

1. DESIGN SPECIFICATIONS

The structures conform to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969, including the Ohio "Supplement" to these specifications.

2. SUPPLEMENTAL CONSTRUCTION SPECIFICATIONS

Reference shall be made to Supplemental Specifications No. 808 (Water Reducing, Set-retarding Admixture) dated 1-1-71, 838 (Special Pile Test) dated 3-18-70, 836 (Concrete Curling and Protective Membrane) dated 3-12-75, and 927 (Self-Lubricating Bronze Bearing Plates) dated 1-1-71.

3. REFERENCE DRAWINGS

Reference shall be made to Standard Drawings Numbers RB-1-55 revised 2-2-59, BR-2-67 revised 10-15-71, SD-1-69 dated 6-12-69 (Sheet 1, 2, 3, and 4 of 4), AS-1-72 dated 6-30-72 (Sheets 1 and 2 of 2), and BR-1-67 (Sheets 1 and 3 of 3) revised 10-15-71.

4. DESIGN DATA

Design Loading - HS20-44 for all bridges and including the Interstate Alternate Loading for Bridge STA-30-1487, STA-30-1474 and STA-30-1504
Concrete Class C - basic unit stress 1,200 psi (for superstructure).
Concrete Class C - basic unit stress 1,333 psi (for substructure).
Structural Steel - ASTM A36 - basic unit stress 20,000 psi.
ASTM A-588 - basic unit stress 27,000 psi.
Reinforcing Steel - ASTM A615, A616 or A617 - basic stress unit 20,000 psi. Spiral reinforcement may be plain bars, ASTM A82 or A615.

5. DIMENSIONS

Dimensions given are measured horizontally and at 60 degrees F. unless otherwise shown.

6. UTILITIES

Any existing utility facilities encountered at the site of work which will interfere with portions of the finished expressway or structures will be removed or relocated by others unless otherwise shown on plans. All expense involved in relocating (installing) the affected utility lines shall be borne by the owner(s). 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. The Contractor shall coordinate his operations with the work of the utility owners or others who may be making the relocations and shall notify the owners of the utilities of his schedule in advance to permit them to make the necessary alterations.

7. PILING

(All Bridges except STA-30-1492) Piles for abutments of all bridges shall be driven to a minimum bearing capacity of 45 tons per pile. Piles for piers of Bridges STA-30-1487, STA-30-1486, STA-30-1488, STA-30-1493, and STA-30-1489 shall be driven to a minimum bearing capacity of 50 tons per pile. All piles shall be 12" diameter cast-in-place reinforced concrete.

(Bridge STA-30-1492) All piles shall be HP 10 x 42 driven to refusal or 20 blows per inch for the last few inches of penetration.

8. EXCAVATION

(All Bridges) Excavation quantity includes the removal of fill material required for construction of the abutments, wingwalls and piers.

9. REINFORCING STEEL

All bars are designated on the plans by bar numbers. The bar size is designated by the first digit of three-digit numbers and by the first two digits of four-digit numbers.

The clear distance between reinforcing steel and face of concrete shall be 3" for all bars in footings, 2 1/2" at bar mats under shoes and 2" elsewhere unless otherwise shown on the plans. The clear distance shall be measured from the inner face of surfaces with rustications.

All bar dimensions are given out to out.

All bars of a series shall vary by a constant increment.

10. WATERPROOFING

All contraction and expansion joints in back face of substructure against which earth is to be placed shall be waterproofed with a premolded sealing strip as shown on the plans.

11. LIGHTING NOTES

For lighting notes see Sheets 135 and 136.

12. INTERMEDIATE STIFFENERS

Intermediate stiffeners shall have a tight fit with the tension flange and may have either a tight fit or be welded to the compression flange with 1/4" fillet weld. Tension flange areas are denoted by "T" on the girder elevation views of the framing plans.

The first two stiffener spaces at the simply supported ends of girders shall be at one-half the normal stiffener spacing.

13. CONSTRUCTION CLEARANCE

Construction clearance of 20 feet vertically above the top of the railroad rails and 8 feet horizontally from the center of the tracks shall be maintained at all times.

14. FOUNDATION BEARING PRESSURE

Pier footings for Bridges STA-30-1499, STA-30-1474, STA-30-1474R, STA-30-1474L and STA-30-1494 are designed for a maximum bearing pressure of 2.5 tons per sq. ft.

15. SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS (CVN)

Where a shape or plate is labeled "CVN", the material shall meet minimum notch toughness requirements in accordance with 711.01. The fabricator shall submit to the Director a procedure designed for positive identification of material through all phases of fabrication. No material shall be fabricated until the Director has approved the procedure.

16. BEARING ANCHORS

At the option of the Contractor, bearing anchors (or formed holes), located and supported by templates, may be cast in place.

17. STEEL ERECTION

During the erection of end dams and crossframes, care shall be taken to insure that stringers, bearing parts and bridge seats remain in bearing contact.

18. BACKWALL CONCRETE

In addition to the provisions of 511.08, backwall concrete shall not be placed until after the deck concrete in the span adjacent to the backwall has been placed.

19. SHOULDER DELINEATION

Shoulder areas of the bridge decks shall be delineated by means of a bituminous seal coat using 0.0075 cubic yards of No. 9 aggregate per square yard and 0.25 gallon per square yard of 702.02, MC-800 or MC-3000: 702.03, CBAE 800: 702.04, RS-1, RS-2, or CRS-1, CRS-2, or 702.09, RT-9 or RT-10.

20. PLACING DECK CONCRETE AT INTERMEDIATE EXPANSION JOINTS

Blockouts shall be provided in the concrete deck, 5 ft. on each side of the expansion joints. Set expansion joints after the deck (with the exception of the blocked out areas) is poured on each side of the joint. Attach the end dam parallel to the deck surface and complete the pours in the blocked out areas.

21. HORIZONTALLY CURVED GIRDERS

The horizontal curvature for the girders of Bridges STA-30-1488, STA-30-1489 and STA-30-1493 may be obtained by cutting or by a heat-curve process. If curvature is obtained by a heat-curve process the girder deflections, cambers and gutterline elevations shall be adjusted in accordance with Article 1.7.116 of the 1974 Interim Specifications and with Errata No. 6, printed on Page 100 of the 1975 Interim to the "Standard Specifications for Highway Bridges," Eleventh Edition, adopted by the American Association of State Highway and Transportation Officials.

22. END DAMS AND SCUPPERS

Steel bar stock utilized for end dams and scuppers may be any weldable grade of low or mild carbon steel available commercially. This material is to be excluded from the requirements of 501.07 for test reports.

STARK COUNTY
STA-30-14.12
STA-77-9.22

23. SLIDING PLATE INTERMEDIATE EXPANSION JOINT WITH NEOPRENE TROUGH

A. Description

This work shall include the fabrication and erection of all sliding plate expansion joints with neoprene troughs and hoses in accordance with the plans and specifications.

B. Materials

(a) Structural Steel - ASTM A36 - Unit stress 20,000 psi
(b) Nylon Reinforced Neoprene Sheet (trough and hose) - DuPont's Fairprene MN-0003, 3/8" thick or an approved equal.
The one-ply material shall conform to ASTM D751 and the following:

Tensile Strength	1000 x 1000
Grab method Pounds	
Warp X Fill, Minimum	
Mullins Burst, psi, minimum	1400
Heat Aging 70 Hours @ 212°F.	No Cracking
180° Bend, 1/4 Rod	

(c) Adhesives and Primers (Neoprene Sheet to Steel)

The adhesives and primers shall conform with the pertinent provisions of sheet 365E.

C. Fabrication

Trough shop drawings shall be prepared to control the work. They shall be submitted for approval prior to the beginning of trough fabrication.

Trough shall be preformed in the shop to conform with the trough shape shown in Section A-A on sheet 356.

All joints or seams in the trough shall be lap spliced nylon reinforced neoprene sheets which shall extend at least 12 inches on both sides of each joint. Splices shall be vulcanized bonded under heat and pressure in the shop.

Ends of troughs shall be bonded together with the end reinforced as described above for joints or seams. Bonded sections shall be located at least 6" to 9" beyond the curb line.

Holes in the troughs shall be located with the aid of a template furnished by the structural steel fabricator.

D. Installation

Prior to final assembly in the field the surfaces of the neoprene & steel which are to be compressed together shall be prepared to conform with the approximate provisions on sheet 365E. The installation shall conform in essential respects to these provisions.

E. Measurement

Payment for accepted quantities shall be the actual number of linear feet of sliding plate intermediate expansion joints complete and in place. This payment shall include the cost of all labor, materials and equipment necessary for fabrication and erection of the structural steel components, and the cost of furnishing and placing the neoprene troughs and hoses including adhesives, support angles and bolts.

F. Payment

Payment will be made at the contract unit price bid for Item Special, Sliding Plate Intermediate Expansion Joint With Neoprene Trough.

H.N.T.B. Bridge No. 1 = State Bridge No. STA-30-1474
H.N.T.B. Bridge No. 5 = State Bridge No. STA-30-1474R
H.N.T.B. Bridge No. 15 = State Bridge No. STA-30-1474L
H.N.T.B. Bridge No. 2 = State Bridge No. STA-30-1487
H.N.T.B. Bridge No. 6 = State Bridge No. STA-30-1486
H.N.T.B. Bridge No. 7 = State Bridge No. STA-30-1488
H.N.T.B. Bridge No. 8 = State Bridge No. STA-30-1499
H.N.T.B. Bridge No. 9 = State Bridge No. STA-30-1494
H.N.T.B. Bridge No. 13 = State Bridge No. STA-30-1493
H.N.T.B. Bridge No. 14 = State Bridge No. STA-30-1489
H.N.T.B. Bridge No. 10 = State Bridge No. STA-30-1504
H.N.T.B. Bridge No. 22 = State Bridge No. STA-30-1492

H.N.T.B. BRIDGE NO. 1, 2, 5, 6, 7, 8, 9, 10, 13, 14, 15, 22

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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

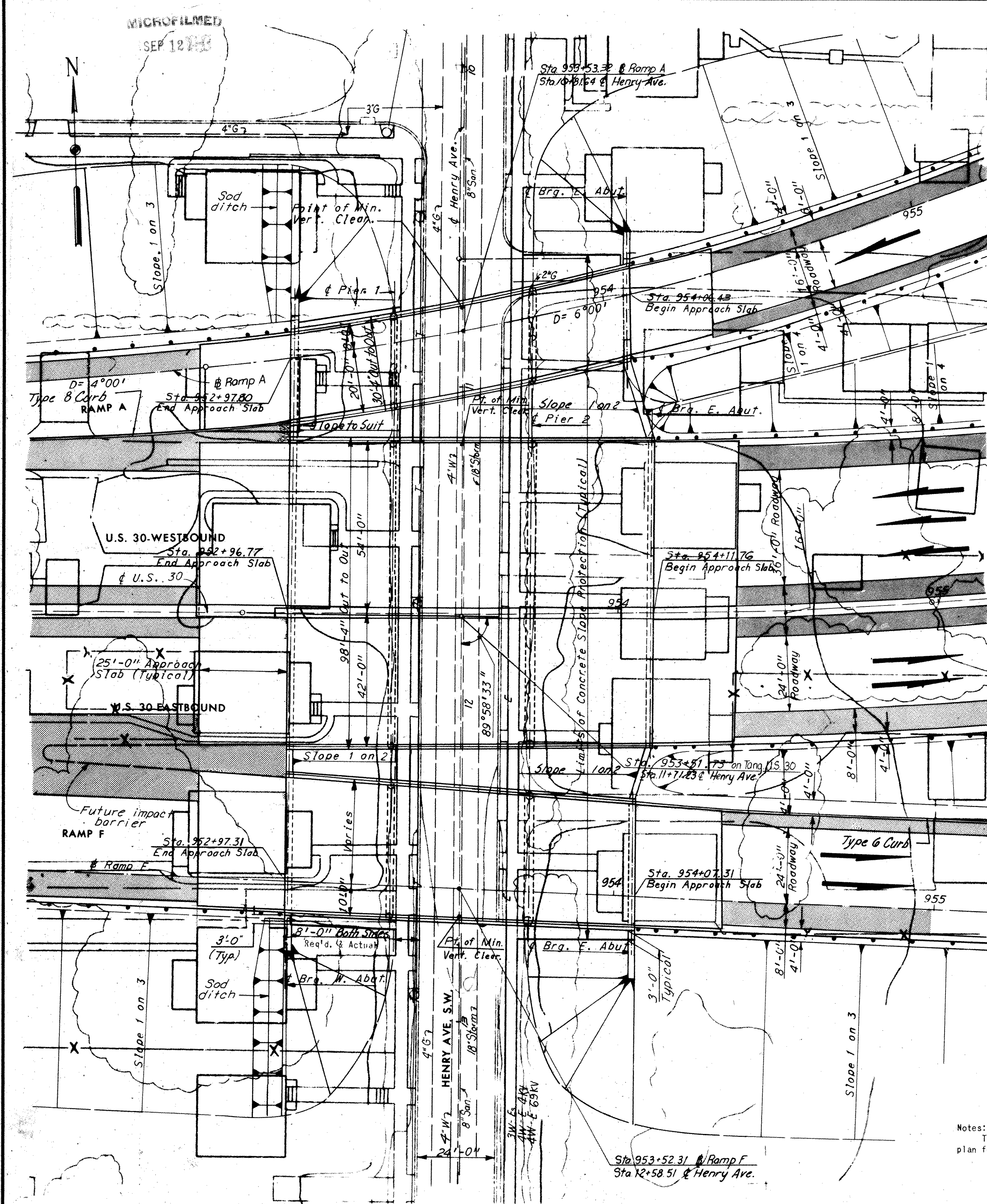
GENERAL NOTES

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

Revised 7-25-75 By RAS

DRAWN	TRACED	CHECKED	REVIEWED	DATE	DATE	DATE	DATE
6-6-70	6-6-70	6-6-70	6-6-70	6-6-70	6-6-70	6-6-70	6-6-70



PLAN

Notes:

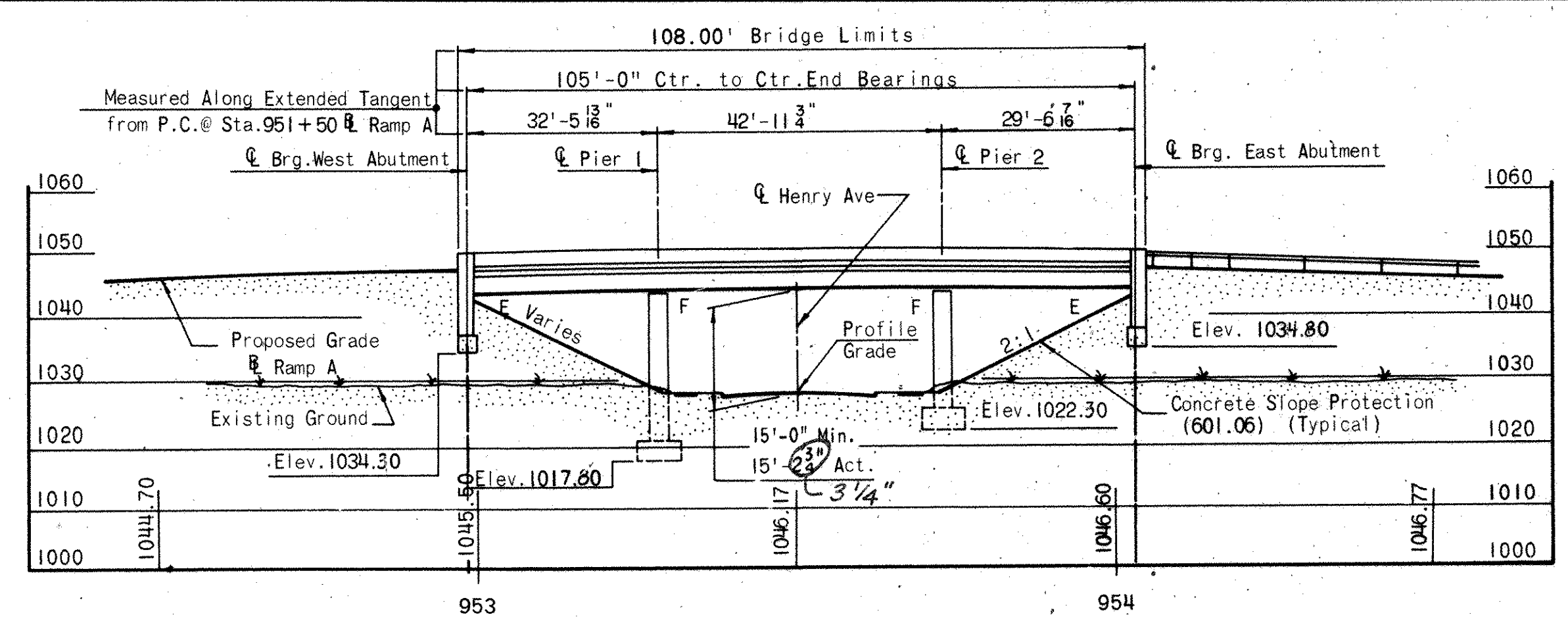
The following items are not included in the bridge plans. See roadway plan for details:

1. Relocation or removal of existing utilities.
2. Approach grading, pavements and slabs.
3. Guardrails.
4. Sod ditches.
5. Henry Avenue side walks.

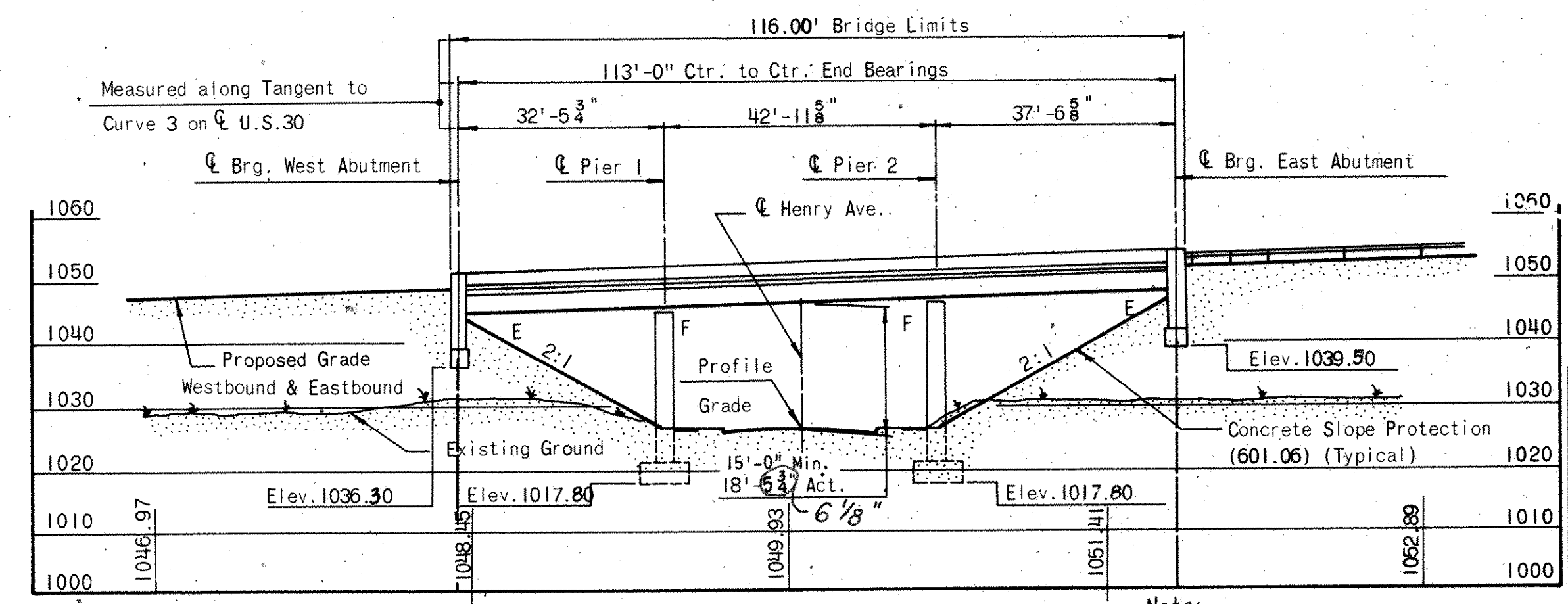
Earthwork limits shown are schematic. Actual slopes shall conform to plan cross-sections.

All piling in abutments shall be 12" x 6 C.I.P.C. piles driven to 45 tons capacity. Estimated average pay lengths are 70 feet for West abutment and 82 feet for East abutment.

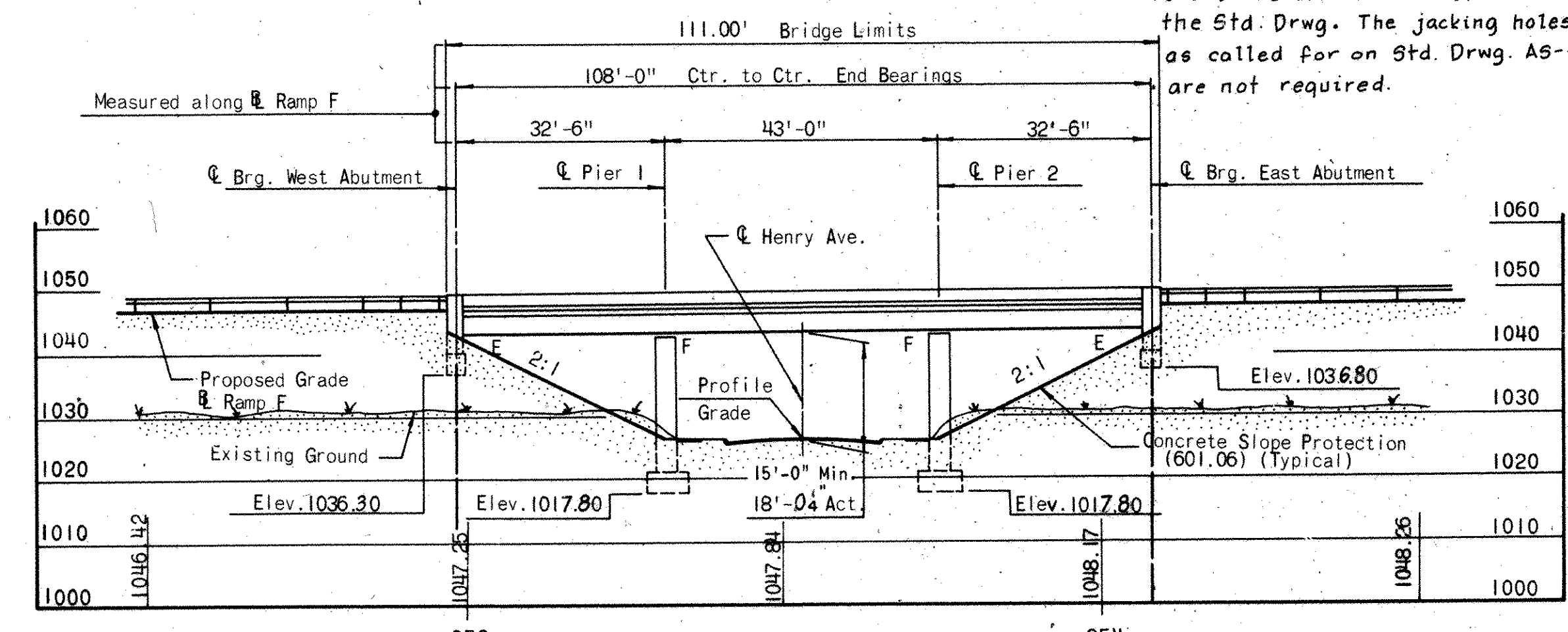
Embankments shall be constructed to the level of the subgrade for a minimum distance of 200 feet back of the abutments. Excavation shall then be made for the abutments and piers.



ELEVATION RAMP 'A'
STA-30-1474L



ELEVATION U.S. 30
STA-30-1474



ELEVATION - RAMP 'F'
STA-30-1474R

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

215
389

STARK COUNTY
STA-30-14.12
STA-77-9.22

PROPOSED STRUCTURE - RAMP 'A'

Type: Continuous Rolled Beams with Reinforced Concrete Slab.

Spans: 32'-5 1/8", 42'-11 1/4" and 29'-6 1/8" measured along extended tangent from P.C. @ Sta. 951+50

Roadways: 28'-0" face to face of parapets

Loadings: HS20-44

Skew: 110.09 Lt. to tangent at Sta. 953+53.3

Wearing Surface: 2 1/2" Asphalt Concrete

Approach Slabs: A5-1-72 (25' Long) (Modified)

Alignment: 6° 00' Curve Left

1987 ADT: 13,981

PROPOSED STRUCTURE - U.S. 30

Type: Continuous Rolled Beams with Reinforced Concrete Slab

Spans: 32'-5 1/8", 42'-11 1/4", and 37'-6 1/8" measured along tangent to Curve 3 on U.S. 30

Roadways: including 3'-0" Median Barrier

Loadings: HS20-44

Skew: None

Wearing Surface: 2 1/2" Asphalt Concrete

Approach Slabs: A5-1-72 (25' Long) (Modified)

Alignment: Spiral (Lt.)

1987 ADT: 21,891 W.B., 18,853 E.B.

PROPOSED STRUCTURE - RAMP 'F'

Type: Continuous Rolled Beams with Reinforced Concrete Slab.

Spans: 32'-6", 43'-0" and 32'-6" measured along R Ramp F

Roadways: Varies; 40'-0 1/2" to 43'-7 1/2" face to face of parapets along U Bearing

Loadings: HS20-44

Skew: 151.85 Rt.

Wearing Surface: 2 1/2" Asphalt Concrete

Approach Slabs: A5-1-72 (25' Long) (Modified)

Alignment: Tangent

1987 ADT: 16,919

EXISTING UTILITY LEGEND

- 4" G2 GAS
- 4" W2 WATER
- 16" Storm STORM SEWER
- 8" San SANITARY SEWER
- T TELEPHONE
- E POWER LINES
- 4W-E4KV 4 WIRE, PRIMARY 4 KILOVOLT
- 3W-E3 3 WIRE, SECONDARY
- W WATER HYDRANT
- M MANHOLE
- C CATCH BASIN

H.N.T.B. BRIDGE NOS. 1, 5 AND 15 Revised 6-13-75 By W.E.B.

