

**GENERAL NOTES:**

N.M.W.S. denotes Non Metallic Waterstop.  
 J.W.P. denotes Joint Waterproofing; N.F. denotes Near Face ;  
 F.F. denotes Far Face ; E.F. denotes Each Face.  
 For beam, molding, railing and name plate mounting details see std. sheet R11 or R12. For location of name plate, see General Plan of Structure Sheet and sheets 7 and 8. Anchor Bolts and Position Dowels shall be set accurately to a template.  
 The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of anchor bolts and position dowels.  
 Footing and subfooting concrete quantities are computed on the basis of an outline 3/4" outside of the footing outline where the concrete is poured against Steel Sheet Piling Left in Place. No additional allowance will be made in concrete or excavation quantities regardless of the steel sheet piling used.  
 Steel sheet piling left in place shall be driven to its final penetration before adjacent concrete is poured. If it is necessary to lower the top of sheeting after the concrete has been poured, the excess shall be removed by cutting.  
 Steel sheet piling left in place shall be of the continuous inter-lock type, either new or used in good condition. Weighing not less than 22 pounds per square foot of wall, and shall be furnished with suitable connecting and corner pieces. Ladle analysis and mill reports are not required for steel used in Sheet Piling.  
 Maximum average foundation pressure D.L. only = 2500 #/sq. ft. Abut. A & B  
 Maximum foundation pressure D.L. and L.L. = 2900 #/sq. ft. Abut. A & 2800 #/sq. ft. Abut. B.  
 Bridge Railing may be either aluminum or steel tubular railing on concrete parapet. See Railing Standard R11 or R12.

Work this Sheet with Sheets 7, 9 and 10

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**

**JEFFRIES FREEWAY**  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

**ABUTMENT B DETAILS**

REVISIONS

NO.	DESCRIPTION	DATE	BY

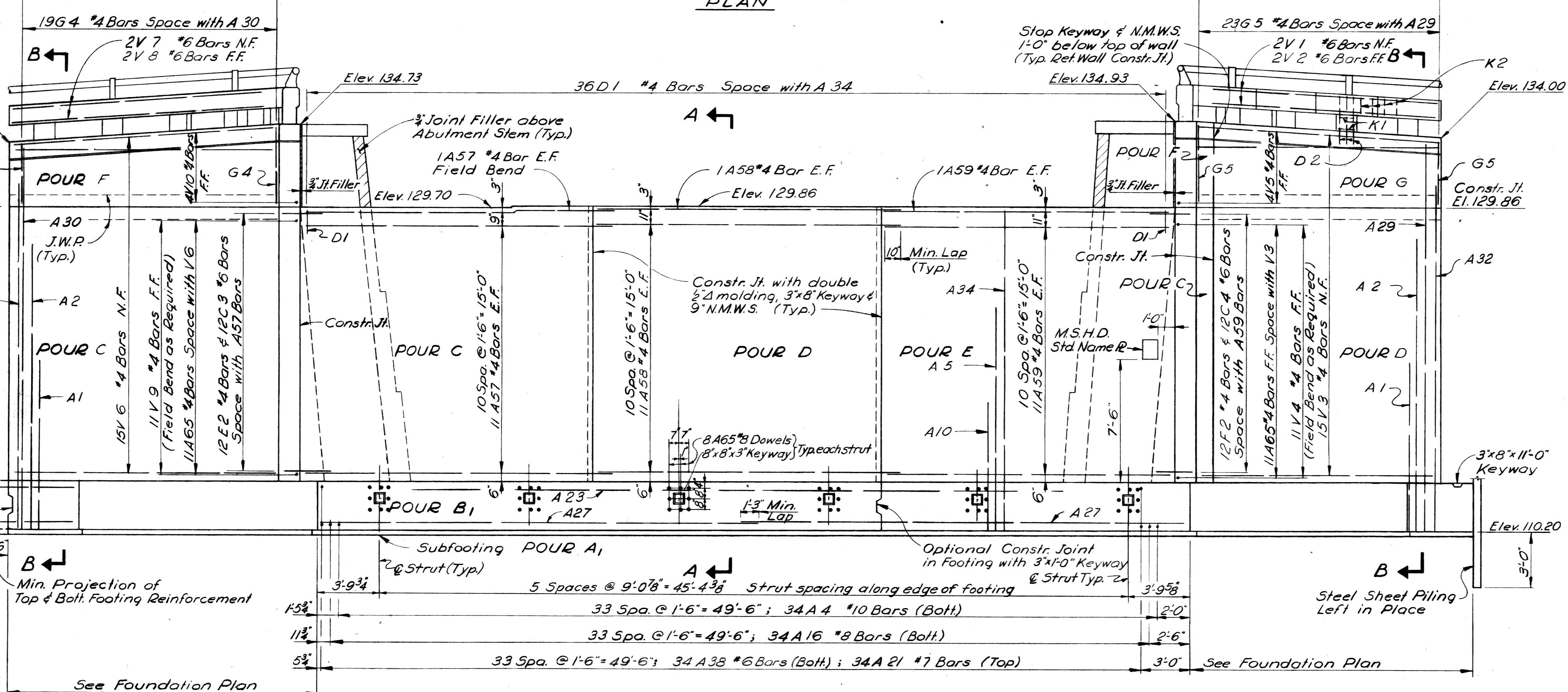
APPROVED STRUCTURAL ENGINEER

JOB No. 990(16)

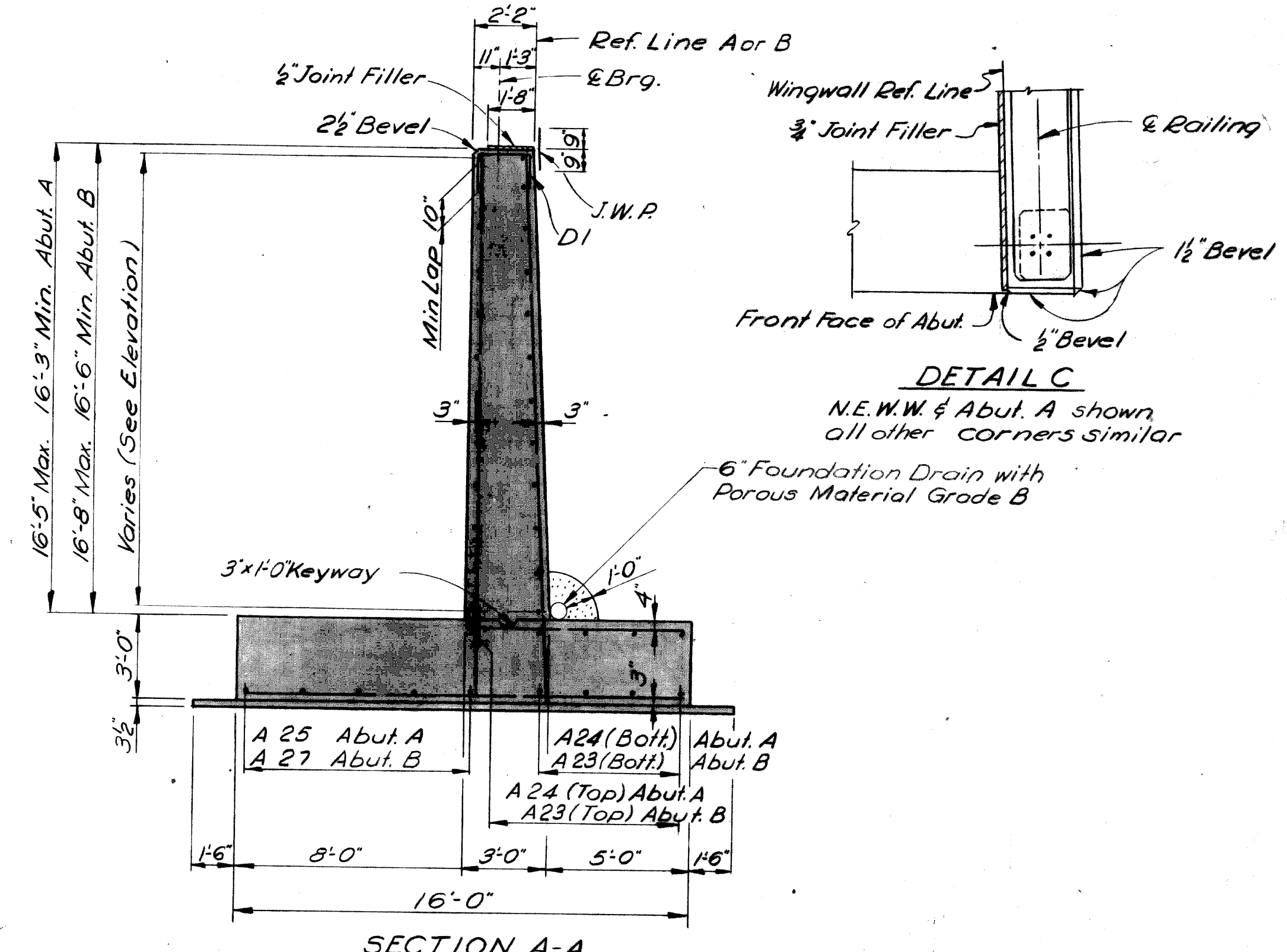
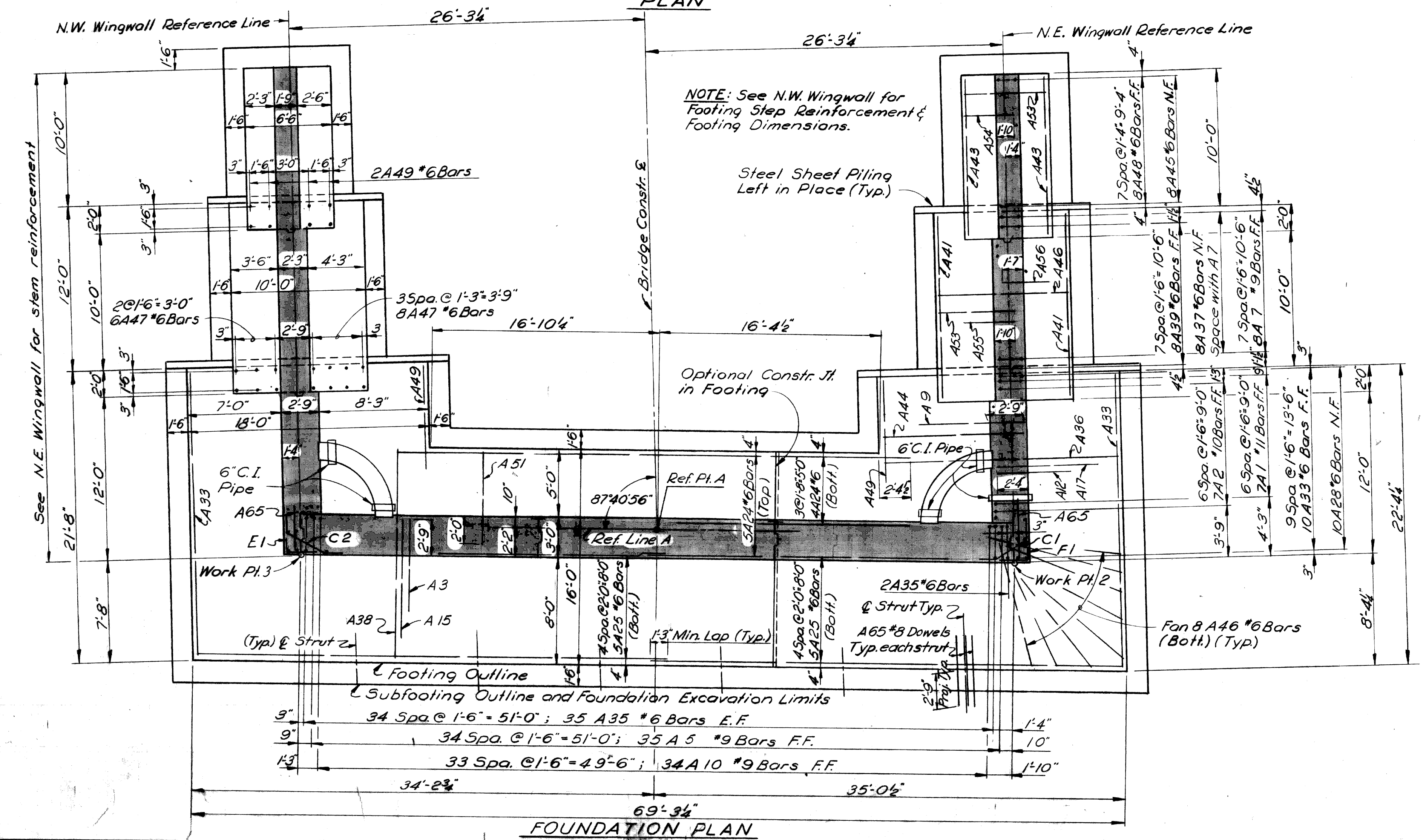
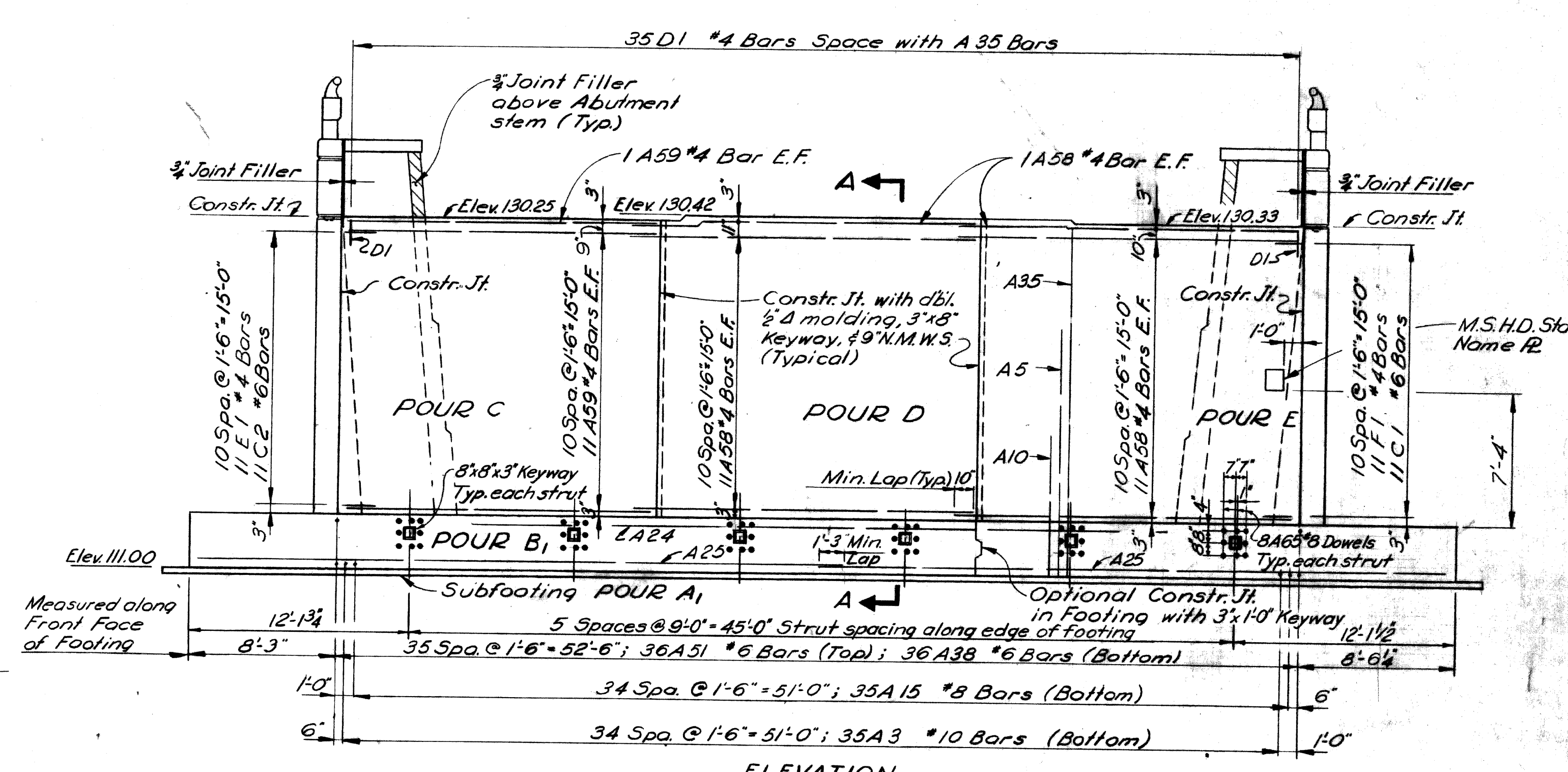
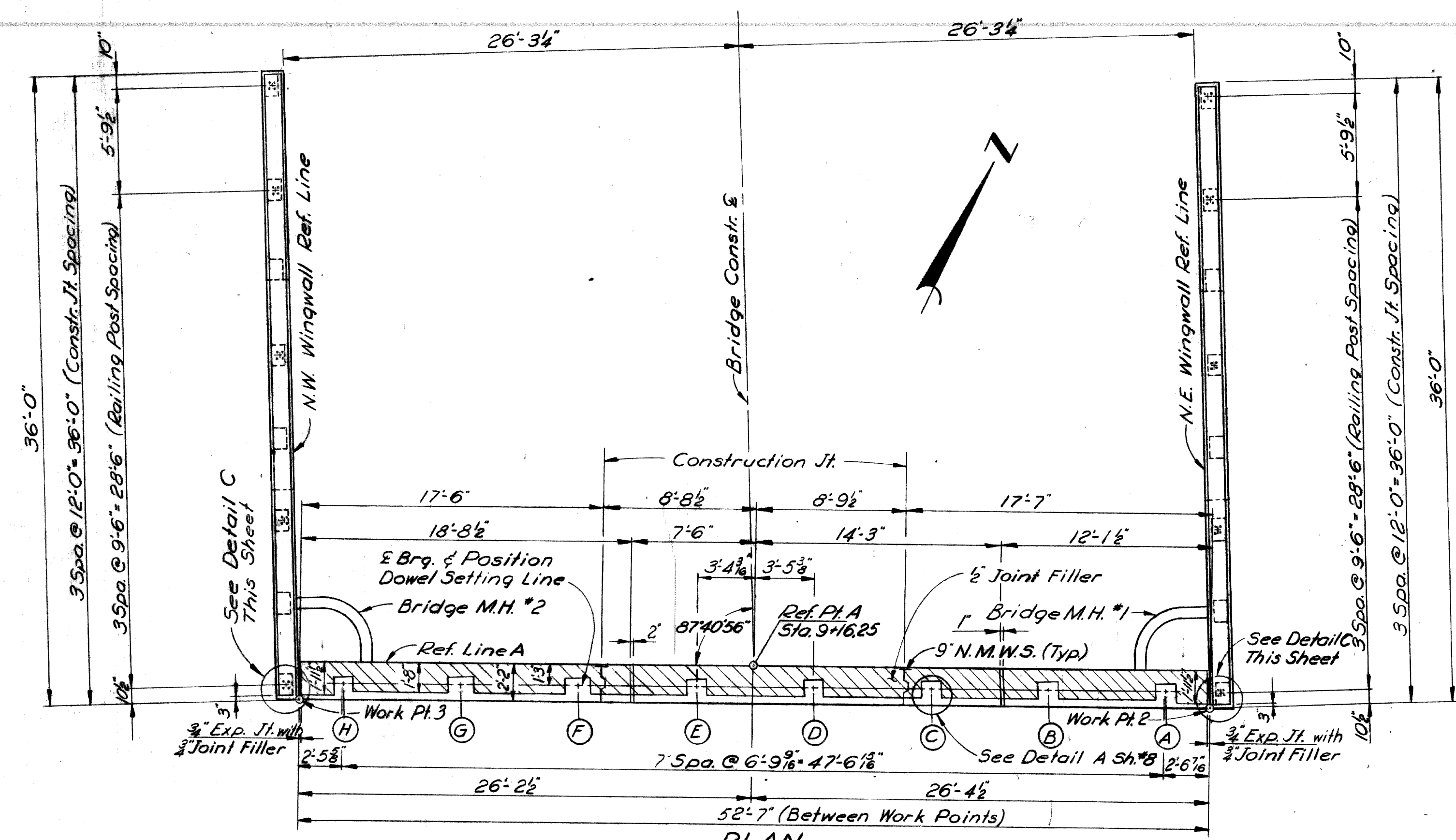
SHEET 8 OF 15

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**ELEVATION**







**MICHIGAN STATE HIGHWAY DEPARTMENT**

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

**ABUTMENT A DETAILS**

REVISIONS			
NO.	DESCRIPTION	DATE	BY

PLANS PREPARED BY  
**CITY OF DETROIT**  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]*  
STRUCTURAL ENGINEER

JOB NO.  
PW 990 (16)

CITY OF DETROIT

SQUAD BOSS	DATE
<i>[Signature]</i>	7-66
<i>[Signature]</i>	7-66

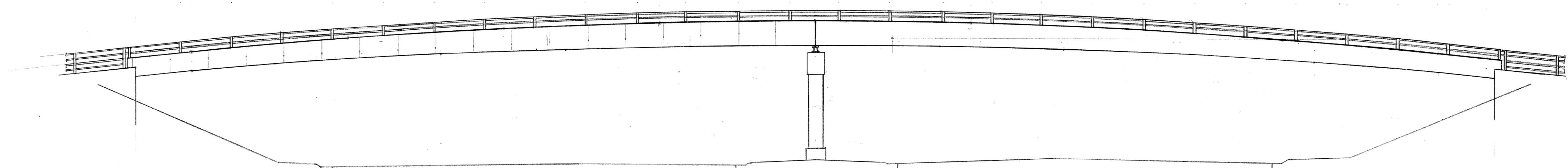
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SHEET 7 OF 15

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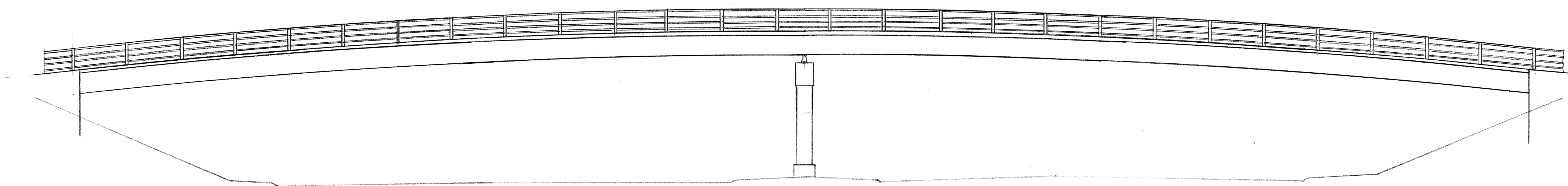








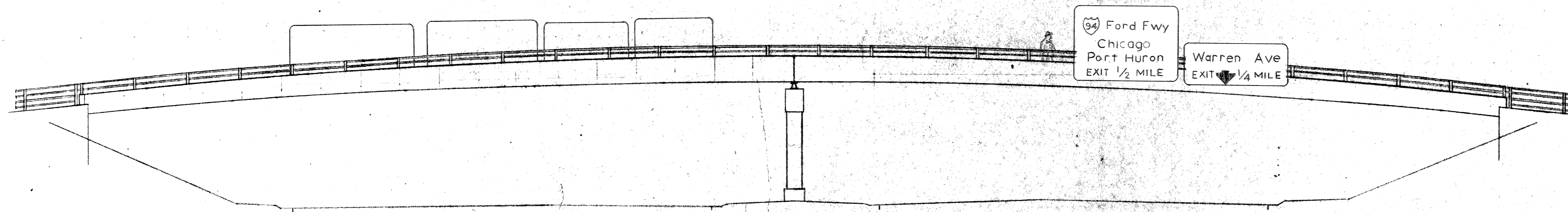
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(Through-Type Girder)



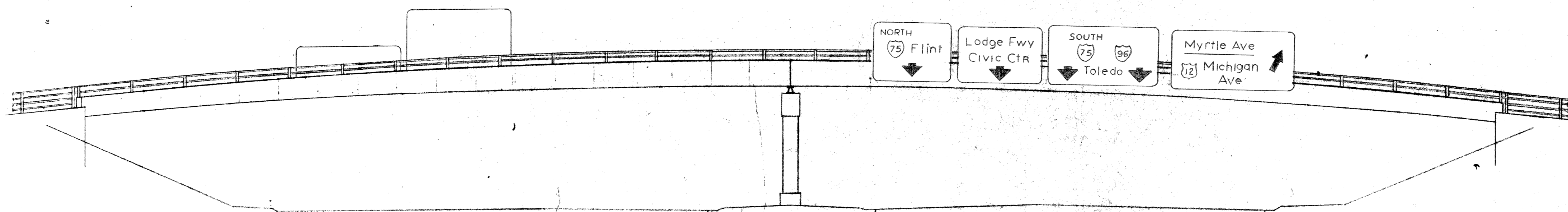
ELEVATION  
(Composite 36WF)

STUDY  
990(1)  
POI of 82.124 A  
SELDEN & JEFFRIES  
BY ZNS 4/22/66  
CHW





ELEVATION LOOKING NORTH

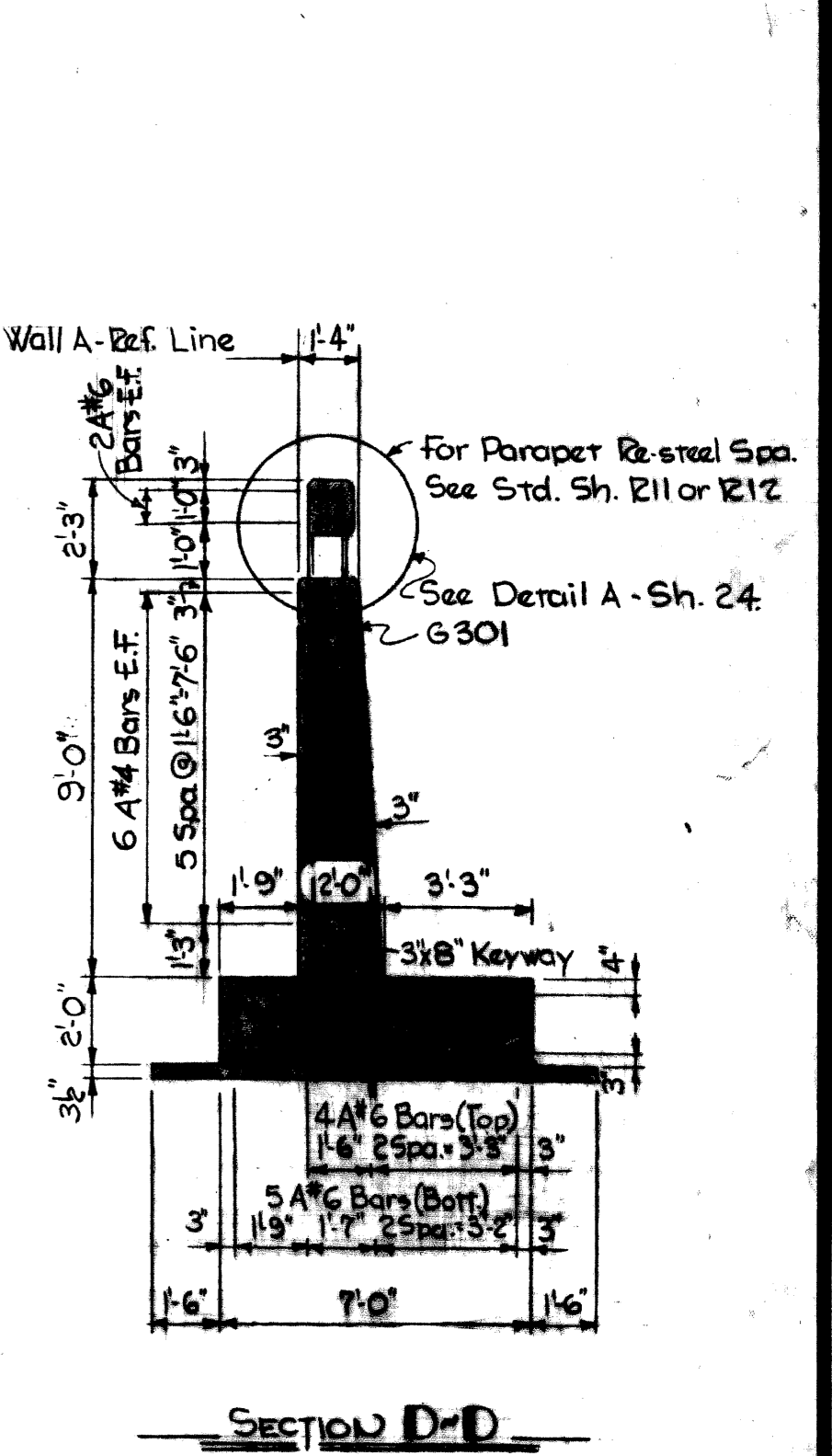
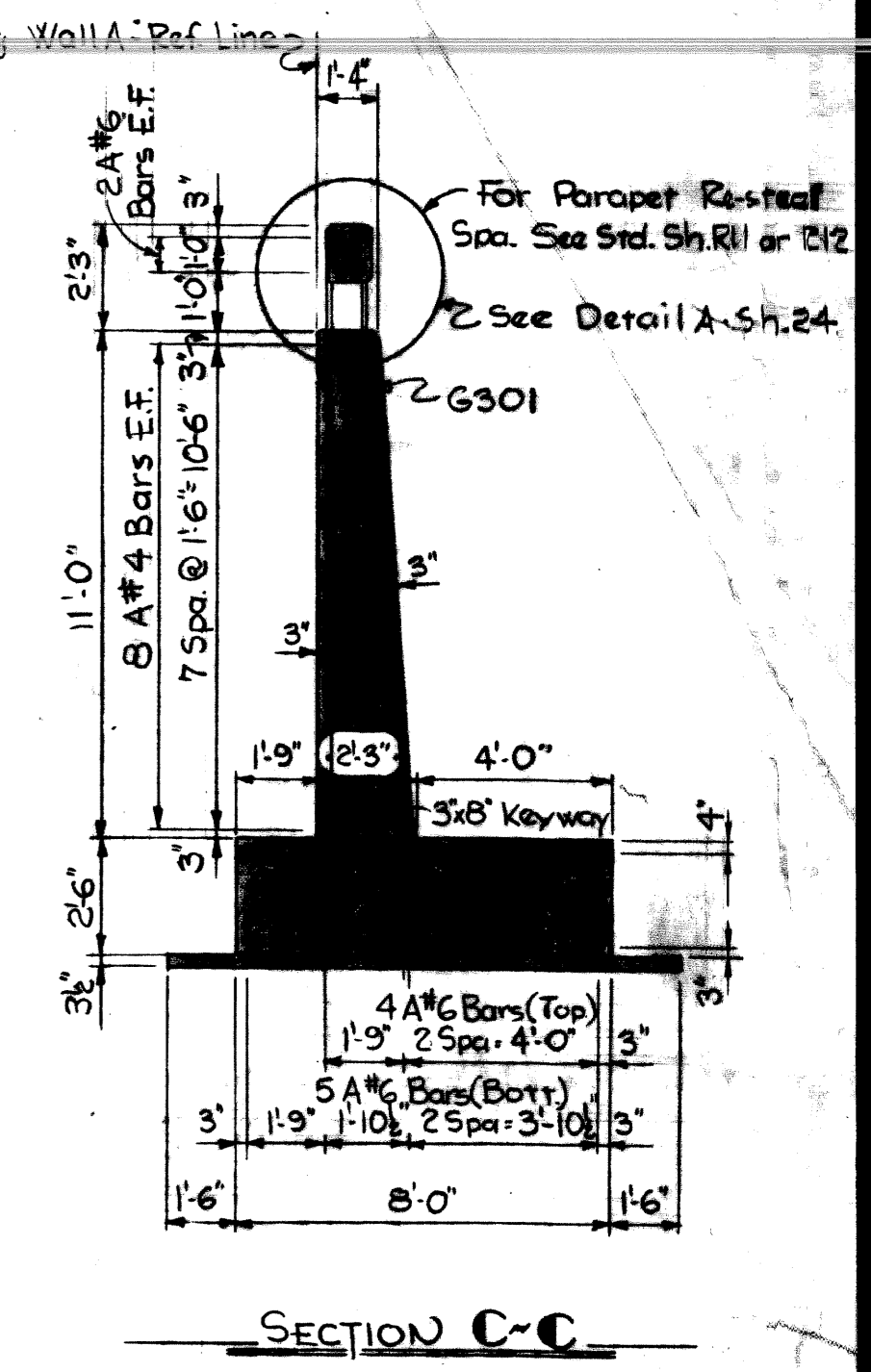
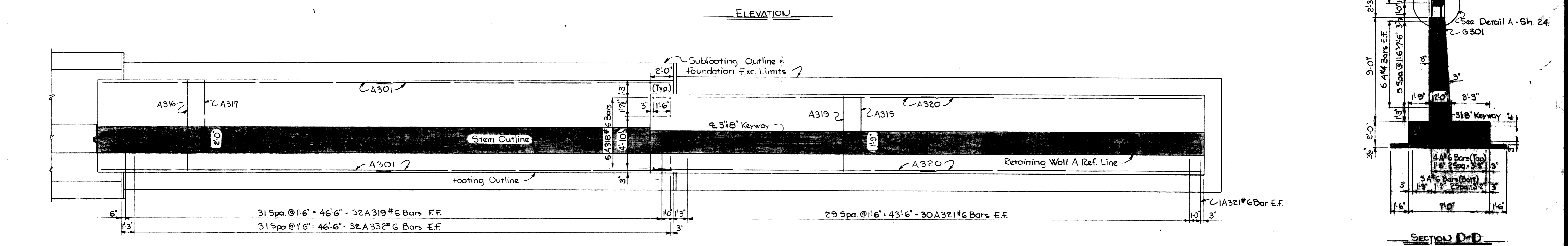
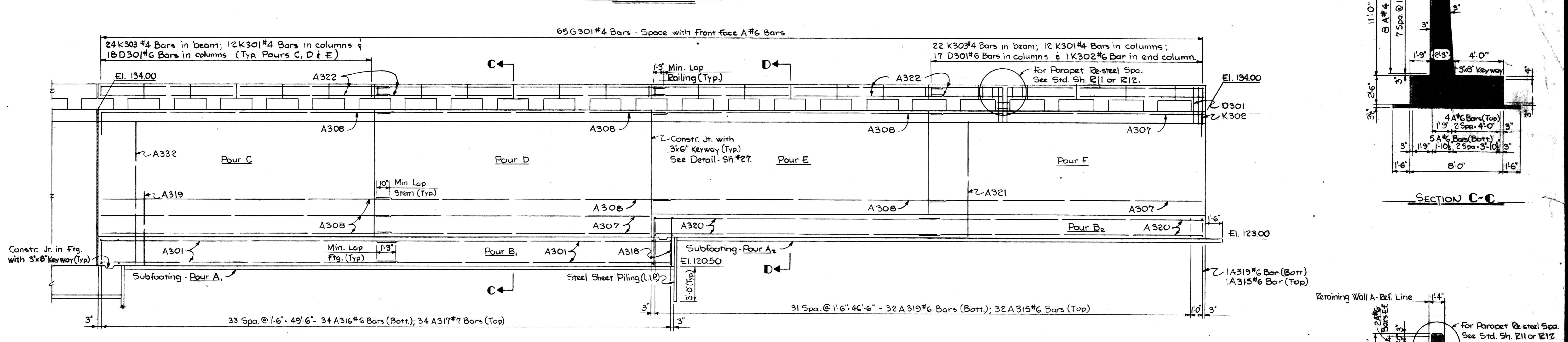
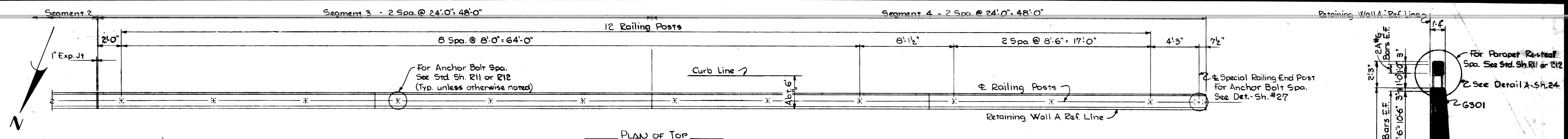


ELEVATION LOOKING SOUTH

990(1)  
 D014 821244  
 STUDY - SIGNS  
 4/21/67

3/32" = 1'-0"





CONCRETE QUANTITIES		
Pour	Grade A(GA) Cu.Yds.	Grade A(GAA) Cu.Yds.
A <sub>1</sub>	5.7	-
A <sub>2</sub>	5.1	-
B <sub>1</sub>	37.2	-
B <sub>2</sub>	24.9	-
C	-	17.5
D	-	17.5
E	-	13.4
F	-	13.4
TOTAL	72.2	61.8

PLANS PREPARED BY  
**CITY OF DETROIT**  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]* STRUCTURAL ENGINEER  
 JOB No. PW 990(16)

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**

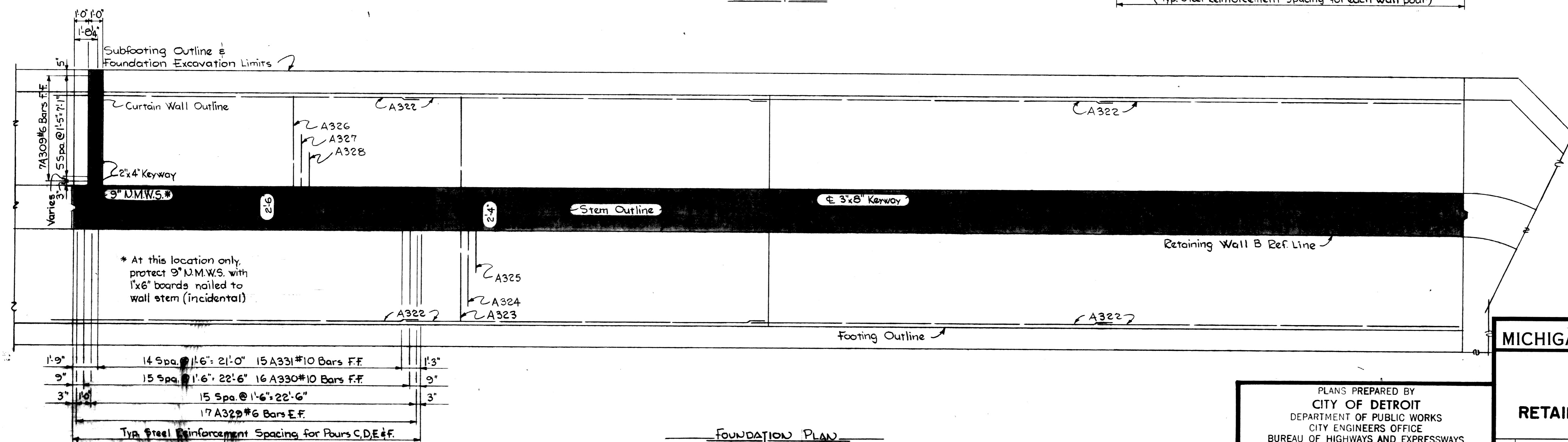
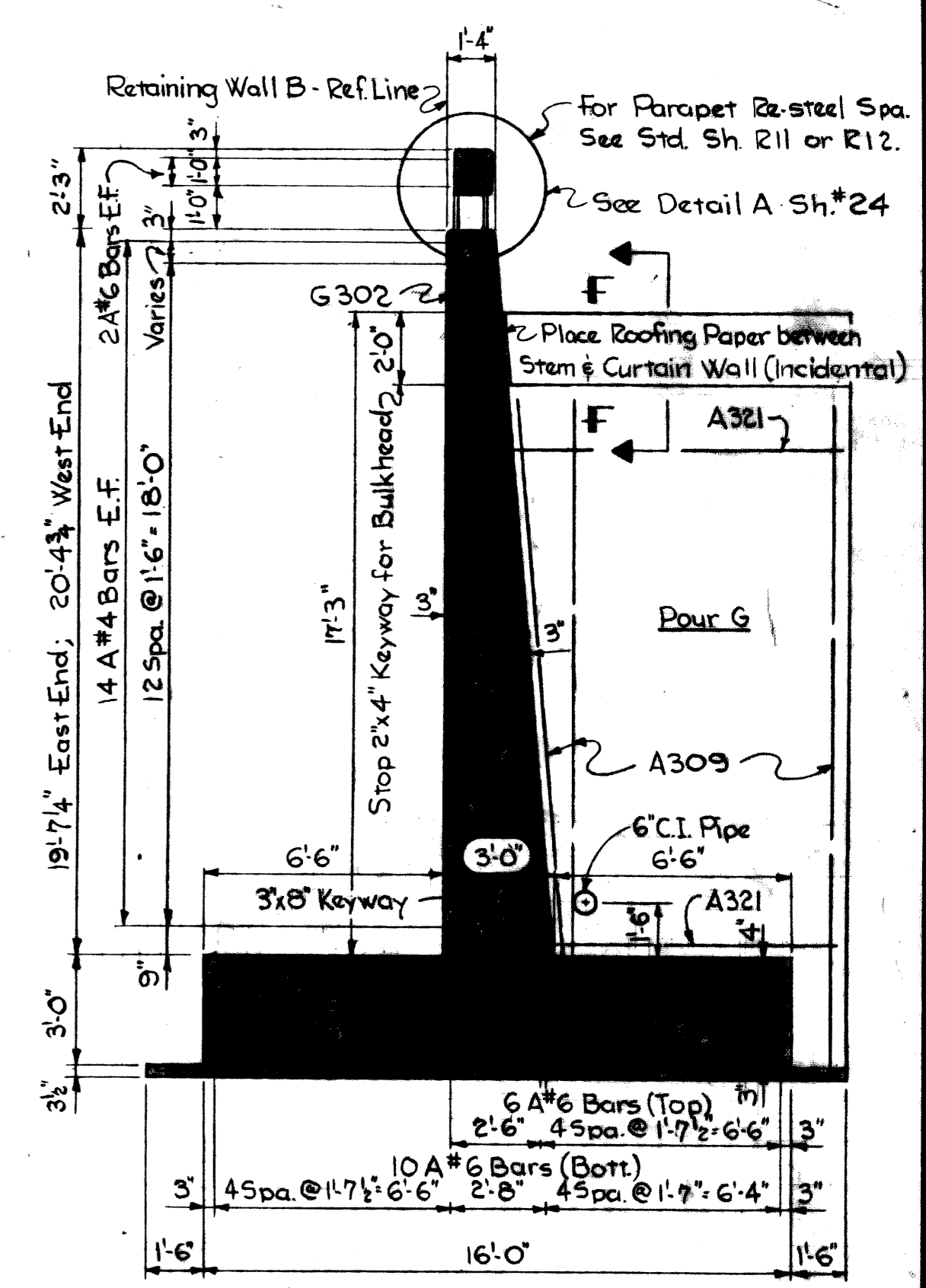
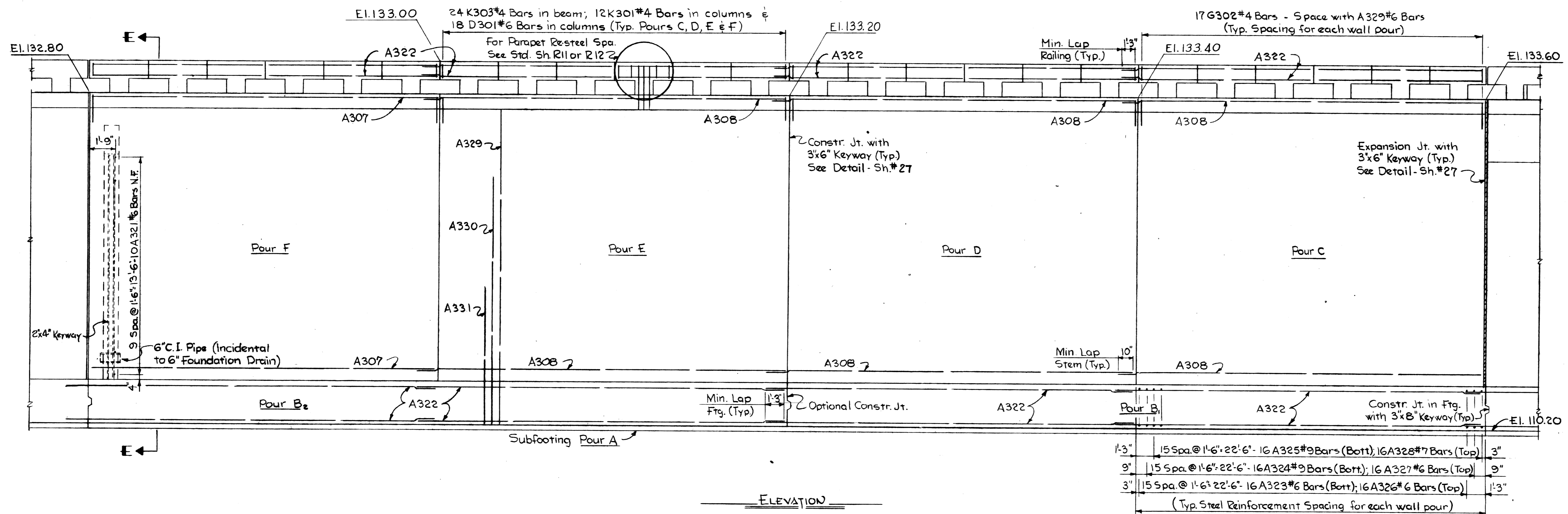
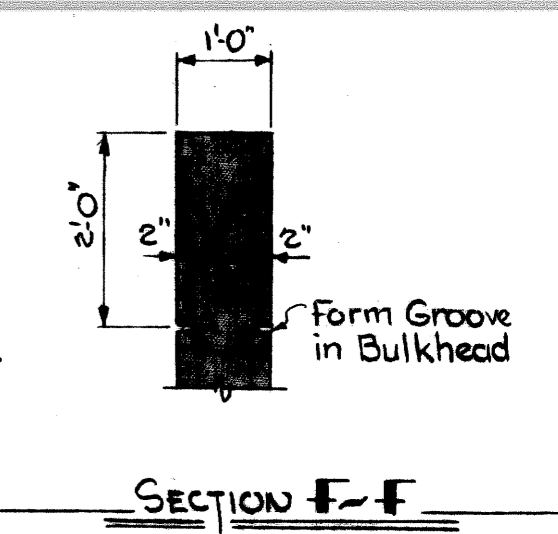
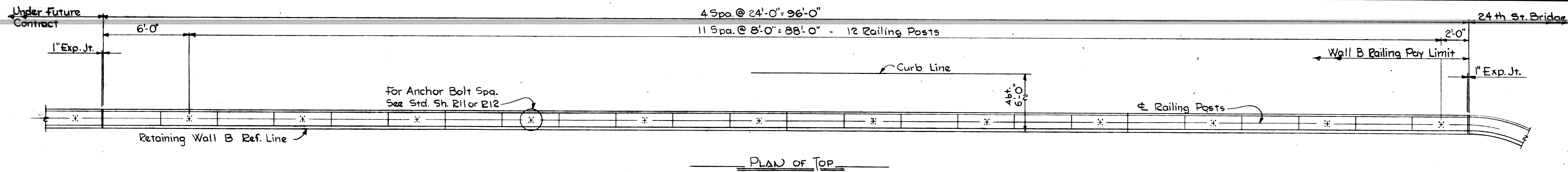
JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

**RETAINING WALL A DETAILS**

CITY OF DETROIT  
 SQUAD BOSS: *[Signature]* 5-66  
 DRAWN BY: *[Signature]* 5-66  
 CHECKED BY: W.A.L. 8/66  
 SHEET 25 OF 45

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CONCRETE QUANTITIES		
Pour	Grade A (GA) Cu. Yds.	Grade A (GAA) Cu. Yds.
A	19.6	-
B <sub>1</sub>	85.3	-
B <sub>2</sub>	85.3	-
C	-	39.2
D	-	38.9
E	-	38.5
F	-	38.2
G	-	5.7
TOTAL	190.2	160.5

PLANS PREPARED BY  
**CITY OF DETROIT**  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]*  
 STRUCTURAL ENGINEER

JOB No.  
 PW 990(16)

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**

JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

**RETAINING WALL B DETAILS**

CITY OF DETROIT

REVISIONS

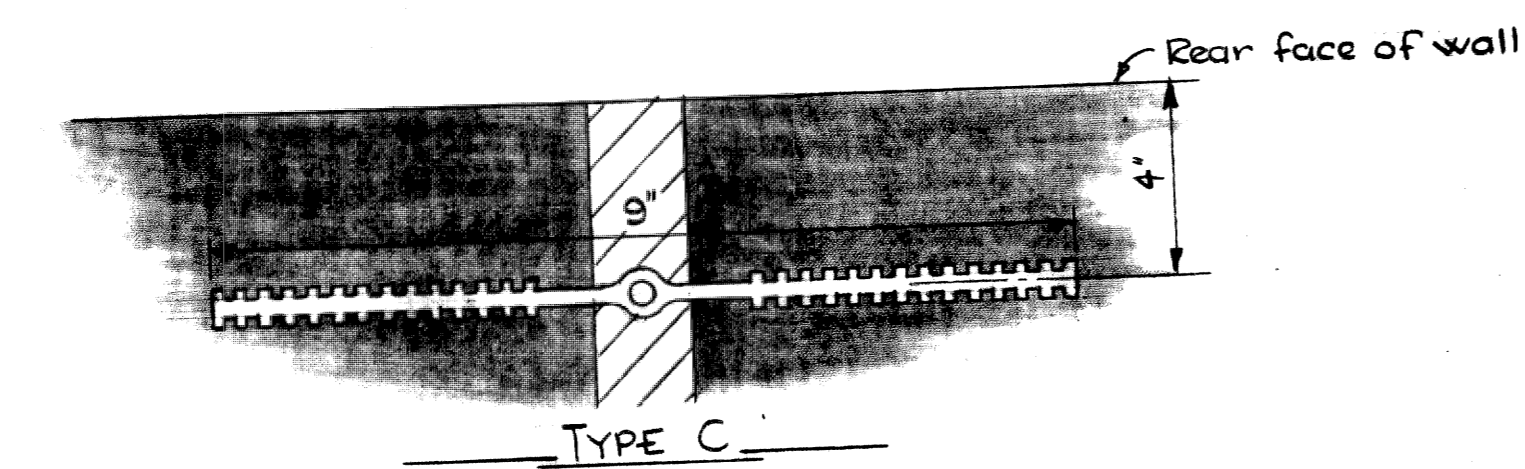
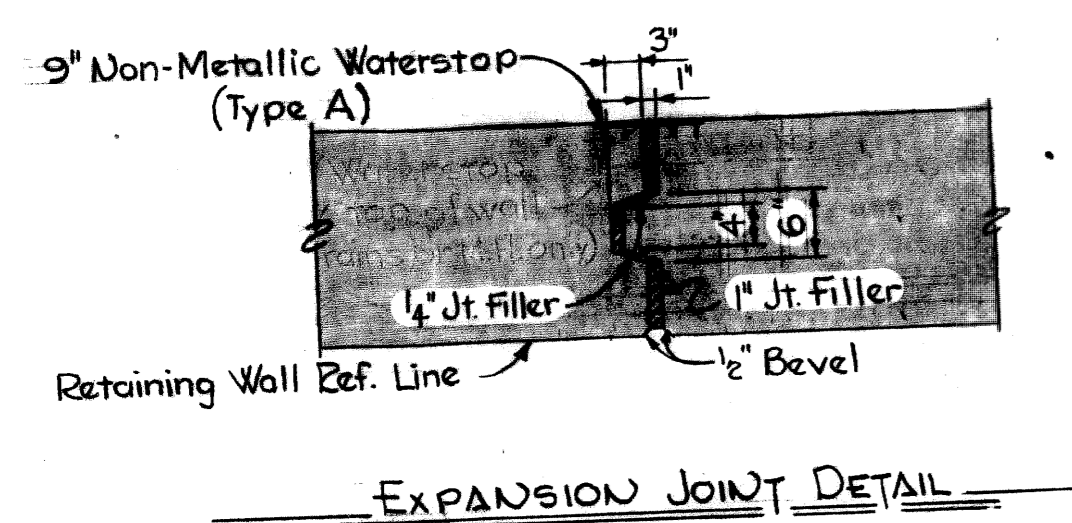
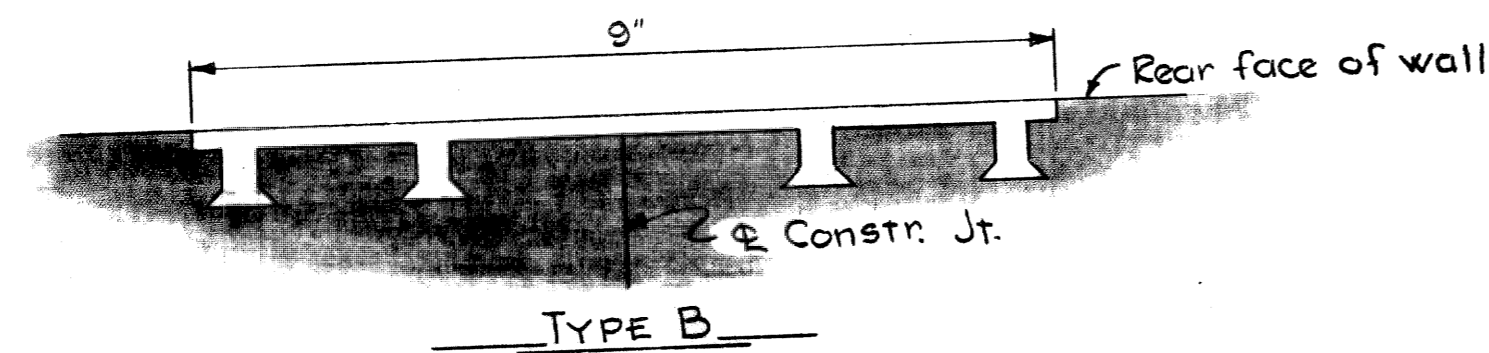
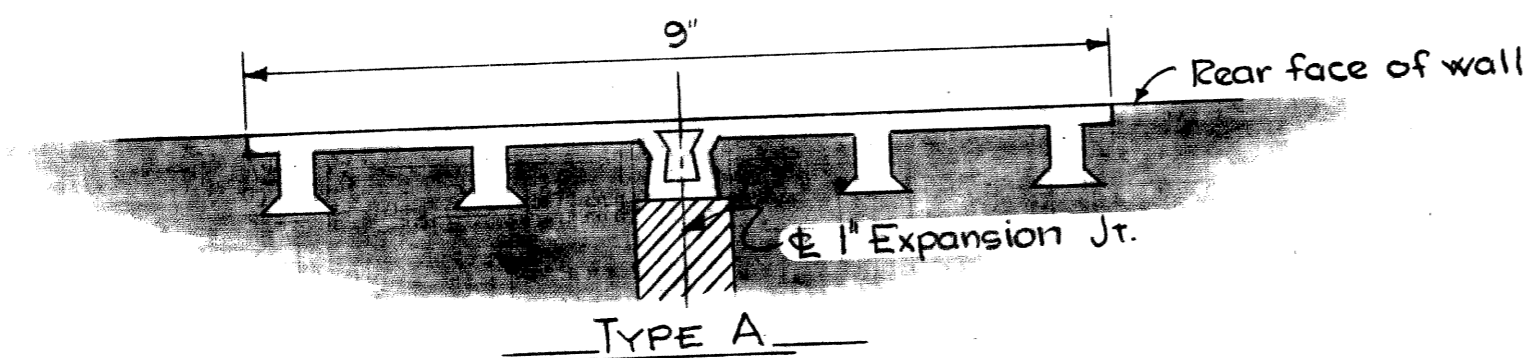
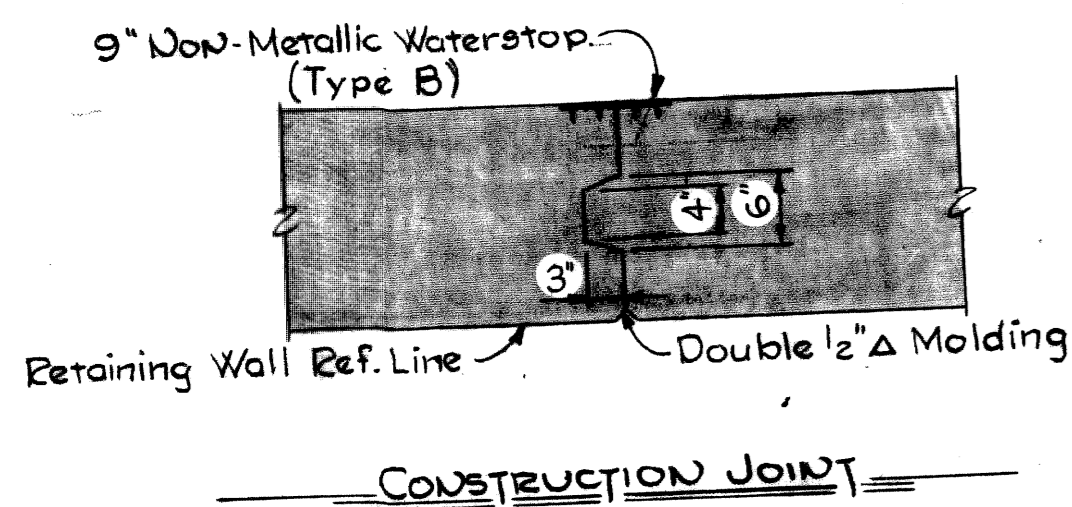
NO.	DESCRIPTION	DATE	BY

DESIGNED BY: *[Signature]* 9-66  
 DRAWN BY: *[Signature]* 5-66  
 CHECKED BY: WAL 8/66  
 SHEET 26 OF 15

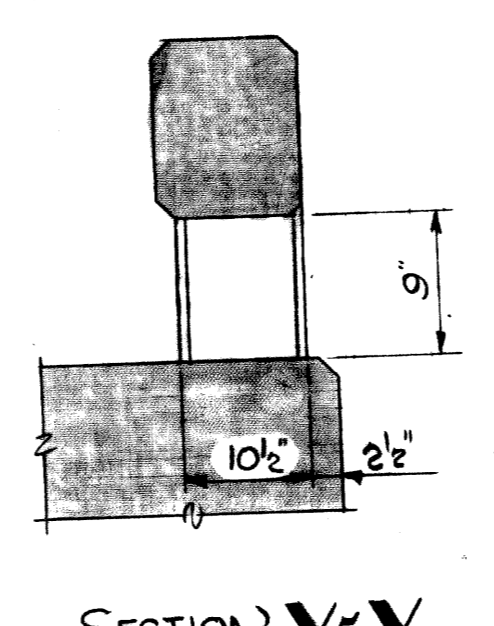
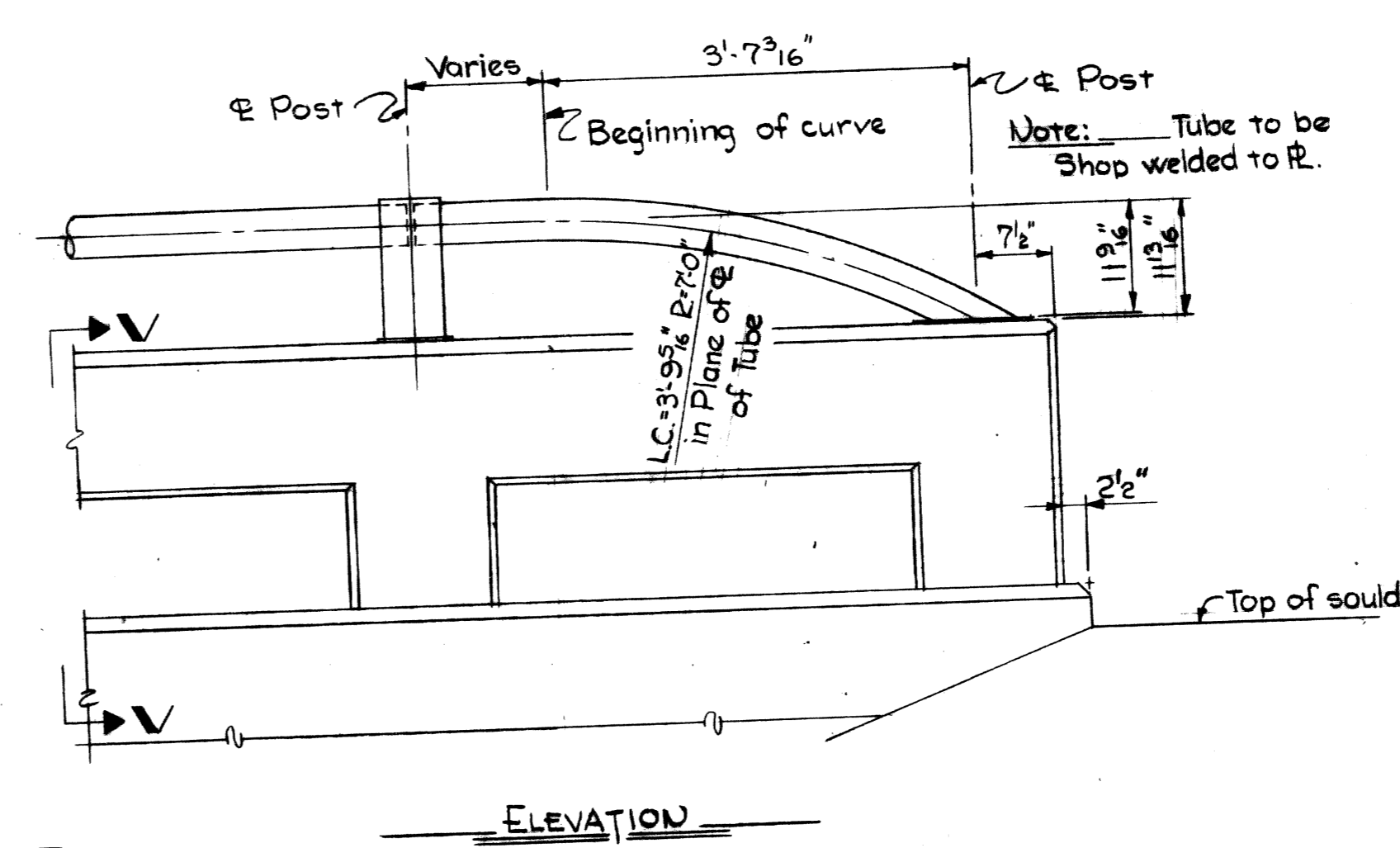
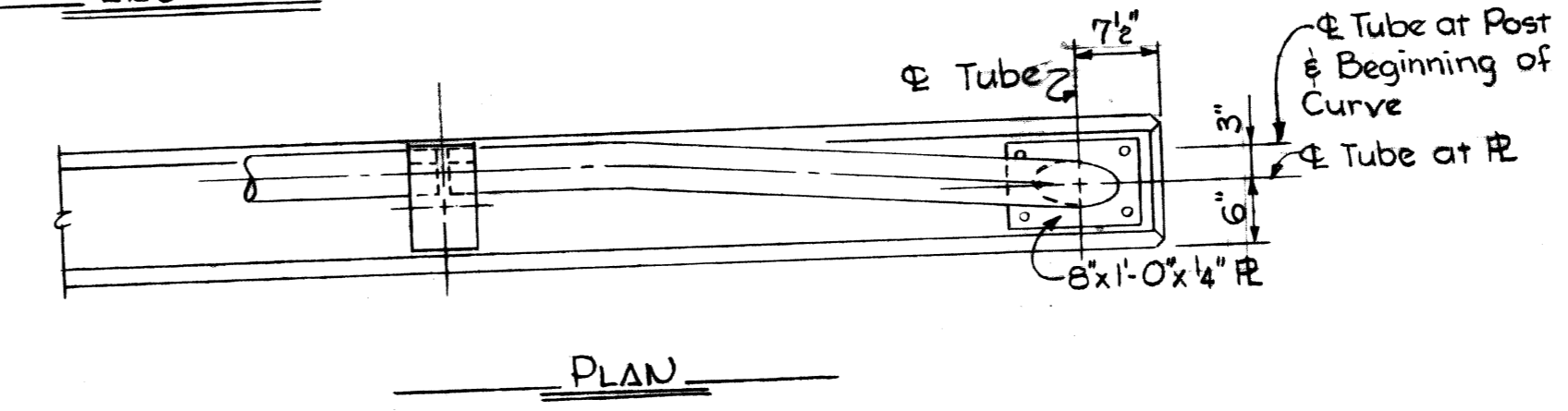
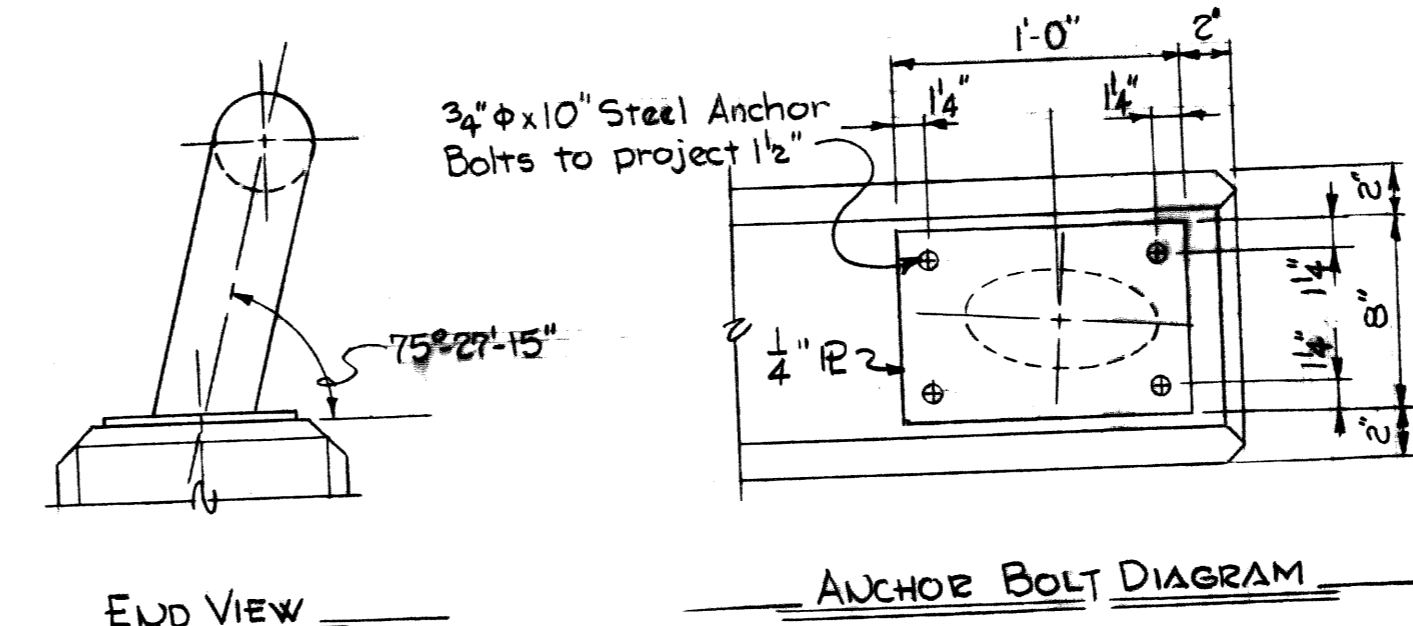
S15 of 82023A



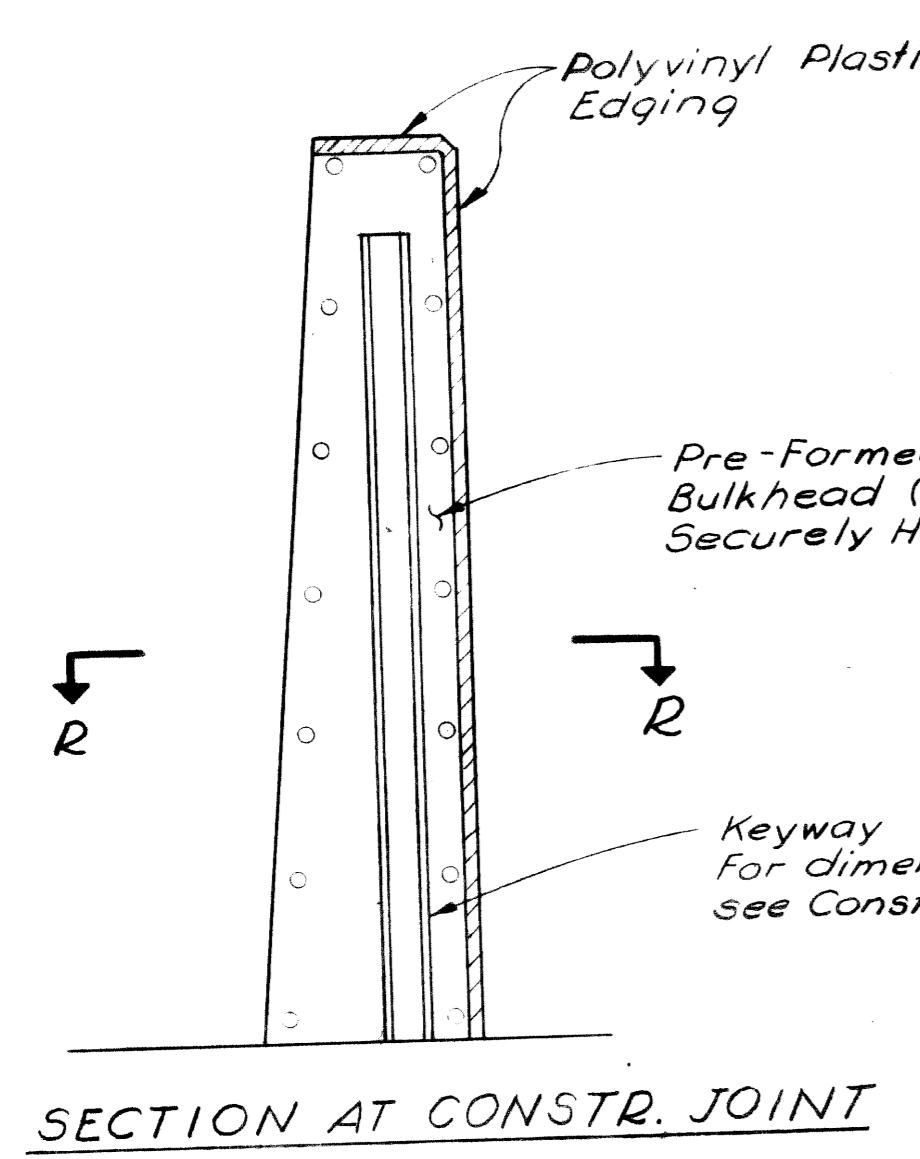
Notes:  
 Stop all Keyways 1'-0" below Top of Walls.  
 Stop all N.M.W.S. 1'-0" below Top of Walls.  
 Adjust rear face of wall to match adjacent section.



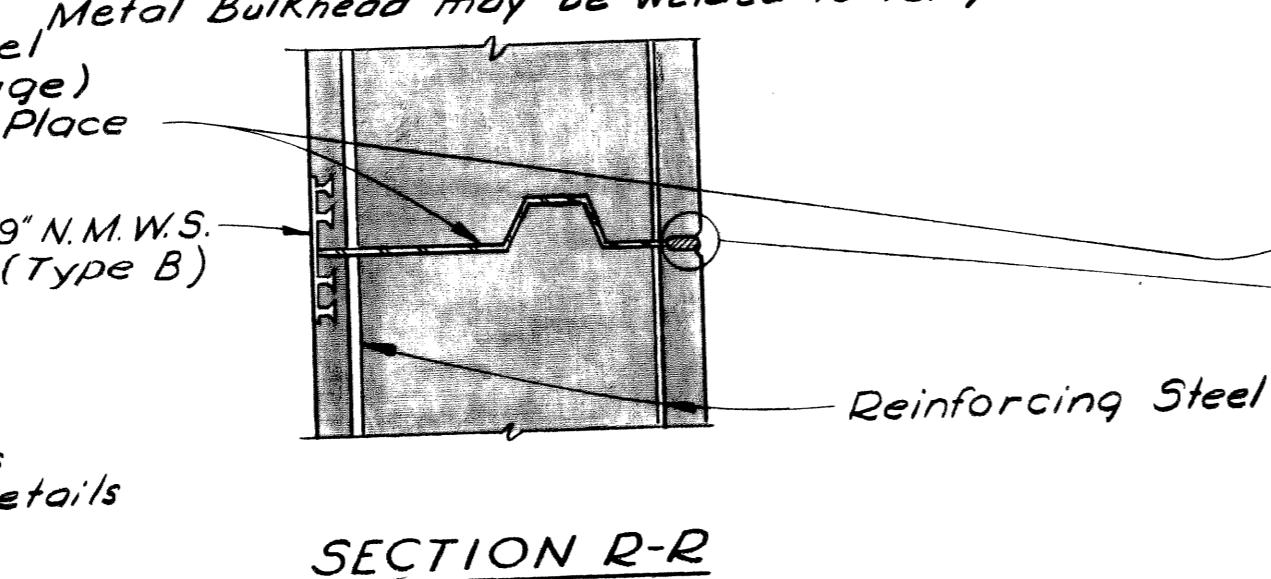
**NON-METALLIC WATERSTOP DETAILS**



**RAILING AND PARAPET DETAILS**



NOTES:  
 The metal bulkhead may be used as alternate construction joint at contractors expense.  
 Care is to be used in casting concrete around bulkhead to prevent dislocation or misalignment of the bulkhead.  
 Cut holes in metal bulkhead for reinforcing steel. Metal Bulkhead may be welded to temp. steel.



**METAL BULKHEAD FOR ABUTMENT & RETAINING WALL CONSTRUCTION JOINT**  
 Alternate

**GENERAL NOTES:**  
 N.F. denotes Near Face; F.F. denotes Far face and E.F. denotes Each Face.  
 N.M.W.S. denotes Non-Metallic Waterstop.  
 Footing and subfooting concrete quantities are computed on the basis of an outline 3/4" outside of the footing outline where the concrete is poured against steel sheet piling left in place. No additional allowance will be made in concrete or excavation quantities regardless of the steel sheet piling used.  
 Steel sheet piling left in place and temporary steel sheet piling shall be of continuous interlock type, either new or used in good condition, weighing not less than 22 pounds per square foot of wall, and shall be furnished with suitable connecting and corner pieces. Lade analysis and mill reports are not required for steel used in sheet piling.  
 Steel sheet piling left in place shall be driven to its final penetration before adjacent concrete is poured. If it is necessary to lower the top of sheeting after the concrete has been poured, the excess shall be removed by cutting.  
 Bridge railing is to be either aluminum or steel tubular railing on concrete parapet. See Railing Standard R11 or R12.

MISCELLANEOUS QUANTITIES				
Item	Unit	Wall A	Wall B	Totals
Unclassified Excavation	Cu. Yds.	712	874	1586
Steel Sheet Piling (L.I.P.)	Sq. Ft.	232	-	232
Temporary Steel Sheet Piling	Sq. Ft.	1210	2220	3430
Low Temperature Protection-Substructure	Cu. Yds.	280	331	611
1/4" Joint Filler	Sq. Ft.	22	14	36
1" Joint Filler	Sq. Ft.	67	44	111
Non-Metallic Waterstop	Sq. Ft.	51	57	108
Bridge Railing-Parapet Type-(1 Tube)	Lin. Ft.	168	96	264
6" Foundation Drains	Lin. Ft.	168	96	264
Sand Gravel Material (C.I.P.)	Cu. Yds.	500	590	1090

Parapet Concrete 16.5 Cu. Yds. Gr. A(6AA) Incidental to Bridge Railing-Parapet Type and is not a pay item.

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**

JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

PLANS PREPARED BY  
**CITY OF DETROIT**  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]* STRUCTURAL ENGINEER  
 JOB No. 990(16)

**RETAINING WALL DETAILS**

NO.	DESCRIPTION	DATE	BY

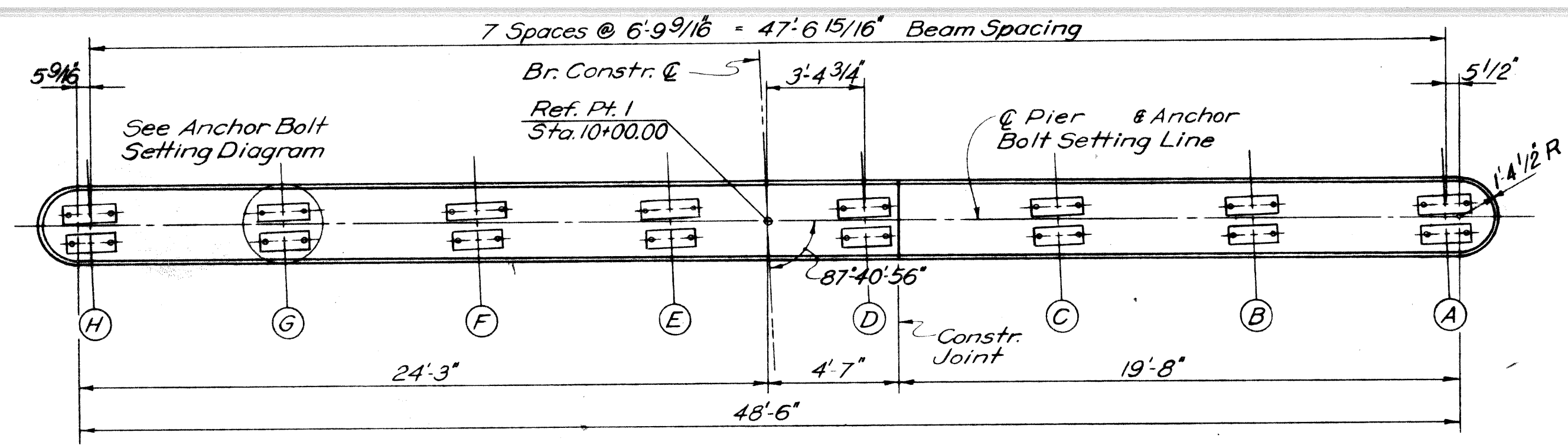
CITY OF DETROIT  
 SQUAD BOSS: *[Signature]* 5-66  
 DRAWN BY: *[Signature]* 2-66  
 CHECKED BY: *[Signature]* 8/66  
 SHEET 27 OF 25

S15 of 82023A

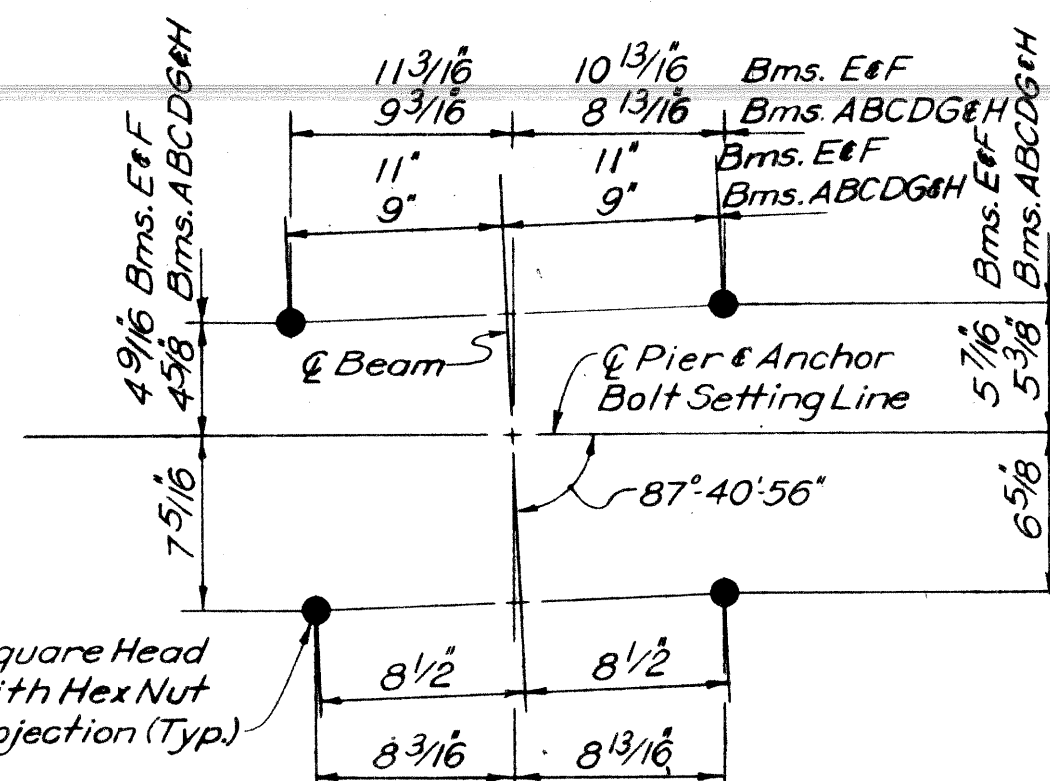
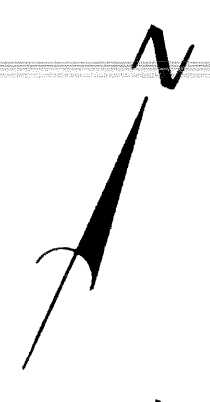




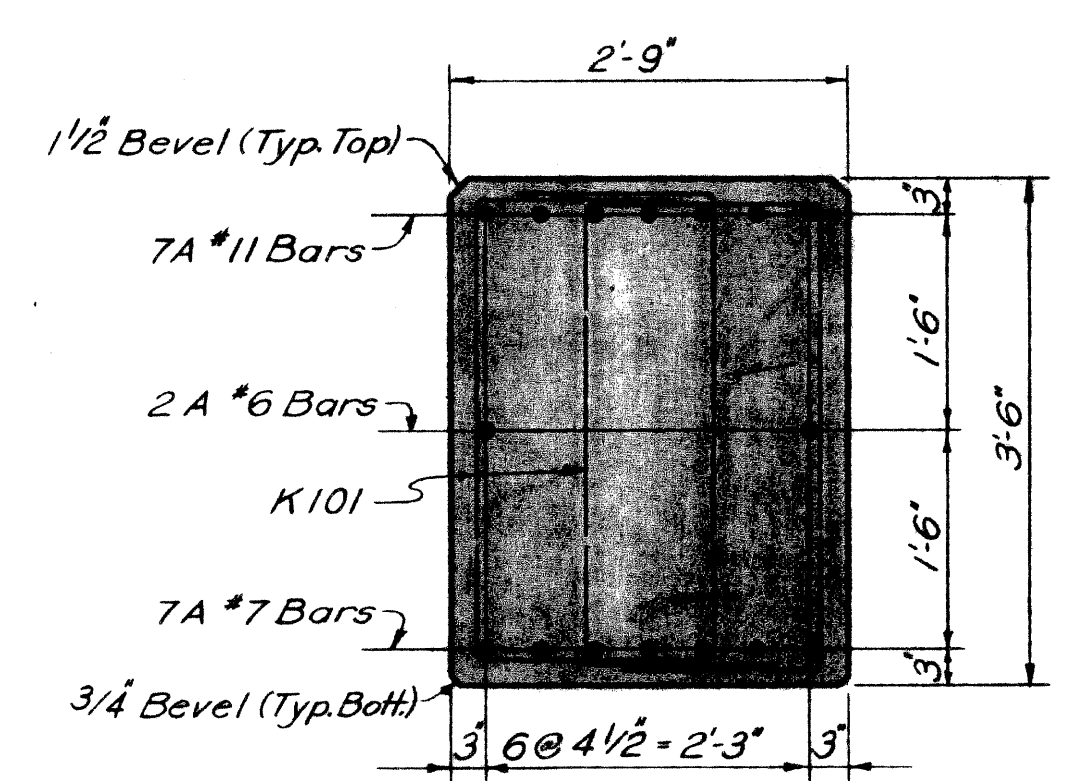




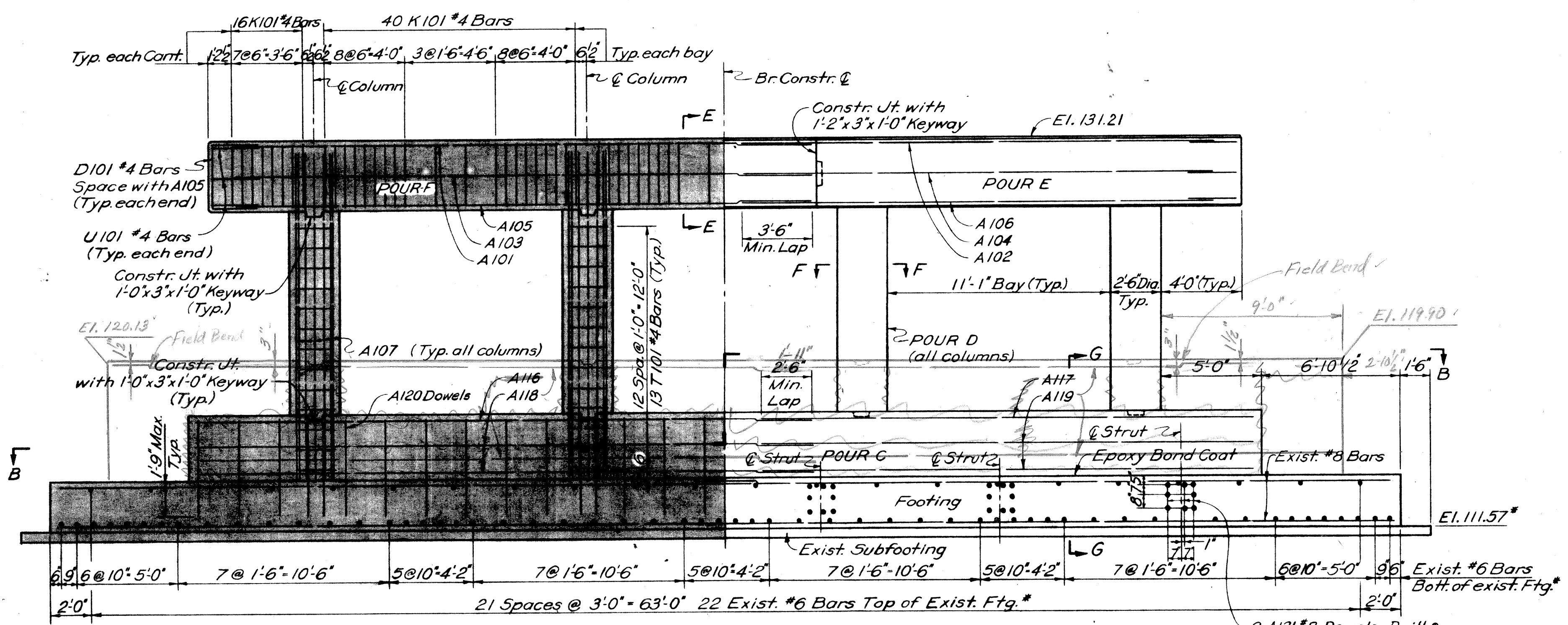
PLAN - PIER 1



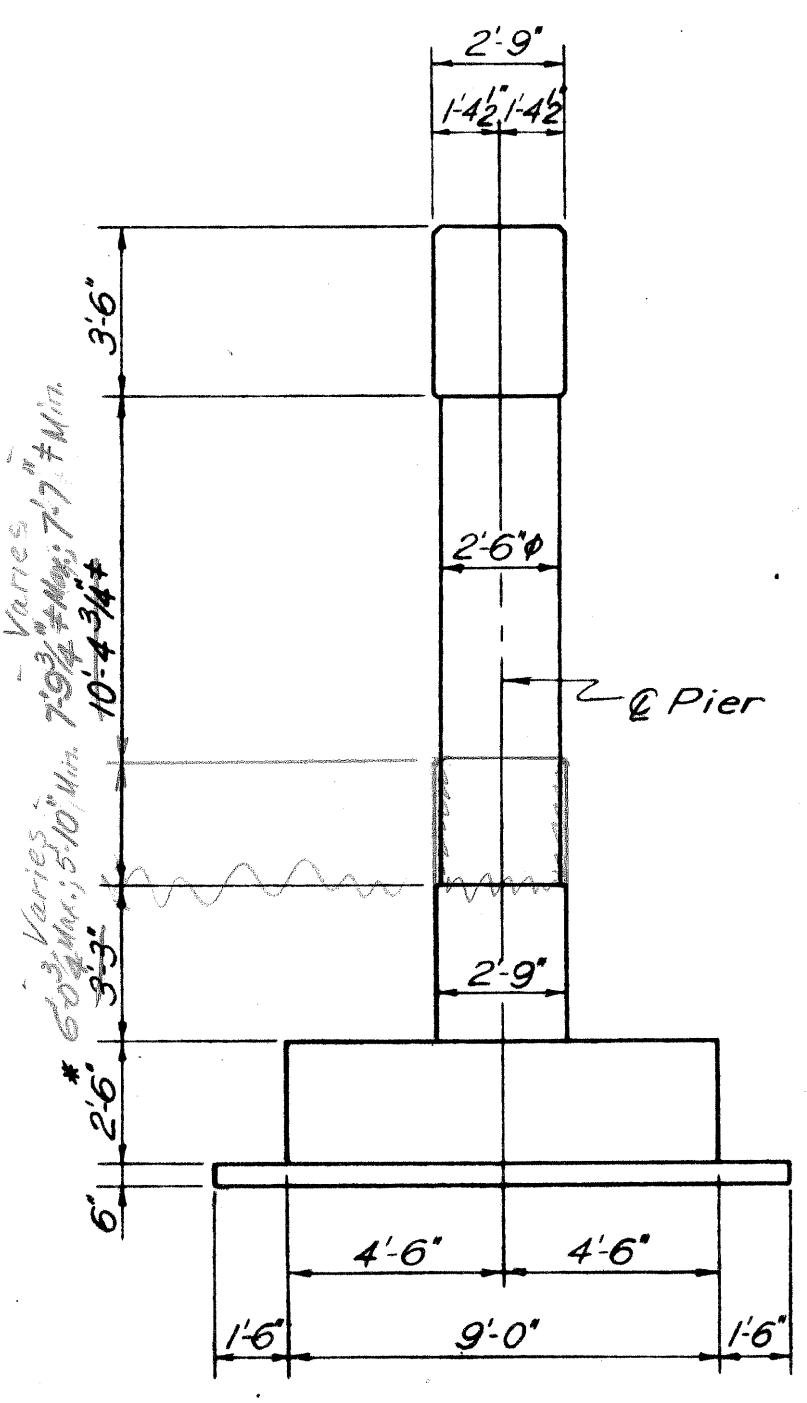
ANCHOR BOLT SETTING DIAGRAM (Pier 1)



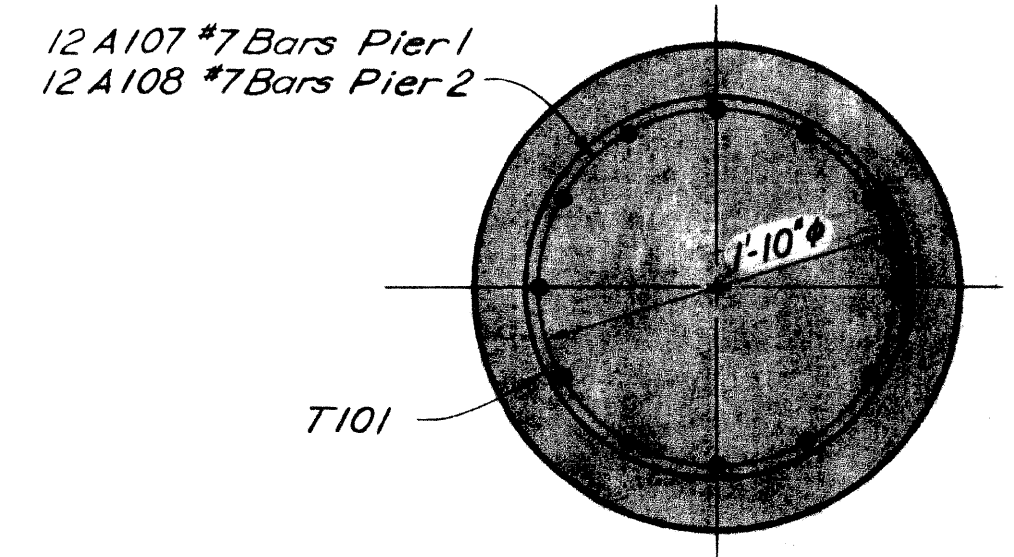
SECTION E-E



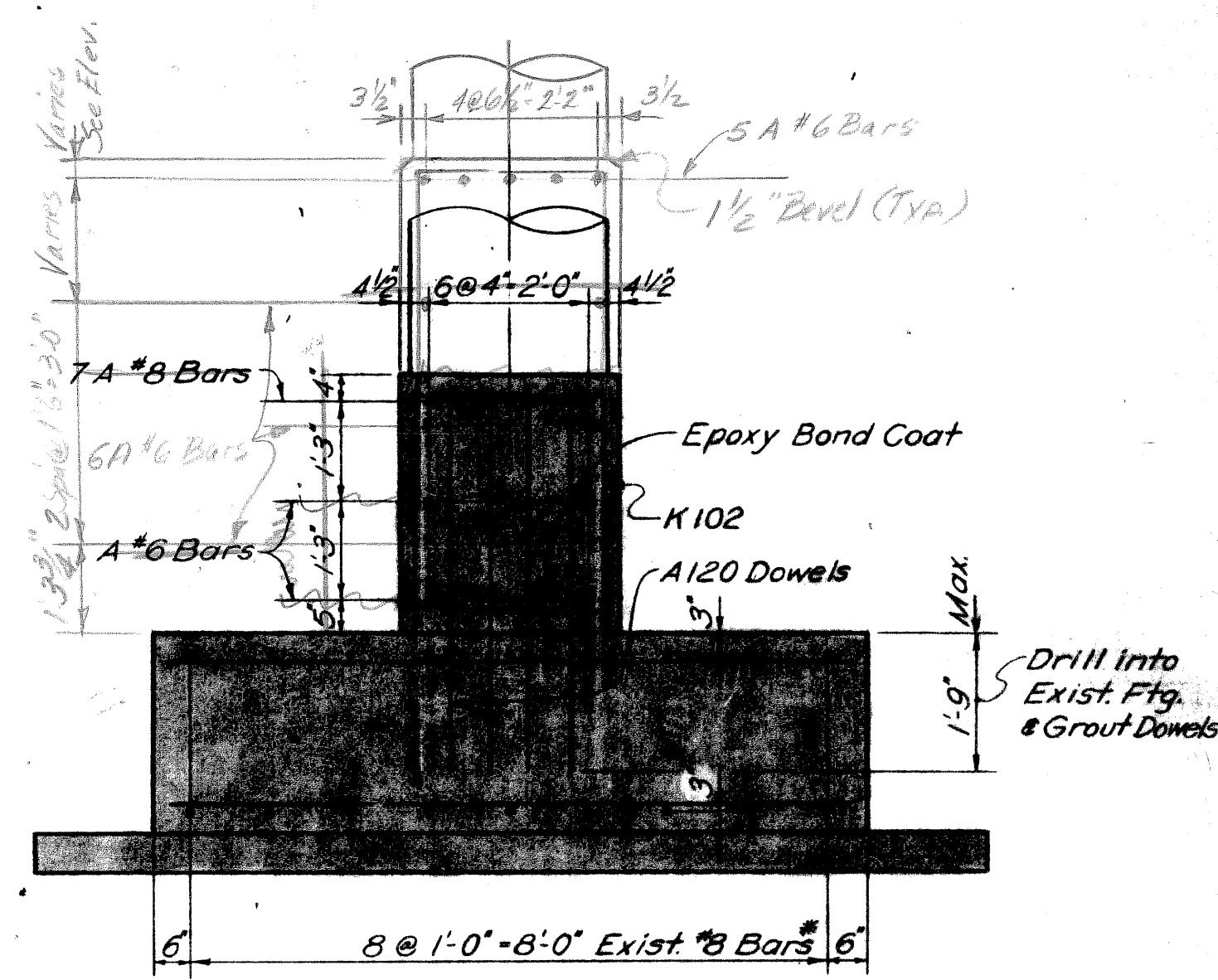
SECTION A-A (Pier 1)



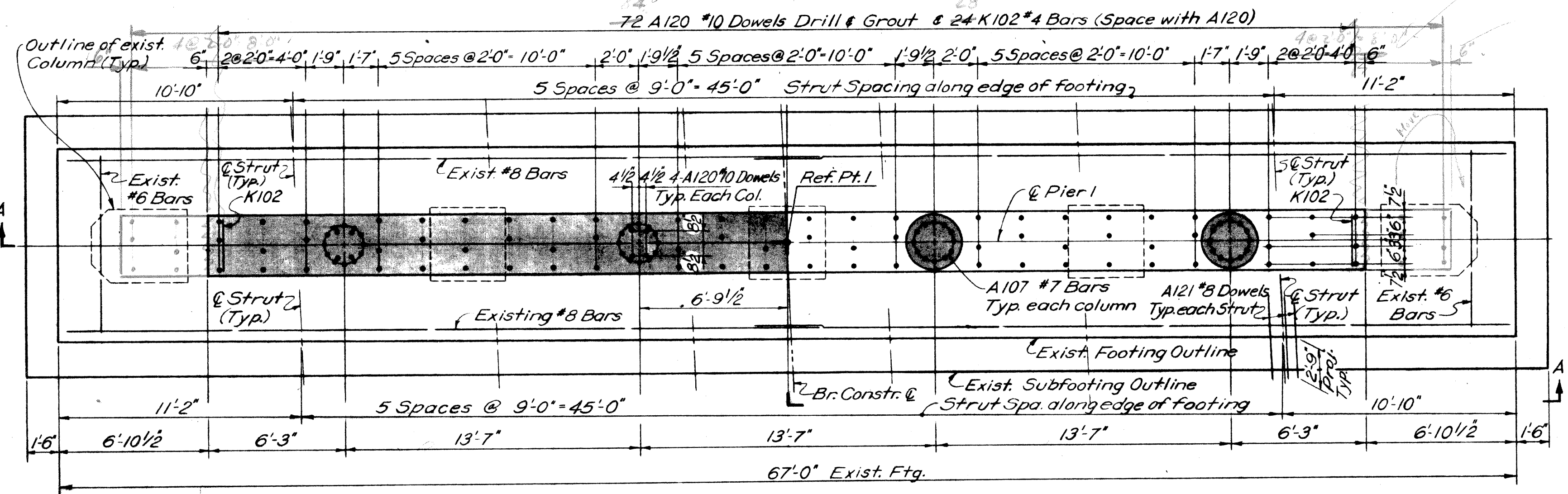
END VIEW (Pier 1)



SECTION F-F



SECTION G-G



SECTION B-B (Pier 1)

Notes:  
 \* Taken from design drawings, verify in field.  
 \* Based on top of footing elev. 114.07, verify in field.  
 The Project Engineer shall adjust the spacing of the A120 dowels as required to avoid the reinforcement in the existing footing.  
 The entire area of contact between the footing beam and existing footing shall be given an application of Epoxy Bond Coat.

