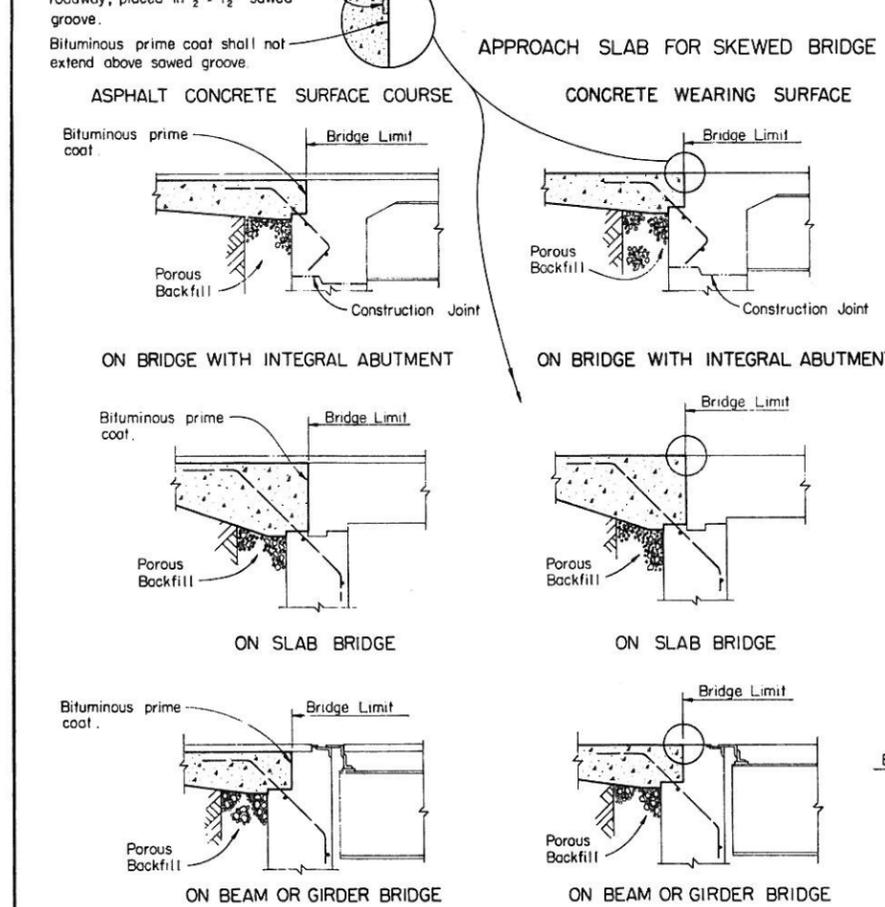


REINFORCING STEEL (FOR ONE APPROACH SLAB)												D801 OR D802	
Length L	Thick-ness T	A BARS				B501 (Bottom)		B501 (Top)		C BARS		No req'd	No req'd
		Sp'c'g M	Mark	Length	Dimension A	Length	No req'd	Length	No req'd	Mark	Length		
15'-0"	12"	10"	A901	15'-9"	14'-6"	14	14	11	C501	14'-6"	12	12	
20'-0"	14"	8"	A902	20'-9"	19'-6"	17	17	14	C502	19'-6"	12	12	
25'-0"	15"	6 1/2"	A903	25'-9"	24'-6"	20	20	18	C503	24'-6"	12	12	
30'-0"	17"	6"	A904	30'-9"	29'-6"	23	23	21	C504	29'-6"	12	12	

\* W = Approach Slab Width, out-to-out, in feet  
 Θ = Angle of skew  
 S = A bar spacing in inches



Δ Dimension dependent upon thickness of approach slab, width of backwall and depth of beam or girder.  
 ○ At the option of the contractor, the B501 bars may be lapped thirty diameters at the centerline of roadway, or where required for longitudinal construction joints.



**GENERAL NOTES**

**DESIGN SPECIFICATIONS:** This standard drawing conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969, including the Ohio "Supplement" to these specifications.

**DESIGN DATA**

Design Loading: HS20-44 and the Interstate Alternate Loading  
 Concrete Class C: Unit stress 1,333 p.s.i.  
 Reinforcing Steel: ASTM A615, A616 or A617, unit stress 20,000 p.s.i.

**REINFORCING STEEL:** For skewed bridges the A and C bars shall be placed parallel to the center line of roadway and the B bars shall be placed parallel to the abutments.

**PREFORMED EXPANSION JOINT FILLER AND SEALER** at the corners of the approach slab shall be included in the price bid per sq. yd. for the approach slab.

**PREFORMED ELASTIC JOINT SEALER** shown at the bridge limit end of the approach slab shall be included in the price bid per sq. yd. for the approach slab as per 511.09.

**BRIDGE WITH SIDEWALKS:** The curbs on the approach slabs shall transition from the bridge curb height to the approach curb height on the approach slab, and the abutments have turnback wings, in which case the transition shall occur beyond the wings. This transition shall occur, on the approach pavement necessary, in a minimum of 10 feet.