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SITE PLAN

BR. NO. STA. - 30-1474 STA. 952+96.77
BR. NO. STA. - 30-1474R STA. 954+11.76
BR. NO. STA. - 30-1474L
SCALE: 1" = 20'-0"

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISION
K.T.B.	W.G.B.	J.B.C.	W.G.B.	
DATE 3-10-69	DATE 3-11-69	DATE 3-11-69	DATE 11-22-71	

1668

Revised 4-28-77

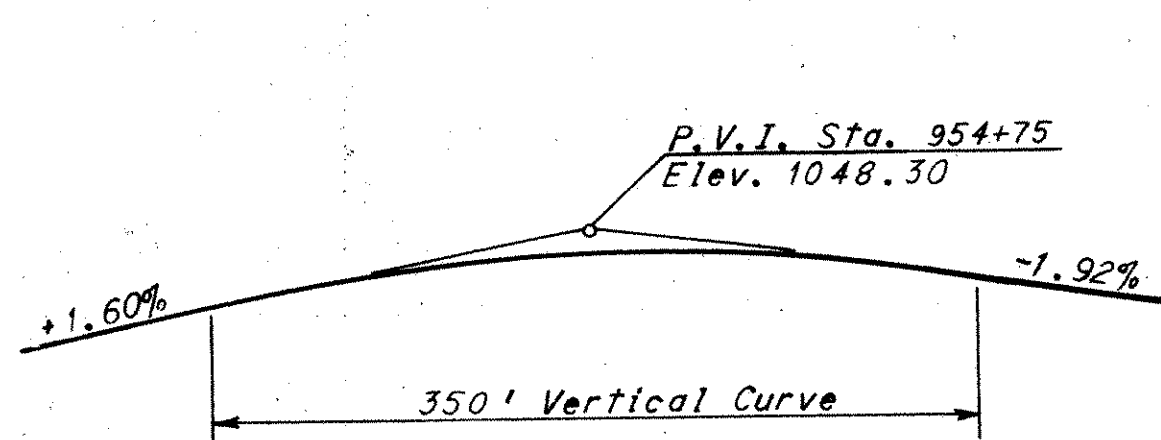
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STARK COUNT
STA-30-14.12
STA-77-9.22

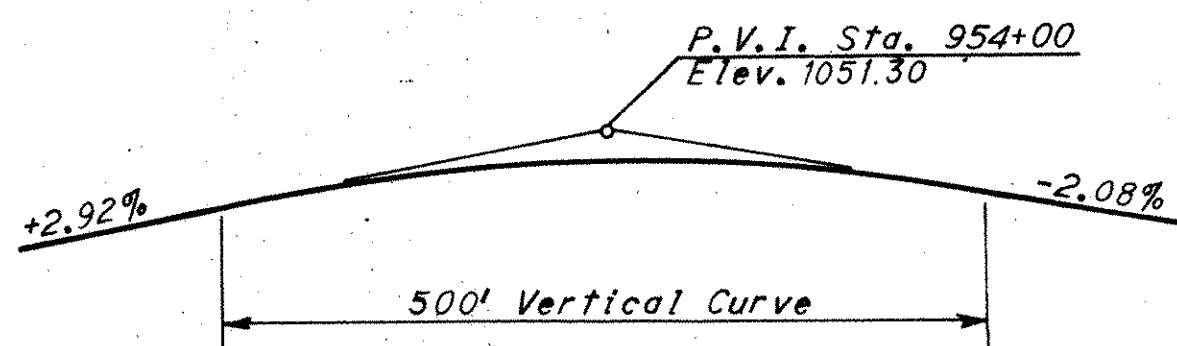
ESTIMATED QUANTITIES																
ITEM	TOTAL	UNIT	DESCRIPTION	BRIDGE STA.-30-1474			US-30	BRIDGE STA.-30-1474R			RAMP F	BRIDGE STA.-30-1474L			RAMP A	
				ABUTMENTS	PIERS	SUPER-STRUCTURE		GENERAL	ABUTMENTS	PIERS		SUPER-STRUCTURE	GENERAL	ABUTMENTS		PIERS
404	138	Cu.Yd.	Asphalt Concrete , AC-20			81			34					23		
409	6	Cu.Yd.	Seal Coat Cover Aggregate, No. 9			3			2					1		
409	183	Gallon	Seal Coat Bituminous material : 702.02, MC-800 or MC-3000; 702.03, CBAE 800; 702.04 , R5-1, R5-2 or CR5-1, CRS-2, or 702.09, RT-9 or RT-10.			101			50					32		
503	1,882	Cu. Yd.	Unclassified Excavation	253	766			179	324				160	200		
503	Lump Sum	Lump Sum	Cofferdams, Cribbs and Sheeting			Lump Sum			Lump Sum					Lump Sum		
505	Lump Sum	Lump Sum	Test Pile*			Lump Sum			Lump Sum					Lump Sum		
507	4,975	Lin. Ft.	12" ϕ Cast-in-Place Reinforced Concrete Piles	2,103				1,520					1,352			
509	330,983	Pounds	Reinforcing Steel	15,109	61,894	111,286		9,278	23,841	50,490			7,313	15,961	35,811	
511	704	Cu. Yd.	Class "C" Concrete, Superstructure			391			178					135		
511	263	Cu. Yd.	Class "C" Concrete, Pier Caps and Columns		148				65				50			
511	242	Cu. Yd.	Class "C" Concrete, Abutments (Above Footings)	107				72					63			
511	481	Cu. Yd.	Class "C" Concrete, Footings	67	183			50	79				44	58		
512	368	Lin. Ft.	Premolded Sealing Strip	204				95					69			
513	303,600	Pounds	Structural Steel (ASTM A36)			176,000			74,700					52,900		
514	303,600	Pounds	Field Painting of Structural Steel			176,000			74,700					52,900		
516	314	Sq. Ft.	$\frac{1}{4}$ " Preformed Expansion Joint Filler	174				81					59			
516	232	Sq. Ft.	$\frac{1}{2}$ " Preformed Expansion Joint Filler	114				65					53			
516	570	Sq. Ft.	1" Preformed Expansion Joint Filler	90	127			119	64				107	63		
518	902	Lin. Ft.	Subdrainage for Wearing Course, As Per Plan			460			222						220	
518	251	Cu. Yd.	Porous Backfill	119				72					60			
518	447	Lin. Ft.	6" Perforated Helical C.M.P. 707.01	202				127					118			
518	85	Lin. Ft.	6" Non-Perforated Helical C.M.P. including Specials, 707.01	17				34					34			
601	1723	Sq. Yd.	Concrete Slope Protection 601.06				896				456				371	
625			See Sheet 137 For Lighting Summary													
808	704	Units	Chemical Admixture For Concrete, Type A, B or D.			391			178					135		
838	9	Hours	Special Pile Test				3		3						3	
Spec.	1982	Sq. Yds.	Membrane Waterproofing (See Proposal Note)			1,169			493					320		

* Test pile may be driven at Sta.-30-14.74,
Sta.-30-14.74R or Sta.-30-14.74L

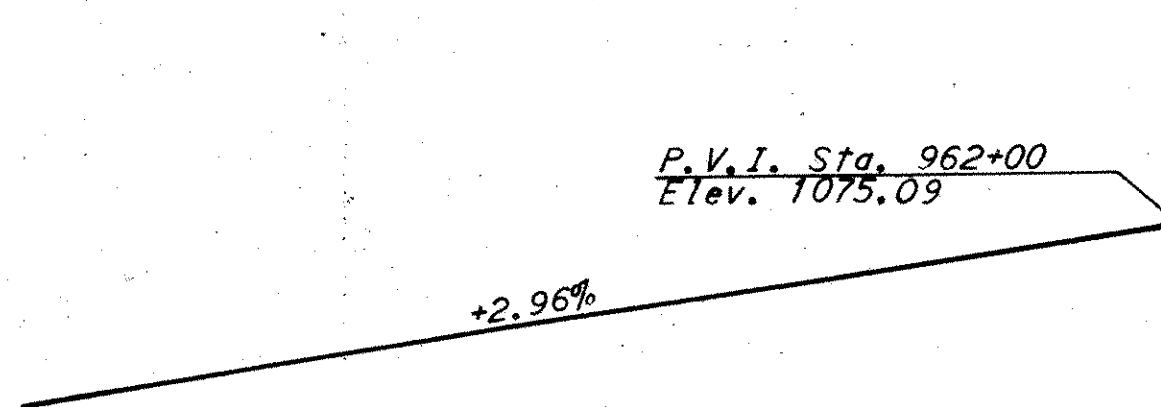
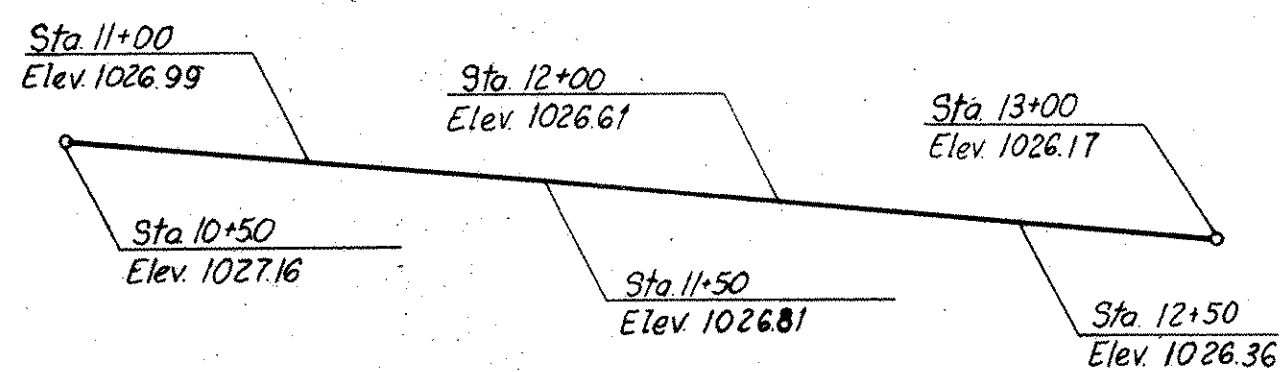
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SEP 12 1964



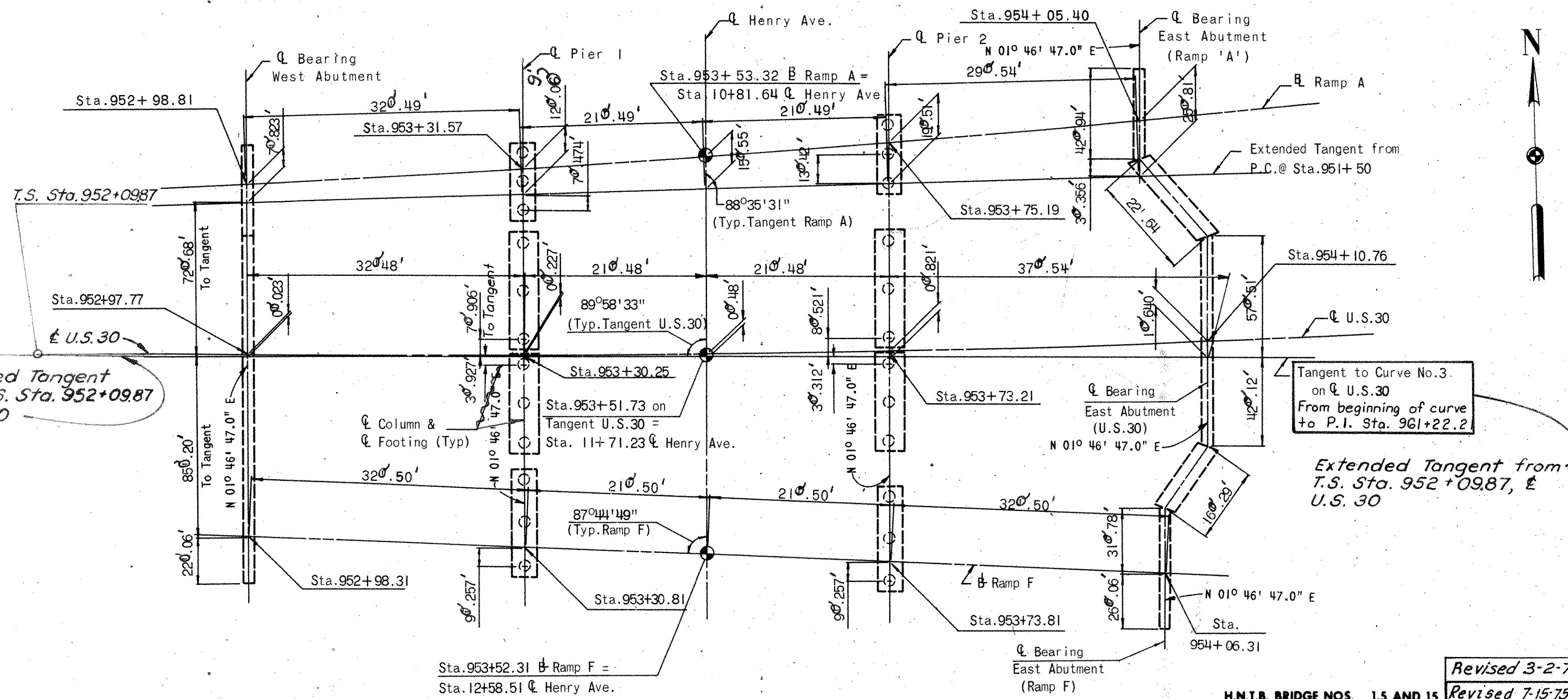
PROFILE GRADE-RAMP A



PROFILE GRADE-RAMP 1

**PROFILE GRADE-U.S. 30**

PROFILE GRADE-HENRY AVE



SUBSTRUCTURE LAYOUT DIAGRAM

H.N.T.B. BRIDGE NOS. 1, 5 AND 15 *Revised 7-15-75* *By W.E.L.*
HOWARD, NEEDLES, TAMMEN & BERGENDOFF 2 / 18
 CONSULTING ENGINEERS
 KANSAS CITY CLEVELAND NEW YORK

PROFILES, SUBSTRUCTURE LAYOUT DIAGRAM & ESTIMATED QUANTITIES

BR. NO. STA. - 30-1474	STA. 952-96.77
BR. NO. STA. - 30-1474R	STA. 954-11.76

BR. NO. STA - 30-1474L
SCALE: NO SCALE

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

DRAWN K.T.B.	TRACED J.M.W.	CHECKED J.B.C.	REVIEWED MJK	REVISED 3-2-76
DATE 3-7-69	DATE 3-14-69	DATE 3-13-69	DATE 11-22-71	1668

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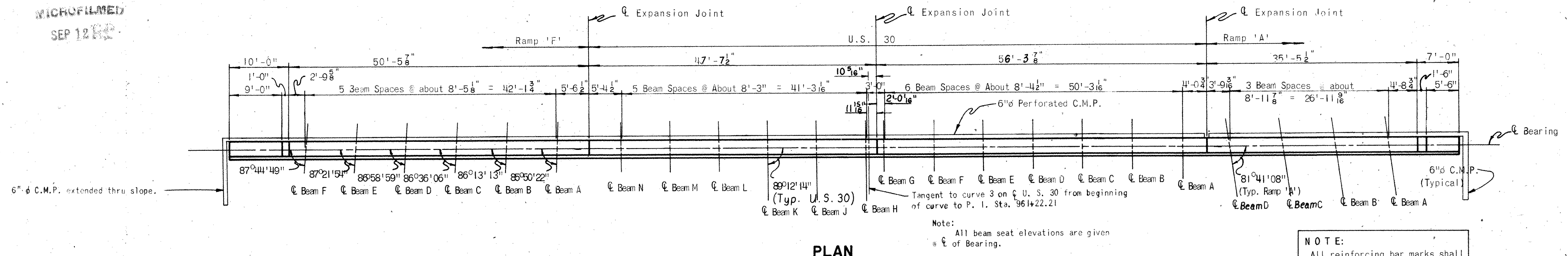
Revised 4-28-

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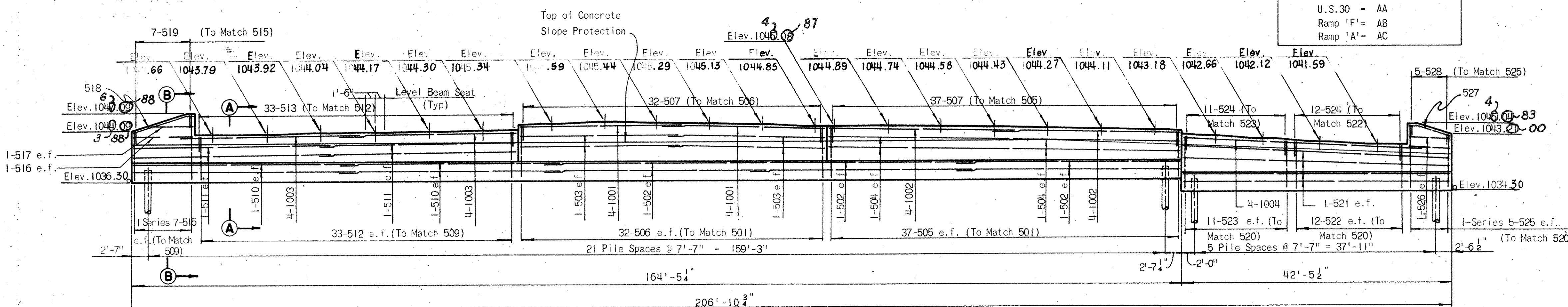
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

217
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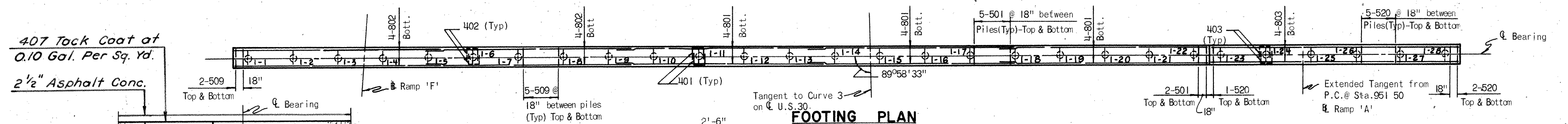
STARK COUNTY
STA-30-14.12
STA-77-9.22



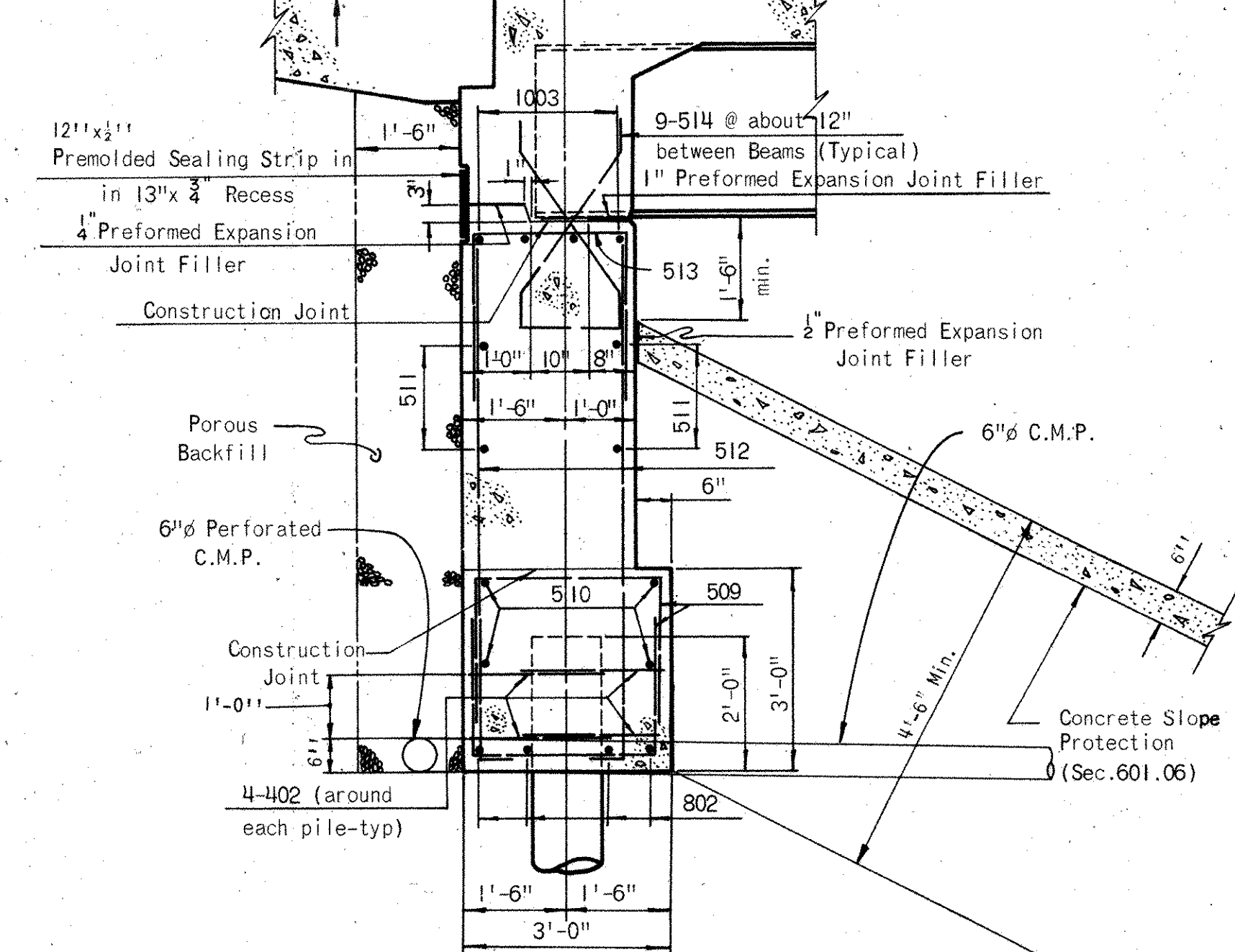
PLAN



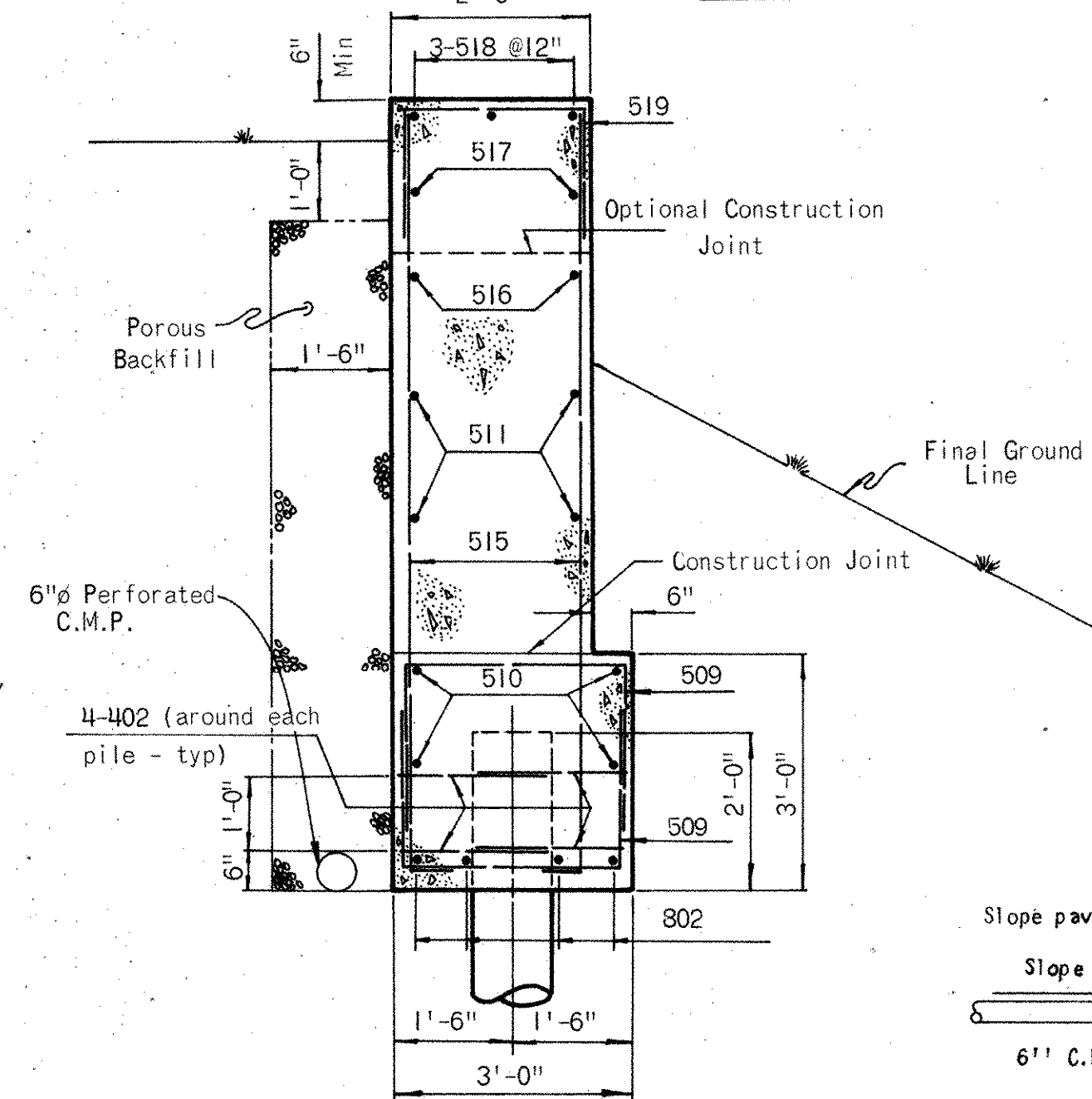
ELEVATION



FOOTING PLAN

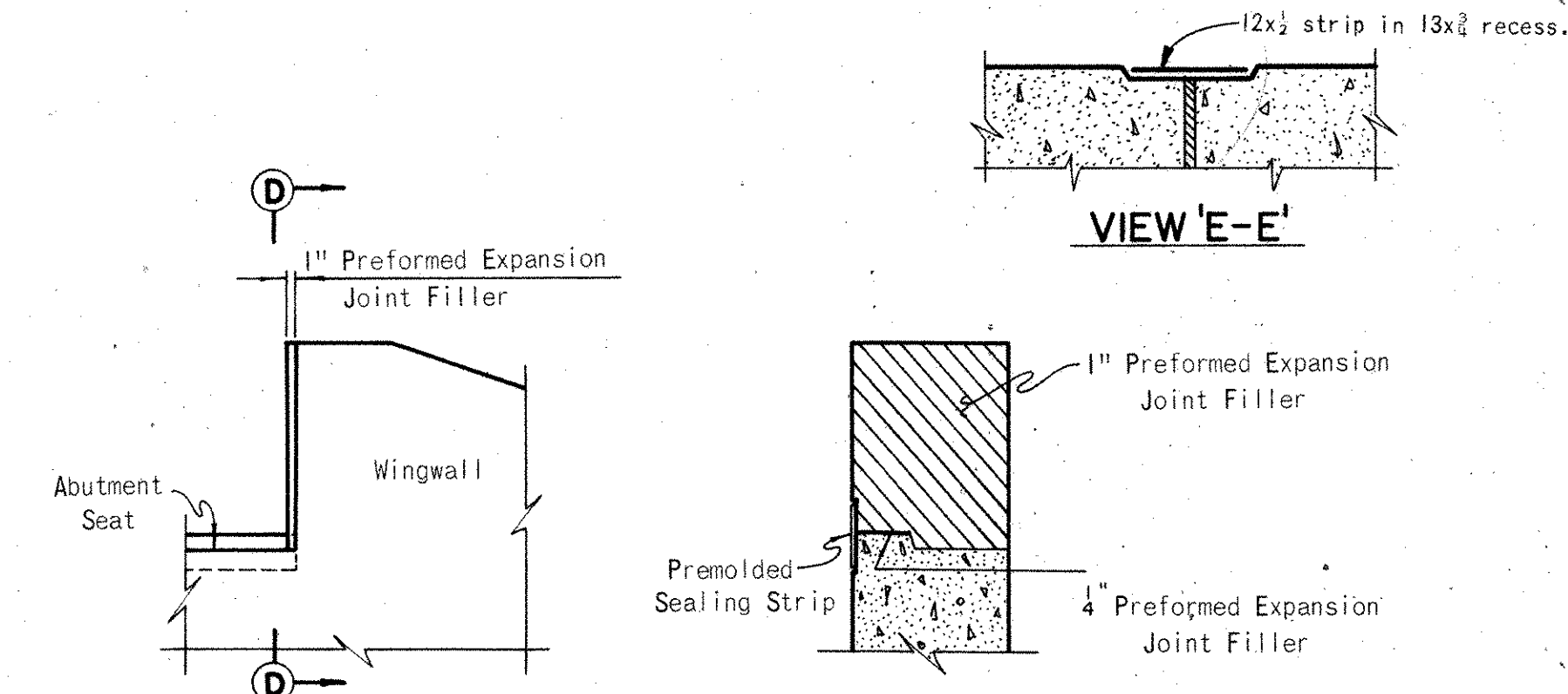


SECTION 'A-A'



SECTION 'B-B'