OFFICE COPY  
 REVISION 8/8/67  
 K.V.H.  
 7/20/68  
 Copy of this sheet to be sent to J. Conner 8/8/67

Work this sheet with sheet #12

PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS  
 APPROVED: *[Signature]*  
 STRUCTURAL ENGINEER

JOB No.  
 PW 990 (16)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

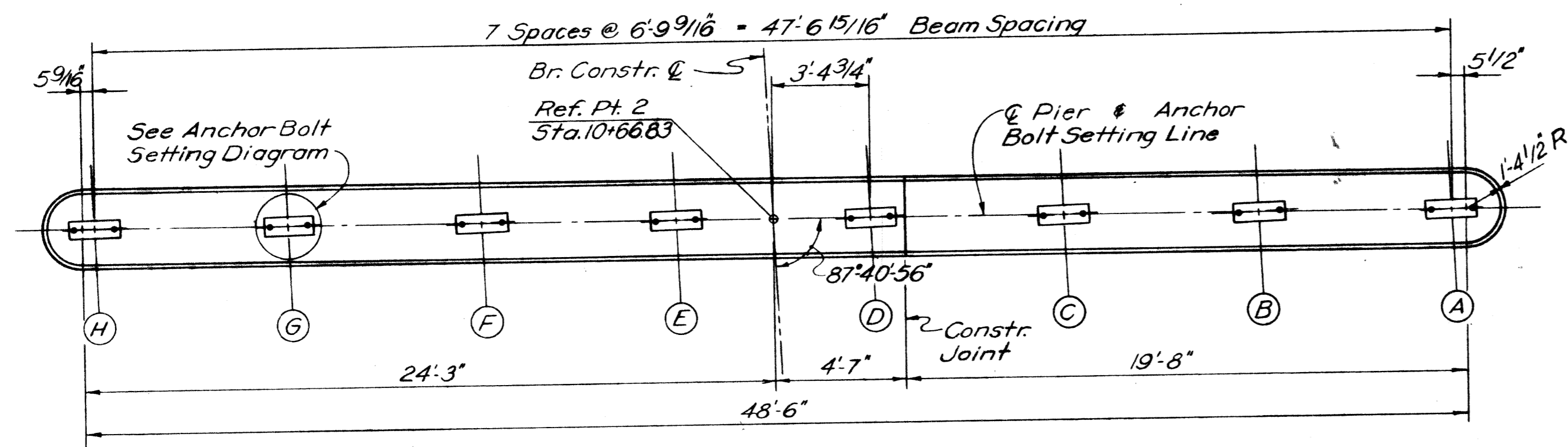
PIER DETAILS

NO.	DESCRIPTION	DATE	BY

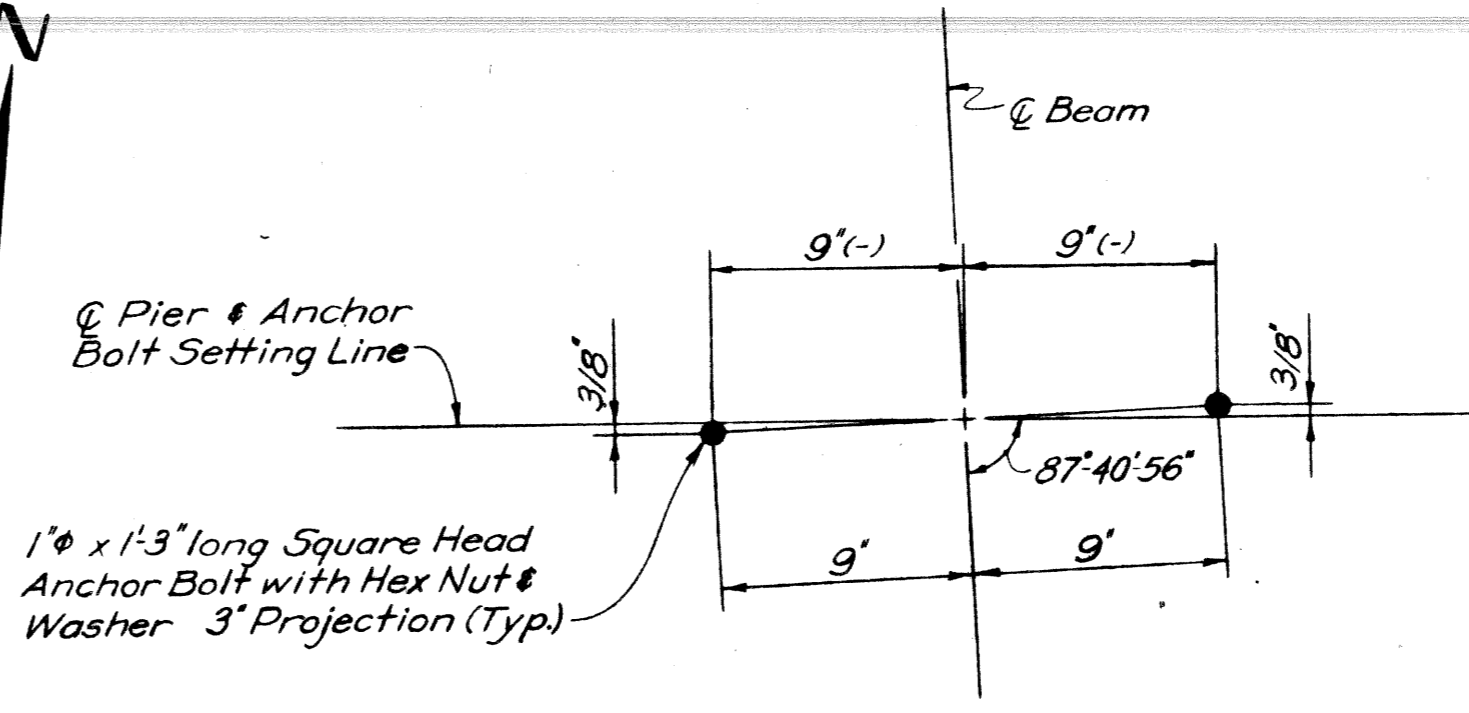
CITY OF DETROIT			
SQUAD BOSS	STUEN	8-66	
DRAWN BY	K.V.H.	8-66	
TRACED BY			
CHECKED BY	STUEN	8-66	
SHEET 11		OF 23	

S15 of 82023A

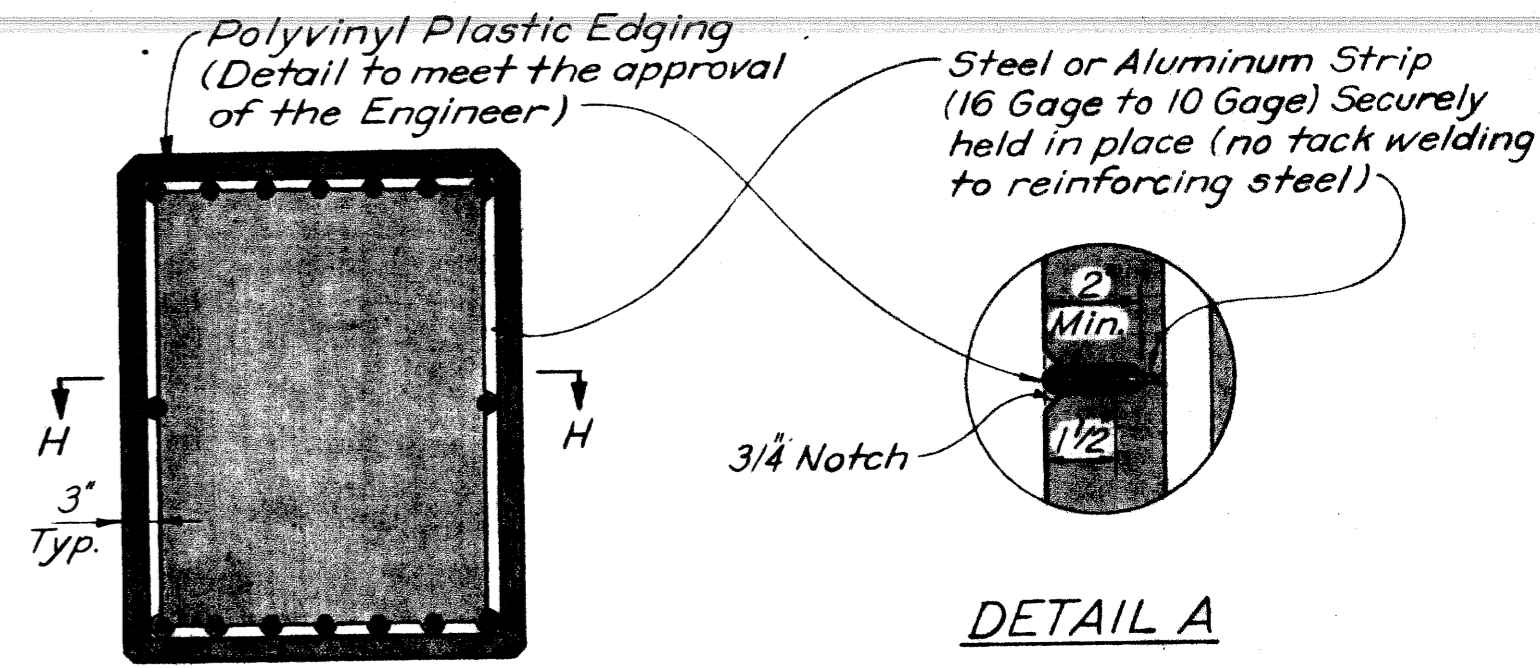




PLAN - PIER 2

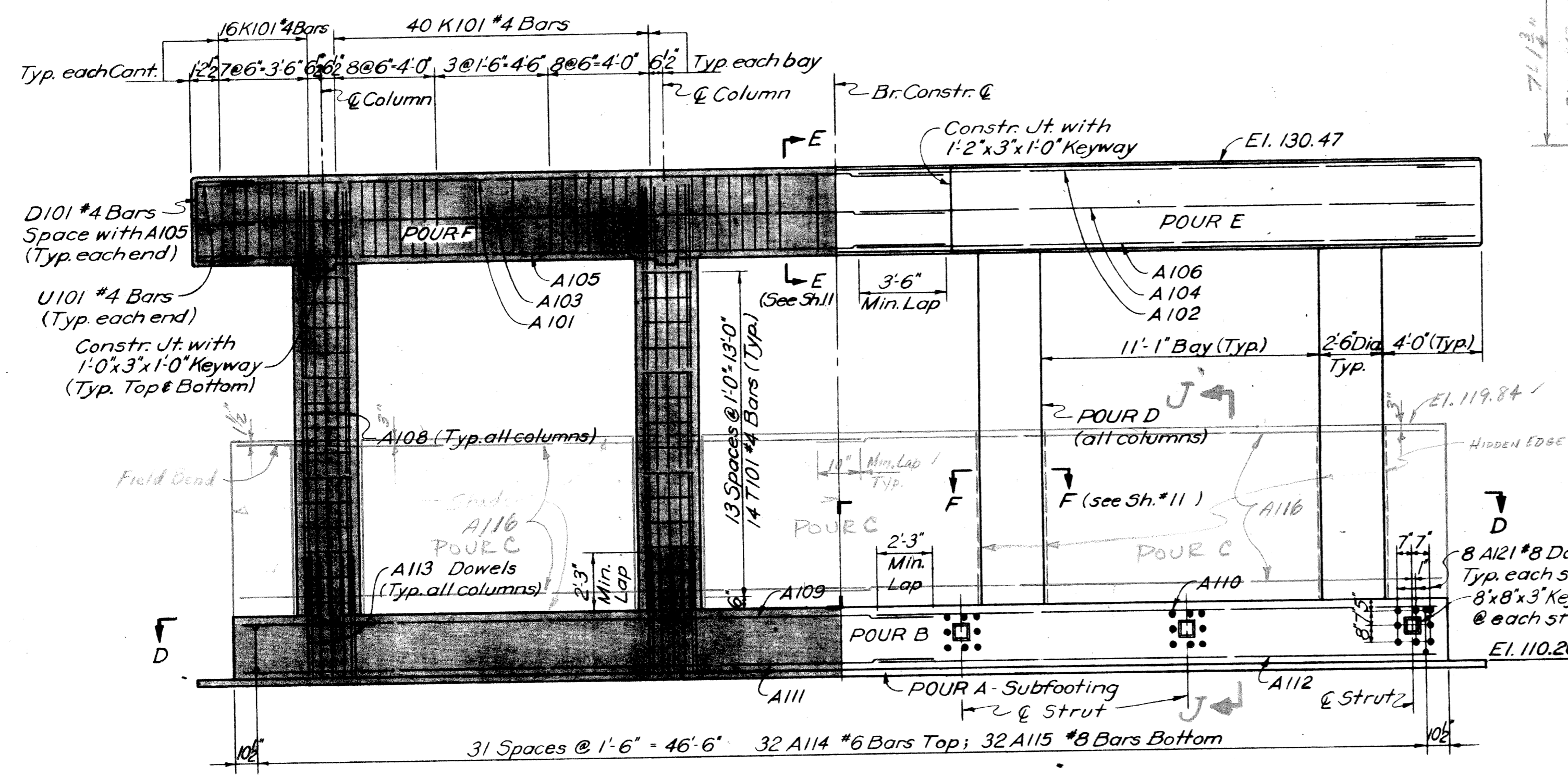


ANCHOR BOLT SETTING DIAGRAM (Pier 2)

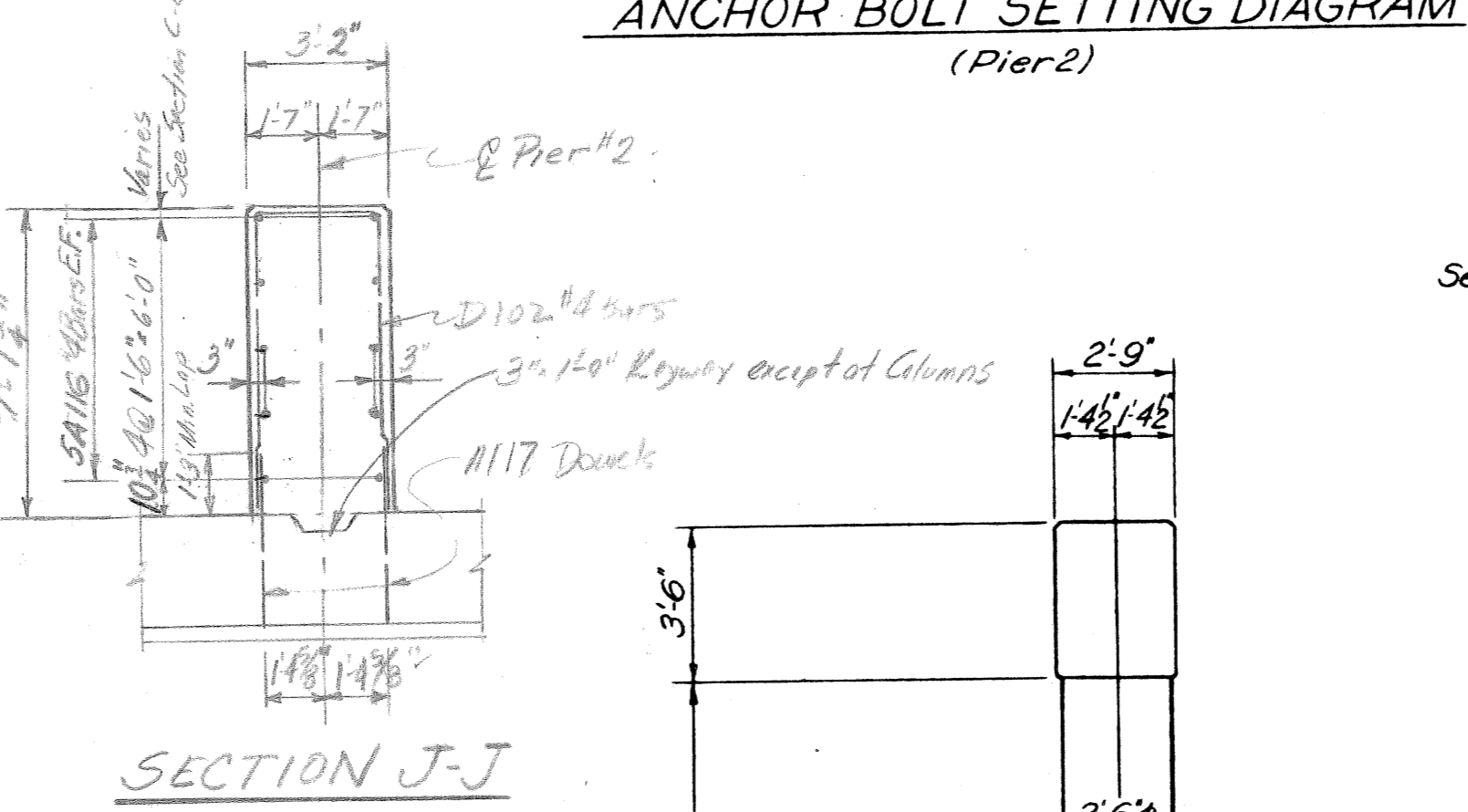


SECTION THRU PIER CAP

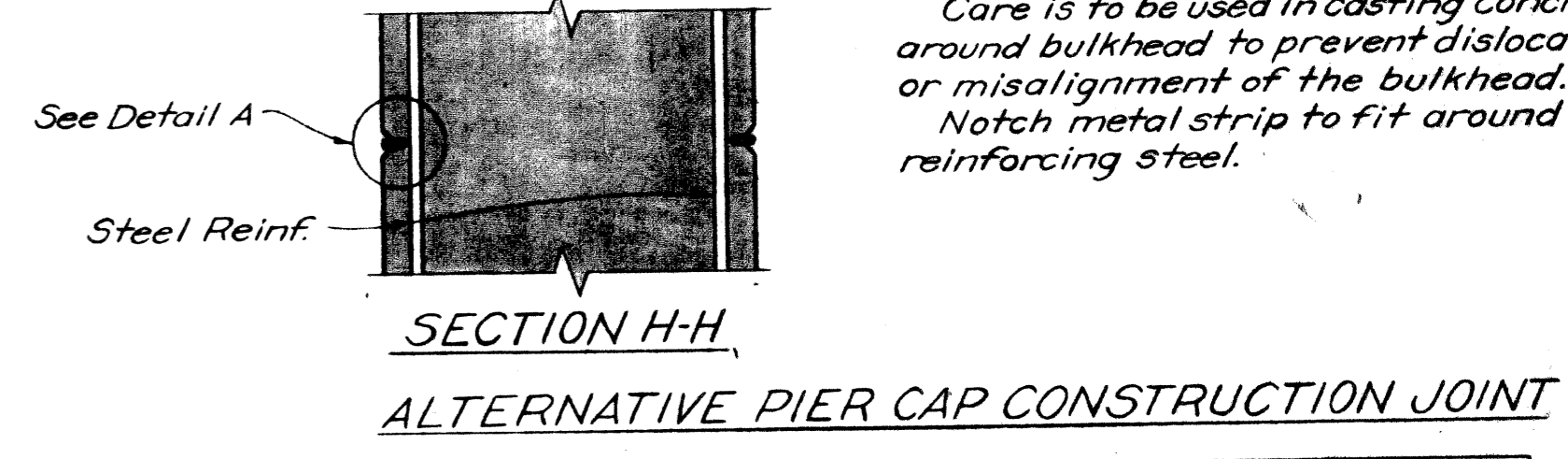
Notes:  
 Partial Metal Bulkhead may be used as alternate construction joint at contractor's expense.  
 Care is to be used in casting concrete around bulkhead to prevent dislocation or misalignment of the bulkhead.  
 Notch metal strip to fit around reinforcing steel.



SECTION C-C (Pier 2)



SECTION J-J

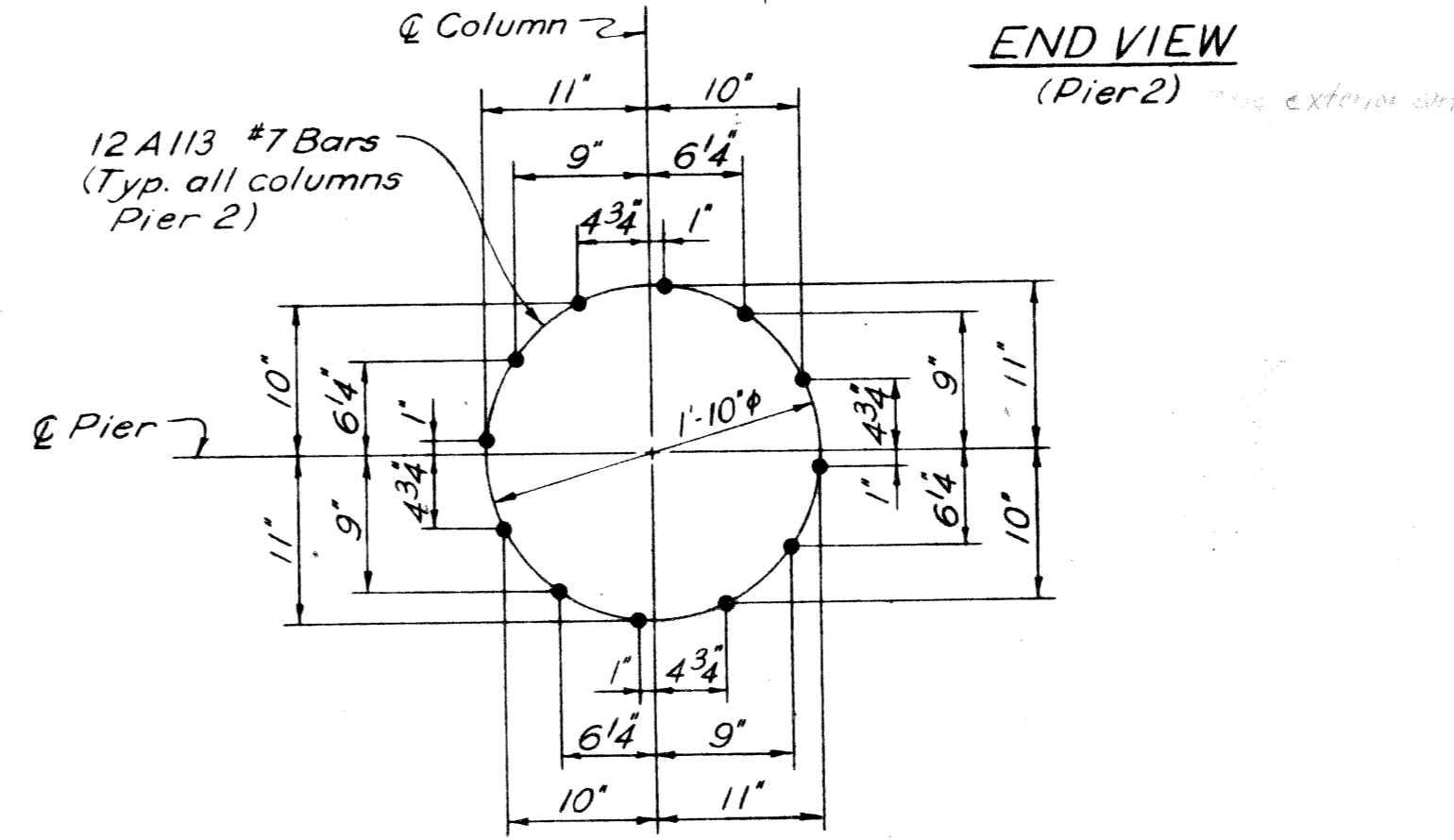


SECTION H-H ALTERNATIVE PIER CAP CONSTRUCTION JOINT

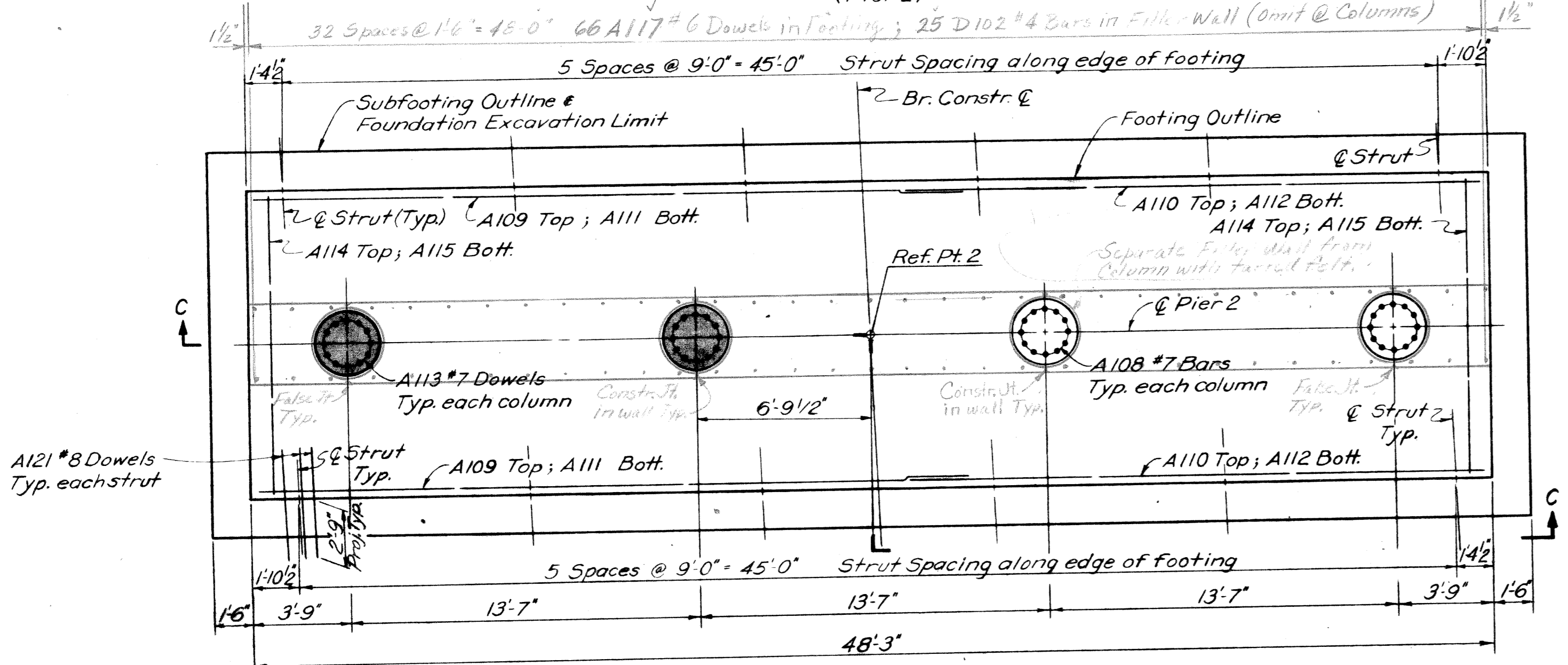
MISCELLANEOUS QUANTITIES				
Item	Unit	Pier 1	Pier 2	Total
Unclassified Excavation	Cu. Yds.	60	117	177
Low Temperature Protection Substr.	Cu. Yds.	43	82	125
Protective Sealant Coating for Concrete	Sq. Ft.	457	443	900
Epoxy Bond Coat	Gals.	2.4	1.2	3.6

CONCRETE QUANTITIES				
POUR LOCATION	PIER 1		PIER 2	
	Gr. A(6A)	Gr. A(6AA)	Gr. A(6A)	Gr. A(6AA)
A Subfooting	-	-	8.3	-
B Footing	-	-	53.6	-
C Footing Beam	-	32.1	17.6	-
D Columns	-	5.6	7.6	-
E Beam	-	7.4	-	7.4
F Beam	-	10.7	-	10.7
Totals	-	60.8	43.3	61.9
Total Gr. A(6A) Concrete - Substructure	-	-	-	61.9
Total Gr. A(6AA) Concrete - Substructure	-	-	-	74.8

GENERAL NOTES:  
 For bevel and molding details see Standard Sheet R-11 or R-12.  
 Anchor Bolts shall be set accurately to a template.  
 The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of the anchor bolts.  
 The top of Pier 1 shall be given an application of Protective Sealant Coating for Concrete, prior to placing of masonry plates.  
 Pier Columns shall be given an application of clear Protective Sealant Coating for Concrete. The use of membrane curing compound is prohibited where this material is to be applied.  
 Maximum Average foundation pressure D.L. only 2600 ps.f.  
 Maximum foundation pressure D.L. and L.L. 3,250 ps.f.



DOWEL SETTING DIAGRAM (Pier 2)



SECTION D-D (Pier 2)

PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS  
 APPROVED: [Signature] STRUCTURAL ENGINEER  
 JOB No. 990 (16)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

PIER DETAILS

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT  
 SQUAD BOSS: [Signature] 9-66  
 DRAWN BY: [Signature] 8-66  
 CHECKED BY: [Signature] 8-66  
 SHEET 12 OF 25

990 (16)

S15 of 82023A



BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
A 1								#11	10'-3"	49	2668
A 2								#10	17'-9"	49	3743
A 3								#10	6'-9"	35	1017
A 4								#10	6'-6"	34	951
A 5								#9	13'-6"	70	3213
A 6								#9	12'-0"	10	408
A 7								#9	11'-0"	16	598
A 8								#9	10'-0"	29	986
A 9								#9	8'-0"	25	600
A 10								#9	7'-9"	69	1818
A 11								#9	7'-6"	5	128
A 12								#9	5'-6"	25	468
A 13								#9	5'-3"	5	89
A 14								#8	2'-0"	10	320
A 15								#8	8'-9"	35	818
A 16								#8	8'-6"	34	772
A 17								#8	7'-6"	16	320
A 18								#8	7'-3"	9	72
A 19								#8	17'-0"	2	71
A 20								#7	8'-6"	7	126
A 21								#7	7'-0"	34	704
A 22								#7	5'-0"	3	51
A 23								#6	4'-3"	7	54
A 24								#6	3'-3"	7	54
A 25								#6	3'-0"	10	74
A 26								#6	3'-0"	10	74
A 27								#6	3'-0"	10	74
A 28								#6	2'-6"	2	152
A 29								#6	2'-6"	2	152
A 30								#6	2'-6"	2	152
A 31								#6	2'-6"	2	152
A 32								#6	2'-6"	2	152
A 33								#6	2'-6"	2	152
A 34								#6	2'-6"	2	152
A 35								#6	2'-6"	2	152
A 36								#6	2'-6"	2	152
A 37								#6	2'-6"	2	152
A 38								#6	2'-6"	2	152
A 39								#6	2'-6"	2	152
A 40								#6	2'-6"	2	152
A 41								#6	2'-6"	2	152
A 42								#6	2'-6"	2	152
A 43								#6	2'-6"	2	152
A 44								#6	2'-6"	2	152
A 45								#6	2'-6"	2	152
A 46								#6	2'-6"	2	152
A 47								#6	2'-6"	2	152
A 48								#6	2'-6"	2	152
A 49								#6	2'-6"	2	152
A 50								#6	2'-6"	2	152
A 51								#6	2'-6"	2	152
A 52								#6	2'-6"	2	152
A 53								#6	2'-6"	2	152
A 54								#6	2'-6"	2	152
A 55								#6	2'-6"	2	152
A 56								#6	2'-6"	2	152
A 57								#6	2'-6"	2	152
A 58								#6	2'-6"	2	152
A 59								#6	2'-6"	2	152
A 60								#6	2'-6"	2	152
A 61								#6	2'-6"	2	152
A 62								#6	2'-6"	2	152
A 63								#6	2'-6"	2	152
A 64								#6	2'-6"	2	152
A 65								#6	2'-6"	2	152
B 1	1'-3 1/4	2'-7"	1"	1'-3 3/8	1'-6"	5/8"	1'-6"	#6	5'-9"	11	95
B 2	9"	3'-3"	1 1/4"	8 1/4"	1'-6"	1 1/2"	1'-6"	#6	6'-3"	11	103
B 3	1 1/8"	3'-9"	1'-3 1/4"	1'-2"	1'-6"	1 1/2"	1'-6"	#6	6'-9"	12	122
B 4	1 1/8"	3'-5"	5/8"	1'-2 3/4"	1'-6"	1'-0"	1'-6"	#6	6'-5"	12	116
C 1	1'-3 1/4	1'-9"						#4	4'-0"	71	170
C 2	3'-0 3/8	6 3/4"						#6	6'-6"	90	879
D 1	2'-0"	1'-6"	0 3/4"	1'-6"				#4	3'-6"	11	26
D 2	2'-0"	1'-5 3/8"	2 1/4"	1'-6"				#4	3'-6"	12	28

BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
F 1	2'-0"	1'-6"	0 3/4"	1'-6"				#4	3'-6"	11	26
F 2	2'-0"	1'-5 3/8"	2 1/4"	1'-6"				#4	3'-6"	12	28
G 1	4'-3"	10 3/8"	1-8 3/8"					#6	6'-9"	20	203
G 2	4'-0"	10 3/8"	1-8 3/8"					#6	6'-6"	16	156
G 3	3'-6"	10 3/8"	1-8 3/8"					#6	6'-0"	16	144
G 4	3'-6"	10 3/8"	2-2 3/8"					#6	6'-6"	19	185
G 5	3'-9"	10 3/8"	2-2 3/8"					#6	6'-9"	23	233
K 1	10 3/4"	5 3/4"	6"	7 3/4"				#4	3'-4"	60	134
K 2	14 1/2"	5 3/4"	6"	7 3/4"				#4	3'-10"	108	277
V 1	6'-0"	13-7 3/8"	7-3 3/8"	2-10 3/8"	9-5 1/2"			#6	28'-6"	2	56
V 2	6'-0"	14-4 3/8"	7-2 1/2"	3-0 1/2"	9-11 1/2"			#6	29'-3"	2	88
V 3	6'-1"	13-4 1/2"	7-3"	2-10 1/2"	9-3"			#4	28'-3"	15	283
V 4	4'-5"	14-5 3/8"	7-3"	3-1"	10-0 3/4"			#4	27'-10"	11	204
V 5	6'-1"	14-5 3/8"	7-3"	3-1"	10-0 3/4"			#6	29'-6"	4	79
V 6	6'-1"	12-9 3/4"	2-3"	2-7"	9-3"			#4	22'-6"	18	225
V 7	6'-0"	13-1 1/4"	2-0"	2-7 3/8"	9-5 1/2"			#6	22'-6"	2	55
V 8	6'-1"	12-9 3/4"	2-0"	2-9 1/4"	9-11 1/2"			#6	23'-4"	2	70
V 9	6'-1"	13-10 3/8"	2-3"	2-9 1/2"	10-5 1/2"			#6	21'-8"	11	154
V 10	6'-1"	13-10 3/8"	2-4"	2-9 1/2"	10-5 1/2"			#4	23'-7"	4	63
AA 1								#4	2'-0"	47	131
AA 2								#4	2'-0"	54	154
AA 3								#4	2'-0"	51	143
AA 4								#4	2'-0"	51	143
AA 5								#4	2'-0"	51	143
AA 6								#4	2'-0"	51	143
AA 7								#4	2'-0"	51	143
AA 8								#4	2'-0"	51	143
AA 9								#4	2'-0"	51	143
AA 10								#4	2'-0"	51	143
AA 11								#4	2'-0"	51	143
AA 12								#4	2'-0"	51	143
AA 13								#4	2'-0"	51	143
AA 14								#4	2'-0"	51	143
AA 15								#4	2'-0"	51	143
AA 16								#4	2'-0"	51	143
AA 17								#4	2'-0"	51	143
AA 18								#4	2'-0"	51	143
AA 19								#4	2'-0"	51	143
AA 20								#4	2'-0"	51	143
AA 21								#4	2'-0"	51	143
AA 22								#4	2'-0"	51	143
AA 23								#4	2'-0"	51	143
AA 24								#4	2'-0"	51	143
AA 25								#4	2'-0"	51	143
AA 26								#4	2'-0"	51	143
AA 27								#4	2'-0"	51	143
AA 28								#4	2'-0"	51	143
AA 29								#4	2'-0"	51	143
AA 30								#4	2'-0"	51	143
AA 31								#4	2'-0"	51	143
AA 32								#4	2'-0"	51	143
AA 33								#4	2'-0"	51	143
AA 34								#4	2'-0"	51	143
AA 35								#4	2'-0"	51	143
AA 36								#4	2'-0"	51	143
AA 37								#4	2'-0"	51	143
AA 38								#4	2'-0"	51	143
AA 39								#4	2'-0"	51	143
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AA 42								#4	2'-0"	51	143
AA 43								#4	2'-0"	51	143
AA 44								#4	2'-0"	51	143
AA 45								#4	2'-0"	51	143
AA 46								#4	2'-0"	51	143
AA 47								#4	2'-0"	51	143
AA 48								#4	2'-0"	51	143
AA 49								#4	2'-0"	51	143
AA 50								#4	2'-0"	51	143
AA 51								#4	2'-0"	51	143
AA 52								#4	2'-0"	51	143
AA 53								#4	2'-0"	51	143
AA 54								#4	2'-0"	51	143
AA 55								#4	2'-0"	51	143
AA 56								#4	2'-0"	51	143
AA 57								#4	2'-0"	51	143
AA 58								#4	2'-0"	51	143
AA 59								#4	2'-0"	51	143
AA 60								#4	2'-0"	51	143
AA 61								#4	2'-0"	51	143
AA 62								#4	2'-0"	51	143
AA 63								#4	2'-0"	51	143
AA 64								#4	2'-0"	51	143
AA 65								#4	2'-0"	51	143
AA 66								#4	2'-0"	51	143
AA 67								#4	2'-0"	51	143
AA 68								#4	2'-0"	51	143
AA 69								#4	2'-0"	51	143
AA 70								#4	2'-0"	51	143
AA 71											



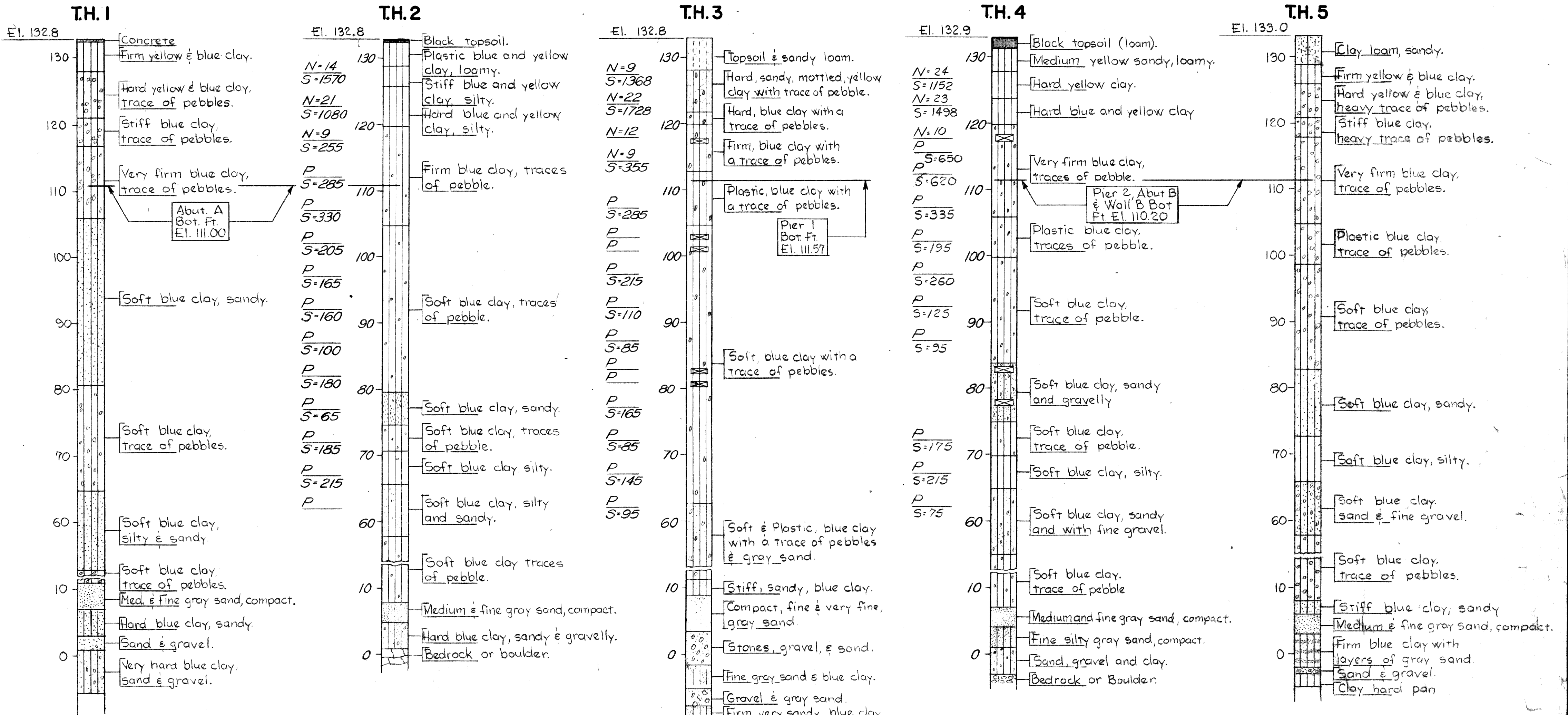
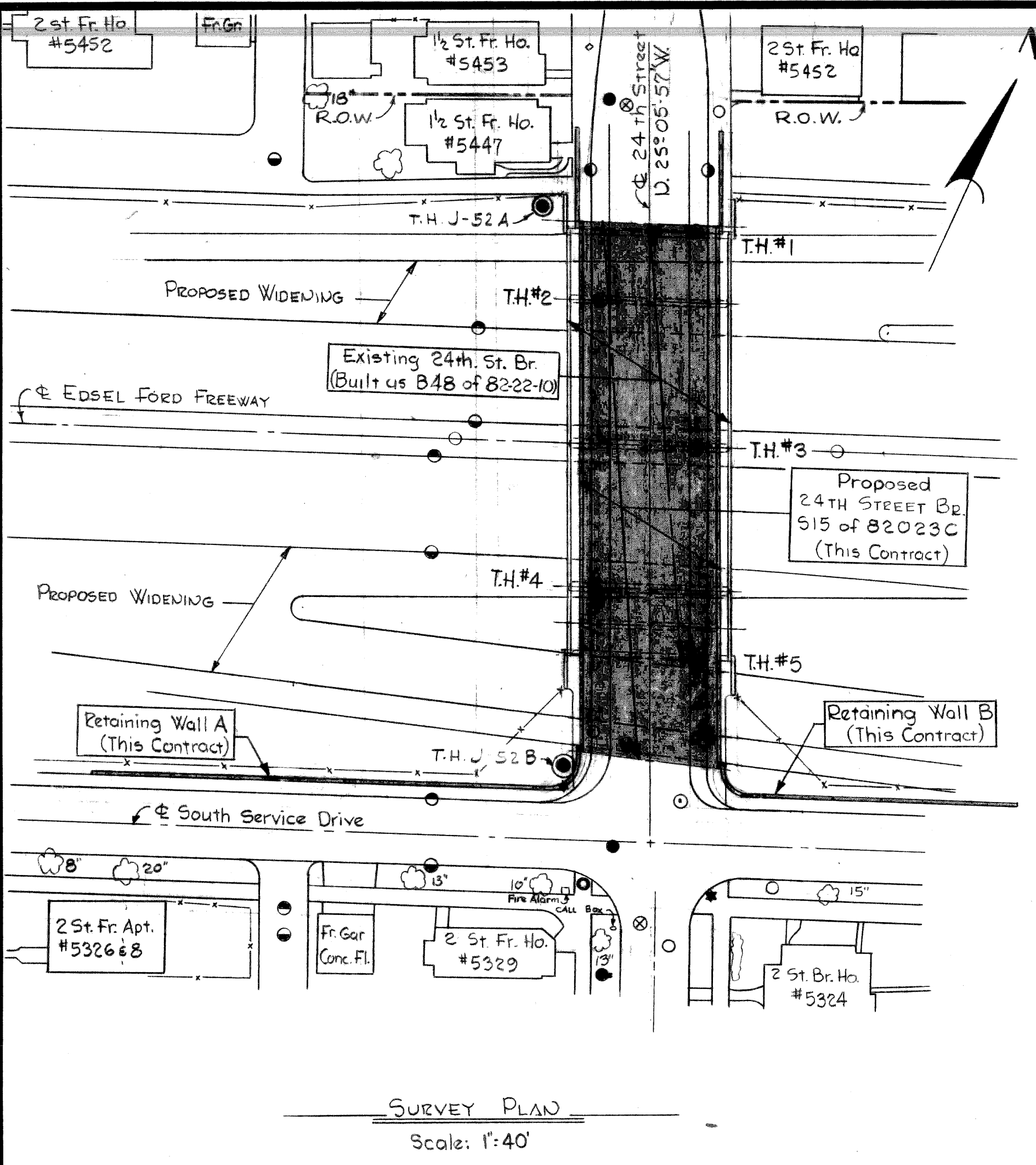
BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
A 1								#11	10'-3"	49	2668
A 2								#10	17'-9"	49	3743
A 3								#10	6'-9"	35	1017
A 4								#10	6'-6"	34	951
A 5								#9	13'-6"	70	3213
A 6								#9	12'-0"	10	408
A 7								#9	11'-0"	16	598
A 8								#9	10'-0"	29	986
A 9								#9	8'-0"	25	860
A 10								#9	7'-9"	69	1818
A 11								#9	7'-6"	5	128
A 12								#9	5'-6"	25	468
A 13								#9	5'-3"	5	89
A 14								#8	12'-0"	10	320
A 15								#8	8'-9"	35	818
A 16								#8	8'-6"	34	772
A 17								#8	7'-6"	16	320
A 18								#8	7'-3"	9	172
A 19								#8	17'-0"	2	91
A 20								#7	8'-6"	9	156
A 21								#7	7'-0"	34	486
A 22								#7	5'-0"	5	57
A 23								#6	40'-0"	9	541
A 24								#6	38'-0"	9	514
A 25								#6	35'-0"	18	940
A 26								#6	30'-0"	15	676
A 27								#6	27'-0"	15	426
A 28								#6	23'-9"	20	713
A 29								#6	23'-0"	27	853
A 30								#6	23'-3"	19	664
A 31								#6	24'-6"	14	515
A 32								#6	23'-0"	42	1451
A 33								#4	21'-6"	30	769
A 34								#6	19'-3"	72	2082
A 35								#6	19'-0"	72	2055
A 36								#6	17'-6"	39	1025
A 37								#6	16'-9"	16	403
A 38								#6	15'-6"	84	1956
A 39								#6	15'-0"	16	1360
A 40								#6	14'-6"	17	240
A 41								#6	13'-6"	20	406
A 42								#6	12'-3"	11	202
A 43								#6	11'-6"	20	345
A 44								#6	10'-9"	26	420
A 45								#6	10'-0"	65	976
A 46								#6	9'-6"	36	514
A 47								#6	8'-9"	53	697
A 48								#6	8'-6"	16	204
A 49								#6	8'-0"	48	577
A 50								#6	7'-6"	14	158
A 51								#6	6'-9"	36	365
A 52								#6	6'-6"	5	49
A 53								#6	6'-0"	38	342
A 54								#6	4'-3"	18	115
A 55								#6	4'-0"	18	108
A 56								#6	3'-6"	13	95
A 57								#4	19'-0"	24	305
A 58								#4	18'-6"	72	890
A 59								#4	17'-0"	45	545
A 60								#4	13'-0"	58	304
A 61								#4	11'-6"	52	399
A 62								#4	4'-0"	44	118
A 63								#4	11'-0"	14	103
A 64								#4	8'-6"	8	45
A 65								#8	3'-3"	96	1346
C 1	1'-3 1/4	2'-9"	1"	1'-3 1/4	1'-6"	9 3/4	1'-6"	#6	5'-9"	11	85
C 2	9"	3'-3"	1'-4"	8"	1'-6"	1'-3 1/4	1'-6"	#6	6'-3"	11	103
C 3	11 1/2	3'-8"	1'-3 1/4	4 1/2	1'-6"	1'-7 1/2	1'-6"	#6	6'-9"	12	122
C 4	11 1/2	3'-5"	1'-4"	1'-2 1/2	1'-6"	1'-0"	1'-6"	#6	6'-5"	12	116
D 1	1'-1 1/2	1'-9"						#4	4'-0"	71	190
D 2	3'-0 3/4	6"						#6	6'-6"	90	879
E	2'-0"	1'-6"	0 3/4	1'-6"				#4	3'-6"	11	26
F	2'-0"	1'-5 1/2	2 1/4	1'-6"				#4	3'-6"	12	28

BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
F1	2'-0"	1'-6"	0 3/4	1'-6"				#4	3'-6"	11	26
F2	2'-0"	1'-5 1/2	2 1/4	1'-6"				#4	3'-6"	12	28
G1	4'-3"	10 1/2	1'-8 1/2					#6	6'-9"	20	203
G2	4'-0"	10 1/2	1'-8 1/2					#6	6'-6"	16	156
G3	3'-6"	10 1/2	1'-8 1/2					#6	6'-0"	16	144
G4	3'-6"	10 1/2	2'-2 1/2					#6	6'-6"	19	185
G5	3'-9"	10 1/2	2'-2 1/2					#6	6'-9"	23	233
K1	10 3/4	5 3/4	6"	7 3/4				#4	3'-4"	60	134
K2	11 1/2	5 3/4	6"	7 3/4				#4	3'-10"	108	277
V1	6'-0"	13'-7 1/2	7'-3 1/2	2'-10 1/2	9'-5 1/2			#6	28'-6"	2	86
V2	6'-0"	14'-4 1/2	7'-2 1/2	3'-0 1/2	9'-11 1/2			#6	29'-3"	2	88
V3	6'-1"	13'-4 1/2	7'-3"	2'-10 1/2	9'-3"			#4	28'-3"	15	283
V4	4'-5"	14'-5 1/2	7'-3"	3'-1"	10'-0 1/2			#4	27'-10"	11	204
V5	6'-1"	14'-5 1/2	7'-3"	3'-1"	10'-0 1/2			#4	29'-6"	4	79
V6	6'-1"	12'-9 1/2	2'-3"	2'-7"	9'-3"			#4	22'-6"	15	225
V7	6'-0"	13'-1 1/4	2'-0"	2'-7 1/2	9'-5 1/2			#6	22'-6"	2	68
V8	6'-1"	13'-9 1/2	2'-0"	2'-9 1/2	9'-11 1/2			#6	23'-4"	2	70
V9	6'-1"	13'-10 1/2	0'-3"	2'-9 1/2	10'-0 1/2			#4	21'-8"	11	159
V10	6'-1"	13'-10 1/2	2'-4"	2'-9 1/2	10'-0 1/2			#4	23'-9"	4	63
Abutment Total - 50522 lbs.											
A 80								#4	4'-0"	49	131
A 81								#4	1'-6"	32	32
A 82								#4	6"	32	11
Total Manhole Slabs 174 lbs (not a pay item)											
A 101								#11	28'-9"	14	2138
A 102								#11	23'-6"	14	1748
A 103								#6	28'-9"	4	173
A 104								#6	23'-6"	4	141
A 105								#7	28'-9"	14	823
A 106								#7	23'-6"	14	672
A 107								#7	16'-3"	48	1594
A 108								#7	17'-0"	48	1668
A 109								#6	28'-0"	16	673
A 110								#6	22'-0"	16	529
A 111								#7	28'-0"	16	916
A 112								#7	22'-0"	16	719
A 113								#7	5'-0"	48	491
A 114								#6	11'-6"	32	553
A 115								#8	11'-6"	32	983
A 116								#8	31'-0"	720	579
A 117								#8	4'-0"	766	459
A 118								#6	31'-0"	41	186
A 119								#6	24'-6"	41	147
A 120								#10	4'-9"	88	1799
A 121								#8	5'-3"	192	267
D 101	2'-0"	3'-1"						#4	7'-0"	28	131
D 102	6'-7 3/4	2'-9 1/2						#4	16'-0"	25	267
K 101	3'-2 1/2	1'-3 1/2	1'-3"	1'-8 1/2				#4	10'-6"	304	2132
K 102	2'-7 1/2	1'-8 1/4	1'-8"	2'-5"				#4	11'-0"	24	176
	5'-4 1/2							#4	16'-6"	28	309
T 101	1'-10 1/2	10 1/2						#4	7'-0"	108	505
U 101	1'-0 1/4	3'-5 1/2	1'-1 1/4					#4	5'-6"	12	44
Pier Total 23460 lbs											

BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
A 201								#4	28'-3"	84	1585
A 202								#6	28'-6"	288	12328
A 203								#4	28'-3"	280	5284
A 204								#6	26'-9"	800	32143
A 205								#4	26'-6"	32	566
A 206								#4	10'-9"	8	57
A 207								#4	17'-3"	6	69
A 208								#4	30'-9"	6	123
A 209								#4	31'-3"	56	1169
A 210								#6	31'-3"	140	6571
A 211								#2	31'-0"	140	2500
A 212								#4	27'-0"	8	144
A 213								#4	29'-6"	24	473
A 214								#4	27'-9"	24	445
A 215								#6	29'-9"	78	3455
A 216								#6	17'-0"	39	996
A 217								#4	29'-6"	70	1373
A 218								#4	15'-0"	30	676
A 219								#4	2'-0"	12	16
A 220								#6	28'-9"	24	1036
A 221								#6	31'-6"	16	757
B 201	7 1/2	10'-10"						#4	11'-5"	273	2082
D 201	6"	1'-2"						#4	2'-1"	273	380
D 202	3'-0 1/2	6 3/4						#6	6'-6"	300	2929
G 201	1'-6"	1'-6"	7"					#4	3'-6"	273	638
K 201	3'-6"	1'-0 1/4	1'-0 1/4	1'-3 1/2				#4	10'-3"	24	164
K 202	10 3/4	5 3/4	6"	7 3/4				#4	3'-4"	200	445
K 203	3'-4 1/2	1'-3 1/4	1'-3 1/4	1'-2 1/2				#4	11'-0"	8	59
K 204	1'-1 1/2	5 3/4	6"	7 3/4				#4	3'-10"	376	963
M 201	9 1/4	3'-4 1/2	1'-2 1/2	1'-6"	1'-0 1/2	2'-6 1/2					



**LOG OF SOIL BORINGS**



**GENERAL NOTES:**

The work covered by these plans includes construction of the proposed bridge and placing Sand Gravel material to the limits shown. All other work is included in the Road Plans which are part of this contract.

Removal of fences and buildings is not a part of this contract.

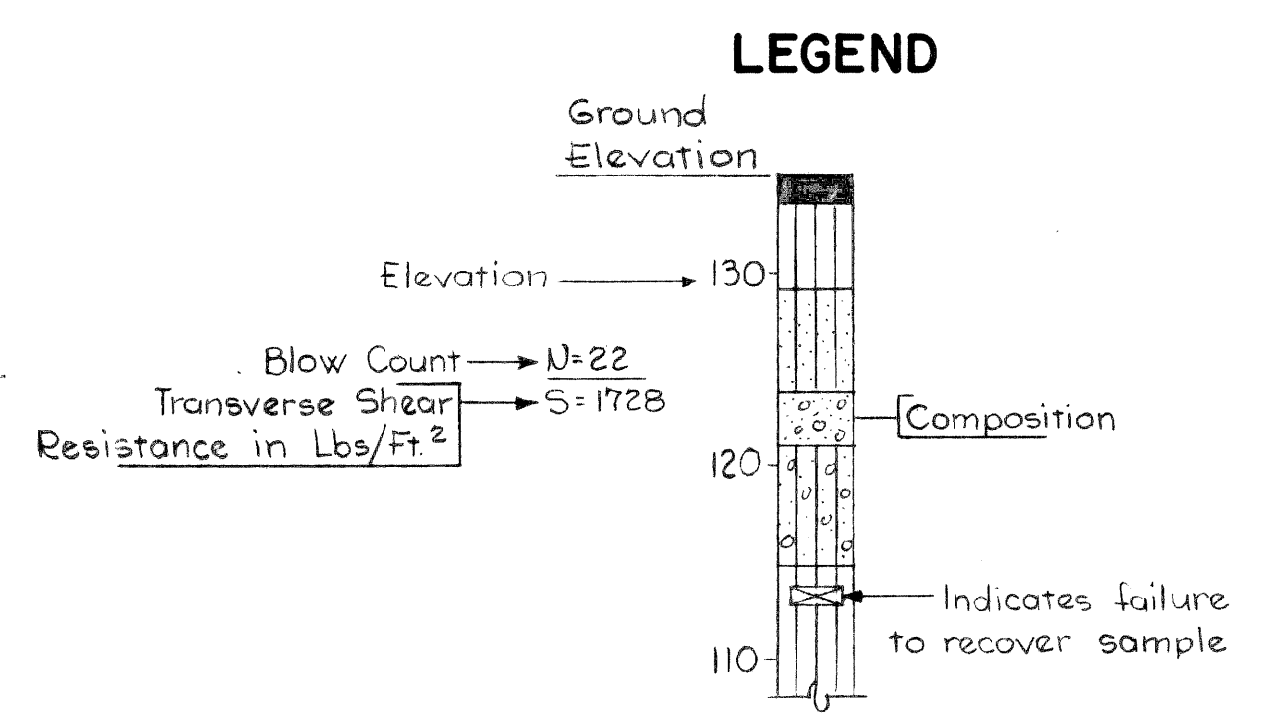
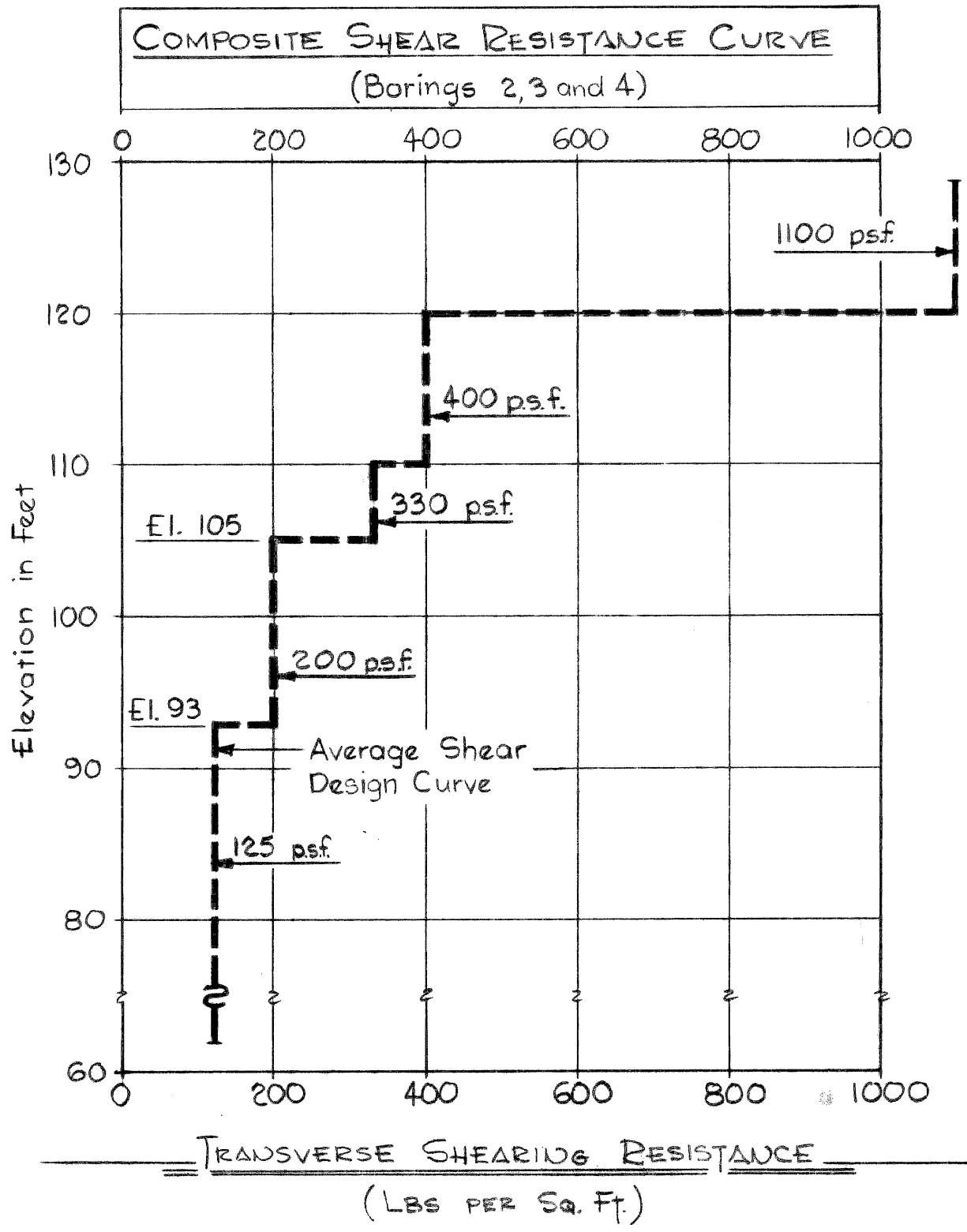
Removal of existing structure is a part of this contract.

The contractor shall locate all active underground utilities prior to starting work, and shall conduct his operations in such a manner as to insure that those utilities not requiring relocation will not be disturbed.

Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions may have been materially altered by the operations of others before the work has been started.

**UTILITY LEGEND**

- Sewer Manhole
- ⊙ Sewer Inlet or Catchbasin
- ⊗ Water Gate Well and Valve
- ⊕ Water Gate and Box
- ⊙ Detroit Edison Co. Manhole
- Gas Main Valve
- D.F.D. Manhole
- ★ Traffic Signal
- Fire Hydrant
- ⊙ Tree (Size)
- Fence
- ⊙ Test Boring
- P.L.C. Manhole



**NOTES:**

N Indicates number of blows required to drive a sampler 12" using a 140# hammer falling 30".

S Indicates Transverse Shearing Resistance in Lbs./sq. ft. as determined by M.S.H.D. Standard Test.

P Indicates sampler was pushed.

Soil Boring Information was obtained from design drawings from existing 24th St Bridge.

Log of Soil Borings for T.H. J-52 A & T.H. J-52 B available from the M.D.S.H. Design Office in Lansing.

PREPARED BY  
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DEPARTMENT OF PUBLIC WORKS  
ENGINEERS OFFICE  
HEAD OF HIGHWAYS AND EXPRESSWAYS

*[Signature]*  
PW 990(16)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

**MICHIGAN STATE HIGHWAY DEPARTMENT**

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

**GENERAL PLAN OF SITE**

APPROVED \_\_\_\_\_ DESIGN SUPERVISING ENGINEER

APPROVED \_\_\_\_\_ ENGINEER OF DESIGN - CONSULTANTS

SQUAD BOSS: *[Signature]* 2/26

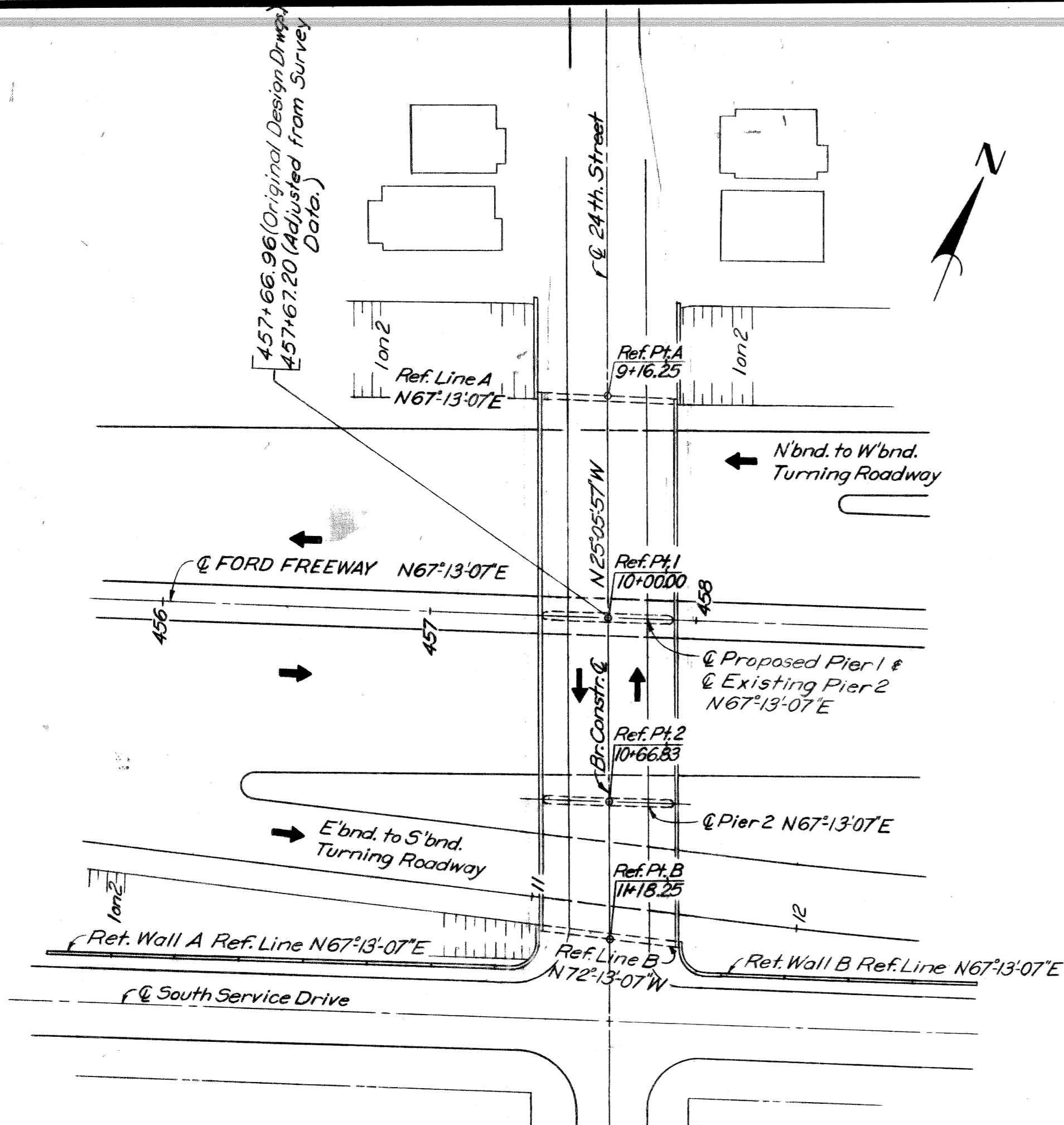
DRAWN BY: *[Signature]* 2/17/66

CHECKED BY: *[Signature]* 2/26

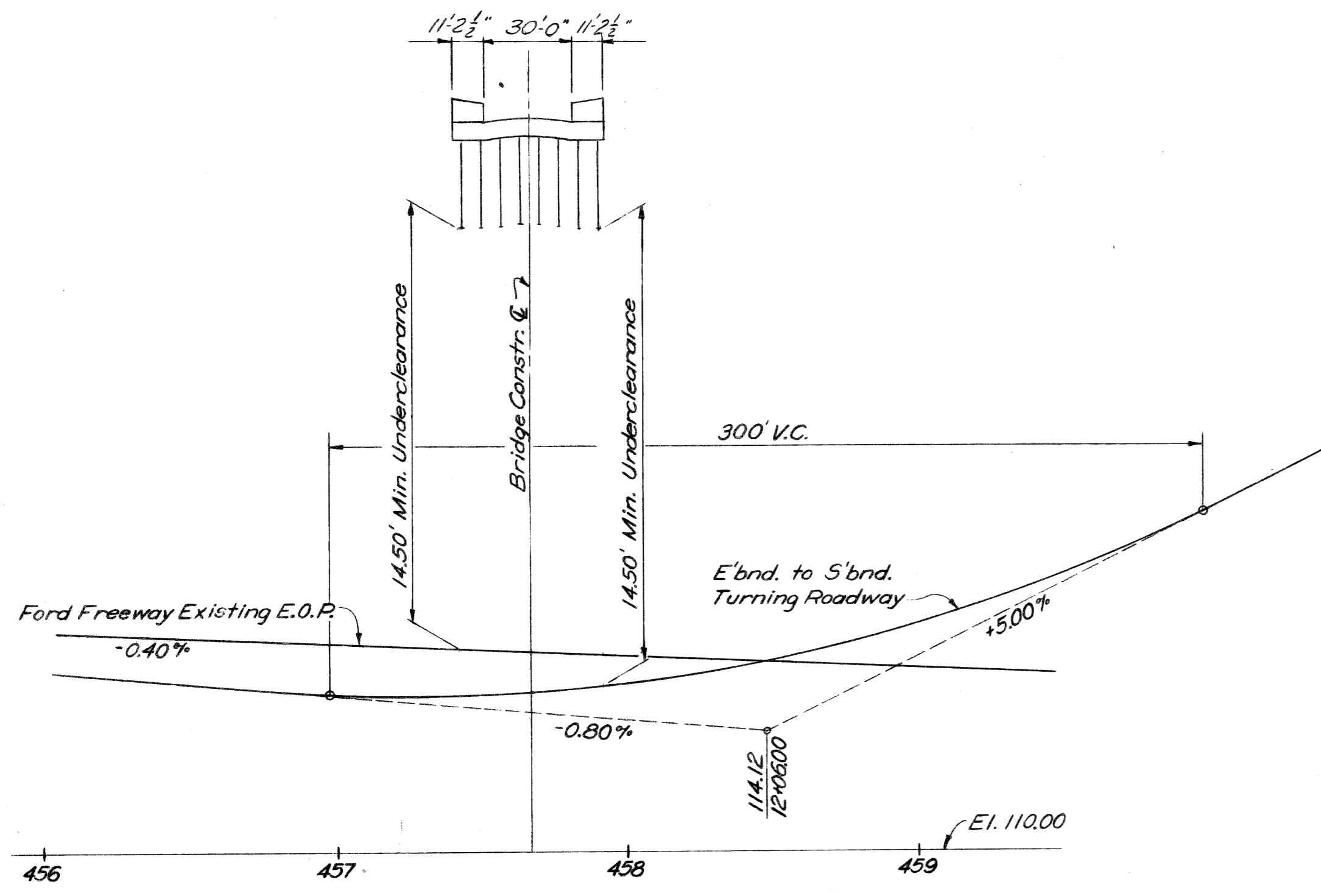
SHEET 2 OF 15

**82023A**

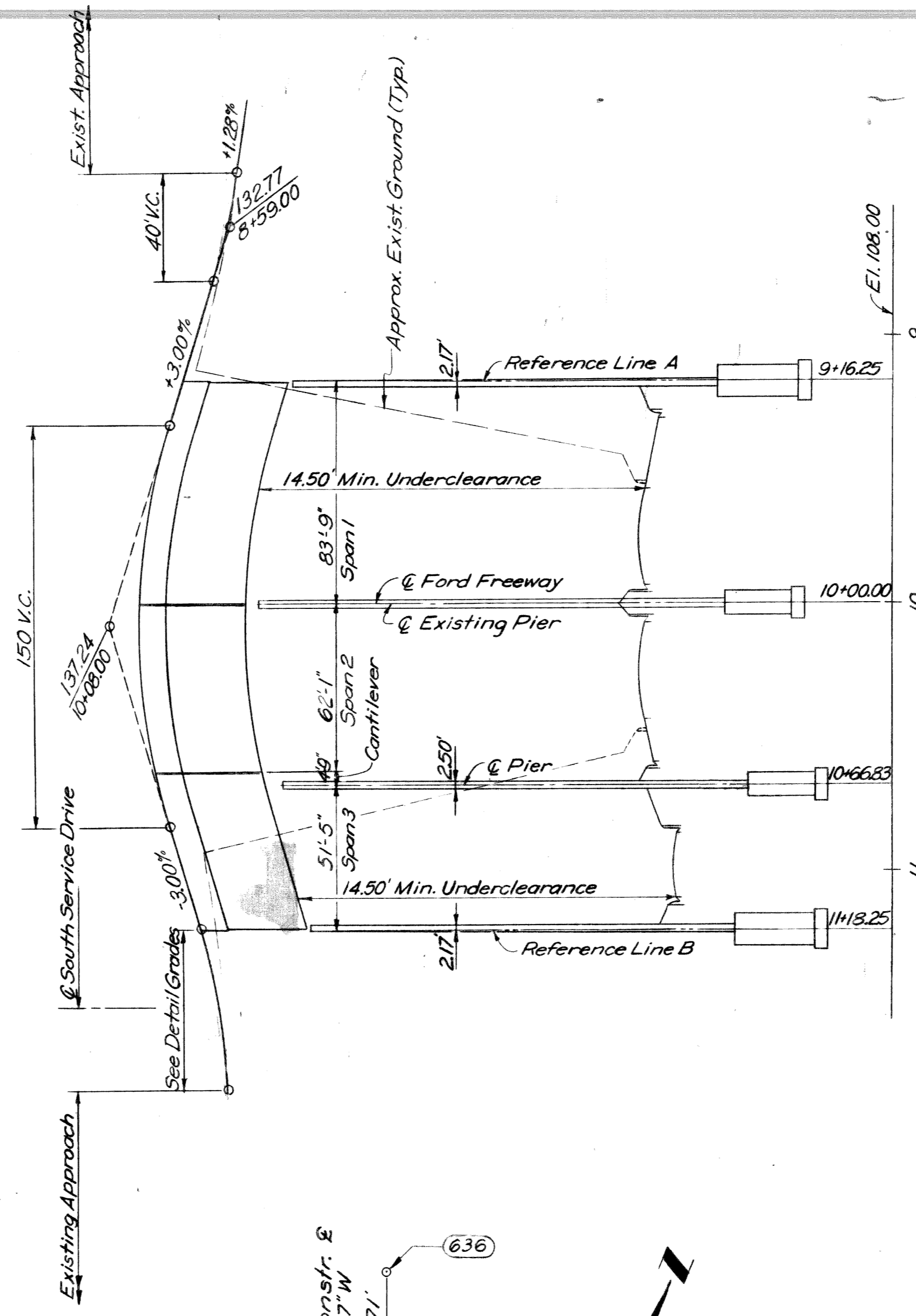




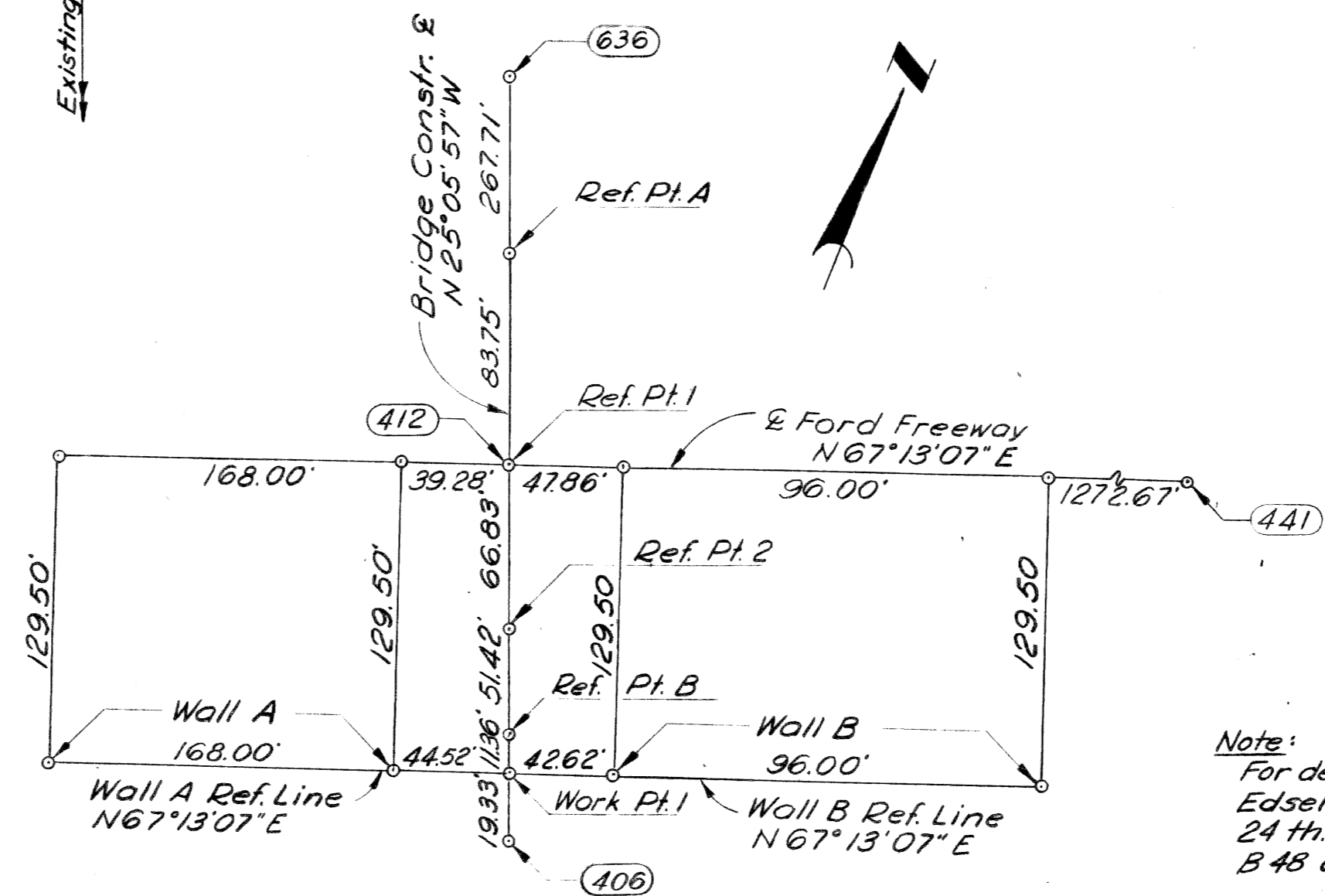
PLAN  
Scale 1"=40'



PROFILE ON EDSEL FORD FREEWAY  
Scale: 1"=40' Horiz., 1"=4' Vert.



