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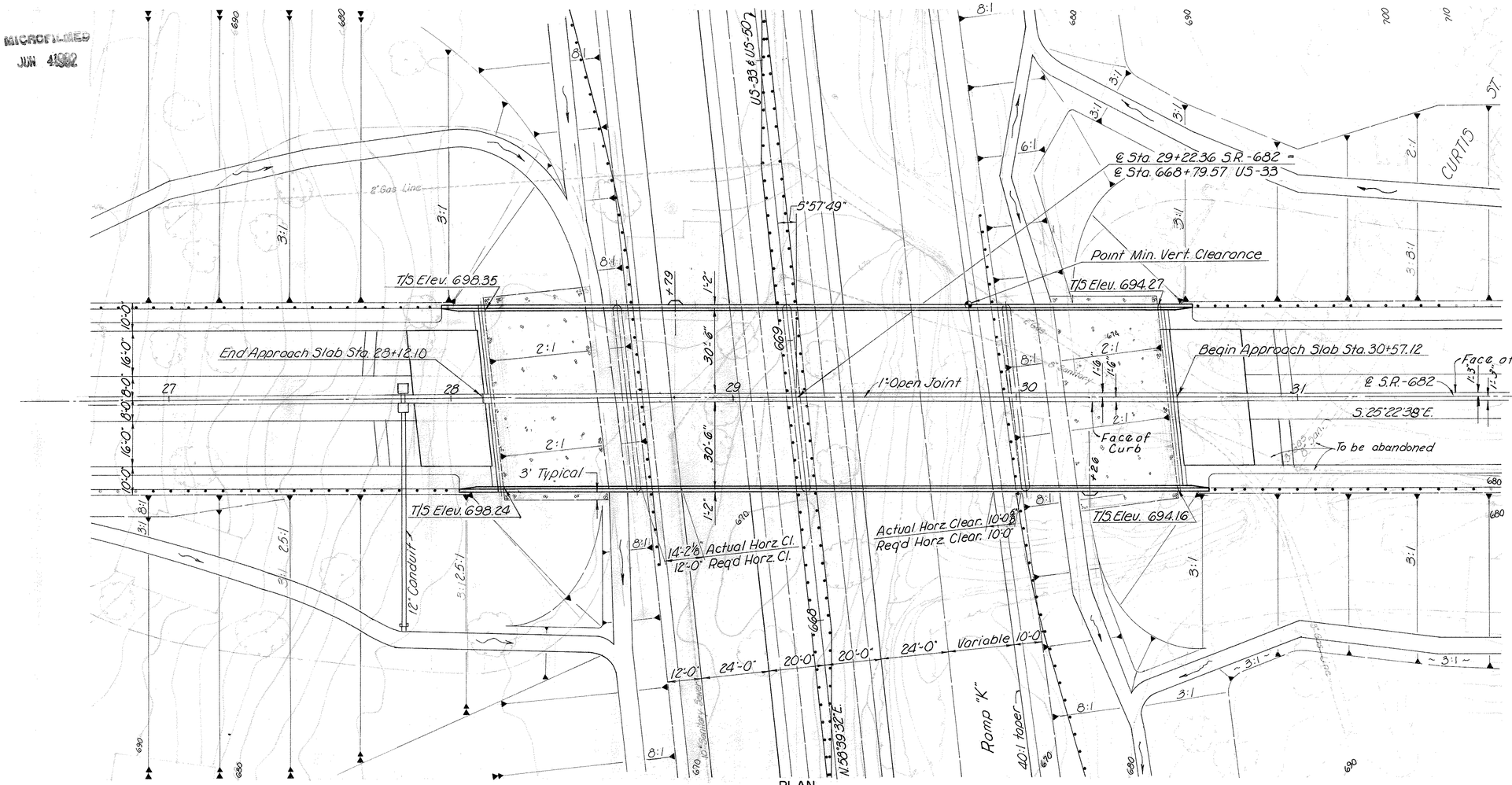
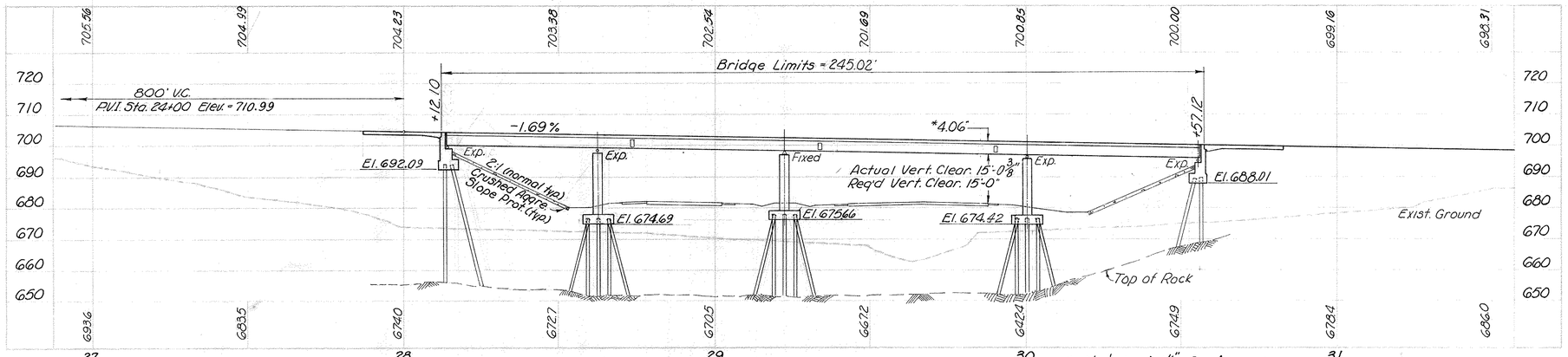


All substructures to be placed on Steel Piles HP10x42
Estimated average pay lengths:
Rear Abut. 36'-0"
Forward Abut. 25'-0"
Piers 25'-0"

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



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PROPOSED STRUCTURE

TYPE: Continuous steel beam bridge with reinforced concrete substructures
SPANS: 48'-0"; 60'-0"; 78'-0"; 54'-6"
ROADWAY: 64'-0" face to face parapets

LOADING: HS 20-44
SURFACE COURSE: 1 1/2" Asphalt concrete
SKEW: 5°57'49" R.F.
APPROACH SLAB: AS-1-72 (25'-0" long) (Modified)
ALIGNMENT: tangent
SUPERELEVATION: none
AVERAGE DAILY TRAFFIC: 3050 (1990)

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SITE PLAN

BRIDGE No. ATH-33-1757
under SR-682

ATHENS COUNTY USR-33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	[signature]			JF	4/14-70	