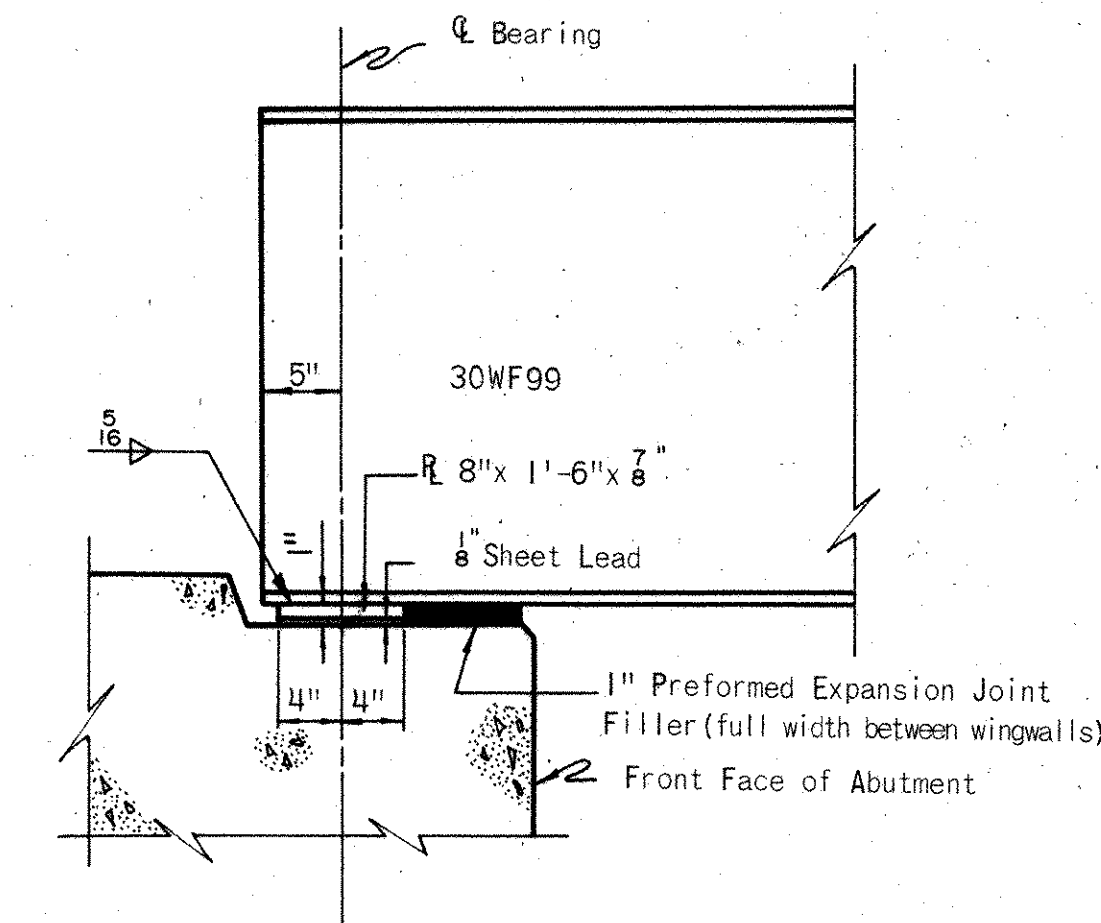
C.M.P. AT OUTLET



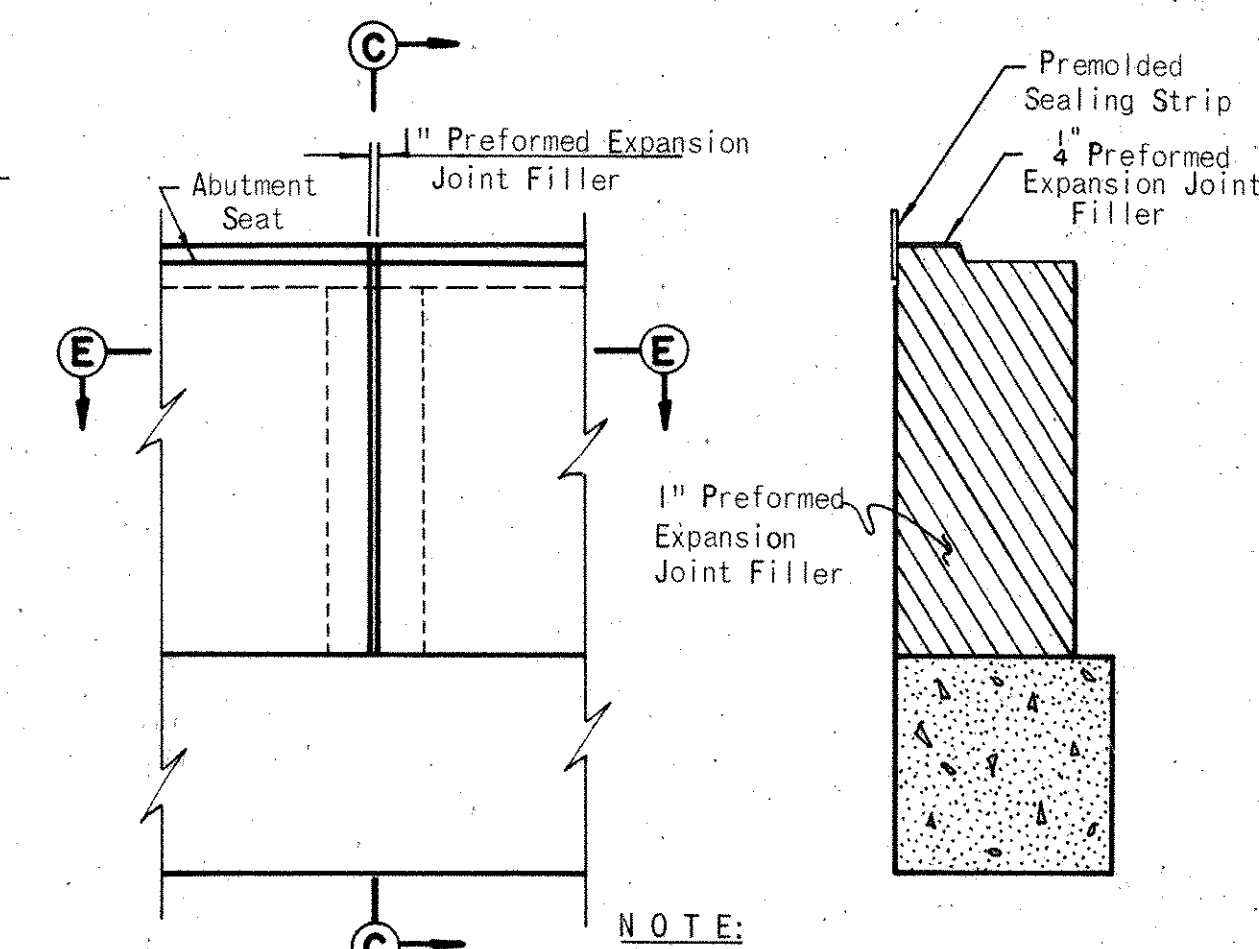
FRONT VIEW

VIEW 'D-D'

TYPICAL EXPANSION JOINT AT WINGWALL



ABUTMENT BEARING PLATE DETAIL



FRONT VIEW

VIEW 'C-C'

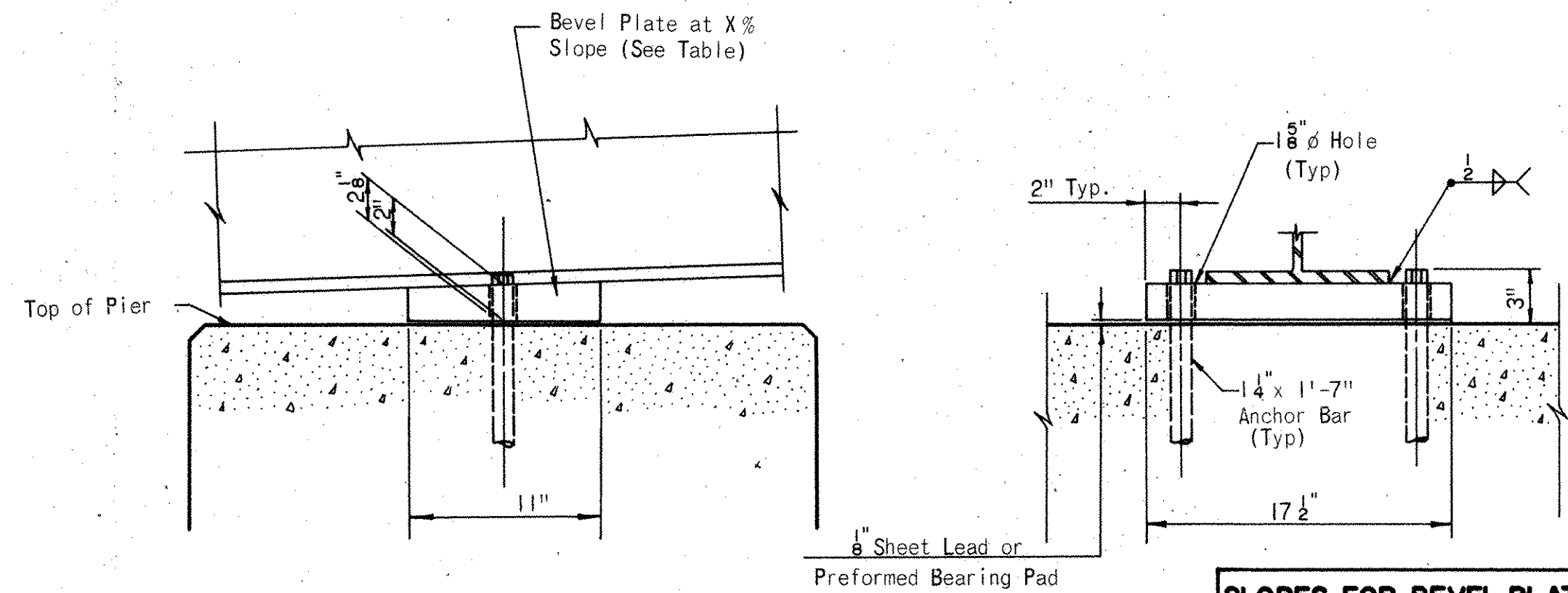
TYPICAL EXPANSION JOINT

Notes:
All piles shall be 12" C.I.P.C.
The following abbreviation is used:
e.f. = each face.
Section A-A and B-B are similar for all three bridges.
6" C.M.P. shall be perforated only within limits of porous backfill.
See deck plans for abutment details above beam seats.
For reinforcement schedule see sheets 9, 13, 17 & 18.

H.N.T.B. BRIDGE NOS. 15 AND 15 Revised 6-16-75 By W.E.B.			
HOWARD, NEEDLES, TAMMEN & BERGENDOFF 3/18 CONSULTING ENGINEERS KANSAS CITY CLEVELAND NEW YORK			
WEST ABUTMENTS			
BR NO STA - 30-1474	STA 952-9677		
BR NO STA - 30-1474R	STA 954-1176		
BR NO STA - 30-1474L			
SCALE: 1" = 10'-0"			
RELOCATED U.S. 30			
CANTON	STARK COUNTY	OHIO	
DRAWN K.T.B. DATE 2-21-69	TRACED J.M.W. DATE 3-6-69	CHECKED J.A.H. DATE 3-6-69	REVIEWED M.P.K. DATE 11-22-71
			1668

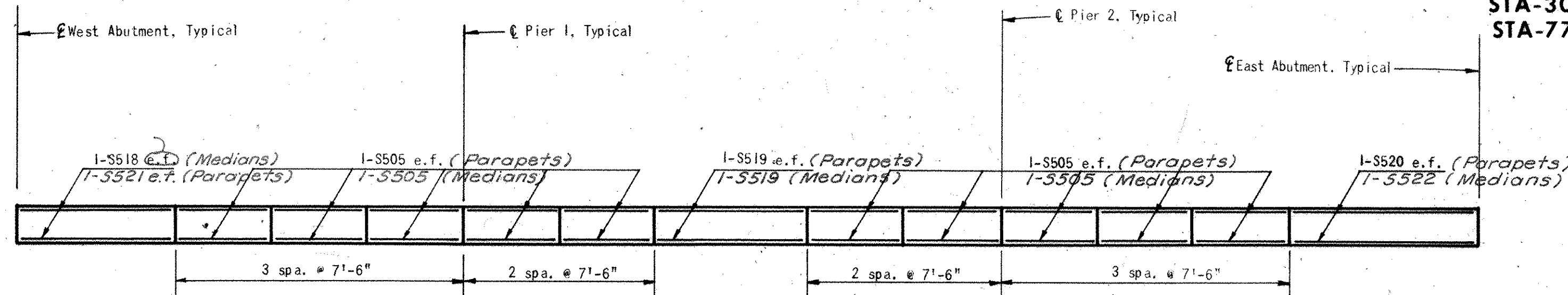
Revised 4-28-77

STARK COUNTY
STA-30-14.12
STA-77-9.22

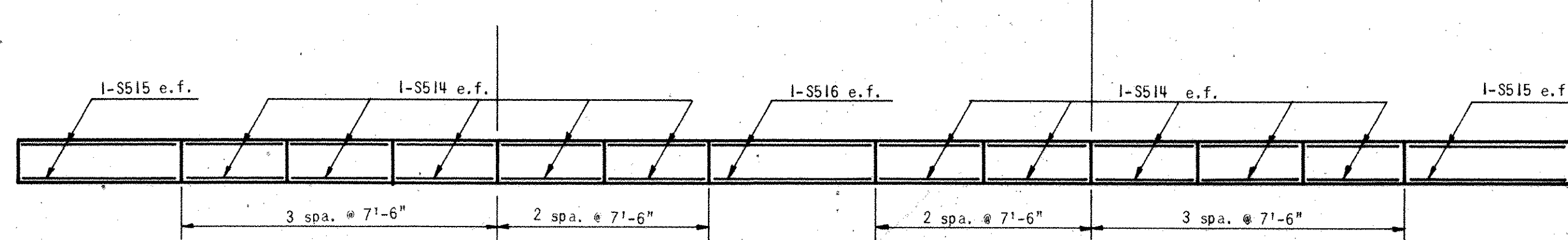


FIXED BEARING (F-150)

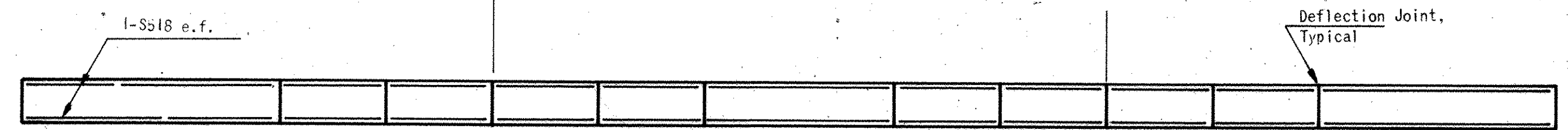
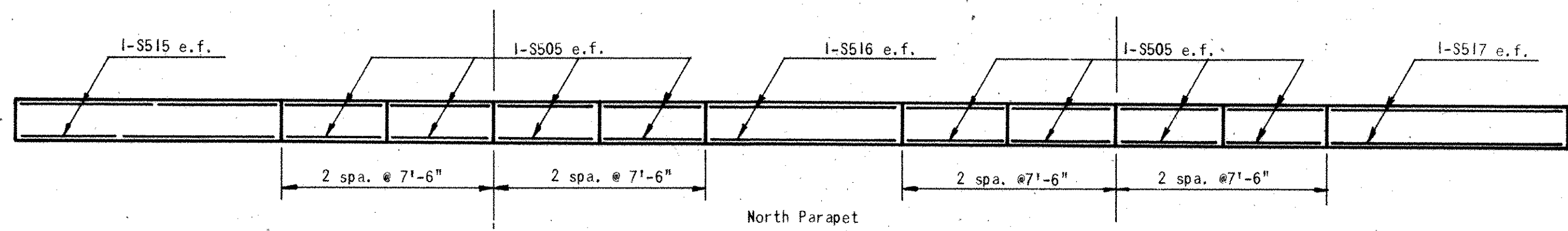
SLOPES FOR BEVEL PLATES		
		% SLOPE
Br.No.1	Pier 1	2.96
	Pier 2	2.96
Br.No.5	Pier 1	1.11
	Pier 2	0.68
Br.No.15	Pier 1	1.28
	Pier 2	0.85



PARAPET JOINTS - US 30
Typical for Both Parapets and Median

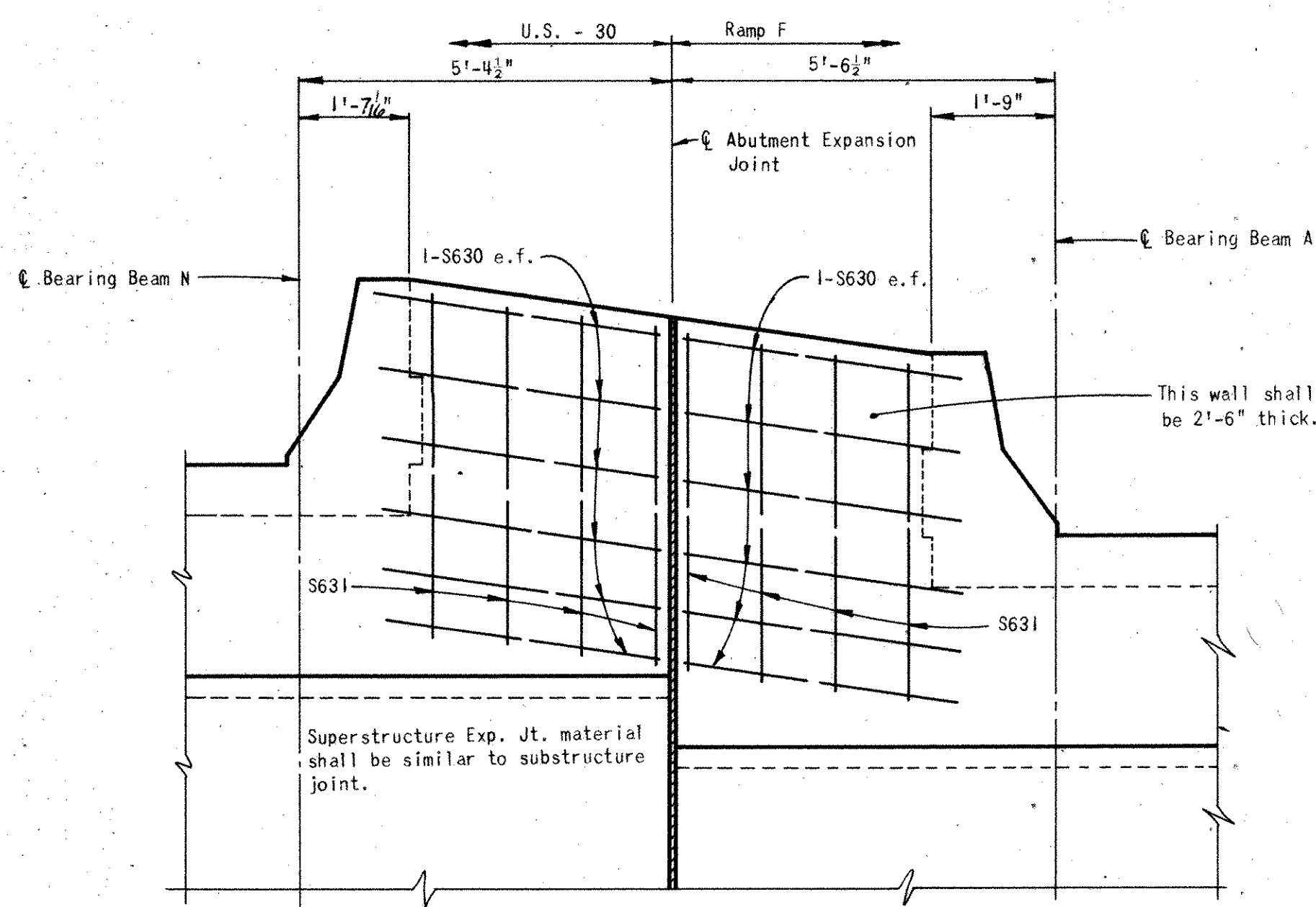


PARAPET JOINTS - RAMP F
Typical for Both Parapets



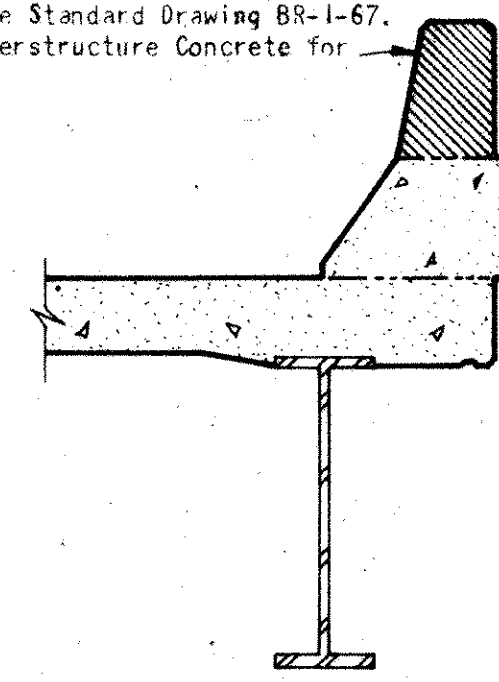
Joint spacing and other reinforcing similar to North Parapet, except as noted.

PARAPET JOINTS - RAMP A



BARRIER WALL AT WEST ABUTMENT

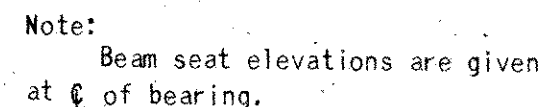
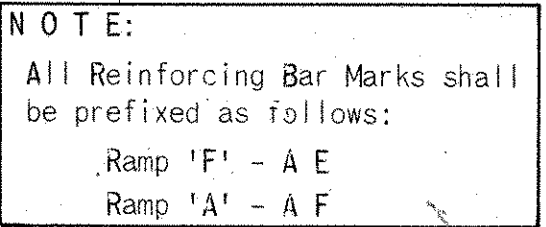
1 1/2" gray sponge rubber expansion joint filler or 1 1/2" gray cellular polyvinyl chloride (PVC) sponge. See Standard Drawing BR-1-67. (Include with Superstructure Concrete for payment.)



SECTION THRU
DEFLECTION JOINT

H.N.T.B. BRIDGE NOS. 1, 5 AND 15			
HOWARD, NEEDLES, TAMMEN & BERGENDOFF			18 / 18
CONSULTING ENGINEERS			
KANSAS CITY CLEVELAND NEW YORK			
SPECIAL DETAILS			
BR NO STA. 30-1474		STA. 952-96.77	
BR NO STA. 30-1474R		STA. 954-11.76	
BR NO STA. 30-1474L			
SCALE: NO SCALE			
RELOCATED U.S. 30			
CANTON		STARK COUNTY OHIO	
DRAWN K.T.B.	TRACED J.M.W.	CHECKED J.B.C.	REVIEWED M.T.K.
DATE: 6-69	DATE: 10-69	DATE: 1-69	DATE: 11-71
			1668

STARK COUNTY
STA-30-14.12
STA-77-9.22



Notes: For Expansion Joint Details see Sheet 4/18.
For Abutment Bearing Plate Details see Sheet 4/18.
For other notes see Sheet 4/18.
For reinforcing schedule see Sheets 13, 17/18.

H.N.T.B. BRIDGE NOS. 5 AND 15	Revised 6-16-75	By W.E.B.
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HOWARD, NEEDLES, TAMMEN & BERGENDOFF 5 / 18
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

EAST ABUTMENTS
RAMP 'A' & RAMP 'F'
BR. NO. STA. - 30-1474R STA. 952+97.31
BR. NO. STA. - 30-1474L STA. 954+07.31
SCALE: NO SCALE
RELOCATED U.S. 30
CANTON TOWNSHIP, ST. CLAIR COUNTY, OHIO

DRAWN J.B.C. DATE 3-3-69	TRACED W.G.B. DATE 3-10-69	CHECKED J.A.H. DATE 3-6-69	REVIEWED MJK DATE 11-22-71	REVISED 1449
--------------------------------	----------------------------------	----------------------------------	----------------------------------	---------------------

Revised 4-28-77

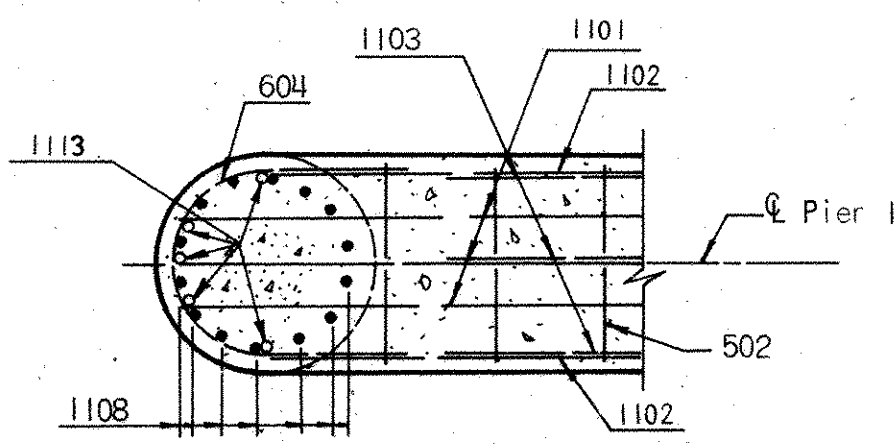
SECTION 'G-G'
(Pier 2)

Notes:

- For Anchor Bolt Details see Sheet 18/18.
- For Layout Diagram see Sheet 2/18.
- The following abbreviation is used:
e.f. = each face
- Pier 1 is similar to Pier 2 except as noted.
- For Reinforcing Schedule see Sheet 9/18.
- All stirrups within 4 feet of Column shall be placed with hooks in the bottom of cap. All of shall be placed with hook in the top.