PROFILE ON BRIDGE CONSTR.  
Scale: Horiz. 1"=40', Vert. 1"=4'



ALIGNMENT DIAGRAM  
Not to Scale

• Denotes Point of Intersection  
Ⓞ Denotes Survey Traverse Point

CONSTRUCTION BENCH MARKS

C.B.M.-33 Elev. 135.65 Arrow on Hydrant S.W. Corner 25th. & Ford S. Service Drive  
C.B.M.-34 Elev. 136.07 Arrow on Hydrant S.W. Corner 24th. & Ford S. Service Drive  
C.B.M.-53 Elev. 136.07 Arrow on Hydrant N.E. Corner 25th. & Ford N. Service Drive  
C.B.M.-55 Elev. 136.31 Arrow on Hydrant W. Side of 24th. 130'S. of Hudson  
Elevations are referred to City of Detroit Datum, 479.755 Ft. above Sea Level.

Note:  
For details of existing structure, see  
Edsel Ford Expressway crossing  
24th. St. in the City of Detroit  
B 48 of 82-22-10

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]* STRUCTURAL ENGINEER  
JOB No. PW 990(16)

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

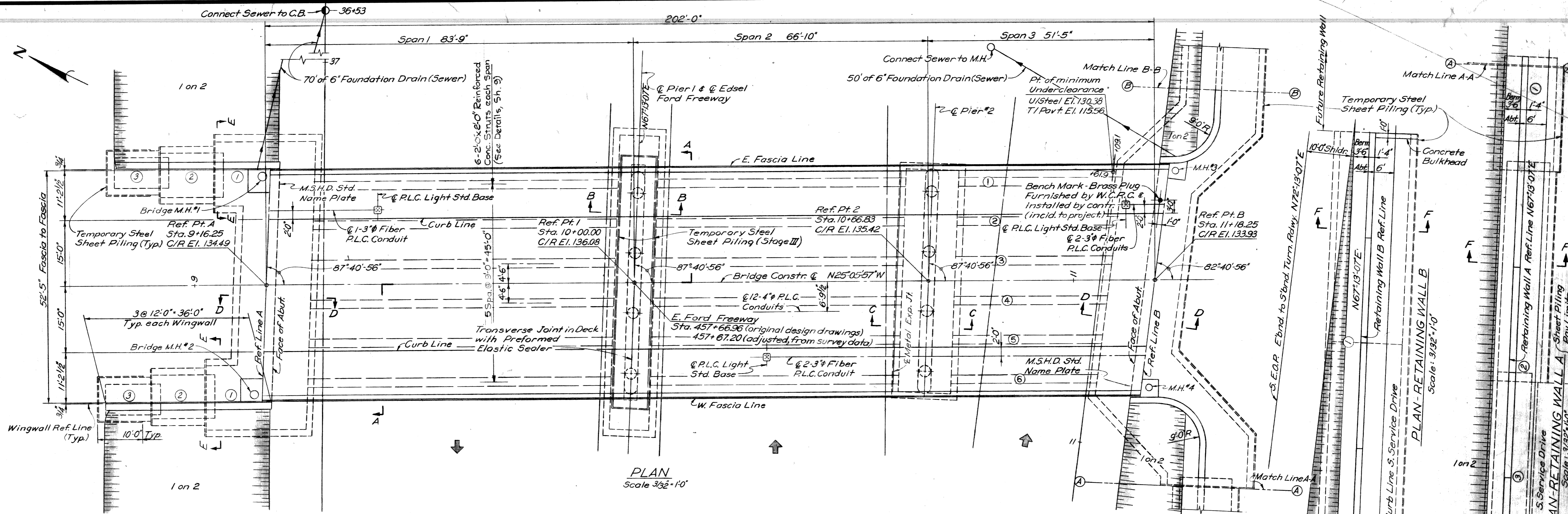
GENERAL DRAWING

APPROVED: \_\_\_\_\_ DESIGN SUPERVISING ENGINEER  
APPROVED: \_\_\_\_\_ ENGINEER OF DESIGN - CONSULTANTS

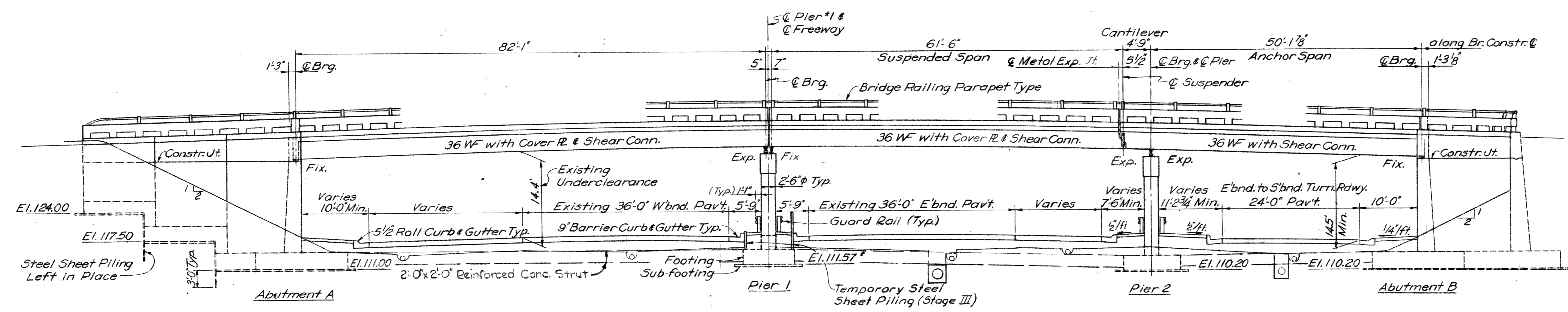
SQUAD BOSS	DATE
<i>[Signature]</i>	9-66
<i>[Signature]</i>	10-65

CITY OF DETROIT  
SHEET 3 OF 13  
S15 of 82023A

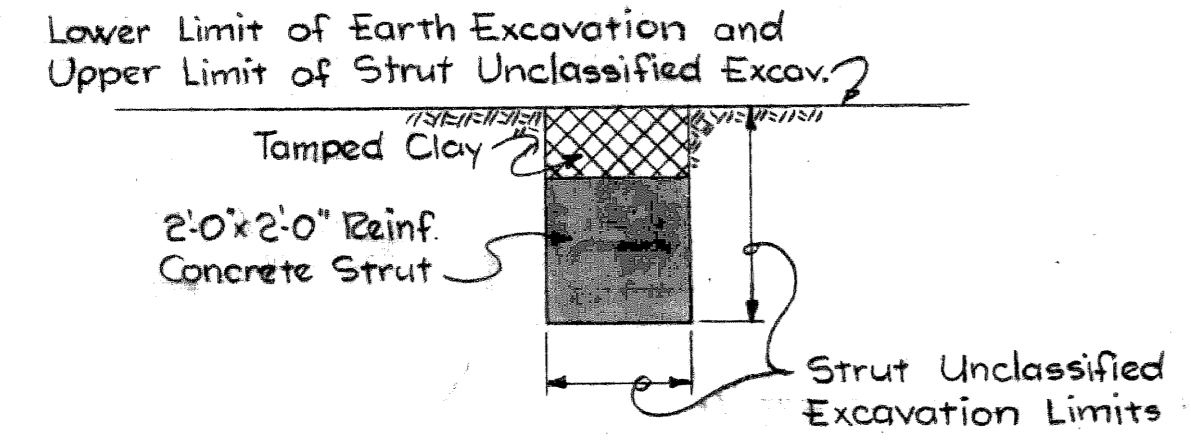




PLAN  
Scale 3/32"=1'-0"



ELEVATION  
Scale 3/32"=1'-0"



TYPICAL SECTION THRU STRUT

\*Taken from design drawings  
verify in field

PLANS PREPARED BY  
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APPROVED: *C.C. Liden* JUN 1966  
STRUCTURAL ENGINEER PW 990(16)

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

CITY OF DETROIT

GENERAL PLAN OF STRUCTURE

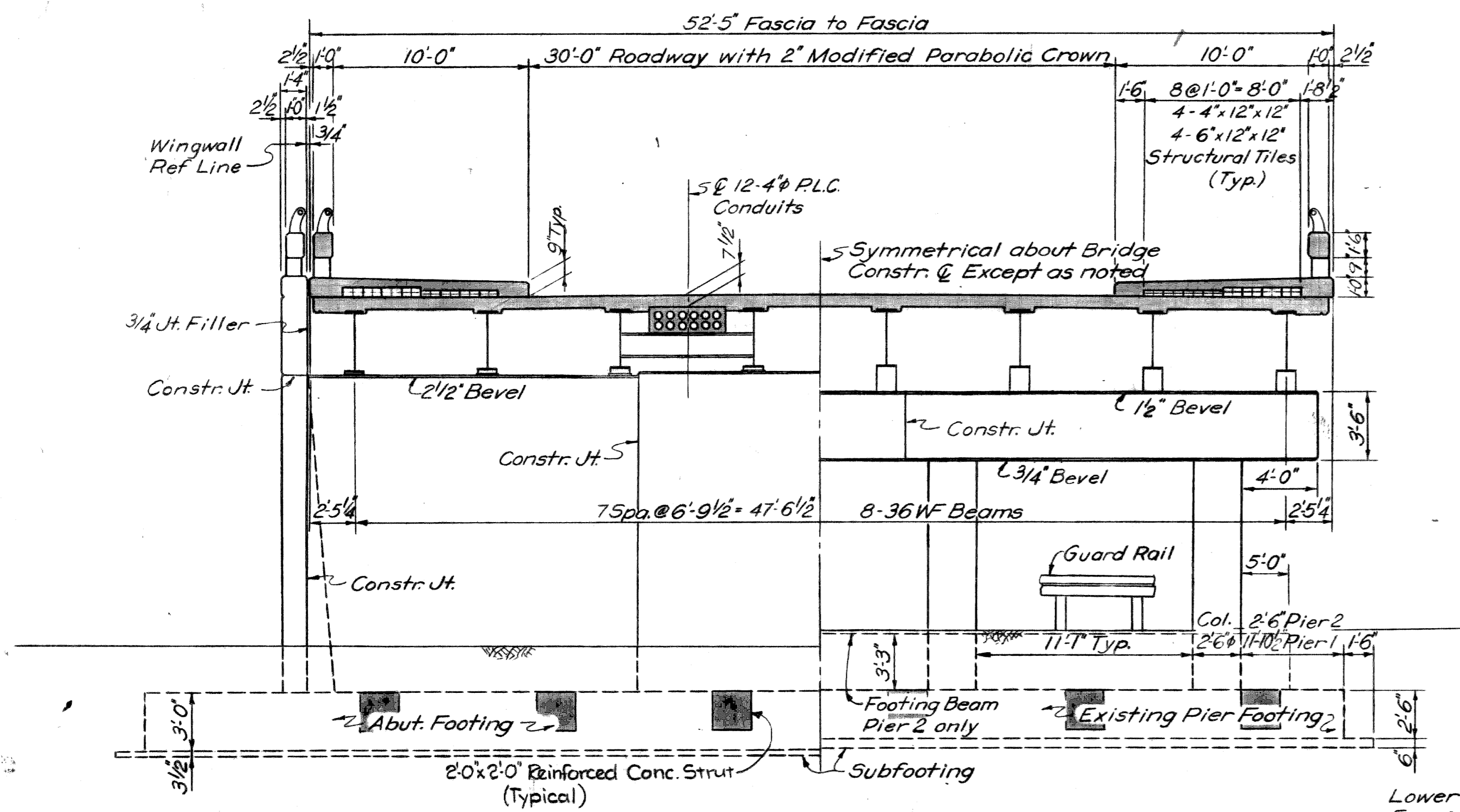
APPROVED: \_\_\_\_\_ DESIGN SUPERVISING ENGINEER

APPROVED: \_\_\_\_\_ ENGINEER OF DESIGN - CONSULTANTS

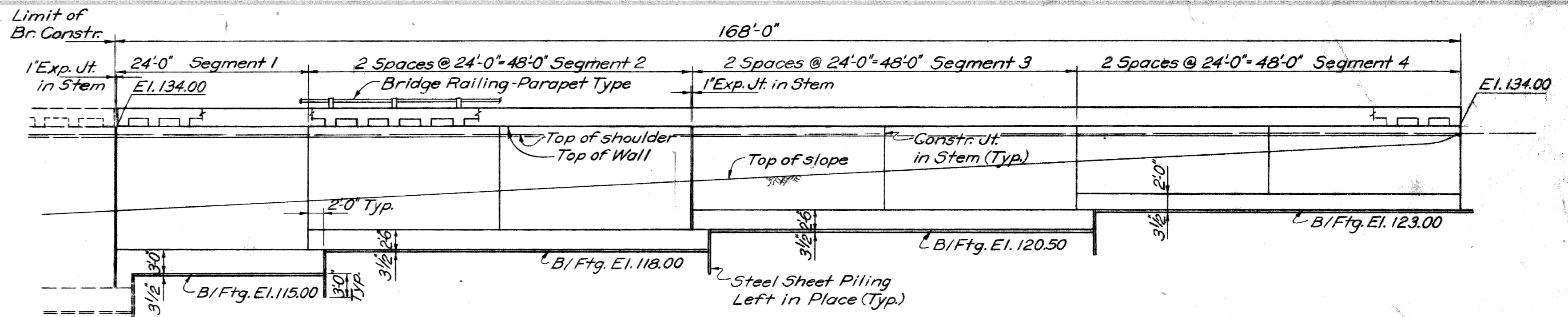
SQUAD BOSS	STRAND	3-66
DRAWN BY	K.W.H.	2-66
TRACED BY		
CHECKED BY	STRAND	2-66
SHEET	4	OF 15

S15 of 82023A

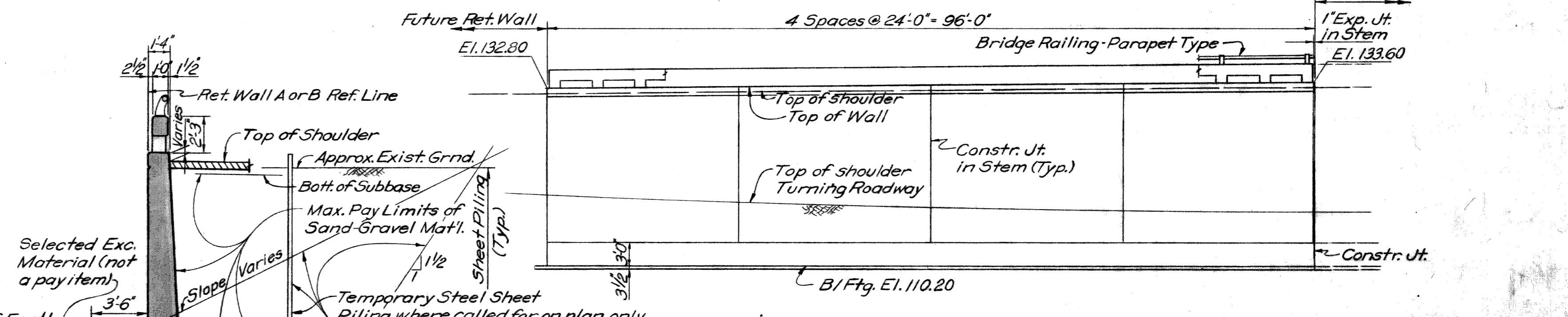




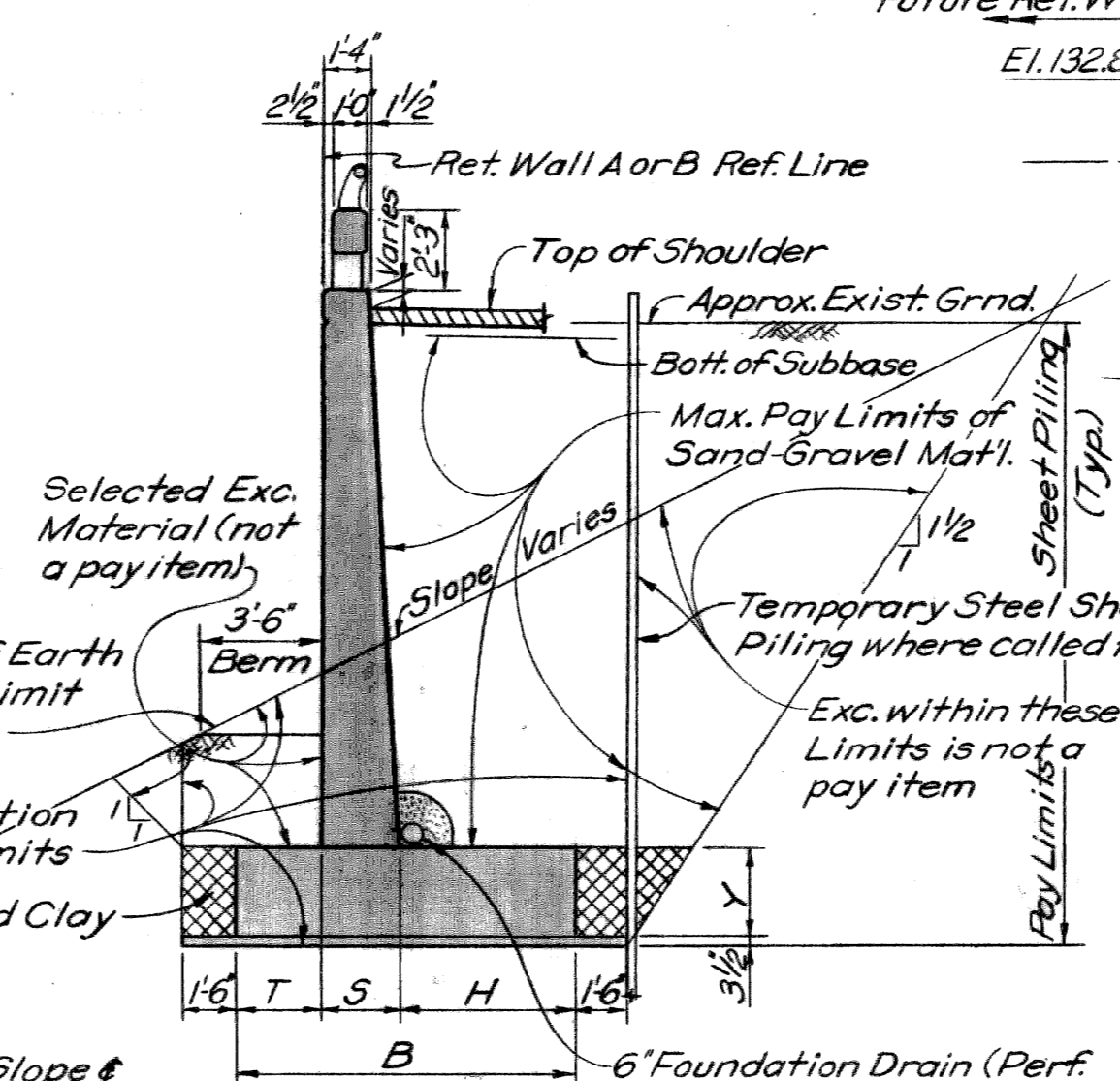
**SECTION A-A**  
Scale: 3/16"=1'-0"



**ELEVATION WALL A**  
Scale: 3/32"=1'-0"



**ELEVATION WALL B**  
Scale: 3/32"=1'-0"



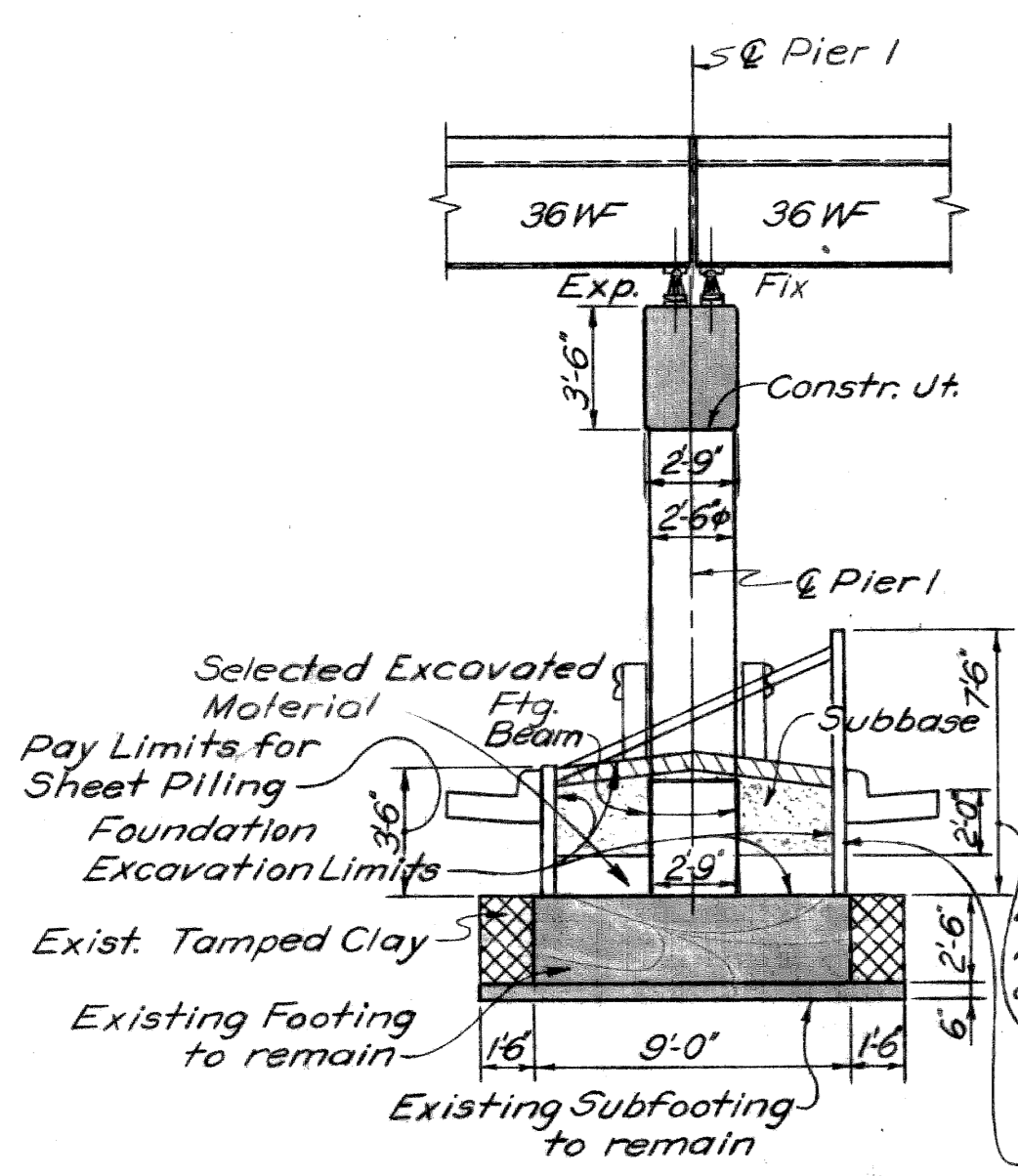
**SECTION F-F**  
Scale: 3/16"=1'-0"

WALL DIMENSIONS					
Segment	Y	B	T	S	H
1	3'-0"	12'-0"	4'-0"	2'-9"	5'-3"
2	2'-6"	9'-9"	2'-6"	2'-6"	4'-9"
3	2'-6"	8'-0"	1'-9"	2'-3"	4'-0"
4	2'-0"	7'-0"	1'-9"	2'-0"	3'-3"
1	3'-0"	16'-0"	6'-6"	3'-0"	6'-6"
2	3'-0"	18'-0"	7'-0"	2'-9"	8'-3"
1	2'-6"	10'-0"	3'-6"	2'-3"	4'-3"
3	2'-0"	6'-6"	2'-3"	1'-9"	2'-6"

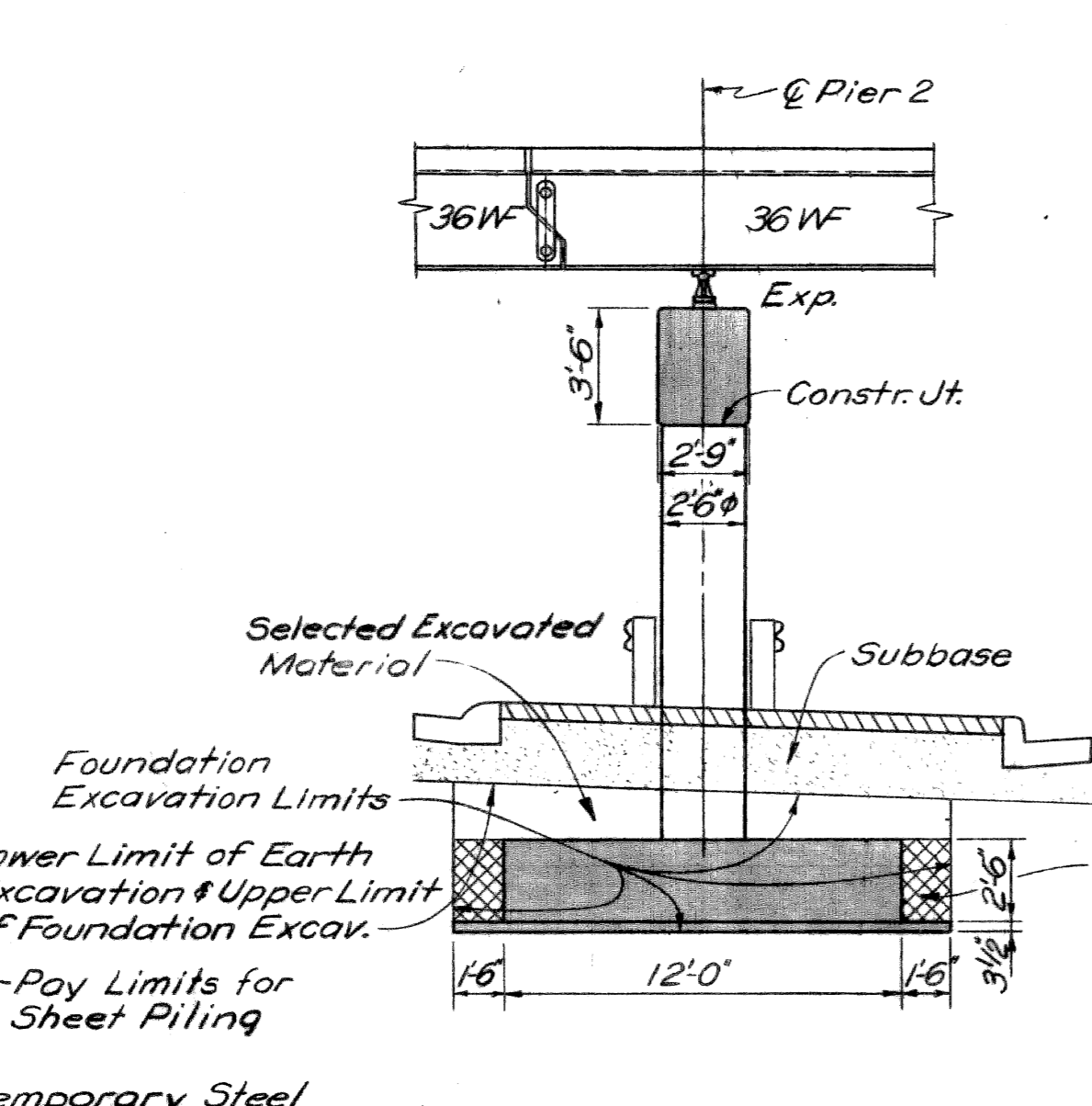
**Note:**  
See Road Drawings for Slope & Elevation of Upper Limit of Foundation Excavation in Sections D-D & F-F

**GENERAL NOTES:**  
The design of this structure is based on M.S.H.D. Specifications for the Design of Highway Bridges, 1956 edition (HS20-44) Loading. Live Load plus impact deflection = 1/1000 of span length and 1/350 of the cantilever arm.  
The top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.  
Traffic on 24th St. will be detoured.  
Traffic on the Ford Freeway will be maintained (See Construction Staging).  
C/R denotes: crown of roadway.  
Tamped Clay and Selected Excavated Material are incidental to Unclassified Excavation.  
Porous Material Grade B is incidental to Foundation Drains

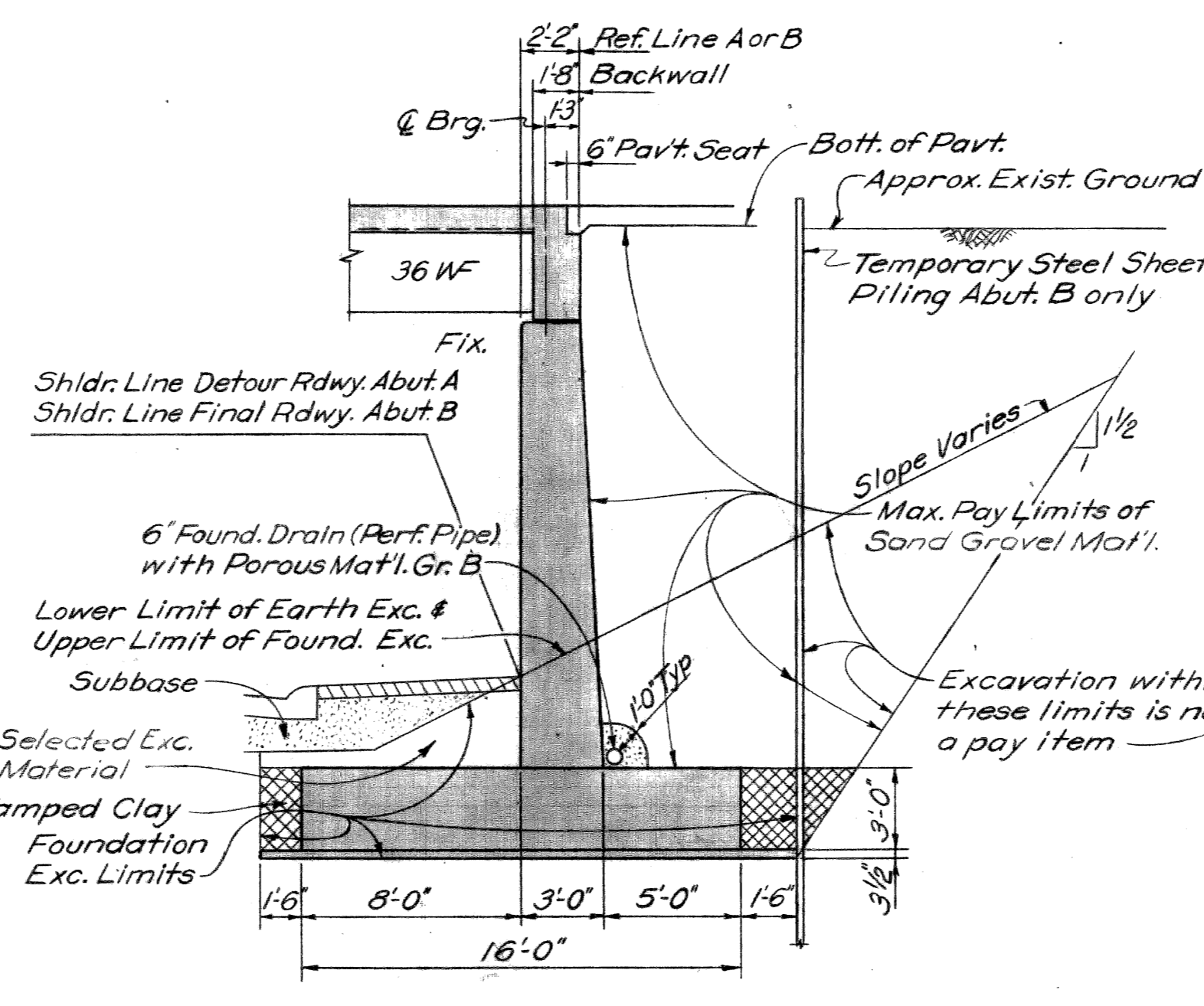
**MISCELLANEOUS QUANTITIES:**  
Temporary Steel Sheet Piling 3785 Sq. Ft.  
6" Foundation Drains 120 Lin. Ft.  
Removing Portions of Existing Structure - Lump Sum



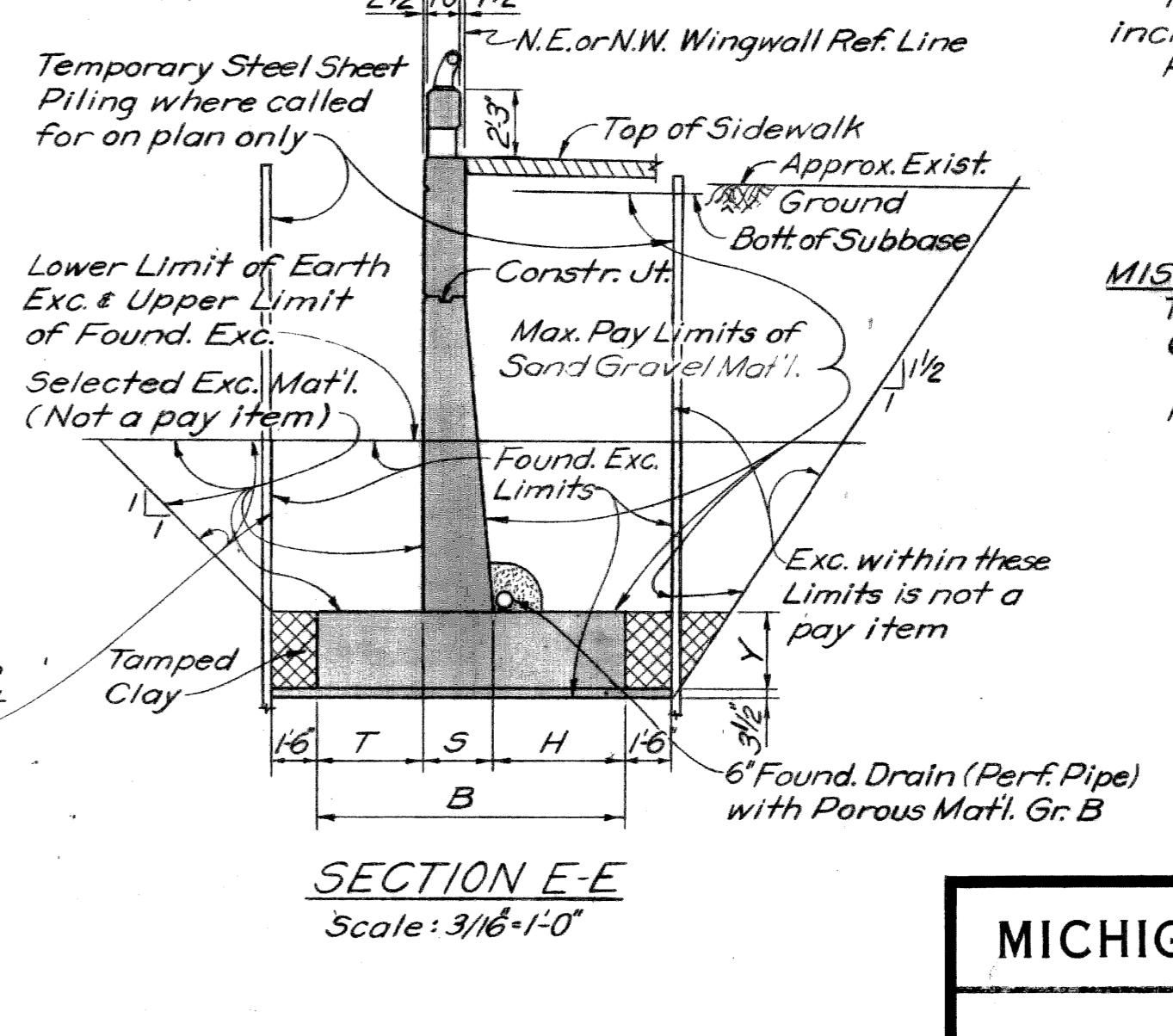
**SECTION B-B**  
Scale: 3/16"=1'-0"



**SECTION C-C**  
Scale: 3/16"=1'-0"



**SECTION D-D**  
Scale: 3/16"=1'-0"



**SECTION E-E**  
Scale: 3/16"=1'-0"

**Note:**  
Do not damage nor disturb exist. Curbs & Footing when driving Sheet Piling.  
The contractor shall be responsible for bracing the sheet piling to protect the work.  
Bracing is incidental to Temp. Stl. Sheet Piling

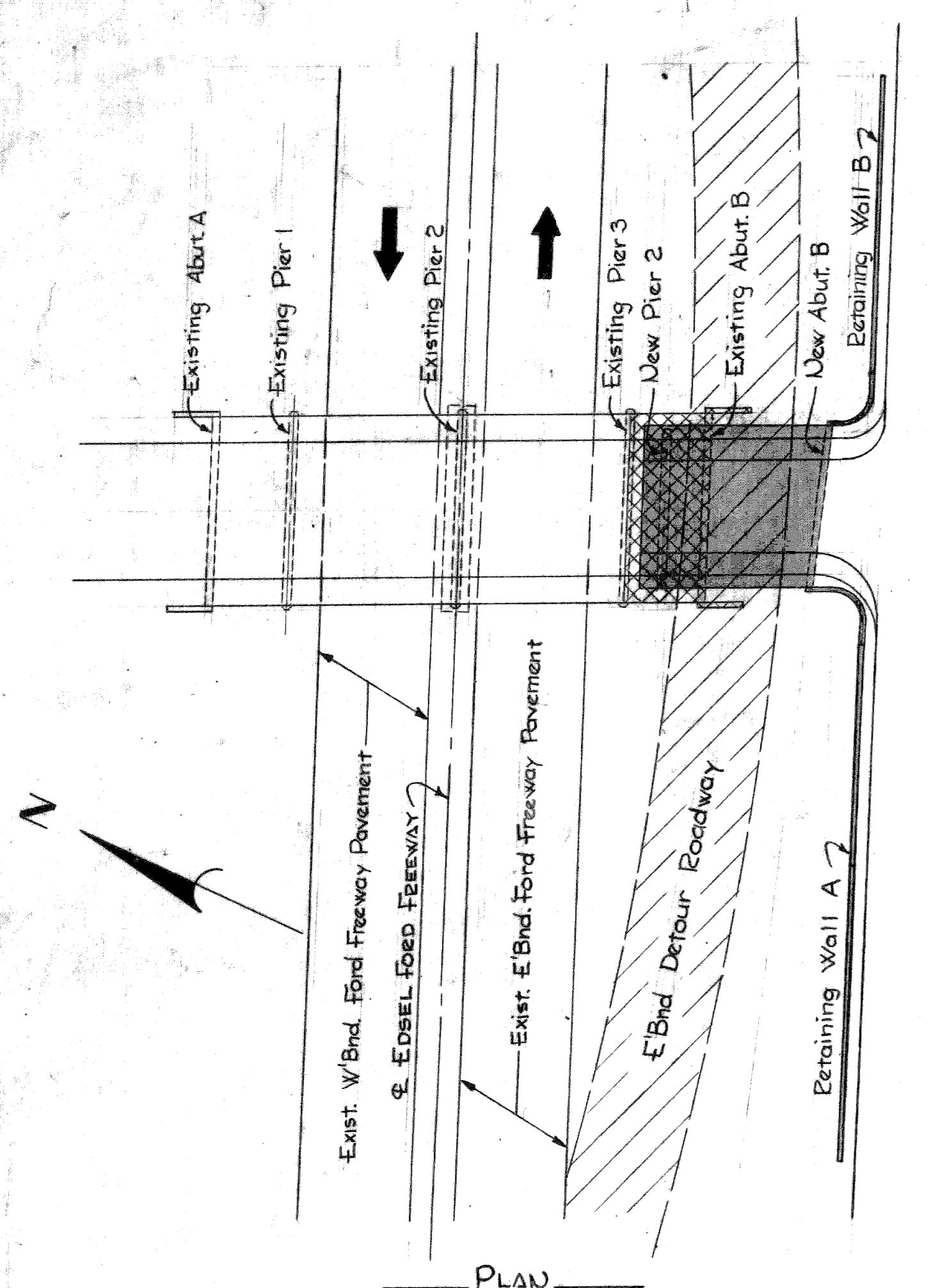
PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS  
APPROVED: [Signature] STRUCTURAL ENGINEER  
JOB No. PW 990(16)

**MICHIGAN STATE HIGHWAY DEPARTMENT**

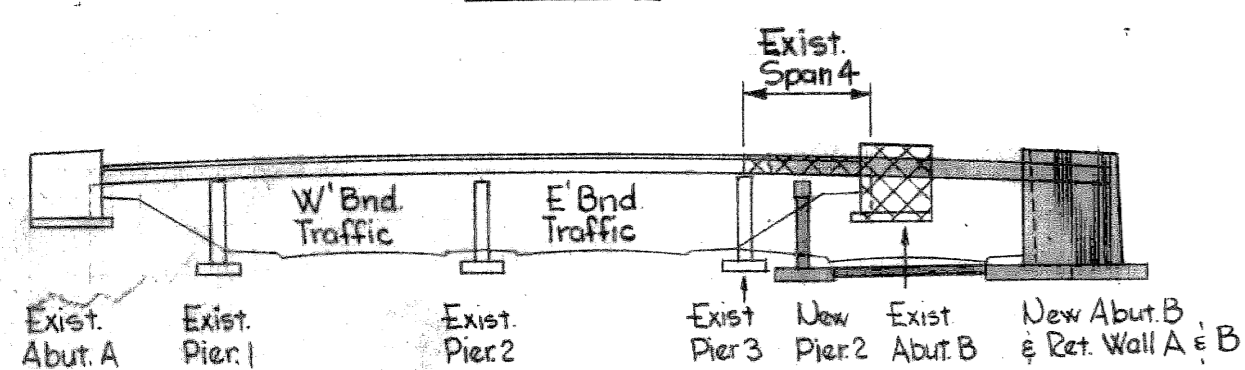
JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT  
**GENERAL PLAN OF STRUCTURE**  
APPROVED: \_\_\_\_\_ DESIGN SUPERVISING ENGINEER  
APPROVED: \_\_\_\_\_ ENGINEER OF DESIGN - CONSULTANTS  
SHEET 5 OF 15  
SQUAD BOSS: STUBBINS 2-66  
DRAWN BY: N.V.H. 2-66  
CHECKED BY: STUBBINS 2-66  
915 of 82023A

REVISIONS			
NO.	DESCRIPTION	DATE	BY





PLAN



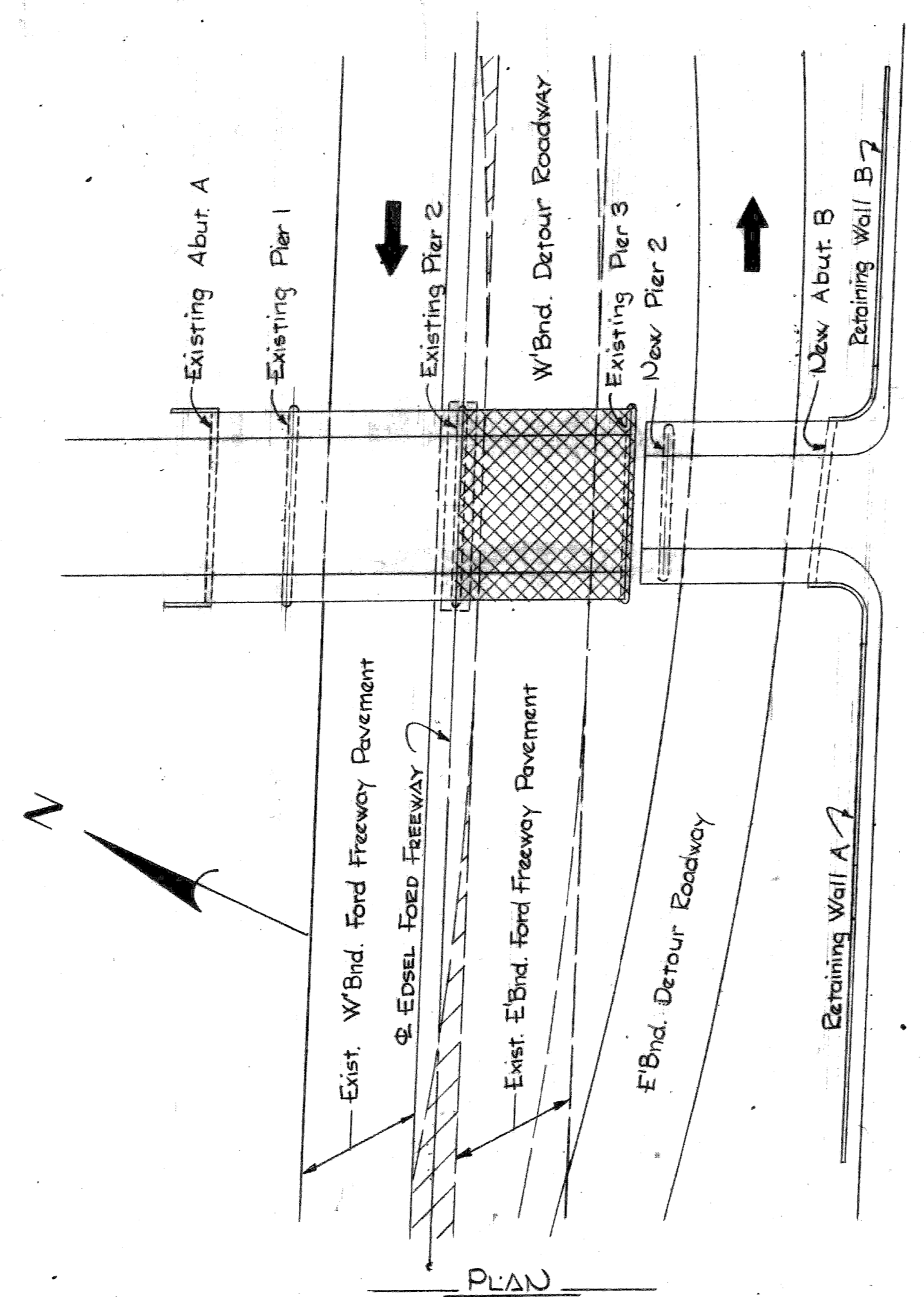
ELEVATION

STAGE I

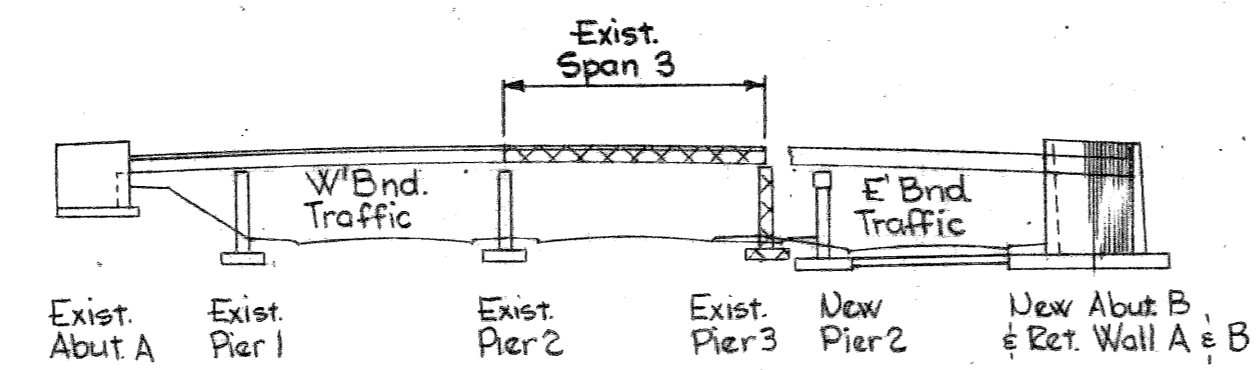
With traffic using existing Ford Freeway pavements, remove Span 4 and Abutment B of existing bridge.

Build Pier 2, Abut. B, Ret. Walls A & B, Span 3 Struts and Span 3 (Structural Steel only) of the new bridge.

Build Eastbound Detour Roadway (Road Work - See Road Drawings)



PLAN

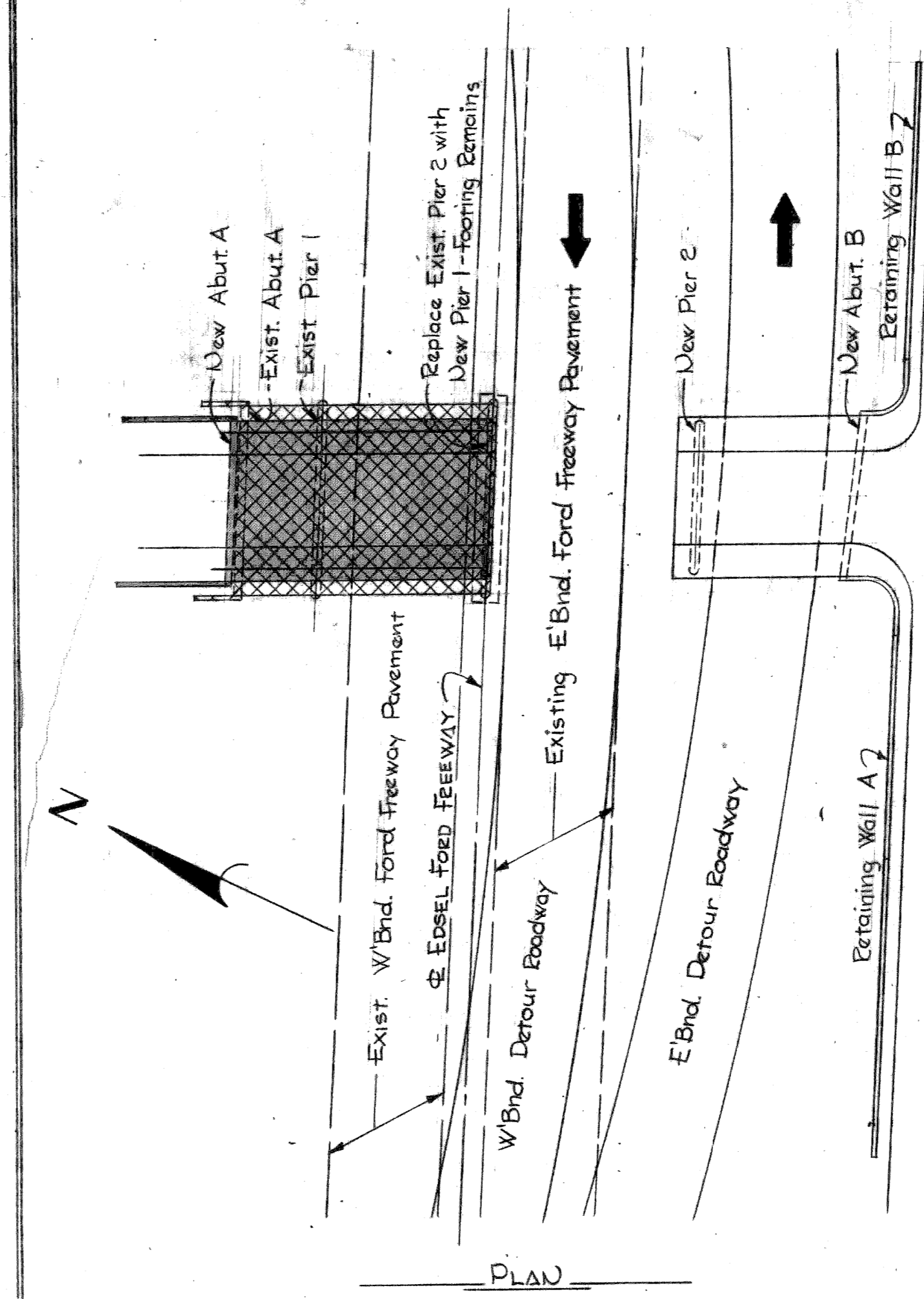


ELEVATION

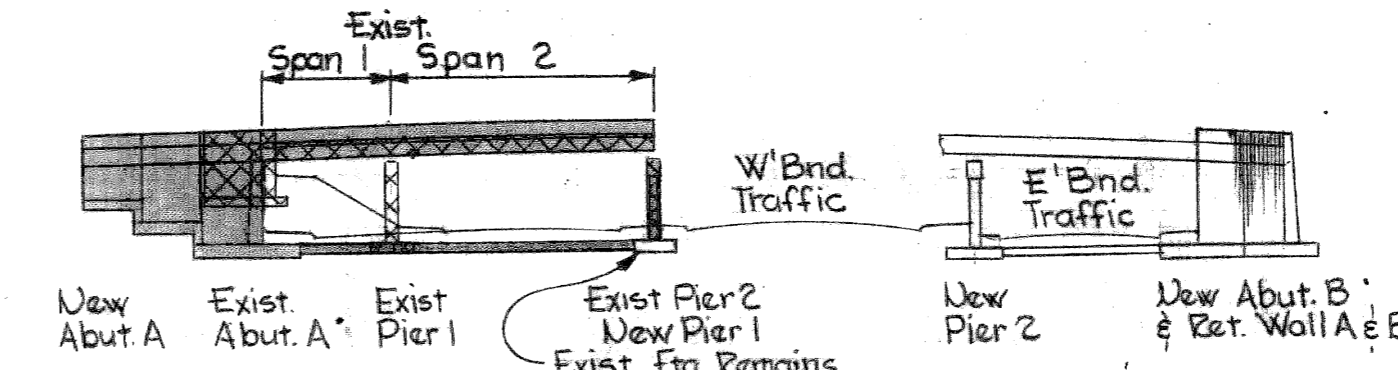
STAGE II

With eastbound traffic using the detour roadway, remove Span 3 and Pier 3 of the existing bridge.

Build Westbound Detour Roadway (Road Work - See Road Drawings)



PLAN

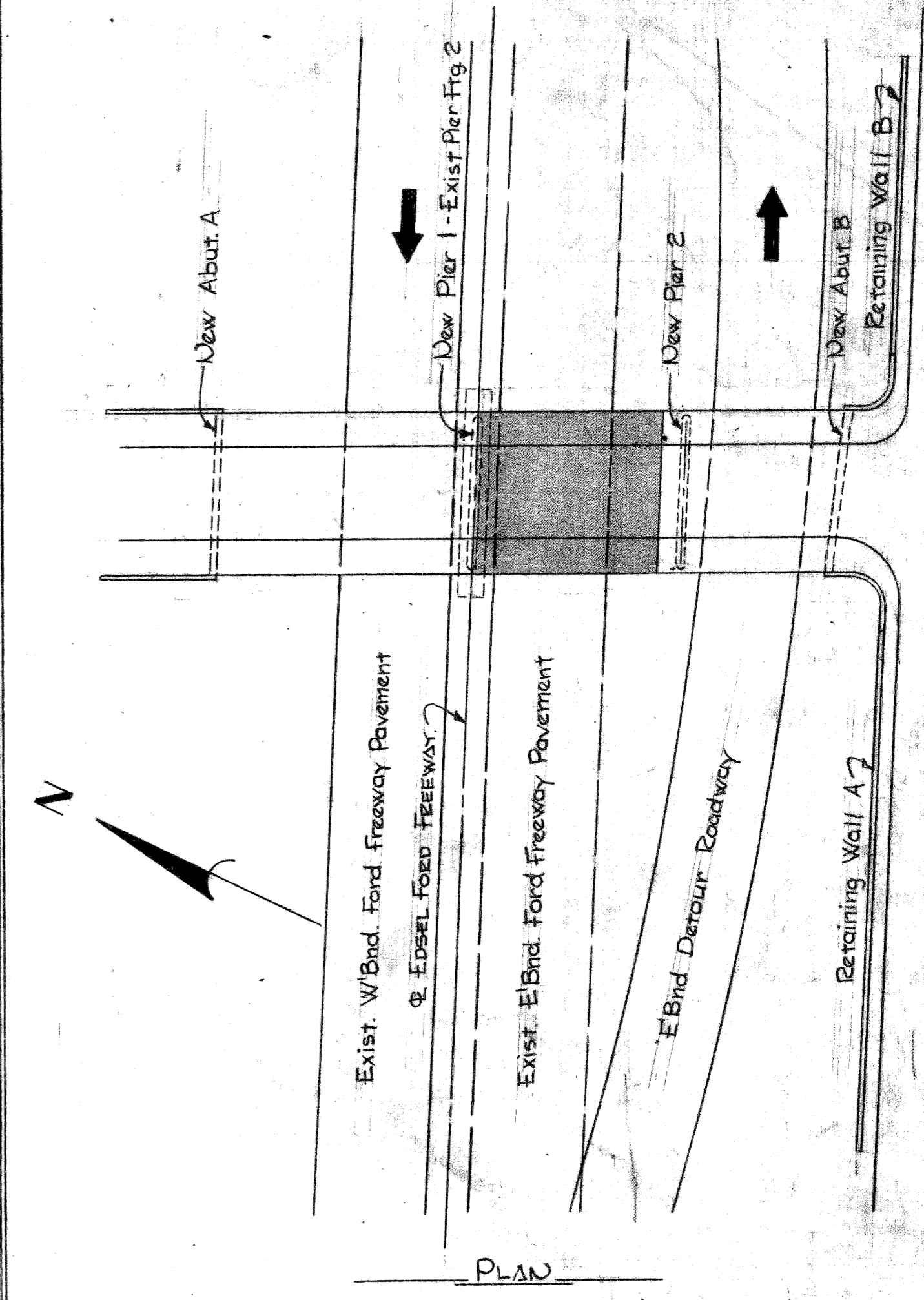


ELEVATION

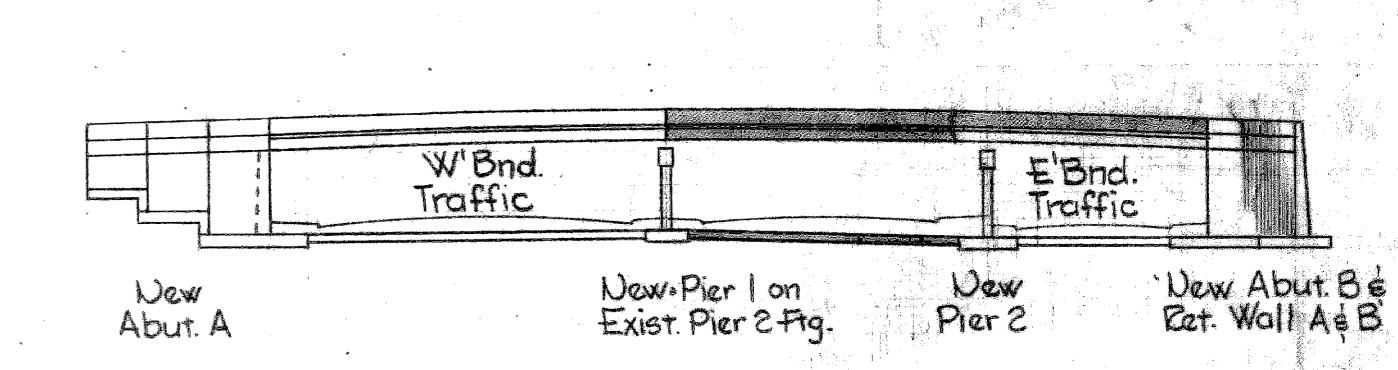
STAGE III

With westbound traffic using existing Eastbound Ford Freeway pavement, remove Spans 1 & 2, Abutment A and Piers 1 & 2 of the existing bridge, leaving the footing of Pier 2.

Build Abut. A, Pier 1, Span 1 Struts and Span 1 of the new bridge, using the existing Pier 2 footing for Pier 1.



PLAN



ELEVATION

STAGE IV

With westbound traffic using the existing Westbound Ford Freeway pavement, build Span 2 Struts and new Span 2.

Restore traffic to normal operation on the Ford Freeway.

Complete Span 3 (Deck & Parapet).

- LEGEND
- Existing Bridge to be Removed
  - Proposed Bridge Construction
  - Detour Construction (Road Work)

NOTE:  
Approximately 130' lin. ft. of Bridge Railing shall be taken from existing 24th St. bridge and marked and stored for future use in revisions to Warren Ave. & W. Grand Blvd. bridges, this contract. (See S11 of 82023A, sh. 3 & 513 & 514 of 82023A, sh. 3) The balance of the existing railing will be removed by the Highway Department and will not become the property of the contractor.

PLANS PREPARED BY  
CITY OF DETROIT  
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CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED STRUCTURAL ENGINEER

JOB No. PW 990(16)

MICHIGAN STATE HIGHWAY DEPARTMENT

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

CONSTRUCTION SEQUENCE  
DETAILS

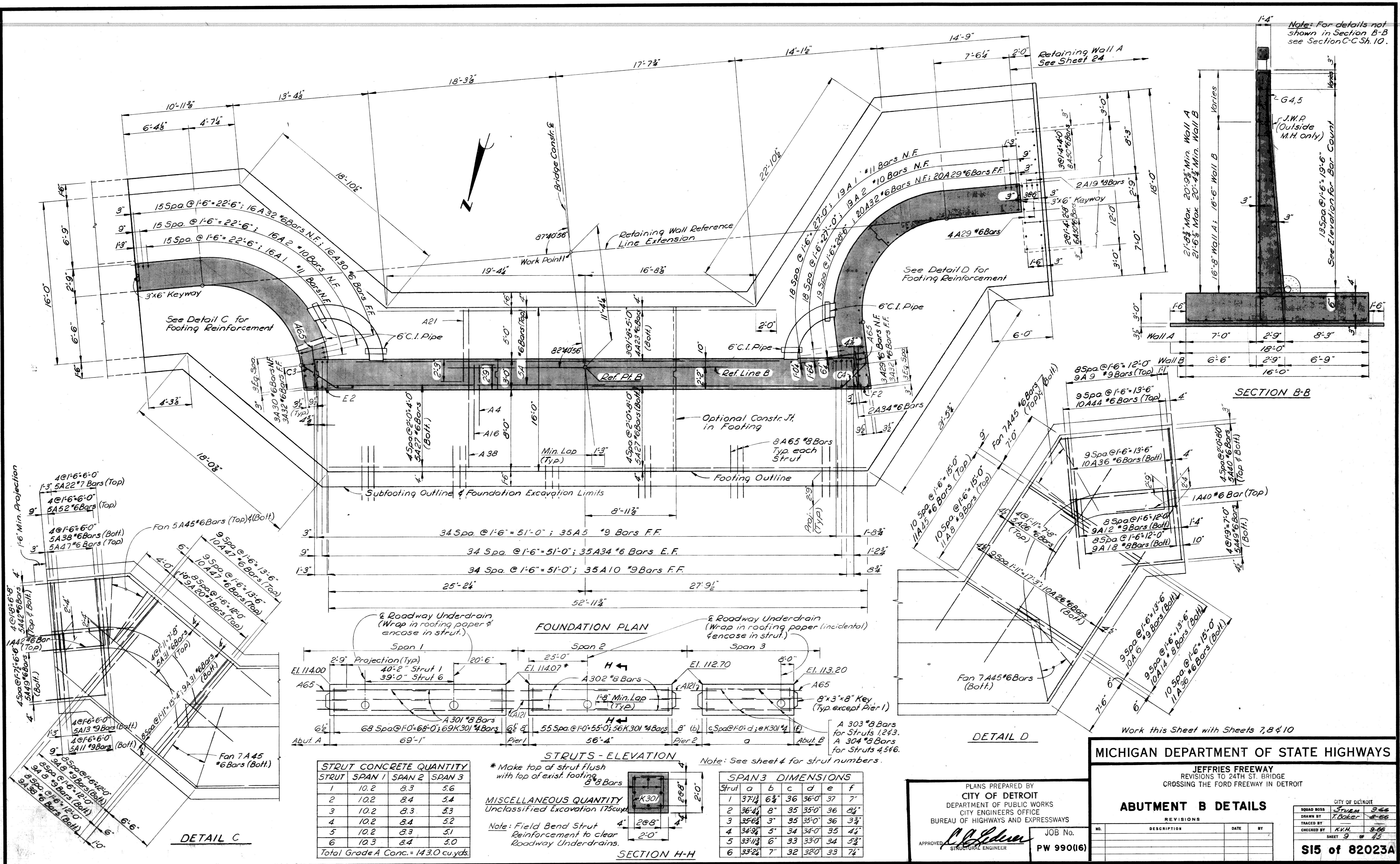
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

SQUAD BOSS	STRUM	2-66
DRAWN BY	ALLEYBUSH	2-65-66
TRACED BY		
CHECKED BY	STRUM	2-66
SHEET	6	OF 15

S15 of 82023A





Note: For details not shown in Section B-B see Section C-C Sh. 10.

SECTION B-B

FOUNDATION PLAN

STRUTS - ELEVATION

STRUT	SPAN 1	SPAN 2	SPAN 3
1	10.2	8.3	5.6
2	10.2	8.4	5.4
3	10.2	8.3	5.3
4	10.2	8.4	5.2
5	10.2	8.3	5.1
6	10.3	8.4	5.0

Total Grade A Conc. = 143.0 cu.yds.

Strut	SPAN 3 DIMENSIONS					
	a	b	c	d	e	f
1	37' 1/2"	6' 3/4"	36'	36' 0"	37'	7'
2	36' 4 1/4"	8"	35'	35' 0"	36'	3 1/2"
3	35' 6 1/4"	3"	35'	35' 0"	36'	3 3/4"
4	34' 3 1/4"	5"	34'	34' 0"	35'	4 1/4"
5	33' 1 1/4"	6"	33'	33' 0"	34'	5 1/4"
6	33' 2 1/4"	7"	32'	32' 0"	33'	7 1/4"

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

ABUTMENT B DETAILS

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

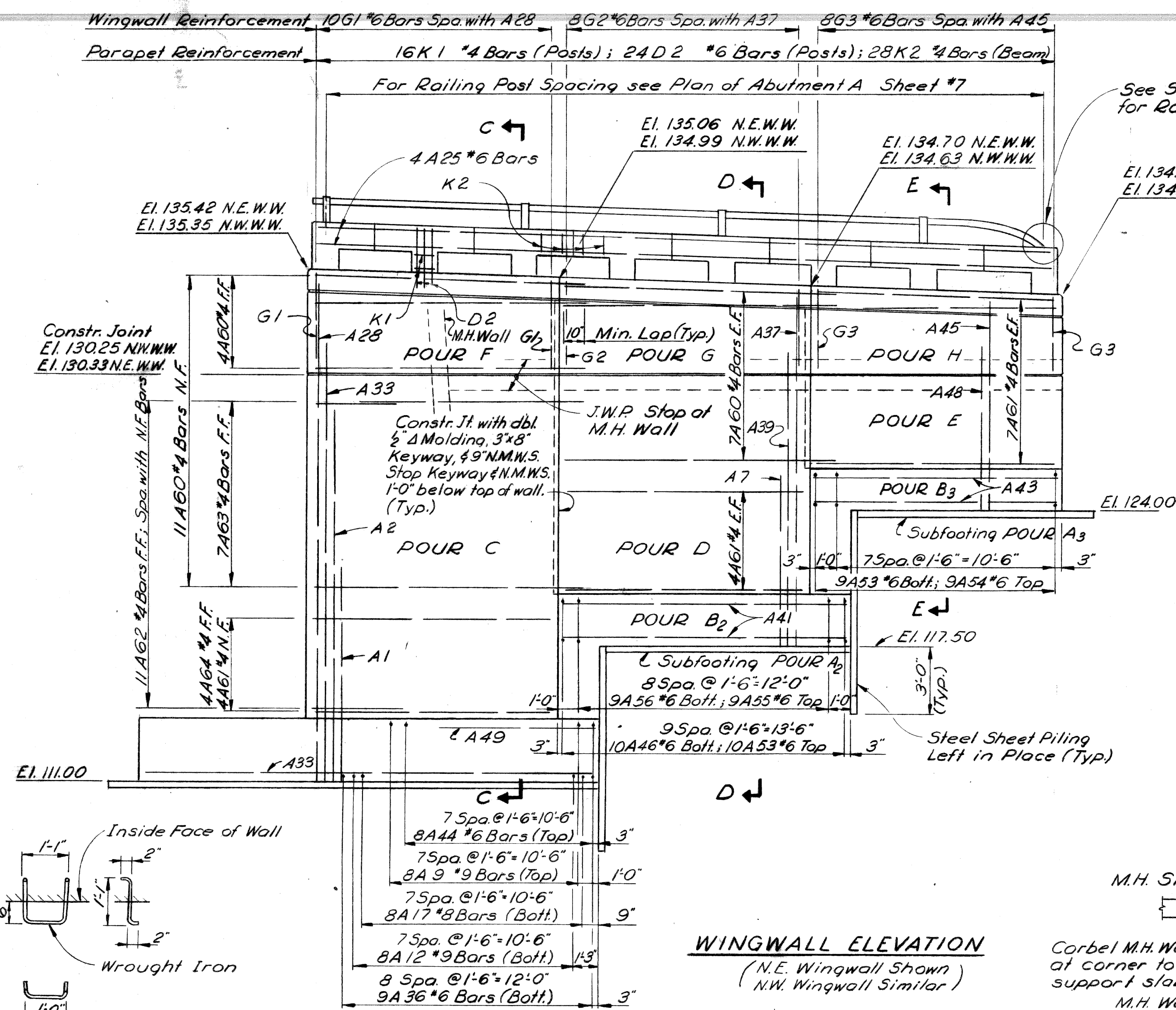
APPROVED: *[Signature]*  
STRUCTURAL ENGINEER

JOB No. PW 990(16)

NO.	DESCRIPTION	DATE	BY

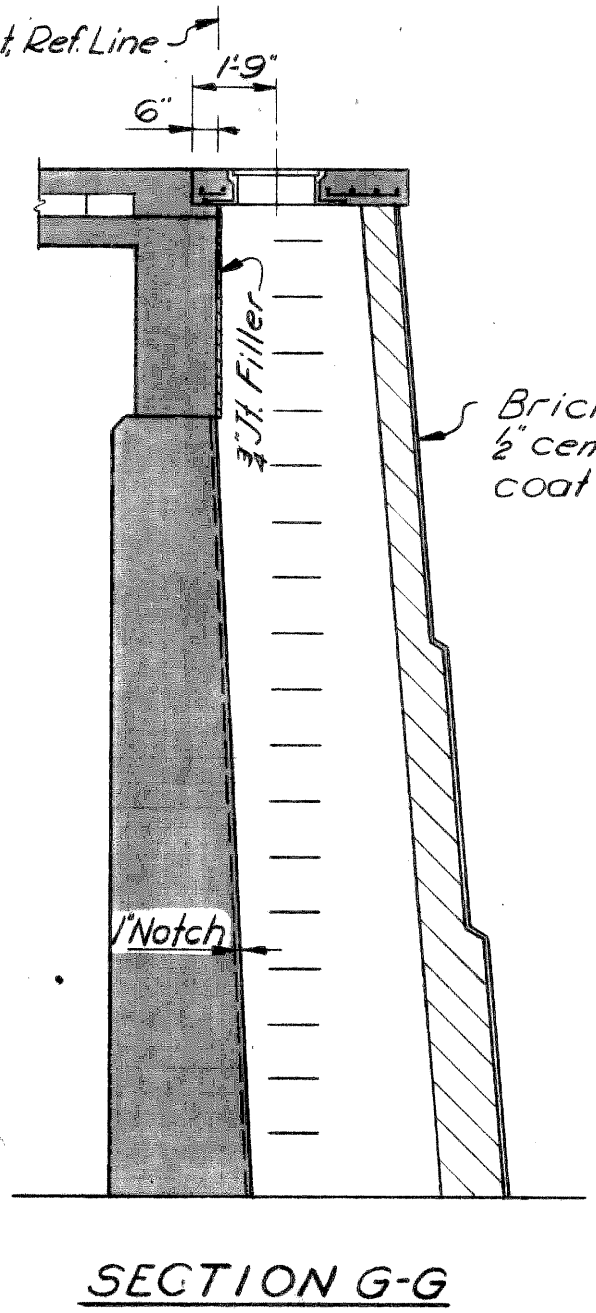
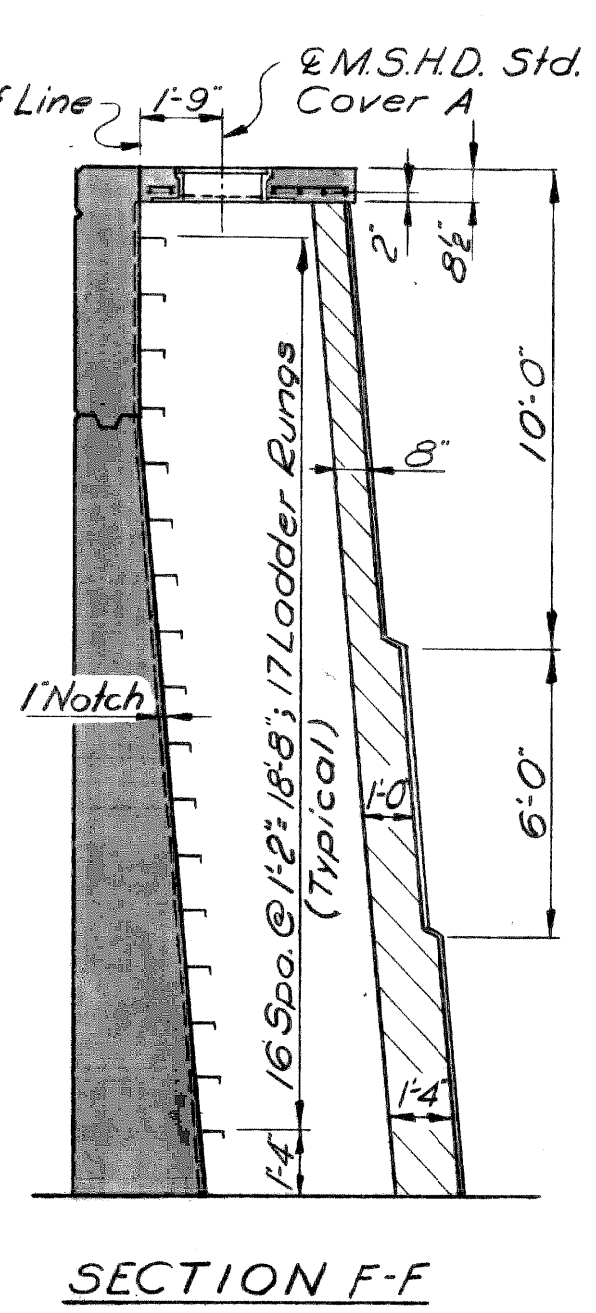
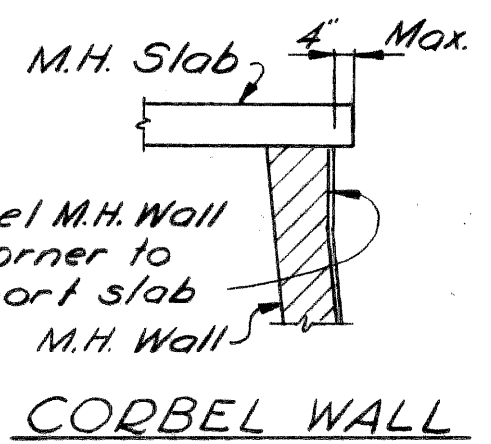
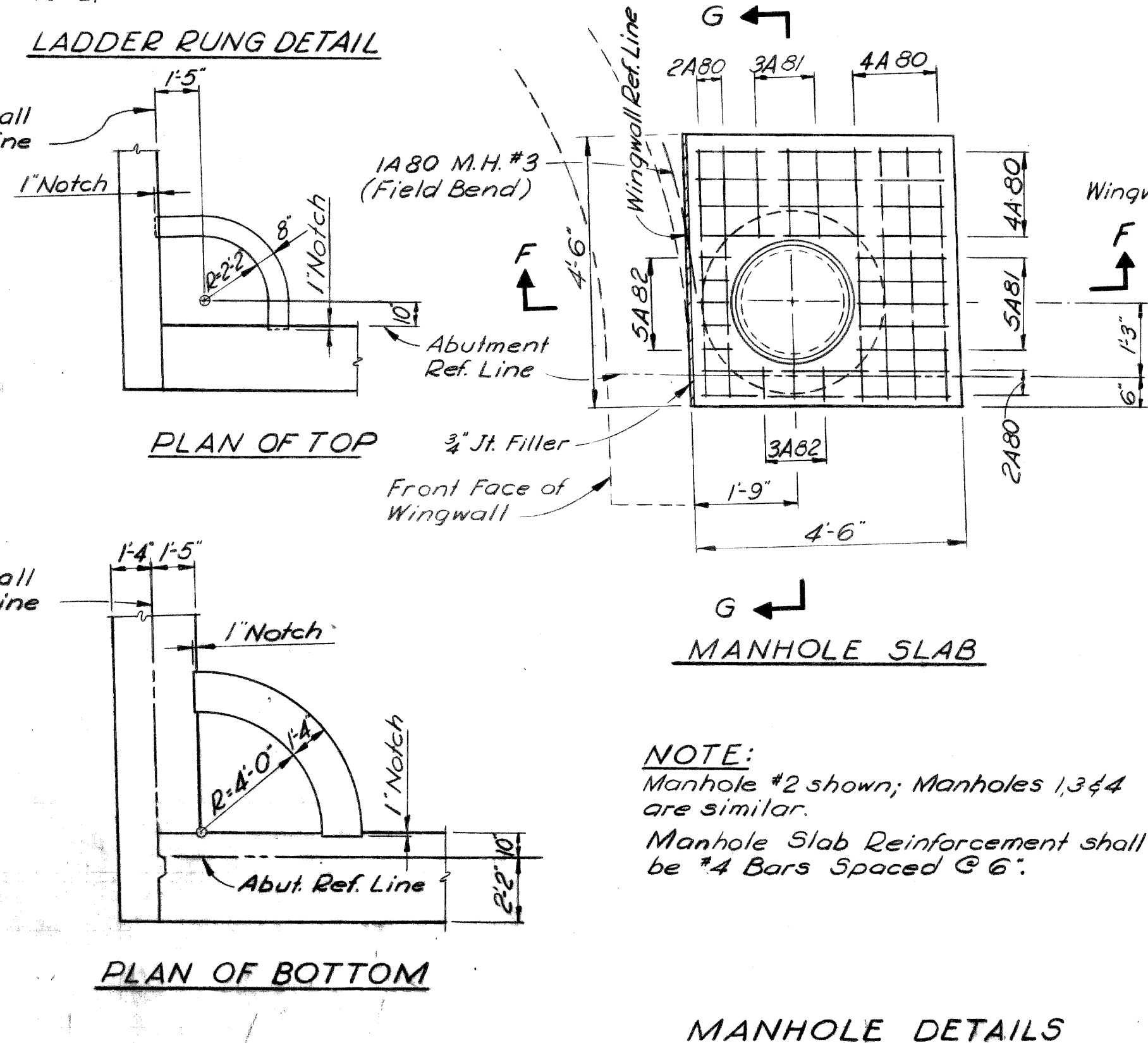
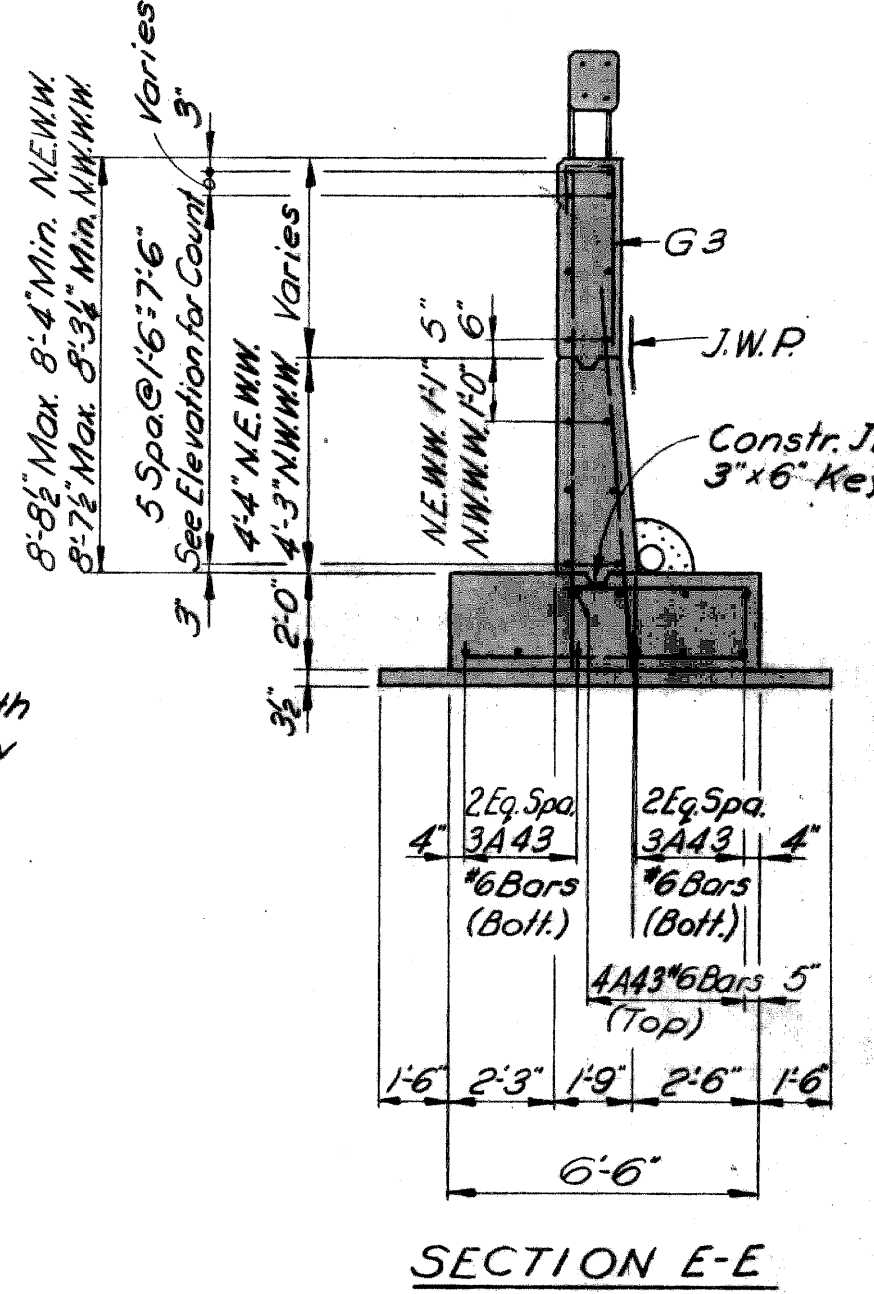
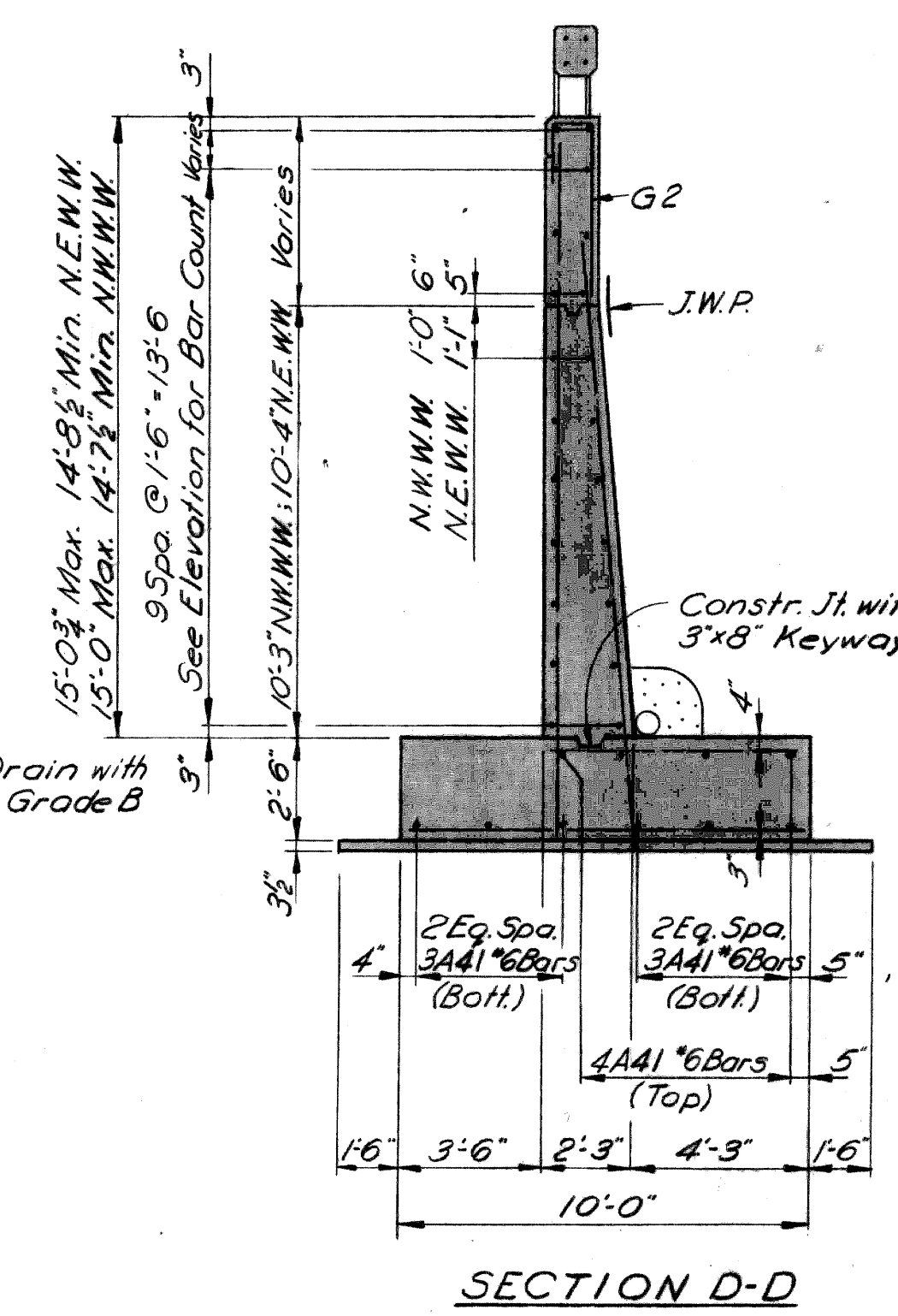
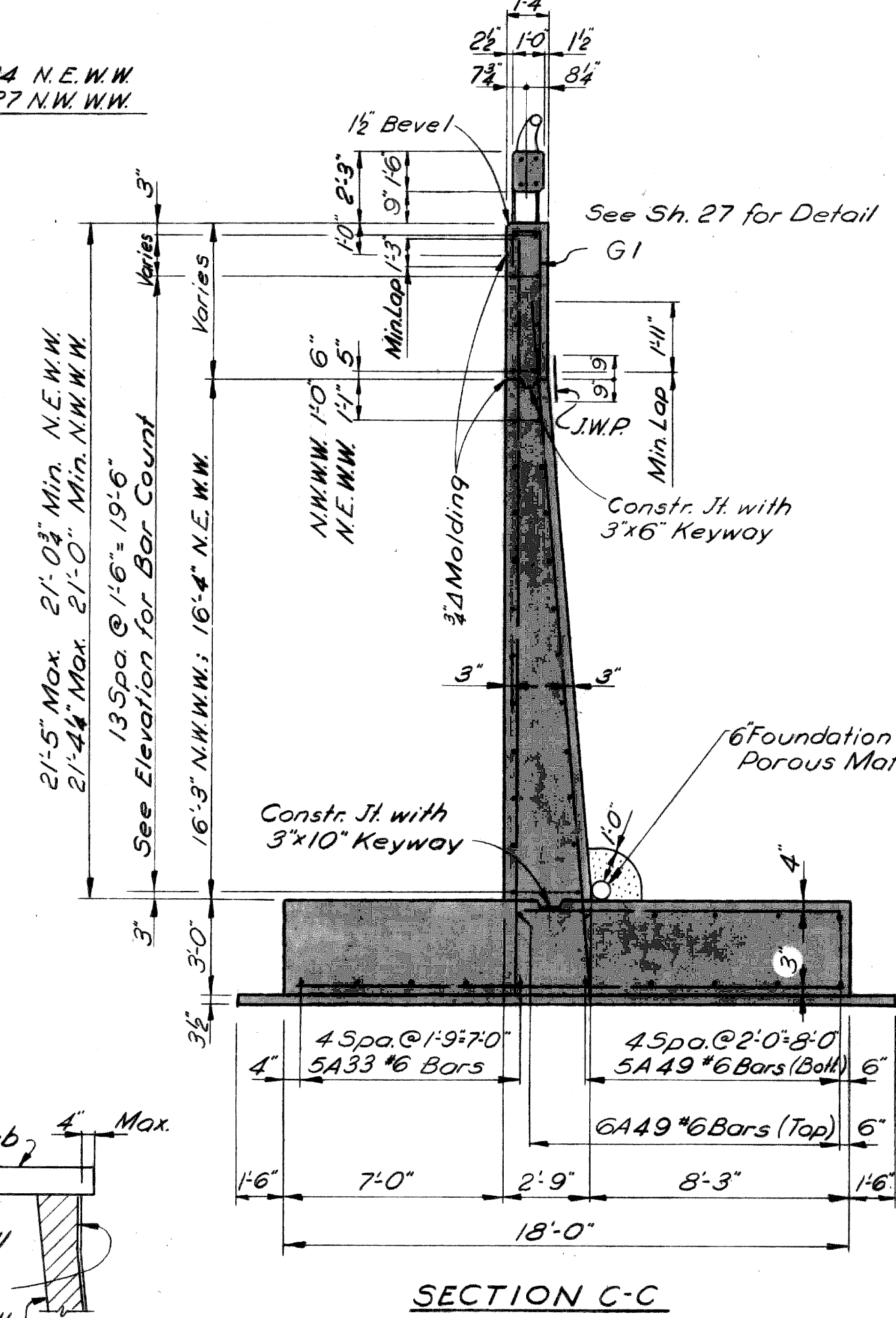
CITY OF DETROIT	
SQUAD BOSS	STVEN 9-66
DRAWN BY	T. Baker 8-66
CHECKED BY	K.V.H. 9-66
SHEET	9 OF 15





See Sheet #27 for Railing Post Details

**NOTE:** For details not shown in Sections D-D and E-E See Section C-C. Abut./Backwall J.W.P. Quantity is given in Superstructure Quantities. Wingwall J.W.P. Quantity given on this sheet.