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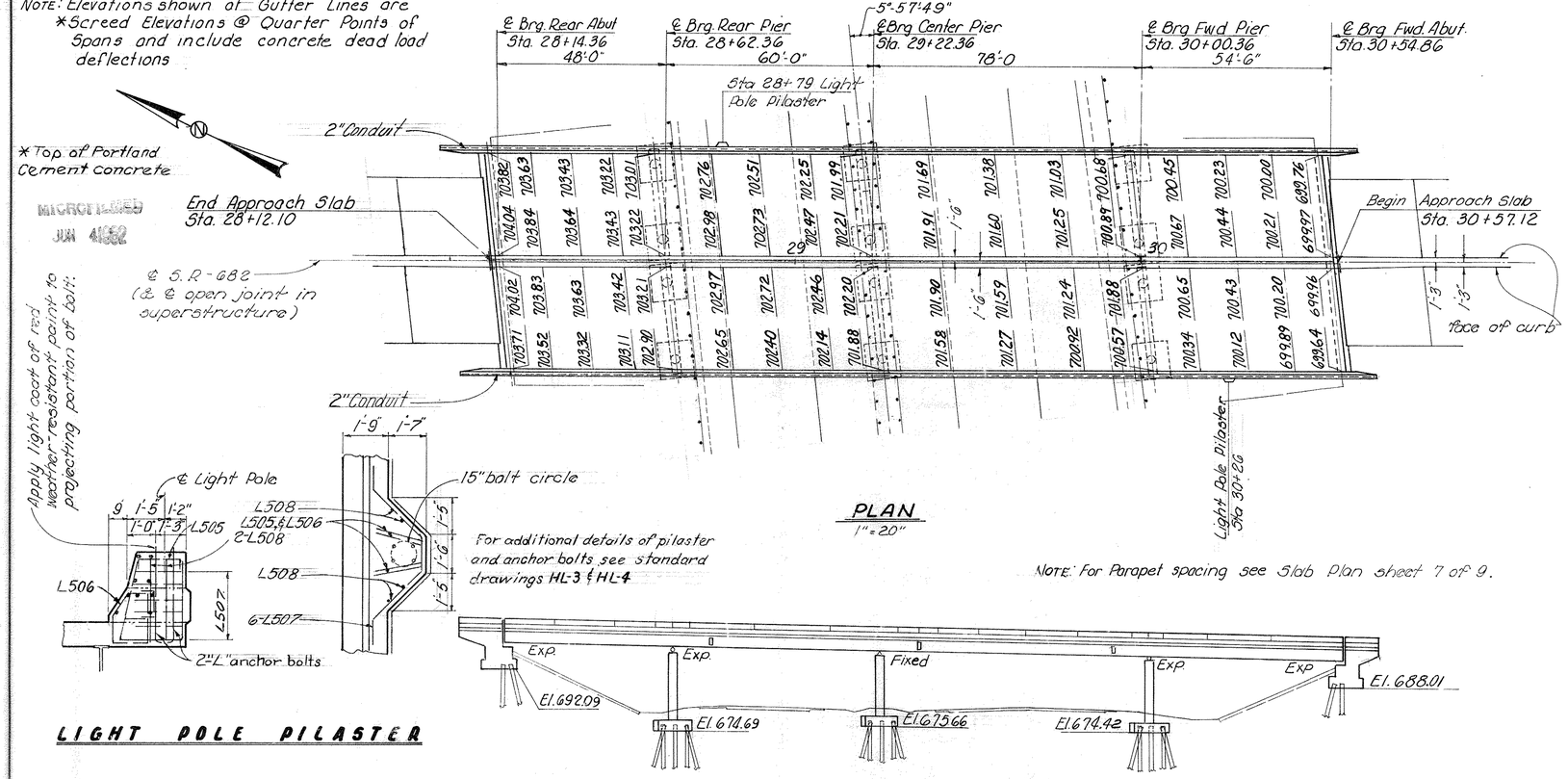
NOTE: Elevations shown at Gutter Lines are *Screed Elevations @ Quarter Points of Spans and include concrete dead load deflections



PLAN
1"=20"

For additional details of pilaster and anchor bolts see standard drawings HL-3 & HL-4

NOTE: For Parapet spacing see Slab Plan sheet 7 of 9.

ELEVATION

LIGHT POLE PILASTER

GENERAL NOTES

BR-1-67 revised 10-15-71

REFERENCE shall be made to Standard Drawings AS-1-72 (dated 6-30-72), RB-1-55 (Rev. 2/2/59), SD-1-69 (Dated 6/12/69) Sheets 1, 2, 3 and 4 of 4, Supplemental Specifications 808 (dated 1-1-71) and 836 (dated 3-12-75) Lighting Standard Drawings HL-3 (dated 7-27-73) and HL-4 & HL-7 (dated 1-21-76) HL-5 (dated 9-6-73)

DESIGN SPECIFICATIONS

This structure 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	HS 20-44
Concrete Class C	Unit Stress 1200 p.s.i. for Superstructure Unit Stress 1333 p.s.i. for Substructure
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. Spiral reinforcement may be plain bars ASTM A82 or A615.

EMBANKMENT CONSTRUCTION

The 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.

PILES shall be driven to refusal on bedrock or to 20 blows per inch for the last few inches of penetration. The design load is 40 tons per pile for the abutment and pier piles.

UTILITY LINES

All expense involved in relocating the affected utility lines shall be borne by the Owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either would be held to a minimum.

For Lighting Details not shown, see sheet No. 350 and Standard Construction Drawing HL-4.

Modify Standard Drawing AS-1-72 as follows: (a.) Dimension W = 22'-3"
(b.) Change clearance for top reinforcing steel to 3" from 2".

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIERS	GEN'L.
404	45	Cu. Yds.	Asphalt concrete, AC-20	45			
503	725	Cu. Yds	Unclassified Excavation		341	384	
505	Lump	Sum	Test Pile				
507	3559	Lin. Ft.	Steel H-Piles, (HP10 x 42)		1159	2400	
509	244,226	Lbs	Reinforcing Steel	164,384	18,358	61484	
511	521	Cu. Yds	Class "C" Concrete, Superstructure (See Proposal Note)	521			
511	242	Cu. Yds	Class "C" Concrete, Abutment		242		
511	156	Cu. Yds	Class "C" Concrete, Pier Footings			156	
511	124	Cu. Yds	Class "C" Concrete, Piers above Footing			124	
513	406,063	Lbs	Structural Steel	406,063			
514	406,063	Lbs	Field Painting of Structural Steel	406,063			
518	16	Each	Scuppers, including supports	16			
518	75	Cu. Yd	Porous Backfill		75		
518	120	Lin. Ft	6" Helical Perforated C.S.P., 707.01		120		
518	85	Lin. Ft	6" Non-Perforated Helical C.S.P. Including Specials, 707.01		85		
518	90	Each	Subdrainage for wearing course, as per plan	90			
601	643	Sq. Yds	Crushed Aggregate Slope Protection				643
G625			For G25 Lighting Items see sheet No. 340				
808	521	Units	Chemical Admixture for Concrete, type A, B, or D	521			
Special	23	Cu. Yds.	Asphaltic protective course (See Proposal Note)	23			
Special	1616	Sq. Yds.	Membrane Waterproofing, Cold Applied Liquid (See Proposal Note)	1616			

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GENERAL PLAN & GENERAL NOTES & ESTIMATED QUANTITIES

BRIDGE Nº ATH-33-1757
UNDER S.R. 682

ATHENS COUNTY USR-33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
3/1/70			M.C. 4/2/70	JF	4/14/70	