**EXPANSION JOINT** details of the approach pavement end of the approach are used only in conjunction with concrete pavement or concrete base course. Payment for the expansion joint, including dowel bars, preformed expansion filler and joint sealer, is included in the price bid per sq. yd. for the approach slab.

**DESIGN NOTES**

**GENERAL:** This drawing provides design and general construction details. Project plans will show length, skew, curbs (if any), estimated quantity (total) and special notes and details where necessary. For conditions other than indicated hereon, the approach slab shall be adapted to fit the ends of the bridge and the approach pavement.

**APPROACH SLAB WIDTH (W):** Generally approach slabs shall be the same width as the bridge roadway. For bridges constructed with raised sidewalks, bridge railing or other types of construction which retain roadway surface drainage, approach slabs shall either include curbs or be constructed in conjunction with curbs.

**LENGTH** of approach slabs shall be shown on project plans.

**CROWN** shall conform to that of the approach pavement and bridge deck. If the rate of crown of the bridge deck differs from that of the approach pavement, a smooth transition shall be provided within the limits of the approach slab.

**WEARING SURFACE:** If an asphalt concrete surface course is specified for the bridge it shall also be used on the approach slab. Membrane waterproofing should not be used on the approach slab.

**APPROACH SLAB JACKING HOLES**, shown are those required for a two-(44' wide) approach slab. If a different width approach slab is used, jacking holes shall be provided following approximately the same pattern and spacing as shown. Supplemental Specification 813 and Mudjacking Concrete Pavement instructions on file with each Division Operations Engineer, should be used as guides for mudjacking the approach slab.

**ANCHOR BARS** D801 or D802 shall be detailed for the specific bridge and shall be included with 509 under abutments or superstructure for payment.

X = Bridge Slab thickness + 2 1/2" but never less than T + 2 1/2"

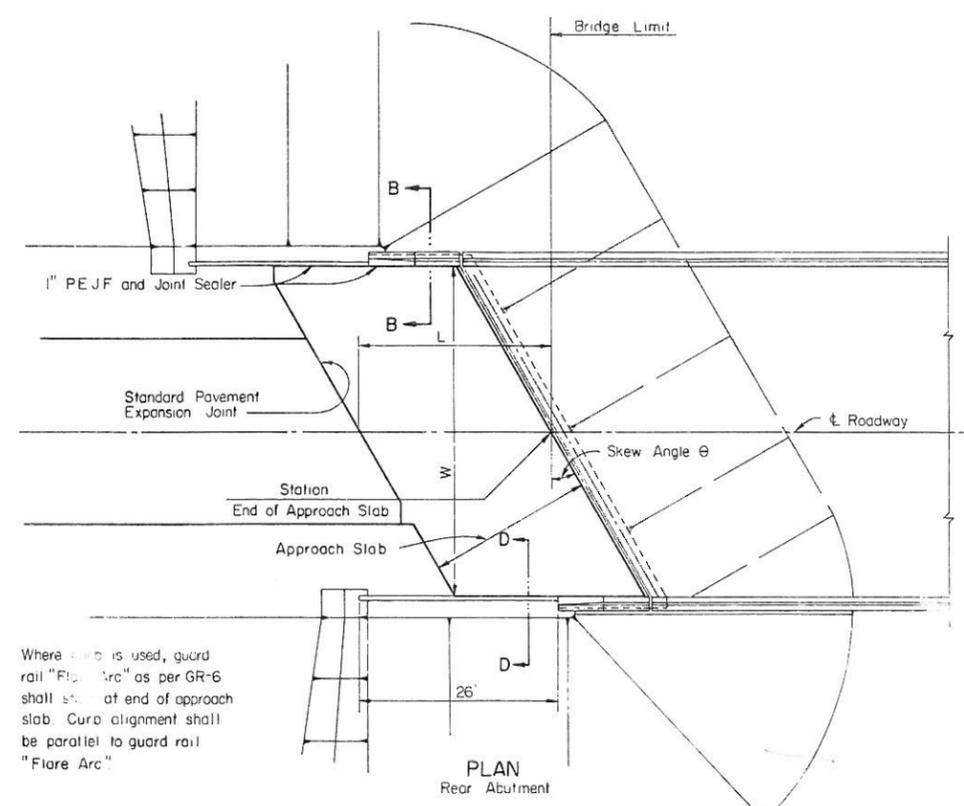
REVISIONS				

STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 DIVISION OF DESIGN AND CONSTRUCTION  
 BUREAU OF BRIDGES

STANDARD  
**REINFORCED CONCRETE APPROACH SLABS**  
 LENGTHS - 15'-0", 20'-0" 25'-0" AND 30'-0"