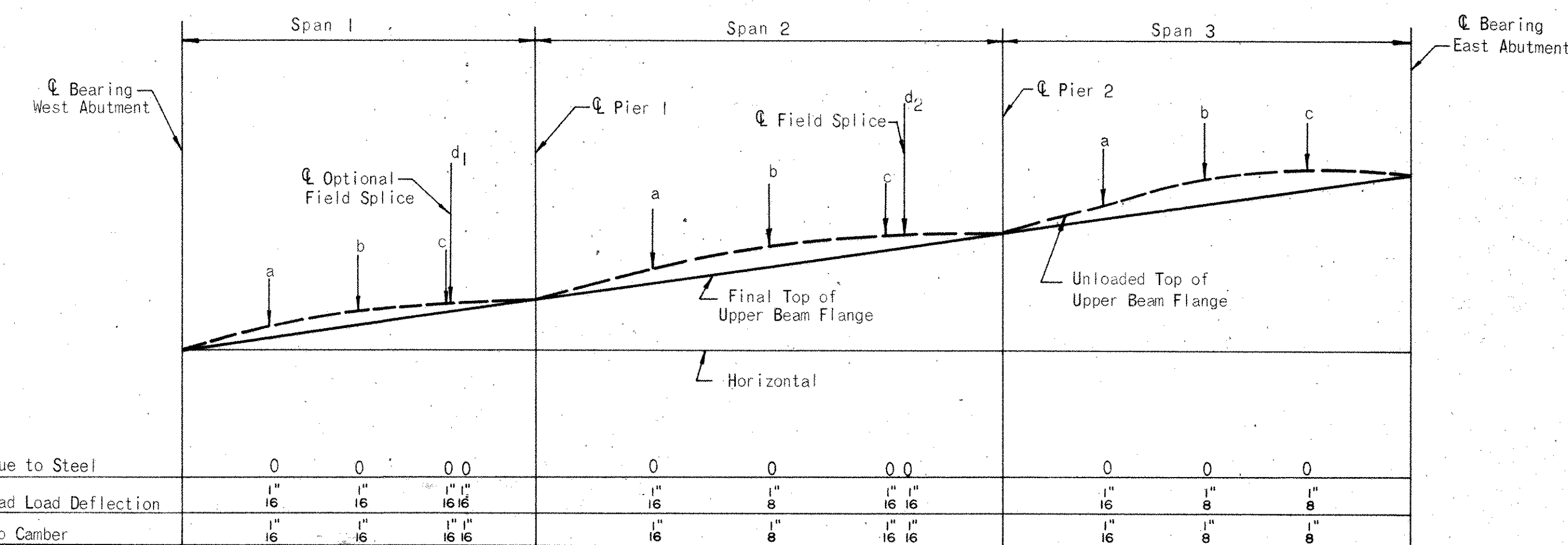
U.S. 30 OVER HENRY AVE.
BR. NO. STA-30-1474 STA. 952+96.77
SCALE: 1/4" = 1'-0" STA. 954+11.76
RELOCATED U.S. 30
CANTON STARK COUNTY OHIO

Revised 4-28-77

[illegible]

SECTION 'E-E'

STARK COUNTY
STA-30-14.12
STA-77-9.22

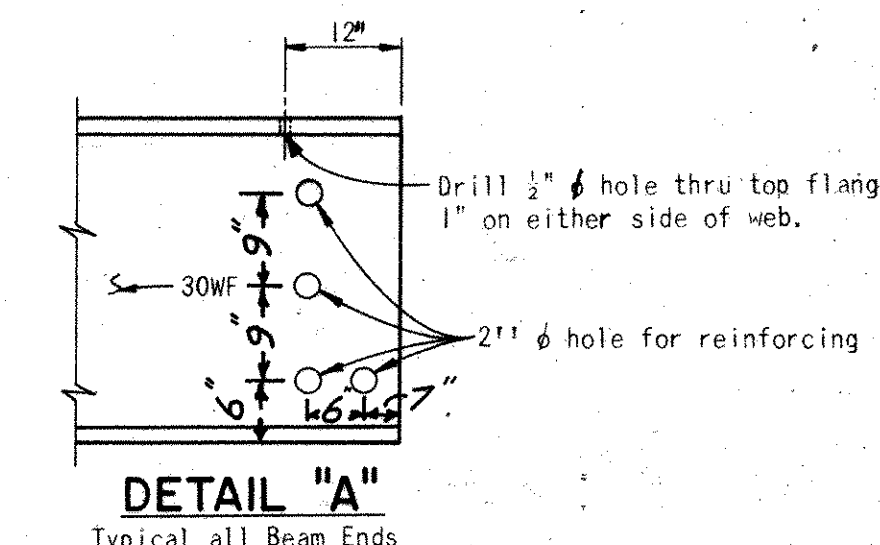


CAMBER DIAGRAM

NOTE:
The 1/4, 1/2, and 3/4 points of each span are denoted by a, b and c respectively.
The optional Field Splice 1 and Field Splice 2 are denoted by d₁ and d₂ respectively.

HORIZONTAL OFFSETS		
	BEAM A to NORTH EDGE OF SLAB	BEAM N to SOUTH EDGE OF SLAB
Q Brg. W. Abut.	1'-10 1/8"	1'-7 1/8"
1/4	1'-9 5/8"	1'-8 1/8"
1/2	1'-9"	1'-8 5/8"
3/4	1'-8 5/8"	1'-9 5/8"
Q Pier 1	1'-7 3/8"	1'-10 3/8"
1/4	1'-7 1/8"	1'-10 1/8"
1/2	1'-7 1/8"	1'-10 1/8"
3/4	1'-7 1/8"	1'-10 1/8"
Q Pier 2	1'-7 1/8"	1'-10 1/8"
1/4	1'-8 1/8"	1'-10"
1/2	1'-8 1/8"	1'-9 5/8"
3/4	1'-9 5/8"	1'-8 1/8"
Q Brg. E. Abut.	1'-11 1/8"	1'-7 1/8"

Horizontal Offsets are given at Q Bearings and 1/4 points between Q Bearings and are perpendicular to Q Beams



H.N.T.B. BRIDGE NO. 1		Revised 6-17-75 By WEB	
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS KANSAS CITY CLEVELAND NEW YORK			
FRAMING PLAN			
U.S. 30 OVER HENRY AVE. BR. NO. STA-30-1474 STA. 952+96.77 SCALE: 1" = 10'-0" STA. 954+11.76			
RELOCATED U.S. 30			
CANTON		STARK COUNTY OHIO	
DRAWN J.A.H. DATE 1-16-69	TRACED J.M.W. DATE 2-11-69	CHECKED K.T.B. DATE 1-21-69	REVIEWED NJK DATE 7-22-71
		REVISED 3-2-76 1668	

Revised 4-28-77

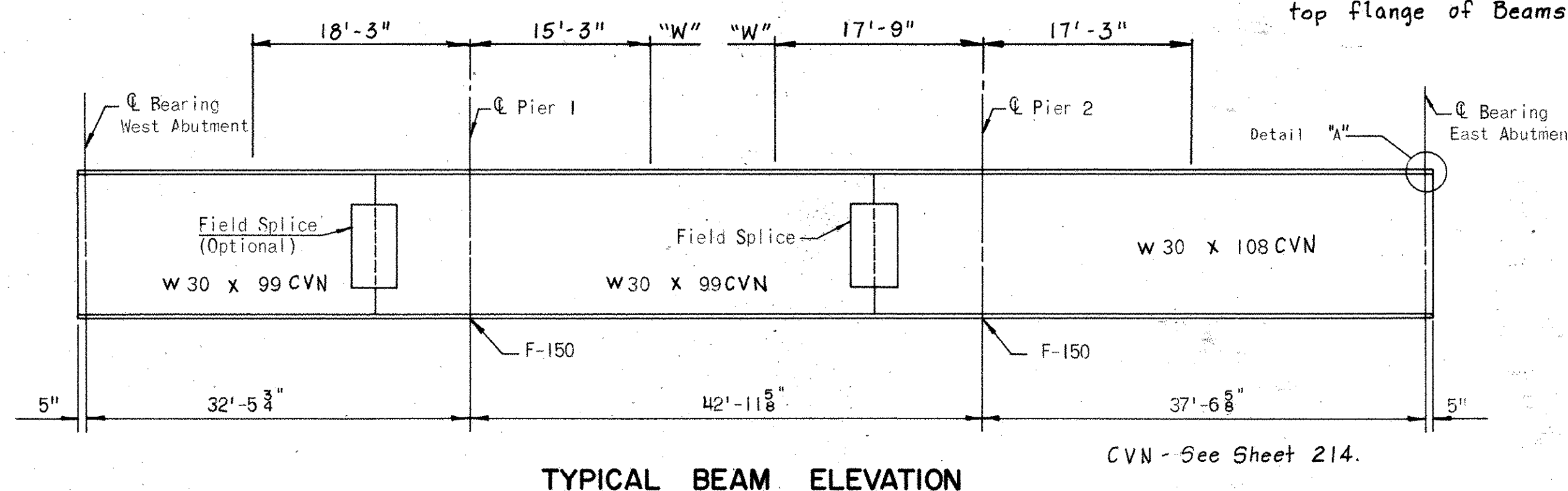
SEP 13 1977

Extended Tangent from T.S. Sta. 952+09.87, & U.S. 30

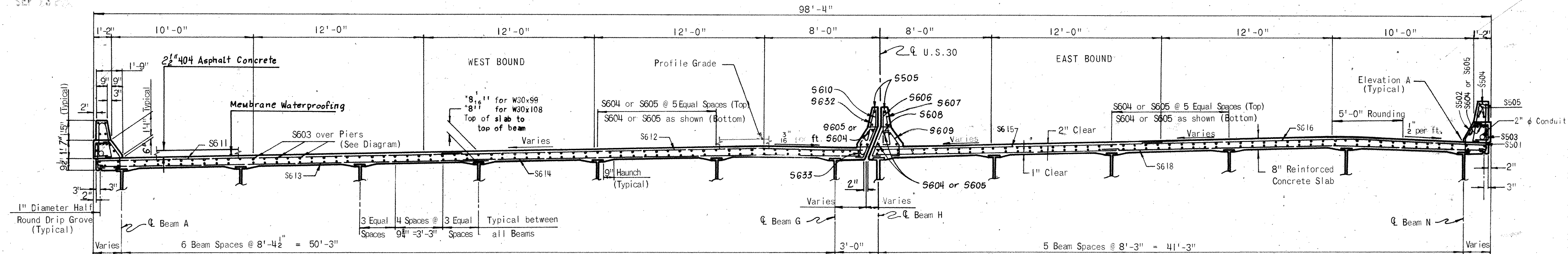
Extended Tangent From T.S. Sta. 952+09.87, & U.S. 30

FRAMING PLAN

Note:
"W" Denotes the range where welded attachments cannot be made to the top flange of Beams A, G, H and N.

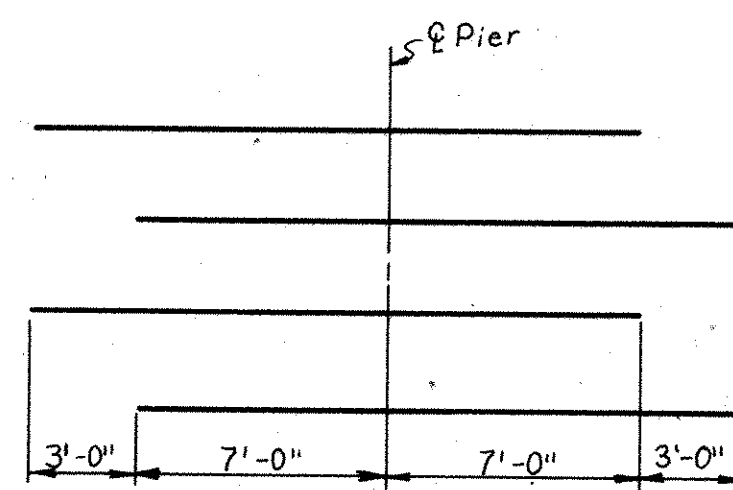


STARK COUNTY
STA-30-14.12
STA-77-9.22

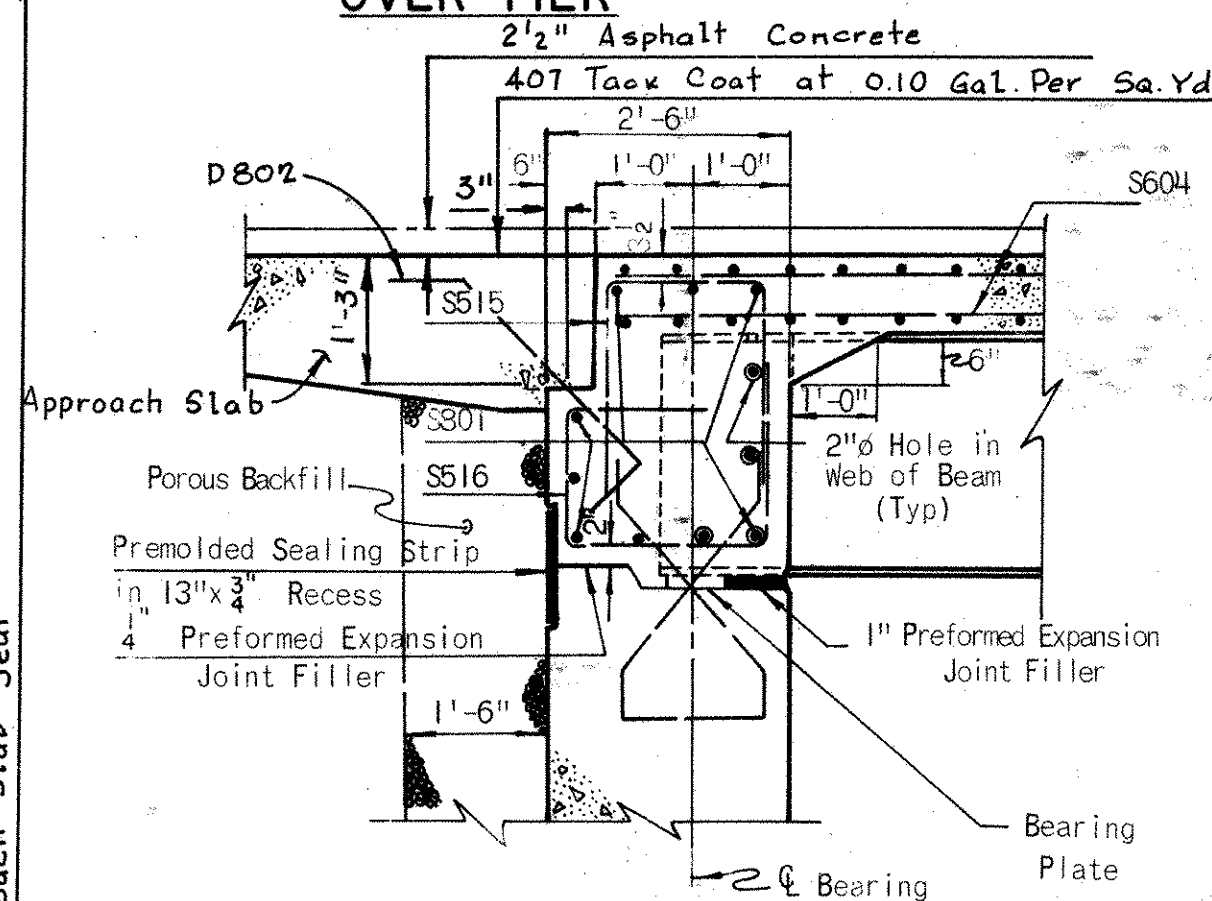


Deck Slab Depth:
The distance shown from top of deck slab to top of steel beam is the design dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

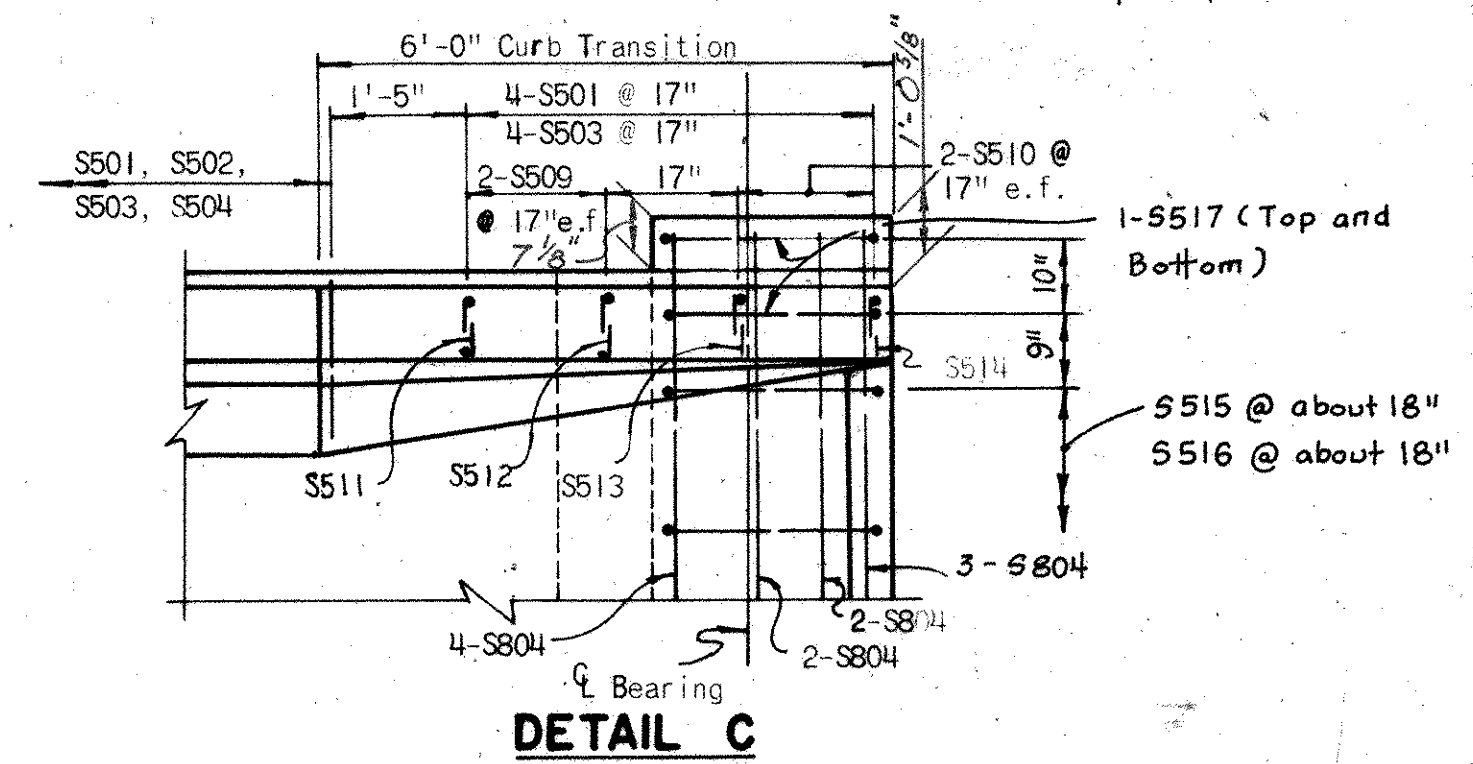
TYPICAL CROSS SECTION



PLACEMENT OF S603 BARS OVER PIER

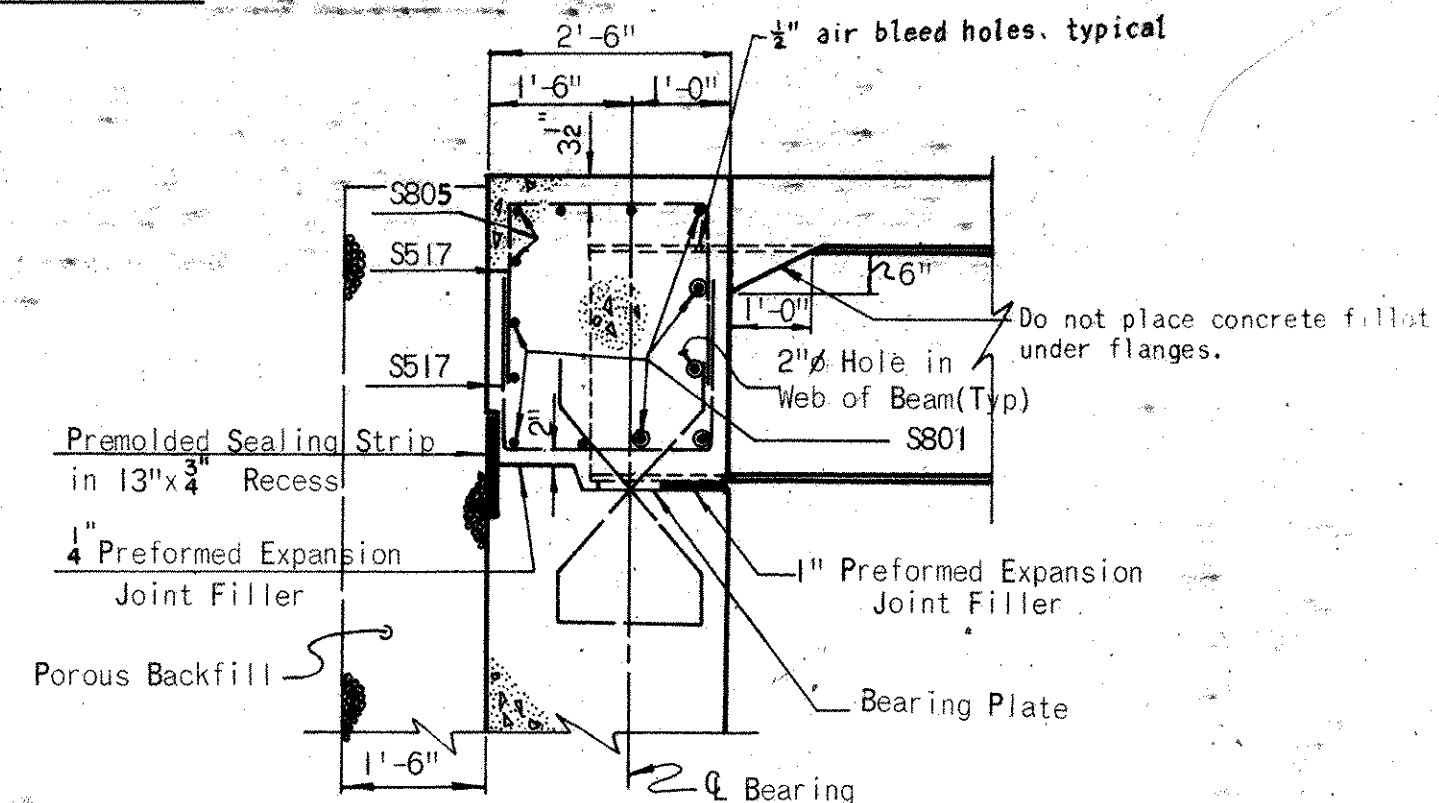


SECTION 'A-A'



DETAIL C

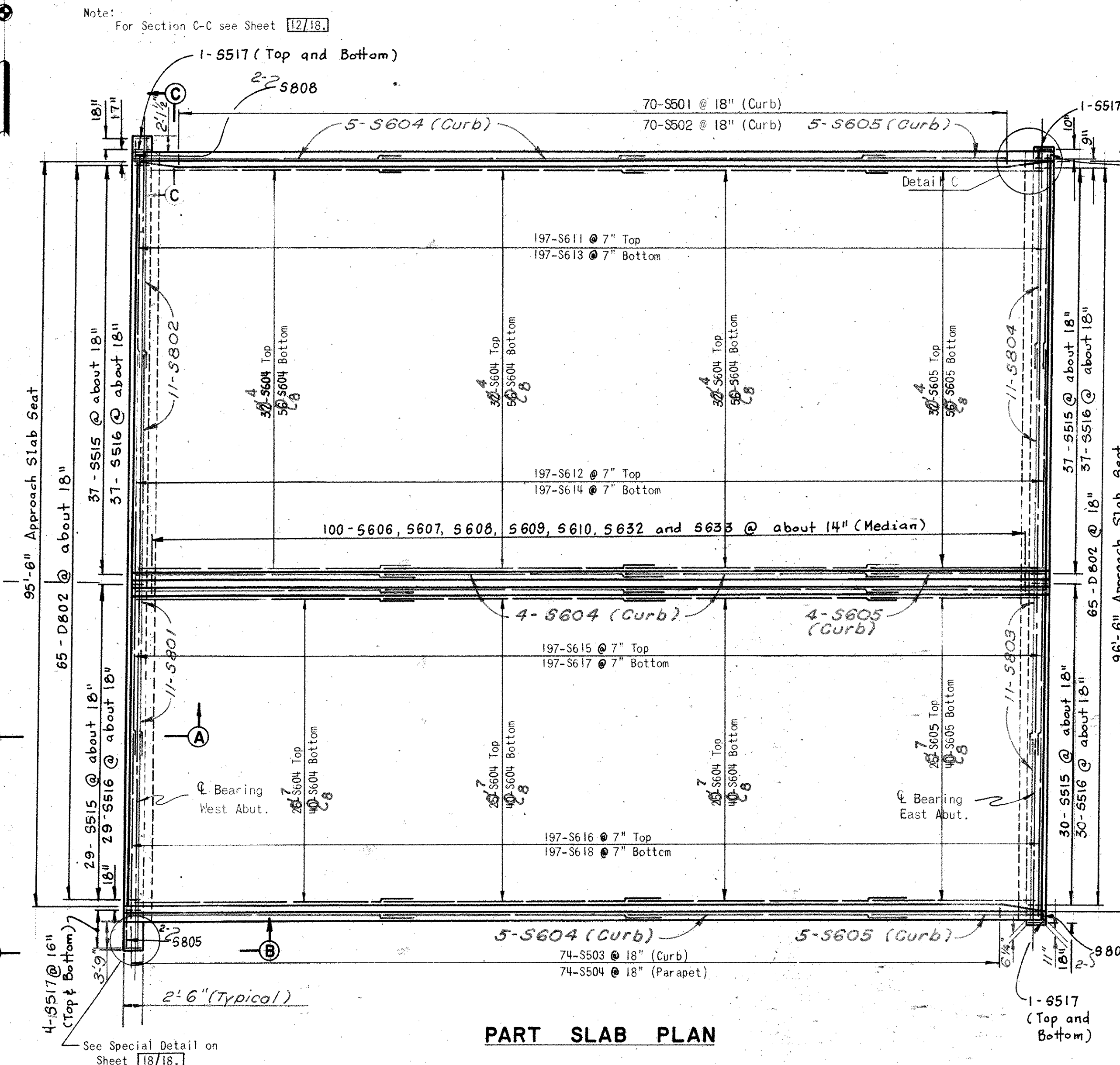
NOTE:
Reinforcing Bars S511 to S514 inclusive are typical for Curb Transition. Reinforcing Bars S509 and S510 are typical for Parapet Transition.



SECTION 'B-B'

ELEVATION A				
	WEST BOUND		EAST BOUND	
LOCATION	NORTH CURB	SOUTH CURB	NORTH CURB	SOUTH CURB
Br. W. Abut.	1047.33	1048.07	1048.07	1048.56
a	1047.52	1048.31	1048.31	1048.82
b	1047.71	1048.55	1048.55	1049.09
c	1047.90	1048.79	1048.79	1049.36
Pier 1	1048.09	1049.03	1049.03	1049.63
a	1048.35	1049.35	1049.35	1049.98
b	1048.60	1049.67	1049.67	1050.34
c	1048.85	1049.99	1049.99	1050.69
Pier 2	1049.11	1050.31	1050.31	1051.05
a	1049.33	1050.56	1050.56	1051.36
b	1049.55	1050.86	1050.86	1051.67
c	1049.77	1051.14	1051.14	1051.97
Br. E. Abut.	1050.00	1051.42	1051.42	1052.28

Notes:
A typical haunch width of 9" shall be used for computing concrete quantities. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.
For Deflection Joint Details see Sheet 18/18.
For Median and Parapet dimensions see Sheet 359.
For Reinforcement Schedule see Sheet 359.
For details of parapet transition and guardrail anchors not shown see Ohio Standard Drawings BR-1-67, Sheets 1 and 3 of 3.
For other notes see Sheet 12/18.
For common details see Sheet 359.
Parapet transitions shall be as shown on Standard Drawing BR-1-67 revised 10-15-71. Reinforcing steel shall be field bent or cut to fit the revised shape.



PART SLAB PLAN

TOP OF PORTLAND CEMENT CONCRETE ELEVATIONS													
BEAM	A	B	C	D	E	F	G	H	J	K	L	M	N
Br. W. Abut.	1047.33	1047.49	1047.65	1047.80	1047.96	1048.11	1048.09	1048.07	1048.35	1048.51	1048.66	1048.81	1048.86
a	1047.52	1047.69	1047.85	1048.02	1048.18	1048.35	1048.34	1048.31	1048.59	1048.75	1048.92	1049.08	1049.22
b	1047.71	1047.89	1048.06	1048.24	1048.41	1048.59	1048.58	1048.55	1048.83	1049.00	1049.17	1049.34	1049.49
c	1047.90	1048.09	1048.27	1048.45	1048.64	1048.82	1048.82	1048.79	1049.07	1049.25	1049.43	1049.61	1049.76
Pier 1	1048.09	1048.29	1048.48	1048.67	1048.87	1049.06	1049.06	1049.03	1049.31	1049.50	1049.69	1049.87	1049.93
a	1048.35	1048.55	1048.76	1048.96	1049.17	1049.37	1049.36	1049.33	1049.62	1049.82	1050.03	1050.23	1050.39
b	1048.60	1048.82	1049.03	1049.25	1049.47	1049.68	1049.70	1049.67	1049.94	1050.15	1050.37	1050.58	1050.74
c	1048.86	1049.08	1049.31	1049.54	1049.77	1050.00	1050.02	1049.99	1050.26	1050.48	1050.71	1050.93	1051.10
Pier 2	1049.11	1049.35	1049.59	1049.83	1050.07	1050.31	1050.33	1050.31	1050.58	1050.81	1051.05	1051.28	1051.51
a	1049.33	1049.58	1049.83	1050.08	1050.34	1050.59	1050.61	1050.58	1050.86	1051.10	1051.35	1051.59	1051.82
b	1049.55	1049.81	1050.06	1050.34	1050.60	1050.86	1050.89	1050.86	1051.14	1051.39	1051.65	1051.90	1052.13
c	1049.77	1050.05	1050.32	1050.59	1050.87	1051.14	1051.16	1051.14	1051.42	1051.68	1051.95	1052.21	1052.44
Br. E. Abut.	1050.00	1050.28	1050.57	1050.85	1051.13	1051.42	1051.44	1051.42	1051.70	1051.97	1052.25	1052.53	1052.80

NOTE: Points a, b, and c are the 1/2, 1/2, and 3/4 points of the span respectively.