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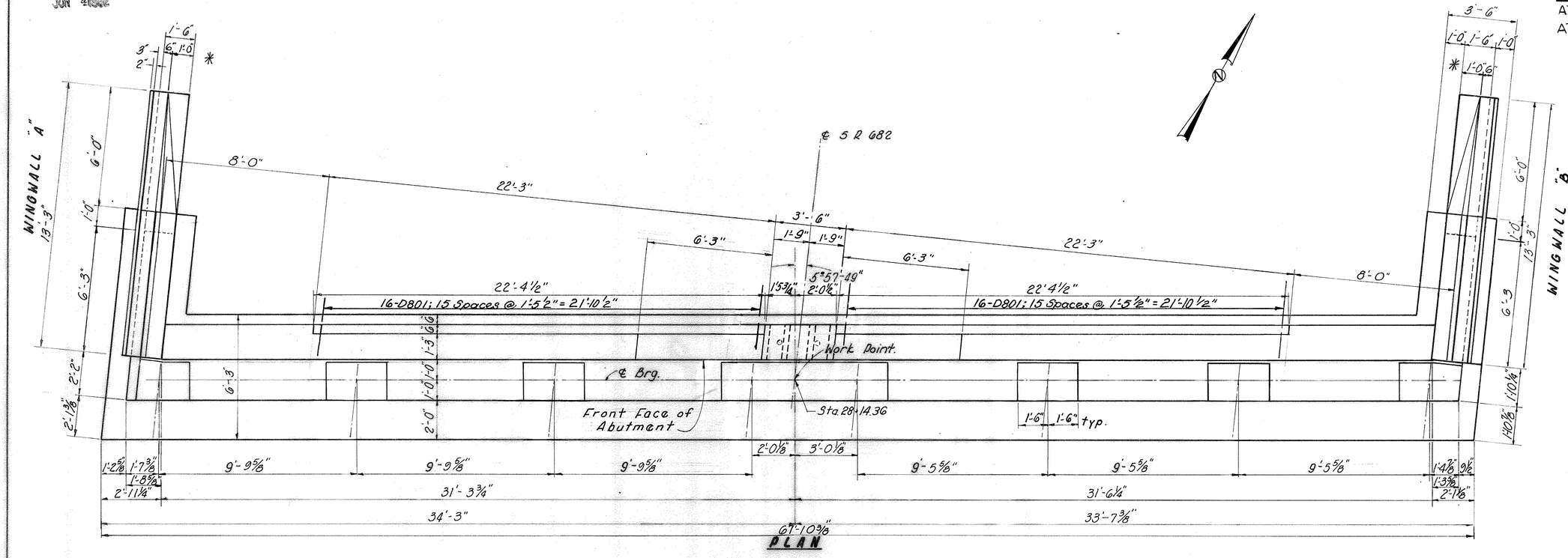
* See sheet 5/9 for Parapet Transition note.



BACKWALL CONCRETE: In addition to the provisions of 511.08, backwall concrete or backwall concrete above the optional construction joint at the approach slab seat shall not be placed until after the deck concrete in the span adjacent to the abutment has been placed.

Note: See Sheet 20B of 845 For Detail Showing Transition of Concrete Barrier From Roadway Typical to Bridge Typical. Attach Barrier To Abutment Using #8 Dowels As Shown. Roadway Quantities For Concrete Barrier is Carried to Front Face of Abutment.

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REAR ABUTMENT

BRIDGE No. ATH-33-1757
under SR-682

ATHENS COUNTY USR-33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G.	FGZ		V.A.D.	JJ	4/14-70	

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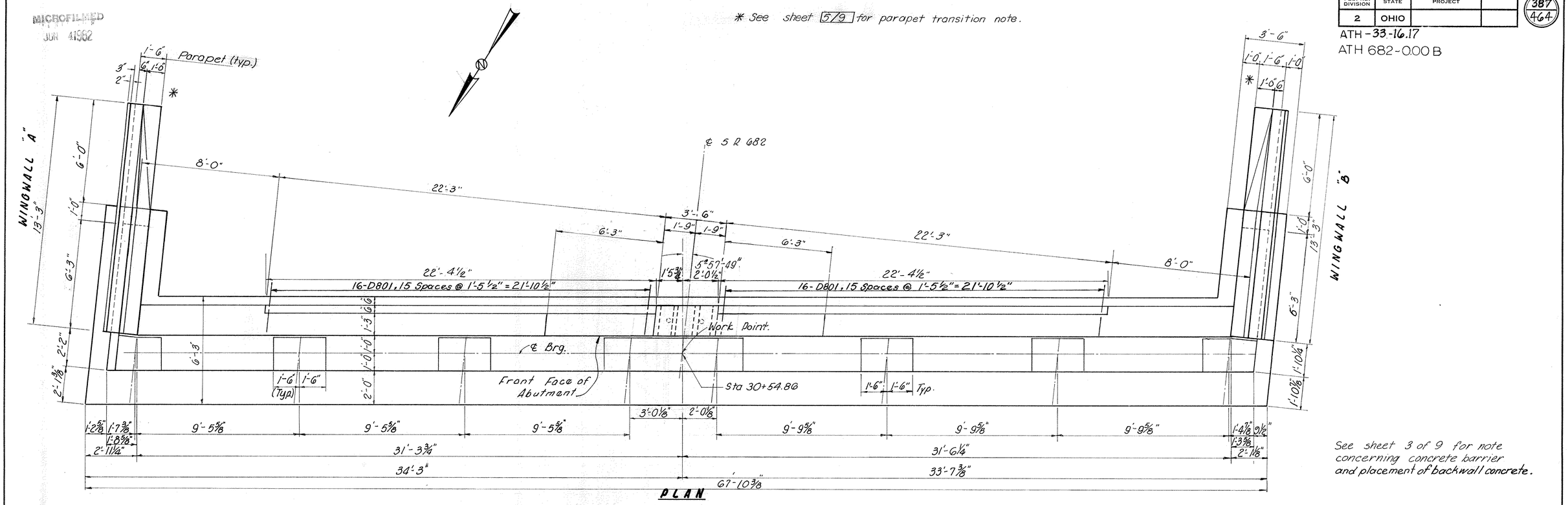
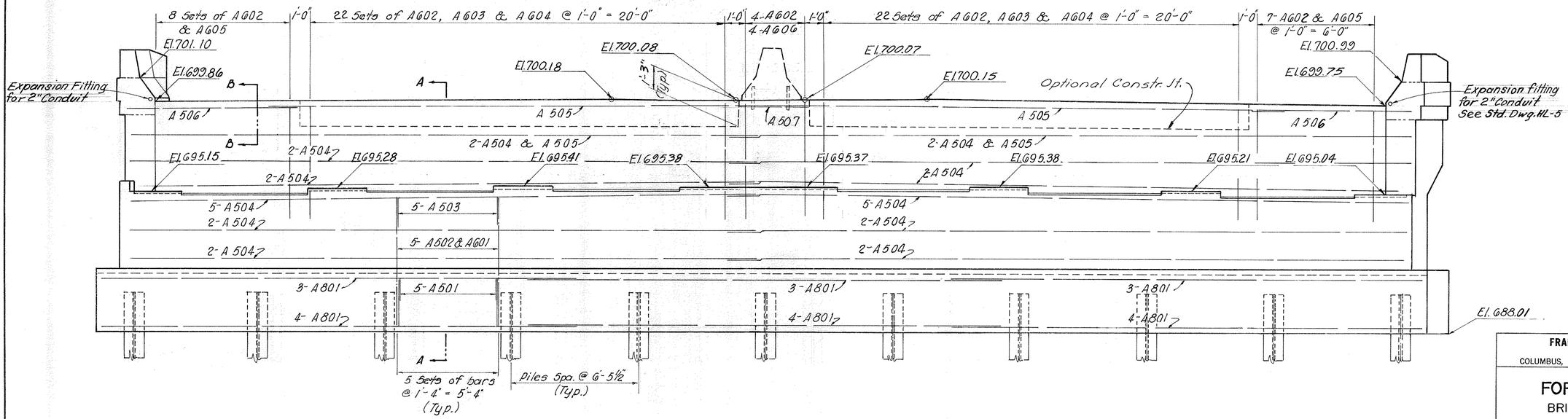
ATH 682-0.00 B

* See sheet 5/9 for parapet transition note.





See sheet 3 of 9 for note concerning concrete barrier and placement of backwall concrete.