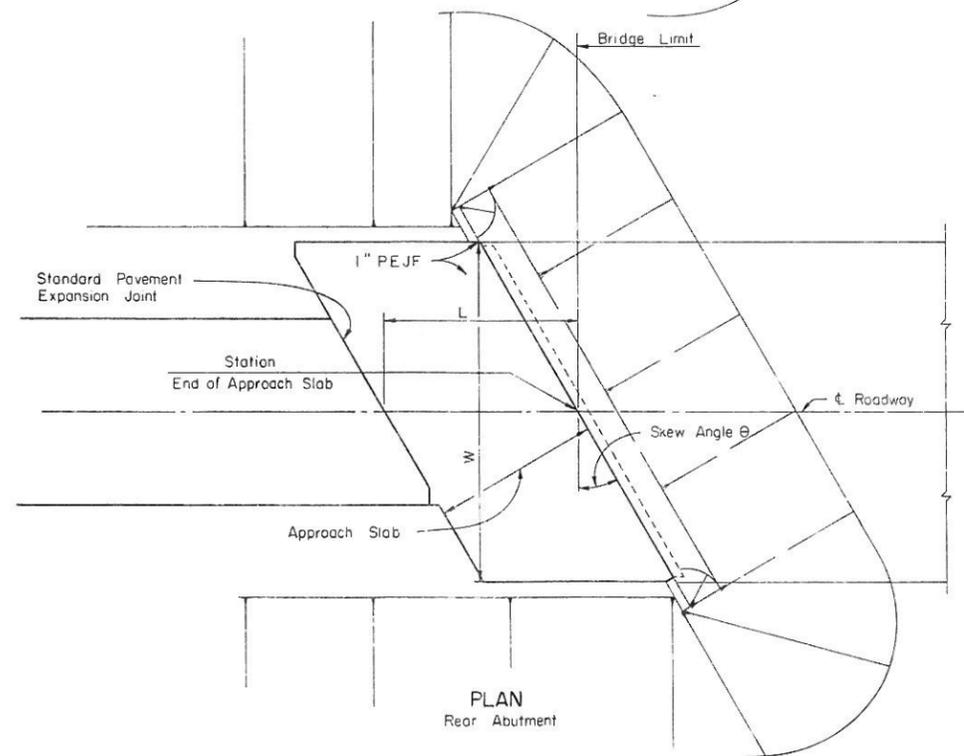
APPROVED: *C. D. Albrecht*  
 DATE: 6-30-72 ENGINEER OF BRIDGES

PREPARED DLM	TRACED TGC	CHECKED CPD	REVIEWED BFG	SH OF 5H
-----------------	---------------	----------------	-----------------	-------------