H.N.T.B. BRIDGE NO. 1 Revised 6-18-75 By WEB
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
DECK REINFORCEMENT
AND TYPICAL SECTION
U.S. 30 OVER HENRY AVE.
BR. NO. STA-30-1474 STA. 952+96.77
SCALE: NO SCALE STA. 954+11.76
RELOCATED U.S. 30
CANTON STARK COUNTY OHIO
DRAWN J.A.H. TRACED W.G.B. CHECKED J.B.C. REVIEWED M.T. REVISION
DATE 2-24-69 DATE 4-6-69 DATE 2-14-69 DATE 11-22-71
1668
Revised 4-28-77

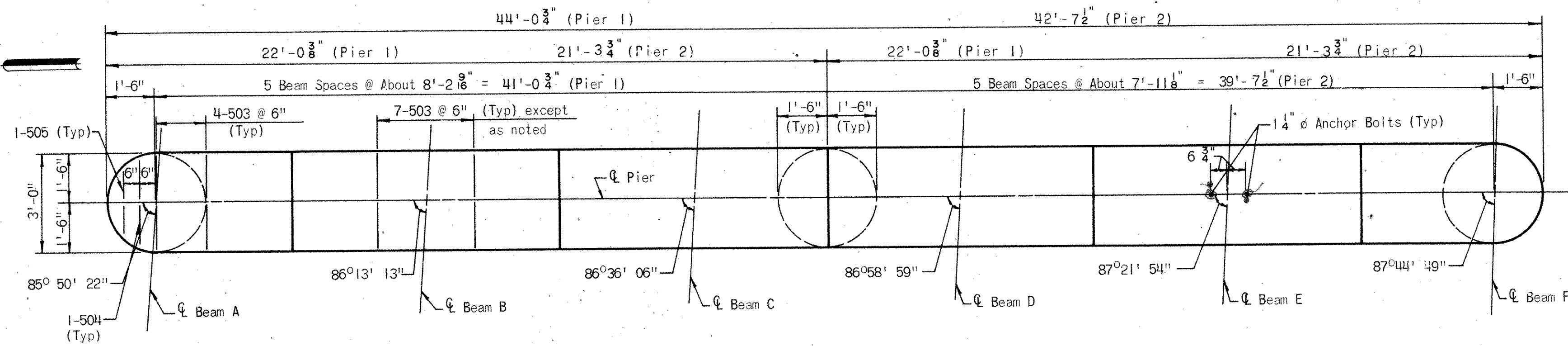
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS			SERIES INCR.	WEIGHT POUNDS
				A	B	C		
WEST ABUTMENT								
AA401	56	5'-1"	105	1'-11"	1'-6"			190
AA501	138	6'-7"	105	2'-1"	2'-8"			948
AA502	12	34'-0"	Str.					426
AA503	8	24'-6"	Str.					205
AA504	8	28'-9"	Str.					240
AA505	74	7'-10"	104	7'-4"	7 1/2"			605
AA506	64	8'-7"	104	8'-3"	7 1/2"			573
AA507	69	6'-7"	105	2'-4"	2'-2"			474
AA508	99	8'-3"	167					852
AA801	12	34'-9"	Str.					1,111
AA1001	8	25'-3"	Str.					869
AA1002	8	29'-9"	Str.					1,024
				Total West Abutment =				7,519
EAST ABUTMENT								
AD401	56	5'-1"	105	1'-11"	1'-6"			190
AD501	138	6'-7"	105	2'-1"	2'-8"			948
AD502	12	34'-3"	Str.					429
AD503	10	28'-3"	Str.					295
AD504	3	44'-0"	Str.					138
AD505	3	44'-6"	Str.					139
AD506	34	7'-4"	104	6'-10"	7 1/2"			260
AD507	50	8'-2"	104	7'-8"	7 1/2"			426
AD508	54	8'-11"	104	8'-5"	7 1/2"			502
AD509	69	8'-7"	105	2'-4"	2'-2"			474
AD510	99	8'-3"	167					852
AD801	12	35'-0"	Str.					1,121
AD1001	8	29'-0"	Str.					998
AD1002	8	23'-9"	Str.					818
				Total East Abutment =				7,590
PIER 1								
PA401	1	470.521	112	57	20'-3"			379
PA402	1	478.776	112	58	20'-9"			385
PA403	1	495.286	112	60	21'-3"			399
PA404	1	495.286	112	60	21'-4"			399
PA405	1	503.542	112	61	21'-7"			405
PA406	1	503.542	112	61	21'-11"			407
PA501	104	7'-6"	Str.					814
PA502	67	12'-2"	109	2'-8"	3'-2"			850
PA503	85	4'-7"	105	1'-1"	2'-8"			06,460
PA504	2	4'-5"	105	1'-1"	2'-6"			9
PA505	2	3'-9"	105	1'-1"	1'-10"			8
PA601	104	7'-6"	Str.					1,172
PA602	8	26'-9"	Str.					321
PA603	4	42'-6"	Str.					255
PA604	8	7'-11"	113	1'-11"	4'-1"	2'-8"		95
PA801	16	46'-6"	Str.					1,986
PA802	7	10'-0"	Str.					187
PA803	7	12'-0"	Str.					224
PA1001	32	29'-3"	Str.					4,028
PA1101	6-12	28'-0"	Str.				892	(1,785)
PA1102	4-8	27'-6"	Str.				584	(1,169)
PA1103	7	14'-0"	Str.					521
PA1104	2	12'-0"	Str.					128
PA1105	3-6	43'-9"	Str.				697	(1,395)
PA1106	2-4	42'-6"	Str.				452	(903)
PA1108	14	23'-9"	Str.					1,767
PA1109	8	24'-3"	Str.					1,031
PA1110	22	24'-6"	Str.					2,864
PA1111	20	25'-3"	Str.					2,683
PA1112	64	7'-8"	104	6'-6"	7 1/2"			2,607
PA1113	5	18'-9"	104	16'-0"	3'-0"			490
PA1114	5	40'-0"	Str.					1,045
		6						76

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS			SERIES INCR.	WEIGHT POUNDS
				A	B	C		
PA1115	2	45'-0"	104	42'-3"	3'-0"			479
PA1116	3	46'-3"	104	43'-6"	3'-0"			738
						Total	Pier 1 =	32,335
								29,739
PIER 2								
PB401	1	487.031	112	59	21'-2"			394
PB402	1	503.542	112	61	21'-9"			406
PB403	1	520.052	112	63	22'-5"			419
PB404	1	520.052	112	63	22'-6"			419
PB405	1	528.307	112	64	22'-10"			426
PB406	1	536.562	112	65	23'-3"			433
PB501	104	7'-6"	Str.					814
PB502	67	12'-2"	109	2'-8"	3'-2"			850
PB503	85	4'-7"	105	1'-1"	2'-8"			406
PB504	2	4'-5"	105	1'-1"	2'-6"			9
PB505	2	3'-9"	105	1'-1"	1'-10"			8
PB601	104	7'-6"	Str.					1,172
PB602	8	26'-9"	Str.					321
PB603	4	42'-6"	Str.					255
PB604	8	7'-11"	113	1'-11"	4'-1"	2'-8"		95
PB801	16	46'-6"	Str.					1,986
PB802	9	10'-0"	Str.					240
PB901	7	12'-0"	Str.					286
PB1001	32	29'-3"	Str.					4,028
PB1002	10	24'-6"	Str.					1,054
PB1003	8	25'-3"	Str.					869
PB1004	20	25'-9"	Str.					2,216
PB1005	18	26'-6"	Str.					2,053
PB1006	56	7'-3"	104	6'-2"	1'-4"			1,747
PB1101	6-12	28'-0"	Str.					892 (1,785)
PB1102	4-8	27'-6"	Str.					584 (1,169)
PB1103	7	14'-0"	Str.					521
PB1104	2	12'-0"	Str.					128
PB1105	3-6	43'-9"	Str.					697 (1,395)
PB1106	2-4	42'-6"	Str.					452 (903)
PB1113	5	18'-9"	104	16'-0"	3'-0"			490
PB1114	5	40'-0"	6 Str.					1,045
PB1115	2	45'-0"	104	42'-3"	3'-0"			479
PB1116	3	46'-3"	104	43'-6"	3'-0"			738
						Total	Pier 2 =	29,559
								26,963
SUPERSTRUCTURE								
SS01	156	2'-5"	104	1'-11"	7 1/2"			393
SS02	144	3'-3"	134	9"	9"			488
SS03	156	2'-3"	105	7 1/2"	1'-3"			366
SS04	144	5'-8"	131	8"	2'-5"	5"		851
SS05	120	7'-0"	Str.					880
SS21	8	11'-3"	Str.					94
SS22	8	16'-3"	Str.					136
SS09	12	2'-6"	Str.					31
SS10	12	2'-3"	Str.					28
SS11	3	3'-0"	134	6"	7 1/2"			9
SS12	3	2'-11"	134	4"	7 1/2"			9
SS13	3	2'-11"	134	2"	7 1/2"			9
SS14	3	2'-6"	101	1'-11"				8
SS15	133	5'-5"	105	2'-0"	1'-8"			751
SS16	133	6'-8"	132	2'-0"	2'-2"	1'-4"		925
SS17	18	5'-11"	105	2'-0"	2'-2"			111
SS18	4-12	0'-10"-0'-9	Str.				45	-140
SS19	12	12'-6"	Str.					156
SS20	4-12	14'-6"	Str.				66	-181
SS63	122	17'-0"	Str.					3,115
SS64	513-55	30'-0"	Str.					23,116
SS65	107-85	31'-6"	Str.					8,090
SS66	100	2'-6"	Str.					376
SS67	100	3'-0"	119					451
SS68	100	3'-0"	166					451
SS69	100	2'-10"	134	9"	5"			426
SS610	100	4'-0"	162					601

STARK COUNTY
STA-30-14.12
STA-77-9.22

BEAM	X	Y
A	6'3/4"	1/2"
B	6'3/4"	1/2"
C	6'3/4"	3/8"
D	6'3/4"	3/8"
E	6'3/4"	1/4"
F	6'3/4"	1/4"

ANCHOR BOLT LAYOUT

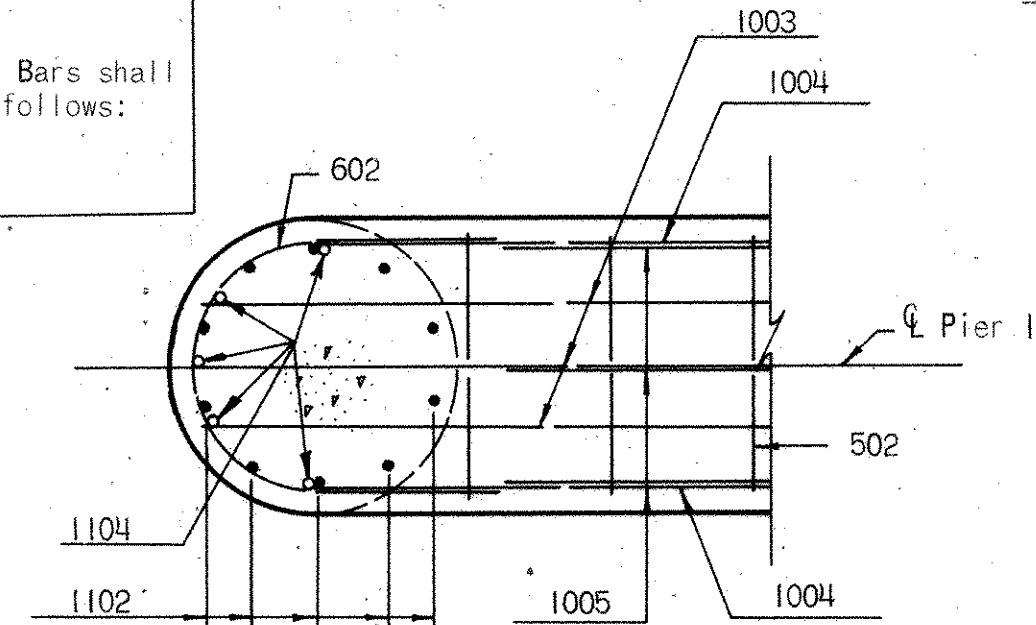


NOTE: Special care shall be taken when placing reinforcement so as not to interfere with anchor bolt setting. The reinf. bar in top of the cap, shown near the pier shall be placed 3" off the centerline.

NOTE: All Reinforcing Bars shall be prefixed as follows:
Pier 1 = PA
Pier 2 = PB

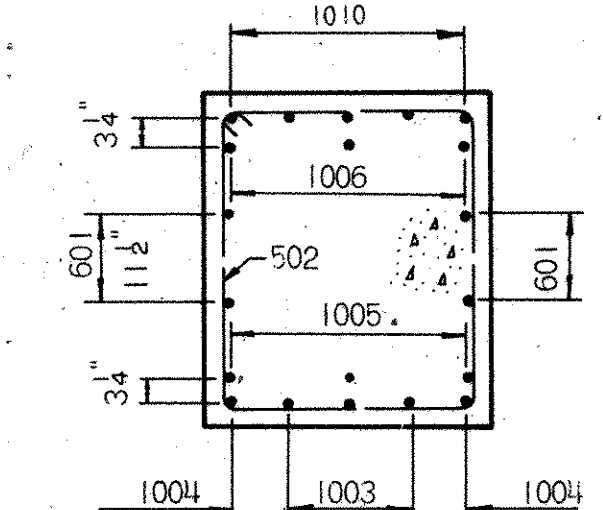
SECTION 'A-A'

(Pier 2)

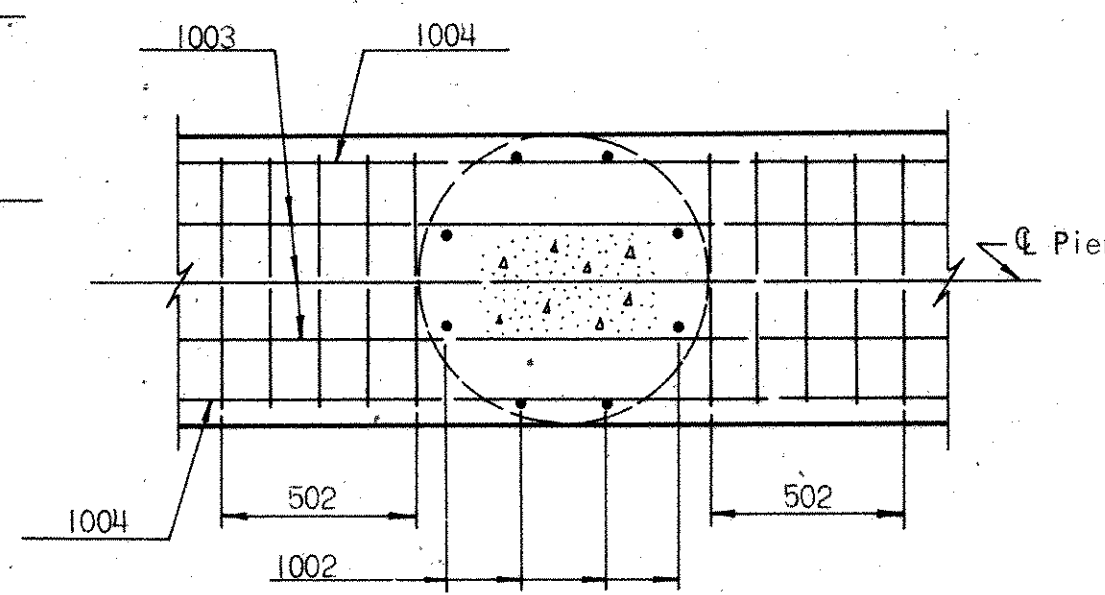


SECTION 'A-A'

(Pier 1)

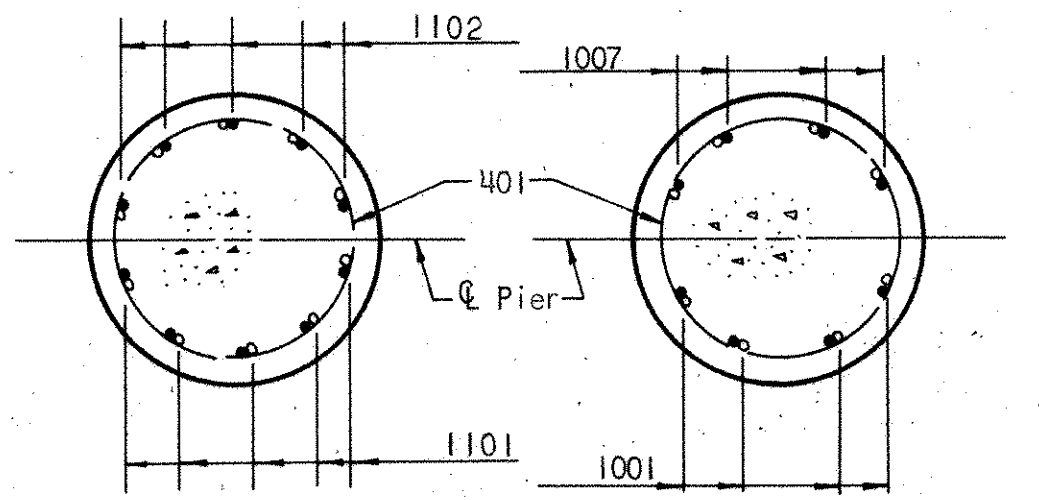


SECTION 'C-C'



SECTION 'E-E'

SECTION 'B-B'

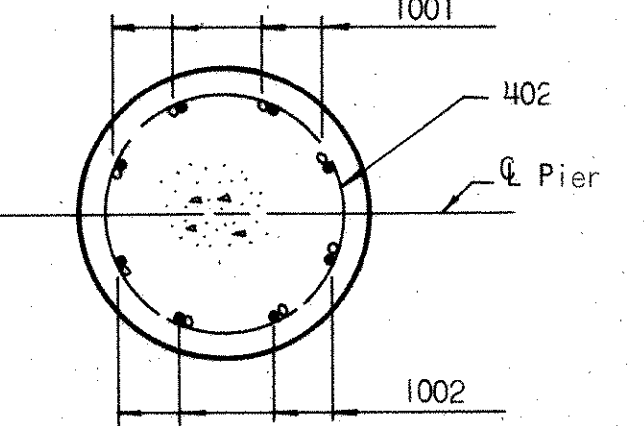


SECTION 'D-D'

(Pier 1)

SECTION 'D-D'

(Pier 2)



SECTION 'F-F'

Notes:
For Anchor Bolt Details see Sheet 18/18.
For Layout Diagram see Sheet 27/28.
The following abbreviation is used:
e.f. = each face.
Pier 2 is similar to Pier 1 except as noted.
All stirrups within 4 feet of column shall be placed with hooks in the bottom of cap. All others shall be placed with hook in the top.

PIER	SEAT	ELEVATIONS
	PIER 1	PIER 2
'A'	1044.60	1044.97
'B'	1044.47	1044.84
'C'	1044.35	1044.72
'D'	1044.22	1044.60
'E'	1044.10	1044.48
'F'	1043.98	1044.36

H.N.T.B. BRIDGE NO. 5

Revised 6-20-75 By WEB

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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KANSAS CITY CLEVELAND NEW YORK

PIERS

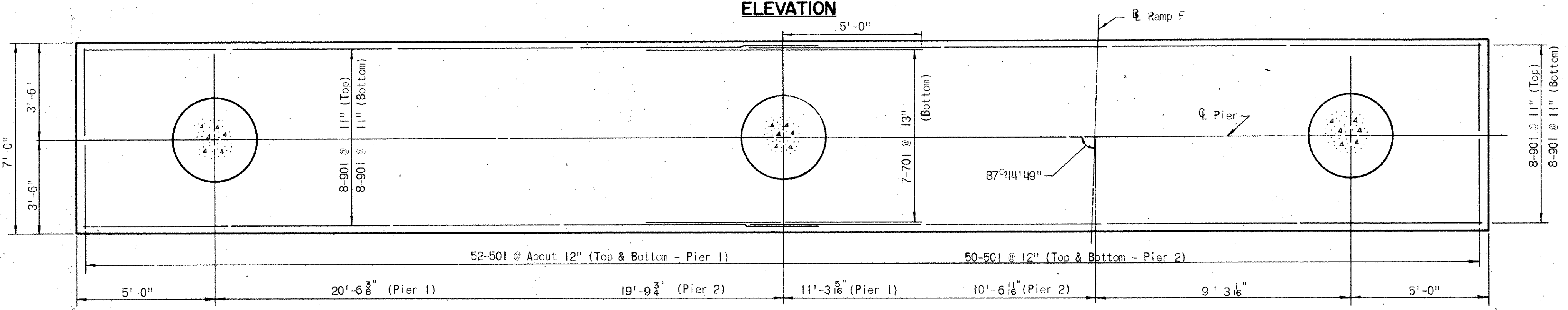
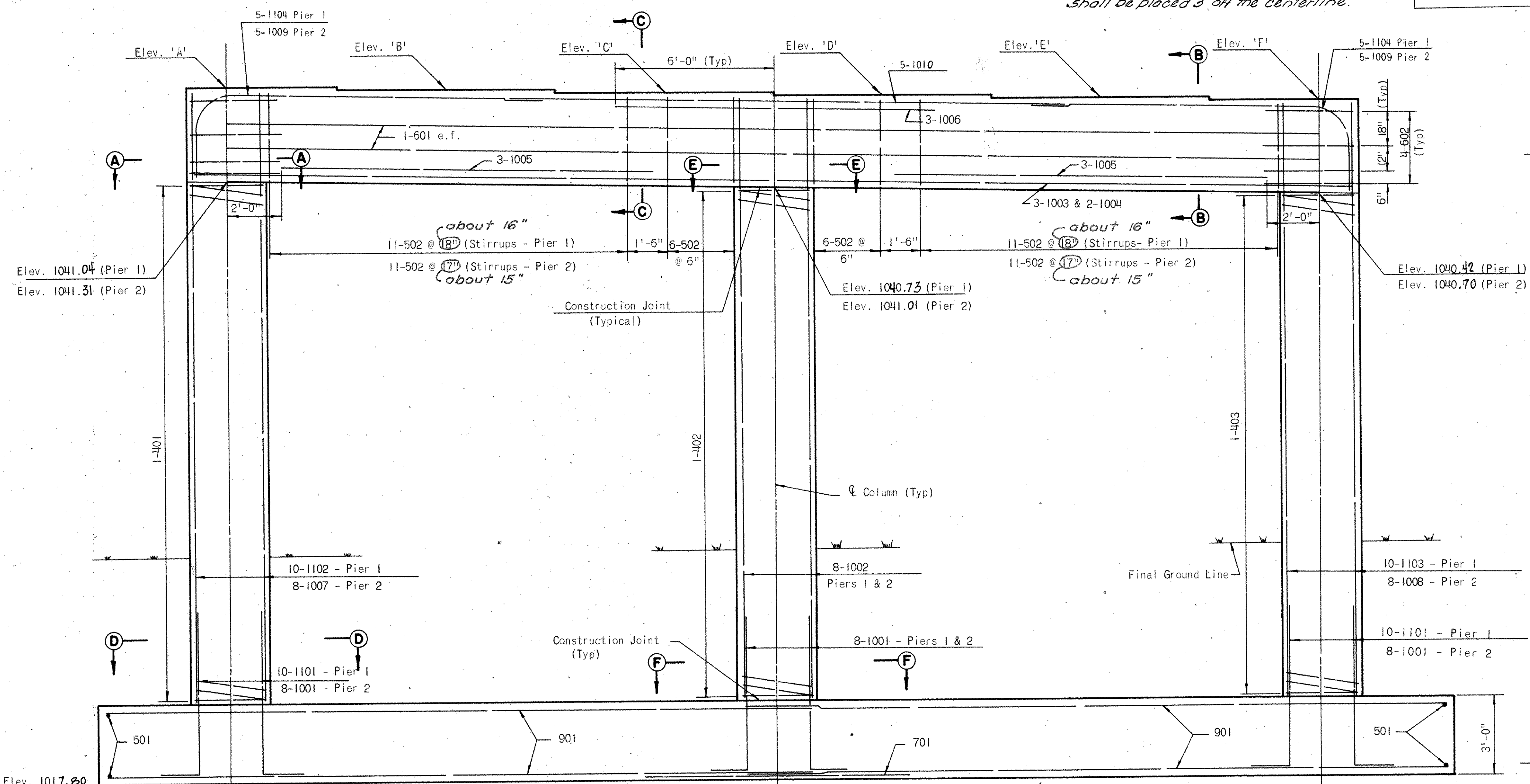
RAMP F OVER HENRY AVE.
BR. NO. STA. 30-147.4R STA. 952+97.31
SCALE: 3/8" = 1'-0" STA. 954+07.31

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

DRAWN: J.T.B. DATE: 1-4-69
TRACED: J.M.W. DATE: 1-7-69
CHECKED: J.B.C. DATE: 2-26-69
REVIEWED: J.T.B. DATE: 11-22-71
REVISED: 3-2-76
1668