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FORWARD ABUTMENT

BRIDGE No. ATH-33-1757
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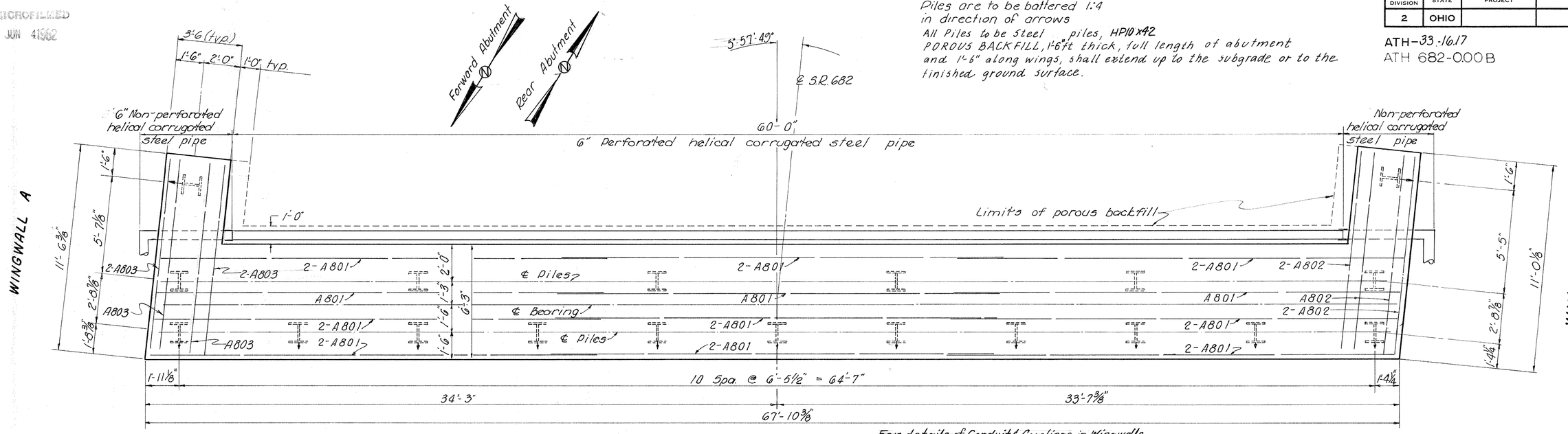
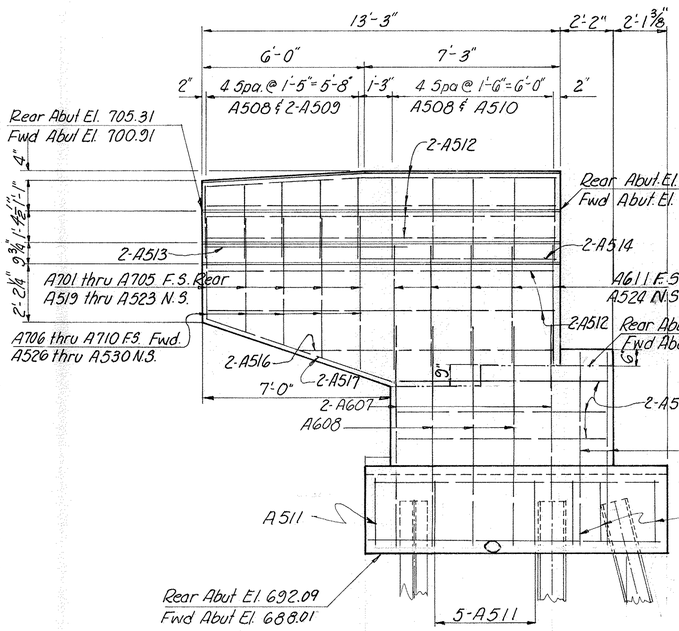
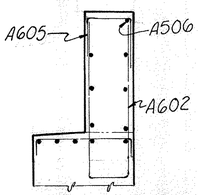
Piles are to be battered 1:4 in direction of arrows
All Piles to be Steel piles, HP10 x 42
POROUS BACKFILL, 1'-6" ft thick, full length of abutment and 1'-6" along wings, shall extend up to the subgrade or to the finished ground surface.



FOOTING PLAN
Rear & Forward Abutment

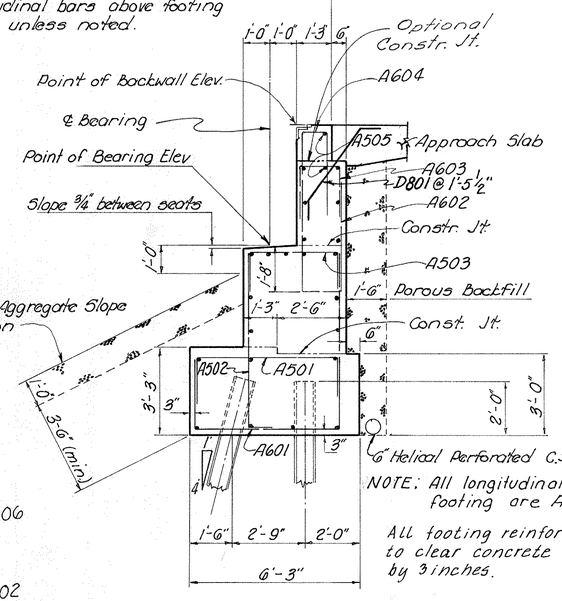


WINGWALL "A"



SECTION B-B

Note; All longitudinal bars above footing are A504 unless noted.

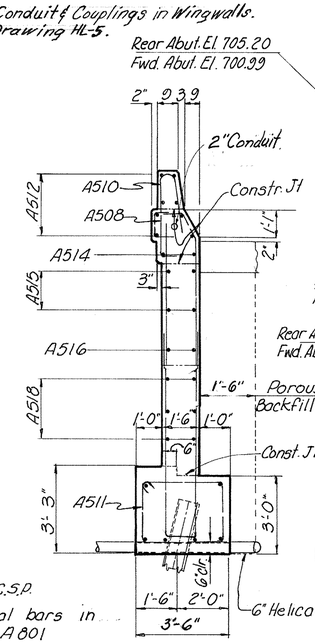


SECTION A-A

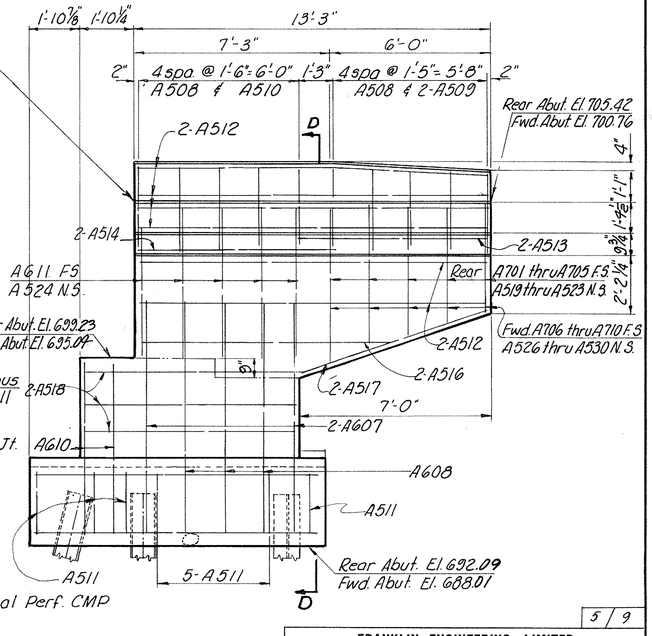
NOTE: All longitudinal bars in footing are A801

All footing reinforcing steel to clear concrete surfaces by 3 inches.

For details of Conduit & Couplings in Wingwalls. See Standard Drawing HL-5.



SECTION D-D



WINGWALL B

* PARAPET TRANSITIONS AND WINGWALL ENDS shall be as shown on Std. Drwg BR-1-67 revised 10-15-71 Reinforcing steel shall be field bent or cut to fit.