**MISCELLANEOUS QUANTITIES**

ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
Unclassified Excavation	Cu. Yds.	606	689	1295
Steel Sheet Piling (Left in Place)	Sq. Ft.	646	164	810
Low Temperature Protection	Cu. Yds.	347	353	700
1/2" Joint Filler	Sq. Ft.	81	82	163
3/4" Joint Filler	Sq. Ft.	34	33	67
Non Metallic Waterstop	Sq. Ft.	57	66	123
Bridge Railing-Parapet Type	Lin. Ft.	71.1	52.9	124.0
Bridge Manholes	Each	2	2	4
6" Foundation Drains	Lin. Ft.	128	94	222
Sand Gravel Material (C.I.P.)	Cu. Yds.	700	600	1300
Ladder Rungs	Each	34	34	68
Joint Waterproofing	Sq. Ft.	90	70	160

**CONCRETE QUANTITIES (Cu. Yds.)**

POUR	ABUT. A	ABUT. B	N.W.W.	N.E.W.W.	S.W.W.	S.E.W.W.
A <sub>1</sub>	16.9	21.8	—	—	—	—
A <sub>2</sub>	—	—	1.7	1.7	—	—
A <sub>3</sub>	—	—	1.2	1.2	—	—
B <sub>1</sub>	148.2	191.2	—	—	—	—
B <sub>2</sub>	—	—	16.2	16.2	—	—
B <sub>3</sub>	—	—	8.0	8.0	—	—
C	27.2	28.5	14.7	14.8	18.2	29.1
D	27.4	27.9	8.2	8.2	18.7	—
E	27.5	27.9	2.9	3.0	—	—
F	—	—	2.9	2.9	3.6	5.2
G	—	—	2.7	2.7	3.1	—
H	—	—	2.5	2.5	—	—
<b>Total Grade A (6A)</b>	<b>432.3</b>					
<b>Total Grade A (6AA)</b>	<b>312.3</b>					

Parapet Concrete = 7.8 Cu. Yds. Grade A(6AA).  
Incidental to Bridge Railing-Parapet Type and is not a pay item.

**Note:** 6" Cast Iron Pipe and Porous Mat'l. Gr. B are incidental to Foundation Drain. At Constr. Joints the rear faces of Wingwall Stems must line up for installation of 3" N.M.W.S. For alternate Metal Bulkhead details see sheet 27.

Work this Sheet with Sheets 7, 8 and 9

PLANS PREPARED BY  
**CITY OF DETROIT**  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]*  
STRUCTURAL ENGINEER

JOB No.  
**990(16)**

**MICHIGAN STATE HIGHWAY DEPARTMENT**

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

**ABUTMENT & WINGWALL DETAILS**

CITY OF DETROIT

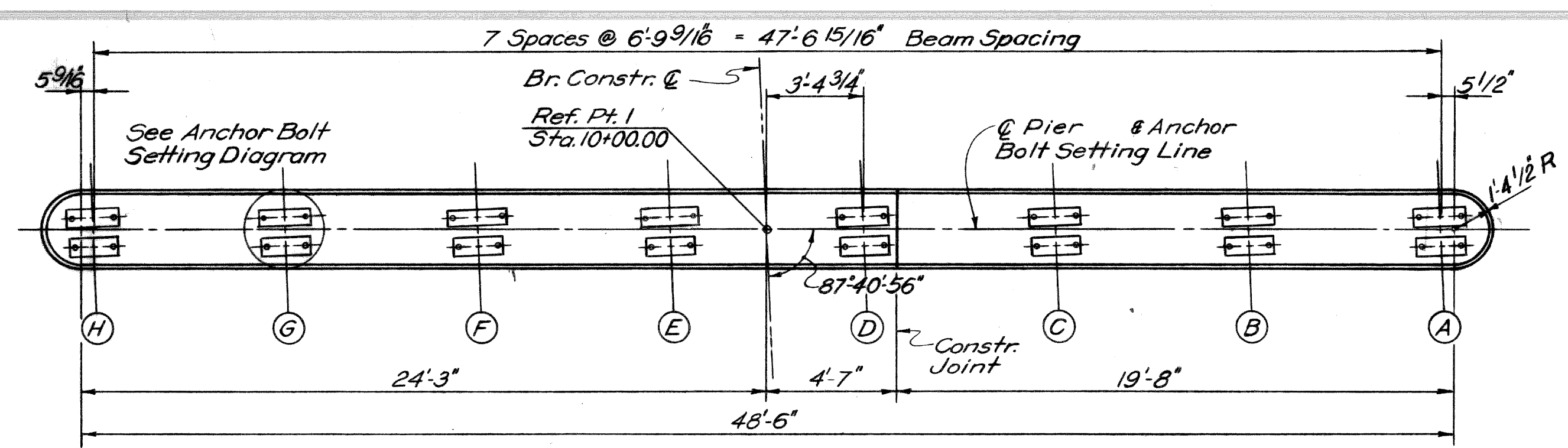
SQUAD BOSS: *[Signature]* 9-66  
DRAWN BY: *[Signature]* 8-66  
TRACED BY: *[Signature]*  
CHECKED BY: *[Signature]* 9-66  
SHEET 10 OF 25

**REVISIONS**

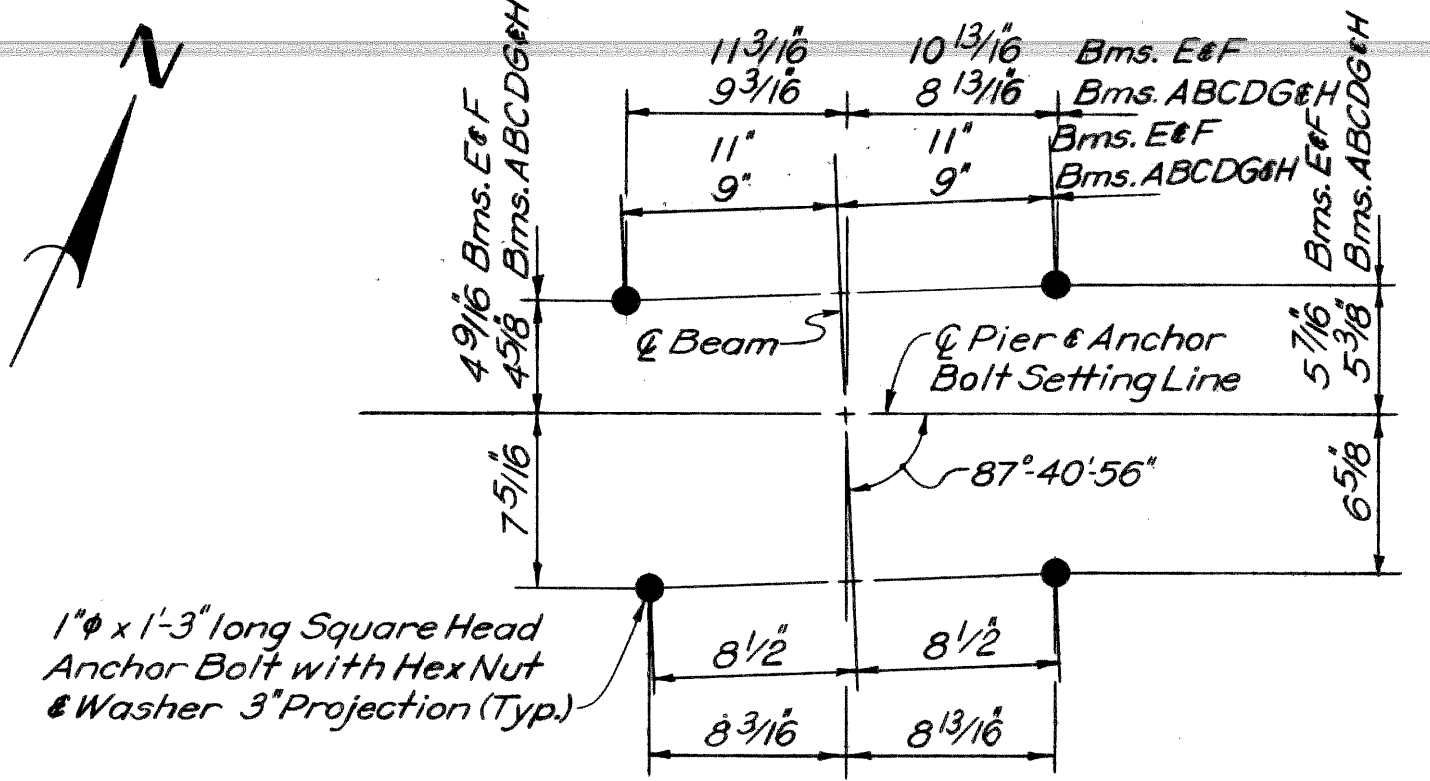
NO.	DESCRIPTION	DATE	BY

**S15 of 82023A**

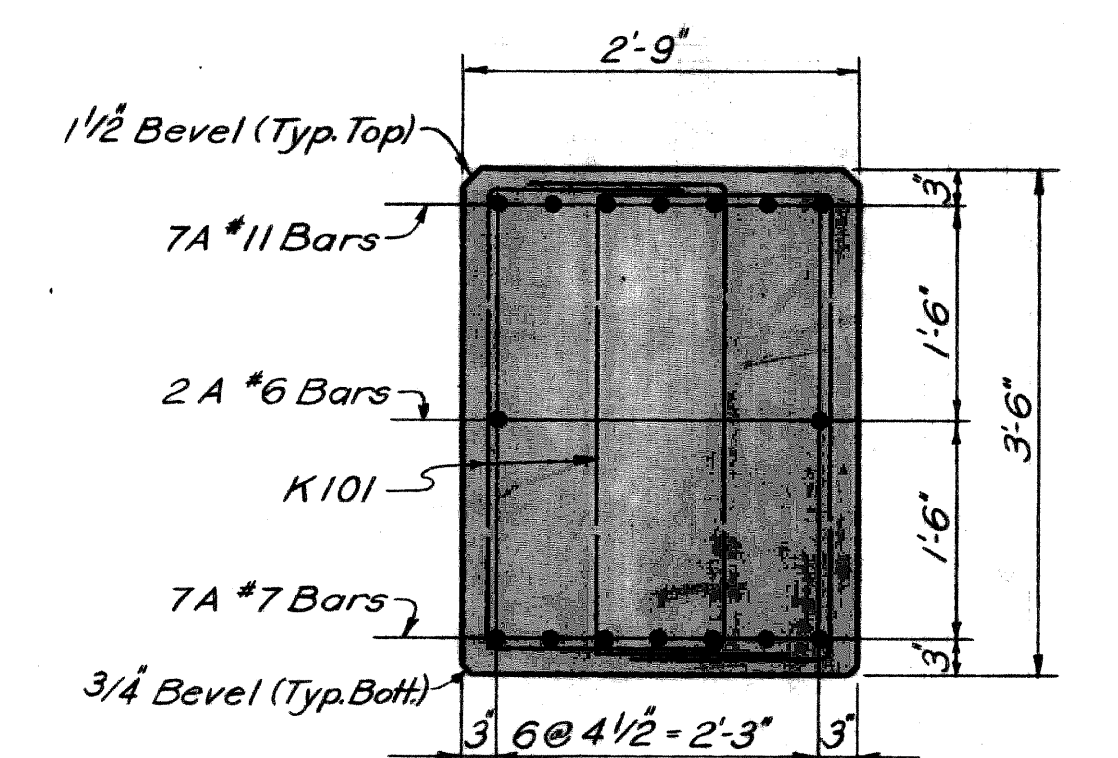




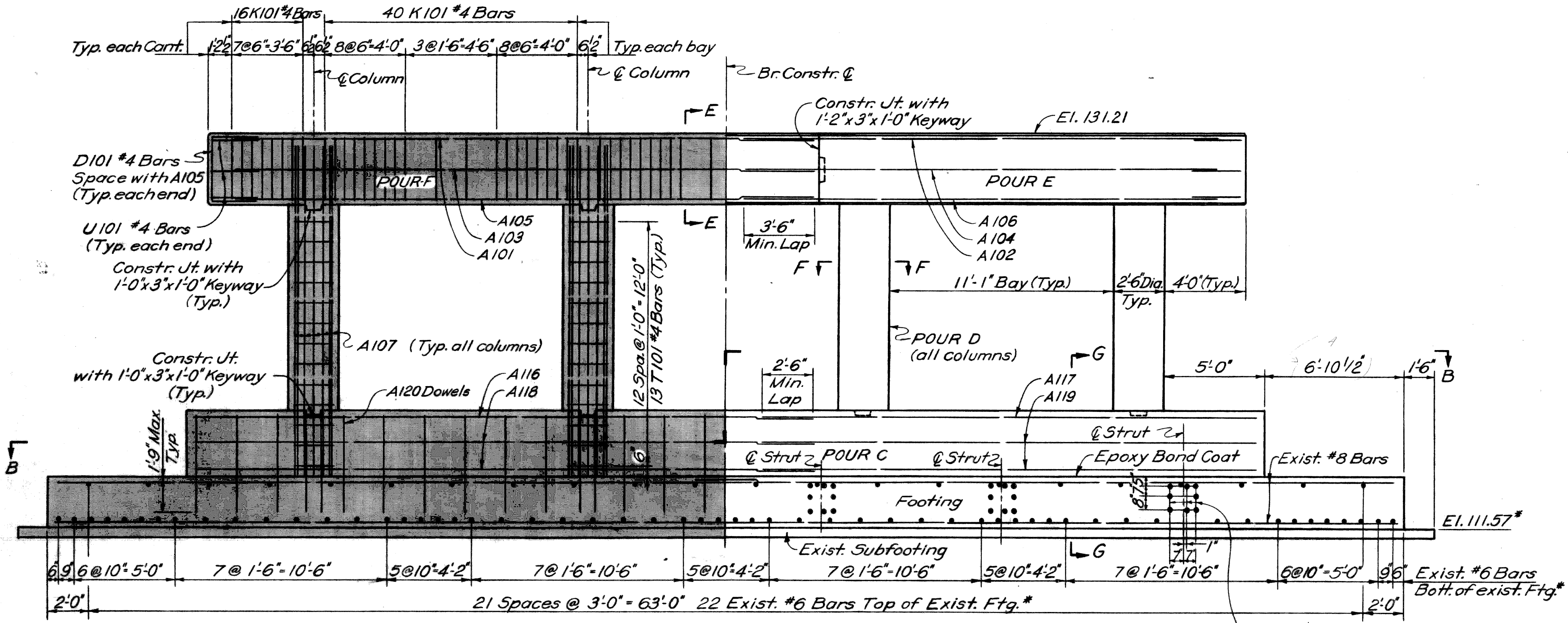
PLAN - PIER 1



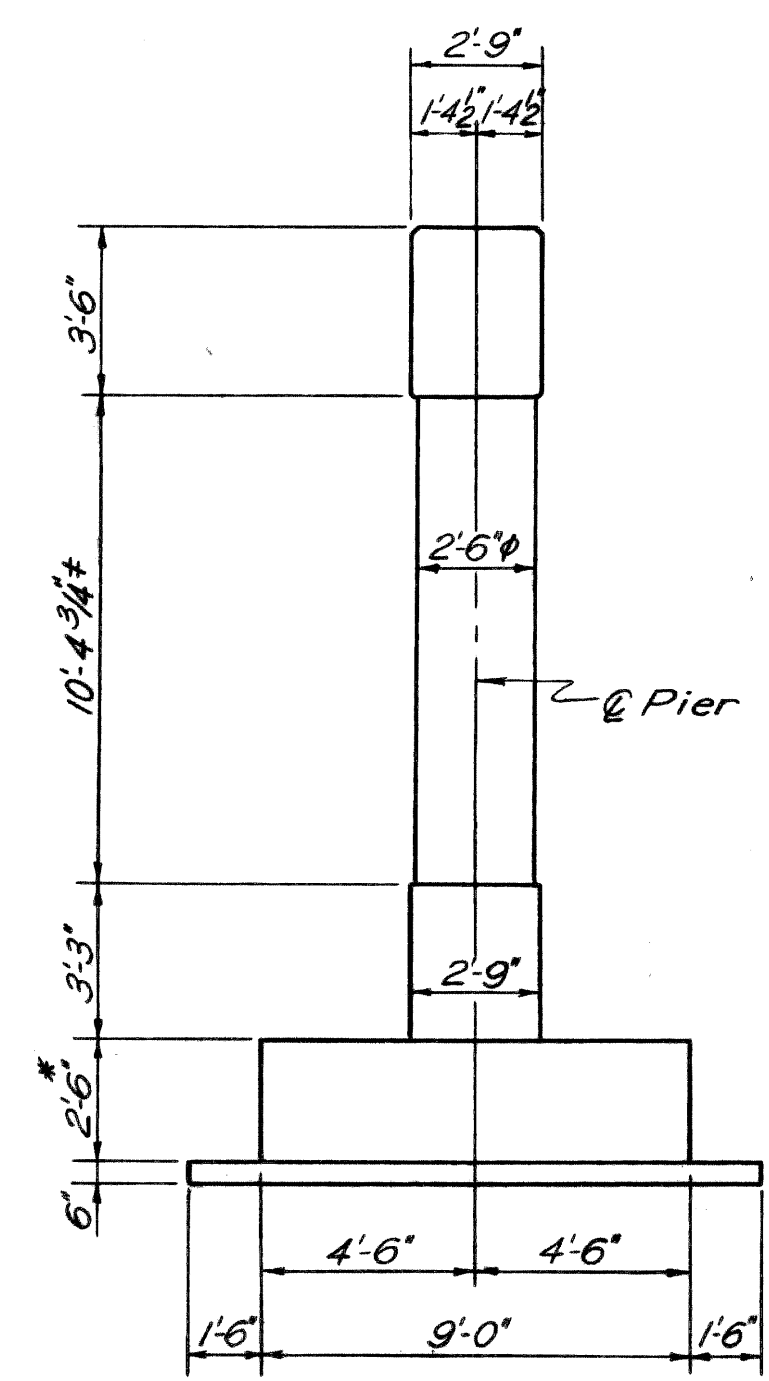
ANCHOR BOLT SETTING DIAGRAM (Pier 1)



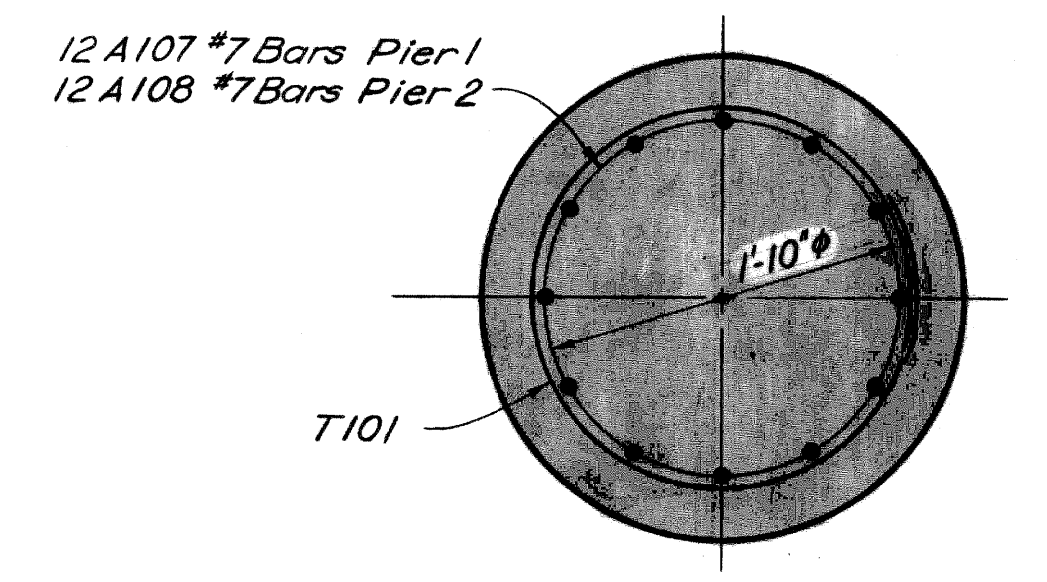
SECTION E-E



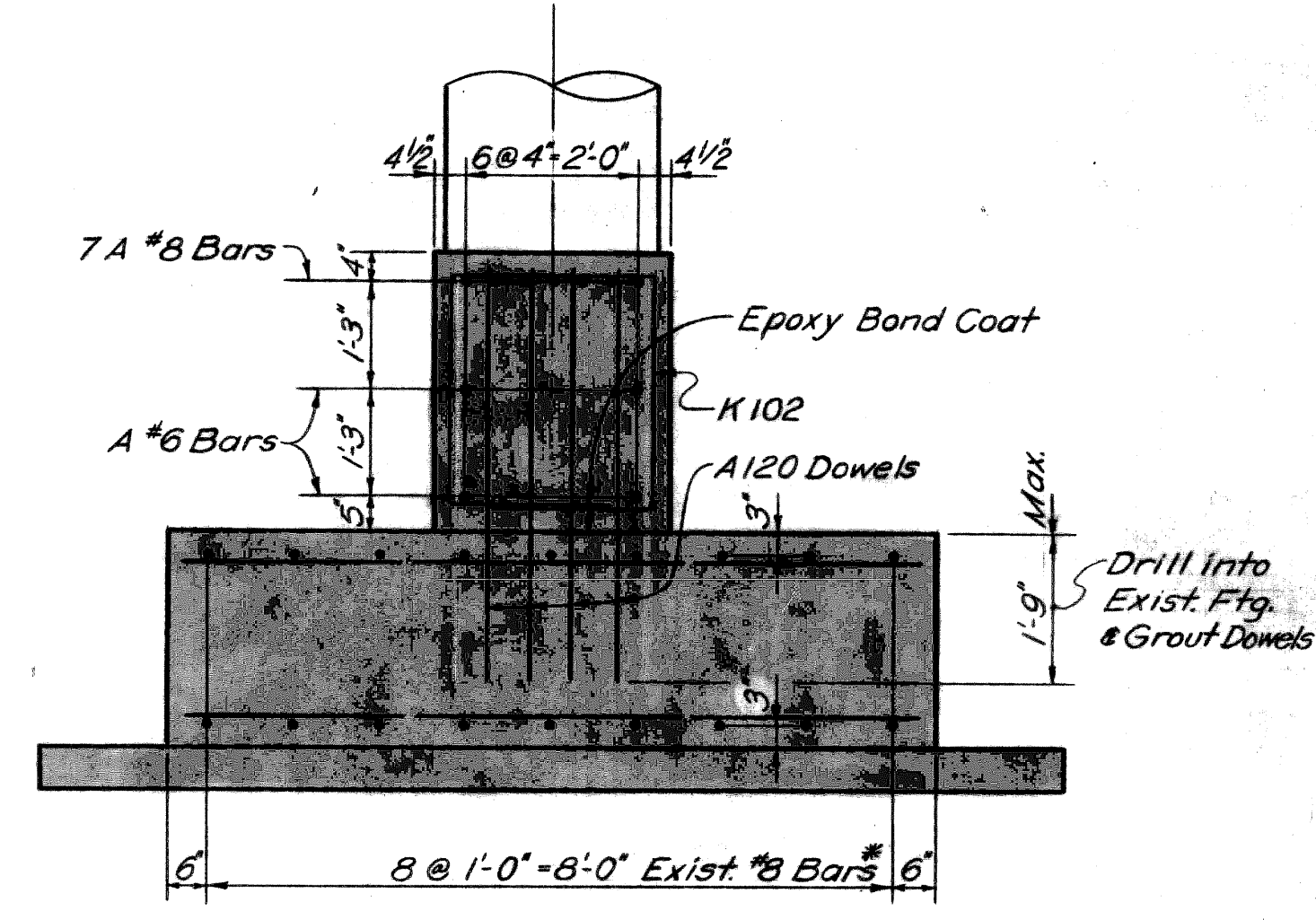
SECTION A-A (Pier 1)



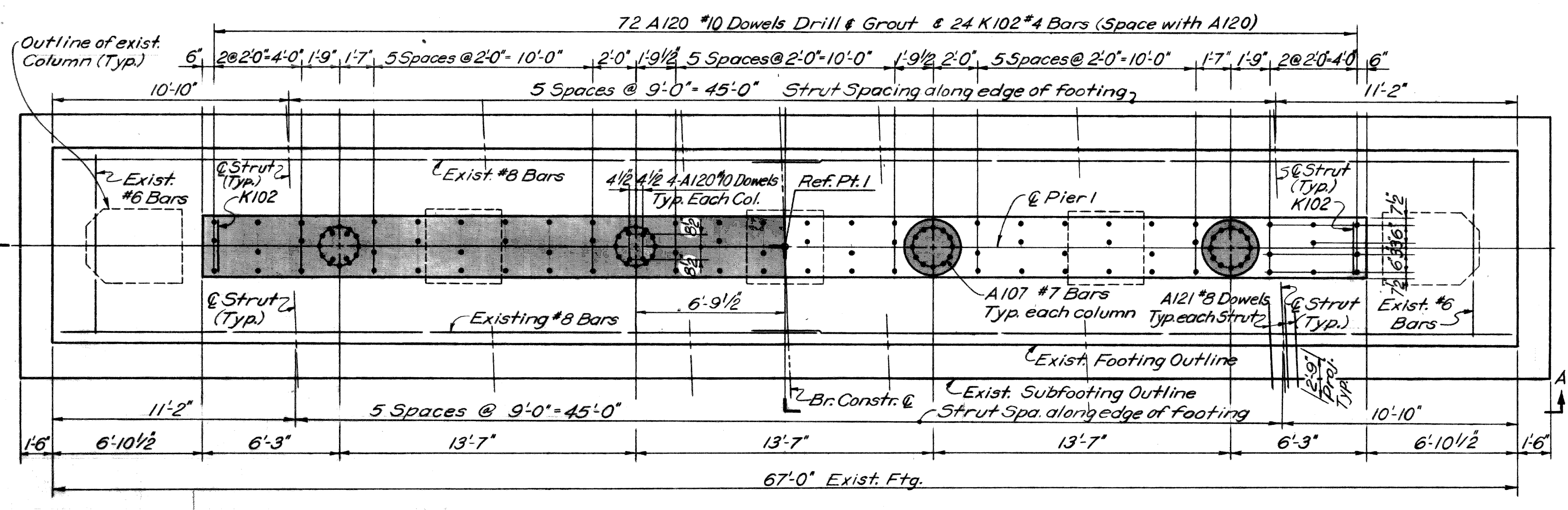
END VIEW (Pier 1)



SECTION F-F



SECTION G-G



SECTION B-B (Pier 1)

Notes:  
 \* Taken from design drawings, verify in field.  
 \* Based on top of footing elev. 114.07, verify in field.  
 The Project Engineer shall adjust the spacing of the A120 dowels as required to avoid the reinforcement in the existing footing.  
 The entire area of contact between the footing beam and existing footing shall be given an application of Epoxy Bond Coat.

Work this sheet with sheet #12

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 STRUCTURAL ENGINEER

JOB No.  
 PW 990 (16)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

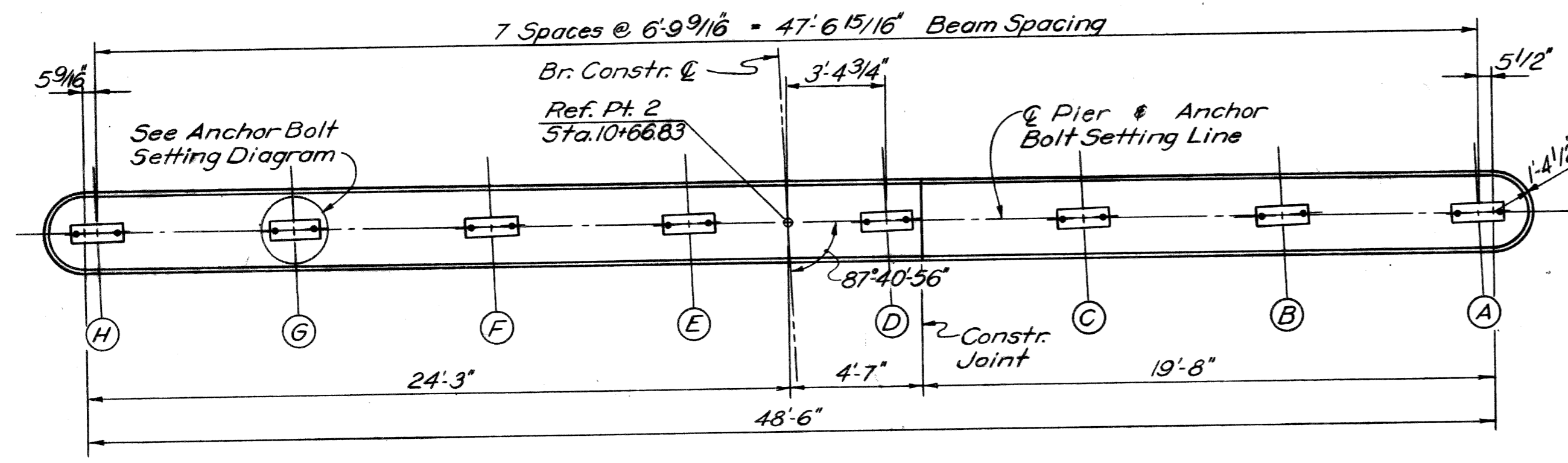
PIER DETAILS

NO.	DESCRIPTION	DATE	BY

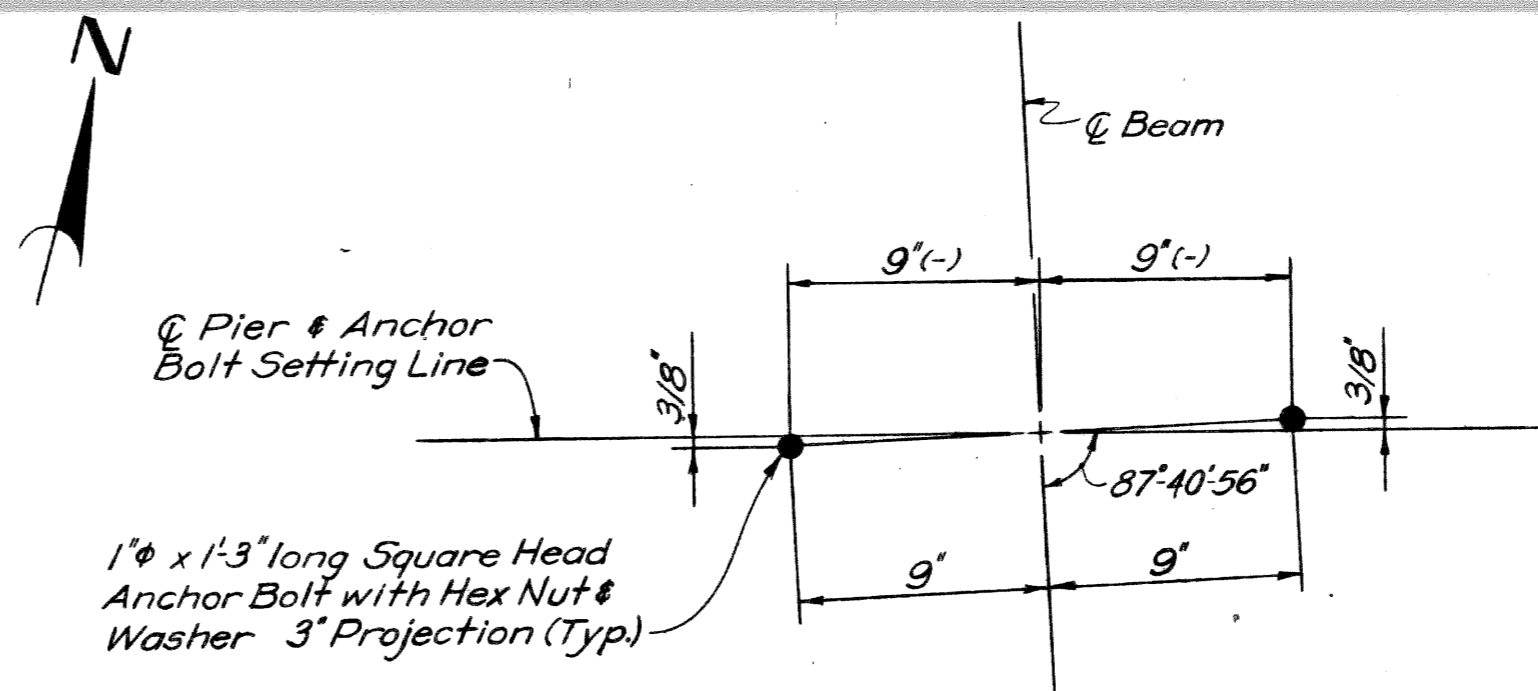
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SWEN	5-66
K.V.H.	8-66
STURM	11-66
SHEET 11 OF 45	

S15 of 82023A

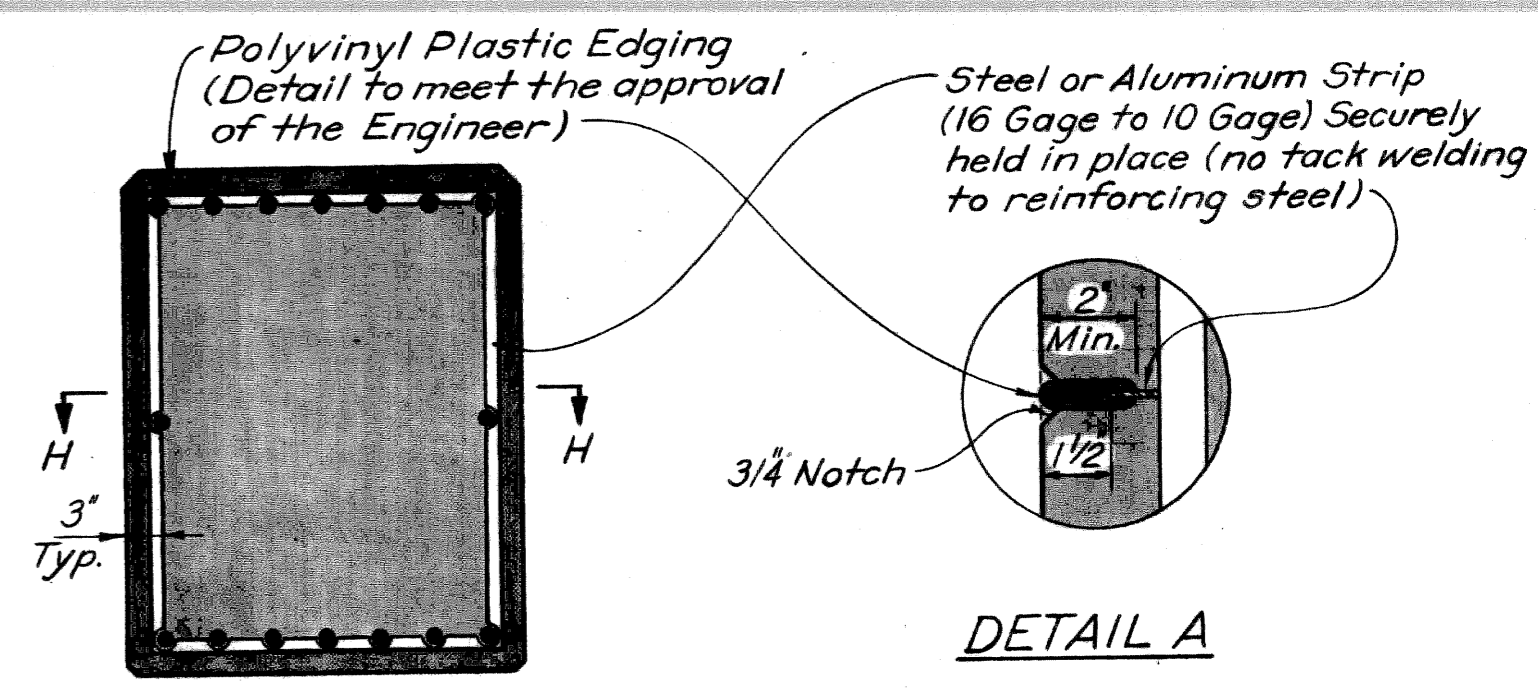




PLAN - PIER 2



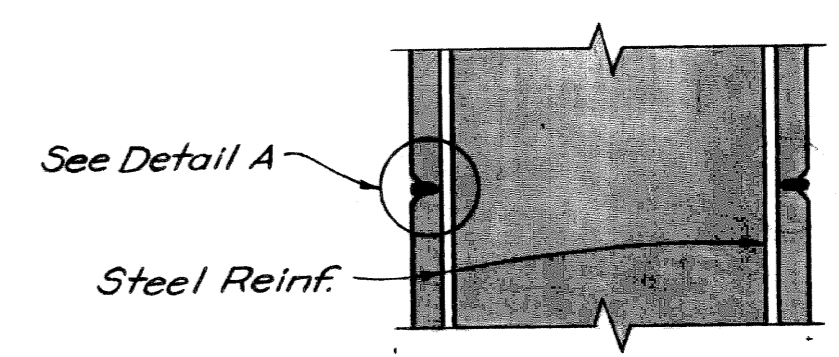
ANCHOR BOLT SETTING DIAGRAM (Pier 2)



SECTION THRU PIER CAP

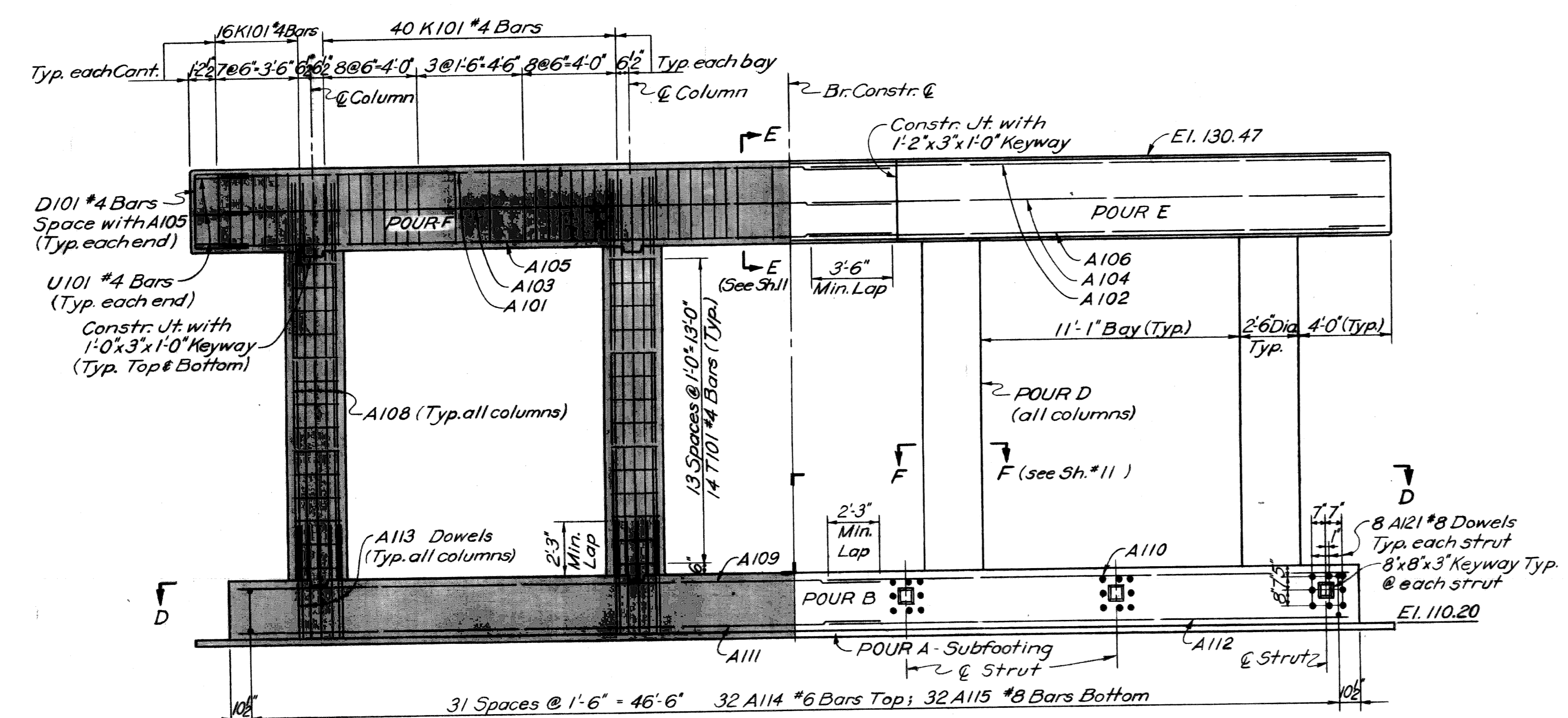
DETAIL A

Notes:  
 Partial Metal Bulkhead may be used as alternate construction joint at contractor's expense.  
 Care is to be used in casting concrete around bulkhead to prevent dislocation or misalignment of the bulkhead.  
 Notch metal strip to fit around reinforcing steel.

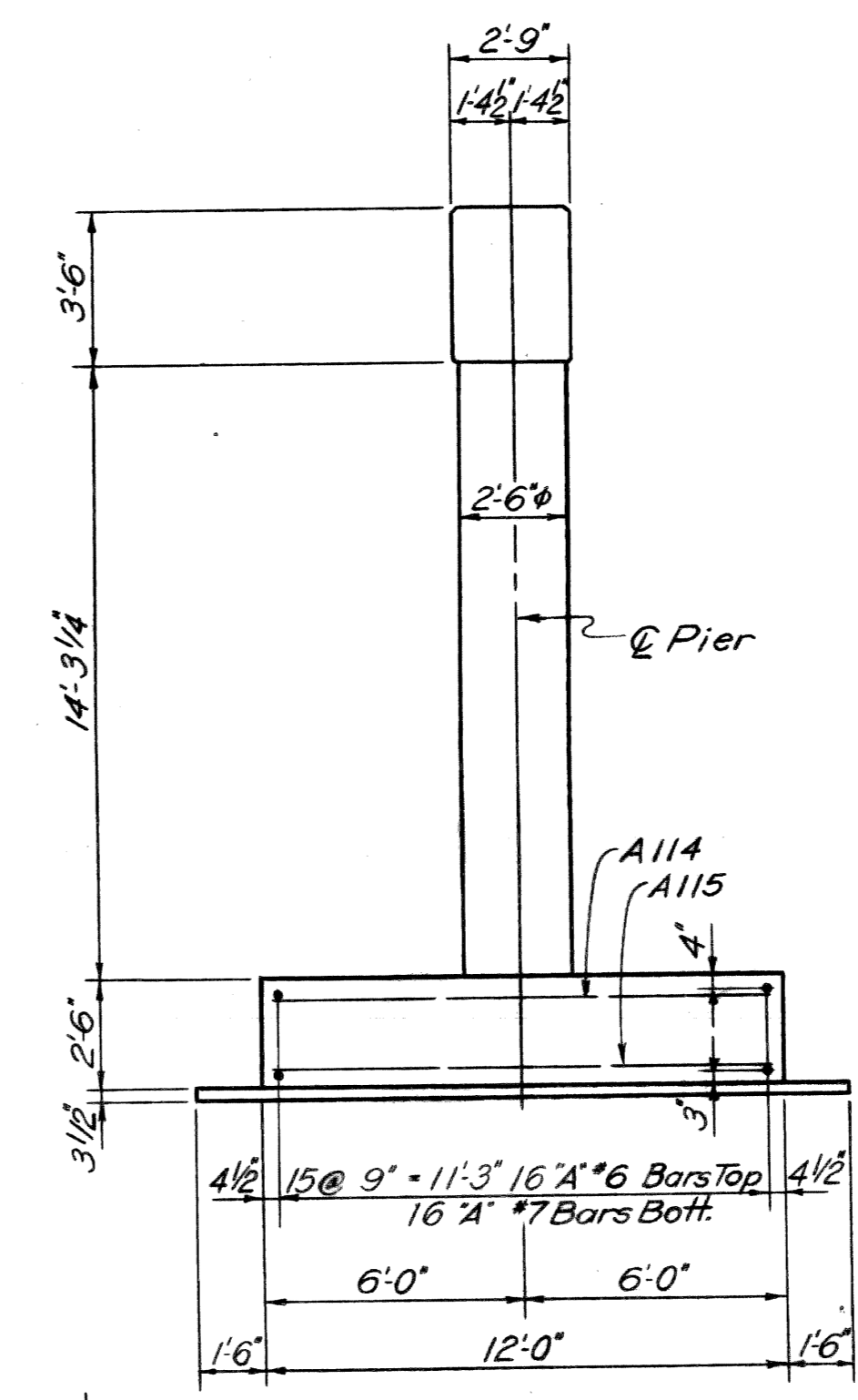


SECTION H-H  
 ALTERNATIVE PIER CAP CONSTRUCTION JOINT

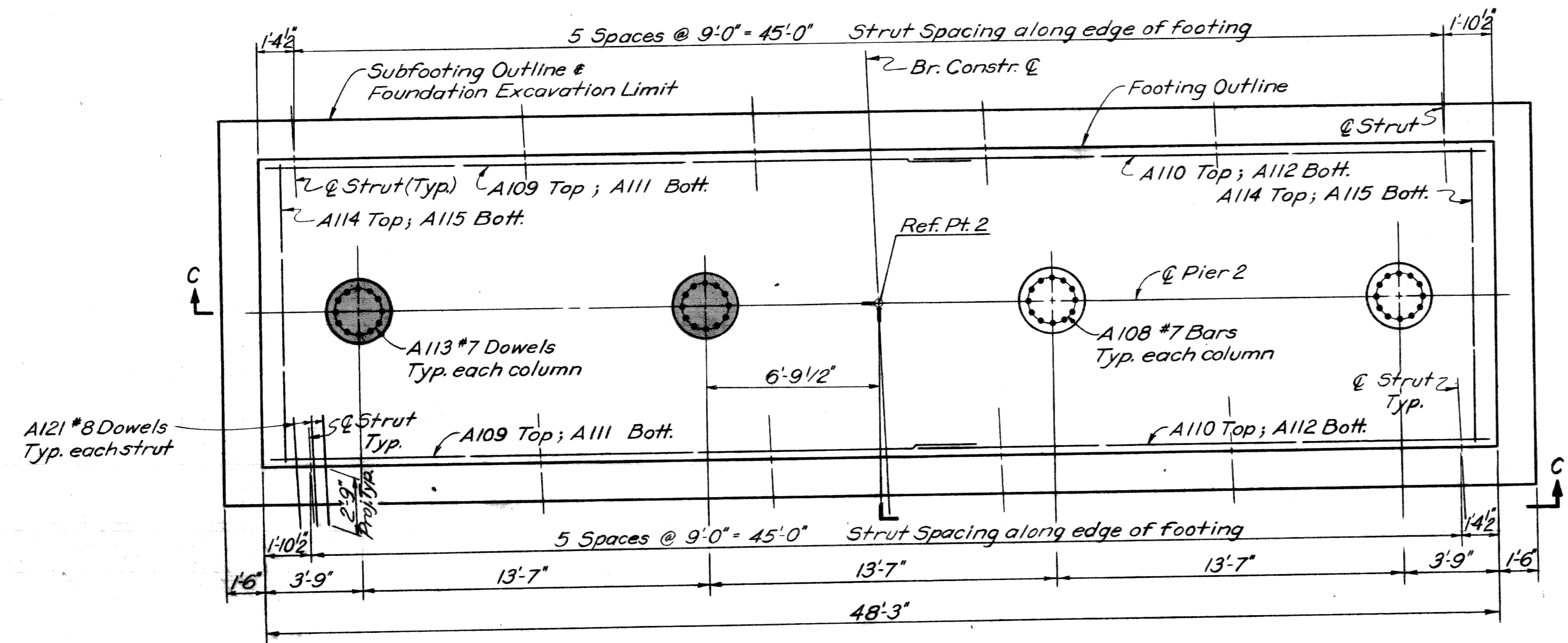
MISCELLANEOUS QUANTITIES				
Item	Unit	Pier 1	Pier 2	Total
Unclassified Excavation	Cu. Yds.	60	117	177
Low Temperature Protection Substr.	Cu. Yds.	43	82	125
Protective Sealant Coating for Concrete	Sq. Ft.	457	443	900
Epoxy Bond Coat	Gals.	3	-	3



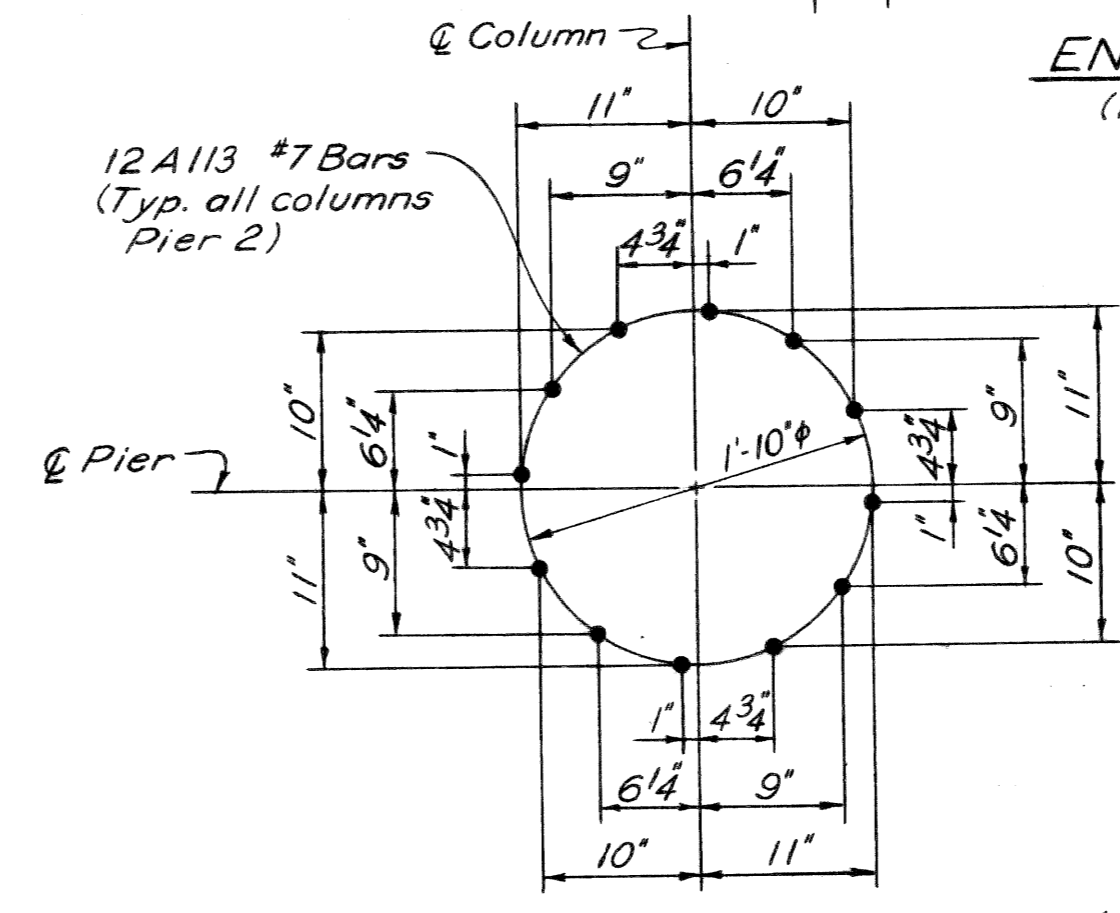
SECTION C-C (Pier 2)



END VIEW (Pier 2)



SECTION D-D (Pier 2)



DOWEL SETTING DIAGRAM (Pier 2)

Work this sheet with sheet #11

**GENERAL NOTES:**  
 For bevel and molding details see Standard Sheet R-11 or R-12  
 Anchor Bolts shall be set accurately to a template.  
 The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of the anchor bolts.  
 The top of Pier 1 shall be given an application of Protective Sealant Coating for Concrete prior to placing of masonry plates.  
 Pier Columns shall be given an application of clear Protective Sealant Coating for Concrete. The use of membrane curing compound is prohibited where this material is to be applied.  
 Maximum Average foundation pressure D.L. only 2600 p.s.f.  
 Maximum foundation pressure D.L. and L.L. 3250 p.s.f.

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PIER DETAILS

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JOB No.  
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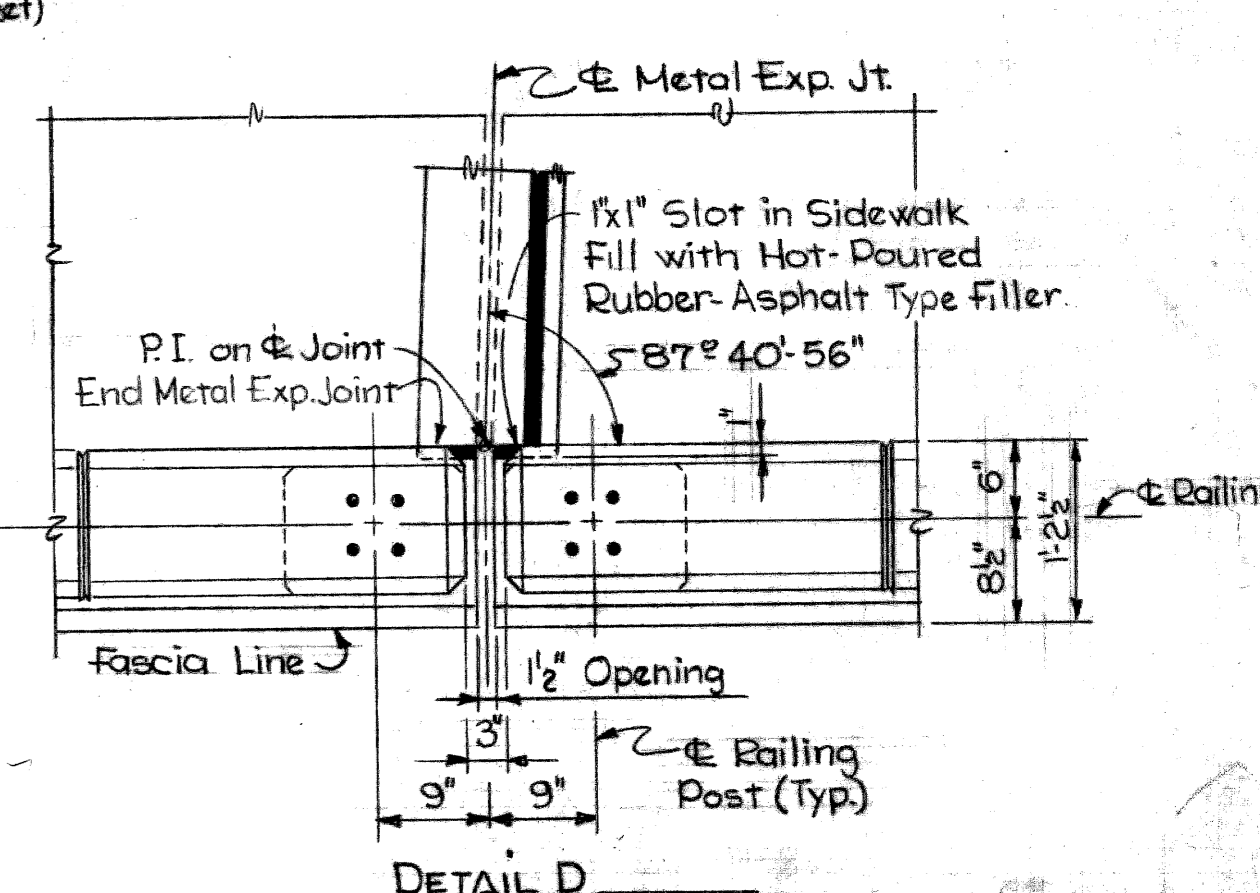
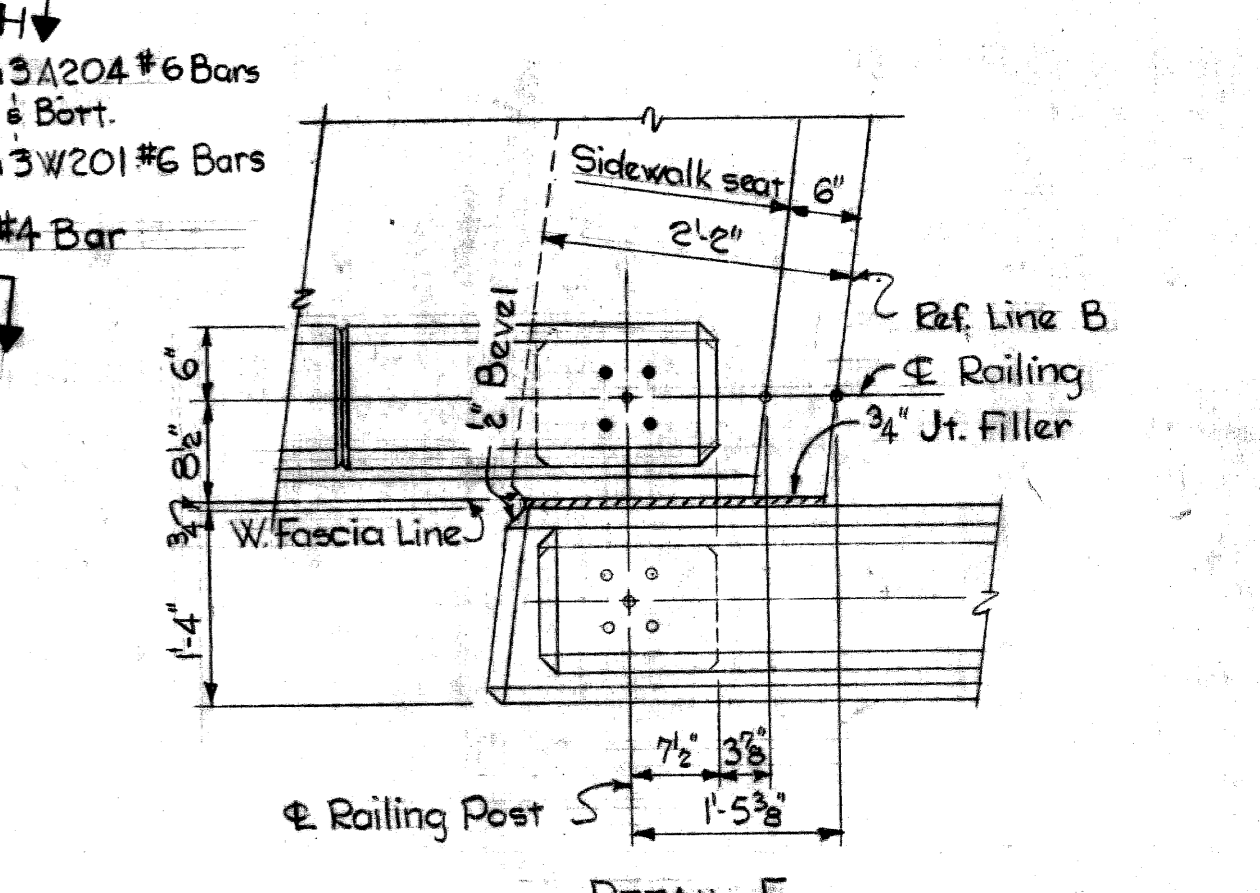
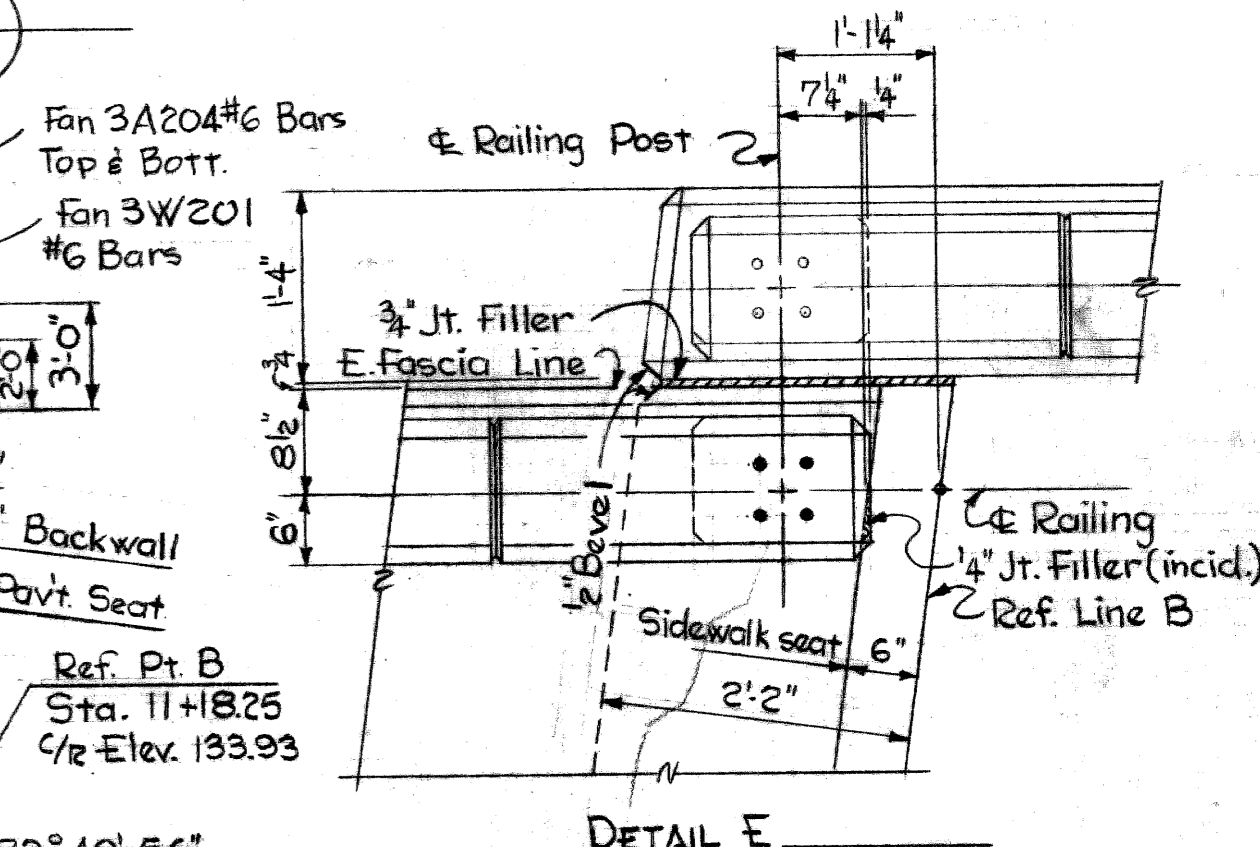
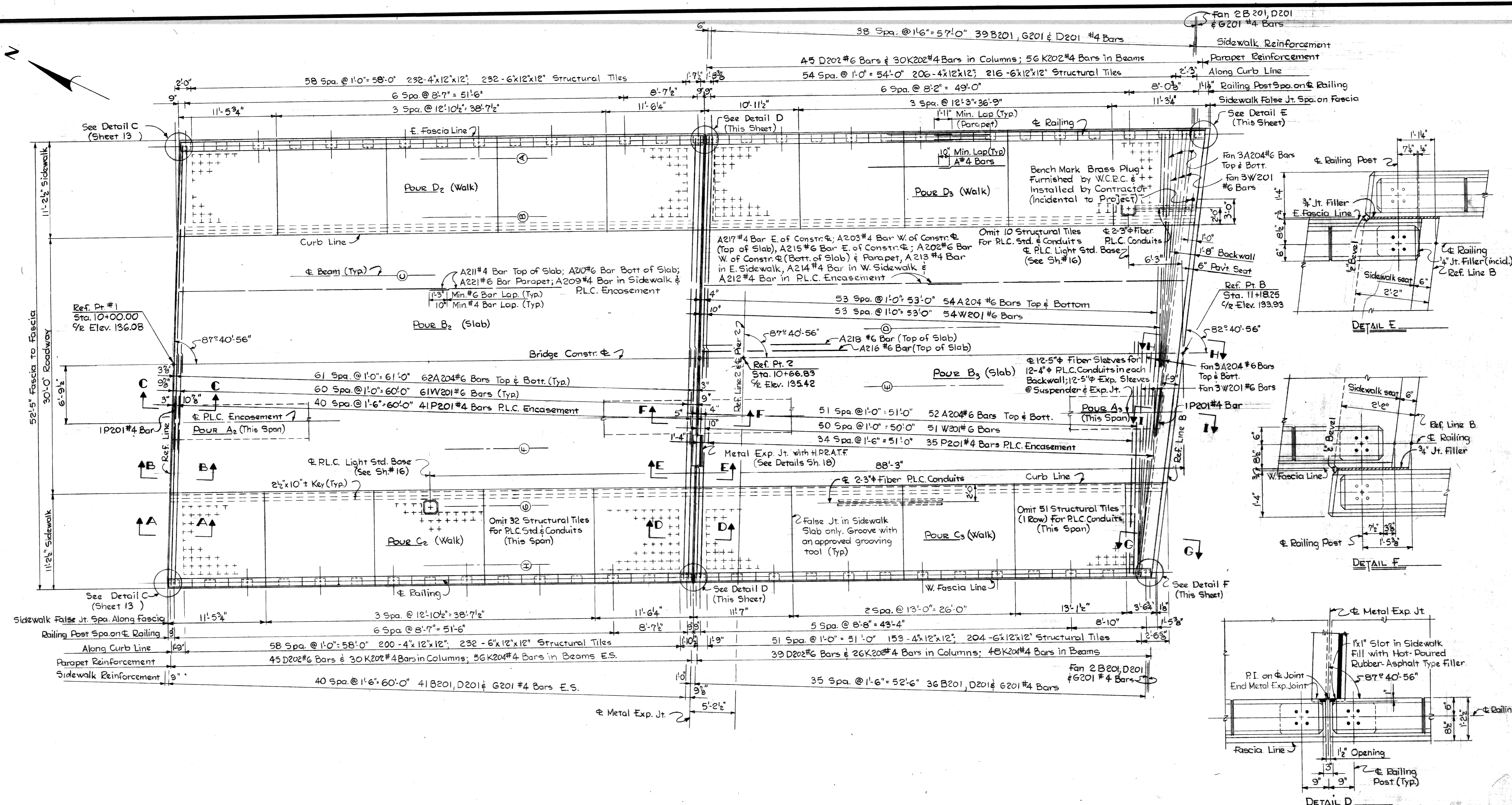
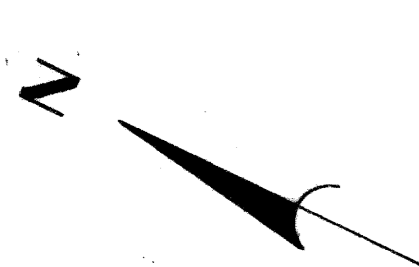
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT			
SQUAD BOSS	DATE	BY	
STUM	9-66		
DRAWN BY	K.V.H.	8-66	
TRACED BY			
CHECKED BY	STUM	9-66	
SHEET 12 OF 20			









Work this sheet with sheets 13 & 15 thru 17.

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

**SUPERSTRUCTURE DETAILS**

CITY OF DETROIT

PLANS PREPARED BY  
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BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *P. J. Gidycz*  
STRUCTURAL ENGINEER

JOB No.  
PW 990(16)

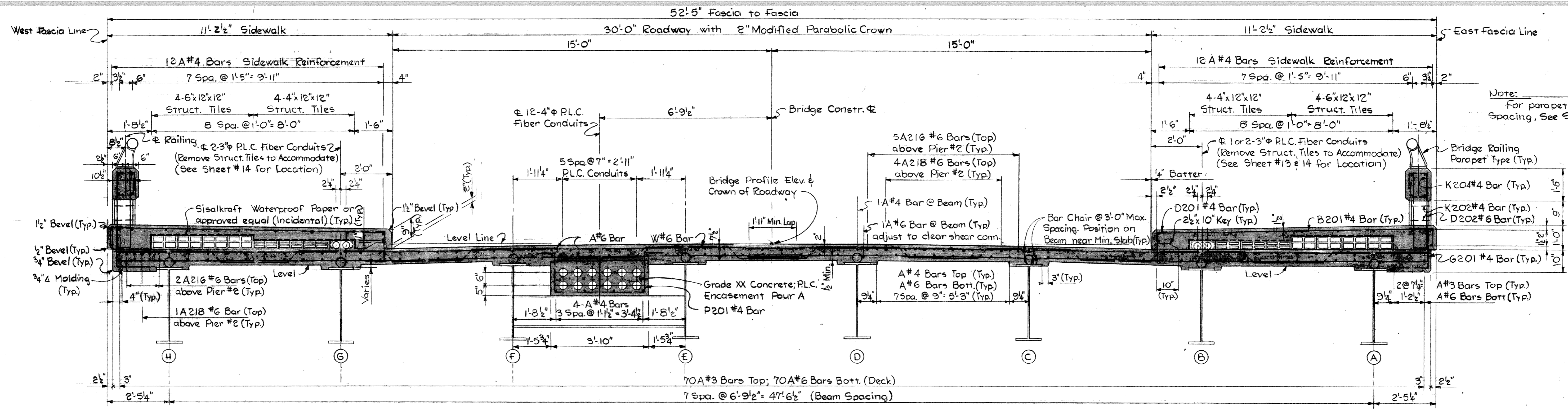
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REVISIONS	DATE	BY

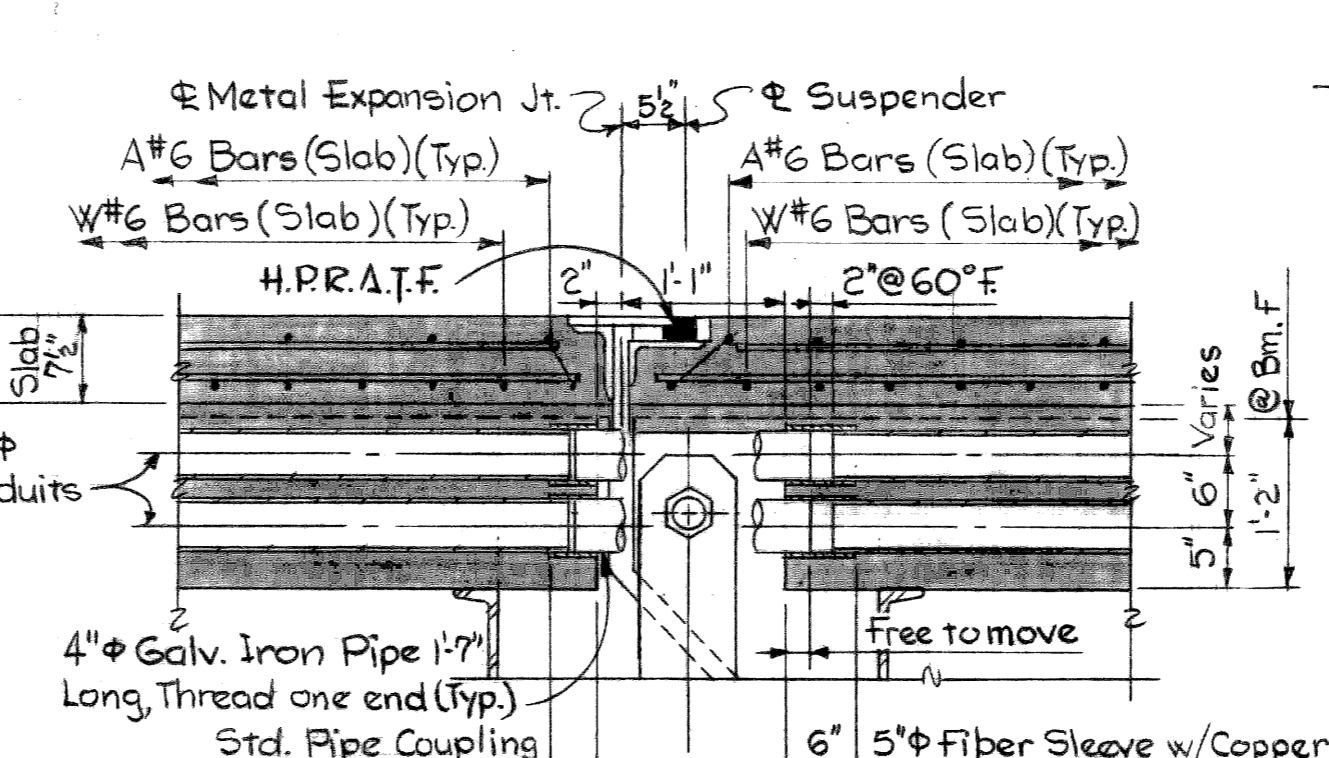
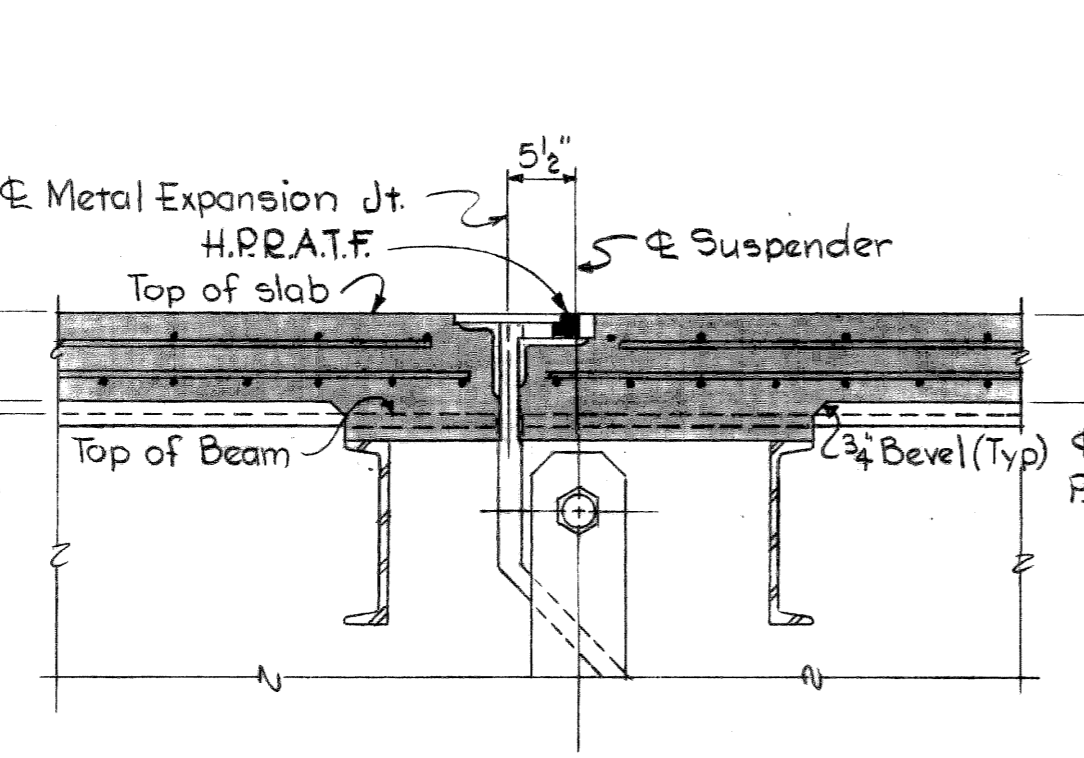
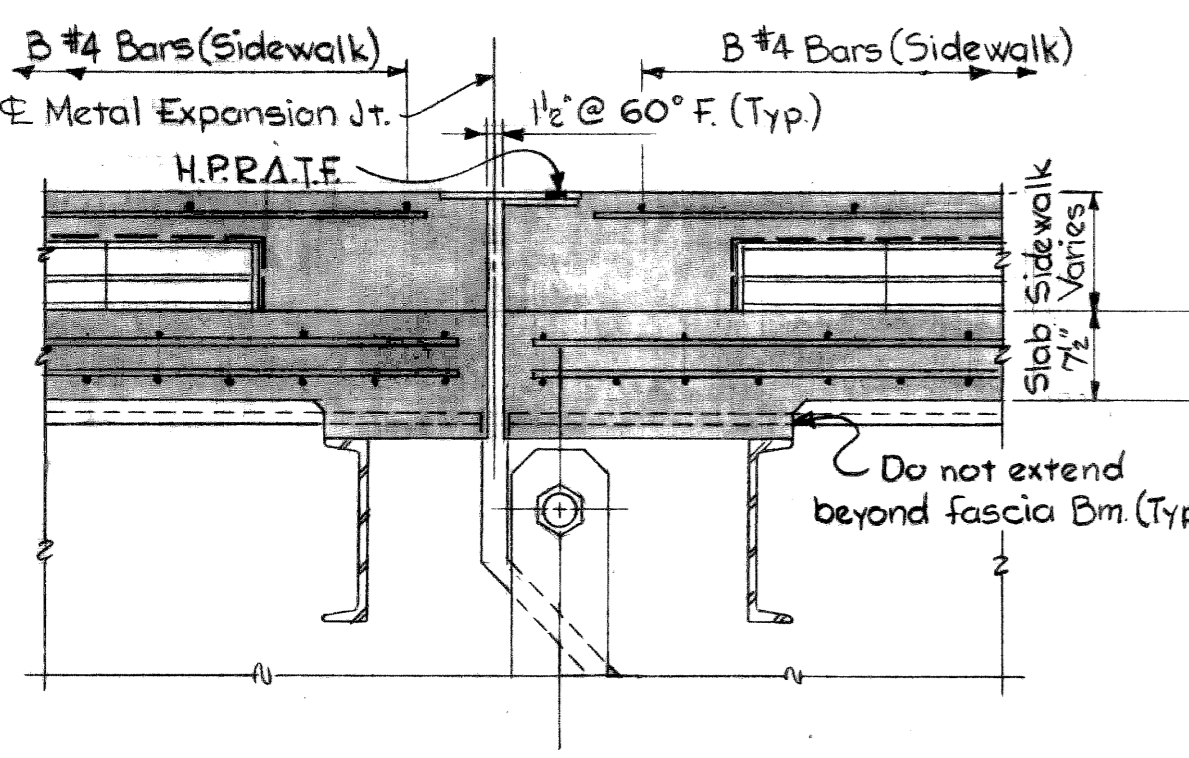
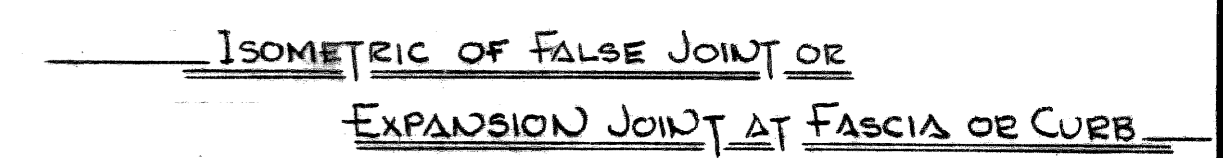
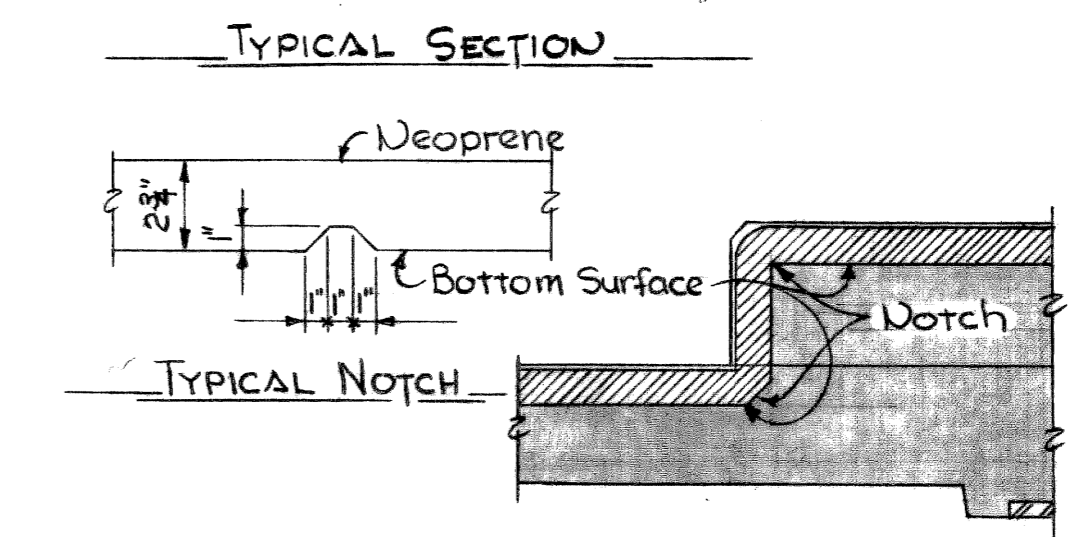
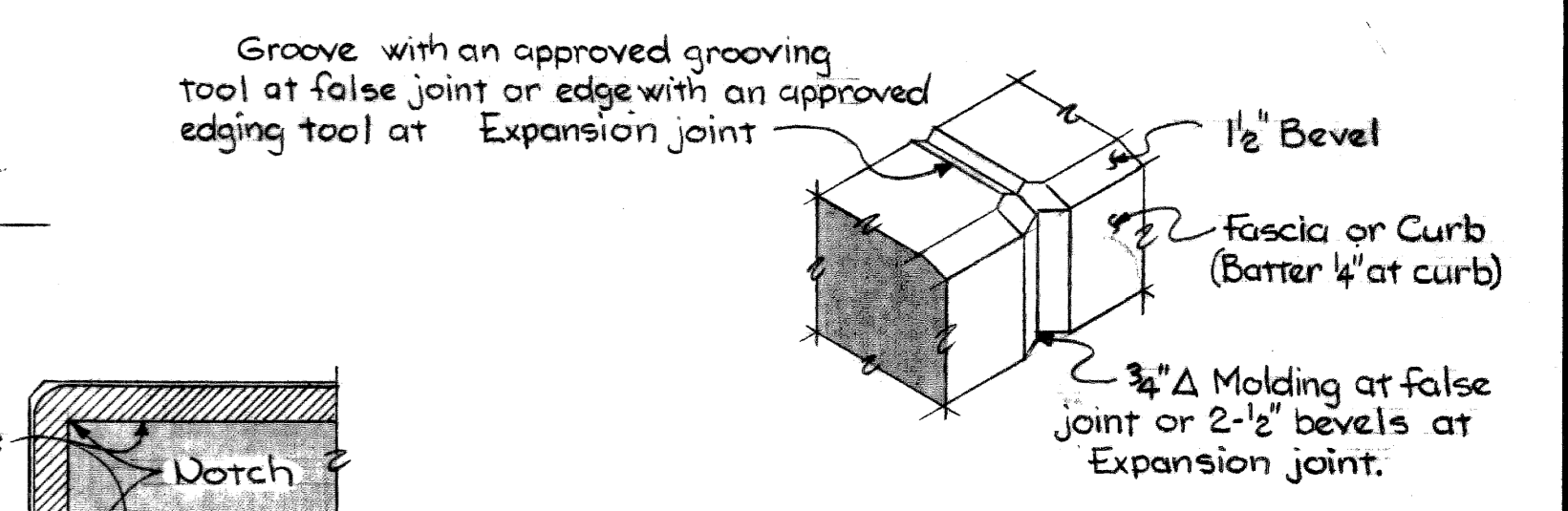
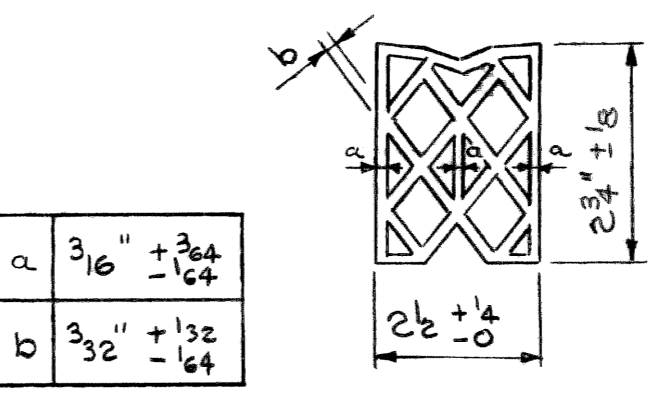
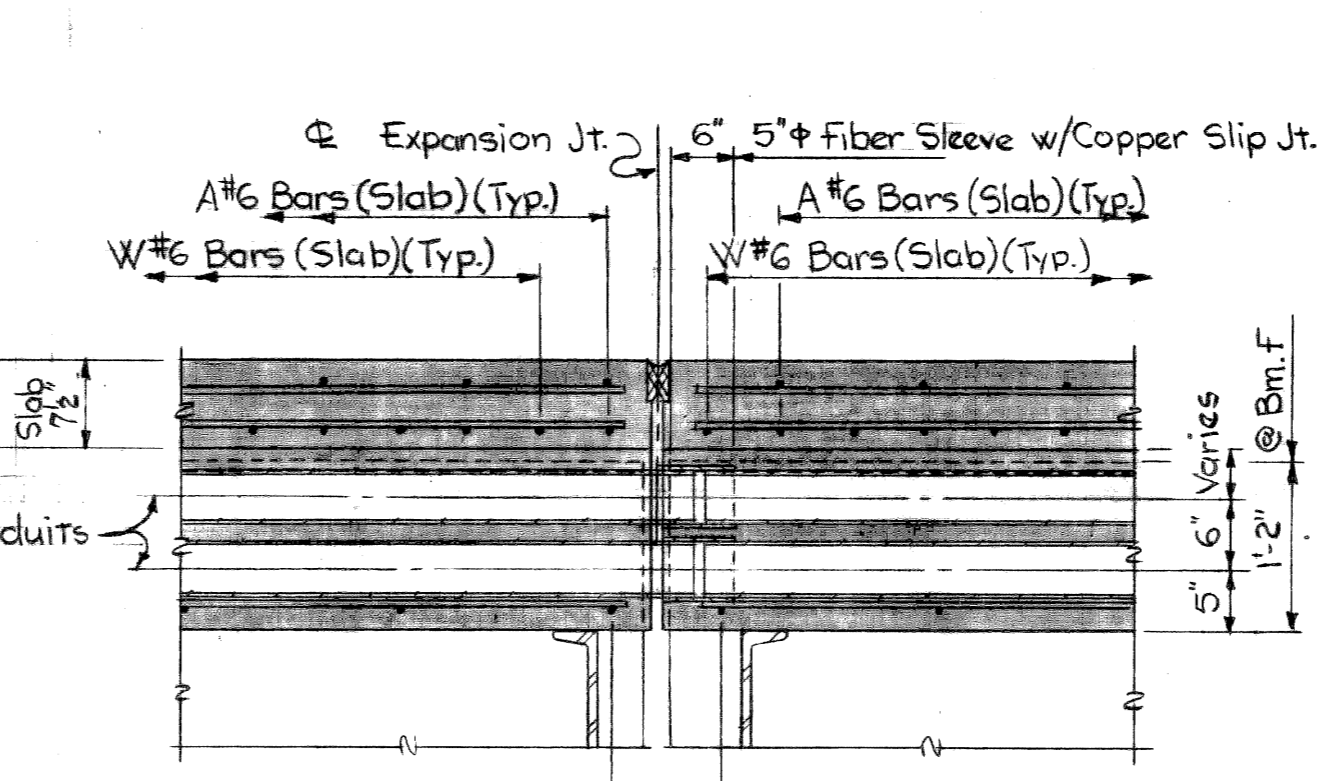
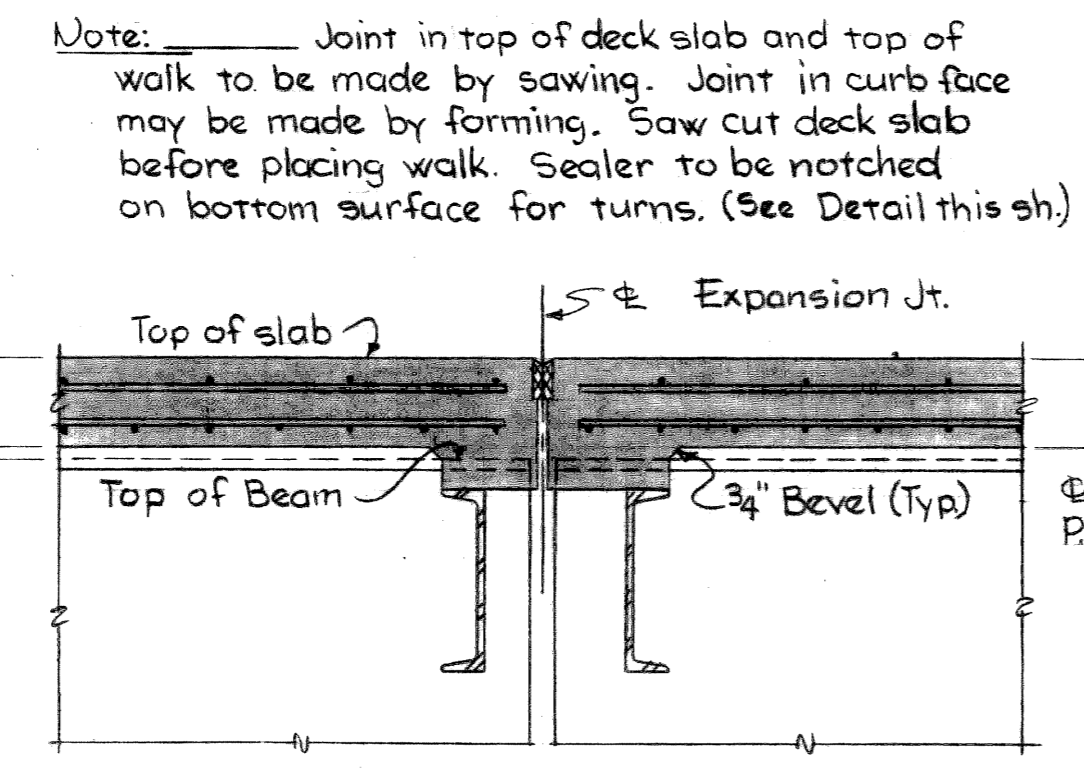
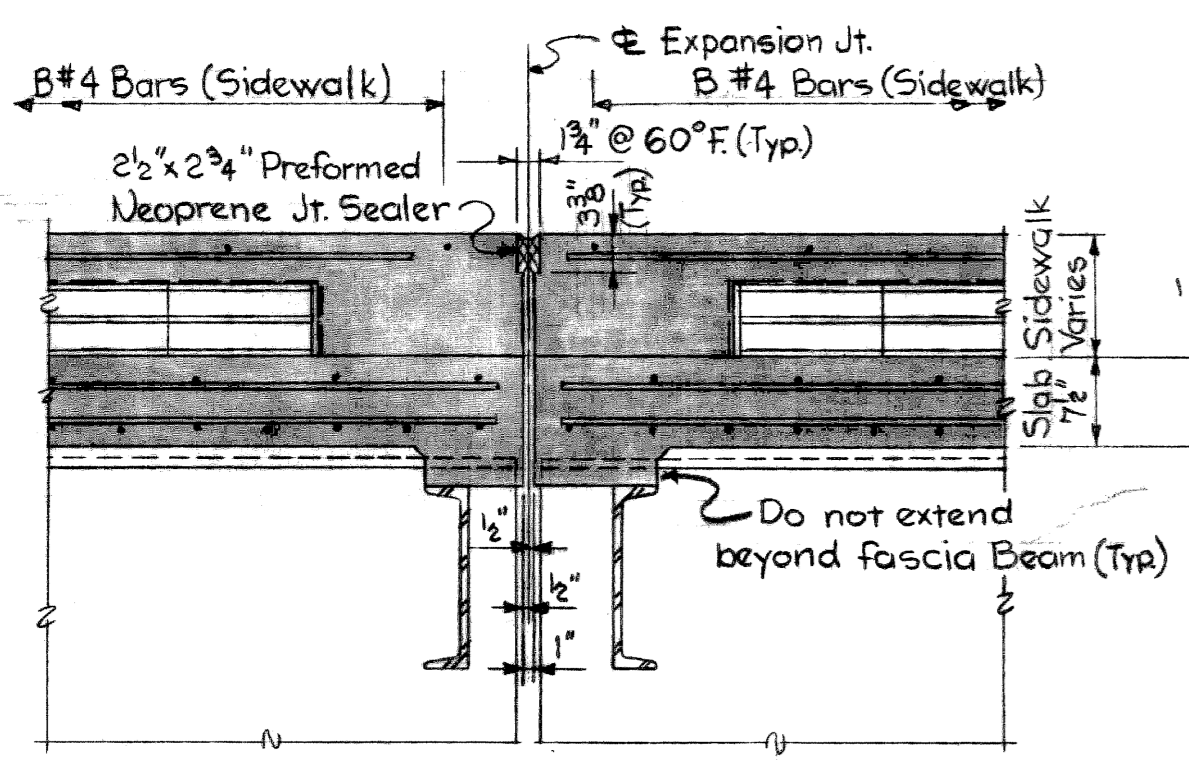
SOIAD BOSS: *STUEN* 10-66  
DRAWN BY: *ALLENBREM* 7/66  
TRACED BY: *T. Boler* 10-66  
CHECKED BY: *T. Boler* 10-66  
SHEET 14 OF 45

**S15 of 82023A**





TYPICAL SECTION



DETAILS OF 2 1/2" x 2 3/4" PREFORMED NEOPRENE JOINT SEALER

Note:  
 Fiber Sleeves, Copper Slip Joints, Couplings & 4" Galv. Iron Pipe are incidental to 4" Fiber Conduits.