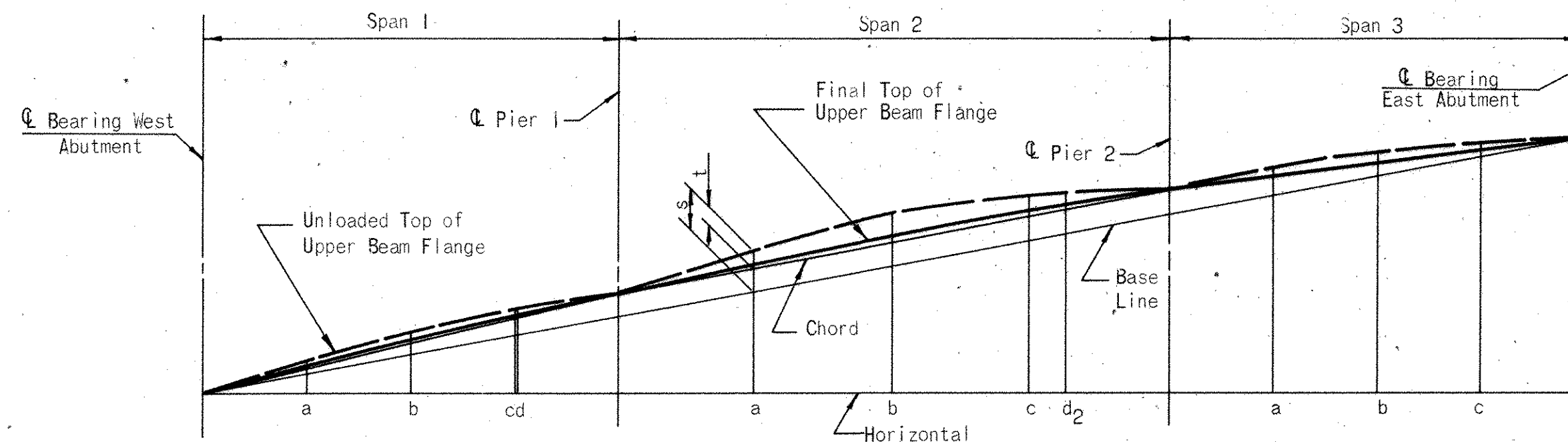
Revised 4-28-77



STARK COUNTY
STA-30-14.12
STA-77-9.22

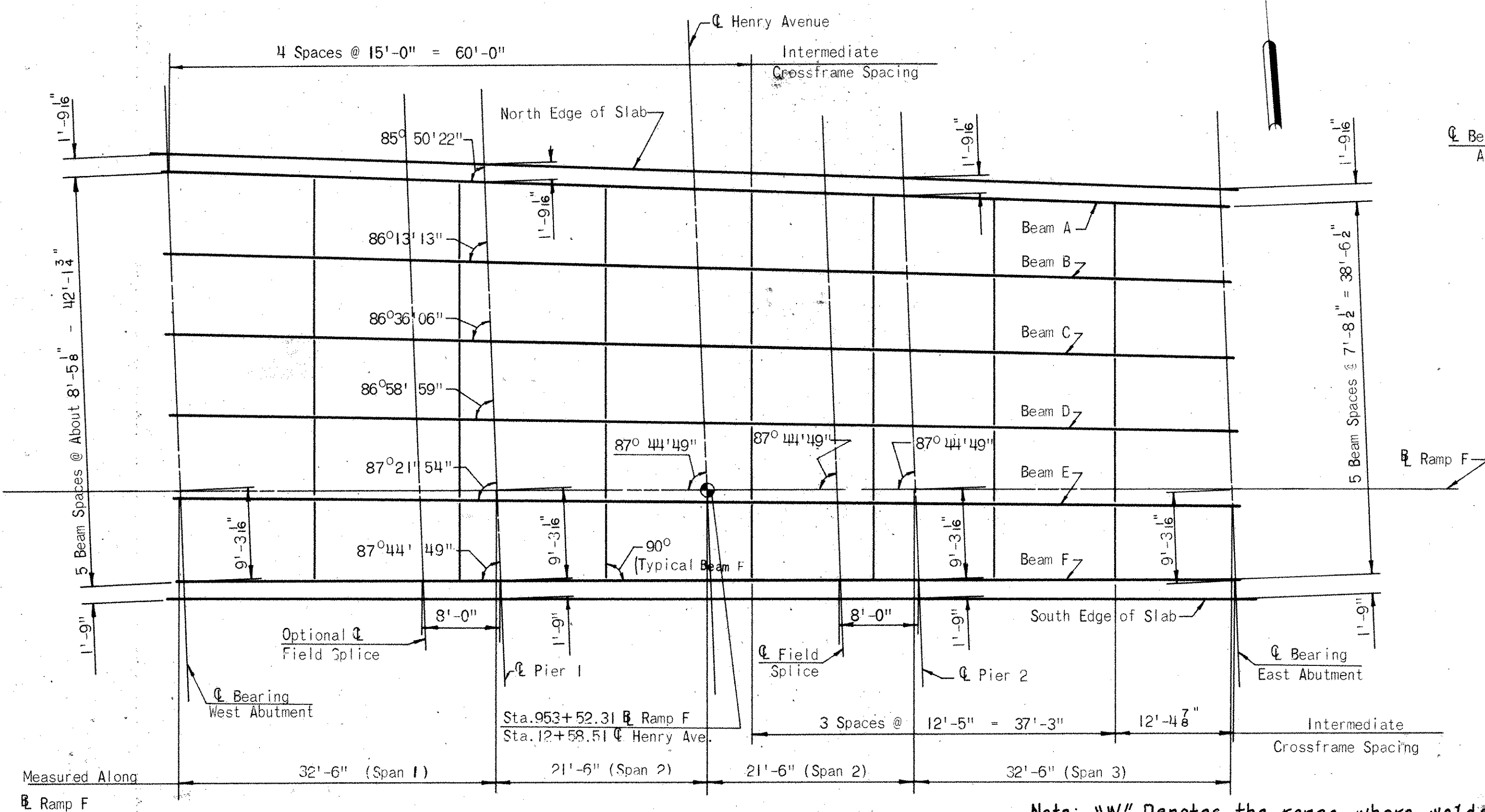
NOTE:

The $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ points of the spans are indicated by a, b and c respectively. The center lines of the optional Field Splice 1 and Field Splice 2 are indicated by d_1 and d_2 respectively. Vertical Offsets measured from the base line between abutment bearings to the unloaded top of upper beam flange and measured from the chord between bearing points to the unloaded top of upper beam flange are indicated by s and t respectively.



CAMBER DIAGRAM
(See Table Below)

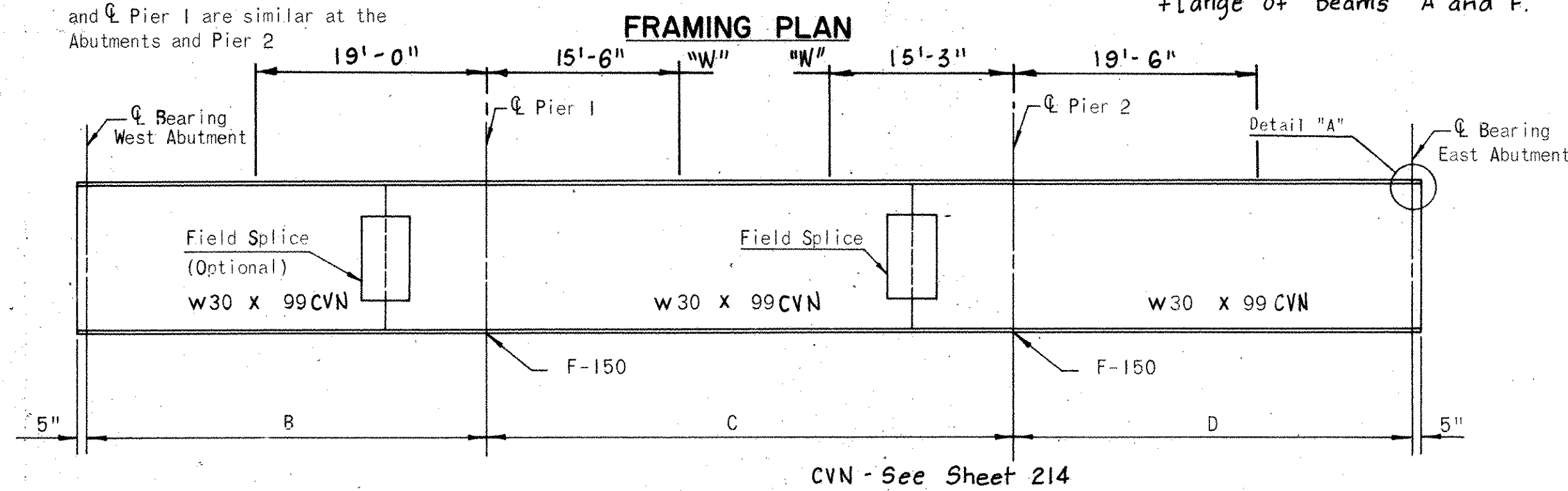
VERTICAL OFFSETS FOR ALL BEAMS IN UNLOADED POSITION																			
Span 1								Span 2								Span 3			
$\frac{1}{4}$ Point a	$\frac{1}{2}$ Point b	$\frac{3}{4}$ Point c	Optional F.S.I. d_1		Pier 1		$\frac{1}{4}$ Point a	$\frac{1}{2}$ Point b	$\frac{3}{4}$ Point c	Field Splice d_2		Pier 2		$\frac{1}{4}$ Point a	$\frac{1}{2}$ Point b	$\frac{3}{4}$ Point c			
s	t	s	t	s	t	s	t	s	t	s	t	s	t	s	t	s	t	s	t
$\frac{9}{16}$	$\frac{3}{16}$	1	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	1	$\frac{1}{4}$	$\frac{3}{16}$



NOTE:

The angles shown between the beams and Pier 1 are similar at the Abutments and Pier 2

Note: "W" Denotes the range where welded attachments cannot be made to the top flange of Beams A and F.



TYPICAL BEAM ELEVATION

TABLE OF DIMENSIONS			
BEAM	B	C	D
'A'	32'-6 $\frac{3}{4}$ "	43'-1"	32'-6 $\frac{3}{4}$ "
'B'	32'-6 $\frac{9}{16}$ "	43'-0 $\frac{3}{4}$ "	32'-6 $\frac{9}{16}$ "
'C'	32'-6 $\frac{3}{8}$ "	43'-0 $\frac{1}{2}$ "	32'-6 $\frac{3}{8}$ "
'D'	32'-6 $\frac{1}{4}$ "	43'-0 $\frac{1}{8}$ "	32'-6 $\frac{1}{4}$ "
'E'	32'-6 $\frac{1}{8}$ "	43'-0 $\frac{1}{16}$ "	32'-6 $\frac{1}{8}$ "
'F'	32'-6"	43'-0"	32'-6"

DEAD LOAD DEFLECTION AND CAMBER																																											
Span 1												Span 2								Span 3																							
$\frac{1}{4}$ Point a				$\frac{1}{2}$ Point b				$\frac{3}{4}$ Point c				Optional F.S.I. d				$\frac{1}{4}$ Point a				$\frac{1}{2}$ Point b				$\frac{3}{4}$ Point c				Field Splice 2 d ₂				$\frac{1}{4}$ Point a				$\frac{1}{2}$ Point b				$\frac{3}{4}$ Point c			
S.	R.	C.	T.	S.	R.	C.	T.	S.	R.	C.	T.	S.	R.	C.	T.	S.	R.	C.	T.	S.	R.	C.	T.	S.	R.	C.	T.	S.	R.	C.	T.	S.	R.	C.	T.	S.	R.	C.	T.				
0	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	0	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{4}$	0	0	$\frac{1}{8}$	$\frac{1}{8}$	0	0	$\frac{1}{8}$	$\frac{1}{8}$	0	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{4}$	0	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	0	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{4}$	0	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{4}$	0	0	$\frac{1}{8}$	$\frac{1}{8}$	0	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{4}$	0	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$

NOTES:

Deflections and Convexities are given to the nearest $\frac{1}{16}$ inch.

The following abbreviations are used:

- S. = Dead load deflection due to the weight of steel.
- R. = Remaining dead load deflection
- C. = Convexity
- T. = Required shop camber

Notes:

- For details of Fixed Bearing see Sheet 12/10
- For details of Intermediate Crossframes see Sheet 360
- For details of Beam Field Splices see Sheet 355
- For Detail "A" see Sheet 7/18
- For Layout dimensions not shown see Sheet 2/18

H.N.T.B. BRIDGE NO. 5 Revised 6-20-75 By WEB

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN

RAMP F OVER HENRY AVE.
BR. NO. STA-30.1474R STA. 952+97.31
SCALE: 1" = 10'-0" STA. 954+07.31

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

DRAWN K.T.B.	TRACED J.M.W.	CHECKED J.A.H.	REVIEWED M.P.	REVISED
DATE 9-69	DATE 12-69	DATE 1-10-69	DATE 11-22-71	

MICROFILMED
SEP 13 1974

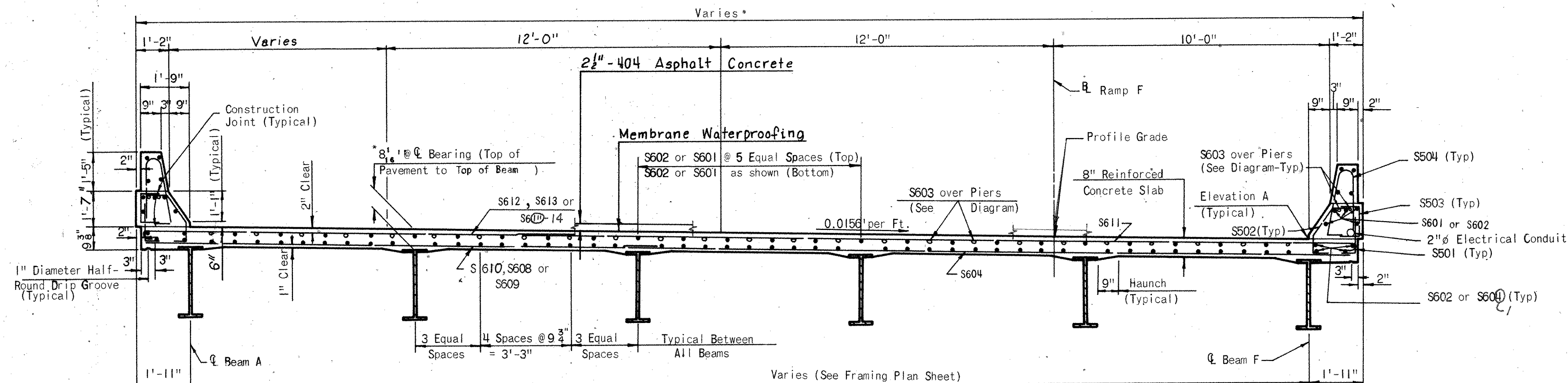
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

226
389

STARK COUNTY
STA-30-14.12
STA-77-9.22

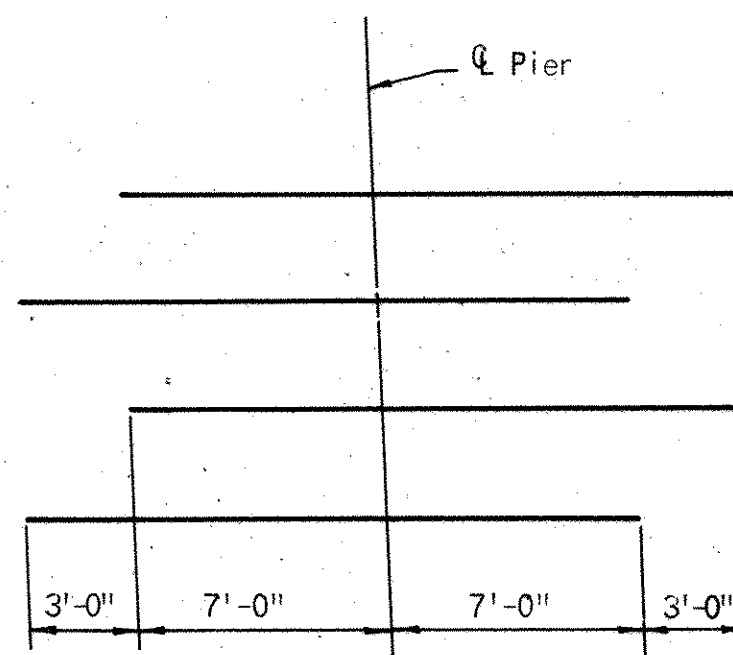
NOTE:

A typical haunch width of 9" shall be used for computing quantity of concrete. However the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.

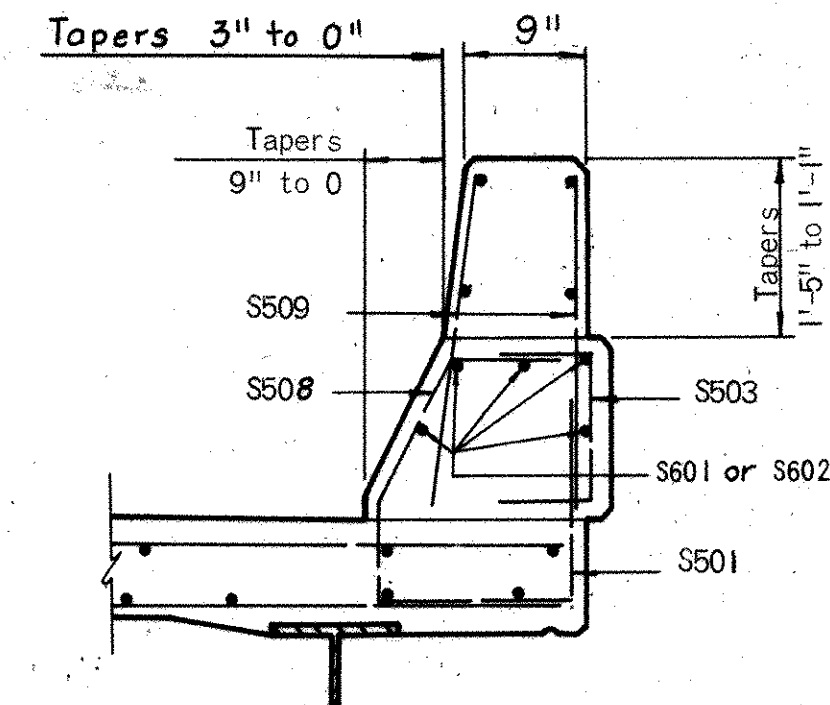


*Deck Slab Depth:
The distance shown from top of deck slab to top of steel beam is the design dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

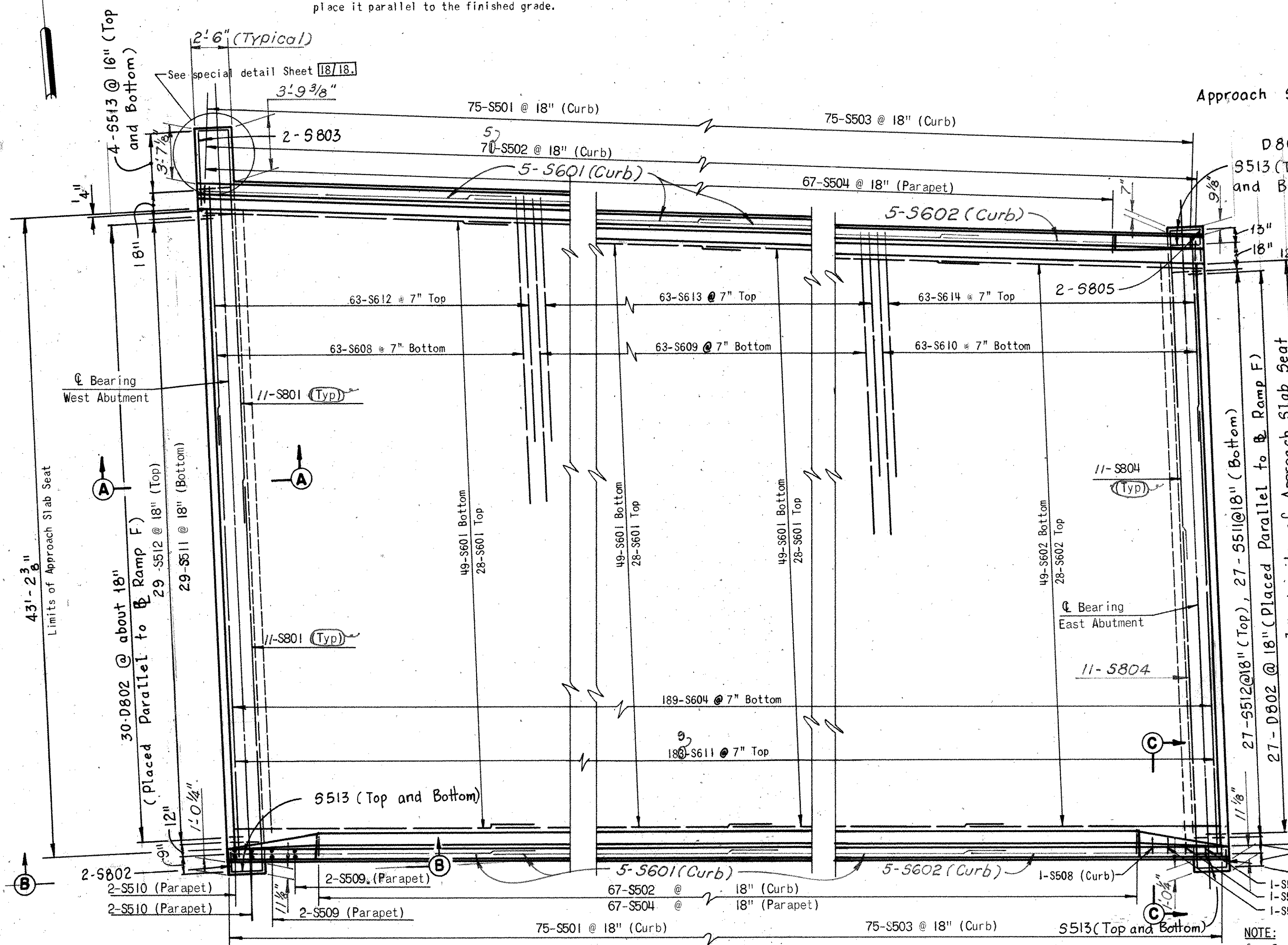
TYPICAL CROSS SECTION



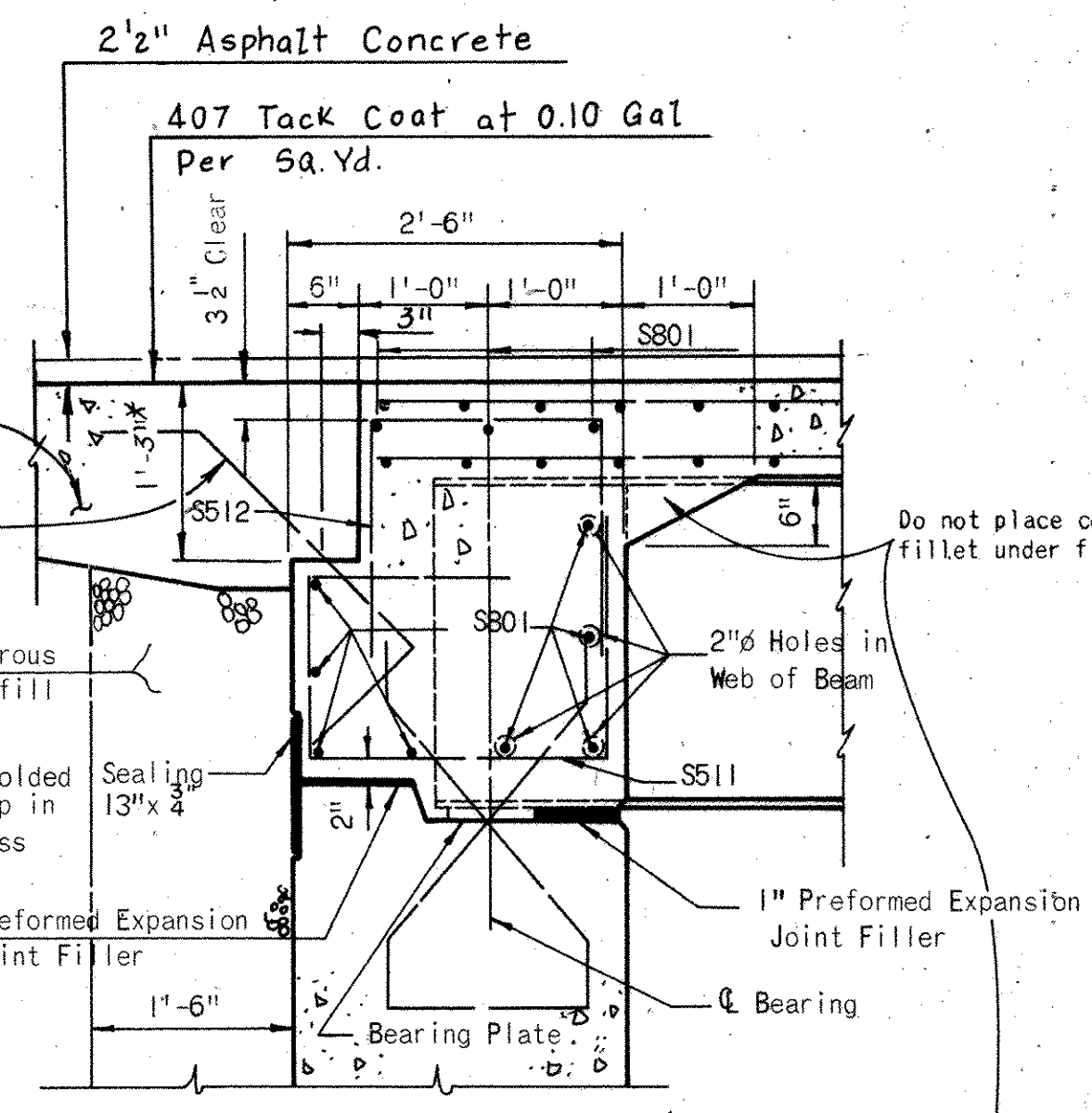
PLACEMENT OF S603 BARS
OVER PIERS



SECTION 'C-C'
(Bar marks shown are typical for Br. 5 only)

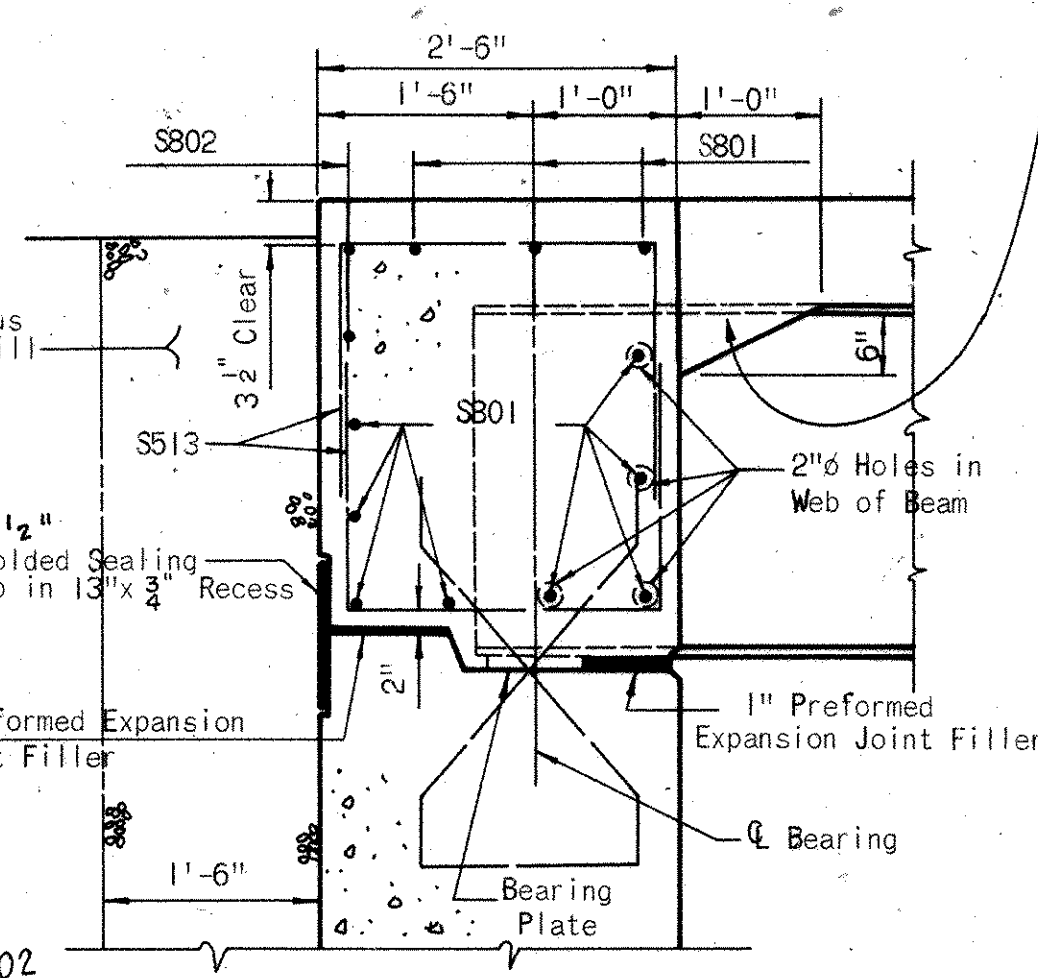


PART SLAB PLAN



SECTION 'A-A'

* 1'-3" at ends of seat. The bottom of the approach slab seat shall be a plane.