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WING WALL & FOOTING DETAILS

BRIDGE Nº ATH-33-1757
UNDER SR- 682

ATHENS COUNTY USR-33

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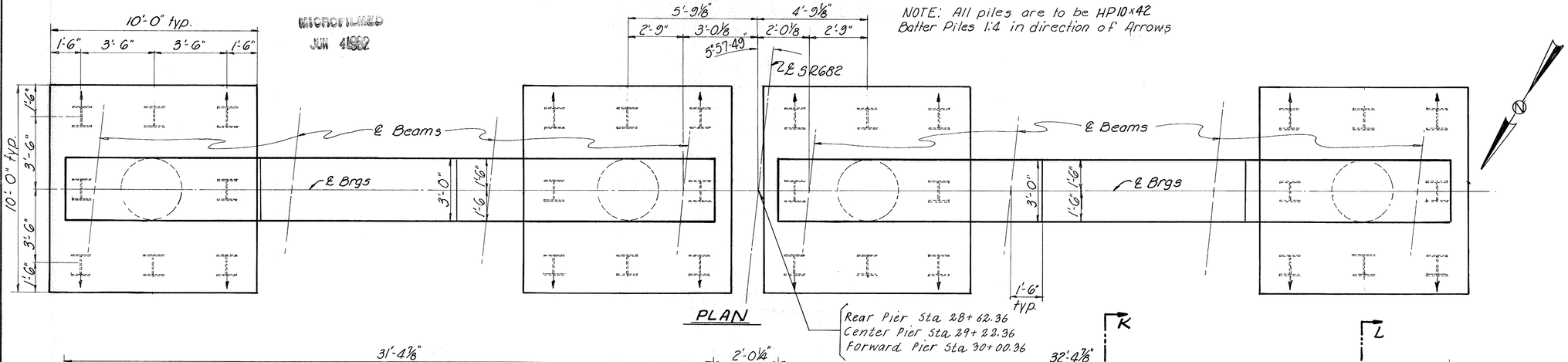
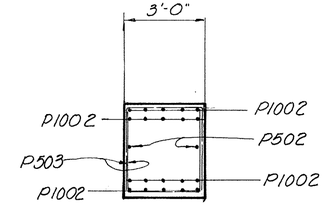
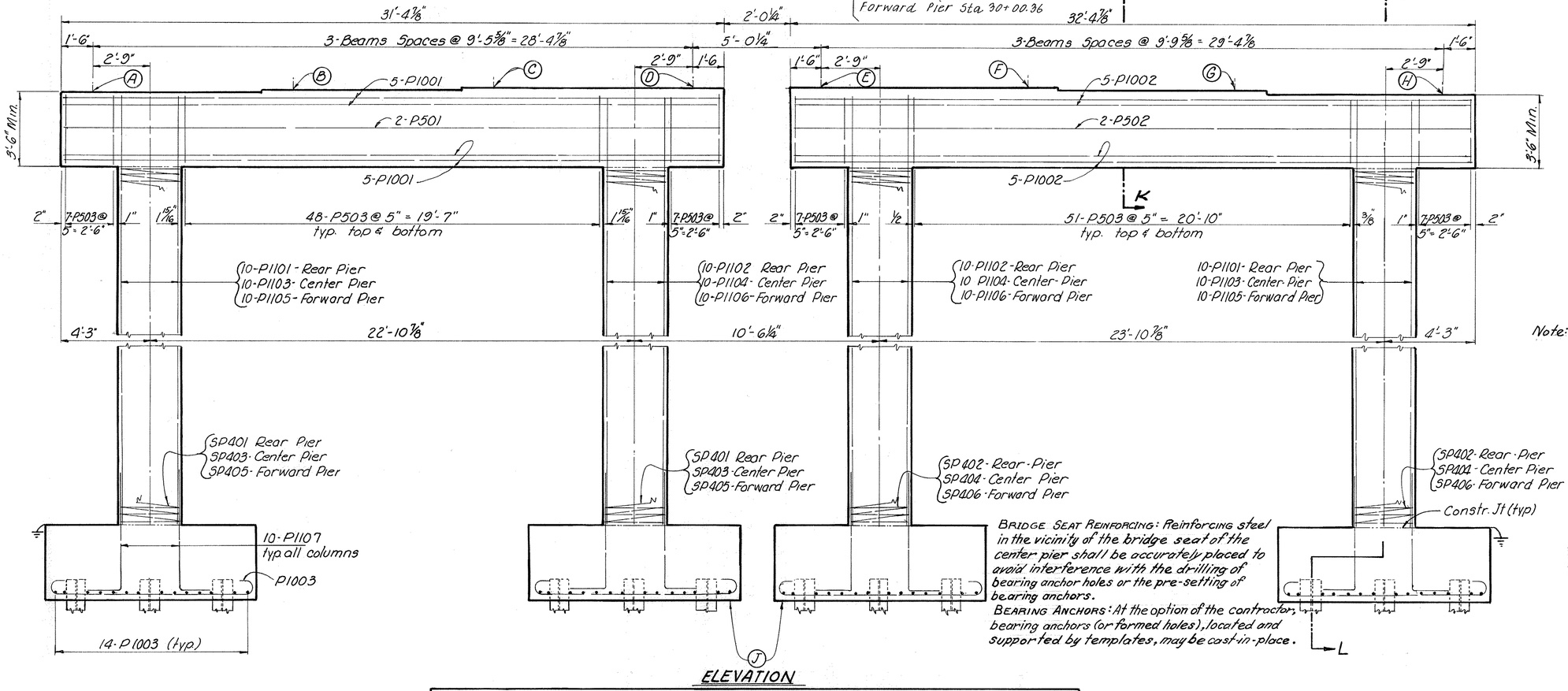
NOTE: All piles are to be HP10x42
Batter Piles 1:4 in direction of Arrows





SECTION K-K



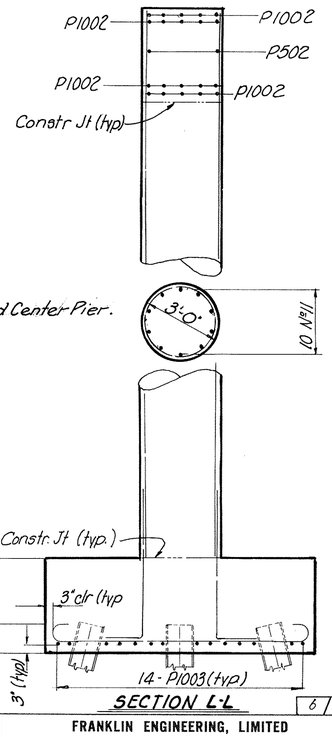
ELEVATION

TABLE OF ELEVATION									
Location	A	B	C	D	E	F	G	H	J
Rear Pier	698.04	698.17	698.30	698.28	698.27	698.27	698.10	697.93	674.69
Center Pier	696.87	697.00	697.13	697.11	697.10	697.10	696.93	696.76	675.66
Forward Pier	695.55	695.68	695.81	695.78	695.77	695.78	695.61	695.44	674.42

BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat of the center pier shall be accurately placed to avoid interference with the drilling of bearing anchor holes or the pre-setting of bearing anchors.

BEARING ANCHORS: At the option of the contractor, bearing anchors (or formed holes), located and supported by templates, may be cast-in-place.