Work this sheet with sheets 13, 14, 16 & 17.

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 STRUCTURAL ENGINEER

JOB No.  
 PW 990 (16)

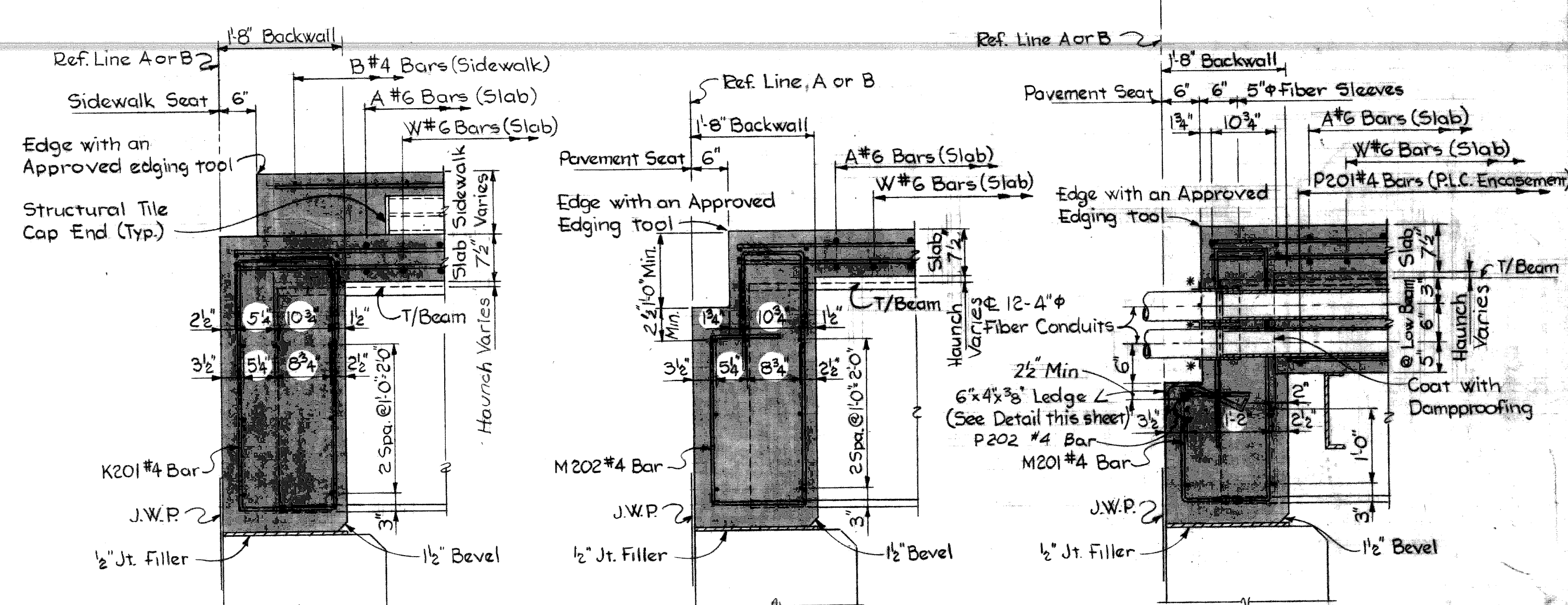
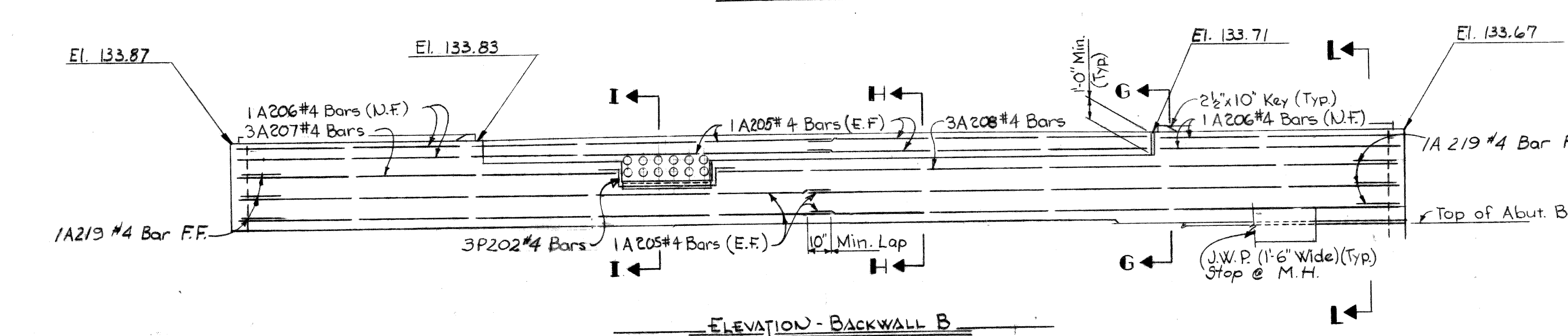
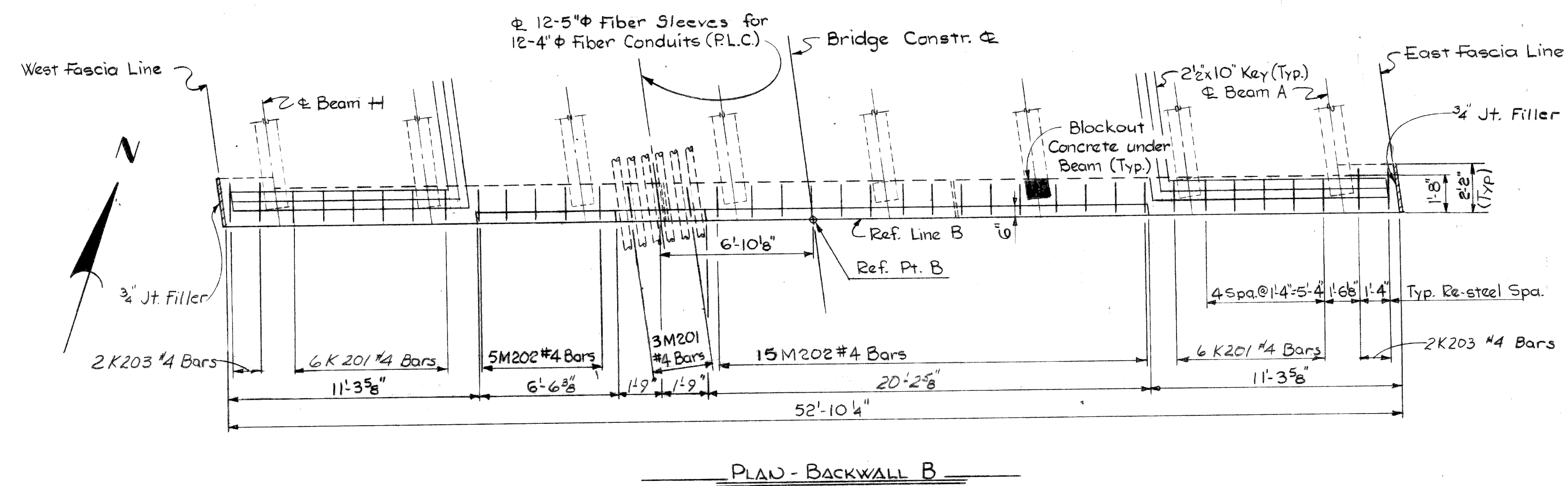
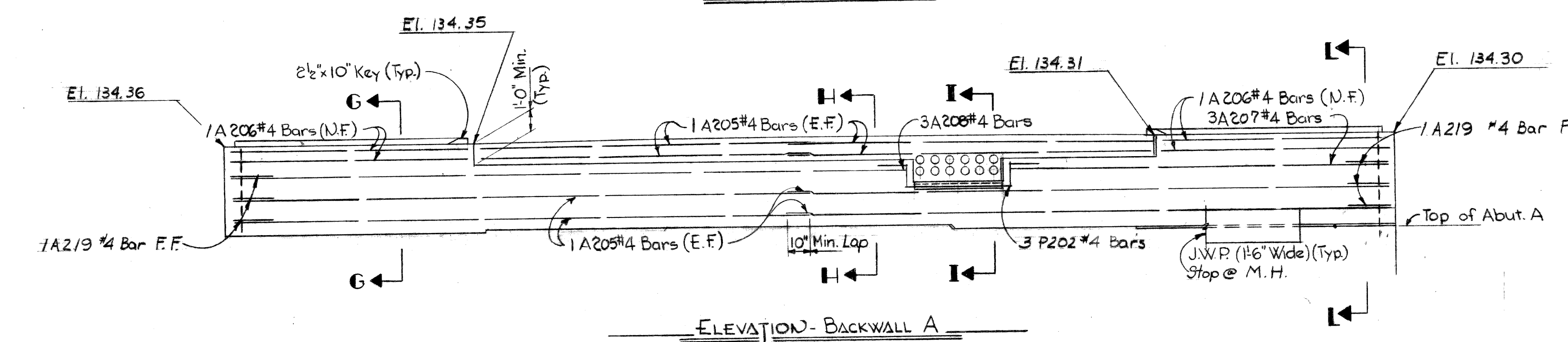
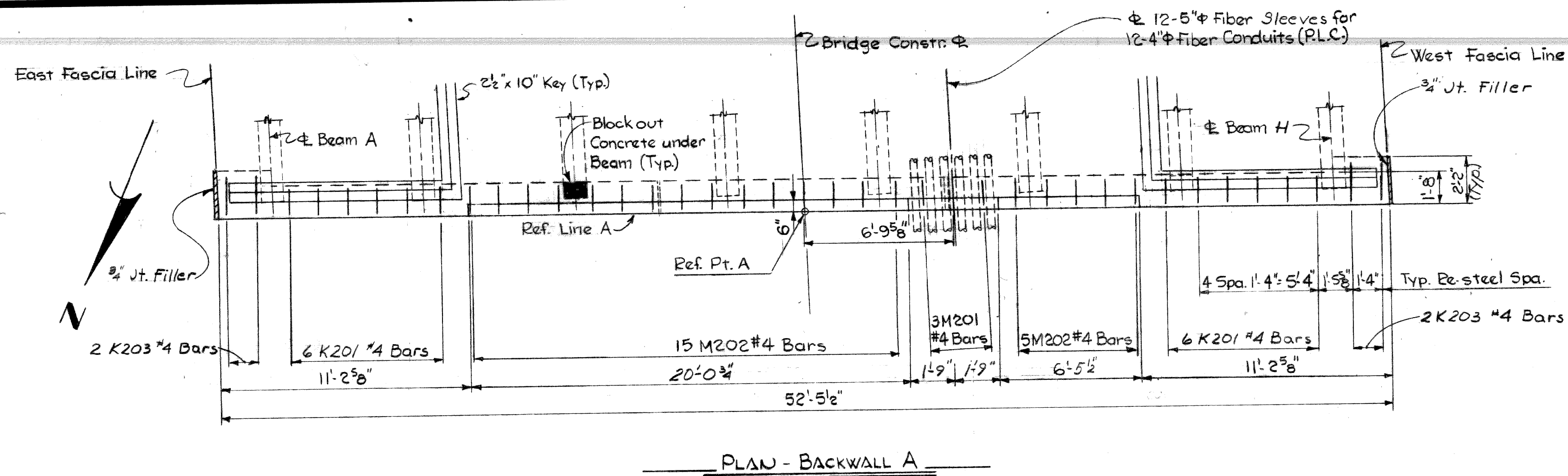
MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
 JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

SUPERSTRUCTURE DETAILS			
REVISIONS			
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT	
SQUAD BOSS	STURM # 86
DRAWN BY	ALLEN GERSH # 766
TRACED BY	
CHECKED BY	T. Baker 10-66
SHEET 15 OF 45	

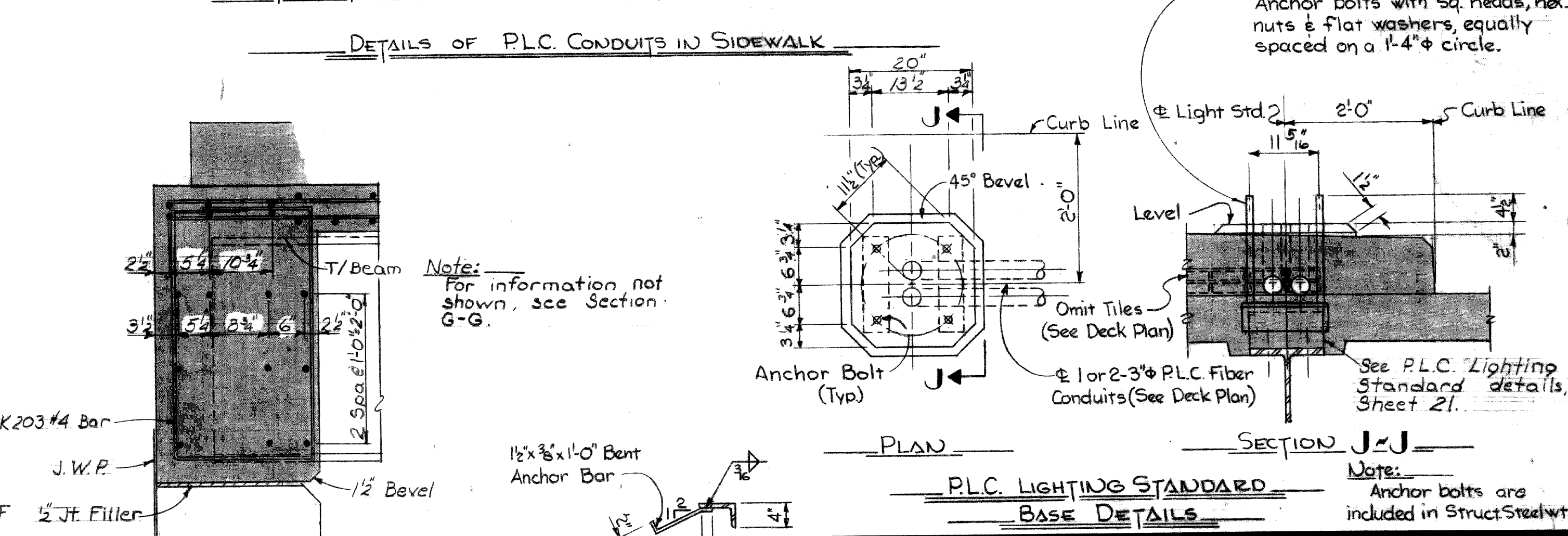
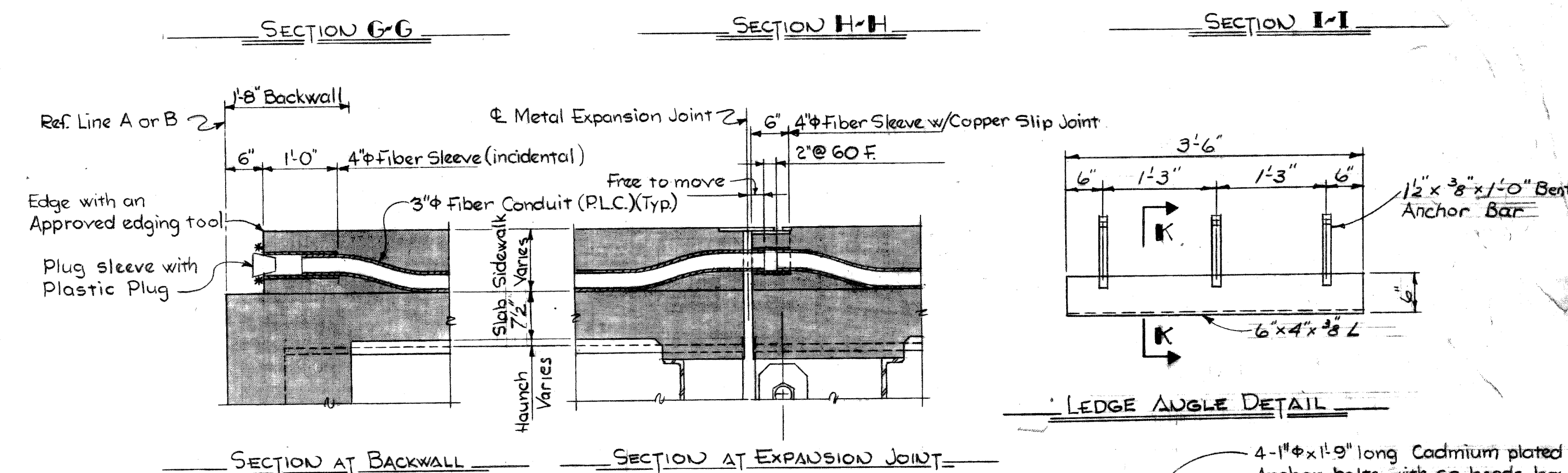
15 of 82023A





Notes: All longitudinal steel reinforcement in Backwall to be #4 Bars.  
Waterproofing, Dampproofing, Plug & Sleeves are incidental to 4" fiber conduits.

\* Indicates area to be waterproofed with four moppings of Asphaltic Roofing Cement Containing Dot more than 2.5% by weight of Short fiber Asbestos.



Work this sheet with sheets #13, #14, #15, #17

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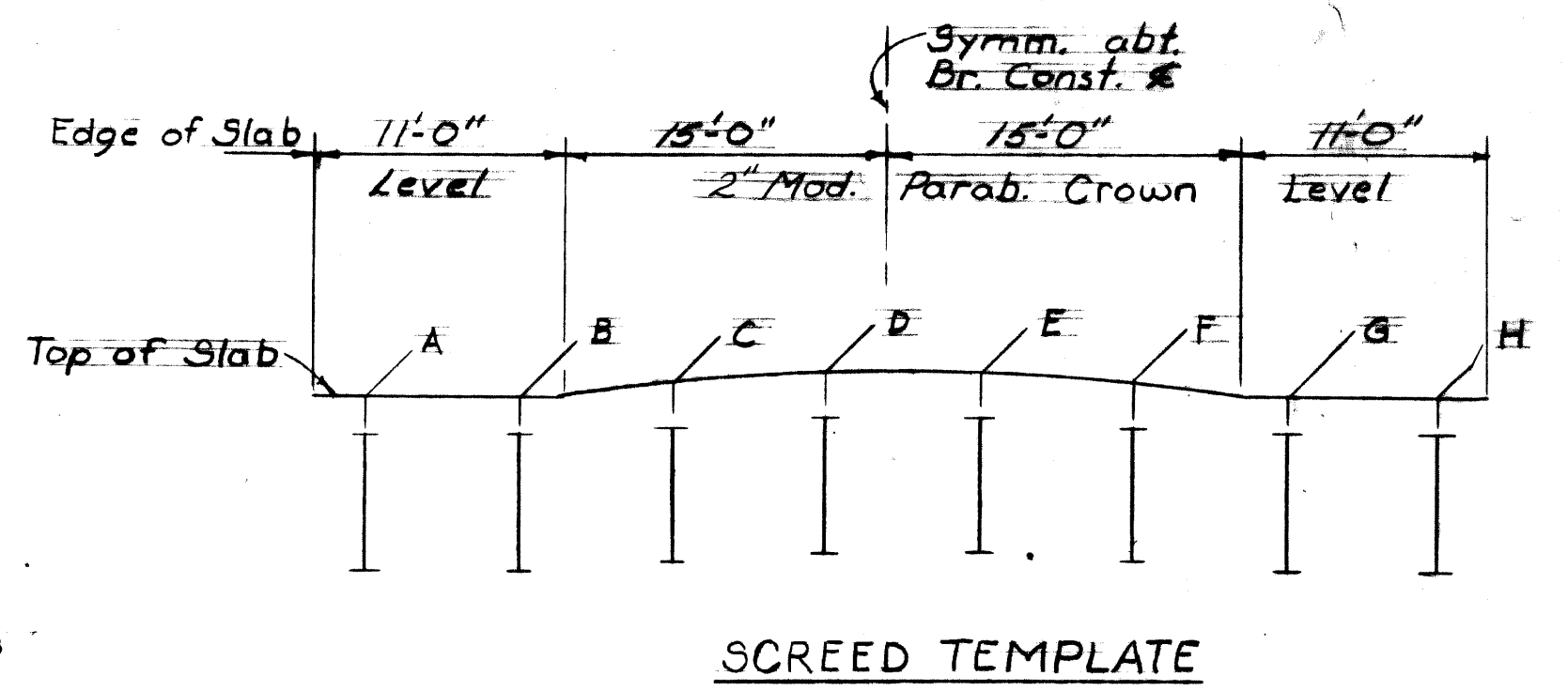
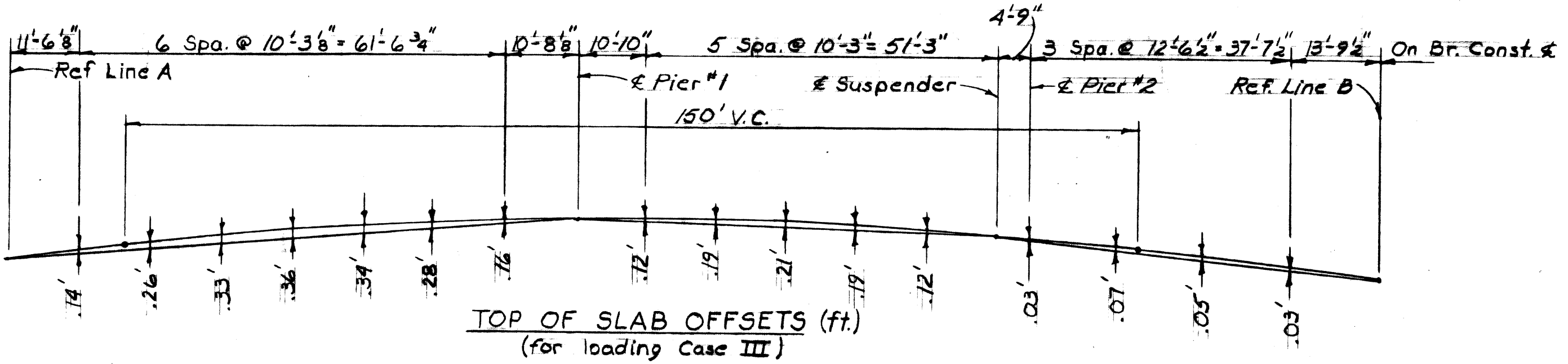
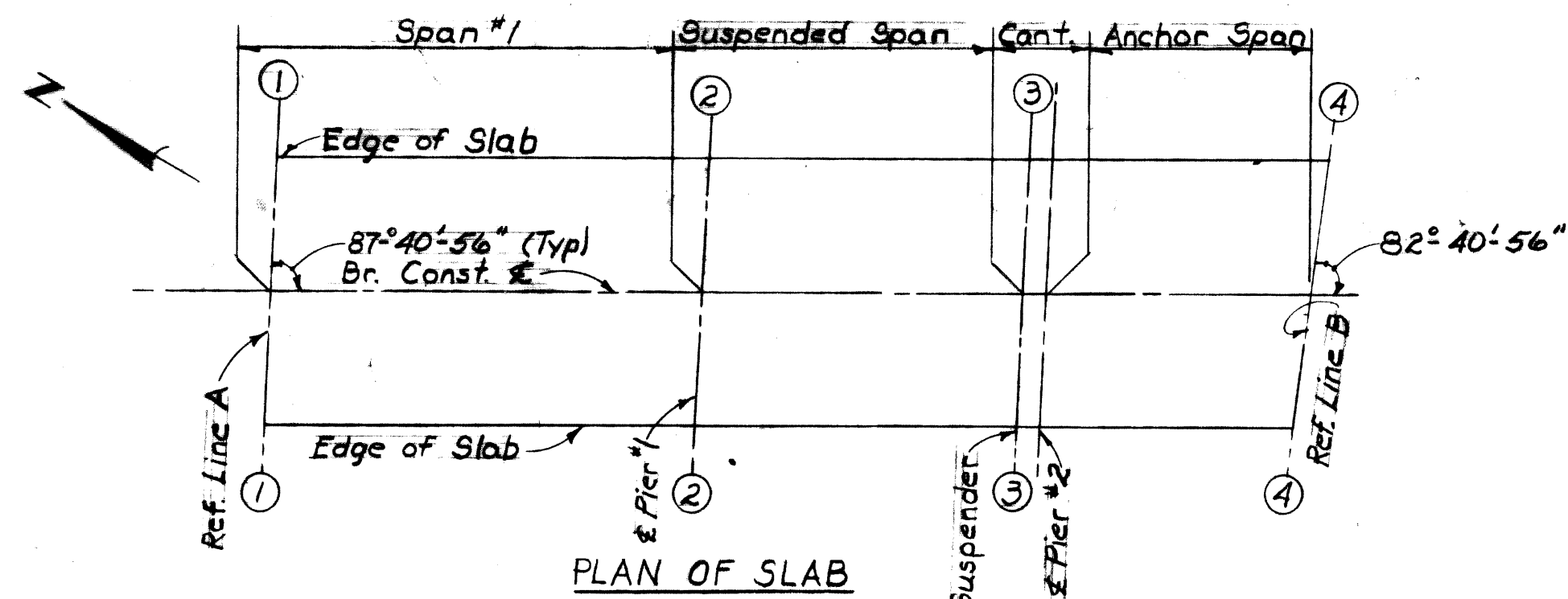
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REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

**SUPERSTRUCTURE DETAILS**

NO.	DESCRIPTION	DATE	BY

City of Detroit  
SQUAD BOSS: *[Signature]* B. G. G.  
DRAWN BY: *[Signature]* B. G. G.  
TRACED BY: *[Signature]*  
CHECKED BY: *[Signature]* 10-66  
SHEET 16 OF 45  
S15 of 82023A

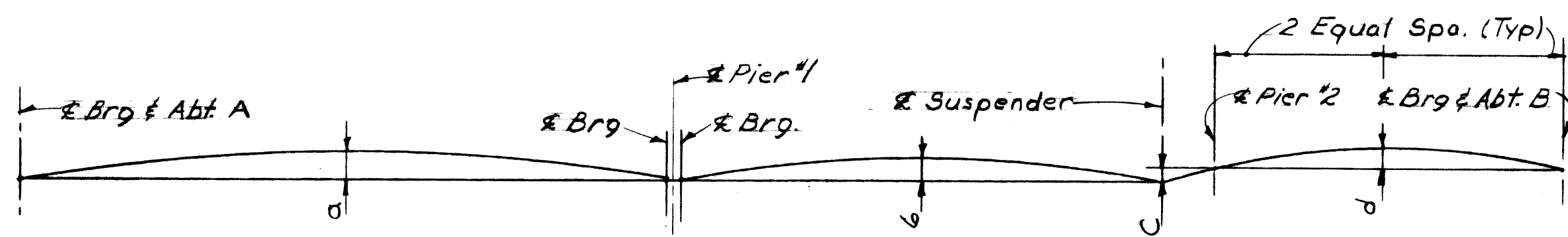
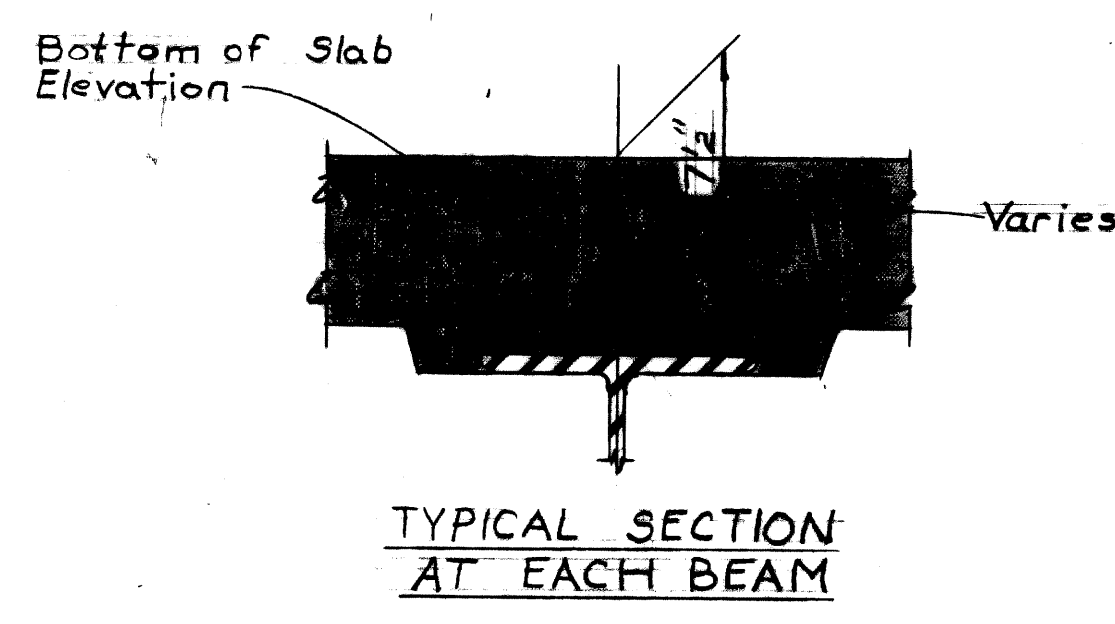




Line	Beam	A	B	C	D	E	F	G	H
1-1		134.35	134.34	134.41	134.47	134.47	134.38	134.30	134.21
2-2		135.94	135.94	136.01	136.08	136.08	136.01	135.93	135.93
3-3		135.34	135.34	135.42	135.50	135.57	135.44	135.38	135.38
4-4		133.67	133.70	133.80	133.90	133.93	133.88	133.83	133.86

**NOTES:**  
 Use longitudinal strike-off finishing machine in placing slab concrete.  
 Pour concrete in suspended span and cantilever before pouring concrete in anchor span.  
 Screeds affected by loads in another span are to be set to the elevations shown before pouring any slab concrete.  
 Elevations and cambers on this sheet include various allowances for deflections due to weight of structural steel, welding shear connectors, weight of forms, steel reinforcement, P.L.C. encasement, slab concrete, sidewalk and railing. The loading cases noted on the views are defined as follows:  
 Case I. All structural steel erected, and no other load applied.  
 Case II. Shear developers, forms, steel reinforcement and P.L.C. encasement in place on structural steel, and no other load applied.  
 Case III. Shear developers, steel reinforcement, P.L.C. encasement and slab concrete in place on structural steel, and no other load applied.  
 Estimated deflection of Beams E & F only, due to weight of P.L.C. encasement is 1/2" at center of Span #1, 7/8" at center of Suspended Span, 1/4" at Suspenders, and 3/8" at center of Anchor Span.

Ref. Line A	Span #1 83'-9"	Pier #1	Span #2 66'-10"	Pier #2	Span #3 51'-5"	Ref. Line B															
1-3" Brg.	8 Spa. @ 10'-3" = 82'-1"	5" Brg.	6 Spa. @ 10'-3" = 61'-6"	4'-9"	Varies - see below	1'-3" Brg. On Br. Const.															
133.77	134.15	134.51	134.82	135.05	135.22	135.37	135.34	135.32	135.32	135.38	135.38	135.31	135.77	134.97	134.71	134.61	134.30	133.93	133.52	133.09	
133.76	134.15	134.52	134.83	135.07	135.23	135.32	135.35	135.32	135.32	135.38	135.38	135.32	135.78	134.98	134.72	134.62	134.32	133.95	133.54	133.12	
133.82	134.21	134.58	134.90	135.13	135.20	135.39	135.42	135.39	135.45	135.46	135.39	135.39	135.24	135.05	134.79	134.70	134.40	134.04	133.64	133.21	
133.89	134.28	134.65	134.96	135.20	135.37	135.46	135.49	135.46	135.53	135.46	135.53	135.53	135.47	135.34	135.13	134.87	134.78	134.48	134.12	133.72	133.3
133.88	134.31	134.71	135.04	135.29	135.45	135.52	135.52	135.46	135.46	135.52	135.52	135.52	135.54	135.39	135.17	134.87	134.78	134.51	134.17	133.77	133.34
133.80	134.22	134.63	134.96	135.21	135.37	135.44	135.45	135.38	135.39	135.49	135.52	135.47	135.32	135.10	134.80	134.72	134.45	134.11	133.72	133.29	
133.72	134.11	134.48	134.80	135.04	135.21	135.31	135.34	135.31	135.31	135.38	135.39	135.33	135.20	135.00	134.75	134.65	134.37	134.02	133.65	133.25	
133.71	134.09	134.46	134.77	135.01	135.18	135.29	135.32	135.31	135.31	135.38	135.39	135.33	135.20	135.00	134.75	134.66	134.38	134.04	133.67	133.27	
																4 Spa. @ 12.02' (= 48.07')					



CAMBER DIAGRAM (for loading Cases shown in table)

BEAM	A, H				B, C, D, G				E, F			
	a	b	c	d	a	b	c	d	a	b	c	d
Case I	6 3/8	3 1/2	2	7/8	6 3/8	3 3/8	2	7/8	7 1/2	4 3/8	3 3/8	1 1/4
Case II	5 3/8	3	2	5/8	5 3/8	3 3/8	2	5/8	5 1/4	3 3/8	2	5/8
Case III	4 1/4	2 1/2	3/8	3/8	4 1/4	2 1/4	3/8	3/8	4 1/4	2 1/2	3/8	3/8

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 APPROVED: [Signature] STRUCTURAL ENGINEER  
 JOB No. PW 990(16)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
 JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

**SUPERSTRUCTURE DETAILS**

REVISIONS

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT  
 SQUAD BOSS: [Signature] 9-66  
 DRAWN BY: A.J.G. 8-66  
 CHECKED BY: R.V.H. 9-66  
 SHEET 17 OF 23

**SI5 of 82023A**







**STRUCTURAL STEEL NOTES**

Design: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1958 Edition (HS20-4# Loading)

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction - 1965 Edition.

Shop connections shall be welded as shown on the Flaps.

Field connections shall be bolted with 3/4" High-strength Bolts, except as noted.

The beams are to be cambered as shown in Camber Table on sheet #21. This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ± 4". Heating is to be used, if necessary, to assure camber permanency within the above tolerance.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1/2" in thickness. Edges must be beveled 1/4" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.

In addition to the shop paint provisions of the Standard Specifications, the top surfaces of the masonry plates shall be coated in accordance with the requirements for machine finished surfaces.

Structural Steel shall be A36-62T Steel. Steel in anchor bolts may be ASTM A-307.

The quantity "Structural Steel-Furnishing and Fabricating" includes:

Steel *	328,730 lbs.
Lead	270 lbs.
<b>Total</b>	<b>329,000 lbs.</b>

\* Steel quantity includes Metal Exp. Jt and PLC supports.

Welding on tension flanges of beams will not be permitted unless such welding is shown on the plans or specified. Welding at other locations on the beams, except where shown on plans, may be permitted by written authorization providing the welding is to be performed in strict accordance with all specification requirements for structural welding.

Field Paint for Structural Steel is to be Aluminum 5B.

**QUANTITIES**

Structural Steel-Furnishing and Fabricating	329,000 lbs.
Structural Steel-Erection	329,000 lbs.
Shear Developers	Lump Sum
Field Painting	Lump Sum

Work this sheet with sheet nos. 17, 20 and 21.

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**

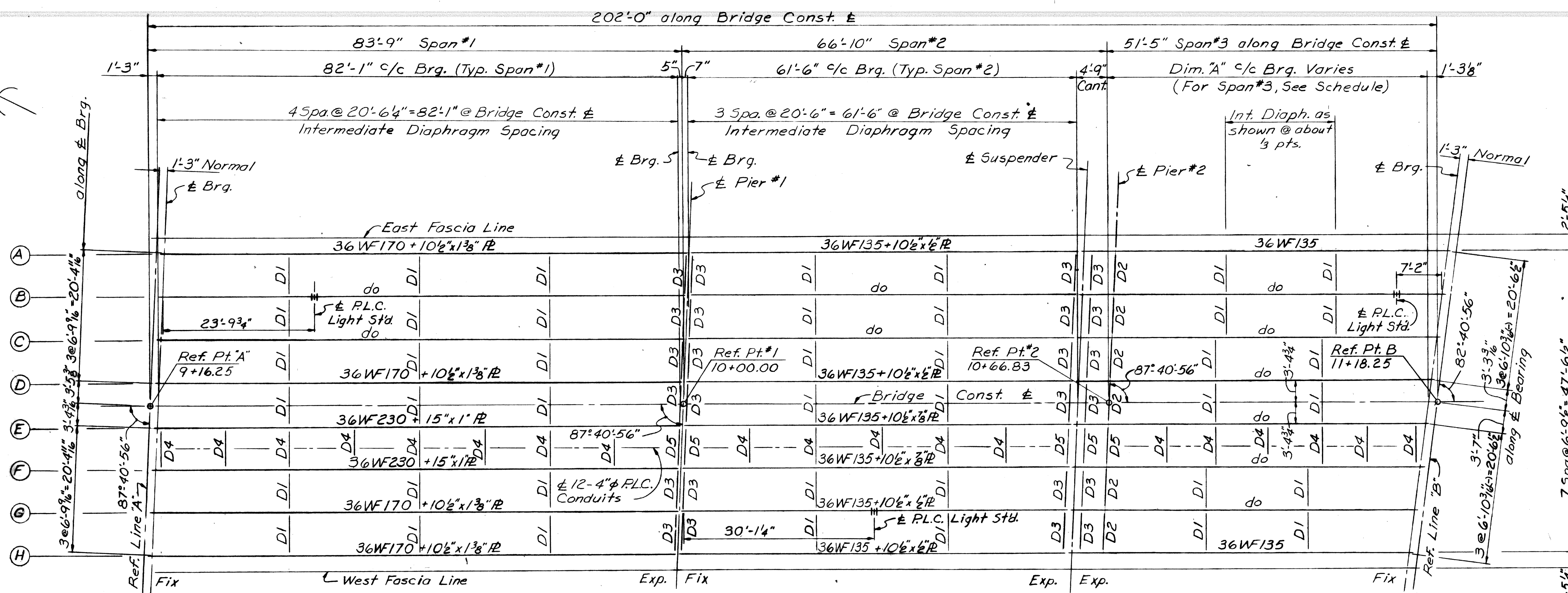
JEFFRIES FREEWAY  
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CROSSING THE FORD FREEWAY IN DETROIT

**STRUCTURAL STEEL DETAILS**

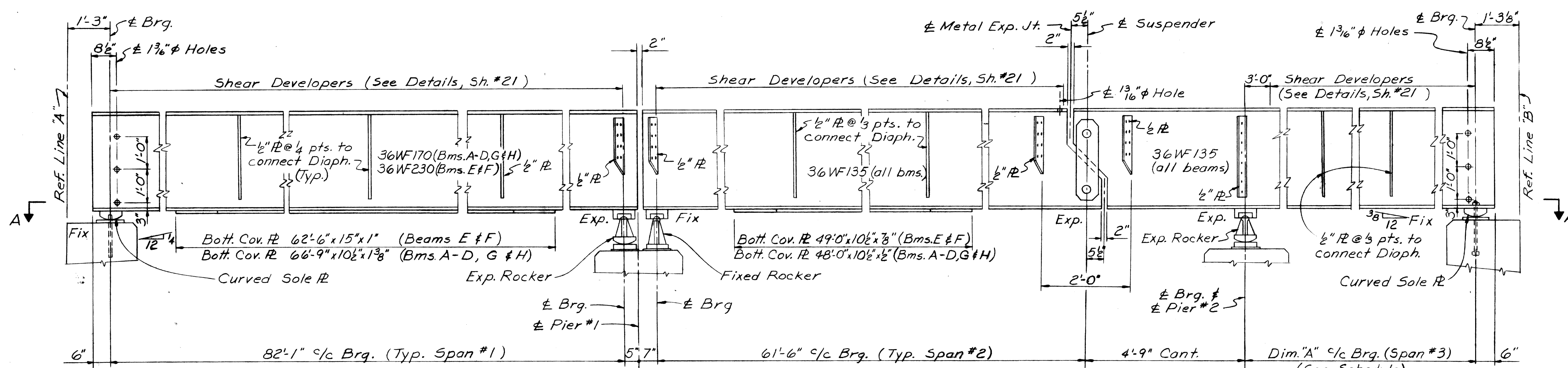
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	DRYEN	5-66
DRAWN BY	D. Roman	5-66
CHECKED BY	A. Freiberg	9-66
SHEET	19	13

S15 of 82023A

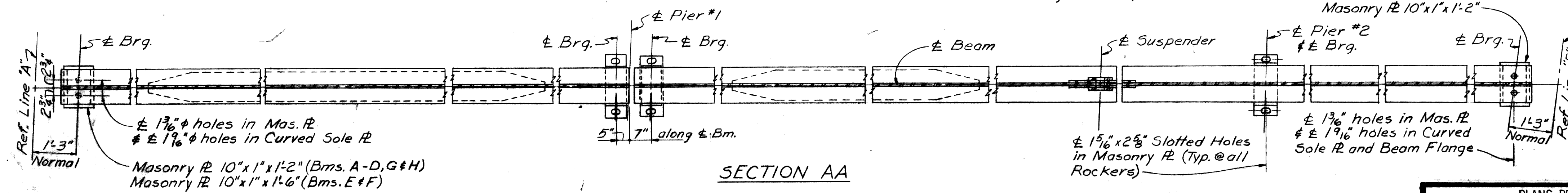


**FRAMING PLAN**



**ELEVATION**

Note: Center Cov. R's. between Brgs. of Beams. For Bearing Details, See Sh. #20.



**SECTION AA**

VARIABLE DIMENSIONS - SPAN #3								
BEAM	A	B	C	D	E	F	G	H
Dimension A	52'-3"	51'-7 1/4"	51'-0 3/8"	50'-5 1/2"	49'-10 1/4"	49'-3 3/8"	48'-8"	48'-0 3/4"

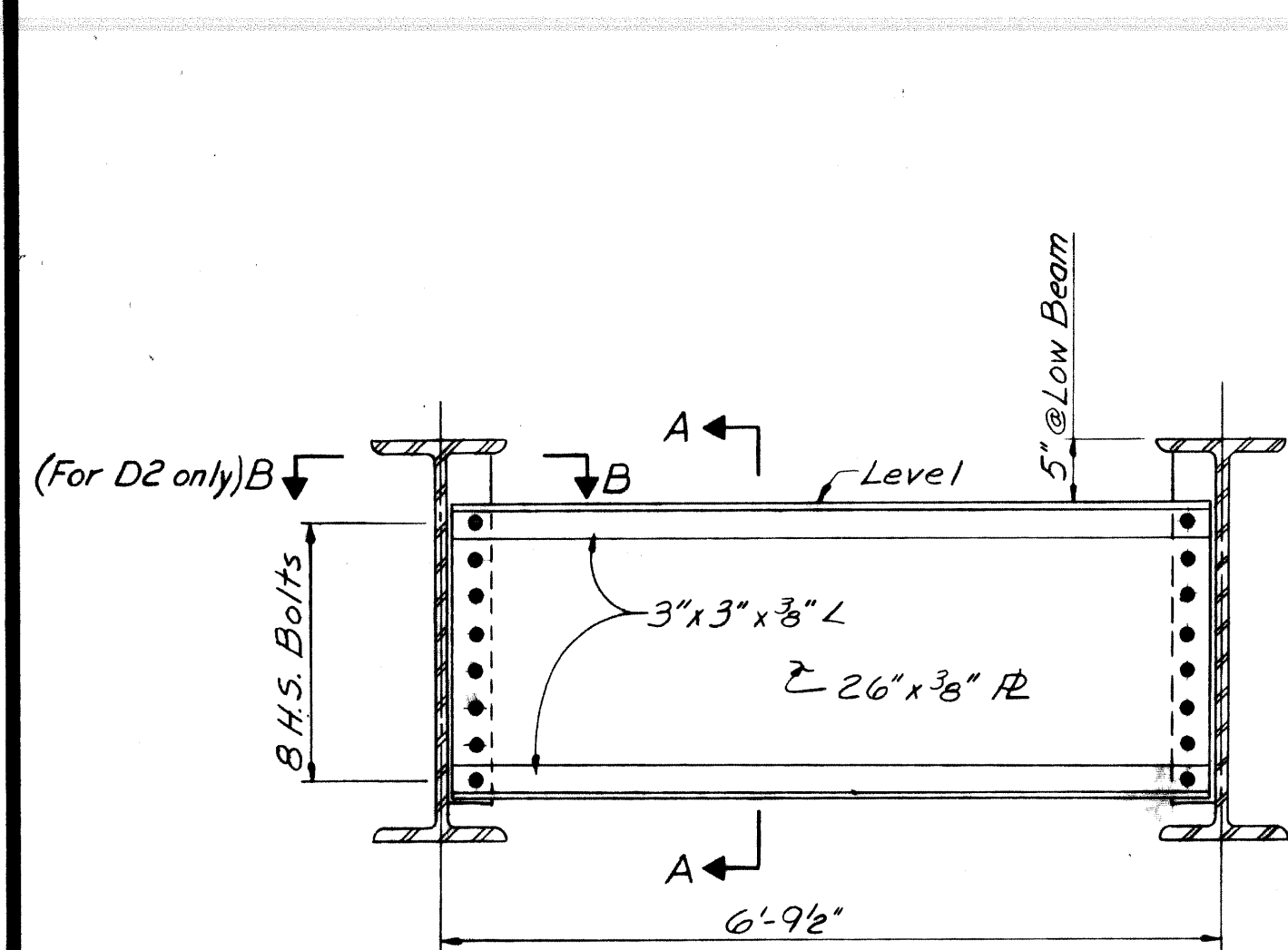
Note: All longitudinal dimensions given are horizontal.

PLANS PREPARED BY  
**CITY OF DETROIT**  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

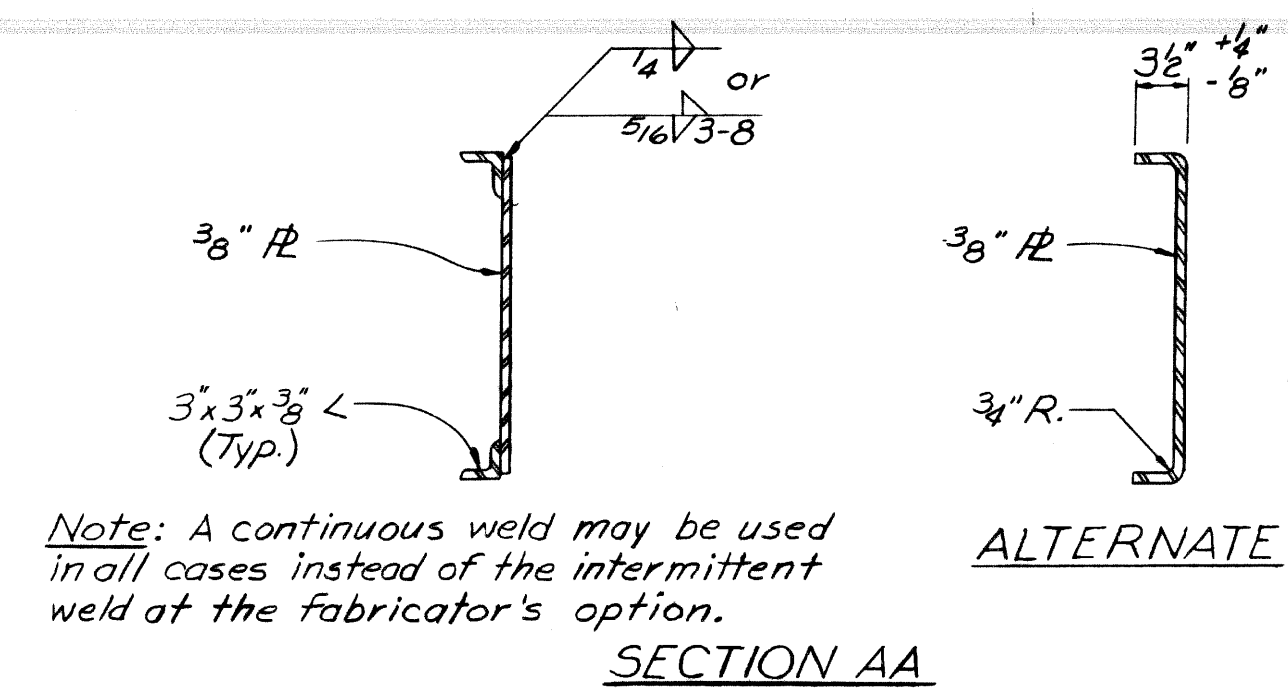
APPROVED: *[Signature]*  
STRUCTURAL ENGINEER

JOB No.  
PW 990(16)

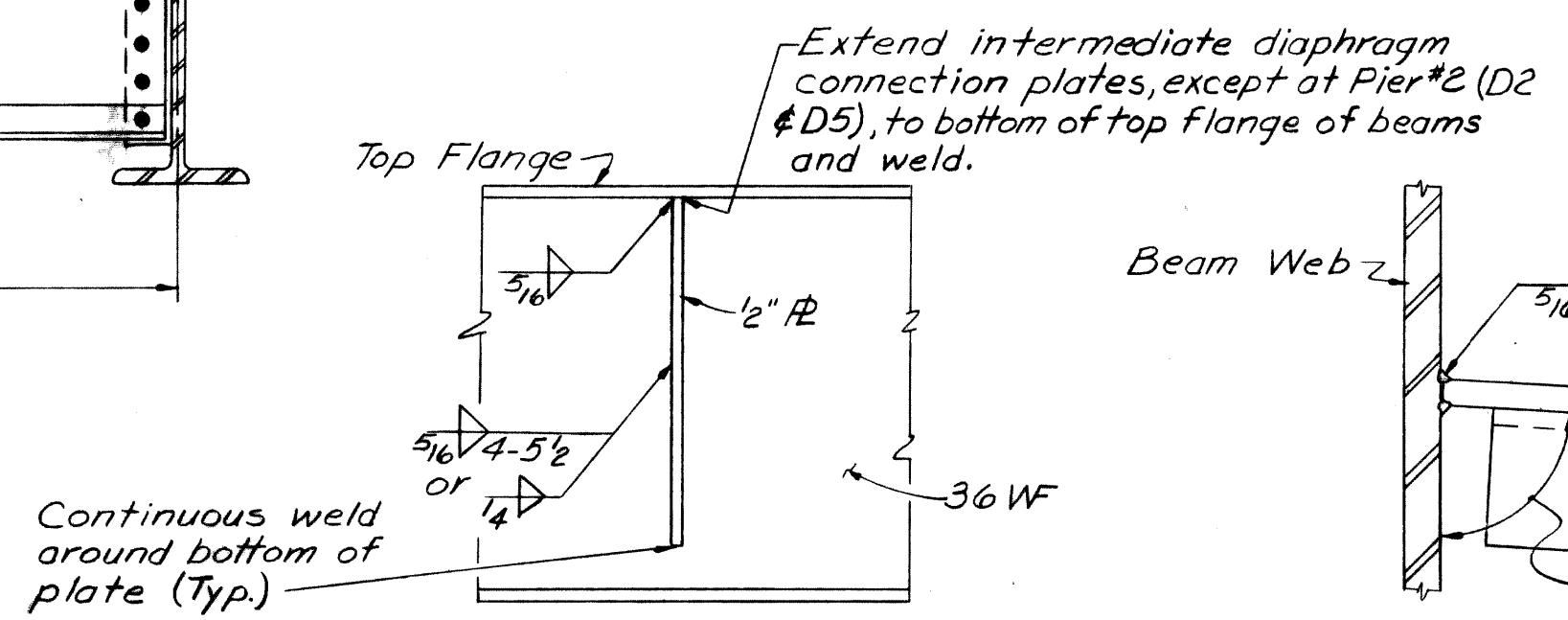




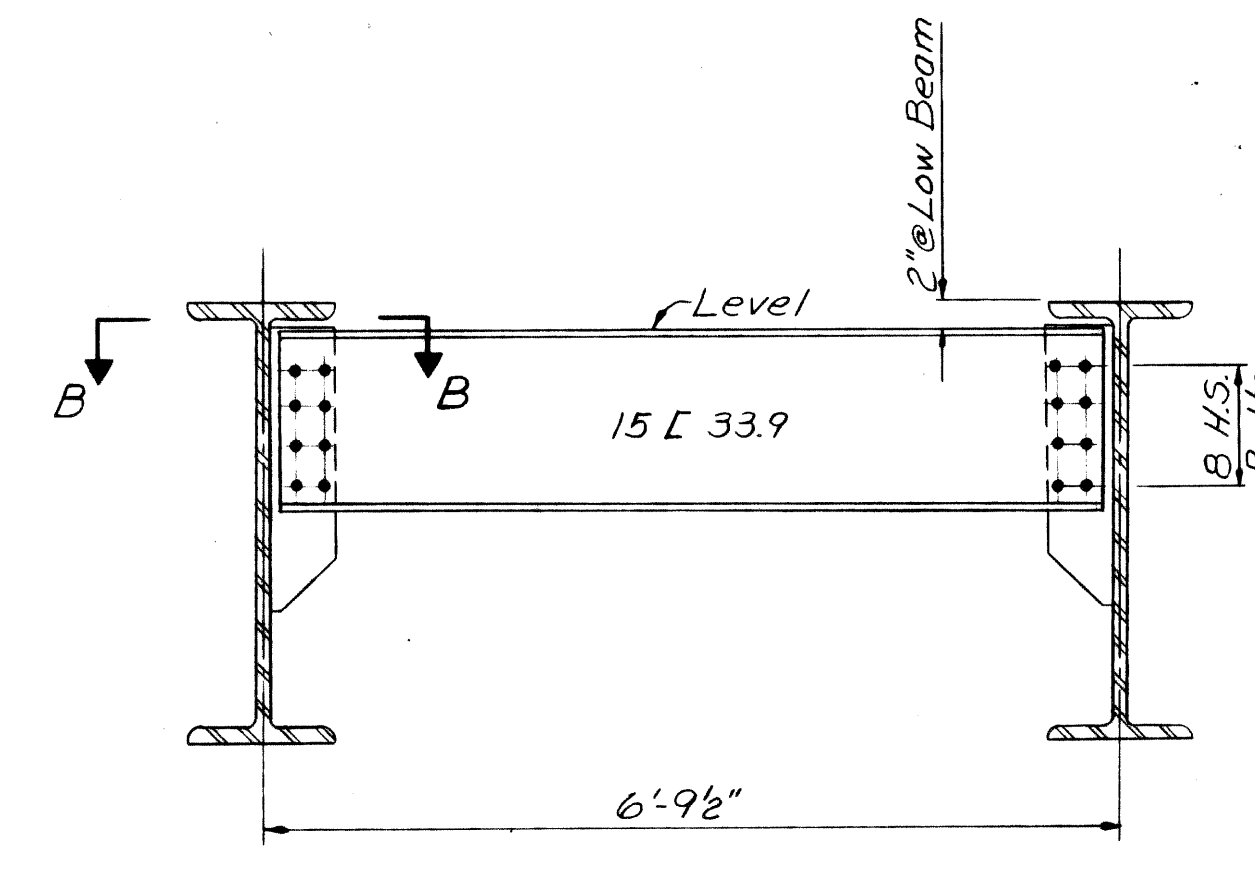
DIAPHRAGMS D1 & D2



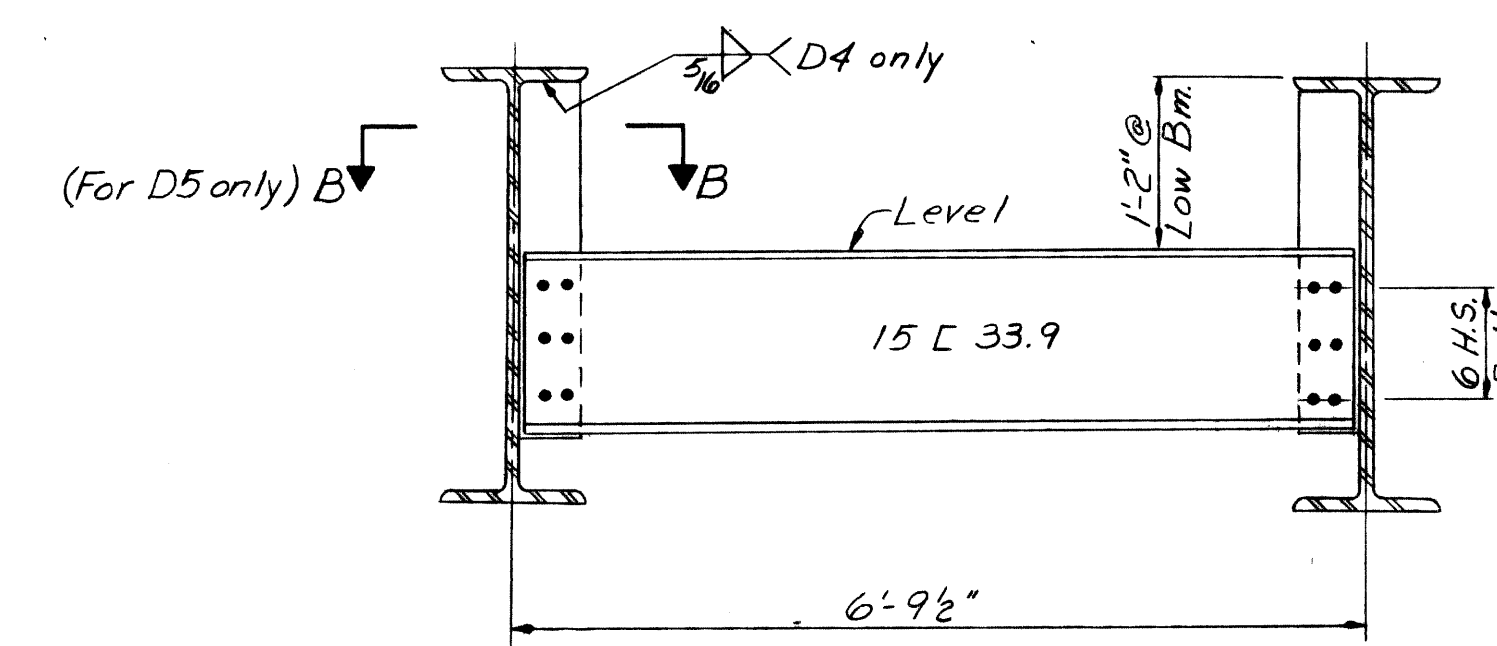
SECTION AA



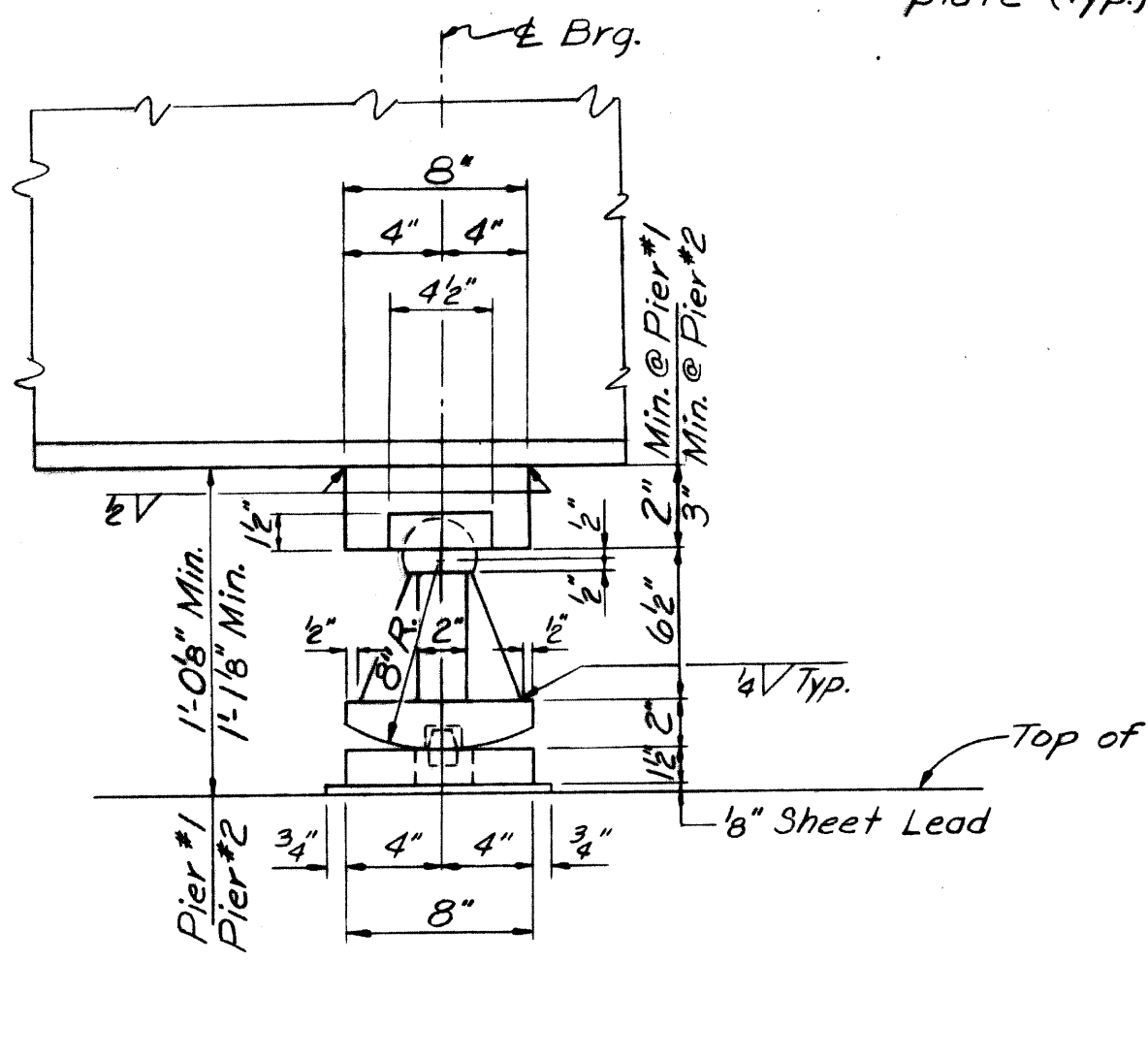
INTERMEDIATE DIAPHRAGM CONNECTION DETAILS



DIAPHRAGM D3

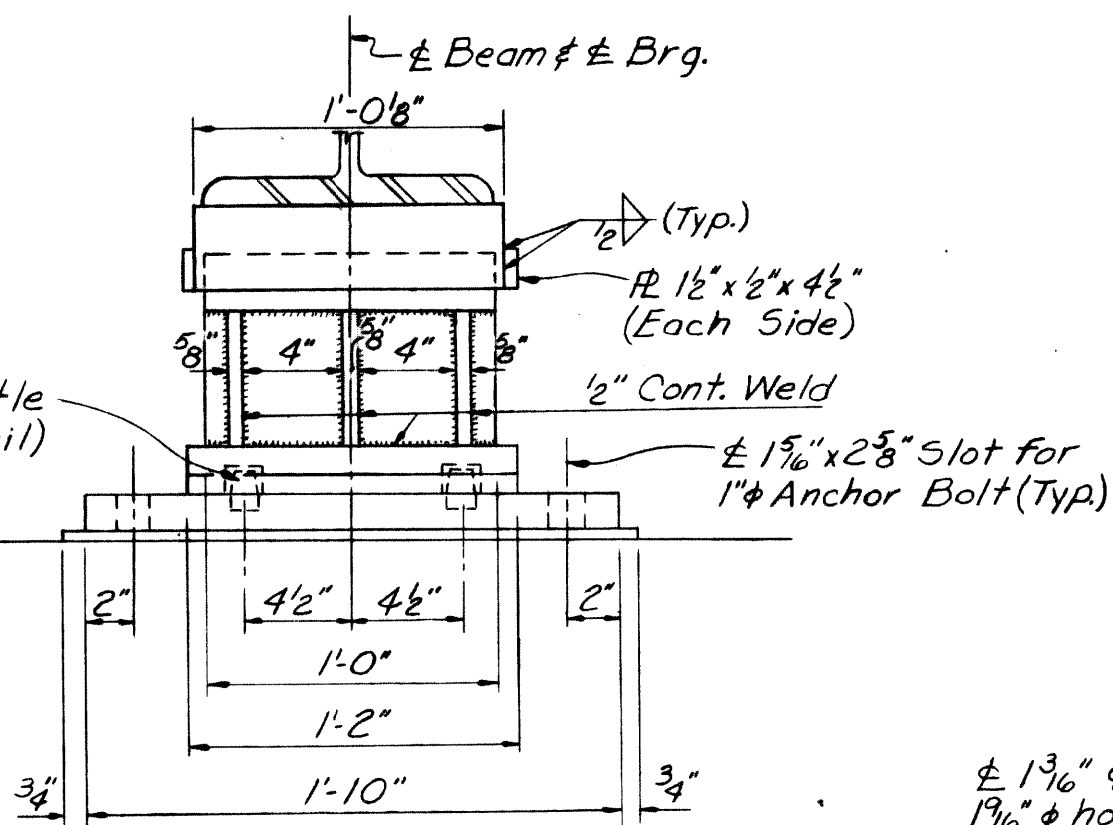


DIAPHRAGMS D4 & D5 (At P.L.C. Conduits)

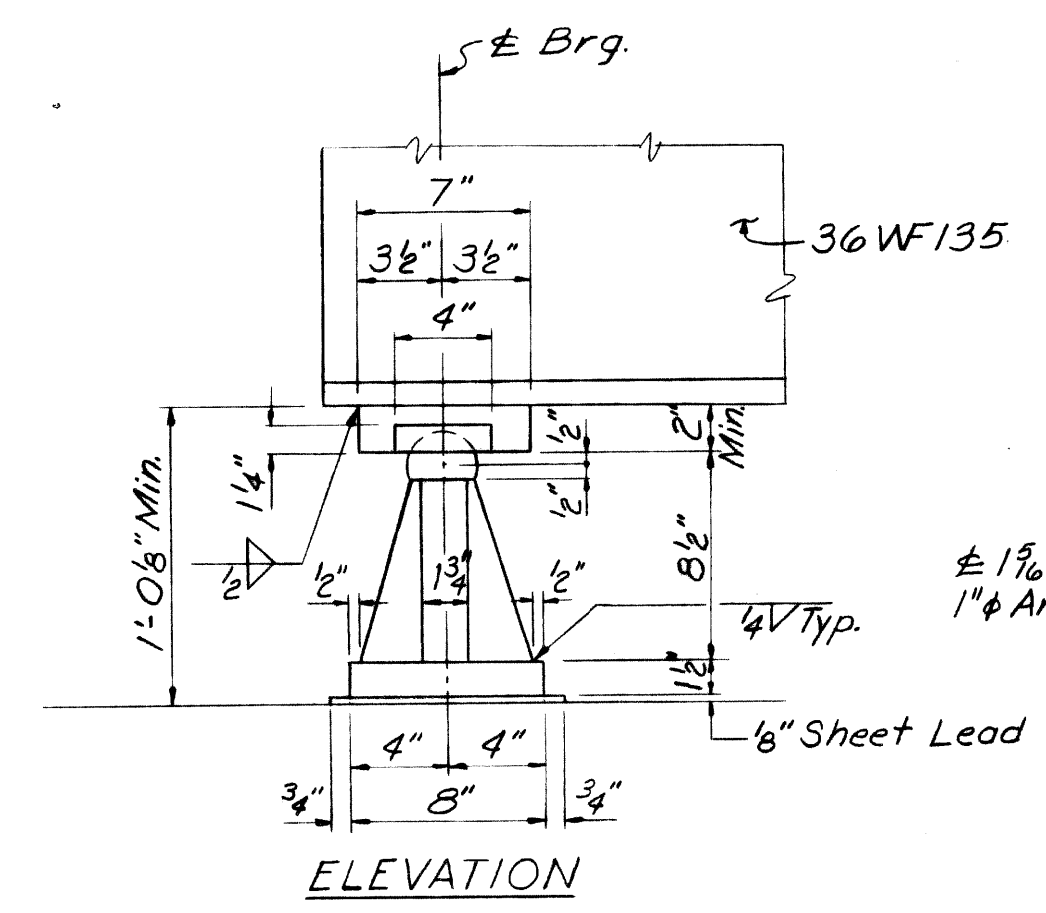


ELEVATION

EXPANSION ROCKER DETAILS (For 36WF170 & 36WF135 at Piers #1 & #2)

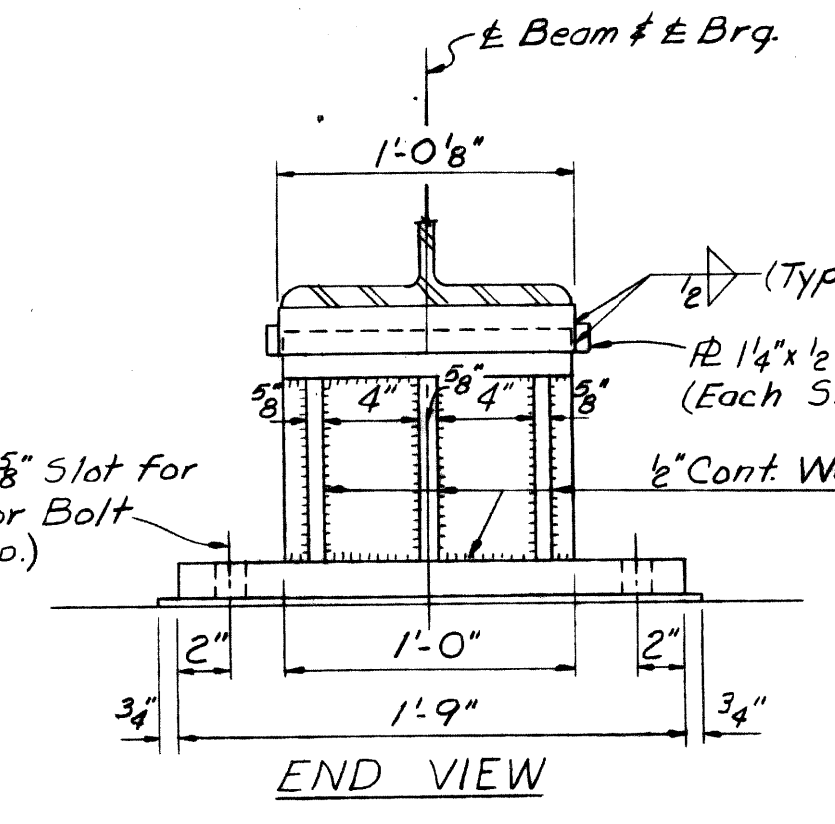


END VIEW

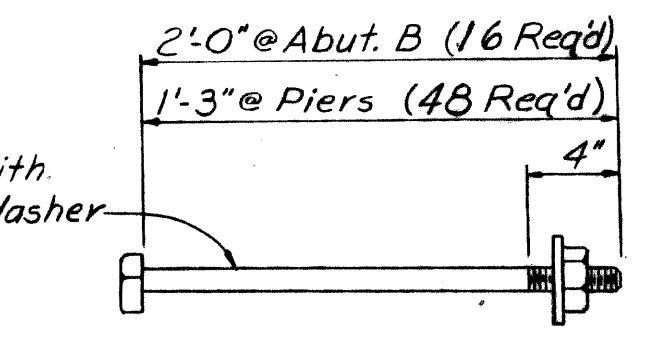


ELEVATION

FIXED ROCKER DETAILS (All Beams at Pier #1)

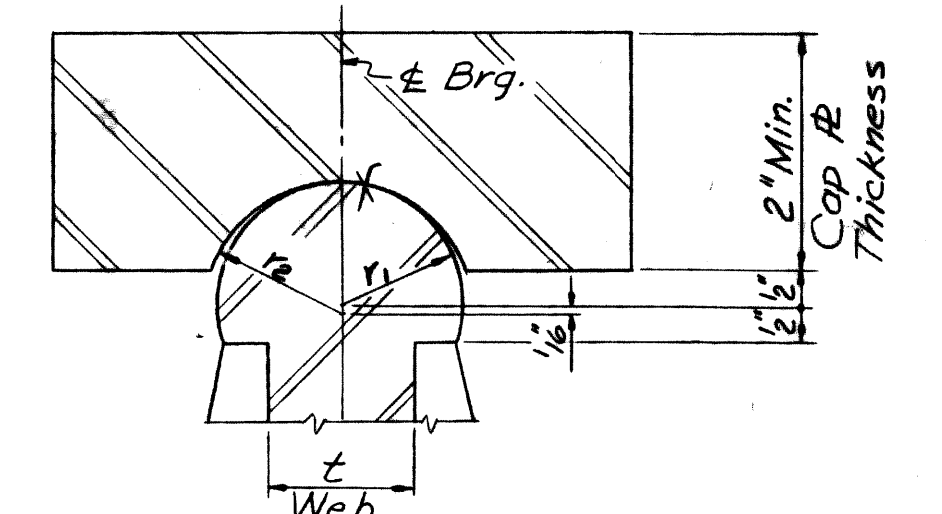


END VIEW

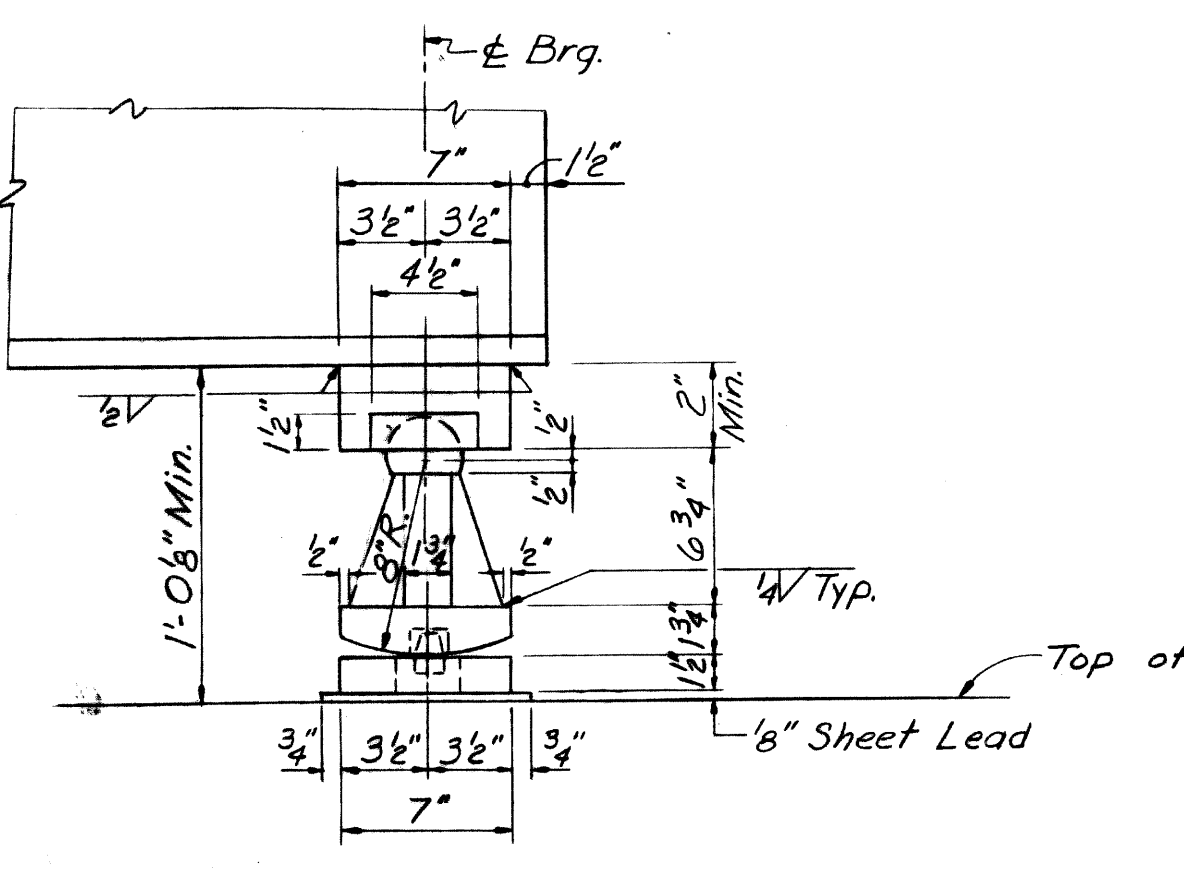


ANCHOR BOLT DETAIL

Note: For  $t = 1 3/4$ ,  $r_1 = 1 1/2$  &  $r_2 = 1 1/2$ . For  $t = 2$ ,  $r_1 = 1 3/4$  &  $r_2 = 1 3/4$ .