SECTION 'B-B'

NOTE: Reinforcing Bars S505 to S508 inclusive are typical for Curb Transitions. Reinforcing Bars S509 to S510 are typical for Parapet Transitions.

TOP OF PORTLAND CEMENT CONCRETE ELEVATIONS						
BEAM	A	B	C	D	E	F
Br. W. Abut.	1047.52	1047.39	1047.26	1047.14	1047.01	1046.88
a	1047.63	1047.50	1047.37	1047.25	1047.12	1047.00
b	1047.73	1047.60	1047.48	1047.35	1047.23	1047.10
c	1047.83	1047.70	1047.58	1047.45	1047.33	1047.20
Br. Pier 1	1047.92	1047.79	1047.67	1047.54	1047.42	1047.30
a	1048.03	1047.90	1047.78	1047.66	1047.53	1047.41
b	1048.13	1048.00	1047.88	1047.76	1047.63	1047.51
c	1048.21	1048.09	1047.97	1047.85	1047.72	1047.60
Br. Pier 2	1048.29	1048.16	1048.04	1047.92	1047.80	1047.68
a	1048.34	1048.21	1048.09	1047.97	1047.85	1047.73
b	1048.38	1048.26	1048.14	1048.02	1047.90	1047.78
c	1048.41	1048.29	1048.17	1048.05	1047.93	1047.82
Br. E. Abut.	1048.44	1048.32	1048.20	1048.09	1047.97	1047.85

NOTE: Points a, b and c are the 1/4, 1/2 and 3/4 points of the span respectively.

ELEVATION A		
LOCATION	NORTH CURB	SOUTH CURB
Br. W. Abut.	1047.52	1046.88
a	1047.63	1047.00
b	1047.73	1047.10
c	1047.83	1047.20
Br. Pier 1	1047.92	1047.30
a	1048.03	1047.41
b	1048.13	1047.51
c	1048.21	1047.60
Br. Pier 2	1048.29	1047.68
a	1048.34	1047.73
b	1048.38	1047.78
c	1048.41	1047.82
Br. E. Abut.	1048.44	1047.85

Notes:
For reinforcing schedule see Sheet 13718.
For other notes see Sheet 8718.
Parapet transitions shall be as shown on Standard Drawing BR-1-67 revised 10-5-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

H.N.T.B. BRIDGE NO. 5

Revised 7-9-75 By WEB

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK REINFORCEMENT
AND TYPICAL SECTION

RAMP F OVER HENRY AVE.
BR. NO. STA-30-1474R STA. 952+97.31
SCALE: NO SCALE STA. 954+07.31

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

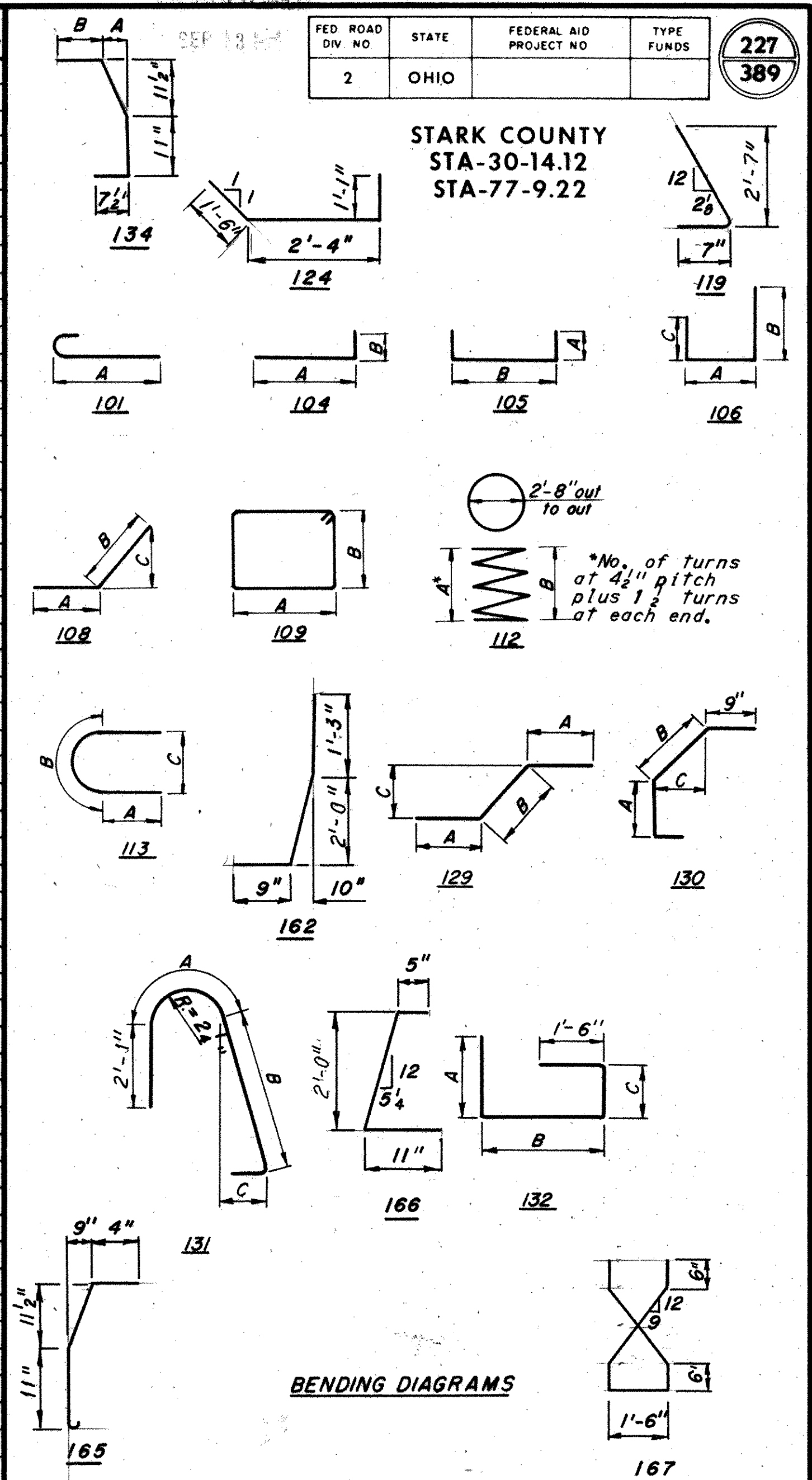
DRAWN K.T.B. TRACED J.M.W. CHECKED J.B.C. REVIEWED W.K.T.
DATE 1-13-69 DATE 2-17-69 DATE 2-26-69 DATE 1-21-71

1658

Revised 4-28-77

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS			SERIES INCR.	WEIGHT POUNDS
				A	B	C		
WEST ABUTMENT								
AB402	32	5'-1"	105	1'-11"	1'-6"			109
AB509	80	6'-7"	105	2'-1"	2'-8"			549
AB510	8	34'-0"	Str.					284
AB511	8	31'-0"	Str.					259
AB512	66	7'-5"	104	6'-11"	7 1/2"			511
AB513	33	6'-5"	105	2'-3"	2'-2"			221
AB514	45	8'-3"	167					387
AB515	2 Ser. 7	10'-10" to 7'-10"	104	10'-4" to 7'-4"	7 1/2"		6"	136
AB516	2	9'-6"	Str.					20
AB517	2	6'-6"	Str.					14
AB518	3	10'-1"	108	10"	9'-3"	3'-0"		32
AB519	7	5'-1"	105	1'-7"	2'-2"			37
AB802	8	34'-9"	Str.					742
AB1003	8	27'-9"	Str.					955
				Total West Abutment			=	4,256
EAST ABUTMENT								
AE401	32	5'-1"	105	1'-11"	1'-6"			109
AE501	78	6'-7"	105	2'-1"	2'-8"			536
AE502	20	9'-5"	105	2'-1"	5'-6"			196
AE503	2 Ser. 10	7'-1" to 11'-3"	104	6'-7" to 10'-9"	7 1/2"		5 1/2"	191
AE504	58	7'-10"	104	7'-4"	7 1/2"			474
AE505	20	12'-11"	104	12'-5"	7 1/2"			270
AE506	16	29'-9"	Str.					496
AE507	2	11'-6"	Str.					24
AE508	2	7'-0"	Str.					15
AE509	3	14'-3"	108	1'-4"	12'-11"	4'-1"		45
AE510	15	15'-9"	Str.					246
AE511	10	5'-1"	105	1'-7"	2'-2"			53
AE512	39	6'-3"	105	2'-2"	2'-2"			254
AE513	40	8'-3"	167					344
AE801	8	30'-0"	Str.					641
AE802	8	15'-9"	Str.					336
AE1001	4	46'-0"	Str.					792
				Total East Abutment				5,022
PIER 1								
PA401	1	470.521	112	57	20'-3"			379
PA402	1	462.266	112	56	19'-11"			373
PA403	1	454.010	112	55	19'-7"			366
PA501	104	6'-6"	Str.					705
PA502	34	12'-2"	109	2'-8"	3'-2"			434
PA503	36	4'-7"	105	1'-1"	2'-8"			172
PA504	2	4'-5"	105	1'-1"	2'-6"			9
PA505	2	3'-9"	105	1'-1"	1'-10"			8
PA601	4	41'-0"	Str.					246
PA602	8	7'-11"	113	1'-11"	4'-1"	2'-8"		95
PA701	7	10'-0"	Str.					143
PA901	32	26'-9"	Str.					2,910
PA1001	8	7'-0"	104	5'-11"	16 1/2"			241
PA1002	8	23'-0"	Str.					792
PA1003	3	43'-0"	Str.					559
PA1004	2	41'-0"	Str.					353
PA1005	6	14'-0"	Str.					361
PA1006	3	12'-0"	Str.					155
PA1010	5	24'-0"	Str.					500 16
PA1101	20	7'-5"	104	6'-3"	17 1/2"			788
PA1102	10	23'-6"	Str.					1,249
PA1103	10	22'-9"	Str.					1,209
PA1104	10	15'-6"	104	12'-10"	3'-0"			825
				Total Pier 1			=	12,912 888

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS			SERIES INCR.	WEIGHT POUNDS
				A	B	C		
PIER 2								
PB401	1	478.776	112	58	20'-6"			385
PB402	1	470.521	112	57	20'-2"			379
PB403	1	462.266	112	56	19'-11"			373
PB501	100	6'-6"	Str.					678
PB502	34	12'-2"	109	2'-8"	3'-2"			434
PB503	36	4'-7"	105	1'-1"	2'-8"			172
PB504	2	4'-5"	105	1'-1"	2'-6"			9
PB505	2	3'-9"	105	1'-1"	1'-10"			8
PB601	4	39'-9"	Str.					239
PB602	8	7'-11"	113	1'-11"	4'-1"	2'-8"		95
PB701	7	10'-0"	Str.					143
PB901	32	26'-0"	Str.					2,829
PB1001	24	7'-0"	104	5'-11"	16 1/2"		723	(241)
PB1002	8	23'-3"	Str.					800
PB1003	3	42'-0"	Str.					542
PB1004	2	39'-9"	Str.					342
PB1005	6	14'-0"	Str.					361
PB1006	3	12'-0"	Str.					155
PB1007	8	23'-9"	Str.					818
PB1008	8	23'-0"	Str.					792
PB1009	10	5 (10) 0" 7	104	12'-0"	3'-0"			682
PB1010	5	23'-0"	Str.					497
						Total Pier 2 =		(10,929) 11,445
SUPERSTRUCTURE								
S501	150	2'-5"	104	1'-11"	7 1/2"			378
S502	188-42	3'-5"	130	1 1/2"	1'-2 1/2"	9"	506	(492)
S503	150	2'-3"	105	7 1/2"	1'-3"			352
S504	130-8	5'-8"	131	8"	2'-5"	5"	816	(792)
S505	2	2'-6"	101	1'-11"				5
S506	2	2'-11"	134	2"	7 1/2"			6
S507	2	2'-11"	134	4"	7 1/2"			6
S508	2	3'-0"	134	6"	7 1/2"			6
S509	12	2'-6"	Str.					31
S510	12	2'-3"	Str.					28
S511	56	6'-8"	132	2'-0"	2'-2"	1'-4"		389
S512	56	5'-5"	105	2'-0"	1'-8"			316
S513	20	5'-11"	105	2'-0"	2'-2"			123
S514	80	7'-0"	Str.					586
S515	16	11'-0"	Str.					183
S516	8	12'-6"	Str.					104
S601	261	30'-0"	Str.					11,750
S602	87	25'-6"	Str.					3,330
S603	58	17'-0"	Str.					1,480
S604	189	(76)-9"	Str.					7,600
		26'						
S608	63	20'-3"	Str.					1,920
S609	63	19'-0"	Str.					1,800
S610	63	17'-9"	Str.					1,680
S611	189	31'-5"	101	30'-9"				8,920
S612	63	16'-11"	101	16'-3"				1,600
S613	63	15'-8"	101	15'-0"				1,480
S614	63	14'-5"	101	13'-9"				1,370
S630	12	4'-0"	Str.					72
S631	4	15'-0"	109	2'-2"	5'-0"			92
S801	22	26'-3"	Str.					1,542
S802	4	1'-6"	Str.					16
S803	2	5'-3"	Str.					28
S804	22-17	2-03'-6 1/2 0"	Str.					1,278
S805	2	2'-3"	Str.					12
D802	57	4'-9"	124					723
						Total Superstructure =		50,490 601-
						Total for Bridge 5 =		88,609 4,212

[illegible]

Notes:

All bar dimensions are given out to out.

All bars of a series shall vary in length by a constant increment.

For replacement reinforcement schedule see sheet 9/18

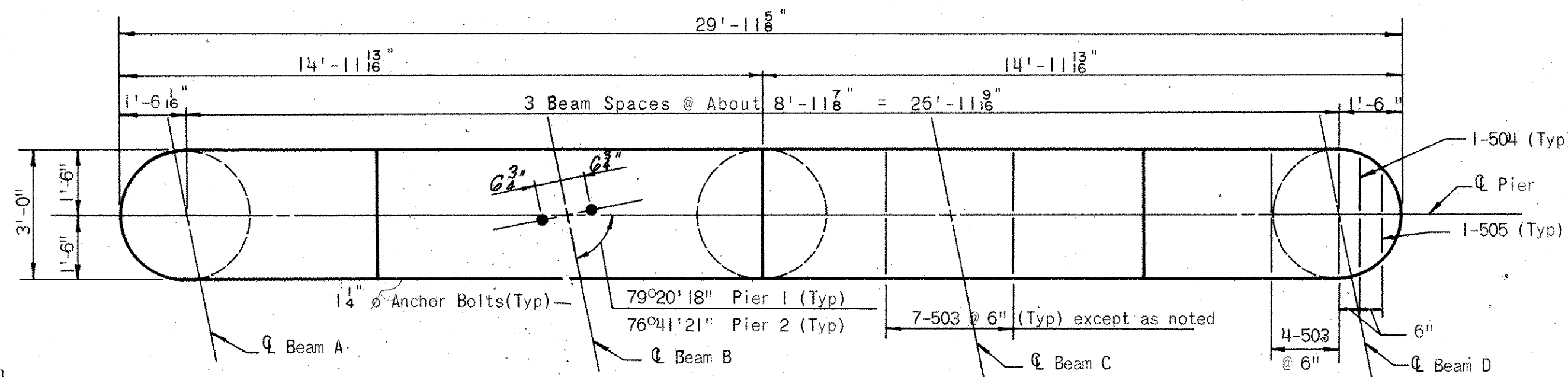
Four steel channels, tee or angle spacers, weighing approximately 0.80 pounds per linear foot shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. An allowance of 0.80 pounds per linear foot for spacers is included with the weight of the spiral bars and paid for as reinforcing steel.

H.N.T.B. BRIDGE NO. 5	<i>Revised 7-9-75</i> By WEB
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS KANSAS CITY CLEVELAND NEW YORK	13 18
REINFORCEMENT SCHEDULE RAMP F OVER HENRY AVE. BR. NO. STA: 30-1474R STA. 952+97.31 SCALE: NO SCALE STA. 954+07.31 RELOCATED U.S. 30 CANTON STARK COUNTY OHIO	
DRAWN J.M.W. DATE 3-6-69	TRACED J.M.W. DATE 3-12-69
CHECKED J.A.H. DATE 3-31-69	REVIEWED <i>M.T.</i> DATE <i>11-22-74</i>
REVISIONS 1668	

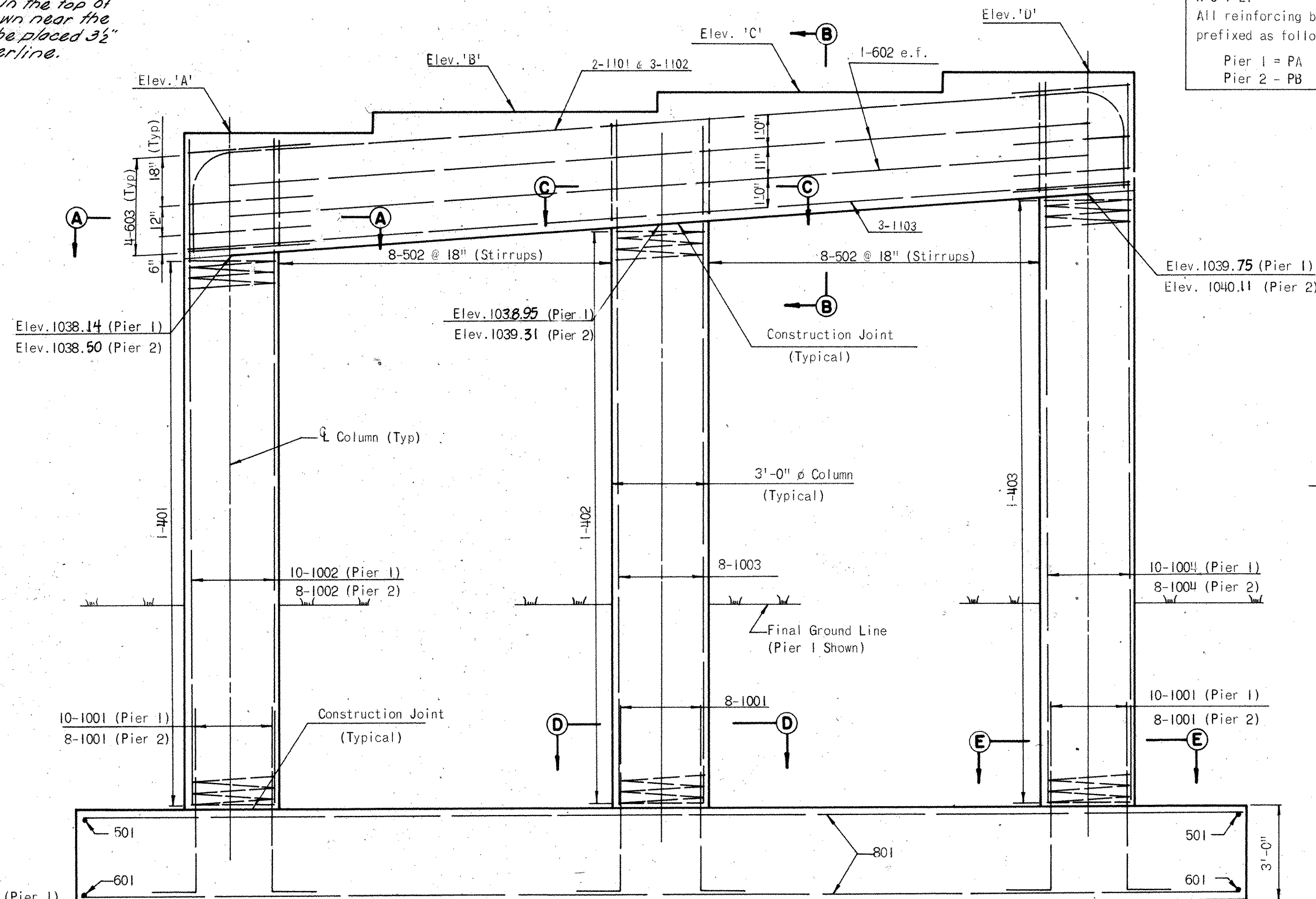
STARK COUNTY
STA-30-14.12
STA-77-9.22



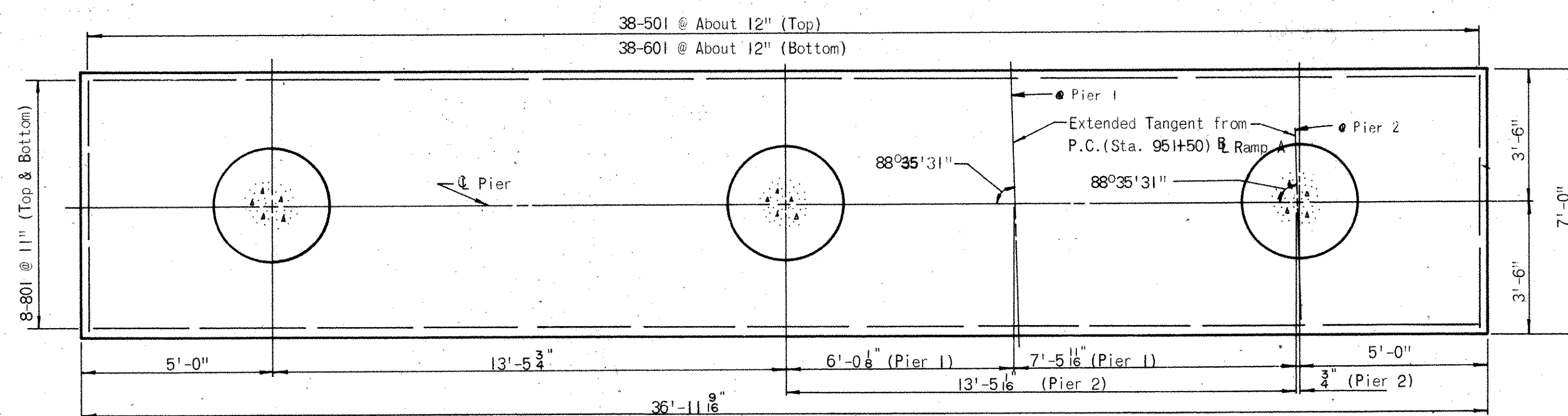
Special care shall be taken when placing reinforcement so as not to interfere with anchor bolt setting. The reinf. bar in the top of the cap, shown near the & Pier shall be placed $3\frac{1}{2}$ " off the centerline.



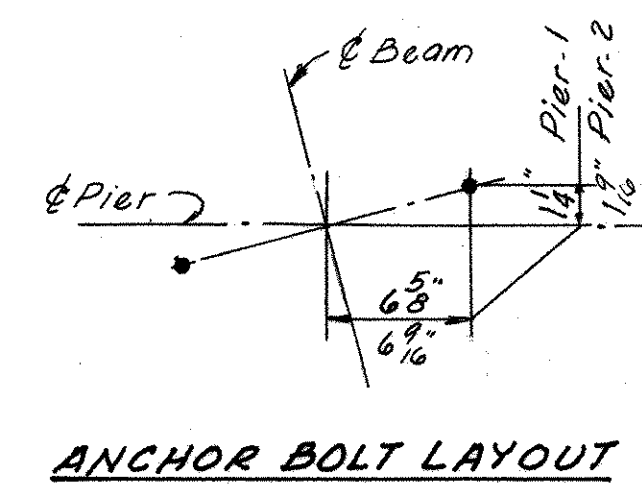
PLAN



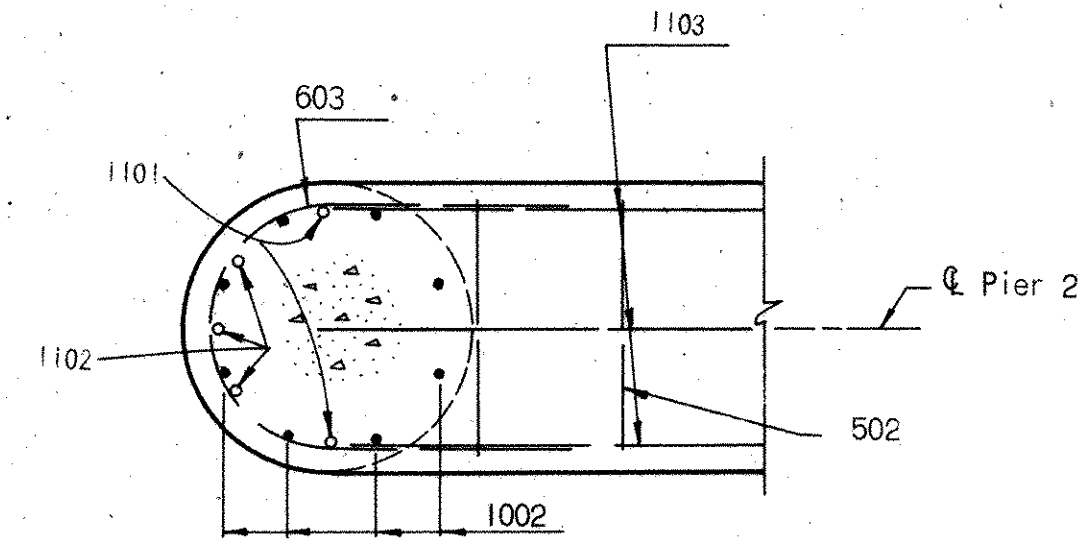
ELEVATION



FOOTING PLAN

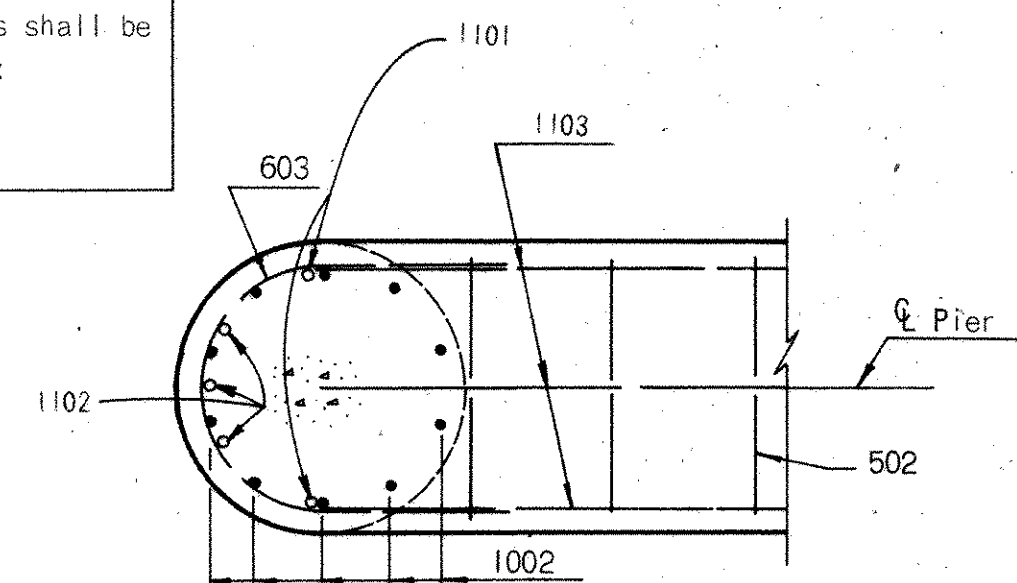


ANCHOR BOLT LAYOUT



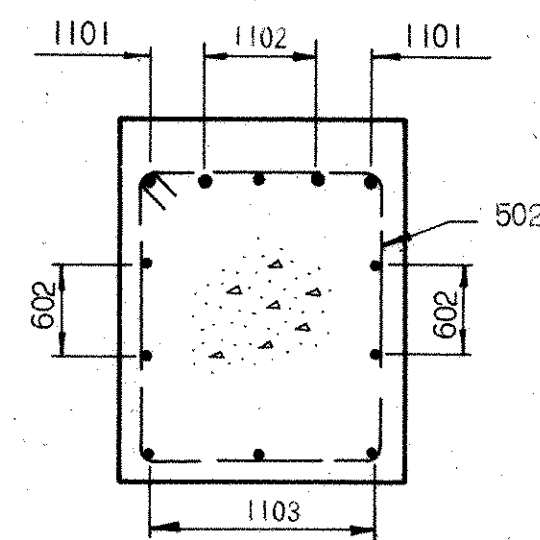
SECTION 'A-A'