NOTE: All reinforcing steel in footings to clear concrete surfaces by 3 inches.
For Structure Grounding see Standard Construction Drawing HL-7



SECTION L-L

6 9

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PIER DETAILS

BRIDGE Nº ATH-33-1757
UNDER SR-682

ATHENS COUNTY USR-33

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M.G.					4/14-70	

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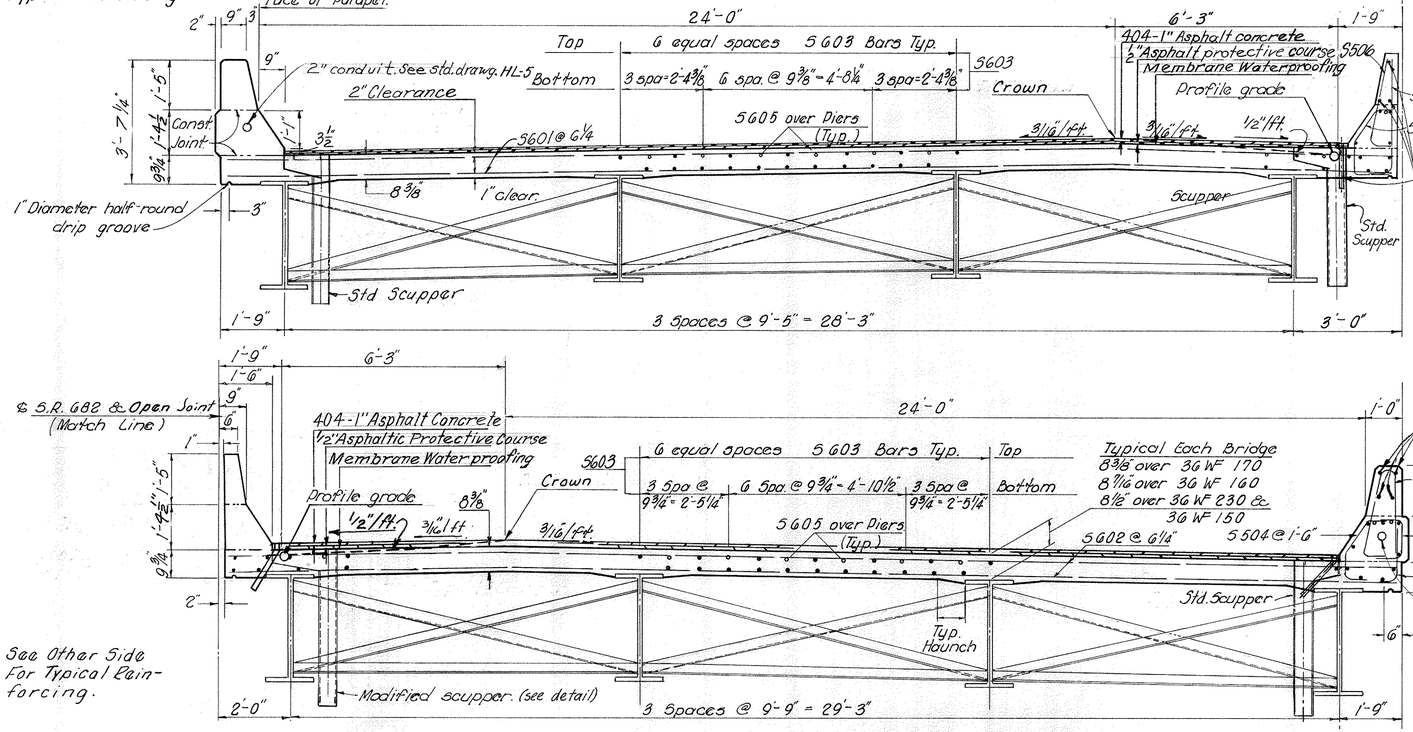


TRANSVERSE SECTIONS

℄ S.R. 682 & Open Joint (Match Line)

5505, 5506 & 5513 Spaced @ 10" Except To Clear Joints.

See Other Side For Typical dimensions.

Parapet Bars (Typ.)
5507 @ 14'-3" Parapet Panel
5508 @ 16'-0" Parapet Panel
5509 @ 7'-0" Parapet Panel
5510 @ 6'-0" Parapet Panel

See Other Side For Typical dimensions

END DAMS & SCUPPERS: Steel bar stock utilized for end dams & 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.

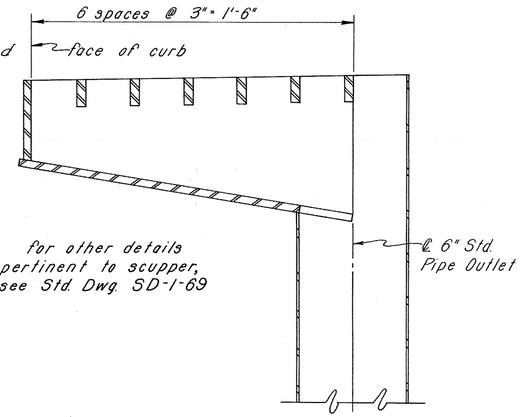
DECK SLAB DEPTH: The distances shown from the top of the deck slab to the top of steel beams are the design dimensions. The quantity of deck concrete to be paid for shall be based on these dimensions, even though deviation from them may be necessary because the top flanges of the beams may not have the exact camber or conformation required to place them parallel to finished grade.

Parapet deflection joint spacing in the concrete barrier median shall be the same as the spacing of the standard bridge railing.
Scupper on left side of concrete barrier median to be placed as shown.
Intermediate crossframe angles 3 x 3 x 5/16 Weld both sides of the vertical leg and top side of horizontal leg to beam with 1/4" continuous fillet weld.

A 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 not be more than 1:4 for a haunch less than 9" in width.

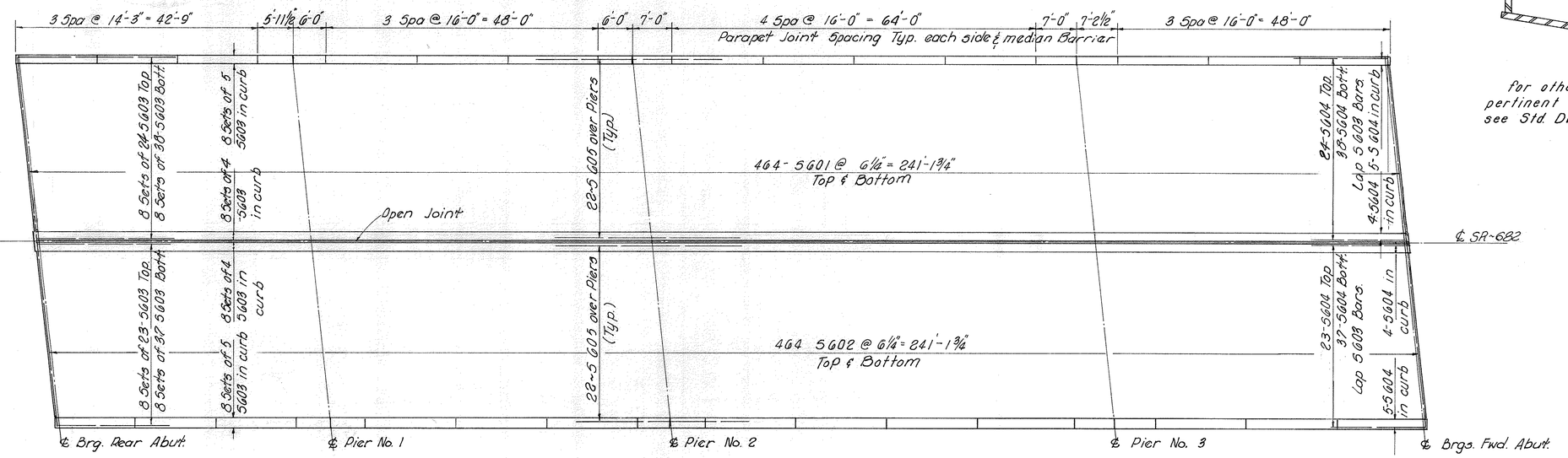
See Sheet 20B of 845 for detail of transition of Concrete Barrier.