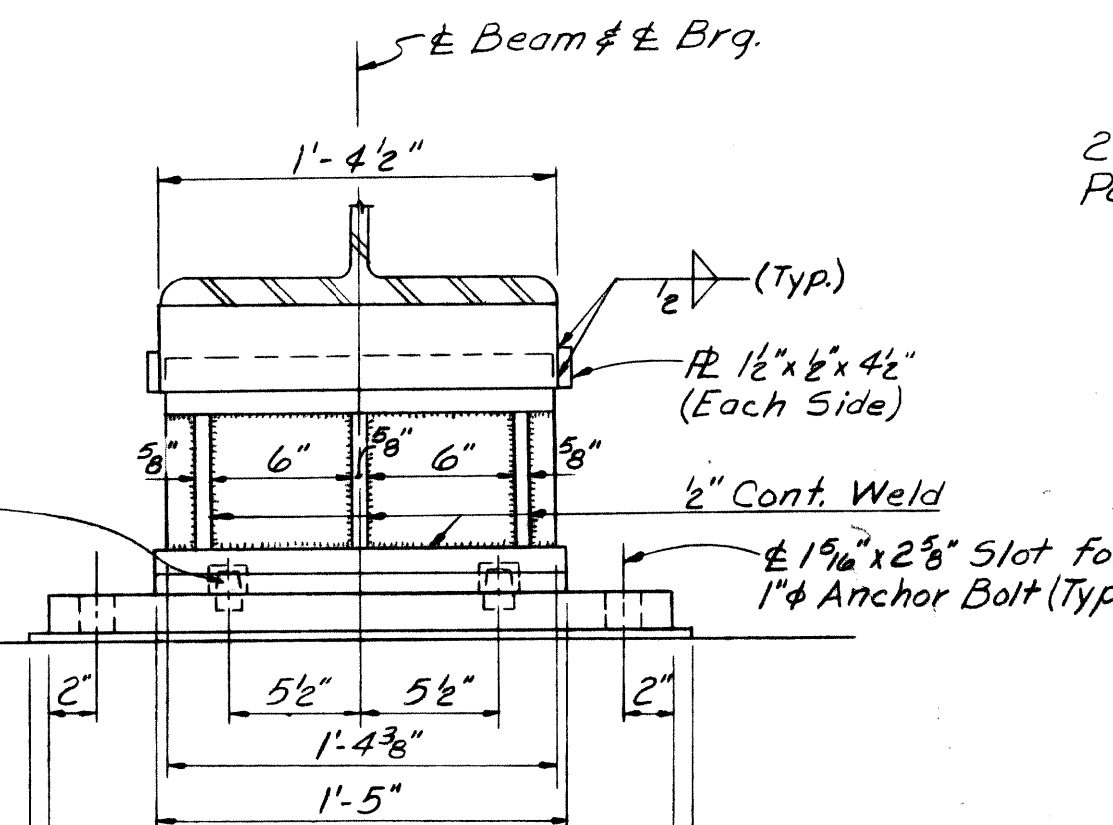


CAP DETAIL

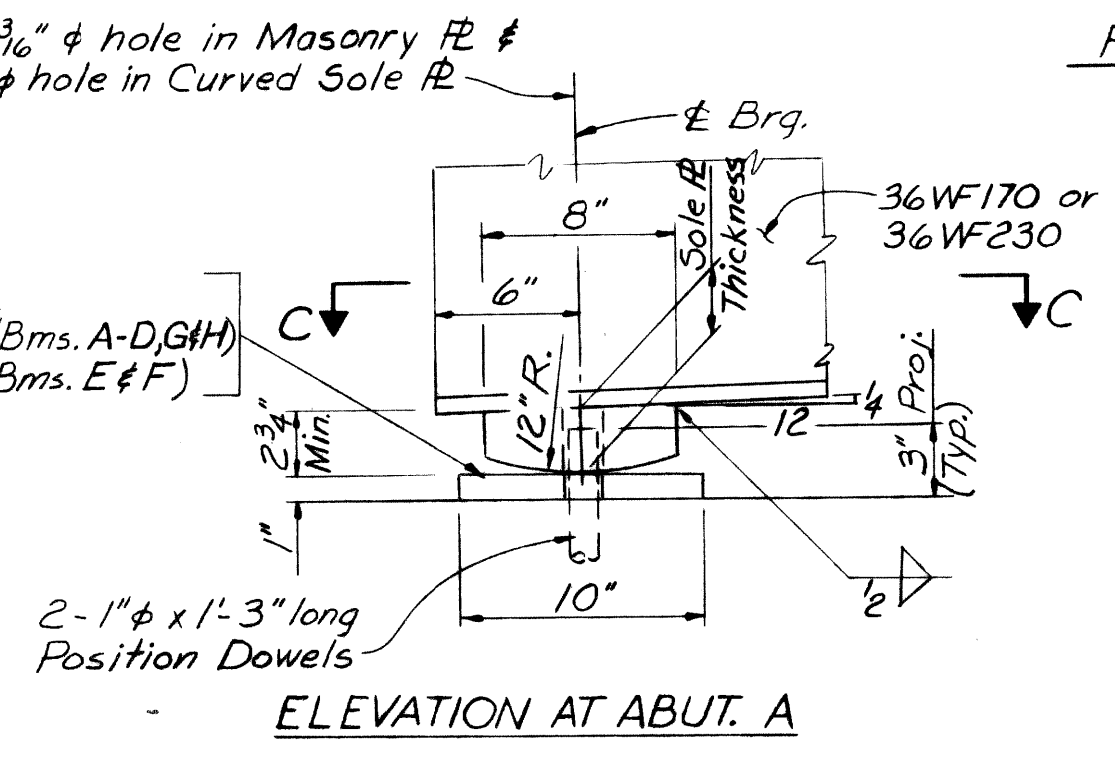


ELEVATION

EXPANSION ROCKER DETAILS (For 36WF230 at Pier #1)

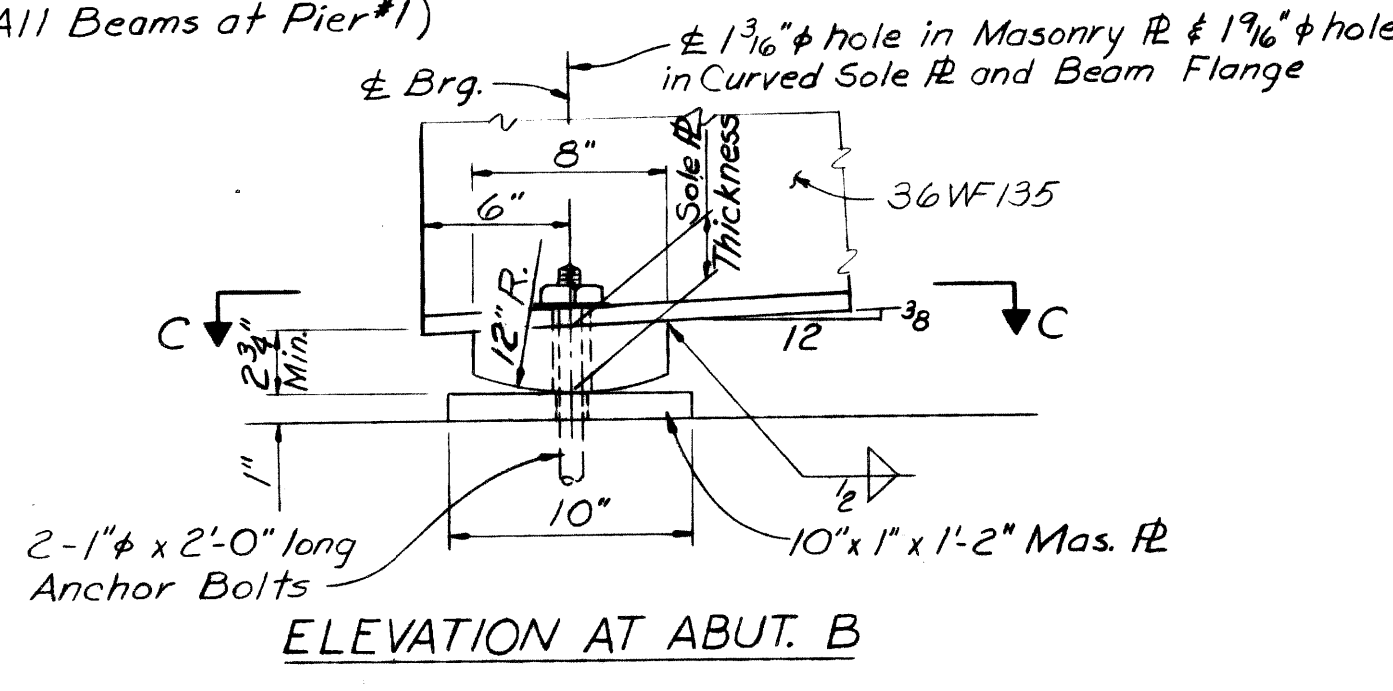


END VIEW

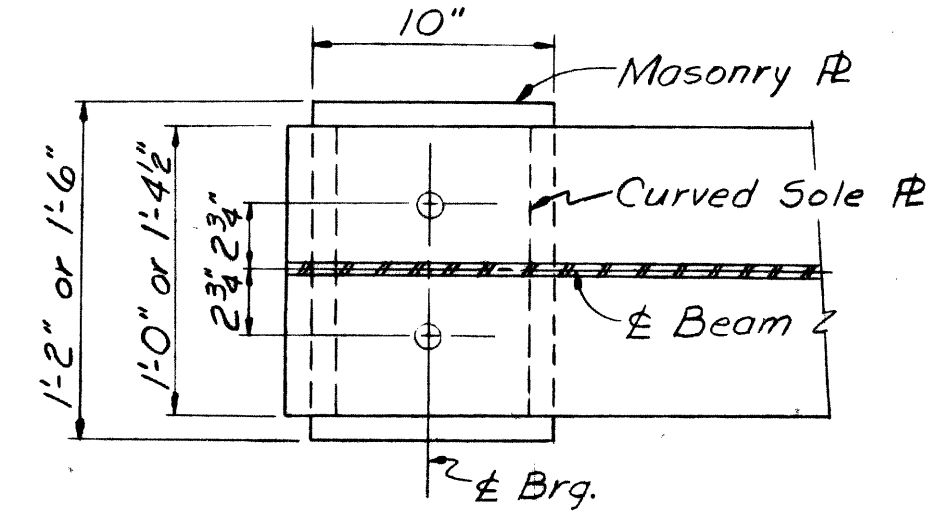


ELEVATION AT ABUT. A

CURVED SOLE PLATE DETAILS



ELEVATION AT ABUT. B



SECTION CC

Note: For sole plate & cap plate thickness see Table on sheet no. 21. Bevel sole plates at abutments as shown on beam details.

Work this sheet with sheet nos. 19 and 21.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

STRUCTURAL STEEL DETAILS

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

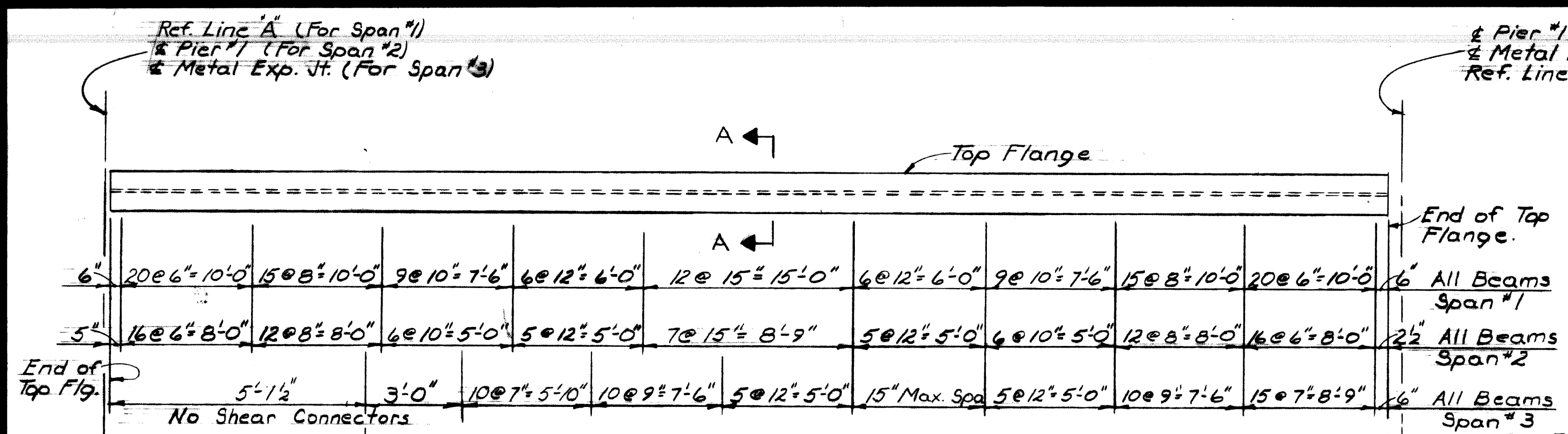
JOB No.  
PW 990 (16)

NO.	DESCRIPTION	DATE	BY

NO.	DESCRIPTION	DATE	BY

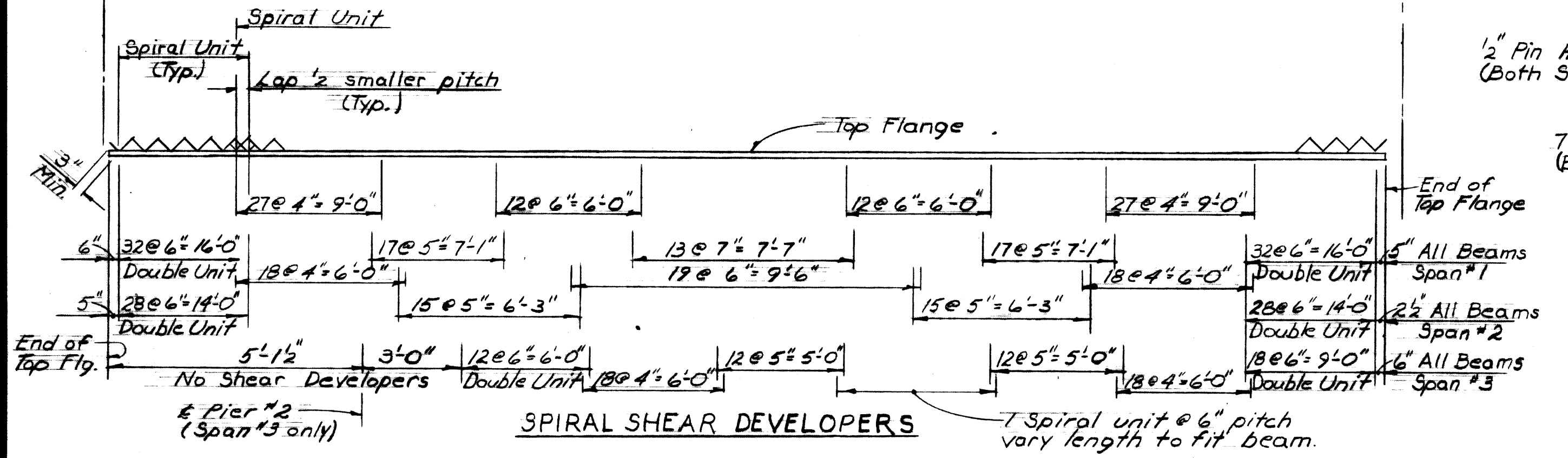
SHEET 20 of 45  
S15 of 82023A



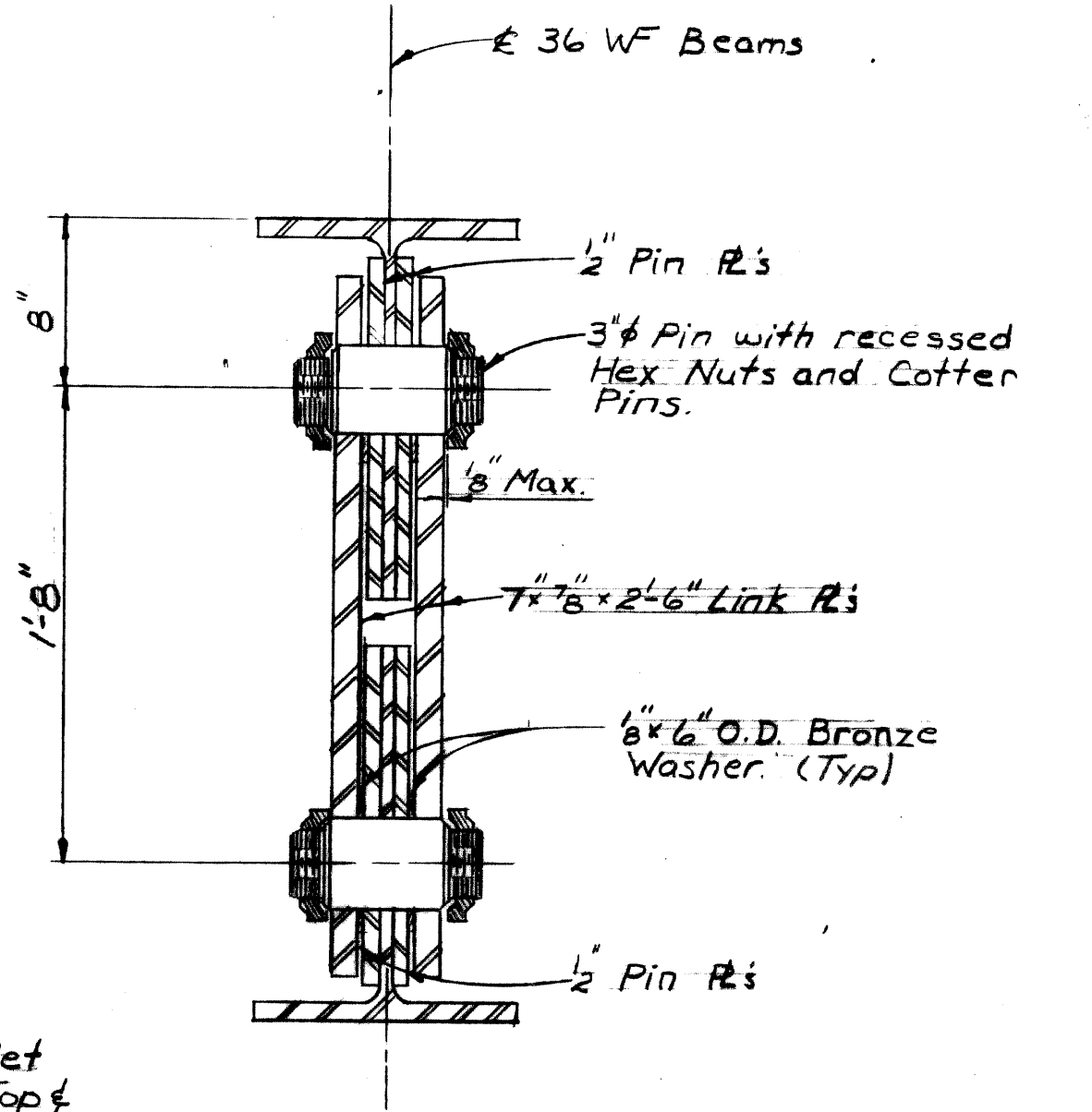
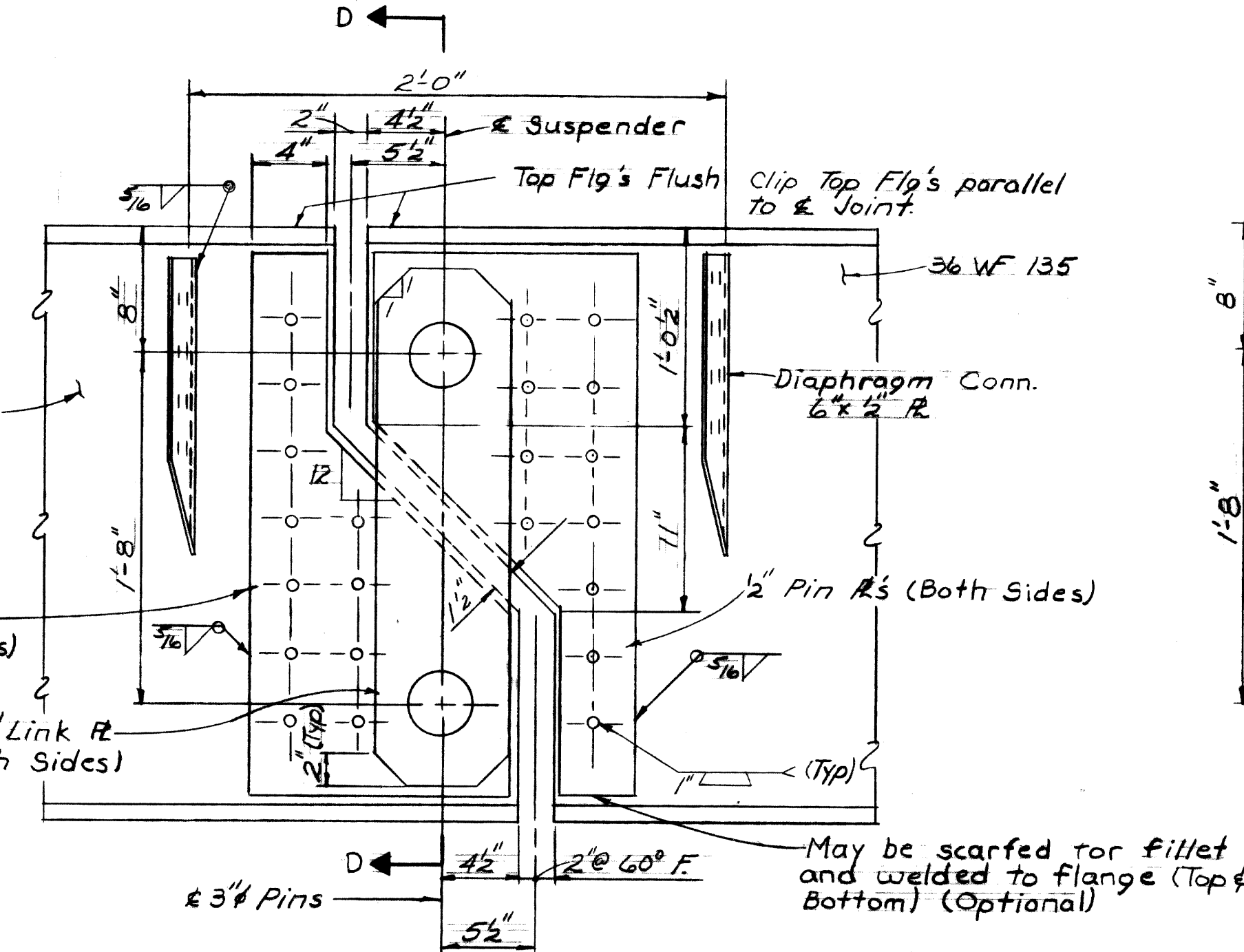


**STUD SHEAR CONNECTORS**

Note: Rows of studs shall be set parallel to the transverse reinforcement.

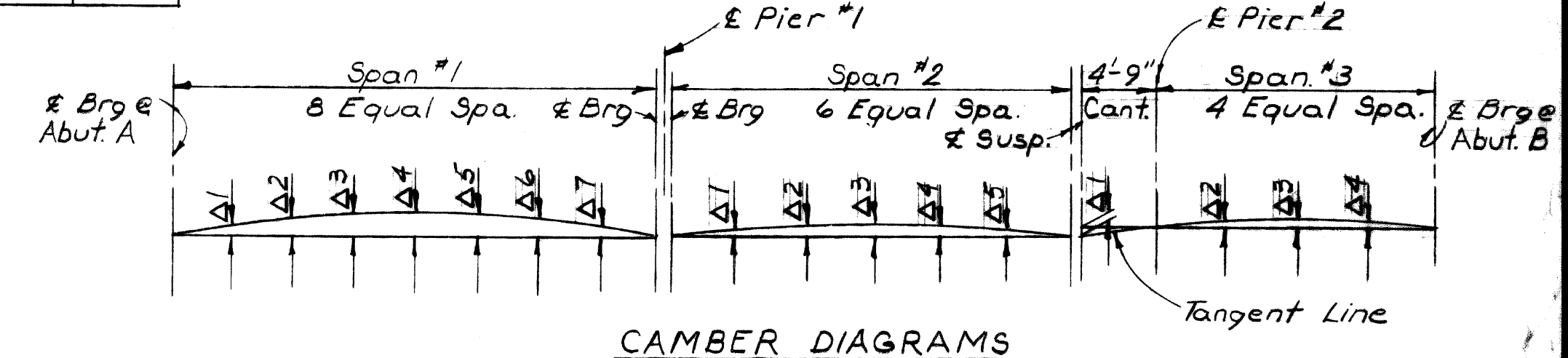
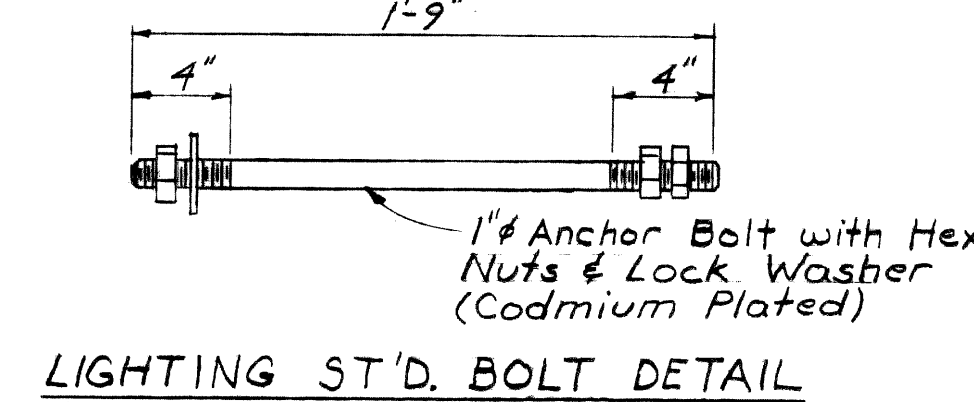
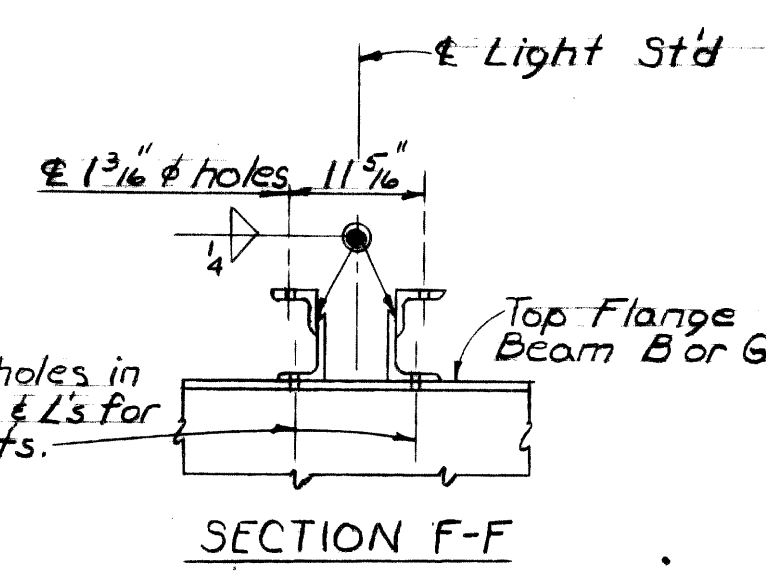
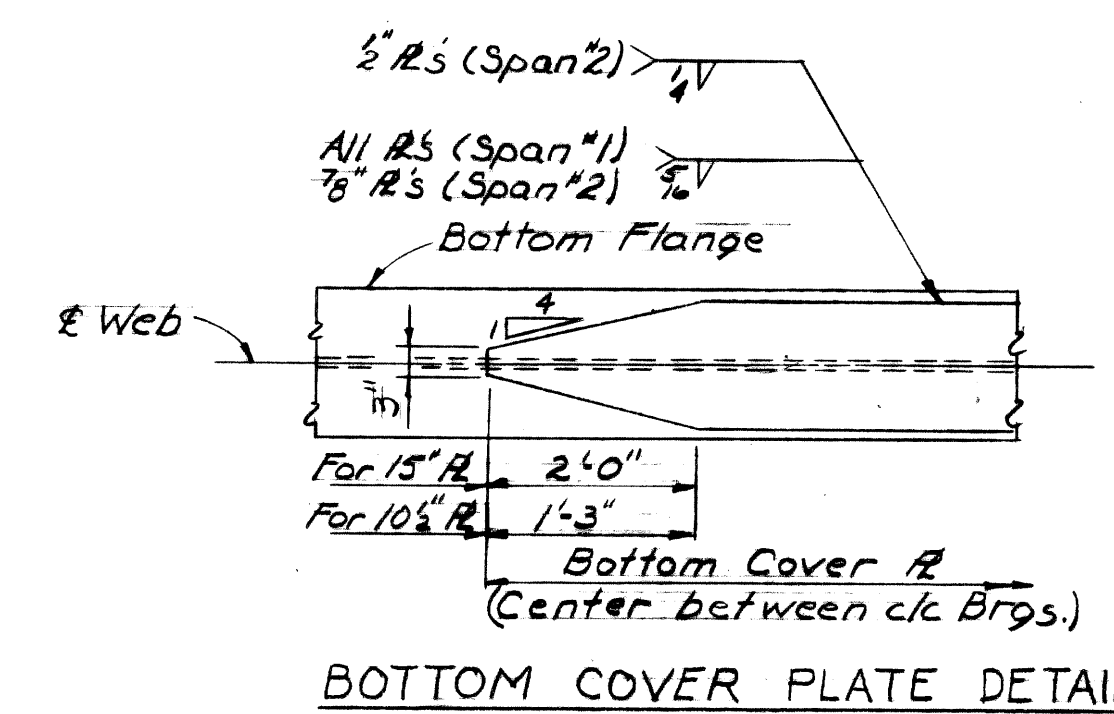
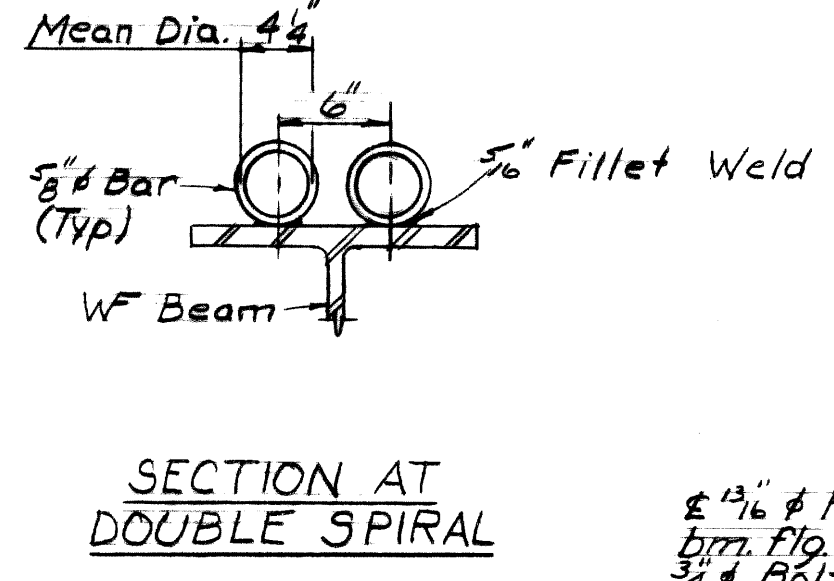
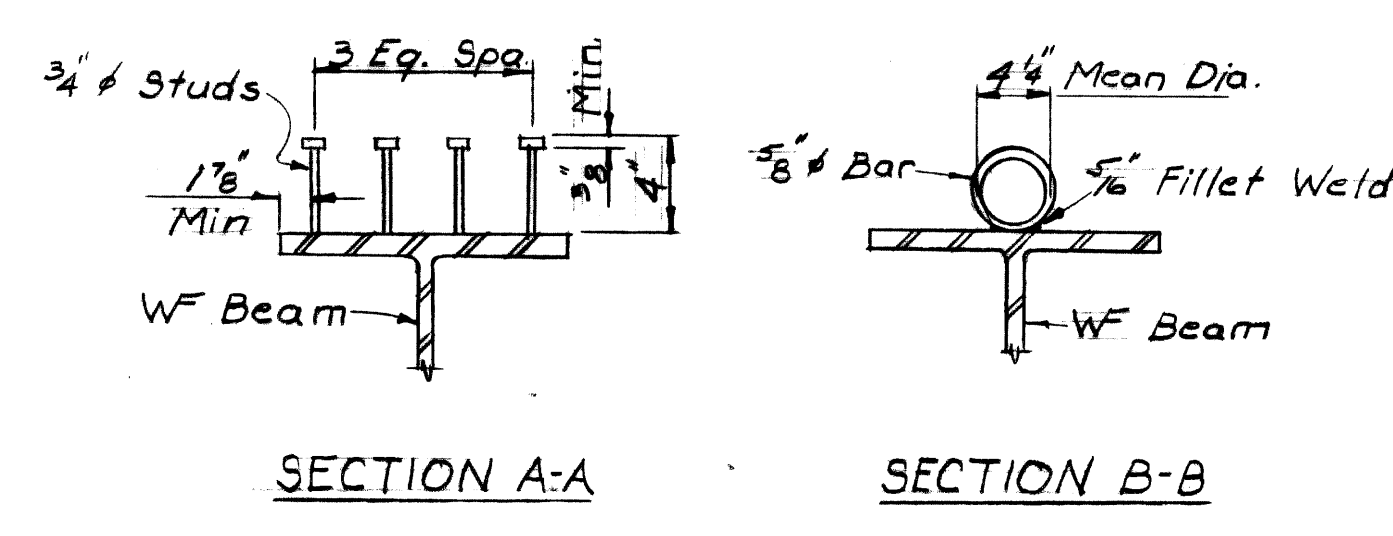
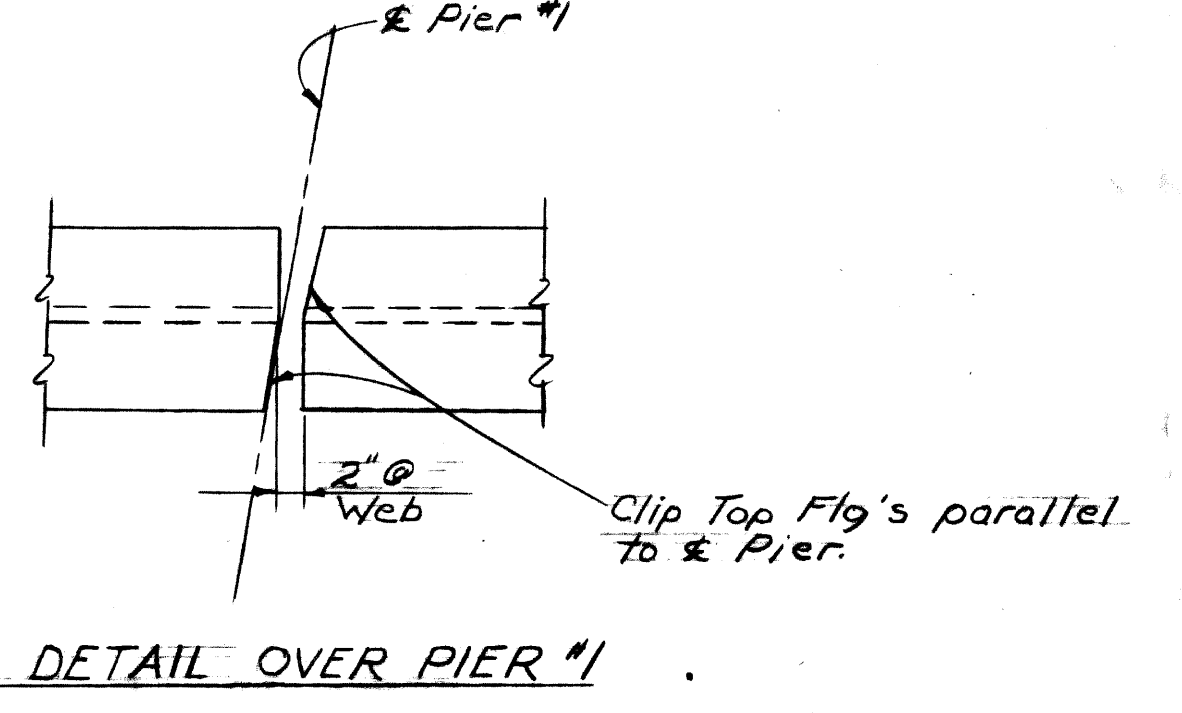


Notes:  
 Either Spiral Shear Developers or Stud Shear Connectors may be used at the option of the contractor.  
 The weight of Shear Developers is not included in the weight of Structural Steel.  
 Welding of Shear Developers is incidental to "Shear Developers".



SOLE AND CAP PLATE THICKNESS TABLE

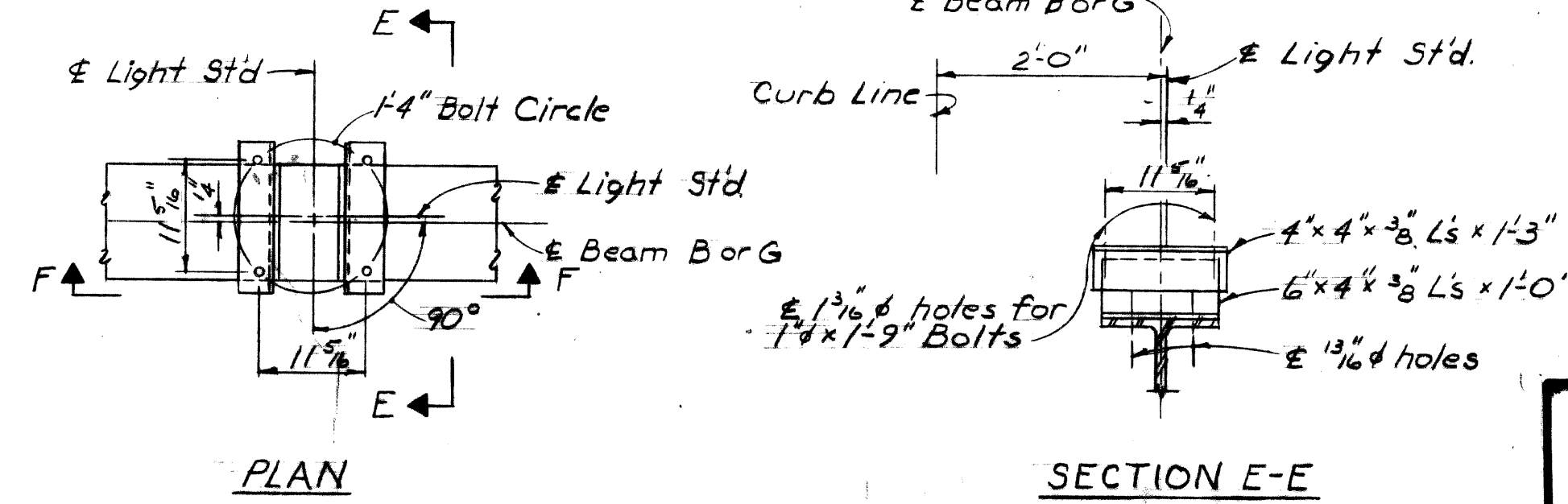
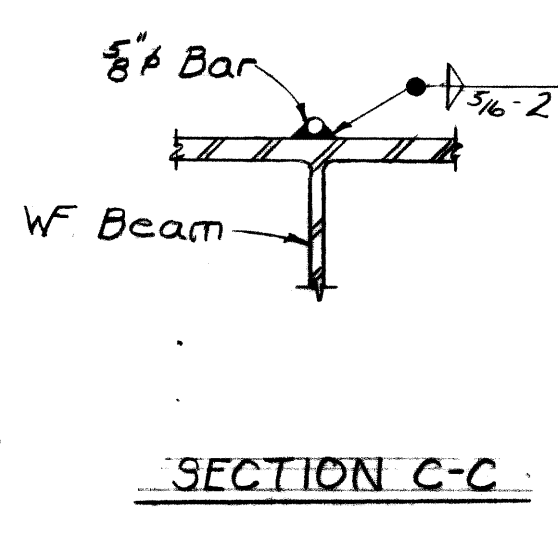
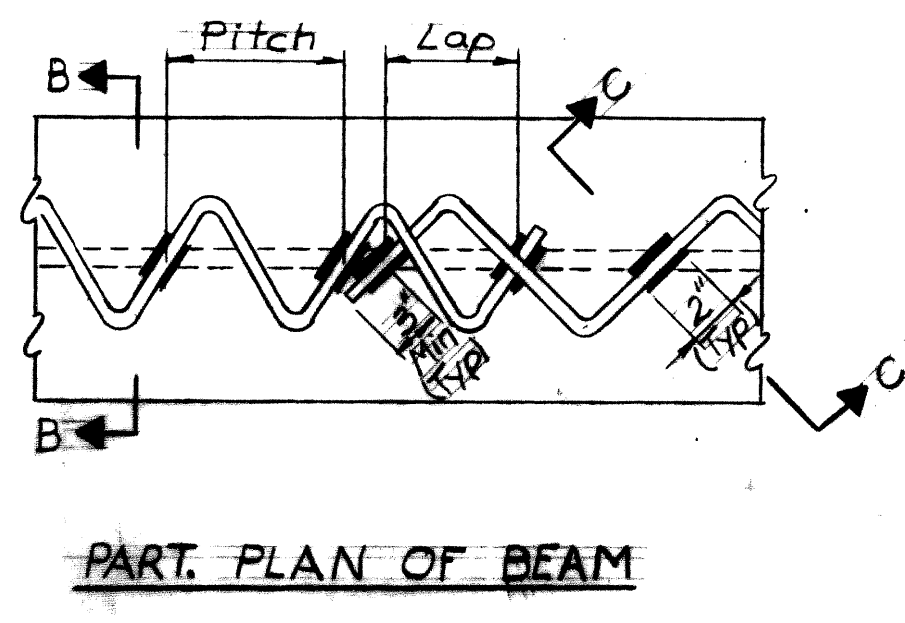
Beam	Abut A	Pier #1		Pier #2	Abut B
		Span 1	Span 2		
A	3"	2"	2 1/2"	3 1/2"	3"
B	2 3/4"	2"	2 1/2"	3 1/2"	3 1/2"
C	2 3/4"	2 3/4"	3 1/2"	4 1/4"	2 3/4"
D	3 1/2"	3 3/4"	4 1/4"	5"	3 3/4"
E	3 1/2"	4"	4 1/4"	5"	4 1/4"
F	4 1/2"	3"	3 1/2"	4"	3 1/2"
G	3 1/4"	2"	2 1/2"	3"	3"
H	3 1/4"	2"	2 1/2"	3"	3 1/4"



CAMBER TABLE

Beam	Span #1					Span #2					Span #3				
	Δ1	Δ2	Δ3	Δ4	Δ5	Δ1	Δ2	Δ3	Δ4	Δ5	Δ1	Δ2	Δ3	Δ4	
A	2 1/2	4 1/8	6 3/8	6 3/8	6 1/4	5	2 3/8	2	3 1/4	3 3/4	3 1/4	2	1/2	7/8	1
B, C, & D	2 1/2	4 1/8	6 3/8	6 3/8	6 1/2	5 1/8	2 3/8	2	3 3/8	3 3/8	3 3/8	2	1/2	7/8	1
E & F	3	5 1/8	7 3/8	8	7 1/2	5 1/8	3 3/8	2 1/2	4	4 1/8	4	2 1/2	5/8	1 1/8	7/8
G	2 1/2	4 1/8	6 3/8	6 3/8	6 1/2	5 1/8	2 3/8	2	3 3/8	3 3/8	3 3/8	2	1/2	7/8	1
H	2 1/2	4 1/8	6 3/8	6 3/8	6 1/4	5	2 3/8	2	3 1/4	3 3/4	3 1/4	2	1/2	7/8	1

Work this sheet with sheets #17, 19 & 20.



**SECTION E-E**

PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *C. C. Selmer*  
 STRUCTURAL ENGINEER

JOB No.  
 PW 990 (16)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

STRUCTURAL STEEL DETAILS

CITY OF DETROIT

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRIVEN BY: *D. Roman* 8-66  
 TRACED BY: *A. J. G.* 8-66  
 CHECKED BY: *A. Freilinger* 9-66  
 SHEET 21 OF 25

S15 of 82023A

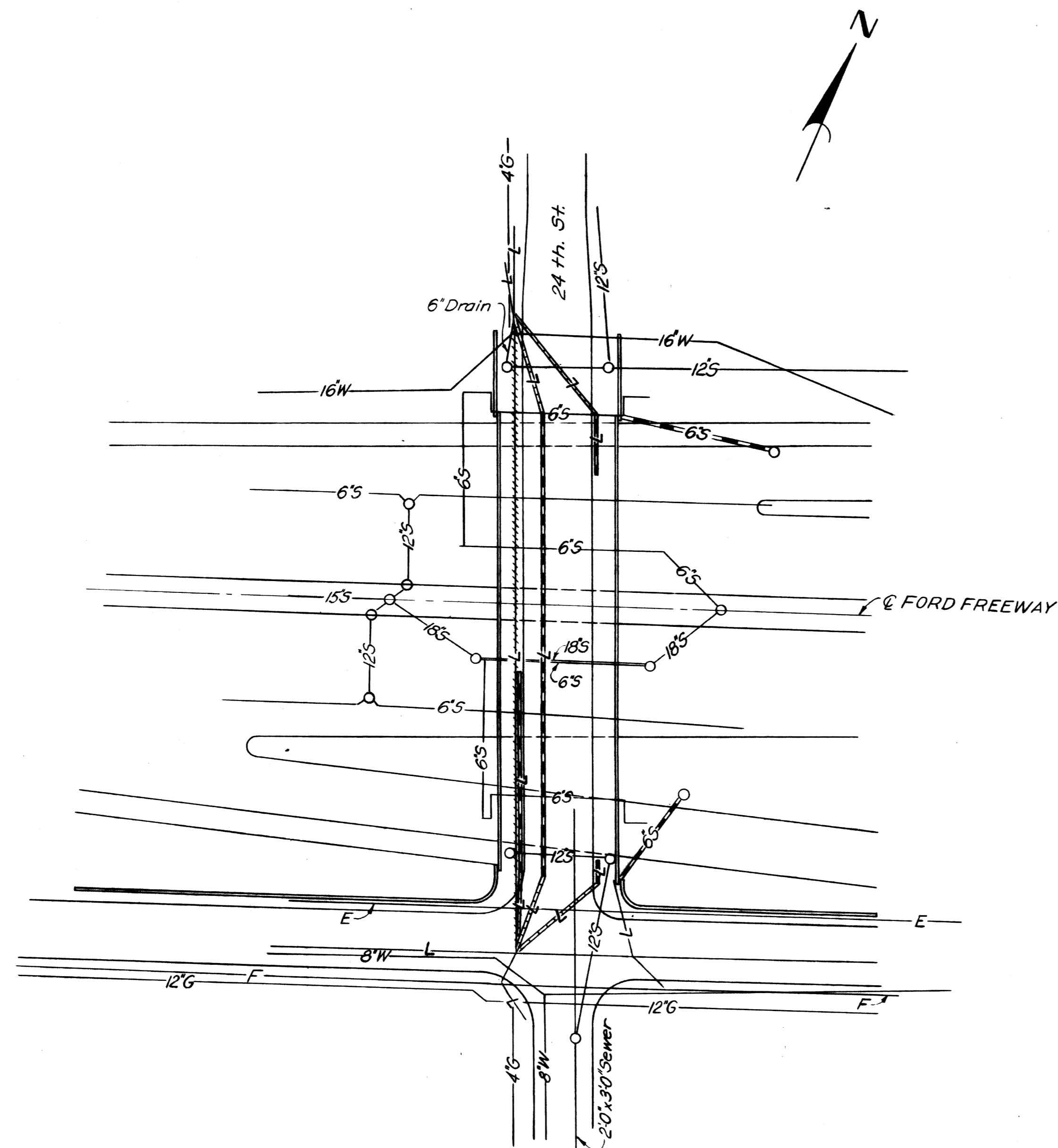


BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	d	b	c	d	e	f	g				
A 1								#11	10'-3"	49	2668
A 2								#10	17'-9"	49	3743
A 3								#10	6'-9"	35	1017
A 4								#10	6'-6"	34	951
A 5								#9	13'-6"	70	3213
A 6								#9	12'-0"	10	408
A 7								#9	11'-0"	16	598
A 8								#9	10'-0"	29	986
A 9								#9	8'-0"	25	680
A 10								#9	7'-9"	69	1818
A 11								#9	7'-6"	5	128
A 12								#9	5'-6"	25	468
A 13								#9	5'-3"	5	89
A 14								#8	12'-0"	10	320
A 15								#8	8'-9"	35	818
A 16								#8	8'-6"	34	772
A 17								#8	7'-6"	16	320
A 18								#8	7'-3"	9	174
A 19								#8	17'-0"	2	91
A 20								#7	8'-6"	9	156
A 21								#7	7'-0"	34	486
A 22								#7	5'-0"	5	51
A 23								#6	40'-0"	9	541
A 24								#6	38'-0"	9	514
A 25								#6	35'-0"	18	946
A 26								#6	30'-0"	15	676
A 27								#6	27'-0"	10	406
A 28								#6	23'-9"	20	713
A 29								#6	23'-6"	27	953
A 30								#6	23'-3"	19	664
A 31								#6	24'-6"	14	515
A 32								#6	23'-0"	42	1451
A 33								#6	21'-6"	30	969
A 34								#6	19'-3"	72	2082
A 35								#6	19'-0"	72	2055
A 36								#6	17'-6"	39	1025
A 37								#6	16'-9"	16	403
A 38								#6	15'-6"	84	1956
A 39								#6	15'-0"	16	1360
A 40								#6	14'-6"	11	240
A 41								#6	13'-6"	20	406
A 42								#6	12'-3"	11	202
A 43								#6	11'-6"	20	345
A 44								#6	10'-9"	26	420
A 45								#6	10'-0"	65	976
A 46								#6	9'-6"	36	514
A 47								#6	8'-9"	53	697
A 48								#6	8'-6"	16	204
A 49								#6	8'-0"	48	577
A 50								#6	7'-6"	14	158
A 51								#6	6'-9"	36	365
A 52								#6	6'-6"	5	49
A 53								#6	6'-0"	38	342
A 54								#6	4'-3"	18	115
A 55								#6	4'-0"	18	108
A 56								#6	3'-6"	18	95
A 57								#4	19'-0"	24	305
A 58								#4	18'-6"	72	890
A 59								#4	17'-0"	48	545
A 60								#4	13'-0"	58	504
A 61								#4	11'-6"	52	399
A 62								#4	4'-0"	44	118
A 63								#4	11'-0"	14	103
A 64								#4	8'-6"	8	45
A 65								#8	5'-3"	96	1346
C 1	1'-3 1/4"	2'-9"	9"	1'-3 3/8"	1'-6"	9 3/8"	1'-6"	#6	5'-9"	11	95
C 2	9"	3'-3"	1'-4"	8 1/4"	1'-6"	1'-3 3/8"	1'-6"	#6	6'-3"	11	103
C 3	1 1/8"	3'-9"	1'-3 1/4"	9 1/2"	1'-6"	1'-1 7/8"	1'-6"	#6	6'-9"	12	122
C 4	1 1/8"	3'-5"	10 1/4"	1'-2 3/8"	1'-6"	1'-0"	1'-6"	#6	6'-5"	12	116
D 1	1'-1 1/2"	1'-9"						#4	4'-0"	71	190
D 2	3'-0 3/8"	6 3/4"						#6	6'-6"	90	879
E 1	2'-0"	1'-6"	0 3/4"	1'-6"				#4	3'-6"	11	26
E 2	2'-0"	1'-5 3/8"	2 1/4"	1'-6"				#4	3'-6"	12	28

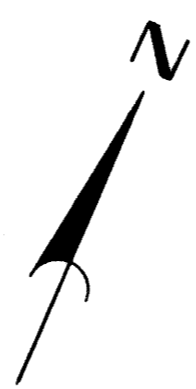
BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
F 1	2'-0"	1'-6"	0 3/4"	1'-6"				#4	3'-6"	11	26
F 2	2'-0"	1'-5 3/8"	2 1/4"	1'-6"				#4	3'-6"	12	28
G 1	4'-3"	10 5/8"	1'-8 3/8"					#6	6'-9"	20	203
G 2	4'-0"	10 5/8"	1'-8 3/8"					#6	6'-6"	16	156
G 3	3'-6"	10 5/8"	1'-8 3/8"					#6	6'-0"	16	144
G 4	3'-6"	10 5/8"	2'-2 3/8"					#6	6'-6"	19	185
G 5	3'-9"	10 5/8"	2'-2 3/8"					#6	6'-9"	23	233
K 1	10 3/4"	5 3/4"	6"	7 3/8"				#4	3'-4"	60	134
K 2	11 3/4"	5 3/4"	6"	7 3/8"				#4	3'-10"	108	277
V 1	6'-0"	13'-7 3/4"	7'-3 3/8"	2'-10 3/8"	9'-5 1/2"			#6	28'-6"	2	86
V 2	6'-0"	14'-4 1/8"	7'-2 3/8"	3'-0 3/8"	9'-11 1/2"			#6	29'-3"	2	88
V 3	6'-1"	13'-4 3/8"	7'-3"	2'-10 3/8"	9'-3"			#4	28'-3"	15	283
V 4	4'-5"	14'-5 5/8"	7'-3"	3'-1"	10'-0 3/8"			#4	27'-10"	11	204
V 5	6'-1"	14'-5 5/8"	7'-3"	3'-1"	10'-0 3/8"			#4	29'-6"	4	79
V 6	6'-1"	12'-9 3/4"	2'-3"	2'-7"	9'-3"			#4	22'-6"	15	225
V 7	6'-0"	13'-1 1/4"	2'-0"	2'-7 3/8"	9'-5 1/2"			#6	22'-6"	2	68
V 8	6'-1"	13'-9 3/4"	2'-0"	2'-9 1/4"	9'-11 1/2"			#6	23'-4"	2	70
V 9	6'-1"	13'-10 3/8"	0'-3"	2'-9 1/2"	10'-0 3/8"			#4	21'-8"	11	159
V 10	6'-1"	13'-10 3/8"	2'-4"	2'-9 1/2"	10'-0 3/8"			#4	23'-9"	4	63
Abutment Total- 50,522 lbs.											
A 80								#4	4'-0"	49	131
A 81								#4	1'-6"	32	32
A 82								#4	6"	32	11
Total Manhole Slabs 174 lbs (not a pay item)											
A 101								#11	28'-9"	14	2138
A 102								#11	23'-6"	14	1748
A 103								#6	28'-9"	4	173
A 104								#6	23'-6"	4	141
A 105								#7	28'-9"	14	823
A 106								#7	23'-6"	14	672
A 107								#7	16'-3"	48	1594
A 108								#7	17'-0"	48	1668
A 109								#6	28'-0"	16	673
A 110								#6	22'-0"	16	529
A 111								#7	28'-0"	16	916
A 112								#7	22'-0"	16	719
A 113								#7	5'-0"	48	491
A 114								#6	11'-6"	32	553
A 115								#8	11'-6"	32	983
A 116								#8	31'-0"	7	579
A 117								#8	24'-6"	7	458
A 118								#6	31'-0"	4	186
A 119								#6	24'-6"	4	147
A 120								#10	4'-9"	88	1799
A 121								#8	5'-3"	192	2691
D 101	2'-0"	3'-1"						#4	7'-0"	28	131
K 101	3'-2 1/8"	1'-3 3/8"	1'-3"	1'-8 3/8"				#4	10'-6"	304	2132
K 102	2'-7 3/8"	1'-8 1/4"	1'-8"	2'-5"				#4	11'-0"	24	176
T 101	1'-10 3/8"	10 1/2"						#4	7'-0"	108	505
U 101	1'-0 1/4"	3'-5 1/2"	1'-1 1/4"					#4	5'-6"	12	44
Pier Total- 22,669 lbs.											

BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
A 201								#4	28'-3"	84	1585
A 202								#6	28'-6"	288	12328
A 203								#4	28'-3"	280	5284
A 204								#6	26'-9"	800	32143
A 205								#4	26'-6"	32	566
A 206								#4	10'-9"	8	57
A 207								#4	17'-3"	6	69
A 208								#4	30'-9"	6	123
A 209								#4	31'-3"	56	1169
A 210								#6	31'-3"	140	6571
A 211								#4	31'-0"	140	2899
A 212								#4	27'-0"	8	144
A 213								#4	29'-6"	24	473
A 214								#4	27'-9"	24	445
A 215								#6	29'-9"	78	3485
A 216								#6	17'-0"	39	996
A 217								#4	29'-6"	70	1379
A 218								#6	15'-0"	30	676
A 219								#4	2'-0"	12	16
A 220								#6	28'-9"	24	1036
A 221								#6	31'-6"	16	757
B 201	7 1/2"	10'-10"						#4	11'-5"	273	2082
D 201	6"	1'-2"						#4	2'-1"	273	380
D 202	3'-0 3/8"	6 3/4"						#6	6'-6"	300	2929
G 201	1'-6"	1'-6"	7"					#4	3'-6"	273	638
K 201	3'-6"	1'-0 1/4"	1'-0 1/4"	1'-3 1/2"				#4	10'-3"	24	164
K 202	10 3/4"	5 3/8"	6"	7 3/4"				#4	3'-4"	200	445
K 203	3'-4 1/2"	1'-3 1/4"	1'-3 1/4"	1'-9 1/2"				#4	11'-0"	8	59
K 204	1'-13 1/2"	5 3/4"	6"	7 3/4"				#4	3'-10"	376	963
M 201	9 1/4"	3'-4 1/2"	1'-2 1/2"	1'-6"	1'-0 3/8"	2'-6 3/8"		#4	10'-3"	6	41
M 202	10 1/4"	3'-4 1/2"	1'-3 1/2"	2'-5 1/4"	1'-2 1/2"	1'-5 1/2"		#4			





SITUATION PLAN



LEGEND

UTILITY	DESIGNATION			
	Existing	Delete or Abandoned	New Work by others	New Work by Contractor
Detroit Edison Co.	— E —			
Detroit Fire Department	— F —			
Michigan Consolidated Gas Co.	— G —			
Public Lighting Commission	— L —	++++L++++	=====L=====	-----L-----
City of Detroit Sewers	— S —	— S —		-----S-----
Detroit Water Department	— W —			

PLANS PREPARED BY  
**CITY OF DETROIT**  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *C. C. Selman*  
 STRUCTURAL ENGINEER

JOB No.  
 990(16)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

**EXISTING UTILITIES AND PROPOSED ALTERATIONS**

REVISIONS			
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT		
SQUAD BOSS	STVEN	9-66
DRAWN BY	KKH	8-66
TRACED BY		
CHECKED BY	STVEN	9-66
SHEET 23 OF 15		
S15 of 82023A		

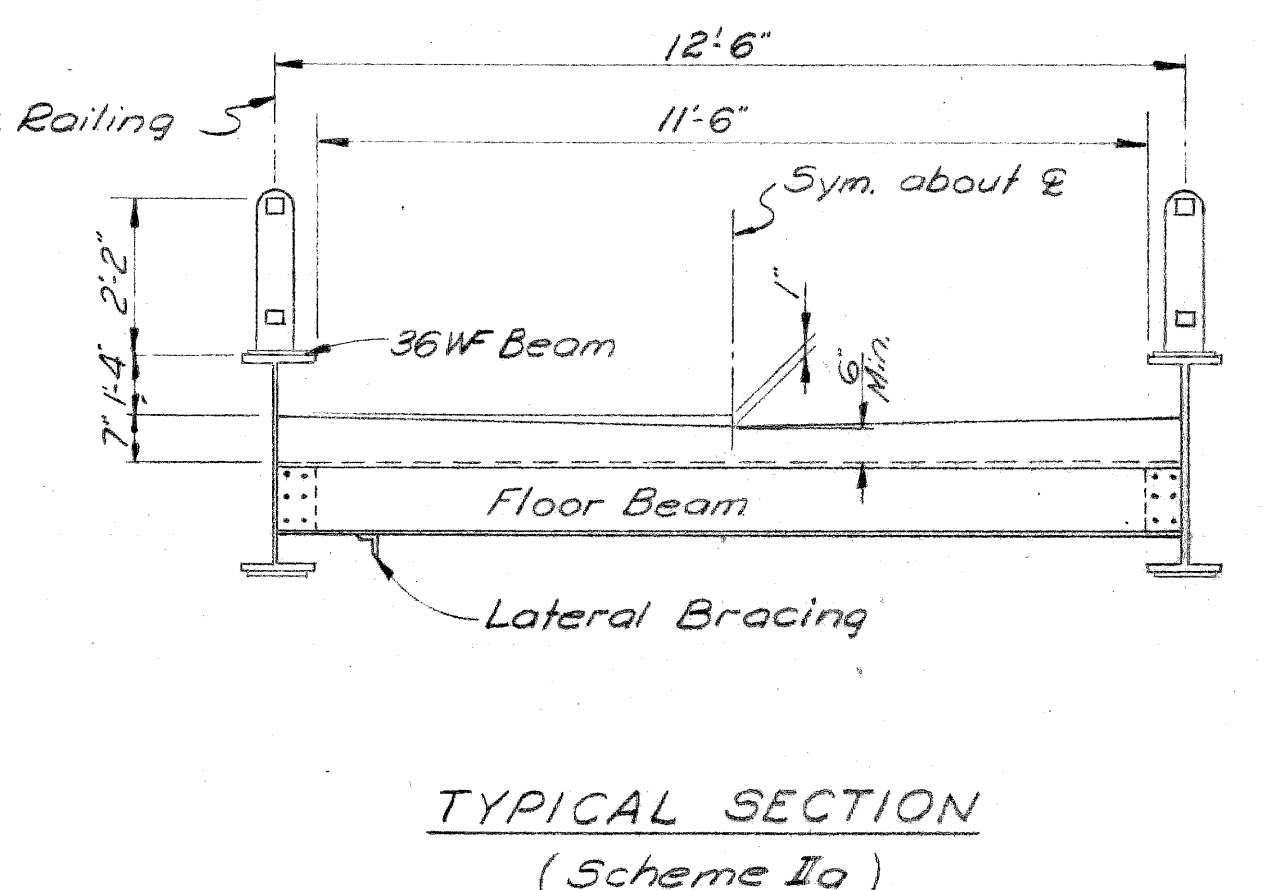
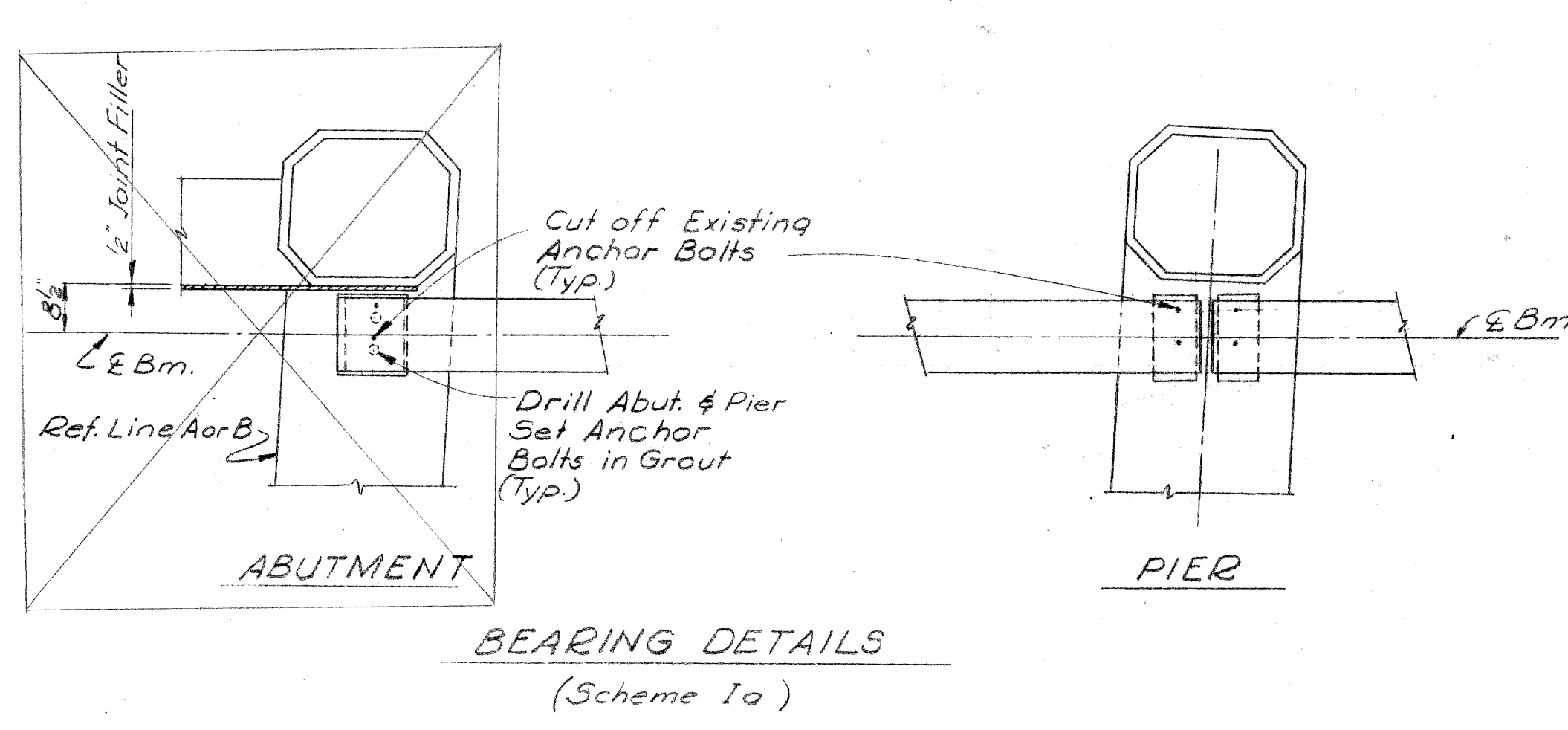
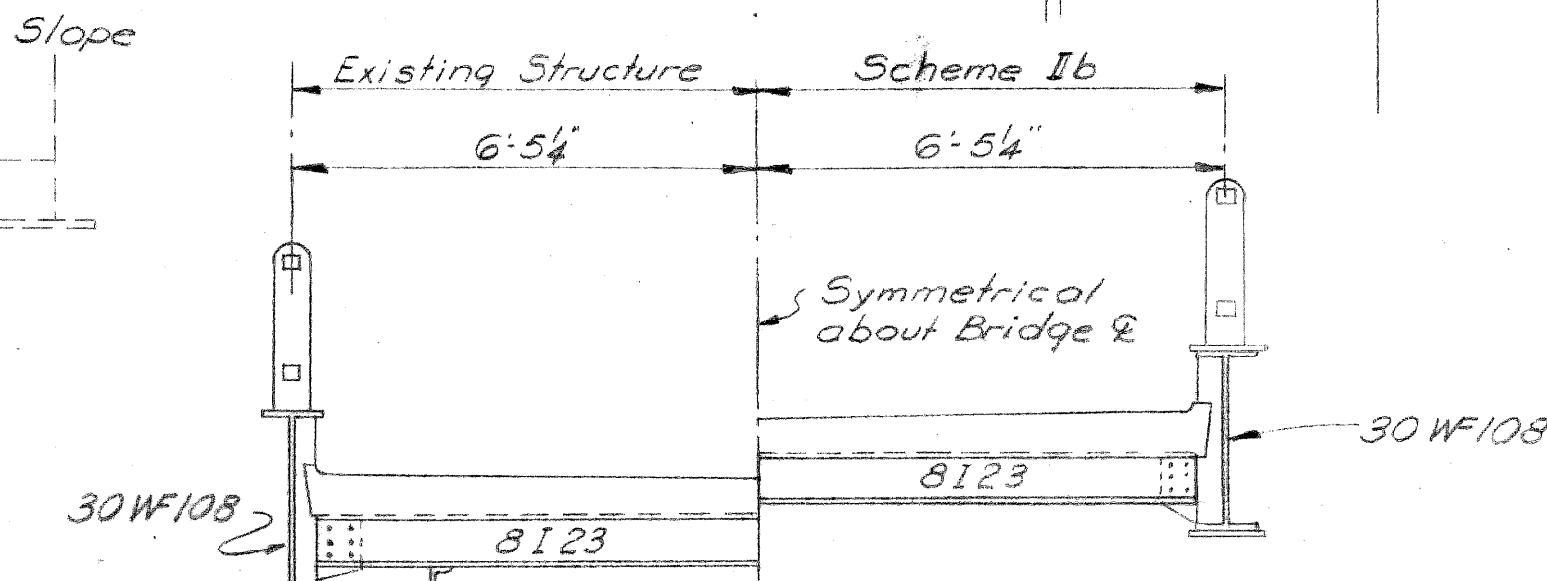
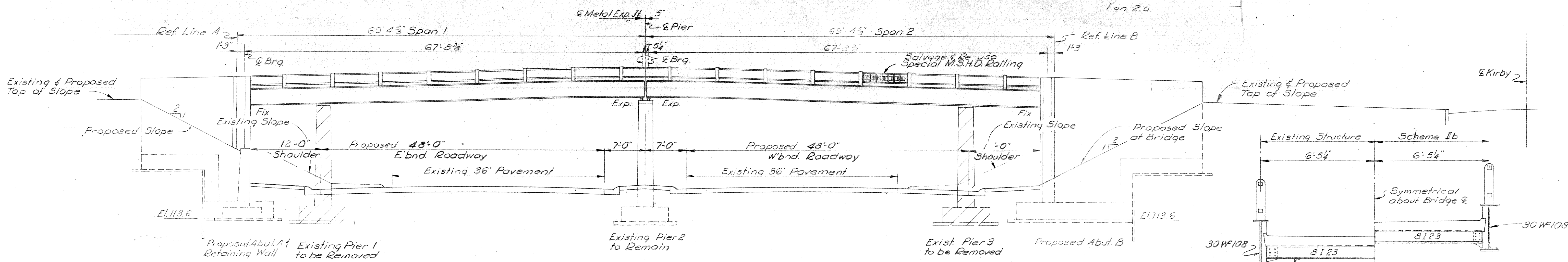
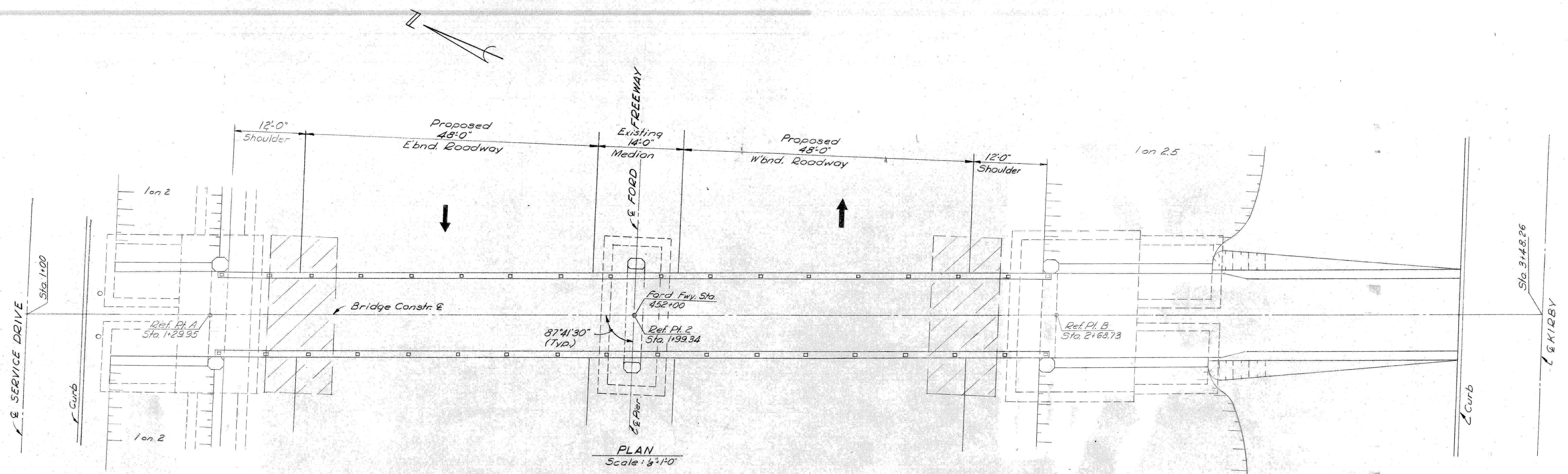










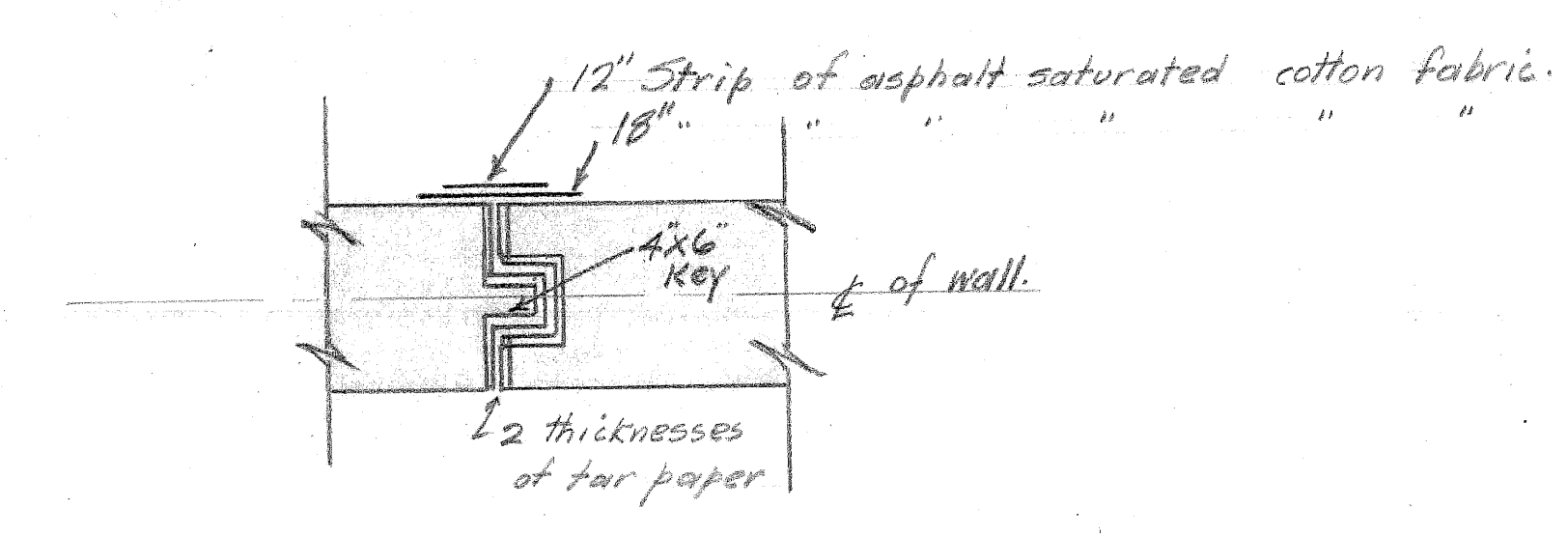
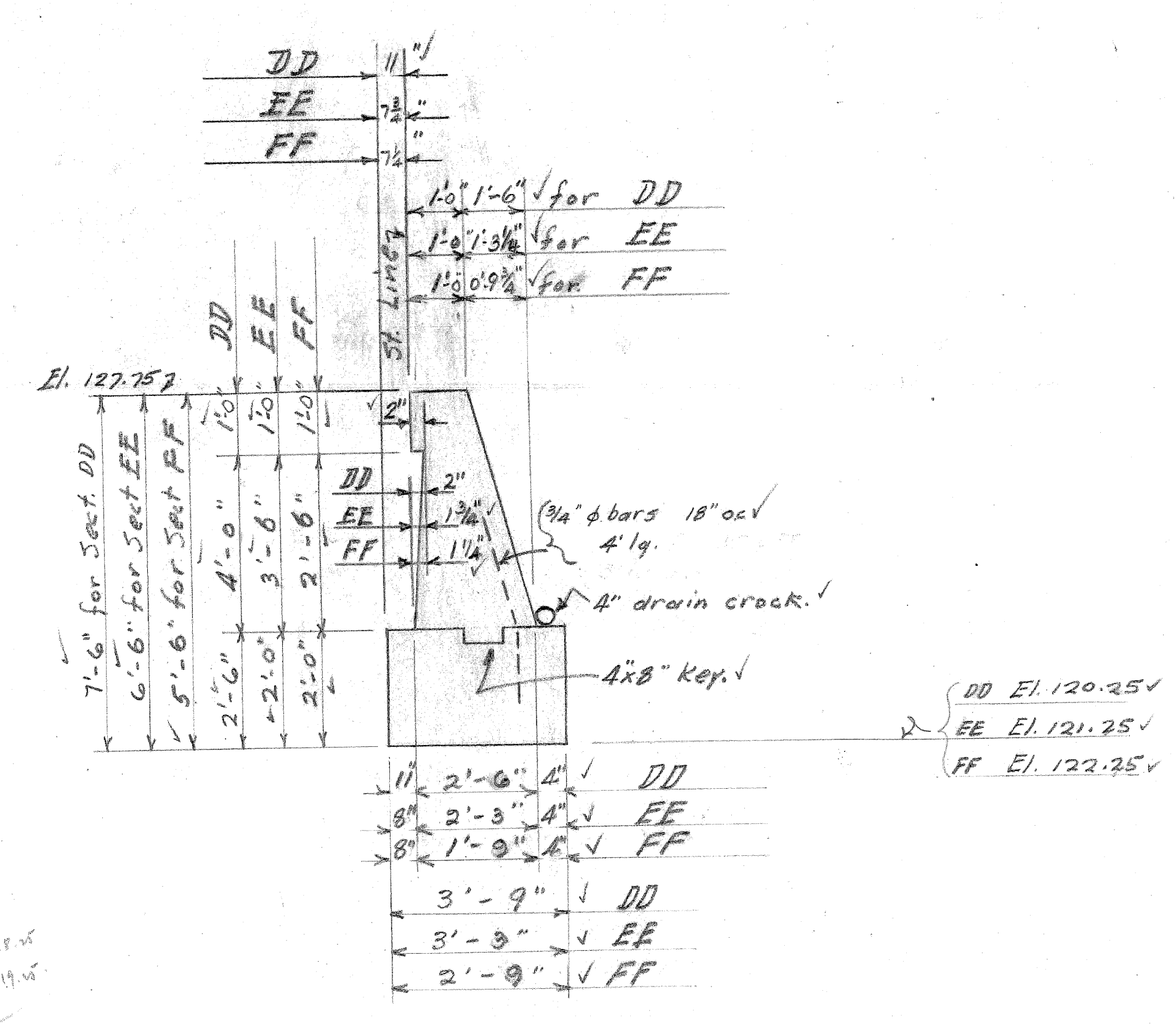
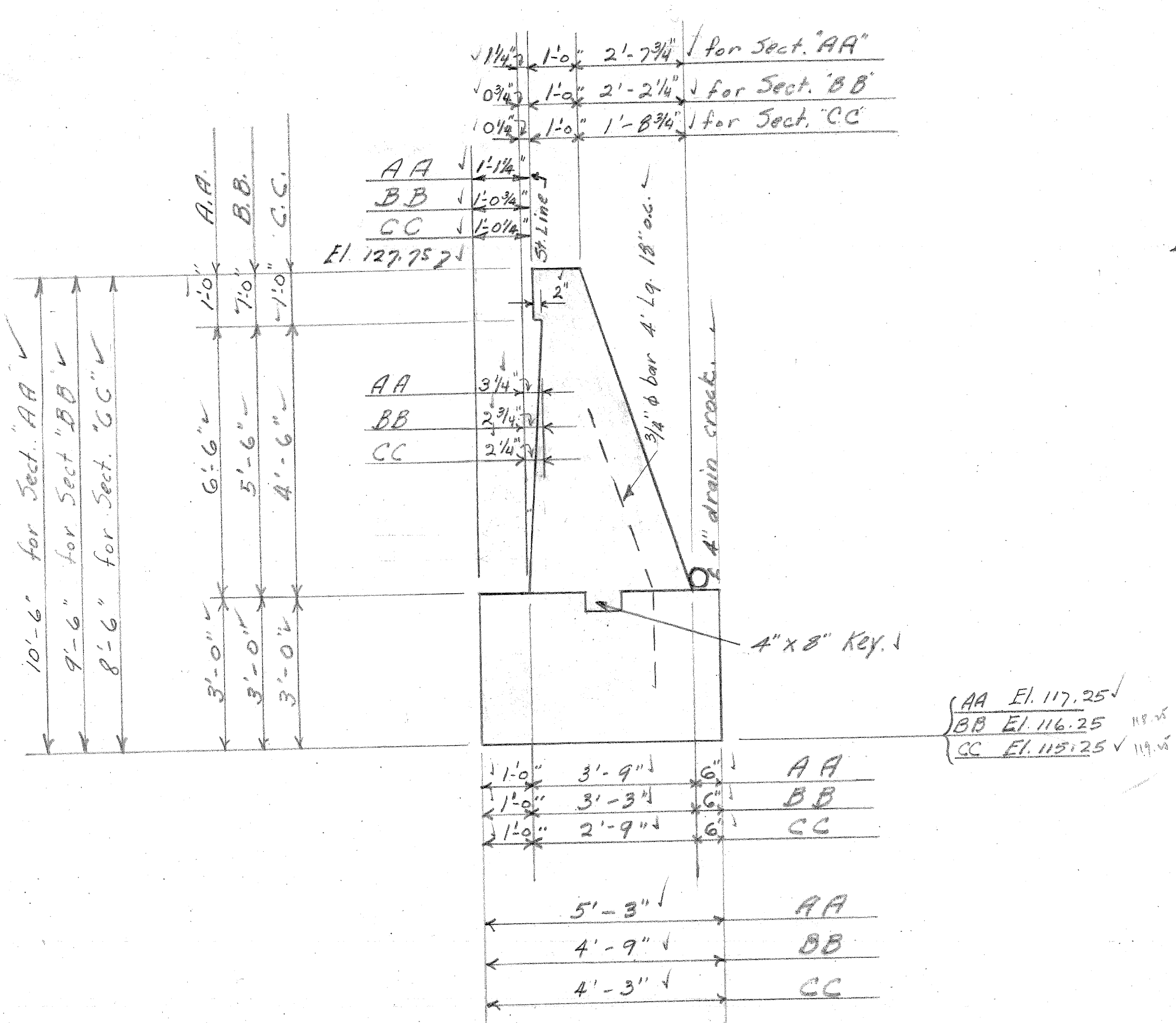
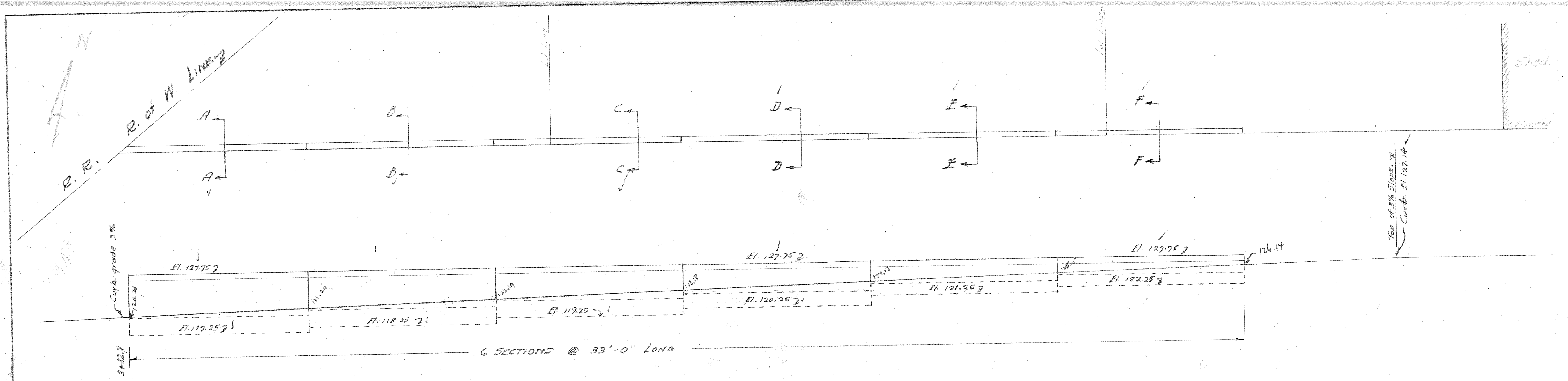


STUDY OF ROOSEVELT ST. PEDESTRIAN BRIDGE OVER FORD FREEWAY

B44 of 82-22-10 C2 990(2)  
Drawn by: T. Baker 7-65  
Checked by:

SCHEME II





TYPICAL SECTION FOR VERTICAL KEYS AT THE EXPANSION JOINTS

SECTIONS AA-BB-CC ✓  
Scale 1/2" = 1'-0"

SECTIONS DD-EE-FF ✓  
Scale 1/2" = 1'-0"

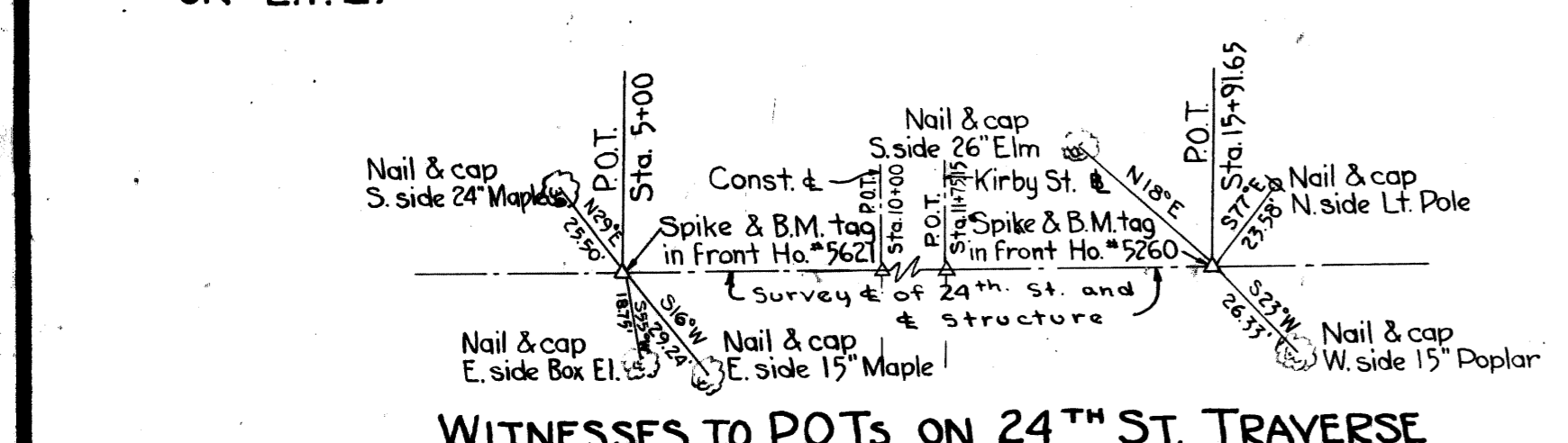
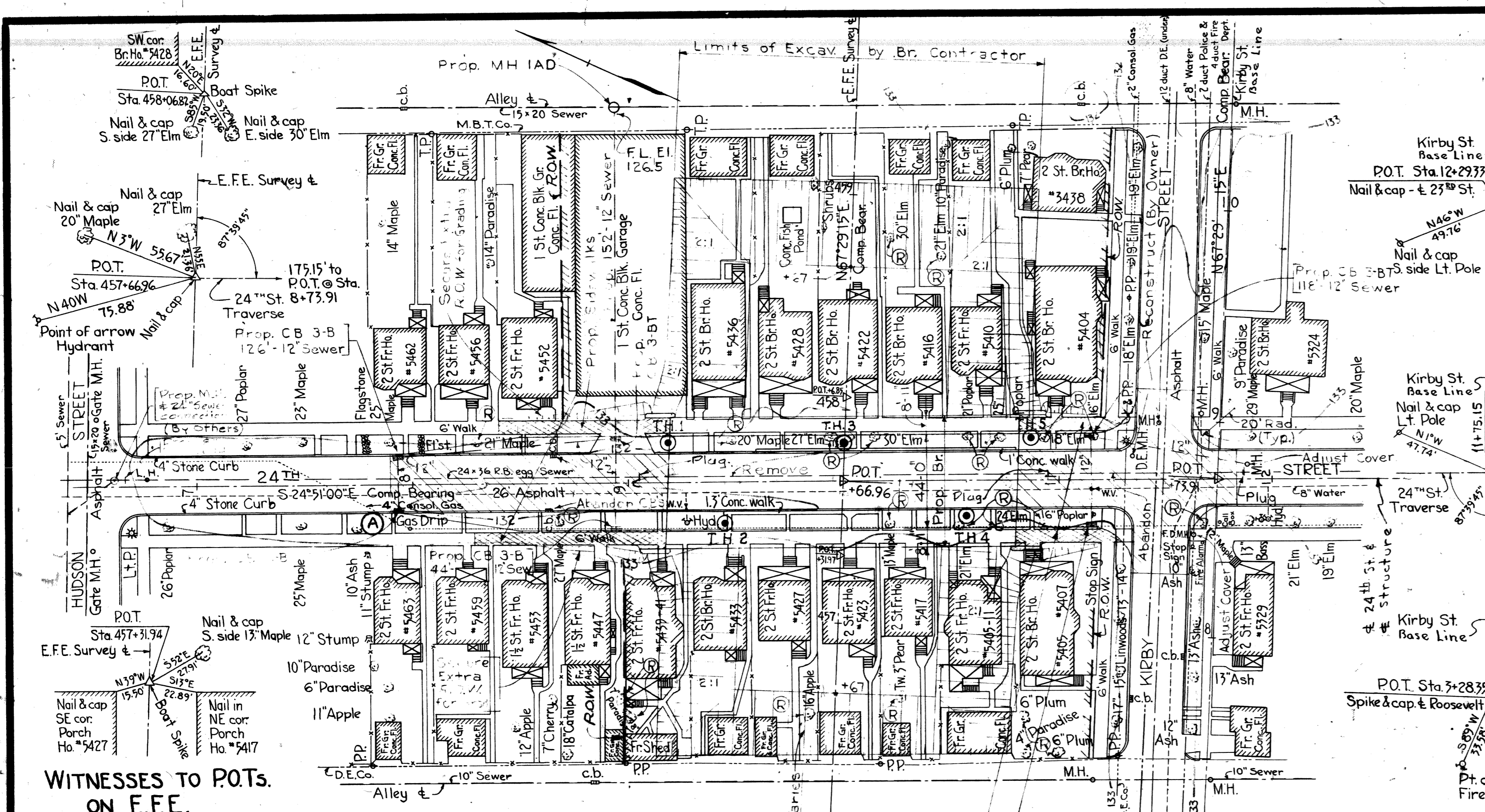
- NOTES:
- All exposed corners to be chamfered to 1".
  - All concrete mix 1:2:4.
  - Back of walls to receive two brush coats of asphalt waterproofing. ✓
  - Connect all drains to sewer.
  - Drain-crack joints covered with tar paper.