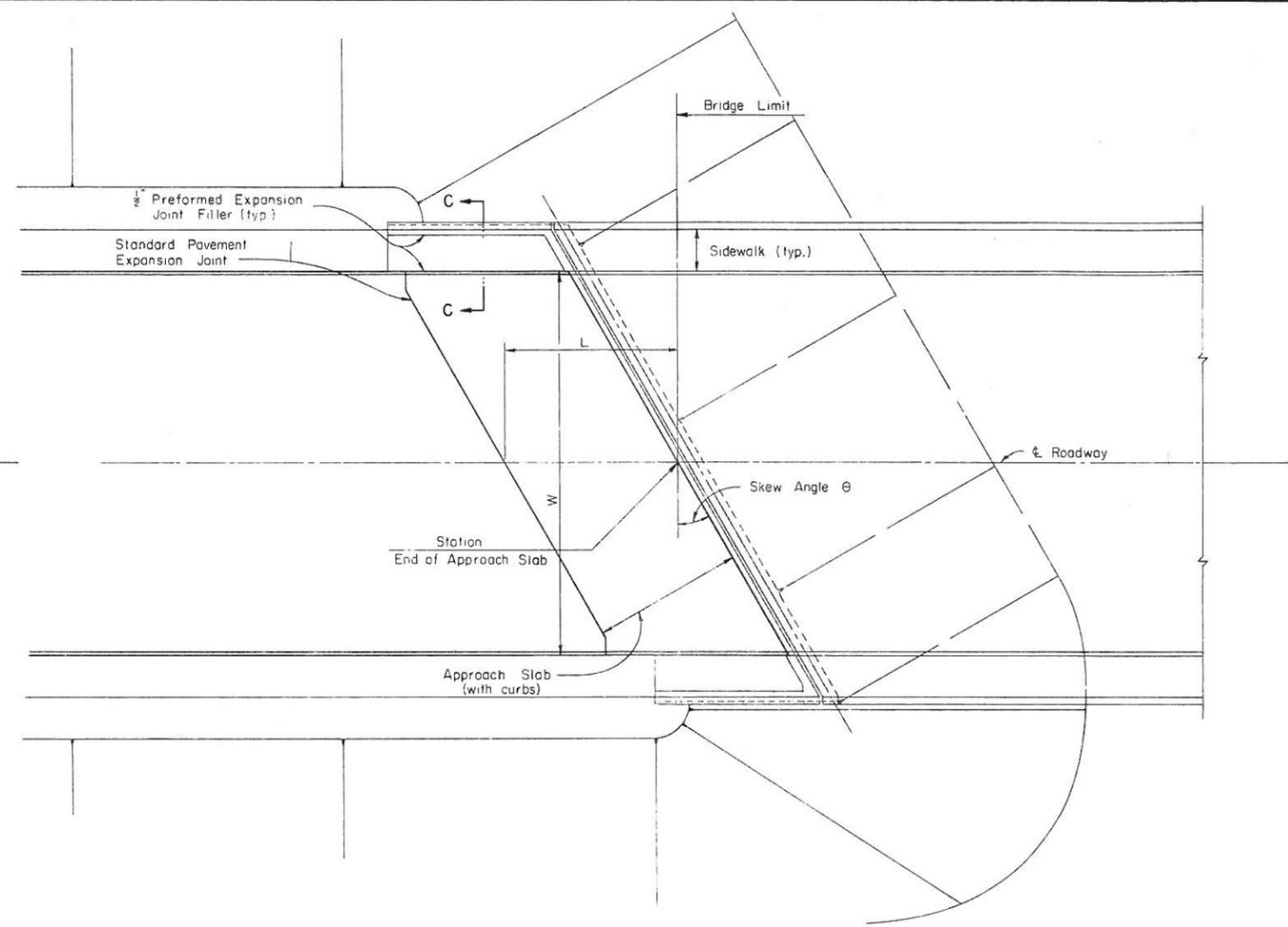


Where curb is used, guard rail "Flare Arc" as per GR-6 shall stop at end of approach slab. Curb alignment shall be parallel to guard rail "Flare Arc".

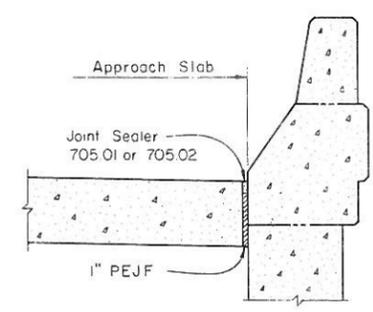
PLAN  
Rear Abutment



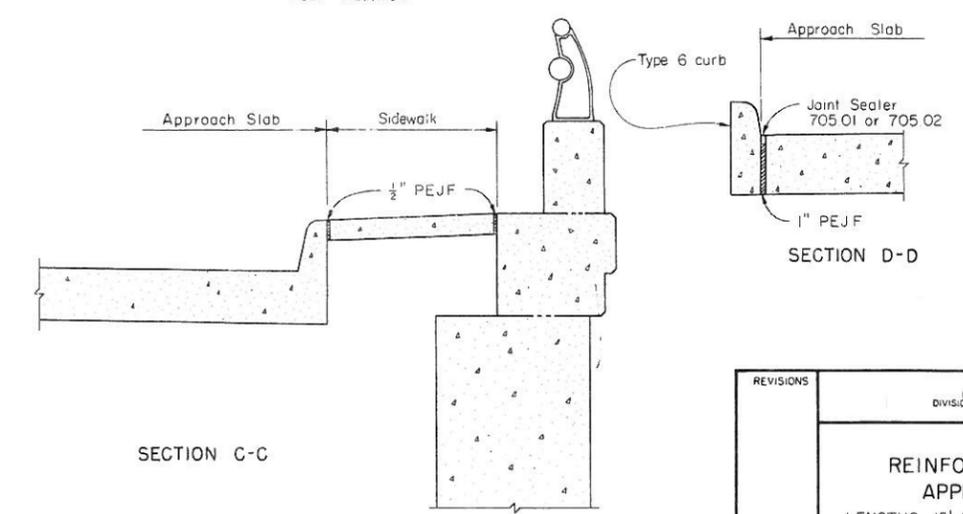
PLAN  
Rear Abutment



PLAN  
Rear Abutment



SECTION B-B

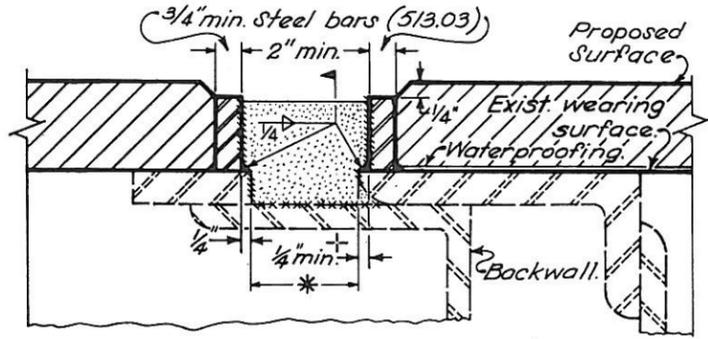


SECTION C-C

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES					
STANDARD REINFORCED CONCRETE APPROACH SLABS LENGTHS - 15'-0", 20'-0", 25'-0" AND 30'-0"					
APPROVED DATE 6-30-72 <i>C. H. Alkwater</i> ENGINEER OF BRIDGES					
PREPARED	TRACED	CHECKED	REVIEWED	DRN	AS
DLM	TGC	CPD	BFG	SH	OF

† Increase as necessary to maintain 2" min. opening.  
 \* Vertical extension of joints found to be closed to 1/2" or less may be non-performed as directed by the Engineer.