SCUPPERS shall be in accordance with Standard Drawing SD-1-69 except that scupper pipes shall extend 8" below the bottom of the beams instead of 2".
For subdrainage details, scupper box depth dimensions and vertical location of scuppers with respect to the top of asphalt, see sheet 401A, Deck Drainage Details.



For other details pertinent to scupper, see Std. Dwg. SD-1-69

MODIFIED SCUPPER



SLAB PLAN

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TRANSVERSE SECTION SLAB PLAN & DETAILS

BRIDGE No. ATH-33-1757 under SR-682

ATHENS COUNTY USR-33

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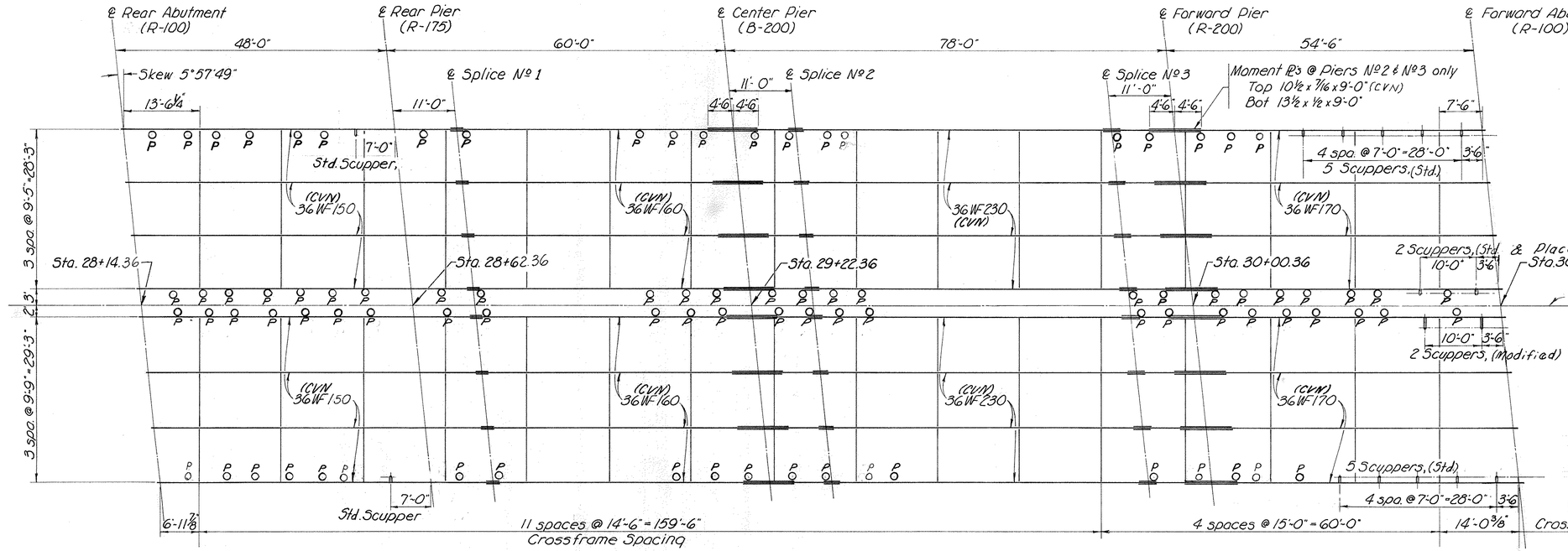


FRAMING PLAN

SUBDRAINAGE PIPE locations are indicated ○P. See 401A for additional location restrictions.

On Section A-A sheet 1 of 4 standard Drawing SD-1-69, the 3" dimension for the 2"x ½" anchor bars must be 3 3/8". End Dam edge bars shall be 2"x 1½".

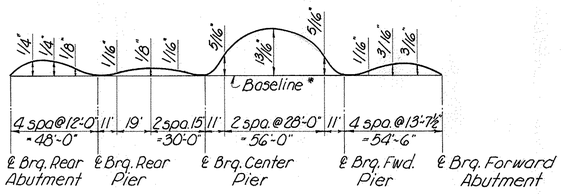
STEEL ERECTION: During the erection of end dams and crossframes care shall be taken to insure that stringers, bearing parts and bridge seats remain in bearing contact.

Where "(CVN)" follows a shape or plate size designation, the material shall meet specified minimum notch toughness requirements. 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.

NOTE: For field splice No 1 see Std. Drwg SD-1-69 (dated 6-12-69) sheet No 4 of 4.

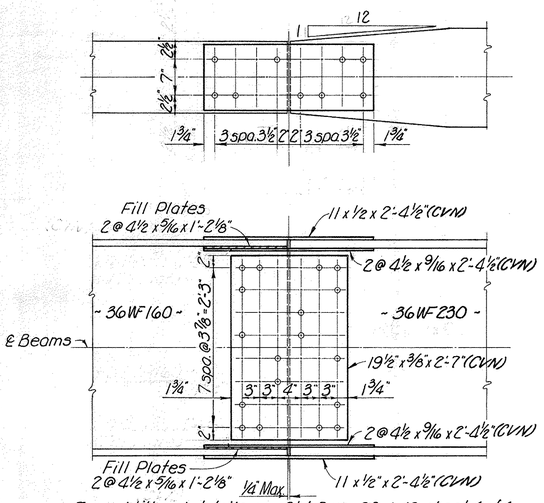
CAMBER & DEFLECTION TABLE

SPAN	SPAN Nº1			SPAN Nº2			SPAN Nº3			SPAN Nº4		
LOCATION	¼ Point	½ Point	¾ Point	Splice Point	½ Point	¾ Point	Splice Point	½ Point	Splice Point	¼ Point	½ Point	¾ Point
Deflection due to weight of steel.	1/16	1/16	0	0	0	0	1/16	3/16	1/16	0	0	0
Deflection due to remaining dead load.	3/16	3/16	1/8	1/16	1/8	1/16	1/4	5/8	1/4	1/16	3/16	3/16
Required shop camber.	1/4	1/4	1/8	1/16	1/8	1/16	5/16	13/16	5/16	1/16	3/16	3/16



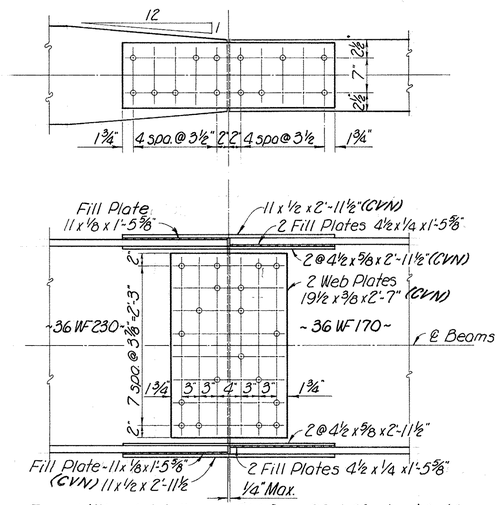
*Line thru ℄ WF Beams between ℄ bearing of abutments.

LAYOUT DIAGRAM



For additional details, see Std. Dwg. SD-1-69, sheet 4 of 4,

SPLICE Nº 2



For additional details, see Std. Dwg. SD-1-69, sheet 4 of 4.

SPLICE Nº 3

Scupper: See Sheet 7 of 9 For Detail Showing Mod. Scupper.