Approved \_\_\_\_\_ 1925

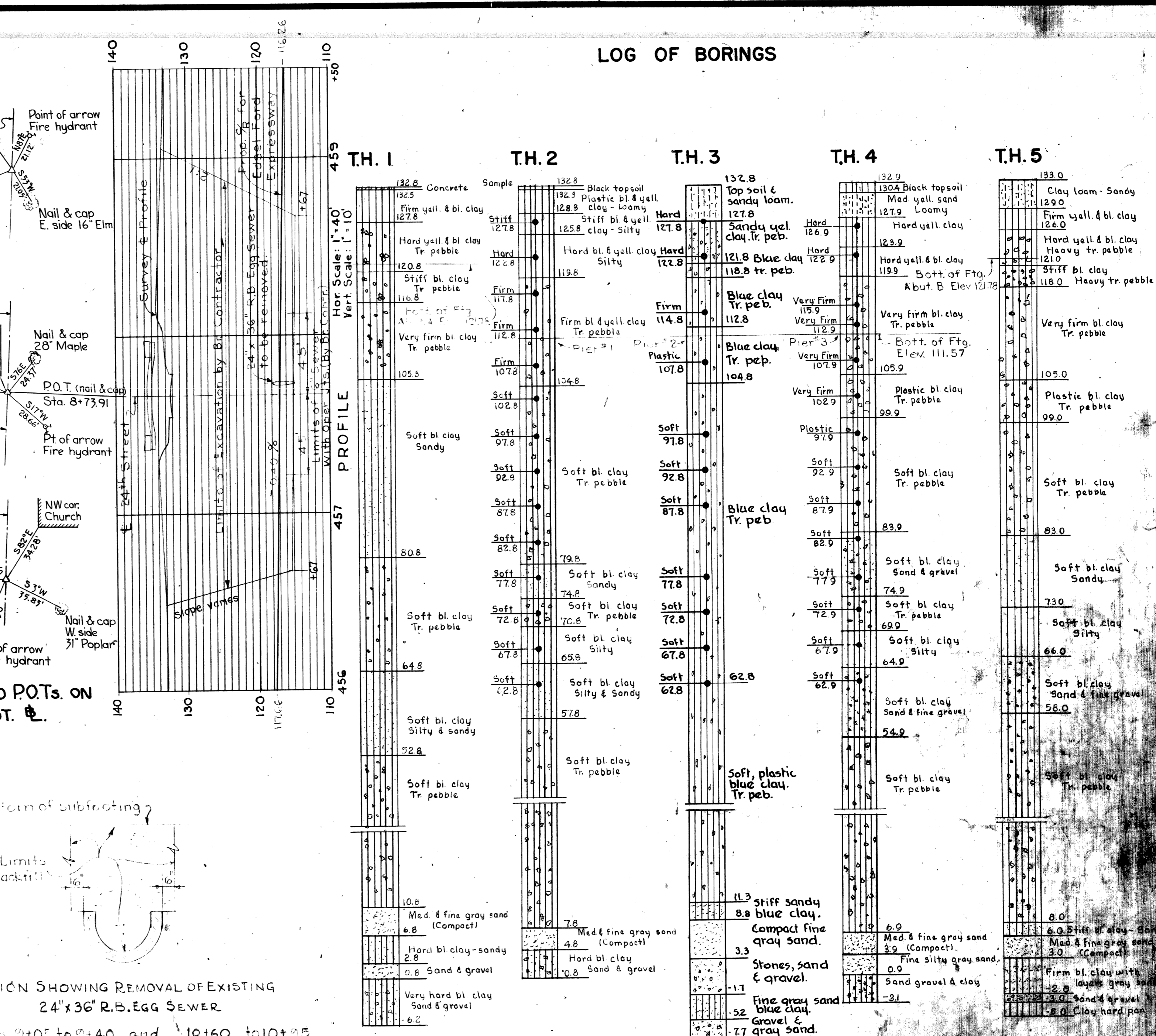
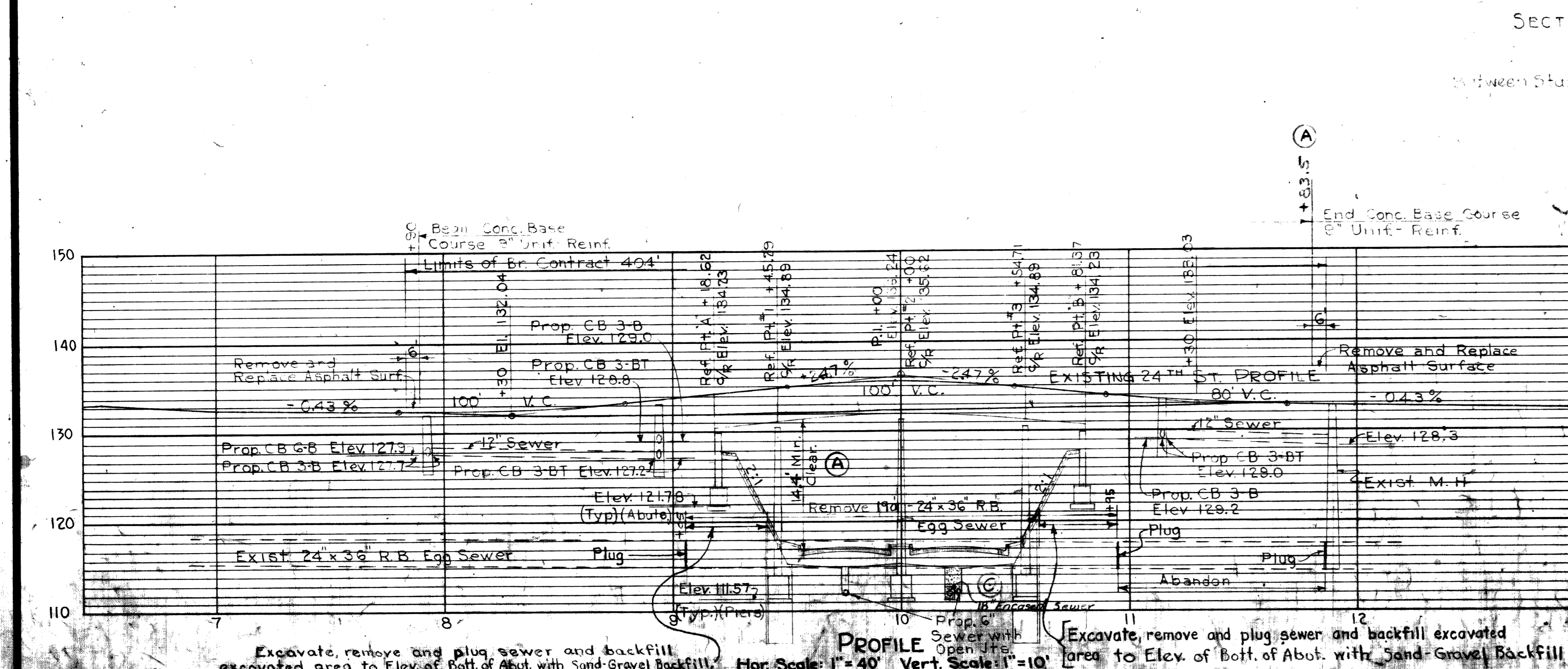
CITY OF DETROIT.  
DEPARTMENT OF PUBLIC WORKS.  
DIVISION OF GRADE SEPARATION & BRIDGES.  
BUCHANAN ST.  
NORTH SIDE OF THE STREET  
EAST OF THE R. OF W.

Scales as noted. SEPT. 28 1925.  
DRAWN BY H.T.J.  
CHECKED BY R.S.  
10-1-25





**BENCH MARKS**  
 B.M. \*21B Elev. 134.474, arrow on hydrant at SE cor. of 23<sup>rd</sup> & Kirby Streets.  
 B.M. \*21A Elev. 136.053, arrow on hydrant at SW cor. of 24<sup>th</sup> & Kirby Streets.  
 B.M. \*19D Elev. 135.633, arrow on hydrant at SW cor. of 25<sup>th</sup> & Kirby Streets.



**COPY EXISTING BRIDGE DETAILS (NOT FOR CONSTRUCTION)**

**S15 of 82023A Sh. 29 of 45**

**Note:**  
 Buildings within construction limits are to be removed by others. Traffic on 24<sup>th</sup> St. between Kirby and Hudson will be re-routed by others over existing city streets during the time required for the construction of the project. Traffic on Kirby will be re-routed during the time required for the construction work on the Kirby Avz.-24<sup>th</sup> Street Intersection.  
 The Bridge Contract includes construction of structure, earth excavation within the limits shown, all approach work on 24<sup>th</sup> Street, drainage structures as shown on plans, and all work necessary to remove or relocate the City-owned utilities.  
 Topography shown represents conditions at time of Survey. Conditions may be altered before contract is in force due to moving of buildings within R.O.W.

**REVISIONS**

NO.	DESCRIPTION	DATE	BY
C	Revised Drainage	1-19-53 A.H.J.	

**MICHIGAN STATE HIGHWAY DEPARTMENT**  
**CHARLES M. ZIEGLER STATE HIGHWAY COMMISSIONER**

EDSEL FORD EXPRESSWAY CROSSING  
 24<sup>TH</sup> STREET IN THE CITY OF DETROIT

HAZELT & ERDAL CONSULTING ENGINEERS FILE No. 528  
**GENERAL PLAN OF SITE**

APPROVED: [Signature] 1-16-52  
 ACT. ENGINEER OF BRIDGE DESIGN

APPROVED: [Signature] 9-7-52  
 ACT. ENGINEER OF BRIDGE

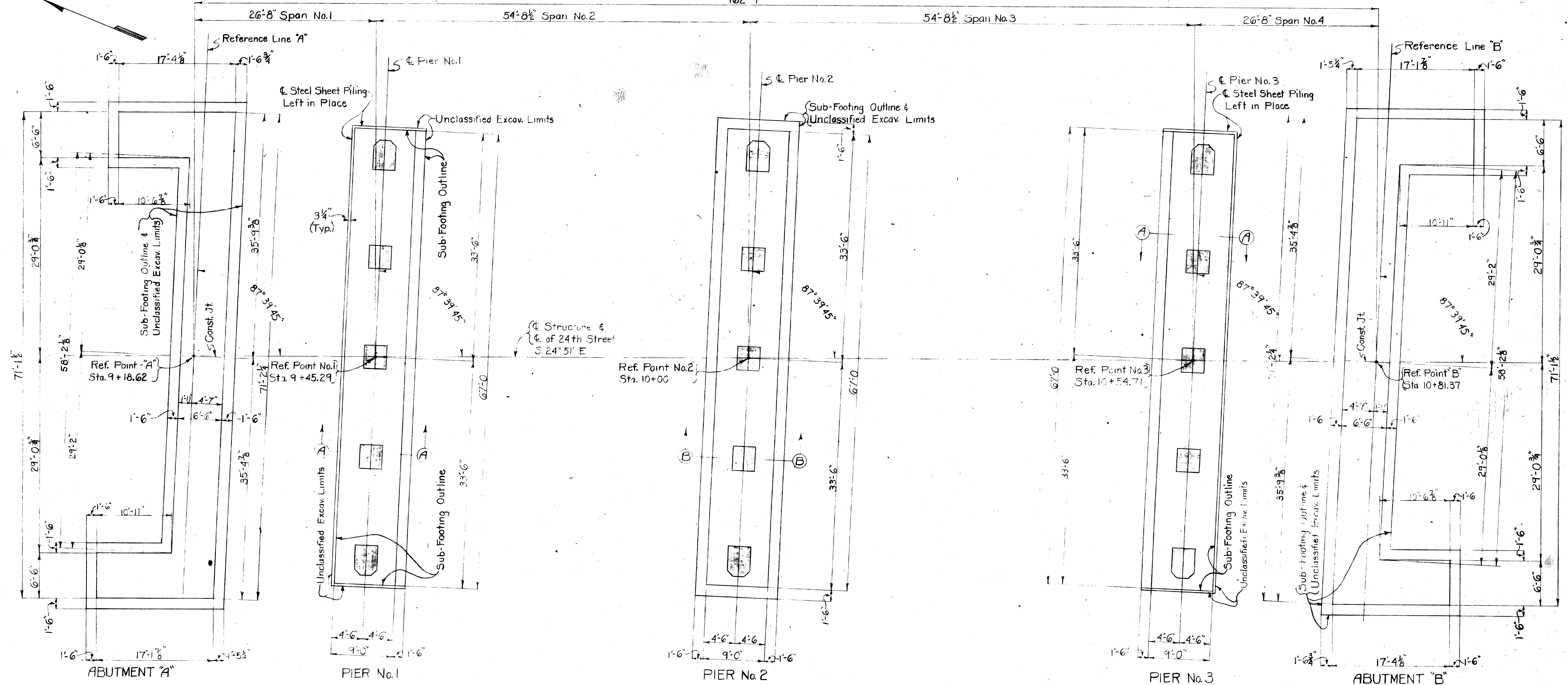
NO. 848







NORTH



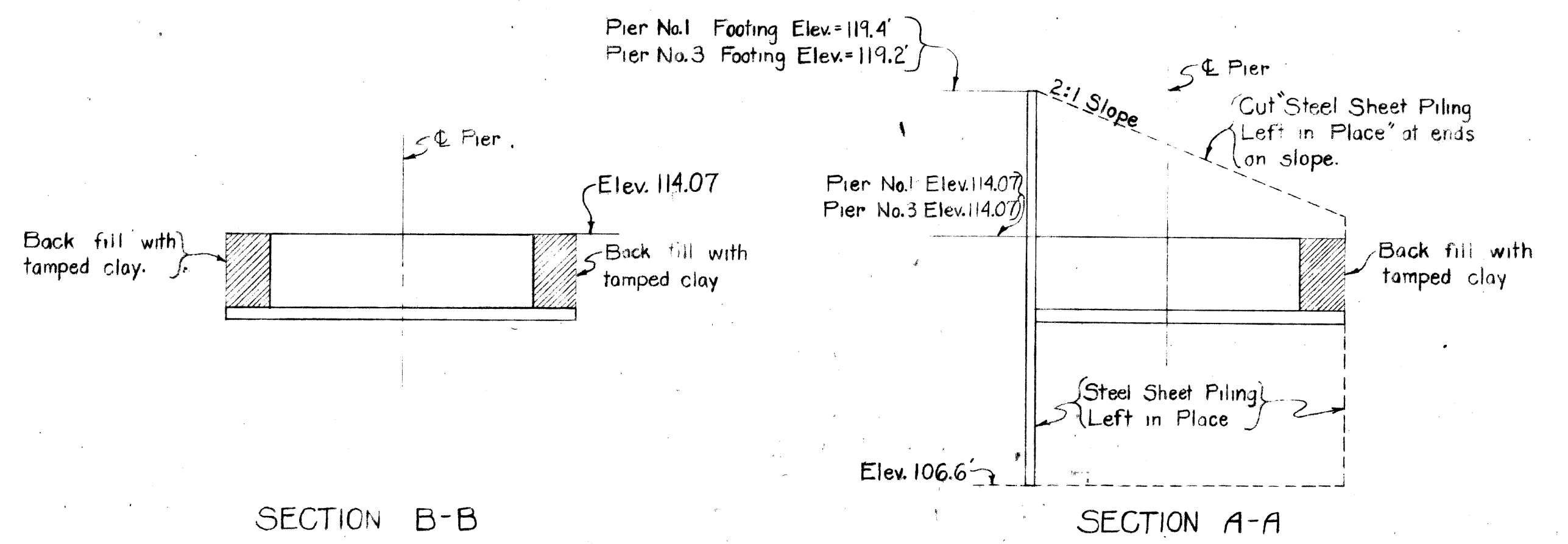
STAKE-OUT DIAGRAM  
Scale: 1/8" = 1'-0"

STEEL SHEET PILING LEFT IN PLACE		
LOCATION	UNIT	AMOUNT
PIER No.1	Sq. FT.	1071
PIER No.3	" "	1053
TOTAL	" "	2124

**COPY**  
EXISTING BRIDGE DETAILS  
(NOT FOR CONSTRUCTION)

S15 of 82023A Sh. 31 of 45

Note:  
Steel Sheet Piling left in place shall be furnished by the Contractor. It shall be new or used in good condition, weighing not less than 22 1/2 lb and shall be furnished with suitable corner and connecting pieces. It shall be driven to its final position before adjacent concrete is poured.



SECTION B-B

SECTION A-A

REVISIONS			
NO.	DESCRIPTION	DATE	BY

**MICHIGAN STATE HIGHWAY DEPARTMENT**  
CHARLES M. ZIEGLER  
STATE HIGHWAY COMMISSIONER  
EDSEL FORD EXPRESSWAY CROSSING  
24TH STREET IN THE CITY OF DETROIT  
**STAKE-OUT DIAGRAM**

HAZLET & EDAL CONSULTING ENGINEERS FILE No. 528

APPROVED: *[Signature]* 5-6-52  
CHIEF BRIDGE DRAFTSMAN

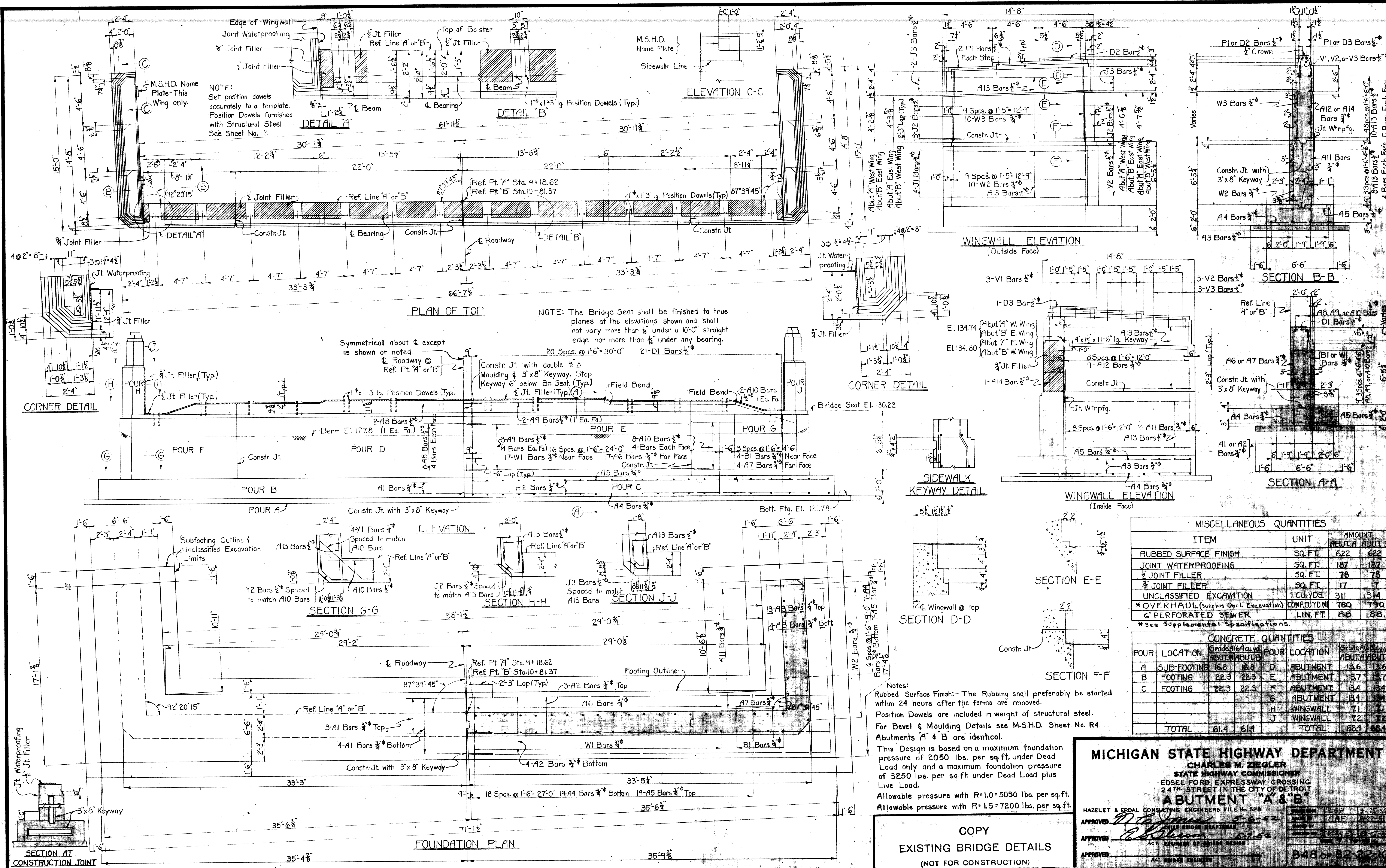
APPROVED: *[Signature]* 5-7-52  
ACT. ENGINEER OF BRIDGE DESIGN

APPROVED: \_\_\_\_\_  
ACT. BRIDGE ENGINEER

REVISIONS: LCH 3-25-52, GAE 7-30-52, M.W.E. 8-7-52

B48 of 82-22-10





**MISCELLANEOUS QUANTITIES**

ITEM	UNIT	AMOUNT
RUBBED SURFACE FINISH	SQ. FT.	622
JOINT WATERPROOFING	SQ. FT.	187
JOINT FILLER	SQ. FT.	78
UNCLASSIFIED EXCAVATION	CU. YDS.	311
* OVERHAUL (Surplus Exc. Excavation)	COMP. CU. YD.	780
* PERFORATED SEWER	LIN. FT.	88

\* See Supplemental Specifications.

**CONCRETE QUANTITIES**

POUR	LOCATION	Grade Above	Grade Below	FOUR	LOCATION	Grade Above	Grade Below
A	SUB-FOOTING	16.8	16.8	D	ABUTMENT	13.6	13.6
B	FOOTING	22.3	22.3	E	ABUTMENT	13.7	13.7
C	FOOTING	22.3	22.3	F	ABUTMENT	13.4	13.4
				G	ABUTMENT	13.4	13.4
				H	WINGWALL	71	71
				J	WINGWALL	72	72
TOTAL		61.4	61.4	TOTAL		684	684

**Notes:**  
 Rubbed Surface Finish: - The Rubbing shall preferably be started within 24 hours after the forms are removed.  
 Position Dowels are included in weight of structural steel.  
 For Bevel & Moulding Details see M.S.H.D. Sheet No. R4  
 Abutments 'A' & 'B' are identical.  
 This Design is based on a maximum foundation pressure of 2050 lbs. per sq. ft. under Dead Load only and a maximum foundation pressure of 3250 lbs. per sq. ft. under Dead Load plus Live Load.  
 Allowable pressure with R=1.0=5030 lbs. per sq. ft.  
 Allowable pressure with R=1.5=7200 lbs. per sq. ft.

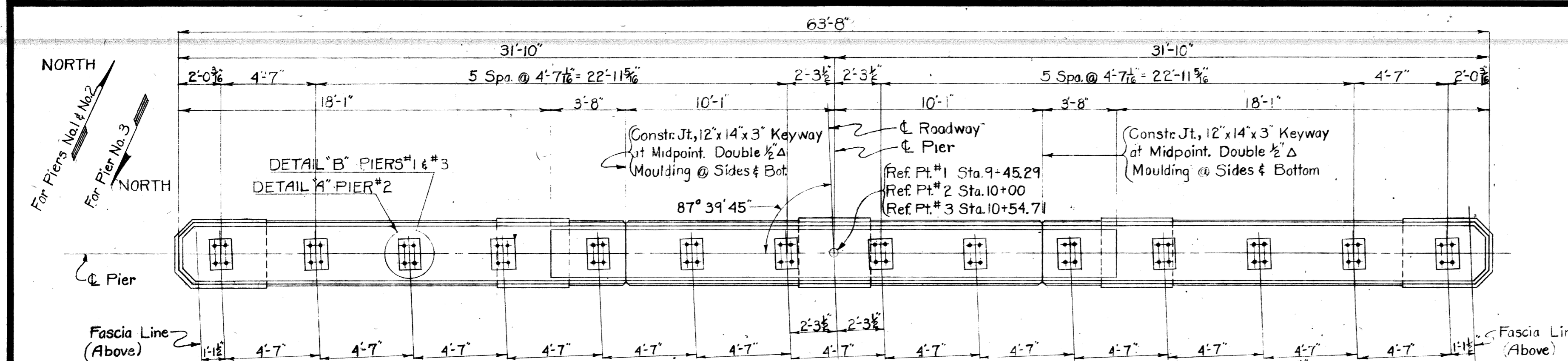
**COPY**  
**EXISTING BRIDGE DETAILS**  
 (NOT FOR CONSTRUCTION)

**MICHIGAN STATE HIGHWAY DEPARTMENT**  
 CHARLES M. ZIEGLER  
 STATE HIGHWAY COMMISSIONER  
 EDEL FORD EXPRESSWAY CROSSING  
 24TH STREET IN THE CITY OF DETROIT  
**ABUTMENT "A" & "B"**

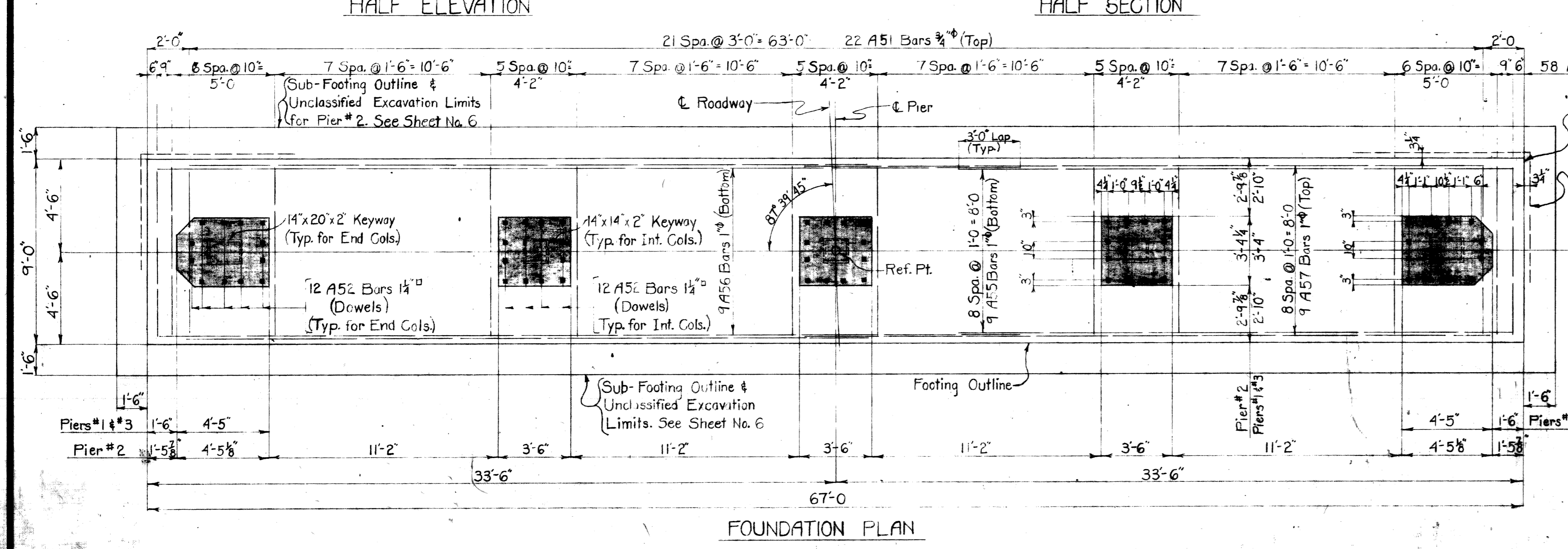
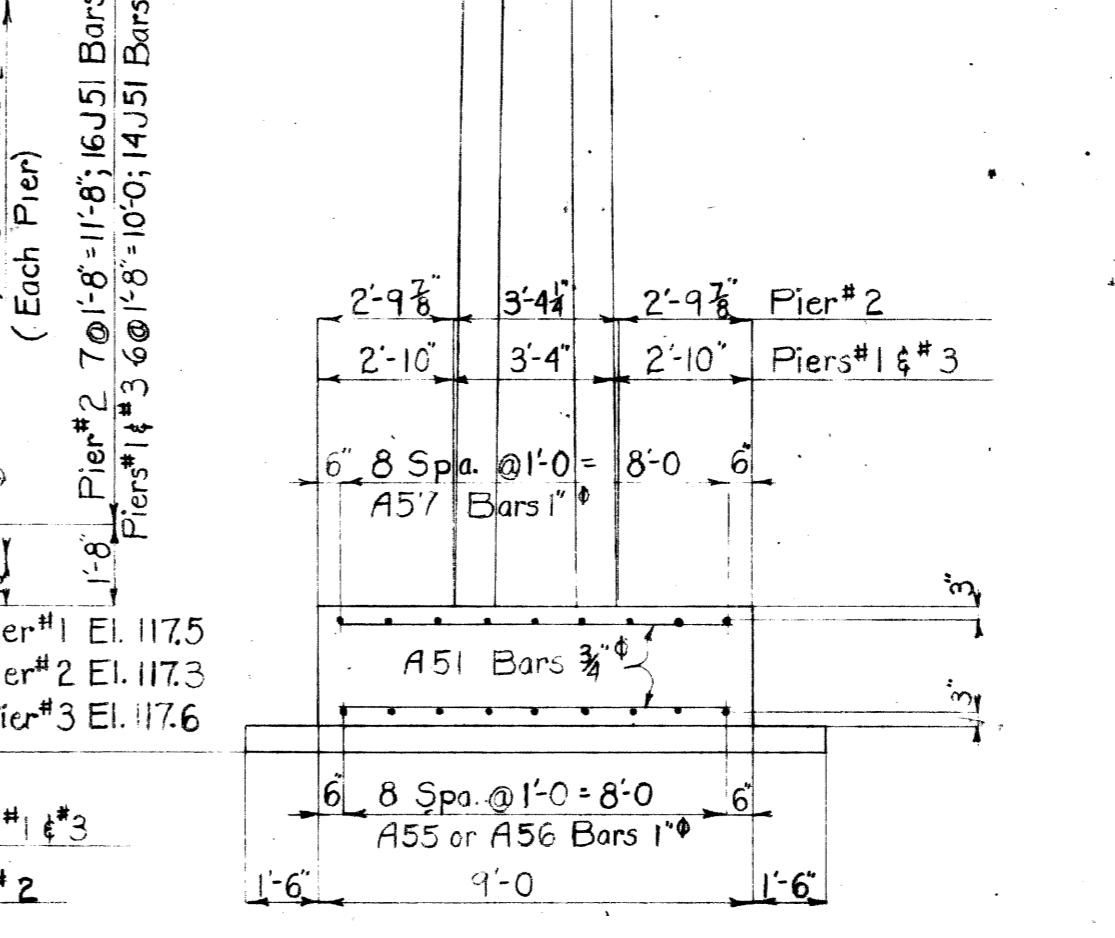
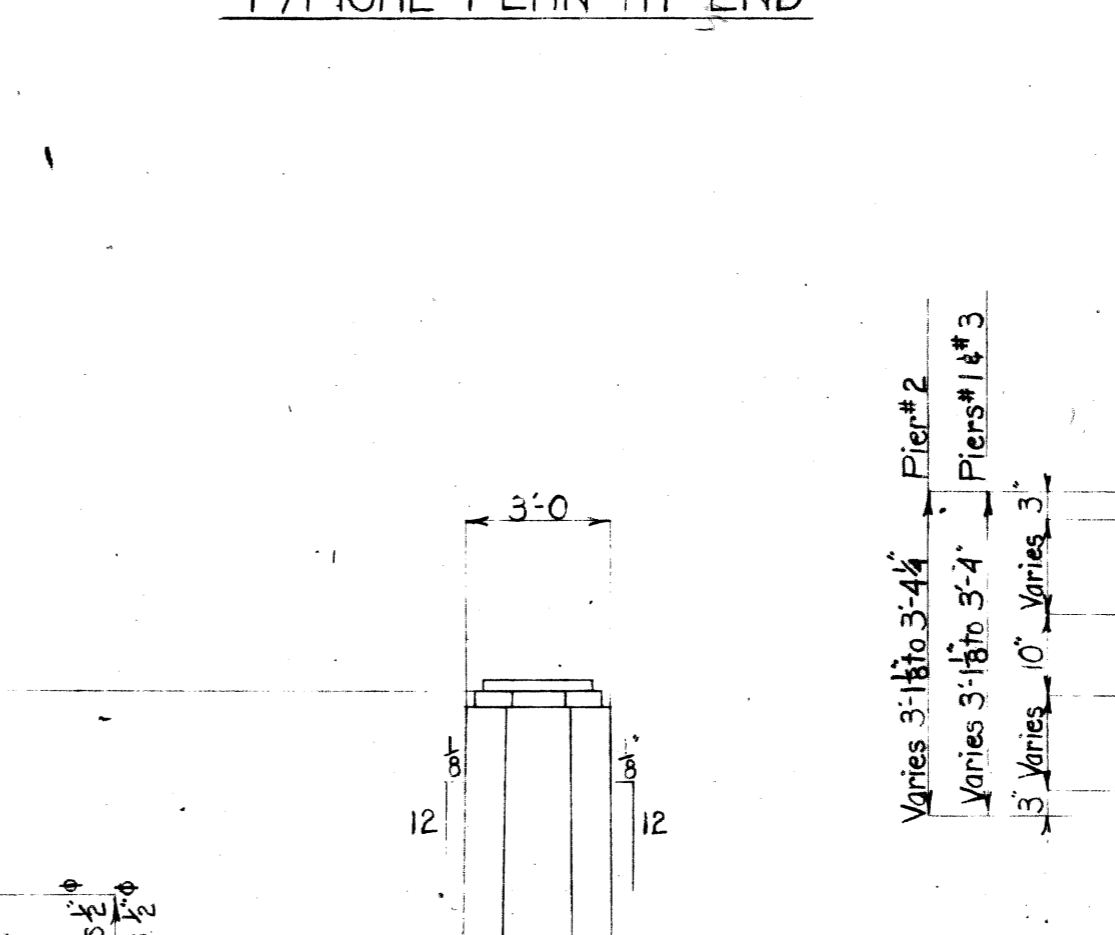
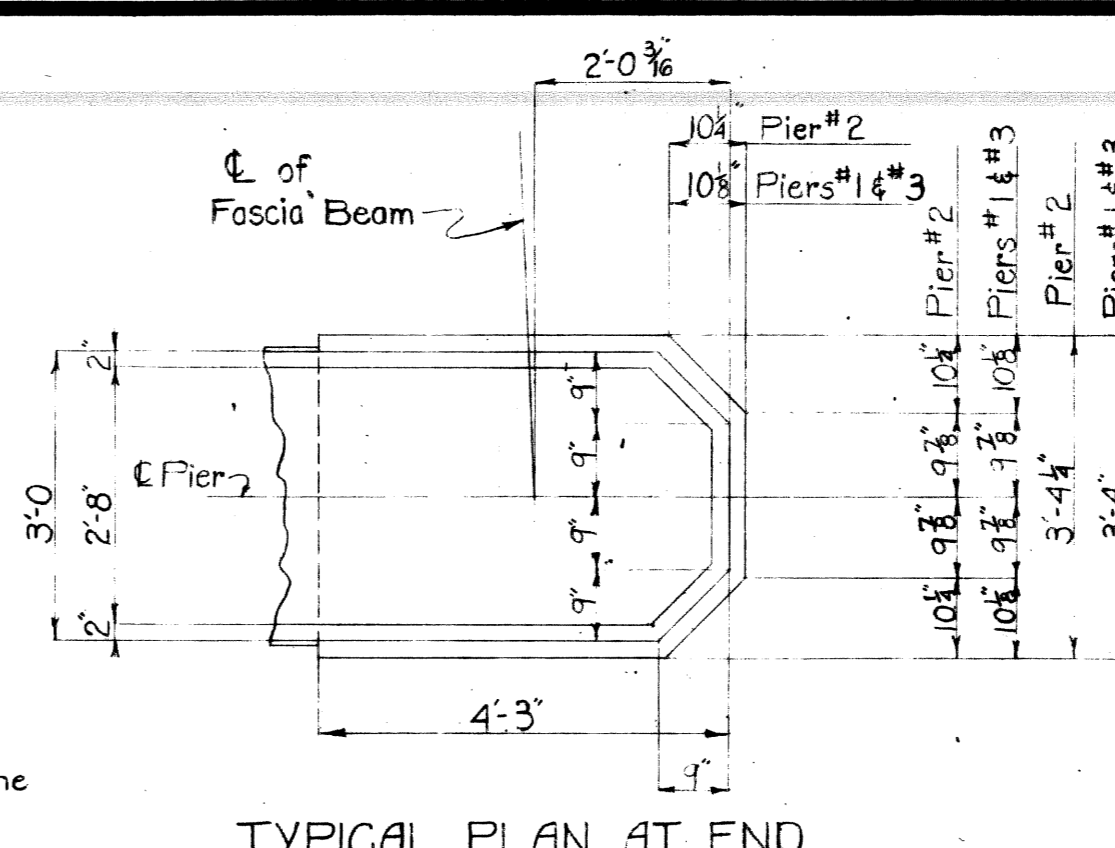
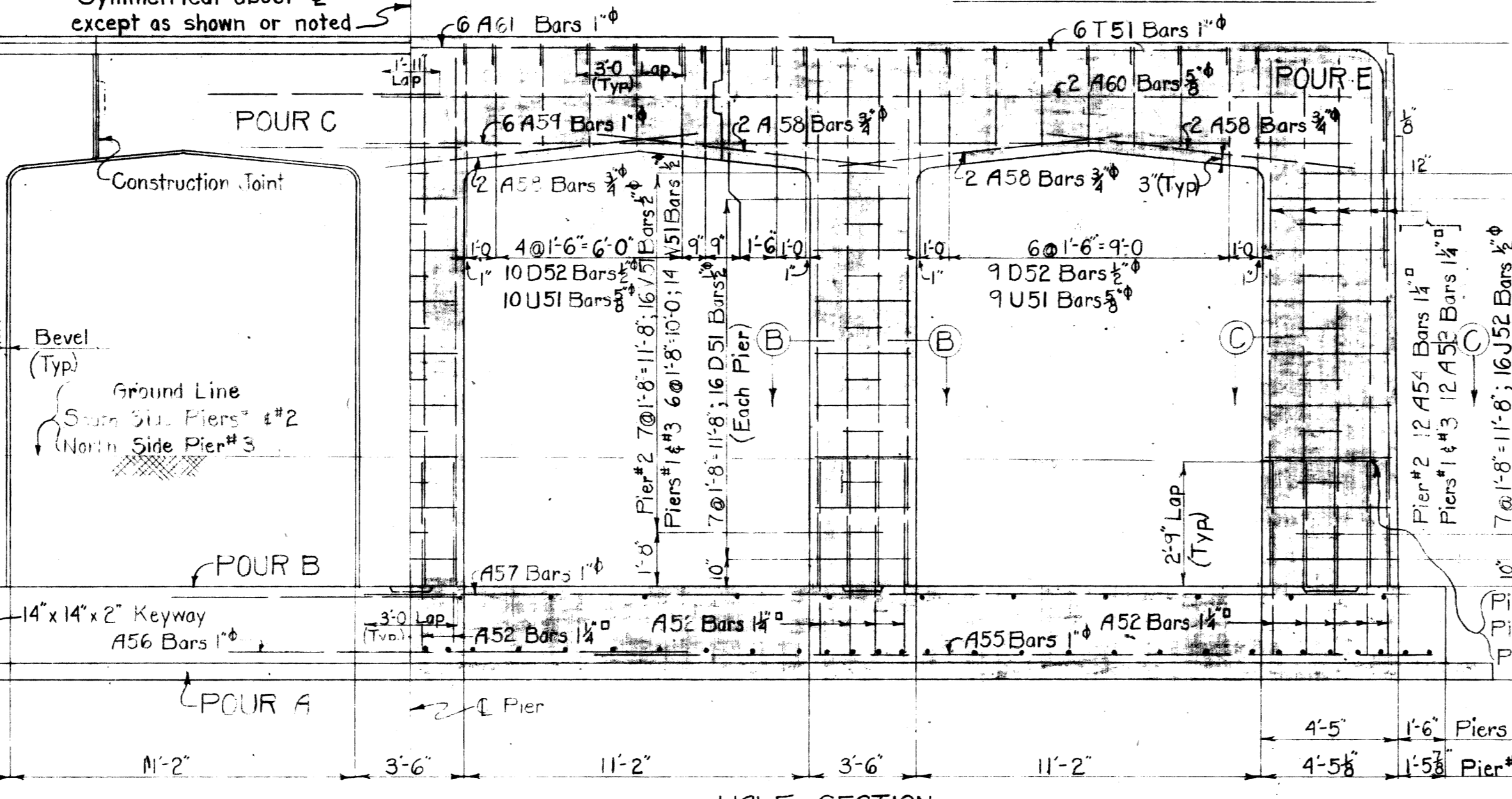
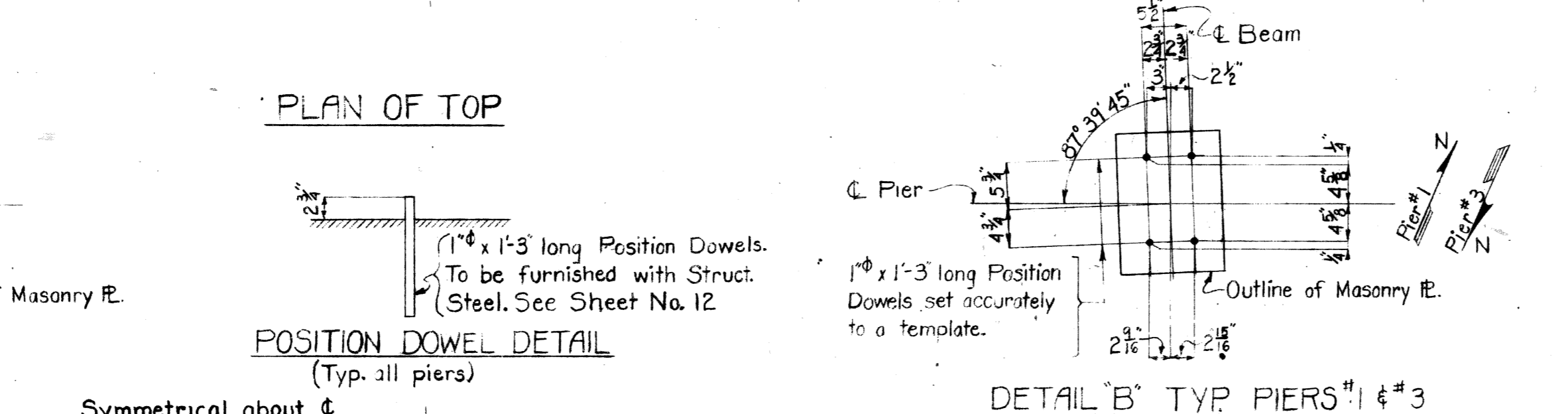
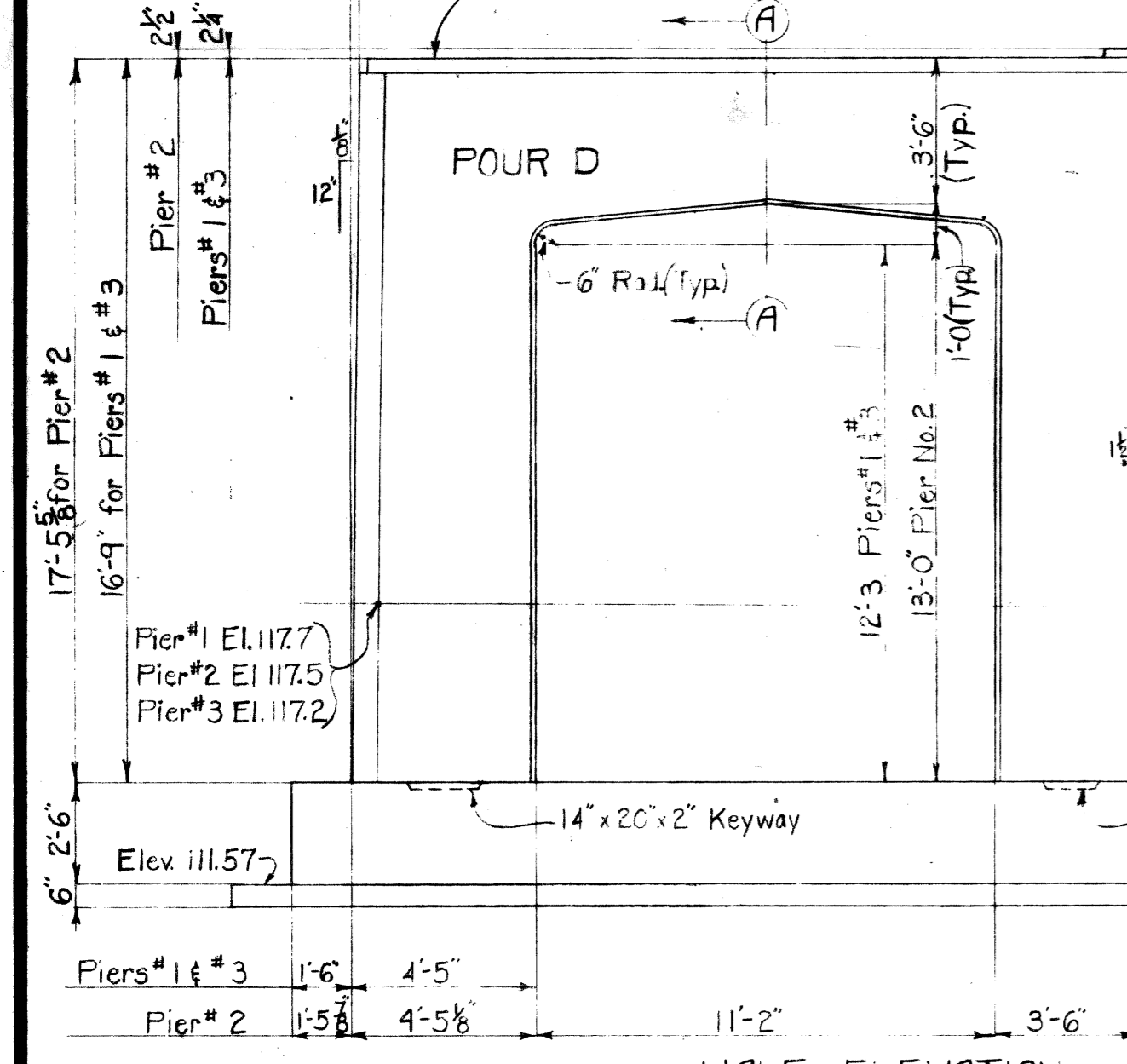
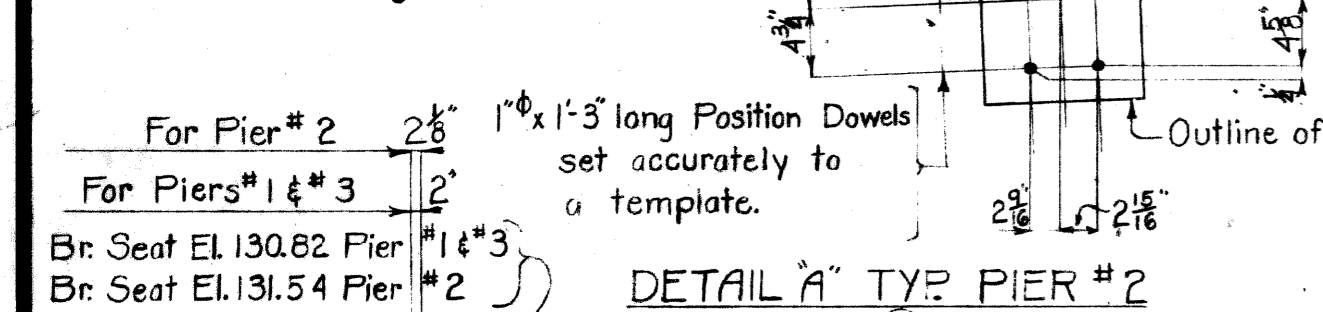
HAZLET & ERDAL CONSULTING ENGINEERS FILE No. 528  
 APPROVED: [Signature] 5-6-52  
 APPROVED: [Signature] 6-2-52  
 APPROVED: [Signature]

LEG 13-25-52  
 GAF 12-2-51  
 MVE 1-2-52  
 B48 OF 82-22-10





Note:  
The bridge seat shall be finished to true planes at the elevations shown, and shall vary not more than 1/8" under a 10-foot straight edge, nor more than 1/16" under any bearing.



ITEM	UNIT	AMOUNT		
		PIER NO. 1	PIER NO. 2	PIER NO. 3
RUBBED SURFACE FINISH	SQ. FT.	1333	1398	1333
UNCLASSIFIED EXCAVATION	CU. YD.	162	116	158
OVERHAUL	Comp. Cu. Yd. Mt.	570	410	550

\* See Supplemental Specifications

POUR LOCATION	PIER NO. 1	PIER NO. 2	PIER NO. 3	CONCRETE QUANTITIES (cu. yd.)		
				Grade 1 (6) Grade 1 (6) Grade 1 (6)	Grade 1 (6) Grade 1 (6) Grade 1 (6)	Grade 1 (6) Grade 1 (6) Grade 1 (6)
A Sub-Footing	13.5	15.6	13.5			
B Footing	58.0	55.6	58.0			
C Columns & Beams	14.1	14.4	14.1			
D Columns & Beams	20.9	21.6	20.9			
E Columns & Beams	20.9	21.6	20.9			
TOTALS	71.5	55.9	71.4	576	71.5	55.9

Notes:  
For Bevel & Moulding Details see M.S.H.D. Sheet No. R4  
Position Dowels are included in weight of structural steel.  
Footing and Sub-Footing Concrete and Unclassified Excavation Quantities are computed on the basis of an outline 3/4" outside the Sub-Footing Outline where the concrete is poured against steel sheet piling. No additional allowance in the quantities will be made regardless of the steel sheet piling used.  
Stop pours C, D, & E at top of columns for not less than 20 minutes nor more than 30 minutes before completing pour.  
All exposed corners shall be beveled 1/2" unless otherwise noted.  
Rubbed Surface: The underside of the beam is included in the quantity for Rubbed Surface Finish. The rubbing shall preferably be started within 24 hours after the forms are removed.  
This design is based on a maximum foundation pressure of 2330 lbs. per sq. ft. under dead load only (Pier #1) and a maximum foundation pressure of 2650 lbs. per sq. ft. under DL+LL (Pier #2).

COPY  
EXISTING BRIDGE DETAILS  
(NOT FOR CONSTRUCTION)  
S15 of 82023A REVISED Sh 33 of 45

**MICHIGAN STATE HIGHWAY DEPARTMENT**  
CHARLES M. ZIEGLER  
STATE HIGHWAY COMMISSIONER  
EDEL FORD EXPRESSWAY CROSSING  
24TH STREET IN THE CITY OF DETROIT  
**PIERS No. 1, No. 2, & No. 3**

HAZLET & EDWARDS CONSULTING ENGINEERS FILE No. 520  
APPROVED [Signature] 5-6-52  
APPROVED [Signature] 5-7-52  
APPROVED [Signature]

DATE: 5-6-52  
SCALE: G.A.E. 8-7-51  
PROJECT: M.S.H.D. 82-22-10  
SHEET: B48 of 82-22-10

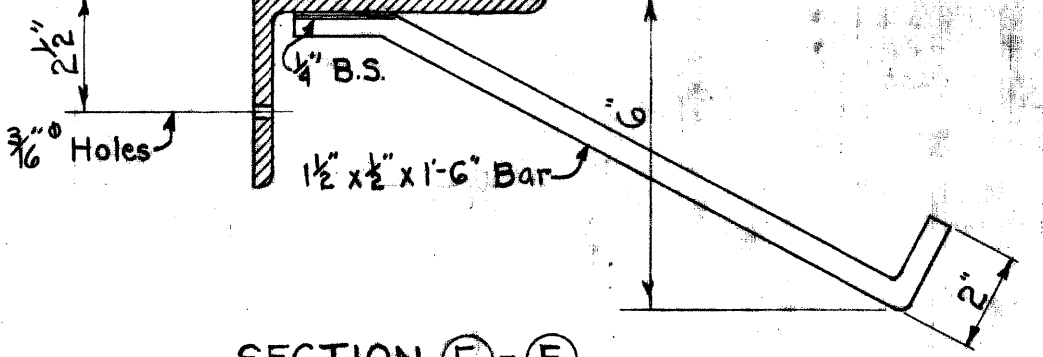
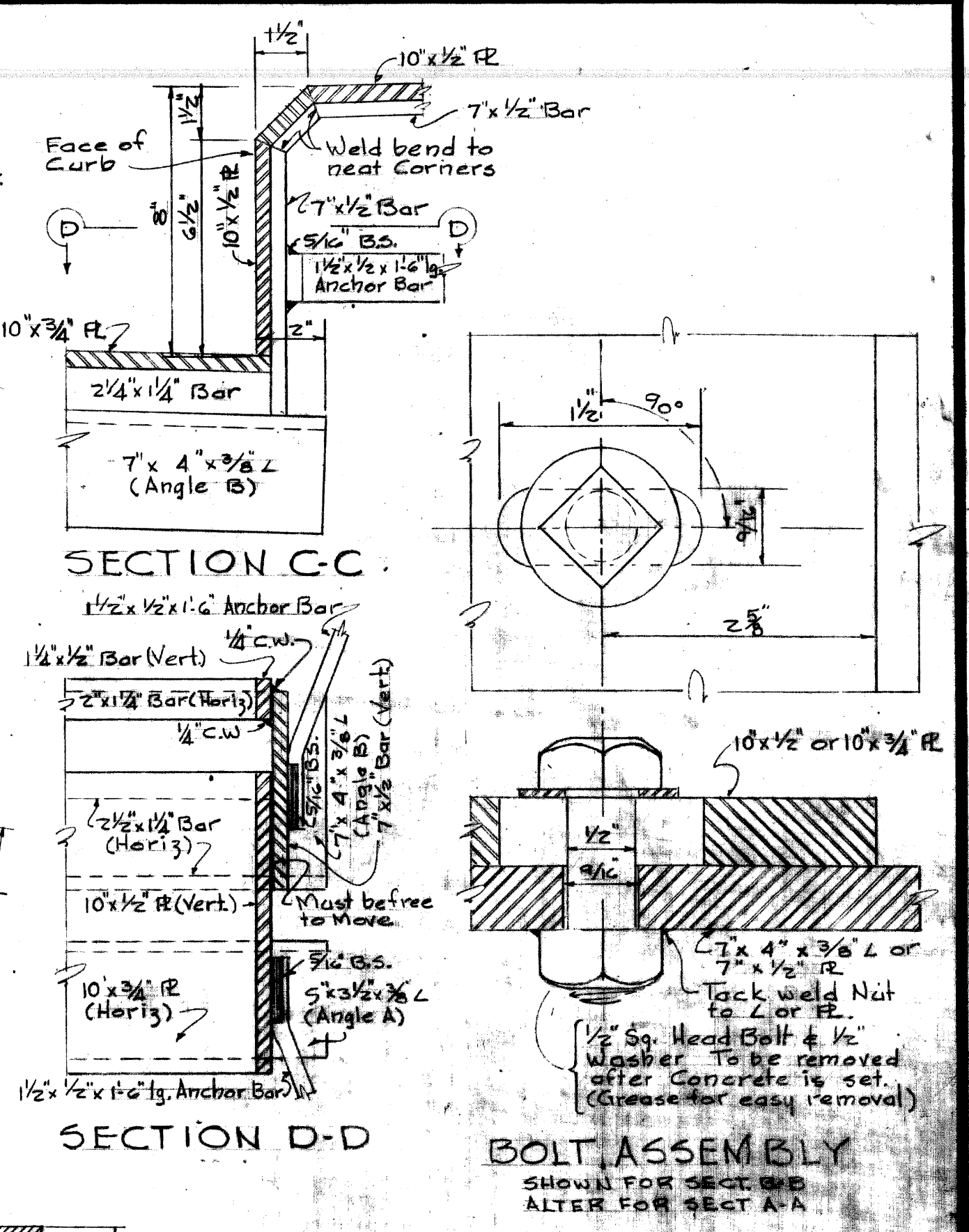
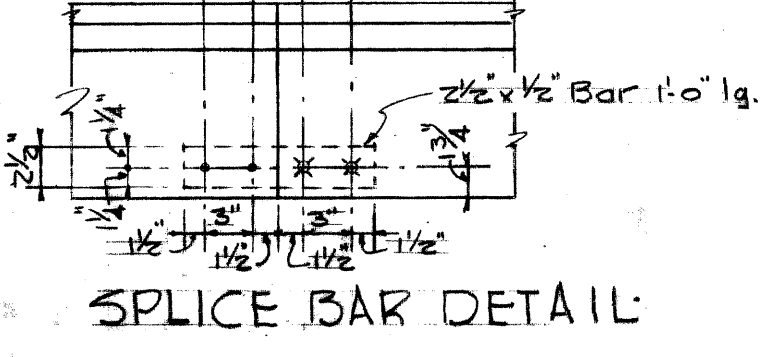
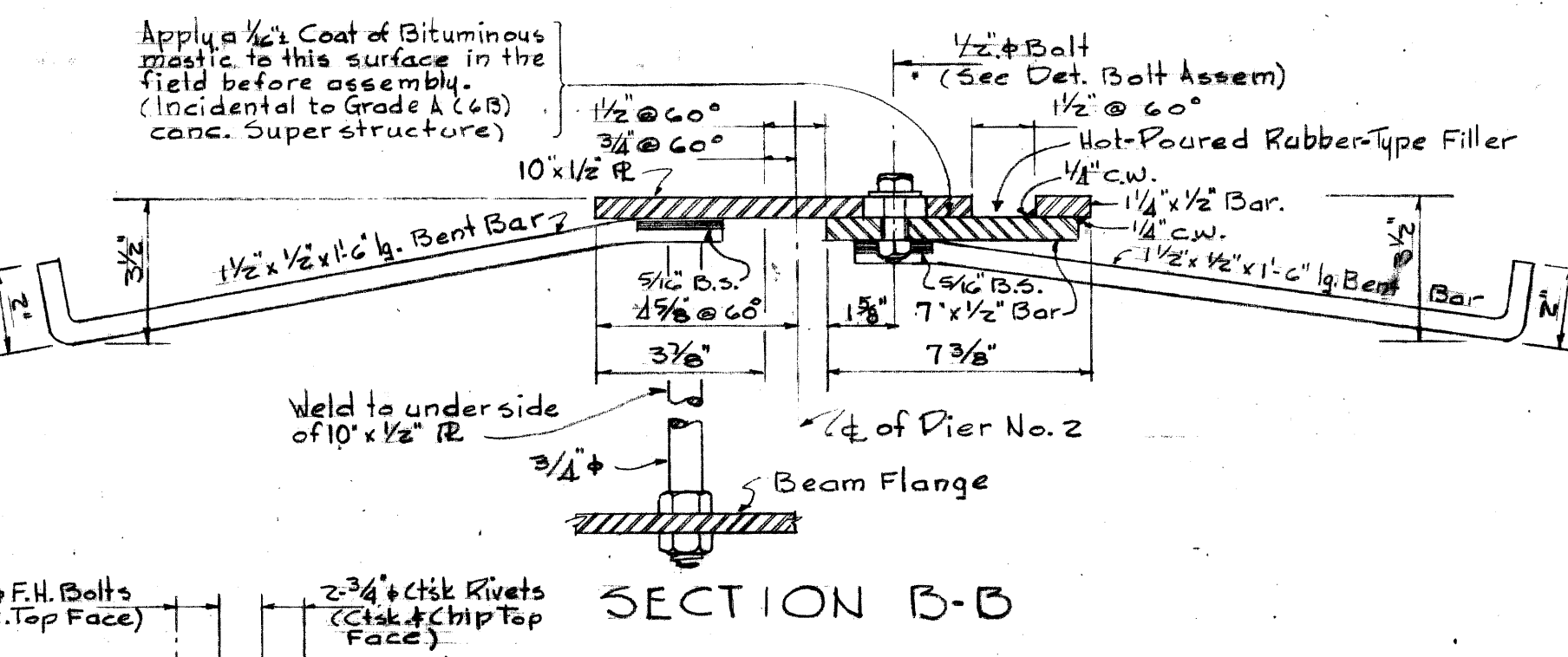
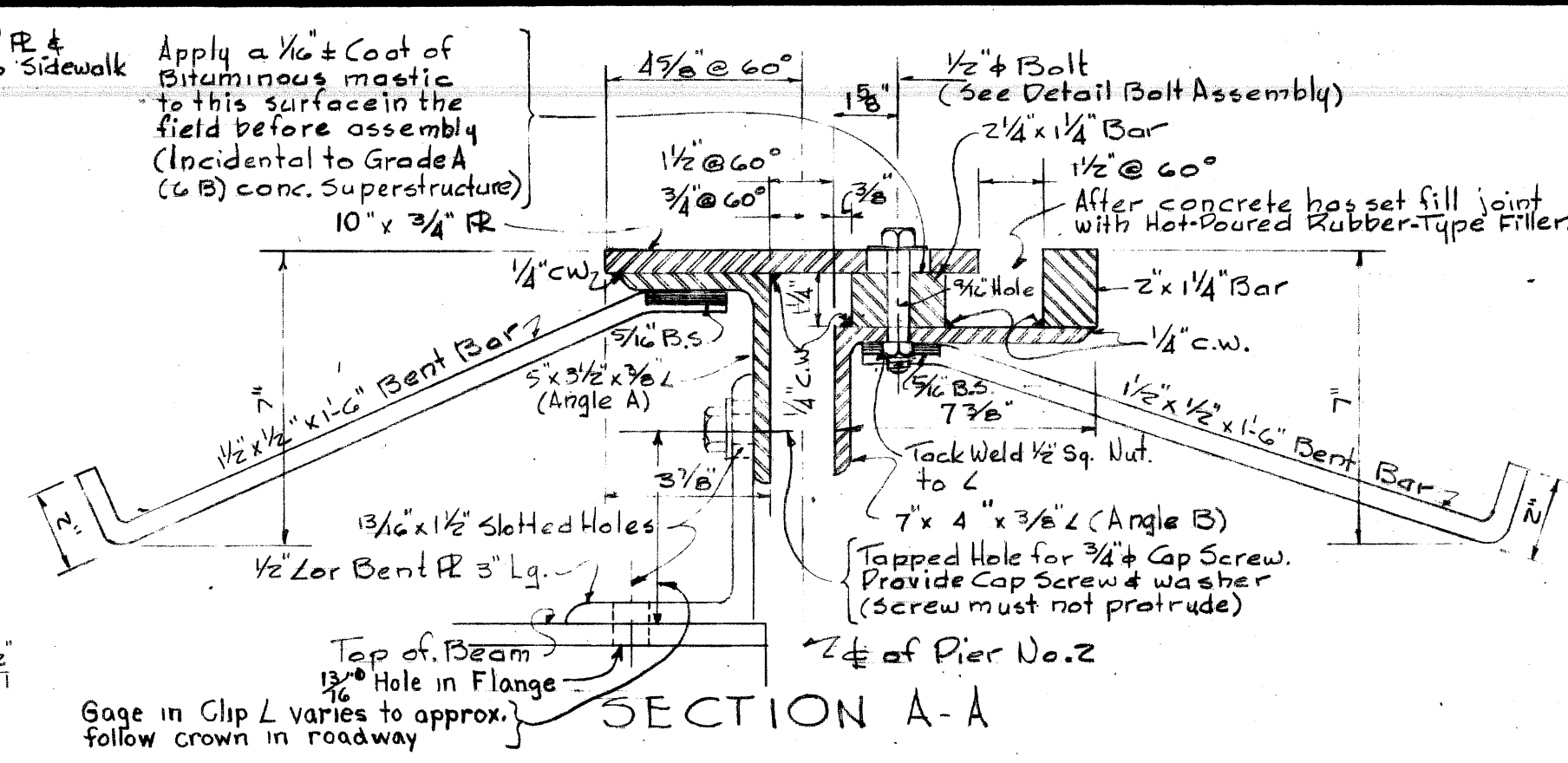
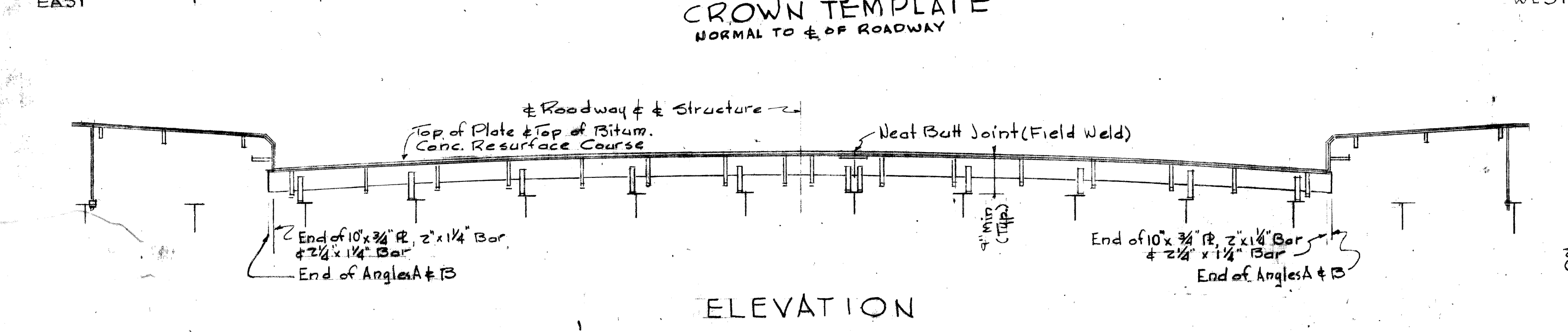
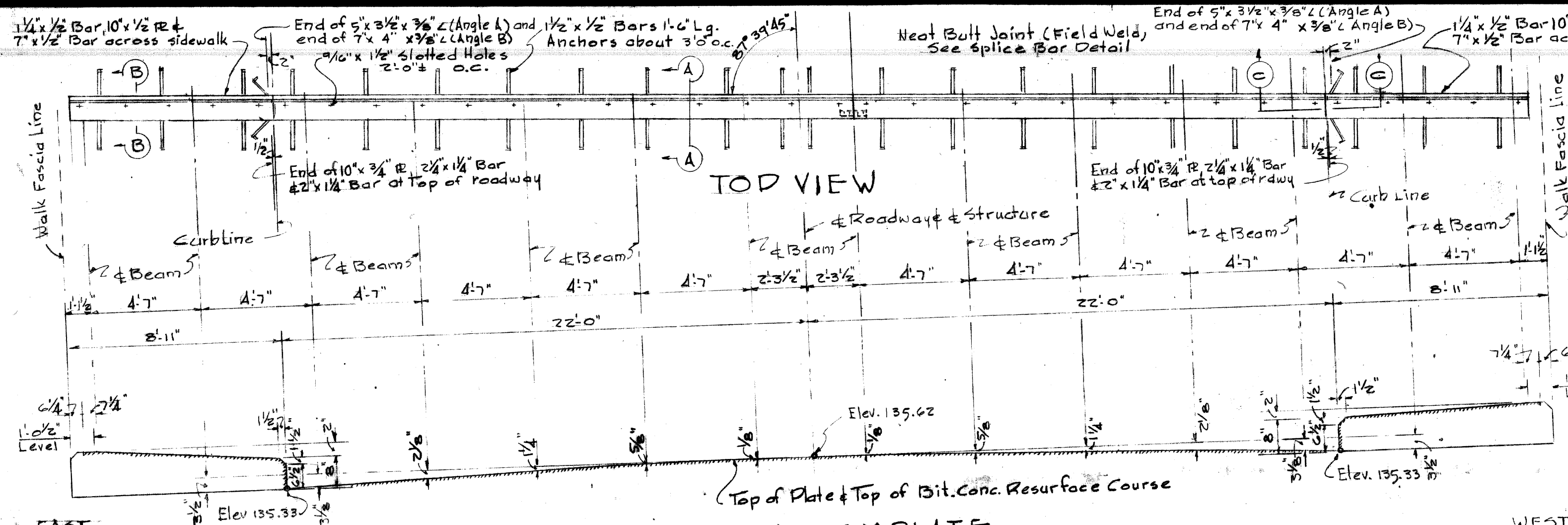






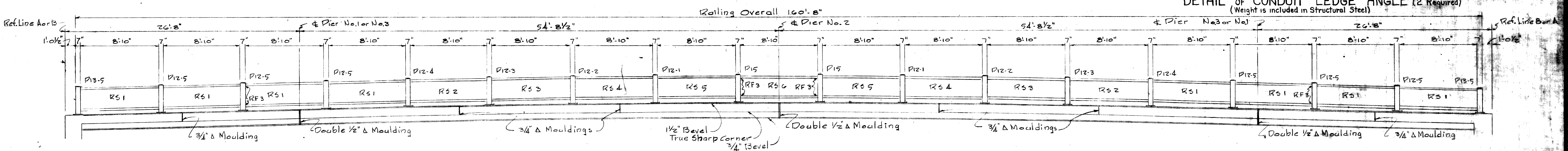






## METAL FLOOR JOINT AT PIER No. 2

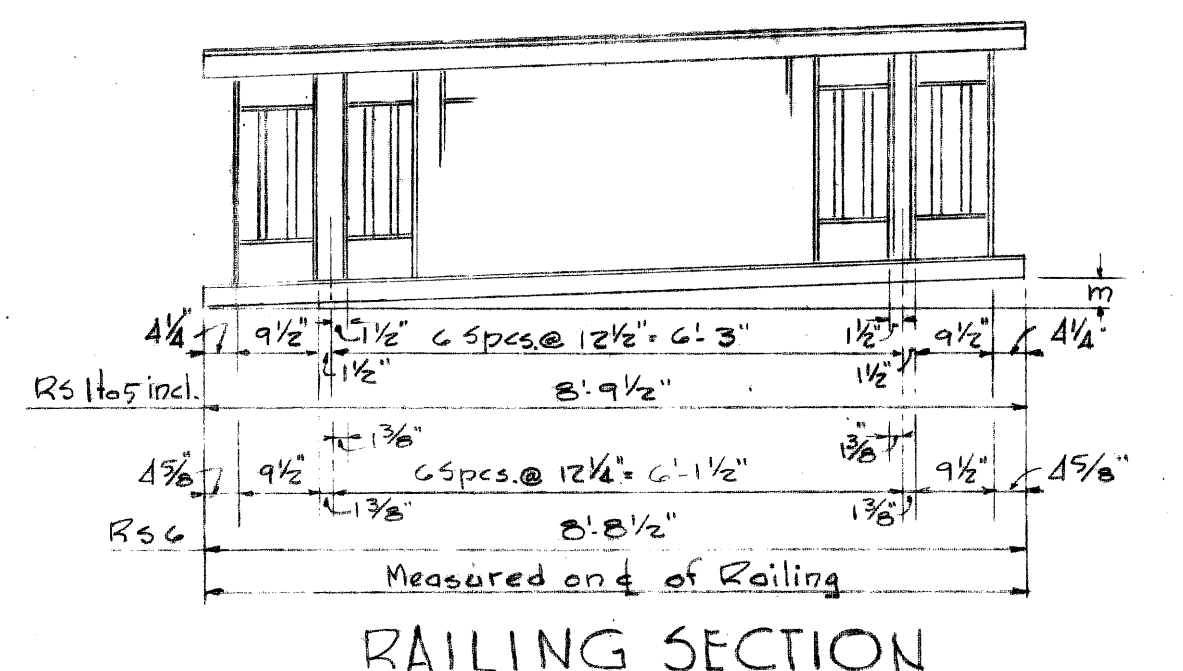
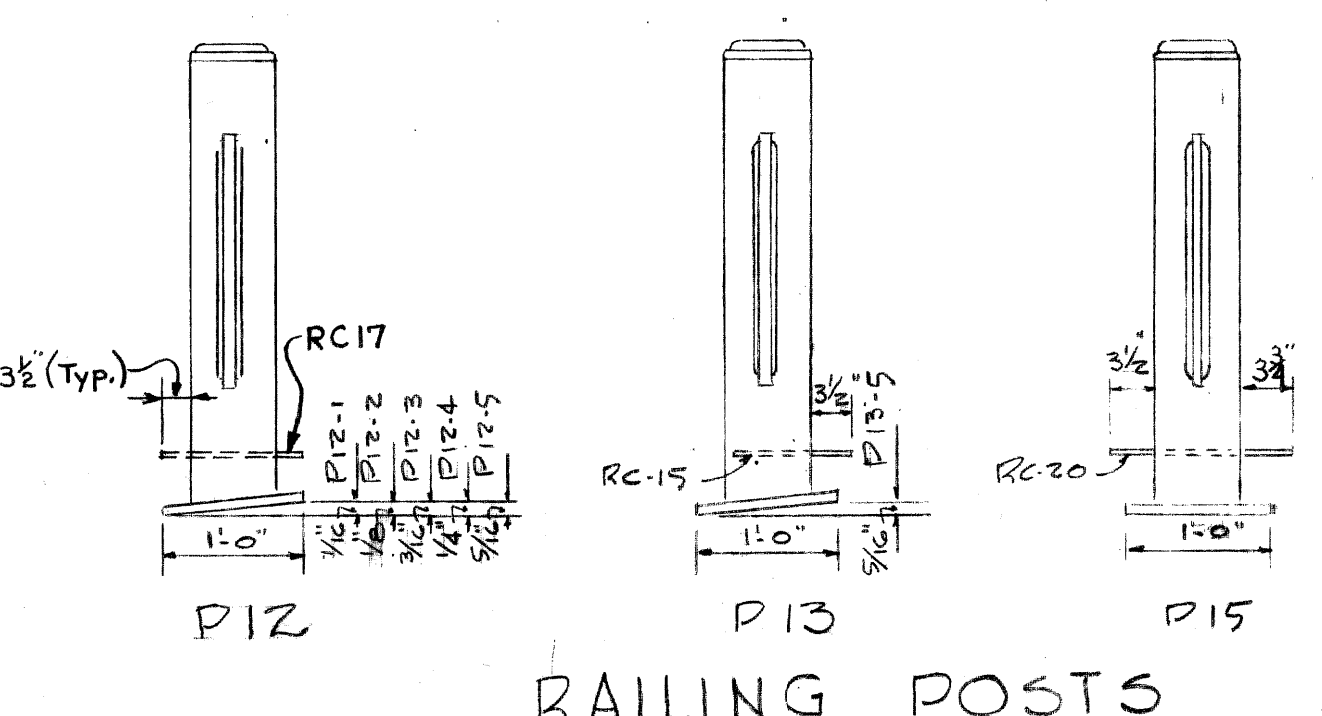
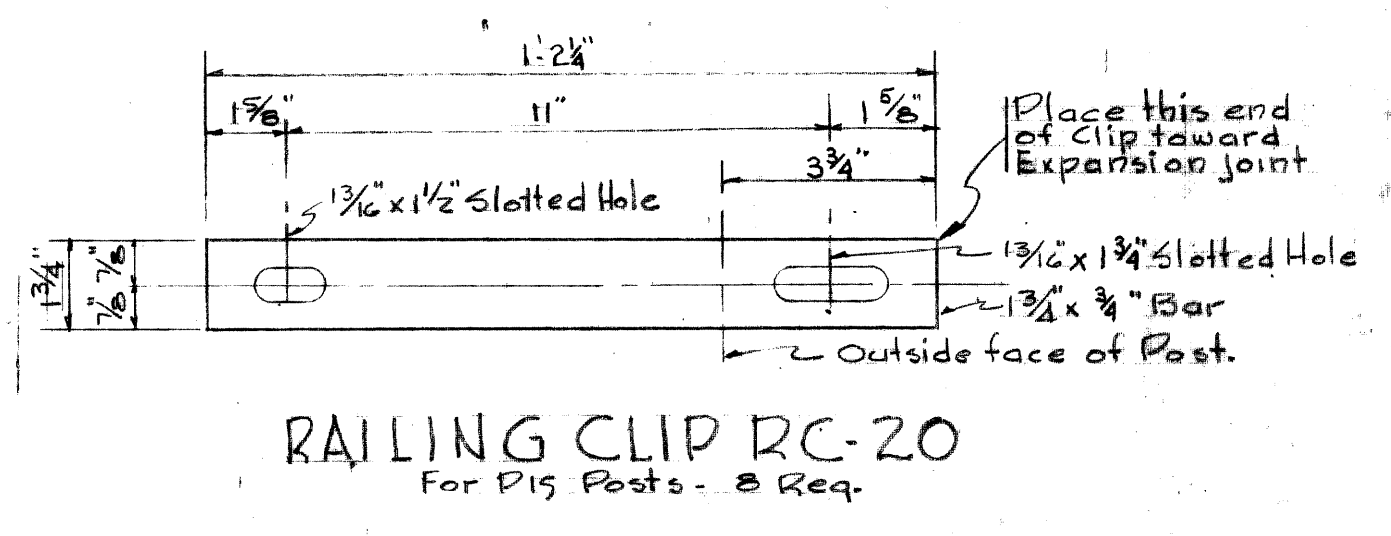
ONE REQUIRED, WEIGHT IS INCLUDED IN STRUCTURAL STEEL



## RAILING ELEVATION

(ALL RAILING FLANGES TO BE RF-4 EXCEPT AS NOTED)

BILL OF RAILING MATERIAL			
MARK	NO REQ	M	DESCRIPTION
RS1	16	2 1/2"	RAILING SECTION
RS2	4	2"	"
RS3	4	1 1/2"	"
RS4	4	1"	"
RS5	4	1/2"	"
RS6	2	0"	"
P12-1	4		RAILING POST
P12-2	4		"
P12-3	4		"
P12-4	4		"
P12-5	12		"
P12-6	4		"
P15	4		"
RF3	16		RAILING FLANGE
RF4	120		"
Anchor Bts	144		3/4" x 10" lg. 5/8" dia. Hex Nut.
Washers	136		3/4" x 2 1/4" lg. Hex Head.
Washers	136		3/4" Lock Washer.