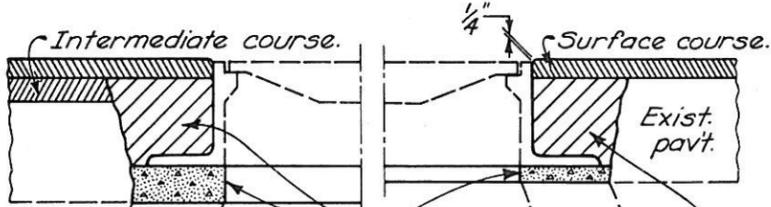
# RESURFACING



As a part of item 516, seal joint with a hot-applied bridge deck waterproofing material which also meets the requirements of 705.01. Sandblast vertical surfaces (1/4) and wipe clean. Seal joint before rust forms. If rust forms, re-sandblast. Use bond breaker on the horizontal surface (\*\*\*\*\*).

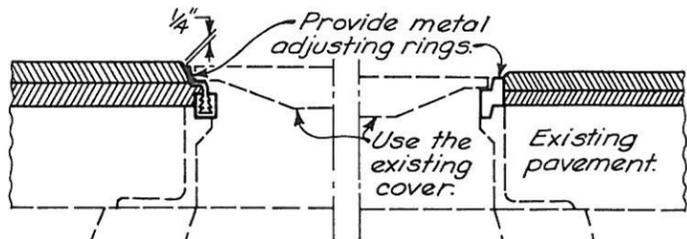
**MAINTENANCE OF TRAFFIC:** Generally the bars shall be welded while the lane is closed for waterproofing or resurfacing. However, if traffic is routed over the bars before resurfacing, temporary ramps shall be constructed to the tops of the bars using 402 or 404 feathering at a max. slope of 6 ft/in. The ramps shall be removed prior to resurfacing. Payment for placing and removing the ramps shall be included in the lump sum bid for item 614.

## VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS



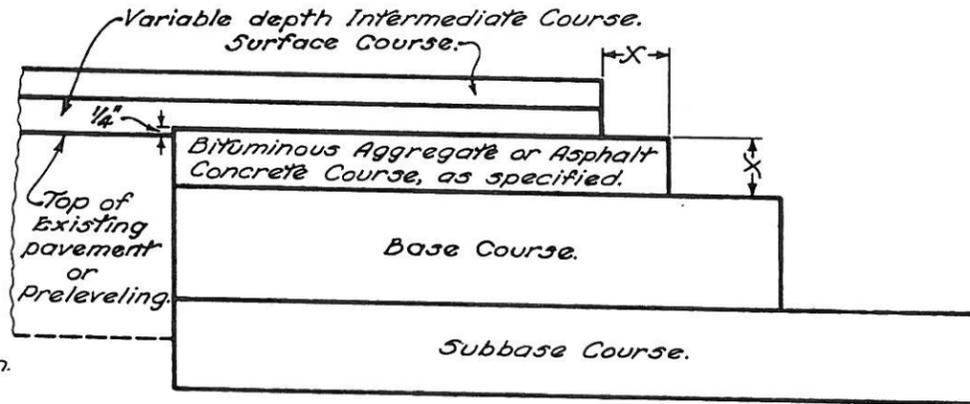
Grade rings, bricks, Class C concrete or mortar. Max. mortar thickness 1/2".

### USING CONCRETE OR MORTAR



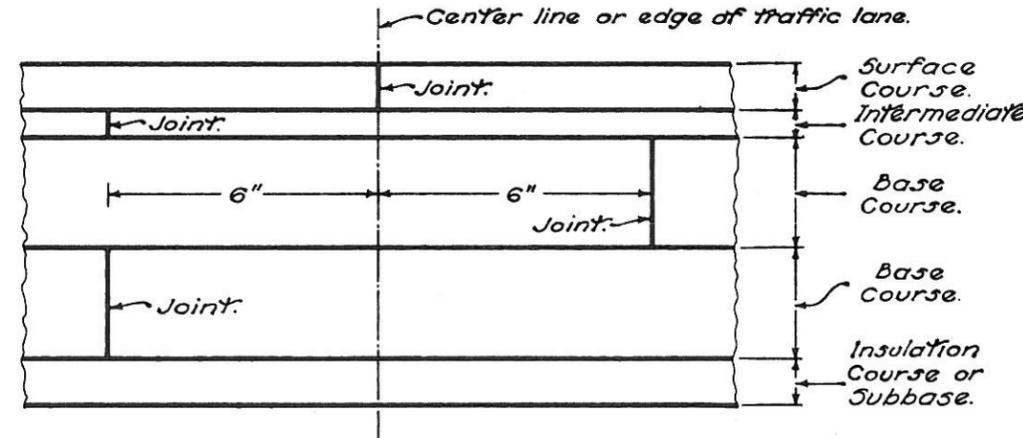
The metal adjusting rings shall be equal to the Series R-1979 by the Neenah Foundry Co. or the models LS, LB, SB, NB or MB by the National Utility Products Co. or an approved equal. Adjustment range 1" to 4 1/2".