(Pier 2)

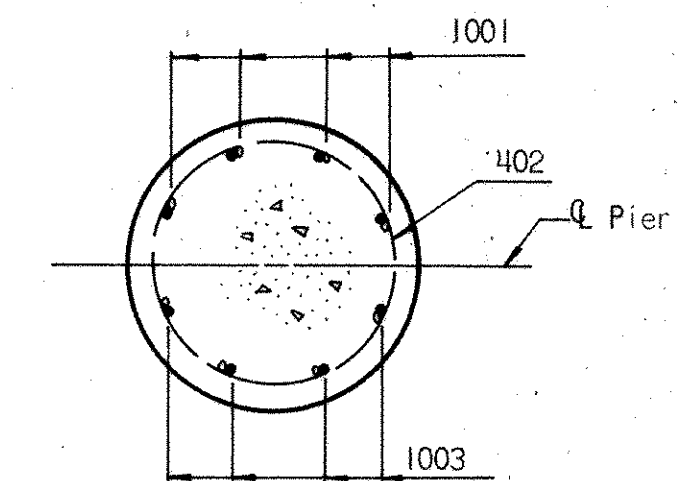


SECTION 'A-A'

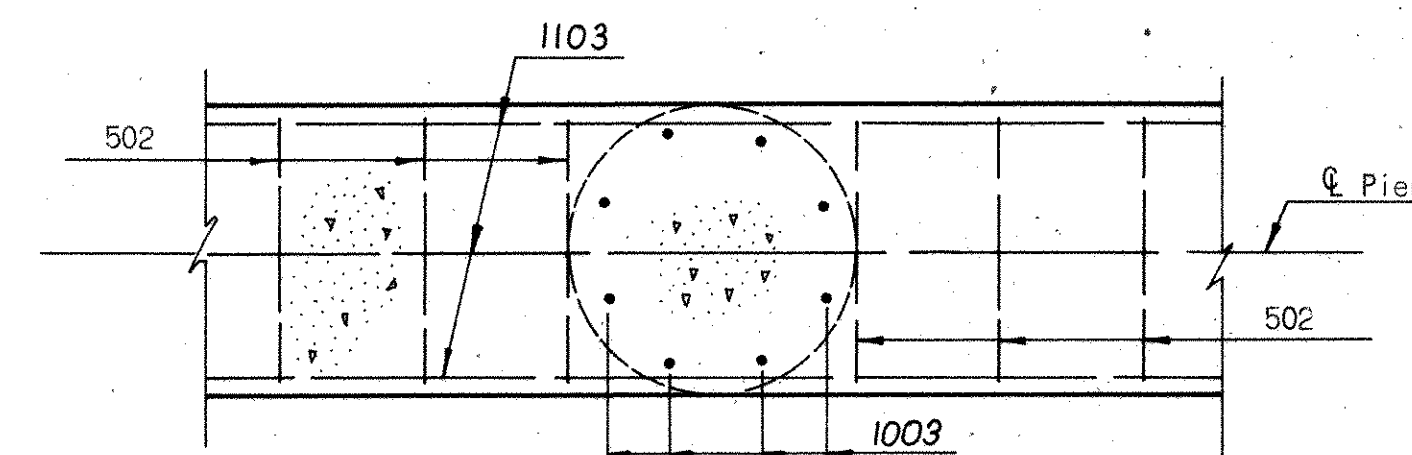
(Pier 1)



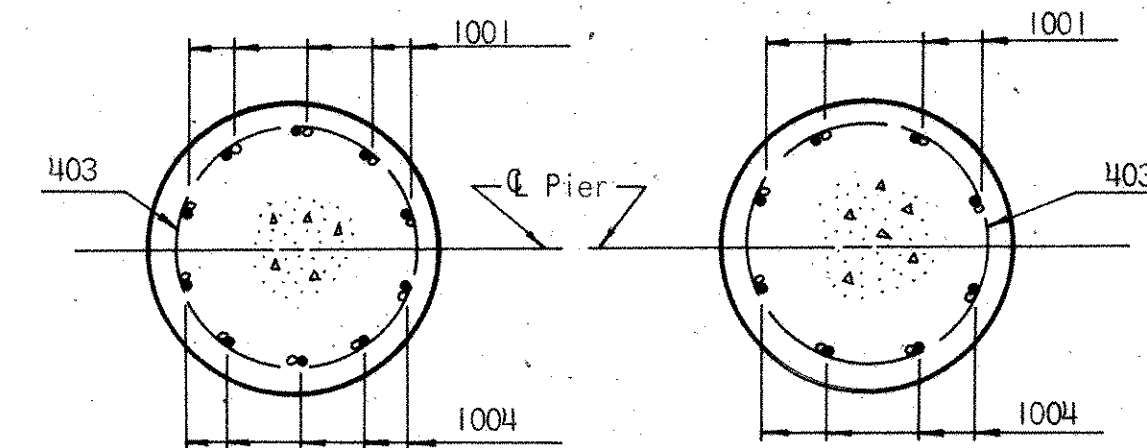
SECTION 'B-B'



SECTION 'D-D'

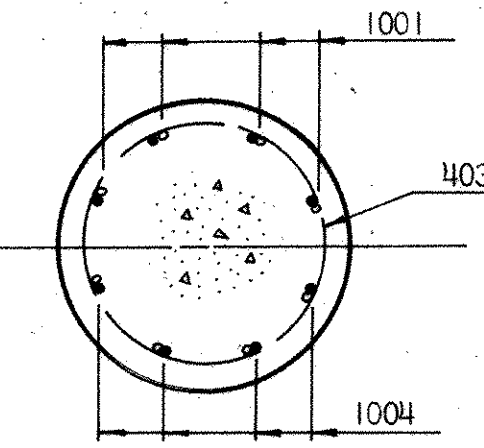


SECTION 'C-C'



SECTION 'E-E'

(Pier 1)



SECTION 'E-E'

(Pier 2)

Notes:

For Anchor Bolt details see Sheet 18/16.

For Layout Diagram see Sheet 2/18.

The following abbreviation is used:

e.f. = each face.

Pier 2 is similar to Pier 1 except as noted.

All stirrups within 4 feet of ϕ Column shall be placed with hooks in the bottom of cap. All others shall be placed with hook in the top.

	PIER	SEAT	ELEVATIONS
		PIER 1	PIER 2
'A'		1041.95	1042.43
'B'		1042.49	1042.97
'C'		1043.03	1043.50
'D'		1043.56	1044.04

H.N.T.B. BRIDGE NO. 15 Revised 7-9-75 By WEB

HOWARD, NEEDLES, TAMMEN & BERGENDOFF 14 / 18

CONSULTING ENGINEERS

KANSAS CITY CLEVELAND NEW YORK

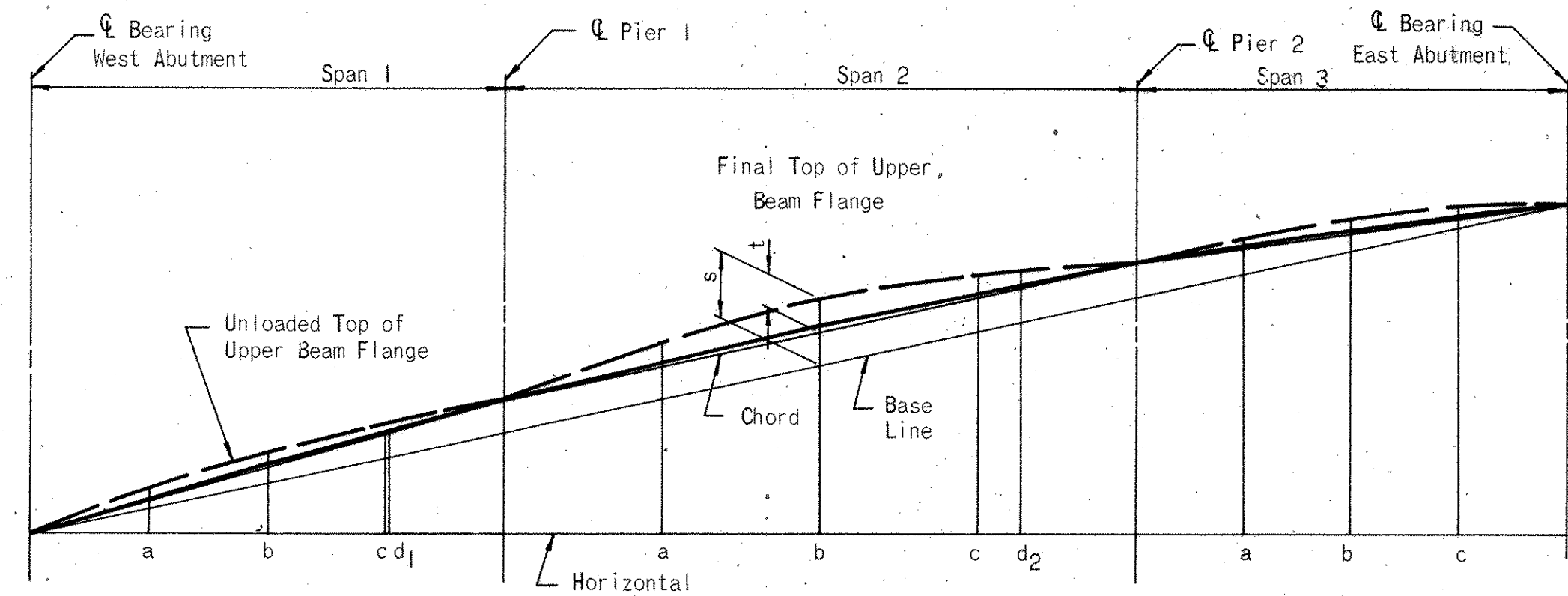
PIERS

RAMP A OVER HENRY AVE.
BR. NO. STA-30-1474L STA. 952+97.80
SCALE: 3/8" = 1'-0" STA. 954+06.43
RELOCATED U.S. 30
CANTON STARK COUNTY OHIO

DRAWN J.B.C. DATE 2-20-69	TRACED J.M.W. DATE 2-26-69	CHECKED K.T.B. DATE 2-25-69	REVIEWED MJK DATE 11-22-71	REVISED 3-2-76 1668
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STARK COUNTY STA-30-14.12 STA-77-9.22

NOTE: The 1/4, 1/2, and 3/4 points of the spans are indicated by a, b, and c, respectively. The center lines of Bend Line 1 (Field Splice 1) and Bend Line 2 (Field Splice 2) are indicated by d1 and d2 respectively. Vertical offsets measured from the base line between abutment bearings to the unloaded top of upper flange and measured from the chord between bearing points to the unloaded top of upper beam flange are indicated by s and t respectively.



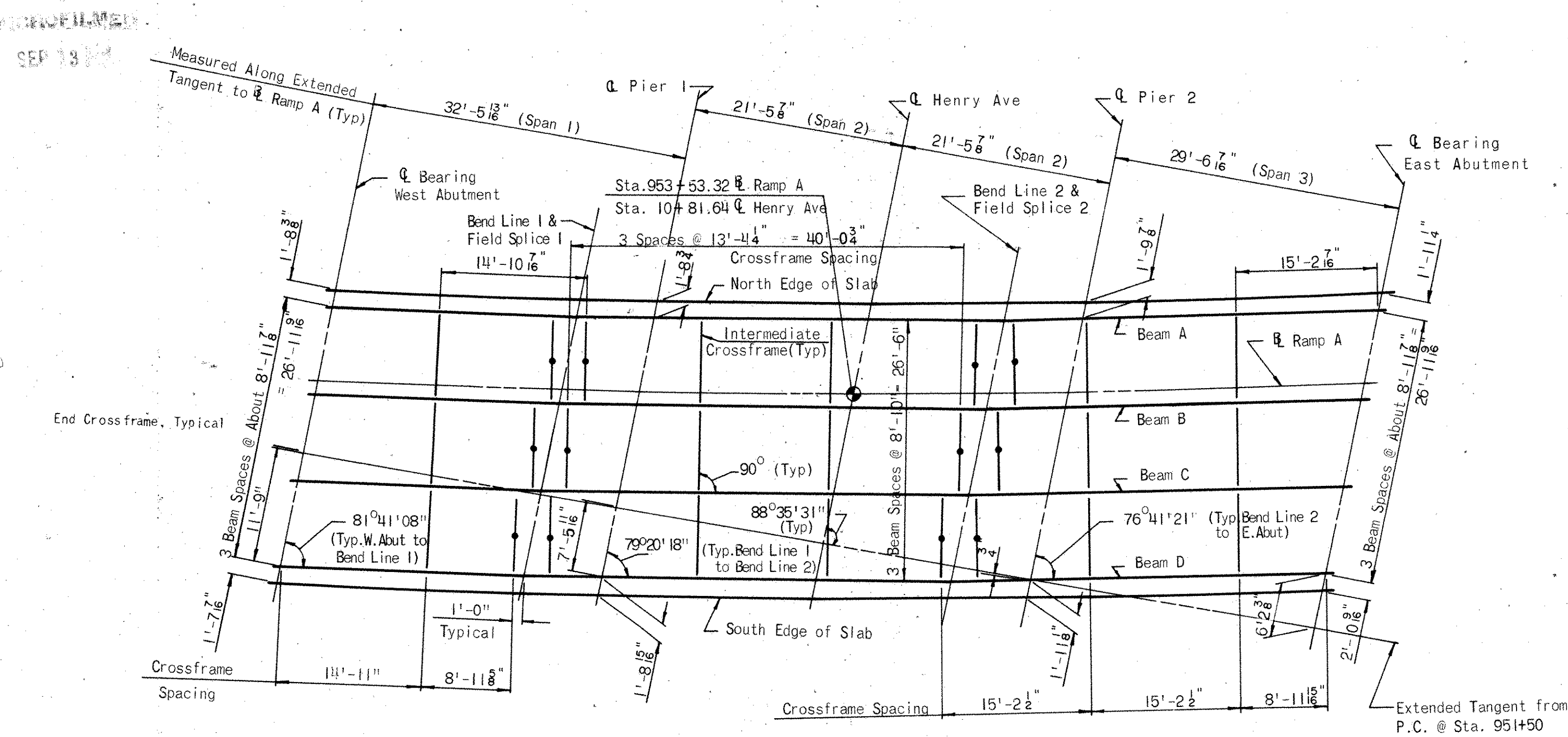
CAMBER DIAGRAM (See Table)

HORIZONTAL OFFSETS		
	BEAM A to NORTH EDGE SLAB	BEAM D to SOUTH EDGE SLAB
Q Brg.W.Abut.	1'-8 1/2"	1'-7 1/4"
1	1'-7 1/2"	1'-7 7/8"
2	1'-8 1/2"	1'-7 1/2"
3	1'-10 1/2"	1'-6 3/4"
4	1'-10 1/2"	1'-6 1/2"
Bend Line 1	1'-10 1/2"	1'-6 1/2"
Q Pier 1	1'-8 1/2"	1'-8 1/2"
1	1'-7 1/2"	1'-10 1/2"
2	1'-8 1/2"	1'-10 1/2"
3	1'-10 1/2"	1'-8 1/2"
4	1'-10 1/2"	1'-8 1/2"
Bend Line 2	1'-10 1/2"	1'-8 1/2"
Q Pier 2	1'-9 1/2"	1'-10 1/2"
1	1'-8 1/2"	2'-0"
2	1'-8 1/2"	2'-0 5/8"
3	1'-9 1/2"	2'-0 1/2"
4	1'-10 1/2"	2'-0 1/2"
Q Brg.E.Abut.	1'-10 1/2"	1'-11 1/2"

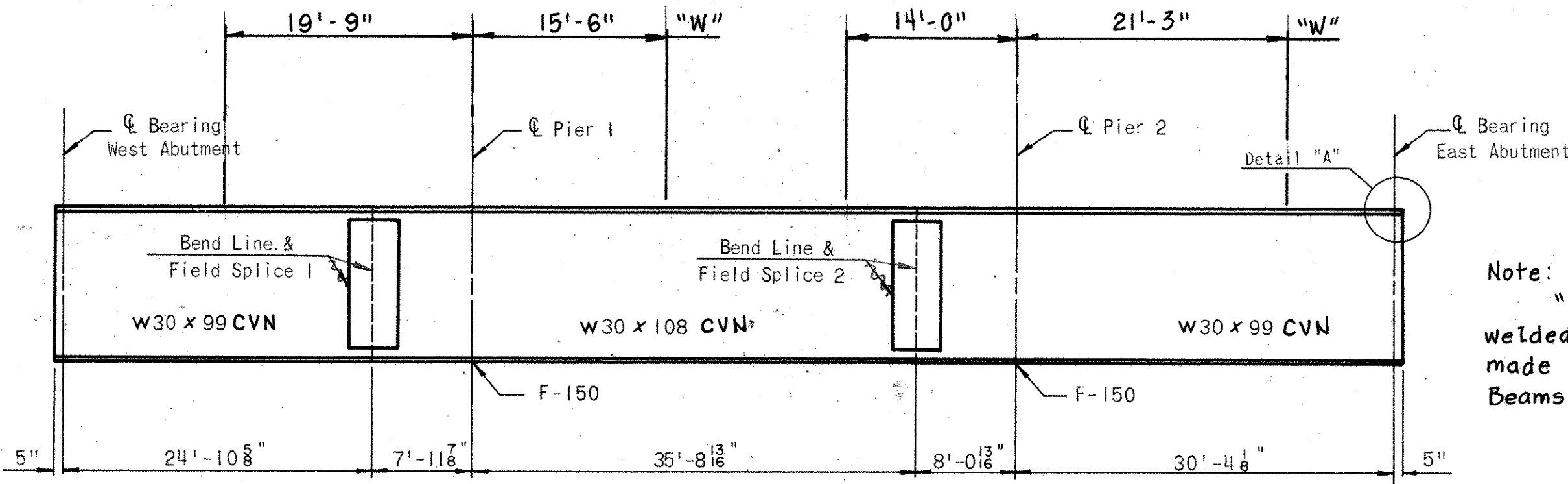
NOTE: Horizontal offsets are given at Bend Lines, Q Bearings and 4 points between Q Bearings and are perpendicular to Q Beams.

Notes: For Details of Fixed Bearing see Sheet 13/18. For Details of Intermediate and Bend Line Crossframes see Sheet 360. For Details of Beam Field Splices see Sheet 355. For Detail "A" see Sheet 7/18. —●— Denotes Bend Line Crossframe

NOTES: Deflections and Convexities are given to the nearest 1/16 inch. The following abbreviations are used: S = Dead Load Deflection due to the weight of the steel. R = Remaining Dead Load Deflection. C = Convexity. T = Required Shop Camber.



FRAMING PLAN



Note: "W" Denotes the range where welded attachments cannot be made to the top flange of Beams A and D.

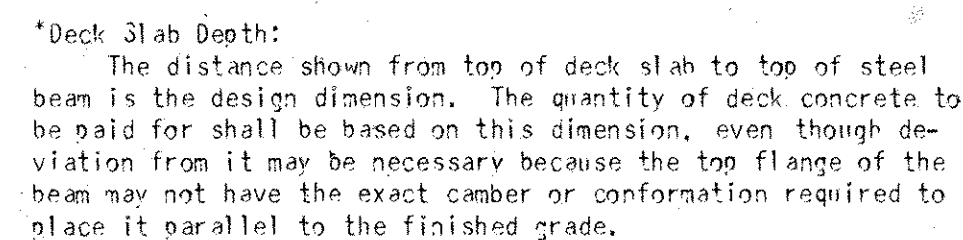
CVN- See Sheet 214.

TYPICAL BEAM ELEVATION

VERTICAL OFFSETS FOR ALL BEAMS IN UNLOADED POSITION																													
BEAMS	Span 1								Span 2								Span 3								BEAMS				
	1 Point		2 Point		3 Point		Bend Line 1		Pier 1	1 Point		2 Point		3 Point		Bend Line 2		Pier 2	1 Point		2 Point		3 Point						
	a		b		c		d ₁			a		b		c		d ₂			a		b		c						
	s	t	s	t	s	t	s	t		s	t	s	t	s	t	s	t		s	t	s	t	s	t					
	A	9 16	3 16	15 16	4 16	1 16	3 16	5 16	3 16	7 16	0	1 4	5 16	7 16	2 16	13 16	3 8	5 16	11 16	5 16	13 16	0	1 16	1 16		13 16	8 16	7 16	1 8
B	2 8	3 16	1 4	1 4	5 16	4 16	5 16	4 16	7 16	0	11 16	4 16	13 16	7 16	13 16	7 16	11 16	5 16	18 16	0	11 16	1 16	13 16	8 16	7 16	1 8	B		
C	5 16	1 4	1 16	5 16	1 8	5 16	1 8	4 12	0	12 16	4 16	7 16	7 16	13 16	7 16	11 16	1 16	11 16	1 16	3 8	0	11 16	1 16	13 16	8 16	7 16	1 8	C	
D	3 4	3 8	1 16	3 8	7 16	3 16	7 16	3 16	18 16	0	1 8	7 16	1 4	2 16	7 16	15 16	7 16	1 4	3 16	5 16	7 16	0	1 8	1 16	13 16	8 16	7 16	1 8	D

		DEAD LOAD DEFLECTION AND CAMBER																																											
BEAM	Span 1												Span 2												Span 3												BEAM								
	1 4 Point				1 2 Point				1 3 Point				Bend Line 1				1 4 Point				1 2 Point				1 3 Point				Bend Line 2				1 4 Point					1 2 Point				1 3 Point			
	a				b				c				d ₁				a				b				c				d ₂				a					b				c			
	S	R	C	T	S	R	C	T	S	R	C	T	S	R	C	T	S	R	C	T	S	R	C	T	S	R	C	T	S	R	C	T	S	R	C	T									
A	0	1/16	1/8	3/16	0	1/16	3/16	1/4	0	0	3/16	3/16	0	0	3/16	3/16	0	1/8	3/16	5/16	0	3/16	5/16	1/2	0	1/8	1/4	3/8	0	1/16	1/4	5/16	0	0	1/16	1/16	0	1/16	1/16	1/8	0	1/16	1/16	1/8	A
B	0	1/16	1/8	1/16	0	1/16	3/16	1/4	0	0	3/16	1/4	0	0	1/4	1/4	0	1/16	1/16	1/16	0	3/16	1/16	1/16	0	1/8	5/16	7/16	0	1/16	1/16	1/8	0	0	1/16	1/16	0	1/16	1/16	1/8	0	1/16	1/16	1/8	B
C	0	1/16	3/16	1/4	0	1/16	1/4	5/16	0	0	1/4	1/4	0	0	1/4	1/4	0	1/8	1/8	1/4	0	3/16	1/4	7/16	0	1/8	5/16	7/16	0	1/16	1/4	5/16	0	0	1/16	1/16	0	1/16	1/16	1/8	0	1/16	1/16	1/8	C
D	0	1/16	5/16	3/8	0	1/16	5/16	3/8	0	0	3/16	3/16	0	0	3/16	3/16	0	1/8	1/8	1/4	0	3/16	1/4	7/16	0	1/8	5/16	7/16	0	1/16	1/4	5/16	0	0	1/16	1/16	0	1/16	1/16	1/8	0	1/16	1/16	1/8	D

H.N.T.B. BRIDGE NO. 15 Revised 7-9-75 By WEB
HOWARD, NEEDLES, TAMMEN & BERGENOFF CONSULTING ENGINEERS KANSAS CITY CLEVELAND NEW YORK 15/18
FRAMING PLAN
RAMP A OVER HENRY AVE.
BR. NO. STA-30-14.74L STA. 952+97.80
SCALE: 1" = 10'-0" STA. 954+06.43
RELOCATED U.S. 30
CANTON STARK COUNTY OHIO
DRAWN J.B.C. TRACED J.M.W. CHECKED R.T.B. REVIEWED MOK
DATE: 1-31-69 DATE: 2-26-69 DATE: 2-24-69 DATE: 1-22-71
1668
Revised 4-28-77



2 1/2" Asphalt Concrete

407 Tack Coat at
0.10 Gal Per
Sq. Yd.

Q Pier

3'-0" 7'-0" 7'-0" 3'-0"

**PLACEMENT OF S 603 BARS
OVER PIERS**

STARK COUNTY
STA-30-14.12
STA-77-9.22

2'-6"

6" 1'-0" 1'-0" 1'-0"

D802

Approach
Slab

1'-3"

3'-0" Clear

S601

S606

S607

12" x 2" Preformed
Sealing Strip
in 13" x 4"
Recess

2" holes in
web of Beam

Do not place concrete
Fillet Under Flanges

1" Preformed Expansion
Joint Filler

Porous
Backfill

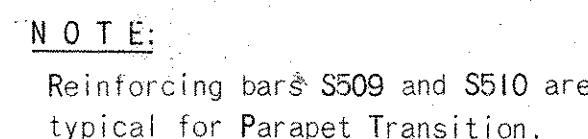
1'-6"

Bearing Plate

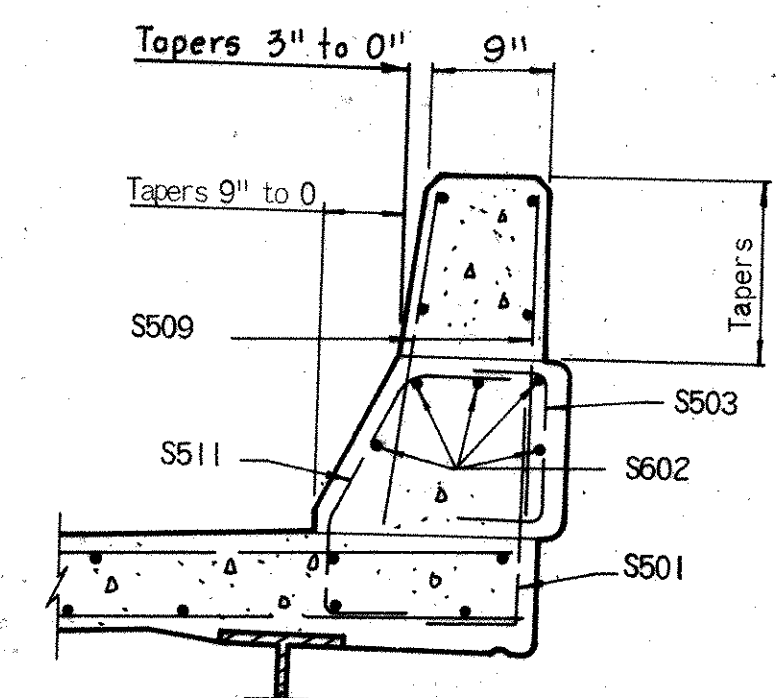
Bearing

Construction
Joint

* 1'-3" at ends of seat. The bottom of the approach slab seat shall be a plane.



NOTE:
Reinforcing bars S511 to S514
are typical for Curb Transition



SECTION 'C-C'

NOTES:
For Notes see Sheet **8/18**

ELEVATION A		
LOCATION	NORTH CURB	SOUTH CURB
Q Bearing West Abutment	1044.83	1046.42
a	1044.96	1046.57
b	1045.08	1046.69
c	1045.20	1046.81
Q Pier 1	1045.30	1046.91
a	1045.44	1047.05
b	1045.56	1047.17
c	1045.67	1047.29
Q Pier 2	1045.77	1047.39
a	1045.83	1047.45
b	1045.88	1047.51
c	1045.93	1047.56
Q Bearing East Abutment	1045.97	1047.61

Revised 4-28-77