COPY  
EXISTING BRIDGE DETAILS  
(NOT FOR CONSTRUCTION)

S15 of 82023A Sh. 36 of 45  
REVISED 5-6-52

**MICHIGAN STATE HIGHWAY DEPARTMENT**  
**CHARLES M. ZIEGLER**  
 STATE HIGHWAY COMMISSIONER  
 EDEL FORD EXPRESSWAY CROSSING  
 24TH STREET IN THE CITY OF DETROIT

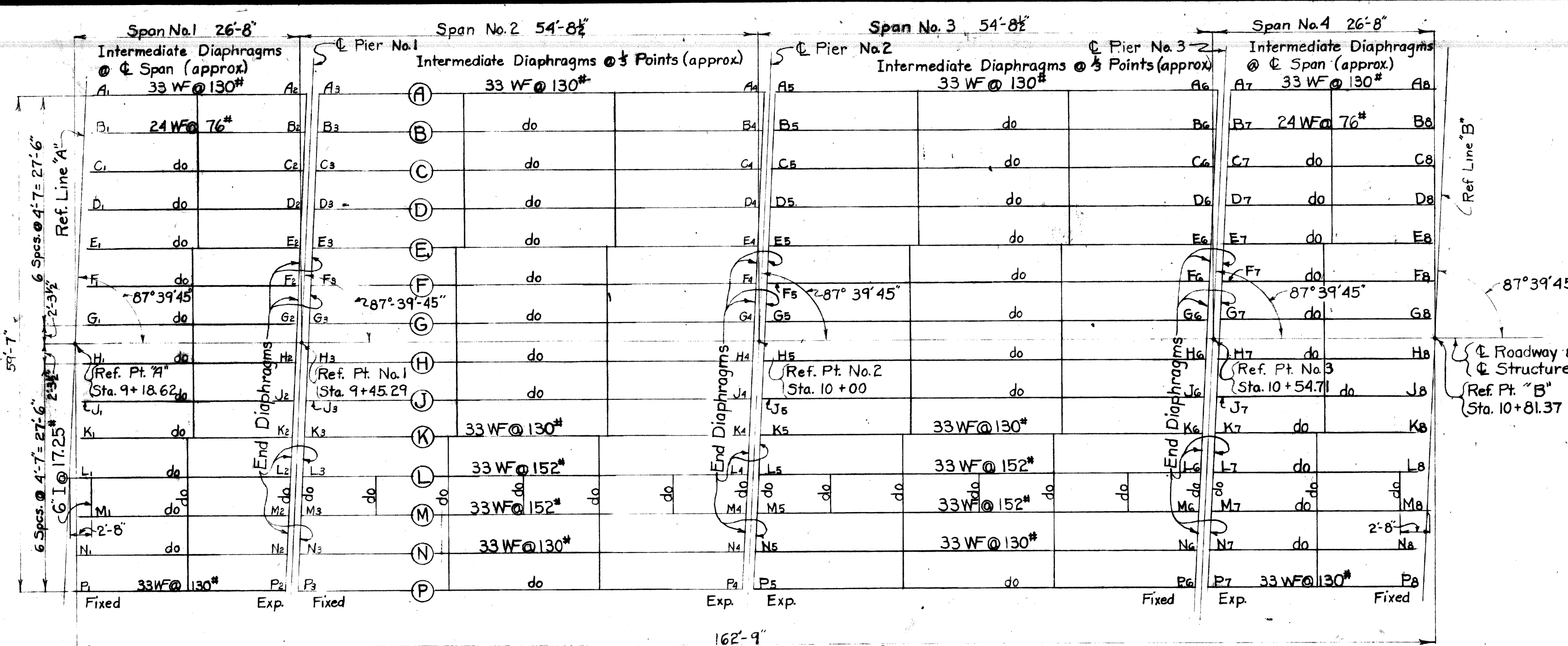
**METAL FLOOR JOINT & RAILING DETAILS**

HAZELT & EDAL CONSULTING ENGINEERS FILE No. 528  
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 BRIDGE DRAFTSMAN  
 APPROVED *[Signature]* 5-7-52  
 ACT. ENGINEER OF BRIDGE DESIGN

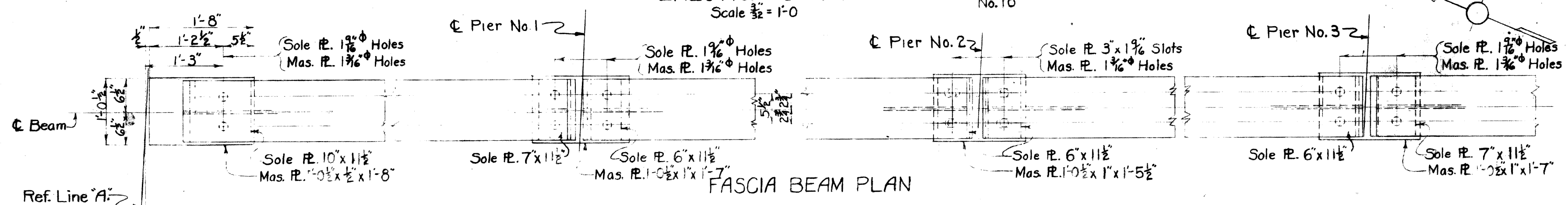
APPROVED \_\_\_\_\_  
 ACT. ENGINEER

RECORD BOOK L.G.H. 3-25-52  
 DRAWN BY S.C.D. 2-1-51  
 TRACED BY \_\_\_\_\_  
 CHECKED BY M.W.E. 9-13-51  
 SHEET 48 OF 48

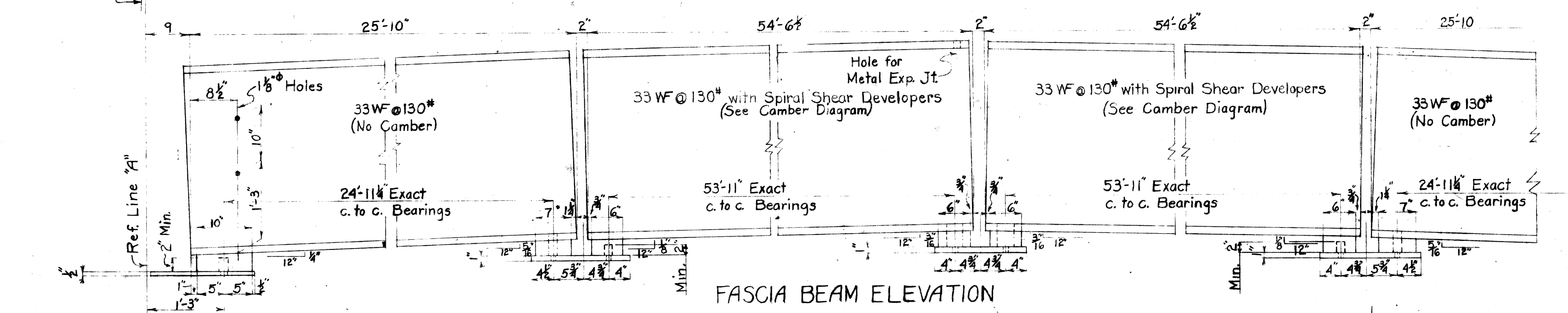




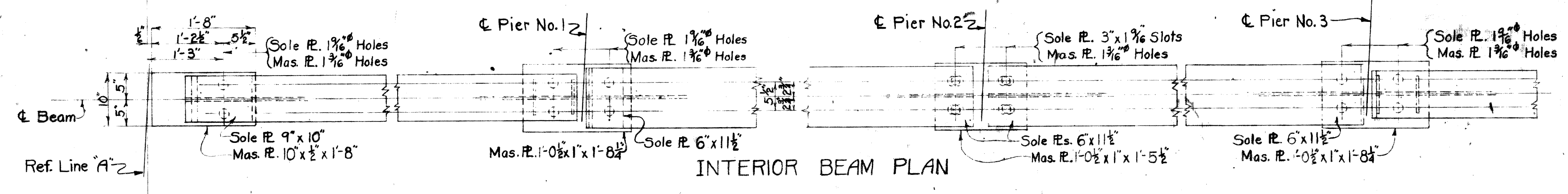
ERECTOR DIAGRAM  
Scale 1/2" = 1'-0"



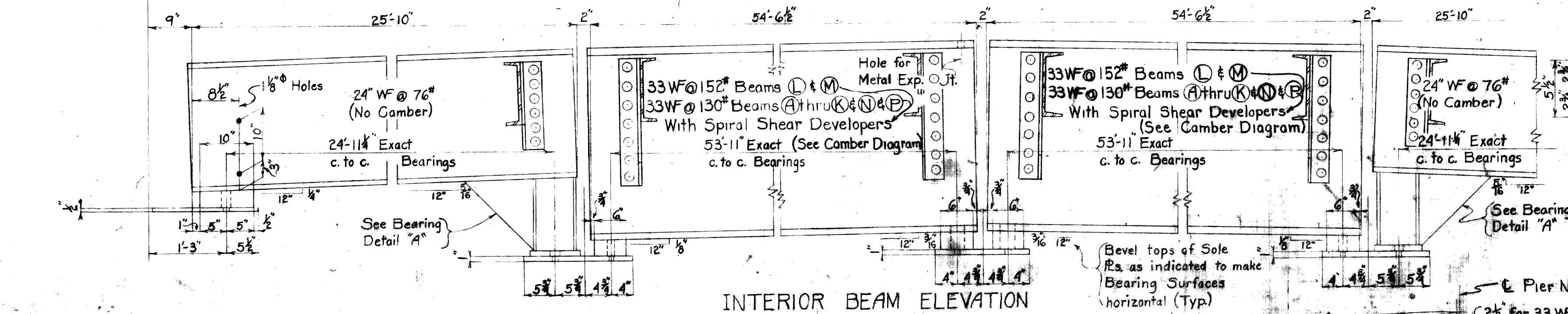
FASCIA BEAM PLAN



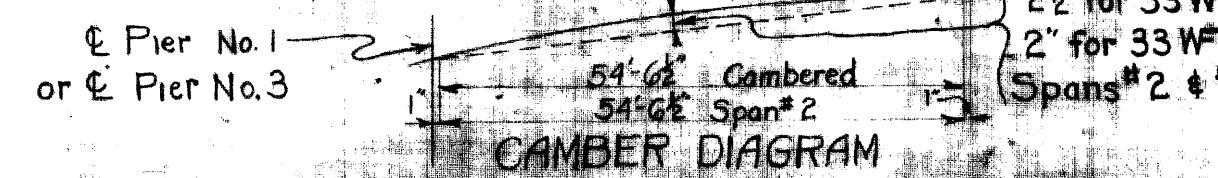
FASCIA BEAM ELEVATION



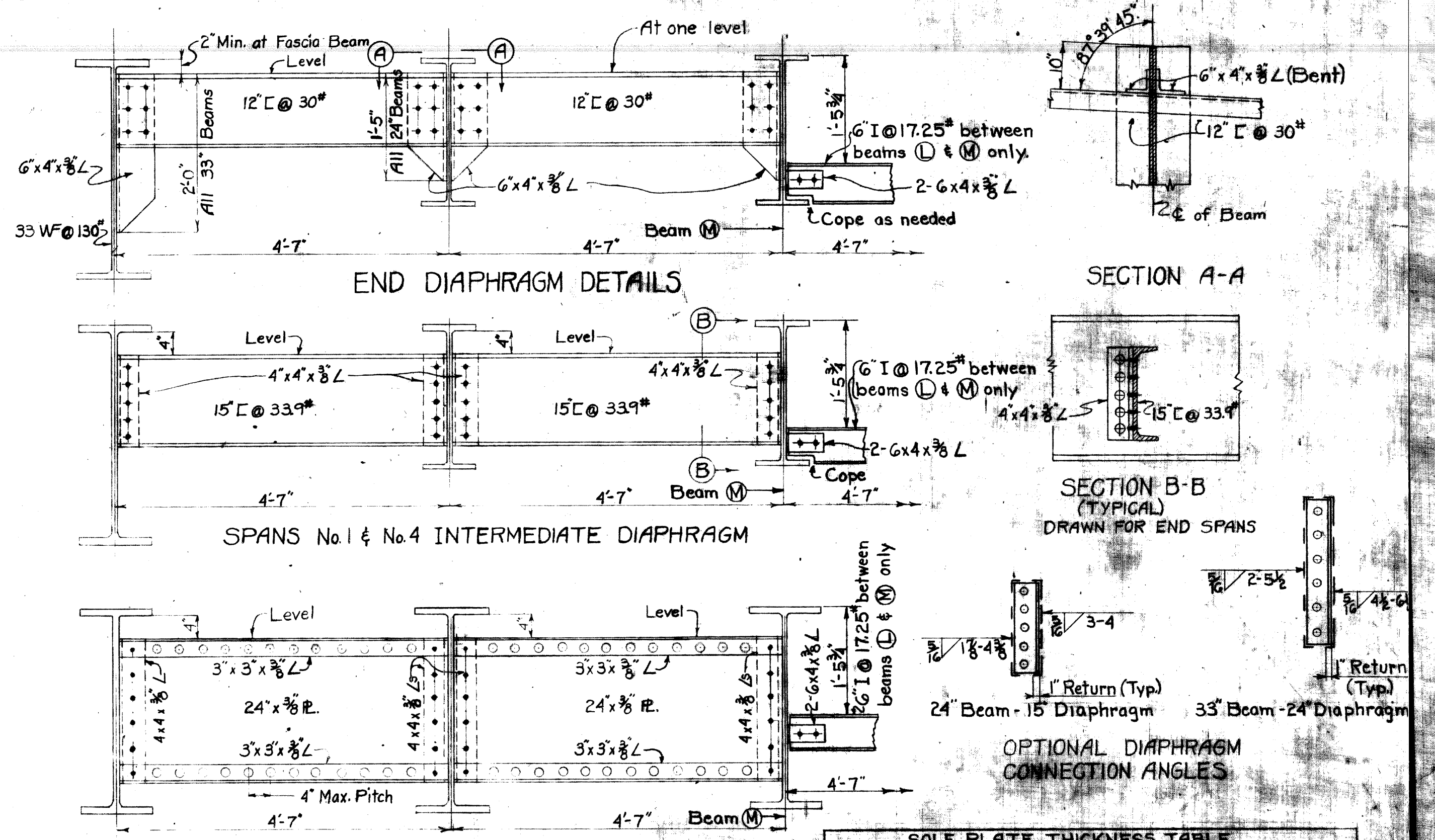
INTERIOR BEAM PLAN



INTERIOR BEAM ELEVATION



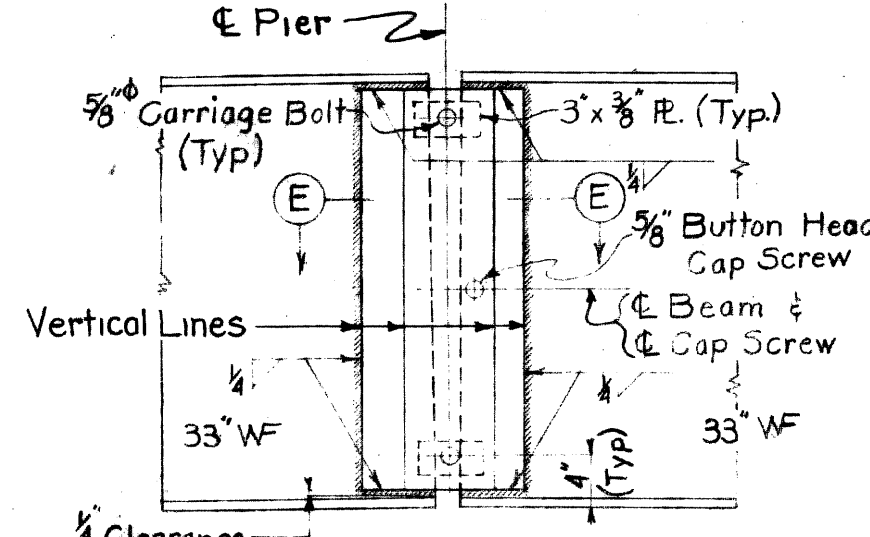
CAMBER DIAGRAM



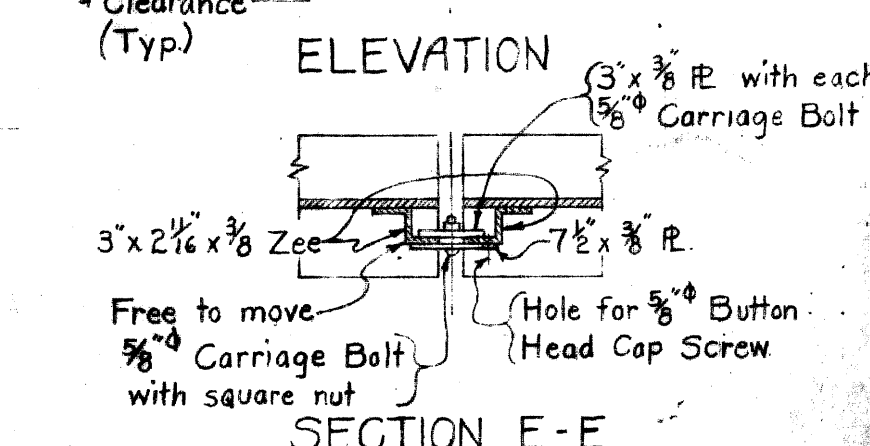
END DIAPHRAGM DETAILS

SPANS No. 1 & No. 4 INTERMEDIATE DIAPHRAGM

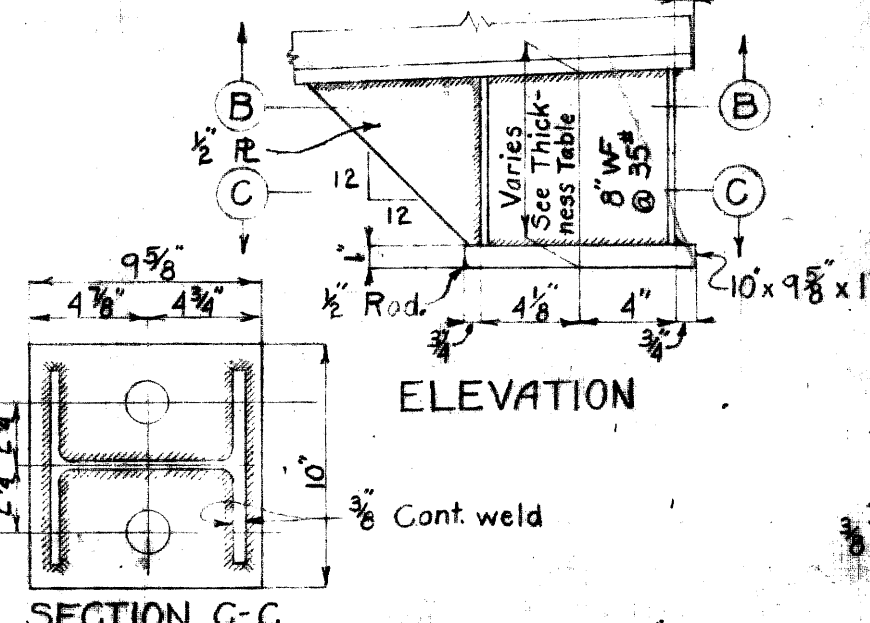
SPANS No. 2 & No. 3 INTERMEDIATE DIAPHRAGM



TYPICAL SOLE PLATE



SECTION E-E FASCIA BEAM JOINT DETAIL



BEARING DETAIL A

POINT	ABUT.	PIER	POINT	PIER	POINT	PIER	POINT	PIER	POINT	PIER	POINT	PIER	POINT	PIER	POINT
A	2 1/2	A2	1 1/2	A4	2 1/2	A6	2 1/2	A8	2 1/2	A10	2 1/2	A12	2 1/2	A14	2 1/2
B	2 1/2	B2	1 1/2	B4	2 1/2	B6	2 1/2	B8	2 1/2	B10	2 1/2	B12	2 1/2	B14	2 1/2
C	2 1/2	C2	1 1/2	C4	2 1/2	C6	2 1/2	C8	2 1/2	C10	2 1/2	C12	2 1/2	C14	2 1/2
D	3 1/2	D2	1 1/2	D4	3 1/2	D6	3 1/2	D8	3 1/2	D10	3 1/2	D12	3 1/2	D14	3 1/2
E	2 1/2	E2	1 1/2	E4	2 1/2	E6	2 1/2	E8	2 1/2	E10	2 1/2	E12	2 1/2	E14	2 1/2
F	2 1/2	F2	1 1/2	F4	2 1/2	F6	2 1/2	F8	2 1/2	F10	2 1/2	F12	2 1/2	F14	2 1/2
G	3 1/2	G2	1 1/2	G4	3 1/2	G6	3 1/2	G8	3 1/2	G10	3 1/2	G12	3 1/2	G14	3 1/2
H	3 1/2	H2	1 1/2	H4	3 1/2	H6	3 1/2	H8	3 1/2	H10	3 1/2	H12	3 1/2	H14	3 1/2
J	2 1/2	J2	1 1/2	J4	2 1/2	J6	2 1/2	J8	2 1/2	J10	2 1/2	J12	2 1/2	J14	2 1/2
K	2 1/2	K2	1 1/2	K4	2 1/2	K6	2 1/2	K8	2 1/2	K10	2 1/2	K12	2 1/2	K14	2 1/2
L	3 1/2	L2	1 1/2	L4	3 1/2	L6	3 1/2	L8	3 1/2	L10	3 1/2	L12	3 1/2	L14	3 1/2
M	2 1/2	M2	1 1/2	M4	2 1/2	M6	2 1/2	M8	2 1/2	M10	2 1/2	M12	2 1/2	M14	2 1/2
N	2 1/2	N2	1 1/2	N4	2 1/2	N6	2 1/2	N8	2 1/2	N10	2 1/2	N12	2 1/2	N14	2 1/2
P	2 1/2	P2	1 1/2	P4	2 1/2	P6	2 1/2	P8	2 1/2	P10	2 1/2	P12	2 1/2	P14	2 1/2

STRUCTURAL STEEL NOTES

**Fabrication:** Michigan State Highway Department's Standard Specifications for Road and Bridge Construction - 1950 Edition.  
**Design:** Michigan State Highway Department's Specifications for the Design of Highway Bridges - 1936 Edition (H20-S16-44 Loading) Max. Allowable LL = 1mp. 2.5 Shop Connections: All shop connections shall be riveted unless otherwise shown or noted. Shop welding may, however, be substituted for shop riveting for diaphragm connections.  
**Rivets:** Rivets 3/4"  
**Turned Bolts:** 1/2" with 3/8" dia. thread. Length from head to shoulder shall be more than required grip.  
**Field Connections:** Field connections, unless otherwise noted, shall be bolted with turned bolts.  
**Open Holes:** Open holes for rivets shall be 1/8" unless otherwise noted. Open holes for turned bolts shall be 3/8" and shall be subpunched or subdrilled 1/8" and reamed to a steel template.  
**Shop Paint:** In addition to the shop paint provisions of the Standard Specs. the top surface of the masonry plates shall be coated in accordance with the requirements for machine finished surfaces. The upper surfaces of the top flanges of beams in Spans No. 2 & No. 3 shall be given one coat of boiled linseed oil only.  
**Mill Camber:** Beams in Spans No. 2 & No. 3 shall be cambered as noted. The outside beams shall be selected after cambering so that they will have the amount of camber specified.  
**Sole Plates:** Sole Plates 3" or more in thickness may be built up by welding together plates not less than 1/2" in thickness. Edges must be beveled 4" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.  
**Welding:** Welding to be in accordance with Specifications of the American Welding Society.

COPY  
 EXISTING BRIDGE DETAILS  
 (NOT FOR CONSTRUCTION)  
 S15 of 82023A Sh. 37 of 45

**MICHIGAN STATE HIGHWAY DEPARTMENT**

CHARLES M. ZIEGLER  
 STATE HIGHWAY COMMISSIONER  
 EDEL FORD EXPRESSWAY CROSSING  
 24TH STREET IN THE CITY OF DETROIT

**STRUCTURAL STEEL DETAILS**

HAZLET & FERAL CONSULTING ENGINEERS FILE NO. 388	DATE	BY
APPROVED <i>[Signature]</i> 5-6-52	7-25-51	F.J.C.
APPROVED <i>[Signature]</i> 5-7-52		
APPROVED		

Total Estimated Structural Steel Weight 310,000 lbs.  
 (Raising Weight not included)

NO.	DESCRIPTION	DATE	BY
B	Changed Sole Plate thicknesses	10-24-52	F.J.C.



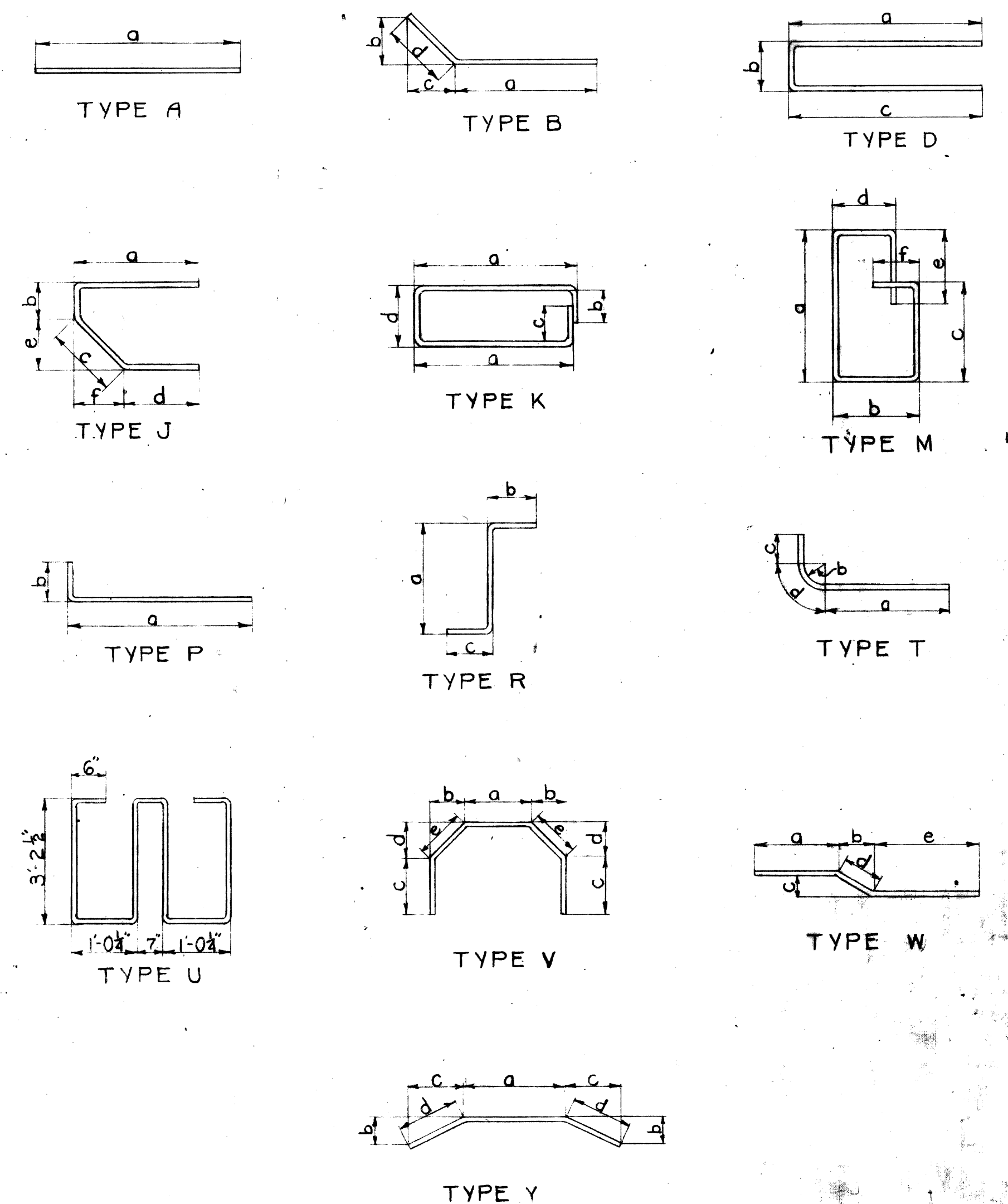
**BAR LIST**

MARK	DIMENSIONS							SIZE	LENGTH	NUMBER OF BARS			TOTAL WEIGHT
	a	b	c	d	e	f	g			ABUTMENT A	ABUTMENT B	TOTAL	
A1	37'-7"							3/4"	37'-7"	7	7	14	790
A2	35'-4"							3/4"	35'-4"	7	7	14	743
A3	16'-8"							3/4"	16'-8"	14	14	28	701
A4	6'-0"							3/4"	6'-0"	52	52	104	937
A5	5'-0"							3/4"	5'-0"	52	52	104	781
A6	8'-9"							3/4"	8'-9"	34	34	68	894
A7	7'-11"							3/4"	7'-11"	8	8	16	190
A8	25'-6"							1/2"	25'-6"	10	10	20	341
A9	23'-6"							1/2"	23'-6"	10	10	20	314
A10	10'-0"							1/2"	10'-0"	20	20	40	267
A11	10'-5"							3/4"	10'-5"	18	18	36	563
A12	6'-7"							3/4"	6'-7"	18	18	36	356
A13	12'-5"							1/2"	12'-5"	36	36	72	597
A14	8'-2"							3/4"	8'-2"	2	2	4	49
B1	7'-3"	3"	5"	6"				3/4"	7'-9"	8	8	16	186
D1	2'-0"	1'-6"	2'-0"					1/2"	5'-5"	42	42	84	304
D2	1'-0"	3'-7"	1'-0"					1/2"	5'-6"	2	2	4	15
D3	1'-0"	4'-1"	1'-0"					1/2"	6'-0"	2	2	4	16
J1	2'-4"	1'-3"	10"	1'-9"	7"	7"		1/2"	6'-1"	8	8	16	65
J2	2'-4"	9 1/2"	1'-0"	1'-8"	8 1/2"	8 1/2"		1/2"	5'-9"	12	12	24	92
J3	2'-0"	7 1/2"	9"	1'-6"	6 1/2"	6 1/2"		1/2"	4'-10"	8	8	16	52
P1	5'-4"	1'-0"						1/2"	6'-4"	8	8	16	68
V1	7"	4 1/2"	1'-0"	11"	1'-0"			1/2"	4'-7"	6	6	12	37
V2	10"	3"	1'-0"	8"	8 1/2"			1/2"	4'-3"	6	6	12	34
V3	1'-1"	1 1/2"	1'-0"	4"	4 1/2"			1/2"	3'-10"	6	6	12	31
W1	7'-5"	8"	4"	9"	7"			3/4"	8'-9"	34	34	68	894
W2	7'-5"	8"	4"	9"	2'-7"			3/4"	10'-9"	20	20	40	646
W3	3'-10"	3"	4"	5"	2'-5"			3/4"	6'-8"	20	20	40	401
Y1	5'-4"	8 1/2"	8 1/2"	1'-0"				3/4"	7'-4"	8	8	16	76
Y2	1'-4"	1'-0 1/2"	1'-0 1/2"	1'-6"				1/2"	4'-4"	8	8	16	46
TOTAL WEIGHT 10586 LBS.													

MARK	DIMENSIONS							SIZE	LENGTH	NUMBER OF BARS			TOTAL WEIGHT	
	a	b	c	d	e	f	g			PIER 1	PIER 2	PIER 3		TOTAL
A51	8'-6"							3/4"	8'-6"	80	80	80	240	3064
A52	5'-0"							1 1/4"	5'-0"	60	60	60	180	4782
A53	16'-2"							1 1/4"	16'-2"	60	60	60	120	10307
A54	16'-11"							1 1/4"	16'-11"	60	60	60	60	5393
A55	27'-5"							1"	27'-5"	9	9	9	27	1976
A56	42'-1"							1"	42'-1"	9	9	9	27	3034
A57	33'-6"							1"	33'-6"	18	18	18	54	4830
A58	10'-0"							3/4"	10'-0"	16	16	16	48	721
A59	32'-1"							1"	32'-1"	12	12	12	36	3084
A60	31'-7"							5/8"	31'-7"	4	4	4	12	395
A61	17'-8"							1"	17'-8"	6	6	6	18	849
D51	2'-1"	3'-2 1/2"	2'-1"					1/2"	7'-3"	48	48	48	144	697
D52	6"	2'-3"	6"					1/2"	3'-2"	36	36	36	114	241
J51	2'-1"	1'-3"	1'-5 1/2"	1'-2"	1'-1 1/2"	11"		1/2"	5'-11"	28	32	28	88	348
J52	2'-1"	3'-5"	1'-0 1/2"	1'-0"	6"	11"		1/2"	7'-6"	32	32	32	96	481
T51	24'-9"	1'-0"	6'-0"	1'-8"				1"	32'-5"	12	12	12	36	3116
U51	SEE DETAIL							5/8"	16'-2"	38	38	38	114	1922
V51	1'-2"	1'-0 1/2"	1'-2"	11"	1'-4 1/2"			1/2"	6'-3"	42	48	42	132	551
TOTAL WEIGHT 45791 LBS.														

MARK	DIMENSIONS							SIZE	LENGTH	NUMBER OF BARS				TOTAL WEIGHT	
	a	b	c	d	e	f	g			SPAN 1	SPAN 2	SPAN 3	SPAN 4		TOTAL
A101	16'-6"							5/8"	16'-6"	200	436	436	200	1272	21890
A102	32'-0"							5/8"	32'-0"	100	218	218	100	636	21227
A103	25'-9"							5/8"	25'-9"	153			153	306	5264
A104	27'-10"							5/8"	27'-10"		306	306		612	11379
A105	17'-11"							1/2"	17'-11"	8			8	16	192
A106	9'-9"							1/2"	9'-9"	6			6	12	78
A107	31'-0"							1/2"	31'-0"	9			9	18	373
A108	8'-8"							1/2"	8'-8"	4			4	8	46
A109	16'-9"							1/2"	16'-9"	2			2	4	45
A110	4'-2"							1/2"	4'-2"	30	54	54	30	168	468
A111	10'-0"							1/2"	10'-0"	2			2	4	27
D101	7"	8'-7"	7"					1/2"	9'-8"	36	74	74	36	220	1421
K101	2'-5"	10 1/2"	11"	1'-3 1/2"				1/2"	7'-10"	12			12	24	126
K102	3'-2"	10 1/2"	11"	1'-3 1/2"				1/2"	9'-4"	4			4	8	50
K103	2'-5"	8"	8"	10"				1/2"	6'-11"	4			4	8	37
M101	2'-5"	1'-3 1/2"	1'-1 1/2"	10"	1'-9 1/2"	1'-0"		1/2"	8'-3"	34			34	68	375
R101	1'-5"	6"	3"					1/2"	2'-2"	36	74	74	36	220	318
R102	1'-3"	6"	3"					1/2"	2'-0"	36	74	74	36	220	294
TOTAL WEIGHT 63610 LBS.															

SUPERSTRUCTURE



BENDING NOTE:  
Right Angle Bends shall be made about a pin of the minimum radius allowed in the Specifications.

TOTAL STEEL REINFORCEMENT 119987 LBS.

**COPY**  
**EXISTING BRIDGE DETAILS**  
(NOT FOR CONSTRUCTION)

MICHIGAN STATE HIGHWAY DEPARTMENT  
CHARLES M. ZIEGLER  
STATE HIGHWAY COMMISSIONER  
EDEL FORD EXPRESSWAY CROSSING  
24TH STREET IN THE CITY OF DETROIT

**REINFORCING BAR SCHEDULE**

S15 of 82023A Sh. 38 of 45

HAZELT & FEDERAL CONSULTING ENGINEERS FILE No. 528

APPROVED: *[Signature]* 5-6-52  
SUPERVISOR

APPROVED: *[Signature]* 5-7-52  
ACT. ENGINEER OF BRIDGE DESIGN

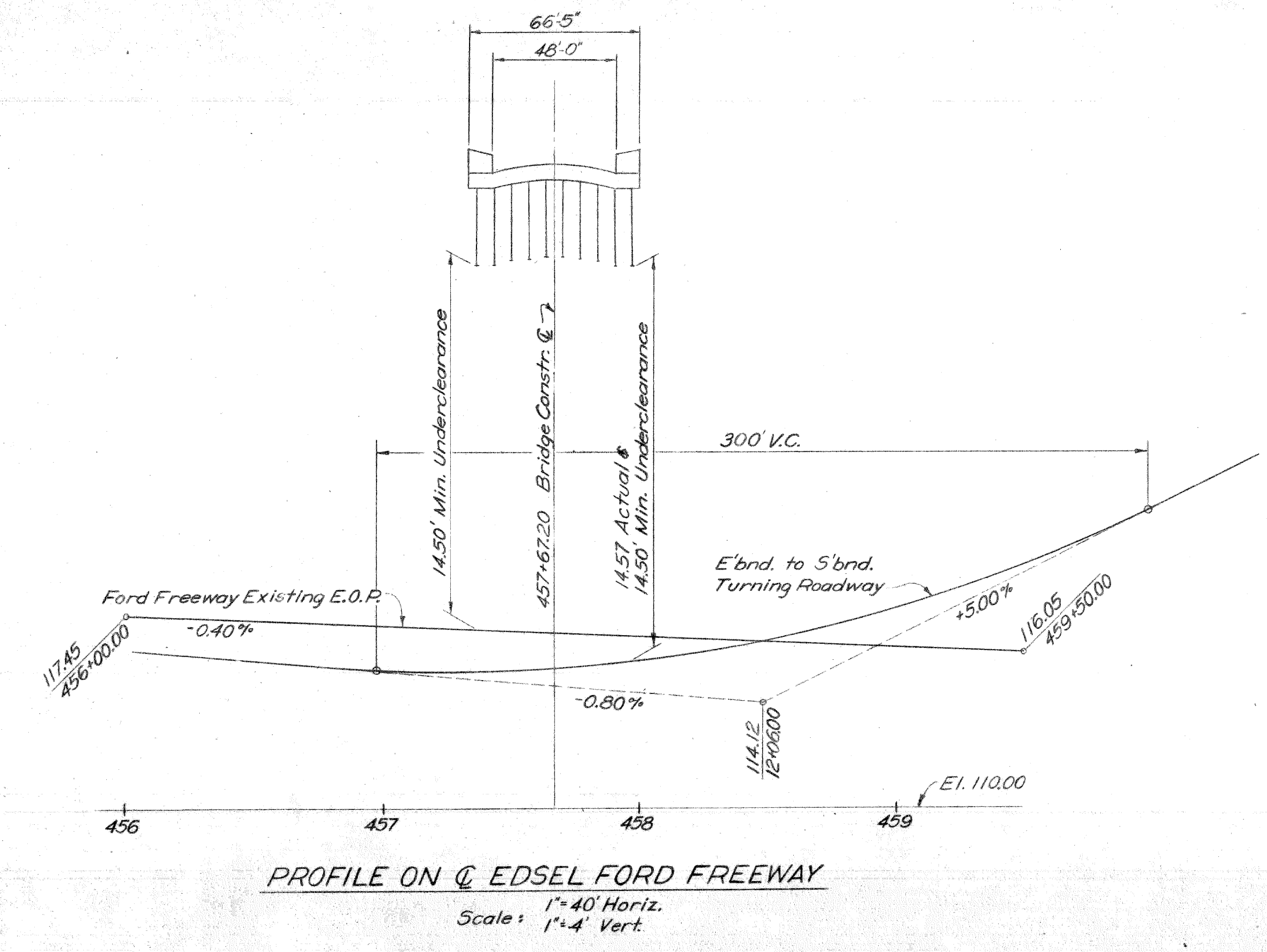
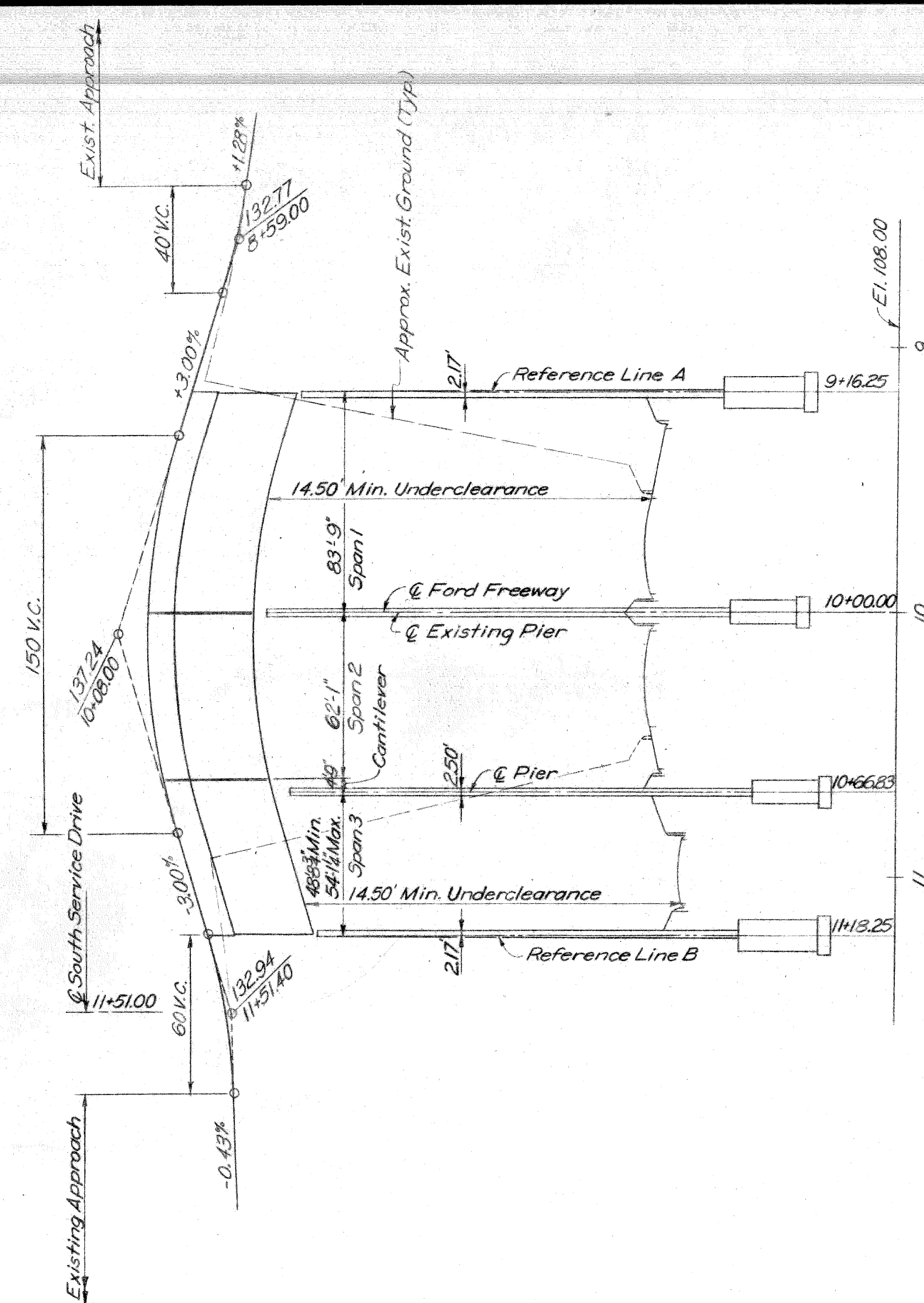
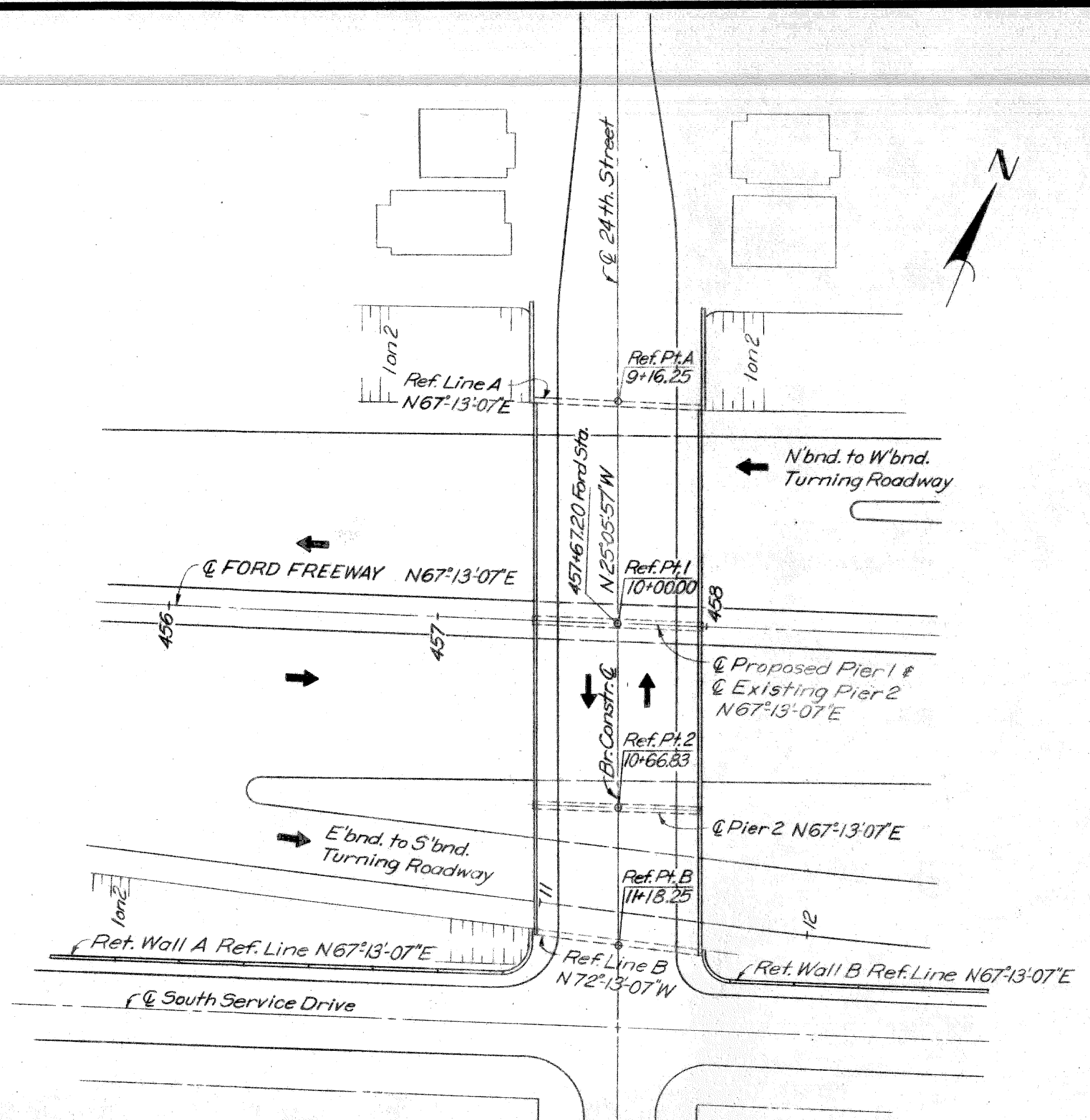
APPROVED: \_\_\_\_\_  
ACT. BRIDGE ENGINEER

B48 of 82-22-10









**CONSTRUCTION BENCH MARKS**

C.B.M.-33 Elev. 135.65 Arrow on Hydrant S.W. Corner 25th. & Ford S. Service Drive  
C.B.M.-34 Elev. 136.07 Arrow on Hydrant S.W. Corner 24th. & Ford S. Service Drive  
C.B.M.-53 Elev. 136.07 Arrow on Hydrant N.E. Corner 25th. & Ford N. Service Drive  
C.B.M.-55 Elev. 136.31 Arrow on Hydrant W. Side of 24th. 130' S. of Hudson

Elevations are referred to City of Detroit Datum. To obtain elevations based on U.S.L.S. Datum add 480.30

**Note:**  
For details of existing structure, see Edsel Ford Expressway crossing 24th St. in the City of Detroit B 48 of 82-22-10

PRELIMINARY PLAN A, DATED: 3/10/66

PLANS PREPARED BY  
**CITY OF DETROIT**  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: \_\_\_\_\_  
STRUCTURAL ENGINEER

JOB No.  
PW 990(2)

NO.	DESCRIPTION	DATE	BY

**MICHIGAN STATE HIGHWAY DEPARTMENT**

JEFFRIES FREEWAY  
REVISIONS TO 24TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

**GENERAL DRAWING**

APPROVED: \_\_\_\_\_  
DESIGN SUPERVISING ENGINEER

APPROVED: \_\_\_\_\_  
ENGINEER OF DESIGN - CONSULTANTS

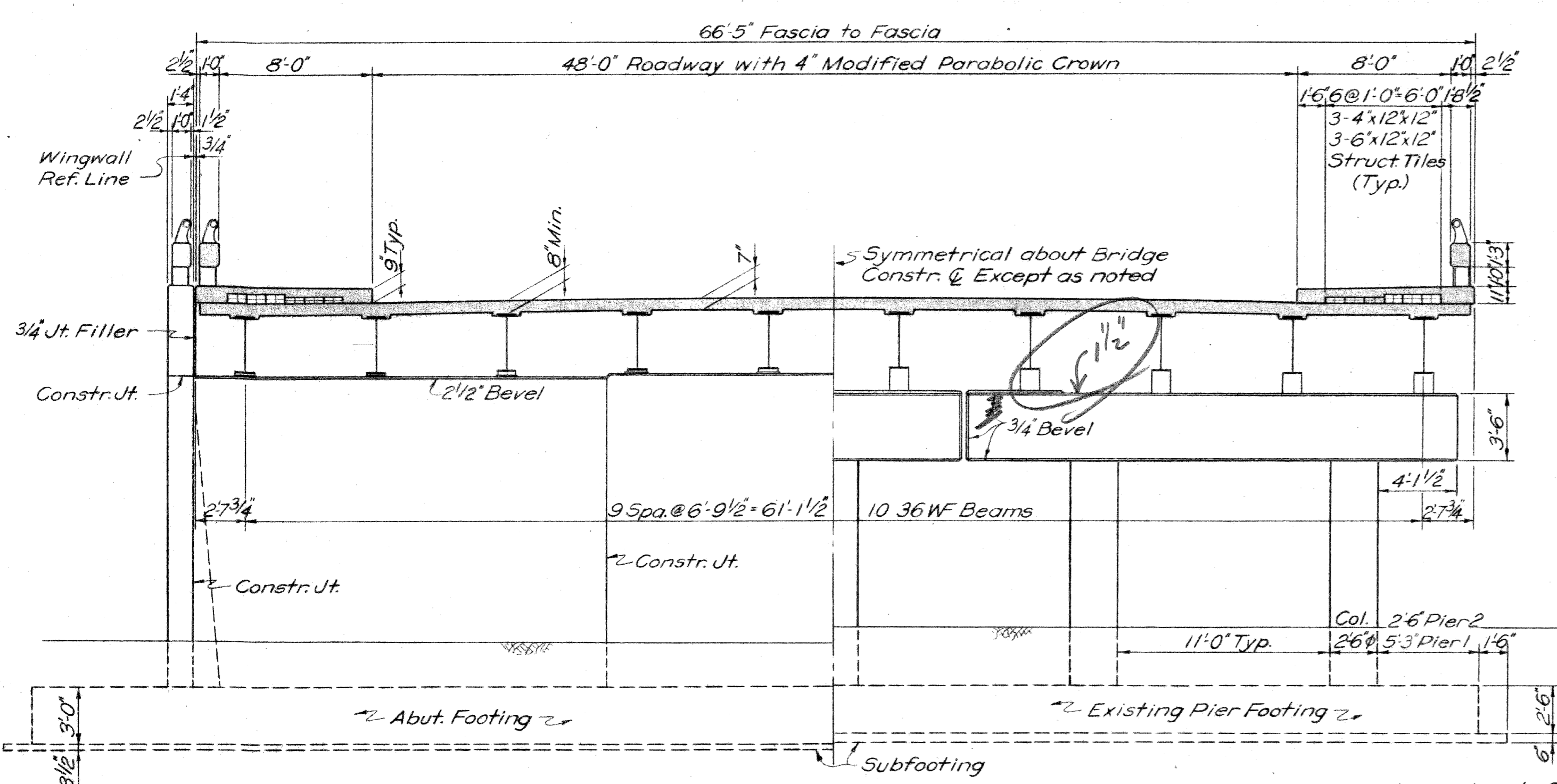
SHEET 2 OF 5

**S15 of 82023C**

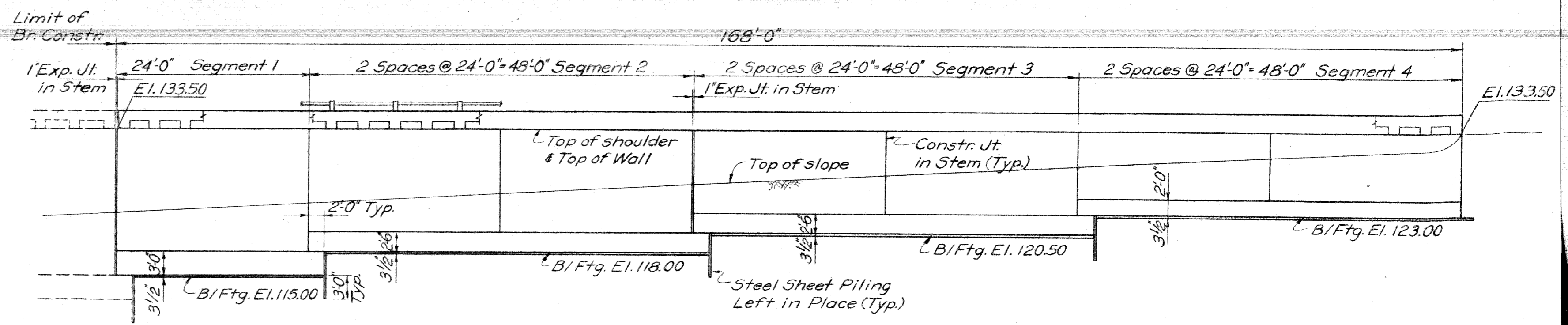




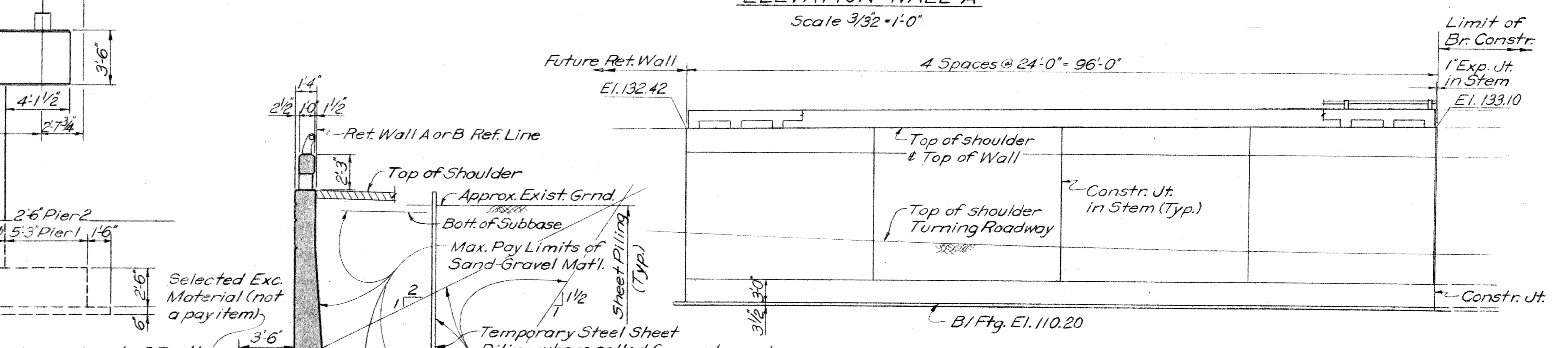




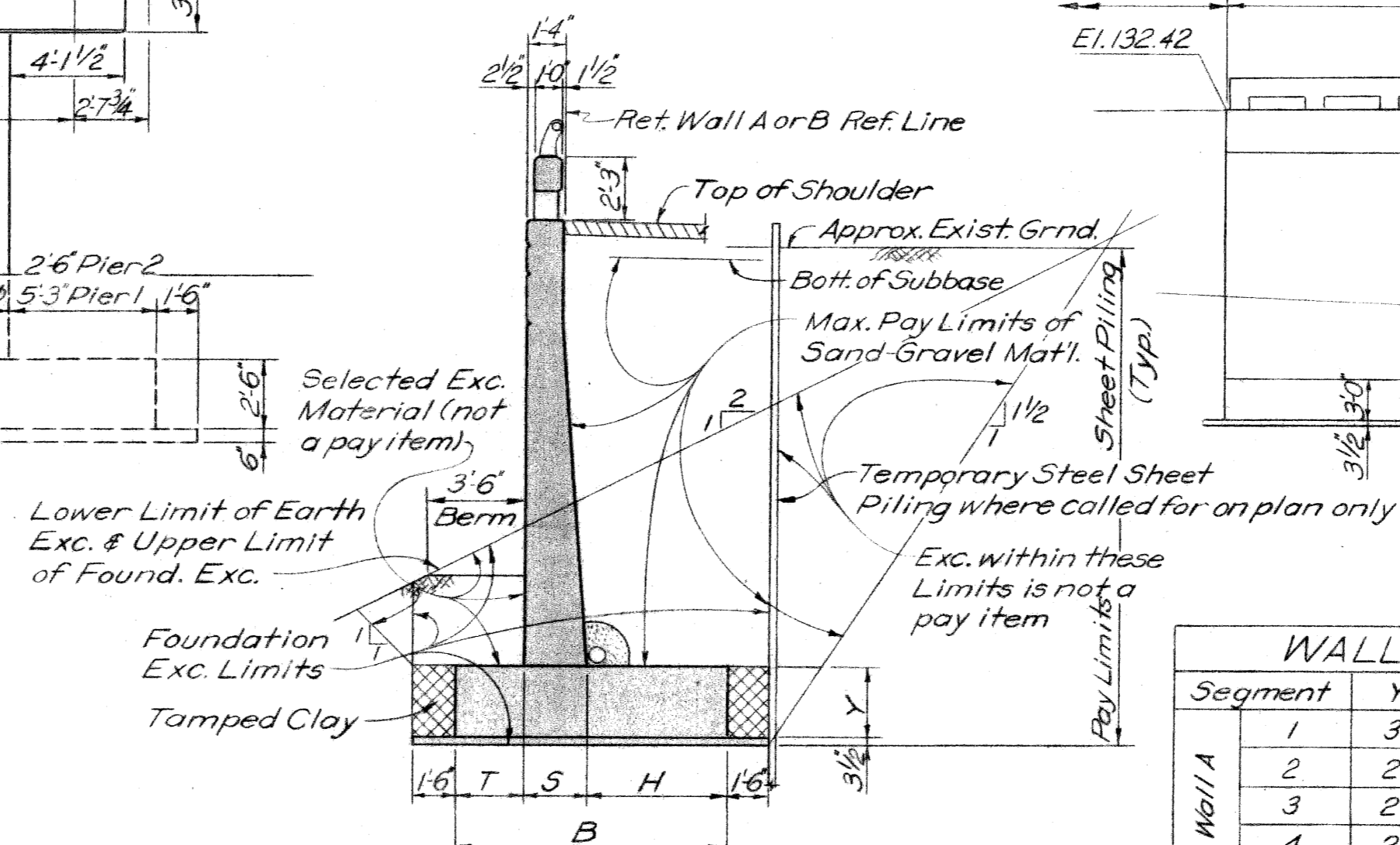
SECTION A-A  
Scale 3/16" = 1'-0"



ELEVATION WALL A  
Scale 3/32" = 1'-0"



ELEVATION WALL B  
Scale 3/32" = 1'-0"

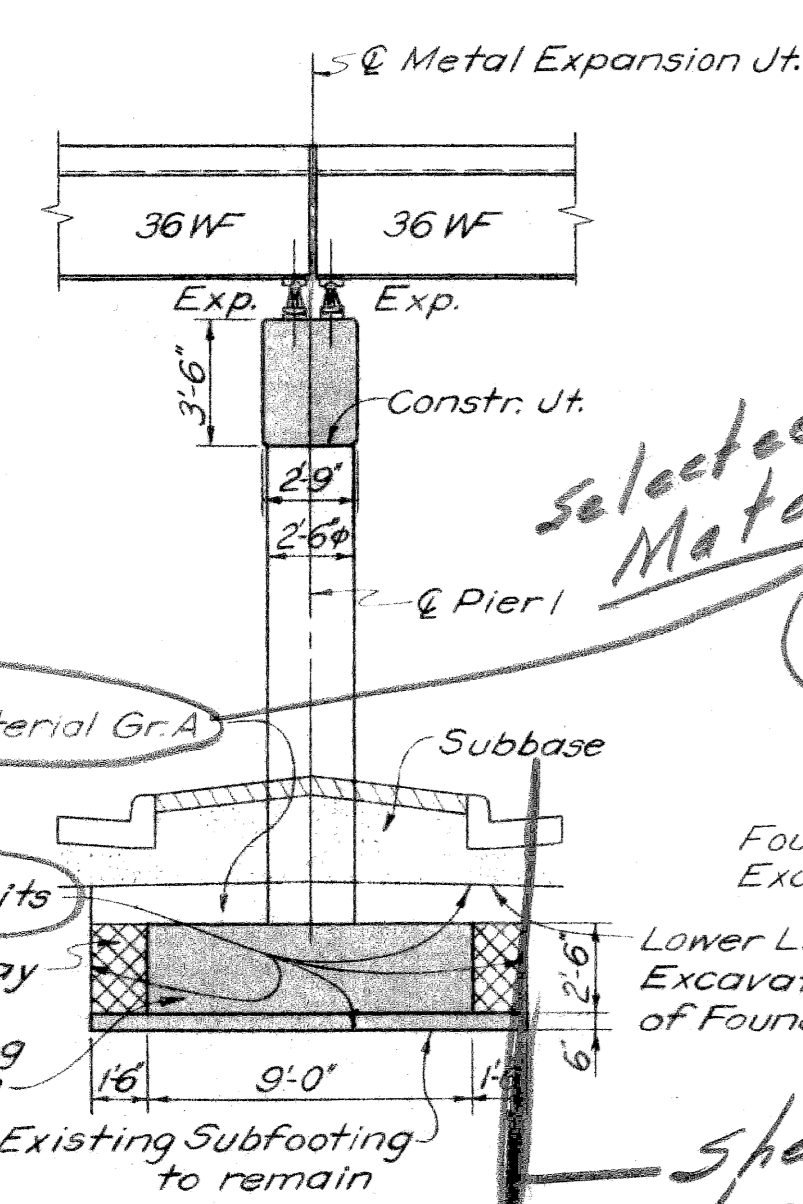


SECTION F-F  
Scale 3/16" = 1'-0"

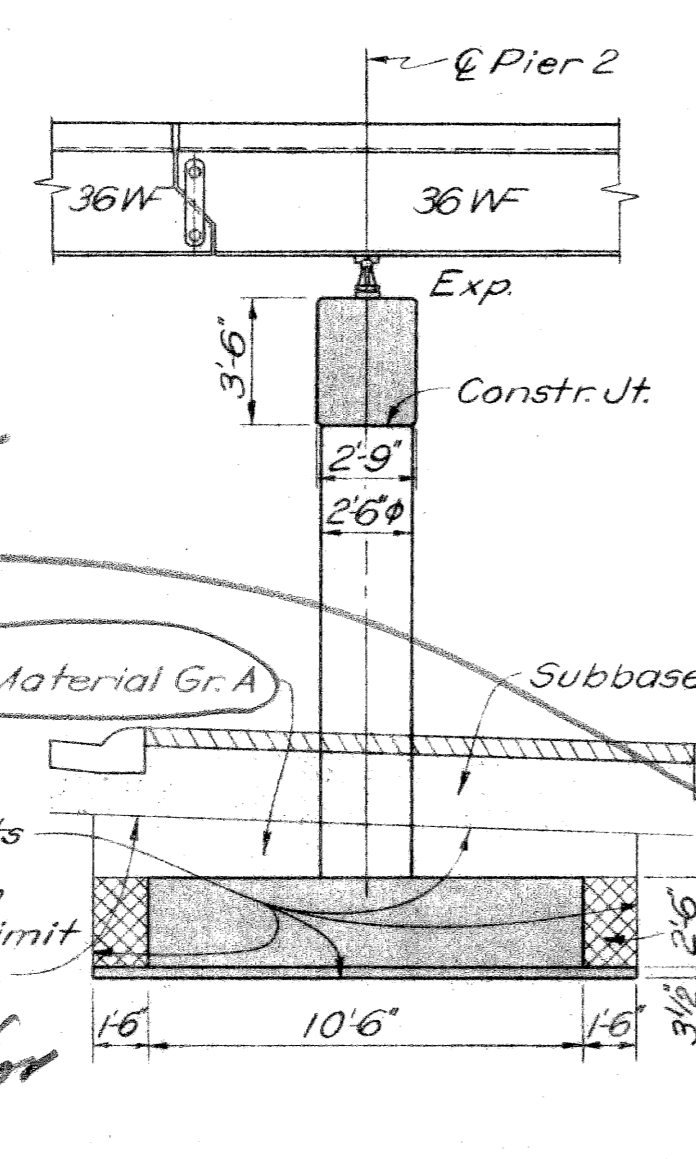
WALL DIMENSIONS						
Segment	Y	B	T	S	H	
Wall A	1	3'-0"	12'-0"	4'-0"	2'-6"	5'-6"
	2	2'-6"	9'-9"	2'-6"	2'-3"	5'-0"
	3	2'-6"	8'-0"	2'-6"	2'-0"	3'-6"
Wall B	1	2'-0"	6'-6"	2'-0"	2'-6"	2'-6"
	2	3'-0"	16'-0"	6'-6"	2'-9"	6'-9"
	3	2'-6"	10'-0"	3'-6"	2'-3"	4'-3"

**GENERAL NOTES:**  
 The design of this structure is based on M.S.H.D. Specifications for the Design of Highway Bridges, 1958 edition (H520-44). Loading: Live Load plus impd deflection = 1/1000 of span length and 1/350 of the cantilever arm.  
 The top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.  
 The contractor shall be responsible for providing adequate protection of bottoms and sides of footing excavations against damage by personnel, equipment and water.  
 C/R denotes: crown of roadway.  
 This design is based on a maximum foundation pressure of 3100 pounds per square foot based on D.L. + L.L. and a maximum average foundation pressure of 2400 pounds per square foot based on D.L. only.

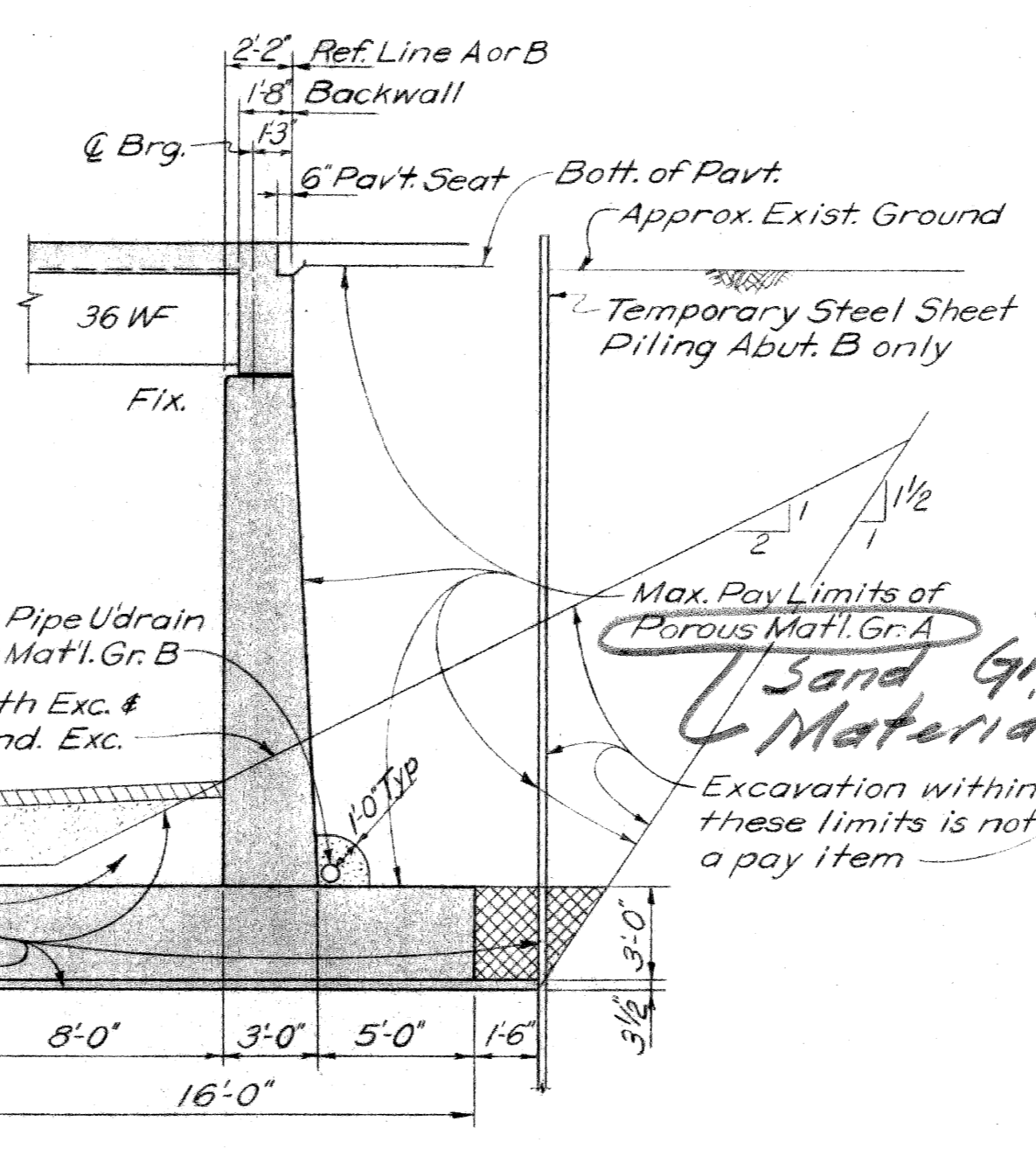
Excavation limits will be from top of existing footing to existing ground, or to lower limits of Earth Exc.



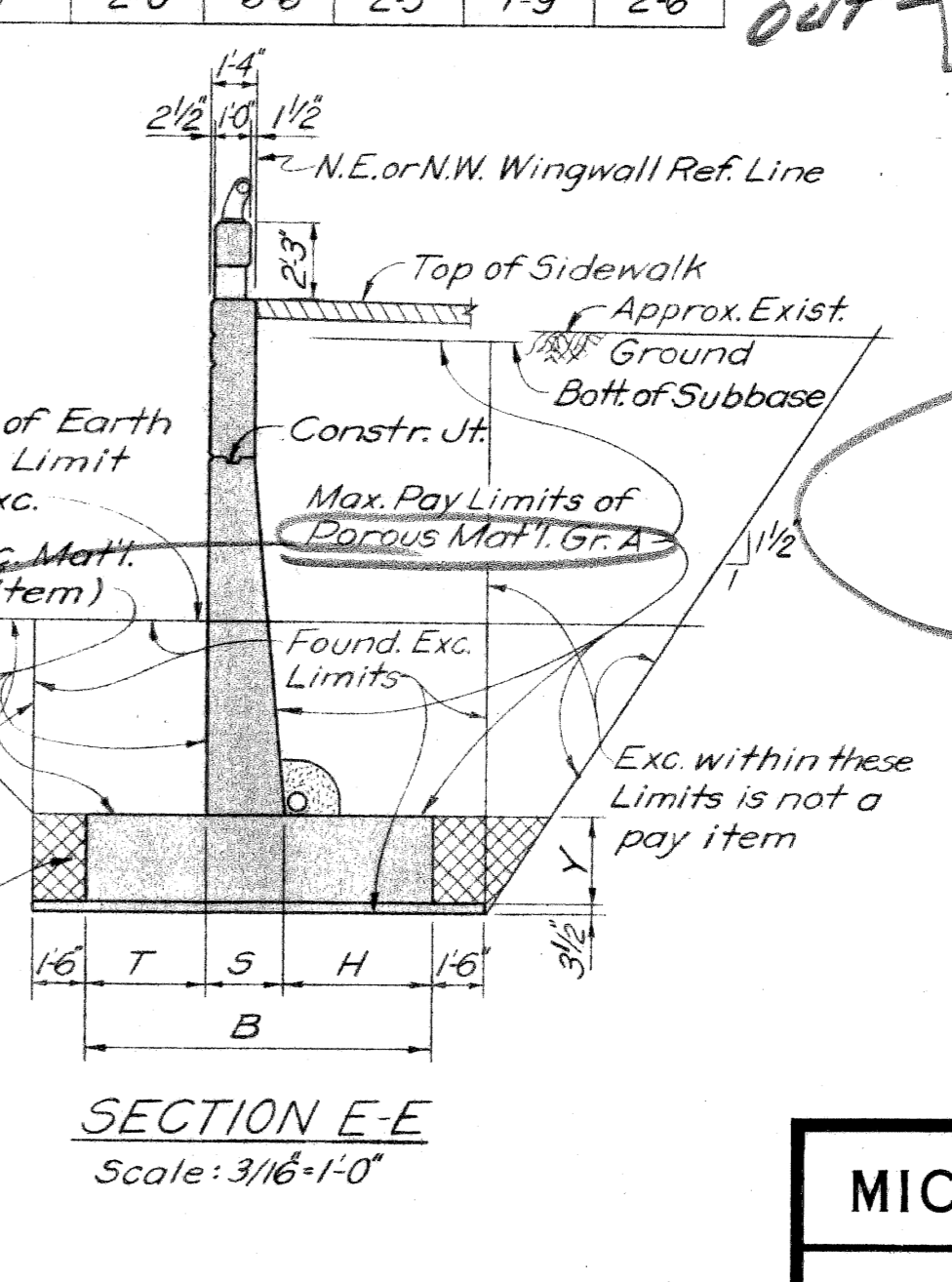
SECTION B-B  
Scale: 3/16" = 1'-0"



SECTION C-C  
Scale: 3/16" = 1'-0"



SECTION D-D  
Scale: 3/16" = 1'-0"



SECTION E-E  
Scale: 3/16" = 1'-0"

out - Traffic on 24th St. will be defouled. Traffic on the Ford Freeway will be maintained. See Const. stage 79.

PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF BRIDGE AND TOWNSHIP  
 JUNE 1966  
 APPROVED BY  
 STRUCTURAL ENGINEER  
 PW 9902

**MICHIGAN STATE HIGHWAY DEPARTMENT**

JEFFRIES FREEWAY  
 REVISIONS TO 24TH ST. BRIDGE  
 CROSSING THE FORD FREEWAY IN DETROIT

GENERAL PLAN OF STRUCTURE

NO.	DESCRIPTION	DATE	BY

APPROVED \_\_\_\_\_  
 DESIGN SUPERVISING ENGINEER

APPROVED \_\_\_\_\_  
 ENGINEER OF DESIGN - CONSULTANTS

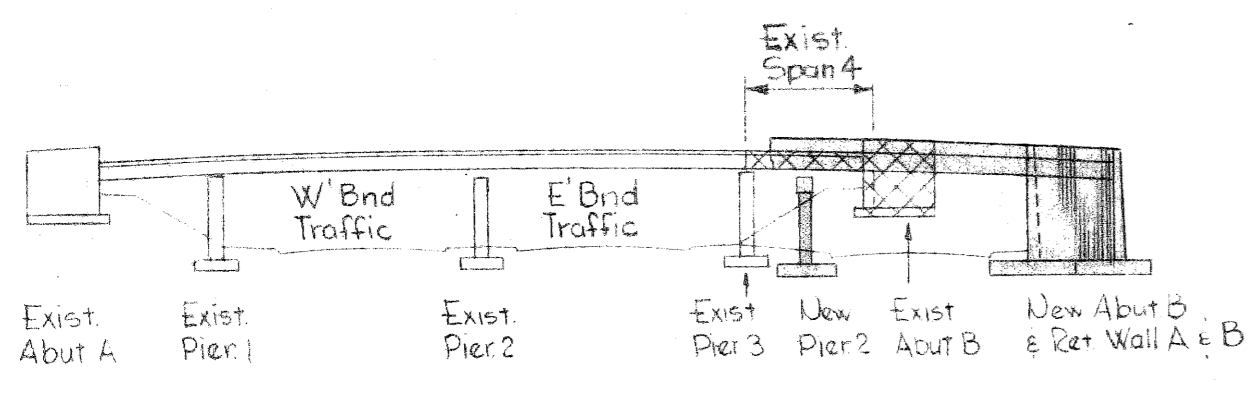
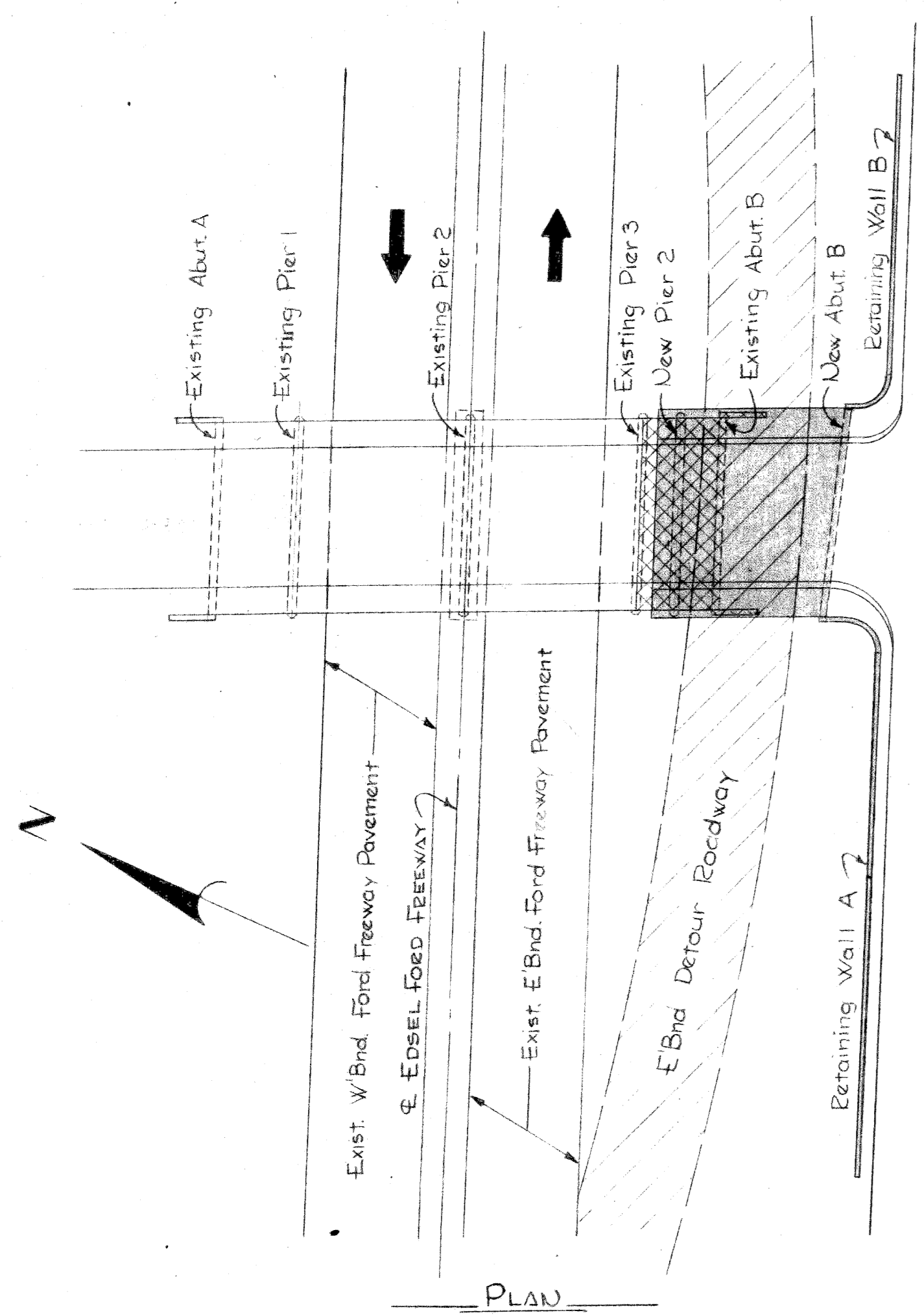
CITY OF DETROIT  
 SQUARE BOSS  
 DRAWN BY  
 TRACED BY  
 CHECKED BY  
 SHEET 4 OF 3

DATE: 3/10/66

PW 9902

S15 of 820232





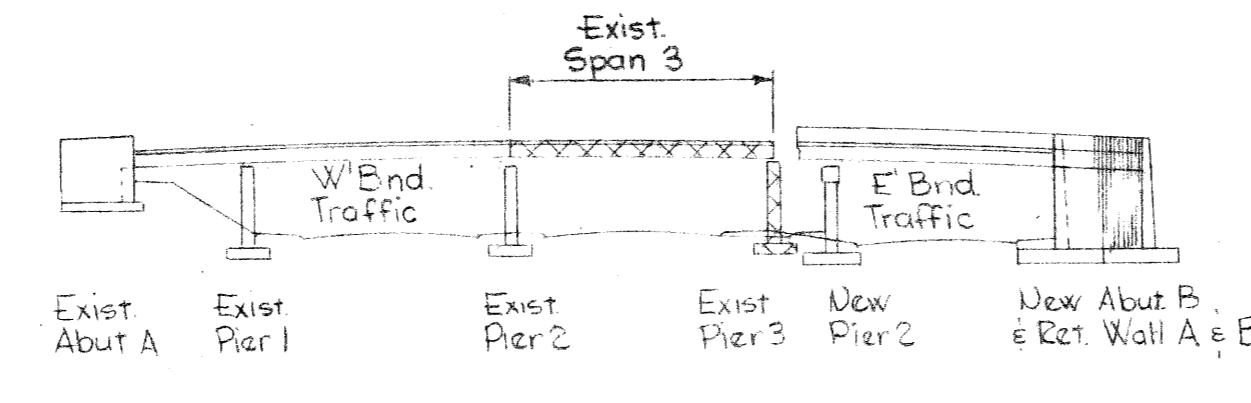
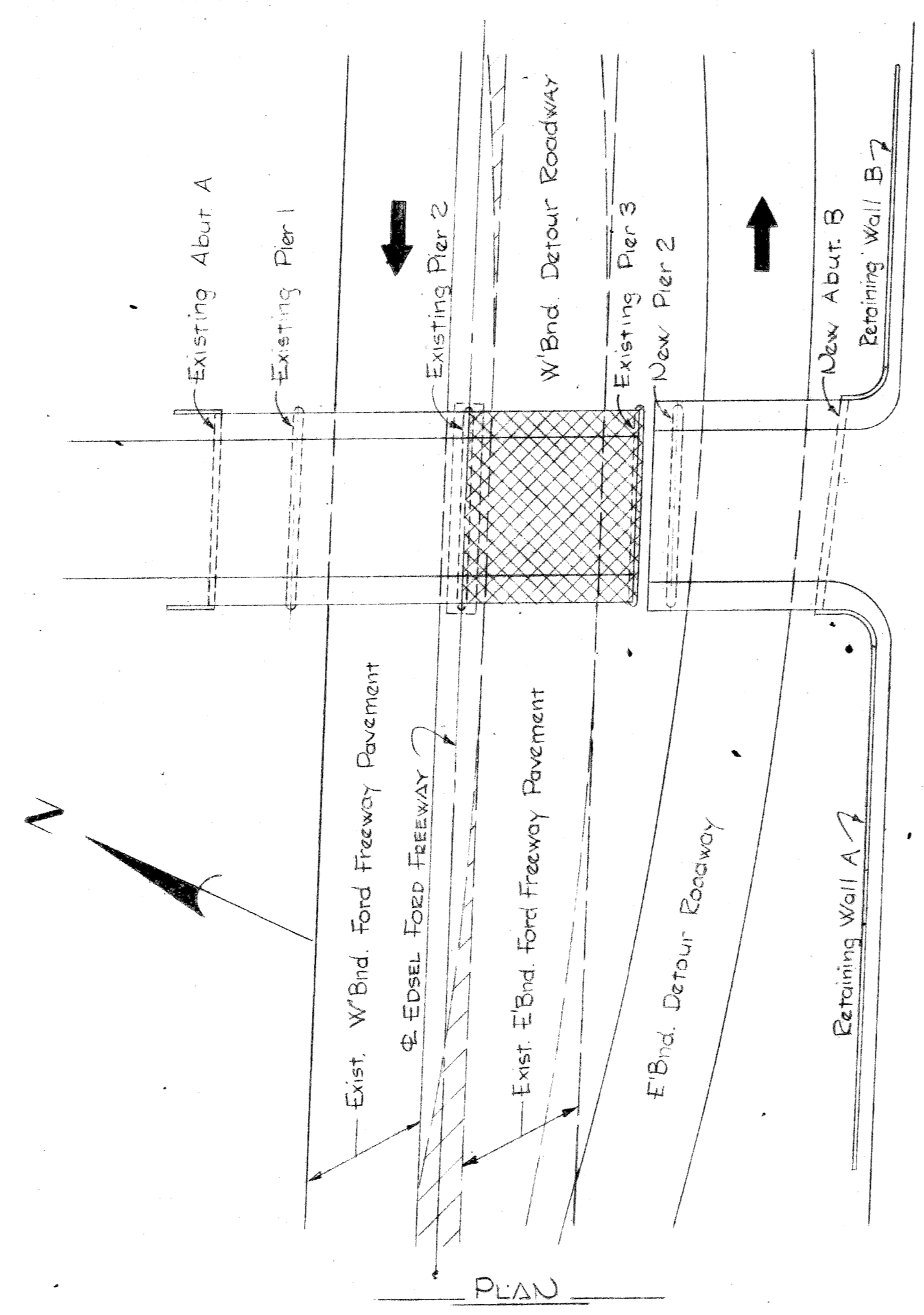
ELEVATION  
STAGE I

With traffic using existing Ford Freeway pavements, remove Span 4 and Abutment B of existing bridge.

Build Pier 2, Abutment A, Retaining Walls A & B and Span 3 (cantilevered) of the new bridge.

Build Eastbound Detour Roadway (Road Work - See Road Drawings)

*Structural steel only in span 3, slab in later stage.*

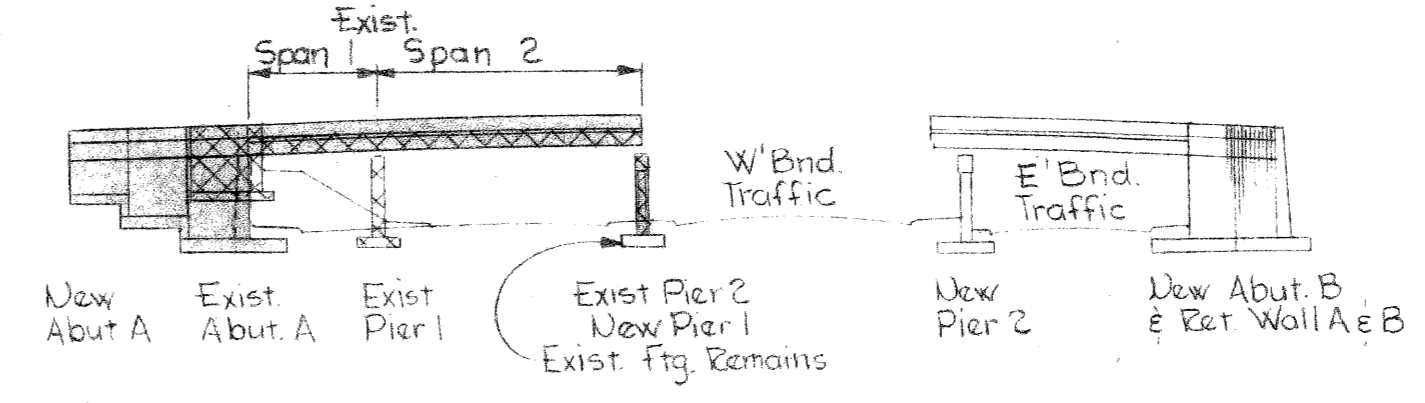
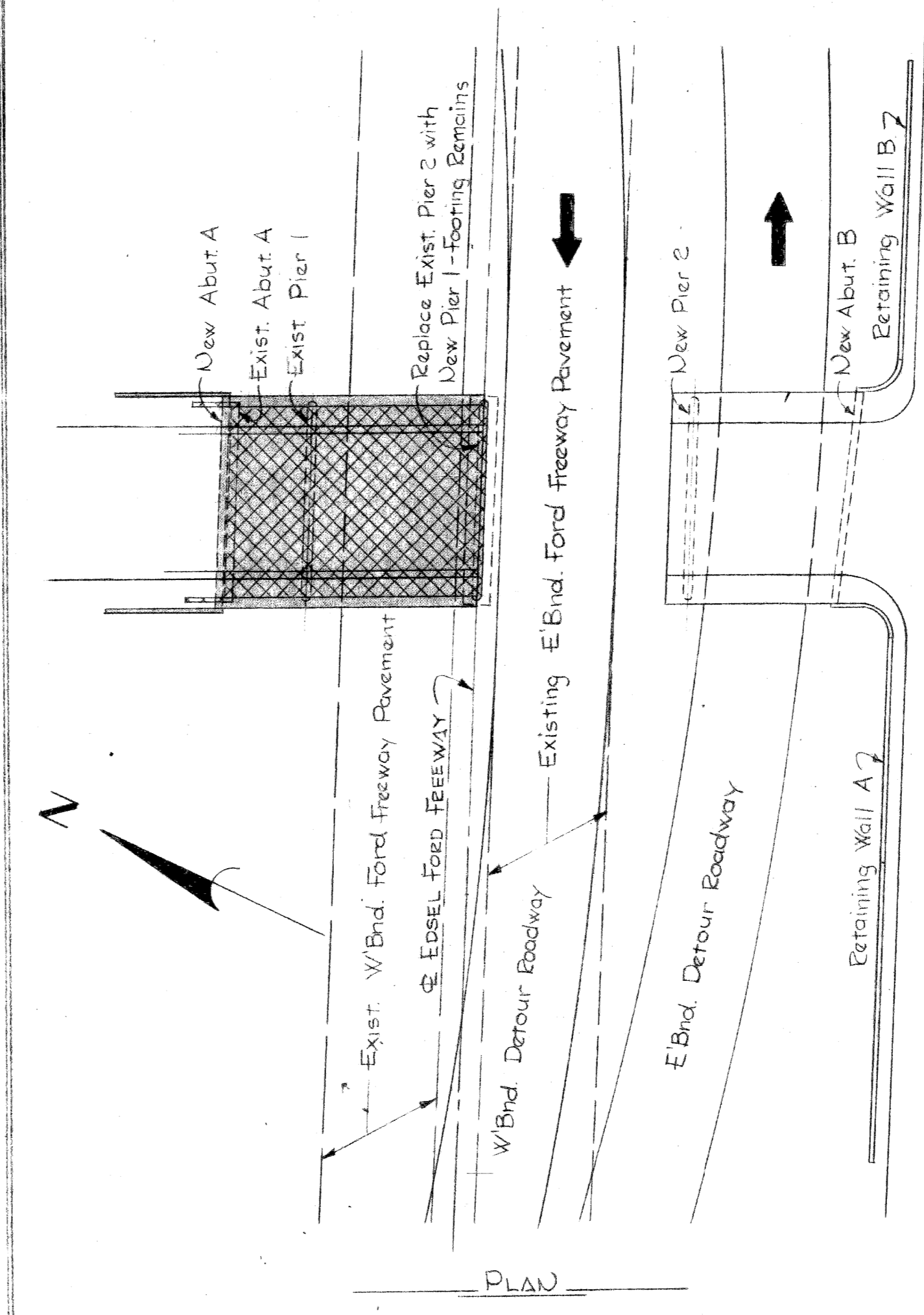


ELEVATION  
STAGE II

With eastbound traffic using the detour roadway, remove Span 3 and Pier 3 of the existing bridge.

Build Westbound Detour Roadway (Road Work - See Road Drawings)

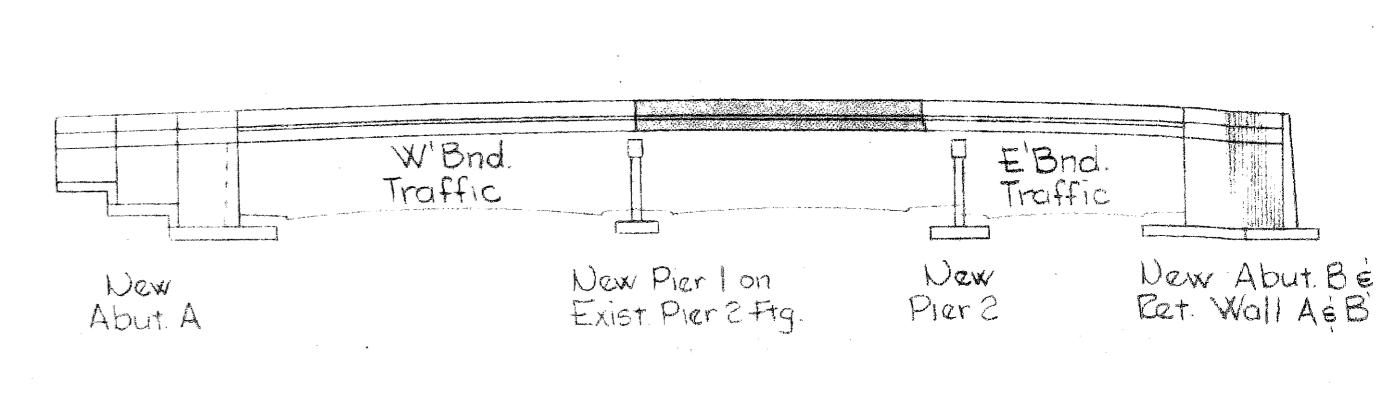
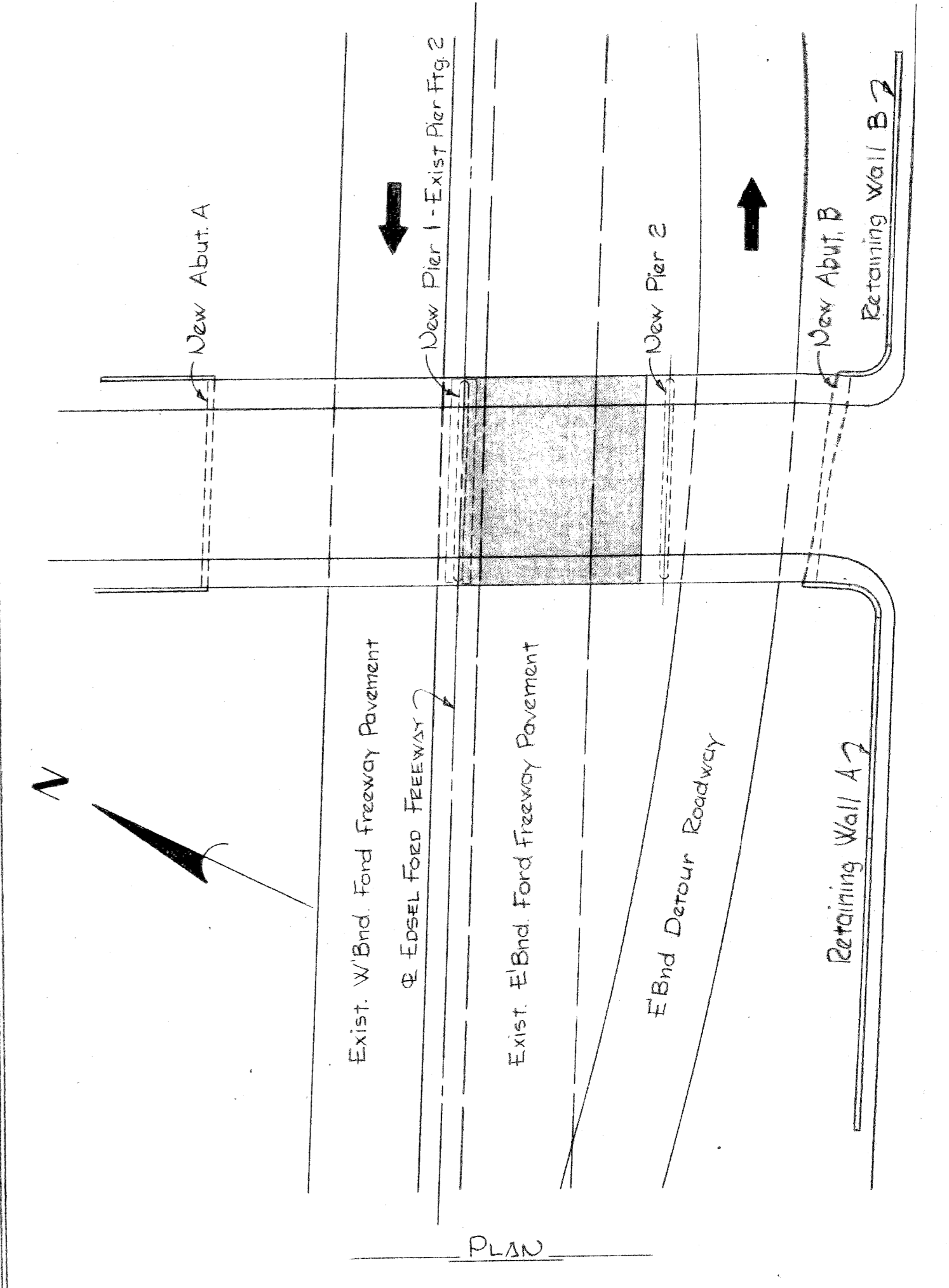
- LEGEND
- Existing Bridge to be Removed
  - Proposed Bridge Construction
  - Detour Construction (Road Work)



ELEVATION  
STAGE III

With westbound traffic using existing Eastbound Ford Freeway pavement, remove Spans 1 & 2, Abutment A and Piers 1 & 2 of the existing bridge, leaving the footing of Pier 2.

Build Abutment A, Pier 1 and Span 1 of the new bridge, using the existing Pier 2 footing for Pier 1.



ELEVATION  
STAGE IV

With westbound traffic using the existing Westbound Ford Freeway pavement, build new Span 2.

Restore traffic to normal operation on the Ford Freeway & complete span 3.

PRELIMINARY PLAN A, DATED: 3/10/66

DESIGNED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: \_\_\_\_\_  
STRUCTURAL ENGINEER

JOB NO.  
PW 990(2)

MICHIGAN STATE HIGHWAY DEPARTMENT

JEFFRIES FREEWAY  
REVISIONS TO 14TH ST. BRIDGE  
CROSSING THE FORD FREEWAY IN DETROIT

CONSTRUCTION SEQUENCE  
DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

NO. OF DETAIL: 266

SQUAD BOSS: STUEN 2-25-66

DRAWN BY: ALLENBERG 2-25-66

TRACED BY: -

CHECKED BY: STUEN 2-25-66

SHEET 5 of 5

S15 of 82023 C