### USING METAL ADJUSTING RINGS MANHOLES ADJUSTED TO GRADE

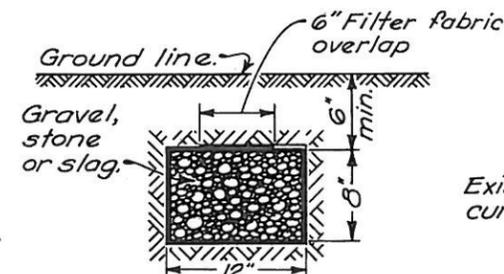


The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

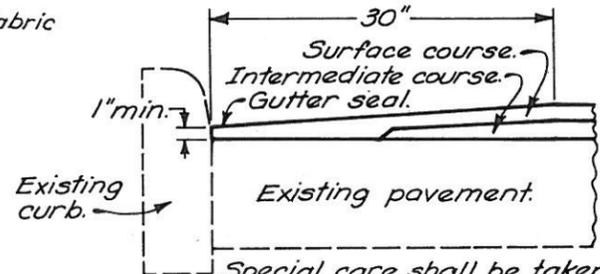
## COURSE DETAIL FOR WIDENING



## LAPPING LONGITUDINAL JOINTS



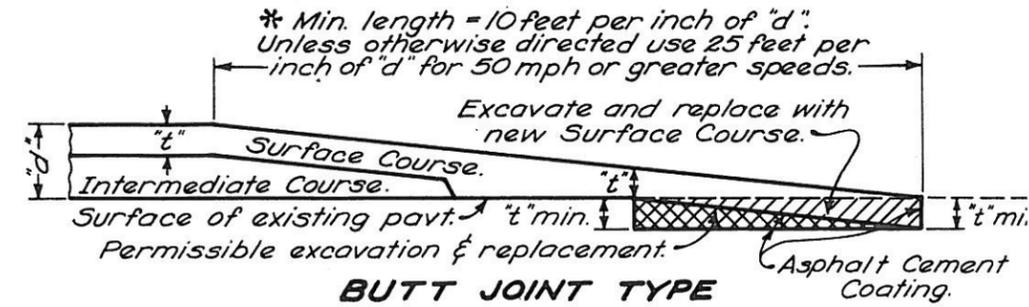
Aggregate drains to be placed where and as directed by Engineer. Provide filter fabric when specified as a separate pay item.  
**AGGREGATE DRAIN**



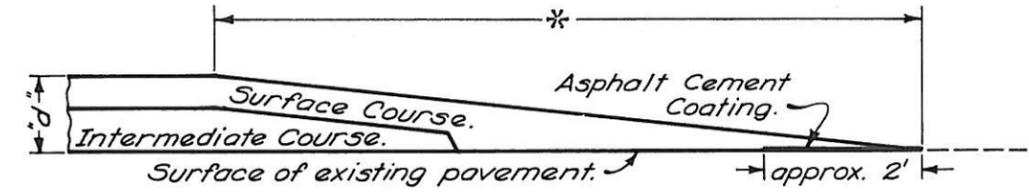
Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.

## GUTTER FINISH

NOTE: Either type feathered area may be used unless type is specified by the plan.

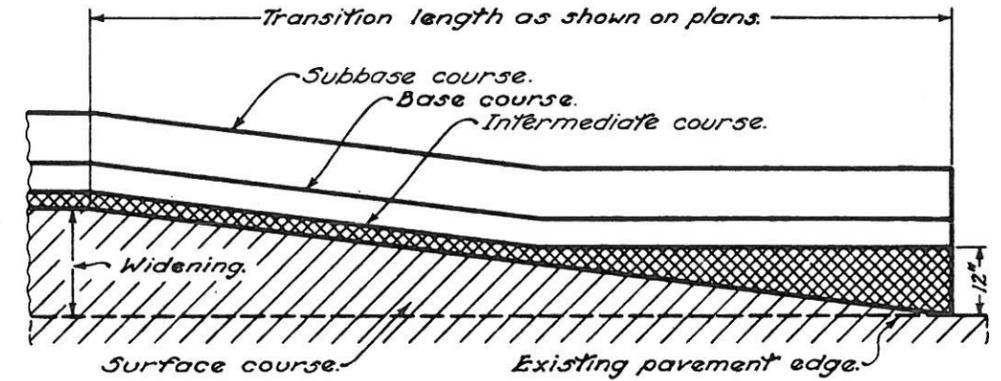


## BUTT JOINT TYPE

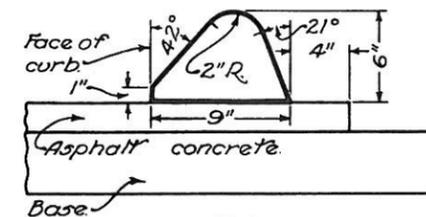


## FEATHER EDGE TYPE

## PLACING FEATHERED AREAS



## MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT



## TYPE I ASPHALT CONCRETE CURB

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 OHIO DEPARTMENT OF TRANSPORTATION