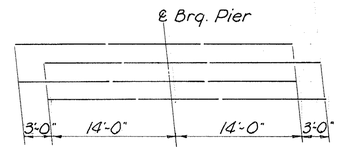


DIAGRAM SHOWING STAGGER S605 BARS OVER PIERS

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FRAMING PLAN and DETAILS

BRIDGE Nº ATH-33-1757
under SR-682

ATHENS COUNTY USR-33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AM	[illegible]		M.C.	EJ	6/14/70	7-1-74

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2	OHIO		

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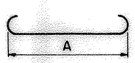
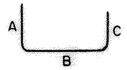
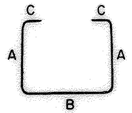


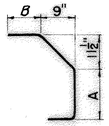
TYPE 1



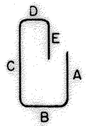
TYPE 2



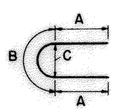
TYPE 3



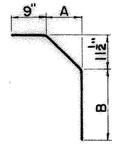
TYPE 4



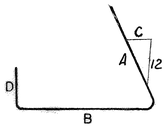
TYPE 5



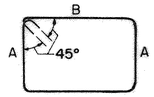
TYPE 6



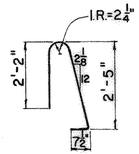
TYPE 7



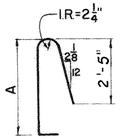
TYPE 8



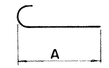
TYPE 9



TYPE 10



TYPE 11



TYPE 12

ABUTMENTS

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
A801	42	24'-2"	5						2710
A802	12	10'-8"	5						342
A803	12	11'-2"	5						358
D801	64	5'-7"	16	3'-6"					954
A701	2	4'-2"	5						17
A702	2	5'-3"	7	2½"	3'-6"				22
A703	2	5'-10"	7	4"	4'-0				24
A704	2	6'-5"	7	6"	4'-6"				26
A705	2	7'-0"	7	9"	5'-0"				29
A706	2	4'-2"	5						17
A707	2	5'-2"	7	2⅛	3'-5				21
A708	2	5'-8"	7	4"	3'-10"				23
A709	2	6'-2"	7	6"	4'-3				25
A710	2	6'-8"	7	9"	4'-8"				27
A601	100	14'-2"	2	6'-7"	5'-4"	2'-7"			2128
A602	126	10'-7"	2	4'-9"	1'-5"	4'-9"			2003
A603	88	4'-11"	2	1'-11"	1'-5"	1'-11"			650
A604	88	7'-1"	2	3'-3"	11"	3'-3"			936
A605	30	7'-7"	2	3'-3"	1'-5"	3'-3"			342
A606	8	8'-7"	2	3'-9"	1'-5"	3'-9"			103
A607	16	8'-8"	5						208
A608	12	17'-10"	2	8'-6"	1'-2"	8'-6"			321
A609	4	13'-10"	2	6'-3"	1'-2"	6'-9"			83
A610	4	13'-4"	2	6'-3"	1'-2"	6'-3"			80
A611	20	6'-7"	7	0"-9"	4'-7"				198
A501	100	8'-3"	2	1'-7"	5'-4"	1'-7"			860
A502	100	7'-0"	2	6'-6"	8"	0			730
A503	100	7'-0"	2	1'-11"	3'-5"	1'-11"			730
A504	60	33'-0"	5						2065
A505	8	26'-0"	5						217
A506	4	8'-0"	5						33
A507	2	3'-2"	5						7
A508	40	2'-0"	2	7½	1'-0"	7½"			83
A509	40	3'-0"	5						125
A510	20	6'-3"	11	3'-1"					130
A511	36	11'-6"	9	2'-4"	3'-2"				432
A512	48	12'-11	5						647
A513	4	7'-6"	5						31
A514	4	7'-3	5						30
A515	12	8'-1"	5						101
A516	8	9'-8"	5						81
A517	8	7'-6"	5						63
A518	12	7'-9"	5						97
A519	2	3'-2"	5						7
A520	2	3'-8"	5						8
A521	2	4'-2"	5						9
A522	2	4'-8"	5						10
A523	2	5'-2"	5						11
A524	20	5'-10"	5						122
A525	4	8'-7"	2	1'-7"	5'-8"	1'-7"			36
A526	2	3'-7"	5						8
A527	2	4'-0"	5						8
A528	2	4'-5"	5						9
A529	2	4'-10"	5						10
A530	2	5'-3"	5						11
							TOTAL		18,358

PIERS

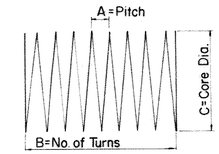
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
P1101	20	19'-7"	5						2081
P1102	20	19'-11"	5						2116
P1103	20	17'-5"	5						1851
P1104	20	17'-9"	5						1886
P1105	20	17'-4"	5						1842
P1106	20	17'-8"	5						1877
P1107	120	7'-10"	2	1'-6	6'-8"				4994
P1001	60	31'-0"	5						8004
P1002	60	32'-0"	5						8262
P1003	336	12'-4"	1	9'-6"					17832
P501	6	31'-0"	5						194
P502	6	32'-0"	5						200
P503	762	8'-9"	2	3'-2"	2'-8"	3'-2"			6954
SP401	2	16'-4½"	13	4½					619
SP402	2	16'-2⅛"	13	4½					615
SP403	2	14'-2½"	13	4½					542
SP404	2	14'-1⅛"	13	4½					538
SP405	2	14'-1½"	13	4½					539
SP406	2	14'-0⅛"	13	4½					538
								TOTAL	61,484

SUPERSTRUCTURES

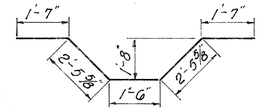
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
S601	928	32'-6"	5						45300
S602	928	32'-6"	5						45300
S603	1120	30'-0"	5						50467
S604	140	17'-0"	5						3575
S605	132	31'-0"	5						6146
S501	324	5'-4"	10						1802
S502	324	2'-0"	2	7½	1'-0	7½			677
S503	324	2'-1"	2	1'-7"	7½	0			704
S504	324	3'-3"	4	9"	9"				1098
S505	582	3'-8"	2	3'-2"	7½"	0			2226
S506	582	2'-10"	8	5½"	2'-6"	2⅛	0		1720
S507	42	13'-11"	5						610
S508	140	15'-8"	5						2288
S509	42	6'-8"	5						292
S510	42	5'-8"	5						248
S513	582	2'-10"	4	9"	3½"				1720
L505	8	2'-10"	2	7½"	1'-10"	7½"			24
L506	8	8'-5"	17	2'-4"	3'-2"	3'-2"	6½"		70
L507	12	7'-3"	18	1'-10"	1'-4"	1'-10"	6"		91
L508	8	3'-2"	8						26
								TOTAL	164,384



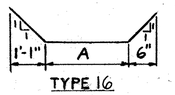
TYPE 14



TYPE 13



TYPE 15



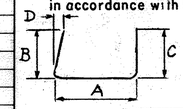
TYPE 16

NOTES:

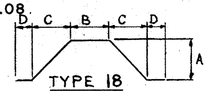
SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus three turns (total number of closed coils), expressed as the nearest whole number.

1½ closed coils shall be provided at the ends of each spiral unit. Four steel channels, tee or angle spacers, weighing approximatly 0.68 lbs. per lin. ft. of spacers, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lbs. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

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 additional steel, spliced in accordance with 509.08.



TYPE 17



TYPE 18

9/9

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

REINFORCING STEEL

BRIDGE Nº ATH-33-1757
UNDER SR-682

ATHEN COUNTY USR-33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			M.C	JF	4/14-70	