## RESURFACING

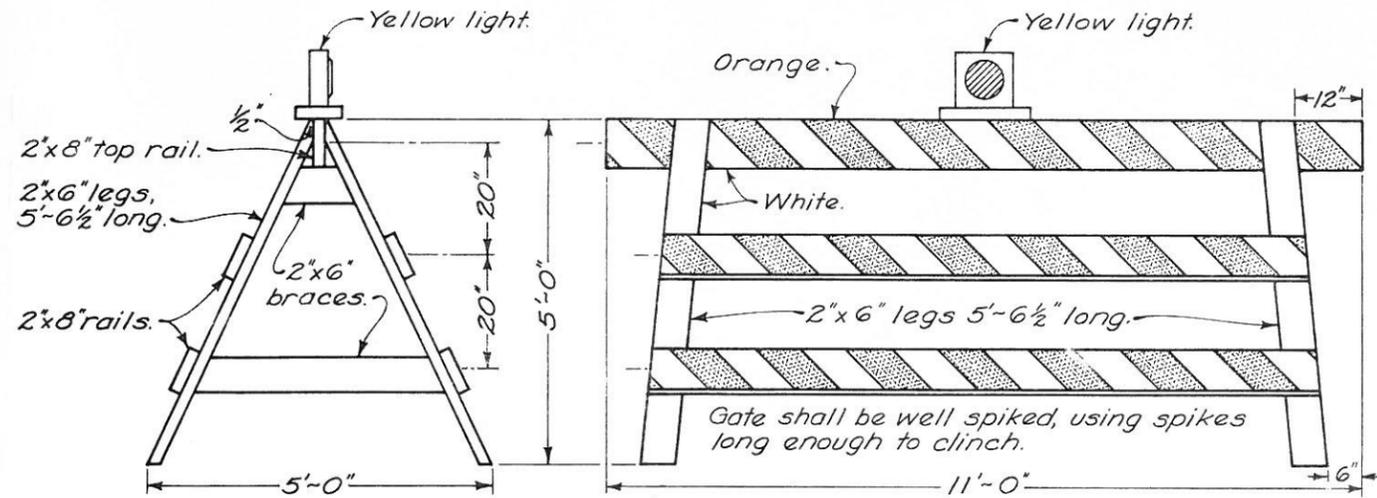
STANDARD CONSTRUCTION DRAWING BP-5

APPROVED: *M. J. Cunningham* ENGR., L.D.

DATE  
 6-1-11  
 1-1-11  
 6-1-11  
 8-1-11  
 4-1-11



# MOVABLE GATE



# NOTES

**BARRICADES** shall be constructed according to details shown. Where traffic is maintained during construction, wing barricades shall be used on each shoulder: (1) at both ends of the project, (2) on all interchange entrance ramps or on the cross road preceding the entrance ramp, (3) on all other major approach roads as directed by the Engineer. When the road is closed to traffic, barricades and gates shall be used to effectively close the entire roadway including the median of divided highways. In urban areas and at locations where it is impracticable to extend the barricade to the right-of-way line because of a sidewalk or other obstruction, the ends of the barricade shall be located as directed by the Engineer to effect the desired closing of the highway.

**YELLOW LIGHT:** Each gate shall be equipped with a steady burning yellow light, conspicuously visible at all distances up to 1000' under normal atmospheric conditions. The light, operated by battery, electric generator, commercial power or propane gas, shall be in operation at all times between sunset and sunrise during the period the highway is closed.

**SIGNS:** Where the road is closed to traffic by the erection of gates and barricades, a **ROAD CLOSED** sign (R-75) shall be mounted on the gate as shown. On three-lane pavement, the sign shall be mounted on the middle gate facing traffic.

Where traffic is maintained, a **ROAD CONSTRUCTION TRAFFIC MAINTAINED** sign (OC-4) shall be used on the right shoulder wing barricade on the approaches to major construction or maintenance jobs less than 2 miles in length. A **ROAD CONSTRUCTION NEXT MILES** sign (OC-6) shall be used on the right shoulder wing barricade on the approaches to any major construction or maintenance job of 2 miles or more in length. An **END CONSTRUCTION** sign (OC-8) shall be erected above the right hand wing barricade facing traffic leaving the construction section. The signs on the wing barricades shall be erected above the top rail of the wing barricade on braces, as detailed hereon.

**PAINTING AND REFLECTORIZATION:** All rails of the barricades and gates shall be reflectorized with orange and white reflectorized sheeting in 6" wide alternate stripes which slope downward toward the center line of the road at an angle of 45%. All three rails of the Road Closed barricade shall be striped on the side facing traffic. All three rails of the wing barricade and all gate rails shall be striped on both sides. All posts, braces, gate legs and any unstriped rails shall be painted white.

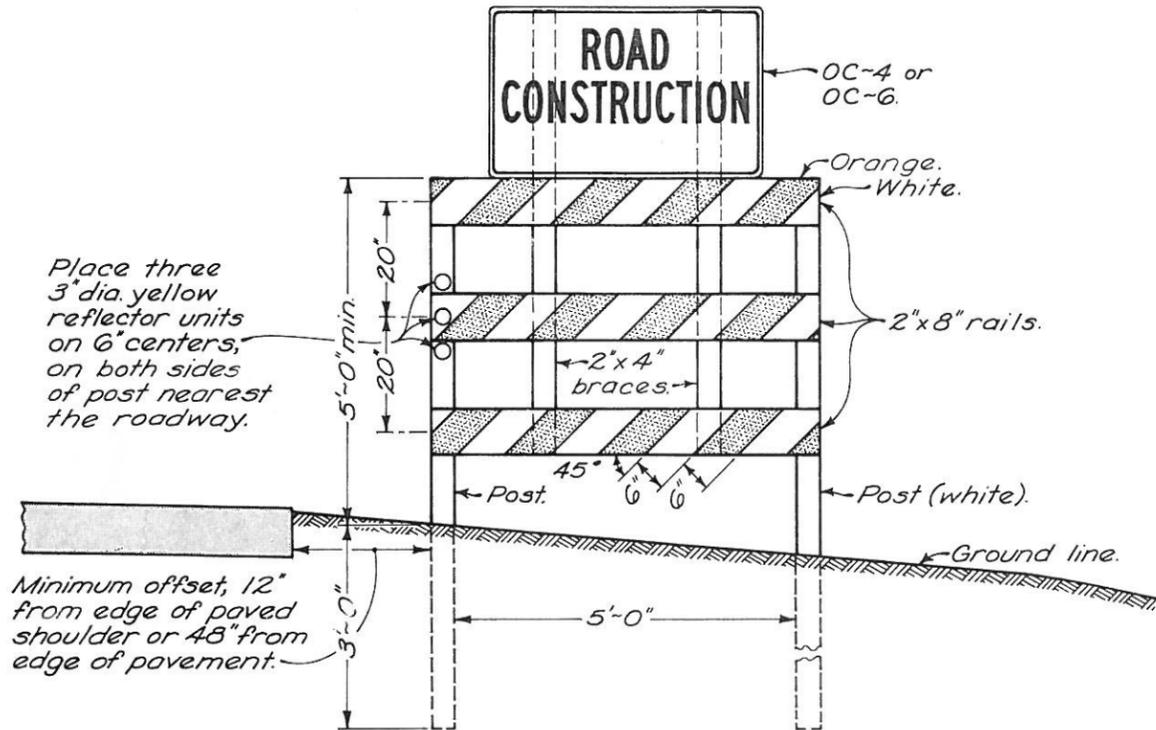
**GATES:** One gate shall be erected for each traffic lane. Gates shall be chained and padlocked to one another and to adjacent posts of the barricades. Chains shall be 1/4" stock or larger with welded links.

A hinged gate may be used and shall be an approved 12' by 4' steel frame farm type, or a type approved by the Engineer. The gate shall be hung on hinge screw hooks, or as otherwise approved. Striping similar to that used on the movable gate shall be accomplished with 1"x8" lumber or with metal strips fastened to the gate. The gate shall be supported at the center in an approved manner.

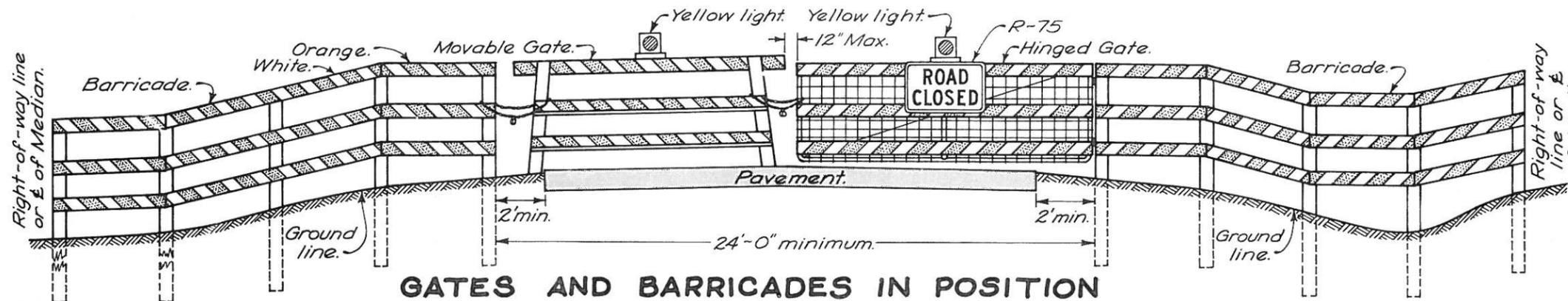
**LUMBER** used in the construction of the gates and barricades shall be No. 1 common yellow pine or No. 1 common Douglas fir, surfaced on four sides standard, or other materials approved by the Engineer. All sizes are nominal.

**POSTS** shall be sound 4"x4" sawed or 4 1/2" round. Rails of the barricade shall be bolted to the posts with 3/8" bolts.

# ROAD CONSTRUCTION



# WING BARRICADE



# GATES AND BARRICADES IN POSITION

BUREAU OF ROADWAY DESIGN  
OHIO DEPARTMENT OF TRANSPORTATION

## BARRICADES AND GATES

STANDARD CONSTRUCTION DRAWING MC-3

APPROVED *E. J. Schaefer* ENGR., R. D.

DATE: 6-1-5-1-11-1-6-206-1-